

# Dormonster's Guide to Rain Gardens



# Objectives

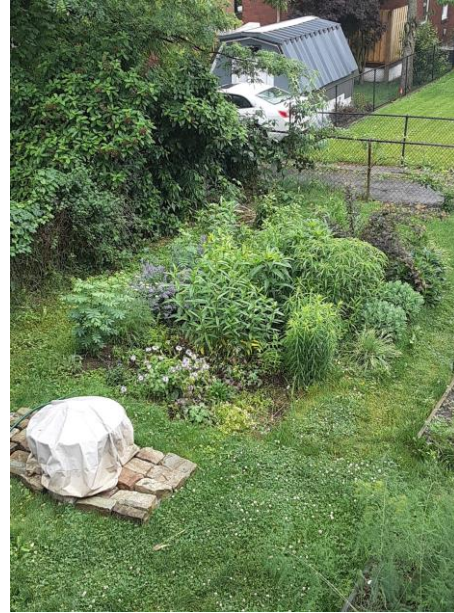
To identify areas suitable for a rain garden on your property

To understand the building requirements needed for a useful rain garden

To identify native plants that will withstand occasional flooding

To understand requirements for Stormwater credit

Choose one (or more)



Rain barrel, Tree, Rain garden

# A rain garden ...

## IS

- a simple man-made depression that captures and stores runoff from impervious surfaces
- a garden that mimics nature's water filtration system
- Pollinator habitat

## IS NOT

- A pond or water feature
- Mosquito habitat
- Used only in the summer
- Overly expensive

# From the Stormwater Credit Manual

“Rain gardens are landscaped areas built in a depression that are designed to capture and filter from the roof or other impervious surfaces... Individual residential property stormwater credit for a rain garden will be a 25% discount per year, provided the rain garden is properly maintained and in working order.”

## Requirements:

1. At least 25% of impervious surface area must drain in to rain garden
2. Stormwater overflows must be directed away from neighboring properties, sidewalks, steep slopes or retaining walls
3. Initial and annual application for credit

# Rain Garden Planning

# Count downspouts and where they go

Count downspouts

Do they pour onto lawn?

Do they go down pipes?

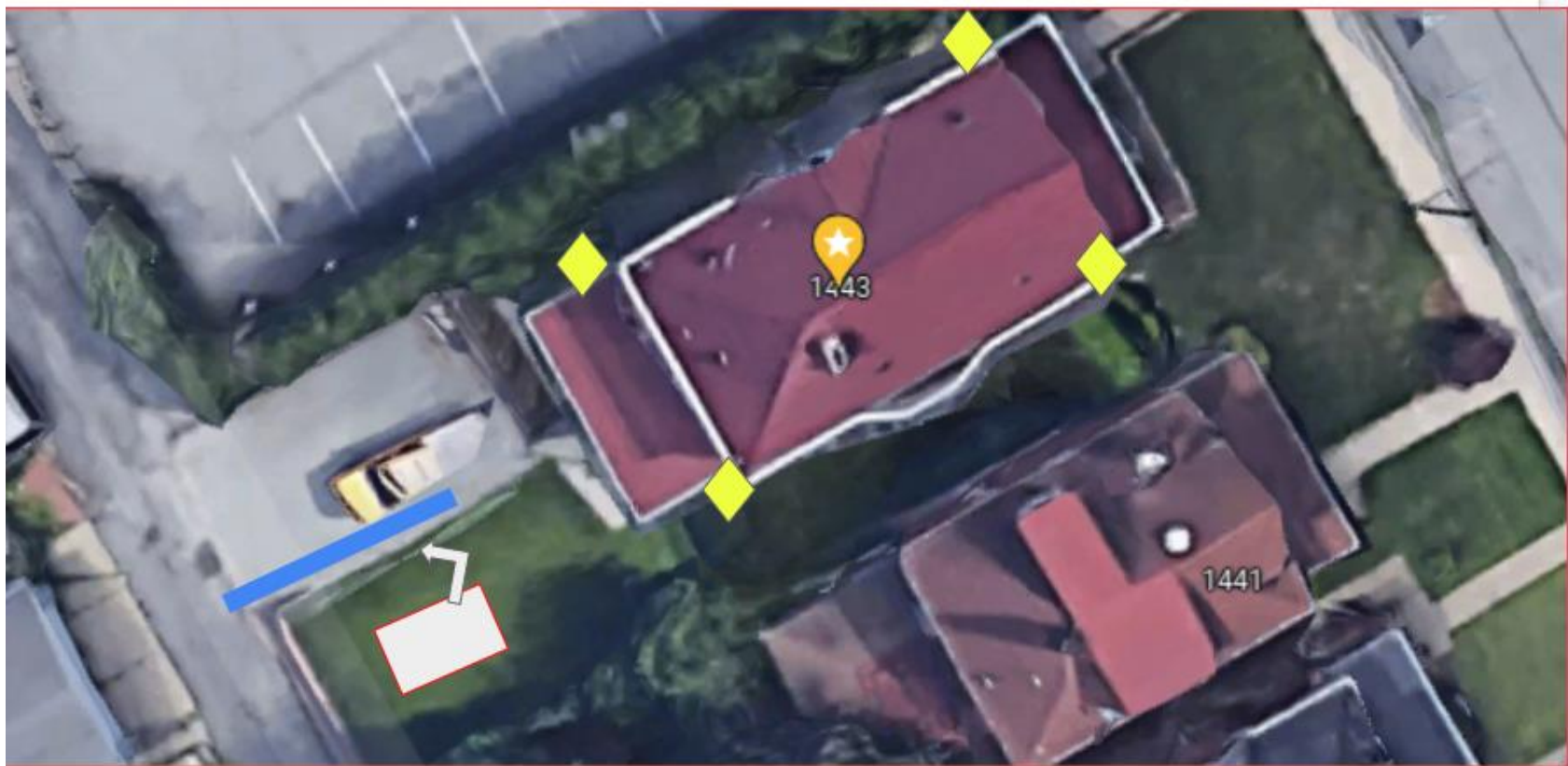
Walk property perimeter. Where does rainwater go now?

Our House:

Four downspouts

All four are connected to pipe that drains to alley

Need a garden large enough to capture at least 25% drainage



Count downspouts and find where the water flows

# Determine Impervious surface area

## TOTAL IMPERVIOUS AREA:

Measure footprint of all structures

Add in sidewalks, parking pads, etc.

Length x Width = Area (sqft)

## TOTAL DRAINAGE AREA TO GARDEN

Measure ~area that will drain to garden

Our House:

House footprint: 1240sqft +14sqft sidewalk

([Use Allegheny County Real Estate](#))

No other structures (gravel parking pad)

Impervious area = 1254sqft

Draining to rain garden =1240sqft

# Find area suitable for garden

10ft away from structures (yours and neighbors)

Areas that slopes away from house

Stay away from areas that

- Are directly under trees
- Are directly over utilities
- Areas that are wet/marshy during rain storms

Our House:

10ft from retaining wall

Over 10 feet from structures

Near gravel parking pad for overflow

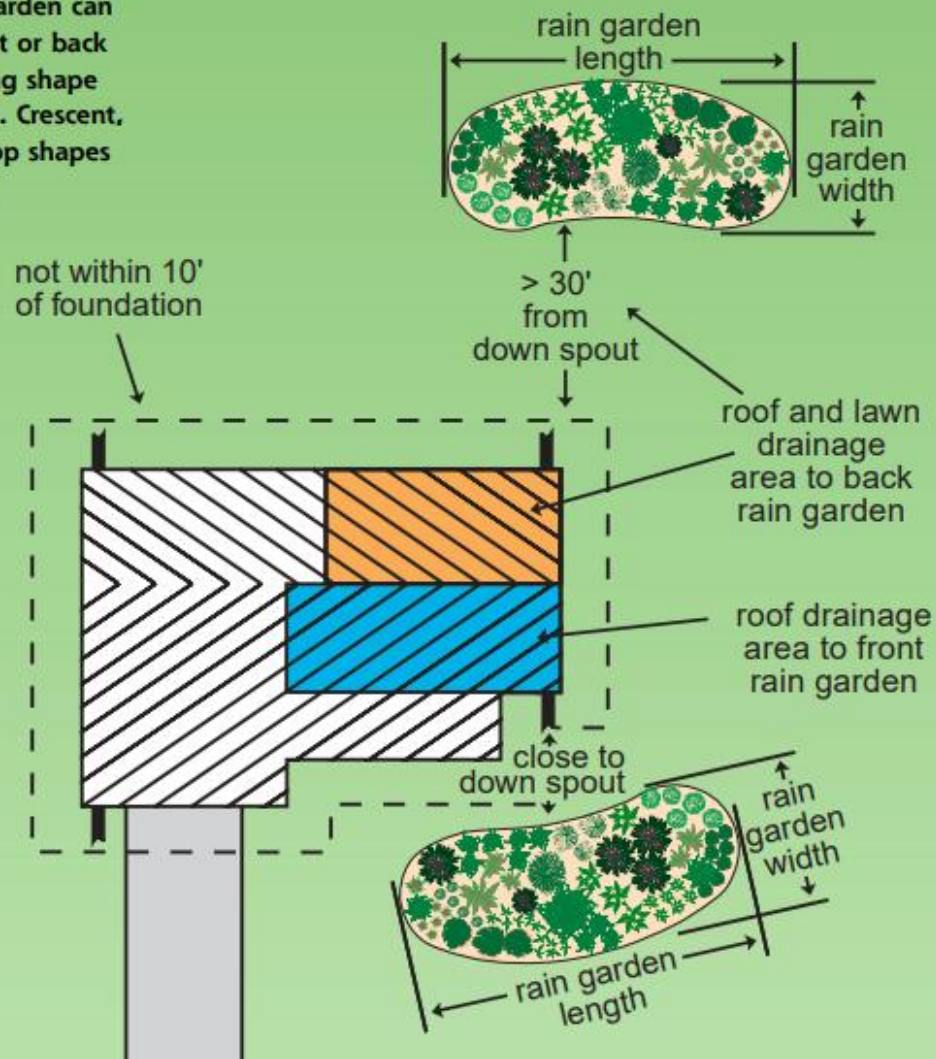


Lawn for Days!

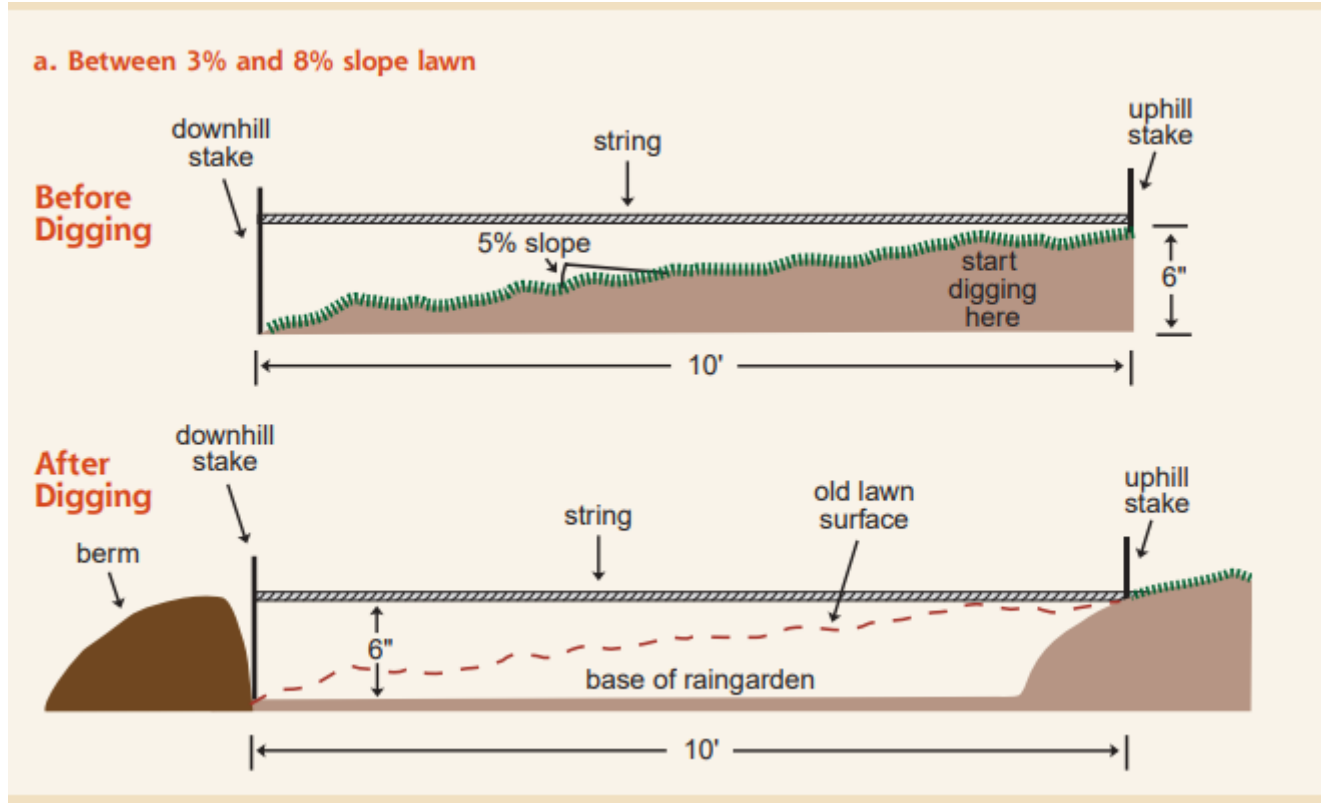


Note outlet pipe and wall

**Figure 1** A rain garden can be built in the front or back yard. Pick a pleasing shape for the rain garden. Crescent, kidney, and teardrop shapes seem to work well.



Determine Slope = (rise/run) x 100



# Determine Garden Size

‘Back of envelope’

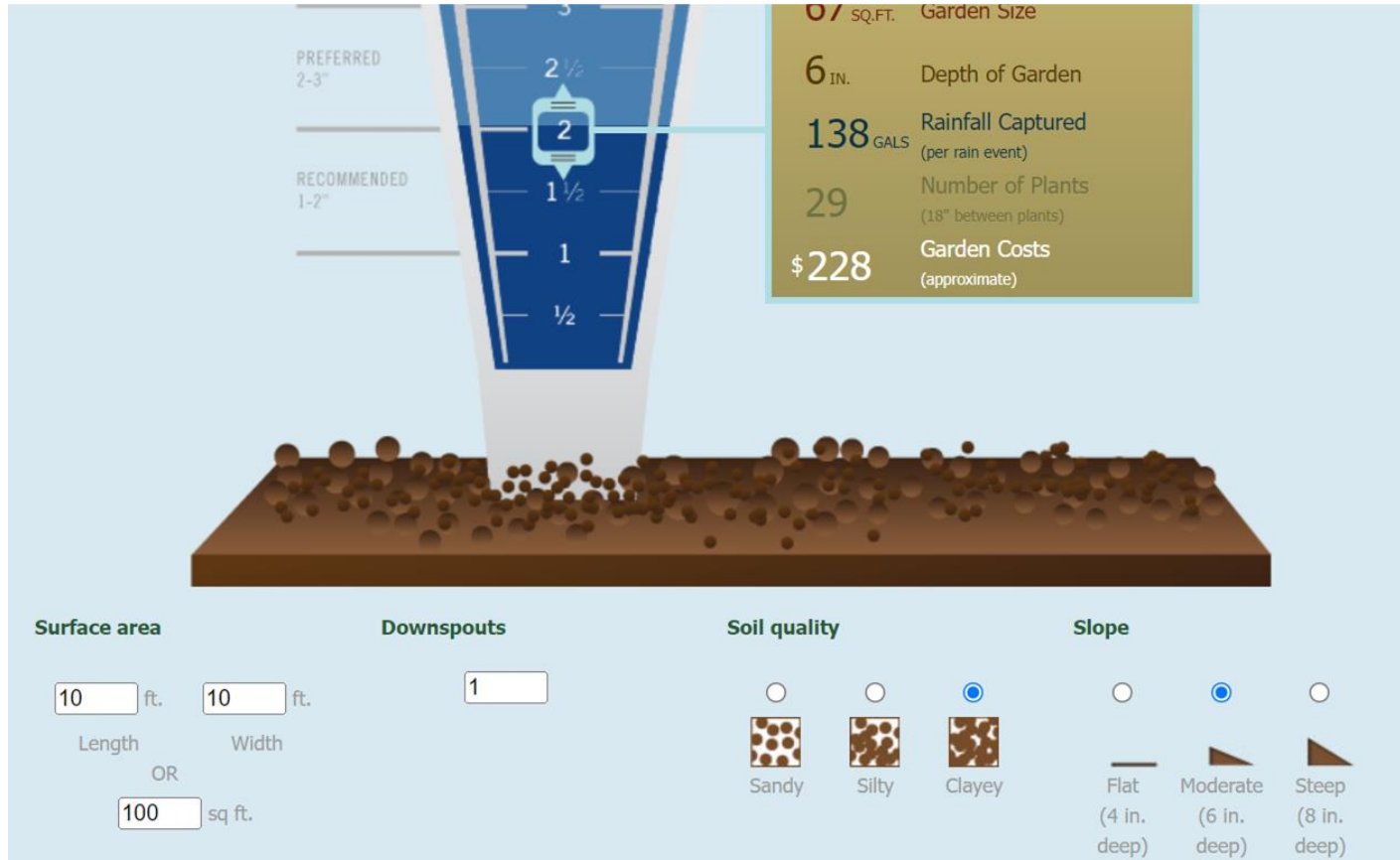
1. Calculate solid, impervious area on property (house, garage, sidewalk, etc)
2. 10% of impervious area = garden area
3. Rain gardens should be between 4-8 inches deep

Our impervious area= 1254 sqft

Our rain garden (100% drainage) = 120 sqft

Garden 8ftx15ft. 10 inches deep

# Determine Garden Depth



# The Dig



**Know what's below.**  
**Call before you dig.**

# Remove Turf

Use garden hose to outline garden

Using sharp spade or mattock, cut and remove all turf

OR

Solarize

1. Lower mower to lowest setting, run over rain garden area
2. Cover turf area with tarps, plastic, cardboard; weight down
3. Remove after one month and keep open for 1-2 weeks
4. Re-cover for one month
5. Process may take 2-3 months



Not nearly enough solarization

# Dig!

1. Start with area closest to downspout
2. Use a ruler/yardstick to ensure depth is consistent
3. Remove dirt and add to berm. Pack down berm by walking over it
4. Depending on slope, you will not need to dig the area farthest from downspout; bottom of bowl must be as flat as possible
5. Berm will contain the water

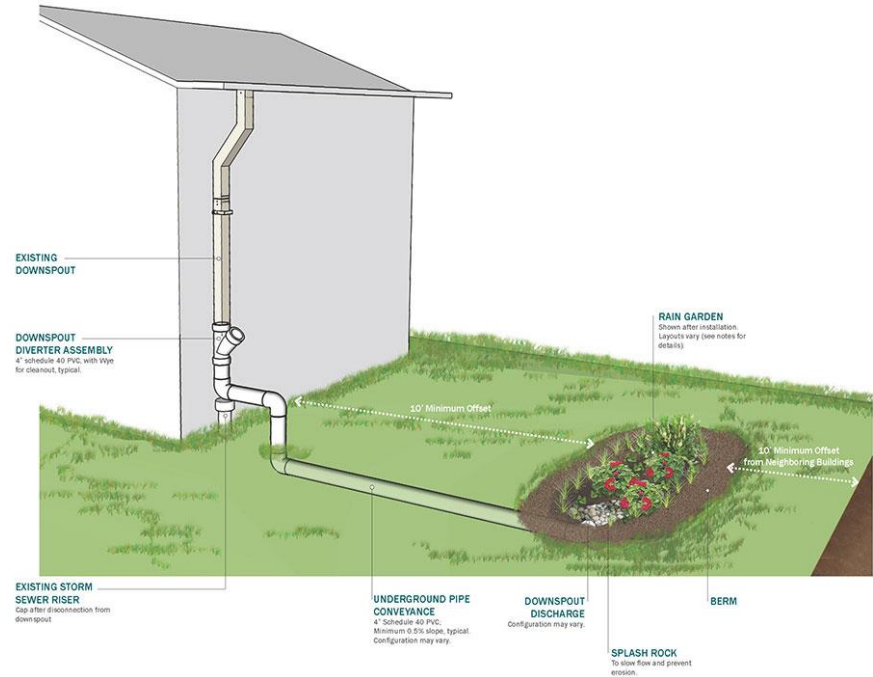
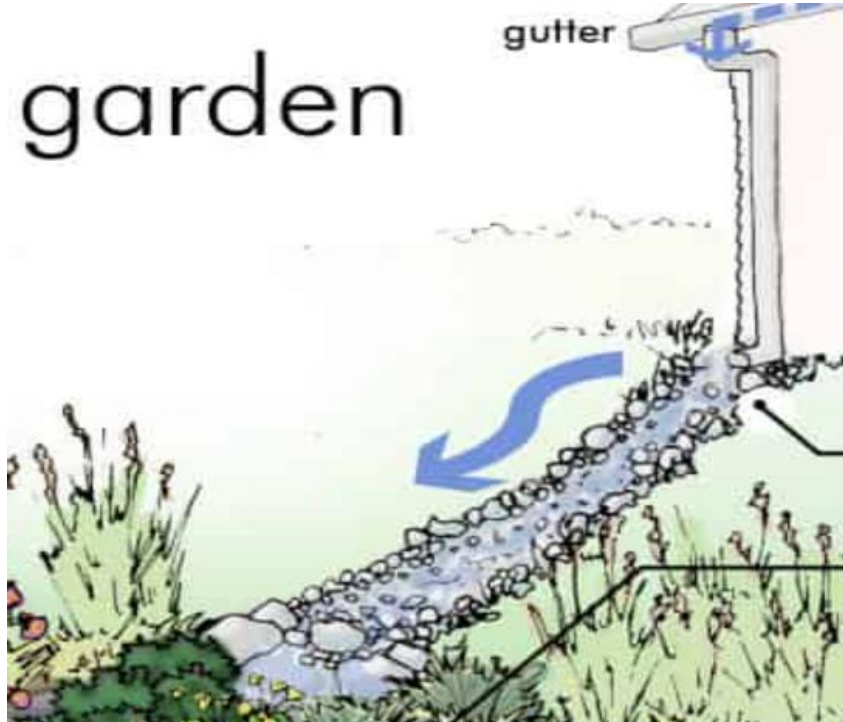


Sharp spade and buckets

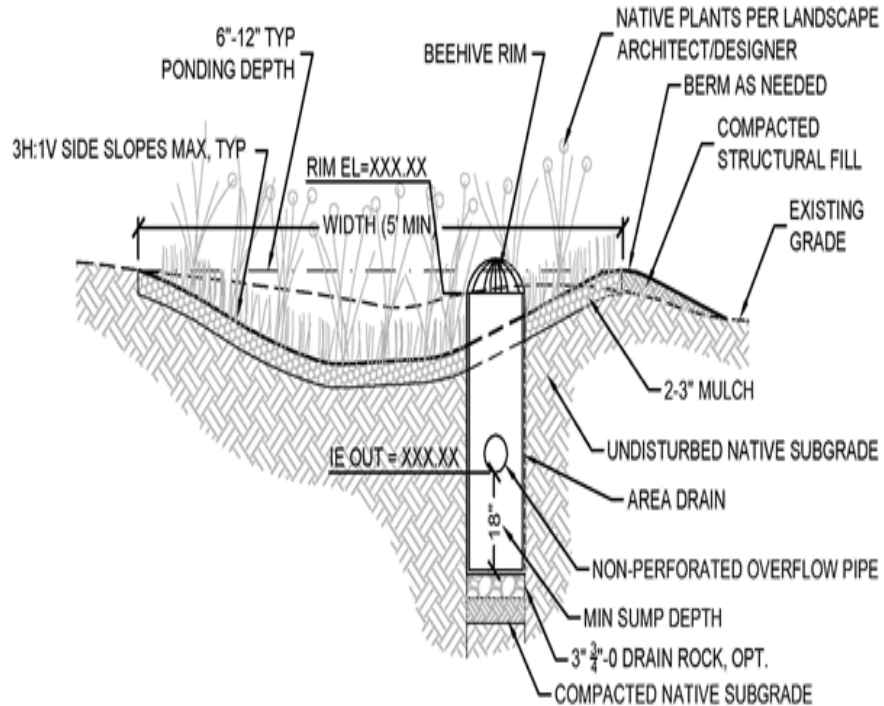


Maintain depth/flat bottom

# Water Entry Options



# Water Escape Options/Overflow Plan



# Compost (1") & Mulch (2")

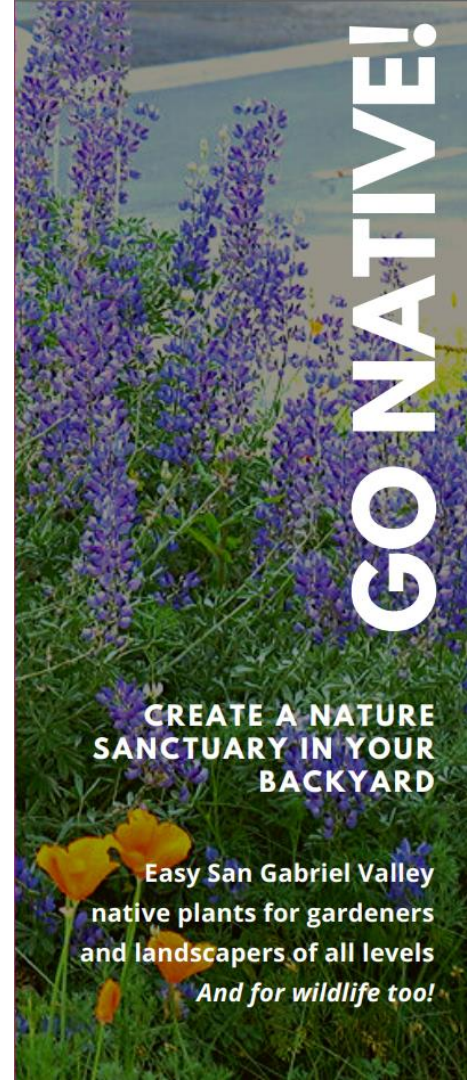


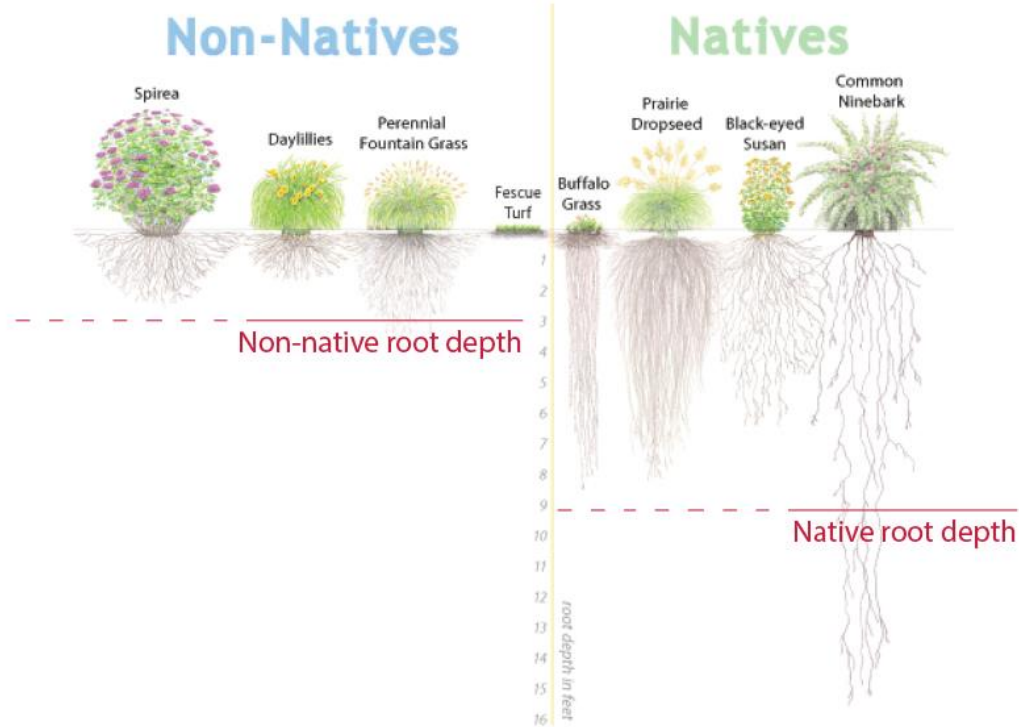
# Planting and Design

# Use Native Plants!

Choose Native Perennials

- Non Fussy
- Pollinator Magnets
- Bird food vending machines
- Deep, deep roots





**Plant  
Native!**

Roots = Infiltration

# Learning about Native Plants

[www.wildflower.org](http://www.wildflower.org)

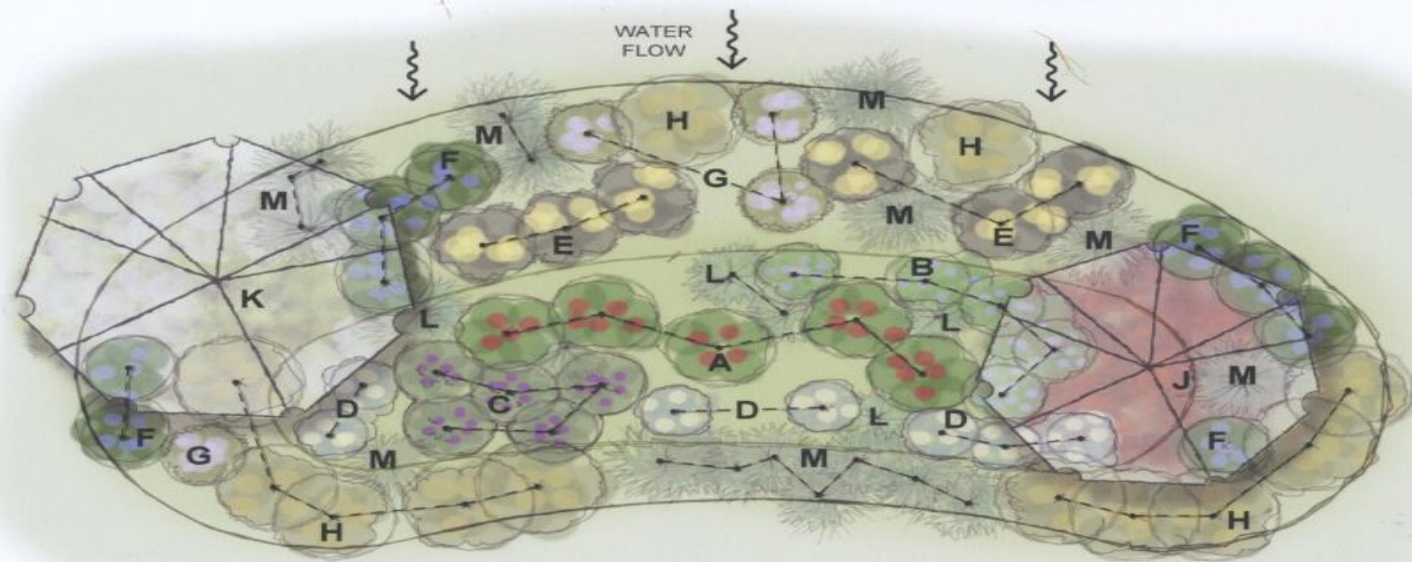
[Penn State Rain Garden Plants](#)

[Plants that Evolved Here](#)



**Audubon Society**  
OF WESTERN PENNSYLVANIA

# Full Sun Garden



## RAIN GARDEN in FULL SUN

24' x 12'



- A Cardinal flower ~ Hibiscus
- B Blue vervain ~ Swamp milkweed
- C Ironweed ~ Tall sunflower
- D Green-headed coneflower ~ Blazing star
- E Thin-leaved sunflower ~ Oxeye
- F Great blue lobelia ~ Wild senna
- G Culver's root ~ Purple bergamot
- H Bee balm ~ Mountain mint

- H Rough-stemmed goldenrod ~ Basil balm
- J Tupelo ~ Buttonbush ~ Winterberry
- K Dogwood ~ Ninebark ~ Red maple
- L Switchgrass ~ Wool grass ~ Wild stonecrop
- M Bottlebrush grass

# My Plant List/Map

1		21		21		22	22		20	20
2	Width = 8ft	16								
3		5	11							
4	Depth dug: 10in									
5	Compost and							23		28
6	2in mulch				1					
7	Slope	4								
8			8							26
9							2			
10				12						
11		7				10				27
12				14	13					
13								3		
14				OUTLET						25
15		6	7	13	14	9				
16		15								
17			15	6	24					25
18	Length = 15ft			17	18	18	19	19	17	

# Options



Seed



Arrives as shown

Bare Root



Plug



Plant

# Where to buy

Online (Prairie Nursery, Prairie Moon)

May Marts/Native Plant Sales

Your garden/Your neighbor's garden

Garden centers



# Design (short nearest house, shrubs as backdrop)

## Bloom Time

Season	Short	Medium	Tall
Spring	Jacob's Ladder, Columbine, Indigo		Dogwood
Summer	Anise Hyssop, BE Susan, Bergamot, Yarrow	Oxeye Sunflower, Milkweed, Senna, JP Weed, Boneset	Ninebark, Buttonbush
Fall	Lobelia, Sedu	Max sunflower, NE Aster, Calico Aster	

# Shrub/Trees



Ninebark, Red Twig Dogwood, Buttonbush

## Perennials (spring bloom)



Jacob's Ladder, Columbine, Blue False Indigo

## Perennials (summer bloom)



Swamp Milkweed, Oxeye Sunflower, Joe Pye Weed

## Perennials (fall bloom)



Maximilian Sunflower, New England Aster, Great Blue Lobelia



Plant your Berm!

# When/Where to Plant

Fall (September)/Spring (April)

Plant densely

Plant multiples of same plant

Wetter near pipe/inlet

Drier on berms

[Penn State Plant List \(by zone— wet to dry\)](#)

# Maintenance

Mulch and water first year

Weed first/second year

Inspect after large storms

Thin seedlings if needed

Do not 'clean up' in fall

Chop everything down next spring

Set reminder to send in credit app



# Resources

[Dormont User Fee Credit Manual](#)

[Homeowner's Guide to Stormwater](#)

[Rain Garden Calculator](#)

[Family Handyman Plan- Swale](#)

[Garden Templates \(MD\)](#)

[PSU Plant List](#)

[Rain Garden Slope](#)