

# 10. Plantings



Plantings are an extremely important part of any project proposed in or near wetlands. They help screen and protect wetland wildlife from human presence, light, and other disturbances. Several dense rows of plantings can form an effective fence when planted at the edge of a disturbed area. A planted buffer also helps slow the flow of water, promote infiltration of runoff, and allow sediment to settle out before it reaches the wetland. A dense ground cover of grasses can also help filter polluted water before it enters the wetland. A careful selection of plantings provides shelter, food, and breeding sites for wildlife, and a tree canopy helps regulate temperatures in a wetland by shading the water during summer. For these reasons and others, please consider the following when designing and installing a planting scheme:

## Planning and Design

- Take into account the physical conditions of the site, including light levels and soil moisture, to help in plant selection.
- Consider restoring previously disturbed areas with plantings, even if the disturbance is not a result of the current project.
- If a limit of disturbance borders a thickly wooded area, additional plantings may not be necessary; however, plantings in a previously cleared area can provide added protection to the wetland.
- Two or more rows of plantings provide a thick buffer; however, sometimes a single row is sufficient if the project is next to an already vegetated area that currently buffers the wetland.
- Generally, trees should be planted 6-10 feet on center and shrubs 5-6 on center. Depending on the purpose of the plantings, recommended spacing will vary.
- Only native plant stock should be used. Invasive or exotic species can overtake and eliminate native vegetation.
- Consider eliminating any invasive species that are currently growing in areas to be planted because they often overtake native species. Also, be mindful of exposed mineral soils that are especially susceptible to invasive species.
- Generally the best time to plant is during spring (May 1 - June 15) or fall (September 1 - November 15). Plantings can be installed during the dry summer months if they are balled and burlapped and regularly watered. Transplanted trees or shrubs should be planted during early spring before leaves appear, in late fall, or in early winter. Be sure to check each species for the recommended planting season.
- To ensure proper plant selection and viability, the use of a landscape professional is recommended.
- Avoid planting large woody vegetation, such as trees and tall shrubs, on detention or infiltration basin fill embankments and near basin outlet structures.
- Avoid planting trees within at least ten feet of underground infiltration systems.

## Site Restoration after Planting

- After site construction is complete, final grading and landscaping should be completed as soon as possible to minimize erosion and help ensure that invasive species don't take root and spread. It is important to plan project completion and planting installation for the appropriate season.
- All sediment and erosion controls should be removed once planting is completed, and all disturbed surfaces must be adequately stabilized.
- All disturbed surfaces that require stabilization should be covered with a plantable soil or loam, seeded with a native wildlife conservation grass seed mix, or stabilized with a mat of loose hay mulch after the project is completed.
- If a surface area in or near a wetland does not require stabilization, then it must simply be allowed to revert to a wild condition after plantings are complete.
- Steep surfaces may require extra matting, such as excelsior matting or jute mesh.
- Within jurisdictional areas, no future clearing, mowing, cutting or trimming of restored areas should occur.

## Maintenance

- All plantings should be monitored to ensure that they survive through one growing season (longer for certain projects); if not, they must be replaced with the same species.
- Consider that new plantings will require watering and care to ensure survival.

## Information to Include on the Site Plan

- A planting legend should be included if several different varieties of trees and shrubs are proposed; otherwise, the type of tree or shrub should be clearly labeled.
- Proposed planting heights, species (both common and scientific names), spacing, and quantity should also be included.
- It is also necessary to include detailed notes on when the plantings will be installed, the purpose of the plantings (either screening or wildlife food and cover), and how the plantings will be maintained (such as being left unmanicured).
- Planting diagrams should be included to illustrate how plantings will be installed. The Rhode Island Standard Details from the Department of Transportation is a good information source.

## Categories of Plantings

Planting proposals for Wetland application submittals generally fall into two categories: 1) Plantings used for screening to block noise, light, and other disturbances from the wetlands; and 2) Plantings that provide food, cover, and nesting habitat for wildlife.

A good planting scheme should use both categories to adequately mitigate impacts to wetlands. Screen plantings are commonly used to either mark an edge of the Limits of Clearing and Disturbance or to create a thick buffer between the project area of continuous use and a wetland. They are most often evergreen trees because evergreens provide a thick year-round buffer. Other plantings (deciduous or evergreen) that are intermixed or behind the screen plantings offer a variety of food, cover and nesting options for wetland wildlife. Deer resistant types of evergreen plants are a good choice for plantings, either alone or in combination with berry producing shrubs.

It is also important to use native, naturalized, and locally grown plantings as often as possible, instead of cultivars plantings, or others that have been genetically modified or imported from another region or country. It is important to plan ahead and have plantings ready because it is sometimes difficult to find appropriate species. The following is a list of trees, shrubs, vines, and groundcover for potential use in Wetland Application submittals to DEM. This list is not all-inclusive, but it should be used as a guideline when choosing plantings.

### **Guidelines for Choosing Appropriate Plantings**

#### **Moderate to fast growing**

##### **Trees**

- Eastern white pine, *Pinus strobus*
- *Thuja occidentalis nigra*
- Eastern hemlock, *Tsuga canadensis*
- *Juniperus spp.*
- White spruce, *Picea glauca*

##### **Shrubs**

- Southern arrowwood, *Viburnum dentatum*
- *Cornus spp.*

#### **For a flowering, fruiting or evergreen hedge**

##### **Trees**

- Eastern white pine, *Pinus strobus*
- Eastern hemlock, *Tsuga canadensis*
- *Thuja occidentalis nigra*
- *Cornus spp.*
- *Juniperus spp.*

##### **Shrubs**

- Northern bayberry, *Myrica pensylvanica*
- Southern arrowwood, *Viburnum dentatum*
- *Aronia spp.*

#### **For a wet location**

##### **Trees**

- Red maple, *Acer rubrum*
- Red ash, *Fraxinus pennsylvanica*
- Sweet gum, *Liquidambar styraciflua*
- Black gum, *Nyssa sylvatica*
- Sycamore, *Platanus occidentalis*
- Swamp white oak, *Quercus bicolor*
- Pin oak, *Quercus palustris*
- American Elm, *Ulmus Americana*
- *Thuja occidentalis nigra*
- *Amelanchier spp.*
- *Salix spp.*

##### **Shrubs**

- Red chokeberry, *Aronia arbutifolia*
- Swamp-azalea, *Rhododendron viscosum*
- Fringe-tree, *Chionanthus virginicus*
- Sweet pepperbush, *Clethra alnifolia*
- Silky dogwood, *Cornus amomum*
- Gray dogwood, *Cornus racemosa*
- Red osier dogwood, *Cornus sericea*
- Inkberry, *Ilex glabra*
- Winterberry, *Ilex verticillata*
- Northern spicebush, *Lindera benzoin*
- Swamp-rose, *Rosa palustris*
- Large pussy willow, *Salix discolor*
- Highbush blueberry, *Vaccinium corymbosum*
- Southern arrowwood, *Viburnum dentatum*
- Sweet viburnum, *Viburnum lentago*
- Purple osier (basket) willow, *Salix purpurea*
- Buttonbush, *Cephalanthus occidentalis*
- Highbush cranberry, *Viburnum opulus*
- *Alnus spp.*

## Guidelines, continued

### For a drier location

#### Trees

- Sugar maple, *Acer saccharum*
- Honey-locust, *Gleditsia triacanthos*
- Yellow poplar, *Liriodendron tulipifera*
- Sweet gum, *Liquidambar styraciflua*
- Sassafras, *Sassafras albidum*
- Northern white cedar, *Thuja occidentalis*
- *Carpinus* spp.
- *Fraxinus* spp.
- *Juniperus* spp.
- *Pinus* spp.
- *Quercus* spp.
- *Picea* spp.

#### Shrubs

- Gray dogwood, *Cornus racemosa*
- Northern bayberry, *Myrica pensylvanica*
- Beach plum, *Prunus maritima*
- New England rose, *Rosa nitida*
- Lowbush blueberry, *Vaccinium angustifolium*
- *Juniperus* spp.
- *Rhus* spp.

### For partially shaded locations

#### Trees

- Serviceberry, *Amelanchier canadensis*
- Fringe-tree, *Chionanthus virginicus*
- Black gum, *Nyssa sylvatica*
- Eastern hemlock, *Tsuga canadensis*
- *Carpinus* spp.
- *Cornus* spp.

#### Shrubs

- Sweet pepperbush, *Clethra alnifolia*
- Mountain laurel, *Kalmia latifolia*
- Northern spicebush, *Lindera benzoin*
- Giant rhododendron, *Rhododendron maximum*
- Southern arrowwood, *Viburnum dentatum*
- Sweet viburnum, *Viburnum lentago*
- *Aronia arbutifolia brilliantissima*
- *Hamamelis* spp.
- *Ilex* spp.
- *Leucothoe* spp.

### Deer resistant plants

#### Trees

- White spruce, *Picea glauca*
- White pine, *Pinus strobus*

#### Shrubs

- American holly, *Ilex opaca*
- Inkberry, *Ilex glabra*
- Mountain laurel, *Kalmia latifolia*

### Berry-bearing, especially attractive to birds

#### Trees

- Serviceberry, *Amelanchier canadensis*
- Fringe-tree, *Chionanthus virginicus*
- Black gum, *Nyssa sylvatica*
- Eastern red cedar, *Juniperus virginiana*
- Sassafras, *Sassafras albidum*
- American holly, *Ilex opaca*
- *Crataegus* spp.
- *Cornus* spp.

#### Shrubs

- Northern spicebush, *Lindera benzoin*
- Common elderberry, *Sambucus canadensis*
- Highbush blueberry, *Vaccinium corymbosum*
- *Aronia arbutifolia brilliantissima*
- *Cornus* spp.
- *Ilex* spp.
- *Rosa* spp.
- *Viburnum* spp.

#### Vines

- Native grapes, *Vitis* spp.

- Virginia creeper, *Parthenocissus quinquefolia*

Note: Vines should be planted so that they can climb on something, such as a fence or wall. They can be problematic for adjacent shrubs and trees if used as groundcover.

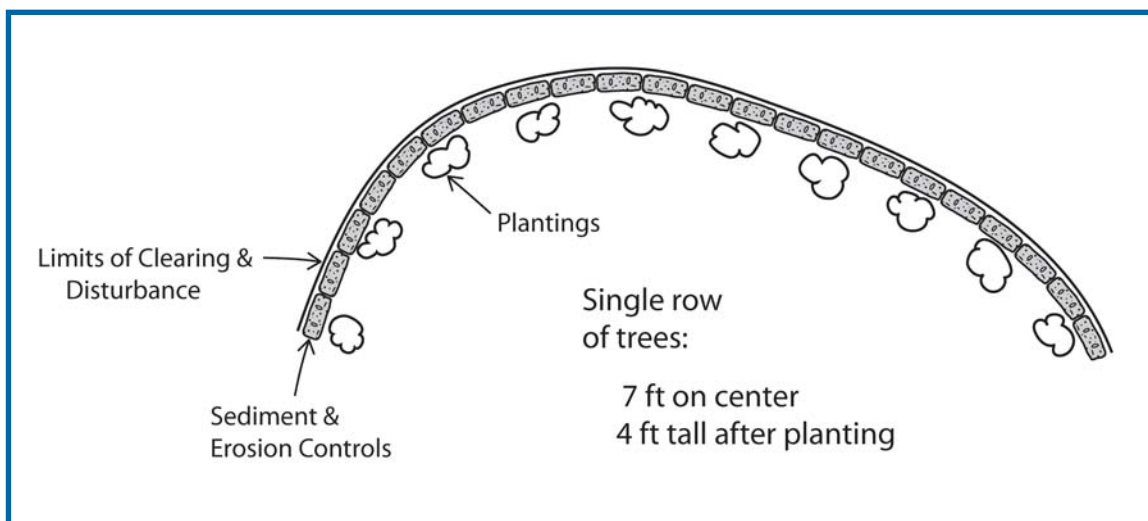
### Guidelines, continued

**Native Groundcover:** A native, non-invasive wildlife conservation grass mix within buffer areas or wet mix within a wetland can be used.

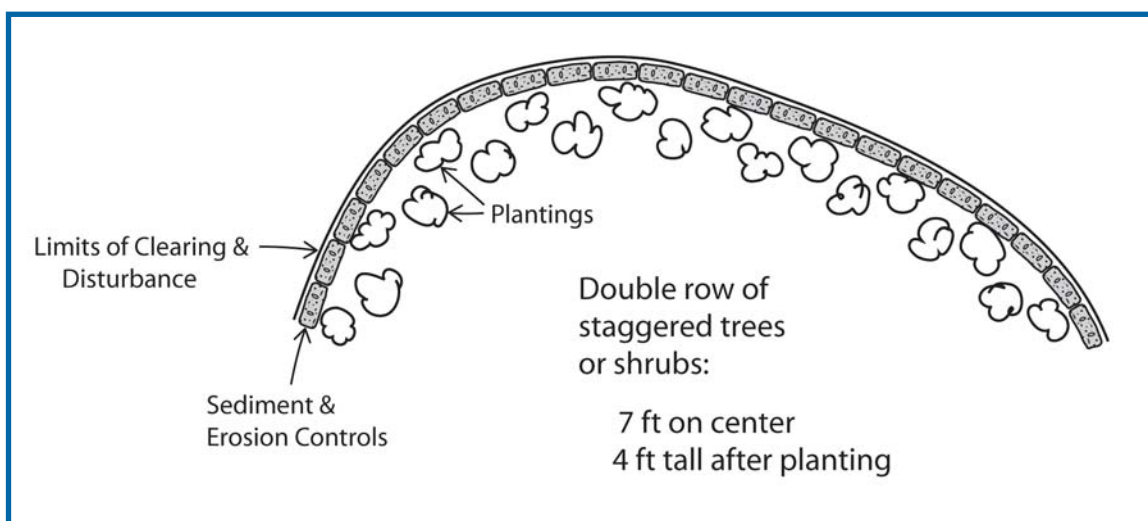
**Source of plant names:** *Vascular Flora of Rhode Island*; *A List of Native and Naturalized Plants*, Volume I of *The Biota of Rhode Island* by the Rhode Island Natural History Survey.

### Example 37: Planting Methods

The following drawings illustrate two possible methods of installing plantings and the relationship of the plants to the wetland project's Limits of Clearing and Disturbance and the sediment and erosion controls.











Example 37a



Example 37b

### Example 38: Planting Schedule

The following table is an example of an easy to follow planting legend with much of the required planting information. A detailed drawing and planting notes would also accompany this table as part of a complete wetlands application package.

Tree & Shrub Species Planting Schedule			
Symbol	Common/Latin Name	Estimated Quantity	Planting Remarks
	Highbush blueberry, <i>Vaccinium corymbosum</i>	85	Balled and burlapped, 5 ft. on center spacing, 3 ft. tall after planting
	Sweet pepperbush, <i>Clethra alnifolia</i>	52	Balled and burlapped, 5 ft. on center spacing, 3 ft. tall after planting
	Winterberry, <i>Ilex verticillata</i>	72	Balled and burlapped, 5 ft. on center spacing, 3 ft. tall after planting
	Red chokeberry, <i>Aronia arbutifolia</i>	54	Balled and burlapped, 5 ft. on center spacing, 3 ft. tall after planting
	Spice bush, <i>Lindera benzoin</i>	54	Balled and burlapped, 5 ft. on center spacing, 3 ft. tall after planting
	Red maple, <i>Acer rubrum</i>	32	Balled and burlapped, 8 ft. on center spacing, 3 ft. tall after planting
	Weeping willow, <i>Salix babylonica</i>	18	Balled and burlapped, 8 ft. on center spacing, 3 ft. tall after planting
	Northern white cedar, <i>Thuja occidentalis</i>	60	Balled and burlapped, 8 ft. on center spacing, 3 ft. tall after planting

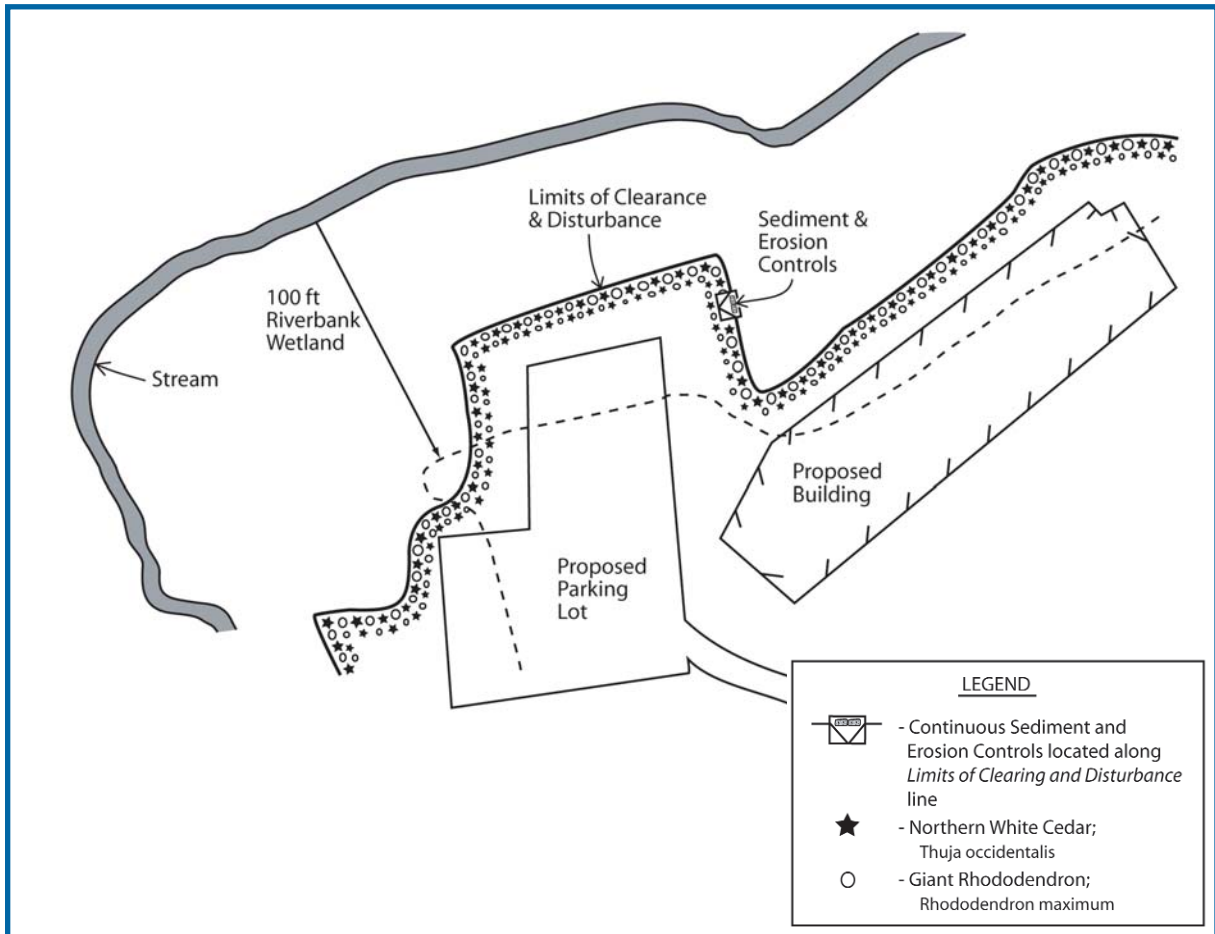
Example 38

### Planting Notes

Detailed planting notes must be provided to complete the wetland application package. The planting notes should list the species that will be planted and should describe the planting methods that will be used. These notes should also describe site preparation, sediment and erosion controls, and planting site maintenance, including mulching, fertilizing, inspections, and replanting when necessary.

### Example 39: Mixed Plantings

This example illustrates a long row of mixed plantings along the limit of disturbance associated with a commercial project in which the applicant could not entirely avoid the Riverbank Wetland. The density of the plantings makes it particularly effective because of the multiple uses and activities, such as people, lighting, and traffic often associated with most development, especially commercial projects.



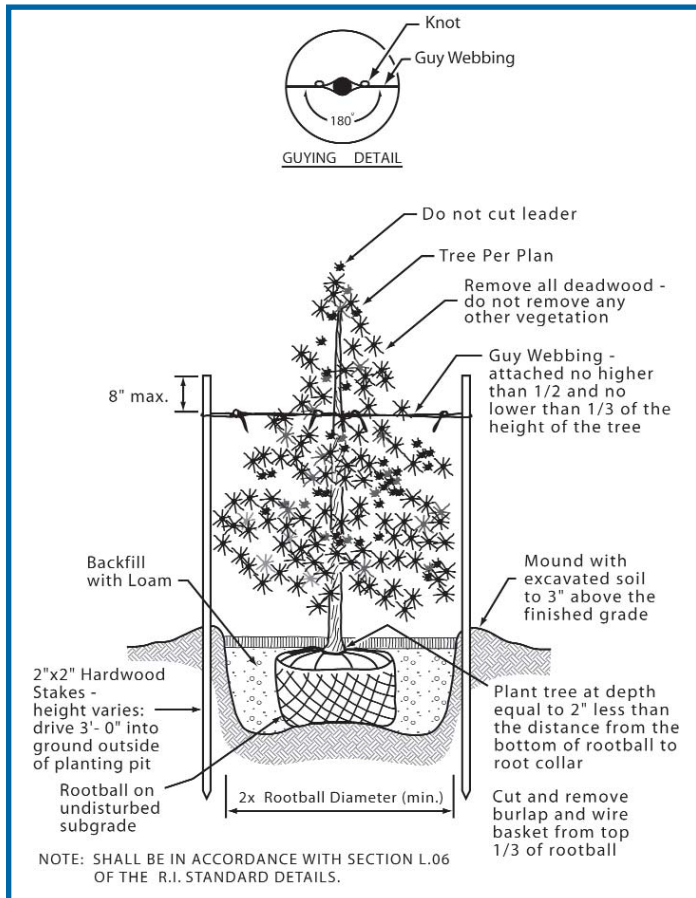
Example 39

#### How wetland impacts were minimized:

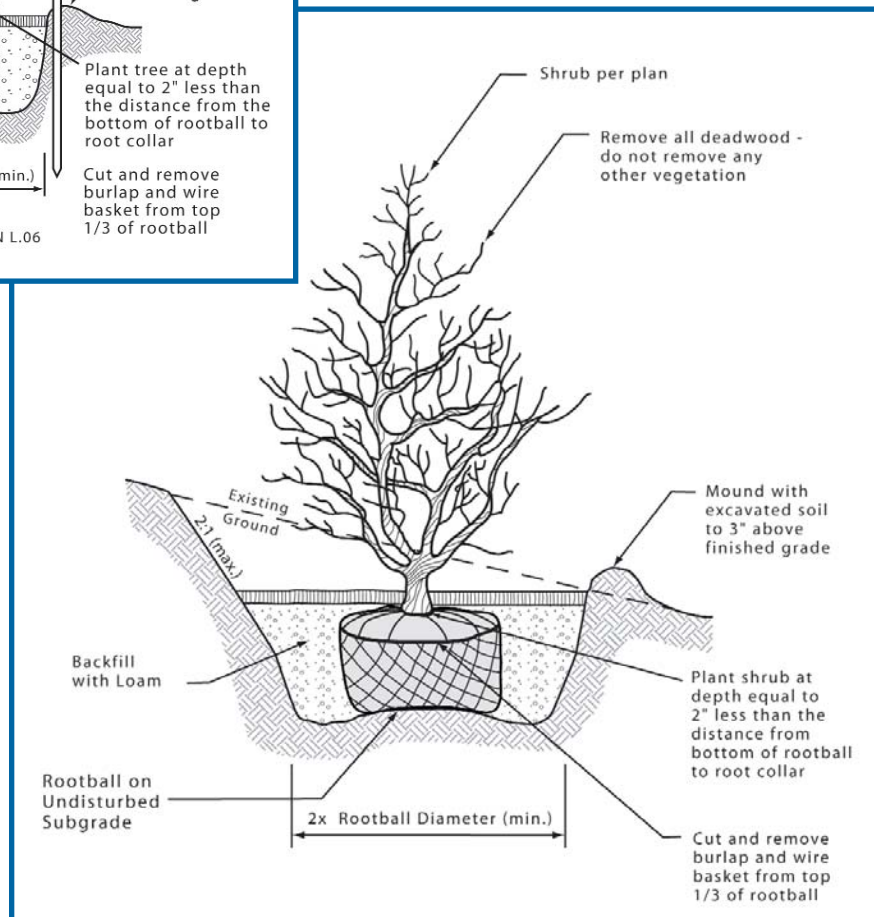
- ✓ The variety of native evergreen trees and shrubs provide a thick year-round buffer to block out noise, light, and other disturbances created by the project.
- ✓ The rows of plantings serve as a visual reminder of the Limits of Clearing and Disturbance.

## Example 40: Tree and Shrub Installation

The following examples illustrate best management practices for planting a tree and for planting a shrub on a slope taken from the *Rhode Island Standard Details* by the Department of Transportation. The Standard Details book includes many other diagrams and illustrations that are good examples for planting installation. Be sure to verify any specific growth requirements for the species proposed to be planted.



Example 40a



Example 40b



## References

This list provides additional sources for information on plantings. (See Chapter 12 for complete citations arranged by author.) Please be aware that not all native or naturalized plants will be appropriate in all circumstances. On certain projects a landscape architect may be required. Otherwise a local nursery may be able to help make recommendations.

- *American Wildlife & Plants: A Guide to Wildlife Food Habits* by A. C. Martin et al. (1951)
- *Conservation Plants for the Northeast* by D. G. Lorenz et al. (1989)
- *Landscaping for Wildlife* by C. L. Henderson, Minnesota Department of Natural Resources Nongame Wildlife Program (1994)
- *Native Plants for Attracting Wildlife* by C. M. McDonough (2000)
- *Native Shrubs for Landscaping* by S. L. Taylor et al. (1987)
- *Sustainable Trees and Shrubs*, 3rd Edition, by B. Maynard et al. (1999)
- *Trees, Shrubs and Vines for Attracting Birds* by R. DeGraaf and G. Witman (2002)
- *Wetland Planting Guide for the Northeastern United States: Plants for Wetland Creation, Restoration, and Enhancement* by G. Thunhorst (1993)
- *Vascular Flora of Rhode Island; A List of Native and Naturalized Plants*, Volume I of *The Biota of Rhode Island* by the Rhode Island Natural History Survey (1998)