Rice SWCD Rain Garden Cost-Share Program

The Rice Soil and Water Conservation District has received funding from the Board of Water & Soil Resources for a Rain Garden cost-share program that will pay 75% of the project costs with the cost-sharing being capped at $1,000 per project. Funding will be available to property owners on a first come first serve basis until funding has run out. If you, or anyone you know is interested in installing a rain garden on their property, please send a completed application to:

**Rice Soil and Water Conservation District**

**1810 30th St. NW**

**Faribault, MN 55021**

You can also send us your applications via email. Please send those to our District Manager Steve Pahs at steven.pahs@mn.nacdnnet.net. If you have any other questions, please contact the Rice SWCD office (507) 332-5408 and any of our staff can help you with your questions.
RAIN GARDEN COST-SHARE APPLICATION

Date: ______________________

Property Owner: _______________________________________________________

Address: ______________________________________________________________

Parcel ID: ______________________________________________________________

Telephone: ________________________________

Email: ________________________________________________________________

General Questions

☐ Are there currently any surface water drainage issues located on your property?

☐ Can the SWCD take photos of your completed garden for advertising of future Rain Garden programs?

How did you hear about the Rice SWCD Rain Garden Cost-Share program?
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

What made you interested in this program, or why are you constructing a Rain Garden?
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
Benefits of Rain Gardens

Rain Gardens do more than just soak up excess water from storm water sources like roofs, streets etc… They also improve water quality, provide habitat (especially declining pollinators), reduce pressure on storm sewer systems, and gives you free plants after a few years of establishment.

Rain Gardens are cheap and simple to design and install. There are some factors that need to be identified before going forward with your construction design and plant location.

Following this worksheet

This worksheet was created to aid in the design of a Rain Garden for the average landowner. It should be easy and straightforward to determine if your site is suitable for a Rain Garden or not. Please read the following questions and statements for the best site suitability and to ensure the maximum functionality of the rain garden. After completing this application and worksheet, please send to the Rice SWCD office for site verification and site suitability for the cost-sharing program. A representative will contact you shortly after the application has been received in order to set up a site visit.

SOILS TESTING

Type of Soil

1) Place 1 full tablespoon of soil in the palm of your hand.
2) Add water a drop at a time and knead the soil to the consistency like moist putty.
3) Form the soil into the palm of your hand ball then between the thumb and index finger gently working the soil outward trying to make a ribbon slowly extending the ribbon outward as you work more soil into the ribbon. Allow the ribbon to emerge and extend over the forefinger, breaking from its own weight.

☐ The soil does not remain in a ball form = sandy soils
☐ The soil formed a ribbon less than 1 inch long before it broke = silty soil
☐ The soil formed a ribbon 1-2 inches long before it broke = clayey soil
Compaction of Soil

Using a wire flag to poke into the ground:

☐ The wire can easily penetrate at least 8 inches in the soil = ideal compaction
☐ The wire cannot push into the ground easily = not ideal, make sure to rip up the bottom of the rain garden before adding anything.

Infiltration Rate

1) Dig a hole 6 to 12 inches deep and at least 4 inches in diameter in the potential Rain Garden site.
2) Fill the hole with water and let the water sit for up to 2 hours if needed to pre-soak the soil.
3) Re-fill the hole with water and push a stick into the side of the hole to mark the water level
4) After about an hour, measure and record the depth of the water.
5) Continue to monitor the water level and make new measurements over the next few hours.

☐ The water level dropped a half inch or more = good site for a Rain Garden
☐ The water level dropped less than a quarter of an inch = Not an ideal site for a Rain Garden.

CALCULATIONS

Depression Depth

💧 Taking the results from the Infiltration Test, calculate the depression depth of the garden. This is to ensure the depression is large enough to hold the amount of water being input into the garden.

_________ inches in 1 hour $\times$ 24 hours = __________ inches a day or Rain Garden Depression
12% or less slope is ideal for a rain garden.

1) Push a stake in the ground at the uphill end of your rain garden site and one at the downhill end. The two stakes should be about 15 feet from one another.
2) Tie the string to the bottom of the uphill stake and bring the other end to the downhill stake.
3) Tie the string on the downhill stake at a height where the string will be in a horizontal position.
4) Take measurements so that the correct size and depth of the garden can be estimated for the volume of water that will be input into the garden.

\[ \text{Percent Slope of Site} = \left( \frac{Y}{X \times 12}\right) \times 100 \]

Distance from the 2 stakes in inches
Distance from String and the Ground on downhill stake in inches

CALCULATING SLOPE OF PROPOSED RAIN GARDEN LOCATION

Example: X = 15 feet, Y = 25 inches,
slope = \left( \frac{25}{(15 \times 12)}\right) \times 100 = \left( \frac{25}{180}\right) \times 100
= 0.1389 \times 100 = 13.89 percent, not a good site by slope

Note: X can be any distance you choose, 15 feet is used for example only, to convert from feet to inches, simply multiply feet by 12 as shown in example calculation.
LOCATION

All of these boxes should be checked in order to ensure that the best suitable Rain Garden site has been selected.

☐ The site does not have too heavy clay soils.
☐ Infiltration rates of at least a half an inch per hour.
☐ Water table is 2 feet or more from the surface.
☐ Site slope is no more than 12%.
☐ 12 feet or more from any buildings with permanent basements.
☐ Not over any utilities (make the Gopher One call).
☐ Not within 20 feet of any septic mounds or drainfields.

DRAINAGE AREA

<table>
<thead>
<tr>
<th>DRAINAGE AREA</th>
<th>AREA IN SQUARE FEET</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lawn</td>
<td></td>
</tr>
<tr>
<td>Driveway</td>
<td></td>
</tr>
<tr>
<td>Sidewalk</td>
<td></td>
</tr>
<tr>
<td>Roof</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>TOTAL DRAINAGE AREA =</td>
<td></td>
</tr>
</tbody>
</table>

RAIN GARDEN SIZE

Dividing the Total Drainage Area by the Depth of the Depression will calculate what the square footage will need to be for your Rain Garden for 1 inch rainfall infiltration. Double drainage area for 2 inch infiltration. Once the rain garden total square footage is calculated, you can make the garden whatever you size you like as long as the shape area is equal to the calculated size.

__________________ / __________________ = __________________

Drainage Area (sq. ft.)    Depth of Depression (in.)    Rain Garden Size (sq. ft.)
DESIGN FACTORS

Inlet

Water will enter the Rain Garden by:

☐ Downspout extension
☐ Buried drain tile
☐ Overland Flow
☐ Vegetated or rock pathway
☐ Other
☐ Don’t Know

Inlet Stabilization

☐ River Rock
☐ Splash Block
☐ Erosion Control Blanket
☐ Stapled Sod
☐ Don’t Know

Overflow

Water will overflow out of the Rain Garden by:

☐ Flow over the lawn/property
☐ Flow over the driveway/sidewalk
☐ Flow into the street
☐ Other
☐ Don’t Know

💧 Make sure that the outlet is at the height allowing water to pool into the Rain Garden at the desired depth. The desired Depth of the depression is ________________ inches deep (page 6).

☐ The Rain Garden is on a slope and will possibly need a berm or wall on the downhill side of the garden.
☐ The Rain Garden is on a flat slope and no berm or wall will be needed.
☐ Is there a need for placing rip rap (rocks) on the outlet of the garden to reduce erosion?
☐ Don’t Know

💧 Make sure the overflow is directed away from houses or other permanent structures.

💧 Make sure that when constructing a berm, that the soil be covered with an erosion control blanket or with stapled sod to ensure the practice will not wash or erode away. Berms should be planted with dry tolerant plants. When constructing a wall, make sure that install a silt blanket or landscaping fabric to keep soils from washing away.
## AMMENDING OF SOIL

When the infiltration tests were done, and the infiltration rates are good, then no soil amendments will be needed. However, if there is mostly clay or sand and the infiltration test did not show good percolation, then soils should be amended under the depression.

1) Shape and dig the depression of the garden to the desired depth.
2) Dig 4-6 inches deeper and remove the soil.
3) Break the soil on the bottom with a shovel or pitchfork.
4) Add compost and sand into the bed mixing it with the broken up native soils. Do this until the depth of the garden is back to the desired depth of the depression.

Determining the cubic feet of the Rain Garden is needed to figure out how much sand and compost will be needed.

\[ \text{Square Feet of Garden} \times (\frac{\text{Depth of Soil Amendment divided by 12 inches}}{12 \text{ inches}}) = \text{Total Cubic Feet of Rain Garden} \]

The following calculations are based on 40% sand, 40% compost, and 20% existing soil. To adjust for the braking up of the bottom of the bed and compost mixture, the equations below calculates for a 50% sand and 50% compost. To amend the soils, the garden will need:

\[ \text{Cubic Feet of Rain Garden} \times 0.50 = \text{cubic feet of sand} \]

\[ \text{Cubic Feet of Rain Garden} \times 0.50 = \text{cubic feet of compost} \]
MULCHING

Spread 2-3 inches of shredded or double-shredded hardwood mulch over the Rain Garden before planting to keep moisture in the garden. Shredded mulch binds together and forms a semi-solid mat. Wood chips will float away.

Calculate the amount of mulch the garden will need by multiplying the square footage of the Rain Garden by 0.25 feet.

\[
\text{Square footage of Rain Garden} \times 0.25 \text{ feet} = \text{cubic feet of mulch}
\]

One cubic yard of mulch will cover 100 sq. ft. at 3 inches thick.

<table>
<thead>
<tr>
<th>Materials Needed</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand</td>
<td>In Cubic Feet</td>
</tr>
<tr>
<td>Compost</td>
<td>In Cubic Feet</td>
</tr>
<tr>
<td>Mulch</td>
<td>In Cubic Feet</td>
</tr>
<tr>
<td>Downspout Extension</td>
<td></td>
</tr>
<tr>
<td>Drain Tile</td>
<td></td>
</tr>
<tr>
<td>Large Rock</td>
<td>In Cubic Yards</td>
</tr>
<tr>
<td>Small Rock</td>
<td>In Cubic Yards</td>
</tr>
<tr>
<td>Border/Edging Material</td>
<td></td>
</tr>
<tr>
<td>Wall Material</td>
<td></td>
</tr>
<tr>
<td>Erosion Control Blanket</td>
<td></td>
</tr>
<tr>
<td>Splash Block</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

PLANTS

Sun Duration

- The site has sun, less than 4 hours.
- The site has sun, for 4 hours or more.
- The site has sun, only during the morning.
- The site has sun, only in the afternoon/evening.

Types of Plants

Native Plants- these are well adapted to local weather and site conditions, they require little maintenance once established.

Non-Native Plants- these are plants not from around the area, more maintenance involved, more watering.
Remember, a variety of plants will need to be selected that include different moisture tolerances, heights and blooming times. Water will accumulate in the middle/bottom of the garden for longer periods of time than the rest of the garden. Plants selected for the middle/bottom of the garden will need to have high tolerances for saturated soils. Plants selected for the inside of the slope will need to have medium soil saturation tolerances and plants at the top of the garden will have drier conditions. SWCD staff can help with plant selection and placement.

Arrange the plants so that they receive the correct sun amounts and with the most pleasing aesthetics. Another consideration is to have varying bloom times for the plants selected. This will attract pollinators for most of the year. Also, select plants that will be seen during winter as well to give pleasing aesthetics all year round.

Another design tip is to plant in clusters of 3 to 5. This helps in identifying plant species and so that weeds are only removed.

**PLANT SPACING**

For plant spacing, a good recommendation is 1 plant per 1 square foot depending on plant size at maturity. Many plants have their own spacing requirements, so pay attention to plant recommendations.

\[
\text{Square feet of garden} = \text{number of plants needed}
\]

(If shrubs or large plants are used, use specific plant spacing recommendations)

**PURCHASING PLANTS**

You can buy seeds, but they are not recommended for Rain Gardens. They will wash away.

You can buy plugs which are a little more expensive than seeds, but do well when establishing. These will require a little longer time to mature and the ability to split some perennial plant species.

You can also buy plotted plants, which are the most expensive, but will do well with establishment and have the ability to mature faster and can be split sooner.

Last planting tip, when planting in spring, use 25% potted and 75% plugs. This gives a fuller look throughout the year. When planting in fall, purchase 100% plugs for the best economical option.
View of Property and Potential Rain Garden Location
(Based on Topography and Water Flow)

Use this page to make a rough sketch of property and potential Rain Garden Location

Legend
Flow of Water
Down Spouts
Potential Rain Garden
Location of Utilities
Rain Garden Plant Species and Layout Design

Plant Species List
NOTES

Literature Cited

