RILEY PURGATORY BLUFF CREEK
WATERSHED DISTRICT

18681 Lake Drive East
Chanhassen, MN 55317
952-607-6512
www.rpbcwd.org

TO: RPBCWD Board of Managers

FROM: Terry Jeffery, Administrator

DATE: February 1, 2023

RE: Ecosystem Health Action Plan

BACKGROUND

The Board of Managers have conveyed to staff and to each other, on numerous occasions, that a more holistic, ecosystems based approach is needed to address existing conditions and emerging issues such as climate change, ground water depletion, habitat loss, and environmental justice. While current planning encourages the use of green infrastructure and consideration of climate resilience in district initiatives, it often remains undefined what these may look like and how they may best be incorporated.

While it has long been known that conversion of land to a more urbanized use leads to ecological degradation, district efforts have focused primarily on engineering based structural best management practices to address stormwater runoff. This approach, while providing significant resource protection and benefit, is reactive in nature and tends to overlook the benefits of non-structural best management practices such as leaf canopy interception, water holding capacity of soils, evapotranspiration from a healthy plant community, and similar "green infrastructure" practices. It is also necessary that the district confront climate change and build resilience into projects and initiatives. A process that must be proactive in nature.

This proposed Ecosystem Health Action Plan (EHAP) is intended to provide a scope, through which the district can evaluate existing programs and initiatives, modify priorities to better incorporate green infrastructure and resilience, develop new initiatives to be incorporated into the forthcoming Ten-Year Plan, and foster partnerships to address issues that are simply too large and complex for any single entity to confront.

IMPLICATIONS

This planning effort is to be done at a cost, not to exceed, of $158,800. Of this, $73,400 is scheduled to be spent in 2023 with the remainder being spent in 2024. Currently, the adopted budget has $135,000 allocated to the Ten-Year Management Plan update. This EHAP will be the first step in the planning process and it, along with the outreach to community members, stakeholders, and technical experts will be incorporated into the next generation Ten-Year Plan.

RESOLUTION NO. 23-019
RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT
BOARD OF MANAGERS

Approving Task Order 43 to develop an Ecosystem Health Action Plan

Manager _____ offered the following resolution and moved its adoption, which was seconded by Manager _____:

WHEREAS public engagement during the development of the Riley Purgatory Bluff Creek Watershed District Ten-Year Management identified the need to improve data collection to address emerging issues such as the impacts of climate change, the interaction between groundwater and surface water, and to coordinate with other agencies for the collection and sharing of data, and

WHEREAS the Riley Purgatory Bluff Creek Watershed District Board of Managers have directed staff to evaluate water resources protection in a more holistic manner, looking at soil health, habitat preservation and improvement, green infrastructure, among other components, and

WHEREAS the Riley Purgatory Bluff Creek Watershed District Board Ten-Year Management Plan identifies as a goal the inclusion of sustainability and consideration of climate change in district projects and planning, and

WHEREAS the Riley Purgatory Bluff Creek Watershed District Board Ten-Year Management Plan identifies as a goal the promotion of sustainable groundwater management, and

WHEREAS the Riley Purgatory Bluff Creek Watershed District Board Ten-Year Management Plan identifies strategies including the establishment and preservation of natural corridors for wildlife habitat and migration, and

WHEREAS the Riley Purgatory Bluff Creek Watershed District Board Ten-Year Management Plan identifies strategies including the incorporation of ecological, economic, and social benefits into district projects, and

WHEREAS the Riley Purgatory Bluff Creek Watershed District Board Ten-Year Management Plan identifies numerous water quantity strategies that are intended to promote infiltration and alter hydrographs through mimicry of native conditions, and

WHEREAS the provided scope of services is intended to develop a holistic plan to address the aforementioned concerns, goals, and strategies.

NOW THEREFORE BE IT RESOLVED that the Riley Purgatory Bluff Creek Watershed District Board of Managers hereby approves Task Order 43 for Barr Engineering to develop an Ecosystem Health Action Plan as described in Task Order 43 in an amount not to exceed $158,800.00.

The question was on the adoption of the resolution and there were __ yeas and __ nays as follows:

	Yea	Nay	Abstain	Absent
CRAFTON				
DUEVEL				
KOCH				
PEDERSEN				
ZIEGLER				

Upon vote, the president declared the resolution adopted.

Dated: February 1, 2023.

_____
Dorothy Pedersen, Secretary

* * * * * * * * * * * *

I, Dorothy Pedersen, secretary of the Riley Purgatory Bluff Creek Watershed District, do hereby certify that I have compared the above resolution with the original thereof as the same appears of record and on file with the District and find the same to be a true and correct transcription thereof.

IN TESTIMONY WHEREOF, I set my hand this ____ day of _____, 2023.

_____
Dorothy Pedersen, Secretary

TASK ORDER No. 43: Ecosystem Health Plan
Pursuant to Agreement for Engineering Services
Riley Purgatory Bluff Creek Watershed District and Barr Engineering Company
January 26, 2023

This Task Order is issued pursuant to Section 1 of the above-cited engineering services agreement between the Riley Purgatory Bluff Creek Watershed District (District) and Barr Engineering Company (Barr) and incorporated as a part thereof.

Description of Services:

Barr will work with District Managers, staff, and Advisory Panel to develop a Riley-Purgatory-Bluff Creek Ecosystem Health Plan (Plan). Barr will assist the District in developing a Plan that identifies impaired ecological functions, identifies negative impacts, and develops strategies for ecosystem improvement. The planning effort will serve as a strategy for District projects, programs, and rules to improve biodiversity, soil health, hydrologic function and much more.

Throughout the project, Barr will work with the Managers and Administrator to leverage the experience, familiarity, and availability of District staff to the extent possible. This cooperation will reduce external project costs and ensure a product tailored to the District's purposes. The Plan is part of the current 10-year plan and 2023 budgeting under the 10-yr Management Plan Update/Amendments line item. The Plan will start developing science based information to support a holistic ecologic approach to water resource management/protection and allow for inclusion of the ecological systems base approach in the current and next district-wide management plans. This effort will take on an adaptive approach in response to input for stakeholder which will identify items/information not yet identified, very similar to the 10-year plan development.

Scope of Services:

Barr's services under this task order will include the following. District staff will be leveraged to the maximum extent possible to capitalize on staff expertise.

Task 1: Project kickoff and data review

By setting goals this task answers the question: What do you want?

Barr will facilitate a kickoff meeting and brainstorming session with you and an advisory Panel of your choosing to explore the District's vision and goals for ecosystem management in RPBCWD, including:

- Primary and secondary goals for the Plan
- RPBCWD ecosystem function attributes
- The link between upland ecosystem function and the quality/function of the wetlands, creeks, and lakes.
- Ecosystem issues to be addressed

It will be essential to leverage the ongoing programs (e.g. data collection, wetland assessment, education & outreach, etc.) and projects (e.g., climate resiliency and CIPs) the District is currently undertaking into this Plan. In preparation for this meeting, we will review previous District planning efforts, studies, and analyses related to ecosystem health. After the meeting, we will develop an outline of the Ecosystem Health Plan document for review.

Task 2: GIS data collection and map development

By mapping attributes of the ecosystem this task answers the question: What is the truth?

We will identify and obtain available ecosystem GIS data. Barr has much District GIS, and additional GIS data will be obtained from other sources such as county, state, or federal sources including soil data, urban heat island effect data, and tree canopy data. GIS mapping and analysis will allow us to present many aspects of the District ecosystem.

We propose to develop the following District maps from readily available data sources:

- Ecosystem context (land use adjacent to RPBCWD)
- Historic land use (to tell the story of how the ecosystem has been altered)
- Topography/steep slopes
  - Seeps, and gullies
- Soils (to tell the story of how much soils have been altered an where)
  - Urban soils; degraded soils
  - Hydrologic soil groups
- Impervious surfaces
- Lawn
- Tree canopy
- Native Plant Communities
  - Land Cover (from the Minnesota Land Classification System)
  - Ecological quality
- DNR: "Sites of Biosignificance"
- Ecological Corridors Mapping from the DNR, Bluff Creek Corridor Plan, and other City initiatives
- Natural Water Bodies
- Historic wetlands (compared to current wetlands)
- Lake Impairment
- Stream Condition
- Flooding
- Surface Water/Ground Water Interaction
- Groundwater pollution; What's in My Neighborhood map
- Urban Heat Island
- Air Quality
- Light Pollution

We will also develop the following (or similar) analysis maps that point to areas of action:

- songbird and pollinator habitat enhancement zones

- soil improvement opportunities
- hydrologic cycle improvement opportunities
- urban heat island (priority mitigation areas)

Task 3: Soil health investigation & fieldwork

By conducting a soil health literature review and conducting soils field investigations this task answers the question: What is the truth?

Extensive research exists on soil health and its effectiveness on improving water quality and water conservation. A literature review will be conducted to compile research findings and to identify best practices for soil improvement and soil guidance/policies that can result in water conservation improvements in the District. District staff has begun this work. While peer reviewed literature will provide a solid foundation, anecdotal information can provide valuable insight even if there isn't an identifiable statistically significant trends (e.g., *Dirt to Soil* by Gabe Brown) contains useful information. Findings will be compiled in this Plan.

The literature review will be supplemented with soil data taken within the District to document the background health of soils. The assessment of 'sentinel soils' in RPBCWD will be conducted through the collection and analysis of soil samples taken at various upland land use locations (sentinel soil sites) throughout the District. Sampling locations will be identified and will include both undisturbed and disturbed soils including: the "Big Woods", bluff area, residential properties, parks, and commercial/industrial areas. Soil samples will be collected and analyzed for texture, compaction, percent organic matter, nutrients, and microbial function. This will provide baseline data to identify healthy soils for comparison with disturbed, compacted, and otherwise unhealthy soils within the District. As with any upland data collected, the wetland soils data collect with the ongoing wetland assessment work will need to be considered to ensure the outcome of the planning effort takes the holistic look.

Task 4: Technical Advisory Panel Stakeholder Workshops

Through working with a Technical Advisory Panel we will explore possible ecosystem health improvement actions this task answers the question: How do we reach our goals?

Throughout the plan development process opportunities to strengthen and leverage existing relationships and foster new partnerships and relations will play a key role in understanding the issues and identifying actionable activities for implementation of the ecosystem health plan. Barr will facilitate a series of Advisory Panel workshops to gain input on the direction and outcomes of the Plan. This Advisory Panel will be composed of members selected by District staff and Board. The scope and desired outcomes of these workshops are described below:

- Barr will facilitate a kickoff workshop to discuss a vision for ecosystem health within the District, with the intention of focusing the direction of the Plan. Group exercises will be conducted to coalesce language for a watershed-wide ecological vision, as well as to identify and prioritize goals for the Plan. This meeting will identify ecological functions that are impaired and that the plan will address.
- After completing Tasks 2 & 3, GIS mapping of ecosystem conditions and the soil health investigation, Barr will present ecosystem function findings to the Advisory Panel. We will facilitate group exercises to identify any additional issues they find pertinent and will prioritize

issues (and ecological functions) to set the stage for the next step of identifying opportunities and strategies for ecosystem improvement that the District can implement.

- After the staff team develops a list opportunities and strategies for ecological improvement, Barr will facilitate a workshop with the Advisory Panel to review and provide an opportunity to expand upon the strategies identified. Together, we will prioritize short-term implementation as well as long-term implementation of strategies and ongoing actions. We will also discuss the District's purview to understand and identify what initiatives the District can and cannot undertake.

An adaptive approach to the workshops allows the District to leverage ideas and opportunities not previously daylighted. One example might be identifying activities to engage citizen scientist to supplement our knowledge and expand future information gathering. Because the planning process is fluid and dynamic, additional advisory group meetings and/or presentations to other stakeholders may become necessary as the planning process unfolds. We would work with the Administrator to determine the appropriate method of incorporating such meetings, ideas, and opportunities.

This task also includes two Board meeting updates to promote a thorough understanding of ecosystem health. Timing of these updates include:

- After the second advisory Panel workshop, Barr will present the fieldwork and GIS mapping along with the results from the first two workshops.
- A final presentation of the Plan will be given at the end of the process.

Task 5. Ecosystem Health Plan document development

This task reports all findings and presents the strategies for improving ecosystem health while also serving as an ecosystem educational tool.

We propose to develop a succinct and clearly written plan accessible to all readers. Drafts of each section will be delivered to obtain Advisory Panel comments as they are developed. Sections of the written Plan will include:

1. Vision and goals for ecosystem health in RPBCWD.
2. A description of historic land use that altered ecosystem function. This will provide perspective on how to improve ecosystem function.
3. A description of current ecological conditions told through GIS mapping as described in Task 2 above.
4. A summary of how the District's current programs, project and regulatory activities align with the ecological approach and authorities.
5. Maps of the impacts of climate change and urban heat island effects to show areas of the District most vulnerable to heat stress and flooding caused by changing precipitation patterns.
6. A summary of ecosystem function issues paired with a list of opportunities for preservation, management, or enhancement. Opportunities will be identified within the following categories: future planning efforts, rules development, projects and programs, education, and volunteer opportunities.

7. A description of ecosystem function improvement strategies. For example, strategies to address biodiversity, hydrology, soil health, forestry, pollinators, climate change, etc. The strategies will include a listing of jurisdiction. Some strategies will pertain to the District, while others may pertain to cities within the District or County/State agencies.
8. A description of potential District partnerships and relationships (existing and new) to achieve ecosystem function improvements.
9. An Implementation section describing short-term and long-term priorities for implementation of ecosystem health initiatives.

Assumptions

We have made several assumptions in preparing the scope of work. These assumptions are listed below:

- This scope assumes Barr will develop/revise all Plan content based on Manager and District staff direction. Barr will attempt to leverage the expertise and availability of District Staff, as feasible, to contribute to the project and reduce external project costs.
- The District staff will be responsible for meeting/workshop coordination, including securing meeting locations, sending invitations, reproduction/distribution of printed materials (e.g., meeting packets), and meeting minutes.
- The literature review will be limited to reviewed journal articles.
- The District will provide all available data files to Barr in an electronic format.

Deliverables

The following deliverables will be prepared and provided to the District:

Task 1: Project Kickoff

- Summary of project goals and ecosystem function attributes to be addressed in the plan, as well as ecosystem issues
- Preliminary outline of the final Ecosystem Heal Plan document for review

Task 2: GIS data collection and map development

- All ecosystem function maps and figures
- PowerPoint presentation of the natural history of the District and ecosystem current conditions
- All maps as pdfs

Task 3: Soil health investigation & fieldwork

- Literature review written summary (provided by District staff)
- Findings of the sentinel soils investigation as an appendix to the Plan (provided by District staff)

Task 4: Engagement process

- Notes summarizing each of the three Advisory Panel meetings
- Vision and goals summary from meeting 1

- Summary of ecological issues and priority actions to address ecosystem function from meeting 2
- Summary of opportunities and strategies from meeting 3
- Final PPT presentation to the District Board

Task 5: Ecosystem health Plan document

- Draft plan sections as they are developed
- Draft of complete plan
- Final plan

Budget

Services under this Task Order will be compensated for on a time and materials basis not to exceed an anticipated cost of $158,800, without RPBCWD approval, in accordance with the engineering services agreement.

Task	Task Description	Anticipated Budget	Anticipated Completion Date
1	Project Kick-off and Data Review	$9,700	Winter 2023
2	GIS Data Collection & Map Development	$19,600	Spring/Summer 2023
3	Soil Health Investigation & Field Work	$11,700	Spring/Summer 2023
4	Technical Advisory Panel Stakeholder Workshops	$32,400	Summer/Fall 2023
5	Ecosystem Health Plan Document Development	$85,400	Winter 2024
Task Order 43 Total		**$158,800**	

Schedule

Work on this project shall begin upon project approval by the RPBCWD Board. We expect to complete Tasks 1-4 by early October 2023 and complete the full plan document by February 1, 2024.

IN WITNESS WHEREOF, intending to be legally bound, the parties hereto execute and deliver this Agreement.

CONSULTANT

By_____

Its__Vice President_____

Date:

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT

By_____

Its_____

Date:

APPROVED AS TO FORM & EXECUTION

_____