Central Michigan University

Tree Trimming and Removal Program

For

Landscape Operations

Revised:
January
2014
# Table of Contents

**Introduction**

- Scope ............................................................................................................. 1
- Purpose ........................................................................................................... 1
- Compliance with This Program ..................................................................... 1
- Personal Protective Equipment ................................................................. 2
- Fire Protection .............................................................................................. 2
- Traffic Control ............................................................................................. 2
- Electrical Hazards ......................................................................................... 3-4

**Work Practices**

- Climbing ....................................................................................................... 4
- Pruning and Trimming ................................................................................. 5
- Limbing ......................................................................................................... 5
- Topping ......................................................................................................... 5
- Cabling .......................................................................................................... 5
- Felling .......................................................................................................... 6
- Bucking ......................................................................................................... 6
- Brush Removal and Chipping ....................................................................... 6-7

**Tools & Equipment**

- Mobile Equipment, General ............................................................ 7-8
- Aerial Lifts ................................................................................................. 8
- Brush Chippers ............................................................................................ 9
- Sprayers & Related Equipment .............................................................. 9
- Stump Cutters ............................................................................................. 9
- Trucks ......................................................................................................... 9
- Off Highway Equipment ........................................................................... 10
- Hand & Portable Tools .............................................................................. 10
- Power Saws and Pruners .......................................................................... 10-11
- Back Pack Units ........................................................................................ 11
- Hand Tool Safety, General ................................................................. 11
- Pruners and Saws ...................................................................................... 11-12
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Herbicide Injector Tools</td>
<td>12</td>
</tr>
<tr>
<td>Grub Hoes, Mattocks and Picks</td>
<td>12</td>
</tr>
<tr>
<td>Cant Hooks, Cant Dogs, Tongs and Carrying Bars</td>
<td>12</td>
</tr>
<tr>
<td>Tackle Blocks and Pulleys</td>
<td>12</td>
</tr>
<tr>
<td>Chopping Tools</td>
<td>13</td>
</tr>
<tr>
<td>Ropes</td>
<td>13</td>
</tr>
<tr>
<td>Ladders</td>
<td>13</td>
</tr>
<tr>
<td>Climbing Spurs</td>
<td>14</td>
</tr>
<tr>
<td>Environmental Hazards</td>
<td>14</td>
</tr>
<tr>
<td>Emergencies</td>
<td>14</td>
</tr>
</tbody>
</table>
Central Michigan University
Tree Trimming and Removal Program
For
Facilities Management: Landscape Operations

Introduction

Scope

The scope of this program describes the requirements and procedures that Central Michigan University (CMU) Landscape Operations and its employees will use to meet the requirements of the Tree Trimming and Removal regulations.

Purpose

The Tree Trimming and Removal Program has been written to meet the requirements of the Michigan Occupational Safety and Health Administration (MIOSHA) Part 53 Tree Trimming and Removal regulation. This program sets the minimum requirements for tools and equipment, their maintenance and repair, and the work practices associated with spraying, trimming, pruning, repair, and removal of trees by CMU Landscape Operations.

Compliance with This Program

Management:

A. Will train all new employees and re-train employees, when necessary, on this Tree Trimming and Removal Program.

B. Will conduct a job briefing before any tree removal that may involve unusual hazards.

C. Will not allow a tool or equipment to be used which is not guarded according to MIOSHA standards, or that has a defective guard or is otherwise unsafe.

Employees:

A. Shall report to their supervisor any tool, equipment or safeguard which is defective.

B. Shall use personal protective equipment prescribed to them at the expense of CMU.

C. Shall not remove a guard except for authorized maintenance purposes. The guard shall be replaced or equivalent guarding provided before the equipment is returned to normal use.
D. Shall not operate any equipment unless trained in the operating procedures, hazards and safeguards.

**Personal Protective Equipment**

A. Eye and face protection shall be provided and used as required by the safe operating procedures for the equipment.

B. Head protection shall be provided and used when the employee is required to be present in areas where a hazard exists from falling or flying objects or from other harmful contacts or exposures, or where there is a risk of injury from electric shock, hair entanglement, chemicals or extreme temperatures.

C. A safety belt, safety strap, tree trimming saddle belt, or rope saddle shall be provided to and used by an employee when working aloft in a tree. A personal fall arrest system (PFAS) shall be worn and attached when aloft in the bucket of an aerial lift device.

D. When an employee is exposed to vehicular traffic, a high visibility vest or jacket shall be provided, at no expense to the employee, and worn by the employee.

E. Where required, protective clothing shall be provided and worn by the employee during chemical spraying (such as pesticides and herbicides), as prescribed by the Safety Data Sheet (SDS) or label for the specific chemical.

**Fire Protection**

A. Flammable liquids shall be stored in an approved safety container equipped with an automatic closing cap and flame arrester.

B. Equipment shall be stopped/turned off while being refueled, serviced or maintained. Restarting of portable equipment such as a chain saw shall be accomplished not less than 10 feet from the refueling point.

C. Smoking shall be prohibited while refueling.

**Traffic Control**

Where the fall of a limb or tree would create a hazard for an employee, pedestrian or vehicular traffic, a means such as, but not limited to, a barrier or traffic control director shall be used to prevent injury.
Electrical Hazards

A. An electric conductor or communication line shall be considered energized unless the systems utility or owner indicates otherwise and they have visibly grounded the conductor or line.

B. A tree worker or qualified line clearance tree trimmer shall not make direct contact with an energized conductor.

C. A tree worker shall maintain his body and tools not less than the distance prescribed in Table 1 of MIOSHA Part 53 Tree Trimming & Removal from an energized conductor. If these clearances cannot be maintained, the systems operator or owner shall be contacted to de-energize the conductor or provide protective measures or devices before the work is started.

Table 1 of MIOSHA Part 53
Minimum Working Distances for Tree Workers

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Minimum Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 300 volts</td>
<td>1 foot (.305 M)</td>
</tr>
<tr>
<td>301 to 750 volts</td>
<td>2 feet (.610 M)</td>
</tr>
<tr>
<td>751 to 50 kV</td>
<td>10 feet (3.05 M)</td>
</tr>
<tr>
<td>50 kV or more</td>
<td>10 feet (3.05 M) plus .4 inch per 1000 volts</td>
</tr>
</tbody>
</table>

D. A qualified line clearance tree trimmer shall maintain his body and tools not less than the distance prescribed in Table 2 of MIOSHA Part 53 Tree Trimming & Removal from an energized conductor, except the trimmer may remove branches hanging on a conductor using approved insulated tools and equipment when the voltage is below 10 kV.
Table 2 of MIOSHA Part 53
Minimum Working Distances for Qualified Line Clearance Tree Trimmers

<table>
<thead>
<tr>
<th>Voltage Range (Phase to Phase)</th>
<th>Minimum Working Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 750 V</td>
<td>1 ft. (.305 M)</td>
</tr>
<tr>
<td>751 to 35 kV</td>
<td>2 ft. 4 in. (.711 M)</td>
</tr>
<tr>
<td>35.1 kV to 46.0 kV</td>
<td>2 ft. 6 in. (.762 M)</td>
</tr>
<tr>
<td>46.1 kV to 72.5 kV</td>
<td>3 ft. 0 in. (.914 M)</td>
</tr>
<tr>
<td>72.6 kV to 121.0 kV</td>
<td>3 ft. 4 in. (1.016 M)</td>
</tr>
<tr>
<td>138.0 kV to 145.0 kV</td>
<td>3 ft. 6 in. (1.067 M)</td>
</tr>
<tr>
<td>161.0 kV to 169.0 kV</td>
<td>3 ft. 8 in. (1.118 M)</td>
</tr>
<tr>
<td>230.0 kV to 242.0 kV</td>
<td>5 ft. 0 in. (1.524 M)</td>
</tr>
<tr>
<td>345.0 kV to 362.0 kV</td>
<td>7 ft. 0 in. (1.524 M)</td>
</tr>
<tr>
<td>500.0 kV to 552.0 kV</td>
<td>11 ft. 0 in. (3.453 M)</td>
</tr>
<tr>
<td>700.0 kV to 765.0 kV</td>
<td>15 ft. 0 in. (4.572 M)</td>
</tr>
</tbody>
</table>

E. A branch hanging on a conductor energized at more than 10 kV, shall be removed after the line is de-energized or removed by an authorized and trained systems operator employee using approved protective tools and equipment.

Work Practices

Climbing

A. An approved safety belt, tree trimming saddle belt or rope saddle shall be used by an employee when aloft.

B. A climbing rope shall be crotched as soon as possible after the employee is aloft and located in a crotch, when possible, at a height over the work area as to swing the employee away from any conductor or line in case of a fall.

C. The climbing employee shall remain tied in until the work is completed and he/she has returned to the ground.

D. If it becomes necessary to recrotch, the employee aloft shall retie in or use a safety strap before releasing the previous tie.

E. An employee shall not climb a tree during a storm, high winds, or when covered with ice or snow, except when performing emergency service as deemed appropriate by the Manager of Landscape Operations or his designee.
Pruning and Trimming

A. The employee aloft shall give a verbal warning before dropping a limb.

B. A separate work rope, controlled by an employee on the ground, shall be used to lower limbs which cannot be dropped. The work rope shall not use the same crotch over which the climbing rope is run.

C. A cut branch or limb shall not be left aloft overnight or for an extended period unless the limb is secured to the tree or the area under the tree is roped off or barricaded.

D. Whenever an employee is aloft in excess of 15 feet, a second employee or supervisor shall be within vocal hearing distance of the treed employee.

Limbing

A. When possible, an employee cutting a limb shall work from the side opposite and uphill of the cut.

B. Branches bent under tension shall be considered hazardous and the situation corrected.

Topping

A. When topping, equipment such as a crane, shall be used to lower branches and limbs if the tree cannot stand the strain.

B. When lowering large limb sections, the employee aloft shall position himself/herself, whenever possible, above the limb being lowered.

Cabling

When cabling:

A. The limbs or branches to be connected shall be brought to position by a block and tackle, hand winch or come-along.

B. No more than 2 employees shall be aloft working at opposite ends.

C. An employee on the ground shall not be directly under the work area.

D. An employee shall be off to one side when releasing a block and tackle, hand winch or come-along in case the fasteners come loose.
**Felling**

A. Before a cut is started, a feller shall check for other employees and dead limbs, angle of tree, wind condition, location of other trees and other hazards, and plan his/her path of retreat.

B. Each assisting employee on the ground shall be instructed exactly what he/she is to do. Other employees shall be cleared to a distance of twice the height of the tree being cut.

C. An undercut shall be large enough, about 1/3 the diameter, to safely guide the tree and reduce the possibility of the tree splitting.

D. A back cut shall leave sufficient hinge wood (the distance between notch and back cut) to guide the tree’s fall in the desired direction and to hold the tree to the stump during most of its fall. A back cut shall be about 2 inches above the undercut and as level as possible.

E. Before starting a back cut, a feller shall clear the area of other persons or equipment.

F. The saw shall be shut off before the feller starts his retreat.

G. Where the tree is likely to slide or roll, a feller shall cut from the uphill side.

H. Just before the tree is ready to fall, an audible warning shall be given.

I. If there is danger of a tree falling the wrong way, such means as wedges, block and tackle or rope shall be used to control the fall.

**Bucking**

When bucking:

A. An employee shall work from the uphill side.

B. The log or limb shall be blocked to prevent rolling.

C. Wedges shall be used on trunks and limbs of large trees to prevent binding the saw guide bar or chain.

**Brush Removal and Chipping**

A. Cut brush and logs shall not be allowed to create a hazard.
B. A chipper shall be fed from the side of the centerline of the opening and the employee feeding the chipper shall immediately turn away when brush is taken into the rotor chamber. Where applicable, the chipper shall be fed from the curb side. See illustration below.

C. An employee shall not place any part of the body on the chipper table nor shall the discharge chute be raised while the rotor is turning.

D. Foreign material such as stones, bottles, nails or sweepings, shall not be fed into the chipper.

E. An employee feeding a chipper shall not wear attire such as clothing with loose sleeves, gauntlet gloves, watches or rings. Rings covered by gloves or tape will be considered to be in compliance.

Tools and Equipment

Mobile Equipment, General

A. The muffler and exhaust pipe of mobile equipment used in tree trimming and removal operations shall be guarded or so located as to prevent contact by an employee during normal use.

B. Defects or malfunctions of mobile equipment which affect its safe operation shall be corrected before being placed into use. During maintenance, the
equipment shall be shut off and at rest, except when necessary to make adjustments with the equipment running.

C. An employee shall not attempt to locate an unseen hydraulic leak by use of hands or fingers unless the equipment is shut off and depressurized.

D. Before backing up any mobile equipment, including a truck, the operator shall check the rear area. Where the area may be congested with people or the view obscured because of the load or type of equipment, the mobile equipment shall be equipped with an automatic back up alarm or an employee shall assist the operator.

E. Tools, material and equipment shall be stored or otherwise secured on a vehicle during transit.

F. An employee shall ride only in a designated seat of mobile equipment, which is secured to the equipment.

G. Mobile equipment shall not be operated at more than its rated capacity.

H. Work platforms and step on mobile equipment shall have a slip-resistant surface.

I. A pad shall be set under an outrigger foot when it is put on a soft surface. Traction for outrigger feet shall be assured where ice and snow are present.

J. When outriggers are provided on mobile equipment which is being used to lift or dig, the outriggers shall be extended. An audible warning such as a horn, bell or voice shall be used when lowering outriggers.

**Aerial Lifts**

A. A bucket of an aerial lift shall not be depended on to be electrically insulated.

B. An aerial lift shall not be used to lift or lower materials unless specifically designed to perform such operations.

C. Aerial lifts should not be operated when wind speeds are in excess of 28 mph.

D. An employee shall not ride inside a bucket when the vehicle is moving.

E. Only trained operators with current operator permits will be allowed to operate an aerial lift. Permits are valid for 3 years. Contact Environmental Health & Safety for training: 774-7398
Brush Chippers

A. A brush chipper shall be equipped with a locking device on the ignition system which shall be kept locked with the key removed when the chipper is unattended.

B. Blade or feed roll for a chipper is not to be less than 85 inches out and down to the ground.

C. On chippers with feed rolls, a stop/operating control is required for the rolls.

D. Access panels for maintenance and adjustment shall be closed and secured before the equipment is operated.

E. The in-feed hopper or table of a chipper shall be of such design as to prevent an employee from reaching the rotor blades or knives during normal operation.

F. A trailer type chipper, when detached from a vehicle, shall be chocked or otherwise secured.

G. Flap type guards, designed to prevent kickback of chips, shall be installed at the feed opening of a chipper.

H. A chipper rotor shall be blocked from turning when performing maintenance on the rotor.

Sprayers and Related Equipment

A. An employee required to operate spray equipment from a moving vehicle shall wear a seat belt or be protected by a guardrail if operating from a standing position.

B. An employee wearing clothing wetted by a flammable or combustible liquid shall avoid sparks and open flame. The clothing shall be removed as soon as possible.

Stump Cutters

A stump cutter shall be equipped with enclosure guards to protect an employee from the rotating cutter and flying chips.

Trucks

A truck used to haul brush, limbs and logs shall be equipped with a bulkhead that will contain any load shift stress to protect the occupants of the truck cab from load movement due to emergency stops.
Off Highway Equipment and Tracked Vehicles

A. An operator of off the highway equipment and tracked vehicles shall be protected by guarding from the shifting trees and branches, including roll over protection and seat belts.

B. The equipment shall be operated in a manner to protect the operator and other employees. The equipment shall be kept in gear when descending grades.

Hand and Portable Tools

A. A portable electric powered tool shall not be used in a tree near an energized conductor where the tool or cord could possibly come in contact with the conductor.

B. Unless a tool is powered by a non-electric power source or is double insulated and so labeled, it shall be grounded.

C. An extension cord shall have a connected ground wire, be free of defects and have no metal sockets.

D. A portable electric powered tool operator shall:
   a. Use such tool as prescribed in MIOSHA Part 38. Hand and Portable Powered Tools.
   b. Prevent the cords from being entangled, damaged or cut by blades and bits.
   c. Not lay an extension cord in water, unless it is not spliced and is waterproof with waterproof connections.

Power Saws and Pruners

A. A power saw weighing more than 15 pounds that is used in a tree shall be supported by a separate work rope, except when working from an aerial lift.

B. A scare line used to support a saw weighing less than 15 pounds shall be of such length to allow the saw to swing clear of the operator.

C. When starting a power saw, the operator shall have secure footing and the saw shall be firmly supported. The saw shall be started and operated when all other employees are in the clear.

D. A power saw shall be operated and maintained as prescribed in MIOSHA Part 38. Hand and Portable Tools.
E. A power saw shall not be raised or lowered from a tree with the motor running.

F. A saw motor shall not be left running when the saw is not in use.

G. Pneumatic or hydraulic tools powered from a bucket of a vehicle mounted and rotating work platform shall:
   1. Be inspected daily before use.
   2. Be secured on or from the bucket when aloft and not in use.
   3. Be disconnected from the power source for sharpening or adjustment.
   4. Have hoses of nonconductive material.

**Back pack units**

A. Other employees shall maintain a distance of not less than 10 feet (3.05 M) from an operator of the cutting head of a back pack brush saw.

B. The operator shall observe the location of all employees while the unit is running.

C. The power unit shall be equipped with a shutoff switch readily accessible to the operator.

D. The unit shall be stopped for all cleaning, refueling and repairs.

**Hand Tool Safety, General**

A. An employee climbing aloft shall not carry a tool in his hand. A pole saw or pruner may be raised and hooked ahead of the climber. Other tools shall be raised and lowered by a hand line, carried on a tool belt or in a tool bag.

B. A hand tool shall not be dropped from aloft.

C. A hand tool shall be used and maintained as prescribed in MIOSHA Part 38. Hand and Portable Powered Tools.

**Pruners and Saws**

A. A pole pruner, pole saw and other similar tools shall be equipped with a nonmetallic handle. The actuating cord shall be of nonmetallic material.

B. A pole pruner or pole saw shall be hung securely in a vertical position to prevent dislodgment. A pole pruner or pole saw shall not be left in a tree overnight or hung on a utility line. A pole saw shall be hung so that the sharp edge is away from the employee.
C. A scabbard or sheath shall be hooked to the belt or safety saddle to carry a hand saw when it is not in use.

**Herbicide Injector Tools**

A. The bit of a herbicide injector tool shall be covered with a shield and laid flat on the ground when not in use.

B. The injector shall be carried by the loop handle on the downhill side with the bit shielded and facing the rear.

C. An employee using a tool shall have firm footing and shall have cleared away all interfering brush.

**Grub Hoes, Mattocks and Picks**

A. The blade eye of a grub hoe, mattock or pick shall be tight fitting and wedged so that it cannot slide down the handle.

B. When swinging a tool, the employee shall have a secure grip and firm footing.

**Cant Hooks, Cant Dogs, Tongs and Carrying Bars**

A. The hooks of a cant hook, cant dog, tongs or carrying bar shall be firmly set before applying pressure.

B. The point of a hook shall be not less than 2 inches long and maintained sharp.

C. Other employees shall be warned and in the clear before a log is moved.

D. When rolling a log, the employee shall stand to the rear and uphill.

**Tackle Blocks and Pulleys**

A tackle block and pulley shall be inspected before each use and, if found defective, shall not be used. Another will be used or the operation requiring the device will not be performed.

**Chopping Tools**

A chopping tool shall:

A. Not be used while aloft.
B. Not be used as a wedge or to drive a wedge.

C. Be swung away from the feet, legs and body.

**Ropes**

A. A rope shall be inspected before each day’s use for the following conditions:

1. Externally for abrasions, cut or broken fibers, decay, burns, lack of strength, softness, and variation in size or roundness of the strands.

2. Internally, by separating the strands at 3 foot intervals, for broken fibers, presence of grit, mildew or mold, color change of the fibers, or powdering and short loose fibers.

3. Wear or damage of a work rope where the tautline hitch is used. That section showing wear or damage shall be cut off.

B. A rope showing any of the defects listed above, which would constitute a hazard, shall be replaced.

C. A rope shall be stored in a dry location in coils or on a reel.

D. A wet rope shall be dried by placing it in the sunshine or a warm room by hanging loosely over a rounded peg or hook.

E. A rope shall not be:

   1. Kinked or run over sharp corners.

   2. Used when frozen or left in freezing temperatures when wet.

F. A climbing rope shall not be spliced.

G. A climbing rope shall not be left aloft overnight.

**Ladders**

A. A ladder made of metal or other conductive material shall not be used next to electrical conductors or wires within a distance equal to twice the extended length of the ladder. Such ladders shall be marked: “Restricted use; do not use near electrical conductors.”

B. A ladder shall be used and maintained as prescribed in MIOSHA Part 4. Portable Ladders.
**Climbing Spurs**

A. Where climbing spurs are used, they shall be the tree climbing type with gaffs of the type and length suitable for the tree being climbed.

B. Climbing spurs shall be inspected prior to each day’s use for sharpness, length of gaff and proper type for the job. The climbing spurs shall be maintained sharp.

**Environmental Hazards**

Poison Ivy is prevalent on campus, often found wrapped around trees. If you should come into contact with it, apply poison ivy solution from the First Aid cabinet.

**Emergencies**

A. In case of a minor injury report to Wellness Central (COMP) for treatment and inform your supervisor. You or your supervisor should report the injury to Workers Compensation at 774-7177.

B. In case of an emergency, dial 911 on any campus phone and/or report to the McLaren Central Michigan Hospital, 1221 South Drive, Mt. Pleasant, Michigan.