

CITY OF DURHAM

SMALL SCALE STORMWATER CONTROL MEASURES



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CITY OF DURHAM: SMALL SCALE STORMWATER CONTROL MEASURES

COVER SHEET



JULY, 2017

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RELATIVE ELEVATION: 100 FT

RELATIVE ELEVATION: 99.75 FT

RELATIVE ELEVATION: 99.5 FT

RELATIVE ELEVATION: 99.25 FT

RELATIVE ELEVATION: 99 FT

MULTIPLE RAIN GARDENS
HAVE MORE THAN ONE INLET -
SEE NOTE ON THIS PAGE

OPTIONAL MOWING EDGE
ABOVE INSIDE SLOPE

DOWNSPOUT EXTENSION
TRENCH INTO SOIL UNLESS INSTRUCTED OTHERWISE

COBBLE, 2" TO 6" DIA.
6" DEEP LAYER

TIE INTO EXISTING SLOPE

MEDIA FOOTPRINT (FLAT)

WEIR BOTTOM WIDTH = 1.0'

6" MAX. PONDING DEPTH (OVERFLOW ELEVATION)

INSIDE SLOPE 2:1

BERM TOP WIDTH = 1.0'
TOP MUST BE LEVEL

WEIR SIDE SLOPES 2:1

LINE WEIR WITH COBBLE
6" DEEP LAYER

BERM OUTSIDE SLOPE 4:1
(3:1 MAX AS NEEDED)

Size (sf)	X (ft)	Y (ft)
50	4.5	12.5
75	5.5	15.5

X = Average length of rain garden

Y = Average width of rain garden

Note: Actual shape, dimensions, and
tie-in to existing grade will vary
based on existing topography,
infrastructure, and site constraints



LEGEND

- = EXISTING 0.25 FT CONTOURS
- = PROPOSED 0.25 FT CONTOURS
- = OUTLET
- = COBBLE

NOTE: INFLOW POINT AND WEIR LOCATION WILL VARY BASED ON SITE CONDITIONS
ADAPTED FROM MONTGOMERY COUNTY, MD, DEPARTMENT OF ENVIRONMENTAL PROTECTION



CITY OF DURHAM: SMALL SCALE STORMWATER CONTROL MEASURES

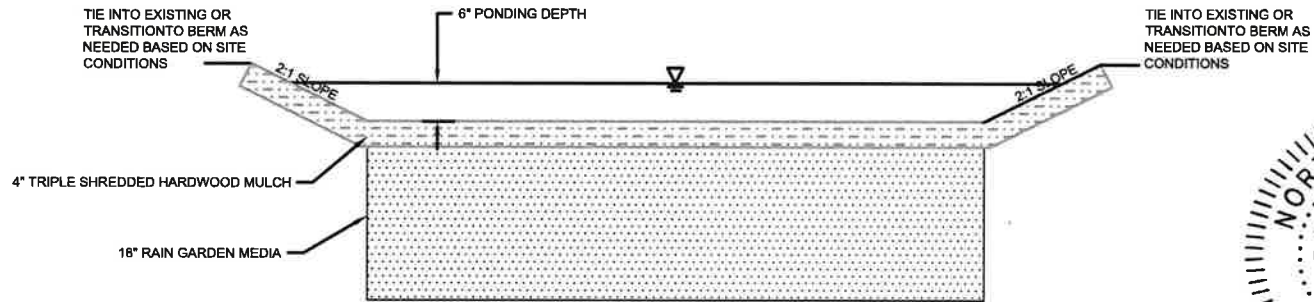
RAIN GARDEN PLAN VIEW



JULY, 2017

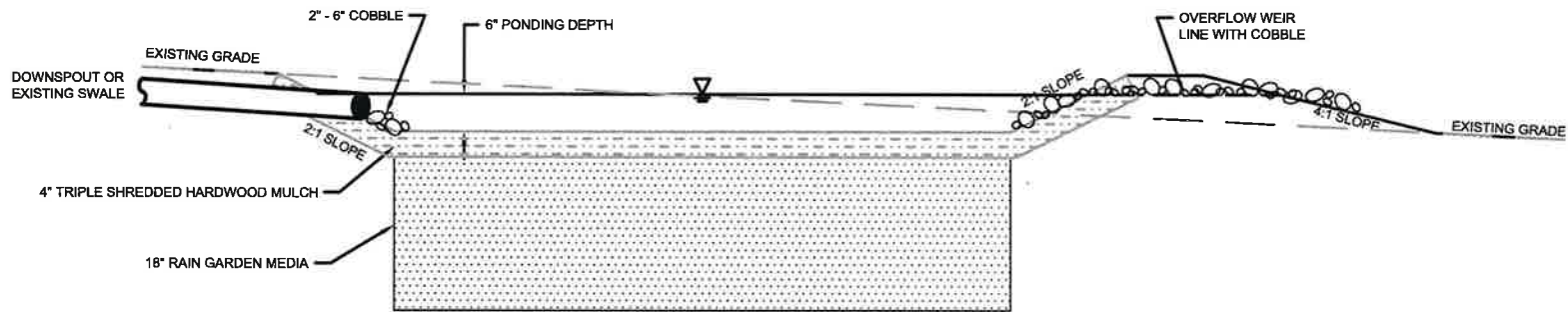
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RAIN GARDEN SECTION

NOT TO SCALE



RAIN GARDEN PROFILE

NOT TO SCALE

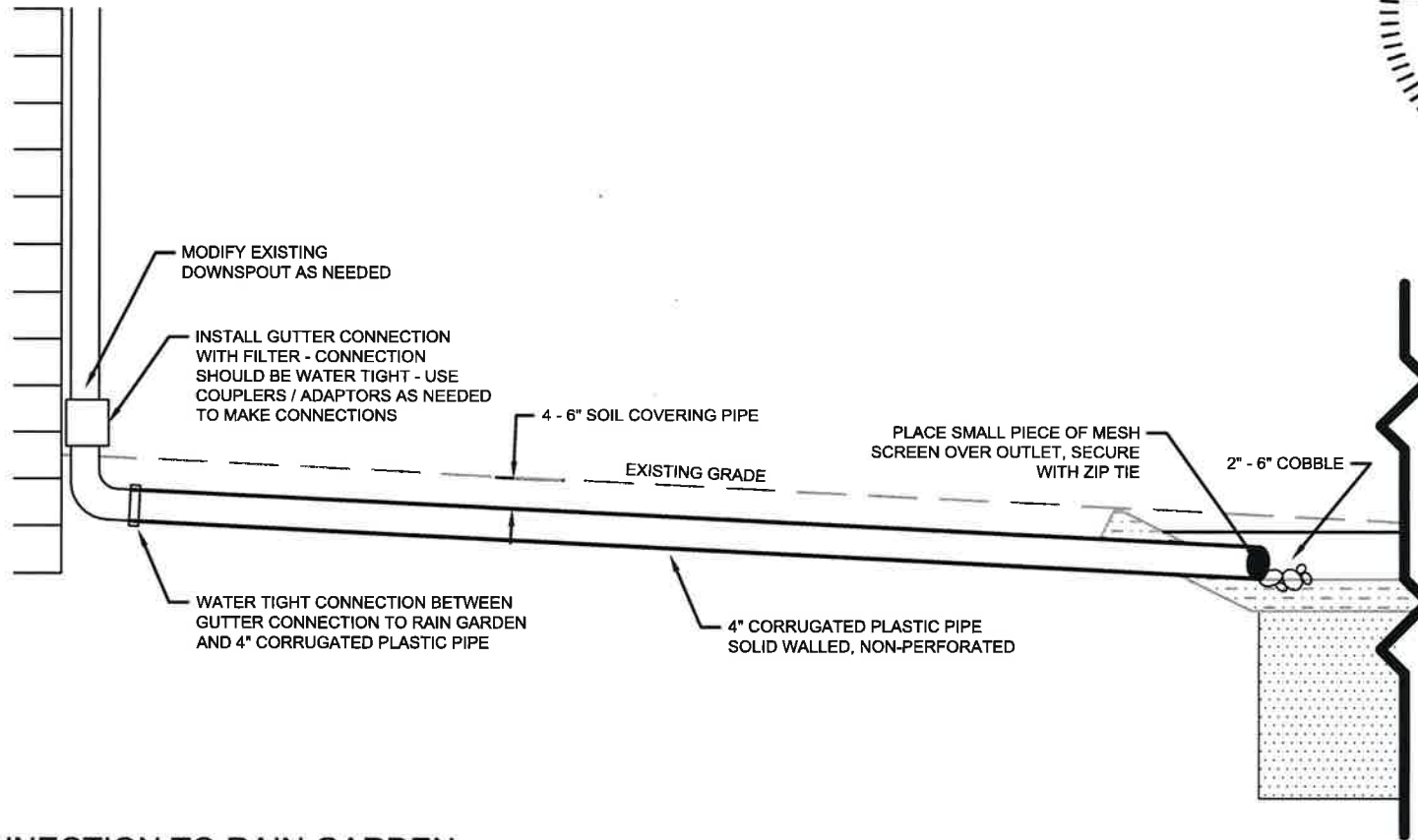


CITY OF DURHAM: SMALL SCALE STORMWATER CONTROL MEASURES
RAIN GARDEN SECTION AND PROFILE

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GUTTER CONNECTION TO RAIN GARDEN PROFILE

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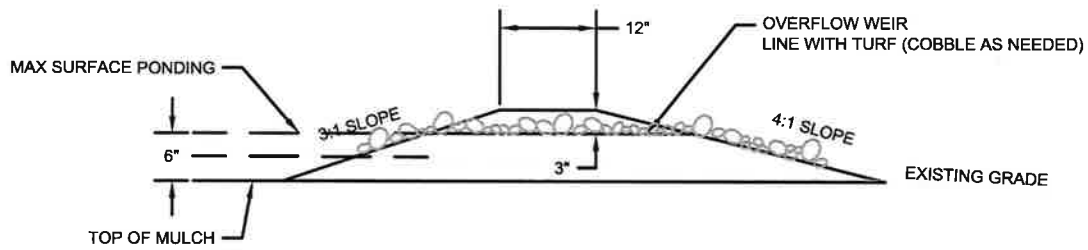


CITY OF DURHAM: SMALL SCALE STORMWATER CONTROL MEASURES
RAIN GARDEN INLET DETAILS

JULY, 2017

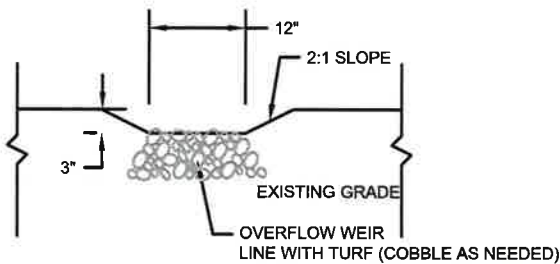
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**RAIN GARDEN WEIR
PROFILE**

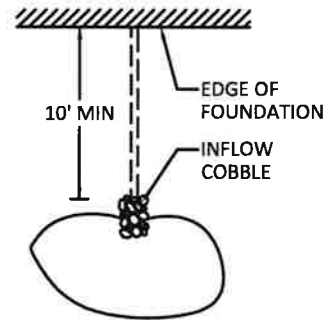
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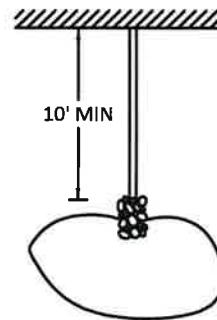
**RAIN GARDEN WEIR
SECTION**

NOT TO SCALE

**OPTION 1: BURIED
DOWNSPOUT EXTENSION**



**OPTION 2: SURFACE
DOWNSPOUT EXTENSION**



ADAPTED FROM MONTGOMERY COUNTY, MD DEP

**RAIN GARDEN INLET OPTIONS
PLAN VIEW**

NOT TO SCALE



CITY OF DURHAM: SMALL SCALE STORMWATER CONTROL MEASURES
RAIN GARDEN DETAILS

JULY, 2017

TYPICAL -
NOT TO SCALE

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GENERAL NOTES

1. ANY SUBSTITUTIONS OF PLANT SPECIES MUST BE APPROVED IN WRITING BY THE CITY OF DURHAM
2. PLANTING PLAN KEY DESIGNATIONS IN THE PLANT SCHEDULE CORRESPOND TO SPECIES LOCATIONS ON THE PLANTING PLANS

50 Ft ² Full Sun		Raingarden	
Planting Plan Key	Common name	Botanical name	Quantity
A	wax myrtle or yaupon	<i>Morella cerifera</i> or <i>Ilex vomitoria</i>	1
B	sweet pepperbush	<i>Clethra alnifolia</i>	2
C1	swamp milkweed or New England aster	<i>Asclepias incarnata</i> or <i>Symphotrichum novae-angliae</i>	11
C2	common rush	<i>Juncus effusus</i>	11
D	mistflower, blue lobelia or great blue lobelia	<i>Conoclinium coelestinum</i> , <i>Lobelia elongata</i> , or <i>Lobelia siphilitica</i>	12
E	Sweet Flag	<i>Acorus calamus</i>	6
TOTAL			43

50 Ft ² Partial Shade		Raingarden	
Planting Plan Key	Common name	Botanical name	Quantity
A	wax myrtle or sweetshrub on berm	<i>Morella cerifera</i> or <i>Calycanthus florida</i>	1
B	Va sweetspire or sweet pepperbush	<i>Itea virginica</i> or <i>Clethra alnifolia</i>	2
C1	cardinal flower	<i>Lobelia cardinalis</i>	11
C2	common boneset	<i>Eupatorium perfoliatum</i>	10
D	sensitive fern	<i>Onoclea sensibilis</i>	12
E	blue flag iris	<i>Iris versicolor</i>	8
TOTAL			44

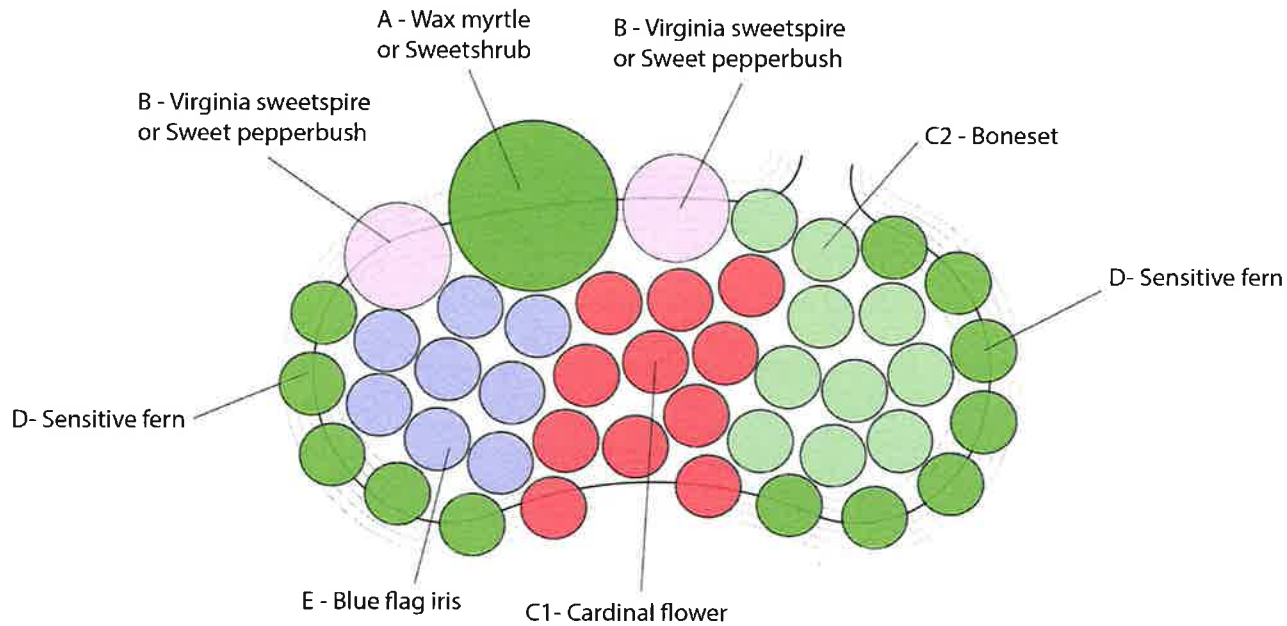
75 Ft ² Full Sun		Raingarden	
Planting Plan Key	Common name	Botanical name	Quantity
A	wax myrtle or yaupon	<i>Morella cerifera</i> or <i>Ilex vomitoria</i>	1
B	sweet pepperbush	<i>Clethra alnifolia</i>	4
C1	swamp milkweed or New England aster	<i>Asclepias incarnata</i> or <i>Symphotrichum novae-angliae</i>	19
C2	common rush	<i>Juncus effusus</i>	9
D	mistflower, blue lobelia or great blue lobelia	<i>Conoclinium coelestinum</i> , <i>Lobelia elongata</i> , or <i>Lobelia siphilitica</i>	20
E	Sweet Flag	<i>Acorus calamus</i>	7
TOTAL			60

75 Ft ² Partial Shade		Raingarden	
Planting Plan Key	Common name	Botanical name	Quantity
A	wax myrtle or sweetshrub on berm	<i>Morella cerifera</i> or <i>Calycanthus florida</i>	1
B	Va sweetspire or sweet pepperbush	<i>Itea virginica</i> or <i>Clethra alnifolia</i>	4
C1	cardinal flower	<i>Lobelia cardinalis</i>	17
C2	common boneset	<i>Eupatorium perfoliatum</i>	13
D	sensitive fern	<i>Onoclea sensibilis</i>	13
E	blue flag iris	<i>Iris versicolor</i>	12
TOTAL			60



CITY OF DURHAM: SMALL SCALE STORMWATER CONTROL MEASURES
RAIN GARDEN PLANTING SCHEDULE

JULY, 2017

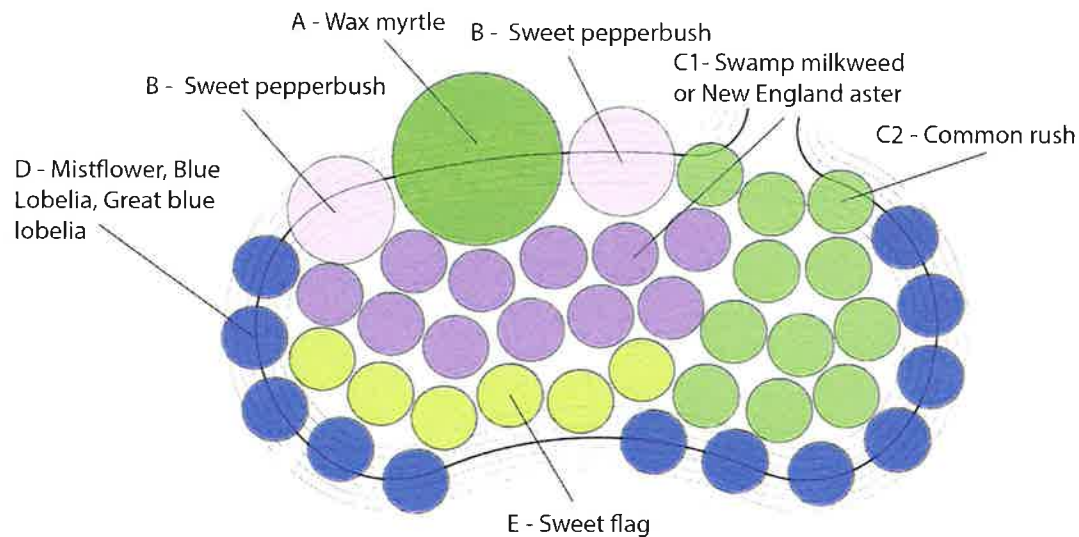


NOTE: THE INTERNAL SLOPE OF THE BERM WILL BE COVERED WITH GRASS AND PLANTS. THE OUTSIDE AND TOP OF THE BERM WILL ONLY BE COVERED WITH GRASS.



CITY OF DURHAM: SMALL SCALE STORMWATER CONTROL MEASURES
 RAIN GARDEN PLANTING PLAN: 50 SF WITH PARTIAL SHADE

JULY, 2017

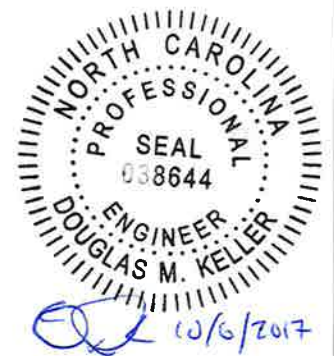
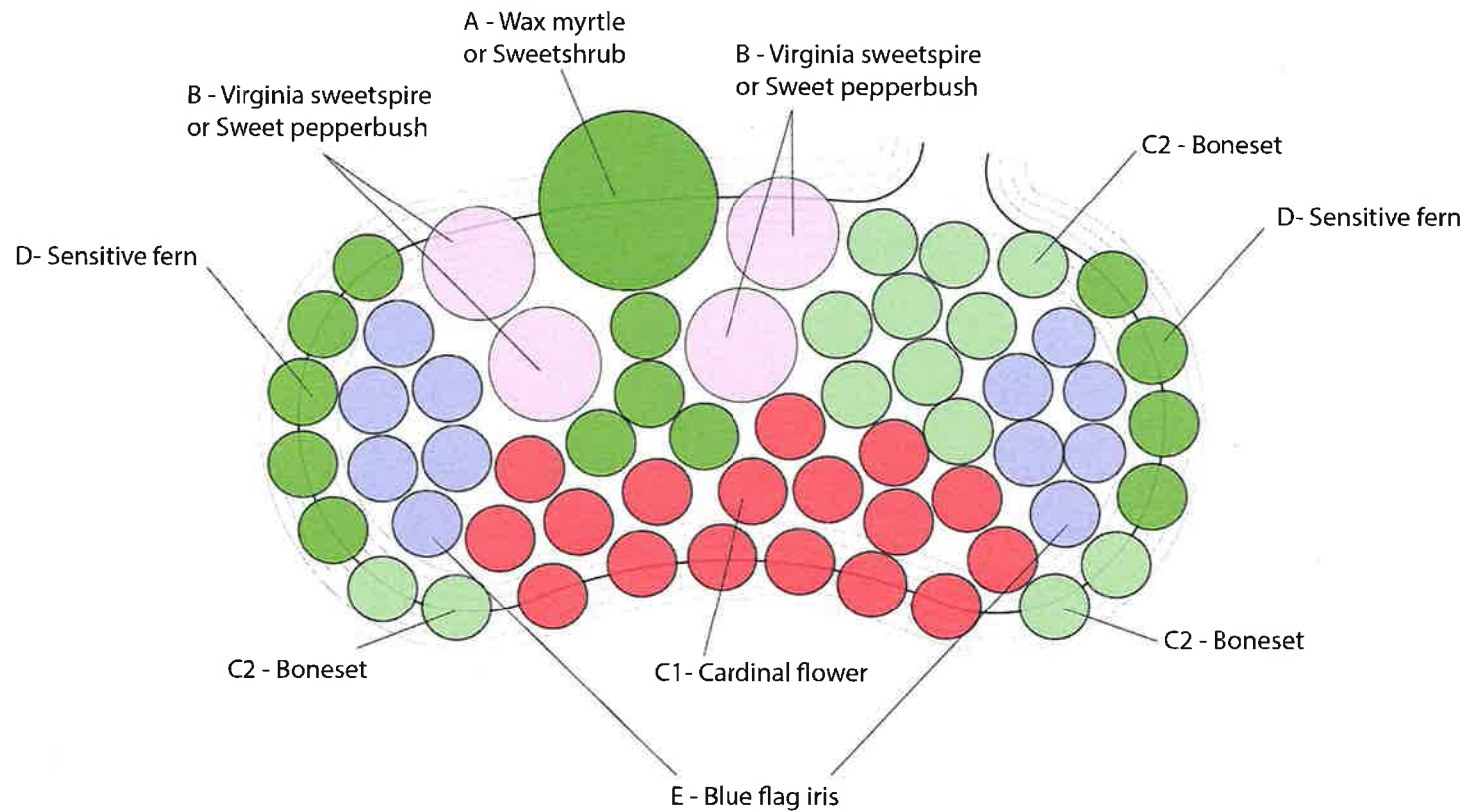


NOTE: THE INTERNAL SLOPE OF THE BERM WILL BE COVERED WITH GRASS AND PLANTS. THE OUTSIDE AND TOP OF THE BERM WILL ONLY BE COVERED WITH GRASS.



CITY OF DURHAM: SMALL SCALE STORMWATER CONTROL MEASURES
 RAIN GARDEN PLANTING PLAN: 50 SF WITH FULL SUN

JULY, 2017

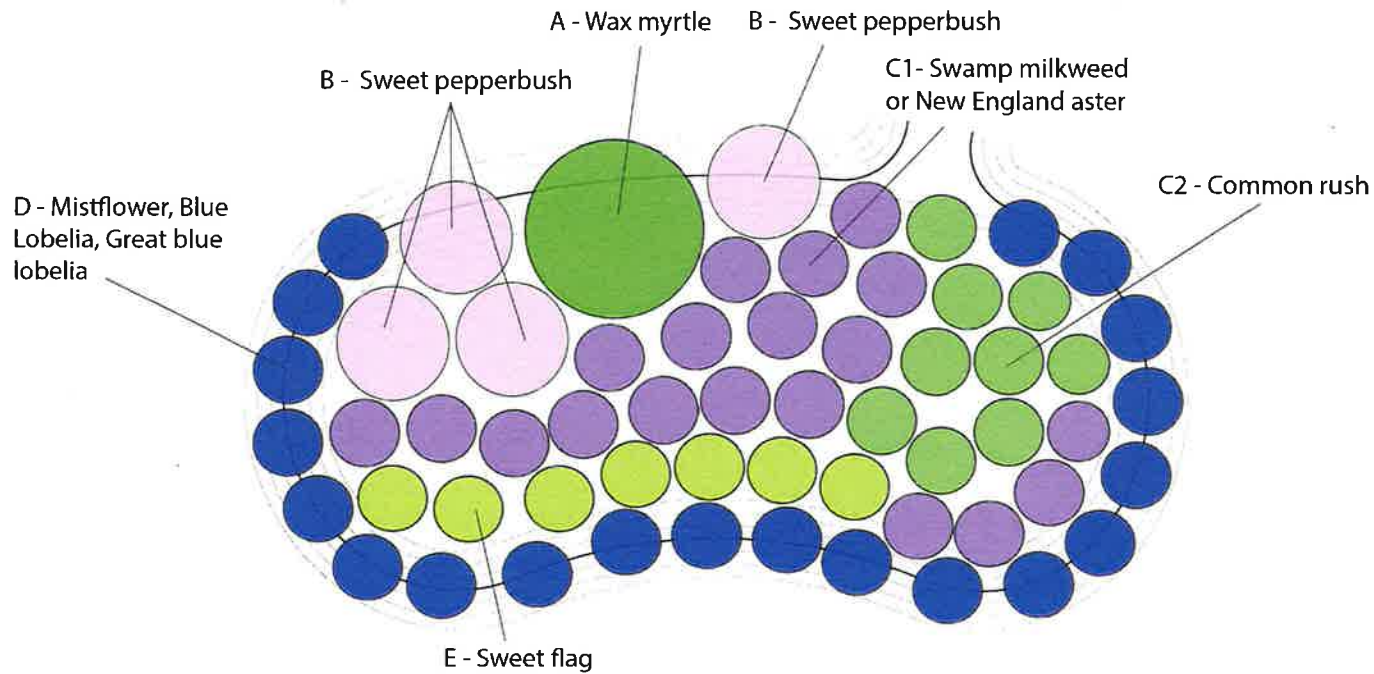


NOTE: THE INTERNAL SLOPE OF THE BERM WILL BE COVERED WITH GRASS AND PLANTS. THE OUTSIDE AND TOP OF THE BERM WILL ONLY BE COVERED WITH GRASS.



CITY OF DURHAM: SMALL SCALE STORMWATER CONTROL MEASURES
 RAIN GARDEN PLANTING PLAN: 75 SF WITH PARTIAL SHADE

JULY, 2017

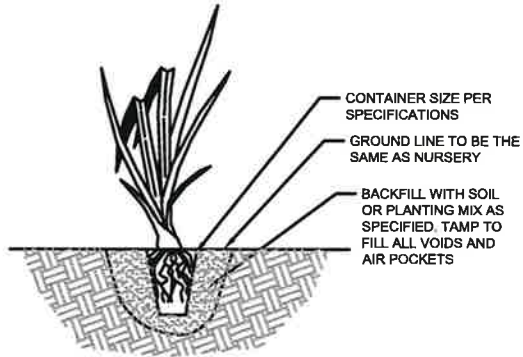


NOTE: THE INTERNAL SLOPE OF THE BERM WILL BE COVERED WITH GRASS AND PLANTS. THE OUTSIDE AND TOP OF THE BERM WILL ONLY BE COVERED WITH GRASS.



CITY OF DURHAM: SMALL SCALE STORMWATER CONTROL MEASURES
 RAIN GARDEN PLANTING PLAN: 75 SF WITH FULL SUN

JULY, 2017

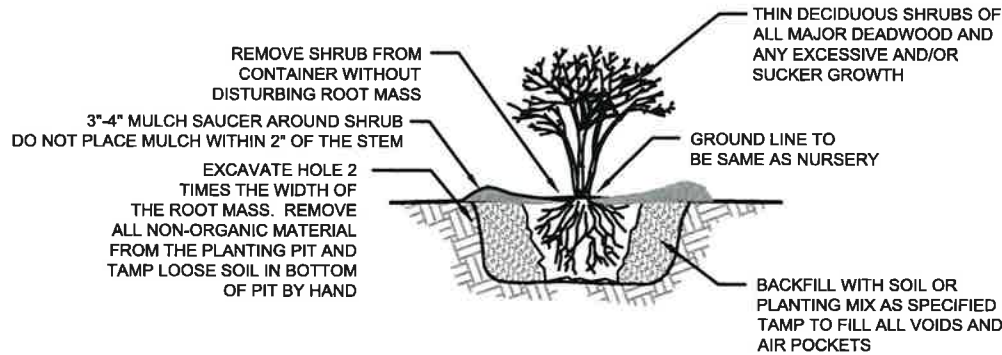


HERBACEOUS PLANTING - CONTAINERS

NOT TO SCALE

Notes:

- A. The nursery supply source shall be from the Piedmont physiographic province, and not more than 200 miles from the site.
- B. The Contractor will arrange for the Engineer, and the City at their discretion, to inspect the shrub and perennial herbaceous plant stock before installation.
- C. The Engineer and the City, at their discretion, shall reserve the right to reject plant stock at the site that is dead, dying or appears unhealthy. In addition, all plant material that has been improperly maintained, dug, transported or handled in such a way as to impair its appearance or health will be rejected.



SHRUB PLANTING - CONTAINER GROWN

NOT TO SCALE



CITY OF DURHAM: SMALL SCALE STORMWATER CONTROL MEASURES
RAIN GARDEN PLANTING DETAILS

JULY, 2017

TYPICAL - NOT TO SCALE

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