



January 12, 2024

MTE File No.: C53188-200

Development Services  
City of London  
300 Dufferin Avenue  
London, ON N6A 4L9

**RE: Sanitary Servicing Report – 553-557 Upper Queen Street**

This report has been prepared to support the development at 553-557 Upper Queen Street in the City of London in addressing site services for the proposed site. The site is approximately 0.60 ha in size and consists of residential townhouses with 28 units, internal roads, and landscaped areas.

**Existing Sanitary Services**

There is an existing 200mmØ sanitary sewer on Upper Queen Street conveying flows north towards Commissioners Road East. See attached below for Existing Sanitary Drainage Area Plan (City of London File #22650) and a recreated existing sanitary design sheet.

**Proposed Sanitary Servicing**

As per the ‘City of London Locates Map’, the proposed development property has two existing 100mm sanitary private drain connection to each existing properties which will be capped and abandoned, a new sanitary connection is proposed for the development.

It is recommended that the subject site connects to the 200mmØ sanitary sewer on Upper Queen Street. The existing sanitary sewer was designed in 1980 (reference City of London DWG File No.6003).

The proposed development is a medium density block with 28 town house units, which corresponds to a population of 68 people using current City of London standards (2.4p/unit).

**Proposed Population**

Description	Units	People per Unit	Population
Medium Density Block	28	2.4	68

Based on information obtained from the City, MTE completed a capacity analysis of the sewers on Upper Queen Street fronting the proposed site. The existing conditions show an assumed population of 6 people between both existing lots and a flow rate of 0.3L/s (see Existing Sanitary Sewer Design Sheet). The proposed condition includes a population of 68 people and a flow rate of 1.1L/s. Both calculations used a sewage flow rate and infiltration rate of 250L/Cap/Day and 8640L/Ha/Day respectively.

## Conclusion

- The attached 'Proposed Sanitary Sewer Design Sheet' shows a capacity analysis downstream from the proposed site to Bruce Street and concludes that there will be no anticipated capacity constraints from the additional population of the development.
- The maximum capacity for the downstream run of sewers is 63.1% and is located in 'Area 49' on Ridout Street. This is an increase of 0.5% from the existing conditions capacity of 62.6%

We trust this meets your requirements. Should you have any questions or require anything further, please do not hesitate to contact the undersigned.

Regards,

## MTE Consultants Inc



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**Project**

**City of London**

Project #: 53188-200  
Date: 1/10/2024  
Design By: JAC  
Checked By: DRR

**EXISTING SANITARY SEWER DESIGN SHEET (250L/Cap/Day)**

RESIDENTIAL COMMERCIAL AND INSTITUTIONAL POPULATION DENSITIES  
THE FOLLOWING POPULATION ALLOWANCES WILL APPLY WHEN DESIGNING SANITARY SEWERS:  
LOW DENSITY (SINGLE-FAMILY / SEMI-DETACHED) = 30 UNITS / HECTARE @ 3 PEOPLE / UNIT  
MEDIUM DENSITY (MULTI-FAMILY / TOWNHOUSE / ROWHOUSE) = 75 UNITS / HECTARE @ 2.4 PEOPLE / UNIT  
HIGH DENSITY (APARTMENTS) = 150-300 UNITS / HECTARE @ 1.6 PEOPLE / UNIT  
COMMERCIAL / INSTITUTIONAL = 100 PEOPLE / HECTARE  
SECONDARY SCHOOL = 1500 PEOPLE  
ELEMENTARY SCHOOL = 600 PEOPLE

**Design Parameters**  
SEWAGE = 250 L/Capita/Day  
INFILTRATION = 8640 L/Ha/Day  
PEAKING FACTOR = 1+(14/(4+(P\*0.5)))  
Manning's "n" 0.013  
Max. Velocity = 0.6 m/s  
Max. Velocity = 4.5m/s (300-825mm) 6.0m/s (>900mm)

LOCATION			AREA		POPULATION				SEWAGE FLOWS			SEWER DESIGN										
AREA No.	STREET		FROM MANHOLE	TO MANHOLE	DELTA HECTARE	TOTAL HECTARES	POP. PER HECTARE	PER LOT	NO. OF LOTS	DELTA POP.	TOTAL POP.	PEAKING FACTOR	INFILTR L/s	SEWAGE L/s	Q TOTAL L/s	PIPE SIZE mm	n	SLOPE %	CAPL/s	VELOCITY m/s	Capacity	
	SITE	553-557 UPPER QUEEN STREET	SITE	EX.1	2.00	2.00		3	2.0	6	6	4.434	0.20	0.08	0.3							
1		UPPER QUEEN STREET	EX.1	EX.2	19.86	21.86				270	276	4.094	2.19	3.60	5.8	200	0.013	3.00	56.8	1.81	10.2%	
		UPPER QUEEN STREET	EX.2	EX.3	0.00	21.86				0	276	4.094	2.19	3.60	5.8	250	0.013	0.30	32.6	0.66	17.8%	
		UPPER QUEEN STREET	EX.3	EX.4	0.00	21.86				0	276	4.094	2.19	3.60	5.8	250	0.013	0.30	32.6	0.66	17.8%	
		UPPER QUEEN STREET	EX.4	EX.5	0.00	21.86				0	276	4.094	2.19	3.60	5.8	250	0.013	0.30	32.6	0.66	17.8%	
		UPPER QUEEN STREET	EX.5	EX.6	0.00	21.86				0	276	4.094	2.19	3.60	5.8	200	0.013	4.71	71.2	2.27	8.1%	
		UPPER QUEEN STREET	EX.6	EX.7	0.00	21.86				0	276	4.094	2.19	3.60	5.8	200	0.013	3.22	58.9	1.87	9.8%	
		UPPER QUEEN STREET	EX.7	EX.8	0.00	21.86				0	276	4.094	2.19	3.60	5.8	300	0.013	0.60	91.7	1.30	6.3%	
		UPPER QUEEN STREET	EX.8	EX.9	0.00	21.86				0	276	4.094	2.19	3.60	5.8	300	0.013	0.50	68.4	0.97	8.5%	
		UPPER QUEEN STREET	EX.9	EX.10	0.00	21.86				0	276	4.094	2.19	3.60	5.8	300	0.013	2.44	151.7	2.15	3.8%	
		UPPER QUEEN STREET	EX.10	EX.11	0.00	21.86				0	276	4.094	2.19	3.60	5.8	300	0.013	2.40	149.8	2.12	3.9%	
		UPPER QUEEN STREET	EX.11	EX.12	0.00	21.86				0	276	4.094	2.19	3.60	5.8	300	0.013	3.79	188.3	2.66	3.1%	
		UPPER QUEEN STREET	EX.12	EX.13	0.00	21.86				0	276	4.094	2.19	3.60	5.8	300	0.013	0.46	65.6	0.93	8.8%	
		UPPER QUEEN STREET	EX.13	EX.14	0.00	21.86				0	276	4.094	2.19	3.60	5.8	300	0.013	0.48	63.4	0.90	9.1%	
		UPPER QUEEN STREET	EX.14	EX.15	0.00	21.86				0	276	4.094	2.19	3.60	5.8	300	0.013	0.43	63.4	0.90	9.1%	
		UPPER QUEEN STREET	EX.15	2	0.00	21.86				0	276	4.094	2.19	3.60	5.8	300	0.013	0.41	61.9	0.88	9.3%	
2		RIDOUT STREET	2	3	1.50	23.36				39	315	4.069	2.34	4.08	6.4	300	0.013	2.04	138.1	1.95	4.6%	
3		RIDOUT STREET	3	6	0.40	23.76				18	333	4.059	2.38	4.30	6.7	300	0.013	1.84	131.2	1.86	5.1%	
4		HICKERSON AVENUE	4	6	1.43	1.43				54	54	4.308	0.14	0.74	0.88							
5		ST. NEOTS DRIVE	5	6	1.18	1.18				38	38	4.337	0.12	0.52	0.6							
6		RIDOUT STREET	6	7	0.51	26.88				9	434	4.005	2.69	5.53	8.2	300	0.013	1.20	105.9	1.50	7.8%	
7		ROSEL CRESCENT	7	8	2.11	28.99				45	479	3.984	2.90	6.07	9.0							
8		RIDOUT STREET	8	12	0.57	29.56				21	500	3.974	2.96	6.32	9.3	300	0.013	0.40	61.2	0.87	15.2%	
9		FRANKLIN AVENUE	9	10	0.85	0.85				39	39	4.335	0.09	0.54	0.6							
10		FRANKLIN AVENUE	10	11	0.78	1.63				39	78	4.272	0.16	1.06	1.2							
11		FRANKLIN AVENUE	11	12	0.33	1.96				9	87	4.260	0.20	1.18	1.4							
12		RIDOUT STREET	12	15	1.33	32.85				45	632	3.920	3.29	7.88	11.2	300	0.013	0.34	56.4	0.80	19.8%	
13		EMERY STREET E	13	15	2.16	2.16				117	117	4.224	0.22	1.57	1.8							
14		EMERY STREET E	14	15	2.16	2.16				78	78	4.272	0.22	1.06	1.3							
15		RIDOUT STREET	15	17	0.99	38.16				55	882	3.834	3.82	10.76	14.6	300	0.013	0.75	83.7	1.18	17.4%	
16		GARFIELD AVENUE	16	17	1.67	1.67				72	72	4.280	0.17	0.98	1.1							
17		RIDOUT STREET	17	19	0.10	39.93				3	957	3.812	3.99	11.61	15.6	300	0.013	0.75	83.7	1.18	18.6%	
18		GARFIELD AVENUE	18	19	1.75	1.75				96	96	4.248	0.18	1.30	1.5							
19		RIDOUT STREET	19	21	0.69	42.37				39	1092	3.775	4.24	13.12	17.4	300	0.013	0.40	61.2	0.87	28.4%	
20		WINDSOR AVENUE	20	21	1.82	1.82				93	93	4.252	0.18	1.26	1.4							
21		RIDOUT STREET	21	23	0.17	44.36				9	1194	3.749	4.44	14.25	18.7	300	0.013	0.39	60.4	0.85	30.9%	
22		WINDSOR AVENUE	22	23	2.40	2.40				99	99	4.245	0.24	1.34	1.6							
23		RIDOUT STREET	23	25	0.46	47.22				24	1317	3.720	4.72	15.59	20.3	300	0.013	0.46	65.6	0.93	31.0%	
24		BAKER STREET	24	25	1.79	1.79				93	93	4.252	0.18	1.26	1.4							
25		RIDOUT STREET	25	27	0.26	49.27				15	1425	3.696	4.93	16.76	21.7	300	0.013	0.39	60.4	0.85	35.9%	
26		BRISCOE STREET E	26	27	2.07	2.07				99	99	4.245	0.21	1.34	1.5							
27		RIDOUT STREET	27	29	0.52	51.86				24	1548	3.670	5.19	18.08	23.3	300	0.013	0.48	67.0	0.95	34.7%	
28		MCKENZIE AVENUE	28	29	1.97	1.97				99	99	4.245	0.20	1.34	1.5							
29		RIDOUT STREET	29	33	0.23	54.06				12	1659	3.647	5.41	19.26	24.7	300	0.013	0.33	55.5	0.79	44.4%	
30		MCKENZIE AVENUE	30	31	0.87	0.87				45	45	4.324	0.09	0.62	0.7							
31		MCKENZIE AVENUE	31	32	0.66	1.53				33	78	4.272	0.15	1.06	1.2							
32		MCKENZIE AVENUE	32	33	0.51	2.04				21	99	4.245	0.20	1.34	1.5							
33		RIDOUT STREET	33	35	0.56	56.66				33	1791	3.623	5.67	20.65	26.3	375	0.013	0.30	96.0	0.87	27.4%	
34		TECUMSEH AVENUE E	34	35	10.36	10.36				2326	2326	3.534	1.04	26.16	27.2							
35		RIDOUT STREET	35	37	0.11	67.13				6	4123	3.322	6.71	43.59	50.3	375	0.013	0.27	91.1	0.82	55.2%	
36		TECUMSEH AVENUE E	36	37	1.89	1.89				96	96	4.248	0.19	1.30	1.5							
37		RIDOUT STREET	37	39	0.61	69.63				36	4255	3.309	6.96	44.82	51.8	375	0.013	0.47	120.2	1.09	43.1%	
38		FERGUSON PLACE	38	39	1.13	1.13				92	92	4.253	0.11	1.25	1.4							
39		RIDOUT STREET	39	41	0.04	70.80				3	4350	3.300	7.08	45.70	52.8	375	0.013	0.46	118.9	1.08	44.4%	
40		DUCHESS AVENUE	40	41	1.32	1.32				63	63	4.293	0.13	0.86	1.0							
41		RIDOUT STREET	41	42	0.45	72.57				15	4428	3.293	7.26	46.42	53.7	375	0.013	0.55	130.0	1.18	41.3%	
42		RIDOUT STREET	42	43	0.55	73.12				21	4449	3.292	7.31	46.61	53.9	450	0.013	0.15	110.4	0.69	48.8%	
43		RIDOUT STREET	43	45	0.17	73.29				3	4452	3.291	7.33	46.64	54.0	450	0.013	0.40	180.3	1.13	29.9%	
44		GRAND AVENUE	44	45	3.43	3.43				531	531	3.961	0.34	6.69	7.0							
45		RIDOUT STREET	45	47	0.15	76.87				3	4986	3.246	7.69	51.52	59.2	450	0.013	0.18	121.0	0.76	48.9%	
46		ELMWOOD AVENUE E	46	47	2.47	2.47				72	72	4.280	0.25	0.98	1.2							
47		RIDOUT STREET	47	48	0.73	80.07				123	5181	3.231	8.01	53.27	61.3	450	0.013	0.15	110.4	0.69	55.5%	
48		RIDOUT STREET	48	49	1.08	81.15				185	5266	3.216	8.12	54.93	63.0	450	0.013	0.16	114.0	0.72	55.3%	
49		RIDOUT STREET	49	51	1.41	82.56				398	5764	3.187	8.26	58.47	66.7	450	0.013	0.14	106.7	0.67	52.6%	
50		RIDOUT STREET	50	51	1.08	1.08				34	34	4.346	0.11	0.47	0.6							
51		BRUCE STREET	51	54	1.16	84.80				138	5936	3.175	8.48	59.99	68.5	525	0.013	0.13	155.1	0.72	44.2%	
52		MARLEY PLACE	52	53	1.33	1.33				82	82	4.264	0.13	1.11	1.2							
53		MARLEY PLACE	53	54	0.87	2.20				21	103	4.240	0.22	1.39	1.6							
54		BRUCE STREET	54	55	1.43	88.43				102	6141	3.161	8.84	61.79	70.6	525	0.013	0.13	155.1	0.72	45.6%	

**Project**

City of London

Project #: 53188-200  
 Date: 1/10/2024  
 Design By: JAC  
 Checked By: DRR

**PROPOSED SANITARY SEWER DESIGN SHEET (230L/Cap/Day) - USING DESIGN STANDARDS SEWAGE FLOW**

RESIDENTIAL COMMERCIAL AND INSTITUTIONAL POPULATION DENSITIES  
 THE FOLLOWING POPULATION ALLOWANCES WILL APPLY WHEN DESIGNING SANITARY SEWERS:

LOW DENSITY (SINGLE-FAMILY / SEMI-DETACHED) = 30 UNITS / HECTARE @ 3 PEOPLE / UNIT  
 MEDIUM DENSITY (MULTI-FAMILY / TOWNHOUSE / ROWHOUSE) = 75 UNITS / HECTARE @ 2.4 PEOPLE / UNIT  
 HIGH DENSITY (APARTMENTS) = 150-300 UNITS / HECTARE @ 1.6 PEOPLE / UNIT  
 COMMERCIAL / INSTITUTIONAL = 100 PEOPLE / HECTARE  
 SECONDARY SCHOOL = 1500 PEOPLE  
 ELEMENTARY SCHOOL = 600 PEOPLE

**Design Parameters**

SEWAGE = 230 L/Capita/Day  
 INFILTRATION = 8640 L/Ha/Day  
 PEAKING FACTOR= 1+(14/(P^0.5))  
 Manning's n<sup>o</sup> 0.013  
 Min. Velocity = 0.6 m/s  
 Max. Velocity = 4.5m/s (300-925mm) 6.0m/s (>900mm)

AREA No.	LOCATION		AREA		POPULATION				SEWAGE FLOWS			SEWER DESIGN									
	STREET	FROM MANHOLE	TO MANHOLE	DELTA HECTARE	TOTAL HECTARES	POP. PER HECTARE	PER LOT	NO. OF LOTS	DELTA POP.	TOTAL POP.	PEAKING FACTOR	INFILT L / s	SEWAGE L / s	Q TOTAL L / s	PIPE SIZE mm	n	SLOPE %	CAPL / s	VELOCITY m/s	Capacity	
	SITE	553-557 UPPER QUEEN STREET	SITE	EX.1	2.00	2.00		28	2.4	68	68	4.286	0.20	0.85		1.1					
1	UPPER QUEEN STREET	EX.1	EX.2	19.86	21.86				270	338	4.056	2.19	4.01	6.2	200	0.013	3.00	56.8	1.81	10.9%	
		EX.2	EX.3	0.00	21.86				0	338	4.056	2.19	4.01	6.2	250	0.013	0.30	32.6	0.66	19.0%	
		EX.3	EX.4	0.00	21.86				0	338	4.056	2.19	4.01	6.2	250	0.013	0.30	32.6	0.66	19.0%	
		EX.4	EX.5	0.00	21.86				0	338	4.056	2.19	4.01	6.2	250	0.013	0.30	32.6	0.66	19.0%	
		EX.5	EX.6	0.00	21.86				0	338	4.056	2.19	4.01	6.2	200	0.013	4.71	71.2	2.27	8.7%	
		EX.6	EX.7	0.00	21.86				0	338	4.056	2.19	4.01	6.2	200	0.013	3.22	58.9	1.87	10.5%	
		EX.7	EX.8	0.00	21.86				0	338	4.056	2.19	4.01	6.2	300	0.013	0.90	91.7	1.30	6.8%	
		EX.8	EX.9	0.00	21.86				0	338	4.056	2.19	4.01	6.2	300	0.013	0.50	68.4	0.97	9.1%	
		EX.9	EX.10	0.00	21.86				0	338	4.056	2.19	4.01	6.2	300	0.013	2.46	151.7	2.15	4.1%	
		EX.10	EX.11	0.00	21.86				0	338	4.056	2.19	4.01	6.2	300	0.013	2.40	149.8	2.12	4.1%	
		EX.11	EX.12	0.00	21.86				0	338	4.056	2.19	4.01	6.2	300	0.013	3.79	189.3	2.66	3.3%	
		EX.12	EX.13	0.00	21.86				0	338	4.056	2.19	4.01	6.2	300	0.013	0.46	65.6	0.93	9.5%	
		EX.13	EX.14	0.00	21.86				0	338	4.056	2.19	4.01	6.2	300	0.013	0.43	63.4	0.90	9.8%	
		EX.14	EX.15	0.00	21.86				0	338	4.056	2.19	4.01	6.2	300	0.013	0.43	63.4	0.90	9.8%	
		EX.15	2	0.00	21.86				0	338	4.056	2.19	4.01	6.2	300	0.013	0.41	61.9	0.88	10.0%	
2	RIDOUT STREET	2	3	1.50	23.34				39	377	4.034	2.34	4.45	6.8	300	0.013	2.04	138.1	1.95	4.9%	
		3	6	0.40	23.74				18	395	4.025	2.38	4.66	7.0	300	0.013	1.84	131.2	1.86	5.4%	
4	HICKERSON AVENUE	4	6	1.43	1.43				54	54	4.308	0.14	0.68								
5	ST. NEOTS DRIVE	5	6	1.18	1.18				38	38	4.337	0.12	0.48								
6	RIDOUT STREET	6	7	0.51	26.88				9	496	3.976	2.69	5.77	8.5	300	0.013	1.20	105.9	1.50	8.0%	
7	ROSEL CRESCENT	7	8	2.11	28.99				45	541	3.956	2.90	6.27	9.2							
8	RIDOUT STREET	8	12	0.57	29.56				21	562	3.948	2.96	6.50	9.5	300	0.013	0.40	61.2	0.87	15.5%	
9	FRANKLIN AVENUE	9	10	0.85	0.85				39	39	4.335	0.09	0.50	0.6							
10	FRANKLIN AVENUE	10	11	0.78	1.63				39	78	4.272	0.16	0.98	1.1							
11	FRANKLIN AVENUE	11	12	0.33	1.96				9	87	4.260	0.20	1.09	1.3							
12	RIDOUT STREET	12	15	1.33	32.85				45	694	3.897	3.29	7.92	11.2	300	0.013	0.34	56.4	0.80	19.9%	
13	EMERY STREET E	13	15	2.16	2.16				117	117	4.224	0.22	1.45	1.7							
14	EMERY STREET E	14	15	2.16	2.16				78	78	4.272	0.22	0.98	1.2							
15	RIDOUT STREET	15	17	0.99	38.16				55	944	3.816	3.82	10.55	14.4	300	0.013	0.75	83.7	1.18	17.2%	
16	GARFIELD AVENUE	16	17	1.67	1.67				72	72	4.280	0.17	0.90	1.1							
17	RIDOUT STREET	17	19	0.10	39.93				3	1019	3.795	3.99	11.32	15.3	300	0.013	0.75	83.7	1.18	18.3%	
18	GARFIELD AVENUE	18	19	1.75	1.75				96	96	4.248	0.18	1.19	1.4							
19	RIDOUT STREET	19	21	0.69	42.37				39	1154	3.759	4.24	12.70	16.9	300	0.013	0.40	61.2	0.87	27.7%	
20	WINDSOR AVENUE	20	21	1.82	1.82				93	93	4.252	0.18	1.16	1.3							
21	RIDOUT STREET	21	23	0.17	44.36				9	1256	3.734	4.44	13.73	18.2	300	0.013	0.39	60.4	0.85	30.1%	
22	WINDSOR AVENUE	22	23	2.40	2.40				99	99	4.245	0.24	1.23	1.5							
23	RIDOUT STREET	23	25	0.46	47.22				24	1379	3.706	4.72	14.96	19.7	300	0.013	0.46	65.6	0.93	30.0%	
24	BAKER STREET	24	25	1.79	1.79				93	93	4.252	0.18	1.16	1.3							
25	RIDOUT STREET	25	27	0.26	49.27				15	1487	3.682	4.93	16.03	21.0	300	0.013	0.39	60.4	0.85	34.7%	
26	BRISCOE STREET E	26	27	2.07	2.07				99	99	4.245	0.21	1.23	1.4							
27	RIDOUT STREET	27	29	0.52	51.86				24	1610	3.657	5.19	17.24	22.4	300	0.013	0.48	67.0	0.95	33.5%	
28	MCKENZIE AVENUE	28	29	1.97	1.97				99	99	4.245	0.20	1.23	1.4							
29	RIDOUT STREET	29	33	0.23	54.06				12	1721	3.636	5.41	18.32	23.7	300	0.013	0.33	55.5	0.79	42.7%	
30	MCKENZIE AVENUE	30	31	0.87	0.87				45	45	4.324	0.09	0.57	0.7							
31	MCKENZIE AVENUE	31	32	0.66	1.53				33	78	4.272	0.15	0.98	1.1							
32	MCKENZIE AVENUE	32	33	0.51	2.04				21	99	4.245	0.20	1.23	1.4							
33	RIDOUT STREET	33	35	0.56	56.66				33	1853	3.611	5.67	19.60	25.3	375	0.013	0.30	96.0	0.87	26.3%	
34	TECUMSEH AVENUE E	34	35	10.36	10.36				2326	2326	3.534	1.04	24.07	25.1							
35	RIDOUT STREET	35	37	0.11	67.13				6	4185	3.316	6.71	40.63	47.3	375	0.013	0.27	91.1	0.82	52.0%	
36	TECUMSEH AVENUE E	36	37	1.89	1.89				96	96	4.248	0.19	1.19	1.4							
37	RIDOUT STREET	37	39	0.61	69.63				36	4317	3.303	6.96	41.76	48.7	375	0.013	0.47	120.2	1.09	40.5%	
38	FERGUSON PLACE	38	39	1.13	1.13				92	92	4.253	0.11	1.15	1.3							
39	RIDOUT STREET	39	41	0.04	70.80				3	4412	3.295	7.08	42.57	49.6	375	0.013	0.46	118.9	1.08	41.8%	
40	DUCHESSE AVENUE	40	41	1.32	1.32				63	63	4.293	0.13	0.79	0.9							
41	RIDOUT STREET	41	42	0.45	72.57				15	4490	3.288	7.26	43.23	50.5	375	0.013	0.55	130.0	1.18	38.8%	
42	RIDOUT STREET	42	43	0.55	73.12				21	4511	3.286	7.31	43.41	50.7	450	0.013	0.15	110.4	0.69	45.9%	
43	RIDOUT STREET	43	45	0.17	73.29				3	4514	3.286	7.33	43.43	50.8	450	0.013	0.40	180.3	1.13	28.2%	
44	GRAND AVENUE	44	45	3.43	3.43				531	531	3.961	0.34	6.16	6.5							
45	RIDOUT STREET	45	47	0.15	76.87				3	5048	3.241	7.69	47.91	55.6	450	0.013	0.18	121.0	0.76	46.0%	
46	ELMWOOD AVENUE E	46	47	2.47	2.47				72	72	4.280	0.25	0.90	1.1							
47	RIDOUT STREET	47	48	0.73	80.07				123	5243	3.226	8.01	49.53	57.5	450	0.013	0.15	110.4	0.69	52.1%	
48	RIDOUT STREET	48	49	1.08	81.15				185	5428	3.212	8.12	51.05	59.2	450	0.013	0.16	114.0	0.72	51.9%	
49	RIDOUT STREET	49	51																		

**Project**

**PROPOSED SANITARY SEWER DESIGN SHEET (250L/Cap/Day) - USING AS-BUILT SEWAGE FLOW**

City of London

RESIDENTIAL COMMERCIAL AND INSTITUTIONAL POPULATION DENSITIES  
THE FOLLOWING POPULATION ALLOWANCES WILL APPLY WHEN DESIGNING SANITARY SEWERS:

**Design Parameters**

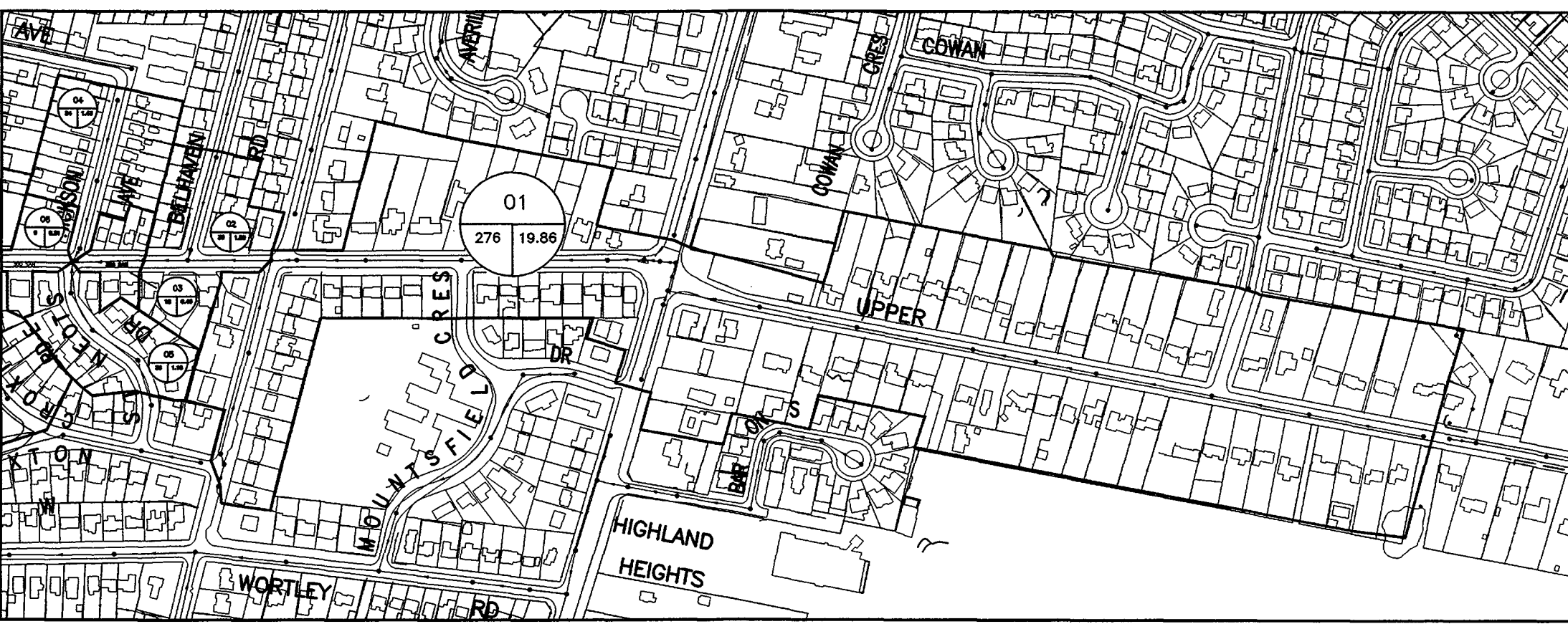
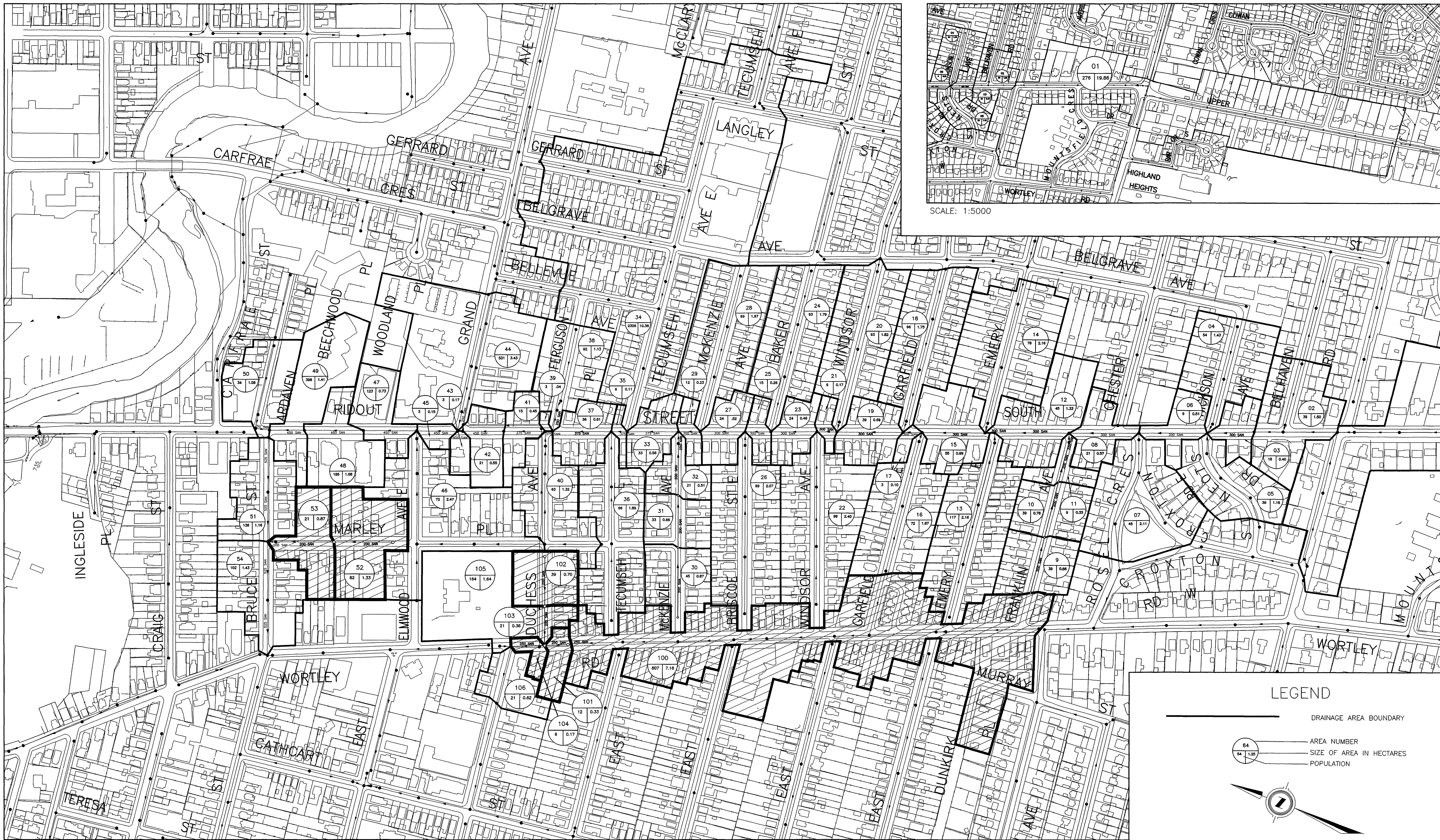
Project #: 53188-200  
Date: 1/10/2024  
Design By: JAC  
Checked By: DRR

LOW DENSITY (SINGLE-FAMILY / SEMI-DETACHED) = 30 UNITS / HECTARE @ 3 PEOPLE / UNIT  
MEDIUM DENSITY (MULTI-FAMILY / TOWNHOUSE / ROWHOUSE) = 75 UNITS / HECTARE @ 2.4 PEOPLE / UNIT  
HIGH DENSITY (APARTMENTS) = 150-300 UNITS / HECTARE @ 1.6 PEOPLE / UNIT  
COMMERCIAL / INSTITUTIONAL = 100 PEOPLE / HECTARE  
SECONDARY SCHOOL = 1500 PEOPLE  
ELEMENTARY SCHOOL = 600 PEOPLE

SEWAGE = 250 L/Capita/Day  
INFILTRATION = 8640 L/Ha/Day  
PEAKING FACTOR= 1+(4/(P^0.5))  
Manning's n= 0.013  
Min. Velocity = 0.6 m/s  
Max. Velocity = 4.5m/s (300-925mm) 6.0m/s (>900mm)

AREA No.	LOCATION		AREA		POPULATION				SEWAGE FLOWS			SEWER DESIGN									
	STREET	FROM MANHOLE	TO MANHOLE	DELTA HECTARE	TOTAL HECTARE	POP. PER HECTARE	PER LOT	NO. OF LOTS	DELTA POP.	TOTAL POP.	PEAKING FACTOR	INFILT L/s	SEWAGE L/s	Q TOTAL L/s	PIPE SIZE mm	n	SLOPE %	CAPL/s	VELOCITY m/s	Capacity	
	SITE	EX.1	EX.2	2.00	2.00			28	2.4	68	68	4.286	0.20	0.93	1.1						
1	553-557 UPPER QUEEN STREET	EX.1	EX.2	19.86	21.86					270	338	4.056	2.19	4.36	6.5	200	0.013	3.00	56.8	1.81	11.5%
		EX.2	EX.3	0.00	21.86					0	338	4.056	2.19	4.36	6.5	250	0.013	0.30	32.6	0.66	20.1%
		EX.3	EX.4	0.00	21.86					0	338	4.056	2.19	4.36	6.5	250	0.013	0.30	32.6	0.66	20.1%
		EX.4	EX.5	0.00	21.86					0	338	4.056	2.19	4.36	6.5	200	0.013	4.71	71.2	2.27	9.2%
		EX.5	EX.6	0.00	21.86					0	338	4.056	2.19	4.36	6.5	200	0.013	3.22	58.9	1.87	11.1%
		EX.6	EX.7	0.00	21.86					0	338	4.056	2.19	4.36	6.5	300	0.013	0.90	17.1	1.30	7.1%
		EX.7	EX.8	0.00	21.86					0	338	4.056	2.19	4.36	6.5	300	0.013	0.50	68.4	0.97	9.6%
		EX.8	EX.9	0.00	21.86					0	338	4.056	2.19	4.36	6.5	300	0.013	2.46	151.7	2.15	4.3%
		EX.9	EX.10	0.00	21.86					0	338	4.056	2.19	4.36	6.5	300	0.013	2.40	149.8	2.12	4.4%
		EX.10	EX.11	0.00	21.86					0	338	4.056	2.19	4.36	6.5	300	0.013	3.79	189.3	2.66	3.5%
		EX.11	EX.12	0.00	21.86					0	338	4.056	2.19	4.36	6.5	300	0.013	0.46	65.6	0.93	10.0%
		EX.12	EX.13	0.00	21.86					0	338	4.056	2.19	4.36	6.5	300	0.013	0.43	63.4	0.90	10.3%
		EX.13	EX.14	0.00	21.86					0	338	4.056	2.19	4.36	6.5	300	0.013	0.43	63.4	0.90	10.3%
		EX.14	EX.15	0.00	21.86					0	338	4.056	2.19	4.36	6.5	300	0.013	0.41	61.9	0.88	10.6%
		EX.15	2	0.00																	
2	RIDOUT STREET	2	3	1.50	23.34					39	377	4.034	2.34	4.84	7.2	300	0.013	2.04	138.1	1.95	5.2%
3	RIDOUT STREET	3	6	0.40	23.74					18	395	4.025	2.38	5.06	7.4	300	0.013	1.84	131.2	1.86	5.7%
4	HICKERSON AVENUE	4	6	1.43	1.43					54	54	4.308	0.14	0.74	0.88						
5	ST. NEOTS DRIVE	5	6	1.18	1.18					38	38	4.337	0.12	0.52	0.6						
6	RIDOUT STREET	6	7	0.51	26.88					9	496	3.976	2.69	6.28	9.0	300	0.013	1.20	105.9	1.50	8.5%
7	ROSEL CRESCENT	7	8	2.11	28.99					45	541	3.956	2.90	6.81	9.7						
8	RIDOUT STREET	8	12	0.57	29.56					21	562	3.948	2.96	7.06	10.0	300	0.013	0.40	61.2	0.87	16.4%
9	FRANKLIN AVENUE	9	10	0.85	0.85					39	39	4.335	0.09	0.54	0.6						
10	FRANKLIN AVENUE	10	11	0.78	1.63					39	78	4.272	0.16	1.06	1.2						
11	FRANKLIN AVENUE	11	12	0.33	1.96					9	87	4.260	0.20	1.18	1.4						
12	RIDOUT STREET	12	15	1.33	32.85					45	694	3.897	3.29	8.61	11.9	300	0.013	0.34	56.4	0.80	21.1%
13	EMERY STREET E	13	15	2.16	2.16					117	117	4.224	0.22	1.57	1.8						
14	EMERY STREET E	14	15	2.16	2.16					78	78	4.272	0.22	1.06	1.3						
15	RIDOUT STREET	15	17	0.99	38.16					55	944	3.816	3.82	11.47	15.3	300	0.013	0.75	83.7	1.18	18.2%
16	GARFIELD AVENUE	16	17	1.67	1.67					72	72	4.280	0.17	0.98	1.1						
17	RIDOUT STREET	17	19	0.10	39.93					3	1019	3.795	3.99	12.31	16.3	300	0.013	0.75	83.7	1.18	19.5%
18	GARFIELD AVENUE	18	19	1.75	1.75					96	96	4.248	0.18	1.30	1.5						
19	RIDOUT STREET	19	21	0.69	42.37					39	1154	3.759	4.24	13.81	18.0	300	0.013	0.40	61.2	0.87	29.5%
20	WINDSOR AVENUE	20	21	1.82	1.82					93	93	4.252	0.18	1.26	1.4						
21	RIDOUT STREET	21	23	0.17	44.36					9	1256	3.734	4.44	14.93	19.4	300	0.013	0.39	60.4	0.85	32.1%
22	WINDSOR AVENUE	22	23	2.40	2.40					99	99	4.245	0.24	1.34	1.6						
23	RIDOUT STREET	23	25	0.46	47.22					24	1379	3.706	4.72	16.26	21.0	300	0.013	0.46	65.6	0.93	32.0%
24	BAKER STREET	24	25	1.79	1.79					93	93	4.252	0.18	1.26	1.4						
25	RIDOUT STREET	25	27	0.26	49.27					15	1487	3.682	4.93	17.43	22.4	300	0.013	0.39	60.4	0.85	37.0%
26	BRISCOE STREET E	26	27	2.07	2.07					99	99	4.245	0.21	1.34	1.5						
27	RIDOUT STREET	27	29	0.52	51.86					24	1610	3.657	5.19	18.74	23.9	300	0.013	0.48	67.0	0.95	35.7%
28	MCKENZIE AVENUE	28	29	1.97	1.97					99	99	4.245	0.20	1.34	1.5						
29	RIDOUT STREET	29	33	0.23	54.06					12	1721	3.636	5.41	19.91	25.3	300	0.013	0.33	55.5	0.79	45.6%
30	MCKENZIE AVENUE	30	31	0.87	0.87					45	45	4.324	0.09	0.62	0.7						
31	MCKENZIE AVENUE	31	32	0.66	1.53					33	78	4.272	0.15	1.06	1.2						
32	MCKENZIE AVENUE	32	33	0.51	2.04					21	99	4.245	0.20	1.34	1.5						
33	RIDOUT STREET	33	35	0.56	56.66					33	1853	3.611	5.67	21.30	27.0	375	0.013	0.30	96.0	0.87	28.1%
34	TECUMSEH AVENUE E	34	35	10.36	10.36					2326	2326	3.534	1.04	26.16	27.2						
35	RIDOUT STREET	35	37	0.11	67.13					6	4185	3.316	6.71	44.17	50.9	375	0.013	0.27	91.1	0.82	55.8%
36	TECUMSEH AVENUE E	36	37	1.89	1.89					96	96	4.248	0.19	1.30	1.5						
37	RIDOUT STREET	37	39	0.61	69.63					36	4317	3.303	6.96	45.39	52.4	375	0.013	0.47	120.2	1.09	43.6%
38	FERGUSON PLACE	38	39	1.13	1.13					92	92	4.253	0.11	1.25	1.4						
39	RIDOUT STREET	39	41	0.04	70.80					3	4412	3.295	7.08	46.27	53.3	375	0.013	0.46	118.9	1.08	44.9%
40	DUCHESS AVENUE	40	41	1.32	1.32					63	63	4.293	0.13	0.86	1.0						
41	RIDOUT STREET	41	42	0.45	72.57					15	4490	3.288	7.26	46.99	54.2	375	0.013	0.55	130.0	1.18	41.7%
42	RIDOUT STREET	42	43	0.55	73.12					21	4511	3.286	7.31	47.18	54.5	450	0.013	0.15	110.4	0.69	49.4%
43	RIDOUT STREET	43	45	0.17	73.29					3	4514	3.286	7.33	47.21	54.5	450	0.013	0.40	180.3	1.13	30.2%
44	GRAND AVENUE	44	45	3.43	3.43					531	531	3.961	0.34	6.69	7.0						
45	RIDOUT STREET	45	47	0.15	76.87					3	5048	3.241	7.69	52.08	59.8	450	0.013	0.18	121.0	0.76	49.4%
46	ELMWOOD AVENUE E	46	47	2.47	2.47					72	72	4.280	0.25	0.98	1.2						
47	RIDOUT STREET	47	48	0.73	80.07					123	5243	3.226	8.01	53.83	61.8	450	0.013	0.15	110.4	0.69	56.0%
48	RIDOUT STREET	48	49	1.08	81.15																





**LEGEND**

- DRAINAGE AREA BOUNDARY
- 64  
54 | 1.20 — AREA NUMBER
- SIZE OF AREA IN HECTARES
- POPULATION

EXISTING SERVICES	DRAWING #, SOURCE	DATE	AS CONSTRUCTED SERVICES	COMPLETION	DETAILS	No.	REVISIONS	DATE	CONSULTANT	CONSULTANT OR DIVISION
					DESIGN	1	AS PER CITY COMMENTS	FEB 16, 2011	AGM	
					DRAWN BY	2	AS CONSTRUCTED SUBMISSION	OCTOBER 2011	AGM	
					CHECKED					
					APPROVED					
					DATE			FEBRUARY 2011		
					FILENAMEDWG					

**AGM**  
SURVEYING • ENGINEERING

ARCHIBALD, GRAY & MCKAY LTD.  
3514 WHITE OAK ROAD, LONDON, ON, N6E 2Z9  
PHONE 519-885-5300 FAX 519-885-5303  
EMAIL survey@agm.on.ca WEB www.agm.on.ca

ENGINEER'S  
LICENSED PROFESSIONAL ENGINEER  
S. P. BROWN  
OCT 26/11  
PROVINCE OF ONTARIO

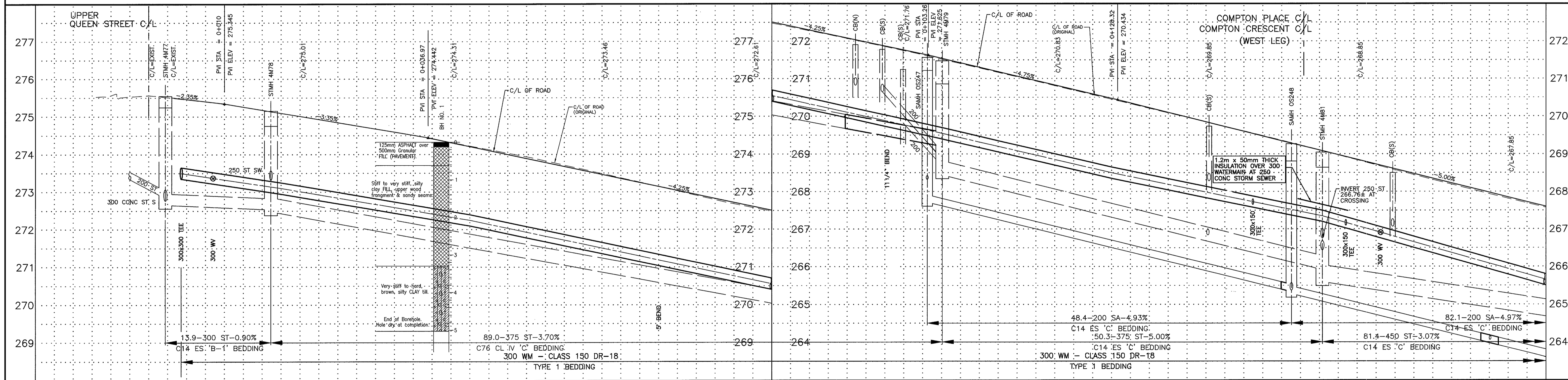
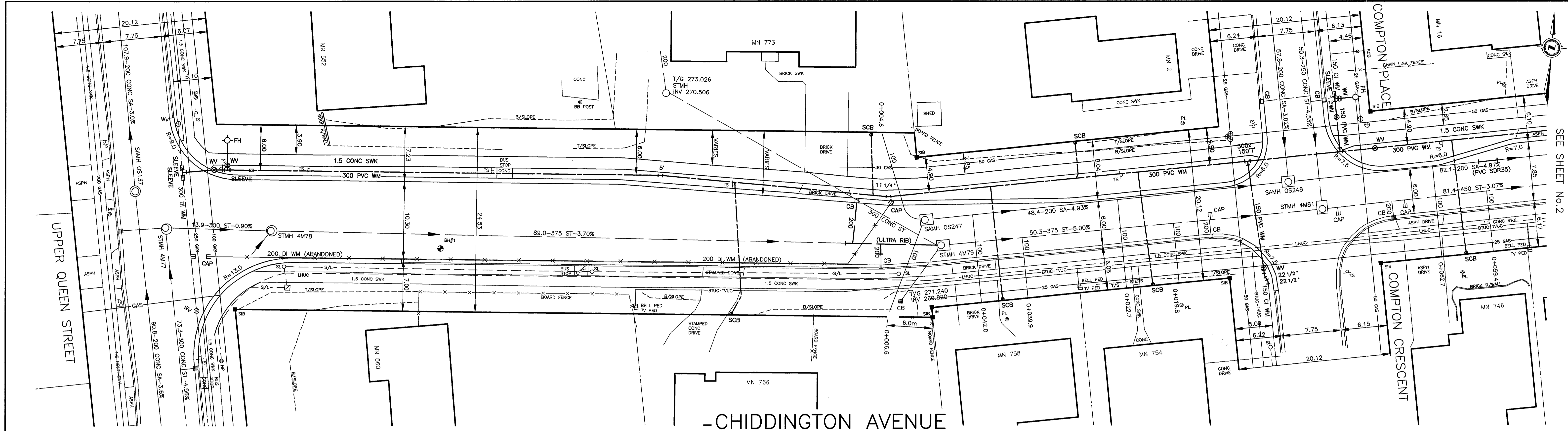
**CORPORATION OF THE CITY OF LONDON**  
London CANADA

SCALE  
1:2500

TITLE  
**CITY OF LONDON**  
2011 INFRASTRUCTURE RENEWAL PROGRAM  
CONTRACT #4  
**SANITARY DRAINAGE AREA PLAN**

PROJECT No.  
ES2414-11  
EW3765-11  
SHEET No.  
DA-2  
PLAN FILE No.  
22650





STATION	SANITARY INVERT	STORM INVERT	C/L WATERMAIN ELEVATION
0+000			
0+002.2	272.838 W	272.858 E	273.50
0+004.3	272.768 S		
0+008.5			
0+016.1	272.632 W	272.332 E	273.70
0+040	272.482 E		
0+080			
0+087.5			
0+103.1	268.325 NW	267.715 E	270.55
0+105.1	268.851 NW	268.201 W	269.55
0+107.8	268.441 E	268.671 SW	
0+120			
0+148.2			
0+151.3	265.370 N	265.332 W	268.50
0+158.5	265.501 E		
0+163.1	266.441 N	266.591 E	267.35
0+160			

EXISTING SERVICES	DRAWING #, SOURCE	DATE	AS CONSTRUCTED SERVICES	COMPLETION	DETAILS	No.	REVISIONS	DATE	CONSULTANT	
SA SEWERS, MH's & PDC's	2527	1985	GRANULAR & WSC's	AUG. 2010	DESIGN	JDA	1.	"AS CONSTRUCTED" DRAWING	MAR. 2011	SPRIET
ST SEWERS, MH's, CB's & PDC's	2527	1985	GRANULAR BASE	AUG. 2010	DRAWN BY	JDA				
ST SEWERS & MH's	6377	1976	CURB AND GUTTER	AUG. 2010	CHECKED	CSL				
ST SEWERS & MH's	6003	1977	SIDEWALK (N. SIDE)	AUG. 2010	APPROVED	CSL				
			PAVING - HL8 BASE	SEP. 2010	DATE	JUNE 2009				
			PAVING - HL3 SURFACE	MAY 2011						

CONSULTANT OR DIVISION

**SPRIET ASSOCIATES LIMITED**  
LONDON CONSULTING ENGINEERS  
155 YORK STREET - LONDON (519) 672-4100 - NS4 1A8

ENGINEER'S STAMP

LICENCED PROFESSIONAL ENGINEER  
C. S. LIERMAN  
PROVINCE OF ONTARIO

**CORPORATION OF THE CITY OF LONDON**  
London CANADA

SCALE  
HORZ. 1:250  
VERT. 1:50

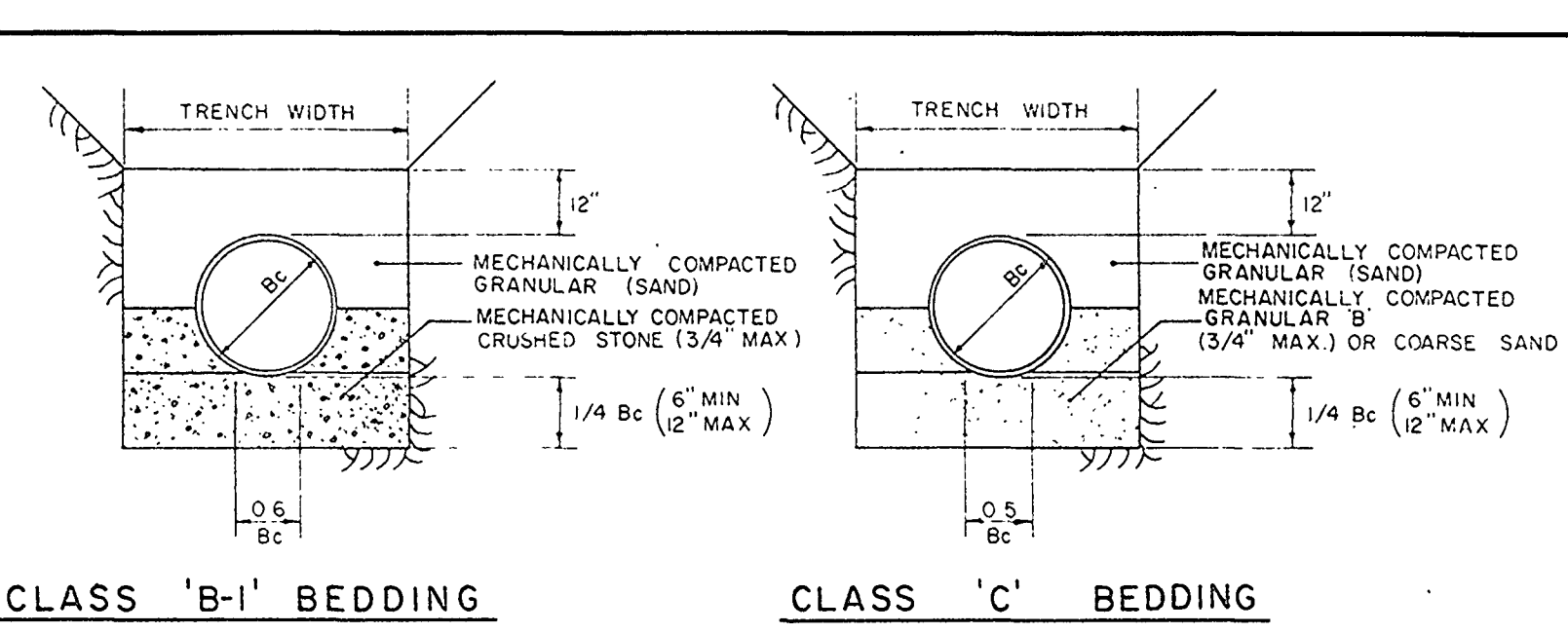
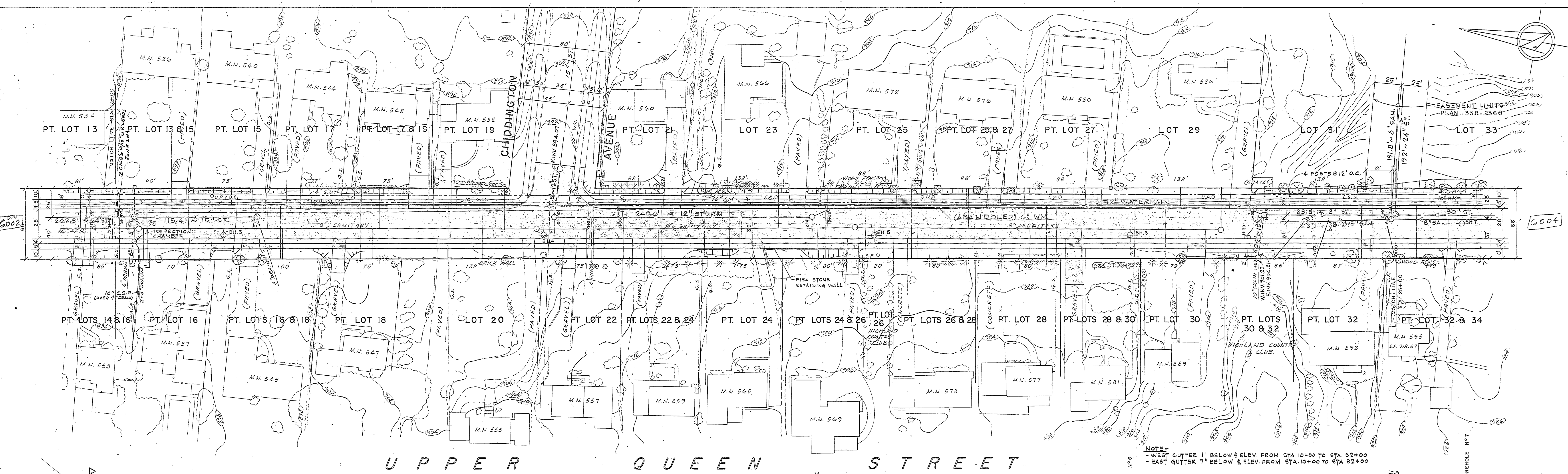
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TITLE

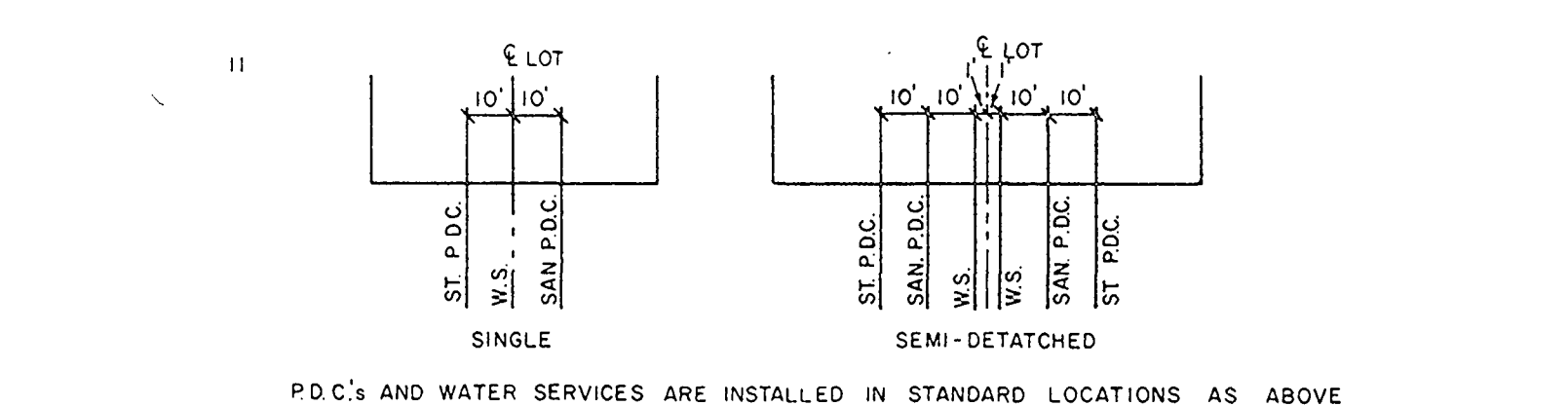
**CONTRACT No. 5**  
2010 INFRASTRUCTURE LIFECYCLE RENEWAL PROGRAM  
**CHIDDINGTON AVENUE**  
UPPER QUEEN STREET  
TO 32.0m EAST OF COMPTON CRESCENT

PROJECT No. **209084**  
SHEET No. **1**  
PLAN FILE No. **22206**





- NOTES:
- COVER OVER WATERMAIN TOP OF MAIN TO ROAD CENTRELINE IS 5'-6" TO 6'-0" UNLESS OTHERWISE NOTED
  - ALL CURB AND GUTTER RADI 25' UNLESS OTHERWISE NOTED
  - CATCH BASINS AT INTERSECTIONS ARE LOCATED 2' FROM B.H.C OR E.H.C UNLESS OTHERWISE SHOWN
  - FOR NOTES AND DETAILS APPLICABLE TO THIS DRAWING SEE DRAWING NO. 5, 6 & 7
  - P.D.C. AND C.B. CONNECTIONS AT MAINS ARE MEASURED FROM E OF MANHOLE FRAME AND COVER
  - STRUCTURAL DESIGN OF THE SEWERS IS BASED ON THE TRANSITION WIDTH UNLESS OTHERWISE NOTED ON PROFILE
  - ALL ELEVATIONS RELATED TO CITY OF LONDON BENCH MARK NO. S-110 ELEV. 899.956
  - TYPE OF SUBSOIL IN THIS AREA IS CLAY
  - DEGREE OF COMPACTION IN THE TRENCH BACKFILL 95% STANDARD PROCTOR (CAPITAL WORKS AND ASSUMED STREETS)
  - METHOD OF COMPACTION IN THE TRENCH BACKFILL - (SUBDIVISIONS) - MECHANICAL



P.D.C.s AND WATER SERVICES ARE INSTALLED IN STANDARD LOCATIONS AS ABOVE UNLESS OTHERWISE SHOWN AND NOTED.

SIZE	STRENGTH	MAT'L	JOINT	BEDDING
SAN P.D.C.s	4"	1500	A.C.	R.G. C.
ST P.D.C.s	4"	1500	A.C.	R.G. C.
C.B. CONNECTIONS	8"	E.S.	CONC.	R.G. C.
PRECAST CONC. M.H.s	48"	3000	CONC.	R.G. N/A

\* See Plan # 3108 For P.D.C. LOCATIONS.

SERVICES	COMPLETION
SANITARY SEWERS, P.D.C.s, M.H.s	AUG. 1977
STORM SEWERS, P.D.C.s, M.H.s, C.B.s	AUG. 1977
WATERMANS & WATER SERVICES	NOV. 1978
GRANULAR ROAD BASE	NOV. 1978
CURB & GUTTER	NOV. 1978
SIDEWALKS	NOV. 1978
PAVING	JUNE 1979

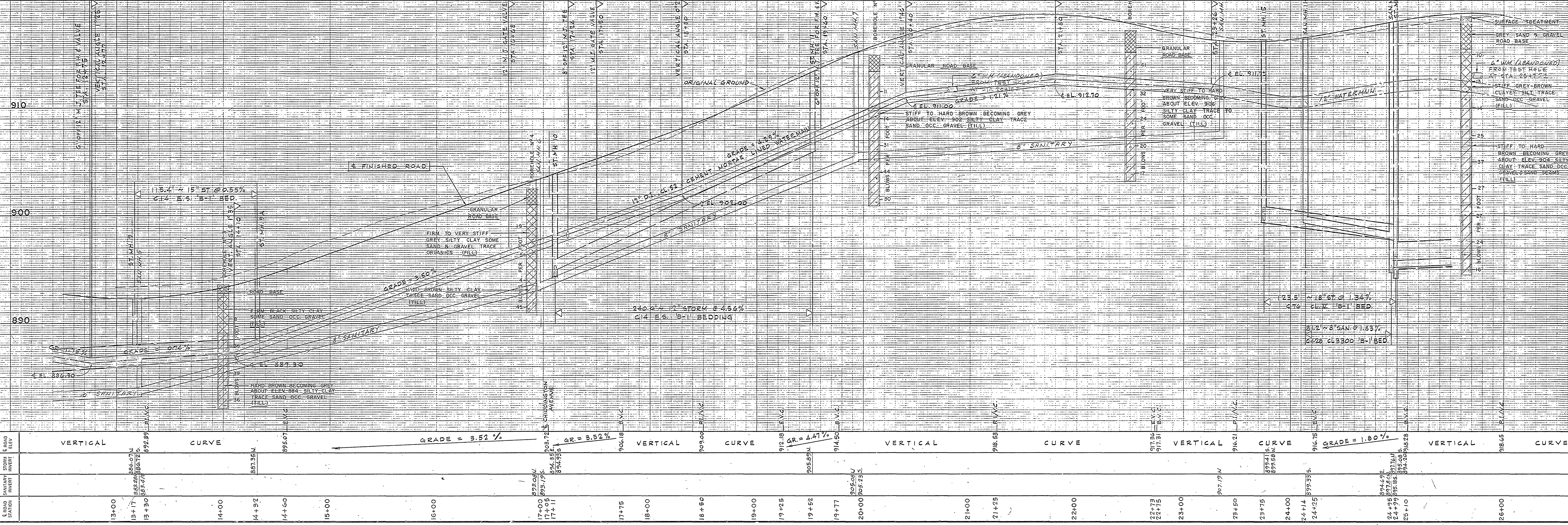
14. THE FOLLOWING CITY OF LONDON STANDARDS WERE USED: STD. 85, 1003, 1006, 1007, 1009 & 1013.

R. P. No. 53

NO.	REVISIONS	DATE	BY
10	"AS CONSTRUCTED DRAWING"	MAR/80	S.M.
9	REVISE ROAD GRADE	SEPT/78	P.D.
8	ROAD & WATERMAIN CONTRACT	JUL 20/78	RL/SM
7	WATERMAIN AS PER P.U.C.	APR. 18/78	S.M.
6	STORM SEWER LENGTHS	JUN 22/77	P.D.
5	STORM SEWER LENGTHS	JUN 17/77	P.D.
4	AS PER C.O.F.L.	FEB 4/77	RS.
3	AS PER C.O.F.L.	OCT 28/76	S.T.
2	BOREHOLES	JUN 27/76	D.E.
1	ROAD WIDTH 28' WM, F. SEWER GRADES	JUN. 1/76	R.L.

**CITY OF LONDON**  
**EXTENSION AND RECONSTRUCTION OF**  
**UPPER QUEEN STREET**

FROM 400' NORTH OF CHIDDINGTON AVE TO 800' SOUTH OF CHIDDINGTON AVE



DESIGN BY: R.C. STEVENSON  
 DRAWN BY: E. TAYLOR  
 CHECKED BY: C.G. FORBERG

FIELD BOOK:  
 SCALE: HOR. 1" = 40' VERT 1" = 4'  
 DATE: AUG. '76

**R.C. DUNN & ASSOCIATES LTD.**  
 CONSULTING ENGINEERS  
 LONDON ONTARIO

APPROVED BY:  
  
 SECTION HEAD

**CITY ENGINEER'S DEPARTMENT**

PROJECT NO. 74-108  
 DRAWING NO. 2

PROJECT NO. 610/U/4.1  
 DRAWING NO. 6003