LOWER MINNESOTA RIVER
WATERSHED DISTRICT

Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting
Wednesday, April 20, 2022

Agenda Item
Item 5. B. – Cost Share Application for 4624 Overlook Drive, Bloomington

Prepared By
Linda Loomis, Administrator

Summary.
The LMRWD received an application for the 2022 Cost Share program from a resident in Bloomington. The applicant is planning to install a rain garden in the front yard, which drains to the street, Coleman Lake, and the Minnesota River. The resident plans to submit a second cost share project to manage the steep slope in the backyard that drains to Overlook Lake. She has attended the Dakota County Landscaping for Clean Water and has retained the services of a landscape professional to help with the design and installation of the rain garden. She is requesting $2,500 in cost share. The estimate of the work is more the $5,000 so the homeowners will have more than the required 50% match.

The Cost Share application is attached.

Attachments
Cost Share application for 4624 Overlook Drive
Estimate of project costs

Recommended Action
Motion to approve Cost Share Application for 4624 Overlook Drive

LOWER MINNESOTA RIVER
WATERSHED DISTRICT

Cost Share Grant Application 2022

Application type (check one) ☒ Homeowner ☐ Non-profit - 501(c)(3) ☐ School
☐ Business or corporation ☐ Public agency or local government unit

Project type (check all that apply) ☒ Raingarden ☐ Vegetated Swale ☐ Infiltration Basin
☐ Wetland restoration ☐ Buffer/shoreline restoration ☐ Conservation practice ☒ Habitat restoration
☐ Pervious hard surface ☐ Other ↳ also planning buffer and other improvements in future phases.

Applicant Information

Name of organization or individual applying for grant (to be named as grantee):
Gianna DaGiau
Address (street, city and ZIP code):
4624 Overlook Drive, Bloomington, MN 55437
Phone:
952-888-6186
Email address:
gianna.dagiau@gmail.com

Primary Contact (if different from above)

Name of organization or individual applying for grant (to be named as grantee):

Address (street, city and ZIP code):

Phone:
952-888-6186
Email address:

Project location

Address (street, city and ZIP code):
4624 Overlook Dr, Bloomington, MN 55437
Property Identification Number (PID)
30-027-24 42 0022
Property owners:
Gianna DaGiau

Project Summary

Title Overlook - Coleman Residential Runoff
Total project cost $5527.50 Grant amount requested $2500
Estimated start date As soon as grant is approved. Estimated completion date 9/1/22
Is project tributary to a water body? ☐ No, water remains on site ☒ Yes, indirectly ☒ Yes, directly adjacent

Is this work required as part of a permit? ☒ No ☐ Yes
(If yes; describe how the project provides water quality treatment beyond permit requirement on a separate page.)

Project Details – See attached powerpoint slides

Checklist To be considered complete the following must be included with the application.

- ☑ location map
- ☑ site plan & design schematic
- ☑ contracted items
- ☑ project timeline
- ☑ proof of property ownership
- ☑ plant list &planting plan (if project includes plants)

Project description Describe the project, current site conditions, as well as site history, and past management. Note any potential impacts to neighboring properties.

See attached powerpoint

What are the project objectives and expected outcomes? Give any additional project details.

See attached powerpoint.

Which cost share goals does the project support? (check all that apply)

- ☑ improve watershed resources
- ☑ foster water resource stewardship
- ☑ increase awareness of the vulnerability of watershed resources
- ☑ increase familiarity with and acceptance of solutions to improve waters

How does the project support the goals you checked?

See attached powerpoint

Project Details (continued)

Project benefits Estimate the project benefits in terms of restoration and/or annual pollution reduction. If you are working with a designer or contractor, they can provide these numbers. If you need help contact the district administrator. Computations should be attached.

Benefit	Amount
Water captures	gal/year
Water infiltrated	gal/year
Phosphorus removed	lbs/year
Sediment removed	lbs/year
Land restored	sq. ft.

See attached powerpoint for water runoff estimates

How will you share the project results with your community and work to inform others about your projects environmental benefit?

See attached powerpoint

Please note that by obtaining cost share funding from the Lower Minnesota River Watershed District, your project may be shared with the community through our website, social media, or other media. Your project may also be highlighted on a tour or training event, with prior notice and agreement.

Maintenance Describe the anticipated maintenance and maintenance schedule for your project.

See attached powerpoint.

I acknowledge that receipt of a grant is contingent upon agreeing to maintain the project for the number of years outlined in the cost share guidelines. ☑ Yes

Authorization

Name of landowner or responsible party

Gianna DaGiau

Signature Gianna DaGiau Date 4/15/22

Type or handwrite your answers on this form. Attached additional pages as needed.

For questions, contact Linda Loomis at Naiad Consulting@gmail.com or call 763-545-4659.

Mail the completed application to

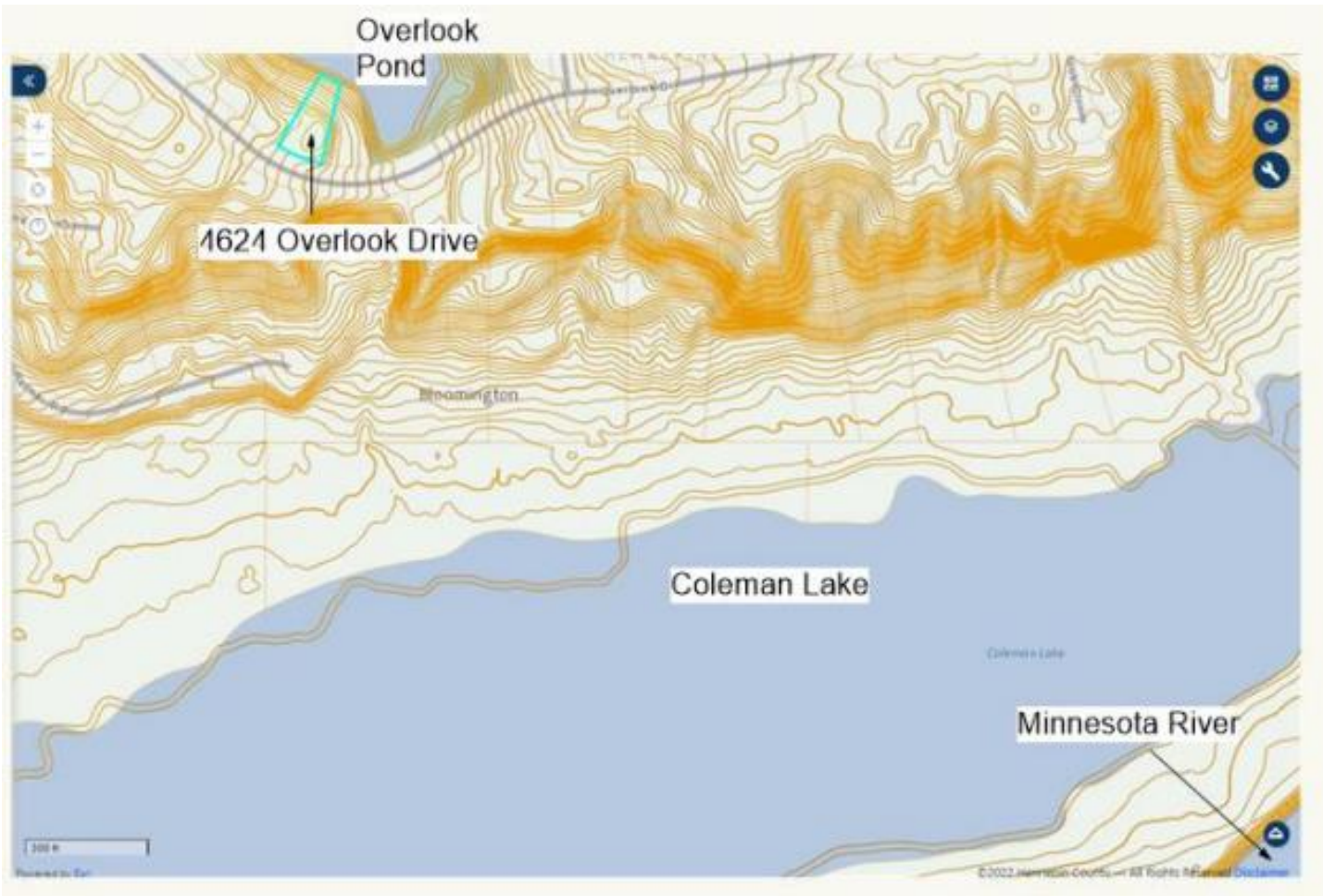
Lower Minnesota River Watershed District
c/o Linda Loomis, Administrator
112 E. Fifth St., Suite 102
Chaska, MN 55318

or email to:

Linda Loomis, Administrator
naiadconsulting@gmail.com

Project Details - Checklist

Location Map on Hennepin County Natural Resources



Blue house icon: 4624 Overlook Drive. Sits on a hill.

- Front yard flows downhill to Overlook Drive, which flows steeply downhill (small blue southeast arrow) to road storm drain. The storm drain flows directly down the ravine across from our house, to Coleman Lake. A second overflow storm drain further east flows into Overlook Pond.
- Backyard is on Overlook Pond, and is a steep downhill to the pond (small blue northeast arrow) , which empties via large pipe under Overlook Drive down a steep ravine to Coleman Lake (large blue south arrow). <u>During high water, the Minnesota River and Coleman Lake become one body of water.</u>

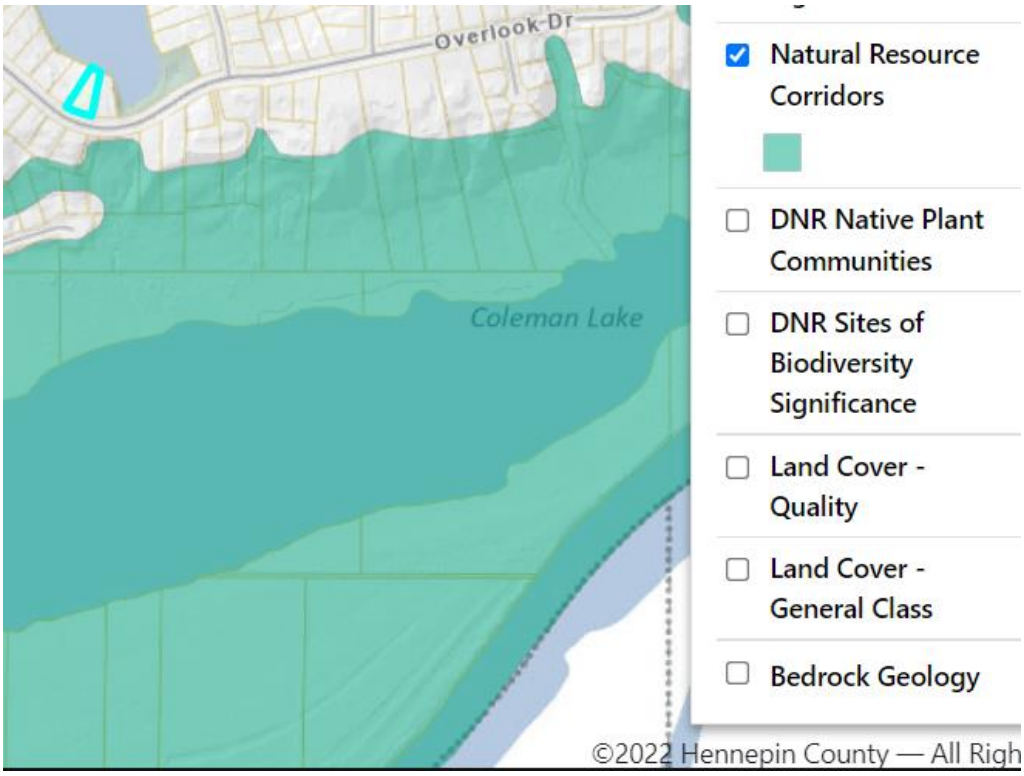
Ravine across from our house and Coleman Lake:

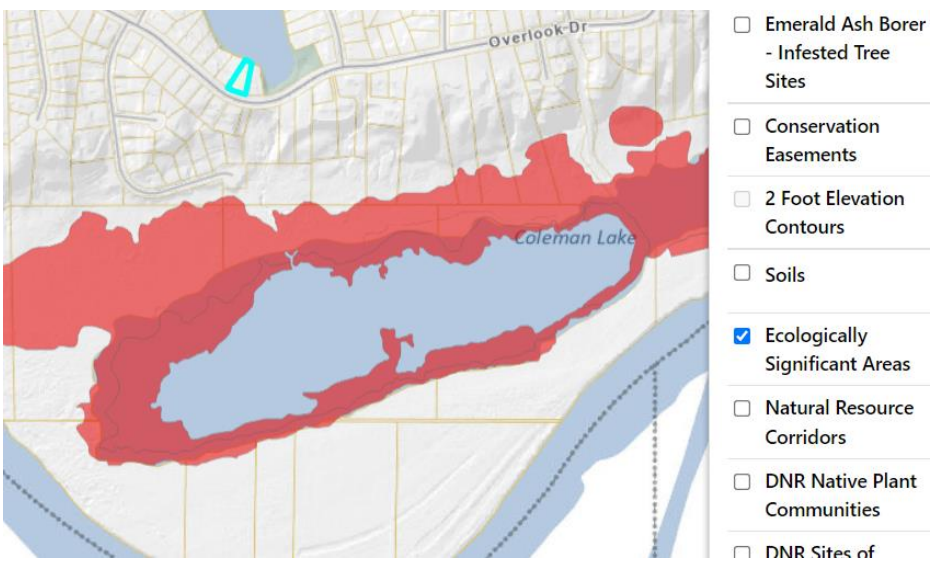
Natural Resource Corridor

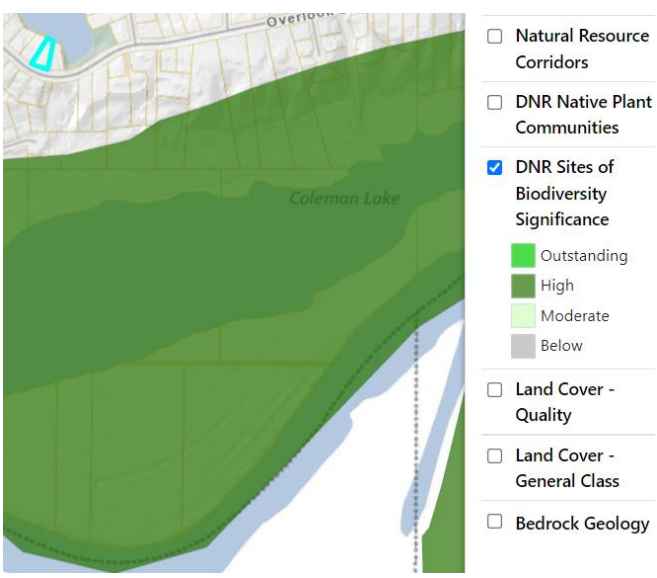
Ecologically Significant

DNR Site of Biodiversity Significance: High

https://gis.hennepin.us/naturalresources/



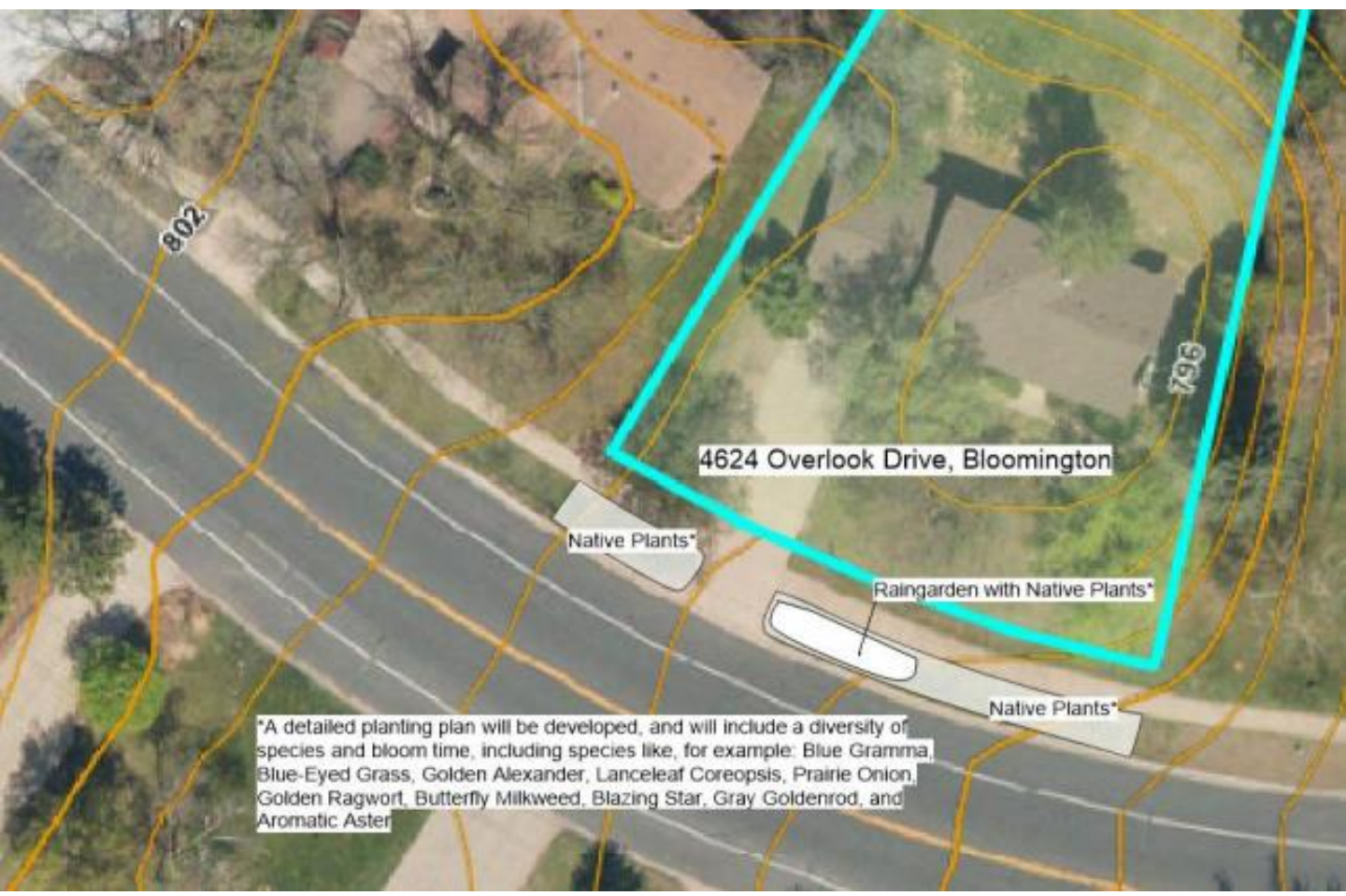




Site Plan & Design Schematic

Plant List is shown in photo below.

Planting Plan in the boulevard will be developed while we are preparing the boulevard.



Contracted Items Timeline

Contracted Items – We do not have a contract with anyone. Pasque Ecological Design has helped us develop the plan as seen so far in this grant application but we didn't create a contract for this work.

Timeline: As soon as we have a signed grant agreement, we will begin the work, in the following order:

1. Develop detailed plan and planting plan for the boulevard/raingarden, and a plan for the oak tree placement in the rest of the garden.
2. Rent sod cutter and remove lawn from boulevard. Dig out more soil if needed for sidewalk runoff to be able to soak into boulevard.
3. Decompact soil if necessary. We will use a shovel and a penetrometer to gauge soil compaction, and measure infiltration rate.
4. Dig raingarden
5. Install 1" compost
6. Install 2" double shredded hardwood mulch
7. Install erosion control blanket
8. Wait 2 weeks and see if any weeds come up from seed bank.
9. With sod removal and mulch, hopefully no weeds will come up. But if weeds do come up from the seed bank, Organic Bob will apply an organic herbicide every 2 weeks until weed seed bank is exhausted.
10. Install plugs
11. Install plant labels and brochure box.
12. Procure and plant 4 oak trees.
13. Water and weed as needed.

Expected completion: 9/1/22.

This summer we will also be doing labor - making improvements to the property in preparation for future year(s) work, including removing stone.

Future year(s)

- Overlook Pond shoreline buffer conversion to natives
- Backyard Native plantings to cut runoff from roof and from west neighbors, and to east neighbors and into Overlook Pond
- Front yard native plantings to further minimize runoff
  - Runoff from the western front yard, starting from middle of west neighbor's yard slopes to our driveway, and runoff from our central front yard which slopes into driveway.
  - Front yard and roof runoff that runs down the boulevard sidewalk and down the east property edge hill to the east neighbors instead to our boulevard plantings.

Proof of property ownership

Hennepin County > Property > Property information search > PINS home > Address search results

Address search results

Parcel Data for Taxes Payable 2022

Current year taxes due

2022 state copy (used when filing 2021 M-1PR state refund)

View map of property

Recent recording history

Current year values

Prior year taxes

Print details

This database is updated daily (Monday - Friday) at approximately 9:15 p.m. (CST)

Property ID number:	**30-027-24-42-0022**
Address:	4624 OVERLOOK DR
Municipality:	BLOOMINGTON
School district:	271
Watershed:	2
Sewer district:	
Construction year:	1960
Owner name:	GIANNA W DAGIAU
Taxpayer name and address:	GIANNA W DAGIAU 4624 OVERLOOK DR BLOOMINGTON MN 55437

Property tax information

taxinfo@hennepin.us
Phone: 612-348-3011
A-600 Government Center
300 South 6th Street
Minneapolis, MN 55487
M-F, 8 a.m. to 4:30 p.m.
Map

Useful links

Change taxpayer information

Homestead information

Pay property taxes

Project Description

Project description

Describe the project, current site conditions, as well as site history, and past management.
Note any potential impacts to neighboring properties.

The garden at 4624 Overlook Drive is currently dominated by lawn, with a few shade trees and shrubs.

Diversity is currently relatively low.

The boulevard is currently sparse, weedy, turf grass. Because it is higher than the sidewalk, it does not currently receive runoff, and runoff runs down the sidewalk and eventually to a drain that enters directly into Coleman Lake (in very large storm events it goes into an overflow drain into Overlook Pond). In winter, the sidewalk is often icy. About 200 linear feet of sidewalk west of the property runs downhill to our property and could potentially drain into our boulevard, with re-grading. In a heavy rain, a torrent of water rushes down the sidewalk.

Site History and Past Management: Homeowners:

We knew nothing about runoff and native plants until Gianna came across a youtube video and started diving into the topic.

Up until then, across our entire property we used high maintenance lawn practices that are standard in our neighborhood. The result is that the high maintenance turf inputs runoff from our west neighbors to us, we add to it, and send it off to the road storm drain, Overlook Pond, or our neighbors to the east, who add to it and send it mostly to Overlook Pond.

“Hell strip” is a good way to describe our boulevard, and our management of it.

- Multiple times it has become so weedy that we ripped up the sod and started over, which meant applying starter fertilizer.
- Because it slopes southward like a solar panel, it requires a lot of watering, and with our sprinklers we seem to mostly water the sidewalk strollers and road bicyclists.

Note: in the meantime while we work to minimize turf and cut runoff, we are migrating to low maintenance lawn practices everywhere else in our lawn and hand digging weeds.

Project description

What are the project objectives and expected outcomes? Give any additional project details.

This project will remove the existing weedy lawn and lower the boulevard grade so that it can receive runoff from the sidewalk and areas (garden, roof, driveway) that drain onto the sidewalk. The boulevard will be planted with a diversity of low growing native wildflower plugs in a matrix of blue grama plugs. Native plants, which are adapted to harsh growing conditions, will grow better here than lawn. Their deep roots will hold soil in place better and infiltrate more stormwater.

Native plants will also provide habitat and food for wildlife, including many pollinators. Artistic design with native plants will also be more aesthetically pleasing for passers by. Staggered bloom times will create a visually dynamic landscape, and provide food for pollinators throughout much of the growing season.

Where shown on the schematic plan, a depression will be created to collect and infiltrate the large amount of runoff that flows here from the driveway, roof, sidewalk, and neighbor's lot. Because this area has very sandy soil, we believe it is an excellent opportunity for a raingarden, and expect it will rapidly infiltrate large volumes of runoff.

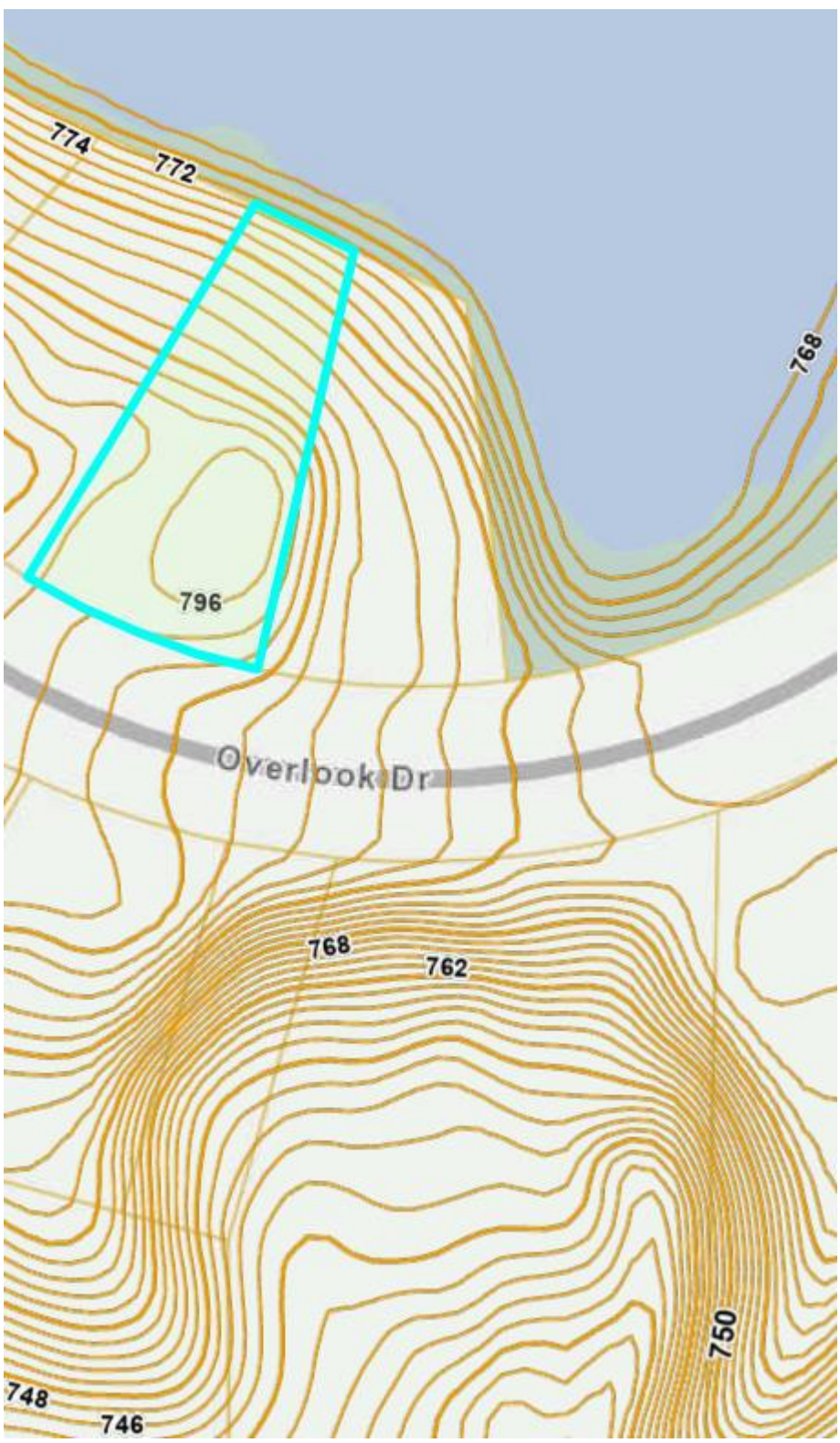
Moreover, because this area otherwise drains directly to a drain that runs into Coleman Lake, we have an opportunity to directly impact Coleman Lake and the Minnesota River here by intercepting runoff before it drains into the drain to Coleman Lake.

We will also develop a landscape master plan to strategize how best to use our whole garden to infiltrate and clean stormwater runoff, maximize wildlife habitat, maximize aesthetics and regional identity, store carbon and address climate change, and plant to minimize heat island effect and home energy use, while also minimizing maintenance, mowing, irrigation, and chemical use. The landscape master plan will include a turf to prairie conversion in the backyard, a buffer/shoreline planting along Overlook Pond, turf to native plant conversion in the front, which will be installed in future years/phases. The plan will also strategically locate 4 new oak trees to maximize stormwater and energy/climate change reduction benefits. Stormwater benefits of trees include interception, evapotranspiration, and infiltration. As a keystone species, oaks support many ecological processes, connections, and pollinator species. The oaks will be planted this year.

Project Benefits Maintenance

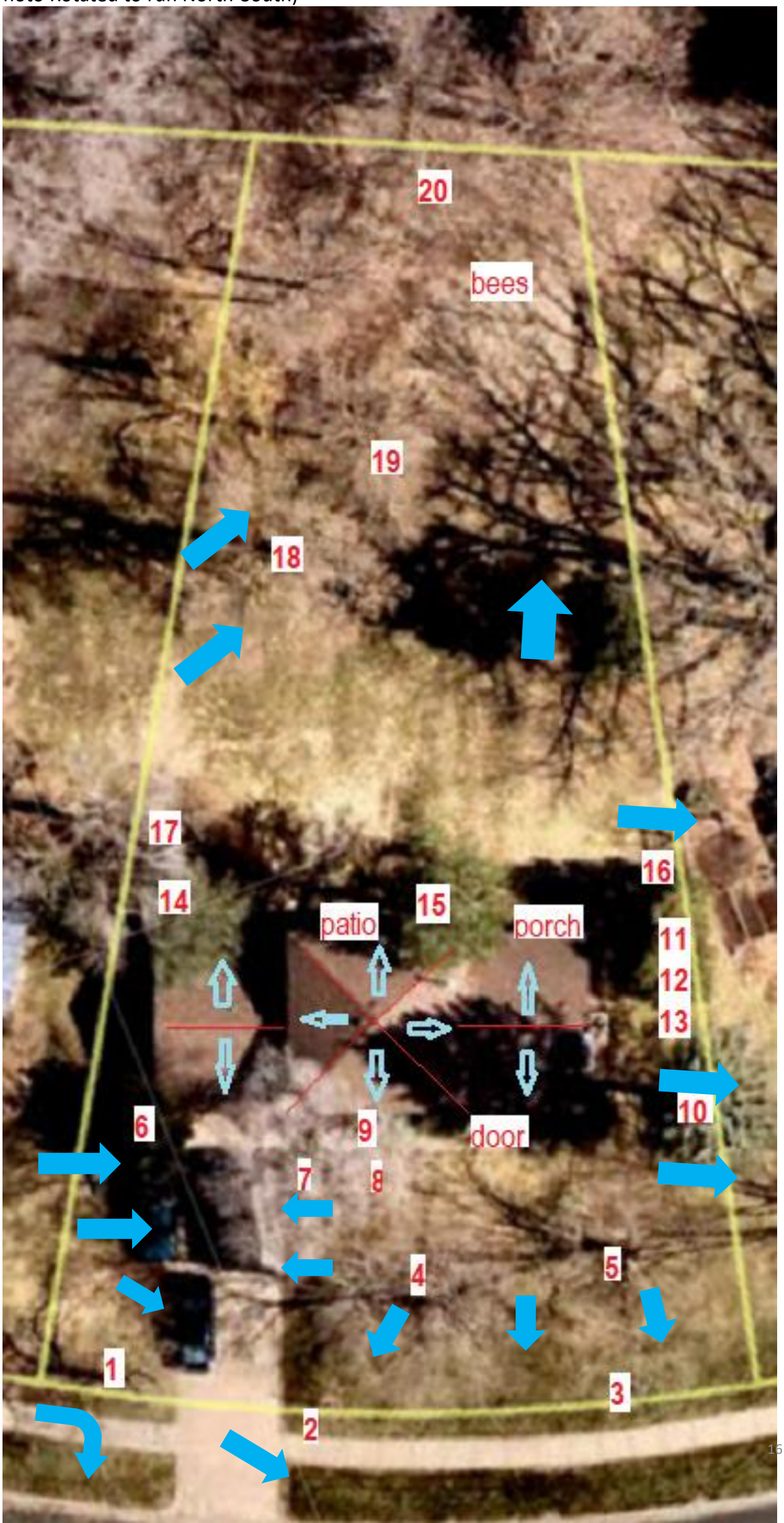
Project Benefits
Runoff calculations

- 2 foot elevation contours
  https://gis.hennepin.us/naturalresources/



Base map Water flow (https://gis.hennepin.us/property/map/default.aspx

Photo Rotated to run North-South)



Water poured while facing northwest reverses direction and flows southeast to the eastern edge of the driveway.

Even in the boulevard sidewalk area, it flows east to the beginning of the east boulevard (where the entrance to the raingarden will be) rather than straight out to the road*.

* During heavy rain excess water may bypass the raingarden entrance and go to the road, and additional yard plantings next year will help minimize that.

Runoff – calculations by homeowner

Whole Property current annual runoff and eventual runoff reduction:

- 200’ x 100’ (average of front and back property lines) = 20,000 sq feet
  - Impervious surfaces = 4000 square feet
    - House roof (23.5’ garage + 23.5 bedroom level +21 living room) x 28.5 depth = 1938 sq feet
    - House sidewalk = 3’ x (23.5+21) + 2 x 28.5 = 190
    - Driveway 67’ x17 = 1139
    - Boulevard sidewalk = 4.5’ x 150 = 675
    - Back porch and patio = about 100
  - Compacted lawn: 20,000 – 4000 = 16,000 sq feet
- Runoff, today’s annual estimate = 296,208 gallons. This uses Dakota County’s Landscaping for Clean Water Intro course assumptions: 30” annual precip; Runoff rates of 100% for impervious (course example: 1000 sq ft driveway and 1 inch rain yielded 617 gallons runoff) and 74% for compacted lawn (the lawn portion example: 8390 sq ft and 1 inch rain yielded 3880 gallons runoff).
  - Impervious surfaces
    - 4000 sq ft x 30/12 annual precipitation in feet x 7.48 gallons/cubic feet = 74,800 gallons
    - Runoff at 100% = 74,800 gallons
  - Compacted lawn
    - 16,000 sq ft x 30/12 annual precipitation in feet x 7.48 gallons/cubic feet = 299,200 gallons
    - Runoff at 74% = 221,408 gallons. Note: We have the advantage of sandy soil, but we have the disadvantage that just about all of the yard is slope, much of it steep. Much of the runoff into the driveway is coming from the west neighbor’s high maintenance lawn which is not included in this portion of the calculation.
- Runoff reduction: Our goal with the whole yard master plan over the next few years is to reduce it as much as possible. Per the Dakota County course, in the case of 100% natural cover runoff is 10% of total precipitation, which I suspect is a lower bound.
  - 20,000 sq ft * 30/12 annual precipitation in feet x 7.48 gallons/cubic feet = 374,000
  - 10% total runoff = 37,400 gallons
  - Runoff max reduction = today’s 296,208 gallons – future’s 37,400 gallons = **258,808 gallons**

The grant for **this year’s work** targets the runoff from the boulevard sidewalk and driveway. (It also plants oak trees to get an advance start on their growth, but I am not considering them here).

- Runoff from roof to driveway
  - Bedrooms’ Hip roof (23.5 x 28.5) run off onto front half of garage roof = 0.5 (southern half) * 0.25 (west facing quarter) * (23.5 x 28.5) = 84 square feet
  - Garage roof front half = 0.5 * (23.5 x 28.5) = 335 sq ft
  - Total = 84 + 335 = 419 sq ft
- Rainfall directly onto driveway = 67 x17 = 1139 sq ft
- Sidewalk sloping down to our property from the west 200x4.5 feet = 900 sq ft. This portion of the sidewalk is not on our property but contributes significantly to the runoff off out our driveway and into the street, so if it is stopped it will be by the boulevard plantings.
- Total impervious surface runoff = 2458 sq ft * 30/12 * 7.48 gallons = 46,000 gallons. We expect the boulevard native plantings and raingarden to absorb a good portion of this, depending on precipitation rate at any one time.
- Compacted lawn runoff: Approximately 1/3 of front lawn between driveway and east property line slopes down to the boulevard sidewalk 57 ft x 100ft *1/3 = 1881 sq ft. x 30/12 annual precipitation in feet x 7.48 gallons/cubic feet x 74% = 26,000 gallons. A portion of this runoff, plus roof runoff, will cross the sidewalk into the boulevard native plantings (as opposed to running down the sidewalk to the east neighbors).
- Additional front yard runoff to be targeted in another year with front yard native plantings not included here:
  - Runoff from the western front yard, starting from middle of west neighbor’s yard slopes to our driveway, and runoff from our central front yard which slopes into driveway.
  - Front yard and roof runoff that runs down the boulevard sidewalk and down the east property edge hill to the east neighbors instead to our boulevard plantings.

Project Benefits

How will you share the project results with your community and work to inform others about your projects environmental benefit?

The goal in starting with the boulevard is that it is the most visible part of our property. We want to see the work that we are doing be multiplied throughout our neighborhood, including all the neighbors that live around Overlook Pond and on the Minnesota River side of Overlook Drive.

Ours is the only public sidewalk for everyone who lives around Overlook Lake. There is no Overlook Dr. public sidewalk on its south side, so everyone along the MN River also walks our sidewalk.

Because we see many pedestrians on this sidewalk every day, we believe this is an excellent opportunity to educate those who walk by about stormwater runoff, water quality, and native plants.

We aim for our garden to become a local teaching example of a sustainable garden, including the above listed goals, and thereby inspire others to follow suit.

We are planning to include nice looking signage (from perhaps Wild Ones) and free “take one” brochures.

When we install natives throughout our property in the next phases, backyard tours will be welcome, and especially encouraged for our neighbors who back up to Overlook Pond.

Maintenance

Describe the anticipated maintenance and maintenance schedule for your project.

Plants will be watered as needed. Unless it rains an inch a week, the plants will be watered every 2- 3 days the first month or so (will check soil to see if watering is needed), then once a week for about a month, then only if there is an extended drought.

Soil and plant health will be monitored closely to evaluate if more or less watering is needed.

Weeds will be pulled as needed.

Erosion control blanket and raingarden entrance and exit will be checked for erosion and undercutting after every major storm.

Labor Costs

Service provider	Task	# hours	Rate/ hour	Requested funds from LMRWD	Matching /in kind funds	Total cost
Homeowner	Pick up sod cutter, remove sod, and decompact soil if necessary	16	$18.00		$288.00	$288.00
Homeowner	Dig raingarden	16	$18.00		$288.00	$288.00
Homeowner	Source and pick up plants from nurseries	4	$18.00		$72.00	$72.00
Homeowner	Shop for oak trees and plant oak trees	5	$18.00		$90.00	$90.00
Organic Bob	Spray organic herbicide to kill weeds that come up from seed bank after sod removal and before planting if needed	6	$50.00	$300.00		$300.00
Homeowner	Install plants, erosion control blanket, compost, mulch, fence	30	$18.00		$540.00	$540.00
Pasque Ecological Design	Design raingarden and boulevard	4	$90.00	$360.00		$360.00
Pasque Ecological Design	Assist with brochure, educational materials	2	$90.00	$180.00		$180.00
Pasque Ecological Design	Lay out plants, spray paint location of raingarden, assist with sourcing plants and materials (erosion control blanket, mycorrhizae, etc)	4	$90.00	$360.00		$360.00
Total				**$1,200.00**	**$1,278.00**	**$2,478.00**

Material Costs

Project Materials	Unit cost	Units	Total # units	Requested Funds	Matching Funds	Total cost
Rent sod cutter	120	day	1	$120.00		$120.00
Mycorrhizae	100		1	$100.00		$100.00
Soaker hoses	20		4	$80.00		$80.00
Plugs	1.5	each	900	$1,350.00		$1,350.00
2 GAL Oak Trees	25	each	4	$100.00		$100.00

5 GAL 2 to 4 inch diameter field stone at the inlet and outlet of the raingarden	1	lump sum	50	$50.00		$50.00
Erosion Control Blanket and fasteners	1	lump sum	1	$200.00		$200.00
2" Double Shredded Hardwood Mulch for boulevard and oak trees	30	cy	6	$180.00		$180.00
1" Compost	25	cy	2.5	$62.50		$62.50
Compost and mulch delivery	150		1	$150.00		$150.00
Temporary Plant Protection Fence around boulevard and oak trees	40	per 50 lf	6	$160.00		$160.00
Temporary Plant Protection Fence Stakes	2	each	60	$120.00		$120.00
Organic Herbicide to kill weeds that come up from seed bank after turf removal and before planting if needed	100	lump sum	3	$300.00		$300.00
Plant identification signs	10	each	3	$30.00		$30.00
Brochure box and pole	1		47	$47.00		$47.00
Total				**$3,049.50**	**$0.00**	**$3,049.50**
			TOTAL	**$4,249.50**	**$1,278.00**	**$5,527.50**