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RAIN GARDENS : PART 2

How Do I Build One Myself?

How big should it be?

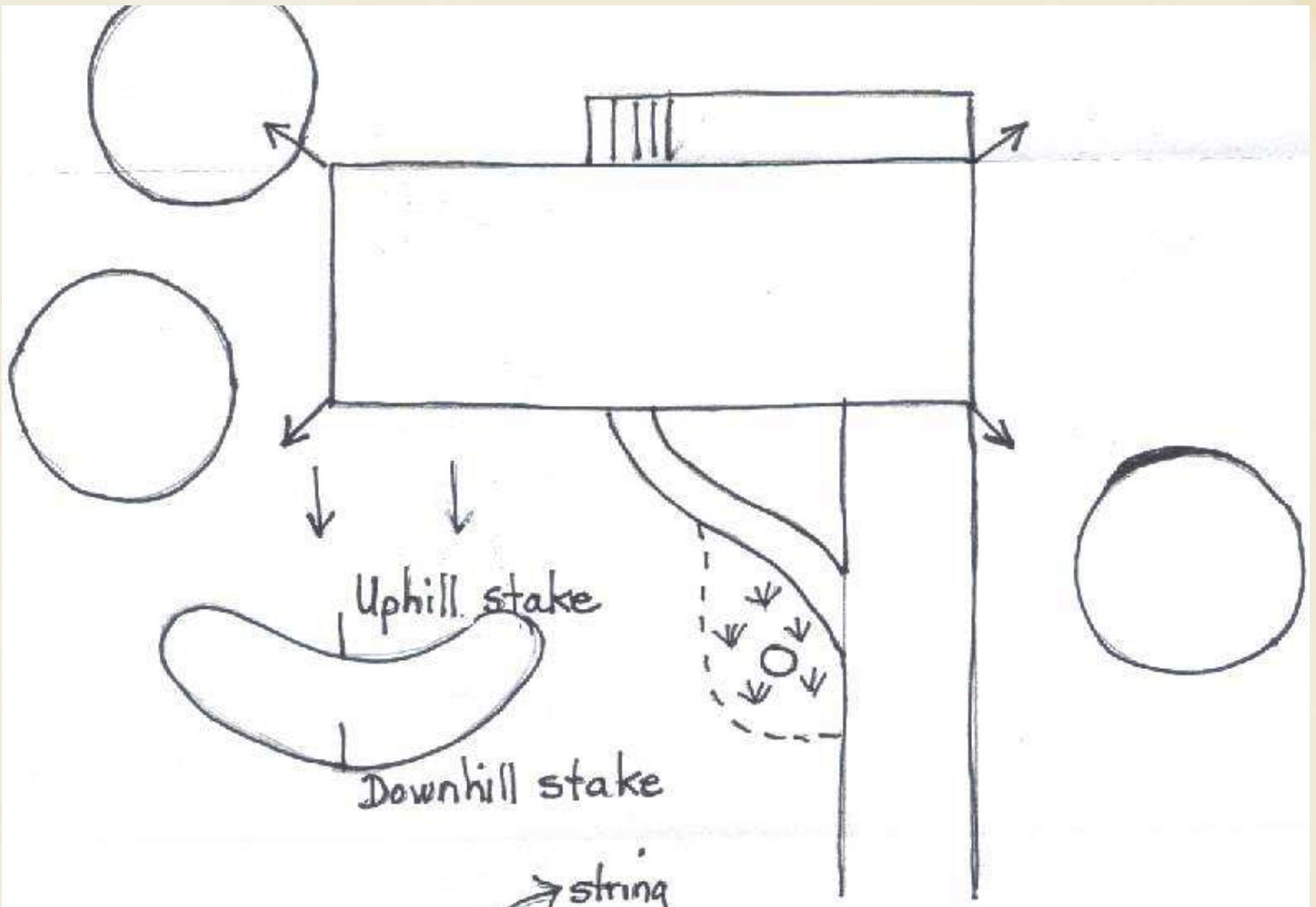
- The typical size (to serve one downspout and some lawn) is 100-300 sq. feet.
- Size depends on:
    - How deep the depression will be
        (usually 4-8 inches deep)
    - The type of soil you have
    - How much roof and/or lawn will be drained.

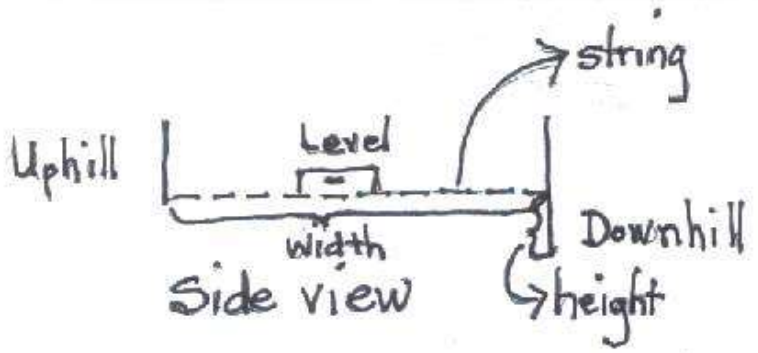
How do I find the slope?

- Pound a stake in the uphill side of garden.
- Pound a stake in the downhill side about 15 feet away.
- Attach both stakes with a string and level.
- Measure the width.
- Measure the downhill height to string.
- Divide: (H/W)x100 = % slope.

How deep should it be?

- They usually have a 4-8 inches deep depression.
- From this surface they can be 18-36 inches deep.
- The base of the garden must be level.
- Find the slope of your chosen spot to help to determine the depth.





H/W x 100 = slope

6"/15ft = .5/15 = .033 x 100 = 3.3% slope

For a single downspout

- If slope is less than 4%, build a 3-5 inch deep garden.
- If slope is between 5-7%, build a 6-7 inch deep garden.
- If slope is between 8-12%, build an 8 inch deep garden.
- Choose another spot if the slope is greater than 12%.

What type of soil is there?

Infiltration rate

- Dig a hole 6 in. wide and 18 in. deep.
- Pour water into the hole.
- If the water has not infiltrated within 48 hours, you will have to amend your soil or find another spot.

Identify soil type

- Take a handful of soil and dampen it with a few drops of water. Knead the soil in your hand and squeeze it into a ball.
- Work the soil between your forefinger and thumb. Squeeze it upward into a ribbon until it breaks from its own weight.
    - Sandy – feels gritty, breaks easily
    - Silty – smooth, not sticky; less than inch
    - Clay – sticky, clumpy; more than inch

How do I amend my soil?

The recommended soil replacement mix is:

- 1/3 sand (coarse, sharp sand; not sandbox sand)
- 1/3 topsoil (no clay)
- 1/3 compost or leaf mulch.

How do I find the area to be drained?

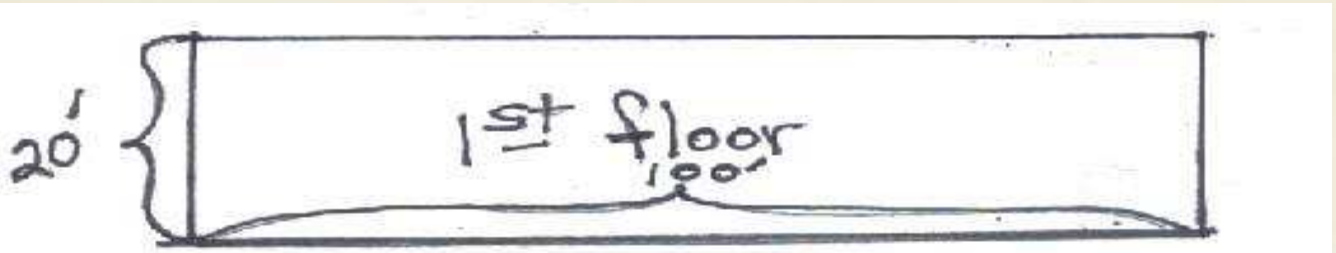
If you are less than 30 ft. from downspout:

- Estimate the % of roof feeding the downspout.
- Find area of first floor.
- (First floor area) x (% of roof feeding) = roof drainage area.

Estimating the drainage area

If you are more than 30 ft. from downspout:

- Measure length and width of uphill lawn area that will drain into garden.
- Multiply length x width to get lawn area.
- (Lawn area) + (roof drainage area) = total drainage area.



4 downspouts ∴ 25% roof

Area = 2000 sq. ft

$\frac{1}{4} \times 2000 = 500$ sq. ft. roof

Area on side of house

$10 \times 50 = 500$

Area in front of house

$100 \times 30 = 3000$

$500 + 3000 = 3500$ gras

$+ \ 500$ roof

4000 Tota

Which size factor do I use?

Rain gardens less than 30 ft. from downspout

*A size factor reduces the needed size of the garden.

Soil type	3-5 in. deep	6-7 in. deep	8 in. deep
Sand	0.19	0.15	0.08
Silt	0.34	0.25	0.16
Clay	0.43	0.32	0.20

More size factors

Rain gardens more than 30 ft. from downspout.

Soil type	For all depths
Sand	0.03
Silt	0.06
Clay	0.10

Finding the garden surface area

- Find the size factor for your soil type and garden depth. (previous slides)
- Multiply factor by drainage area.
- Voila! This is the recommended size for your garden.

Comments

- If your size is greater than 300 sq. ft., consider:
  1. Digging 36 inches deep,
  2. Making two gardens, or
  3. Having a reliable contractor install it.
- You can reduce the size of your garden by as much as 30% and still control almost 90% of the runoff.

Local contractors

- We do not endorse companies.
- Three local companies include:
  - Lauren's Garden Service, www.laurensgardenservice.com, 410-461-2535
  - Village Gardeners, www.villagegardenerscapes.com, 301-748-9872
  - McHale Landscape, www.mchalelandscape.com, 301-599-8300

How long and wide should the garden be?

- Length of garden should be perpendicular to the slope and downspout.
- It should be wide enough to spread water evenly over the area and have a wide variety of plants.
- Usually? At least twice as long as wide.
- Usually? 10 ft. wide – no more than 15 ft.
- Divide the size of garden by width to find the garden's length.

Building the rain garden

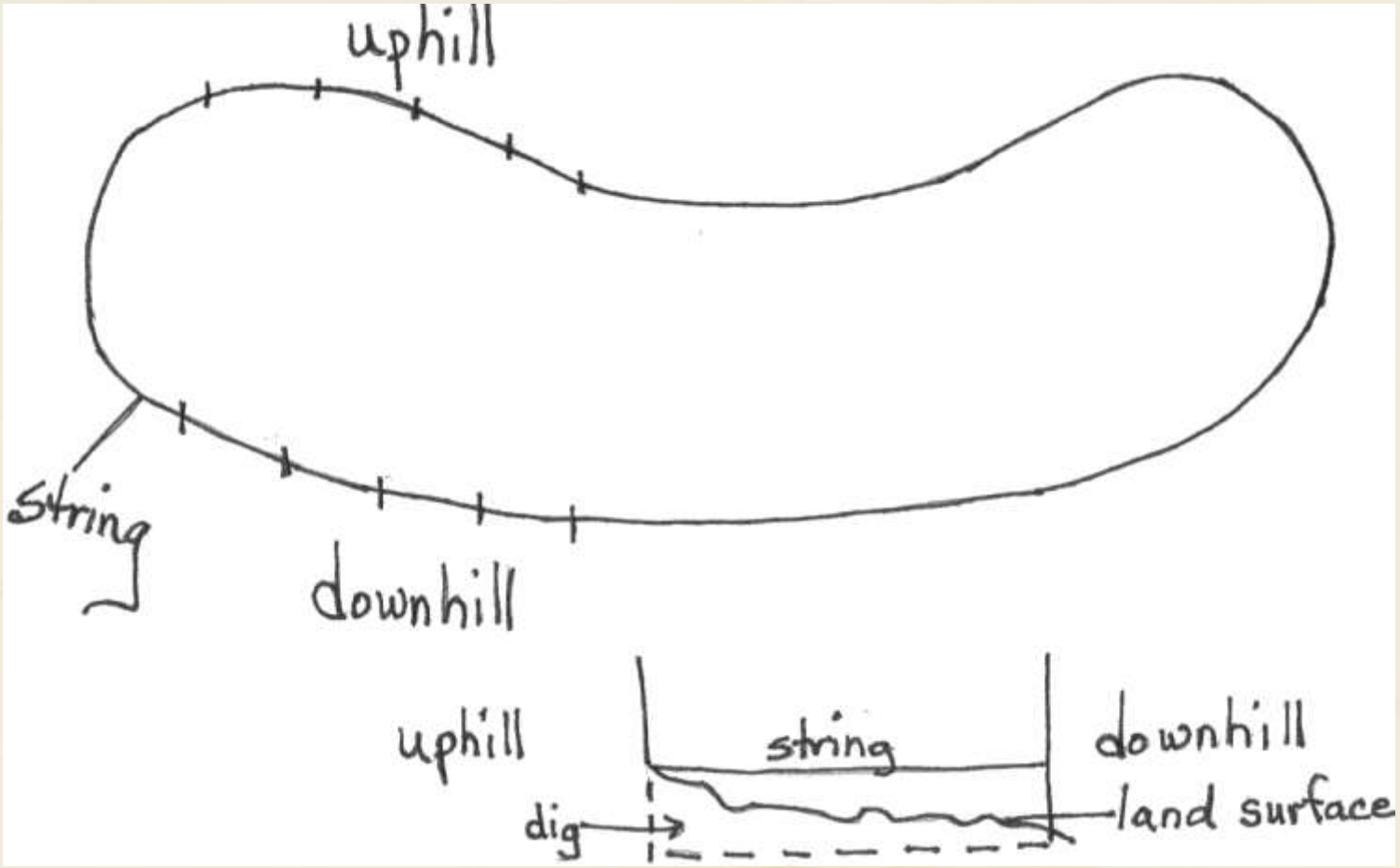
- Call Miss Utility 410-712-0056

Layout the garden

- Use a string and place it on the ground where the garden boundaries will be.
- Place stakes along the uphill and downhill sides.
- Tie a string at the uphill stake at ground level and directly opposite at the downhill stake at a location where it is level.
- Dig out at the uphill side of the string.

Building the berm

- As you dig soil, place it on the 3 sides of the garden which will contain the water. This process is forming the berm.
- It is highest at the downhill side.


uphill
string
downhill
uphill
string
downhill
dig
land surface

Finishing touches

- Taper the berm as it approaches the uphill side.
- Stomp on the berm to compact it.
- The berm should have gently sloping sides.
- Plant or mulch the berm. Little bluestem grass is a good choice.

More things to consider

- Dig until you reach the depth you want for your garden.
- Make the bottom of your garden level.
- To add 2-3 inches of mulch, dig 2-3 inches deeper than planned.

Connect garden to downspout

- Dig a shallow swale from downspout to garden or
- Attach an extension from downspout to garden.

Slow the Flow to Increase Absorption

Place rock:

1. At the water entrance point of your garden to slow down the water and
2. At the most likely point where water would exit in a heavy storm.

Rock can slow the flow

Plant location

- Deepest part of garden will support very wet to wet-loving plants.
- Middle part will support the wet to dry plants.
- Upper rim will support the drier types of plants.

Factors to consider

- Mix heights, bloom time, color and texture.
- Clump individual species in groups of 3-7.
- Repeat individual groupings.
- Incorporate sedges, rushes and grasses with flowering species.

Why native plants

- They are best adapted to local climate.
- Many are deep rooted and drought resistant. They reduce erosion.
- They are attractive to a diverse group of pollinators.
- They provide habitat, food, protection, and a place to raise young for native wildlife.

You will need to do some maintenance.

- Water 1 inch per week when nature does not do it for you.
- Weed for the first two years or until plants are well established.
- After each growing season leave seed heads and stems to encourage wildlife.

Some plants for partial shade gardens

Silky dogwood (Cornus amomum)
Red twig dogwood (Cornus sericea
Arrowwood viburnum (V. dentatum)
Spicebush (Lindera bensoin)
Winterberry holly (Ilex verticillata)
Summersweet (Clethra alnifolia)
Virginia sweetspire (Itea virginica)
Smooth white penstemon (P. digitalis)
Cinnamon fern (Osmunda cinnamomea)
Royal fern (O. regalis)
Blue lobelia (L. siphilitica)

Resources: Most of these are online

Native Plants for Wildlife Habitat and Conservation Landscaping, U.S. Fish and Wildlife Service.

Native Plants of Maryland: What, when and where. Maryland Cooperative Extension.

Rain Gardens Across Maryland;www.co.Worcester.md.us

Homeowner Guide for a More Bay-Friendly Property, Chesapeake Stormwater Network

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