2024 Bridge Week Conference
High Load Hit/Request for Action

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Request for Action

- **High Load Hits**
- **Fire/Explosion/Impacts**
- **Corrosion**
- **Concrete Delamination**
- **Overload**
- **Under Design/Poor Construction of Bridge Members**
- **Fatigue**
- **Thermal Movement/Approach Pavement Growth**
- **Moveable Bridge Being Inoperable**
- **Other Factors such as Scour**

Request for Action

- **Cracked/torn bottom beam's flange, damaged concrete beam with multiple severed strands**
- **Fatigue damage (cracked beam)**
- **Buckled beam ends**
- **Cracked beam ends and/or holes at beam ends**
- **Loss of bearing areas, misalignment of bearing device**
- **Heavy delamination, spall/cracked concrete w/exposed rebars, corroded**

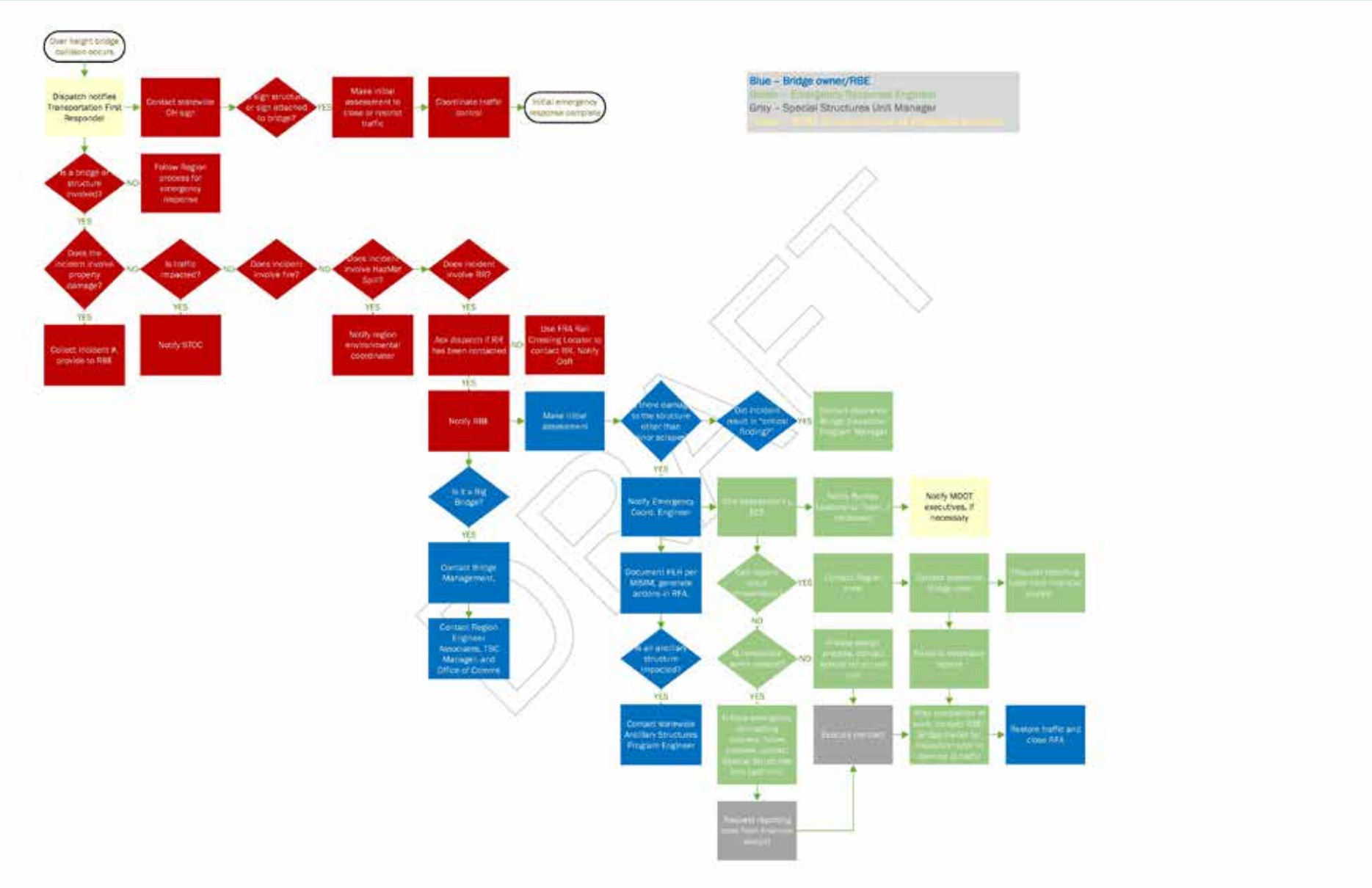
Request for Action

- MDOT's Request For Action Coordination Committee meet monthly to review the Request for Action for Bridges
- Bridge Request for Action are submitted in MI-Bridge by the Bridge Engineer/Inspector and others
- Priority levels (1, 2, 3 and 4) assigned by Bridge engineer/Inspector and reviewed by the committee
- For Emergency Needs- Immediate Response from MDOT Bridge Crews-Statewide Bridge, Region Crews /Bridge Design Special Unit initiates Emergency Contract work
- For Urgent Needs- Quick Response from MDOT's Bridge Crew/Bridge Design Special Unit may initiates Bridge Urgent Needs(BUN) Design Contract

Request for Action

- **Load analysis performed by Load Rating Unit recommending load restriction**
- **Region to continue to monitor the defects**
- **Repairs are programmed**

Emergency Flow Chart



High Load Hits

South Street over US 127

- **Total span length 178’ 3.25”**
- **Built in 1967**
- **Bridge hit 2 times**
- **Span 3W with length 50’ 6”**
- **Beams 5S & 6S impacted**
- **Beam type W27 x 94**
- **Total estimated cost for repair $340,033**

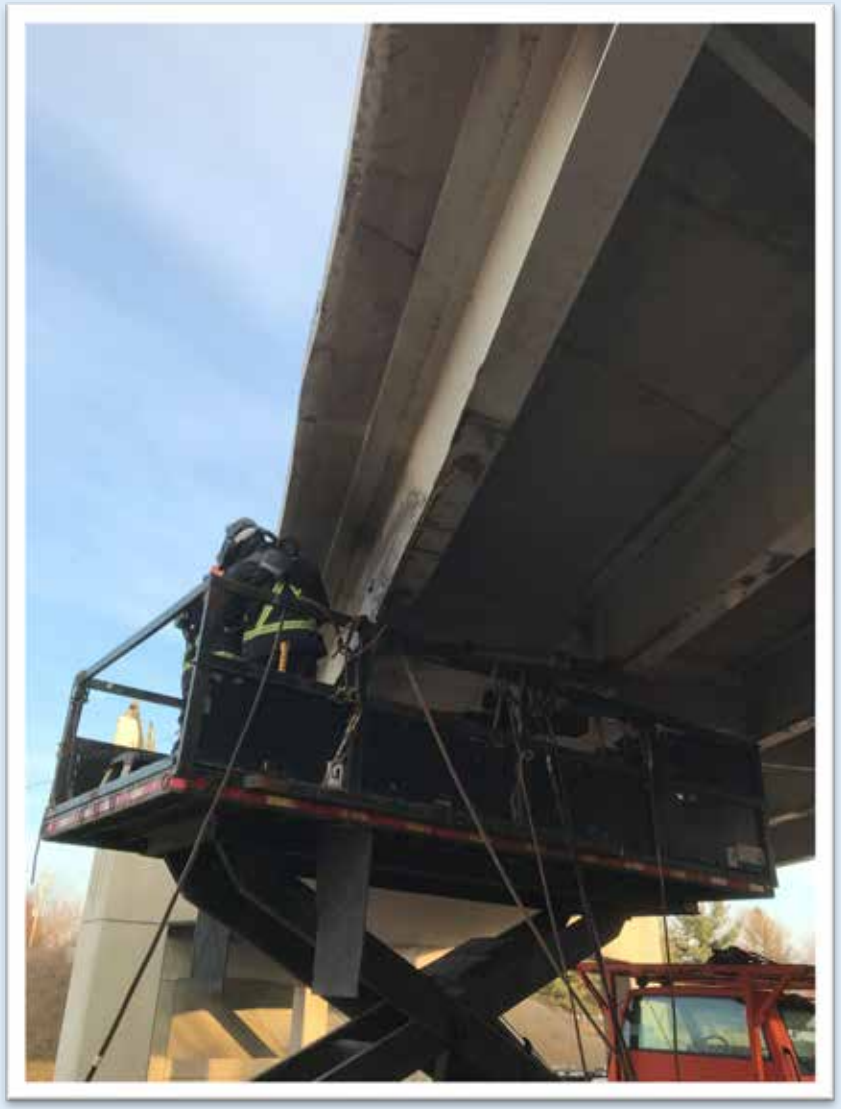
South Street over US 127

Alignment View

South Street over US 127

South Street over US 127

- **Immediate removal of beam 6S by contractor**
- **Statewide Bridge Crew heat straightened beam 5S**



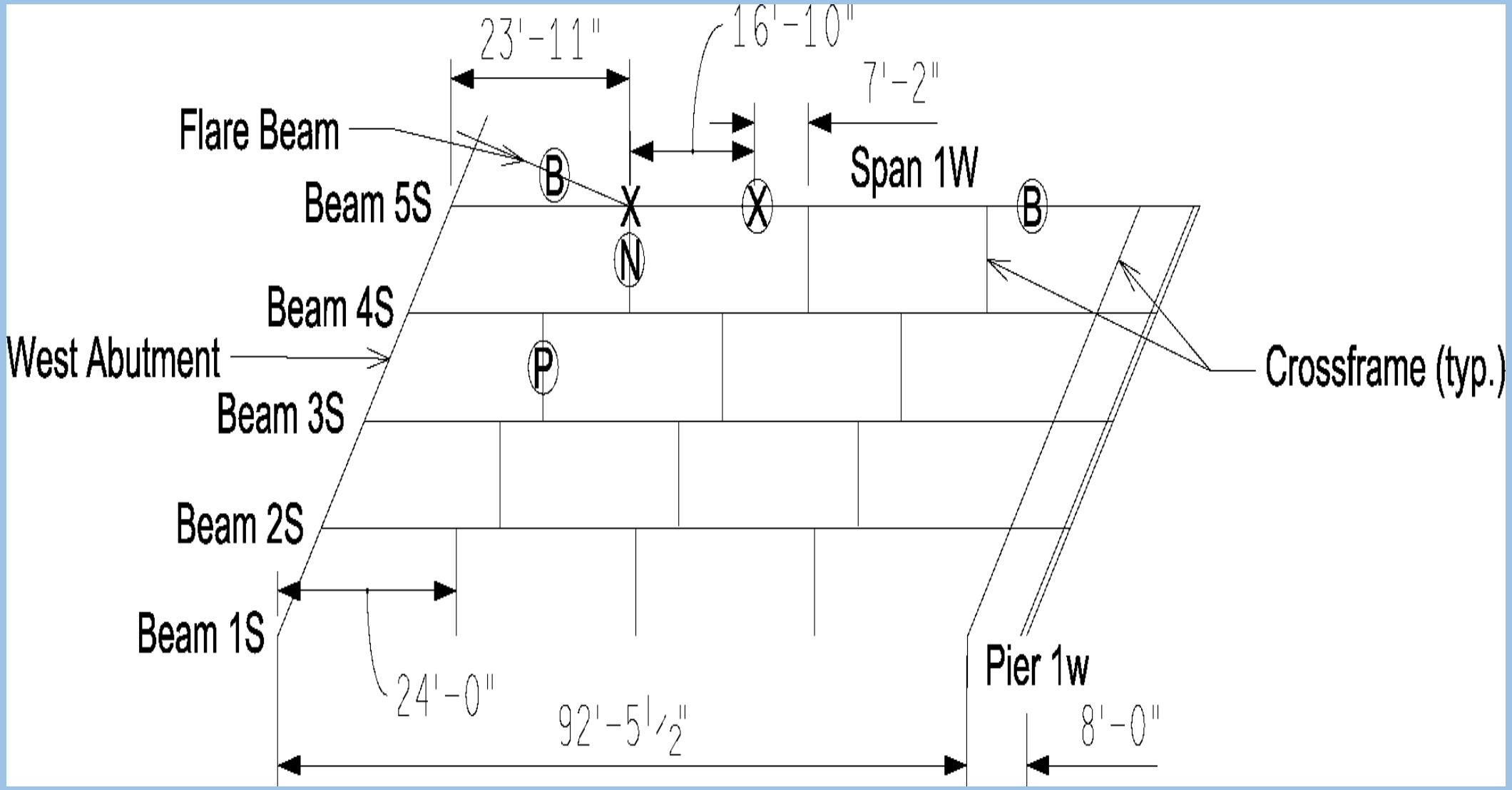
South Street over US 127

Mini-Excavator trailer collided with the bridge

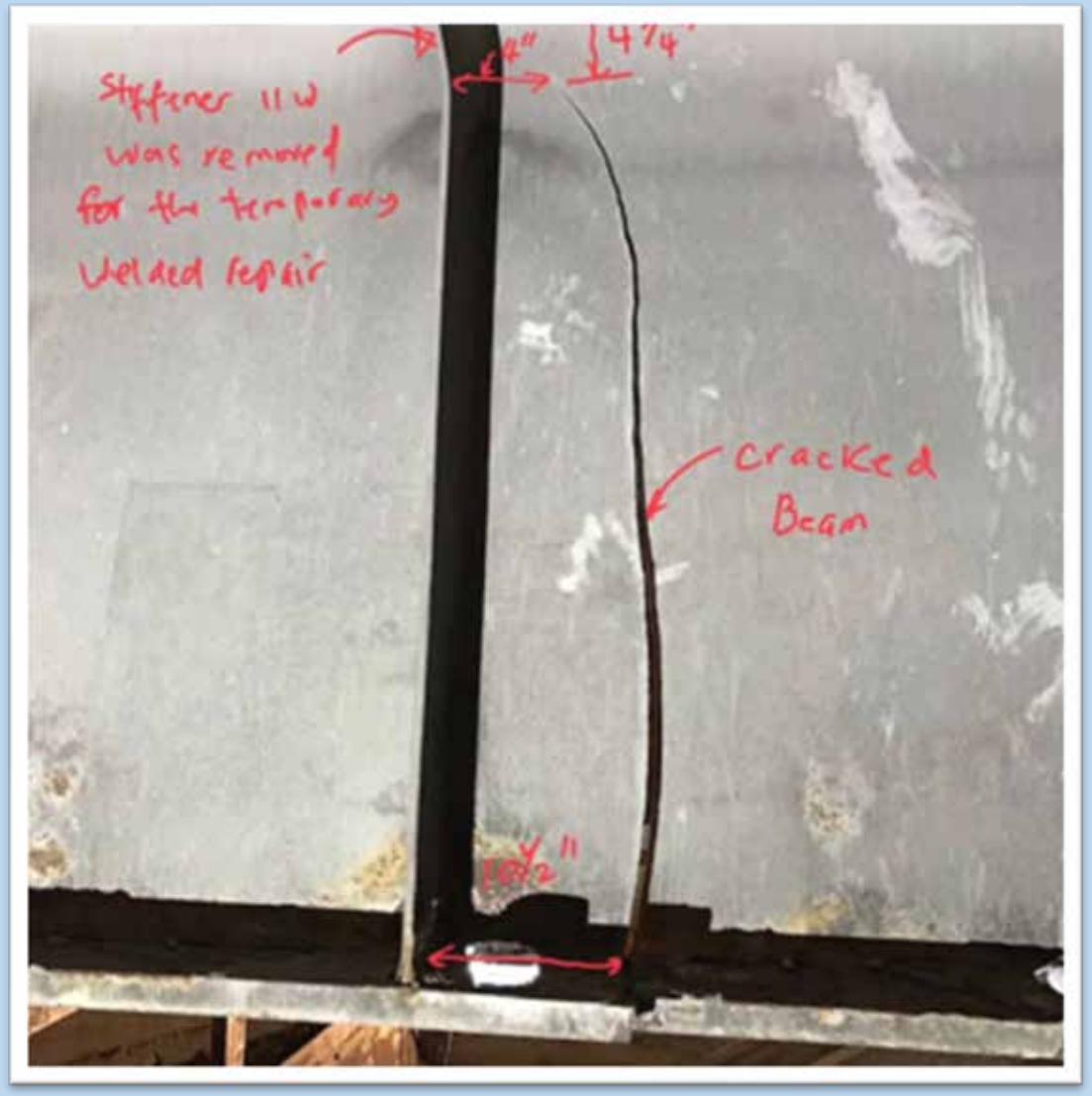
Savanah Road over I-75

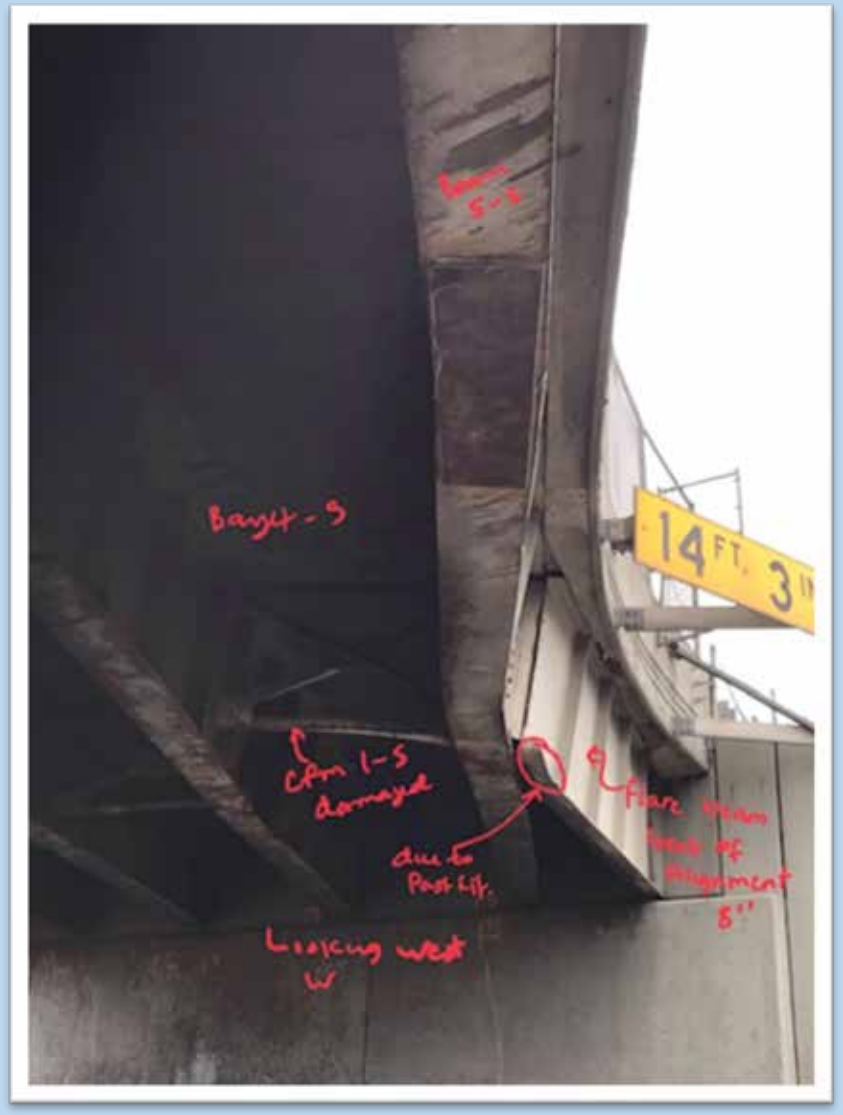
- **Total span length 168’ 11”**
- **Built in 1967**
- **Bridge hit 1 time**
- **Span 1W with length 104’**
- **Beams 5S & flare impacted**
- **54” web length Girder**
- **Total estimated cost for repair $276,853**

Savanah Road over I-75



Savanah Road over I-75





Savanah Road over I-75

Welded Repair

Pleasant Valley Rd over I-96

- **Total span length 231’**
- **Built in 1958**
- **Bridge hit 2 times**
- **Span 2S with length 65’ 6”**
- **Beams 1W through 4W impacted**
- **Beam type W33 x 141**
- **Total estimated cost for repair $581,665**

Pleasant Valley Rd over I-96

Whitneyville Road over I-96

- Total span length 275’ 6”
- Built in 1959
- Bridge hit 3 times
- Span 3S with length 65’ 6”
- Beams 1W through 6W impacted
- 60” web length Girder
- Total cost for repair $75,107.61

Whitneyville Road over I-96

I-96 over Lansing Road

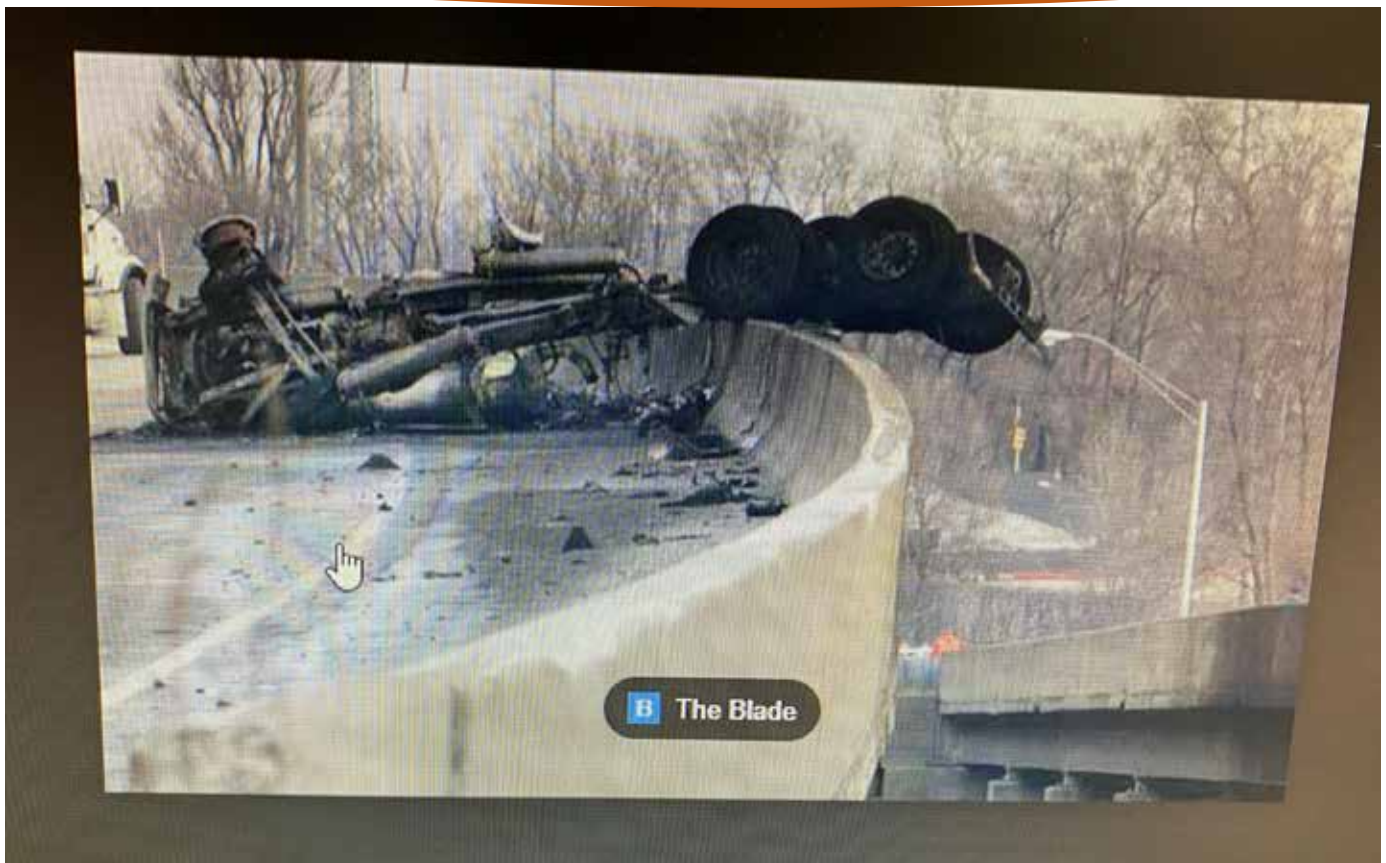
Concrete Box Beams

Box beams, several strands broken, Design (Jeff Triezenberg's Unit) prepared contract plans

FIRE DAMAGE

Fire damage on I-75 over Rouge River

- Tanker Truck Explosion caused severe fire damage
- Superstructure and substructure were damaged



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Fire damage on I-75 to I-94 Ramp

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Fire damage on I-75 over MDOT RR Corridor

- Brush fire caused by kids
- Black soot covers south face of Pier 1S

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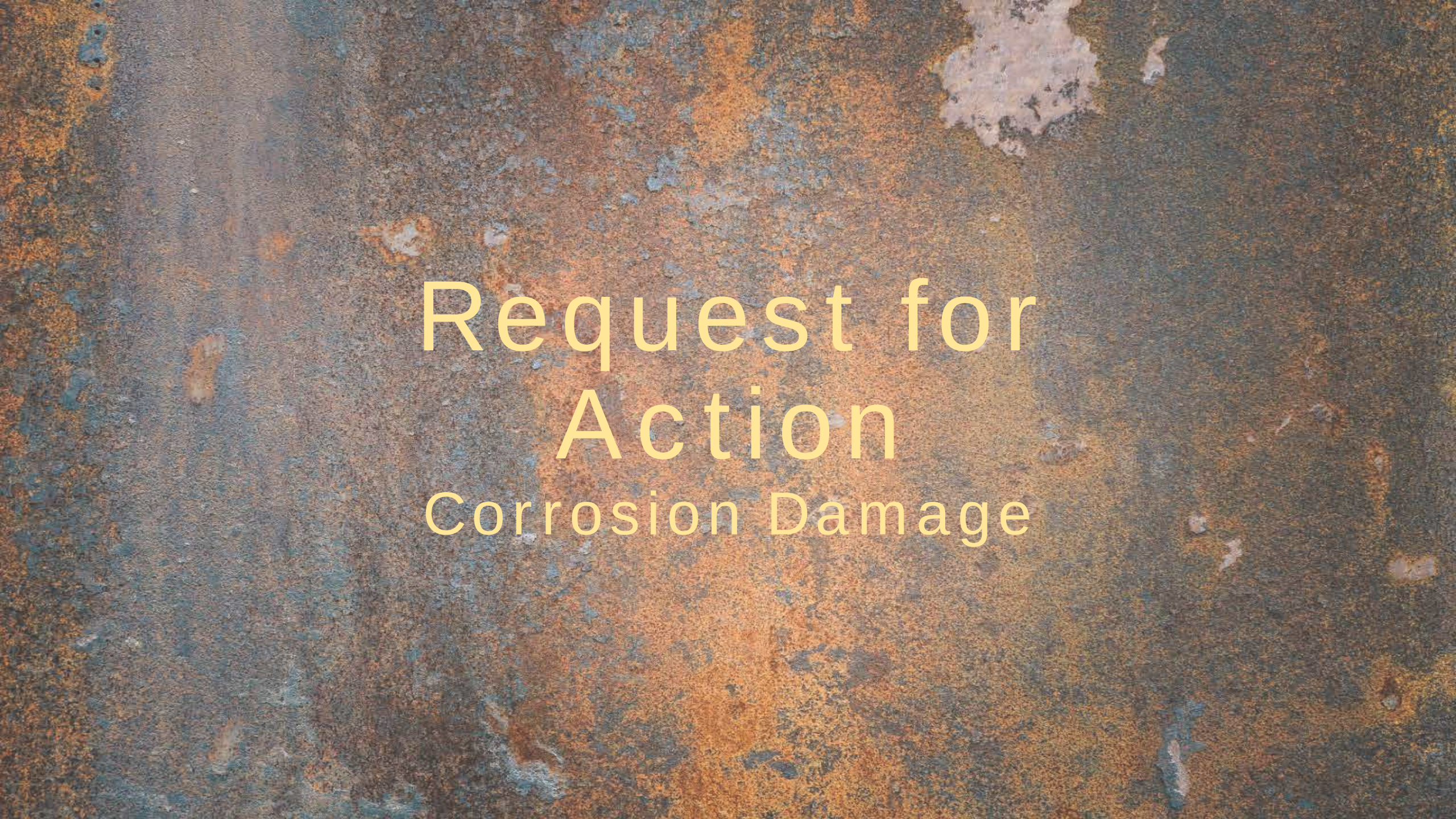

Request for Action
Corrosion Damage

Request for Action

Section Loss

Buckled Beam Ends

Request for Action

Section Loss

Buckled Beam End due

Request for Action

Section Loss

Cracked, holes/buckled beam and pier cap (corrosion)

Request for Action

Section Loss

Cracked Beam Ends

Request for Action

Corrosion Damage

- **Beam Ends with Section Loss**
  - **Analysis by Load Rating Engineer**

Request for Action

Fatigue

- Fatigue damage (cracked beam)
- Web/stiffener connection
- Fatigue crack because of no weld gap (intersecting weld)

Request for Action

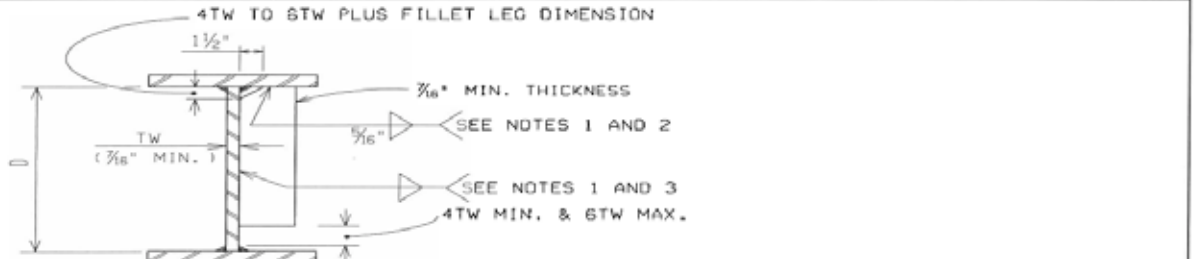
Fatigue

DRAWN BY: BLT
CHECKED BY: VZ
APPROVED BY:

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT

WELDED GIRDER AND
STIFFENER DETAILS

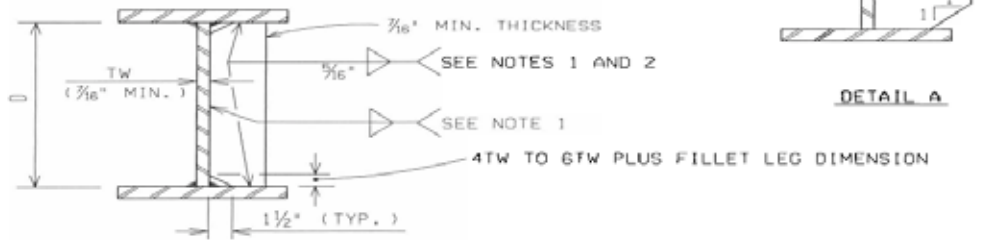
ISSUED: 05/04/06
SUPERSEDES: 11/27/01

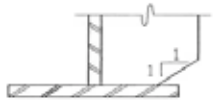


INTERMEDIATE TRANSVERSE STIFFENERS

NOTE 1: STOP WELD ¼" SHORT OF CORNER CLIP
NOTE 2: WRAP WELD AROUND OUTSIDE EDGE
NOTE 3: WRAP WELD AROUND STIFFENER END NOT WELDED TO FLANGE

NOTES:
WELD TO COMPRESSION FLANGE.
DESIGNER MUST INSURE THAT THE FATIGUE REQUIREMENTS OF AASHTO ARE MET.





DETAIL A

INTERMEDIATE TRANSVERSE STIFFENERS
@ CROSSFRAME LOCATIONS

NOTE 1: STOP WELD ¼" SHORT OF CORNER CLIPS
NOTE 2: WRAP WELD AROUND OUTSIDE EDGE

NOTES:
DESIGNER MUST INSURE THAT THE FATIGUE REQUIREMENTS OF AASHTO ARE MET.
USE DETAIL A IF CONNECTION PLATE/STIFFENER EXTENDS BEYOND FLANGE.
USE A STIFFENER LENGTH = D-1/16".

PREPARED BY DESIGN SUPPORT AREA | 8.06.02A

Request for Action

Fatigue

Fatigue Crack

Request for Action

Concrete Delamination/Deterioration

Loss of Bearing Area

Request for Action

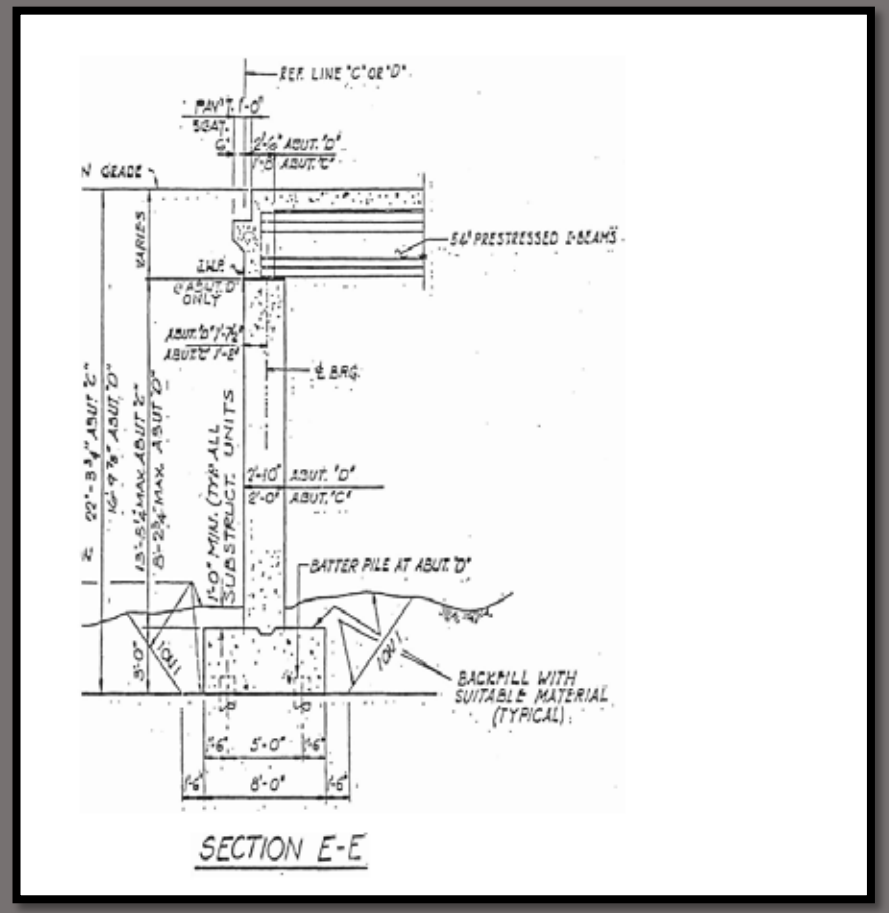
Delamination/Deterioration

Loss of Bearing Area

Request for Action

Delamination/Deterioration

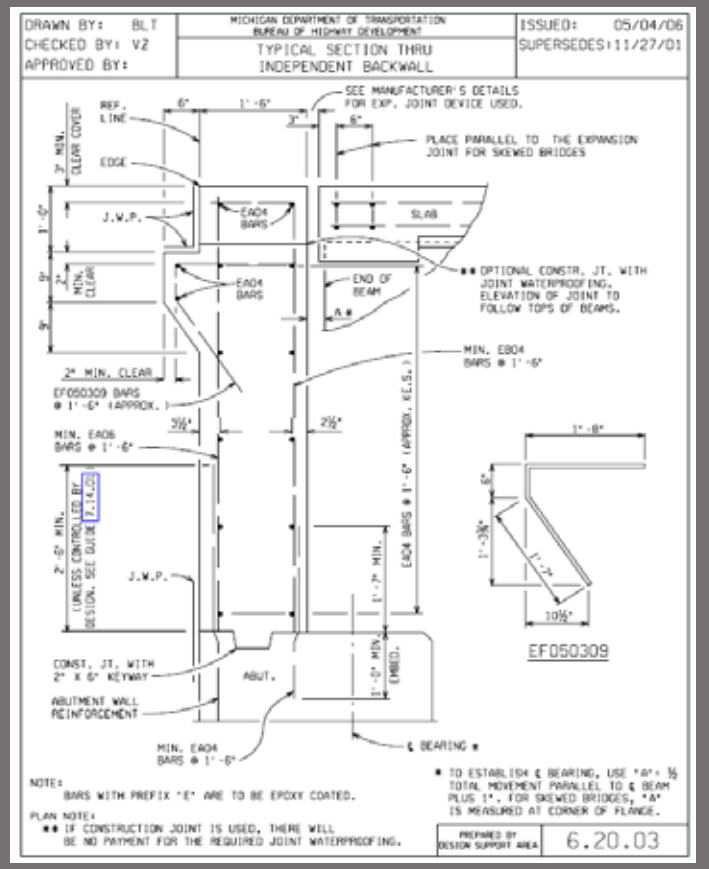
Loss of Bearing Support



Request for Action

Delamination/Deterioration

Abutment Spall: Independent Backwall



Request for Action

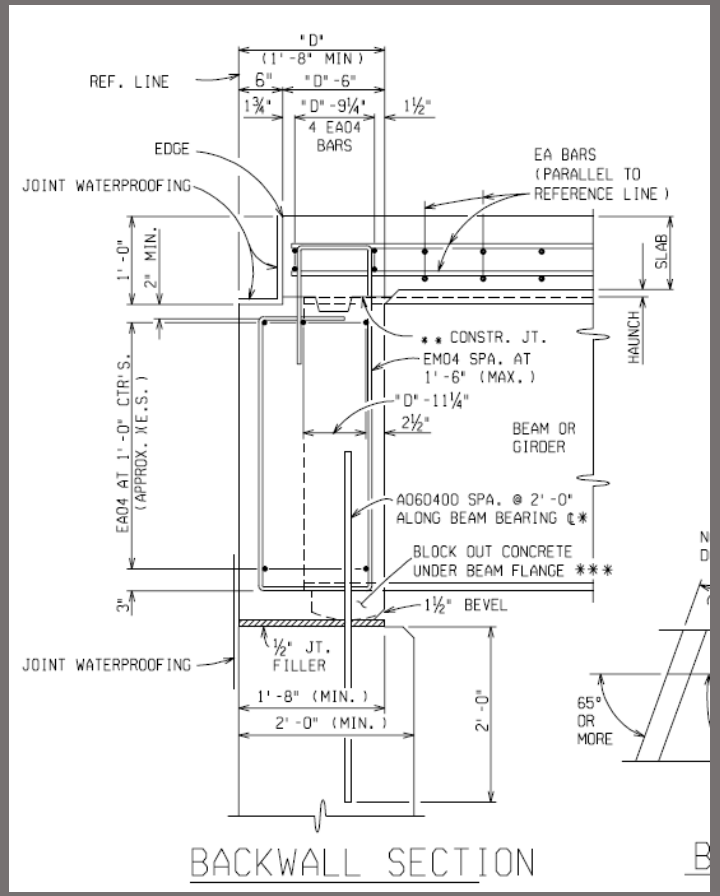
Delamination/Deterioration

Independent Backwall

Request for Action

Delamination/Deterioration

Dependent Backwall



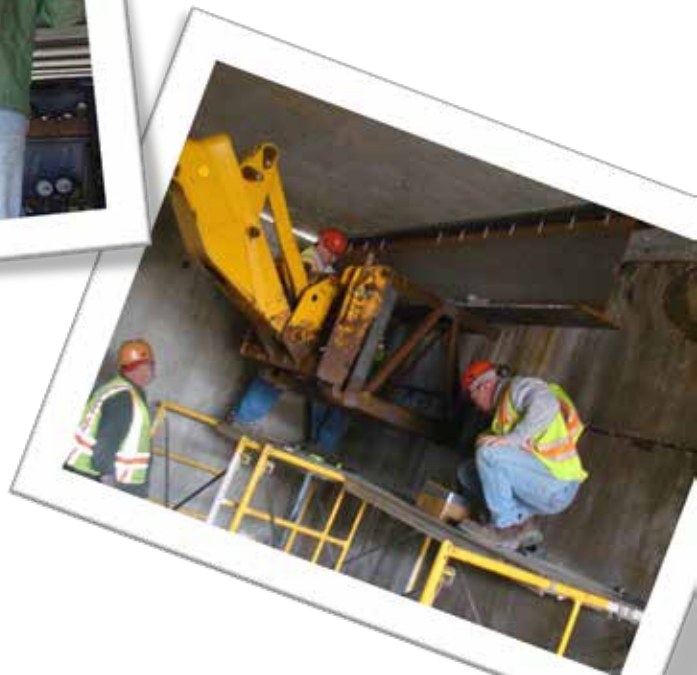
Request for Action

Delamination/Deterioration

Displaced Bearing Plate

Statewide Bridge Repair Crew

Temporary Supports and Heat Straightening work



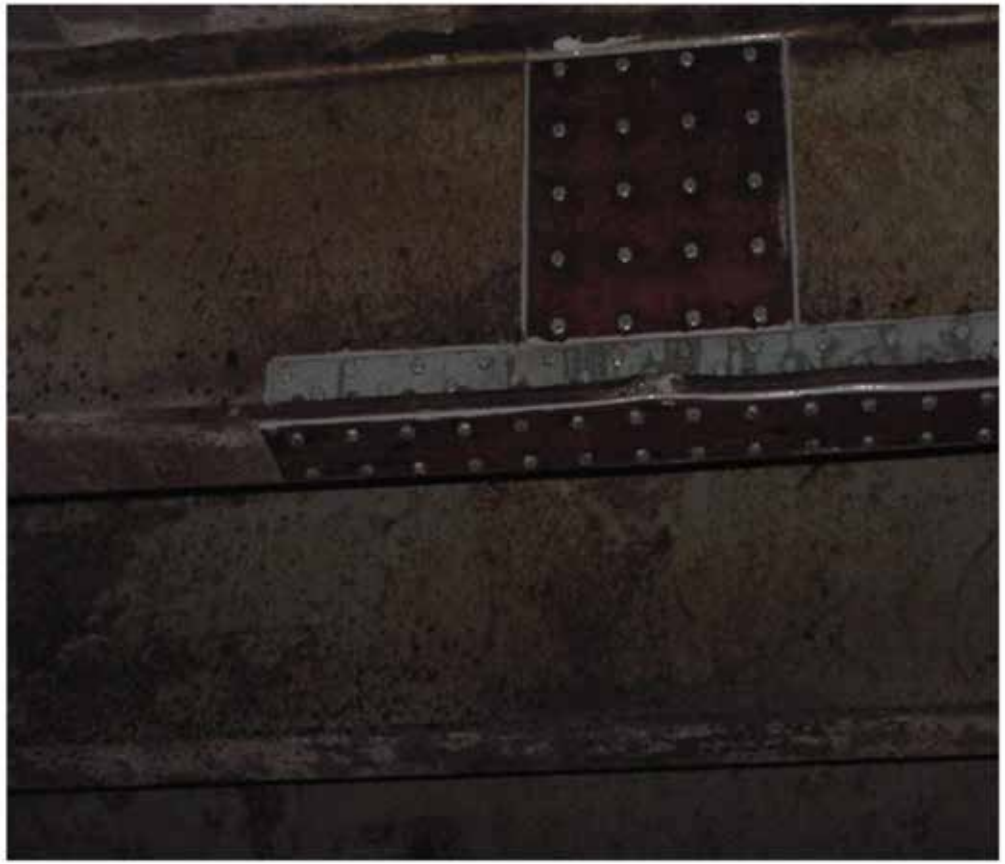
Statewide Bridge Repair Crew

Inspection & Preventive Maintenance on Movable bridges

Statewide Bridge Repair Crew

Statewide Bridge Repair Crew

Cracked beam, Statewide bridge crew repaired beam



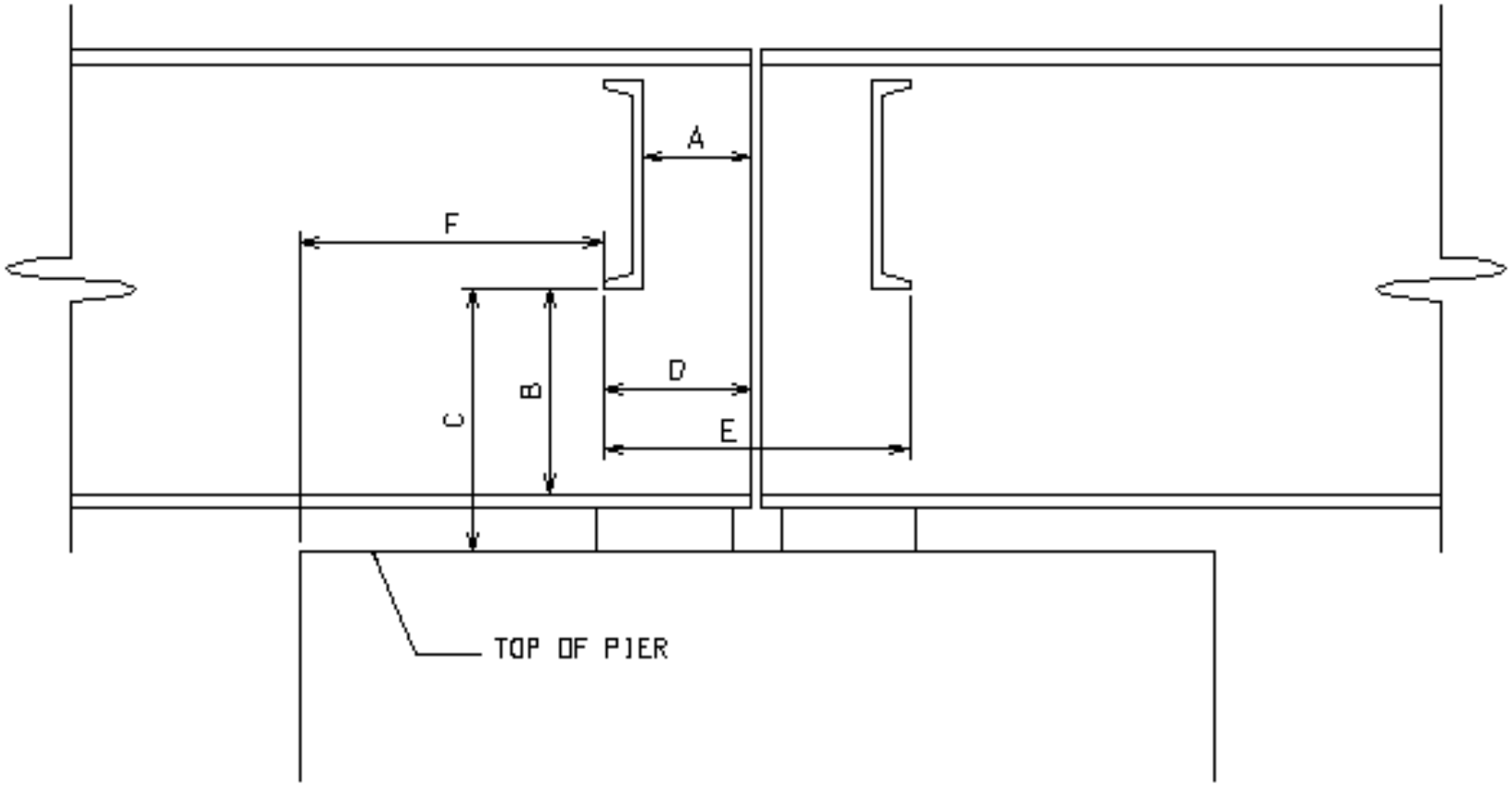
Region Crew Repairing PCI Beam

Request for Action

Short Height Temporary Support

Full Height Temporary Support

Request for Action



ELEVATION VIEW

Request for Action

- **<u>Support from Region/TSC/Statewide Overhead Sign</u>**
  - **Coordinating bridge work with the Region/TSC, locals, public, Railroad, and others.**
  - **Excavating the soil for temporary supports & backfill**
  - **Provide Maintaining Traffic**
  - **Provide leveling materials such as stones, gravel, sand for temporary support work, or access to site**
  - **Provide Temporary concrete barriers (TCB) to protect temporary support(s)**

QUESTIONS?