

June 3, 2024

SBM-23-1200

City of London
300 Dufferin Ave
London, ON N6A 4L9

Attn: Chloe Cernanec

**Re: Servicing Feasibility Study
Proposed 77 Unit Apartment Building
80 & 82 Baseline Road West, London, ON**

1. INTRODUCTION

This Servicing Feasibility Study (Study) has been prepared by Strik, Baldinelli, Moniz Ltd. (SBM) for Mozes Properties to address the servicing feasibility for the proposed 77-unit apartment building located at 80 & 82 Base Line Road in London, Ontario.

The subject site is approximately 0.196 ha in size. The property borders Base Line Road West to the south, and residential properties to the west, north and east. The proposed building is 8 storeys with a total of 77 residential units for a building footprint area of 434.8 m². Please refer to the proposed Site Plan prepared by Patrick David Trottier Architect, April 8th, 2024, attached to this Study.

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 December 6, 2023.

Design requirements have been based on the City of London Design Specifications & Requirements Manual (DS&RM), updated March 2022.

2. SANITARY SERVICING

As per the City's as-constructed drawing No. 23,378, appended to this Study, the site is tributary to the 250mm diameter sanitary sewer on Base Line Road West, and there are two existing sanitary PDCs shown (size/slope/elevation not identified). The existing 250mm sanitary sewers flow west on Base Line Road West.

The sanitary peak flow for the proposed development was calculated by multiplying the proposed 77 units by the high-density zoning of 1.6 people/unit as per the DS&RM Section 3.8.1. The resulting population of about 123 people was then multiplied by the design usage of 230 L/cap/day as per Section 8.3.1 of the DS&RM, the Harmon peaking factor "M", and the development uncertainty factor of 1.1. The resulting sewage flow of 1.52 L/s was then added to the site infiltration allowance of 0.02 L/s/ha for a resulting peak sanitary flow of 1.54 L/s. Please refer to the Sanitary Sewer Design Sheet provided in Appendix B. A new sanitary PDC will be designed as part of Site Plan Approval.

A sanitary sewer capacity analysis was conducted up to the end of the 250mm diameter sewer on Base Line Road West (MH WT213) to demonstrate adequate surplus capacity with the addition of the proposed development. The analysis included all contributing upstream residential and commercial areas on McGregor Avenue and Base Line Road West. In addition to the design parameters indicated above, a commercial density of 100 people per hectare was used, and a low residential density of 3 people per unit was used for a potential future single-family home at 86 Base Line Road. Per zoning designations, 330 units/hectare was used for 30 Base Line Road West, and 150 units/hectare was used for 90 & 98 Base Line Road West. Tributary areas for McGregor Avenue were gathered from a Sanitary Drainage Area Plan by A.M. Spriet & Associates (year

1970). However, with only an outdated sanitary area map available for Base Line Road West, SBM gathered tributary areas on Base Line Road West from Bluebeam, based on service connections visible on as-built drawings.

With the addition of the sanitary flows generated from the subject site, there were no existing sanitary sewers found to be over capacity. Downstream of the subject site, the sewer from MH WT1804 to WT213 was found to have 78% excess capacity.

Please see the sanitary sewer design sheets and sanitary drainage areas attached in **Appendix B** for more details, as well as As-Builts in **Appendix A**.

3. STORM SERVICING

Pre-development conditions were gathered based on the City of London's GIS imagery and record drawings. Under pre-development conditions, the 0.196 ha site is comprised of two single-family homes, two gravel driveways, and landscaped/open space. As per the City's record drawing No. 23378, there are existing 900mm storm sewers just north of the road centerline, flowing west. There does not appear to be any existing storm PDC's.

Runoff coefficient calculations have been prepared based on the Site Plan by David Trottier Architect, which result in a C factor of 0.46 for pre-development (existing) conditions, and 0.67 for post-development conditions. Please note these runoff coefficients are estimates based on areas from GIS imagery and will be refined during Site Plan Approval (SPA) process once a topographic survey is completed. Stormwater management quantity controls will be implemented to restrict post-development flows to the pre-development rate. Existing overland flows appear to be generally directed to the south towards Base Line Road West. Stormwater quality controls will be implemented during detailed design for Site Plan Approval.

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.

4. WATER SERVICING

As requested in the Record of Pre-Application Consultation, water modelling was undertaken to ensure capacity in the 200mm diameter existing main to service the proposed development. The EPANET model extends from the 300mm diameter DI watermain located at 101 Baseline Rd W to McGregor Avenue and includes all existing customers fed off the watermain. Nodes were specified based on the locations of existing water services, and demands were generally calculated based on the number of high, medium, or low residential units. However, some population densities were based on the specific zoning designation, which were confirmed with the City of London. Node elevations were determined using as-built drawings. The reservoir HGL of 301.8 was provided by the City of London Water Operations.

Three (3) scenarios were modelled:

1. The maximum hourly flow results show that the minimum pressure in the system is 40.48m (57.6 psi), which is greater than the 275 kPa (40 psi), required by the DS&RM. The maximum velocity during the maximum hour demand is 0.69 m/s, which is less than the maximum velocity of 1.5 m/s, required by the DS&RM.
2. A maximum day plus fire flow scenario was undertaken considering the fire demand of the subject site. The results show that the lowest pressure is 40.49m (57.58 psi), which is higher than the minimum required pressure of 140 kPa (20psi) during maximum day demand plus fire flow as per DS&RM. The maximum velocity in the system during the maximum day plus firefighting demand is 0.63 m/s which is less than the maximum velocity of 2.4 m/s required per DS&RM section 7.3.6.
3. A maximum day flow plus fire flow demand scenario was undertaken assuming 76 L/s at the existing fire hydrants located in front of Mun No. 80 and No. 30 Base Line Rd West, which connect directly to a 200mm watermain. The results show that the lowest pressure is 40.13 m (57.1 psi), which is higher than minimum required pressure of 140 kPa (20psi) during maximum day demand plus fire flow as per DS&RM. The maximum velocity in the system during the maximum day plus firefighting demand is 1.18 m/s which is less than the maximum velocity of 2.4 m/s required as per DS&RM section 7.3.6.

The proposed building will include a sprinkler system; therefore, the fire-fighting demand was determined as per NFPA-13. The proposed building will have 'Light Occupancy' (for residential occupancy) (refer to Annex A - Section A.5.3.1 of the NFPA-13). As per the attached NFPA-13 Flow Demand Requirements Table and the attached fire flow calculations, the required

flow (including both the sprinkler flow and hydrant allowance) is estimated to be 105 L/s. When combined with the maximum day demand, the resulting demand is 106.3 L/s.

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. There is one existing fire hydrant on the north side of Base Line Road West, in front of municipal #80. Although a Siamese connection location has not been specified at this time, a new private fire hydrant will likely not be required. However, this will be confirmed during the detailed phase of design.

5. SUMMARY

The existing sewers and watermains have the capacity needed to service the 77-unit apartment building at 80 & 82 Baseline Road West, London. During detailed design and SPA, stormwater management quantity and quality controls will be implemented due to the increased imperviousness of the site.

6. LIMITATIONS

This Study was prepared by SBM for 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.

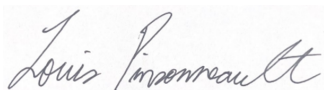
7. CLOSURE

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



Louis Pinsonneault, P.Eng.
Civil Project Lead, Eng II



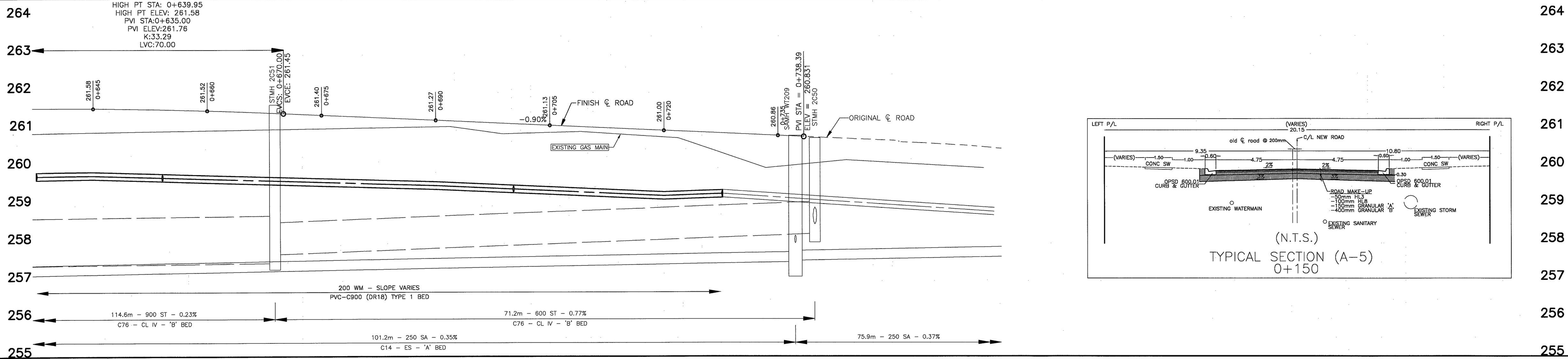
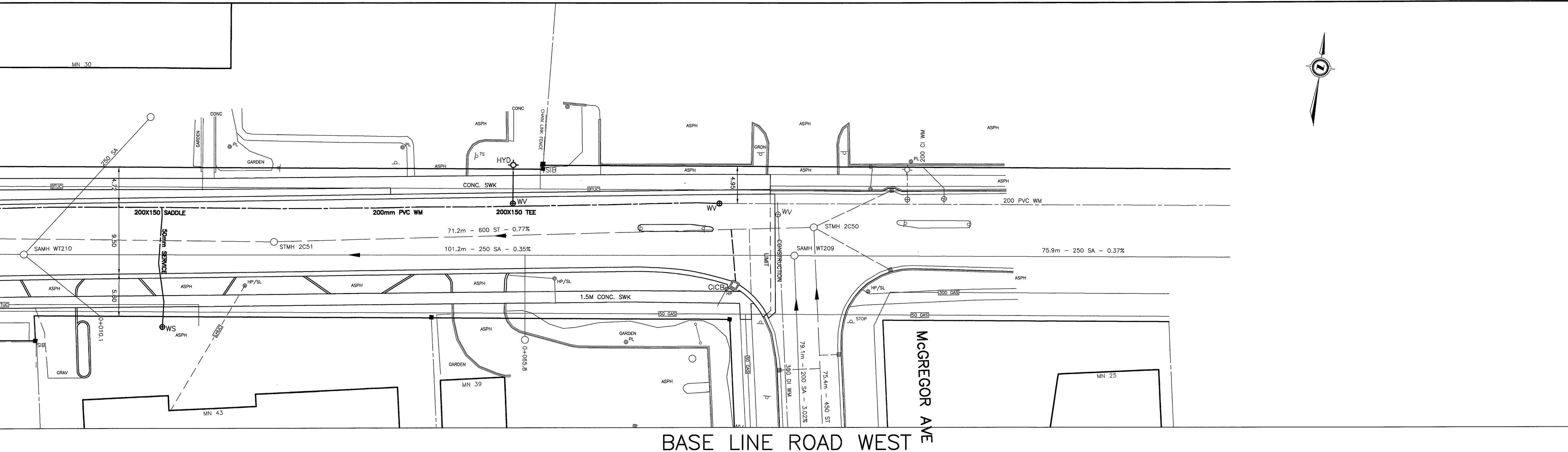

Ryan Frouws, P.Eng.
Civil Team Lead, Eng III

List of Appendices

- Appendix A: City of London Record Drawing 23378 prepared by the Corporation of the City of London, dated June 2012
City of London Record Drawing 1985 prepared by Damas and Smith Limited, dated September 10, 1965
City of London Record Drawing 3952 prepared by Haas Ruebsam Limited, dated August 1972
- Appendix B: Sanitary Sewer Design Sheet by SBM
- Appendix C: Runoff Coefficient Calculations by SBM
- Appendix D: Hydrant Flow test No. 21-13 and No. 12-02 prepared by CofL dated May 18, 2021 and January 23, 2012
Domestic Water Demand & EPANET Node Demand Calculations by SBM
Fire-Fighting Flow Demand Calculations (NFPA#13) by SBM
NFPA13 Guidelines
EPANET Model Layout Max Hour Demand prepared by SBM
EPANET Model Layout Max Day + Fire Flow Demand (Site) prepared by SBM
EPANET Model Layout Max Day + Fire Flow Demand (FH) prepared by SBM

APPENDIX A

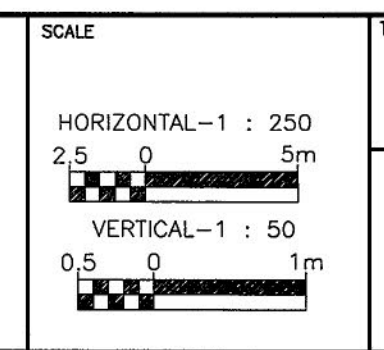
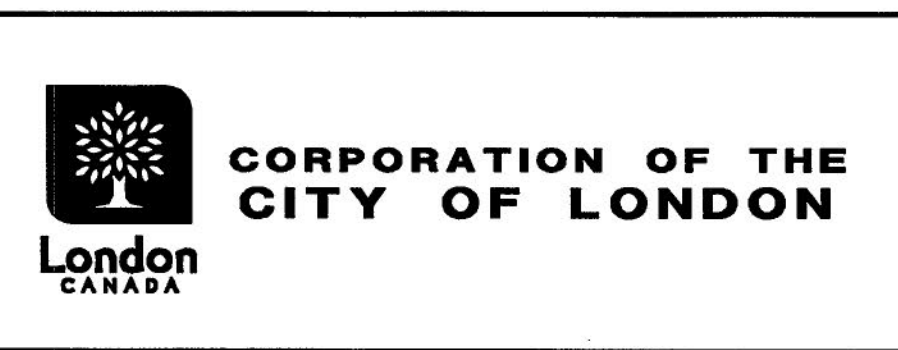
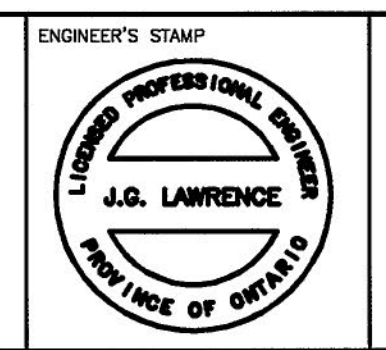
City of London Record Drawing 18586 prepared by the Corporation of the City of London, dated March 2006
City of London Record Drawing 23380 prepared by the Corporation of the City of London, dated June 2012
City of London Record Drawing 23379 prepared by the Corporation of the City of London, dated June 2012
City of London Record Drawing 23378 prepared by the Corporation of the City of London, dated June 2012
City of London Record Drawing 23377 prepared by the Corporation of the City of London, dated June 2012
City of London Record Drawing 2718 prepared by A.M. Spriet & Associates, dated July 1970
Concept Plan prepared by Patrick David Trottier Architect, dated April 8th, 2024



STATION	0+637	0+645	0+660	0+675	0+690	0+705	0+720	0+727.7	0+735	0+750	0+765	0+780	0+795	0+810	0+825
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CONC SW															
CONC SW															

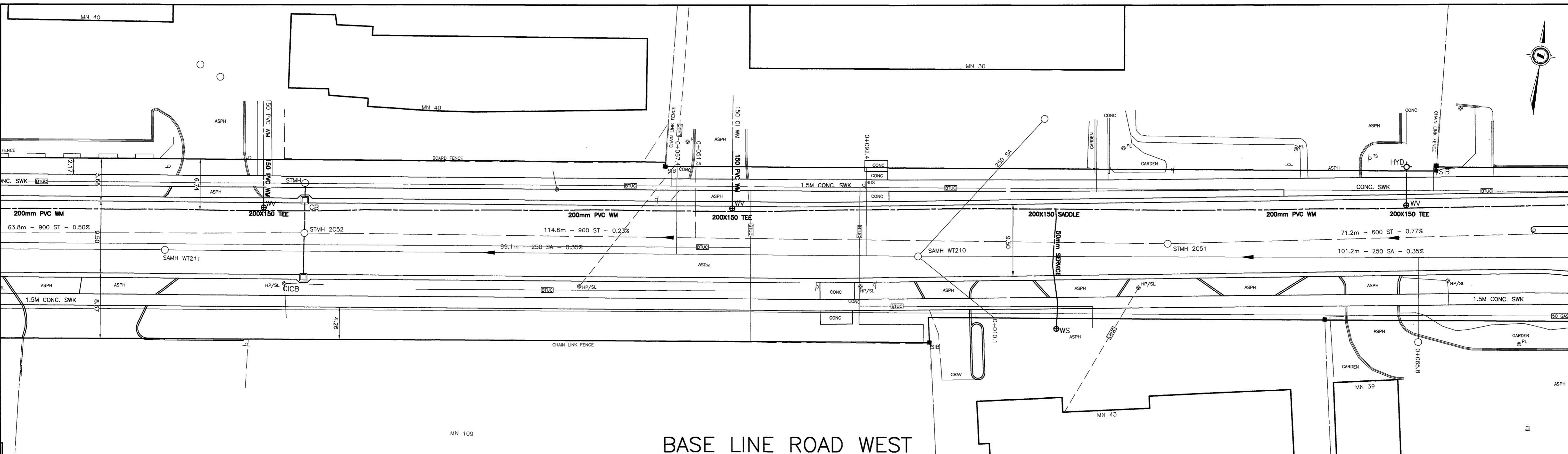
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SANITARY	1980, 3951	1965, 1972	INSTALLED CB'S & CICB'S	JUNE 2011	DESIGN B. CALHOUN	1	AS CONSTRUCTED	MAY 2012	CITY OF LONDON
STORM	3951, 18586	1972, 2004	INSTALLED WATERMAIN	JUNE 2011	DRAWN BY P.J.M	2	AS CONSTRUCTED	JUNE 2012	CITY OF LONDON
WATER	18588	2004	INSTALLED CURB & GUTTER	AUGUST 2011	CHECKED L.A.D.				
			INSTALLED BASE COAT ASPHALT	SEPT. 2011	APPROVED				
			INSTALLED ISLAND	OCT. 2011	DATE	APRIL 2012			
			INSTALLED FINAL ASPHALT COAT	OCT. 2011					

CONSULTANT OR DIVISION
CONSTRUCTION ADMINISTRATION



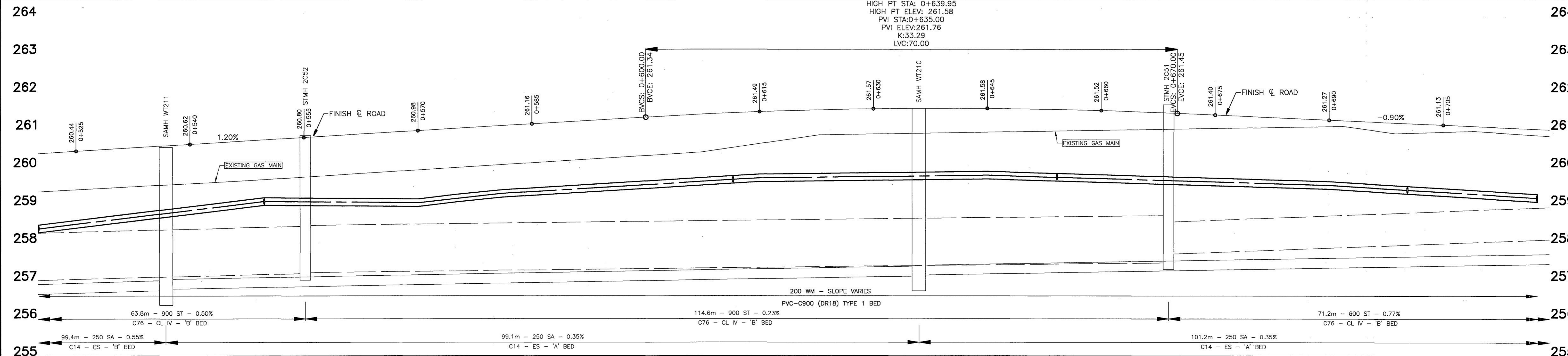
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2011 ANNUAL ROAD RECONSTRUCTION PROGRAM
NEW CONSTRUCTION
BASE LINE ROAD WEST
FROM 100M W. OF MCGREGOR AVE. TO MCGREGOR AVE.

PROJECT No. **2011 LOCAL**
SHEET No. **5 OF 5**
PLAN FILE No. **23380**



BASE LINE ROAD WEST

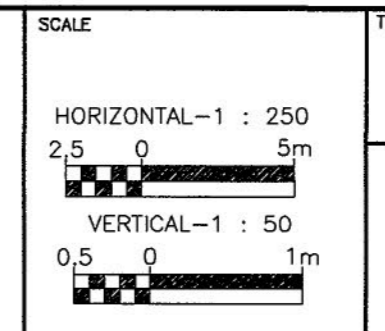
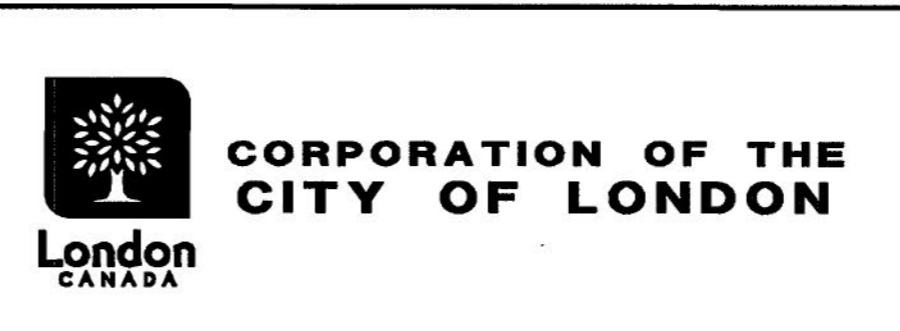
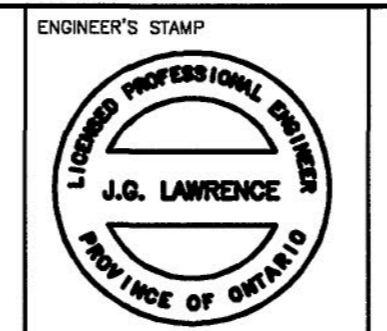
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 HIGH PT ELEV: 261.58
 PVI STA: 0+635.00
 PVI ELEV: 261.76
 K: 33.29
 LVC: 70.00



STATION	0+520	0+525	0+540	0+549.7	0+555	0+570	0+581.2	0+585	0+600	0+615	0+630	0+645	0+660	0+675	0+690	0+705
C/L WATERMAIN ELEVATION	258.45		258.87	259.11	259.04	259.07	259.32		259.56	259.73	259.79	259.80	259.70	259.59	259.54	259.53
STORM SEWER INVERT				W256.76 E256.79	W257.38 E257.40						W257.14 E257.16			W257.66 E257.64		
SANITARY SEWER INVERT																

EXISTING SERVICES	DRAWING #, SOURCE	DATE	CONSTRUCTED SERVICES	COMPLETION	DETAILS	No.	REVISIONS	DATE	CONSULTANT
SANITARY	1980, 3951	1965, 1972	INSTALLED OB'S & CIB'S	JUNE 2011	DESIGN B. GALHOUN	1	AS CONSTRUCTED	MAY 2012	CITY OF LONDON
STORM	3951	1972	INSTALLED WATERMAIN	JUNE 2011	DRAWN BY P.M.	2	AS CONSTRUCTED	JUNE 2012	CITY OF LONDON
			INSTALLED CURB & GUTTER	AUGUST 2011	CHECKED L.A.D.				
			INSTALLED BASE COAT ASPHALT	SEPT. 2011	APPROVED				
			INSTALLED ISLAND	OCT. 2011	DATE	APRIL 2012			
			INSTALLED FINAL ASPHALT COAT	OCT. 2011					

CONSTRUCTION ADMINISTRATION

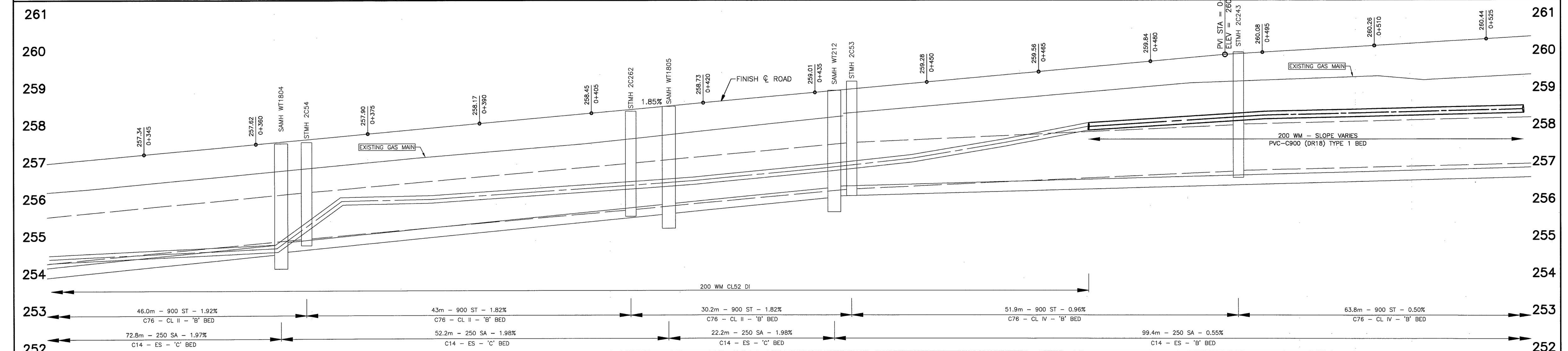
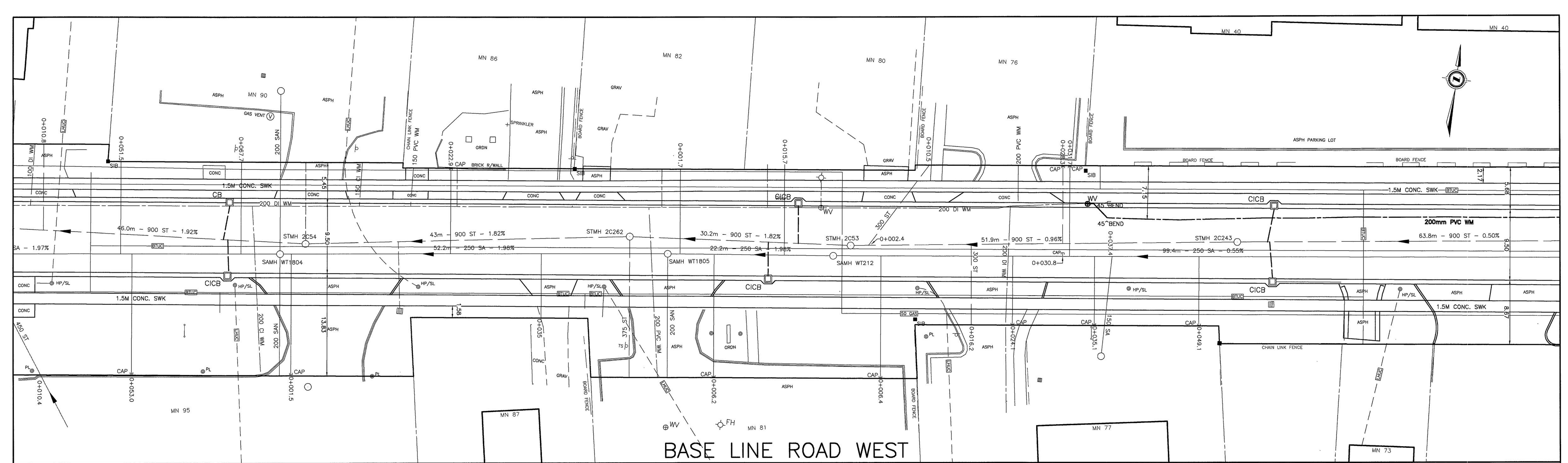


2011 ANNUAL ROAD RECONSTRUCTION PROGRAM
 NEW CONSTRUCTION

BASE LINE ROAD WEST

FROM 210M WEST TO 30M WEST OF MCGREGOR AVE.

PROJECT No. 2011 LOCAL
 SHEET No. 4 OF 5
 PLAN FILE No. 23379



STATION	0+332	0+345	0+360	0+375	0+390	0+405	0+420	0+435	0+450	0+465	0+471.8	0+480	0+495	0+510	0+525
STORM SEWER INVERT															
SANITARY SEWER INVERT															

EXISTING SERVICES	DRAWING #, SOURCE	DATE	CONSTRUCTED SERVICES	COMPLETION	DETAILS	No.	REVISIONS	DATE	CONSULTANT
SANITARY	1979,3951	1965,1972	INSTALLED CB'S & CICB'S	JUNE 2011	DESIGN B. CALHOUN	1	AS CONSTRUCTED	MAY 2012	CITY OF LONDON
STORM	3951	1972	INSTALLED WATERMAN	JUNE 2011	DRAWN BY PJM	2	AS CONSTRUCTED	JUNE 2012	CITY OF LONDON
WATER	12260	2001	INSTALLED CURBS & GUTTER	AUGUST 2011	CHECKED L.A.D.				
			INSTALLED BASE COAT ASPHALT	SEPT. 2011	APPROVED				
			INSTALLED ISLAND	OCT. 2011	DATE				
			INSTALLED FINAL ASPHALT COAT	OCT. 2011					

FILENAME.DWG

CONSULTANT OR DIVISION: CONSTRUCTION ADMINISTRATION

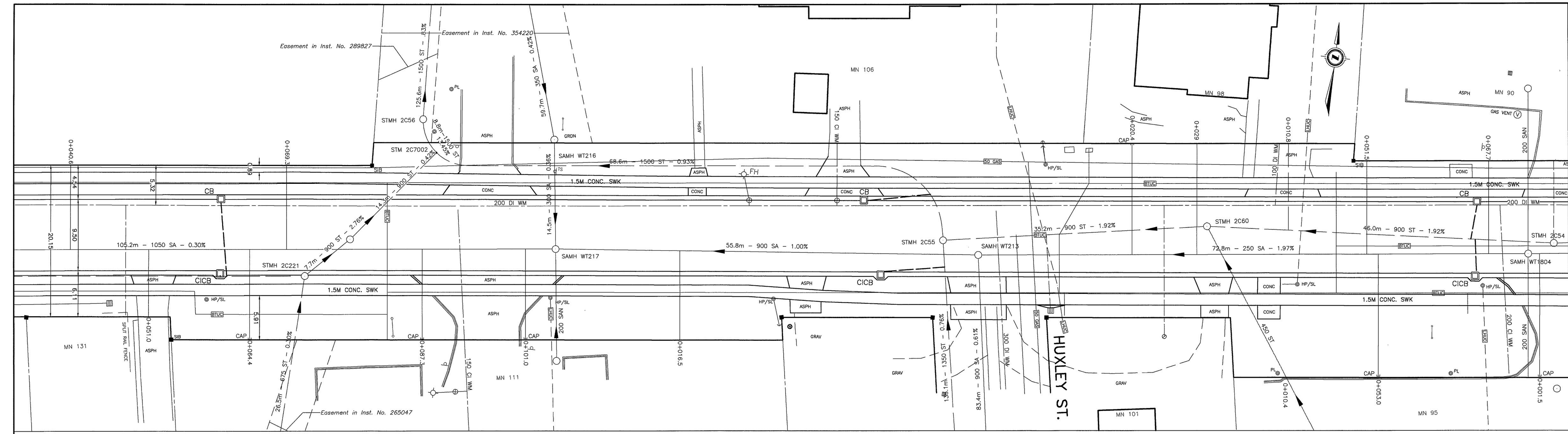
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CORPORATION OF THE CITY OF LONDON, LONDON CANADA

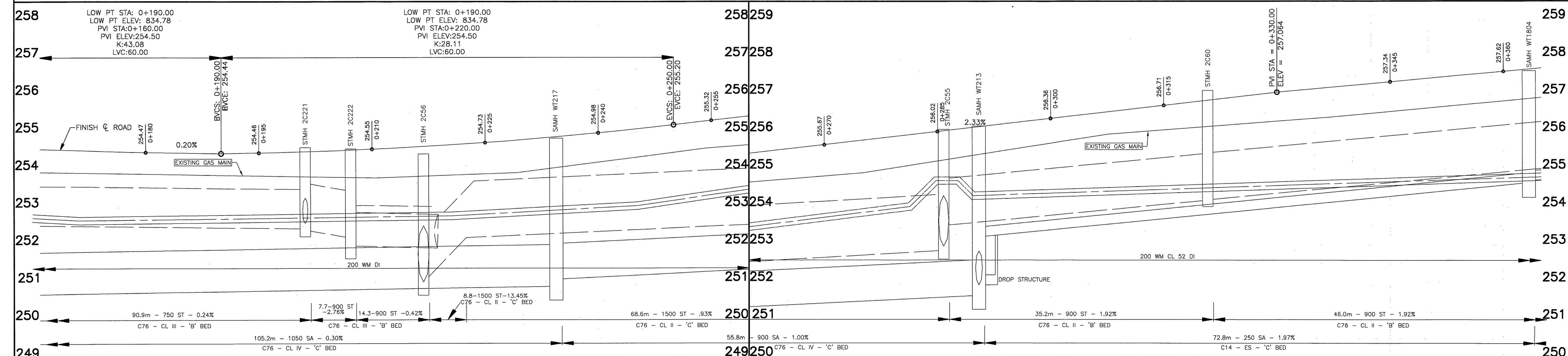
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PROJECT No. 2011 LOCAL, SHEET No. 3 OF 5, PLAN FILE No. 23378

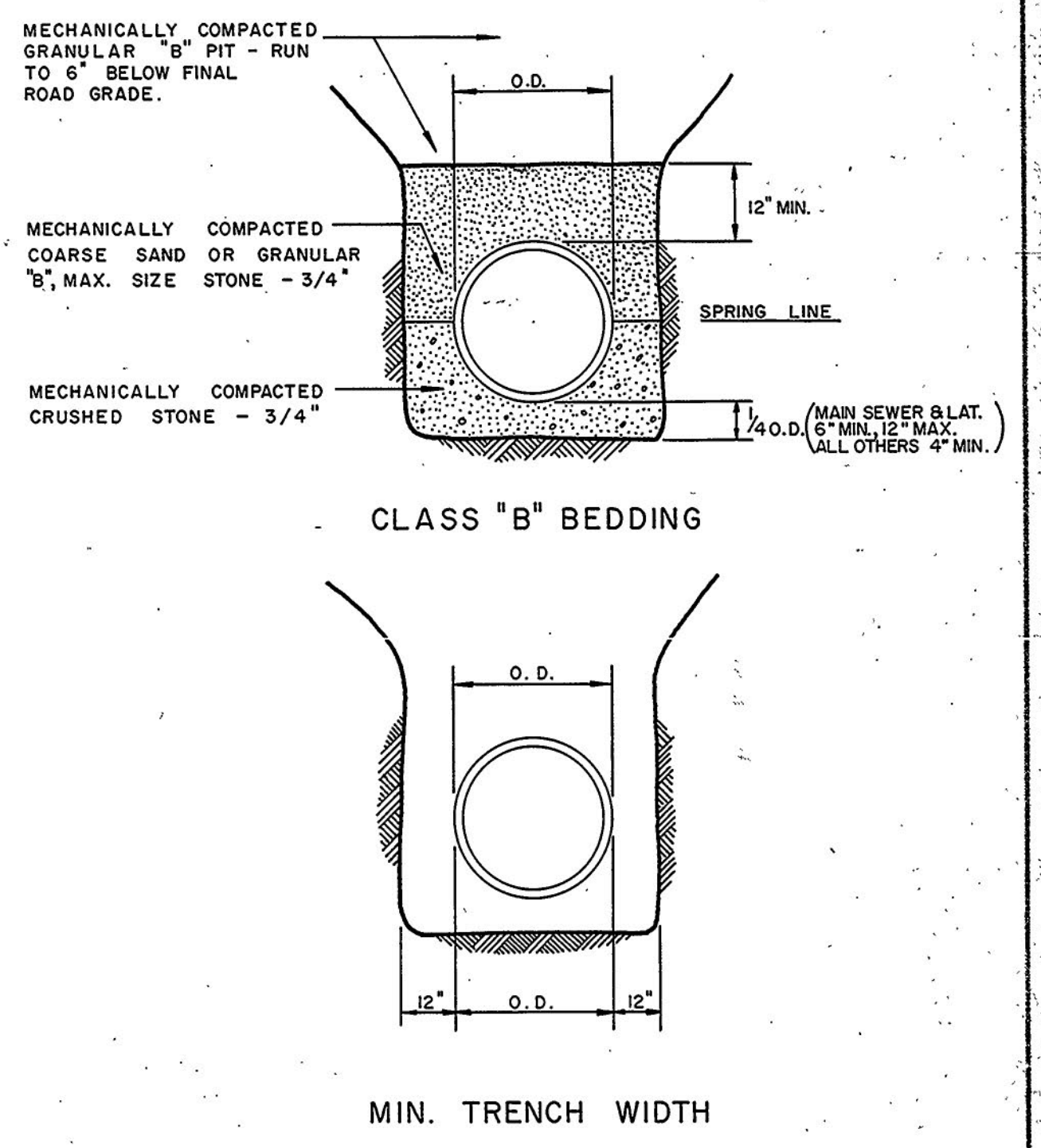
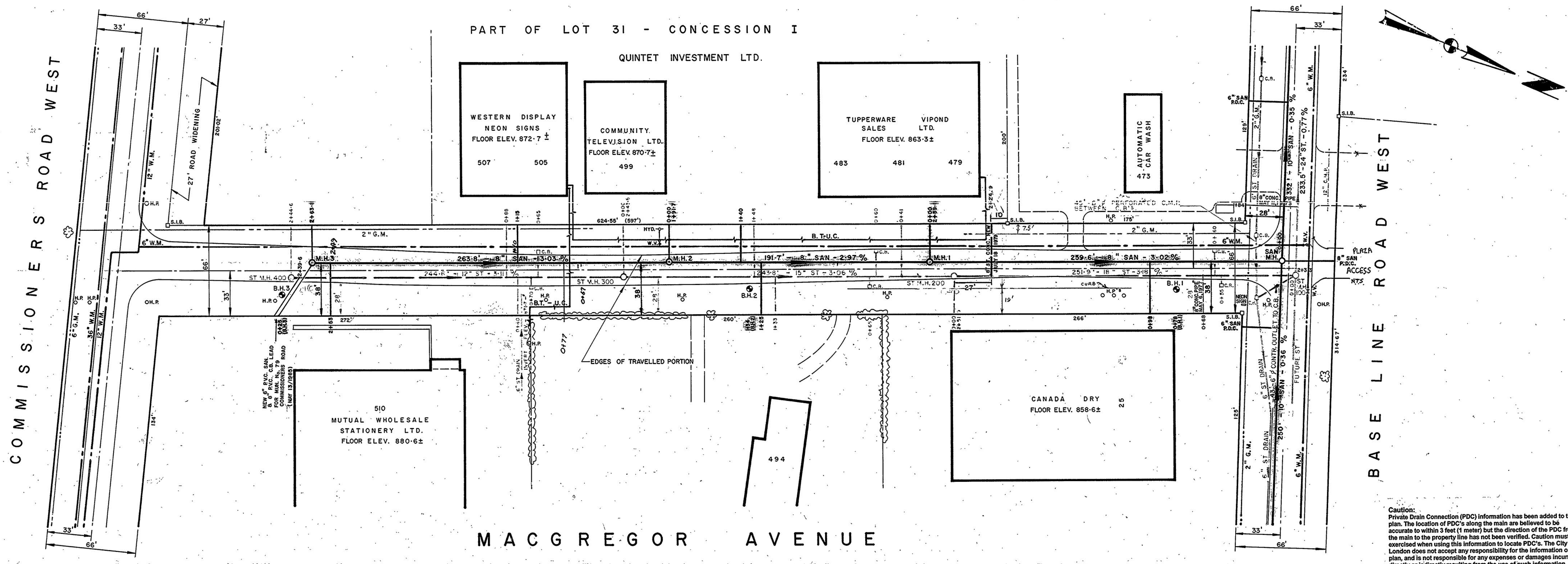


BASE LINE ROAD WEST



STATION	EXISTING SERVICES	DRAWING #, SOURCE	DATE	CONSTRUCTED SERVICES	COMPLETION	DETAILS	No.	REVISIONS	DATE	CONSULTANT
0+186	SANITARY	1976, 1979	1985, 1985	INSTALLED CR'S & CIB'S	JUNE 2011	DESIGN B. CALHOUN	1	AS CONSTRUCTED	MAY 2012	CITY OF LONDON
0+180	STORM	8595, 12437	1973, 1988	INSTALLED WATERMAIN	JUNE 2011	DRAWN BY P.M.	2	AS CONSTRUCTED	JUNE 2012	CITY OF LONDON
0+195	WATER	12262, 12437	1992, 1991	INSTALLED CURB & CUTTER	AUGUST 2011	CHECKED L.A.D.				
0+210				INSTALLED BASE COAT ASPHALT	SEPT. 2011	APPROVED				
0+225				INSTALLED ISLAND	OCT. 2011	DATE APRIL 2012				
0+240				INSTALLED FINAL ASPHALT COAT	OCT. 2011					

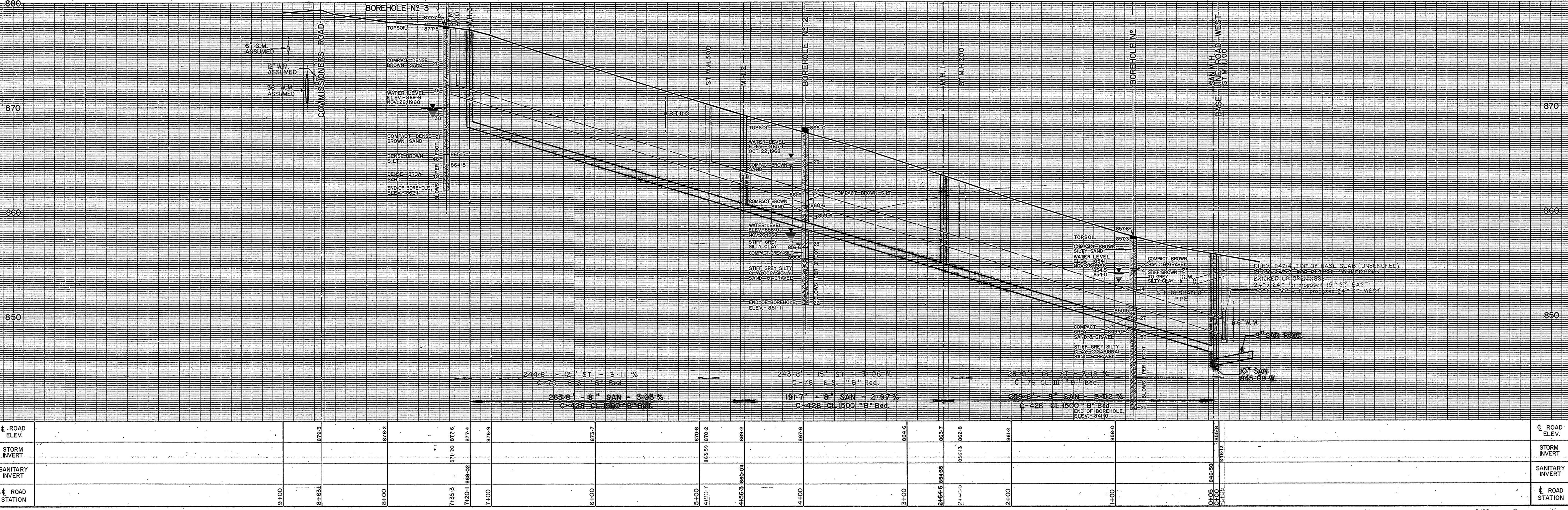
								2011 ANNUAL ROAD RECONSTRUCTION PROGRAM NEW CONSTRUCTION BASE LINE ROAD WEST FROM 100M EAST TO 300M EAST OF COTSWOLD GATE		PROJECT No. 2011 LOCAL SHEET No. 2 OF 5 PLAN FILE No. 23377	
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ROADWAY RESTORATION
 D.H.O. PRIMER
 GRANULAR 'A' BASE COURSE (6")
 GRANULAR 'B' SUB-BASE COURSE (6")

- NOTES:-**
- COVER OVER WATERMAIN TOP OF MAIN TO ROAD CENTRELINE, IS 5'-6" TO 6'-0" UNLESS OTHERWISE NOTED.
 - FOR NOTES AND DETAILS APPLICABLE TO THIS DRWG. SEE DRWGS. N2 STD. 30, 1003, 1006, 1009 & 1010.
 - P.D.C. AND C.B. CONNECTIONS AT MAINS ARE MEASURED FROM 1/2 OF MANHOLE FRAME AND COVER.
 - STRUCTURAL DESIGN OF THE SEWERS WAS BASED ON THE TRANSITION WIDTH UNLESS OTHERWISE NOTED ON PROFILE.
 - ALL ELEVATIONS RELATED TO CITY OF LONDON BENCH MARK No. S-88, ELEVATION:- 830-984
 - DEGREE OF COMPACTION IN THE TRENCH BACKFILL, 95% STANDARD PROCTOR SPECIFIED.
 - TIES FOR UTILITIES OBTAINED FROM UTILITY COMPANIES AND VERIFIED WHERE UTILITIES CROSSED DURING CONSTRUCTION.

Caution:
 Private Drain Connection (PDC) information has been added to this plan. The location of PDC's along the mains are believed to be accurate to within 3 feet (1 meter) but the direction of the PDC from the main to the property line has not been verified. Caution must be exercised when using this information to locate PDC's. The City of London does not accept any responsibility for the information on this plan, and is not responsible for any expenses or damages incurred directly or indirectly resulting from the use of such information.



8-

	SIZE	STRENGTH	MATERIAL	JOINT	BEDDING	MANUFACTURER
SAN P.D.C.	6"	1500	A/C	R.G.	B	JOHNS-MANVILLE
ST P.D.C.	8"					CONCRETE PIPE LTD.
C.B. CONNECTIONS	8"	C14 E.S.	CONC.			
PRE-CAST CONC. M.H.'s	48"	4000			N.A.	J.D. OAKES

9-

SERVICES	COMPLETION	CONTRACTOR
SANITARY SEWERS, P.D.C.'s & M.H.'s	SEPTEMBER, 1969	KEYSTONE CONTR'Y LTD.
STORM SEWERS, P.D.C.'s, M.H.'s & C.B.'s	SEPTEMBER, 1969	KEYSTONE CONTR'Y LTD.
WATERMANS & WATER SERVICES		
GRANULAR ROAD BASE	SEPTEMBER, 1969	KEYSTONE CONTR'Y LTD.
CURB & GUTTER		
SIDEWALKS		
PAVING		



"AS CONSTRUCTED DRAWING"

NO.	REVISIONS	DATE	BY

CITY OF LONDON
MACGREGOR AVENUE
STORM AND SANITARY SEWERS

MACGREGOR AVENUE
BASE LINE ROAD WEST TO COMMISSIONERS ROAD WEST

DESIGN BY: D. J. YOUNG	FIELD BOOK: V.L.A. N2 2
DRAWN BY: H. K. GRUND	SCALE: HORIZ. 1" = 40', VERT. 1" = 4'
CHECKED BY: A. M. SPRIET	DATE: JULY, 1970
A. M. SPRIET & ASSOCIATES LTD. CONSULTING ENGINEERS LONDON, ONTARIO	APPROVED BY: [Signature]
PROJECT No.: 68162	CITY ENGINEER'S DEPARTMENT PROJECT NO.: 68-5C13-15
DRAWING No.: 1	DRAWING No.: 2718

2718

LEGAL INFORMATION

PART OF
 IN THE
 CITY OF LONDON
 COUNTY OF MIDDLESEX



KEY PLAN
 N.T.S.

LIST OF DRAWINGS

SHEET SP1	SITE PLAN & ZONING CHART
SHEET SP2	DETAILS

ZONING DATA CHART

GROSS LOT AREA:	2024.7m ²	BUILDING AREA:	434.4m ²
NET LOT AREA:	1958.8m ²		
ASPHALT:	912.1m ²	LANDSCAPE AREA:	612.3m ²
No. ITEM	REQUIRED	PROPOSED	
1 ZONES	R9-7		
2 LOT AREA (m ² MIN.)	1000.0	1958.8	
2 LOT FRONTAGE (m MIN)	30.0	45.7	
3 FRONT YARD SETBACK (m) MIN.	3.0	1.51*	
4 EXTERIOR YARD SETBACK (m) MIN.	N/A	N/A	
5 INTERIOR SIDE YARD SETBACK (m) MIN.	12.0	EAST: 5.04* WEST: 6.46*	
6 REAR YARD SETBACK (m) MIN.	12.0	21.46	
7 LANDSCAPE OPEN SPACE (% MIN.)	30	31.3	
8 LOT COVERAGE (% MAX.)	30	22.2	
9 HEIGHT (m) MAX.	45	30.0	
10 DENSITY (UNITS/ha MAX.)	150	400*	

*ZONING DEFICIENCY

PARKING DATA CHART

OFF-STREET VEHICLE PARKING			
No. ITEM	REQUIREMENT	REQUIRED	PROPOSED
1 RESIDENTIAL	0.5 PER UNIT (77 UNITS)	39 SPACES	19 SPACES*
2 RESIDENTIAL (VISITOR PARKING)	1/10 RESIDENTIAL UNITS (77 UNITS)	8 SPACES	3 SPACES*
3 B.F. PARKING	4% OF TOTAL PARKING WHERE 13-100 SPACES PROVIDED	2 SPACE	2 SPACE (1 TYPE A, 1 TYPE B)
4 TOTAL PARKING	SEE ABOVE	47 SPACES	22 SPACES*
BICYCLE PARKING			
No. ITEM	REQUIREMENT	REQUIRED	PROPOSED
1 RESIDENTIAL (SHORT TERM)	0.1 PER UNIT (77 UNITS)	8 SPACES	8 SPACES
2 RESIDENTIAL (LONG TERM)	0.9 PER UNIT (77 UNITS)	70 SPACES	80 SPACES (INTERIOR TO BLDG)

*ZONING DEFICIENCY

LEGEND

SYMBOL:	DESCRIPTION:
	PRINCIPAL BARRIER FREE ENTRANCE & FIRE FIGHTER ACCESS ENTRANCE
	SECONDARY BARRIER FREE ENTRANCE
	EMERGENCY EXIT
	GARBAGE ROOM
	PROPOSED SIGNAGE: REFER TO DETAILS FOR MORE INFO. ALL SIGNAGE TO BE ATTACHED TO ADJACENT WALL OR CURB NO SIGN SHALL IMPEDE THE SIDEWALK CLEAR WIDTHS
	PROPOSED BUILDING
	PROPOSED SNOW STORAGE
	PROPOSED LANDSCAPE/RETAINING WALL
	PROPOSED BARRIER FREE S/W ACCESS CURB RAMP, REFER TO DETAILS FOR ADDITIONAL INFO.
	FIRE DEPARTMENT CONNECTION
	PROPOSED FIRE HYDRANT

REFERENCE DOCUMENTS:

1. LEGAL INFO OBTAINED FROM CITY OF LONDON PARCEL PLAN

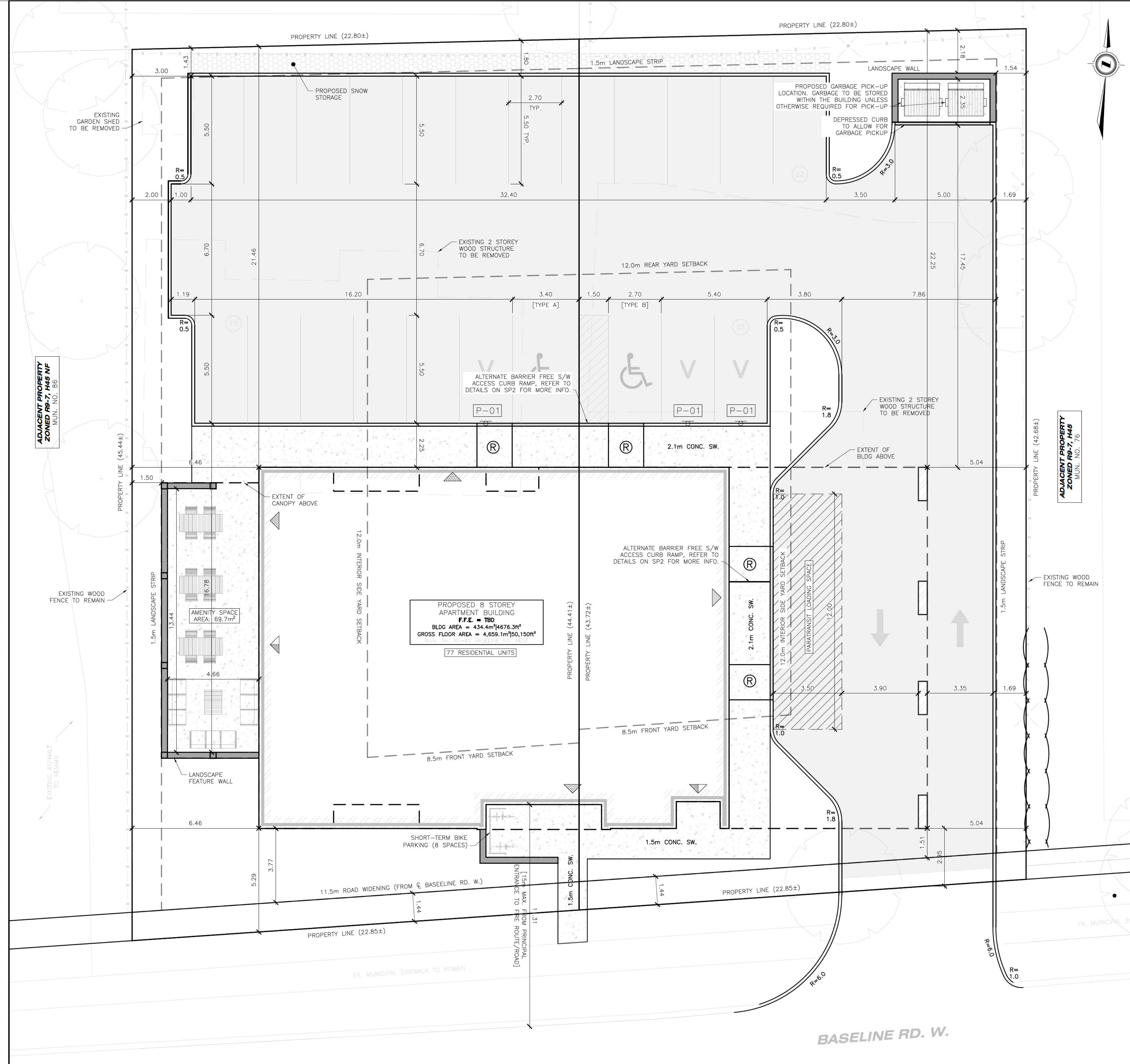
PARCELS, BUILDINGS AND EXISTING INFORMATION ARE APPROXIMATE AND FOR REFERENCE ONLY.

CONCEPT IS PRELIMINARY AND HAS NOT BEEN REVIEWED BY THE CITY.

THE PLAN IS COMPILED AND SHOULD NOT BE CONSIDERED A PLAN OF SURVEY.

DISCLAIMER:
 1. THIS IS A COMPILED PLAN AND SHOULD NOT BE CONSIDERED A PLAN OF SURVEY.
 2. CONCEPT PLAN IS PRELIMINARY AND HAS NOT BEEN REVIEWED BY THE CITY.

CONCEPTUAL
 DESIGN FOR
 DISCUSSION
 PURPOSES ONLY



#	ISSUED FOR	DATE
01	ISSUED FOR CLIENT REVIEW	2023.07.13
02	ISSUED FOR CLIENT REVIEW	2023.09.15
03	ISSUED FOR SPC/ZBA	2023.09.28
04	RE-ISSUED FOR ZBA	2024.01.12
05	RE-ISSUED FOR ZBA	2024.01.16

PROJECT:
8 STOREY APARTMENT BUILDING
(77 RESIDENTIAL UNITS)
80-82 BASELINE RD. W. LONDON, ON

CLIENT:
 *TENDER INQUIRIES CONTACT
13759741 Canada Inc.
 C/O Moosa Sedu
 Address: 961 Crosscreek Place London ON
 Phone: 519-694-2515
 E-mail: mozesproperties@yahoo.com



**PRELIMINARY FOR
 REVIEW ONLY**

DRAWING DESCRIPTION
SITE PLAN & ZONING CHART

PROJECT #XX-XX
 SBM-23-1200
 SCALE: AS INDICATED
 REVIEWED: PDTA
 DRAWN: OMP

SP1

LIST OF STANDARD DETAILS:

ONTARIO PROVINCIAL STANDARDS:	
OPSD 219.110	LIGHT-DUTY SILT FENCE BARRIER
OPSD 219.180	STRAW BALE FLOW CHECK DAM
OPSD 400.050	CAST IRON, SQUARE FRAME FISH TYPE COVER
OPSD 401.010	MAINTENANCE HOLE, CAST IRON COVER AND SQUARE FRAME
OPSD 600.110	CONCRETE BARRIER CURB
OPSD 603.020	PRECAST CONCRETE CURB
OPSD 608.010	METHOD OF TERMINATION FOR CONCRETE CURB WITH GUTTER
OPSD 701.010	PRECAST CONCRETE MAINTENANCE HOLE, 1200mm DIAMETER
OPSD 705.010	PRECAST CONCRETE CATCH BASIN, 600mmX600mm
OPSD 1109.011	CATHODIC PROTECTION FOR PVC WATERMAIN SYSTEMS
CITY OF LONDON STANDARDS:	
SR-1.1	CONCRETE SIDEWALK ABUTTING CURB AND GUTTER
SR-1.2	CONCRETE SIDEWALK RAMPS
SW-1.0	BEDDING STANDARD FOR GRAVITY AND PRESSURE PIPE
SW-4.0	PRECAST CONCRETE CATCH BASIN - MAINTENANCE HOLE
SW-5.0	MAINTENANCE HOLE ADJUSTMENT UNIT DETAIL
SW-5.3	MAINTENANCE HOLE CAST IRON, WATERTIGHT COVER AND SQUARE FRAME
SW-5.5	CATCH BASIN FRAME AND GRATE 'FISH GRATE'
SW-6.0	PRIVATE DRAIN CONNECTION
W-CS-1 SHT.1	HYDRANT AND VALVE INSTALLATION
W-CS-1 SHT.2	TRACER WIRE INSTALLATION
W-CS-12 SHT.2	GRIP RING RESTRAINER ASSEMBLY
W-CS-12 SHT.3	TYPICAL RESTRAINT DETAILS

WASTE MANAGEMENT

GARBAGE TO BE STORED INTERNALLY AND BE PLACED IN PICK-UP AREA AS NOTED ON SITE PLAN FOR PICK-UP, CONTRACTOR TO COORDINATE PICK-UP WITH RELEVANT PARTIES.

CANADA POST

MAIL DELIVERY TO BE DETERMINED BY CANADA POST.

BUILDING CLASSIFICATION

APARTMENT BUILDING - GROUP C OCCUPANCY PART 3 OF THE ONTARIO BUILDING CODE

SIGN POST SECTION
 32mm
 2mm
 2400mm
 2400mm
 600mm MIN.
 GRADE
SIGN POST ELEVATION

DIAGRAM MARK	DESCRIPTION
	NOTES: SIGN MATERIAL: ALUMINUM SIGN COLOURS: - BORDER: BLACK REFLECTIVE - GRAPHICS: BLUE REFLECTIVE - BACKGROUND: WHITE REFLECTIVE - TEXT: BLACK REFLECTIVE
	NOTES: SIGN MATERIAL: ALUMINUM SIGN COLOURS: - BORDER: GREEN REFLECTIVE - BACKGROUND: WHITE REFLECTIVE - TEXT: REFLECTIVE GREEN
	NOTES: SIGN MATERIAL: ALUMINUM SIGN COLOURS: - BORDER: WHITE REFLECTIVE - BACKGROUND: RED REFLECTIVE - TEXT: WHITE REFLECTIVE TEXT FONT: - HIGHWAY GOTHIC C

REFERENCE:
 ONTARIO TRAFFIC MANUAL BOOK 5/6 - CURRENT EDITION

SIGNAGE DETAILS
 N.T.S.

TYP. BOLLARD DETAIL
 1.22m (4'-0")
 150#(6") x 6.3(1/4") THICK STEEL TUBE PAINTED 'SAFETY YELLOW' AND HOT DIP GALV. + FILLED w/ CONC.
 GRADE
 0.91m (3'-0")
 300# (12") CONC. FILLED SONO-TUBE
 1.22m (4'-0")
 N.T.S.

BARRIER FREE PARKING SPACE DETAIL
 N.T.S.

TYPE 'A'
 CURB RAMP AS PER THE 2012 ONTARIO BUILDING CODE '3.8.3.2(3)
 'NO STOPPING' SIGNS
 0.60m MAX
 VAN ACCESSIBLE PARKING SIGN ON SIGN POST SECURED IN THE GROUND
 INTERNATIONAL SYMBOL OF ACCESS (OPTIONAL)
 WHITE OR YELLOW HATCH MARKINGS
 5.60m TYP.
 3.40m MIN.
 MIN. 1.5m WIDE SHARED ACCESS AISLE

TYPE 'B'
 ACCESSIBLE PARKING SIGN [Rb-93] ON SIGN POST SECURED IN THE GROUND
 CURB RAMP AS PER THE 2012 ONTARIO BUILDING CODE '3.8.3.2(3)
 'NO STOPPING' SIGNS
 0.60m MAX
 VAN ACCESSIBLE PARKING SIGN ON SIGN POST SECURED IN THE GROUND
 INTERNATIONAL SYMBOL OF ACCESS (OPTIONAL)
 WHITE OR YELLOW HATCH MARKINGS
 5.60m TYP.
 2.75m MIN.
 MIN. 1.5m WIDE SHARED ACCESS AISLE

NOTES:
 1. PRESCRIBED ACCESSIBLE PARKING SIGN TO BE IN ACCORDANCE w/ THE HIGHWAY TRAFFIC ACT, REGULATION 561 - PRESCRIBED SIGNS FOR PARKING SPACES DESIGNATED UNDER A MUNICIPAL BY-LAW FOR THE USE OF PEOPLE WITH DISABILITIES. REFER TO TYPICAL SIGN DETAILS FOR ADDITIONAL INFO.
 2. PROVIDE TACTILE ATTENTION INDICATORS CONFORMING TO OBC 3.8.3.18.

INTERNATIONAL SYMBOL OF ACCESS
 1.0m TYP.
 1.0m TYP.
 BLUE BACKGROUND
 WHITE SYMBOL

BARRIER FREE S/W ACCESS CURB RAMP
 N.T.S.

BRUSHED CONCRETE w/ TOOLED RIDGES or SAWCUTS
 1:12 MAX.
 DETECTABLE WARNING SURFACE
 1.8m
 1.5m
 1.8m
 CURB TO FOLLOW RAMP SLOPE
 SAFE PEDESTRIAN CROSSING ROUTE
 REFERENCE:
 2012 ONTARIO BUILDING CODE '3.8.3.2(3), BARRIER FREE SIDEWALK CURB RAMP'
 *TACTILE ATTENTION INDICATOR CONFORMING TO 2012 OBC 3.8.3.18.

ALTERNATE BARRIER FREE S/W ACCESS CURB RAMP
 N.T.S.

BRUSHED CONCRETE w/ TOOLED RIDGES or SAWCUTS
 2.0%
 1.5m MIN.
 1.8m MIN.
 1.5m
 1.8m MIN.
 DETECTABLE WARNING SURFACE
 1:12 MAX.
 CURB TO FOLLOW RAMP SLOPE
 SAFE PEDESTRIAN CROSSING ROUTE
 REFERENCE:
 2012 ONTARIO BUILDING CODE '3.8.3.2(3), BARRIER FREE SIDEWALK CURB RAMP'
 *TACTILE ATTENTION INDICATOR CONFORMING TO 2012 OBC 3.8.3.18.

TYP. 8 SLOT BIKE RACK
 N.T.S.

2.28m (90") LONG
 0.76m HIGH
 0.83m (33") WIDE
 UNIT MODEL: 8 SLOT TRADITIONAL
 COLOUR: TEXTURED BLACK

#	ISSUED FOR	DATE
01	ISSUED FOR CLIENT REVIEW	2023.07.13
02	ISSUED FOR CLIENT REVIEW	2023.09.15
03	ISSUED FOR SPC/ZBA	2023.09.28
04	RE-ISSUED FOR ZBA	2024.01.12
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PROJECT:
8 STOREY APARTMENT BUILDING
(77 RESIDENTIAL UNITS)
80-82 BASELINE RD. W. LONDON, ON

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13759741 Canada Inc.
 C/O: Moosa Sedu
 Address: 961 Crosscreek Place London ON
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 E-mail: mozesproperties@yahoo.com



PRELIMINARY FOR REVIEW ONLY

DRAWING DESCRIPTION
SITE PLAN DETAILS

PROJECT #XX-XX
 SBM-23-1200
 SCALE: AS INDICATED
 REVIEWED: PDTA
 DRAWN: OMP
SP2
 DWG #

APPENDIX B

Sanitary Sewer Design Sheet (Subject Site Only)
Sanitary Sewer Capacity Study by SBM
Sanitary Drainage Areas on Base Line Road West by SBM
City of London MacGregor Avenue San Drainage Area Plan by A.M. Spriet & Associates, dated January 1970



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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 (Design Parameters from Section 3.8 CofL DS&RM)
 Medium Density Residential (Multi-Family/Townhouse) = 75 Units/hectare @ 2.4 people/unit
 High Density Residential (Apartment Buildings) = 150-300 Units/hectare @ 1.6 people/unit

Design Parameters:

(Design Parameters from Section 3.8 CofL DS&RM)
 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

Date: May 7, 2024
Job Number: SBM-23-1200
Client: Mozes Properties
Project: 8-Storey Apartment Building
Location: 80 & 82 Base Line Road W., London
Designed By: LP
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	Infiltr (L/S)	Sewage (L/S)	Total (L/S)	n	Pipe Slope (%)	Dia. mm	Capacity (L/S)	Velocity (m/s)
*Proposed Development	Site	WT212	0.196 *	0.196	77 *	1.6		123	123	4.22	0.02	1.52	1.54	0.013	1.00%	200	32.82	1.04
Base Line Road West													1.54	0.013	** 1.98%	** 250	83.73	1.71

*Proposed development area and number of units obtained from Site Plan prepared by Patrick David Trottier dated April 8, 2024

**Outlet Size and Slope obtained from Record Drawing 23378 (Sheet 3) prepared by the City of London dated June, 2012

SANITARY SEWER DESIGN SHEET



q = average per capita daily flow 230 L/cap.d
 i = unit of industrial flow 25.00 m³/ha.d
 ic = unit of peak extraneous flow 0.1 L/ha.s
 High Density Residential (Apartment Buildings) 1.60 ppu
 Medium Density Residential (Multi-Family/Townhouse) 2.40 ppu
 Low Density Residential (Single Family/Semi-Detached) 3.00 ppu
 Commercial/Institutional 100.00 people/ha
 Uncertainty Factor 1.10

P = population
 M = peaking factor (Harmon)
 P = p x # units / 1000
 M = 1 + 14 / (4 + P^{0.5})
 Q = (P x q x M) / 86.4
 M Min = 4
 M Max = 10

DATE: May, 08, 2024 FILE No.: SBM-23-1200
 DESIGNED: L.K.P. PROJECT: 80 & 82 Base Line Road W., London

Q(p) = peak population flow (L/s)
 Q(i) = i x A = peak extraneous flow (L/s)
 Q(c) = c x A = peak commercial flow (L/s)
 86400
 Q(d) = Q(p) + Q(i) = peak design flow (L/s)

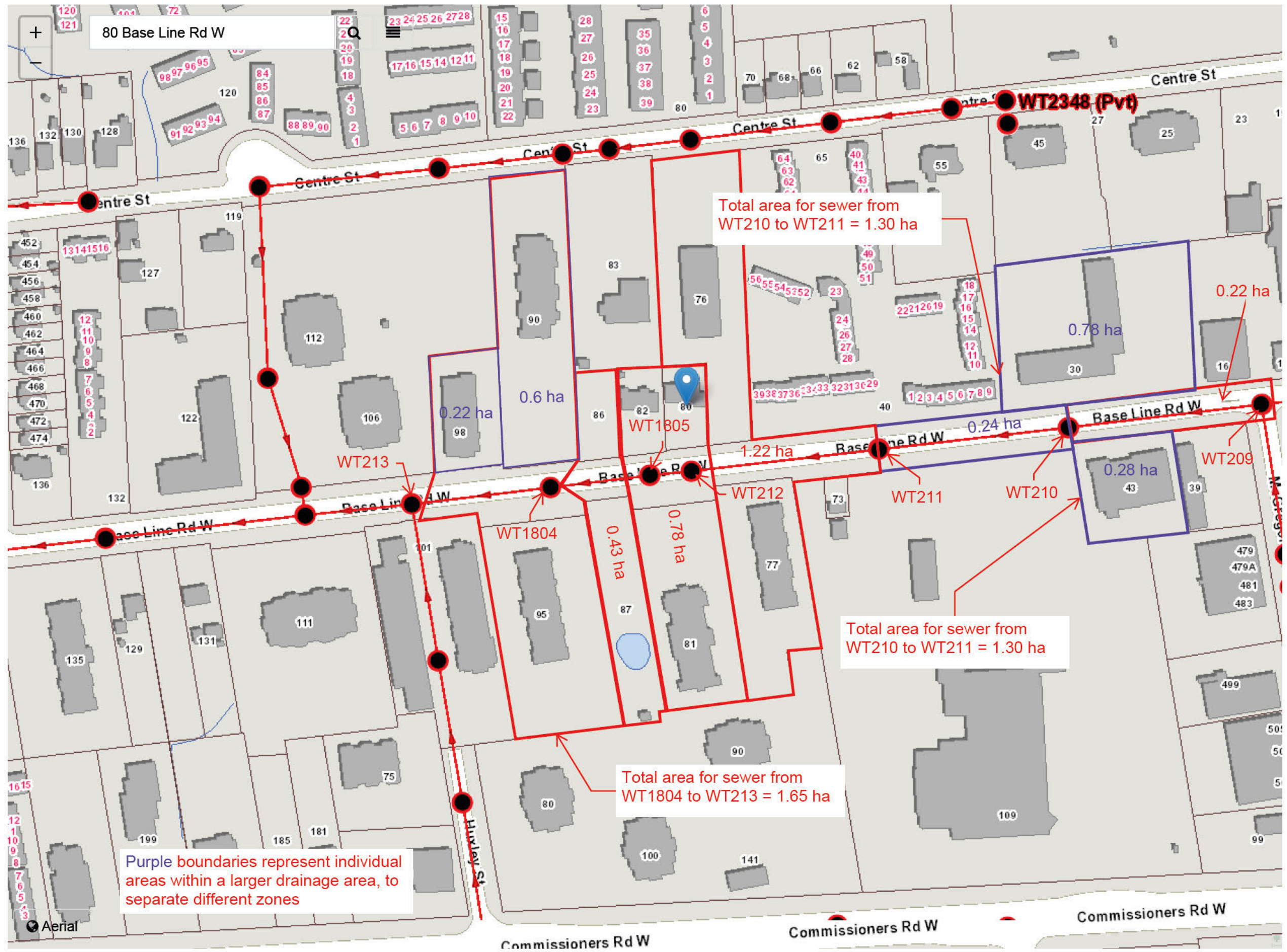
Min full flow velocity = 0.6 m/s

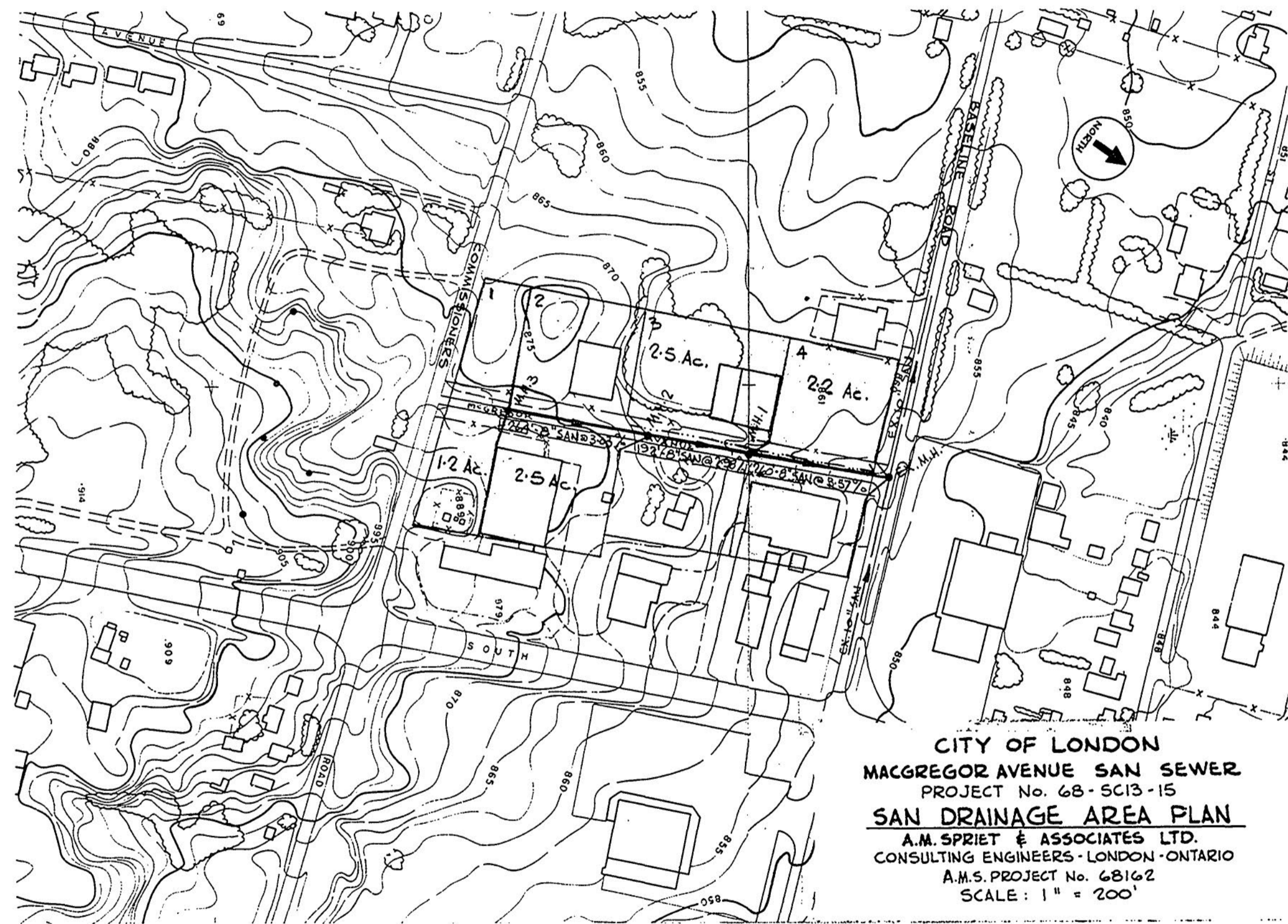
LOCATION			INDIVIDUAL						CUMULATIVE				DESIGN FLOWS				PROPOSED SANITARY SEWER										
STREET	FROM MH	TO MH	No. RESIDENTIAL UNITS	RES. POP.	COMM. POP.	RES. AREA (ha)	COMM/INST AREA (ha)	INDUSTRIAL AREA (ha)	POP.	COMM/INST AREA (ha)	INDUSTRIAL AREA (ha)	RES. AREA	TOTAL AREA (ha)	PEAKING FACTOR (M)	POPULATION FLOW, Q(p) (L/s)	INDUSTRIAL FLOWS (L/s)	PEAK EXTRANEIOUS FLOW, Q(i) (L/s)	PEAK DESIGN FLOW, Q(d) (L/s)	LENGTH (m)	PIPE SIZE DIAMETER (mm)	GRADE (%)	MANNING'S n	CAPACITY (L/s)	FULL FLOW VELOCITY (m/s)	ACTUAL VELOCITY (m/s)	PERCENT FULL	
Base Line Rd W	WT208	WT209	0	0	0.00	0.22*	0.00	0.00	0.00	0.00	0.00	0.22	0.22	4.50	0.000	0.000	0.022	0.022	76.2	250	0.36%	0.013	35.7	0.73	0.11	0.1%	
McGregor Ave	3	2	0	0	101.00	0	1.01	0.00	101.00	1.01	0.00	0.00	1.01	4.24	1.255	0.000	0.101	1.356	80.4	250	3.03%	0.013	103.5	2.11	0.75	1.3%	
McGregor Ave	2	1	0	0	101.00	0	1.01	0.00	202.00	2.02	0.00	0.00	2.02	4.15	2.453	0.000	0.202	2.655	58.4	200	2.97%	0.013	56.5	1.80	0.91	4.7%	
McGregor Ave	1	WT209	0	0	89.00	0	0.89	0.00	291.00	2.91	0.00	0.00	2.91	4.06	3.480	0.000	0.291	3.771	82.2	200	3.02%	0.013	57.0	1.81	1.00	6.6%	
Base Line Rd W	WT209	WT210	0	0	0.00	0.22	0.00	0.00	291.00	2.91	0.00	0.44	3.35	4.06	3.480	0.000	0.335	3.815	101.2	250	0.35%	0.013	35.2	0.72	0.45	10.8%	
Base Line Rd W	WT210	WT211	258**	412.8	28.00	1.01	0.25	0.00	731.80	3.19	0.00	1.45	4.64	4.00	8.572	0.000	0.464	9.036	99.1	250	0.35%	0.013	35.2	0.72	0.57	25.7%	
Base Line Rd W	WT211	WT212	132	211.2	0.00	1.22	0.00	0.00	943.00	3.19	0.00	2.67	5.86	4.00	11.045	0.000	0.586	11.631	99.4	250	0.55%	0.013	44.1	0.90	0.72	26.4%	
Base Line Rd W (Includes Subject Site)	WT212	WT1805	120	192	0.00	0.78	0.00	0.00	1135.00	3.19	0.00	3.45	6.64	4.00	13.294	0.000	0.664	13.958	22.2	250	1.98%	0.013	83.7	1.70	1.21	16.7%	
Base Line Rd W	WT1805	WT1804	1	3	0.00	0.43	0.00	0.00	1138.00	3.19	0.00	3.88	7.07	4.00	13.329	0.000	0.707	14.036	52.2	250	1.98%	0.013	83.7	1.70	1.21	16.8%	
Base Line Rd W	WT1804	WT213	220***	352	0.00	1.65	0.00	0.00	1490.00	3.19	0.00	5.53	8.72	4.00	17.452	0.000	0.872	18.324	72.8	250	1.97%	0.013	83.5	1.70	1.30	22.0%	
TOTALS			731	1171	319.00	5.53	3.19	0.00																			

* No service connections found on as-builts, therefore only the ROW area was considered for infiltration

** 330 units/hectare used for Mun #30, per zoning designation R70330H33

*** 150 units/hectare used for Mun #90 & 96, per RS-7 zoning density





POPULATION DENSITIES
 SINGLE FAMILY LOTS 4 PEOPLE
 DUPLEX LOTS 8 " "
 APTS: BATCH 1 1/2 " "
 1 BED RM. 2 1/2 " "
 2 BED RM. 4 " "

SANITARY SEWER DESIGN SHEET
FINAL DESIGN



DATE 13 JAN 1970
 CALC'D BY E.J.C.
 CHK'D BY
 SHEET 1 OF 1
 PROJECT No 68-SC13-15
 JOB No 68162

AREA No.	LOCATION			GROSS	AREA			POPULATION				SEWAGE FLOW			SEWER DESIGN				PROFILE						
	STREET	FROM	TO		DIMENSIONS	Δ A ACRES	E A ACRES	PER. ACRE	PER. LOT	No OF LOTS	Δ POP.	E POP.	INFILT C.F.S.	SEWAGE C.F.S.	TOTAL C.F.S.	SIZE INCHES	S %	CAP C.F.S.	n	VELOCITY F.P.S.	DROP UPPER M.H.	FALL IN SEWER	LENGTH FEET	UPPER INVERT	LOWER INVERT
1	MACGREGOR AVE.	M.H. 3.	M.H. 2.		1.2	1.2	24				29	29	-	0.05	0.05	8	3.03	2.00	0.013	6.0	-	7.98	264	848.02	860.04
2	MACGREGOR AVE.	M.H. 2	M.H. 1.		2.5	3.7	24				60	89	-	0.10	0.10	8	2.98	1.95	0.013	6.0	-	5.69	192	860.04	854.35
3	MACGREGOR AVE.	M.H. 1	EX MH		2.5	6.2	24				60	149	-	0.17	0.17	8	3.57	2.18	0.013	6.5	-	7.85	260	854.35	846.50

APPENDIX C

Runoff Coefficient Calculations by SBM



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

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

www.sbmltd.ca

sbm@sbmltd.ca

Runoff Coefficient Calculations

DATE: May 7, 2024
 JOB No.: SBM-23-1200

Client: Mozes Properties
 Project: 8 Storey Apartment Building
 Location: 80-82 Baseline Road W, London

PRE-DEVELOPMENT (EXISTING) CONDITIONS*

	Area (m ²)	C	A*C
Total Area:	1958.80		
Building Area:	438.00	0.9	394.2
Concrete/Asphalt:	0.00	0.9	0
Gravel:	391.00	0.7	273.7
Landscaped/Open:	1129.80	0.2	225.96
Totals:	1958.80		893.86
$C_{eq} = \frac{\sum(A*C)}{\sum(A)} =$	0.46		

POST-DEVELOPMENT CONDITIONS

POST-DEVELOPMENT CONDITIONS**

	Area (m ²)	C	A*C
Total Area:	1958.80		
Building Area:	435.00	0.9	391.5
Concrete/Asphalt:	892.80	0.9	803.52
Landscaped/Open:	631.00	0.2	126.2
Totals:	1958.8		1321.22
$C_{eq} = \frac{\sum(A*C)}{\sum(A)} =$	0.67		

*Pre-Development Conditions were obtained from City of London GIS Imagery

** Post-Development Conditions were obtained from the Site Plan prepared by Patrick David Trotter, dated April 8, 2024

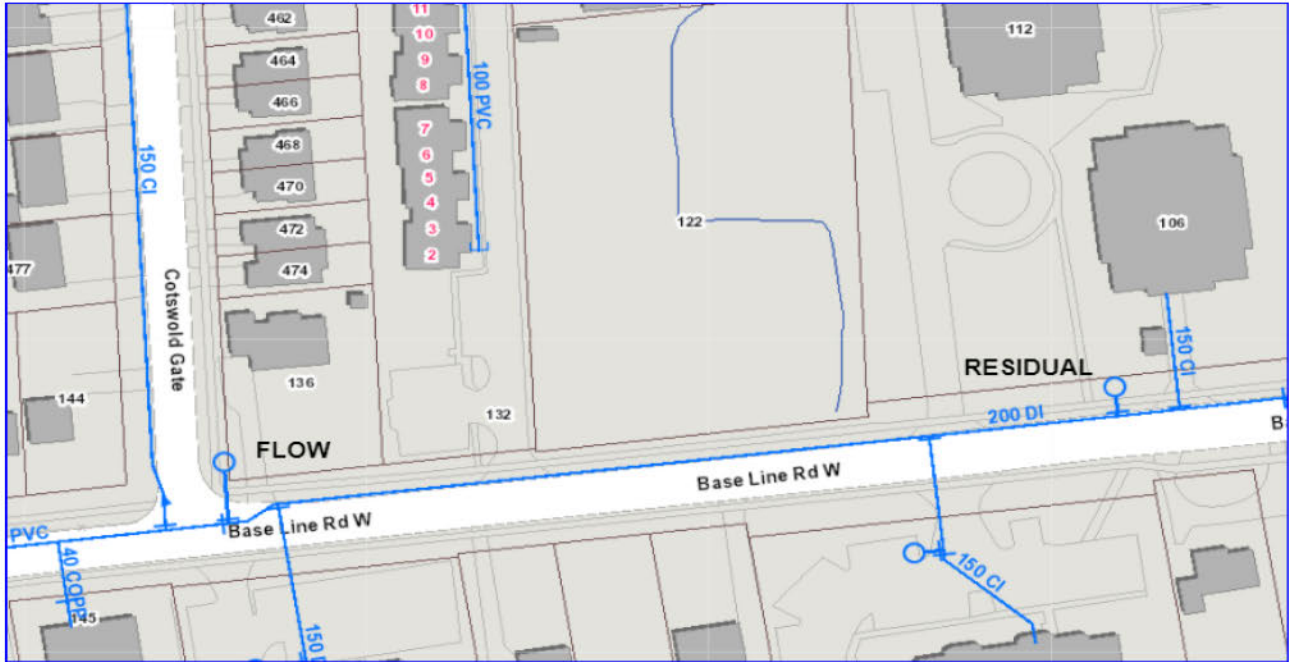
APPENDIX D

Hydrant Flow test No. 21-13 and No. 12-02 prepared by City of London dated May 18, 2021 and January 23, 2012
Domestic Water Demand & EPANET Node Demand Calculations by SBM
Fire-Fighting Flow Demand Calculations (NFPA#13) by SBM
EPANET Model Layout Max Hour Demand prepared by SBM
EPANET Model Layout Max Day + Fire Flow Demand (Site) prepared by SBM
EPANET Model Layout Max Day + Fire Flow Demand (FH) prepared by SBM

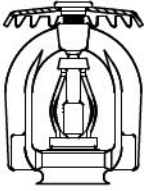
**CITY OF LONDON
WATER OPERATIONS FLOW TEST**

DATE:	Tuesday, May 18, 2021	FLOW TEST No.		21-13		
TIME:	10:00 AM	HYDRANT ID		H3656		
OPERATOR:	Ian McCann	CHLORINE RESIDUAL mg/L		0.97		
OPERATOR:	Private Fire Flow Company	WATER QUALITY AFTER TEST	POOR	GOOD	EXCELLENT	
REQUESTED BY:	Western Fire				✓	
LOCATION:	122 Baseline Rd W	TIME USED FOR FLUSHING		-		
FLOW HYDRANT STATIC: 69 psi		Discharge Coefficient: <input type="checkbox"/> 0.70 <input type="checkbox"/> 0.80 <input checked="" type="checkbox"/> 0.90			RESIDUAL HYDRANT STATIC: 69 PSI	
TEST NUMBER	NO. OF OUTLETS	OUTLET SIZE IN.	PITOT READING P.S.I.	INDIVIDUAL FLOW U.S.G.P.M.	TOTAL FLOW U.S.G.P.M.	RESIDUAL PRESSURE P.S.I.
1	1	2-1/2"	32	954	954	69
2	1	1-3/4"	48	617	617	69
3	1	1-1/8"	64	299	299	69

READINGS BY WESTERN FIRE PROTECTION. SEE REVERSE FOR REPORT



Information contained in this report is representative of flows and pressure losses at the time of the test and depends on reservoir levels, pump operation and customer water demand. Results will vary throughout the day and time of year. Available pressure at other times should be based on a design hydraulic grade line for the pressure zone in which the hydrants are located. 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.



WESTERN
FIRE PROTECTION INC.

WATER FLOW TEST

DATE : MAY 18, 2021

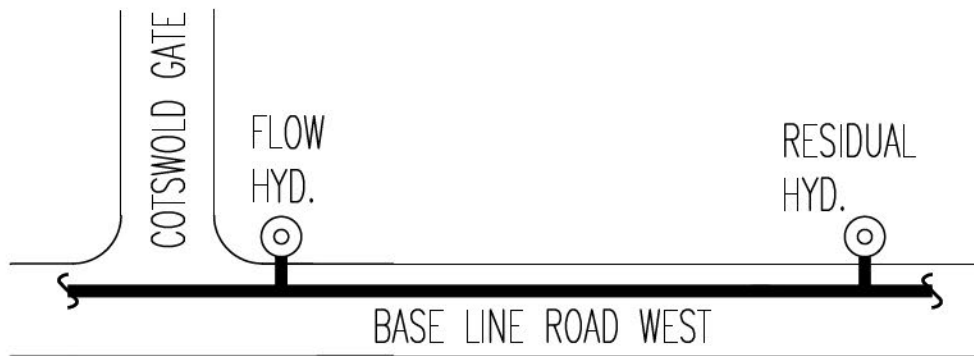
TIME : 9:30 AM

LOCATION : 122 BASE LINE ROAD WEST,
LONDON, ON

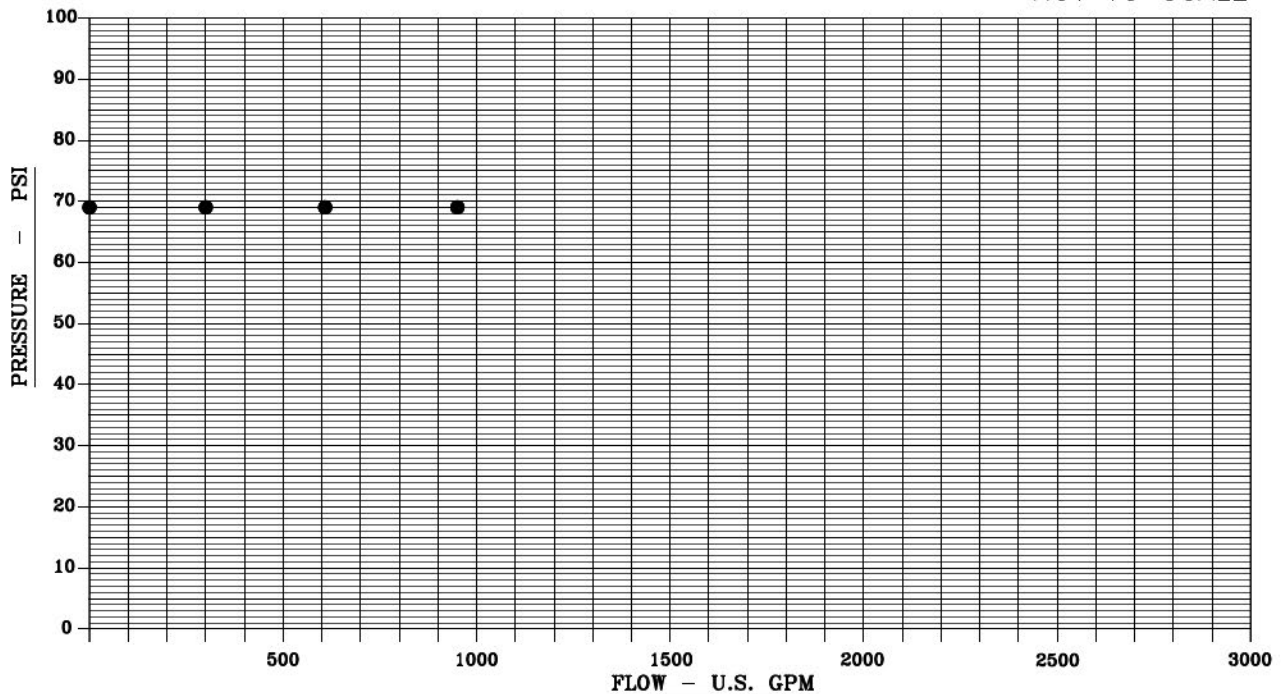
TEST BY : WESTERN FIRE PROTECTION & CITY OF LONDON WATER DEPT.

STATIC : 69 PSI
(1-1/8") 69 PSI @ 299 GPM (2-1/2") 69 PSI @ 954 GPM
(1-3/4") 69 PSI @ 617 GPM (2-1/2" x2) — PSI @ — GPM

PITOT READINGS: 1-1/8"-64 PSI 1-3/4"-48 PSI 2-1/2"-32 PSI



NOTE: SKETCH
NOT TO SCALE



WATER SUPPLY DEPARTMENT FLOW TESTS

DATE:	Monday, January 23, 2012	FLOW TEST No.		12-02
TIME:	12:30 PM	HYDRANT ID		H7278
OPERATOR:	Bob Amorgowich	CHLORINE RESIDUAL mg/L		0.61
OPERATOR:	Jeff Nethercott	WATER QUALITY AFTER TEST	POOR	GOOD
REQUESTED BY:	Callidus Engineering - Andrew Portengen			EXCELLENT
LOCATION:	81 Baseline Rd W	TIME USED FOR FLUSHING (IF NECESSARY)		0

TEST NUMBER	FLOW HYDRANT				RESIDUAL HYDRANT		
	STATIC PRESSURE P.S.I.	OUTLET SIZE IN.	PITOT READING P.S.I.	INDIVIDUAL FLOW U.S.G.P.M.	TOTAL FLOW U.S.G.P.M.	RESIDUAL PRESSURE P.S.I.	STATIC PRESSURE P.S.I.
1	65	2 1/2	57	1265	1265	69	72
2		2 1/2	49	1175	2350	67	
		2 1/2	49	1175			
3							



Information contained in this report is representative of flows and pressure losses at the time of the test and depends on reservoir levels, pump operation and customer water demand. Results will vary throughout the day and time of year. Available pressure at other times should be based on a design hydraulic grade line for the pressure zone in which the hydrants are located. 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.

DOMESTIC WATER DEMAND CALCULATIONS

DATE: May 7, 2024
 JOB NO.: SBM-23-1200

Client: Mozes Properties
 Project: 8-Storey Apartment Building
 Location: 80-82 Base Line Rd W, London

Avg. Day Demand = 255 L/D/cap = 0.00295 L/s/cap (Section 7.3.2.2 CofL DS&RM)
 Max. Day Peaking Factor = 3.5
 Max. Hour Peaking Factor = 7.8
 Low Density Residential = 3.00 ppl/unit
 Medium Density Residential = 2.40 ppl/unit
 High-Density Residential = 1.6 ppl/unit (Section 3.8 CofL DS&RM)
 # Units for Subject Site = 77
 Population for Subject Site = 124 ppl

Avg. Day Demand for Subject Site= 0.37 L/s
 Max Hour Demand for Subject Site= 2.85 L/s
 Max Day Demand for Subject Site= 1.28 L/s

Water Demand (EPANET)

Node	# Of Units	Area (Ha)	Population	Avg. Day (L/s)	Max. Hour (L/s)	Max. Day (L/s)	Fire Flow Demand (L/s)
J3 (MN 98)	33	0.22	53	0.16	1.22	0.55	0.00
J4 (MN 95)	98		157	0.46	3.61	1.62	0.00
J5 (MN 90)	90	0.6	144	0.43	3.32	1.49	0.00
J6 (MN 83 & 86)	92	0.61	276	0.81	6.35	2.85	0.00
J7 (MN 81)	43		104	0.31	2.39	1.07	0.00
J8 (FH1 Node)	0		0	0.00	0.00	0.00	0.00
FH1	0		0	0.00	0.00	0.00	76.00
J14 (MN 80 & 82 - Subject Site)	77		124	0.37	2.85	1.28	17.35
J9 (MN 77)	46	0.41	111	0.33	2.56	1.15	0.00
J10 (MN 76)	86	0.60	138	0.41	3.18	1.43	0.00
J11 (MN 40)	43	1.05	104	0.31	2.39	1.07	0.00
J12 (MN 30)	258	0.78	413	1.22	9.51	4.27	0.00
J13 (MN 43)		0.28	28	0.08	0.64	0.29	0.00
J15 (FH2 Node)	0		0	0.00	0.00	0.00	0.00
FH2	0		0	0.00	0.00	0.00	76.00
Total =	866		1652	4.88	38.03	17.06	169.35

150 units/hectare used per zoning designation R9-7 H40

150 units/hectare used per zoning designation R9-7 H40
 150 units/hectare used per zoning designation R9-7 H45

Assumed to be medium density based on units per hectare

Assumed to be medium density based on units per hectare
 330 units/hectare used per zoning designation R7D330H33
 100 people per hectare for commercial

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

Required Supply Flow Rate (Table 1) = 275 USGPM
 Required Supply Flow Rate = 1041 L/min
 = 17.35 L/s

Maximum Day Demand, L/min = 1.28 L/s (Refer to attached Domestic Water Demand calculation)
 = 76.85417 L/min

Required Supply Fire Flow + Maximum Day Demand, L/min = 1117.9

Hydrant H7278

*Provided Supply Flow Rate @

72.00	*psi (496.42 kPa) =	0	*L/min (0 USGPM)
65.00	*psi (448.16 kPa) =	4788.5	*L/min (1265 USGPM)
67.00	*psi (461.95 kPa) =	8896	*L/min (2350 USGPM)

Hydrant H3656:

Provided Supply Flow Rate @

69.00	*psi (475.74 kPa) =	0	*L/min (0 USGPM)
69.00	*psi (475.74 kPa) =	3611.0	*L/min (954 USGPM)

Using linear interpolation, residual pressure at hydrant = 69.53 psi (479.36 kPa) = 1118 L/min (295 USGPM)
 = 48.89 m head

Largest Pressure Drop (most conservative) = 2.47 psi
 Pressure Drop = 1.74 m head

HGL from DS&RM (Low Level System) = 301.8 m head
 Total Head Under Fire Flow Conditions = 300.1 m head (Per communications with CofL)

**Approximate Elevation of Proposed Connection = 257.00 m
 Approximate HGL Elevation @ Reservoir 1 Connection = 305.89 m

*Refer to Hydrant Flow Test completed by the City of London dated January 23, 2012, and May 18, 2021, provided in Appendix D

**Approximate elevation of connection obtained per City As-Constructed Drawing 23378 dated June 2012, provided in Appendix A


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*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality                *
*                               Analysis for Pipe Networks                  *
*                               Version 2.2                                *
*****

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Input File: MHD Watermain Modelling on Baseline Rd W.net

Link - Node Table:

Link ID	Start Node	End Node	Length m	Diameter mm
2	4	5	15	200
3	5	6	10	200
4	6	7	30	200
5	7	8	24	200
7	9	10	3	200
8	10	11	84	200
9	11	12	60	200
10	12	13	52	200
12	FH1	8	2	150
1	1	3	34.5	200
13	3	4	32.3	200
6	8	14	15	200
14	14	9	17	200
15	13	15	44	200
16	15	2	35	200
17	FH2	15	1.5	150

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality
3	1.25	301.65	47.32	0.00
4	3.59	301.52	46.71	0.00
5	3.35	301.47	46.66	0.00
6	6.32	301.45	45.31	0.00
7	2.42	301.44	44.82	0.00
8	0.00	301.43	44.46	0.00
9	2.57	301.42	43.77	0.00
10	3.20	301.42	43.77	0.00
11	2.42	301.44	43.10	0.00
12	9.52	301.47	41.74	0.00
13	0.62	301.59	41.89	0.00

FH1	0.00	301.43	42.76	0.00
14	2.89	301.43	44.21	0.00
15	0.00	301.71	42.18	0.00
FH2	0.00	301.71	40.48	0.00



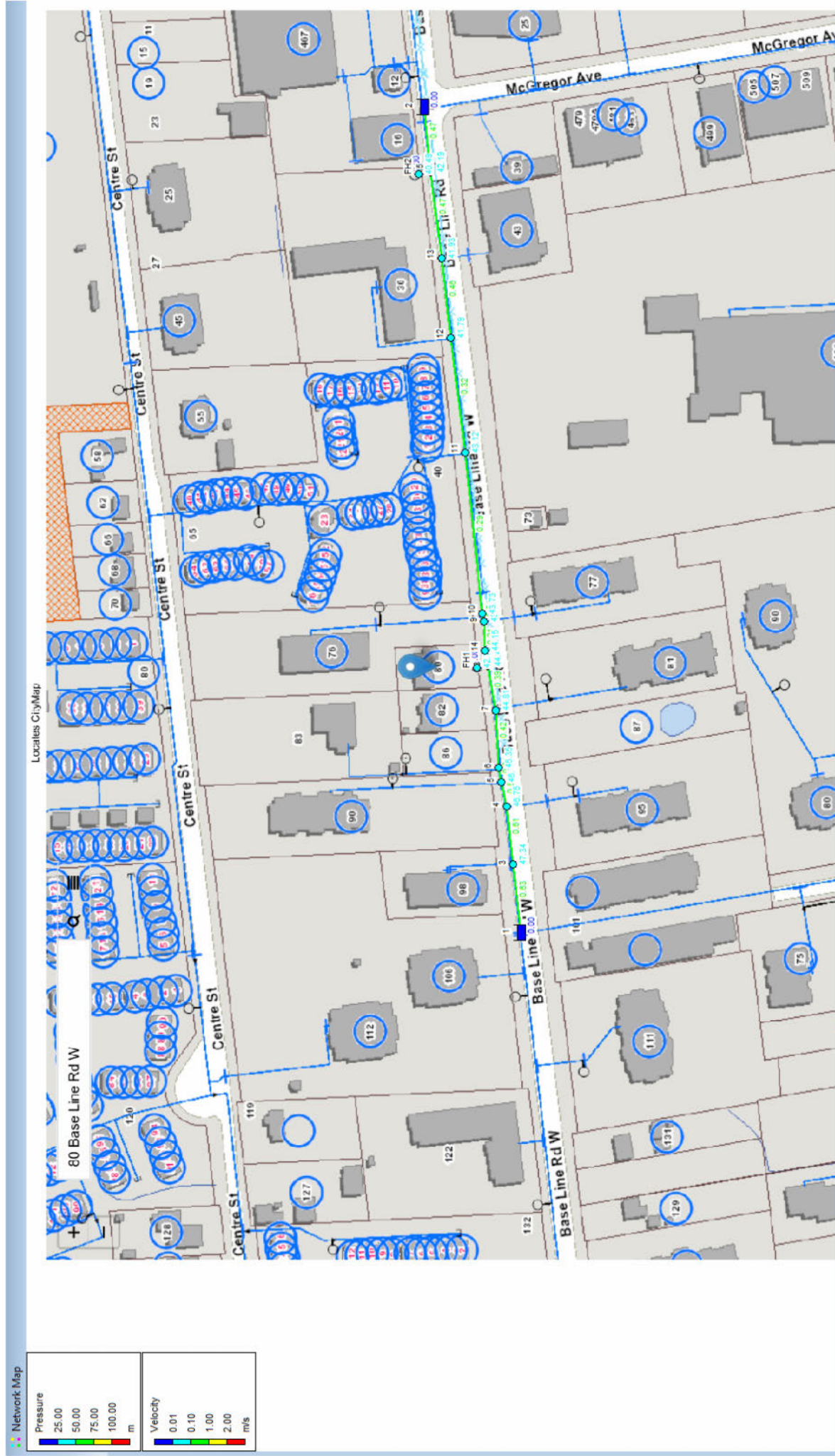
Page 2

Node Results: (continued)

Node ID	Demand LPS	Head m	Pressure m	Quality
1	-21.81	301.80	0.00	0.00 Reservoir
2	-16.33	301.80	0.00	0.00 Reservoir

Link Results:

Link ID	Flow LPS	Velocity m/s	Headloss m/km	Status
2	16.97	0.54	2.82	Open
3	13.62	0.43	1.88	Open
4	7.30	0.23	0.59	Open
5	4.88	0.16	0.28	Open
7	-0.58	0.02	0.01	Open
8	-3.78	0.12	0.17	Open
9	-6.19	0.20	0.44	Open
10	-15.71	0.50	2.44	Open
12	0.00	0.00	0.00	Open
1	21.81	0.69	4.49	Open
13	20.56	0.65	4.02	Open
6	4.88	0.16	0.28	Open
14	2.00	0.06	0.05	Open
15	-16.33	0.52	2.63	Open
16	-16.33	0.52	2.63	Open
17	0.00	0.00	0.00	Open



Hydraulic Analysis for Fire + Max Day (Site)

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*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality              *
*                               Analysis for Pipe Networks                *
*                               Version 2.2                              *
*****
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Input File: Fire + Max Day (Site) Watermain Modelling on Baseline Rd W.net

Link - Node Table:

Link ID	Start Node	End Node	Length m	Diameter mm
2	4	5	15	200
3	5	6	10	200
4	6	7	30	200
5	7	8	24	200
7	9	10	3	200
8	10	11	84	200
9	11	12	60	200
10	12	13	52	200
12	FH1	8	2	150
1	1	3	34.5	200
13	3	4	32.3	200
6	8	14	15	200
14	14	9	17	200
15	13	15	44	200
16	15	2	35	200
17	FH2	15	1.5	150

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality
3	0.56	301.67	47.34	0.00
4	1.61	301.56	46.75	0.00
5	1.50	301.51	46.70	0.00
6	2.84	301.49	45.35	0.00
7	1.09	301.43	44.81	0.00
8	0.00	301.40	44.43	0.00
9	1.15	301.38	43.73	0.00
10	1.43	301.38	43.73	0.00
11	1.09	301.46	43.12	0.00
12	4.27	301.52	41.79	0.00
13	0.28	301.63	41.93	0.00

FH1	0.00	301.40	42.73	0.00
14	18.63	301.37	44.15	0.00
15	0.00	301.72	42.19	0.00
FH2	0.00	301.72	40.49	0.00



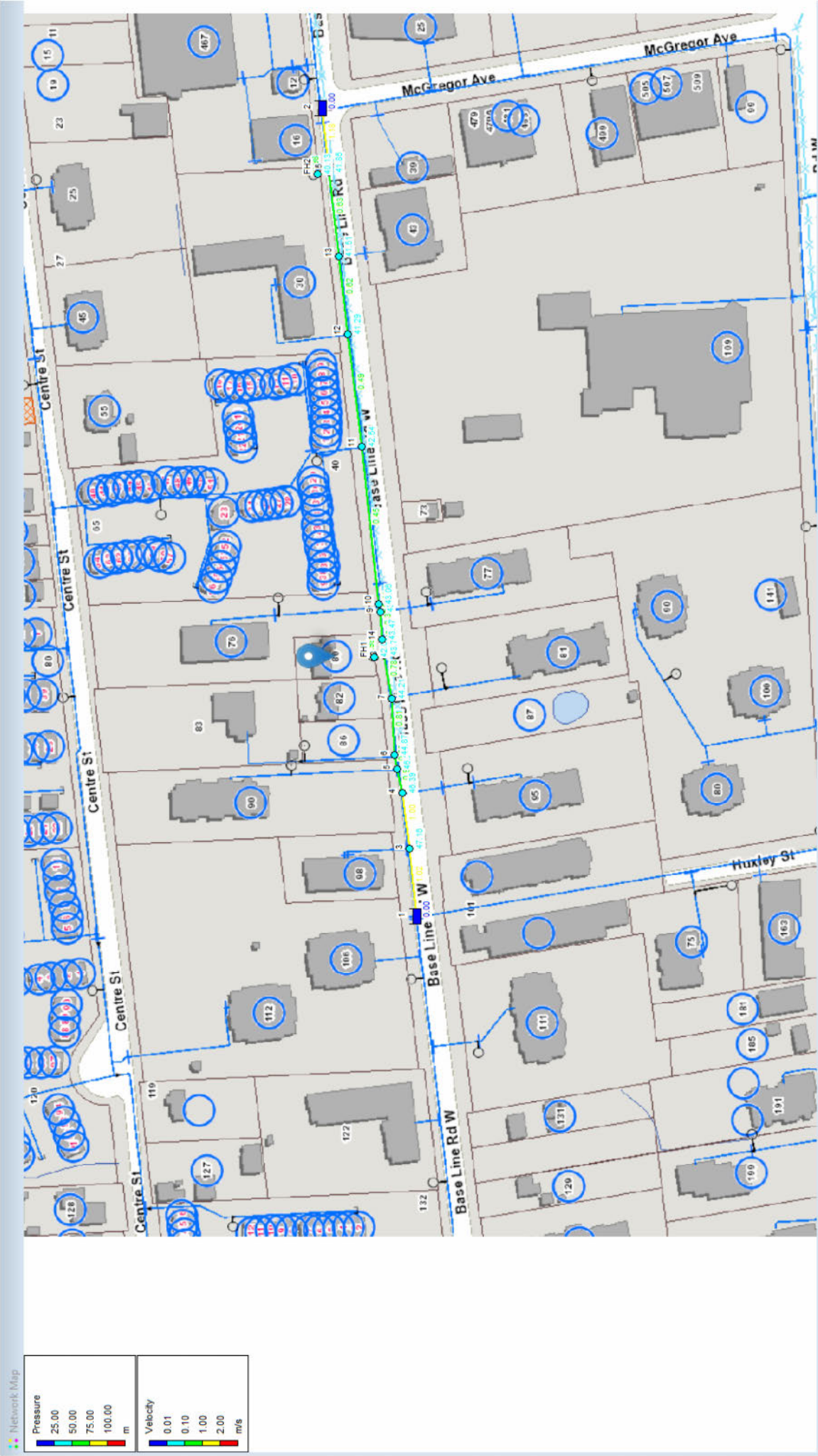
Page 2

Node Results: (continued)

Node ID	Demand LPS	Head m	Pressure m	Quality
1	-19.77	301.80	0.00	0.00 Reservoir
2	-14.68	301.80	0.00	0.00 Reservoir

Link Results:

Link ID	Flow LPS	Velocity m/s	Headloss m/km	Status
2	17.60	0.56	3.02	Open
3	16.09	0.51	2.55	Open
4	13.26	0.42	1.79	Open
5	12.17	0.39	1.52	Open
7	-7.61	0.24	0.64	Open
8	-9.05	0.29	0.88	Open
9	-10.13	0.32	1.08	Open
10	-14.40	0.46	2.08	Open
12	0.00	0.00	0.00	Open
1	19.77	0.63	3.74	Open
13	19.21	0.61	3.55	Open
6	12.17	0.39	1.52	Open
14	-6.46	0.21	0.47	Open
15	-14.68	0.47	2.16	Open
16	-14.68	0.47	2.16	Open
17	0.00	0.00	0.00	Open



Hydraulic Analysis for Fire + Max Day (FH)

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*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality                 *
*                               Analysis for Pipe Networks                 *
*                               Version 2.2                               *
*****
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Input File: Fire + Max Day (FH) Watermain Modelling on Baseline Rd W.net

Link - Node Table:

Link ID	Start Node	End Node	Length m	Diameter mm
2	4	5	15	200
3	5	6	10	200
4	6	7	30	200
5	7	8	24	200
7	9	10	3	200
8	10	11	84	200
9	11	12	60	200
10	12	13	52	200
12	FH1	8	2	150
1	1	3	34.5	200
13	3	4	32.3	200
6	8	14	15	200
14	14	9	17	200
15	13	15	44	200
16	15	2	35	200
17	FH2	15	1.5	150

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality
3	0.56	301.49	47.16	0.00
4	1.61	301.20	46.39	0.00
5	1.50	301.08	46.27	0.00
6	2.84	301.01	44.87	0.00
7	1.09	300.83	44.21	0.00
8	0.00	300.69	43.72	0.00
9	1.15	300.71	43.06	0.00
10	1.43	300.71	43.06	0.00
11	1.09	300.88	42.54	0.00
12	4.27	301.02	41.29	0.00
13	0.28	301.21	41.51	0.00

FH1	17.36	300.67	42.00	0.00
14	18.63	300.69	43.47	0.00
15	0.00	301.38	41.85	0.00
FH2	17.36	301.36	40.13	0.00



Page 2

Node Results: (continued)

Node ID	Demand LPS	Head m	Pressure m	Quality
1	-32.00	301.80	0.00	0.00 Reservoir
2	-37.17	301.80	0.00	0.00 Reservoir

Link Results:

Link ID	Flow LPS	Velocity m/s	Headloss m/km	Status
2	29.83	0.95	8.01	Open
3	28.33	0.90	7.28	Open
4	25.49	0.81	5.99	Open
5	24.41	0.78	5.53	Open
7	-12.74	0.41	1.66	Open
8	-14.17	0.45	2.02	Open
9	-15.26	0.49	2.32	Open
10	-19.53	0.62	3.66	Open
12	-17.36	0.98	11.94	Open
1	32.00	1.02	9.13	Open
13	31.44	1.00	8.83	Open
6	7.05	0.22	0.55	Open
14	-11.58	0.37	1.39	Open
15	-19.81	0.63	3.75	Open
16	-37.17	1.18	12.04	Open
17	-17.36	0.98	11.94	Open