

## **Appendix C – Bridge Scour Evaluation Report Format**

All Bridge Scour Evaluation Reports, either for proposed or existing structures, shall be presented using the following format:

### **A. Table of Contents**

### **B. Executive Summary** – The following items must be included:

1. A brief description of the report findings as well as the engineer's recommendations regarding scour countermeasures or countermeasure design.
2. Executive Summary Table containing the items listed below.
  - a. Recommended NBIS Item 113 Rating (Scour Critical Bridges)
  - b. Recommended NBIS Item 71 Rating (Waterway Adequacy)
  - c. Recommended NBIS Item 61 Rating (Channel and Channel Protection)
  - d. Scour Risk Designation (Low Risk, Scour Susceptible or Scour Critical)
  - e. Depth of Potential Scour (Provide the range of values computed for the various flood events analyzed)
  - f. Foundation Type (Known/Unknown)
  - g. Recommendation(s) (Monitor, Install Countermeasures or Design Foundation for Predicted Scour)
3. The signature with Connecticut seal and professional engineer number of the approved hydraulic engineer who prepared or supervised the preparation of the report.

### **C. Background/Site Conditions** – Provide a narrative description of the existing structure (if applicable), the stream reach adjoining the bridge site and any other relevant information obtained from data gathering efforts.

### **D. Hydrology and Hydraulics** – Provide a description of the watershed properties, hydrologic methods used in the determination of peak flows and a tabulation of the maximum flow rates for the various return frequencies. At a minimum, the 10, 50, 100 and 500 year floods shall be presented for scour evaluations of existing bridges. With respect to new bridges, it is normally acceptable to evaluate only the 100 and 500 year floods unless a flood of lesser magnitude is the maximum scour-producing event.

With respect to the hydraulic analysis, a description of the program employed to develop design water surface profiles, flow depths and velocities should be provided. Further, methodologies used in the determination of the starting water surface elevations or boundary conditions must be described.

### **E. Scour Results** – Describe the findings of the scour evaluation in narrative and tabular formats.

### **F. Structural Review/Foundation Stability Analysis** – Provide a narrative description, as appropriate.

**G. Conclusions and Recommendations** – Summarize the findings of the Bridge Scour Evaluation and provide recommendations with respect to countermeasure or foundation design.

#### **H. Report Graphics**

1. Location Plan
2. Site Plan
3. Scour Depth Cross Sections – For each flood event analyzed, provide a cross section (Elevation View) at the upstream face of the bridge on which the various components of total scour have been depicted for all substructure units. Where foundation information is available, the depth and configuration shall also be depicted. This section must be drawn to scale and must indicate the design flood elevation, the low chord elevation and the overtopping elevation.

#### **I. Technical Appendices**

1. Field Evaluation Notes or Sketches (as appropriate)
2. Photographs
3. Hydrologic Computations
4. Water Surface Profile Computations
5. Scour Calculations
6. Geotechnical Data – Riverbed and soil sample characteristics and/or subsurface investigation findings
7. Countermeasure Design Computations and Sketches (as appropriate)
8. Pile Stability Computations (as appropriate)