Technical Memo - Forest LMD

Project Name |	Forest Lake Wetland Treatment Basin	**Date** |	May 31, 2016
To / Contact info |	Board of Managers		
Cc / Contact info |	Mike Kinney		
From / Contact info |	Jason Naber		
Regarding |	Forest Lake Wetland Treatment Basin –Project Basis and Funding		

Background

Total phosphorus reduction goals were set for the eastern basin of Forest Lake as part of the 2007 Comfort Lake-Forest Lake Watershed Water Quality Modeling Investigation. For the Eastern basin to achieve the 10-year in-lake phosphorus concentration goal of 40 ug/L, the watershed runoff phosphorus load needs to be reduced by 153 lbs. per year; for the eastern basin to achieve the District's long-term in-lake phosphorus concentration goal of 30 ug/L, the watershed runoff phosphorus load needs to be reduced by 760 lbs. per year. The proposed project will reduce the loading to the eastern basin by an estimated 56 lbs. per year and is one of many projects that the District will identify and implement around Forest Lake.

Project Feasibility

A feasibility study was completed in August of 2015 to evaluate improvements to the pond/wetland. The study determined that the basin was a historically altered wetland and not a man-made stormwater pond. The study also assessed the quality of the existing vegetation, the nutrient and contaminant content of the sediment, design configurations, and potential for nutrient reduction. The soil testing indicated that the wetland soils/sediment had higher levels of phosphorus than expected in non-impacted wetlands. The study recommended maximizing storage through a multi-cell wetland treatment system balanced with minimization of impact to specific areas of the basin that had quality native vegetation. The recommendations from the feasibility study also includes vegetation enhancements, onsite mitigation for any wetland type conversion, and buffer enhancements and management to reduce invasive species and promote native wetland and buffer vegetation.

A majority of the proposed implementation activities will be conducted within a wetland. This wetland was initially reviewed in 2015 as part of the feasibility study. Final delineation of the wetland basin was conducted in May of 2016. The wetland was found to be degraded from past excavation activities and by the invasive vegetation. The excavation work proposed will remove the accumulated sediment in the excavated pond and remove invasive vegetation. Since this project will restore this degraded pond and wetlands to a higher functioning system, preliminary conversations with wetland regulatory agencies indicate wetland mitigation may not be required or the restoration activities could be self-mitigating due to the restoration activities proposed.

The City of Forest Lake owns the parcel where this project is located. EOR & CLFLWD staff has been working with the City of Forest Lake staff throughout the feasibility phase of the project conducted in 2015 and continues to coordinate with them as the project moves through permitting and implementation. Additionally, an open house is being planned for all neighboring landowners.

Project Cost

The tables below itemize the project costs estimated for implementation

Table 1: Detailed Project Costs

Phase	Description	Construction	Engineering	Legal	Admin	Total
1	Preconstruction Design	$ -	$ 10,191	$ 5,000	$ 5,000	$ 20,191
2	Final Project Design & Construction	$ 160,000	$ 14,733	$ 3,000	$ 5,000	$182,733
	Totals	$ 160,000	$ 24,924	$ 8,000	$10,000	$202,924

Project Funding

The tables below itemize the project funding sources.

Table 2: Grant Summary

Grant Activity	Activity Cost	CWF Grant $	In-kind
Wetland Treatment Basin	$ 160,000	$ 127,000	$ 33,000
Engineering Design/Permitting	$ 32,924	$ 25,000	$ 7,924
Project Administration	$ 10,000	$ 10,000	$ -
Total	**$ 202,924**	**$ 162,000**	**$ 40,924**

Recommendation

Implementation of the Forest Lake Wetland Treatment Basin Project will improve water quality in Forest Lake and restore a degraded wetland. The project is expected to reduce phosphorus loading to Forest Lake by approximately 56 lbs per year. The total project cost is estimated at $202,924 with a life expectancy of 20 years. This equates to roughly $181 per pound of phosphorus over the project lifespan. The project is being funded primarily by grant dollars from the Clean Water Fund. The total expected cost to the CLFLWD is $40,924.

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To / Contact info |	Board of Managers		
Cc / Contact info |	Mike Kinney		
From / Contact info |	Jason Naber		
Regarding |	Forest Lake Wetland Treatment Basin – Engineering Notice to Proceed		

Background

In 2015, the CLFLWD was awarded a $162,000 Clean Water Fund grant from BWSR to implement the Forest Lake Wetland Treatment Basin Implementation Project. The Forest Lake Wetland Treatment Basin will improve a wetland basin located east of Forest Lake's easternmost basin (3rd Lake). Project activities include excavation of nutrient-rich sediments, restoration of native vegetative cover, protection of existing high quality vegetation, and incorporation of native buffers surrounding the basin. The work team proposed to implement the project includes staff from Emmons & Olivier Resources (EOR), the CLFLWD Engineer, District Staff, District Legal Counsel and specialized consultants (testing & analysis).

Project Activities

BWSR requires a narrative for each Grant Activity task, and a summary of persons conducting the work and their qualifications. The Grant Activity tasks as identified in the Grant Work Plan are detailed in the table below. For each Activity, the role of each entity involved is identified.

Grant Activity	Primary Role	Support Role	Legal
Wetland Treatment Basin	Construction Contractor	EOR, CLFLWD	Smith Partners
Engineering Design/Permitting	EOR, Inc.	CLFLWD	Smith Partners
Project Administration	CLFLWD	EOR	Smith Partners

Wetland Treatment Basin: This Activity will be primarily carried out by a contractor selected through a public bidding process. EOR and CLFLWD staff will oversee the bidding and construction process.

Engineering Design/Permitting: This activity will be primarily carried out by Emmons & Olivier Resources (EOR) currently serving as the watershed district engineer. District legal counsel time needed to review contracts and landowner agreements are also included in this grant activity. Tasks include permitting, modeling, design, contract documents, bidding and construction oversight. EOR staff dedicated to the project and their individual roles are identified below.

- Project Manager - Jason Naber, WDC
- Project Engineer - Greg Graske, PE
- Water Quality Scientist & Limnologist - Meghan Funke, Ph.D.
- Senior Design Engineer - Steve Pellinen, PE
- Civil Technician & Field Services – Kyle Crawford, EIT
- Water Quality & Wetland Scientist - Joe Pallardy

Project Administration: This Activity will be primarily carried out by the CLFLWD Administrator. Tasks include budgeting, reporting and grant management. Minor support roles may be needed by the District Engineer and Legal Counsel.

Engineering Services- Scope of Work

The following work plan details all activities proposed to implement the Forest Lake Wetland Treatment Basin.

Phase 1 Preconstruction Design

Task 1: Project Start-up

The data collection and processing task will include the following:

Kickoff Meeting
The EOR project team will meet with CLFLWD staff to review existing project documents and goals.

Land Access and Activity Agreements
Investigate property access, confirm City acquisition of the property, and secure agreements needed for project construction and long term operations & maintenance. Develop MOU between landowner and CLFLWD.

Technical Advisory Team Meeting
Meet with project technical advisory team to discuss project. Attendees include City of Forest Lake, Washington County, DNR, BWSR, USACOE, and MNDOT.

Schedule
- Spring 2016

Deliverables
- Kickoff meeting agenda, attendance list and minutes
- Land agreement documentation
- Technical meeting agenda, attendance and minutes

Task 2: Data Review and Collection

The data review phase of the project will assess any additional data needed to evaluate current conditions and assist with final design the project. This task includes the following:

Review Survey Data
EOR conducted a topographic and bathymetric survey of the pond and surrounding upland. The field survey data was used to create a base CADD drawing and preliminary concept drawings, quantities and costs for pond improvements. These drawings will be revisited and a determination will be made as to the need for additional survey data.

Modeling Data Review
The existing XP-SWMM model, together with the P8 water quality model previously analyzed by EOR as part of the Forest Lake Feasibility Study, will be revisited to ensure the design of the new wetland facility will achieve the targeted nutrient reductions.

Utility Updates
Updated utility information within the project area will be requested from the City of Forest Lake and known private utilities.

Soil Disposal Options
EOR has conducted soil testing investigations. This information will be reviewed to assess soil disposal options for the project.

Schedule
- Late Spring – Early Summer 2016

Deliverables
- Summary of data needs for final design and bid package.

Task 3: Wetland Delineation & Permitting

A field assessment of the existing wetland conditions was conducted on May 26, 2015 by Jason Naber of EOR. Results from this assessment determined that the existing wetland type had been altered from a shallow emergent marsh habitat to an open water habitat with an island comprised of a wetland shrub community. EOR will complete a formal wetland delineation prior to applying for wetland permits. The delineated wetland boundaries within the project area will be finalized and approved by the LGU and Corps.

TEP Meetings
Review existing wetland delineation information with TEP and discuss necessary reporting and permitting requirements.

Finalize Delineation
Update and finalize wetland delineation for all wetlands within the project area. Finalize a delineation report based on site observations and monitoring data. Bring the delineation through the approval process by WCA, USACOE and DNR

Wetland Permitting
EOR will prepare local, state and federal wetland permit applications for activities proposed within regulated wetlands and public waters. The project is assumed to be self-mitigating through onsite vegetation restoration. A wetland replacement plan is not included at this time.

Schedule

- Summer 2016

Deliverables

- Attendance TEP meetings
- Final wetland delineation report
- Wetland permitting

Task 4: Public Outreach

The public outreach phase of the project will solicit input from the public and will facilitate interactions with adjacent landowners. This task will include the following:

Support for Public Outreach Efforts
EOR will support the District Administrator's public outreach efforts by providing maps and graphics summarizing project locations and concepts. The land owners surrounding the wetland/pond are very interested in seeing improvements incorporated to the wetland; efforts will be made to engage landowners surrounding the wetland throughout the duration of the project.

Local Landowner meeting
EOR and the District Administrator will prepare and present at a local landowner meeting in an effort to get input from the residents surrounding the pond and lake shore owners immediately adjacent to the project area.

Schedule

- 2016-2017

Deliverables

- Landowner meeting agenda, attendance list and summary of landowner comments

Phase 2 Final Project Design & Construction

Task 6: Project Design

The design phase of the project will complete plans and specifications to bid and build the Forest Lake Wetland Treatment Basin project. This task will include the following:

Complete site plans and specifications
Plans and specifications will be completed for all components of the project to be bid for construction, including but not limited to structures, pond dimensions, grading, wetland restoration, buffer enhancement, native vegetation management, and onsite mitigation.

Schedule

- Summer 2016

Deliverables

- Final plans and specifications

Task 7: Project Bidding

This task will include preparing project bidding documents, advertising for bids, conducting a prebid meeting, answering bidding questions and providing bid packages.

Schedule
- Fall 2016

Deliverables
- Project bidding documents
- Attendance at prebid and bid opening meetings
- Bid award recommendation memo to Board

Task 8: Construction Management and Asbuilts

This task will include observation of construction activities, management of construction contract and asbuilt drawings.

Construction Staking
EOR staff will provide vertical and horizontal control as needed throughout the project.

Construction Observation
Frequent site visits will be made by EOR engineers and wetland scientists during construction.

Construction Contract Management
This shall include the processing of pay requests and project close out documentation.

Asbuilt survey and drawings
A site survey will be completed post-construction to verify asbuilt conditions. Asbuilt drawings will be prepared and signed by engineer.

Schedule
- Winter 2016-2017

Deliverables:
- Site observation and project status reports
- Pay requests
- Asbuilt drawings

Recommendation

We recommend the CLFLWD Board authorize a not-to-exceed fee of $24,924 to implement the Forest Lake Wetland Treatment Basin.

Table 1: Engineering Fee Summary

Phase	Description	Engineering
1	Preconstruction Design	$ 10,191
2	Final Project Design & Construction	$ 14,733
	Totals	$ 24,924

RESOLUTION 16-06-02

COMFORT LAKE - FOREST LAKE WATERSHED DISTRICT
BOARD of MANAGERS

RESOLUTION ORDERING the
FOREST LAKE WETLAND TREATMENT BASIN IMPLEMENTATION PROJECT

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

WHEREAS the District has adopted a watershed management plan (WMP) in accordance with Minnesota Statutes §103B.231, which, in project category 5228, identifies rehabilitation and retrofit measures within the area of direct drainage to Forest Lake (subwatershed FL01) to protect and improve water quality in Forest Lake;

WHEREAS in accordance with the WMP and in coordination with the City of Forest Lake ("City"), the District has developed a concept design that includes excavating nutrient-rich sediments, restoring native vegetative cover, protecting existing high quality vegetation and incorporating native buffer in and around a poorly functioning wetland stormwater basin adjacent to the easternmost basin of Forest Lake, which is designated the Forest Lake Wetland Treatment Basin Implementation Project (the "Project");

WHEREAS the District applied for and has been awarded a Clean Water Fund grant in the amount of $162,000 for the Project;

WHEREAS the Project would be located on City land, and District and City staff have developed a cooperative agreement that would allow the District to construct and maintain the Project, and further the District has coordinated productively with other resource agencies with respect to permits for the Project;

WHEREAS District and City staff are exploring further, smaller-scale elements on lands within the basin catchment that may cost-effectively increase the performance of the Project;

WHEREAS in accordance with Minnesota Statutes § 103B.251, subdivision 3, the Board of Managers held a duly noticed public hearing on June 2, 2016, at the Comfort Lake-Forest Lake Watershed District offices, at which time all interested parties had the opportunity to speak for and against the Project;

WHEREAS the District engineer has presented the results of its feasibility assessment and cost estimate to the Board, and finds that the Project is feasible, and the Board concurs that the Project is feasible and finds that it is a cost-effective element of meeting the District's water quality and wetland restoration goals set forth in the WMP; and

WHEREAS the Board has considered the engineer's findings and the comments of interested parties and finds that the Project will be conducive to public health and promote the general welfare, and is in compliance with Minnesota Statutes §§103B.205 to 103B.255 and the WMP;

THEREFORE BE IT RESOLVED that pursuant to Minnesota Statutes § 103B.251 and the WMP, the Project is ordered.

The question was on the adoption of the above resolution and there were ____ ayes and _____ nays as follows:

	AYE	**NAY**
Jackie A. Anderson		
Jackie M. McNamara		
Wayne S. Moe		
Stephen Schmaltz		
Jon W. Spence		

The President declared the resolution adopted*.*

Dated: June 2, 2016

_____
Wayne S. Moe, Secretary

* * * * * * *

I, Wayne S. Moe, Secretary of the Comfort Lake - Forest Lake Watershed District Board of Managers, do hereby certify that I have compared the above resolution with the original thereof as the same appears on record and on file in the District's offices and find the same to be a true and correct copy thereof.

IN TESTIMONY WHEREOF, I hereunto set my hand this June 2, 2016.

_____
Wayne S. Moe, Secretary