



**VEGETATION MANAGEMENT PLAN  
FOR  
VERMONT ELECTRIC COOPERATIVE, INC.  
TRANSMISSION AND DISTRIBUTION SYSTEMS**

**FEBRUARY 2025  
Revision 4**

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Society of American Foresters, Certified #1175**


## VEC Vegetation Management Plan Revision History

Rev. No.	Date	Description
0	Aug. 2005	Original Plan
1	Mar. 2009	Complete review of document, revised to include: Proposed Increased Funding, 5-yr Transmission Treatment Schedule, Field Inspection Report, Member Notification Hang-Tag, Outage History Report, Lineworker Report, Discussion of Public Lands and Invasive Species and Revised Veg. Mgt. Specs.
2	Mar. 2014	Complete review of document, revised to include: Distribution Treatment Schedule to attain 12 to 8-yr cycle, Proposed Funding Discussion, Complete Revision of Vegetation Management Specifications, Addition of Utility Easement Template.
3	Dec. 2019	Complete review of plan and specifications. Revised to include: adjusted distribution maintenance cycle; review of vegetation management program assessment; updated guiding principles, climatic conditions, wetlands, wildlife, public lands, exotic invasive plants, RTE's, frequency of service interruptions, mapping, and veg. mgt. records; addition of safety discussion and invasive insect management; removed Lineworker & Outage History Reports, addition of Plan Revision History
4	Feb. 2025	Complete review of plan and specifications. Revised to include: adjusted distribution maintenance cycle; updated introduction, maintenance cycle, guiding principles, special elements of vegetation management, inspection and monitoring standards, danger tree take downs, mowing, and mapping; addition of Environmental Guidance Manual; revision of Vegetation Management Specifications.

**APPROVAL**

2/28/2025

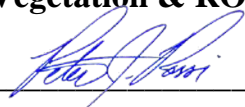
**Date**



**Signature**

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**Date**

February 28, 2025

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## **INTRODUCTION**

Vermont Electric Cooperative, Inc. (VEC), a member-owned electric distribution cooperative, is the second largest electric utility in the state of Vermont in terms of meter count and land area covered. VEC serves approximately 33,000 households and businesses in seventy-five towns in northern Vermont. With a predominantly rural residential customer base, VEC also serves agricultural, commercial, industrial and limited urban residential members. The service area encompasses approximately 2,800 miles of electric distribution lines (2,400 miles of overhead) and 150 miles of overhead transmission lines. VEC's mission is to provide energy and other appropriate services to its members.

A twelve-member Board of Directors is elected by members to represent geographically-based districts. The board sets policy and provides general direction for VEC's operations, which are overseen by the Chief Executive Officer (CEO). The company is structured with many specialized technical and service departments designed to support one another, such as Power Supply, Member Service, Metering, Human Resources, Finance, Information Technologies, Service Operations, Substations, Line Department, System Operations, Engineering, and Vegetation and ROW Management.

## **LOCATION**

Headquartered in Johnson, Vermont, with additional Service Centers in Newport, Grand Isle and Richford, VEC's service area encompasses the majority of Northern Vermont. VEC's territory stretches across Caledonia, Chittenden, Essex, Franklin, Grand Isle, Lamoille and Orleans Counties. (See Appendix A - VEC Service Territory Map)

## **OWNERSHIP HISTORY**

VEC was founded in 1938 in Eden Mills, Vermont to serve residents in parts of rural Lamoille County who had been bypassed by investor-owned utilities. Initially, VEC serviced 155 homes in Eden and Lowell. Before long, neighboring farms, homes and businesses were added and membership grew to 2,440 by 1950. Early service extensions continued into Chittenden and Franklin Counties. From the 1940's until the 1960's, the service territory continued to expand in Northern Vermont through the construction of new lines and the acquisition of small private companies. In 1969, VEC expanded into Southern Vermont through a merger with Halifax Electric Cooperative (this service territory was subsequently sold to Central Vermont Public Service in 2006). In 1970, VEC acquired the International Electric Company serving the Derby Line area located along the Canadian border. In April of 2004, VEC completed the acquisition of Citizens Communication Company's Vermont Electric Division (hereinafter referred to as Citizens), more than doubling the membership-base.

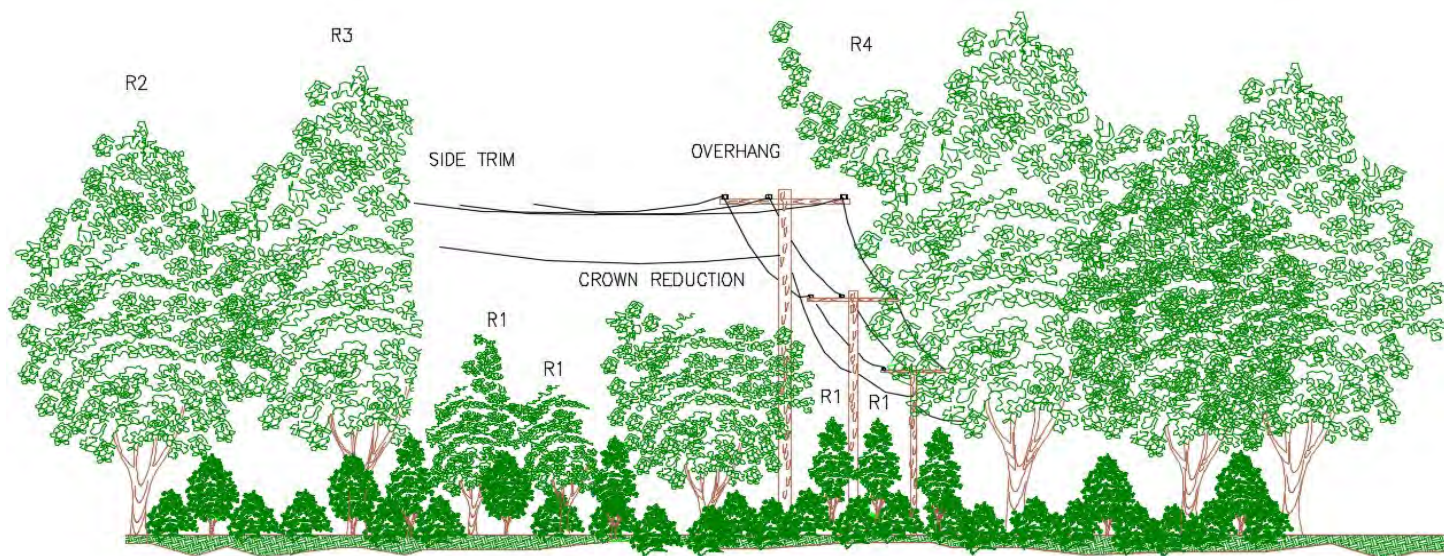
## **MAINTENANCE CYCLE**

VEC has maintained a target vegetation maintenance cycle of five years on transmission rights-of-way and eight-years on distribution rights-of-way (See Appendix B & C – VEC Transmission & Distribution System Vegetation Management Treatment Schedules). Following a comprehensive review and assessment of its Vegetation Management Program by a third party in 2018, VEC developed an alternative distribution treatment schedule to attain a more aggressive (shorter) overall cycle. The goal of a shorter cycle was in response to data collected during the assessment which

identified maintenance workload by classifying five different types of work that include:

- **Brush:** 0-4 inches DBH or Diameter at Breast Height, approximately four feet above the ground. This is the most cost-effective removal type, not difficult to mitigate, and less chance of an emotional attachment for the member.
- **Side Trim:** Vegetation reaching towards the line from the side.
- **Overhang:** Vegetation reaching across the top of the line, above it up to 15 feet away vertically. This is the most expensive kind of trim and often an outage source).
- **Crown Reduction:** Vegetation directly under the line but not suitable to remove.
- **Tree Removal:** Vegetation/trees in ranges of four inches to 32+ inches DBH and are often expensive and the source of outages depending on size, condition and/or positioning. R1 and R2 classes are generally most cost effective.
  - R1 = 4" - 8" DBH
  - R2 = 8" - 12" DBH
  - R3 = 12" - 16" DBH
  - R4 = 16" - 20" DBH

The different workloads are demonstrated in Figure 1 below:



*Figure 1: Vegetation Management Workloads*

At the time of the assessment, VEC's workload composition had a very high loading of overhang (24.4 percent) and significant loading of tree removal (19.9 percent). Excessive amounts in both areas tend to occur when the maintenance cycle is longer than optimum.

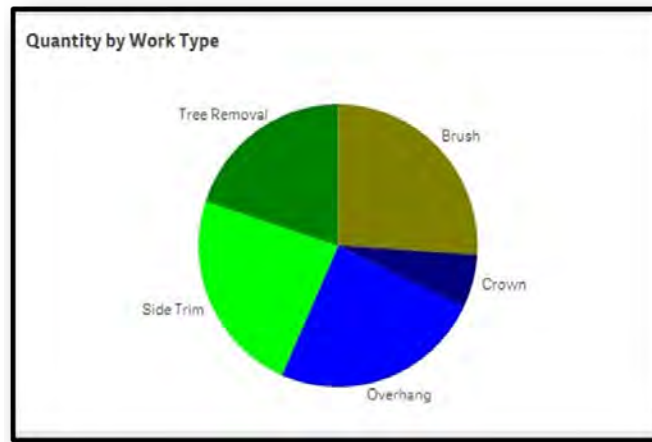


Figure 2: Quantity by Work Type

Workload Type	Current System	Best Practice	Evaluation
Crown Reduction	6.1%	Less than 7%	Best Practice
Overhang	24.4%	Less than 2%	Critical Area **
Tree Removals	19.9%	Less than 15%	Critical Area **

Figure 3: Workload Breakdown

As trees grow, they jump through the classes such as brush to R1, R2 to crown reduction or side trim to overhang. Class jumping drives costs. For example, overhang that was once a side trim will more than double the cost to mitigate. Growth within minimum approach distance or in contact with electric lines is exponentially more expensive and hazardous to remove. By understanding and strategically addressing workload types to mitigate class jumping, VEC can optimize vegetation management activities and maintain reliability standards within existing budget constraints.

Despite plans to shorten the distribution cycle to 6-7 years by 2023, budgetary constraints and potential rate impacts have led VEC to maintain an 8-year target for distribution rights-of-way. While a shorter cycle could potentially improve reliability and cost-effectiveness in the long term, VEC has chosen to prioritize rate stability for its members.

This decision is based on several factors. Moving to a more aggressive cycle would result in significant upfront costs and rate impacts, making it financially challenging for VEC members. Additionally, VEC has been successful in meeting reliability standards since implementing its current plan, demonstrating the effectiveness of the existing approach. The target 8-year cycle allows for gradual improvements in reliability metrics while maintaining greater financial stability, striking a balance between maintaining system reliability and managing costs effectively.

Although the distribution maintenance cycle has not been shortened, VEC continues to seek opportunities to improve operational effectiveness by conducting comprehensive program reviews and assessments, utilizing data-driven decision-making to optimize treatment schedules, focusing on worst-performing circuits, considering factors such as construction type and historical data, and creating scheduling units on entire feeders in a maintenance cycle, rather than fragmenting efforts on a single circuit over multiple years.

VEC's 2025 Vegetation Management Program budget is \$4,806,793 (considering net contributions by Consolidated Communications Company). Vegetation Management funding will continue to be adjusted appropriately as long-range plans are implemented to attain and maintain target cycles on transmission and distribution systems, while balancing rate impacts with reliability objectives.

### **STATEMENT OF PURPOSE**

VEC has a responsibility to maintain vegetation so as not to threaten the safety and integrity of their overhead electric facilities. It is the intent of VEC to develop and implement a long-term, comprehensive vegetation management program designed to meet the goals and objectives of the Cooperative, as well as the requirements of the Public Utility Commission, as they both relate to electric utility right-of-way maintenance.

### **GOALS AND OBJECTIVES**

The primary goal of the vegetation management program is to develop an environment-friendly approach to vegetation management designed to improve reliability, provide for safe and efficient operation and maintenance of distribution and transmission systems, maximize cost-effectiveness and enhance member satisfaction. Key indicators of success include the reduction of vegetation-related safety hazards and service interruptions, as well as a reduction in tree related service orders.

Specific objectives include:

- minimization of safety hazards for landowners, workers and users of land along and/or adjacent to VEC's utility rights-of-way.
- protection of all material and equipment utilized to transmit and distribute power
- removal and/or control of undesirable species
- retention, encouragement and maintenance of healthy low growing vegetation compatible with utility lines
- ongoing collection of data on vegetation quantities and characteristics
- utilization of a professionally trained work force
- minimization of soil erosion
- minimization of impacts to wetlands
- maintenance and promotion of favorable wildlife populations
- consideration of aesthetic impacts
- sensitivity to the concerns of property owners
- promotion of conditions compatible with landowner and other acceptable joint uses
- consideration of invasive exotic vegetation
- minimization of impacts to rare, threatened and endangered species

- mitigation response to invasive insects/disease

VEC is committed to developing and implementing a financially and ecologically-sustainable vegetation management program and will continue to pursue and evaluate new technologies and techniques to facilitate meeting the above goals and objectives.

## GUIDING PRINCIPLES

VEC's vegetation management program is based on the following basic principles, as published in the National Rural Electric Cooperative Association (NRECA) Cooperative Research Network's (CRN) Vegetation Management Manual.

*1. Cost effective vegetation management requires a long-term, consistent approach.*

VEC is committed to providing consistent vegetation management personnel and funding. Vegetation management is no longer simply incorporated into other line maintenance activities and/or overseen by line department personnel with competing responsibilities. VEC's vegetation management program is administered by professional vegetation management staff with a dedicated annual budget.

*2. Proactive vegetation management operations are more efficient and effective than reactive operations.*

An International Society of Arboriculture (ISA) study, *The Economic Impacts of Deferring Electric Utility Tree Maintenance*,<sup>1</sup> found that deferring maintenance beyond an optimum cycle length causes a marked increase in pruning costs per tree. The cost jump is a result of the increased number and size of branches and trees that must be removed, handled, and disposed of, and the increased difficulty associated with safely removing branches and trees that have grown into, through, or beyond the conductors. The implication is that pruning or removing trees whose maintenance has been deferred reduces the effectiveness of maintenance dollars, which results in the deferral of maintenance elsewhere on the system, thus compounding the problem.<sup>2</sup>

VEC's Vegetation Management Program staff continually works to improve management processes used to assess and prioritize vegetation maintenance needs in order to facilitate a preventative maintenance strategy. While there will always be a need for some level of unplanned vegetation maintenance to address danger tree removals and hot spots, separate contracts are awarded for this type of work in an effort to limit the impact on scheduled/planned maintenance activities and allow for completing routine maintenance systematically and on the desired cycle.

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<sup>1</sup> Browning, D.M. and H.V. Wiant "The Economic Impacts of Deferring Electric Utility Tree Maintenance," *Journal of Arboriculture*, Vol. 23, No. 3, May 1997; *Arborist News*, Vol. 6, No. 2, April 1997; and *Utility Arborist Association Quarterly*, Vol. 5, No. 3, Spring 1997.

<sup>2</sup> Browning, D.M. "The High Cost of Deferred Maintenance," *Vegetation Management Manual*, National Rural Electric Cooperative Association (NRECA), Cooperative Research Network (CRN), 2003.

*3. Proper arboricultural practices are essential to minimizing costs and maximizing the effectiveness of tree maintenance operations.*

VEC's vegetation maintenance activities are conducted by Qualified Line Clearance Contractors who are bound by contract to adhere to the American National Standards Institute (ANSI) Std. A300, "Tree, Shrub, and Other Woody Plant Maintenance-Standard Practices", and other established and widely accepted pruning guidelines such as those presented in The Society of Arboriculture's "Best Management Practices Utility Pruning of Trees" and/or Dr. Alex Shigo's booklet titled "Pruning Trees Near Electric Utility Lines", as well as "VEC's Specifications for Vegetation Management on Transmission and Distribution Systems" (See Appendix D – VEC Vegetation Management Specifications). VEC's Vegetation Management Program staff conducts routine maintenance inspections and contract administration to ensure that maintenance activities are conducted in accordance with established standards (See Appendix E – VEC Vegetation Management Field Inspection Report).

*4. Programs based on Integrated Vegetation Management (IVM) techniques are both the most efficient and environmentally sound.*

Following a thorough review and evaluation of the benefits of an Integrated Vegetation Management (IVM) strategy, VEC introduced the selective use of herbicides to control vegetation along approximately 20 miles of transmission line and 30 miles of distribution line in 2009. Since 2009, herbicide application has been expanded, where appropriate, on the remainder of VEC's transmission and distribution systems. Transmission lines are scheduled for both chemical and mechanical control in the same year. Distribution lines which are treated with mechanical control methods are scheduled for low-volume, selective foliar herbicide application the following year.

*5. Proper record keeping and productivity measurement are critical to long-term success.*

VEC's Vegetation Management Program staff has worked closely with Information Technology (IT) staff to develop a comprehensive record-keeping and reporting system using Clearion Vegetation Management software to create, share, track, plan, schedule and audit vegetation maintenance work within a GIS database.

This software has and will continue to facilitate a significant gain in efficiencies within the vegetation management program and provide continuous, long-term information to assist in justification of management decisions, annual forecasting and budgeting, prioritizing and scheduling workloads, monitoring crew productivity and determining the most cost-effective vegetation maintenance methods.

*6. Professional supervision and sufficient technical expertise are essential to ensuring that a program is successful and cost-effective.*

Vegetation maintenance activities being conducted on VEC's system are implemented and/or overseen by individuals with International Society of Arboriculture (ISA) Certification or equivalent documented training.

VEC's Vegetation Management Program staff includes a SAF (Society of American Foresters) Certified Forester and two ISA (International Society of Arboriculture) Certified Arborists. VEC's Vegetation & ROW Management Program Manager also holds a Professional Forester License in the States of Vermont and New Hampshire.

## **HISTORY OF RIGHT-OF-WAY MANAGEMENT**

The history of VEC's right-of-way management is related to land use, electric power demand and previous electric utility right-of-way maintenance policies. This information was gathered based on review of records and interviews with employees.

In the early years of VEC, much of Vermont was pastured or open land, where placement of off-road utility lines did not represent any significant right-of-way maintenance obstacles. This was especially true near the many small farming communities where power was needed. The vegetation maintenance needs of these early lines were minimal, with the majority of cutting being focused on hedgerows and scattered tree growth that pastured animals found undesirable. Over time, as land use patterns changed, much of the pasture land was left idle and reverted back to woodland, resulting in a greater need for right-of-way maintenance.

Beginning in the late 1940's, maintenance activities included both hand-cutting and chemical treatments. Although this work was commonly contracted out, there was a period of time during the 1970's when VEC employed in-house tree trimming and herbicide spray crews. Before long, it became too expensive to maintain these crews through the winter and they were replaced with outside contractors. As a result of some individuals wanting to avoid the use of herbicides on their property, there were also brush control agreements in place to allow some lines to be owner-maintained, but in many cases, these lines were never actually maintained by the owners.

As chemical treatments became less popular with the public, the use of herbicides ended in the late 1980's. Since that time, while limited vegetation maintenance is conducted by VEC linemen, the majority of right-of-way maintenance is done by professionally trained, qualified line clearance contractors.

With the exception of a few years in the mid to late 1980's, when funding was not available, VEC has had an active right-of-way maintenance program since the 1940's. In the mid to late 1970's, the use of coated wire became more common, resulting in a decrease in required clearances, but continued routine right-of-way maintenance. Historically, much of the maintenance was on an as-needed basis and there was not always an established cycle. In recent years, the target was a 10-year cycle. The program was administered by the Line Superintendent, with the help of the Line Worker Group Leaders in the various districts. Maintenance activities were tracked on a set of paper maps, and staking sheets were prepared identifying pole numbers, span lengths and footage cleared.

In general, the rights-of-way for the former VEC stand-alone system have been routinely maintained. While there are definitely lines in need of maintenance, the majority of the system is in adequate to good condition.

While the former Citizens' rights-of-way are also located in rural areas that are most commonly old agricultural land, many of these lines are located on roadsides. These rights-of-way include fewer long off-road spans, but are often still very heavily wooded with roadside forests and hedgerows.



Unlike the VEC rights-of-way, there is no known history of the use of herbicides on these lines and the maintenance program did not follow an established maintenance cycle until more recent years, when an approximate 7-year cycle was the target for the transmission lines. The transmission system was identified as a top priority and beginning in the early 1980's, the system was viewed from the air via helicopter at least once a year to identify mechanical faults and trimming needs, with additional flights following large storms. Key distribution lines, especially off-road systems, were also viewed during these flights. In 1999, Central Vermont Public Service's (CVPS) Forestry Department was hired to implement vegetation management on the Citizens' transmission rights-of-way. This maintenance included both hand cutting and mowing activities and took place annually from 1999 to 2002. While records for this work have been obtained from CVPS, no vegetation management records were passed along in the transaction from Citizens to VEC. Most of Citizens transmission lines were sold to VELCO prior to the sale of the remainder of its system to VEC.

Many of the Citizens' distribution lines were converted to coated wire (or tree wire), and vegetation maintenance was conducted on an as needed basis. Some degree of tree maintenance took place each year (with the exception of a few years in the late 70's to early 80's when funding was not available) in locations identified by the Linemen District Representatives as being trouble spots. Similar to VEC, this work was predominantly conducted by contracted tree services, with limited tree maintenance being done by the line workers.

### **RIGHT-OF-WAY OWNERSHIP/EASEMENTS**

Lands within the VEC rights-of-way are either owned by private individuals or are in State or Federal ownership. A perpetual easement is the most common type of utility right-of-way document. While such documents exist for all rights-of-way within the former VEC standalone system, they do not appear to exist for all former Citizens' rights-of-way.

Most former VEC easements provide for cutting and trimming of all trees and shrubbery to the extent necessary as determined by VEC to keep the utility lines clear, including removal of all dead, weak, leaning or dangerous trees which are tall enough to strike the wire in the event such trees should fall. Some of the easements also have more specific details hand written, regarding the allowed activities within the right-of-way.

The easements also include restrictions on what landowners can do within the right-of-way. They are not permitted to erect structures of any kind within 25 feet of the pole line, to place obstructions of any kind within the right-of-way or to change the grade of the right-of-way without the prior written consent of VEC.

The physical descriptions of the former VEC rights-of-way vary. Older easements do not have any specified width, while some specify a 30-foot width and most recently, a 50-foot width. The widest easement to date is 50 feet on both transmission and distribution lines.

Where they exist, older former Citizens' easements provide for cutting down or trimming any trees necessary in the opinion of the Company to give proper clearance for the utility line. Similar to the older former VEC easements, the width of the right-of-way is not always specified for distribution lines. More recent former Citizens' distribution line easements provide for

clearing and keeping cleared a strip along the utility line not exceeding 20 feet in width. Restrictions in these easements prohibit land owners from erecting buildings or any other structures; planting trees or bushes; and changing grade, fill or excavation if, in the judgment of the Company, such activities might interfere with the proper operation and maintenance of the utility lines. The following uses are forbidden within the right-of-way: swimming pools, tennis courts, any building or other structure, unregistered vehicle parking or storage of any materials or equipment. Former Citizens' transmission line easements are generally 100 feet in width.

VEC's primary strategy for addressing the lack of recorded easements in some areas is to require that line clearance contractors conduct advanced notification of vegetation maintenance activities. Detailed member notifications have been developed to clearly explain scheduled vegetation maintenance activities and provide contact information for members with questions and/or concerns. Acceptable methods of notification include personal contact, phone, email, mail or hang-tag (See Appendix D, Exhibit 8) – VEC Member Notification Hang Tags)

Standard easements for new VEC rights-of-way are a minimum of 50 feet in width for distribution lines and 100 feet in width for transmission lines (See Appendix F- VEC Overhead Utility Easement Template).

## **SURROUNDING LAND USE PATTERNS**

Land use patterns are varied among VEC's rights-of-way. Residential land use covers a wide range of situations, including individual homes on large acreages, developments and condominiums, small villages and large towns. Many VEC rights-of-way pass through agricultural land including cash crops such as alfalfa, corn, potatoes, soy beans, oats, pumpkins, apples, strawberries, blueberries and grapes, as well as dairy, beef cattle, sheep, goat, horse, veal and poultry farms. Recreational uses along VEC rights-of-way are very prevalent and include hunting, fishing, skiing, snow shoeing, bird watching, snowmobiling, horse-back riding, hiking, berry picking and camping. Industrial land use is located near the larger towns and includes the forest products industry, electronics, military equipment manufacturing, grain processing, tool manufacturing and many other Vermont manufacturing and processing industries. The wooded areas among VEC rights-of-way are frequently actively managed forests ranging from backyard woodlots to Christmas tree farms to timber investment properties to sugar bushes utilized for maple syrup production.

While VEC's transmission and distribution systems pass through areas utilized for many varied land uses, they are all clearly connected to Vermont's rural way of life. It is the land use patterns of VEC's members that serve as the foundation for Vermont's rural economy and VEC is privileged to provide these members reliable electric service. Through the use of proper vegetation management techniques, VEC will continue to promote conditions compatible with Vermont's land use patterns.

## **PHYSICAL DESCRIPTION OF VEC RIGHTS-OF-WAY**

VEC transmission and distribution lines traverse many types of landforms, which are predominantly located in rural wooded areas. While much of the former Citizens' lines are located along roadsides, a large portion of the former VEC lines are off-road.

VEC rights-of-way pass over and are located in close proximity to many mountains, lakes, ponds and rivers across Vermont. The most noteworthy mountains are Mount Mansfield, Jay Peak and Brousseau Mountain. Significant lakes in close proximity include Lake Champlain, Lake Memphramagog, Lake Carmi, Fairfield Pond, Metcalf Pond, Lake Seymour, Island Pond, Echo Lake, Norton Pond, Big Averill Lake, Maidstone Lake, Lake Salem, Lake Iroquois and Derby Pond. Major rivers near VEC rights-of-way include the Missisquoi, Black, Lamoille, Coaticook and Winooski Rivers.

VEC's rights-of-way cross varied terrain, from low, flat farmland used for crops or pasture to gentle rolling hills to steep, rugged mountainous terrain. Side slopes and hidden gullies are commonly found in VEC rights-of-way, as are frequent rock outcroppings and areas of ledge. Dense ferns, berry bushes, tree sprouts and advanced regeneration often conceal holes, rocks and ditches. Traversing the rights-of-way can be a difficult and hazardous task.

### **VEGETATION/FOREST TYPES**

A variety of vegetation is present along VEC rights-of-way, ranging from open agricultural land (growing various crops), low-growing shrubs and brush, as well as fully grown trees. Tree growth rates vary widely and depend on a number of factors, such as aspect of slope, moisture, sunlight, competition, seed source and soil makeup.

Groups of tree species present in any given location are generally related to the elevation, site and climate of the specific area. The most common forest types in wooded areas along VEC rights-of-way are Northern hardwoods, Spruce-fir, Eastern hemlock-Yellow birch and White pine. Components of individual species within these types vary from location to location and several of these types often overlap, resulting in what is often referred to as a mixed wood forest.

In addition to these forest cover types, there are also individual stands of Northern white cedar, Red pine, Norway spruce and White spruce along some VEC rights-of-way. The cedar often occurs on the lower portions of abandoned pasture and the Red pine and Spruce are typically plantations. Less common species often found in residential areas include Willow and Lombardi Poplar.

Northern hardwoods and hardwood dominated mixed woods are most commonly present on low to mid slopes. These are the predominant forest cover types that the VEC rights-of-way cross through. Primary species are Sugar Maple, American Beech and Yellow birch. Associated species include Red maple, White birch, Black cherry, White ash, Eastern hophornbeam, Red Spruce and Balsam fir. Lesser components of American Basswood, Butternut, Red Oak, Quaking aspen, Balsam Poplar, American elm, White Pine and Eastern hemlock are also present in some locations (site dependent). The trees in these forest types are generally moderate to fast growing and can be quite difficult to control.

Areas which have experienced significant soil disturbance and/or increase in sunlight will generally regenerate with tree species that are shade intolerant and thrive in the sunlight. These are known as pioneer species and are aggressive and fast growing, including species such as Pin Cherry, Grey birch, White Birch and Poplar. These early successional species tend to be shorter lived and will eventually be replaced by the Beech- Birch- Maple forest described above.

Spruce-fir forests occur on the well-drained to excessively well drained upper mountain slopes characterized by steepness, rockiness and shallow soils, as well as on the imperfectly to moderately drained flats, low ridges and knolls, continuing to the base of the lower mountain slopes. Primary species include Red Spruce, Balsam Fir, Yellow Birch, Red Maple and Eastern hemlock. Lesser components of Northern white cedar, Tamarack, White birch, American beech and several other Northern hardwoods can also be found in this forest type. While the softwood trees in these forests may not reach the lines as quickly as the hardwood, these forests are often heavily stocked with trees growing very tightly together, creating difficult trimming conditions.

Eastern Hemlock is often found in conjunction with Yellow birch, predominately in well-drained areas along benches and flats and among frequent rock outcroppings, on what would be considered mixed wood sites. Pockets of White pine are scattered throughout the VEC rights-of-way, predominantly found on sandy, well-drained soils. In heavy seed years, these species aggressively invade VEC's rights of way. The trees in these forest types are tall growing, easily reaching heights of over 50-100+ feet, and they frequently represent potential danger to utility lines.

### **UNDESIRABLE VERSUS DESIRABLE VEGETATION**

Following any initial disturbance, there is an orderly development of different types of vegetation over time on land that is left idle. Annual weeds such as ragweed and pigweed are generally the first to appear, followed by grass-like plants and biennial or perennial herbaceous broadleaf weeds. Next, shrub-like plants become established and eventually trees. While the low growing vegetation found during the earlier stages of development are most desirable in utility rights-of-way, regardless of which stage of vegetation development a right-of-way is in, it will eventually develop into a forest, if it is not maintained.

Essentially all of the commercial tree species found in the forest types identified within VEC rights-of-way are classified as incompatible with electric utility lines (See Appendix G – Incompatible Vegetation List). They are generally moderate to fast growing species, reaching mature heights in excess of 15 feet tall. Immature trees (less than 4 inches in diameter at breast height and with the capability to exceed 15 feet in height) are defined as incompatible target brush for the purposes of this plan.

Although immature target brush does not pose an immediate threat to system reliability or safety, allowing it to mature can increase maintenance costs and impede or prevent accessibility to electric facilities. Aggressive incompatible target brush species control is crucial in limiting VEC's future vegetation control workload and cost increases.

While individual healthy trees existing within rights-of-way may be pruned and maintained in order to avoid contact with conductors, the majority will be eliminated when economically feasible, and planting of these tree species within the rights-of-way is strongly discouraged.

The most common reason for pruning an incompatible tree rather than removing it is landowner request. This may be because of the aesthetic value, or because of its value as a shade tree or as

a screen from a highway. Apple trees, due to their value as wildlife feed, will be pruned for maximum clearance without jeopardizing their survival and removed only when necessary.

Not all vegetation found in VEC rights-of-way is undesirable. There are many low-growing plants and shrubs such as lilac, serviceberry, dogwood, hawthorns, honeysuckle, etc., which can be compatible with utility lines. In wetlands and boggy areas, species such as speckled alder and pussy willows, as well as cattails, ferns and many other low growing plants and shrubs are quite compatible (See Appendix H – Compatible Vegetation List).

Retaining or encouraging the growth of low-growing desirable vegetation will help to suppress the growth and density of less desirable species. While shrub growth will not eliminate the encroachment of tree species, it will compete with the other species for nutrients, light, and space.

Significant shrub growth shall not be retained in the area immediately surrounding pole locations and the centerline under the conductors. These areas should be kept free of obstruction to facilitate access to the poles and create an open climbing space. This is especially important for any plant species bearing briars or thorns, as they could cause a puncture hole in a lineman's rubber gloves, thereby creating the risk of electric shock.

## **SOILS**

Vermont has a wide variety of soils most of which create desirable conditions for tree growth. The parent materials range from hard crystalline rocks to lake-plain sands and clays. The glaciers caused a mix of solid with sandstone, limestone, clays and shales. Podzolic soils tend to dominate our landscape. Hydromorphic soils are also found in Vermont. In the higher elevations we find rough stony land with shallow podzols.

The soils that are dominant in the northeastern portion of Vermont are loams and clay loams that came from glacial drift. Stony and gravelly loams, also from glacial drift, are found prevalent in the Connecticut and Champlain valleys. The latter soils have lower bulk densities and higher permeability rates than clay and silt clay soils.

In addition to site conditions for tree species, soil structure is important in relation to field stabilization or erosion control. Less stable soils may require extra care and maintenance such as the installation of water bars and seeding in places where the soil is disturbed by vegetation maintenance activities.

Although soils in the state are often acid and fairly low in phosphorous, they are generally very suitable for vegetative growth. In general, vegetation requires low nutrient levels for good growth conditions.<sup>3</sup>

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<sup>3</sup> Dickinson, D. "Central Vermont Public Service Corporation (CVPS) Transmission Right-of-Way Management Plan", 2003.

VEC's Vegetation Management Program staff review and evaluate specific site conditions as they relate to soil stability, soil productivity and tree growth when determining the appropriate vegetation maintenance activities in any given area.

### **CLIMATIC CONDITIONS**

Throughout the year, Vermont's climate is extremely variable. The wet spring season, combined with productive soils, often results in rapid tree and shrub growth.

Vermont is near the middle of the North Temperate Zone and the prevailing winds are from a westerly direction. Climate in Vermont can be described as changeable and, on some occasions, violent. Extremes of temperatures of both heat and cold are common. Temperatures can range from 100°F above to 42°F below zero.

Ice storms and heavy wet snows are not an uncommon condition in Vermont. When rain falls from a warm upper layer into a shallow freezing cold area near the earth, ice is formed on exposed objects. Ice on the side of a dense, unbroken evergreen, 50 feet high with an average crown width of 20 feet, weighs about 5 tons, clearly representing a significant danger to utility lines.

Wind, in combination with rain, wet snow and/or ice, can have devastating results. Heavy rains, especially in the spring or late summer, have the effect of softening up the typical Vermont soils, thus increasing the likelihood of trees blowing over in the wind.

Severe cold can also cause problems. This is especially true when the drop in temperatures is sudden. Water in branch seams, expanding when it turns to ice, can break limbs off. Rapid drops in temperature can cause other mechanical damage to bark resulting in rot and eventual breakage.<sup>4</sup>

A weather anomaly promoting fast growth rates results in the majority of the slow growing vegetation on a system becoming medium growth, the majority of the medium growth becoming fast growth, and most of the fast growth putting on a lot more than the average three feet per year.

The longer the time between maintenance cycles, the more susceptible any system is to the unpredictable fluctuations in weather. Shorter cycles have much less susceptibility to weather impacts and recovery is much faster.

### **SPECIAL ELEMENTS OF VEGETATION MANAGEMENT**

Various special elements must be considered in the development and implementation of a vegetation management plan. These elements include safety, wetlands, wildlife, aesthetics, erosion control, fire protection, public lands, invasive exotic plant species, invasive insect management, and rare, threatened or endangered species. Several of these elements are addressed in greater detail in VEC's comprehensive guide to environmental regulations, permits,

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<sup>4</sup> Dickinson, D. "Central Vermont Public Service Corporation (CVPS) Transmission Right-of-Way Management Plan", 2003.

and best management practices (See Appendix I – VEC Environmental Guidance Manual). What follows is a description of management considerations in each of these areas.

### ***Safety***

Safety is the highest priority in all aspects of VEC's operation of its electric transmission and distribution system, including the execution of this Vegetation Management Plan. When vegetation grows in close proximity to, or comes into contact with the conductors (wires), there is the potential for electrical arcing. This can cause injury, electrocution, wide spread power outages, and potential fires. Resulting safety concerns include, but are not limited to security, heating of homes, as well as loss of electricity to hospitals, schools, traffic lights, etc. Minimum clearances between vegetation and conductors must be maintained to mitigate these safety concerns.

Safety practices and protocols are for the benefit of VEC personnel, vegetation management contractors, line contractors, VEC members, landowners, neighbors, occupants, workers and users of land or adjacent land to the rights-of-way.

Vegetation management personnel (VEC and Contractors) are encouraged and expected to use the S.T.A.R. (Stop, Think, Act, Review) protocol at all times on VEC's system. This means anyone, at any level can and should stop a job (without any fear of repercussions) if they have questions or concerns, to think through and discuss, as a crew, how the work is being done and determine how to proceed. This not only allows time to slow down and reconsider a given approach, but also promotes involving the entire crew in safety discussions, considering possible outcomes and taking responsibility for keeping each other safe.

Safety incidents involving contact with the electric facilities are followed by a mandatory 3-day safety stand-down of all involved crew members, during which a thorough incident review is conducted and an Incident Report is submitted to VEC's Safety Department citing root cause, contributing factors, what went right, what went wrong, what could have been done differently and corrective actions taken. A redacted copy of the report is distributed to the entire line clearance workforce to share lessons learned.

VEC sponsors, organizes and hosts an Annual Line Clearance Contractor Safety Training. Attendance is mandatory for all line clearance personnel working on the system. Training topics focus on Electrical Hazard Awareness, ANSI Z133 Safety Requirements, Emergency Response Procedures, Near Miss Reviews, and other relevant safety protocol and procedures.

### ***Wetlands***

VEC has incorporated the wetlands data layer available through the Vermont Agency of Natural Resources (ANR) into their system map and strives to minimize the impacts of vegetation maintenance activities to wetlands while meeting the goals and objectives of the vegetation management program.

Wetlands in the State of Vermont are regulated by the Vermont Water Resource Board. This board has developed and issued the Vermont Wetlands Rules, by which activities in wetlands are guided. Under the Vermont Wetland Rules, installation, repair, and maintenance of overhead

utility lines are allowed uses and the best management practices developed for these allowed uses serve as a guide for VEC's vegetation management activities within wetlands (See Appendix J – Section 6.08 Best Management Practices for Repair and Maintenance of Overhead Utilities & Appendix K - Section 6.22 Best Management Practices for Installation of New Overhead Utility Lines).

Vegetation management activities within wetlands are typically limited due to the slower growth of most trees in wet areas and the fact that many plant species which tend to grow in wetlands, such as speckled alder and pussy willows, as well as cattails, ferns and many other low growing plants and shrubs are generally compatible with electric utility lines. It is generally possible to maintain power line corridors across wetlands with minimal impact. When limited cutting and/or pruning activities are conducted within wetlands, hand cutting is the primary method of mechanical vegetation control. Brush will not be placed in areas of open water, but may be lopped and scattered, outside of the wire zone, as opposed to windrowed, where densities allow.

Low growing herbaceous plants and shrubs are preserved and encouraged within both wetlands and riparian areas to help support their functions such as erosion control, shoreline stability and shading to help protect from rising water temperatures.

Where tall growing species occur within wetlands, care is taken to minimize impact and leave the area as undisturbed as possible. When necessary, use of heavy equipment and tracked vehicles in wetlands will take place with snow pack and cold temperatures, during very dry conditions, and/or with the use of mats to minimize disturbance. Access will be limited to upland areas and/or existing maintained roads, to the extent practicable and all efforts will be made to avoid/minimize rutting, erosion, and/or compaction. Waste disposal and equipment refueling will be limited to areas outside the wetland and at least 50 feet from wetlands or surface waters. Chemical control will be implemented in accordance with a permit granted by the VT Agency of Agriculture.

### ***Wildlife***

VEC recognizes that a properly maintained utility right-of-way promotes bio-diversity which results in favorable habitat conditions for many wildlife species.

Early successional habitats, such as those created by most accepted vegetation management techniques, are critical in the maintenance of healthy populations of birds and other wildlife species dependent upon such areas. Retention of compatible low-growing vegetation within VEC rights-of-way provides beneficial habitat for wildlife. A right-of-way covered with a diverse shrub growth has been shown to support a greater and more diverse population of songbirds than a clear-cut right-of-way. Maintaining and encouraging a diverse plant and shrub community along VEC rights-of-way will provide beneficial food sources and cover, as well as nesting and brooding habitat for ground nesting birds. Mechanical vegetation maintenance techniques will be avoided during bird nesting season.

Covering thousands of miles of ground, the VEC rights-of-way host many different and varied wildlife habitat niches. Some of the important habitat components present include: coarse woody debris; undeveloped, relatively remote acreage; varying vegetation age and structure;



significant areas of “edge” (the interface between two differing habitat types, for example the area where an open right-of-way and forest meet); wetlands and riparian areas; and mast producing plants and shrubs such as raspberries, apple trees and Mountain ash.

Open-forest "edges" such as the transition zones between the forest and maintained rights-of-way support distinct wildlife communities. Edges are heavily used by wildlife to feed in, as they offer the greatest number of niches in the least amount of area. Mixtures of forested and non-forested habitats produce long-lasting brushy edge habitats for species that would not otherwise be found in either heavily forested or very open habitats. For example, one would expect to see Cooper's hawks, indigo buntings, catbirds, song sparrows and foxes along these brushy edges between forested and non-forested habitat.

VEC strives to conduct vegetation management activities in a manner which enhances wildlife habitat along rights-of-way and welcomes opportunities to work with local Agencies and Organizations on projects such as Osprey Platform Installations to encourage safe nesting habits along VEC corridors.

### ***Aesthetics***

A cleared right-of way can have a raw look, with little apparent vitality. Retaining low-growing compatible species wherever possible helps to maintain an aesthetically pleasing right-of-way, without compromising long-term line clearance.

As a member-owned cooperative, VEC is very conscious of the appearance of the rights-of-way following vegetation management activities. The use of proper pruning techniques is critical to maintain the health and appearance of mature trees remaining along the rights-of-way. Following tree removal, stump heights and disposal of brush, chips and remaining wood are all designed to minimize visual impact. Following tree removal in residential areas, VEC requires disposal of brush and chips to leave a clean appearance. Also, trees are cut so that stumps are close to the ground, thus minimizing visual impacts. Screens are retained where practical in visibly sensitive areas.

### ***Erosion Control***

VEC's vegetation management program is designed to encourage the stabilization of vegetation such as ferns and grasses, blueberries, blackberries, raspberries, serviceberry, dogwood, hawthorn and other low-growing shrubs that will promote strong healthy root mat conditions.

Erosion along stream banks is of particular concern. If incompatible species dominate the species composition of a stream bank, removing all vegetation during one cycle will be avoided, if possible. If removing all vegetation cannot be avoided, appropriate erosion control methods will be implemented.

Mechanical vegetation control methods which result in significant soil disturbance will be followed with the installation of waterbars and seeding and mulching where necessary to minimize soil erosion. Where possible, sensitive areas will be left covered with vegetation to help stabilize the soil.

Where applicable, VEC will conduct vegetation management activities in accordance with the Acceptable Management Practices for Maintaining Water Quality on Logging Jobs in Vermont, as published by the Vermont Department of Forests, Parks and Recreation.

***Fire Protection***

VEC will adhere to all Federal, State and local fire protection laws and regulations.

***Public Lands***

State and federal managed lands are identified in VEC's geographic information system which is used as a tool to notify VEC personnel and contractors when they are within or in close proximity to State or Federally managed lands.

VEC recognizes the impact vegetation management activities can have on public lands such as State and Federal Wildlife Management Areas, State Forests, Parks and Recreation Areas and municipal forests and parks adjacent to a utility right-of-way and will work with the various agencies to develop vegetation management strategies to meet the goals and objectives of VEC's vegetation management program, as well as those of the site.

Vegetation maintenance activities will be conducted in compliance with the general and specific conditions set forth in licenses which are held on State lands. General conditions include notification processes and adhering to work time restrictions. More specific conditions may relate to maintenance restrictions, due to the presence of sensitive plant or animal populations, which may require additional coordination with land managers and/or conducting pre-maintenance plant or animal surveys. New licenses will be obtained on State lands in locations where they have expired or do not exist.

***Invasive Exotic Plant Species***

These are plant species which have been purposefully or accidentally introduced outside of their original geographic range and are able to proliferate and aggressively alter or displace native biological communities. These plants often lack the predators that keep them in check in their own native regions and can out-compete native plants for space, sunlight and nutrients. Native plants help keep an ecosystem healthy and stable and are generally more beneficial to wildlife populations. Infestations of exotic plants can interfere with plant diversity, navigation, recreation, water supplies, production on agricultural and range lands and create public health and safety hazards. Although many invasive exotic species are low-growing, they can seriously impede access in utility rights-of-way and make it difficult to work safely on and around the power lines.

VEC recognizes the threats posed by invasive exotic plant species and will identify and work to arrest the spread of exotics along rights-of-way where practical. In particular, invasive exotic plant species will be addressed where pioneer populations are becoming established and/or where existing populations are heavily established in the wire zone. VEC will also work with landowners to control invasive exotic species along the right-of-way in areas where they are being controlled by a landowner on lands adjacent to the right-of-way. These invasive exotics may include, but are not limited to: glossy and common buckthorn (*Rhamnus spp.*), oriental

bittersweet (*Celastrus orbiculatus*), Japanese knotweed (*Fallopia japonica*), common reed (*Phragmites australis*) and several species of honey suckle (*Lonicera spp.*).

All equipment will be field-cleaned of visible soil or vegetation prior to entering or leaving VEC rights-of-way to prevent the spread of invasive plant species.

Invasive plant species that represent safety and worker and/or public health concerns will be treated with herbicides when encountered within rights-of-ways scheduled and permitted for Integrated Vegetation Management (IVM) applications (unless restricted due to landowner concerns, buffers on water or sensitive areas, etc.).

### ***Invasive Insect Management***

All VEC Vegetation Management Staff and Contract personnel shall receive adequate continuing education on the threat, identification and mitigation of invasive insects and pathogens that threaten Vermont. Crews shall comply with all State and Federal quarantines and follow all case specific mitigation and response guidelines for individual species of concern.

All suspected specimen trees or insects outside of previously confirmed areas are to be reported to VEC Vegetation Management Program Staff upon observation and crews are to withdraw from the site and work elsewhere until results are confirmed or denied. Debris handling of any existing debris, at the time of observation, will follow published mitigation/slow the spread guidelines and/or be left on-site.

Ash removal is to be considered a top priority within Emerald Ash Borer (EAB) Confirmed Infested and High-Risk Areas and removal guidelines can be found under Emerald Ash Borer in the Invasive Insects section of the Field Considerations in VEC's Specifications for Vegetation Management on T & D Systems (See Appendix D).

### ***Rare, Threatened or Endangered (RTE) Species***

VEC has incorporated the significant communities data layer (including rare, threatened and endangered species) available through the Vermont Department of Fish and Wildlife's Natural Heritage Information Program (NHIP) into their system map and works with contractors to approach vegetation management needs with the least amount of impact to (RTE's), including the implementation of VELCO/GMP Best Management Practices (BMP) for the Avoidance of Listed Threatened and Endangered Species IVM and O & M Activities on VEC's Transmission System and all State Lands. VEC requests updates to the NHIP dataset on an annual basis to update the system map, as needed. In 2018, VEC contracted with Trudell Consulting Engineers (TCE) to conduct a field survey and document existing RTE occurrences within the known RTE polygon data layers, as identified by the NHIP, that intersect VEC's Transmission System Rights-of-way. This data was shared with the NHIP and is now a layer in VEC's geographic information system. It will be updated as populations are resurveyed every 8 years, according to BMP's. This project has allowed VEC to strengthen general awareness around existing regulatory standards, better understand the presence of both animal and plant RTE species along VEC's utility corridors and enhance our working relationship with the VTFW. The project results and the efforts that will be built upon them, provide for the development and

implementation of effective and efficient vegetation management and line operation strategies moving forward.

## **DETERMINATION OF VEGETATION MANAGEMENT NEEDS**

The Vegetation & ROW Management Program Manager is responsible for establishing a preventative maintenance strategy, identifying an appropriate routine maintenance cycle, identifying necessary funds to complete maintenance on the desired cycle, determining a scheduling unit, prioritizing scheduling units and completing routine maintenance systematically and on the desired cycle. Vegetation maintenance records, service interruption data, detailed Line Worker Reports, aerial and ground patrols and member input all contribute to assigning priorities for vegetation maintenance each year.

There are several factors the Vegetation Management Program staff must consider when evaluating vegetation management needs. These include the frequency of service interruptions, vegetation quantities and characteristics, time elapsed since last treatment and member requests. Extreme weather conditions such as thunderstorms, snowstorms and high winds will also need to be taken into consideration and often take priority over treatments scheduled based on normal factors.

### ***Frequency of Service Interruptions***

All outages are recorded in VEC's Outage Management System (OMS). Vegetation Management Program staff enters each vegetation related outage into the map, using Clearion Vegetation Management Software. Each vegetation related outage feature includes detailed information about the outage, such as: outage date, outage cause (limb or whole tree), outage duration, point of failure (snapped off or uprooted), number of members affected, feeder identification, pole number, position (fell-in or grew-in), voltage category (distribution, transmission, secondary), contact (hard contact or brushing conductors), tree condition (dead or alive), and when available, additional information such as tree species and size class, R-O-W condition and distance of tree from line. By referring to these records, it is possible to isolate areas of frequent vegetation-related outages and conduct further review to determine whether they should receive immediate attention or if action can be delayed until regularly scheduled maintenance. The additional details allow for more advanced analysis regarding overall right-of-way conditions, maintenance cycles, and areas of concern.

### ***Vegetation Quantities and Characteristics***

As vegetation growth rates vary significantly with respect to species and location, it is important to routinely monitor the general condition of the vegetation throughout the system. This can be accomplished by random line patrols and/or random sample vegetation surveys.

Among the elements to be considered in such a program are:

1. Present tree-to-conductor clearance
2. Species of vegetation
3. Present size and density of vegetation
4. Demographic and accessibility characteristics (e.g. urban vs. rural, roadside vs. off-road, etc.)
5. Type of work and crew (e.g. pruning, removal, aerial lift crew, manual flat cutting crew, etc.)

6. Any special conditions (e.g. poor access, steep slope, riverbank, etc.)

In addition to these elements, important non-vegetation factors to be considered include customer density and critical members such as hospitals, members on life-support systems, and members using complex computer systems with volatile memories.

### ***Time Elapsed Since Last Treatment***

Vegetation maintenance activities are entered into VEC's System Map, allowing the Vegetation Management Program staff to track and audit map-based vegetation control information and quickly determine how long it has been since a line was last maintained, note any areas that were skipped over and/or identify line sections which may need attention sooner than the remainder of the line.

### ***Member Requests***

Frequently, members have specific concerns, which they feel should receive immediate attention. These requests are often directed to the Line Department and are frequently situations that can be handled by the local line crew. If the merit of the request is questionable or if the scale of the work required in order to respond to the request is extensive, the request is referred to VEC's Vegetation Management Program staff. Following a field review, the determination is made as to whether the issue is one which is endangering the utility line, a priority is assigned to the problem area and it is handled accordingly.

## **INSPECTION AND MONITORING STANDARDS**

Understanding the extent and nature of the vegetation to be managed is essential to developing and implementing VEC's vegetation management program effectively. Accurate information regarding the vegetation conditions on VEC's rights-of-way will permit the development of historical records, which will allow for an assessment of the effectiveness of past management decisions. The following is a description of various methods of right-of-way inspection and monitoring used on VEC's rights-of-way.

### ***Drone Patrols***

This type of patrol is done to determine general right-of-way conditions on VEC's transmission system including equipment conditions, as well as vegetation conditions. Drone patrols are generally conducted once a year to monitor right of way conditions, provide an overview of vegetation growth and general changes in right-of-way conditions, identify potential vegetation encroachment and hazard trees and assist in targeting areas in need of further review.

Vegetation encroachment from beneath, beside and overhanging, as well as dead and dying trees are identified. A description and location of potential problems, along with imagery are provided for review and are often followed up by more extensive and exacting ground patrols.

Starting in 2025, VEC plans to expand its use of drone patrols to include storm damage assessment.

***Routine Ground Patrols***

These patrols are conducted on VEC's transmission and distribution systems. They are administered from a vehicle and on foot on a routine basis to evaluate the right-of-way condition in a given area as follows:

***Reconnaissance Patrol***

This is done on an annual basis in areas that are being considered for maintenance in the upcoming year. The areas targeted for ground patrol are determined by review of maintenance records and outage reports, as well as casual field observations made by the VEC employees and/or members. During this patrol, information is gathered regarding vegetation species present, evidence of tree-conductor contact and conditions of sensitive areas. Notes are made on potential problems and estimates of time and crew composition to do the job.

***Operations Patrol***

This is the most frequent patrol and is carried out prior to and during all vegetation management operations. Information concerning compliance with vegetation maintenance specifications, access, danger trees, clearance levels of aesthetic screening and road conditions is gathered.

***Danger Tree Ground Patrol***

Information concerning danger trees is received from drone patrols, field observation by line crews, line clearance crews and members. Foot patrols are carried out on an on-going basis to determine the number and a more accurate evaluation of these "danger" trees.

***Field Review***

This is done to determine the nature of a specific condition or situation. Some examples of this type of activity are: logger working near lines; erosion due to new road on ROW; new plantings observed under lines or any other type of encroachment. Notification of the individuals involved may also be carried out. Frequency of these checks is as needed.

***Satellite Imagery***

VEC is currently participating in a satellite imagery pilot project to improve vegetation monitoring and risk assessment across its service territory. The integration of satellite imagery technology aligns with VEC's commitment to leveraging advanced tools for improved reliability and safety. As the utility continues to evaluate the benefits and cost-effectiveness of this approach, it plans to gradually incorporate satellite-based vegetation management into its existing inspection and monitoring standards, subject to available funding.

**VEGETATION CONTROL SYSTEMS**

The manner in which vegetation maintenance is completed on an electric system has direct impacts on reliability, safety and cost-effectiveness. One component of VEC's vegetation management program is an on-going exploration of economically and environmentally sound vegetation management strategies.

It is understood that there are varying risks associated with every course of action and all vegetation management techniques represent a cost, which will eventually be paid by VEC's

members. When reviewing options for vegetation control, VEC has an obligation to all its members to provide safe, reliable power in an efficient manner at a reasonable cost. The decision as to which methods of vegetation control will be used must be based on factors that transcend the desires or possible benefits of any one individual.

VEC will select the method to control undesirable vegetation at any given location on the basis of treatment effectiveness, site characteristics, environmental impacts (including impacts to desirable, non-target vegetation species), safety and economics.

Integrated Vegetation Management (IVM) is a control concept that considers a combination of methods to control undesirable vegetation including biological, chemical, cultural and physical (e.g. mechanical and manual). Within each of these technologies there are several methods, depending on the type of vegetation, site characteristics, and environmental or aesthetic concerns.

Flexibility is an important aspect of IVM, affording a right-of-way manager multiple options to employ the most effective methods of control in a given area. Properly implemented, IVM is recognized as a methodology that encompasses a range of industry-established best practices. It is therefore, an integral component of an effective vegetation management program. VEC's IVM program began in 2009 with the introduction of the selective use of herbicides on VEC rights-of-way.

In general, physical and/or chemical control methods are the most appropriate and most frequently used vegetation control options for utility rights-of-way. The retention of low-growing, compatible vegetation will inhibit the future growth of incompatible species and is therefore considered a form of biological control. Other biological controls (e.g. grazing by animals) and cultural controls (e.g. using fire to eliminate undesirable vegetation) have limited application and are seldom used as utility vegetation maintenance techniques.

The vegetation management techniques described in this section are recognized by the electric utility industry as the best management practices available for maintaining trees and controlling incompatible target brush species within the right-of-way on an overhead electric system.

### ***Physical Control Methods***

Mechanical control is the oldest vegetation management method and includes hand-pulling, hoeing, blading, mowing, cutting, pruning, carefully controlled burning, flooding, bulldozing and cropping. These control methods provide short-term control, are generally very labor intensive, pose a significant risk of traumatic injury to applicators, and are therefore quite costly to implement over large areas. The most common forms of mechanical control used on utility rights-of-way are described below, as stated in the NRECA CRN's Vegetation Management Manual.

#### ***Flat Cutting***

This technique involves the use of chainsaws or brush saws to remove undesirable target vegetation at ground level. This is the preferred maintenance technique for sites where obstacles (e.g. rocks, poles, etc.) exist or terrain conditions prevent access by mowing equipment and herbicides cannot be used. Unfortunately, hand cutting only affects the above-ground portion of

the vegetation that is being maintained. The root collar area of the cut vegetation remains in-tact and viable, which typically results in vigorous stump sprouting and, in some species, root suckering, as well. Consequently, this technique only provides short-term control and is generally significantly more expensive than alternative methods. Optimally, flat cutting should be followed by subsequent herbicide applications where appropriate to control re-sprouting.

This method is a primary method of control on VEC rights-of-way in areas of dense underbrush and trees, which must be removed, due to their proximity to the conductors. Stems are cut as close to the ground as possible and stump heights shall not exceed 3 inches. Cuts shall not be made on an angle, which can be hazardous to humans, animals and equipment. If a line is not located immediately along a public road or highway, the wood and brush is windrowed at the edge of the right-of-way. If the line runs immediately along and adjacent to a road, the wood is piled at the tree line and the brush is chipped.

### ***Pruning***

This technique involves the use of hand saws or chainsaws to remove dead or living parts or branches of a tree. This is the preferred maintenance technique where removal of all trees near the conductors is not necessary, economically feasible or aesthetically acceptable or where only the branches of a tree rather than the tree itself pose an immediate threat to the conductors. In these cases, it is acceptable to prune the tree. This method is a primary method of control on VEC rights-of-way in residential areas.

The type of pruning and amount of live tissue that should be removed depends on tree size, species and age, as well as the location of the vegetation in relation to the conductor. All tree species have defined growth habits, which lend themselves to certain types of pruning. Familiarity with these growth habits is essential. Most shade trees lend themselves well to natural pruning or directional pruning, i.e. pruning a tree in such a manner that it guides the growth of the tree away from the conductors.

The use of well-trained professional arborists capable of determining the best pruning techniques in a given situation is essential to the success of VEC's vegetation management program. Descriptions of proper pruning techniques and improper trimming practices can be found in VEC's Specifications for Vegetation Management, as well as in the American National Standards Institute (ANSI) Std. A300, "Tree, Shrub, and Other Woody Plant Maintenance-Standard Practices," The International Society of Arboriculture's "Best Management Practices Utility Pruning of Trees" and Dr. Alex Shigo's booklet titled "Pruning Trees Near Electric Utility Lines."

### ***Danger Tree Take Downs***

This technique involves the complete removal of a mature tree, which represents a hazard to the electric facilities, due to its size, location and/or condition.

Many trees at the edge of the right-of-way have crowns that have grown in towards the conductors. Many factors influence a tree's physical condition. Some examples are: disease, insect damage, frost, lightning and mechanical damage (i.e. logging, road construction, etc.), age, soil conditions and genetic factors. Some trees appear normal and healthy yet are in a poor



condition, having serious rot with only a thin wooden shell on the outside. Signs of a dying tree can be very evident or very subtle, and are often only recognized by an experienced forester or arborist.

When evaluating potential danger trees, it is important to know at what size each species is mature and which species are most susceptible to heart rot. Signs to consider include: seams, fungus, fruiting bodies, bark condition, root condition, wood cellular condition and tree configuration. Another consideration is the effect that removing a tree will have on the remaining trees.

Of primary consideration when cutting danger trees is the safety of the public, the line clearance crew, and the electric facilities. Some tree removal conditions require de-energizing the conductors prior to the operation. The safety risks of tree removal are generally greater than those of standard right-of-way maintenance. The removal of danger trees is slow, costly, and at times, a difficult procedure.

As a result of deferred maintenance in many locations across VEC's service territory, current right-of-way conditions require aggressive tree removal in order to re-establish adequate clearance.

In addition to utility-initiated tree removal, this maintenance technique is frequently utilized on VEC's rights-of-way as a result of a member request. In some instances when a property owner requests such a removal, the wood and brush disposal is their responsibility. If VEC chooses to take down a danger tree, absent of a member request, brush disposal (chipping or windrowing, dependent upon location) will be the responsibility of VEC, but the wood is considered to be property of land owner.

### ***Mowing***

This technique involves the removal of incompatible target species with a large cutting machine attached to a tracked or rubber-tired vehicle. Depending on the size of the mowing equipment being used and the target species being managed, vegetation up to about 8 inches in diameter can reasonably be cut. As with hand cutting, mowing results in the immediate elimination of all undesirable target stems. However, this technique is less selective and all desirable low-growing vegetation within the mower's path is eliminated as well. This results in the site being left in a disturbed and more open state, which allows tree seeds to germinate. Consequently, mowing will not provide long-term control unless followed up with an herbicide application to control re-sprouting.

Site conditions must be evaluated carefully when considering mowing, as this technique has a potential to compact soil and/or cause erosion. Mowing shall be avoided within map polygons identifying known occurrences of listed threatened or endangered ground bird species during the April 15 to Aug 15 nesting period. In general, mowing shall be limited to the extent practicable during this time period.

This is the preferred maintenance technique for drier sites that support moderate to heavy densities of incompatible target species and are relatively flat with few obstacles (e.g. rock

outcroppings, boulders and stone walls). It may also be a desirable method for short-term control in locations where herbicides cannot be used. This method of control is used on VEC rights-of-way, where site conditions are suitable.

### ***Planting***

This technique involves the planting of grass, shrubs and certain species of trees within the right-of-way. Pruning and mowing is used to conduct maintenance on these locations. To prepare the site for this condition requires grading and filling with topsoil. It is sometimes used near substations and is costly to establish and maintain. Planting shrubs and trees in a right-of-way condition is often difficult. The mass of roots and organic matter is not conducive for survival of planted material. The shallowness of the soil and rocky ground condition are also obstacles. This management technique is also used in instances of erosion control.

### ***Chemical Control Methods***

The effectiveness of selective herbicide application has been well documented by the electric utility vegetation management industry. Judicious herbicide use is an important component of an IVM strategy. It is critical to the establishment of a low-growing plant community within rights-of-way, which results in a cost-effective vegetation management program. Other important benefits of IVM include:

- Increased visibility and access along rights-of-way
- Timelier and less costly outage restoration
- Safer working conditions for line workers and line clearance contractors
- Improved species selectivity
- Long-term control
- Promotes stable plant communities
- Supports natural (biological) control
- Promotes bio-diversity among plants and wildlife
- Only feasible control method for invasive species
- Only method that lowers undesirable stem densities, reducing future maintenance costs
- Most efficient and economical control

By impeding the sprouting and growth of undesirable species, which generally increase in density following the implementation of mechanical control methods, the use of herbicides facilitates the establishment of low-growing desirable plant communities. As these communities become well-established, the occurrence of non-compatible tree stems decreases and future maintenance costs are reduced. These plant communities also provide a more stable environment than the cyclical environment which follows the use of mechanical control methods. The most common forms of chemical control used on utility rights-of-way are described below, as stated in the NRECA CRN's Vegetation Management Manual.

### ***Broadcast Foliar***

Broadcast foliar applications are applied to the foliage of target tree species during the period of active growth when leaves are fully developed (late spring to early fall). A fixed herbicide rate per area is applied in a water solution and broadcast over the entire target area. Broadcast foliar herbicide applications are sometimes the most cost-effective way of initially controlling heavy-

density communities of tall-growing target tree species, particularly over large areas. Following initial control, this type of application is not done on an extensive basis, as it is not desirable to eliminate all of the vegetation in the right-of-way. VEC will not conduct broadcast foliar herbicide applications.

### ***Cut Stubble Applications***

When a reclamation phase is necessary and the moderate to high-density vegetation is too tall to initially implement a broadcast herbicide application, the site should first be mowed before herbicides are applied. An herbicide can be applied via a broadcast foliar application one or two growing seasons following mowing to vegetation that has re-sprouted. An alternative is to immediately follow mowing with a broadcast application of a soil active herbicide, which prevents re-sprouting altogether. This technique, known as a cut stubble application, is employed in more visually sensitive areas since treated vegetation has minimal leaf-out and brown-out is substantially reduced.

This maintenance technique is subject to the same limitations described for mowing and broadcast foliar herbicide applications. The cut stubble technique is not selective, meaning that many desirable species are usually eliminated with this treatment method. Depending on the herbicide formulation used, some selectivity for grasses can be achieved. VEC will not conduct cut stubble herbicide applications.

### ***High-volume Foliar***

High-volume foliar is an application technique that typically utilizes a maneuverable vehicle (such as a truck or tractor) equipped with a large spray tank. The concentration of herbicide used for this technique is low. Herbicide applications are applied to the foliage of target tree species using a handheld, high-volume spray gun. Maximum effectiveness is generally achieved when target tree heights are between 8 and 15 feet.

High-volume foliar applications should be performed during the period of active growth and when leaves are fully formed (generally from late spring to early fall). This technique can be performed on any site as long as terrain conditions permit access by spray vehicles.

When treating a right-of-way that has a high density of target species, the difference in results between selective high-volume foliar and uniform broadcast applications will often be minimal. The vast majority of plant materials on the right-of-way should be target species if either of these application techniques is used, which will result in a right-of-way with a browned-out appearance.

### ***Low-Volume Foliar***

This method of application uses a higher concentration of herbicide than the high-volume technique. The selectivity of the low volume foliar spray technique is achieved through the close application of coarse sprays that are directed at individual stems or clumps of noncompatible target species while directing the spray away from compatible vegetation. Low-volume applications are generally targeted at incompatible stems that are less than 6 to 8 feet high and of low to moderate density. A conventional diaphragm or piston pump backpack is the most

commonly used piece of equipment for low-volume applications, but small-volume battery operated tanks on ATVs have also been used effectively.

Low-volume foliar applications are directed at the top of the crown of target stems, and the upper 60% to 75% of the crown typically receives treatment. Application is made to wet the leaves, but not to the point of runoff. As with other foliar application techniques, low-volume applications should be done during the period of active growth, when leaves are fully developed.

### **Low-Volume Basal Bark**

Basal applications control undesirable vegetation through the application of an herbicide and penetrating oil mixture to the lower 12 to 15 inches of target stems. The mixture typically contains a relatively high proportion of herbicide to oil (20% to 30% by volume) that effectively controls trees up to 6 inches in diameter at a low spray volume.

Low-volume basal herbicide applications offer increased flexibility over foliar applications. Basal applications can be performed during the dormant season, as well as during the period of active growth. Dormant season applications allow crews to be productive during the off-season and can be advantageous in some locations where the brownout associated with foliar applications may be objectionable. This is a very selective application technique.

Basal herbicides are typically applied with a backpack application unit equipped with oil tolerant seals. The backpack unit utilizes a low volume wand that can deliver a small amount of herbicide mixture to the lower stem of target species. The entire circumference of the lower stem of target species is sprayed to wet, but not to the point of runoff. Basal applications can be made at any time of the year except when snow or water prevents spraying stems to the ground line, although they are most effective when applied in the late dormant season (from late winter to early spring) rather than in the late fall or early winter periods. VEC will not conduct herbicide applications in the rain or snow or on frozen ground.

### **Cut Surface**

Cut surface or cut stump applications involve hand cutting incompatible target vegetation followed immediately (at least within 1/2 hour) by a waterborne herbicide application to the exposed cambium layer along the perimeter of the stump surface. The treatment window can be extended by up to 6 months if the herbicide solution includes a penetrating oil. If the latter method is employed, any exposed bark and root flares should be treated to the point of runoff to the root collar zone, in addition to treating the cambium layer. Indicator dyes can be included in the solution to help identify stumps that have already been treated.

Immediate cut surface applications are typically applied with a hand-held trigger spray bottle. Because of the small amount of herbicide solution that is applied very close to the cambium area along the edge of the stump surface, there is minimal opportunity for non-target or off-site contamination. Delayed applications may require a backpack applicator as a result of the greater volumes of herbicide solution that must be applied to each stump.

This is the preferred application technique in areas containing low to moderate densities of incompatible target stems where hand cutting is the preferred maintenance technique and

herbicides can be used. Cut stump applications can be made year-round as long as snow does not prevent the cutting of stems at ground level. However, tardiness in the application or outright misses can drastically influence the effectiveness of the treatment.

Treatments done in the early spring when tree sap flow is high can also have reduced effectiveness. Long-term cost savings can be realized by using the cut stump treatment method on tree removals to prevent re-sprouting.

### **CONTRACT STRATEGY**

Vegetation Management represents a significant expense to VEC and its members. Careful monitoring of all aspects of contract negotiation and administration are critical to ensuring the implementation of VEC's vegetation management plan as cost-effectively as possible. The following factors will be considered:

- Competition helps to maximize the value of vegetation management expenditures.
- Low bids that are not responsive to contract specifications are likely to create complications and adversely impact cost-effectiveness.
- Annual or multi-year contracts encourage stable employment opportunities, which allow contractors to hire and retain qualified personnel.
- Long term contracts shall be carefully evaluated, as periodic contract negotiation promotes competitive pricing.
- Low-quality work or poor production from individual crews will undermine the program's effectiveness and shall not be tolerated.
- Contract method (e.g. time and materials, firm price or unit price) and crew complement (e.g. aerial crew vs. ground crew, etc.) must be carefully evaluated in relation to the specific site conditions (e.g. roadside vs. off-road, high vs. low density vegetation) and type of work to be done (e.g. pruning vs. flat cutting, etc.).

### **CONTRACTOR ACCOUNTABILITY**

The Contractor is required to train all field personnel (supervisors and technicians) in the concepts of VEC's Vegetation Management Plan and Program and the crew foremen shall keep a copy of VEC's Vegetation Management Specifications (See Appendix D) in their possession while working on VEC rights-of-way. VEC's Vegetation Management Program staff will inspect the field crews on a frequent basis (generally, at least once a week) to monitor activities and insure compliance with VEC's Vegetation Management Specifications and all related regulations and safety standards (See Appendix E - VEC Vegetation Management Field Inspection Report). Quality of performance shall be evaluated based on:

- Compliance with all safety regulations
- Clear understanding of performance expectations
- Quality of work (proper pruning techniques, stump heights, adequate clearances, proper disposal of brush, chips and wood, site clean-up, etc.)
- Productivity
- Public Relations
- Communication with VEC Vegetation Management Program Staff
- Record Keeping (completeness and accuracy)
- Equipment Maintenance

In addition to frequent visits to active job sites, VEC's Vegetation Management Program Staff periodically reviews completed jobs to evaluate effectiveness and quality and to determine whether or not plans were understood and followed.

Formal VEC Safety Observations are conducted monthly, with a goal of conducting a minimum of one observation on each crew operating within VEC rights-of-way at least annually. (See Appendix D Exhibit 6) - VEC Qualified Line Clearance Contractor Safety Observation Report.)

## **MAPPING**

VEC has a Geographic Information System (GIS) based map. Each utility pole throughout VEC's service territory has been located in the field with a Global Positioning System (GPS) Unit. Detailed electric facility information such as individual substations, pole and circuit numbers and protective devices are all identified in the map. In addition, vegetation management activities are scheduled and tracked utilizing a full featured, map-based data collection software program. VEC's Vegetation Management Program utilizes the Clearion Utility Vegetation Management (UVM) solution including:

- Clearion Web – a browser-based, map and tabular application where work can be planned, organized, executed and tracked.
- Clearion X – a streamlined map-based application designed to allow field crews to receive work assignments, navigate, and identify completed work.
- Clearion Operations Summary – a collection of reports and dashboards that track work production and progress.

## **VEGETATION MANAGEMENT RECORDS**

To effectively administer a vegetation management program, considerable data is required to support decision-making and the planning process. A comprehensive record-keeping and reporting system is an essential component of a successful vegetation management program.

VEC's Utility Vegetation Maintenance Reports (Appendix D Exhibit 2) include type of utility line being maintained, location of work performed, total distance covered and total distance treated, crew identification, labor and equipment hours and type of maintenance that was conducted. These reports are received monthly along with the associated invoices, and data is entered into a database within Clearion Work Manager, a map and tabular based application where invoice and maintenance data can be tracked and analyzed.

In addition to the maintenance report and invoice data being tracked in the database, vegetation maintenance activities are also tracked in VEC's GIS based map, providing a quick reference for identifying areas which have not been treated recently and/or areas that may have been skipped.

## **VEGETATION MANAGEMENT PLAN REVIEW**

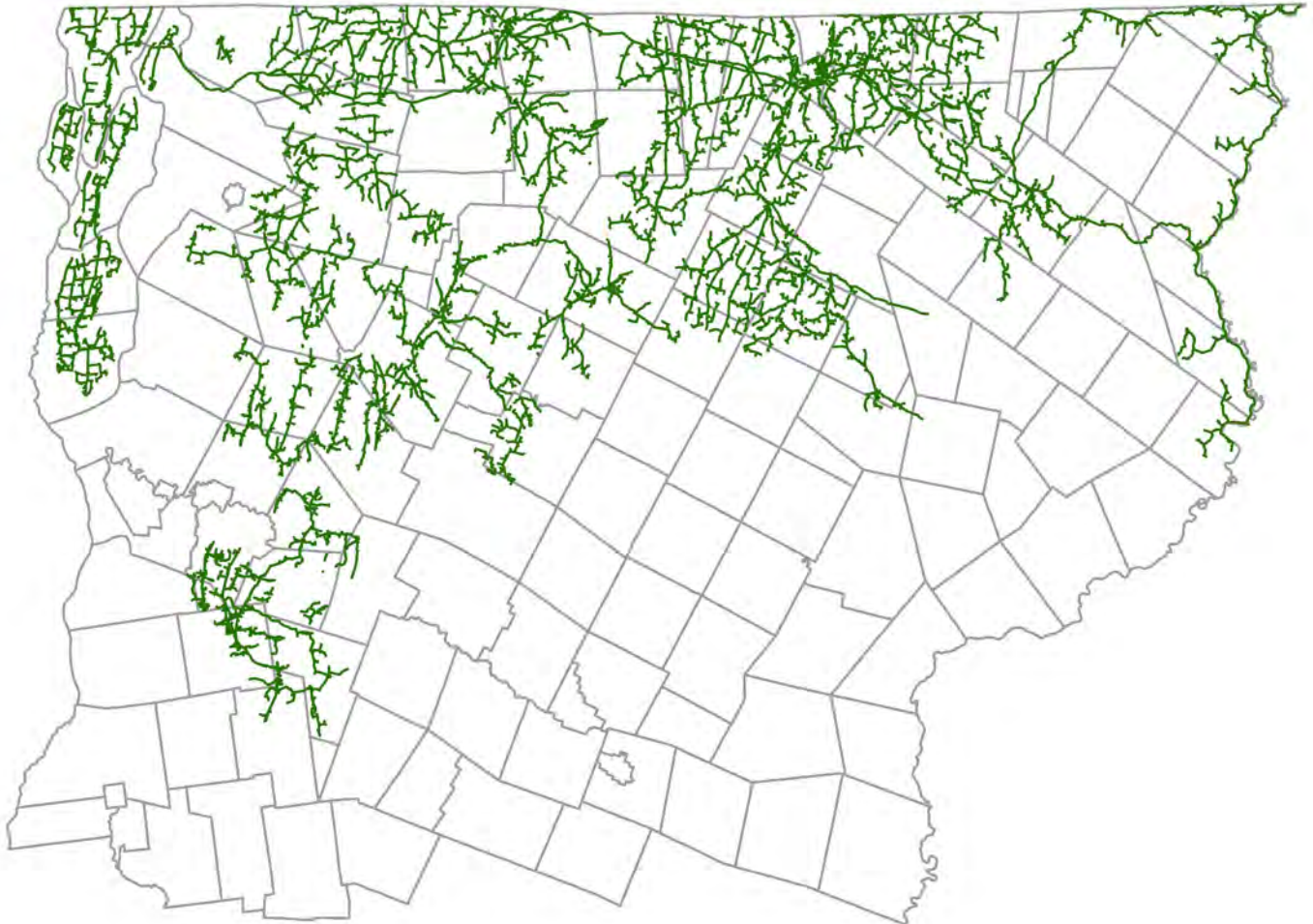
The Vegetation & ROW Management Program Manager and Chief Operating Officer will conduct an internal annual review of VEC's vegetation management program to ensure that the goals and objectives identified on page 4 of this management plan are being met. Vegetation management activities and associated outcomes will be evaluated to measure accomplishments and seek areas to improve upon. Specific areas of consideration include:

- Cost per mile / Year End Reports
- Vegetation-Related Safety Hazards and Service Interruptions
- Tree-Related Service Orders
- Physical Condition of Rights-of-way
- Right-of-way Easements
- Vegetation Control Methods
- Contract Strategy
- Member Customer Contact/Notification
- Public Relations
- Environmental Impact
- Visual impact
- Best Management Practices (i.e. Integrated Vegetation Management, Water Quality, Exotic Invasive Plants, Invasive Insects, Rare, Threatened and Endangered Species)

VEC's vegetation management program shall include the flexibility to adjust for conditions as they are found in the field, as well as for future changes in land use. VEC rights-of-way are treated on a prescription basis. Each area is evaluated based on site-specific conditions and management methods and schedules are assigned appropriately.

Results of the annual review and other periodic evaluations will be compiled and plan revisions will be made at least once every 5 years.

# Appendix A



— VEC Transmission & Distribution Lines

## **Vermont Electric Cooperative, Inc. Service Territory**

02/20/2025

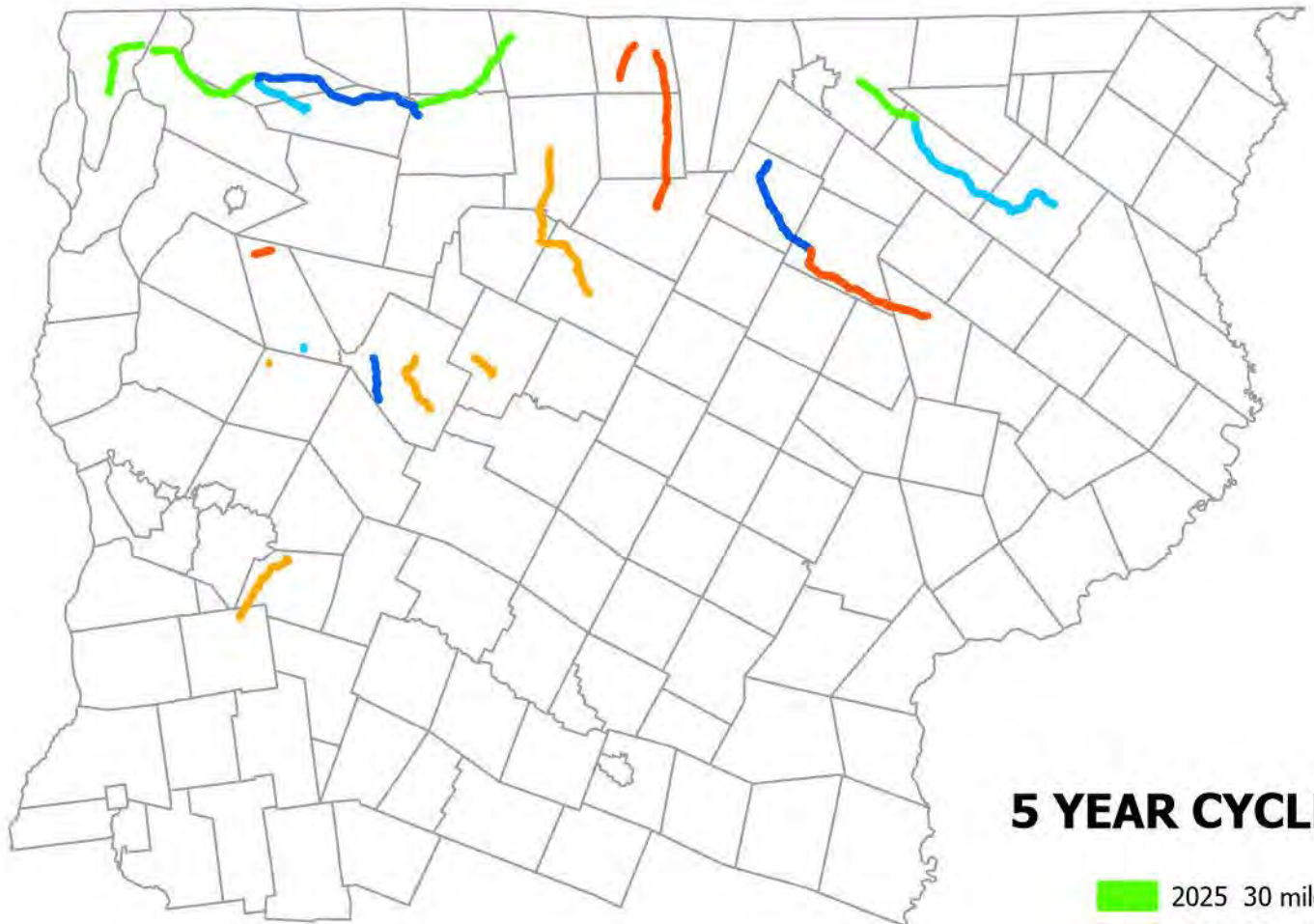
Vermont Electric Cooperative, Inc.

42 Wescom Rd

Johnson VT 05656



# Appendix B



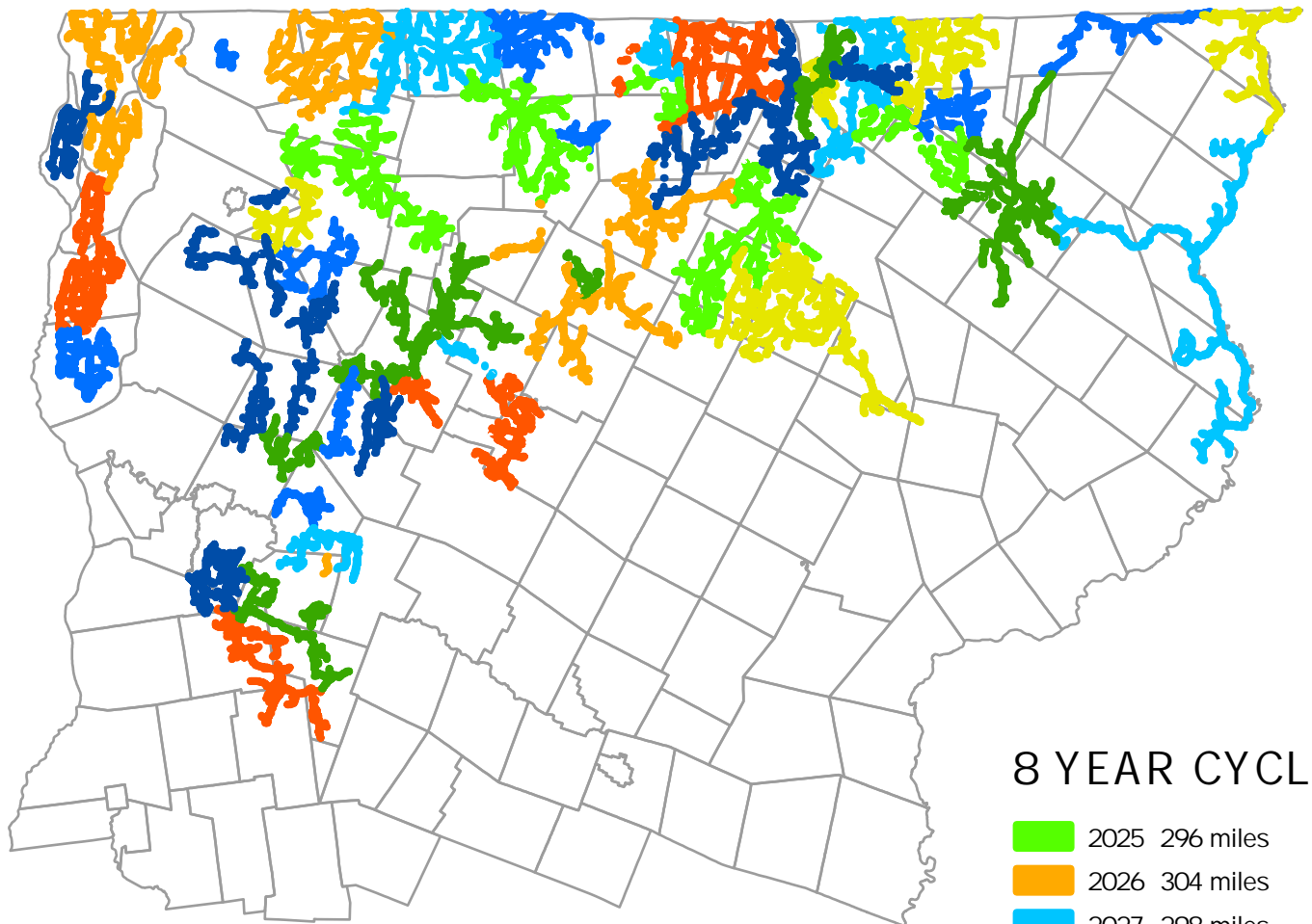
## 5 YEAR CYCLE

	2025	30 miles
	2026	27 miles
	2027	25 miles
	2028	27 miles
	2029	25 miles
<b>Total</b>		<b>134 miles</b>

**Vermont Electric Cooperative, Inc.  
Transmission System  
Vegetation Management Treatment  
Schedule**

02/20/2025

# Appendix C



## 8 YEAR CYCLE

2025	296 miles
2026	304 miles
2027	298 miles
2028	297 miles
2029	265 miles
2030	284 miles
2031	296 miles
2032	311 miles

Total 2,351 miles

Vermont Electric Cooperative, Inc.  
Distribution System  
Vegetation Management Treatment  
Schedule

02/20/2025



# **Specifications for Vegetation Management On Transmission and Distribution Systems**

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<a href="#"><u>Exhibit 1.</u></a>	VEC VT Public Roads Contact List
<a href="#"><u>Exhibit 2.</u></a>	VEC Environmental Guidance Manual
<a href="#"><u>Exhibit 3.</u></a>	VEC Compatible Vegetation List
<a href="#"><u>Exhibit 4.</u></a>	VT Wetlands BMPs for Repair & Maintenance of Overhead Utilities
<a href="#"><u>Exhibit 5.</u></a>	VEC Operating Procedure OP 27 Part One: Oil Spill Reporting Procedure
<a href="#"><u>Exhibit 6.</u></a>	VEC Utility Line Vegetation Maintenance Report
<a href="#"><u>Exhibit 7.</u></a>	VEC Vegetation Maintenance Invoice Summary Sheet
<a href="#"><u>Exhibit 8.</u></a>	VEC Vegetation Maintenance Notification Hang-Tags
<a href="#"><u>Exhibit 9.</u></a>	VEC Utility Initiated Outage Request Form
<a href="#"><u>Exhibit 10.</u></a>	VEC Line Clearance Contractor Job Briefing Form
<a href="#"><u>Exhibit 11.</u></a>	VEC Line Clearance Contractor Safety Observation Report
<a href="#"><u>Exhibit 12.</u></a>	VEC Herbicide Application Property Owner Notification Log
<a href="#"><u>Exhibit 13.</u></a>	VEC Operating Procedure OP 27 Part Two: Herbicide Accidental Release Measures

## GENERAL INFORMATION

### Scope

The purpose of these specifications is to set forth in clear terms the methods, procedures, and other information necessary to guide those engaged in vegetation management work on the Vermont Electric Cooperative transmission and distribution system. The work shall be completed in conformance with these specifications and all other provisions of the contract documents.

### Safety

This specification is not intended to replace or interfere with the implementation of any national or state safety standards or OSHA regulations. VEC is not indicating that these are the only such laws, rules, codes, or regulations that Contractors and their employees need to comply with. Each Contractor is individually responsible to ensure that it complies with all laws, rules, codes, and regulations (including all applicable safety rules of VEC) that apply to the nature of its daily business (see Safety Standards).

### Definitions

#### **Adjuvant**

A relatively nontoxic ingredient added to the herbicide mixture to assist the active ingredient in doing its job (e.g. wetting agent, spreader, adhesive, emulsifying agent, penetrant, anti-drift agent, etc.).

#### **Apical Dominance**

Inhibition of growth of lateral buds by the terminal bud.

#### **Blazed**

Marked (usually with an axe or hatchet and/or paint) to identify a trail or boundary line.

#### **Branch Collar**

A “shoulder” or bulge formed at the base of a branch by the annual production of overlapping layers of branch and stem tissues.

#### **Cambium**

A thin, formative layer between the bark and the sapwood of most vascular plants, which gives rise to new cells and is responsible for secondary growth and forming the annual rings of wood.

#### **Clearance**

The distance between conductor and vegetation crown edge.

**Conductors**

The wires strung from insulator and pole to insulator and pole that carry electrical current and are usually located in the central part of the right-of-way. Primary distribution conductors carry electricity (2.4-34.5 kV) from substations to neighborhoods and secondary conductors carry electricity (120-480 V) from the transformer to buildings.

**Conifer**

A cone-bearing tree or other plant that produces seeds in a structure called a cone. Conifers usually retain their foliage all year (with the exception of limited deciduous conifers, such as Tamarack/Larch), often have needle-shaped or scale-like leaves, and include trees such as spruce, fir and pine.

**Contractor**

Any person, persons, partnership, company or corporation with which, VEC has a contractual relationship for vegetation management services.

**Crown**

The upper portion of foliage on a tree or shrub.

**Crown Reduction Pruning**

A method of pruning used to reduce the height and/or spread of the tree, where the main leader or leaders are cut back to suitable laterals (at least one-third the diameter of the limb being removed).

**Danger Trees**

Any tree, which due to size, location and/or condition, has a potential for damaging the conductors or structures, now or within the next few years. Dead, dying, and diseased trees; multi-stemmed trees with weak crotches and/or included bark; and excessively leaning trees that could damage overhead electrical facilities, if they failed structurally, all fall into this category.

**Deciduous**

A tree or other plant that sheds its leaves annually and stays leafless, generally during the cold season; the opposite of evergreen. Trees such as maple, ash, and cherry are deciduous.

**Desirable Species**

Those plant species that at maturity will not attain a height that will endanger the safe and reliable operation of the line, and will provide food and/or cover for wildlife.

**Diameter at Breast Height (DBH)**

Diameter of a tree measured at a point 4 1/2 feet above the ground.



**Distribution**

A line voltage system used for carrying primary voltages ranging from 2.4 kV to 34.5 kV from substations and metering points through VEC territory with purpose of serving members.

**Emulsifying Agent**

A chemical, which helps one liquid form tiny droplets and thus, remain mixed in another liquid. Used to form a stable mixture between two liquids, which usually would not mix (e.g. oil in water).

**Energized**

With voltage flowing to or through.

**Fording**

Crossing of a body of water, without the use of a bridge.

**General Foreperson / Supervisor**

Supervisory personnel working for a Contractor, who is responsible for work performed by that Contractor's crews.

**Included bark**

Bark enclosed between two branches or a branch and the trunk with narrow angles of attachment, forming a wedge between the branches and often resulting in a dead spot.

**Insulator**

A device made of electrical insulating material used to separate or support conductors.

**Lateral**

Secondary or subordinate branch.

**Line Map**

The general location of the right-of-way as indicated on maps supplied by VEC.

**Lop**

To cut or sever woody branches.

**Node**

The node is the part of the stem of the plant from which leaves, branches, and aerial roots emerge.

**Overhang Pruning**

Removal of limbs overhanging the conductors, depending on the type of facility, tree species and/or other site conditions. Overhanging limbs should always be removed from above high-voltage transmission lines.

**Pollarding**

The practice of maintaining certain species of trees and shrubs at a predetermined size by systematically removing annual growth, resulting in a flush of slender shoots and branches each spring.

**Pruning**

The use of widely recognized, proper arboricultural techniques to remove limbs or branches from a tree.

**Re-closing**

The automatic reconnection of electrical flow, following an unplanned interruption of that flow. A recloser device will automatically re-close a circuit following an electrical fault.

**Right-of-way**

The right, established by common or statutory law, to utilize a strip of land, over which the utility's electric power lines pass.

**Riparian Area**

The green, vegetated areas on each side of streams and rivers. They serve many important functions, including purifying water by removing sediments and other contaminants; reducing the risk of flooding and associated damage; reducing stream channel and stream bank erosion; increasing available water and stream flow duration, by holding water in stream banks and aquifers; supporting a diversity of plant and wildlife species; maintaining a habitat for healthy fish populations; providing water, forage, and shade for wildlife.

**Roundovers**

Rounding over (or shearing) is the practice of making many small cuts so that a tree crown is sheared in a uniform line. This creates an unhealthy tree condition and results in rapid regrowth.

**Round Wood**

Wood from the main stem/trunk or larger branches of a tree.

**Rutting**

Tracks worn by a wheeled vehicle, tracked equipment or habitual passage, resulting in a channel, groove or furrow in which water could flow.

**Screen**

Trees serving as an ornamental device, shielding an area from view.

**Selective Cutting**

Removal from within the right-of-way or easement boundaries of only that vegetation which would potentially interfere with the construction and/or operation of the utility line.

**Shrub**

A woody plant that normally matures at a height of less than 20 feet with a generally bushy appearance and several erect, spreading, or prostrate stems. It usually attains a diameter of less than 4 inches at breast height (4 1/2 feet above ground).

**Side Pruning**

Cutting back or removing the side branches of a tree. Limbs should be removed at a lateral branch of appropriate size, or the main trunk.

**Slash**

Debris made up of cut saplings, shrubs, branches, limbs, stems, and treetops less than 4 inches in diameter, as well as leaves, twigs and bark resulting from a clearing/pruning operation.

**Specification**

The detailed description of the method and manner of performing work.

**Stubbing**

Indiscriminate cuts made between lateral branches, rather than at the lateral. This practice damages the tree and encourages rapid re-growth or resulting deadwood and possibly dieback to the main stem.

**Substation**

A subsidiary station in which electric current is transformed.

**Surfactant**

An herbicide mix additive that improves the wetting, spreading and penetration characteristics of herbicides.

**Terminal Bud**

The dominant or main point of growth for a plant. Typically located at the end of a plant stem.

**Topped**

Condition in which the top of a tree has been reduced/removed by stubbing off major limbs.

**Transmission**

A line voltage system used for carrying high voltages (in the range of 34.5kv to 46kv) from power suppliers to VEC substations with the purpose of serving VEC distribution systems.

**Tree**

A woody plant, normally maturing at 20 feet or more in height and achieving a diameter at breast height of at least 4 inches.

**Under Pruning**

Removing limbs from the lower portion of the tree crown to allow conductors to pass below the tree. All cuts should be made as close as possible to the branch collar at the base of the branch.

**VEC**

Vermont Electric Cooperative, Inc.

**VEC Vegetation Management Staff**

Any individuals employed by VEC and designated by VEC Management to implement the Vegetation Management Program. The VEC Vegetation Management staff will be SAF Certified Foresters and/or ISA Certified Arborists.

**VEC System Operator**

Any individual employed by VEC and designated by VEC Management to interact with members on service problems, dispatch line personnel to restore power and correct service problems, monitor and record power system flows, control generation and transmission system switching and issue work clearances.

**Waterbar**

A man-made device designed to turn running water and/or drain wet sections of a road or trail.

**Windrow**

A long, low heap or pile of cut vegetation.

**Watersprouts**

Growth shoots originating from growth nodes either on the surface or buried in the old wood of a plant. The new growth is very thin relative to the parent branch and the joint between the sprout and branch is quite weak.

### **Water Supply Areas**

Areas controlled or owned by a public or private agency used for water supply purposes.

## **Field Considerations**

### **Accessibility**

VEC's roadside utility lines are accessed by state, local and private roads. The Contractor shall be responsible for, at his/her own expense, returning all road surfaces to as good or better condition as they were initially.

All temporary traffic control installation, maintenance and removal shall comply with the Manual on Uniform Traffic Control Devices (MUTCD) as published by the U.S. Department of Transportation Federal Highway Administration and adopted by the Vermont Agency of Transportation.

A copy of VEC's Annual Routine Maintenance and Emergency Repair Permit from the VT Agency of Transportation (VTrans) shall be kept on-site on every roadside job site.

The Contractor shall be responsible for contacting the local VTrans District Transportation Office in advance of vegetation maintenance scheduled to take place on State roadways, to notify them when, where, and how long, maintenance activities will take place (See Exhibit 1 – VEC VT Public Roads Contact List). Discussion should include details of work plan and determine if there are any concerns or sensitive areas to be aware of.

The Contractor shall be responsible for contacting the local Road Foreman/Town Office in advance of vegetation maintenance scheduled to take place on Town roadways, to notify them when, where, and how long, maintenance activities will take place. Discussion should include details of work plan and determine if there are any concerns or sensitive areas to be aware of.

Off-road sections shall be accessed by a single route wherever possible. If any variations from the original access are needed, the Contractor must have the approval of the property owner or their representative and the VEC Vegetation Management staff. The Contractor shall restore, to its original condition, or the landowner's satisfaction, at Contractor's expense, all property so damaged during the operation.

### **Erosion Control**

Compatible vegetation shall be identified and retained to stabilize the soil and limit potential soil erosion.

Vehicle and equipment tracks leading to rutting of access roads and damage to fragile parts of the right-of-way shall be avoided. Any unavoidable damage shall be repaired upon impact. Where necessary, waterbars shall be installed to drain wet sections of access roads and minimize erosion problems. Extra caution is needed where soils are sandy and/or where the terrain is steep.

Erosion along stream banks is of particular concern. If incompatible species dominate the species composition of a stream bank, removing all vegetation during one cycle shall be avoided, if possible. If removing all vegetation cannot be avoided, appropriate erosion control methods shall be implemented.

Mechanical vegetation control methods which result in significant soil disturbance will be followed with the installation of waterbars and seeding and mulching where necessary, to minimize soil erosion. Where possible, sensitive areas will be left covered with vegetation to help stabilize the soil. Additional detailed erosion control methods can be found in VEC's Environmental Guidance Manual (See Exhibit 2).

#### **Fences, Stonewalls, Blazed Property Lines**

Fences or stonewalls that are damaged within the right-of-way or along access roads, will be restored to the condition they were in before the job began (at the Contractor's expense). All gates and fences will be kept closed unless otherwise directed. The Contractor will be responsible to see that any livestock in or near the work area are kept safe and not allowed to escape their pasture area as a result of vegetation management activities.

Blazed property lines will be maintained where practical. The Contractor will contact the VEC Vegetation Management staff when blazed trees are found in or on the edge of the right-of-way. If a blazed property line tree is a danger tree, it shall be topped and/or pruned, rather than removed whenever possible.

#### **Fire Protection**

All Federal, State and local fire protection laws and regulations shall be adhered to and the Contractor shall be responsible for obtaining any necessary permits.

#### **Invasive Insects**

The Contractor shall ensure all field personnel receive adequate continuing education on the threat, identification and mitigation of invasive insects and pathogens that threaten Vermont. Crews shall comply with all State and Federal quarantines and follow all case specific mitigation and response guidelines for individual species of concern.

All suspected specimen trees or insects outside of previously confirmed areas are to be reported to VEC Vegetation Management staff upon observation and

crews are to withdraw from the site and work elsewhere until results are confirmed or denied. Debris handling of any existing debris, at the time of observation, will follow published mitigation/slow the spread guidelines and/or be left on-site.

### **Emerald Ash Borer**

Ash removal is to be considered a top priority within EAB Confirmed Infested and High-Risk Areas. Following consultation with Vegetation Management staff to determine appropriate level of removals, crews shall observe the following guidelines:

- Conduct appropriate outreach to VEC members explaining the threat to safety and reliability and importance of slowing the spread (i.e. not moving wood left on site).
- Conduct a thorough hazard tree evaluation before working on dead or dying Ash trees and use extreme caution when operating in and around all Ash trees.
- Remove ash trees (white, green and black) on the edge of established rights-of-way.
- Remove ash trees (white, green and black) beyond the edge of established rights-of-way, which are within striking distance of the primary lines and:
  - exhibit visible signs and symptoms of decline
  - have co-dominant stems.
  - are located on the prevailing wind side of the primary line in a location prone to high winds.
  - are located in an area where equipment access is limited and/or would be very costly to access.
- Chip as much visibly infested Ash material as possible and leave chips on site where feasible or dump locally. Do not move chips outside Confirmed Infested and/or High-Risk Area(s). Leave all round wood on-site. Do not move wood outside of Confirmed Infested Area. Minimize the risk of wood theft and possible movement outside of Confirmed Infested Area by leaving wood in larger sizes that make it difficult to move (coordinate/communicate with landowners).

All vegetation maintenance activities conducted in response to EAB mitigation will be recorded and tracked separately from routine vegetation maintenance activities.

### **Invasive Plant Species**

All equipment shall be field-cleaned of visible soil or vegetation prior to entering or leaving VEC rights-of-way to prevent the spread of invasive plant species. Additional guidance can be found in VEC's Environmental Guidance Manual (See Exhibit 2).

Invasive plant species which represent safety and worker and/or public health concerns shall be treated with herbicides when encountered within rights-of-ways scheduled and permitted for Integrated Vegetation Management (IVM) applications (unless restricted due to landowner concerns, buffers on water or sensitive areas, etc.).

**Pipelines/Railroads**

If it becomes necessary to cross any pipeline or railroad with equipment, it shall be the responsibility of the Contractor to work with VEC to obtain the necessary permission for such a crossing from the appropriate companies and comply with all required conditions. The Contractor shall hold VEC harmless from all claims resulting from such crossings.

**Rare, Threatened, and Endangered Species**

The Contractor shall review project maps to identify the location of Rare, Threatened, and Endangered species (RTE's) and work with VEC Vegetation Management staff to approach vegetation management needs with the least amount of impact to (RTE's), including the implementation of VELCO/GMP Best Management Practices for the Avoidance of Listed Threatened and Endangered Species IVM and O & M Activities on VEC's Transmission System and all State Lands. Additional details can be found in VEC's Environmental Guidance Manual (See Exhibit 2).

**Screens**

Over the years, many screens have been established to lessen the visibility of VEC's transmission and distribution system. These should have the following characteristics:

- Adequate clearance for maintenance of vegetation present.
- Suitable low growing vegetation.
- Shallow depth for ease of maintenance of vegetation (less than 25ft).
- Not act as a major barrier to right-of-way access and line maintenance.
- Adds to the overall aesthetics (e.g. a hedgerow at the edge of a field often may be suitable because of low growing shrubs and it tends to maintain an existing natural area).

The vegetation should not be allowed to grow any closer than 12 feet from the lines.

If the above criteria cannot be met, then the screen shall be cut or not established. The VEC Vegetation Management staff shall make this determination. It is far better to plant the proper shrubs than to try to maintain a problem area.



**Secondary Lines and Service Drops**

Routine vegetation maintenance is not conducted on secondary lines and service wires. These are lower voltage, heavily insulated conductors and have the ability to more safely co-exist in close proximity to vegetation, without representing the same threat to safety and reliability as that which exists when vegetation is in close proximity to the higher voltage primary lines.

Secondary lines and service wires that have a tree or branch laying on them (hard contact) and have the potential for pulling out the point of attachment and/or breaking or damaging the electric facilities, are a maintenance priority and shall be turned into the VEC Control Center (802-730-1219) immediately. VEC Control will dispatch VEC line personnel to evaluate the situation and the appropriate resources within the district will be scheduled to remedy the situation as soon as possible.

Secondary lines and service wires which have vegetation touching them, but do not pose an immediate/significant threat to safety or reliability, are a lower priority. Those branches which pose a potential threat to safety or reliability, should be pruned when crews are in the area conducting scheduled vegetation maintenance activities. Unlike maintenance on primary lines, the member may be responsible for clean-up.

**Stream Crossings and Shoreland**

Selective removal of trees and retention of compatible species, favoring crown closure to provide shade shall be utilized near stream crossings and shoreland. Existing bridge crossings should be utilized to the maximum extent possible for equipment crossings, holding fording to a minimum in areas where it is necessary to cross streams and/or rivers, the Contractor will be responsible for obtaining all necessary permits or written approvals.

Stream crossings shall be made perpendicular to the stream channel. They should be located where the channel is narrow and well defined, the banks are stable, and the approaches are a gradual grade.

Soil compaction and/or rutting shall be avoided to the greatest extent possible and repair of all such unavoidable damage shall take place upon impact.

All Stumps are to be left in place so that the root mats will help maintain bank stability.

All slash and woody debris shall be removed from all streambeds (with or without water in them) and shorelines and located far enough away that it would not enter the water in a high-water event.

Additional guidance can be found in VEC's Environmental Guidance Manual (See Exhibit 2).

### **Vegetation to Avoid When Cutting**

- **Compatible Species**

Vegetation that will not have a negative impact on the conductors or accessibility shall be retained (See Exhibit 3 – Compatible Vegetation List). The Contractor's Foreperson shall be trained to differentiate between low growing desirable shrubs, trees, and high brush. If there are questions, the VEC Vegetation Management staff shall be contacted. Many plants, such as alder, arbor vitae, sumac (in some cases), bayberry, hawthorns and others are suitable for wildlife habitat and will tend to discourage encroachment of trees. Some conifers may be left in areas where there is suitable species and/or clearance. This shall be determined by the VEC Vegetation Management staff.

- **Trees in Hard Contact with Electric Facilities**

All trees or branches in hard contact with the electric facilities (i.e. vegetation is laying on the conductor(s) (primary or secondary), pushing the wire(s) down, creating a safety hazard or potential for breaking and/or damaging the electric facilities), shall be reported to the VEC Control Center (802-730-1219) immediately. VEC Control will dispatch VEC line personnel to evaluate the situation and the appropriate resources within the district will be scheduled to remedy the situation as soon as possible. NOTE: Vegetation coming into contact with the electric facilities resulting in burning or arcing shall be considered a hard contact.

- **Christmas Trees**

Christmas tree plantations may be allowed to grow as determined by VEC Vegetation Management staff. If any area appears to have been used for harvesting Christmas trees, it shall be skipped and the VEC Vegetation Management staff shall be notified.

- **Ornamental Plantings**

All plantings of this type should be referred to the VEC Vegetation Management staff for review. If plant species are of acceptable mature height and are environmentally compatible with the right-of-way, poles, lines and equipment; no further action is required.

If they are not, the property owner should be notified. When the latter situation results in vegetation that is less than 12 feet away

from the conductors, the Crew Foreperson will work with the property owner and VEC Vegetation Management staff to resolve the situation and achieve adequate clearance.

- **Natural Trees Near Residences or Commercial Buildings**

Unless previously maintained, trees, which are growing naturally (as opposed to being planted) within the minimum clearance distance, near residences or commercial buildings, should be cut after notification of the property owner.

- **Cherry Trees in Pastureland**

Cherry tree leaves that are wilting are poisonous to animals. It is important that unless these trees are cut during the dormancy period when they are not in leaf, their branches are removed from pastures or the trees are left uncut until the farmer is notified and animals can be removed. When this situation occurs, it shall be reported on the weekly maintenance report, including specific location.

### **Water Quality and Supply Area**

The Contractor shall not cause the discharge of any materials into the waters of Vermont including but not limited to organic material, pesticides and petroleum products.

All man-made and natural water supply areas will be left undisturbed. Springs, pipelines and natural watercourses fall into this category.

### **Wetlands and Riparian Areas**

The Contractor shall review project maps to identify the location of wetlands and follow the Vermont Wetland Rules (See Exhibit 4 - Section 6.08 Best Management Practices for Repair and Maintenance of Overhead Utilities) to avoid and minimize all impacts of vegetation maintenance activities to wetlands and buffer zones.

Low growing herbaceous plants and shrubs shall be preserved and encouraged in wetlands and riparian areas.

Brush shall not be placed in areas of open water and may be lopped and scattered, outside of the wire zone, as opposed to windrowed, where densities allow.

Hand cutting shall be the primary method of mechanical vegetation control.

When necessary, use of heavy equipment and tracked vehicles in wetlands should take place with snow pack and cold temperatures, during very dry conditions, and/or with the use of mats to minimize disturbance.

Access should be limited to upland areas and/or existing maintained roads, to the extent practicable and all efforts shall be made to avoid/minimize rutting, erosion, and/or compaction.

Waste disposal and equipment refueling shall be limited to areas outside the wetland and at least 50 feet from wetlands or surface waters. Additional guidance can be found in VEC's Environmental Guidance Manual (See Exhibit 2).

Chemical control will be implemented in accordance with a permit granted by the VT Agency of Agriculture.

## **Operation Standards**

### **Supervision**

VEC's Vegetation Management staff will direct the Contractor's General Foreperson or Supervisor of the work areas and be in charge of vegetation management operations, communicating to the crew(s) through the General Foreperson/Supervisor.

VEC will provide assistance to the Contractor for locations of access and parking areas. All rights-of-way will be previewed with VEC's Vegetation Management staff before operations begin. The Vegetation Management staff will provide the General Foreperson with a line map and all known records pertinent to the individual right-of-way.

The Contractor is responsible for providing adequate supervision of all employees at the work site. The Contractor must effectively supervise employees to ensure the satisfactory completion of all applicable vegetation management operations safely and efficiently. This includes routine inspections of crew production and quality of work, any necessary discipline or remedial training, provision and maintenance of tools and equipment, provision of necessary maps, etc.

### **Crew Coordination**

The General Foreperson or Supervisor will coordinate activities and assist the Crew Forepersons on a regular basis.

### **Crew Forepersons**

A crew Foreperson shall:

- be capable of supervising all work performed by his/her crew to the satisfaction of the VEC Vegetation Management staff.
- be responsible for the crew's production and proper work techniques, as well as for ensuring that the crew operates in a safe and prudent manner.

- maintain accurate records and notes concerning the crews' work.
- be familiar with the contents of these specifications and carry them out.

**Crew Size**

The standard cutting crew consists of three people (one foreperson, one climber and one laborer). The minimum for light maintenance will be one man plus a working foreperson. Two-person cutting crews shall not be used in remote areas. In certain situations, it may be necessary to have a crew of four or more as per the VEC Vegetation Management staff.

Herbicide application crew make-up is determined based on the access, brush density and width of the right-of-way along the specific line sections to be treated. The minimum for light maintenance will be a two-person crew. All herbicide application crews shall have a minimum of one crew member on-site and within voice command, who is a certified herbicide applicator in the state of Vermont.

Larger crews consisting of several applicators and a support technician to move materials and equipment will need to have at least two certified herbicide applicators, as the individual handling/moving the material must be certified and there must be a certified applicator within voice command of the physical application taking place.

**Public Relations**

Supervisors must have sufficient public relations skills to be able to effectively communicate with the public as the need arises. Supervisors and workers shall be presentable and act professionally. If necessary, contact with members, landowners, and public officials shall be courteous and businesslike. Any discussion of impending maintenance shall be clear and precise in order to avoid misunderstanding or apprehension. If a misunderstanding occurs and cannot be resolved, the Contractor shall notify the VEC Vegetation Management staff. Trucks and other equipment shall be kept clean and neat and in good working order.

**Work Schedule**

The General Foreperson shall submit a weekly work schedule to the VEC Vegetation Management staff, identifying daily crew locations. Time shall begin and end on-site; travel time is at the Contractor's expense. If time is lost due to a holiday, inclement weather or other reasons, it may be made up on Saturday, or working additional hours per day (only with the approval of the VEC Vegetation Management staff). Invoices will not be paid if advanced approval is not secured.

**Work Progression**

The Contractor shall work progressively along the line and shall complete all assigned work before starting work in another location. Exceptions shall be approved in advance by the VEC Vegetation Management staff.

**Equipment and Tools**

Each line clearance truck will be equipped with a complement of tools that allows the Contractor to complete the assigned work efficiently, professionally, and productively. All-Terrain Vehicles (ATV's) may be used in areas with poor access with landowner permission and approval by the VEC Vegetation Management staff. All trucks, chippers, and saws are to be maintained so that the safety, quality and quantity of work completed is not impaired (See Exhibit 5 – VEC Operating Procedure OP 27 Part One: Oil Spill Reporting Procedure). VEC reserves the right to request that equipment experiencing excessive mechanical problems be replaced. Routine maintenance of equipment by the Contractor will not be completed during normal working hours unless authorized by the VEC Vegetation Management staff.

All equipment will be invoiced according to actual use. VEC will not be invoiced for spare or idle equipment present on the job site.

**Maintenance Reports**

VEC shall furnish Utility Line Vegetation Maintenance Report Forms (See Exhibit 6). The crews shall turn in these reports weekly, which are to be completed on a daily basis and made available to the VEC's Vegetation Management staff. The work report includes identification of the crew Foreperson, all labor and equipment hours and specific daily work location information, including the distance of line covered and distance of line cut at each location. VEC shall furnish a Vegetation Maintenance Invoice Summary Sheet (See Exhibit 7). The Contractor shall complete and submit this form electronically along with all invoicing. Payment may be withheld as a result of incomplete Maintenance Reports and/or Invoice Summary Sheets.

**Work Assignment and Reporting**

The Contractor shall be responsible for receiving work assignments, navigating throughout VEC's service territory and reporting all completed vegetation maintenance activities with the designated map-based mobile software application(s).

**Billing**

Invoices will be submitted monthly and accompanied by Maintenance Reports and Vegetation Maintenance Invoice Summary Sheets. Substation name and number will be listed. If two different Substations have been worked on during

one week, separate maintenance reports will be submitted for each. All invoices must be approved by the VEC Vegetation Management staff.

**Line Defects**

Any line defects observed, such as excessive conductor sag, broken insulators, broken guy wires, split crossarms, etc., shall be reported directly to VEC's Control Center (802-730-1219) in a timely manner.

**Work Inspection**

The Contractor's work shall, at all times, be subject to inspection by the VEC Vegetation Management staff and public authorities. Contractor shall notify the VEC Vegetation Management staff of any proposed changes in daily crew assignments or working hours sufficiently in advance.

**Improper Work Techniques**

Any variance from instructions given the crew by the VEC Vegetation Management staff or from VEC policy as stated herein, will be grounds for dismissal of Foreperson and/or all or any member of the crew from VEC rights-of-way.

**Property Owner Notifications**

The Contractor has the primary responsibility for contacting property owners prior to the commencement of vegetation management work. Acceptable methods of notification include personal contact, phone, email, hang-tag (See Exhibit 8), and/or letter and broad scale notifications through email and/or automated phone calls may be coordinated through VEC.

Where personal notification has not been made, mechanical maintenance activities will not take place for a minimum of 5 days following the placement of a VEC member notification hang tag, email, or automated phone call and herbicide applications will not take place for a minimum of 15 days. If these time periods have passed and the hang tag has not been removed from the door, the Contractor shall notify VEC Vegetation Management staff of the location and obtain any available contact information to facilitate notification prior to maintenance activities.

A reasonable effort will be made to identify property owners at locations where there is not a nearby residence prior to mechanical clearing operations.

Town tax maps/records will be reviewed to identify unknown property owners where herbicide applications are planned and application should only take place following personal contact and clear identification of property boundaries (See Herbicide Application – Property Owner Notification Process on pages 30-31).

## **System Operation Procedures**

### **Contact Availability**

All Crew Forepersons shall carry a cell phone and the Contractor shall provide VEC with a contact sheet including cell and home phone numbers for all Crew Forepersons, as well as Company Management. The Contractor and their employees shall respond to all calls from VEC immediately.

### **Notification of Work Locations**

Crew Forepersons shall notify the VEC System Operator (802-730-1219 or 800-832-2667) prior to commencing work on a daily basis. Notification shall include specific work location(s) identified by substation, device, line number, structure number, and road location. Notification of work location shall take place when conducting member notifications, as well as when conducting maintenance activities. The Crew Foreperson shall also notify the VEC System Operator if they change locations during the day and when they go off the VEC system each day.

Calling on and clearing off the system must be done on location and shall not be done from home or the garage. Calls for work locations where there is not cell service must take place as close as possible to on-site arrival and departure.

Crew locations are entered in the Control Center Daily Log, identifying the location of all vegetation maintenance crews (including herbicide application crews) as they call in. The crew will not be logged off the system until the Crew Foreperson has cleared off the system through System Operations.

In the event of an outage on a circuit identified as having a line clearance crew or herbicide application crew on location, the VEC System Operator will not re-energize the conductors until he/she has made contact with the Crew Foreperson on that line, and an “all clear” is received.

If the line clearance/herbicide application crew(s) does not clear off the line(s) by 6:30 p.m., or they cannot be reached, unless otherwise notified, the VEC System Operator will contact the Contractor’s General Foreperson or a member of the VEC Vegetation Management staff. These individuals have the authority to report the line clearance/herbicide application crew(s) as cleared off the line.

### **Outages**

When working on or near energized facilities, the Contractor shall take all necessary precautions to prevent any unscheduled outages and/or damage to facilities.

Crew Forepersons shall carefully and continually monitor the safety of their crew while involved in vegetation maintenance activities near energized electric



facilities. When specific vegetation conditions result in situations where the required maintenance is unsafe, the Contractor shall take the appropriate measures and request blocking of automatic re-closing or a scheduled outage.

The Crew Foreperson is responsible for requesting blocking of automatic re-closing through VEC System Operations. Requests shall be placed when conducting vegetation maintenance activities in compliance with all applicable safety rules and regulations, where the Crew Foreperson determines taking additional precautions is prudent (e.g. vegetation is located beside or above high voltage transmission lines, vegetation is placing tension on the electric facility, condition/construction of the electric facility contributes to the potential for an electrical fault occurring, etc.).

A Utility Initiated Outage Request Form (See Exhibit 9) shall be submitted to VEC Vegetation Management staff for all outages being requested by line clearance crews. All trees, which are within minimum approach distances and cannot be reached with an insulated tool, shall be left untouched and reported to VEC's Vegetation Management staff along with a Utility Initiated Outage Request Form.

In the event that the Contractor experiences any contact (direct or indirect) with the electric facilities and/or is responsible for an unscheduled outage, all work shall immediately cease and desist, the crew will clear off the line and the Crew Foreperson will notify the VEC System Operator immediately (802-730-1219). After clearing off the line, the Crew Foreperson shall stay on site to speak with VEC Line Personnel when they arrive to restore power. An interview and post incident review shall be conducted with the entire line clearance crew by VEC's Manager of Safety and Compliance and/or VEC's Vegetation Management staff as soon as practical, following the incident. A formal incident report shall be submitted by the Contractor. The members of the line clearance crew shall not return to work on VEC's system prior to the completion of incident review and shall only return to the system upon approval by the Vegetation and ROW Management Program Manager.

Following all incidents where a line clearance crew experiences any contact (direct or indirect) with the electric facilities, all crew members present during the incident will be suspended from working on the VEC System for a period of no less than 3 business days.

Following any incident involving a fault on the line or any compromised state of the electric facility, at least one member of the crew shall remain on site to secure the scene and prevent any members of the public from entering the work zone until VEC personnel have arrived on site. Failure to comply with this requirement shall warrant immediate termination.

**Thunderstorms**

All line clearance crew(s) must clear off the line in the event of a thunderstorm. Once the thunderstorm passes, crew(s) can go back to work after obtaining proper clearances from the VEC System Operator.

**Safety Standards**

The Contractor and all contract employees shall comply with the American National Standards Institute (ANSI) standards Z133-2017 and A300 (or most recent revisions), the Occupational Safety and Health Administration (OSHA) Regulation 1910.269 (see 29 Code of Federal Regulations Part 1910) and all applicable electric cooperative safety rules. Any Contractor-produced or adopted safety rules should be presented to VEC for review and approval.

Safety Procedures shall include, but not be limited to the following:

- General safety supervision
- Instruction of new employees
- Written pre-job safety briefings (See Exhibit 10 – VEC Line Clearance Contractor Job Briefing Form)
- Briefings shall include identification of the closest emergency 911 address to the work location and cover at a minimum: energy source controls, job hazards review, work procedures, special precautions and personal protective equipment.

The Contractor shall collect and review all pre-job safety briefings and provide copies to VEC Vegetation Management staff weekly.

- Use of correct protective equipment and gear
- Proper equipment operation
- Location and use of safety equipment and signs on the job
- Other miscellaneous safety considerations (hidden guy wires, brush covered holes, barbed wire, hidden ledges, boulders)
- Observation of a dangerous situation

It is the Contractor's responsibility to conduct all vegetation management activities in a safe manner. When the condition of vegetation and/or electrical equipment represents an unsafe situation (e.g. vegetation in hard contact with electrical facilities, broken insulators or other hazardous or unusual situations) the Foreperson will postpone maintenance and contact the VEC Vegetation Management staff as soon as possible.

If there is any question as to the safety of conducting vegetation maintenance activities, they shall be postponed and a temporary outage will be scheduled.

- VEC notification, of any injury or safety incident, however slight, which occurs while on VEC's system.
- Routine safety observations of all crews operating on VEC's system.

The Contractor shall ensure that each employee working on the VEC System is observed by their employer once a month.

Safety observations shall be conducted by a company Safety Manager or other designated management personnel and must include active work site observation and examination of work methods.

The Contractor shall furnish documentation and results of all safety observations to VEC Vegetation Management staff by the end of each month (See Exhibit 11 – VEC Line Clearance Contractor Safety Observation Report).

Failure to comply with all applicable safety standards may result in monetary fines levied against the Contractor based on the gravity of the safety infraction and at a rate not to exceed \$500.00 per infraction. Fines shall be levied in the form of a direct donation to a charitable organization of the Contractor's choice, with VEC's approval.

## **Operational Policy**

### **Certificate of Insurance**

Contractors will not be allowed to commence operations until VEC receives a certificate of insurance from a carrier approved by VEC, indicating compliance with insurance bonding, which VEC may specify. Insurance coverage must be satisfactory in all respects and have a clause for thirty (30) or more days prior notice to VEC of any change in coverage, including its cancellation. VEC shall be listed as a Certificate Holder and an Additional Insured. Certificates will be submitted to VEC prior to acceptance of a contract, or before commencing work.

### **Contractor Responsibility**

If the Contractor refuses, neglects, or is unable, for any reason, to supply and maintain a sufficient number of properly skilled workers and/or proper equipment to maintain the scheduled program for this work, or fail in the performance of any covenants contained in these specifications, VEC shall exercise its right to terminate the services of the crew and/or equipment.

### **Property Owner Refusals**

If a property owner refuses to allow the required tree work, line clearance employees shall not agree to reduced clearance or any other deviations from the specifications without the consent of the VEC Vegetation Management staff. All refusals shall be documented and passed on to the VEC Vegetation Management staff for follow-up.

**Complaints**

All complaints resulting from line clearance operations are the responsibility of the Contractor and if justified, shall be corrected as soon as possible. The VEC Vegetation Management staff is to be promptly notified of all complaints and their resolution. If the resolution involves commitment of extra work, approval shall be received from the VEC Vegetation Management staff before proceeding.

**Private Work**

Under no circumstances shall the Contractor's employees solicit or accept payment for services rendered or products resulting from those services (firewood, wood chips, logs, etc.) while working for VEC. Should the Contractor enter into an Agreement to provide services to a VEC member when not working for VEC, the Contractor shall notify VEC of this Agreement prior to the commencement of any work.

**Legislation**

The Contractor shall be responsible for adhering to all applicable Federal, State and local laws, rules and regulations, including but not limited to:

The Vermont Fire Warden and Slash Law as follows:

Title 10 V.S.A. 2648

(a) A person may cut, or cause to be cut, forest growth only if all slash adjoining the right-of-way of any public highway, or the boundary lines of wood lots owned by adjoining owners, is treated as follows:

(1) All slash shall be removed for a distance of 50 feet from the right-of-way of any public highway or from the boundary lines of wood lots owned by adjoining property owners.

(2) All slash shall be removed for a distance of 100 feet from standing buildings on adjoining property.

(c) If, in the opinion of the town forest fire warden there is no fire hazard as a result of a cutting, the warden may issue, upon request, a statement relieving the operator of the conditions required in this section.

The Vermont Tree Warden Statutes as follows:

Title 24 V.S.A. 2508. Cutting shade trees; regulations

Unless otherwise provided, a public shade tree shall not be cut or removed, in whole or in part, except by a tree warden or his deputy or by a person having the written permission of a tree warden.

The Vermont Highways Statutes as follows:

Title 19 V.S.A. 901. Removal of Roadside Growth

A person, other than the abutting landowner, shall not cut, trim, remove or otherwise damage any grasses, shrubs, vines, or trees growing within the limits of a state or town highway, without first having obtained the consent of the agency for state highways or the board of selectmen for town highways.

## **LINE CLEARANCE, TREE PRUNING AND REMOVAL OPERATIONS**

### **Scope**

This section covers the policies, methods, procedures, and other information necessary to guide those engaged in utility line clearance, tree pruning and removal work. All line clearance work shall be completed in conformance with these specifications.

### **Tree Pruning Guidelines**

Trees that have the potential to interfere with primary lines should be pruned or removed to obtain clearances from tree branch parts. All pruning shall be performed with consideration given to the impact of that pruning on line reliability, individual tree condition and tree aesthetics. All pruning shall adhere to the American National Standards Institute (ANSI) Std. A300, "Tree, Shrub, and Other Woody Plant Maintenance-Standard Practices," and other established and widely accepted pruning guidelines such as those presented in The International Society of Arboriculture's "Best Management Practices Utility Pruning of Trees" and/or Dr. Alex Shigo's booklet titled "Pruning Trees Near Electric Utility Lines." All work will be performed with respect to property owners and their lands.

**Cutting Methods** – The following is a description of the various cutting methods involved in the maintenance of VEC's rights-of-way.

### **Prime Flat Clearing**

This refers to the initial cutting of a right-of-way to establish a corridor for a utility line. All trees within 25 feet of the center pole line on distribution lines shall be removed in preparation for the installation of bare conductors. All trees within 15 feet of the center pole line on distribution lines shall be removed in preparation for the installation of insulated conductors. All trees within 50 feet of the center pole line shall be removed in preparation for the installation of transmission lines.

**Maintenance Cutting**

This refers to the cutting of incompatible species of vegetation in an established right-of-way to allow accessibility and protection for existing utility lines. Includes flat cutting of all brush within the right of way to ground level, as well as proper pruning of all branches growing over or towards conductors and removal of trees, which cannot be properly pruned to provide adequate clearance.

**Widening and Side Pruning**

Widening refers to the cutting of an established right-of-way back to legal and/or proper width. Side pruning refers to the cutting of large limbs that are growing over or toward conductors.

**Selective Cutting**

This refers to cutting in special areas (screens, urban, ornamentals, parks, or other established maintenance work). Selective cutting often requires climbing or bucket work and usually chipping and/or brush removal.

**Minimum Tree-to-Conductor Clearances**

When pruning trees for clearance around primary overhead distribution conductors (2.4 kV, 4 kV, 12 kV & 34.5kV), a minimum of 10 feet of clearance on each side of the outside conductor and 20 feet of clearance for all branches that overhang the conductors shall be achieved. Additional clearance should be achieved on branches that could bend (due to snow or ice loading) or break and contact the conductors below. Clearances may need to be reduced in rights-of-way where the total easement width is 20 feet, depending on member permission.

When pruning trees for clearance around transmission lines (34.5KV & 46KV), a minimum of 15 feet of clearance on each side of the outside conductor shall be achieved. No branches shall be left overhanging the conductors.

These clearances should be considered minimum unless the tree is properly side pruned back to the main trunk or a major limb. The tree's location, health, species, and growth rate should be considered when deciding appropriate/acceptable clearances.

\*Note: Minimum tree-to-conductor clearances are not to be considered the standard or acceptable for general clearance and are only intended to be used in limited situations where optimal clearance is not achievable, due to special circumstances. In general, clearing shall include the removal of all incompatible vegetation within the right-of-way from outside edge/mature tree line to outside edge/mature tree line.

**Pruning Practices** – The following is a description of the pruning practices to be implemented in the maintenance of VEC's rights-of-way.

**Directional Pruning**

All pruning shall be performed to direct tree growth away from the conductors. Branches that, when cut, will produce watersprouts that would grow into facilities and/or utility space should be removed.

**Drop Crotch Pruning**

Limbs and branches shall be cut back to a suitable lateral limb or branch that is at least one-third of the diameter of the one being cut. If a proper sized limb or branch is not available, the pruning cut shall be back to the parent branch or the tree trunk.

A minimum number of pruning cuts should be made to achieve the required clearance and the natural structure of the tree should be considered.

**Proper Pruning Methods**

Proper pruning methods include the following:

- Crown Reduction
- Crown Raising
- Side Pruning
- Overhang Pruning
- Under Pruning

**Improper Pruning Methods**

Roundovers, topping, stubbing of branches or limbs, or pollarding shall not be done. Exception shall be made only as a last resort, in response to member refusal to authorize proper pruning techniques.

**Quantity Removed**

Only healthy trees shall be pruned. Not more than 25 percent of the foliage should be removed in any one growing season. Removal of more than 25 percent of the foliage can adversely affect the health and/or appearance of the tree. If removal of more than 25 percent of the foliage is required to provide proper clearance, serious consideration should be given to removal of the tree. The percentage and distribution of foliage to be removed shall be adjusted according to the plant's species, age, health and site.

Not more than 25 percent of the foliage of a branch or limb should be removed when it is cut back to a lateral. That lateral should be large enough to assume apical dominance.

**Proper Pruning Cuts**

Proper pruning cuts are very important in preventing future decay in the tree. Cuts should be made close to the main stem or parent limb, without cutting into the branch bark ridge or collar. Refer to ANSI Std. A300, "Tree, Shrub, and Other

Woody Plant Maintenance Standard Practices," The International Society of Arboriculture's "Best Management Practices Utility Pruning of Trees" and/or Dr. Alex Shigo's booklet titled "Pruning Trees Near Electric Utility Lines" for guidance on making proper pruning cuts.

**Wound Treatment**

Research has shown that the past practice of painting cuts with asphalt tree paint does not prevent decay and, in fact, may hasten it. Therefore, wound treatment should not be used to cover wounds or pruning cuts, except when recommended for disease or insect control. Wound treatments that are damaging to tree tissues shall not be used.

**Residual Pruning Damage**

Tree branches shall be removed in such a manner so as not to cause damage to other parts of the tree or to other trees, plants or property. Branches or limbs too large to support with one hand shall be precut to avoid splitting of the wood or tearing of the bark. Limbs shall be removed with proper sequence and placement of saw cuts to prevent stripping or tearing of bark from the remaining limb, branch, or trunk. Where necessary, ropes and/or other equipment shall be used to lower large branches or portions of branches to the ground. See ANSI Std. A300, "Tree, Shrub, and Other Woody Plant Maintenance-Standard Practices," The International Society of Arboriculture's "Best Management Practices Utility Pruning of Trees" and/or Dr. Alex Shigo's booklet titled "Pruning Trees Near Electric Utility Lines" for guidance.

**Hangers**

All branches, limbs, and tops that hang up in the tree being worked on, or in adjacent trees, shall be removed before moving from that work site.

**Climbable Trees**

Climbable trees are defined as trees having sufficient handholds and footholds to permit an average adult or child to easily climb the tree without the use of a ladder or special equipment. Climbable trees within VEC rights-of-way in areas where people live or normally congregate shall be considered for removal or modification by the removal of the lower limbs.

**Tree Houses**

All tree houses, platforms, or other tree structures that are in close proximity to overhead wires and are encountered during line clearance operations shall be reported to VEC's Vegetation Management staff for follow-up. The adjacent property owner shall be notified that the structure must be removed to eliminate a potentially hazardous situation.



**Special Clearance**

All deadwood and tree parts weakened due to decay, included bark, or split crotches shall be removed if they pose a potential hazard to primary lines or structures.

All vines that are climbing poles or guy wires shall be cut at ground level. The vines should only be removed from the poles or guy wires by use of properly insulated tools if the vines are in contact with energized conductors or equipment.

**Tree Removal**

Consistent with safety, satisfactory line clearance, economic operation, public relations, and the appearance of public roads, it is desirable to remove trees under certain conditions rather than to prune them. Whenever justified, tree removal should be considered. Low-growing, desirable plant species shall not be removed unless they present a hazard to the system or line workers, or if they hinder access to the line facilities.

**Removal Conditions**

Trees shall be removed when the pruning necessary to provide proper clearance:

- would likely result in the death of the tree.
- would put the line clearance crew or the public in greater danger than removal.

Trees which due to size, location and/or condition have the potential for damaging the conductors or structures within the next maintenance cycle shall be deemed Danger/Hazard Trees and removed during routine maintenance activities and/or upon identification.

The Contractor shall remove or make safe all identified danger/hazard trees. In addition, the Contractor shall primarily remove small trees (less than 12 inches d.b.h.) of undesirable species within 10' of the outside conductor and all whips or saplings within the right of way.

Danger/Hazard Tree Removals are to be evaluated/assessed based on the following criteria:

**Species**

- Expected failure rates of particular tree species
- Tensile strengths of wood
- Longevity
- Rooting characteristics

### **Growth Patterns**

- Phototropism – tree growing towards sunlight
- Lean
- Crown Size
- Crown Density
- Vigor
- Root Collar Visibility

### **Site Factors**

- Location
- Slope
- Shallow Soils
- Soil Compaction
- Wet Soils
- Stream Banks
- Erosion
- Wind Exposure

### **Structural Defects**

- Poorly attached leaders/crotches with included bark
- Multi-stems – Co-dominant leaders
- History of Failures

### **Disease**

- Death, defects or decline caused by disease or insects
- Cankers, Galls, Burls, Conks, Mushrooms, Sap Ooze

### **Decay**

- Storm damage
- Mechanical damage
- Frost cracks
- Sun scald
- Disease

### **Felling**

Trees shall be felled away from the conductors whenever possible. If this is not possible, they shall be topped before being felled to prevent the possibility of the tree striking the conductors.

### **Cut Stumps**

Cut stumps shall not be more than 3 inches above ground and parallel with the grade (no angled cuts). This standard may vary with approval of the VEC Vegetation Management staff as per field conditions. Stumps left higher than 3

inches due to snow depth shall be cut down to the 3-inch standard at the Contractor's expense or within the contracted cost of the project, as soon as practical following snow melt, but no later than May 15th.

**Special Deals**

Special deals shall not be negotiated with property owners. When a landowner requests or requires the Contractor to do special removal and/or pruning work that is outside the scope of the assigned work, the Contractor shall notify the VEC Vegetation Management staff prior to performing any work.

**Disposal Procedures**

As specified by the VEC Vegetation Management staff, all trees, brush, and other woody residue shall be disposed of in accordance with the procedures outlined below.

**Chipping**

Chipping will be the primary method of handling slash from pruning and tree removal operations and shall be done along roadsides, as well as within manicured lawns, established trails and other areas utilized by the public. Brush near established trails through wooded areas where equipment access is limited will be windrowed with breaks in the windrows to maintain trail access.

Wherever possible, chips shall be blown along the right-of-way, where they will help to slow and/or impede regenerating vegetation. Chips should not exceed 12 inches in depth, and they should not enter surface water, clog culvert pipes or ditches, or accumulate in the branches of nearby trees. Chips may also be prohibited from being blown along the right-of-way by some permit conditions, such as with the VTrans Annual Routine Maintenance and Emergency Repair Permit.

In the event that a member objects to chips being blown within the right-of-way, chips may be blown into the woods or removed. If chips are removed from the site, they must be properly disposed of.

**Brush Piles**

In rural, off-road areas, brush shall be moved away from poles, out from under the conductors and neatly windrowed along the right-of-way edge. Windrows shall not be more than 4 feet high and the specific location will not interfere with roads, trails, streams, and property lines.

There will be a 20' firebreak in the windrows every 500 feet.

**Lop and Scatter**

Upon approval by VEC Vegetation Management staff, in rural areas where slash density is light and/or upon member request, the slash may be lopped into

smaller pieces and scattered within the right-of-way, well outside of the wire zone (i.e. at least 15 ft. from the outside conductors).

**Remaining Wood**

Trees, which have been cut remain the property of the landowner and shall be left on site. Trees that appear to contain merchantable products shall be left in long lengths (except when it is necessary to take them down in smaller sections). All remaining wood shall be left in manageable lengths, as directed by the member and piled at the edge of the right-of-way (leave wood log length whenever agreeable with the member).

**Job Site Cleanup**

Upon the completion of work, the Contractor shall leave the work site clean and tidy. All pruning debris and wood shall be disposed of according to the relevant specifications. Contractor shall not dispose of paper, cans, or other trash at the site, and shall pick up and properly dispose of any such items found during the workday. Trash is not to be mixed with pruning debris.

## **HERBICIDE APPLICATION**

### **Scope**

This section covers the policies, methods, procedures, and other information necessary to guide those engaged in target brush species control through the application of herbicides. All line clearance target brush species control work shall be completed in conformance with these specifications, in addition to all other relevant specifications contained in this document.

### **Herbicide Permit**

VEC will obtain a permit from the Vermont Agency of Agriculture to conduct all scheduled herbicide treatments along the utility rights-of-way, which will be reviewed with and made available to the Contractor prior to herbicide application operations.

### **Herbicide Registration and Approval**

Herbicides used for vegetation management must be registered for use by the United States Environmental Protection Agency and approved for use by the Vermont Agency of Agriculture. The Contractor is responsible for ensuring compliance with all federal, state and local regulations governing herbicide use. Herbicides shall not be used in violation of any applicable law or regulation.

### **Specifications and Application Methods**

VEC's Vegetation Management staff will specify the location of all herbicide use and review and approve the type of herbicide, mixtures and method of application.

In all situations, herbicides shall be applied in strict conformance to label requirements and the requirements of any state or federal agency having jurisdiction, except in situations where utility experience and/or generally accepted practices within the industry indicate the need for more restrictive application.

Herbicides shall be applied only by trained applicators and each crew shall have a minimum of one crew member for small crews (2-3 persons) and two crew members for larger crews (4+ persons), who is a certified herbicide applicator in the state of Vermont.

Herbicides shall be applied to target species as directed by VEC Vegetation Management staff along the entire length and width (from outside edge/tree-line to outside edge/tree-line) of the identified right-of-way, excepting any required buffers on water supplies and/or sensitive areas.

Herbicides shall be applied only by manual methods that target individual plants or compact clusters of plants. Aerial or wide-area spraying shall not be utilized.

Herbicides shall be applied at the minimum label rate known to be effective for the target species, brush density and site.

Herbicides shall not be applied in the rain or snow or on frozen ground.

### **Equipment Condition**

All vehicles, spray units, equipment and containers must be spill and leak proof. Equipment with openings and/or connections must be sealed so that leakage will not occur. All equipment shall be properly maintained and shall carry spill control kits.

### **Security**

All vehicles used to carry herbicides shall have storage facilities so that containers/drums can be secured and locked. All chemical containers will have lockable caps and will be locked and left in a secure location whenever unattended.

### **Additive Requirements**

When performing foliar herbicide applications, an adjuvant will be added when recommended by individual product labels and/or requested by VEC.

### **Mixing Solution**

The herbicide solution must be thoroughly mixed by means of circulation or agitation prior to and during application to ensure uniform dispersion of the herbicide concentrate. The proper mixing sequence shall be followed at all times.

### **Herbicide Samples**

VEC reserves the right to sample herbicide and/or herbicide solutions at its discretion.

### **Licensing Requirements**

The Contractor shall assume full responsibility for equipment and personnel licenses as required by federal and state laws and regulations for the work covered by this specification.

### **Off-Target Dispersion**

Herbicides shall not be used at locations where, or during times when they may pose an unreasonable risk of off-target dispersion (e.g. adjacent to streams or gardens or more than moderate wind, in the rain or snow or on frozen ground). Applicators must assess surroundings and evaluate weather conditions to determine if application should be performed. This includes consideration of wind speed and precipitation condition.

The Contractor is expected to perform herbicide applications in accordance with all applicable regulations and label directions in a manner such that off right-of-way damage will not occur. If any off-right-of-way damage does occur, the Contractor assumes all liability for the correction of any damage.

### **Property Owner Notification**

VEC will conduct general notification to landowners according to Vermont Public Service Board Rule 3.6 and the Vermont Regulations for the Control of Pesticides. VEC

Vegetation Management staff will provide the Contractor with the physical address of all individuals who have previously requested that herbicides not be utilized on their property.

The Contractor is responsible for making personal contact with each individual who has requested that herbicides not be used and meeting with them to clearly identify their water supply and property lines on the ground prior to any herbicide applications.

The Contractor has the primary responsibility for making personal contact with all property owners prior to the commencement of any herbicide applications to discuss the proposed project, identify property lines and locate any un-mapped and/or non-visible water supplies. All member contacts shall be documented in an Herbicide Application Property Owner Notification Log (See Exhibit 12) and entered as a Customer Notification record in the designated map-based mobile software application. Contact records shall include crew member name and position, landowner name and contact info, date/time of contact, location of affected property, summary of conversation and actions taken (e.g. identified property lines, flagged water supply/sensitive areas, etc.).

In instances where the Contractor is unable to identify and/or contact a property owner, the Contractor will work with VEC's Vegetation Management staff to determine the appropriate course of action prior to any herbicide application.

In addition to adhering to the general Public Relations specifications discussed on page nine of this document, the Contractor must exhibit a high level of expertise in all relevant subjects related to the use of herbicides for right-of-way maintenance. The Contractor must be able to knowledgeably discuss all aspects of the herbicide application operation, including, but not limited to the effectiveness, benefits and risks of all herbicides being utilized, regulatory requirements, training of field personnel, application techniques and the transport and storage of herbicides.

### **Property Owner Refusals**

Herbicides shall not be used within the property of any landowner who has upon receiving all available information regarding the planned application, requested that herbicides not be used on their property. All refusals shall be documented and passed on to the VEC Vegetation Management staff for follow-up.

### **Herbicide Application Field Preparation**

The Contractor, working under or with VEC's Vegetation Management staff, shall review all sections of line scheduled for herbicide application to ensure that all environmentally sensitive areas are flagged in the field and noted on the map.

### **Retention of Compatible Species**

The Contractor must understand not only the products they are applying, but also understand natural plant succession and the importance of retention of low-growing,

desirable plant species. The Contractor shall ensure that all field personnel are adequately trained in the identification and avoidance of compatible species.

**Training**

The Contractor shall conduct and document training for all members of herbicide application crews prior to beginning a vegetation control program on VEC's system. Training shall include, but not be limited to:

- Herbicide application techniques
- Proper handling of herbicides
- Interpretation of label instructions
- Spill response
- Identification and retention of compatible species
- Public relations and property owner notification/contact
- Record Keeping
- First aid/CPR; equipment, electrical and fire safety; specific precautions associated with herbicide application and general safety procedures
- The complete contents of the permit issued by the Vermont Agency of Agriculture for the scheduled herbicide application
- VEC's Specifications for Vegetation Management on Transmission and Distribution Systems

**Pre-Operation Meetings**

The Contractor shall participate in a pre-season meeting with VEC and the VT Agency of Agriculture and ensure that all members of the herbicide application crew(s) are present for a pre-operation meeting conducted by VEC's Vegetation Management staff prior to herbicide application operations. Topics covered will include a review of:

- VEC line map of area scheduled for herbicide application
- Type of herbicide, mixture, rate of application and method of application
- Permit issued by Agency of Agriculture
- Sensitive areas, water supplies, wetlands, buffer strips, areas to be avoided, etc.
- Significant habitat maps
- VEC's Specification for Vegetation Management on Transmission and Distribution Systems
- Daily notification of work location
- Record Keeping

**On-Site Requirements**

The following is required to be on-site and available to herbicide application crews prior to and during herbicide application operations:



- Vermont Agency of Agriculture issued permit (including all herbicide labels and Safety Data Sheets).
- A minimum of one crew member within voice command of the physical application, who is a certified herbicide applicator in the state of Vermont.
- A VEC line map showing details including: line voltage, power lines, structures, structure numbers, county lines, town boundaries, access, water supplies, wetlands, property owner refusals/requests, etc.
- Required personal protective equipment in accordance with herbicide labels and all other applicable regulations.
- Drinking water and wash water
- Spill Kit including spill response instructions, shovel, absorbent material and container
- Herbicide Spill Response Instructions (See Exhibit 13– VEC Operating Procedure OP 27 Part Two: Herbicide Accidental Release Measures)

**Record Keeping**

The Contractor is responsible for recording all required information regarding herbicide applications and shall submit weekly reports to the Vermont Agency of Agriculture.

The Contractor shall submit VEC Utility Line Vegetation Maintenance Reports weekly, which are to be completed on a daily basis and made available to VEC's Vegetation Management staff. The original copy of the work report shall be submitted along with all invoices.

**Herbicide Application Methods**

The following provides a brief description of available herbicide application techniques acceptable for use on VEC's system.

**Selective Low-Volume Foliar Application**

Undesirable woody vegetation in rural areas below a height specified by VEC's Vegetation Management staff shall be treated with a solution of herbicide, a surfactant (if required) and water. Application is made with either a powered or hand-powered backpack sprayer. The leaf surface is lightly wetted. The applicator is to walk the right-of-way and treat each target plant individually. The spray nozzle is to be turned off when walking between target plants. Care shall be taken not to apply the herbicide to desirable or non-target species. This herbicide treatment shall be performed only during the active growing season.

**Selective Low-Volume Basal Application**

Light to moderate-density undesirable woody vegetation with a height less than the maximum specified by VEC's Vegetation Management staff shall be treated with a solution of herbicide and mineral oil. The lower 12 to 18 inches of the

target plant's stem is wetted (not to the point of run off). Application is made with a hand-powered backpack sprayer by an individual walking the right-of-way. Basal treatments can be applied throughout the year, unless snow depths prevent application to the base of the stem and root collar. VEC will not conduct herbicide applications in the rain or snow or on frozen ground.

**Cut Surface Application**

Stumps of deciduous hardwood trees that have been cut are to be treated with either an herbicide and water (or oil) solution or a "ready-to-use" (RTU) herbicide. The cambium area of the freshly cut stump is treated by an individual with a hand-powered backpack sprayer or a plastic spray bottle.

Generally, the herbicide is most effective if applied within ½ hour of the tree's being cut with water-based herbicide solutions. Mineral or basal oil stump treatment formulations can be treated any time after cutting. Treatment can be performed at any time of the year except when the stump is snow covered. VEC will not conduct herbicide applications in the rain or snow or on frozen ground. This technique should be used to control re-sprouting of removed deciduous trees that exceed maximum height restrictions for other herbicide application techniques or are located in sensitive areas. When cutting most conifers or evergreens, no herbicide application is necessary since most of these species do not readily re-sprout with the exception of pitch pine.

NOTE: The specifications in this document were adapted from those found in the National Rural Electric Cooperative Association (NRECA), Cooperative Research Network (CRN) "Vegetation Management Manual", 2000, Central Vermont Public Service Corporation's (CVPS) "Transmission Right-of-Way Management Plan", 2003 and Vermont Electric Power Company, Inc.'s (VELCO) "Four Year Vegetation Management Plan", 1999 & 2014.

# Exhibit 1.

## VEC VT Public Roads Contact List

District 5-Colchester			
	Name	Position	Number
Town	Randy Smelling	District ROW Contact	(802)655-1580
BOLTON	Eric Andrews	Road Foreman/ Commissioner	(802)434-3930
ESSEX	Denis Lutz Or Aaron Martin	Road Foreman/ Commissioner	(802)878-1344
ESSEX JCT	Rick Jones	Road Foreman/ Commissioner	(802)878-6944
HINESBURG	Michael Anthony	Road Foreman/ Commissioner	(802)482-2635
HUNTINGTON	Clinton Alger	Road Foreman/ Commissioner	(802) 434 2710
JERICO	Rodger Miller	Road Foreman/ Commissioner	(802)899-3180
MILTON	Eric Gallas	Road Foreman/ Commissioner	(802)893-6655
RICHMOND	Peter Gosselin	Road Foreman/ Commissioner	(802)434-2631
SHELBURNE	Paul Goodrich	Road Foreman/ Commissioner	(802)985-5123
ST. GEORGE	Neal Boyden	Road Foreman/ Commissioner	(802)434-2069/(802)373-2820
STARSBORO	Tom Estey/Troy Horner	Road Foreman/ Commissioner	(802)453-2319/(802)989-5096
UNDERHILL	Nate Sullivan	Road Foreman/ Commissioner	(802)899-9959
WAITSFIELD	Rodney Jones	Road Foreman/ Commissioner	(802)496-8897
WILLISTON	Mark Russell	Road Foreman/ Commissioner	(802)878-5133

District 7-St. Johnsbury			
	Stefanie Lemieux	District ROW Contact	(802)748-4417
GUILDHALL	Gary Brown	Road Foreman/ Commissioner	(802)745-8163
LYNDON	Robert Nutting	Road Foreman/ Commissioner	(802)626-5877
LYNDONVILLE VILLAGE	Joe Dopin	Road Foreman/ Commissioner	(802)626-5468
MAIDSTONE	Brad McVety	Road Foreman/ Commissioner	(802)676-3210
NEWARK	Tom Gerard	Road Foreman/ Commissioner	(802)467-3178
SHEFFIELD	Max Aldrid	Road Foreman/ Commissioner	(802)535-5806
SUTTON	Danny Jackson	Road Foreman/ Commissioner	(802)4678341
WHEELLOCK	Malcom Bisson	Road Foreman/ Commissioner	(802)745-7490

District 8- St. Albans			
	Jim Cota	District ROW Contact	(802)524-5926
ALBURGH	Jason Reynolds	Road Foreman/ Commissioner	(802)796-3253/(802)582-8744
BAKERSFIELD	Will Newit	Road Foreman/ Commissioner	(802)827-6133
BELVIDERE	Randy Katon	Road Foreman/ Commissioner	(802)752-7259
BERKSHIRE	Danny T.	Road Foreman/ Commissioner	(802)933-5592
CAMBRIDGE	Bill Morey	Road Foreman/ Commissioner	(802)644-8843
EDEN	Ricky Morin	Road Foreman/ Commissioner	(802)635-2530
ENOSBURG	Joe Clark	Road Foreman/ Commissioner	(802)933-7761
FAIRFAX	Tim Germaine	Road Foreman/ Commissioner	(802)849-6377
FAIRFIELD	Morris Jety	Road Foreman/ Commissioner	(802)393-2409
FLETCHER	Norman Rainville	Road Foreman/ Commissioner	(802)849-6178
FRANKLIN	Jeremy Franan	Road Foreman/ Commissioner	(802)2852180
GEORGIA	Todd Cadiuex	Road Foreman/ Commissioner	(802)524-3323
GRAND ISLE	Brad Sheridan	Road Foreman/ Commissioner	(802)372-4863
HIGHGATE	Butch Bruso	Road Foreman/ Commissioner	(802)868-4697 Ext 207
HYDE PARK	Mark French	Road Foreman/ Commissioner	(802)730-2729
ISLE LA MOTTE	Selby Turner	Road Foreman/ Commissioner	(802)922-7573
JOHNSON	Brian Krause	Road Foreman/ Commissioner	(802)635-2274
MONTGOMERY	Shane Reed	Road Foreman/ Commissioner	(802)326-4418
MORRISTOWN	Roland Boivin	Road Foreman/ Commissioner	(802)888-6369
NORTH HERO	Jim Martin	Road Foreman/ Commissioner	(802)372-4755
RICHFORD	Scott Coons	Road Foreman/ Commissioner	(802)848-3379
SHELDON	Ron Lontine	Road Foreman/ Commissioner	(802)370-0403
SOUTH HERO	John Beaulac	Road Foreman/ Commissioner	(802)372-4485
ST. ALBANS CITY	Marty Manahan/Rob Green/Walter Cane	Road Foreman/ Commissioner	(802)309-1134/(802)742-5522/(802)393-9151
ST. ALBANS TOWN	Alan Mashtear	Road Foreman/ Commissioner	(802)782-0996
STOWE	Darren Small	Road Foreman/ Commissioner	(802)253-6146
SWANTON	Kevin Lapan/Arnold "Mike" Bockus	Road Foreman/ Commissioner	(802)309-8300
WATERVILLE	Hunter Locke	Road Foreman/ Commissioner	(802)760-9313
WESTFORD	John Roberts	Road Foreman/ Commissioner	(802)879-4306

District 9-Derby			
	Jason Seign	District ROW Contact	(802)334-4342
ALBANY	Paige Horner	Road Foreman/ Commissioner	(802)755-6300/(802)393-2604
AVERILL	Raymond Royce	Road Foreman/ Commissioner	(802)624-3855
BARTON	Leewood Peron	Road Foreman/ Commissioner	(802)673-7990/(802)754-2923
BLOOMFIELD	Mike Belkap	Road Foreman/ Commissioner	(802)962-5184
BRIGHTON	Mark Castonguay	Road Foreman/ Commissioner	(802)723-5039
BROWNINGTON	Bev White	Chairman of Selectboard	(802)754-8449
BRUNSWICK	Sharon Graham	Town Clerk	(802)9625514

CANAAN	Richard Tivo	Road Foreman/ Commissioner	(603)331-2057
CHARLESTON	Bernie Pepin	Road Foreman/ Commissioner	(802)895-2932
COVENTRY	Dave Gallop	Road Foreman/ Commissioner	(802)673-5113
CRAFTSBURY	Steve Marckres	Road Foreman/ Commissioner	(802)586-2271
DERBY	Rod Lyon	Road Foreman/ Commissioner	(802)766-2405
FERDINAND	Raymond Royce	Road Foreman/ Commissioner	(802)624-3855
GLOVER	Harvey Dunbar	Road Foreman/ Commissioner	(802)525-4025
GREENSBORO	Tom Camarra	Road Foreman/ Commissioner	(802)533-7149
HOLLAND	Larry Jud	Road Foreman/ Commissioner	(802)633-5488
IRASBURG	Chad Tolman	Road Foreman/ Commissioner	(802)755-6152
JAY	Harold Morse	Road Foreman/ Commissioner	(802)988-4377
LEMINGTON	Joe Dailey	Road Foreman/ Commissioner	(802)277-4141
LOWELL	Calvin Allen	Road Foreman/ Commissioner	(802)744-6129
MORGAN	Sawn Austin	Road Foreman/ Commissioner	(802)895-4191
NEWPORT CITY	Tom Fernier	Road Foreman/ Commissioner	(802)334-2124
NEWPORT TOWN	Fred Baraw	Road Foreman/ Commissioner	(802)334-7098
NORTON	Chris Fletcher	Chairman of Selectboard	(802)323-3134
TROY	Lee Forbes	Road Foreman/ Commissioner	(802)988-2556
WARREN GORE	Raymond Royce	Road Foreman/ Commissioner	(802)624-3855
WESTFIELD	Eric Kennison	Road Foreman/ Commissioner	(802)744-2484
WESTMORE	Peter Hislof	Road Foreman/ Commissioner	(802)673-2442
<b>Colchester &amp; St. Albans District</b>	David Blackmore	Supervisor	(802)524-5926
<b>Derby &amp; ST. Johnsbury District</b>	Kevin Gadapee	Supervisor	(802)334-7934

Exhibit 2. - VEC Specs  
Appendix I - VEC Veg. Mgt. Plan

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Vermont Electric Cooperative, Inc.

# Environmental Guidance Manual

2025

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PREPARED FOR



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February 2025

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# 1

## EGM Objective

### 1.1 Introduction

Vermont Electric Cooperative, Inc. ("VEC") is a member-owned electric distribution cooperative and the second largest electric utility in the state of Vermont in terms of meter count and land area covered. With a predominantly rural customer base, VEC also serves agricultural, commercial, industrial, and limited urban residential members. The service area encompasses approximately 2,056 square miles and 2,882 miles of line. VEC's mission is to provide energy and other appropriate services to its members while operating in a safe manner that is socially and environmentally responsible.

The primary goal of the environmental guidance manual ("EGM") is to create an easy-to-use comprehensive guide to environmental regulations, permits, and best management practices ("BMPs") for common VEC projects. This manual describes common work practices that occur as part of VEC's routine operation and highlights required environmental reviews, common regulatory situations and jurisdictional triggers, as well as applicable BMPs that may allow work to occur without requiring regulatory notifications or permits. The workflows described herein are intended to avoid and minimize impacts to natural resources associated with both routine and larger-scale projects that are typically done outside of Vermont Public Utility Commission or District Environmental Commission purviews. This manual can be included as a supplement to those permit filings however, to describe general work practices and VEC's commitment to avoid or minimize impacts to natural resources and Vermont's environment. **Do the right thing, even when nobody is looking.**

### 1.2 Intended Users

This EGM has been prepared for the sole purpose and exclusive use of the Vermont Electric Cooperative and is intended as a reference for all VEC employees. Engineers, designers, vegetation management crews, construction crews and contractors should be made aware of the contents herein and should participate in a brief training before conducting work on VEC's infrastructure. This is further



described below. For ease of use, a glossary of terms is included as Appendix A, which defines terms, acronyms and resource types.

## 1.3 Document Owner

VEC is the owner of this document and will help ensure adherence to work procedures and BMPs referenced herein. Additionally, VEC will be responsible for updating this manual on a routine basis, presumed to be at least every five years, but as needed based on regulatory changes and practicable use. This manual is designed to reference outside sources to reduce the frequency of updates required within the document, however VEC should be aware of regulatory modifications, permit modifications and updates to BMPs that could affect the accuracy of this manual.

## 1.4 Employee/Contractor Training

Prior to designing Projects or conducting work on VEC's system, all employees and contractors shall be required to participate in environmental training that highlights the contents of this manual. The training will provide general environmental awareness while working on VEC's system and can be modified to better reflect individual responsibilities or a specific project. Training will inform personnel of the rules, regulations, procedures, and BMPs to follow during the course of a project. Additional trainings may be held throughout a project to reinforce previous training topics or provide additional information. A training guide in the form of a PowerPoint presentation is provided as Appendix D to this manual.

## 1.5 Environmental Inspections

To help ensure adherence to permit conditions and BMPs outlined in this manual, VEC will conduct intermittent inspections on routine maintenance projects. In addition, certain projects may require more frequent inspections as outlined in permit conditions. Appendix E provides a template that can be used for routine inspections and modified to incorporate project-specific conditions. Environmental inspections will be performed by a VEC representative or a third-party consultant for the duration of a project or on an as-needed basis.

## 1.6 Limitations and Further Consultation

This manual provides an overview of typical work practices, associated BMPs, and potential practices requiring permit approvals. There will be instances or projects that require a greater degree of field assessments and permitting needs. Should questions arise through the desktop or field review process, please consult VEC's Vegetation Manager, Engineering Manager or Project Manager or consult with a qualified third-party consultant working on VEC's behalf to help identify the need for additional natural resource review or to identify additional permitting needs. Failure to obtain necessary permits, or to appropriately install and maintain best management practices can result in project shutdowns, delays, budget overruns, and/or fines, as well as negative member and regulatory stakeholder perceptions.

Specific permit-related conditions may supersede or be required in addition to the BMPs and work practices described herein. It is critical to fully understand project-related permits and to implement the requirements of each to maintain compliance. Some examples of collateral permits include, but are not limited to, Certificate of Public Good (Section 248), Vermont Wetlands Permit, U.S. Army Corps of Engineers Section 404 Permit, Stream Alteration Permit, Construction Stormwater Permit, Operational Stormwater Permit, and Vermont RTE Takings Permit.

## 1.7 Additional Resources

This document is designed to be a tool used in conjunction with VEC's suite of guidance documents. These include, but may not be limited to:

- *Vegetation Management Plan for Vermont Electric Cooperative, Inc. – Transmission and Distribution Systems*
- *VEC Operation Procedure 27: Oil Spill Reporting Procedure*
- *Best Management Practices (BMPs) Associated with the Use of Pentachlorophenol-treated Utility Poles in Vermont*
- Facility-specific SPCC Plans;
- Facility-specific Operational Stormwater Management Requirements; and
- On-going Project-specific Requirements and Permit Conditions

## 2

## Regulatory Considerations

This section identifies regulatory considerations most common to VEC's routine operation, maintenance, and construction of assets and facilities. Initial project review may highlight the need for individual permits, or, for larger projects, it may identify the need for Vermont Act 250 or Section 248 review, which trigger review of resource impacts tied to multiple permits and regulatory agencies. Consultation with regulatory agencies and/or third-party environmental consultants may be required to identify permitting needs or to inform project design.

Regulatory Agency	Permit	Protected Resource	Jurisdictional Trigger	Permit Reference
<b>Federal</b>				
USACE	Section 404 of the U.S. Clean Water Act	Waters of the United States ("WOTUS"), including wetlands	Placement of fill or dredging within WOTUS; construction mats of any amount are not considered fill but require Self-Verification under Department of the Army General Permits for the State of Vermont. USACE permits require consultation with USFWS and VT SHPO.	<a href="#">Permit Program under CWA Section 404   US EPA</a>  <a href="https://www.nae.usace.army.mil/Portals/74/docs/regulatory/StateGeneralPermits/Vermont/VTGP-w-erratasheet.pdf">https://www.nae.usace.army.mil/Portals/74/docs/regulatory/StateGeneralPermits/Vermont/VTGP-w-erratasheet.pdf</a>

Regulatory Agency	Permit	Protected Resource	Jurisdictional Trigger	Permit Reference
USACE	Section 10 of the US Rivers and Harbors Act	Port, roadstead, haven, harbor, canal, navigable river, or other water of the United States as included in the list of Vermont Navigable Waterways.	The creation of any obstruction to the navigable capacity of any WOTUS including aerial crossings of electric lines and telecommunication lines.	<a href="https://www.govinfo.gov/content/pkg/CFR-2011-title33-vol3/pdf/CFR-2011-title33-vol3-part322.pdf">Section 10 of the Rivers and Harbors Appropriation Act of 1899   US EPA</a> <a href="https://www.govinfo.gov/content/pkg/CFR-2011-title33-vol3/pdf/CFR-2011-title33-vol3-part322.pdf">https://www.govinfo.gov/content/pkg/CFR-2011-title33-vol3/pdf/CFR-2011-title33-vol3-part322.pdf</a>  <a href="https://www.nae.usace.army.mil/Portals/74/docs/regulatory/JurisdictionalLimits/US_Navigable_Waters.pdf">https://www.nae.usace.army.mil/Portals/74/docs/regulatory/JurisdictionalLimits/US_Navigable_Waters.pdf</a>
USFWS NOAA Fisheries Service	Endangered Species Act Consultation Federal Takings Permit	Threatened and Endangered species (birds, insects, fish, reptiles, mammals, crustaceans, flowers, grasses, and trees)	Review is generally triggered through review of other federal permits such as Section 404 or Section 10.	<a href="#">Summary of the Endangered Species Act   US EPA</a>
U.S. Secretary of the Interior	Wild and Scenic Rivers Act of 1968	Rivers designated by congress and wild, scenic, or recreational. Portions of the Missisquoi and Trout Rivers are designated as Wild and Scenic.	Work in or near such waters (i.e. the Missisquoi River).	<a href="https://www.rivers.gov/wsr-act.php">https://www.rivers.gov/wsr-act.php</a>
USFS	Special Use Permit	USFS Land	Use of USFS Land for access to existing ROWs or for creation of new ROWs.	<a href="#">Special-use Permit Application   US Forest Service (usda.gov)</a>
<b>State (Vermont)</b>				
PUC	Certificate of Public Good (Section 248)	Various, including many of the protected resources included in this table.	Construction of electric transmission facility (including substations), electric generation facility (power plant, solar or wind facility), and certain gas pipelines. This requires a review of the Section 248 criteria against a proposed project.	<a href="https://puc.vermont.gov/sites/psbnew/files/doc_library/siting-cases-section-248_1.pdf">https://puc.vermont.gov/sites/psbnew/files/doc_library/siting-cases-section-248_1.pdf</a>  <a href="https://puc.vermont.gov/sites/psbnew/files/doc_library/section-248-criteria_0.pdf">https://puc.vermont.gov/sites/psbnew/files/doc_library/section-248-criteria_0.pdf</a>

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Regulatory Agency	Permit	Protected Resource	Jurisdictional Trigger	Permit Reference
NRB	Vermont Act 250	Various, including many of the protected resources included in this table.	Development of a commercial project on more than 10 acres of land (or more than one acre if a town does not have permanent zoning and subdivision bylaws). Work associated with electric distribution lines may also be reviewed Under Act 250.	<a href="#">Act 250 Program   Natural Resources Board (vermont.gov)</a>
ANR	401 Water Quality Certification	Waters of the United States	VT will review projects receiving federal permits (Section 404, FERC License) to ensure the activity complies with the Vermont Water Quality Standards. This is typically triggered when a Project requires an Individual 404 Permit or select categories of Pre-Construction Notification. It is assumed that projects qualifying for Self-Verification and the majority of Pre-Construction Notifications are conditionally granted WQC approval.	<a href="#">Water Quality Certification (Section 401)   Department of Environmental Conservation (vermont.gov)</a> <a href="#">401 WaterQualityCertification Application.pdf (vermont.gov)</a>
ANR	Stream Alteration Permit	Perennial Streams	Activities including movement, excavation, or fills, involving 10 or more cubic yards annually in any perennial stream.	<a href="#">Vermont Stream Alteration Rule   Department of Environmental Conservation</a>
ANR	Vermont Wetland Permit	Wetlands	Activities within Class I and Class II wetlands and buffers that are not Allowed Uses. Wetlands may not be fully mapped by the State.	<a href="https://dec.vermont.gov/content/vermont-wetland-rules">https://dec.vermont.gov/content/vermont-wetland-rules</a> <a href="https://dec.vermont.gov/watershed/wetlands/jurisdictional/permit-info">https://dec.vermont.gov/watershed/wetlands/jurisdictional/permit-info</a>

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Regulatory Agency	Permit	Protected Resource	Jurisdictional Trigger	Permit Reference
ANR	Operational Phase Stormwater Permit	Surface Water	New development resulting in the creation of greater than or equal to one acre of impervious surface.  A discharge from existing facilities with greater than or equal to three acres of impervious surface.	<a href="#">Operational Stormwater Permits   Department of Environmental Conservation (vermont.gov)</a>
ANR	Construction Phase Stormwater Permit	Surface Water	Construction activities that result in earth disturbance of greater than or equal to one acre.	<a href="#">Construction Stormwater Discharge Permits   Department of Environmental Conservation (vermont.gov)</a> <a href="#">NPDES Number: VTR100000 (vermont.gov)</a>
ANR	Flood Hazard Area and River Corridor Permit	Flood Hazard Areas and River Corridors	For activities exempt from municipal regulation, the placement of fill or structures within the Flood Hazard Area or River Corridor that limits the area's potential for flood storage or prevents the lateral migration of a perennial stream.	<a href="#">wsmd-fha-and-rc-rule-adopted-2014-10-24.pdf (vermont.gov)</a>
ANR DEC	Shoreland Protection Act	Shorelands of Lakes and Ponds	Activities within 250 feet of the mean water level of lakes greater than 10 acres in size. Utility line maintenance is generally exempt.	<a href="#">lp ShorelandHandbook.pdf (vermont.gov)</a>
ANR DEC	Lake and Ponds Encroachment	Public Waters, Lakes and Ponds	Activities at, below, or beyond mean water level of lakes and ponds which are public waters. Utility work is not expressly exempted from this regulation.	<a href="#">Lake Encroachment Permitting   Department of Environmental Conservation (vermont.gov)</a>
SHPO	Cultural/ Historic Resource Review Act 250 and Section 248 Review	Historic, archaeological, architectural, and cultural resources listed or eligible for listing under the State Register of Historic Places.	Activities within known cultural/historic resources, or in areas found to be within cultural resources through review of auxiliary permits.	<a href="#">Review and Compliance   Agency of Commerce and Community Development (vermont.gov)</a> <a href="#">Checklist for Historic Preservation Review   Agency of Commerce and Community Development (vermont.gov)</a> <a href="#">2018 Permitting Flow Chart-v1-2-WEB.pdf (vermont.gov)</a>

Regulatory Agency	Permit	Protected Resource	Jurisdictional Trigger	Permit Reference
FWD	VT RTE Species Consultation/Takings Permit Act 250 and Section 248 Review	RTE Species	Activities that result in the takings of plants or animals listed as Rare, Threatened or Endangered in Vermont Pursuant to 10 V.S.A § 5408 and 10 V.S.A. App. § 10.	<a href="#">Threatened &amp; Endangered Species Takings Permit   Vermont Fish &amp; Wildlife Department (vtfishandwildlife.com)</a>  <a href="https://legislature.vermont.gov/Documents/2016/WorkGroups/House%20Fish%20and%20Wildlife/Bills/H.26/Witness%20Testimony/H.26~Tim%20Follensbee~VELCO%20GMP%20Best%20Management%20Practices%20for%20Avoidance%20of%20Listed%20Threatened%20and%20Endangered%20Species~3-11-2015.pdf">https://legislature.vermont.gov/Documents/2016/WorkGroups/House%20Fish%20and%20Wildlife/Bills/H.26/Witness%20Testimony/H.26~Tim%20Follensbee~VELCO%20GMP%20Best%20Management%20Practices%20for%20Avoidance%20of%20Listed%20Threatened%20and%20Endangered%20Species~3-11-2015.pdf</a>
NRB FWD	VT Natural Community Consultation Act 250 and Section 248 Review	Rare and Irreplaceable Natural Areas	Undue adverse effect to rare and irreplaceable natural areas or significant natural communities.	<a href="#">Guidelines for the Protection of Natural Communities (vtfishandwildlife.com)</a>
NRB PUC AAFM	Act 250 and Section 248 Review	Primary Agricultural Soils (Criterion 9(B)) and Productive Forest Soils 9(C).	Development or subdivision of primary agricultural soils as reviewed under Act 250 and Section 248.	<a href="#">PowerPoint Presentation (vermont.gov) Act 250 Criterion 9(B)   Agency of Agriculture, Food and Markets (vermont.gov)</a>
FWD	Act 250 and Section 248 Review	Interior Forest Blocks and Habitat Connectivity	Destruction or significant imperilment of interior forest blocks or habitat connectivity as related to necessary wildlife habitat as reviewed under Section 248.	<a href="#">6.-Landscape-Conservation-Action-Plan-(2015).pdf (vtfishandwildlife.com)</a>
NRB FWD	Act 250 and Section 248 Review	Necessary Wildlife Habitat	Destruction or significant imperilment of necessary wildlife habitat as reviewed under Act 250 and Section 248.	
<b>Emergency Work</b>				
After-the-fact Permitting	Various	See above	Impacts to any resources listed above may require an after-the-fact permit or consultation following the completion of emergency work. If possible, regulatory agencies should be notified prior to commencing activities that result in impacts.	Various – see above.

Regulatory Agency	Permit	Protected Resource	Jurisdictional Trigger	Permit Reference
<b>Oil and Hazardous Material</b>				
ANR	Vermont Hazardous Waste Management Regulations	Public health and the environment	Generation, transportation, storage, and disposal of hazardous waste used oil, and universal hazardous waste.  Requirements for reporting and response to releases of hazardous materials	<a href="https://dec.vermont.gov/sites/dec/files/wmp/HazWaste/Documents/VHWMR%20Effective%20Feb%2001%2C%202022%20Complete%20Document.pdf">https://dec.vermont.gov/sites/dec/files/wmp/HazWaste/Documents/VHWMR%20Effective%20Feb%2001%2C%202022%20Complete%20Document.pdf</a>  <a href="https://dec.vermont.gov/sites/dec/files/wmp/HazWaste/Documents/FactSheets/Hazardous%20Material%20Spills%20Fact%20Sheet%202022.pdf">https://dec.vermont.gov/sites/dec/files/wmp/HazWaste/Documents/FactSheets/Hazardous%20Material%20Spills%20Fact%20Sheet%202022.pdf</a>
EPA	Clean Water Act (40 CFR Part 110)	Waters of the United States	Release of oil to Waters of the U.S.	<a href="#">eCFR :: 40 CFR Part 110 -- Discharge of Oil</a>
EPA	Spill Prevention Control and Countermeasures (40 CFR 112)	Waters of the United States	Facilities that store oil products in quantities exceeding 1,320 U.S. gallons (aggregate volume contained in aboveground containers with capacities of 55 gallons or greater) that could reasonably be expected to discharge oil to navigable waters of the U.S. or adjoining shorelines	<a href="#">eCFR :: 40 CFR Part 112 -- Oil Pollution Prevention</a>  <a href="#">Overview of the Spill Prevention, Control, and Countermeasure (SPCC) Regulation   US EPA</a>
EPA	Toxic Substances Control Act, PCB Regulations (40 CFR 761)	Public health and the environment	Use, disposal, storage, and marking of PCBs and PCB Items. Most provisions in this part apply only if PCBs are present in concentrations above a specified level (typically concentrations $\geq 50$ parts per million)	<a href="#">eCFR :: 40 CFR Part 761 -- Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions</a>

In addition to the environmental permits and regulations described above, Project may also require approval under the following non-environmental permits:

- › VTrans Overhead Wire Crossing Form
- › VTrans Underground Crossing Form
- › VTrans Railroad Worker Clearance Form
- › VTrans 1111 Permit
- › FWD/FPR Special Use Permit for Activities within State-held lands.

If it is determined that jurisdictional triggers are avoided, and that a project may proceed without permit approval, it is important to review the following sections to understand BMPs for activities in and proximal to regulated



resources. The appropriate use of BMPs is likely required to avoid resource impacts, and in some cases are required to be followed in order to avoid jurisdictional triggers.

# 3

## Project Planning and Scoping

### 3.1 Project Planning and Environmental Review

When initiating a new project, environmental review should be incorporated into design, scoping, and budgeting. The contents of this manual provide guidance on natural resources that are typically encountered, assessments procedures, general work types and associated work practices, and regulatory requirements or permit approvals that may be required. The following steps should be followed during the preliminary phases of project planning:

1. Understand scope of work, project location, duration, potential extent of project disturbance, and who will perform the work.
2. Engage project manager or VEC environmental representative to conduct desktop review of known natural resources (see **Section 3.4**).
3. Determine if follow-up field assessments for natural resources are required (see **Section 3.5**).
4. Assess project impacts and determine if BMPs can be implemented to avoid or minimize impacts to natural resources (**Section 4.0**).
5. Determine if permits are required for the proposed project and obtain necessary approvals.
6. Review environmental constraints, BMPs, special work procedures and permit conditions with construction crews.
7. Conduct field compliance inspection(s) to ensure adherence to permit conditions, BMPs, and VEC environmental guidance.

8. Following construction, ensure that the work area is restored and conduct post-construction monitoring if required by any permit conditions or VEC policies.

## 3.2 Introduction to Typical Work Practices

The following table outlines typical work practices associated with VEC's operation, maintenance and new construction projects. Potential resource concerns and associated permits are identified for each practice and should be included in the desktop and field review portion of project planning and scoping explained in Section 3.2. Items included in the table below are the most common resources encountered, and presence/absence of additional natural resources may need to be reviewed for each type of work activity.

**For all work activities, regardless of regulatory requirements, the following practices shall be implemented prior to demobilization:**

1. All trash, materials, and debris shall be removed from the work area and properly disposed of.
2. Crews shall repair any damages resulting from equipment access and setup, including ruts, fences, gates, mailboxes, etc. The area shall be left in better condition than it was found.
3. Any exposed soils totaling more than ten square feet, including those around newly installed structures, shall be seeded and stabilized with mulch as further described below.

Work Practice	Description	Resource Concerns	Permit Considerations
New On-ROW Access Road	Construction of permanent access road with aggregate surface and associated ditching and grading. This activity is not assumed to require tree clearing.	Wetlands Streams/Riparian Buffer Vernal Pools RTE Species Cultural Resources Soil Disturbance Flood Hazard Areas and River Corridor	Vermont Wetlands Permit USACE 404 Permit Vermont RTE Takings Permit Vermont Construction Stormwater Permit Vermont Operational Stormwater Permit (if > 1 acre of impervious)
Overland On-ROW Access	Tracked equipment travel that does not require significant disturbance and will be restored/revegetated following construction.	Wetlands Streams/Riparian Buffer RTE Species Soil Disturbance Cultural Resources	Vermont Wetlands Permit USACE 404 Permit Vermont RTE Takings Permit Vermont Construction Stormwater Permit
Off-ROW access	Use of existing woods road, farm road, or private road for equipment to access the ROW. Tree clearing may be required for access.	Wetlands Streams/Riparian Buffer RTE Plants Soil Disturbance Cultural Resources	Vermont Wetlands Permit USACE 404 Permit Vermont RTE Takings Permit Vermont Construction Stormwater Permit
New overhead/underground transmission construction	New transmission construction. Tree clearing is assumed to be required.	Wetlands Streams/Riparian Buffer Vernal Pools RTE Species Cultural Resources	Vermont Wetlands Permit USACE 404 Permit Vermont RTE Takings Permit Vermont Construction Stormwater Permit

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Work Practice	Description	Resource Concerns	Permit Considerations
		Soil Disturbance Flood Hazard Areas and River Corridor Necessary Wildlife Habitat Significant Natural Communities	FHARC Permit Certificate of Public Good (Section 248 Review)
New overhead/underground electric distribution construction	New distribution construction. Tree clearing is assumed to be required.	Wetlands Streams/Riparian Buffer Vernal Pools RTE Species Cultural Resources Soil Disturbance Flood Hazard Areas and River Corridor Necessary Wildlife Habitat Significant Natural Communities	Vermont Wetlands Permit USACE 404 Permit Vermont RTE Takings Permit Vermont Construction Stormwater Permit FHARC Permit Land Use Permit (Act 250)
New substation construction	New substation construction at existing facility or on vacant land. Tree clearing is assumed to be required.	Wetlands Streams/Riparian Buffer Vernal Pools RTE Species Cultural Resources Soil Disturbance Flood Hazard Areas and River Corridor Necessary Wildlife Habitat Significant Natural Communities	Vermont Wetlands Permit USACE 404 Permit Vermont RTE Takings Permit Vermont Construction Stormwater Permit FHARC Permit Certificate of Public Good (Section 248 Review)
Service extension	Extension of distribution to private landowner or business. May include installation of new utility poles. Tree clearing may be required.	Wetlands Streams/Riparian Buffer Vernal Pools RTE Species Cultural Resources Soil Disturbance Flood Hazard Areas and River Corridor	Vermont Wetlands Permit USACE 404 Permit Vermont RTE Takings Permit FHARC Permit Land Use Permit (Act 250)
Make-ready for fiber installation	Replacement of cross arm, pole, or addition of guy wire and anchor. Tree clearing may be required.	Wetlands Streams/Riparian Buffer Vernal Pools RTE Species Soil Disturbance Flood Hazard Areas and River Corridor	Vermont Wetlands Permit USACE 404 Permit Vermont RTE Takings Permit Vermont Construction Stormwater Permit FHARC Permit

Work Practice	Description	Resource Concerns	Permit Considerations
Electric distribution reconstruction/relocation	Reconstruction of existing infrastructure. Pole locations may be shifted or changed significantly. Tree clearing may be required.	Wetlands Streams/Riparian Buffer Vernal Pools RTE Species Soil Disturbance Flood Hazard Areas and River Corridor Necessary Wildlife Habitat Significant Natural Communities	Vermont Wetlands Permit USACE 404 Permit Vermont RTE Takings Permit Vermont Construction Stormwater Permit FHARC Permit Land Use Permit (Act 250)
Electric transmission reconstruction/relocation	Reconstruction of existing infrastructure. Pole locations may be shifted or changed significantly. Tree clearing may be required.	Wetlands Streams/Riparian Buffer Vernal Pools RTE Species Cultural Resources Soil Disturbance Flood Hazard Areas and River Corridor Necessary Wildlife Habitat Significant Natural Communities	Vermont Wetlands Permit USACE 404 Permit Vermont RTE Takings Permit Vermont Construction Stormwater Permit FHARC Permit Certificate of Public Good (Section 248 Review)
Electric distribution maintenance	Routine maintenance work that may include in-kind pole replacement, cross arm replacement, guy wire replacement and/or insulator replacement. Tree clearing may be required.	Wetlands Streams/Riparian Buffer RTE Species Soil Disturbance Cultural Resources	Vermont Wetlands Permit USACE 404 Permit Vermont RTE Takings Permit Vermont Construction Stormwater Permit FHARC Permit
Electric transmission maintenance	Routine maintenance work that may include in-kind pole replacement, cross arm replacement, guy wire replacement and/or insulator replacement. Tree clearing may be required.	Wetlands Streams/Riparian Buffer RTE Species Soil Disturbance Cultural Resources	Vermont Wetlands Permit USACE 404 Permit Vermont RTE Takings Permit Vermont Construction Stormwater Permit FHARC Permit
Emergency work	Storm response and asset failure that requires immediate attention to prevent the loss of life or property. Tree clearing may be required.	Wetlands Streams/Riparian Buffer RTE Species Cultural Resources Soil Disturbance Cultural Resources	Various; dependent on resources impacted. After-the-fact permitting may be required based on impacts. Review emergency work as a new Project to determine impacts and make proper.

Work Practice	Description	Resource Concerns	Permit Considerations
Facilities maintenance	Maintenance of existing electric and non-electric facilities which may have special conditions associated with SPCC plans or operational stormwater permits. Tree clearing may be required.	Stormwater Management Waste Disposal	Operational Stormwater Permit SPCC Plan

### 3.3 Emergency Work and Storm Response

Emergency work and storm response requires that crews have the ability to safely access damaged infrastructure to quickly restore power. While safety and power restoration are the most important components to this work, crews should review the Emergency Response – Environmental Layer to evaluate access and required work. If possible, crews should avoid RTE plant species polygons if alternate access is available.

Completed work should be reviewed by VEC personnel to determine if additional notifications or after-the-fact (“ATF”) permitting is required. ATF permitting or other notifications may be required for:

- › Wetland and water impacts
- › Flood Hazard and River Corridor Area impacts
- › RTE species impacts
- › Access across State-owned land

### 3.4 Database/Desktop Review

Preliminary project scoping should include a desktop review of ANR-maintained natural resource layers and a review of VEC-maintained natural resource data. Using the common work practices described above, it is important to identify the types of resources that could be impacted and the amount and type of potential impact. The desktop review portion of the Project Review Checklist (“checklist”), included as Appendix E, should be filled out to determine the presence of the following features:

- › Vermont State Wetlands Inventory (“VSWI”) features;
- › Vermont Wetlands Advisory Layer;
- › Vermont Hydrography Dataset Streams;
- › FEMA Floodways and Special Flood Hazard Areas;
- › Vermont River Corridors
- › Natural Heritage Information Project Element Occurrences of Rare, Threatened and Endangered Species and Significant Natural Communities;
- › Fish and Wildlife Department Connectivity Blocks and Riparian Wildlife Connectivity;
- › Presence of state-owned lands;
  - › Presence of railroad and rail trail crossings; and
  - › Existing field delineation data.

The above-listed information is available from the Vermont Open Geodata Portal (<https://geodata.vermont.gov/>) and should be updated at a frequency of at least every six months as the state identifies new information. VEC maintains field-collected data and that information should be updated as it becomes available, or at minimum, every six months.

The checklist will identify the need for additional field surveys, further coordination with regulatory agencies, and/or the need for permit approval. There will be instances where desktop review may signal that a project can move forward without impacting natural resources; however, situations will arise where the level of accuracy associated with desktop review does not reflect actual ground conditions. It is recommended that follow-up field investigations are conducted by qualified VEC personnel or by a third-party consultant. Furthermore, the Vermont-sponsored spatial data listed above is frequently updated and the most current information should be used. The Vermont ANR Atlas is maintained and considered current (<https://anrmaps.vermont.gov/websites/anra5/>).

## 3.5 Field Assessment

After conducting desktop review and completing the first part of the checklist, follow-up field surveys may be required to confirm the presence/absence of natural resources. This can be accomplished by qualified VEC personnel or by a third-party consultant working on VEC's behalf, and in some instances, by agency personnel. Field surveys may be required for the following resources based on project scope and location:

- › Wetlands;
- › Waters (including streams);
- › Vernal Pools;
- › Rare, Threatened, and Endangered Species (including RTE bats);
- › Significant Natural Communities;
- › Necessary Wildlife Habitat;
- › Cultural and Historic Resources; and
- › Non-native invasive species

Certain field assessments are seasonally restricted and must be conducted during the appropriate window. Wetlands delineations must be conducted during the growing season (generally late-May through mid-October) and RTE plant surveys must be conducted generally between June 15 and September 15 with the exception of certain species which require an adjusted window based on early or late blooming.

Following field work, it may be necessary to consult regulatory agencies to confirm field assessments. Depending on the scope of the project, additional consultation may be required to discuss proposed impacts, avoidance and minimization opportunities, and permitting requirements.

# 4

## Typical Natural Resources and Best Management Practices

The following section outlines typical natural resources encountered through project planning, scoping, and construction. If a project does not require permit approval, the BMPs outlined through this section should be used to avoid and minimize impacts to resources. Additional BMPs may also be required as a condition to permit approval. Details and specifications, or reference to ANR materials, are also provided and referenced in the table below. In addition to the resources outlined below, BMPs related to soil disturbance, restoration and the addition of impervious surfaces are further explained in Section 4.2

### 4.1 Natural Resources Overview

This section provides a brief overview of natural resources commonly encountered along the VEC system. Natural resources are subject to change and will present themselves differently depending on time of year, general weather conditions or patterns, and human inputs. Often, these resources are identified and their extent evaluated by trained professionals.

#### 4.1.1 Wetlands

Wetlands are generally defined as areas that are inundated by surface or groundwater for a period that allows for the establishment of plants and animals that are dependent on saturated or partially saturated soils. For an area to be considered a wetland, it generally must meet three parameters including presence of hydrology, dominance of hydrophytic vegetation, and presence of hydric soils. Wetlands can also be considered Waters of the United States depending on their landscape settings and connectivity to navigable waters or their tributaries.





Wetlands can be obvious through evidence of standing water, presence of muck, and/or vegetation such as cattails. They can also be more difficult to identify, particularly during times of drought. The State of Vermont maintains mapping of significant wetlands; however, many wetlands are not included or their extent is not accurately depicted. A third-party consultant is often required to determine the presence/absence of wetlands as well as to delineate wetland boundaries.

#### 4.1.1.1 Maintenance Work in Wetlands

The Vermont Wetland Rules and Section 404 of the Clean Water Act allow for maintenance work in wetlands as an Allowed Use or exemption, provided the following BMPs are met. Please refer to details **Section 4.3** for additional information regarding placement of construction mats.

- **Vermont Wetlands Permit:**

“The installation of a new overhead utility line that does not involve extensive tree clearing, with three poles or fewer in the wetland or buffer zone, in compliance with Best Management Practices developed by the Secretary.”

- Extensive clearing is considered greater than 250 square feet
- No permanent or temporary fill is allowed in wetland or buffer (with the exception of the pole and construction mats for access)
- The wetland must not be altered, including soil rutting/compaction (typically greater than six inches), and water flow
- Access through and design new structure to be least impactful (*i.e.* cross at most narrow point of wetland or use existing road or trail)
- Equipment refueling should occur outside of wetland and buffer; equipment shall not be parked overnight in wetlands or wetland buffer

- Take care not to introduce or transport invasive species
- **Vermont Wetlands Permit:**

“The routine repair and maintenance of utility poles, lines and corridors in a manner which minimizes adverse impacts and is accordance with Best Management Practices developed by the Secretary.”

  - See notes above
  - Clearing of woody vegetation can only occur within the ROW or for danger trees when within a wetland or buffer
- **Vermont General Permit, Section 404 of the Clean Water Act:**
  - Allows for the maintenance and replacement of structures within Waters of the U.S. (wetlands, streams, and rivers)
  - Self-Verification (no action / outreach required):
    - Less than 5,000 square feet of temporary and permanent impact (other than wetlands associated with Lake Champlain, Lake Memphremagog and Wallace Pond)
    - Use of temporary construction mats does not count towards impact thresholds
    - \*Use of self-verification requires that the permittee must “comply with other federal laws such as the National Historic Preservation Act 2 (NHPA), the Endangered Species Act (ESA) and the Wild and Scenic Rivers Act. Consultation with outside experts, such as the State Historic Preservation Office, Stockbridge-Munsee Tribe, and the U.S. Fish and Wildlife Service (USFWS) may also be necessary.”

#### 4.1.1.2 New Construction in Wetlands

Impacts to wetlands and associated buffers are regulated through the Vermont Wetland Rules and Section 404 of the Clean Water Act. Large projects, particularly those subject to Section 248 or Act 250 Review, will likely require field survey for wetlands by a qualified ecologist. Tree removal, placement of fill, or dredging material from these areas may require a permit.

## 4.1.2 Streams and Rivers

Streams are typically identified by their defined bed and bank as well as their flow regime, which is generally considered as ephemeral, intermittent or perennial. Ephemeral streams flow in response to storm or snow melt events, intermittent streams generally flow for six months out of the year or less, and perennial streams flow year-round. The stream bed is often reviewed as a component in flow regime, which also translates to how it is regulated. Regulatory features such as river corridor, flood hazard areas, and riparian buffers may also be associated with streams depending on its size and flow regime.



### 4.1.2.1 Maintenance Work in Streams and Rivers

Maintenance work within streams is typically considered for equipment access across streams and the replacement of culverts. Please refer to **Section 4.3** regarding the placement of construction mats. Stream crossing details are also provided in **Section 4.4.7**.

#### **Vermont Stream Alteration Permit:**

The Stream Alteration Permit only regulates perennial streams. Projects involving the fill or dredge of less than 10 cubic yards of in-stream material are exempt.

#### **Vermont General Permit, Section 404 of the Clean Water Act:**

The following are allowed under Section 404, and associated with Vermont General Permits ("GP") 2, 6, and 18. All GPs require adherence to standard General Conditions ("GC"):

- Permanent and temporary stream crossings that comply with GC 20;
- Existing crossings (e.g., culverts, elliptical or arch pipes, etc.) shall not be modified by (a) decreasing the diameter of the crossing or (b) changing the friction coefficient, such as through sliplining (retrofitting an existing culvert by inserting a smaller diameter pipe), culvert relining or invert lining.
- GC 20 highlights the work procedures required to conduct this work as Self-Verification. Highlights include:
  - Crossings must be designed in compliance with the *Guidelines for the Design of Stream/Road Crossings for Passage of Aquatic Organisms in Vermont*.



- Culverts must be installed to maintain streambed conditions and must be properly embedded. They must also maintain the velocity, turbulence and depth of the stream.
- In-stream work during low flow periods from July 1 to October 1, in a given year.

#### 4.1.2.2 New Construction in Streams and Rivers

Impacts to streams and rivers, including substation construction, new distribution or transmission construction, or installation of new stream crossings like culverts or bridges, may require various permit approvals including:

- › Vermont Stream Alteration Permit
- › Section 404 of the Clean Water Act
- › Flood Hazard Area and River Corridor Permit

Additional consideration related to streams and rivers are required for Project reviewed under Section 248 or Act 250 and include consideration of impacts to Riparian Buffers and Shorelines.

#### 4.1.3 Vernal Pools

Vernal pools are depressions within forested areas that are subject to spring flooding. They have no permanent inlet stream or viable fish populations and provide habitat for breeding amphibians. Vernal pool surveys are conducted in the early spring and are regulated under the CWA and as Necessary Wildlife Habitat when reviewed under Act 250 or Section 248, and may be considered significant wetlands under the Vermont Wetland Rules

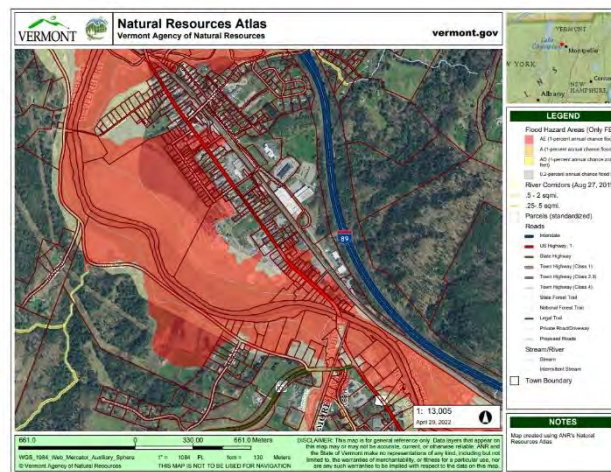


Vernal Pools are typically small features and should be avoided. If work or access is required through these areas or their buffers, it should not be done in the Spring to avoid disturbance of breeding

amphibians. Construction mats should be used to access across vernal pools if they cannot be avoided. Please refer to **Section 4.3** for additional matting details.

## 4.1.4 Flood Hazard Areas and River Corridors

Flood hazard areas and river corridors are typically defined by the State of Vermont for larger water bodies. Flood hazard areas consist of the lands within the 100-year flood elevation and river corridors are designed to allow for lateral migration of the stream channel. All perennial streams have river corridors and are assumed to be 50 feet from top-of-bank unless otherwise defined.



### 4.1.4.1 Maintenance Work in Flood Hazard Areas and River Corridors

Maintenance work within Flood Hazard Areas and River Corridors is exempt provided it consists of:

- The maintenance or repair of development in the usual course of business;
- Repair, maintenance, or reconstruction of transportation or utility networks provided that they are of approximately the same vertical and horizontal dimensions.

The placement of permanent fill or replacing a structure closer to the water course may require permit approval.

### 4.1.4.2 New Construction in Flood Hazard Areas and River Corridors

The placement of new fill, including temporary construction mats or other temporary structures in place for less than 180 days, requires a registration under the Flood Hazard and River Corridor Rule. Permanent structures, considered those in place for greater than 180 days, will likely require a permit approval. Flood hazard areas are typically synonymous with the 100-year floodplain. River Corridors are state-mapped and available on the ANR Atlas or measured from top-of-bank/top-of-slope of perennial stream features that do not have a state-assigned river corridor.

## 4.1.5 Rare, Threatened and Endangered Species

Threatened and endangered species are protected under state and/or federal law. Those species that are considered rare, but not otherwise threatened or endangered can be reviewed through the Act 250

and Section 248 processes. Both laws protect RTE species and also take habitat into consideration. RTE plants and RTE bats are the most common occurrence along VEC's system.

RTE species are typically considered through Act 250 or Section 248 review; in addition, threatened and endangered Species are protected under state and federal law. Rare plants and animals are considered those with a state ranking of S1 (Very Rare), S2 (Rare), or S1S2. Rare plants are not protected by law but are reviewed through Section 248 petitions. While not protected under the Vermont Endangered Species Act, it is VEC's policy to avoid known rare species to the extent practicable.

Maintenance work areas should be reviewed to identify known occurrences of RTE species. If areas cannot be avoided, time-of-year restrictions may be implemented to allow for work occur. If RTE species are plants, work may be able to occur during the dormancy in conjunction with placing mats to avoid soil disturbance. If populations can't be avoided further consultation is likely required.

A Takings Permit is required for impacts to threatened and endangered species and requires the development of a mitigation and monitoring plan. Permit approvals require demonstration of avoidance and minimization to populations as well as a transplant or habitat creation component.

Please refer to the VEC Bat Key (**Appendix C**) for additional guidance if tree cutting is required for maintenance work.

#### 4.1.6 Cultural Resources

Cultural resources consist of above- and below-ground resources and generally consist of buildings or structures of historic significance or areas that may contain underground artifacts due to historic use. Coordination with the Vermont State Historic Preservation Office is required to identify and review these areas and review is often triggered by collateral permitting.

Maintenance work within or near above-ground cultural resources (*i.e.* historic structures) is exempt provided the maintenance is of the same general type and size as the existing. For below-ground resources, care should be taken to avoid known sites. If these areas cannot be avoided the use of construction matting or fabric/stone can be implemented to avoid soil compaction and disturbance. Generally, the immediate area surrounding existing poles is considered disturbed and in-kind pole replacements can proceed.

New construction may require the Project to engage with a cultural resource specialist or with the State Historic Preservation Officer to determine if new work will impact known or likely historic resources. Cultural resource review is a component of federal permitting, including Section 404 of the Clean Water Act. It is also reviewed under Section 248 and Act 250.

### 4.1.7 Necessary Wildlife Habitat

Necessary wildlife habitat in Vermont often refers to deer wintering areas, bear feedings areas, moose crossings, grassland bird habitat, and amphibian breeding habitat. It is generally reviewed through the Act 250 or Section 248 process.



Necessary Wildlife Habitat is generally not applicable to maintenance work.

### 4.1.8 Significant Natural Communities




In Vermont, the best-known example of each natural community type is considered Significant Natural Communities. A natural community type is an assemblage of plants and animals that repeats across the landscape wherever similar environmental conditions occur. Some examples include red cedar woodland, dry pine-oak-heath sandplain forest, and serpentine outcrop. These can also be considered Rare and Irreplaceable Natural Areas through Act 250 and Section 248 review.

Significant Natural Communities are generally reviewed through the Act 250 and Section 248 processes and generally not applicable to maintenance work.


## 4.2 Typical Natural Resources and Associated BMPs

Commonly encountered natural resources, how they are flagged in the field, typical BMPs used when working in proximity to them, and associated permits are further described below.



Resource Type / Environmental Concern	Flagging Key	Regulatory Agency	Jurisdictional Trigger	Typical BMPs	Associated Permits
Wetlands		ANR DEC USACE	Placement of fill or dredging wetlands or wetland buffers; tree cutting;	<ul style="list-style-type: none"> <li>• Avoidance and minimization</li> <li>• Frozen/Dry Ground Conditions</li> <li>• Construction matting</li> <li>• Low Ground Pressure Equipment</li> </ul>	VT Wetlands Permit Department of the Army General Permit or Individual Permit
Streams		ANR DEC USACE FWD	Placement of fill or dredging within streams; some installations of streams crossings.	<ul style="list-style-type: none"> <li>• Avoidance and minimization</li> <li>• Use of existing fords</li> <li>• Construction matting</li> <li>• Installation of temporary bridge or culvert</li> <li>• Installation of permanent bridge or culvert</li> </ul>	VT Stream Alteration Permit
Flood Hazard Areas and River Corridors		ANR DEC	Placement of fill or new structures within flood hazard area or river corridor.	<ul style="list-style-type: none"> <li>• Install new structures outside FHA or RC</li> <li>• Install new structures in the same location or further from associated stream</li> </ul>	Flood Hazard and River Corridor Permit
RTE Species		USFWS FWD	Take of protected species	<ul style="list-style-type: none"> <li>• Avoidance</li> <li>• TOY Restrictions</li> <li>• Avoid soil disturbance/compaction</li> <li>• Construction matting</li> <li>• Avoid stockpiling brush/woody debris in known areas</li> </ul>	Federal Takings Permit VT RTE Species Takings Permit
RTE Bat Species		USFWS FWD	Take of protected species – often considered through tree clearing	<ul style="list-style-type: none"> <li>• VEC RTE Bat Key</li> <li>• TOY Restrictions</li> </ul>	Endangered Species Act Coordination/Permitting VT RTE Species Takings Permit



Resource Type / Environmental Concern	Flagging Key	Regulatory Agency	Jurisdictional Trigger	Typical BMPs	Associated Permits
Cultural Resources		SHPO	Impacts to above- or below-ground resources.	<ul style="list-style-type: none"> <li>• Avoidance</li> <li>• Construction matting for equipment access across known locations</li> </ul>	Various Permits
Necessary Wildlife Habitat	n/a	ANR	Habitat conversion and potential indirect impacts associated with noise.	<ul style="list-style-type: none"> <li>• Avoidance</li> <li>• TOY Restrictions</li> </ul>	Act 250 / Section 248 Review
Significant Natural Communities	n/a	ANR	Direct impacts / conversion.	<ul style="list-style-type: none"> <li>• Avoidance</li> </ul>	Act 250 / Section 248 Review
Habitat Connectivity and Interior Forest Blocks	n/a	ANR	Habitat conversion and fragmentation.	<ul style="list-style-type: none"> <li>• Avoidance</li> </ul>	Act 250 / Section 248 Review
Non-Native Invasive Plant Species	n/a	ANR	Post construction monitoring often included as a wetland permit condition.	<ul style="list-style-type: none"> <li>• Identification of NNIS populations</li> <li>• Cleaning equipment and matting prior to work and prior to mobilization</li> <li>• Not transporting stockpiled soils.</li> </ul>	Vermont Wetland Permit Act 250 / Section 248 Review

### 4.3 Best Management Practices and Applicable Details

The following section outlines details and specifications implemented through the typical course of VEC construction or emergency response projects. The specifications are designed to encourage compliance with various regulations and/or permit conditions. While not all erosion prevention and sediment control measures apply to every project, the following are considered the basic materials required to satisfy VEC protocol and minimum regulatory requirements:

- › Silt fence
- › Straw wattle
- › Grade stakes
- › Mulch and seedless straw.
- › Conservation Mix seed

- › Stone
- › Rolled erosion control product.

A summary of VEC details and specifications, typical of different work practices, are provided below.

<b>Emergency Work/Storm Response</b>	<b>Maintenance Work</b>	<b>New Construction</b>
Avoidance and Minimization	Avoidance and Minimization	Avoidance and Minimization
Low Risk Handbook	Low Risk Handbook	Low Risk Handbook
VEC-DT-04 Straw Wattle	VEC-DT-01 Silt Fence	VEC-DT-01 Silt Fence
VEC-DT-06 Mulching Notes	VEC-DT-02 Silt Fence – Heavy Duty	VEC-DT-02 Silt Fence – Heavy Duty
VEC-DT-10 Construction Matting	VEC-DT-03 – Silt Fence J Hooks	VEC-DT-03 – Silt Fence J Hooks
VEC-DT-11 Construction Matting – Temporary Bridge	VEC-DT-04 Straw Wattle	VEC-DT-04 Straw Wattle
VEC-DT-15 – Water Bar	VEC-DT-05 Erosion Control Mix Berm	VEC-DT-05 Erosion Control Mix Berm
VEC-DT-17 – Equipment Pad	VEC-DT-06 Mulching Notes	VEC-DT-06 Mulching Notes
VEC-DT-20 – Seeding Notes and Specs	VEC-DT-07 Rolled Erosion Control Product - Slope	VEC-DT-07 Rolled Erosion Control Product - Slope
	VEC-DT-08 Rolled Erosion Control Product - Swale	VEC-DT-08 Rolled Erosion Control Product - Swale
	VEC-DT-09 Stone Check Dam	VEC-DT-09 Stone Check Dam
	VEC-DT-10 Construction Matting	VEC-DT-10 Construction Matting
	VEC-DT-11 Construction Matting – Temporary Bridge	VEC-DT-11 Construction Matting – Temporary Bridge
	VEC-DT-12 Access Road Section	VEC-DT-12 Access Road Section
	VEC-DT-13 – Access Road Section – Cut / Fill	VEC-DT-13 – Access Road Section – Cut / Fill
	VEC-DT-14 – Access Road / Equipment Pad (Wetland/PAS)	VEC-DT-14 – Access Road / Equipment Pad (Wetland/PAS)
	VEC-DT-15 – Water Bar	VEC-DT-15 – Water Bar
	VEC-DT-16 – Stabilized Construction Entrance	VEC-DT-16 – Stabilized Construction Entrance
	VEC-DT-17 – Equipment Pad	VEC-DT-17 – Equipment Pad
	VEC-DT-20 – Seeding Notes and Specs	VEC-DT-18 – Culvert Installation (Perennial Stream)
	VEC-DT-21 – Dewatering Filter Bag	VEC-DT-19 – Culvert Installation – Non-JD
	VEC-DT-23 – Secondary Oil Containment	VEC-DT-20 – Seeding Notes and Specs
		VEC-DT-21 – Dewatering Filter Bag
		VEC-DT-22 – Concrete Washout Area
		VEC-DT-23 – Secondary Oil Containment

### 4.3.1 Avoidance and Minimization

The first step in reducing a Project's environmental impact is to avoid resources, and to minimize impacts when avoidance is not practicable. This includes, but is not limited to, siting work areas to avoid natural resources, crossing wetlands or streams at existing points, reducing resource impacts to the greatest extent possible by crossing at the narrowest point, and by implementing BMPs described in this manual.

### 4.3.2 Erosion Prevention and Sediment Control

Construction sites can be major contributors to stormwater runoff carrying sediment into streams, lakes, and wetlands, and can adversely impact water quality. Existing vegetation helps to hold soils in place and reduce the erosive forces of rain and runoff. A construction site can be managed by using erosion prevention and sediment control ("EPSC") BMPs. These practices use techniques such as stabilizing bare soil to prevent erosion, as well as installing perimeter control to control sediment that has been eroded and could be mobilized by stormwater.

#### 4.3.2.1 Low Risk Handbook

The Vermont Department of Environmental Conservation Low Risk Site Handbook for Erosion Prevention and Sediment Control, issued February 2020, is a helpful reference for general EPSC practices that should be applied on construction sites. The Handbook pertains to Projects considered low-risk sites, as determined through an evaluation of construction activities and soil types. Projects considered moderate risk or categorized as needing an individual stormwater permit require a site-specific EPSC plan.

[Low Risk Site Handbook for EPSC \(VT DEC\)](#)

Additional steps are required during the **winter construction** period from October 15 to April 15. Earth disturbance during the winter period requires daily stabilization of all exposed soils unless there is no precipitation forecasted, work will resume within 24 hours, and mulch application rates double. Refer to the Low-Risk Site Handbook for EPSC for additional details.

#### 4.3.2.2 Perimeter Control

##### **VEC-DT-01 Silt Fence**

Silt fence shall be installed on the downhill side of construction activities to intercept runoff and allow suspended sediment to settle or filter out of the runoff as it passes through the silt fence. Silt fence consists of a temporary barrier of geotextile fabric installed along contours, and keyed into the existing ground. Due to its labor-intensive installation and associated disturbance, silt fence is best used in areas of longer-term disturbance (greater than a week).



*Photo 1: Silt fence correctly installed at the toe of slope along the edge of the work area.*

#### **VEC-DT-02 - Silt Fence - Heavy Duty**

Heavy duty silt fence, also referred to as reinforced silt fence, is a woven-wire reinforced silt fence. This type of silt fence is required when soil disturbance is proposed within fifty (50) feet upslope of a receiving water (wetland, lake, or stream).

#### **VEC-DT-03 – Silt Fence – J-Hooks on Slopes**

Silt fence J-hook installation can be applicable when the limits of disturbance run perpendicular to the contours of the slope. The installed “hooks” capture portions of the runoff to avoid concentrated stormwater runoff flowing directly along the silt fence edge to a single location.

#### **VEC-DT-04 – Straw Wattle**

Straw wattles can be used in place of silt fence as a perimeter control device with easier installation, requiring less disturbance. A 2”-3” deep trench shall be dug to ensure full ground contact with the straw wattle. Straw wattles are most appropriate when the duration of disturbance is anticipated to be short (less than a week), or the chance of runoff from the disturbance is low.





*Photo 2: Example of straw wattle being installed prior to any earth disturbance.*

#### **VEC-DT-05 – Erosion Control Mix Berm**

Erosion Control Mix Berms can be used in place of silt fence or straw wattles as a perimeter control. The berms are made up a dense mixture of organic materials and filter out suspended sediments within stormwater. These berms are most applicable when the material is readily available on site, due to tree clearing and chipping.



*Photo 3: Example of an erosion control mix berm along the edge of a work area. Due to the proximity of resource areas, the silt fence has also been reinforced with a row of haybales.*

#### 4.3.2.3 Typical Stabilization

##### VEC-DT-06 – Mulching Notes and Specifications

A variety of different materials can be used to stabilize bare ground upon the completion of final grading. Depending on the finished grade slope, and the final intent of the land, different mulching material shall be used for stabilization. The most common stabilization material is hay or straw.

Seeding and mulching are generally required for:

- › Disturbance greater than ten square feet (greater than a pole set)
- › Areas with slope steeper than 2:1
- › Within or adjacent to wetland, wetland buffer, stream, river



*Photo 4: Example of various mulching products used in one area. Hay or straw is used on the flatter areas, while a RECP is used on the steeper slopes (3:1 or greater).*

##### VEC-DT-07 – RECP – Slope

Rolled Erosion Control Product ("RECP") shall consist of a temporary biodegradable product and shall be applied to stabilized bare soils upon final grading on slopes steeper than 3H:1V. Place seed on bare soil prior to installing RECP. Only RECP with natural-fiber netting should be used because RECP with plastic netting can trap birds and snakes and is not authorized for use on projects with a DEC construction stormwater permit. Be sure to install a keyway at the top of the slope, provide sufficient overlap between adjacent rolls, and secure the net with stakes as shown on the detail. RECP can also be used in areas of high wind or other difficult-to-mulch sites.





*Photo 5: Example of crews installing RECP on a steep slope from an access road shoulder.*

#### **VEC-DT-08 – RECP – Swale**

RECP shall be used to stabilize swales and prevent water from eroding the bottom of the swale, while holding the soil in place and allowing the seed to take root, and vegetation to establish. Overlap joints in the downstream direction (as with roofing shingles) and pay special attention to securing the edges of the fabric so that it is not dislodged by high flows.



*Photo 6: Example of RECP being installed in a swale along an access road.*

### **VEC-DT-09 – Stone Check Dam**

Stone Check Dams shall be installed in stabilized swales to slow the velocities of the water flowing through the swale and decrease the erosive potential of the flowing water. Be sure that the center of the check dam is lower than the sides, so that flows do not preferentially bypass along the edge of the channel. Be sure that the check dam material is adequately sized to resist erosion; minimum 4- to 6-inch stone is required in most cases, 8- to 12-inch stone in areas with steeper slopes.



*Photo 7: Example of stone check dams installed in a swale stabilized with RECP.*

## **4.3.3 Construction Mat Specifications**

### **VEC-DT-10 – Construction Matting**

Construction matting is used for equipment access in areas where ground disturbance must be avoided. Timber matting is the most commonly used matting, but alternative construction matting may be used as well. Most commonly, construction mats are used to avoid ground disturbance and associated impacts with wetlands and buffers, as well as areas of rare, threatened, or endangered species. Construction matting may also be used to avoid soil compaction or disturbance if access is through archeological sensitive areas or RTE plant areas. Use in RTE plant areas must be approved as it is dependent on protection status, species type and time of year.





*Photo 8: Example of a construction mat road installed through a wetland. Also note the straw wattles used in the foreground to divert water off of the access road (which has been stabilized with seed and mulch) to avoid erosion of the access road into the wetland.*

#### **VEC-DT-11 – Construction Matting – Temporary Bridge**

Timber construction matting can be used to build temporary bridges for equipment to pass over stream channels without disturbing or impacting the bed or banks. Temporary bridges shall be constructed whenever access across a perennial stream is necessary.



*Photo 9: Example of a temporary bridge over a stream built out of timber mats.*

### 4.3.4 Access Road Specifications

#### **VEC-DT-12 – Access Road Section**

New permanent access roads may be desired within the right of way. When installing new access roads, additional permitting and design considerations should be considered, including potential impacts to natural resources (wetlands and buffers, RTE species), cultural resources (historic and archaeological features), and new impervious created by the access roads (potentially necessitating operational stormwater treatment). In general, VEC does not construct new roads but works with landowners' existing access routes.

#### **VEC-DT-13 – Access Road Section – Cut / Fill**

In areas of steep hills where an access road will be required, the use of cut and fill will be used to create a flat access road.



*Photo 10: Example of a large cut/fill used to grade in an access road. Note the used of RECP on the steep banks to stabilize the base soil upon final grading.*

#### **VEC-DT-14 – Access Road / Equipment Pad – Wetland / PAS**

In areas of natural resources, such as wetlands, RTEs, or Primary Agricultural Soils, where soil disturbance must be avoided, temporary access roads can be installed using timber mats. Additional timber mats can also be used to create a flat access road on hilly terrain without grading or soil disturbance.





*Photo 11: Example of a temporary construction mat access road built out of timber mats. Note that additional timber mats were used on the right-hand side of the photo to raise the grade and create a flat road. Minimal to no earth disturbance was needed to create this access road.*

#### **VEC-DT-15 – Water Bar**

On access roads, water bars can be installed to capture and redirect stormwater off the road and avoid riling and erosion of the access road materials. Water bars are particularly helpful on steep access roads. Connecting the downgradient end of a water bar to a stabilized turn-out or vegetated disconnect area is an approved BMP for isolated roads under the 2017 Vermont Stormwater Management Manual ("VSMM").



*Photo 12: Water bar along steeply sloped segment of gravel work road.*

### **VEC-DT-16 – Stabilized Construction Exit**

Stabilized construction exits shall be installed at the job site's entrance/ exit point. These construction exits help to remove mud and sediment from vehicles and equipment tires to prevent tracking onto streets.



*Photo 13: Example of a stabilized construction exit.*



*Photo 14: Example of a failed stabilized construction exit. The lack of geotextile below the stone caused the mud below the stone to rise to the surface. After a significant quantity of mud has been trapped by the stone, it must be removed and properly disposed of, and the stone entrance freshened with new material.*



### 4.3.5 Work Pad Specification

#### VEC-DT-17 – Equipment Pad

Equipment pads shall be constructed in areas of anticipated high equipment volume, such as around pole structures. If a permanent equipment pad is desired, cut and fill of the terrain may be required to achieve a flat surface. If the desired location of an equipment pad is within a wetland or another natural resource, a temporary construction mat equipment pad can be used to avoid soil disturbance and impacts.



*Photo 15: Example of a temporary construction mat equipment pad being installed. Woody vegetation is generally trimmed prior to placement of matting; herbaceous material may simply be flattened as the pads are installed.*

### 4.3.6 Culvert installation and Replacement

#### VEC-DT-18 – Culvert Installation – Perennial Stream

Culverts installation may be required for permanent access roads that cross perennial streams. For perennial streams, all culverts must be sized adequately and installed in accordance with the VT DEC Stream Alteration regulations. For smaller perennial streams (with a bankfull width of 4 feet or less), a circular culvert, as shown in the details, will be adequate. For larger streams, concrete box culverts, open bottom arches, or bridges may be more desirable.



*Photo 16: Example of an open bottom arch culvert installed over a perennial stream.*

#### **VEC-DT-19 – Culvert Installation – Non-Jurisdictional Features**

Culvert installation may also be required on non-jurisdictional waterways (e.g., drainage swales, intermittent channels). These culvert installations must be sized with adequate hydraulic capacity to avoid clogging or failure. Authorization under the Vermont Stream Alteration General Permit is not required if the feature is not a perennial stream; however, best management practices should be followed to avoid releasing sediment into the waterway.



*Photo 17: Example of a culvert installed in a non-jurisdictional waterway.*

#### 4.3.6.1 Alternate Stream Crossings



*Photo 18: Example of an at-grade ford across a perennial stream.*

### 4.3.7 General Restoration Following Construction Activities

#### 4.3.7.1 7.5.1 General Restoration

Restoration within non-resource areas should focus on returning the work area to pre-construction grades, or at minimum, grades that will not result in excessive erosion. Exposed soils shall be seeded and stabilized.

#### 4.3.7.2 7.5.2 Restoration within Natural Resources

Special precautions must be taken for restoration work within natural resources. Earth disturbance should be minimal and special seed mix may be required. Soils should be stabilized with straw or weed-free mulch to avoid introduction of NNIS.

If excavation is required in wetlands for pole replacement, soil layers should be separated during excavation and returned in the order in which they were removed to maintain the seedbank in the organic upper layer.

### 4.3.8 Seed Specifications

#### **VEC-DT-20 – Seeding Notes and Specifications**

There are different seed types that are required for use in different areas. Riparian and wetland seed mix is to be used wetland, wetland buffers, and riparian buffers. Other areas may also require a specific seed mix, at a defined application rate, with seasonal restrictions. Seed specifications are provided in the detail set.



### 4.3.9 Dewatering Specification

#### **VEC-DT-21 – Dewatering Filter Bag**

Dewatering filter bags shall be used to minimize or prevent the discharge of sediment associated with dewatering activities such as pumping water out of an excavation for a pole installation.



*Photo 19: Example of a dewatering filter bag installed on top of a stone bedding.*

### 4.3.10 Concrete Wash Station Specification

#### **VEC-DT-22 – Concrete Washout Area**

Concrete washout areas shall be used on site, as needed, to avoid a discharge of concrete wash water, which may result in water quality issues. Proprietary lined concrete washout basins may also be utilized in accordance with the manufacture's specifications.

### 4.3.11 Secondary Oil Containment

#### **VEC-DT-23 – Secondary Oil Containment**

Secondary oil containment shall be used on site, as needed, to avoid a discharge of oils that may result in water quality issues. Proprietary lined secondary soil containment basins may also be utilized in accordance with the manufacture's specifications.



# 5

## Oil and Hazardous Materials

### 5.1 Substation Decommissioning

The lifecycles of electrical transmission and distribution systems eventually require the retirement or decommissioning and reconstruction of electrical facilities. In advance of substation decommissioning activities VEC will perform a pre-characterization screening of the project site for the presence of oil or other hazardous materials, including the presence of polychlorinated biphenyls ("PCBs") in mineral oil dielectric fluid. The preliminary screening may include:

- Review of available facility information to determine design elements (e.g. facility age and past upgrades, oil-filled equipment locations, oil containment systems, grounding specifications, drainage piping, wastewater and water supply connections, foundation depths, etc.).
- Review of available equipment records, including historical analyses if available, for the potential presence of PCBs in oil-filled electrical equipment.
- Review of available documentation to determine if releases of OHM have occurred at the facility and if so, review of past remediation activities.
- A comprehensive inspection of the facility for evidence of OHM releases, including review of visible staining and/or olfactory indicators.
- Preliminary sampling of facility soil and concrete for the presence of OHM.
- Oil-filled electrical equipment being retired will be assessed for potential PCB contamination upon removal from service in accordance with the Toxic Substances Control Act and 40 CFR Part 761.
- Asbestos and lead-paint surveys of any on-site structures being retired will be completed by qualified contractors, who will determine appropriate notification, abatement, and disposal requirements in accordance with State and Federal regulations.

If the preliminary screening demonstrates that a release of hazardous oil or hazardous materials may have occurred, precharacterization environmental sampling will be completed. If precharacterization sampling determines that Vermont and/or Environmental Protection Agency regulatory thresholds have been exceeded, VEC will notify the Vermont Agency of Natural Resources Department of Environmental Conservation (“DEC”) Waste Management & Prevention Division (“WMPD”) Sites Management Section (“SMS”) to develop and coordinate a site-specific work plan to address the extent and magnitude of the contamination, and to identify additional site investigation needs and remedial activities, in accordance with DEC’s *Investigation and Remediation of Contaminated Properties Rule* (IRule) and Federal polychlorinated biphenyls regulations codified at 40 CFR §761.61.

## 5.2 Installation of Oil-Filled Electrical Equipment

Oil-filled electrical equipment, including substation transformers and voltage regulators, and distribution transformers (including pole-mounted and pad-mounted transformers) have the potential to impact the environment if releases of oil occur. Equipment in substation facilities having an aggregate oil volume greater than 1,320 gallons (in containers 55-gallons or larger) will comply with the oil containment requirements of 40 CFR 112: Spill Prevention, Control and Countermeasures.

## 5.3 Spill Prevention and Control

VEC has a Spill Prevention, Control, and Countermeasure (“SPCC”) Plan which outlines specific steps taken to prevent and respond to spills at facilities with greater than 1,320 gallons of oil in containers greater than 55 gallons, including oil-filled electrical equipment. The singular master plan accounts for all VEC facilities that meet this criterion. In addition, VEC equipment and vehicles shall maintain a spill response kit to respond to manageable spills, as outlined below. Spill kits must contain appropriate PPE, sorbent pads, speedi-dry, and booms at a minimum. These kits are commercially available.

## 5.4 Refueling

Refueling of equipment and tools should be conducted outside of and at least 50 feet away from natural resources. Spill kits should be readily available in the event of a spill.

## 5.5 Spill Response

In the event of a release of oil or hazardous material, *VEC Operation Procedure 27: Oil Spill Reporting Procedure* should be followed. Main points of the operating procedure are highlighted in this section. A spill should be immediately reported to VT ANR if it meets reporting thresholds. The responsibilities of the first person to discover a spill are:

- Assess the volume of the spill
- Secure the area if necessary
- Use proper PPE
- Determine PCB concentration (if not known, perform Clor-N-Oil screen)
- Stop the source of the release, if possible

- Contain the release by trenching the area with soil and sorbents, if possible

Non-manageable spills should be reported to VEC Systems Operations with the following information:

- Source of spill
- Exact location of spill (address)
- Material involved
- PCB concentration (if not known, perform Clor-N-Oil screen)
- Estimated volume of spill
- Did the spill occur near a waterway?
- Containment status

## 5.6 OHM Handling and Disposal

### 5.6.1 Treated Poles Handling and Disposal

Wooden utility poles are often treated with an agent to prevent rotting and insect infestation. This is typically accomplished through the use of pentachlorophenol<sup>1</sup> ("penta") or copper naphthenate ("CuNap"). EPA's 2022 cancellation of the registration for pentachlorophenol will require the use of alternative products or treatments.

Handling, storage and disposal of penta-treated poles should follow *Best Management Practices (BMPs) Associated with the Use of Pentachlorophenol-treated Utility Poles in Vermont* ([https://puc.vermont.gov/sites/psbnew/files/doc\\_library/BMPs-For-PCP-Treated-Poles.pdf](https://puc.vermont.gov/sites/psbnew/files/doc_library/BMPs-For-PCP-Treated-Poles.pdf)). This generally includes:

- Purchasing poles with a traceable ID indicating year of production and location;
- Inspecting poles upon delivery and rejecting any poles showing excessive sweating of preservative solution;
- Installing poles 50 feet away from shallow drinking water sources;
- Storing poles off the ground surface, in an area with low slope and low erosion potential;
- Proper removal of retired poles to include:
  - leaving pole butts in the ground in remote or ecologically sensitive areas
  - Pulling pole butts and replacing with clean fill
  - limiting soil disturbance and delaying excavation during extreme weather events or within 50 feet of shallow drinking water sources; and
  - removal/proper disposal of soils within 50 feet of shallow drinking water sources or if soil is grossly contaminated.
- Providing private parties with ANR-provided fact sheet *Managing Treated Wood Waste* and disposing of treated poles in accordance with all applicable ANR regulations.

Handling, storage and disposal of other treated poles including, but not limited to, creosote, copper naphthenate, and DCOI should be done in accordance with manufacturer guidelines, the safety data

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<sup>1</sup> EPA issued a decision banning the production of pentachlorophenol beginning in February 2024. Wood treatment facilities will be allowed to use their existing stocks of pentachlorophenol to produce treated wood for an additional three years.

sheet, and any future guidance from ANR. Utilities are required to appropriately train personnel as outlined in the BMPs.

### 5.6.2 Spill Disposal

Manageable spills shall be cleaned up using absorbents. Clean up materials are to be placed in drums to be sent to one of the generator's EPA sites (located in Johnson and Newport). For spills that cannot be managed by internal personnel, VEC utilizes contractor Republic Services Inc for remediation and transport.



# A

## Appendices

[A - Glossary of Terms](#)

[B - Desktop and Field Review Project Checklist](#)

[C - Threatened/Endangered Bat Guidance for the Tree Clearing \(VHB\)](#)

[D - Employee/Contractor Slide Deck](#)

[E – Details and Specifications](#)

## Exhibit 3.

### Compatible Vegetation

#### Wire Zone (area under the conductors and 15 feet outside of the conductors on each side)

<u>Common Name</u>	<u>Scientific Name</u>	<u>Mature Height</u>
American Elder	Sambucus	5 - 12'
Azalea (Pinksterbloom, Swamp)	Rhododendron	2 - 10'
Barberry (Common, Japanese*)	Berberis	3 - 10'
Bearberry	Arctostaphylos	6 - 12'
Black Elderberry	Sambucus	12 - 15'
Canadian Yew	Taxus	3 - 6'
Chokeberry (Red, Black)	Aronia	6 - 10'
Common Ninebark	Physocarpus	5 - 10'
Common Privet	Ligustrum	12 - 15'
Common Winterberry/Inkberry	Ilex	6 - 10'
Dogwood (Silky, Roughleaf, Redosier)	Cornus	6 - 15'
Flowering Crab Apple	Malus	8 - 12'
Hazelnut (American, Beaked)	Corylus	8 - 15'
Honeysuckle*	Lonicera	4 - 8'
Hydrangea (Smooth, Bigleaf, Oakleaf)	Hydrangea	3 - 8'
Junipers (Common, Creeping)	Juniperus	1 - 10'
Laurel (Mountain, Sheep)	Kalmia	1 - 15'
Leatherleaf	Chamaedaphne	2 - 5'
Lilac (Common, Late)	Syringa	6 - 15'
Mountain Holly	Nemopanthus	6 - 10'
Northern Bayberry	Myrica	5 - 12'
Rhododendron	Rhododendron	3 - 6'
Roses	Rosa	2 - 10'
Rubus (Raspberries, Blackberries, Dewberries)	Rubus	3 - 10'
Smokebush	Cotinus	10 - 15'
Spicebush	Lindera	6 - 12'
Spirea	Spirea	3 - 8'
Sweetfern	Comptonia	2 - 4'
Viburnum (Arrowwood, Cranberry)	Viburnum	6 - 15'

#### Border Zone (area outside the wire zone, extending to the outside edge/treeline on each side)

<u>Common Name</u>	<u>Scientific Name</u>	<u>Mature Height</u>
Maple (Mountain, Striped)	Acer	10 - 30'
American Hornbeam	Carpinus	20 - 30'
American Mountain Ash	Sorbus	30 - 40'
Apple (Common, Crab)	Malus	10 - 30'
Autumn-olive	Elaeagnus	12 - 18'
Buckthorn (Common, Glossy*)	Rhamnus	12 - 25'
Common Chokecherry	Prunus	20 - 30'
Dogwood (Gray, Pagoda, Flowering)	Cornus	10 - 30'
Eastern Redbud	Cercis	20 - 30'
Hawthorn	Crataegus	15 - 25'
Hydrangea (Panicle)	Hydrangea	10 - 20'
Japanese Tree Lilac	Syringa	20 - 30'
Serviceberry/Shadbush	Amelanchier	15 - 25'
Speckled Alder	Alnus	15 - 25'
Sumac	Rhus	15 - 25'
Willow (Pussy, Purple, Shining)	Salix	13 - 25'
Winged Euonymus/Burning Bush	Euonymus	10 - 20'
Witchhazel (Common, Vernal)	Hamamelis	10 - 30'

\* Indicates species with invasive tendencies in the state of Vermont

Dirr, Michael A. Manual of Woody Landscape Plants: Their Identification, Ornamental Characteristics Culture, Propagation and Uses. Champagne, IL, 1998.

## Exhibit 4.

### **Section 6.08 Best Management Practices for Repair and Maintenance of Overhead Utilities**

Pursuant to Section 6.08 of the Vermont Wetland Rules, the following best management practices have been developed for this allowed use in order to prevent discharges to Waters of the State, and to maintain the integrity of wetlands and associated waters:

#### **6.08 The routine repair and maintenance of utility poles, lines and corridors in a manner which minimizes adverse impacts and is accordance with Best Management Practices developed by the Secretary**

Please read this document carefully in order to determine whether your activity qualifies as an allowed use, to perform the activity in compliance with the best management practices, and to determine if other permits may be necessary.

1. Does the proposed activity qualify for an Allowed Use under Section 6 of the Vermont Wetland Rules?
  - a. This use shall not alter the configuration of the wetland's outlet or the flow of water into or out of the wetland; and no draining, dredging, or grading shall occur.
  - b. The placement, maintenance or removal of the structure shall not result in discharge to Waters of the State;
  - c. All work takes place in an existing utility corridor; and,
  - d. No permanent or temporary fill will be placed in the wetland or buffer zone with the exception of poles. Removal of woody vegetation outside the right-of-way, construction of new roads or improvement of existing roads in wetlands or buffer zones may require a permit from the Vermont Wetlands Program.
2. Best Management Practices
  - a. All impacts to wetlands and buffer zones shall be avoided and minimized to the greatest extent practicable;
  - b. Where existing maintenance plan is in place that is more protective of wetland resources, or has been approved by the Secretary, it may supersede these BMPs.
  - c. Herbicide and pesticide use shall be conducted under a Pesticide Advisory Council-approved ROW Management Plan.
  - d. Maintenance of woody vegetation in the wetland and buffer zone shall occur only within an existing ROW for the utility, with the exception of danger trees located outside of the maintained ROW:
    - i. Vegetation is managed in a manner that only trees and saplings that have the potential to reach a height that interferes with the utility line are removed;
    - ii. Vegetation should be cut at ground level, leaving root systems intact;
    - iii. If cutting of wetland vegetation cannot be avoided, complete the work by hand (chain or hand saw) instead of using large equipment.
  - e. Impacts from access shall be limited by utilizing existing or low impact routes using the following sequence of options in order of preference:
    - i. Access should be limited to upland areas or existing maintained roads to the extent practicable;
    - ii. Access on other existing primitive roads in wetlands or buffer zone;

## **Section 6.08 Best Management Practices for Repair and Maintenance of Overhead Utilities**

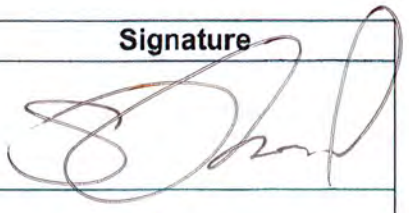


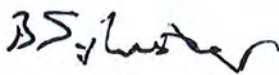

- iii. Where existing roads are not an option for access, minimize rutting or earth disturbing activities by:
    - (1) Accessing wetland areas under frozen or dry conditions. Use mats if necessary to prevent rutting.
    - (2) Memorializing the limits of disturbance using a combination silt fence, flagging, and/or snow fence;
    - (3) Use of low-ground pressure or track vehicles in wetlands to minimize compaction and rutting;
    - (4) Minimizing equipment use in the wetland and limiting vehicle trips; and,
    - (5) Restoring the project site in order to reverse soil compaction, stabilize the soil on the site and replant the site if vegetation has been destroyed.
  - f. Appropriate steps shall be taken to prevent the transport of sediment into any wetland or waterway and to promote revegetate following the completion of work. Utilize other recommended sediment and erosion controls as needed and described in the ANR Low Risk Handbook ([link](#)) or other appropriate controls.
  - g. Invasive species should be prevented using the following methods:
    - i. The equipment should be cleaned so as to contain no observable soil or vegetation prior to work in wetlands and buffer zones to prevent the spread of invasive species;
    - ii. If removed material contains invasive species, care should be taken to dispose of the material in a manner that does not spread the invasive species to new areas.
  - h. Waste disposal and equipment refueling shall be limited to areas outside the wetland and at least 50 feet from wetlands or surface waters.
  - i. Temporary stockpiling of material may occur on filter fabric in the buffer zone or matting in the wetlands. Appropriate erosion control measures should be utilized.
3. Other Permit Considerations:
- a. Work on structures in wetlands, streams and lakes may be subject to additional state, local and federal regulations.



## Exhibit 5.

Operating Procedure 27  
Oil Spill Reporting

Review Sheet  
Revision 008

Name	Function	Date	Signature
Scott Rockwood	Chief System Operator	2/21/23	
Craig Jewett	System Operator 1 <sup>st</sup> Class	7/7/22	
Melanie Messier	System Operator 1 <sup>st</sup> Class	9/14/22	Melanie Messier
Travis Smith	System Operator 1 <sup>st</sup> Class	8/24/22	
Brian Sylvester	System Operator 1 <sup>st</sup> Class	9.2.22	
Julianne Jones	System Operator 2 <sup>nd</sup> Class	9/30/22	



## **Operating Procedure 27**

### **Oil Spill Reporting**

#### **Main Document**

**Revision 008 – May 11, 2022**

*Ownership and update responsibility of this document resides with VEC System Operations. The document is designed for on-line use and reference via VEC's SharePoint Intranet, located under the Control Center site and per the specific VEC operating procedure. The current, approved and controlled version of this operating procedure will always be available through the SharePoint / Control Center site.*

*One hard copy will be updated and controlled by the VEC System Operations, residing the Main Control Center in Johnson, VT and at the Backup Control Center in Newport, VT.*

*Any found errors, inaccuracies and omissions will be promptly reported to VEC System Operations for correction and re-posting.*

## 1. TABLE OF CONTENTS


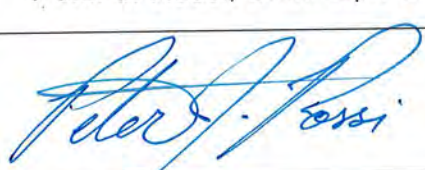
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## 2. REVISION HISTORY

Rev No.	Date	Description
001	11/01/2010	Safety Manager contact information.
002	01/30/2012	Updated contact information.
003	04/08/2015	Safety Manager / Safety Technician contact information.
004	12/02/2016	Manager of Operation and COO change. ENPRO contact change and clarification of "Manageable" clean-ups.
005	06/05/2018	COO Contact Change.
006	06/26/2018	Hazardous Waste Reporting Requirements. Reduction of gallons spilled requirements. Management and Operations responsibilities.
007	02/01/2021	Manager of System Operations update. Entered into new document format. Updated the flow chart, still stated the "20 gal" instead of 5 gal.
008	05/11/2022	Update to Section 4.3 per John Varney's request to fill out an Episodic Event Form. Updated contact information. General edits and corrections.

## 3. APPROVALS

PREPARED by:	APPROVED by:
Isaac Gillen, Manager of System Operations	Peter J. Rossi, Chief Operating Officer
	
Date: <u>July 7, 2022</u>	Date: <u>July 7, 2022</u>

#### 4. SCOPE

This procedure establishes VEC's protocol for handling and reporting discharges and/or releases of oil as required pursuant to the requirements of the Federal Water Pollution Control Act 40 CFR Part 110, Discharge of Oil.

This procedure will be followed in the event of a discharge and/or release of oil which necessitates appropriate and immediate action to protect human health and environmental impacts including, but not limited to, emergency containment measures, clean up, and reporting as required by Federal, State, and Local regulations.

#### 5. DEFINITIONS

- ANR: Vermont Agency of Natural Resources
- Certified Hazardous Waste Facility: A treatment, storage, or disposal facility which is authorized to operate under a federally approved state hazardous waste program, the federal hazardous waste program, or a foreign government.
- Container: Any portable device, in which a material is stored, transported, treated, disposed, or otherwise handled.
- Discharge: The accidental or intentional spilling, leaking, pumping, pouring, emitting, emptying, or dumping of hazardous waste into or on any land or water body.
- Disposal: The discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste of hazardous waste into or on any land or water body so that such solid waste or hazardous waste, or any constituent thereof, may enter the environment or be emitted into the air or discharged into any ground or surface waters.
- EPA: United States Environmental Protection Agency.
- Hazardous Material: All petroleum and toxic, corrosive or other chemicals and related sludge.
- PCB's: Polychlorinated biphenyls.
- PPM: Parts per million.
- VHWMR § 7-105 (a) (2): Vermont Hazardous Waste Management Regulation governing reporting requirements.



## 6. BACKGROUND

VEC is committed to complying with the U.S. Environmental Agency CFR Title 40: Protection of Environment and the State of Vermont Agency of Natural Resources, Hazardous Waste Management Regulations.

In the event of a discharge and/or release of transformer oil/hazardous waste or other petroleum products, VEC will perform the appropriate emergency action, reporting, and corrective actions necessary to comply with the ANR.

## 7. RESPONSIBILITIES

- Field/Line Personnel

### 7..1 Reporting

A hazardous discharge/release (e.g., oil spill) will be reported to ANR immediately if one of the two following criteria exists:

- The discharge/release is greater than 1 gallon and contains greater than or equal to 50 PPM PCB's.
- The discharge/release is greater than 2 gallons, and contains less than 50 PPM PCB's.

### 7..2 Containment

The first VEC personnel to discover the hazardous discharge/release will:

- Use proper PPE.
- Secure the area if necessary.
- Stop the source of discharge/release if possible.
- Assess the amount of the spill.
- Perform a Chlor-N-Oil test.
- Contain discharge/release by trenching area with soil and absorbent material.

### 7..3 Clean-up

The Safety, Security, and Facilities Manager, or their designee, will discuss the nature and details of the discharge with the VEC field/line personnel to determine if the clean-up can be managed internally by VEC personnel or if outside

assistance will be necessary. The criteria considered for this determination include:

- Quantity discharged.
- Proximity to water supplies and waterways.
- Penetration depth into the soil
- Area impacted by the discharge and cleanup efforts.

Note: "Quantity" is not the primary criteria for determining if a discharge is manageable. Smaller amounts may require external resources to remediate.

#### 7..4 Reporting Information – All Discharges

VEC field/line personnel will be responsible for calling System Operations and providing the following spill information and location:

- Source of spill or leak.
  - Exact location of spill or leak (street address, town, 911 address).
  - Type of material involved.
  - Result of Chlor-N-Oil test.
  - Estimated amount of spill or leakage.
  - Whether the spill or leak is near a water body.
  - Containment status.
- System Operator Responsibility
    - The System Operator is responsible for obtaining the above Reporting Information from field/line personnel and relaying this information to management personnel.
    - The System Operator, 4-6 hours after the initial notification, will verify that verbal or email communication to the ANR has been performed by Safety Manager or their designee by. The System Operator will record the confirmation in the Operator's log.
    - The management notification list is as follows:

First contact:

Safety, Security and Facilities Manager  
Cell Phone (802) 730-4117  
Home Phone (802) 527-2988

Second Contact:

Safety Technician



Cell Phone (802) 258-0219  
Home Phone (802) 644-1905

Third Contact:

Manager of System Operations  
Cell Phone (802) 730-3043  
Home Phone (802) 644-1520

- Management Responsibilities

The Safety, Security, and Facilities Manager, or their designee, is responsible for immediately reporting to ANR, the Department of Environmental Conservation, and the Waste Management Division. The Safety, Security, and Facilities Manager must also complete an Episodic Event Form and transmit to the Vermont Department of Environmental Conservation within 72 hours of the event.

The Safety, Security, and Facilities Manager may request that another VEC employee initiate the ANR contact if they are not able to call.

ANR Contact:

Normal hours (802) 828-1138  
After hours (800) 641-5005

Provide ANR with the following information:

- Date/time oil spill discovered.
- Street address/town.
- Equipment causing leak.
- Product spilled.
- PCB level (result of Chlor-N-Oil test).
- Method of clean-up.
- Company or companies involved in the clean-up.

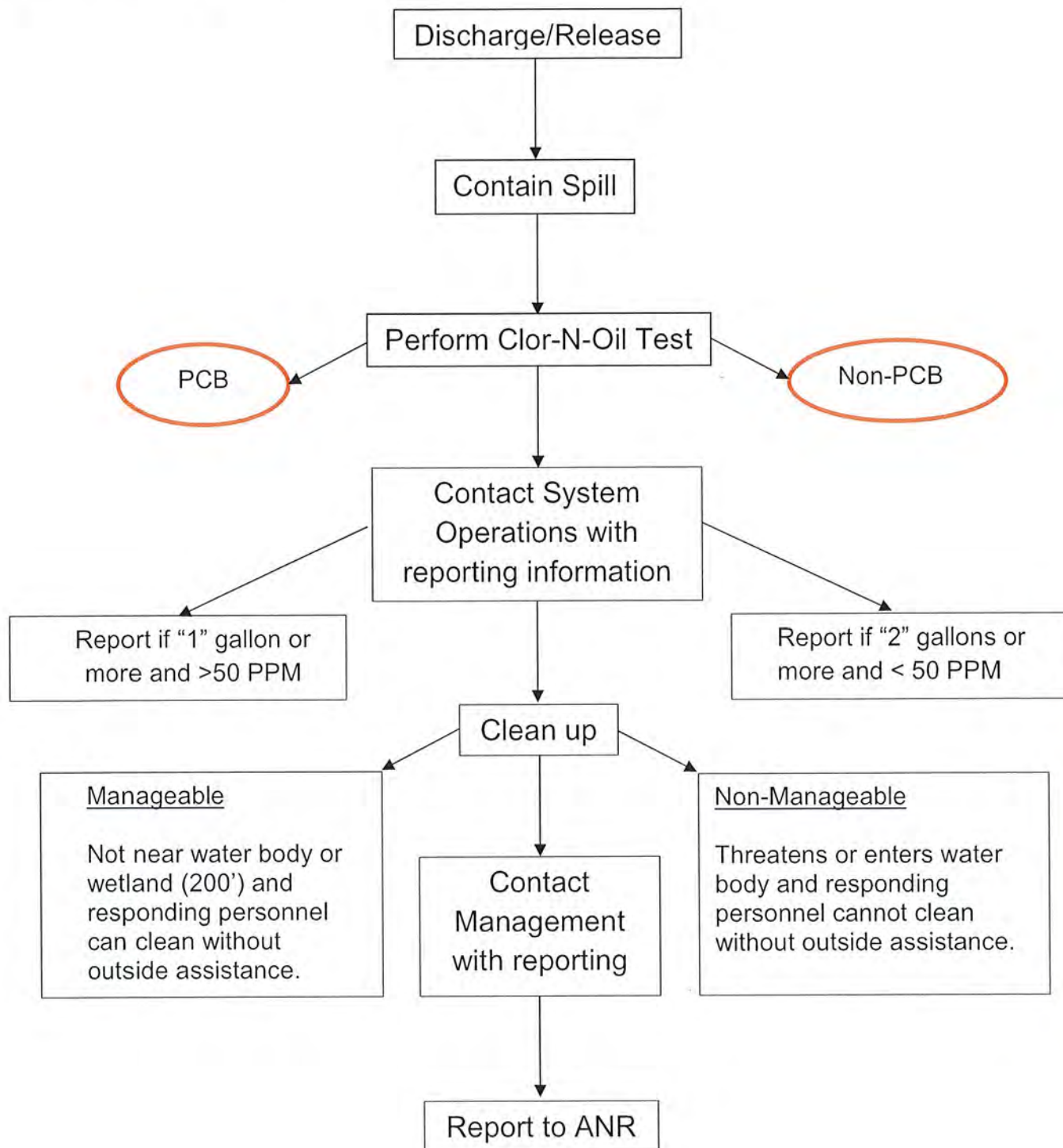
If outside Assistance is needed for clean-up, contact:

NRCC Services Inc.  
54 Avenue D, Williston VT 05495  
(802) 860-1200  
(800) 966-1102 (24 hour)



Note: If the release reaches navigable water, the Safety, Security, and Facilities Manager will ensure contact is made to the National Response Center at (800) 424-8802.

## FLOW CHART FOR OIL SPILL REPORTING



## OIL SPILL RESPONSE REPORT

Date: \_\_\_\_\_ Time: \_\_\_\_\_ District: \_\_\_\_\_

Town: \_\_\_\_\_ Plant/Road Name: \_\_\_\_\_

Exact location of spill (e.g., pole #, pad #, s/s #, etc.): \_\_\_\_\_

On or near water: Yes \_\_\_\_\_ No \_\_\_\_\_ If yes, name of body of water: : \_\_\_\_\_

Type of product spilled: \_\_\_\_\_ Amount of product spilled: \_\_\_\_\_

PBC-level (circle one):    Non-PCB    <50 PPM    >50 PPM    >500 PPM

Cause of spill: \_\_\_\_\_

Amount of recovered materials:

# of \_\_\_\_\_ Drums containing \_\_\_\_\_

# of \_\_\_\_\_ Drums containing \_\_\_\_\_

# of \_\_\_\_\_ Drums containing \_\_\_\_\_

Location and method of spill debris disposal: \_\_\_\_\_

Name of outside services used (if any): \_\_\_\_\_

Spill reporting:

Time: \_\_\_\_\_ Person contacted: \_\_\_\_\_

Time: \_\_\_\_\_ Person contacted: \_\_\_\_\_

Time: \_\_\_\_\_ Person contacted: \_\_\_\_\_

Field staff involved in cleanup (names): \_\_\_\_\_

Report completed by: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

VERMONT ELECTRIC COOPERATIVE, INC.  
UTILITY LINE VEGETATION MAINTENANCE REPORT

WK. ENDING \_\_\_\_\_ SHEET \_\_\_\_\_ OF \_\_\_\_\_

TOWN \_\_\_\_\_

JOINT WITH \_\_\_\_\_

Treatment Codes	CT=Cutting (Re-clearing)	RC=Re-claiming	MO=Mowing	DT=Danger Tree Removal (Indicate # of DT removed in remarks section)	WD=Widen	FO=Foliar	CS=Cut Surface	BA=Basal
Chemical Codes	1=Accord Conc. EPA Reg. #62719-324	2=Arsenal Powerline EPA Reg. #241-431	3=Escort XP EPA Reg. #352-439	4=Krenite S EPA Reg. #352-395	5=Garlon 3A EPA Reg. #62719-37	6=Garlon 4 Ultra EPA Reg. #62719-40	7=Stalker EPA Reg. #241-398	

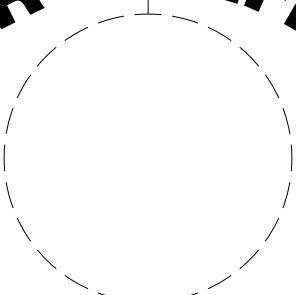
Approved By: \_\_\_\_\_

## Exhibit 7

# Invoice Summary Sheet

[illegible]

# MEMBER NOTIFICATION



**Vermont Electric Cooperative, Inc.**

42 Wescom Road • Johnson, VT 05656

802-635-2331 • 800-832-2667

## TREE WORK SCHEDULED

### PLEASE READ

### THIS CONCERNS YOUR PROPERTY

VEC is currently conducting vegetation management activities in your area in order to minimize vegetation related interruptions in the utility service to you and your neighbors. VEC's Forestry staff of licensed/certified forester(s)/arborist(s) are responsible for the supervision of qualified line clearance contractors hired to manage vegetation growth around the utility lines.

**Line Maintenance** generally involves the cutting of all brush (up to 25 ft. on each side of the center of the pole line for distribution lines and up to 50 ft. on each side for transmission lines) to ground level, as well as proper pruning of all branches growing towards conductors and removal of any/all trees, which can not be properly pruned to provide adequate clearance.

**Hazard Tree Removal** involves the removal of trees, which due to size, location and/or condition, have a potential for damaging the conductors or structures now or within the next ten years. These trees will be removed regardless of distance from the center of the pole line.

If you did not receive this notice in person and would like to discuss this work with the tree company conducting the maintenance, please call the number listed below. If contact is not made within 5 days of receiving this notice, maintenance activities will take place without any further notice.

Crew Foreperson: \_\_\_\_\_ Date: \_\_\_\_\_

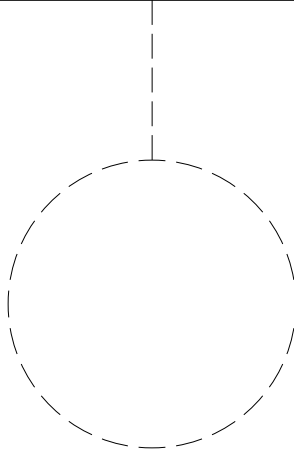
Contractor: \_\_\_\_\_

Day Telephone: \_\_\_\_\_ Evening Telephone: \_\_\_\_\_

Work Scheduled:    ☐ Line Maintenance                      ☐ Hazard Tree Removal  
                                 ☐ Distribution                                      ☐ Transmission

Please read the back of this notification for further explanation of VEC Vegetation Management Specifications.

(over)



VEC's Vegetation Management Plan, as submitted to the Vermont Department of Public Service, provides the following specifications:

### **Minimum Tree-to-Conductor Clearances**

**Distribution System** - A minimum of 10 feet of clearance on each side of the outside conductor and 20 feet of clearance for all branches that overhang the conductors must be achieved. Additional clearance is necessary on branches that could bend (due to snow or ice loading) or break and contact the conductors below.

**Transmission System** - A minimum of 15 feet of clearance on each side of the outside conductor must be achieved. No branches shall be left overhanging the conductors.

These are the minimum required clearances. Individual tree location, health, species, and growth rate must be considered when determining appropriate/acceptable clearances.

### **Disposal Procedures**

Brush, branches and woody debris from pruning and removal operations along roadsides and within manicured lawns will be chipped. In all other areas, brush will be moved away from the poles, out from under the conductors and windrowed (placed in a long, low heap or pile) off to the side.

Trees, which have been cut remain the property of the landowner and will be left on site. Trees that appear to contain log products will be left in long lengths (except when it is necessary to take them down in smaller sections) and all other wood will be blocked up and piled, unless directed otherwise by the member.

### **Compatible Species**

Plant species which at maturity will not attain a height that will endanger the safe and reliable operation of the line and may provide food and/or cover for wildlife (e.g. apple, lilac, hawthorn, dogwood, etc.) will be retained except in areas immediately surrounding pole locations and directly under conductors.

Please note: maintenance requirements are very site specific and each location must be evaluated individually.



*Vermont Electric Cooperative, Inc., a member-owned, not-for-profit Cooperative founded in 1938, is Vermont's second largest electric utility, serving approximately 34,000 members in rural Vermont.*

# IMPORTANT NOTIFICATION

## Vermont Electric Cooperative, Inc.

### HERBICIDE APPLICATION SCHEDULED

VEC is currently conducting vegetation management activities in your area in order to minimize vegetation related outages. A variety of Integrated Vegetation Management (IVM) methods are used including hand cutting, mowing and selective herbicide application with handheld equipment. Maintenance activities are implemented by certified and experienced contractors under the supervision of VEC's licensed/certified forester(s)/arborist(s).

Vegetation in close proximity to the electric facilities is not only the leading cause of power outages, but also represents a safety risk to utility workers and the general public.

VEC has selected IVM to promote low-growing, sustainable plant communities that are compatible with the electric facilities and to discourage incompatible plant species which at maturity attain a height of greater than 15 feet tall and may pose a variety of concerns including safety, access, electric service reliability, emergency restoration, regulatory compliance and environmental concerns.

#### **Important benefits of IVM include:**

- Increased visibility and access along rights-of-way
- More timely and less costly outage restoration
- Safer working conditions for line workers and line clearance contractors
- Improved species selectivity
- Long-term control
- Promotes stable plant communities
- Supports natural (biological) control
- Promotes bio-diversity among plants and wildlife
- Only feasible control method for invasive species
- Only method that lowers undesirable stem densities, reducing future maintenance costs
- Most efficient and economical control

Use of herbicides within our IVM approach is regulated by federal and state statutes and regulations which protect sensitive areas such as surface waters and public and private water supplies.

All products to be used are federally registered and labeled for specific uses by the Environmental Protection Agency (EPA) and will be applied by certified applicators according to product label directions. Product applications will be selective, in that the herbicide will be applied directly to incompatible species of plants.

**If you have a private water supply that is within 100 feet of the right-of-way, please call the contractor designated below:**

The contractor conducting maintenance in your area is:

The contractor's representative is:

and may be contacted at:

The electric company identification for the right-of-way is:

We at VEC believe our IVM approach to vegetation management is the most responsible way to provide safe and reliable electric service at a reasonable cost. We would be happy to answer any questions you may have as this work is carried out.



**Vermont Electric Cooperative, Inc.**  
42 Wescom Road, Johnson, VT 05656  
1-800-832-2667 or 802-635-2331

[www.vermontelectric.coop](http://www.vermontelectric.coop)





## Exhibit 9.

### **Vermont Electric Cooperative, Inc. Vegetation Maintenance Utility Initiated Outage Request Form**

Date: \_\_\_\_\_

Company Name: \_\_\_\_\_

Substation Name and #: \_\_\_\_\_

Point #: \_\_\_\_\_

Town: \_\_\_\_\_

Outage Time Required: \_\_\_\_\_

Desired Date(s) and Time(s) of Outage: \_\_\_\_\_

Contractor Comments:

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#### **Internal Use Only – Do Not Write Below This Point**

VEC Forestry Comments:

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VEC Line Department/Scheduling Comments:

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Date and Time of Scheduled Outage: \_\_\_\_\_

	Vermont Electric Cooperative, Inc. 42 Wescom Rd. Johnson, Vermont 05656 (802) 635-2331 800-832-2667	<b>LINE CLEARANCE CONTRACTOR JOB BRIEFING FORM</b>		INITIALS		
	DATE:		TIME			
	WO/SO: (IF APPLICABLE)		AM / PM	AM / PM	AM / PM	
CONTRACTOR:		PERSON IN CHARGE:				
<b>EMERGENCY INFORMATION</b>		LINE/POLE # (s)	JOB DESCRIPTION			
EMERGENCY MEDICAL SERVICES: 911						
CONTROL: 730-1219 EMERGENCY: 635-9519						
911 ADDRESS (Nearest To Worksite):						
(If None - LIST DIRECTIONS TO SITE ON BACK)		VEC STAFF /OTHER CREWS				
TOWN:						
FIRST AID KIT: Y / N FIRE EXT: Y / N						
CELL SERVICE Y / N RADIO CHANNEL:						
ANSI Z133.1-2006 MINIMUM APPROACH DISTANCES TO ENERGIZED CONDUCTORS FOR QUALIFIED LINE CLEARANCE ARBORISTS & QUALIFIED LINE CLEARANCE ARBORIST TRAINEES						
Nominal Voltage in Kilovolts (kV) Phase to Phase	Minimum Approach Distance	Elevation Factor Sea Level-5000ft. MAD meters	NOTE: Minimum approach distances to energized conductors for persons other than qualified line clearance arborists & qualified line clearance arborist trainees is as follows:			
0.051 to 0.3	Avoid Contact					
0.301 to 0.75	1' 01"	0.33				
0.751 to 15.0	2' 05"	0.70				
15.1 to 36.0	3' 00"	0.91				
36.1 to 46.0	3' 04"	1.01				
			kv Phase to Phase Dist. Elev. Factor			
			0.0 to 50.0 10' 00" 3.05 m			
JOB BRIEFING REQUIREMENTS			BRIEF DESCRIPTION/NOTES			
<b>ENERGY SOURCE CONTROLS</b>						
<input type="checkbox"/> Nominal Voltage _____ <input type="checkbox"/> Min. Approach Dist. _____ <input type="checkbox"/> Substation _____ <input type="checkbox"/> Protective Device _____ <input type="checkbox"/> Energized Equipment _____			<input type="checkbox"/> Tested/Dead/Grounded <input type="checkbox"/> Scheduled Outage <input type="checkbox"/> Emergency Outage <input type="checkbox"/> Storm Response <input type="checkbox"/> Other _____			
<b>JOB HAZARDS REVIEW</b>						
<input type="checkbox"/> Electricity <input type="checkbox"/> Utility Hardware Condition <input type="checkbox"/> Sagging Conductors <input type="checkbox"/> Vegetation Touching Conductors <input type="checkbox"/> Vegetation w/in Min. Approach Dist. <input type="checkbox"/> Tree Condition <input type="checkbox"/> Included Bark <input type="checkbox"/> Overhangs/Deadwood			<input type="checkbox"/> Wood Under Tension <input type="checkbox"/> Vehicle Traffic <input type="checkbox"/> Pedestrian Traffic <input type="checkbox"/> Ground Condition <input type="checkbox"/> Equipment/Tools in Use <input type="checkbox"/> Weather/Temperature <input type="checkbox"/> Sun Glare <input type="checkbox"/> Dehydration <input type="checkbox"/> Wildlife (dogs, insects, etc.) <input type="checkbox"/> Poisonous Plants <input type="checkbox"/> Railroads <input type="checkbox"/> Water <input type="checkbox"/> Fences <input type="checkbox"/> Equipment Inspection <input type="checkbox"/> Tool(s)/Gear Inspection <input type="checkbox"/> Other _____			
<b>WORK PROCEDURES</b>						
<input type="checkbox"/> Assign Tasks <input type="checkbox"/> Communications <input type="checkbox"/> Establish Work Zone <input type="checkbox"/> Plan Escape Routes <input type="checkbox"/> Identify Drop Zones <input type="checkbox"/> Traffic Control Setup <input type="checkbox"/> Distribution Work <input type="checkbox"/> Transmission Work <input type="checkbox"/> Storm Response			<input type="checkbox"/> Pruning <input type="checkbox"/> Tree Felling <input type="checkbox"/> Tree Climbing <input type="checkbox"/> Flat Cutting <input type="checkbox"/> Bucking & Limbing <input type="checkbox"/> Rigging/Roping <input type="checkbox"/> Dragging Brush <input type="checkbox"/> Review Emergency Response Procedures <input type="checkbox"/> Chipping Brush <input type="checkbox"/> Lifting <input type="checkbox"/> Non-Conductive Tool(s) <input type="checkbox"/> Aerial Lift <input type="checkbox"/> Power Saws <input type="checkbox"/> Specialized Equipment <input type="checkbox"/> Mixing Crews (see back) <input type="checkbox"/> Pre-Scope Meeting <input type="checkbox"/> Other _____			
<b>SPECIAL PRECAUTIONS</b>						
<input type="checkbox"/> Equipment Safety <input type="checkbox"/> On Site First Aid/CPR <input type="checkbox"/> Public/Traffic Safety <input type="checkbox"/> Weather Precautions <input type="checkbox"/> Fire Suppression <input type="checkbox"/> Overhead Hazards <input type="checkbox"/> Terrain Hazards <input type="checkbox"/> Special Protection Areas			<input type="checkbox"/> Water Safety <input type="checkbox"/> Railroad Safety <input type="checkbox"/> Water Ways/Wetlands <input type="checkbox"/> Property Damage <input type="checkbox"/> School Zones <input type="checkbox"/> Pedestrians <input type="checkbox"/> Outriggers Placement <input type="checkbox"/> Lighting for Night Work <input type="checkbox"/> Load Securement <input type="checkbox"/> Equipment Inspection <input type="checkbox"/> Tool(s)/Gear Inspection <input type="checkbox"/> Wheel Chocks Set <input type="checkbox"/> No Loose Clothing/Chains <input type="checkbox"/> Location called in to Control <input type="checkbox"/> Pager on-person/battery ck. <input type="checkbox"/> Special Worker Concerns (hearing, fatigue, allergies, etc.)			
<b>PERSONAL PROTECTIVE EQUIPMENT (PPE) REVIEW</b>						
<input type="checkbox"/> Hard Hat <input type="checkbox"/> Safety Glasses <input type="checkbox"/> Re-inforced Toes <input type="checkbox"/> Gloves			<input type="checkbox"/> Hearing Protection <input type="checkbox"/> Leg Protection <input type="checkbox"/> Fall Protection <input type="checkbox"/> Reflective Safety Vest <input type="checkbox"/> Face Shield/Googles <input type="checkbox"/> Other _____ <input type="checkbox"/> Other _____ <input type="checkbox"/> Other _____			
<b>NOTE: IS THE CREW ABLE TO SAFELY PERFORM THE JOB?</b> <input type="checkbox"/> YES <input type="checkbox"/> NO <b>IF THE JOB CANNOT BE PERFORMED SAFELY --- STOP THE JOB --- AND ASK FOR ASSISTANCE!</b>						
						

## DIRECTIONS TO SITE

(Complete Directions to Site when 911 Address is not available)

## SPECIAL DISCUSSION

(To be conducted whenever multiple crews are working together or in close proximity to one another)

- ☐ WHO CAN CLIMB:
- ☐ CREW MEMBER QUALIFICATIONS:
- ☐ CAPABILITIES OF EACH CREW'S EQUIPMENT:
- ☐ IDENTIFY/DEFINE WORK ZONE(S):
- ☐ ESTABLISH DROP ZONE(S):
- ☐ JOB SCOPE OF EACH CREW:  
(WHO is doing WHAT and HOW)

## AUDIT REVIEW

- ☐ FOLLOW UP REVIEW - COMMENTS:

REVIEWED BY SUPERVISOR:

DATE:

REVIEWED BY VEC:

DATE:

### PHONETIC ALPHABET

A	ALPHA	N	NOVEMBER
B	BRAVO	O	OSCAR
C	CHARLIE	P	PAPA
D	DELTA	Q	QUEBEC
E	ECHO	R	ROMEO
F	FOXTROT	S	SIERRA
G	GOLF	T	TANGO
H	HOTEL	U	UNIFORM
I	INDIA	V	VICTOR
J	JULIET	W	WHISKEY
K	KILO	X	X-RAY
L	LIMA	Y	YANKEE
M	MIKE	Z	ZULU



ALWAYS USE  
3 WAY COMMUNICATION

### REMINDER:

ASKING US TO OVERLOOK A **SINGLE**  
SAFETY VIOLATION WOULD BE ASKING  
US TO **COMPROMISE** THE VALUE WE  
HAVE PLACED ON YOUR **LIFE!**



# Exhibit 11.

## Vermont Electric Cooperative, Inc. Qualified Line Clearance Contractor Safety Observation Report

Date: \_\_\_\_\_ Time \_\_\_\_\_

Description of Job Being Performed: \_\_\_\_\_

Location of Observation: \_\_\_\_\_ By: \_\_\_\_\_

Crew Foreperson Observed: \_\_\_\_\_

Worker 1 Observed: \_\_\_\_\_

Worker 2 Observed: \_\_\_\_\_

Worker 3 Observed: \_\_\_\_\_

Please check the boxes below.  
Include a brief description of  
the discrepancy for each "No"  
answer on the back of this form.  
If auditing "Work Methods"  
describe activities.

PERSONAL SAFETY	Ref. 1910	Crew Foreperson			Worker 1			Worker 2			Worker 3		
		Yes	No	N/A	Yes	No	N/A	Yes	No	N/A	Yes	No	N/A
1. Hard Hat	.135	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Safety Glasses	.133	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Appropriate Workboots	.136	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Gloves	.132	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Appropriate Clothing	.269 (l)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Fall Protection	.269(r)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Safety Vest In Work Zone	MUTCD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Face Shield or Goggles	.133	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Hearing Protection	.95	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Personal Flotation Vest	.269 (w)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Appropriate Leg Protection	.269 (g)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Required Training Current	App A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Qualification Forms On File	App A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Knowledge of													
a) Nominal Voltage	.269 (r)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Min. Approach Distances.	.269 (r)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Distinguish Live Parts	.269 (r)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

WORK AREA SAFETY	Ref. 1910	Yes	No	N/A	Comments
15. Pre-job Safety Briefing	.269 (c)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If yes, ✓ and detail discussion
a) Hazards		<input type="checkbox"/>			_____
b) Procedures		<input type="checkbox"/>			_____
c) Special Precautions		<input type="checkbox"/>			_____
d) Personal Protective Equip		<input type="checkbox"/>			_____
e) Energy Source Control		<input type="checkbox"/>			_____



Vermont Electric Cooperative, Inc.  
Qualified Line Clearance Contractor  
Safety Observation Report

16. Safe & Clean Working Environment		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
17. Insulated Tools Clean & Serviceable	.269 (j)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
18. First Aid Kit	.151	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
19. Fire Extinguisher	.157	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

VEHICLES	Ref. 1910	Yes	No	N/A	Comments
20. Proper Traffic Control	MUTCD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____
21. Arrival Called into Dispatch		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____
22. Wheel Chocks Set	.67	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____
23. Outriggers Set	.67	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____
24. Vehicle Condition	.67	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____
25. Pre-Flight Aerial Lift Checks	.67	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____

WORK METHODS OBSERVED	Ref. 1910	Yes	No	N/A	Comments
26. 2 <sup>nd</sup> Person Present within voice	.269 (r)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____
27. Use of Insulated Tools	.269 (r)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____
28. Use of Aerial Lifts	.269 (r)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____
29. Tree Felling	.269 (r)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____
30. Pruner Operations	.269 (r)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____
31. Climbing Trees/Pre-climb Inspection	.269 (r)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____
32. Use of Power Saws	.269 (r)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____
36. Use of Brush Chippers	.269 (r)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____
37. Proper Roping and Rigging	.269 (r)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____

Ref. #	Description Of Discrepancy (Include Employee Name For Personal Safety Issues)

## Exhibit 12.

### Herbicide Application Property Owner Notification Log

Line Name: \_\_\_\_\_ Structure No.'s: \_\_\_\_\_

Town: \_\_\_\_\_ Road: \_\_\_\_\_

Contractor: \_\_\_\_\_ Crew Member: \_\_\_\_\_

Property Owner: \_\_\_\_\_ Phone: \_\_\_\_\_

Date of Contact: \_\_\_\_\_ Time of Contact: \_\_\_\_\_ Form of Contact: \_\_\_\_\_

Summary of Conversation: \_\_\_\_\_

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Actions Taken: \_\_\_\_\_

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Additional Comments: \_\_\_\_\_

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VEC OPERATING PROCEDURE: OP 27  
PART ONE: OIL SPILL REPORTING PROCEDURE  
PART TWO: HERBICIDE ACCIDENTAL RELEASE MEASURES

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## MAIN DOCUMENT

## PART TWO: HERBICIDE ACCIDENTAL RELEASE MEASURES

### I. SCOPE

VEC Operating Procedure No. 27 – Part Two: Herbicide Accidental Release Measures, establishes a procedure for personal precautions, controlling, containing, clean up and reporting of any accidental release of pesticide during application for vegetation maintenance on Vermont Electric Cooperative, Inc. (herein referred to as VEC) transmission and distribution line rights-of-ways in accordance with the State of Vermont, Title 6 V.S.A., Chapter 87

Measures taken in response to an accidental release clean up will conform to EPA Worker Protection Standard 40 CFR Part 170.240 regarding Personal Protective Equipment as follows:

***170.240 Personal protective equipment.***

***(a) Requirement. Any person who performs tasks as a pesticide handler shall use the clothing and personal protective equipment specified on the labeling for use of the product.***

***(b) Definition. (1) Personal protective equipment (PPE) means devices and apparel that are worn to protect the body from contact with pesticides or pesticide residues, including, but not limited to, coveralls, chemical-resistant suits, chemical-resistant gloves, chemical-resistant footwear, respiratory protection devices, chemical-resistant aprons, chemical-resistant headgear, and protective eyewear.***

Measures taken in response to an accidental release clean up will conform to Vermont Act 31, relating to Community and Worker Right-to-Know of 1985 as follows:

## **1. Emergency Actions**

***A person responsible for the application, storage or handling of a pesticide upon knowledge of an accident involving such pesticide shall immediately take actions intended to protect human health and the environment, including but not limited to emergency containment measures and notification as described within this section.***

## **2. Emergency Notification**

***a. All Class A, B and C Dealers, certified commercial and noncommercial applicators, certified private applicators, licensed pesticide applicator companies, pesticide producing establishments and persons working for licensed applicator companies under the supervision of a certified applicator, shall report pesticide accidents immediately by telephone to either the:***

***Vermont Department of Agriculture, Food and Markets Plant Industry Section  
116 State Street, Drawer 20  
Montpelier, VT 05620-2901  
(802) 828-2431***

***OR***

***Vermont Department of Public Safety  
Waterbury State Complex  
103 South Main Street  
Waterbury, VT 05676  
1-800-641-5005 (operating 24 hours; 7 days/week)***



## **II. ACCIDENTAL RELEASE MEASURES**

In the event of an accidental herbicide release, stabilize the situation. If the product is leaking from a drum or tank, then action shall be taken to stop this flow by changing the position of the barrel or tank, shutting off a valve or up-righting the container. Isolate and dike the spill area preventing material from entering sewers, waterways or low areas. The following are the Manufactures MSDS directions for accidental release clean up.

### **FOSAMINE AMMONIUM: (Krenite S)**

#### **ACCIDENTAL RELEASE CLEAN UP**

Soak up spill with sawdust, sand, oil dry or other absorbent material. Shovel or sweep up. Never return to container for reuse. Scoop the absorbed material into bags or boxes with a plastic or aluminum shovel.

If spill area is on ground near valuable plants or trees, remove top 2 inches of soil after initial cleanup.

### **GLYPHOSATE: (Accord Concentrate Herbicide)**

#### **ACCIDENTAL RELEASE CLEAN UP**

Absorb spills with an inert absorbent material such as Hazorb, Zorball, sand or dirt.

### **IMAZAPYR: (Arsenal/Stalker/Habitat)**

#### **ACCIDENTAL RELEASE CLEAN UP**

**VEC OPERATING PROCEDURE: OP 27**  
**PART ONE: OIL SPILL REPORTING PROCEDURE**  
**PART TWO: HERBICIDE ACCIDENTAL RELEASE MEASURES**

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**MAIN DOCUMENT**

Absorb spills with a suitable absorbent material. Place into suitable containers for disposal in a licensed facility. After decontamination, spill area can be washed with water. Collect wash water for approved disposal.

**METSULFURON METHYL:**  
**(Escort XP)**

**ACCIDENTAL RELEASE CLEAN UP**

Shovel or sweep up.

**TRICLOPYR:**  
**(Garlon 3A & 4)**

**ACCIDENTAL RELEASE CLEAN UP**

Absorb spills with an inert absorbent material such as Hazorb, Zorball, peat moss, commercial sweeping compound or similar absorbent material. If these are not available use absorbing agents such as kitty litter, sand, clay or topsoil, sand or dirt. Store collected absorbed material in secure containers until safe disposal can be arranged. Small spills on topsoil should be worked into the soil and allowed to degrade under natural conditions.

**III. FIRST AID**

In the event of herbicide poisoning or contamination, emergency measures described on the product label shall be taken immediately. As soon as these instructions have been completed, a doctor should be notified. It is important to provide a label for the doctor's reference so he will be able to determine the appropriate treatment.

The following is the contact information for the Vermont Poison Control Center:

Vermont Poison Center  
Fletcher Allen Health Care  
111 Colchester Ave.  
Burlington, Vermont 05401  
(802) 658-3456

#### **IV. REPORTING RESPONSIBILITIES**

In the event of an accidental herbicide release, contact the following:

Vermont Department of Agriculture:  
802-828-2431 (during work hours)

Vermont Department of Public Safety:  
1-800-641-5005 (after work hours)

VEC T & D Vegetation Mgt. Program Manager, Sara Packer:  
Office 802-730-1104

Cell 802-254-1458

VEC Safety and Security Manager, John Varney:  
Office 802-730-1204

Cell 802-730- 4117

**VEC OPERATING PROCEDURE: OP 27**  
**PART ONE: OIL SPILL REPORTING PROCEDURE**  
**PART TWO: HERBICIDE ACCIDENTAL RELEASE MEASURES**

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**MAIN DOCUMENT**

**Revision History**

Rev No.	Date	Description

**Approval (Latest Revision)**

Prepared by	Approved by
X:	X:
Date:	Date:

**Distribution List (Hard Copy)**

Company	Title

**Distribution List (Email "PDF" Copy)**

Company	Title

**VEC OPERATING PROCEDURE: OP 27**  
**PART ONE: OIL SPILL REPORTING PROCEDURE**  
**PART TWO: HERBICIDE ACCIDENTAL RELEASE MEASURES**

**MAIN DOCUMENT**

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**Procedure Review Schedule**

Refer to VEC Operating Procedure OP-51 for the operating procedure review schedule.



Appendix E  
VERMONT ELECTRIC COOPERATIVE, INC.  
VEGETATION MANAGEMENT FIELD INSPECTION REPORT

CONTRACTOR:

FOREPERSON:

DATE:

SUBSTATION:

DISTRICT:

TOWN(S):

ROAD(S):

INSPECTOR:

GENERAL PERFORMANCE -VEC SPECIFICATIONS
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0 = Not Checked-N/A

1 = Poor

2 = Fair

3 = Good

4 = Very Good

**\* More than one rating of 1 requires Contractor signature and corrective action plan**

0 1 2 3 4

Proper cuts to outside branch collar, not flush or stubs, correct angle

Cuts to proper laterals, directional pruning

Quantity removed no more than 1/3 crown, only healthy trees pruned

No bark rips, tears, excess wounding

No branches, limbs or tops left hanging in trees

Tree shape and overall appearance acceptable

Clearance to specifiactions (Consider member limitation only if noted on maintenance report)

All deadwood and weakened tree parts removed if posing threat to primary line

Danger trees effectively identified and removed

Stump height 3 inches or less and cut parallel with ground grade (no "pongee stakes")

Disposal procedures consistent with specifications

Windrows 4' high or less & not interfering w/ roads, trails, streams or property lines; 20' firebreak every 500'

Preservation of low-growing desirable species

Vines cut at ground level

Water quality protection, no discharge of organic material or petroleum products; water supplies undisturbed

Fences & stone walls preserved or restored, gates & fences kept closed, blazed property lines maintained

Erosion Control - rutting avoided or repaired, waterbars installed where necessary

Housekeeping, work site cleanup

Copy of clearance standards and specifications

Maintenance reports complete and legible

Invoices accurately reflect work conducted on the ground

Project map marked and current

Certified herbicide applicator w/in voice command of physical herbicide application

Herbicide application certification up to date and present

Herbicide application to spec (entire length/width of identified treatment area is treated & buffers maintained)

Appropriate herbicide equipment/container storage (spill/leak proof & lockable, secured when unattended)

Herbicide permit, label(s) and material safety data sheet(s) on site

Herbicide spill kit, spill response instructions, drinking water and wash water on site

Herbicide application property owner notification log current, legible and adequate

COMMENTS

Contractor Signature:

Contract Supervisor Signature:

VERMONT ELECTRIC COOPERATIVE, INC.  
UTILITY EASEMENT

KNOW ALL PEOPLE BY THESE PRESENTS, THAT I/we \_\_\_\_\_ (hereinafter called the “Grantor,” whether one or more), for and in consideration of the sum of One Dollar and other valuable consideration paid by **Vermont Electric Cooperative, Inc.**, a corporation duly organized under the laws of the State of Vermont, the receipt whereof is hereby acknowledged, do hereby GIVE, GRANT, BARGAIN, SELL and or CONVEY unto the said Vermont Electric Cooperative, and its successors and assigns (hereinafter together called the Grantees), **a utility easement, fifty (50) feet in width**, over, above, across, through and under Grantor’s land, together with the right to enter upon the land of the Grantor for the purposes of exercising any of the rights herein granted, said land being situated in the Town of \_\_\_\_\_, State of Vermont, more particularly described as follows:

**A strip of land, the majority of which is fifty (50) feet in width being a portion of Grantor’s land located on the side of \_\_\_\_\_ Road, so-called; commencing at a point on the Grantor’s \_\_\_\_\_ boundary and continuing along \_\_\_\_\_ to a point on the Grantor’s \_\_\_\_\_ boundary (“Easement Area”).**

Being a portion of the same land and premises conveyed to the Grantor herein by \_\_\_\_\_, by (Warranty) (Quitclaim) (Administrator) Deed dated \_\_\_\_\_ and recorded in Book \_\_\_\_\_, Page \_\_\_\_\_ of the \_\_\_\_\_ Land Records, consisting of \_\_\_\_\_ acres, more or less, and bound on the north by land now or formerly owned by \_\_\_\_\_; on the east by land now or formerly owned by \_\_\_\_\_; the south by land now or formerly owned by \_\_\_\_\_; the west by land now or formerly owned by \_\_\_\_\_ (“the Property”).

The easement shall be described as follows: Grantees may place, construct, reconstruct, operate, repair, maintain, improve, mark, replace thereon, and remove therefrom, and in or upon all streets, roads or highways abutting said land, electric, communications and data transmission and distribution systems consisting of poles, wires, cables, conduits, equipment and other fixtures and appurtenances used or adopted for the purpose, upon, over, through, across and under the surface of the land owned by the Grantor. Grantees may also cut and prune and apply herbicide to all trees and vegetation to the extent necessary as determined by the Grantees to protect the said systems and keep the systems clear of the growth. Together, also, with the permanent right at any and all times to enter on adjacent lands of the Grantor and to cut or prune and remove such trees growing outside the limits of the Easement Area (danger trees) which may, in the opinion of the Grantees, interfere with or be likely to interfere with the successful operation of the facilities now or hereafter to be constructed on said Easement Area.

Also the perpetual right and easement from time to time to place, maintain and replace anchors, guy wires, and braces outside of the Easement Area to support a pole or poles placed within said Easement Area; provided, however, that (i) Grantees shall place, maintain and replace only such anchors, guy wires, and/or braces as are reasonably necessary to support poles within said Easement Area; (ii) any restrictions on Grantor that would apply in the Easement Area shall not apply to the aforementioned location of any anchors, guy wires and/or braces except where such anchors, guy wires and/or braces are presently installed or later installed; and (iii) any rights of Grantees that would apply in the Easement Area shall not apply to the aforementioned location of any anchors, guy wires and/or braces except where such anchors, guy wires and/or braces are presently installed or later installed.

The Grantor covenants for themselves, their heirs and assigns that none of them will erect or permit any building, wire, line, conduit, or any other structure or trees or bushes to be erected or placed in the Easement Area, or change the grade, fill or excavate within the Easement Area without the prior written consent of Grantees. By way of illustration, but not of limitation, the following uses are specifically forbidden: swimming pools, ponds, tennis courts, any building or other structure, unregistered vehicle parking, or storage of any materials or equipment.

It is also agreed that the facilities shall remain the property of the Grantees, their successors and assigns, and that the Grantees, their successors and assigns, shall pay all taxes assessed thereon.

Grantees shall have the right to assign to others, in whole or in part, any or all of the rights, privileges and easements hereinbefore set forth.

TO HAVE AND TO HOLD the above granted rights and easements, with all privileges and appurtenances thereunto belonging, unto the said Grantees, their successors and assigns forever, to them and their own proper use, benefit and behoof. Grantor covenants with the Grantees that at and until the ensealing of these presents the Grantor is well seized of said premises as a good indefeasible estate in fee simple, and has good right to sell and convey the rights and easements aforesaid in the manner and form above written, and that the same are free from all encumbrances whatsoever, and furthermore, the Grantor agrees to warrant and defend the same to the Grantees and their successors and assigns forever against all claims and demands whatsoever.

IN WITNESS WHEREOF, the undersigned has set their hand and seal this \_\_\_\_day of \_\_\_\_\_, \_\_\_\_.

Grantor: \_\_\_\_\_

State of \_\_\_\_\_

\_\_\_\_\_County

At \_\_\_\_\_, in said County, on this \_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_, personally appeared \_\_\_\_\_ and he/she acknowledged this instrument, by him/her sealed and subscribed, to be his/her free act and deed.

Before me,

\_\_\_\_\_  
Notary Public  
My Commission Expires:

IN WITNESS WHEREOF, the undersigned has set their hand and seal this \_\_\_\_day of \_\_\_\_\_, \_\_\_\_.

Grantor: \_\_\_\_\_

State of \_\_\_\_\_

\_\_\_\_\_County

At \_\_\_\_\_, in said County, on this \_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_, personally appeared \_\_\_\_\_ and he/she acknowledged this instrument, by him/her sealed and subscribed, to be his/her free act and deed.

Before me,

\_\_\_\_\_  
Notary Public  
My Commission Expires:

To be completed by Vermont Electric Cooperative, Inc.

W. O. # \_\_\_\_\_

Line / Pole# \_\_\_\_\_

Acct# \_\_\_\_\_

E-911: \_\_\_\_\_

For: \_\_\_\_\_





## Appendix G

# Incompatible Vegetation

<u>Common Name</u>	<u>Scientific Name</u>	<u>Mature Height</u>
Ash (White, Green)	Fraxinus	50 - 80'
Aspen (Bigtooth, Quaking)	Populus	40 - 70'
Beech (American, European)	Fagus	50 - 80'
Birch (Black, Yellow, White, Grey, River)	Betula	30 - 70'
Boxelder	Acer	40 - 70'
Butternut	Juglans	40 - 70'
Catalpa	Catalpa	50 - 90'
Cedar (White)	Thuja	40 - 60'
Cherry (Black, Pin)	Prunus	50 - 90'
Common Witchhazel	Hamamelis	20 - 30'
Cottonwood	Populus	75 - 100'
Eastern Redbud	Cercis	20 - 30'
Elm (American, Chinese)	Ulmus	40 - 90'
Fir (Balsam, White)	Abies	50 - 80'
Ginko	Ginko	50 - 80'
Hemlock	Tsuga	50 - 80'
Hickory (Bitternut, Pignut, Shagbark)	Carya	50 - 80'
Honeylocust	Gleditsia	30 - 70'
Hop Hornbeam	Ostrya	30 - 50'
Juniper (Eastern Red Cedar)	Juniperus	40 - 50'
Larch	Larix	40 - 80'
Linden (American, Littleleaf)	Tilia	60 - 80'
Locust (Black)	Robinia	50 - 80'
Lombardy Poplar	Populus	40 - 50'
Maple (Sugar, Red, Silver, Norway*)	Acer	40 - 90'
Mountainash (European, Korean)	Sorbus	20 - 50'
Oak (Red, White, Black, Pin)	Quercus	50 - 90'
Pine (White, Red, Scotch, Austrian)	Pinus	40 - 100'
Spruce (Red, Black, White, Blue, Norway)	Picea	50 - 90'
Sycamore	Platanus	75 - 100'
Walnut (Black)	Juglans	50 - 75'
Willow (Weeping, White)	Salix	40 - 90'

Dirr, Michael A. Manual of Woody Landscape Plants: Their Identification, Ornamental Characteristics Culture, Propagation and Uses. Champagne, IL, 1998.



## Appendix H

### Compatible Vegetation

#### Wire Zone (area under the conductors and 15 feet outside of the conductors on each side)

<u>Common Name</u>	<u>Scientific Name</u>	<u>Mature Height</u>
American Elder	Sambucus	5 - 12'
Azalea (Pinksterbloom, Swamp)	Rhododendron	2 - 10'
Barberry (Common, Japanese*)	Berberis	3 - 10'
Bearberry	Arctostaphylos	6 - 12'
Black Elderberry	Sambucus	12 - 15'
Canadian Yew	Taxus	3 - 6'
Chokeberry (Red, Black)	Aronia	6 - 10'
Common Ninebark	Physocarpus	5 - 10'
Common Privet	Ligustrum	12 - 15'
Common Winterberry/Inkberry	Ilex	6 - 10'
Dogwood (Silky, Roughleaf, Redosier)	Cornus	6 - 15'
Flowering Crab Apple	Malus	8 - 12'
Hazelnut (American, Beaked)	Corylus	8 - 15'
Honeysuckle*	Lonicera	4 - 8'
Hydrangea (Smooth, Bigleaf, Oakleaf)	Hydrangea	3 - 8'
Junipers (Common, Creeping)	Juniperus	1 - 10'
Laurel (Mountain, Sheep)	Kalmia	1 - 15'
Leatherleaf	Chamaedaphne	2 - 5'
Lilac (Common, Late)	Syringa	6 - 15'
Mountain Holly	Nemopanthus	6 - 10'
Northern Bayberry	Myrica	5 - 12'
Rhododendron	Rhododendron	3 - 6'
Roses	Rosa	2 - 10'
Rubus (Raspberries, Blackberries, Dewberries)	Rubus	3 - 10'
Smokebush	Cotinus	10 - 15'
Spicebush	Lindera	6 - 12'
Spirea	Spirea	3 - 8'
Sweetfern	Comptonia	2 - 4'
Viburnum (Arrowwood, Cranberry)	Viburnum	6 - 15'

#### Border Zone (area outside the wire zone, extending to the outside edge/treeline on each side)

<u>Common Name</u>	<u>Scientific Name</u>	<u>Mature Height</u>
Maple (Mountain, Striped)	Acer	10 - 30'
American Hornbeam	Carpinus	20 - 30'
American Mountain Ash	Sorbus	30 - 40'
Apple (Common, Crab)	Malus	10 - 30'
Autumn-olive	Elaeagnus	12 - 18'
Buckthorn (Common, Glossy*)	Rhamnus	12 - 25'
Common Chokecherry	Prunus	20 - 30'
Dogwood (Gray, Pagoda, Flowering)	Cornus	10 - 30'
Eastern Redbud	Cercis	20 - 30'
Hawthorn	Crataegus	15 - 25'
Hydrangea (Panicle)	Hydrangea	10 - 20'
Japanese Tree Lilac	Syringa	20 - 30'
Serviceberry/Shadbush	Amelanchier	15 - 25'
Speckled Alder	Alnus	15 - 25'
Sumac	Rhus	15 - 25'
Willow (Pussy, Purple, Shining)	Salix	13 - 25'
Winged Euonymus/Burning Bush	Euonymus	10 - 20'
Witchhazel (Common, Vernal)	Hamamelis	10 - 30'

\* Indicates species with invasive tendencies in the state of Vermont

Dirr, Michael A. Manual of Woody Landscape Plants: Their Identification, Ornamental Characteristics Culture, Propagation and Uses. Champagne, IL, 1998.

## **Section 6.08 Best Management Practices for Repair and Maintenance of Overhead Utilities**

Pursuant to Section 6.08 of the Vermont Wetland Rules, the following best management practices have been developed for this allowed use in order to prevent discharges to Waters of the State, and to maintain the integrity of wetlands and associated waters:

### **6.08 The routine repair and maintenance of utility poles, lines and corridors in a manner which minimizes adverse impacts and is accordance with Best Management Practices developed by the Secretary**

Please read this document carefully in order to determine whether your activity qualifies as an allowed use, to perform the activity in compliance with the best management practices, and to determine if other permits may be necessary.

1. Does the proposed activity qualify for an Allowed Use under Section 6 of the Vermont Wetland Rules?
  - a. This use shall not alter the configuration of the wetland's outlet or the flow of water into or out of the wetland; and no draining, dredging, or grading shall occur.
  - b. The placement, maintenance or removal of the structure shall not result in discharge to Waters of the State;
  - c. All work takes place in an existing utility corridor; and,
  - d. No permanent or temporary fill will be placed in the wetland or buffer zone with the exception of poles. Removal of woody vegetation outside the right-of-way, construction of new roads or improvement of existing roads in wetlands or buffer zones may require a permit from the Vermont Wetlands Program.
2. Best Management Practices
  - a. All impacts to wetlands and buffer zones shall be avoided and minimized to the greatest extent practicable;
  - b. Where existing maintenance plan is in place that is more protective of wetland resources, or has been approved by the Secretary, it may supersede these BMPs.
  - c. Herbicide and pesticide use shall be conducted under a Pesticide Advisory Council-approved ROW Management Plan.
  - d. Maintenance of woody vegetation in the wetland and buffer zone shall occur only within an existing ROW for the utility, with the exception of danger trees located outside of the maintained ROW:
    - i. Vegetation is managed in a manner that only trees and saplings that have the potential to reach a height that interferes with the utility line are removed;
    - ii. Vegetation should be cut at ground level, leaving root systems intact;
    - iii. If cutting of wetland vegetation cannot be avoided, complete the work by hand (chain or hand saw) instead of using large equipment.
  - e. Impacts from access shall be limited by utilizing existing or low impact routes using the following sequence of options in order of preference:
    - i. Access should be limited to upland areas or existing maintained roads to the extent practicable;
    - ii. Access on other existing primitive roads in wetlands or buffer zone;

## **Section 6.08 Best Management Practices for Repair and Maintenance of Overhead Utilities**

- iii. Where existing roads are not an option for access, minimize rutting or earth disturbing activities by:
    - (1) Accessing wetland areas under frozen or dry conditions. Use mats if necessary to prevent rutting.
    - (2) Memorializing the limits of disturbance using a combination silt fence, flagging, and/or snow fence;
    - (3) Use of low-ground pressure or track vehicles in wetlands to minimize compaction and rutting;
    - (4) Minimizing equipment use in the wetland and limiting vehicle trips; and,
    - (5) Restoring the project site in order to reverse soil compaction, stabilize the soil on the site and replant the site if vegetation has been destroyed.
  - f. Appropriate steps shall be taken to prevent the transport of sediment into any wetland or waterway and to promote revegetate following the completion of work. Utilize other recommended sediment and erosion controls as needed and described in the ANR Low Risk Handbook ([link](#)) or other appropriate controls.
  - g. Invasive species should be prevented using the following methods:
    - i. The equipment should be cleaned so as to contain no observable soil or vegetation prior to work in wetlands and buffer zones to prevent the spread of invasive species;
    - ii. If removed material contains invasive species, care should be taken to dispose of the material in a manner that does not spread the invasive species to new areas.
  - h. Waste disposal and equipment refueling shall be limited to areas outside the wetland and at least 50 feet from wetlands or surface waters.
  - i. Temporary stockpiling of material may occur on filter fabric in the buffer zone or matting in the wetlands. Appropriate erosion control measures should be utilized.
3. Other Permit Considerations:
- a. Work on structures in wetlands, streams and lakes may be subject to additional state, local and federal regulations.

## **Section 6.22 Best Management Practices for Installation of New Overhead Utility Lines**

Pursuant to Section 6.22 of the Vermont wetland rules, the following best management practices have been developed for this allowed use in order to prevent discharges to Waters of the State, and to maintain the integrity of wetlands and associated waters:

### **6.22 The installation of a new overhead utility line that does not involve extensive tree clearing, with three poles or fewer in the wetland or buffer zone, in compliance with Best Management Practices developed by the Secretary**

Please read this document carefully in order to determine whether your activity qualifies as an allowed use, to perform the activity in compliance with the best management practices, and to determine if other permits may be necessary.

1. Does the proposed activity qualify for an Allowed Use under Section 6 of the Vermont Wetland Rules?
  - a. This use shall not alter the configuration of the wetland's outlet or the flow of water into or out of the wetland, and no draining, dredging, or grading shall occur.
  - b. The placement, maintenance or removal of the structure shall not result in discharge to Waters of the State;
  - c. No permanent or temporary fill will be placed in the wetland or buffer zone with the exception of poles. Extensive removal of woody vegetation outside the right-of-way, construction of new roads or improvement of existing roads may require a permit from the Vermont Wetlands Program.
  - d. "Extensive Tree Clearing" shall mean all tree clearing in the wetland and buffer zone that exceeds 250 square feet.
2. Best Management Practices
  - a. All impacts to wetlands and buffer zones shall be avoided and minimized to the greatest extent practicable;
  - b. Where existing maintenance plan is in place that is more protective of wetland resources, or has been approved by the Secretary, it may supersede these BMPs.
  - c. Associated wires will result in only minimal clearing of vegetation (250 square feet or less).
  - d. Poles are located in such a way as to minimize the clearing of vegetation in the wetland and buffer zone to the greatest extent practicable, and impacts further minimized by the following:
    - i. Vegetation is managed in a manner that only trees and saplings that have the potential to reach a height that interferes with the utility line are removed;
    - ii. Vegetation should be cut at ground level, leaving root systems intact.
    - iii. If cutting wetland vegetation cannot be avoided, complete the work by hand (chain or hand saw) instead of using large equipment.
  - e. Impacts from access shall be limited by utilizing existing or low impact routes using the following sequence of options in order of preference:
    - i. Access should be limited to upland areas or existing maintained roads to the greatest extent practicable.

## **Section 6.22 Best Management Practices for Installation of New Overhead Utility Lines**

- ii. Access on other existing primitive roads in wetlands or buffer zone.
  - iii. Where existing roads are not an option for access, minimize rutting or earth disturbing activities by:
    - (1) Accessing wetland areas under frozen or dry conditions. Use mats where necessary to avoid rutting;
    - (2) Memorializing the limits of disturbance using a combination silt fence, flagging, and/or snow fence;
    - (3) Use of low-ground pressure or track vehicles in wetlands to minimize compaction and rutting;
    - (4) Minimizing equipment use in the wetland and limiting vehicle trips; and,
    - (5) Restoring the project site in order to reverse soil compaction, stabilize the soil on the site and replant the site if vegetation has been destroyed.
  - f. Appropriate steps are taken to prevent the transport of sediment into any wetland or waterway and to promote revegetate following the completion of work. Utilize other recommended sediment and erosion controls as needed and described in the ANR Low Risk Handbook or other appropriate controls.
  - g. Invasive species should be prevented using the following methods:
    - i. The equipment should be cleaned so as to contain no observable soil or vegetation prior to work in wetlands and buffer zones to prevent the spread of invasive species;
    - ii. If removed material contains invasive species, care should be taken to dispose of the material in a manner that does not spread the invasive species to new areas.
3. Other Permit Considerations:
- a. Structures in or spanning wetlands, streams and lakes may be subject to additional state, local and federal regulations.



## Appendix L

### Literature Cited

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