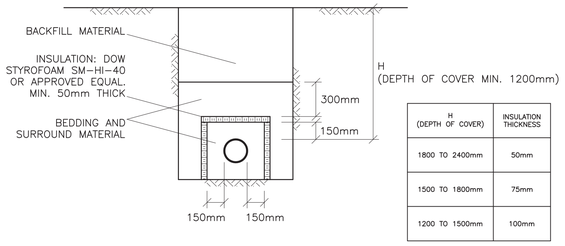


H (DEPTH OF COVER)	INSULATION THICKNESS
1800 TO 2400mm	50mm
1500 TO 1800mm	75mm
1200 TO 1500mm	100mm

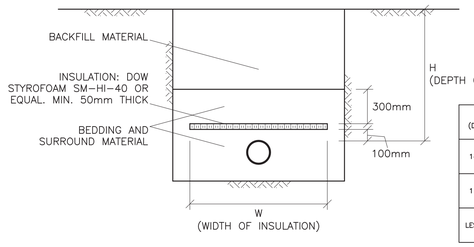
INSULATE WATERMAIN AS INDICATED AND WHERE DEPTH OF COVER IS LESS THAN 2400mm. PROVIDE A MINIMUM 1200mm COVER
CENTER INSULATION OVER PIPE.
JOINTS BETWEEN SHEETS OF INSULATION SHALL BE STAGGERED.

INSULATION OF WATERMAINS & WATER SERVICE CONNECTIONS IN SHALLOW TRENCHES

AS PER CITY OF OTTAWA DRAWING No. W22
N.T.S

APPROVED
By Lily Xu at 2:20 pm, Jun 23, 2023

LILY XU, MCIP, RPP
MANAGER, DEVELOPMENT REVIEW SOUTH
PLANNING, INFRASTRUCTURE & ECONOMIC
DEVELOPMENT DEPARTMENT, CITY OF OTTAWA



H (DEPTH OF COVER)	INSULATION THICKNESS	W (WIDTH OF INSULATION)
1400 TO 2000mm	50mm	1200mm + DIAMETER OF PIPE
1100 TO 1400mm	75mm	1800mm + DIAMETER OF PIPE
LESS THAN 1100mm	100mm	2400mm + DIAMETER OF PIPE

INSULATE SEWER AS INDICATED AND WHERE DEPTH OF COVER IS LESS THAN 2000mm.
CENTER INSULATION OVER PIPE.
JOINTS BETWEEN SHEETS OF INSULATION SHALL BE STAGGERED.

INSULATION OF SEWERS IN SHALLOW TRENCHES

N.T.S

WATER SERVICE PROFILE TABLE

MATERIAL:
150mm–200mm PVC PRESSURE CLASS 150 DR18

STATION	DESCRIPTION	GRADE ELEVATION	TOP OF PIPE	DEPTH OF COVER	NOTES
A+00.0	150mm x 150mm TEE CONNECTION IN 150mm MUNICIPAL WATERMAIN TO CITY OF OTTAWA STANDARDS	±99.35	±97.55	±1.80	50mm INSULATION AS PER CITY OF OTTAWA DWG W22 50 FROM A+00.0 TO A+01.1
A+00.5	150mm 45° VERTICAL BEND DOWN TO CITY OF OTTAWA STANDARDS	±99.38	97.55	±1.83	50mm INSULATION AS PER CITY OF OTTAWA DWG W22 50 FROM A+00.0 TO A+01.1
A+02.0	150mm 45° VERTICAL BEND UP TO CITY OF OTTAWA STANDARDS	±99.42	96.05	±3.37	–
A+03.0	–	±99.45	96.05	±3.40	CROSSING 225 SAN INV ±96.55 ±500mm CLEARANCE (MIN. 500mm REQUIRED)
A+06.2	–	±99.34	96.05	±3.04	CROSSING 375 ST INV ±97.29 ±1240mm CLEARANCE (MIN. 500mm REQUIRED)
A+07.2	150mm 45° VERTICAL BEND UP TO CITY OF OTTAWA STANDARDS	±99.35	96.05	±3.30	BOTTOM OF CURB
A+08.1	150mm 45° VERTICAL BEND DOWN TO CITY OF OTTAWA STANDARDS	99.36	96.96	2.40	–
A+09.0	200mm TO 150mm REDUCER TO CITY OF OTTAWA STANDARDS	99.39	96.96	2.43	–
A+12.9	200mm VALVE & VALVE BOX TO CITY OF OTTAWA STANDARDS	99.46	96.96	2.50	ON PROPERTY LINE
A+19.3	–	99.72	96.98	2.74	CROSSING 250 ST INV 97.48 500mm CLEARANCE (MIN. 500mm REQUIRED)
A+28.8	–	100.10	97.41	2.69	CROSSING 250 ST INV 97.95 550mm CLEARANCE (MIN. 500mm REQUIRED)
A+35.9	–	100.28	97.85	2.43	–
A+42.5 (B+00.0)	200mm x 150mm TEE (TO FIRE HYDRANT) TO CITY OF OTTAWA STANDARDS	100.58	98.18	2.40	50mm INSULATION AS PER CITY OF OTTAWA DWG W22 50 FROM A+42.5 TO A+49.5
A+45.0	–	100.60	98.31	2.29	CROSSING 200 SAN TOP 97.13 WM U/S 98.10 970mm CLEARANCE
A+46.7	–	100.66	98.39	2.27	CROSSING 375 ST TOP 97.95 WM U/S 98.20 – 250mm CLEARANCE (MIN. 250mm REQUIRED)
A+47.8	200mm 45° HORIZONTAL BEND TO CITY OF OTTAWA STANDARDS	100.78	98.39	2.39	–
A+48.8	200mm TO 150mm REDUCER TO CITY OF OTTAWA STANDARDS	100.78	98.39	2.39	–
A+49.5	–	100.93	98.39	2.54	CROSSING 150 SAN INV ±98.94 ±550mm CLEARANCE 50mm INSULATION AS PER CITY OF OTTAWA DWG W22 50 FROM A+8.1 TO A+49.5
A+50.5 (C+00.0)	TVS CONNECTION TO 150mm WATERMAIN TO CITY OF OTTAWA STANDARDS	100.94	98.39	2.55	–
A+51.5	150mm 45° HORIZONTAL BEND TO CITY OF OTTAWA STANDARDS	100.95	±98.39	±2.56	CONNECT TO EXISTING 150mm WS

WATER SERVICE PROFILE TABLE

MATERIAL:
150mm PVC PRESSURE CLASS 150 DR18

STATION	DESCRIPTION	GRADE ELEVATION	TOP OF PIPE	DEPTH OF COVER	NOTES
B+00.0 (A+42.5)	200mm x 150mm TEE TO CITY OF OTTAWA STANDARDS	100.58	98.18	2.40	100mm INSULATION AS PER CITY OF OTTAWA DWG W23 FROM B+00.0 TO B+07.0
B+01.0	150mm VALVE & VALVE BOX TO CITY OF OTTAWA STANDARDS	100.58	98.18	2.40	
B+03.7	–	100.84	98.18	2.69	
B+07.0	FIRE HYDRANT TO CITY OF OTTAWA STANDARDS	100.86	98.18	2.71	

MATERIAL:
50mm PEX TUBING TO AWWA C-904 SDR 9 (CTS)

C+00.0 (A+50.5)	TVS CONNECTION TO 150mm WATERMAIN TO CITY OF OTTAWA STANDARDS	100.94	±98.32	±2.62	–
C+05.6	50mm CURB STOP TO CITY OF OTTAWA STANDARDS	100.78	98.35	2.43	–
C+14.3	–	100.56	98.16	2.40	CONSTRUCT AS A SINGLE RUN OF PIPE WITH NO JOINTS OR FITTINGS BETWEEN C+14.3 AND C+30.5
C+16.5	–	100.56	98.16	2.40	CROSSING 250 ST TOP 97.97 WM U/S 98.33 – 360mm CLEARANCE (MIN. 250mm REQUIRED)
C+24.5	–	100.68	98.28	2.40	CONSTRUCT AS A SINGLE RUN OF PIPE WITH NO JOINTS OR FITTINGS BETWEEN C+14.3 AND C+30.5
C+30.5	50mm x 25mm REDUCER TO CITY OF OTTAWA STANDARDS (IF REQUIRED)	±101.27	98.87	2.40	CONNECT TO EXISTING WS (SIZE UNKNOWN – 25mm TO 50mm) CONSTRUCT AS A SINGLE RUN OF PIPE WITH NO JOINTS OR FITTINGS BETWEEN C+14.3 AND C+30.5

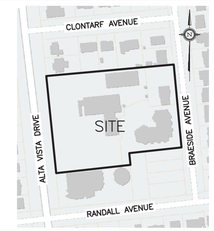
MATERIAL:
50mm COPPER ASTM B88 TYPE "K" SOFT

E+00.0	TVS CONNECTION TO 150mm MUNICIPAL WATERMAIN AS PER CITY OF OTTAWA DRAWING No. W33	±99.78	±97.98	±1.80	50mm INSULATION AS PER CITY OF OTTAWA DWG W22 FROM E+00.0 TO E+04.0
E+03.0	–	±99.88	97.41	2.47	CROSSING 225 SAN TOP ±97.16 WM U/S 97.36 – 250mm CLEARANCE
E+06.3	–	±99.77	97.21	2.56	CROSSING 375 ST INV ±97.71 500mm CLEARANCE
E+07.3	–	±99.74	97.34	2.40	BOTTOM OF CURB
E+13.0	50mm CURB STOP TO CITY OF OTTAWA STANDARDS	100.13	97.68	2.45	ON PROPERTY LINE
E+20.6	–	100.69	98.29	2.40	ENTRY INTO BUILDING

CATCH-BASIN & MANHOLE SCHEDULE

REF	TOP	SIZE	TYPE	INVERT AT INLET	INVERT AT OUTLET	NOTES
STORM SEWER						
CB-1	102.39	600mm x 600mm	PRE-CAST CONCRETE CATCH-BASIN	–	100.36	TO OPSD 705.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER TO CITY OF OTTAWA DRAWING No. S19
CB/MH-2	102.40	1200mm	PRE-CAST CONCRETE CATCH-BASIN/MANHOLE	100.29(NW)	100.29(S)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER TO CITY OF OTTAWA DRAWING No. S25 & S28.1 OR OPSD 401.010
CB/MH-3	102.39	1200mm	PRE-CAST CONCRETE CATCH-BASIN/MANHOLE	100.22(N)	100.22(W)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER TO CITY OF OTTAWA DRAWING No. S25 & S28.1 OR OPSD 401.010 INSTALL ICD IN OUTLET PIPE
MH-5	102.75	CDS PMSU2015-4	OIL GRIT SEPARATOR (OGS) PRE-CAST CONCRETE MANHOLE	100.18(E)	100.18(W)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS EXCEPT WITH A DEEP SUMP AS REQUIRED BY CDS
MH-6	102.01	1200mm	PRE-CAST CONCRETE MANHOLE	100.08(E) ±100.03(S)	±100.01(N)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER TO CITY OF OTTAWA DRAWING No. S25 & S24.1 OR OPSD 401.010
CB/MH-7	100.53	1200mm	PRE-CAST CONCRETE CATCH-BASIN/MANHOLE	98.74(S)	97.85(E)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER TO CITY OF OTTAWA DRAWING No. S25 & S28.1 OR OPSD 401.010 INSTALL ICD IN OUTLET PIPE
CB-8	99.62	600mm x 600mm	PRE-CAST CONCRETE CATCH-BASIN	–	98.21	TO OPSD 705.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER TO CITY OF OTTAWA DRAWING No. S19
CB-9	99.62	600mm x 600mm	PRE-CAST CONCRETE CATCH-BASIN	–	98.17	TO OPSD 705.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER TO CITY OF OTTAWA DRAWING No. S19
CB/MH-10	100.92	1200mm	PRE-CAST CONCRETE CATCH-BASIN/MANHOLE	±98.84(W)	97.73(N)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER TO CITY OF OTTAWA DRAWING No. S25 & S28.1 OR OPSD 401.010
CB/MH-11	100.65	1200mm	PRE-CAST CONCRETE CATCH-BASIN/MANHOLE	97.55(S) 98.12(W)	97.49(E)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER TO CITY OF OTTAWA DRAWING No. S25 & S28.1 OR OPSD 401.010
MH-12	99.26	1200mm	PRE-CAST CONCRETE MANHOLE	97.30(W) ±97.24(S)	±97.24(N)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER TO CITY OF OTTAWA DRAWING No. S25 & S24.1 OR OPSD 401.010
CB/MH-13A	99.62	1200mm	PRE-CAST CONCRETE CATCH-BASIN/MANHOLE	97.51(S)	97.51(N)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER TO CITY OF OTTAWA DRAWING No. S25 & S28.1 OR OPSD 401.010
CB-13B	99.62	600mm x 600mm	PRE-CAST CONCRETE CATCH-BASIN	–	97.57	TO OPSD 705.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER TO CITY OF OTTAWA DRAWING No. S19
CB-14	100.49	600mm x 600mm	PRE-CAST CONCRETE CATCH-BASIN	–	98.24	TO OPSD 705.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER TO CITY OF OTTAWA DRAWING No. S19
MH-15	100.63	1200mm	PRE-CAST CONCRETE MANHOLE	98.13(S)	98.13(NE)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER TO CITY OF OTTAWA DRAWING No. S25 & S24.1 OR OPSD 401.010
CB/MH-16	99.66	1200mm	PRE-CAST CONCRETE MANHOLE	97.47(S) 97.81(SW)	97.44(N)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER TO CITY OF OTTAWA DRAWING No. S25 & S28.1 OR OPSD 401.010 INSTALL ICD IN OUTLET PIPE
MH-17	99.37	CDS PMSU2020-5	OIL GRIT SEPARATOR (OGS) PRE-CAST CONCRETE MANHOLE	97.34(W)	97.34(E)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS EXCEPT WITH A DEEP SUMP AS REQUIRED BY CDS
CB/MH-18	99.61	1200mm	PRE-CAST CONCRETE CATCH-BASIN/MANHOLE	98.20(S)	97.66(W)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER TO CITY OF OTTAWA DRAWING No. S25 & S28.1 OR OPSD 401.010
CB/MH-19	99.76	1200mm	PRE-CAST CONCRETE CATCH-BASIN/MANHOLE	97.74(S) 97.64(E)	97.49(N)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER TO CITY OF OTTAWA DRAWING No. S25 & S28.1 OR OPSD 401.010
SANITARY SEWER						
MH-SA.1	100.59	1200mm	PRE-CAST CONCRETE MANHOLE	96.91(S)	96.85(E)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER TO CITY OF OTTAWA DRAWING No. S25 & S24 OR OPSD 401.010
MH-SA.2	100.80	1200mm	PRE-CAST CONCRETE MANHOLE	–	97.13	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER TO CITY OF OTTAWA DRAWING No. S25 & S24 OR OPSD 401.010

KEY PLAN



No.	DATE	REVISION
5	NOV 30–22	RE-ISSUED FOR APPROVAL
4	AUG 10–22	RE-ISSUED FOR APPROVAL
3	APR 14–22	RE-ISSUED FOR APPROVAL
2	OCT 25–21	ISSUED FOR APPROVAL
1	OCT 15–21	PRELIMINARY

D. B. GRAY ENGINEERING INC.
Stormwater Management - Grading & Drainage - Storm & Sanitary Sewers - Watermains
700 Long Point Circle 613-425-8044
Ottawa, Ontario d.gray@dbgrayengineering.com

Project
ELLWOOD HOUSE EXTENSION
38-UNIT 3-STOREY APARTMENT BUILDING
2262 BRAESIDE AVENUE
& SITE IMPROVEMENTS
2262-2270 BRAESIDE AVENUE
& 2345 ALTA VISTA DRIVE
OTTAWA, ONTARIO

Drawing Title
DETAILS

Engineer's Seal
LICENSED PROFESSIONAL ENGINEER
D.B. GRAY
17016502
NOV 30–22
PROVINCE OF ONTARIO
NOT VALID UNLESS SIGNED & DATED

Drawn	D.B.G
H. Scale	1:250
V. Scale	
Date	OCT 15–21
Job No.	21028

Drawing No.
C-6
of 10

D07-12-21-0174

#18637