

# **MILTON HYDRO DISTRIBUTION INC.**

## **TREE TRIMMING SPECIFICATIONS**

**May 2014**

### **1. SCOPE**

Milton Hydro is responsible for distributing electricity within the Town of Milton in a safe and reliable manner. As part of its mandate Milton Hydro is required to manage vegetation in proximity to Milton Hydro's power lines.

Milton Hydro's tree trimming efforts are intended to minimize power interruptions and power quality issues resulting from tree contacts.

This specification details Milton Hydro's tree trimming practices in fulfillment of its vegetation management obligation.

The first part of this specification provides a general description of Milton Hydro's tree trimming practices both on public roads and on private property. The second part of this specification (Appendix A) is a more comprehensive set of requirements directed at Milton Hydro's tree trimming contractors.

This specification, as written, will govern all line clearing operations authorized by Milton Hydro unless specifically amended by the substitution of approved clauses or otherwise, to meet special conditions.

### **2. PLANTING TREES NEAR POWER LINES**

To minimize the need for tree trimming Milton Hydro recommends the following restrictions be followed when planting trees in the vicinity of power lines:

- Milton Hydro recommends that no trees be planted directly underneath power lines.
- Any trees planted within 5 metres of power lines should have a maximum mature height of 6 metres or less.
- Trees planted between 5 to 10 metres from power lines should have a maximum mature height of 12 metres.

Trees that exceed these height restrictions are responsible for the majority of tree related power outages. Falling trees and branches can bring down power lines, cause power interruptions and pose a safety hazard.

### **3. TREE TRIMMING**

Trimming trees that encroach on power lines is a critical activity undertaken by Milton Hydro to minimize tree related power outages. By trimming trees along power lines Milton Hydro reduces the possibility that a single tree can affect the power supply to multiple customers

Milton Hydro contracts professional arborists who are fully qualified to assess individual trees and determine the trimming strategy that best delivers the required power line clearances while minimizing the impact on the tree. In some instances the impact on individual trees will be significant including removal of the entire tree.

#### **4. MILTON HYDRO'S RESPONSIBILITY AND RIGHT TO TRIM TREES**

Milton Hydro has a regulated responsibility to trim trees near power lines. Ontario Regulation 22/04 and the electrical Distribution System Code both require that Milton Hydro manage vegetation in proximity to Milton Hydro owned electrical power lines. Milton Hydro continually trims trees throughout Milton on a rotational basis to ensure proper separation is maintained between trees and power lines.

Due to the impact of trees on power lines and the power reliability experienced by all customers connected to those power lines, the Government of Ontario has granted utilities the right to trim all trees encroaching on power lines. According to the Electricity Act:

A transmitter or distributor may enter any land for the purpose of cutting down or removing trees, branches or other obstructions if, in the opinion of the transmitter or distributor, it is necessary to do so to maintain the safe and reliable operation of its transmission or distribution system. 1998, c. 15, Sched. A, s. 40 (4)

As part of its normal process Milton Hydro will trim trees that are on, or extend unto, municipal and regional Roads/Right of Ways (ROW). This includes trees that are planted on private property but extend unto the ROW. Milton Hydro will trim trees beyond the ROW limits and unto private property to ensure proper clearances are maintained from Milton Hydro owned power lines.

In some instances it will be necessary to completely remove trees encroaching on power lines. On ROW's trees that must be removed are done so as part of the regularly scheduled tree trimming work.

In some instances Milton Hydro will need to remove or significantly alter the appearance of trees planted on private property. Prior to removing trees planted on private property, Milton Hydro will endeavor to review the proposed work with the property owner. Milton Hydro will make all reasonable efforts to contact the property owner before removing any trees planted on private property. If the tree is identified as a high risk tree, Milton Hydro may remove the tree without prior notice.

#### **5. CUSTOMER OWNED PRIMARY AND SECONDARY SERVICES**

Customers are responsible for trimming trees encroaching on customer owned power lines. Tree trimming around customer owned power lines is subject to Electrical Safety Authority (ESA) regulations.

If customer owned power lines are not properly cleared by the customer, Milton Hydro may disconnect the privately owned line from the main distribution system to

preserve the power reliability experienced by all other customers connected to Milton Hydro's power lines.

## 6. GENERAL TREE TRIMMING REQUIREMENTS

To ensure tree related power quality issues are minimized, Milton Hydro has adopted tree trimming requirements that include:

- 1) Minimum trimming requirements that incorporate tree growth rates and tree trimming cycle times so as to prevent trees from growing into power lines prior to the next trimming cycle
- 2) Clearance requirements that differentiate between branches and tree trunks (with no branches)
- 3) A requirement to remove any diseased or other high risk trees that may fall onto Milton Hydro's power lines (including trees beyond the minimum clearance requirements)
- 4) Milton Hydro posts its tree trimming plans annually at [www.MiltonHydro.com](http://www.MiltonHydro.com). Customers with questions regarding the tree trimming program can contact Milton Hydro at 905-876-4611 or use the customer feedback form available on the web site.

### Minimum Clearance Requirements

All branches and limbs will be pruned to provide the minimum clearance from Milton Hydro's primary distribution lines. The minimum clearance shall be as specified in **Table 1 - Tree Clearances from Overhead Lines**.

All high risk limbs that may fall, sway or otherwise contact power lines will be removed.

For transformers and drop leads, the clearance requirements detailed in **Table 1** shall apply except that the minimum clearance requirement for all growth rates shall be 3 meters. Sufficient clearance should also be provided so that guy wires and strain insulators are not in contact with limbs.

In addition, trees will be cleared such that a lineman can climb poles without being obstructed by branches and limbs.

### Reduced Minimum Clearance for Bare (no Branches) Tree Trunks

The minimum clearance from Milton Hydro's closest power line to Tree Trunks that are clear of branches shall be 1.0 m provided the required clearances below the conductor, parallel with the conductor, and overhanging the conductor are satisfied, as stipulated in **Table 1 - Tree Clearances from Overhead Lines**

**Table 1 - Tree Clearances from Overhead Lines**

<b>TREE GROWTH RATE</b>	<b>PRIMARY DISTRIBUTION LINES</b>			<b>SECONDARY LINES</b>
	<b>Growth below conductor (m)</b>	<b>Growth parallel with conductor (m)</b>	<b>Growth overhang of conductors (m)</b>	<b>Growth from all directions (m)</b>
Extremely Fast	3.0	3.0	6.0	1.0
Fast	2.5	2.5	5.0	1.0
Medium	2.0	2.0	4.0	1.0
Slow	2.0	2.0	3.0	1.0
Minimum clearance from Milton Hydro's power lines to Tree Trunks that are clear of branches shall be 1.0 m – provided all other clearance requirements in Table 1 are satisfied.				
For transformers and drop leads the clearance requirements stipulated above shall apply except that the minimum clearance requirement for all growth rates shall be 3 meters.				

**TREE SPECIES and RATE OF GROWTH**

**Extremely Fast**

Basswood/Linden  
 Caroline Poplar  
 Cottonwood  
 Lombardy Poplar

**Fast**

Manitoba Maple  
 Red Maple  
 Silver Maple  
 Willow

**Medium**

Ash  
 Aspen  
 Beech  
 Birch  
 Black Cherry  
 Elm  
 Locust  
 Walnut  
 White Pine

**Slow**

Balsam Fir  
 Black Spruce  
 Hemlock  
 Hickory  
 Horse Chestnut  
 Jack Pine  
 Larch  
 Norway Maple  
 Norway Spruce  
 Scotch Pine  
 White Cedar  
 White Oak  
 White Spruce

# **MILTON HYDRO - TREE TRIMMING SPECIFICATIONS**

## **APPENDIX A**

### **Contractor Requirements - May 2014**

#### **1. CONTRACTOR REQUIREMENTS SCOPE**

The purpose of these requirements/specifications is to establish standard practices for the line clearing operations on all Milton Hydro power lines.

The specifications, as written will govern all line clearing operations authorized by the Company unless specifically amended by the substitution of approved clauses or otherwise, to meet special conditions.

#### **2. PERFORMANCE SPECIFICATIONS**

The Contractor will be required to comply with the following:

- A. The Contractor will provide a local office telephone number that is answered during regular business hours (see Milton Hydro quotation document for business hours).
- B. The Contractor will provide a local telephone number that is answered during non-business hours for emergency situations (see Milton Hydro quotation document for business hours).
- C. The Contractor will be required to have a cellular phone on site.
- D. Perform the work in accordance with specifications based on approved arboricultural practices.
- E. Comply with all statutes, orders, regulations, and rules and by laws of every governmental authority relating to the work.
- F. Submit each week, to Milton Hydro, in a format approved by Milton Hydro, a record showing the area worked and the degree of pruning and the progress made, along with the number of men and vehicles used on the job. Milton Hydro may, at its sole discretion, change the format or submission frequency of the record.
- G. The contractor shall, each day, before commencing work, communicate with the designated Milton Hydro Supervisor, through the Supervisor's cell phone, and advise of the following:
  - 1. Location of area in which work is to be performed.
  - 2. Feeders required to be blocked, if any.
- H. At the end of each working day, the contractor shall inform the Operations Supervisor that all employees are clear of the work area and release all feeder blocks.

- I. Inform Milton Hydro immediately should they cause a limb to fall across the Hydro Feeders that might cause a power interruption.

### 3. CIRCUITS AND APPARATUS TO BE CLEARED

- A. Branches and limbs will be pruned to provide the minimum clearances specified in **Table 1 - Tree Clearances from Overhead Lines**. All high risk limbs that are liable by falling, swaying or other means, to contact the conductor, shall be removed.

Sufficient clearance should also be provided so that guy wires and strain insulators are not in contact with limbs.

- B. For transformers and open drop leads, the clearance requirements detailed in **Table 1** shall apply except the minimum clearance requirement for all growth rates shall be 3 meters. 1 meters clearance will be provided for all secondary services and neutral conductors. In addition, trees will be cleared such that a lineman can climb poles without being obstructed by branches and limbs.
- C. Remove all dead or diseased trees, regardless of location of the tree, which could strike the conductors or any part of the electrical equipment, in falling.

### 4. PROTECTING THE BARK OF TREES

Spurs shall not be used for climbing trees.

### 5. PRUNING

- A. **Cuts**

Saw and pruned cuts shall be flush with parent limbs or the trunks of trees. Limbs shall be removed in such a manner as to prevent stripping of the bark.

- B. **Cut Branches**

Ropes shall be used for lowering cut branches where necessary, to prevent damage to trees, conductors, fences and other property. No "Hangers" shall be left on the conductors, or in the tree.

- C. **Corrective Pruning**

Old stubs remaining from previous line clearing operations shall be removed as well as any stubs on the line side of the tree, resulting from storm damage.

- D. **Shaping**

When a line passes through a tree, the opening should be cut back in a slope, away from the line towards the top, so that the notch is a V Shape. The cutting of slots is not permitted. The cutting of V notches shall be kept to a minimum.

Where lines run alongside a tree, the tree should be trimmed to give correct clearance at the lowest Milton Hydro line and slope away from the upper circuits.

If in obtaining the desired line clearance, trees are rendered unsightly due to lack of symmetry, further pruning to restore their appearance shall be

governed by the location of the trees and the nature of their surroundings.  
Full shaping may include:

1. The removal or shortening of limbs utilizing the “drop-crotch” method, and perimeter pruning. Sufficient growth must be left on branches that are cut back to keep them alive. When possible, the branch being removed shall be cut in such a way as to preserve the natural appearance of the tree. “Hedge-pruning” or excessive clipping with pole pruners and brush saws shall be avoided.
2. Removal or shortening of long straggly branches at side of trees.
3. Removal or shortening of branches at backs of trees, to restore balance which has suffered as a result of limbs being removed to obtain clearance on the line side. Care must be exercised to avoid an effect similar to girdling, as a result of removing too many adjacent branches.
4. Removal or shortening of side branches on line side of tree to eliminate or reduce to a minimum a gouged effect.

A. **Limbs Parallel with Conductors**

Limbs that meet the clearance requirements of **Table 1** for growth parallel with the conductor, but are deemed to be high risk, shall be removed wherever practical. Otherwise they shall be shortened.

B. **Limbs Under Conductors**

Limbs growing up into the conductors from the side of a tree shall be removed at the main trunk or pruned to meet the clearance requirements of **Table 1**.

C. **Trees Below a Line**

Trees growing directly under a line will not be allowed to grow into the overhead power lines. To maintain the clearance requirements of **Table 1** trees growing directly under a line will be topped and rounded or removed.

D. **Overhanging Limbs**

Overhanging limbs will meet the requirements of **Table 1**, high risk limbs, including those outside the minimum clearance requirements shall be removed or shortened sufficiently to prevent their dropping into the conductors under the additional weight of snow or ice.

E. **Dead Limbs**

All high risk dead wood, level with, or above the conductors, in trees in the vicinity of Milton Hydro lines shall be removed regardless whether they are located on public or private property.

6. **MINIMUM LINE CLEARANCE**

**Children Climbing**

In establishing clearances, the possibility of children climbing trees and making contact with live apparatus is to be considered, particular caution shall be exercised with trees on or near school yards and playground areas.

Where adequate clearance cannot be obtained to prevent children climbing the tree, the contractor shall inform Milton Hydro at once in writing.

**7. DISPOSAL OF WOOD, BRUSH AND DEBRIS**

The disposal of brush, wood and other debris resulting from the contractor's activities shall be governed by the following:

- A. The contractor shall dispose of all debris at an approved dumping site. Alternatively, property owners shall be afforded the opportunity of using timber cut from road allowances. Timber and branches over 10 cm diameter shall be trimmed and cut into convenient lengths for handling unless otherwise mutually agreed upon by both parties.
- B. Wood or brush, which has been cut from private property, shall be cleared from the property. Alternatively the property owner may elect to use the wood for their purposes.
- C. Brush and wood debris shall not be left lying overnight along streets, highways, county roads or any main traveled road. Brush left overnight on lightly traveled roads shall be stacked neatly so as not to obstruct traffic, and shall be removed the following day. Lawns and grassed areas shall be raked to eliminate small twigs, branches and debris.

**8. TREES OF DOUBTFUL STRENGTH**

The contractor shall identify, and report in writing, all trees of doubtful strength that in falling could strike Milton Hydro's distribution lines. These shall include all trees that are stressed, diseased, or showing signs of decay and may include all beech, basswood, poplar, willow, pine, fir and ash trees (exposed to the emerald ash borer beetle).

**9. 24HR EMERGENCY RESPONSE**

A one hour response time shall be the minimum standard for all emergency calls.

**Table 1 - Tree Clearances from Overhead Lines**

<b>TREE GROWTH RATE</b>	<b>PRIMARY DISTRIBUTION LINES</b>			<b>SECONDARY LINES</b>
	<b>Growth below conductor (m)</b>	<b>Growth parallel with conductor (m)</b>	<b>Growth overhang of conductors (m)</b>	<b>Growth from all directions (m)</b>
Extremely Fast	3.0	3.0	6.0	1.0
Fast	2.5	2.5	5.0	1.0
Medium	2.0	2.0	4.0	1.0
Slow	2.0	2.0	3.0	1.0
Minimum clearance from Milton Hydro's power lines to Tree Trunks that are clear of branches shall be 1.0 m – provided all other clearance requirements in Table 1 are satisfied				
For transformers and drop leads the clearance requirements stipulated above shall apply except that the minimum clearance requirement for all growth rates shall be 3 meters.				

**TREE SPECIES and RATE OF GROWTH**

**Extremely Fast**

Basswood/Linden  
 Caroline Poplar  
 Cottonwood  
 Lombardy Poplar

**Fast**

Manitoba Maple  
 Red Maple  
 Silver Maple  
 Willow

**Medium**

Ash  
 Aspen  
 Beech  
 Birch  
 Black Cherry  
 Elm  
 Locust  
 Walnut  
 White Pine

**Slow**

Balsam Fir  
 Black Spruce  
 Hemlock  
 Hickory  
 Horse Chestnut  
 Jack Pine  
 Larch  
 Norway Maple  
 Norway Spruce  
 Scotch Pine  
 White Cedar  
 White Oak  
 White Spruce