

Site Preparation

The Planting hole must be dug no deeper than the rootball as measured from the trunk flare to the bottom of the ball. Planting holes dug deeper than the rootball often result in the settling of the plant above the trunk flare and structural roots which can result in the rootball being planted too deep. Research shows that the fibrous or absorbing roots of most woody plants are usually found within the top 6 to 12 inches of soil, and since root development often extends beyond the canopy or dripline, it is now recommended that the planting area be loosened and aerated at least 3 to 5 times the diameter of the rootball.

Planting Hole Preparation

One of the most common errors in tree planting is that the rootball is either planted too deep or too high, both of which can cause serious problems.

To properly plant balled and burlapped (B&B) plant material, start by locating the point at which the trunk flare begins. In some cases, the trunk flare junction may be buried in the top of the rootball and it may be necessary to loosen the burlap at the top of the ball to properly locate the junction. Measuring from the trunk flare to the bottom of the ball will give the correct planting hole depth. {Alternatively, if the trunk flare is not well developed, the root ball can be probed for structural roots using a surveyor's chaining pin or similar tool. Generally the uppermost structural roots in the rootball should be planted within 1 - 3 inches of the soil surface, measured 2 - 5 inches from the trunk.

The integrity of the rootball should be maintained until it is secure in the hole. In the event that some of the soil falls away from the roots, proceed with the planting, taking care to ensure that the roots do not dry out from sun or wind. The planting hole size should be approximately 3 to 5 times the width of the ball and have sloping sides.

Setting the Plant

Carefully set the plant in the hole so that the trunk flare is at, or 1 to 2 inches above, the existing grade. Once the plant is properly placed, cut away and remove all visible rope and burlap. If the rootball appears in danger of completely collapsing, remove the rope and burlap from only the top one-third of the ball. Although still subject to debate, it is recommended that as much of the wire basket as possible, or at least the top 8 to 16 inches of the wire basket, be removed once the root ball is stable in the planting hole. Do not leave any protruding points of wire, which could cause injury.

Backfilling the Planting Hole

According to research, backfilling with soil dug from the planting hole is preferable to mixing the soil with large amounts of organic soil amendments such as peat moss, compost, etc. The addition of an organic soil amendment may be called for if the existing soil is of poor quality, such as excessively sandy or heavy clay soils or those consisting of undesirable fill material. Alternatively, quality topsoil, similar in texture to the existing soil, may be brought in and used for backfill.

While backfilling the hole, it has been customary to tamp the soil to avoid leaving large air pockets. However, this practice often results in the soil being packed so firmly as to drive out all the fine air spaces needed for a well-aerated soil. An alternative to tamping the soil would be to water the soil halfway through the backfill process and allow it to drain. When the water has drained away, resume backfilling and water again thoroughly. If the practice of tamping the soil is chosen, it should be done lightly so as to not compact the soil in the planting hole.

To complete the backfilling, smooth the surface soil and check to ensure that the trunk flare is completely exposed. (The structural roots should be within the top 3 inches of soil as measured 4 inches from the trunk.) Water the rootball and planting area immediately after backfilling.

Watering

Water is a critical factor to the successful establishment of landscape plants. Excessive or insufficient water will impede the formation and/or elongation of new roots. Immediately after planting, water the root ball and the planting area deeply. The root ball of newly planted trees must receive adequate water weekly during the entire first growing season, right up until dormancy in the fall, to become established. More frequent irrigation may be needed during the summer season or in times of extended drought. Rainfall alone may not provide the adequate, consistent moisture necessary for establishment. On larger caliper trees, weekly watering is necessary through the next several growing seasons. According to research, in the Northern part of the US, the establishment period, for recently transplanted trees, is approximately one year for each one inch of trunk caliper.

Fertilizin

Fertilization is not likely to be effective during the first growing season, as long as there is no nutrient deficiency. The addition of fertilizer and limestone should be made according to recommendations based on a soil test. Avoid placing water-soluble (quick-release) nitrogen fertilizer directly in the planting hole as this may cause injury to roots. If needed, a slow release or organic form of nitrogen could be mixed into the planting area or be applied on the soil surface around the tree basin.

Staking

While there are many opinions on the method and value of staking trees at planting time, most experts agree that staking is not necessary for all trees. Trunk strength, size of the canopy, wind direction and site traffic problems should all be considered before staking a tree. Research has shown that staked trees may develop a smaller root system and decreased trunk taper. If the rootball is stable in the soil, then it may not need to be staked. However, if the root ball is unstable and staking is required, try to attach stakes low on the trunk and allow some sway. In most instances, stakes should be removed after one growing season.

Mulching

Mulching is a cultural practice that can be of benefit in the landscape when done correctly. Mulching will reduce weeds, moderate soil temperatures, conserve soil moisture in the root zone, and add an aesthetic quality to the landscape. However, improper mulching can impair plant health and may lead to the decline of the plant material.

Organic mulch should be placed in a wide band around the plant, approximately 3 times the diameter of the rootball, over the root zone and no more than 2 to 4 inches deep, tapering to, but not touching, the trunk. Mulch piled up against the trunk may cause rotting of the bark and can create entry points for insects or disease organisms. Field mice may also inhabit deep mulch and feed on the bark. AVOID "VOLCANO MULCHING".

Pruning

After transplanting, prune only broken or damaged branches. Top pruning to compensate for root loss is no longer recommended. It is important to leave as much foliage on the tree as possible because carbohydrates and other products produced by photosynthesis in the leaves are necessary for root system regeneration and development.

Tree Wrapping

The bark on a tree or shrub is as important as skin to an animal. It acts as a barrier to exclude insects and disease organisms from the vascular system, which lies directly under the bark. Some bark injuries may occur because of damage from the sun (sunscald) or temperature extremes (frost cracks). For many years, it has been a common practice to use tree wrap on newly planted or thin-barked trees in an effort to reduce sun or temperature damage to the bark.

Research has found that some tree wraps may not provide the protection that was originally intended. In experiments using plastic tree guards on dogwoods, large numbers of dogwood borers were found under the guards while few were found in trees without guards. In addition, some tree wraps were found to retain excess moisture beneath the wrap. This may encourage fungal or bacterial growth, especially if there were pre-existing wounds in the trunk.

If tree wrap is to be used, it is recommended that appropriate material be selected, checked frequently, and the wrap be removed during periods of active growth.

It is hoped that these guidelines, together with the selection of appropriate and healthy plant material, will be of help in promoting improved plant health in the landscape

Tree and Shrub Planting Notes

New England Erosion Control/Restoration Mix For Detention Basins and Moist Sites*

Botanical Name	Common Name	Ind.	
Agrostis perennans	Upland Bentgrass	FACU	
Agrostis stolonifera	Creeping Bentgrass	FACW	
Andropogon gerardii	Big Bluestem, Niagra	FAC	
Aster novae-angliae	New England Aster	FACW-	
Carex vulpinoidea	Fox Sedge	OBL	
Elymus verginicus	Virginia Wild Rye	FACW-	
Eupatorium perfoliatum	Boneset	FACW	
Euthamia graminifolia (Solidago g.)	Grass Leaved Goldenrod	FAC	
Festuca rubra	Creeping Red Fescue	FACU	
Jurcus effusus	Soft Rush	FACW+	
Onoclea sensibilis	Sensitive Fern	FACW	
Panicum virgatum	Switch Grass	FAC	
Schizachyrium scoparium	Little Bluestem	FACU	
Scirpus atrovirens	Green Bulrush	OBL	
Scirpus cyperinus	Wool Grass	FACW	
Verbena hatata	Blue Vervain	FACW	

New England Erosion Control/Restoration Mix For Detention Basins and Moist Sites contains a selection of native grasses and wildflowers designed to colonize recently disturbed sites where quick growth of vegetation is desired to stabilize the soil surface. It is an excellent seed mix for ecologically appropriate restorations on moist sites that require quick stabilization as well as long-term establishment of native vegetation. This mix is particularly appropriate for detention basins that do not normally hold standing water. Some plants in this mix can tolerate infrequent inundation, but not constant flooding. Always apply on clean bare soil. The mix may be applied by hydro-seeding, by mechanical spreader, or on small sites it can be spread by hand. Lightly rake, or roll to ensure proper soil-seed contact. Best results are obtained with a Spring or early Fall seeding. Late Spring and Summer seeding will benefit with a light mulching of clean weed-free straw to conserve moisture. If conditions are drier than usual. watering may be required. Late Fall and Winter dormant seeding require an increase in the seeding rate. Fertilization is not recommended. Preparation of a clean weed free soil surface is necessary for optimal results.

*From New England Wetland Plants, Amherst, MA Catalog. Exact seed mix makeup may vary.

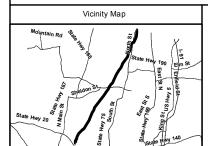
Planting Schedule

Habitat	Cover type	Quantity	Abbrev.	Scientific Name	Common Name	Size
Wetland	Trees	1,466	Qb	Quercus bicolor	Swamp white oak	2' - 3'
		1,466	Ns_1	Quercus palustris	Pin Oak	2' - 3'
		1,466	Sn	Salix nigra	Black willow	2' - 3'
	Shrubs	733	Sc	Sambucus candensis	Elderberry	2' - 3'
		733	lv	Ilex verticillata	Winterberry holly	2' - 3'
		733	Cr	Cornus amomum	Silky dogwood	2' - 3'
				New England Erosion		
	Seed mixes*	1,586	Nem		Control/Restoration Mix for	
					Detention Basins and Moist Sites*	
	*Available through	New England Wetland	Dlante Amhoret	MA New England Fracion Co	entrol/Restoration Mix for moist site	to he

*Available through New England Wetland Plants, Amherst, MA. New England Erosion Control/Restoration Mix for moist site to broadcast throughout sutiable portions of the wetland mitigation area at a rate of 35 pounds per acre.

Trees planted at 400 per acre density Shrubs planted at 200 per acre density

Plant locations in the field will be determined by the supervising wetland scientist.





Tennessee Gas Pipeline Company

CT Expansion Project

Forested Wetland Restoration Planting Plans
Connecticut



Trunk flare junction: level with or

1 - 2" above existing grade

Rootball sitting directly

Slope sided hole is three times as

wide as the rootball diameter

Backfill with unamended topsoil

2 - 4" of organic mulch applied over

planting area and away from trunk

Burlap, rope, and wire cut

away from visible ball

Diagram illustrating proper planting procedure for a tree or shrub.

April 23, 2015

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