TREE CONSERVATION REPORT

1110 Fisher

Tree Conservation Report submitted as Partial Requirements for a Zoning Application

Astrid Nielsen, RPF, ISA Certified Arborist®, ON-1976

Dendron Forestry Services
www.dendronforestry.ca
613.805.WOOD (9663)
info@dendronforestry.ca

Tree Conservation Report V 2.0

Address: 1110 Fisher

Date: October 28, 2019

Prepared by: Astrid Nielsen, RPF, ISA Certified Arborist ®, Dendron Forestry Services

Prepared for: Enzo Di Chiara, P.Eng
Prestige Design & Construction (FISHER) Ltd.
50 Camelot Drive
Ottawa, Ontario, K2G 5X8
Office phone: 613-224-9437 extension 103
Cellular phone: 613-913-6935
Email: enzo@prestigeottawa.com

Site Visit: October 23, 2019

Introduction

This Tree Conservation Report V 2.0 has been prepared for 1110 Fisher, as partial requirements for the Zoning Application submitted to the City of Ottawa. It replaces the Report prepared on May 21, 2019. The objectives of this Tree Conservation Report are:

- To describe all trees over 10 cm on the site and all city-owned trees on adjacent property, recording their species, size, and current health condition
- To evaluate the impact of the trees by the proposed development and what the recommended action is (retain or protect)
- To provide recommendations on how to mitigate damage to retained trees during construction

Current vegetation

The following is an inventory of all trees that are protected under City of Ottawa tree by-laws on the site and adjacent City property. This includes trees over 10 cm in diameter on the subject site and on neighbouring properties whose Critical Root Zone extend within the area of excavation. The numbers in this chart refer to those on the *Current Vegetation Tree Map* included in this report which is a layer that has been added to the Grading Plan that was provided. The original grading plan was not altered in the development of this tree layer.

Note that locations of some trees on this map are estimates only – not all the neighbouring trees were included in the grading plan. The locations that have been estimated have been identified in the chart.

Tree[1]	Species	Diameter at breast height (dbh)	Critical Root Zone (m)	Ownership	Condition	Action
1	Norway maple (*Acer platanoides)*	78 cm	8 m	Jointly owned with City	Fair/poor	Proposed removal; conflict with new laneway and poor health
2	Norway maple (*Acer platanoides*)	30 cm	3 m	City	Good	Retain provided there is no excavation planned within the critical root zone
3	Norway maple (*Acer platanoides*)	8 cm	1 m	City	Good	Retain provided there is no excavation planned within the critical root zone
4[3]	Norway spruce (*Picea abies*)	38 cm	4 m	Neighbouring school property	Good; 1.9 m from the property line	Retain; minimize excavation of critical root zone
5[3]	Norway spruce (*Picea abies*)	28 cm	3 m	Neighbouring school property	Good	Retain
6[3]	Norway spruce (*Picea abies*)	38 cm	4 m	Neighbouring school property	Good; 10% lean towards road	Retain
7[3]	Norway spruce (*Picea abies*)	37 cm	4 m	Neighbouring school property	Good	Retain
8[3]	Norway spruce (*Picea abies*)	31 cm	3 m	Neighbouring school property	Good; supressed	Retain
9[3]	Norway spruce (*Picea abies*)	37 cm	4 m	Neighbouring school property	Fair; 3.9 m from property line	Retain
10[3]	Norway spruce (*Picea abies*)	43 cm	4.5 m	Neighbouring school property	Good; 4.0 m from property line	Retain

11[3]	Norway spruce (*Picea abies*)	39 cm	4 m	Neighbouring school property	Good	Retain
12	Norway spruce (*Picea abies*)	50 cm (estimate only)	5 m	Jointly owned with neighbour at 1130 Trent St	Good	Retain and protect
13	Norway spruce (*Picea abies*)	35 cm (estimate only)	3.5 m	Jointly owned with neighbour at 1130 Trent St	Fair; pruned by hydro, roots have been damaged by soil excavation and compaction	Removal recommended as excavation will come within approximately 1 m from the tree and tree is in fair health; approval by abutting neighbour is required
14[3]	Manitoba maple (*Acer negundo*)	10, 10, 11 cm	1 m	Private	Good/fair	Removal recommended due to site grading and paving
15[3]	Manitoba maple (*Acer negundo*)	24, 7 cm	2.5 m	Jointly owned with neighbour at 1120 Trent St	Fair; heavy lean and decay at base; small nest located in smaller tree	Either removal for poor health or retention to provide for screen
16[3]	Manitoba maple (*Acer negundo*)	20 cm	2 m	Jointly owned with neighbour at 1120 Trent St and/or City	Fair/poor	Either removal for poor health or retention to provide for screening
17[3]	Manitoba maple (*Acer negundo*)	36, 10, 10 cm	4 m	Jointly owned with City	Fair	Either removal for poor health or retention to provide for screening

[1] Please refer to the enclosed maps for tree numbers. Note that the maps include a tree layer added to the grading plan (in pdf format) provided by the client. This layer includes only information about the trees and the original grading plan is not altered in this process.

[2] Critical Root Zone is an area around the trunk with a radius equivalent to 10 times the diameter of the trunk

[3] Location is not included on original grading plan and has been estimated

In addition to the above, there are also two cedar hedges running close to the property line, on the neighbouring school property (see map) The diameters of these cedars range from 5-20 cm and are within approximately 20 cm from the property line.

Proposed Development and Conserved Vegetation

The proposed development is shown in the *Proposed Development and Conserved Vegetation Map*. This map shows a tree layer created by Dendron Forestry Services overlaying the Grading Plan provided by Prestige Design & Construction.

Tree no. 1 is a Norway maple in relatively poor health and is directly in the path of the new laneway, therefore, removal is recommended. Tree no.2 and 3 are also city-owned Norway maple and provided there is no major trenching of their critical roots, these trees should be retainable. The location for the protective fencing has been included for these trees.

Tree nos. 4-11 are Norway spruce growing together in a clump. For the most part, there will be little damage to the roots of these trees except for tree no. 4 which is only 1.9 m from the fence. Given the scope of this project, it is assumed that excavation will come right to the fence line. Spruce are shallow rooted, and the majority of root mass is likely in the top 1 m of soil. If there is flexibility with the excavation, it is recommended that as much root mass be left in the top metre of soil for this tree as possible. Because these trees grown in a clump, their roots are intertwined and support one another. With the loss of some of the critical root mass for tree no. 4, it should remain supported by the remaining trees. Any exposed roots should be kept moist with organic material such as burlap until they are re-buried. In addition, any roots that are torn should be pruned back with a clean cut to allow for proper sealing.

The cedar hedge running along the southern property line may be impacted by the excavation as well. The same recommended mitigation measures would apply here whereby the excavation in the top metre of soil be kept to a minimum, and the roots be kept moist while being exposed.

Tree no. 12 is in good health and far enough away from the development, that it should be retainable with proper protection measures. Tree no. 13 is in fair condition that has undergone significant hydro pruning along the north side. The crown is also thin on the south side as is a large stump (perhaps an ash) close to the base indicating that it was likely shaded out by a large tree. The roots have also been damaged through some recent compaction and grade changes. The proposed excavation will come to approximately 1 metre to the base of the tree resulting in a loss of approximately 20% of the root mass, possibly including some stabilizing roots. Given the poor health combined with the proposed excavation, removal of this tree is recommended. Note that because this is a jointly owned tree, approval for removal with the neighbouring owner is required.

Tree no. 14 is a clump of Manitoba maple that will be exposed to significant grading. Combined with being an invasive species, removal is recommended. The remaining Manitoba maple are very close to, or on the property line with the abutting neighbour and the city. For the most part, these trees are in poor/fair condition, however, they do provide screening. Removal and replacement with more desirable species are recommended. However, they could be retained if screening is a priority. Permission with the abutting owners is required for removal.

Tree Protection Measures

Prior to any site works, protective fencing should be installed around the trees as indicated in the attached *Proposed Development and Conserved Vegetation Map* and maintained until all construction on site has been completed as per the **City of Ottawa Tree Protection Specifications (April 2019)**. Within the fenced area, the following tree protection guidelines should be applied:

- Do not change the grade
- Do not place store construction material of site "furniture" such as outhouses
- Do not operate machinery
- Do not convert to hard surface or change the landscaping
- Do not excavate unless it is a method that has been pre-approved by the City
- Do not place signs, notices or posters to any tree
- Do not damage the root system, trunk, or branches of any tree
- Direct the exhaust away from the tree

The tree protection fencing must be 1.2 m in height and constructed of a rigid or framed material (e.g. modulus – steel, plywood hoarding, or snow fence on a 2"X4" wood frame) with posts 2.4 m apart such that the fence location cannot be altered.

The undersigned personally inspected the property and issues associated with this report on October 23, 2019. On Behalf of Dendron Forestry Services,

Astrid Nielsen, RPF, ISA Certified Arborist ®, ON-1976
Principal, Dendron Resource Surveys
Astrid.nielsen@dendronforestry.ca
(613) 805-9663 (WOOD)
Principal, Dendron Resource Surveys

Figure 1: Tree no. 1 - Norway maple in fair/poor condition on City property

Figure 2: Trees no. 2 and 3 - City-owned Norway maples

Figure 3: Southern property line – clump of Norway spruce (tree nos. 4 – 11)

Figure 4: Cedar hedge along western property line

Figure 5: Norway spruce along the northern property line (tree nos. 12 -13)

Figure 6: Manitoba maple along the northern property line (tree nos. 15-17)

Intended Use of the Report

This Information Report was carried out by Dendron Forestry Services (hereafter Dendron) at the request of the Client. The information, interpretation and analysis contained within this Report is to be used solely for the purposes outlined within this Report. This Report is for the exclusive use of the Client.

Limitations of this Report

This Report is based on the circumstances and observations as they existed at the time of the site inspection of the Client's Property and the trees situate thereon by Dendron and upon information provided by the Client to Dendron. The opinions in this Report are given based on observations made and using generally accepted professional judgment, however, because trees and plants are living organisms and subject to change, damage and disease, the results, observations, recommendations, and analysis as set out in this Report are valid only as at the date any such testing, observations and analysis took place and no guarantee, warranty, representation or opinion is offered or made by Dendron as to the length of the validity of the results, observations, recommendations and analysis contained within this Report As a result the Client shall not rely upon this Report, save and except for representing the circumstances and observations, analysis and recommendations that were made as at the date of such inspections. It is recommended that the trees discussed in this Report should be re-assessed periodically.

Further Services

Neither Dendron nor any assessor employed or retained by Dendron for the purpose of preparing or assisting in the preparation of this Report shall be required to provide any further consultation or services to the Client, save and except as already carried out in the preparation of this Report and including, without limitation, to act as an expert witness or witness in any court in any jurisdiction unless the Client has first made specific arrangements with respect to such further services, including, without limitation, providing the payment of the Report's regular hourly billing fees.

Dendron accepts no responsibility for the implementation of all or any part of the Report, unless specifically request to examine the implementation of such activities recommended herein. In the event that inspection or supervision of all or part of the implementation is request, that request shall be in writing and the details agreed to in writing by both parties.

Assumptions

The Client is hereby notified and does hereby acknowledge and agree that where any of the facts and information set out and referenced in this Report are based on assumptions, facts or information provided to Dendron by the Client and/or third parties and unless otherwise set out within this Report, Dendron will in no way be responsible for the veracity or accuracy of any such information. Further, the Client acknowledges and agrees that Dendron has, for the purposes of preparing their Report, assumed that the Property, which is the subject of this Report is in full compliance with all applicable federal, provincial, municipal and local statutes, regulations, by-laws, guidelines and other related laws. Dendron explicitly denies any legal liability for any and all issues with respect to non-compliance with any of the above-referenced statutes, regulations, bylaws, guidelines and laws as it may pertain to or affect the Property to which this Report applies.

Professional Responsibility

In carrying out this Report, Dendron and any Assessor appointed for and on behalf of Dendron to perform and carry out the Report has exercised a reasonable standard of care, skill and diligence as would be customarily and normally provided in carrying out this Report. While reasonable efforts have been made to ensure that the trees recommended for retention are healthy, no guarantees are offered, or implied, that these trees, or all parts of them will remain standing. It is professionally impossible to predict with absolute certainty the behaviour of any single tree or group of trees, or all their component parts, in all given circumstances. Inevitably, a standing tree will always pose some risk. Most trees have the potential to fall, lean, or otherwise pose a danger to property and persons in the event of adverse weather conditions, and this risk can only be eliminated if the tree is removed.

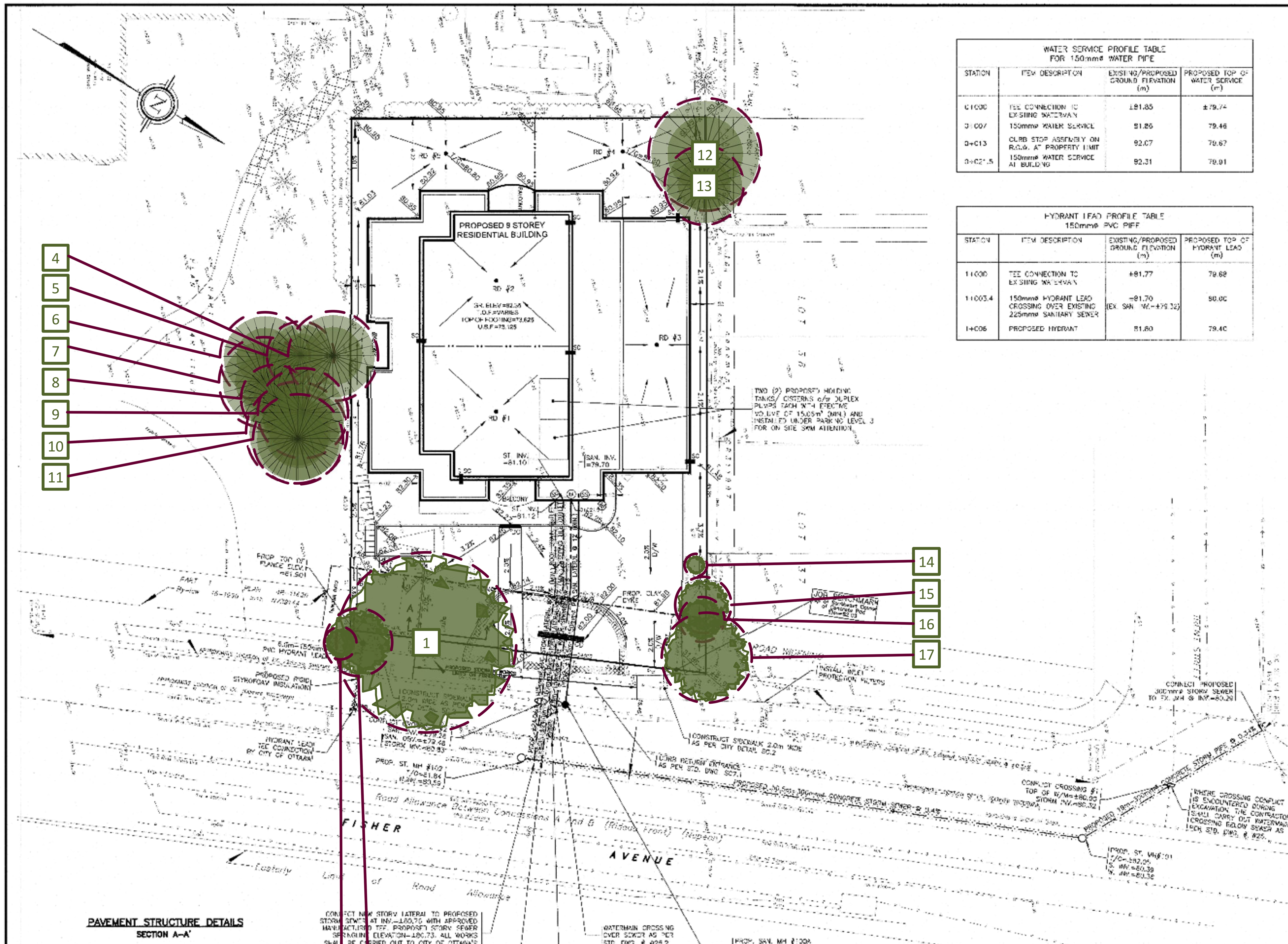
Without limiting the foregoing, no liability is assumed by Dendron for:

a) any legal description provided with respect to the Property;
b) issues of title and or ownership respect to the Property;
c) the accuracy of the Property line locations or boundaries with respect to the Property; and
d) the accuracy of any other information provided to Dendron by the Client or third parties;
e) any consequential loss, injury or damages suffered by the Client or any third parties, including but not limited to replacement costs, loss of use, earnings and business interruption; and
f) the unauthorized distribution of the Report.

Further, under no circumstance may any claims be initiated or commenced by the Client against Dendron or any of its directors, officers, employees, contractors, agents or Assessors, in contract or in tort, more than 12 months after the date of this Report.

General

Any plans and/or illustrations in this Report are included only to help the Client visualize the issues in this Report and shall not be relied upon for any other purpose. This report is best viewed in colour. Any copies printed in black and white may make some details difficult to properly understand. Dendron accepts no liability for misunderstandings due to a black and white copy of the report.



WATER SERVICE PROFILE TABLE
FOR 150mmø WATER PIPE

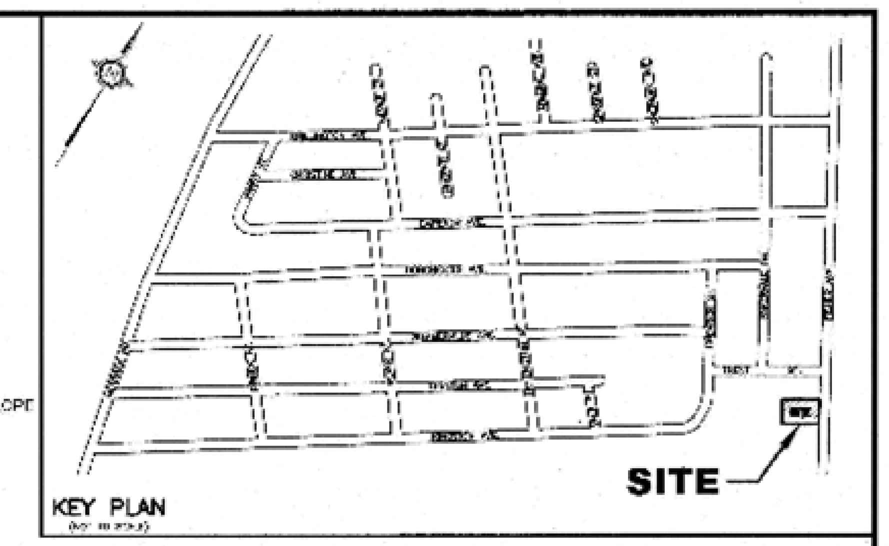
STATION	ITEM DESCRIPTION	EXISTING/PROPOSED GROUND ELEVATION (m)	PROPOSED TOP OF WATER SERVICE (m)
0+000	TEE CONNECTION TO EXISTING WATERMAIN	±81.85	±79.74
0+007	150mmø WATER SERVICE	81.86	79.46
0+013	CURB STOP ASSEMBLY ON R.O.W. AT PROPERTY LIMIT	82.07	79.67
0+021.5	150mmø WATER SERVICE AT BUILDING	82.31	79.91

HYDRANT LEAD PROFILE TABLE
150mmø PVC PIPE

STATION	ITEM DESCRIPTION	EXISTING/PROPOSED GROUND ELEVATION (m)	PROPOSED TOP OF HYDRANT LEAD (m)
1+000	TEE CONNECTION TO EXISTING WATERMAIN	±81.77	79.69
1+003.4	150mmø HYDRANT LEAD CROSSING OVER EXISTING 225mmø SANITARY SEWER	±81.70 (EX. SAN. INV.=±79.32)	80.00
1+006	PROPOSED HYDRANT	81.60	79.40

LEGEND

F.F.	PROPOSED TOP OF GROUND FLOOR ELEVATION
T.O.F.	PROPOSED TOP OF CONCRETE FOUNDATION ELEVATION
U.S.F.	PROPOSED UNDERSIDE OF CONCRETE FOOTING ELEVATION
D/W	PROPOSED DRIVEWAY
T/W	PROPOSED TOP OF RETAINING WALL ELEVATION
	EXISTING SANITARY SEWER
	EXISTING STORM SEWER
	EXISTING WATERMAIN
	PROPOSED 150mmø PVC WATER PIPE DR-18
	PROPOSED 150mmø SANITARY LATERAL @ 2% (MIN.) SLOPE
	PROPOSED 125mmø AND 150mmø STORM LATERAL @ 1% (MIN.) SLOPE AND STORM PIPE (SIZE AS SHOWN)
	PROPOSED SANITARY MANHOLE
	PROPOSED STORM MANHOLE
CD	PROPOSED CLAY DYKE
	PROPOSED VALVE AND VALVE BOX (V&VB)
V&VB	PROPOSED NEW FIRE HYDRANT LOCATION C/W NEW V&VB AND 150mmø PVC LEAD (PER CITY DETAIL DWG. No. W18 AND W19)
	PROPOSED RIGID STYROFOAM INSULATION 75mm THICK (MIN.)
RM	PROPOSED REMOTE METER LOCATION
M	PROPOSED WATER METER LOCATION
RD	PROPOSED ROOF DOWNSPOUT LOCATION
SC	PROPOSED ROOF SCUPPER LOCATION
ST	PROPOSED SANITARY HOLDING TANK LOCATION C/W SUMP PUMPS (REFER TO NOTE # ALSO)
SP	PROPOSED WEEPING TILE SUMP PIT LOCATION C/W SUMP PUMPS
	PROPOSED TERRACING 3:1 (MAX.) TO 1 V
DC	PROPOSED DEPRESSED CURB
	PROPOSED RIGID STYROFOAM INSULATION 50mm THICK (MIN.)



NOTES:

1. EXISTING SERVICES AND UTILITIES SHOWN ON THIS DRAWING WERE TAKEN FROM THE BEST AVAILABLE RECORDS BUT ARE NOT COMPLETE. CONTRACTOR IS REQUESTED TO CHECK IN THE FIELD FOR LOCATION AND ELEVATION OF PIPES AND CHECK WITH AUTHORITIES AND UTILITIES TO HIS SATISFACTION BEFORE DIGGING.

2. CONTRACTOR IS ADVISED TO OBTAIN INFORMATION ON SOIL CONDITIONS AS DEEMED NECESSARY. REFER TO PATERSON GROUP'S REPORT (PG[illegible]) DATED MAY 10, 2019 FOR DETAILS.

3. SITING DETAILS FOR THE PROPOSED DWELLING WERE TAKEN FROM THE SITE PLAN (DWG. No. A.001 REV. 1) PREPARED BY ARC ASSOCIATES INC. (DATED MAY 8, 2019).

4. EXISTING HORIZONTAL AND VERTICAL SURVEY DATA SHOWN ON THIS PLAN INCLUDING SITE BENCHMARK, ROAD ELEVATIONS, SEWER INVERT ELEVATIONS AND THE TOPOGRAPHICAL INFORMATION OF THE LOT WERE PROVIDED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD. AS DEPICTED ON THEIR TOPOGRAPHICAL SURVEY PLAN (JOB No. [illegible]) DATED JANUARY 25, 2012). T.L. MAK ENGINEERING CONSULTANTS LTD. DOES NOT TAKE ANY RESPONSIBILITY FOR THE SURVEY INFORMATION SHOWN HERE.

5. ALL GRADING SHALL BE DONE TO THE SATISFACTION OF THE CITY OF OTTAWA. PROPOSED GRADES FOR THIS SITE ARE A COMPILATION OF INPUT FROM THE OWNER'S ARCHITECT, LANDSCAPE ARCHITECT AND CIVIL ENGINEER.

6. ALL GRADES SHOWN ARE METRIC. EXISTING AND PROPOSED GRADES SHOWN ON THIS DRAWING ARE BASED ON A BENCHMARK PROVIDED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD. AS PRESENTED ON THEIR TOPOGRAPHICAL SURVEY PLAN.

7. ALL WATERWORKS SHALL BE CONSTRUCTED TO CITY OF OTTAWA'S LATEST REVISED STANDARDS ON APPROVAL BY THE CITY.

8. CONSTRUCT ALL SANITARY AND STORM PIPES IN ACCORDANCE WITH CITY OF OTTAWA'S LATEST REVISED STANDARD OTHERWISE AS PER OPSS AND OPSD SPECIFICATIONS.

9. ALL WORKS CONSTRUCTED BY THE CONTRACTOR SHALL MEET CITY OF OTTAWA'S CURRENT ENGINEERING STANDARDS AND AS PER CITY'S REQUIREMENTS. ALL WATERMAIN SERVICE AND FITTINGS SHALL CONFORM TO APPROVED AWWA AND/OR CSA STANDARDS. WATER SERVICE AND WATERMAIN TRENCH DETAILS AS PER CITY W17 DETAIL.

10. THE CONTRACTOR SHALL CONSTRUCT AND ENSURE THAT THE 150mmø WATER SERVICE ON THIS LOT SHALL HAVE A MINIMUM OF 2.4m OF GROUND COVER. THE WATER SERVICE PIPE MATERIAL SHALL BE PVC C-900 DR-18 AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST CITY OF OTTAWA STANDARDS.

11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS TO COMPLETE THE WORKS.

12. EXISTING LOCATION OF FISHER AVENUE WATERMAIN, STORM SEWER AND SANITARY SEWER SHOWN ON THE PLAN ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY IN THE FIELD TO CONFIRM ITS EXACT LOCATION PRIOR TO EXCAVATION. (SEE NOTE #26 ALSO).

13. PROPOSED SURFACE GRADE SHALL BE 7% (MAX.) WHERE THE GROUND DROPS OFF STEEPLY. TERRACE THE GROUND AT 3:1 TO 1V (MAX.) AS NECESSARY TO MEET THE CITY'S GRADING REQUIREMENTS.

14. ALL WATER SERVICING WORKS WITHIN THE CITY ROW TO BE CARRIED OUT BY THE CITY. EXCAVATION, BACKFILL AND REINSTATEMENT BY CONTRACTOR.

15. IF WATER SERVICE IS LESS THAN 2.4m FROM SEWER, MANHOLE OR CATCH BASIN, CONTRACTOR IS REQUESTED TO INSULATE BETWEEN THEM WITH S/W RIGID INSULATION (AS PER CITY DETAIL W23).

16. PIPE SIZES SHOWN ON THIS PLAN ARE METRIC.

17. PROPOSED SANITARY AND STORM SERVICE LATERALS SHALL BE PVC-DR-28 OR EQUIVALENT AND CONNECTION TO THE EXISTING SEWER SHALL BE AS PER CITY OF OTTAWA DWG. No. S11 AND S11.1. THE WORKS SHALL BE CARRIED OUT TO THE SATISFACTION OF THE CITY OF OTTAWA.

18. SANITARY AND STORM SEWER SERVICE BENDS AND RISERS USED MUST BE CONSTRUCTED TO THE CITY'S SATISFACTION.

19. a. STORM MHs AND CB/MHs: STRUCTURE AS PER OPSD 701.010 (1,200mm DIA. WITH 300mm SUMP); FRAMES AND COVERS AS PER CITY STD. DWG. S24.1 AND S25.
b. SANITARY MHs: STRUCTURE AS PER OPSD 701.010 (1,200mm DIA.), BENCHING AS PER OPSD 701.021; FRAMES AND COVERS AS PER CITY STD. DWG. S24 AND S25.

20. THE 125mmø AND 150mmø STORM LATERAL SHALL BE PVC DR 28. THE 150mmø PVC SANITARY LATERAL SHALL BE PVC DR 28. THE NEW 300mmø STORM PIPE SHALL BE CONCRETE CLASS 140-D.

21. PIPE MATERIAL AND INSTALLATION METHODS FOR THE TRENCHING AND OUTLET PIPING AT THE SLOPED AREAS WILL BE SUBJECT TO THE SOILS ENGINEER'S REVIEW AND APPROVAL PRIOR TO CONSTRUCTION DUE TO GEOTECHNICAL CONSIDERATIONS OF THIS SITE. CONSTRUCT CLAY DYKE AT LOCATION SPECIFIED IN THIS DRAWING AND INSTALL AS PER OWNER'S GEOTECHNICAL ENGINEER'S REPORT RECOMMENDATIONS.

22. ASPHALT DRIVEWAY PAVEMENT STRUCTURES SHALL MEET THE MINIMUM REQUIREMENTS AS SET OUT AS PER THE OWNER'S SOILS ENGINEER'S REPORT AND APPROVED BY THE CITY OF OTTAWA. THESE STRUCTURES MUST ALSO BE APPROVED BY THE OWNER'S SOILS ENGINEER ON-SITE PRIOR TO CONSTRUCTION BY THE CONTRACTOR.

23. – SITE SOILS ENGINEER SHALL APPROVE ALL SUBGRADE CONSTRUCTION, FROST TAPERING AND TRANSITION WORKS PRIOR TO GRANULAR PLACEMENT.
– FROST TAPERS FOR CATCH BASINS AND MANHOLES SHOULD BE DONE AS PER SOILS ENGINEER'S RECOMMENDATIONS.
– CATCH BASIN MANHOLES AND MANHOLES SHOULD BE BACKFILLED WITH COMPACTED MATERIALS. A 3:1 FROST TAPER SHOULD BE USED IN THE UPPERMOST 1.8m FOR CATCH BASINS AND MANHOLES IN PAVED AREAS. JOINTS BETWEEN MANHOLE OR CATCH BASIN SECTIONS SHOULD BE WRAPPED WITH A NON-WOVEN GEOTEXTILE. IT IS RECOMMENDED THAT THE LATERAL EXTENT OF THE SUBBASE AND BASE LAYERS NOT BE TERMINATED IN A VERTICAL FASHION [illegible] CURB LINES. A TAPER WITH A GRADE OF 3 (MAX.) HORIZONTAL TO 1 VERTICAL IS RECOMMENDED IN THE SUBGRADE LINE TO MINIMIZE DIFFERENTIAL FROST HEAVE PROBLEMS UNDER SIDEWALKS.

24. BEDDING FOR SEWERS AND WATERMAIN INSTALLATION SHALL BE TYPE 'B' COMPACTED TO 95% DRY PROCTOR DENSITY. FOR THE SEWER LATERALS USE 300mm THICK APPROVED GRANULAR COVER MATERIAL COMPACT TO 95% DRY PROCTOR DENSITY. TRENCH BACKFILL WITH NATIVE MATERIAL AND COMPACT TO 95% DRY PROCTOR DENSITY MINIMUM. NO FROZEN MATERIALS ARE TO BE USED AS BACKFILL IN THE SERVICING TRENCHES.

25. DETAILS OF THE EXISTING SEWERS AND WATERMAIN SHOWN ON FISHER AVENUE FROM THE CITY MAY NOT BE CURRENT. THE CONTRACTOR SHALL REFER TO THE CITY'S SEWER AND WATERMAIN DRAWINGS FOR DETAILS BEFORE DIGGING. THE CONTRACTOR IS ADVISED TO EXCAVATE AND INVESTIGATE THE SEWER ELEVATIONS IN FRONT OF THIS PROPERTY FIRST TO ENSURE THAT 1% (MIN.) PIPE SLOPE OF THE SANITARY AND STORM LATERALS CAN BE ACHIEVED USING THE PROPOSED UNDERSIDE OF CONCRETE FOOTING ELEVATION. IF 1% (MIN.) SLOPE IS NOT POSSIBLE FROM THE BUILDING TO THE SEWER, THEN THE CONTRACTOR SHOULD INFORM THE OWNER'S PROJECT MANAGER AND THE CITY ACCORDINGLY FOR FURTHER DIRECTION.

26. FOR DEVELOPMENT OF THIS SITE, THE CONTRACTOR MUST FIRST CONSTRUCT THE UNDERGROUND SANITARY, STORM AND WATER SERVICES FROM THE SEWER AND WATERMAIN TO THE PROPERTY, PRIOR TO BUILDING CONCRETE FOUNDATION POURING. THE CONTRACTOR SHALL VERIFY SEWER DEPTHS TO ENSURE THAT THE SEWER LATERALS CAN ACHIEVE A SLOPE OF 1% (MIN.).

27. CONSTRUCT A DEPRESSED AND CONTINUOUS CURB/SIDEWALK ACROSS THE NEW PRIVATE APPROACH AS PER STD. DWG. SC7.1 (CURB RETURN AT PRIVATE OR COMMERCIAL ENTRANCE–UNSIGNALIZED). ALL WORKS SHALL BE CARRIED OUT TO THE CITY'S SATISFACTION.

28. INSULATE THE BUILDING SERVICE LATERALS AND SEWERMAINS WHERE GROUND COVER IS LESS THAN 2.0m. FOR WATER SERVICE AND WATERMAINS WHERE GROUND COVER IS LESS THAN 2.4m PROVIDE T-FRMA INSULATION AS PER STD DWG W22.

29. WHERE FROST COVER FROM UNDERSIDE OF BUILDING CONCRETE FOOTING TO PROPOSED FINISHED GROUND ELEVATION IS LESS THAN 1.8m, IT IS RECOMMENDED THAT INSULATION (50mm THICK) MINIMUM BE INSTALLED AT THE BUILDING FOOTING AND FOUNDATION TO PROVIDE SUFFICIENT FROST COVER FOR THE FOUNDATION STRUCTURES. THE FOOTINGS WILL NEED TO BE REVIEWED FOR INSULATION BY THE OWNER'S SOILS ENGINEER. EXACT INSULATION REQUIREMENTS SHALL BE AS PER ARC ASSOCIATES INC.'S INSULATION DETAILS SHOWN ON THEIR ARCHITECTURAL DRAWINGS AND CONFIRMED BY THE OWNER'S SITE SOILS ENGINEER.

30. A BACKWATER VALVE MUST BE INSTALLED FOR THE NEW STORM LATERAL, AND A FULL PORT BACKWATER VALVE BE INSTALLED FOR THE NEW SANITARY LATERAL SERVICE. THE OWNER'S ARCHITECT AND PLUMBER SHALL CHECK THE CURRENT ONTARIO PLUMBING CODE FOR REQUIREMENTS FOR A BACKWATER VALVE IN THE BUILDING AND AS PER THE MECHANICAL ENGINEER'S DRAWINGS AT THE SANITARY SERVICE LINES.

31. CONCRETE SIDEWALK, DEPRESSED CURB AND DEPRESSED CONCRETE SIDEWALK DETAILS AS PER CITY OF OTTAWA STANDARDS (DWG. No. SC1.1 AND SC1.4). SEE NOTE #27 REGARDING CONCRETE CURB AND CONCRETE SIDEWALK CONSTRUCTION AND REINSTATEMENT SHALL BE DONE TO THE SATISFACTION OF THE CITY OF OTTAWA AND IN ACCORDANCE WITH THE LATEST REVISED CITY ENGINEERING STANDARDS.

32. THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND RECEIVING WATERCOURSES AND/OR STORM SEWER DURING CONSTRUCTION ACTIVITIES. THESE PRACTICES ARE REQUIRED TO ENSURE NO EXPOSED SOIL, SEDIMENT AND/OR ASSOCIATED POLLUTANTS ARE RELEASED TO THE RECEIVING WATERCOURSES. THESE PRACTICES INCLUDE INSTALLATION OF SEDIMENT BARRIERS ON ALL CATCH BASIN AND MAINTENANCE HOLES AND A SILT FENCE BARRIER (AS PER OPSD 219.110 AND ASSOCIATED SPECIFICATIONS) ALONG FISHER AVENUE AND ALL OTHER AREAS THAT SHEET DRAIN OFF SITE. [illegible] THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY AN APPLICABLE REGULATORY AGENCY.

33. STORMWATER MANAGEMENT NOTES
– EACH ROOF DRAIN SHALL BE SIZED FOR A RELEASE RATE OF [illegible]. THE OWNER'S MECHANICAL ENGINEER SHALL SPECIFY THE REQUIRED ROOF DRAIN TYPE AND MODEL NO. AND PROVIDE THE NECESSARY INFORMATION TO THE CITY OF OTTAWA FOR THEIR RECORDS TO ENSURE PROPER RELEASE RATE FOR STORMWATER MANAGEMENT COMPLIANCE.
– ROOF PITCH IS ASSUMED TO HAVE 2% (MIN.) SLOPE.
– ROOF SCUPPERS ARE RECOMMENDED TO BE INSTALLED 0mm ABOVE EDGE OF ROOFTOP ELEVATION FOR EMERGENCY OVERFLOW PURPOSES AT ROOF AREA #1 TO #3 INCLUSIVE.
– SEE STORM DRAINAGE REPORT No. R-818-71 DATED MAY 2019 FOR DETAILS ALSO.
– THE 5 YEAR HIGH WATER LEVEL IS ESTIMATED AT 100mm AT THE ROOF DRAIN.
– THE 100 YEAR HIGH WATER LEVEL IS ESTIMATED AT 150mm AT THE ROOF DRAIN.

34. WATER SERVICE, STORM SEWER LATERAL AND SANITARY SEWER LATERAL ARE THE RESPONSIBILITY OF THE OWNER'S PLUMBER FROM 1m OUTSIDE THE FOUNDATION WALL INTO THE PROPOSED BUILDING UNDER THE LATEST REVISION OF THE ONTARIO PLUMBING CODE.

35. PROPOSED ROOF DRAINS AND SCUPPER LOCATIONS SHOWN ON THIS PLAN SHALL BE REVIEWED BY THE OWNER AND OWNER'S ARCHITECT FOR APPROVAL.

36. THE OWNER'S ARCHITECT AND STRUCTURAL ENGINEER SHALL ENSURE THAT THE ADDITIONAL STORMWATER STORAGE VOLUME FROM STORMWATER MANAGEMENT MEASURES ARE ACCOUNTED FOR IN THE STRUCTURAL DESIGN OF AND WATERPROOFING OF ROOF AREA #1 TO #3 INCLUSIVE AND ANY OF THE SUPPORTING STRUCTURES THAT MAY BE AFFECTED BY THE STORED WATER.

37. THE CONTRACTOR SHALL CONSTRUCT THE PROPOSED FIRE HYDRANT AT THE PROPOSED LOCATION AS SHOWN ON THIS DRAWING C/W INSTALLING THE 150mmø LEAD AND VALVE & VALVE BOX PER CITY DETAIL DWG. No. W18. HYDRANT LOCATION AS PER STD. DWG. W18.

38. INSTALL A CLAY DYKE IN THE SERVICE TRENCH AT THE LOCATION AS SHOWN AND AS PER THE SOILS ENGINEER'S RECOMMENDATIONS.

39. FOR DETAILS OF SITE LIGHTING AND POLE LOCATION, REFER TO THE LATEST REVISED SITE PLAN BY ARC ASSOCIATES INC.

40. IT IS THE RESPONSIBILITY OF THE SITE SERVICES CONTRACTOR TO OBTAIN AND CONSTRUCT THE WORKS TO MEET THE LATEST REVISIONS IN CURRENT CIRCULATION OF THE CITY OF OTTAWA'S ENGINEERING STANDARDS, OPSS & OPSD STANDARDS AND ONTARIO BUILDING/PLUMBING CODES. WHERE THE LATEST REVISION DIFFERS FROM THE REQUIREMENTS SET OUT IN THIS PLAN, THE CONTRACTOR SHALL PRICE THE WORKS TO MEET LATEST REVISED STANDARDS IN HIS PRICE BID FOR THIS PROJECT. THE CONTRACTOR SHALL INFORM THE ENGINEERS OF ANY CHANGES PRIOR TO COMMENCEMENT OF THE WORKS.

41. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY EQUIPMENT, LABOUR AND MATERIALS RELATING TO THE CIVIL WORKS REQUIRED FOR INSTALLATION OF NEW SITE SERVICES. PROVINCIAL HEALTH AND SAFETY REGULATIONS MUST BE FOLLOWED DURING CONSTRUCTION.

42. PROPOSED TOP OF GROUND FLOOR, TOP OF FOUNDATION AND UNDERSIDE OF FOOTING ELEVATIONS SHALL BE REVIEWED AND APPROVED BY ARC ASSOCIATES INC. PRIOR TO CONSTRUCTION.

43. ALL EXISTING HOUSE SEWER LATERALS PRESENTLY SERVICING THIS PROPERTY SHALL BE ABANDONED. THE EXISTING SANITARY SERVICE SHALL BE CAPPED AT THE PROPERTY LINE. BLANK EXISTING WATER SERVICE AT THE 200mm DIA WATERMAIN BY CITY FORCES. ALL WORKS SHALL BE CARRIED OUT TO THE SATISFACTION OF THE CITY OF OTTAWA ENGINEERING STANDARDS AND REQUIREMENTS.

44. ALL EXISTING HOUSE WATER SERVICES PRESENTLY SERVICING THIS PROPERTY SHALL BE ABANDONED AND TO BE CAPPED AT THE WATERMAIN TO THE SATISFACTION OF THE CITY WATER OPERATIONS DEPARTMENT'S STANDARDS AND REQUIREMENTS.

45. ROOF DRAIN #1 TO #3 INCLUSIVE SHALL OUTLET INTO THE DESIGNATED 125mmø PVC STORMWATER PIPE AS SHOWN ON THIS DRAWING. NO BUILDING WEEPING TILE WATER OUTLETTING IS REQUIRED BECAUSE OF SLAB ON GRADE BUILDING STRUCTURE.

46. THE RETAINING WALL TO BE CONSTRUCTED AND MATERIAL TYPE SHALL BE SPECIFIED BY THE OWNER'S ARCHITECT AND/OR HIS STRUCTURAL ENGINEER. ANY RETAINING WALLS BUILT ON THIS LOT EXCEEDING 1.0m IN HEIGHT FROM PROPOSED FINISHED GROUND ELEVATION WILL BE REQUIRED TO BE PREPARED AND CERTIFIED BY THE OWNER'S STRUCTURAL ENGINEER AND APPROVED BY THE CITY PRIOR TO CONSTRUCTION.

47. DETAILS OF STORM SEWER WORKS IN ROW, REFER TO PLAN AND PROFILE DWG. # P-1.

48. INSTALL WATERTIGHT MANHOLE COVER AS PER OPSD 401.030 DETAILS FOR SAN MH#100A.

49. HYDRANT LOCATION AND INSTALLATION AS PER CITY OF OTTAWA STANDARD DWG. # W18 AND W19.

50. THIS LOT GRADING DESIGN PLAN WAS PREPARED FOR THE OWNERS FOR THE PURPOSE OF SITE PLAN APPLICATION ONLY. ALL WORKS CONSTRUCTED BY THE CONTRACTOR SHALL MEET CITY OF OTTAWA'S CURRENT ENGINEERING STANDARDS AND PER CITY'S REQUIREMENTS. THIS GRADING PLAN SHALL NOT BE USED FOR BUILDING CONSTRUCTION LAYOUT PURPOSES. REFER TO THE APPROVED SITE PLAN FOR EXACT DIMENSIONS REGARDING BUILDING LOCATION LAYOUT.

51. NO EXCESS DRAINAGE, DURING AND AFTER CONSTRUCTION, WILL BE DIRECTED TOWARDS THE NEIGHBOURS PROPERTIES.

52. ALL TREES ON THE RIGHT-OF-WAY ARE TO BE MAINTAINED BEFORE AND AFTER CONSTRUCTION AND ALL TREES WITHIN THE PROPERTY SHALL BE PROTECTED AS PER THE 'MUNICIPAL TREES AND NATURAL AREAS PROTECTION BY-LAW' AND THE 'URBAN TREES CONSERVATION BY-LAW' AS AMENDED FROM TIME TO TIME.

53. THERE WILL BE NO ALTERATION TO THE EXISTING GRADE AND DRAINAGE PATTERN ON THE PROPERTY LINES.

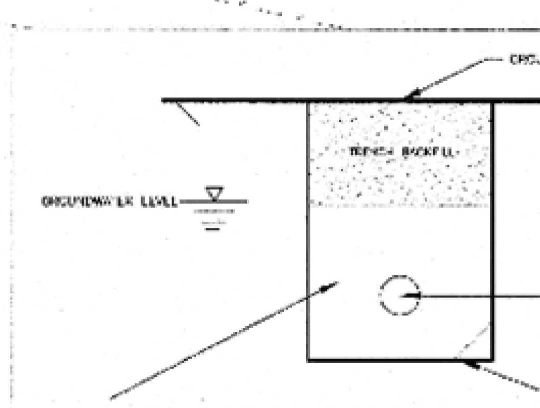
PAVEMENT STRUCTURE DETAILS
SECTION A–A'

40mm HL-3 OR SUPERPAVE 12.5 ASPHALTIC CONCRETE
50mm HL-8 OR SUPERPAVE 19.0 ASPHALTIC CONCRETE
150mm OPSS GRAN. 'A' (BASE)
400mm OPSS GRAN. 'B' – TYPE II (SUB-BASE)
SUBGRADE PER SOILS REPORT RECOMMENDATIONS

TYPICAL ACCESS ROADS AND HEAVY DUTY PARKING (TRUCKS) PAVEMENT STRUCTURE

X–SECTIONAL DETAIL
NOT TO SCALE

NOTE: – PAVEMENT STRUCTURE SHOWN ON THIS PLAN SHALL BE VERIFIED BY THE OWNER'S SOILS ENGINEER PRIOR TO SUBGRADE EXCAVATION



CLAY DYKE, 1 METER IN LENGTH, FULL WIDTH OF TRENCH, INSTALLED AT MID SPAN OF PIPE, COMPACTED TO 95 PERCENT STANDARD PROCTOR MAXIMUM DRY DENSITY. DYKE TO EXTEND FROM UNDISTURBED BOTTOM OF TRENCH TO ABOUT 0.15 METERS ABOVE THE GROUNDWATER LEVEL OR 0.15 METERS ABOVE THE TOP OF THE GRANULAR BEDDING/BACKFILL SURROUNDING THE PIPE, WHICHEVER IS HIGHER.

TYPICAL CLAY DYKE DETAIL
(NOT TO SCALE)

NO.	REVISION	DATE	BY

TONY L.M. MAK — LICENSED PROFESSIONAL ENGINEER — PROVINCE OF ONTARIO

SCALE		
1:200 HORIZONTAL	DESIGN	T.L.M.
	CHECKED	T.L.M.
	DRAWN BY	G.U.
	CHECKED	T.L.M.
VERTICAL	APPROVED	T.L.M.

PROJECT: PROPOSED 9 STORY RESIDENTIAL BUILDING
1110 FISHER AVENUE
PART OF LOT L
CONCESSION A (RIDEAU FRONT)
GEOGRAPHIC TOWNSHIP OF NEPEAN
CITY OF OTTAWA

OWNER: PRESTIGE DESIGN & CONSTRUCTION (FISHER) LTD.

PROPOSED GRADING AND SERVICING PLAN

T.L. MAK ENGINEERING CONSULTANTS LTD.
CONSULTING ENGINEERS

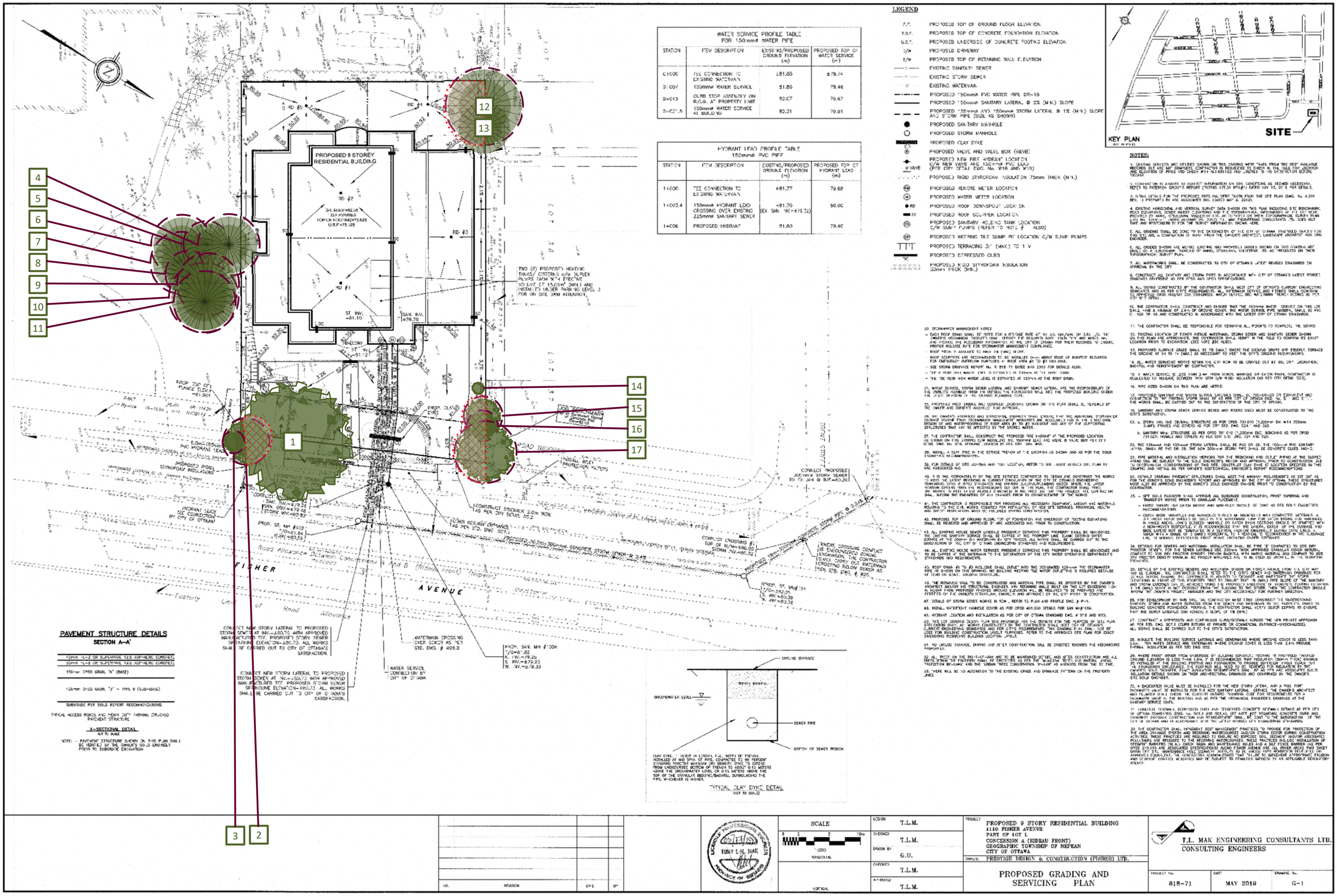
PROJECT No.	DATE	DRAWING No.
818-71	MAY 2019	G-1

Critical Root Zone

Note that the tree layer has been added to the original grading plan supplied by the client in pdf format. This layer refers to the trees only, and the original grading plan has not been altered in the process.

Note that locations of trees not identified on the grading plan have been estimated.

Tree Conservation Report – Current Vegetation
Tree layer prepared by Dendron Forestry Services
Version 2.0, Oct 23, 2019
For more information, please contact info@dendronforestry.ca



Recommended Tree Protection Fencing Area

Critical Root Zone

Note that the tree layer has been added to the original grading plan supplied by the client in pdf format. This layer refers to the trees only, and the original grading plan has not been altered in the process.

Note that locations of trees not identified on the grading plan have been estimated.

Tree Conservation Report – Proposed Developmet and Conserved Vegetation
Tree layer prepared by Dendron Forestry Services
Version 2.0, Oct 23, 2019
For more information, please contact info@dendronforestry.ca