

# 2026 Bridge Week - Construction Update



**New Ramp Bridge for WB US-131 BR to SB US-131 over NB US-131, West of Kalamazoo, SW Region**

**MDOT Bureau of Bridges and Structures (BOBS)**

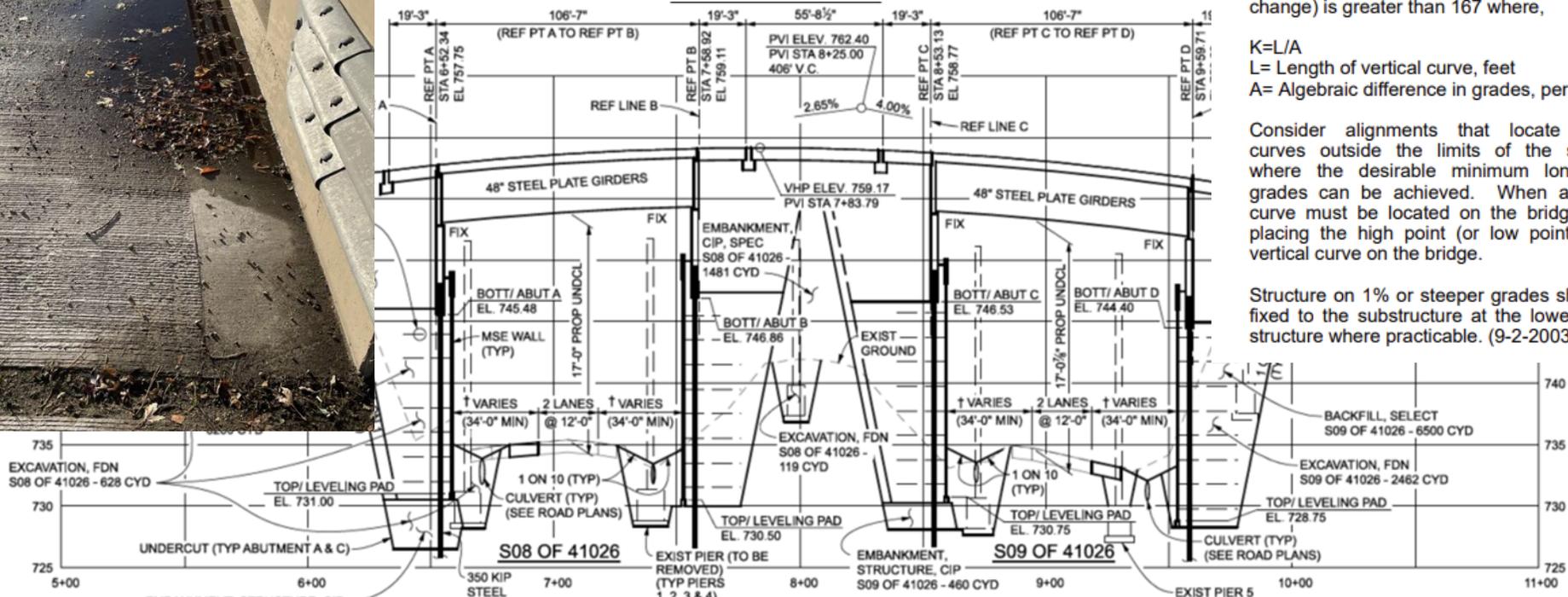
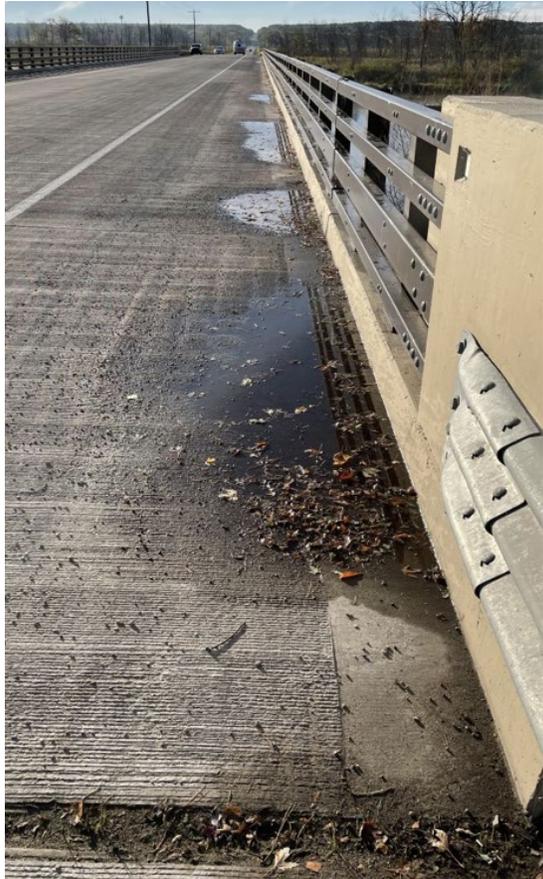
**Rick Liptak PE – Chief Bridge Construction Engineer**





# Bridge Drainage

Min longitudinal grade was 0.3% now has been changed to 0.5%



## 7.01.09

### Longitudinal Deck Grades (9-23-2024)

Provide longitudinal grades to facilitate deck surface drainage. While it is desired to design bridges with steeper longitudinal grades the minimum grade (or minimum projected tangent grade for vertical curves) is 0.5%. Providing longitudinal grades at or near the minimum grade may necessitate the need for deck drainage with drains and downspouts. Generally, it will be necessary to perform bridge deck drainage design calculations in accordance with MDOT Drainage Manual. In addition, close attention to drainage is critical for sag and crest vertical curves when the K value (rate of grade change) is greater than 167 where,

$$K = L/A$$

L = Length of vertical curve, feet  
A = Algebraic difference in grades, percent

Consider alignments that locate vertical curves outside the limits of the structure where the desirable minimum longitudinal grades can be achieved. When a vertical curve must be located on the bridge, avoid placing the high point (or low point) of the vertical curve on the bridge.

Structure on 1% or steeper grades should be fixed to the substructure at the lower end of structure where practicable. (9-2-2003)

## 7.01.10

### Temporary Support Systems a Construction Methods

Where construction procedures temporary support system, the note the loading that will be in system and the allowable stresses assumed for the supporting soil.

Where a construction sequence where there are restrictions on construction, or where the temporary support is not obvious shall provide an acceptable system contractor may employ. Alternatives proposed by the contractor, but they are to be substituted.

This review is to insure that:

- A. appropriate design specifications permit limitations have been with, and
- B. any temporary or permanent imposed on the completed within allowable limits.
- C. possible vibration induced existing structures and utilities and mitigated. (11-28-2011)

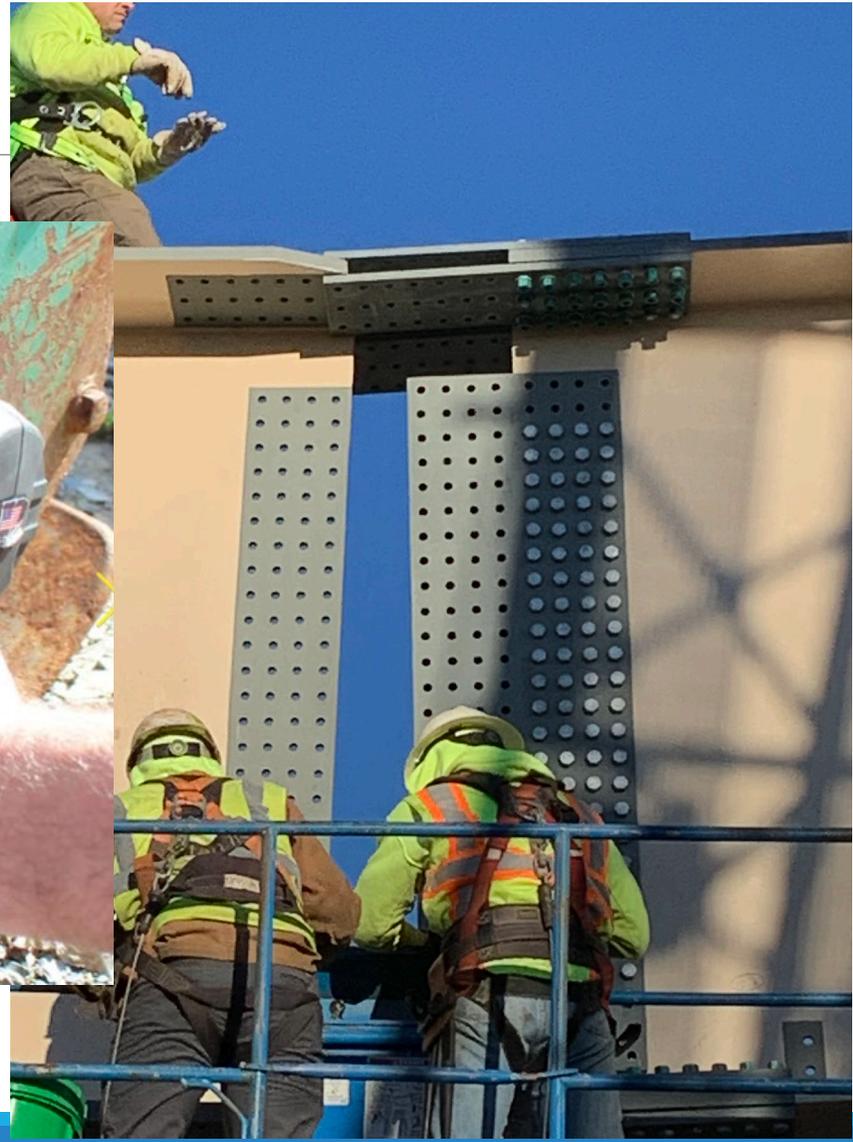
# Alternate Turn-of-Nut (TON) Method



Spud Wrench Snug Tight



Electric Torque Wrench Snug Tight



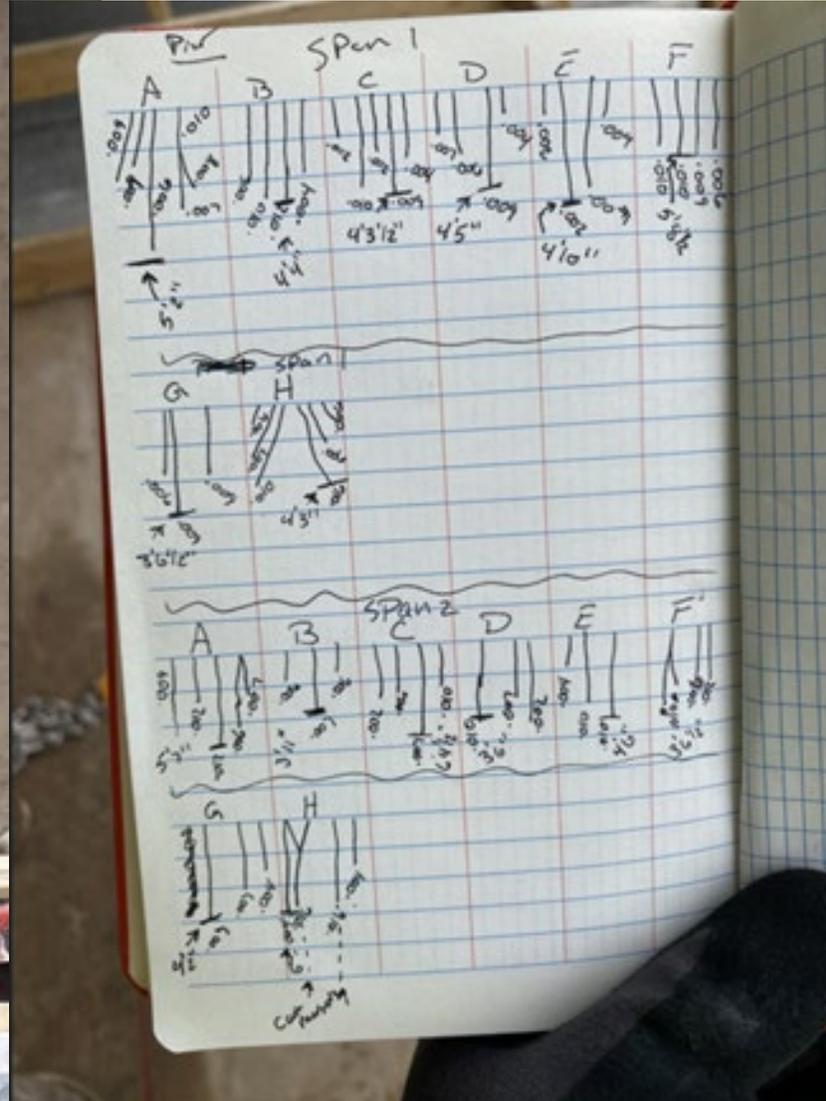
# Bolt Storage, Handling and Protecting



# Proof and Verification Test all Adhesive Anchors



# Cracks found in Girders using Carbon Fiber Strands



# Carbon Fiber Strands



# Press Brake Tub Girders



Future Fabrication is being developed



# Stay in Place vs Removeable Deck Forms

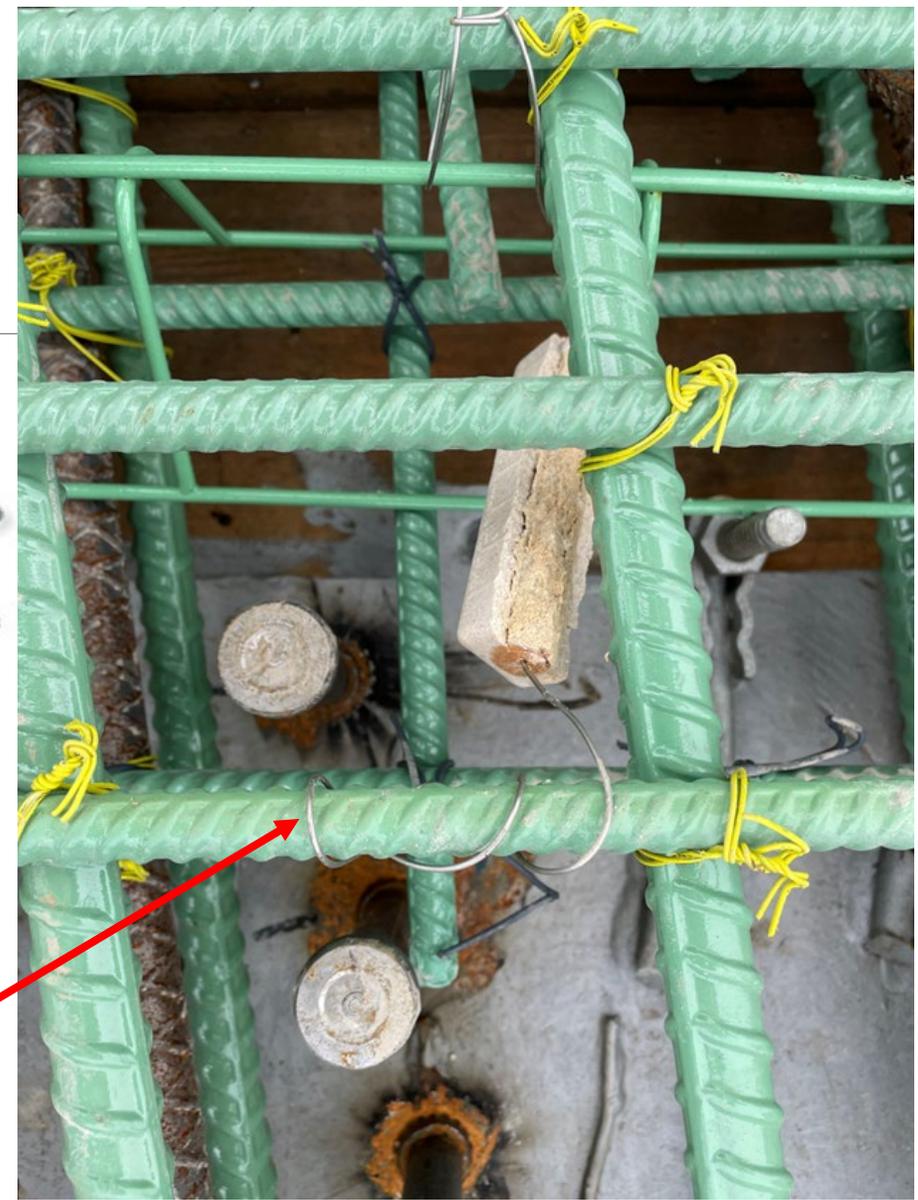
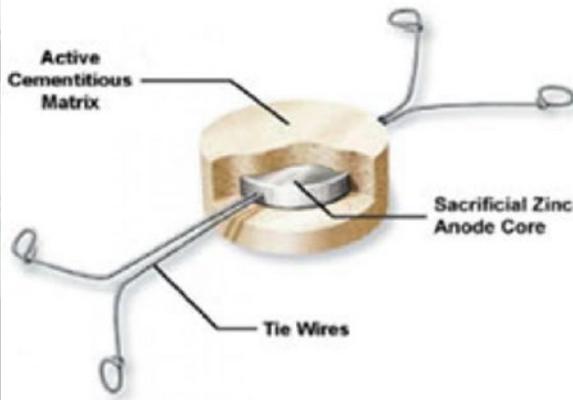


# Epoxy Coating Repair of Rebar

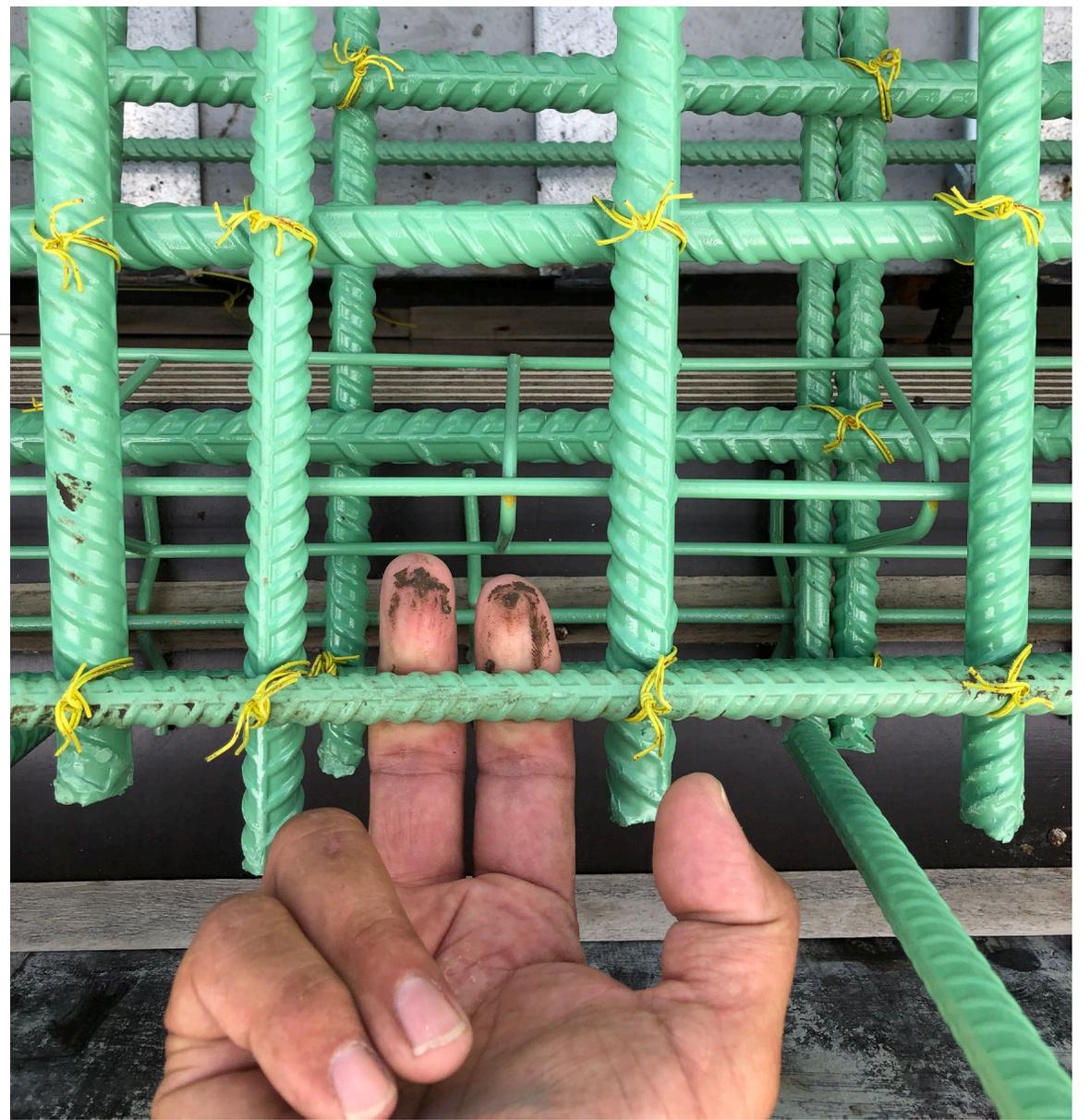
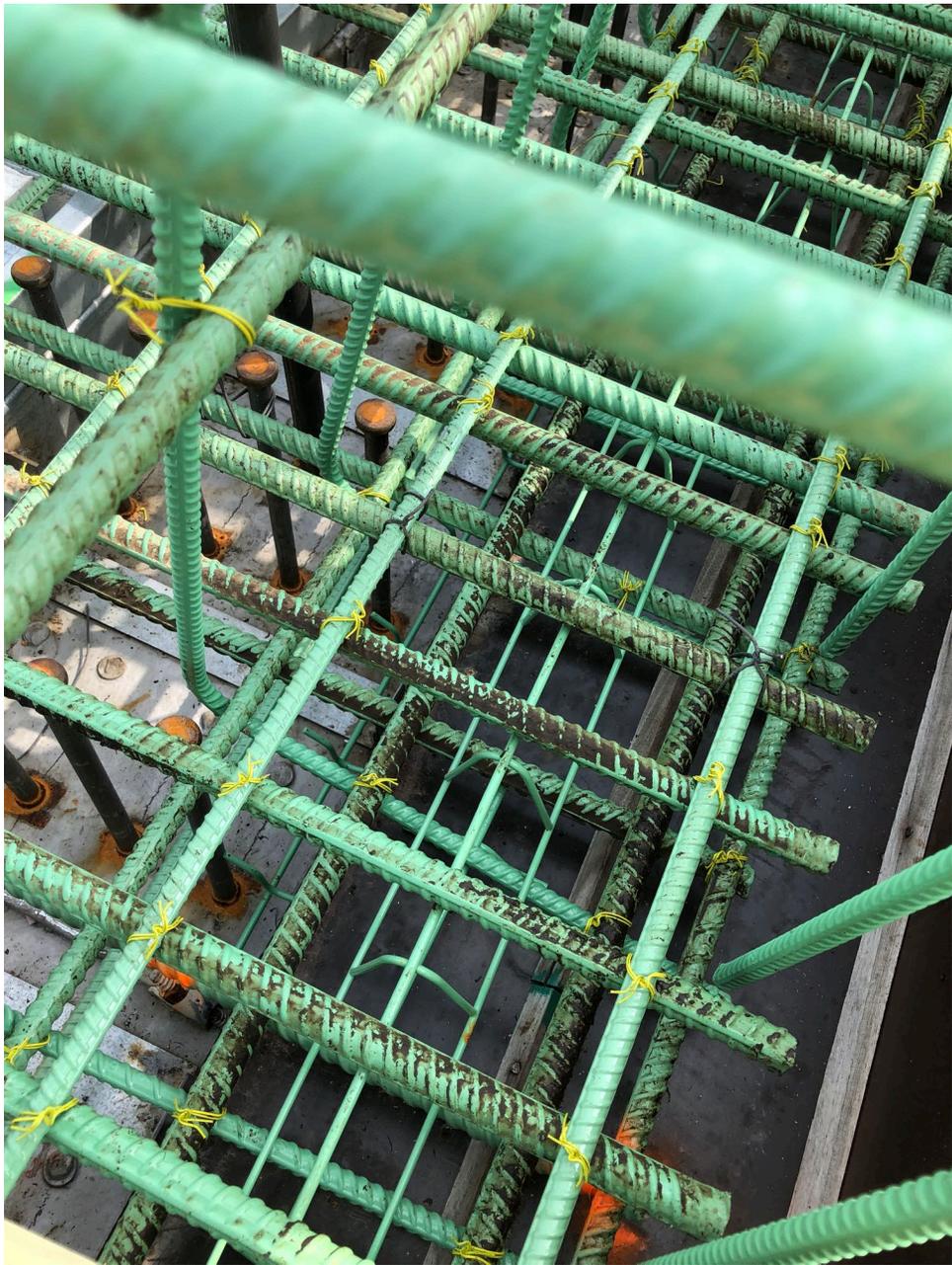




# Galvanic Anodes



Coating not knicked and not tied into existing reinforcing

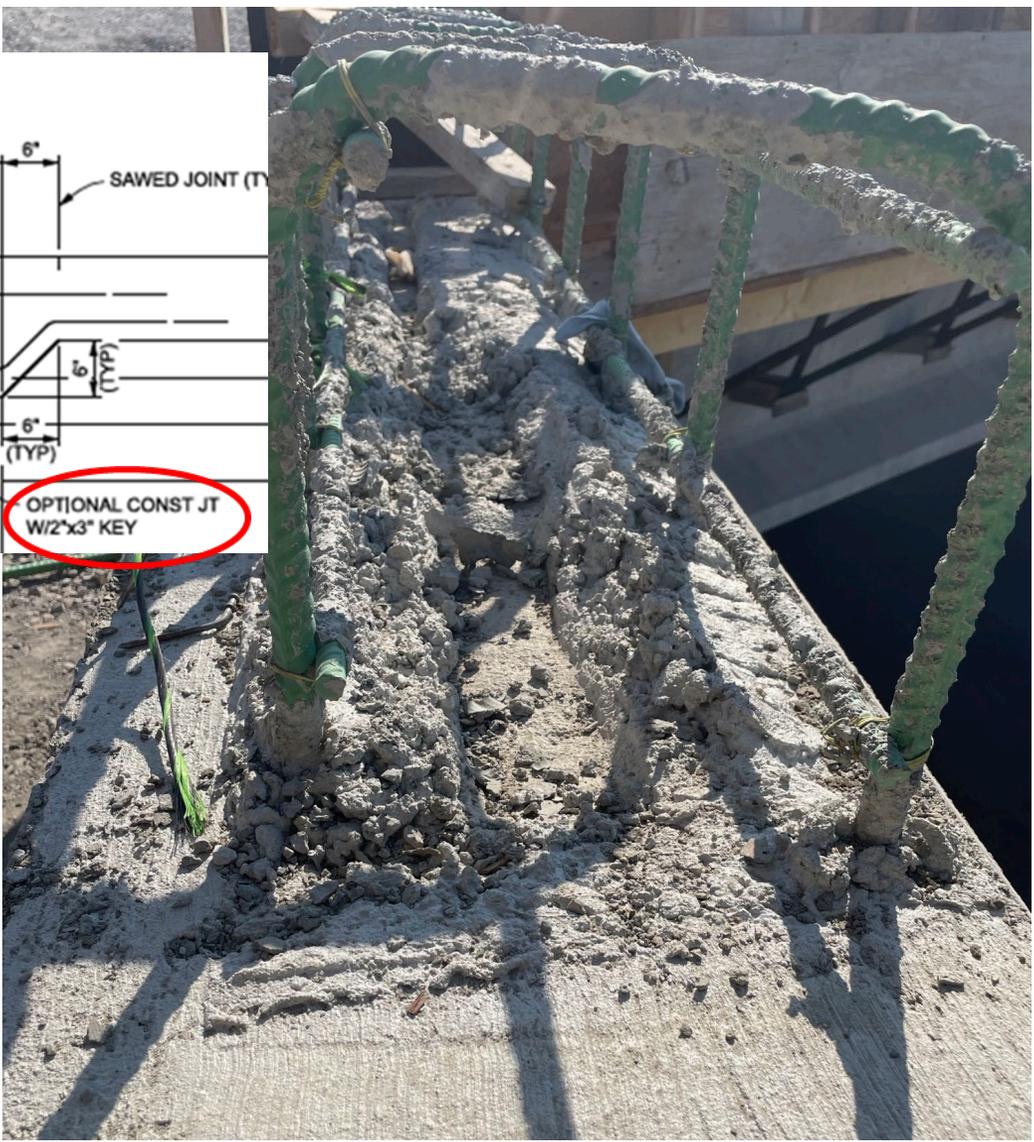
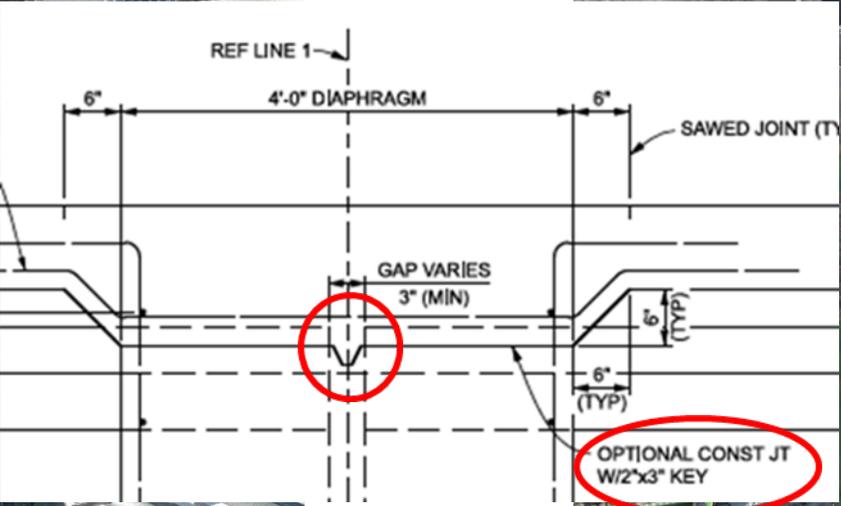


Rebar needs to be Clean

# Bridge Decks



No nailing, drilling or attaching to the Bridge Deck



# Horizontal Construction Joints

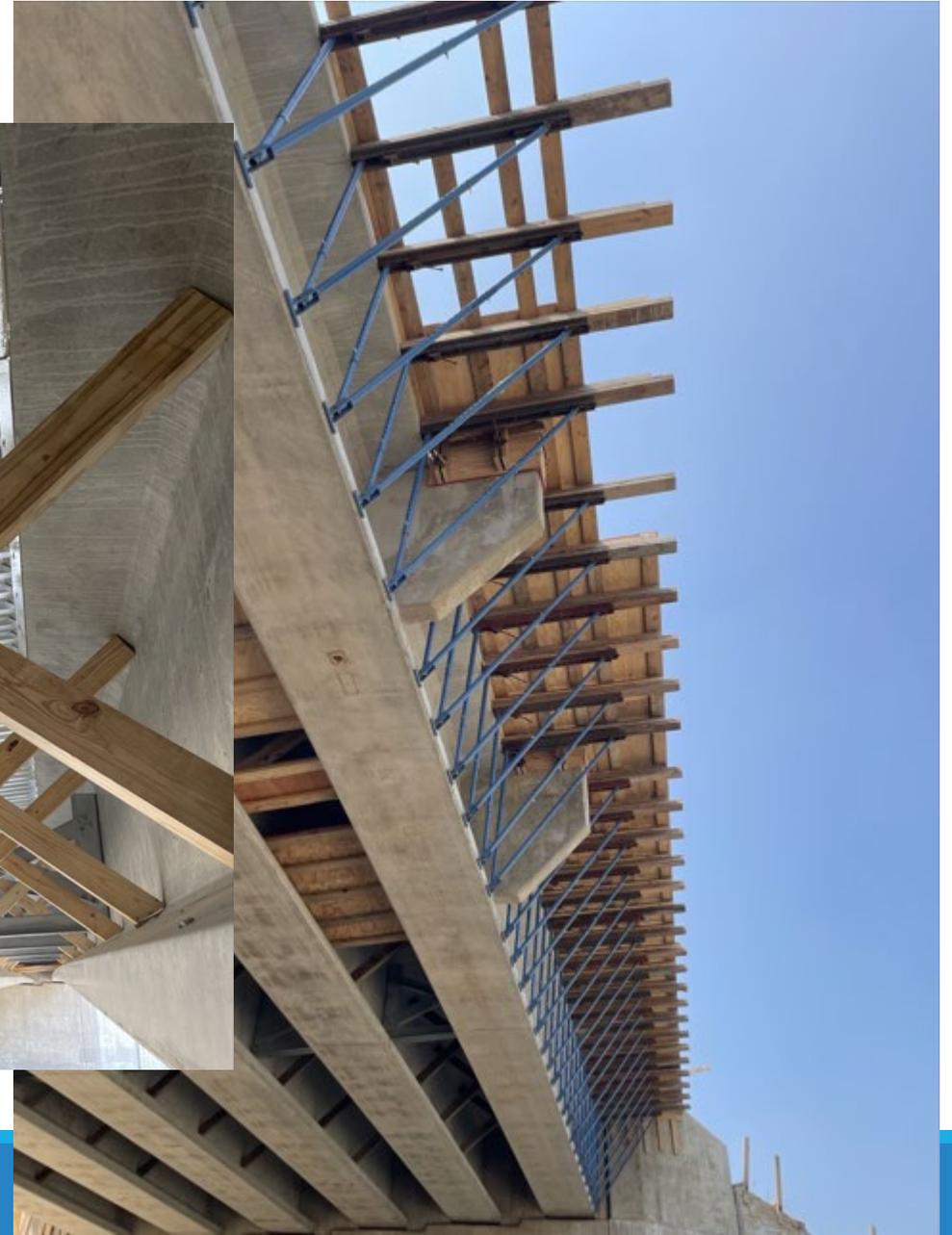
# Deck Overlays turn into Deck Replacements





# Beam Damage from Deck Removal

# Curved Bridge Decks, Straight or Curved Girders



# Post Construction Inspection & Load Ratings

- FHWA requires updated **Bridge Inspection** with **3 months of open to traffic**
- Bridge owner is responsible for scheduling inspection and updating
- **Updates to Load Rating** is to be completed within **3 months of open to traffic** and incorporate:
  - Change in condition
  - All modifications made (including under-clearance updates)
  - Changes to dead load or live load allowances
  - Any conditions found during construction

## Any Questions on Post Inspection or Load Rating

- Allie Nadjarian, Bridge Inspection Program Manager at 517-331-6602



# Questions.....

