



**GUILFORD COUNTY
ENVIRONMENTAL
BULLETIN**

**STREAM BUFFER
RESTORATION**

A stream buffer is a natural or vegetated area adjacent to a stream, river, lake, etc. through which stormwater runoff flows in a diffuse manner. Stream buffers prevent runoff from becoming channelized and provide for infiltration of the runoff and the filtering of pollutants. Stream buffer width is measured landward from the normal pool elevation of impoundments and from the top of bank of each side of streams and rivers. Section 7-1.8 of the Guilford County Development Ordinance outlines the requirements for stream buffers.

The Ordinance requires stream buffers located in the High Point, Jamestown, and Lower Randleman Lake Watersheds to have the first thirty (30) feet remain an undisturbed area of vegetation. The County refers to this thirty feet undisturbed area as Zone 1 of the stream buffer. When Zone 1 of a stream buffer is disturbed the responsible party must restore it. This bulletin is aimed at outlining general criteria that must be incorporated when restoring Zone 1 of a stream buffer.

Restoration is intended to return the stream buffer back to a natural setting with native plants. It is further intended to deter the destruction of these natural undisturbed areas in the future. Once a stream buffer has been destroyed it shall be placed back in a timely fashion. Guilford County requires that a stream buffer restoration plan be prepared by a landscape architect and submitted to the Watershed Protection Engineer within 30 days of the stream buffer violation notification. Upon stream buffer restoration plan approval by the County, the work shall be completed within 15 days. The County may grant additional time for plantings if climatic conditions could preclude successful implementation. Any lack of cooperation by the disturbing party will result in enforcement action by the County, with penalties assessed up to \$5000 per day until the stream buffer restoration is complete.

Below Guilford County has provided a master list of plants of which 10-12 species of trees and shrubs shall be selected and used for restoration. There shall be a minimum of three (3) canopy trees, nine (9) understory trees, and sixteen (16) shrubs per one hundred (100) lineal feet of stream buffer. The species of trees and shrubs selected shall blend with the surrounding native vegetation, incorporating many species found in adjacent undisturbed areas. Canopy trees must be a minimum height of eight (8) feet and two (2) inches in caliper, measured six (6) inches above grade, when planted. When mature, a canopy tree should be at least forty (40) feet high and have a crown width of thirty (30) feet or greater. Understory trees must be a minimum of four (4) feet high and one (1) inch in caliper, measured six (6) inches above grade, when planted. Shrubs shall be installed at a minimum size of eighteen (18) inches, spread or height. A 4 - 6 inch layer of hardwood mulch is required under the plantings and over the remainder of the stream buffer. After these remedial actions are complete it will take many years for the vegetation to mature and become advantageous for water quality.

MASTER LIST OF PLANTS

Medium to Large Trees

<u>Scientific Name</u>	<u>Common Name</u>	<u>Scientific Name</u>	<u>Common Name</u>
<i>Acer barbatum</i>	Southern sugar maple	<i>Platanus occidentalis</i>	sycamore
<i>Acer rubrum</i>	red maple	<i>Prunus serotina</i>	black cherry
<i>Acer saccharinum</i>	silver maple	<i>Quercus alba</i>	white oak
<i>Betula nigra</i>	river birch	<i>Quercus bicolor</i>	swamp white oak
<i>Carya cordiformis</i>	bitternut hickory	<i>Quercus coccinea</i>	scarlet oak
<i>Carya glabra</i>	pignut hickory	<i>Quercus falcate</i>	Southern red oak
<i>Carya ovata</i>	shagbark hickory	<i>Quercus pagoda</i>	cherrybark oak
<i>Carya tomentosa</i>	mockernut hickory	<i>Quercus lyrata</i>	overcup oak
<i>Celtis laevigata</i>	sugarberry, hackberry	<i>Quercus marilandica</i>	black jack oak
<i>Diospyros virginiana</i>	persimmon	<i>Quercus michauxii</i>	swamp chestnut oak
<i>Fagus grandifolia</i>	American beech	<i>Quercus nigra</i>	water oak
<i>Fraxinus americana</i>	white ash	<i>Quercus phellos</i>	willow oak
<i>Fraxinus pennsylvanica</i>	green ash	<i>Quercus rubra</i>	Northern red oak
<i>Fraxinus profunda</i>	pumpkin ash, red ash	<i>Quercus shumardii</i>	shumard oak
<i>Juglans nigra</i>	black walnut	<i>Quercus stellata</i>	post oak
<i>Liriodendron tulipifera</i>	tulip poplar, yellow poplar	<i>Quercus velutina</i>	black oak
<i>Magnolia acuminata</i>	cucumber magnolia	<i>Tilia American var. heterophylla</i>	basswood
<i>Nyssa sylvatica</i>	black gum	<i>Tsuga caroliniana</i>	Carolina hemlock
<i>Pinus echinata</i>	shortleaf pine	<i>Ulmus alata</i>	winged elm
<i>Pinus palustris</i>	longleaf pine	<i>Ulmus americana</i>	American elm
<i>Pinus taeda</i>	loblolly pine		

Small to Medium Trees

<u>Scientific Name</u>	<u>Common Name</u>	<u>Scientific Name</u>	<u>Common</u>
<i>Acer negundo</i>	box elder	<u>Name</u>	
<i>Asimina triloba</i>	pawpaw	<i>Malus angustifolia</i>	wild crabapple
<i>Carpinus caroliniana</i>	ironwood, American hornbe	<i>Malus floribunda</i>	floribunda
<i>Cercis canadensis</i>	eastern redbud	crabapple	
<i>Chionanthus virginicus</i>	white fringetree, old man's b	<i>Morus rubra</i>	red mulberry
<i>Cornus florida</i>	flowering dogwood	<i>Ostrya virginiana</i>	Eastern hop-
<i>Cotinus coggygria</i>	smokebush	hornbeam	
<i>Cotinus obovatus</i>	smoke tree	<i>Pinus palustris</i>	longleaf pine
<i>Halesia tetraptera (H. carolina)</i>	common silverbell	<i>Prunus americana</i>	American wild
<i>Hamamelis virginiana</i>	witchhazel	plum	
<i>Ilex opaca</i>	American holly	<i>Quercus acutissima</i>	sawtooth oak
<i>Juniperus virginiana</i>	Eastern red cedar	<i>Quercus stellata</i>	post oak
<i>Liquidambar styraciflua</i>	sweetgum	<i>Rhus glabra</i>	smooth sumac
<i>Magnolia grandiflora</i>	southern magnolia	<i>Salix caroliniana</i>	swamp willow
<i>Magnolia tripetala</i>	umbrella tree	<i>Salix nigra</i>	black willow
<i>Magnolia virginiana</i>	sweetbay magnolia	<i>Sassafras albidum</i>	sassafras
		<i>Symplocos tinctoria</i>	horse-sugar,
		sweetleaf	
		<i>Tilia cordata</i>	littleleaf linden
		<i>Ulmus rubra</i>	slippery elm

Shrubs

Scientific Name

Aesculus sylvatica
Aronia arbutifolia
Baccharis halimifolia
Callicarpa americana
Callicarpa dichroma
Calycanthus floridus
Castanea pumila
Ceanothus americanus
Cephalanthus occidentalis
Comptonia peregrina
Cornus amomum
Corylus americana
Eudnymus alata
Euonymus americanus
Gaylussacia frondosa
Hamamelis virginiana
Hydrangea arborescens
Ilex decidua
Ilex verticillata
Itea virginica
Leucothoe fontanesiana
Leucothoe racemosa
Lindera benzoin
Lyonia ligustrina

Common Name

painted buckeye
red chokeberry
silverling
American beautyberry
Purple beautyberry
sweet-shrub
Allegheny chinkapin
New Jersey tea
buttonbush
sweet fern
silky dogwood
American hazel, hazelnut
Winged eudnymus
hearts-a-bustin', strawberry bush
dangleberry
witch hazel
wild hydrangea
deciduous holly, possumhaw
winterberry
Virginia willow
dog-hobble
fetterbush
spicebush
northern maleberry

Scientific Name

Rhododendron catawbiense
Rhododendron maximum
Rhododendron periclymenoides
Rhus copallina
Rosa Carolina

Rosa palustris
Rubus allegheniensis
Rubus cuneifolius
Salix humilis
Salix sericea
Sambucus canadensis
Spiraea tomentosa
Stewartia ovata
Styrax grandifolia
Vaccinium arboreum
Vaccinium corymbosum
Vaccinium stamineum
Vaccinium pallidum
Viburnum dentatum

Viburnum nudum
Viburnum prunifolium
Viburnum rafinesquianum
Viburnum rufidulum
Xanthorhiza simplicissima

Common Name

Catawba rhododendron
rosebay rhododendron
pinxter flower, wild azalea
winged sumac
pasture rose, Carolina
 rose
swamp rose
Alleghany blackberry
blackberry
prairie willow
silky willow
common elderberry
meadowsweet
mountain camellia
bigleaf snowbell
sparkleberry
highbush blueberry
deerberry, gooseberry
lowbush blueberry
Southern arrowwood
 viburnum
possumhaw viburnum
blackhaw viburnum
downy arrowwood
rusty blackhaw
yellowroot