

**PIPE CROSSINGS**

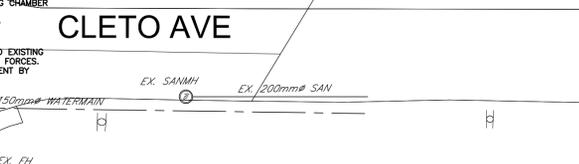
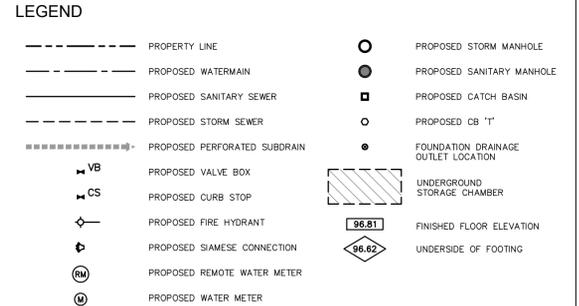
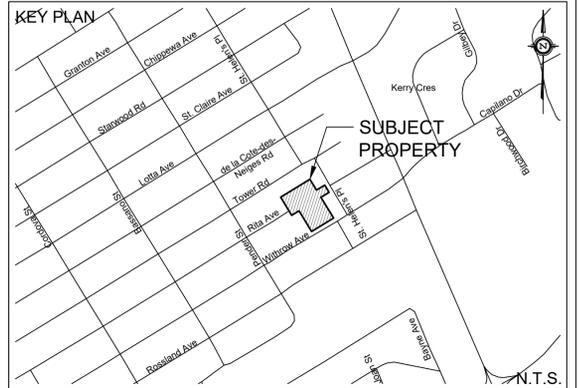
PIPE CROSSING #	PIPE INVERT	PIPE OBVERT	SEPARATION (m)
1	STM INV = 96.57	WTR OBV = 95.38	1.19
2	STM INV = 96.58	SAN OBV = 94.95	1.63
3	WTR INV = 95.60	SAN OBV = 95.19	0.41

**PROPOSED WATERMAIN 'A'**

STATION	FINISHED GROUND	TOP WATERMAIN	DESCRIPTION
0+000.00	97.45	95.05	TEE CONNECTION TO EX. 150MM 'A'
0+001.50	97.47	95.07	200x150 REDUCER
0+003.00	97.58	95.18	WATER METER CHAMBER PER W3.3
0+020.00	97.66	95.26	
0+022.50	97.65	95.25	FIRE HYDRANT
0+024.00	97.65	95.25	200x50 REDUCER
0+040.00	97.78	95.38	
0+058.20	97.99	95.59	TEE CONNECTION TO WM 'B'
0+060.00	98.00	95.60	V&B
0+080.00	98.00	95.60	CAP WM
0+083.20	98.00	95.60	

**PROPOSED 50mm WATERMAIN 'B'**

STATION	FINISHED GROUND	TOP WATERMAIN	DESCRIPTION
1+000.00	98.00	95.60	TEE CONNECTION TO WM 'A'
0+020.00	98.00	95.60	V&B
0+037.20	98.05	95.65	CAP WM



**GENERAL NOTES**

1. ALL WORKS AND MATERIALS SHALL CONFORM TO THE LATEST REVISIONS OF THE STANDARDS AND SPECIFICATIONS FOR THE CITY OF OTTAWA, ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) AND SPECIFICATIONS (SPS), WHERE APPLICABLE. LOCAL UTILITY STANDARDS AND MINISTRY OF TRANSPORTATION STANDARDS WILL APPLY WHERE REQUIRED.
2. THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL EXISTING UTILITIES WITHIN THE SITE AND ADJACENT WORK AREAS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING UTILITIES. THE LOCATION OF THE UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER. LOST TIME DUE TO FAILURE OF THE CONTRACTOR TO CONFIRM UTILITY LOCATIONS AND NOTIFY ENGINEER OF POSSIBLE CONFLICTS PRIOR TO CONSTRUCTION SHALL BE AT THE CONTRACTOR'S RISK.
3. ANY AREAS BEYOND THE LIMIT OF THE SITE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION AT THE CONTRACTOR'S EXPENSE.
4. RELOCATION OF EXISTING SERVICES AND/OR UTILITIES SHALL BE AS SHOWN ON THE DRAWINGS OR DIRECTED BY THE ENGINEER AT THE EXPENSE OF THE DEVELOPER.
5. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS. THE GENERAL CONTRACTOR SHALL BE DEEMED TO BE THE "CONTRACTOR" AS DEFINED IN THE ACT.
6. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE MINISTRY OF TRANSPORTATION'S UNIFORM TRAFFIC CONTROL DEVICES PER LATEST AMENDMENT.
7. THE CONTRACTOR IS ADVISED THAT WORKS BY OTHERS MAY BE ONGOING DURING THE PERIOD OF THIS CONTRACT. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES TO PREVENT CONFLICTS.
8. ALL DIMENSIONS ARE IN METRES UNLESS SPECIFIED OTHERWISE.
9. THERE WILL BE NO SUBSTITUTION OF MATERIALS UNLESS PRIOR WRITTEN APPROVAL IS RECEIVED FROM THE ENGINEER.
10. ALL CONSTRUCTION SHALL BE CARRIED OUT IN ACCORDANCE WITH THE RECOMMENDATIONS MADE IN THE GEOTECHNICAL REPORT.
11. FOR DETAILS RELATING TO STORMWATER MANAGEMENT AND ROOF DRAINAGE REFER TO THE SITE SERVICING AND STORMWATER MANAGEMENT REPORT PREPARED BY DSEL.
12. ALL SEWERS CONSTRUCTED WITH GRADES LESS THAN 1.0% SHALL BE INSTALLED USING LASER ALIGNMENT AND CHECKED WITH LEVEL INSTRUMENT PRIOR TO BACKFILLING.
13. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED AND TO BEAR THE COST OF THE SAME.
14. ALL PIPE / CULVERT SECTION SIZES REFER TO INSIDE DIMENSIONS.
15. SHOULD DEEPLY BURIED ARCHAEOLOGICAL REMAINS BE FOUND ON THE PROPERTY DURING CONSTRUCTION ACTIVITIES, THE HERITAGE OPERATIONS UNIT OF THE ONTARIO MINISTRY OF CULTURE MUST BE NOTIFIED IMMEDIATELY.
16. ALL NECESSARY CLEARING AND GRUBBING SHALL BE COMPLETED BY THE CONTRACTOR. REVIEW WITH CONTRACT ADMINISTRATOR AND THE CITY OF OTTAWA PRIOR TO ANY TREE CUTTING / REMOVAL.
17. DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE ARCHITECTURAL SITE PLAN.
18. THE CONTRACTOR SHALL PROVIDE THE PROJECT ENGINEER ONE SET OF AS CONSTRUCTED SITE SERVICING AND GRADING DRAWINGS.
19. BENCHMARKS: IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THAT THE SITE BENCHMARK(S) HAS NOT BEEN ALTERED OR DISTURBED AND THAT ITS RELATIVE ELEVATION AND DESCRIPTION AGREES WITH THE INFORMATION SPECIFIED ON THIS PLAN.

**WATERMAIN NOTES**

1. ALL WATERMAIN INSTALLATION SHALL CONFORM TO THE LATEST REVISIONS OF THE CITY OF OTTAWA AND THE ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) AND SPECIFICATIONS (SPS).
2. ALL PVC WATERMANS SHALL BE AWMA C-900 CLASS 150, SDR 18 OR APPROVED EQUIVALENT.
3. WATERMAIN TRENCH AND BEDDING SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STANDARD W17, UNLESS SPECIFIED OTHERWISE. BEDDING AND COVER MATERIAL SHALL BE SPECIFIED BY THE PROJECT GEOTECHNICAL ENGINEER.
4. ALL PVC WATERMANS SHALL BE INSTALLED WITH A 10 GAUGE STRANDED COPPER TUB OR RWJ TRACER WIRE IN ACCORDANCE WITH CITY OF OTTAWA STD. W.36.
5. CATHODIC PROTECTION IS REQUIRED ON ALL METALLIC FITTINGS PER CITY OF OTTAWA STD. W40 AND W42.
6. VALVE BOXES SHALL BE INSTALLED PER CITY OF OTTAWA STD. W44.
7. WATERMANS IN FILL AREAS TO BE INSTALLED WITH RESTRAINED JOINTS PER CITY OF OTTAWA STD. W25.5 AND W25.6.
8. THURST BLOKING OF WATERMANS TO BE INSTALLED PER CITY OF OTTAWA STD. W25.3 AND W25.4.
9. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY CAPS, PLUGS, BLOW-OFFS, AND NOZZLES REQUIRED FOR TESTING AND DISINFECTION OF THE WATERMAIN.
10. WATERMAIN CROSSING OVER AND BELOW SEWERS SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STD. W25.2 AND W25, RESPECTIVELY.
11. WATER SERVICES ARE TO BE INSULATED PER CITY STD. W23 WHERE SEPARATION BETWEEN SERVICES AND MAINTENANCE HOLES ARE LESS THAN 2.4m.
12. THE MINIMUM VERTICAL CLEARANCE BETWEEN WATERMAIN AND SEWER / UTILITY IS 0.50m PER MOE GUIDELINES. FOR CROSSING UNDER SEWERS, ADEQUATE STRUCTURAL SUPPORT FOR THE SEWERS IS REQUIRED TO PREVENT EXCESSIVE DEFLECTION OF JOINTS AND SETTLING. THE LENGTH OF WATER PIPE SHALL BE CENTRED AT THE POINT OF CROSSING TO ENSURE THAT THE HOLES COINCIDE AND AS FAR AS POSSIBLE TO BE INSTALLED AT THE POINT OF CROSSING.
13. ALL WATERMANS SHALL HAVE A MINIMUM COVER OR 2.4m, OTHERWISE THERMAL INSULATION IS REQUIRED AS PER STD W22.
14. GENERAL WATER PLANT TO UTILITY CLEARANCE AS PER STD DWG R20.
15. FIRE HYDRANT INSTALLATION AS PER STD DWG H1. ALL BOTTOMS OF HYDRANT FLANGE ELEVATIONS TO BE INSTALLED 0.10m ABOVE PROPOSED FINISHED GRADE AT HYDRANT; FIRE HYDRANT LOCATION AS PER STD DWG W15 UNLESS OTHERWISE NOTED.
16. BUILDING SERVICE TO BE CAPPED 1.0m OFF THE FACE OF THE BUILDING UNLESS OTHERWISE NOTED AND MUST BE RESTRAINED A MINIMUM OF 12m BACK FROM STUB.
17. ALL WATERMANS SHALL BE HYDRAULICALLY TESTED IN ACCORDANCE WITH THE CITY OF OTTAWA AND ONTARIO GUIDELINES UNLESS OTHERWISE DIRECTED. PROVISIONS FOR FLUSHING WATER LINE PRIOR TO TESTING, ETC. MUST BE PROVIDED.
18. ALL WATERMANS SHALL BE BACTERIOLOGICALLY TESTED IN ACCORDANCE WITH THE CITY OF OTTAWA AND ONTARIO GUIDELINES. ALL CHLORINATED WATER TO BE DISCHARGED AND TREATED TO ENSURE THAT THE WATER IS SAFE FOR USE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALL MUNICIPAL AND/OR PROVINCIAL REQUIREMENTS ARE FOLLOWED.
19. ALL WATERMANS SHALL BE TERMINATED WITH A PLUG AND 50mm BLOW OFF UNLESS OTHERWISE NOTED.
20. ALL WATER SERVICE LATERALS TO BE PEX TUBING AWMA C-904.

**SANITARY AND STORM SEWER NOTES**

**GENERAL**

1. LASER ALIGNMENT CONTROL TO BE UTILIZED ON ALL SEWER INSTALLATIONS.
2. CLAY SEALS TO BE INSTALLED AS PER CITY STANDARD DRAWING SB. THE SEALS SHOULD BE AT LEAST 1.5m LONG (IN THE TRENCH DIRECTION) AND SHOULD EXTEND FROM TRENCH WALL TO TRENCH WALL. THE SEALS SHOULD EXTEND FROM THE FRONT LINE AND FULLY PENETRATE THE BEDDING, SUB-BEDDING, AND COVER MATERIAL. THE BARRIERS SHOULD CONSIST OF RELATIVELY DRY AND COMPACTABLE BROWN SILTY CLAY PLACED IN MAXIMUM 250mm LIFTS AND COMPACTED TO A MINIMUM OF 95% PROCTOR. THE CLAY SEALS SHOULD BE PLACED AT THE SITE BOUNDARIES AND AT 80m INTERVALS IN THE SERVICE TRENCHES.
3. SERVICES TO BUILDINGS TO BE TERMINATED 1.0m FROM THE OUTSIDE FACE OF BUILDING UNLESS OTHERWISE NOTED.
4. ALL MAINTENANCE STRUCTURE AND CATCH BASIN EXCAVATIONS TO BE BACKFILLED WITH GRANULAR MATERIAL COMPACTED TO 98% STANDARD PROCTOR DENSITY, A MINIMUM OF 300mm AROUND STRUCTURES.
5. "MODULOG" OR APPROVED PRE-CAST MAINTENANCE STRUCTURE AND CATCH BASIN ADJUSTERS TO BE USED IN LIEU OF BROCKING. PARGE ADJUSTING UNITS ON THE OUTSIDE ONLY.
6. SAFETY PLATFORMS SHALL BE PER OPSD 404.02.
7. DROP STRUCTURES SHALL BE IN ACCORDANCE WITH OPSD 1003.01 AND 1003.02, IF APPLICABLE.
8. THE CONTRACTOR IS TO PROVIDE CITY PICTORIAL REPORT, ONE (1) CD COPY AND TWO (2) VIDEO RECORDINGS IN A FORMAT ACCEPTABLE TO THE ENGINEER. ALL SEWERS ARE TO BE FLUSHED PRIOR TO CAMERA INSPECTION. ASPHALT WEAR COVERS SHALL NOT BE PLACED UNTIL THE VIDEO INSPECTION OF SEWERS AND NECESSARY REPAIRS HAVE BEEN COMPLETED BY THE CONTRACTOR.
9. CONTRACTOR SHALL PERFORM LEAKAGE TESTING, IN THE PRESENCE OF THE CONSULTANT, FOR SANITARY SEWERS IN ACCORDANCE WITH OPSD 410 AND OPSD 407. CONTRACTOR SHALL PERFORM VIDEO INSPECTION OF ALL SEWERS. A COPY OF THE VIDEO AND INSPECTION REPORT SHALL BE SUBMITTED TO THE CONSULTANT FOR REVIEW AND APPROVAL PRIOR TO PLACEMENT OF NEAR COURSE ASPHALT.
10. FROST PROTECTION RECOMMENDATIONS FOR STORM SEWERS WITH LESS THAN 1.5m AND SANITARY SEWERS WITH LESS THAN 1.8m FROM GROUND SURFACE TO PIPE OBVERT TO BE PROVIDED BY GEOTECHNICAL ENGINEER.

**SANITARY**

11. ALL SANITARY SEWER INSTALLATION SHALL CONFORM TO THE LATEST REVISIONS OF THE CITY OF OTTAWA AND THE ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) AND SPECIFICATIONS (SPS).
12. ALL SANITARY GRAVITY SEWER SHALL BE PVC SDR 35, IPEX "RING-TITE" (OR APPROVED EQUIVALENT) PER CSA STANDARD B182.2 OR LATEST AMENDMENT, UNLESS SPECIFIED OTHERWISE.
13. EXISTING MAINTENANCE STRUCTURES TO BE RE-BENCHMARKED WHERE A NEW CONNECTION IS MADE.
14. SANITARY GRAVITY SEWER TRENCH AND BEDDING SHALL BE PER CITY OF OTTAWA STD. S6 AND S7, CLASS 'B' BEDDING, UNLESS SPECIFIED OTHERWISE.
15. SANITARY MAINTENANCE STRUCTURE FRAME AND COVERS SHALL BE PER CITY OF OTTAWA STD. S24 AND S25.
16. SANITARY MAINTENANCE STRUCTURES SHALL BE BENCHMARKED PER OPSD 701.021.
17. ALL SANITARY SEWER LATERALS TO BE PVC SDR 35.

**STORM**

18. ALL REINFORCED CONCRETE STORM SEWER PIPE SHALL BE IN ACCORDANCE WITH CSA A237.2, OR LATEST AMENDMENT. ALL NON-REINFORCED CONCRETE STORM SEWER PIPE SHALL BE IN ACCORDANCE WITH CSA A237.1, OR LATEST AMENDMENT. PIPE SHALL BE JOINED WITH STD. RUBBER GASKETS AS PER CSA A237.1, OR LATEST AMENDMENT.
19. ALL STORM SEWER TRENCH AND BEDDING SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STD. S6 AND S7 CLASS 'B' UNLESS OTHERWISE SPECIFIED. BEDDING AND COVER MATERIAL SHALL BE SPECIFIED BY PROJECT GEOTECHNICAL ENGINEER.
20. ALL PVC STORM SEWERS ARE TO BE SDR 35 APPROVED PER CSA B182.2 OR LATEST AMENDMENT, UNLESS OTHERWISE SPECIFIED.
21. CATCH BASINS SHALL BE IN ACCORDANCE WITH OPSD 705.010.
22. CATCH BASIN LEADS SHALL BE 200mm DIA. AT 1% SLOPE (MIN) UNLESS SPECIFIED OTHERWISE.
23. ALL CATCH BASINS SHALL HAVE 600mm Sumps, UNLESS SPECIFIED OTHERWISE.
24. ALL CATCH BASIN LEAD INVERTS TO BE 1.5m BELOW FINISHED GRADE UNLESS SPECIFIED OTHERWISE.
25. THE STORM SEWER CLASSES HAVE BEEN DESIGNED BASED ON BEDDING CONDITIONS SPECIFIED ABOVE. WHERE THE SPECIFIED TRENCH WIDTH IS EXCEEDED, THE CONTRACTOR IS REQUIRED TO PROVIDE AND BE RESPONSIBLE FOR EXTRA TEMPORARY AND/OR PERMANENT REPAIRS MADE NECESSARY BY THE WIDENED TRENCH.
26. PERFORATED SUBDRAIN FOR ROAD AND PARKING LOT CATCH BASIN SHALL BE INSTALLED PER CITY STD R1 AND GEOTECHNICAL RECOMMENDATIONS UNLESS OTHERWISE NOTED.
27. PERFORATED SUBDRAIN FOR REAR YARD AND LANDSCAPING APPLICATIONS SHALL BE INSTALLED PER CITY STD S29, S30, AND S31, WHERE APPLICABLE.
28. RIP-RAP TREATMENT FOR SEWER AND CULVERT OUTLETS PER OPSD 810.010.
29. ALL STORM SEWERS / CULVERTS TO BE INSTALLED WITH FROST TREATMENT PER OPSD 803.031 WHERE APPLICABLE.
30. STORM MAINTENANCE STRUCTURE FRAME AND COVERS SHALL BE PER CITY OF OTTAWA STD S25 AND S24.1, UNLESS OTHERWISE NOTED.
31. CATCH BASIN FRAME AND COVER SHALL BE PER OPSD 400.02 AND CITY STD S19.1, UNLESS OTHERWISE NOTED.

EXISTING UNDERGROUND SERVICES AND UTILITY LOCATIONS DERIVED FROM THE BEST AVAILABLE DATA, AS-CONSTRUCTED DRAWINGS, UTILITY DRAWINGS AND INFRASTRUCTURE MAPPING PROVIDED BY THE CITY OF OTTAWA.

CONTRACTOR TO CONFIRM ELEVATIONS AND LOCATIONS OF EXISTING UNDERGROUND SERVICES AND UTILITIES WITHIN THE RIGHT OF WAY PRIOR TO INSTALLATION OF SITE SERVICING INFRASTRUCTURE.

THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATERCOURSE, DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR ACKNOWLEDGES THAT THE FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.

**NOT FOR CONSTRUCTION**

**TOPOGRAPHIC INFORMATION**  
TOPOGRAPHIC INFORMATION PROVIDED BY FARLEY, SMITH & DENIS SURVEYING LTD. 2015  
PROJ. NO. 432-15-15  
DATED NOVEMBER 11, 2015

**SITE PLAN INFORMATION**  
SITE PLAN PROVIDED BY URBANDIVA DESIGN INC.  
PROJ. NO. 1702  
DATED MARCH 1, 2018

**GEOTECHNICAL STUDY**  
GEOTECHNICAL RECOMMENDATIONS PROVIDED BY PATerson GROUP INC.  
PROJ. NO. PG4194-1  
DATED AUGUST 8, 2017

**SITE SERVICING AND STORMWATER MANAGEMENT STUDY**  
SERVICING AND STORMWATER MANAGEMENT RECOMMENDATIONS PROVIDED BY DSEL  
PROJ. NO. 17-931  
DATED MARCH 2018

**BENCHMARK**  
2 NAILS IN POLE LOCATED AT SOUTH-WEST CORNER OF SUBJECT PROPERTY  
ELEV=99.48

No.	BY	DATE	DESCRIPTION
1	B.N.C.	18.03.29	ISSUED FOR MUNICIPAL REVIEW
2	B.N.C.	17.11.02	ISSUED FOR MUNICIPAL REVIEW



PROJECT No. 17-931

**SITE SERVICING PLAN**  
**21 WITHROW AVENUE**

THEBERGE HOMES  
904 Lady Ellen Place  
Ottawa, Ontario, K1Z 5L5  
Tel. (613) 421-1515

**DSEL**  
david schaeffer engineering ltd  
120 Ibor Road Unit 103  
Stittsville, Ontario, K2S 1E9  
Tel. (613) 836-0856  
Fax. (613) 836-7183  
www.DSEL.ca

DRAWN BY: A.W.T. CHECKED BY: S.L.M. DRAWING NO. SHEET NO.  
DESIGNED BY: B.N.C. CHECKED BY: A.D.F.  
SCALE: 1:300 DATE: MARCH 2018 **SSP-1** 3 of 5

APPROVED  REFUSED   
THIS DAY OF \_\_\_\_\_, 20\_\_\_\_  
DERRICK MOODIE  
MANAGER, DEVELOPMENT REVIEW - WEST  
PLANNING, INFRASTRUCTURE AND ECONOMIC  
DEVELOPMENT DEPARTMENT, CITY OF OTTAWA