



Montgomery County Department of
Environmental Protection
Watershed Maintenance Department

Successful Sustainable Design Strategies for ESD Reducing Maintenance Costs and Increasing Acceptance

ONE SIZE DOES NOT FIT ALL

Donna Evans

CONSIDERATIONS THAT DIRECT DESIGN SPECIFICATIONS, PLANTING PLANS AND MAINTENANCE

1. Site Awareness-have you visited the site?
2. Property Type
(private/residential vs public/commercial)
 - Project size/type
 - Aesthetic needs
3. Plant spacing, grade, growth habit and type

Deer pressure

#1 SITE AWARENESS



Salt and sediment load



Adjacent steep slopes
combined with shade

#1 SITE AWARENESS



Line of sight issues
Plants too tall at intersection

Access difficulties - Is this sight better for a seed mix and mow facility?



How is the adjacent property maintained?

#1 SITE AWARENESS

Existing mature trees and or steep slopes=conservation landscapes/microberms/check dams, another “tool in the tool box”



Check dams
and modified
dry wells

#2 PROPERTY TYPE

PRIVATE PROPERTY (residential/congregational)

- Smaller impervious area treated = smaller water volume and velocity (soil amended vs soil replacement)
- More green space= treatment trains, lot to lot drainage
- Aesthetics =blend with existing

When you have healthy functioning soil.....

THE WATERFORD EXPERIMENT

Both sites passed a perc test, drained within 24 hours/2 fills



VS



Hauled 2 truck loads of soil away
4 hours to get ready for planting

175 sf media foot print,
IA=780 sf
12" planting depth, 3"
mulch layer, 6" ponding

No soil hauled away,
2 hours to get ready for planting

290 sq ft media foot print,
IA= 2580 sf
12" planting depth, 3"
mulch layer, 6" ponding



TREATMENT TRAINS and AESTHETICS

Lot to lot
Drainage

Combining
practices in
tight spaces

Blends with
the property





Rain Planter

VS



ESD TO THE MEP.....THE "M" STANDS FOR MAXIMUM NOT MINIMUM

#2 PROPERTY TYPE

PUBLIC PROPERTY

- Larger IA treated= larger water volume and velocity
-soil replacement and underdrains for faster draw down time
- Tight green spaces=green streets
- Aesthetics for general public



AESTHETICS

Public Property

Wrong plant wrong place



Sparse Plantings



No winter interest





AESTHETICS Public Property

PresenterMedia



OUTREACH

UNTIL IT RAINS





DWARF or CLUMP GROWING NATIVE CULTIVARS



GROUND COVER LAYER



- Carex 'Bunny Blue'
- Phlox subulate
- Carex rosea
- Packeria aurea
- Carex 'Blue Zinger'
- Erigeron pul.
'Lynn Haven Carpet'



NATIVES AND NON NATIVES



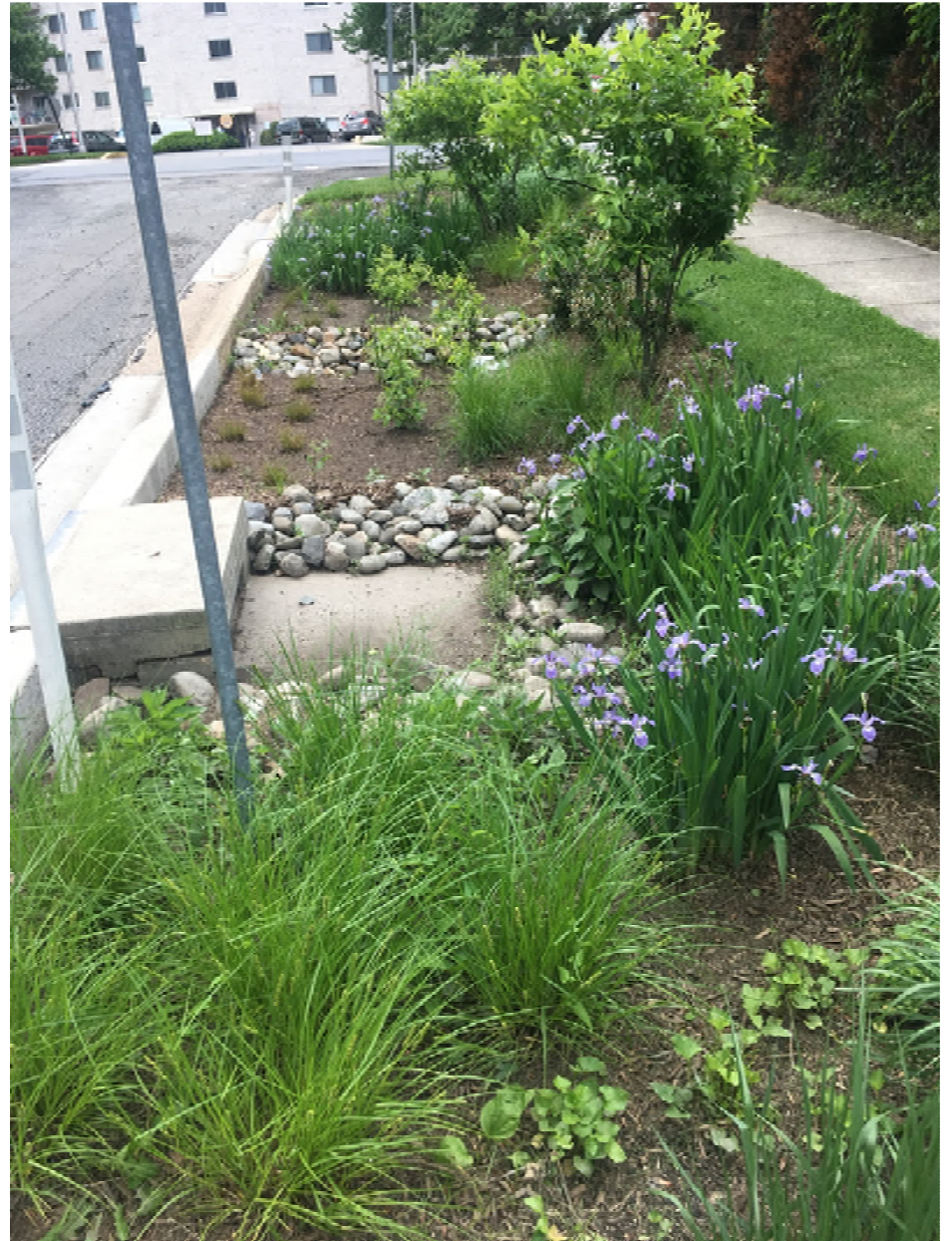
Liatris microcephala

Dianthus 'Neon Star'

Sedum 'Weinstephaner Gold'







WINTER BASAL FOLIAGE



MAINTENANCE

!*#@\$%^&*</>!

We all love Panicum
but this is too much
of a good thing!

Sheet flow off large parking
area causing erosion





MAINTENANCE BUDGETS NEED TO BE THOUGHT THROUGH

School have more gardens then they normally would have overwhelming there grounds maintenance staff and budget



Clarksburg Outlets

BIORETENTION COMMERCIAL MAINTENANCE WOULD BE DONE ANYWAY



“Takes more time because too much herbaceous material needing to be cut back. Use of Roundup for being fiscally responsible, too much hand weeding.”



GENERAL PLANTING PLAN GUIDANCE to REDUCE MAINTENANCE COSTS

Plant grade and sparse plantings



Plant arrangement-
understand plant's
growth habit





GENERAL BIO-RETENTION PLANTING GUIDANCE FOR REDUCING MAINTENANCE

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PLANTING PLAN DESIGN CONSIDERATIONS FOR EASIER MAINTENANCE

- Plant in mass groupings using fewer varieties for easier recognition by maintenance staff.
- Use dwarf cultivars whenever possible for controlled growth in smaller facilities.
- **Use a ground cover layer to reduce bare mulch exposure to reduce weed growth. (Packer and shorter varieties of Carex are examples of good native choices)**
- Do not use plugs or seed, slow to establish (weed invasion) and difficult plant recognition for maintenance staff (wild flower seeding).
- Require hand watering for six weeks after installation- 3 times a week for 2 weeks, 2 times a week for 2 weeks and once a week for 2 weeks, after on an as needed basis, all dependent on weather (rain).
- **Be aware of deer pressure on proposed site and plant deer resistant plants and or plan for methods of minimizing damage to plants, particularly when newly planted.**
- **Have a good balance of woody, herbaceous plants/grasses, ground cover and 4 seasons of interest**

GRADE OF PLANT MATERIAL

- Container grown nursery stock: Well-established root system reaching the sides of the container to maintain a firm ball, but shall not have excessive root growth encircling the inside of the container. **Foliage will extend to or over edge of pot, "Retail Ready or Heavy Grade". (this is critical for adequate coverage within a year)**
- Ball and burlap nursery stock: Ball shape and size conform to The American Standard for Nursery Stock (ANSI Z60.1) standards. Root balls adequately protected always from sun, heat, freezing, and drying.

***No seeds unless used in a "mow only" facility

***Plugs in low flow situations and spaced close together

SPACING OF PLANT MATERIAL

- Woody plant material maturing up to 3' should be a minimum of 2-gallon container size and be spaced 18"-2' on center (Shrubs).
- Woody plant material maturing 4' or more should be a minimum of 3-gallon size, be spaced 3-4' on center depending on mature size (Shrubs).
- Herbaceous plant material should be a minimum of 1 gallon size and spaced 12-18" on center on average.
- Ground cover layer appropriate to use quarts spaced 8-12" on center, plugs in low flow situations 6-8"





QUESTIONS

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