

# SCOPE OF SERVICES ENGINEERING FEASIBILITY STUDY

## LAKE AND RIVER ENHANCEMENT (LARE) PROGRAM IDNR DIVISION OF FISH AND WILDLIFE

### **I. Project Purposes:**

The purposes of the Engineering Feasibility Study are to:

1. Determine feasibility of anticipated construction projects.
2. Prepare for physical design.
3. Ensure project success.

### **II. Project Tasks:**

The scope of services outlined below should be considered a draft that is subject to revision prior to the final contract, based on discussion with the LARE staff, and the sponsoring local organization.

#### 1. Identification of potential construction sites

Determine feasible construction sites for proposed structures and other construction activities. Record the 12 digit HUC (Hydrologic Unit Code) as well as the location of proposed activities using Latitude and Longitude Coordinates expressed in decimal degrees, using NAD 1983 Datum. If the project is for a lake as a whole, note the location of the outlet or lowest elevation in the lake or river watershed within the project's proposed bounds.

#### 2. Update any outdated parameters and address information gaps

Review previously completed studies and update any pertinent outdated information and/or identify any critical information gaps.

#### 3. Complete preliminary engineering/calculations

Complete all necessary engineering activities and computations to complete preliminary design including surveying and mapping, soil borings and geotechnical analyses, hydrologic and hydraulic analyses and all associated calculations.

#### 4. Facilitate public meetings regarding the proposed project

Design and initiation of facilitated public meetings for the purposes of information collection, dissemination, and discussion. Hold a minimum of three (3) meetings. Document meeting attendance, minutes, and perceptions.

#### 5. Create a public information handout

Create and distribute an information handout that addresses factual issues concerning the state of the lake or stream and costs or benefits predicted from the proposed project.

6. Complete conceptual drawings

Develop plan sheet drawings of all proposed sites and structures.

7. Determine preliminary design and construction project cost estimates and timelines

Develop preliminary cost estimates for design and construction phase of project with associated timelines.

8. Determine easements and land availability

Determine all necessary project property easements including those for construction ingress, egress and flooding. The task also includes obtaining land rights sufficient for the purpose of construction and inspection.

9. Determine unusual physical and/or social costs of the proposed project

Identify associated unusual project costs, which may include costs associated with unusual physical and/or social aspects of the proposed project.

10. Complete a flood stage analysis if determined necessary

Complete a hydraulic computer model illustrating flood profiles sufficient for the purpose of securing necessary project permits.

11. Determine functionality and/or impact of proposed project with respect to condition of the lake or stream

Estimate the amount of nutrients and sediment removed by the proposed project based on existing chemical and physical data from the tributary relative to contributions from other watershed sources and characteristics of the proposed project.

12. Conduct a wetland functional assessment or vegetation survey

Conduct a preliminary survey to identify and give approximate distribution maps for wetland vegetation existing at locations that may be affected by the project, as well as predicted distributions of plantings included in project design. An appropriate field method for wetland functional assessment will be used to estimate the level of ecological benefit and impact predicted from the project.

13. Conduct a rapid bioassessment survey of biological and habitat integrity downstream of proposed site(s)

Immediately downstream of proposed project sites conduct a survey of benthic macroinvertebrates using the LARE Protocol for Macroinvertebrate Sample Collections and Calculations. The habitat should also be evaluated using the Qualitative Habitat Evaluation Index. Use a statistical method to estimate the relative impact of habitat or chemical degradation on the biological community.

14. Conduct an environmental impact assessment addressing pre and post project conditions with special attention to wetlands, water quality and flooding

Compile and analyze information collected from biological assessments to determine existing level of ecological integrity and predict impacts on sensitive species or biological communities, water quality of the tributary and lake, and impact on flooding.

15. Document justification for proposed site selection

Justify why a specific site was selected over other potentially acceptable sites.

16. Determine funding sources for design and construction projects including ability of local entity to fund additional project phases

Determine and assist the project sponsor in obtaining additional sources of funding available for project purposes. This task includes the determination of the ability of the sponsor to fund additional phases of the proposed project.

17. Complete early coordination process with all pertinent agencies for obtaining all project permits

Coordinate review of the preliminary design plan with all pertinent agencies and institutions, including USACE, IDEM, USFWS, IDNR, County Drainage Boards, and citizen organizations, in order to facilitate issuance of all necessary permits.

18. Project progress reporting

Issue monthly progress reports during the duration of the project. Copies of progress reports are to be, at a minimum, submitted to the project sponsor and LARE program staff.

19. Complete engineering feasibility report

This task includes completion of a bound engineering feasibility report illustrating no less than the following:

- a. Executive Summary.
- b. A statement of project purpose.
- c. A general overall project description.
- d. A heading and summary for each project task with accompanying appendices if necessary. The appendices should include (if applicable) but are not limited to:
  - 1) All pertinent data, including field sheets.
  - 2) Engineering calculations.
  - 3) Computer model input and output.
  - 4) Geotechnical investigation information.
  - 5) All pertinent and appropriate project correspondence.
  - 6) Necessary maps, charts, graphs, computations and computational breakdowns.
  - 7) Pertinent meeting agendas, attendance lists and agreements.
- e. Preliminary plan sheets.
- f. Project conclusion.

### **III. Data Presentation:**

- 1. Raw data sheets need not be bound into each copy of the report. However, at a minimum, one set of all design and field data must be submitted to the LARE program office to aid in the review of the draft report and plan sheets.
- 2. Presentation of data in English units with metric units in parenthesis is preferred. Example: 5 ft (1.5m).

### **IV. Review Process:**

- 1. Four (4) **hard copies** and one electronic copy (in either MS-Word or Adobe PDF format) of the draft report and plan sheets must be provided to the LARE program office for review by the local sponsor, LARE staff, county SWCD and Drainage Board. Where the project area covers more than one county, two (2) additional copies of the report and plan sheets should be supplied for each additional county.
- 2. The LARE staff will forward two (2) copies of the draft report and plan sheets to the local sponsor for review.
- 3. Both draft and final report must be reproduced with two-sided pages for hard copies and presented as a single electronic file in MS-Word or Adobe PDF format, suitable for posting to the LARE website.
- 4. The titles of the draft report and plan sheets must refer to the report as a “draft” version. Additionally, each page of the draft report and plan sheets must be

labeled “Draft - Subject to Revision.”

5. To facilitate review of the draft report and plan sheets, a meeting between a representative of the local sponsor, consultant, and LARE staff will be held to discuss the review comments. This meeting will be coordinated by LARE staff.

6. Upon addressing the review comments, four (4) copies of the final report and plan sheets must be provided to the LARE office. A digital version in either MS-Word or Adobe PDF format must also be submitted. Where the project area covers more than one county, two (2) additional copies of the report and plan sheets should be supplied for each additional county involved.