

May 1, 2026

S260483

City of London

300 Dufferin Ave
London, ON N6A 4L9

Attn: Anmona Nair
Planner

**Re: Servicing Feasibility Study
Proposed 27-Storey Apartment (572 Units) – Phase 1
57-75 Wellington Road and 68 High Street, London, ON**

1. INTRODUCTION

This Servicing Feasibility Study (Study) has been prepared by Strik, Baldinelli, Moniz Ltd. (SBM) for Foundation Capital Development Fund I LP to address the servicing feasibility of the proposed 27-storey (572-unit) apartment building located at 57-75 Wellington Road and 68 High Street in London, Ontario.

The subject site is approximately 0.2096 hectares (ha) in size and abuts the Wellington Road Right-of-Way (ROW) to the east, the High Street ROW to the west, existing residential dwellings to the south, and existing commercial development to the north. The proposed building is 27-storeys tall with a total of 572 residential units for a building footprint area of 932.13 m². Please refer to the Site Plan & Statistics Drawing prepared by Goodplace Design dated April 27, 2026, provided separately (hereafter referred to as the Site Plan).

This Study is to determine the adequacy of the existing municipal services in support of a Zoning By-Law Amendment (ZBA) for the proposed development as specified in the Record of Pre-Application Consultation dated April 16, 2026 (hereafter referred to as pre-consultation comments).

Design requirements have been based on the City of London Design Specifications & Requirements Manual (DS&RM), updated 2026.

2. SANITARY SERVICING

Based on the pre-consultation comments, the municipal sanitary outlet for the subject lands is the future 525mmØ sanitary sewer in the Wellington Road ROW (part of Wellington Gateway project).

As-Built Drawing 15604 prepared by Cumming Cockburn Limited (CCL) dated November 1998, appended to this Study, there is an existing 675mmØ sanitary sewer in the High Street ROW fronting the subject site, and an existing sanitary service stub capped at the property line of 64 High Street (size/slope/elevation is not identified). It is proposed for the subject site to outlet sanitary flows to this existing 675mmØ sanitary sewer. The existing sanitary service will be investigated prior to construction and if required, it will be replaced (or abandoned) with a new service with adequate capacity to serve the development.

The proposed flows from the subject site are shown on the Sanitary Sewer Design sheet prepared by SBM, appended to this Study. The proposed development has a calculated population of 915 people (579 units at high-density residential density of 1.6 people per unit per DS&RM Section 3.8.1). The population of 915 people was then multiplied by the design usage of 230 L/cap/day (per DS&RM Section 3.8.1), the Harmon peaking factor 'M', and the development uncertainty factor of 1.1 which results in a peak sewage flow of 10.25 L/s. Accounting for the site infiltration allowance of 0.02 L/s/ha (per section 3.8 DS&RM) results in a combined peak sanitary flow of 10.27 L/s.

Sanitary sewer capacity analysis has not been reviewed by SBM and is considered outside the scope of this Study. If required by the City, a capacity analysis can be undertaken at a later stage.

3. STORM SERVICING

Based on As-Built Drawing 15604 prepared by CCL dated November 1998, appended to this Study, there is an existing capped storm PDC available to 64 High Street (size not identified). The existing storm service will be investigated prior to construction and if required, it will be replaced (or abandoned) with a new service with adequate capacity to serve the development. Based on As-Built Drawing 15607 prepared by CCL dated November 1998, appended to this Study, the subject site is partially tributary to the existing 450mm $\varnothing$ storm sewer in the High Street ROW at an allowable runoff coefficient (C-value) of 0.55. Based on IFT Drawing T22-248B-ST1, a portion of the subject site is tributary to the proposed 525mm $\varnothing$ storm sewer in the Wellington Street ROW at an allowable C-value of 0.90. It was noted in the pre-consultation comments that the existing 375mm $\varnothing$ storm sewer in the Wellington Road ROW will be removed as part of the future Wellington Gateway Ph2b work.

Pre-development conditions were obtained from the Surveyor's Real Property Report prepared by Kad Lanka Surveying Inc. dated March 4, 2026, appended to this Study. Under pre-development conditions the 0.2096 ha subject site is comprised of existing buildings (496.11 m²), concrete/asphalt area (131.10 m²), and landscaped/open space (1,469.74 m²) with a calculated C-value of 0.41.

Post-development calculations have been prepared based on the Site Plan. Under post-development conditions the 0.2096 ha subject site consists of building area (932.13 m²), concrete/asphalt area (684.63 m²), and landscaped/open space (480.19 m²) with a calculated C-value of 0.74.

Since the post-development C-value exceeds the allowable pre-development C-value, stormwater management quantity controls will be required to restrict post-development flows to the allowable pre-development rate for the 2-year through 100-year storm events. An erosion/sediment control plan, site servicing plan, and detailed site grading plan will be provided as part of the detailed design for Site Plan Approval (SPA).

In accordance with DS&RM Section 6.2.1, all discharge to the Thames River and major tributaries will be required to achieve a water quality target of 70% TSS removal. SWM quality treatment will be specified at the time of detailed design for SPA.

It was noted in the pre-consultation comments that overland flows from the external property at 161 Grand Avenue flow through the subject lands and shall be assessed as part of the site's SWM design for SPA.

4. WATER SERVICING

Based on the pre-consultation comments there is an existing 300mm $\varnothing$ CI watermain in the High Street ROW available to service the subject site. It was noted in the pre-consultation comments that connection to the existing 150mm $\varnothing$ CI watermain in the Wellington Road ROW will not be permitted.

Any existing water service connections to buildings which are to be demolished shall be abandoned in accordance with City Standards (cut and capped at main).

A pressure reducing valve may be required in accordance with DS&RM Section 7.9.2 due to site topography. To be confirmed at time of detailed design for SPA.

Since more than 300 units are proposed, a looped water service will be required in accordance with DS&RM Section 7.9.5. Alternatively, multiple water services may be provided to the building with each water service serving fewer than 300 units. It is proposed for the development to be serviced with connections to the existing 300mm $\varnothing$ watermain in the High Street ROW.

The design population was determined to be 915 people (579 units at high-density residential density of 1.6 people per unit) which results in an average day demand of 2.70 L/s (based on 255 L/cap/day per DS&RM). Multiplying the average day demand by the peaking factors of 3.5 and 7.8 results in a maximum day demand of 9.46 L/s and a maximum hour demand of 21.09 L/s, respectively.

It is anticipated that the proposed building will have a sprinkler system installed, and therefore fire-fighting demand was determined as per NFPA-13. The proposed building will have 'Light Hazard' (for residential occupancy). As shown on the Fire Fighting Demand (NFPA-13) calculations prepared by SBM, appended to this Study, the required fire flow + max day demand

was calculated to be 27 L/s (1608.60 L/min). Sizing and layout of proposed water system will be specified at time of detailed design for SPA.

As per the NFPA-13 and the OBC Part 3 requirements, the fire hydrant(s) shall be located 45m from the building's Siamese connection. A Siamese connection location has not been identified at this time, therefore the requirement for a new private fire hydrant will be confirmed during detailed design for Site Plan Approval.

5. LIMITATIONS

This Study was prepared by SBM for Foundation Capital Development Fund I LP 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.

6. CLOSURE

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

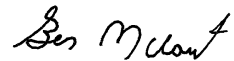
Respectfully submitted,

Strik, Baldinelli, Moniz Ltd.

Planning • Civil • Structural • Mechanical • Electrical



Ben Hyland, P.Eng.
Civil Team Lead, Eng IV
Associate I



Ben McCart, EIT
Civil Project Coordinator, Eng. Trn. III

List of Attachments

As-Built Drawing 15604 prepared by Cumming Cockburn Limited dated November 1998

Sanitary Sewer Design Sheet prepared by SBM

As-Built Drawing 15607 prepared by CCL dated November 1998

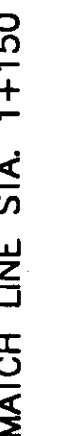
Surveyor's Real Property Report prepared by Kad Lanka Surveying Inc. dated March 4, 2026

Runoff Coefficient (C-value) Calculations prepared by SBM

Domestic Water Demand Calculations prepared by SBM

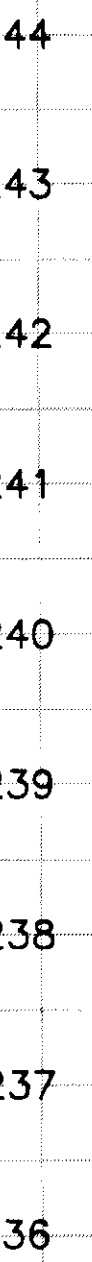
NFPA-13 Hazard Classes

Fire Fighting Demand (NFPA-13) Calculations prepared by SBM



REGISTERED PLAN No. 1

HIGH STREET



AS CONSTRUCTED NOTES										AS CONSTRUCTED SERVICES										COMPLETION										DESIGN										DLE										No.										REVISIONS										DATE										BY										CONSULTANT OR DIVISION										ENGINEER'S STAMP										CORPORATION OF THE CITY OF LONDON										SCALE										TITLE										PROJECT No.										SHEET No.										PLAN FILE No.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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sbm

STRIK
BALDINELLI
MONIZ

PLANNING • CIVIL • STRUCTURAL • MECHANICAL • ELECTRICAL

LONDON LOCATION

1599 Adelaide St. N., Unit 301
London, ON N5X 4E8
P: 519-471-6667

www.sbmltd.ca

KITCHENER LOCATION

132 Queen St. S. Unit 4
Kitchener, ON N2G 1V9
P: 519-725-8093

sbm@sbmltd.ca

Sanitary Service Design Sheet

City of London

Residential Population Densities

(A) Area Basis:

Low Density Residential (Single Family/Semi-Detached) = 30 Units/hectare @ 3 people/unit

Medium Density Residential (Multi-Family/Townhouse) = 75 Units/hectare @ 2.4 people/unt

High Density Residential (Apartment Buildings) = 150-300 Units/hectare @ 1.6 people/unit

(Design Parameters from Section 3.8 CofL DS&RM)

Design Parameters:

Daily Flow = 230 L/cap/day

Sewage Infiltration = 8640 L/ha/day

= 0.10 L/ha/sec

Harmon Formula = $M = (1 + 14 / (4 + P^{0.5}))$

Uncertainty Factor = 1.1

(Design Parameters from Section 3.8 CofL DS&RM)

Date: May 1, 2026

Job Number: S260483

Client: Foundation Capital

Project: 27-Storey Apartment Building

Location: 57-75 Wellington Rd and 68 High St, London

Designed By: BM

Reviewed By: BH

Location			Area		Population					Sewage 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)
Proposed Development	Site	PDC	* 0.2096	0.2096	* 572	1.6		915	915	3.82	0.02	10.25	10.27	0.013	** 1.00%	** 200	32.82	1.04
High Street ROW	SA5	SA6												0.013	*** 0.98%	*** 675	832.63	2.33

* Proposed development area and number of units obtained from Site Plan & Statistics Drawing prepared by Goodplace Design dated April 27, 2026

** Note: proposed sanitary connection size + slope will be determined at the time of detailed design for SPA

*** Outlet Size and Slope obtained from As-Built Drawing 15604 prepared by CCL dated November 1998



AS CONSTRUCTED NOTES	AS CONSTRUCTED SERVICES	COMPLETION		No.	REVISIONS	DATE	BY
1. SEE DRAWING No. G-1, D-1, AND C-41 FOR FURTHER DETAIL.	SANITARY AND STORM SEWERS	JULY 97	DESIGN	DLE	1	ISSUED FOR REVIEW	25/04/97 DLE
	SANITARY AND STORM MH'S AND PDC'S	SEPT 97	DRAWN	DLE	2	ISSUED FOR TENDER	15/05/97 DLE
2. SEWER DESIGN: TRANSITION WIDTH AS NOTED.	GRANULAR 'A'	SEPT 97	CHECKED	GDC	3	AS CONSTRUCTED	OCT 97 SJG
	GRANULAR 'B'	SEPT 97	APPROVED	JAH	4	REVISED AS PER TECHNICAL SERVICES	NOV. 98 DLE
3. REFERENCE B.M. No. 1992-35 EL. 240.790	CURB & GUTTER	SEPT 97	DATE	25/04/97			
	SIDEWALKS	SEPT 97					
	PAVING - HL8 BASE	OCT 97					
	PAVING - HL3 SURFACE	NOV. 98					

CONSULTANT OR OMSION

Cumming Cockburn Limited

Consulting Engineers, Planners and Environmental Scientists

350 OXFORD ST. WEST, SUITE 203, LONDON 472-7338



PROJECT No. 2287

BRANCH MANAGER

 CORPORATION OF THE CITY OF LONDON DIVISION HEAD CITY ENGINEER	SCALE 1:1000	TITLE HIGH STREET SANITARY SEWER REPLACEMENT	PROJECT No. ES-2330 610/H/67
		SEWER DESIGN SHEETS SANITARY AND STORM SEWERS	SHEET No. D-1 PLAN FILE No. 15,607

PART 2 (SURVEY REPORT)

1. REGISTERED EASEMENTS AND/OR RIGHT OF WAYS:

PART OF LOT 9, REGISTERED PLAN 33(4th) - SUBJECT TO AN EASEMENT AS IN INSTRUMENT No. ER1594194.

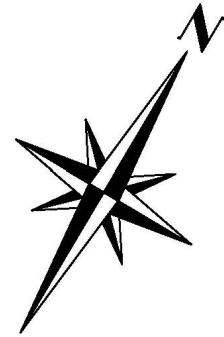
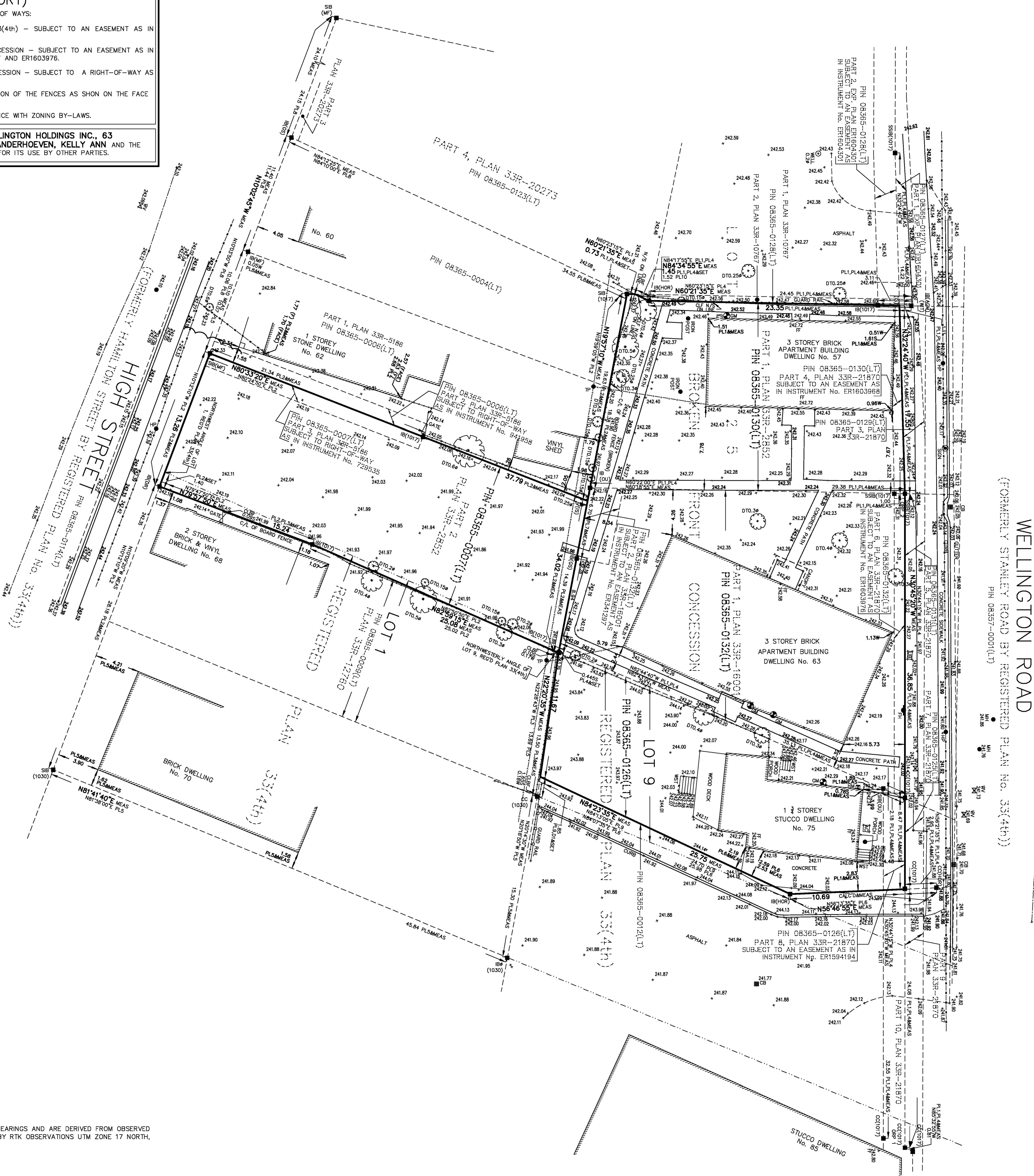
PART OF LOT 25, BROKEN FRONT CONCESSION - SUBJECT TO AN EASEMENT AS IN INSTRUMENT No.s ER1603968, ER341297 AND ER1603976.

PART OF LOT 25, BROKEN FRONT CONCESSION - SUBJECT TO A RIGHT-OF-WAY AS IN INSTRUMENT No. 729535.

2. ADDITIONAL COMMENTS: NOTE THE LOCATION OF THE FENCES AS SHOWN ON THE FACE OF THE PLAN.

3. THIS PLAN DOES NOT CERTIFY COMPLIANCE WITH ZONING BY-LAWS.

THIS REPORT WAS PREPARED FOR 57 WELLINGTON HOLDINGS INC., 63 WELLINGTON HOLDINGS INC., AND VANDERHOEVEN, KELLY ANN AND THE UNDERSIGNED ACCEPTS NO RESPONSIBILITY FOR ITS USE BY OTHER PARTIES.



SURVEYOR'S REAL PROPERTY REPORT
PART 1 - PLAN OF SURVEY OF
PART OF LOT 9
REGISTERED PLAN 33(4th) AND
PART OF LOT 25
BROKEN FRONT CONCESSION
(FORMERLY GEOGRAPHIC TOWNSHIP OF WESTMINSTER)
NOW IN THE
CITY OF LONDON

SCALE 1:200
4 3 2 1 0 4 8 12 16 20 METRES

KAD LANKA SURVEYING INC. O.L.S. ©

METRIC

DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

LEGEND

- DENOTES MONUMENT SET
- DENOTES MONUMENT FOUND
- SIB DENOTES STANDARD IRON BAR
- SSIB DENOTES SHORT STANDARD IRON BAR
- IB DENOTES IRON BAR
- CC DENOTES CUT CROSS
- (WT) DENOTES WITNESS
- PIN DENOTES PROPERTY IDENTIFIER NUMBER
- PL DENOTES REGISTERED PLAN 33(4th)
- PL1 DENOTES EXPROPRIATION PLAN ER1604301
- PL2 DENOTES PLAN 33R-2852
- PL3 DENOTES PLAN 33R-12760
- PL4 DENOTES PLAN 33R-21870
- PL5 DENOTES SURVEYOR'S REAL PROPERTY REPORT BY DAVID J. RATHBY O.L.S., DATED MAY 03, 1994.
- PL6 DENOTES BUILDING LOCATION SURVEY BY HOLSTEAD & REDMOND LIMITED O.L.S., DATED FEBRUARY 23, 1990.
- PL7 DENOTES PLAN 33R-16001
- PL8 DENOTES PLAN 33R-20273
- PL9 DENOTES PLAN OF SURVEY BY FARNCOMB & KIRKPATRICK LIMITED O.L.S., DATED MARCH 11, 1976.
- PL10 DENOTES PLAN 33R-20273
- CALC'D DENOTES CALCULATED FROM PL1 AND PL6
- ORP DENOTES OBSERVED REFERENCE POINT
- (1030) DENOTES FRANCOMB, KIRKPATRICK AND STIRLING, O.L.S.
- (1017) DENOTES CALLON DIETZ O.L.S.
- (GS) DENOTES GIBSON SURVEYING INC., O.L.S.
- (AGM) DENOTES ARCHIBALD, GRAY & MCKAY O.L.S.
- (DR) DENOTES DAVID RATHBY O.L.S.
- (OU) DENOTES ORIGIN UNKNOWN
- (IS) DENOTES CORNER SET BY INTERSECTION METHOD
- NAD DENOTES NORTH AMERICAN DATUM
- CSRS DENOTES CANADIAN SPATIAL REFERENCE SYSTEM
- UTM DENOTES UNIVERSAL TRANSVERSE MERCATOR
- FF DENOTES FINISHED SILL ELEVATION AT ENTRY
- GF DENOTES GARAGE SILL ELEVATION
- CLBF DENOTES CENTRELINE OF BOARD FENCE
- CLF DENOTES CHAIN LINK FENCE
- AC DENOTES AIR CONDITIONER
- WST DENOTES WOOD STEPS
- CST DENOTES CONCRETE STEPS
- (F) DENOTES FOUNDATION
- MH DENOTES MANHOLE
- CB DENOTES CATCH BASIN
- GM DENOTES GAS METER
- HM DENOTES HYDRO METER
- HP DENOTES HYDRO POLE
- TP DENOTES TELEPHONE POLE
- DT DENOTES DECIDUOUS TREE
- WV DENOTES WATER VALVE
- FH DENOTES FIRE HYDRANT
- DENOTES OVERHEAD WIRE
- DENOTES TELEPHONE WIRE
- DENOTES FENCE

BENCHMARK NOTE

ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE REFERRED TO THE BENCHMARK No. 01019886678 HAVING AN ELEVATION OF 254.820 METRES. (CGVD28:78)
LOCATION: 1.52 METRES IRON BAR WITH BRASS CAP, 10CM BELOW GRADE. IN THE CITY OF LONDON, ON ADELAIDE STREET, 40.7 METRES NORTH OF THE CENTRELINE OF OXFORD STREET, 14.4 METRES EAST OF THE CENTRELINE OF ADELAIDE STREET, 0.4 METRES NORTH OF THE NORTH EDGE OF A CONCRETE SIDEWALK TO A BROWN BRICK 7-11 STORE.

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:
1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.
2. THE SURVEY WAS COMPLETED ON THE 20th DAY OF February, 2026
DATE 04, MARCH, 2026
VINEETHA RATHNAYAKE
ONTARIO LAND SURVEYOR

THIS PLAN OF SURVEY RELATES TO AOLS PLAN SUBMISSION FORM NUMBER V-122019

	KAD LANKA SURVEYING INC. 54, BAYBERRY DRIVE TOTTENHAM, ON, L0G 1W0 PHONE: 905-493-4523 Email: vineetha@klsurvey.ca		
	DRAWN BY: V.R.	CHECKED BY: V.R.	CAD NUMBER: 2026-007-SRPR



JOB NUMBER:
2026-007

BEARING NOTE

BEARINGS SHOWN HEREON ARE GRID BEARINGS AND ARE DERIVED FROM OBSERVED REFERENCE POINTS (ORP) 1 AND 2 BY RTK OBSERVATIONS UTM ZONE 17 NORTH, NAD83 (CSRS)

Runoff Coefficient Calculations

DATE:	May 1, 2026
JOB No.:	S260483
Client:	Foundation Capital
Project:	27-Storey Apartment Building
Location:	57-75 Wellington Road and 68 High Street, London

PRE-DEVELOPMENT CONDITIONS

*PRE-DEVELOPMENT (EXISTING) CONDITIONS

	Area (m ²)	C	A*C
Total Area:	2,096.95		
Building Area:	496.11	0.9	446.499
Concrete/Asphalt:	131.10	0.9	117.99
Landscaped/Open:	1,469.74	0.2	293.948
Totals:	2,096.95		858.437
C _{eq} = Σ(A*C)/Σ(A) =	0.41		

**C_{allowable} = 0.55

**Per As-Built 15607 prepared by CCL dated Novemebr 1998, portion of Site is tributary to existing 450mmø storm sewer in the High Street ROW

POST-DEVELOPMENT CONDITIONS

***POST-DEVELOPMENT CONDITIONS

	Area (m ²)	C	A*C
Total Area:	2,096.95		
Building Area:	932.13	0.9	838.917
Concrete/Asphalt:	684.63	0.9	616.167
Landscaped/Open:	480.19	0.2	96.038
Totals:	2,096.95		1551.122
C _{eq} = Σ(A*C)/Σ(A) =	0.74		

*Pre-Development Conditions were obtained from the Surveyor's Real Property Report prepared by Kad Lanka Surveying Inc. dated March 4, 2026, provided separately

*** Post-Development Conditions were obtained from the Site Plan prepared by Goodplace Design dated April 27, 2026, provided separately

Since the post-development C-value exceeds the allowable pre-development C-value, SWM quantity controls will be required to attenuate post-development flows to the allowable pre-development levels for the 2-year through 100-year storm events. Detailed SWM quantity controls will be specified at the time of detailed design for Site Plan Approval (SPA).

DOMESTIC WATER DEMAND, VELOCITY AND TURNOVER CALCULATIONS

DATE: May 1, 2026
JOB No.: S260483

Client: Foundation Capital
Project: Proposed 27-Storey Apartment Building
Location: 57-75 Wellington Road and 68 High Street London, ON

DEMAND CALCULATION

Avg. Day Demand = 255 L/day/cap
Avg. Day Demand = 0.002951389 L/s/cap
Max. Day Peaking Factor = 3.5
Max. Hour Peaking Factor = 7.8
High Density Residential = 1.6 p/unit

	*Units	Population	Avg. Day (L/s)	Max. Hour (L/s)	Max. Day (L/s)
Medium Density Residential	572	916	2.70	21.09	9.46
Total		916	2.70	21.09	9.46

VELOCITY CALCULATION

**Diameter (mm)	Demand (L/s)	Velocity (m/s)
200	21.09	0.671
150	21.09	1.193

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 DS&RM.

* Number of Units obtained from Site Plan & Statistics Drawing prepared by Goodplace Design dated April 27, 2026

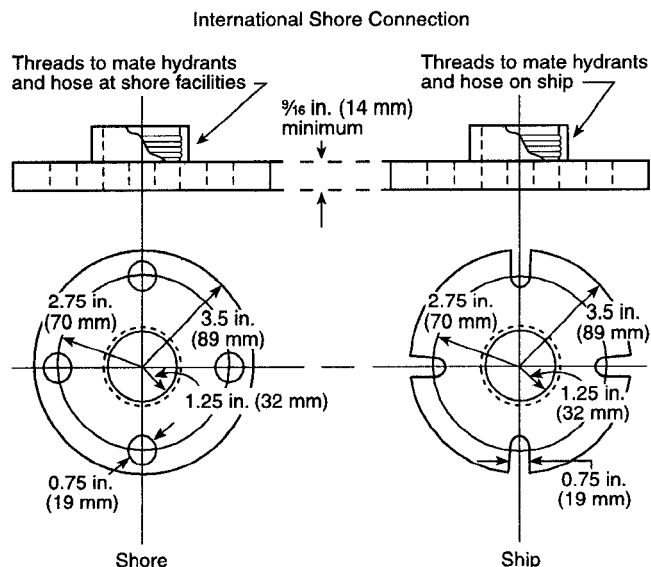
** Proposed Water Service sizing to be confirmed during detailed design for site plan approval

NFPA # 13 FLOW DEMAND REQUIREMENTS

HAZARD	SPRINKLER FLOW	HYDRANT ALLOWANCE	TOTAL FLOW
Light	175 GPM	100 GPM	275 GPM
Ordinary 1	250 GPM	250 GPM	500 GPM
Ordinary 2	350 GPM	250 GPM	600 GPM
Extra 1	750 GPM	500 GPM	1250 GPM
Extra 2	1000 GPM	500 GPM	1500 GPM

Warehousing Varies too much to come up with a generic water demand

The pressures range on each of these flows and would be generally be 35 PSI - 80 PSI Requirements,
but this information can't truly be given until final layouts and calculations are complete



Material: Any suitable for 150 psi (10.3 bar) service (shore)
 Flange surface: Flat face
 Gasket material: Any suitable for 150 psi (10.3 bar) service
 Bolts: Four 1/4 in. (16 mm) minimum diameter, 2 in. (51 mm) long, threaded to within 1 in. (25.4 mm) of bolt head
 Nuts: Four, to fit bolts
 Washers: Four, to fit bolts

Material: Brass or bronze suitable for 150 psi (10.3 bar) service (ship)

FIGURE A.3.10.7 International Shore Fire Connection.

A.5.1 Occupancy examples in the listings as shown in the various hazard classifications are intended to represent the norm for those occupancy types. Unusual or abnormal fuel loadings or combustible characteristics and susceptibility for changes in these characteristics, for a particular occupancy, are considerations that should be weighed in the selection and classification.

The light hazard classification is intended to encompass residential occupancies; however, this is not intended to preclude the use of listed residential sprinklers in residential occupancies or residential portions of other occupancies.

A.5.2 Light hazard occupancies include occupancies having uses and conditions similar to the following:

- Animal shelters
- Churches
- Clubs
- Eaves and overhangs, if of combustible construction with no combustibles beneath
- Educational
- Hospitals, including animal hospitals and veterinary facilities
- Institutional
- Kennels
- Libraries, except large stack rooms
- Museums
- Nursing or convalescent homes
- Offices, including data processing
- Residential**
- Restaurant seating areas

'Light-Hazard Occupancy'

Theaters and auditoriums, excluding stages and prosceniums
 Unused attics

Note that it is not the committee's intent to automatically equate library bookshelves with ordinary hazard occupancies or with library stacks. Typical library bookshelves of approximately 8 ft (2.4 m) in height, containing books stored vertically on end, held in place in close association with each other, with aisles wider than 30 in. (762 mm) can be considered to be light hazard occupancies. Similarly, library stack areas, which are more akin to shelf storage or record storage, as defined in NFPA 232, *Standard for the Protection of Records*, should be considered to be ordinary hazard occupancies.

A.5.3 For purposes of these definitions, Class I, Class II, Class III, and Class IV commodities would be considered to have moderate rates of heat release, while Group A plastics would be considered to have high rates of heat release. Stockpiles are considered to include display merchandise (mercantile) and arrangements of combustibles ancillary to operations within the occupancy as opposed to dedicated storage areas where the fire loading is generally more severe.

A.5.3.1 Ordinary hazard occupancies (Group 1) include occupancies having uses and conditions similar to the following:

- Automobile parking and showrooms
- Bakeries
- Beverage manufacturing
- Canneries
- Dairy products manufacturing and processing
- Electronic plants
- Glass and glass products manufacturing
- Laundries
- Restaurant service areas

A.5.3.2 Ordinary hazard occupancies (Group 2) include occupancies having uses and conditions similar to the following:

- Agricultural facilities
- Barns and stables
- Cereal mills
- Chemical plants — ordinary
- Confectionery products
- Distilleries
- Dry cleaners
- Exterior loading docks

Note that exterior loading docks only used for loading and unloading of ordinary combustibles should be classified as OH2. For the handling of flammable and combustible liquids, hazardous materials, or where utilized for storage, exterior loading docks and all interior loading docks should be protected based upon the actual occupancy and the materials handled on the dock, as if the materials were actually stored in that configuration.

- Feed mills
- Horse stables
- Leather goods manufacturing
- Libraries — large stack room areas
- Machine shops
- Metal working
- Mercantile
- Paper and pulp mills
- Paper process plants
- Piers and wharves

Plastics fabrication, including blow molding, extruding, and machining; excluding operations using combustible hydraulic fluids

Post offices

Printing and publishing

Racetrack stable/kennel areas, including those stable/kennel areas, barns, and associated buildings at state, county, and local fairgrounds

Repair garages

Resin application area

Stages

Textile manufacturing

Tire manufacturing

Tobacco products manufacturing

Wood machining

Wood product assembly

*— A.5.4.1 Extra hazard occupancies (Group 1) include occupancies having uses and conditions similar to the following:

Aircraft hangars (except as governed by NFPA 409, *Standard on Aircraft Hangars*)

Combustible hydraulic fluid use areas

Die casting

Metal extruding

Plywood and particleboard manufacturing

Printing [using inks having flash points below 100°F (38°C)]

Rubber reclaiming, compounding, drying, milling, vulcanizing

Saw mills

Textile picking, opening, blending, garnetting, or carding, combining of cotton, synthetics, wool shoddy, or burlap

Upholstering with plastic foams

*— A.5.4.2 Extra hazard occupancies (Group 2) include occupancies having uses and conditions similar to the following:

Asphalt saturating

Flammable liquids spraying

Flow coating

Manufactured home or modular building assemblies (where finished enclosure is present and has combustible interiors)

Open oil quenching

Plastics manufacturing

Solvent cleaning

Varnish and paint dipping

A.5.5 Other NFPA standards contain design criteria for fire control or fire suppression (see Section 5.5 and Chapter 2). While these can form the basis of design criteria, this standard describes the methods of design, installation, fabrication, calculation, and evaluation of water supplies that should be used for the specific design of the system.

Other NFPA standards contain sprinkler system design criteria for fire control or suppression of specific hazards. This information has been either referenced or copied into Chapter 21 using NFPA's extract policy.

A.5.6 Specification of the type, amount, and arrangement of combustibles for any commodity classification is essentially an attempt to define the potential fire severity, based on its burning characteristics, so the fire can be successfully controlled by the prescribed sprinkler protection for the commodity class. In actual storage situations, however, many storage arrays do not fit

precisely into one of the fundamental classifications; therefore, the user needs to make judgments after comparing each classification to the existing storage conditions. Storage arrays consist of thousands of products, which make it impossible to specify all the acceptable variations for any class. As an alternative, a variety of common products are classified in this annex based on judgment, loss experience, and fire test results.

Table A.5.6 provides examples of commodities not addressed by the classifications in Section 5.6.

Table A.5.6.3 is an alphabetized list of commodities with corresponding classifications.

Table A.5.6.3.1 through Table A.5.6.3.4 and Table A.5.6.4.1 provide examples of commodities within a specific class.

Table A.5.6 Examples of Commodities Not Addressed by the Classifications in Section 5.6

Boat Storage
- Stored on racks
Boxes, Crates
- Empty, wood slatted*
Lighters (butane)
- Loose in large containers (Level 3 aerosol)
Storage Container
- Large container storage of household goods

*Should be treated as idle pallets.

A.5.6.1.1 Commodity classification is governed by the types and amounts of materials (e.g., metal, paper, wood, plastics) that are a part of a product and its primary packaging. However, in a storage or warehousing situation, classification is also affected by such factors as the primary storage or shipping container material, the amount of air space, and the location of the more hazardous materials within the container. For example, a Group A plastic product enclosed in a five- or six-sided metal container can be considered Class II, while a ceramic product heavily wrapped in tissue paper and placed in a corrugated carton could be Class III.

A.5.6.2.2 For example, Class III will become Class IV, and Class IV will become a cartoned unexpanded Group A plastic commodity.

A.5.6.2.3 For example, Class II will become Class IV, and Class III and Class IV will become a cartoned unexpanded Group A plastic commodity.

A.5.6.3 See Table A.5.6.3.

Table A.5.6.3 Alphabetized Listing of Commodity Classes

Commodity	Commodity Class
Aerosols	
Cartoned or uncartoned — Level 1	Class III
Alcoholic Beverages	
Cartoned or uncartoned	
- Up to 20 percent alcohol in metal, glass, or ceramic containers	Class I
- Up to 20 percent alcohol in wood containers	Class II





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Fire-Fighting Flow NFPA#13

Date:	May 1, 2026
Job No:	S260483

Client:	Foundation Capital
Project:	Proposed 27-Storey Apartment Building
Location:	57-75 Wellington Road and 68 High Street London, ON

Table 1. NFPA#13 Flow Demand Requirements

Hazard	Sprinkler Flow (USGPM)	Hydrant Allowance (USGPM)	Total Flow (USGPM)
Light	175	100	275
Ordinary 1	250	250	500
Ordinary 2	350	250	600
Extra 1	750	500	1250
Extra 2	1000	500	1500

(Phase 3 Apartment Building)

Required Supply Flow Rate, USGPM (Table 1) =	275	USGPM
Required Supply Flow Rate, L/min =	1041	L/min

Maximum Day Demand, L/min =	9.46	L/s (Refer to attached Domestic Water Demand calculation)
	567.6	L/min

Required Supply Fire Flow + Maximum Day Demand, L/min =	1608.60	L/min
	27	L/s

Table 1. Water Velocity Calculation

*Diameter (mm)	Demand (L/min)	Velocity (m/s)
200	1608.60	0.853
150	1608.60	1.517

Maximum allowable velocity of 3.0 m/s for treated water (pumped) as per MECP Design Guidelines for Drinking-Water Systems

* Proposed water service sizing to be confirmed during detailed design for site plan approval