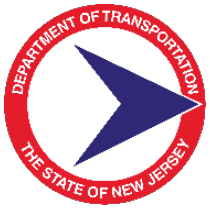
Route U.S. 1 & 9 (Pulaski Skyway)
Contract No. 051183160

Town of Jersey City, Hudson County
City of Newark, Essex County

PRE-BID MEETING

GPI HNTB



Multi-Purpose Room
NJDOT's Main Headquarters
1035 Parkway Avenue, Trenton, NJ

January 9, 2018

Agenda

- Introduction and Contract Purpose
- Project Location
- Construction Schedule
- Prequalification
- Project Coordination
- Site Visit Protocol
- Aesthetic Considerations
- As-Built Shop Drawings and Field Measurement
- Rocker Bent Function
- **Structural Scope**
  - **Rocker Bent 47, Rocker Bent 97**

(Note: Presentation will be posted at NJDOT website.)

Introduction and Contract Purpose

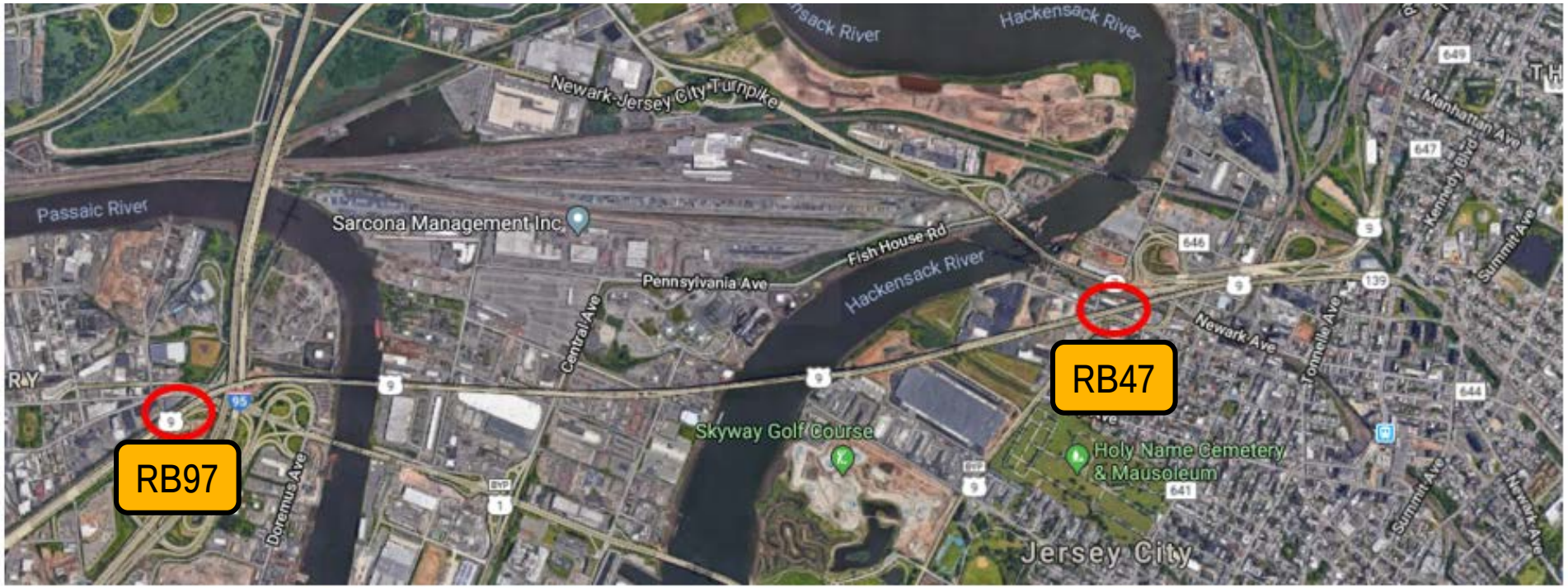
One Contract

Two Locations 2.5 miles apart

Consultants: GPI, HNTB

- Replace two rocker bents (RB)
- Minimize traffic and community impacts
- Preserve structural integrity of truss

Project Location



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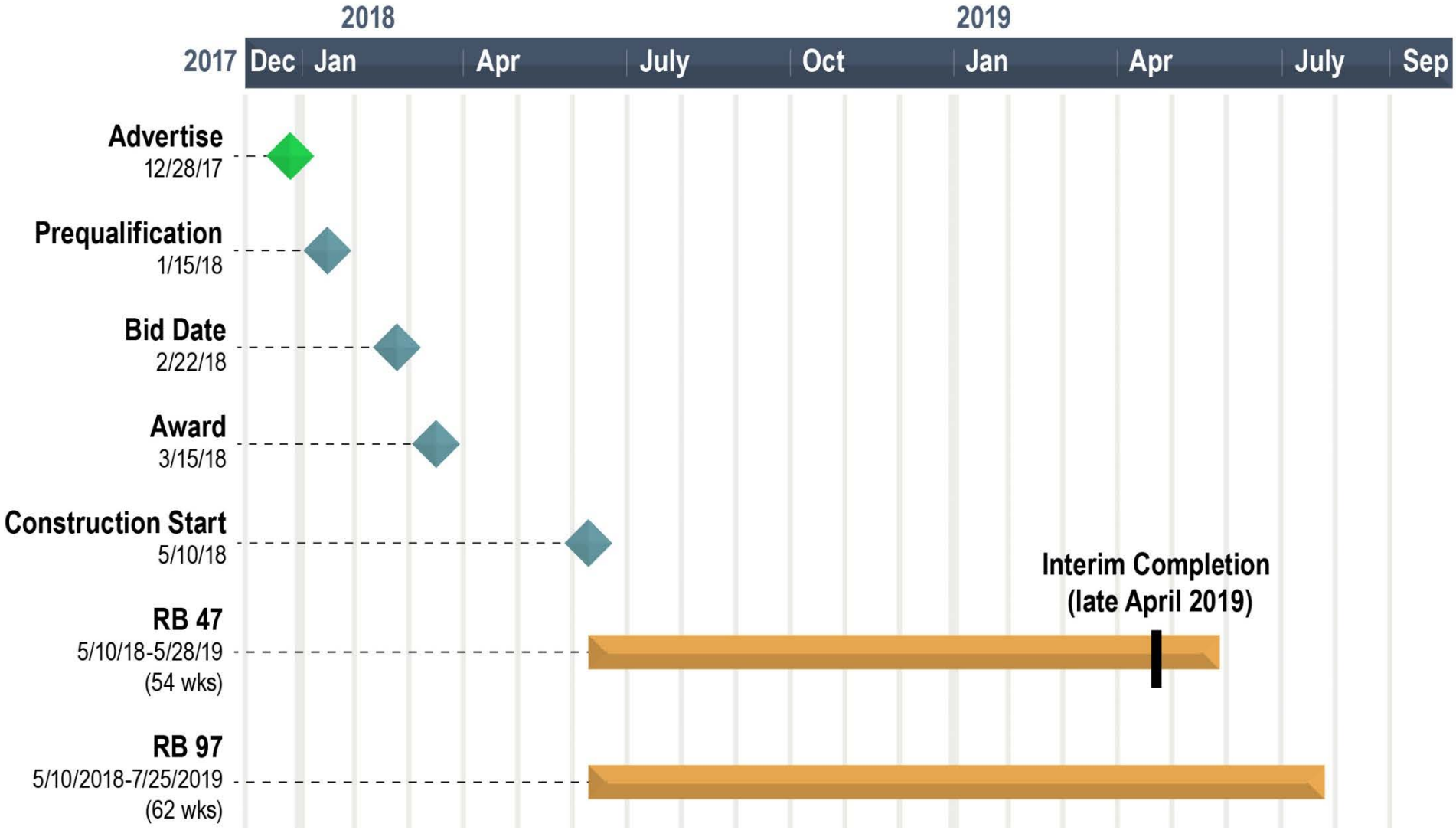
Construction Schedule



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Prequalification

- Prequalification Requirements
  - Satisfying Work Type Classification #42 – Complex Truss Rehabilitation, see http://www.state.nj.us/transportation/business/procurement/notices.shtm

- Pre-qualification deadline
  - 1/15/2018

Project Coordination

- Pulaski Skyway Ongoing Construction
  - Contract #4 - Deck Reconstruction
  - Contract #5 - Kearny Ramp
  - Contract #7 - West of Pier 98; East of Pier 44
- Ongoing Construction in the vicinity
  - PATH Substation Replacement

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Site Visit Protocol

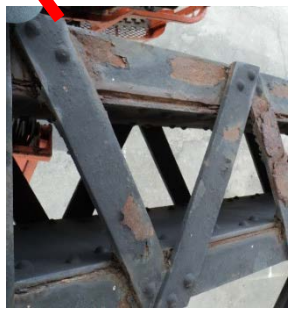
- Contact NJDOT
  - Jay Jeyamohan (jay.jeyamohan@dot.nj.gov) (PM)
    or Roland Bisda (roland.bisda@dot.nj.gov) (APM)
  - 5 business days prior to site visit
- Advance coordination will be required with NJDOT Contract No. 4 RE.
- No Access Equipment will be provided.

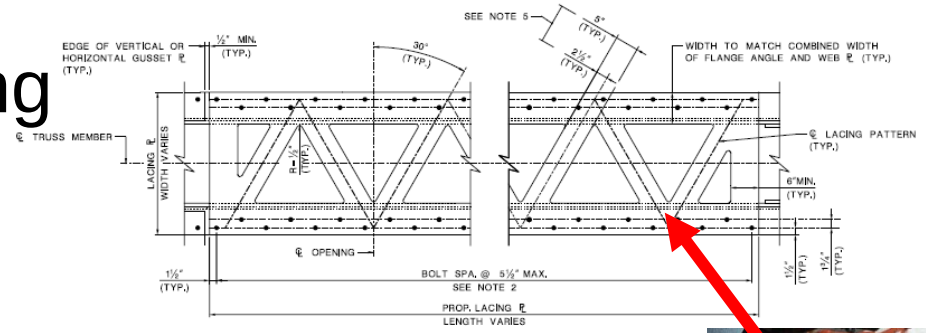
Aesthetic Considerations

1. Replace existing rivets with tension control bolts with rounded heads.
   - RB47: See Structural Steel Note #3.
   - RB97: See General Note #6C.

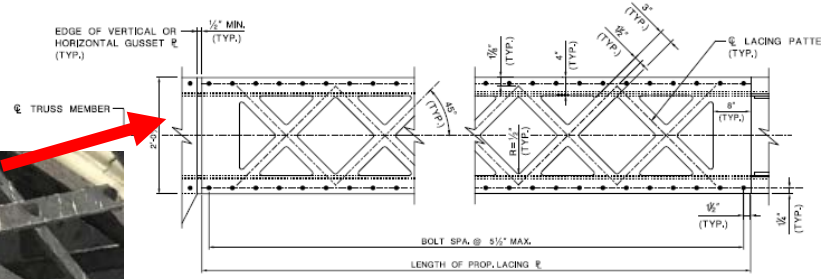
Aesthetic Considerations

2. Replace existing lacing bars and batten plates with lacing plates

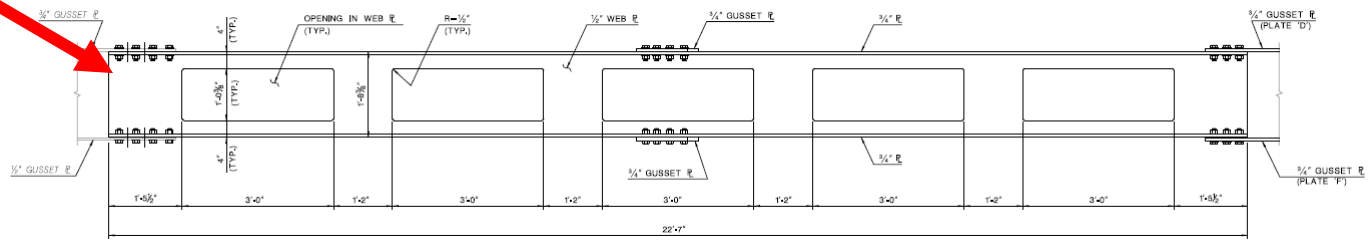




LACING PLATE - TYPE LP1



LACING PLATE - TYPE LP2



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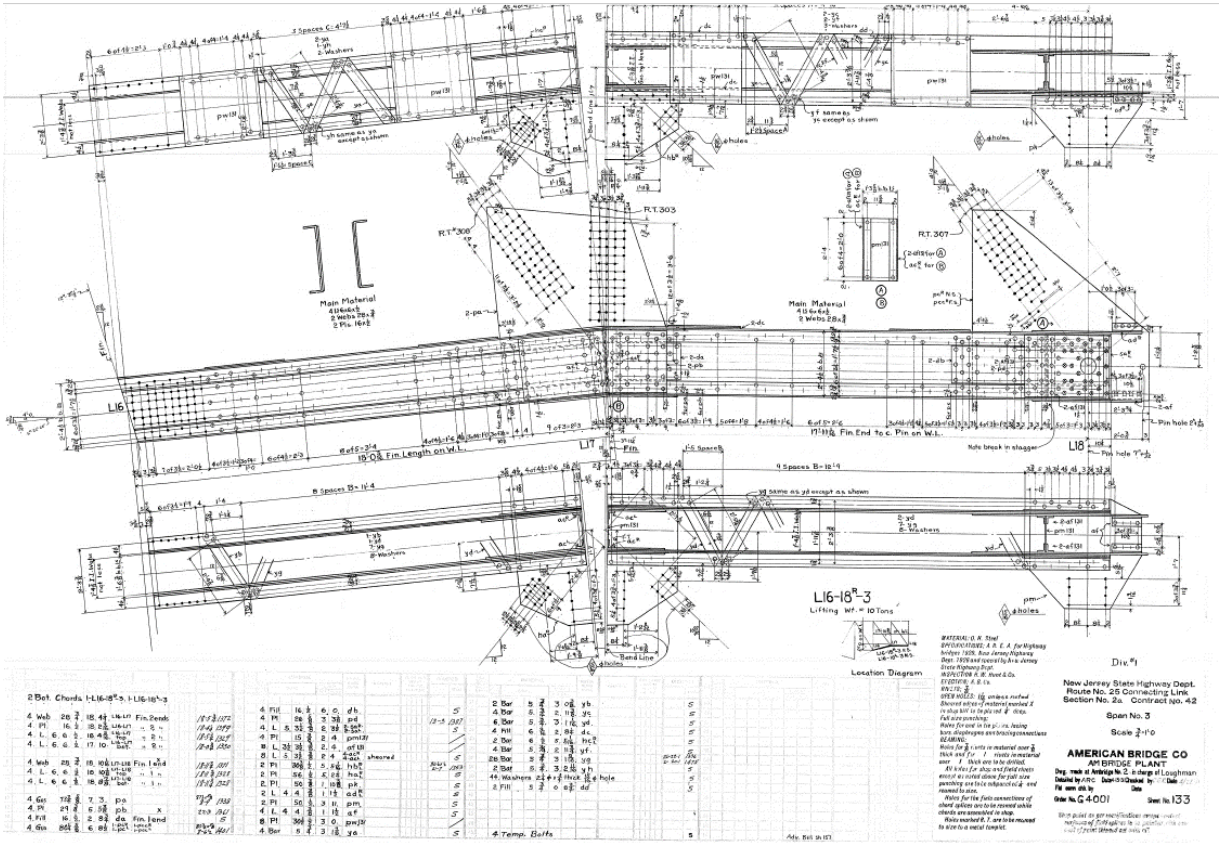
As-Built Shop Drawings and Field Measurement

- As-built shop drawings are for information only.
- Determine all dimensions by field measurement.



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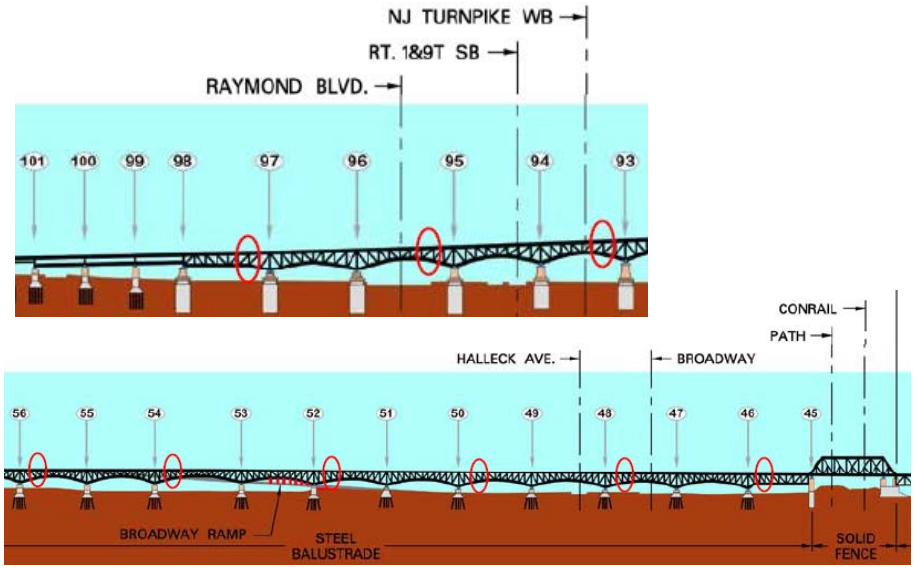
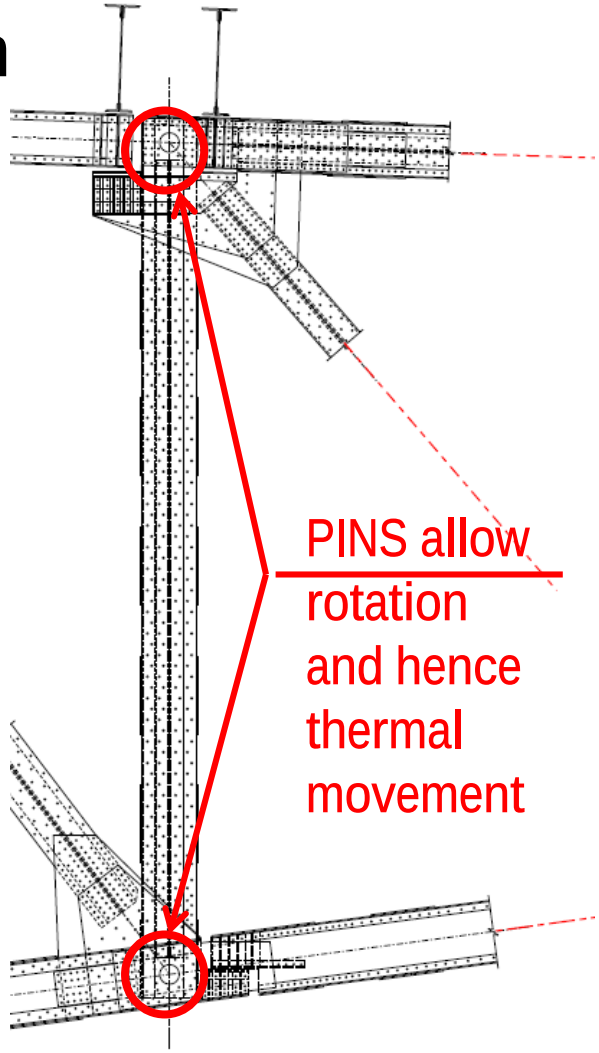
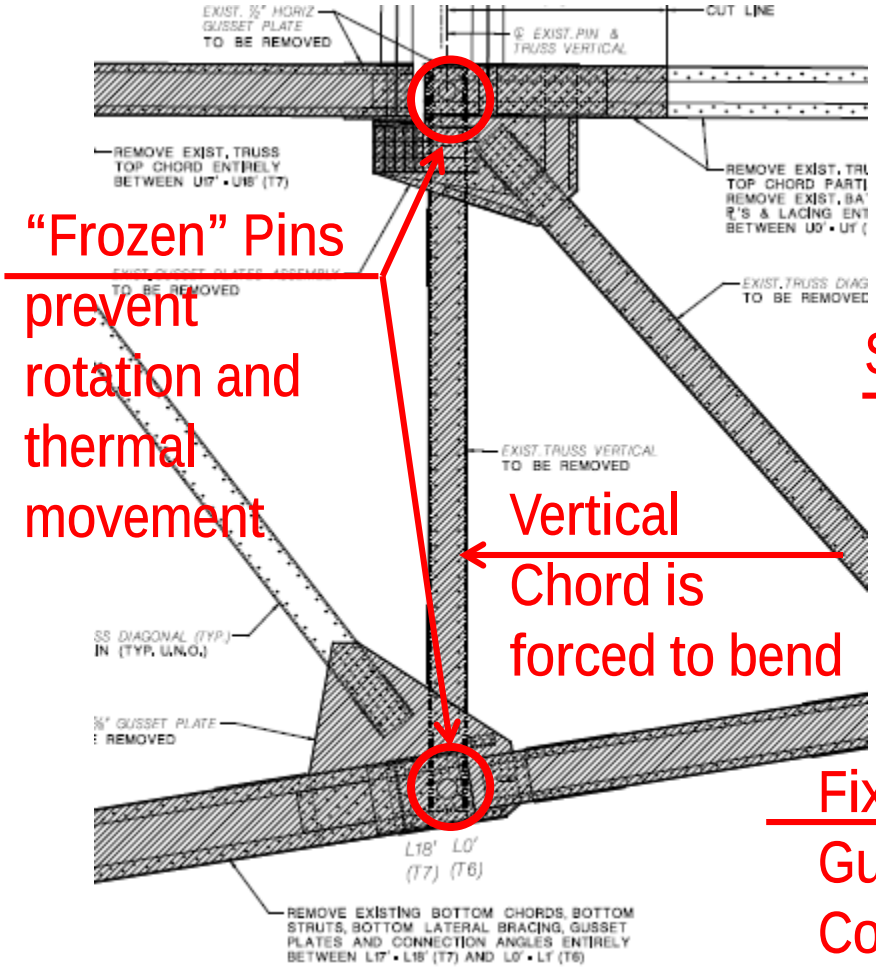
Rocker Bent (RB) Function

- Rocker Bent is a Truss Expansion System located at every other span, using a pin - vertical chord mechanism to facilitate thermal movement.





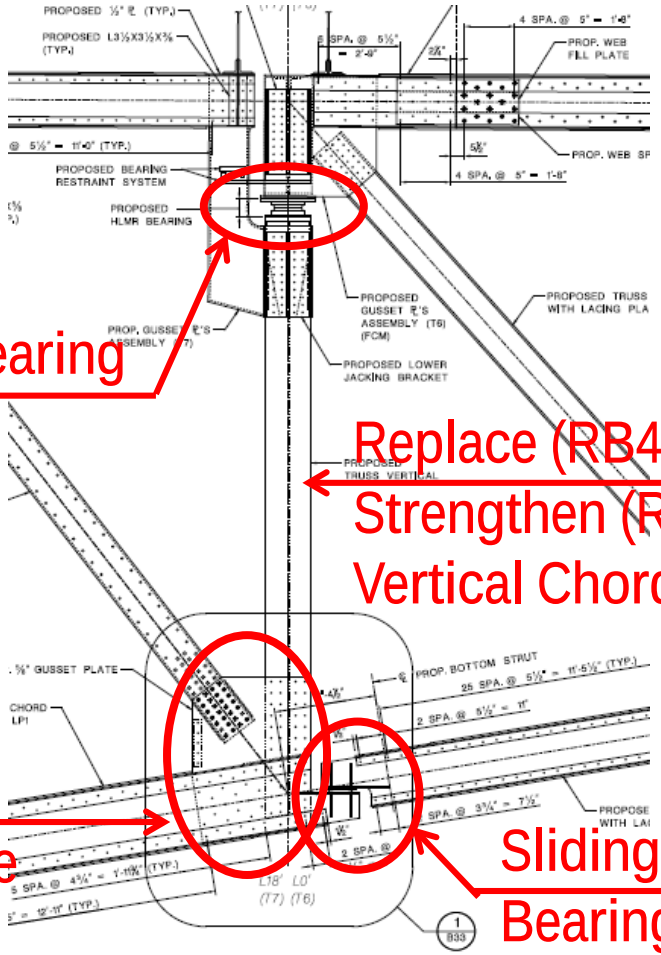
Rocker Bent Function - Existing and Proposed



"Frozen" Pins prevent rotation and thermal movement

Vertical Chord is forced to bend

Elevation
Existing



Sliding Bearing

Replace (RB47) or Strengthen (RB97) Vertical Chord

Fix Bottom Gusset Plate Connection

Sliding Bearing for zero force chord

Elevation
Proposed

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Span 47 and Rocker Bent 47

Span 47 & RB47: Existing Condition

RB47 Bottom Connection Corrosion

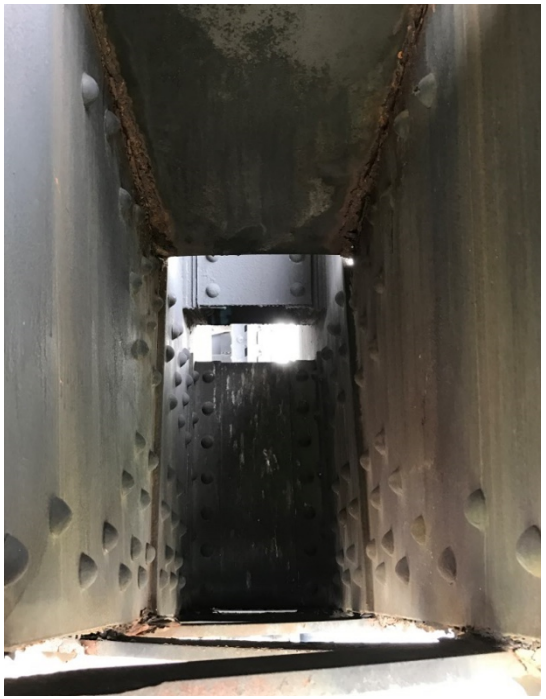
RB47 Sway Brace with Severe Section Loss

RB47 Frozen Top Pin

Severe Corrosion, Pack Rust, Section Loss, Frozen Pins

Span 47 & RB47: Existing Condition

RB47 Vertical Chord Corrosion



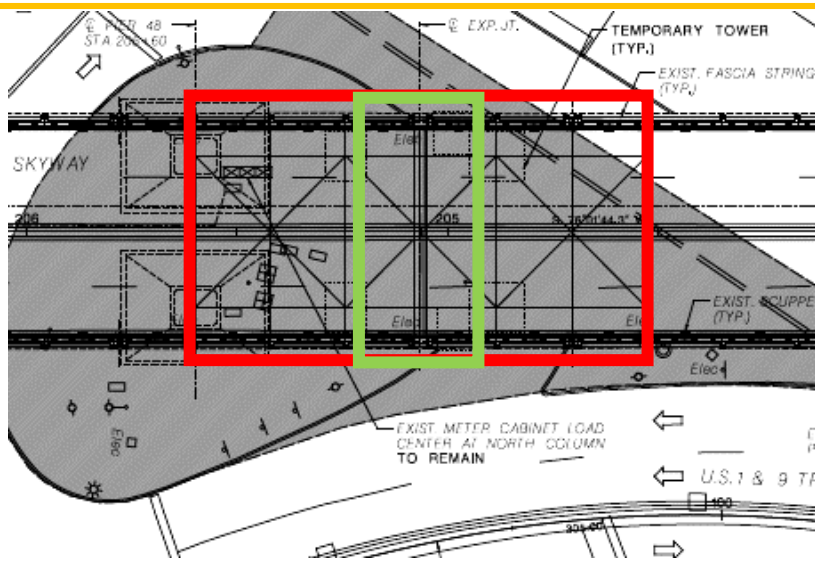
Span 47 Bottom Chord Pack Rust

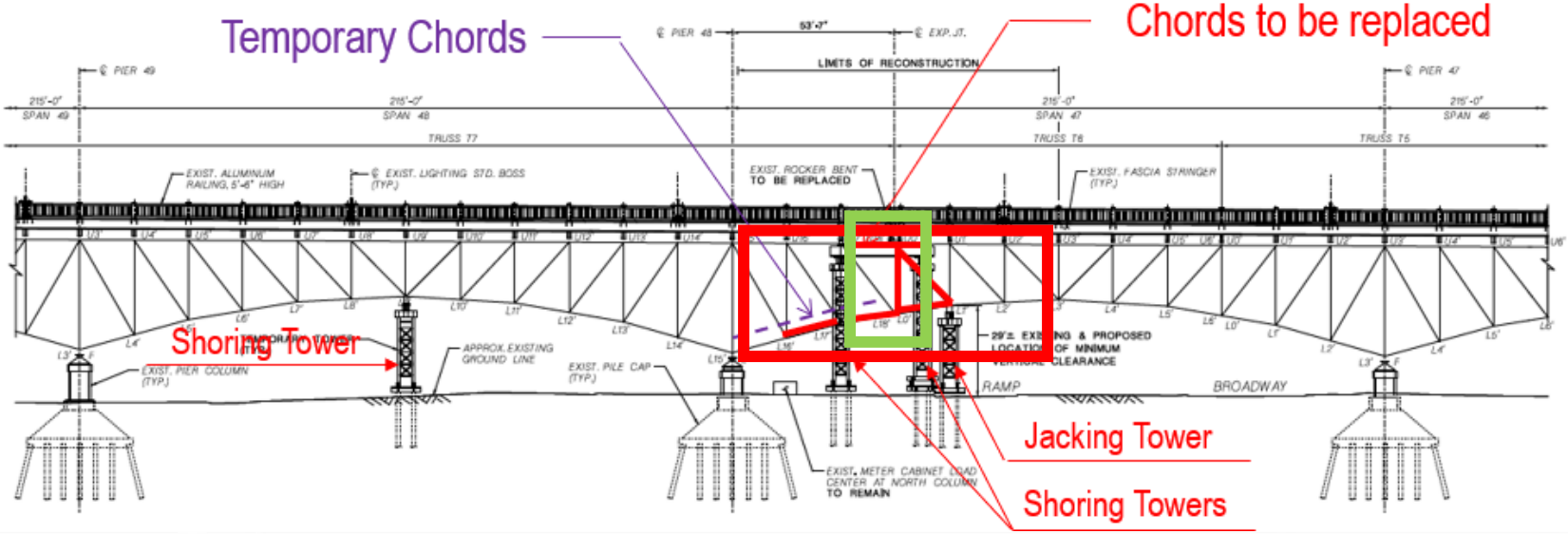
Span 47 Lacing Bars

Severe Corrosion, Pack Rust, Section Loss, Frozen Pins

Span 47 & RB47: Limit of Work

1. Replace RB47.
2. Rehabilitate west half of Span 47, including chord replacement and steel repairs.





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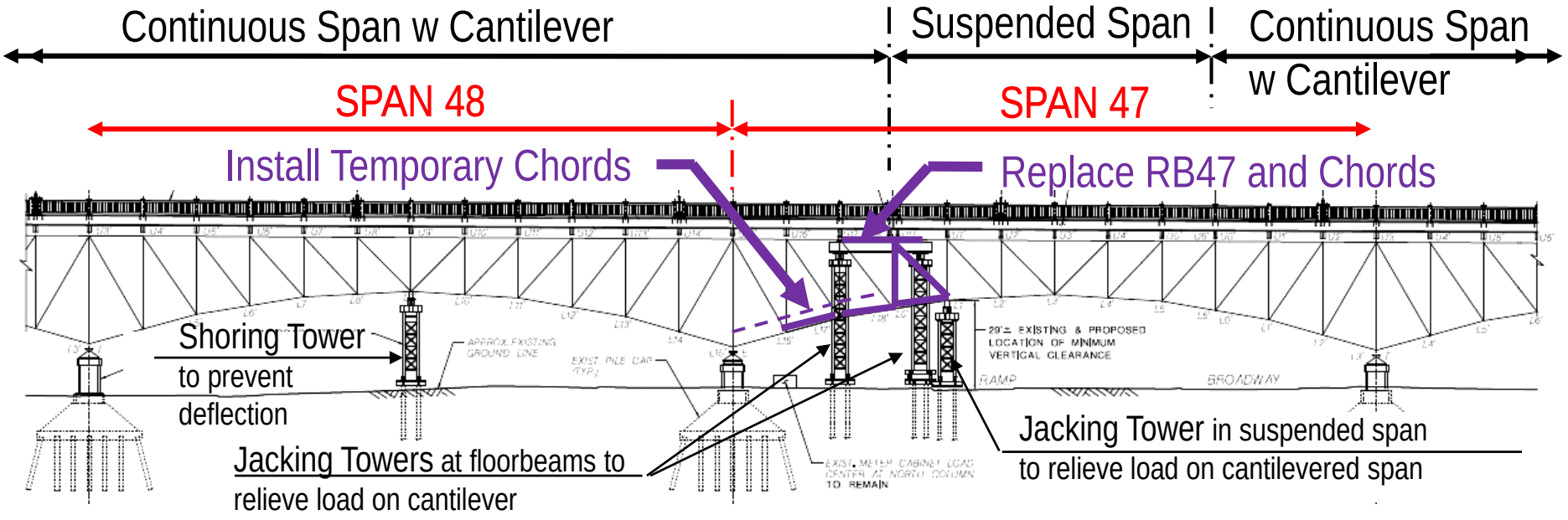
Span 47 & RB47: RB Replacement Sequence



Stage 1 – Step 3 & 4; and Stage 2 - Step 1

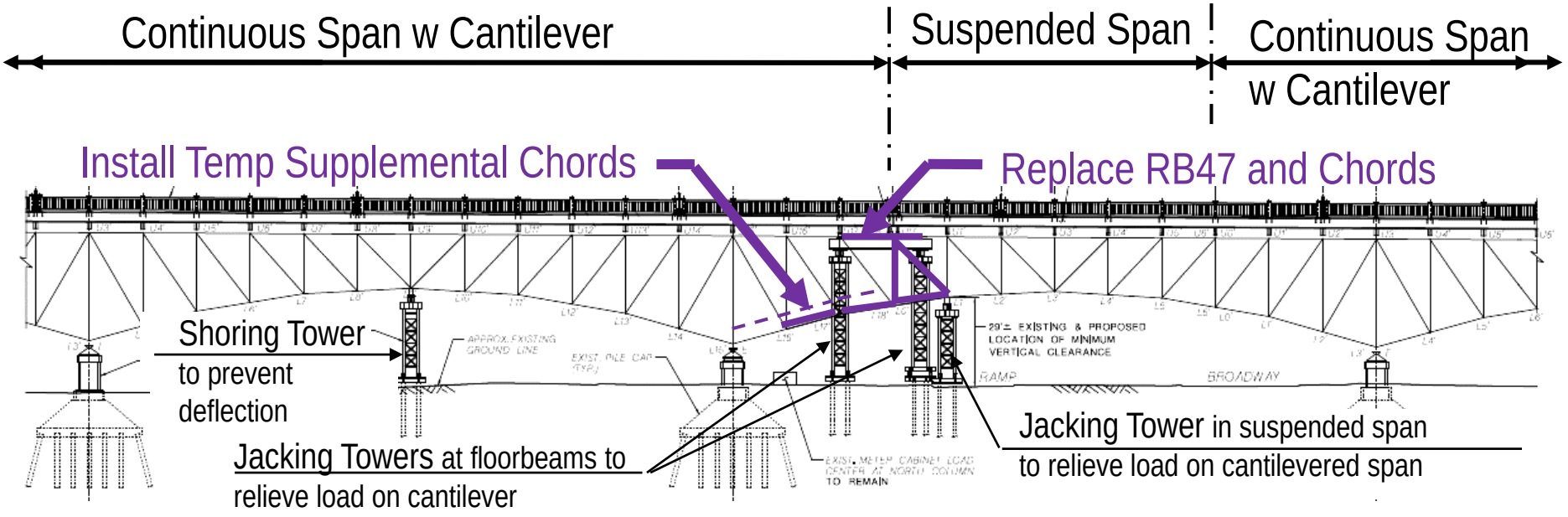
- Construct micro-pile foundation (to prevent settlement) and towers.

Stage 2 - Step 5

- Shore Span 48 at mid-span to control deflection.
- Jack Span 47 suspended span to relieve load on cantilever.

(Note: Close bridge to traffic during jacking.)

Span 47 & RB47: RB Replacement Sequence



Stage 2 - Step 7 & 8

- Jack and shore floorbeams near RB47.
- Install Temporary Chords.

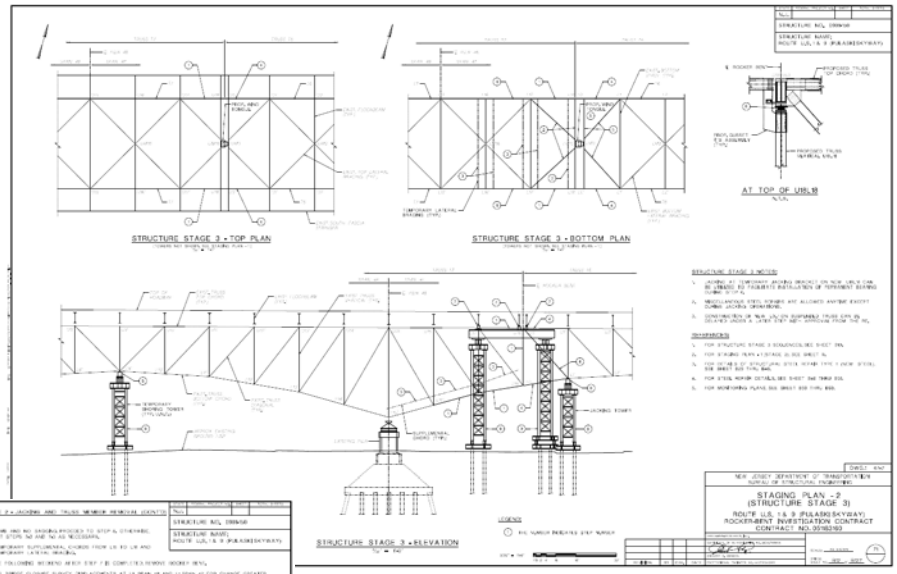
Stage 2 - Step 9 & 10; and Stage 3 - Step 1 to 8

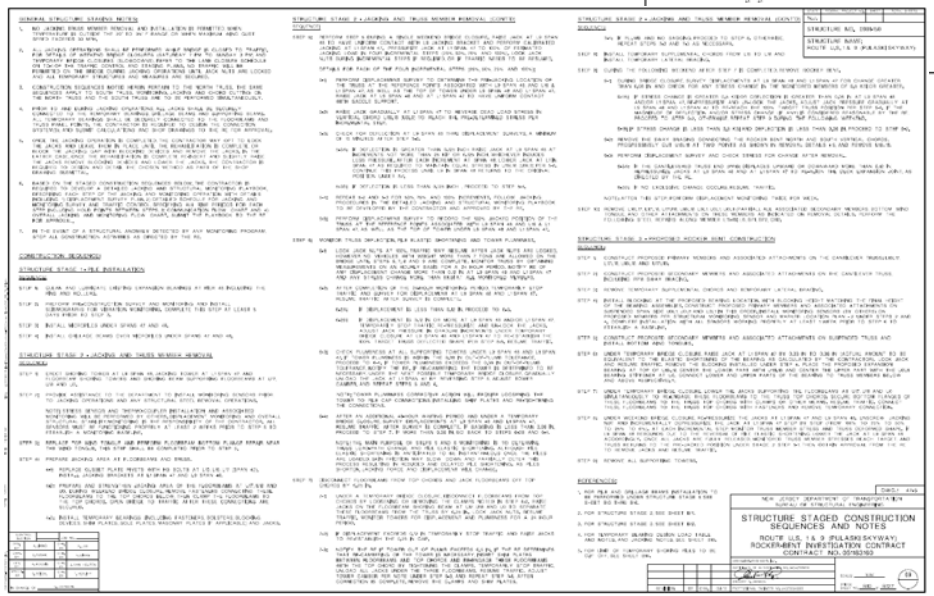
- Replace RB47 and truss chords.

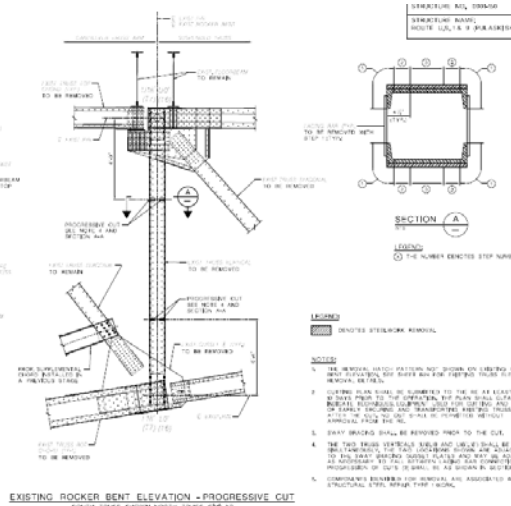
(Note: Close bridge to traffic during jacking.)

Span 47 & RB47: RB Replacement Sequence

- Construction Staging Sequencing defined in contract documents.
- Structural monitoring required.

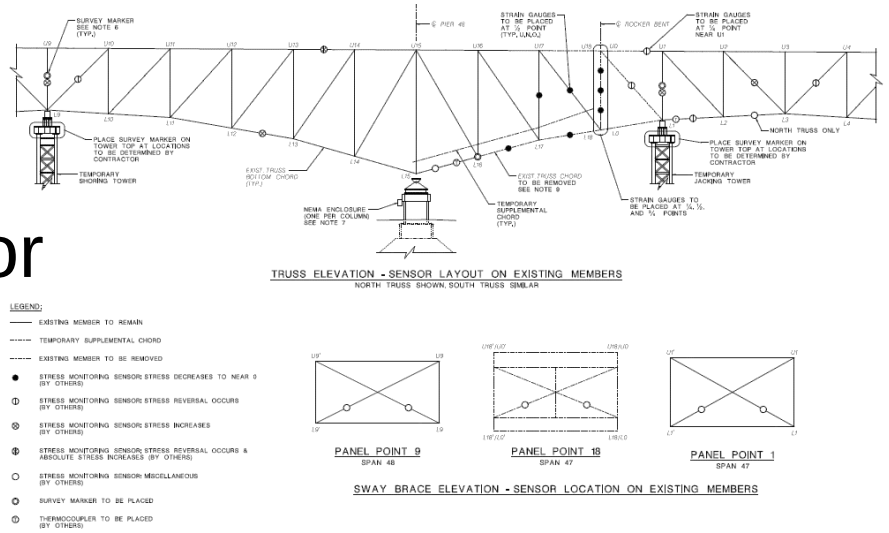






Span 47 & RB47: Structural Monitoring

- Vibration Monitoring (during pile installation): Contractor
- Stress Monitoring (during truss jacking & repairs): Others
- Displacement/Deflection Monitoring (during truss jacking & repairs): Contractor
- Monitoring and Jacking Playbook: Contractor
- Monitoring Coordination: Contractor



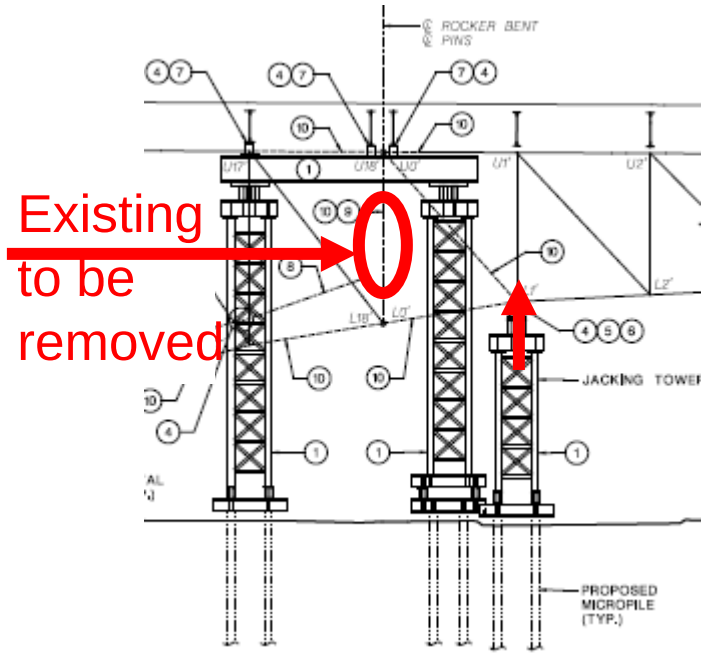
Span 47 & RB47: Traffic Control - Pulaski Skyway

- Bridge Closures and Slowdowns during jacking
- Trucks prohibited after Span 47 suspended span is jacked and before cutting RB47 Vertical
- Bridge Closed during RB47 Vertical Chord Cutting

ALL LANES CLOSED:

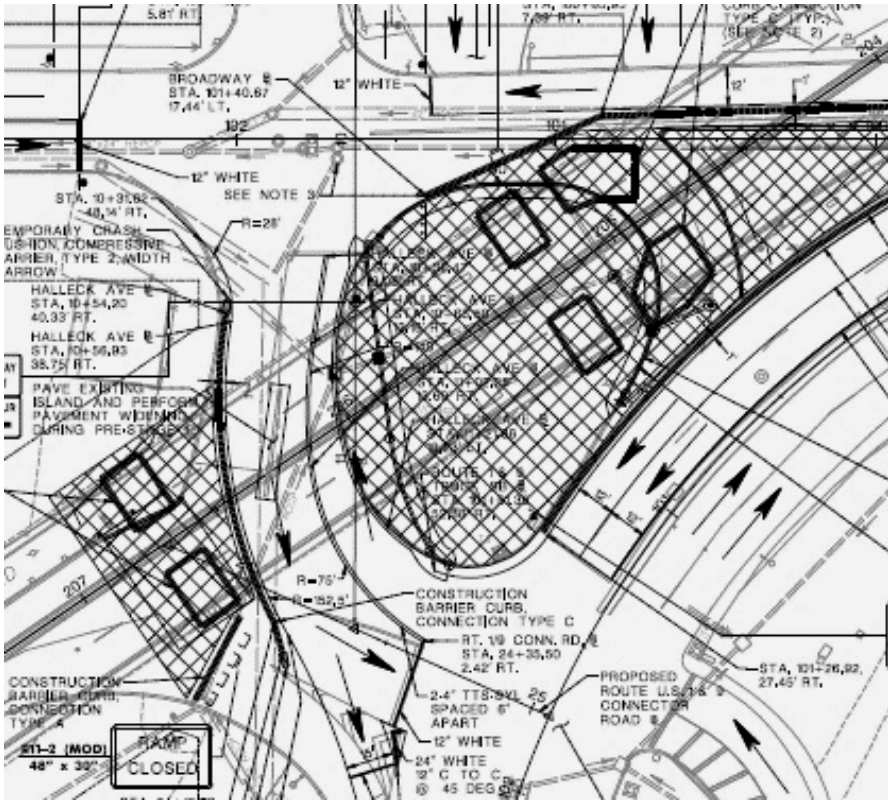
MONDAY TO FRIDAY	NO CLOSURE PERMITTED
SATURDAY	9:00 PM TO 12:00 AM
SUNDAY	12:00 AM TO 3:00 PM

NOTE: SLOWDOWN PERMITTED NIGHLTY FOR JACKING OPERATIONS MONDAY TO FRIDAY FROM 12:00 AM TO 4:00 AM, AND SATURDAY & SUNDAY FROM 1:00 AM TO 5:00 AM. SLOWDOWN MAXIMUM DURATION IS 15 MINUTES, TRAFFIC MUST CLEAR PRIOR TO INITIATING SUBSEQUENT SLOWDOWN.



Span 47 & RB47: Traffic Control – Local Roads

- Broadway Ramp remains closed
- Staging from Ramp permitted
- Realign Halleck Ave
- Close Broadway on-ramp to Route 1&9T SB
- Limited closure of Broadway



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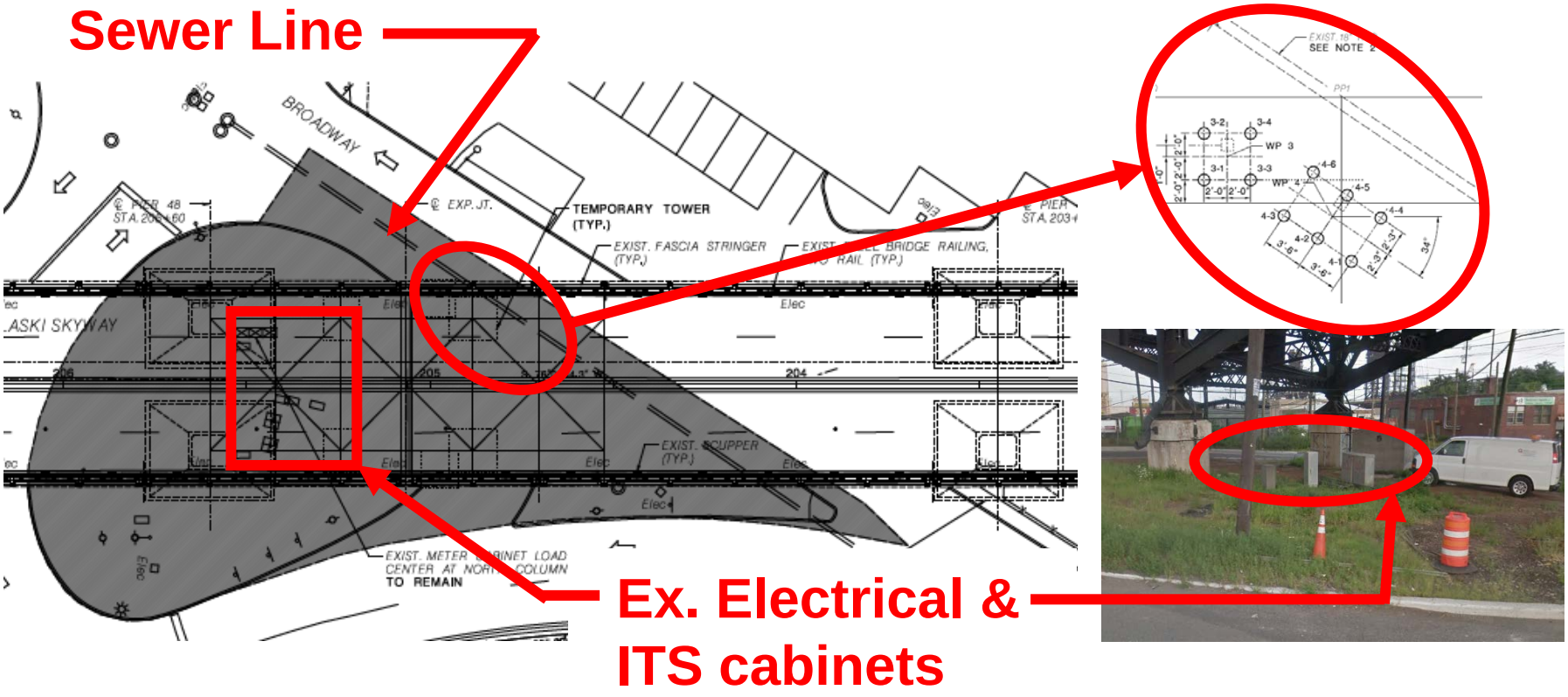
Span 47 & RB47: Existing Utilities



- Sewer line - Proximity to jacking tower & pile foundation requires new man-hole and by-pass pumping.
- Electrical and ITS cabinets require protection.

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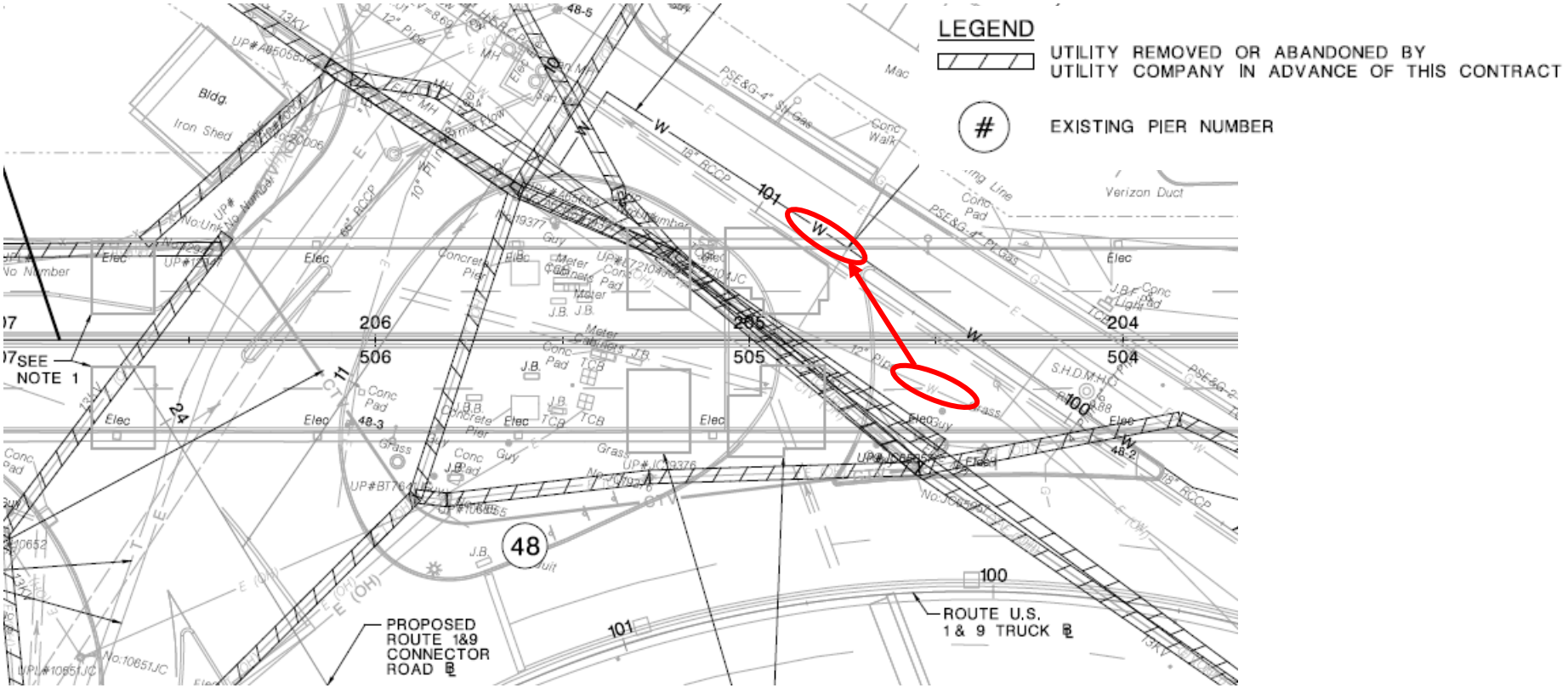
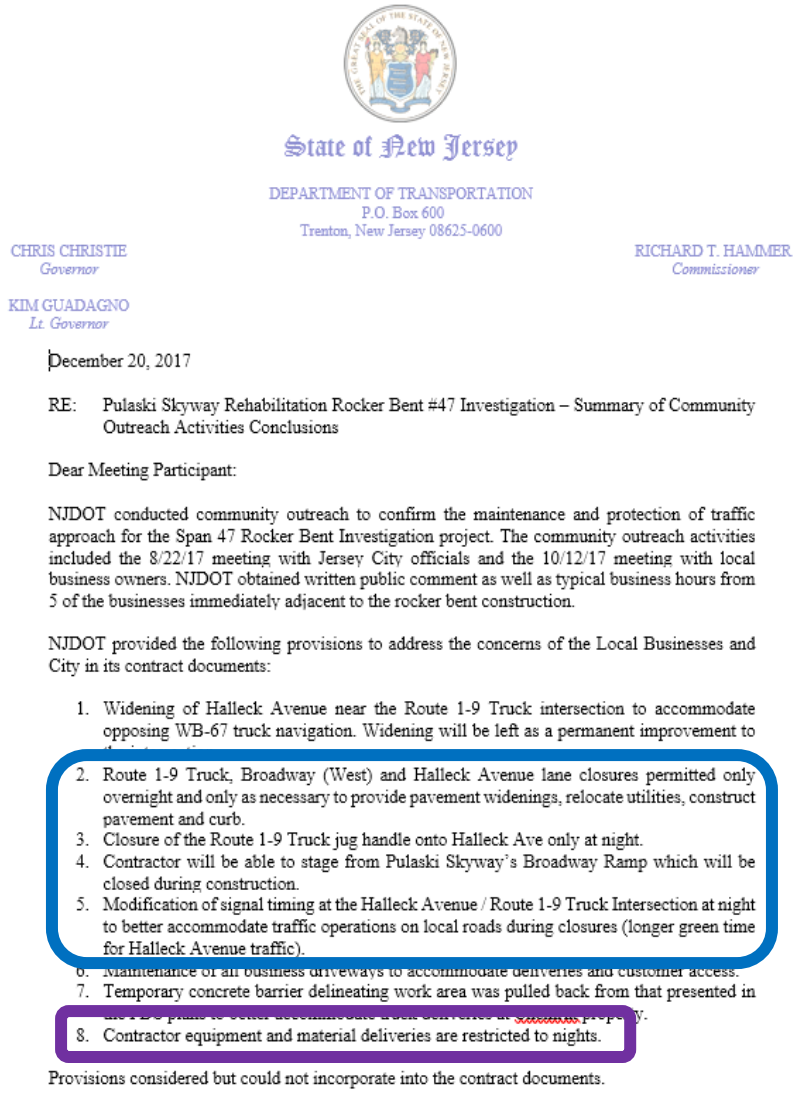
Span 47 & RB47: Existing Utilities



- PSE&G lines require advanced relocation (by PSE&G).
- Waterline require advanced relocation (by Contractor).

Span 47 & RB47: Community Commitments

- Route 1&9T, Broadway (W) and Halleck Avenue lane closures – night-time.
- Closure of Route 1&9T jug handle onto Halleck Ave - night-time.
- Contractor permitted to stage from Pulaski Skyway's Broadway Ramp (remains closed).
- Night-time signal timing at the Halleck Avenue / Route 1&9T Intersection.
- Contractor equipment and material deliveries are restricted to nights.



State of New Jersey

DEPARTMENT OF TRANSPORTATION
P.O. Box 600
Trenton, New Jersey 08625-0600

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

RICHARD T. HAMMER
Commissioner

December 20, 2017

RE: Pulaski Skyway Rehabilitation Rocker Bent #47 Investigation – Summary of Community Outreach Activities Conclusions

Dear Meeting Participant:

NJDOT conducted community outreach to confirm the maintenance and protection of traffic approach for the Span 47 Rocker Bent Investigation project. The community outreach activities included the 8/22/17 meeting with Jersey City officials and the 10/12/17 meeting with local business owners. NJDOT obtained written public comment as well as typical business hours from 5 of the businesses immediately adjacent to the rocker bent construction.

NJDOT provided the following provisions to address the concerns of the Local Businesses and City in its contract documents:

1. Widening of Halleck Avenue near the Route 1-9 Truck intersection to accommodate opposing WB-67 truck navigation. Widening will be left as a permanent improvement to
2. Route 1-9 Truck, Broadway (West) and Halleck Avenue lane closures permitted only overnight and only as necessary to provide pavement widenings, relocate utilities, construct pavement and curb.
3. Closure of the Route 1-9 Truck jug handle onto Halleck Ave only at night.
4. Contractor will be able to stage from Pulaski Skyway's Broadway Ramp which will be closed during construction.
5. Modification of signal timing at the Halleck Avenue / Route 1-9 Truck Intersection at night to better accommodate traffic operations on local roads during closures (longer green time for Halleck Avenue traffic).
6. Maintenance of all business driveways to accommodate deliveries and customer access.
7. Temporary concrete barrier delineating work area was pulled back from that presented in
8. Contractor equipment and material deliveries are restricted to nights.

Provisions considered but could not incorporate into the contract documents.

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HNTB

Span 97 and Rocker Bent 97

Rocker Bent 97 - Intent of Work

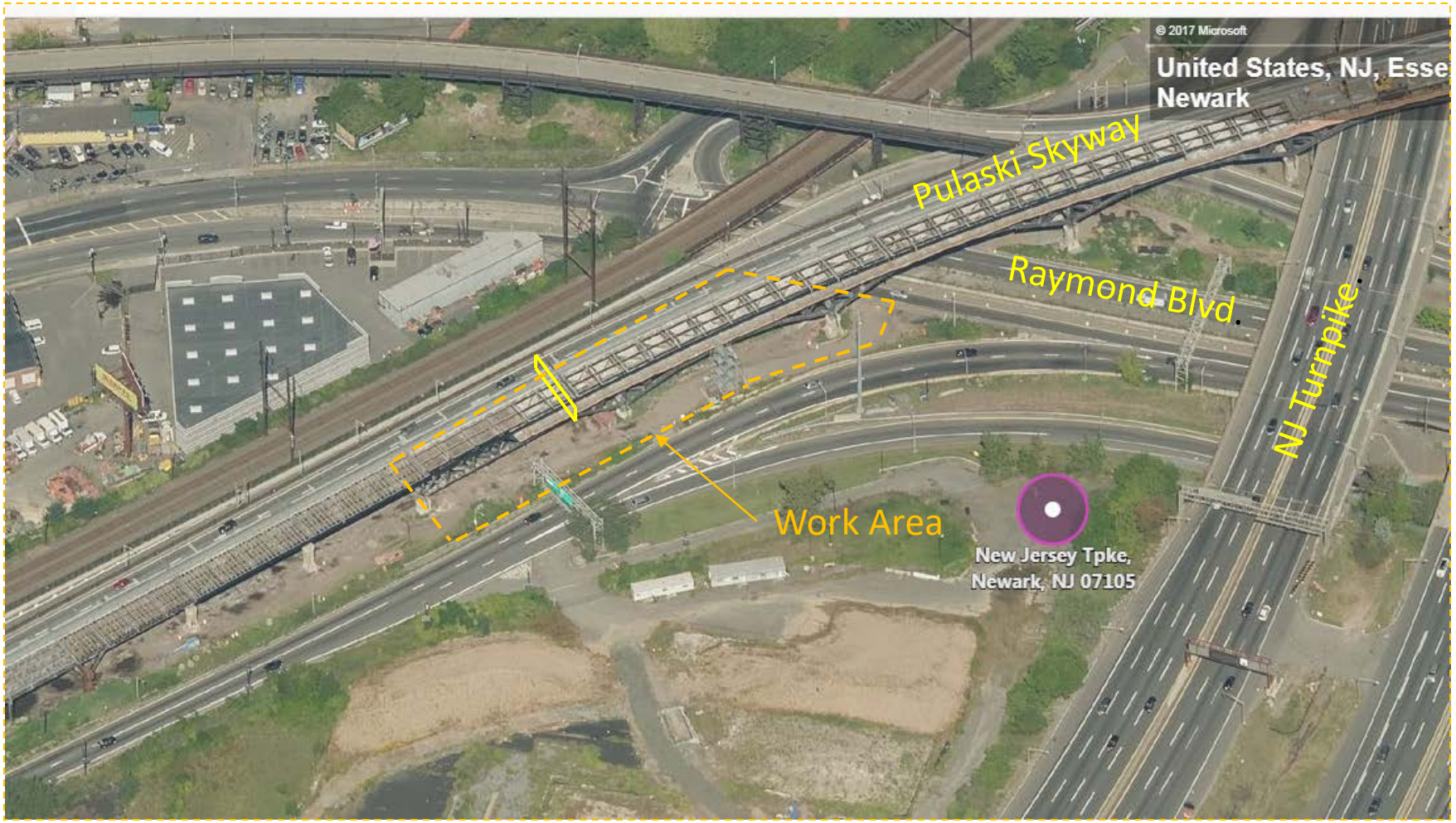
- **Prototype Installation**
  - **Assess deeper component condition**
  - **Validate 'Best Construction Practices'**
  - **Monitor and assess behavior of truss during work**
- **Develop Lessons Learned**
  - **Verify accuracy of as-built bridge information**
  - **Get real-time contractor feedback**
  - **Use lessons learned to optimize design for remaining locations**
- **Minimize Risk**
  - **Location with best underside access and lowest risk**
  - **Full catch system installed as safety net**
  - **Minimized traffic disruption**

Construction Duration (Per Expansion Joint)	Design Life
• 62 weeks	75 Years

Rocker Bent 97 - Major Items of Work

- Field Measurement
- Rivet Busting
- Steel Fabrication
- Steel Erection
- Truss Member Cutting / Removal
- Heavy Jacking
- Blast and Paint
- Traffic Control
- Catch Foundations

Rocker Bent 97 – The Work Area



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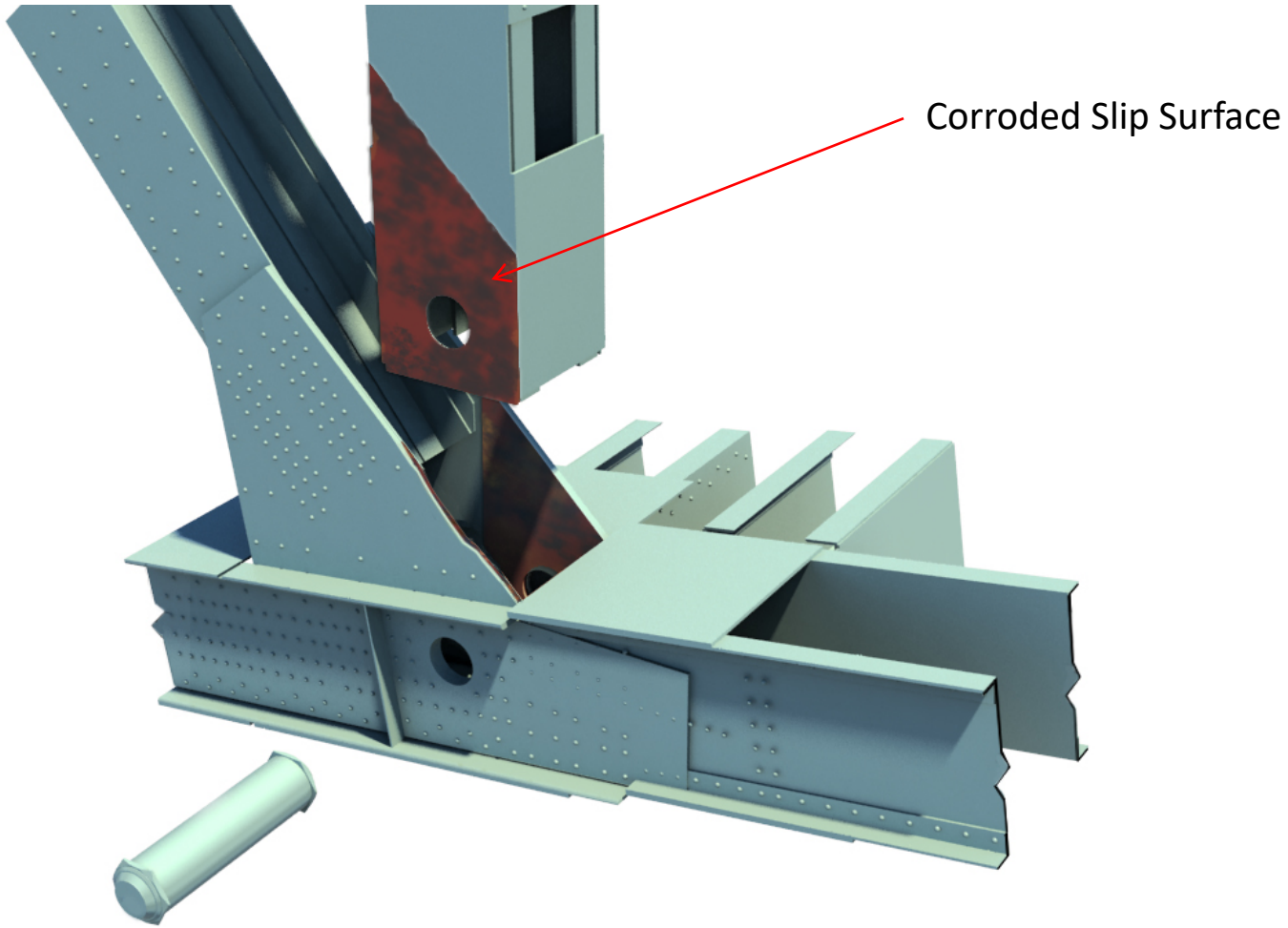
Rocker Bent 97 – The Work Area

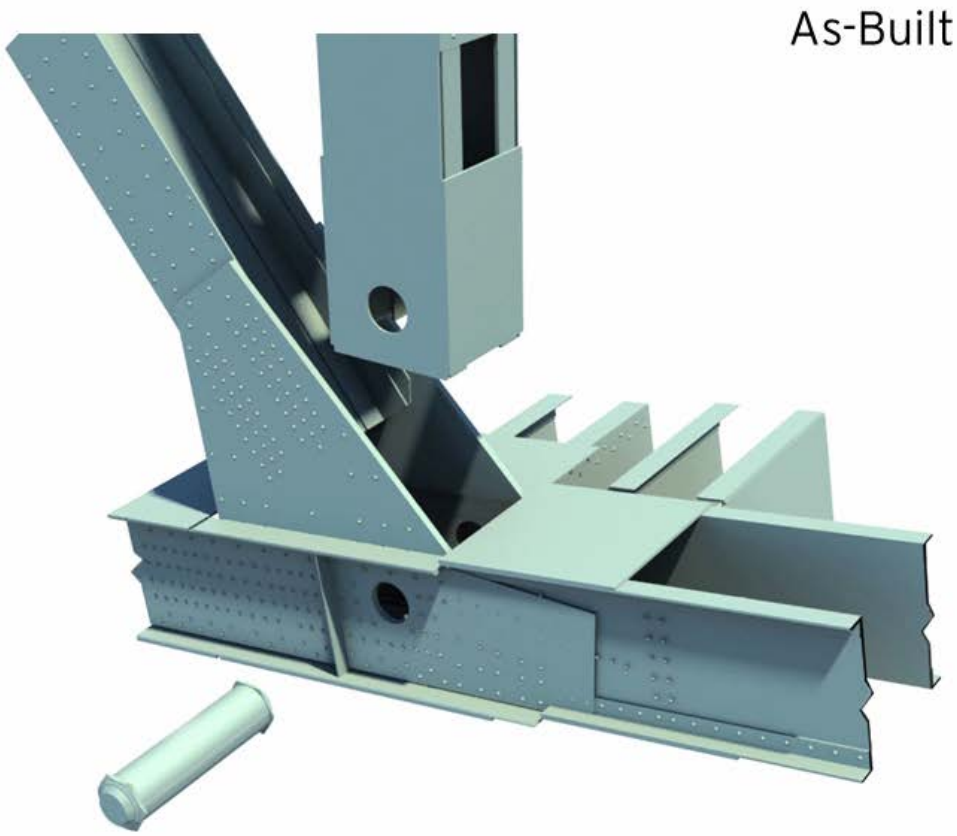
Rocker Bent 97 – The Problem

Rocker Bent 97 – The Problem

Rocker Bent 97 – The Problem



Rocker Bent 97 – The Problem



Rocker Bent 97 – The Problem

Corroded Slip Surface

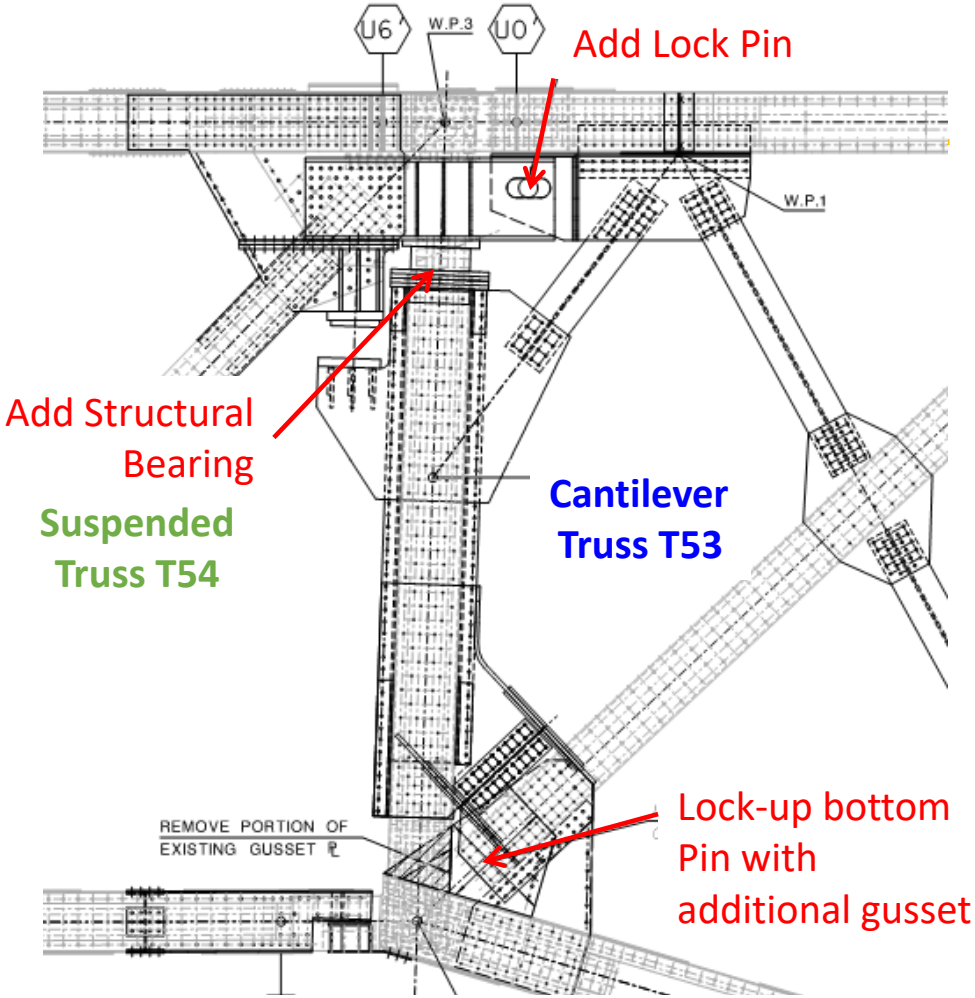
Corroded Slip Surface

Rocker Bent 97 – The Problem

Widespread Corrosion

Rocker Bent 97 – The Solution

- Abandon the rocker bent concept
- Replace it with a structural bearing
- Reinforce adjacent structure
- Requires no support from ground



Structural Bearing Retrofit – Final Condition

Construction Duration (RB 97)	Design Life
• Approx. 62 Weeks	75 Years

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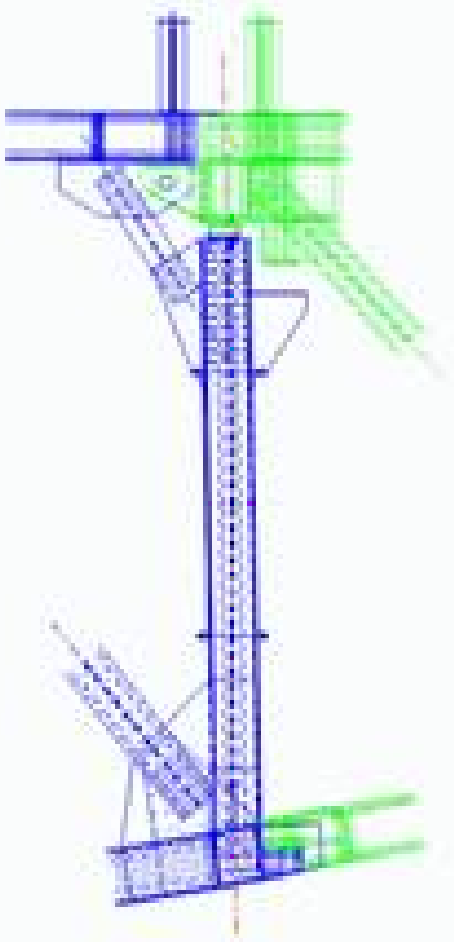
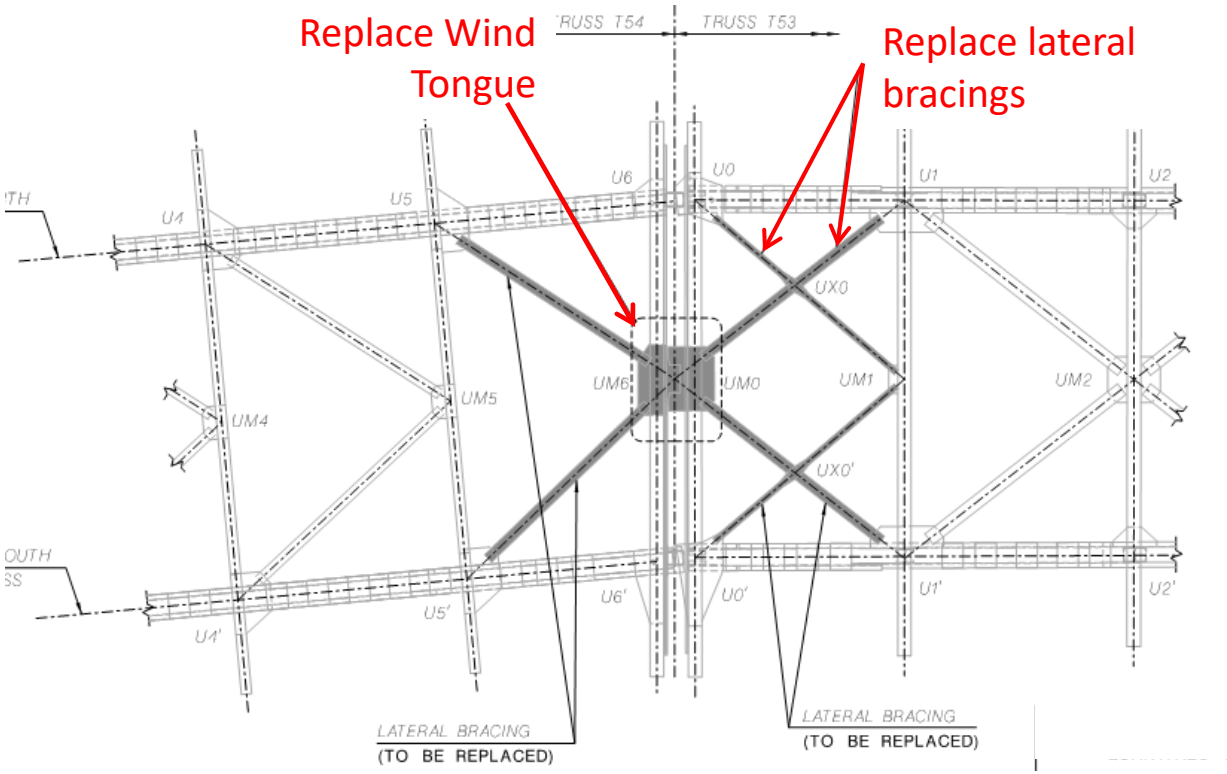
Animation of Motion – After Retrofit



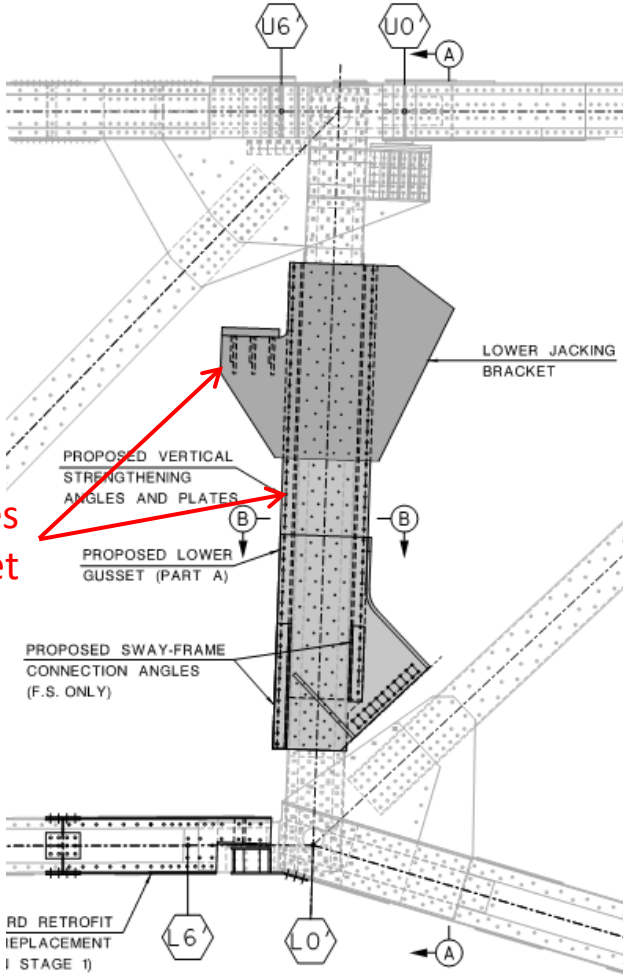
Stage 1 : Preparation

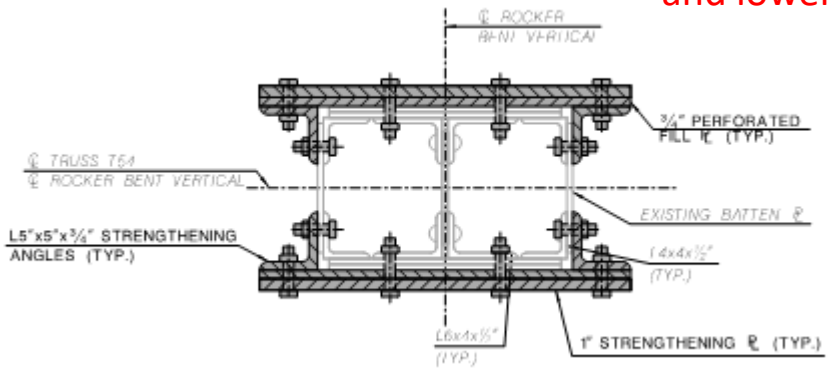


Stage	Work Done	Traffic Impacts	Expansion Joint
Stage 1	• Install catch towers • Install monitoring sensors • Perform repairs • Replace wind tone and lateral bracings	• No impact	Free to Move

Stage 2 : Reinforce Rocker Bent

Install RB strengthening plates and lower jacking bracket





Stage	Work Done	Traffic Impacts	Expansion Joint
Stage 2	• Install strengthening plates for existing gusset plates and jacking bracket • Install monitoring sensors • Install Rocker Bent strengthening shell	• No impact	Free to Move

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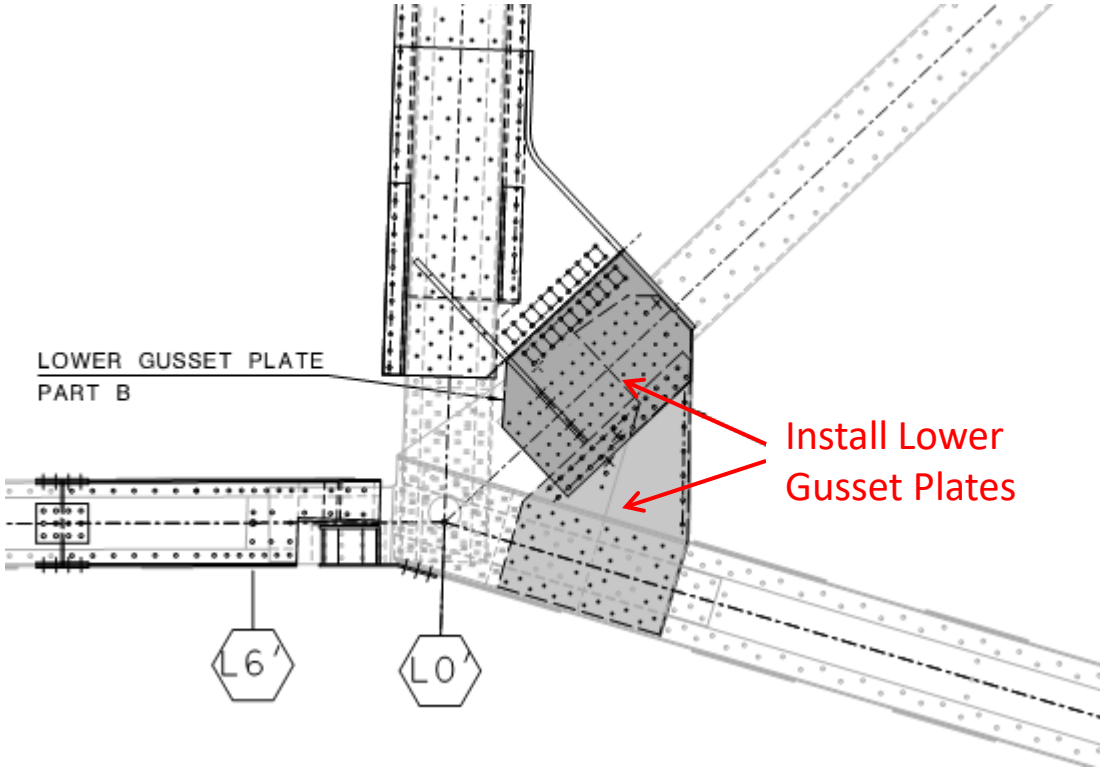
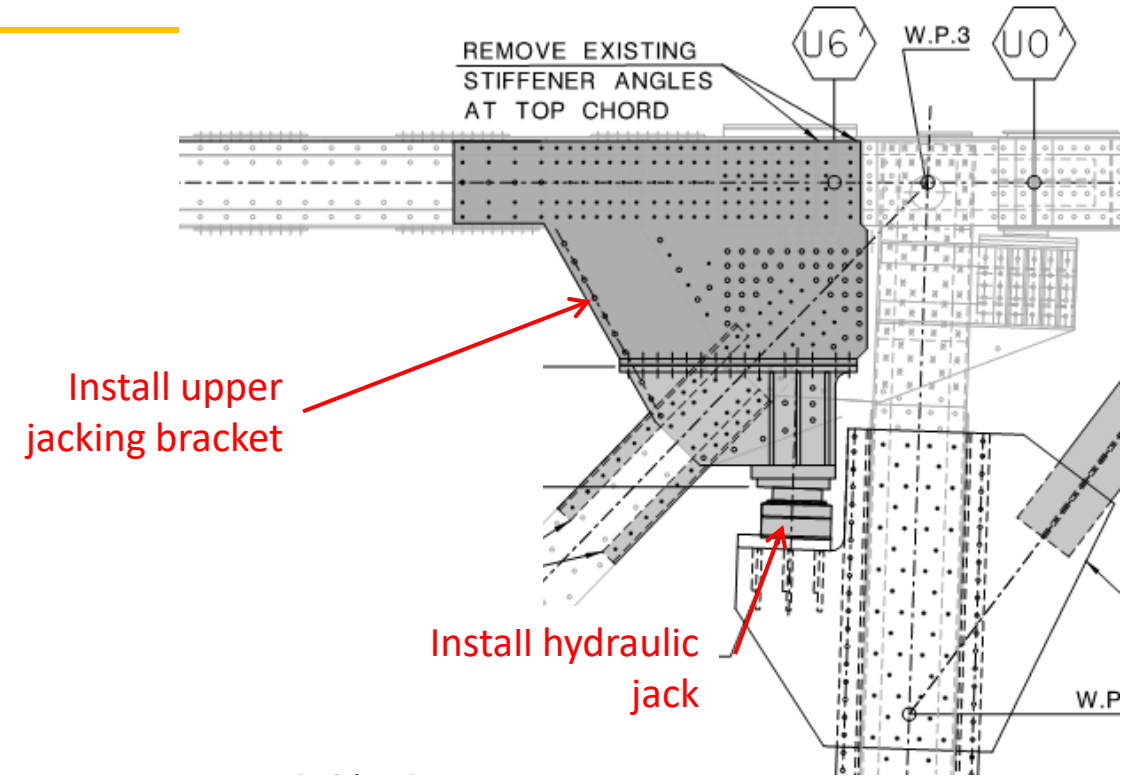
Stage 3: Install Lower gussets and Sway-frame



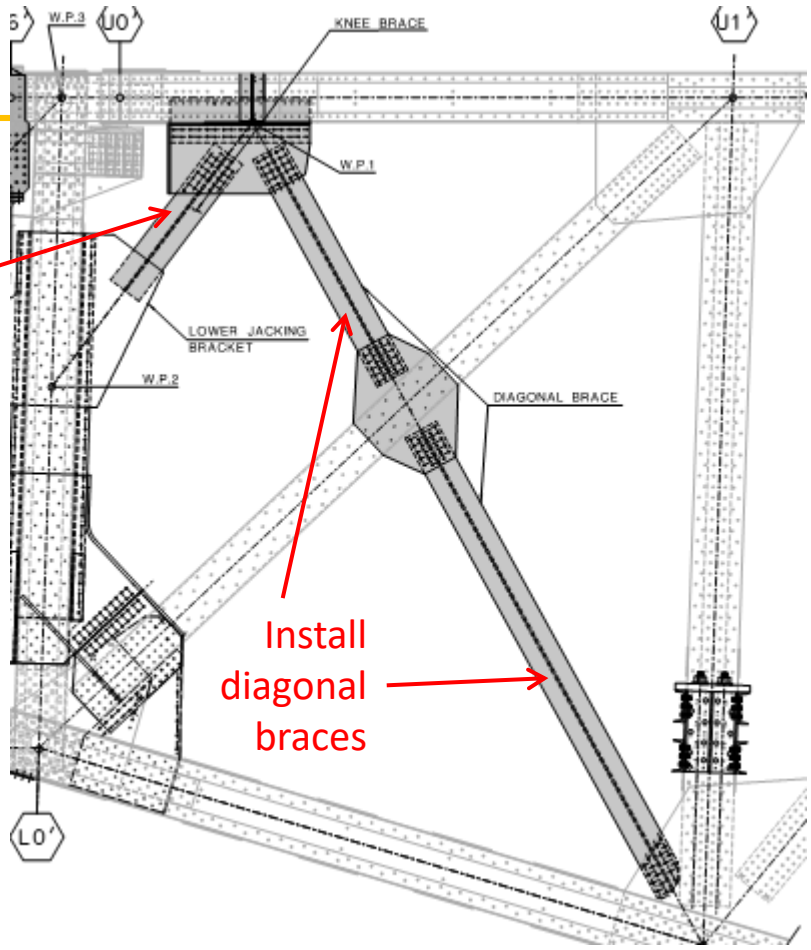
Stage	Work Done	Traffic Impacts	Expansion Joint
Stage 3	• Install sway-frame • Install lower gussets	• No impact	Free to move

Stage 4: Suspended Truss T54
Install upper jacking bracket



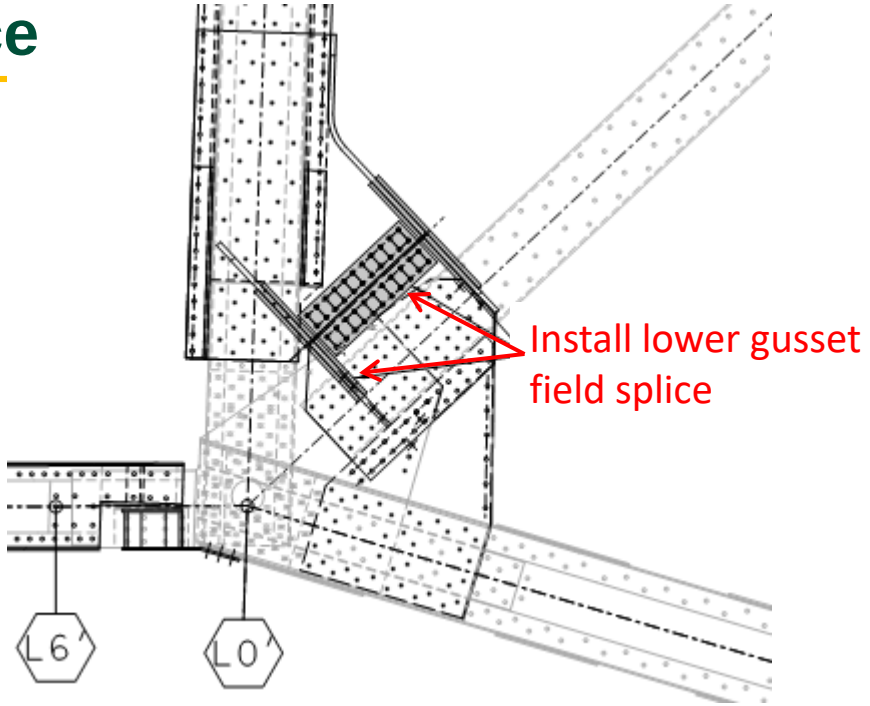
Stage	Work Done at Bottom Pin	Traffic Impacts	Expansion Joint
Stage 4	• Install upper jacking bracket • Install knee brace and diagonal brace • Install hydraulic jack	• No impact	Free to move

Stage 4: Cantilever Truss T53
Install knee brace and diagonal brace



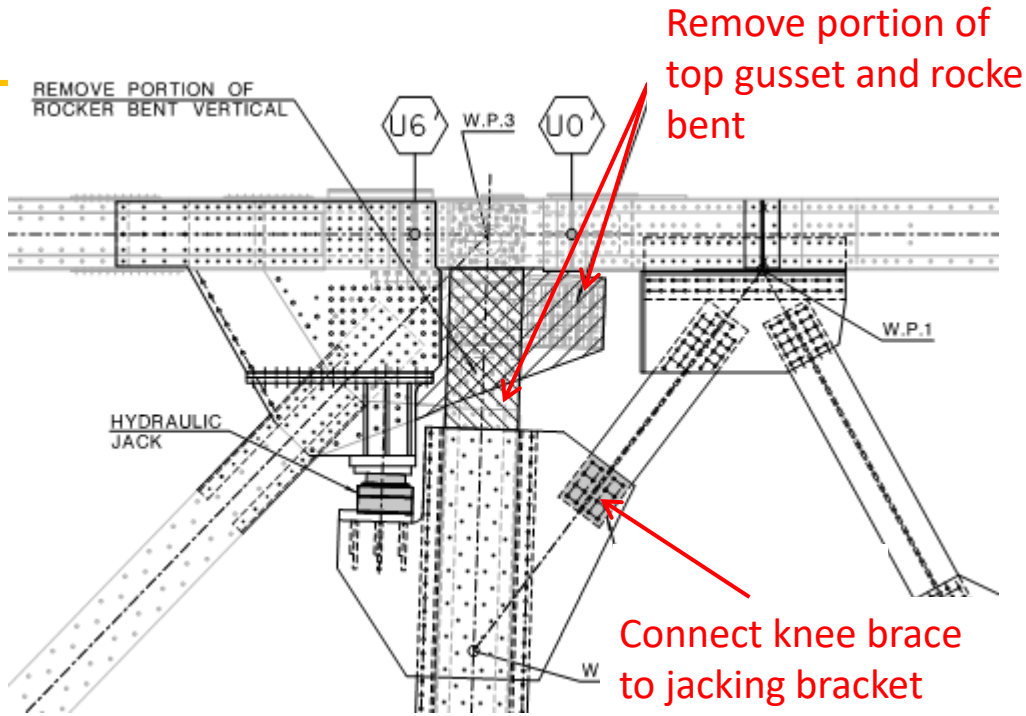
Stage	Work Done	Traffic Impacts	Expansion Joint
Stage 4	• Install upper jacking bracket • Install knee brace and diagonal brace • Install hydraulic jack	• No impact	Free to move

Stage 5: Lower Pin
Install lower gusset field splice



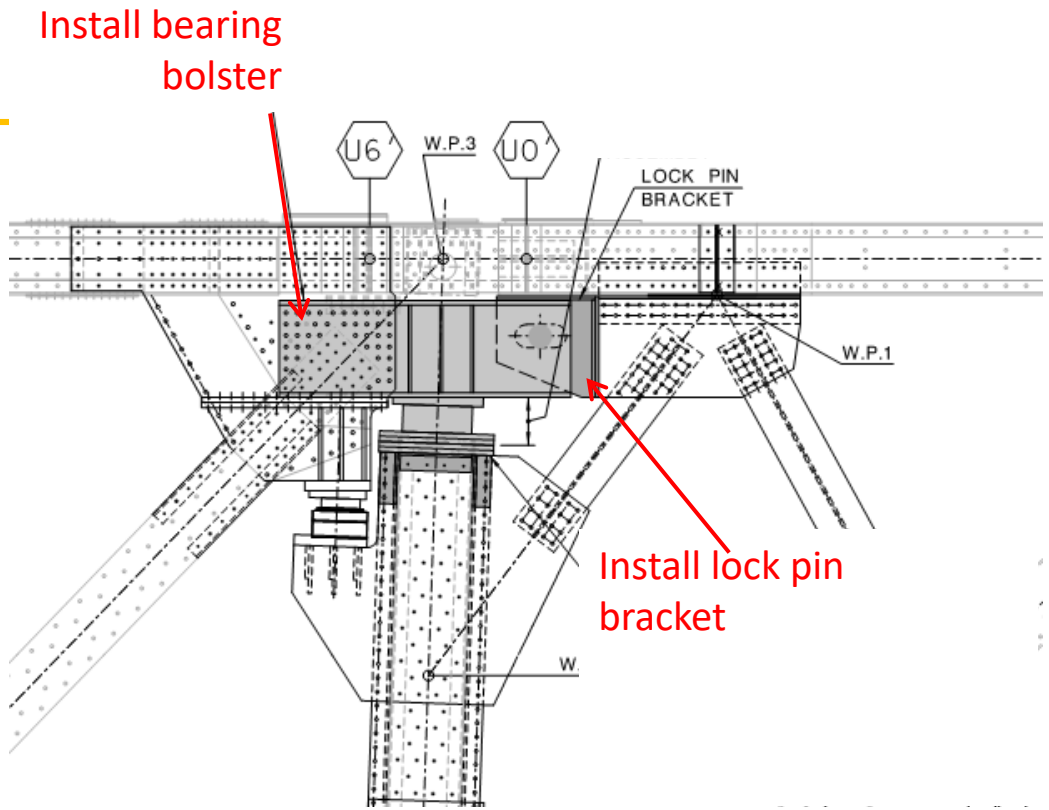
Stage	Work Done	Traffic Impacts	Expansion Joint
Stage 5 *1 weekend*	• Install lower gusset filed splice • Connect knee brace to lower jacking bracket • Remove portion of top gusset and rocker bent	• Full Skyway closure for one weekend while jack is engaged	Temporary locked for one weekend

Stage 5: Top Pin



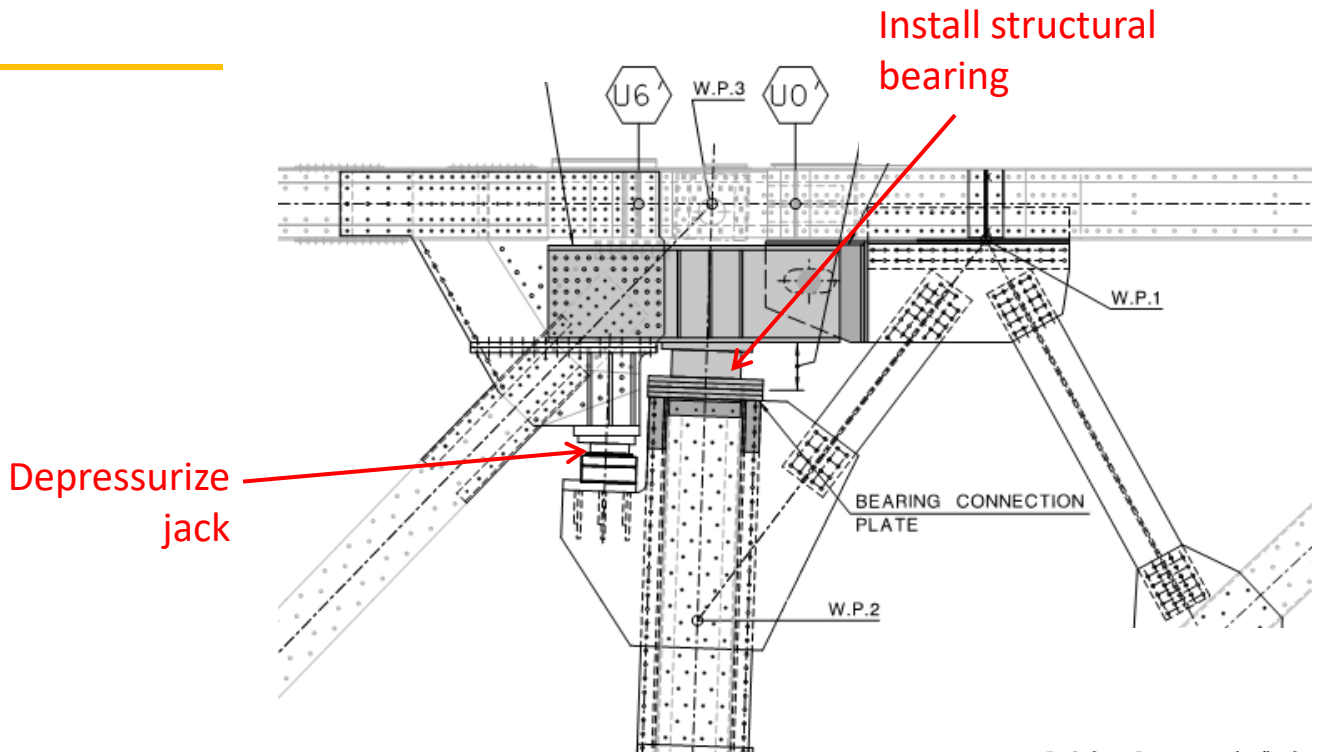
Stage	Work Done	Traffic Impacts	Expansion Joint
Stage 5 *1 weekend*	• Install lower gusset filed splice • Connect knee brace to lower jacking bracket • Remove portion of top gusset and rocker bent	• Full Skyway closure for one weekend while jack is engaged	Temporary locked for one weekend

Stage 6a:



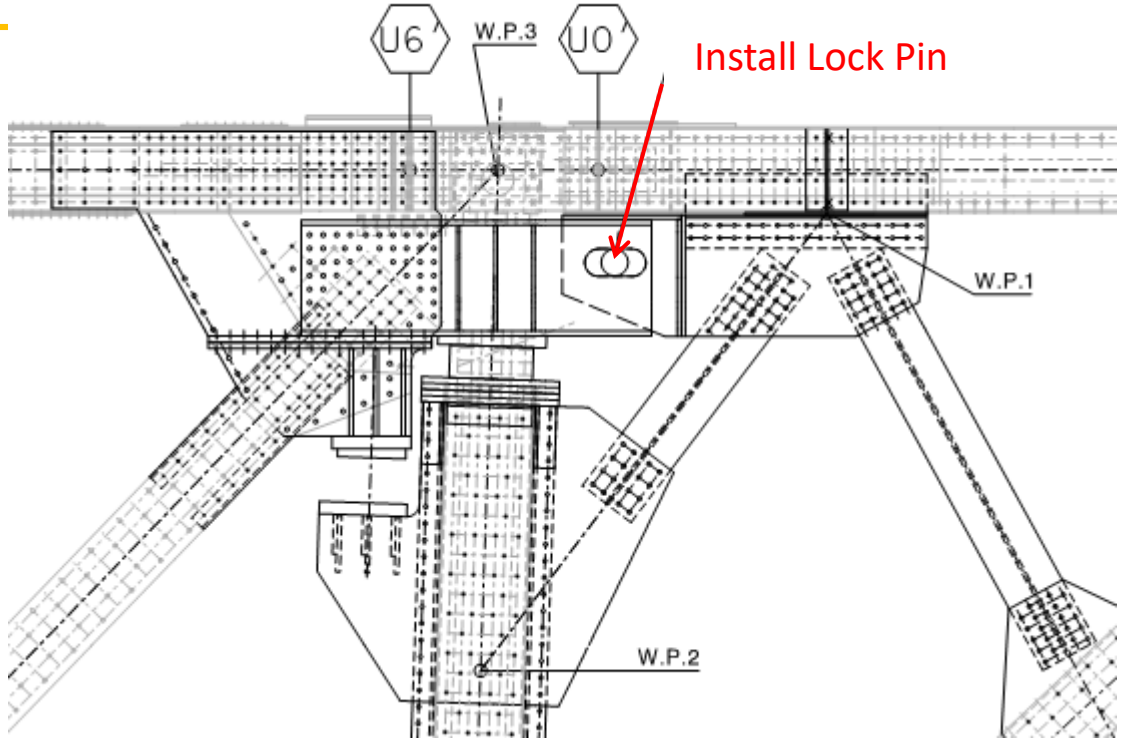
Stage	Work Done	Traffic Impacts	Expansion Joint
Stage 6a	• Install lock pin bracket • Install bearing bolster	• No impact	Temporary locked for one weekend

Stage 6b:



Stage	Work Done	Traffic Impacts	Expansion Joint
Stage 6b *1 weekend*	• Install structural bearing • Depressurize and remove jack	• Full Skyway closure for one weekend while installing bearings	Temporary locked for one weekend

Stage 7:



Stage	Work Done	Traffic Impacts	Expansion Joint
Stage 7	• Install lock pin • Remove temporary supports • Paint	• No impact	Free to Move

Rocker Bent 97

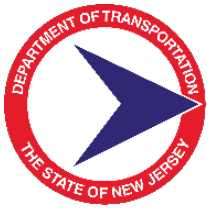
Important Considerations

- SHPO will be involved – Pulaski an Historic Site
- **Lead paint** is noted on all members
- Extensive steel work = extensive shop drawings
- Full containment repaint is required
- All members to be carefully field measured before shop drawing preparation
- Bridge will be fully instrumented during work
  DO NOT DISTURB!
- Bridge open to traffic for majority of work
- Very limited time road closures for load transfer work
- Temporary supports not to be engaged – safety net ONLY
- Coordination with adjacent contractors

Route U.S. 1 & 9 (Pulaski Skyway)
Contract No. 051183160
Town of Jersey City, Hudson County
City of Newark, Essex County

Thank you! Questions?

GPI HNTB



Multi-Purpose Room
NJDOT's Main Headquarters
1035 Parkway Avenue, Trenton, NJ

January 9, 2018