



**FLEP**

**FOREST LAND  
ENHANCEMENT PROGRAM  
TECHNICAL SPECIFICATIONS**

TABLE OF CONTENTS  
for  
Forest Land Enhancement Program Technical Specifications

	<u>Page Number</u>
Technical Specifications For All FLEP Practices.....	1
Technical Specifications for FLEP 1 - Landowner Forest Stewardship Plan Development.....	2
Introduction.....	2
General Specifications.....	2
Vermont Landowner Forest Stewardship Assessment.....	11
Vermont Landowner Forest Stewardship Plan.....	15
Technical Specifications For FLEP 2 - Reforestation And Regeneration.....	19
Introduction.....	19
General Specifications.....	19
Technical Specifications for Site Preparation.....	20
Technical Specifications For Erosion Control.....	21
Technical Specifications For Planting Of Trees.....	22
Technical Specifications For Purchase And Installation Of Tree Guards Or Shelters.....	23
Maintenance.....	23
Technical Specifications For FLEP 3 - Forest Stand Improvement.....	24
Introduction.....	24
General Specifications.....	24
Specifications For Release Cuttings.....	25
Crop Tree Release.....	27
Pre-Commercial Thinning In Pole Size Stands.....	29
Pruning.....	30
Technical Specifications For FLEP-5 - Water Quality Improvement and Watershed Protection.....	31
Introduction.....	31
General Specifications For Soil And Water Protection And Improvement.....	31
Sediment Control Structures.....	33
Maintenance.....	33
General Specifications For Riparian And Wetland Protection And Improvement.....	33
Specifications For Zone 1 Riparian Forest Buffers.....	34
Specifications For Zone 2 Riparian Forest Buffers.....	35
Specifications For Zone 3 Riparian Forest Buffers.....	36
Determining Total Width of Riparian Forest Buffers.....	36
Specifications For Pond, Lakeside, and Wetlands Buffer Zones.....	37
References.....	38
Specifications For Fencing.....	38
References.....	39
Technical Specifications For FLEP-6A - Establishment And Improvement Of Permanent Wildlife Openings.....	40
Introduction.....	40
General Specifications.....	40

Technical Specifications For FLEP-6B - Establishment And Improvement Of Wildlife Travel	
Corridors And Escape Cover .....	43
Introduction.....	43
General Specifications .....	43
Technical Specifications For FLEP-6C - Improvement Of Winter Habitat For White-Tailed Deer..	45
Introduction.....	45
General Specifications .....	45
Specifications For Purchasing And Installing Tree Guards .....	46
Specifications for the Enhancement, Expansion or Regeneration of a Deer Wintering Area .....	46
Technical Specifications For FLEP-6D - Forest Improvement And Planting For Production Of Hard	
And Soft Mast (Food) For Wildlife.....	48
Introduction.....	48
General Specifications:.....	48
Specifications For Crop Tree Release of Mast-Producing Trees and Shrubs.....	48
Specifications For Crop Tree Release And Pruning Of Wild Apple Trees And For The Maintenance	
Of Areas Of Wild Apple Trees.....	50
Specifications For The Purchasing, Site Preparation And Planting Of Mast-Producing Trees.....	50
Specifications For The Purchasing And Installing Of Tree Guards To Protect Planted Trees.....	51
Specifications When Using Other FLEP Practices AS Part of This Practice .....	51
Maintenance.....	51
Technical Specifications For FLEP-6E - Establishment And Enhancement Of Conifer Trees To	
Provide Wildlife Habitat Diversity .....	52
Introduction.....	52
General Specifications .....	52
Specifications For Site Preparation And Planting Of Conifer Trees .....	52
Specifications For Crop Tree Release Of Established Conifer Trees.....	53
Specifications For Purchase And Installation Of Tree Guards.....	53
Maintenance.....	53
Technical Specifications For FLEP-6F - Improvement Of Habitat For Ruffed Grouse.....	54
Introduction.....	54
General Specifications .....	54
Maintenance And Management Of The Grouse Management Unit(s).....	54
Technical Specifications For FLEP-6G - Improvement Of Habitat For Woodcock .....	56
Introduction.....	56
General Specifications .....	56
Specifications For Mowing, Brush Cutting, Or Rotary Brush Cutting.....	56
Specifications For Clearcutting Of Speckled Alder Or Grey Dogwood, Or Other Early Successional	
Hardwood Stands For Woodcock Coverts.....	57
Specifications For Thinning of Woodcock Coverts.....	58
Specifications For Maintenance.....	58
Technical Specifications For FLEP-6H - Improvement Of Habitat For Wild Turkey .....	59
Introduction.....	59
General Specifications .....	59
Use Of Other FLEP Practices To Improve Habitat For Wild Turkey .....	59
Maintenance.....	60

Technical Specifications For FLEP-7 - Forest Health and Protection ..... 61  
    Introduction..... 61  
    Specifications..... 61

Technical Specifications For FLEP-8 - Invasive Species Control ..... 62  
    Introduction..... 62  
    Specifications..... 62

Technical Specifications For FLEP-10 - Fire and Catastrophic Event Rehabilitation..... 63  
    Introduction..... 63  
    Specifications..... 63

Technical Specifications For FLEP-11 - Special Practices..... 64  
    Introduction..... 64  
    Specifications For The Construction Or Enhancement Of Multi-purpose Recreational Trails And  
    Walkways ..... 64  
    Specifications For Aesthetic Quality Enhancement Or Restoration ..... 67  
    Cultural Resource Site Protection Specifications. .... 69

## TECHNICAL SPECIFICATIONS FOR ALL FLEP PRACTICES

All Forest Land Enhancement Program practices must be completed and maintained in compliance with the following general specifications and the technical specifications for the practice(s) for which the landowner is enrolled.

Cost-sharing will not be paid for the establishment of any practice or measure if the practice can be adequately carried out by a commercial silvicultural operation. Commercial operation is defined as the removal of more than 1,000 board feet per acre of USFS Grade #2 or better sawlogs.

Chemicals used in performing these practices must be:

Federally, state, and locally registered as required by laws and regulations.

Applied according to authorized registered uses, directions on the label, and other federal, state, and local policies and requirements.

Applied so as not to do harm to rare, threatened, or endangered plant and animal species and to minimize damage to non-target organisms.

Areas treated under these practices must be protected from destructive grazing and fires.

Requirements to receive cost-sharing for the planning, designing, layout, and marking by a professional resource manager (for all practices except FLEP-1):

The professional resource manager shall develop a plan of implementation for the enrollment measure(s) of the practice(s) unless adequate (as determined by the County Forester) information was provided in the Stewardship Plan or at the time of practice enrollment. The treatment(s) must be planned so that the practice can be accomplished in compliance with the pertinent technical specifications. The County Forester must approve the implementation plan before starting implementation of the measure(s).

Layout and marking. The professional manager shall layout and mark (where needed such as for crop tree release) the planned treatment(s) so that the practice can be accomplished in compliance with the pertinent technical specifications for the enrolled measures.

The landowner must provide the County Forester with a map showing the location of the completed practice(s).

The landowner(s) must agree to maintain the cost-shared practices for a minimum of 10 years after practice completion.

# TECHNICAL SPECIFICATIONS FOR FLEP 1 - LANDOWNER FOREST STEWARDSHIP PLAN DEVELOPMENT

## INTRODUCTION

The Landowner Forest Stewardship plan must be completed in compliance with the following technical specifications in order to be approved for the cost-sharing payment.

This practice may be applied to develop a Landowner Forest Stewardship plan for private non-industrial forestlands that are not in management under federal, state, or private sector financial and technical assistance programs. Non-industrial private forest landowners that have forestlands managed under existing programs may also develop a Landowner Forest Stewardship plan under this practice and use existing forest management plans as part of the Stewardship plan if they agree to expand and enhance their forest management activities to fulfill the specifications of this practice.

---

## GENERAL SPECIFICATIONS

The plan must cover all forestland within a contiguous tract of land owned by a landowner.

The plan must also cover all other lands within the tract which the landowner wants to convert to Forest Stewardship purposes by use of the Forest Land Enhancement Program cost-sharing practices.

Minimum size area to be covered by the Stewardship Plan – 10 acres, of which 75% must be forested.

Landowner Forest Stewardship Plan shall consist of two parts:

A Vermont Landowner Forest Stewardship Assessment which should be completed by the landowner(s) with the assistance of a professional resource manager.

The Vermont Landowner Forest Stewardship Plan which shall be developed by a professional resource manager in conjunction with the landowner(s).

Plan Review and Revisal – The plan must be reviewed every ten years and may be revised as needed as long as it meets with the approval of the County Forester.

Implementation of Forest Land Enhancement Program practices – The landowner is required to implement the planned Forest Land Enhancement Program practices for which they receive cost-sharing approval.

The landowner and the professional resource manager may utilize other specialists to assist with the inventory, evaluation, and development of portions of the plan for special resources of interest to the landowner.

## Vermont Landowner Forest Stewardship Assessment

1. The landowner shall complete a Vermont Landowner Forest Stewardship Assessment with the help of a professional resource manager. Cost-sharing is authorized for the cost of the professional resource manager's time and expenses in assisting the landowner with this assessment unless a stewardship assessment has been previously developed by the landowner with the assistance of the County Forester or other professional resource managers.
2. Any one of the following listed Forest Stewardship Assessment forms may be used for the stewardship assessment (these forms are attached to and made part of these specifications):
  - a. Vermont Forest Stewardship Assessment Form – Department of Forests, Parks and Recreation
  - b. Vermont Landowner Forest Stewardship Assessment and Plan – FPR
  - c. Vermont Landowner Forest Stewardship Assessment – FPR
3. The forest stewardship assessment shall include, at a minimum, answers to all of the questions and all of the information needed to complete the form entitled “Vermont Landowner Forest Stewardship Assessment” – FPR.
4. The professional resource manager shall:
  - a. Conduct a brief background study and reconnaissance (preferably with the landowner) of the property sufficient to provide the landowner with a general idea of the major forest and closely-associated resources, their existing conditions, and their potential for use and management.

This should include information pertinent to property on:

- broad forest types and other land use types
- forest health
- soils and site productivity
- wildlife habitat
- recreational opportunities and facilities (trails, etc.)
- erosion control and water quality protection
- potential to produce income
- boundary lines
- forest access roads
- areas of cultural/historic interest
- brooks/streams/rivers
- scenic views and trees of special scenic value
- any mapped or known geological areas of special interest

- b. Determine the existence of and the protection needs for:
    - mapped threatened and endangered species
    - wetlands mapped by the State
    - deer wintering area mapped by the State
    - registered historic sites
    - significant regional recreational trails
    - lands above 2500 feet elevation
  - c. Assist the landowners to assess their values, goals, and objectives for the parcel.
  - d. Assist the landowner to complete a forest stewardship assessment.
  - e. Provide a description of how to find the parcel or provide a locus map.
5. The landowner shall sign and date the assessment confirming that:
- a. They have been informed about the Vermont Forest Land Enhancement Program.
  - b. They understand how to make their land a stewardship forest.
  - c. The assessment reflects their values, goals, and objectives.
  - d. They understand that in order to become a forest steward, they will need a Forest Stewardship Plan for the property and actively manage all of the forestland in the enrolled parcel and protect the soil, water, timber, resources, and fish and wildlife resources in a manner that is consistent with the Vermont's stewardship ethic and their goals and objectives for this property.

### **Vermont Landowner Forest Stewardship Plan**

The plan shall emphasize biological, environmental, and economic principles.

The plan shall consider long-term management of forest health, fire hazard, timber and wood products, soil and water quality, riparian areas, wetlands, wildlife and fish habitat, outdoor recreation, aesthetics, threatened and endangered species, historic and cultural resources, and special uses (such as Christmas tree production and sugarbush management) that are compatible with good forest stewardship.

Recognizing that landowners have their own objectives, the resource management professional preparing the plan must blend basic natural resource management standards into resource management plans and practices consistent with the landowners' objectives and the requirements of this practice.

The professional Resource Manager shall:

**The professional resource manager** shall conduct an inventory of the resources on the parcel sufficient to enable: (a) the landowner to make decisions on the use and management of the various forest and other closely-associated resources, and (b)

the professional resource manager to develop the Landowner Forest Stewardship plan in compliance with these technical specifications.

Help the landowner to understand and evaluate alternative actions concerning the use, protection, maintenance, and enhancement of their forests and related resources.

Consider the forest stewardship assessment in the development of the Forest Stewardship Plan and assure that the plan identifies and describes actions to be taken to fulfill the goals and objectives of the landowner.

Upgrading Use Value Appraisal and other County Forester approved plans to Forest Stewardship Plans – the portions of the Forest Stewardship Plan that are already adequately covered in another forest management plan, approved by the County Forester, may be covered in the stewardship plan by cross-referencing those sections to the appropriate approved plan.

Format – The Vermont Department of Forests, Parks and Recreation provides a “***Vermont Landowner Forest Stewardship Assessment and Plan***” form (attached as a part of these specifications) that is the recommended format. The Department’s “***Vermont Landowner Forest Stewardship Plan***” form may also be used for the Landowner Forest Stewardship Plan. Other alternate plans, such as the USFS StewPlan, may be accepted by the County Forester if they contain, at the minimum, all of the information that is required in these specifications.

The Landowner Forest Stewardship Plan should include all of the following information:

A. Title Page

Landowner’s name – with last name listed first followed by first name and middle initial.

Mailing address – of landowner including street, post office box, or rural route number, town or city, state and zip code.

Telephone number(s) – of landowner (home and work).

Town(s) – in which parcel is located and acres in each town.

Total number of acres in each parcel.

B. Description of Management Units.

- 1) Management unit number or other symbol. A management unit is defined as an area of the same major forest type or other land type with similar management objectives and planned management activities (examples: deer wintering area, wetlands, old pasture, sugarbush, apple trees, Christmas tree plantation, forest stand, or combination of contiguous stands with similar species and range of size classes such as northern hardwoods – saplings to

sawtimber). Special features such as a recreational trail can be included in a management unit or identified as a special management unit with a number (or other symbol) in the management unit column and keyed to the stewardship plan map.

- 2) Number of acres in each management unit. For special features listed as separate management units such as recreational trail or a road, show the length.
- 3) Major forest type, other land type, or special feature – for forest type, use Society of American Forester's cover type or equivalent. For other land type and special features, provide appropriate description such as scenic opening, apple orchard, cross-country ski trail, etc. For special features and areas, where not pertinent, skip columns on forest health, size class, and stocking.
- 4) Special features include:

Significant wildlife features – such as deer wintering areas, areas of apple trees, other areas of soft mast-producing trees and shrubs important to wildlife, key areas of beech trees showing heavy signs of use by bear, other stands or groups of trees producing hard mast (such as oak, beech, and hickory), and seeds (such as ash and hophornbeam) important to wildlife, streams, spring seeps, heron rookeries, important den trees, stands or groups of aspen trees, beaver ponds, wildlife openings, and other important game and non-game habitat, etc.

Recreation features – trails of statewide or regional importance (such as Long Trail, Catamount Trail, VAST snowmobile trails, etc.), trails of local or personal importance to the landowner for various recreational uses (hiking, cross-country skiing, mountain biking, snowmobiling, all-terrain vehicle and motorcycle uses, horseback riding, etc.). Show features and areas (such as scenic landscapes, mountain tops, access areas, roads and trails, geological formations, special vegetation, significant habitat for observation of birds and animals that the landowner wants to protect, maintain and possibly enhance for other recreational opportunities and enjoyment (from hunting and fishing to aesthetic enjoyment and nature appreciation). Show features such as Class IV town roads and old railroad beds with potential for recreation uses and enjoyment.

Other significant features – show all wetlands designated as significant by the state, other important wetlands and riparian zones, important vernal woodland pools, all state registered historic sites, other structures and areas of historic interest to the landowner (such as cellar holes, stonewalls, old foundations, old buildings, areas where Native American artifacts have been found, etc.). Show areas presently used or planned to be used for special uses such as sugarbushes, Christmas tree plantations, nursery production, etc. Show habitat location of rare, threatened, and endangered plant and animal species and natural communities mapped

by the Vermont Nongame and Natural Heritage Program or otherwise identified as being threatened and endangered.

- 5) Forest Health – visual estimation of forest health. Excellent – stand vigorous with no obvious decline; Good – occasional trees appear to have noticeable branch dieback but overall stand appears healthy; Fair – dieback noticeable with zero to only a few dead or dying trees; Poor – many trees with dieback and more than a few dead or dying trees.
- 6) Size Class – for forest stands shown size of trees as seedlings, saplings, poles, sawtimber, or the appropriate range of size classes.
- 7) Stocking – show stand density as understocked, adequately stocked, or overstocked. The stand quality may be shown as poor, fair, or good.
- 8) Soil type and site quality – show the Soil Conservation Service soil type. Show the site quality as poor, fair, or good as determined by soils information, site index, or growth calculations. For special features, show the limitations of the soil (as listed as Soil Conservation Service Soil Survey) for the special feature such as slight, moderate, or severe.

C. Planned Management Actions

For each management unit – the professional resource manager shall include the following information:

Management objectives – briefly summarize the objectives that will help to fulfill the landowner goals.

Description and general location of planned actions and activities.

The plan must cover a period of 10 years with this period shown in the plan.

Identify and describe the actions to be implemented by the landowner to protect, maintain, and improve the soil, water, aesthetic quality, recreation, timber, and fish and wildlife resources on and related to this forest land in a manner that is compatible with good forest stewardship and the values and objectives of the landowner.

Timber management – may be referenced to a use value appraisal forest management plan or other County Forester approved management plan or provide the planned forest management system and silvicultural prescription that, at a minimum, conforms to UVA management and regeneration standards.

Wildlife habitat management – show amendments to silvicultural prescriptions or describe special prescriptions or actions such as a prescription to manage a deer wintering area. List actions to manage,

protect, enhance, or create special wildlife habitat. All activities should comply with habitat management guides approved by the Department of Forests, Parks and Recreation and the Fish and Wildlife Department.

Recreation management – list activities or actions to be carried out to protect, enhance, maintain, and construct trails and other facilities to provide recreational opportunities for enjoyment by and/or income to the landowner that are compatible with the natural environment and the objectives of the landowner.

Special areas management and protection – include activities and prescriptions to protect, maintain, and enhance special ecological areas (such as wetlands<sup>1</sup>, riparian zones, and habitats of threatened and endangered species). Include activities to inventory and/or protect sites of historical/archeological/cultural interest from state designated historic sites to buildings, cellar holes, stonewalls, old foundations, and areas where Native American artifacts have been found that are important regionally, locally, or to the landowner. Include activities to protect and provide opportunities to enjoy areas of special interest such as special vegetation or geological formations. Include amendments to silvicultural prescriptions and special actions to protect, enhance, or to provide scenic vistas or scenic areas or featured plants. List general practices for management of areas for special uses and products such as management for Christmas trees, sugarbush, and nursery production.

Forest protection – list actions to be taken or avoided to protect the forest from insect and disease outbreaks, other pests, adverse weather conditions, wildfires, etc. (such as amendments to silvicultural treatments, timing of silvicultural treatments, planned insect and disease surveys, special actions, etc.).

Other activities – list activities to be carried out such as access roads to be constructed and maintained, soil erosion control practices<sup>2</sup>, trees and shrubs to be planted and maintained, and any other significant activities planned.

Include all management units and the management objectives even if no specific activities are planned for the 10-year period.

Amount planned – show the amount planned for each activity and action in the pertinent measure such as acres, miles, lineal ft., etc.

Year planned – show the year that each action and activity is planned to be implemented.

---

<sup>1</sup> Refer to the University of Vermont Extension Service's publication on "Wetlands Rules and Regulations" for a summary about wetlands and federal and state laws and rules that regulate activities in Vermont wetlands.

<sup>2</sup> Refer to the Department of Forests, Parks and Recreation publication entitled "Acceptable Management Practices for Maintaining Water Quality on Logging Jobs in Vermont."

Forest Land Enhancement Program practices – should be included in the plan as they are developed. The stewardship plan may include (although not required) a description of each planned FLEP cost-sharing practice sufficient to meet the practice enrollment requirements as outlined under #3 of the general policies of all FLEP practices on page 3 of the Vermont Forest Land Enhancement Program Handbook.

#### Signature Page

Signature of professional resource manager that prepared the plan shall sign and show the date the plan was prepared.

Signature of landowner and date. The landowner shall sign and date the plan confirming that:

The plan accurately reflects their values, goals, and objectives.

They agree that all activities on this land shall be consistent with the Forest Land Enhancement Program Assessment and Plan.

They understand that in order to become a Forest Steward they will need to actively manage all of their forestland in this parcel and protect the soil, water, timber resources, and fish and wildlife resources in a manner that is consistent with Vermont's Stewardship Ethic and their goals and objectives for the property.

County Forester. The plan will have to meet the approval of the County Forester and all approved plans shall be signed and dated by the County Forester signifying that the plan serves as the approved Landowner Forest Stewardship Plan for the parcel of land and qualifies the landowner to apply for federal cost-sharing practices under the Forest Land Enhancement Program.

Map of Property – A good quality map is an important and required part of the Forest Stewardship Plan. An aerial photograph, an overlay of an orthographic photograph, or other aerial photograph or a copy of a boundary map may be used as the base map. The map, at a minimum, shall be at least to UVA standards and acceptable to the County Forester.

The map shall show important items including boundaries, buildings, adjacent landowners, major geographic features (brooks, mountain tops, etc.), logging roads and skid trails, recreational trails, critical wildlife habitat, areas of rare, threatened and endangered species and natural areas (mapped by the Vermont Nongame and Natural Heritage Program), areas of historic importance, scenic areas or features, town roads and trails, state highways, abandoned railroad rights-of-way, wetlands, and special features included in the plan. If the map gets cluttered by trying to

include too much information, a base map can be used along with several copies to show all the different points of interest.



# Vermont Landowner Forest Stewardship Assessment



*Vermont's Stewardship Ethic*

**Stewardship is an ethic recognizing that the land and its natural inhabitants have an inherent worth and that we have a responsibility to manage our actions as part of that. It guides us to manage our activities to the utmost of our abilities, to insure the future health, productivity, and well being of the land, its natural communities and species, and to allow our successors opportunities at least equal to ours to use the land and its resources.**

The Vermont Forest Land Enhancement Program encourages and assists non-industrial private forest landowners to become good forest stewards and actively manage their forests and related resources to benefit both themselves and future generations. Landowners should have an approved Forest Stewardship Plan to guide them in actively protecting and managing their forests and related resources. Landowners are required to have an approved Forest Stewardship Plan in order to be eligible for the very limited amount of federal cost-sharing funds that may be available to implement approved activities under the Forest Land Enhancement Program.

The Vermont Landowner Forest Stewardship Plan consists of two major components. The first component in this Forest Stewardship Assessment which is designed to help landowners gain a better understanding and knowledge of their forests and related resources and to summarize their landownership values, goals, and objectives for their property. The assessment section should be filled out by the landowner in conjunction with a county forester, consulting forester, or other professional resource manager. The assessment should include a reconnaissance of the property with the professional resource manager. A professional resource manager and the landowner will need to develop the second component of the Forest Stewardship Plan detailing the stewardship actions to be implemented.

## LANDOWNER INFORMATION

Landowner: _____
Mailing Address: _____
Telephone Number(s): Work: _____ Home: _____
Town Parcels Located In: _____ Acres: _____
_____ Acres: _____ Total Acres: _____

Is land enrolled in Vermont's Use Value Assessment Program?  Yes  No If yes, is there an approved UVA forest management plan?  Yes  No

Is there a certified tree farm?  Yes  No

Is the forest being managed with the assistance of a forester or other professional natural resources manager?  Yes  No If yes, what is the name of the manager: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

LANDOWNER GOALS AND VALUES (Landowner to fill out with assistance of professional resource manager)

Rank the values you place on your forest as either high (H), medium (M), or low (L), or not applicable (NA):

- |   |  |
|---|--|
| <input type="checkbox"/> Maintaining a variety of plants and animals                                | <input type="checkbox"/> Maintaining dead trees & trees with cavities for birds and animals. |
| <input type="checkbox"/> Protecting sites of historic interest (stone walls, old foundations, etc.) | <input type="checkbox"/> Maintaining forest in good condition for future generations         |
| <input type="checkbox"/> Protecting rare & endangered plant and animal species                      | <input type="checkbox"/> Scenery (landscape, special trees, rock formation, etc.)            |
| <input type="checkbox"/> Providing a place to live and food for wildlife                            | <input type="checkbox"/> Cutting fuelwood for personal use                                   |

Producing income from:

- |   |  |
|---|--|
| <input type="checkbox"/> Logs, fuelwood, pulpwood, etc. | <input type="checkbox"/> Trees & shrubs for landscaping                  |
| <input type="checkbox"/> Maple sugaring                 | <input type="checkbox"/> Commercial orchard                              |
| <input type="checkbox"/> Christmas trees                | <input type="checkbox"/> Recreational uses ( <i>specify</i> ) _____      |
| <input type="checkbox"/> Peace & solitude               | <input type="checkbox"/> Snowmobiling                                    |
| <input type="checkbox"/> Cross-country skiing           | <input type="checkbox"/> Working in my forest                            |
| <input type="checkbox"/> Mountain biking                | <input type="checkbox"/> Bird watching                                   |
| <input type="checkbox"/> Hunting                        | <input type="checkbox"/> Protecting soils from eroding                   |
| <input type="checkbox"/> Protecting wetlands            | <input type="checkbox"/> Maintaining a healthy forest                    |
| <input type="checkbox"/> Protecting water quality       | <input type="checkbox"/> Providing recreational opportunities for others |
| <input type="checkbox"/> Walking & hiking               | <input type="checkbox"/> ( <i>specify types allowed</i> ) _____          |

Other values:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Comments on important values and your goals and objectives for the property (*add additional pages as needed*):

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

What would you like your land to be and look like in 20 years? \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

What activities have you conducted on your land to achieve your goals? \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

What factors have limited you from achieving your ownership goals? \_\_\_\_\_

\_\_\_\_\_



Natural Resources Professional – determine the existence of and the protection needs for the following listed special resources:

- Mapped threatened & endangered species
- Mapped wetlands
- Mapped deer wintering areas
- Registered historic sites
- Significant regional trails
- Lands above 2500 feet

Comments on existing special resources and protection needs: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Landowner:

I have been informed about the Vermont Forest Stewardship Program, including the Forest Land Enhancement Program, and understand how to make my land a Stewardship Forest. This assessment accurately reflects my values, goals, and objectives. I understand that in order to become a Forest Steward, I will need a Forest Stewardship Plan for this property and actively manage all of this forestland and protect the soil, water, timber resources, and fish and wildlife resources in a manner that is consistent with Vermont’s Stewardship Ethic and my goals and objectives for this property.

\_\_\_\_\_ Date: \_\_\_\_\_  
Signature of Landowner

Professional Resource Manager (*who assisted the landowner with assessment*):

\_\_\_\_\_ Date: \_\_\_\_\_  
Signature of Professional Resource Manager  
(*County Forester, Consulting Forester, or other Professional Resource Manager*)

Provide a copy of this assessment to the County Forester if professional resource manager other than the County Forester assisted the landowner with assessment.

\_\_\_\_\_ Date: \_\_\_\_\_  
Received by – Signature of County Forester



# Vermont Landowner Forest Stewardship Plan



Name: _____
Mailing Address: _____ _____
Location of Parcel (Town): _____
Total acres of land in parcel: _____ Total acres of forestland in parcel: _____
Use Value Appraisal ID No. ( <i>where applicable</i> ): _____
Description of how to find parcel from nearest town ( <i>or provide locus map</i> ): _____ _____

### ***Vermont's Stewardship Ethic***

*Stewardship is an ethic recognizing that the land and its natural inhabitants have an inherent worth and that we have a responsibility to manage our actions as part of that. It guides us to manage our activities to the utmost of our abilities, to insure the future health, productivity, and well being of the land, its natural communities and species, and to allow our successors opportunities at least equal to ours to use the land and its resources.*

Plan prepared by: _____ Signature of Professional Resource Manager	_____ Date
---	---------------

This plan is compatible with my goals and objectives and I agree that all activities on this land shall be consistent with this Stewardship plan.	
_____ Signature of Professional Resource Manager	_____ Date

Plan approved by _____ Signature of Professional Resource Manager	_____ Date
--	---------------

## EXISTING CONDITIONS

MANAGEMENT UNIT NO. (refer to management plan map) \_\_\_\_\_ NUMBER OF ACRES: \_\_\_\_\_

---

---

FOREST TYPE AND MAJOR TREE SPECIES (land type if non-forest): \_\_\_\_\_

---

SIZE CLASS:	<input type="checkbox"/> saplings	<input type="checkbox"/> poles	<input type="checkbox"/> sawtimber
SITE QUALITY:	<input type="checkbox"/> good	<input type="checkbox"/> fair	<input type="checkbox"/> poor
STAND DENSITY:	<input type="checkbox"/> understocked	<input type="checkbox"/> adequate	<input type="checkbox"/> overstocked
STAND QUALITY:	<input type="checkbox"/> good	<input type="checkbox"/> fair	<input type="checkbox"/> poor

FOREST HEALTH (condition, past and present problems, etc.): \_\_\_\_\_

---

---

SIGNIFICANT WILDLIFE FEATURES: \_\_\_\_\_

---

---

---

---

---

---

IMPORTANT RECREATIONAL FEATURES: \_\_\_\_\_

---

---

---

---

OTHER SIGNIFICANT FEATURES (wetlands, cultural/historic, scenic, threatened and endangered species, streamside, sugarbush, Christmas tree, etc.): \_\_\_\_\_

---

---

---

---

---

---

---

---

---

---

**PLANNED MANAGEMENT ACTIVITIES**  
**for the next 10 years: \_\_\_\_\_ to \_\_\_\_\_**

MANAGEMENT UNIT NO. \_\_\_\_\_

---

---

**TIMBER MANAGEMENT** (cross reference to use value appraisal plan or, at minimum, provide the forest management system and silviculture prescription that conforms to UVA management and regeneration standards): \_\_\_\_\_

---

---

---

---

**WILDLIFE HABITAT MANAGEMENT** (amendments to timber silvicultural prescriptions or special prescriptions or actions to manage, protect, and enhance the productivity of game and non-game wildlife resources): \_\_\_\_\_

---

---

---

---

**RECREATION MANAGEMENT** (actions to maintain, enhance, and construct trails and other facilities): \_\_\_\_\_

---

---

---

---

**SPECIAL AREAS MANAGEMENT AND PROTECTION** (actions to manage, protect, and enhance wetlands, streamsidings, historic/cultural, threatened and endangered species habitat, scenic areas, sugarbush, Christmas tree, etc.): \_\_\_\_\_

---

---

---

---

**FOREST PROTECTION** (actions to protect forest from insect and disease outbreaks, other pests, adverse weather conditions, wildfires, etc.): \_\_\_\_\_

---

---

**OTHER ACTIVITIES** (access road construction, soil erosion control, tree and shrub planting, etc.): \_\_\_\_\_

---

---

---

---

FOREST STEWARDSHIP PLAN  
SUMMARY OF PLANNED MANAGEMENT ACTIVITIES

MANAGEMENT UNIT NO.	MANAGEMENT ACTIVITIES TO BE ACCOMPLISHED WITHIN THE NEXT 10 YEARS (priority, contingencies, brief description, amount, location, why, etc.)

# TECHNICAL SPECIFICATIONS FOR FLEP 2 - REFORESTATION AND REGENERATION

## INTRODUCTION

The cost-sharing measures of *FLEP-2 Reforestation and Regeneration* for which a landowner is enrolled must be completed in compliance with the following technical specifications and the “*Technical Specifications for All FLEP Practices*” in order to be approved for the cost-sharing payment.

Natural Resource Managers who want to regenerate and County Foresters who have the responsibility to approve regeneration practices using FLEP-2 funds should use the appropriate silvicultural guides to evaluate present stand conditions and determine actions needed to bring the stand to an adequately stocked condition. The silvicultural guides for this practice are the guides referred to in the Use Value Program rules and are on file in the County Forester’s office. Other guides and research publications may be used as approved by the County Forester. A recommended system to determine the need for and evaluating the results of site preparation is outlined in the “*Service Foresters’ Handbook*” Reforestation Section published by the Northeastern Area, State and Private Forestry, Forest Service, USDA – Feb. 1978.

---

## GENERAL SPECIFICATIONS

**Site Preparation** is the elimination of undesirable competing vegetation and physical obstacles and/or scarification (where needed to meet species requirements) to prepare suitable seedbeds for desirable natural or artificial regeneration. The degree of site preparation will be based upon approved silvicultural guides for the desired species. Individual site preparation practices shall be done adequately enough to allow the desired regenerated species to grow freely for at least three years. The condition of the seedbed and/or the competition and probable growth of undesirable vegetation from both the side and overhead will be considered before the practice is approved to receive cost-sharing.

**Cost-sharing will not be allowed** for measures of this practice if the stand is adequately stocked with acceptable growing stock of any size of the desired species as recommended in the approved silvicultural and stocking guides.

**Elimination of undesirable competing vegetation** (both understory and overstory) may be done physically (such as by use of brush saws, chain saws, heavy machinery, etc.) especially on the drier sites or by approved herbicides on moister sites and where competing vegetation (hardwood sprouts, ferns, etc.) is expected to be difficult to control.

## **Species and site quality.**

The species have to be approved by the County Forester. For the primary purpose of producing wood products, this practice may be used only on sites with a potential productivity class of Site II or better for the species to be regenerated.

This practice may be used on sites with a lower potential productivity class than listed above only in conjunction with and as a part of the FLEP-6 Wildlife Habitat Improvement practices providing that the primary purposes(s) of the pertinent measures of those practices can be achieved.

## **Minimum area to be treated.**

Planting of trees must be an area of at least three acres in size unless otherwise authorized as part of other FLEP practices.

Cost-sharing measures for site preparation and direct seeding must be on areas totaling three acres unless otherwise authorized as part of other FLEP practices.

---

## TECHNICAL SPECIFICATIONS FOR SITE PREPARATION

Except as otherwise required in these specifications, the site preparation standard will be the pertinent guidelines listed in the appropriate silvicultural guides that are referred to in the Use Value Appraisal Program rules and other appropriate guides and publications on silviculture, regeneration, site preparation, and direct seeding that are approved by the County Forester which include but are not limited to:

*Service Foresters' Handbook* – Reforestation Section – Northeastern Area, State and Private Forestry, Forest Service, USDA – Feb. 1978.

*Northern Hardwood Notes* – Editor – Jay G. Hutchinson, Section 3.08 – Direct Seeding by Richard M. Goodman and G.A. Mattson, North Central Experiment Station, USDA, 1992 Folwell Avenue, St. Paul, Minnesota 55108.

USFS – *Guides for Silvical Characteristics*, (by species).

*Silvics of North America*, Vol. 1, Conifers, USDA Forest Serv. Agricultural Handbook 654, by Russell Burns and Barbara Honkala, Dec. 1990.

*Silvics of North America*, Vol. 2, Hardwoods, USDA Forest Serv. Agricultural Handbook 654, by Russell Burns and Barbara Honkala., Dec. 1990.

## **Site preparation.**

- a. Scarification

Scarification is the mixing of the forest floor litter (the layer of unincorporated organic matter) by mechanical means with the A horizon on the mineral soil. The purpose is to provide a suitable seedbed for the desired specie.

For natural regeneration or broadcasting seeding – a minimum of one-half of the surface area of the forest floor (evenly distributed over each acre to be regenerated) must be scarified.

For spot seeding – a minimum of 500 evenly-distributed spots per acre must be scarified. Each spot must be at least two square feet in size.

Scarification methods – consult the *Forester’s Guide to White Pine Regeneration: An Applied Proceedings of the 1988 Continuing Forestry Education Workshop on White Pine Regeneration*, the *Service Forester’s Handbook* (pages 10-3 through 10-5), or other publications approved by the County Forester for mechanical techniques for performing scarification treatments.

b. Eliminating undesirable competing vegetation

For natural regeneration or broadcast seeding – a minimum of 50% of the ground surface area per acre must be treated so as to be free of undesirable understory vegetation (grasses, sedges, weeds, ferns, that grow as individual fronds from the ground level, shrubs, seedlings, saplings, etc.) that could interfere with the establishment of desired regeneration.

### **Preparatory regeneration cutting**

A non-commercial cutting of undesirable and interfering pole and sawlog size trees to allow adequate light to reach the forest floor and to create conditions favorable to establishing desired regeneration.

The high overstory crown cover of the stand must be reduced to the levels specified in the approved silvicultural guides and to the approval of the County Forester.

The prescription prepared for the treatment must state present crown cover and the treatment objective for crown cover.

Trees to be eliminated shall be either cut, girdled with two parallel and continuous chain saw cuts at least one inch into the wood, or treated with an approved chemical.

---

### TECHNICAL SPECIFICATIONS FOR EROSION CONTROL

The appropriate measures of the “*Acceptable Management Practices for Maintaining Water Quality on Logging Jobs in Vermont*” shall be implemented to minimize erosion and reduce sediment in the waters of the state.

Scarification shall be done in a manner that prevents undue erosion or loss of soil such as by placing scarification strips on contour, leaving protective strips along streams, leaving of strategically-located debris or vegetation, and/or the installation of erosion control structures (hay bale erosion control structures, water diversions, etc.).

When planting in protective strips along streams, planting spots should be prepared by hand scalping.

---

---

## TECHNICAL SPECIFICATIONS FOR PLANTING OF TREES

Except as otherwise required in these specifications, the technical specifications for planting of trees and the pertinent recommendations and methods listed in the guides and publications approved by the County Forester such as:

*Service Foresters' Handbook* – Reforestation Section – Northeastern Area, State and Private Forestry, Forest Service, USDA – Feb. 1978.

**Planting in open areas to establish a stand of trees or underplanting or interplanting in a forest stand to either supplement inadequate regeneration or change the component of desired species for special purposes such as for wildlife habitat, species diversity, or improvement or insect and disease resistance.**

### Conifer trees

In open field situations – plant a minimum of 400 trees per acre (approximate spacing of 10' x 10') and a maximum of 700 trees per acre (approximate spacing of 8' x 8' or 6' x 10').

In forest situations – plant a minimum of 100 well-distributed trees per acre and a maximum of 400 well-distributed trees per acre.

### Hardwoods

In open field situations – plant a minimum of 250 trees per acre (approximate spacing of 12' x 15') and a maximum of 400 trees per acre (approximate spacing of 10' x 10').

In forest situations – plant a minimum of 50 well-distributed trees per acre and a maximum of 100 well-distributed trees per acre.

### Mixed species plantings

In open field situations – plant a minimum of 250 well-distributed trees per acre and a maximum of 400 well-distributed trees per acre.

In forest situations – plant a minimum of 100 well-distributed trees per acre and a maximum of 200 well-distributed trees per acre.

Site Preparation – The site to be planted must be scarified or the sod removed by hand tool scalping of each planting spot for a minimum area of 14” x 14”.

When underplanting or interplanting in a forest stand, the overhead competition of trees and shrubs should be removed for a minimum distance of 30 (and preferably 40) vertical feet. All undesirable vegetation that could compete with the planted trees should be removed (or deadened) so that the planted trees are free to grow for at least 10 years. Plant immediately after silvicultural treatments after silvicultural treatments and site preparation to get the jump on competing herbaceous vegetation.

Care of nursery stock, depth of planting, methods of planting – plant according to tree planting guides and publications approved by the County Forester, including the Vermont State Tree Nursery’s “**A Planting Guide for Bareroot Stock.**”

---

---

TECHNICAL SPECIFICATIONS FOR PURCHASE AND INSTALLATION OF TREE GUARDS OR SHELTERS to protect planted trees or natural regeneration.

Tree guards or shelters should be translucent and a minimum of five feet in height except as otherwise approved by the County Forester. They shall be installed or staked securely and according to the manufacturer’s directions.

---

---

#### MAINTENANCE

Weeds and other competing vegetation should be controlled by mechanical or approved chemical means to allow for establishment and growth of the trees.

Trees should be protected from serious damage by rodents, insects, diseases, and other pests and browsing by animals.

---

---

# TECHNICAL SPECIFICATIONS FOR FLEP 3 - FOREST STAND IMPROVEMENT

## INTRODUCTION

The cost-sharing measures of FLEP-3 for which a landowner is enrolled must be completed in compliance with the following technical specifications and the “*Technical Specifications for All FLEP Practices*” in order to be approved for the cost-sharing payment.

---

## GENERAL SPECIFICATIONS

**Site Quality** – cost-sharing will only be allowed where the potential productivity class of the stand or site is a high site III or better with a minimum site index as listed below:

<u>Forest Type</u>	<u>Site Index</u>
Spruce-Fir	35
White Pine	55
Northern Hardwoods	50
Oak Hardwoods	50

The site index requirements may be lower than listed above if the practice is carried out in conjunction with and as specified in the *FLEP-6 Wildlife Habitat Improvement* practices provided that the primary purpose of the pertinent wildlife improvement practice can be achieved.

**Minimum size area to be treated** – three (3) acres except as otherwise specified when done in conjunction with FLEP-6.

**Silvicultural guides** – accepted as otherwise required in these specifications for Forest Improvement measures, the guidelines and recommendations for this practice are the same as listed in the approved silvicultural guides for the Use Value Appraisal Program and other silvicultural guides and publications approved by the County Forester.

**Crop tree release for wildlife** – crop trees may be released under this practice for the dual purpose of timber production and wildlife habitat improvement where the crop trees fulfill the minimum requirements and technical specifications for both purposes. Additional wildlife crop trees may be released as long as the minimum number of timber crop trees are released and the total number of crop trees does not exceed the stocking level recommended in the pertinent silvicultural and stocking guide.

**Landowners are eligible to sign up for *FLEP-6D Forest Improvement and Planting for Production of Hard and Soft Mast (Food) for Wildlife*** to release additional food-producing trees on the same acreage as long as the minimum number of timber crop trees per acre are released and the total number of crop trees does not exceed the number recommended in the pertinent silvicultural and stocking guides.

**Potential for defoliation by insects** – consider the recent defoliations and the potential for defoliation by insects. Seek advice from forest resource protection specialists. The practice should be postponed if the stand needs time to recover from defoliation or if an insect outbreak is predicted. It may be necessary to protect the foliage of crop trees if an outbreak occurs right after silvicultural treatment.

---

#### SPECIFICATIONS FOR RELEASE CUTTINGS (*in stands not past the sapling stage*)

**Release cuttings in stands not past the sapling stage** are the cutting or deadening of competing vegetation to regulate the composition of species, provide room to grow, and improve the quality of desirable crop trees.

Release cutting include the silvicultural practices of (1) cleaning – where the crop trees and the overtopping trees are of the same age/size class, (2) weeding – where the competing trees may be from a variety of crown class, and (3) liberation – where the competition is from trees of a larger size class.

**Degree of crop tree release** – crop trees should be released from both direct competition and nearby trees that are expected to provide competition so that they are free to grow on at least two sides for 10 years.

#### **Release cuttings in hardwood stands.**

Species – any commercial species.

Minimum level of acceptable growing stock – 200 well distributed, vigorous seedlings or saplings per acre.

Minimum number of timber crop trees to be released per acre – 100.

Maximum number of timber crop trees to be released per acre – 200.

Maximum number of all crop trees (timber, wildlife, other) that may be released per acre – 200.

#### **Release cuttings in conifer stands.**

Species – any commercial species.

Minimum level of acceptable grown stock – of well distributed, vigorous seedlings or saplings.

White pine or red pine – 350 per acre.

Spruce–balsam fir – 1,000 per acre or 500 spruce and fir and 500 of any other commercial species per acre.

Other species – 350 per acre.

Minimum number of timber crop trees to be released per acre – 150.

Maximum number of timber crop trees to be released per acre – 200.

Maximum number of all crop trees (timber, wildlife, and other) that may be released per acre – 250.

Conifer stands overtopped by undesirable hardwoods – where adequately stocked and spaced stands are overtopped by hardwoods and production of conifers is desired, the entire conifer stand can be released by approved chemical treatment or select and release at least the minimum of 150 well-distributed timber crop trees per acre.

Release work may be performed in small groups of softwoods (less than one acre) which are part of a mixed stand or in nearly pure stands. Chemical methods can be effective in controlling resprouting of hardwoods whereas mechanical methods must usually be performed periodically.

Timing of thinning – in pine plantations and fully-stocked natural white pine stands, delay thinning until trees have attained a minimum height of 20 feet. Other species of conifers may be thinned as soon as the crowns have closed.

White pine and red pine.

On soils with hardwood site indices of 60 or greater – manager as mixed stands favoring groups of pines. Frequently, nearly pure stands of pine may be managed on soils with lower site indices, especially on sandy or gravelly outwash soils or where hardwood site indices are less than 50.

For protection from white pine weevil – retain partial shade for white pine. Remove only those trees which interfere with sunlight to the tops of the pines. When hardwoods are to be left to provide partial shade, favor the light and thin crowned species such as the birches, aspens, and ashes over the coarser and denser crowned trees such as the oaks and maples.

Spruce-balsam fir.

On somewhat poorly-drained soils, nearly pure stands of spruce and balsam fir may be grown with little hardwood control.

On better-drained sites, hardwoods must be controlled if spruce and fir are to be favored.

If desirable hardwoods comprise more than half of a stand, manage as a mixed stand. Timing of thinning or releasing – stands of spruce-fir may generally be thinned when the trees are five to ten feet in height and the crowns have closed. Favor spruce and other softwoods over balsam fir.

---

---

CROP TREE RELEASE (*in immature stands of pole and log size*)

1. **Timber crop tree selection criteria.**

Species: any commercial species.

Size: 5" to 18.9" DBH.

Potential Sawlog Height: 2 or more 8 ft. bolts.

Crown Position: Dominant/codominant.

Crown Size and Condition: large, healthy crown relative to DBH.

Evidence of Epicormic Branches: no more than 3 on the lower 24 of the bole.

Cull: less than 5% rot.

Form: reasonably straight – avoid trees with low forks, or severe sweep and crook.

Vigor: vigorous with no signs of serious dieback insect or disease damages.

2. **Recommended field procedures** – the procedures (using either fixed radius or prism plots) in the USFS Crop Tree Release Practice [FS06200-28(7-82)] should be used to determine eligibility for treatment and to verify that the residual crop trees are present, and the highest value timber crop trees are released.

3. **In immature stands of pole to small sawlogs where potential high value crop trees are 5" to 8" in DBH and the final crop trees will have the opportunity to grow for more than 20 years after being released.**

Hardwoods

- Minimum level of acceptable growing stock (timber and timber/wildlife) – C-line of approve silvicultural stocking guide.
- Minimum number of timber crop trees (5" to 8" DBH) to be released per acre – 40.
- Maximum number of timber crop trees to be released per acre – 75.
- Maximum total (timber, wildlife, and other) number of crop trees that may be released per acre – not to exceed C-line of approved silvicultural stocking guide.

Conifers

Minimum level of acceptable growing stock (timber and timber/wildlife) – C-line of approved silvicultural stocking guide.

Minimum number of timber crop trees (5” to 8” DBH) to be released per acre – 50.

Maximum number of timber crop trees to be released per acre – 100.

Maximum total (timber, wildlife, and other) number of crop trees that may be released per acre – not to exceed C-line of approved silvicultural stocking guide.

- 4. In immature stands of pole to log size with desirable crop trees of 9” to 18.9” DBH which have the potential to significantly accelerate growth and produce high value timber products within 20 years.**

#### Hardwoods

Minimum level of acceptable growing stock (timber and timber/wildlife) – C-line of approved silvicultural stocking guide.

Minimum number of timber crop trees (9” to 18.9” DBH) to be released per acre – 20.

Maximum number of timber crop trees (9” to 18.9” DBH) to be released per acre – 40.

Maximum total (timber, wildlife, and other) number of crop trees that may be released per acre – not to exceed C-line of approved silvicultural stocking guide.

#### Conifers

Minimum level of acceptable growing stock (timber and timber/wildlife) – C-line of approved silvicultural stocking guide.

Minimum number of timber crop trees (9” to 18.9” DBH) to be released per acre – 25.

Maximum number of timber crop trees (9” to 18.9” DBH) to be released per acre – 60.

Maximum total (timber, wildlife, and other) number of crop trees that may be released per acre – not to exceed C-line of approved silvicultural stocking guide.

- 5. Degree of crop tree release** – timber and timber/wildlife crop trees should be released so that they are free to grow on a minimum of three sides (i.e. adjacent tree crowns are not within 10 feet of crop tree crowns on three sides). When this practice is used in conjunction with *FLEP-6 Fish and Wildlife Habitat Improvement*, the degree of crop tree release may be less as long as it fulfills the purpose of the wildlife practice, conforms to the appropriate silvicultural guide, and is approved by the County Forester.
- 6. Areas that do not have an acceptable number of crop trees within stands being treated under this practice** – areas of one-half acre to one acre in size may be treated as a part of this practice by cutting overstory trees to release desirable regeneration or to encourage establishment of regeneration. No more than 10 percent of the area treated

under this practice may be in openings for regeneration. It is preferable to use **FLEP-2 Reforestation and Regeneration** instead of this practice if non-commercial regeneration preparatory cutting, scarification, direct seeding, or tree planting is needed to establish regeneration.

---

Pre-Commercial Thinning In Pole Size Stands (*stands with the main crown canopy/overstory trees in the range of 4 1/2" to 9" DBH*)

1. **Selection criteria.**

Species: any commercial species.

Size: 4 1/2" to 9" DBH.

Potential Sawlog Height: 2 or more 8 ft. bolts.

Crown Position: Dominant/Codominant.

Crown Size and Condition: reasonably healthy crown which appears capable or responding to release from competitors.

Form: reasonably straight – avoid trees with low forks, or severe sweep and crook.

Vigor: vigorous with no sign of serious dieback, insect or disease problems.

2. **Pre-treatment stocking (hardwood, conifer, and mixed wood).**

Total stocking level: must be more than halfway between the A and B line on the stocking guide in the approved silvicultural guide for the species involved.

Minimum level of acceptable growing stock – must be at least equal to the C line on the stocking line in the approved silvicultural guide for the species involved.

3. **Approved silvicultural guides** – are the silvicultural guides approved for the Use Value Appraisal Program or any other silvicultural guides or publications that are approved by the County Forester.

4. **Post treatment**

Degree of thinning – the stocking level shall be reduced to the B line on the stocking guide in the approved silvicultural guide for the species involved unless otherwise prior approved by the County Forester. Trees selected for release shall be evenly distributed throughout the stand where possible. The trees selected for removal from competition with the crop trees shall be deadened by felling or girdling. Hardwood trees shall be

double girdled except for species otherwise prior approved by the County Forester for single girdling. Time and funds should not be wasted on felling or girdling understory or overtopped trees that are not seriously competing with crop trees.

---

## PRUNING

1. **Minimum number of trees to be pruned per acre:**

Hardwoods – 25

Conifers – 35

2. **Maximum number of trees to be pruned per acre:**

Hardwoods – 40

Conifers – 60

3. **Diameter of trees to be pruned:** 2” to 8” DBH.

4. **Height trees to be pruned:** trees will be pruned to a height of a least 17’ from ground level where possible. Trees may be pruned to a height of 9’ where the height and form of the amount of live crown does not allow pruning to 17’.

5. **Live crown:** one-third to one-half of the tree height should always be left in live crown. Do not remove more than one-third of the live crown height in any one pruning operation.

6. **Form and vigor of trees to be pruned:** trees to be pruned will be reasonably straight, of good quality, and well spaced. Prune only trees with small branches and with good height growth.

7. **Release from competition:** trees to be pruned will be free to grow on at least three sides.

8. **Limbs to be removed:** will be cut or sawn to the natural branch collar without injuring or removing the branch collar.

9. Disinfect pruning tools with alcohol after each cut and before the pruning of each tree where there is a known danger of transmitting disease via pruning tools.

---

# TECHNICAL SPECIFICATIONS FOR FLEP-5 - WATER QUALITY IMPROVEMENT AND WATERSHED PROTECTION

## INTRODUCTION

The cost-sharing measures for *FLEP-5 Water Quality Improvement and Watershed Protection* for which a landowner is enrolled must be completed in compliance with the following technical specifications and the “*Technical Specifications for All FLEP Practices*” in order to be approved for the cost-sharing payment.

Landowners and professional resource managers should refer to the “*Acceptable Management Practices for Maintaining Water Quality on Logging Jobs in Vermont*” published by the Vermont Department of Forests, Parks and Recreation, along with other management guides approved by the County Forester when planning erosion control systems.

---

---

## GENERAL SPECIFICATIONS FOR SOIL AND WATER PROTECTION AND IMPROVEMENT

1. **Establishment of permanent vegetative cover (grasses and/or legumes) on critical areas.**
  - a. Rates
    - (1) Lime and fertilize according to rates prescribed within the AMP guidelines or apply one-half to three tons per acre ground agricultural limestone and fertilize with 200 to 600 pounds of 10-10-20 or equivalent per acre.
    - (2) Mulching at the rate of 60 bales per acre is recommended for all seedings within streamside protective strips and other critical areas as deemed appropriate by the County Forester.
    - (3) Seedbeds should be prepared by grading, removing debris, and scarifying where feasible.
    - (4) Seeding – shall be done with either the Soil Conservation Seed mix or critical area mix at the rate of 42 pounds per acre or other appropriate seed mixes and rates approved by the County Forester such as the seeding guidelines on Table 3 in the Acceptable Management Practices. For more information on seeding, refer to the Specifications for Critical Area Planting (VT 342) on file at the NRCS office and the County Forester’s office.
    - (5) Seedings without site preparation may be prescribed where a reasonable amount of bare soil exists.

- (6) Hydroseeding could be considered at minimum rates prescribed by the AMPs on large-scale projects.

b. Seeding dates

Seeding should be performed as soon as possible after soil disturbance to reduce erosion of fine-textured soil particles. Seeding may also be done as early in the spring as the ground can be worked. Seeding could also be performed after September 15 but should include a minimum of 20 pounds per acre of winter rye.

c. Maintenance

- (1) New seedings should be checked periodically to ensure that adequate cover is established.
- (2) The practice should be maintained by the landowner by reseeding bare spots or by topdressing with lime and fertilizer.

2. **Construction of water diversions and other drainage measures on abandoned roads, trails, firebreaks, log landings, and other areas needing critical area treatment.**

a. Water control measures

- (1) Waterbars which will be crossed by vehicles should be reinforced with cull logs. Waterbars on roads to be “put to sleep” may be deep or shallow depending on the need.
- (2) Minimum depth for shallow waterbars is eight inches at the outlet. Minimum top width of waterbars should be five feet as measured at the outlet section.
- (3) Waterbars shall be spaced according to Table 1 in the AMP guidelines.
- (4) Broad-based dips can be installed on truck or skid roads where no intermittent or permanent streams cross the road and the grade is ten percent or less.
- (5) On grades steeper than eight percent, broad-based dips will be armored with crushed rock or gravel.
- (6) Broad-based dip outlets will be protected with stone, grass, sod, heavy litter cover, or slash.
- (7) Broad-based dips will be spaced according to Table 2 in the AMP guidelines.
- (8) Culverts for cross drainage, though not eligible for cost-sharing, should be designed and installed according to the AMP guidelines.

- b. Grading, shaping, and ditching measures
  - (1) Ditches shall be constructed to divert water away from road or trail surface.
  - (2) Road surfaces may be crowned or reconstructed so as to move water off the surfaces.
  - (3) Practices will be used in conjunction with installation of water control and permanent seeding measures and done in accordance with the AMP guidelines.
- c. Culverts or stream crossings.

Although structures such as bridges or culverts do not qualify for cost-sharing, they should be sized and located according to Table 2 in the AMP guidelines or the Engineering Field Manual for Conservation Practices.

---

---

## SEDIMENT CONTROL STRUCTURES

Temporary measures to control soil movement include silt fences, hay bales, and sediment traps. These will be specifically planned for each site and will be applied in accordance with the AMP guidelines.

---

---

## MAINTENANCE

Refer to AMP maintenance guidelines or Soil Conservation Service Forest Land Erosion Control System Maintenance guidelines for specific maintenance requirements.

---

---

## GENERAL SPECIFICATIONS FOR RIPARIAN AND WETLAND PROTECTION AND IMPROVEMENT

### **Definition of Riparian Forest Buffers**

An area with trees and other vegetation located in areas adjacent to and up gradient from waterbodies and designed to intercept surface runoff, wastewater, subsurface flow, and deeper groundwater flows from upland sources for the purposes of removing or buffering the effects or associated nutrients, sediment, organic matter, pesticides, or other pollutants prior to entry into surface water and groundwater recharge areas.

### **Purpose**

To remove nutrients, sediment, organic matter, and some pesticides from surface flow and near root zone groundwater by deposition, absorption, plant uptake,

denitrification, and other processes, thereby reducing pollution and protecting surface water and groundwater quality.

### **Conditions where practice applies**

This practice applies on lands:

Adjacent to permanent streams which occur at the lower edge of upslope crop land, grass land, or pasture.

At the margins of lakes or ponds which occur at the lower edge of upslope crop land, grass land, or pasture.

Within the buffer zone adjacent to significant wetlands which occur at the lower edge of upslope crop land, grass land, or pasture.

### **Design Criteria**

Riparian forest buffers will consist of two distinct zones and be designed to filter surface runoff as sheet flow and downslope subsurface flow which occurs as shallow groundwater. For the purposes of these buffer strips, shallow groundwater is defined as saturated conditions which occur near or within the root zone of trees and other woody vegetation and at relatively shallow depths where bacteria, oxygen, and soil temperature contribute to denitrification. Streamside forest buffers will be designed to encourage sheet flow and infiltration and impede concentrated flow.

## **SPECIFICATIONS FOR ZONE 1 RIPARIAN FOREST BUFFERS**

### **Location**

Zone 1 will begin at the top of the streambank and occupy a strip of land with a fixed width of 15 feet measured horizontally on a line perpendicular to the streambank.

Runoff and wastewater to be buffered by Zone 1 will be limited to sheet flow or subsurface flow only. Concentrated flows must be converted to sheet flow or subsurface flows prior to entering Zone 1.

Dominant vegetation will be composed of a variety of native riparian tree and shrub species and such plantings of ground cover as necessary for streambank stabilization during the establishment period. Shrubs and trees hold be planted where there is insufficient vegetation to protect this zone and to fulfill the primary purpose of this practice. Site preparation and planting of shrubs should comply with the standards and specifications for “***Shrubs and Ground Cover Plantings***” in Section IV of the Soil Conservation Service’s Practice Standards – VT-342 (attached as a part of this specification). Appropriate species may be planted as wattles (bundles of cuttings) as recommended by the NRCS or the County Forester.

Management of Zone 1 will be limited to removal of potential problem vegetation and high value trees where water quality values are not compromised.

Logging and other overland equipment shall be excluded except for stream crossings and stabilization work.

Livestock shall be excluded from Zone 1 except for designated stream crossings and watering sites. Fencing may be cost-shared where necessary to exclude livestock.

## SPECIFICATIONS FOR ZONE 2 RIPARIAN FOREST BUFFERS

### **Location**

Zone 2 will begin at the edge of Zone 1, extend on a line perpendicular to the streambank, and occupy an additional strip of land along the stream with a minimum width of 60 feet measured horizontally in the direction of flow.

### **Specifications**

1. Runoff and wastewater to be filter by Zone 2 will be limited to sheet flow or subsurface flow only. Concentrated flows must be converted prior to entering Zone 2.
2. Vegetation shall consist of riparian trees and shrubs suitable to the site with emphasis on native species.
3. Specifications for site preparation and plantings of shrubs – same as the specifications for “***Shrubs and Ground Cover Plantings***” in Section IV of the Soil Conservation Service’s Practice Standards VT-342 except that appropriate species may be planted as wattles (bundles of cuttings) as recommended by NRCS or the County Forester.
4. Specifications for site preparation and planting of trees – same as the specifications for planting under ***FLEP-2 Reforestation and Regeneration***.
5. Specifications for restoration of critical areas:
  - a. Seeding, fertilizing, and mulching specifications are the same as for establishment of permanent vegetative cover under ***FLEP-5 Soil and Water Protection and Improvement***.
  - b. Grading, shaping, waterbarring, ditching, and related measures are the same as for construction of water diversion and other drainage measures from FLEP-5.

### **Maintenance**

Weed and other competing vegetation should be controlled by mechanical means only.

Trees and shrubs should be protected from damage by rodents, browsing by animals, insects, diseases, and other pests.

Livestock shall be excluded from Zone 2 except for designated stream crossings and watering sites.

## SPECIFICATIONS FOR ZONE 3 RIPARIAN FOREST BUFFERS

### **Location**

Zone 3 will begin at the outer edge of Zone 2 and have a minimum width of 20 feet. Additional width may be desirable to accommodate land shaping and mowing machinery. Ungrazed grass land may also serve as Zone 3.

### **Specifications**

1. Vegetation will be composed of dense grasses and forbs for structure stabilization, sediment control, and nutrient uptake.
2. Specifications for restoration of critical areas are the same as required for Zone 2.

### **Maintenance**

1. Mowing and removal of clippings is necessary to recycle sequestered nutrients. Promote vigorous sod and control weed growth.
  2. Vegetation must be maintained in a vigorous condition. The vegetative growth must be harvested, grazed, or otherwise removed from Zone 3.
  3. Zone 3 may require periodic reshaping of earth structures, removal or grading of accumulated sediment, and re-establishment.
- 

## DETERMINING TOTAL WIDTH OF RIPARIAN FOREST BUFFERS

### **Streamside Buffers**

1. The minimum width of streamside buffer areas can be determined by any of several methods suitable to the geographical area.
  - a. Based on soil hydrologic groups as shown in the county soil survey report, the width of Zone 2 will be increased to occupy any soils designated as Hydrologic Group D and those soils of Hydrologic Group C which are subject to frequent flooding. If soils of Hydrologic Groups A or B occur adjacent to intermittent or perennial streams, the combined width of Zones 1 and 2 may be limited to the 75-foot minimum.
  - b. Based on area, the width of Zone 2 should be increased to provide a combined width of Zones 1 and 2 equal to one-third of the slope distance from the

streambank to the top of the pollutant source area. The effect is to create a buffer strip between field and stream which occupies approximately one-third of the source area.

- c. Based on the Soil Capacity Class of the buffer site as shown in the county soil survey report, the width of Zone 2 should be increased to provide a combined width of Zones 1 and 2 as shown below:

<u>Capability Class</u>	<u>Buffer Width</u>
Capability I, II, e/s, V	75'
Capability III e/s, IV e/s	100'
Capability VI e/s, VII e/s	150'

## SPECIFICATIONS FOR POND, LAKESIDE, AND WETLANDS BUFFER ZONES

### **Pond and lakeside buffer strips.**

The area of pond or lakeside buffer strips should be at least one-fifth the drainage area of the crop land and/or pasture land source area.

The width of the buffer strip is determined by creating a uniform width buffer of the required area between field and pond.

Use hydrologic group and capability class methods for determining width, however, minimum widths apply in all cases.

### **Wetlands buffer zones.**

When water wetlands exist in fields as seeps along hill slopes, buffers should consist of Zone 1, 2, and 3 on sides receiving runoff and Zones 1 and 3 on remaining size.

When open water wetlands are ellipsoid in shape, they should receive the same protection as ponds.

Livestock must be excluded from Zones 1 and 2 at all times and controlled in Zone 3.

Where Zones 1 and 3 only are used, livestock must be excluded from both zones.

### **Specifications for the restoration of critical areas and planting of shrubs and trees – in pond and lakeside buffer strips and wetlands buffer zones.**

Specifications are the same as required for restoration of critical areas for Zone 2 Riparian Forest Buffers.

Specifications for planting of shrubs and trees the same as required in Zone 2 Riparian Forest Buffers.

## **Maintenance guidelines.**

Buffers should be inspected annually by the landowner and immediately after large storms. Prompt corrective actions should be taken in the event of damage to the buffer.

Excessive use of fertilizers, pesticides, other chemicals, vehicular traffic, pedestrian traffic, and removal or disturbance of vegetation should be avoided within the buffer areas.

---

---

## REFERENCES

For more information regarding riparian forest buffers, refer to USDA Forest Service publication NA-PR-07-91 "*Riparian Forest Buffers.*"

For more information regarding shrubs and ground cover plantings, refer to USDA Soil Conservation Service publication VT-341-11, Section IV.

---

---

## SPECIFICATIONS FOR FENCING

### **Tree-strand barbed wire.**

Maximum fence post spacing – 16’.

Strands will be spaced approximately an equal distance apart.

The bottom wire shall be approximately an equal distance apart.

The bottom wire shall be approximately 14 to 18 inches above the ground level.

The barbed wire shall be two twisted strands of 15 ½ gauge or heavier wire with two-point barbs on approximately five inch centers.

The wire and barbs shall be galvanized.

### **Single-strand electric.**

Electric fences shall have at least one strand of smooth or barbed wire.

Spacing of posts are the same as non-electric fences or may be further apart depending on terrain.

Fence chargers may be powered by 120 volt current or by batteries.

Homemade fence chargers are not acceptable or recommended for use with fencing.

Wire for use with electric fences will be 12 ½ gauge for barbed wire and 12 gauge for smooth wire.

Manufactured fence insulators are to be used to fasten electric wire to the post.

Live trees in line with a planned fence can be used as posts. Trees should be at least 4” in diameter.

---

---

## REFERENCES

For more specific information regarding fencing, refer to VT-382 Conservation Practice Standards Vermont Supplement (Fencing).

---

---

# TECHNICAL SPECIFICATIONS FOR FLEP-6A - ESTABLISHMENT AND IMPROVEMENT OF PERMANENT WILDLIFE OPENINGS

## INTRODUCTION

The cost-sharing measures for *FLEP-6A Establishment and Improvement of Permanent Wildlife Openings* for which a landowner is enrolled must be completed in compliance with the following technical specifications and the “*Technical Specifications for All FLEP Practices*” in order to be approved for the cost-sharing payment.

---

## GENERAL SPECIFICATIONS

**Specifications for the establishment, enhancement, or maintenance of a stand of domestic grasses and legumes in old fields, pastures, log landings, forest roads, or other forest openings.**

Size of Opening – the width of permanent opening shall be at least twice the height of adjacent trees and between one-half acre and ten acres in size.

Site preparation – the land shall be cleared of trees, non-desirable vegetation, large rocks, stumps, and other debris; smoothed and cultivated to the extent practical to make planting and maintenance feasible. Desirable mast-producing trees and shrubs may be left where approved by the County Forester. It is recommended that sites be smoothed according to the Soil Conservation Service’s Specifications for Land Smoothing (VT-466) that is on file at the County Forester’s office and the NRCS office.

Lime – shall be applied to attain a pH of at least 6.0 or at a rate of two tons per acre.

Fertilizer – shall be applied according to a soil test or at a rate of 240 pounds per acre for 10-10-10. Lime and fertilizer shall be incorporated into the top two inches of soil to the extent feasible.

Seeding – shall be done with either the Soil Conservation Seed Mix or Critical Area Mix at the rate of 42 pounds per acre or with other appropriate seed mixes and rates of 42 pounds per acre or with other appropriate seed mixes and rates approved by the County Forester. Species to favor are bluegrass, fescue, timothy, clover, alfalfa, crown vetch, and/or flatpea. For more information, refer to Specifications for Critical Area Planting (VT-342) on file at the NRCS office and the County Forester’s office.

Seeding application time should be between April 15 and June 15 or August 1 through September 15.

The seed should be covered with a thin layer of soil to the extent that is economically feasible by back tracking with a dozer or other appropriate equipment to improve the seed and uniformity of germination or seed with a hydroseeder.

Exceptions for establishment or enhancement of domestic grasses and legumes on forest roads.

Width of opening – Forest road openings only have to be seeded to the width that is practical to seed and maintain. However, seeded forest road openings shall be daylighted by cutting of trees and tall brush for a minimum distance of one-half the height of adjacent trees on both sides of the road.

Site preparation, fertilizing, and seeding – Lime, fertilizer, and seeds do not have to be incorporated into or covered by soil but it would be desirable to do so if it can practically and economically be accomplished. However, mulching after seeding shall be required.

Fencing – standards are the same as required under *FLEP-5*.

**Specifications for the establishment, enhancement, or maintenance of a wildlife opening with a stand of wild herbaceous upland plants, shrubs, and other wildlife food-producing plants in and bordering old fields and pastures, or in forest stands, log landings, forest roads, and along borders of forest roads.**

Size of openings – width of permanent openings shall be a minimum of one-half the height of adjacent trees. All openings shall be at least one-half acre in size and may be up to 10 acres in size.

Clearing of trees, large rocks, and debris. – The area shall be cleared of trees, large rocks, and other debris, and the stumps cut low to the extent practical that will allow for mowing, rotary brush cutting, or brush hogging. Desirable mast-producing trees and shrubs may be left where approved by the County Forester.

Brush cutting in areas cleared of trees, rocks, and other debris under this practice. – Rotary brush cutting or brush hogging should be done in areas where it is determined (by the County Forester) to be necessary to fulfill the purpose of this practice. Desirable mast-producing shrubs may be left where approved by the County Forester.

In areas of weeds, shrubs, and small trees that only require mowing, rotary brush cutting or brush hogging.

The areas should be thoroughly mowed, rotary brush cut, or brush hogged. Occasional mast-producing trees, shrubs, and other wildlife food-producing plants may be left where approved by the County Forester.

Mowing, brush cutting, or brush hogging should be done after June 15 to protect ground nesting birds. If the desired food-producing shrubs are Rubus species, mowing or cutting should be delayed until after the first frost in the fall.

Measures such as smoothing of the site, soil disturbance by mechanical means, liming, and fertilizing may be cost-shared where approved by the County Forester. The requirements are the same as listed under the specifications for the Establishment and

Enhancement of Openings of Stands of Domestic Grasses and Legumes except that the lime and fertilizing does not have to be incorporated into the soil.

**Fencing standards are the same as required under *FLEP-5*.**

### **Maintenance**

Mowing and cutting should be done after June 15 to protect ground nesting birds. If the desired food-producing shrubs are *Rubus* species, mowing should be delayed until after the frost in the fall.

Openings seeded to grasses and legumes should be mowed at least once every three years.

Openings of wild herbaceous and other wildlife food-producing plants should be thoroughly mowed, rotary brush cut, or brush hogged once every five years except that desirable mast-producing trees and shrubs may be left where approved by the County Forester.

---

# TECHNICAL SPECIFICATIONS FOR FLEP-6B - ESTABLISHMENT AND IMPROVEMENT OF WILDLIFE TRAVEL CORRIDORS AND ESCAPE COVER

## INTRODUCTION

This practice must be completed in compliance with the following technical specifications and the “*Technical Specifications for All FLEP Practices*” in order to be approved for the cost-sharing payment.

---

## GENERAL SPECIFICATIONS

**Location of travel corridors and escape cover** – travel corridors or escape cover must be located in:

Open habitat types (such as hay land, pasture, or crop land) of 10 acres or larger where needed to provide relatively safe travel or escape cover for wildlife between forest areas or between forest areas and other important wildlife habitat.

Suburbanized or developed areas of 10 acres or larger where there is a need and room for establishment of forest vegetation in order to provide relatively safe travel or escape cover for wildlife between undeveloped forest areas or between undeveloped forest areas and other important wildlife habitat.

**Expansion of hedgerows or narrow strips of forest or shrub cover** that are located in open habitat types of 10 acres or larger may be expanded into wider wildlife travel corridors of 40 feet to 150 feet in width if they connect forest areas of 10 acres or larger.

**Minimum width of travel corridor** – 40 feet with a preferred width of 75 to 150 feet.

**Minimum size of area to be planted for travel corridor or escape cover** – one acre or two acres of one-half acre each.

**To establish or expand a travel corridor or area of escape cover by planting a stand of trees** – use *FLEP-2 Reforestation and Regeneration* and the specifications for that practice except:

The minimum width and size of the planting is as specified in 3 and 4 above.

The site may be a soil with a potential productivity class lower than specified in FLEP-2 provided that the primary purpose of this practice (FLEP-6B) can be achieved.

**To establish or expand a travel corridor or escape area by planting a component of mast-producing trees or shrubs.**

or

**To release or thin around mast-producing trees in an existing hedgerow or escape cover to enhance health and food producing potential of trees and shrubs.**

Use *FLEP-6D Forest Improvement and Planting for Production of Hard and Soft Mass (Food) for Wildlife* and the specifications for that practice.

**To expand the size or increase the density of an existing hedgerow travel corridor or escape cover by planting a conifer component**

or

**To release or thin around conifer trees to enhance or maintain a relatively dense but healthy travel corridor or escape cover.**

Use *FLEP-6E Establishment and Improvement of Conifer Trees for Wildlife Habitat Diversity* and the specifications for that practice.

**Purchase and installation of tree guards.**

Tree guards or shelters should be translucent and five feet in height except as otherwise approved by the County Forester. They shall be installed and staked securely and according to the manufacturer's directions.

**Fencing** – May be used to prevent destructive grazing and agricultural practices and to allow for the successful establishment of natural regeneration or planted trees and shrubs. The specifications are the same as required under *FLEP-5*.

**Maintenance and weed control.**

Weeds and other competing vegetation should be controlled by mechanical or approved chemical means to allow for the establishment and growth of planted trees and shrubs.

Trees should be protected from serious damage by rodents, insects, diseases and other pests, and browsing by animals.

# TECHNICAL SPECIFICATIONS FOR FLEP-6C - IMPROVEMENT OF WINTER HABITAT FOR WHITE-TAILED DEER

## INTRODUCTION

The cost-sharing measures of *FLEP-6C Improvement of Winter Habitat for White-tailed Deer* for which a landowner is enrolled must be completed in compliance with the following technical specifications and the “*Technical Specifications for All FLEP Practices*” in order to be approved for the cost-sharing payment.

Landowners and professional resource managers should refer to the “*Management Guide for Deer Wintering Areas in Vermont*” published by the Vermont Department of Forests, Parks and Recreation and the Vermont Department of Fish & Wildlife, references cited in those guidelines, and other habitat management guides approved by the County Forester.

---

## GENERAL SPECIFICATIONS

Specifications for the establishment, enhancement, and maintenance of areas for the production of browse.

This cost-sharing measure may only be applied to sapling, pole, and sawlog size hardwood stands that are inclusions in a deer wintering area or a hardwood buffer strip of up to 150 feet in width that adjoin a deer wintering area.

Size of individual patch or strip clearings for browse production:

Minimum size – one-eighth acre.

Maximum size – two acres.

Maximum width of clearings:

Buffer strips adjoining deer wintering areas – 150 feet from deer wintering area.

Hardwood inclusions within deer wintering area – 250 feet.

**Minimum size of total area to be treated.** There may be more than one patch or strip cut. The total cumulative cut must be a minimum of one acre.

No more than one-quarter of the combined total acreage of:

All hardwood inclusions in a deer wintering area, and

All adjoining hardwood buffer strips that extend to a maximum distance of 150 feet from a deer wintering area should be cut in any 10-year period.

Clearcutting of a stand of trees and undesirable brush. All trees and shrubs beyond the browsing reach of white-tailed deer should be cut. Except conifer trees and occasional mast-producing shrubs and trees may be left as approved by the County Forester. The trees should be cut low enough to the ground to allow for rotary brush cutting if the shrubs and small trees are planned to be maintained with rotary brush cutting or brush hogging equipment. Stands of trees that do not exceed two inches in diameter may be rotary brush cut or brush hogged. Where needed, the County Forester may authorize cost-sharing for both:

Cutting of a stand of trees greater than two inches in diameter,

and

Rotary brush cutting or brush hogging.

**Time of cutting** – should be done during the dormant season. It is preferable to cut trees in the winter so that the crowns of cut trees are available for browsing by deer.

**Management and maintenance** – manage the hardwood buffer strips and hardwood inclusions on a 40-year rotation with a maximum of one-quarter of the cumulative acreage of the adjoining hardwood buffer areas and the hardwood inclusions in a deer wintering area being cut in any 10-year period.

---

---

Specifications For Purchasing And Installing Tree Guards to protect trees that are regenerated under *FLEP-2 Reforestation and Regeneration* as part of this practice to improve winter habitat for white-tailed deer.

1. Tree guards or shelters should be five feet in height (except as otherwise approved by the County Forester) and translucent.
2. They should be installed and staked securely according to the manufacturer's directions.

---

---

SPECIFICATIONS FOR THE ENHANCEMENT, EXPANSION OR REGENERATION OF A DEER WINTERING AREA

1. When using:
  - a. FLEP-2 Reforestation and Regeneration for planting a stand of conifer trees in open areas or for site preparation, preparatory regeneration cutting, direct seeding or planting a stand of trees within a deer wintering area.
  - b. FLEP-6E Establishment and Enhancement of Conifer Trees to Provide Wildlife Habitat Diversity for the planting of a component of conifer trees to enhance a deer wintering area, or

- c. FLEP-3 Forest Improvement or FLEP-6E Establishment and Enhancement of Conifer Trees to Provide Wildlife Habitat Diversity for non-commercial silvicultural measures such as release cutting, thinning, or crop tree release to promote crown development.

The specifications for the pertinent FLEP practices apply except:

- a. These practices may be used on sites with a lower potential site productivity than required under FLEP-2 (for the production of wood products) providing that the soils are suitable for the species to be planted and the primary purpose of expanding or enhancing a deer wintering area can be achieved.
  - b. Species approved for regeneration or release are hemlock, Norway spruce, white spruce, red spruce, white cedar, and white pine. Other species may be approved by the County Forester.
  - c. Minimum number of trees to be planted per acre under FLEP-2 – 700 per acre.
  - d. When planting or regenerating trees that are susceptible to browsing by deer in areas known to be heavily browsed by deer, a minimum of 200 planted trees per acre must be protected from destructive browsing by deer until the trees are out of destructive browsing reach of deer. Tree guards, tree shelters, or fencing may be used to protect these trees. Tree guards or shelters should be translucent and five feet in height except as otherwise approved by the County Forester. They shall be installed or staked securely and according to manufacturer's directions.
  - e. Crop trees released under FLEP-3 for improvement of a deer wintering area do not have to meet FLEP-3 specifications for potential sawlog height or form.
-

TECHNICAL SPECIFICATIONS FOR FLEP-6D - FOREST  
IMPROVEMENT AND PLANTING FOR PRODUCTION OF HARD AND  
SOFT MAST (FOOD) FOR WILDLIFE

INTRODUCTION

The cost-sharing measures of this practice for which a landowner is enrolled must be completed in compliance with the following technical specifications and the “*Technical Specifications for All FLEP Practices*” in order to be approved for the cost-sharing payment.

---

---

GENERAL SPECIFICATIONS:

This practice can only be applied to:

Forestland with less than 20 mast-producing trees of the desired species per acre or insufficient number of mast-producing shrubs per acre.

Open areas adjacent to forestland that are suitably adapted to the planting and establishment of trees and shrubs with the potential to provide a future source of food for wildlife.

Assist with the establishment or enhancement of travel corridors or escape cover for wildlife in conjunction with *FLEP-6B Establishment and Improvement of Wildlife Travel Corridors and Escape Cover*.

---

---

SPECIFICATIONS FOR CROP TREE RELEASE OF MAST-PRODUCING TREES AND SHRUBS

**Species<sup>3</sup> to be released or thinned around.**

Soft mast-producing trees

Black Cherry	Alders	Apple
Chokecherry	Crabapple	Dogwood
Eastern Red Cedar	Mountain Ash	Hawthorne
Hophornbeam	Ash	Juniper
Serviceberry	Ironwood ( <i>Ostrya virginiana</i> )	

Hard mast-producing trees

---

<sup>3</sup> Other species may be approved by the County Forester.

White Oaks  
Black Oaks  
Hickories  
Butternut

Beech – (Favor trees showing bear claw marks  
from several different years of use.)

Mast-producing shrubs:

American Cranberry Bush  
Barberry  
Bittersweet  
Elderberry  
Rubus species

Honeysuckle  
Nannyberry  
Staghorn Sumac  
Winterberry

**Number of hard and soft mast trees and shrubs to be released.**

Minimum number of sapling or larger size hard and/or soft mast-producing trees to be released – 10

or

Minimum number of mast-producing shrubs to be released – 20

**Degree of release or thinning.**

Mast trees – crown release by cutting down (or deadening where necessary to prevent damage to crop trees) all undesirable competitors so that:

Crop trees are free to grow on all sides of their crowns (i.e. adjacent crowns are not left within five feet of any portion of the crowns of the crop trees).

No undesirable competitors are left overtopping or that have the potential to overtop crop trees within the next 10 years.

Except: the crown of a crop tree may be closer than five feet away or may touch the crown of one other desirable mast-producing tree.

Mast-producing shrubs – cut all desirable competitors that are overtopping or have the potential to overtop a selected mast-producing shrub or clump of mast-producing shrubs. Desirable mast-producing crop trees and timber-producing crop trees may be left where they are not severely blocking the sunlight from reaching the desired mast-producing shrubs where approved by the County Forester.

Timing of release or thinning – avoid harvesting or cutting trees during the fall in key areas that have a history of heavy use by bear.

## SPECIFICATIONS FOR CROP TREE RELEASE AND PRUNING OF WILD APPLE TREES AND FOR THE MAINTENANCE OF AREAS OF WILD APPLE TREES

**Crop tree release** – crop trees should be released by cutting down (except large trees may be deadened to prevent damage to crop trees) so that:

Crop trees are free to grow on all sides of their crowns (i.e. adjacent crowns are not left within 10 feet of any portion of the crop tree crown), and

No undesirable competitors are left overtopping or that have the potential to overtop crop trees within the next 10 years.

Except: (1) the crown of a healthy apple tree may be closer than 10 feet or may touch the crown of another desirable mast-producing crop tree.

(2) low growing mast-producing shrub (such as dogwoods, hazelnuts, rubus species) that do not seriously interfere with the crowns of crop trees may be left under and around crop trees)

**Pruning of wild apple trees** – comply with the methods and recommendations described in Extension Folder 70 published by the Cooperative Extension Service, University of New Hampshire, Durham, Hew Hampshire or with other apple tree pruning guides and publications approved by the County Forester.

**Maintenance of areas of wild apple trees by mowing or cutting** – comply with the mowing and brush cutting specifications as for *FLEP-6A Establishment and Improvement of Permanent Wildlife Openings*, except low grown desirable mast-producing shrubs (such as dogwoods, hazelnut, rubus species) may be left under and around the crop trees provided that they o not seriously interfere with the crowns of crop trees.

---

## SPECIFICATIONS FOR THE PURCHASING, SITE PREPARATION AND PLANTING OF MAST-PRODUCING TREES

### **Species approved for planting:**

Mast-producing trees – same species as listed under these specifications for crop tree release. Other species may be approved by the County Forester.

Mast-producing shrubs

“Indigo” silky dogwood – *Cornus amomum*

Greystem dogwood – *C. racemosa*

Winterberry – *Index verticullata*

“Roselow” sargent crabapple – *Malus sargentii*

Elderberry – *Sambucus canadinsis*

American cranberry bush – *Viburnum trilogrurum*

Barberry – *Berberis*

Planting and site preparation – Same specifications as for FLEP-2 provided that the primary purpose of this measure can be accomplished.

Site quality may be less than for FLEP-2 provided that the primary purpose of this measure can be accomplished.

Number of hard or soft mast-producing trees to be planted per acre.

Number of mast-producing shrubs to be planted per acre.

In forest stands as understory – a minimum of 50 and a maximum of 100 per acre.

In open areas adjacent to forest stands or for travel corridors and escape cover for wildlife – a minimum of 100 and a maximum of 200 per acre.

---

---

#### SPECIFICATIONS FOR THE PURCHASING AND INSTALLING OF TREE GUARDS TO PROTECT PLANTED TREES

Installation specifications are the same as recommended by the manufacturer except:

1. Only 50 trees need to be protected per acre.
2. Guards should be translucent and five feet in height except as otherwise approved by the County Forester.

---

---

#### SPECIFICATIONS WHEN USING OTHER FLEP PRACTICES AS PART OF THIS PRACTICE

Purchasing and planting a stand of mast-producing trees and site preparation for regeneration – use ***FLEP-2 Reforestation and Regeneration*** and the specifications for that practice applies.

---

---

#### MAINTENANCE

1. Weeds and other competing vegetation should be controlled by mechanical or approved chemical means to allow for the establishment and growth of planted trees and shrubs.
  2. Trees should be protected from serious damage by rodents, insects, diseases, and other pests and browsing by animals.
- 
-

# TECHNICAL SPECIFICATIONS FOR FLEP-6E - ESTABLISHMENT AND ENHANCEMENT OF CONIFER TREES TO PROVIDE WILDLIFE HABITAT DIVERSITY

## INTRODUCTION

The cost-sharing measures of this practice for which a landowner is enrolled must be completed in compliance with the following technical specifications and the “*Technical Specifications for All FLEP Practices.*”

---

## GENERAL SPECIFICATIONS

1. The practice may only be applied to:
    - a. Hardwood stands or predominately hardwood stands with a minimum size of 25 acres.
    - b. Assist with increasing the component of conifers in a deer wintering area or in predominately hardwood stands adjoining a deer wintering area in conjunction with FLEP-6C.
    - c. Assist with the establishment or enhancement of wildlife travel corridors and escape cover in conjunction with FLEP-6B.
  2. **Species approved for planting or release.**

Hemlock, cedar, Norway spruce, white pine, white spruce, red spruce, and other shade-tolerant or moderately shade-tolerant species approved by the County Forester.
  3. The species should be adapted to the site. The potential productivity class of the site should be Site III or better.
- 

## SPECIFICATIONS FOR SITE PREPARATION AND PLANTING OF CONIFER TREES

1. **Underplanting** – underplant only in stands that are hardwoods or predominately hardwoods except as otherwise approved by the County Forester to enhance a wildlife travel corridor or escape cover or a deer wintering area.
2. **Plant in clumps** of at least six trees each at a minimum spacing of 8’ x 8’ – with a maximum spacing of 12’ x 12’.
3. **Minimum planting per acre** – 24 trees per acre in clumps of at least six trees.

4. **Maximum planting per acre** – 60 trees per acre in clumps of at least six trees.
  5. **Minimum size of area to be planted** – one (1) acre.
  6. **Site preparation and control of overtopping and other competing vegetation** – Same specifications as for the planting under *FLEP-2 Reforestation and Regeneration*.
  7. **Care of nursery stock, depth of planting, and method of planting** – plant according to the tree planting guides and publications approved by the County Forester including the Vermont State Tree Nursery’s “*A Planting Guide for Bareroot Stock*.”
- 
- 

#### SPECIFICATIONS FOR CROP TREE RELEASE OF ESTABLISHED CONIFER TREES

Same specifications as for release of crop tree release under *FLEP-3 Forest Stand Improvement* except:

**Minimum number of crop trees to be released** – 24.

**Maximum number of crop trees to be released** – 60.

**Size of crop trees** – crop trees can be of any size as long as they are healthy and have the potential to respond to releasing. Even small, individual conifer trees can provide valuable wildlife cover.

**Form and potential sawlog height** – do not have to meet the specifications as required for production of wood products.

---

---

SPECIFICATIONS FOR PURCHASE AND INSTALLATION OF TREE GUARDS – approved as needed by the County Forester.

Tree guards or tree shelters should be translucent and five feet in height except as otherwise approved by the County Forester. They shall be installed and staked securely and according to manufacturer’s directions.

---

---

#### MAINTENANCE

1. Weeds and other competing vegetation should be controlled by mechanical or approved chemical means to allow for the establishment and growth of planted trees and shrubs.
  2. Trees should be protected from serious damage by rodents, insects, diseases, and other pests, and browsing by animals.
- 
-

# TECHNICAL SPECIFICATIONS FOR FLEP-6F - IMPROVEMENT OF HABITAT FOR RUFFED GROUSE

## INTRODUCTION

This practice has to be completed in compliance with the following technical specifications and the “*Technical Specifications for All FLEP Practices*” in order to be approved for the cost-sharing payment.

Landowners and professional resource managers should refer to the “*Ruffed Grouse Model Habitat Management Guidelines in Vermont*” that are found in the “*Model Habitat Management Guidelines*” published by the Vermont Department of Fish and Wildlife, references cited in those guidelines and other management guides approved by the County Forester for information on home range size, habitat requirements, food habits, cover requirements, management unit techniques, and other beneficial management practices.

---

## GENERAL SPECIFICATIONS

1. **Areas that qualify** – this practice may be applied only to low quality hardwood stands and early successional hardwood stands (such as big tooth and trembling aspen and paper birch) with a minimum area of eight acres which contains at least four widely-dispersed aspen trees per acre.
2. **Clearcutting for grouse habitat management** – cut all trees (except occasional soft mast [food] producing species such as apple, serviceberry, crabapple, dogwood, viburnums, and hophornbeam) on one-quarter of an eight to twenty acre grouse management area. Cutting units should be from two to eight acres in size. The areas to be cut should be centered from the oldest aspen trees in the browse management unit. Leave at least a few scattered logs on the ground for use as drumming sites.
3. **In older forest stands of 50 years of age and older** – aspen is a short-lived species which matures at around 40 years of age on a good site. Sprouting ability declines in trees that are over 50 years of age, and aspen is generally absent from stands of 80 years or older. Therefore, up to one-half of an 8 to 20 acre grouse management area should be cut in older forest stands (50 years and older) in order to maximize aspen regeneration. The area(s) to be cut should be centered around the oldest aspen trees in the grouse management unit.

---

## MAINTENANCE AND MANAGEMENT OF THE GROUSE MANAGEMENT UNIT(S)

**Management of the unit** should provide for the establishment, within 40 years, of a minimum of three stands each providing one of the three critical age classes (0 to 10, 10 to 25, and 25+ years) located in each 8- to 20-acre grouse management unit. It is recommended that

each grouse management unit be managed as four stands of trees, each of which is managed on a 40-year rotation with the oldest stand being cut every 10 years.

The 10-year cutting interval with a 40-year rotation for each stand should provide for the establishment of four age classes in the management unit within 40 years and this should insure an adequate supply of the three critical age classes at all times.

Older forest stands (50+ years) should have a second cut in 10 years which removes the remainder of the older stands. Leave several (30 to 50) male aspen trees per acre where possible, scattered throughout this second cutting unit to provide a winter food supply for grouse. The 40-year rotation with stands of four different age classes should be established when the stand that was cut first reaches 30 years old and one-half of that stand is cut.

---

# TECHNICAL SPECIFICATIONS FOR FLEP-6G - IMPROVEMENT OF HABITAT FOR WOODCOCK

## INTRODUCTION

This practice has to be completed in compliance with the following technical specifications and the “*Technical Specifications for All FLEP Practices*” in order to be approved for the cost-sharing payment.

Landowners and professional resource managers should refer to the “*American Woodcock Model Habitat Management Guidelines in Vermont*” that are found in the “*Model Habitat Management Guidelines*” published by the Vermont Department of Fish and Wildlife, references cited in those guidelines, and other management guides approved by the County Forster for information on home range size, habitat requirements, food habits, cover requirements, and management unit techniques.

---

## GENERAL SPECIFICATIONS

1. **Areas that qualify** – this practice may be applied to:
    - a. Stands of speckled alder, grey dogwood, or other early successional hardwood stands on imperfectly drained loamy and sand loam soils that are rich in invertebrate life (particularly earthworms) for the purpose of improving feeding, nesting, and brood-rearing coverts for woodcock.
    - b. Old fields that are reverting to early successional plant species and with interspersed low growing pioneer vegetation (such as blueberries and meadowsweet) for the purpose of providing roosting coverts. (Woodcock sleep on the ground and need low growing bushes for cover.)
    - c. Open areas that can be managed as grassy fields of one-quarter to one-acre and that are clear of overhead and vertical cover (shrubs, trees, etc.) and maintained in that condition by annual mowing or light grazing of livestock to provide singing grounds for courtship.
  2. A habitat management unit for woodcock should be 25 acres in size where possible with the three distinct cover types listed in Number 1 above.
- 

## SPECIFICATIONS FOR MOWING, BRUSH CUTTING, OR ROTARY BRUSH CUTTING

**Areas of grassy fields to be mowed and maintained to provide singing and courtship grounds should be:**

A minimum of one-quarter acre and up to one acre in size.

All of the area should be mowed (and brush cut, if necessary) so that it is clear of all overhead and vertical cover and left in low growing grassy vegetation.

Cost-sharing is limited to two mowings of the same acreage in a five-year period.

**Areas of old fields interspersed with low growing bushes to be mowed or brush cut to provide roosting coverts should be:**

Five acres in size where possible.

One-third of the area should be mowed and/or brush cut every three years. If the whole field has vegetation taller than the desirable low growing bushes, the whole field may be cut the first year with care to leave low growing bushes on at least one-third of the area.

Mowing or cutting should be done sufficient to remove all trees and tall shrubs and to keep the area in low growing pioneer plant species such as blueberry bushes and meadowsweet.

Cost-sharing is limited to two mowings or cuttings of the same acreage in a five-year period.

---

---

SPECIFICATIONS FOR CLEARCUTTING OF SPECKLED ALDER OR GREY DOGWOOD, OR OTHER EARLY SUCCESSIONAL HARDWOOD STANDS FOR WOODCOCK COVERTS

1. **Species** – the ideal vegetative cover is speckled alder or grey dogwood of not over 20 years of age. Other early successional stage hardwoods (such as red maple) can also be treated provided that they are growing on soils that are rich in invertebrate life, particularly earthworms.
2. **Sites** – the soils should be loams or sandy loams containing a moisture content of 12% to 35% and an organic matter content range of 4% to 5%. The soils should be rich in invertebrate life in order to support the food base that woodcock rely on, particularly earthworms. The soil type and not the vegetative type is the limiting factor for woodcock.
3. **Size of area to be clearcut** – one-quarter of the stand should be clearcut during the first year of treatment. The stand should be managed on a 20-year rotation with four equal size blocks. One-quarter of the stand (the oldest portion) should be cut every five years. Other longer lived hardwood species (such as red maple) can be harvested on a longer rotation (30-year).

## SPECIFICATIONS FOR THINNING OF WOODCOCK COVERTS

1. **Acceptable species** – speckled alder, grey dogwood, or other early successional hardwoods on the appropriate soils.
  2. **Degree of thinning** – the portion of the stand which will not be clearcut for at least five years, should be thinned to leave a crown cover (vertical cover) of approximately 75%.
- 
- 

## SPECIFICATIONS FOR MAINTENANCE

1. **Areas to be mowed to be maintained in grassy cover** – for singing and courtship should be mowed annually, lightly grazed by livestock, or maintained by controlled burning to maintain in a low grassy cover.
  2. **Areas to be kept in early successional plant species with interspersed low growing pioneer vegetation** (such as blueberry bushes and meadowsweet) for the purpose of providing roosting coverts – should have one-third of the field mowed or brush cut every three years to insure that the entire five-acre field receives treatment on a regular basis. Alternatives to this are controlled burns or light grazing where the livestock eat only the interspersed grasses.
- 
-

# TECHNICAL SPECIFICATIONS FOR FLEP-6H - IMPROVEMENT OF HABITAT FOR WILD TURKEY

## INTRODUCTION

The cost-sharing measures of FLEP-8H for which a landowner is enrolled must be completed in compliance with the following technical specifications and the “*Technical Specifications for All FLEP Practices*” in order to be approved for the cost-sharing payment.

Landowners and professional resource managers should refer to the “*Wild Turkey Model Habitat Management Guidelines in Vermont*” that are found in the “*Model Habitat Management Guidelines*” published by the Vermont Department of Fish and Wildlife other references cited in the guidelines along with other management guides approved by the County Forester for information on home range, habitat requirements, food habits, and management unit techniques for managing wild turkey habitat.

---

## GENERAL SPECIFICATIONS

1. **Spring seep** – in an area where water percolates out of the ground and never freezes. Seeps provide herbaceous forage and should be protected and improved because of their value as a winter food source for wild turkey.
2. **Improvement of spring seeps:**
  - a. Removal of conifer trees – cut and remove all conifer trees that are immediately adjoining a spring seep to allow for better penetration of sunlight and to stimulate production of herbaceous forage.
  - b. Thinning of hardwood stands – thin hardwood stands that are immediately adjoining and within 50 feet of spring seeps. Thin to the C-line stocking level of the appropriate silvicultural guides to allow for better penetration of sunlight and to stimulate production of herbaceous forage. Favor mast-producing trees (such as oak, beech, hickory, cherry, ash, and hophornbeam) when thinning. Do not leave any cut trees or slash in the seep.

---

## USE OF OTHER FLEP PRACTICES TO IMPROVE HABITAT FOR WILD TURKEY

**When using the other FLEP practices (FLEP-2, FLEP-6A, FLEP-6D, and FLEP-6E)** to improve the habitat for wild turkey, the technical specifications for those practices apply to this practice with the exception that *FLEP-2 Reforestation and Regeneration* may be used for regeneration measures including tree planting on sites with a lower site productivity than required for FLEP-2 provided that the primary purpose of this wild turkey habitat improvement practice can be accomplished. Also, the FLEP-2 maximum allowable cost-sharing per acre related to site class does not apply.

## MAINTENANCE

### **Spring Seeps:**

Should be protected from destruction because of their value as winter food sources.

Should be kept free of conifer trees to allow better penetration of sunlight to stimulate production of herbaceous forage.

Hardwood stands adjoining and within 50 feet of spring seeps should be periodically thinned to keep the basal area to the C-level line of the appropriate silvicultural guide. Do not leave slash in the seeps.

When using *FLEP-2 Reforestation and Regeneration* to assist in increasing the conifer component in a turkey habitat management unit or to expand or improve a travel corridor or escape cover for turkey.

Weeds and other vegetation competing with the naturally or artificially regenerated trees should be controlled to allow for establishment and growth of trees.

When using other FLEP practices to improve habitat for turkey – the maintenance specifications pertinent to those practices apply.

---

---

# TECHNICAL SPECIFICATIONS FOR FLEP-7 - FOREST HEALTH AND PROTECTION

## INTRODUCTION

The cost-sharing measures of this practice for which a landowner is enrolled must be completed in compliance with the following technical specifications and the “*Technical Specifications for All FLEP Practices*” in order to be approved for the cost-sharing payment.

---

## SPECIFICATIONS

Practices being developed.

# TECHNICAL SPECIFICATIONS FOR FLEP-8 - INVASIVE SPECIES CONTROL

## INTRODUCTION

The cost-sharing measures of this practice for which a landowner is enrolled must be completed in compliance with the following technical specifications and the “*Technical Specifications for All FLEP Practices*” in order to be approved for the cost-sharing payment.

Landowners and professional resource managers should refer to the “*Weed Control Methods Handbook: Tools & Techniques for Use in Natural Areas*” which is available at no cost through the Nature Conservancy website.

---

## SPECIFICATIONS

Practice plan will be developed between County Forester and participant for site specific control measures.

# TECHNICAL SPECIFICATIONS FOR FLEP-10 - FIRE AND CATASTROPHIC EVENT REHABILITATION

## INTRODUCTION

The cost-sharing measures of this practice for which a landowner is enrolled must be completed in compliance with the following technical specifications and the “*Technical Specifications for All FLEP Practices*” in order to be approved for the cost-sharing payment.

---

## SPECIFICATIONS

Practices to be developed.

# TECHNICAL SPECIFICATIONS FOR FLEP-11 - SPECIAL PRACTICES

## INTRODUCTION

The cost-sharing measures of this practice for which a landowner is enrolled must be completed in compliance with the following technical specifications and the “*Technical Specifications for All FLEP Practices*” in order to be approved for the cost-sharing payment.

---

Practices may include, but are not limited to:

## SPECIFICATIONS FOR THE CONSTRUCTION OR ENHANCEMENT OF MULTI-PURPOSE RECREATIONAL TRAILS AND WALKWAYS

Construction shall be in accordance with site specific plans developed by the professional resource manager and approved by the County Forester. The trail location and drainage structures should be flagged or otherwise indicated in the field. All drainage and erosion control measures shall be installed as shown on the plan. Refer to the Vermont Department of Forests, Parks and Recreation “Recreation Trail Manual”<sup>4</sup> or other trail manuals and guides approved by the County Forester for recommended construction methods and measures.

Construction operations shall be carried out in such a manner that erosion and air and water pollution are minimized and held within legal limits.

Due consideration shall be given to safety. Protection from slides and falling rocks and ice shall be provided if needed. Safety features including safety fences at key locations and removal of existing fences that are dangerous shall be according to the approved plan. Adequate directional and warning signs shall be placed as dictated by the site and intended use. Cost-sharing is not authorized for fencing installation or removal and for construction and installation of signs.

Special attention shall be given to accessibility and safety where use by the handicapped is anticipated.

### **Grade**

#### Equestrian, snowmobile, all-terrain vehicle and motorcycle.

The grade of the trail should not exceed 10%, except there may be sections with steeper grades up to 25% for distances not to exceed 200 feet. It is preferable to include “easing off” sections of at least 500 feet that have a grade of 4% or less.

---

<sup>4</sup> Hereinafter referred to as the State Lands Trail Manual.

### Pedestrian trails.

The grade of the trail should not exceed 10% except there may be sections with steeper grades up to 45% for distances not to exceed 200 feet in mountainous terrain where it becomes difficult or sometimes impossible to locate trails on grades of less than 10%. It is desirable to include “easing off” sections of at least 100 feet that have a grade of 4% or less.

### Cross-country ski and mountain bicycle.

The grade of the trail should not exceed 4% except there may be sections with steeper grades up to 20% for distances not to exceed 100 feet. It is desirable to include “easing off” sections of at least 200 feet that have a grade not to exceed 1%.

### All trails.

A minimum grade of 1% is desirable for drainage.

## **Alignment**

Curves are desirable in trails and walkways. They should not exceed 50 degrees.

Switchbacks should be avoided wherever practical. If they become necessary:

Turn on flats or benches where possible.

Use a turning radius of 1½ times the trail tread width with a minimum tread width of four feet.

Separate the segments above and below the curve using stone, wood, or vegetative barriers to prevent cross cutting. (See State Lands Trail Manual, p. 23)

Plan trail location to avoid low areas such as those coinciding with wet weather only streams, marshy ground, and unstable side slopes. Avoid unnecessary stream crossings. In crossing a stream, cross at right angles, on firm approaches, and at the shortest width (See State Lands Trail Manual, p. 44).

## **Width**

The widths of trails for clearance and travel tread should be according to the following table:

**TABLE OF TRAIL WIDTHS BY TYPE OF TRAIL**

Trail Type	Clearance Height (above bare ground)	Tread Width*	
		Minimum	Maximum
Pedestrian	8'	1½'	3'
Equestrian	12'	4'	8'
Snowmobiles, ATVs, Cycles	12'	6'	12'
Cross-country Skiing	12'	4'	12'
Winter Pedestrian	12'	1½'	3'

\*For multi-use trails, the maximum tread width should be 12 feet. The maximum clearance width may be up to two feet wider than tread width to allow for ditches as approved by the County Forester.

In managing vegetation along snow use trails, it is recommended to discriminate against trailside trees that will intercept snow as snow depths maybe appreciably less under them. Conifers such as hemlock and the spruces are snow interceptors.

**Trails for low levels of use** may be established by removal of trees, shrubs, and other interfering vegetation on sites where:

The soils and slopes do not require structures for trail drainage to prevent erosion and stream sedimentation and to provide a useable surface for the time(s) of year the trail use is planned, and

Approved by the County Forester.

**Side slopes**

Cut and fill slopes shall be constructed as described in the State Lands Trail Manual (p. 10 to 17) or other manuals or guides approved by the County Forester.

**Drainage and erosion control.**

Adequate drainage and erosion control measures shall be provided if the County Forester determines they are necessary to:

Keep the trail operable,

Protected from degradation, and

Prevent erosion of soils and sedimentation in streams.

Drainage shall be provided by means of tread outsloping, side ditches, culverts, cross drains, waterbars, and broad-base dips. A raised or elevated trail or walkway may be required for wet sites that cannot be drained. See State Lands Manual (p. 23 to 43) for recommended construction details.

## Surfacing

Where surfacing is required for a firm trail, the surfacing material may be pit or stream run gravel, gravelly soil, or other suitable stone material placed to a minimum depth of six inches. Cost-sharing is not allowed for the purchasing and trucking of surface materials.

## Maintenance

Trails and walkways shall be maintained to prevent degradation and to remain safe for use. Refer to the State Lands Trail Manual (p. 56-59).

### GUIDE FOR ESTIMATING COST-SHARING FOR CONSTRUCTION OF TRAIL DRAINAGE AND EROSION CONTROL MEASURES

Ditching	\$0.50 per lineal foot
Waterbars, broad-base dips, and cross drains	\$0.15 per structure
Cribbing	\$5.00 per lineal foot
Turnpiking (filling or building up wet areas)	\$3.00 per lineal foot
Outsloping	\$0.25 per lineal foot
Puncheon	\$1.00 per lineal foot

---

### SPECIFICATIONS FOR AESTHETIC QUALITY ENHANCEMENT OR RESTORATION

#### Establishing trees, shrubs, and vines for aesthetic purposes.

Measures accomplished under this practice shall be in accordance with a plan approved in advance by the County Forester.

Select species that are adapted to the planting zone and will meet the needs for intended use and site conditions. Generally native, rather than exotic species, are best adapted to the local area. However, locally-growing nursery stock of exotic species approve by the County Forester may be used.

Specifications are the same as the specifications for establishing trees, shrubs, and vines in Section IV of the Soil Conservation Service's VT-562 "**Recreation Area Improvements.**" The County Forester may make exceptions to these specifications and approve other publication and guides for certain measures of this practice. Other guides and publications may include but are not limited to:

- **New Tree Planting**, printed in 1991 by the International Society of Arboriculture, PO Box 908, Urbana, IL 61801.

- *Evergreens – Planting and Care*, by E.R. Hasselkus, Publication No. A1730, University of Wisconsin – Extension, Agricultural Bulletin Building, 1535 Observatory Drive, Madison Drive, Madison, WI 53706.

#### Maintenance

Weeds and other competing vegetation should be controlled by mechanical or approved chemical means to allow for establishment and growth of the planted trees.

Trees should be protected from serious damage by rodents, insects, diseases, and other pests, and browsing by animals.

#### **Thinning to enhance aesthetic quality.**

This measure shall consist of releasing selected aesthetic crop trees meeting the following criteria:

Healthy and vigorous trees that can be expected to respond to release and live at least 10 or more years.

Free from structural defects that will prevent survival for at least 10 years.

Species – any species that will satisfy the management objectives of the landowner such as trees with unusual form, large size, brilliant or different autumn color, diversity of species, or attractive bark, flowers, or fruit.

Size – any diameter, any crown class.

Release and thinning treatment – thin to provide for aesthetic crop trees to grow and to increase sunlight, improve grass cover, enhance natural beauty, and release and make shrubs and understory vegetation non-visible. Release aesthetic crop trees on a minimum of three sides from nearby trees that either are competing or expected to compete with the crop trees within 10 years (except where clumps of trees or denser stands are desired and are approved by the County Forester).

Minimum stocking level for stands of aesthetic crop trees after thinning should be the C-level of appropriate silvicultural guide, where possible.

Maximum stocking level for stands of aesthetic crop trees should not exceed the B-level of appropriate silvicultural guide.

Site quality – the site must be capable of growing the desired species for at least 10 years.

Minimum size area to be treated shall be an aggregate total of one acre.

Competing trees as described above shall be cut to the ground with the tops either lopped to the ground or removed from the site.

Remove dead, diseased, dying, severely damaged, or poorly-anchored trees which are a hazard to aesthetic crop trees and/or users of the area.

**Pruning for aesthetic improvement.**

For safety purposes, remove limbs and limb stubs to a minimum height of eight feet except when landowner desires to maintain limbs for aesthetic values.

Do not, in any situation, remove more than one-third of the live crown of a tree in one pruning action.

Make all cuts to the natural branch collar so that healing can start under normal conditions.

Undercut all limbs one inch in diameter or over to prevent splitting.

Either remove or lop to the ground, all pruned material.

Do not treat wounds.

Disinfect tools with alcohol after each cut and between trees where there is known danger of transmitting disease via tools.

**Vista cutting.**

Create opening to view vista by clearcutting of vegetation or removal of woody debris blocking or potentially blocking the target view. Trees that frame or enhance the vista, however, may be left in the cutting area.

Lop to the ground or remove from the site all vegetation, limb material, or woody debris.

Size – the size of any on area treated shall not exceed one acre.

---

CULTURAL RESOURCE SITE PROTECTION SPECIFICATIONS – Inventorying, mapping, developing a management and protection plan and the removal of vegetation.

1. **Definition** – Cultural resources are the tangible, physical remains of past human habitation. Cultural resources are heavily concentrated at specific places which are called “sites”. There are two kinds of sites:
  - a. Pre-historic – these sites in Vermont are all ancient Native American places which can be anywhere from 200 to 10,000 years old. These places are not generally

located in areas likely to be logged, and they require expertise and experience to detect.

- b. Historic – these sites are mainly places built and occupied by white settlers over the last 200+ years. These places are more visible, more massive, and more likely to be encountered in forested tracts.

2. **Inventory** – An inventory of the property shall be conducted and shall deal with at least one of the following:

- a. Pre-historic sites – an inventory to determine whether such sites exist shall only be done by a qualified consultant hired by the landowner and is on the State of Vermont, Division for Historic Preservation’s list of consulting archaeologists.
- b. Historic sites<sup>5</sup> – an inventory of these resources can be done by a professional resource manager that is hired by the landowner. It involves identifying and locating surface, physical remains of human activities. Historic sites shall be identified and located on a map. Specifically, identify the following:

Any and all stone constructions.

Cellar holes and surface foundations.

Stone walls.

Culverts.

Spring enclosures.

Remnants of dams.

Mill foundations.

Mine and quarry structures.

Anything else obviously human built of stone.

Old roads, trails, and railway beds.

Charcoal pits.

---

<sup>5</sup> Sources of information are historic nineteenth century maps which are available for every town in Vermont. They show nearly all farm, building sites, and roads existent of the time of the map’s publication. Copies of these maps may be obtained from the Division for Historic Preservation or County Forester and used in conjunction with USGS topographic maps to better pinpoint historic features.

3. **Plans for the protection and management of pre-historic and historic cultural resource.**

a. Pre-historic sites.

- (1) The protection and management plan shall be prepared by a qualified archaeologist who is on the Division for Historic Preservation's list of consulting archaeologists and hired by the landowner.
- (2) The plan shall include recommendations for the protection and allowable uses of these pre-historic sites.
- (3) The plan shall include a written agreement by the landowner to protect these sites according to the plan.

b. Historic sites.

- (1) The protection and management plan shall be prepared by a professional resource manager hired by the landowner.

- (2) The plan shall include:

Map (at orthophoto scale) that includes all of historic sites that were inventoried by the professional resource manager.

Plans to protect all historic structures. This should include prohibition of dumping trash in and around historic sites.

Planned improvements such as debris and trees to be removed including plans to protect these sites when being improved.

Allowable uses of and modifications to these historic sites. This should include approved stone wall crossing for management and recreational uses. Stone wall crossings should be as few as possible and the stones removed should be piled immediately adjacent to the breach. Old roads may be used for management activities and recreational uses. Plans should include proper drainage and maintenance in accordance with the practices in the Vermont Department of Forests, Parks and Recreation "***Acceptable Management Practices for Maintaining Water Quality on Logging Jobs in Vermont.***"

Provision for a 200-foot buffer around cellar holes and stone foundations where the ground surface should not be harmfully disturbed.

Plans to protect shrubs and trees that are older than 50 years and date back to the time when the historic structure was being used.

A written agreement by the landowner(s) that all management and use activities shall be in compliance with the approved plan of protection and management.

The professional resource manager shall consult with the Division for Historic Preservation or a specialist in Historic Preservation if there is any doubts about the need to protect or the uses and improvements to be allowed.

- c. Plans must be approved by the County Forester.
4. **Activities, uses, or improvements which are not included in the protection and improvement plans** may only be allowed if the plans are modified by a qualified professional resource manager or archaeologist and approved by the County Forester.
  5. **Removal of trees, shrubs, vines, and debris.**
    - a. Debris and trash may be removed provided that it:
      - (1) Has accumulated in, on, or around historic structures within the last 50 years, and
      - (2) Is recommended for removal in the plan for the protection and management of historic sites.
    - b. Trees that have encroached upon historic structures (stone walls, cellar holes, surface level foundations, roads, trails, and other structures, and sites) may be cut and removed if they are:
      - (1) Less than 50 years old.  
and
      - (2) Recommended for removal in the plan of protection and management.  
and
      - (3) Are approved at least generally for removal by the Division for Historic Preservation or other historic site specialist. Care must be taken so not to disturb the historic structure or site.
- 
-