



Appendix C

Vegetation and Alabama Native Plant List



C.1 Vegetation Report

A Vegetation Report is required as part of the Storm Water Management Plan. The Storm Water Management Plan Checklist provided in Appendix B lists the required elements of the vegetation report. These include the proposed Green Infrastructure Practice (GIP) template(s), delineation of planting area(s), and specific information on plant types, planting density, sequence, post-nursery care, and initial maintenance. Follow the checklist to ensure that a fully vegetation report is provided. This appendix provides policies for design of the planting areas on the property and preparation of the vegetation report.

C.1.1 Planting Area Definition

The planting area is defined as the portion(s) of the property that will be disturbed by construction events and are intended to permanently remain in a pervious, vegetated condition after construction has ended.

C.1.2 Requirements

Minimum requirements for the vegetation report are listed below.

1. The vegetation report is a scaled construction drawing (typically at 1" = 20'), which accurately locates and represents the plant materials used within the planting areas, including within each GIP proposed for the land development.
2. The vegetation report shall be prepared by a qualified design professional. This is, ideally, a landscape architect or possibly a landscape contractor or management company, provided that they understand GIPs, storm water Best Management Practices (BMPs) and Low Impact Development (LID) storm water control through vegetation and soil management.
3. The vegetation report must address 100% of the planting area. Very specific plant and soil information will be required for reforestation areas, stream buffers, soil restoration areas, GIPs, and BMPs, as specified in the policies below. More general information can be provided in other pervious areas.
4. Representation of plant material shall be to scale and depicted at the mature width or spread.
5. For the planting area outside of reforestation areas, stream buffers, soil restoration areas, and vegetated GIPs and BMPs, the vegetation report shall, at a minimum, specify the general vegetation template (i.e., preserved forest, turf, meadow, ornamental landscaped, etc.), installation schedule, and sequence.
6. For reforestation areas, stream buffers, soil restoration areas, and vegetated GIPs and BMPs, the vegetation report shall include, at a minimum:
 - a. Accurate location and representation of all vegetation to be installed, including a plant key that identifies all plant material to be used. The symbols used in the key shall correlate with the plant list. Plant groupings are usually shown by an identifying symbol and the number of plants in that particular group.
 - b. A plant list, which shall include scientific name, common name, quantity, nursery container size, container type (e.g., bare root, b&b, plug, container, etc.), appropriate planting season, and other information in accordance with the GIP facility-specific planting section and landscape industry standards.
 - c. List any other necessary information to communicate special construction requirements, materials, or methods such as specific plants that must be field located or approved by the designer and size or form matching of an important plant grouping.



7. For the entire planting area, the vegetation report shall include, at a minimum:
 - a. Soil media specifications. If topsoil is specified, indicate the topsoil stockpile location, including source of the topsoil if imported to the site.
 - b. Construction notes with soil/plant installation sequencing and instructions, indication of how installed plants will be protected from construction activities, plant maintenance requirements, and a watering plan denoting the source of water for plant irrigation, how watering will occur, and the responsible party for watering and maintenance.
 - c. A description of the landscape contractor's responsibilities.
 - d. A minimum two-year warranty period that stipulates requirements for plant survival/replacement.

C.2 Plant Establishment and Maintenance Requirements

The following policies include requirements for the installation, establishment and maintenance of vegetation installed in the planting area. Specific requirements for restoration areas, stream buffers, soil restoration areas, and vegetated GIPs and BMPs are noted as such.

1. **Plant Establishment:** Site designers shall use the guidance in this appendix and the GIP and BMP specifications established in Chapter 6 to design and establish on-site vegetation in the planting area, in accordance with vegetation report in the approved Storm Water Management Plan. Site designers and construction contractors are encouraged to use other resources for guidance as needed to ensure the establishment of a healthy, growing planting area.
2. **Bare areas prohibited.** Bare soil is prohibited in the planting area as eroding soil can discharge to GIPs, the on-site drainage system, and downstream waterbodies. Clogging of the GIP or drainage system, and sediment pollution in waterbodies can result. Permanent vegetated or mulch cover shall be established as soon as bare areas are noticed.
3. **Irrigation:** Planting design should minimize the need for a permanent irrigation system; however, irrigation is an important aspect of any landscape establishment. New plantings need two to three years of irrigation to become established, but this varies by location and seasonal conditions. Temporary irrigation systems, hand watering, or alternative methods of irrigation must be considered, especially on construction sites. After that period, native plants will need little to no supplemental irrigation. Where permanent irrigation systems are utilized, they shall include a weather-based controller to avoid watering during wet weather. Note that soil in vegetated GIPs and soil restoration areas are formulated (or amended if the latter) to infiltrate, thus water may drain rapidly into the GIP. For these areas, irrigation application rates must be properly designed to avoid overwatering yet prevent potential discharges via underdrains.
4. **Staking:** Provide extra support to trees, especially in high wind areas. They shall be securely staked during establishment and inspected once or twice a year and following storm events. Stakes shall be removed as soon as they are no longer needed to stabilize the tree (between one and two years).
5. **Weeding:** Weeds compete with plants for nutrients, water and sunlight, so it is best to remove them before they can negatively impact the desired vegetation. Weeds shall be regularly removed, with their roots, by hand pulling or with manual pincer-type weeding tools. In vegetated GIPs and soil restoration areas, care shall be given to avoid unnecessary compaction of soils while weeding.



6. **Debris removal:** Leaf litter and trimmings present during maintenance should be removed from soil restoration areas and vegetated GIPs rather than left to decompose as nitrogen levels can be affected and can change the function of the GIP.
7. **Mulching:** Where mulch is specified, mulch should be applied to a depth of one to two-inches to retain moisture, prevent erosion, and suppress weed growth. Reapply annually as the mulch breaks down. Use a compost mulch and avoid bark mulches that can float during storm events. **Synthetic mulches and colored natural mulches are prohibited in GIPs and BMPs.**
8. **Fertilization:** The design for plantings shall minimize the need for herbicides, fertilizers, pesticides, or soil amendments at any time before, during, and after construction and on a long-term basis. Natural fertilization can often be done by applying apply compost mulch once per year in spring or fall, or by spraying compost tea once per year between March and June. Consult a local landscape contractor or nursery for more information on natural fertilization approaches.
9. **Avoiding washout during construction:** Slope stabilization methods (such as planted erosion control mats or fiber rolls) shall be utilized for slopes susceptible to washout. Erosion control mats and fabrics shall also be utilized to protect channels that are susceptible to washing out. Flows shall be diverted temporarily from seeded areas until they are stabilized. Aquatic and safety benches shall be stabilized with emergent wetland plants and wet seed mixes.
10. **Plant Replacement:** Plants that do not survive the two-year warranty period must be replaced to avoid spreading disease, soil erosion, establishment of weeds, and reduced GIP function. It is strongly recommended that plants be checked and replaced in the first year after installation, and then again before the two-year warranty period ends. Before replacing with the same species, determine if another species may be better suited to the conditions.

C.3 Plant Templates

The plant template refers to the form and combination of native trees, shrubs, and perennial ground covers that maintain the appearance and function of the planting area, and more specifically within vegetated GIPs. The choice of which plant template to use depends on the scale of the area or GIP, the context of the site in the urban environment, the filter depth, the desired landscape amenities, and the future owner's capability to maintain the landscape.

In general, the vegetative goal for a vegetated infiltration GIP, such as a bioretention area, is to cover up the filter surface with vegetation in a short amount of time with plants that are sustainable throughout the life of the GIP. This means that the herbaceous layer is equally or more important than widely-spaced trees and shrubs. The goal for other types of GIPs is to stabilize the soil surface and provide other site-specific benefits.

General plant templates are described below.

- ❖ **Ornamental.** This option includes perennials, sedges, grasses, shrubs, and/or trees in a mass bed planting. This template is recommended for commercial sites where visibility is important. This template requires maintenance much like traditional landscape beds.



❖ **Meadow.** This is a lower maintenance approach that focuses on the herbaceous layer and may resemble a wildflower meadow or prairie. The goal is to establish a more natural look that may be appropriate if the facility is in a lower maintenance area (e.g., further from buildings and parking lots). Shrubs and trees may be incorporated. Erosion control matting can be used in lieu of the conventional mulch layer.

❖ **Reforestation.** This option plants a variety of tree seedlings and saplings where the species distribution is modeled on characteristics of existing local forest ecosystems. Trees are planted in groups with the goal of establishing a mature forest canopy. This template is appropriate for large bioretention areas located at wooded edges, where a wooded buffer is desired, or where the reforestation GIP (see Chapter 6, Section 6.9) is used.

Below: Implementation of a meadow plant template.
(Courtesy: RHS Garden Harlow Carr, UK)



C.4 Plant Layout

C.4.1 Quantity and Spacing

Plant quantity is calculated based on the square feet needed per plant, which is based on whether you plan to arrange plants on a rectangular or triangular or other grid pattern. For rectangular spacing, the space between plants and between rows is the same. Triangular spacing is generally more visually appealing as it creates a mass-planting look and plants are equally spaced within rows, but the rows are staggered. An example of a triangular spacing layout is shown in **Figure C-1** and spacing requirements are shown in **Table C-1**. Refer also to the two design examples below from the *Low Impact Development Handbook for the State of Alabama*.

Figure C-1. Typical Plant Spacing (X equals the distance on center (O.C.) of plant species.)

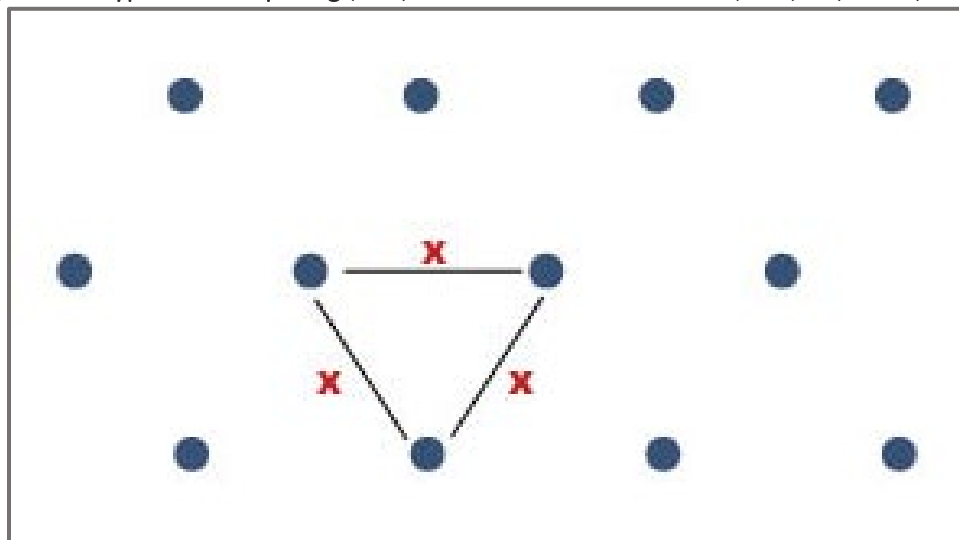




Table C-1. Plant Spacing for Perennials, Grasses, Sedges, and Shrubs

Spacing (O.C.)	Plants per 100 sq. ft.
18"	51.2
24"	29
28"	22
30"	18.5
36"	12.8
42"	10
4'	7.23
5'	4.61
6'	3.2
8'	1.8

C.4.2 General Design Guidance

Vegetation design guidelines include the following:

- ❖ Mature plant sizes should be considered, both for aesthetics and land cover for the GIP.
- ❖ Consider the direction a rain garden will be viewed. If it will be viewed from one side, i.e., a heavily-trafficked sidewalk, it may be appropriate to place taller plants in the back. If the GIP will be viewed from two or more sides, taller plants should be placed in the center.
- ❖ Plants are usually clustered in groups of three, five, or seven.
- ❖ Be sure to include space between different plantings for maintenance access as well as any reseeding of perennial plants.



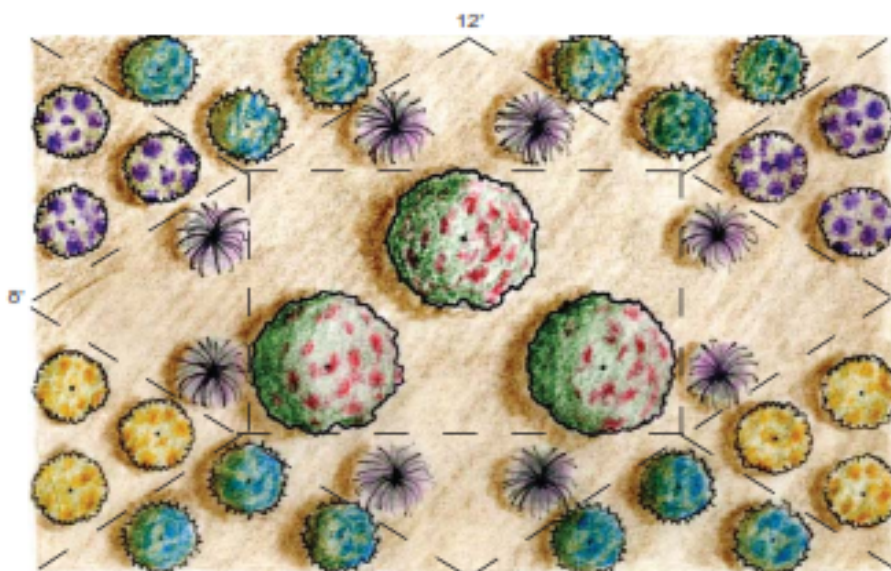
Figure C-2. Vegetation Design Example 1 – Standard Bioretention (Source: Alabama LID Handbook)

Vegetation Design Example 1 Standard Rain Garden

This rain garden vegetation plan was designed for a front yard with showy plants and seasonal interest. The design calls for a 3" ponding depth and is an 8' x 12' (96 ft²) rectangle on a triangular spacing pattern. The slope and buffer are planted with repurposed turfgrass.



Planting Diagram (ft²)



Plant List














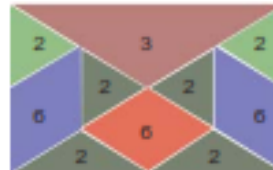
Plant Common Name	Spacing (ft)	Area (ft ²)	ft ² /plant	Quantity
 crimsoneyed rose mallow	3	24	7.8	3
 muhly grass	2	6	3.4	2
 muhly grass	2	6	3.4	2
 muhly grass	2	6	3.4	2
 muhly grass	2	6	3.4	2
 purple coneflower	1.5	6	2	3
 purple coneflower	1.5	6	2	3
 orange coneflower	1.5	6	2	3
 orange coneflower	1.5	6	2	3
 Stoke's aster	1.5	6	2	3
 Stoke's aster	1.5	6	2	3
 Stoke's aster	1.5	6	2	3
 Stoke's aster	1.5	6	2	3



Figure C-3. Vegetation Design Example 2 – Wet Bioretention (Source: Alabama LID Handbook)

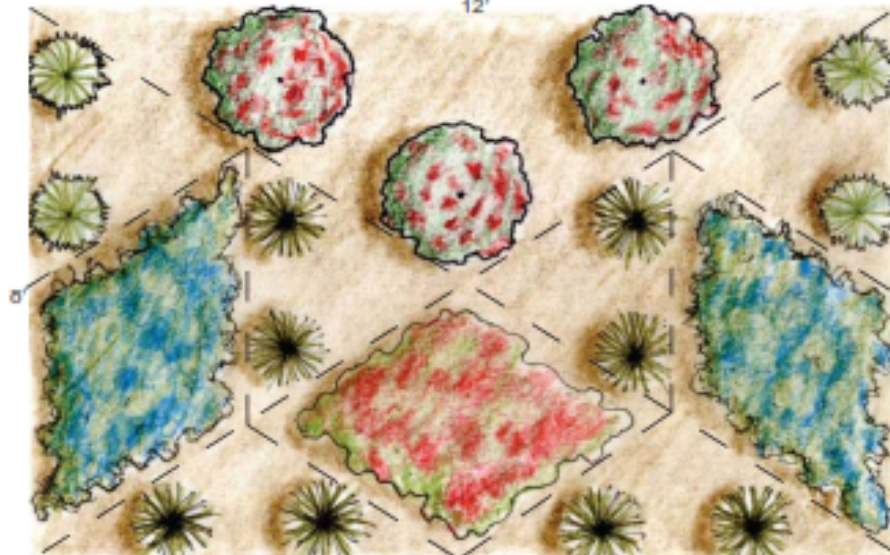
Vegetation Design Example 2 Wet Rain Garden

This rain garden vegetation plan was designed for a residential back yard. The design calls for a 3" ponding depth and is an 8' x 12' (96 ft²) rectangle on a triangular spacing pattern with standard (level) topography throughout the rain garden. The slope and buffer of this rain garden are planted with muhly grass.



Planting Diagram (ft²)

12'



Plant List

Plant Common Name	Spacing (ft)	Area (ft ²)	ft ² / plant	Quantity
common rush	2	6	3.4	2
common rush	2	6	3.4	2
common rush	2	6	3.4	2
common rush	2	6	3.4	2
cardinal flower	1.5	12	2	6
cardinal flower	1.5	12	2	6
sweetflag	2	6	3.4	2
sweetflag	2	6	3.4	2
swamp milkweed	1.5	12	2	6
scarlet rose mallow	3	2	7.8	3



C.5 Plant Species Selection

The selection of appropriate species and cultivars is important to maintaining a low-maintenance, attractive, and functional GIP. Native plant species are preferred over non-native species, but some ornamental species may be used for landscaping effect if they are not aggressive or invasive.

Once established, plants in landscaped areas of GIPs should require little maintenance. Native plants are recommended in GIPs because they are low maintenance, sustainable, and already adapted to environmental conditions experienced in these practices. Native herbaceous perennial plants usually reseed themselves or spread by vegetative offsets to maintain landscape cover over time. Although native seed plantings may be slow to establish and more expensive compared to nonnative plants, their persistence makes them a cost-effective choice. In addition to experiencing repeated flood events in GIPs, plants may also be exposed to extended periods of drying. Drought tolerant plants can maintain photosynthesis and transpiration during a drought and this allows them to continue to efficiently produce carbohydrates necessary for growth, which correlates to plant survival and recovery following a drought. All plants need irrigation until established or if there is a severe drought, but once established, these plants should rely solely on storm water received.

Many nurseries may grow native plant cultivars instead of the original plant species, which could result in a loss of genetic diversity. Consider goals of the site or project to determine whether a straight species or a cultivar is appropriate. In a constructed storm water wetland, genetic diversity and species richness can be prioritized to enhance habitat, insect, and animal diversity. However, in commercial or residential settings, native plant cultivars may be preferred due to specific ornamental qualities they possess. Practices such as bioretention areas, rain gardens, or swales may also utilize a cultivar due to sight or sizing constraints of the site. Constructed storm water wetlands and wet swales require plants that are tolerant of flooded conditions. GIPs are in high visibility areas, especially in municipal, commercial, or residential community settings, so plants in these practices need to maintain visual quality.

In addition to using landscape professionals and knowledge of specific species and their adaptations, plant trials or screenings of vegetation in GIPs can also provide sound plant recommendations. Specific soil types and textures as well as local microclimates on site may affect performance of vegetation.

C.6 Native Plant Species Lists

Native plant species are preferred over non-native species, but some ornamental species may be used for landscaping effect if they are not aggressive or invasive. **Tables C-2 to C-11** list native plant species suitable for use in the GIP indicated. These species may also be used in other applications. Refer to additional information in the *Low Impact Development Handbook for the State of Alabama*, the Alabama Plant Atlas (www.floraofalabama.org) and the Alabama Cooperative Extension System (www.aces.edu).



Table C-2. Popular Native Perennials for Bioretention – Full Sun

Latin Name	Common Name	Size	Spacing	Moisture	Color	Height
<i>Asclepias incarnata</i>	Marsh milkweed	Plugs – 1 gal.	1 plant/24” o.c.	Wet	Pink	3-4’
<i>Asclepias longifolia</i>	Longleaf milkweed	Plugs – 1 gal.	1 plant/18” o.c.	Wet- Moist	White	2-4’
<i>Chamaecrista fasciculata</i>	Partridge pea	Plugs – 1 gal.	1 plant/18” o.c.	Dry	Yellow	1-2’
<i>Conoclinium coelestinum</i>	Mist flower	Plugs – 1 gal.	1 plant/18” o.c.	Moist-dry	Blue	1-2’
<i>Coreopsis lanceolata</i>	Lance-leaf coreopsis	Plugs – 1 gal.	1 plant/18” o.c.	Moist-dry	Yellow	6-8’
<i>Echinacea purpurea</i>	Purple coneflower	Plugs – 1 gal.	1 plant/18” o.c.	Moist-dry	Purple	3-4’
<i>Eupatorium purpureum</i>	Sweet Joe-Pye Weed	Plugs – 1 gal.	1 plant/24” o.c.	Wet- moist	Purple	3-6’
<i>Impatiens capensis</i>	Jewelweed	Plugs – 1 gal.	1 plant/18” o.c.	Moist	Blue- violet	3’
<i>Iris virginica</i>	Flag Iris	Plugs – 1 gal.	1 plant/18” o.c.	Moist- Wet	Blue	2’
<i>Liatris aspera</i>	Rough blazingstar	Plugs – 1 gal.	1 plant/18” o.c.	Moist-dry	Purple	2-5’
<i>Lobelia cardinalis</i>	Cardinal flower	Plugs – 1 gal.	1 plant/18” o.c.	Wet- moist	Red	2-4’
<i>Lobelia puberula</i>	Lobelia	Plugs-1 gal.	1 plant/18” o.c.	Moist	Blue- violet	2-4’
<i>Monarda didyma</i>	Bee balm	Plugs – 1 gal.	1 plant/24” o.c.	Wet- moist	Red	3’
<i>Penstemon digitalis</i>	Smooth white beardtongue	Plugs – 1 gal.	1 plant/24” o.c.	Wet	White	2-3’
<i>Rudbeckia hirta</i>	Black-eyed Susan	Plugs – 1 gal.	1 plant/18” o.c.	Moist-dry	Yellow	3’
<i>Salvia coccinea</i>	Texas sage	Plugs – 1 gal.	1 plant/18” o.c.	Moist-dry	Red	1-3’
<i>Solidago nemoralis</i>	Gray goldenrod	Plugs – 1 gal.	1 plant/18” o.c.	Dry	Yellow	2’
<i>Solidago rugosa</i>	Rough-leaved goldenrod	Plugs – 1 gal.	1 plant/18” o.c.	Wet	Yellow	1-6’

Plant material size and grade to conform to “American Standards for Nursery Stock” American Association of Nurserymen, Inc. latest approved revision, ANSI Z-60-1



Table C-3. Popular Native Perennials for Bioretention – Shade

Latin Name	Common Name	Size	Spacing	Moisture	Color	Height
<i>Aquilegia canadensis</i>	Wild columbine	Plugs – 1 gal.	1 plant/18" o.c.	Moist- dry	Pink	1-2.5'
<i>Athyrium filix-femina</i>	Lady Fern	1 gal.	1 plant/18" o.c.	Moist	Green	3'
<i>Arisaema triphyllum</i>	Jack-in-the-pulpit	Plugs – 1 gal.	1 plant/18" o.c.	Moist	Green	1.5- 2.5'
<i>Arisaema dracunculifolium</i>	Green dragon	Plugs – 1 gal.	1 plant/18" o.c.	Wet- moist	Green	3'
<i>Asarum canadense</i>	Wild ginger	Plugs – 1 gal.	1 plant/18" o.c.	Wet- moist	Red- brown	0.5-1'
<i>Coreopsis major</i>	Tickseed coreopsis	Plugs – 1 gal.	1 plant/18" o.c.	Moist- dry	Yellow	3'
<i>Dryopteris marginalis</i>	Shield Fern	1 gal.	1 plant/18" o.c.	Moist	Green	2-3'
<i>Geranium maculatum</i>	Wild geranium	Plugs – 1 gal.	1 plant/18" o.c.	Moist	Pink	2'
<i>Heuchera americana</i>	Alumroot	Plugs – 1 gal.	1 plant/18" o.c.	Moist- dry	Purple	1'
<i>Iris cristata</i>	Dwarf crested iris	Plugs – 1 gal.	1 plant/18" o.c.	Moist- dry	Purple	4"
<i>Lobelia siphilicata</i>	Great blue lobelia	Plugs – 1 gal.	1 plant/18" o.c.	Wet- moist	Blue	1.5-3'
<i>Lobelia cardinalis</i>	Cardinal flower	Plugs – 1 gal.	1 plant/18" o.c.	Wet- moist	Red	2-4'
<i>Mertensia virginica</i>	Virginia bluebells	Plugs – 1 gal.	1 plant/18" o.c.	Moist	Blue	1.5'
<i>Osmunda cinnamomea</i>	Cinnamon Fern	1 gal.	1 plant/24" o.c.	Wet- moist	Green	3-4'
<i>Phlox divaricata</i>	Blue phlox	Plugs – 1 gal.	1 plant/18" o.c.	moist	Blue	0.5-2'
<i>Polemonium reptans</i>	Jacob's ladder	Plugs – 1 gal.	1 plant/18" o.c.	Moist- dry	Blue	15"
<i>Polystichum acrostichoides</i>	Christmas fern	Plugs – 1 gal.	1 plant/24" o.c.	Moist- dry	Ever- green	2'

Plant material size and grade to conform to “American Standards for Nursery Stock” American Association of Nurserymen, Inc. latest approved revision, ANSI Z-60-1.



Table C-4. Popular Native Grasses and Sedges for Bioretention

Latin Name	Common Name	Size	Spacing	Moisture	Color	Height
<i>Carex comosa</i>	Bottlebrush sedge	1 gal.	1 plant/24" o.c.	Wet	Green	3.5'
<i>Carex stricta</i>	Tussock Sedge	1 gal.	1 plant/24" o.c.	Moist	Green	3-4'
<i>Carex tribuloides</i>	Blunt broom sedge	1 gal.	1 plant/24" o.c.	Moist-wet	Green	3'
<i>Chasmanthium latifolium</i>	Upland Sea Oats	Plugs – 1 gal.	1 plant/18" o.c.	Moist-dry	Green	4'
<i>Juncus effesus</i>	Soft Rush	Plugs – 1 gal.	1 plant/24" o.c.	Wet-dry	Green	4-6'
<i>Muhlenbergia capallaris</i>	Muhly Grass	1 gal.	1 plant/24" o.c.	Moist	Pink	3'
<i>Panicum virgatum</i>	Switchgrass	1-3 gal.	1 plant/48" o.c.	Moist-dry	Yellow	5-7'
<i>Schizachyrium scoparium</i>	Little Blue Stem	1 gal.	1 plant/24" o.c.	Moist-dry	Yellow	3'

Plant material size and grade to conform to “American Standards for Nursery Stock” American Association of Nurserymen, Inc. latest approved revision, ANSI Z-60-1.

Table C-5. Popular Native Trees for Bioretention

Latin Name	Common Name	DT/FT	Light	Moisture	Notes	Flower Color	Height
<i>Acer rubrum</i>	Red Maple	DT-FT	Sun-shade	Dry-wet	Fall color		50-70'
<i>Acer saccharum</i>	Sugar Maple		Sun-pt shade	Moist	Fall color		50-75'
<i>Ameleanchier Canadensis</i>	Serviceberry		Sun-pt shade	Moist-wet	Eatable berries	White	15-25'
<i>Asimina triloba</i>	Paw Paw		Sun-pt shade	Moist	Eatable fruits	Maroon	15-30'
<i>Betula nigra</i>	River Birch	FT	Sun-pt shade	Moist-wet	Exfoliating bark		40-70'
<i>Carya glabra</i>	Pignut Hickory		Sun-pt shade	Moist	Fall color		50-60'
<i>Cercus Canadensis</i>	Redbud	DT	Sun-shade	Moist	Pea-like flowers, seed pods	Purple	20-30'
<i>Chionanthus virginicus</i>	Fringetree		Sun-pt shade	Moist	Panicked, fragrant flowers	White	12-20'
<i>Cladratis lutea</i>	Yellowwood	DT	Sun	Dry-moist	Fall color	White	30-45'
<i>Cornus florida</i>	Flowering Dogwood		Part shade	Moist	Red fruit, wildlife	White	15-30'
<i>Ilex opaca</i>	American Holly	DT	Sun-pt shade	Moist	Evergreen	White	30-50'
<i>Liquidambar styraciflua</i>	Sweetgum	DT-FT	Sun-pt shade	Dry-moist	Spiny fruit		60-100'
<i>Magnolia virginiana</i>	Sweetbay Magnolia		Sun-pt shade	Moist-wet	Evergreen	White	10-60'



Table C-5. Popular Native Trees for Bioretention

Latin Name	Common Name	DT/FT	Light	Moisture	Notes	Flower Color	Height
<i>Nyssa sylvatica</i>	Black Gum		Sun-Shade	Moist	Fall color		35-50'
<i>Oxydendrum arboreum</i>	Sourwood		Sun-pt shade	Dry-moist	Wildlife	White	20-40'
<i>Platanus occidentalis</i>	Sycamore	FT	Sun-pt shade	Moist	White mottled bark		70-100'
<i>Quercus bicolor</i>	Swamp White Oak	DT	Sun-pt shade	Moist-wet	Acorns		50-60'
<i>Quercus lyrata</i>	Overcup Oak	FT	Sun	Moist	Acorns		40-60'
<i>Quercus shumardii</i>	Shumard Oak	DT	Sun	Moist	Acorns		40-60'
<i>Quercus stellate</i>	Post oak		Sun-pt shade	Dry			40-50'
<i>Rhamnus caroliniana</i>	Carolina Buckthorn		Sun	Moist	Black fruit		15-30'
<i>Ulmus americana</i>	American Elm	DT-FT	Sun-pt shade	Moist			

Size: min. 2" caliper if not reforestation. DT: Drought Tolerant. FT: Flood Tolerant. Plant material size and grade to conform to "American Standards for Nursery Stock" American Association of Nurserymen, Inc. latest approved revision, ANSI Z-60-1.

Table C-6. Popular Native Shrubs for Bioretention

Latin Name	Common Name	DT/FT	Light	Moisture	Spacing (O.C.)	Notes	Flower Color	Height
<i>Aronia arbutifolia</i>	Red Chokeberry	FT	Sun-pt shade	Dry-wet	4'	Red berries, wildlife	White	6-12'
<i>Callicarpa Americana</i>	American Beautyberry	DT	Sun-pt shade	Dry-wet	5'	Showy purple fruit	Lilac	4-6'
<i>Cephalanthus occidentalis</i>	Button Bush	FT	Sun-shade	Moist-wet	5'	Attracts wildlife	White	6-12'
<i>Cornus amomum</i>	Silky Dogwood		Sun-shade	Moist-wet	6'	Blue berries, wildlife	White	6-12'
<i>Corylus americana</i>	American Hazelnut		Sun-pt shade	Dry-moist	8'	Eatable nuts, wildlife	Yellow	8-15'
<i>Hamamelis virginiana</i>	Witch-hazel		Sun-pt shade	Dry-moist	8'	Winter bloom	Yellow	10'
<i>Hydrangea quercifolia</i>	Oakleaf Hydrangea	DT	Pt shade – shade	Moist	4'	Winter texture	White	3-6'
<i>Hypericum prolificum</i>	Shrubby St. John's Wort	DT	Sun-pt shade	Dry-moist	3'	Semi-evergreen	Yellow	3'
<i>Ilex decidua (dwarf var.)</i>	Possumhaw Viburnum	DT	Sun-pt shade	Moist	4-6'	Red berries		6-14'
<i>Ilex glabra</i>	Inkberry	DT	Sun-pt shade	Moist-wet	3'	Evergreen		4-8'
<i>Ilex verticillata</i>	Winterberry Holly	FT	Sun-pt shade	Moist-wet	3'	Red berries		10'



Table C-6. Popular Native Shrubs for Bioretention

Latin Name	Common Name	DT/FT	Light	Moisture	Spacing (O.C.)	Notes	Flower Color	Height
<i>Itea virginica</i>	Virginia Sweetspire	DT-FT	Sun-shade	Moist-wet	4'	Fall color	White	4-8'
<i>Lindera benzoin</i>	Spicebush	DT	Pt shade – shade	Moist-wet	8'	Butterflies, wildlife	Yellow	6-12'
<i>Viburnum dentatum</i>	Arrowwood Viburnum		Sun-shade	Dry-wet	6'	Wildlife	White	6-8'

Size: minimum 3 gal. container or equivalent. DT: Drought Tolerant. FT: Flood Tolerant. This list provides plant species; there are multiple varieties within each species. Plant material size and grade to conform to “American Standards for Nursery Stock” American Association of Nurserymen, Inc. latest approved revision, ANSI Z-60-1.

Popular Plants Suitable for Tree Planters in Birmingham

Table C-7. Popular Native Perennials Suitable for Tree Planters – Full Sun

Latin Name	Common Name	Size	Spacing	Moisture	Color	Height
<i>Asclepias tuberosa</i>	Butterfly milkweed	Plugs – 1 gal.	1 plant/18” o.c.	Dry-moist	Orange	2'
<i>Coreopsis lanceolata</i>	Lance-leaf coreopsis	Plugs – 1 gal.	1 plant/18” o.c.	Moist-dry	Yellow	6-8'
<i>Echinacea purpurea</i>	Purple coneflower	Plugs – 1 gal.	1 plant/24” o.c.	Moist-dry	Purple	3'
<i>Iris virginica</i>	Flag Iris	Plugs – 1 gal.	1 plant/18” o.c.	Moist-Wet	Blue	2'
<i>Liatris spicata</i>	Dense blazingstar	Plugs – 1 gal.	1 plant/24” o.c.	Wet-moist	Purple	1.5'
<i>Penstemon digitalis</i>	Smooth white beardtongue	Plugs – 1 gal.	1 plant/24” o.c.	Wet	White	2-3'
<i>Salvia coccinea</i>	Texas sage	Plugs – 1 gal.	1 plant/18” o.c.	Moist-dry	Red	1-3'
<i>Solidago rugosa</i>	Winkle-leaf goldenrod	Plugs – 1 gal.	1 plant/24” o.c.	Moist-dry	Yellow	2-5'

Table C-8. Popular Native Perennials Suitable for Tree Planters – Shade

Latin Name	Common Name	Size	Spacing	Moisture	Color	Height
<i>Aquilegia canadensis</i>	Wild columbine	Plugs – 1 gal.	1 plant/18” o.c.	Moist-dry	Pink	1-2.5'
<i>Aster oblongifolius</i> <i>Aster oblongifolius</i>	Aromatic Aster	Plugs – 1 gal.	1 plant/24” o.c.	Moist-dry	Blue/purple	1.5-3'
<i>Commelina erecta</i>	Whitemouth dayflower	Plugs – 1 gal.	1 plant/24” o.c.	Dry	Blue	1-3'
<i>Coreopsis lanceolata</i>	Tickseed coreopsis	Plugs – 1 gal.	1 plant/18” o.c.	Moist-dry	Yellow	3'
<i>Heuchera americana</i>	Alumroot	Plugs – 1 gal.	1 plant/18” o.c.	Moist-dry	Purple	1'
<i>Solidago rugosa</i>	Winkle-leaf goldenrod	Plugs – 1 gal.	1 plant/24” o.c.	Moist-dry	Yellow	2-5'



Table C-9. Popular Native Grasses and Sedges Suitable for Tree Planters

Latin Name	Common Name	Size	Spacing	Moisture	Color	Height
<i>Carex tribuloides</i>	Blunt broom sedge	1 gal.	1 plant/24" o.c.	Moist-wet	Green	3'
<i>Chasmanthium latifolium</i>	Upland Sea Oats	Plugs – 1 gal.	1 plant/18" o.c.	Moist-dry	Green	4'
<i>Elymus hystrix</i>	Eastern bottlebrush grass					
<i>Juncus effesus</i>	Soft Rush	Plugs – 1 gal.	1 plant/24" o.c.	Wet-dry	Green	4-6'
<i>Muhlenbergia capallaris</i>	Muhly Grass	1 gal.	1 plant/24" o.c.	Moist	Pink	3'
<i>Panicum virgatum</i>	Switchgrass	1-3 gal.	1 plant/48" o.c.	Moist - dry	Yellow	5-7'
<i>Schizachyrium scoparium</i>	Little Blue Stem	1 gal.	1 plant/24" o.c.	Moist-dry	Yellow	3'
<i>Sporobolus heterolepis</i>	Prairie Dropseed	1 gal.	1 plant/24" o.c.	Moist-dry	Green	2-3'

Table C-10. Popular Native Trees Suitable for Tree Planters

Latin Name	Common Name	DT-FT	Light	Moisture	Notes	Flower Color	Height
<i>Acer rubrum</i>	Red Maple	DT-FT	Sun-shade	Dry-wet	Fall color		50-70'
<i>Betula nigra</i>	River Birch	FT	Sun-pt shade	Moist-wet	Exfoliating bark		40-70'
<i>Carya glabra</i>	Pignut Hickory		Sun-pt shade	Moist	Fall color		50-60'
<i>Cercus Canadensis</i>	Redbud	DT	Sun-shade	Moist	Pea-like flowers, seed pods	Purple	20-30'
<i>Liquidambar styraciflua</i>	Sweetgum (fruitless)	DT-FT	Sun-pt shade	Dry-moist			60-100'
<i>Nyssa sylvatica</i>	Black Gum		Sun-Shade	Moist	Fall color		35-50'
<i>Platanus occidentalis</i>	Sycamore	FT	Sun-pt shade	Moist	White mottled bark		70-100'
<i>Quercus stellate</i>	Post oak		Sun-pt shade	Dry			40-50'
<i>Quercus lyrata</i>	Overcup Oak	FT	Sun	Moist	Acorns		40-60'
<i>Quercus shumardii</i>	Shumard Oak	DT	Sun	Moist	Acorns		40-60'
<i>Ulmus americana</i>	American Elm	DT-FT	Sun-pt shade	Moist			

DT: Drought Tolerant. FT: Flood Tolerant.



Table C-11. Popular Native Shrubs Suitable for Tree Planters

Latin Name	Common Name	DT-FT	Light	Moisture	Notes	Flower Color	Height
<i>Clethra alnifolia</i>	Sweet Pepper Bush (Dwarf)		Sun-pt shade	Dry-moist	Hummingbirds	White	5-8'
<i>Hydrangea quercifolia</i>	Oakleaf Hydrangea (Dwarf)	DT	Pt shade – shade	Moist		White	3-6'
<i>Hypericum prolificum</i>	Shrubby St. John's Wort		Sun-pt shade	Moist		Yellow	1-5'
<i>Ilex glabra</i>	Inkberry (Dwarf)	DT	Sun-pt shade	Moist-wet	Evergreen		4-8'

DT: Drought Tolerant. FT: Flood Tolerant.

References

Alabama Department of Environmental Management (ADEM), in cooperation with the Alabama Cooperative Extension System and Auburn University. *Low Impact Development Handbook for the State of Alabama*.

Alabama Herbarium Consortium & the University of West Alabama. *Alabama Plant Atlas*. Available online at www.floraofalabama.org.

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