

# SCOPE OF SERVICES ENGINEERING DESIGN PROJECT

## **LAKE AND RIVER ENHANCEMENT (LARE) PROGRAM INDIANA DEPARTMENT OF NATURAL RESOURCES DIVISION OF FISH AND WILDLIFE**

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

The purposes of the Engineering Design project include:

1. Prepare a complete physical design(s) that is ready to move to the construction phase
2. Ensure project success through necessary communication with permitting agency staff and affected landowner.

### **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 project manager, and the project sponsor.

1. Identify boundaries of the project site(s)

Determine exact site locations for proposed structures and other design elements. Record the 12 digit HUC (Hydrologic Unit Code). Record the location of proposed measures using Latitude and Longitude Coordinates expressed in decimal degrees, using NAD 1983 Datum and in UTM (Universal Transverse Mercator) Coordinates. 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.

Generate appropriate maps and drawings for discussion purposes.

2. Complete engineering/calculations

Complete all necessary engineering computations to generate a workable design including surveying and mapping, soil borings and geotechnical analyses, hydrologic and hydraulic analyses and all associated calculations (if not previously completed in the feasibility phase).

3. Complete early coordination process for obtaining all project permits including USACE, IDEM, USFWS, IDNR, County Drainage Boards, and pertinent citizen organizations.

Coordinate review of the preliminary design plan with all pertinent agencies and institutions in order to facilitate issuance of all necessary permits (if permits not

previously secured in the feasibility phase). This includes meeting with affected landowners to discuss specific design elements and expected results.

#### 4. Facilitate meetings

Facilitate at least two public meetings for the purposes of: 1) identifying stakeholders, introducing the engineering design study and obtaining public input and concerns; and 2) presenting the final report. Document meeting dates, attendance, minutes, public comments, and an indication of the level of support for recommending particular implementation projects as an appendix to the report. As an option at the request of the project sponsor, a steering committee can be established to help guide the planning process. An established number of steering committee meetings would be facilitated by the contractor to help create a consensus-driven plan and provide input throughout the process.

#### 5. Project progress reporting

Issue monthly progress reports for the duration of the project. Copies of progress reports must be submitted to the project sponsor and LARE project manager.

#### 6. Complete design drawings

Develop plan sheet drawings of all proposed sites and structures (including plan view and/or cross sectional details).

#### 7. Determine construction cost estimates and timelines

Develop cost estimates for the construction phase of the project if built to the specification developed under the current design. Specify appropriate seasonal timing for construction to begin.

#### 8. Confirm easements and land availability

Determine all necessary project property easements including those for construction ingress, egress and flooding. This task also includes obtaining land rights sufficient for the purpose of construction and inspection (if not previously completed in the feasibility phase).

#### 9. 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 (if not previously completed in the feasibility phase).

#### 10. Model functionality and/or impact of proposed project with respect to condition of the lake or stream

Use the [Region 5 Model](#) to estimate the amount of nutrients reduced and soil saved by the proposed project relative to contributions from other watershed sources and characteristics of the proposed project.

11. 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 should be used to estimate the level of ecological benefit and impact predicted from the project.

12. Complete engineering design report

This task includes completion of a bound engineering design 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. Final plan sheets.

### **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 project manager 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. Two printed copies and one digital copy (in either MS-Word<sup>©</sup> or Adobe PDF<sup>©</sup> format) of the draft report must be provided to the project sponsor and pertinent agencies. One printed copy and one digital copy of the draft report must be provided to the LARE project manager for review by the LARE staff. Note that the draft document may be posted on the LARE website for public comment.

Where the project area covers more than one county, one additional copy of the report and plan sheets should be supplied for each additional county.

2. Reports must be reproduced with two-sided pages for hard copies and presented as a single digital file in MS-Word<sup>©</sup> or Adobe PDF<sup>©</sup> format, suitable for posting to the LARE website.

3. 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.”

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

5. Upon addressing the review comments, two printed copies of the complete final report should be provided to the LARE project manager. In addition a digital copy of the full report including appendices, figures, maps and photos in either MS-Word<sup>©</sup> or Adobe PDF<sup>©</sup> format should be provided to the LARE project manager. Do not submit multiple files that need to be merged into one file for web posting. Two printed copies and one digital copy of the final report must also be provided to the project sponsor and pertinent agencies. Where the project area covers more than one county, one additional copy of the report and plan sheets should be supplied for each additional county involved.

7. Reports must be reproduced with two-sided pages for hard copies and as a single digital file in MS-Word<sup>©</sup> or Adobe PDF<sup>©</sup> format, suitable for posting to the LARE website.

Follow these guidelines for electronic copies:

- a) Electronic file names must follow this protocol: Name\_Water\_Body\_Eng\_Design\_Project\_Name\_County\_Month\_Year.pdf or .doc
- b) All electronic copies must contain the complete digital copy of the full report including appendices, figures, maps and photos in either MS-Word<sup>©</sup> or Adobe PDF<sup>©</sup> format as a single digital file. Do not prepare multiple files that need to be merged into one file for web posting.
- c) Keep file sizes as small as possible to facilitate email exchange and downloading by adjusting pixel size on graphics, compressing photos, or exporting GIS files to pdf or jpeg formats.