

Forest Lake Improvements Project Scope

JLB Engineering

Project Need

Forest Lake in Fond du Lac County, Wisconsin suffers from significant growth of invasive Eurasian Watermilfoil. The Forest Lake Improvement Association (FLIA) has used several techniques to remove the invasive plant. FLIA has determined that chemical treatments are the most effective path forward. This technique requires a boat, and Forest Lake does not currently have adequate boat access; therefore, a boat launch area is needed which is the focus of this project. Homeowners around the lake would also benefit from a boat ramp to remove their boats from the lake before it freezes over. Currently, homeowners are unable to trailer their boats during the winter and instead pull them onto their property shoreline. JLB Engineering will site and design a boat launch area for the client FLIA. Figure 1 shows the proposed site for a new boat ramp. Adjacent property owners have agreed to the project's efforts. Additional points of improvement discussed were addressing the surface runoff and refreeze on Forest Lake Road and limiting salt application on roadways near the lake. For the sake of time and FLIA priorities, the project's efforts will be focused on the implementation of the boat ramp at the proposed site location.



Figure 1: Forest Lake Site Location

Objectives

The main objectives of this project are to determine the optimal configuration and design for an access road, boat ramp, and turnaround area. The use of mechanical dredging was proposed by the FLIA and will be considered to minimize the cost of the boat ramp access road. Due to the proposed site being in a wetland, JLB Engineering will provide guidance on the appropriate construction methods and corresponding permits needed. Preliminary designs and a final report of findings will be provided at the conclusion of the project. Financial assistance options will also be explored as part of the project. The FLIA has a small operating budget which is maintained solely by membership fees of \$35-50 per year, donations, and additional collection drives.

Approach

The first step in the planning and design process will be to ensure that the site is suitable for design. Based on pictures provided by FLIA and the Wisconsin Surface Water Data Viewer, the proposed site appears to be a designated wetland. JLB Engineering will assist FLIA through the beginning stages of the boat ramp and wetland permitting processes but will be unable to see these to completion due to the time constraints of the project. After determining the most suitable site, the characteristics of the site (area, slope, existing vegetation, etc.) will be used to develop the optimal design considering the impacts to people, the environment, and price to implement.

The following steps will be taken to address and execute the project's objectives.

- Determine most feasible surface material for boat ramp, access road, and turnaround area
 - Consider adjacent landowner opinions
 - DNR requirements for minimal impervious land cover
- Determine permitting constraints
 - Wetland permits
 - Boat ramp permits
 - Dredging permits (if applicable)
- Design boat ramp and access road
 - Dredging quantities (if required for design)
 - Clearing and grubbing costs
 - Construction material quantities and cost

Constraints

Several constraints exist for the proposed improvements at Forest Lake. Cost is one of the most important constraints as FLIA runs on a limited budget. This constraint will be much less restrictive if funding sources are located and obtained through fundraising or grants. The siting of the boat ramp and access road could have a large impact on the price of the project. The extents of the project and area of affected wetland will be important to consider in design. The price of mitigation and permit application time will have to be factored in among the other cost factors. Additionally, FLIA does not wish to upset any current residents with the construction process, nor lose the “natural” look of the area. Another constraint is FLIA’s desired timeline. Treatment of the Eurasian Watermilfoil would take place before July 4th in order to make the lake more aesthetically and recreationally appealing for the holiday.

Deliverables

The following deliverables will be provided to FLIA at the completion of the project.

1. Proposed Design
 - 1.1. Alternative Decision Matrix
 - 1.2. Plan and Profile Drawings of Desired Alternative
2. Final Summarizing Report
3. Cost Estimates
 - 3.1. Boat Ramp Construction
 - 3.1.1. Material Alternative
 - 3.1.2. Ramp Approach Road/Path Alternative
4. Potential Grant Opportunities
5. DNR Permit Guidance
 - 5.1. Covered in Report and Presentation
6. Presentation to the Forest Lake Improvement Association at Forest Lake, WI