

# Vegetation Management Plan 2016-2020

Town of Danvers – DPW



Electric Division

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- A. 333 CMR 11.00: RIGHTS-OF-WAY MANAGEMENT



## **1. INTRODUCTION**

The purpose of this Vegetation Management Plan (VMP) is to outline the Danvers Electric five year plan for managing vegetation in compliance with the Commonwealth of Massachusetts 333 CMR 11.00, Right of Way Management regulations.

Danvers Electric is one of the 41 Massachusetts Municipal Light Plants who a Public Power Utility is serving the electrical needs to the Town of Danvers, Massachusetts. It is governed by the Town Manager with an appointed Municipal Light Board made up of three members.

Danvers Electric serves approximately 13,000 customers within the Town of Danvers' 13.6 square mile service territory.

Vegetation management is necessary to ensure safe, reliable delivery of electric service through the distribution lines located on our rights-of-way. Tall growing tree species must be prevented from growing into or falling onto the lines. In compliance with rules and regulations, dense woody vegetation, vines, noxious, nuisance and poisonous vegetation, and all vegetation that interferes with access must be removed from around structures, access roads and anywhere in which they prevent access to the rights-of-way for inspections, maintenance, repairs, and emergency access to the lines.

## **2. GOALS AND OBJECTIVES**

The primary goal of this VMP is to outline the standard operating procedures for all vegetation management operations on Danvers Electric's rights-of-way. Its purpose is to document Danvers Electric's IVM Program standards, practices and procedures, which are designed to control undesirable vegetation on rights-of-way while minimizing the risk of unreasonable adverse effects on human health and the environment.

The VMP is intended to provide a basic source of information for state and municipal officials and any interested parties regarding Danvers Electric's vegetation management program.

Danvers Electric's vegetation management objectives are as follows:

- To ensure the reliable delivery of electric service to our customers
- To ensure that all vegetation management operations are conducted safely and in compliance with applicable federal and state laws, regulations and permits
- To maintain an optimum one to two year maintenance cycle for all rights-of-way
- To ensure that all vegetation management operations are conducted in a safe, effective manner and in conformity with federal and state laws, regulations, and permit conditions
- To treat all sensitive areas listed in 333 CMR 11.04 according to regulatory policy as areas that require special consideration during vegetation management operations
- To remove or control non-compatible vegetation within the cleared width of the ROW, along access roads, around structures, gates and the perimeter of electric substations
- To control non-compatible vegetation that impedes aerial and ground inspections
- To control non-compatible vegetation which interferes with access to the ROWs and structures for maintenance or emergencies

- To allow for unplanned tasks for which all precautions are taken to utilize the correct treatment methods and to protect sensitive areas (construction, restorations, hazard tree removal, etc).
- To manage and contain the spread of invasive, noxious and poisonous plant species
- To encourage the establishment of wildlife habitat that does not interfere with the primary function of the ROWs
- To protect the Priority Habitat of State-Listed Species
- To promote positive public relations with landowners, state and municipal officials, contractors, and the public
- To maintain the flexibility necessary to accommodate unique situations and the need for more appropriate techniques as they arise (in accordance with new regulations and/or scientific advances).

### **3. IDENTIFICATION OF TARGET VEGETATION**

The primary objective of electric utility vegetation management is the selective control of those plants capable of growing tall enough to interfere with the utility lines and/or access to maintain these lines. Vegetation that obscures the right-of-way corridors and/or grows tall enough to interfere with the lines must be removed. Target species include trees and limbs, tall growing shrubs, vegetation growing around substations, structures, access roads, gates, and anywhere vegetation impedes access to the rights-of-way and equipment. The primary target plant species are trees, generally defined as woody plant species that mature at heights exceeding fifteen feet. Trees must be removed or controlled within the cleared width and along the edges of Danvers Electric's rights-of-way because they are capable of growing tall enough to grow into or fall onto the lines causing electric service outages. Examples include, but are not limited to, maples, oaks, ash, cherries, birches, beeches, spruce, hemlocks and pines. In rare isolated instances trees may be left where the electric lines are high enough off the ground so that mature trees will not interfere with the operation of the line. Also, those species that are under the purview of the Natural Heritage and Endangered Species Program of the Massachusetts Division of Fisheries and Wildlife (NHESP) will be treated on a case by case basis.

Certain categories of non-tree species are also targets, some due to their location and others because of their nature.

All woody vegetation (trees, shrubs and vines) on or encroaching upon existing roads or pathways or immediately adjacent to line structures or equipment will be controlled to provide adequate access to structures, equipment and along the rights-of-way. These include shrubs and vines, including, but are not limited to, Viburnum, Mountain Laurel, Bush Honeysuckle, Grape Vines, Virginia Creeper, etc. If no permanent access route exists along a right-of-way, a pathway may be created during the treatment cycle and maintained in a suitable location by managing all woody vegetation within the selected route. Woody vegetation must be removed in these areas to ensure access to and along the right-of-way and line structures for safe, efficient inspection, maintenance and repair operations. Plant species that pose an environmental or safety problem will be removed whenever practical. The categories of these plant species types that cause safety problems are noxious, nuisance and poisonous vegetation that has heavy thorn growth or dermal toxicity and may create hazards for people working on or traversing the right-of-way. These also include plants that poses environmental problems, some of which also fit one of the first two categories. Poisonous vegetation poses a health hazard to

Danvers Electric personnel, contractors and the public-at-large, which can lead to increased incidences of first aid and OSHA recordable incidents. Mechanical methods do not reduce the spread of these populations—particularly poison ivy—therefore Danvers Electric plans to use herbicides to spot treat poisonous plants at sites under its rights-of-way identified as having a high risk of posing a health hazard. Noxious and nuisance vegetation poses a risk to the safety and health of all individuals working on or traversing a right-of-way and can further impede a rapid response in an emergency. These plants have heavy thorns, dense foliage and/or impenetrable stems; examples include, but are not limited to, federal and Massachusetts classified noxious vegetation such as Multi-floral Rose, Common & Glossy Buckthorn, and Blackberries, as well as nuisance vegetation such as Hawthorne, Greenbrier and dense populations of grapevines.

#### **4. VEGETATION MANAGEMENT AND OPERATIONAL GUIDELINES**

Danvers Electric retains independent contractors for all vegetation management applications and requires that these contractors comply with all applicable state and federal laws and regulations and Danvers Electric vegetation management specifications. Contractor performance and compliance with this VMP will be evaluated by Danvers Electric Foresters

##### **A. VEGETATION MANAGEMENT GUIDELINES**

Danvers Electric's IVM program will be applied to remove or control all undesirable target vegetation within the full width of the rights-of-way. The vegetation management program applied to each right-of-way must result in 100% control or removal of all target species greater than or equal to six feet in height and a minimum of 90% control or removal of all target species less than six feet in height.

With a few exceptions, all target tree species will be removed or controlled during a treatment operation. This includes all woody vegetation and vines growing on or encroaching upon roadways, trails, or on or within ten feet of structures within the cleared width of the right-of-way. Treatments will also extend around the perimeter of substations following all *sensitive area* restrictions.

Environmentally *sensitive areas* will be treated per 333 CMR 11.04. Vegetation management operations on such sites are designed to prevent any unreasonable adverse environmental effects. These no-spray and limited spray zones will be maintained using the appropriate control methods.

Conifers are generally not treated with herbicides since most species do not re-sprout. One exception to this general guideline is the pine species that do re-sprout, particularly Pitch Pine, which may be treated on a limited basis with herbicides. Another exception is where White Pine regeneration has seeded in large thick carpets and mowing might be more destructive than an herbicide application.

In cases where large areas of high density target species have exceeded maximum herbicide treatment heights, it may be more practical to do a mechanical treatment followed in one or two growing seasons by an herbicide treatment to obtain effective control.

Right-of-way access will be through the use of established roadways whenever possible. The contractor will obtain permission to enter a right-of-way by any other means in advance.

Unreasonable site damage or destruction during any phase of the vegetation management operation by the contractor, his agents or employees, must be repaired immediately to the satisfaction of Danvers Electric; Danvers Electric will determine what constitutes unreasonable site damage.

## **B. OPERATIONAL GUIDELINES**

Danvers Electric will inform the contractor of which rights-of-way will be treated, the range of treatment dates and the methods, materials and mixing rates. Danvers Electric will supply treatment restrictions data, maps and written instructions outlining any special treatment considerations or instructions for each right-of-way. No work will be done until the contractor has the appropriate data, permits, restriction lists and mixing rate instructions unless authorized by Danvers Electric.

The contractor is responsible for providing or adhering to the following:

- Appropriately licensed or certified supervisors who understand all aspects of the contracted treatment and who are responsive to the guidance of Danvers Electric
- Supervisors who effectively manage treatment crews to ensure the satisfactory completion of the contract
- Supervisors who effectively communicate with the public
- Experienced and/or trained workers, who are appropriately licensed or certified
- Workers who conduct themselves professionally at all times
- All contractors must have a copy of this VMP
- All treatment crews must carry copies of the Yearly Operational Plan (YOP)
- All treatment crews must carry Danvers Electric right-of-way maps
- Compliance with all applicable Federal and State laws and regulations
- Appropriate equipment to maintain the highest practical level of efficiency and effectiveness
- Herbicide application equipment will be appropriately calibrated
- Equipment maintained in good visual and working condition.

In conclusion, vegetation management operations must be conducted according to this VMP and the instructions of Danvers Electric. Failure to do so is grounds for removal of the crew from the treatment site and termination of the vegetation management contract.

## **5. VEGETATION MANAGEMENT CONTROL METHODS**

Mechanical and chemical controls work together to support the establishment and viability of natural controls, therefore, Danvers Electric utilizes a combination of hand cutting, mowing, selective pruning, selective foliar treatments, low volume basal treatments and cut stump treatments. The treatment methods used on any given right-of-way are selected based on timing, site sensitivity, target species composition and density, site access, topography and treatment methods. Timing all applications and avoiding fixed schedules is important to maximize control while minimizing herbicide use. Danvers Electric inspects rights-of-way for target vegetation density, height and composition. Because all right-of-ways are scheduled for

treatment on a yearly basis, the target vegetation height and densities remain at low to moderate levels. These inspections are important because although treatment cycles should remain relatively consistent with the use of our IVM program, short term changes in growth conditions, site disturbances or the effectiveness of past treatments may affect the schedule on individual rights-of-way.

The advantage of a flexible IVM program is the ability to apply the appropriate mechanical and chemical controls to meet the conditions of individual rights-of-way. As the sole means to control vegetation, mechanical controls are a short-term solution. With the exception of most conifer species, cut vegetation re-sprouts, resulting in significantly thicker stem densities. Selective herbicide application treatment methods effectively remove this vegetation that would otherwise compete with and dominate the early successional ecological communities that are the backbone of natural controls. In some areas, however, mechanical controls are the preferred method, sometimes in combination with the appropriate herbicide treatment method: on vegetation over 12 feet in height; on non-sprouting conifers (with exceptions); in no-spray *sensitive areas*; in visual screens; in individual areas deemed as sensitive; around structures; on access roads; in areas of thick, impenetrable vegetation, and where large areas of high density target species exceed maximum herbicide treatment heights.

## **A. MECHANICAL CONTROL METHODS**

### ***Hand Cutting***

Hand cutting is the mechanical cutting of target species using chain saws or brush saws, loppers or hand pruners:

- Hand cutting may be conducted at any time of the year
- Target species are cut as close to the ground as practical
- Slash from the operation is cut and scattered so as to lay as close to the ground as practical, but not exceeding two feet in height.

Hand cutting is used to protect environmentally *sensitive areas*; around structures, gates and access roads; to control target vegetation greater than 12 feet in height; where herbicide use is prohibited by regulation or easement restriction; on non-sprouting conifer species greater than two feet in height, and on sites where terrain, site size or sensitivity renders mowing impossible or impractical.

### ***Mowing***

Mowing is the mechanical cutting of vegetation using large trees/brush mowers mounted on rubber tired tractors or tracked vehicles:

- Mowing may be used at any time of the year except when deep snow precludes operations
- Selection of specific equipment is based on terrain, target vegetation size and equipment availability
- Mowing is restricted by steep slopes, rocky terrain, obstructions, wet sites with deep, soft soils, and debris on the right-of-way.



Mowing is used on sites where herbicide use is prohibited by regulatory or easement restriction, where a large number of target species stems have exceeded maximum control heights, where access is impeded by high woody vegetation density and access is required in the short term, and where terrain, site size and sensitivity permit the efficient use of the equipment.

### ***Selective Pruning***

Selective pruning is the mechanical removal of the tops or encroaching limbs of tall-growing tree species to prevent them from growing into, or falling onto, the lines:

- Selective pruning may be done at any time of the year
- Pruning will be accomplished using aerial lifts mounted on trucks, skidders or tracked vehicles or, if terrain or obstructions prevent equipment access, by climbing crews.

This method is used in maintaining visual screens on the limited areas where tree screens are desired and selective removals are not practical; on individual state or town regulated road crossings where it is required or practical; along the edge zones of rights-of-way where pruning will reduce or eliminate the threat of outages, and to provide landowners with a viable alternative to the otherwise mandatory removal of trees for electric line maintenance and integrity that are aesthetically desirable to the property owner.

### ***Slash***

Slash—the woody debris generated in cutting operations—will be disposed of by dicing, chipping or piling, at the discretion of Danvers Electric or its contractor:

- Slash will not be left in waterways, trails or roads, or in such a manner that would permit it to wash into these areas
- The placement of cut woody vegetation must comply with applicable State Fire Marshall's regulations
- Slash from yards or recreational sites will be chipped or removed to an adjacent area or removed
- Slash will be piled in isolated areas or windrowed in parallel lines along the right-of-way in piles that should not exceed two feet in height and that do not obstruct access along or to the right-of-way
- Dicing will be accomplished by cutting the slash in pieces so that it lies as close to the ground as practical
- Chipping is used when dicing and/or piling are prohibited or impractical
  - In highly sensitive sites wood chips will be removed
  - When left on site, wood chips will be scattered uniformly over the site at depths not exceeding four inches or piled in isolated areas
  - No chips will be left in wetlands
- All slash and debris of cherry species will be removed immediately after treatment in active pastures to prevent any harm to livestock.

## B. CHEMICAL CONTROLS

Herbicide applications include foliar, basal and cut stump surface treatments. Herbicides are applied as mixtures consisting of herbicide formulation(s), adjuvants, carriers and additives. The timing of herbicide applications, materials, and mixture rates will be listed in Danvers Electric's YOP, twenty-one day notice letter and/or forty-eight hour newspaper notice as required under 333 CMR 11.06 and 11.07 and Chapter 85 of the Acts of 2000, Section. Danvers Electric will only use herbicides on the *Sensitive Area Materials List* administered by the Massachusetts Department of Agricultural Resources (DAR). Individual herbicides have different levels of effectiveness on target vegetation species and under different conditions. No herbicide is equally effective on all target species and certain herbicides are more effective on certain target species than others. Danvers Electric selects the herbicide or combination of herbicides in conjunction with the appropriate treatment method to obtain the most effective control of the target species composition and density on each right-of-way.

Individual herbicides and treatment methods also have distinctive physical effects and environmental behaviors. For example, certain herbicides or treatment methods cause foliar brownout while others do not, and certain herbicides have been formulated for use in wet environments while others have not. The selection of specific herbicides or herbicide mixtures coupled with the appropriate treatment methods is made with equal consideration given to the visual and environmental sensitivity of a right-of-way or site within a right-of-way. As a result, herbicides will not be used in certain areas if site sensitivity, regulations, new restrictions, target species composition or height recommend otherwise.

### ***Selective Foliar Treatments***

*Selective foliar treatments* are the application of materials to fully developed leaves, stems, needles or blades of target vegetation. Selective foliar treatments are limited to the season when leaves are fully developed in the spring until early fall and the beginning of leaf abscission—i.e., when leaves begin dropping off the trees.

The equipment for selective foliar treatments includes: hand-pump backpack sprayers, motorized backpack sprayer and off-road vehicle mounted hydraulic sprayers. In each case, mixtures are applied as a uniform spray over the plant's entire foliage to only dampen or lightly wet the target vegetation, instead of being applied to the point of run-off. This minimizes the amount of excess herbicide drip from target species onto desirable ground cover.

Selective foliar treatments are used on hardwood trees and target shrub species below 12 feet in height. In general, selective foliar treatments are not applied to conifer species, however, exceptions to this general guideline will be identified in Danvers Electric's YOPs. Foliar treatments are also not used where landowner agreements preclude their use, within visual screens on targets greater than six feet in height and within mechanical only *sensitive areas* per 333 CMR 11.04.

Foliar treatments are allowed in wetland areas where no standing water is present, per the Department of Food and Agriculture Decision, dated October, 1995, concerning the wetland impact study conducted pursuant to 333 CMR 11.04 (4)(C)(2).

## ***Basal Treatment***

*Basal treatments* are the selective application of an herbicide, diluted in specially formulated oil, to wet the entire lower 12 to 18 inches of the main stem of target plants. Using a hand pump backpack unit, the oil enables the herbicide solution to penetrate the bark tissue and translocate within the plant. Basal treatments are extremely selective, and when used at appropriate locations are applied at very low per acre rates:

- Optimum target vegetation density is low with average heights greater than four feet, within visual screens and in areas where extreme selectivity is necessary
- This treatment method can be used any time of year except in conditions that prevent adequate access to the target stems
- The optimum treatment time frame is in the dormant season when applications are easier due to the lack of foliage and the obstruction caused by grasses and herbaceous growth
- Restrictions include when snow is too deep or in extremely wet weather
- Basal treatments are not ideal in high stem densities because of high labor costs and increased herbicide rates per acre.

Basal treatments are used with the same rationale as selective foliar treatments. Basal treatments have the advantage of extending the treatment season into the dormant season thus facilitating the retention of experienced applicators and spreading out the work load. They also have the advantage of being low profile with no noisy motorized equipment and target vegetation is generally controlled without creating brownout when the treatments are completed during the dormant season.

## ***Cut Stump Treatment***

*Cut stump treatments* are the mechanical cutting of target species followed by an herbicide treatment to the phloem and cambium tissue of the stumps. The cut stump mixture is diluted in water or a non-freezing agent and is ideally applied to freshly cut stumps. Application equipment includes: low-volume backpack; hand-pump sprayers; hand held squirt bottles; paintbrushes, and sponge applicators.

This method is used where maximum control is desirable and/or to reduce the visual impact of vegetation management treatments. It is commonly used:

- To prevent re-sprouts when hand cutting vegetation in preparation for a foliage application
- To chemically treat target vegetation in sensitive sites where other methods are not possible
- On all woody vegetation (except non-sprouting conifers) removed from visual screen except within an environmentally *sensitive area* where restrictions take precedence.

Like basal treatments, cut stump treatments may be used at any time of the year provided snow depth will not prevent cutting the stumps below three inches in height. It is best to avoid during the season of high sap flow, in moderate to heavy rains, and is not practical in moderate to heavy stem densities.

## **C. HERBICIDE APPLICATION RESTRICTIONS AND GUIDELINES**

Herbicide application will be restricted during certain adverse weather conditions, such as rain, wind or deep snow.

### ***Rain***

Herbicide applications will not be made during periods of moderate or heavy rain fall:

- Foliar applications are effective in light mist
- Foliar applications will cease during measurable rainfall that creates leaf runoff will wash the herbicide off the target
- Foliar applications interrupted by unexpected rainfall, will not resume until the rain ends and active leaf runoff has ceased
- Basal and cut stump treatment applications are ineffective during measurable rainfall
- Basal applications that are interrupted by rainfall will not be resumed until at least fifty percent of the application zone of the target species is dry.

### ***Wind***

Wind affects the individual herbicide treatment methods on different levels:

- Basal or cut stump treatments are not affected by all but the most extreme wind conditions because they are applied in such close proximity to the ground.
- During foliar applications, excessive winds can cause damage to desirable vegetation on or off the right-of-way, therefore, to prevent any significant off target drift of herbicides, treatment crews will comply with the following restrictions:
  - During periods of winds strong enough to bend the tops of the main stems of trees on the right-of-way, the treatment crew supervisor will periodically observe the foliar application to ensure that there is no significant movement of the herbicide mixture. If the supervisor can see the mixture moving off the targets, applications will immediately stop until the wind has subsided enough to permit further applications
  - All foliar application mixtures will contain anti-drift agents to reduce the potential of herbicide drift beyond target vegetation:
    - Added to the foliar herbicide mixture per the anti-drift agent label
    - In moderate wind conditions, as per label recommendations, more anti-drift agents may be added to control significant drift, at the discretion of the contractor supervisor.

### ***Deep Snow***

Herbicides will not be applied in deep snow conditions. Deep snow creates logistical impediments for basal and cut stump treatments. Deep snow renders it impractical to

basally apply herbicides to the lower six inches of the stem of the targets or to cut target stumps below acceptable maximum height limit.

#### **D. GENERAL OPERATIONAL GUIDELINE RESTRICTIONS**

**Disposal:** The contractor is responsible for the proper disposal of all excess materials and mixtures in accordance with all applicable Federal and State laws, regulations and guidelines.

**Mixing:** Mixing will take place according to all restrictions in 333 CMR 11.00 and according to the chemical labels.

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### **6. JUSTIFICATION OF HERBICIDE APPLICATIONS**

Danvers Electric's vegetation management plan accomplishes the overall goal of continuous and reliable electrical service while placing primary importance on health, safety and environmental protection. Herbicides used on rights-of-way do not cause unreasonable adverse effects to health and the environment when used in accordance with label directions. These herbicides are regulated by the U.S. Environmental Protection Agency and approved for use in Massachusetts by the State Department of Agricultural Resources (DAR). Approved herbicides are applied by contractors that are licensed/certified by the State, and in accordance with herbicide label directions and precautions. In addition, Danvers Electric policy requires compliance with all applicable federal and state laws and regulations.

This section compares the relative benefits of herbicide control with other methods and describes why herbicides are an essential part of an effective vegetation management program.

#### ***Regulation of Stem Density and Plant Composition***

Selective herbicide application provides significant advantages in decreasing the density of target vegetation and encourages the development of lower growing, native plant communities. A long-term reduction in the number of tree stems can be achieved by selectively treating only those undesirable species capable of interfering with overhead lines and access. Herbicides are used which normally provide total control of both the above ground portion of target vegetation and the root system to prevent re-sprouting.

Compatible plant communities are developed by controlling re-growth of trees and occasionally tall-growing or invasive shrubs, and encouraging desirable species to dominate the right-of-way. Reducing undesirable plant competition for space allows low maturing shrubs, grasses, ferns, wildflowers, and herbs to spread into those areas previously occupied by target vegetation. The resulting dense low growing plant cover helps inhibit the germination and development of tall growing tree seedlings back onto the right-of-way. Compatible plant communities are thereby established which have an increased desirable species component and decreased undesirable component. In this manner, selective herbicide treatments tend to minimize the use of herbicides by generally reducing the number of target stems requiring control and potentially extending the time interval between treatments since the fastest growing, tallest maturing target species are controlled or eliminated.

### ***Wildlife Habitat***

Selective herbicide applications significantly enhance wildlife habitat through the development of a complex, relatively stable plant communities. Selective use of herbicide develops an environment and edge habitat beneficial to a wide variety of wildlife species. Large and small mammals, songbirds, raptors and a multitude of other animals are known to use these rights-of-way for food, cover and natural corridors of travel.

### ***Economics***

Economics refers to the costs of the various management techniques and the effectiveness of a particular method in controlling target species. Since effective control of target species is paramount to a successful vegetation management program, optimum control is that which is most cost effective over the long term.

A vegetation management plan based solely on cutting is becoming cost prohibitive. Hand cutting or mowing without the benefit of herbicides allows the root systems of cut-off sproutable stumps to remain alive. Dormant or adventitious buds located on the root or stumps quickly develop into sprouts, often during the same year of cutting. Instead of a single stem which existed prior to cutting, a cluster of sprouts soon becomes established. Since a developed root system is already present, the growth rate of the newly formed sprouts is much faster than the normal growth rate of the tree. In fact, dense sprouts approximately 7-10 feet tall have occurred during the first full growing season immediately following cutting.

Hand cutting or mowing program require repeated re-clearing of brush due to re-sprouts with a one-time cost of approximately 1 to 5 times that for one herbicide application. This cost multiple is compounded further in that cutting must be performed 2 to 3 times more often than selective herbicide treatments. While warranted under certain conditions (e.g. in restricted sensitive areas, when weather is not appropriate, and when woody vegetation is too tall to herbicide treat effectively), the high per acre cost of cutting, lack of sprout control, and the necessity for more frequent maintenance reduce the long term cost effectiveness of cutting without herbicide treatment.

### ***Erosion Control***

A well-established, low-growing plant cover as provided by selective herbicide use also serves to control erosion by holding soil against wind and water movement. Conversely, under certain site conditions, continued non-selective cutting without the benefit of herbicides can leave the ground bare and vulnerable to soil losses.

### ***Noise and Air Pollution***

Reliance on cutting methods would result in increased noise and air pollution as compared to herbicide control. Since crews have to return more frequently for cutting, noise pollution and exhaust from vehicles and brush cutting equipment are a normal consequence. Also, fuel consumption for equipment increases.

Regulation of Stem Density and Plant Composition, selective herbicide treatment tends to reduce the number of target stems requiring control. An integrated vegetation management program including selective control, normally results in less alteration of the existing plant community as compared to non-selective herbicide treatment or mowing. This generally

decreases the use of herbicides and minimizes the potential for adverse effects on human health and the environment.

An integrated approach to vegetation management, including the prudent use of herbicides where appropriate, provides multiple use benefits. Opportunities for wildlife, recreation, nature study and aesthetic values such as viewing plants and animals may coexist when they do not interfere with safety and the operation of the right-of-way. In addition, agriculture, residential, and industrial land uses extend onto Danvers Electric's rights-of-way.

## **7. IDENTIFICATION OF SENSITIVE AREAS AND CONTROL STRATEGIES PROPOSED**

This section defines sensitive areas encountered along rights-of-way, provides references and sources for identifying sensitive areas, outlines the method used to identify sensitive areas, and lists the control strategies proposed for sensitive areas.

The Massachusetts Department of Environmental Protection (DEP) and DAR have developed a list of recommended herbicides (See Appendix B) for use in sensitive areas within rights-of-way. These herbicides are characterized by their low: toxicity, mobility, and persistence. Danvers Electric will use only chemicals from this list when treating in sensitive areas.

Sensitive areas are defined in 333 CMR 11.04, "any areas, within rights-of-way, including but not limited to the following, in which public health, environmental or agricultural concerns warrant special protection to further minimize risks of unreasonable adverse effects:

- Within the primary recharge area of a public drinking water supply well
- Within four hundred 400 feet of any surface water used as a public water supply
- Within one hundred 100 feet of any appropriately marked private drinking water supply well
- Within one hundred 100 feet of any standing or flowing water
- Within one hundred 100 feet of any wetland
- Within one hundred 100 feet of any agricultural or habitat area."

The "no herbicide treatment zone is described as:

- Within 400 feet of a public ground water supply well
- Within 100 feet of surface water used as a public water supply
- Within 50 feet of private drinking water supply
- Within 10 feet of standing or flowing surface water
- Within 10 feet of standing water wetland
- Within 100 feet of agricultural or habituated areas

The "limited herbicide treatment zone":

- Between 400 feet and the outer boundary of a public ground water supply well primary recharge area
- Between 100 and 400 feet of surface water used as a public water supply
- Between 50 and 100 feet of a private drinking water supply
- Between 10 and 100 feet of standing or flowing surface water

- Bet ween 10 feet of water and 100 feet outside wetland boundary

**Sensitive Area Restriction Guide (333 CMR 11.04)**

<b>Sensitive Area</b>	<b>No Spray Area</b>	<b>Limited Use Area</b>	<b>Where Identified</b>
Wetlands and Water Over Wetlands	Within 10 feet  (unless provisions of 333 CMR 11.04(4)(c) are followed)	10 – 100 feet;  12 months must elapse between applications;  Selective low pressure, using foliar techniques or basal or cut-stump applications	YOP Maps and identify on site
Certified Vernal Pool	Within 10 feet	10 feet to the outer boundary of any Certified Vernal Pool Habitat;  12 months must elapse between applications;  Selective low pressure, using foliar techniques or basal or cut-stump applications	YOP Maps and identify on site
Public Ground Water Supply	Within 400 feet  (Zone I)	Zone II or IWPA (Primary Recharge Area);  24 months must elapse between applications;  Selective low pressure, using foliar techniques or basal or cut-stump applications	YOP Maps
Public Surface Water Supply	Within 100 feet of any Class A public surface water source	100 feet to the outer boundary of the Zone A;  24 months must elapse between applications;  Selective low pressure, using foliar techniques or basal or cut-stump applications	YOP Maps



Sensitive Area	No Spray Area	Limited Use Area	Where Identified
	<p>Within 10 feet of any tributary or associated surface water body located outside of the Zone A</p> <hr/> <p>Within 100 feet of any tributary or associated surface water body located within the Zone A of a Class A public surface water source</p> <hr/> <p>Within a lateral distance of 100 feet for 400 feet upstream of any Class B Drinking Water Intake</p>	<p>10 feet to the outer boundary of the Zone A;</p> <p>24 months must elapse between applications;</p> <p>Selective low pressure, using foliar techniques or basal or cut-stump applications</p> <hr/> <p>Within a lateral distance of between 100 - 200 feet for 400 feet upstream of intake;</p> <p>24 months must elapse between applications;</p> <p>Selective low pressure, using foliar techniques or basal or cut-stump applications</p>	
Private Water Supply	Within 50 feet	<p>50 – 100 feet;</p> <p>24 months must elapse between applications;</p> <p>Selective low pressure, using foliar techniques or basal or cut-stump applications</p>	In YOP well list and identify on site
Surface Waters	WITHIN 10 FEET FROM MEAN ANNUAL HIGH-WATER LINE	<p>10 feet from the mean annual high water line and the outer boundary of the Riverfront Area;</p> <p>12 months must elapse between applications;</p> <p>Selective low pressure, using foliar</p>	YOP Maps and identify on site

Sensitive Area	No Spray Area	Limited Use Area	Where Identified
		techniques or basal or cut-stump applications	
Agricultural and Inhabited Areas	N/A	0 – 100 feet  12 months must elapse between application; Selective low pressure, using foliar techniques or basal or cut-stump applications.	Identify on site
State-listed Species Habitat	No application within habitat area except in accordance with a Yearly Operational Plan approved in writing by the Division of Fisheries and Wildlife		YOP Maps

#### A. REFERENCE AND SOURCES FOR IDENTIFYING SENSITIVE AREAS

Two simple descriptions guide the complex identification of the *sensitive areas* defined in 333 CMR 11.04: *Readily identifiable in the field* and *Not readily identifiable in the field*. Readily identifiable in the field areas will be treated, identified and when appropriate, marked according to all applicable restrictions listed in 333 CMR 11.00. Not readily identifiable in the field areas will likewise be treated and marked when appropriate, but they are identified by the use of data marked on maps and collected in the YOP and notification processes before the time of treatment.

The following references and sources may identify the location of public ground water supplies, public surface water supplies, private drinking water supplies, and the general location of wetlands. Standing and flowing water, and agricultural and habitat areas are readily identified in the field.

- Massachusetts Department of Environmental Protection (DEP) Watershed Maps (scale 1:25,000) and/or digital data layers; delineates the perimeter of public watersheds and the location of public wells.
- Massachusetts DEP Wetland Restriction Maps (scales usually 1:1,000); approximately 15% of the State has been mapped; available from DEP, Division of Wetlands and Waterways.
- Municipal Maps and Records (scales vary).
- Regional Planning Agencies' 208 Water Quality Survey Wetland Maps (scales vary); not all planning agencies have copies.
- U.S. Army Corps of Engineers (COE) Wetland Maps (scales vary); prepared for specific COE projects.

- U.S. Fish and Wildlife Service National Wetlands Inventory Maps (scales 1:24,000 and 1:25,000); available from University of Massachusetts at Amherst, Cartographic Information Research Services.
- U.S. Geological Survey Topographic Maps (scale 1:24,000); identifies major wetland areas.
- Natural Resource Conservation Service Maps (scales vary); available for most communities.
- William McConnell Land Use Maps (scale 1:25,000); delineates wetlands using aerial photos; available from the University of Massachusetts at Amherst, Dept. of Forestry and Wildlife Management (caution: some forested swamps not included in wetland classification).
- DEP Wetland Restriction Maps (when available for western Massachusetts).
- Wetlands Conservancy Program or UMass color infrared (1:22,000 scale) and black and white (1:5,000 scale) orthophotographs.
- Maps of Estimated Habitat of State Listed Species published by the Division of Fisheries and Wildlife Natural Heritage and Endangered Species Program (NHESP).
- Massachusetts Department of Environmental Protection water supply maps and/or GIS mapping layers available through MassGIS
- DAR and Municipal Board of Health maps and lists of identified private wells along the right-of-way
- Correspondence, meetings and input from municipalities within the forty-five day YOP and twenty-one day municipal right-of-way notification letter review and comment periods and the 48 hour newspaper notification (under 333 CMR 11.06 & 11.07 and Chapter 85 of the Acts of 2000)
- Correspondence and meetings resulting from National Grid's abutter notification procedure
- A point person who verifies identified *sensitive areas* and any additional areas that may require special precautions
- USGS topographical maps
- Information from contractor's knowledge and records
- Information from MassGIS
- Confidential information from NHESP
- A copy of the YOP and VMP.

## **B. METHOD FOR IDENTIFYING SENSITIVE AREAS AND WETLANDS**

The following procedure will be used to identify right-of-way sensitive areas:

- The appropriate references and sources will be consulted to determine the location of public and private water supplies.
- Public water supplies will be designated on YOP maps.
- Appropriate distances will be measured from sensitive areas 'to identify no herbicide treatment zones and limited herbicide treatment zones.

- Public and private water supplies will be marked as specified in the Yearly Operational Plan. Sufficient distance will be maintained between the point person and treating crew to prevent any inadvertent application in sensitive areas. Application will cease in that area if adequate distance cannot be maintained.
- The procedure listed in this article will be used to identify wetlands when non-sensitive area herbicides are used to control vegetation.
  - The appropriate references and sources will be consulted to determine the general locations of wetlands. Precise boundaries must be determined in the field.
  - Prior to application, individual(s) trained and experienced to be considered qualified to delineate wetlands will identify wetland boundaries based upon plant indicator species.
  - Wetland boundaries will be kept in permanent Company records indicating where 50% or more of the vegetation community consists of wetland plant species.
  - A "point person" in advance of the treating crew will measure appropriate distances from wetland boundaries to identify no herbicide treatment zones and limited herbicide treatment zones. These areas will be marked as specified by the Yearly Operational Plan. Sufficient distance will be maintained between the "point person" and treating crew to prevent inadvertent application in the wetland. Application will cease in that area if adequate distance cannot be maintained.

### **C. CONTROL STRATEGIES FOR SENSITIVE AREAS**

The following vegetation control strategies shall be used for sensitive areas:

- General Provisions for Sensitive Areas and Non-Sensitive Areas
  - Herbicides will be used in accordance with this Vegetation Management Plan and the Yearly Operational Plan. These documents will be carried at all times with the applicator.
  - Herbicide treatment is made only by applicators that are appropriately certified or licensed by the DAR.
  - No foliar applications of herbicides will be used to control vegetation greater than 12 feet in height.
  - No touch-up applications are carried out except under the following conditions:
- Touch-up applications occur within twelve months of the date of approval of the YOP.
- The DAR, Conservation Commission, Board of Health, and chief elected official of the municipality are notified by registered mail at least twenty one days prior to any application.
- No more than 10% of the initially identified target vegetation on Danvers Electric's right-of-way in any municipality is treated and the total amount of herbicide applied in anyone year does not exceed the limits specified by the label or YOP.
- Sensitive Area Restrictions
  - A minimum of 24 months will elapse between herbicide applications in limited herbicide treatment zones of public ground water supplies, public surface water supplies, and private drinking water supplies.

- A minimum of 12 months will elapse between herbicide applications in limited herbicide treatment zones of surface waters, wetlands, and habitat and agricultural areas.
- No more than minimum labeled rate of herbicide appropriate to the site, pest and application method will be applied in sensitive areas.
- Herbicides recommended for sensitive areas and guidelines for their use will be followed in accordance with the DAR's list of "Approved" herbicides for sensitive areas on rights-of-way.
- All other limitations placed on sensitive areas will be followed as provided by 333 CMR 11.04.
- Wetlands Restriction based on the results of two ROW impact studies:
- An integrated Pest Management (IPM) system, also known as Integrated Vegetation Management (IVM), as described in the Vegetation Management Plan and Yearly Operational Plan is utilized in wetland areas. The IPM system must, at a minimum, place emphasis on encouraging low growth plant species to discourage unwanted vegetation and, minimizing the frequency and amount of herbicide use by only controlling specific non conifer tree species which will impact transmission line operation and access to the right of way.
- Herbicides may be applied by low volume foliar, basal, or cut stump methods in volumes not to exceed 5 gallons per application container. Foliar applications must include the use of appropriate drift reduction agents, and must not result in the off-target drift to non-target species. Basal and cut stump treatments may be conducted in those situations where the size of the vegetation, potential for off-target drift, or other considerations precludes the use of low-volume foliar applications. Cut stump and basal applications shall be restricted, when practicable, to periods when static ground water levels are low or otherwise when conditions are less susceptible to potential contamination.
- Herbicides are not applied to conifer species (pine, spruce, fir, cedar, and hemlock).
- Carriers for herbicides do not contain any of the following petroleum based products: jet fuel, kerosene or fuel oil. Carriers will be subjected to review by the DAR and DEP through 333 CMR 11.04(1.d).
- Only herbicides recommended by the DAR and the Massachusetts Department of Environmental Protection Agency through CMR 11.04(1 .d) may be used in sensitive areas.
- All other restrictions within sensitive areas remain in effect. In accordance with 333 CMR 11.04(1)(c), no person shall apply herbicides for the purpose of clearing or maintaining a right-of-way in such a manner that results in drift to any areas within 10 feet of standing or flowing water in a wetland or area within 400 feet of a public drinking water supply well; or area within 100 feet of any surface water used as a public water supply; or area within 50 feet of a private drinking water supply identified under 333 CMR 11.04(2)(c)(3).
- A minimum of twelve months must elapse between herbicide treatments. Only touch-up applications may be performed between twelve and twenty four months.
- Future Vegetation Management Plans and Yearly Operational Plans may be amended as needed to reflect the conditions of this determination.

## **D. MASSACHUSETTS ENDANGERED SPECIES ACT**

The Massachusetts Endangered Species Act, M.G.L. c. 131A, and regulations promulgated there under, 321 CMR 10.00, sets forth procedures for the listing of Endangered, Threatened, and Special Concern species native to Massachusetts, the designation of Significant Habitats for such species, and establishes rules and prohibitions regarding the activities which take species or alter their Significant Habitats.

To comply with the General Provisions, 321 CMR 10.00 Part 1, Danvers Electric will submit this VMP for review by the Division of Fisheries and Wildlife Natural Heritage and Endangered Species Program (NHESP). Danvers Electric YOP will be submitted to the NHESP for review upon request of the NHESP. Danvers Electric shall take all practicable means and measures to modify right-of-way vegetation management procedures to avoid damage to state listed species and their habitats as per guidance and information provided by the NHESP.

Provisions of 321 CMR 10.00, Part II, allow NHESP to designate Significant Habitat on any land in the Commonwealth. Danvers Electric would be notified as an owner of interest in any Significant Habitat that incorporates right-of-way. No known designations have been made to date. Vegetation management activities within Significant Habitats require an Alteration Permit from the Director of the Division of Fisheries and Wildlife, 321 CMR 10.00, Part 111. Danvers Electric will, when it becomes necessary, seek such a permit under the Coordinated Permit Review process of the Regulations, Section 10.3 8.

## **8. REMEDIAL SPILL AND EMERGENCY PLAN**

This section is offered as a general procedural guide for responding to chemical spills or related accidents (related accidents include but are not limited to fire, poisoning and vehicle accidents). National Grid contracts with independent, professional, certified herbicide applicators that are responsible for the containment, clean up and reporting of chemical spills or accidents. The following is, therefore, only a guide to the items that *shall be* available to the treatment crew in the event of a chemical spill or emergency:

### **Types of Chemical Spills that Require Action**

Chemicals include, but are not limited to the following:

- Herbicides
- Bar and Chain Oil
- Motor and Hydraulic Oil/Fluids
- Diesel Fuel
- Gasoline
- Title 3 Hazmat Materials

### **Required Spill Response Equipment**

As a minimum, the treatment crew should have available on the job site:

- YOP with Emergency Contact List
- Material Safety Data Sheets (MSDS)
- Product Label
- Product Fact Sheets (when applicable)
- Appropriate absorbent material
- Shovel

- Broom
- Flagging
- Leak Proof Container
- Heavy-duty Plastic Bags

### **Personal Contact**

In the event of **Personal Contact** with hazardous chemicals:

- Wash affected area with plenty of soap and water
- Change clothing which has absorbed hazardous chemicals
- If necessary, contact a physician
- If necessary, contact the proper emergency services
- If necessary, follow the procedures for a Major or Minor Spill as outlined below
- Avoid breathing the fumes of hazardous chemicals

### **Clean-up Procedures**

Education and attention will constantly be directed at accident and spill prevention, however, in the event of an unfortunate incident, a spill response check list, included on the following page, will be used as a guide that will be included in the YOP's.

**MAJOR SPILL - REPORTABLE SPILLS** (Spills of reportable quantity of material):

FOLLOW STEPS 1-11

**MINOR SPILL - NON-REPORTABLE SPILLS:**

FOLLOW STEPS 1-4, 7-9 and contact the Danvers Electric Spill Coordinator

**HERBICIDE SPILL CHECK LIST**

Order	Action	Done [√]
1	Use any and all PPE as directed by product label or SDS	
2	Cordon-off spill area to unauthorized people and traffic to reduce the spread and exposure of the spill	
3	Identify source of spill and apply corrective action, if possible stop or limit any additional amounts of spilled product	
4	Contain spill and confine the spread by damming or diking with soil, clay or other absorbent materials.	
5	Report spills of "reportable quantity" to the Mass. DEP and DAR:	
	Massachusetts DAR, Pesticide Bureau	(617) 626-1700
	Massachusetts Department of Environmental Protection, Division of Hazardous Waste	(617) 556-1133
6	If the spill cannot be contained or cleaned-up properly, or if there is a threat of contamination to any bodies of water, immediately contact any of the following applicable emergency response personnel:	
	Danvers Electric	(978) 774-0005
	Danvers Police	(978) 774-1213
	Cushing Jammallo Wheeler	(978) 368-6320
	Product Manufacturer(s)	
	1	
	2	
	3	
	Chemtrac	(800) 424-9300
7	Remain at the scene to provide information relative to handling and clean-up of spilled product	
8	If possible, complete the process of "soaking up" with absorbent materials	
9	Sweep or shovel contaminate products and soil into leak proof containers for proper disposal at approved location	
10	Spread activated charcoal over spill area to inactivate any residual herbicide	



## 9. IDENTIFICATION AND QUALIFICATIONS OF APPLICANT

This Vegetation Management Plan (VMP) has been developed by Danvers Electric Division with support from Mayer Tree Service Inc. to ensure compliance with Rights-of-Way Management Regulations (333 CMR 11.00) for control of nuisance and invasive vegetation within the Danvers Electric service territory.

This plan has been developed and submitted by the following individuals:

- Kelly Kobrenski, Systems Engineer at Danvers Electric
- Mark Piccarini, Director of Engineering and Operations at Danvers Electric
- Dan Mayer, President of Mayer Tree Service Inc. Dan is a Massachusetts Certified Arborist and he received an Associates of Science in Arboriculture and a Bachelor of Science in Urban Forestry from the University of Massachusetts.

Mayer Tree Service Inc.(MTS) is a vegetation management and tree care service provider for many state and municipal Department of Public Works and Municipal Gas & Light Departments. MTS has helped create greater standards of national safety compliance through their affiliation with ANSI Z133.

MTS is locally staffed with arborist's who have received college, vocational or an accreditation education. Arborists and project managers at MTS receive daily training which has assisted them to receive and maintain their Massachusetts Pesticides Applicators license and certification for Massachusetts Certified Arborist, International Society of Arboriculture, OSHA 10, Electrical Hazards Awareness & Aerial Rescue, First Aid & CPR.