

## Supplemental Data

# PLANTING PATTERNS

The following patterns include suggested plant mixes for standard, or default, green infrastructure conditions. The patterns each cover a 9' x 12' plot, but should be considered to be modules that can be reduced or expanded to fit the needs of a specific site. Beginner patterns are provided for novice Owners that contain only two to three plants. More advanced patterns with three or more plants are also included.

These patterns should be considered starting points that illustrate the typical application of herbaceous plant material within rain gardens and bioswale areas. Owners are encouraged to diversify their plantings by selecting species from the sorted lists in the plant selection spreadsheet.

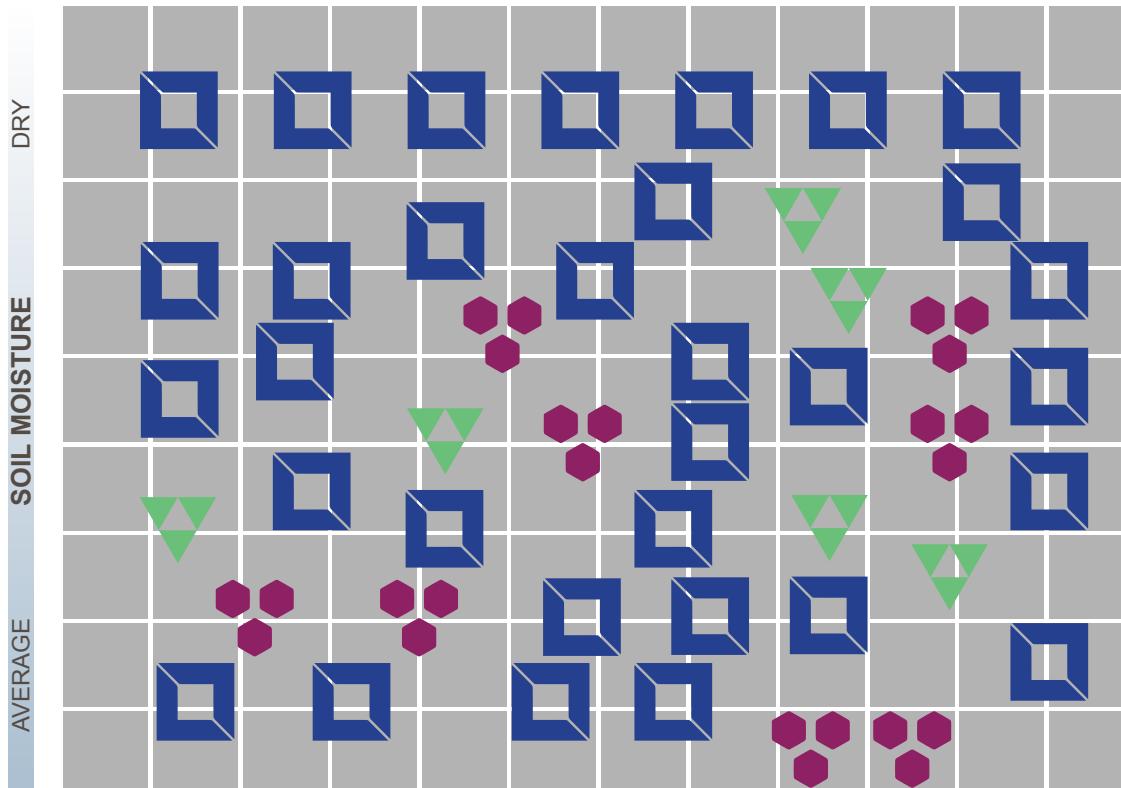
Some general rules of thumb to follow when assembling plant patterns are:

- Use mostly perennial plants. Herbaceous grasses and perennials should form the primary groundcover in rain gardens and bioswale areas. These plants do a better job of stabilizing soils that are subject to frequent inundations of water than do woody plants like trees and shrubs. The dense root systems of these plants also helps to keep the soil open to infiltration and can aid in the uptake of excess nutrients.
- Don't space plants too far apart. It's generally better to use smaller plants (2" plug to quart sized containers) and plant them more closely together (12" to 18" on center). This will allow plants to knit together closely on the site so that weed competition is suppressed.
- Plan for all season coverage. Mix spring flowering bulbs with summer perennials and fall grasses to create a complete garden. The ephemeral bulbs will persist until July when the early summer perennials will take over. The decaying leaves of the bulbs will be hidden by the perennial growth. If warm-season grasses are interspersed they will begin putting on their full growth in late summer when many of the flowering perennials have stopped flowering. The grasses will then provide a fall and early winter display.
- Don't over feed your plants. Many of the herbaceous plants on the plant selection list won't thrive if the soil they are in is too rich. Avoid over fertilization or composting as this can end up benefiting unwanted annual weeds instead of desired perennials.
- Use groundcover mulch sparingly. Mulch is beneficial during the first two years of establishing a herbaceous planting. It can reduce weed competition and retain soil moisture. After two years, however, the plants themselves should be sufficiently established to perform these functions. During establishment use partially decomposed leaf mulch for herbaceous plantings and double-shredded hardwood bark mulch under woody plantings.
- Remember to water. This step is critical immediately after installation. Plants should get a minimum of 1.5 to 2 inches of water per week for the first 10 weeks and then 1 inch of water per week thereafter. If water is not available on site, plans for importing the water by truck should be made. July and August are the hottest and riskiest months for new plantings. A drought lasting 2 weeks or more can be very damaging to new landscapes.

### Plant Arrangement

#### BIOSWALE - BEGINNER

9' x 12' PLOT (108 S.F.) • 39-46 PLANTS • 15" TO 18" SPACING  
FULL SUN



**Remarks:** The foundation of this basic planting is Prairie Dropseed which is a lovely native grass with a forgiving nature. The airy seed heads of the Dropseed, which appear in August to October, will be intermingled with the Great Blue Lobelia. The grey-headed coneflower will offer yellow punctuations to the mix. Both the Lobelia and the coneflower will re-seed under optimum conditions.

#### QTY | PERENNIALS

8		<i>LOBELIA SIPHILITICA</i> GREAT BLUE LOBELIA • (17% OF MIX)
6		<i>RATIBIDA PINNATA</i> GREYHEAD CONEFLOWER • (13% OF MIX)



#### GRASSES

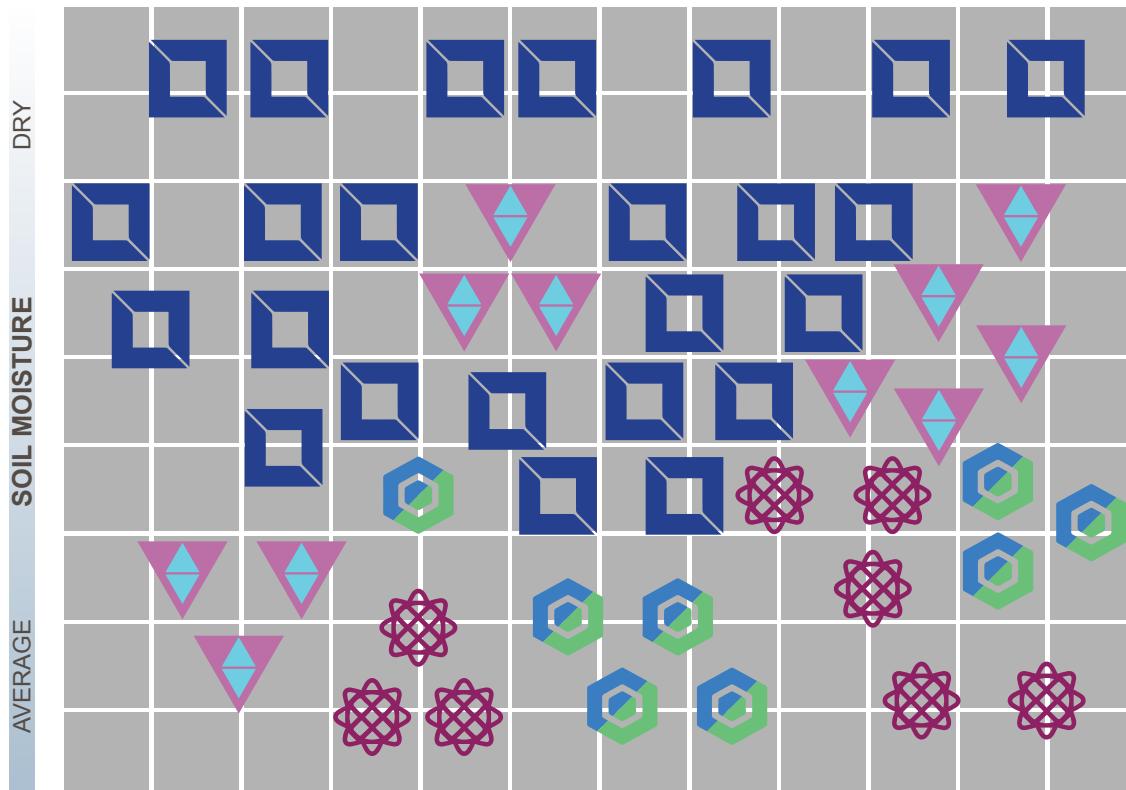
32		<i>SPOROBOLUS HETEROLEPIS</i> PRAIRIE DROPSSEED • (70% OF MIX)
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### Plant Arrangement

#### BIOSWALE - INTERMEDIATE

9' x 12' PLOT (108 S.F.) • 39-51 PLANTS • 15" TO 18" SPACING  
FULL SUN



**Remarks:** For those wanting a bit more diversity in the planting, this mix introduces tall clumps of Shenandoah Switchgrass. The burgundy color of the switch grass in fall is striking. Prairie Dropseed covers the rest of the groundplane and is intermingled with Siberian Iris. The iris brings both striking purple color and vertical, sword-like, leaves to the display. The milkweed will rise to a height of 4 or 5 feet and will look good next to the switchgrass.

#### QTY | PERENNIALS

8  *ASCLEPIAS INCARNATA*  
SWAMP MILKWEED • (16% OF MIX)

11  *IRIS SIBIRICA 'CAESAR'S BROTHER'*  
CAESAR'S BROTHER SIBERIAN IRIS • (22% OF MIX)



#### GRASSES

24  *SPOROBOLUS HETEROLEPIS*  
PRAIRIE DROPSEED • (47% OF MIX)

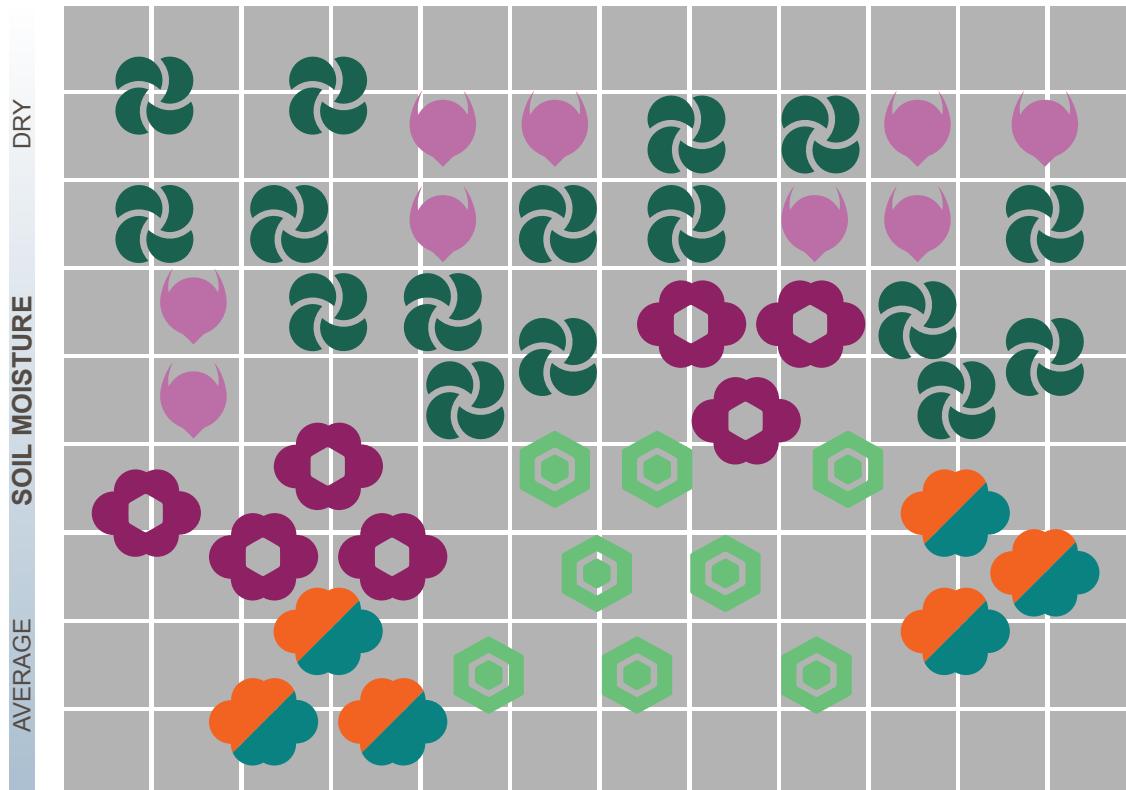
8  *PANICUM VIRGATUM 'SHENANDOAH'*  
SHENANDOAH SWITCHGRASS • (16% OF MIX)



### Plant Arrangement

#### BIOSWALE - ADVANCED

9' x 12' PLOT (108 S.F.) • 39-46 PLANTS • 15" TO 18" SPACING  
FULL SUN



**Remarks:** The plants in this mix offer a variety of leaf structure and flower displays throughout the year. Cape Breeze Switchgrass provides the backbone to the display with an upright and compact form. The Sideoats Grama is distinct for its arrangement of oak-like seed spikes which hang from one side of the stem. The three flowering perennials in the mix will ensure that something is always in bloom from May through August.

#### QTY | PERENNIALS

7		<i>PENSTEMON DIGITALIS 'HUSKER'S RED'</i> FOXGLOVE BEARDTONGUE • (15% OF MIX)
9		<i>NEPETA X FAASSENII 'JUNIOR WALKER'</i> WALKER'S LOW CATMINT • (20% OF MIX)
6		<i>HELIOPSIS HELIANTHOIDES 'PRAIRIE SUNSET'</i> FALSE SUNFLOWER • (13% OF MIX)



#### GRASSES

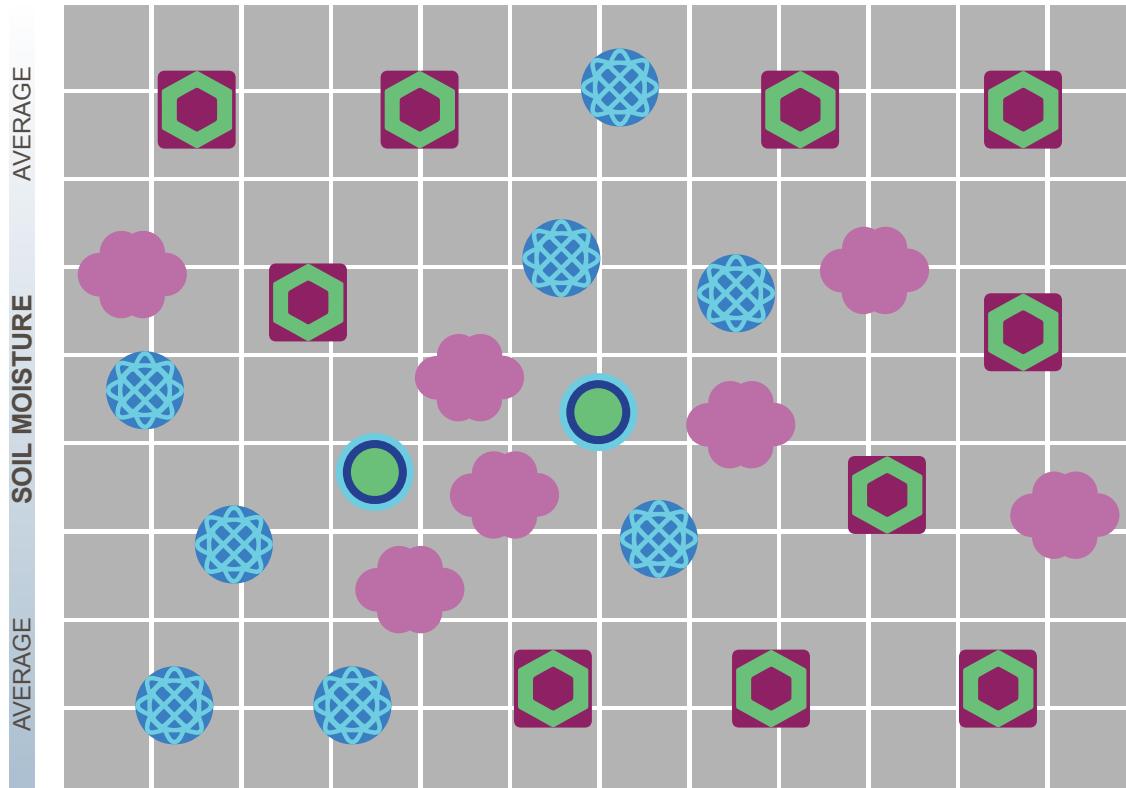
16		<i>BOUTELOUA CURTIPENDULA</i> SIDEOATS GRAMA • (35% OF MIX)
8		<i>PANICUM VIRGATUM 'CAPE BREEZE'</i> CAPE BREEZE SWITCHGRASS • (17% OF MIX)



### Plant Arrangement

#### BIOSWALE - PART SUN

9' x 12' PLOT (108 S.F.) • 27 PLANTS • 18" TO 30" SPACING  
PART SUN



**Remarks:** The Goldtau Tufted Hair Grass is one of the few ornamental grasses that doesn't mind shade. This mix pairs it with a selection of perennials that include Summer Beauty Ornamental chive, Twilight Aster, and Black-Eyed Susan. Count on the Summer Beauty chive for solid foliage and pink/purple flowers all summer. The Twilight Aster and Black-Eyed Susan bring yellow and lavender flowers in fall.

#### QTY | PERENNIALS

8		ALLIUM ANGULOSUM 'SUMMER BEAUTY' SUMMER BEAUTY ORNAMENTAL CHIVE • (30% OF MIX)
7		ASTER HYBRID 'TWILIGHT' TWILIGHT ASTER • (26% OF MIX)
2		RUDBECKIA HIRTA BLACK-EYED SUSAN CONEFLOWER • (7% OF MIX)



#### GRASSES

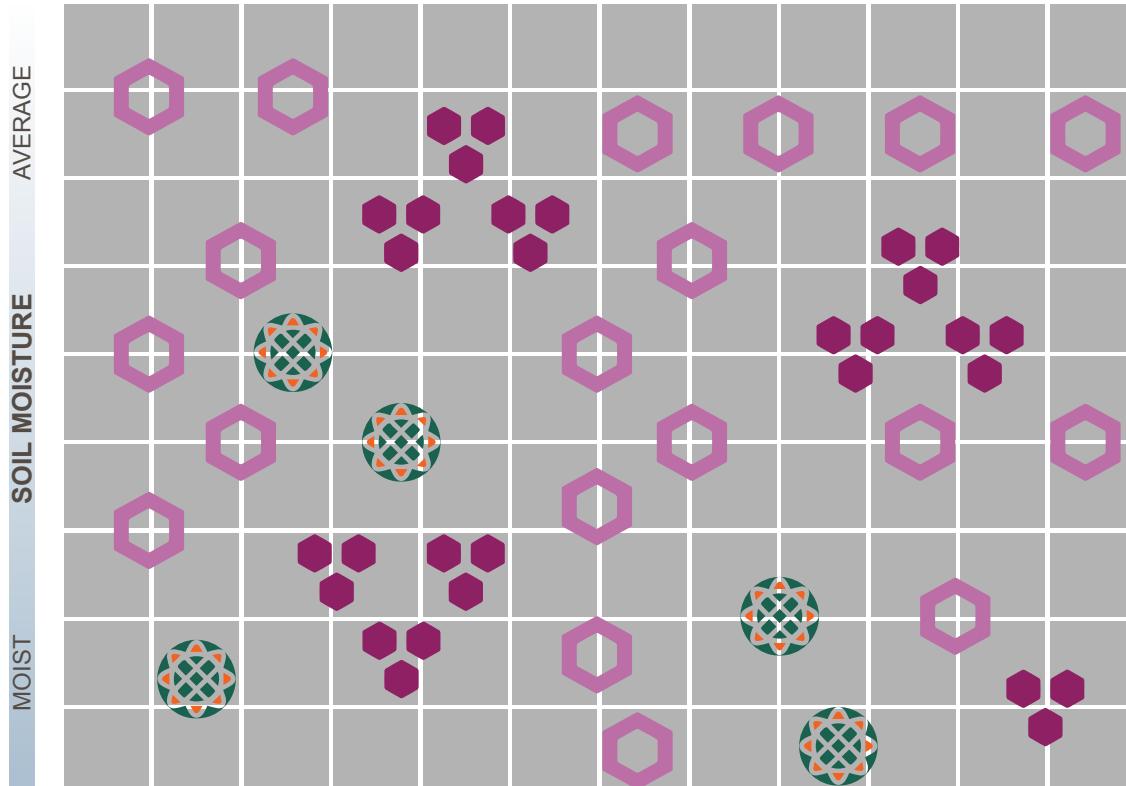
10		DESCHAMPSIA CESPITOSA 'GOLDTAU' GOLDTAU TUFTED HAIR GRASS • (37% OF MIX)
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### Plant Arrangement

#### RAIN GARDEN - BEGINNER #1

9' x 12' PLOT (108 S.F.) • 34 PLANTS • 15" TO 18" SPACING  
FULL SUN



**Remarks:** A smaller Switchgrass is the foundation for this mix. Ruby Ribbons has a compact form and vigorous habit. Pair it with Sweet Coneflower and Great Blue Lobelia for a late summer flower display. The Coneflower will rebloom if deadheaded in August.

#### QTY | PERENNIALS

5  *RUDBECKIA SUBTOMENTOSA 'HENRY EILERS'*  
SWEET CONEFLower • (15% OF MIX)



10  *LOBELIA SIPHILITICA*  
GREAT BLUE LOBELIA • (29% OF MIX)



#### GRASSES

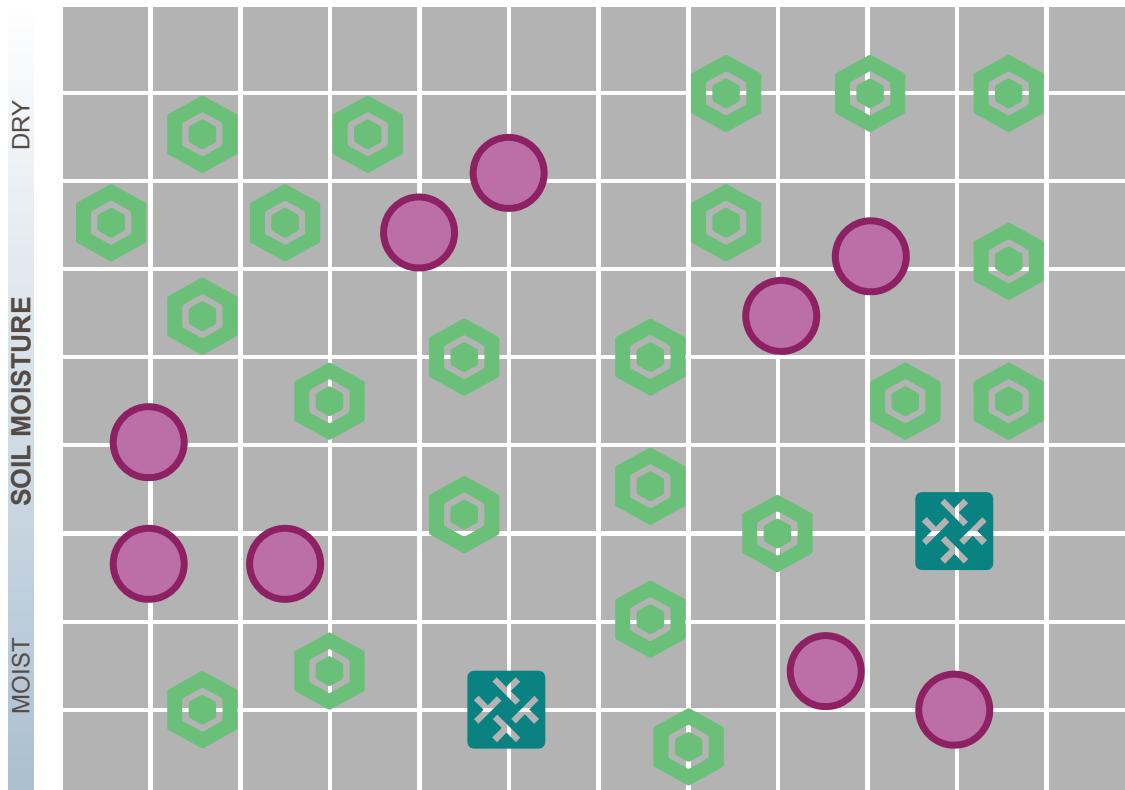
19  *PANICUM VIRGATUM 'RUBY RIBBONS'*  
RUBY RIBBONS SWITCHGRASS • (56% OF MIX)



### Plant Arrangement

#### RAIN GARDEN - BEGINNER #2

9' x 12' PLOT (108 S.F.) • 33 PLANTS • 15" TO 18" SPACING  
FULL SUN



**Remarks:** This trio of plants won't let a beginner gardener down. The sturdy Cape Breeze Switchgrass is offset by the summer flowering Culver's Root with its striking vertical flower heads. The New England Aster flowers in fall and will likely self-seed. This mix will be popular with butterflies.

#### QTY | PERENNIALS

9  *VERONICAstrum VIRGINICUM*  
CULVER'S ROOT • (27% OF MIX)

2  *ASTER NOVAE-ANGLIAE*  
NEW ENGLAND ASTER • (6% OF MIX)



#### GRASSES

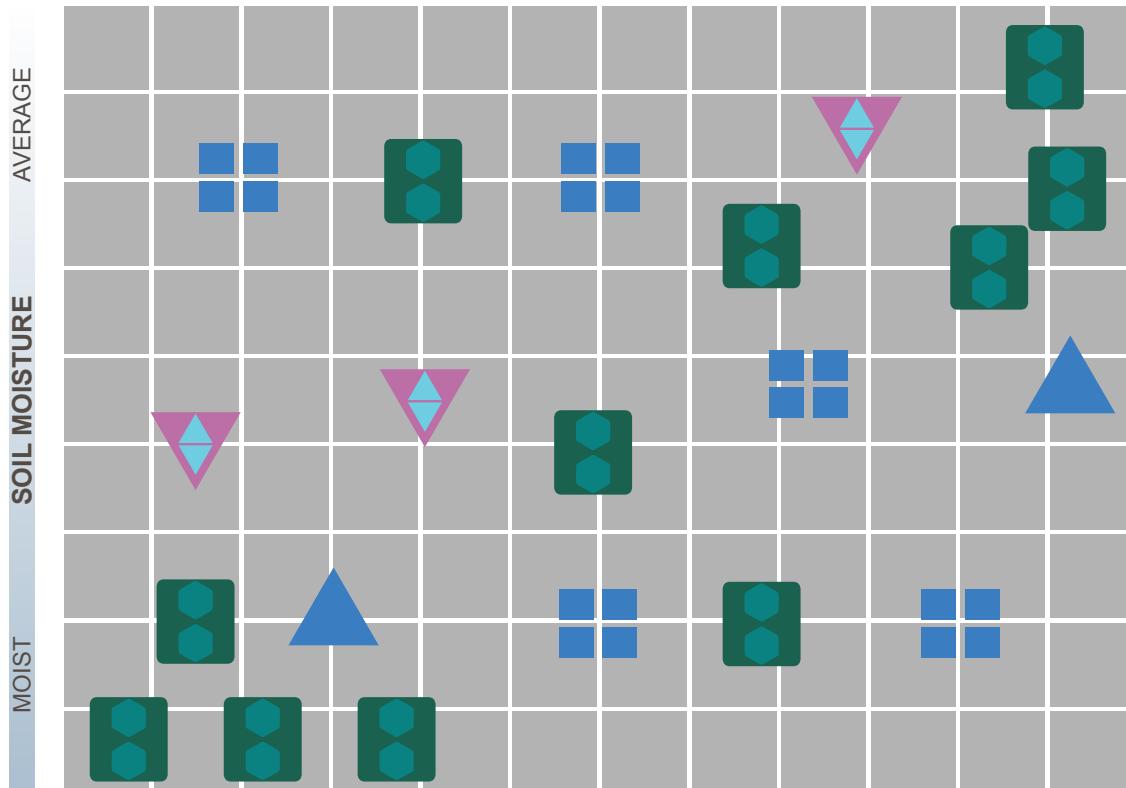
22  *PANICUM VIRGATUM 'CAPE BREEZE'*  
CAPE BREEZE SWITCH GRASS • (67% OF MIX)



### Plant Arrangement

#### RAIN GARDEN - INTERMEDIATE

9' x 12' PLOT (108 S.F.) • 21 PLANTS • 18" TO 48" SPACING  
FULL SUN



**Remarks:** This is a bold planting that contrasts the yellow leaves of one of the largest hostas with the thin leaves of the Tussock Sedge. The sedge and hosta will fight each other for space - the sedge is rhizomatous so it will move around the big hosta as necessary. The iris and aster will rise above the fray with flowers in May and August respectively.

#### QTY | PERENNIALS

2		BOLTONIA ASTEROIDES VAR. LATISQUAMA 'MASBOLIMKET' THOUSAND FLOWER ASTER • (10% OF MIX)
3		IRIS SIBIRICA 'CAESAR'S BROTHER' CAESAR'S BROTHER SIBERIAN IRIS • (14% OF MIX)
5		HOSTA 'SUM AND SUBSTANCE' SUM AND SUBSTANCE HOSTA • (24% OF MIX)



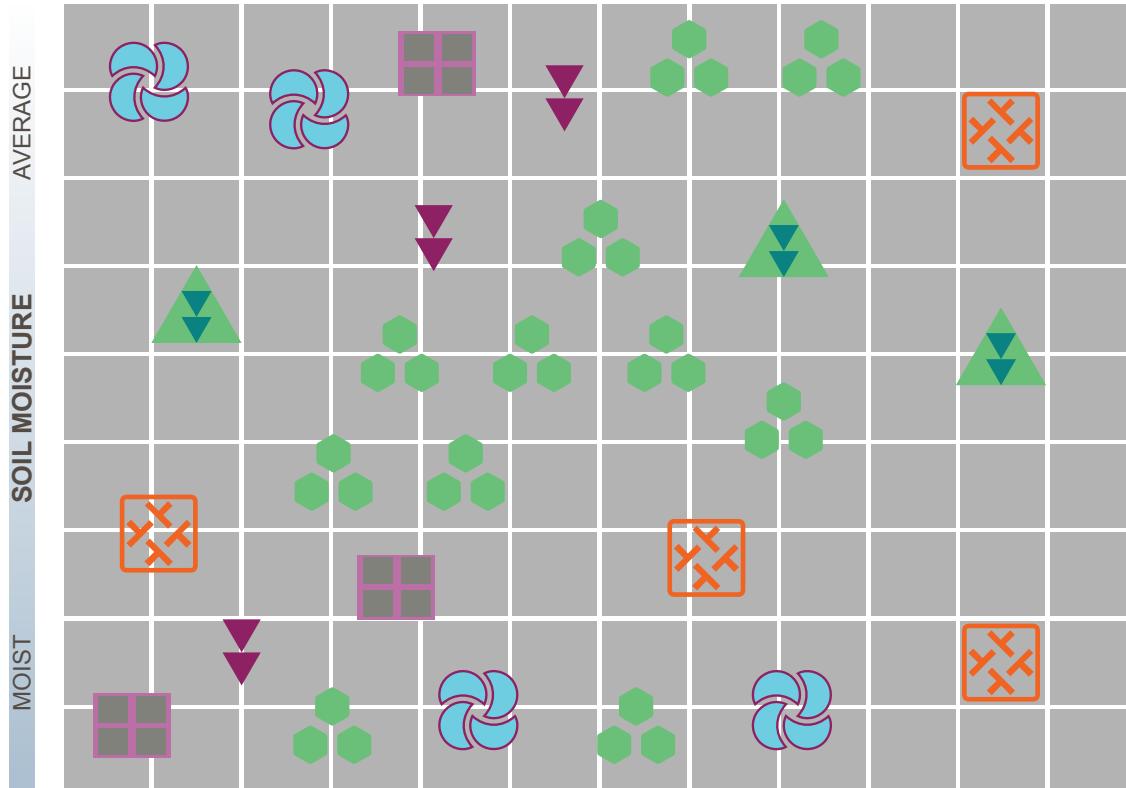
#### GRASSES

11		CAREX STRICTA TUSSOCK SEDGE • (52% OF MIX)
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### Plant Arrangement

#### RAIN GARDEN - ADVANCED

9' x 12' PLOT (108 S.F.) • 28 PLANTS • 18" TO 36" SPACING  
FULL SUN



**Remarks:** There's a lot going on in this mix. The meadow anemone can be aggressive so introduce it sparingly. Pair the tall blue switchgrass with the even taller Hollow Joe-Pye weed. The two Sneezeweed should be intermingled for a yellow and orange flower display in fall.

#### QTY | PERENNIALS

4		<i>ANEMONE CANADENSIS</i> MEADOW ANEMONE • (14% OF MIX)
3		<i>EUPATORIUM FISTULOSUM 'IVORY TOWERS'</i> HOLLOW JOE-PYE WEED • (11% OF MIX)
3		<i>HELENIUM AUTUMNALE 'MARDI GRAS'</i> MARDI GRAS SNEEZEWEED • (11% OF MIX)
3		<i>HELENIUM AUTUMNALE 'RUBINZWERG'</i> RUBINZWERG SNEEZEWEED • (11% OF MIX)



#### GRASSES

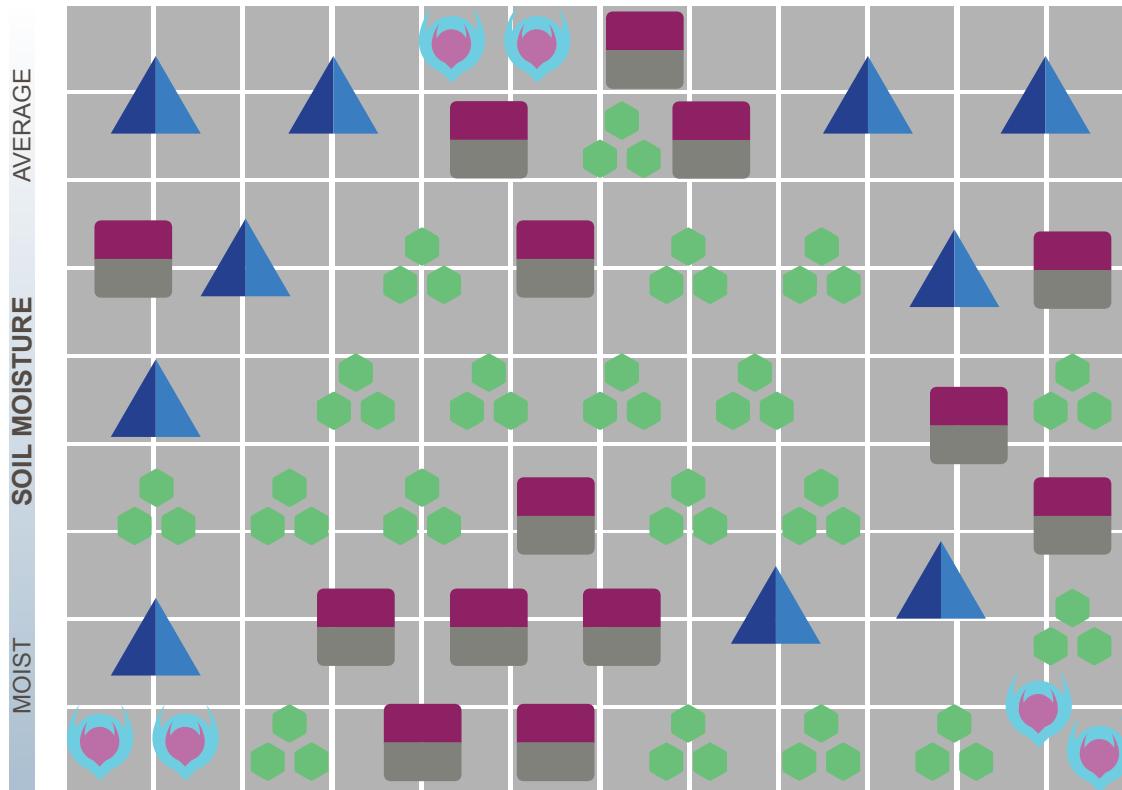
11		<i>CAREX BEBBII</i> BEBB'S OVAL SEDGE • (39% OF MIX)
4		<i>PANICUM VIRGATUM 'HEILIGER HAIN'</i> HEILIGER HAIN SWITCH GRASS • (14% OF MIX)



### Plant Arrangement

#### RAIN GARDEN - PART SUN

9' x 12' PLOT (108 S.F.) • 49 PLANTS • 8" TO 24" SPACING  
PART SUN



**Remarks:** This is an understated mix for those that appreciate foliage. The delicate leaves of the Cinnamon Fern are contrasted by the large leaves of the June Hosta. The Bebb's Oval Sedge's role is to keep the groundplane covered while the Rue Anemone is an ephemeral that will make a brief appearance in April and May.

#### QTY | PERENNIALS

10  *HOSTA TARDIANA 'JUNE'*  
JUNE HOSTA • (20% OF MIX)

6  *THALICTRUM THALICTROIDES*  
RUE ANEMONE • (12% OF MIX)



#### GRASSES

19  *CAREX BEBBII*  
BEBB'S OVAL SEDGE • (39% OF MIX)



#### FERNS

14  *OSMUNDASTRUM CINNAMOMEUM*  
CINNAMON FERN • (29% OF MIX)

