



3235 Fernbrook Lane N • Plymouth, MN 55447
Tel: 763.553.1144 • Fax: 763.553.9326
Email: judie@jass.biz • Website: www.shinglecreek.org

A meeting of the joint Technical Advisory Committee (TAC) of the Shingle Creek and West Mississippi Watershed Management Commissions is scheduled for **10:30 a.m., Tuesday, December 1, 2020. This will be a virtual meeting.** To join the Zoom Meeting: <https://us02web.zoom.us/j/87659246193>

Or dial by your location:

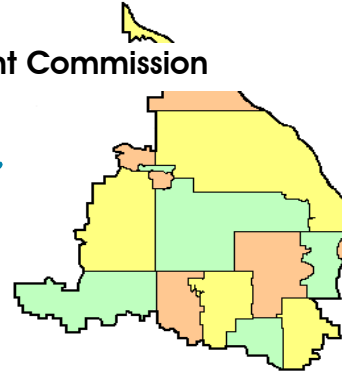
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+1 929 205 6099 US (New York)	+1 253 215 8782 US (Tacoma)
+1 346 248 7799 US (Houston)	+1 669 900 6833 US (San Jose)

Meeting ID: **876 5924 6193** Passcode: **water**

AGENDA

1. Call to Order.
 - a. Roll Call.
 - b. Approve Agenda.*
 - c. Approve Minutes of Last Meeting.*
2. Robbinsdale Opportunity Grant Application.*
3. SRP Channel Modification Grant Application.*
4. Project Review Fee Schedule Questions.*
5. MS4 General Permit Reauthorization – discussion.
6. Next TAC meeting is scheduled for _____..
7. Adjournment.

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MINUTES

September 24, 2020

A virtual meeting of the Technical Advisory Committee (TAC) of the Shingle Creek and West Mississippi Watershed Management Commissions was called to order by Chairman Richard McCoy at 8:30 a.m., Thursday, September 24, 2020.

Present were: Andrew Hogg, Brooklyn Center; Mitch Robinson, Brooklyn Park; Mark Ray, Crystal; Derek Asche, Maple Grove; Megan Hedstrom, New Hope; Nick Waldbillig, Osseo; Ben Scharenbroich and Amy Riegel, Plymouth; Richard McCoy and Marta Roser, Robbinsdale; Ed Matthiesen and Diane Spector, Wenck Associates, Inc.; and Judie Anderson and Amy Juntunen, JASS.

Not represented: Champlin and Minneapolis.

- I. Motion by Ray, second by Hogg to **approve the agenda.*** *Motion carried unanimously.*
- II. Motion by Ray, second by Riegel to **approve the minutes*** of the July 23, 2020 meeting. *Motion carried unanimously.*

III. Project Review Fees.

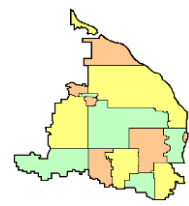
A. As part of the 2021 budget process Staff looked at the project review fees to see if they are adequately covering costs. Tables 1 and 2 in their September 17, 2020 memo* compare the review fees received to the costs of performing the project reviews. The costs may also include meetings with developer's representatives, agencies, etc. The review fee structure is intended to *on average* recapture all those costs and limit overcharging for individual projects.

The TAC has discussed the project review fee structure a few times, looking at the schedules for Bassett Creek and Elm Creek as well for comparison. Staff also looked more closely at the effort to complete the reviews where the cost exceeded the fee received. There was no particular reason why, but projects with floodplain impacts, stream crossings, or complicated, lengthy highway projects generally required more effort to review. In addition, some projects required the applicant to rework and resubmit details, quickly increasing the time required to review.

The TAC had previously discussed two options: a structure that charges a base fee and then adds additional fees for specialized reviews such as Bassett; and an escrow structure where the applicant pays the actual cost to complete the review such as Elm Creek. The TAC had leaned toward the former.

B. The following table shows the current fee structure and Staff's recommendations.

1. Condense the top two tiers for both residential and commercial sites to a single tier. Most of the very largest developments left in the watersheds are in areas such as Arbor Lakes or the 610 Corridor, where there is significant regional treatment. Those project reviews tend to be simpler so that the cost of completing the review usually is much less than the review fee.



2. Separate city street and county/state linear projects into separate tiers. The county and state projects often require one or more meeting with those agencies at various design stages, requiring more work than city projects.

3. Add separate add-on fees for projects needing analysis of manufactured treatment devices, floodplain impacts or crossings that may require H & H modeling and verification.

CURRENT REVIEW FEES, Effective October 1, 2014

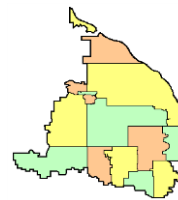
Project Fees		Current	Suggested
Single Family Lot		\$300	\$300
Single Family Residential Development, density less than 3 units per acre			
	Total Site <15 acres	1,500	1,800
	Total Site 15-29.99 <u>15+</u> acres	1,800	2,000
	Total Site ≥30 acres	2,500	
All Other Development			
	Total Site <5 acres	1,700	1,800
	Total Site 5-9.99 acres	2,200	2,200
	Total Site 10-19.99 <u>10+</u> acres	2,200	2,500
	Total Site ≥20 acres	3,000	
Variance Escrow		2,000	2,000
City street or utility project		1,100	1,100
<u>County or state highway project</u>			<u>2,000</u>
<u>Add-ons:</u>			
<u>Projects using Manufactured Treatment Devices</u>			<u>500</u>
<u>Projects with floodplain impacts</u>			<u>300</u>
<u>Projects with stream crossings</u>			<u>1,000</u>

This topic is on the agenda for discussion and eventual recommendation to the Commissions with the goal of having the new fees in place by January 1, 2021.

Motion by Ray, second by Riegel to recommend to the Commissions adoption of the suggested fee schedule, including add-ons, and specifying that projects using MTDs be an add-on per *type* of device. Motion carried, Maple Grove voting nay, and Osseo abstaining.

IV. Cost Share Program.

Spector informed the members that the cost-share programs in both Commissions have robust fiscal balances (\$217,894 in Shingle Creek, \$251,770 in West Mississippi at FY-end 2019). Cities are encouraged to bring forward eligible projects.



V. Other Business.

A. The Meadow Lake Management Plan and the Connections II stream restoration project for **Watershed Based Implementation Funding (WBIF)**. These projects had previously been submitted to the BWSR Clean Water Fund (CWF) grant program. Staff submitted as the WBIF grant request the Commission match portion of the CWF projects' costs. Should both the CWF and WBIF grants be approved, the Commission would be able to fully fund those projects from grants. No projects from West Mississippi were advanced.

B. Riegel reported that the **Bass and Pomerleau alum treatments** will occur the week of October 11, 2020.

C. Matthiesen asked the members if there was any interest in making a **mandatory buffer requirement standard** if a lake or stream-front property owner was doing any shoreline restoration. The Commission rules require a buffer if there is a new or redevelopment but not for shoreline work. A current project review on Bass Lake in Plymouth involves a property owner repositioning some boulders and voluntarily creating a wetland section on the shoreline. The City of Plymouth currently does not have a mandatory buffer requirement for this work. The TAC agreed to keep the existing policy of encouraging property owners to incorporate a buffer and the Commission and member city to pass along Minnesota Department of Natural Resources buffer design information.

D. McCoy shared a picture of the current status of construction at the new **Robbinsdale Centralized Water Treatment Facility on Lee Avenue**. The work is focused on forming up the floor of the proposed 750,000 gallon clear well. An 80 CY concrete pour is scheduled for tomorrow. Matthiesen queried whether the City would consider hosting a tour for interested parties during construction. McCoy advised he would ask the contractor if a group with appropriate protective equipment would be allowed on the site.

VI. Next Meeting.

The next Technical Advisory Committee meeting is scheduled for 8:30 a.m., Thursday, October 22, 2020. This also will be a virtual meeting.

The meeting was adjourned at 9:13 a.m.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Judie A. Anderson".

Judie A. Anderson
Recording Secretary
JAA:tim

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Part 1

Natural Resources “Opportunity” Grant Application



Application No. _____

Place the cursor in the gray box at question 1, fill in the answer, and then use the F11 function key to navigate through the remaining questions in the application.

1. PROJECT TITLE:

Ryan Lake Shoreline Restoration

2. APPLICANT NAME:

City of Robbinsdale

3. APPLICANT SIGNATORY: *(The person whose name is listed here must sign Part 1 -Box 7 of this application)*

Name: Marta Roser

Title: Water Resources
Specialist

Telephone Number: (763) 531-1248

E-Mail Address:
mroser@ci.robbinsdale.mn.us

Mailing Address

Agency: City of Robbinsdale

Address: 4100 Lakeview Ave N

City: Robbinsdale State: MN Zip Code: 55422

4. PROJECT DURATION:

Estimated Start Date: _____

Estimated Completion Date: _____

Anticipated PROJECT Length: _____ months

Part 1

Natural Resources “Opportunity” Grant Application

5. PROJECT TYPE:

- ☒ 1. Water Quality Project
- ☐ 2. Wetland Restoration
- ☒ 3. Habitat Restoration/Protection
- ☐ 4. Assessment Identifying Future Projects
- ☐ 5. Other:

6. FUNDING REQUEST: *(Provide the amount of funding requested to complete your project.)*

Check for consistency with costs provided in Part 2, Question 2.	Project Amount:
Total PROJECT Cost This amount represents the full cost of the PROJECT. (TBD w/ Wenck/watershed)	\$ _____
Natural Resources “Opportunity” Grant Request	\$ _____
Other Match Funds in PROJECT Identify secured source(s) of funds: Funding Source _____ Funding Source _____ Funding Source _____ Funding Source _____ Describe the status of the matching funds:	\$ _____ \$ _____ \$ _____ \$ _____

7. APPLICATION CERTIFICATION:

I CERTIFY TO THE BEST OF MY KNOWLEDGE THAT THE INFORMATION IN THIS APPLICATION IS TRUE AND CORRECT AND THAT I AM THE LEGALLY AUTHORIZED SIGNATORY OR DESIGNEE FOR THE SUBMITTAL OF THIS INFORMATION ON BEHALF OF THE APPLICANT.

Printed Name	Signature
Title	Date

Part 1
Natural Resources “Opportunity” Grant Application

THIS CONCLUDES PART 1

Part 2

Natural Resources “Opportunity” Grant Program

This is the rated portion of the application with a total of 200 possible points.

Each question identifies the proportion of available points. Applicants should provide clear and concise answers. The Scoring Guide, shown below each scored question, provides information on what reviewers will look for in a successful application.

EXECUTIVE SUMMARY (0 points)

Summarize the overall project and associated water quality problem and how the project will address or solve the problem. (limit your answer to 250 words or less).

The purpose of the Ryan Lake Shoreline Restoration Project is to reduce bank erosion and sedimentation into Ryan Lake and downstream waterbodies by implementing stabilization projects along the shoreline. Extreme weather-patterns and heavy precipitation have created wide water level fluctuations that can accelerate shoreline erosion. Additional water to Ryan Lake includes water pumped in from Crystal Lake; Crystal Lake water has been pumped into Ryan Lake to alleviate flooding within the Crystal Lake basin. Underlying sandy soils along the Ryan Lake shoreline exacerbate this situation by eroding away quicker than overlying organic-rich topsoil, causing the top layer to slough into the lake. In Ryan Lake’s 5-Year TMDL Review it was determined that installation and maintenance of shoreline buffers should be a priority in water quality improvement efforts. Shoreline restoration would help stabilize the banks against fluctuating water levels and prevent further erosion of nutrient-rich soil in the waterbody as well as provide additional habitat to local wildlife. The City of Robbinsdale owns very little shoreline around Ryan Lake and so will partner with willing residents to implement shoreline restoration on their private property.

1. SCOPE OF WORK (up to 30 points)

Scoring Guide	Total 30 points
Clear and concise project description	Up to 5 points
Clear description of project tasks	Up to 5 points
Project deliverables are clearly defined	Up to 10 points
Clearly defined timeline for the project	Up to 5 points
The purpose meets defined shared goals	Up to 5 points

Reviewers award points for a clear, complete, and thorough scope that directly addresses the natural resource management problem/need. The scope must demonstrate an understanding of the work required to fully implement and complete the project.

Using the area below, please provide:

- A detailed scope of work for the project that includes clearly defined tasks, deliverables, timelines, and purpose.
 - Describe the intended results (what is the benefit?).
 - Be specific, clear, and concise.
 - Describe the project area and provide supporting map(s) and relevant diagrams and/or pictures.

Part 2

Natural Resources “Opportunity” Grant Program

Ryan Lake is in the cities of Brooklyn Center, Minneapolis, and Robbinsdale and is immediately south of the CR Railroad line. The 35-acre lake has a maximum depth of approximately 35 ft and 5,510 acres of highly urbanized land drain to this waterbody. This high watershed-to-lake ratio (157:1) means a large stressor on the Ryan Lake system is external loading and surface runoff. Compounding any issues with runoff are weather pattern changes in the Midwest due to climate change that are creating storms with heavy precipitation, especially in the spring and summer months. Supercharging the chain of lakes with precipitation has led to wide water level fluctuations that has created shoreline erosion and bank sloughing.

In 2019, a decision was made to transfer water from Crystal Lake to Ryan Lake due to years of increased precipitation. Crystal Lake is a 79-acre lake directly northeast of Co. Rd. 81 that is completely within the municipal boundaries of Robbinsdale and has no natural inlet or outlet. In 1992 the City was permitted to pump water to Minneapolis via stormwater pipes to create an artificial outlet to the lake. This pump lie to the north of lake and can pump up to 1,150 gal/min. However, in May 2019 Crystal Lake hit a high water level record and extensive flooding occurred in many properties around the lake. The City of Robbinsdale was permitted by the MN DNR to start emergency pumping in 2019 and permanent pumping was allowed starting in summer 2020. Water from Crystal Lake will now be pumped into Ryan Lake when the elevation is above 847.50 ft. Shoreline restoration would fix existing bank erosion and sloughing as well as prevent future erosion due to increase water in the system.

Additionally, shoreline restoration and maintenance was called out as a potential strategy for Ryan Lake in both the Twin and Ryan Lakes TMDL Implementation Plan and the 5-Year Review. The tasks would be as follows:

Task 1: Install double row of coconut coir logs (or comparable BMP) onto shoreline

- Purpose is to form a protective barrier between the shoreline and the water
- Anchoring is essential to keep logs in-place

Task 2: Plant forbs and/or grass plugs directly into coconut coir logs

- Purpose is to give the roots of the plants a matrix of fibers to grow in rather than erodible soil
- Amount and type of plants would depend on each site and would be a balance between effective buffer species and the residents' use of the property

Task 3: Three (3) years of shoreline maintenance by professionals

- Purpose it to make sure that the plants establish well
- Plant mortality above a certain percentage will result in replanting of same species or comparable species, depending on what conditions resulted in the mortality

Part 2

Natural Resources “Opportunity” Grant Program

2. PROPOSED BUDGET *(up to 50 points)*

Scoring Guide		Total 50 points
Complete project budget is consistent with the scope of work and estimates are clear and reasonable.		Up to 5 points
Project attempts to leverage other local, state, or federal resources.		Up to 30 points
The project budget represents a good value for the work and natural resource benefit achieved.		Up to 15 points

Reviewers award points to cost-effective projects, with accurate cost estimates, which are able to equitably leverage multiple funding sources. Points are awarded for a complete, reasonable budget that is consistent with the tasks described in the scope of work.

Using the areas below, please provide:

- A budget for the project including total cost for the project broken down into tasks.
 - i. Additional lines may be added to the Proposed Project Budget table if necessary.
- Identify the match sources and their status.

Proposed Project Budget	
Task elements	Total Project Cost
1. Project administration/management	\$ _____
2.	\$ _____
3.	\$ _____
4.	\$ _____
5.	\$ _____
6.	\$ _____
Total costs needed to complete:	\$ _____

In addition to the proposed budget above, please provide the following information:

Total Project Cost \$ _____
 Natural Resources “Opportunity” Grant request \$ _____

Match sources:

List other funding sources and amounts, including local cash matching funds. In-kind contributions are not eligible.

Funding Source: _____ \$ _____
 Funding Source: _____ \$ _____
 Funding Source: _____ \$ _____

Describe the status of matching funds:

Part 2

Natural Resources “Opportunity” Grant Program

3. SEVERITY OF PROBLEM/NEED *(up to 55 points)*

Scoring Guide	Total 55 points
Severity of the problem/need is well documented.	Up to 15 points
Project will achieve substantial natural resources benefits.	Up to 20 points
Project success can be measured, and proposed methods to measure success are reasonable.	Up to 10 points
The Project provides long-term sustainability of natural resource benefits (e.g. operation and maintenance, long-term follow-up, natural resources management), and/or identifies additional projects to address specific problems area(s).	Up to 10 points

Reviewers award points for addressing severe natural resource problems and needs, documentation of those problems and needs, and expected protection and/or improvements achieved by the proposed. Projects with measurable improvements receive more points than those with unclear or vague benefits. Reviewers will consider the actual benefit, the level of implementation, and the severity of the problem. Reviewers will consider only changes that can be achieved by the proposed scope of work.

Using the area below, please provide:

- A detailed description of the severity of the problem or need to be addressed by the project.
 - Include how the problem has been documented in a plan or assessment (e.g., TMDL, CIP, or presence on State’s 303(d) impairment list).
 - Describe how the problem will be addressed by the project and how success will be measured.

This project would directly relate to goals listed in the Twin Lakes and Ryan Lake Nutrient TMDL. The 5-Year Review document specifically calls for cities to urge shoreline property owners to install and maintain shoreline buffers and to restore any unstable or eroded shorelines. This project would stabilize shorelines as well as create a shoreline buffer easement. Additionally, Shingle Creek lies directly downstream of Ryan Lake and is on the State’s 303d list of impaired waters. Any benefit to Ryan Lake would subsequently be a benefit to Shingle Creek.

Part 2

Natural Resources “Opportunity” Grant Program

4. PROJECT TEAM *(up to 10 points)*

Scoring Guide	Total 10 points
Team members’ roles and responsibilities are well defined and expected contributions to the project are adequate for the scope of work.	Up to 5 points
Team members’ qualifications and past experiences are relevant.	Up to 5 points

Reviewers will award points based on skills, qualifications, and experience of the project team members.

Using the area below, please provide:

- List contact information for the partners, staff, and volunteers who will implement the project.
- Briefly describe their relevant skills, qualifications, past experiences, and expected contributions for this project (*do NOT submit resumes*).

Staff Contact Information:

Name:	Marta Roser	Richard McCoy
Organization:	City of Robbinsdale	City of Robbinsdale
Position:	Water Resources Specialist	Public Works Director/City Engineer
Address:	4100 Lakeview Ave N Robbinsdale, MN 55422	4100 Lakeview Ave N Robbinsdale, MN 55422
Phone:	(763) 531-1248	(763) 531-1260
Email:	mroser@ci.robbinsdale.mn.us	rmccoy@ci.robbinsdale.mn.us
Relevant Info:		

Partner Contact Information:

Name:	Judie Anderson	Ed Matthiesen	Diane Spector
Organization:	SCWMC	Wenck	Wenck
Position:	Administrator	Principal Engineer	Senior Water Resources Planner/Principal
Address:	3235 Fernbrook Lane Plymouth, MN 55447	7500 Olson Memorial Hwy Suite 300 Golden Valley, MN 55427	7500 Olson Memorial Hwy Suite 300 Golden Valley, MN 55427
Phone:	(753) 553-1144	(763) 252-6851	(763) 252-6880
Email:	judie@jass.biz	ematthiesen@wenck.com	dspector@wenck.com
Relevant Info:			

Part 2

Natural Resources “Opportunity” Grant Program

5. PROJECT DEVELOPMENT PROCESS/ LOCAL COMMITMENT *(up to 30 points)*

Scoring Guide	Total 30 Points
A comprehensive decision-making process was used to arrive at the proposed project.	Up to 10 pts.
The level of local support and commitments from project partners is documented.	Up to 15 pts.
A collaborative process will be implemented to execute the project.	Up to 5 pts.

Reviewers award points based on project development and implementation efforts and commitments from project partners. Provide documentation as appropriate.

Using the area below, please provide:

- Describe the decision-making process used to select the project (i.e. why was this project chosen over other solutions).
- List where the proposed project is identified as a priority by a local, state, or federal unit of government that manages natural resources (e.g., state approved watershed management plan).
- Describe how you have involved and fostered local, regional, and statewide partnerships for the success of the project.

A shoreline restoration project was selected for Ryan Lake due observed bank erosion as well as the combination of increased precipitation, underlying soil conditions, and lakewater inputs from Crystal Lake emergency pumping to Ryan Lake. The SCWMC has been working on water quality improvements within the Twin Lakes/Ryan Lakes chain on an ongoing basis. Upstream work in Twin Lakes has included carp removals and aquatic plant management, but work within Ryan Lake itself has been limited. Ryan Lake is within the municipal boundaries of Brooklyn Center, Minneapolis, and Robbinsdale and the outlet of Ryan Lake is contained in CR Railroad property. Because City-owned property is limited along Ryan Lake to one parcel on the west side of the lake, working with private shoreline owners will increase our potential to improve water quality and provide habitat restoration. This project also is being pursued because the Ryan and Twin Lakes TMDL 5-Year Review document identifies installation and maintenance of shoreline buffers as a priority on both private and public land. The City of Robbinsdale has been in contact with Ryan Lake residents and staff have met with residents to discuss shoreline erosion.

A complete shoreline restoration would be necessary for properties because just using plants would not solve bank sloughing issues. There are similar wide water level fluctuations and underlying sandy soil conditions under a prairie restoration site along Crystal Lake shoreline and even with nearby deep-rooted native species the shoreline is experiencing bank erosion and sloughing. While shoreline erosion issues are much more extensive on Crystal Lake than Ryan Lake, some sort of “armor” is needed to keep the shoreline stable in addition to plants. Rip rap can be expensive and labor intensive to install as well as having no habitat benefits, but fiber rolls such as coconut fiber would provide “armor” to the shoreline as well as promoting habitat restoration.

The City of Robbinsdale is an active member of the Shingle Creek Watershed Management Commission (SCWMC) and City staff sit on the Technical Advisory Committee. The SCWMC and the City have partnered on many water quality projects using both commission and grant funds. The Ryan Lake Shoreline Restoration Project was presented at the November 12, 2020 Shingle Creek/West Mississippi WMC Joint Meeting and at the December 1, 2020 TAC Meeting.

DNR has been consulted on another recent project implemented by the SCWMC and a maintenance plan would be submitted to the Area Fisheries office.

Part 2
Natural Resources “Opportunity” Grant Program

Part 2

Natural Resources “Opportunity” Grant Program

6. READINESS TO PROCEED *(up to 25 points)*

Scoring Guide	Total 25 Points
Project elements are in place for the project to proceed and documentation is provided (e.g. planning, design, and permits).	Up to 25 pts.

Reviewers will award points based on how soon a project can begin construction and how efficiently the project can proceed to completion, especially through early stages.

Using the area below, please provide:

- Describe the steps you have taken to proceed immediately with the project. Provide information and documentation on project elements such as status of designs, permits, inter-local agreements, landowner agreements, easements, other secured funding, and staff or agency approvals.

A letter and survey has been sent to all Ryan Lake shoreline residents to identify properties that would be willing to have a shoreline buffer installed. This would involve an agreement to maintain the shoreline buffer for at least ten (10) years. The Ryan Lake Shoreline Restoration project was presented at the November 12, 2020 Shingle Creek/West Mississippi WMC Joint Meeting and at the December 1, 2020 TAC Meeting. City staff have confirmed that this project would fit criteria for a Partnership Cost Share and could receive this funding for the Ryan Lake Shoreline Restoration project. SCWMC's engineering consultants, Wenck, have implemented shoreline restoration projects on private property in past projects and we will rely on their expertise for this project.

THIS CONCLUDES PART 2

Part 1

Natural Resources “Opportunity” Grant Application



Application No. _____

Place the cursor in the gray box at question 1, fill in the answer, and then use the F11 function key to navigate through the remaining questions in the application.

1. PROJECT TITLE:

Channel Modification to Enhance SRP Removal

2. APPLICANT NAME:

Shingle Creek Watershed Management Commission

3. APPLICANT SIGNATORY: *(The person whose name is listed here must sign Part 1 -Box 7 of this application)*

Name: Judie Anderson

Title: Administrator

Telephone Number: 763-553-1144

E-Mail Address: judie@jass.biz

Mailing Address

Agency: Shingle Creek Watershed Management Commission

Address: 3235 Fernbrook Ln N

City: Plymouth State: MN Zip Code: 55447

4. PROJECT DURATION:

Estimated Start Date: 4/1/2021

Estimated Completion Date: 6/30/2021

Anticipated PROJECT Length: 3 months

Part 1

Natural Resources “Opportunity” Grant Application

5. PROJECT TYPE:


- ☒ 1. Water Quality Project
☐ 2. Wetland Restoration
☐ 3. Habitat Restoration/Protection
☐ 4. Assessment Identifying Future Projects
☐ 5. Other:

6. FUNDING REQUEST: (Provide the amount of funding requested to complete your project.)

Check for consistency with costs provided in Part 2, Question 2.	Project Amount:
Total PROJECT Cost This amount represents the full cost of the PROJECT.	\$ <u>125,000</u>
Natural Resources “Opportunity” Grant Request	\$ <u>75,000</u>
Other Match Funds in PROJECT Identify secured source(s) of funds: Funding Source <u>Shingle Creek WMC</u> Funding Source _____ Funding Source _____ Funding Source _____	\$ <u>50,000</u> \$ _____ \$ _____ \$ _____
Describe the status of the matching funds: Secured, in budget	

7. APPLICATION CERTIFICATION:

I CERTIFY TO THE BEST OF MY KNOWLEDGE THAT THE INFORMATION IN THIS APPLICATION IS TRUE AND CORRECT AND THAT I AM THE LEGALLY AUTHORIZED SIGNATORY OR DESIGNEE FOR THE SUBMITTAL OF THIS INFORMATION ON BEHALF OF THE APPLICANT.

Judie Anderson	
Printed Name	Signature
Administrator	
Title	Date

Part 1
Natural Resources “Opportunity” Grant Application

THIS CONCLUDES PART 1

Part 2

Natural Resources “Opportunity” Grant Program

This is the rated portion of the application with a total of 200 possible points.

Each question identifies the proportion of available points. Applicants should provide clear and concise answers. The Scoring Guide, shown below each scored question, provides information on what reviewers will look for in a successful application.

EXECUTIVE SUMMARY (0 points)

Summarize the overall project and associated water quality problem and how the project will address or solve the problem. (limit your answer to 250 words or less).

Wetlands that have received many decades of nutrient and sediment-rich runoff from agricultural and developed land uses are at risk of transforming from nutrient sinks to nutrient sources. The discharge from these altered wetlands is often high in soluble reactive phosphorus (SRP) and low in dissolved oxygen. In the Shingle Creek watershed nearly all the remaining wetlands are highly disturbed. The Channel Modification to Enhance SRP Removal project is the installation of a media filter in a channel conveying high SRP outflow from a wetland in the City of Crystal to Upper Twin Lake, which is an Impaired Water for excess nutrients. SRP is easily taken up by algae and fuels algal blooms. The Commission had previously undertaken the SRP Reduction Project, a pilot field trial to evaluate the effectiveness of several types of media in reducing SRP. That trial modified the outlet structure of Wetland 639W and measured the effectiveness of iron-enhanced sand and two proprietary media to reduce SRP in a limited amount of wetland outflow. This proposed project would increase the project scale to treat all the outflow from the wetland by lining approximately 300 feet of the outlet channel with interconnected cells of the two best-performing media, which consistently reduced 70-90% of SRP. It is estimated that the project will reduce SRP load to Upper Twin by about 50 pounds per year, or about 25% of the remaining phosphorus load reduction. See 2019 project results at: <http://www.shinglecreek.org/srp-reduction-project.html>.

1. SCOPE OF WORK (up to 30 points)

Scoring Guide	Total 30 points
Clear and concise project description	Up to 5 points
Clear description of project tasks	Up to 5 points
Project deliverables are clearly defined	Up to 10 points
Clearly defined timeline for the project	Up to 5 points
The purpose meets defined shared goals	Up to 5 points

Reviewers award points for a clear, complete and thorough scope that directly addresses the natural resource management problem/need. The scope demonstrates an understanding of the work required to fully implement and complete the project.

Using the area below, please provide:

- A detailed scope of work for the project that includes clearly defined tasks, deliverables, timelines and purpose.
 - Describe the intended results (what is the benefit?).
 - Be specific, clear and concise.
 - Describe the project area and provide supporting map(s) and relevant diagrams and/or pictures.

Part 2

Natural Resources “Opportunity” Grant Program

Wetland 639W is in the cities of Crystal and Brooklyn Center, and is immediately east of the MAC Crystal Airport. Several hundred acres of developed lands in Crystal, Brooklyn Park, and Brooklyn Center drain to the wetland, which is partially ditched. The wetland discharges through a channel into Upper Twin Lake, which is an Impaired Water for excess nutrients. Years of study and monitoring have concluded that the wetland has transformed from a nutrient sink into a nutrient source, and outflow was the largest single source of phosphorus to Upper Twin Lake. Over the past 10 years a series of projects have been identified and constructed by the Shingle Creek Watershed Management Commission and the City of Crystal to reduce this pollutant discharge (see answer #2).

The original Wetland 639W Outlet Modification Project installed a new weir at the outlet of the wetland, and an overflow weir higher up in the wetland to provide an outlet for higher flows. The outlet structure is a three-sided weir box filled with limestone, which outletted into a new channel that was constructed in the upland adjacent to the wetland. That channel, too, was lined with limestone. The limestone was intended to provide some SRP reduction, however, the actual reduction has been negligible. In the pilot SRP Reduction Project, the outlet structure (see Figure 1 and <http://www.shinglecreek.org/srp-reduction-project.html>) was modified to evaluate three different filter media – iron-enhanced sand (IES) and two proprietary media – at effectiveness in reducing SRP. The pilot study documented a consistent 70-90% reduction in SRP by one of the proprietary products and by IES. The IES findings were surprising as research at the St. Anthony Falls Lab and elsewhere had concluded the IES works best when allowed to dry out between events and did not work as well in low-oxygen environments. The third proprietary product did not perform as well as the other two and was discontinued from further consideration.

The load reduction achieved by the pilot field test was small since the fraction of water volume treated was small. The proposed Channel Modification to Enhance SRP Removal project would scale up the pilot to provide treatment in the discharge channel. The project would construct within the channel a series of cells lined with filter media underlain with drain tile assuring that each cell can draw down to allow the media to dry out. The proprietary medium, called Alcan, had the best removal rate but was several times more expensive than IES. Alcan would be used in the first cell to treat the runoff directly from the wetland, while the less expensive IES would line the more downstream cells to act as a “polishing” filter.

The Commission maintains a level logger in the pool upstream of the overflow weir to estimate the total volume discharged from the wetland. Regular grab samples are taken from that pool and in the downstream channel. These are used to estimate the annual water volume and pollutant load discharged from the wetland to the lake.

Upstream and downstream grab samples will be analyzed for TP, SRP, and TSS, and flow, DO and pH will be measured. The Commission has a rating curve based on limited flow data at the downstream end of the channel. A continuous flow meter will be installed to improve that rating curve and more precisely measure the volume being treated by the filter channel. Based on the ratio of filter area to load reduction from the pilot study, it is estimated that the in-channel filter can achieve an SRP load reduction of 50 pounds annually. The Commission will undertake this monitoring as part of its match to the grant.

Task 1: Final design and construction documents. The 30% design will be finalized, construction documents prepared, and quotes solicited from qualified contractors. This task also includes obtaining approval from the MAC, which is the owner of the property. The City of Crystal has an ongoing agreement with MAC to manage the wetland and adjacent upland as the MAC Park Preserve that also allows the city to make improvements for water quality. The Commission’s Engineer will work with the City of Crystal to complete this task. Deliverable = construction documents.

Task 2: Installation. The Commission and City will engage a qualified contractor to obtain the filter material and to install the filter cells and drain tile. The Commission’s engineer will be responsible for inspecting the work to assure it is completed according to specifications. The project is best suited for late fall/early winter construction, and could be completed as soon as Fall 2020.

Task 3: Monitoring. The Commission currently monitors outflow into the overflow weir for volume and water quality as well as discharge into the overflow channel. In this task, data will be routinely collected for two years to calculate removal effectiveness. Deliverable: monitoring report.

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2. PROPOSED BUDGET *(up to 50 points)*

Scoring Guide	Total 50 points
Complete project budget is consistent with the scope of work and estimates are clear and reasonable.	Up to 5 points
Project attempts to leverage other local, state, or federal resources.	Up to 30 points
The project budget represents a good value for the work and natural resource benefit achieved.	Up to 15 points

Reviewers award points to cost-effective projects with accurate cost estimates. Points are awarded for a complete, reasonable budget that is consistent with the tasks described in the scope of work.

Using the areas below, please provide:

- A budget for the project including total cost for the project broken down into tasks.
 - i. Additional lines may be added to the Proposed Project Budget table if necessary.
- Identify the match sources.

Proposed Project Budget	
Task elements	Total Project Cost
1. Design and Construction Oversight	\$ 20,000
2. Construction	\$ <u>100,000</u>
3. Monitoring	\$ <u>5,000</u>
4.	\$ _____
5.	\$ _____
6.	\$ _____
Total costs needed to complete:	\$ <u>125,000</u>

In addition to the proposed budget above, please provide the following information:

Total Project Cost	\$ <u>125,000</u>
Natural Resources “Opportunity” Grant request	\$ <u>75,000</u>

Match sources:

List other funding sources and amounts, including local cash matching funds. In-kind contributions are not eligible.

Funding Source: <u>Shingle Creek WMC</u>	\$ <u>50,000</u>
Funding Source: _____	\$ _____
Funding Source: _____	\$ _____

Describe the status of matching funds: Secured, in budget

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3. SEVERITY OF PROBLEM/NEED *(up to 55 points)*

Scoring Guide	Total 55 points
Severity of the problem/need is well documented.	Up to 15 points
Project will achieve substantial natural resources benefits.	Up to 20 points
Project success can be measured, and proposed methods to measure success are reasonable.	Up to 10 points
The Project provides long-term sustainability of natural resource benefits (e.g. operation and maintenance, long-term follow-up, natural resources management), and/or identifies additional projects to address specific problems area(s).	Up to 10 points

Reviewers award points for addressing severe natural resource problems and needs, documentation of those problems and needs and expected protection and/or improvements achieved by the proposed. Projects with measurable improvements receive more points than those with unclear or vague benefits. Reviewers will consider the actual benefit, the level of implementation and the severity of the problem. Reviewers will consider only changes that can be achieved by the proposed scope of work.

Using the area below, please provide:

- A detailed description of the severity of the problem or need to be addressed by the project.
 - Include how the problem has been documented in a plan or assessment (e.g., TMDL, CIP, or presence on State’s 303(d) impairment list).
 - Describe how the problem will be addressed by the project and how success will be measured.

The Shingle Creek Watershed Management Commission and the cities of Crystal and Brooklyn Center have studied Upper Twin Lake and the entire Twin Lake chain of four lake for decades to diagnose water quality issues and develop and implement Best Management Practices which have since been installed throughout the lakeshed. Monitoring prior to the 2007 TMDL identified a large wetland upstream of Upper Twin Lake as a significant source of phosphorus to the lake system. A new outlet structure was installed to control discharge from the wetland, and successfully reduced phosphorus load into the lake by over 200 pounds per year. However, a high proportion of the remaining estimated 250 pounds per year is dissolved phosphorus. This is quite common in disturbed wetlands where hydrology has been altered and the soils are alternately wetted and dried out and release phosphorus under anoxic conditions. (<http://www.shinglecreek.org/tmdls.html>).

As noted above, inflow and outflow from the channel will be monitored for two years and annual load reduction estimated. The project will be considered a success if it reduces SRP in the outflow to Upper Twin Lake by at least 50 pounds annually.

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4. PROJECT TEAM *(up to 10 points)*

Scoring Guide	Total 10 points
Team members’ roles and responsibilities are well defined and expected contributions to the project are adequate for the scope of work.	Up to 5 points
Team members’ qualifications and past experiences are relevant.	Up to 5 points

Reviewers will award points based on skills, qualifications and experience of the project team members.

Using the area below, please provide:

- List contact information for the partners, staff and volunteers who will implement the project
- Briefly describe their relevant skills, qualifications, past experiences and expected contributions in the project (*do NOT submit resumes*).

Ed Matthiesen, PE, Project Manager (Wenck Associates). Ed has 40 years of extensive experience in water resources and environmental engineering, including as the District Engineer for three Twin Cities area watershed districts and four Joint Powers Associations, including the Shingle Creek WMC. He has completed comprehensive stormwater plans, designed outlet structures and storm sewers, computer hydrologic and hydraulic models, and has extensive experience designing and overseeing construction of stream and ditch restorations and stabilization projects.

Brian Kallio, PE, Project Engineer. Brian has more than 25 years of experience as a Senior Civil and Water Resources Engineer. His engineering experience includes managing, designing, and overseeing construction for a broad assortment of large and small civil engineering and water resources projects throughout Minnesota. Specialties include integrating water resources needs with site design and development, retrofitting new stormwater management facilities into limited spaces in urban areas, and producing creative solutions to challenging conditions. Brian designed and was project manager for the pilot SRP Reduction Project.

Katie Kemmitt, Monitoring Manager. Katie is an Environmental Scientist who currently oversees the monitoring program for the 16 lakes and several streams in the Shingle Creek and West Mississippi watersheds. She provides lake and stream monitoring flow and water quality monitoring; fish, macroinvertebrate, and aquatic vegetation surveys; and specialty monitoring and manages other staff and interns.

Mark Ray, PE, City of Crystal Director of Public Works/City Engineer. Mark and his staff will provide technical and maintenance advice and oversight of the project.

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5. PROJECT DEVELOPMENT PROCESS/ LOCAL COMMITMENT *(up to 30 points)*

Scoring Guide	Total 30 Points
A comprehensive decision-making process was used to arrive at the proposed project.	Up to 10 pts.
The level of local support and commitments from project partners is documented.	Up to 15 pts.
A collaborative process will be implemented to execute the project.	Up to 5 pts.

Reviewers award points based on project development and implementation efforts and commitments from project partners. Provide documentation as appropriate.

Using the area below, please provide:

- Describe the decision-making process used to select the project (i.e. why was this project chosen over other solutions).
- List where the proposed project is identified as a priority by a local, state, or federal unit of government that manages natural resources (e.g., state approved watershed management plan).
- Describe how you have involved and fostered local, regional and statewide partnerships for the success of the project.

The Commission has on an ongoing basis made reduction of excess nutrients discharged from Wetland 639W a priority, as this is the largest single source of phosphorus to the Impaired Water Upper Twin Lake. Outflow from Upper Twin is the largest single source of phosphorus to Middle Twin Lake, which flows into Lower Twin Lake. Improving water quality in Upper Twin benefits multiple lakes. Three EPA/MPCA Section 319 grants have assisted the Commission in diagnosing the mechanics of the nutrient export and in constructing the original outlet modification project and the pilot SRP reduction study.

This project is a high priority to the Commission not only because of the need to continue to reduce phosphorus to Upper Twin Lake, but also because export of SRP from disturbed wetlands impacts other waterbodies in the watershed. There are several flow-through wetlands that discharge into Shingle and Bass Creeks, including Palmer Lake, the Cherokee Drive wetland, and I-94 wetland along Shingle Creek and the Timber Shores wetlands discharging to Bass Creek. Excess nutrients in both these streams are contributors to the DO impairment, which is a primary stressor to the fish and macroinvertebrate impairments in those streams. Demonstrating successful removal of SRP in wetland discharge to impaired waters is consistent with Minnesota’s Nutrient Reduction Strategy of nonpoint source reductions in urban runoff.

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6. READINESS TO PROCEED *(up to 25 points)*

Scoring Guide	Total 25 Points
Project elements are in place for the project to proceed and documentation is provided (e.g. planning, design and permits).	Up to 25 pts.

Reviewers will award points based on how soon a project can begin construction.

Using the area below, please provide:

- Describe the steps you have taken to proceed immediately with the project. Provide information and documentation on project elements such as status of designs, permits, inter-local agreements, landowner agreements, easements, other secured funding, and staff or agency approvals.

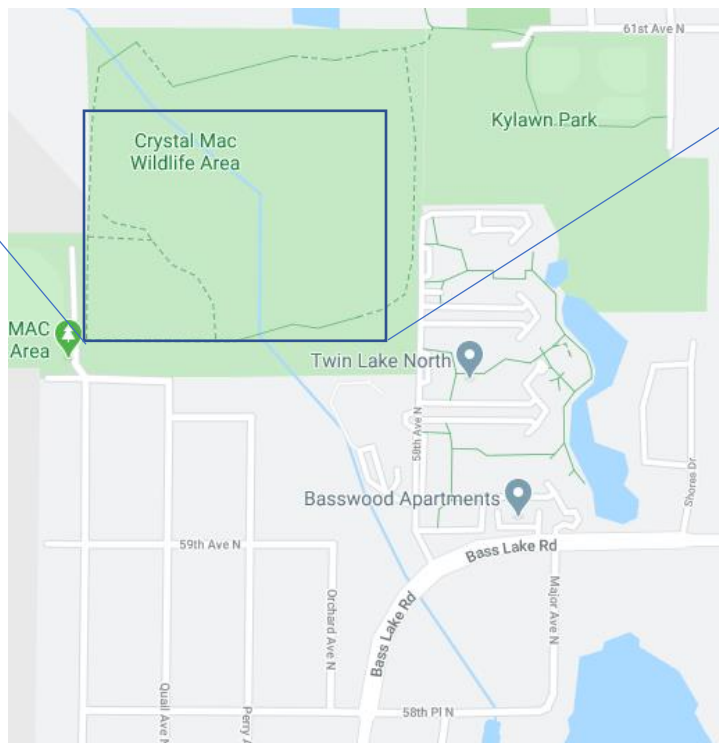
The project has been 60% designed and can quickly proceed to final design and construction. The project site is located within the city of Crystal, on land that is owned by the Metropolitan Airports Commission (MAC) for the Crystal Airport and operated as the MAC Park Preserve under a cooperative agreement with the city that also allows the city to make improvements for water quality. The City will work with MAC staff to obtain permission to make modifications to existing facilities, similar to the approval gained to undertake the pilot SRP Reduction project, and the original outlet modification project. No other permits, agreements, or easements will be required.

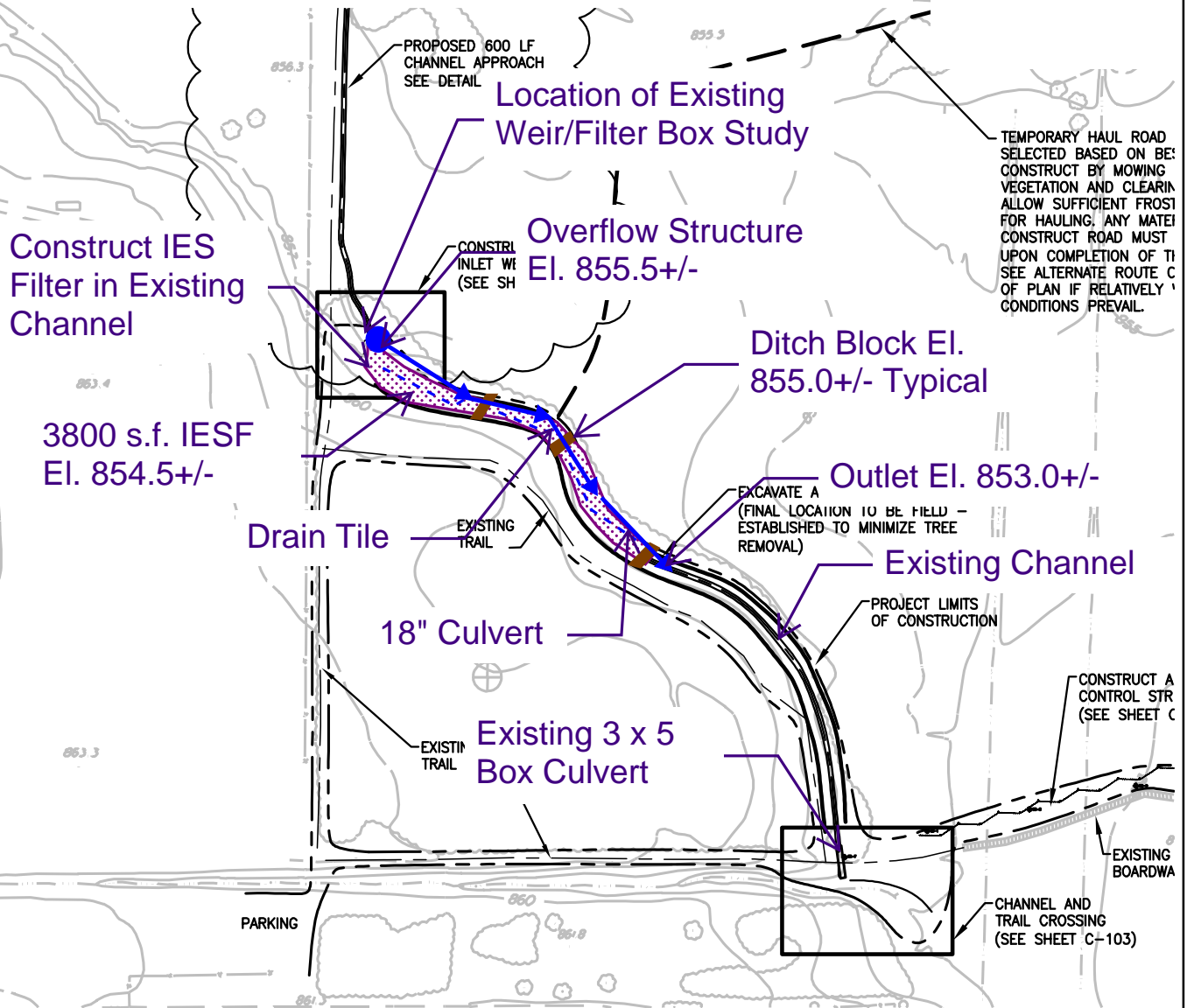
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Part 2

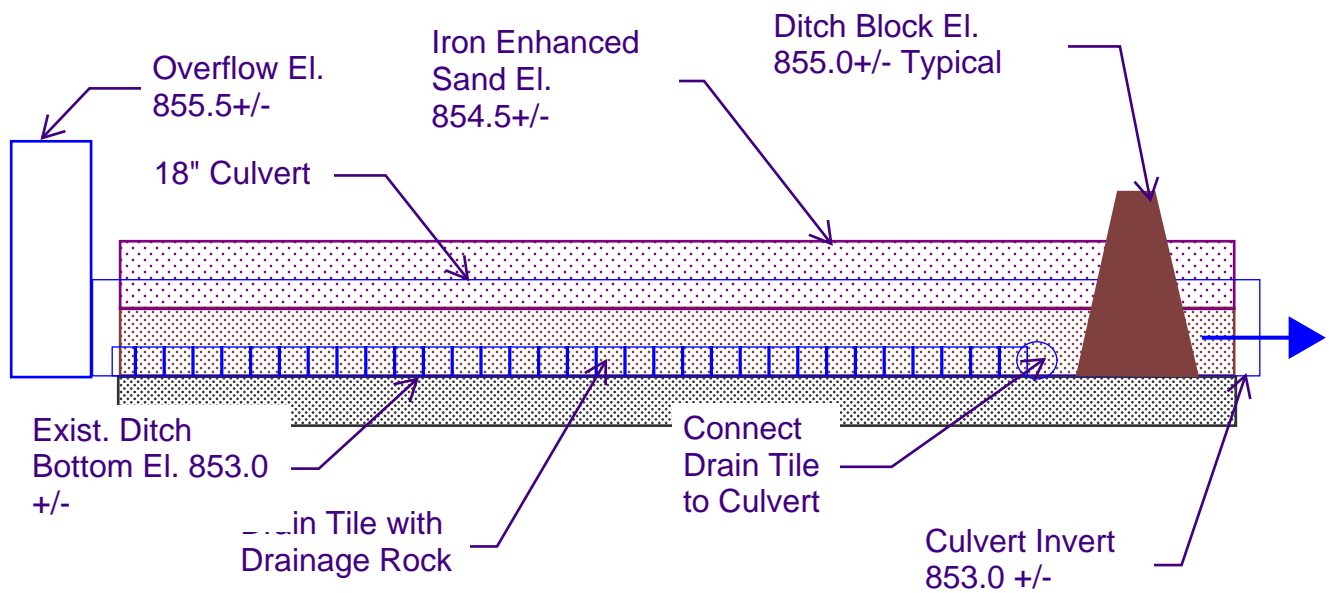
Natural Resources “Opportunity” Grant Program

Figure 1. The overflow weir and channel at wetland 639W.

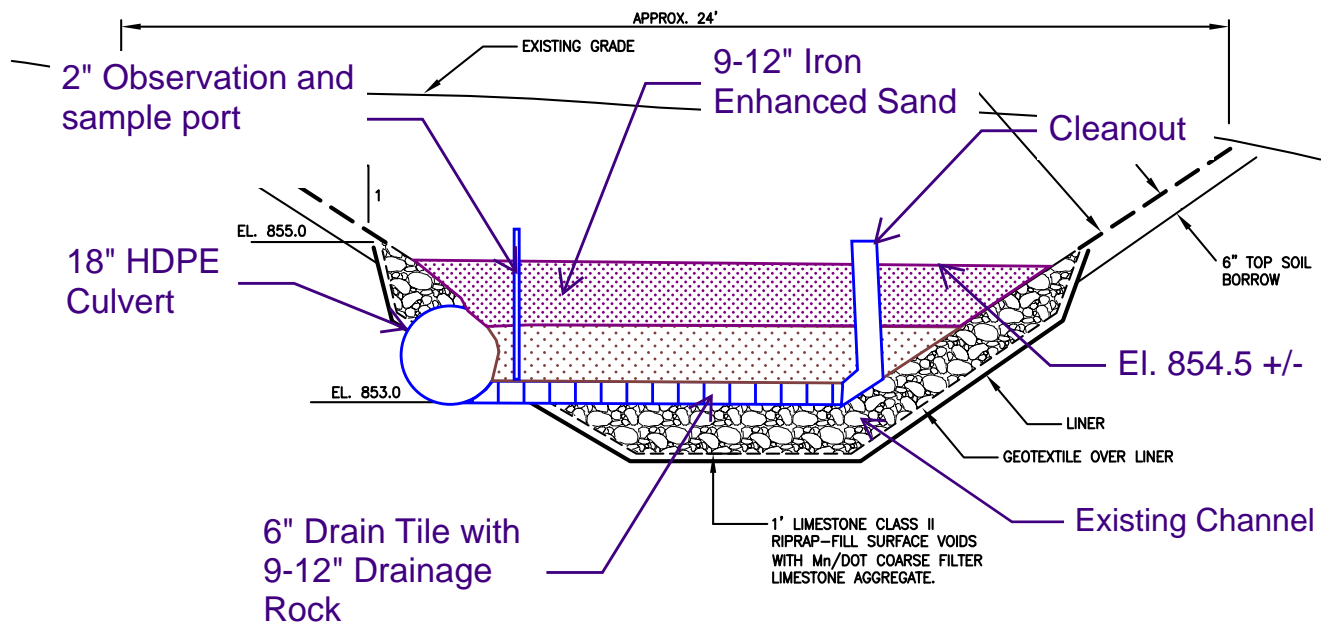




IES Filter Channel Plan View



IES Filter Channel Profile



IES Filter Channel Cross Section

SHINGLE CREEK WMC

Wetland 639 IES Filter Channel



Responsive partner. Exceptional outcomes.

Nov 2020

Figure 2

IES Filer Chanel Conceptual Cost Estimate
24-Nov-20

Number	Description	Quantity	Unit Cost	Total Cost
1	Mobilization	1 LS	\$ 6,000.00	\$ 6,000.00
2	Channel Preparation	400 L.F.	\$ 10.00	\$ 4,000.00
3	18" HDPE	400 L.F.	\$ 35.00	\$ 14,000.00
4	18" Outlet	1 EA	\$ 800.00	\$ 800.00
5	Drain Tile	400 L.F.	\$ 12.00	\$ 4,800.00
6	Connect Drain Tile to 12"	2 EA	\$ 500.00	\$ 1,000.00
7	Cleanouts	1 EA	\$ 1,000.00	\$ 1,000.00
8	Construct Clay Berms	2 EA	\$ 1,000.00	\$ 2,000.00
9	Drainage rock	100 CY	\$ 25.00	\$ 2,500.00
10	Provde and Place IES	3000 CF	\$ 15.00	\$ 45,000.00
11	Flow Monitoring	1 EA	\$ 3,000.00	\$ 3,000.00
	Total			\$ 84,100.00
	Contingency (20%)			\$ 16,820.00
	Design and Administraiton (25%)			\$ 25,230.00
	Total			\$ 126,150.00

FEE SCHEDULE

This fee schedule is adopted in accordance with Rule J of the Rules and Standards of the Shingle Creek and West Mississippi Watershed Management Commissions' joint Third Generation Watershed Management Plan. It is effective January 1, 2021.

Project Fees

Single Family Lot	\$300
Single Family Residential Development, density less than 3 units per acre	
Total Site <15 acres	\$1,800
Total Site 15+ acres	\$2,000
All Other Development	
Total Site <5 acres	\$1,800
Total Site 5-9.99 acres	\$2,200
Total Site 10+	\$2,500
Variance Escrow	\$2,000
City street or utility project	\$1,100
County or state highway project	\$2,000
Linear project impacting multiple jurisdictions	negotiated fee

Additions to Base Fee

Projects using Manufactured Treatment devices (fee per type of device).....	\$500
Projects with floodplain impacts	\$300
Projects with stream crossings	\$1,000

Wetlands

Wetland delineation review	\$300
Wetland replacement plan escrow	\$1,500
Monitoring and reporting deposit	\$1,500
Wetland replacement escrow	varies