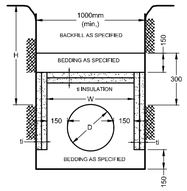
LEGEND

	PROPERTY LINE
SAN MH 201	PROPOSED SANITARY MH & SEWER
CBMH 102	PROPOSED CATCHBASIN MH & SEWER
STMMH 101	PROPOSED STORM MH & SEWER
DD	UNDERGROUND MECHANICAL DECK DRAIN
BD	BI-LEVEL DRAIN AT PODIUM AND U/G DECKING
HYD VB	PROPOSED HYDRANT c/w VALVE & VALVE BOX
ICD	PROPOSED INLET CONTROL DEVICE
RD	CONTROLLED FLOW ROOF DRAIN
(M) (RM)	PROPOSED WATER METER AND REMOTE METER
DC	PROPOSED BARRIER CURB
	PROPOSED DEPRESSED CURB
150mmØ	PROPOSED WATER SERVICE AND DIAMETER
VB	PROPOSED VALVE & VALVE BOX
BEND	PROPOSED BEND AND THRUSTBLOCK 11.25°, 22.5°, 45° or TEE
	PROPOSED CAP
	PROPOSED BUILDING ENTRANCE
	THERMAL INSULATION FOR SHALLOW SEWERS
	PROPOSED HYDRO TRANSFORMER
FFE	FINISHED FLOOR ELEVATION
T/FND	TOP OF FOUNDATION WALL ELEVATION
USF	UNDERSIDE OF FOOTING ELEVATION
	EXISTING CONCRETE CURB
SANMH	EXISTING SANITARY MANHOLE & SEWER
CBMH	EXISTING CATCHBASIN MANHOLE
STMMH	EXISTING STORM MANHOLE & SEWER
CB	EXISTING CATCHBASIN C/W CATCHBASIN LEAD
300mmØ WM	EXISTING WATERMAIN
HYD	EXISTING HYDRANT C/W VALVE & LEAD
	EXISTING TREES / VEGETATION
EX UP	EXISTING UTILITY POLE
OHW	EXISTING OVERHEAD UTILITY WIRES

BENCHMARK NOTES:

1. ELEVATIONS SHOWN ARE GEODETIC AND ARE REFERRED TO THECGVD28 GEODETIC DATUM. ELEVATIONS ARE RELATED TO VERTICAL CONTROL MONUMENT 011948U583G HAVING AN ELEVATION OF 98.03m.
2. "BEARINGS ARE GRID, DERIVED FROM GPS OBSERVATIONS AND ARE REFERRED TO THE CENTRAL MERIDIAN OF MTM ZONE 9 (76°30' WEST LONGITUDE) NAD-83 (ORIGINAL)", FROM THE TOPOGRAPHIC SURVEY ON THE GRADING PLAN.
3. IT IS THE RESPONSIBILITY OF THE USER OF THIS INFORMATION TO VERIFY THAT THE JOB BENCHMARK HAS NOT BEEN ALTERED OR DISTURBED AND THAT ITS RELATIVE ELEVATION AND DESCRIPTION AGREES WITH THE INFORMATION SHOWN ON THIS DRAWING.
4. BENCHMARK WAS PROVIDED ON TOPOGRAPHICAL PLAN OF SURVEY, PART OF BLOCK C, REGISTERED PLAN 771, CITY OF OTTAWA, PREPARED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
5. TEMPORARY JOB BENCHMARK DESCRIPTION IS LOCATED ON NAIL IN EAST FACE OF UTILITY POLE, LOCATED APPROXIMATED 24.7m WEST OF THE SOUTHWEST PROPERTY BOUNDARY ALONG BEAVERWOOD ROAD. SEE TOPOGRAPHICAL PLAN OF SURVEY MENTIONED ABOVE FOR DETAILS.



COVER (mm)	THICKNESS (mm)
1800-1500	50
1500-1200	75
1200-900	100
900-600	125

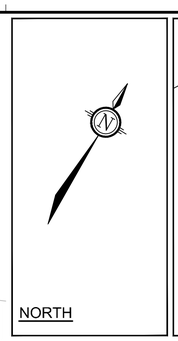
ti = THICKNESS OF INSULATION (mm)
h = DEPTH OF COVER
W = D + 300 (1000 mm.)
W = WIDTH OF INSULATION (mm)
D = O.D OF PIPE (mm)

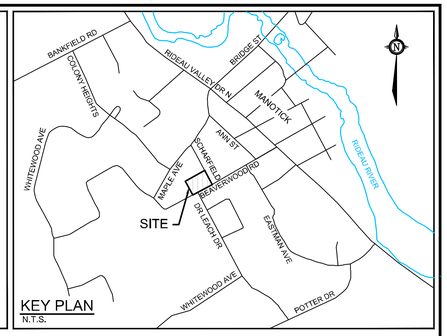
NOTES:

1. INSULATE ALL SEWER PIPES THAT ARE LESS THAN 600mmØ AND HAVE LESS THAN 1.8m COVER WITH EXPANDED POLYSTYRENE INSULATION AS SHOWN.
2. THE THICKNESS OF INSULATION SHALL BE THE EQUIVALENT OF 25mm FOR EVERY 300mm REDUCTION IN THE REQUIRED DEPTH OF COVER (SEE TABLE)

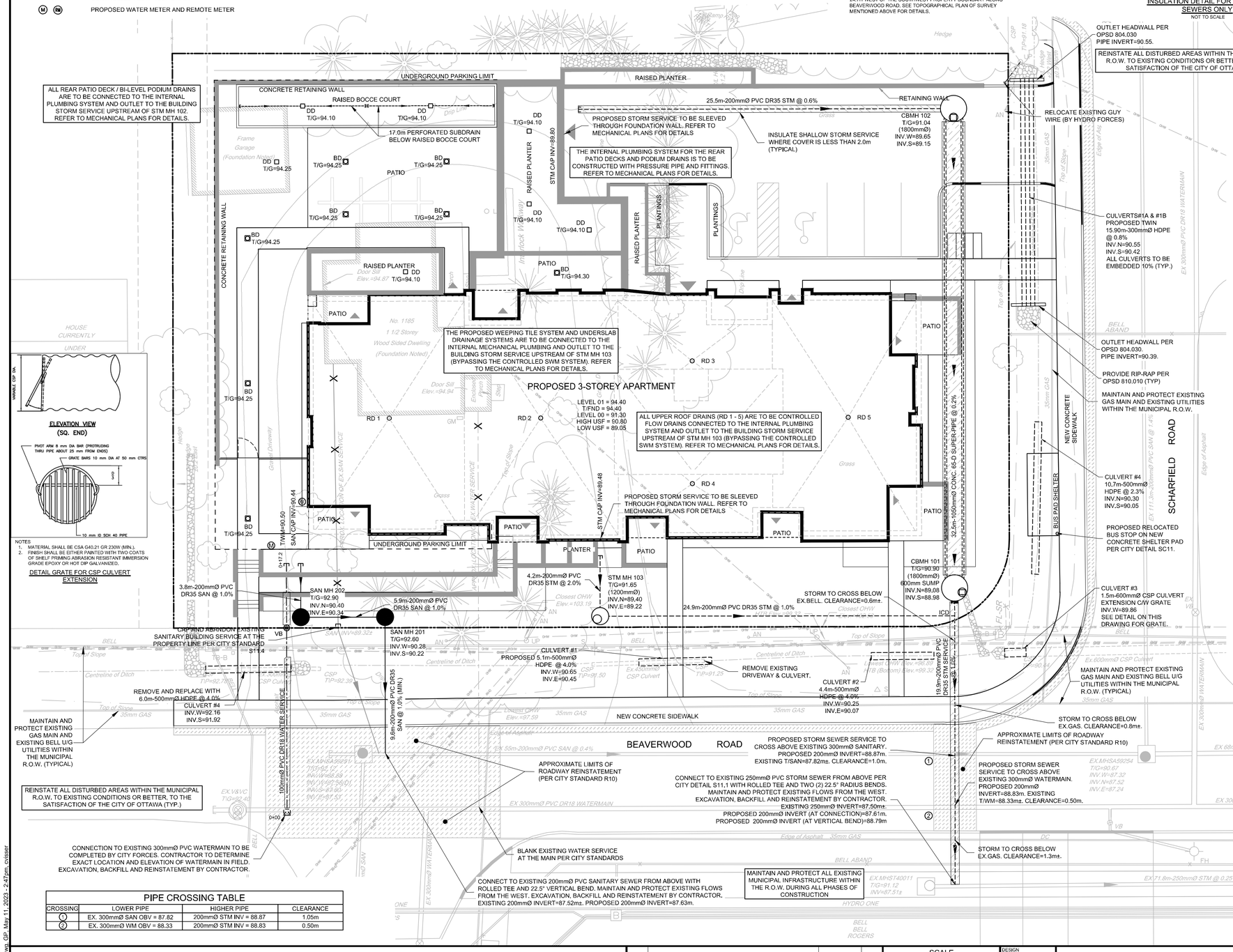
INSULATION DETAIL FOR SHALLOW SEWERS ONLY

NOT TO SCALE





KEY PLAN
N.T.S.



NOTES:
1. MATERIAL SHALL BE CSA G40.21 GR 230W (MIN.)
2. FINISH SHALL BE EITHER PAINTED WITH TWO COATS OF SHELT PRIMNG ASBRAMS RESISTANT IMMERSION GRADE EPOXY OR HOT DIP GALVANIZED.

GENERAL NOTES:

1. COORDINATE AND SCHEDULE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
2. DETERMINE THE EXACT LOCATION, SIZE, MATERIAL AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. PROTECT AND ASSUME RESPONSIBILITY FOR ALL EXISTING UTILITIES WHETHER OR NOT SHOWN ON THIS DRAWING.
3. OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF OTTAWA BEFORE COMMENCING CONSTRUCTION.
4. BEFORE COMMENCING CONSTRUCTION OBTAIN AND PROVIDE PROOF OF COMPREHENSIVE, ALL RISK AND OPERATIONAL LIABILITY INSURANCE FOR $5,000,000.00. INSURANCE POLICY TO NAME OWNERS, ENGINEERS AND ARCHITECTS AS CO-INSURED.
5. COMPLETE ALL WORKS IN ACCORDANCE WITH THE MOST CURRENT CITY OF OTTAWA STANDARDS AND SPECIFICATIONS USING THE CURRENT GUIDELINES, BYLAWS AND STANDARDS INCLUDING MATERIALS OF CONSTRUCTION, DISINFECTION AND ALL RELEVANT REFERENCES TO OPSS, OPSD & AWWA GUIDELINES - ALL CURRENT VERSIONS AND 'AS AMENDED'.
6. RESTORE ALL DISTURBED AREAS ON-SITE AND OFF-SITE, INCLUDING TRENCHES AND SURFACES ON PUBLIC ROAD ALLOWANCES TO EXISTING CONDITIONS OR BETTER TO THE SATISFACTION OF MUNICIPAL AUTHORITIES.
7. REMOVE FROM SITE ALL EXCESS EXCAVATED MATERIAL, ORGANIC MATERIAL AND DEBRIS UNLESS OTHERWISE INSTRUCTED BY ENGINEER. EXCAVATE AND REMOVE FROM SITE ANY CONTAMINATED MATERIAL. ALL CONTAMINATED MATERIAL SHALL BE DISPOSED OF AT A LICENSED LANDFILL FACILITY.
8. ALL ELEVATIONS ARE GEODETIC.
9. REFER TO GEOTECHNICAL INVESTIGATION REPORT (PG6160-1, REVISION 3, DATED MARCH 21, 2023), FOR SUBSURFACE CONDITIONS, CONSTRUCTION RECOMMENDATIONS AND GEOTECHNICAL INSPECTION REQUIREMENTS. THE GEOTECHNICAL CONSULTANT IS TO REVIEW ON-SITE CONDITIONS AFTER EXCAVATION PRIOR TO PLACEMENT OF THE GRANULAR MATERIAL.
10. REFER TO ARCHITECT'S AND LANDSCAPE ARCHITECT'S DRAWINGS FOR BUILDING AND HARD SURFACED AREAS AND DIMENSIONS.
11. REFER TO THE 'DEVELOPMENT SERVICING STUDY AND STORMWATER MANAGEMENT REPORT' (R-2022-013) PREPARED BY NOVATECH.
12. SAW CUT AND KEYGRIND ASPHALT AT ALL ROAD CUTS AND ASPHALT TIE-IN POINTS AS PER CITY OF OTTAWA STANDARDS (R10).

SEWER NOTES:

1. SUPPLY AND CONSTRUCT ALL SEWERS AND APPURTENANCES IN ACCORDANCE WITH THE MOST CURRENT CITY OF OTTAWA STANDARDS AND SPECIFICATIONS - ALL CURRENT VERSIONS AND 'AS AMENDED'.
2. SPECIFICATIONS:

ITEM.	SPEC. No.	REFERENCE
STORM / SANITARY MANHOLE (1200Ø)	701.010	OPSD
SANITARY MANHOLE FRAME AND COVER	401.010 - TYPE 'A'	OPSD
STORM/CATCHBASIN MANHOLE (1800Ø)	701.012	OPSD
STORM/CBMH FRAME AND COVER	401.010 - TYPE 'B'	OPSD
WATERTIGHT MANHOLE FRAME AND COVER	401.030	OPSD
CATCHBASIN (600x600)	705.010	OPSD
CATCHBASIN FRAME & COVER	S19	CITY OF OTTAWA
SEWER TRENCH	S6	CITY OF OTTAWA
STORM SEWER	PVC DR 35 (450mmØ PIPE AND SMALLER)	
STORM SEWER	CONCRETE 65-D (600mmØ PIPE AND LARGER)	
SANITARY SEWER	PVC DR 35	

3. THE SANITARY SERVICE LATERAL SHALL BE EQUIPPED WITH BACKFLOW PREVENTERS WITHIN THE BUILDING FOOTPRINT AS PER CITY OF OTTAWA STANDARD DETAILS S14.1. REFER TO MECHANICAL PLANS FOR DETAILS.
4. THE STORM SERVICE LATERAL SHALL BE EQUIPPED WITH A BACKFLOW PREVENTER WITHIN THE BUILDING FOOTPRINT AS PER CITY OF OTTAWA STANDARD DETAILS S14. REFER TO MECHANICAL PLANS FOR DETAILS.
5. SERVICES ARE TO BE CONSTRUCTED TO 1.0m FROM FACE OF BUILDING AT A MINIMUM SLOPE OF 1.0%.
6. PIPE BEDDING, COVER AND BACKFILL ARE TO BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY, THE USE OF CLEAR CRUSHED STONE AS A BEDDING LAYER SHALL NOT BE PERMITTED.
7. INSULATE ALL PIPES (SAN / STM) THAT HAVE LESS THAN 1.8m COVER WITH HI-40 INSULATION PER INSULATION DETAIL FOR SHALLOW SEWERS. PROVIDE 150mm CLEARANCE BETWEEN PIPE AND INSULATION.
8. CONCRETE MANHOLES ARE TO BE 1200mmØ STRUCTURES UNLESS OTHERWISE NOTED ON THE DRAWING. FLEXIBLE CONNECTIONS ARE REQUIRED FOR CONNECTING PIPES TO MANHOLES (FOR EXAMPLE KOR-N-SEAL, PSX: POSITIVE SEAL AND DURASEAL), THE CONCRETE CRADLE FOR THE PIPE CAN BE ELIMINATED.
9. TYPICAL STORM MANHOLES AND CATCHBASIN MANHOLES ARE TO HAVE 300mm SUMPS UNLESS OTHERWISE INDICATED.
10. THE CONTRACTOR IS TO TELEVISE (CCTV) ALL PROPOSED SEWERS, 200mmØ OR GREATER PRIOR TO BASE COURSE ASPHALT, UPON COMPLETION OF CONTRACT, THE CONTRACTOR IS RESPONSIBLE TO FLUSH AND CLEAN ALL SEWERS & APPURTENANCES. PROVIDE A COPY OF ALL CCTV INSPECTION REPORTS TO THE ENGINEER FOR REVIEW.
11. CONTRACTOR TO PROVIDE THE CONSULTANT WITH A GENERAL PLAN OF SERVICES INDICATING ALL APPLICABLE SERVICING AS-BUILT INFORMATION SHOWN ON THIS PLAN. AS-BUILT INFORMATION MUST INCLUDE: PIPE MATERIAL, SIZES, LENGTHS, SLOPES, INVERT AND T/G ELEVATIONS, STRUCTURE LOCATIONS AND ANY ALIGNMENT CHANGES, ETC.
12. THE OWNER SHALL REQUIRE THAT THE SITE SERVICING CONTRACTOR PERFORM FIELD TESTS FOR QUALITY CONTROL OF ALL SANITARY SEWERS. LEAKAGE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPSS 410.07.16, 410.07.16.04 AND 407.07.24. DYE TESTING IS TO BE COMPLETED ON ALL SANITARY SERVICES TO CONFIRM PROPER CONNECTION TO THE SANITARY SEWER MAIN. THE FIELD TESTS SHALL BE PERFORMED IN THE PRESENCE OF A CERTIFIED PROFESSIONAL ENGINEER WHO SHALL SUBMIT A CERTIFIED COPY OF THE TEST RESULTS.

WATERMAIN NOTES:

1. SUPPLY AND CONSTRUCT ALL WATERMAINS AND APPURTENANCES IN ACCORDANCE WITH THE CITY OF OTTAWA STANDARDS AND SPECIFICATIONS - ALL CURRENT VERSIONS AND 'AS AMENDED'.
2. SPECIFICATIONS:

ITEM	SPEC. No.	REFERENCE
WATERMAIN TRENCHING	W17	CITY OF OTTAWA
HYDRANT INSTALLATION	W19	CITY OF OTTAWA
THERMAL INSULATION IN SHALLOW TRENCHES	W22	CITY OF OTTAWA
THERMAL INSULATION BY OPEN STRUCTURES	W23	CITY OF OTTAWA
VALVE BOX ASSEMBLY	W24	CITY OF OTTAWA
WATERMAIN CROSSING BELOW SEWERS	W25	CITY OF OTTAWA
CATHODIC PROTECTION FOR PVC WATERMAINS	W40	CITY OF OTTAWA
WATERMAIN MATERIAL	PVC DR 18 (100mm AND LARGER)	

3. EXCAVATION, INSTALLATION, BACKFILL AND RESTORATION OF ALL WATERMAINS BY THE CONTRACTOR. CONNECTIONS AND SHUT-OFFS AT THE MAIN AND CHLORINATION OF THE WATER SYSTEM SHALL BE PERFORMED BY CITY OFFICIALS.
4. WATERMAIN SHALL BE MINIMUM 2.4m DEPTH BELOW GRADE UNLESS OTHERWISE INDICATED.
5. PROVIDE MINIMUM 0.5m CLEARANCE BETWEEN OUTSIDE OF PIPES AT ALL CROSSINGS, UNLESS OTHERWISE INDICATED.
6. WATER SERVICE IS TO BE CONSTRUCTED TO WITHIN 1.0m OF FOUNDATION WALL AND CAPPED, UNLESS OTHERWISE INDICATED.

INLET CONTROL DEVICE DATA TABLE: AREA A-2

DESIGN EVENT	ICD TYPE (PLUG TYPE)	OUTLET STRUCTURE	DIAMETER OF OUTLET PIPE (mm)	PEAK DESIGN FLOW (L/s)	DESIGN HEAD (m)	WATER ELEVATION (m)	VOLUME (m^3)	AVAILABLE STORAGE
1:2 YR	IPEX TEMPEST VORTEX LMF 75	1800mmØ CBMH 101	200mmØ PVC	1.2	0.42	89.50	14.4	38.7 m^3
1:5 YR				1.4	0.60	89.68	20.0	
1:100 YR				2.5	1.81	90.89	38.6	

PROPOSED ROOF DRAIN TABLE: AREA R-1 (RD 1 to RD 5)

AREA ID *	ROOF DRAIN No. (WATTS MODEL)	ROOF DRAIN OPENING SETTING	1:5 YEAR RELEASE RATE	APPROX. 5-YR PONDING DEPTH	1:100 YEAR RELEASE RATE	APPROX. 100-YR PONDING DEPTH
R-1	RD 1 (RD-100-A-ADJ)	CLOSED	0.32 L/s	8 cm	0.32 L/s	12 cm
R-1	RD 2 (RD-100-A-ADJ)	CLOSED	0.32 L/s	8 cm	0.32 L/s	12 cm
R-1	RD 3 (RD-100-A-ADJ)	CLOSED	0.32 L/s	7 cm	0.32 L/s	10 cm
R-1	RD 4 (RD-100-A-ADJ)	FULLY EXPOSED	1.26 L/s	10 cm	1.73 L/s	14 cm
R-1	RD 5 (RD-100-A-ADJ)	CLOSED	0.32 L/s	8 cm	0.32 L/s	12 cm

* REFER TO THE 'DEVELOPMENT SERVICING STUDY AND STORMWATER MANAGEMENT REPORT' (R-2022-013) PREPARED BY NOVATECH FOR DRAINAGE AREA IDENTIFIERS AND STORMWATER MANAGEMENT DETAILS.

PROPOSED 100mmØ WATER SERVICE TABLE

STATION	SURFACE ELEVATION	T/WM ELEVATION	COMMENTS
0+00	92.22±	89.82± ✱	ROLL 100mmØ WM CONNECTION TO EX. 300mmØ PVC WM
0+06.9	92.50	90.30 ✱✱	CROSS BELOW EX.35mmØ GAS (CLEARANCE=1.3m±)
0+09.7	92.77	90.40 ✱✱	CROSS BELOW 300mmØ HDPE CULVERT (CLEARANCE=1.8m±)
0+11.4	92.95	90.50	CROSS BELOW EX. U/G BELL (CLEARANCE=1.8m±)
0+12.6	92.95	90.50	VALVE AND VALVE BOX AT PROPERTY LINE
0+13.4	92.95	90.50 ✱✱	INSULATE IN PROXIMITY TO OPEN STRUCTURE
0+17.2	94.28	90.50	CAP AT 1.0m FROM FOUNDATION WALL

✱ CONNECTION TO EXISTING 300mmØ PVC WATERMAIN. EXACT ELEVATION TO BE FIELD DETERMINED.
✱✱ PROVIDE THERMAL INSULATION AS PER CITY OF OTTAWA DETAIL W22 IN SHALLOW TRENCHES AND/OR CITY OF OTTAWA DETAIL W23 ADJACENT TO OPEN STRUCTURES.

PIPE CROSSING TABLE

CROSSING	LOWER PIPE	HIGHER PIPE	CLEARANCE
1	EX. 300mmØ SAN OBV = 87.82	200mmØ STM INV = 88.87	1.05m
2	EX. 300mmØ WM OBV = 88.33	200mmØ STM INV = 88.83	0.50m

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

OWNER INFORMATION
NIVO DEVELOPMENTS INC.
255 MICHAEL COWPLAND DRIVE,
OTTAWA, ONTARIO, K2M 0M5
CONTACT: ANTHONY NICOLINI
PHONE: (613) 880-2274
EMAIL: anthony@arkconstruction.ca

No.	REVISION	DATE	BY
4	REVISED PER CITY COMMENTS	MAY 11/23	FST
3	REVISED PER CITY COMMENTS	MAR 16/23	FST
2	REVISED PER CITY COMMENTS	DEC 22/22	FST
1	ISSUED FOR SITE PLAN APPROVAL	JUL 15/22	FST

SCALE 1:150

DESIGN	SM
CHECKED	FST
DRAWN	SM
CHECKED	FST
APPROVED	FST

LICENSED PROFESSIONAL ENGINEER F.S. THAUVETTE 100041390 MAY 11, 2023 PROVINCE OF ONTARIO

NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

LOCATION
CITY OTTAWA
1185 BEAVERWOOD ROAD

DRAWING NAME
GENERAL PLAN OF SERVICES

PROJECT No. 121184
REV REV # 4
DRAWING No. 121184-GP

PLAN No. : 18960
D07-12-22-0114

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