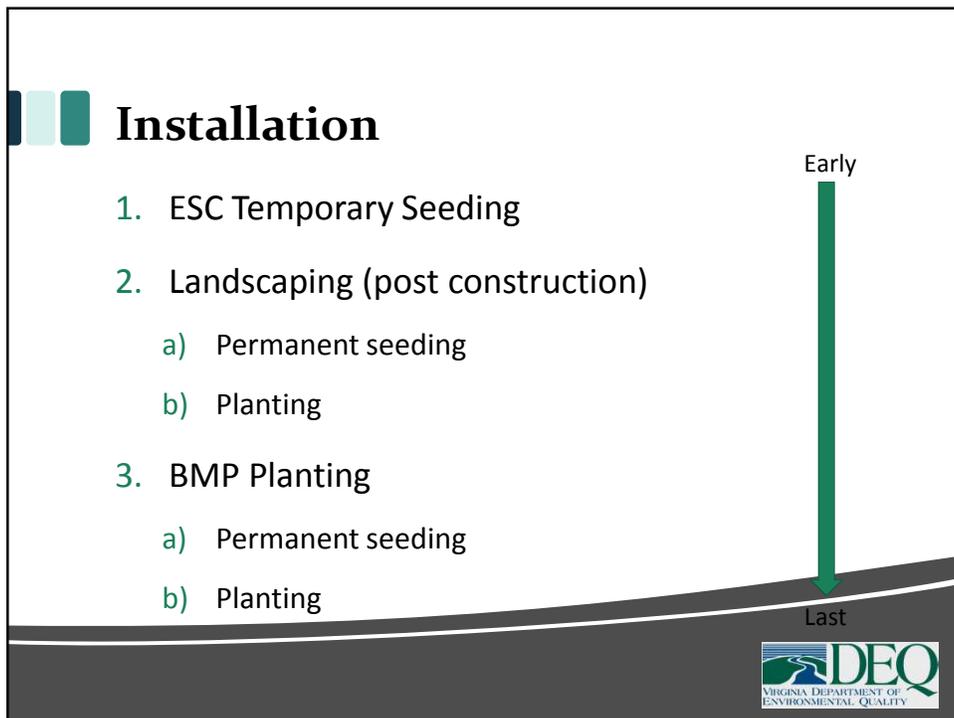




Module 6
Installation



The slide features a title 'Module 6' in a large, dark font, with 'Installation' below it in a smaller, teal font. To the left of the title are three vertical bars of increasing height and teal color. At the bottom right is the logo for the Virginia Department of Environmental Quality (DEQ), which includes a stylized landscape and the text 'DEQ VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY'.



Installation

1. ESC Temporary Seeding
2. Landscaping (post construction)
 - a) Permanent seeding
 - b) Planting
3. BMP Planting
 - a) Permanent seeding
 - b) Planting

Early

Last



This slide details the installation sequence. It lists three main steps: 1. ESC Temporary Seeding; 2. Landscaping (post construction), which is further divided into 'a) Permanent seeding' and 'b) Planting'; and 3. BMP Planting, also divided into 'a) Permanent seeding' and 'b) Planting'. A vertical green arrow on the right side points downwards, with 'Early' at the top and 'Last' at the bottom, indicating the chronological order of the tasks. The DEQ logo is located at the bottom right.

Soil Preparation

- Proper preparation of the soil for planting vegetation is critical in successful establishment.
- Removal of debris, roots and deleterious materials must be accomplished.
- A good growing medium must be provided for vegetation to survive.



Topsoiling

- Spread at a compacted depth of 2-4 inches
- Stockpiles should be located out of the work area and stabilized
- Allow sufficient time for spreading and bonding
- Not to be applied on subsoil of contrasting texture – clay topsoil/sandy subsoil



Preparation of a Good Seedbed

FOUR KEY COMPONENTS OF SOIL COMPOSITION

HARVEST™

Use of Soil Testing

Use the soil analysis and its recommendations to make any adjustments to:

- pH
- Nutrient

By using:

- Lime
- Fertilizer
- Compost
- Topsoil

Virginia Cooperative Extension Service **SOIL TEST REPORT**

VIRGINIA TECH and VIRGINIA STATE - VIRGINIA LAND GRANT UNIVERSITIES

LAB ID: 12744 02/04/07 911 UNIT: VPI & SU CAMPUS NOTES: X 17

HISTORY OF SAMPLED AREA

SAMPLE NO.	NO. OF AC.	SOIL TYPE	SLOPE	SOL. PROB. GROUP	LAST CROP		LAST CROPS FERTILIZATION, R/L		LAST TIME APPLICATION	
					NAME	YIELD	N	P, O, K, S	DATE	PL
LAWN		CLAYEY							NONE APPLIED	NONE APPLIED

LAB TEST RESULTS

SOIL pH	DISSOLV. Ca	P	K	Ca	Mg	ORG. N	NO ₃ -N	NO ₂ -N	Zn	Mn
	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm
7.3	38	514	2400	240	240					

FERTILIZER AND LIMESTONE RECOMMENDATIONS

*** PICK UP ***

CROP: LAWN MAINTENANCE - BLUEGRASS, FESCUE

#208: FERTILIZER RECOMMENDATIONS: USE ANY COMPLETE *TURF-TYPE* FERTILIZER ACCORDING TO THE INSTRUCTIONS IN THE ENCLOSED NOTE ON LAWN FERTILIZATION. (A COMPLETE FERTILIZER CONTAINS THE NUTRIENTS NITROGEN, PHOSPHORUS AND POTASSIUM.)

pH

- Determine pH before liming
- Range 0 - 14
- pH 7 neutral
- Virginia - statewide avg. pH 4.0 - 8.0
- Turfgrasses prefer 6.0 - 6.5

Substance	Approximate pH
battery acid	0
lemon juice	2
pure rain (H ₂ O in equilibrium with atmospheric CO ₂)	5.6
freshly distilled water	7
seawater	8
baking soda (NaHCO ₃ solution)	9
household ammonia (NH ₃)	11
household bleach (NaClO solution)	13
household lye (NaOH solution)	14
gastric fluid	1
carbonated beverages	2
vinegar	3
orange juice	4
beer	5
coffee	5
egg yolks	6
milk	7
blood	7.4
milk of magnesia (Mg(OH) ₂) solution	10

Stephen Lower

Application of Lime

- Lime is insoluble in water
- Must come in contact with the soil and be incorporated
- Should always be applied according to soil test

Soil Conditioners (fertilizer)

- Fertilizer and lime according to soil test
- Work amendments into soil 4 to 6 inches where possible



Compost

May need compost amendment

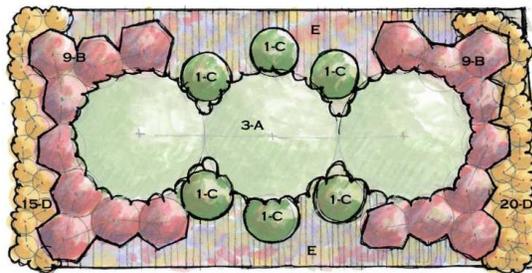
- Specification #4 ... section 6.5
 - Plant based
 - Biologically degraded
 - Meet specific analysis requirements (size, salinity C/N ratio, organic matter content, salinity)
- Construction sequence
 - Tilling (2-3 feet)
 - Incorporate in the soil
 - Lime/fertilize
 - ESC!

Preparation of a Good Seedbed

- Apply lime, and fertilizer during seedbed preparation and incorporate it into the soil
- Apply soil conditioners (organic matter) regardless of how vegetation is established (seed/sod)



Example Planting Plan for Raingarden in Coastal Plain for Bird Habitat (Sun/Part Shade)



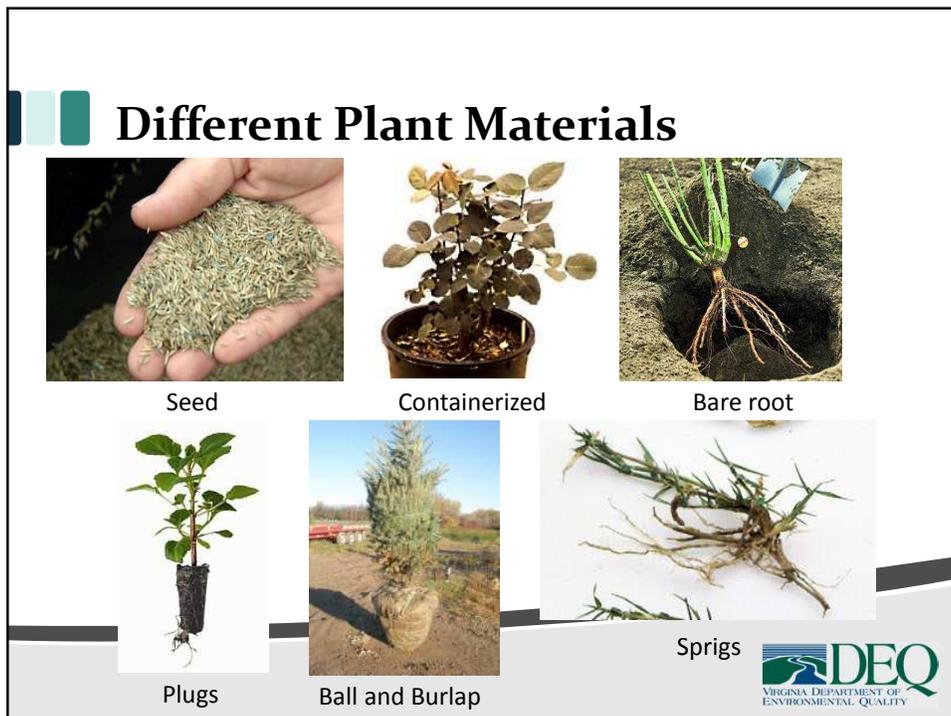
- A - *Ilex opaca* (American Holly), 8" o.c.
- B - *Vaccinium corymbosum* (Highbush Blueberry), 3' o.c.
- C - *Rhododendron viscosum* (Swamp Azalea), or *Cornus sericea* (Redosier Dogwood), or *Ilex glabra nana* (Dwarf Inkberry)
- D - *Hemerocallis hybrids* (Hybrid daylilies e.g. 'Happy Returns'), 12" o.c. or *Phlox subulata* (Thrift), 12" o.c.
- E - Wildflower Mix, 85 SF, sample mix:
 50% *Rudbeckia hirta* (Black-Eyed Susan)
 20% *Echinacea purpurea* (Purple Coneflower),
 20% *Liatris spicata* (Blazing-Star),
 10% *Asclepias tuberosa* (Butterfly Weed)

If using plants (vs. seed) for wildflowers, space 18" o.c. (19 - *Rudbeckia*, 8 - *Echinacea*, 8 - *Liatris*, 4 - *Asclepias*) <seeding is lower cost but higher maintenance option due to need for nurturing seedlings>
 note: o.c. = on center



FOR THE BIRDS RAINGARDEN
 450 SF
 Full Sun-Pt. Shade
 All zones
 Scale: 1/4"=1'





How to plant

PLANTING BALLED-&-BURLAPPED & CONTAINER-GROWN TREES

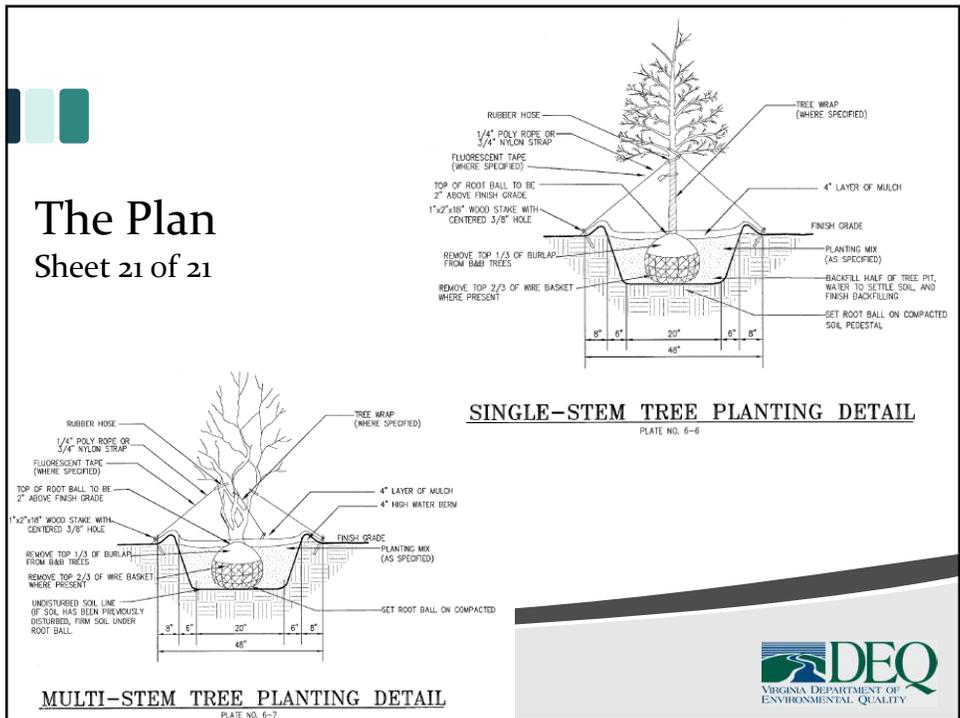
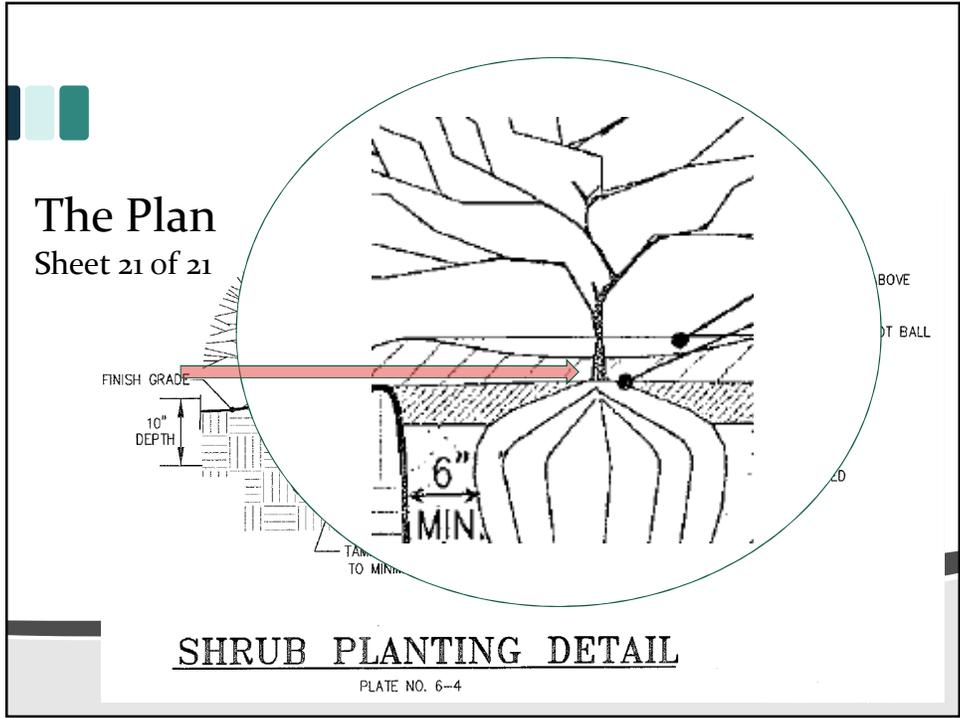
ESCH page III-378

How to plant

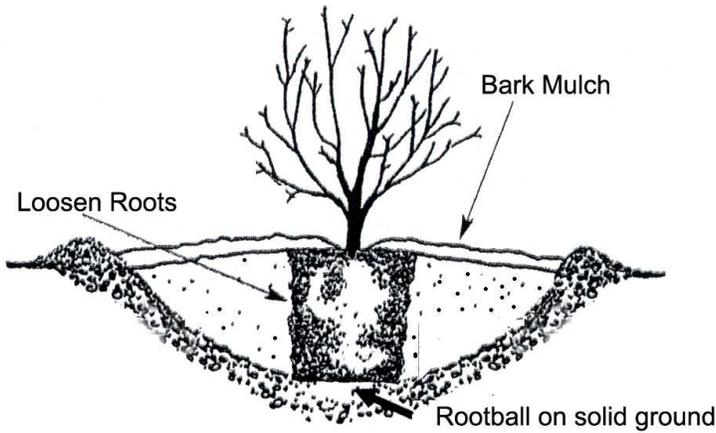
Plugs

PLANTING BARE-ROOTED SEEDLINGS

ESCH page III-376



Proper Way to Plant Ball and Burlap and Containerized Plants



Proper Way to Plant Ball and Burlap and Containerized Plants

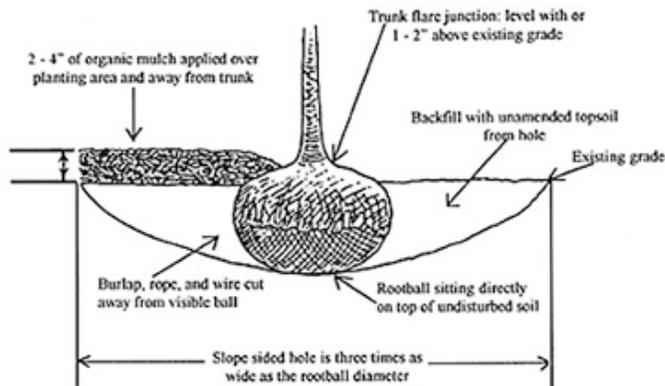
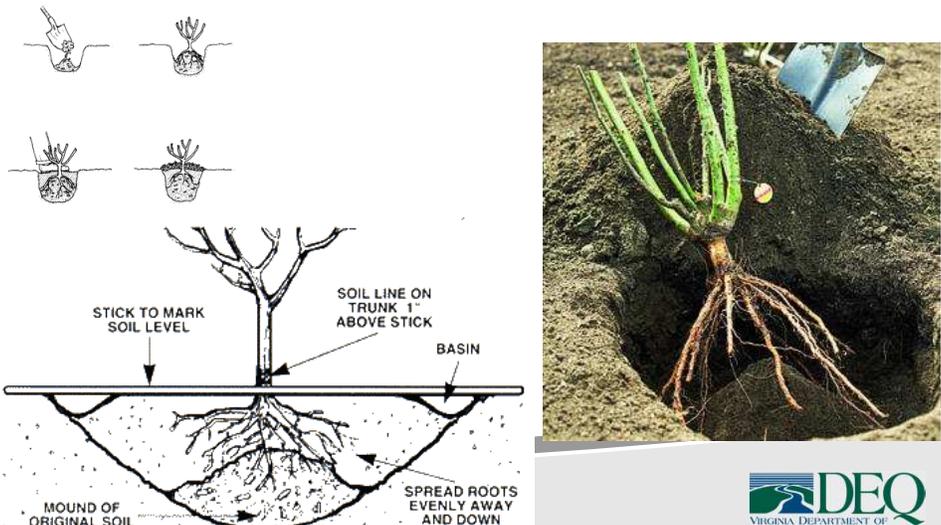


Diagram illustrating proper planting procedure for a tree or shrub.



Bare root planting



The diagram illustrates the steps of bare root planting. It shows four stages: 1. A hand holding a bare root plant. 2. The plant being placed in a hole. 3. The roots being spread out. 4. The soil being mounded back up. The main diagram shows a tree trunk with a stick inserted into the soil to mark the level. Labels include: 'STICK TO MARK SOIL LEVEL', 'SOIL LINE ON TRUNK 1" ABOVE STICK', 'BASIN', 'MOUND OF ORIGINAL SOIL', and 'SPREAD ROOTS EVENLY AWAY AND DOWN'. A photograph on the right shows a bare root plant being planted in a hole, with a blue shovel nearby.



Maintenance

- Need mulching
- May need irrigation
- Pruning
- Replacement



Mulch

Different types of mulch:

- Hardwood
- Pine straw (acidic)
- Cedar (may be acidic)
- Rubber
- County/commercial mulch facility (termites!)



Irrigation

- Native plants are more drought resistant, but may need first year irrigation to become established

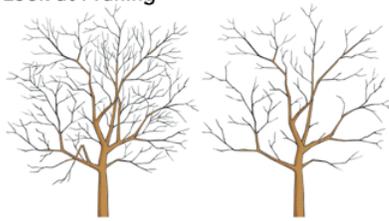


A Look at Pruning



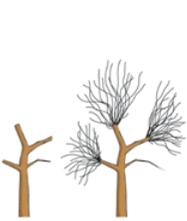
Correct cut

GOOD



Well-Pruned, Open Head

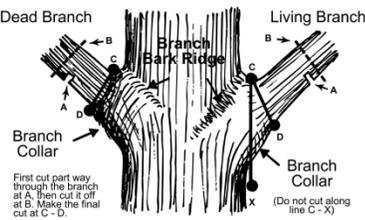
NOT GOOD



Topping produces clumps of uncontrolled growth

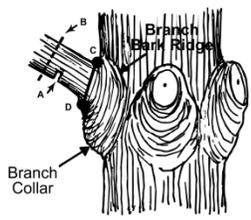
Pruning

Proper Pruning Principles



Hardwoods

First cut part way through the branch at A, then cut it off at B. Make the final cut at C - D.



Conifers

(Do not cut along line C - X)



