A Rain Garden:

1. Soaks rainwater into the ground quickly
2. Protects our rivers and creeks from pollution
3. Replenishes the groundwater
4. Creates beautiful gardenscapes throughout the growing season
5. Provides food and shelter for birds, butterflies & beneficial insects
What is a Rain Garden?

Rain Gardens are shallow gardens filled with beautiful plants that collect rain water and runoff and let it soak into the ground naturally. This helps to clean the water, protect our rivers and lakes, and reduce flooding. Rain gardens also create healthy habitats for wildlife, birds, and pollinators.

- Cleans water by filtering pollution and stopping trash
- Protects our rivers, lakes, and drinking water sources
- Reduces flooding in homes and on streets and sidewalks
- Native plants provide beautiful, healthy habitats

How do Rain Gardens Help Keep our Water Clean?

As rain falls from the sky and lands on hard surfaces like roofs, streets, and sidewalks it picks up pollution, dirt, and trash. This dirty water and pollution then rushes into storm drains which empty right into streams, rivers, and lakes. The water is not cleaned first!

Rain gardens help protect our water by cleaning rain water and runoff before it reaches our streams, rivers, and lakes. The soil and plants act like a natural filter to clean the water as it soaks slowly into the ground. This helps stop dirty, polluted water and trash from going into our rivers and lakes.

The native plants that thrive in rain gardens have deep roots that help water to soak into the ground. They grow in wet and dry weather and will need less watering and weeding. These plants also support important, healthy habitats that can attract birds, butterflies, local bees, and other pollinators.

We can take action to keep our water clean by planting rain gardens and directing rain water runoff into them.

For more information visit: www.washtenaw.org/raingarden
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Background

In most towns and cities, rainfall and snow melt are whisked away into an engineered stormwater system of pipes and basins that funnel water directly into local streams & rivers. This water does not get cleaned or filtered first.

After its trip through the pipes, stormwater is no longer just rainwater. It is hot - stormwater is warmed as it flows over hot pavement. It’s also polluted with oil and gas, phosphorous, e-coli, and trash that are washed off the streets and carried to the creek. And it is huge - a small creek can flow like a river after a rainfall, eroding the banks and muddying the river.

In the river, the polluted runoff poisons fish, plants and other species that depend on them, including us. Stormwater is the #1 source of pollution in rivers today. Stormwater is the #1 source of pollution in rivers today.

Most communities get their drinking water from a combination of water drawn from the river and from wells. River water polluted with runoff can be more expensive to purify at water treatment plants. Well water is only available if rainwater soaks into the ground and recharges the ground water.

Woods and prairies historically soaked in almost all the rain that fell on them. Concrete soaks in none.

People play, boat and fish in the river. If contamination levels are too high, restrictions can be placed on recreational activities such as swimming and fishing.

There is a simple way to do your part to keep pollution out of the river, reduce flooding, recharge the water table and revitalize your yard:

Rain Gardens

Rain gardens help protect our nearby water bodies by filtering and soaking water back into the ground. For a modest 1,500 square foot home, 5,000 gallons of water from a one inch rain storm run off from roofs, driveways, patios and even lawn.

A simple, low-maintenance rain garden can capture much of that runoff, similar to how the natural environment would function. Learn how you can mimic nature’s effects by following this guide to rain gardens.
What can you do to help? A lot!

1) Build a Rain Garden
Soak in the rainwater right in your own yard. Plant some beautiful flowers that include native plants. These old-timers provide wildlife habitat, nectar for pollinators & are a beautiful addition to your yard.

2) Mulch Leaves In Place
Use a mulching mower so the leaves decompose and feed your grass - for a beautiful lawn. Or, rake leaves in the fall so they aren’t washed into streams & lakes. Fertilize your lawn sparingly.

3) Pick up Litter
Pick up litter before it enters the storm drain.

4) Scoop Pet Waste
Or otherwise, it’s gross. Enough said.

5) Clean up Oil and Gas from your Car
Clean up any oil or gas spills from your car and repair any leaks or drips. Keep your car tuned up and in good repair.

6) Plant Native Flowers, Trees, & Shrubs
Add a native plant buffer strip around streams & lakes to reduce erosion and stabilize the bank during large storm events. Long root systems of native plants prevent sedimentation.

6) Become a RiverSafe Home
Take a quiz and earn a credit on your water bill!
City of Ann Arbor Residential Stormwater Credit
www.a2gov.org
Watershed Non-Profits

**Friends of the Rouge**

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

Rouge Rescue, Benthic Macroinvertebrate Sampling, River Restoration, Rouge Frog & Toad Survey, Run for the Rouge 5K Trail run, “Naturalizing the Home Garden” workshop.

**Stony Creek**

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

The Clinton River Watershed Council coordinates activities that benefit Stony Creek.

**Upper Grand River Watershed Alliance**

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


**Huron River Watershed Council**

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

You can sign up to get e-mail updates, which means you receive their bi-weekly newsletter “News to Us.” It is a good way to keep abreast of the newest ideas on how to keep the river clean. Volunteer programs include:


**River Raisin Watershed Council**

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

Volunteer in Adopt-a-Stream, River Roundup insect sampling, or invite them to give a presentation to your civic group.

**Swan Creek**

None! Anyone want to start one?

This is in part of Ypsilanti and Augusta Townships.
Rain Gardens & Watersheds

Other Good Resources:

The Blue Thumb Guide to Rain Gardens
The best book on how to construct a rain garden.
by Rusty Schmidt, Dan Shaw, and David Dods.
bluethumb.org/raingardens

Rain Garden Online Discussion Forums
Facebook Group: www.facebook.com/groups/MasterRainGardener


Rain Garden iPhone App
nemo.uconn.edu/tools/app/raingarden.html by Connecticut Cooperative Extension.

Rain Garden Calculator
raingardenalliance.org/right/calculator Get a quick estimate of the size and costs of your rain garden. But watch out! If you pick clay as your soil, they estimate a much bigger rain garden than we recommend.

Lakescaping for Wildlife & Water Quality Book by Carol L Henderson and the Minnesota Department of Natural Resources. Preserve or restore the natural beauty that attracted you to lakeshore living in the first place.

Michigan Natural Shorelines Shoreline ambassador certification class and a list of certified shoreline contractors to plant a natural shoreline and take care of your lake.
www.mishorelinepartnership.org/mi-shorelines

Michigan Conservation Stewards Class on conservation, ecology, natural resource management as well as terrestrial and aquatic ecosystems both in the classroom and in the field. mnfi.anr.msu.edu/programs/conservation-stewards-program

Wild Ones The native plant support group! Monthly educational meetings, seed swaps, and field trips.
www.WildOnes.org

Master Composter Class From backyard composting, vermiculture (worm composting!), compost tea, and soils.
www.washtenaw.org/355/Master-Composter-Class
A simple solution with a big effect

A rain garden is a shallow garden that captures water and soaks it into the ground. It fills up with the rain that falls on it – plus rainwater that runs off a hard surface like a roof or a driveway. It is a simple solution but it has a big effect.

The runoff water has picked up pollutants that the rain garden can filter out: phosphorus and nitrogen from fertilizers; bacteria from animal waste; oil, grease and heavy metals from cars, and just plain old “dirt” called sediment.

Studies have shown rain gardens are effective at removing pollutants harmful to human health.

How? Sunlight destroys bacteria and viruses harmful to humans. Petroleum is eliminated by bacteria in the soil. Heavy metals are adsorbed by soil and mulch particles. This is in addition to those substances which are bad for the environment like nitrogen-containing compounds and phosphorous, at rates of over 90%.

Rain gardens require less watering than regular gardens during hot summer months. Because they capture water from the roof, a rain garden gets enough water that it doesn’t need water from the tap. Your water bill can be reduced by using free water from the sky.

Essential Steps

1. Locate where you will put the rain garden. Pick a location at least 15 feet from the house and downhill from the downspout.
2. Measure how big the roof/driveway/sidewalk that will drain to the rain garden is. Draw up a base plan. Call Miss Digg (811) to locate underground utilities.
3. Size the rain garden. Do the calculations so you know what size you are aiming for. The area of the depression should be 20-30% the size of the contributing roof or driveway.
4. Design the rain garden. Make a drawing that shows the size, shape, and plants.
5. Plan the drainage. Direct the water to your rain garden location, either overland or through a buried pipe.
6. Dig the rain garden. Dig a garden bed that will hold water 3-6” deep.
8. Plant your rain garden with beautiful plants of your choice.
9. Maintain your garden so it looks great! Water your garden if it doesn’t rain, until it is well established. Fertilizers aren’t necessary but weeding is, especially at the beginning.

Water Flows Downhill

Water flows down the gutter, into the downspout, downhill over the grass, and into the rain garden, Where it soaks into the ground. Beautiful!

Catch it before it runs onto the driveway and into the street! Once water is in the street, it picks up pollution before taking it to the nearest river. Yuk!
Locating

1. The garden must be at least 15 feet away from any building to prevent potential water seepage into the basement.
2. Select a spot that is flat or gently sloping and is downhill of the downspout. Avoid tree roots. Make sure overflow from the rain garden will go to a safe location, away from a building.
3. Do not place a rain garden over a septic tank, leach field or drinking water well.
4. Call Miss Dig at 811 at least three days before digging to avoid public pipes & utilities.
5. Avoid any private wiring or utilities such as driveway lights, sheds with electricity or lawn irrigation pipes.

Measuring

Now that you have chosen a general location for the future rain garden, create a base plan that has all the elements that are currently on the site. This is so you can draw up a rain garden plan "to scale". Include the house, trees, fences, sheds and bed lines that are near the future rain garden on the base plan. Being able to draw the rain garden plan "to scale" on an accurate base plan will help accurately estimate quantities of plants, mulch & compost. It is handy!

1. First start with a piece of graph paper. Each square on the paper might equal one square foot in the real world, depending on the size of your site. Make sure your graph paper is big enough to include your rain garden's location. To do that, go outside and measure the space. Count the number of squares across your paper and make sure the plan will fit on the paper.
2. Measure the distance between two fixed spots. (Often, this is two corners of the house.) Draw them on the graph paper to scale.
3. Start locating other objects in the yard, and draw them on your plan accurately (trees, fences, etc.) To do this, measure between both of the fixed spots and the object. Sketch them on the plan in an approximate location, and write down the distances to each of the fixed spots. For example, A=44'7"; B=28'2".
4. Go back inside and using a string or compass that is measured to length, triangulate the exact location of the objects on the plan. Use the graph paper squares to make the string the first length that you measured (A). Holding one end of the string on the first fixed spot (F1), draw a semi-circle with the other end with the string the length you measured. Then use the graph paper to make the string the second length you measured (B). Holding one end of the string at the other fixed spot (F2), draw a semi-circle that crosses the first. Where the two circles cross is the location of the object. Erase the approximate location, and redraw it in the exact location.
5. Repeat this process for fence ends, trees or other objects that will affect the location of the rain garden. Sketch in the approximate location of the future rain garden too.

Now you have a base plan on which to draw the shape of the rain garden.

Sizing

1) Measure the length and width of the impervious surfaces (roof or driveway) that will flow to your rain garden. Multiply length times width to find the area in square feet.

2) Design the garden to be 4-9” deep and 10-30% the size of the impervious surfaces.

3) To figure out the exact size of your rain garden, first test your soil permeability by digging a hole that is the width of your shovel and 18” deep. Fill with water, wait until dry. Fill the hole again with water and time the rate of infiltration.

4) If your hole drains within 24 hours, then you will want your rain garden to be 10% the size of your hard surfaces and the depth to be between 4 and 9 inches. If the hole takes longer than 24 hours to drain, size it at 30% your impermeable surface area and a depth of 3-4”.

<table>
<thead>
<tr>
<th>Time to Drain</th>
<th>Impermeable Multiplier</th>
<th>Depth in inches</th>
</tr>
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<tbody>
<tr>
<td>within 24 hours</td>
<td>0.1</td>
<td>4-9</td>
</tr>
<tr>
<td>longer than 24 hours</td>
<td>0.3</td>
<td>3-4</td>
</tr>
</tbody>
</table>

Example

If the impermeable surface draining into my rain garden is 750ft² and my test hole drains within 24 hours, the rain garden should be:

\[ 750 \times 0.1 = 75 \text{ square feet large} \]

For example, the dimensions could be 7.5’x5’ or 5’x15’

Since it drained within 24 hours, it should be: 4-9 inches deep

* You will have to dig your garden two inches deeper than the final elevation to allow for added compost.

5) On your base plan, since one grid box equals one foot, you can count the boxes in the outlined garden to see how many square feet your rain garden is. Count up the boxes in your sketched garden to see if you are making it big enough.

If there isn’t enough space on your property for the needed area, or if long term maintenance isn’t possible in such a large garden, it is acceptable to make the rain garden smaller. Every little bit helps!

Can’t Get Outside to Measure or Test Soil?

You can use the Interactive Map WashCo to measure your impervious surface by entering your address in the search bar on the top right.

mapwashtenaw.washtenaw.org

You can also find out your soil type by scrolling down on the left hand “Identify Results” section to select the NRCA Hydrologic soils layer.
**Design**

1) Draw a rain garden outline on the base plan you just made. Make it any shape you like. Draw in the berm, if you are digging on a slope, on the downslope sides (see page 19 for more information). The berm can take up a surprising amount of room, especially on steeper sites. Make sure you will only be changing the grade of your property, not the grade of your neighbor’s property. The rain garden should be at least 2 feet away from the property line.

2) Make sure there is at least ten feet between any structure with a basement (for instance your house, or your neighbor’s house) to the rain garden.

3) Make the garden a pleasing shape that goes with the rest of the garden.

4) Count up the grid boxes in the designed rain garden (not including the berm) to see how many square feet the rain garden is. Are you in the ballpark of the number of square feet you calculated? If not, revise a bit.

5) Decide how water will get to the rain garden: overland swale or underground pipe. More information is on page 18. Draw the path and type of conveyance on the drawing.

6) Select a rainwater overflow outlet location for when the garden fills up and spills over. Make sure it flows away from any buildings and to a safe place.

7) Select plants. Plants for the sides and bottom of the rain garden should include those adapted to the extremes of wet and dry conditions. Plants for the berm should be adapted to dry conditions. See the suggested plant list on page 21.

8) Consider the height, bloom time, sun requirements and color to create a garden you will like.

9) Include some personalized details. A defined border can make the garden look polished. Including stepping stones or stumps can be fun for kids to play on. These are useful for perching on to weed from too. Buy some labels for the new plants so you can identify them when you are weeding.
Black-eyed Susan  
*Rudbeckia hirta*  
part sun-part shade  
height 2-3’  
spread 1-1.5’  
Blooms July-Sept  

Wild Geranium  
*Geranium maculation*  
full sun-part shade  
height 1.5-2’  
spread 1-1.5’  
Blooms April-July  

Sample design:  
Part shade

Sample design:  
Full shade
Sample design: 
part shade

Design by Susan Bryan for Kim Wheeler
Sample design: full sun

LEGEND
A: Panicum virgatum (15)
B: Sporobolus heterolepis (18)
C: Iris virginica (24)
D1: Eupatorium maculatum (4) Ratibida pinnata (4)
D2: Eupatorium maculatum (3) Ratibida pinnata (4)
E1: Silphium terebinthinaceum (7) E2: Silphium terebinthinaceum (4)
F1: Liatris spicata (8) F2: Liatris spicata (6) F3: Liatris spicata (9) F4: Liatris spicata (9)
I1: Geranium maculatum (7) I2: Geranium maculatum (6) I3: Geranium maculatum (21) I4: Geranium maculatum (6) I5: Geranium maculatum (5)

NOTES
1. Drawing is completed to the accuracy of the aerial photo and mortgage survey (if available). Minor modifications may be necessary during installation.
2. Plants are subject to nursery availability. Substitutions may be made.
Sample design: part shade

Top: Master Rain Gardener, Sallie Richie’s design
Left: Yard before rain garden construction
Right: Completed rain garden with Master Rain Gardener, Sallie Richie
Sample design: full sun

Top: Master Rain Gardener, Helen Prussian’s design and plant list
Bottom Left: Yard before rain garden construction. Footprints in snow outline rain garden border.
Bottom Right: Completed rain garden with Master Rain Gardener, Helen Prussian

Photo credit: Helen Prussian

Photo credit: Susan Bryan
Transfer your drawing to your site

1) Translate the dimensions of your rain garden onto the ground by first laying out tape measures that act like the grid paper.

2) Draw the edge of the garden on the ground by placing flags in the measured locations from your ‘point of beginning’.

3) Paint the garden border on the grass with spray paint, or use lime or string.

4) Rototill sod, use a sod-cutter, or kill the grass by laying down cardboard and mulch.

5) Dig a shallow depression with a level bottom.

6) With the soil dug out to create the depression, build a berm on the downhill side to hold the water within the garden like a bowl.

7) Add a notch to the downslope berm for overflow water to go to a safe location. The notch will determine the water depth within the rain garden.

Photo credits: Harry Sheehan
Drainage

With an Underground Pipe

1) Sometimes it is necessary to direct water to the rain garden underground with a pipe. The pipe will need to run downhill to the rain garden.

2) The pipe should outlet above where the water will pool. The emergency overflow notch will be below the elevation of the bottom of the pipe. This way water won’t sit in the pipe.

3) Use a non-perforated pipe with a 4” diameter. Either corrugated black plastic or PVC works. Don’t use perforated pipe near the house. PVC is better for long runs (>20’), but is more expensive.

4) The end of the pipe can end with a grate (shown) or with a pop-up.

5) Place a few stones where the pipe outlets in the garden to reduce erosion.

Drainage

Over Land

1) Water will run overland to your rain garden if it is downhill from your downspout to your rain garden. Check with a hose to make sure water will flow there.

2) Often water will infiltrate into the ground while moving along the channel.

3) Your drainage channel can be made of stones, native plants or simply be a lowered grassy pathway.
Digging the Rain Garden

1. **Start digging here**

2. **Need Compost?**
   Dig 2 inches deeper so that you can add 2 inches of compost to the finished rain garden.

3. **Underground Pipe:**
   If you use a pipe install it at a downward slope of 1/4" per foot from your downspout to your rain garden. The bottom of the pipe opening that releases water into the rain garden must be higher than the notch in berm.

   **Berm:** Overflow notch on berm determines water level

   **Base of rain garden**

   **Rain Garden water line**

   **3-6”**

   **New grade**

   **String**

   **Line level**

   **Original grade**

   **Stake**

   **Pile soil here**

   **Measure down from the string to make sure the garden bottom is level**
Soil Amendments

1) Dig the rain garden 2 inches deeper than the final intended depth, reserving the topsoil on a tarp. Is there any topsoil left in the hole? If not, dig another 6” and replace with the topsoil you just dug out. Leave it 2” deeper than final depth, to make room for the compost.

2) Lay 2 inches of compost down in the rain garden bottom & sides. Till compost into soil and then cover with 2 inches of hardwood shredded mulch.

3) How many cubic yards of mulch and compost do you need? Determine how much compost and mulch is required to cover the garden with the following calculation:

\[
(A \times 0.00617) = \text{material in cubic yards}
\]

where \(A\) = area in square feet of garden. This can be calculated by counting the squares on your base plan drawing

Calculation can be used for either compost or mulch material and is for depths of 2”.

Planting

If you have plants in your garden that are adapted to both wet & dry conditions, you can transplant them into the rain garden. If you are buying plants, it is recommended to buy plants in pots because seeds are often washed away. Live plants have root systems that can resist the movement of water.

To Plant: dig a hole deep enough that the roots can hang vertically. If the roots are root-bound, break them up. Place the plant deep enough so that the entire root ball is covered but the base of the stem is above the soil. Fill the hole and pat firmly to remove any air space.

Too wet to plant? Place the mulch first. Mulch can soak up some water, and make it less muddy. Don’t worry - the plants like it wet.

Watering: Keep soil around plants moist for a few weeks and in times of drought. When to water? Test the soil by sticking your finger into the soil. If your fingertip touches moist, but not soaked soil, you are watering the correct amount.
These are the top twenty Michigan plants used successfully in Washtenaw County rain gardens. The first two rows (in blue) should be planted on the sides of your rain garden, where it is moist. The bottom three rows (in green) should be planted on the bottom of your rain garden, where it is the most wet.

### Rain Garden Plants

<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Blooms:</th>
</tr>
</thead>
<tbody>
<tr>
<td>New England aster</td>
<td>Blooms: September - October</td>
</tr>
<tr>
<td>Canada anemone</td>
<td>Blooms: May - June</td>
</tr>
<tr>
<td>Wild geranium</td>
<td>Blooms: May - June</td>
</tr>
<tr>
<td>Goldstrum black-eyed susan</td>
<td>Blooms: July - September</td>
</tr>
<tr>
<td>Vinebark</td>
<td>Blooms: May - July</td>
</tr>
<tr>
<td>Physoicarpus opulifolius</td>
<td>Blooms: May</td>
</tr>
<tr>
<td>Redbud</td>
<td>Blooms: May - June</td>
</tr>
<tr>
<td>Wild strawberry</td>
<td>Blooms: July</td>
</tr>
<tr>
<td>Kobold blazing star</td>
<td>Blooms: September - October</td>
</tr>
<tr>
<td>Liatris spicata</td>
<td></td>
</tr>
<tr>
<td>Purple coneflower</td>
<td>Blooms: July - August</td>
</tr>
<tr>
<td>Switch grass</td>
<td>Blooms: September - October</td>
</tr>
<tr>
<td>Nodding wild onion</td>
<td></td>
</tr>
<tr>
<td>Ostrich fern</td>
<td></td>
</tr>
<tr>
<td>Nettleaucastruthiipterus</td>
<td></td>
</tr>
<tr>
<td>Goldfinger potentilla</td>
<td>Blooms: June - July</td>
</tr>
<tr>
<td>Potentilla fruticosa</td>
<td></td>
</tr>
<tr>
<td>Fox sedge</td>
<td>Blooms: May - June</td>
</tr>
<tr>
<td>Red-osier dogwood</td>
<td>Blooms: August - September</td>
</tr>
<tr>
<td>Geranium maculatum</td>
<td></td>
</tr>
<tr>
<td>Rose Mallow</td>
<td></td>
</tr>
<tr>
<td>Hibiscus moscheutos</td>
<td></td>
</tr>
<tr>
<td>Pink turtlehead</td>
<td>Blooms: August - September</td>
</tr>
<tr>
<td>Chelone lyonii</td>
<td></td>
</tr>
<tr>
<td>Sensitive fern</td>
<td></td>
</tr>
<tr>
<td>Onoclea sensibilis</td>
<td></td>
</tr>
<tr>
<td>Blue lobelia</td>
<td>Blooms: July - September</td>
</tr>
<tr>
<td>Lobelia siphilitica</td>
<td></td>
</tr>
<tr>
<td>Blue flag iris</td>
<td>Blooms: May - June</td>
</tr>
<tr>
<td>Iris virginica</td>
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**Legend**
- **Full Sun**
- **Part Sun**
- **Aggressive Spreader**
Common invasives

Refrain from buying, planting or allowing these common invasives to grow. Weed them out!

Yellow Iris
Iris pseudacorus

Purple Loosetrife
Lythrum salicaria

Garlic Mustard
Alliaria petiolata

Autumn-Olive
Eleagnus umbellata

Dames Rocket
Hisperis matronalis

Phragmites
Phragmites australis
Local nursery’s and organizations that specialize in Michigan native plants:

**Native Connections**  
Jerry Stewart  
17080 Hoshel Road  
Three Rivers, MI 49093  
Phone: (269) 273-2894  
Email: info@nativeconnections.net  
www.nativeconnections.net

**The Native Plant Nursery LLC**  
Greg Vaclavek  
PO Box 2292  
Ann Arbor, MI 48107  
Phone: (734) 677-3260  
Email: plants@nativeplant.com  
www.nativeplant.com

**Hidden Savanna Nursery**  
Chad Hughson  
18 N. Van Kal Street  
Kalamazoo, MI 49009  
Phone: (269) 352-3876  
Email: info@hiddensavanna.com  
www.hiddensavanna.com

**Michigan Wildflower Farm**  
Esther Durnwald  
11770 Cutler Rd.  
Portland, MI 48875-9452  
Phone: (517) 647-6010  
Email: wildflowers@voyager.net  
www.michiganwildflowerfarm.com

**New Leaf Native Plant Nursery**  
Ypsilanti, MI  
Phone: (734) 330-7175  
Email: newleafplantnursery@gmail.com  
www.facebook.com/newleafplantnurseryypsi

**Ypsi Native Plant Nursery**  
Ypsilanti, MI  
Email: info@ypsilantinativeplantnursery.com  
www.ypsilantinativeplantnursery.com

**Wildtype Native Plant Nursery**  
Bill Schneider  
900 North Every Rd.  
Mason, MI 48854  
Phone: (517) 244-1140  
Email: orders@wildtypeplants.com  
www.wildtypeplants.com

**Washtenaw County Conservation District Native Plant Expo & Marketplace**  
Spring - Washtenaw Farm Council Grounds  
Saline, MI  
www.washtenawwcd.org

**Matthaei Botanical Gardens Wildflowers & Native Plant Sale**  
Late Summer/Early Fall  
1800 N. Dixboro Rd  
Ann Arbor, MI 48105  
www.mbgnau.mich.edu

**Additional Resources**

**Michigan Native Plant Producer’s Association**  
Members adhere to strict sourcing and ethical guidelines. They provide nursery-grown native plants and seed from Michigan genotypes.  
www.mnppa.org

**Wildflower Association of Michigan**  
Encouraging the preservation and restoration of Michigan’s native plants and native plant communities. Hosts an annual conference in March.  
www.wildflowersmich.org

You can also ask at your local nursery for native plants!
Free plants

Every community has plant exchanges - usually hosted by garden clubs. Mature gardeners want to give their perennial splits to you - instead of composting them! Find your local exchange - and share your own plants!

Rain Garden Plant Exchanges
Spring - together with the plant sale distribution. Fall - at Pioneer High School West entrance. Washtenaw County Rain Garden Program. Contact Susan Bryan. bryans@washtenaw.org

Wild Ones Native Seed Cleaning/ Exchange
Second Wednesday of January, 6:45-8:30pm at Matthaei Botanical Gardens room 125.

Old West Side Ann Arbor Garden Club Spring Plant Exchange
In May. Grace Shackman gmshackman@comcast.net

Wild Ones Native Plant Exchange & Sale
Second Wednesday of May, 6:00-8:00
www.wildones.org/chapters/annarbor/

Arbor Seeds Plant Exchange
June - 1575 Knight Rd in Scio Twp. Linda Ridley lridl734@gmail.com

Please come even if you have no plants or seeds to exchange – we always have lots! Please label your plants. A permanent marker on masking tape works well. Information about what the plant prefers and how fast it spreads is also helpful. If you have plants to share but can’t come on the day, you can drop them off at my house ahead of time if you’d like.

Novi Spring & Fall Perennial Exchanges
Saturdays in May & September from 9 AM - Noon at Fuerst Park (SE corner of Taft Road and 10 Mile Road) in Novi.

Give away plants you have too many of! Get new ones for free! The best way to garden.

Carex vulpinoides Fox Sedge. Photo credit: Lady Bird Johnson Wildflower Center
Compost vendors

1 cubic yard of farm compost or topsoil weighs approximately 1 ton

Pickup truck capacities: most 1/2 ton pickup trucks and short bed pickup trucks have a volume capacity to hold 1.5 cubic yards but most don't have the weight capacity to safely haul more than 1 cubic yard. 3/4 and 1 ton pickup trucks have the capacity to hold up to 2 cubic yards.

Coverage for spreading compost, topsoil or mulch:

1 cubic yard @ 1" depth covers 324 square feet
2" depth covers 162 square feet
3" depth covers 108 square feet
4" depth covers 81 square feet

Or use the calculator on the link below to estimate how many cubic yards you need:
gardenplace.com/content/calculator/mulch_calc.html

City of Ann Arbor Compost
Bulk municipal compost and mulch are available for sale year round for $18/cubic yard loaded and Mulch is $14/cubic yard. Free self-loaded for AA residents. Compost delivery is available.

4150 Platt Road, Ann Arbor 48108
(734) 489-4518 | www.wecarecompost.com

July-March:
Monday-Friday from 7am-4pm

April-June:
Mon-Friday from 8am-4pm & Saturdays 7am-noon

Ypsilanti Township Compost Site
One-Stop Location for recycling, refuse & compost. Compost is $12/cubic yard and Mulch starts at $8.50/cubic yard. Free for Ypsilanti Township residents.

2600 E. Clark Rd (Between Ford Blvd. & Ridge Rd)
(734) 482-6681 | www.ytown.org/compost-site

April to November:
Monday-Friday from 8am-4pm
Saturday 9am-4pm
December to March:
Saturday ONLY from 9am-4pm

City of Ypsilanti Compost
Ypsilanti City Residents may obtain up to 4 free passes per year to utilize the Ypsilanti Township compost facility on Clark Road. Passes are available at the Department of Public Services (14 W. Forest Ave., Monday-Friday from 8 am-4 pm) and must be obtained prior to each visit to the facility. Proof of residency will be required. Contact (734) 483-1421 for more information.

Tuthill Farms & Composting
Farm Compost is $30/cub yard or Supersoil compost topsoil blend is $25/cubic yard. Wood Mulch is $25/cubit yard. Delivery available.

10505 Tuthill Road South Lyon, MI 48178
(734) 449-8100 | www.tuthillfarms.com

May to December:
Monday - Saturday from 7am-5pm

Chelsea Compost
The Transfer Station has unscreened compost for $12.50/cubic yard, and topsoil for $25.00/cubic yard. Woodchips are available for $10.00/yard during certain times of the year.

8025 Werkner Road
(734) 475-7955
Wednesday, Thursday & Friday from 9am-4:30pm
Saturdays from 9am-4pm
<table>
<thead>
<tr>
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<th>Contact Name</th>
<th>Phone</th>
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<tbody>
<tr>
<td>Appel Environmental Design</td>
<td>Mike Appel</td>
<td>(734) 395-1060</td>
<td>Ann Arbor, MI</td>
<td><a href="mailto:appel@umich.edu">appel@umich.edu</a></td>
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<td>PlantWise Native Landscapes</td>
<td>David Mindell, Anna Snoeyink</td>
<td>(734) 665-7168</td>
<td>Ann Arbor, MI</td>
<td><a href="mailto:info@plantwiserestoration.com">info@plantwiserestoration.com</a></td>
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<tr>
<td>Michigan Hardscapes</td>
<td>Dan Morris</td>
<td>(734) 365-3094</td>
<td>South Lyon, MI</td>
<td><a href="mailto:GTO123498@charter.net">GTO123498@charter.net</a></td>
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<tr>
<td>Feral Flora</td>
<td>Matt Demmon</td>
<td>734-255-2783</td>
<td>Ann Arbor, MI</td>
<td><a href="mailto:matt@feral-flora.com">matt@feral-flora.com</a></td>
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<tr>
<td>ArborServe</td>
<td>David Dye</td>
<td>(734) 649-1307</td>
<td>Ann Arbor, MI</td>
<td><a href="mailto:david@arborserve.com">david@arborserve.com</a></td>
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<tr>
<td>Creating Sustainable Landscapes, LLC</td>
<td>Drew Lathin</td>
<td>734-717-8000</td>
<td>Novi, MI</td>
<td><a href="mailto:Drew@CreatingSustainableLandsc.com">Drew@CreatingSustainableLandsc.com</a></td>
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<tr>
<td>Aaron Hammer Gardens</td>
<td>Aaron Hammer</td>
<td>734-678-7813</td>
<td>Ann Arbor, MI</td>
<td><a href="mailto:hammer.aaronj@gmail.com">hammer.aaronj@gmail.com</a></td>
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<tr>
<td>KC Runciman Landscapes</td>
<td>Fred Knight</td>
<td>734-429-5200</td>
<td>Ann Arbor, MI</td>
<td><a href="mailto:info@kcrunciman.com">info@kcrunciman.com</a></td>
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<tr>
<td>New Leaf Landscaping</td>
<td>Jeff Findley</td>
<td>703-618-9458</td>
<td>Chelsea, MI</td>
<td><a href="mailto:jeffreefindley@gmail.com">jeffreefindley@gmail.com</a></td>
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<tr>
<td>Serge Van der Voo Landscapes</td>
<td>Serge Van der Voo</td>
<td>734-368-1219</td>
<td>Ann Arbor, MI</td>
<td><a href="mailto:svedvo@gmail.com">svedvo@gmail.com</a></td>
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<tr>
<td>Elemental Design at BLOOM! Garden Center</td>
<td>Drew Laird; Gavin Gillespie</td>
<td>734-426-6600 x203</td>
<td>Dexter, MI</td>
<td><a href="mailto:drulaird@gmail.com">drulaird@gmail.com</a>; <a href="mailto:drew.bloom.ed@gmail.com">drew.bloom.ed@gmail.com</a>; <a href="mailto:gnivag@gmail.com">gnivag@gmail.com</a></td>
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<tr>
<td>IronWoodStone</td>
<td>Jarrod Hendrickson</td>
<td>(734) 646-7982</td>
<td>Ann Arbor, MI</td>
<td><a href="mailto:jrrdhnd@gmail.com">jrrdhnd@gmail.com</a></td>
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<tr>
<td>Superior Gardens</td>
<td>Lori Brandt</td>
<td>(734) 717-6277</td>
<td>Ann Arbor, MI</td>
<td><a href="mailto:superiorgardens@hotmail.com">superiorgardens@hotmail.com</a></td>
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<tr>
<td>(734) 662-4605</td>
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<tr>
<td>Ritch Harrison</td>
<td>Ritch Harrison</td>
<td>269-650-6488</td>
<td>Plainwell, MI</td>
<td><a href="mailto:Richard.Harrison@Borgess.com">Richard.Harrison@Borgess.com</a></td>
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<tr>
<td>Dan McQueer</td>
<td>Dan McQueer</td>
<td>734-944-5664</td>
<td>Bridgewater, MI</td>
<td><a href="mailto:mcqueerd@washtenaw.org">mcqueerd@washtenaw.org</a></td>
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<tr>
<td>Cynthia Overmyer</td>
<td>Cynthia Overmyer</td>
<td>734-665-1792</td>
<td>Ann Arbor, MI</td>
<td><a href="mailto:cmyer@umich.edu">cmyer@umich.edu</a></td>
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<tr>
<td>Native Plant Nursery</td>
<td>Greg Vaclavek</td>
<td>(734) 677-3260</td>
<td>Ann Arbor, MI</td>
<td><a href="mailto:plants@nativeplant.com">plants@nativeplant.com</a></td>
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<tr>
<td>Gabrielle Tazzia</td>
<td>Gabrielle Tazzia</td>
<td>734-277-3558</td>
<td>Ann Arbor, MI</td>
<td><a href="mailto:gtmidwife@yahoo.com">gtmidwife@yahoo.com</a></td>
</tr>
<tr>
<td>Halcyon Earth &amp; Sky</td>
<td>Janee Kronk</td>
<td>810-923-7771</td>
<td>Lakeland, MI</td>
<td><a href="mailto:kronkrevolution@gmail.com">kronkrevolution@gmail.com</a></td>
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<tr>
<td>Martha Hill</td>
<td>Martha Hill</td>
<td>734-662-1329</td>
<td>Ann Arbor, MI</td>
<td><a href="mailto:hillm@umich.edu">hillm@umich.edu</a></td>
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<tr>
<td>RainScapes</td>
<td>Eric Wagner</td>
<td>734-476-7502</td>
<td>Ann Arbor, MI</td>
<td><a href="mailto:ewag3972@gmail.com">ewag3972@gmail.com</a></td>
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<tr>
<td>Erica’s Natural Gardening</td>
<td>Ellen Lamphiear-Fadiman, Dorothy Nordness</td>
<td>734-276-4189</td>
<td>Ann Arbor, MI</td>
<td><a href="mailto:ellenlumphiear@msn.com">ellenlumphiear@msn.com</a>; dorothyk@ isr.umich.edu</td>
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<td>Amazing Landscapes</td>
<td>Vincent Smith</td>
<td>734-606-9773</td>
<td>Ann Arbor, MI</td>
<td><a href="mailto:wowniceyard@gmail.com">wowniceyard@gmail.com</a></td>
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<td>Jackie Richards</td>
<td>Jackie Richards</td>
<td>733-858-8140</td>
<td>Ypsilanti, MI</td>
<td><a href="mailto:stormyweather4293@gmail.com">stormyweather4293@gmail.com</a></td>
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<td>Natalie Hockamier</td>
<td>Natalie Hockamier</td>
<td>616-451-2732</td>
<td>Grand Rapids, MI</td>
<td><a href="mailto:natt718@yahoo.com">natt718@yahoo.com</a></td>
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<td>Nature &amp; Nurture</td>
<td>Erica Kempter, Mike Levine</td>
<td>(734) 662-4826 (734) 368-2610</td>
<td>Ann Arbor, MI</td>
<td><a href="mailto:info@natureandnurture.org">info@natureandnurture.org</a></td>
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<td>Tom Kenny</td>
<td>Tom Kenny</td>
<td>734-665-6942</td>
<td>Ann Arbor, MI</td>
<td><a href="mailto:jerry@nativeconnections.net">jerry@nativeconnections.net</a></td>
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<tr>
<td>Native Connections</td>
<td>Jerry Stewart</td>
<td>(269) 580-4765</td>
<td>Three Rivers, MI</td>
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as of December 2019

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Rain Barrels

What is a Rain Barrel?
A rain barrel collects and stores rainwater from your rooftop to use later for things like lawn and garden watering. Water collected in a rain barrel would normally flow through your downspout, onto a paved surface and eventually into a storm drain.

Why use a Rain Barrel?
Rain barrels help lower water costs by storing approximately 1,300 gallons of water during peak summer months. Using stored rainwater on your garden or lawn instead of directing rooftop runoff to the storm drain network helps recharge groundwater naturally. Rain barrels reduce water pollution by limiting stormwater runoff, which can contain pollutants like sediment, oil, grease, bacteria and nutrients. Rain barrels are inexpensive and easy to install.

Available through the Washtenaw County Conservation District
- Barrels have a screw-on top with holes for water entry and aluminum screen to keep out leaves, debris and mosquitoes.
- They have a shutoff valve that can connect to a hose or to fill a watering can
- Recommended placement is 12” high using an optional pedestal, cement blocks or other materials.
- Barrels are designed to leave outside all year around.

Automatic Diverters are also available for connecting rain barrels to downspouts. When it rains, some water will flow from the diverter, through the hose to the barrel and some water will also continue to flow down the lower section of the downspout. When the rain barrel is full, then all the water will flow down the downspout. A 55 gal. rain barrel will take about 1 hour to fill with a Diverter installed (15-20 minutes without). Using the Diverter eliminates the need for an overflow hose to be connected to the barrel and routed to an overflow location. Sizes are available to fit 2” x 3” or 3” x 4” downspouts and hose is included.

Rain Barrel information courtesy of the Washtenaw County Conservation District. More information available at: www.washtenawed.org

Graphic by Caroline Wicks courtesy of www.climateactiontool.org
A2 Stormwater Credit

If you live in Ann Arbor, you can take steps to reduce your stormwater bill by building a rain garden. Rain gardens reduce stormwater runoff at the source. This is the best way to create a healthy watershed.

If you are a one or two family residential customer, consider using up to three of these optional stormwater credits. Credits include:

Make your Home a RiverSafe Home Partner
Save $1.40/quarter. Review Washtenaw County’s online RiverSafe Home information and take the survey. The survey is also available by mail by phoning (734) 222-6833. Participants also receive a RiverSafe Home plaque to display. There is no cost to enroll at: www.washtenaw.org/riversafe. Once you have completed the survey, please email storm@a2gov.org with your address to receive the credit.

Install Rain Barrels on your Downspouts
Save $2.03/quarter, total, for one to five rain barrels. Rain barrels are sold locally at many garden centers and online. Check www.a2gov.org/storm for announcements of periodic local rain barrel workshops and bulk sale opportunities, as available.

Create a Rain Garden, Cistern, or Drywell
Limited to one of these options per property to save $3.17/quarter. In addition to being beneficial for the watershed, rain gardens can be a very attractive landscaping feature.

To Request a Credit or Additional Information
Contact storm@a2gov.org and please indicate the size of the feature, and the percent of your roof runoff that is captured by the feature in your email to storm@a2gov.org.

Requirements for Credit:
At least 50% of your property’s roof area (at least half of your home’s downspouts) should drain to the rain garden OR the rain garden must capture runoff from impervious area on your property that is equal to 50% of your roof area.

Size:
1) Minimum 130ft² & 3” to 6” deep throughout
2) Must have vegetation to absorb runoff. Native perennial are preferred to encourage infiltration

Infiltration:
Water should infiltrate within 24 hours

Other Recommendations
Garden should be kept at least 15 ft away from foundations and should overflow safely. Overflows should not go directly to a sidewalk, steep slope, retaining wall, or to a neighbor’s property.
DESIGN CHECKLIST

Here are some questions to ask yourself as you start your design.

Why do you want a rain garden?
- To have the coolest new thing in gardening
- Want to do something good for the environment
- Like to see wildlife in the garden
- Spend time on the river so want to keep it clean
- To solve a basement flooding issue.
- To solve an ice-on-the-sidewalk issue.
- To dry up a wet spot in the garden.

Yes / No
- Did you call Miss Dig? 811
- Is there a basement?

Where do the roof gutters & downspouts drain to?

Where do the paved areas drain to?

Sketch the paved areas, the roof and where the downspouts go.

Do you have a location(s) in mind?
Describe___________________________________

Whom do you prefer do the work?
- Do it all myself or with family/friends
- Use a rain garden contractor
- A combination - they dig it, I plant it

How tall would you prefer the plants in your garden to be? ____________________________________

How much do you like to weed?
- Every day
- Once a week
- Twice a year

Do you like grasses?________________________________________

How long does it take an 18” deep hole, filled with water, to drain? (percolation test):_______________

Yes / No
- Is there a well on the property?

Where is it? _________________________________________

- Is there a septic system?

Where is it? _________________________________________

- Does runoff drain to street storm sewers?

- Or swales?

Where are the: underground utilities? phone, cable, electric, gas, water, sewer, GeoThermal system, other: _________________________________________

Soil (circle): Sandy, Loamy, Clay, Mixture, Unsure

Does the property currently have any of the following:

Yes / No
- Flooding in basement
Where?__________________________________________

- Erosion
Where?__________________________________________

- Wet areas after a large storm
Where?__________________________________________

Are there any other upcoming projects? Remodeling, gardening, etc? Should this project wait for any of those projects to be completed?

Yes/No
- Is your rain garden within Ann Arbor city limits?

Make sure you apply for your stormwater credit!

Created by: Roger A. Moon; Washtenaw County Master Rain Gardener 2012
All done with your design?
Get ready to dig - step-by-step

1) Complete your rain garden design and plant list.

2) Decide where will you buy / borrow supplies.

3) Draw your rain garden outline on the ground. (paint, hose, or flags)

4) Assemble tools and supplies for construction.

5) Dig connection from water source to rain garden location
   • Dig a trench for the pipe - from the downspout to rain garden location. Keep it as shallow as possible, to reduce the depth of the rain garden. (shovel or trench digger)
   • Or, if it is overland flow, test it (hose or rainfall), so you know the water will arrive at the rain garden.
   • Temporarily disconnect water source from the rain garden, while you dig.

6) Site Preparation
   • Cut the grass to the lowest level possible.
   • Remove grass (sod cutter or flat shovel). Save sod for use in the berm, or repair grass in other locations.

7) Dig basin
   • Dig the basin. Pile the soil to form the berm. Or, put the soil in other locations in your yard. (shovel / backhoe, wheelbarrow)
   • Remove additional 2 inches of soil for replacement with compost.
   • Create berm. It can be as tall as you want, as long as you know where your overflow will be.

8) Create overflow
   • Create a notch in the berm for the overflow.
     -This notch defines how deep the water will pool.
     -The notch elevation should be equal to, or lower than, the elevation of the bottom of the inflow pipe.

9) Finish basin
   • Measure basin bottom to ensure it is generally level. (line level, or level on a board)
   • Add 2” compost. Spread and mix compost with existing bottom soil. (rototiller or shovel). Spread & mix compost on berm too.
   • Finish shaping basin for final depth. (rake) Shape gentle berm slopes - not cliffs.
   • Spread mulch on basin and berm.

10) Connect water source
    a. Re-connect downspout to trenched-in pipe.
    b. Place rocks to control erosion where the water flows into the garden.

11) Stand back and admire!
    -E-mail Susan so she can admire it too – and give you a t-shirt or sign!

Tools
Sod Cutter
Rototiller
Tarp
Spade
Flat shovel
Pick / Maddox
Rake
Marking paint / string / stakes
Line level / level
Tape measure
Planting trowel or spade

Materials
Compost, in cubic yards
Hardwood mulch, in cubic yards
Pipe: 4” pvc or 4” corrugated black
Connectors for pipe to downspout
Rocks for erosion control at inlet
Edging – brick / rock / plastic
Deer deterrent / barrier
Plants