

WINDBREAK/SHELTERBELT ESTABLISHMENT (380) PLANNER GUIDE

USDA, Natural Resources Conservation Service—Practice Codes 380



WINDBREAK/SHELTERBELT ESTABLISHMENT

Windbreaks or shelterbelts are single to multiple rows of trees and possibly shrubs planted in a linear fashion. They are established upwind of the areas to be protected. Renovating a windbreak may involve removing, releasing, or replacing selected trees and shrubs or rows of trees or shrubs. Tree/Shrub Pruning (660) may also be called for when renovating a windbreak.

PRACTICE INFORMATION

Windbreaks and shelterbelts are primarily used to reduce soil erosion from wind; protect crops, livestock areas, and farmsteads from wind and related microclimate effects; help control snow deposition; and help improve air quality by reducing and intercepting drifting chemicals and odors.

Windbreak/shelterbelt establishment involves the planting of vegetation to serve the purposes noted above. The effectiveness of a windbreak or shelterbelt is dependent on the height of the mature plants. Therefore, it may take 20 years or more for the practice to become fully functional.

Windbreak/shelterbelt renovation involves widening, partial replanting, removing, and replacing selected trees and shrubs to improve an existing windbreak or shelterbelt. A period of years may also be needed for proper renovation.

These practices can be applied in any area where there is sufficient linear length to establish the windbreak on the lee side of the area to be protected. It is important during planning to consider the dominant wind direction during weather events that cause damage.

COMMON ASSOCIATED PRACTICES

Windbreak/Shelterbelt Establishment or Renovation is commonly used in a Conservation Management System with practices such as Conservation Crop Rotation (328), Cover Crop (340), Residue Management (344), Tree/Shrub Site Preparation (490), Tree/Shrub Establishment (612), Tree/Shrub Pruning (660), and Upland Wildlife Habitat Management (645).

For further information, refer to the practice standard in the local Field Office Technical Guide and associated specifications and job sheets.

Complete the basic header information: client name, farm/ranch location, farm and tract numbers, fields in which the practice will be installed, proposed treatment acres (practice extent), program under which this practice is being installed, planned date for installation and if there is a contract associated with this practice, include the contract item number. Also, document the planner who wrote the specification in the space following the “Assisted by”.

Windbreak/Shelterbelt Purpose

Check all purposes that meet clients objectives.

Existing Conditions (Benchmark)

Document existing site conditions. This will help with species selection for your wind break. You will want to select the species most suited for the site. The existing climatic site conditions may come from local weather stations, soil survey, NRCS GIS Geodata layers. Document the data source. Use soil survey to document the soil. Attach applicable soils reports. The current ground cover will come from visual observation. Document the resource concern by purpose using photo, video, WEPPS, Biological Technical Note 14, client interview or document the other source of information.

Windbreak/Shelterbelt Description

State the Field number in which the windbreak/shelterbelt will be located and where within the field the windbreak/shelterbelt is found (Field 4 N. Bdry or Field 4 NE Corner). Provide the width and length of the area allotted for the windbreak/shelterbelt and calculated acreage (width x length).

Planned Planting

Give field number and location within the field. Then describe each row within the windbreak/shelterbelt. Make sure species selected are suited for the existing climatic and soil site conditions.

For Species column, you may abbreviate common names or use species codes. Include the height at 20 years from the USDA PLANTS database (if available). Divide the total length of the row by the “Spacing in Row” distance to estimate the number of plants needed for that row. Document the spacing within the rows. Trees are usually 8 to 10 feet apart. Shrubs are usually 4' apart. Document recommended stock type. Use BA for bareroot, CO for container, CU for cutting, as an abbreviation and discuss the stock size. BA 2-0 for bareroot 2 year old (no transplant bed) stock or CO Styro 8. Finally, document the spacing between rows. Spacing between rows is often 8 to 24 feet apart. For more information on stock type see 612 Tree and Shrub Establishment's *“Planner's Guide”*

Windbreak/Shelterbelt Establishment and Associated Practices (Conservation System)

These are the activities and associated practices that you may need to consider in order to ensure a successful establishment of the windbreak/shelterbelt.

Indicate what 490 Tree & Shrub Site Preparation method will be used, chemical, mechanical, hand spot treatment or combination of methods.

Describe the planting start date and method (hand plant or machine plant). It is acceptable to use 612 Tree & Shrub Establishment jobsheet to specify stock types, minimum sizes and seedling handling. Generally describe the planting method, timing and any special circumstance. For additional information on seedling handling see MT Plant Materials Technical Note #51 or ID Plant Materials Technical Note 43 and 45.

If mulch is needed for moisture control and/or weed barrier, use 484 Mulch to describe types, and quantity needed. For additional information about mulches, see WA Plant Materials Technical Note #8, Mulch and Mulches for Erosion Control.

Will supplemental watering be needed? If so, describe how you will provide the supplemental water or the kind of irrigation and the timing of delivery of the supplemental water. Irrigation Conservation Practices 441-449 might be needed as Associated Practices. For additional information on irrigation of windbreaks and shelterbelts refer to WA Forestry Technical Note 15, Water needs of Windbreaks for Trickle Irrigation Systems Design.

For post-plant weed control use 315 Herbaceous Weed Control and/or 314 Brush Management as associated practices.

If there are potential animal pests that may damage your seedling, physical barriers are an acceptable option for protecting your seedlings. Rigid plastic solid wall tree shelters are appropriate for protection against small mammals, like mice and voles. Solid wall tree shelters also affect the microclimate of the tree such as temperature, moisture and CO₂. Rigid plastic mesh tree shelters are appropriate for preferred browse species like W. Redcedar, when protecting against browsing animals such as deer, elk and rabbits. For protection against brows on less preferred forage species like Douglas fir or W. Hemlock especially when brows pressure is moderate, the use of bud caps is appropriate. Chemical Repellents require a significant amount of labor and maintenance in order to be implemented appropriately. Therefore, the use of chemical repellents will be limited to easily accessed planting of less than ½ acre or less than 200 seedlings for less preferred brows seedling species. For more information about seedling protection see 612 Tree & Shrub Establishment's "*Planner's Guide*"

Use "Management recommendations" for any additional recommendations for the successful establishment of the windbreak/shelterbelt. Activities such as fertilization may be included here.

Operation and Maintenance

This section has standard requirements already provided. You may add additional site specific recommendations.

Layout Sketch & Drawing

Provide a sketch, drawing, and/or maps of the windbreak/shelterbelt layout. It is helpful if the layout includes the row arrangement and mature size of plants in each row, how the rows are arranged across the soils and topography.

Additional Requirements by Purpose

If a purpose has additional criteria, address those issues here. Wind erosion; snow deposition; shelter for structures, livestock, and people; noise, visual screens, air quality, carbon storage, wildlife habitat, irrigation efficiency and energy are purposes that have additional requirements.

Additional Considerations

Considerations such as aesthetics, public view, pests, natural features on the landscape, species diversity including the use of native species, invasive potential of planted species, the need for carbon sequestration modeling, ability of species to tolerate chemicals used in farming operation are a few of the items to be addressed in this section.

Practice Specifications Approval Certification

This section documents the required JAA or TSP certification category.

The person who develops the specifications will sign under "Practice Designer". If that person does not have the appropriate JAA, then a Reviewer is needed. If the Planner does have the appropriate JAA then a Reviewer is not needed.

The Reviewer does have the appropriate JAA and certifies the specifications meet the Practice Standard criteria.

The specifications will be reviewed with the client and the client signs under the "Client's Acknowledgement" section. When the client signs for the practice they acknowledge that the planner did go over the practice and they understand the specification and they are agreeing to install the practice according to the standard and specifications; they will notify NRCS if there are changes during installation; will obtain all necessary permits; and will take responsibility for contacting utilities.

Documentation Requirement Sheet

This form is used for quality control of the practice design and checkout of practice installation for practice certification. It provides a list of documentation required in order for the plan to include this practice and for designing this practice.

Complete the basic header information: client name, farm/ranch location, farm and tract numbers, fields in which the practice will be installed, treated acres (extent installed), program under which this practice is being installed, planned date for installation and if there is a contract associated with this practice, include the contract item number. Also, include the name of the planner(s) that reviewed the file and checked-out the practice on the ground. This may or may not be the person who has JAA.

Mandatory Documentation within the Plan

Check box of each item that is present within the file and properly completed.

The following additional data/documentation needed for this practice

Check the box of each inventory and analysis documentation that was used to support the presence of the resource concern and landowner objective. The documentation should be in the file or discussed on P&I notes. Check the box for each Checkout item that is attached or documented in the file. Feel free to hand write notes clarifying the check or lack of check.

Practice installation verification may be documented on this form or on the Jobsheet.

Additional Notes on Practice documentation, installation or comments on associated Practices

Planner should include any additional information they deem necessary to support the completion certification of the practice.

Practice Completion Certification

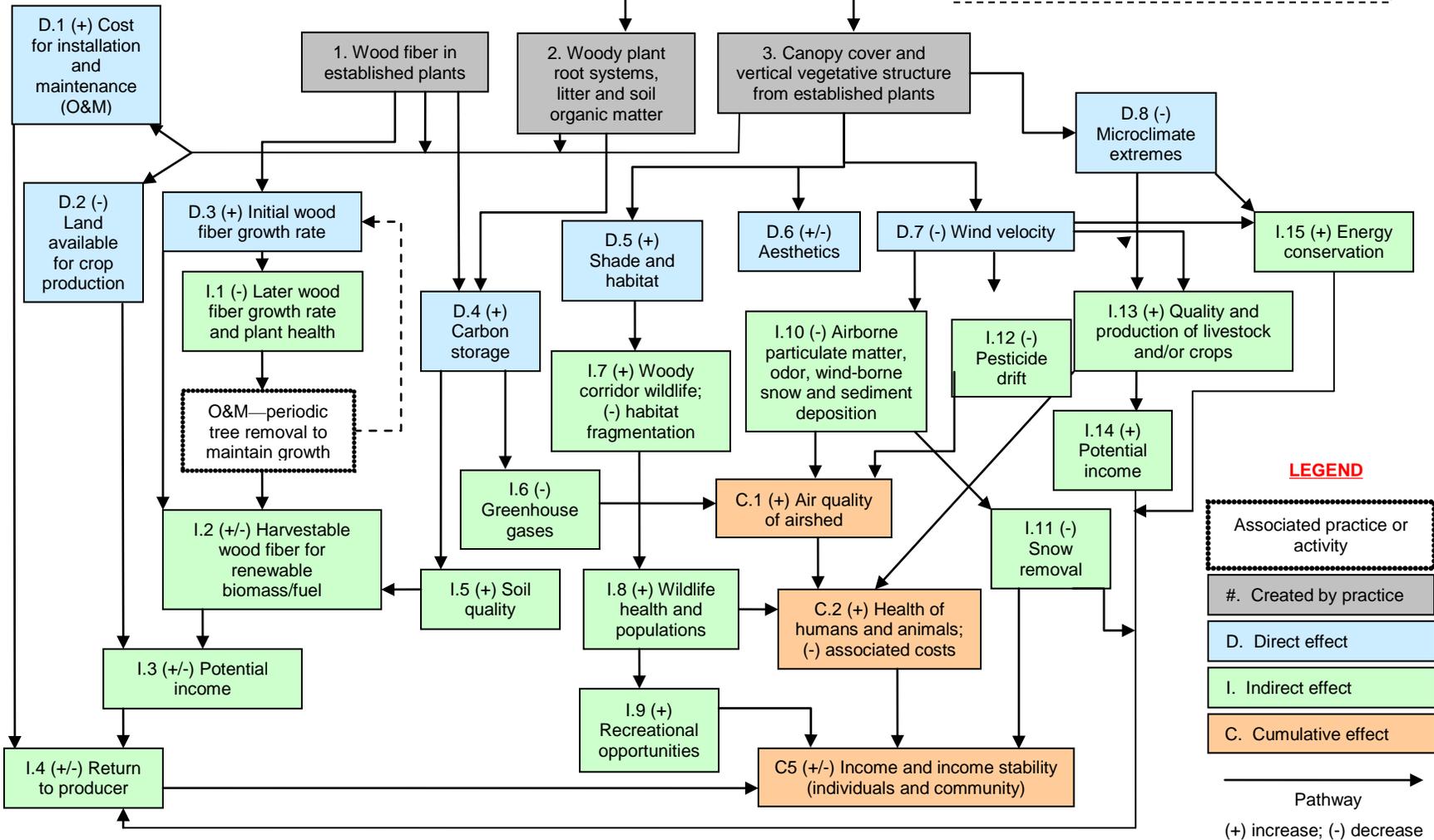
Person with appropriate JAA will sign this form for the certification that this practice was installed according to NRCS standards and specifications.

Windbreak/Shelterbelt Establishment or Renovation

9/2011

Windbreak/Shelterbelt Establishment (380), Windbreak/Shelterbelt Renovation (650)

Initial setting: (1) Cropland; forage land; animal feeding operations; or urban area where wind erosion, snow drift, plant, animal, and human stress related to wind or temperature; energy consumption; or odor are concerns; (2) existing decadent windbreaks/shelterbelts that have reduced functionality for intended purposes



Note: Effects are qualified with a plus (+) or minus (-). These symbols indicate only an increase (+) or a decrease (-) in the effect upon the resource, not whether the effect is beneficial or adverse.

The diagram above identifies the effects expected to occur when this practice is applied according to NRCS practice standards and specifications. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. All appropriate local, State, Tribal, and Federal permits and approvals are the responsibility of the landowners and are presumed to have been obtained. All income changes are partially dependent upon market fluctuations which are independent of the conservation practices. Users are cautioned that these effects are estimates that may or may not apply to a specific site.