MTE Consultants
123 St. George St., London, Ontario N6A 3A1

September 24, 2024

MTE File No.: 54969-100

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

Attention: Development Services

RE: Preliminary Site Stormwater Servicing and Stormwater Management (SWM) Brief
Residential Development
325 Southdale Road East, London, Ontario

This brief has been prepared to outline site servicing and Stormwater Management (SWM) strategies based on the City of London's (City) requirements and existing infrastructure in the vicinity of the subject lands at 325 Southdale Road East.

1.0 INTRODUCTION

MTE was retained by Sam Singh (client) to complete a preliminary Site Servicing Brief in support of a Zoning By-law Amendment (ZBA) of the above noted property.

The lands subject to the future ZBA application (the 'Site') and measures approximately 0.20 ha. The site is located approximately 80m east from the intersection of Wellington Road South and White Oak Road. The existing site is currently a single family residential unit and is bounded by residential development to the east (town house development), west, and south, and Southdale Road East to the north. The residential property to the south (3046 White Oak Rd) is currently a grassed area since the previous house has been demolished. MTE cannot confirm at this moment if that indicates potential development of that property in the near future.

The Conceptual Development Plan by Zelinka Priamo Ltd. (ZPL) proposes a 3-storey, 10-unit residential building with an associated driveway (access to Southdale Road East), surface parking, amenity area and landscaped area. The conceptual development plan (by ZPL) is attached to this brief.

2.0 STORMWATER MANAGEMENT AND STORM SERVICING

The preliminary Stormwater Management (SWM) strategy prepared in support of the proposed ZBA applications is presented below. More detailed information will be prepared during the detailed design stage of the site plan approval process.

2.1 Existing Conditions

Presently, the site is comprised of one house, two sheds at the back of the property, an asphalt driveway, concrete walkway, and a grassed/landscaped area. Based on the City of London Design Specifications and Requirements Manual, January 2024 (DS & RM), single family residential development is accounted for in the design of a storm sewer system with a runoff coefficient of 0.5.

A topographic survey of the site is not currently available. The current stormwater drainage is presented on the existing conditions sketch with one-meter contours. As shown on **Sketch 1** attached, the entire property drains to the east toward the neighbouring townhouse development. The front of the property ultimately drains to Southdale Road East R.O.W. The back of the property drains to the southeast toward the neighboring property at 3046 White Oak Rd. It is estimated based on the available contours that the site elevations are between 272.2 and 271.4. In addition, **Sketch 1** shows that there may be external flows from the property to the west.

Note that the site detailed existing conditions assessment will be provided during the detailed design (topographic survey will be available at that time).

2.2 Allowable Site Storm Flow

As discussed above, a portion of the subject site drains to Southdale Road East R.O.W. However, the City Record Drawing 5892 shows that the site is not tributary to the existing 250mm storm sewer on Southdale Road East, which was only intended to convey road runoff. Therefore, outletting runoff from the site to the existing 250mm storm sewer on Southdale Road East is not an option.

As per the attached City Record Drawing 31122 (Storm Sewer Design Sheet and Drainage), the site (at C = 0.65) is tributary to the existing storm sewer system on White Oak Road. As shown on the attached Dwg. 31122, the site is part of a tributary area, identified as drainage Area EX6, with a total area of 3.73, C=0.65 and Tc =14.13 min. The same record drawing shows that the 1650mm storm sewer from the storm MH 9X578 to the existing STMH is designed to convey the 250-year storm event from Catchment EX6. However, this information is to be confirmed with the City during the detailed design. As presented in the attached SWM calculations, the total allowable flow from the site was calculated to be 32.44 L/s during the 5-year storm and 55.86 L/s during the 100-year storm event.

More details regarding stormwater servicing through the White Oak Road storm system is provided below.

2.3 Proposed Conditions

As presented on the conceptual development plan (by ZPL) attached to this brief, the proposed development is comprised of the following: 3-storey residential building (footprint approximately 301 m^2), concrete/asphalt area (922.4 m^2), and landscaped/grassed area (776.6 m^2). As shown in the attached SWM calculations, the post-development composite runoff coefficient ('C') was calculated to be 0.63. which is less than the allowable 'C' coefficient.

It is important to note that the post-development 'C' is slightly lower than the allowable 'C'. Therefore, there will be no storage requirements. MTE understands from the note on record Dwg. 31122 that major flows from the site could be conveyed through the storm sewer. However, that information is to be confirmed with the City of London during the detailed design.

Preliminary SWM Strategy - Option 1

The City provided the following comment in the Pre-Application Consultation, dated February 24, 2024: "Alternatively, as per the Drainage By-Law, section 5.2, where no storm sewer is accessible the applicant shall provide a dry well or storm water retention system which is certified by a Professional Engineer to the satisfaction of the City Engineer. Any proposed LID solution should be supported by a Geotechnical Report and/or hydrogeological investigations prepared with focus on the type of soil, its infiltration rate, hydraulic conductivity (under field saturated conditions), and seasonal high ground water elevation". It is understood that drywells are to be sized to infiltrate runoff from a 25mm storm event, runoff in excess of this depth may make use of the existing drainage patterns provided the flow rates do not exceed the allowable flow rates for the site.

MTE assessed the option of infiltrating stormwater from the subject site. The infiltration features will be designed by taking into consideration site specific factors such as soil conditions including permeability/infiltration rate, groundwater table (GW), proposed development layout (spatial constraints) and grading. The infiltration and Low Impact Development (LID) requirements as per Ministry of Environment, Conservation and Parks (MECP) and Ontario Building Code (OBC) are as follows:

- Infiltration rate of native soil should be minimum 15 mm/hour (MECP).
- Separation between the bottom of the infiltration facility and impervious soils should be minimum 1 m (MECP).
- Separation between the bottom of the infiltration facility and groundwater (GW) should be minimum 1 m (MECP).
- Separation between the edge of the infiltration facility and any building should be minimum 4 m (MECP).
- Separation between the edge of the infiltration facility and any building should be minimum 5 m (OBC).

MTE was provided by Geotechnical Investigation by EXP Services Inc., dated August 21, 2023. MTE's review of the geotechnical investigation indicates that the GW on the site varies from 4.5 m to 5.3 m below ground level (bgs). Table 7 of the geotechnical investigation shows unfactored infiltration rate for the BH5 at the depth of 3.1 m bgs of 138 mm/hr (55 mm/hr with 2.5 safety factor), which is very good for the infiltration.

Based on the proposed development and minimum 4m separation from the building, the infiltration facility should be located in the vicinity to BH5. Therefore, BH5 is the most relevant for the MTE assessment of the Infiltration /LID feasibility for the site.

Unfortunately, BH5 was terminated at the 3.5m bgs, so the critical information such as groundwater elevation and the depth of the sand soil layer are missing. However, based on the information obtained from the other four boreholes, it is expected that the sand layer is underlain by a layer of silt which is then underlain by more sand, and the groundwater is approximately 4.5m below grade.

Based on MTE's assessment, the site stormwater infiltration (infiltration galleries and/or different LID features based on infiltration) is a feasible option if the following assumptions are correct:

- The Sand Soil Layer at 1m deep (or higher), ends at last at 4.1 m bgs (to be confirmed prior detail design).
- The GW is at least 4.1 m bgs or deeper (to be confirmed prior detail design).

It is anticipated that infiltration storage would be provided via stone galleries or subsurface storage chambers. The type of the infiltration features and their layout will be provided during the detailed design.

Potential area for infiltration (based on spatial constraints) is highlighted in green on the conceptual development plan (by ZPL) attached to this brief.

Preliminary SWM Strategy - Option 2

Option 2a considered that the site storm servicing will be provided by conveying storm flows to the existing 300mm storm sewer on Southdale Road East, while option 2b considered that the site storm servicing will be provided by conveying storm flows to the existing 2,250mm storm sewer located in the easement just north of the Southdale Road East R.O.W. Options 3a and 3b are presented on Sketch 3, attached to this brief.

Option 2a. City Record Drawing 5892 shows that the site is not tributary to the existing 250mm / 300mm storm sewer on Southdale Road East, which only conveys road runoff, and the original design of the sewers did not account for this proposed development. Drawing 5892 also shows that the 300mm storm sewer outlets to the 2,250mm storm sewer.

Our review of the storm sewer information provided on the City's Locates Map and City Record Drawing 5888 indicates that the slopes provided in the storm sewer deign sheet (Dwg. 5892) are not correct. In addition, Mannings 'n' values shown on the storm design sheet are 0.015. Attached below, Dwg. 5892 (updated [marked in red] by MTE for correct slope and n=0.013) shows that there is approximately 24 L/s (the worst case) of available storm capacity in the 300mm storm sewer.

As shown on the attached Sketch 3, option 2a considered that storm flows are controlled on-site to the flow of 24 L/s and conveyed to the existing MH7X105 on Southdale Road East, and further to the existing 2,250mm storm sewer via an existing 300mm storm sewer. Option 2a assumes that the existing 2,250mm storm sewer has capacity for the additional storm flows of 24 L/s from the subject site.

As shown on the attached Sketch 3, there is a crossing conflict between the future storm servicing and existing 300mm ductile iron watermain (WM). This conflict can be resolved by offsetting the existing 300mm WM.

The preliminary storm servicing schematic on Sketch 3 was prepared for general presentation purposes. Detailed storm servicing drawings and calculations will be provided during the detailed design (SPA process).

Option 2b. Option 2b considered that storm flows are controlled on-site to the flow of approximately 32 L/s (C=0.65 and Tc = 14 min) and conveyed to the existing 2,250mm storm sewer. Option 3b assumes that the existing 2,250mm storm sewer has capacity for the additional storm flows from the subject site.

As shown on the attached Sketch 3, there are no crossing conflicts between future storm servicing and existing sanitary and water servicing. The preliminary storm servicing schematic on Sketch 3 was prepared for general presentation purposes. Detailed storm servicing drawings and calculations will be provided during the detailed design (SPA process).

3.0 CONCLUSIONS

Based on the preliminary information and analysis, it is feasible to provide stormwater servicing for the proposed development in accordance with the City of London, UTRCA and MECP requirements.

Please contact us should you have any comments or questions,

Yours Truly,
MTE Consultants Inc.

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JJM:azp
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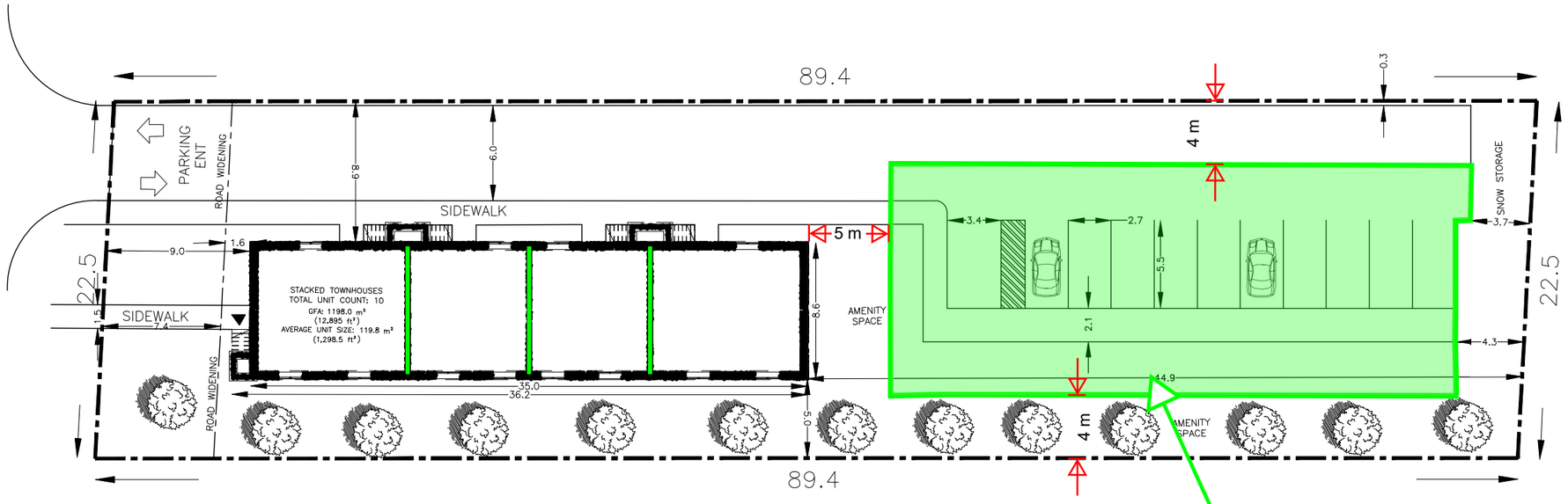
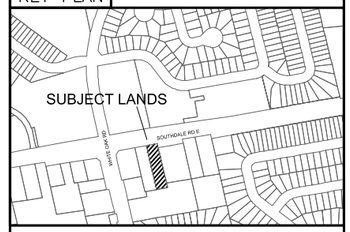


KEY PLAN



CONCEPT PLAN

CON 2 PT LOT 30

CITY OF LONDON

EXISTING ZONE: R3-3
PROPOSED ZONE: R5-6

	REQUIRED	PROPOSED
LOT AREA	1000 m²	1994 m²
LOT FRONTAGE	30 m	22.4 m*
LOT DEPTH	N/A	89.3 m
BUILDING DEPTH(S)	N/A	35.0 m
FRONT YARD SETBACK (FYS)	8.0 m	9.0 m
FYS (POST ROAD WIDENING)	8.0 m	1.6 m*
REAR YARD SETBACK	5.6 m	44.9 m
INT. SIDEYARD (E)	5.6 m	8.9 m
INT. SIDEYARD (w)	5.6 m	5.0 m*
LANDSCAPED AREA	30%	49%
LOT COVERAGE	45%	15%
HEIGHT	12.0 m	11.3 m
PARKING	5	11
DESNITY (MAX)	50 UPH	50 UPH

*SPECIAL REGULATION REQUIRED

NO.	REVISION	DATE	INITIAL

SINGH, SAM

325 SOUTHDALE ROAD

ZELINKA PRIAMO LTD
A Professional Planning Practice
318 Wellington Road, London, Ontario N6C 4P4
Tel: (519) 474-7137 Fax: (519) 474-2284 e-mail: zp@zpplan.com

DRAWN BY	PROJECT NO.
BC	SNG/LON/19-05
DATE	SCALE
APRIL 2024	N.T.S

Sketch 1.Existing Conditions Drainage

MTE Consultants
123 St. George St., London, Ontario N6A 3A1

Preliminary SWM Calculations

DATE: September 23, 2024
JOB N0.: 42024-509

Client: Sam Singh
Project: Proposed Residential Development
Location: 325 Southside Road East, London, ON.

ALLOWABLE FLOWS

CATCHMENT EXT6

Total Area:	3.730	Ha
C' Coefficient =	0.65	
Tc=	14.070	min

Catchement EX6 5-Year Flows

C =	0.65	
Time to concentration t_c =	14.070	min
Intensity, i (@ t_c) =	89.77	mm/hr
2-Year Flow, Q_r = 2.78*C*i*A =	605.04	l/s

Catchement EX6 100-Year Flows

C =	0.65	
Time to concentration t_c =	14.070	min
Intensity, i (@ t_c) =	154.55	mm/hr
2-Year Flow, Q_r = 2.78*C*i*A =	1041.70	l/s

CITY OF LONDON-3 CHICAGO RAINFALL DISTRIBUTION PARAMETERS*

Return Period (years)	A,B,C Parameters A	B	C
25mm	538.85	6.331	0.809
2	754.360	6.011	0.810
5	1183.74	7.641	0.838
10	1574.382	9.025	0.860
25	2019.372	9.824	0.875
50	2270.665	9.984	0.876
100	2619.363	10.500	0.884
250	3048.220	10.030	0.888

*Intensity i=A/(t+B)^C (mm/hr)

* Refer to the City of London Design Specification & Requirments Manual (DS&RM), Section 6.

SUBJECT SITE ALLOWABLE FLOW

Total Area:	0.200	Ha
C' Coefficient =	0.65	
Tc=	14.070	min

Subject Site Allowable 5-Year Flows

C =	0.65	
Time to concentration t_c =	14.070	min
Intensity, i (@ t_c) =	89.77	mm/hr
2-Year Flow, Q_r = 2.78*C*i*A =	32.44	l/s

Subject Site Allowable 100-Year Flows

C =	0.65	
Time to concentration t_c =	14.070	min
Intensity, i (@ t_c) =	154.55	mm/hr
2-Year Flow, Q_r = 2.78*C*i*A =	55.86	l/s

EXISTING 200mm MANNING'S PIPE FLOWS

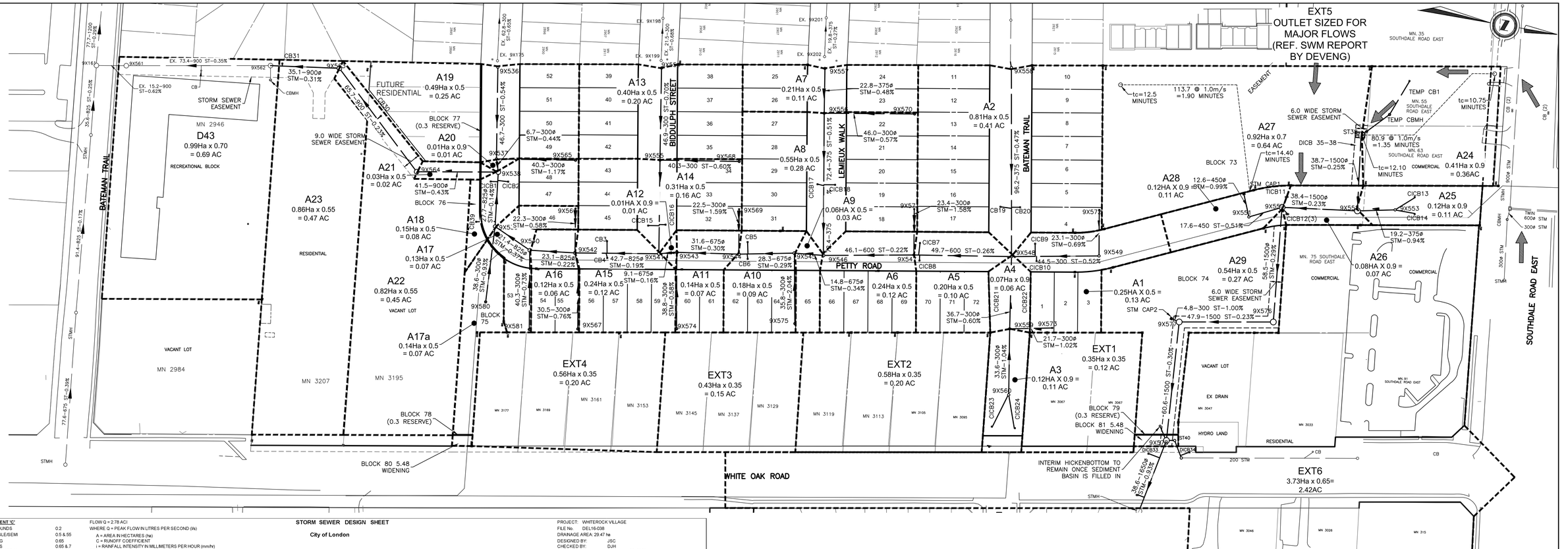
Manning's n =	0.013	
Pipe Dia., D =	0.2	m
Area, A =	0.0314	m^2
Wetted Perimeter, P =	0.6283	m
Hydraulic Radius, R = A/P =	0.0500	m
Slope, S =	2.00%	
Pipe Flow Q=(1/n)AR^(2/3)S^(1/2)=	0.0464	m^3/s
=	46.38	l/s
Velocity =	1.48	m/s

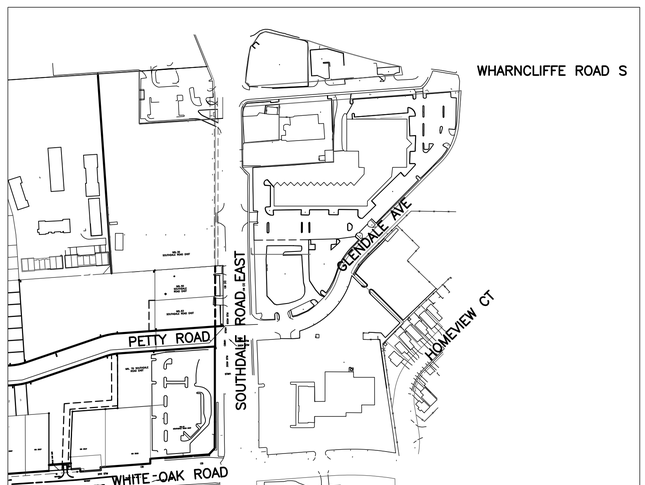
**As per Development Engineering Whiterock Village Subdivision-Storm Atra Plan and Design Sheet (City of Record Drawing 31122)

P0ST-DEVELOPMENT CONDITIONS

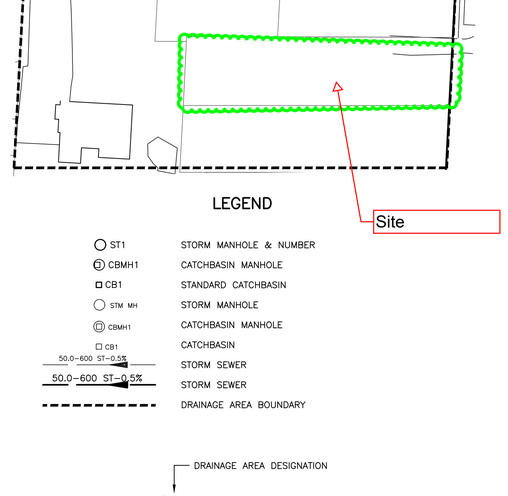
TOTAL P0ST-DEVELOPMENT CONTROLLED AREA (A3)

	Area (m^2)	C	A*C
Total Area:	2000.00		
Building Area:	301.00	0.9	270.9
Concrete/Asphalt:	922.00	0.9	829.8
Gravel:	0.00	0.9	0
Landscaped/Open:	777.00	0.2	155.4
Totals:	2000.00		1256.1
C_{eq} = Sum(A*C)/Sum(A) =	0.63		





EXTERNAL CATCHMENT AREA (EXT5)
PER SWM REPORT
APPROX. 14.1HA
1:3000 SCALE



LEGEND

- ST1 — STORM MANHOLE & NUMBER
- CBMH1 — CATCHBASIN MANHOLE
- CB1 — STANDARD CATCHBASIN
- STM MH — STORM MANHOLE
- CBMH1 — CATCHBASIN MANHOLE
- CB1 — CATCHBASIN
- 50.0–600 ST–0.5% — STORM SEWER
- 50.0–600 ST–0.5% — STORM SEWER
- DRAINAGE AREA BOUNDARY

DRAINAGE AREA DESIGNATION
D10
DRAINAGE AREA (Ha) → 0.60Ha x 0.5 = 0.30 AC ← RUN–OFF COEFFICIENT (C)
TOTAL A x C

RUNOFF COEFFICIENT 'C'

PARKS & PLAYGROUNDS	0.2
RESIDENTIAL - SINGLE/SEMI	0.5 & 55
- ROWHOUSING	0.65
- APARTMENTS	0.65 & 7
COMMERCIAL & INDUSTRIAL	0.7 & 9

FLOW Q = 2.78 ACI
WHERE Q = PEAK FLOW IN LITRES PER SECOND (l/s)
A = AREA IN HECTARES (ha)
C = RUNOFF COEFFICIENT
I = RAINFALL INTENSITY IN MILLIMETERS PER HOUR (mm/hr)
RETURN PERIOD 2 YEARS

STORM SEWER DESIGN SHEET

City of London

PROJECT: WHITEROCK VILLAGE
FILE No.: DEL16-038
DRAINAGE AREA: 29.47 ha
DESIGNED BY: JSC
CHECKED BY: DJH
DATE: January 25, 2021

SEWER LOCATION			AREA			A X C				RAINFALL INTENSITY			SEWER DESIGN							PROFILE					
STREET	FROM	TO	AREA NUMBER	AREA ha.	TOTAL AREA ha.	RUNOFF COEFF. (above)	INCR AxC	TOTAL SECTION AxC A X C	TOTAL LAT. A X C	TOTAL SEWER A x C	TOTAL SEW. 2.78 x AxC	TIME ENT. SECT. min.	MIN. ACCUM. min.	INTENS. 'I' mm/hr	Q l/s	PIPE Dia mm	FINAL SLOPE	N	ACTUAL CAP. l/s	ACTUAL VELOCITY m./s	LENGTH m	TIME OF FLOW minutes	MANHOLE LOSSES m	DROP IN MH m	SEWER FALL m	INVERT U.S. m	ELEV. D.S. m
PETTY ROAD	ST14	ST13	A1	0.250	0.250	0.50	0.125	0.000		0.125	0.348	0.00	19.00	76.00	26.45	300	0.54	0.013	71.06	1.000	43.8	0.73	0.000	0.300	0.237	268.835	268.598
BATEMAN TRAIL	ST15	ST13	A2	0.810	0.810	0.50	0.405	0.000		0.405	1.126	0.00	19.00	76.00	85.58	375	0.50	0.013	123.96	1.225	94.5	1.29	0.109	0.225	0.473	268.881	268.408
		ST17	EXT1	0.350	0.350	0.35	0.123	0.000		0.123	0.341																
BATEMAN TRAIL	ST17	ST16	A3	0.120	0.470	0.90	0.108	0.123		0.231	0.641	0.00	19.00	76.00	48.72	300	1.00	0.013	96.70	1.378	33.7	0.41	0.000	0.030	0.337	269.190	268.853
BATEMAN TRAIL	ST16	ST13	A4	0.070	0.540	0.90	0.063	0.231		0.294	0.816	0.41	19.41	75.00	61.20	300	0.60	0.013	74.90	1.183	37.6	0.53	0.109	0.300	0.225	268.823	268.598
		ST13	EXT2	0.580	0.580	0.35	0.203	0.000		0.203	0.564																
PETTY ROAD	ST13	ST12	A5	0.200	2.380	0.50	0.100	0.328	0.699	1.127	3.132	1.29	20.29	72.44	226.88	600	0.25	0.013	307.00	1.195	50.2	0.70	0.000	0.030	0.126	268.298	268.172
PETTY ROAD	ST12	ST11	A6	0.240	2.620	0.50	0.120	1.127		1.247	3.465	0.70	20.99	70.86	245.53	600	0.25	0.013	307.00	1.207	46.4	0.64	0.000	0.075	0.116	268.142	268.026
LEMIEUX WALK	ST23	ST22	A7	0.210	0.210	0.50	0.105	0.000		0.105	0.292		19.00	76.00	22.19	375	0.50	0.013	123.96	1.000	22.7	0.38	0.000	0.030	0.114	268.753	268.639
LEMIEUX WALK	ST22	ST11	A8	0.550	0.760	0.50	0.275	0.105		0.380	1.056	0.38	19.38	75.06	79.26	375	0.50	0.013	123.96	1.210	71.5	0.98	0.154	0.300	0.358	268.609	268.251
		ST11	EXT3	0.430	0.430	0.35	0.151	0.000		0.151	0.418																
PETTY RD	ST11	ST10	A9	0.060	3.870	0.50	0.030	1.397	0.380	1.807	5.023	0.64	21.63	69.51	349.15	675	0.30	0.013	460.42	1.420	14.3	0.17	0.000	0.030	0.043	267.951	267.908
PETTY RD	ST10	ST9	A10	0.180	4.050	0.50	0.090	1.807		1.897	5.274	0.17	21.80	69.12	364.54	675	0.30	0.013	460.42	1.428	28.6	0.33	0.000	0.030	0.086	267.878	267.792
PETTY RD	ST9	ST8	A11	0.140	4.190	0.50	0.070	1.897		1.967	5.468	0.33	22.13	68.24	373.14	675	0.30	0.013	460.42	1.434	31.4	0.36	0.000	0.030	0.094	267.762	267.668
PETTY RD	ST8	ST7	A12	0.010	4.200	0.90	0.009	1.967		1.976	5.493	0.36	22.49	67.36	370.01	675	0.30	0.013	460.42	1.432	8.8	0.10	0.000	0.150	0.026	267.638	267.612
BIDDULPH ST	ST21	ST20	A13	0.400	0.400	0.50	0.200	0.000		0.200	0.556		19.00	76.00	42.26	300	0.70	0.013	80.91	1.168	46.8	0.67	0.000	0.075	0.327	268.346	268.019
BIDDULPH ST	ST20	ST7	A14	0.310	0.710	0.50	0.155	0.200		0.355	0.987	0.67	19.67	74.16	73.20	375	0.55	0.013	130.01	1.230	47.2	0.64	0.135	0.450	0.260	267.944	267.684
		ST7	EXT4	0.560	0.560	0.35	0.196	0.000		0.196	0.545																
PETTY RD	ST7	ST6	A15	0.240	5.710	0.50	0.120	2.172	0.355	2.647	7.359	0.10	22.59	67.30	495.26	825	0.20	0.013	641.75	1.328	43.0	0.54	0.000	0.030	0.086	267.462	267.376
PETTY RD	ST6	ST5	A16	0.120	5.830	0.50	0.060	2.647		2.707	7.525	0.54	23.13	66.00	496.65	825	0.20	0.013	641.75	1.329	22.8	0.29	0.000	0.030	0.046	267.346	267.300
PETTY RD	ST5	ST4	A17	0.130	5.960	0.50	0.065	2.707		2.772	7.706	0.29	23.42	65.48	504.59	825	0.20	0.013	641.75	1.332	21.6	0.27	0.065	0.065 #	0.043	267.270	267.227
BLOCK 75	CBMH37	ST4	A17a	0.140	0.140	0.50	0.070	0.000		0.070	0.195	0.64	19.00	76.00	14.82	300	0.86	0.013	89.68	1.000	38.7	0.64	0.066	0.525	0.333	268.020	267.687
PETTY RD	ST4	ST3	A18	0.150	6.250	0.50	0.075	2.842		2.917	8.109	0.27	23.69	65.00	527.09	825	0.20	0.013	641.75	1.341	27.9	0.35	0.082	0.082 #	0.056	267.162	267.106
PETTY RD	ST19	ST18	A19	0.490	0.490	0.50	0.245	0.000		0.245	0.681		19.00	76.00	51.76	300	0.54	0.013	71.06	1.105	46.8	0.71	0.000	0.030	0.253	267.940	267.687
PETTY RD	ST18	ST3	A20	0.010	0.500	0.90	0.009	0.245		0.254	0.706	0.71	19.71	74.00	52.24	300	0.54	0.013	71.06	1.106	6.2	0.09	0.115	0.600	0.033	267.657	267.624
EASEMENT	ST3	ST2	A21	0.030	6.780	0.50	0.015	3.171		3.186	8.857	0.35	24.04	64.44	570.75	900	0.24	0.013	886.86	1.505	39.8	0.44	0.084	0.084 #	0.096	267.024	266.928
EASEMENT	ST2	ST1	A22	0.820	7.600	0.55	0.451	3.186		3.637	10.111	0.44	24.48	63.50	642.05	900	0.24	0.013	886.86	1.531	65.2	0.71	0.111	0.111 #	0.156	266.844	266.688
EASEMENT	ST1	EX. ST2	A23	0.860	8.460	0.55	0.473	3.637		4.110	11.426	0.71	25.19	62.04	708.87	900	0.32	0.013	1024.06	1.758	34.5	0.33	0.000	0.030	0.110	266.577	266.467
EX. EASEMENT	EX. ST2	EX. ST1	D43	0.990	9.450	0.70	0.693	4.110		4.803	13.352	0.33	25.52	61.47	820.75	900	0.35	0.013	1070.99	1.861	73.5	0.66		0.030	0.257	266.437	266.180
PETTY ROAD	ST29	ST28	A25	0.121	0.121	0.90	0.109	0.000		0.109	0.303	0.00	19.00	76.00	23.03	375	1.00	0.013	175.30	1.111	19.3	0.29	0.000	1.125	0.193	269.337	269.144
		CB38	EXT5	14.100	14.100	0.65	9.165	0.000		9.165	25.479																
* EXTERNAL MAJORS	CB38	ST28	A24	0.410	14.510	0.90	0.369	9.165		9.534	26.505	0.29	12.39	95.35	2527.25	1500	0.30	0.013	3871.85	2.371	37.6	0.26	0.431	0.431	0.113	268.695	268.582
BLOCK 73	CAP1	ST30	A27	0.920	0.920	0.70	0.644	0.000		0.644	1.790	0.00	14.40	88.60	158.59	450	1.00	0.013	285.10	1.867	12.5	0.14	0.000	0.030	0.125	269.041	268.916
PETTY ROAD	ST30	ST27	A28	0.120	1.040	0.90	0.108	0.644		0.752	2.091	0.14	14.54	88.28	184.59	450	0.54	0.013	209.50	1.497	14.1	0.16	0.439	1.050	0.076	268.886	268.810
* PETTY ROAD	ST28	ST27	A26	0.076	14.707	0.90	0.068	9.643		9.711	26.997	0.26	12.65	94.25	2544.47	1500	0.30	0.013	3871.85	2.374	37.8	0.27	0.439	0.439	0.113	268.582	268.469
* BLOCK 74/EASEMENT	ST27	ST26		0.000	15.747	0.00	0.000	10.463		10.463	29.088	0.27	12.92	93.41	2717.11	1500	0.30	0.013	3871.85	2.397	57.8	0.40	0.438	0.438	0.173	268.469	268.296
* BLOCK 74/EASEMENT	ST26	ST25		0.000	15.747	0.00	0.000	10.463		10.463	29.088	0.40	13.32	92.32	2685.40	1500	0.30	0.013	3871.85	2.393	47.9	0.33	0.439	0.439	0.144	268.296	268.152
BLOCK 74	CAP2	ST25	A29	0.540	0.540	0.50	0.270	0.000		0.270	0.751	0.33	19.00	76.00	57.08	300	1.00	0.013	96.70	1.449	4.9	0.06	0.391	1.350	0.049	268.801	268.752
* BLOCK 74/EASEMENT	ST25	ST24		0.000	16.287	0.00	0.000	10.733		10.733	29.839	0.33	13.65	91.05	2716.84	1500	0.30	0.013	3871.85	2.397	60.6	0.42		0.030	0.182	268.152	267.970
* BLOCK 74/EASEMENT	ST24	EX. STMH	EXT6	3.730	20.017	0.65	2.425	10.733		13.158	36.579	0.42	14.07	90.06	3294.30	1650	0.23	0.013	4370.92	2.255	38.6	0.29		1.030	0.089	267.899	267.810

# DENOTES BENCH TO CROWN

* DESIGNATED SEWER RUNS HAVE BEEN DESIGNED TO CONVEY 250 YEAR STORM EVENT. REF. SWM REPORT BY DEVENG

EXISTING SERVICES	DRAWING #, SOURCE	DATE

AS CONSTRUCTED SERVICES	COMPLETION

DETAILS
DESIGN BY JSC/JR
DRAWN BY JSC/RAS
CHECKED BY JR/DH
F.BK. S–78, 1259, 1260, 1261

No.	REVISIONS	DATE	CONSULTANT
2	2ND SUBMISSION	JAN. 20, 2020	DEVENG
3	3RD SUBMISSION	MAR. 24, 2020	DEVENG
4	4TH SUBMISSION	JUN. 03, 2020	DEVENG
5	5TH SUBMISSION	JUL. 29, 2020	DEVENG
6	6TH SUBMISSION	AUG. 10, 2020	DEVENG
7	7TH SUBMISSION	AUG. 26, 2020	DEVENG
8	REVISED ST30 LOCATION	OCT. 29, 2020	DEVENG
9	REVISED BLOCK NUMBERS	JAN. 25, 2021	DEVENG
10	AS DESIGNED	JAN. 10, 2024	DEVENG

FILE: DEL16–038 – AS BUILT – AREA PLANS.DWG

CONSULTANT OR DIVISION

London Office
41 Adelaide St. N., Unit 71
(519) 672-8310

Paris Office
31 Mechanic St., Unit 301
(519) 442-1441

development engineering (London) Limited
CONSULTING CIVIL ENGINEERS

LICENSED PROFESSIONAL ENGINEER
D. J. HOEVENAARS
100149139
Jan 10, 2024
PROVINCE OF ONTARIO

CORPORATION OF THE CITY OF LONDON
London CANADA

SCALE
SCALE – 1:1000
10 0 20m

TITLE
WHITEROCK VILLAGE SUBDIVISION 33M–795
LONDON, ONTARIO
WHITEROCK VILLAGE INC.

STORM AREA PLAN AND DESIGN SHEET

PROJECT No. DEL16–038
SHEET No. 2
PLAN FILE No. 31122

DEL16–038, SHEET #2, WHITEROCK VILLAGE SUBDIVISION 33M–795

325 Southdale Rd E

Storm Connection at approximately 268.00m

600mm WM Inv. =269.25m

300mm Storm Inv. =268.85m

300mm WM Inv. =268.80m

Storm Connection at approximately 270.00m

Proposed Site Servicing 300mm Storm Sewer Obv. = 268.50m

Current 300mm WM Obv. =270.25m

Option 2a

Option 2b

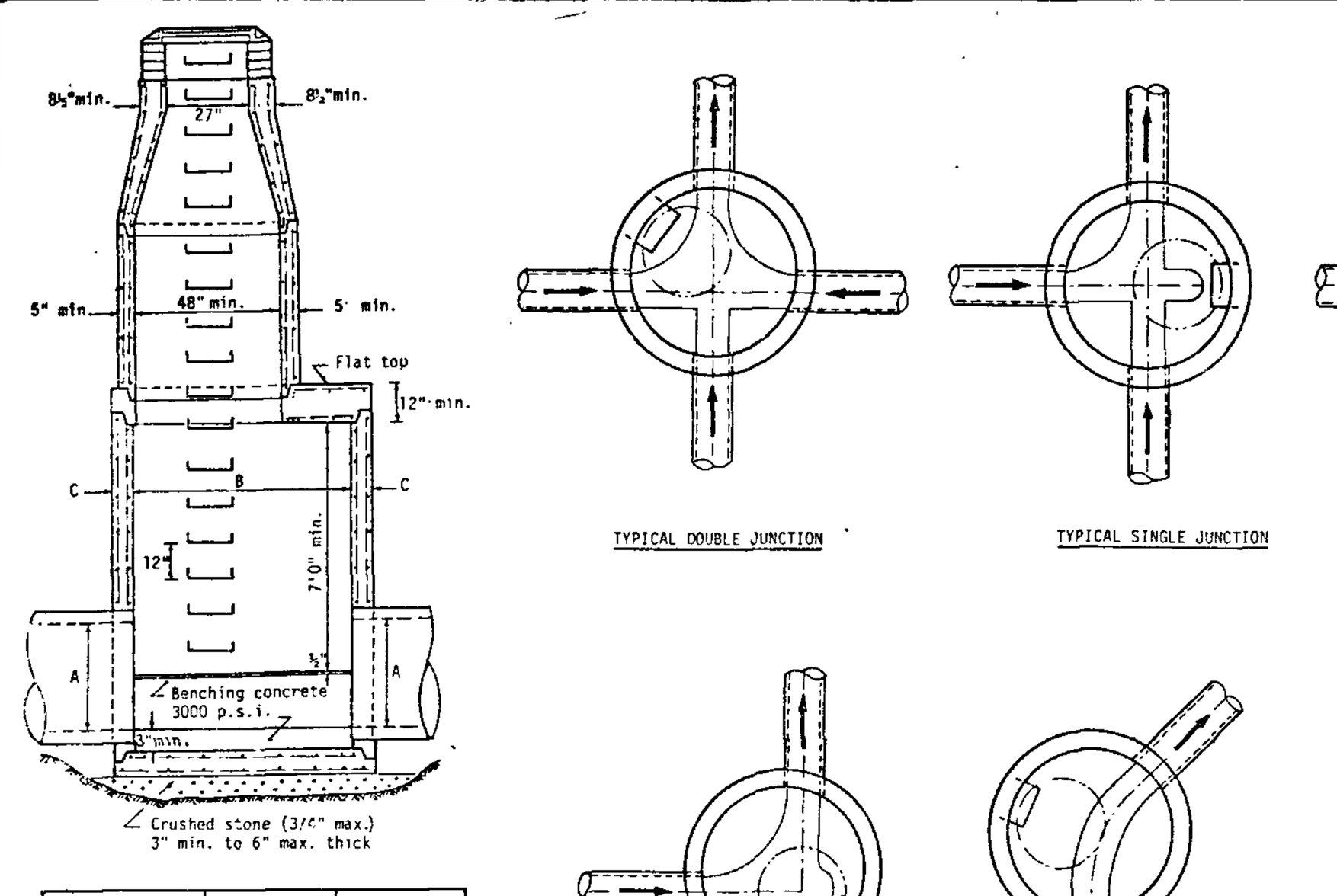
Aerial

Legend:

Conceptual Storm Sewer

Conceptual Storm MH

Sketch 2. Conceptual Storm Servicing (Option 2a and 2b)



Sewer Diameter	Manhole Diameter	Wall Thickness
A	B	C
8" to 27"	48" min.	5" min.
30" to 36"	60" min.	6" min.
42" to 48"	72" min.	7" min.
54" to 60"	84" min.	8" min.
66" to 72"	96" min.	9" min.

NOTES:
For City of London Pre-Cast Manhole, refer to STD LCD-500-1 for Notes.

LCD-500-2 DATE Mar.'78 REV

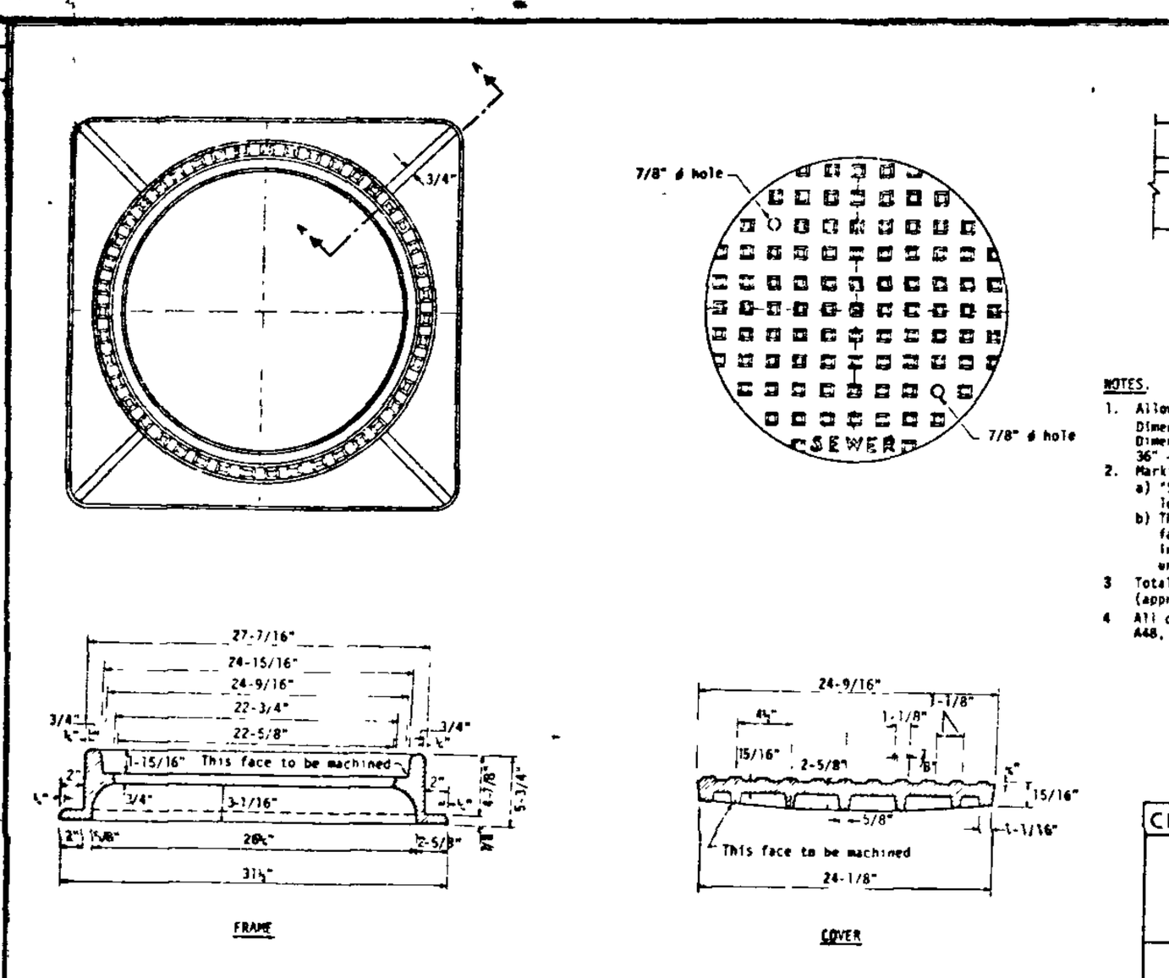
CITY OF LONDON STANDARD
PRE-CAST MANHOLES, TYPICAL JUNCTIONS & BENDS
APPROVED BY ... CITY ENGINEER

Sheet 1 of 2
LCD-500-1 DATE MAR.'78 REV

NOTES:
1. City of London Pre-Cast Manhole details are shown on drawings STD LCD-500-2 to -4.
2. All manhole frames and covers shall be adjusted to the finished road grade by means of metal shims at each corner or by means of approved adjusting rings. Metal shims are to be at least 3"x8" and their thickness is to be determined by the adjustment required.
3. On streets with curbs and gutters the space between the bottom of the manhole frame and cover and the top of the pre-cast manhole is to contain one of the following:
   a) One (1) row of clay brick, ASTM C-32, Grade M.A.
   b) One to three (1 to 3) rows of clay brick, ASTM C-32, Grade S.A.
   c) One to three (1 to 3) rows of tapered concrete brick, ASTM C-55-64T.
   d) Concrete chimney with or without bricks as noted in item 3a), (b) and (c) above.
   e) Approved masonry units.
4. On streets without curbs and gutters the space between the bottom of the manhole frame and cover and the top of the pre-cast manhole is to be between 12 and 24 inches and contain one of the following:
   a) Clay brick, ASTM C-32, Grade S.A.
   b) Tapered concrete brick, ASTM C-55-64T.
   c) Approved mansonry units.
5. All joints between bricks are to be completely filled with concrete mortar. Bricks are to be parged on the outside. Parging shall contain an approved bonding agent.
6. All manhole frames and covers shall be City of London Standard LCD-524.
7. All pre-cast manhole sections shall be manufactured to ASTM C-478 specification.
8. All pre-cast manhole section joints shall contain an approved rubber gasket and shall be pointed both inside and outside with an approved non-shrinkable grout.
9. Manhole steps shall be galvanized steel or aluminum in accordance with STD LCD-539
10. Steps in manhole benching shall be in accordance with STD LCD-536.
11. Pre-cast manhole diameter and wall thickness requirements for sewer pipe sizes 8 inch to 72 inch are as follows:
    a) For straight sections of sewer:

Sewer Diameter	Manhole Diameter	Wall Thickness
8" to 27"	48" minimum	5" minimum
30" to 36"	60" minimum	6" minimum
42" to 48"	72" minimum	7" minimum
54" to 60"	84" minimum	8" minimum
66" to 72"	96" minimum	9" minimum

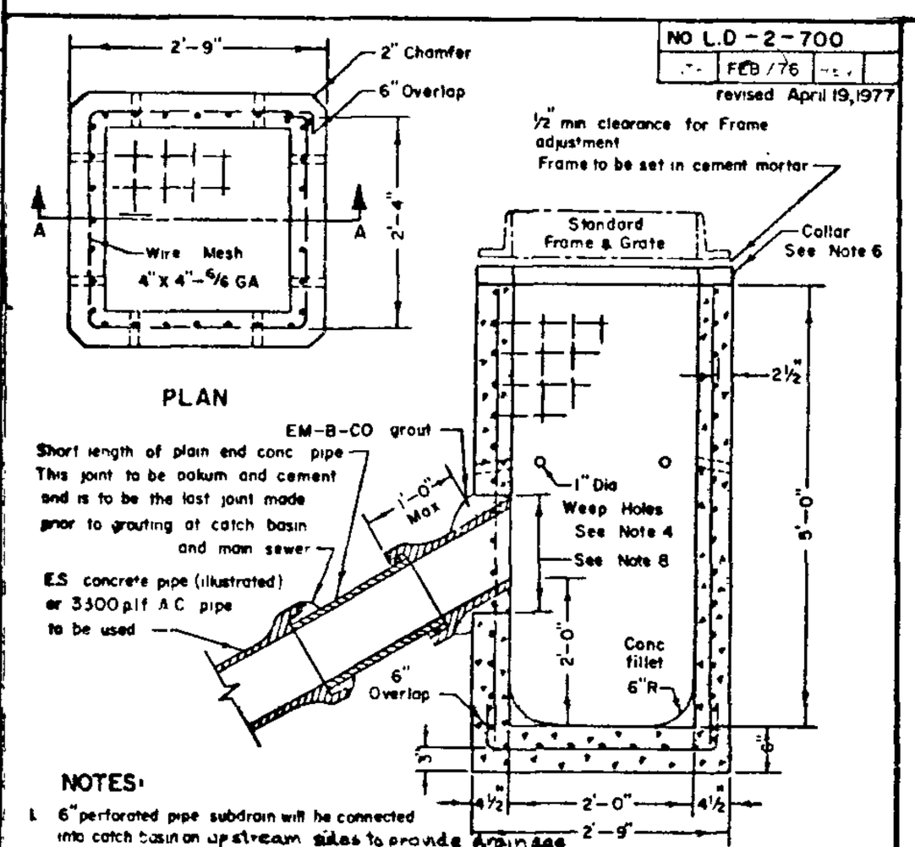
    b) For bends in sewers and for manholes with three (3) or more sewer connections, the minimum concrete between any two openings (cuts) on the inside of the bottom section shall be 12 inches.
12. The void between the sewer pipe and the pre-cast manhole section shall be filled with an approved non-shrinkable grout.
13. All mortar and approved non-shrinkable grout shall be mixed and placed in accordance with the manufacturers' specifications.
14. Drop structures shall be constructed in accordance with STD LCD-520 when the difference in invert elevations between the upstream and outlet sewers in the manhole is:
    Two feet (2' - 0") or more for sanitary sewers
    Three feet (3' - 0") or more for storm sewers
    and in accordance with the following requirements:
    a) "Y" Drop Structure shall be used where sufficient difference in elevation as noted above is available.
    b) 45° Drop Structure shall be used where the "Y" Drop Structure cannot be constructed.
    c) Alternate Storm Drop Structure may be used in cases where the invert of the incoming sewer is lower than the obvert of the outlet sewer for storm sewers only.
15. Where the drop from an incoming sewer invert to the top of the manhole benching exceeds 5'-0", a manhole step for sewer maintenance purposes shall be installed opposite the manhole steps approximately 3'-6" below the invert of the incoming sewer.
16. Manhole Safety Landings shall be in accordance with STD LCD-528.
17. For Manhole Safety Landing requirements, refer to STD LCD-532.
18. When the sewer is non-reinforced pipe:
    a) The first length in and out of the manhole shall not exceed 1'-6" maximum.
    b) When 1'-6" is exceeded, a concrete cradle shall be constructed from the manhole to the nearest pipe joint.
19. When the main sewer is reinforced pipe, the first length in and out of the manhole can exceed 1'-6".
20. Concrete for the pre-cast bases to be a minimum of 4,000 p.s.i. in 28 days.
21. Reinforcing steel and thickness for pre-cast manhole bases shall be the same as for the flat top section
22. Concrete for Drop Structures to be a minimum of 3,000 p.s.i. in 28 days.



LCD-524 DATE Mar.'78 REV

NOTES:
1. Allowable tolerances
   Dimensions 12" or less — ± 1/8"
   Dimensions over 12" up to and including 36" — ± ¼"
2. Marking
   a) "SEWER" is to be cast in raised letters as shown.
   b) The initials or mark of the manufacturer are to be distinctly cast in raised letters on the frame and under side of the cover
3. Total weight of frame and cover 400 pounds (approximately).
4. All cast iron to meet A.S.T.M. Designation A48, Class 30B for Gray Iron Castings

CITY OF LONDON STANDARD
MANHOLE FRAME & COVER
APPROVED BY ... CITY ENGINEER

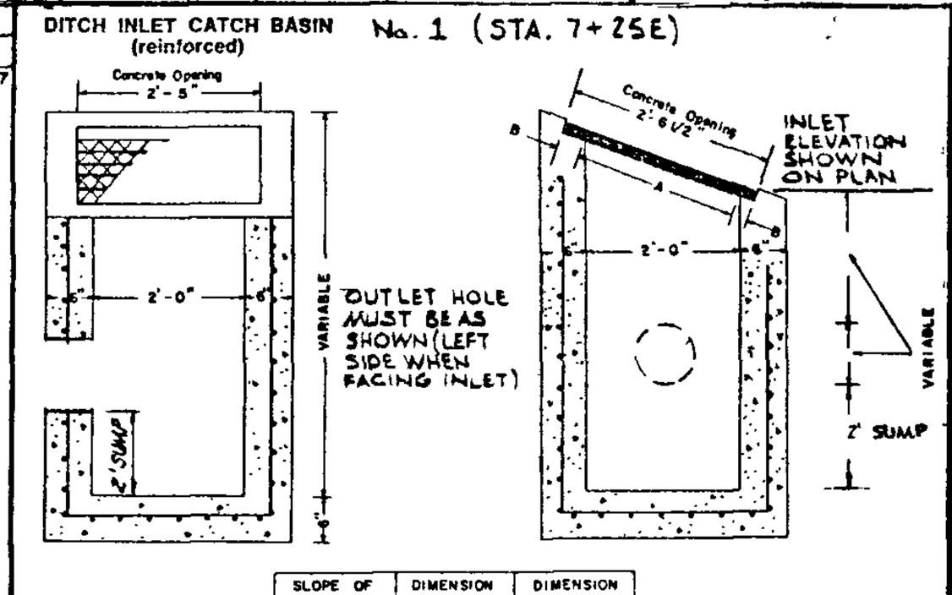


NO L.D-2-700 FEB/76 revised April 19,1977

NOTES:
1. 6" perforated pipe subdrain will be connected into catch basin on upstream sides to provide drainage for road base. (5' length of C.S.P. 'Helcor')
2. The catch basin is to be placed on 6" of compacted granular backfill. Backfill on all sides to subdrain invert elevation to be native material unless otherwise specified by the Engineer
3. Concrete strength — 4000 p.s.i.
4. Weep holes shall be placed so that the bottom of the weeper on the inside and the top of the weeper on the outside are level
5. Lift holes, if required, shall be grouted in with cement motar prior to placing granular backfill
6. Collar for height adjustment may be poured or pre-cast
7. Frame and grate shall be City of London Standard
8. Opening diameter to be specified on ordering
9. Expansion joints to be installed in curb & gutter 2' each side of catchbasin.

CITY OF LONDON STANDARD
2'X 2' PRE-CAST CONCRETE CATCH BASIN
DRAWN BY LK | CHECKED BY JRT | APPROVED ... STREETS & BRIDGES ENGINEER

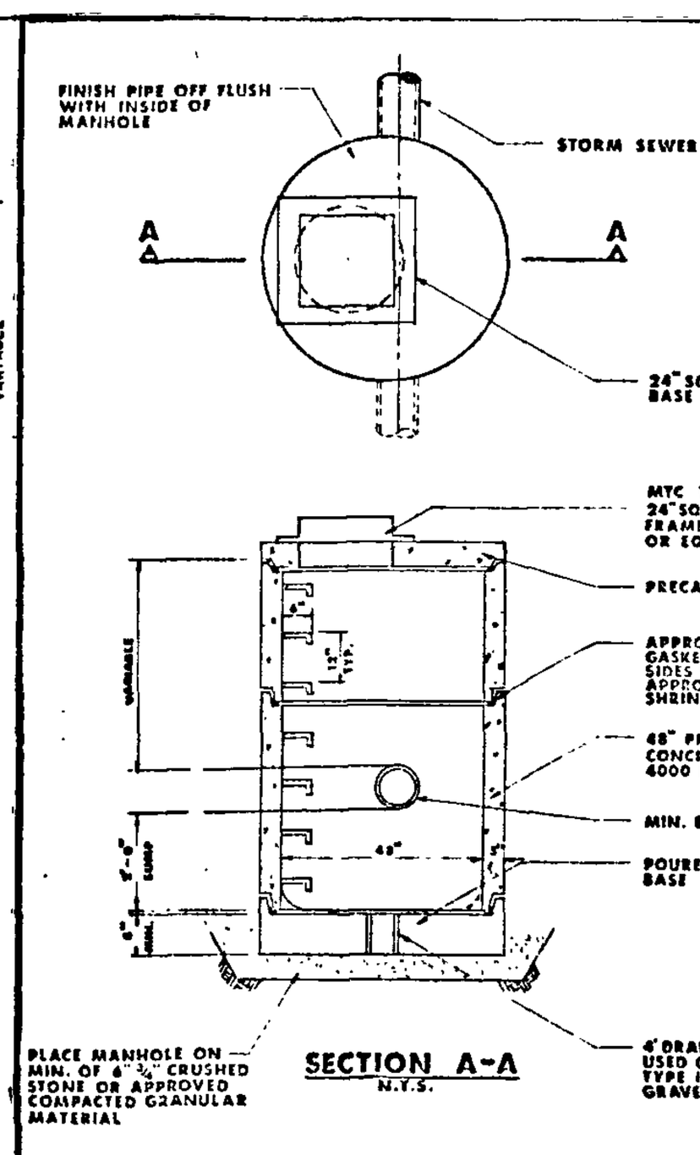
DITCH INLET CATCH BASIN (reinforced) No. 1 (STA. 7+25E)



SLOPE OF GRATING	DIMENSION 'A'	DIMENSION 'B'
2:1	2'-3"	1 3/4"
3:1	2'-1/2"	2 1/2"
4:1	2'-3/4"	2 7/8"

SPECIFICATIONS
Concrete strength - 4000 lbs psi
Reinforcing - 4x4-6-6 welded wire mesh covering total area
Depth of catch basin and size and placing of outlet hole may be changed to owner's specifications.
Weep holes may be added
Grating and hold down bolts to be installed and supplied by contractor to conform with M.T.C. standard DD-710
Weight - 910 LBS Per Ft.
This catch basin may be used as an alternate to MTC DD 716 A design

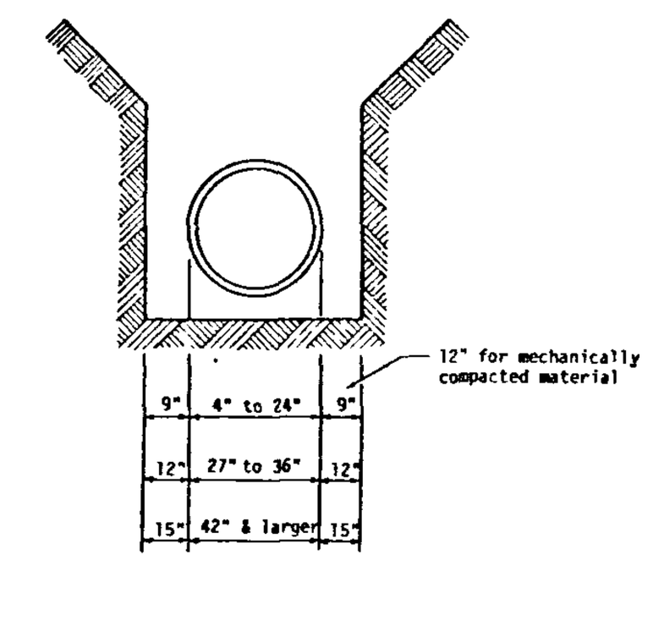
Page 11



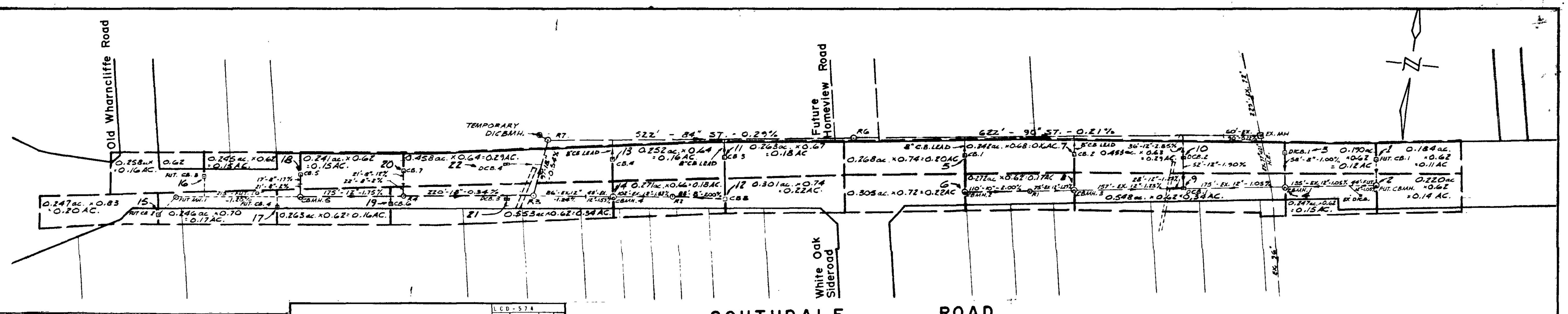
PRECAST CONCRETE CATCH BASIN MANHOLE

LCD-574 DATE Mar.'78 REV

MINIMUM SIDE CLEARANCE BETWEEN SEWER PIPE AND TRENCH WALLS



CITY OF LONDON STANDARD
MINIMUM SIDE CLEARANCE BETWEEN SEWER PIPE & TRENCH WALLS
APPROVED BY ... CITY ENGINEER



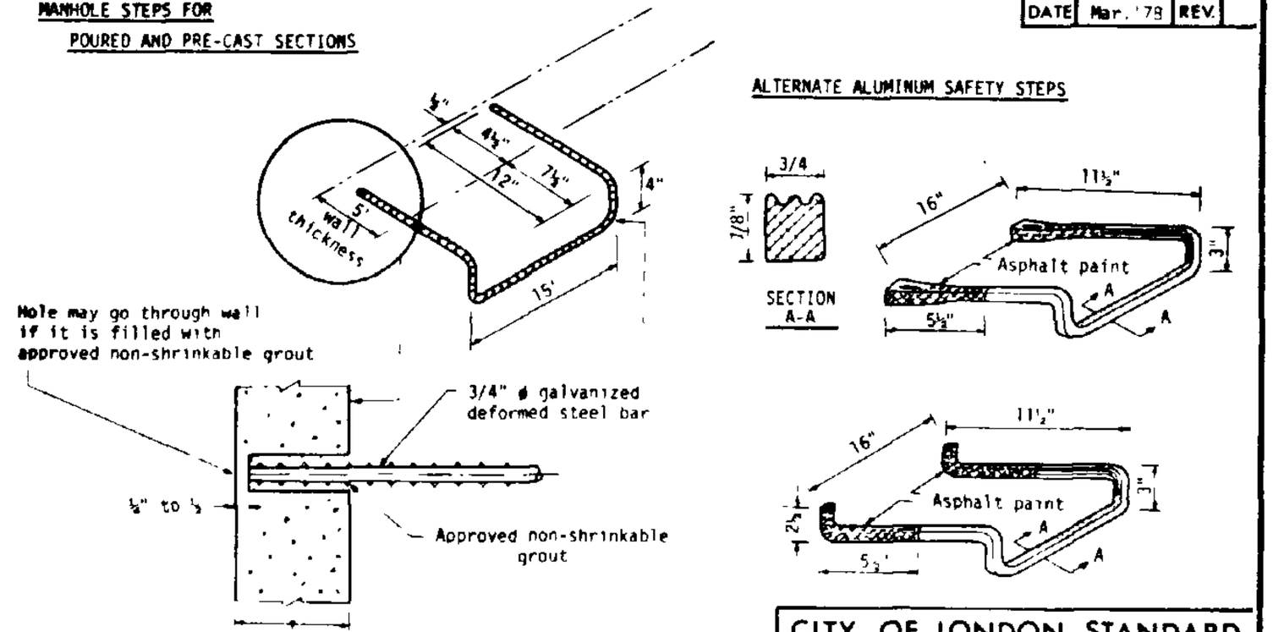
SOUTHDALE ROAD
Storm Area Plan
1" = 100'-0"

CITY OF LONDON
CITY ENGINEERS DEPARTMENT
STORM SEWER DESIGN SHEET

Project SOUTHDALE
File No. L6811 RC Sheet 1 of 1
Drainage Area
Designed By EWH Checked By RFF
Date JANUARY 1982

Street	From	To	Area Number	Area (Acres)(A)	Total Area (Acres)	Runoff Coeff 'C'	Incr A x C	Total Section AxC	Total Lot AxC	Total Sewer AxC	Time Entry Sect	Min Accum	Intensity 'I' in/hr	Q c.f.s.	Size Pipe (ins)	Slope ST	Slope (other)	n	Actual Cap c.f.s	Velocity f.p.s	Length ft	Time of Flow (Min)
Southdale Road	Fut.C.B. 1	Fut.C.B.M.H.	1	0.184	0.184	0.62	0.11			0.11		13.5	3.6	0.40	8	1.00		0.015	1.05	3	45	0.25
" "	Fut.C.B.M.H.	C.B.M.H.1	2	0.220	0.304	0.62	0.14	0.11		0.25	0.25	13.75	3.6	0.90	12	1.05		0.015	3.17	3	155	0.86
Southdale Road	D.I.C.B.1	C.B.M.H.1	3	0.190	0.190	0.62	0.12			0.12		13.5	3.6	0.43	8	1.00		0.015	1.05	3	58	0.32
" "	C.B.M.H.1	D.C.B.1	4	0.247	0.741	0.62	0.15	0.25	0.12	0.52	0.86	14.61	3.49	1.81	Exist. 12	1.05		0.015	3.17	3	175	0.97
Southdale Road	C.B.1	90" ST	5	0.268	0.268	0.74	0.20			0.20		13.5	3.6	0.72	8			0.015				
" "	C.B.M.H.2	M.H. R1	6	0.305	0.305	0.72	0.22			0.22		13.5	3.6	0.79	10	2.00		0.015	2.99	3	110	0.61
" "	M.H. R1	C.B.M.H.3			0.305					0.22	0.61	14.45		0.79	Exist. 12	1.23		0.015	3.43			0.42
Southdale Road	C.B.2	90" ST	7	0.242	0.242	0.68	0.16			0.16		13.5	3.6	0.58	8			0.015				
" "	C.B.M.H.3	D.C.B.1	8	0.272	0.577	0.62	0.17	0.22		0.39	0.42	14.53	3.50	1.37	12	1.2[illegible]		0.015	3.43			1.03
" "	D.C.B.1	D.C.B.2	9	0.548	1.866	0.62	0.34	0.52	0.39	1.25	1.03	15.56	3.39	4.24	12	1.[illegible]	1.88	0.015	4.26			0.16
" "	D.C.B2	90" ST.	10	0.453	2.319	0.63	0.29	1.25		1.54	0.16	15.72	3.37	5.19	12	2.[illegible]	2.82	0.015	5.22			0.09
Southdale Road	C.B.3	84" ST.	11	0.263	0.263	0.67	0.18			0.18		13.5	3.6	0.65	8			0.015				
" "	C.B.8	M.H. R2	12	0.301	0.301	0.74	0.22			0.22		13.5	3.6	0.79	8	2.00		0.015		3	88	0.49
" "	M.H. R2	C.B.M.H.4			[illegible]					0.22	0.49	13.99	3.55	0.79	Exist. 12	1.53		0.015	3.82	3	102	0.57
" "	C.B.4	84" ST	13	0.252	0.252	0.64	0.16			0.16		13.5	3.6	0.58	8			0.015				
" "	C.B.M.H.	M.H. R3	14	0.271	0.572	0.66	0.18	0.22		0.40	0.57	14.56	3.49	1.40	Exist. 12	Varies .24 min.		0.015	3.44	3	134	0.74
Southdale Road	Fut.C.B.2	Fut.M.H.1	15	0.247	0.247	0.83	0.20			0.20		13.5	3.6	0.72	8	1.00		0.015	1.05	3	43	0.24
" "	Fut.C.B 3	Fut. ST.	16	0.258	0.258	0.62	0.16			0.16		13.5	3.6	0.58	8	1.0 min.						
" "	Fut.C.B 4	Fut ST.	17	0.246	0.246	0.70	0.17			0.17		13.5	3.6	0.61	8	1.0 min.						
" "	Fut.M.H 1	C.B.M.H.5			0.751					0.53		13.5	3.6	1.91	10	1.20	1.02	0.015	2.07	3.50	215	1.03
" "	C.B.5	C.B.M.H.5	18	0.245	0.245	0.62	0.15			0.15		13.5	3.6	0.54	8	Varies 2 min		0.015	1.48	3	38	0.21
" "	C.B.6	12" ST.	19	0.263	0.263	0.62	0.16			0.16		13.5	3.6	0.58	8	11		0.015	3.48	3	15	0.08
" "	C.B.M.H.5	M.H. R4			1.259			0.53	0.16+0.15 =0.31	0.84	1.03	14.53	3.50	2.94	12	1.75	0.90	0.015	4.09	3.75	175	0.78
" "	C.B.7	M.H. R4	20	0.241	0.241	0.62	0.15			0.15		13.5	3.6	0.54	8	Varies 2 min.		0.015	1.48	3	43	0.24
" "	D.C.B.3	18" ST.	21	0.553	0.553	0.62	0.34			0.34		13.5	3.6	1.22	10			0.015				
" "	M.H. R4	M.H. R3			2.053			0.68	+0.34 +0.31	1.33	0.78	15.31	3.40	4.52	18	0.34	0.26	0.015	5.31	3	220	1.22
" "	D.C.B.4	18" ST. 6	22	0.458	0.458	0.64	0.29			0.29		13.5	3.6	1.04	10			0.015		3		
" "	M.H. R5	Outlet			3.083			1.33	[illegible]	2.02	1.22	16.53	3.30	6.67	18	0.34	0.84	0.015	6.70	3.77	97	[illegible]

Annotations: 0.95; 3.33; 0.013; 2.54 c.f.s or 71.9L; 4.75; 2.05; 0.013; 3.38 c.f.s or 95.7L/s; 4.78; 7.47; 0.013; 3.23 c.f.s or 91.7L/; 3.13; 0.013; 0.85 c.f.s or 24L/s; 6.04

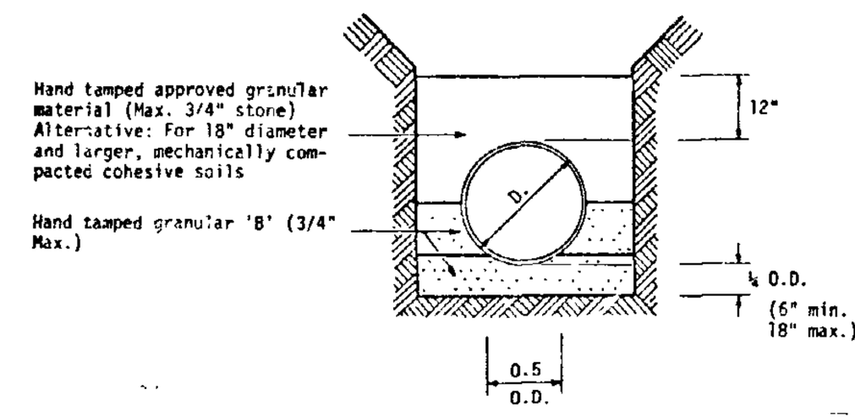


MANHOLE STEPS FOR POURED AND PRE-CAST SECTIONS
LCD-539 DATE Mar.'78 REV.
Hole may go through wall if it is filled with approved non-shrinkable grout

NOTES
1. For City of London Manhole Standards, refer to Standards LCD-500, 505 and 510 for applicable notes
2. Distance between steps to be 12 inches.
3. Two coats static asphalt paint or approved equal to be applied on the embedded section

CITY OF LONDON STANDARD
MANHOLE STEPS
APPROVED BY ... CITY ENGINEER

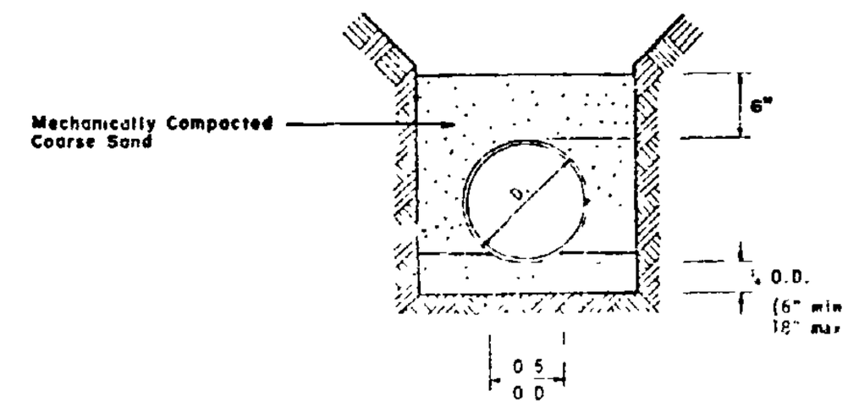
LCD-573 DATE Mar.'78 REV
BEDDING STANDARDS FOR TRENCH CONDITIONS
CLASS C ORDINARY BEDDING



Load Factor = 1.5

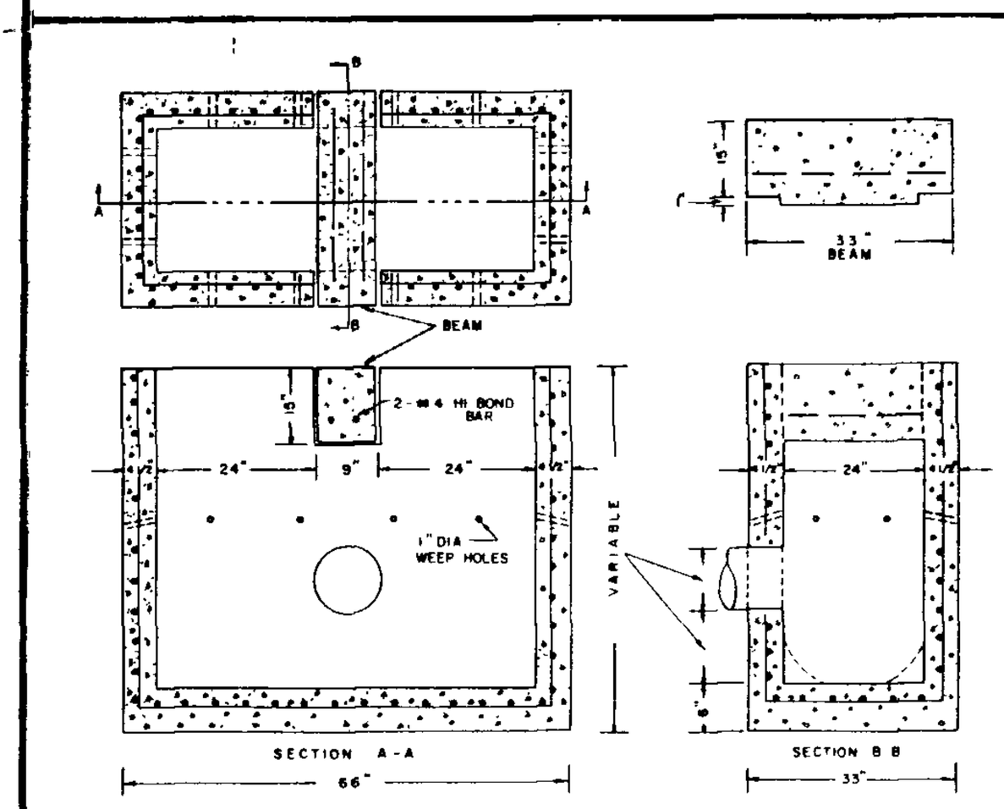
CITY OF LONDON STANDARD
CLASS C ORDINARY BEDDING
APPROVED BY ... CITY ENGINEER

DATE MAY/81 REV
BEDDING STANDARDS FOR TRENCH CONDITIONS
CLASS C MODIFIED BEDDING (FOR P.V.C. PIPE)



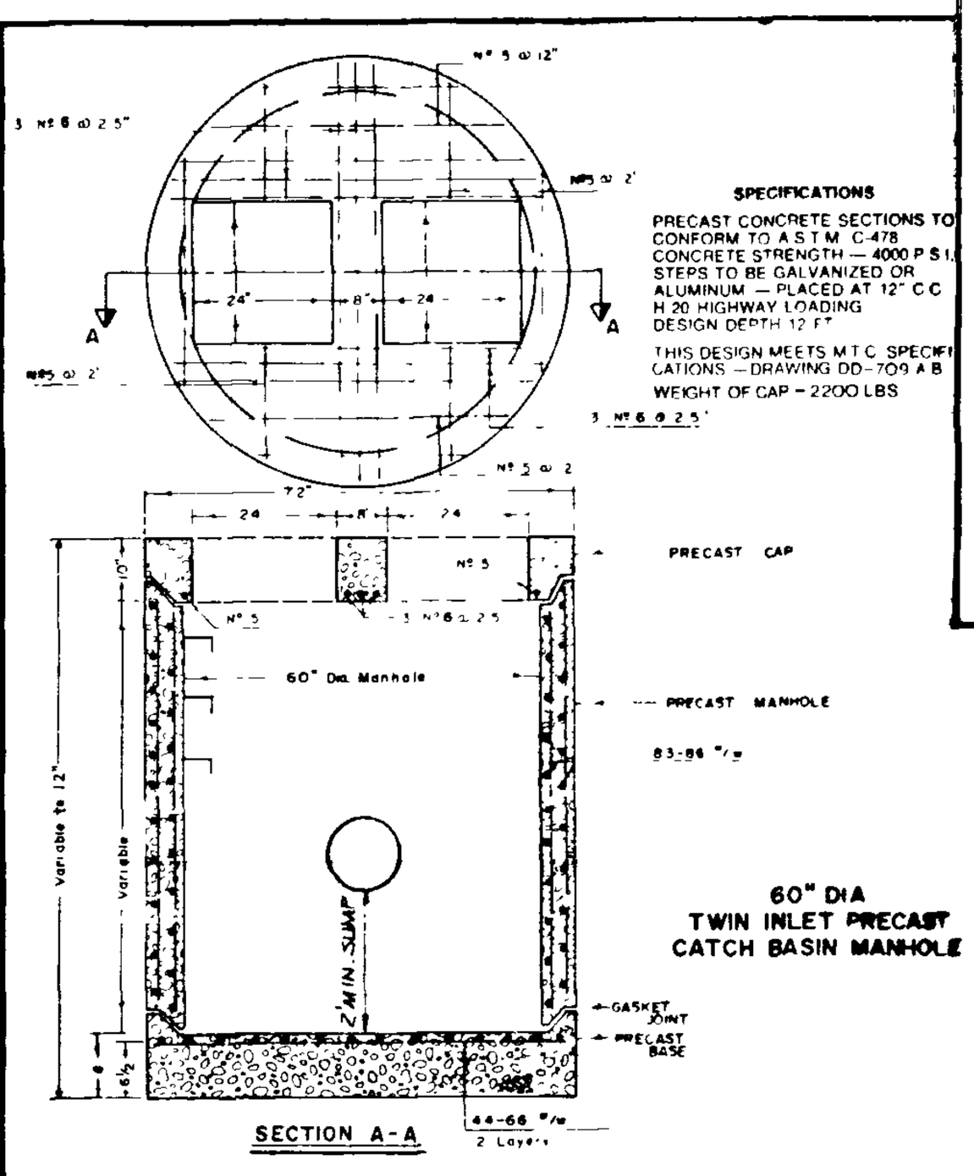
Load Factor = 1.5

CITY OF LONDON STANDARD
CLASS C MODIFIED BEDDING
APPROVED BY ... CITY ENGINEER



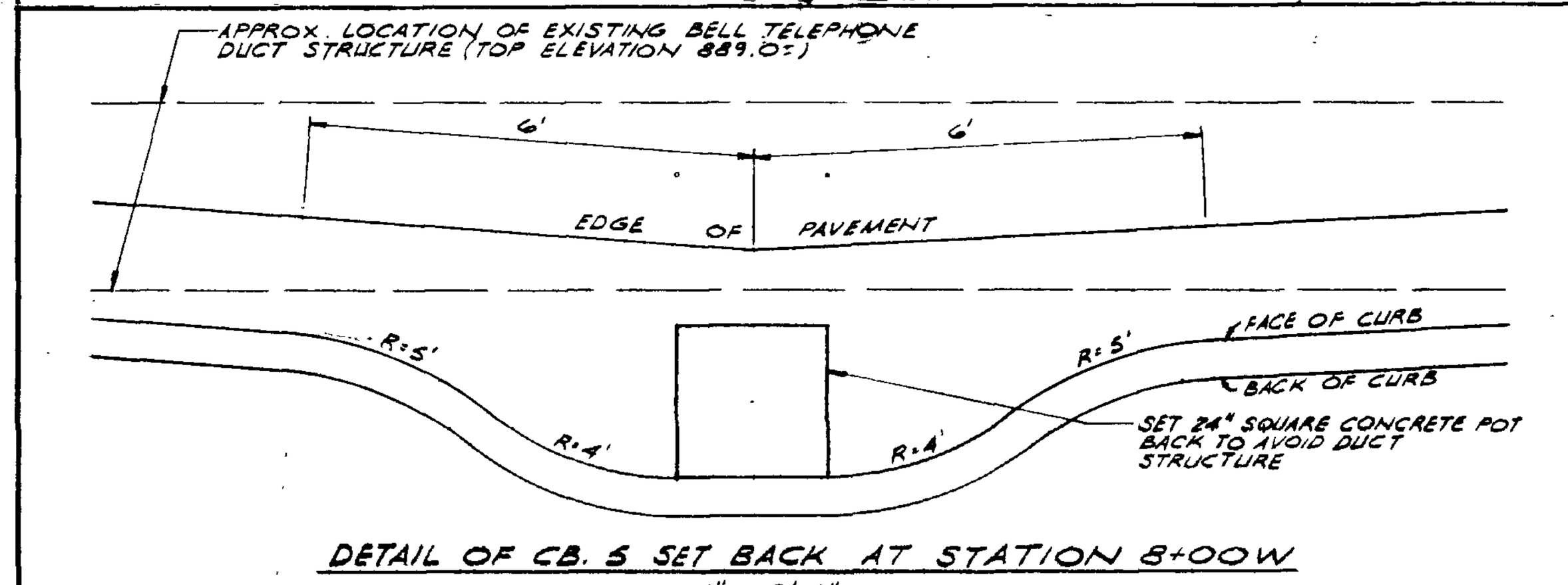
SPECIFICATIONS
CONCRETE 4000 PSI
REINFORCING 4"x4" 250 GA WELDED STEEL MATS COVERING TOTAL AREA
BEAM 2 #4 HI BOND BARS
DEPTH OF CATCH BASIN, SIZE AND PLACING OF OUTLET HOLE MAY BE CHANGED TO OWNERS SPECIFICATION
WEEP HOLES OPTIONAL
WEIGHT OF 5'0" DEEP UNIT - 5220 LBS
THIS CATCH BASIN MAY BE USED AS AN ALTERNATE TO M.T.C. DD 708 DESIGN

TWIN INLET PRECAST CATCH BASIN



SPECIFICATIONS
PRECAST CONCRETE SECTIONS TO CONFORM TO A.S.T.M. C-478
CONCRETE STRENGTH — 4000 P.S.I.
STEPS TO BE GALVANIZED OR ALUMINUM — PLACED AT 12" C.C.
H 20 HIGHWAY LOADING
DESIGN DEPTH 12 FT
THIS DESIGN MEETS M.T.C. SPECIFICATIONS — DRAWING DD-709 A B
WEIGHT OF CAP = 2200 LBS

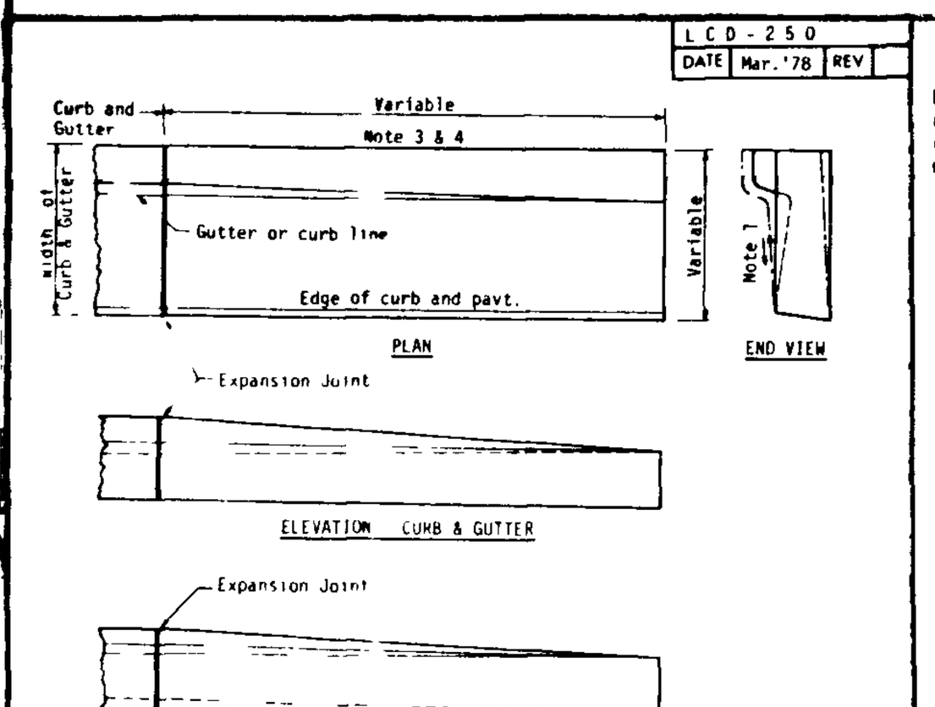
60" DIA TWIN INLET PRECAST CATCH BASIN MANHOLE



DETAIL OF CB. 5 SET BACK AT STATION 8+00W
1" = 2'-0"

HUGHES-OWENS GEOVEL BLUE

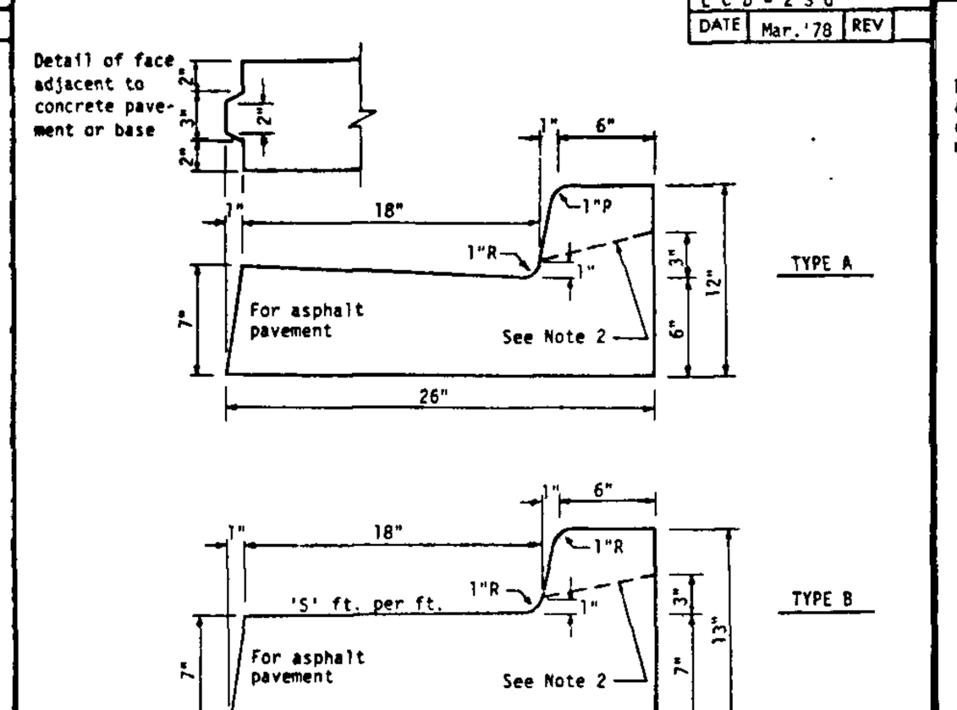
LCD-250 DATE Mar.'78 REV



NOTES
1. Slope to match existing shoulder or as directed by the Engineer.
2. All concrete work to conform to City of London detailed specifications (Streets) or otherwise specified.
   Class of Concrete 3,500 p.s.i.
3. Curb termination on vehicle approach end - 10'
   Curb termination on exit end - 5'
4. When curb termination is used in conjunction with guide rail installation, then length of termination should be two standard rail lengths (25').

CITY OF LONDON STANDARD
METHOD OF TERMINATION
FOR CURB & GUTTERS
APPROVED BY ... CITY ENGINEER

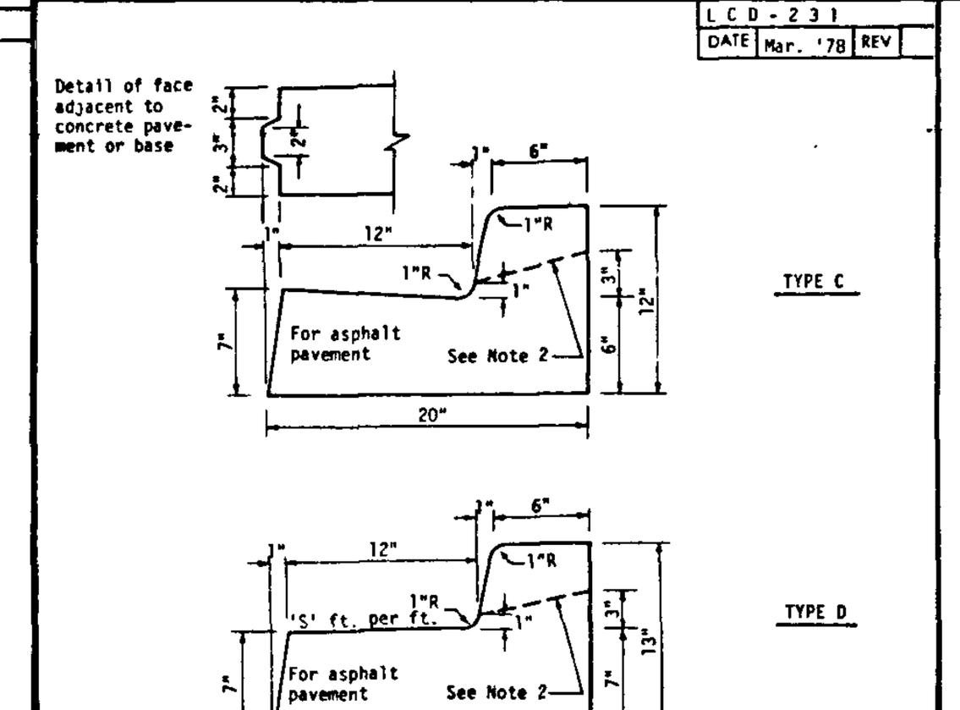
LCD-230 DATE Mar.'78 REV



NOTES
1. Top edges of front & back of curb & gutter to be rounded with 1/4" radius edging tool.
2. Dropped curb at entrances: Length as shown on the plans or as directed by the Engineer.
3. All concrete work to conform to City of London detailed specifications (Streets) or as otherwise specified.
   Class of concrete: 3,500 p.s.i.
4. 'S' - rate of pavement super-elevation.
5. Volume of concrete:
   Type A = 0.052 cu.yds/lin.ft.
   Type B = 0.056 cu.yds/lin.ft

CITY OF LONDON STANDARD
CONCRETE CURB AND GUTTER TYPES A AND B
APPROVED BY ... CITY ENGINEER

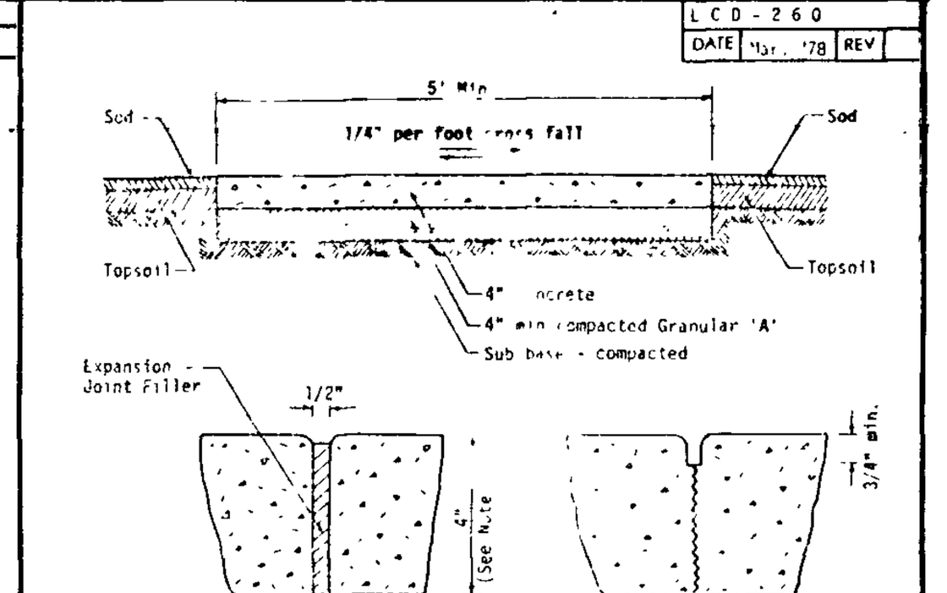
LCD-231 DATE Mar.'78 REV



NOTES
1. Top edges of front & back of curb & gutter to be rounded with 1/4" radius edging tool.
2. Dropped curb at entrances: Length as shown on the plans or as directed by the Engineer.
3. All concrete work to conform to City of London detailed specifications (Streets) or as otherwise specified.
   Class of concrete: 3,500 p.s.i.
4. 'S' - rate of pavement super-elevation.
5. Volume of concrete:
   Type C = 0.042 cu.yds/lin. ft.
   Type D = 0.045 cu.yds/lin. ft.

CITY OF LONDON STANDARD
CONCRETE CURB AND GUTTER TYPES C AND D
APPROVED BY ... CITY ENGINEER

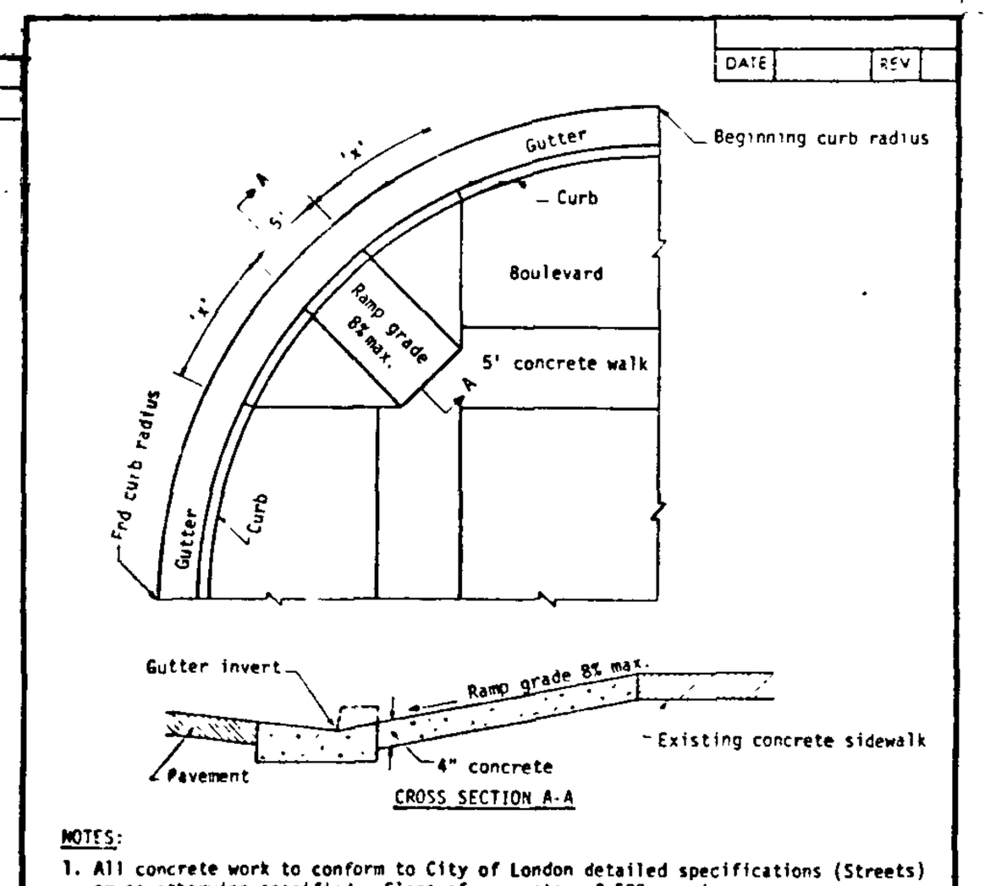
LCD-260 DATE Mar.'78 REV



NOTES:
1. Across industrial, commercial and multi-family ramps the concrete thickness shall be 6". The Engineer may designate reinforcing mesh at these locations.
2. All concrete edges to be finished with an edger 1/4" radius.
3. Contraction joints shall have a standard spacing of 5', and in no case less than 3' or more than 6'.
4. Expansion joints are required at intervals of not more than 25' and -
   A. Between sidewalk and abutting curb.
   B. To isolate obstructions from sidewalk eg. poles, hydrants, light standards, buildings, etc.
   C. Intersections of sidewalks and driveways.
   D. Work interruptions.
   E. Other locations as directed by the Engineer.
5. Class of concrete: 3,500 p.s.i.
6. Sidewalk to slope towards pavement unless otherwise authorized

CITY OF LONDON STANDARD
CONCRETE SIDEWALK
APPROVED BY ... CITY ENGINEER

DATE REV



NOTES:
1. All concrete work to conform to City of London detailed specifications (Streets) or as otherwise specified. Class of concrete - 3,500 p.s.i.
2. Concrete surface to be coarse broom-finished draining towards the gutter.
3. Saw cut edges of ramp and elsewhere as directed by the Engineer.
4. Ramp may be aligned with existing concrete sidewalk in one or both directions as shown on the Contract Drawings.
5. Dimension 'X' is determined
   a) abutting grass boulevard X = 3'
   b) abutting paved areas X = 8'
6. Radial ramp application (illustrated) will only be applied where the curb radius is 20 feet or greater.
7. Where curb radius is less than 20 feet, the ramp will be aligned with the existing concrete sidewalk or the pedestrian crosswalk shown on the Contract Drawings or as directed by the Engineer.
8. Granular base requirements under ramp as for Standard Concrete Sidewalk.

CITY OF LONDON STANDARD
SIDEWALK RAMP AT CORNER LOCATIONS
APPROVED BY ... CITY ENGINEER

THIS DETAIL DRAWING APPLIES TO SERVICING DRAWINGS

REGISTERED PROFESSIONAL ENGINEER R. F. FELLNER PROVINCE OF ONTARIO
PROFESSIONAL ENGINEER'S STAMP

NO.	REVISIONS	DATE	BY

CITY OF LONDON

Southdale Road Widening
Capital Works Project Number 82-324-199

Storm Sewer Area Plan and Design Sheet Standard and Special Details

DESIGN BY: EWH
DRAWN BY: RAL.
CHECKED BY: RFF.

FIELD BOOK: —
SCALE AS SHOWN
DATE: FEBRUARY 25, 1982.

Development Engineering (London) Limited
361 Dufferin Avenue, London, Ontario.
Project No. L6811R
Drawing No. 8

APPROVED BY ... SECTION HEAD ... CITY ENGINEER

CITY ENGINEER'S DEPARTMENT
PROJECT NO
DRAWING NO 5892