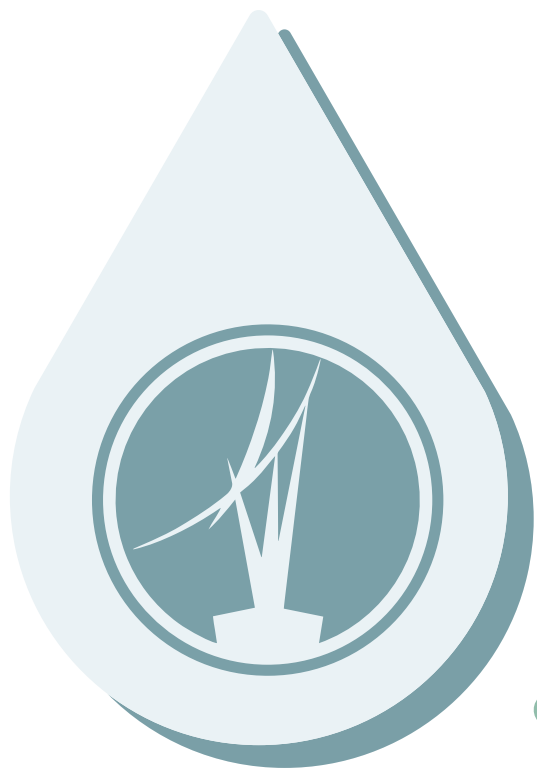


BIRMINGHAM



RAIN GARDEN REBATE PROGRAM

Written and Designed by Paige Hugart, 2024



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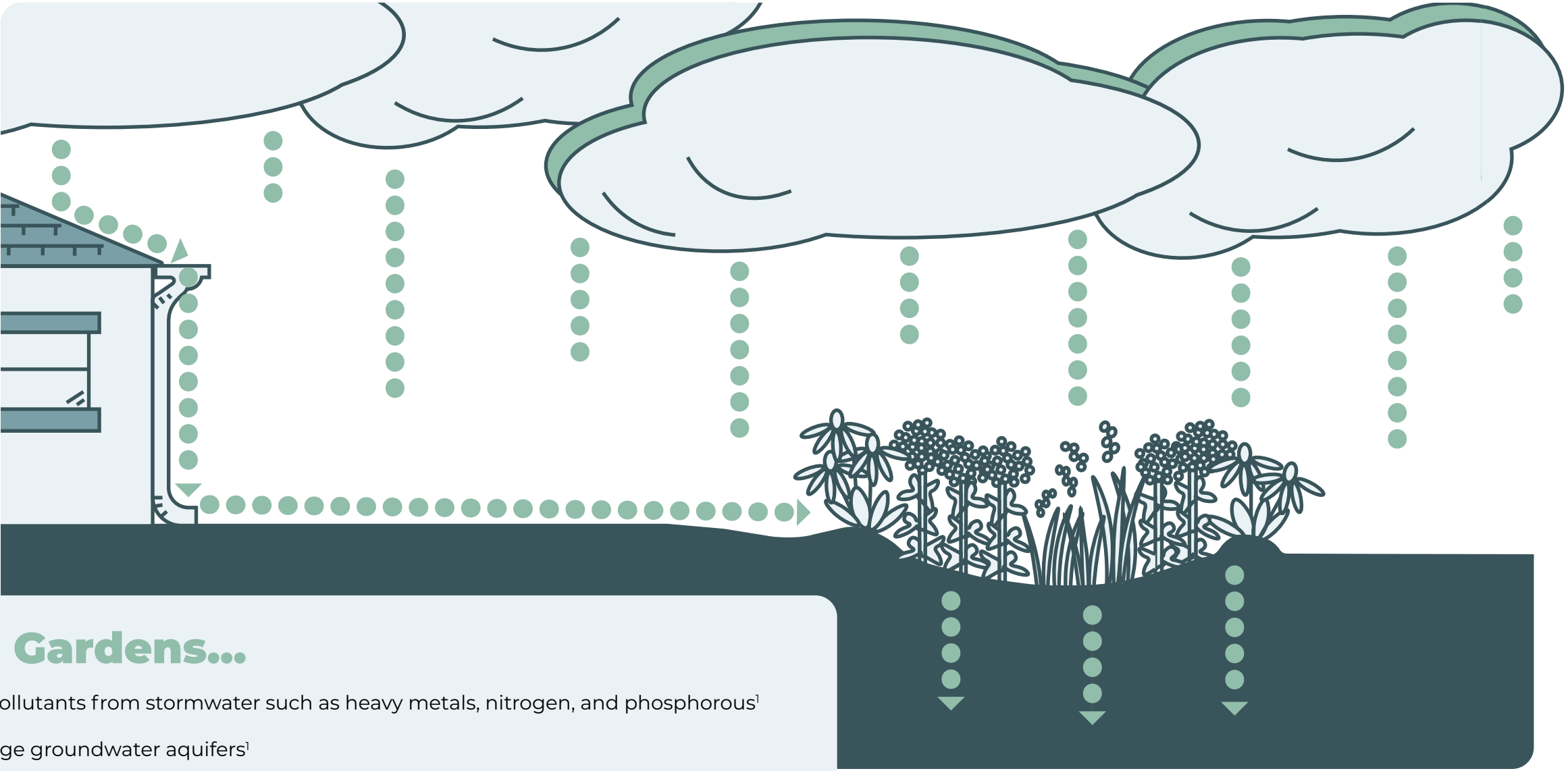
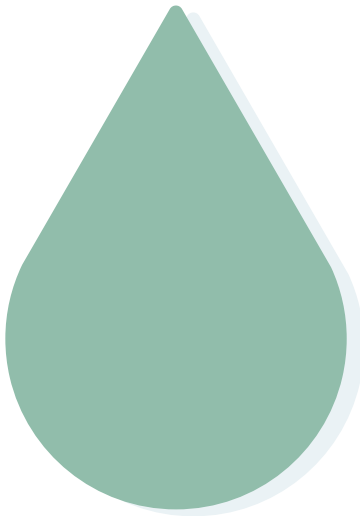
ALL ABOUT RAIN GARDENS

Learn More!

[About Rain Gardens](#)

[Testimonial](#)

[Master Rain Gardener](#)



Rain Gardens...

- Filter pollutants from stormwater such as heavy metals, nitrogen, and phosphorous¹
- Recharge groundwater aquifers¹
- Protect rivers, lakes, and streams, and everything living in them¹
- Support pollinators such as bees and Monarch butterflies²
- Feed songbirds during all four seasons³
- Support biodiversity and strong ecosystems by restoring native plant populations²
- Reduce basement flooding by diverting stormwater away from your home
- Reduce water pooling in yards and sidewalks
- Provide a beautiful garden for you and neighbors to enjoy

Rain gardens are shallow depressions, refilled with appropriate soil, planted with native plants, and covered with mulch. They allow stormwater from **impervious surfaces** (buildings, pavements, etc.) to be filtered, and **infiltrated** into the groundwater rather than quickly running into basements, sewer systems, or waterways. Infiltration is the process of moving water down into the soil where it becomes part of the **groundwater**.

The Birmingham Rain Garden Rebate Program is an integral part of the Birmingham Healthy Climate Plan, while installing a rain garden to manage stormwater runoff on your property aligns with the [MI Healthy Climate Plan](#) and the [Southeast Michigan Priority Climate Action Plan 2024](#)! When you install a rain garden, you're helping bring these plans to life!

EXAMPLES



Photo: Paige Hughart



Photo: Clinton River Watershed Council



Photo: Carolyn M Crane



Photo: Michael Baker



Photo: Meridian Township

Rain gardens have essential parts, but can look really different! You can add materials like stones or fences in the beginning or add them later.



Photo: Emily Ferstle

BIRMINGHAM RAIN GARDEN REBATE

STEPS BY STEP

- 1

Review Program Overview and Requirements
Page 4-5
- 2

Submit the Rain Garden Rebate application
Found separately; The application will include a photo of utility lines marked by Miss Dig, a site sketch, and a section sketch. The Rain Garden Manual will guide you through this process on pages 7-18.
- 3

Receive feedback on your application
The City of Birmingham will provide feedback will be related to the functionality of your design.
- 4

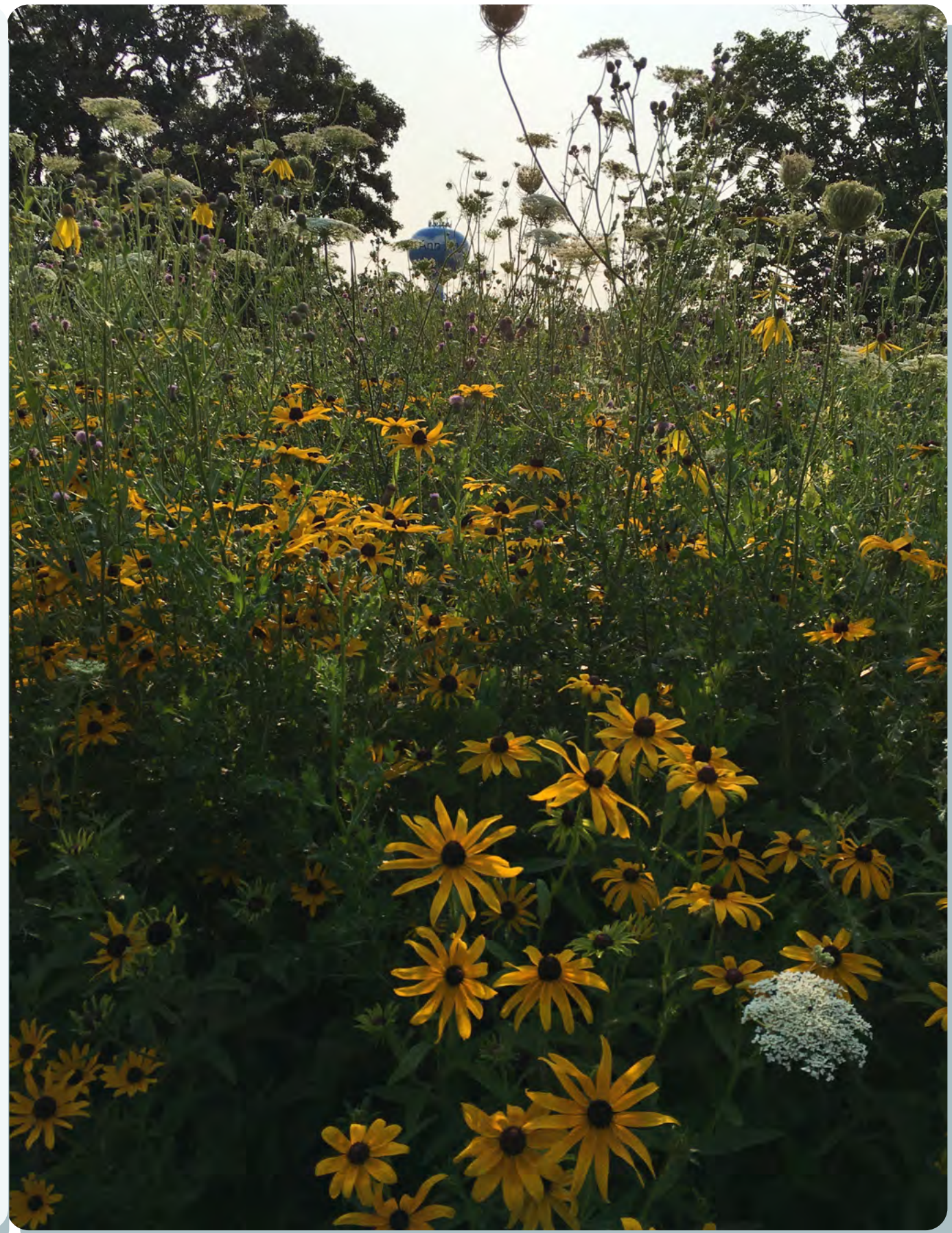
Install your rain garden
Page 19-20; Gardens should be installed in the spring or early fall for best sresults.
- 5

Submit the Rebate Request Form
Available alongside the program application; Save your receipts!
- 6

City officials will visit your rain garden
They will give feedback on installation and functionality.
- 7

A rebate check will be mailed
In the meantime, watch your plants grow!
- 8

Maintain your garden for at least 2 years
Pages 21-22; The Rain Garden Manual will support this process.



BIRMINGHAM RAIN GARDEN REBATE

The City of Birmingham's Rain Garden Rebate program reimburses residents who install Rain Gardens and provides other indirect support listed to the right! This program exists to supplement rain garden installations for Birmingham residents when funding is available.

Please check the city website or contact
Community Development for application timelines and forms.

151 Martin St.
Birmingham MI, 48009
(248) 530-1850

Eligibility:

To be considered for the Birmingham Rain Garden Rebate Program, you must meet the following:

- The project address must be within the City of Birmingham.
- The property must be a single family residential site.
- The project must be maintained for a minimum of two years following installation.

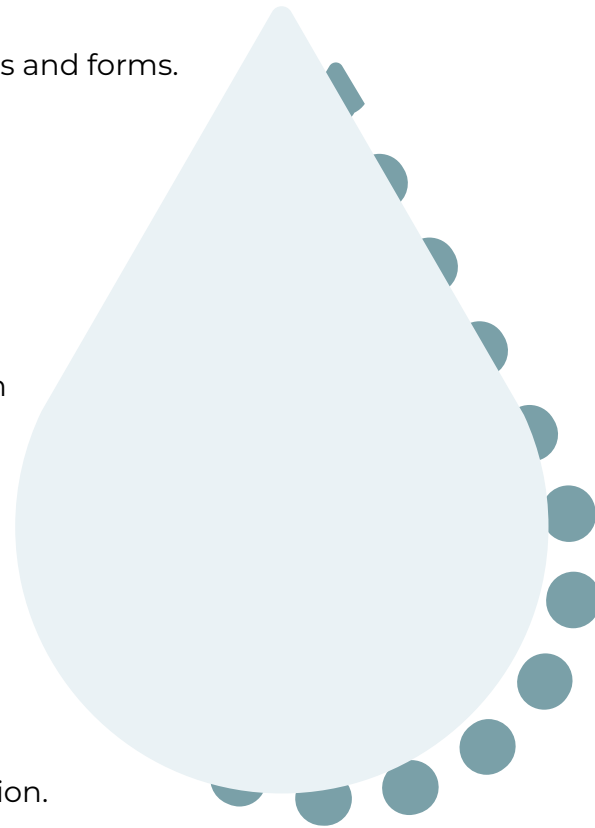


Photo: Fatimah Bolhassan

The Birmingham Rain Garden Rebate Program provides:

Rebate: a one time rebate will be provided to approved applicants when funding is available. If no funding is available at that time, applicants will be notified and are eligible to reapply later.

Master Rain Gardener Certification Support: Part of the Birmingham Rain Garden Rebate can be used to cover your [Master Rain Gardener](#) certification. Participation in the Master Rain Gardener Certification Course is optional to receive the Birmingham Rain Garden Rebate. The course will walk you through the rain garden design and installation process in alignment with the program requirements and is a great supplement to your project.

Planning, Installation, and Maintenance review: Part of the application process is submitting plans to the City of Birmingham for review. City officials will provide feedback in the planning, installation, and maintenance process. City officials will not provide support through manual labor, but will provide site visits to your garden at different points throughout the rain garden's lifecycle to give feedback and guidance. Additionally, the Rain Garden Guidebook created as part of the program provides a step by step manual and lists of resources to support residents throughout the life of their rain gardens.

Rain garden registration: Your approved application and finished project registers you in the [Rainscaping in Southeastern Michigan Map](#) and with the City of Birmingham. This connects you to a wide network of rain gardeners throughout multiple counties and will prevent citations.

Stormwater Utility Credit fast track application and support: The existing [Stormwater Utility Credit](#) is offered by the City of Birmingham to promote multiple types of green stormwater infrastructure. Rain garden installation qualifies for the credit and the information provided during the Rain Garden Rebate application is used to fast track your Stormwater Credit application.



Photo: Fatimah Bolhassan

FREQUENTLY ASKED QUESTIONS.....

Do I need a permit?

No permits are required to install a rain garden on private property.

Is the Birmingham Rebate applicable to other stormwater infrastructure?

Only rain gardens are applicable for the Rain Garden Rebate Program. However, the City of Birmingham encourages the use of other green stormwater infrastructure through the [Stormwater Utility Credit](#). If you're installing a rain garden, you are eligible for both the Rebate and the Stormwater Credit.

Do I need to pay for my materials?

This program provides a rebate following rain garden installation when funds are available. You should be prepared to cover the upfront costs for designing, installing, and maintaining a rain garden.

Can I hire someone to design and install my rain garden?

Yes! You're welcome to hire anyone you would like to design, install, and maintain your rain garden. Since rain gardens have to meet specific requirements to manage stormwater successfully and to be eligible for the Rain Garden Rebate Program, you still have to submit all application requirements along the same timeline. Hiring a professional does not increase the amount of funds you may be awarded.

How do I maintain a rain garden?

Maintaining your rain garden is extremely important for its ability to manage stormwater and mitigate flood damage. The Rain Garden Guidebook has a section dedicated to maintenance and city officials can visit your garden to give maintenance pointers. Participating in this program requires a commitment to maintaining your rain garden for at least 2 years following installation.

Will I get a ticket or citation for my rain garden?

Native plants used in rain gardens DO NOT fall under those referenced in the ["Grass and Noxious Weeds" Ordinance](#) upheld by the City. Keeping your garden free of cold-season grass and weeds just as any other garden bed will prevent citation.

Is there funding to help me install a rain garden on my property?

Rain gardens DO qualify for a [Stormwater Utility Credit](#) at any point, and a Rain Garden Rebate when funding is available. The overview and application for the Rebate program are provided in this guidebook. Applying for the Rain Garden Rebate Program fast tracks your application for the Stormwater Credit. If you're eligible to receive either of these funds, they are a reimbursement and you will be responsible for the upfront costs.

Can I get more than one rebate?

If both the [RainSmart program](#) serving Oakland County and the Birmingham program have funding, you can apply for rebates from both programs.

What happens if there is no funding available for the Rebate Program?

Applicants will be notified as soon as possible if there is no funding available. Funding is given out on a first-come, first-served basis. Once funding is secured, an announcement will be made, and you are welcome to reapply. If you decide to install a rain garden even if your application is denied because of lack of funding, you can still apply for the [Stormwater Utility Credit](#).

Can I receive a rebate if I previously installed a rain garden?

Unfortunately we cannot offer rebates for existing rain gardens. If you have an existing rain garden, you can still apply for the [Stormwater Utility Credit](#).

Can I install a rain garden in the easement?

If you want to install a rain garden in the easement, secure a permit from this [site](#). Currently easement rain gardens do not qualify for a rebate.

If you have any questions please contact Community Development.

**151 Martin St.
Birmingham MI, 48009
(248) 530-1850**

DIY RAIN GARDEN GUIDEBOOK



GATHER PLANNING TOOLS.....

Planning Tools:

1

- ☐ Tape Measure
- ☐ Rain Garden Rebate Application to mark information as it's collected
- ☐ Paper + pencil for notes
- ☐ Folder to save receipts
- ☐ Graph paper (provided in application)
- ☐ Hand trowel
- ☐ Hose or bucket of water
- ☐ Timer
- ☐ Marking/Garden spray paint OR hose to mark garden bed

3

SELECT LOCATION.....

Review Requirements and Considerations:

- Locate the rain garden at least 10 feet away and downhill from the foundations of any building and at least 2 feet from property lines.
- Do not place rain gardens over utility lines, septic systems, etc.
- Choose a flat or gently sloped place and ensure any overflow from the garden will go to a safe location away from any structures. If you have a hilly yard, place your rain garden near the bottom of the slope.
- Do not place a rain garden under existing trees to avoid large tree roots when digging so that trees are not damaged.
- The best location is where you have seen water pooling on your property downhill from any buildings.
- Not all sites are suitable for rain gardens! Rain gardens shouldn't be placed on steep slopes or where there is permanent standing water.

2

CALL MISS DIG.....

Call Miss Dig at 811 or submit an online request at missdig811.org before digging.

Miss Dig will send folks to mark the location of your gas, electric, and water utilities. This can take around a week. Be aware that Miss Dig may not always mark private cable, propane, electric, and similar lines, so some additional site work may be necessary to locate these.



Photo: Fatimah Bolhassan

DETERMINE GARDEN SIZE.....

4

Drainage Area:

Measure the area of the **impervious surfaces** that will flow to the rain garden. Typically, this is the area of the roof drainage being collected by a gutter downspout, but may include driveways and sidewalks that are immediately uphill from your rain garden.

You can use the measure tool in Google Earth or start from the known square footage of your home.

Soil Type and Infiltration Rate:

Why is this important? Infiltration rate helps us understand your soil type and how quickly water might be able to be moved from the ground surface down into the soil. This helps determine the overall size and depth of your rain garden. Soil type is an important factor in infiltration. Clay soils tend to drain water more slowly while sandy soils drain more quickly.

Note that much of Birmingham soil has high levels of clay. This means we recommend shallow rain gardens with a large surface area to avoid long standing water and regular overflow. We recommend a depth of 3-5 inches. Read more about installing rain gardens in clay soils [here](#)! We will also recommend plants that do well in clay soils. If your infiltration test shows less clay in your soil, you can experiment with native plants not included in the provided list!

This [video](#) aligns with the instructions in this guidebook.



Infiltration Test:

1. Dig a hole that is about 6 inches in diameter and 18 inches deep.

2. Fill with water, wait until it is completely drained.

The hole should drain within 24 hours or this site may not be suitable for a rain garden without the complete removal of soil and/or a sub-drain installation. If this happens, you can choose another location. Feel free to call for assistance.

3. Fill the hole again with 12 inches of water.

4. Use Table 1 to determine your infiltration rate.

5. Determine the basic soil type.

Take the infiltration rate from Table 1 to determine the basic soil type. Use that to determine the sizing multiplier using Table 2.

5. Calculate Rain Garden Size.

Take the drainage area previously measured and multiply it by the sizing multiplier. This will be the approximate size of the garden.

Table 1

Drains Within	Infiltration Rate
6 hours	2.00 inches per hour
12 hours	1.00 inches per hour
18 hours	0.75 inches per hour
24 hours	0.50 inches per hour

Table 2

Infiltration Rate	Soil	Sizing Multiplier
>1.25 inches per hour	Sandy	0.19
0.75 - 1.00 inches per hour	Silty	0.34
<0.50 inches per hour	Clayey	0.43

(Drainage area in sq ft) x (sizing multiplier)
= approximate rain garden size

If your infiltration test results are less than 0.25 inches per hour, you may have to excavate your soil or choose another location.

If properly installed, rain gardens will not hold water for more than 24 hours so they are not a risk for mosquitos.



PLAN FOR EXCESS SOIL.....

5

When you dig your rain garden, you will have to move your excess soil to a different location. Make sure you have the tools to move soil and a place to store it long term.

Here are some recommendations:

- Use your clay soil to build a berm around your garden -
- Move it to another garden bed -
- Fill outdoor pots, planters, and raised beds -
- Fix grading issues throughout your yard -
- Offer some to neighbors -

Photo: Fatimah Bolhassan

DESIGN YOUR GARDEN

6

Site Plan:

A site plan is an aerial view of a given area with key details drawn out. Once you've determined a general location for your rain garden, you can draw it on your site plan. You'll submit this site plan as part of your Rain Garden Rebate Application and it helps you determine what your project will look like in context and make sure it meets all the spacing requirements.

You don't have to cover your entire property in the site plan, but it should cover the immediate context to the rain garden, such as the portion of the roof and other impervious surfaces draining into the garden, adjacent porches, trees, and garden beds, etc.

- Mark the downspout and/or impervious surfaces you would like to drain into your rain garden.
- Measure the impervious surfaces that will flow into your garden and draw them to scale on the graph paper.
- Locate objects in the yard, such as trees, fences, existing garden beds, and draw them as close to scale as possible on the site plan.
- Lightly sketch the approximate size and location of your future rain garden. Rework until you have the shape you want. Remember to include the berm around your rain garden in the sketch. Your berm will likely be about 1-1.5 feet wide.
- Draw the inlets. Inlets move water from impervious surfaces to the rain garden. They can be an overland swale or an underground drain. This guidebook will take you through how to build both.
- Label the overflow outlet and location. Make sure overflow isn't going into any buildings and try to avoid overflow directly onto impervious surfaces like sidewalks and driveways.
- Optional: include personalized details like a rock or brick border outside the berm. Neat borders can help make a native plant rain garden match the rest of your yard. These can be drawn in now or added later.

Section:

A section is a view of your garden if you cut right down the middle. The main purpose of a section is to show height variation between objects.

Including a section helps ensure that your rain garden depth is correct and that berms are planned for. The section will also help you decide which plants should go where since height variation creates visual interest. Your section doesn't need to include context.

Graph paper that you can print is included with the application.

Generally, use
each square = one square foot

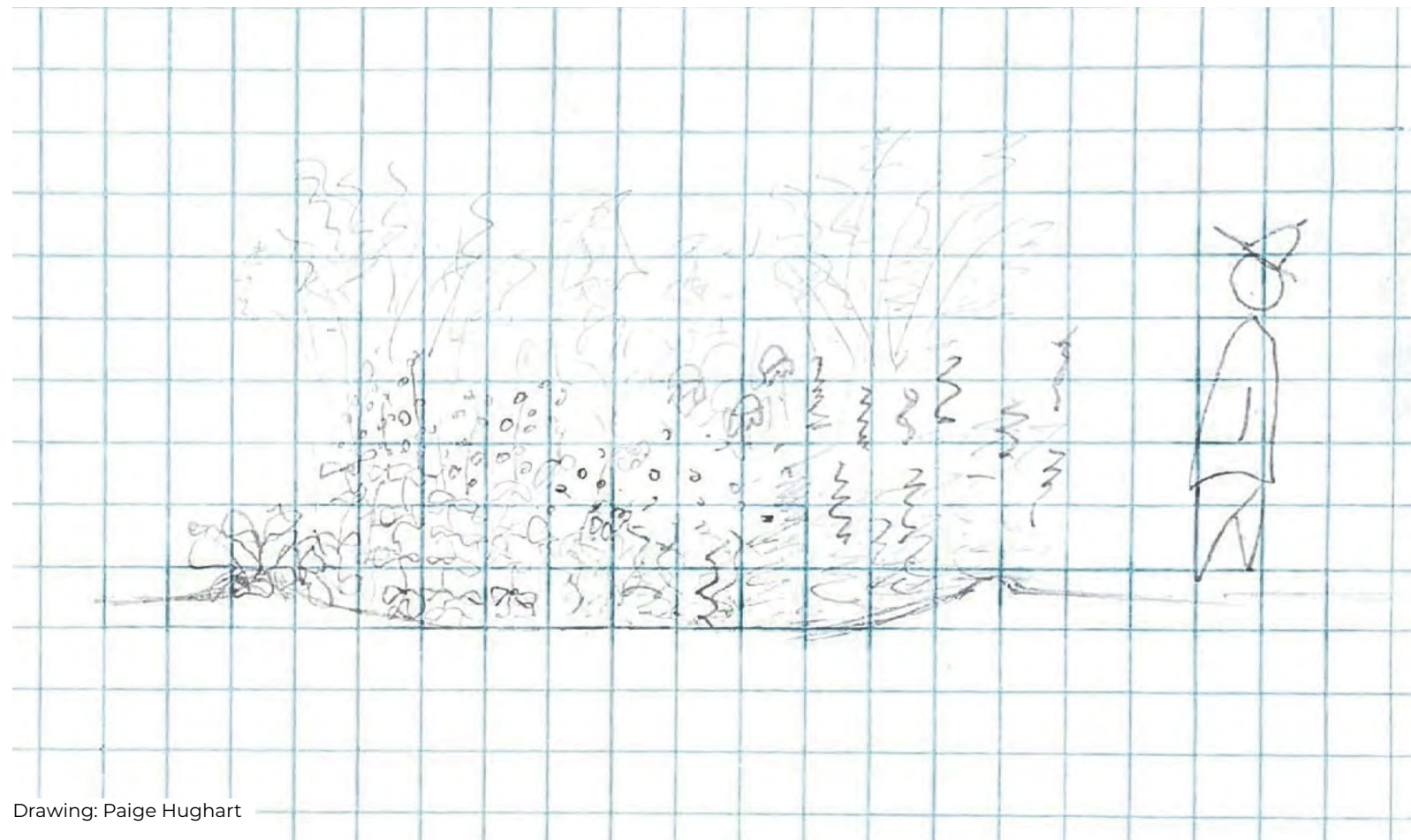
Optional:

Draw your garden design onto your lawn using marking spray paint. To do this, determine the exact distance between the planned garden and existing points, spray those known points and then connect them into approximately the desired shape. Remember to include the berm!

- Rework until the shape feels right.
- Let the grass grow a little taller in that area to get a sense of what your rain garden will look like.
- You will have to mark the garden shape before digging anyway, but this can help make sure you'll be satisfied with the final product.

Check your work!

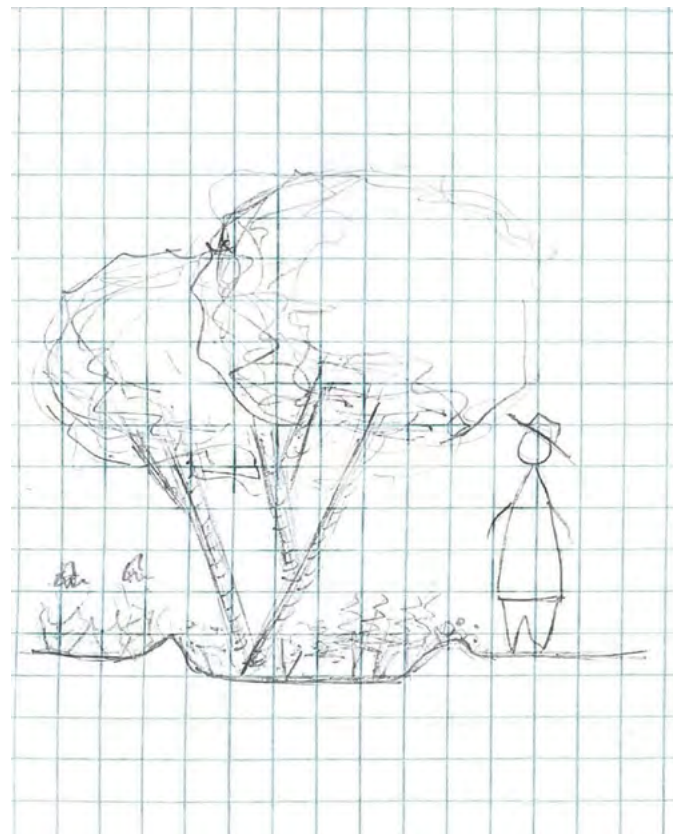
Count the number of squares your drawn rain garden includes and make sure it equals close to the calculated rain garden size in square feet.



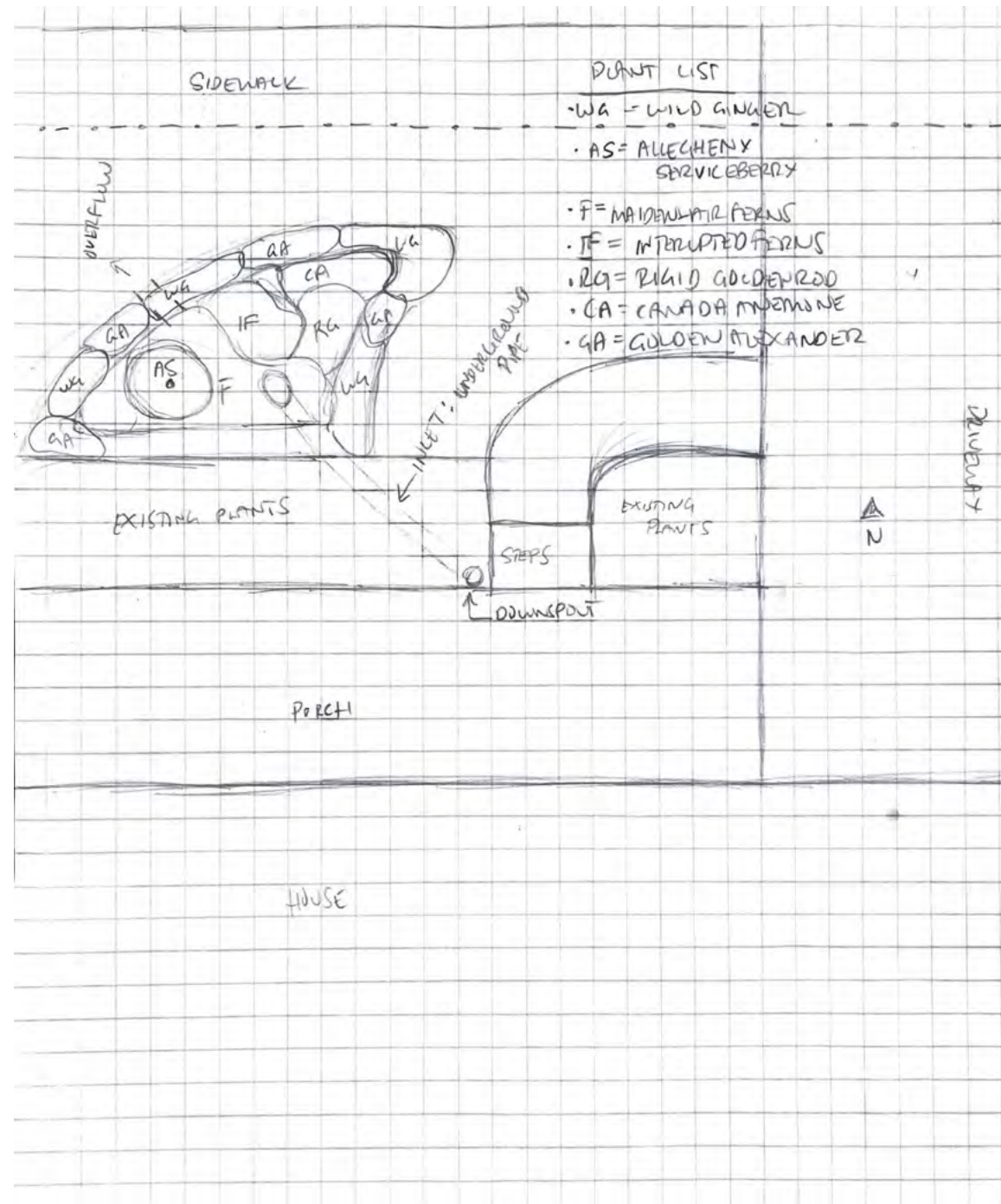
Drawing: Paige Hughart

EXAMPLE DESIGNS

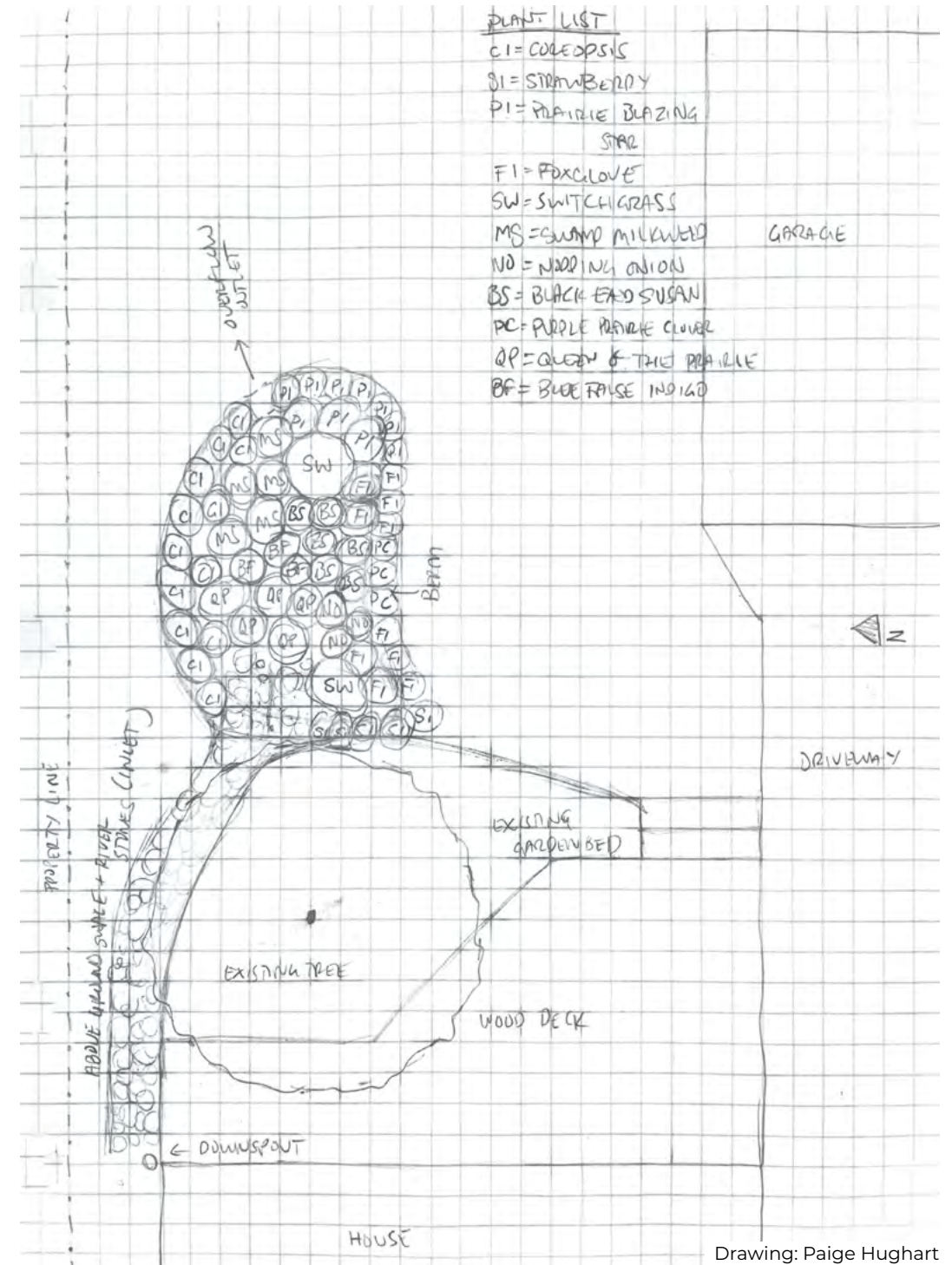
You can find more example designs in the [resources](#) shared by Friends of the Rouge!



Drawing: Paige Hugart



Drawing: Paige Hugart



Drawing: Paige Hugart

DETERMINE PLANTS

7

Native plants are used in rain gardens because they are well suited to both standing water and extremely dry conditions. Their roots are long enough to infiltrate water deeply into the soil and filter out pollutants before they end up in our waterways. Only transplants or potted plants can be used in rain gardens. Seeds will likely be washed away. If you have any of the listed plant species in your yard, you can transplant them to the rain garden!

Make sure you're not planting [invasive species](#).

How many plants do I choose?

Use the garden size you calculated on page 8 and the equation below to determine the number of plants you need for your rain garden. This equation is based on planting 18 inches apart from the center of each plant.

$$(\text{Garden size in sq ft}) / 2.25 = \# \text{ of plants}$$

What kinds of plants do I choose?

The most important things to consider when choosing plants are the type of soil, sun requirements, and water requirements. Water loving plants should be planted at the center of the rain garden where water is likely to stand the longest. Dry loving plants should be planted near the edges of the rain garden and on berm slopes when needed.

It's nice to consider things like bloom time and color so there is something beautiful to look at in your garden all season long and so that you're providing food for pollinators as often as possible! Height is a helpful consideration for aesthetics and logistics. Latin names are included so you can verify that the plant you're purchasing is definitely the one listed.

It's more visually appealing to plant herbaceous plants in groups of 3 or 5. On the other hand, if you want a truly natural, meadow feel to your garden, you can plan "on a matrix-" meaning you plant all your plants randomly and do not intentionally group the same species together.

[Check out the nursery recommendation list from Friends of the Rouge!](#)

Plant List Symbols

These symbols are used in the plant list on the following pages. They will help you determine which plants will thrive in each section of your rain garden.

Moisture Requirements

Maximum

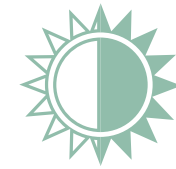
Minimum



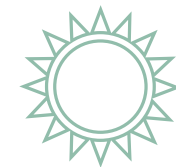
Sun Requirements



Full Sun: 6+ hours per day

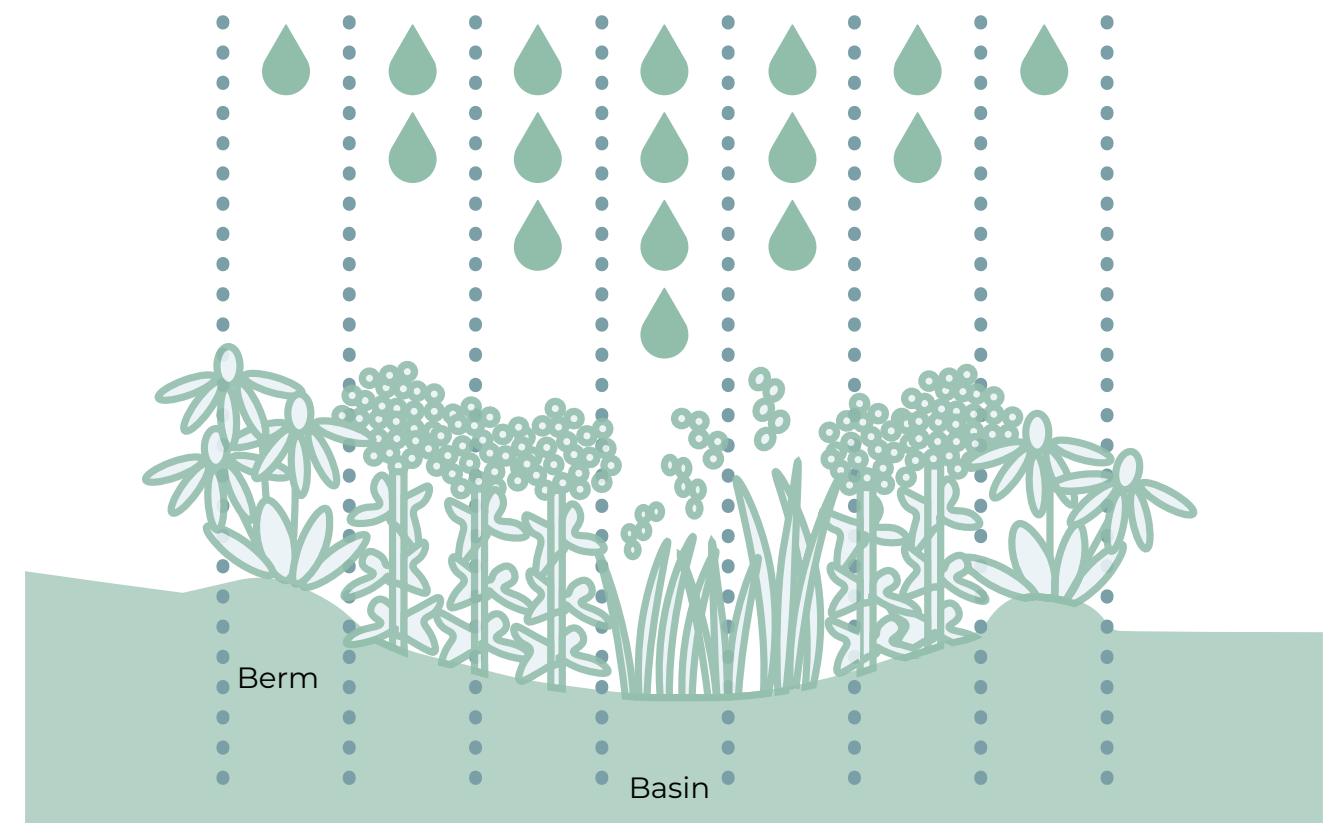


Partial: 3-6 hours per day



Shade: Less than 3 hours per day

Rain Garden Moisture Map



Rain Garden Diagram: Paige Hughart

PLANT LIST

All the plants in the this list thrive in clay soil - which is the most common type in Brimingham. Your infiltration test will help you determine your soil type. If you have soil that isn't mostly clay, you're welcome to choose plants from other lists like the ones provided [here](#) by Friends of the Rouge. Searching plants by their latin name will ensure you're getting accurate photos!












































Plant Name	Latin Name	Light	Moisture	Flower Color	Bloom Time	Height
Canada Anemone	Anemone canadensis	  	  	White	May-July	1'-1.5'
Swamp Milkweed	Asclepias incarnata	 	   	Pink/Purple	July	3'-4'
Baptisia OR False Indigo	Baptisia australis		  	Blue	June	3'-4'
Hot Lips Turtlehead	Chelone lyonii 'Hot Lips'	 	  	Pink	Aug-Sept	2'-3'
Purple Coneflower	Echinacea purpurea	 	  	Pink/Lavender	July-Aug	3'-3.5'
Joe-Pye Weed	Eupatorium purpureum		 	Pink	July-Sept	3'-5'
Queen of the Prairie	Filipendula rubra	 	   	Pink	June-July	4'-5'
Prairie Blazing Star	Liatris pycnostachya		 	Purple	July-Oct	2'-3'
Marsh Blazing Star	Liatris spicata	 	  	Pink	June-July	4'-5'













































Photo: [Mt. Cuba Center](#)



Photos: [Michigan Flora](#) by species, unless otherwise marked

PLANT LIST

All the plants in the this list thrive in clay soil - which is the most common type in Brimingham. Your infiltration test will help you determine your soil type. If you have soil that isn't mostly clay, you're welcome to choose plants from other lists like the ones provided [here](#) by Friends of the Rouge. Searching plants by their latin name will ensure you're getting accurate photos!

Plant Name	Latin Name	Light	Moisture	Flower Color	Bloom Time	Height
Wild Bergamot	Monarda fistulosa	 	 	Lavender	July-Sept	2'-5'
Interrupted Fern	Osmunda claytoniana	 	   	n/a	n/a	1'-2'
Foxglove Beard-tongue	Penstemon digitalis	 	  	White	June	3'-4'
Compass Plant	Silphium laciniatum		   	Yellow	July-Aug	4'-7'
Prairie Dock	Silphium terebinthinaceum		  	Yellow	Aug	8'
Ohio Goldenrod	Solidago ohioensis		 	Yellow	Aug-Sept	3'-4'
Riddell's Goldenrod	Solidago riddellii		   	Yellow	Aug-Oct	2'-4'
Rigid Goldenrod	Solidago rigida	 	   	Yellow	Jul	3'-4'
Yellow Coneflower	Ratibida pinnata	 	 	Yellow	July-Sept	4'-5'



Photos: [Michigan Flora](#) by species, unless otherwise marked

PLANT LIST

All the plants in the this list thrive in clay soil - which is the most common type in Brimingham. Your infiltration test will help you determine your soil type. If you have soil that isn't mostly clay, you're welcome to choose plants from other lists like the ones provided [here](#) by Friends of the Rouge. Searching plants by their latin name will ensure you're getting accurate photos!









































Plant Name	Latin Name	Light	Moisture	Flower Color	Bloom Time	Height
Rosin Weed	Silphium integrifolium		  	Yellow	July-Sept	3'-5'
Cup Plant	Silphium perfoliatum	 	   	Yellow	July-Sept	5'-10'
Smooth Aster	Symphyotrichum laeve		 	Lavender, Blue	Aug-Oct	2'-4'
New England Aster	Symphyotrichum no-vae-angliae	 	  	Purple	Aug-Oct	3'-6'
Ironweed	Vernonia missurica		  	Purple	July-Oct	4'-5'
Golden Alexander	Zizia aurea	  	   	Yellow	May-June	1'-3'
Big Bluestem	Andropogon gerardii		  	Green, Red	Aug-Oct	5'-8'
Canada Wild Rye	Elymus canadensis		 	Cream	Jul-Aug	4'-5'
Switch Grass	Panicum virgatum		  	Green, Cream	Aug-Sept	3'-6'



Photo: [UMass Amherst Extension](#)



Photos: [Michigan Flora](#) by species, unless otherwise marked

PLANT LIST

All the plants in the this list thrive in clay soil - which is the most common type in Brimingham. Your infiltration test will help you determine your soil type. If you have soil that isn't mostly clay, you're welcome to choose plants from other lists like the ones provided [here](#) by Friends of the Rouge. Searching plants by their latin name will ensure you're getting accurate photos!









































Plant Name	Latin Name	Light	Moisture	Flower Color	Bloom Time	Height
Maidenhair Fern	Adiantum pedatum		  	n/a	n/a	1'-2'
Nodding Pink Onion	Allium cernuum		  	White, Pink	July-Aug	1'-2'
Common Bluestar	Amsonia tabernaemontana	 	  	Blue	May-June	2'-3'
Wild Ginger	Asarum canadense	 	 	Burgundy	May-June	<1'
Purple Prairie Clover	Dalea purpurea		 	Purple	July-Aug	1'-2'
*Sedges	*Most species of Carex genus	 	   	n/a	n/a	Varies
Bee Balm	Monarda didyma		   	Red	June-Aug	2'-5'
Indian Grass	Sorghastrum nutans		  	Green, Gold	Aug-Sept	5'-7'
Black-eyed Susan	Rudbeckia hirta	 	  	Yellow	June-Sept	1'-3'



























Photo: [North Carolina Extension Gardener](#)



Photos: [Michigan Flora](#) by species , unless otherwise marked

TREES & SHRUBS LIST

If you're planting large shrubs or trees, choose other plants based on the current light conditions and plan to make changes to your rain garden as the shrubs and trees grow larger, crowding and shading other plants.

Plant Name	Latin Name	Light	Moisture	Flower Color	Bloom Time	Height
River Birch	Betula nigra	 		n/a	n/a	70'
Northern White Cedar	Thuja occidentalis	 		n/a	n/a	30'-50'
Allegheny Serviceberry	Amelanchier laevis	 		White	April-May	6'-15'
American Hazelnut	Corylus americana	 		Red	April-May	3'-6'
Ninebark	Physocarpus opulifolius	 		White	May-June	5'-8'
Black Chokeberry	Aronia melanocarpa	 		White	May-June	4'-6'
Red Osier Dogwood	Cornus sericea	 		White	May-June	6'-9'
Low Gro Fragrant Sumac	Rhus aromatica 'Gro Low'	 		Red Berries	n/a	2'-3'



Photos: [Michigan Flora](#) by species, unless otherwise marked

SOURCE MATERIALS

8

Compost & Mulch

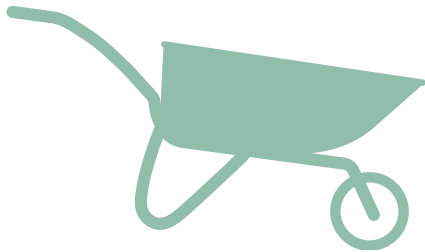
Use the formulas below to calculate the amount of compost and mulch you will need to lay it 2 inches deep in the garden.

Adding compost to rain gardens increases the amount of pollutants the garden can filter from stormwater.

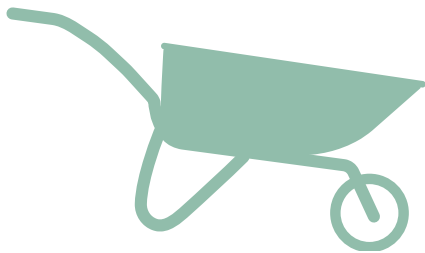
Plan to store mulch and compost between when it arrives and when it is added to the rain garden!

In your driveway or on a tarp in your yard. Just consider how far you will be moving it with a wheelbarrow.

(Garden area in sq ft) x .00617 =
Compost in Cubic Yards



(Garden area in sq ft) x .00617 =
Mulch in Cubic Yards



Inlet Materials

Measure and note the distance from the downspout or other impervious surface that will supply water to the rain garden. This will tell you how much material is needed for the inlet.



Photo: Fatimah Bolhassan

Tools & Materials:

- ☐ Tape Measure
- ☐ Shovels
- ☐ Rakes
- ☐ Trowels
- ☐ Level
- ☐ Wheelbarrow
- ☐ Marking/Garden spray chalk
- ☐ Compost: fully finished/broken down
- ☐ Mulch: double or triple shredded and aged minimum 6 months

For Dry Swale Installation:

- ☐ Optional: stones
- ☐ Optional: native plants
- ☐ Optional: downspout extender

For Pipe Installation:

- ☐ Black non-perforated pipe or PVC
- ☐ Grate or Pop Up Emitter to fit chosen pipe
- ☐ Two small screws
- ☐ Electric Drill
- ☐ Rocks for end of pipe
- ☐ Optional: Sawzall with metal appropriate blade

STEP BY STEP INSTALLATION

1. Transfer site plan to the ground

Make the general shape and size of your rain garden using either spray chalk or a garden hose. Start by measuring known distances from set points included in your site plan such as the corner of a porch, a fence, or the trunk of a tree.

This [video](#) can help with the hose method!



Photo: Paige Hughart

2. Remove grass

Remove grass from your garden site + 12-18" to make space for the berm and prevent grass growth into the rain garden. You can remove grass using a shovel, sod cutter, or by laying cardboard over the defined area for about two weeks.

Remember to have a plan for where to take the sod and soil removed during the rain garden installation! Load a wheelbarrow while you're digging and move it periodically.



Photo: Paige Hughart

3. Dig!

Dig 3-5 inches PLUS 2 inches to be back filled with compost. Build the berm about two inches tall as you're digging out the garden basin using mostly clay soil that comes from your basin. Make sure the bottom is level and the slope up the berm is gradual. The berm is most important at the downhill side of your rain garden. Add a notch in the downhill side berm to lead water to your overflow location.

Do not dig while soil is wet!



Photo: Paige Hughart

4. Build your inlet

You can choose a buried pipe or an overland swale to move water into your rain garden.

Underground pipe:

The pipe should run downhill to the rain garden and the inlet should be above the elevation of the emergency overflow notch. Use a non-perforated pipe made of either black plastic or PVC. The end of the pipe can end with a grate or a pop-up emitter.

1. Dig trench from directly underneath downspout into the rain garden. Using a level, make sure the trench is downsloping the entire way.
2. Lay the pipe in the trench and double check that it is still continuously sloping toward the rain garden.
3. Cut downspout about 12" from ground and attach pipe to downspout using small screws.
4. Add either a grate or pop-up emitter at the end of the pipe in the garden and surround it with stones to decrease soil erosion when water comes out of the pipe.
5. Make sure to rebuild and level any part of the rain garden changed by installing the inlet.



Photo: Paige Hughart

Overland Swale:

If your garden is downhill from your downspout, rain water will flow over land and will often infiltrate into the ground while moving through the channel. Your swale can be made of stones, native plants, or simply be a lowered grassy pathway. If you're using this method, make sure your downspout is extended at least four feet from the building before entering the overland swale in order to avoid water damage to your foundation.

1. Dig very shallow overland swale from end of downspout to the rain garden. Make sure the swale is down sloped toward the garden the entire length using a level.
2. Fill with stones or plant with native plants, or let grass grow.



Photo: Clinton River Watershed Council

STEP BY STEP INSTALLATION

5. Add compost

Lay two inches of compost along the basin and make sure it is still level.

Adding compost to your rain garden increases the amount of pollutants your rain garden can filter from stormwater. This keeps those pollutants out of waterways!



Photo: Paige Hugart

6. Add plants

Place plants where you want them. Bury them about level with the top of the compost. Burying them too deep or shallow could cause them to die. Plants can be added after mulch if needed!



Photo: Clinton River Watershed Council

7. Add mulch

Lay two inches of mulch almost touching the plants. Do not pile mulch too close to the base of the plant or it may cause disease.



Photo: Clinton River Watershed Council

Expect better infiltration once plants are more established. Their roots will push through clay particles over time!

8. Restore the disturbed area

Level out all disturbed areas and lay grass, clover seed, or a garden bed as desired.



Photo: Paige Hugart

9. Monitor your rain garden!

Check on your rain garden during and between the next couple of storms! Is water flowing into the garden? Are the plants doing well? Has mulch moved? If you have any questions, you can contact the Birmingham Rain Garden Rebate Program for support!

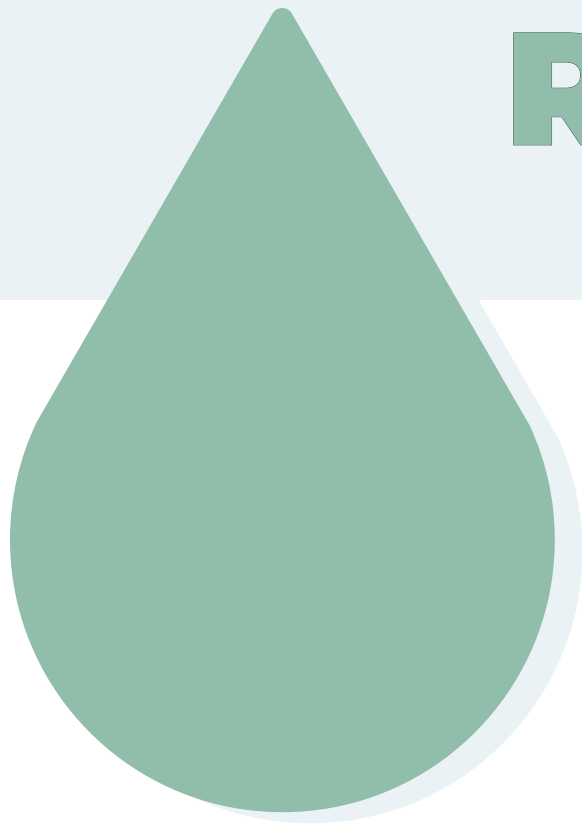
Community Development: (248) 530-1850



Photo: Clinton River Watershed Council

If you lose young plants to standing water, open up the berm and allow plants to establish. Once they are larger, close the berm and allow the rain garden to function as planned.

RAIN GARDEN MAINTENANCE



- Check inlets for debris and make sure the water is flowing smoothly into your rain garden. Remove accumulated sediment at the inlet annually.
- Water your newly planted rain garden during periods of drought until plants are established. This is more of a concern for rain gardens built in the spring. Your rain garden will require less watering than other garden beds, so water just enough to keep them from perishing in the first growing season. Your garden won't need to be watered after the first year.
- If you have trees or shrubs in your rain garden, these will need to be watered more regularly during the first season. Follow the planting instructions from the nursery to make sure these establish themselves.



DO NOT USE PESTICIDES, HERBICIDES, OR FERTILIZERS IN YOUR RAIN GARDEN.

Part of rain garden's purpose is to filter pollutants from the water. Using chemical management negates this. Do not apply fertilizers to your lawn too close to your rain garden and especially not in your above-ground swale leading to the rain garden if that is your inlet style.

- Maintain the rain garden border by clipping and weeding. Lining the berm with natural stone or bricks is helpful.
- After the first year, you should cover bare spaces in your rain garden with additional native plants. If plantings become too dense, you can split plants and move them to other locations or swap them with friends.
- If your rain garden holds water for more than 48 hours after it is planted, you may need to replace the soil or choose another location.
- Remove dead plant material in the spring following the first three consecutive days of 50 degree + weather. Leave dead plant materials standing during the fall and winter for visual interest, birds, and insects. Remember that rain garden plants provide food and shelter for birds all year long!
- Remove weeds by hand regularly.



Photo: Fatimah Bolhassan

WHAT TO EXPECT

Weeding

Weeding your rain garden is extremely important in the first and second growing season. There are two methods we recommend. You can stick to one or use both when it works best!

String stage weeding

This is where you identify a plant as young as possible, often in the cotyledon phase (when the seed has germinated and only one or two leaves have grown), then remove the entire plant. This method ultimately saves time because plants are easily removed at this stage and do not crowd your native plants. It is important to be able to recognize weed cotyledons over native plant cotyledons. Which is a skill that can take time to build.

Chop and Drop weeding

This is where you identify a large weed and chop the top off, leaving the roots in the ground. This weakens the plant without removing the organic material from the soil. The organic matter continues to build the soil health, while the unwanted plant is weakened and your native plants can eventually smother it. Leaving the roots and soil undisturbed builds healthier soil over time without potentially activating the seedbank and causing more weeds to germinate. Note - we do not recommend this for creeping grasses or invasive species. Those should be pulled as soon as possible.



Photo: Meridian Township

Use this [common weed list](#) as a guide!



Photo: Paige Hughart

Year 1



Photo: Paige Hughart

Year 2



Photo: Paige Hughart

Year 3

Rain gardens, like any native plant garden, look different from year 1 to year 3. There is variation depending on the age and type of plants you choose, but these photos give a general idea of what to expect your rain garden to look like from year to year. By year three, your plants will likely be well established.

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Following the lead of...

The following rain garden programs have established leading practices in Southeastern Michigan residential rain garden installation and rebate programs. Much of this content pulls from their expertise.



[Rain Catchers Collective](#)
[Clinton River Watershed Council](#)
[Friends of the Rouge](#)
[Huron River Watershed Council](#)

[RainSmart Rebates](#)
(coordinated by Oakland County in partnership with the Clinton River Watershed Council)

[Rain Gardens to the Rescue](#)
(coordinated by Friends of the Rouge and Sierra Club of Michigan)

[Ann Arbor Rain Garden Program](#)
[Master Rain Gardener Program](#)
(coordinated by Washtenaw County Water Resources)

[Dearborn Rain Garden 50/50 Cost Share Program for Sustainable Lawns](#)

[Royal Oak Rain Garden Program](#)