

# 2016 Bridge Inspection ERC Training

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# Bridge Inspection Email Address

- INDOT IN Bridges Help
  - [inbridgeshelp@indot.in.gov](mailto:inbridgeshelp@indot.in.gov)
- Use this email for bridge inspection communication
  - Issues with BIAS database
  - Team Leader/Member applications



# BIAS

- Apps for iPad and Android tablets
- Consultant administrator responsibility
  - Provide access for users in their counties
  - Provide training for users in their counties
- Culverts added as an asset type



# Quarterly Compliance Reports

- Communication with ERCs
- Notice of late inspections
- Notice until resolved
- Response required



# FHWA 23 Metrics

- Bridge inspection memos
  - Team Leader email list
    - Recommended ERCs join to keep current
    - Sign up at bridge inspection web site
  - Design consultants email list



# FHWA 23 Metrics

- Inspection Frequency
  - Start the contracting process early (1 Year)
  - Work with INDOT's Local Public Agency (LPA) Division



# FHWA 23 Metrics

- Critical findings
  - Report to program manager ASAP
  - Required documentation (inspector)
  - Remember to close out critical findings
  - Plan to move to BIAS in 2016



# FHWA 23 Metrics

- Load rating policy
  - Updated to encompass legal loads
  - AASHTO BrR (Formerly VIRTIS)
  - Start updating next year





# FHWA 23 Metrics

- Scour determined to need improvement
- Coding issues
- Update scour evaluation starting next year
- Scour critical bridges
  - Plan of action (POA) required or
  - Properly designed countermeasures



# Scour Damage



# Scour Damage



31-03-06062A

5.34

Little Sand Creek

07/21/98

# Scour at a Pier



# Scour In the Overbank



# Scour Damage



# Item 113 Coding

- N - Bridge not over waterway.
- U - Bridge with "unknown" foundation that has not been evaluated for scour. Since risk cannot be determined, flag for monitoring during flood events and, if appropriate, closure.
- T - Bridge over "tidal" waters that has not been evaluated for scour, but considered low risk. Bridge will be monitored with regular inspection cycle and with appropriate underwater inspections. ("Unknown" foundations in "tidal" waters should be coded U.)



# Item 113 Coding Continued

- 9 - Bridge foundations (including piles) on dry land well above flood water elevations.
- 8 - Bridge foundations determined to be stable for assessed or calculated scour conditions; calculated scour is above top of footing. (Example A)
- 7 - Countermeasures have been installed to correct a previously existing problem with scour. Bridge is no longer scour critical.
- 6 - Scour calculation/evaluation has not been made. (Use only to describe case where bridge has not yet been evaluated for scour potential.)
- 5 - Bridge foundations determined to be stable for calculated scour conditions; scour within limits of footing or piles. (Example B)



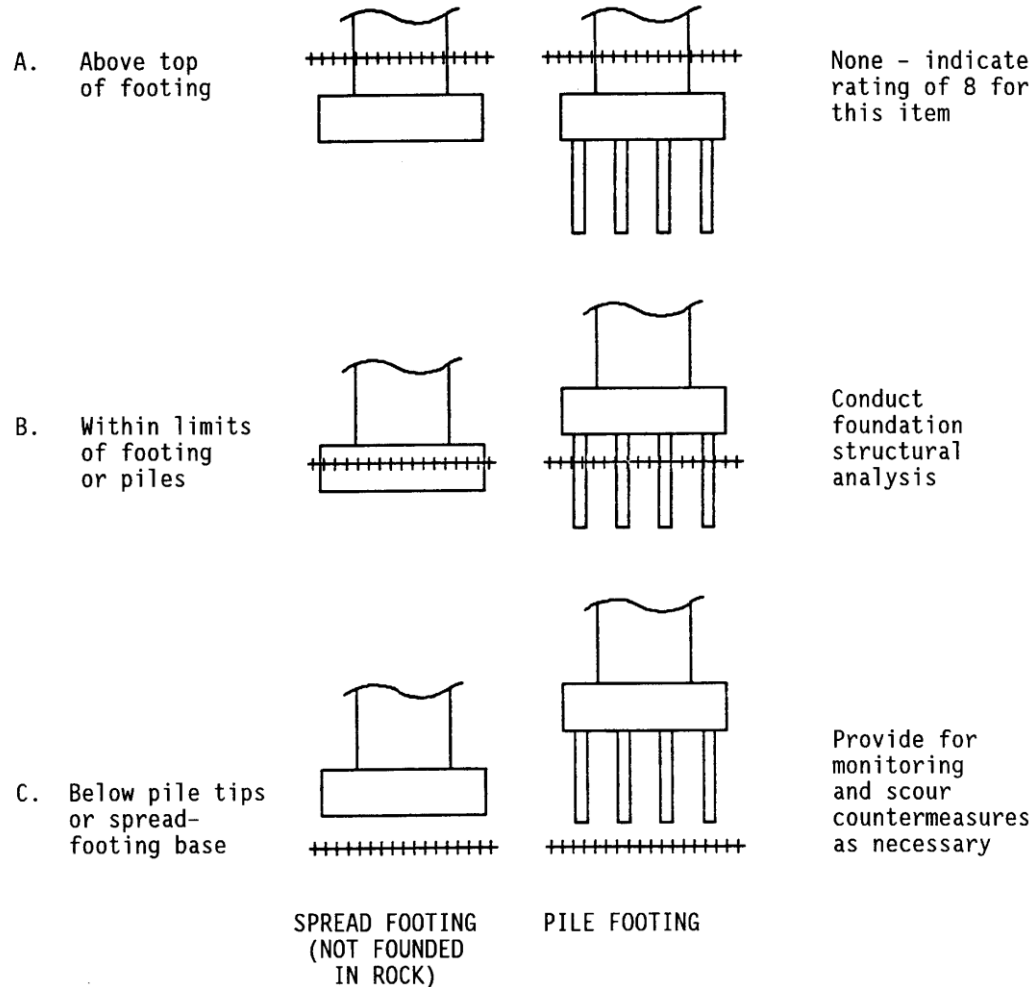


# Item 113 Coding Continued

- 4 - Bridge foundations determined to be stable for calculated scour conditions; field review indicates action is required to protect exposed foundations from effects of additional erosion and corrosion.
- 3 - Bridge is scour critical; bridge foundations determined to be unstable for calculated scour conditions: - Scour within limits of footing or piles. (Example B) - Scour below spread-footing base or pile tips. (Example C)
- 2 - Bridge is scour critical; field review indicates that extensive scour has occurred at bridge foundations. Immediate action is required to provide scour countermeasures.
- 1 - Bridge is scour critical; field review indicates that failure of piers/abutments is imminent. Bridge is closed to traffic.
- 0 - Bridge is scour critical. Bridge has failed and is closed to traffic.



# Item 113 Coding Continued



SPREAD FOOTING  
(NOT FOUNDED  
IN ROCK)

PILE FOOTING

+++++ = Calculated scour depth

# POA Required

- Bridge determined to be scour critical
- Item 113 code
  - U, 3, or 2 POA required
  - 1 or 0 bridge closed POA not required unless repaired at a rating of U, 3, or 2
  - Bridges with countermeasures for repair need to be properly coded



# Parts of a Scour POA

- Triggering event
- Monitoring frequency
- Monitoring plan
- Closure plan
- Closure notification
- Reopening inspection requirements



# Triggering Event

- National Weather Service Flood Warning
- <http://www.weather.gov/subscribe>
- USGS stream gages in the county
- <http://water.usgs.gov/wateralert/>
- Other triggers
  - Rain gage at a facility
  - Mark on the bridge



# Monitoring Frequency

- Set a frequency based on the stream
  - Every 12 hours
  - Every 8 hours
  - Other



# Monitoring Plan

- What needs to be monitored
  - Piers
  - Abutments
  - Stream meanders
  - Other



# Closure Plan

- Trigger for closure
  - Mark on bridge
  - Water reaches low structure
  - Water ready to overtop road
  - Flow moves to wingwall





# Closure Notification

- Emergency Management Director
- Highway Engineer/Supervisor
- Secondary Highway Contact



# Reopening Insp. Requirements

- May require flood to recede
- What components require inspection
  - Piers
  - Abutments
  - Wingwalls
  - Road approach



# Monitoring Log

- County Highway Engineer/Supervisor
- Completed during each event



# POA Updates

- Every contract cycle
- When key personnel change



# For More Information

- <http://www.fhwa.dot.gov/engineering/hydraulics/index.cfm>
- HEC-18 Evaluating Scour at Bridges
- HEC-20 Stream Stability at Highway Structures
- HEC-23 Bridge Scour and Stream Instability Countermeasures



# Questions?

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