

Prepared by:

Barbara Hemming, ISA Certification #ON 0389
613-828-3207
bhemming@sympatico.ca

Prepared for Owner: Payam Belkameh of iLux Construction

Email: payam@iluxconstruction.com

613-276-5900

Property is 845 Dundee Avenue
Ottawa, ON
K2B 5S8

The owner is applying for a permit to demolish the existing structure and build four attached two-story residential units.

Inspection date: 2023-02-27

The objective of this report is to identify all protected trees on this and adjacent properties whose Critical Root Zones (CRZ's) fall within the area of construction and to provide strategies for tree preservation during development and construction.

No trees are to be removed. The report identifies the trees that will be protected and details of their condition.

Definitions

Tree Condition Ratings

• **Very good condition;** exhibiting normal, vigorous growth with minimal amounts of fine deadwood, no structural defects or visible signs of disease.

• **Good condition;** 60 to 90% normal canopy density, little or no dieback, some deadwood

• **Fair condition;** declining with 30 to 60% of normal canopy density, twig and branch dieback, failure of one scaffold branch, infestation causing significant damage, mix of small, medium, and large deadwood, or presence of disease and decay causing structural instability. Treatment recommended by an arborist would be essential but would not guaranty survivability especially if subjected to root loss caused by construction activity.

• **Poor condition;** less than 30% canopy, or dieback of large major scaffold branches, or failure of more than one scaffold branch, loose bark, severe infestation and irreparable

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damage, or extensive decay causing structural stability. A tree described as “poor” is in severe decline and is unlikely to tolerate any root damage or fill soil typical of development and construction.

DBH or diameter (D) at breast height means the measurement of the diameter of the trunk at 130cm. above grade unless it has multiple trunks, in which case the diameter of the largest stem measured at 130 cm is used as the DBH. For the cedars in the hedgerow, most were measured just below the forks.

Critical Root Zone (CRZ); is the area around the tree or groups of trees in which no grading or construction activity may occur. In keeping with the City of Ottawa requirement the Critical Root Zone extends 10 centimeters from the trunk of a tree for every centimeter of trunk diameter. Therefore, typically $D \times 10\text{cm} = \text{radius of Critical Root Zone}$.

Site Specifics

The site is a typical residential lot with a two-story house and shed on it.

There is a mature cedar hedgerow along the property line in the neighbour’s yard at 851 Dundee. A few of these mature cedars are in the ROW but are well away from the limit of excavation. Also among the hedgerow are two cedars that are protected but their CRZ’s do not fall within the limit of excavation and are not identified in this report.

There are 5 trees to be protected. See the list below.

Table 1 List of Protected Trees

Tree #	Species	Dbh cm	Owner	Condition	Arborist’s recommendation
1	Colorado Spruce (Picea gungens)	56	841 Dundee	Good	To be retained and protected
2	Hedgerow White Cedar Thuja occidentalis	34	851 Dundee	Fair	To be retained and protected
3	Hedgerow White Cedar Thuja occidentalis	46.5	851 Dundee	Fair	To be retained and protected
4	Hedgerow White Cedar Thuja occidentalis	40	851 Dundee	Fair	To be retained and protected
5	Hedgerow White Cedar Thuja occidentalis	38	851 Dundee	Fair	To be retained and protected

Tree #1 Colorado Spruce (*Picea pungens*)



Photo 1 Tree #1 Colorado Spruce



Photo 2 Tree #1 Healthy Trunk

Dbh 56 cm

This is a mature Colorado spruce. See photos 1 and 2, p. 3

It has a single trunk.

Stem has no lean and tapers gradually.

Foliage density, size and colour are all good.

There is some die-back of smaller branches.

There are no co-dominant stems or included bark.

Crown has been raised to 3 M.

Roots may be restricted by existing paved driveway at 845 Dundee Ave.

Recommendation

There is currently encroachment into the CRZ from existing driveway at 845 Dundee. Excavation for the new driveway is outside the CRZ. A very small percentage (~5%) of the limit of excavation will disturb the CRZ. The tree will be able to tolerate this small amount of root loss.¹

Provide protective fencing around the CRZ as indicated in Drawings #1 p 8 and the pink dotted line in #2 p 9. Follow all the Steps to Conserve Trees p 6.

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Eastern White Cedar Hedgerow

There is a row of cedars at 851 Dundee close to the boundary with 845. A few are growing in the ROW. See Photos 3 to 5 below.

The hedgerow is mature with the cedars varying in diameter from 10 cm to 46.5 cm. They have been raised about 3 M on the south side to allow access to the side entrance to 851 Dundee. They would have to be raised the same amount on the north side to allow access to a proposed side entrance.



Photo 3: South facing side (851 Dundee) of Cedars Photo 4: Cedars (845 Dundee) North facing side



Photo 5 (left)
Some cedars in the ROW

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Photo 6: Tree #2 Cedar



Photo 7: Tree #3 Cedar



Photo 8: Tree #4 Cedar



Photo 9: Tree #5 Cedar

Recommendations

The existing foundation is 2.86 M from the boundary line between 845 and 851 Dundee. This has limited the space for the existing cedar roots to less than standard dimension for CRZ's.

The limit of excavation for the new dwelling will leave a width of 1 M of soil undisturbed up to the boundary line, leaving a total of a 1.25 M at least from the base of the 4 protected cedars to the proposed limit of excavation at 845 Dundee.

Cedars #2 and #3 (See attached Diagram No.2.)

The CRZ's for these cedars extends up to the existing foundation on the side of 845 Dundee. Excavation will remove slightly more than 10 % of the actual area of the existing roots for these two trees. As cedars show very good tolerance of root loss and infill soils, these two trees should not be adversely affected by the construction as long as all Steps to Conserve trees are followed.

Cedars #4 and #5 (See attached Diagram No.2.)

These two cedars have CRZ's that have been restricted by the foundation at 845 Dundee. The limit of excavation will be narrowed along the section within their illustrated CRZ's to preserve the amount of undisturbed soil extending from the base of these two trees. This will leave a distance of 120 cm which is equivalent to 30% of the CRZ based on the tree diameters at breast height. In order to mitigate damage to their roots in this zone, a mechanical shovel is not to be used there. (See orange dotted line in Diagram #2). Excavation will be carried out by hand with a sharp spade or by using hydro pressure with special attention to No. 6 and 7 of Steps to Conserve Trees. It is anticipated that by following these steps Cedars #4 and #5 will be able to tolerate the work.

Steps to Conserve Trees

The following measures as well as those listed in Diagram #1 p. 8 are to be taken to ensure the best chances of survival of any of the trees being retained.

1. Do not remove any surface soil in the area of the CRZ except within the limit of excavation as indicated on the attached plan.
2. Do not raise the grade in the area of the CRZ.
3. Erect a fence with a sign identifying the trees to be protected under the by-laws, around the area of the CRZ as illustrated in the Diagram #1 p. 8, within the property lines unless otherwise indicated in this report. (See pink dotted line in Diagram #2 of Site Plan p. 9.
4. Do not place any construction material or equipment within the area of the illustrated CRZ's.

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5. Do not attach any signs or notices to the trees being retained.
6. Do not damage the root systems beyond the excavation limit.
7. All severed roots over 2.5 cm in diameter are to be cleanly cut with sharp tools not left torn by mechanical shovel.
8. Do not damage the trunk or branches.
9. Ensure that exhaust fumes from all equipment are not directed at any of the canopy.
10. Any pruning of the tree should only be done under the guidance of a qualified arborist.
11. Avoid soil compaction in the area of the CRZ's. If root zones are unavoidable in the equipment access area, mitigate compaction during construction by covering the area with a layer of crushed stone and cover with plywood. Remove after construction is completed.
12. All mixing gas, cleaning tools and brushes and repairing of equipment will take place outside the CRZ's to reduce spillage risk.
13. All debris from existing structures, new construction, and chemical wastes are to be hauled away and not buried on site.
14. Water undisturbed areas of CRZ during construction. Soak to a depth of 18 cm. ("12") once a week in periods of 1 week without sufficient rain to maintain this amount of moisture.

See Diagram #1 p. 8.

Reference

¹Matheny and Clark, 1998. Trees and Development, A Technical Guide to Preservation of Trees During Land Development. International Society of Arboriculture

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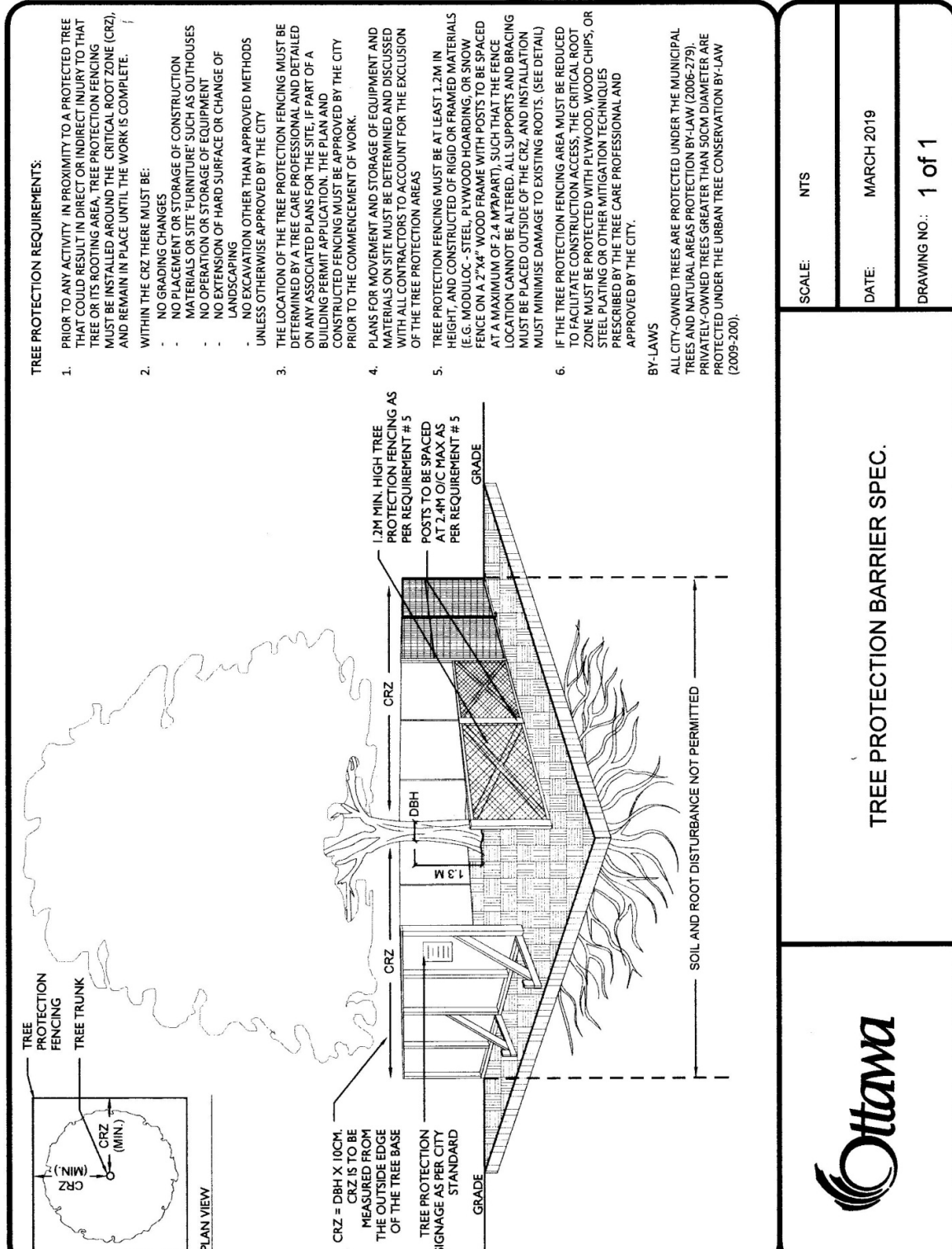


Diagram #1



TREE PROTECTION BARRIER SPEC.

SCALE: NTS

DATE: MARCH 2019

DRAWING NO.: 1 of 1

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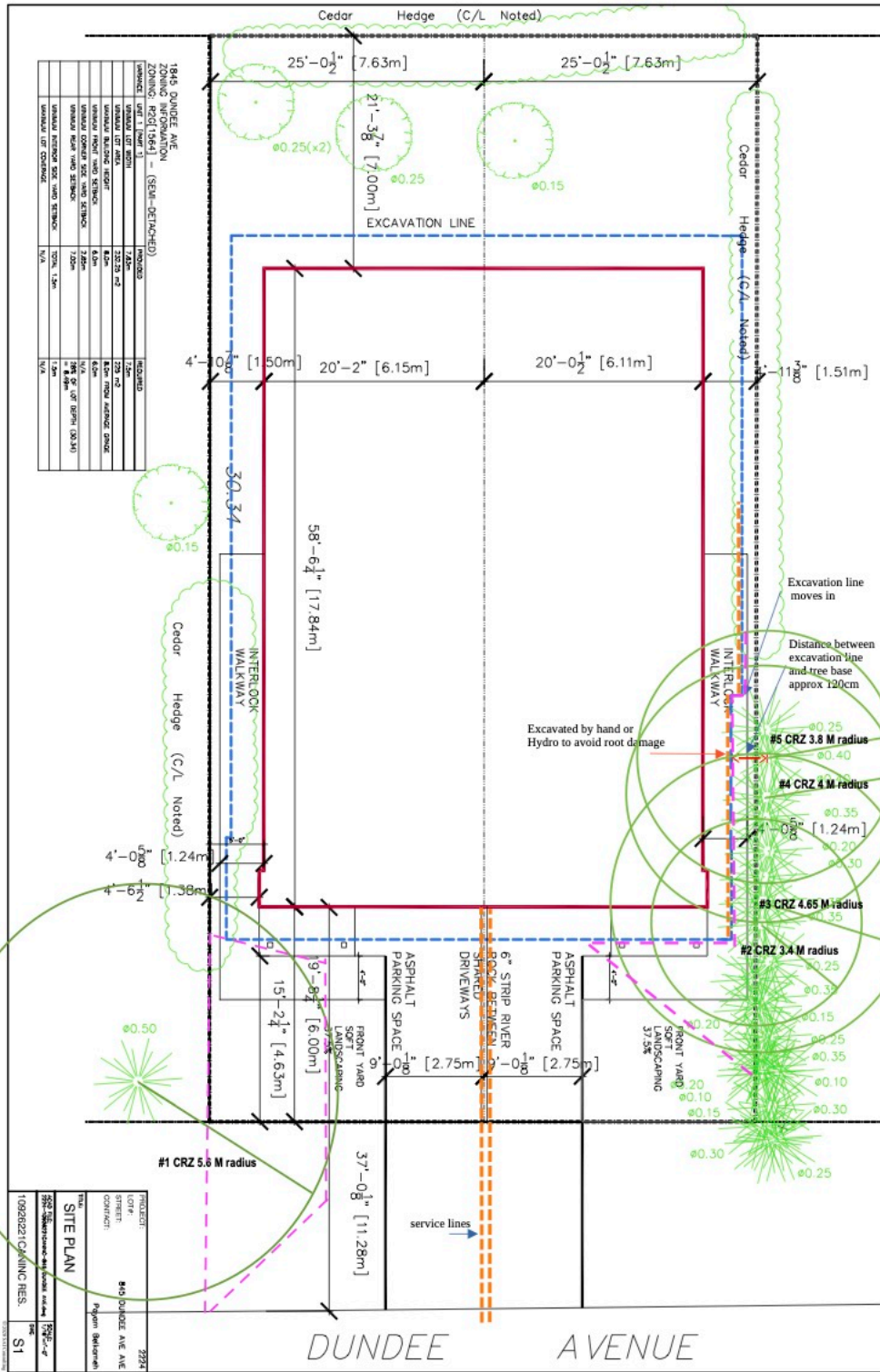


Diagram 2