< [Date](#Date) >

TO: XXXX XXXXX

INDOT Project Manager, XXXXX District

FROM: XXXX XXXXX

Consultant Hydraulics Engineer

SUBJECT: SCOUR LETTER

Structure Number: XXX-XX-XXXXX

Location: XXXXX

Des. #: XXXXX

Crossing: XXXXXX

Consultant: <Consultant Firm Name>

SPMS Type of Work: XXXXX

PART A - HYDRAULICS SCOUR DATA - PROVIDED BY CONSULTANT HYDRAULICS ENGINEER

|  |
| --- |
| Consultant Signature |

|  |
| --- |
| Consultant PE Stamp |

ANALYSIS: XXXX XXXXX, PE

Consultant Hydraulics Engineer

|  |
| --- |
| QA Signature |

REVIEWER: XXXX XXXXX, P.E.

INDOT Hydraulics Engineer

**This memo is not to be considered final until it has been signed and stamped by the designer and signed by the QA engineer.**

Drainage Area X.X sq.mi.

Q100 (AEP 1%) XXX cfs

Q100 (AEP 1%) Elevation XXX.X ft

**Approved Scour Data Three Span**

Q100 (AEP 1%) Contraction Scour XX ft.

Q100 (AEP 1%) Total Scour XX ft.

Flowline Elevation XXX.X ft. (from HEC-RAS model)

Q100 (AEP 1%) Low Scour Elevation XXX.X ft

Q100 (AEP 1%) Max Velocity XX.X ft/s.

Q100 (AEP 1%) Avg Velocity XX.X ft/s.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Location | | | |
|  | EB 1 | Pier 2 | Pier 3 | EB 4 |
| Bottom of Footing El. |  |  |  |  |
| Shallowest Pile Tip Elevation |  |  |  |  |
| Q100 (AEP 1%) Low Scour Elevation |  |  |  |  |
| Exposed Pile Length (ft.) |  |  |  |  |
| Length of Pile Still Buried (ft.) |  |  |  |  |
| D50 of Soil used in Scour Analysis (mm) |  |  |  |  |
| # of Rows of Piles |  |  |  |  |

Pile Material Type: XXXX

Provide Narrative as needed...

Part A of this scour letter is provided by the Hydraulics Section and identifies the low scour elevation from the hydraulic analysis and makes recommendations for scour mitigation measures. The information from Part A may be used by the Bridge Section and the Engineer of Record to make the Bridge Scour Critical Determination in Parts B and C of this letter, unless the final determination is made by the Hydraulics Engineer and noted as such in Part A. The stamp and signature provided by the INDOT Hydraulics Section is for the information provided in Part A.

If the bridge is determined to be scour critical the following measures are recommended:

Identify Scour Mitigation Measures…

Part A Scour Status

Final Determination – Parts B and C not applicable

Not Scour Critical

Scour Critical

Scour Status Pending Part B

CIF Permit required: (Y-if scour critical/N)

Justification/Comments:

If you have any questions or comments, please contact me at (XXX) XXX- XXXX.

XXX

PART B – BRIDGE SCOUR CRITICAL DETERMINATION – PROVIDED BY INDOT BRIDGE DESIGN

The recommendations given in Parts B and C are based on the Scope of Project indicated in the Subject of this memo. Changes to the project scope require a resubmittal of the scour analysis to INDOT Hydraulics Section.

|  |
| --- |
| PE Stamp: |

|  |
| --- |
| PE Signature: |

DETERMINATION BY: XXXX XXXXX, PE

INDOT Bridge Design Engineer

Date Signed:

Part B Bridge Scour Status (once determination is made, send memo back to INDOT Hydraulics)

Not Scour Critical – Part C not applicable

Scour Critical

Final Determination - The scour countermeasures indicated in Part A of this memo shall be installed, even if the bridge may have sufficient structural and geotechnical capacity in the scoured condition. Part C not applicable

Contingent Determination - If structural and geotechnical analysis indicates that the existing foundations can accommodate all design loads while considering the potential loss of supporting material to the scour depths given in Part A of this memo, the Bridge Engineer of Record may consider the bridge to be Not Scour Critical. All applicable load cases shall be considered to ensure that the foundations are adequate for all vertical, transverse, lateral, and flexural loads. Special attention should be given to changes in bearing types during bridge rehabilitation projects that could lead to changes in the distribution of longitudinal forces and thermal restraint induces forces to the substructure units. In cases where the installation of scour countermeasures is not anticipated to result in significant environmental or economic impacts, the Bridge Engineer of Record may choose to forego this investigation and consider the bridge to be Scour Critical.

Contingent Determination - If Part A indicates that the scour countermeasures shown in the existing plans are sufficient, the Bridge Engineer of Record may verify that these countermeasures are still in place, and thereby determine the bridge to be Not Scour Critical due to the presence of previously installed scour countermeasures.

Justification/Comments:

PART C – BRIDGE SCOUR CRITICAL DETERMINATION – PROVIDED BY BRIDGE ENGINEER OF RECORD

The INDOT Project Manager, INDOT Bridge Asset Engineer, and the Bridge Engineer of Record may determine that a ‘Scour Critical – Contingent Determination’ warrants further analysis due to environmental, economical, or other considerations. If the analysis concludes that the bridge has sufficient structural and geotechnical capacity in the scoured condition, the Bridge Engineer of Record may determine the bridge to be ‘Not Scour Critical’.

|  |
| --- |
| PE Stamp:  Engineer of Record |

|  |
| --- |
| PE Signature: |

DETERMINATION BY: XXXX XXXXX, PE

Bridge Engineer of Record

Date Signed:

|  |
| --- |
| PE Signature: |

REVIEWER: XXXX XXXXX, P.E.

INDOT Bridge Design Engineer

Date Signed:

Part C Bridge Scour Status (once determination is made, send memo back to INDOT Hydraulics)

Scour Critical

Not Scour Critical

Justification/Comments: