

DLZ
ARCHITECTURE • ENGINEERING • PLANNING
SURVEYING • CONSTRUCTION SERVICES

2024 PHYSICAL CONDITION ROUTINE & FRACTURE CRITICAL (NSTM) INSPECTION REPORT

Bridge CUY-6-1456
SFN 1800930

Detroit-Superior/Veteran's Memorial over Cuyahoga River
Dates of Inspection: October 14-16, 2024

ODOT DISTRICT 12
5500 TRANSPORTATION BOULEVARD
GARFIELD HEIGHTS, OHIO 44125
JANUARY 6, 2025

4208 Prospect Ave | Cleveland, OH 44103 | 216.771.1090 | DLZ Job No. 2322-1202

2024 PHYSICAL CONDITION ROUTINE & FRACTURE CRITICAL (NSTM) INSPECTION REPORT

ODOT BRIDGE NO. CUY-6-1456
Detroit-Superior/Veteran's Memorial over Cuyahoga River
SFN 1800930

Prepared by

Justin Agler, PE

Tyler Bennett, PE

Reviewed by

Matt Lawler, PE
Project Manager

Inspected October 14-16, 2024

Inspected by:

Jeffrey Miller, PE	DLZ
Matt Lawler, PE	DLZ
Justin Agler, PE	DLZ
Aaron Adkins, PE	DLZ
Christian Lunt, PE	DLZ
Tyler Bennett, PE	DLZ
Jake Lemaster, EI	DLZ
Zhongqi Guo, EI	DLZ
Michael Malloy, PE	E.L. Robinson
Rob Pfingsten, PE	E.L. Robinson
Mark Boyer, PE	E.L. Robinson
James Walker, EI	E.L. Robinson

Prepared for

Ohio Department of Transportation
District 12

4208 Prospect Ave, Cleveland, OH 44103 | OFFICE 216.771.1090 | ONLINE WWW.DLZ.COM

Akron Bellefontaine Bridgeville Burns Harbor Chicago Cincinnati Cleveland Columbus Detroit Fort Wayne Grand Rapids Indianapolis Joliet Kalamazoo Knoxville Lansing Lexington Logan Madison Maumee Melvindale Merrillville Munster Muskegon Port Huron Saint Joseph San José South Bend Waterford

EXECUTIVE SUMMARY

The Detroit-Superior/Veteran's Memorial bridge (CUY-6-1456, SFN 1800930) carries U.S. Route 6/State Route 3 over the Cuyahoga River Valley, local streets, parking lots, and RTA Rapid Transit rail lines and is located in the city of Cleveland. The bridge is situated immediately southeast of the Greater Cleveland Aquarium and is owned and maintained by the Ohio Department of Transportation (ODOT). The annual bridge inspection is performed by ODOT or consultants to confirm the condition state of the bridge. DLZ Ohio, Inc. (DLZ) was contracted by ODOT to perform routine and fracture critical (NSTM = nonredundant steel tension member) element level inspection services on this bridge for the year 2024.

The overall condition of the Detroit-Superior/Veteran's Memorial bridge is rated a **5**, meaning that it is in **Fair** condition. **Items highlighted in red in this inspection report are new findings that were not noted during previous inspections.** Significant findings justifying the general appraisal rating include the following results:

1. At several strip seal expansion joints, there are areas of tearing seals or seals pulling out of retainers.
2. Multiple deck drainage downspouts are completely clogged at the catch basin, some catch basins and covers show signs of movement or damage, and multiple scupper inlets are fully or partially clogged.
3. The longitudinal beams in the Detroit Avenue Tunnel, West 25th Street Tunnel, and West Station have delaminations, efflorescence, and some areas of spalling with exposed reinforcing.
4. The concrete arches, columns, and jack arches that were not previously repaired typically have areas of cracking, delamination, poor patching and spalling with and without exposed reinforcing.
5. The gusset plates typically have areas of active surface corrosion and some locations have pitting and rivet head loss.
6. The bearings have some pack rust around the pins and surface corrosion noted on the interior faces of all four bearing castings. Several of the galvanized steel plates between the deck underside and the transverse floorbeams over Piers 11 and 12 have missing and displaced plates.
7. Cracks in the fillet welds are present at several of the stiffening retrofit plates welded to the top flange of the lower deck floorbeams at the truss lines.
8. A section of the rear abutment, south wingwall at Tower B have through cracks in the wall and footing with the tower and cracked wall leaning to the south and continuing to show incremental movement. In the west chamber, there is significant cracking at the north end of cells 2S through 6S.
9. Multiple navigation and architectural lights attached to the bridge were not functioning or broken.
10. The approach embankment along the south side of Spans 1A and 1B has significant erosion for the full length.
11. There are locations where the structure and structure right-of-way can be accessed by non-bridge personnel due to unlocked gates and holes in fences.

Inspection findings were documented with field notes, photos, sketches, and measurements. Detailed discussion of all related issues can be found in the pertinent sections of this inspection report.

Table of Contents

EXECUTIVE SUMMARY 1
1.0 Bridge Description 4
2.0 Bridge History 6
3.0 General 8
4.0 Location Map 9
5.0 Inspection Findings 10
5.1 NBI Item 58 – Deck 10
5.1.1 Element 12 – Reinforced Concrete Deck 10
5.1.2 NBI ITEM 58.02 & Element 300 – Strip Seal Expansion Joint 12
5.1.3 Element 331 – Metal Bridge Railing 13
5.1.4 Element 331 – Reinforced Concrete Bridge Railing 14
5.1.5 NBI Item 58.01 & Element 510 – Wearing Surfaces 16
5.1.6 Element 815 – Drainage 17
5.1.7 Curb/Sidewalk 19
5.2 NBI Item 59 – Superstructure 20
5.2.1 Concrete Superstructure 20
5.2.1.1 Element 110 – Reinforced Concrete Open Girder/Beam 20
5.2.1.2 Element 144 – Reinforced Concrete Arch 21
5.2.1.3 Element 155 – Reinforced Concrete Floor Beam 22
5.2.2 Steel Superstructure (Span 4) 23
5.2.2.1 Element 113 – Steel Stringer 23
5.2.2.2 Element 120 – Steel Truss 24
5.2.2.3 Element 152 – Steel Floor Beam 28
5.2.2.4 Element 161 – Steel Pin and Pin & Hanger Assembly 32
5.2.2.5 Element 162 – Steel Gusset Plate 35
5.2.2.6 Element 313 – Fixed Bearing 37
5.2.2.7 NBI ITEM 59.01 & Element 515 – Steel Protective Coating 39
5.2.2.8 Lateral Bracing & Sway Bracing 40
5.2.2.9 Fatigue Prone Details 41
5.3 NBI Item 60 – Substructure 42
5.3.1 Element 205 – Reinforced Concrete Column 42
5.3.2 Element 210 – Reinforced Concrete Pier Wall 43
5.3.3 Element 215 – Reinforced Concrete Abutment 44
5.3.4 Element 830 – Abutment Backwall 45
5.3.5 Wingwalls 45
5.3.6 Tower B South 45
5.3.7 West & East Abutment Chambers 46
5.3.8 Water Infiltration 46
5.3.9 Slope Protection 47
5.4 NBI Item 61 – Channel & Channel Protection 48

5.4.1 Alignment 48
5.4.2 Protection 50
5.4.3 Hydraulic Opening 50
5.4.4 Navigation Lights 50
5.4.5 NBI ITEM 58.01 – Scour 50
5.5 Approaches 51
5.5.1 Approach Wearing Surface 51
5.5.2 Embankment 51
5.5.3 Guardrail 52
5.5.4 Security Items 52
5.6 Signs & Utilities 53
5.6.1 Signs 53
5.6.2 Utilities 53
5.6.3 Lighting 53
5.7 Summary & Recommendations 55
5.7.1 Priority 55
5.7.2 Maintenance 56
5.7.3 Monitor 56

APPENDIX A – AssetWise Bridge Inspection Field Report

APPENDIX B – Existing General Plan, Elevation, & Nomenclature

APPENDIX C – Inspection Findings Tables & Figures

APPENDIX D – Fracture Critical Member Plan

1.0 Bridge Description

The Veteran's Memorial/Detroit-Superior Bridge (CUY-6-1456, SFN 1800930) carries three lanes of vehicular traffic and one lane of bike traffic over the Cuyahoga River Valley, local streets, and RTA railroad tracks. The bridge is approximately 2,880 feet long, including 1,673 feet of subway tunnel that is linked by the lower deck. The bridge was constructed from 1912 to 1917.

The upper deck was opened to vehicular traffic in November 1917 and currently carries three lanes of traffic. The lower deck was designed for four streetcar lines with room for an additional two lines. The rail lines were active from January 1918 to 1953. On January 18, 1974, the bridge was added to the National Register of Historic Places. On Veteran's Day, November 11, 1989, the bridge was renamed the Veteran's Memorial Bridge.

The bridge consists of three (3) units of varying structure types within each unit:

- Unit I – West Approach
- Unit II – Main Unit Spans
- Unit III – East Station

Plan views of the Veteran's Memorial/Detroit-Superior Bridge with the units identified are shown in Appendix B.

Unit I – West Approach

The West Approach section consists of the West Station area spanning a total of 350 feet west of Tower A and two abandoned subway tunnels: the Detroit Avenue Tunnel (660 feet long) and the West 25th Street Tunnel (480 feet long). There are several utilities that pass through the west station and tunnels. There is a garage door with a 9'-11" vertical and 8'-3" wide opening at the West Approach where vehicles can enter to access the lower deck of the bridge.

Unit II – Main Unit Spans

The Main Unit is composed of Spans 1A, 1B, and Spans 1 through 13. Spans 1A and 1B are transition structures from the underground West Station to the main spans. These two concrete cellular spans total 220 feet long and have an enclosed cellular construction below the lower deck referred to as the chambers. Spans 1 through 13 are the main spans of the bridge with a double deck design. Spans 1 through 3, 5 through 11, and 13 are concrete open spandrel arches. Span 12 is a concrete encased steel half through arch. Span 4 is a 591-foot long, three-hinged steel half through arch truss in a Pratt configuration. The upper deck is used for vehicular and pedestrian traffic and the lower deck is used for utilities and maintenance access.

Unit III – East Station

The East Station is a concrete cellular span that extends 165 feet past the East Abutment. A three-panel long, cellular construction is present under the East Station lower deck immediately behind the East Abutment.

2.0 Bridge History

The following is a summary of significant events in the history of the Detroit-Superior bridge:

- 1914-1917: Construction of the Detroit-Superior High Line Bridge
- November 1917: Bridge opened up to vehicular and pedestrian traffic.
- January 1918: Bridge opened up to streetcar traffic.
- 1953: Streetcar lines abandoned.
- 1967-70 Major Rehabilitation
    - Removal of the original upper deck consisting of four vehicular lanes and two 15-foot wide sidewalks.
    - Strengthening or replacement of all upper deck concrete floorbeams.
    - Span 4: Erection of new steel floorbeam cantilevers.
    - Construction of the new upper deck with six vehicular lanes and two 5-foot wide sidewalks.
- January 18, 1974: Bridge was added to the National Register of Historic Places
- November 11, 1989: Bridge was renamed the Veteran's Memorial Bridge.
- 1995-97 Major Rehabilitation
    - Replacement of the upper and lower deck floors.
    - Replacement of select upper and lower concrete floorbeams, columns, jack arches and pier shafts.
    - Application of epoxy-urethane or non-epoxy sealer to most exposed concrete surfaces.
    - Span 4: Replacement of all steel hangers, Panel Points 6 through 6'.
    - Span 4: Replacement of upper deck and lower deck Floorbeams 5 through 5' and the corresponding stringers.
    - Painting of all steel superstructure components.
    - Installation of new drainage system.
    - Installation of architectural lighting.
- 2003 North Sidewalk Linear Park Conversion.
    - Conversion of vehicular traffic to two westbound and one eastbound lane between the steel trusses and one eastbound lane on the Span 4 south cantilever.
    - Widening of the north sidewalk with longitudinal trench drainage.
    - Installation of public art and benches along the modified north sidewalk.
- 2014-2018
    - Span 1A through Span 13: Patching deficient upper deck wearing surface areas.
    - Patch deficient concrete super and substructure components in West Station, Detroit Avenue Tunnel, West 25th Street Tunnel and Spans 1-3 and 5-13. (Note: In Spans 1-3 and 5-13, the patching below the lower deck was later restricted to areas adjacent to and over public areas.)
    - Span 4: Zone painting of primary and secondary truss members between upper and lower decks.
    - Installed hanger caps at hanger opening in upper deck, Panel Points 6 through 6'.

  - Repaired spalled wearing surface in Span 9.
  - Drain pipe cleanout for pedestrian tunnels in the west and east station. (This task was performed but not successful.)
  - South vehicular eastbound lane converted into bike lane.
- 2019 – 2021
  - Replacement of wearing surface with new micro silica modified concrete overlay.
  - Concrete patching and crack sealing in concrete arch spans and approach tunnels.
  - Fiber wrapping in select locations in concrete arch spans over public areas.

3.0 General

The data for this Physical Condition Routine and NSTM Element Level Inspection Report was obtained on **October 14-16, 2024**. The bridge inspection was performed by inspectors from **DLZ and E.L. Robinson**.

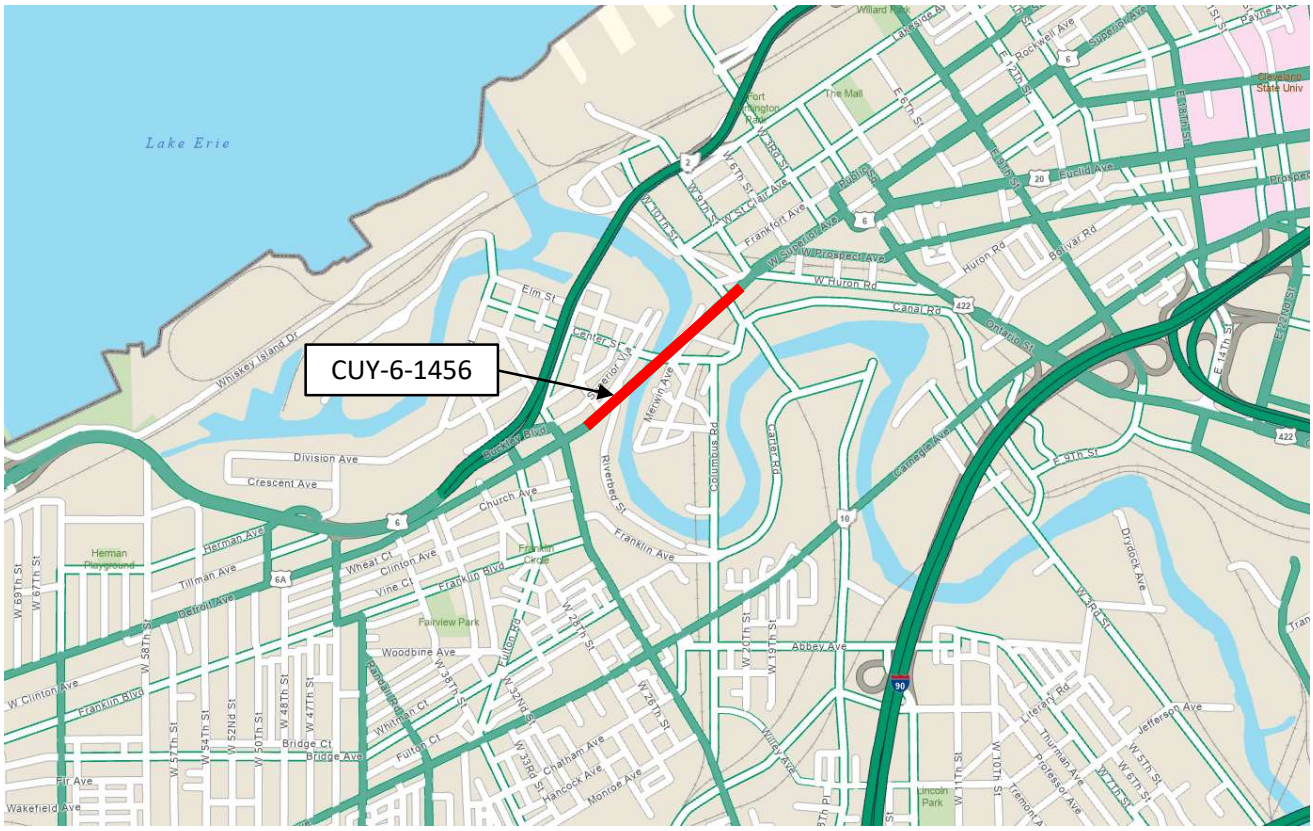
The Scope of Services directed DLZ and E.L. Robinson to perform a routine and NSTM element level inspection and report the findings in a formal report. The inspectors used several different access methods for the superstructure, including walking the deck, climbing the trusses, using boom lifts, and accessing the bridge from the maintenance and inspection deck. The substructure was visually inspected from the ground and from boom lifts. DLZ collected field notes, photos, sketches, and measurements while performing the bridge inspection. No destructive testing was performed.

Items highlighted in red in this inspection report are new findings that were not noted during previous inspections.

The bridge inspection was performed in accordance with the following documents:

- *Manual of Bridge Inspection*, Ohio Department of Transportation (ODOT), 2014 (with 2017 & 2021 Addendums)
- *National Bridge Inspection Standards*, U.S. Department of Transportation, 2022
- *Manual for Bridge Element Inspection, 2nd Edition*, American Association of State Highway and Transportation Officials (AASHTO), 2019
- *Bridge Inspector's Reference Manual*, Federal Highway Administration (FHWA), 2012
- *Inspection of Fracture Critical Bridge Members*, U.S. Department of Transportation and Federal Highway Administration (FHWA), 1986

4.0 Location Map



Structure: CUY-6-1456
Detroit-Superior/Veteran's Memorial over the Cuyahoga River Valley
Cleveland, OH

5.0 Inspection Findings

Inspection findings from the field inspection performed on **October 14-16, 2024** are presented below.

5.1 NBI Item 58 – Deck

The overall deck rating is a **6**, indicating that it is in **Satisfactory** condition. Condition findings of individual deck items are as follows:

5.1.1 ELEMENT 12 – REINFORCED CONCRETE DECK

Location	Total Quantity	Units	CS1	CS2	CS3	CS4
Detroit Ave. Tunnel	17,950	sq. ft.	17,950	0	0	0
West 25th St. Tunnel	13,750	sq. ft.	**12,600**	**50**	**1,100**	0
West Station	37,800	sq. ft.	21,800	12,000	4,000	0
Spans 1A, 1B, 1-13	232,250	sq. ft.	220,438	11,622	210	0
East Station	31,150	sq. ft.	**30,790**	**360**	0	0
Total Structure	332,900	sq. ft.	**303,558**	**24,032**	**5,310**	0

The reinforced concrete deck is in **Satisfactory** condition. The deck is divided into several sections as detailed below:

Detroit Avenue Tunnel: During the 1995-1997 rehabilitation, a new reinforced concrete slab was placed on top of the original slab. The new slab was designed to support live and dead loads, with the original slab offering no structural support. The top and bottom surfaces for the new slab are not visible and assumed to be in good condition, despite the poor and critical conditions of the original tunnel slab beneath.

West 25th Street Tunnel: The West 25th Street tunnel ceiling is in satisfactory condition, with areas of saturation, isolated delaminated areas, and shallow spalling with exposed reinforcing.

West Station: The West Station ceiling is in fair condition and has areas of spalling, cracking and efflorescence, active water infiltration, and exposed reinforcing steel (Photo 1).



Photo 1: Typical Saturation and Effloresence on West Station Tunnel Ceiling

Spans 1A, 1B, and 1 through 13: The upper deck floor in the main spans is in satisfactory condition (Photo 2). There are isolated cracks with some efflorescence, sound and unsound patches, and spalls, some with exposed reinforcing. There are numerous areas of moisture staining, typically near deck drain locations, some of which have mottling, efflorescence, and rust staining.

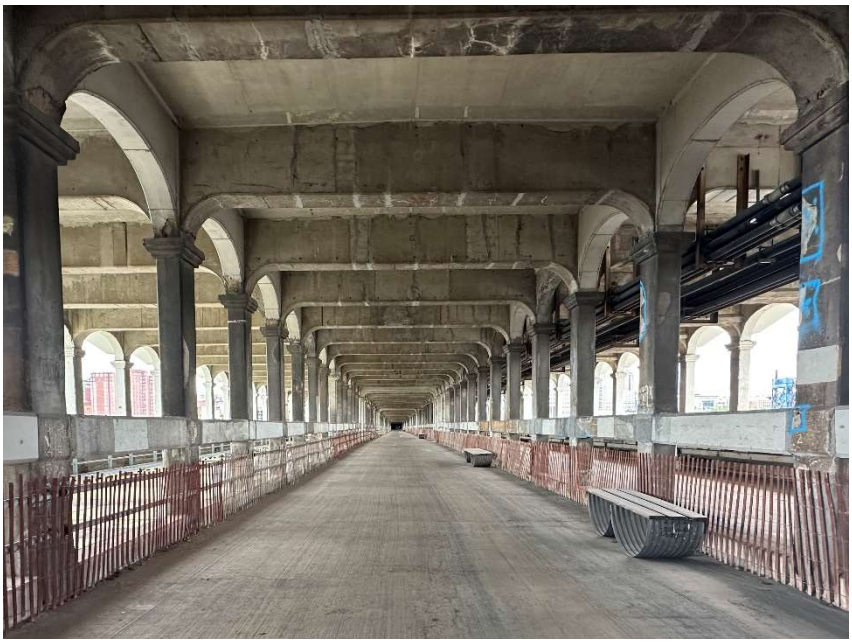


Photo 2: View of Upper Deck From West End of Maintenance Deck

East Station: The East Station ceiling is overall in good condition with scattered cracking with efflorescence.

Lower Deck: The lower deck floor is not open to vehicular or pedestrian traffic and is therefore not included as part of the element quantities. The lower deck floor is in good condition and consists of reinforced concrete with metal stay-in-place forms in Spans 1 through 3, and Spans 5 through 13. In isolated locations, the stay-in-place forms have active corrosion. In Span 4, the lower deck is an open steel grid type in middle section, and fiberglass grid in the exterior sections.

For specific deficiencies and locations, refer to Open Spandrel Arch Drawings in Appendix C.

5.1.2 NBI ITEM 58.02 & ELEMENT 300 – STRIP SEAL EXPANSION JOINT

Total Quantity	Units	CS1	CS2	CS3	CS4
2,579	ft.	1,356	1,000	223	0

The expansion joints are overall in **Satisfactory** condition. Joints typically have sections with loose debris (Photo 3). On the sidewalks, there are locations of edge spalls along the joint armor. There are some scattered areas of active leakage and minor damage to joint armor. At several joints there are areas of tearing seals or seals pulling out of retainers. At Joint 1A, there are two sections of broken intermittent fillet welds in the joint armor

in the eastbound lanes. For specific deficiencies, refer to Table 1 for joint measurements and Table 2 in Appendix C.



Photo 3: Typical Expansion Joints With Debris

5.1.3 ELEMENT 331 – METAL BRIDGE RAILING

Total Quantity	Units	CS1	CS2	CS3	CS4
1,366	ft.	1,356	0	10	0

The median railings are in **Good** condition. There is a location of damaged guardrail on the south side of the bridge in Span 4 (Photo 4). The median railings are located along the edges of the roadway in Span 4 to protect the truss and hangers from vehicle impact.



Photo 4: Damaged South Guardrail in Span 4

5.1.4 ELEMENT 331 – REINFORCED CONCRETE BRIDGE RAILING

Total Quantity	Units	CS1	CS2	CS3	CS4
5,312	ft.	5,208	100	4	0

The concrete railings are in **Good** condition. The railings on the north and south side of the bridge consist of a reinforced concrete railing with an aluminum fence on top (Photo 5). All concrete railing is in good condition with minor cracking, staining, and isolated spalling at the joints. The metal fence has isolated areas of minor damage (Photo 6). For specific deficiencies, refer to Table 2 in Appendix C.



Photo 5: Typical Railing and Fence Condition



Photo 6: Typical Minor Fence Damage

5.1.5 NBI ITEM 58.01 & ELEMENT 510 – WEARING SURFACES

Type	Total Quantity	Units	CS1	CS2	CS3	CS4
Concrete	177,255	sq. ft.	168,355	**8,896**	0	**4**
Asphalt	69,500	sq. ft.	66,025	3,475	0	0
Total Structure	246,755	sq. ft.	234,380	**12,371**	0	**4**

The wearing surface is in **Good** condition. In Spans 1A – 13 and the East Station, the wearing surface is a micro silica modified concrete, which was placed in 2019. There are locations of map cracking in the concrete wearing surface (Photo 7), and one area of concrete patching that is beginning to break apart. **There is a 2-inch-deep pothole with exposed reinforcing steel in the eastbound lane in span 8 (Photo 8).** Above the Detroit Avenue Tunnel, West 25th Street Tunnel and West Station, the wearing surface is asphalt. This asphalt has areas of transverse and map cracking.



Photo 7: Typical Minor Map Cracks on Concrete Wearing Surface, Eastbound Lane



Photo 8: Pothole in Concrete Wearing Surface, Span 8 Eastbound Lane

5.1.6 ELEMENT 815 – DRAINAGE

Total Quantity	Units	CS1	CS2	CS3	CS4
28	each	18	6	2	2

The deck drainage is in **Fair** condition. The West Abutment south downspout is completely clogged at the base of the catch basin. The Pier 1 downspout is completely clogged at the base of the catch basin and is disconnecting at a coupler above the catch basin. At Pier 3, the south downspout is disconnected at the base of the pier, allowing drainage on the pier face (Photo 9). At Piers 5, 6, 7, and 9, some of the catch basins and covers show signs of movement or damage (Photo 10). The north sidewalk longitudinal trench drains are filled with debris and active vegetation growth and are not functioning. Some of the scupper inlets are fully or partially clogged. At Pier 5 on the North Side, and in Span 13 on the South Side, there is active leakage coming through the utility entrances in the deck, allowing roadway drainage onto the maintenance deck. For specific deficiencies and locations, refer to Tables 2 and 7 and Substructure Drawings in Appendix C.



Photo 9: At Pier 3, the South Downspout is Disconnected at the Base of the Pier



Photo 10: Shifted Catch Basin Cover at Pier 9

5.1.7 CURB/SIDEWALK

The concrete curb and sidewalk are in **Satisfactory** condition. The curbs and sidewalks have areas of cracking, delamination, and spalling (Photo 11). **Spalled areas in the north sidewalk have been patched with asphalt (Photo 12).** The steel curb plates have widespread surface corrosion. For specific deficiencies, refer to Table 2 in Appendix C.



Photo 11: Typical Cracks on North Sidewalk



Photo 12: Asphalt-Filled Spalls on North Sidewalk

5.2 NBI Item 59 – Superstructure

The overall superstructure rating is a **5**, indicating that it is in **Fair** condition. Condition findings of individual superstructure items are as follows:

5.2.1 CONCRETE SUPERSTRUCTURE

5.2.1.1 ELEMENT 110 – REINFORCED CONCRETE OPEN GIRDER/BEAM

Total Quantity	Units	CS1	CS2	CS3	CS4
7,394	ft.	6,094	1,100	200	0

The beams are in overall **Fair** condition. This element consists of the longitudinal beams in the Detroit Avenue Tunnel, West 25th Street Tunnel, and West Station. The concrete beams have delaminations, efflorescence, and some areas of spalling with exposed reinforcing. For specific deficiencies, refer to Table 7 in Appendix C.

5.2.1.2 ELEMENT 144 – REINFORCED CONCRETE ARCH

Total Quantity	Units	CS1	CS2	CS3	CS4
8,040	ft.	6,110	1,280	650	0

The concrete arches are in **Fair** condition. This element encompasses the concrete arches and arch columns. The concrete arches in Spans 5 through 10, Span 13, and portions of Span 3 were patched, crack injected and then wrapped on the underside with FRP to prevent future spalling. Select columns were also patched. The concrete arches and columns that were not repaired typically have areas of cracking, delamination, poor patching, and spalling with and without exposed reinforcing (Photos 13 & 14). The concrete jack arches connecting the columns below the upper and maintenance decks have spalls with exposed reinforcing steel, cracks, and delaminated areas.



Photo 13: Typical Deteriorated Concrete Arch



Photo 14: Typical Deteriorated Concrete Arch Column

For specific deficiencies and locations, refer to Open Spandrel Arch Drawings in Appendix C.

5.2.1.3 ELEMENT 155 – REINFORCED CONCRETE FLOOR BEAM

Total Quantity	Units	CS1	CS2	CS3	CS4
33,543	ft.	27,543	5,000	1,000	0

The concrete floorbeams in Spans 1A, 1B, 1 through 3, and Spans 5 through 13 are in **Satisfactory** condition. The floorbeams have isolated spalls with and without exposed reinforcing, cracking, delaminations, and areas of poor patching or no patching (Photo 15). The lower deck floorbeams tend to be in worse condition than the upper deck floorbeams, however they do not support traffic loading. The structural corbels are included in the rating of this element and exhibit similar defects as the rest of the floorbeams. The lower deck floorbeams in the East Station have the bottom mat of reinforcing steel exposed and numerous shear stirrups have complete section loss. This deterioration has changed little since the 1980s, but they carry no substantial live load. As part of the most recent rehabilitation, the undersides of lower deck floorbeams in Spans 5 through 10, 13, and portions of Span 3 were fiber wrapped after patching, to prevent future spalling.



Photo 15: Several Spalled and Unpatched Floorbeams in Span 13 Between Column Lines A and B

For specific deficiencies and locations, refer to the Floor System Drawings in Appendix C.

5.2.2 STEEL SUPERSTRUCTURE (SPAN 4)

The load bearing components (web plates and flange angles) of the primary truss members and gusset plates are composed of nickel steel, an early high strength steel also known for its corrosion resistant properties. The original hangers, also composed of nickel steel, were replaced with 50 ksi low carbon steel. All lacing member components of the primary truss members, upper and lower deck floorbeams, lateral and longitudinal bracing and sway bracing are composed of 30 ksi carbon steel.

5.2.2.1 ELEMENT 113 – STEEL STRINGER

Total Quantity	Units	CS1	CS2	CS3	CS4
10,638	ft.	10,238	250	150	0

The stringers are in **Satisfactory** condition. There are 18 lines of stringers in the upper deck and 12 in the lower deck. The upper deck stringers have shear studs welded to the top flange providing composite action with the deck. The upper and lower deck stringers in Panels 4, 5, 5', and 4' were replaced in 1995. The upper deck stringers have some areas of active corrosion and pitting at the ends. The original curb stringers of Lines E and

N have areas of painted over pitting and some corrosion holes, with some active corrosion throughout their length (Photo 16). Stringer P, from panel point 4' to 2', has areas of active corrosion with advanced section loss of the bottom flange and lower portion of the web. These areas of deterioration were first noted during the 2012 inspection, and section loss has progressed at a slow rate since that time.



Photo 16: Painted Over Pitting and Corrosion Holes of Steel Stringer through Floorbeam 3'

The lower deck is not open to vehicular or pedestrian traffic; the stringers are therefore not included as part of the element quantities. The stringers supporting the steel grid deck are in good condition. Stringers D, E, I and J, which support only their own dead load, have areas of painted over advanced section loss and perforations at the floorbeams and saddle bearings. Stringer K, which supports the south fiberglass pedestrian deck, has similar locations of advanced section loss. The rest of the stringers supporting the outer pedestrian fiberglass grid deck are in satisfactory condition.

For specific deficiencies and locations, refer to Tables 3 & 4 in Appendix B and Truss Drawings in Appendix C.

5.2.2.2 ELEMENT 120 – STEEL TRUSS

Total Quantity	Units	CS1	CS2	CS3	CS4
1,182	ft.	490	500	192	0

The steel truss is overall in **Satisfactory** condition. The superstructure is a 3-pinned Truss Arch, where the lower chords are the primary arch compression members, and the top chords are the stiffening members. There are areas of pack rust, pitting, surface corrosion, and rivet head loss, which are worse at and below the upper deck. **Pack rust between built-up truss members is causing distortion of the chord web plates (Photo 18).** Advanced section loss and perforations, many of which have been cleaned and painted over, are present in the batten plates, lacing bars, and truss chord diaphragms (Photos 17, 18, & 19). At the eyebar connections, there are areas of painted over and reactivated pitting in the web plates.

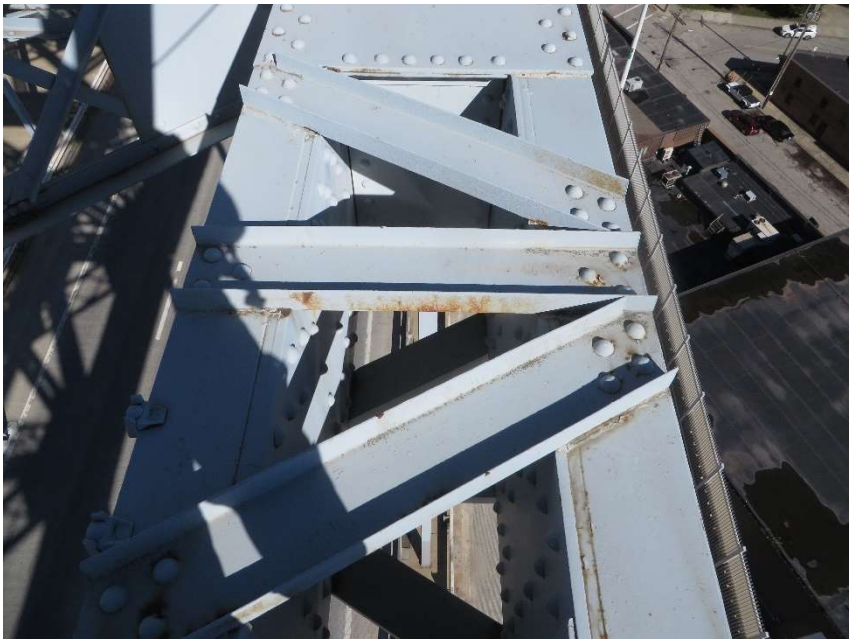


Photo 17: Typical Lower Chord Condition Above Deck – L12-L11' R



Photo 18: Typical Upper Chord Condition Above Deck – U12-U11' R



Photo 19: Advanced Section Loss of Batten Plates and Lacing Bars

The diaphragms at each end of each box chord are critical for maintaining the shape and the buckling capacity of the compression member. The diaphragm below the deck at L1, L1', L2, L2', L3 and L3' on both trusses have perforations (Photos 20 & 21). For specific deficiencies and locations, refer to Truss Drawings in Appendix C.



Photo 20: Perforations in Diaphragms at L1'R



Photo 21: Perforations in Diaphragms at L2'R

5.2.2.3 ELEMENT 152 – STEEL FLOOR BEAM

Total Quantity	Units	CS1	CS2	CS3	CS4
3,925	ft.	3,475	250	200	0

The steel floorbeams are in **Satisfactory** condition (Photos 22 & 23). The floorbeams typically have painted over pitting and section loss near the deck openings at the truss lines and deck joints. In these areas, there are some web perforations, with repair plates welded in place at some of the perforation locations. Floorbeams 0 and 0' have widespread painted over and active corrosion holes in transverse stiffeners and bottom flange due to joint leakage (Photo 24). Active surface corrosion is present due to ongoing water infiltration at the deck openings.



Photo 22: Typical Upper Floor Beam Condition – U-FB8 Looking East



Photo 23: Typical Upper Floor Beam Condition of Hanger U-FB-8L



Photo 24: Painted Over Section Loss on Upper FB 0' East Bottom Flange and Knee Brace

The lower deck is not open to vehicular or pedestrian traffic; the floor beams are therefore not included as part of the element quantities. On lower deck Floorbeams 10, 12, and 11' through 6', there are cracks along the field weld of the stiffening repair plates to the top flange at the north truss lines (Photos 25 & 26). We did not note any increased lengths of cracks since the **2023** Inspection. The lower deck floorbeams have several areas of advanced section loss and painted over pitting in the top and bottom flanges (Photo 27).



Photo 25: Lower Floor Beam Connection L-FB6' L



Photo 26: Closeup of Crack and Section Loss at L-FB6' L



Photo 27: Missing Rivets, Painted Over Pitting, Pack Rust, and Corrosion Holes of Lower Deck Floorbeam

For specific deficiencies and locations, refer to Tables 3 & 4 in Appendix B and Truss Drawings in Appendix C.

5.2.2.4 ELEMENT 161 – STEEL PIN AND PIN & HANGER ASSEMBLY

Total Quantity	Units	CS1	CS2	CS3	CS4
30	each	27	3	0	0

The pins, hangers, and hinges are in **Good** condition with no significant deficiencies noted (Photo 28). Minor painted over pitting was noted on some eye-bars below the upper deck and lower deck. There is active corrosion on some of the hangers above the previous zonal painting. The three pin and hanger assemblies that are CS3 are located at Lower Floor Beam Connection 4L, 4R, and 4'R (Photo 29). At these locations, the hanger connects to lower floor beam and the upper floor beam is supported from a column supported by these lower floor beams.

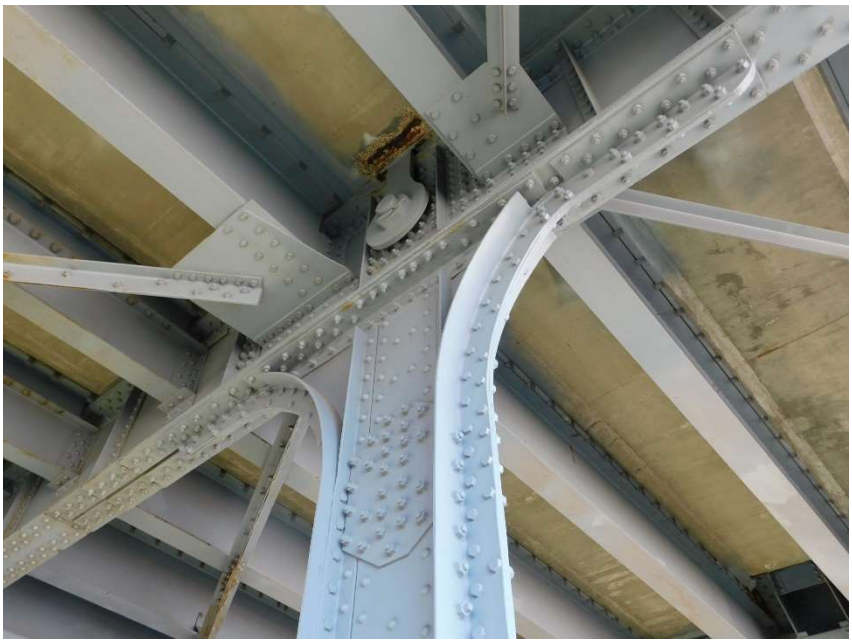


Photo 28: Typical Lower Pin Connection at Upper Floor Beam – U-FB6-L



Photo 29: Lower Pin Connection at Floor Beam Connection L-FB4-R

The arch is a 3-pinned arch with a pin at each bearing at a center pin at L12 (Photos 30 & 31). The pin at L12 serves as both the center pin for the arch and the upper pin for the deck hanger. The pin and hangers are in good condition. **There are longitudinal grooves in the upper hanger eye bar at L12 which is supported by the main hinge. These grooves appear to be fabrication marks. See photo below.**

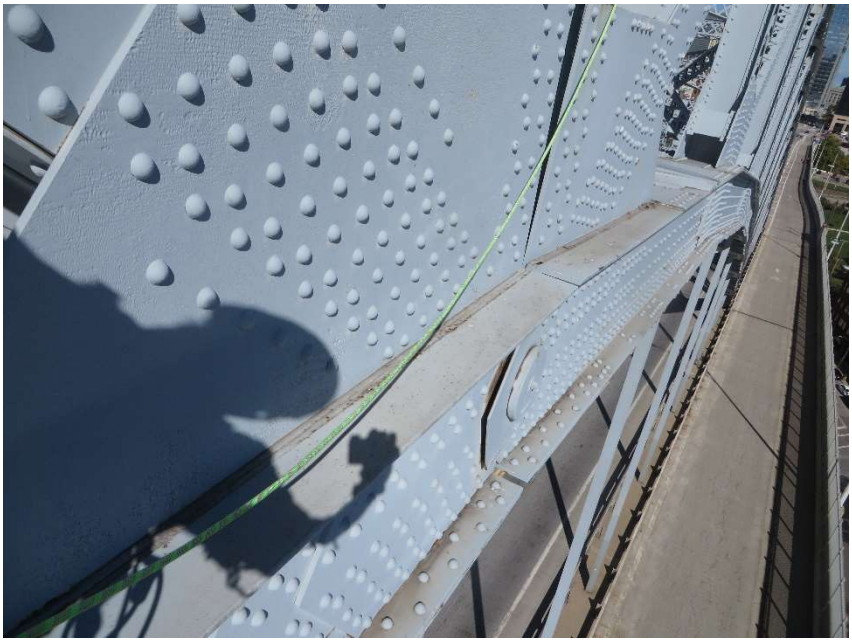


Photo 30: Center Arch Pin at L12R – Looking North, Note bow in keeper plate at Rear Right Side. (Rear Left Side similar)



Photo 31: Center Arch Pin and Deck Hanger at L12L, Looking Down. Lines in Top of Deck Hanger Eye Running Parallel with the Eye Appear to be Fabrication Defects.

For specific deficiencies and locations, refer to Tables 3 & 4 in Appendix B and Truss Drawings in Appendix C.

5.2.2.5 ELEMENT 162 – STEEL GUSSET PLATE

Total Quantity	Units	CS1	CS2	CS3	CS4
100	each	20	47	33	0

The truss gusset plates are in **Fair** condition. The gusset plates typically have areas of active surface corrosion. The lower chord gusset plates below the upper deck typically have painted over pitting and reactivating corrosion along the top of the lower chord (Photos 32, 33, & 34). In other some locations, the gusset plates have areas of pitting and rivet head loss. For specific deficiencies and locations, refer to Truss Drawings in Appendix C.



Photo 32: Gusset Plate with Painted over Pitting and Reactivating Corrosion (Upper Chord)



Photo 33: Section Loss along both Gusset Plates at chord interface at L2R

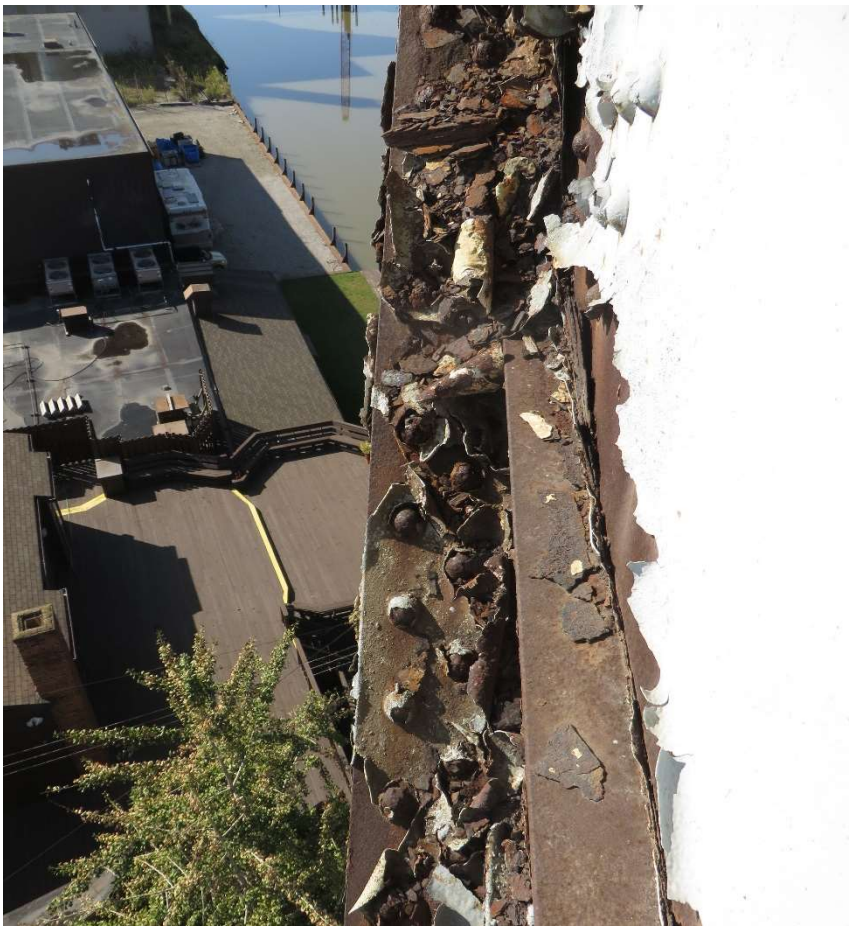


Photo 34: Section Loss at South Gusset Plate at L2'R

5.2.2.6 ELEMENT 313 – FIXED BEARING

Total Quantity	Units	CS1	CS2	CS3	CS4
4	each	0	4	0	0

The bearings are in **Fair** condition with some pack rust around the pins, and surface corrosion noted on the interior faces of all four bearing castings (Photo 35). The non-structural bearing pin cover plates have cracks up to 7 inches long at L0 and L0' on both trusses (Photo 36). The north pin cover at L0 on the north truss has broken off. There is advanced section loss of some of the anchor bolt and nuts.



Photo 35: Typical Arch Bearing Condition – L0-L



Photo 36: Non-Structural Bearing Pin Cover Plates L0'-R

Between the deck underside and the top of the transverse floorbeams over Piers 11 & 12, there are 3" H concrete pedestals with galvanized steel plates sitting on top and between each pedestal. In several locations, these plates are missing and no longer support the deck underside or have varying displacements from the bearing pedestal.

For specific deficiencies and locations, refer to Truss Drawings in Appendix C.

5.2.2.7 NBI ITEM 59.01 & ELEMENT 515 – STEEL PROTECTIVE COATING

Total Quantity	Units	CS1	CS2	CS3	CS4
214,850	sq. ft.	190,340	13,780	10,130	600

The protective coating system (PCS) is in **Satisfactory** condition. Areas of corrosion, peeling and failed paint are present on the main truss members below the lower deck. The structural steel between the upper and lower decks was repainted in 2014-2015 and is in good condition. The protective coating system below the lower deck is in critical condition (Photos 37 & 38). The protective coating system above the upper deck has surface corrosion with minor rust staining.



Photo 37: Inside L2'-U2'R Looking Down From U2'R



Photo 38: Paint Phase Zone L3 R

5.2.2.8 LATERAL BRACING & SWAY BRACING

The lateral bracing and sway bracing is in **Satisfactory** condition with isolated areas of active surface corrosion, pack rust, and advanced section loss including perforations (Photo 39). For specific deficiencies and locations, refer to Truss Drawings in Appendix C.



Photo 39: Typical Sway Bracing at L6-U6

5.2.2.9 FATIGUE PRONE DETAILS

The fatigue prone details are in **Fair** condition. Stiffening retrofit plates welded to the top flange of the lower deck floorbeams at the truss lines are classified as Category E fatigue details. Cracks in the fillet welds are present at several locations. For additional details on crack locations and growth, refer to Element 152 – Steel Floor Beam above.

5.3 NBI Item 60 – Substructure

The overall substructure rating is a **6**, indicating that it is in **Satisfactory** condition. Condition findings of individual substructure items are as follows:

5.3.1 ELEMENT 205 – REINFORCED CONCRETE COLUMN

Location	Total Quantity	Units	CS1	CS2	CS3	CS4
Main Span Piers	40	each	25	15	0	0
Spans 1A & 1B	108	each	33	20	55	0
Tunnels & Stations	365	each	300	**19**	**48**	0
Total Structure	513	each	356	**54**	**103**	0

The pier columns are in **Satisfactory** condition. This item includes the main span pier columns, columns in Spans 1A and 1B, and the columns in the subway tunnels and stations. The main span pier columns have areas of map cracking, failing patching, and delaminations. There are also a few areas of minor spalling with exposed reinforcing. The decorative arches above these columns have areas of map cracking, failing patching, delamination, and spalling with exposed reinforcing. The remaining columns have areas of failing patching, delamination, and spalling with and without exposed reinforcing (Photo 40).



Photo 40: Spalled and Unpatched Column with Exposed Reinforcement

The decorative towers on the north and south faces of the piers typically have widespread cracking, delamination and spalling with and without exposed reinforcing (Photo 41). The south towers at Piers 5 through 7 are leaning away from bridge, with gaps up to 2¼-in between the top of the tower and the outside face of the upper jack arches. Detailed measurements of the gaps between these towers and the adjacent bridge features are given Table 5 in Appendix C. No change was noted between the current measurements and those taken during the 2021 inspection.



Photo 41: Typical Cracks, Spalls, and Gap at Top of North Decorative Tower at Pier 8

For specific deficiencies and locations, refer to Table 7 and Substructure Drawings in Appendix C.

5.3.2 ELEMENT 210 – REINFORCED CONCRETE PIER WALL

Total Quantity	Units	CS1	CS2	CS3	CS4
200	ft.	100	50	50	0

The pier walls at Piers 1, 3, and 4 are in **Satisfactory** condition. The west face of Pier 1 is primarily covered by fill. The exposed portions of the pier walls have areas of map cracking and delamination (Photo 42). Piers 3 and 4 are located adjacent to the Cuyahoga River. The portion of Pier 3 that is exposed to the channel has widespread areas of deep abrasion and numerous spalls. Piers 3 and 4 are cellular type structures, which are

open on their Span 3 and 5 faces, respectively. The interiors faces of the walls have areas of delamination and spalling with exposed reinforcing.



Photo 42: Typical Map Cracks on East Face of Pier 4 Wall

For specific deficiencies and locations, refer to Substructure Drawings in Appendix C.

5.3.3 ELEMENT 215 – REINFORCED CONCRETE ABUTMENT

Total Quantity	Units	CS1	CS2	CS3	CS4
3,459	ft.	3,059	200	200	0

The abutment walls are in **Satisfactory** condition. The abutment walls consist of the West and East Abutments and the walls of the West Station, East Station, Detroit Avenue Tunnel, and West 25th Street Tunnel. The abutments have areas of cracking with minor moisture staining, delamination, and some spalling (Photo 43). Some staining appears to be superficial due to leaking deck joints above. In the tunnels, the lower 1-ft to 2-ft of the walls have widespread shallow spalling with exposed reinforcing. The portions of the walls in the tunnels above these areas were repaired as part of the most recent rehabilitation.



Photo 43: Spalls With Deteriorated Rebar on West Abutment Wall

5.3.4 ELEMENT 830 – ABUTMENT BACKWALL

Total Quantity	Units	CS1	CS2	CS3	CS4
263	ft.	263	0	0	0

The backwalls are in **Good** condition. The backwalls consist of the closure panels at the ends of the West 25th Street Tunnel, Detroit Avenue Tunnel, and East Station.

5.3.5 WINGWALLS

The wingwalls are in **Poor** condition. The wingwalls along Spans 1A and 1B and the East and West Stations have cracking and spalling with exposed reinforcement throughout. For specific deficiencies and locations, refer to Substructure Drawings in Appendix C.

5.3.6 TOWER B SOUTH

A section of the rear abutment, south wingwall at Tower B has through cracks in the wall and associated footing, and the tower and cracked section of the wall are leaning to the south. It has continued to show incremental movement over the past 10+ years. On the interior, the top of the tower is spalled and cracked

due to contact with the soffit of the upper-level sidewalk. Crack gauges have been placed at several locations to monitor the movement of the section. **Crack gauges located at the base of Tower B could not be verified due to excessive debris.** Crack gauges located at the base of Tower B **were previously noted to be** cracked and slightly displaced. New gauges should be installed to ensure an accurate record of the tower rotation is maintained. For detailed defect drawings and crack gage measurements, refer to Table 6 in Appendix C.

5.3.7 WEST & EAST ABUTMENT CHAMBERS

The chambers below Spans 1A and 1B on the west approach and below the East Station were inspected, however, they are not included in any of the quantities within this report. Horizontal, vertical, diagonal, and map cracking with efflorescence and moisture staining are present throughout all cells. Areas of delaminations and spalling with exposed reinforcing are present in scattered locations. The floors are typically covered in dirt and construction debris. In the west chamber, there is heavy cracking around south Tower B (see discussion above for more details), and a second area of significant cracking at the north end of cells 2S through 6S. Crack gauges have been installed to track developments at both of these areas. For crack gage measurements, refer to Table 6 in Appendix C.

5.3.8 WATER INFILTRATION

Standing water was noted in the pedestrian tunnel under the West Station. In the east abutment chamber, most of the lower cells are filled with standing water. The pedestrian tunnel under the East Station is also filled with standing water (Photo 44).



Photo 44: Standing Water in Pedestrian Tunnel Under East Station

5.3.9 SLOPE PROTECTION

The slope protection is in **Satisfactory** condition, with some areas of erosion and sliding material noted.

There is significant rutting of the ground near the south column of Pier 9. The rutting appears to possibly be from the drainage of sloped ground nearby and not from any pipe outlet (Photo 45).



Photo 45: Significant Rutting Near the South Column of Pier 9

5.4 NBI Item 61 – Channel & Channel Protection

The overall channel rating is a **6**, indicating that it is in **Satisfactory** condition. Condition findings of individual channel items are as follows:

5.4.1 ALIGNMENT

The alignment is in **Good** condition. The channel is skewed with respect to the piers, but this is an as-built condition (Photos 46 & 47).



Photo 46: Channel at Bridge, Looking Northeast



Photo 47: Channel at Bridge, Looking Southwest

5.4.2 PROTECTION

The channel protection is in **Satisfactory** condition with only minor deficiencies. The west bank is vegetated with some dumped rock channel protection. The east bank is protected by a sheet pile wall.

5.4.3 HYDRAULIC OPENING

The hydraulic opening is in **Good** condition with no major constrictions associated with the bridge.

5.4.4 NAVIGATION LIGHTS

The navigation lights are in **Poor** condition. None of the upstream lights were functioning at the time of inspection. On the Downstream side, the center and west lights were not functioning. No damage was noted to the light fixtures.

5.4.5 NBI ITEM 58.01 – SCOUR

The scour rating is a **7**, indicating that it is in **Good** condition. An underwater bridge inspection was performed on July 8, 2020. No areas of exposed foundation or significant scour holes were found in the inspection.

5.5 Approaches

The approaches are in **Satisfactory** condition. Condition findings of individual approach items are as follows:

5.5.1 APPROACH WEARING SURFACE

The approach wearing surfaces are in **Satisfactory** condition (Photo 48). There are some areas of transverse and map cracking. **Transverse cracking is typical on the south approach sidewalks.**



Photo 48: East Approach Wearing Surface

5.5.2 EMBANKMENT

The approach embankments are in **Fair** condition. The embankment under Spans 1 through 3 has several slope depressions. This embankment was primarily loose soil placed over demolition debris. Beneath this fill are two concrete struts between Pier 2 and 3 used to maintain stability during construction. The south strut is preventing portions of the fill from sliding into the Cuyahoga River. This embankment is being monitored with slope inclinometers maintained by ODOT District 12. The embankment on the south side of Spans 1, 1A, and 1B were cleared and partially graded since the 2021 inspection.

The embankment along the south side of Spans 1A and 1B has significant erosion for the full length (Photo 49). At the west end of the erosion, there is a 15’ diameter x 4’ deep erosion ditch around a manhole. An erosion

ditch extends from the manhole towards the east typically 3' W x 2' D. This erosion is relatively unchanged from the 2021 inspection. Tower B South, which is in this area, is leaning due to slope instability, as previously discussed.



Photo 49: Typical Erosion on the South Side of Span 1

For specific deficiencies and locations, refer to Substructure Drawings in Appendix C.

5.5.3 GUARDRAIL

The approach guardrails are in **Good** condition with some minor impact scrapes in the concrete rail.

5.5.4 SECURITY ITEMS

There are locations where the structure and structure right-of-way can be accessed by non-bridge personnel. The fence which encloses the area under Span 1 and along the south sides of Spans 1A and 1B is accessible due to an unlocked gate on the southeast end of Pier 1, and two locations where holes have been cut into the fence on the south side of Spans 1A & 1B. Due to these openings, there are multiple homeless encampments within the fenced in area. Preventative access steel mesh installed outside Span 1A near Tower A to prevent access has failed. Security fencing installed around Piers 2 and 3 can easily be surpassed, and there is evidence of a homeless encampment inside of Pier 3.

A chain link enclosure for the Center Street Bridge operator's vehicle on the west side of Pier 4 allows vandals to climb the fencing cover to access the Span 4 truss. From here the vandals have vandalized Pier 4 and have access to the truss lower chord and potentially the lower deck.

The west approach garage door lock was cut, the latch broken, and fence pried back prior to the 2024 inspection. A new lock was installed by the County.

5.6 Signs & Utilities

Condition findings of individual sign and utility items are as follows:

5.6.1 SIGNS

The signs on the structure are in **Good** condition.

5.6.2 UTILITIES

The utilities are in **Satisfactory** condition. The lower deck telephone junction chambers and supports are corroded due to roadway drainage infiltrating through the manhole above. At Pier 5 on the North Side, in Span 6 on the South Side, and in Span 13 on the South Side, there is active leakage coming through the utility entrances in the deck. A utility line mounted below the top deck in the south bay is sagging and making contact with the maintenance deck in several locations. There is a partially detached electric junction box cover on the south concrete rail in Span 1A.

5.6.3 LIGHTING

The lighting on the bridge is in **Fair** condition. Architectural light pole bases on the north sidewalk in Spans 4, 5, 8, and 11 have cracked and are broken (Photo 50). **There is one missing light pole on the east approach north sidewalk. The light pole base is still on the sidewalk.** Three of the architectural lights on the north sidewalk, and numerous of the taller, cobra style roadway lights are not functioning. All the exterior pier shaft light brackets have paint failure and corrosion with minor section loss present. Many of the architectural lights attached to the lower deck fascia and on the piers are not functioning (Photo 51), and several are visually broken.



Photo 50: Typical Broken Architectural Light Pole Base



Photo 51: Typical Non-Functioning Architectural Lights on the Piers

5.7 Summary & Recommendations

The General Appraisal and Operating Status for the bridge is **5A**, indicating that it is in **Fair** condition and is open with no restrictions.

The following is a summary of the field inspection performed on **October 14-16, 2024**:

NBI Item	Component	Rating
58	Deck	6
58.01	Wearing Surface	**7**
58.02	Expansion Joint	6
59	**Superstructure**	**5**
59.01	Protective Coating System (PCS)	6
60	**Substructure**	**6**
61	Channel & Channel Protection	6
61.01	Scour	7

DLZ has determined the following recommendations for the bridge. Based on the level of urgency, recommendations have been divided into three categories: Priority, Maintenance, and Monitor.

5.7.1 PRIORITY

The following recommendations are priority repairs which should be completed as soon as possible to address an immediate safety concern:

1. Clean and paint areas of active corrosion on the steel truss. Specifically, below the deck between L0 and L4 and between L0' and L4'.
2. Repair the lower chord truss arch diaphragms and lattice bars on each truss between L0 and L4 and between L0' and L4'.
3. Repair the damaged median guardrail on the south side of the bridge in Span 4.
4. Clean and repair clogged and/or damaged drainage system components.
5. Repair areas of deteriorated concrete at the arches.
6. Repair and clean areas of the deteriorated substructure concrete.
7. Determine a permanent repair to correct or stabilize the Tower B rotation.
8. Replace the strip seal at the Pier 10 Joint.
9. Reset or Replace strip seals at **Tower 1A, Tower 1B, Pier 3 East**, Pier 4 West, 6, **7**, 8, and **9**.
10. Repair the broken welds on Joint 1A armor.
11. Repair the navigation lights that are not functioning.
12. Replace missing electric junction box cover on the south concrete rail in Span 1A.
13. Repair the embankment in Spans 1A.

14. Secure all access points to the structure and remove the homeless encampments from Span 1 and Pier 3.
15. **Repair the significant rutting of the ground near the south column of Pier 9.**
16. **Repair the pothole in the bridge deck wearing surface in span 8 with concrete.**
17. **Replace asphalt patches in sidewalk with concrete patching.**

5.7.2 MAINTENANCE

The following recommendations are on-going repairs which are intended to maintain the current level of service for the bridge:

1. Clean the expansion joints.
2. Look into feasibility of draining the flooded areas of the east and west stations to gain access and perform a thorough inspection.
3. Continue to monitor the rotation of the tower shafts.
4. Repair non-functioning architectural lighting.

5.7.3 MONITOR

The following items should be investigated and recorded with each annual bridge inspection:

1. Monitor areas of concrete deterioration that could cause damage to vehicular and pedestrian traffic.
2. **Monitor garage door at the west approach and abandoned Cuyahoga County Engineer's property for signs of break-ins.**

APPENDIX A – AssetWise Bridge Inspection Field Report

Inspector: Bennett,Tyler **Structure Number:** 1800930

Inspection Date: 10/16/2024 **Facility Carried:** USR 6

Ohio Bridge Inspection Summary Report CUY-00006-1456 (1800930)

2: District	District 12	16000 - CLEVELAND (CUY county)	
5A: Inventory Route	1	00006	
21: Major Maint A/B	01 - State Highway Agency	/	
225 Routine Main A/B	04 - City or Municipal Highway Agency	/	
221 Inspection A/B	01 - State Highway Agency	/01	
220: Inv. Location	DISTRICT 12		

7: Facility On	USR 6
6: Feature Ints	CUY. RIVER & RTA
9: Location	DETROIT/SUPERIOR BRIDGE
Lat, Lon	41.49193438201303 ,-81.70618648755347

Condition

58: Deck	**6 - Satisfactory Condition**
58.01 Wearing Surface	7 - Good (1% distress)
58.02 Joint	6- Satisfactory (isolated leaking)
59: Superstructure	**5 - Fair Condition**
59.01 Paint & PCS	6 - Satisfactory (5-10% corr.)
60: Substructure	**6 - Satisfactory Condition**
61: Channel	**6**
61.01 Scour	**7 - Good**
62: Culverts	**N - Not Applicable**
67.01 GA	**5**

Appraisal

Sufficiency Rating	65.6	SD/FO	2 - FO	
36: Rail, Tr, Gd, Term Std	1	N	1	0
72: Approach Alignment	8 - Equal to present desirable criteria			
113: Scour Critical	8 - Stable for scour conditions			
71: Waterway Adequacy	8 - Bridge Above Approaches			

Geometric

48: Max Span Length (ft)	591.0
49: Structure Length (ft)	2656.0
52: Deck Width, Out-To-Out (ft)	85.2
424: Deck Area (sf)	226291.2
32: Appr Roadway Width (ft)	84.0
51: Road Width, Curb-Curb (ft)	72.0
50A: Curb/SW Width: Left (ft)	5
50A: Curb/SW Width: Right (ft)	5
34: Skew (deg)	0
33: Bridge Median	3 - Closed median with non-mountable barriers
54B: Min Vert Underclearance (ft)	30
336A: Min Vert Clrnce IR Cardinal (ft)	14
336B: Min V Clr IR Non-Cardinal (ft)	0
578: Culvert Length (ft)	0

Load Posting

41: Op/Post/Closed	A - Open
70: Posting	5 - Equal to or above legal loads
70.01: Date	
70.02: Sign Type	
734: Percent Legal (%)	110
704: Analysis Date	12/09/2019
63: Analysis Method	6 - Load Factor (LF) rating reported by rating factor (RF) method using MS18 loading.

Structure Type

43: Bridge Type	3 - Steel
	12 - Arch - Thru
	N- Not Applicable
45: Spans Main / Approach	1 / 12
107: Deck Type	1 - Concrete Cast-in-Place
408: Composite Deck	Y - Composite Construction
414A Joint Type 1	8 - Elastomeric Strip Seal
414B: Joint Type 2	3 - Compression Seal
108A: Wearing Surface	1 - Monolithic Concrete (concurrently placed with structural deck)
	N- Not Applicable
422: WS Date	11/15/1996
423: WS Thick (in)	1.0
482: Protective Coating	5 - Paint System OZEU
483: PCS Date	07/15/1997
453: Bearing Type 1	8 - Fixed Arch-Rib
455: Bearing Type 2	3 - Sliding (Bronze)
528: Foundn: Abut Fwd	4 - Spread Footing (on soil)
533: Foundn: Abut Rear	4 - Spread Footing (on Soil)
536: Foundn: Pier 1	N - None (Such as most Culverts)
539: Foundn: Pier 2	N - None (Such as most Culverts)

Age and Service

27: Year Built/ 106 Rehab	1917 / 1997
42A: Service On	5 - Highway-pedestrian
42B: Service Under	7 - Railroad - waterway
28A: Lanes on	06
28B: Lanes Under	00
19: Bypass Length	2
29: ADT	20094
109: % Trucks (%)	1

Inspections

		Months	
90: Routine Insp.		12	10/16/2024
92A: FCM Insp.	Y	12	10/16/2024
92B: Dive Insp.	Y	60	07/08/2020
92C: Special Insp.	N	0	
92D: UBIT Insp.	N	0	10/16/2024
92E: Drone Insp.	N	0	

Inspector Bennett,Tyler

Inspector:	Bennett,Tyler	**Structure Number:**	1800930
Inspection Date:	10/16/2024	**Facility Carried:**	USR 6

Inspector: Bennett,Tyler
Inspection Date: 10/16/2024

Structure Number: 1800930
Facility Carried: USR 6

	Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4
12-Reinforced Concrete Deck	3 - Mod.	332900	sq. ft.	303558	24032	5310	0
	CS2: Areas of minor cracking with efflorescence, patching, delamination and saturation CS3: Areas of spalling with and without exposed reinforcing.						
510-Wearing Surfaces		246755	sq. ft.	234380	12371	4	0
	CS2: Areas of map cracking. Moderate transverse cracks in asphalt wearing surface.						
110-Reinforced Concrete Open Girder/Beam	3 - Mod.	7394	ft.	6094	1100	200	0
	CS2: Areas of delamination and efflorescence. CS3: Areas of spalling with exposed reinforcement.						
113-Steel Stringer	3 - Mod.	10638	ft.	10238	250	150	0
	CS2: Areas of active corrosion. CS3: Areas of active and painted over minor pitting. Isolated moderate section loss with corrosion holes.						
515-Steel Protective Coating		101200	sq. ft.	95640	5060	500	0
	CS2: Areas of surface dulling and loss of effectiveness (substantially effective) CS3: Isolated areas of limited effectiveness						
120-Steel Truss	3 - Mod.	1182	ft.	490	500	192	0
	CS2: Areas of active surface corrosion CS3: Areas of active and painted over pitting, pack rust, and rivet head loss.						
515-Steel Protective Coating		60700	sq. ft.	44930	6070	9100	600
	CS2: Areas of surface dulling, loss of effectiveness (substantially effective), and peeling topcoat CS3: Areas of limited effectiveness and peeling paint.						
144-Reinforced Concrete Arch	3 - Mod.	8040	ft.	6110	1280	650	0
	CS2: Areas of minor to moderate cracking, poor patching and delamination on Columns and Arch CS3: Areas of spalling with and without exposed reinforcing on Columns and Arch						
152-Steel Floor Beam	3 - Mod.	3925	ft.	3475	250	200	0
	CS2: Areas of active surface corrosion CS3: Areas of active and painted over pitting, and painted over perforations at deck openings.						
515-Steel Protective Coating		52950	sq. ft.	49770	2650	530	0
	CS2: Areas of surface dulling and loss of effectiveness (substantially effective) CS3: Isolated areas of limited effectiveness						

Inspector: Bennett,Tyler
Inspection Date: 10/16/2024

Structure Number: 1800930
Facility Carried: USR 6

	Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4
155-Reinforced Concrete Floor Beam	3 - Mod.	33543	ft.	27543	5000	1000	0
	CS2: Areas of minor to moderate cracking, poor patching and delamination CS3: Areas of spalling with and without exposed reinforcing						
161-Steel Pin and Pin & Hanger Assembly or both	3 - Mod.	30	each	27	3	0	0
	CS2: Minor painted over pitting on several eyebars below upper deck.						
162-Steel Gusset Plate	3 - Mod.	100	each	20	47	33	0
	CS2: Areas of active surface corrosion CS3: Areas of active and painted over pitting and rivet head loss						
205-Reinforced Concrete Column	3 - Mod.	513	each	356	54	103	0
	CS2: Locations of map cracking, failing patches and delaminations. CS3: Location of spalling with and without exposed reinforcing						
210-Reinforced Concrete Pier Wall	3 - Mod.	200	ft.	100	50	50	0
	CS2: Areas of map cracking and delamination CS3: Deep spalls at base of Pier 3. Interior faces of Piers 3 & 4 have areas of spalling with exposed reinforcing.						
215-Reinforced Concrete Abutment	3 - Mod.	3459	ft.	3059	200	200	0
	CS2: Areas of cracking with staining and delamination CS3: Areas of spalling						
300-Strip Seal Expansion Joint	3 - Mod.	2579	ft.	1356	1000	223	0
	CS2: Areas of minor leakage and debris impaction. CS3: Areas of active leakage and broken welds in joint armor.						
313-Fixed Bearing	3 - Mod.	4	each	0	4	0	0
	CS3: Pack rust around pins.						
330-Metal Bridge Railing	3 - Mod.	1366	ft.	1356	0	10	0
331-Reinforced Concrete Bridge Railing	3 - Mod.	5312	ft.	5208	100	4	0
	CS2: Areas of minor cracking with staining. CS3: Isolated spalling						
815-Drainage	3 - Mod.	28	each	18	6	2	2
	CS2: Several partially plugged scuppers. CS3: Several plugged downspouts CS4: Several fully plugged scupper inlets						
830-Abutment Backwall	3 - Mod.	263	ft.	263	0	0	0

Inspector:	Bennett,Tyler	**Structure Number:**	1800930
Inspection Date:	10/16/2024	**Facility Carried:**	USR 6

CUY-00006-1456 _(1800930)

ODOT District:	District 12					Date Built:	07/01/1917
Major Maint:	01 - State Highway Agency	Facility Carried:	USR 6	Traffic On:	5 - Highway-pedestrian	Rehab Date:	01/01/1997
Routine Maint:	04 - City or Municipal Highway Agency	Feature Inters:	CUY. RIVER & RTA	Traffic Under:	7 - Railroad - waterway	Insp. Resp A:	01 - State Highway Agency
FIPS Code:	16000 - CLEVELAND (CUY county)	Location:	DISTRICT 12		DETROIT/SUPERIOR BRIDGE	Insp Resp B:	01 - State Highway Agency

Inspector Bennett,Tyler Inspection Date 10/16/2024 Reviewer Not Approved

Inspector Comments - Deck and Approach

Deck

Element 12 – Reinforced Concrete Deck (SF)

The reinforced concrete deck is in Satisfactory condition. The deck is divided into several sections as detailed below:

Detroit Avenue Tunnel: During the 1995-1997 rehabilitation a new reinforced concrete slab was placed on top of the original slab. The new slab was designed to support live and dead loads, with the original slab offering no structural support. The top and bottom surfaces for the new slab is not visible and assumed to be in good condition despite the poor and critical conditions of the original tunnel slab beneath.

West 25th Street Tunnel: The West 25th Street tunnel ceiling is in satisfactory condition, with areas of saturation, isolated delaminated areas and some shallow spalling with exposed reinforcing.

West Station: The West Station ceiling is in fair condition and has areas of spalling, cracking and efflorescence, active water infiltration, and exposed reinforcing steel.

Spans 1A, 1B, and 1 through 13: The upper deck floor in the main spans is in satisfactory condition. There are isolated cracks with some efflorescence, sound and unsound patches and spalls, some with exposed reinforcing. There are numerous areas of moisture staining, some of which have mottling, efflorescence and rust staining.

East Station: The East Station ceiling is overall in good condition with scattered cracking with efflorescence.

Lower Deck: The lower deck floor is not open to vehicular or pedestrian traffic is therefore not included as part of the element quantities. The lower deck floor is in good condition and consists of reinforced concrete with metal stay-in-place forms in Spans 1 through 3, and Spans 5 through 13. In isolated locations, the stay-in-place forms have active corrosion. In Span 4, the lower deck is an open steel grid type in middle section, and fiberglass grid in the exterior sections.

See the inspection report for additional details.

Element 300 – Strip Seal Expansion Joint (LF)

The expansion joints are overall in Satisfactory condition. Joints typically have sections with loose debris and edge spalls along the joint armor. There are some areas of tearing in the joint seals accompanied by active leakage, and minor damage to joint armor. See the inspection report for additional details.

Element 330 – Metal Bridge Railing (LF)

The median railings are in Good condition. There is a location of damaged guardrail on the south side of the bridge in Span 4. The median railings are located along the edges of the roadway in Span 4 to protect the truss and hangers from vehicle impact.

Element 331 – Reinforced Concrete Bridge Railing (LF)

The concrete railings are in Good condition. The railings on the north and south side of the bridge consist of a reinforced concrete railing with an aluminum fence on top. All concrete railing is in good condition with minor cracking, staining, and isolated spalling. The fence has isolated areas of minor damage. See the inspection report for additional details.

Element 510 – Wearing Surface (SF)

The wearing surface is in Very Good condition. In Spans 1A – 13 and the East Station, the wearing surface is a micro silica modified concrete, which was placed in 2019. There are locations of map cracking in the concrete wearing surface (Photo 7), and one area of concrete patching that is beginning to break apart. There is a 2-inch-deep pothole with exposed reinforcing steel in the eastbound lane in span 8. Above the Detroit Avenue Tunnel, West 25th Street Tunnel and West Station, the wearing surface is asphalt. This asphalt has areas of transverse and map cracking.

Element 815 – Drainage (EA)

The deck drainage is in Fair condition. The West Abutment south downspout is completely clogged at the base of the catch basin. The Pier 1 downspout is completely clogged at the base of the catch basin and is disconnecting at a coupler above the catch basin. At Pier 3, the south downspout is disconnected at the base of the pier, allowing drainage on the pier face. At Piers 5, 6, 7 and 9, some of the catch basins and

covers show signs of movement or damage. The north sidewalk longitudinal trench drains are filled with debris and active vegetation growth, and are not functioning. Some of the scupper inlets are fully or partially clogged. At Pier 5 on the North Side, and in Span 13 on the South Side, there is active leakage coming through the utility entrances in the deck, allowing roadway drainage onto the maintenance deck. See the inspection report for additional details.

Curb/Sidewalk

The concrete curb and sidewalk are in Satisfactory condition. The curbs and sidewalks have areas of cracking, delamination, and spalling. Spalled areas in the north sidewalk have been patched with asphalt. The steel curb plates have widespread surface corrosion. See the inspection report for additional details.

Lighting

The lighting on the bridge is in Fair condition. Architectural light pole bases on the north sidewalk in Spans 5, 8 and 11 have cracked and are broken. There is one missing light pole on the east approach north sidewalk. The light pole base is still on the sidewalk. Two of the architectural lights on the north sidewalk, and numerous of the taller, cobra style roadway lights are not functioning. All of the exterior pier shaft light brackets have paint failure and corrosion with minor section loss present. Many of the architectural lights attached to the lower deck fascia and on the piers are not functioning, and several are visually broken.

Signs

The signs on the structure are in Good condition.

Approach

Approach Wearing Surface

The approach wearing surfaces are in Satisfactory condition. There are some areas of transverse and map cracking. Transverse cracking is typical on the south approach sidewalks.

Embankment

The approach embankments are in Fair condition. The embankment under Spans 1 through 3 has several slope depressions. This embankment was primarily loose soil placed over demolition debris. Beneath this fill is are two concrete struts between Pier 2 and 3 used to maintain stability during construction. The south strut is preventing portions of the fill from sliding into the Cuyahoga River. This embankment is being monitored with slope inclinometers maintained by ODOT District 12. See the inspection report for additional details.

The embankment along the south side of Spans 1A and 1B has significant erosion for the full length. At the west end of the erosion, there is a 15' diameter x 4' deep erosion ditch around a manhole. An erosion ditch extends from the manhole towards the east typically 3' W x 2' D. This erosion is relatively unchanged from the 2020 inspection. Tower B South, which is in this area, is leaning due to slope instability, as previously discussed. See the inspection report for additional details.

Guardrail

The approach guardrails are in Good condition with some minor impact scrapes in the concrete rail.

Security Items

There are locations where the structure and structure right-of-way can be accessed by non-bridge personnel. The fence which encloses the area under Span 1 and along the south sides of Spans 1A and 1B is accessible due to an unlocked gate on the southeast end of Pier 1, and two locations where holes have been cut into the fence on the south side of Spans 1A & 1B. Due to these openings, there are multiple homeless encampments within the fenced in area. Preventative access steel mesh installed outside Span 1A near Tower A to prevent access has failed. Security fencing installed around Piers 2 and 3 can easily be surpassed, and there is evidence of a homeless encampment inside of Pier 3.

A chain link enclosure for the Center Street Bridge operator's vehicle on the west side of Pier 4 allows vandals to climb the fencing cover to access the Span 4 truss. From here the vandals have vandalized Pier 4 and have access to the truss lower chord and potentially the lower deck.

The west approach garage door lock was cut, the latch broken, and fence pried back prior to the 2024 inspection. A new lock was installed by the County.

Inspector Comments - General Appraisal

Superstructure

Element 110 - Reinforced Concrete Beam (LF)

The beams are in overall Fair condition. This element consists of the longitudinal beams in the Detroit Avenue Tunnel, West 25th Street Tunnel, and West Station. The concrete beams have delamination, efflorescence, and some areas of spalling with exposed reinforcing. See the inspection report for additional details.

Element 144 – Reinforced Concrete Arch (LF)

The concrete arches are in Fair condition. This element encompasses the concrete arches and arch

columns. The concrete arches in Spans 5 through 10, Span 13 and portions of Span 3 were patched, crack injected and then wrapped on the underside with FRP to prevent future spalling. Select columns were also patched. The concrete arches and columns that were not repaired typically have areas of cracking, delamination, poor patching and spalling with and without exposed reinforcing. The concrete jack arches connecting the columns below the upper and maintenance decks have spalls with exposed reinforcing steel, cracks, and delaminated areas.

See the inspection report for additional details.

Element 155 – Reinforced Concrete Floor Beam (LF)

The concrete floorbeams in Spans 1A, 1B, 1 through 3, and Spans 5 through 13 are in Satisfactory condition. The floorbeams have isolated spalls with and without exposed reinforcing, cracking, delaminations, and areas of poor patching or no patching. The lower deck floorbeams tend to be in worse condition than the upper deck floorbeams. The structural corbels are included in the rating of this element exhibit similar defects as the rest of the floorbeams. The lower deck floorbeams in the East Station have the bottom mat of reinforcing steel exposed. This deterioration has changed little since the 1980s, but they carry no substantial live load. As part of the most recent rehabilitation, the undersides of lower deck floorbeams in Spans 5 through 10, 13 and portions of Span 3 were fiber wrapped after patching, to prevent future spalling.

See the inspection report for additional details.

Element 113 – Steel Stringer (LF)

The stringers are in Satisfactory condition. There are 18 lines of stringers in the upper deck and 12 in the lower deck. The upper deck stringers have shear studs welded to the top flange providing composite action with the deck. The upper and lower deck stringers in Panels 4, 5, 5', and 4' were replaced in 1995. The upper deck stringers are in good condition. The original curb stringers of Lines E and N have areas of painted over pitting, with some active corrosion.

The lower deck is not open to vehicular or pedestrian traffic the stringers are therefore not included as part of the element quantities. The stringers supporting the steel grid deck are in good condition. Stringers D, E, I and J, which support only their own dead load, often have painted over advanced section loss and perforations at the floorbeams and saddle bearings. Stinger K, which supports the south fiberglass pedestrian deck has a similar locations of advanced section loss. The rest of the stringers supporting the outer pedestrian fiberglass grid deck are in good condition.

See the inspection report for additional details.

Element 120 – Steel Truss (LF)

The steel truss is overall in Satisfactory condition. There are areas of pack rust, pitting and surface

corrosion, mainly at and below the upper deck. Pack rust between built-up truss members is causing distortion of the chord web plates. Advanced section loss and perforations, many of which have been cleaned and painted over, are present in the batten plates, lacing bars, and truss chord diaphragms. At the eyebar connections there are areas of painted over pitting in the web plates.

The diaphragms at each end of each box chord are critical for maintaining the shape and the buckling capacity of the compression member. The diaphragm below the deck at L1, L1', L2, L2', L3 and L3' on both trusses have perforations.

See the inspection report for additional details.

Element 152 – Steel Floor Beam (LF)

The steel floorbeams are in Satisfactory condition. The floorbeams typically have painted over perforations near the deck openings at the truss lines, with repair plates welded in place at some of these locations. Active surface corrosion is present at due to ongoing water infiltration at the deck openings.

On lower deck floorbeams 10, 12 and 11' through 6' there are cracks along the weld of the stiffening plates to the top flange at the north truss line. Some of the crack lengths have changed in length from the 2020 Inspection. The cracks at Floorbeam 12 were not noted in previous inspections. We did not note any increased lengths of cracks since the 2023 Inspection. The lower deck floorbeams have several areas of advanced section loss and painted over pitting in the top and bottom flanges.

See the inspection report for additional details.

Element 161 – Steel Pin & Hanger Assembly (EA)

The pins, hangers, and hinges are in Good condition with no significant deficiencies noted. Minor painted over pitting was noted on some eye-bars below the upper deck and lower deck. There is active corrosion on some of the hangers above the previous zonal painting. The three pin and hanger assemblies that are CS3 are located at Lower Floor Beam Connection 4L, 4R, and 4'R. At these locations, the hanger connects to lower floor beam and the upper floor beam is supported from a column supported by these lower floor beams.

The arch is a 3-pinned arch with a pin at each bearing at a center pin at L12 (Photos 30 & 31).The pin at L12 serves as both the center pin for the arch and the upper pin for the deck hanger.The pin and hangers are in good condition. There are longitudinal grooves in the upper hanger eye bar at L12 which is supported by the main hinge. These grooves appear to be fabrication marks.

Element 162 – Steel Gusset Plates (EA)

The truss gusset plates are in Fair condition. The gusset plates typically have areas of active surface corrosion. The lower chord gusset plates below the upper deck typically have painted over pitting and reactivating corrosion along the top of the lower chord. At North Truss L2, the north gusset plate has 2' L x 3" H x up to 1/8" D reactivating pitting at the lower chord interface on the south face and 2' L x up to 3" H x up to 5/16" D pitting on the north face. The south gusset plate has 30" L x up to 4" H x up to 3/8" D pitting on the south face with reactivating corrosion and 2' L x up to 3" H x up to 1/16" D pitting on the north face. At the North Truss L3, the gusset plates have pitting up to 3/16” D. In other scattered locations, the gusset plates have areas of pitting. See the inspection report for additional details.

Lateral Bracing & Sway Bracing

The lateral bracing and sway bracing is in Satisfactory condition with isolated areas of active surface corrosion, pack rust, and advanced section loss including perforations. See the inspection report for additional details.

Element 313 – Fixed Bearing (EA)

The bearings are in Fair condition with some pack rust around the pins, and surface corrosion noted on the interior faces of all four bearing castings. The non-structural bearing pin cover plates have cracks up to 7 inches long at L0 and L0’ on both trusses. The north pin cover at L0 on the north truss has fallen off. There is advanced section loss of some of the anchor bolt and nuts.

Between the deck underside and the top of the transverse floorbeams over Piers 11 & 12, there are 3” H concrete pedestals with galvanized steel plates sitting on top and between each pedestal. In several locations these plates have moved and in some cases are no longer support the deck underside. See the inspection report for additional details.

Item 515 – Steel Protective Coating (SF)

The protective coating system (PCS) is in Satisfactory condition. Areas of corrosion, peeling and failed paint are present on the main truss members below the lower deck. The structural steel between the upper and lower decks was repainted in 2014-2015 and is in good condition. The protective coating system below the lower deck is in critical condition. The protective coating system above the upper deck has areas of fading and surface corrosion with minor rust staining.

Fatigue Prone Details

The fatigue prone details are in Fair condition. Stiffening retrofit plates welded to the top flange of the lower deck floorbeams at the truss lines are classified as Category E fatigue details. Cracks in the fillet welds are present at several locations. Refer to Element 152 – Steel Floor Beam above for additional details on crack locations and growth.

Utilities

The utilities are in Satisfactory condition. The lower deck telephone junction chambers and supports are corroded due to saltwater infiltration through the manhole above. At Pier 5 on the North Side, in Span 6 on the South Side, and in Span 13 on the South Side, there is active leakage coming through the utility entrances in the deck. A utility line mounted below the top deck in the south bay is sagging and making contact with the maintenance deck in several locations. There is a missing electric junction box cover on the south concrete rail in Span 7.

Substructure

Element 205 – Reinforced Concrete Column (EA)

The pier columns are in Satisfactory condition. This item includes the main span pier columns, columns in Spans 1A and 1B, and the columns in the subway tunnels and stations. The main span pier columns have areas of map cracking, failing patching, and delamination. There are also a few areas of minor spalling with exposed reinforcing. The decorative arches above these columns have areas of map cracking, failing patching, delamination and spalling with exposed reinforcing. The remaining columns have areas of failing patching, delamination, and spalling with and without exposed reinforcing.

The decorative towers on the north and south faces of the piers typically have widespread cracking, delamination and spalling with and without exposed reinforcing. The south towers at Piers 5 through 7 are leaning away from bridge, with gaps up to 2¼-in between the top of the tower and the outside face of the upper jack arches. Detailed measurements of the gaps between these towers and the adjacent bridge features are given Table 5 in Appendix B. No change was noted between the current measurements and those taken during the 2020 inspection.

See the inspection report for additional details.

Element 210 – Reinforced Concrete Pier Wall (LF)

The pier walls at Piers 1, 3 and 4 are in Satisfactory condition. The west face of Pier 1 is primarily covered by fill. The exposed portions of the pier walls have areas of map cracking and delamination. Piers 3 and 4 are located adjacent to the Cuyahoga River. The portion of Pier 3 that is exposed to the channel has widespread areas of deep abrasion and numerous spalls. Piers 3 and 4 are cellular type structures, which are open on their Span 3 and 5 faces, respectively. The interiors faces of the walls have areas of delamination and spalling with exposed reinforcing. See the inspection report for additional details.

Element 215 – Reinforced Concrete Abutment (LF)

Inspector:	Bennett,Tyler	**Structure Number:**	1800930
Inspection Date:	10/16/2024	**Facility Carried:**	USR 6

The abutment walls are in Satisfactory condition. The abutment walls consist of the West and East Abutments and the walls of the Detroit Avenue and West 25th Street Tunnels. The abutments have areas of cracking with minor moisture staining, delamination and some spalling. Some staining appears to be superficial due to leaking deck joints above. In the tunnels, the lower 1-ft to 2-ft of the walls have widespread shallow spalling with exposed reinforcing. The portions of the walls in the tunnels above these areas were repaired as part of the most recent rehabilitation. . See the inspection report for additional details.

Element 830 – Abutment Backwall (LF)

The backwalls are in Good condition. The backwalls consist of the closure panels at the ends of the West 25th Street Tunnel, Detroit Avenue Tunnel, and East Station.

Wingwalls

The wingwalls are in Poor condition. The wingwalls along Spans 1A and 1B and the East Station have cracking and spalling with exposed reinforcement throughout. See the inspection report for additional details.

Tower B South

A section of the rear abutment, south wall at Tower B has through cracks in the wall and associated footing, and is leaning to the south. It has continued to show incremental movement over the past 10+ years. On the interior, the top of the tower is spalled and cracked due to contact with the soffit of the upper-level sidewalk. Crack gauges have been placed at several locations to monitor the movement of the section. Crack gauges located at the base of Tower B could not be verified due to excessive debris. Crack gauges located at the base of Tower B were previously noted to be cracked and slightly displaced. New gauges should be installed to ensure an accurate record of the tower rotation is maintained. See the inspection report for additional details.

West and East Abutment Chambers

The chambers below Spans 1A and 1B on the west approach and below the East Station were inspected, however, they are not included in any of the quantities within this report. There are large spalls and delaminations throughout the chambers with exposed and corroded reinforcing on the walls and ceilings of most of the cells. Horizontal, vertical, diagonal and map cracking with efflorescence and moisture staining are also present throughout all cells. The floors are typically covered in dirt and construction debris. In the west chamber this is heavy cracking around south Tower B (see discussion above for more details), and a second area of significant cracking at the north end of cells 2S through 6S. Crack gauges have been installed to track developments at both of these areas.

Inspector:	Bennett,Tyler	**Structure Number:**	1800930
Inspection Date:	10/16/2024	**Facility Carried:**	USR 6

Water Infiltration

Standing water was noted in the pedestrian tunnel under the West Station. In the east abutment chamber, most of the lower cells are filled with standing water. The pedestrian tunnel under the East Station is also filled with standing water. Holes drilled in the east abutment to drain some of the standing water had a steady flow of water at the time of inspection.

Slope Protection

The slope protection is in Satisfactory condition, with some areas of erosion and sliding material noted.

There is significant rutting of the ground near the south column of Pier 9. The rutting appears to possibly be from the drainage of sloped ground nearby and not from any pipe outlet.

Culvert

Inspector Comments - Waterway

Waterway Adequacy

Channel

Alignment

The alignment is in Good condition. The channel is skewed with respect to the piers, but this is an as-built condition.

Protection

The channel protection is in Satisfactory condition with only minor deficiencies. The west bank is vegetated with some dumped rock channel protection. The west bank is protected by a sheet pile wall.

Hydraulic Openings

The hydraulic opening is in Good condition with no major constrictions associated with the bridge.

Inspector:	Bennett,Tyler	**Structure Number:**	1800930
Inspection Date:	10/16/2024	**Facility Carried:**	USR 6

Navigation Lights

The navigation lights are in Poor condition. None of the upstream lights were functioning at the time of inspection. On the Downstream side, the center and west lights were not functioning. No damage was noted to the light fixtures.

Scour

The scour is in Good condition. An underwater bridge inspection was performed on July 8, 2020. No areas of exposed foundation or significant scour holes were found in the inspection. See the underwater inspection report for additional details.

Scour Critical

Inspector: Tyler Bennett **Structure Number:** 1800930

Inspection Date: 10/16/2024 **Facility Carried:** USR 6

Bridge Inspection Report

Pictures

APPENDIX B – Existing General Plan, Elevation, & Nomenclature

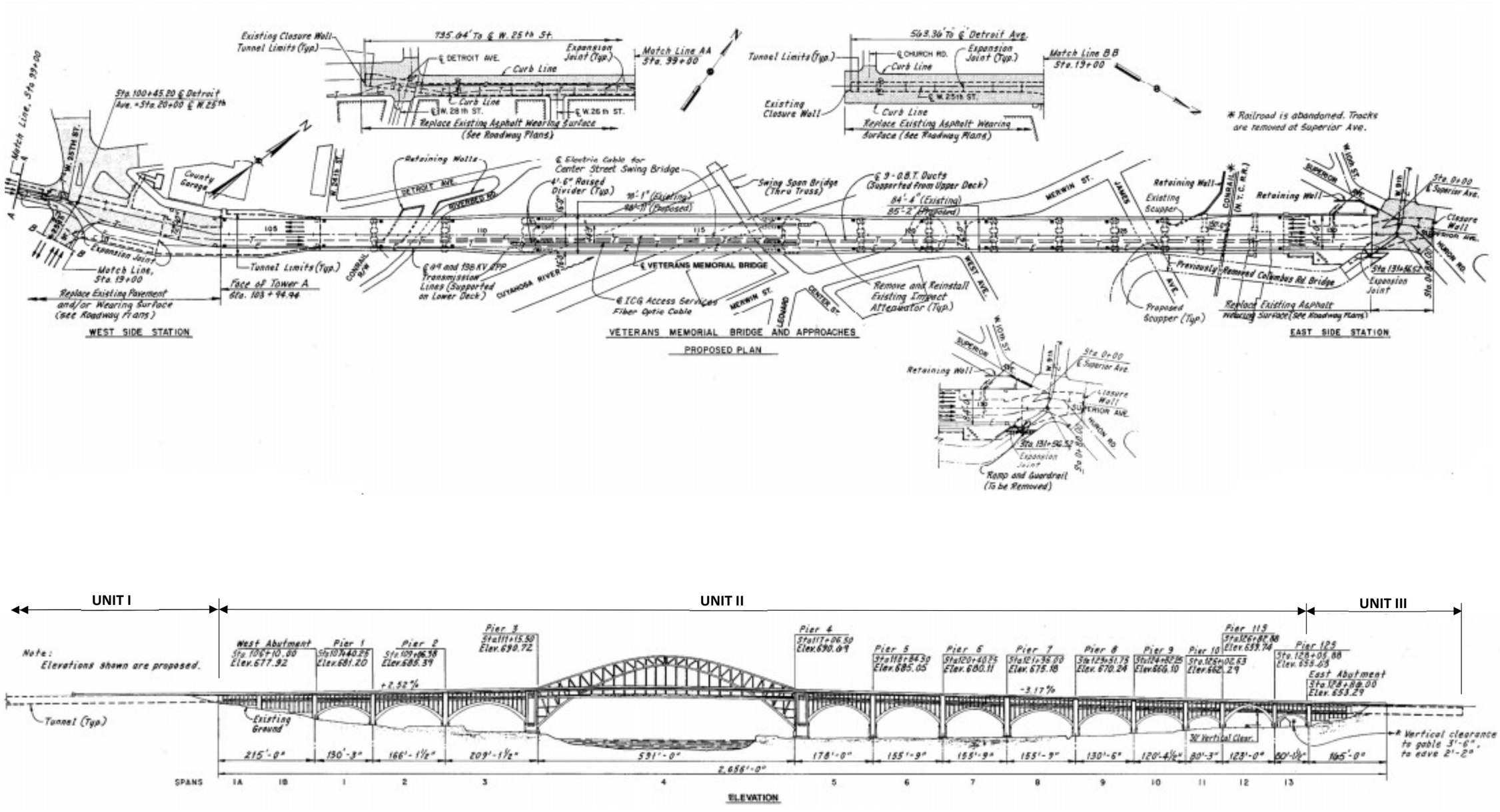
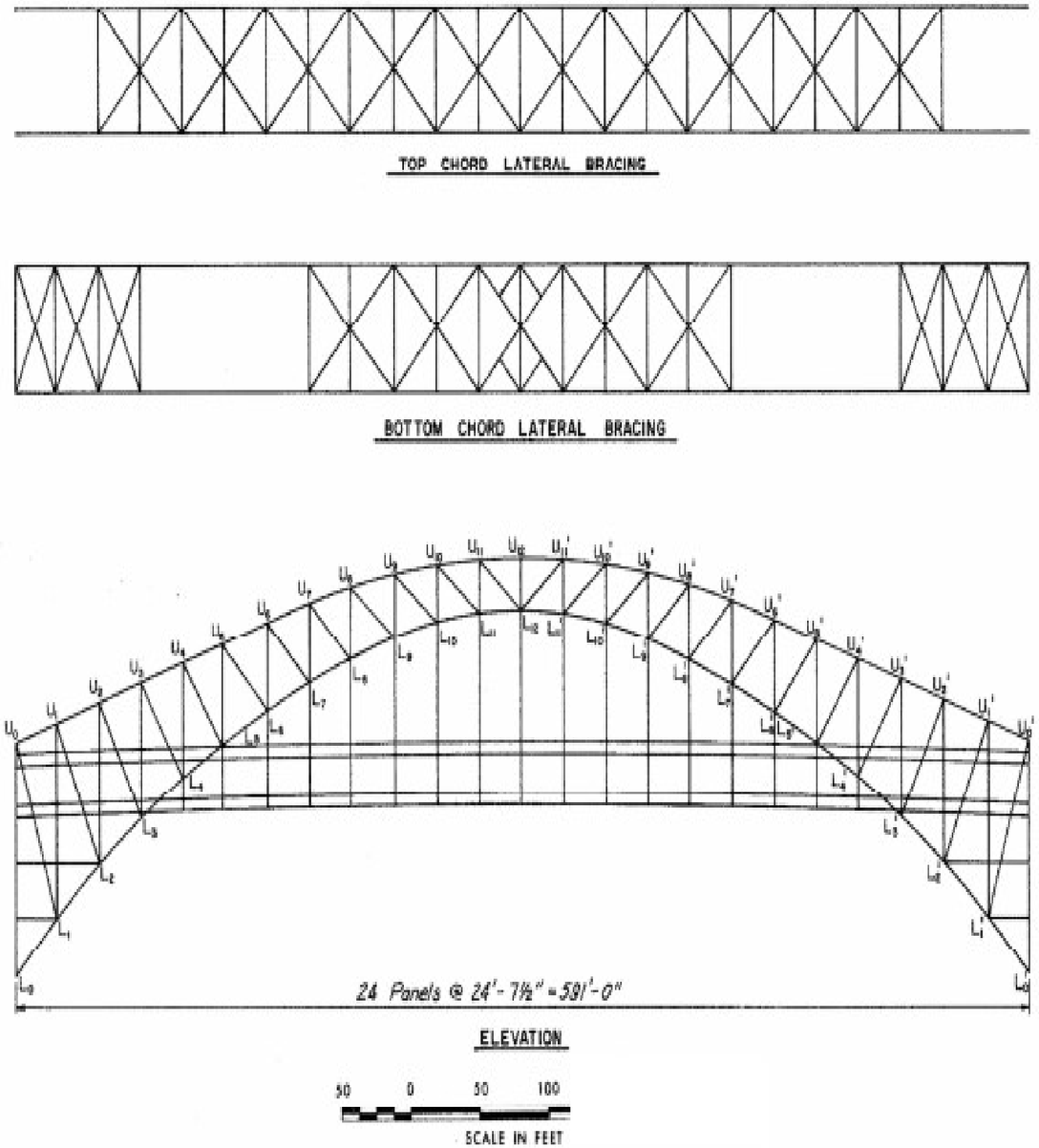


FIGURE 1: PLAN AND ELEVATION VIEW



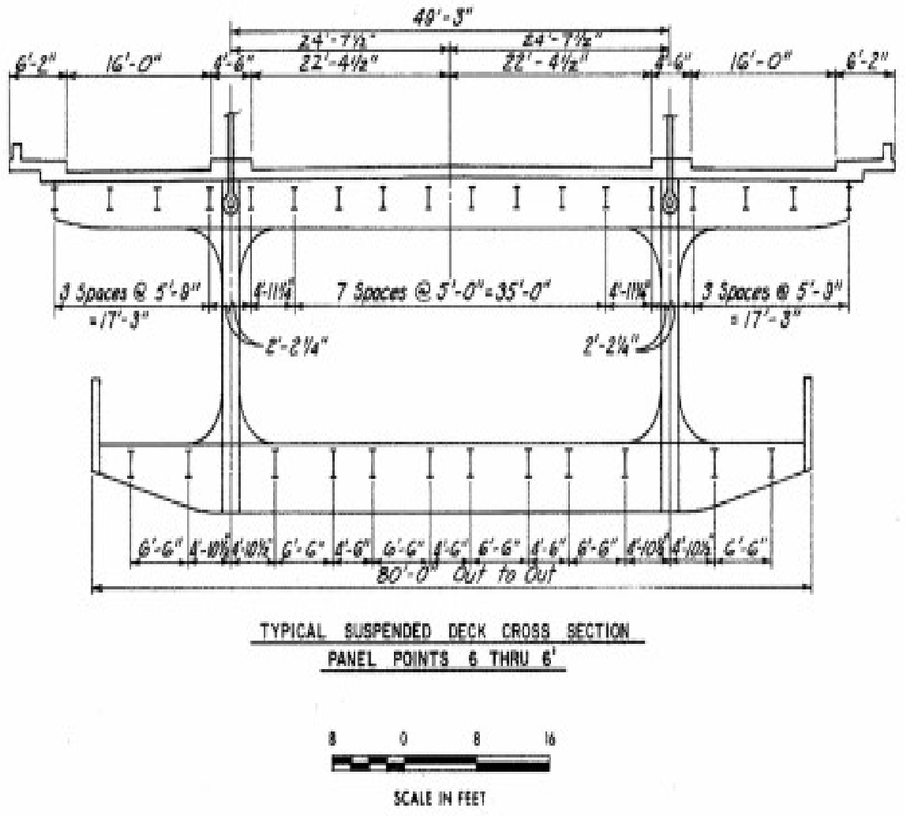


FIGURE 2: SPAN 4 NOMENCLATURE

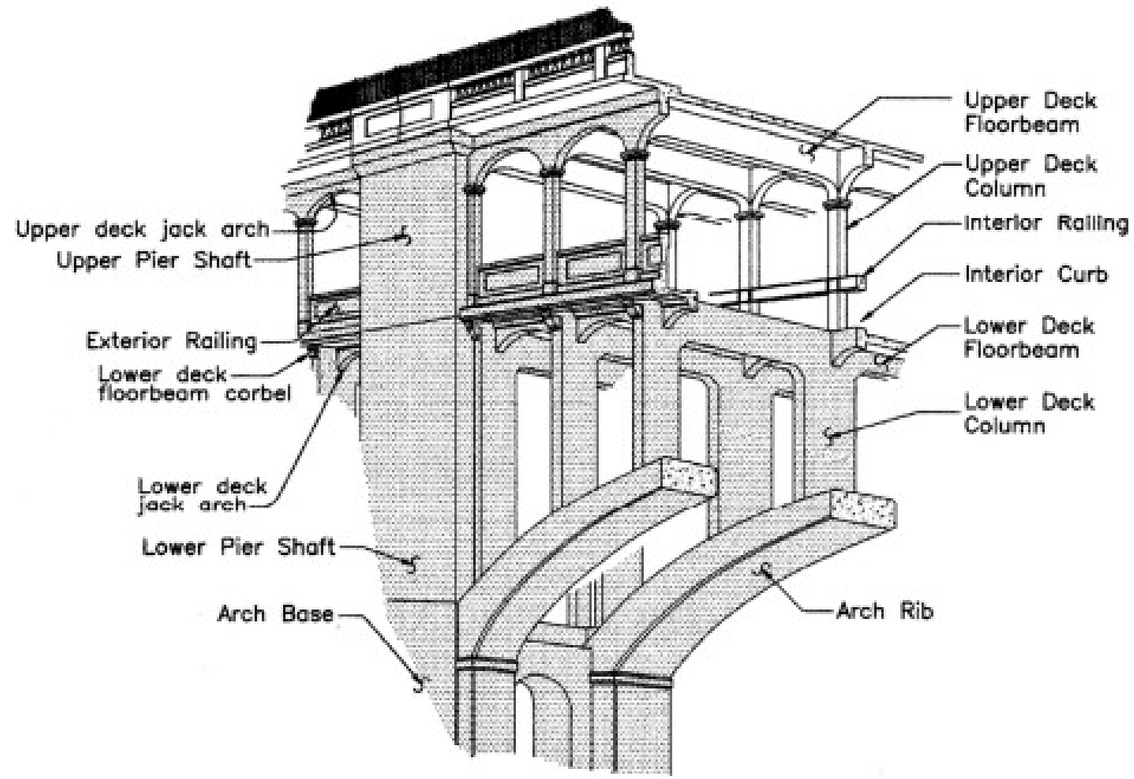


FIGURE 3: UPPER AND LOWER DECK NOMENCLATURE, CONCRETE ARCH SPANS

APPENDIX C – Inspection Findings Tables & Figures

Table 1: Strip Seal Joint Measurements						
Date:	**2024**			**2023**		
	Temperature: 52°F			**Temperature: 75°F**		
Joint Location	**Joint opening measurements**			**Joint opening measurements**		
	Left side	**Center**	**Right Side**	**Left side**	**Center**	**Right Side**
Tower A	**1-1/2"**	**1-1/4"**	1"	1-3/4''	1/2"	1"
Tower B	**2"**	**1-1/4''**	**2-3/8"**	1-3/4"	1-3/4''	1-3/4''
West Abutment	**1-7/8"**	**1-3/4"**	2-1/4"	1-3/4''	1-7/8''	2-1/4''
Pier 1	**1-7/8"**	**1-3/4"**	**1-3/4"**	2"	2"	2-1/8''
Pier 2	2"	**2"**	**1-5/8"**	2"	1-3/4''	2"
Pier 3 West	**2-1/2"**	**2-1/4"**	**2-1/4"**	2-1/8''	1-3/4''	2"
Pier 3 East	**1-1/4"**	**1-1/4"**	**1-1/2"**	1-1/2''	1-5/8''	1-3/8''
Span 4 at PP5	**1-1/4"**	**1-3/8"**	**1-3/4"**	1-3/4''	1-5/8''	2-1/4''
Span 4 at PP5'	**1-7/8"**	**1-1/2"**	**1-5/8"**	1-5/8''	1-3/4''	2-1/4''
Pier 4 West	**1-3/8"**	**1-7/8"**	1-3/4"	1-1/4''	1-1/2''	1-3/4''
Pier 4 East	**2-3/8"**	**2-1/4"**	**2-3/8"**	2-1/2''	2-1/2''	2-5/8''
Pier 5	**1-5/8"**	**1-3/4"**	**1-3/4"**	2"	1-5/8''	2"
Pier 6	2"	**1-7/8"**	**2"**	2"	2"	2-1/4''
Pier 7	**2-1/4"**	1-3/4"	**1-7/8"**	2"	1-3/4''	2-1/4''
Pier 8	**1-7/8"**	**1-7/8"**	**2-1/8"**	2-1/8''	2"	2-1/4''
Pier 9	**1-7/8"**	**1-5/8"**	**1-7/8"**	2-1/8''	2"	2-1/8''
Pier 10	**1-3/4"**	**1-3/4"**	**1-7/8"**	2"	1-7/8''	2-3/8''
Pier 11	2-1/4"	1-3/4"	**1-3/4"**	2-1/4''	1-3/4''	2-1/2''
Pier 12	**1-3/4"**	**2"**	**2-1/8"**	2-1/8''	2-1/8''	2-1/2''
East Abutment	**1-5/8"**	**1-3/4"**	**1-7/8"**	1-3/4''	1-1/2''	1-3/4''

* Measurements taken between face of armor

Table 2: Top of Deck Deficiencies		
Unit	**Span**	**Defect Description**
South Sidewalk	1A	Sidewalk has a 4’ L x 4” W x 1” D spall.
Joint	1A	Joint between the west approach and Span 1A is nearly closed in the center and open in the shoulders. There is a 2' long section and another section 8' long of broken intermittent field welds on the joint armor in the eastbound lane.
Joint	1A	**Joint is leaking for full width.**
Joint	1A	Joint between Spans 1A and 1B has up to 1/8" D gouges in the north half of the joint armor.
Concrete Railing	1A	South railing at Tower A has 7/8" vertical misalignment.
Lighting	1A	Broken pull box cover on the south railing. **North light pole pull box cover is missing bolt.**
Joint	1B	**Joint is leaking for half-width near centerline of roadway.**
Concrete Railing	1B	South railing at Tower B has 1/2" vertical misalignment.
Drainage	1	South shoulder near the West Abutment has a clogged scupper.
Joint	3	1' L section of joint out of retainer at Pier 3 East. **Joint is leaking.**
Joint	3	**Section loss on North sidewalk joint over Pier 3 West. Adjacent concrete starting to spall.**
South Sidewalk	3	**9' L** x 9" W crack and delamination in the sidewalk near Pier 3 West.
North Sidewalk	**3**	1.5' L x 14" W x 2" D spall in the sidewalk at the Pier 3 West joint **was filled with asphalt prior to 2024 inspection**.
Deck	4	**Standing water in right multi-use path right shoulder due to drainage low points.**
Curb	4	Random delaminations along the curbs, full length of span.
Curb	4	Typical spalling in Right Truss curb up to 3” D.
Concrete Railing	4	North and south concrete railing have spalls up to 2’-0” H x 9” W x 4” D along the joint where the utility conduits are exposed.
North Sidewalk	4	FW x up to 3' L spalling and delaminated concrete on both sides on the sidewalk joint header at the Pier 3 east joint.
North Sidewalk	4	**Intermittent spalling on sidewalk over FL x 2' W x up to 1- 1/2” D with cracking and delamination along the longitudinal drain was filled with asphalt prior to 2024 inspection.** Longitudinal drains are fully clogged.
North Sidewalk	4	Intermittent spalling and cracking along either side of joint at Panel Point 5’ in the north sidewalk up to 1/2” D **was filled with asphalt prior to 2024 inspection.**
North Sidewalk	4	Spalling and cracks along either side of joint at Panel Point 5 in the sidewalk FW x up to 1/8” D **was filled with asphalt prior to 2024 inspection.**
South Sidewalk	4	**5'-3" L** x 6" W x 2" D spall in sidewalk at Panel Point 2.
South Sidewalk	4	2’-7” L x 6” W x up to 2” D spall in sidewalk at **Panel Point 6**.

Table 2: Top of Deck Deficiencies		
Unit	**Span**	**Defect Description**
South Sidewalk	4	2'-4" L x 8" W x 2" D spall in curb at Panel Point 8.
South Sidewalk	4	2'-5" L x 6" W x 1-1/2" D spall in sidewalk at Panel Point 9.
South Sidewalk	4	2' L x 7" W x 2" D spall in sidewalk at Panel Point 10.
South Sidewalk	4	2' L x 19" W x 2" D spall in sidewalk at Panel Point 10'.
South Sidewalk	4	8' L x Full Width Delamination **with two 1' L x 1' W spalls** on sidewalk at Panel Point 4'.
South Sidewalk	4	2'-8" L x 7" W x 1-1/2" D spall in sidewalk at Panel Point 1'.
South Sidewalk	4	2'-4" L x 6" W x 2" D spall in sidewalk at Panel Point 1'.
Joint	4	**Approximatley half of Joint 4W is leaking, under the Eastbound lane.**
Lighting	4	Base of light pole is broken along the north sidewalk, located 50' west of Pier 4.
Lighting	Pier 4	Base of light pole on north sidewalk over Pier 4 is broken.
North Sidewalk	Pier 4	3'-0" L x 13" W x 1-1/2" D spall in the sidewalk near the pier 4 east joint **was filled with asphalt prior to 2024 inspection.**
Vandal Protection Fence	5	South vandal protection fence, top of rail is bent outward 2' L.
North Sidewalk	5	**4' L x 1' W x 1-1/4" D spall and 5' L x 1' W x 1" D spall.**
Joint	6	2 LF of minor leakage in Westbound lane at Pier 6 Joint.
North Sidewalk	6	5' L x 13" W x 2" D spall in the North sidewalk **was filled with asphalt prior to 2024 inspection. 1'-6" L x 6" W x 1" D spall.**
South Sidewalk	7	2' L x 8" W - 1-1/2" D spall in sidewalk.
South Sidewalk	7	2'-4" L x 6" W x 1-1/2" D spall in sidewalk.
North Sidewalk	7	**Transverse crack at joint.**
South Sidewalk	7	15' L x 25' W delamination in the sidewalk.
Vandal Protection Fence	7	South vandal protection fence has damage over a 4' Length.
Deck	Pier 7	**Patched area at joint is deteriorating.**
South Sidewalk	Pier 7	15' L x 4' W delamination with edge spalling in the sidewalk.
Deck	8	**Pothole in deck 2' L x 1'-6" W x 2" D with exposed reinforcing bar.**

Table 2: Top of Deck Deficiencies		
Unit	**Span**	**Defect Description**
Joint	8	A **11' L** section of the joint is pulling out of the retainer in the EB lanes at Pier 8, and a **5' L** section is pulling out in the WB lanes.
Vandal Protection Fence	8	South vandal protection fence has collision damage over a 6' L section (entire single section) with one cracked/broken main vertical.
Lighting	8	Decorative base of light pole on north sidewalk is broken.
Joint	9	**Minor amount of leakage in westbound lane. Can see daylight through sidewalk joint.**
Curb	9	2'-8" L x 7" W x 1-1/2" D spall in south sidewalk at top of curb.
Joint	10	4' L section of torn joint seal in EB Lanes
Vandal Protection Fence	10	South vandal protection fence has impact damage over a 2' Length.
South Sidewalk	11	24" L x 8" W x 1" D spall at curb.
Lighting	11	Base of light pole on north sidewalk is broken.
South Sidewalk	12	2'-9" L x 6" W x 2"D spall in the sidewalk.
Deck	All	Widespread hairline map and transverse cracking in the deck.
Longitudinal Drains	All	Longitudinal Drains in North Sidewalk are fully or partially clogged almost entire length.
Concrete Railing	All	Scattered vertical cracks with leakage.
Vandal Protection Fence	All	**Bent vertical posts in several spans on both sides.**
Joint	All	Debris is in the joints for 75% of their length. **Vegetation growing in joint on north sidewalk against railing.**
Joint	West App.	Full width crack in the approach end of the joint armor at the roadway centerline.
Lighting	East App.	**First light post from the east on north sidewalk is missing.**

TABLE 3: FLOORBEAM DEFICIENCIES IN UPPER & LOWER DECK NEAR NORTH TRUSS			
Member Type	**Upper/ Lower Deck**	**Member**	**Deficiency**
FB	UD	TYP. FB0 - FB5, FB5' - FB0'	The top flange between Stringers "D" and "E" typically has 1/16" - 1/8" painted over section loss and bolt head loss.
FB	UD	TYP. FB6 - FB6'	Typical 1/8" painted over section loss on the lower portion of the pin stiffeners.
FB	UD	FB0	Painted over section loss and corrosion holes to the north knee brace for the upper deck floorbeam. The east face of the web has 1/16" D painted over pitting for 5' on either side of the north truss. From Midspan to North Truss: 1/16" D painted over pitting to the bottom flange. The lower 9" of west face of web has 1/8" D painted over section loss. The lower 9" of the transverse stiffeners have up to 100% section loss. On North Cantilever: **1/4"** D painted over pitting to the flange and lower 9" of the west face of the web with scattered pinholes to the transverse stiffeners. The west face of the web has 1/8" D painted over section loss for 5' L adjacent to truss.
FB	LD	FB0	There are large perforations and areas of up to 100% section loss on the top and bottom angles on the west and east faces of the north end of the floorbeam cantilever **with approximately 25% of the bottom flange lost**. There are areas of active corrosion and up to 1/8" D pitting on the floorbeam web at this location on the west face of the floorbeam cantilever web. There are corrosion holes in the transverse stiffeners at the north cantilever measuring 6" H x Full Width. The rivets and bolts have 50-75% section loss at the north end of the floorbeam cantilever.
Stringer	UD	PP0-1	On the north bottom flange of Stringer "E" for adjacent to PP1, there is 1/8" D x 2.5' L painted over section loss with 1 small corrosion hole.
FB	LD	FB1	There is a corrosion hole in the bottom flange of the north cantilever.
Stringer	UD	PP1-2	On the web and flanges of Stringer "E" adjacent to FB2, there is 1/16" D x 12' L painted over section loss.
FB	UD	FB2	On the east web and bottom flange, there is 1.16" D painted over pitting on the lower half of the web that extends 4' south of the truss and 2.5' north of the truss.
FB	LD	FB2	1/8" Painted over section loss in west web face above the bracing connection. Corrosion holes present in east bottom flange.
Stringer	UD	PP2-3	Several small corrosion holes in the bottom north flange of Stringer "E", a 5" L x 2" W corrosion hole on the bottom flange of Stringer "E" near FB3, and one small corrosion hole in the web near FB3. There is 1/16" D painted over pitting on the bottom flange and lower 8" of the web.
Stringer	UD	PP3-4	1/16" D painted over pitting to the bottom flange and lower 6" of the web for full length.
Eyebar	LD	FB4	Bottom head of east eye bar has up to 3/16” D painted over pitting around the pin. Stiffening plates on floorbeam web behind the eyebar head have 18" H x 20" W corrosion holes on the west and east faces.
FB	UD	FB6	The west face of the web at the Stringer "E" north flange has an area of painted over section loss 20" L x up to 4" H x 3/8" D. A repair plate has been placed on the east face of the web.
FB	UD	FB7	The floorbeam web has 1/16" D painted over section loss for half height, extending from the vertical to the first stiffener south of the vertical. **(Not seen 2024)** **Bottom flange has a missing bolt.**
FB	LD	FB7	Painted over section loss with corrosion holes in the top and bottom east flanges at the hanger.
FB	UD	FB8	The floorbeam web has 1/16" D painted over section loss for half height, extending from the vertical to the first stiffener south of the vertical. **(Not seen 2024)**

TABLE 3: FLOORBEAM DEFICIENCIES IN UPPER & LOWER DECK NEAR NORTH TRUSS			
Member Type	**Upper/ Lower Deck**	**Member**	**Deficiency**
FB	UD	FB9	The floorbeam web has 1/16" D painted over section loss for half height, extending from the vertical to the first stiffener south of the vertical.
Stringer	UD	PP9-10	Painted over pitting up to 1/16" D on all surfaces for full length, some reactivating.
FB	UD	FB10	There is a 4” W x 1-1/8” H hole in the floorbeam web north of Stringer "E", and a 8” W x 1.5” H hole in the floorbeam web south of Stringer "E". The floorbeam web has 1/16" D painted over section loss for half height, extending from the vertical to the first stiffener south of the vertical.
FB	LD	FB10	9-5/8” L x 1-11/16" W crack along the weld of stiffening plate welded to floorbeam top flange, east face of floorbeam at L10.
Stringer	UD	PP11-12	Painted over pitting 1/16" D on bottom of flange and lower 6" of web for full length.
FB	UD	FB12	7-1/4” W x 4” H corrosion hole in the floorbeam web north of Stringer "E", and a 9” W x 1” H hole in the floorbeam web south of Stringer "E".
FB	LD	FB12	6-7/8" L crack on the top flange stiffener plate on the west face.
FB	UD	FB11'	3-1/2” W x 2-1/2” H hole in the floorbeam web north of Stringer "E", and a 1” W x 2” H hole in the floorbeam web south of Stringer "E".
FB	LD	FB11'	5-5/8” crack along weld of stiffening plate welded to floorbeam top flange, west face of floorbeam.
FB	UD	FB10'	There is a 7” W x 2-1/4” H and a 1-1/2” diameter corrosion hole in the floorbeam web north of Stringer "E", and a 7” W x 1-1/4” H hole in the floorbeam web south of Stringer "E". The floorbeam web has 1/16" D painted over section loss for half height, extending from the vertical to the first stiffener south of the vertical.
FB	LD	FB10'	2-5/8” long longitudinal crack and a 1- 7/8” long transverse crack along weld of stiffening plate welded to floorbeam top flange, west face of floorbeam. The top and bottom flanges have several up to 1" dia. corrosion holes near the truss.
Stringer	UD	PP10'-9'	Painted over pitting 1/16" D on bottom of flange and lower 6" of web for full length.
FB	LD	FB9'	3-3/4" crack on the top flange stiffener plate on the west face. The west bottom flange has 100% section loss for 10" L on both sides of truss.
Stringer	UD	PP9'-8'	Painted over pitting 1/16" D on bottom of flange and lower 6" of web for full length.
FB	UD	FB8'	The floorbeam web has 1/16" D painted over section loss for half height, extending from the vertical to the first stiffener south of the vertical. There are two corrosion holes in the floorbeam web north of Stringer "E" measuring 5-1/2" W x 3" H and 1/2" W x 4" H which are connected by a narrow area of near-100% section loss, with adjacent 1/4" D painted over pitting. There is a 20" W x 2" H corrosion hole in the floorbeam web south of Stringer "E". There is a 1-3/4" tear in the stiffener between Stringers "F" & "G" due to construction damage.

TABLE 3: FLOORBEAM DEFICIENCIES IN UPPER & LOWER DECK NEAR NORTH TRUSS			
Member Type	**Upper/ Lower Deck**	**Member**	**Deficiency**
FB	LD	FB8'	3" crack in the top flange stiffener plate weld on the west face of the floorbeam adjacent to the end of the north knee brace due to section loss and corrosion. There is up to 5/16" D painted over section loss to the floorbeam web and flanges near the north truss. There is a 5" L x 2" H corrosion hole in the web along the top of the bottom flange on the north side of the truss. There is one 1-1/2" Dia. hole in the west bottom flange below the first interior stringer, and a 3" H x Full Width hole in the bottom of the transverse stiffener. South of the north truss, there are 7 rivet heads that have up to 100% section loss between the west bottom flange and the bottom flange cover plate. Adjacent strusts and lateral bracing members and connection plates have numerous perforations, up to 4" dia.
FB	UD	FB7'	On the west face of the floorbeam web, 3" W x 3" H x 1/4" D painted over section loss north of Stringer "E" and 4" W x 7" H x 1/4" D painted over section loss south of Stringer "E". On the east face of the floorbeam web, 3" W x 2.5" H x 1/4" D painted over section loss north of Stringer "E", and 3.5" W x 3" H x 1/4" D painted over section loss south of Stringer "E".
FB	LD	FB7'	There are five cracks in the welds between the East top flanges of the floorbeam and the welded retrofit angle: 4-5/8", 5-5/8", 2", and 5/8" cracks along the east edge; 3" crack along the north edge. There are two cracks in the welds between the West top flanges of the floorbeam and the welded retrofit angle: 2.5" crack along the west edge; 4" crack along the north edge. These cracks are due to advanced section loss of the retrofit angle. Up to 1/4" D pitting in the top of the east bottom flanges at the north truss. 2’ H X 2’ W area of average 1/4” D painted pitting with two up to 1" dia. corrosion holes in the web of the floorbeam between the strut and stringer, west face. There are three 1" Dia, perforations in the west bottom flange between the north truss and the first interior stringer. The west face of the bottom flange cover plate near the north truss has 4 rivet heads with 100% section loss, and 10 rivet heads with 50-75% section loss. The north end of the knee brace has a 15" L x 5" H corrosion hole along the top of the floorbeam.
Stringer	UD	PP7'-6'	Painted over pitting 1/16" D on bottom of flange and lower 6" of web for full length.
FB	UD	FB6'	Up to 1/8” D painted over pitting on the west eyebar face around the lower portion of the pin. The floorbeam web has 1/8" D painted over section loss for half height, extending from the vertical to the first stiffener south of the vertical, and a pinhole in this area. The west face of the floorbeam web below the north flange of Stringer "E" has painted over section loss 5/16" D x 10.5" H x up to 3.5" W. There is also a 6-1/2” L x 1-1/2” H corrosion hole in the floorbeam web north of Stringer "E".
FB	LD	FB6'	The floorbeam has active corrosion and 1/16" D pitting on the top and bottom flanges between the north and south trusses. There are welded repair plates on the web at the north truss. On one of these, there is a 10" L cracked perimeter along the weld to the floorbeam top flange, west face of floorbeam due to 100% section loss of the repair plate. 2-11/16" L paint crack in the vertical weld to the knee brace. At the north truss, the web and flanges have 1/8" to 3/16" D painted over pitting. The north cantilever is in a similar condition and has isolated areas of active corrosion. Bottom flanges adjacent to the truss have small perforations up to 1" dia.
FB	UD	FB4'	Painted over corrosion holes (up to 3" Dia.) in the web just south of the north truss with 1/8" D painted over pitting below the upper deck lateral bracing gusset plate.

TABLE 3: FLOORBEAM DEFICIENCIES IN UPPER & LOWER DECK NEAR NORTH TRUSS			
Member Type	**Upper/ Lower Deck**	**Member**	**Deficiency**
FB	LD	FB4'	The floorbeam web has painted over pitting up to 1/4" D, worst around the stringers, eyebar connection, and lateral bracing, with isolated pitting on the welded repair plate. The west eyebar head has painted over pitting 1/8" to 3/16" D for 6" L around the nut. Additional web plates behind the eyebar have up to 100% section loss in the bottom half. The north cantilever has small areas of 100% section loss in the bottom flange and transverse stiffener base. Isolated areas of active corrosion with minor laminate rust in the bottom flanges and web along the bottom flanges. The west bottom flange is missing for 15" L on the south side of the truss with up to 90% loss of rivet heads in outstanding leg between the truss and center of the deck. The east eyebar head has isolated painted over pitting up to 1/16" D. The pin behind the eyebar has laminate rust up to 3/16" T with associated pitting 1/16" to 1/8" D (some active). The web plates behind the pin have up to 3/8" painted over pitting with 100% section loss. The east bottom flange on the south side of the truss is missing for 24" L. There are numerous painted over corrosion holes within the bottom flange of the floorbeam adjacent to the sway bracing connection. Areas of reactivated surface corrosion were noted throughout the top and bottom flanges. The sway bracing on the east side also has reactivated surface corrosion in the end 6'.
Stringer	UD	PP4'-3'	Painted over pitting 1/16" D on bottom of flange and lower 6" of web for full length.
SWAY	LD	LD3'	The majority of the original steel components at the lower deck connection above L3' have areas of painted over pitting with corrosion holes and knife edging.
FB	LD	FB3'	The north floorbeam cantilever web and bottom flanges have up to 5/16" D pitting with a 1/4" dia. perforation in the web and a 5" L x 1" W perforation in the west bottom flange. There is a 4" dia. corrosion hole in the west bottom flange of the floorbeam below Stringer "E". In the north catwalk framing, the south stringer at the west face of FB 3' has a 4" L x 3" W perforation in the web and a 8" L x 3" W perforation in the bottom flange.
FB	UB	FB2'	The floorbeam web has 1/16" D painted over section loss for half height, extending from the vertical to the first stiffener south of the vertical.
FB	LD	FB2'	There is 5/16" D painted over pitting with a 1" Dia. hole in the west face of the floorbeam web just south of the north truss along the stringer. There is 100% section loss to the top flange angles over 2' L area with loss of 9 consecutive rivet heads in the same location. Bolts for the lateral bracing connection have up to 50% section loss. At the north cantilever: The bottom and top flanges on both faces have isolated corrosion holes up to 6" L; The transverse stiffener on the west bottom flange has a 1" Dia. corrosion hole; The webs have up to 1/4" D painted over section loss around connections and along horizontal surfaces; The webs have welded repair plates below the walkway; Internal diaphragms between knee braces have isolated 100% section loss and the horizontal diaphragm is nearly gone; Sidewalk stringer has areas of 100% section loss at the connection to the floorbeam.
FB	LD	FB1'	At the north cantilever: There is a 1" Dia. corrosion hole in the north end of the west bottom flange with up to 3/16" D pitting throughout the bottom flange and the bottom of the web, and up to 75% section loss to 3 rivets; The cantilever end plate has up to 1" Dia. perforations with pitting; The bottom batten plate at the north end has pack rust, pitting, and perforations. At the Level 3 Strut: The south connection plate on the east face for the Level 3 horizontal strut has a 3" Dia. perforation with multiple other perforations at the L1'-U1' connection. The strut has several up to 2" dia. perforations, and the top and bottom batten plates have up to 1-1/4" perforations. The south strut connection plate to the west face has 5" L x 4" H area of 100% section loss in the top corner. At the north catwalk: The south bottom bracing connection plate for the catwalk has a 10" L x 1" W perforation.

TABLE 3: FLOORBEAM DEFICIENCIES IN UPPER & LOWER DECK NEAR NORTH TRUSS			
Member Type	**Upper/ Lower Deck**	**Member**	**Deficiency**
FB	UD	FB0'	The floorbeam has typically up to 1/8" D painted over pitting throughout the bottom flange angles and cover plates near the north truss line and throughout the north cantilever for lower 8" of web. Several transverse stiffeners on the east face of the floorbeam have up to 6" H x Full Width areas of 100% painted over section loss.
FB	LD	FB0'	The lower deck floorbeam has typical painted over pitting up to 1/8” D. Below the center deck, there is isolated painted over pitting with negligible section loss on the west face. At the north canilever: There is 100% section loss to the west bottom flange over a 6' length with some reactivating corrosion; The west and east floorbeam top flanges adjacent to the L0'N - U0'N vertical has up to 100% painted over section loss for a 3' length; The east floorbeam bottom flange has up to 100% section loss over an 8' length with active corrosion, and both bottom flanges have other isolated corrosion holes; The north end of the floorbeam has multiple perforations in the web (one 6" Dia. and one 12" L x 3" H in west web, three 4" Dia. in east web, and numerous up to 1" Dia. in both webs); One high-strength bolt is missing in the top flange. At the north Level 3 strut: Active corrosion with areas of 100% section loss up to 4" L x 2" W area present in the angles and lacing bars; The north vertical connection plate at L0'-U1' has 100% section loss on top of the strut.

TABLE 4: FLOORBEAM DEFICIENCIES IN UPPER & LOWER DECK NEAR SOUTH TRUSS			
Member Type	**Upper/ Lower Deck**	**Member**	**Deficiency**
FB	UD	TYP. FB6-6'	The transverse stiffeners on the north and south sides of the eyebars have up to 100% section loss at the top and bottom with advanced section loss of the stiffening plate between these.
FB	UD	Typ.	From truss to first transverse stiffener north, 1/16" D painted over pitting on web for half height. Missing rivets between Stringers "K" and "L" bottom flange in scattered locations.
Stringer	UD	Typ.	Stringer "P" has 1/16" D painted over pitting in the bottom flange and lower 6" of the web for full length.
FB	UD	FB0	Exterior and interior west knee braces have 18” L x up to 4” W areas of painted over corrosion holes. The west knee brace web plates also have up to 18” H x 12” W L-shaped painted over corrosion holes in the upper corners. From midspan to end of cantilever, there is 1/16" painted over pitting on the bottom flange and lower 8" of the west web with some corrosion holes in the transverse stiffener.
FB	LD	FB0	End 3’ of the web has painted over corrosion holes.
Stringer	UD	PP0-1	2" L x 1" W corrosion hole in Stringer "P". For the first 4' L at U0, there is 1/8" D painted over pitting on all surfaces. On the remainder of the stringer, there is 1/16" D painted over pitting on the bottom flange and lower 6" of the web.
FB	UD	FB1	Broken bolt on the southwest knee brace.
FB	UD	FB2	Near midspan, 5' L section of 1/16" D painted over section loss to the bottom flange angles and lower 8" of the web.
FB	LD	L2	The south diagonal floorbeam support has four 1-1/2" D holes over a 6" D area in the web near the L2 connection. Bottom flanges have areas of 100% section loss x Full W x 20" L. Internal diaphragm plate between lateral bracing connection plates has widespread corrosion holes (nearly gone.)
Stringer	UD	PP2-3	Stringer "P" has 1/16" D painted over pitting in the bottom flange and lower 6" of the web for half length from FB2.
FB	LD	FB3	The east face bottom flange at the L3 connection has a 10” L x 4” W hole.
Stringer	LD	PP3-4	Stringer "Q" east of FB3 has a 12” L x 3” H area of painted over pitting with a 6” L x 3” H corrosion hole in the bottom of the web. The north bottom flange has a 10” L x 4” W corrosion hole at the end.
Eyebar	LD	LD4	UD4-LD4 east eyebar has up to 1/4” D painted over pitting along the south half of the pin nut for 2” W.
FB	UD	FB6	Damaged rivet and missing nut between Stringers "N" and "O" top flange, east side.
FB	LD	FB7	Up to 2" dia. corrosion holes in both top flanges. Up to 6" L x 2" H corrosion holes in knee brace webs. Full width x 12" L 100% section loss to the top flange cover plate.
FB	LD	FB8	The east bottom flange has a 6" x 6" corrosion hole on the south side of the south truss with up to 100% section loss on 8 adjacent bottom flange vertical leg rivet heads. The east floorbeam bottom flange has an 8" L x up to 1" W painted over corrosion hole north and south of Stringer "Q". There are small holes in the ends of the knee braces over the floorbeam.
Stringer	UD	PP8-9	Stringer "P" has 1/16" painted over pitting on bottom flange and lower 6" of web, extends 8' from FB 8.

TABLE 4: FLOORBEAM DEFICIENCIES IN UPPER & LOWER DECK NEAR SOUTH TRUSS			
Member Type	**Upper/ Lower Deck**	**Member**	**Deficiency**
Hanger	LD	LD9	LD9 has painted over corrosion holes above the floorbeam top flange in the outstanding legs of all 4 stiffeners (2" W x 5" H) and the knee brace web (8" L x 3" H). There is advanced section loss with a 1/2" Dia. hole in the web. The east bottom flange is gone for 15" L on each side of the truss. The west bottom flange has a 4" Dia. hole in the south side. Two bolts on the south knee brace angle have sheared.
Stringer	LD	PP9-10	Stringer "Q" west of FB10 has a 12” L x 2” W painted over hole at the end of both south and north top flanges.
FB	LD	FB10	There is a 1" L x 1/2" H corrosion hole in the web on the north side of the south truss. There are corrosion holes up to 6" L at the ends of the knee brace webs over the floorbeam. There is a 15" L x 2" W corrosion hole along the edge of the east top flange south of the south truss.
Stringer	LD	PP10-11	Stringer "Q" east of FB10 has a 12” L x 2” W painted over hole at the end of both south and north top flanges. Stringer "Q" west of FB11 has a 12” L x 3” W painted over corrosion hole at the end of both south and north top flanges.
FB	LD	FB11	The east bottom flange is gone for 30" L on the north side of the south truss, and an 8" L x 3" W portion is gone on the south side of the truss. The west bottom flange has several corrosion holes up to 3" x 1-1/2" on the south side of the truss.
Stringer	LD	PP11-12	Stringer "Q" west of FB12 has a 12” L x 1” W painted over corrosion hole at the end of both south and north top flanges.
FB	LD	FB12	The northeast stiffener at the south truss has a painted over 3"-Dia. corrosion hole.
Vertical Hanger	LD	LD12	LD12-UD12 has painted over corrosion holes between the flanges and a 2" Dia. corrosion hole in the northwest flange 4' below the upper floorbeam bottom flanges.
Stringer	LD	PP12-11'	Stringer "Q" east of FB12 has a 12” L x 1” W painted over corrosion hole at the end of both south and north top flanges. Stringer "Q" west of FB11' has a 12” L x 3” W painted over corrosion hole at the end of both south and north top flanges.
FB	LD	FB11'	**There is a 3" downward impact deformation on the west face of the longitudinal strut top connection plate.** The east bottom flanges are gone on the north (30" L) and south (12" L) sides of the south truss. The east top flange has several corrosion holes up to 4" Dia. over a 15" length on the south side of the south truss. There is up to 90% rivet head loss in the top flange cover plate.
Stringer	LD	PP11'-10'	Stringer "R" east of FB11' has a 12” L x 2” H area of pitting with a 2” Dia. painted over corrosion hole on the web
FB	LD	FB10'	The east bottom flange on the south side of the south truss has several 1/2" Dia. corrosion holes. The web has painted over pitting up to 1/4" D near the truss. Numerous rivet heads on the west bottom flange on the north side of the south truss have up to 75% section loss.
Stringer	LD	PP10'-9'	Stringer "Q" at FB10' on the east face has a 12" L x 2" W painted over corrosion hole at the end of both south and north top flanges.
FB	LD	FB9'	The west bottom flange on the north side of the south truss is gone for 20" L. The adjacent transverse stiffener has 100% section loss for the bottom 6". There is isolated painted over pitting on the flanges and webs up to 3/16" D.
Stringer	LD	PP9'-8'	Stringer "Q", west face of FB8’ has a 6” L x 3” W painted over corrosion hole on the south top flange.

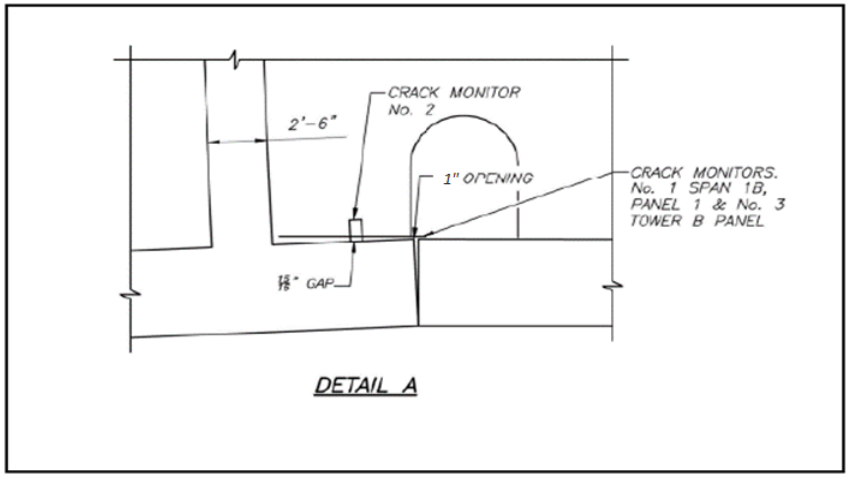
TABLE 4: FLOORBEAM DEFICIENCIES IN UPPER & LOWER DECK NEAR SOUTH TRUSS			
Member Type	**Upper/ Lower Deck**	**Member**	**Deficiency**
FB	LD	FB8'	There are two 1" Dia. corrosion holes in the floorbeam web on the north side of the south truss. The web and flanges have isolated painted over pitting (typ. up to 3/16" D) near the south truss. There is a 12" Dia. corrosion hole in the top flange cover plate.
Stringer	LD	PP8'-7'	The east face of FB8' has a 1" L x 1/2" W painted over corrosion hole on the north top flange. Stringer "Q" west of FB7' has 5" L x 1" W painted over corrosion holes on both north and south top flanges.
FB	LD	FB7'	There is a 14" long section of the west bottom flange that is missing in the south cantilever. A 5" L x 1" H corrosion hole is present in the floorbeam web of the north side of the south truss. There is 100% section loss at the base of the stiffener below the adjacent stringer. There is a 10" L x 8" W hole in the top flange cover plate.
Stringer	LD	PP7'-6'	Stringer "Q" east of FB7' has 5" L x 1" W painted over corrosion holes on both north and south top flanges. Stringer "P" has a corrosion hole on the south flange east of FB7'.
FB	LD	FB6'	There is a 1" Dia. corrosion hole in the web on the north side of the south truss, and isolated painted over pitting up to 1/8" D. There are corrosion holes 4" in diameter in the bottom flanges.
FB	UD	FB4'	The east face, south of truss, has full height x up to 4" W x 1/8" painted over section loss.
FB	LD	FB4'	Corrosion hole in the east top flange behind the hanger eyebar 3" W x 1" L. Up to 1/8" D painted over pitting to the web behind the eyebar.
Eyebar	LD	FB4'	The eyebar heads have 1/16" D painted over pitting around the full perimeter of the pin nut.
Stringer	UD	PP4'-3'	At Stringer "P": Beginning 4' from FB4, 14' L section of active corrosion due to deck leakage; Beginning 6' from FB4, advanced section loss for 5' L with complete perforations of lower 4" the web; South bottom flange has 4" H x half width, accounting for 75% loss of the bottom south flange; Above the web perforations and on the bottom north flange, 1/16" D section loss.
Stringer	LD	PP4'-3'	The stringer to floorbeam bearings on the west side of the floorbeam have painted over pack rust, missing anchor bolts and corrosion holes. This note is typical at the south truss. Stringer "N" vibrates under live load due to 100% section loss of the bottom flange. There is no connection of the stringer to the bearing assembly. The lower floorbeam bottom flange below has a 6" corrosion hole. Stringer "Q" has a 4' section of 1/8" section loss reactivating on the bottom flange.
FB	LD	FB3'	There are multiple corrosion holes up to 6" Dia. in the east bottom flange of the south cantilever.
Bracing	LD	LD3'	Typical corrosion holes along the bottom 6” portions of vertical bracing connections to floorbeam flanges at the vertical connection
Sway Bracing	LD	LD3'	The majority of the original steel components at the lower deck connection above L3’ have areas of painted over pitting with corrosion holes and knife edging.

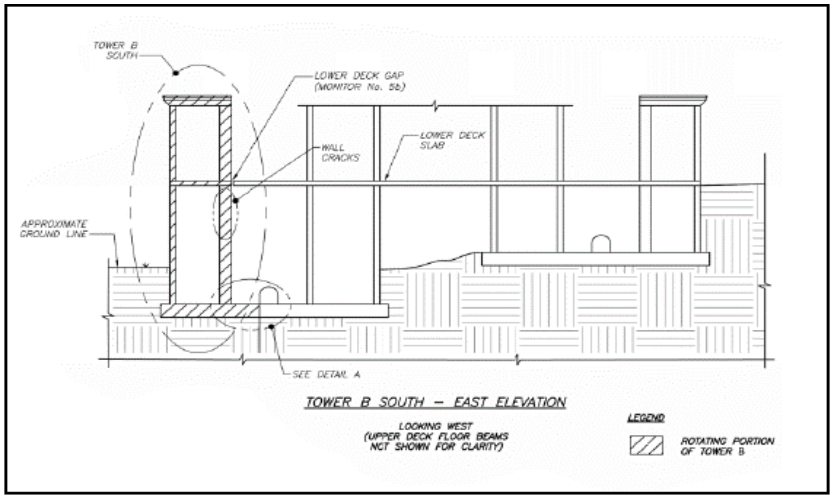
TABLE 4: FLOORBEAM DEFICIENCIES IN UPPER & LOWER DECK NEAR SOUTH TRUSS			
Member Type	**Upper/ Lower Deck**	**Member**	**Deficiency**
Stringer	UD	LD3'-2'	At Stringer "P": Beginning 7.5' from FB3', active corrosion extending 12' L; Beginning 13' from FB3', 3' L section has 1/8" D x 4" H section loss of south web face, and 1/4" D section loss of the south bottom flange with 2 small perforations - at one perforation, average south bottom flange loss is 50%.
FB	LD	FB2'	The web has 3/16" D painted over pitting around the strut connection, and isolated corrosion holes up to 12" L x 4" W in the bottom flanges. There is a 3" W x 1" H active corrosion hole in the web between Stringers "M" and "N". Interior diaphragms between webs are mostly gone.
FB	UD	FB1'	The upper knee braces at the vertical connection have 100% section loss and/or knife-edging in the webs and flanges.
FB	LD	FB1'	Heavy loss to the floorbeam bottom flange angles with up to 2"-Dia. corrosion holes and painted over pitting up to 1/8" D between trusses. Up to 1"-Dia. corrosion holes in the Stringer "N" bearing stiffener.
FB	UD	FB0'	There is a 1/4" painted over section loss with one 3/4" Dia. corrosion hole north of the south truss in the web between the lateral bracing connection plates. Transverse stiffeners have widespread corrosion holes and section loss north of the south truss on the east face. The upper knee braces at the vertical connection have 100% section loss and/or knife-edging in the webs and flanges. The east bottom flange and lower 8" of the web have 1/8" D painted over section loss.
FB	LD	FB0'	The floorbeam webs and bottom flanges have widespread painted over pitting (typ. up to 1/8" D) with numerous corrosion holes in the top and bottom flanges in the south cantilever, including an 8' long section just south of the truss where the flanges are mostly gone.

Table 5: Upper South Pier Shaft Rotation Measurements										
Date	Location									
	5*		5 at Lower Deck**		6*		6 at Lower Deck**		7*	
	East Side	West Side	East Side	West Side	East Side	West Side	East Side	West Side	East Side	West Side
2018	14-11/16"	15-1/8"			16"	16"			15"	14-13/16"
2019	14-11/16"	15-1/8"	0"	0"	16-1/8"	16-1/8"	13/16"	1"	15"	14-13/16"
2020	14-11/16"	15-1/8"	0"	0"	16-1/8"	16-1/8"	13/16"	1"	15"	14-13/16"
2021	14-11/16"	15-1/8"	0"	0"	16-1/8"	16-1/4"	3/4"	1"	15"	14-13/16"
2022	14-11/16"	15-1/8"	0"	0"	16-1/4"	16-1/4"	3/4"	1"	15-1/16"	14-13-16"

* Measurements taken 3' above approximate top of strut wall.
** Measurements taken 6" from east and west edges of the shafts.

Table 6: Crack Gage Measurements - Tower B South								
Date	No. 5B Tower B at Lower Deck		No. 1		No. 2		No. 3	
	V (mm)	H (mm)	V (mm)	H (mm)	V (mm)	H (mm)	V (mm)	H (mm)
5/17/07	---	---						
4/16/13	---	---						
10/3/14	6.0	2.0						
8/16/15	8.0	2.0						
9/14/16	11.0	2.0						
11/27/17								
10/22/18								
11/18/19					4.8	2.0		
10/22/20			4.0	1.0	5.0	1.0	0.5	5.0
10/29/21			4.8	1.2	6.0	0.3	0.5	7.0
10/31/22			5.0	1.2	6.5	0.0	0.5	8.0
10/15/24			Could not be verified due to debris.					





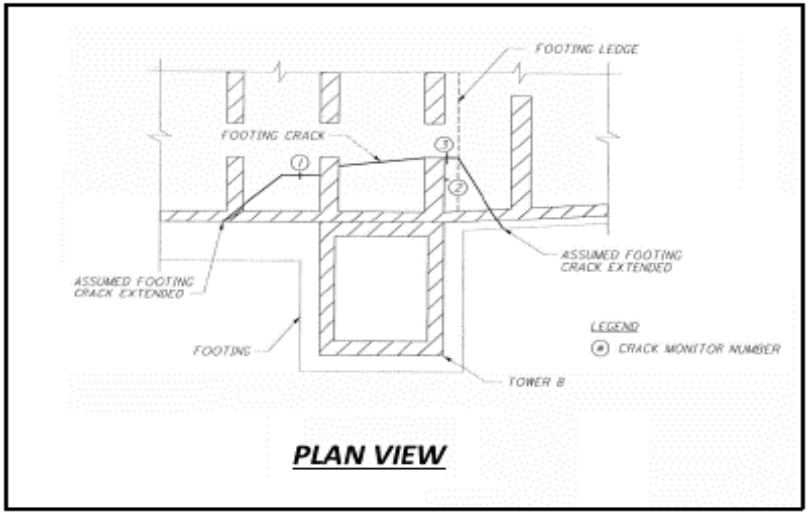
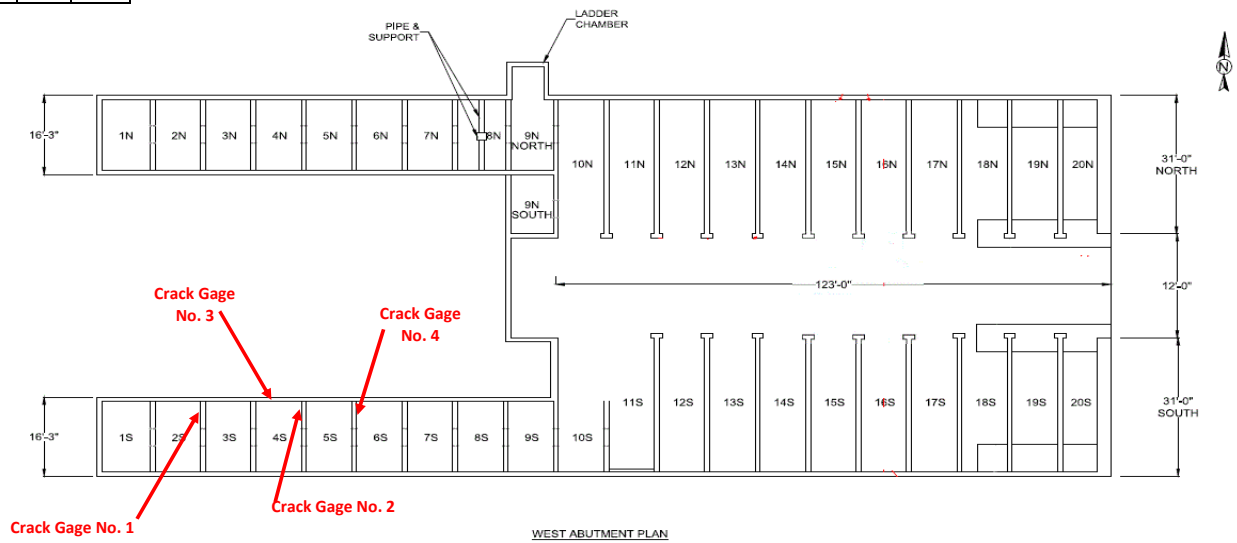


Table 6: Crack Gage Measurements - Span 1A Cellular Construction South Wall								
Date	No. 1		No. 2		No. 3		No. 4	
	V (mm)	H (mm)	V (mm)	H (mm)	V (mm)	H (mm)	V (mm)	H (mm)
5/17/07	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4/16/13	2.0	1.0	2.5	0.3	0.0	0.0	0.8	0.2
10/3/14	2.3	1.0	3.0	0.6	0.0	0.0	0.8	0.2
8/16/15	2.8	1.1	4.5	0.8	0.0	0.0	0.9	0.5
9/14/16	3.0	1.1	4.8	0.8	0.0	0.0	1.0	0.5
11/27/17								
10/22/18							1.1	1.0
11/18/19							1.3	1.0
10/22/20					0.0	0.0	1.5	1.0
10/29/21	6.0	1.3	6.0	1.0	0.0	0.0	1.5	1.0
10/31/22	6.0	2.0	6.0	1.0			1.5	1.0
10/15/24	**6.6**	**2.2**	**6.2**	1.0	**0.2**	0.0	**1.8**	1.0



WEST ABUTMENT PLAN

Table 7: West Station - Columns and Jack Arches				
Member Type	**Column Row**	**Column #**	**Face**	**Defect Description**
Column	A	2	E	Delaminated and spalled with exposed reinforcing (6 SF total).
Jack Arch	A	2-3	N	Spalled with exposed reinforcing (8 SF).
Column	A	3	**E**, W	Delamination on west face (1 SF). **East face has 2 ft vertical crack near base.**
Jack Arch	**A**	**3-4**	**B**	**Heavy spalling with rust staining and efflorescence on bottom face around embedded mounting box (6 SF).**
Column	A	4	N, W	Delamination on north and west faces (8 SF).
Column	A	6	NE	Northeast corner, east face delaminated / spalled with exposed reinforcing (10 SF total).
Jack Arch	A	6-7	N	Spalled with exposed reinforcing (4 SF).
Column	A	8	N	Entire north face of column delaminated for full height (15 SF).
Column	A	9	NW	Delaminated (**16 SF**).
Column	A	11	N, E	Whole north face and east face delaminated for full height (30 SF).
Column	A	12	N, E	East face has spall with exposed reinforcing (6 SF). North face is delaminated (15 SF).
Column	A	13	NW	Northwest corner spalled with exposed reinforcing, up to 3" D (3 SF).
Column	A	17	ALL	Spalls with exposed reinforcing and delamination, also incomplete repair (24 SF total).
Column	A	18	NW	Northwest corner of column, full height x **10" wide** delamination (**12 SF**).
Jack Arch	A	17-19	N	North face of A17-A19 jack arches spalled with exposed reinforcing (18 SF) and delaminated (8 SF).
Column	A	19	N, **E**, W	Northwest corner delaminated (4 SF). **North face delaminated (15 SF) and East face delaminated (15 SF).**
Column	A	20	N,E	North face has spall with exposed reinforcing (4 SF)**; remaining face is delaminated (15 SF**). East face has spall / incomplete repair with exposed reinforcing (2 SF)**; half of face is delaminated (8 SF).**
Wall	A	21-22	S	West wall has 4' x full height spall with exposed reinforcing. At A22, lower 3' x 3' delamination and spall with exposed reinforcing.
Column	**A**	**22**	**E**	**Delamination at top of east face (3 SF)**
Wall	A	22-23	S	12' x full height of wall spalled with exposed reinforcing.
Wall	A	23-24	S	Delaminated and spalled with exposed reinforcing (24 SF total).

Table 7: West Station - Columns and Jack Arches				
Member Type	**Column Row**	**Column #**	**Face**	**Defect Description**
Jack Arch	A	23-24	N, **S, B**	Jack arch, north face, delamination for full length. **South face delaminated at apex (1 SF). Bottom face is delaminated (6 SF).**
Wall	A	24-25	S	Delaminated and spalled with exposed reinforcing (8 SF total).
Wall	A	25-26	S	Spalled with exposed reinforcing (3 SF).
Column	A	28	NW	Spalled with exposed reinforcing **at base** (1 SF).
Column	A	31	SE, **W**	Southeast corner delaminated (2 SF). **W face has full-height delamination (15 SF) and 1 SF spall.**
Column	B	4	N, W	Delaminated and spalled with exposed reinforcing (20 SF total).
Jack Arch	B	7-8	**ALL**	Jack arch delaminated with rust staining (6 SF).
Column	B	9	SE	Spalled with exposed reinforcing (1 SF).
Column	B	10	S	Spall with exposed reinforcing 4" D (4 SF).
Jack Arch	B	10-11	**ALL**	South face spalled with exposed reinforcing (4 SF) and delaminated (2 SF). **North face has spall with exposed rebar (6 SF). Bottom face has delamination (8 SF).**
Jack Arch	**B**	**12**	**N**	**Spall above column with no exposed rebar (6 SF).**
Jack Arch	B	12-13	S	Underside of B11-B12 jack arch is delaminated and spalled with exposed reinforcing (6 SF total).
Jack Arch	B	13-14	**ALL**	Jack arch delaminated and spalled with exposed reinforcing 3" D (**15 SF total**).
Jack Arch	**B**	**14**	**S**	**Spall with exposed rebar (2 SF).**
Jack Arch	B	14-15	**B**	Jack arch spalled **on bottom face** with exposed reinforcing (4 SF) and delaminated (2 SF).
Column	B	15	ALL	Faces spalled with exposed reinforcing **under arches (8 SF total).**
Column	B	20	N, E, S	Column spalled with exposed reinforcing (**10 SF**).
Jack Arch	B	20-21	S, **B**	Jack arch spalled for 4' near B21, south face (4 SF). **Spall with exposed bar on bottom face (1 SF).**
Column	B	21	N	Spalled with exposed reinforcing **at base** (1 SF).
Column	B	22	SE	Southeast corner spalled with exposed reinforcing (1 SF).
Column	**B**	**23**	**SE**	**Delamination (1 SF).**

Table 7: West Station - Columns and Jack Arches				
Member Type	**Column Row**	**Column #**	**Face**	**Defect Description**
Column	B	24	S, E	South and east faces spalled with exposed reinforcing 3" D (12 SF).
Column	B	25	**ALL**	Southeast corner spalled **at base** with exposed reinforcing 2.5" D (2 SF). **Delamination at base (6 SF).**
Column	B	28	SE	Southeast corner spalled **at base** with exposed reinforcing 2" D (4 SF).
Column	B	29	S, W	South and west faces spalled with exposed reinforcing (4 SF total).
Jack Arch	**B**	**29**	**SE**	**Spall above column with exposed rebar (2 SF).**
Column	**B**	**31**	**NE**	**Deep spall with exposed rebar (1 SF).**
Column	C	1	E	Spalled with exposed reinforcing (6 SF).
Jack Arch	**C**	**2-3**	**S**	**Vertical crack with efflorescence.**
Column	C	3	N, W	Delaminated (**10 SF**).
Jack Arch	C	4-5	N	Spalled with exposed reinforcing (4 SF).
Jack Arch	C	7-8	N	Delaminated **with efflorescence** (3 SF).
Jack Arch	**C**	**9-10**	**N**	**Spall with exposed reinforcing bars (4 SF).**
Column	C	10	N, E**, S**	Spall with exposed reinforcing 4" D (**4 SF**).
Jack Arch	C	10-11	**ALL**	Spalled with exposed reinforcing (**12 SF**) **near column 10. Delamination on north face (4 SF) near column 11.**
Column	C	12	N, E**, S**	Spall with exposed reinforcing 4" D (12 SF). **Delamination (6 SF).**
Jack Arch	**C**	**12-13**	**S, B**	**Delamination (15 SF).**
Column	C	15	ALL	Faces spalled with exposed reinforcing (12 SF total).
Jack Arch	C	14-15	ALL	Spalled with exposed reinforcing (**25 SF**).
Jack Arch	C	15-16	N**, S**	North face spalled with exposed reinforcing (4 SF). **South face delaminated (4 SF).**
Jack Arch	C	16-17	ALL	Jack arch spalled with exposed reinforcing (25 SF).
Column	C	18	S	Southeast corner spalled with exposed reinforcing 2" D (4 SF).

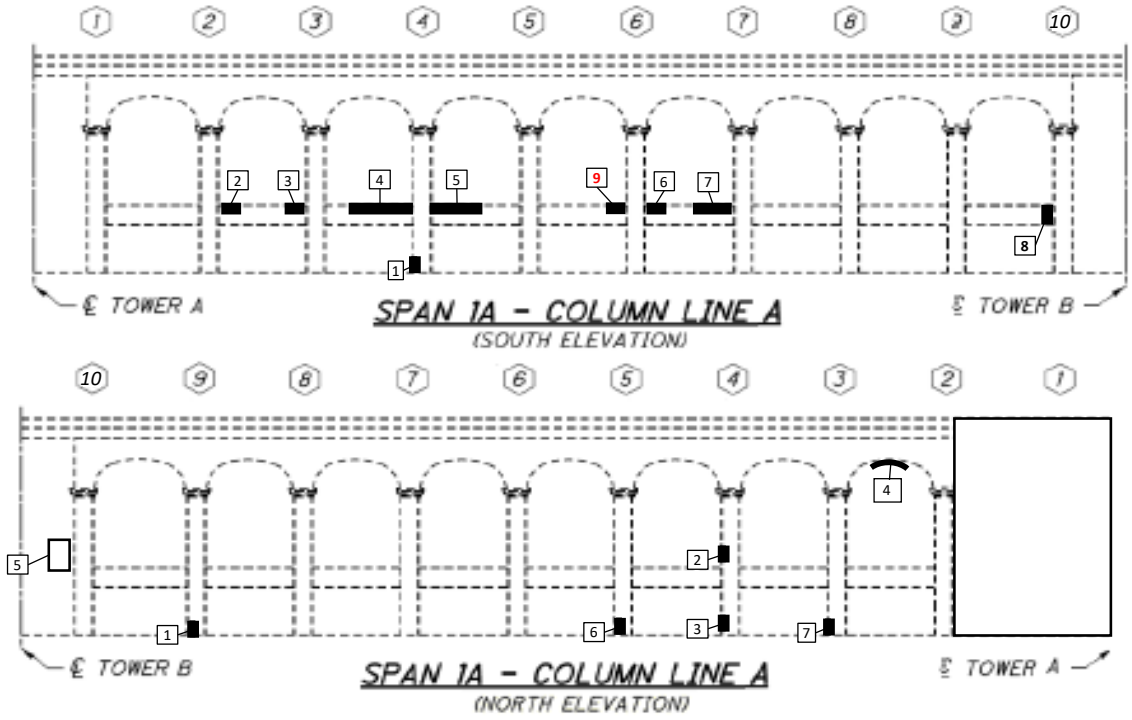
Table 7: West Station - Columns and Jack Arches				
Member Type	**Column Row**	**Column #**	**Face**	**Defect Description**
Jack Arch	**C**	**18-19**	**N**	**Spall with exposed rebar (2 SF) over column 18. Delamination (2 SF) over column 19.**
Column	C	20	S	Delaminated (2 SF).
Jack Arch	C	20-21	**ALL**	Spalled with exposed reinforcing (8 SF).
Column	C	21	S, E	Delaminated (**6 SF**).
Column	C	22	SE	Spalled with exposed reinforcing (1 SF).
Column	C	23	S, W	Faces spalled with exposed reinforcing 3" D (**14 SF total**).
Column	C	25	**N,W,S**	Northwest corner delaminated and spalled with exposed reinforcing (4 SF total). **Southwest corner delaminated (5 SF).**
Column	C	29	N, W	North and west faces delaminated with spalls (3 SF total).
Jack Arch	**C**	**29-30**	**N**	**Spall with exposed rebar (1 SF). Efflorescence on bottom face.**
Column	C	30	N,W,S	Faces have delamination / spalls (20 SF total).
Column	C	31	NW	Delaminated (2 SF).
Jack Arch	D	3-4	ALL	Jack arch to W. 25th St. Tunnel is delaminted and spalled with exposed reinforcing (20 SF total).
Column	D	8	N	Delaminted (**3 SF**).
Jack Arch	D	8-9	S	Delaminated (**5 SF**). **Spall with exposed rebar (1 SF).**
Column	D	11	N**, E,** W	Northwest corner delaminated and spalled **with exposed rebar** (6 SF total). **East face is delaminated (2 SF).**
Column	D	12	**E,** W	West face elaminated (2 SF). **East face spalled with exposed rebar (1 SF).**
Jack Arch	**D**	**12-13**	**N, B**	**Bottom face has spall with exposed rebar (4 SF). North face is delaminated (5 SF).**
Column	D	13	NW	Northwest corner spalled with exposed reinforcing (**8 SF**).
Jack Arch	**D**	**13-14**	**B**	**Heavy efflorescence on bottom face.**
Jack Arch	D	14-15	N	Spalled with exposed reinforcing (2 SF).
Jack Arch	**D**	**15-16**	**S**	**Heavy efflorescence on south face.**

Table 7: West Station - Columns and Jack Arches				
Member Type	**Column Row**	**Column #**	**Face**	**Defect Description**
Column	D	18	N, E	North and east faces delaminated and spalled with exposed reinforcing, (8 SF total).
Column	D	20	N	Spall with exposed reinforcing (2 SF).
Jack Arch	**D**	**21-22**	**N**	**Spall with exposed rebar (3 SF).**
Jack Arch	**D**	**22-23**	**N**	**Spall with exposed rebar (1 SF). Delamination (5 SF).**
Column	D	24	N, W, S	Delaminated and spalled with exposed reinforcing 3" D (8 SF total).
Column	D	25	ALL	Spalled with exposed reinforcing up tp 4" D (**12 SF total**).
Jack Arch	D	25-26	**ALL**	Delaminated (8 SF). **Bottom face is spalled with exposed rebar (1 SF).**
Jack Arch	D	26-27	N	Delaminated (8 SF).
Column	D	26	N, S	North and south faces delaminated (8 SF total) and spalled with exposed reinforcing (8 SF total).
Column	D	27	N, S	Delaminated on north and south faces (12 SF total).
Column	D	29	W	Spalled with exposed reinforcing 4" D (2 SF).
Column	D	30	ALL	Delaminated or spalled (**18 SF total**).
Jack Arch	**D**	**30-31**	**B**	**2 ft longitudinal crack on bottom side.**
Column	D	31	N	Delaminated and spalled with exposed reinforcing (4 SF total).
Column	E	11	N**, W**	Delaminated (**9 SF**) on north face. **Delaminated (1 SF) no west face.**
Column	E	23	**SE**	Spalled with exposed reinforcing (1 SF).
Column	E	24	N, E	Spalled with exposed reinforcing (**6 SF total**).
Column	E	26	ALL	Spalled with exposed reinforcing (**20 SF total**).
Column	E	27	N, W, S	Spalled with exposed reinforcing (12 SF).
Wall	**F**	**22**	**N**	**Full-height 1/4"-wide vertical crack through brick wall.**
Column	F	22	E	Spalled with exposed reinforcing (2 SF).

Table 7: West Station - Columns and Jack Arches				
Member Type	**Column Row**	**Column #**	**Face**	**Defect Description**
Column	F	24	N	Spalled with exposed reinforcing (4 SF).
Column	F	25	SW	Delaminated (1 SF).
Jack Arch	F	25-26	ALL	Spalled with exposed reinforcing on bottom face (4 SF).
Wall	F	26-27	N	Spalled with exposed reinforcing (4 SF). **Daylight comes through joint.**
Column	F	27	N, E, S	Delaminated and spalled with exposed reinforcing (6 SF total).
Jack Arch	G	G4-H5	S	Jack arch delaminated and spalled **with exposed rebar** (4 SF total).
Jack Arch	H	4-5	ALL	Delaminated and spalled with exposed reinforcing (8 SF total).

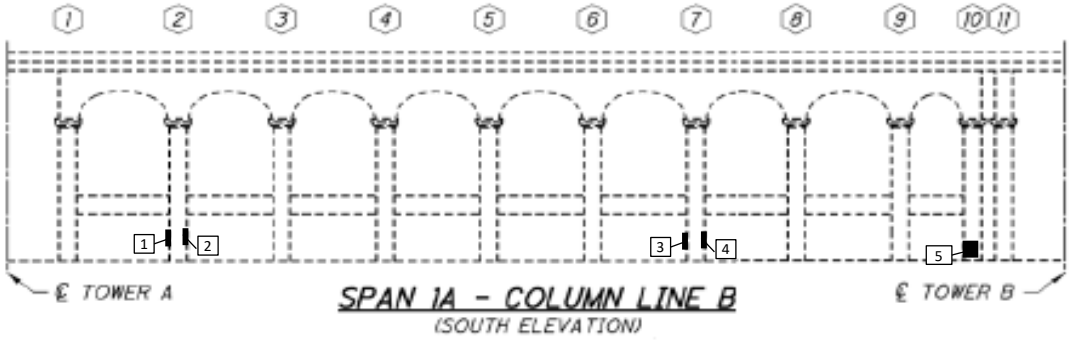
Table 8: West Station - Ceiling Condition States															
Col. Row	Col. #	CS2 %	CS3 %	Col. Row	Col. #	CS2 %	CS3 %	Col. Row	Col. #	CS2 %	CS3 %	Col. Row	Col. #	CS2 %	CS3 %
A - W	2 - 3	75	5	A - B	25 - 26	20	5	H - D	3 - 4	20	10	D - E	21 - 22	25	
A - W	3 - 4	50	5	A - B	26 - 27	20	20	H - D	4 - 5	50	15	D - E	22 - 23	25	
A - W	4 - 5	50		A - B	27 - 28	10	10	H - D	5 - 6	50	12	D - E	23 - 24	25	5
A - W	5 - 6	50		A - B	28 - 29	20	50	H - D	6 - 7	30	20	D - E	24 - 25	25	1
A - W	6 - 7	25	75	A - B	29 - 30	5	5	C - D	7 - 8	25	10	D - E	25 - 26	25	25
A - W	7 - 8	75		A - B	30 - 31	10	10	C - D	8 - 9	50	10	D - E	26 - 27	20	10
A - W	8 - 9	50	10	B - C	1 - 2			C - D	9 - 10	80		D - E	27 - 28	20	5
A - W	9 - 10	60	40	B - C	2 - 3	80	10	C - D	10 - 11	25	10	D - E	28 - 29	20	
A - W	10 - 11	25	5	B - C	3 - 4	60	20	C - D	11 - 12	50	25	D - E	29 - 30	10	
A - W	11 - 12	25	25	B - C	4 - 5	50	20	C - D	12 - 13	10	5	D - E	30 - 31	5	
A - W	12 - 13	30	5	B - C	5 - 6	25	10	C - D	13 - 14	60	20	E - W	6 - 7	75	5
A - W	13 - 14	20	50	B - C	6 - 7	25	5	C - D	14 - 15	50	5	E - W	7 - 8	75	5
A - W	14 - 15	50	30	B - C	7 - 8	20	30	C - D	15 - 16	80	20	E - W	8 - 9	50	
A - W	15 - 16	70	10	B - C	8 - 9	50	25	C - D	16 - 17	60	10	E - W	9 - 10	50	
A - W	16 - 17	30	30	B - C	9 - 10	95	5	C - D	17 - 18	75		E - W	10 - 11	50	50
A - W	17 - 18	30		B - C	10 - 11	50	10	C - D	18 - 19	60	5	E - W	11 - 12	50	20
A - W	18 - 19	30	30	B - C	11 - 12	50	50	C - D	19 - 20	50	5	E - W	12 - 13	50	20
A - W	19 - 20	50	10	B - C	12 - 13	50	5	C - D	20 - 21	20		E - W	13 - 14	50	10
A - W	20 - 21	50	10	B - C	13 - 14	50	30	C - D	21 - 22	50	5	E - W	14 - 15	50	10
A - B	1 - 2			B - C	14 - 15	60		C - D	22 - 23	50	5	E - W	15 - 16	50	10
A - B	2 - 3	50	25	B - C	15 - 16	70	30	C - D	23 - 24	30	5	E - W	16 - 17	50	
A - B	3 - 4	60	25	B - C	16 - 17	60	5	C - D	24 - 25	50	10	E - W	17 - 18	50	10
A - B	4 - 5	50	20	B - C	17 - 18	50		C - D	25 - 26	50	20	E - W	18 - 19	50	10
A - B	5 - 6	20	10	B - C	18 - 19	60	5	C - D	26 - 27	40	20	E - W	19 - 20	25	50
A - B	6 - 7	50	10	B - C	19 - 20	50	10	C - D	27 - 28	25	25	E - W	20 - 21	50	30
A - B	7 - 8	25	50	B - C	20 - 21	10		C - D	28 - 29	50	20	E - F	21 - 22	25	
A - B	8 - 9	60	20	B - C	21 - 22	25	1	C - D	29 - 30	50	50	E - F	22 - 23	50	
A - B	9 - 10	50	5	B - C	22 - 23	60	10	C - D	30 - 31	50	50	E - F	23 - 24	50	
A - B	10 - 11	25	5	B - C	23 - 24	95	5	D/T - E	4 - 6			E - F	24 - 25	50	5
A - B	11 - 12	50	50	B - C	24 - 25	50	30	D - E	4 - 6	50	20	E - F	25 - 26	25	
A - B	12 - 13	60	20	B - C	25 - 26	20	10	D - E	6 - 7	50	20	E - F	26 - 27	25	
A - B	13 - 14	50	20	B - C	26 - 27	30	30	D - E	7 - 8	50		E - F	27 - 28	25	
A - B	14 - 15	50	20	B - C	27 - 28	30	30	D - E	8 - 9	75	25	E - F	28 - 29	5	
A - B	15 - 16	50	10	B - C	28 - 29	65	35	D - E	9 - 10	80	20	E - F	29 - 30	5	
A - B	16 - 17	20	10	B - C	29 - 30	50	20	D - E	10 - 11	25	10	E - F	30 - 31		
A - B	17 - 18	5		B - C	30 - 31	50	20	D - E	11 - 12	25	75	F - W	21 - 22		
A - B	18 - 19	10	10	C - G	2 - 3	90	10	D - E	12 - 13	50	20	F - W	22 - 23	50	
A - B	19 - 20	20	10	C - G	3 - 4	80		D - E	13 - 14	20	40	F - W	23 - 24	50	
A - B	20 - 21	10	10	C - G/H	4 - 5	50	5	D - E	14 - 15	50	10	F - W	24 - 25	50	
A - B	21 - 22	5		C - H	5 - 6	75		D - E	15 - 16	50	20	F - W	25 - 26	25	
A - B	22 - 23	5	5	C - H	6 - 7		100	D - E	16 - 17	30	5	F - W	26 - 27	30	
A - B	23 - 24	5		G - H	2 - 3	25	25	D - E	17 - 18	25		F - W	27 - 28	10	
A - B	24 - 25	25	25	G - H	3 - 4	50	1	D - E	18 - 19	50	5	F - W	28 - 29		
				G - H	4 - 5	50		D - E	19 - 20	50	5	F - W	29 - 30		
				H/T - D	3 - 4			D - E	20 - 21	25		F - W	30 - 31		

Note:
"W" = Wall
"T" = W. 25th Street Tunnel

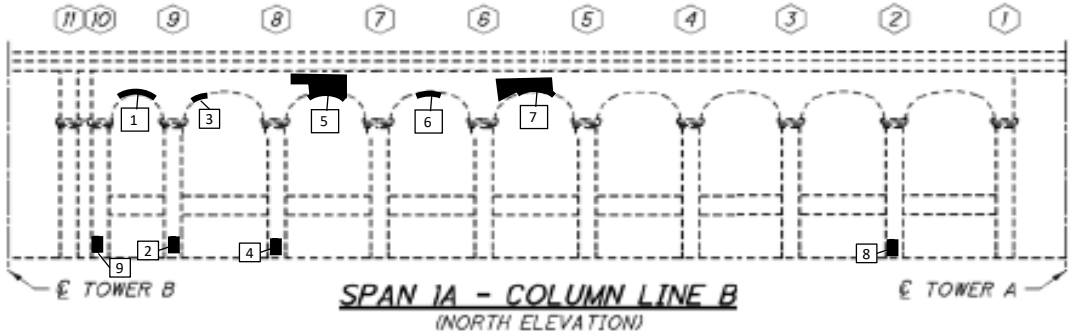


SPAN 1A - COLUMN LINE A (SOUTH ELEV.) DEFICIENCIES	
#	Defect
1	Spall w/ exp. Reinf., 2.5" D - 1 SF
2	**Spall w/ exp. Reinf.** - 1 SF
3	Delamination - 4 SF
4	**Spall w/ exp. Reinf.** - 7 SF
5	Delamination - 4 SF
6	Delamination - 1 SF
7	Delamination - 5 SF
8	Delamination - 1 SF
9	**Spall w/ exp. Reinf.**

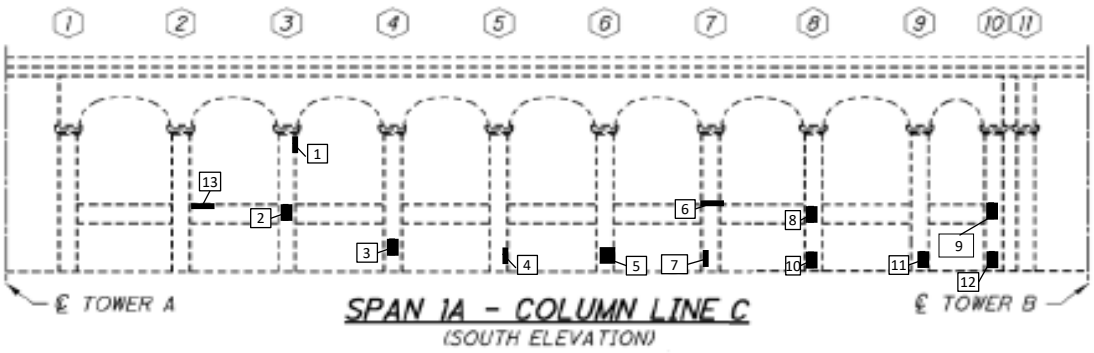
SPAN 1A - COLUMN LINE A (NORTH ELEV.) DEFICIENCIES	
#	Defect
1	Spall w/ exp. Reinf., 1.5" D. Adv. section loss on exposed ties w/ 1 broken - 7 SF
2	Delamination - 5 SF
3	Delamination/Spall w/ exp. Reinf. - 4 SF
4	Delamination - 1 SF
5	Delamination - 4 SF
6	Delamination/Spall w/ exp. Reinf. - 2 SF
7	Delamination - 2 SF



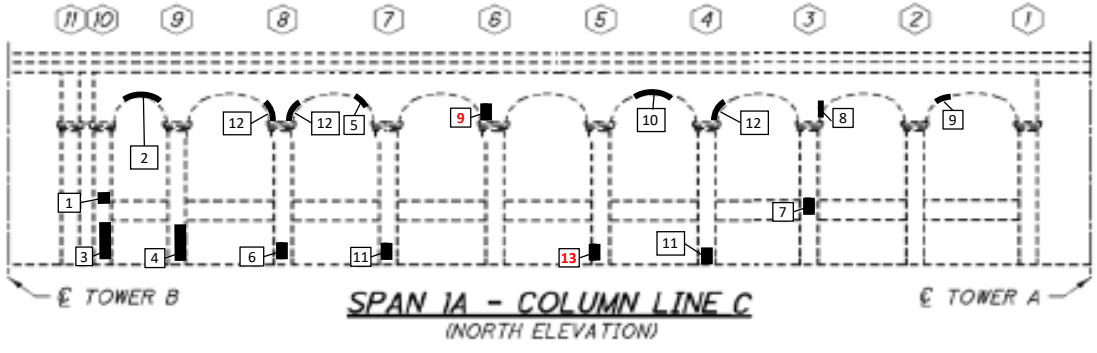
SPAN 1A - COLUMN LINE B (SOUTH ELEV.) DEFICIENCIES	
#	Defect
1	Delamination - 1 SF
2	Spall w/ exp. Reinf. - 1 SF
3	Spall w/ exp. Reinf., 1.5" D - 1 SF
4	Spall w/ exp. Reinf., 1.5" D - 1 SF
5	Delam./Spall w/ exp. Reinf., 1.5" D - **5** SF



SPAN 1A - COLUMN LINE B (NORTH ELEV.) DEFICIENCIES	
#	Defect
1	Delamination - 2 SF
2	Delamination - 8 SF
3	Spall - 1 SF
4	Delamination - 2 SF
5	Spall w/ exp. Reinf. - 8 SF
6	Delamination - 1 SF
7	Delamination - 18 SF w/ Spall - 1 SF
8	Delamination - 2 SF
9	Delamination - 2 SF



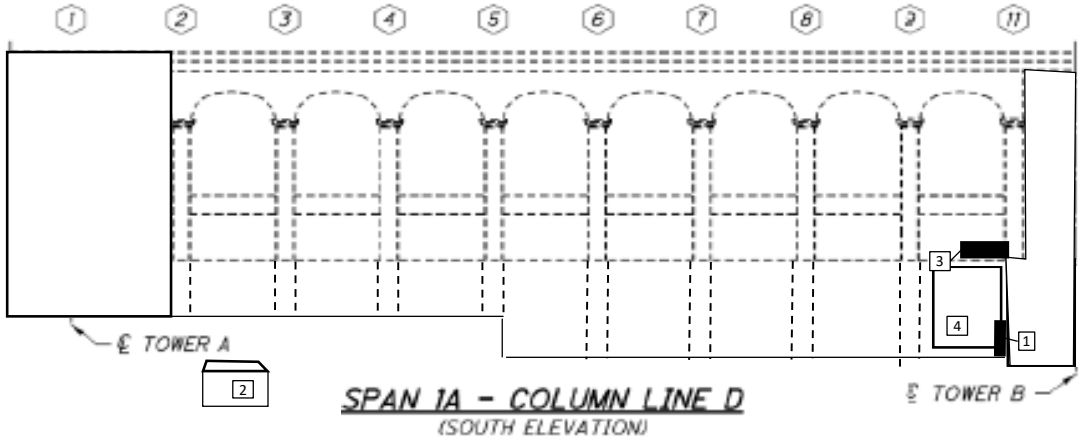
SPAN 1A - COLUMN LINE C
(SOUTH ELEVATION)



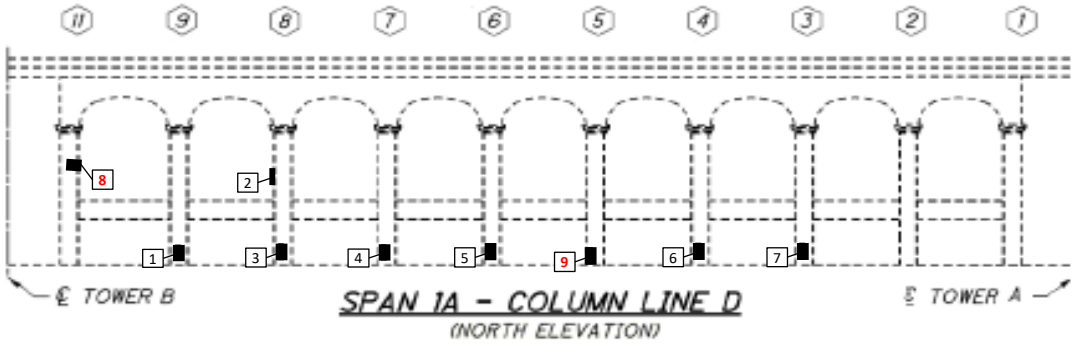
SPAN 1A - COLUMN LINE C
(NORTH ELEVATION)

SPAN 1A - COLUMN LINE C (SOUTH ELEV.) DEFICIENCIES	
#	Defect
1	Spall w/ exp. Reinf. - 1 SF
2	**Spall w/ exp. Reinf., 3" D - 1 SF**
3	Delamination - 3 SF
4	Delam./Spall w/ exp. Reinf. - 6 SF
5	Delam./Spall w/ exp. Reinf., 2.5" D - 10 SF
6	Spall w/ exp. Reinf. - 1 SF
7	Delam/**Spall, 1.5" D** - 2 SF
8	Spall w/ exp. Reinf. - 1 SF
9	Spall w/ exp. Reinf. - 1 SF
10	Spall w/ exp. Reinf., 6" D - 4 SF
11	Delam./Spall w/ exp. Reinf. - 11 SF
12	Delamination - 10 SF
13	**Spall w/ exp. Reinf., 2.5" D** - 1 SF

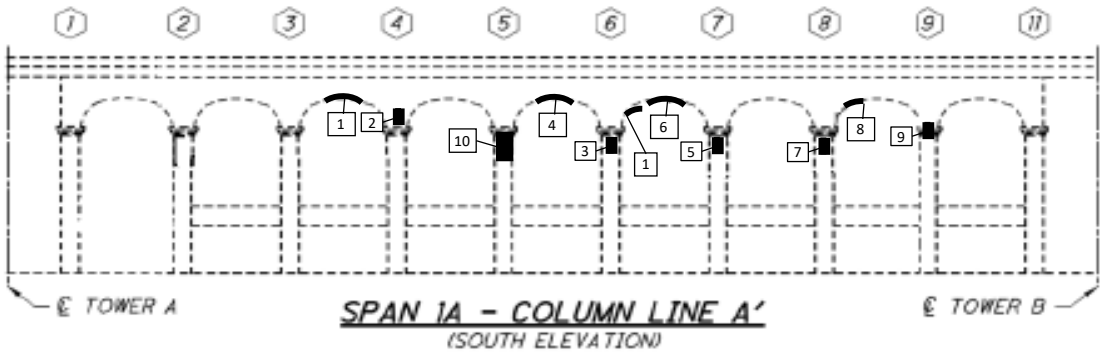
SPAN 1A - COLUMN LINE C (NORTH ELEV.) DEFICIENCIES	
#	Defect
1	Spall w/ exp. Reinf. - 1 SF
2	Delam. and Spall w/ exp. Reinf. - **5** SF
3	Spall w/ exp. Reinf., 2" D - 2 SF
4	Delam./Spall w/ exp. Reinf. - 9 SF
5	Delamination - 2 SF
6	Spall w/ exp. Reinf., 2" D - 3 SF
7	Delam./Edge Spall with exp. Reinf. - 2 SF
8	Delamination - 2 SF
9	Delamination - 1 SF (2 locations)
10	Spall w/ exp. Reinf. - 1 SF
11	Delamination (2 Locations) - 2 SF each
12	Delamination (**3** Locations) - 1 SF each
13	**Spall w/ exp. Reinf., 3" D - 1 SF**

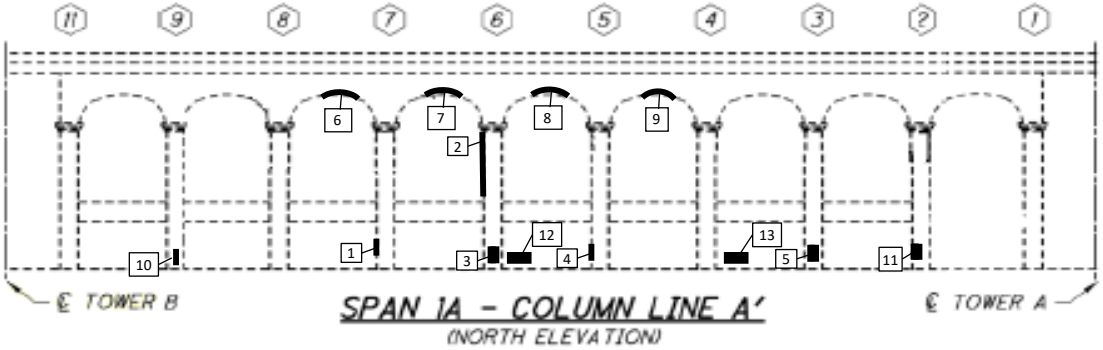


SPAN 1A - COLUMN LINE D (SOUTH ELV.) DEFICIENCIES	
#	Defect
1	Spall, 8" D - 5 SF
2	Embankment along the south side of Span 1A has signficant erosion for the full length. At the west end, there is a 15' Diameter x 4' D erosion ditch around the manhole. An erosion ditch extends from the manhole towards the east typ. 3' W x 2' D.
3	Spall w/ exp. Reinf. 1"D - 12 SF
4	Delamination - 40 SF



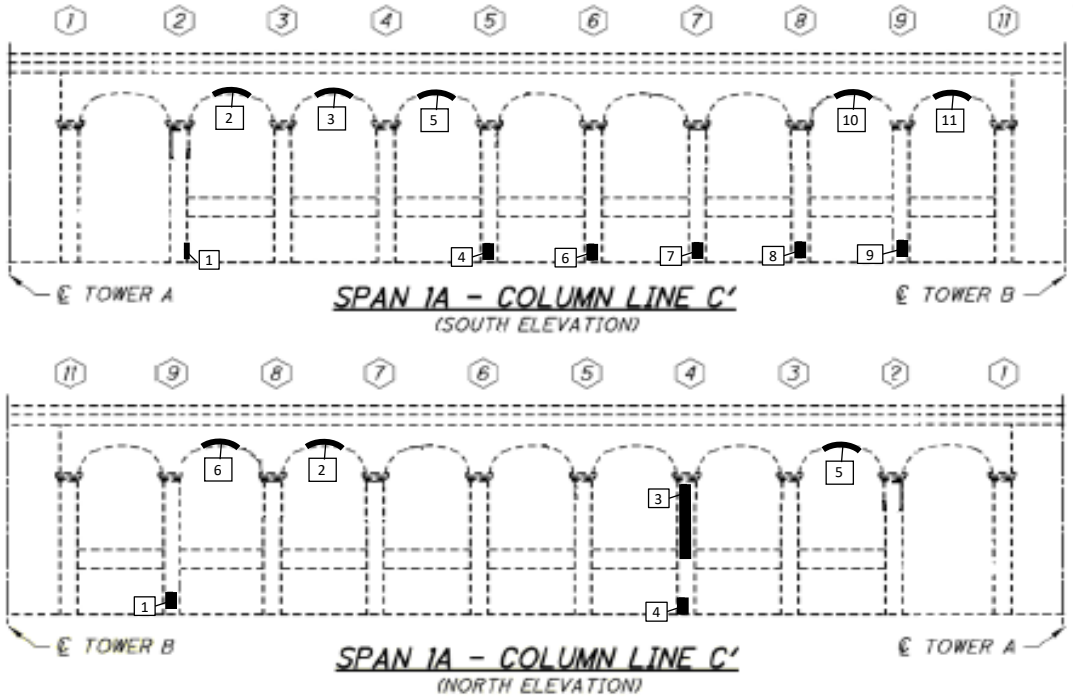
SPAN 1A - COLUMN LINE D (NORTH ELV.) DEFICIENCIES	
#	Defect
1	Spall w/ exp. Reinf, 1.5" D - 7 SF
2	Delamination - **4** SF
3	Spall w/ exp. Reinf - 6 SF
4	Spall w/ exp. Reinf., 1.5" D - 6 SF
5	Delam. w/ Spall w/ exp. Reinf., 2.5" D - 4 SF
6	Delam. w/ Spall w/ exp. Reinf., 2.5" D - 8 SF
7	Delamination - 6 SF
8	**Spall (corbel) - 1 SF**
9	**Delamination - 2 SF**





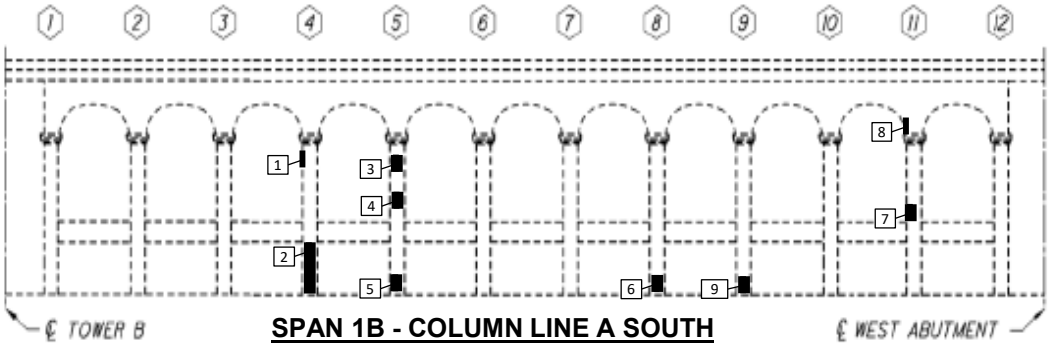
SPAN 1A - COLUMN LINE A' (SOUTH ELV.) DEFICIENCIES	
#	Defect
1	Delamination - 2 SF
2	Delamination - 4 SF
3	Spall w/ exp. Reinf., 3" D - 3 SF
4	Delam. w/ Spall w/ exp. Reinf. - 6 SF
5	Spall w/ exp. Reinf., 4" D - 8 SF
6	Spall w/ exp. Reinf. - 4 SF
7	Spall w/ exp. Reinf., 4" D - 6 SF
8	Delam. w/ edge spalls - 4 SF
9	Delamination - 2 SF
10	Spall w/ exp. Reinf., 3" D - 6 SF
11	Delamination - 1 SF

SPAN 1A - COLUMN LINE A' (NORTH ELV.) DEFICIENCIES	
#	Defect
1	Delamination - 6 SF
2	Delamination - 5 SF
3	Delaminaiton - 3 SF
4	Delam. w/ Spall w/ exp. Reinf. - 2 SF
5	Delamination - 1 SF
6	Spall w/ exp. Reinf. - 6 SF
7	Spall w/ exp. Reinf. - 3 SF
8	Spall w/ exp. Reinf. - 3 SF
9	Spall w/ exp. Reinf. - 6 SF
10	Delamination - 3 SF
11	Spall w/ exp. Reinf., 2" D - 2 SF
12	Delamination - 3 SF
13	Delamination - 2 SF

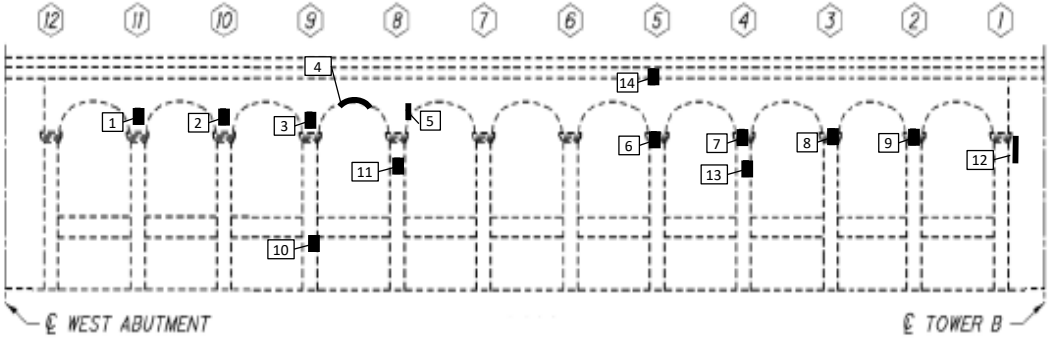


SPAN 1A - COLUMN LINE C' (SOUTH ELV.) DEFICIENCIES	
#	Defect
1	Spall w/ exp. Reinf., 2.5" D - **3** SF
2	Spall w/ exp. Reinf. - 6 SF
3	Spall w/ exp. Reinf. - 2 SF
4	Spall w/ exp. Reinf., 2" D - 4 SF
5	Spall w/ exp. Reinf. - 4 SF
6	Spall w/ exp. Reinf., 2" D - 3 SF
7	Spall w/ exp. Reinf., 3" D - 4 SF
8	Delamination - 4 SF
9	Delamination - 4 SF
10	Spall w/ exp. Reinf. - 3 SF
11	Spall w/ exp. Reinf. - 3 SF

SPAN 1A - COLUMN LINE C' (NORTH ELV.) DEFICIENCIES	
#	Defect
1	Delamination - 6 SF
2	Delamination - 1 SF
3	Delam. w/ Spall w/ exp. Reinf., 1.5" D - 17 SF
4	Delamination - 2 SF
5	Delamination - 2 SF
6	**Spall w/ exp. Reinf., 1" D** - 1 SF



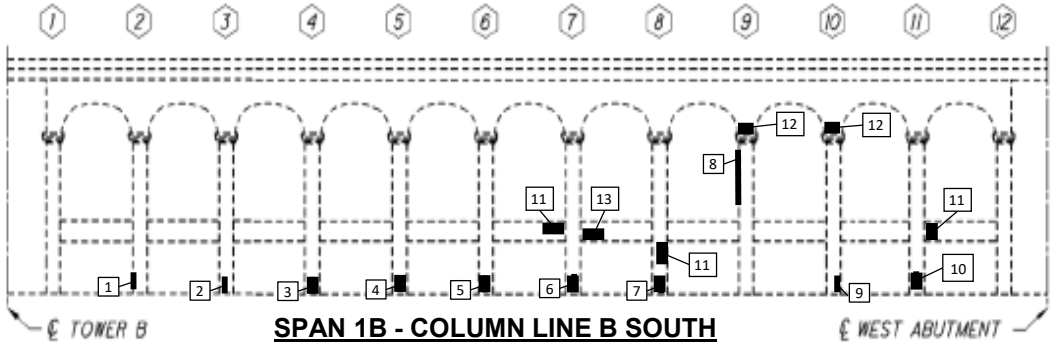
SPAN 1B - COLUMN LINE A SOUTH ELEVATION



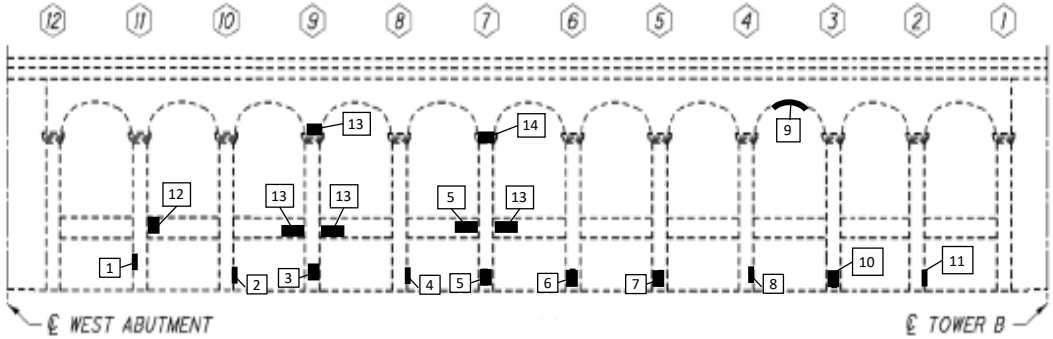
SPAN 1B - COLUMN LINE A NORTH ELEVATION

SPAN 1B - COLUMN LINE A (SOUTH ELV.) DEFICIENCIES	
#	Defect
1	Delamination - 1 SF
2	Delam. w/ Spall w/ exp. Reinf. - 8 SF
3	Delamination - 4 SF
4	Delam. w/ Spall w/ exp. Reinf. - 2 SF
5	Delam. w/ Spall w/ exp. Reinf. - 8 SF
6	Delamination - 5 SF
7	Delam. w/ Spall w/ exp. Reinf. - 4 SF
8	Delamination - 2 SF
9	Delamination - 5 SF

SPAN 1B - COLUMN LINE A (NORTH ELV.) DEFICIENCIES	
#	Defect
1	Delamination - 2 SF
2	Spall w/ exp. Reinf. - 1 SF (on bracket)
3	Delam. w/ Spall w/ exp. Reinf. - 2 SF (on bracket)
4	Delamination - 1 SF
5	Delam. w/ Spall w/ exp. Reinf. - 2 SF
6	Delamination - 2 SF
7	Spall w/ exp. Reinf. - 1 SF
8	Delam. - 2 SF (underside of bracket)
9	Spall w/ exp. Reinf. - 1 SF, 3" D
10	Spall w/ exp. Reinf. - 1 SF
11	Delamination - 1 SF
12	Spall w/exp. Reinf. 3 SF, 4" D
13	Delamination - 1 SF
14	Delamination - 1 SF (on bracket)



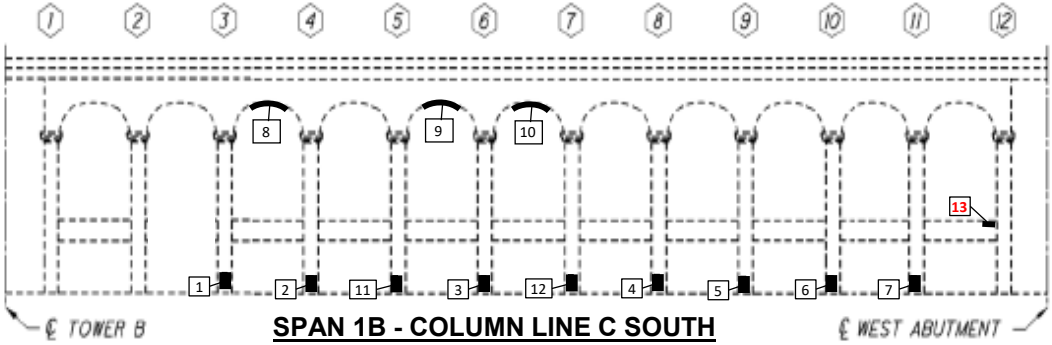
SPAN 1B - COLUMN LINE B SOUTH ELEVATION



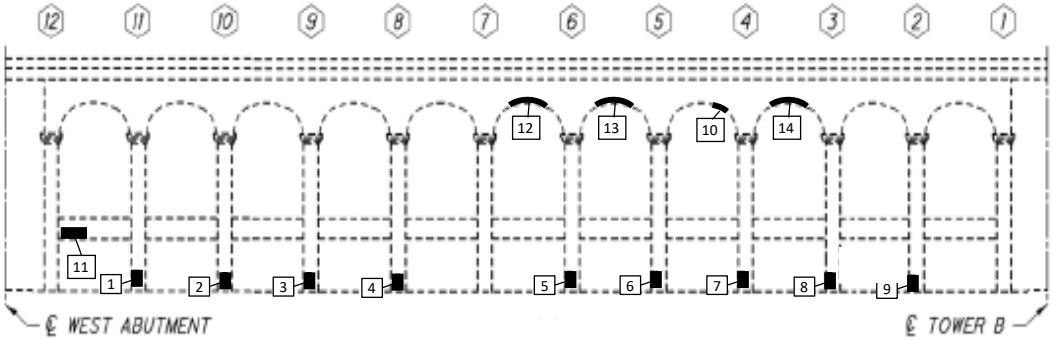
SPAN 1B - COLUMN LINE B NORTH ELEVATION

SPAN 1B - COLUMN LINE B (SOUTH ELV.) DEFICIENCIES	
#	Defect
1	Delam. w/ Spall w/ exp. Reinf. - 4 SF
2	Delam. w/ Spall w/ exp. Reinf. - 4 SF
3	Delamination - 2 SF
4	Delamination - 4 SF
5	Spall w/ exp. Reinf., 2" D - 4 SF
6	Delam. w/ Spall w/ exp. Reinf. - 3 SF
7	Delamination - 6 SF
8	Delamination - 3 SF
9	Spall w/ exp. Reinf. - 2 SF
10	Delamination - 4 SF
11	Delamination (3 Locations) - 1 SF each
12	Delamination (2 Locations) - 2 SF each
13	Delamination - 3 SF

SPAN 1B - COLUMN LINE B (NORTH ELV.) DEFICIENCIES	
#	Defect
1	Spall w/ exp. Reinf. - 3 SF
2	Delam. w/ Spall w/ exp. Reinf. - 4 SF
3	Spall w/ exp. Reinf., 3" D - 5 SF
4	Delamination - 6 SF
5	Delamination (2 Locations) - 4 SF each
6	Spall w/ exp. Reinf., 2.5" D - 3 SF
7	Spall w/ exp. Reinf., 2" D - 4 SF
8	Delam. w/ Spall w/ exp. Reinf. - 4 SF
9	Delamination - 3 SF
10	Spall w/ exp. Reinf., 2.5" D - 6 SF
11	Spall w/ exp. Reinf., 4" D - 2 SF
12	Delamination - 1 SF
13	Delamination (4 Locations) - 2 SF each
14	Delamination - 5 SF



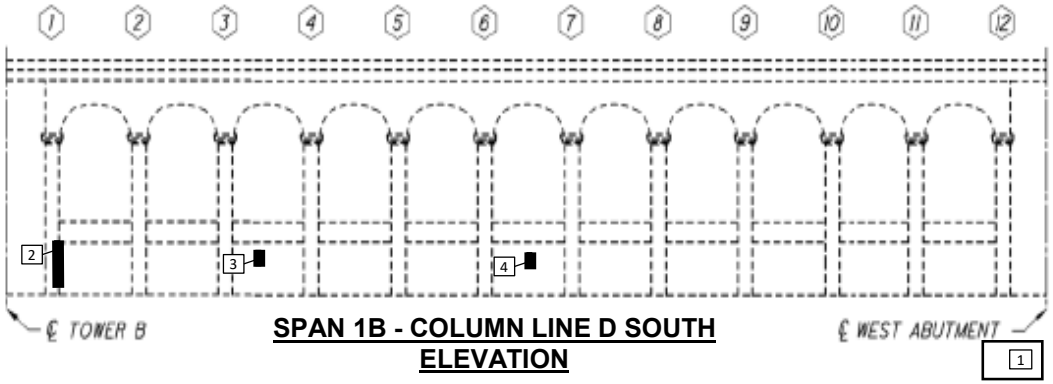
SPAN 1B - COLUMN LINE C SOUTH ELEVATION



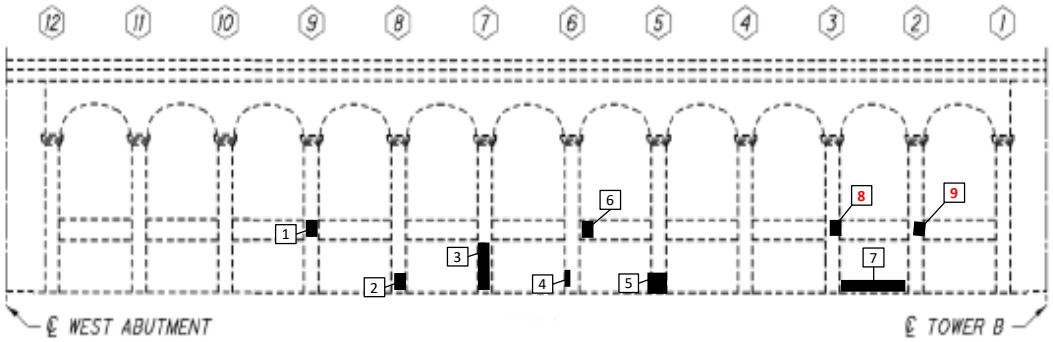
SPAN 1B - COLUMN LINE C NORTH ELEVATION

SPAN 1B - COLUMN LINE C (SOUTH ELV.) DEFICIENCIES	
#	Defect
1	Spall w/ exp. Reinf. - 4 SF
2	Delam. w/ Spall w/ exp. Reinf. - 5 SF
3	Delam. w/ Spall w/ exp. Reinf. - 6 SF
4	Delamination - 4 SF
5	Delam. w/ Spall w/ exp. Reinf. - 6 SF
6	Delamination - 6 SF
7	Spall w/ exp. Reinf. - 2 SF
8	Delamination - 2 SF
9	Delam. **w/ shallow cover reinf.** - 2 SF
10	Delam. w/ Spall w/ exp. Reinf. - 4 SF
11	Delamination - 4 SF
12	Delam. **& spall, 1" D** - 2 SF
13	**Spall w/ exp. Reinf. - 1 SF**

SPAN 1B - COLUMN LINE C (NORTH ELV.) DEFICIENCIES	
#	Defect
1	Delamination - 6 SF
2	Delamination - 4 SF
3	Delamination - 4 SF
4	Delamination - 4 SF
5	Delam. w/ Spall w/ exp. Reinf. - 4 SF
6	Delamination - 6 SF
7	Delamination - 2 SF
8	Delam. w/ Spall w/ exp. Reinf. - 4 SF
9	Delamination - 4 SF
10	Spall - 1 SF
11	Delamination - 4 SF
12	Delamination - 5 SF
13	Delamination - 3 SF
14	Delamination - 4 SF



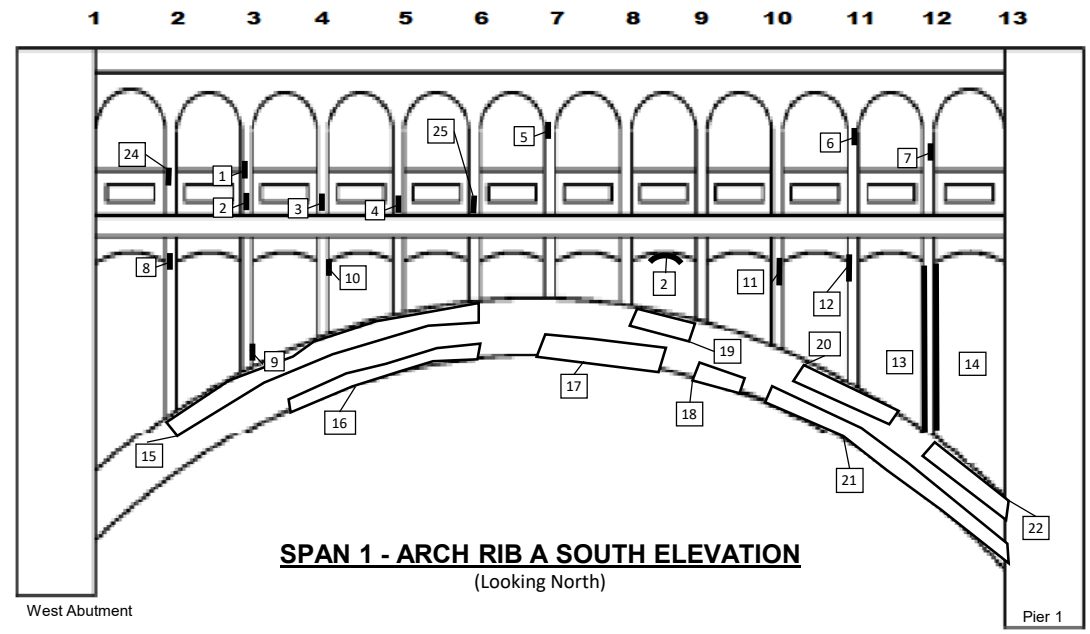
SPAN 1B - COLUMN LINE D SOUTH ELEVATION



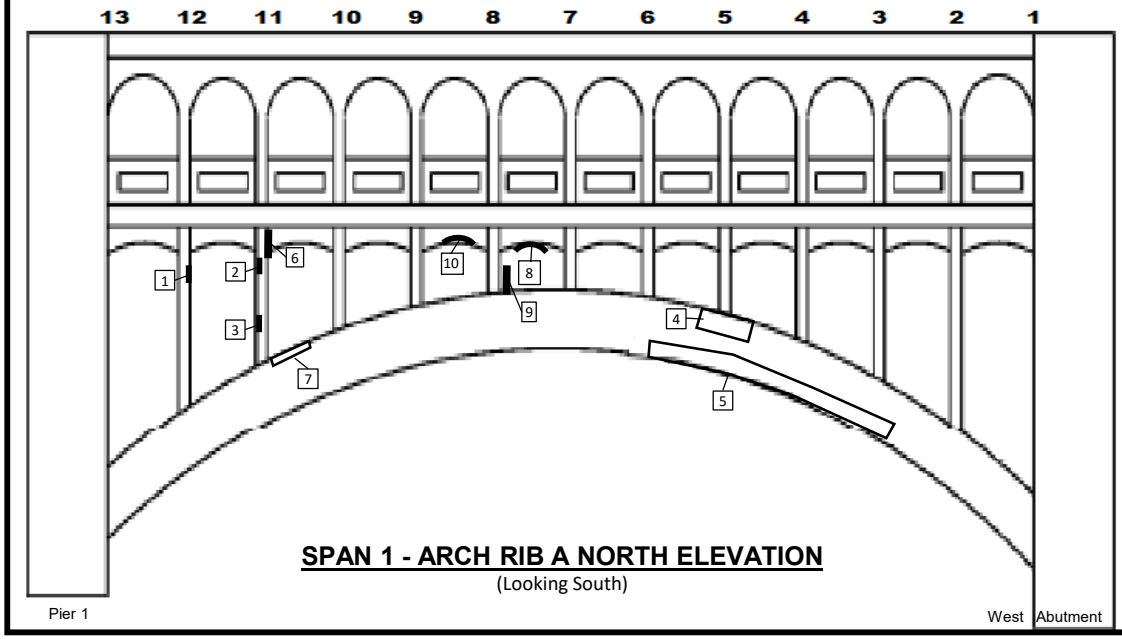
SPAN 1B - COLUMN LINE D NORTH ELEVATION

SPAN 1B - COLUMN LINE D (SOUTH ELV.) DEFICIENCIES	
#	Defect
1	Delamination and spalling - 60 SF
2	Entire column is broken away from wall.
3	Delamination - 2 SF
4	Delamination - 1 SF

SPAN 1B - COLUMN LINE D (NORTH ELV.) DEFICIENCIES	
#	Defect
1	Spall w/ exp. Reinf. - 1 SF
2	Spall w/ exp. Reinf., 2" D - 4 SF
3	Spall w/ exp. Reinf. - 8 SF
4	Spall w/ exp. Reinf. - **2** SF
5	Delamination - 6 SF
6	Delamination - 1 SF
7	Delamination - 8 SF
8	**Spall, 1" D - 1 SF**
9	**Delamination - 1 SF**



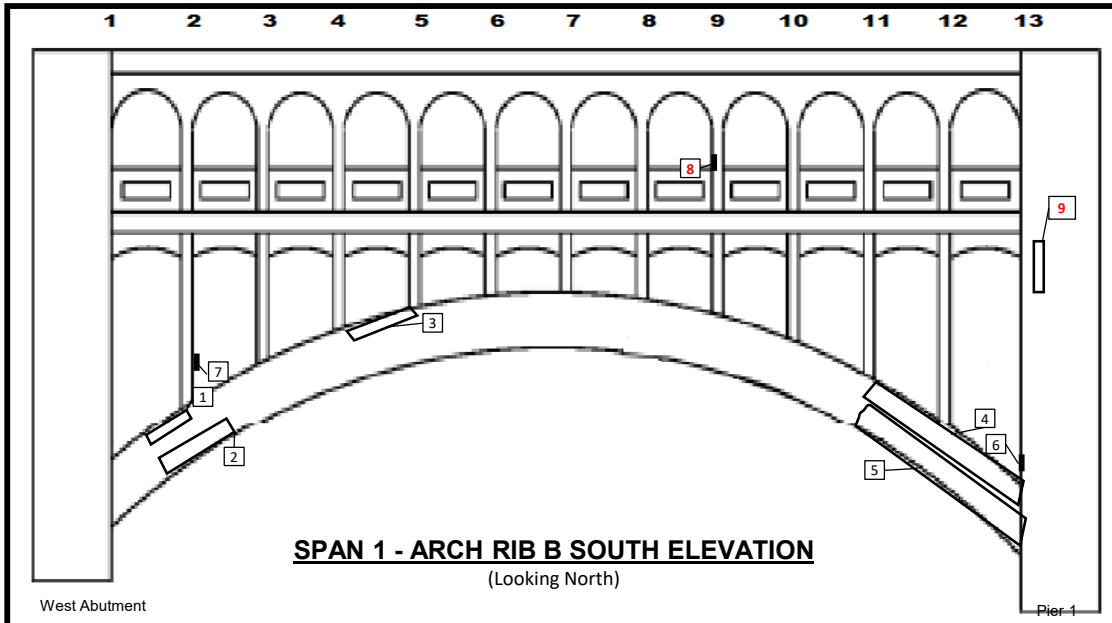
SPAN 1 - ARCH RIB A SOUTH ELEVATION
(Looking North)



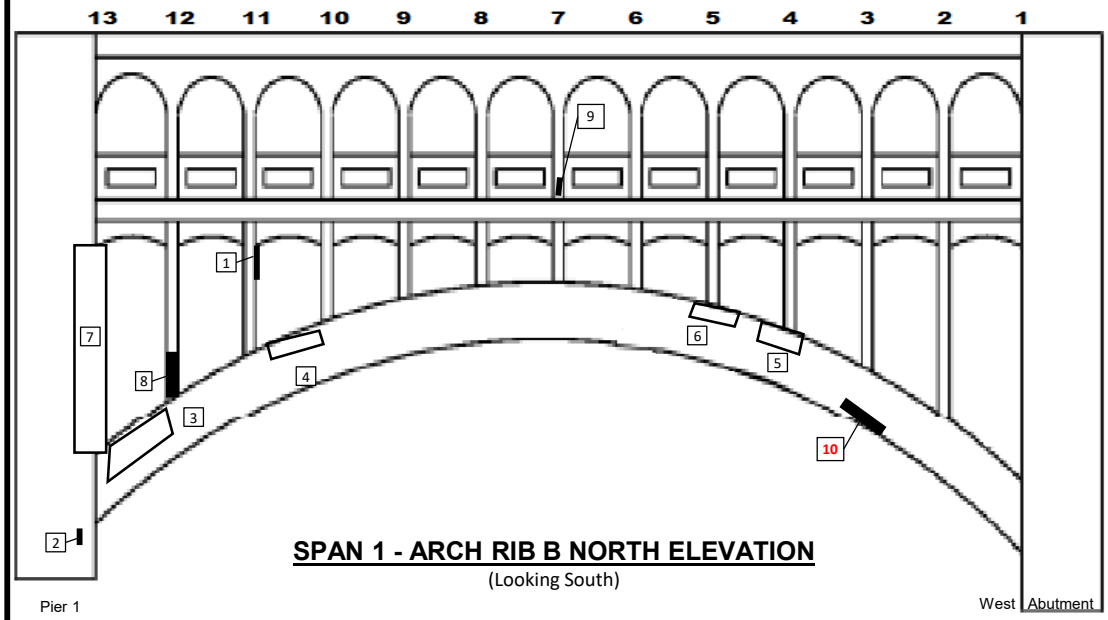
SPAN 1 - ARCH RIB A NORTH ELEVATION
(Looking South)

SPAN 1 - ARCH RIB A SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Spall, 1.5" D - 1 SF
2	Delamination - 3 SF
3	Delam. w/ Spall w/ exp. Reinf., 1" D - 3 SF
4	Delamination - 2 SF
5	Spall w/ exp. Reinf., 1" D - 1 SF
6	Delamination - 1 SF
7	Delamination - 2 SF
8	Delamination - 8 SF
9	Delamination - 2 SF
10	Delamination - 3 SF
11	Delamination - 6 SF
12	Delamination - 3 SF
13	Delamination 1' W x FH - 15 SF
14	Delamination 1' W x FH - 15 SF
15	Delamination w/ map cracking - 40' L x 1.5' H
16	Delamination - 20' L x 1' H
17	Delamination - 18' L x 1.5' H
18	Delamination - 8' L x 1.5' H
19	Delamination - 8' L x 1.5' H
20	Delamination w/ map cracking - 8' L x 2' H
21	Delamination w/ map cracking - 40' L x 1.5' H
22	Delamination - 12' L x 2' H
23	Delamination - 4 SF
24	Spall, 1" D - 1 SF
25	Spall, 1" D - 1 SF

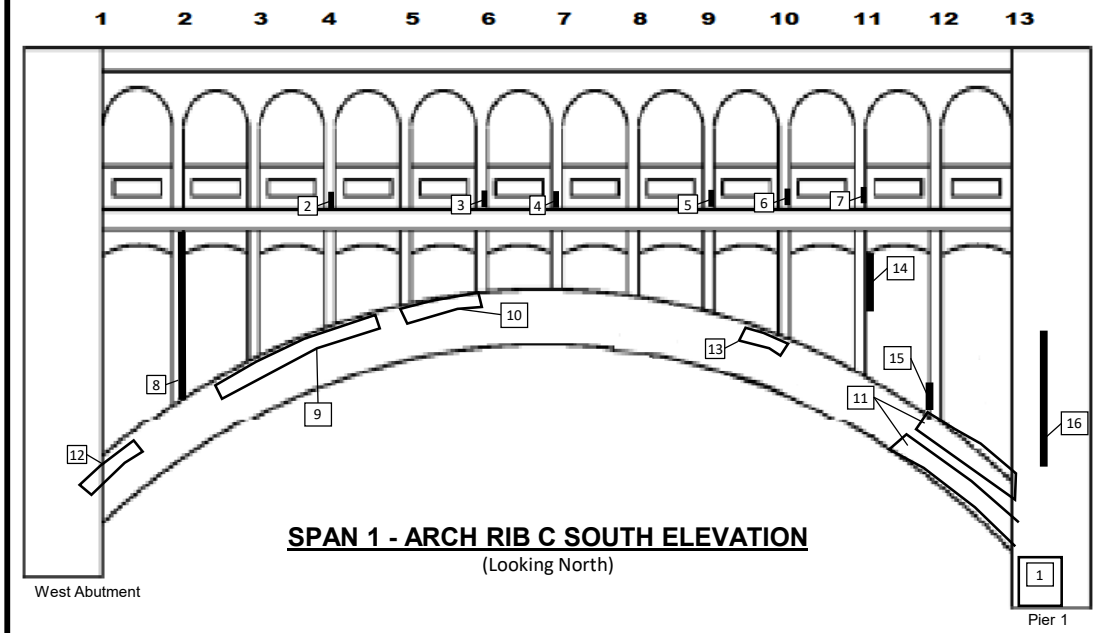
SPAN 1 - ARCH RIB A NORTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - **8** SF
2	Spall - 4 SF
3	Spall - 6 SF
4	Delamination w/ map cracking - 12' L x 2' H
5	Delamination w/ map cracking - 30' L x 1.5' H
6	Delamination - 6 SF
7	Delamination - 2' x 6"
8	Delamination - 2 SF
9	Delamination - 1 SF
10	**Delamination - 4 SF**



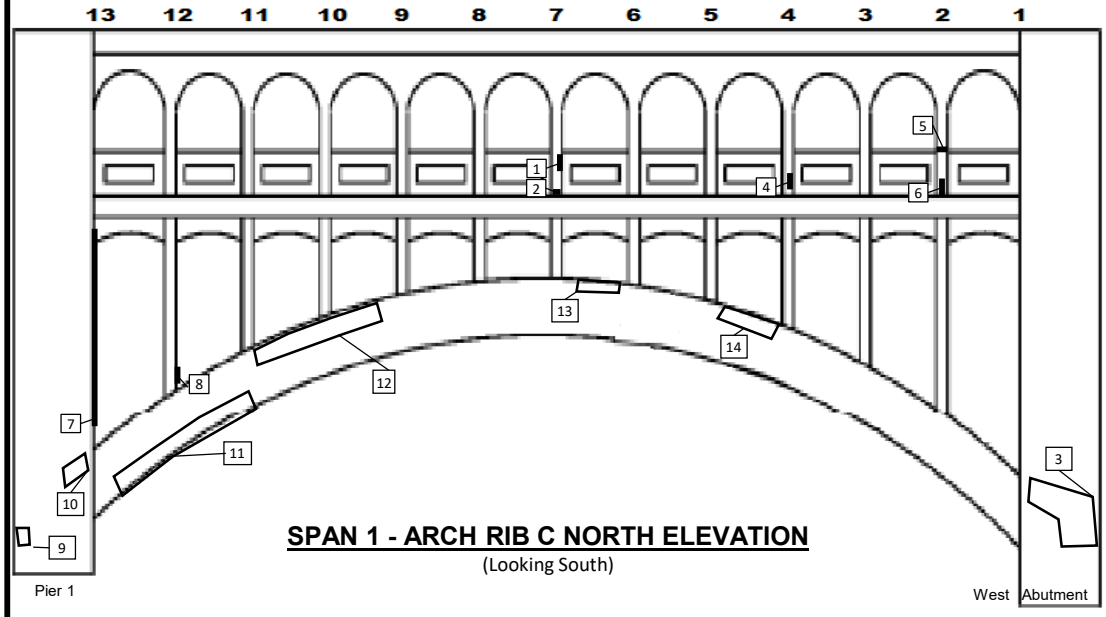
SPAN 1 - ARCH RIB B SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 1' L x 1' H
2	Delamination - 3' L x 2' H
3	Delamination - 4' L x 1' H
4	Delamination - 25' L x 1.5' H
5	Delamination - 20' L x 1.5' H
6	Delamination - 3 SF
7	Spall w/ exp. Reinf. - 1 SF
8	**Spall - 1 SF**
9	**Delamination - 1' L x 5' H**



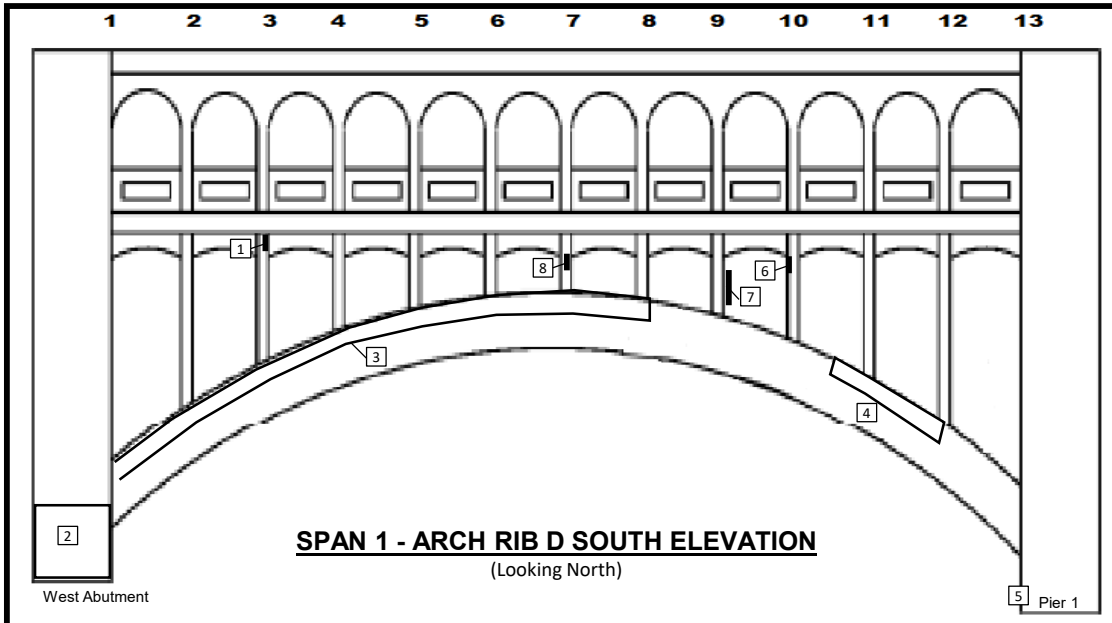
SPAN 1 - ARCH RIB B NORTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 3 SF
2	Delamination - 2 SF
3	Map Cracking - 10' L x 1' H
4	Delamination - 8 SF
5	Delamination - 5' L x 1' H
6	Delamination - 2' L x 1' H
7	Delam. - FH and extends 1' back each face - 40 SF
8	Delamination - 2 SF
9	Delamination - 2 SF
10	**Delamination - 1' L x 5' H**



SPAN 1 - ARCH RIB C SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 12 SF
2	Delamination - 1 SF
3	Delam. w/ Spall w/ exp. Reinf. - 1 SF
4	Delamination - 1 SF
5	Delamination - 1 SF
6	Delamination - 2 SF
7	Delamination - 2 SF
8	Delamination - 24 SF
9	Delam. and Spall w/ exp. Reinf - 25' L x 1' H
10	Delamination - 10' L x 1' H
11	Map cracking, top and bottom. - 15 LF
12	Delamination - 5' L x 1' H
13	Delamination - 4' L x 1' H
14	Delamination - 3 SF
15	Delamination - 2 SF
16	Delamination - 10 SF

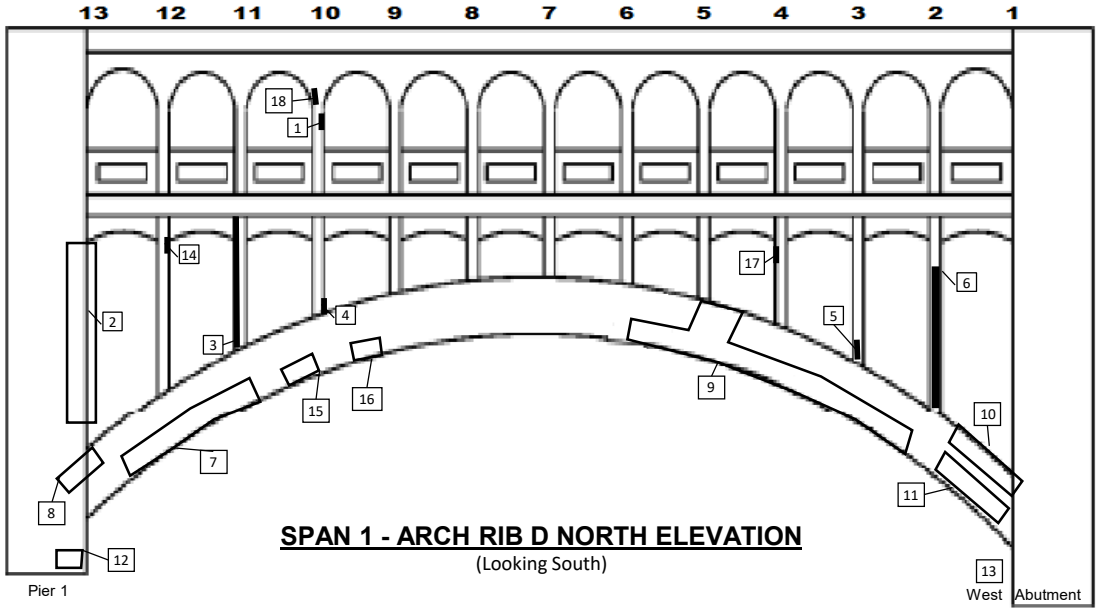


SPAN 1 - ARCH RIB C NORTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 2 SF
2	Delamination - 1 SF
3	Delamination - 6' L x 2' H
4	Delamination - 3 SF
5	Delamination - 4 SF
6	Delamination - 4 SF
7	Delamination - 20 SF
8	Delamination - 2 SF
9	Delamination - 3' L x 3' H
10	Delamination - 5' L x 1' H
11	Delamination - 14' L x 1' H
12	Delamination - 20' L x 1' H
13	Delamination - 4' L x 0.5' H
14	Delamination - 6' L x FW on top.



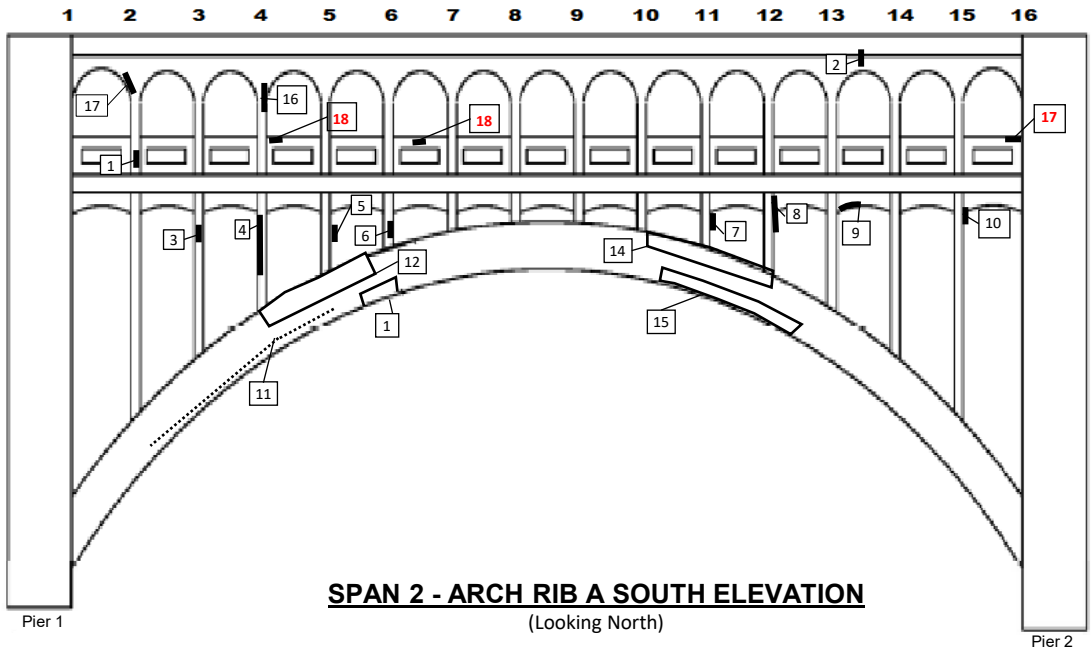
SPAN 1 - ARCH RIB D SOUTH ELEVATION
(Looking North)

SPAN 1 - ARCH RIB D SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 3 SF
2	Spall, 3" D @ base of abutment - 48 SF
3	Delamination - 80' L x 1' H
4	Delamination - 15' L x 1' H
5	Slope inclinometer 15' from pier column

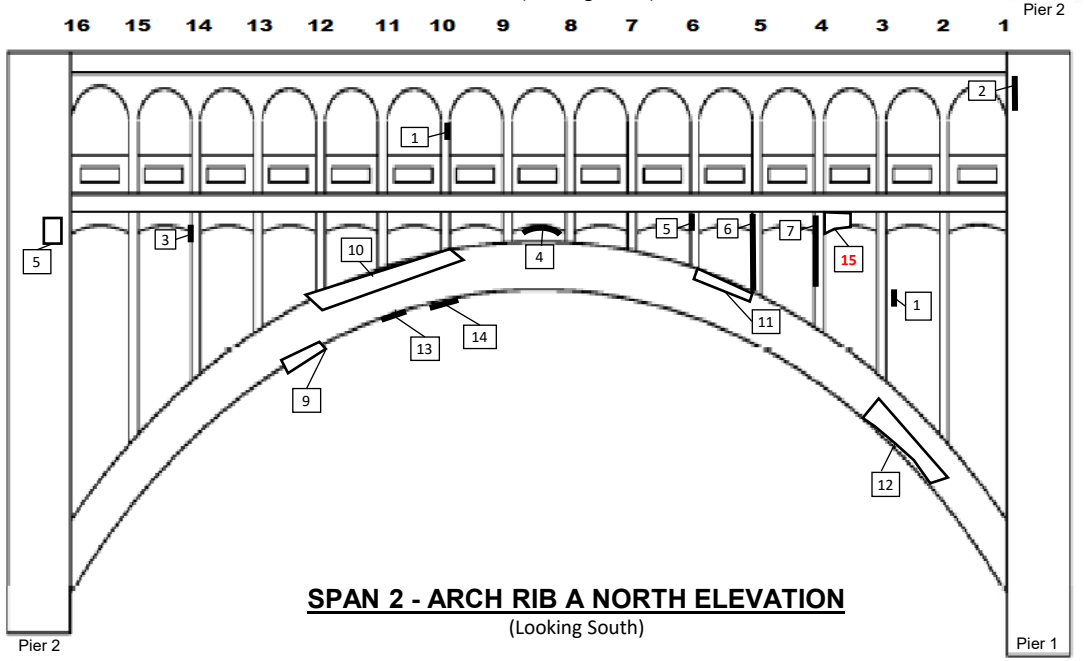


SPAN 1 - ARCH RIB D NORTH ELEVATION
(Looking South)

SPAN 1 - ARCH RIB D NORTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 1 SF
2	Delamination - 40 SF
3	Delamination - 8 SF
4	Delamination - 5 SF
5	Delamination - 1 SF
6	Delamination - 8 SF
7	Delamination w/ map cracking - 15' L x 1' H
8	Delamination - 4' L x 1' H
9	Delamination w/ map cracking - 30' L (80 SF)
10	Delamination w/ map cracking - 12' L x 2' H
11	Delamination - 8' L x 1' H
12	Delamination - 8 SF
13	Downspout and scupper 100% clogged
14	Delamination - 2 SF
15	Delamination - 4' L x 1' H
16	Delamination - 5' L x 1' H
17	Delamination - 2 SF
18	Spall, 2" deep, with exposed reinf.



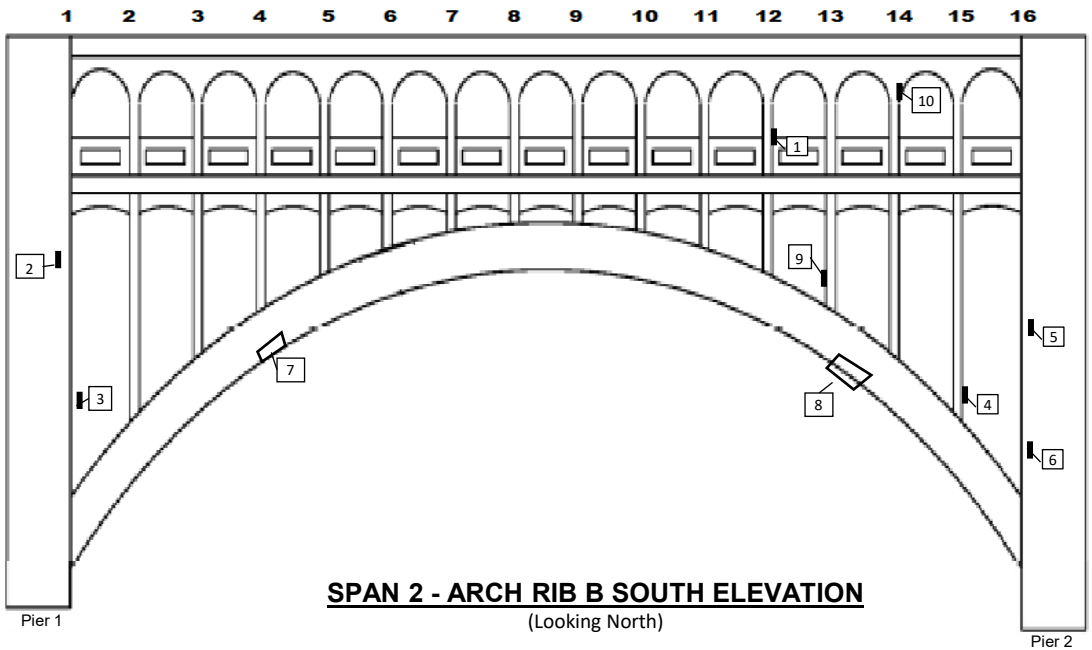
SPAN 2 - ARCH RIB A SOUTH ELEVATION
(Looking North)



SPAN 2 - ARCH RIB A NORTH ELEVATION
(Looking South)

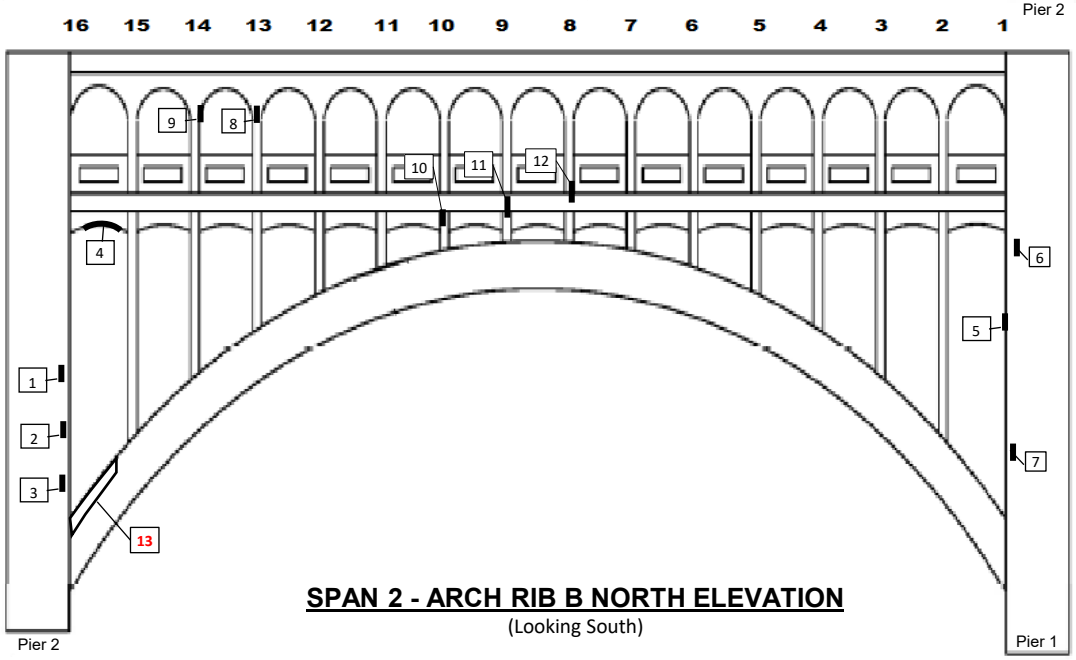
SPAN 1 - ARCH RIB A SOUTH ELEV. DEFICIENCIES	
#	Defect
1	Delamination - 3 SF
2	Delamination - 5 SF
3	Spall w/ exp. Reinf. - 6 SF
4	Spall w/ exp. Reinf. - 14 SF
5	Delamination - 2 SF
6	Delamination - 6 SF
7	Delamination - 1 SF
8	Delam w/ Spall w/ exp. Reinf. - 8 SF
9	Delamination w/ Spall w/ exp. Reinf. - 12 SF
10	Delamination - 3 SF
11	Up to 1/8" W crack, 25' L
12	Delamination - 12' L x 1' W
13	Delamination - 6' L x 1' W
14	Delamination w/ Map Cracking - 15' L x 1' W
15	Delamination w/ Map Cracking - 14' L x 2' H
16	Delamination - 6 SF
17	Spall w/ exp. Reinf - 1' L
18	**Spall w/ exp. Reinf. - 3 SF**

SPAN 1 - ARCH RIB A NORTH ELEV. DEFICIENCIES	
#	Defect
1	Spall w/ exp. Reinf. - 1 SF
2	Delamination (on pier tower) - 4 SF
3	Delamination - 4 SF
4	Delamination - 5 SF
5	Delamination - 2 SF
6	Delamination - 4 SF
7	Delamination - 6 SF
8	Delamination - 2 SF
9	Delamination (underside of arch) - 4' L x 1' W
10	Delam. w/ Spall w/ exp. Reinf. - 20' L x 1' W
11	Delamination - 6' L x 0.5' W
12	Delamination w/ Spall - 10' L x 1' W
13	Delamination - 3' L x 0.5' W
14	Delamination - 3' L x 0.5' W
15	**Spall w/ exp. Reinf. - 4 SF**



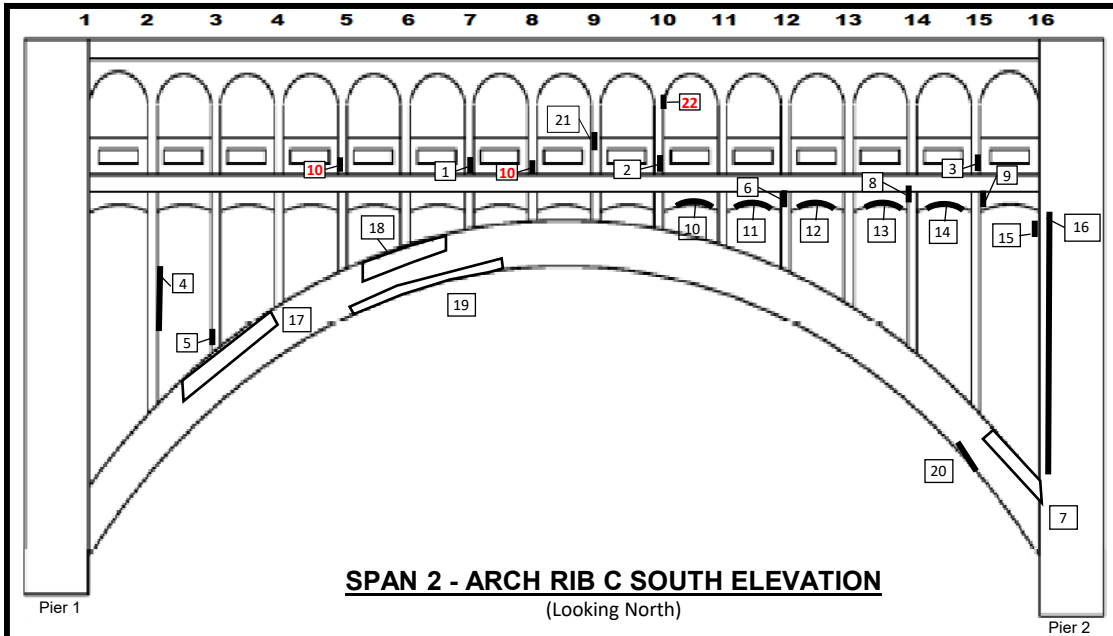
SPAN 2 - ARCH RIB B SOUTH ELEVATION
(Looking North)

SPAN 2 - ARCH RIB B SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Spall, 1.5" D - 1 SF
2	Delamination - 6 SF
3	Delamination - 4 SF
4	Delamination - 2 SF
5	Delamination - 14 SF
6	Delamination - 2 SF
7	Spall w/ exp. Reinf. - 2 SF
8	Delamination - 8 SF
9	Spall w/ exp. Reinf. - 2 SF
10	Delamination - 1 SF

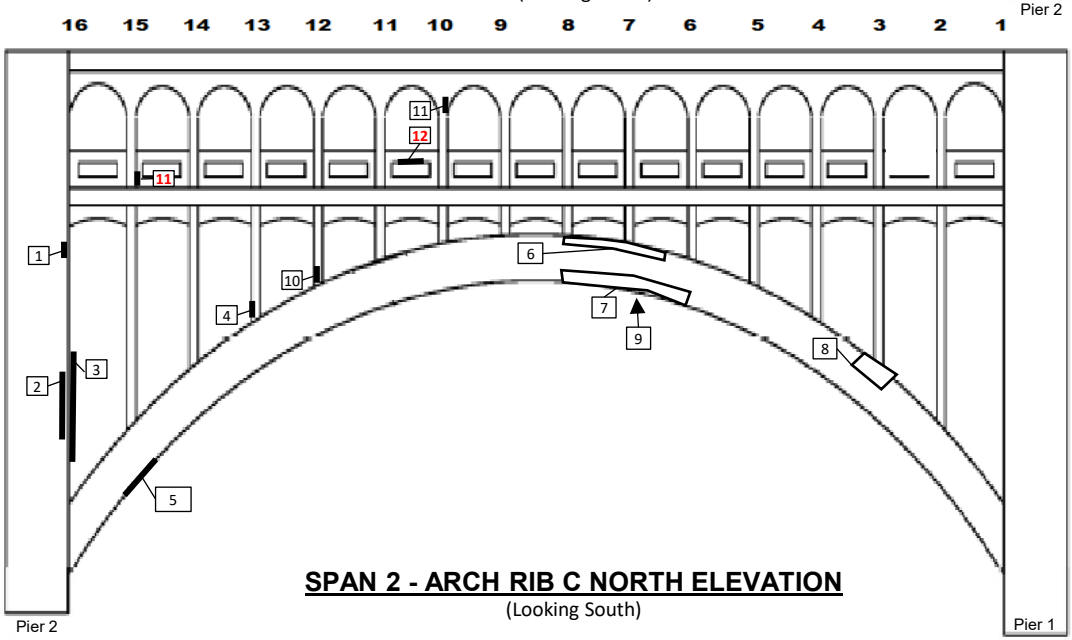


SPAN 2 - ARCH RIB B NORTH ELEVATION
(Looking South)

SPAN 2 - ARCH RIB B NORTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 4 SF
2	Spall w/ exp. Reinf. - 4 SF
3	Delamination - 12 SF
4	Delamination - 2 SF
5	Spall w/ exp. Reinf. - 5 SF
6	Delamination - 6 SF
7	Delamination - 3 SF
8	Spall w/ exp. Reinf. - 1 SF
9	Delamination - 6 SF
10	Spall w/ exp. Reinf. - 1 SF
11	Spall w/ exp. Reinf., 2" D - 1 SF
12	Delamination - 1 SF
13	**Map cracking - 6' L x 1' H**



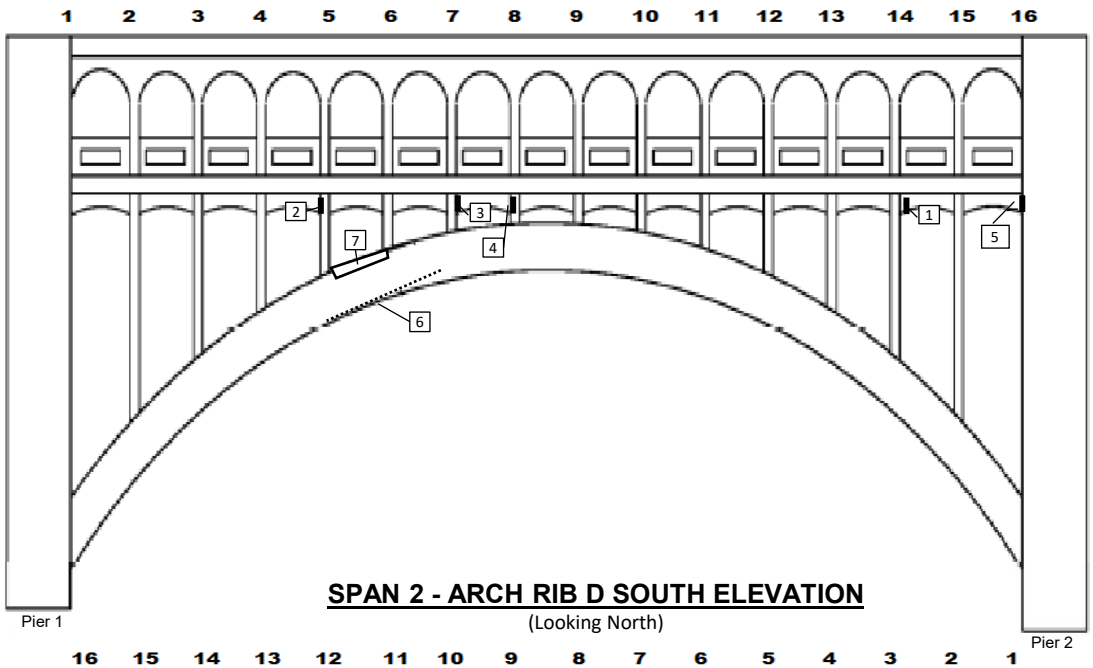
SPAN 2 - ARCH RIB C SOUTH ELEVATION
(Looking North)



SPAN 2 - ARCH RIB C NORTH ELEVATION
(Looking South)

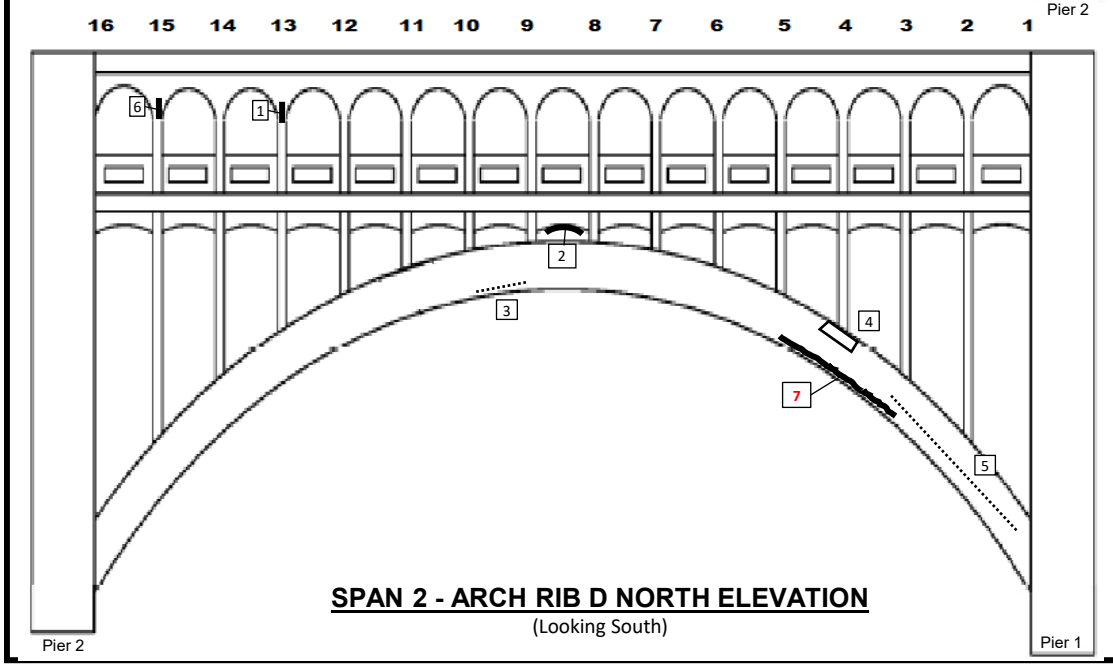
SPAN 2 - ARCH RIB C SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 4 SF
2	Delam. w/ Spall w/ exp. Reinf. - 2 SF
3	Delam. w/ **edge** spall**s** - 6 SF
4	Delamination - 8 SF
5	Delamination - 1 SF
6	Spall w/ exp. Reinf. - 2 SF
7	Delamination - 6 SF
8	Delamination - 4 SF
9	Delamination - 3 SF
10	Delam. w/ Spall w/ exp. Reinf. - 2 SF
11	Delamination - 3 SF
12	Delamination (underside) - 5 SF
13	Delamination - 2 SF
14	Delamination - 4 SF
15	Delamination - 5 SF
16	Delamination - 30 SF
17	Delamination - 15' L x 1' W
18	Delamination - 14' L x 1' W
19	Delamination w/ 1/8" W crack - 15' L x 1' W
20	Delamination (underside of arch) - 2' L x 2' W
21	Spall - 1 SF
22	**Cracking (corner of corbel)**

SPAN 2 - ARCH RIB C NORTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 12 SF
2	Delamination - 20 SF
3	Delamination - 35 SF
4	Spall w/ exp. Reinf. - 2 SF
5	Delamination (underside of arch) - 4' L x 1' W
6	Delamination - 10' L x 1' W
7	Delamination - 6' L x 1' W
8	Delamination - 4' L x 1' W
9	Delamination (underside of arch) - 5' L x 1' W
10	Spall w/ exp. Reinf. - 1 SF
11	**Spall/delam - 2 SF**
12	**Spall - 5 LF**



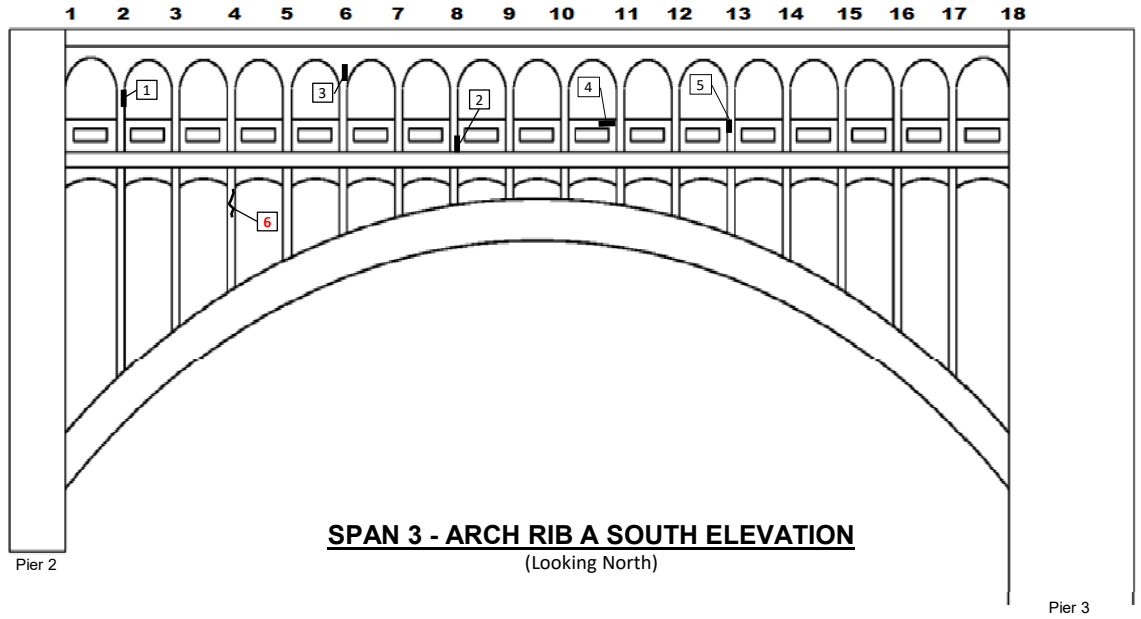
SPAN 2 - ARCH RIB D SOUTH ELEVATION
(Looking North)

SPAN 2 - ARCH RIB D SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Spall w/ exp. Reinf. - 1 SF
2	Delam. w/ Spall w/ exp. Reinf. - 2 SF
3	Delamination - 1 SF
4	Delamination - 1 SF
5	Delamination w/ Spall w/ exp. Reinf. - 9 SF
6	1/16" W Crack - 15 LF
7	Delamination - 5' L x 1' W



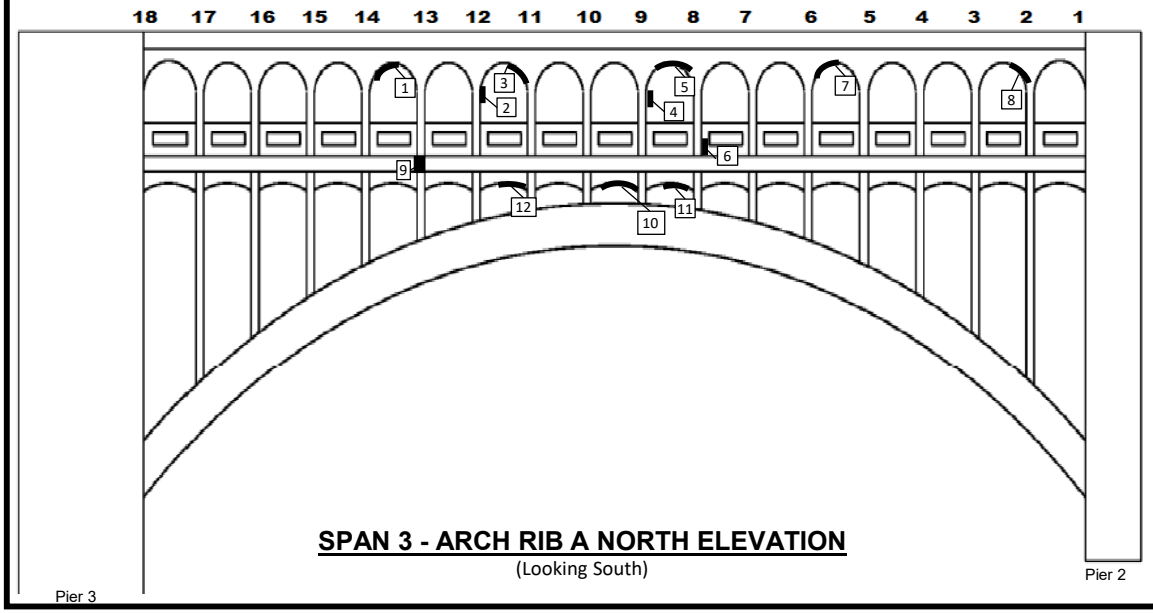
SPAN 2 - ARCH RIB D NORTH ELEVATION
(Looking South)

SPAN 2 - ARCH RIB D NORTH ELEVATION DEFICIENCIES	
#	Defect
1	Spall w/ exp. Reinf., 6" D - 1 SF
2	Delamination - 6 SF
3	1/16" W Crack - 6 LF
4	Delamination - 3' L x 1' W
5	1/16" W Crack - 25 LF
6	Delamination - 2 SF
7	**Delamination - 30 SF**



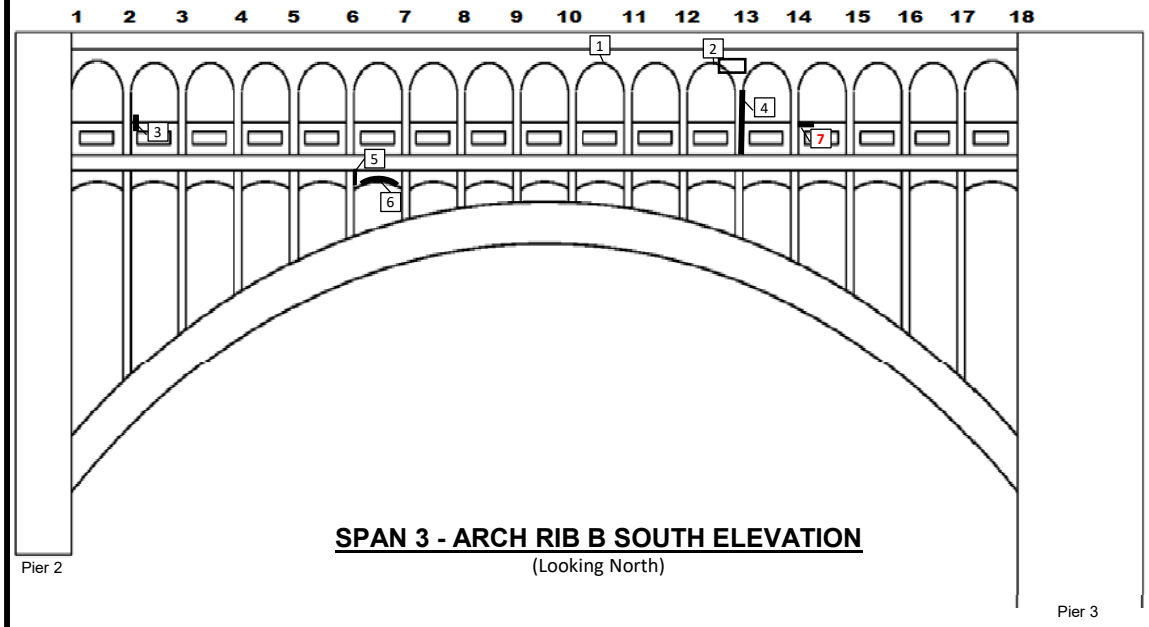
SPAN 3 - ARCH RIB A SOUTH ELEVATION
(Looking North)

SPAN 3 - ARCH RIB A SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 2 SF
2	Delamination w/ exp. Reinf. - 6 SF
3	Delamination - 4 SF
4	Spall w/ exp. Reinf. - 4 LF
5	Spall - 2 SF
6	**Crack - 4 LF**



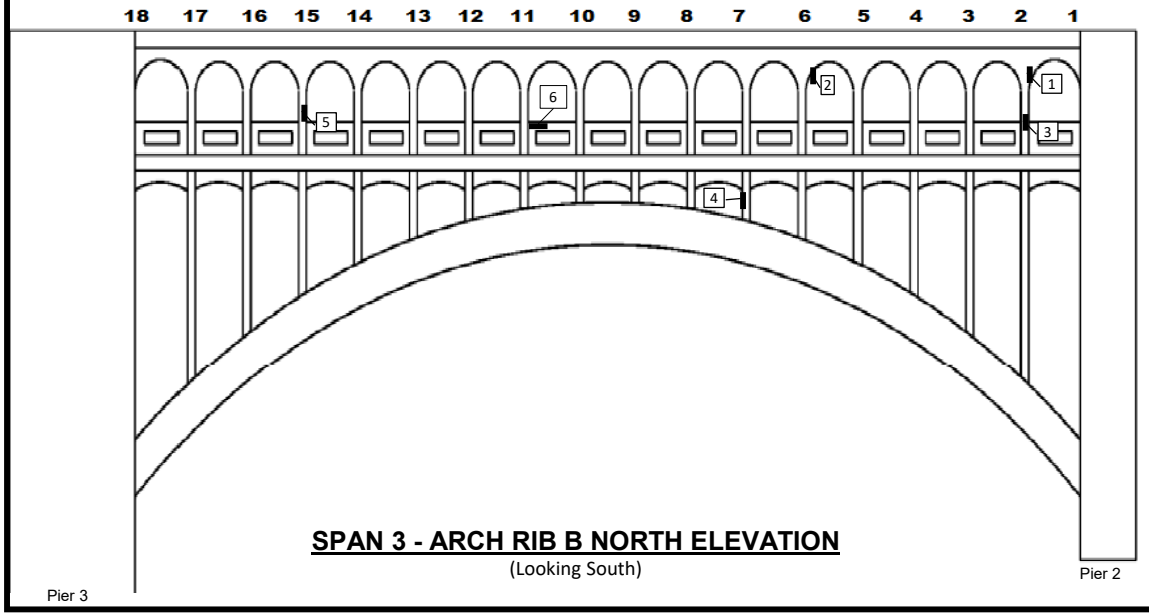
SPAN 3 - ARCH RIB A NORTH ELEVATION
(Looking South)

SPAN 3 - ARCH RIB A NORTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 2 SF
2	Delamination - 6 SF
3	Delamination - 2 SF
4	Delamination - 2 SF
5	Delamination - 8 SF
6	Delamination - 2 SF
7	Delamination - 8 SF
8	Delamination - 1 SF
9	Broken lighting fixture
10	Delamination - 4 SF
11	Delamination - 4 SF
12	Delamination - 2 SF



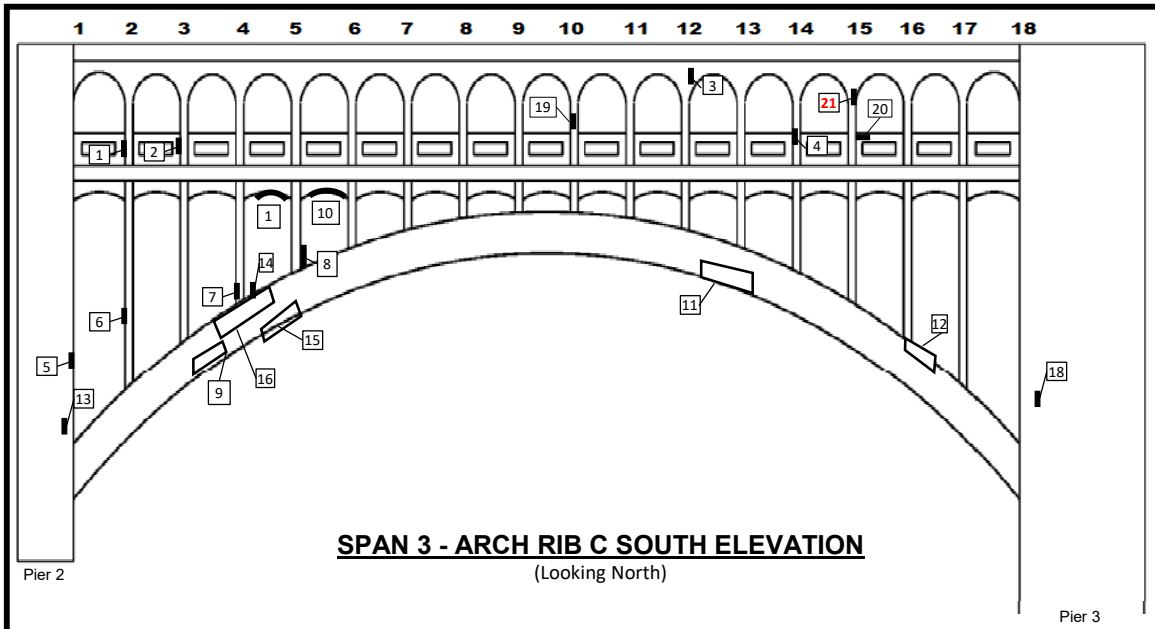
SPAN 3 - ARCH RIB B SOUTH ELEVATION
(Looking North)

SPAN 3 - ARCH RIB B SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Jack arch is cracked w/efflorescence
2	Delamination - 6 SF
3	Delamination - 3 SF
4	Delamination - 10 SF
5	Spall - 1 SF
6	Delamination - 2 SF
7	**Delamination - 3 SF**

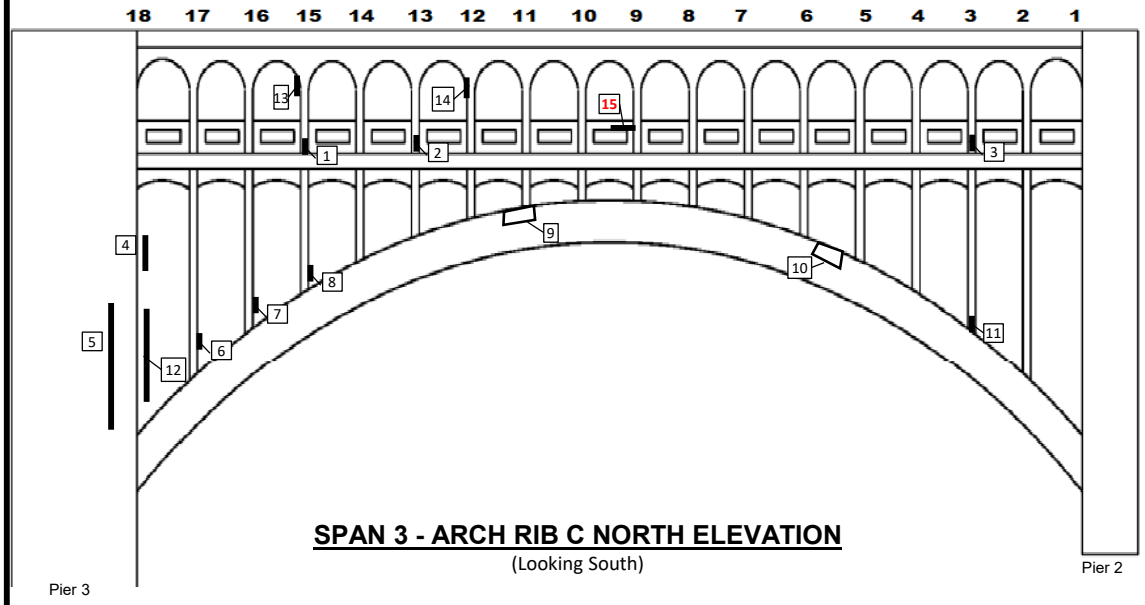


SPAN 3 - ARCH RIB B NORTH ELEVATION
(Looking South)

SPAN 3 - ARCH RIB B NORTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 1 SF
2	Delamination - 1 SF
3	Spall, 2" D - 1 SF
4	Delamination - 2 SF
5	Delamination - 1 SF
6	Spall w/ exp. Reinf. - 1 SF



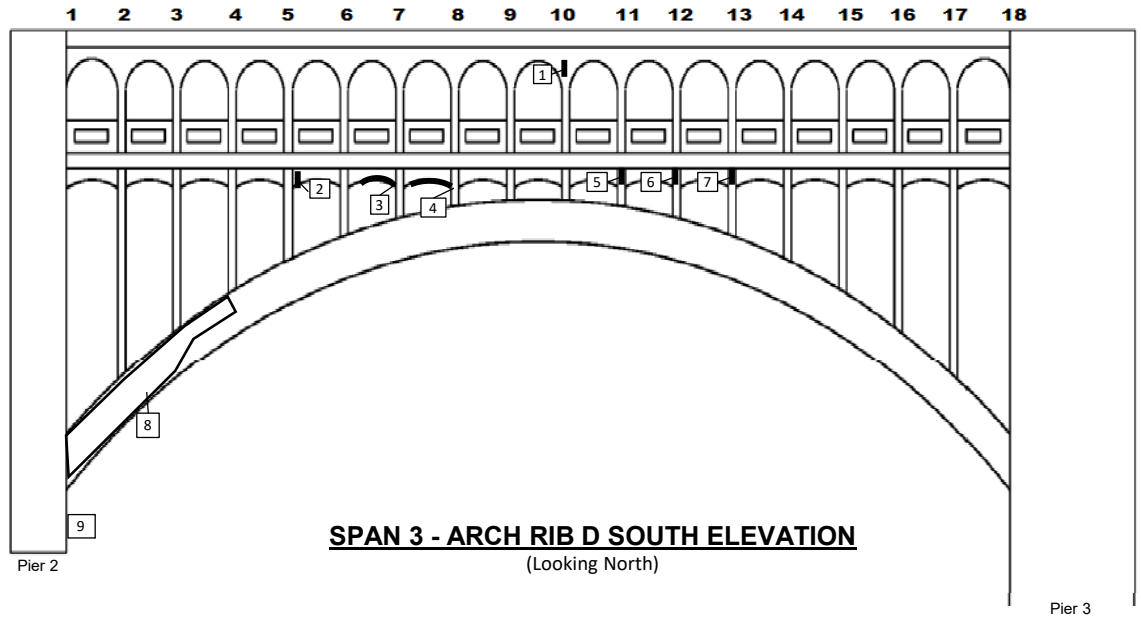
SPAN 3 - ARCH RIB C SOUTH ELEVATION
(Looking North)



SPAN 3 - ARCH RIB C NORTH ELEVATION
(Looking South)

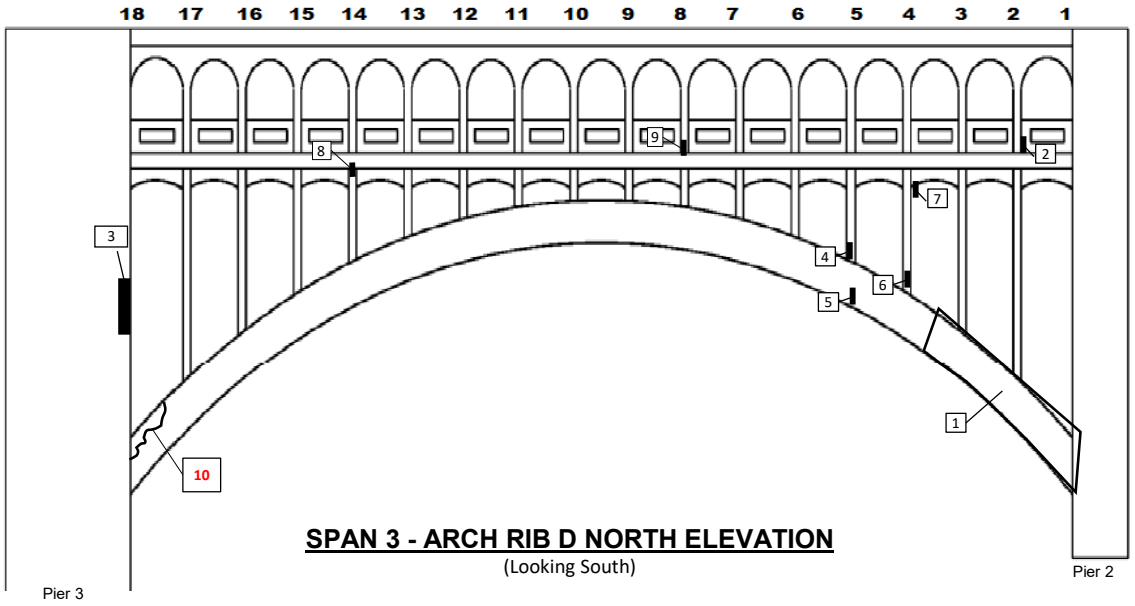
SPAN 3 - ARCH RIB C SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Delam. w/ Spall, 3" D - 2 SF
2	Delamination - 4 SF
3	Spall w/ exp. Reinf., 3" D - 2 SF
4	Spall, 2.5" D - 1 SF
5	Delamination - 2 SF
6	Delamination - 4 SF
7	Delamination - 2 SF
8	Delamination - 2 SF
9	Delamination - 4' L x 1' W
10	Delamination - 4 SF
11	Delamination - 10' L x 1' W
12	Delamination - 4 SF
13	Delamination - 2 SF
14	Delamination - 1 SF
15	Delamination - 4' L x 1'W
16	Delamination - 10' L x 1'W
17	Delamination - 2 SF
18	Delamination - 2 SF
19	Spall w/ exp. Reinf., 2" D - 1 SF
20	Spall, 3" D - 1 SF
21	**Cracking (corbel) - 1 SF**

SPAN 3 - ARCH RIB C NORTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 2 SF
2	Delamination - 3 SF
3	Delamination - **3** SF
4	Corner delamination - 5 SF
5	Corner delamination - 20 SF
6	Delamination - 2 SF
7	Delamination - 1 SF
8	Delamination - 1 SF
9	Spall w/ exp. Reinf. - 2 SF
10	Delamination - 1 SF
11	Delamination - 2 SF
12	Corner delamination - 15 SF
13	Delamination**, cracking around corbel** - 2 SF
14	Delamination - 1 SF
15	**Cracking - 3 LF**



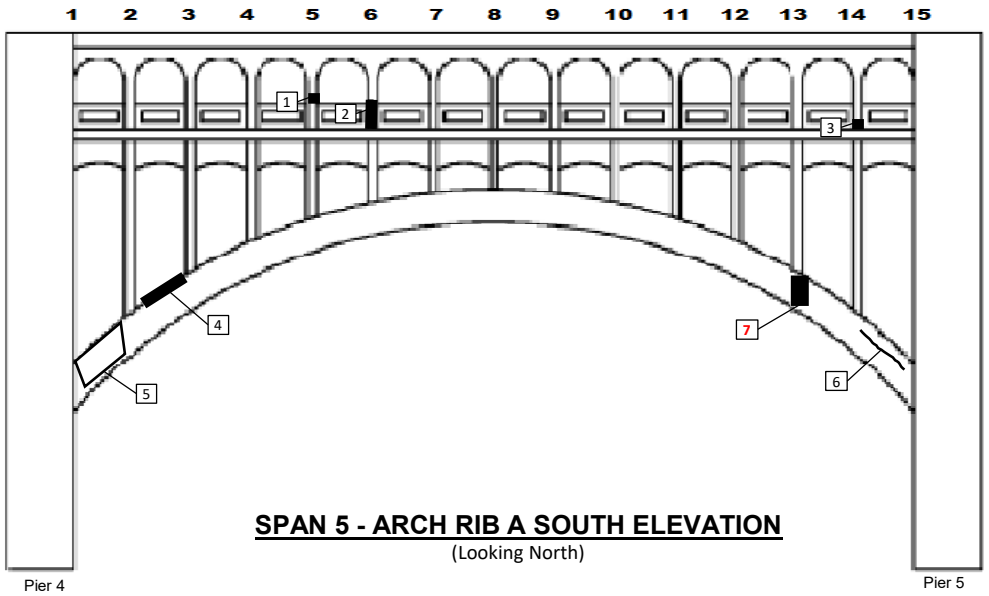
SPAN 3 - ARCH RIB D SOUTH ELEVATION
(Looking North)

SPAN 3 - ARCH RIB D SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 3 SF
2	Delamination - 3 SF
3	Spall w/ exp. Reinf. - 8 SF
4	Delam. w/ Spall - 16 SF
5	Delamination - 4 SF
6	Delamination - 4 SF
7	Delamination - 6 SF
8	Delamination - 30' L x Var. H. (132 SF total)
9	10" diameter tree growing against bottomside of arch



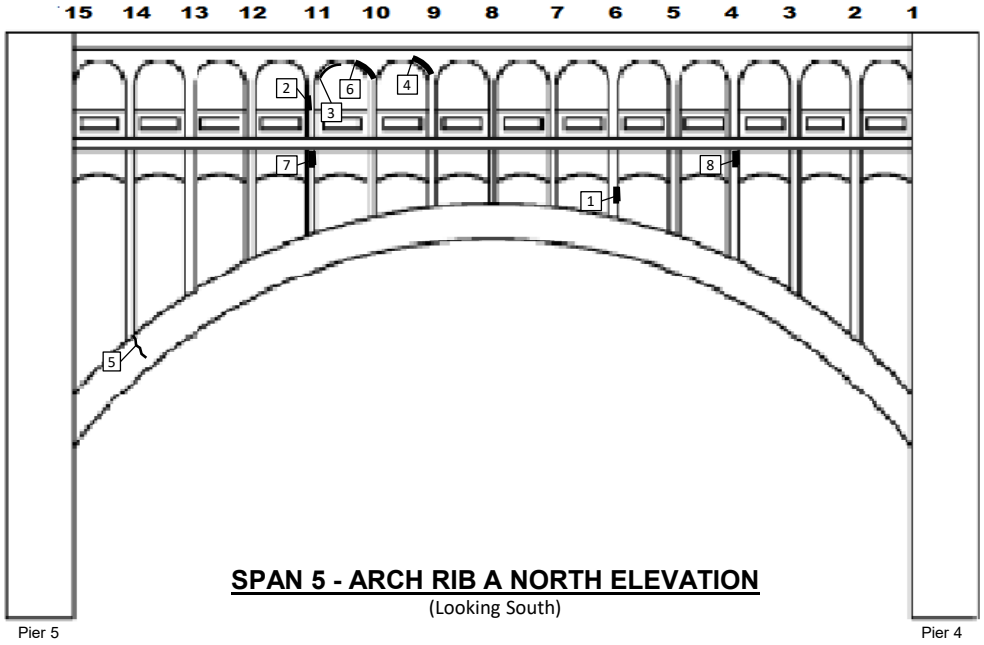
SPAN 3 - ARCH RIB D NORTH ELEVATION
(Looking South)

SPAN 3 - ARCH RIB D NORTH ELEVATION DEFICIENCIES	
#	Defect
1	Map Cracking w/ moisture staining and some delamination - 24' L
2	Delamination - 2 SF
3	Delamination - 5 SF
4	Delamination - 2 SF
5	Spall w/ exp. Reinf., 2" D - 3' L x 1' W
6	Delamination - 2 SF
7	Delamination - 6 SF
8	Spall **w/ exp. Reinf.** - 1 SF
9	Spall, 1" D - 1 SF
10	**Cracking - 6 LF**



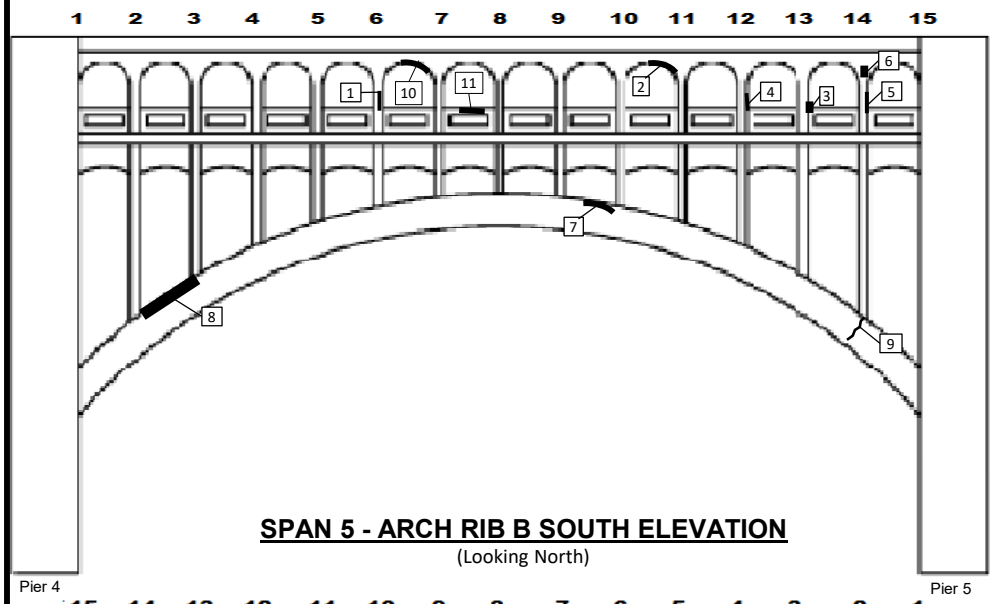
SPAN 5 - ARCH RIB A SOUTH ELEVATION
(Looking North)

SPAN 5 - ARCH RIB A SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 1 SF
2	Delamination - 1 SF
3	Delamination - 2 SF
4	1/32" Crack on top of arch - 8 LF
5	Map cracking - 5' L x 2' H
6	Crack - 5 LF
7	**Spall - 6 SF**



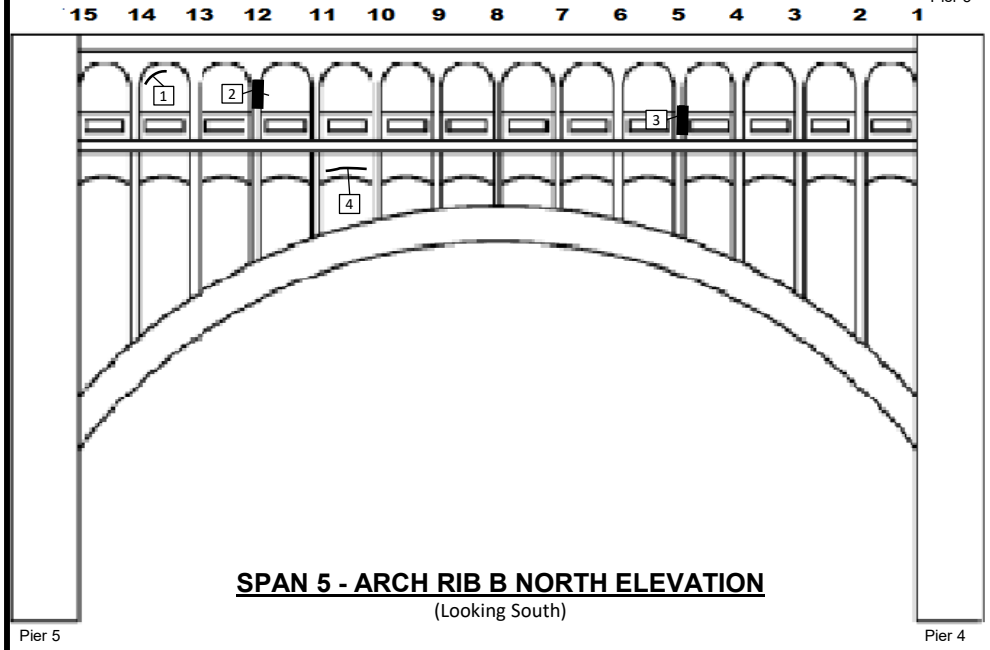
SPAN 5 - ARCH RIB A NORTH ELEVATION
(Looking South)

SPAN 5 - ARCH RIB A NORTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 1 SF
2	Spall w/ exp. Reinf. - 1 SF
3	Delamination - 3 SF
4	Delamination - 2 SF
5	Hairline crack - 2 LF
6	Delamination - 1 SF
7	Delamination - 1 SF
8	Delamination - 1 SF



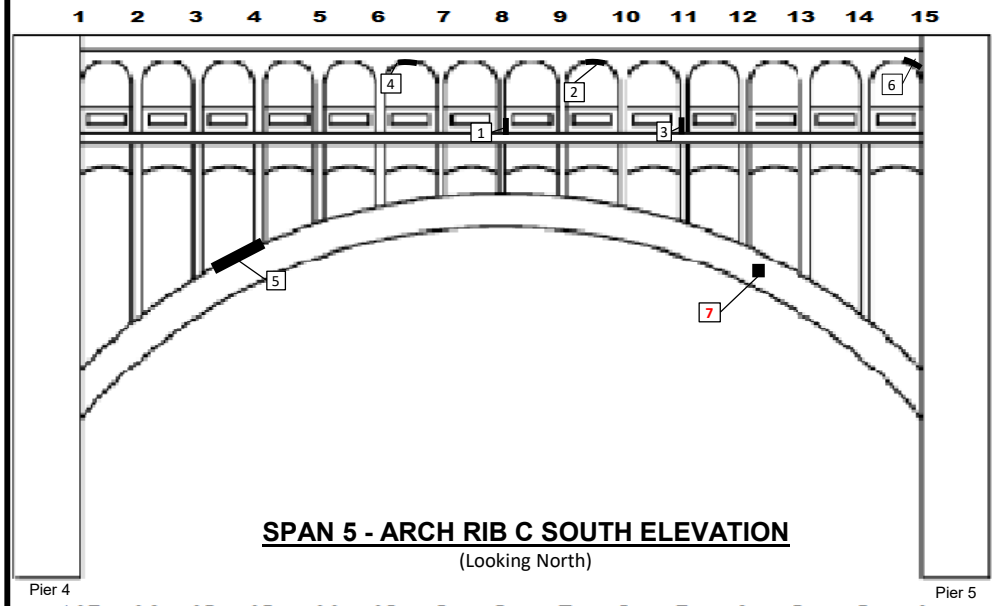
SPAN 5 - ARCH RIB B SOUTH ELEVATION
(Looking North)

SPAN 5 - ARCH RIB B SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Spall, 3" D - 1 SF
2	Delamination - 2 SF
3	Delamination - 1 SF
4	Delamination - 2 SF
5	Spall w/ exp. Reinf., 2" D - 3 SF
6	Delamination - 2 SF
7	Delamination - 5' L x 2.5' W
8	Hairline crack on top of arch - 8 LF
9	Hairline crack - 2 LF
10	Spall w/ exp. Reinf. - 1 SF
11	Spall w/ exp. Reinf. - 2 SF



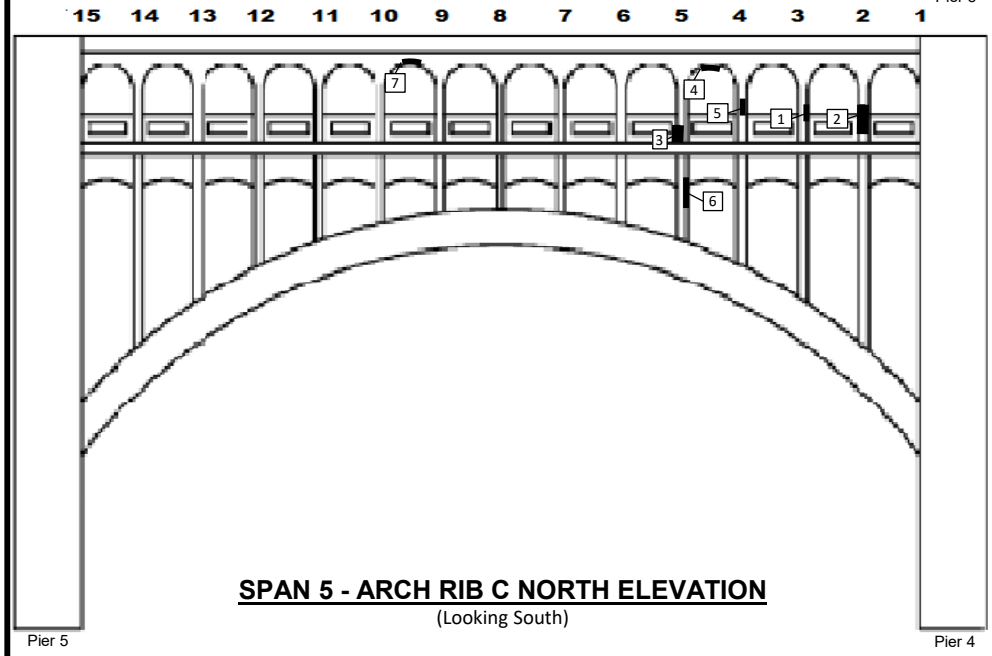
SPAN 5 - ARCH RIB B NORTH ELEVATION
(Looking South)

SPAN 5 - ARCH RIB B NORTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 3 SF
2	Spall w/ exp. Reinf. - 4 SF
3	Delamination - 3 SF
4	Crack - 5 LF



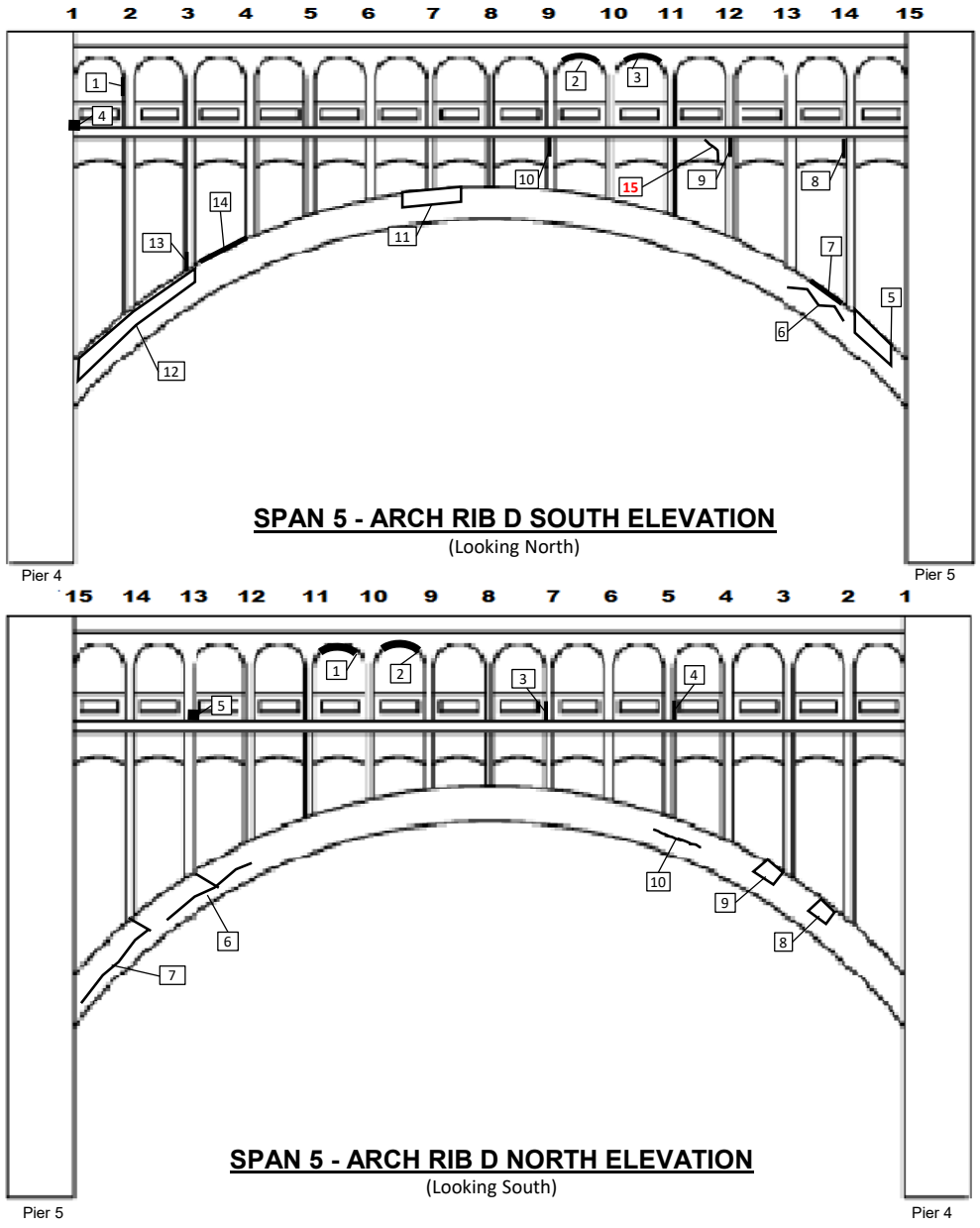
SPAN 5 - ARCH RIB C SOUTH ELEVATION
(Looking North)

SPAN 5 - ARCH RIB C SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination w/ Spall w/ exp. Reinf. - 4 SF
2	Spall w/ exp. Reinf. - 1 SF
3	Delamination - 1 SF
4	Spall w/ exp. Reinf. - 1 SF
5	Delamination - 6' L x 1' H
6	Spall w/ exp. Reinf. - 1 SF
7	**Spall - 1 SF**



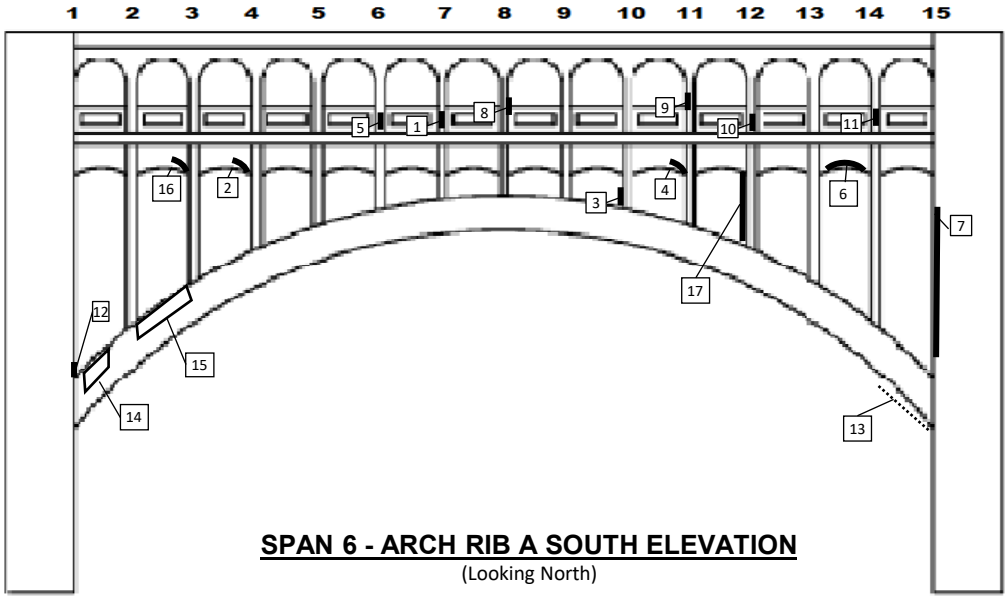
SPAN 5 - ARCH RIB C NORTH ELEVATION
(Looking South)

SPAN 5 - ARCH RIB C NORTH ELEVATION DEFICIENCIES	
#	Defect
1	Spall w/ exp. Reinf., 1" D - 2 SF
2	Spall w/ exp. Reinf., 1.5" D - **2** SF
3	Delamination - 2 SF
4	Delamination - 2 SF
5	Delamination - 2 SF
6	Two Spalls w/ exp. Reinf. - 1 SF total
7	Spall w/ exp. Reinf. - 2 SF



SPAN 5 - ARCH RIB D SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 2 SF
2	Delamination - 2 SF
3	Delamination - 6 SF
4	Incomplete Repair - 3 SF
5	Map Cracking - 10' L x 3' H
6	1/16" Crack - 10 LF
7	Delamination - 8' L x 2' W
8	Delamination - 1 SF
9	Spalling - 3 SF
10	Delamination - 1 SF
11	Delamination - 6' L x 1' H
12	Vertical hairline cracking spa. @ 3' w/ some map cracking - 20 LF
13	Delamination - 2 SF
14	3/32" crack, appears to be partially filled - 8 LF
15	**Cracking - 3 LF**

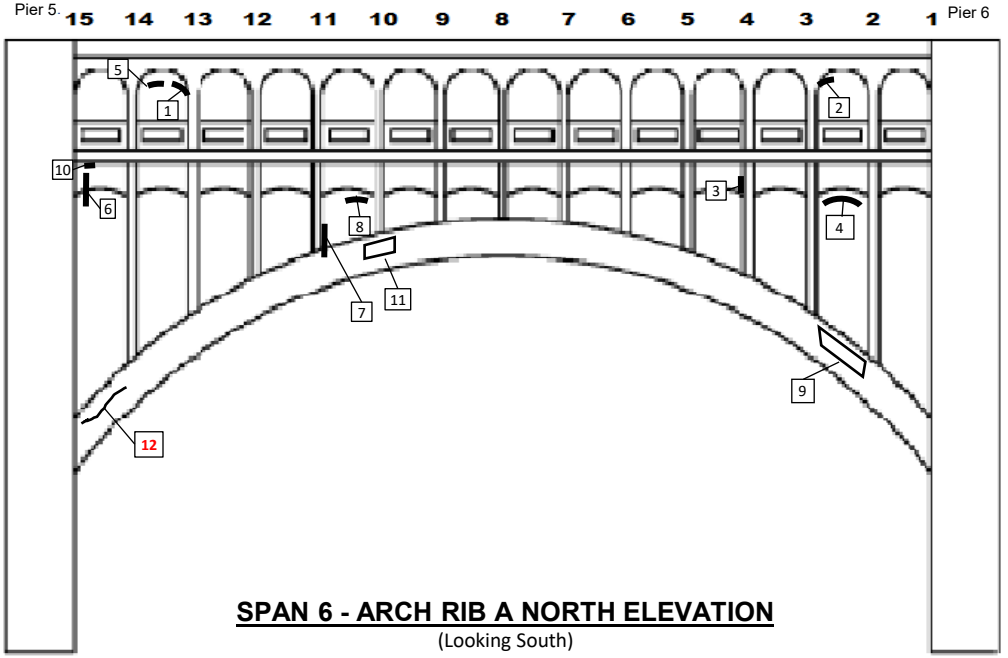
SPAN 5 - ARCH RIB D NORTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 6 SF
2	Delamination - 5 SF
3	Delamination/**spall w/ exp. Reinf.** - 1 SF
4	Delamination - 3 SF
5	Delamination - 1 SF
6	Hairline cracks, 2' L & 9' L
7	Hairline cracks, 2' L & 9' L
8	Map cracking - 2' L x 3' H
9	Map cracking - 6' L x 2.5' H
10	Crack - 5 LF



SPAN 6 - ARCH RIB A SOUTH ELEVATION
(Looking North)

SPAN 6 - ARCH RIB A SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 3 SF
2	Delamination w/ Spall w/ exp. Reinf. - 5 SF
3	Spall - 4 SF
4	Map Cracking - 2 SF
5	Delamination - 1 SF
6	Delamination - 2 SF
7	Delamination - 20 SF
8	Delamination - 1 SF
9	Delamination - 1 SF
10	Delamination - 1 SF
11	Delamination - 2 SF
12	Spall w/ exp. Reinf. - 1 SF
13	Delamination (underside of arch) - 12 SF
14	Map cracking - 4 SF
15	Map cracking - 12 SF
16	Delamination - 2 SF
17	Map cracking - 18 SF

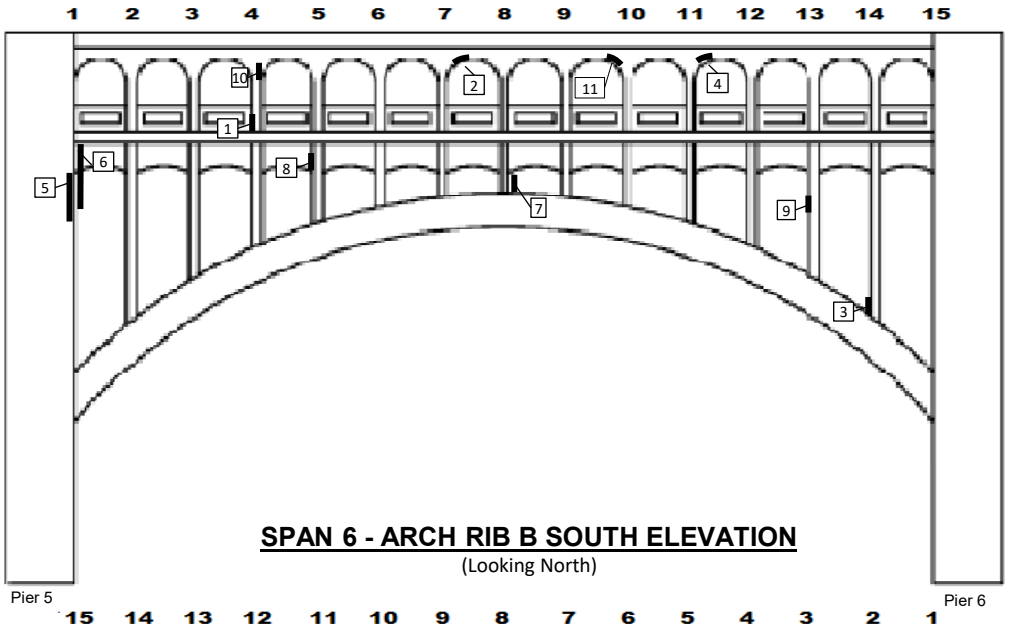
Pier 5 Pier 6



SPAN 6 - ARCH RIB A NORTH ELEVATION
(Looking South)

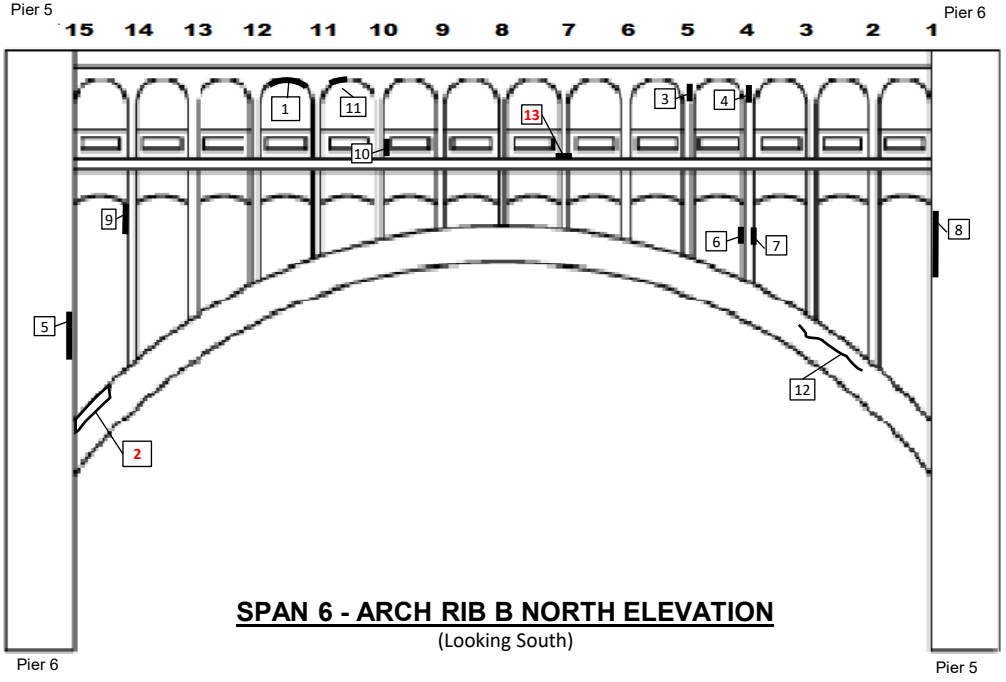
Pier 6 Pier 5

SPAN 6 - ARCH RIB A NORTH ELEVATION DEFICIENCIES	
#	Defect
1	Spall w/ exp. Reinf. - 1 SF
2	Delamination - 1 SF
3	Delamination - 6 SF
4	Delamination - 2 SF
5	Delamination - 1 SF
6	Delamination w/ Spall w/ exp. Reinf. - 3 SF
7	Delamination - 2 SF
8	Delamination - 4 SF
9	Delamination - 9 SF
10	Spall - 2 SF
11	Delamination - 3 SF
12	**Crack - 5 LF**



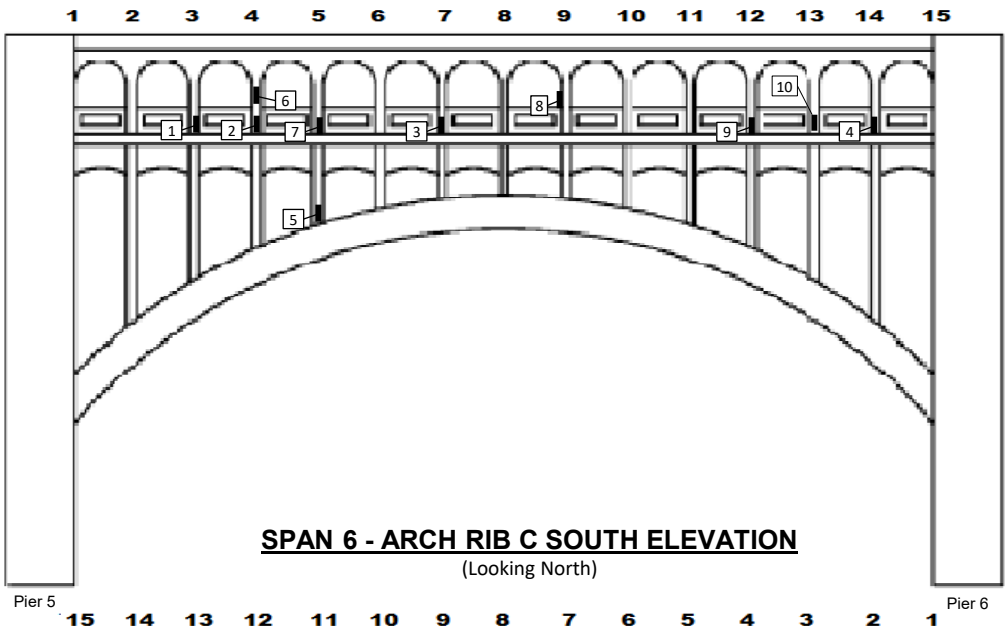
SPAN 6 - ARCH RIB B SOUTH ELEVATION
(Looking North)

SPAN 6 - ARCH RIB B SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	**Spall w/ exp. Reinf.** - 2 SF
2	Delamination - 4 SF
3	Delamination - 1 SF
4	Spall **w/ exp. Reinf.**, 4" D - 4 SF
5	Delamination - 16 SF
6	Delamination w/ Spall w/ exp. Reinf. - 20 SF
7	Delamination - 2 SF
8	Delamination - 4 SF
9	Spall w/ exp. Reinf. - 16 SF
10	Delamination - 3 SF
11	Spall w/ exp. Reinf. - 1 SF



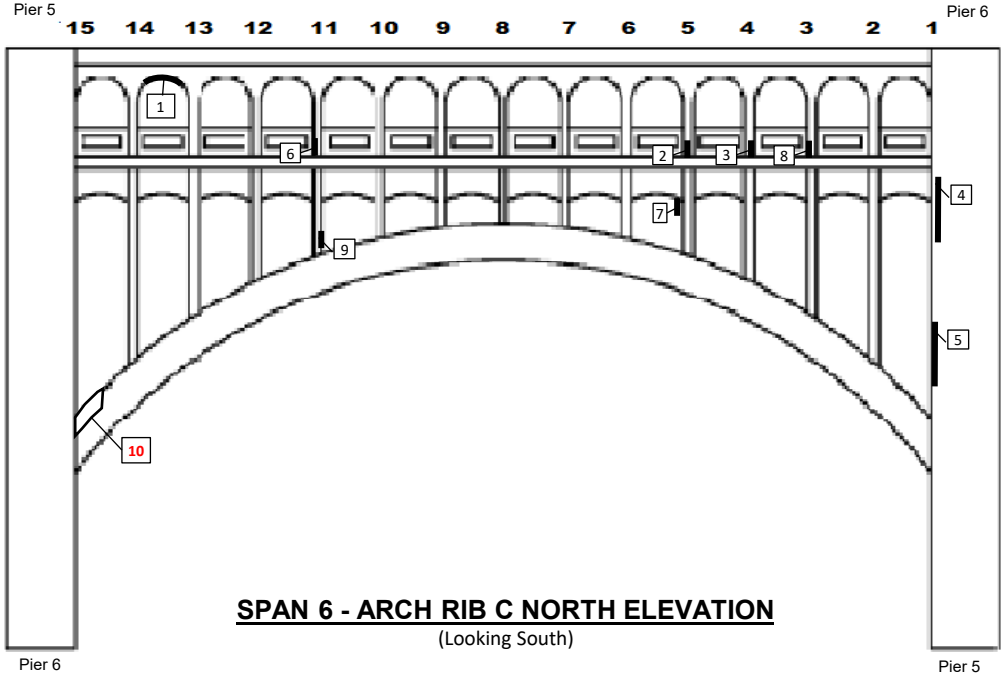
SPAN 6 - ARCH RIB B NORTH ELEVATION
(Looking South)

SPAN 6 - ARCH RIB B NORTH ELEVATION DEFICIENCIES	
#	Defect
1	**Spall w/ exp. Reinf.** - 24 SF
2	**Map cracking - 8 SF**
3	Delamination - 4 SF
4	Delamination - 2 SF
5	Delamination - 8 SF
6	Delamination - 1 SF
7	Delamination - 1 SF
8	Delamination - 8 SF
9	Spall w/ exp. Reinf. - 2 SF
10	Delamination - 1 SF
11	Delamination - 6 SF
12	Crack - 5 LF
13	**Spall w/ exp. Reinf. - 3 SF**



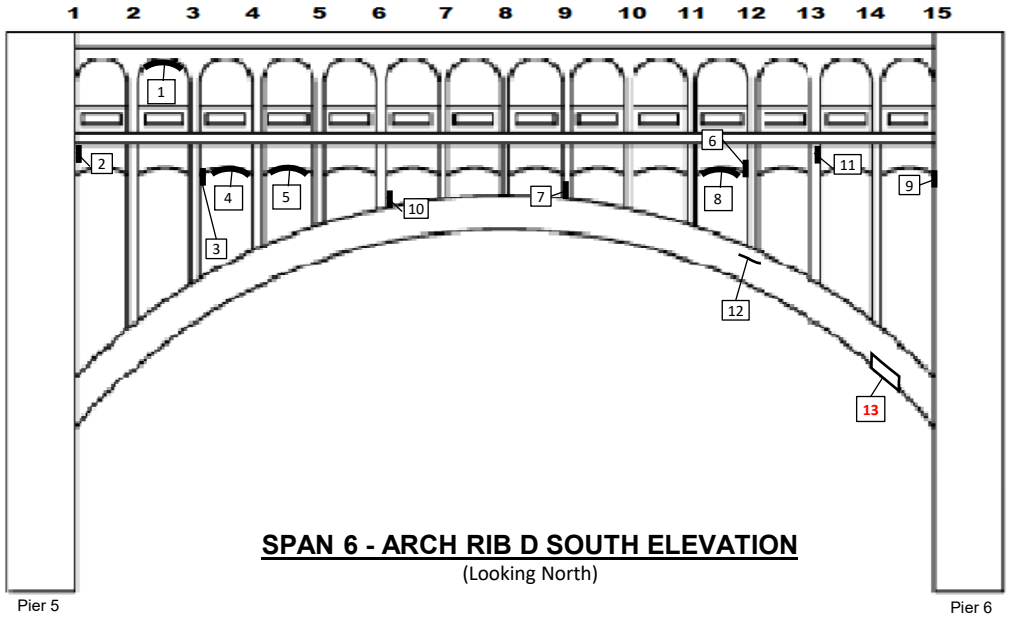
SPAN 6 - ARCH RIB C SOUTH ELEVATION
(Looking North)

SPAN 6 - ARCH RIB C SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Spall w/ exp. Reinf., 2" D - 2 SF
2	Spall w/ exp. Reinf., 3" D - **3** SF
	Delamination - 8 SF
3	Spall w/ exp. Reinf., 2" D - 1 SF
4	Delamination - 3 SF
5	Spall w/ exp. Reinf. - 1 SF
6	Delamination - 1 SF
7	Delamination - 4 SF
8	Delamination - 1 SF
9	Delamination - 2 SF
10	Spall w/ exp. Reinf. - 1 SF



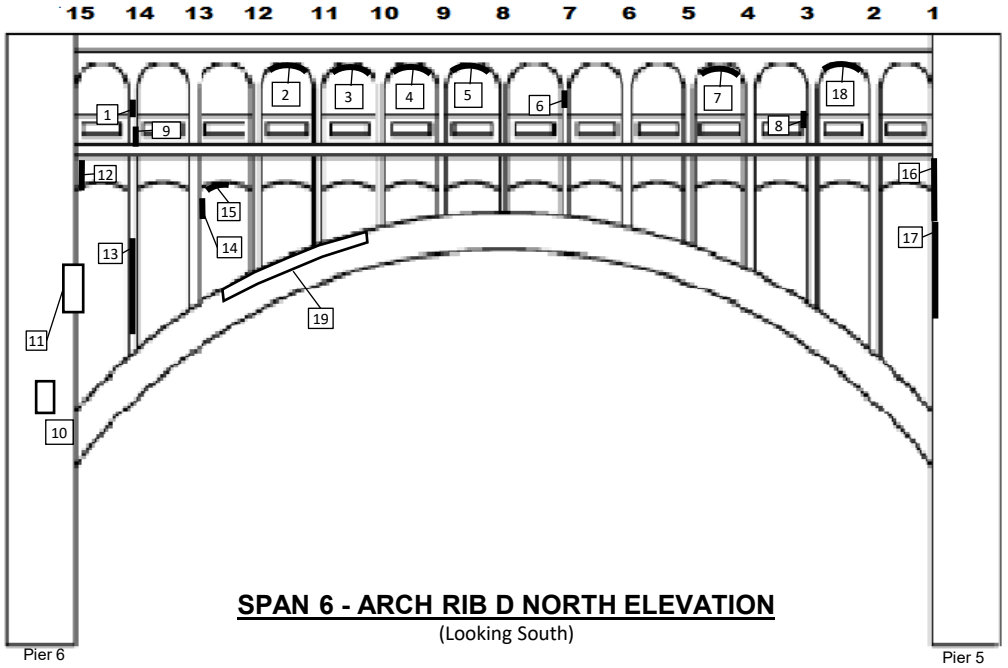
SPAN 6 - ARCH RIB C NORTH ELEVATION
(Looking South)

SPAN 6 - ARCH RIB C NORTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 2 SF
2	Spall w/ exp. Reinf. - 1 SF
3	Delamination - 4 SF
4	Spall w/ exp. Reinf. - 10 SF
5	Spall w/ exp. Reinf. - 15 SF
6	Spall w/ exp. Reinf - **2** SF
7	Delamination - 1 SF
8	Delamination - 4 SF
9	Delamination - 1 SF
10	**Map cracking - 8 SF**



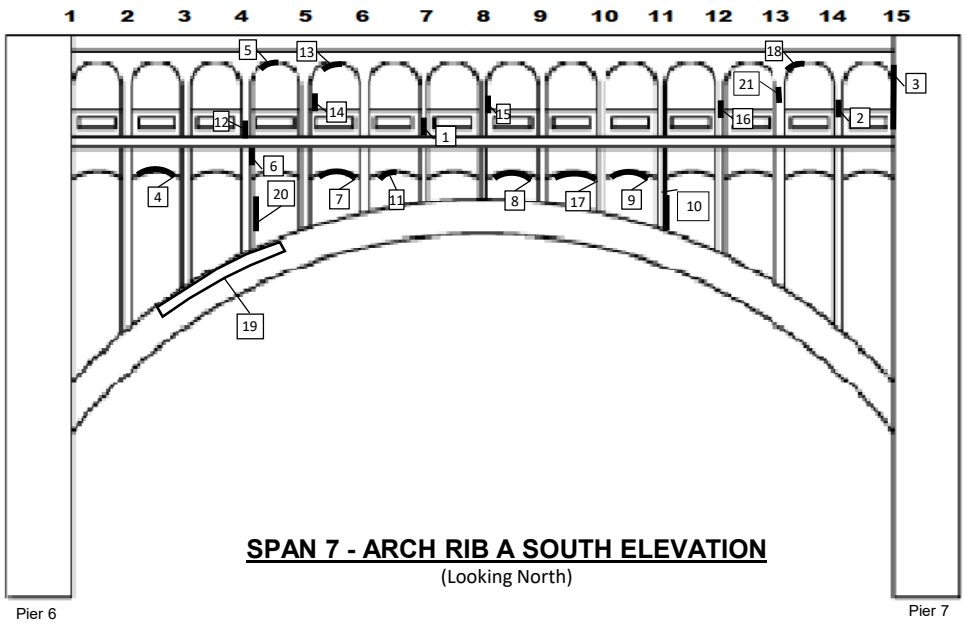
SPAN 6 - ARCH RIB D SOUTH ELEVATION
(Looking North)

SPAN 6 - ARCH RIB D SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 2 SF
2	Delamination w/ Spall w/ exp. Reinf., 4" D - 5 SF
3	Spall w/ exp. Reinf. - 1 SF
4	Delamination - 4 SF
5	Delamination - 1 SF
6	Spall - 1 SF
7	Delamination - 1 SF
8	Delamination - 1 SF
9	Delamination - 6 SF
10	Delamination - 1 SF
11	Delamination - 1 SF
12	Crack - 2 LF
13	**Map cracking - 4 SF**

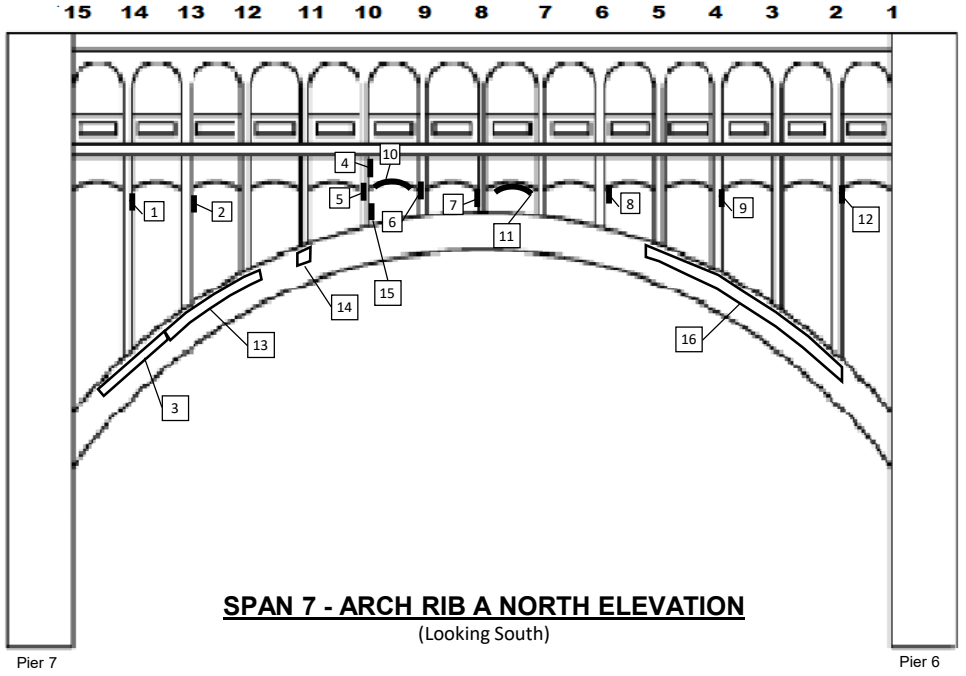


SPAN 6 - ARCH RIB D NORTH ELEVATION
(Looking South)

SPAN 6 - ARCH RIB D NORTH ELEVATION DEFICIENCIES	
#	Defect
1	Spall w/ exp. Reinf., 2.5" D - 5 SF
2	Delamination - 4 SF
3	Delamination - 10 SF
4	Delamination - 4 SF
5	Delamination - 4 SF
6	Delamination - 5 SF
7	Delamination - 2 SF
8	Delamination - 2 SF
9	Delamination - 1 SF
10	Spall, 4" D - 2 SF
11	Spall w/ exp. Reinf., 3" D - 6 SF
12	Delamination - 4 SF
13	Delamination w/ Spall w/ exp. Reinf. - 8 SF
14	Spall w/ exp. Reinf. - 1 SF
15	Spall w/ exp. Reinf. - 1 SF
16	Spall w/ exp. Reinf., 3" D - 5 SF
17	Delamination - 6 SF
18	Delamination - 6 SF
19	Map cracking - 20 SF



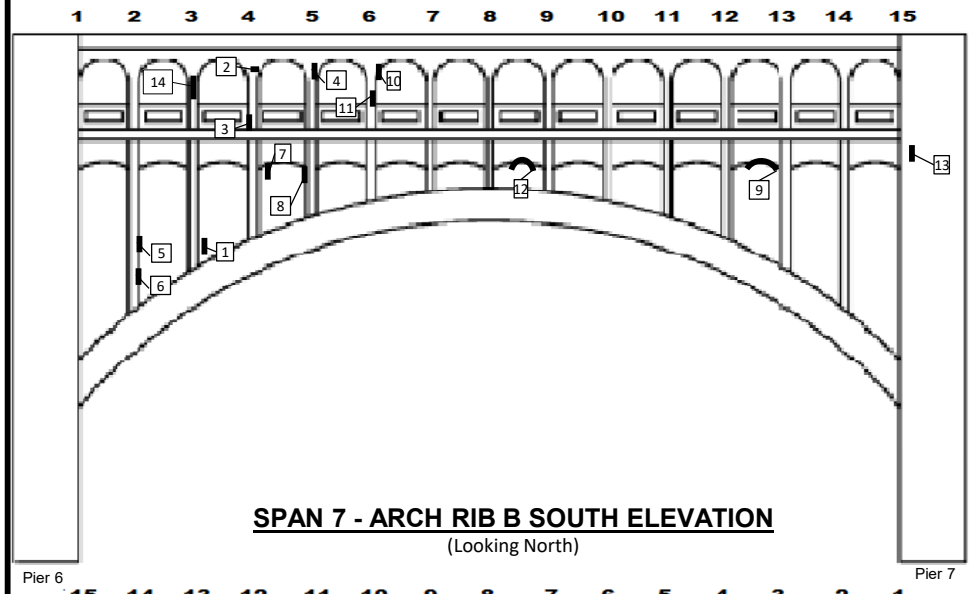
SPAN 7 - ARCH RIB A SOUTH ELEVATION
(Looking North)



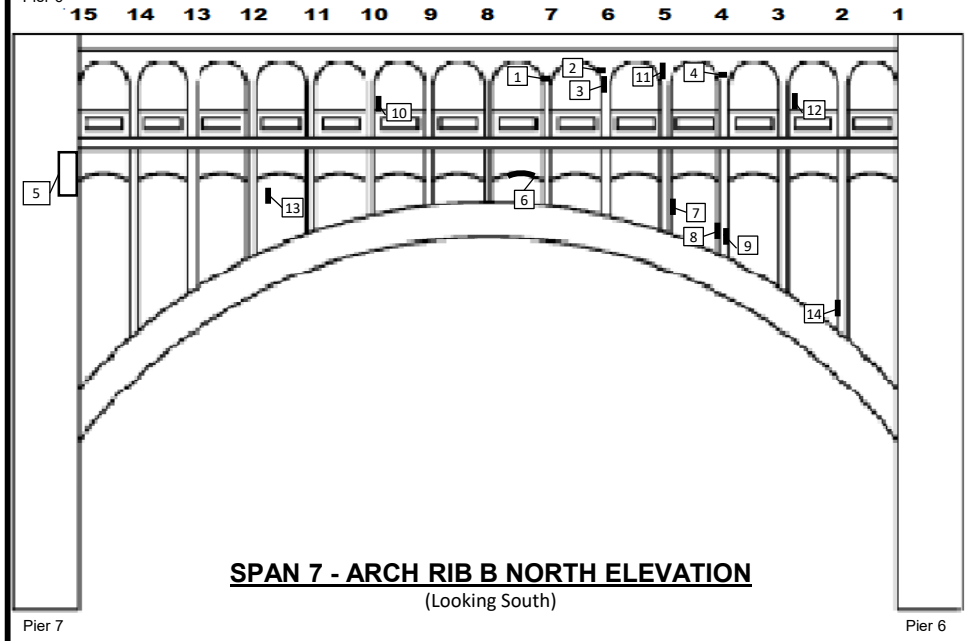
SPAN 7 - ARCH RIB A NORTH ELEVATION
(Looking South)

SPAN 7 - ARCH RIB A SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Spall, 1" D - 1 SF
2	Delamination - 5 SF
3	Delamination w/ 1/4" W crack on edge of delamination (behind drain pipe) - 24 SF
4	Delamination - 4 SF
5	Delamination - 3 SF
6	Delamination - 5 SF
7	Delamination - 3 SF
8	Delamination - 8 SF
9	Delamination w/ Spall w/ exp. Reinf - 6 SF
10	Delamination - 2 SF
11	Delamination - 1 SF
12	Spall w/ exp. Reinf. - 1 SF
13	Spall w/ exp. Reinf. - 1 SF
14	Spall w/ exp. Reinf. - 1 SF
15	Delamination - 1 SF
16	Delamination - 1 SF
17	Delamination - 2 SF
18	Delamination - 1 SF
19	Map cracking - 60 SF
20	Delamination - 4 SF
21	Spall w/ exp. Reinf. - 1 SF

SPAN 7 - ARCH RIB A NORTH ELEVATION DEFICIENCIES	
#	Defect
1	Spall w/ exp. Reinf - 2 SF
2	Spall w/ exp. Reinf - 1 SF
3	1/8" W crack - 20 LF
4	Spall w/ exp. Reinf - 1 SF
5	Delamination - 1 SF
6	Spall w/ exp. Reinf - 1 SF
7	Spall w/ exp. Reinf - 1 SF
8	Spall w/ exp. Reinf - 1 SF
9	Delamination - 4 SF
10	Delamination - 6 SF
11	Delamination - 6 SF
12	Spall w/ exp. Reinf. - 1 SF
13	Map cracking - 30 SF
14	Spall w/ exp. Reinf - 1 SF
15	Spall w/ exp. Reinf - 1 SF
16	Map cracking - 30 SF



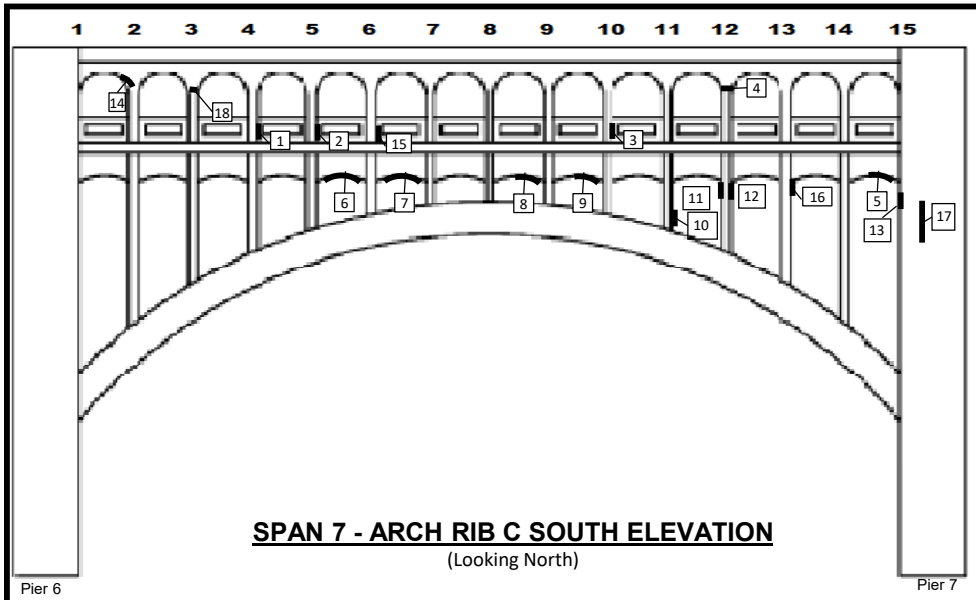
SPAN 7 - ARCH RIB B SOUTH ELEVATION
(Looking North)



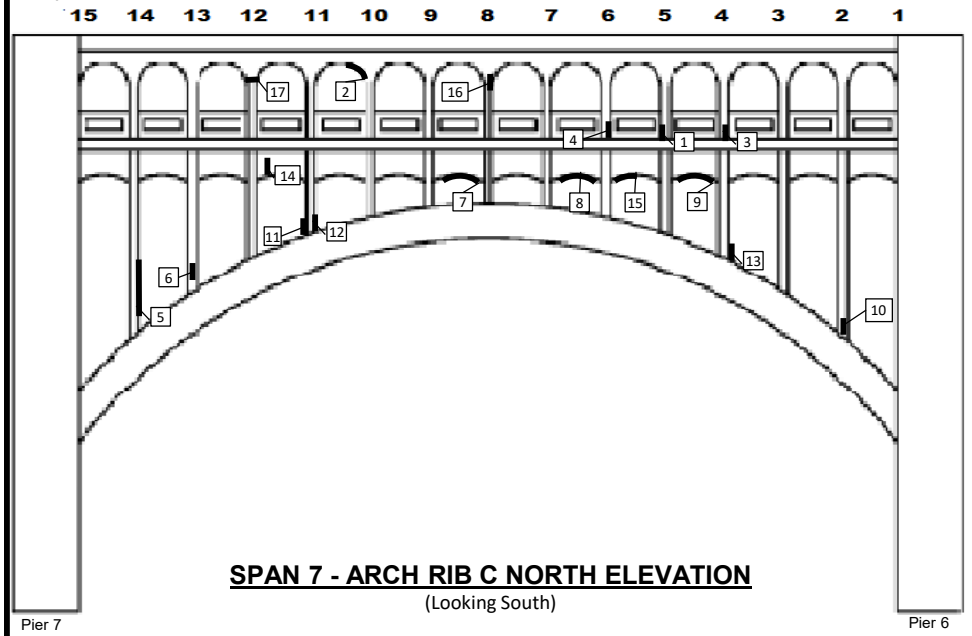
SPAN 7 - ARCH RIB B NORTH ELEVATION
(Looking South)

SPAN 7 - ARCH RIB B SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Spall w/ exp. Reinf - 1 SF
2	Delamination - 2 SF
3	Delamination - 3 SF
4	Delamination - 2 SF
5	Spall w/ exp. Reinf - 3 SF
6	Delamination - 1 SF
7	Delamination w/ Spall w/ exp. Reinf - 4 SF
8	Spall w/ exp. Reinf - 2 SF
9	Spall w/ exp. Reinf - 1 SF
10	Delamination - 1 SF
11	Delamination - 1 SF
12	Delamination - 2 SF
13	Delamination - 2 SF
14	Spall w/ exp. Reinf. - 15 SF

SPAN 7 - ARCH RIB B NORTH ELEVATION DEFICIENCIES	
#	Defect
1	Spall - 3 SF
2	Delamination - 4 SF
3	Delamination - 5 SF
4	Spall - 2 SF
5	Spall (inside face) - 6 SF
6	Spall w/ exp. Reinf - 3 SF
7	Spall w/ exp. Reinf - 3 SF
8	Delamination w/ Spall w/ exp. Reinf. - 5 SF
9	Delamination - 4 SF
10	Delamination - 2 SF
11	Delamination - 2 SF
12	Spall w/ exp. Reinf, 2" D - 6 SF
13	Spall w/ exp. Reinf - 1 SF
14	Spall w/ exp. Reinf - 2 SF



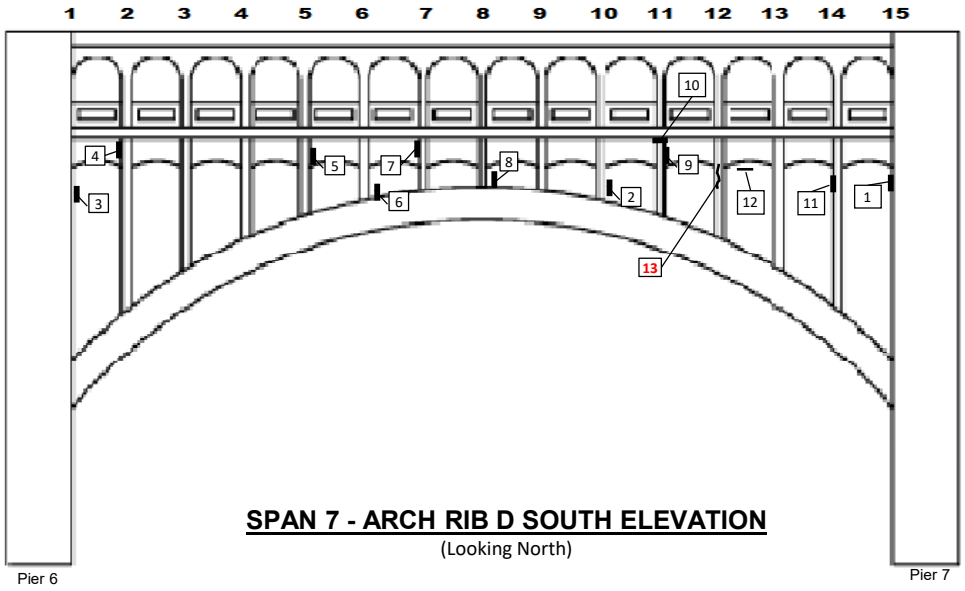
SPAN 7 - ARCH RIB C SOUTH ELEVATION
(Looking North)



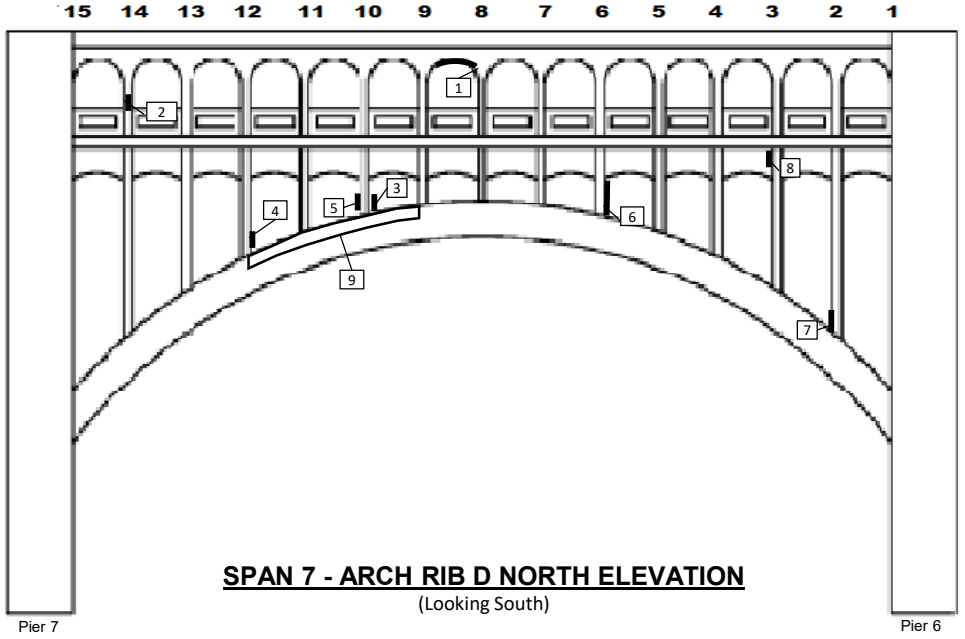
SPAN 7 - ARCH RIB C NORTH ELEVATION
(Looking South)

SPAN 7 - ARCH RIB C SOUTH ELEVATION	
#	Defect
1	Delamination - 2 SF
2	Delamination w/ Spall w/ exp. Reinf., 3" D - 5 SF
3	Delamination - 2 SF
4	Spall w/ exp. Reinf., 2" D - 2 SF
5	Delamination - 6 SF
6	Delamination - 6 SF
7	Delamination - 4 SF
8	Delamination - 4 SF
9	Delamination - 4 SF
10	Delamination - 1 SF
11	Delamination - 4 SF
12	Spall w/ exp. Reinf. - 1 SF
13	Delamination - 8 SF
14	Delamination - 2 SF
15	Delamination - 2 SF
16	Delamination - 1 SF
17	Delamination - 2 SF
18	Spall - 2 SF

SPAN 7 - ARCH RIB C NORTH ELEVATION	
#	Defect
1	Delamination - 2 SF
2	Spall, 3" D - 4 SF
3	Delamination - 2 SF
4	Delamination w/ Spall w/ exp. Reinf., 1.5" D - 2 SF
5	Delamination - 20 SF
6	Delamination - 2 SF
7	Delamination - 10 SF
8	Delamination - 2 SF
9	Delamination - 3 SF
10	Delamination - 3 SF
11	Delamination - 1 SF
12	Delamination - 1 SF
13	Spall w/ exp. Reinf. - 1 SF
14	Delamination - 10 SF
15	Delamination - 2 SF
16	Spall - 1 SF **(corbel)**
17	Spall - 1 SF **(corbel)**



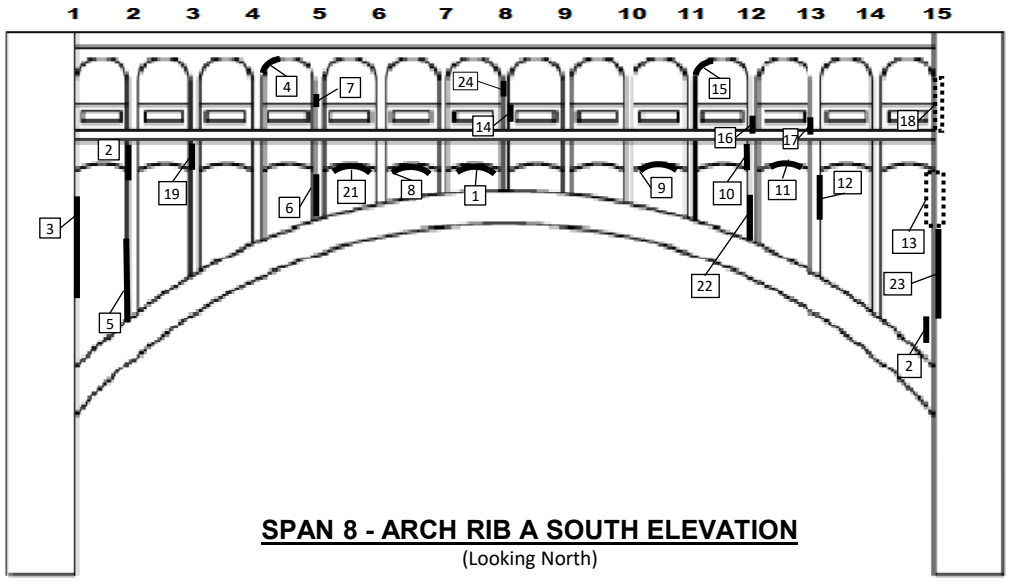
SPAN 7 - ARCH RIB D SOUTH ELEVATION
(Looking North)



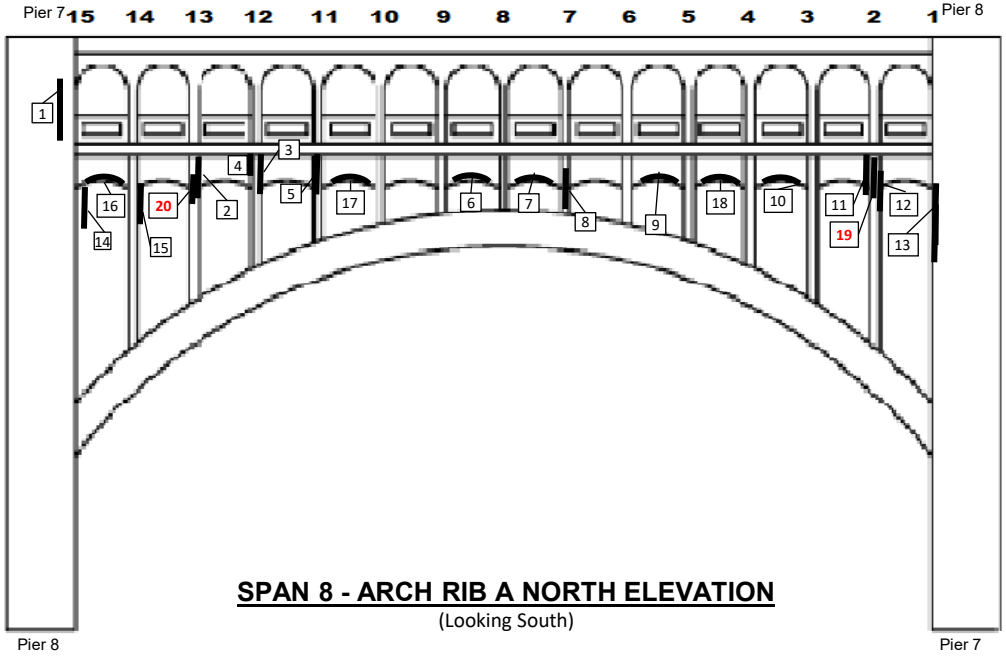
SPAN 7 - ARCH RIB D NORTH ELEVATION
(Looking South)

SPAN 7 - ARCH RIB D SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 4 SF
2	Delamination - 1 SF
3	Delamination - 4 SF
4	Delamination w/ Spall w/ exp. Reinf. - 12 SF
5	Delamination - 3 SF
6	Delamination - 2 SF
7	Delamination - 3 SF
8	Spall w/ exp. Reinf - 1 SF
9	Delamination - 3 SF
10	Delamination - 6 SF
11	Delamination - 3 SF
12	Crack - 2 LF
13	**Crack - 3 LF**

SPAN 7 - ARCH RIB D NORTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - **6** SF
2	Spall w/ exp. Reinf., 2" D - 1 SF
3	Spall w/ exp. Reinf. - 1 SF
4	Delamination - 1 SF
5	Spall w/ exp. Reinf. - 1 SF
6	Delamination - 6 SF
7	Spall w/ exp. Reinf. - 1 SF
8	Delamination - 4 SF
9	Map cracking - 18 SF



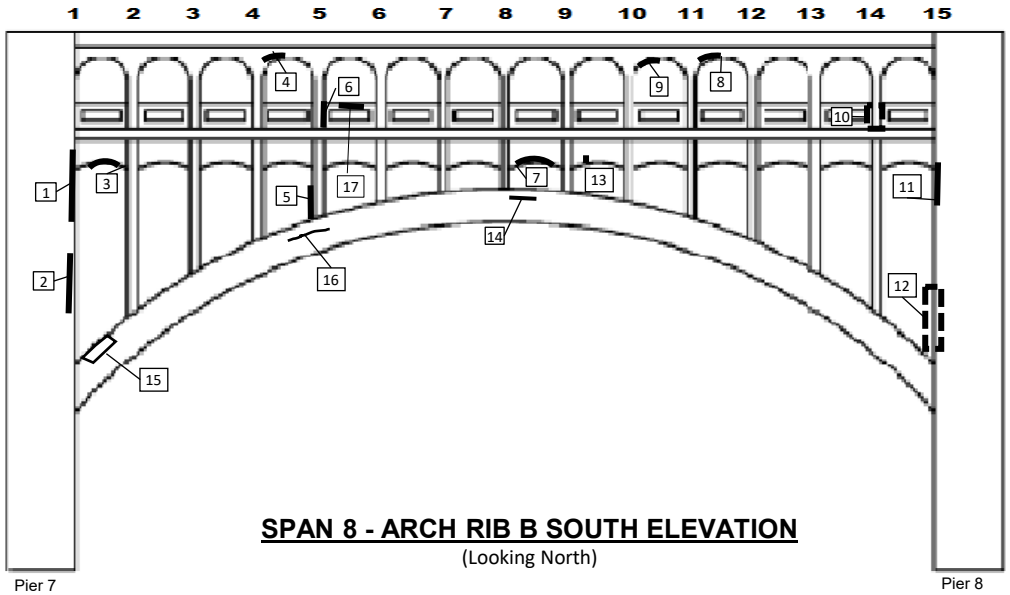
SPAN 8 - ARCH RIB A SOUTH ELEVATION
(Looking North)



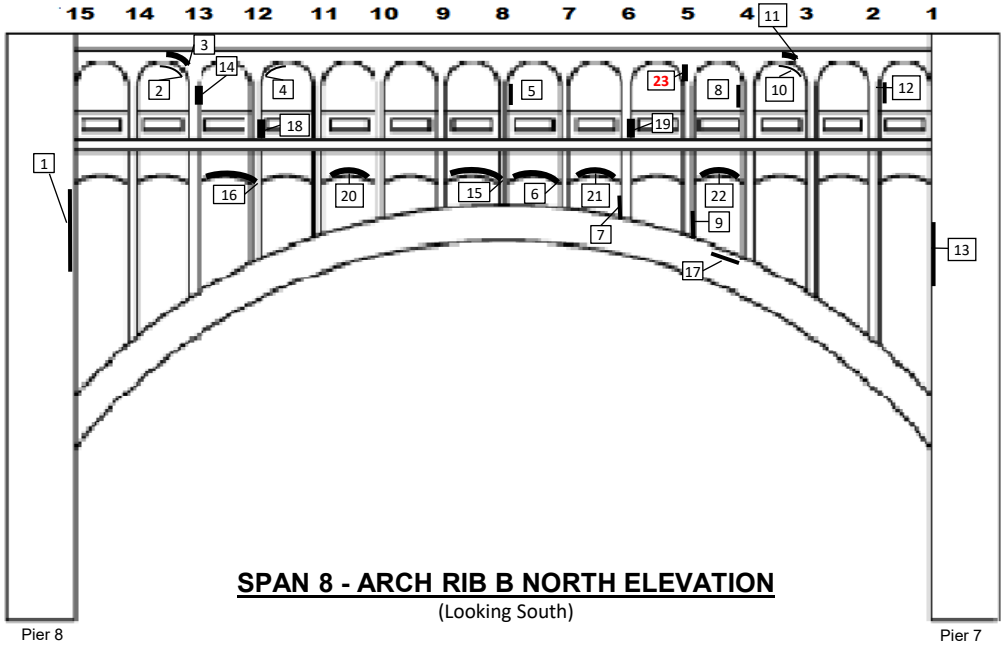
SPAN 8 - ARCH RIB A NORTH ELEVATION
(Looking South)

SPAN 8 - RIB A SOUTH ELEVATION DEFICIENCIES			
#	Defect	#	Defect
1	Delamination - 3 SF	12	Delamination - 22 SF
2	Delamination - 4 SF	13	Delamination - 20 SF
3	Delamination w/ Spall w/	14	Delamination - 1 SF
4	Delamination - 1 SF	15	Delamination - 1 SF
5	Delamination w/ Spall w/	16	Delamination - 1 SF
6	Delamination - 1 SF	17	Delamination - 1 SF
7	Spall, 2.5" D - 1 SF	18	Delam. (behind drain pipe) w/ 1/8" W crack on edge of delam. - 5 SF
8	Delamination - 1 SF		
9	Delamination - 2 SF		
10	Delamination - 9 SF	19	Delamination - 1 SF
11	Delamination - 1 SF	20	Map Cracking - 8 SF
		21	Map Cracking - 5 SF
		22	Map Cracking - 2 SF
		23	Map Cracking - 20 SF
		24	Spall w/ reinf. - 1 SF

SPAN 8 - RIB A NORTH ELEVATION DEFICIENCIES			
#	Defect	#	Defect
1	Spall w/ exp. Reinf. - 6 SF	13	Delamination w/ Spall w/ exp. Reinf. - 8 SF
2	Delamination - 3 SF		
3	Delamination - 12 SF	14	Delamination w/ Spall w/ exp. Reinf. - 4 SF
4	Spall w/ exp. Reinf. - 1 SF		
		15	Delamination - 6 SF
5	Delamination - 8 SF	16	Delamination - 6 SF
6	Delamination - 4 SF	17	Delamination - 5 SF
7	Delamination - 6 SF	18	Delamination - 6 SF
8	Delamination - 4 SF	**19**	**Crack - 4 LF**
9	Delamination - 3 SF	**20**	**Spall w/ exp. Reinf. - 5 SF**
10	Delamination - 4 SF		
11	Delamination - 6 SF		
12	Delamination - 6 SF		



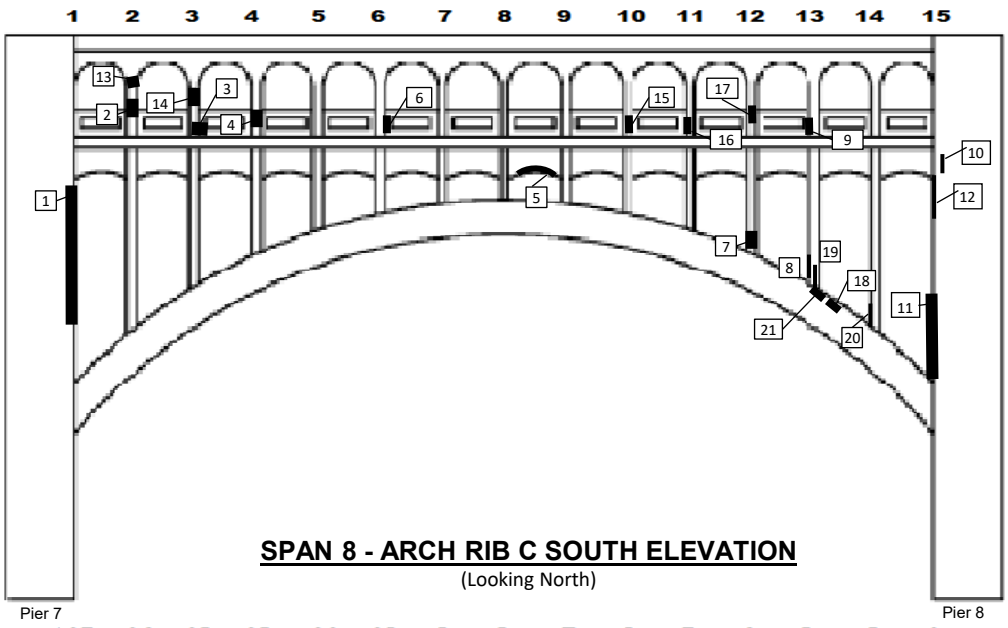
SPAN 8 - ARCH RIB B SOUTH ELEVATION
(Looking North)



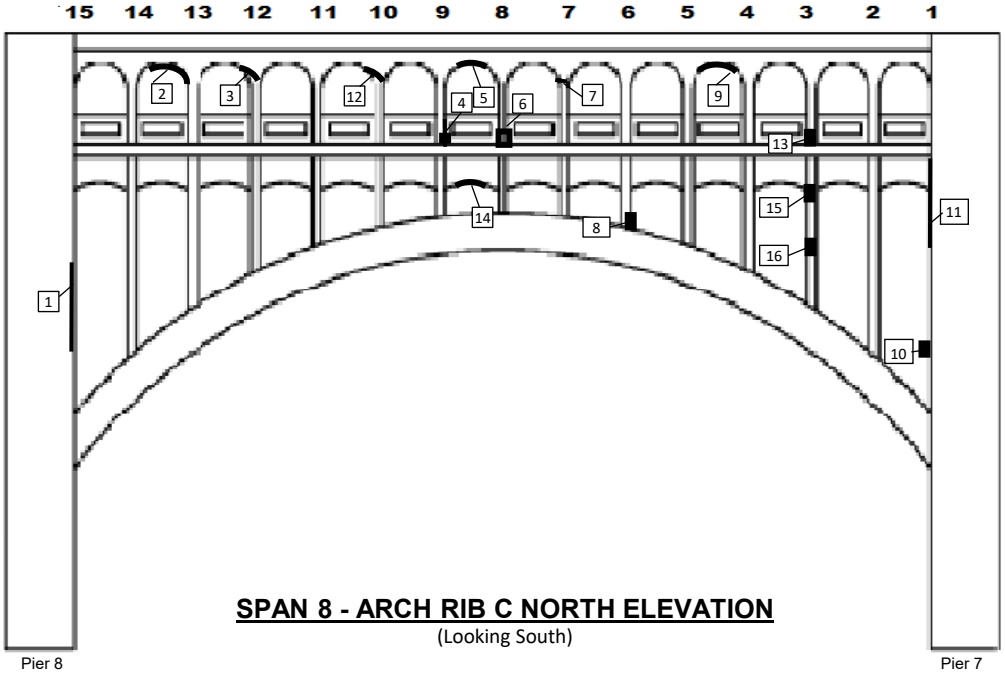
SPAN 8 - ARCH RIB B NORTH ELEVATION
(Looking South)

SPAN 8 - RIB B SOUTH ELEVATION DEFICIENCIES			
#	Defect	#	Defect
1	Delamination - 9 SF	9	Spall w/ exp. Reinf. - 1 SF
2	Delamination - 8 SF		
3	Delamination - 4 SF	10	Delamination - 6 SF
4	Spall w/ exp. Reinf., 3" D - 1 SF	11	Delamination - 10 SF
		12	Delamination w/ Spall w/ exp. Reinf., 3" D - 15 SF
5	Spall w/ exp. Reinf. - 2 SF		
6	Delamination - 2 SF	13	Spall w/ exp. Reinf., 2" D - 2 SF
7	Spall w/ exp. Reinf. - 5 SF	14	Delamination - 4' L x 6" W
8	Spall w/ exp. Reinf., 1" D - 1 SF	15	Map cracking - 5 SF
		16	Crack - 5 LF
		17	Spall w/ exp. Reinf. - 1 SF

SPAN 8 - RIB B NORTH ELEVATION DEFICIENCIES			
#	Defect	#	Defect
1	Delamination - 16 SF	13	Delamination - 10 SF
2	Delamination - 2 SF	14	Delamination w/ Spall w/ exp. Reinf., 2" D - 4 SF
3	Delamination - 2 SF		
4	Spall w/ exp. Reinf., 5" D - 1 SF	15	Delamination - 6 SF
5	Delamination - 3 SF	16	Delamination - 1 SF
6	Delamination - 4 SF	17	Delamination - 3' L x 6" H
7	Delamination - 2 SF		
8	Delamination - 5 SF	18	Delamination - 1 SF
9	Delamination - 1 SF	19	Delamination - 2 SF
10	Delamination - 1 SF	20	Crack - 4 LF
11	Spall w/ exp. Reinf., 1.5" D - 1 SF	21	Crack - 4 LF
		22	Crack - 4 LF
12	Spall w/ exp. Reinf., 2" D - 5 SF	23	**Delamination - 1 SF**



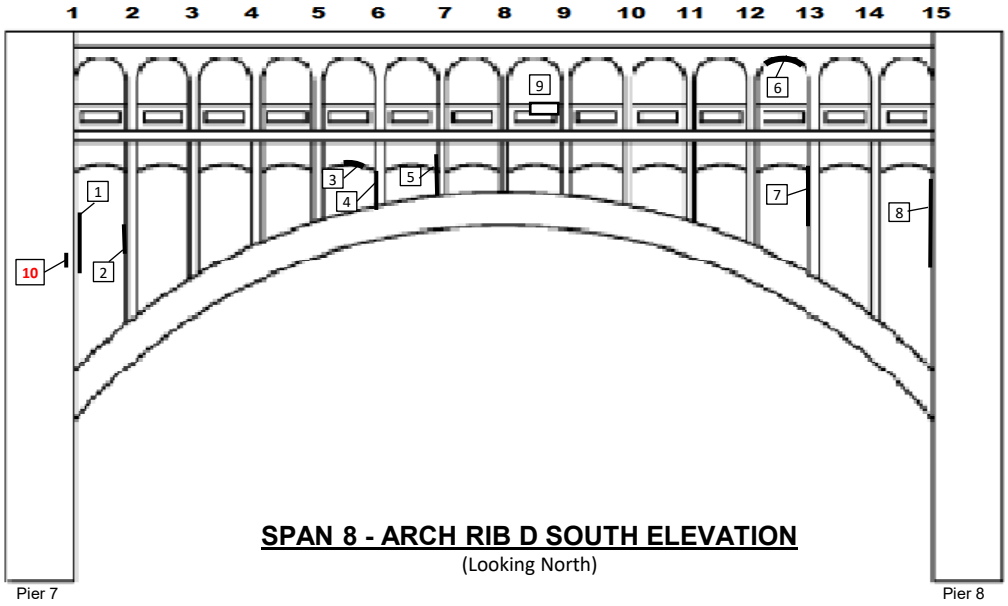
SPAN 8 - ARCH RIB C SOUTH ELEVATION
(Looking North)



SPAN 8 - ARCH RIB C NORTH ELEVATION
(Looking South)

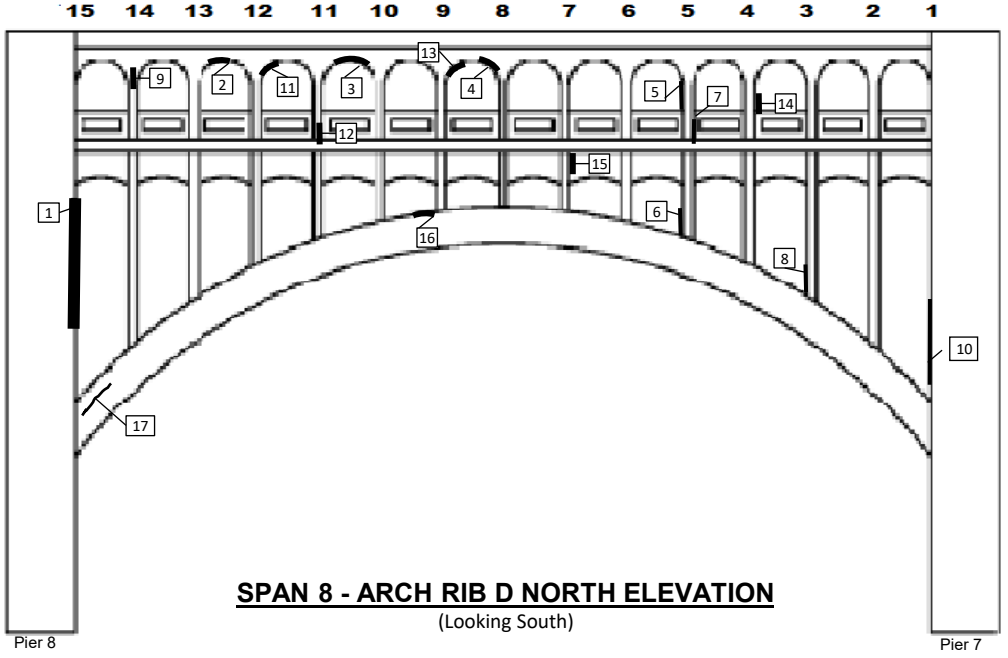
SPAN 8 - RIB C SOUTH ELEVATION DEFICIENCIES			
#	Defect	#	Defect
1	Spall w/ exp. Reinf. 30% S.L. of bars at south end. 2 adj. shear stirrups w/ complete S.L. - 175 SF.	11	Delamination - 40 SF
		12	Delamination - 12 SF
		13	**Spall, 1" D** - 1 SF
2	Delamination w/ Spall w/ exp. Reinf. - 5 SF	14	Spall w/ exp. Reinf. - 1 SF
		15	Delamination - 2 SF
3	Delamination - 1 SF	16	Delamination - 2 SF
4	Delamination - 3 SF	17	Delamination w/ Spall w/ exp. Reinf. - 1 SF
5	Delamination - 6 SF		
6	Delamination w/ Spall w/ exp. Reinf. - 3 SF	18	Spall - 1' L x 1' H
		19	Delamination - 1 SF
7	Spall w/ exp. Reinf., 2" D - 1 SF	20	Delamination - 1 SF
		21	Spall - 1' L x 1' H
8	Delamination - 2 SF		
9	Core sample location		
10	Spall w/ exp. Reinf. - 1 SF		

SPAN 8 - RIB C NORTH ELEVATION DEFICIENCIES			
#	Defect	#	Defect
1	Delamination - 15 SF	9	Delamination w/ Spall w/ exp. Reinf. - 2 SF
2	Delamination w/ Spall w/ exp. Reinf., 0.5" D - 4 SF	10	Delamination - 4 SF
		11	Delam. w/ Spall w/ exp. Reinf., 4" D - 20 SF. 1 exp. Tie w/ 50% S.L. (tie is broken on S face).
3	Spall w/ exp. Reinf., 4" D - 1 SF		
4	Spall w/ exp. Reinf., 1" D - 1 SF	12	Delamination w/ Spall - 1 SF
5	Spall w/ exp. Reinf., 1.5" D - 1 SF	13	Delamination - 1 SF
6	Spall - 1 SF	14	Delamination - 1 SF
7	Delamination w/ Spall - 2 SF **(corbel)**	15	Delamination - 1 SF
		16	Delamination - 1 SF
8	Spall w/ exp. Reinf. - 1 SF		



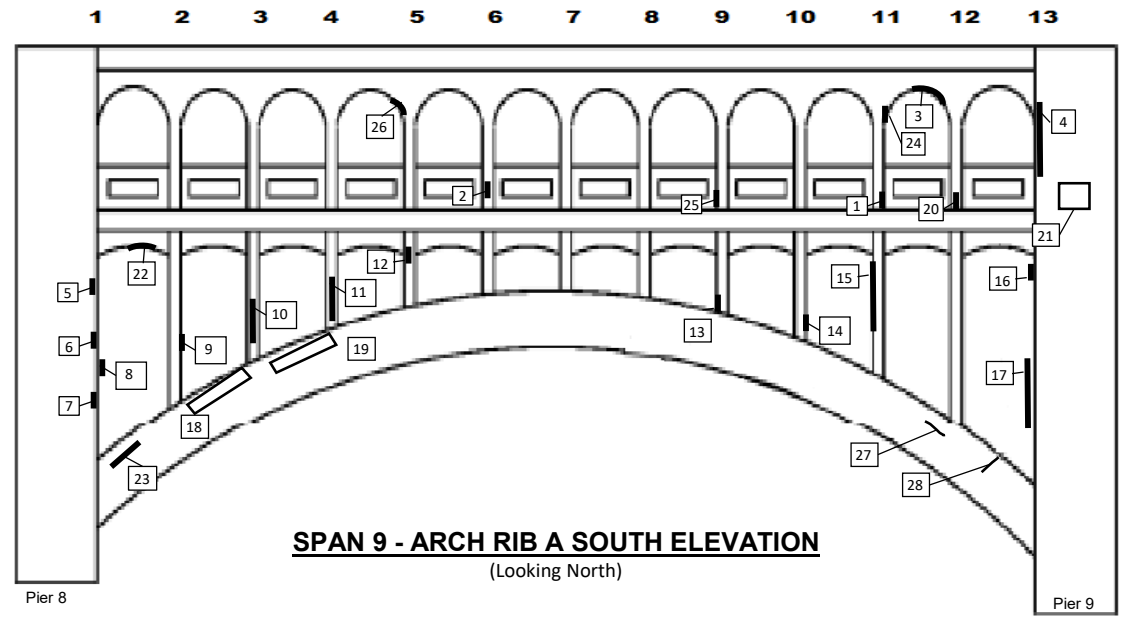
SPAN 8 - ARCH RIB D SOUTH ELEVATION
(Looking North)

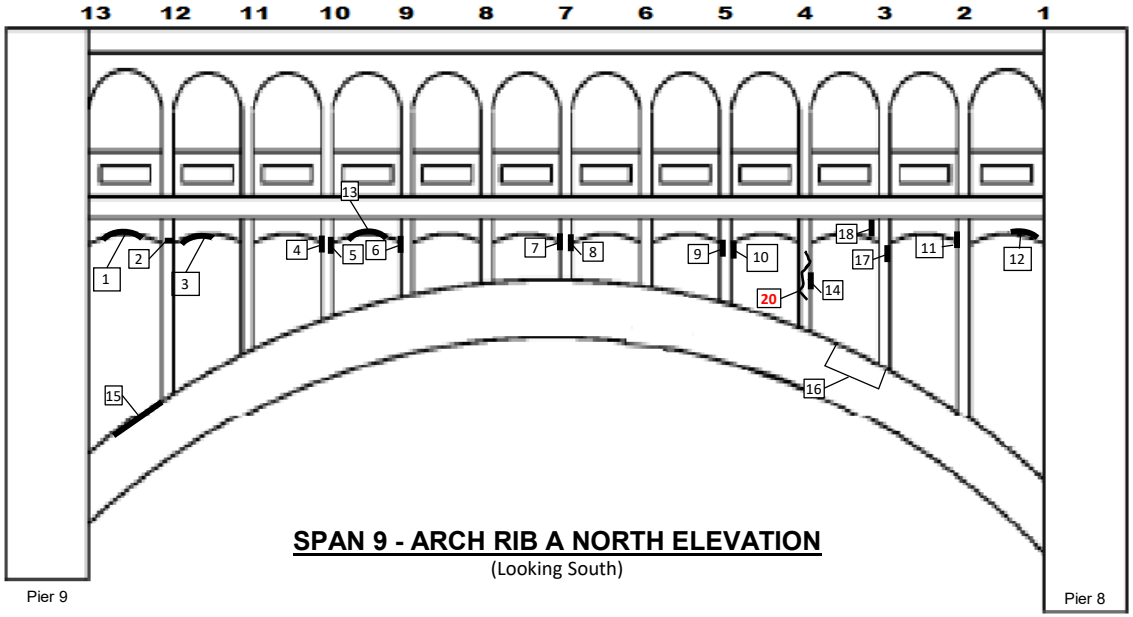
SPAN 8 - RIB D SOUTH ELEVATION DEFICIENCIES			
#	Defect	#	Defect
1	Delamination - 12 SF	6	Delamination - 6 SF
2	Spall w/ exp. Reinf. - 1 SF	7	Delamination w/ Spall w/ exp. Reinf - 20 SF
3	Spall w/ exp. Reinf. - 4 SF	8	Delamination w/ some Spalling - 23 SF
4	Delamination - 12 SF	9	Spall w/ exp. Reinf. - 1 SF
5	Delamination - 12 SF	**10**	**Spall - 2 SF**



SPAN 8 - ARCH RIB D NORTH ELEVATION
(Looking South)

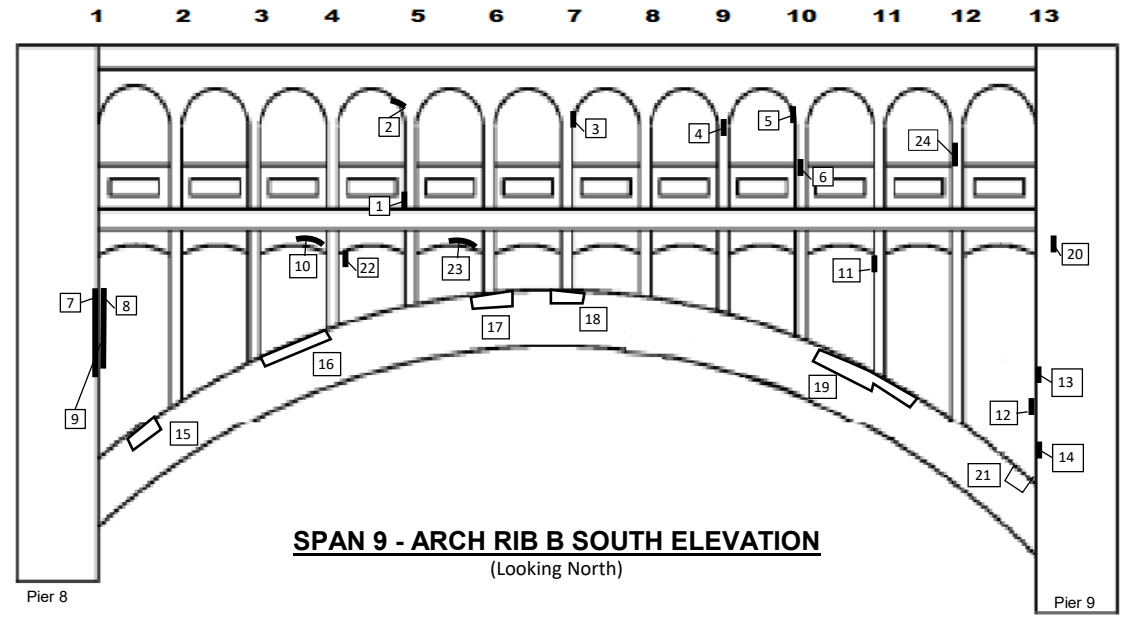
SPAN 8 - RIB D NORTH ELEVATION DEFICIENCIES			
#	Defect	#	Defect
1	Delam. w/ Spall w/ exp. Reinf. w/ minor S.L. - 60 SF	9	Delamination - 2 SF
		10	Delamination - 4 SF
		11	Spall - 1 SF
2	Delamination - 3 SF	12	Delamination - 4 SF
3	Delamination - 4 SF	13	Delamination - 1 SF
4	Delamination - 4 SF	14	Delamination - 2 SF
5	Spall w/ exp. Reinf., 1" D - 1 SF	15	Delamination - 1 SF
		16	Delamination - 2' L x 6" W
6	Delamination - 1 SF		
7	Delamination - 3 SF	17	Crack - 5 LF
8	Delamination - 1 SF		



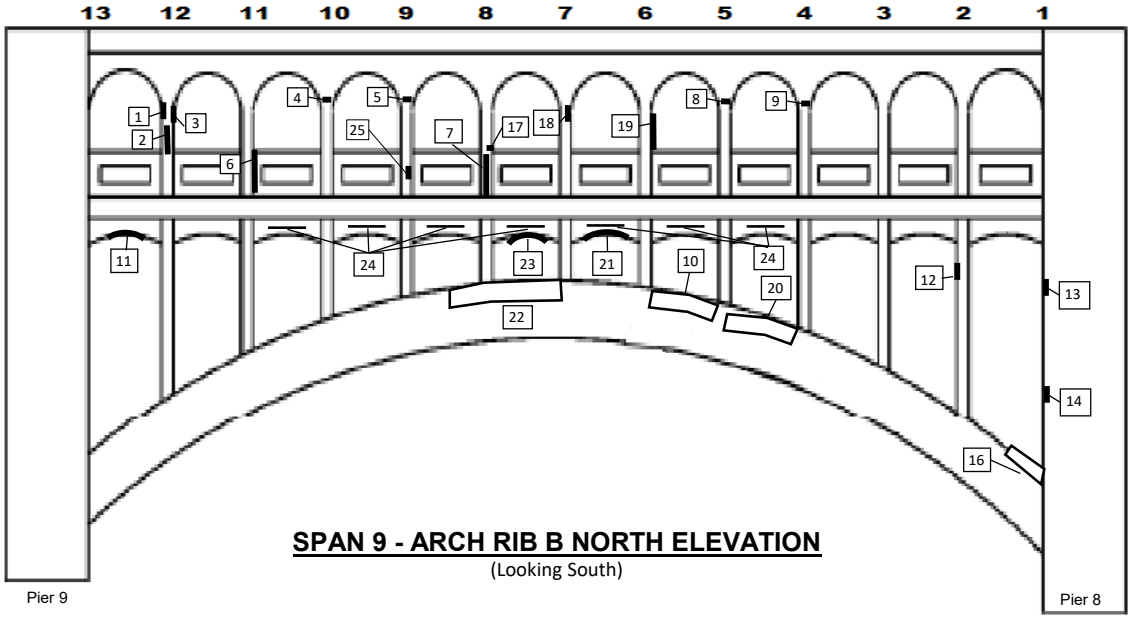


SPAN 9 - RIB A SOUTH ELEVATION DEFICIENCIES			
#	Defect	#	Defect
1	Delamination - 1 SF	14	Delamination - 2 SF
2	Spall w/ exp. Reinf., 1" D - 1 SF	15	Delamination - 10 SF
3	Delamination - 8 SF	16	Delamination - 4 SF
4	Delam. (behind drain pipe) w/ up to 1/8" W crack on edge of delam. - 12 SF	17	Delamination - 30 SF
		18	Delamination - 8' L x 2' W
5	Delamination - 14 SF	19	Delaminaiton - 6' L x 2' W
6	Delamination - 5 SF	20	Delamination - 4 SF
7	Delamination - 10 SF	21	Delamination - 4 SF
8	Delamination - 5 SF	22	Delamination - 4 SF
9	Delam. w/ Spall - 4 SF	23	Delamination - 3' L x 1' W
10	**Spall w/ rebar** - 50 SF	24	Delamination - 1 SF
11	Delam. w/ Spall w/ exp. Reinf. - 9 SF	25	Delamination - 1 SF
12	Delamination - 2 SF	26	Delamination - 1 SF
13	Delamination - 1 SF	27	Crack - 3 LF
		28	Crack - 3 LF

SPAN 9 - RIB A NORTH ELEVATION DEFICIENCIES			
#	Defect	#	Defect
1	Delam. w/ Spall w/ exp. Reinf. - 4 SF	13	Delamination - 1 SF
2	Delam. w/ Spall w/ exp. Reinf. - 4 SF	14	Delamination - 9 SF
3	Delam. w/ Spall - 2 SF	15	Delamination - 5' L x 3' W
4	Delam. w/ Spall w/ exp. Reinf. - 2 SF	16	Delamination - 2' L x 6" W
5	Delamination - 1 SF	17	Delamination - 1 SF
6	Spall - 2 SF	18	Delam. w/ Spall w/ exp. Reinf. - 1 SF
7	Delam. w/ Spall w/ exp. Reinf. - 3 SF	19	Delamination - 3 SF
8	Delam. w/ Spall w/ exp. Reinf. - 2 SF	**20**	**Crack - 7 LF**
9	Delamination - 3 SF		
10	Delamination - 4 SF		
11	Delamination - 4 SF		
12	Delam. w/ Spall w/ exp. Reinf. - 5 SF		



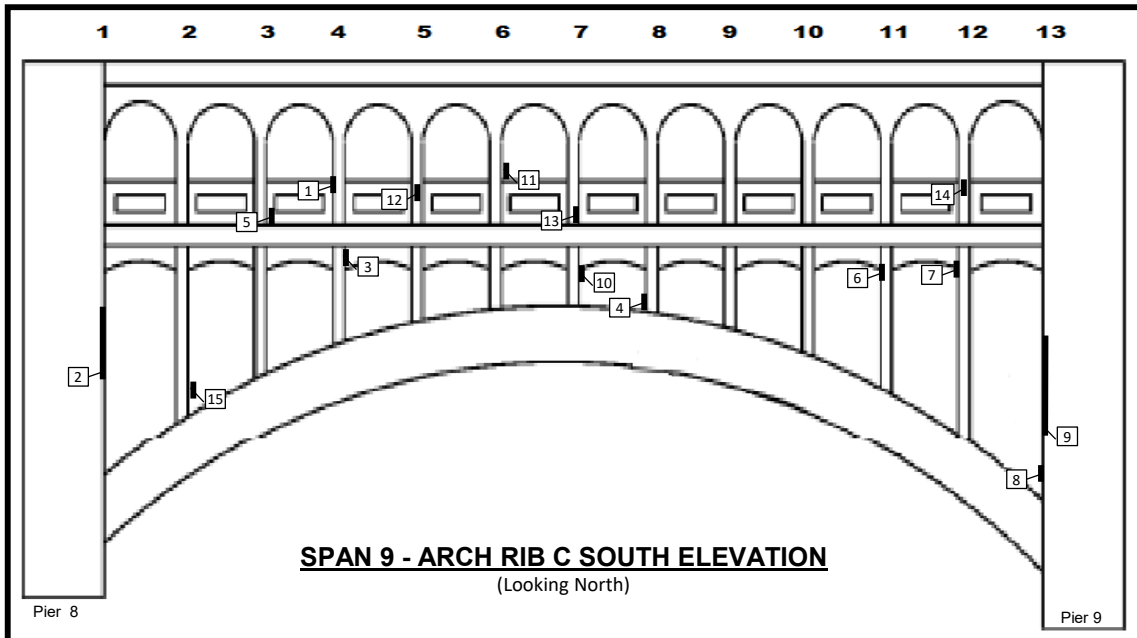
SPAN 9 - ARCH RIB B SOUTH ELEVATION
(Looking North)



SPAN 9 - ARCH RIB B NORTH ELEVATION
(Looking South)

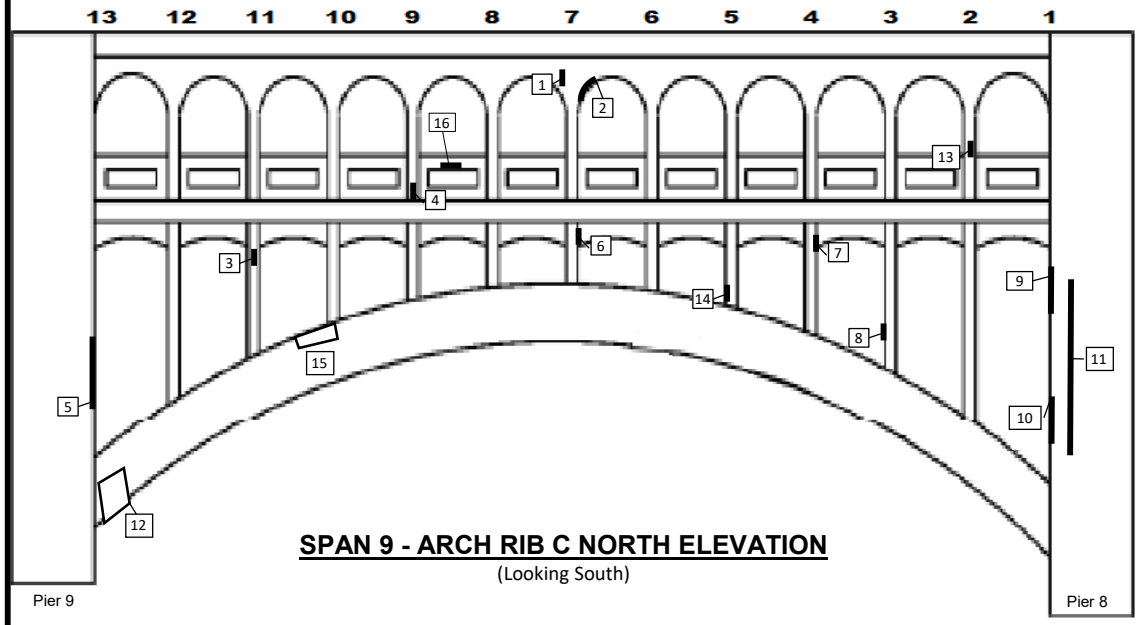
SPAN 9 - RIB B SOUTH ELEVATION DEFICIENCIES			
#	Defect	#	Defect
1	Spall w/ exp. Reinf., 1" D - 1 SF	11	Delamination - 3 SF
2	Spall w/ exp. Reinf., 4" D - 2 SF	12	Delam. w/ Spall w/ exp. Reinf - 4 SF
3	Delam. w/ Spall - 2 SF		
4	Delam. w/ Spall , 3" D & 1/4" crack - 6 SF	13	Delamination - 12 SF
		14	Delamination - 10 SF
5	Delamination - 2 SF	15	Delamination - 2' L x 1' H
6	Delamination - 1 SF	16	Delamination - 8' L x 6" W
7	Delamination - 40 SF (west face of column)	17	Delamination - 3' L x 6" W
		18	Spall w/ exp. Reinf. - 3' L x 6" W
8	Delamination - 28 SF (east face of column)	19	Delamination - 10' L x 1' W
		20	Delamination - 4 SF
9	Delamination - 30 SF (south face of column)	21	Delamination - 3' L x 6" H
		22	Delamination - 1 SF
10	Delam. w/ Spall w/ exp. Reinf. - 3 SF	23	**Spall - 3** SF
		24	Spall - 1 SF

SPAN 9 - RIB B NORTH ELEVATION DEFICIENCIES			
#	Defect	#	Defect
1	Spall w/ exp. Reinf., 1.5" D - 4 SF	13	Delamination - 6 SF
2	Delamination - 4 SF	14	Delamination - 12 SF
3	Delamination - 5 SF	15	Delamination - 2 SF
4	Delamination - 4 SF	16	Delamination - 2' L x 1' W
5	Delamination - 3 SF	17	Spall w/ exp. Reinf., 1" D - 2 SF
6	Delamination - 8 SF	18	Spall w/ exp. Reinf., 1" D - 2 SF
7	Delamination - 8 SF	19	Delamination - 4 SF
8	Delamination - 4 SF	20	Delamination - 5' L x 6" W
9	Delamination - 3 SF	21	Delamination - 2 SF
10	Delamination - 8' L x 1' W	22	Delamination - 10' L x 6" W
11	Delamination - 4 SF	23	Delamination - 4 SF
12	Delamination - 5 SF	24	Crack - 5 LF (7 Loc.)
		25	Delamination - 2 SF



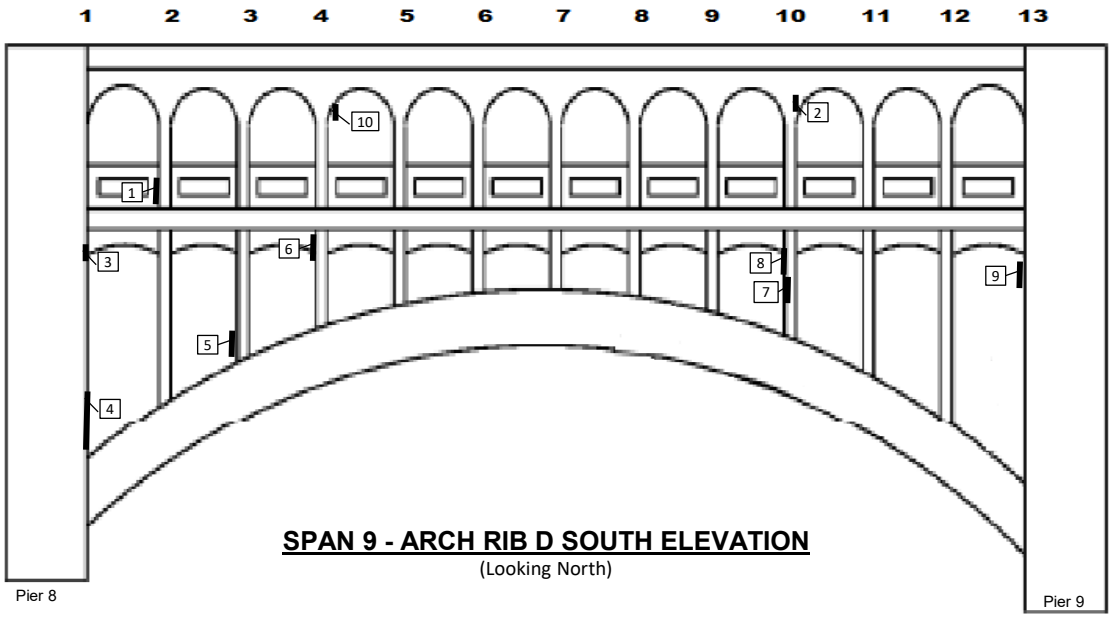
SPAN 9 - ARCH RIB C SOUTH ELEVATION
(Looking North)

SPAN 9 - RIB C SOUTH ELEVATION DEFICIENCIES			
#	Defect	#	Defect
1	Spall - 1 SF	13	Delamination - 2 SF
2	Delamination - 24 SF	14	Delamination - 2 SF
3	Spall w/ exp. Reinf. - 2 SF	15	Delamination - 2 SF
4	Delamination - 1 SF		
5	Delamination - 1 SF		
6	Delam. w/ Spall - 3 SF		
7	Delamination - 1 SF		
8	Delamination - 1 SF		
9	Delamination - 20 SF		
10	Delamination - 1 SF		
11	Delamination - 1 SF		
12	Delamination - 1 SF		



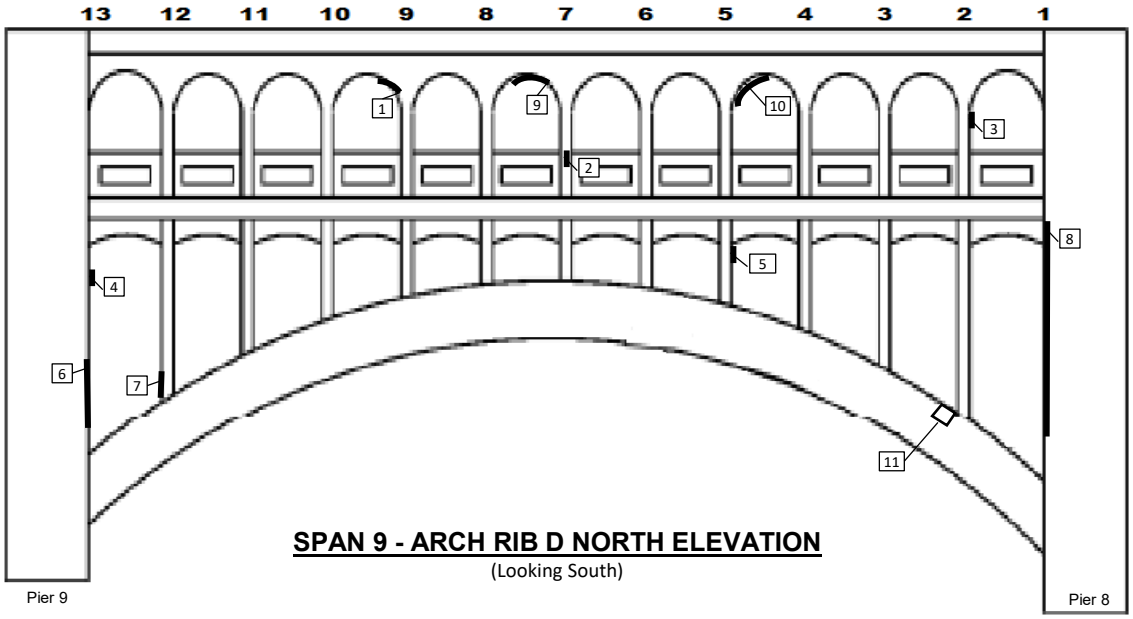
SPAN 9 - ARCH RIB C NORTH ELEVATION
(Looking South)

SPAN 9 - RIB C NORTH ELEVATION DEFICIENCIES			
#	Defect	#	Defect
1	Spall w/ exp. Reinf., 2" D - 1 SF	13	Delamination - 1 SF
2	Spall w/ exp. Reinf., 2" D - 1 SF	14	Delamination - 1 SF
3	Spall w/ exp. Reinf. - 1 SF	15	Delamination - 3' L x 2' W
4	Delamination - 1 SF	16	Spall w/ exp. Reinf. - 2 SF
5	Delamination - 1 SF		
6	Delamination - 4 SF		
7	Delamination - 2 SF		
8	Delamination - 2 SF		
9	Delamination - 12 SF (East face)		
10	Spall w/ exp. Reinf - 4 SF (East face)		
11	Delamination - 40 SF (West face)		
12	Map cracking - 3' L x 3' W		



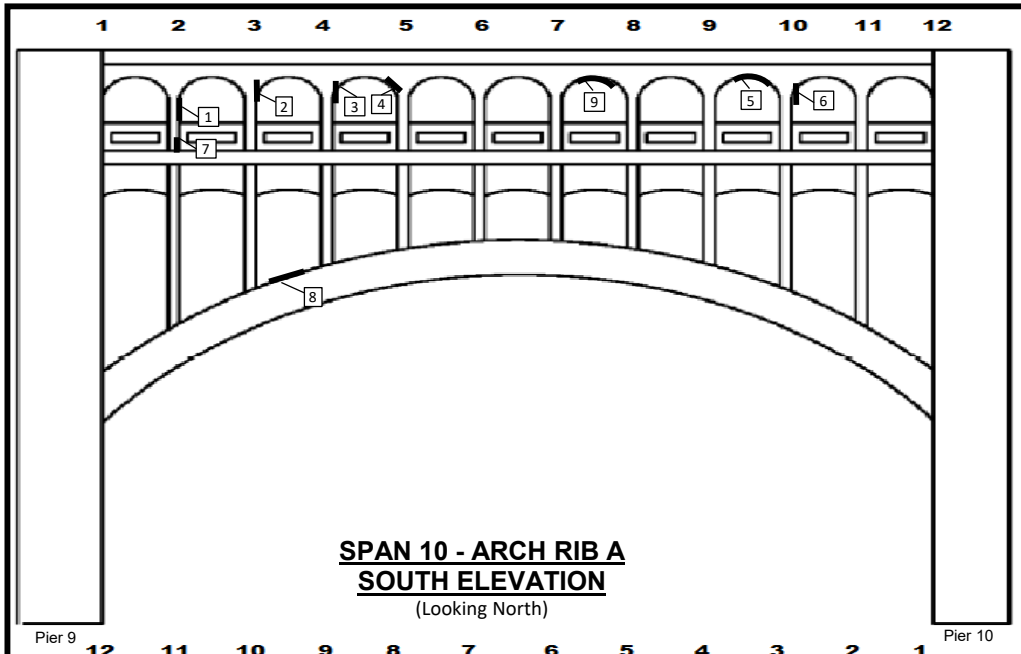
SPAN 9 - ARCH RIB D SOUTH ELEVATION
(Looking North)

SPAN 9 - RIB D SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 2 SF
2	Spall w/ exp. Reinf. - 1 SF
3	Spall w/ exp. Reinf. - 4 SF
4	Spall w/ exp. Reinf. - 28 SF
5	Delamination - 1 SF
6	Delamination - 5 SF
7	Spall w/ exp. Reinf. (South face) - 1 SF
8	Delamination (West face) - 1 SF
9	Delamination - 6 SF
10	Delamination - 1 SF



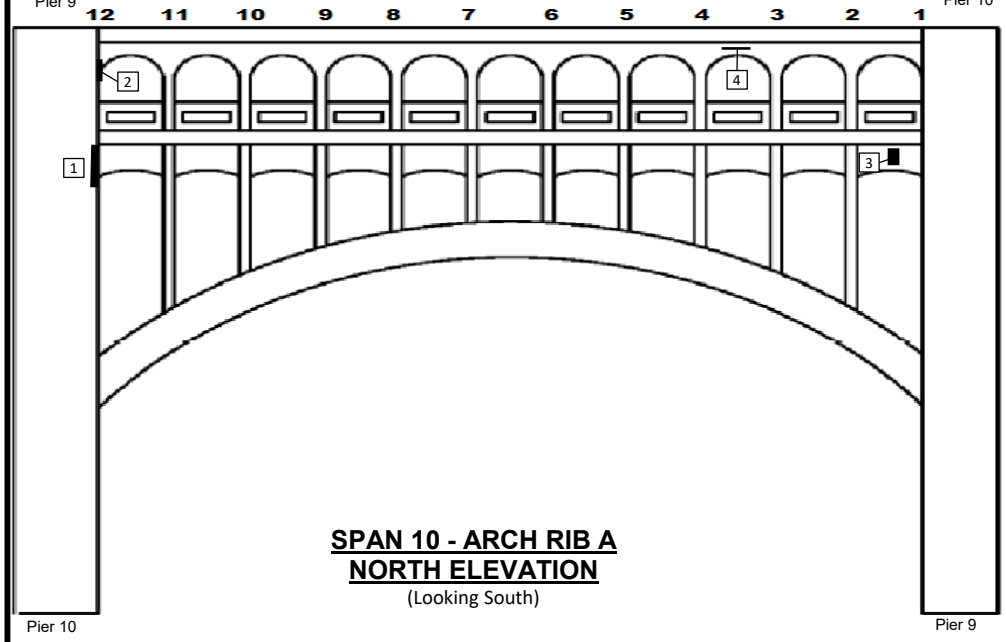
SPAN 9 - ARCH RIB D NORTH ELEVATION
(Looking South)

SPAN 9 - RIB D NORTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 4 SF
2	Delamination - 4 SF
3	Delamination - 3 SF
4	Delamination (North face) - 2 SF
5	Delamination - 1 SF
6	Delamination w/ Spall w/ exp. Reinf. - 15 SF
7	Delamination - 2 SF
8	Delamination - 50 SF
9	Delamination - 1 SF
10	1/16" W through-crack
11	Spall - 2 SF



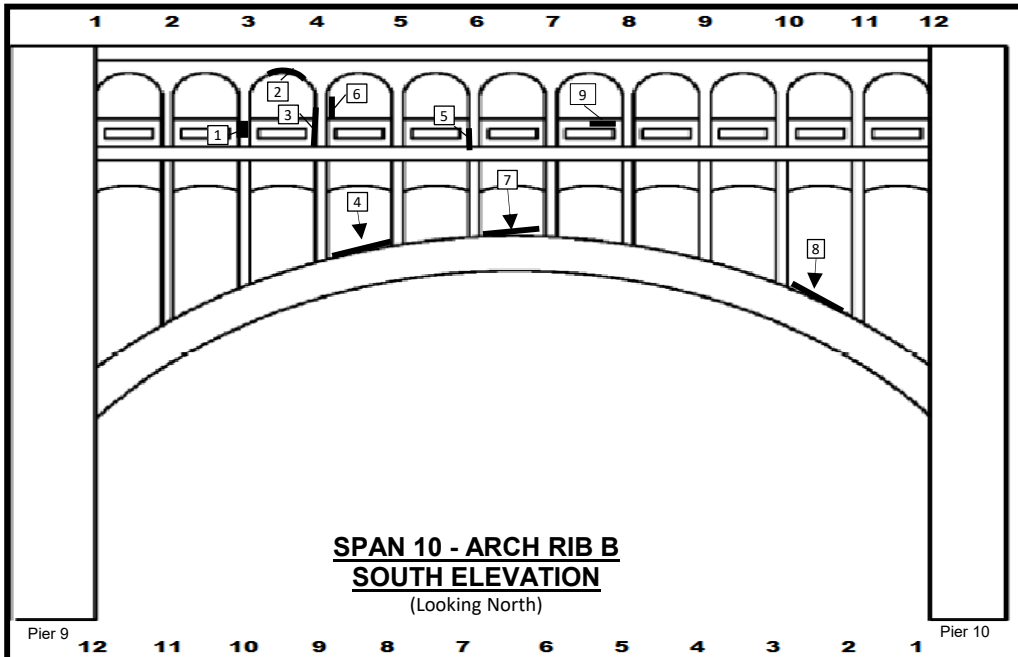
SPAN 10 - ARCH RIB A SOUTH ELEVATION
(Looking North)

SPAN 10 - ARCH RIB A SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination (Behind Utility Conduit) - 3 SF
2	Delamination - 2 SF
3	Delamination - 20 SF
4	Delamination - 1 SF
5	Delamination - 2 SF
6	Delamination - 3 SF
7	Delamination - 2 SF
8	Delamination - 6' L x 3' W
9	Delamination - 1 SF



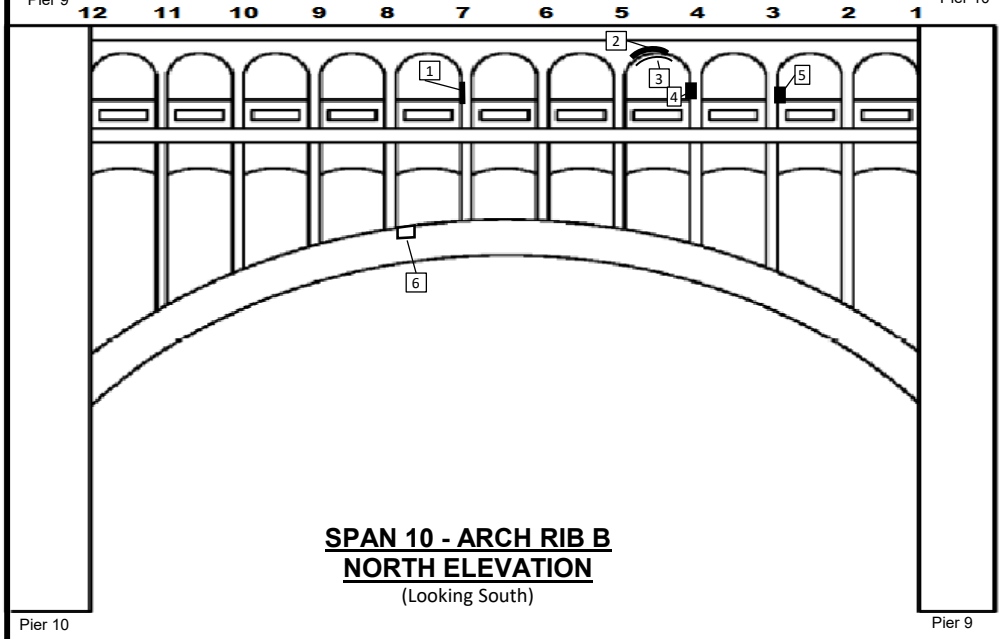
SPAN 10 - ARCH RIB A NORTH ELEVATION
(Looking South)

SPAN 10 - ARCH RIB A NORTH ELEVATION DEFICIENCIES	
#	Defect
1	Spall w/ exp. Reinf. - 4 SF
2	Delamination - 3 SF
3	Delamination - 1 SF
4	Crack - 5 LF



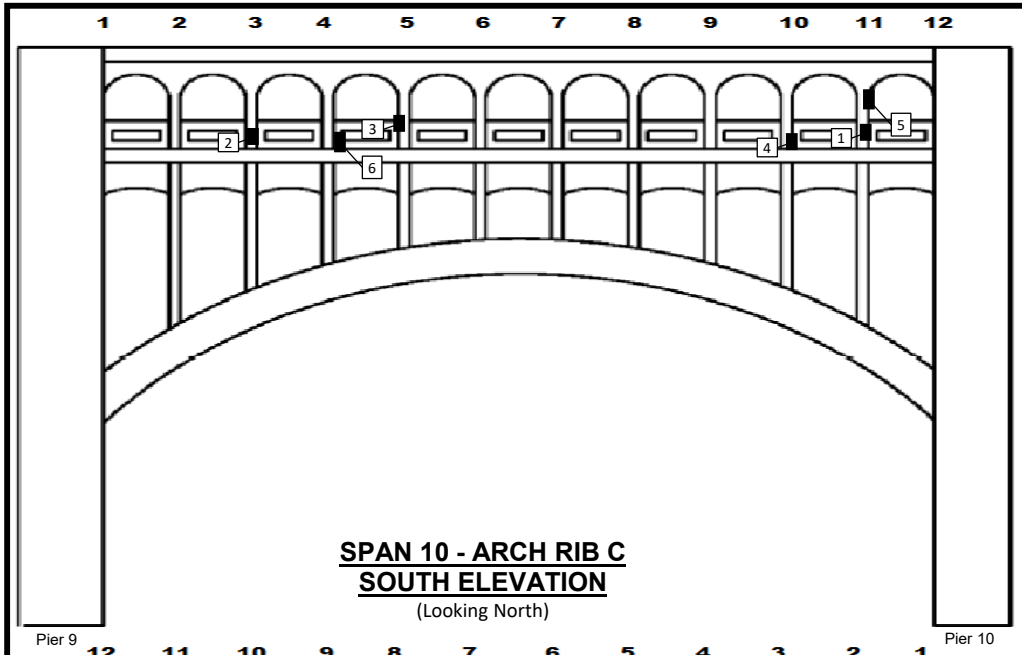
SPAN 10 - ARCH RIB B SOUTH ELEVATION
(Looking North)

SPAN 10 - ARCH RIB B SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 1 SF
2	Delamination - 1 SF
3	Delamination - 1 SF
4	Delamination - 4' L x 1.5' W
5	Delamination - 2 SF
6	Delamination - 1 SF
7	Spall - 20 SF
8	Delamination - 3' L x 4' W
9	Spall - 2 SF



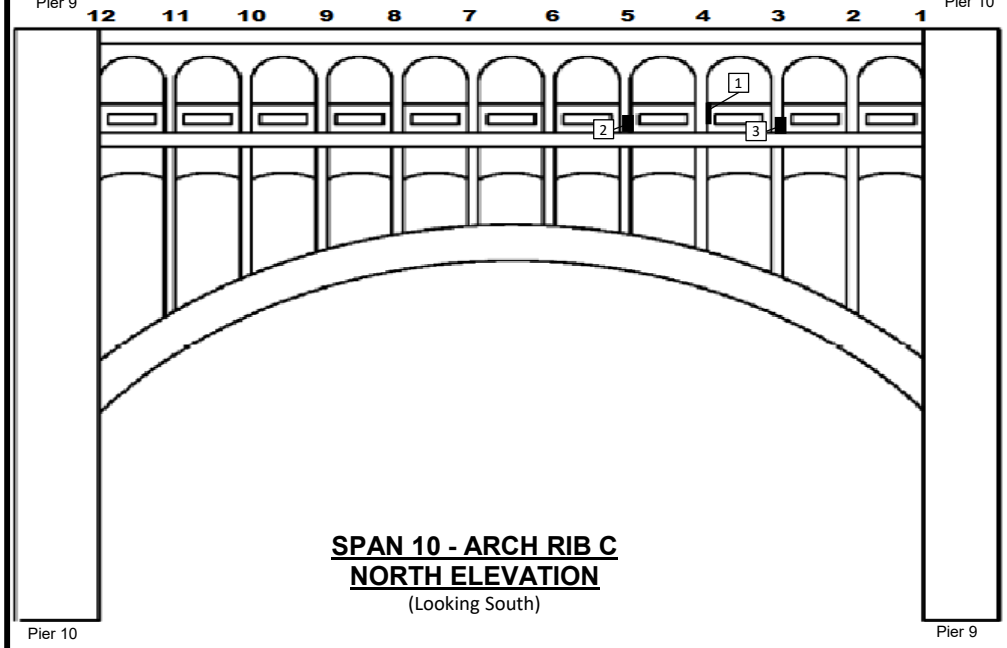
SPAN 10 - ARCH RIB B NORTH ELEVATION
(Looking South)

SPAN 10 - ARCH RIB B NORTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 2 SF
2	Delamination - 6 SF
3	Delamination - 3 SF
4	Delamination - 2 SF
5	Delamination - 3 SF
6	Map cracking - 2 SF



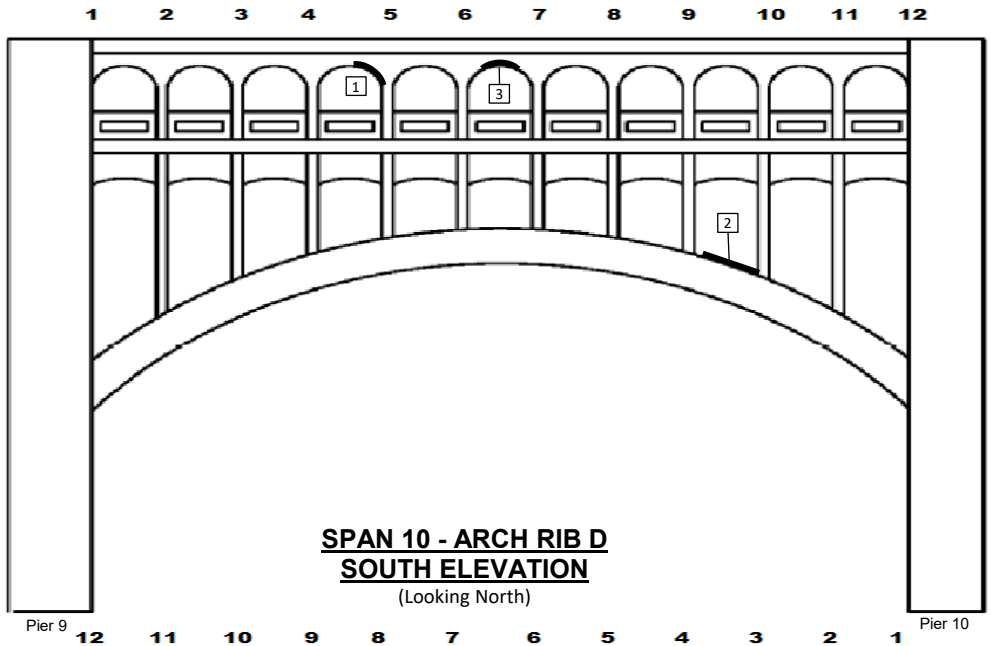
SPAN 10 - ARCH RIB C
SOUTH ELEVATION
(Looking North)

SPAN 10 - ARCH RIB C SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 3 SF
2	Delamination w/ Spall w/ exp. Reinf. - 6 SF
3	Delamination - 1 SF
4	Delamination - 2 SF
5	Delamination - 1 SF
6	Delamination - 3 SF



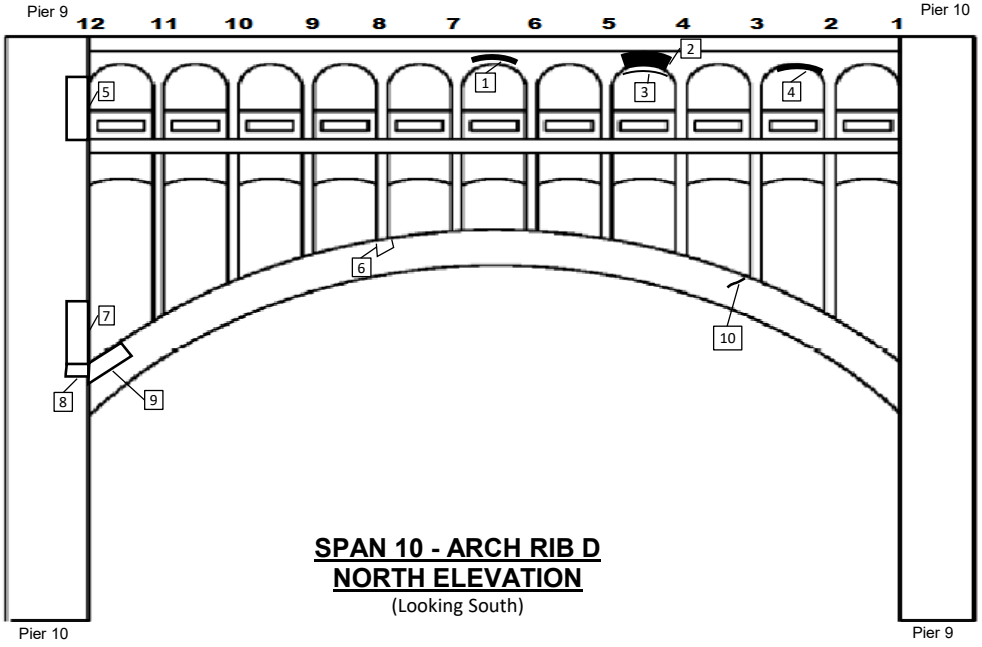
SPAN 10 - ARCH RIB C
NORTH ELEVATION
(Looking South)

SPAN 10 - ARCH RIB C NORTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 1 SF
2	Spall w/ exp. Reinf. - 3 SF
3	Delamination - 2 SF



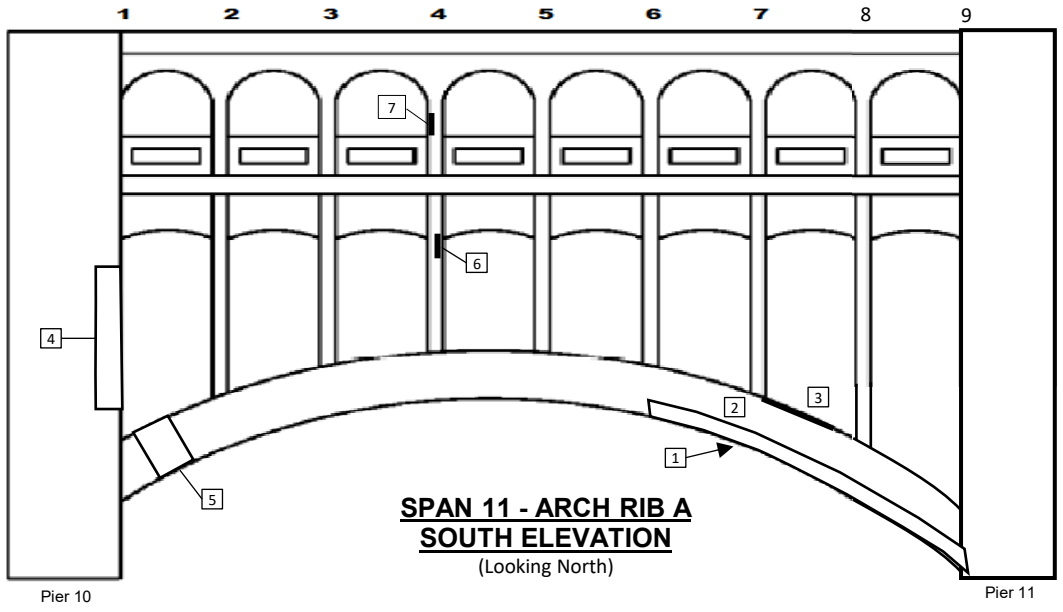
SPAN 10 - ARCH RIB D SOUTH ELEVATION
(Looking North)

SPAN 10 - ARCH RIB D SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 6 SF
2	Delamination - 4' L x 3' W
3	Delamination - 6 SF



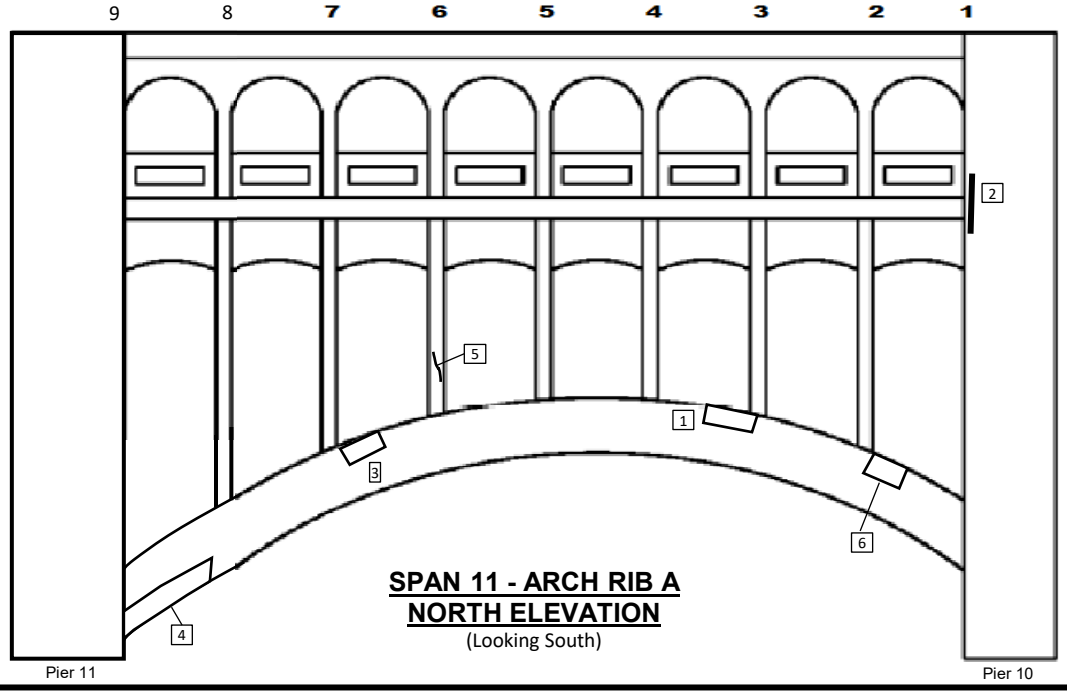
SPAN 10 - ARCH RIB D NORTH ELEVATION
(Looking South)

SPAN 10 - ARCH RIB D NORTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 5 SF
2	Delamination - 24 SF
3	Delamination - 18 SF
4	Delamination - 3 SF
5	Delamination (On tower behind drain pipe) - 45 SF
6	Delamination - 1.5' L x 6" W
7	Delamination - 1 SF
8	Spall - 1 SF
9	Map cracking - 10 SF
10	Crack - 1 LF



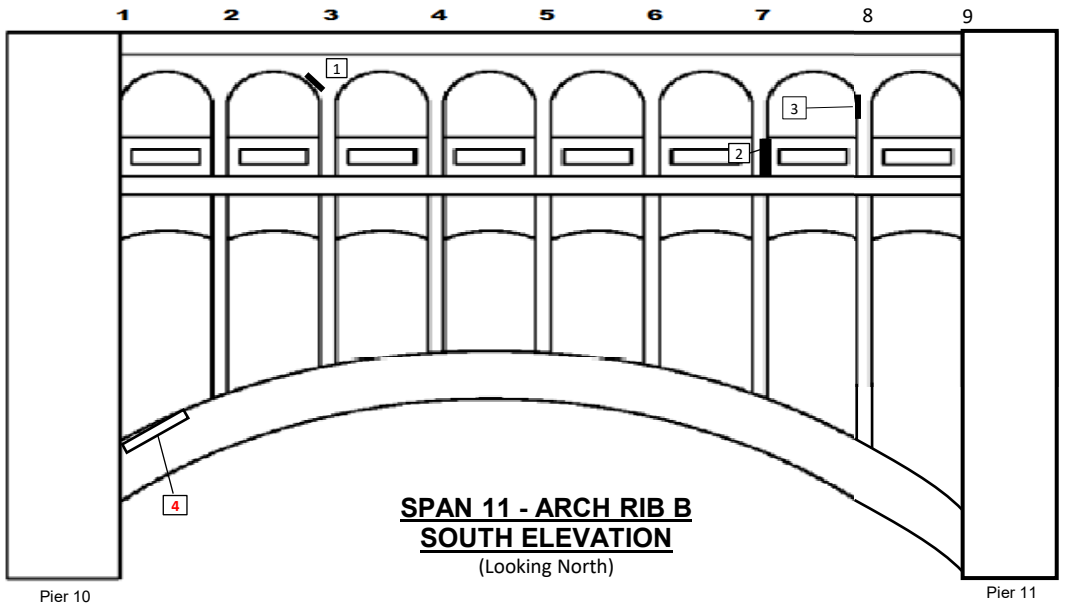
SPAN 11 - ARCH RIB A SOUTH ELEVATION
(Looking North)

SPAN 11 - ARCH RIB A SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Crack on south face extending from pier 11 to column 5
2	Delamination with cracking - 60 SF
3	Delamination - 6' L x 1' W
4	Delamination - 6' L x 2' W
5	Map cracking - 16 SF
6	Spall - 6" L x 3" W
7	Spall w/ exp. Reinf. - 1 SF

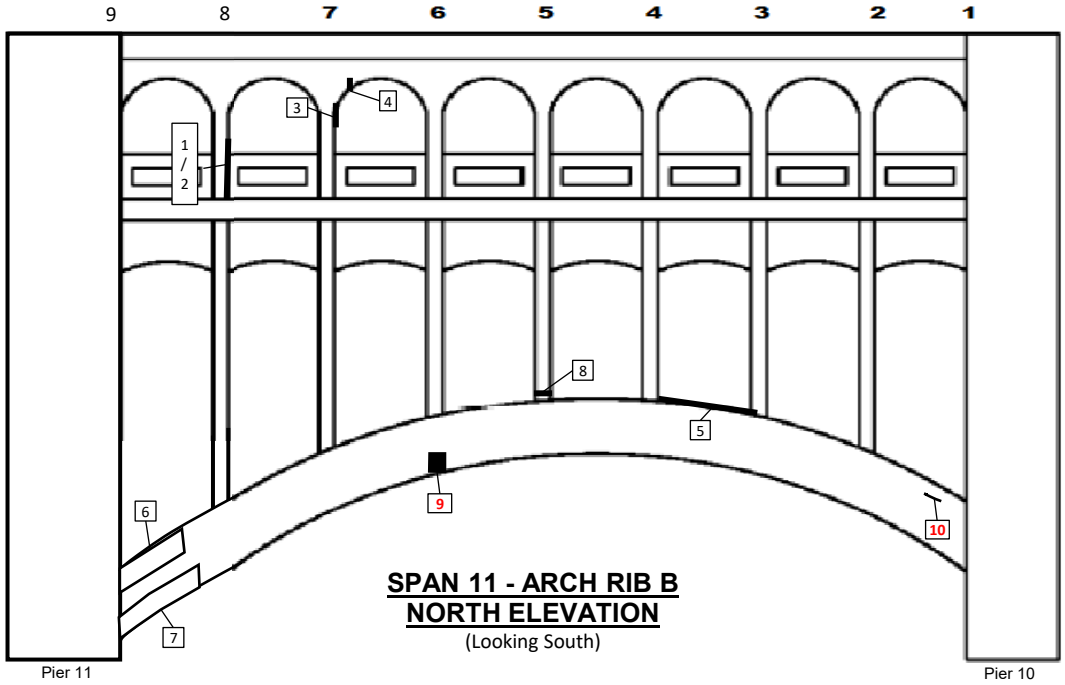


SPAN 11 - ARCH RIB A NORTH ELEVATION
(Looking South)

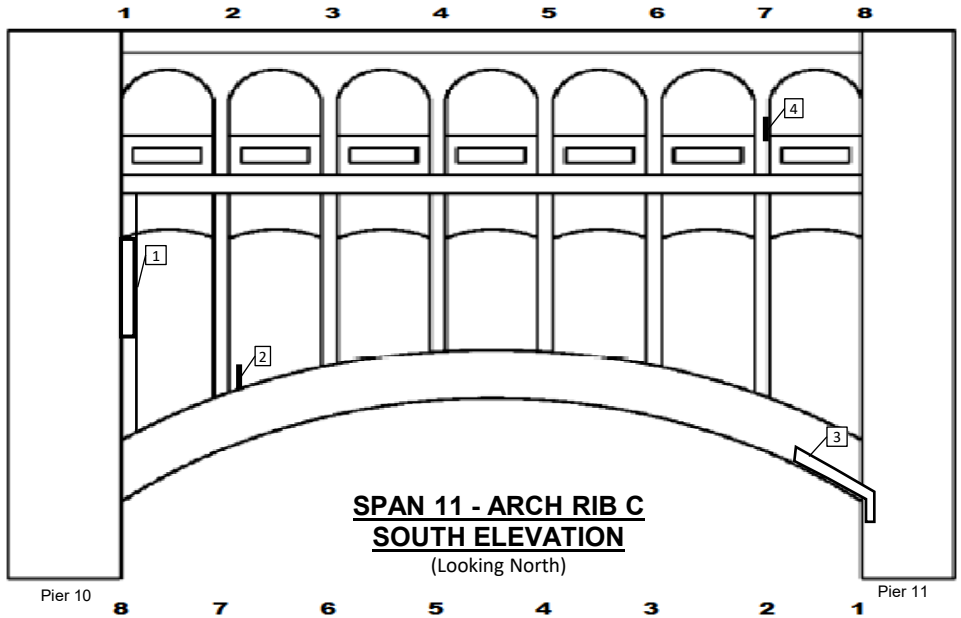
SPAN 11 - ARCH RIB A NORTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 6' L x 1' W
2	Delamination - 8' L x 1.5' W
3	Delamination - 3' L x 6" H
4	Map cracking - 8' L x 1.5' H
5	Crack - 2 LF
6	Map cracking - 3' L x 2' H



SPAN 11 - ARCH RIB B SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 1 SF
2	Spall w/ exp. Reinf., 3" D - 1 SF
3	Delamination - 1 SF
4	**Map Cracking - 5 SF**

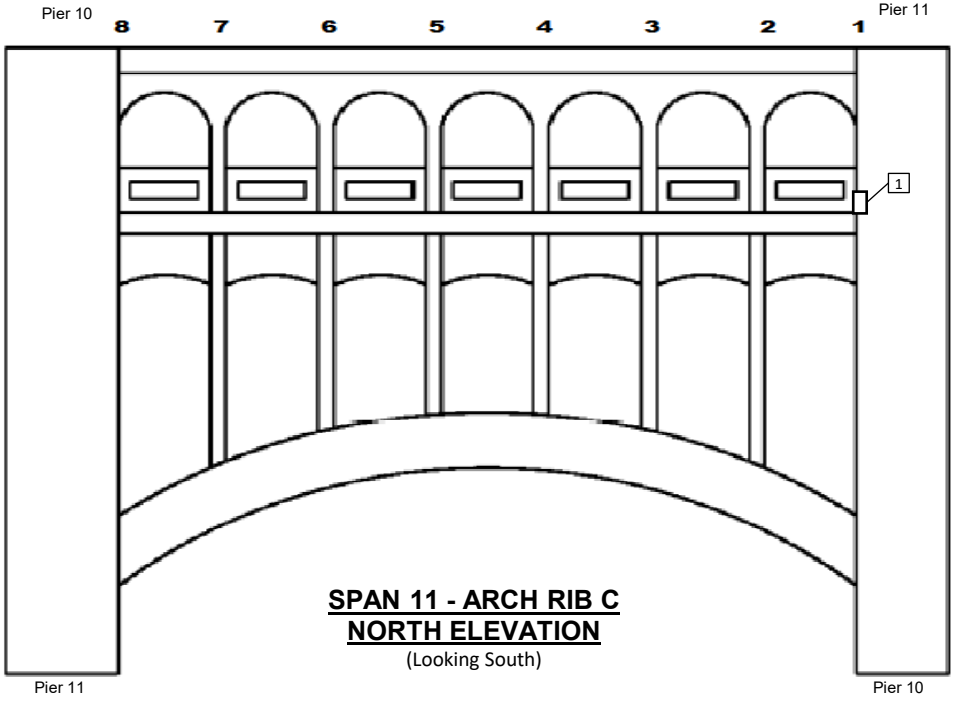


SPAN 11 - ARCH RIB B NORTH ELEVATION DEFICIENCIES	
#	Defect
1	Spall w/ exp Reinf., 3" D - 1 SF
2	Delamination - 35 SF
3	Delamination - 3 SF
4	Delam. w/ Spall w/ exp. Reinf., 3" D - 3 SF
5	Delamination - 6' L x 1' W
6	Delamination - 4' L x 1' W
7	Delamination - 6' L x 1' W
8	Crack - 2 LF
9	**Spall - 1 SF**
10	**Crack - 1 LF**



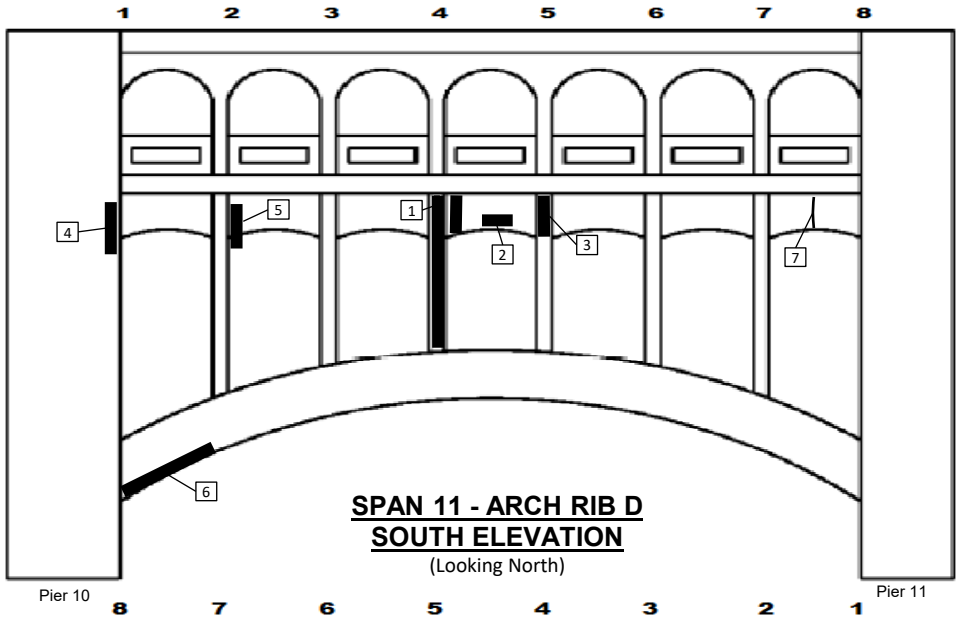
SPAN 11 - ARCH RIB C SOUTH ELEVATION
(Looking North)

SPAN 11 - ARCH RIB C SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 8 SF
2	Delamination - 1 SF
3	Delam. w/ rust staining - 6' L x 1' W
4	Delamination - 1 SF



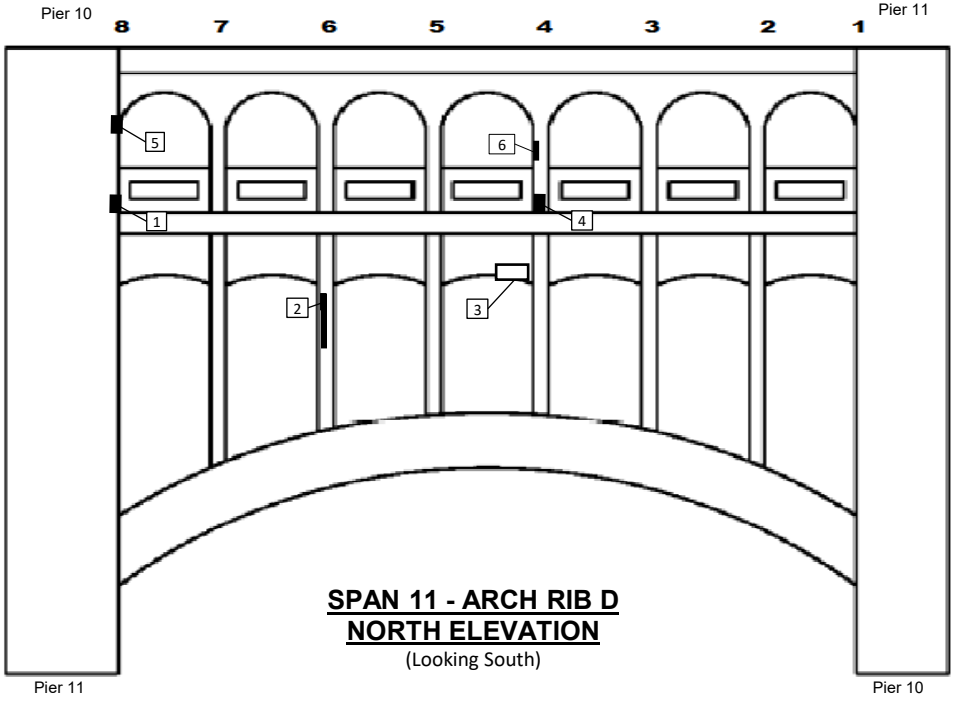
SPAN 11 - ARCH RIB C NORTH ELEVATION
(Looking South)

SPAN 11 - ARCH RIB C NORTH ELEVATION DEFICIENCIES	
#	Defect
1	Incomplete repair location (no reinf. exp.) - 1 SF



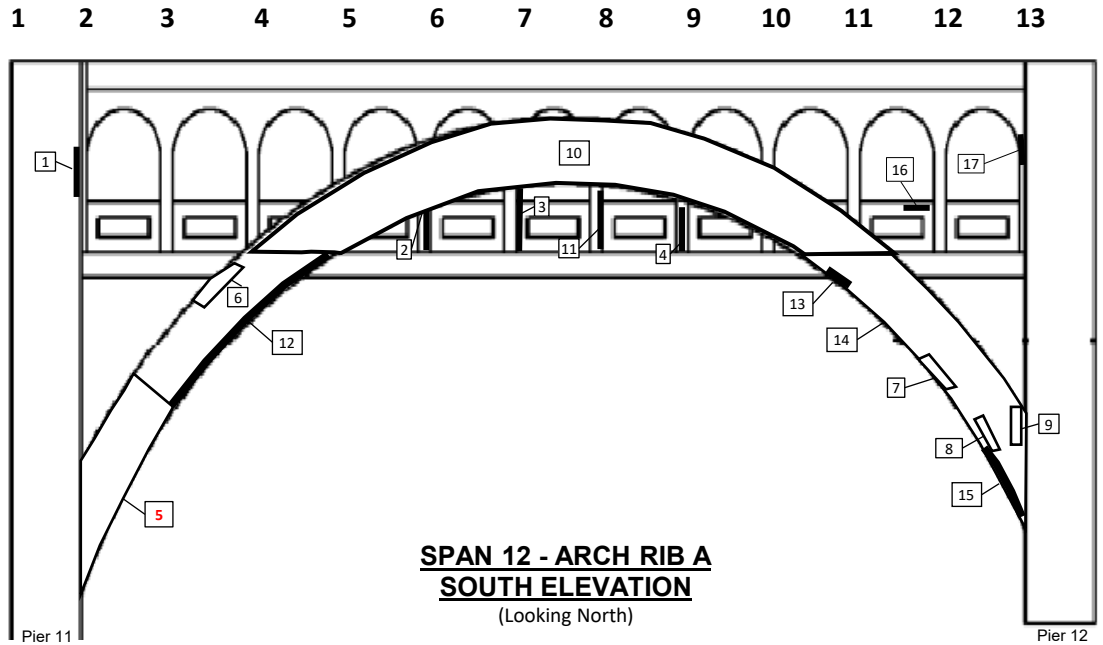
SPAN 11 - ARCH RIB D SOUTH ELEVATION
(Looking North)

SPAN 11 - ARCH RIB D SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Spall w/ exp. Reinf., 6" D - 1.5' W x Full H
2	**Spall w/ exp. Reinf.** - 2 SF
3	Delamination - 2 SF
4	Spall - 1 SF
5	Delamination - 1 SF
6	Map cracking - 10 SF
7	Crack - 3 LF

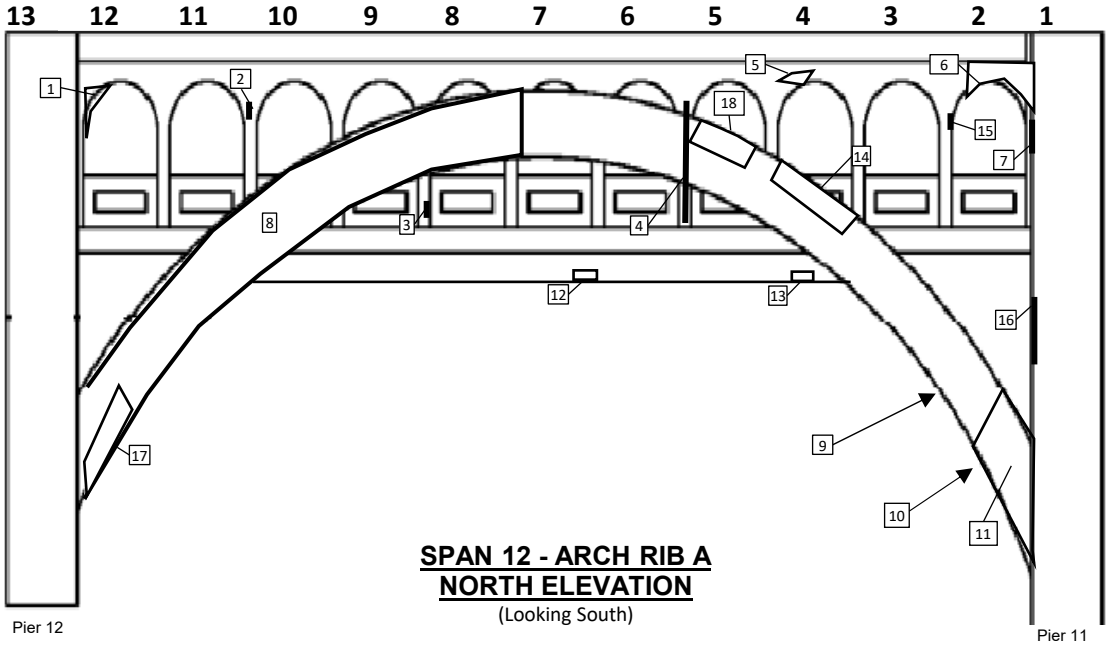


SPAN 11 - ARCH RIB D NORTH ELEVATION
(Looking South)

SPAN 11 - ARCH RIB D NORTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 2 SF
2	Delamination - 2 SF
3	Delamination - 4 SF
4	Delamination - 2 SF
5	Spall **(corbel)** - 2 SF
6	Spall w/ exp. Reinf. - 1 SF



SPAN 12 - ARCH RIB A SOUTH ELEVATION
(Looking North)

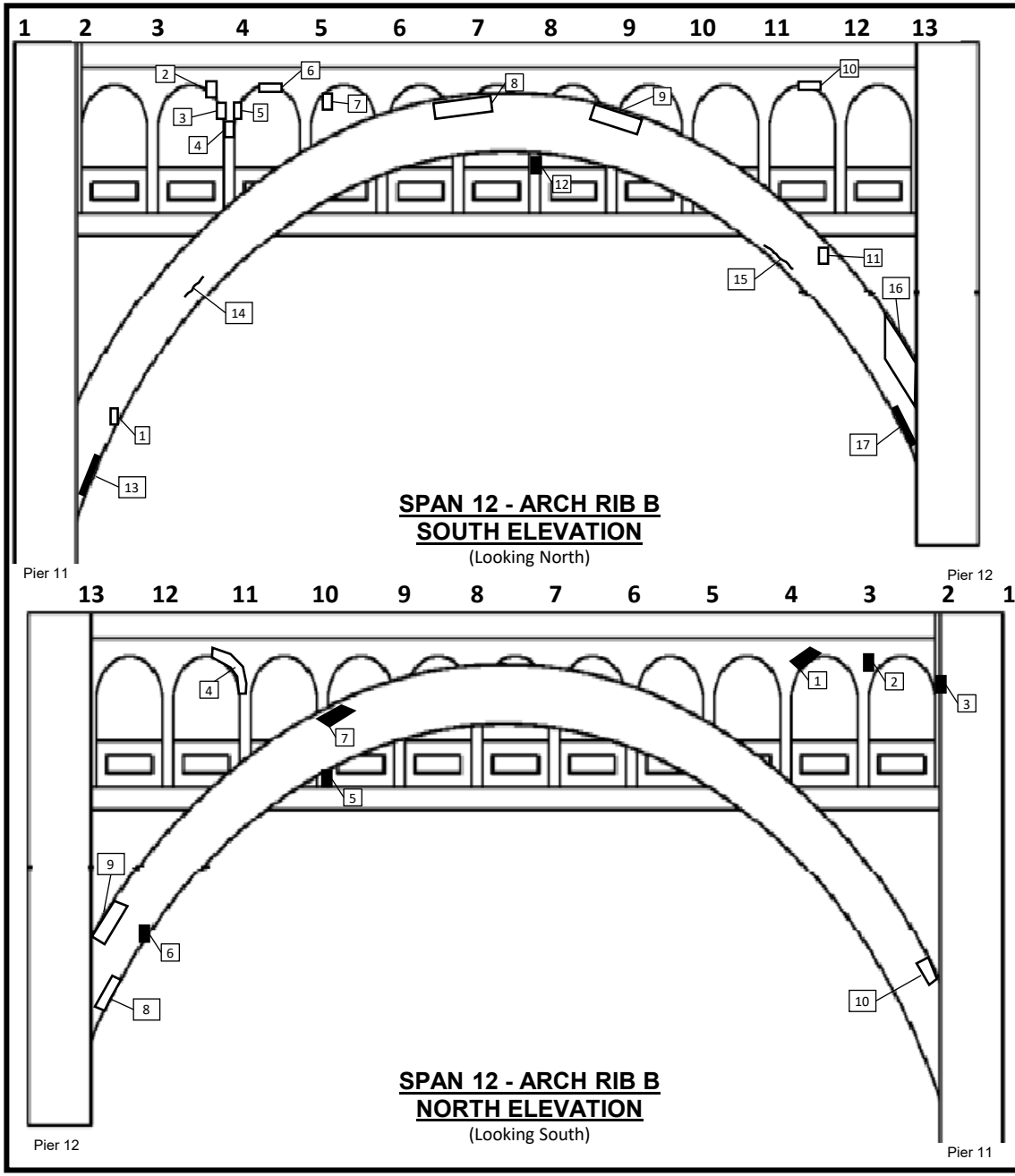


SPAN 12 - ARCH RIB A NORTH ELEVATION
(Looking South)

Note: All concrete encased steel hangers sound delaminted due to only 4"± cover between steel hanger and outside face of concrete.

SPAN 12 - RIB A SOUTH ELEVATION DEFICIENCIES			
#	Defect	#	Defect
1	Spall w/ exp. Reinf., 4" D - 3 SF	10	S. face of arch delam. (90%) w/ widespread cracking near the bases. 1/2" W crack in delam. surface.
2	Delam. w/ 1/8" W Crack - 12 SF		
3	Delam. w/ 1/2" W Crack - 15 SF		
4	Delamination - 8 SF	11	Delamination - 12 SF
5	Delamination - 56 SF	12	Map cracking - 120 SF
6	Delamination - 6' L x 1' W	13	Incomplete Sawcut Repair (I.S.R.) Location - 4 SF
7	Delamination - 2' L x 1' W		
8	Delamination - 3' L x 1' W	14	Map cracking - 80 SF
9	Delamination - 1' L x 1' W	15	Map cracking - 48 SF
		16	Spall w/ exp. Reinf. - 2 SF
		17	Spall w/ exp. Reinf. - 8 SF

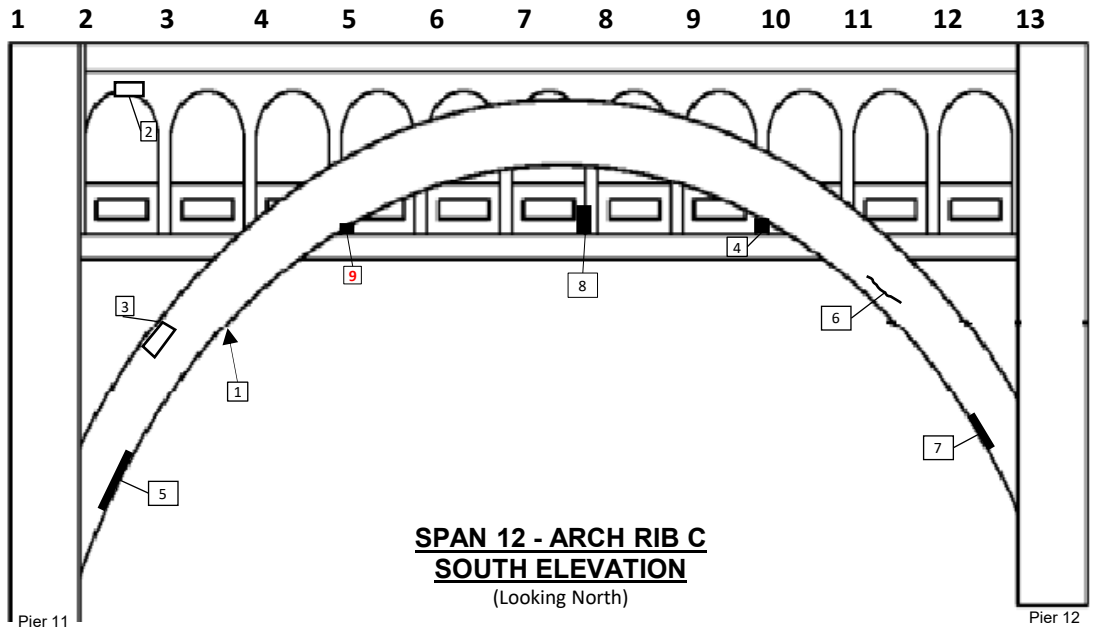
SPAN 12 - RIB A NORTH ELEVATION DEFICIENCIES			
#	Defect	#	Defect
1	Spall w/ exp. Reinf., 6" D - 12 SF	12	Spall - 1 SF
2	Spall w/ exp. Reinf., 2" D - 1 SF	13	Spall - 1 SF
3	Spall w/ exp. Reinf., 2" D - 1 SF	14	Delamination - 15 SF (8 LF)
4	Delamination - 8 SF	15	Spall w/ exp. Reinf. - 1 SF
5	Spall w/ exp. Reinf., 2" D - 1 SF	16	Delam. w/ Spall w/ exp. Reinf. (on pier) - 4 SF
6	Entire face of arch is spalling and delaminated, up to 3" D	17	Spall, 1" D - 3' L x 1' W
7	Spall, 4" D (on pier) - 8 SF	18	Delamination - 8 SF
8	Delam. w/ map cracking & poor patching - 120 SF (40 LF)		
9	Delam. (U.o.A) - 5' L x 1' W		
10	Delam. (U.o.A) - 18' L x 1' W		
11	Delam. w/ Spall - 18 LF		



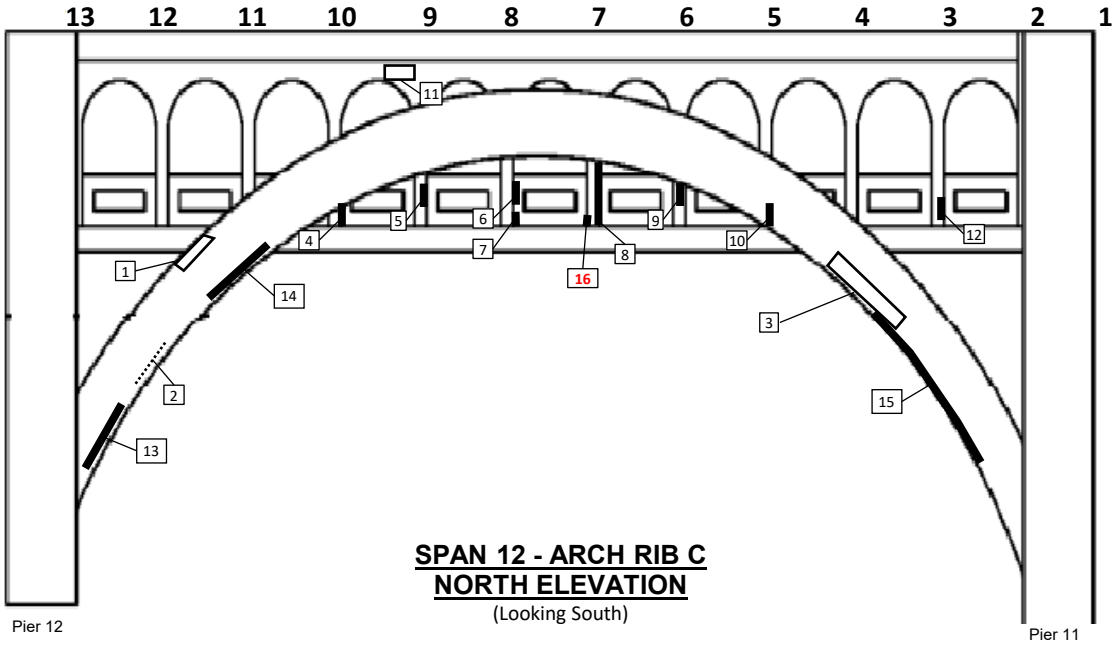
Note: All concrete encased steel hangers sound delaminted due to only 4"± cover between steel hanger and outside face of concrete.

SPAN 12 - ARCH RIB B SOUTH ELEVATION DEFICIENCIES			
#	Defect	#	Defect
1	Delam. - 1' L x 1' W	9	I.S.R. - 3 SF
2	Incomplete Sawcut Repair (I.S.R.) Location - 1 SF	10	I.S.R. - 4 SF
		11	Delamination - 1 SF
3	I.S.R. - 1 SF	12	Delamination - 6 SF
4	I.S.R. - 1 SF	13	Map cracking - 4 SF
5	I.S.R. - 1 SF	14	Crack - 1 LF
6	I.S.R. - 1 SF	15	Crack - 3 LF
7	I.S.R. - 1 SF	16	Map cracking - 12 SF
8	I.S.R. - 4 SF	17	Map cracking - 4 SF

SPAN 12 - ARCH RIB B NORTH ELEVATION DEFICIENCIES			
#	Defect	#	Defect
1	Delamination - 2 SF	5	Delamination - 9 SF
2	Delamination - 1 SF	6	Delamination - 6 SF
3	Delamination - 1 SF	7	Delam. - 2 SF (4 LF)
4	Delamination - 1 SF	8	Map cracking - 4 SF
		9	Map cracking - 8 SF
		10	Map cracking - 2 SF



SPAN 12 - ARCH RIB C
SOUTH ELEVATION
(Looking North)

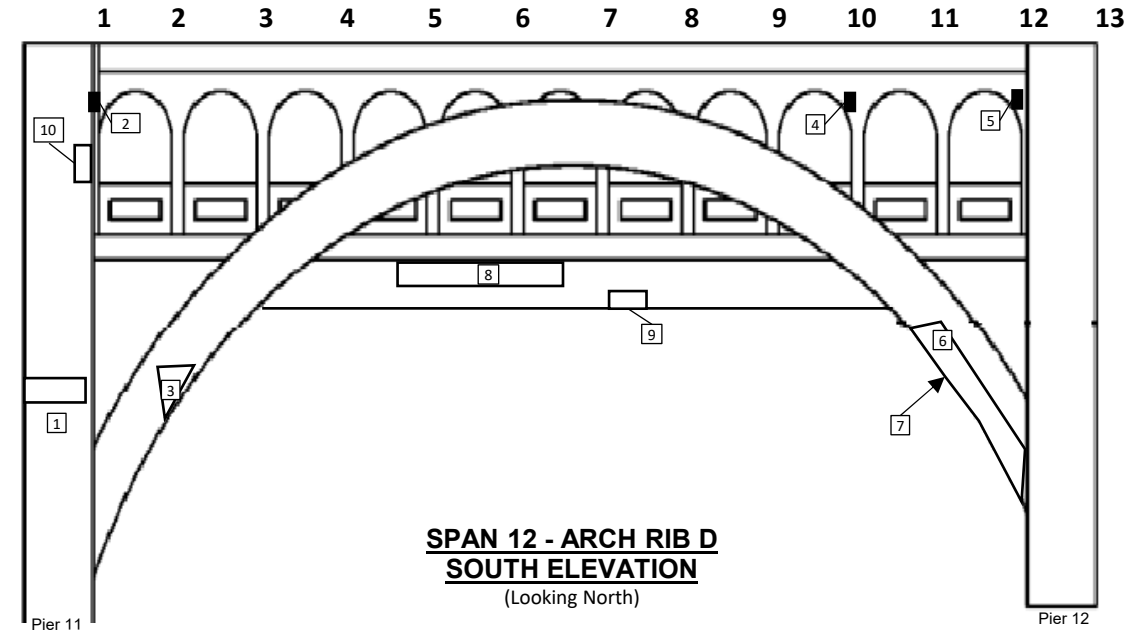


SPAN 12 - ARCH RIB C
NORTH ELEVATION
(Looking South)

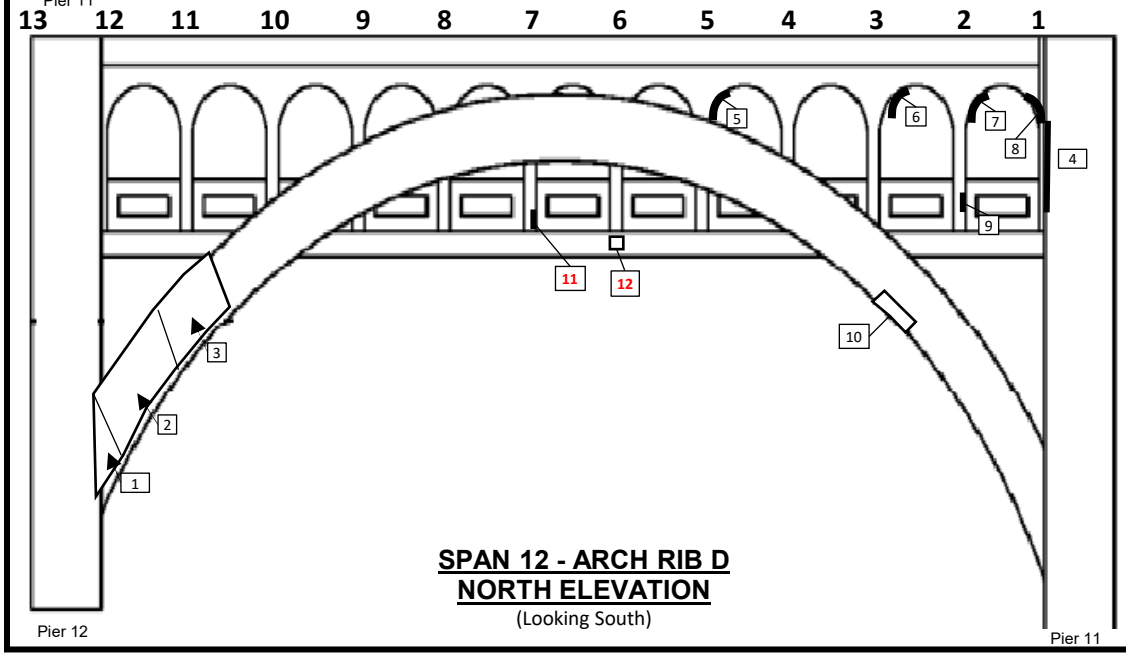
Note: All concrete encased steel hangers sound delaminted due to only 4"± cover between steel hanger and outside face of concrete. Map cracking typical.

SPAN 12 - ARCH RIB C SOUTH ELEVATION DEFICIENCIES			
#	Defect	#	Defect
1	Delam. (underside) - 5 SF	5	Crack - 5 LF
2	Incomplete Sawcut Repair Location (I.S.R.) w/ exp. Reinf. - 3 SF	6	Map cracking - 5 SF
		7	Map cracking - 2 SF
		8	Spall w/ exp. Reinf. - 3 SF
3	Delamination - 2 SF		
4	I.S.R. w/ exp. Reinf. (entire face is exposed) - **10** SF	**9**	**Spall w/ exp. Reinf. - 1 SF**

SPAN 12 - ARCH RIB C NORTH ELEVATION DEFICIENCIES			
#	Defect	#	Defect
1	Delamination - 2 SF	7	I.S.R. w/ exp. Reinf. - **3** SF
2	1/16" Crack w/ Delam. - 5 LF	8	Delamination - 10 SF
3	Delaminations - 5' L x 1' W & 1' L x 1' W	9	Delamination - 6 SF
		10	Delamination - 5 SF
4	Delamination - 8 SF	11	I.S.R. w/ exp. Reinf. - 10 SF
5	Delamination - 4 SF	12	Delamination - 1 SF
6	Delamination - 4 SF	13	Map cracking - 6 SF
		14	Map cracking - 6 SF
		15	Map cracking - 20 SF
		16	**Spall w/ exp. Reinf. - 1 SF**



SPAN 12 - ARCH RIB D
SOUTH ELEVATION
(Looking North)

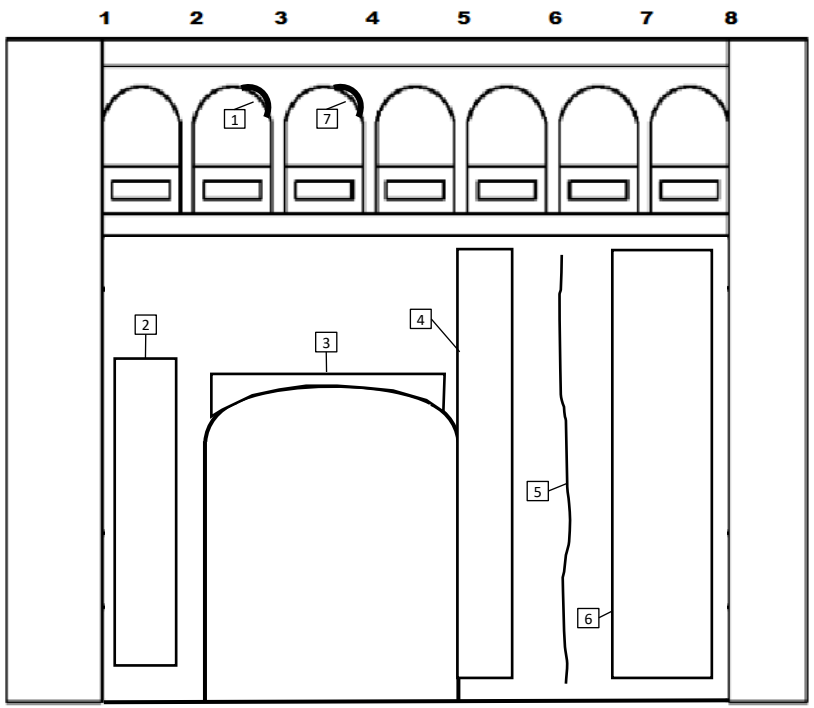


SPAN 12 - ARCH RIB D
NORTH ELEVATION
(Looking South)

Note: All concrete encased steel hangers sound delaminted due to only 4"± cover between steel hanger and outside face of concrete. Map cracking typical.

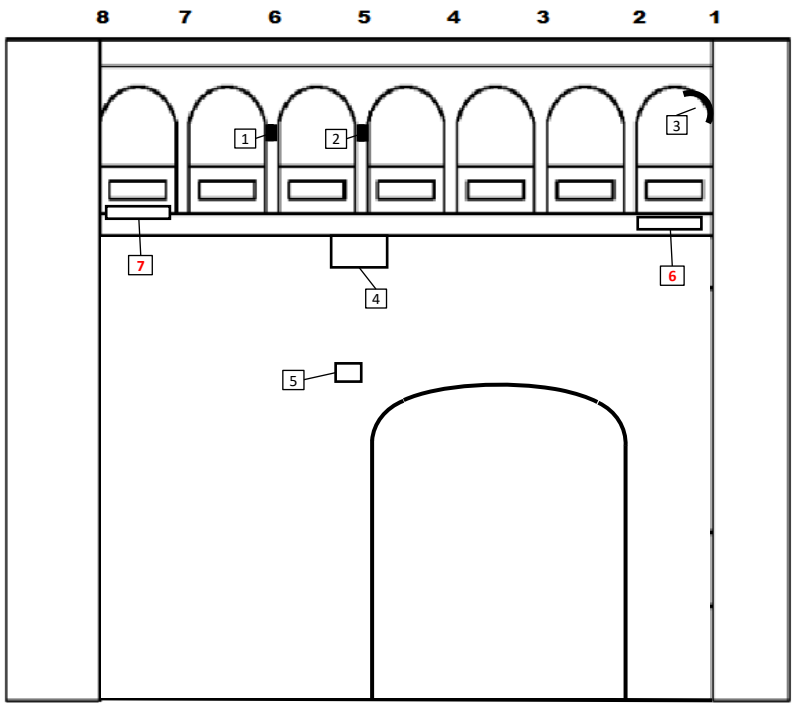
SPAN 12 - ARCH RIB D SOUTH ELEVATION DEFICIENCIES			
#	Defect	#	Defect
1	Map Cracking - 4' H x FW	7	Map Cracking (underside) - 20' L x FW
2	Delamination - 2 SF		
3	Map Cracking - 18 SF	8	Delamination - 8' L x 1' W
4	Spall w/ exp. Reinf., 1" D - 1 SF	9	Spall - 2' L x 1' H
5	Spall w/ exp. Reinf., 6" D - 1 SF	10	Map cracking - 4 SF
6	Map Cracking w/ Delamination - 29' L x 2' H		

SPAN 12 - ARCH RIB D NORTH ELEVATION DEFICIENCIES			
#	Defect	#	Defect
1	Delamination - 3' L x 1' L	5	Delamination - 3 SF
2	Map Cracking - 5' L x 4' H	6	Delamination - 1 SF
3	Delamination - 6' L x 5' H	7	Delamination - 1 SF
4	Spall w/ exp. Reinf. (On tower) - 6 SF	8	Delamination - 2 SF
		9	Spall w/ exp. Reinf. - 1 SF
		10	Map cracking - 4 SF
		11	**Delamination - 3 SF**
		12	**Spall - 3 SF**



Pier 12 — Pier 13

SPAN 13 - ARCH RIB A SOUTH ELEVATION (Looking North)

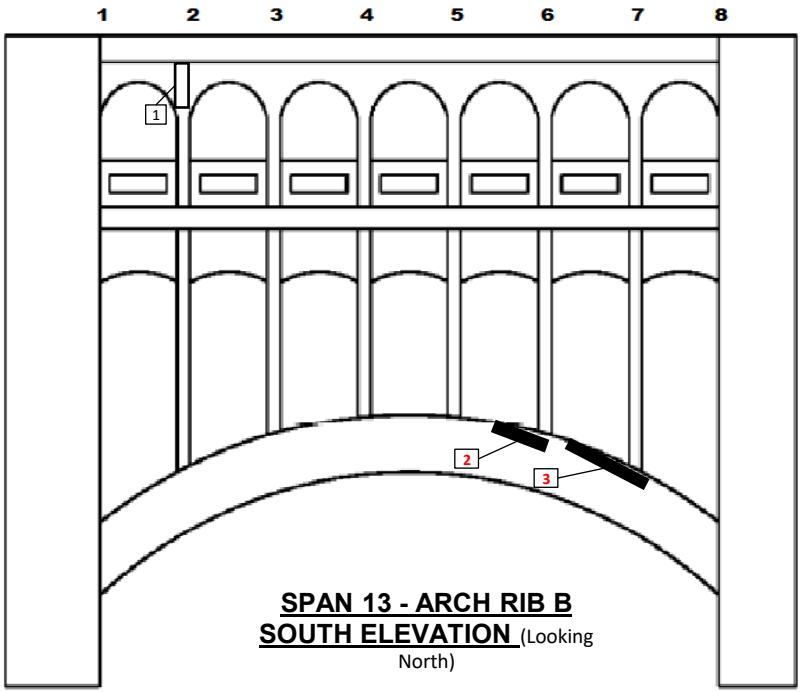


Pier 13 — Pier 12

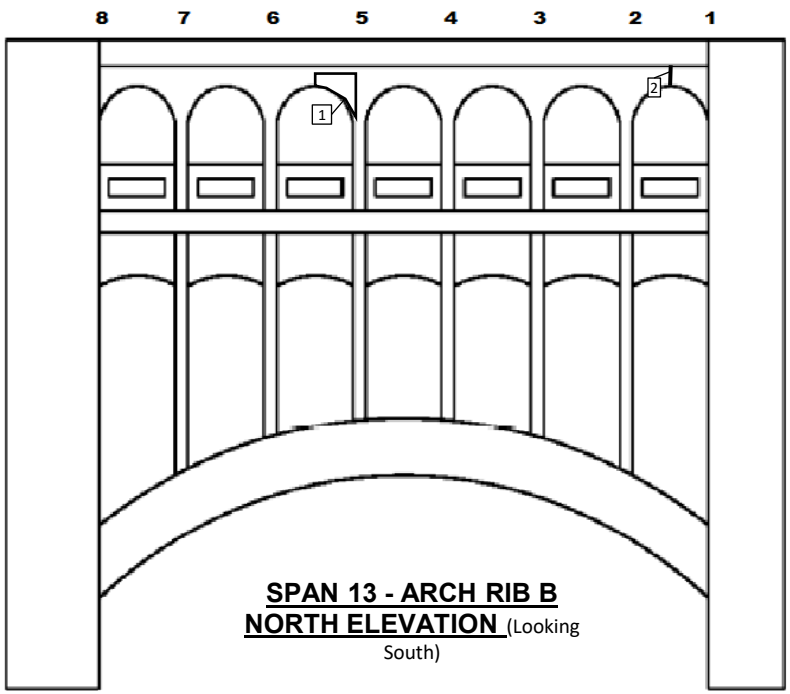
SPAN 13 - ARCH RIB A NORTH ELEVATION (Looking South)

SPAN 13 - ARCH RIB A SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 1 SF
2	Map cracking - 20 SF
3	Map cracking - 15 SF
4	Map cracking - 15 SF
5	Crack - 15 LF
6	Map cracking - 30 SF
7	Delamination - 3 SF

SPAN 13 - ARCH RIB A NORTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 2 SF
2	Delamination - 1 SF
3	Half Width 1/16" crack
4	Map cracking - 4 SF
5	Spall - 1 SF
6	**Map cracking - 10 SF**
7	**Map cracking - 10 SF**



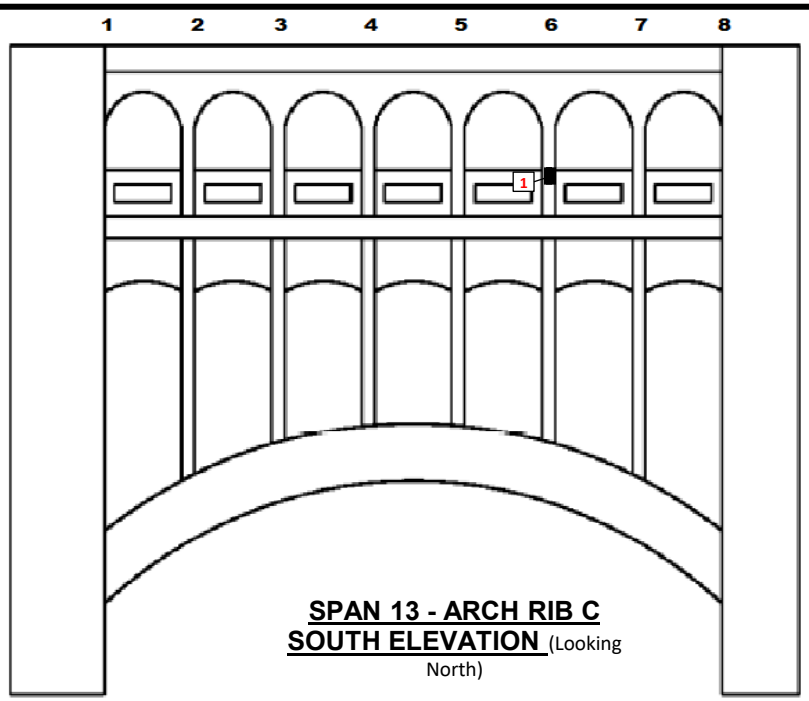
SPAN 13 - ARCH RIB B SOUTH ELEVATION (Looking North)



SPAN 13 - ARCH RIB B NORTH ELEVATION (Looking South)

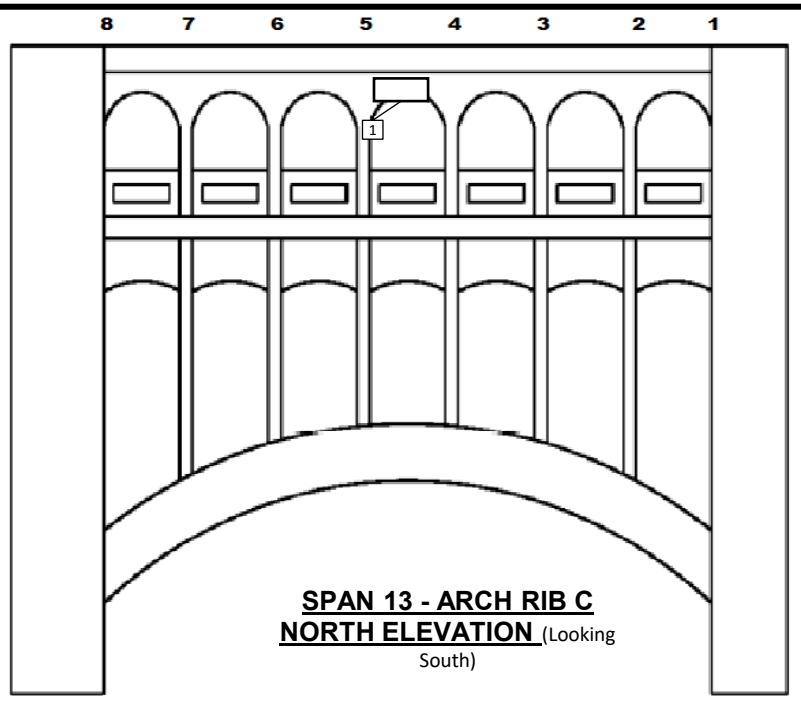
SPAN 13 - ARCH RIB B SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Incomplete Sawcut Repair Location w/ exp. Reinf. (I.S.R.) - 2 SF
2	**Spall - 3 SF**
3	**Spall - 4 SF**

SPAN 13 - ARCH RIB B NORTH ELEVATION DEFICIENCIES	
#	Defect
1	I.S.R. - 8 SF
2	Full Height 1/8" W crack



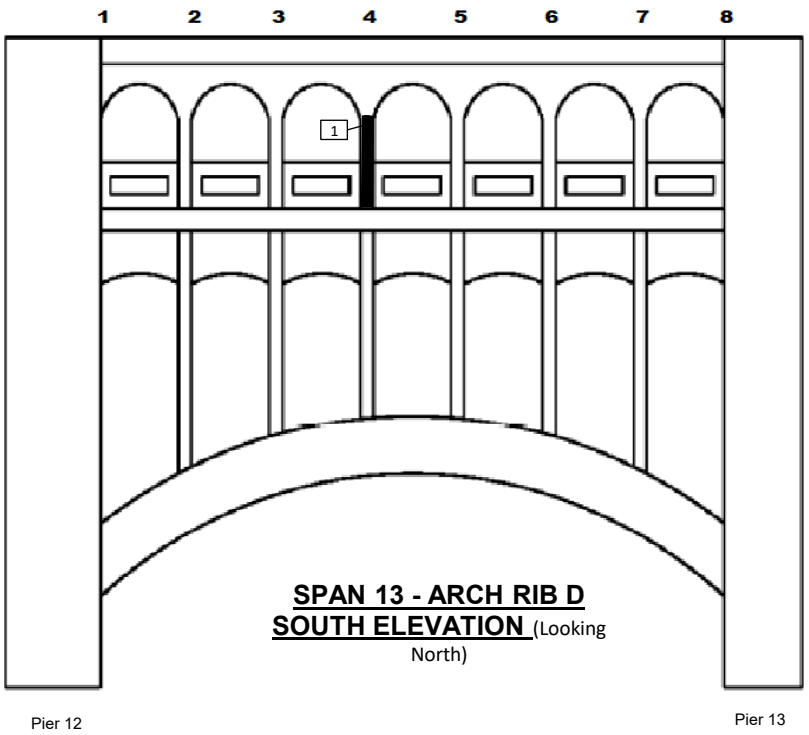
SPAN 13 - ARCH RIB C SOUTH ELEVATION (Looking North)

SPAN 13 - ARCH RIB C SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Spall, 1" D - 1 SF

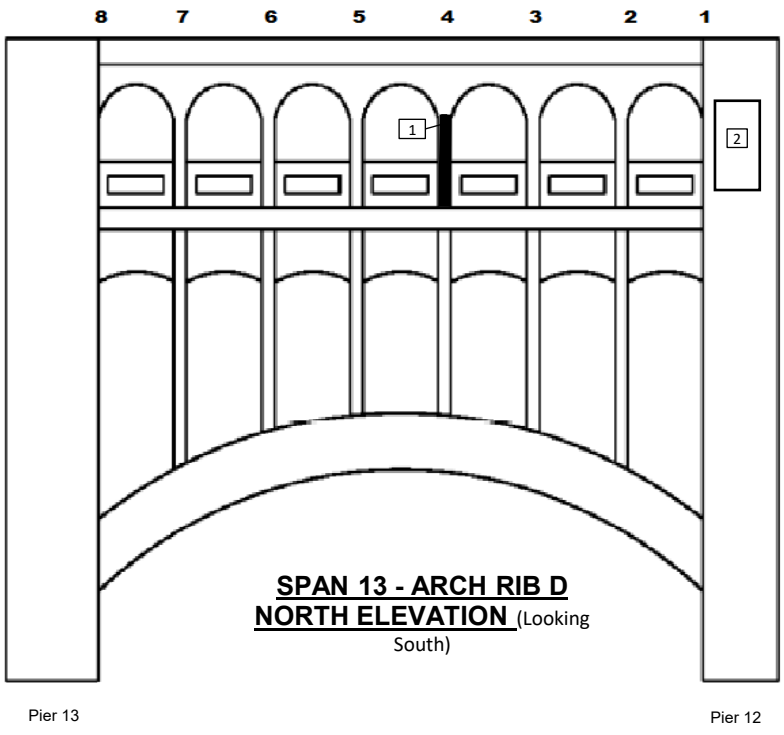


SPAN 13 - ARCH RIB C NORTH ELEVATION (Looking South)

SPAN 13 - ARCH RIB C NORTH ELEVATION DEFICIENCIES	
#	Defect
1	Incomplete Sawcut Repair Location w/ exp. Reinf. (I.S.R.) - 4 SF



SPAN 13 - ARCH RIB D SOUTH ELEVATION (Looking North)



SPAN 13 - ARCH RIB D NORTH ELEVATION (Looking South)

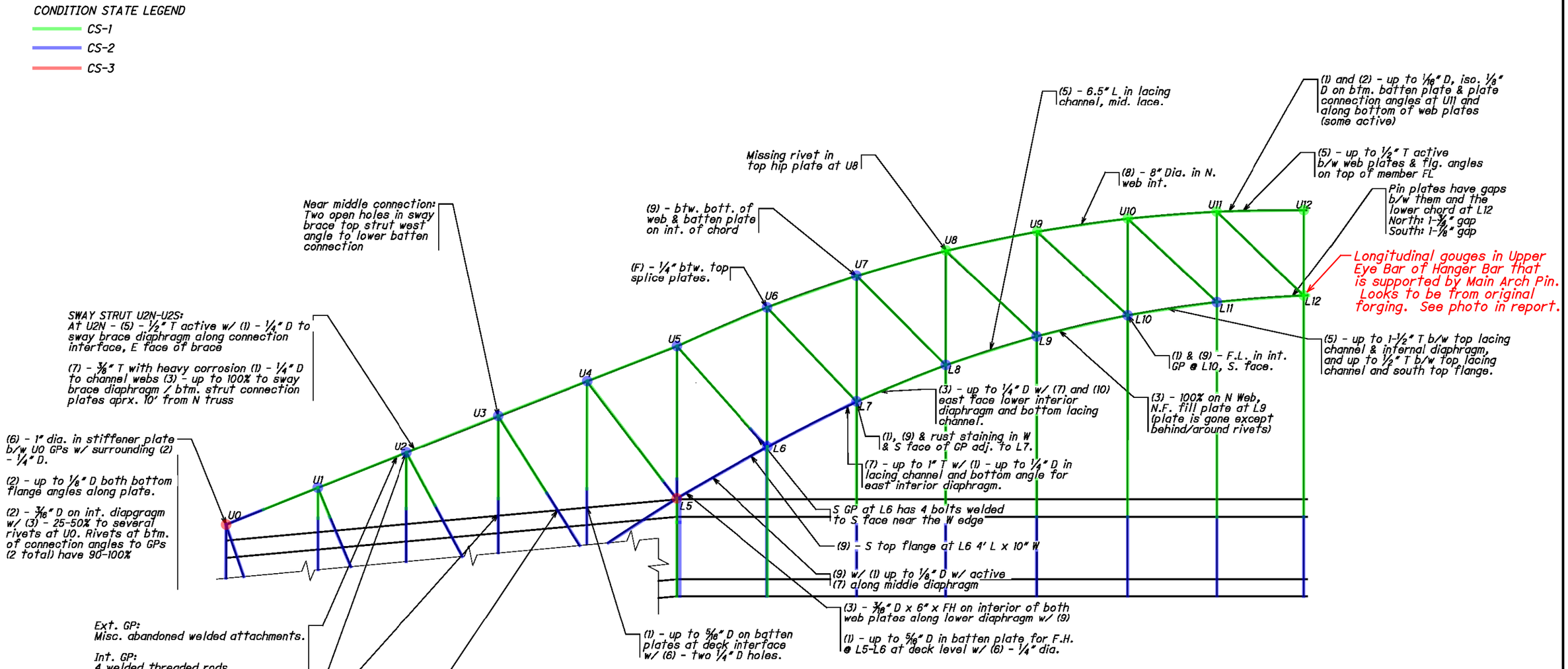
SPAN 13 - ARCH RIB D SOUTH ELEVATION DEFICIENCIES	
#	Defect
1	Delamination - 12 SF

SPAN 13 - ARCH RIB D NORTH ELEVATION DEFICIENCIES	
#	Defect
1	Spall w/ exp. Reinf., 2.5" D - 8 SF
2	Delamination w/ up to 1/8" crack near column 1 (In tower) - 45 SF

J:\ODOT\109534_VAR-DI2 Inspections\Inspection\CUY-6-14.56_Detroit Superior_18009301\2022 Report\CADD\Span 4 - 2022.dgn Span 4 North Truss - West End - Above Deck 1/11/2023 12:46:31 PM adam-l

CONDITION STATE LEGEND

- CS-1
- CS-2
- CS-3



NORTH TRUSS ELEVATION

(ABOVE DECK)

TYPICAL NOTES

(A) - Bottom sway strut angles and connection plates typ. have areas of paint failure with (9). Worst for typ. 6' - 8' L near middle of strut.

(B) - Small areas of (9) and paint failure typ. on truss.

(C) - Typ. (9) with (7) and (1) - up to 1/4" D at bottom bracing channel and bottom angle for interior diaphragm at L.C. interior diaphragms.

(D) - (5) - 1" T b/w top channel lacing and middle interior diaphragm.

(E) - Isolated lacing channels have minor impact deformations in their flanges.

(F) - Isolated active (5) - up to 3/8" b/w sway bracing components and/or connections.

(G) - (9) around base of hangar block pass thru in deck.

1 - Pitting
2 - Painted Over Pitting
3 - Section Loss
4 - Painted Over Section Loss
5 - Pack Rust
6 - Corrosion Hole / Perforation
7 - Laminar Corrosion
8 - Surface Corrosion
9 - Active Corrosion
10 - Standing Water

NOT TO SCALE	E.L. ROBINSON ENGINEERING 1468 West 9th St. Suite 800 Cleveland, Ohio 950 Goodale Blvd. Suite 180 Grandview Heights, Ohio	DETROIT-SUPERIOR BRIDGE CUY-6-14.56
2024 INSPECTION		SPAN 4 NORTH TRUSS ELEVATION — 1/8

J:\ODOT\109534_VAR-D12 Inspections\Inspection\CUY-6-14.56_Detroit Superior_I80093O\2022 Report\CADD\Span 4 - 2022.dgn Span 4 North Truss - West End - Below Deck 1/11/2023 12:46:31 PM adam-l

CONDITION STATE LEGEND

- CS-1
- CS-2
- CS-3

(1) - Both btm. web plates up to 4" L x FH x 1/4" D at lower int. diaphragm & up to 6" L x 1/4" D along middle int. diaphragm.

(5) - active up to 3/8" T b/w L.C. top flg. angles & lacing channels at several locations w/ iso. (6) up to 1½" dia. in vert. legs of lacing.

(7) - active along FH of vert at lacing bar connections, lower deck and lower strut connection w/ (5) up to 3/4" T & iso. (1) - 1/16" D

(1) - 1/4" D on webs & diaphragm & (6) 2" dia. on lower int. diaphragm

(9) - reactivating over a 20' L along lacing bars webs due to leaking joint w/ (1) moderate to lacing bars w/ (6) - 2" dia. on E face of lacing bar and (5) - up to ½" T active b/w lacing bars & flg. angles

(6) - W face of batten plate has four up to 1-½" dia.

(8) - moderate on vert t/o from leaking deck joint above.

(1) - int. face web plates have up to 1/16" D

(3) - multiple rivet heads exhibit 25-50% w/ isolated 75% at lower chord.

(3) - Two rivet heads at SW interior connection angle at L0 exhibit 100% and another has 90%.

Moderate vegetation on vert. & pier for lower 20'.

W face batten plate has four (6) - up to 1-½" dia.

Sway bracing has 2 disconnected lacing on U.S. diag. strut (misdrilled holes).

SWAY STRUT L1N-L1S: (6) - btm. W angle leg at L1N has 12" L x 4" H hole at bottom chord bracing connection to truss

(1) - 1/4" D on middle int. diaphragm

(1) w/ (9) - 1/4" D x 4" L on int. faces of both web plates along middle int. diaphragm over FH

L0 N GP:
(7) - up to 2" H x ½" T along LC on N face w/ (3) - up to 1/16" D.

L0 S GP:
(1) w/ 9) - up to 5" H x 1/4" D w/ isolated up to 5/16" D along the LC on S face.

(3) w/ (7) - 1/16" to 1/8" D on interior faces of both GPs along the vertical and LC interfaces.

L0 BEARING:

N face of pin end cover completely broken off & laying on BRG casting below. Exposed pin end exhibts (7/8).

(5) - active ½" T b/w pin nut & pin plate w/ (1) 1/16" D on pin plate

(9) - moderate to heavy on BRG assemby / thrust block w (1) - up to 3/16" D t/o

(3) - NE & SE anchor bolts have up to 100% to tops of bolt & nuts

(1) - up to 2" W x FH x 1/4" D on interior of both web plates along lower interior diaphragm. Lower interior diaphragm has (1) - 1/4" D and one (6) - ½" dia.

L1 N GP:

(1) & (2) - 2-½" H x 3/16" - 1/4" D on N face along LC.

(1) w/ (9) - up to 2" x 1/4" D and (7) on S face along LC.

(9) and minor (7) - up to 1" H along horizontal strut.

L1 S GP

(1) w/ (9) - 4" x 1/4" D on S face along LC w/ isolated area of 12" L x 4" W x up to 3/8" D on W side of diag.

(2) w/ (7) and (9) - 1-½" H x 1/8" D on N face along LC.

(9) and (7) - up to 1" H along horizontal strut.

(3) - W batten plate has a 18" H x FW area of 100%.

(6) - 1-½" dia. to lower lacing bar at L2

Iso. (7) w/ (1) up to 1/8" D on flg. angles along lacing.

(9) - 3" L x 1" H

(1) - 1/8" D on N web

(6) - 2" dia. in upper interior diaphragm.

(1) - up to 1/4" D at top batten plate at L3

(1) - both web plates have 1/4" D along FH of lower chord at middle int. diaphragm w/ 1/4" t/o the diapgragm

(1) w/ (9) - 1/4" D w/ a (6) 1¼" dia. on top batten plate at L2 E side.

(1) - Both web plates have 3" W x FH x 3/16" D on L.C. w/ (7) at lower interior diaphragm

L2 N GP:

(1) w/ (7) - 2' L x 3" H x 1/8" D at L.C. interface on S face & 2' L x 3" H x 3/16" on N face W end.

(1) w/ (7) - 1/8" D x 3" H both faces @ E end.

L2 S GP:

West End:
(1) w/ (7) - 30" L x 4" H x 3/8" D at L.C. interface on S face & 2' L x 3" H x 1/16" on N face. (2) - 1" H x 1/8" D with (7) on S face along horiz. strut. Original plate 3/4" T.

East End:
(1) w/ (7) - 3/16" D x 5" H on S face; 1/8" x 3" H on N face.

(5) - up to 5/16" D btw. flange & lacing.

Multiple (6) - up to 3" dia. in west and east batten plates.

Several lacing bars have (6) - up to 1" dia. and one has 100% section loss.

LC top flange splice plates have areas of (2) - up to 3/16" D.

South top flange splice plate has (1) - up to 1/4" D and 8 rivets w/ 50% - 95% rivet head loss.

L4 N GP:

(2) - 3" H x up to 3/16" D on north face along LC.
Active (1) - 2" H x 3/16" D w/ (7) on south face near east end.

L4 S GP:

(2) - 3" x 3/16" D on S face for FL & N face @ E end. Pitting on N face @ E end has reactivated w/ minor (7).

L4 Both GP:

2 plug welds near top edge btw. vert. & diag., 3 plug welds on E side of vert. (typ. both trusses)

(6) - 1" dia. at upper int. diaphragm

(8) - moderate at E end of L.C. below the deck with rust staining due to water leakage from above the deck

(5) - active 1" T on top batten plates at W & E ends b/w plates & top flg. angles. Also have areas of (1) - 5/16" D.

(6) - 15" L x 2" H area on btm. of upper int. diaphragm.

(7) w/ (6) - 2" dia. @ bot. of lower int. diaphragm.

(1) - Up to 1/8" D w/ (7) on interior faces of both web plates at lower and middle internal diaphragms.

(6) - 4" dia. on E web of vert. within confines of L.C. GPs.

L3 S GP:

(2) - 32" H x 2" W x up to 3/16" D along W edge of FB connection angle and 32" H x 6" W x 3/8" D along E edge.

(7) - active w (1) up to 5/16" D along L.C. inerface on S face of S GP at W end.

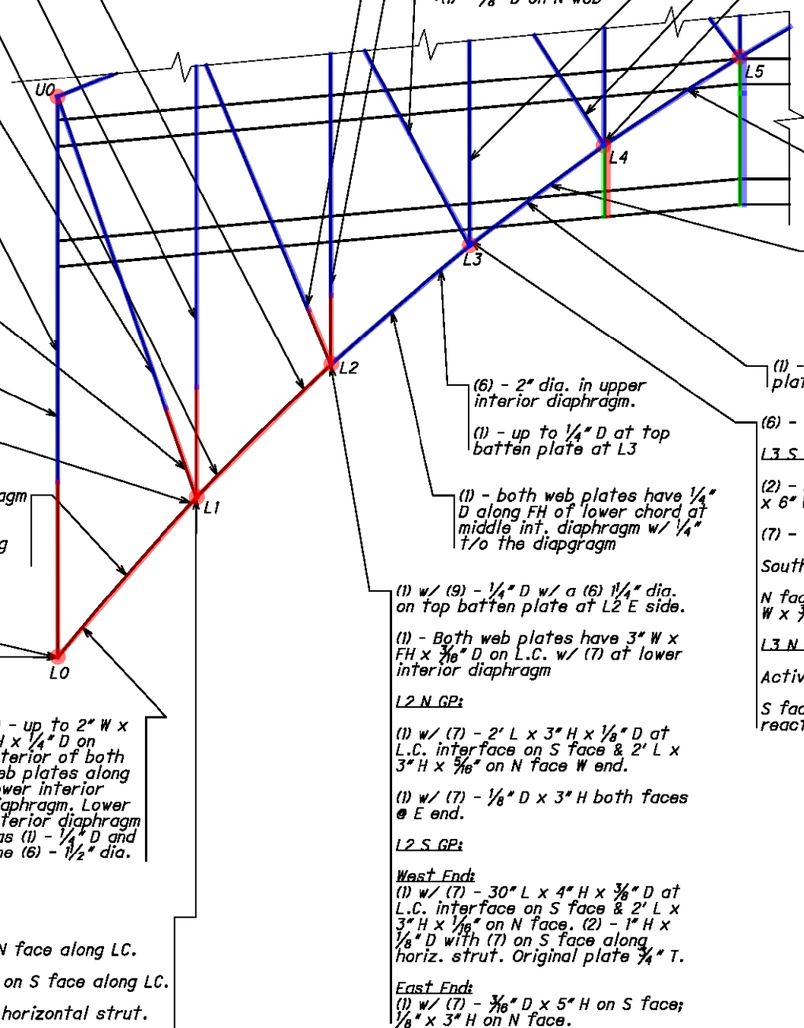
South face has (2) - up to 5/16" D x 6" H x 30" L @ E end along LC.

N face has (7) - 6" H w/ (3) - up to 1/8" D along W edge and an area 12" L x 3" W x 3/16" D of reactivated (1) w/ (7) along the east edge.

L3 N GP:

Active (1) - 2" H x up to 3/16" D w/ (7) along W side of plate on N face.

S face has (7) - 4" W w/ (3) - up to 1/8" D along W side of plate and reactivating (1) - 2" W x 12" L x 1/8" D along E side.



NORTH TRUSS ELEVATION
(BELOW DECK)

TYPICAL NOTES

(A) - Bottom sway strut angles and connection plates typ. have areas of paint failure with (9). Worst for typ. 6' - 8' L near middle of strut.

(B) - Small areas of (9) and paint failure typ. on truss.

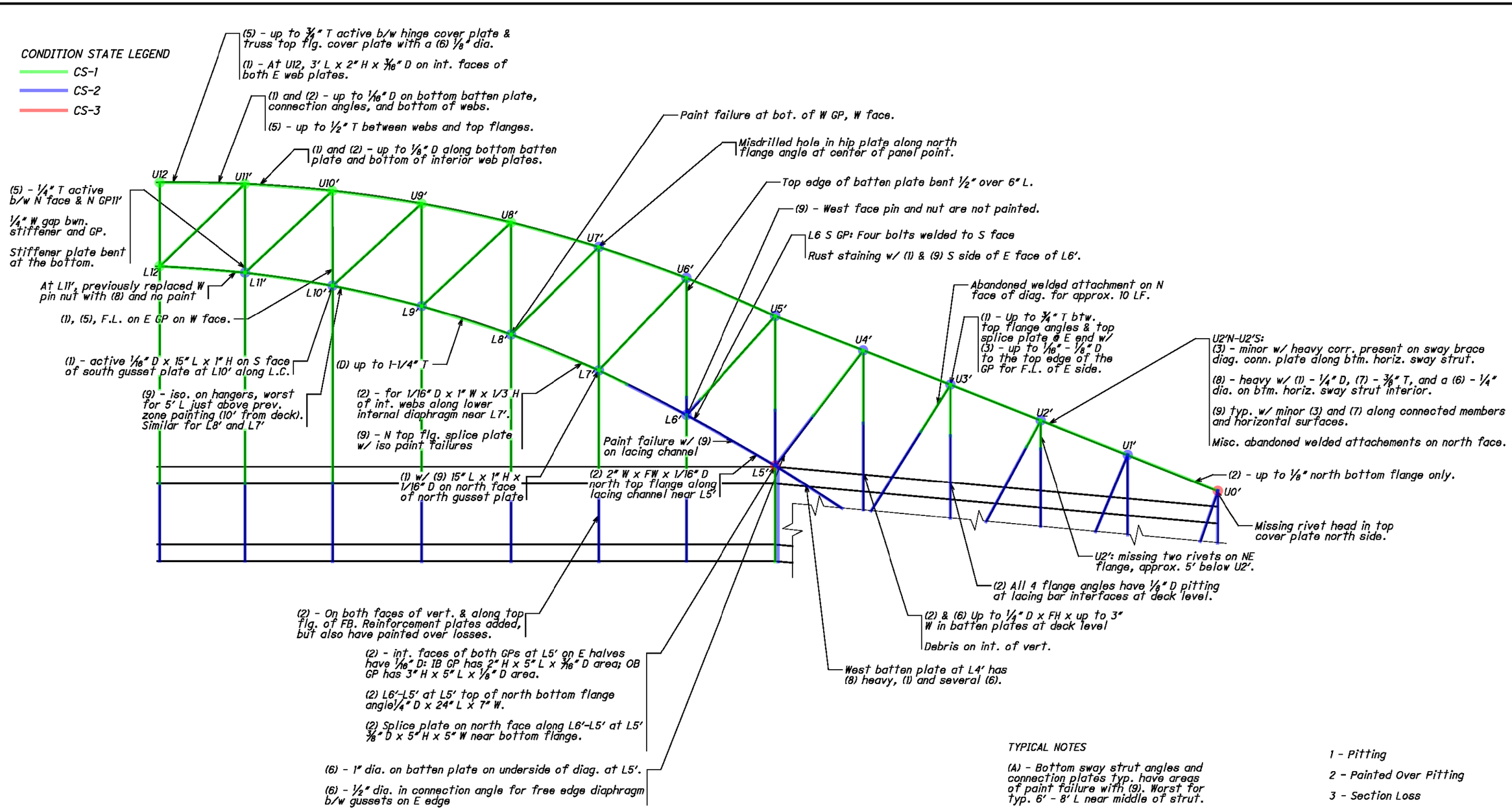
(C) - Typ. (9) with (7) and (1) - up to 1/4" D at bottom bracing channel and bottom angle for interior diaphragm at L.C. interior diaphragms.

(D) - (5) - 1" T b/w top channel lacing and middle interior diaphragm.

1 - Pitting
2 - Painted Over Pitting
3 - Section Loss
4 - Painted Over Section Loss
5 - Pack Rust
6 - Corrosion Hole / Perforation
7 - Laminar Corrosion
8 - Surface Corrosion
9 - Active Corrosion
10 - Standing Water

NOT TO SCALE	E.L. ROBINSON ENGINEERING 1468 West 9th St. Suite 800 Cleveland, Ohio 950 Goodale Blvd. Suite 180 Grandview Heights, Ohio	DETROIT-SUPERIOR BRIDGE CUY-6-14.56
2024 INSPECTION		SPAN 4 NORTH TRUSS ELEVATION — 2/8

J:\ODOT\09534_VAR-DI2 Inspections\Inspection\CUY-6-14.56_Detroit Superior_I80093O\2022 Report\CADD\Span 4 - 2022.dgn Span 4 North Truss - East End - Above Deck 1/11/2023 12:46:32 PM adam-1



NORTH TRUSS ELEVATION
(ABOVE DECK)

TYPICAL NOTES

(A) - Bottom sway strut angles and connection plates typ. have areas of paint failure with (9). Worst for typ. 6' - 8' L near middle of strut.

(B) - Small areas of (9) and paint failure typ. on truss.

(C) - Typ. (9) with (7) and (1) - up to 1/4" D at bottom bracing channel and bottom angle for interior diaphragm at L.C. interior diaphragms.

(D) - (5) - 1" T b/w top channel lacing and middle interior diaphragm.

1 - Pitting
2 - Painted Over Pitting
3 - Section Loss
4 - Painted Over Section Loss
5 - Pack Rust
6 - Corrosion Hole / Perforation
7 - Laminar Corrosion
8 - Surface Corrosion
9 - Active Corrosion

NOT TO SCALE	E.L. ROBINSON ENGINEERING 1468 West 9th St, Suite 800 Cleveland, Ohio 950 Goodale Blvd, Suite 180 Grandview Heights, Ohio	DETROIT-SUPERIOR BRIDGE CUY-6-14.56
2024 INSPECTION		SPAN 4 NORTH TRUSS ELEVATION — 3/8

J:\ODOT\09534_VAR-DI2 Inspections\Inspection\CUY-6-14.56_Detroit Superior_I80093O\2022 Report\CADD\Span 4 - 2022.dgn Span 4 North Truss - East End - Below Deck 1/11/2023 12:46:32 PM adam-1

CONDITION STATE LEGEND
- CS-1
- CS-2
- CS-3

(1) - 3" W x up to ⅛" D on both web plates along height of middle int. diaphragm w/ (7).

(1) - middle & W end interior diaphragms have 5/16" D w/ (6) - 2" dia.

(1) & (2) - top batten plates at W and E ends up to ⅜" D.

L2'-L1' at L2':
(1) - 5/16" D in top batten plate w/ welded repair plate. One lacing channel has (6) - 2" dia., and another has 1" dia.

L1'S-L2'N near L2'N:
Lateral brace member w/ (1) - up to ¼" D on flange angles, areas of moderate (9) at connecting elements, and one lacing bar w/ (3) - 75% due to (6).

L2'N-L2'S:
West bottom flange angle of sway strut has heavy (9) w/ (7) - up to ¾" T and (3) - up to ¼" D along length.

L2' N Gusset Plate:
North face - (1) 5/16" D x 5" H x FL at lower chord.
South face - (1) ⅜" D x 3" H along lower chord east half.

L2' S Gusset Plate:
South Face:
(1) - up to ⅛" D x 1" H along horizontal strut, east end.
(1) - up to ¼" D x 3" H along lower chord.
Freckling up to 1/16" D t/o.

L2'-L3':
(1) w/ (9) - ⅛" D x FH x up to 4" H at lower interior diaphragm, worst at bottom.

L2'-L3':
(1) - up to ¼" D w/ (6) one 1"-dia in the top batten plate.
(1) - up to ¼" D w/ (6) - 2"-dia. in the east end internal diaphragm.

L3'-U3' AT L3':
(2) - 15" H x ⅛" D over a 15" L on both web plates. Six rivets per plate have between 50-90% head loss.
(1 & 6) - bottom two lacing bars on N & S faces.
(1) - flg. angles at lacing bar connection have ⅛" D

Two (6) in bottom batten plate - 8" H x 6" W and 2" dia.; One (6) in top batten plate - 12" W x 7" H

(3) - two lacing bars missing and/or broken due to s.l. at L2'.

(2) - 2" W x FH x ⅛" D interior faces of both web plates at middle internal diaphragm.

(6) - up to 6" dia. on top and bottom batten plates at L4' w/ (6) - up to 1" dia. in lacing bars.

(2) - within vert. web plates at eyebar connection, & ¼" D on vert. batten plates w/ a (6) - ¼" dia.

(1) - W & E top batten plates have up to ¼" D at L4'.

(8) - moderate for a 6' L at west end of L.C. where water from deck drains

Lower chord top flange splice plates on top face of top flanges have (2) - up to ¼" D w/ (3) - 50% - 90% to multiple rivet heads.

Bottom flange angles for lower chord adjacent to splice angles have (1) - up to ¼" D on their horizontal legs.

(2) - ¼" on top flange angles along W side of splice.

L4' N Gusset Plate:
Both faces:
(2) - up to 5/16" D x 4" H along lower chord.

L4' S Gusset Plate:
Both faces:
(2) - up to ¼" D (iso. 5/16" - ⅜" D on S face) x 4" H along lower chord.
(As little as ¼" T remaining at ends).

L5'

L4'

L3'

U0'

L2'

L1'

L0'

Level 3 horiz. strut has numerous (6) in angles & lacing (worst is 4" L x 2" H) and the top portion of N conn. plate to E side of U0'-L1' is gone.

(3) - one lacing bar has 100% w/ two others having (6) 2" dia. & (5) - up to ½" T active at flange connections

(6) - int. diaphragm at L1' has 12" L x 12" W and 2" L x 1" W.

(6) - W batten plate below the deck upper strut has two 12" L x 3" W

(6) - 1" dia. in E face of batten plate at L1'.

(8) - minor, with paint failure & areas of (7), typical on rivets and bolts.

(2) - iso. up to 3/16" D in int. web.

L0'S - L1'N - Lateral bracing from middle to L1'N has moderate (9), active (5) - up to ½" T, and (1) - up to ¼" D on flange angles at connecting elements. Two lacing bars also have (6) - 1" dia.

(7) - At L0', interior faces of both webs have ¼" T w/ (1) up to 1/16" D over a 5' H.

Vertical angles and legs have (1) - up to 3/16" D along GP interface.

(3) - For 36" L, interior of L0'-U0' at L0', SE interior angle at top has one rivet head with 100%, and 2 rivet heads with 90%. NE and NW angles have several rivet heads w/ 50% - 75% near the bearing.

Bottom horizontal sway strut has (8) and paint failure along bottom W flange angle over its length.

L0' S GP:
(2) - 36" L x 3-½" H x up to ¼" D on S face along LC interface.
(7) - ½" T and (1) - up to 1/16" D over an area 36" L x up to 18" H above int. horiz. diaphragm; 16 GP rivet heads in this area have >80% S.L. (12 are at 100% S.L.)

L0' N GP:
(1) - iso. active area FL x 1" H x 1/16" D on N face along LC interface.
(7) - ½" T w/ (1) - 1/16" D over an area 33" L x up to 15" H above int. horiz. diaphragm; 12 GP rivet heads in this area have >60% S.L.

L3' N Gusset Plate:
Both faces:
East end - (7) - up to ¼" T along lower chord.
West end - (2) - up to 3/16" D x 3" H along lower chord.
(S face reactivating)

L3' S Gusset Plate:
Both faces:
East end - (7) w/ (3) - up to ⅛" T. As little as ¼" T remaining @ worst location.
North face:
West end - (1) - 3/16" D x 5" H along lower chord
South face:
West end - (2) - 5/16" D x 5" H (iso. up to 12" H) along lower chord.

(6) - 6" dia. in diaphragm plate in middle of L.C. & moderate (8) FH w/ (1) - ⅛" D x FH x 3" W on interior of both web plates.

(6) - 6" dia. in diaphragm plate in middle of L.C. & moderate (8) FH w/ (1) - ⅛" D x FH x 3" W on interior of both web plates.

Iso. (3) - up to 100% in top lacing channel legs.

L1' N Gusset Plate N Face:
(1) w/ (9) - 3/16" D x up to 2" H along lower chord.
Original thickness - ¾" T.

L1' N Gusset Plate S Face:
(1) w/ (9) - 3/16" D x up to 1½" H at east end along lower chord.
(1) w/ (9) - ¼" D x up to 2¼" H at west end along lower chord.
Freckled up to ¼" dia. x 1/16" D (mostly painted over) throughout.

L1' S Gusset Plate N Face:
(1) w/ (9) - 3/16" D x up to 3" H at east end along lower chord.
(1) w/ (9) - ¼" D x up to 2½" H at west end along lower chord

L1' S Gusset Plate S Face:
(1) w/ (9) - ¼" D x up to 4" H along lower chord.
Original thickness - ¾" T.
Freckled up to ¼" dia. x 1/16" D (mostly painted over) throughout.

(1) w/ (9) - FH x 3" W x up to ⅛" D on the interior face of both web plates along lower interior diaphragm.

L1'S - L1'N: Moderate (9) and paint failure on W bottom flange angle over length.

L2' - L1' @ L1': Top batten plate has (1) - up to 5/16" D. Interior diaphragm has several (6) - up to 1" dia. w/ (1).

(6) - 10" L x 2" W and 2" L x ½" H in upper interior diaphragm.

L1' - L0' at L1': Top batten plate w/ (1) - up to 3/16" D

(1) w/ (9) - FH x 2" W x 3/16" D on interior of both LC web plates at middle interior diaphragm w/ (1) - ¼" D on interior diaphragm.

(1) w/ (9) - FH x 1" W x 3/16" D on int. of both LC web plates at lower int. diaphragm w/ (1) - up to ¼" and one (6) - ½" dia. in diaphragm.

(8) w/ (7) - minor to moderate, with paint failure & (1) - 1/16" D to btm. flg. angles & btm. of web plates on interior of L.C. at L0'

On L0' OB pin cover plate:
6-¾" L crack in OB face & 1-¼" L crack on top.

On L0' IB pin cover plate:
6-¾" L crack in IB face & 1-½" L crack on top

(5) - 1" T active b/w BRG and pin plates at L0'.

(7) - heavy rust flakes (7) debris accumulation on BRG thrust block.

Thrust block exhibts:
moderate (8), (7) - up to 3#8" T, (1) - areas of up to 1#8" D.

(3) w/ (9) - edges of thrust block stiffeners up to 3#8" D

(3) - NW &SW AB nuts 100% to nut and top of AB at L0' and 5% to SE and NE anchor bolt nuts.

TYPICAL NOTES

(A) - Bottom sway strut angles and connection plates typ. have areas of paint failure with (9). Worst for typ. 6' - 8' L near middle of strut.

(B) - Small areas of (9) and paint failure typ. on truss.

(C) - Typ. (9) with (7) and (1) - up to 1/4" D at bottom bracing channel and bottom angle for interior diaphragm at L.C. interior diaphragms.

(D) - (5) - 1" T b/w top channel lacing and middle interior diaphragm.

(E) - Typ. (9) w/ minor (3) and (7) along connected members and horizontal surfaces.

(F) - Misc. abandoned welded attachments on east face.

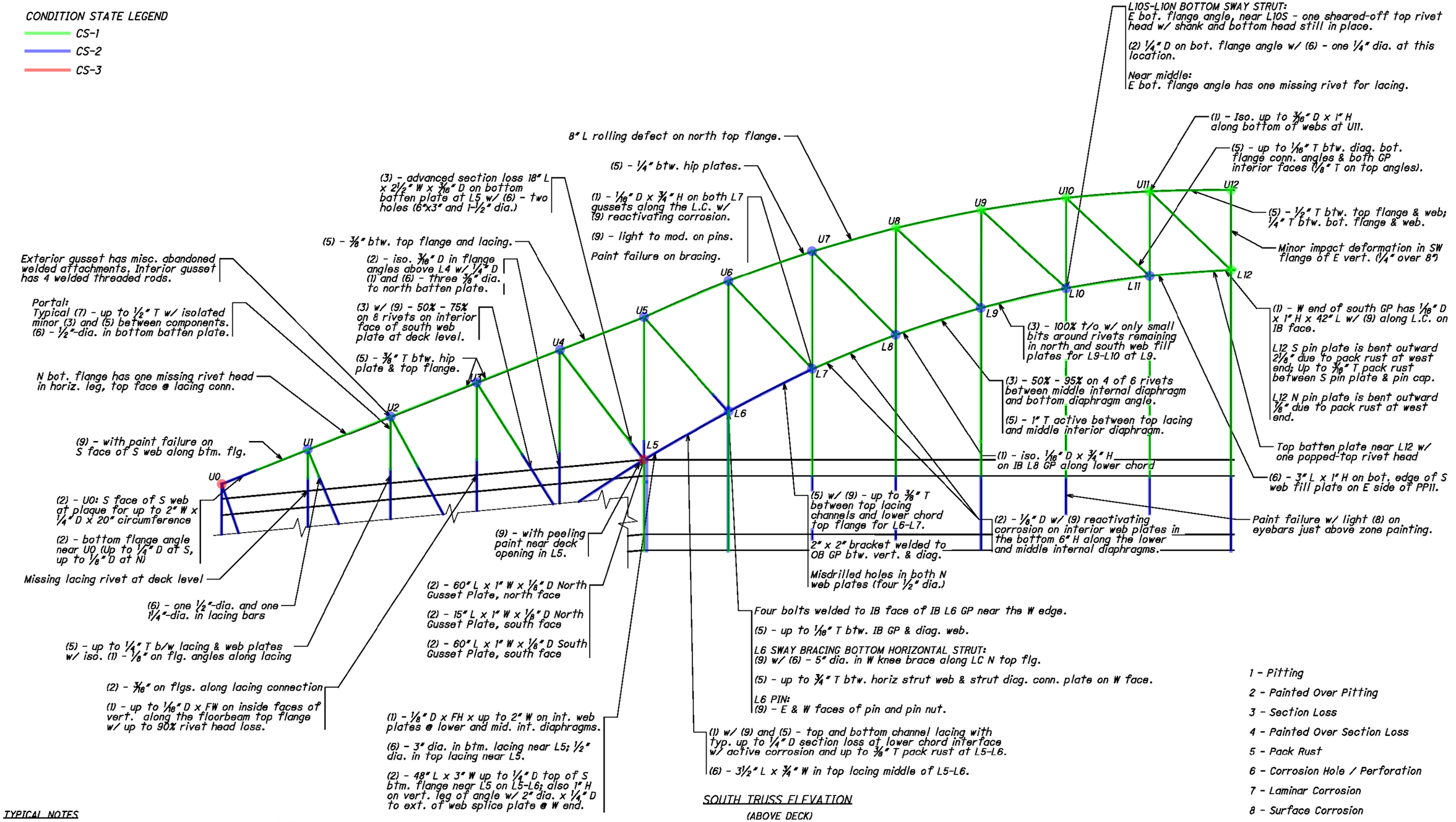
1 - Pitting
2 - Painted Over Pitting
3 - Section Loss
4 - Painted Over Section Loss
5 - Pack Rust
6 - Corrosion Hole / Perforation
7 - Laminar Corrosion
8 - Surface Corrosion
9 - Active Corrosion

NORTH TRUSS ELEVATION
(BELOW DECK)

NOT TO SCALE	E.L. ROBINSON ENGINEERING 1468 West 9th St, Suite 800 Cleveland, Ohio 950 Goodale Blvd, Suite 180 Grandview Heights, Ohio	DETROIT-SUPERIOR BRIDGE CUY-6-14.56	
2024 INSPECTION		SPAN 4 NORTH TRUSS ELEVATION	4/8

J:\ODOT\09534_VAR-DI2 Inspections\Inspection\CUY-6-14.56_Detroit Superior_1800930\2022 Report\CADD\Span 4 - 2022.dgn Span 4 Sourth Truss - West End - Above Deck 1/11/2023 12:46:32 PM adam

CONDITION STATE LEGEND
- CS-1
- CS-2
- CS-3



SOUTH TRUSS ELEVATION
(ABOVE DECK)

1 - Pitting
2 - Painted Over Pitting
3 - Section Loss
4 - Painted Over Section Loss
5 - Pack Rust
6 - Corrosion Hole / Perforation
7 - Laminar Corrosion
8 - Surface Corrosion
9 - Active Corrosion

TYPICAL NOTES
1. Uphill transverse angles have debris causing pitting and perforations of the diaphragm plates and transverse angles on lower chord between L0 to L5.
2. Typical small locations of paint failure and active surface corrosion throughout with areas of minor (<1/16" D) section loss along connecting elements.
3. Tyical active corrosion and up to ¼" D pitting on interior diaphragm and angles for lower chord members.
4. Isolated active pack rust (typ. ¼" T but up to ⅜" T) between upper chord top flanges and lacing channels.

NOT TO SCALE	E.L. ROBINSON ENGINEERING 1468 West 9th St, Suite 800 Cleveland, Ohio 950 Goodale Blvd, Suite 180 Grandview Heights, Ohio	DETROIT-SUPERIOR BRIDGE CUY-6-14.56
2024 INSPECTION		SPAN 4 SOUTH TRUSS ELEVATION — 5/8

J:\ODOT\109534_VAR-DI2 Inspections\Inspection\CUY-6-14.56_Detroit Superior_I-80/93\2022 Report\CADD\Span 4 - 2022.dgn Span 4 South Truss - West End - Below Deck 1/11/2023 12:46:33 PM adam

(3) - 100% loss on several north face lacing bars.

(2) - iso. 3/16" on flg. angles & web plates on E face w/ (3) - 80% on four rivet heads just below the lower FB

(5) - up to 1/4" T b/w lacing & web plates w/ iso. (1) - 1/8" on flg. angles along lacing

(6) - 6" dia. on E plate.

4" Crack (5/8" Propagation)

4" Paint crack (1/2" Propagation)

4 3/4" Crack (N.C.)

5 3/4" Crack (N.C.)

South Truss L0 Bearing

North Pin Cover Plate

(Not to scale)

CONDITION STATE LEGEND

CS-1

CS-2

CS-3

(2) - 3/16" on flgs. along lacing

(6) - Three 6" dia. on top batten plate.

(1) - up to 3/16" D x FW on inside faces of vert. along top of the lower FB w/ up to 90% rivet head loss.

(6) - Two 2"-dia. in lower batten plate.

(6) - numerous holes t/o btm. batten plate at L4.

(9) - with peeling paint near deck opening in L5.

(1) - 1/8" D on int. web plates

(6) - 3" dia. in btm. lacing near L5

(9) - w/ peeling paint and failed paint near top

(5) - up to 3/4" T b/w flg. angles & lacing with lacing deformed

(1) - isolated 1/8" to 3/16" along flg. angles at iso. lacing bars

L4 GPs, BOTH:
(2) - up to 3/16" x 2" H x FL on ext. face along L.C., iso. 1/4" D x 2" H x 4" L on int. face along L3L4.
(2) - 7/16" D x 2" H on N & S faces.

Six plug welds, 3 on each half, on each gusset plate.

(2) - 1/4" D on north top flange splice plate.

U0

L5

L4

L3

L2

L1

L0

L3 strut has (6) - F.H. x 1" W on S batten plate @ end btw. angles.

Vertical has (8 & 9)

(5) - up to 1/4" T b/w webs & flanges. 3/4" at lacing bars w/ iso 1/8" D pitting in flg. angles along the lacing

(1) - isolated 1/8" D on the interior web plates (worst near L0)

(1) - Up to 1/8" D on flanges and webs.

(5) - Up to 5/8" T between lacing and flanges.

(1) - 5/16" D x FH, N int. web plate 3/16" D x 12" H on S int. web plate

(5) - up to 1" T b/w batten plates & top flange

(1) - up to 3/16" D on top flg. angles along lacing.

(6) - second top transv. lacing channel from L0 has a 5" H x 3/4" W and a 1/2" dia. Fourth lacing channel from L0 has a 6" L x 2" W

West sway brace connection plate bowed at strut up to 5/8" due to pack rust.

Sway strut has (9) throughout interior faces.

L3, BOTH GPs:
(1) - up to 3/16" D x 2" H along lower chords on ext. faces and (8). (1) - 3/16" D avg. x 2" H on int. faces except S face of N plate along L3-L4, which is 7/8" D x 3" H (1/4" remaining).

L3, IB GP:
(2) - three areas of up to 1/4" D x 3" W x 8" H on N face along W face of the vertical. (int. clean).
(2) - above L3-L4:
1/4" D x 2" H on S face;
1/4" D x 3" H on N face (1/4" T remaining).

L3, OB GP:
(2) - F.H. x 2" W x 3/16" D on E side along FB cant.
(2) - above L3-L4:
5/16" D x 3" H on S face;
3/16" D x 2" H on N face.

(6) - East face stiffening diaphragm has a 4" dia.

(1) - Up to 1/4" D south top flange splice

LO IB PIN PLATE:
(SEE SKETCH)
There is a 5 3/4" L crack with a 4 3/4" L crack which propagates off of the former crack and extends to the end of the plate. There is also a 3 3/8" L crack extending from the nut at 10:00, and a 4" L paint crack extending from the nut at 1:30.

LO OB PIN PLATE:
has a 7" L vertical crack extending upward from the nut and a 1 1/2" L vertical crack extending downward from the nut. A new crack has formed 1 1/4" L extending from the nut at 9:00.

BEARING:
(8) - moderate to advanced t/o thrust block w/ peeling paint and (7).
(5) - up to 1" T b/w BRG behind pin & L.C; 1/4" T btw. N pin plate & GP.
(3) - 3 of 6 AB nuts in thrust block have 90% (other bolts have 10%)
Heavy debris accumulation on int. & ext.

Heavy debris on lower lateral brace / sway conn. plate & strut int.

Top later brace connection plate w/ impact dent 1/4" over 10".

Cantilever brace:
(1) - 1/4" D in web w/ (6) - four up to 2"-dia.

(1) - N int. web plate has 4" L x Iso. FH x 7/16" D active along int. diaphragm near L2. S int. web plate has 1/4" D at this location.

(5) - up to 1 3/8" T b/w top batten plates & flanges

(6) on bot. lacing

L2 IB (N) GP:
(1) - 1/8" D top of diagonal, S face
(1) - above L1-L2:
24" L x 2" H x 3/16" D on S face;
30" L x 3" H x 7/8" D on N face.
(1) - above L2-L3:
24" L x 2" H x 3/16" D on N face;
24" L x 3" H x 3/16" D on S face.
(1/4" remaining)

L2 OB (S) GP:
(1) - above L1-L2:
30" L x 4" H x 7/8" D on S face;
4" H x 3/16" D on N face
(active, 1/4" remaining on original 3/4" T over this area).
(1) - above L2-L3:
30" L x 3" H x 5/16" D on S face;
24" L x 2" H x 1/4" D on N face.

(6) - West edge stiffener has 1"-dia. and 4"-dia. holes in N conn. angle

L1 GPs, BOTH:
(1) - 3/16" D x 2" H x F.L. of GP along LC.
(7) - FL x 3" H x 1/4" D of L0L1 along struts on ext. faces. (1) - 12" L x 2" H x 1/8" D on inside faces along L0L1.
(2) - 3" H x 1/4" D along L1L2 on IB faces and up to 12" on diag. Inside faces along L1-L2 have (1) - 1/8" on N, 1/4" on S)
(2) - 1/4" on south top flange splice plate.
(6) - 2"-dia. on edge stiffening diaphragm on east end.

(3) - 100% btm. lacing channel vert. legs adj. to L.C. web plates

(3) - top batten plate at L1 has 12" W x 3" L x 100% along bot. edge, (6) - 1" dia. and adv. (3) t/o.

(1) - along int. diaphragms:
N int plate: 3" L x FH x 1/4" D
S int plate: 4" L x 1/2H x 1/4" D

(6) - two up to 2"-dia. in int. diaphragm

(2) - up to 1/8" on flanges @ lacing

(1) - 1/4" D x 4"L x FH in webs along interior diaphragm.

LO N Gusset:
8 rivet heads on the bot. flange & web conn. w/ (3) - up to 90% on UO-LO connection.

North face - (7) w/ (1) - up to 3/16" D x 6"H x 45" L along lower chord.

South face - isolated (1) - 1/16" D along vertical.

LO S gusset:
South face - (7) w/ (1) - up to 1/8" D x 3" H x 60" L along lower chord.

North face - (1) - up to 1/4" D x 2" H x 30" L along diaphragm, and 3/16" D x 6" H x 2" W along vertical.

1 - Pitting
2 - Painted Over Pitting
3 - Section Loss
4 - Painted Over Section Loss
5 - Pack Rust
6 - Corrosion Hole / Perforation
7 - Laminar Corrosion
8 - Surface Corrosion
9 - Active Corrosion

Sheared bolt on top 3rd lacing channel connection along top flg. Also a fractured bolt in end of batten plate at L0.

(6) - Four small holes up to 1" dia in diaphragm near L1.

Two sheared bolts on top batten plate @ S top flange angle.

SOUTH TRUSS ELEVATION

(BELOW DECK)

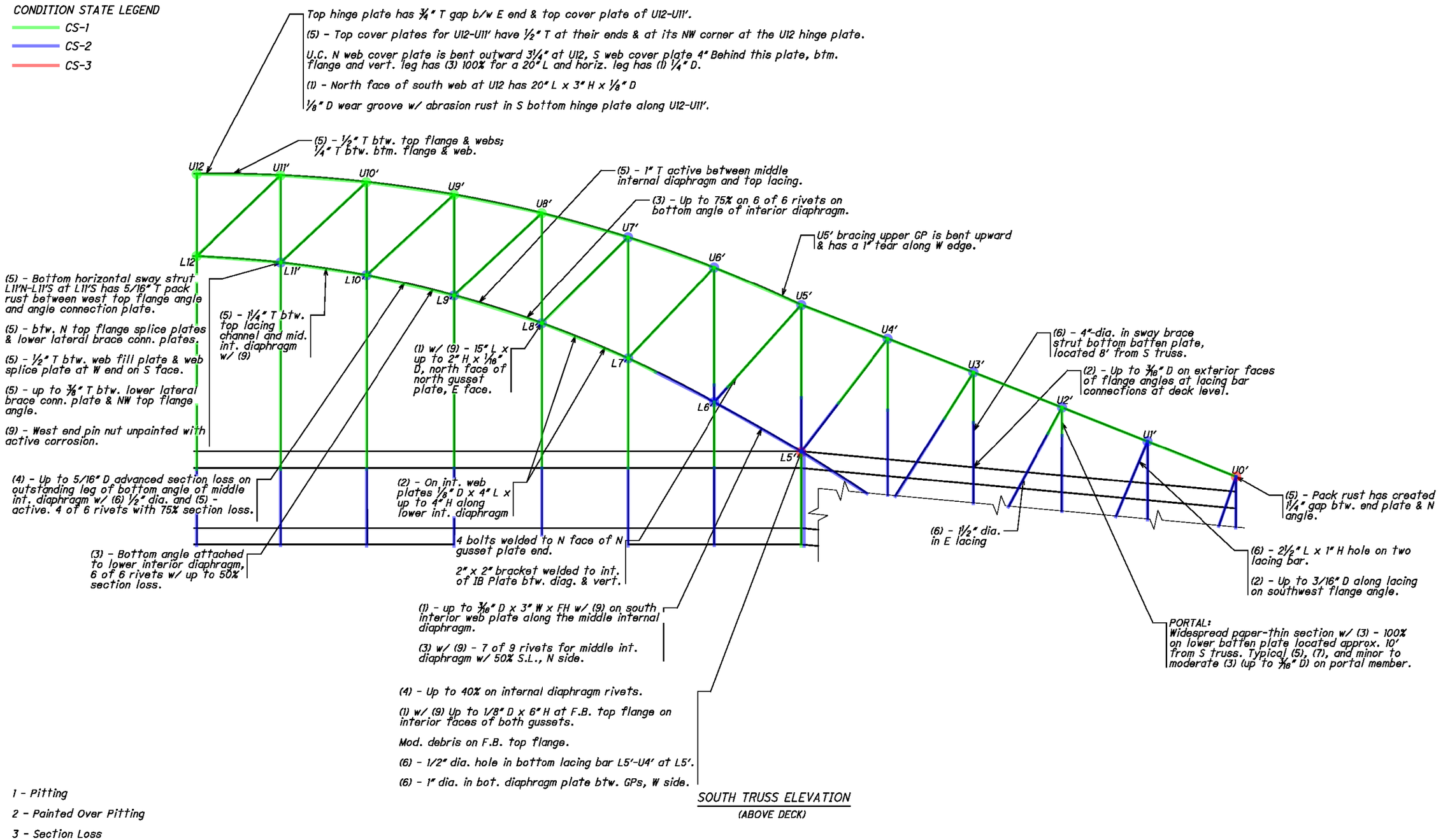
Uphill transverse angles have debris causing pitting and perforations of the diaphragm plates and transverse angles on lower chord between L0 to L5.

NOT TO SCALE	E.L. ROBINSON ENGINEERING 1468 West 9th St, Suite 800 Cleveland, Ohio 950 Goodale Blvd, Suite 180 Grandview Heights, Ohio	DETROIT-SUPERIOR BRIDGE CUY-6-14.56
2024 INSPECTION		SPAN 4 SOUTH TRUSS ELEVATION 6/8

J:\ODOT\109534_VAR-DI2 Inspections\Inspection\CUY-6-14.56_Detroit Superior_I80093O\2022 Report\CADD\Span 4 - 2022.dgn Span 4 South Truss - East End - Above Deck 1/11/2023 12:46:33 PM adam-l

CONDITION STATE LEGEND

- CS-1
- CS-2
- CS-3



SOUTH TRUSS ELEVATION
(ABOVE DECK)

1 - Pitting
2 - Painted Over Pitting
3 - Section Loss
4 - Painted Over Section Loss
5 - Pack Rust
6 - Corrosion Hole / Perforation
7 - Laminar Corrosion
8 - Surface Corrosion
9 - Active Corrosion

TYPICAL NOTES

1. BOTTOM 2 RIVETS AT DECK LEVEL FOR ALL WEST FLANGE ANGLES HAVE 75% - 90% SECTION LOSS.

NOT TO SCALE	E.L. ROBINSON ENGINEERING 1468 West 9th St. Suite 800 Cleveland, Ohio 950 Goodale Blvd. Suite 180 Grandview Heights, Ohio	DETROIT-SUPERIOR BRIDGE CUY-6-14.56	
2024 INSPECTION		SPAN 4 SOUTH TRUSS ELEVATION	7/8

J:\ODOT\09534_VAR-DI2 Inspections\Inspection\CUY-6-14.56_Detroit Superior_I800930\2022 Report\CADD\Span 4 - 2022.dgn Span 4 South Truss - East End - Below Deck 1/11/2023 12:46:33 PM adam-1

CONDITION STATE LEGEND
- CS-1
- CS-2
- CS-3

L3' GPs, BOTH:
(1) - ¼" on ext faces along top of L3'L2' & L4'L3'. (1) - ⅛" x 2" H x 20" L on int. faces along L.C. at both ends

L3' IB GP:
(2) - 7/16" on N face along vertical.

(6) - W edge stiffening diaphragm & conn. angles have several up to 1-½"

(3) - both batten plates at L4' have 100% x FW for bottom 2" H and (6) three up to 2" dia.

(2) - up to 7/16" D b/w L4' & deck on ext. faces of flange angles & int. face of web plates. Batten plates have up to ¼" D (1).

6 plug welds on OB GP; 8 plug welds on IB GP.

(6) - three up to 1" dia. t/o GP and (6) up to 1" H x 8" W @ bot. edge of GP on both batten plates @ L5'.

(2) - 12" dia. x ⅛" D to ext. both GPs behind bot. of knee brace for upper FB.

(3) - advanced, to truss vert. to lower FB knee braces. Btms. of connection angles have 100% x 8" H.

(6) - Both batten plates have two 4"-dia. holes, lacing bar has one 1/2"-dia. hole.

(8) - moderate with widespread peeling paint to components below the lower deck w/ (5) up to ⅜" T b/w lacing bars.

Numerous replaced lacing bars at the lower deck connection to the vertical.

(2) - t/o lower FB connection and missing batten plates.

(7) - int. web plates up to ¼" T

(6) - 6" H x 2" W Cantilever brace connection, west face.

(5) - moderate up to ¾"

(8) - on lacing bars w/ up to 25% (3).

(5) - iso. ⅜" T at bracing GP conn.'s to the vert. flange angles.

(9) - @ interface w/ top deck

L5'

L4'

L3'

U0'

L4' GPs, BOTH:
(1) - 9/16" x 3" H along top of L4'L3'
(1) - up to ¼" on all faces along top of L5'L4' (apx. 7/16" remaining for 10" L where chord is on both faces, 9/16" remaining where chord on outside face only)

L4' IB GP:
(1) - ⅛" x 2" H x 4" L on N face along top of L4'L3'. (7/16" T remaining)

L4' OB GP:
(1) - 1/16" x 2" H x 4" L on S face along top of L4'L3'. (3*8" T remaining)

(1) - 3/16" D x 3" L x ½ Height on int. web plates along int. diaphragms.

(2) - iso. ⅛" D on int. web plates and 3/16" on top flg. angle splice plates at L4'.

(6) - 2" dia. @ L4' diaphragm

(8) - moderate
(7)
(1) - ¼" D x 2" L x FH interior web along internal diaphragm.

(3) - 100% on bot. batten plate @ L2' along the lower 12" & addt'l 6" x 4" hole. Top batten plate is almost 100%gone w/ five lacing bars w/ (6) 2-4" in dia.
(6) - Iso. lacing bars up to 4" W x 2" L t/o.

(8) - moderate w/ iso. (6) up to 5" dia. noted t/o the L.C. diaphragm plates.

(1) - ¼" D x 3" L x ¾ Height on int. web plates along int. diaph.

Isolated lacing channels replaced.

(6) - 3"-dia. in L2'-L1' top batten plate at L1'.

(7) w/ (1) - up to 1/8" D x 5" H along bottom of L1' N web splice.

Paint peeling w/ iso. (9) over Full Length.

L2' GPs, BOTH:
(7) - active along lower chords.

L2' IB GP:
(1) - 1/16" x 4" H x 30" L on N face along L3'L2';
(2) - ⅛" x 3" H x 12" L on N face;
(2) - 3/16" x 3" H x 20" L on S face along L3'L2';
(2) - ¼" x 3" H x 12" L on S face;
(¼" - 5/16" T remaining at edge).

L2' OB GP:
(1) - ⅜" x 3" H x 10" L on N face along L2'L1'.
(1) - 7/16" x 2" H x 20" L on N face along L3'L2'.
(1) - isolated 3/16" on ext. face along FL

L2'

(3) - up to 100% on lower L1' batten plate along lower 18"

(3) - Lower 2 lacing bars have 75% at the conn. to the flgs. and one has a 2" dia. (6) on W face.

(1) - ⅛" (Iso. 3/16") D x FW on flg. angles along lacing.

(9) - t/o from top (L3') strut up.

L1'

Heavy debris in panels at strut.

(3) - iso. areas of advanced (3/16" D x 4" W) on int. web plates around the rivets & adj. to lacing.

(5) - ¼" b/w angles & web plates

(1) - up to 3/16" D on flg. angles along lacing.

Lacing bars deofrmed due to pack rust up to ¾" T b/w lacing & flanges

L1' GPs, BOTH:
(9) w/ (1) - up to 3/16" x 2" H along strut connections and along lower chord on outside faces over FL.
(1) - 3/16" x 4" H x 16" L on inside faces along L1'-L0'.
(1) - active 3/16" x 3" H x 20" L on inside faces along L2'L1'

(6) - Two 2" dia. holes in west edge stiff. diaph.

(8) - moderate w/ iso. (7) & (6) t/o the L.C. diaphragm plates.

(1) - 3/16" D x FW on top face of N int. horiz. diaph. angles; N & S within limits of L0' GP plus 3/16" D x 3"H on the vertical leg w/ 100% rivet head loss.

(2) - int. web plates have ¼" D reactivating x Fh x 2" L along internal diaphs.

(6) - Int. diaph. at L1' has FW x 4" H hole along btm. angle

(6) - Btm. lacing channels have iso. holes up to 2" dia.

(6) - 2"-dia. in top lacing at middle diaphragm.

Non-structural BRG pin cover plates:
6-½" L crack on both faces.

Moderate debris build up t/o BRG thrust block.

(5) - active 1" T b/w L.C. & BRG full perimeter of the pin

(2) - up to 3/16" D on BRG casting around pin nut.

(3) - iso. moderate to advanced on BRG casting w/ some areas of (7 & 9)

(3) - Up to 40% on anchor bolt nuts.

L0'

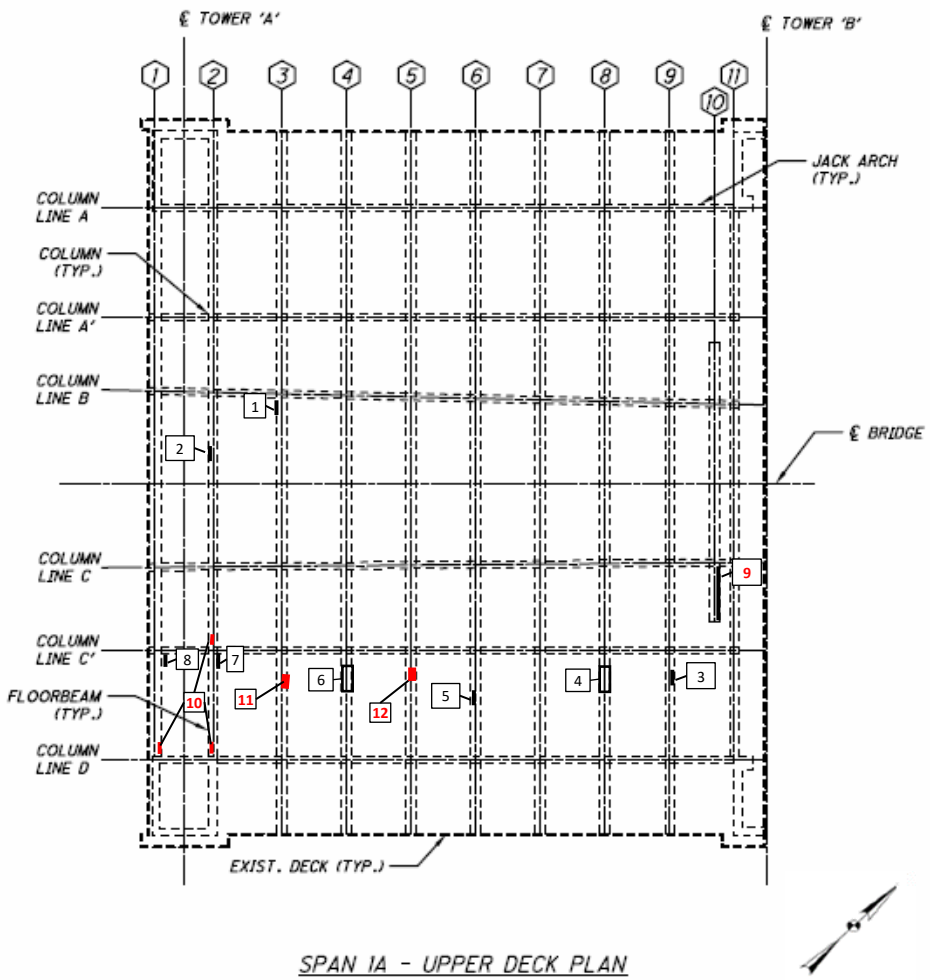
L0' GPs, BOTH:
(7) at base of interior.
(9) - Int. faces, 2' L x 2' H area w/ 1/16" D (1) & up to 75%
(3) to rivet heads in area.

L0' N GP:
(1) - ¼" D x 5" H x 41" L along lower chord on ext. face.

1 - Pitting
2 - Painted Over Pitting
3 - Section Loss
4 - Painted Over Section Loss
5 - Pack Rust
6 - Corrosion Hole / Perforation
7 - Laminar Corrosion
8 - Surface Corrosion
9 - Active Corrosion

SOUTH TRUSS ELEVATION
(BELOW DECK)

NOT TO SCALE	E.L. ROBINSON ENGINEERING 1468 West 9th St, Suite 800 Cleveland, Ohio 950 Goodale Blvd, Suite 180 GrandView Heights, Ohio	DETROIT-SUPERIOR BRIDGE CUY-6-14.56	
2024 INSPECTION		SPAN 4 SOUTH TRUSS ELEVATION	8/8

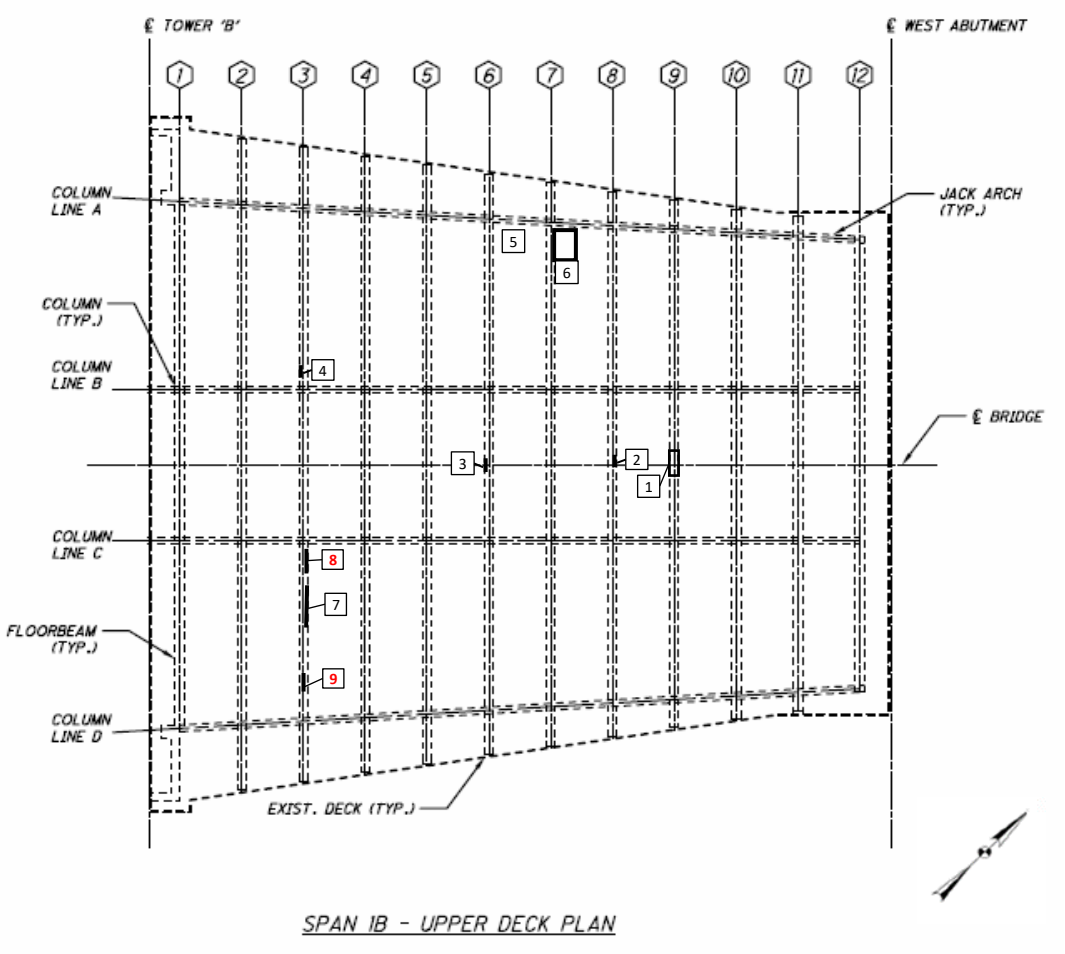


SPAN 1A - UPPER DECK PLAN

SPAN 1A, UPPER DECK DEFICIENCIES	
#	DEFECT
1	Delamination w/ shallow Spall - 3 SF (2 LF)
2	Spall w/ exp. Reinf. - 2 SF (1 LF)
3	Spall w/ exp. Reinf. - 2 SF (2 LF)
4	Shallow Spall w/ exp. Reinf. - 20 SF (4 LF)
5	Spall w/ exp. Reinf. - 2 SF (1 LF) Delamination - 4 SF (2 LF)
6	Spall w/ exp. Reinf. - 20 SF (5 LF)
7	Delamination w/ shallow Spall - 6 SF (2 LF)
8	Delamination w/ shallow Spall - 6 SF (2 LF)
9	**Spall w/ exp. Reinf. - 10 LF**
10	**Transverse cracking - 1 LF**
11	**Spall w/ exp. Reinf. - 5 LF**
12	**Spall w/ exp. Reinf. - 5 LF**

General Findings:

☐ = Area of Moisture Staining with efflorescence.

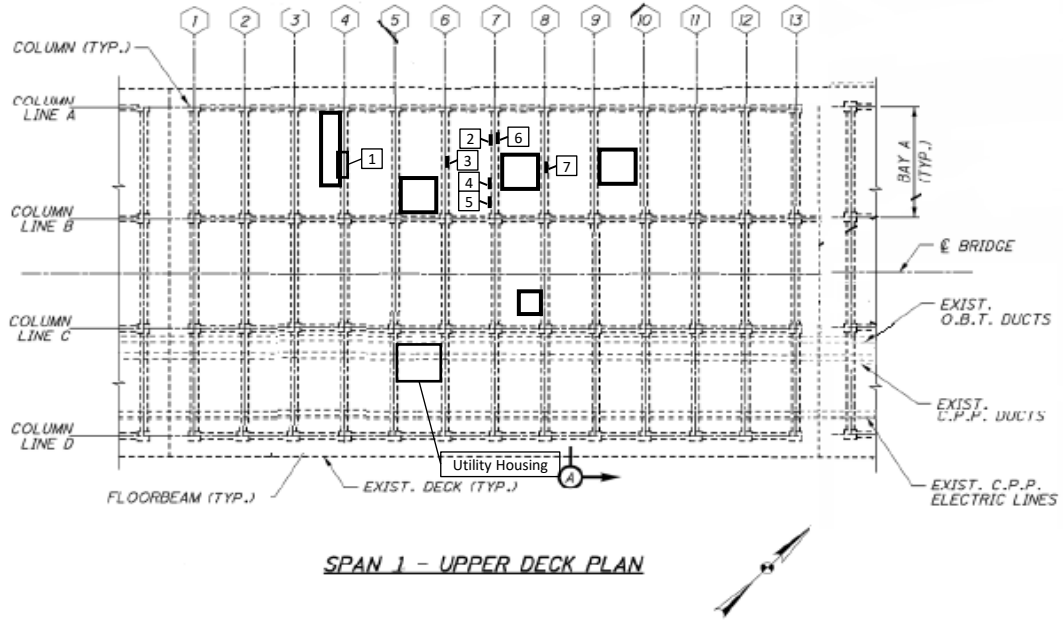


SPAN 1B - UPPER DECK PLAN

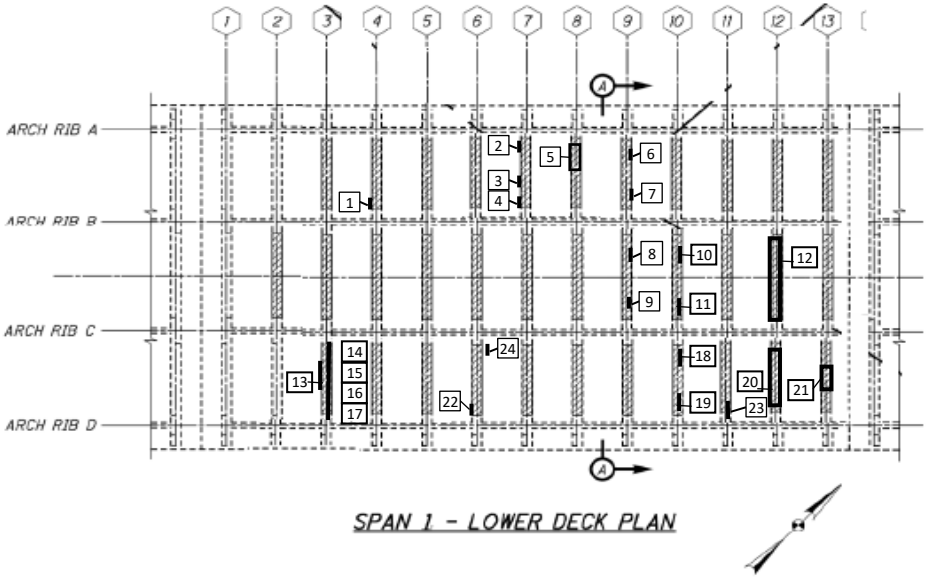
SPAN 1A, UPPER DECK DEFICIENCIES	
#	DEFECT
1	Spall w/ exp. Reinf. - 4 SF (2 LF)
2	Delamination - 1 SF (1 LF)
3	Spall w/ exp. Reinf. - 4 SF (2 LF)
4	Spall w/ exp. Reinf. - 1 SF (1 LF)
5	Spall w/ exp. Reinf. - 1 SF
6	Delamination - 1 SF
7	Crack - 4 LF
8	**Spall w/ exp. Reinf. - 2 SF**
9	**Spall w/ exp. Reinf. - 1 SF**

General Findings:

☐ = Area of Moisture Staining with efflorescence.



SPAN 1 – UPPER DECK PLAN



SPAN 1 – LOWER DECK PLAN

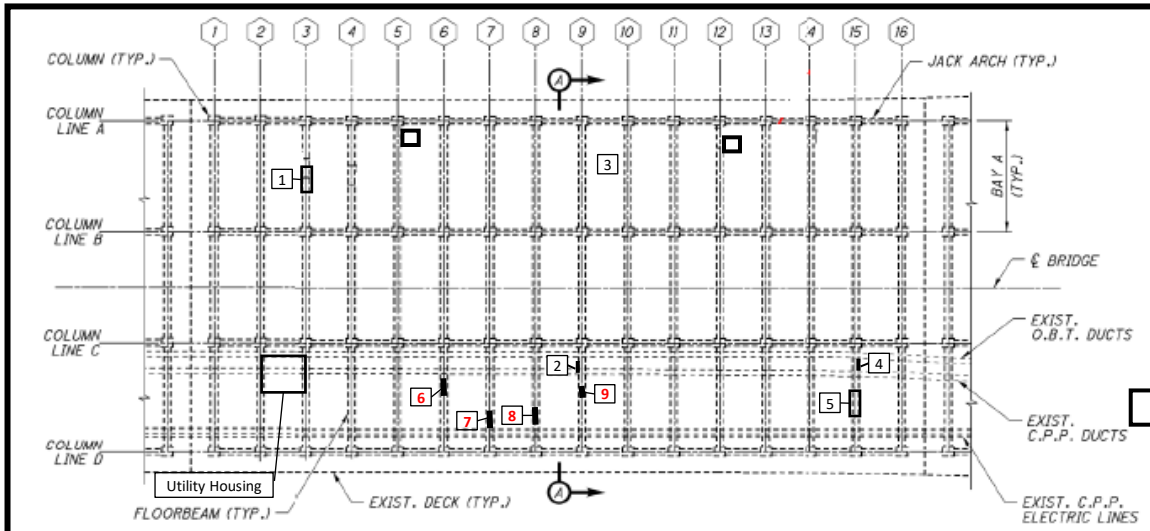
SPAN 1, UPPER DECK DEFICIENCIES			
#	DEFECT	#	DEFECT
1	Delamination - 2 SF (2 LF)	5	Delamination - 3 SF (1 LF)
2	Two delams., 3 SF (3 LF)	6	Spall w/ exp. Reinf., 2" D - 2 SF (2 LF)
3	Spall w/ exp. Reinf., 2" D - 1 SF (1 LF)	7	Spall w/ exp. Reinf., 2" D - 1 SF (1 LF)
4	Spall w/ exp. Reinf., 2" D - 1 SF (1 LF)		

SPAN 1, LOWER DECK DEFICIENCIES			
#	DEFECT	#	DEFECT
1	Delamination - 3' L x 1' H	13	Delamination - 8' L x 4' H
2	Map Cracking - 8' L	14	Spall w/ exp. Reinf. - 2' L x 2' H
3	Delamination - 6" L x 2' H	15	Delamination - 3' L x 3' H
4	Delamination - 6" L x 2' H	16	Delamination - 4' L x 3' H
5	Delamination - 6' L x 2' H	17	Delamination - 2' L x 2' H
6	Delamination - 2' L x 2' H	18	Delamination - 2' L x 2' H
7	Delamination - 2' L x 1' H	19	Delamination - 3' L x 4' H
8	Crack w/ rust staining - 6' L	20	Delamination - 10' L x 2' W
9	Delamination - 1' L x 1' H	21	Delamination - 4' L x 6" W
10	Delamination - 6' L x 3' H	22	Delamination - 1' L x 1' W
11	Delamination - 2' L x 2' H	23	Delamination - 6' L x 1' H
12	Delamination - 15' L x 2' H	24	Delamination - 1' L x 1' W

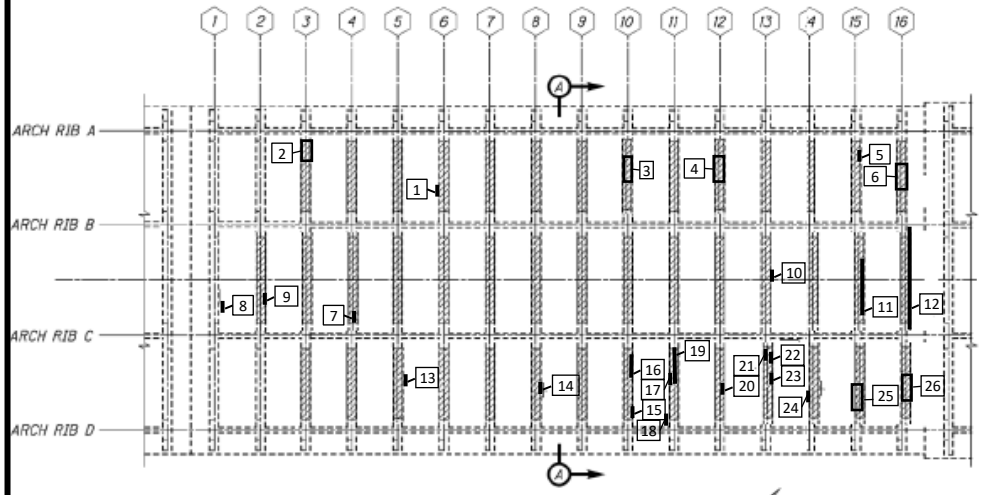
General Findings:

☐ = Area of Moisture Staining with efflorescence

Bay B floorbeams have hairline vertical cracks spaced about 3' apart. Some have light efflorescence.



SPAN 2 – UPPER DECK PLAN



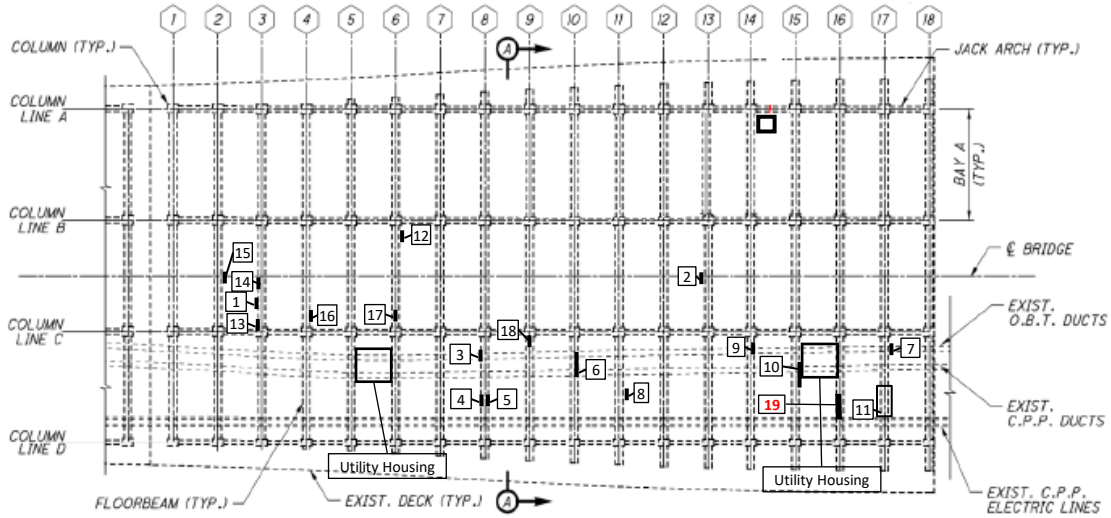
SPAN 2 – LOWER DECK PLAN

SPAN 2, UPPER DECK DEFICIENCIES			
#	DEFECT	#	DEFECT
1	Spall w/ exp. Reinf. - 2 SF (1 LF)	6	Cracking w/ leakage thru beam - 5 LF
2	Cracking (10 LF)		
3	Spall, 1" D - 1 SF	7	Transverse cracking - 15 LF
4	Delamination - 6' L x 1' H	8	Transverse cracking - 15 LF
5	Delamination With Spall - 3 SF (3 LF)	9	Longitudinal crack - 3 LF

General Findings:

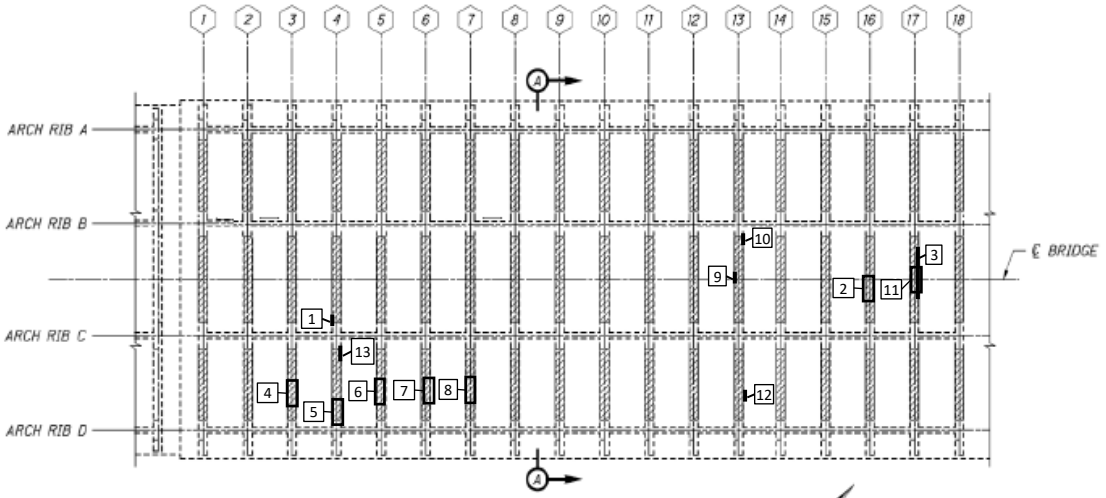
☐ = Area of Moisture Staining with efflorescence

SPAN 2, LOWER DECK DEFICIENCIES			
#	DEFECT	#	DEFECT
1	Delamination - 2' L x 2' H	15	Delamination - 4' L x 3' H
2	Delamination - 2' L x 2' H	16	Delamination w/ Spall w/ exp. Reinf - 5' L x 3' H
3	Delamination w/ Spall w/ exp. Reinf. - 6 SF	17	Delamination w/ Spall w/ exp. Reinf - 4' L x 3' H
4	Delamination - 4' L x 1' H		
5	Delamination - 9' L x 3' H	18	Delamination - 4' L x 3' H
6	Delamination w/ Spall w/ exp. Reinf - 4' L x 2' H	19	Delamination w/ Spall w/ exp. Reinf. - 6' L x 4' H
7	Delamination - 2' L x 1' H	20	Delamination - 10' L x 3' H & Spall w/ exp. Reinf - 2' L x 2' H
8	Delamination w/ Spall w/ exp. Reinf - 2' L x 2' H	21	Delamination - 6' L x 3' H
9	Spall w/ exp. Reinf - 1' L x 1' H	22	Delamination - 7' L x 2' H
10	Spall w/ exp. Reinf - 1' L x 1' H	23	Delamination - 2' L x 4' H
11	Delamination - 6' L x 4' H	24	Delamination - 9' L x Variable Width
12	Delamination - 20' L x 4' H		
13	Delamination - 6' L x 3' H	25	Delamination - 6' L x 1' H
14	Delamination w/ Spall w/ exp. Reinf. - 4' L x 2' H	26	Delamination - 13' L x 2' H



SPAN 3 – UPPER DECK PLAN

SPAN 3, UPPER DECK DEFICIENCIES			
#	DEFECT	#	DEFECT
1	Spall w/ exp. Reinf. w/ minor S.L., 3" D - 8 SF (3 LF)	9	Delam. **and cracking** (3 LF)
2	Delam. - 2 SF (2 LF)	10	Delam. - 20 SF (7 LF)
3	Spall w/ exp. Reinf., 1.5" D - 0.5 SF (1 LF)	11	Spall w/ exp. Reinf - 3 SF (2 LF) & Delam. 16 SF (8 LF)
4	Delam. - 4 SF (2 LF)	12	Delam. - 1 SF (1 LF)
5	Delam. w/ small spall - 12 SF (4 LF)	13	Delam. - 3 SF (2 LF)
		14	Delam. - 2 SF (1 LF)
6	Delam. w/ small spall - 10 SF (5 LF)	15	Delam. - 1 SF (1 LF)
		16	Delam. - 1 SF (1 LF)
7	**Spall w/ exp. Reinf. - 4 SF (2 LF)**	17	Spall w/ exp. Reinf - 1 SF (1 LF)
8	Spall w/ exp. Reinf., 3" D - 20 SF (5 LF)	18	Spall w/ exp. Reinf., 2" D - 3 SF (2 LF)
		19	**Cracking - 12 LF**

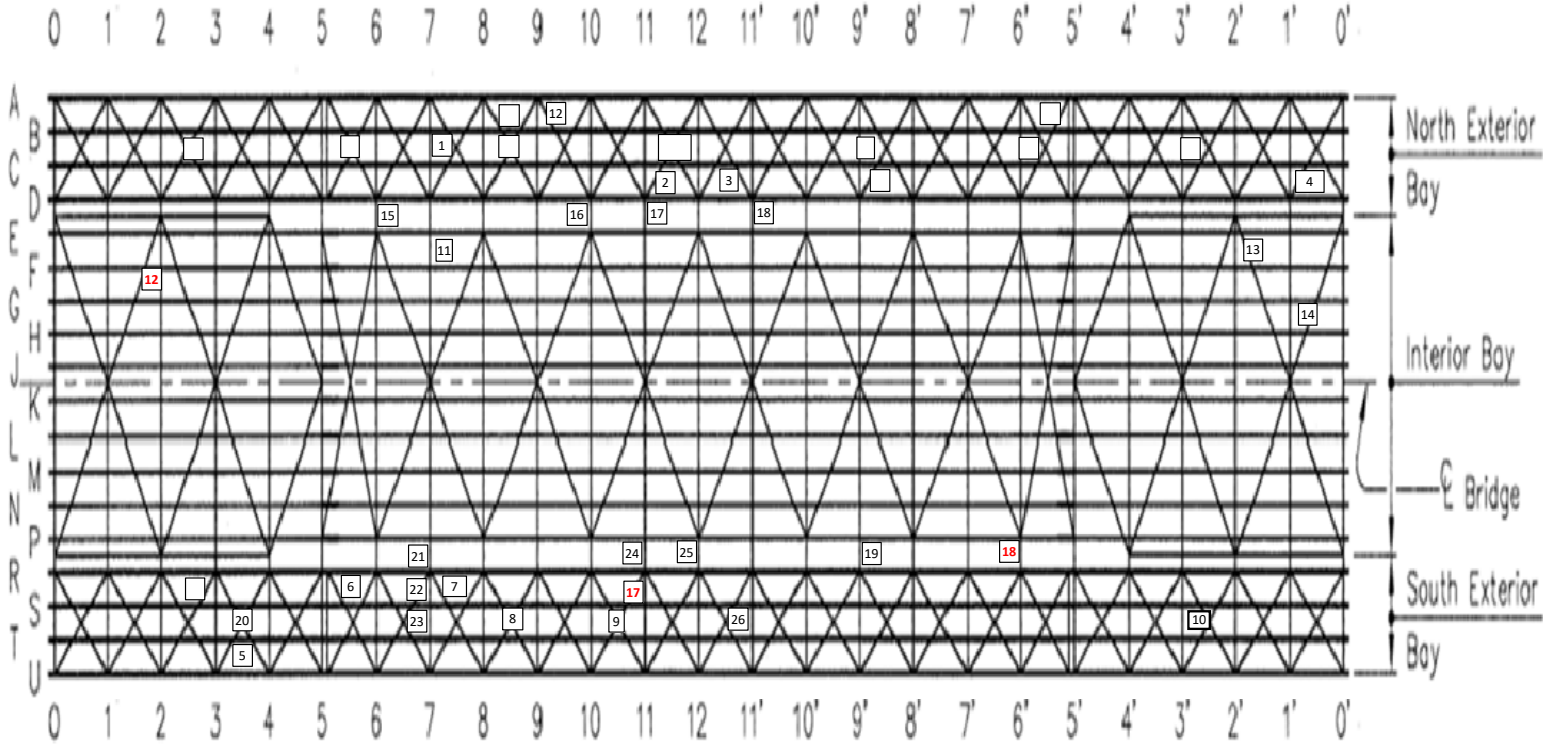


SPAN 3 – LOWER DECK PLAN

SPAN 3, LOWER DECK DEFICIENCIES			
#	DEFECT	#	DEFECT
1	Spall w/ exp. Reinf - 1' L x 1' H	7	Spall w/ exp. Reinf. - 12' L x 2' H
2	Delam. - 2' L x 2' H	8	Delam. - 3' L x 1' H
3	Delam. - 12' L x 1' H	9	Delam. - 2' L x 2' H
4	Delam. - 10' L x 1' H	10	Delam. - 2' L x 2' H
5	Delam. - 6' L x 1.5' H	11	Delam. - 4' L x 2' H
6	Delam. - 10' L x 2' H & Spall w/ exp. Reinf. - 4' L x 1' H	12	Delam. - 4' L x 1' H
		13	Delam. - 2' L x 0.5' H

General Findings:

☐ = Area of Moisture Staining with efflorescence

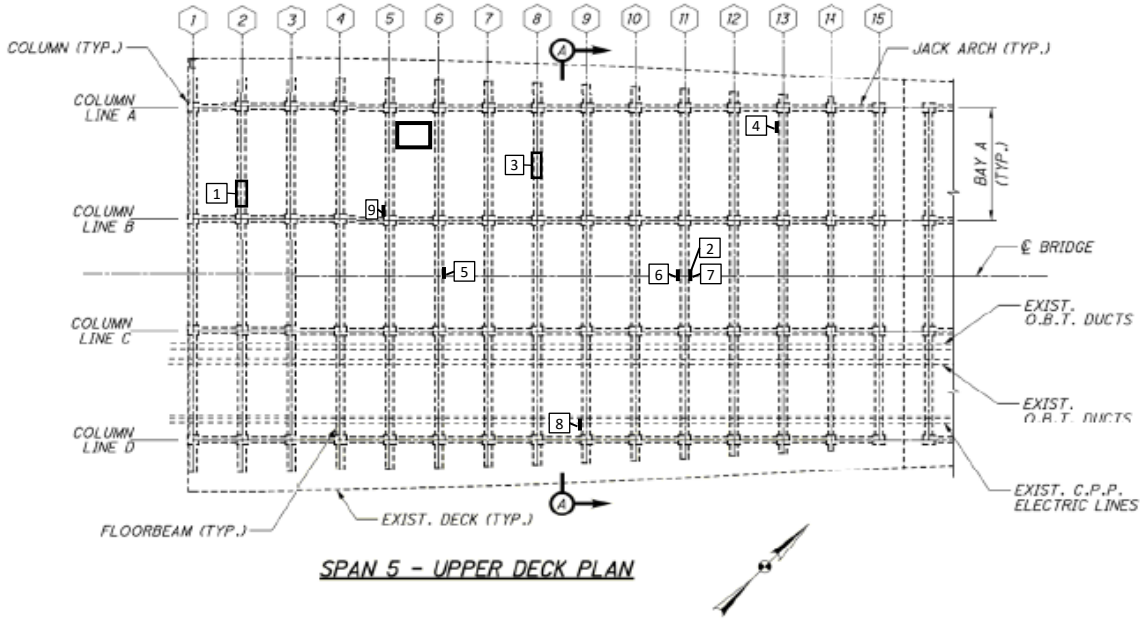


SPAN 4, UPPER DECK DEFICIENCIES			
#	DEFECT	#	DEFECT
1	Spall w/ exposed Reinforcement - 1 SF	14	Spall w/ exposed Reinforcement - 2 SF
2	Spall w/ exposed Reinforcement - 1 SF	15	Spall w/ exposed Reinforcement - 2 SF
3	Spall - 1 SF	16	Spall - 1 SF
4	Spall - 1 SF	17	Spall w/ exposed Reinforcement - 1 SF
5	Delamination - 4 SF	18	Spall - 1 SF
6	Delamination - 1 SF	19	Spall w/ exposed Reinforcement - 1 SF
7	Delamination - 1 SF	20	Spall - 1 SF
8	Spall, 1/2" D - 1 SF	21	Spall w/ exposed reinforcement - 2 SF
9	Delamination - 9 SF	22	Spall w/ exposed reinforcement - 4 SF
10	Spall w/ exp. Reinf. - **3" D** - 6 SF	23	Spall w/ exposed reinforcement - 1 SF
11	Spall w/ exposed Reinforcement - 1 SF	24	Spall w/ exposed reinforcement - 2 SF
12	Spall - 1 SF	25	Spall w/ exposed reinforcement - 2 SF
13	Spall w/ exposed Reinforcement - 2 SF	26	Spall w/ exposed reinforcement - 1 SF

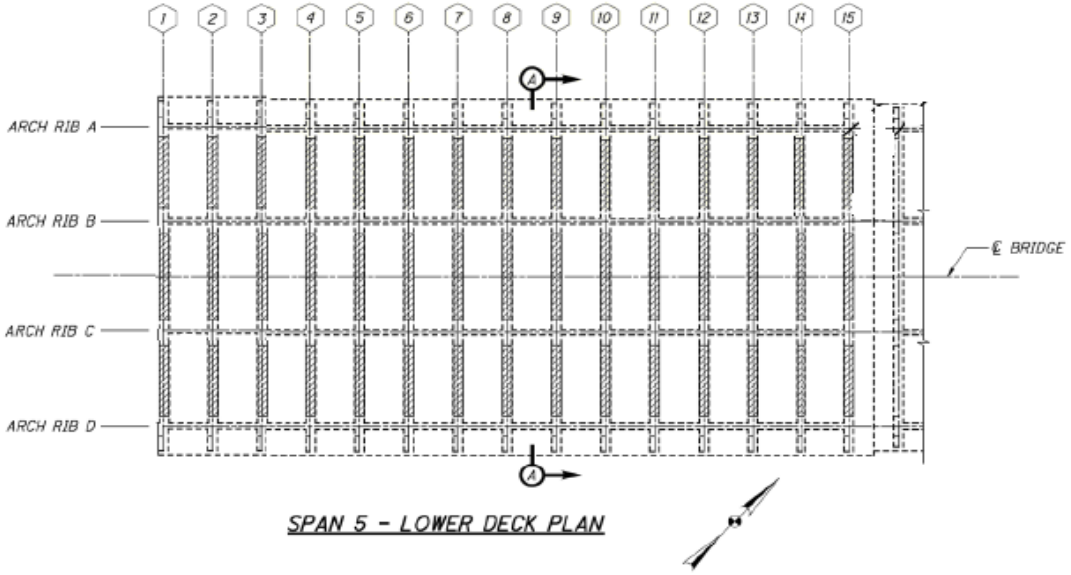
General Findings:

* Typical Delamination / Spalling (< 1 SF) adjacent to the floorbeams

 = Area of Moisture Staining with efflorescence



SPAN 5 – UPPER DECK PLAN



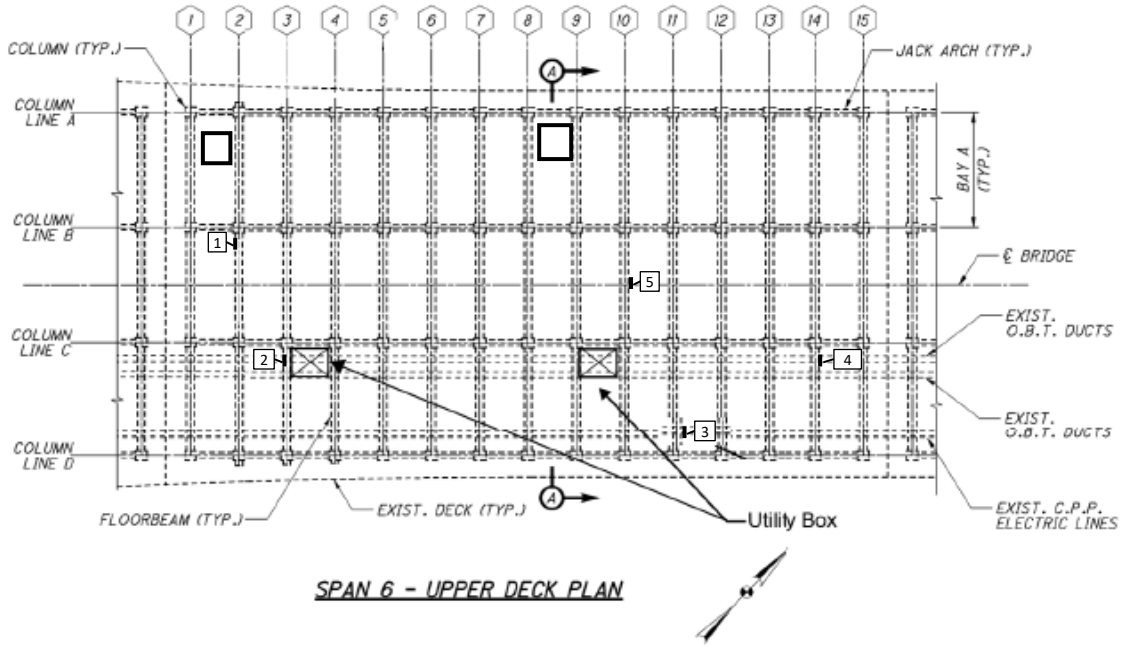
SPAN 5 – LOWER DECK PLAN

SPAN 5, UPPER DECK DEFICIENCIES	
#	DEFECT
1	Spall w/ exp. Reinf. - 3 SF (2 LF)
2	Delamination (Bottom of Beam) - 1 SF (1 LF)
3	Spall - 1 SF (1 LF)
4	Delamination - 9 SF (3 LF)
5	Spall w/ exp. Reinf., 2" D - 4 SF (2 LF)
6	Spall w/ exp. Reinf. w/ minor S.L., 3" D - 9 SF (3 LF)
7	Spall (failed patch) - 6 SF (3 LF)
8	Spall w/ exp. Reinf., 1" D - 1 SF (1 LF)
9	Delamination - 3 SF (1 LF)

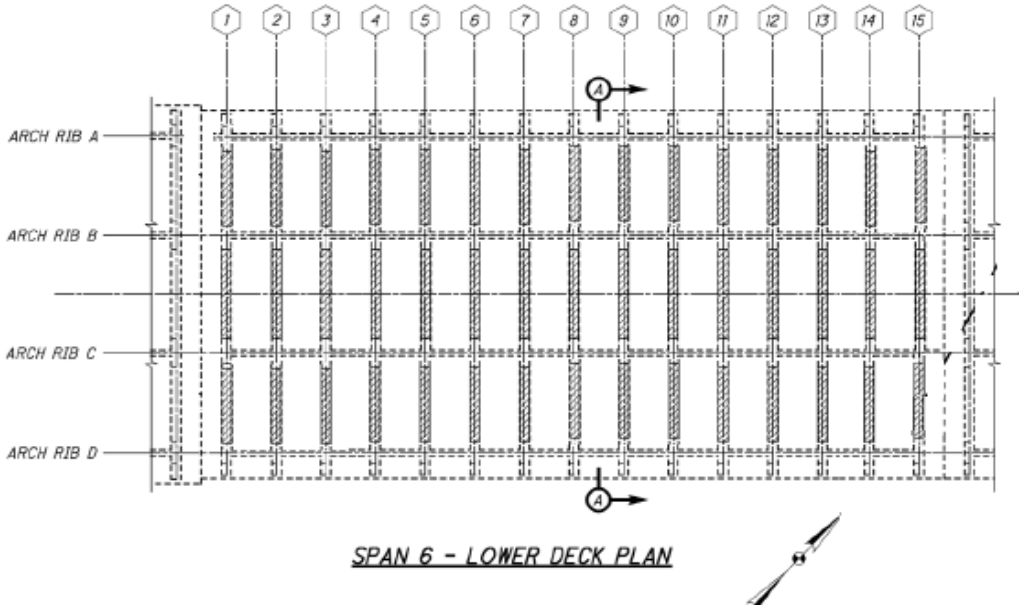
General Findings for Upper Deck:

In Bay B, there are numerous vertical hairline cracks wih efflorescence. Some cracks have been epoxy injected with 3-ft to 5-ft spacing.

☐ = Area of Moisture Staining around the deck drain



SPAN 6 - UPPER DECK PLAN

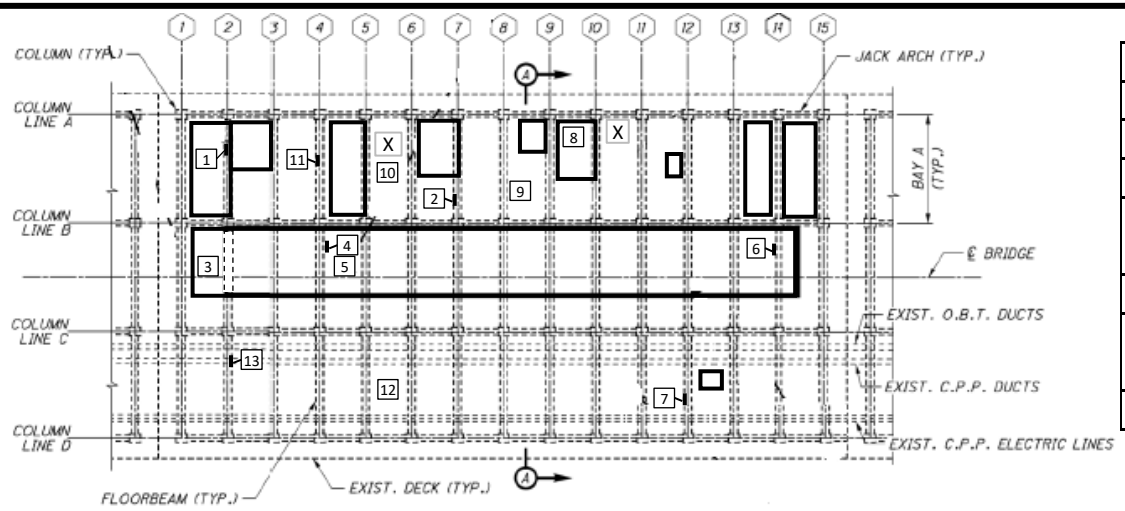


SPAN 6 - LOWER DECK PLAN

SPAN 6, UPPER DECK DEFICIENCIES	
#	DEFECT
1	Spall w/ exp. Reinf., 4" D - 6 SF (2 LF)
2	Spall w/ exp. Reinf., 1" D - 1 SF (1 LF)
3	Delamination - 6 SF (3 LF)
4	Spall w/ exp. Reinf., 1" D - 1 SF (1 LF)
5	Spall w/ exp. Reinf., 1.75" D - 3 SF (2 LF)

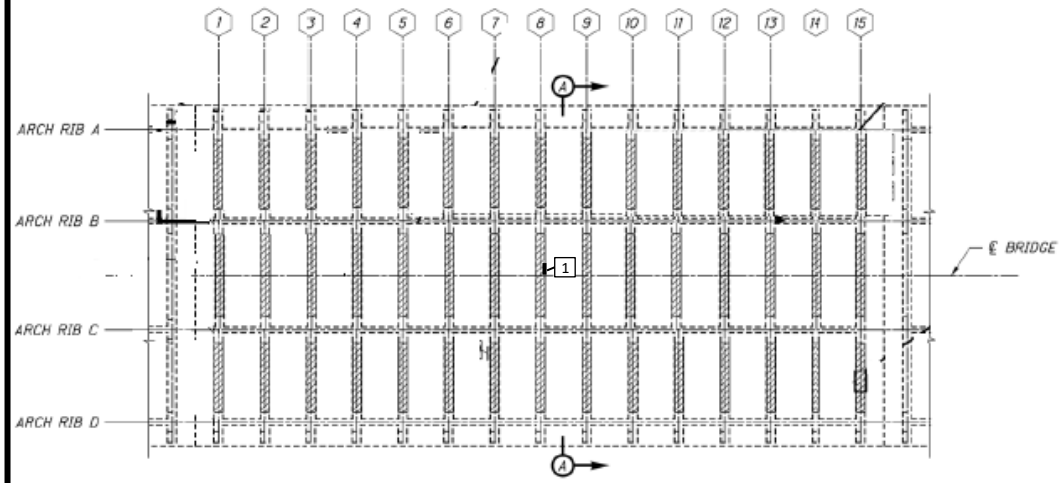
General Findings:

☐ = Area of Moisture Staining



SPAN 7 – UPPER DECK PLAN

SPAN 7, UPPER DECK DEFICIENCIES			
#	DEFECT	#	DEFECT
1	Delam. - 1 SF (1 LF)	7	Delam. - 5 SF (5 LF)
2	Delam. - 1 SF (1 LF)	8	Delamination - 18 SF
3	Hairline crack w/ eff. and moisture staining - 4 LF	9	Delamination - 8 SF
		10	Delamination - 30 SF
4	Spall w/ exp. Reinf. - 1 SF (1 LF)	11	Spall - 1 SF (1 LF)
5	Hairline cracking w/ eff. & active leakage - 9 SF	12	Delamination - 4 SF
		13	Delamination - 1 SF (1 LF)
6	Spall, 1" D - 4 SF (2 LF)		



SPAN 7 – LOWER DECK PLAN

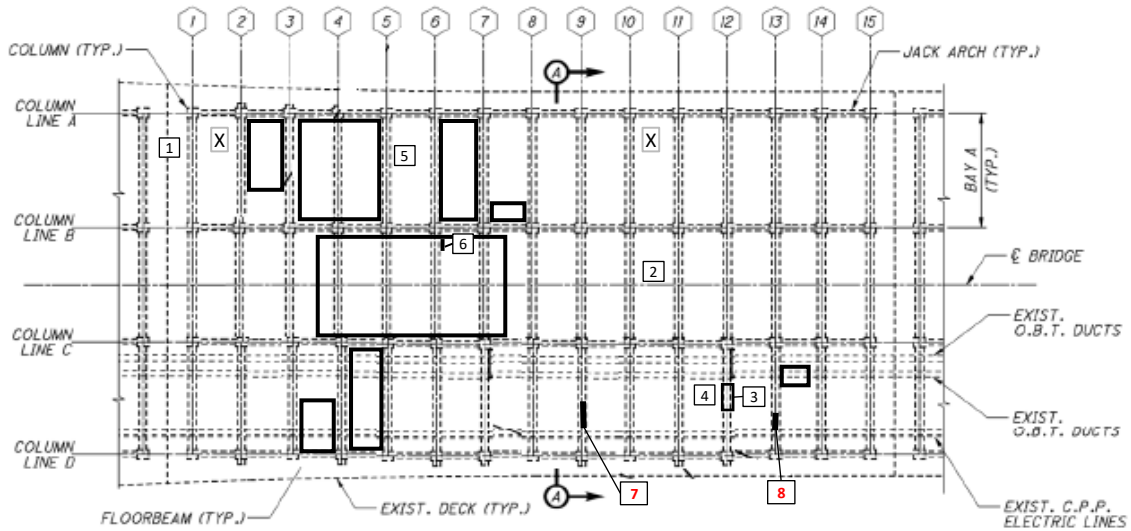
SPAN 7, UPPER DECK DEFICIENCIES	
#	DEFECT
1	Delamination - 1 SF (1 LF)

General Findings:

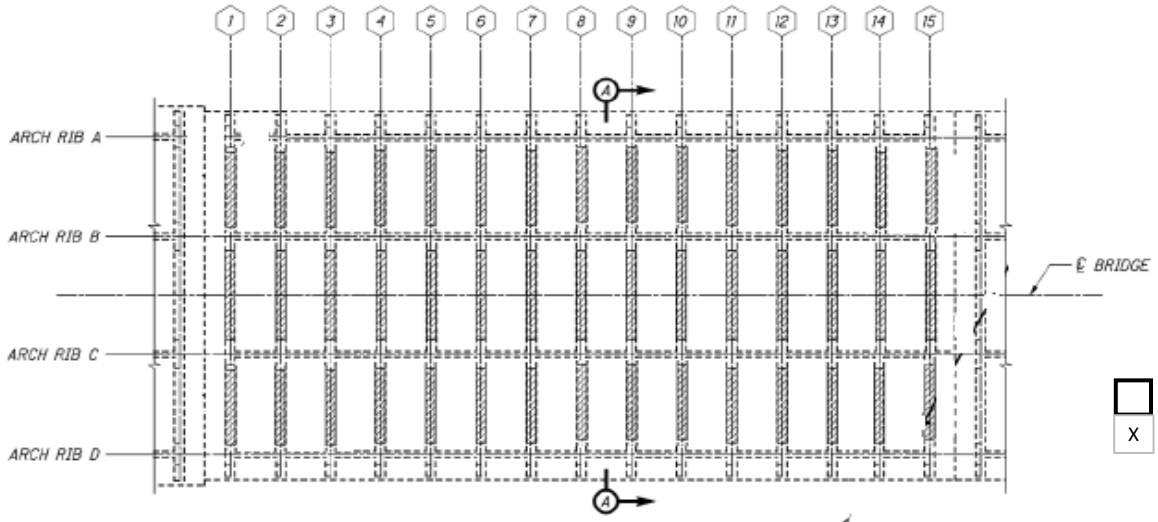
Area of Moisture Staining with efflorescence

X Area of Moisture Staining around the deck drains

Bay B floorbeams have hairline vertical cracks spaced about 3' apart. Some have light efflorescence.



SPAN 8 – UPPER DECK PLAN



SPAN 8 – LOWER DECK PLAN

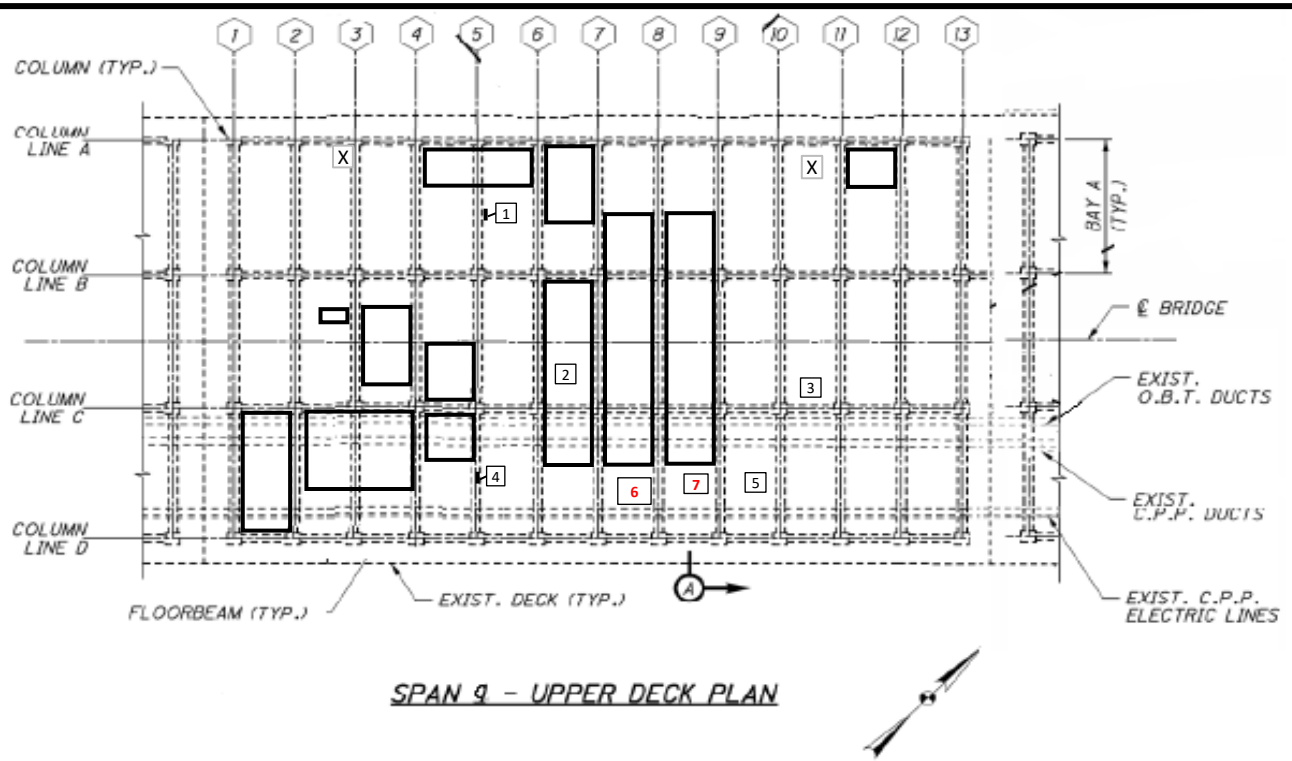
SPAN 8, UPPER DECK DEFICIENCIES	
#	DEFECT
1	Leaking at the deck joint - 1 LF
2	Spall w. exp. Reinf., 2" D - 1 SF
3	**Delam. with Efflorescence** - 4 SF (4 LF)
4	Spall w. exp. Reinf. - 9 SF
5	Delamination - 20 SF
6	**Shallow spall** - 1 SF (1 LF)
7	**Delam./cracking - 8 LF**
8	**Cracking - 2 LF**

General Findings:

☐ Area of Moisture Staining with efflorescence

X Area of Moisture Staining around the deck drains

* Bay B floorbeams have hairline vertical cracks spaced about 3' apart. Some have light efflorescence.



SPAN 9 – UPPER DECK PLAN

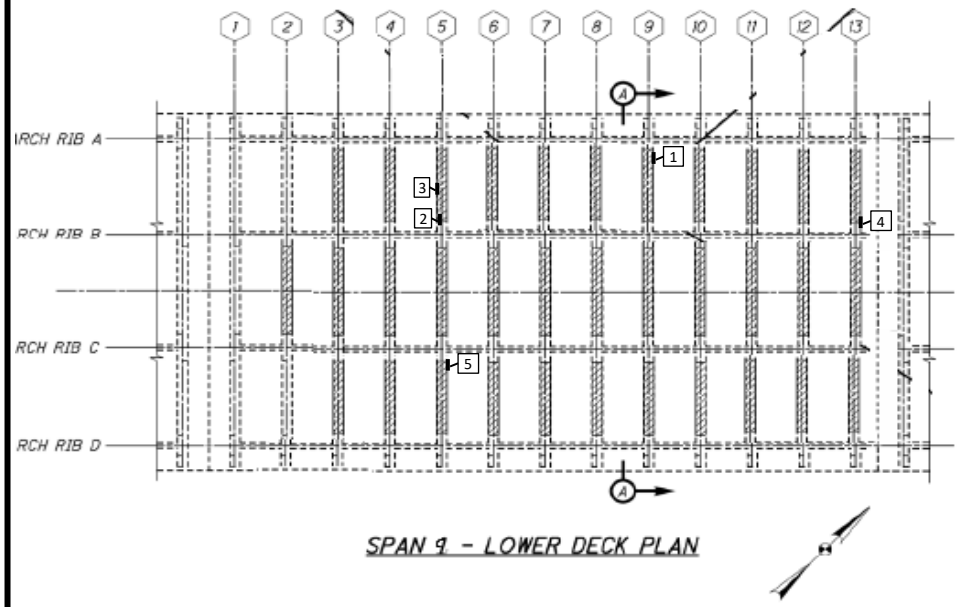
SPAN 9, UPPER DECK DEFICIENCIES	
#	DEFECT
1	Delamination - 1 SF (1 LF)
2	Spall **w/ exp. Reinf.**, 2.5" D - 4 SF
3	Spall w/ exp. Reinf., 1.5" D - 1 SF
4	Delamination - 4 SF (4 LF)
5	Delamination - **3** SF
6	**Delamination - 12 SF**
7	**Delamination - 1 SF**

General Findings:

☐ = Area of Moisture Staining with efflorescence

X = Area of Moisture Staining around the deck drains

Bay B floorbeams have hairline vertical cracks spaced about 3' apart. Some have light efflorescence.



SPAN 9 - LOWER DECK PLAN

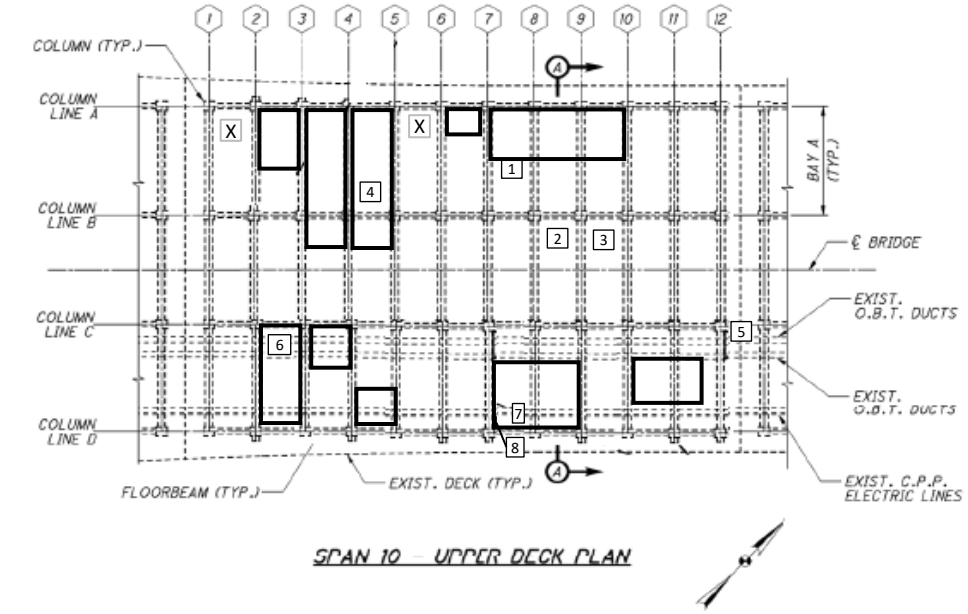
SPAN 9, LOWER DECK DEFICIENCIES	
#	Defect
1	Delamination - 1' L x 1' H
2	Delamination - 1' L x 2' H
3	Delamination - 2' L x 2' H
4	Delamination - 4' L x 2' H
5	Delamination - 1' L x 1' H

General Findings:

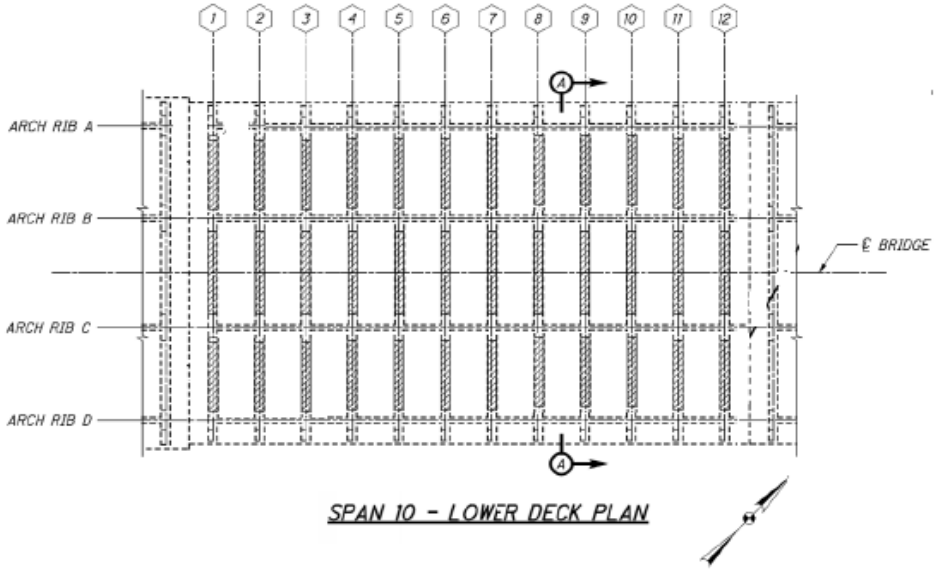
☐ = Area of Moisture Staining with efflorescence

X = Area of Moisture Staining around the deck drains

Bay B floorbeams have hairline vertical cracks spaced about 3' apart. Some have light efflorescence.



SPAN 10 – UPPER DECK PLAN



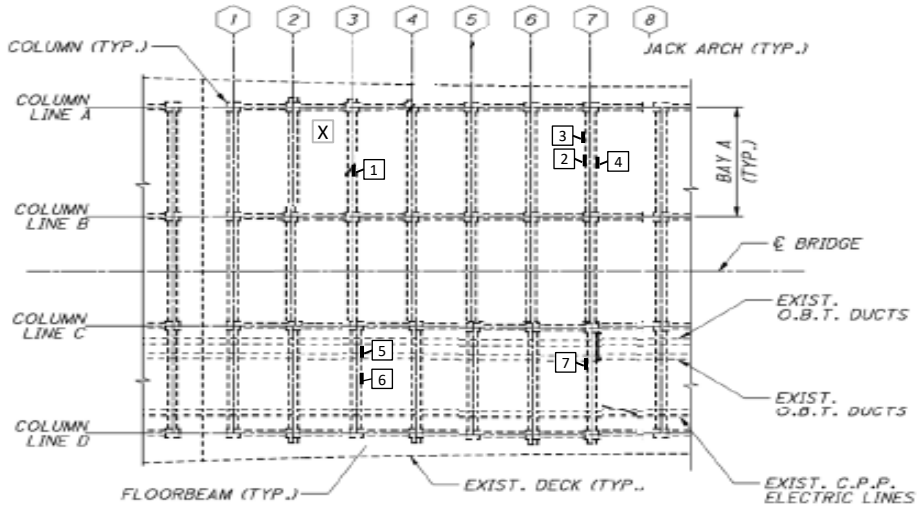
SPAN 10 – LOWER DECK PLAN

SPAN 10 - UPPER DECK DEFICIENCIES	
#	DEFECT
1	Spall w/ exp. Reinf., 2" D - 1 SF
2	Spall w/ exp. Reinf., 2" D - 3 SF
3	Spall w/ exp. Reinf., 2" D - 1 SF
4	Delamination - 12 SF
5	Leaking from hole in Joint 3 - 3 LF
6	Delamination w/ Efflorescence - 1 SF
7	Crack w/ Efflorescence for Half Span
8	Spall w/ exp. Reinf. - 1 SF (1 LF)

General Findings:

☐ = Area of Moisture Staining with efflorescence

X = Area of Moisture Staining around the deck drains

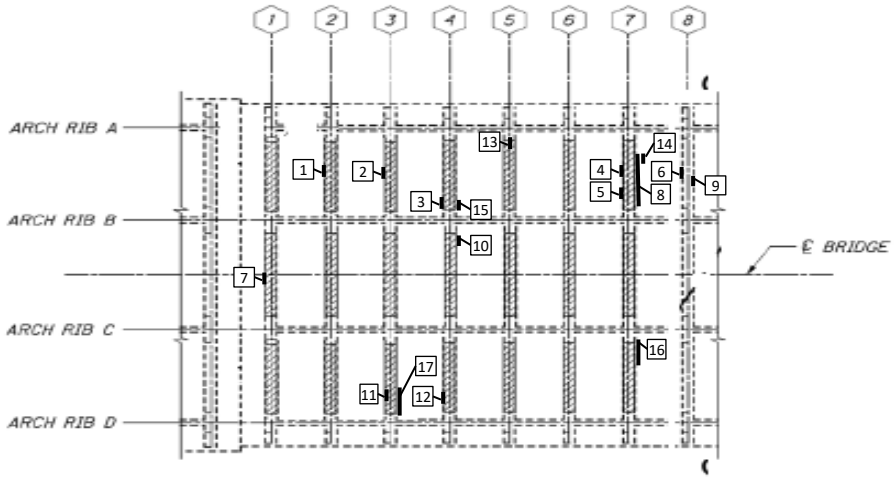


SPAN 11 -- UPPER DECK PLAN

SPAN 11, UPPER DECK DEFICIENCIES	
#	DEFECT
1	Spall w/ exp. Reinf., 1" D - 8 SF (6 LF)
2	Spall w/ exp. Reinf., 1" D - 2 SF (1 LF)
3	Spall w/ exp. Reinf. - 1 SF (1 LF)
4	Spall w/ exp. Reinf., 1" D - 2 SF (1 LF)
5	Delamination - 1 SF
6	Delamination - 2 SF
7	Delamination - 2 SF (2 LF)

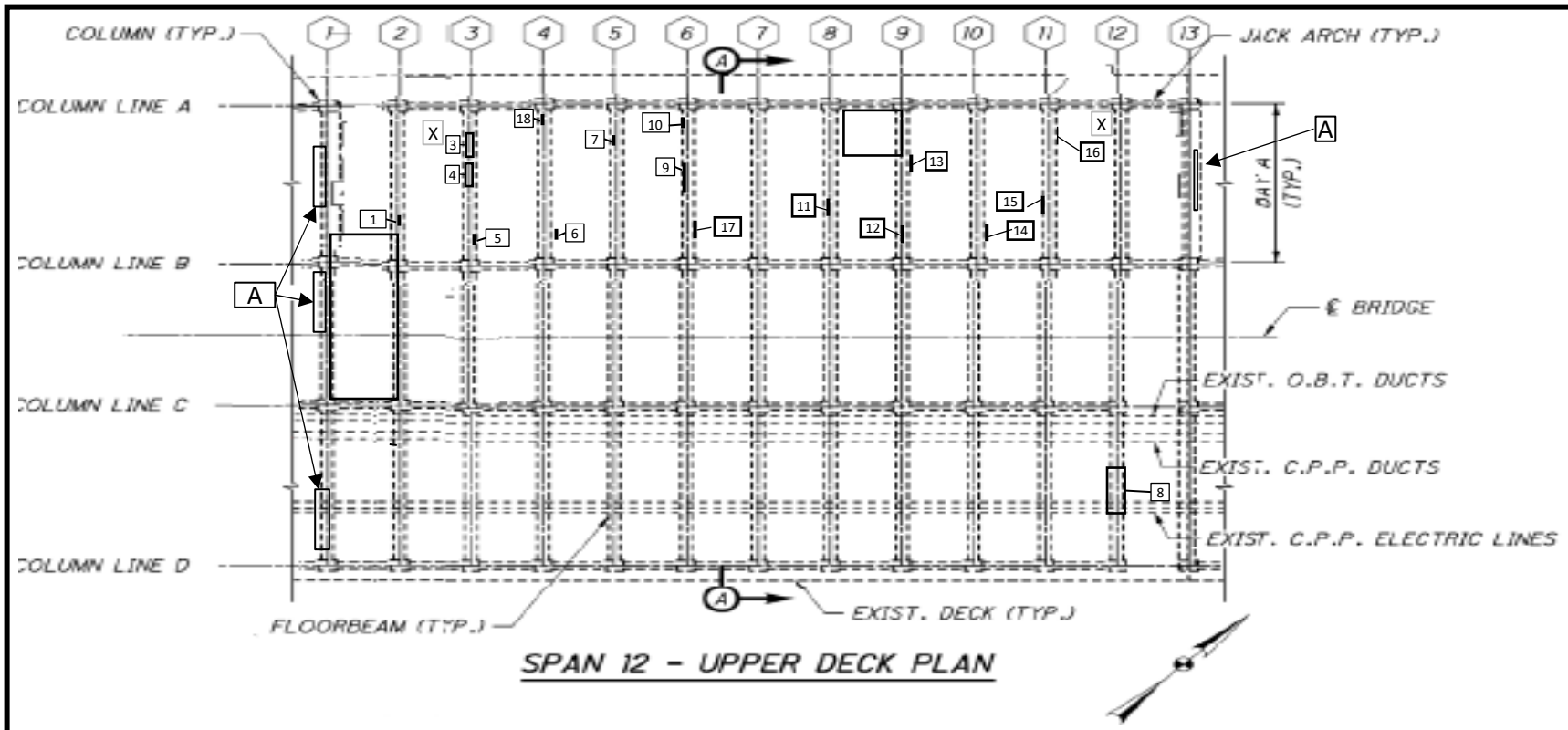
General Findings:

X = Area of Moisture Staining around the deck drains



SPAN 11 - LOWER DECK PLAN

SPAN 11, LOWER DECK DEFICIENCIES			
#	DEFECT	#	DEFECT
1	Delamination w/ Spalling - 1' W x 4' H	8	Crack - 8 LF
		9	Delamination - 6" W x 2' H
2	Delamination - 1' W x 1' H	10	Delamination - 6" W x 2' H
3	Delamination - 6" W x 2' H	11	Delamination - 6' W x 1' H
4	Spall w/ exp. Reinf. - 6" W x 1.5' H	12	Delamination - 4' W x 1' H
		13	Delam. w/ Spall w/ exp. Reinf. - 1' W x 1' H
5	Spall w/ exp. Reinf. - 6" W x 1.5' H	14	Delamination - 6" W x 1' H
6	Delamination - 2' W x 2' H	15	Delamination - 6" W x 1' H
7	Spall w/ exp. Reinf., 2" D - 1.5' W x 1.5' H	16	Delamination - 1' W x 2' H
		17	Delamination - 5' W x 1' H



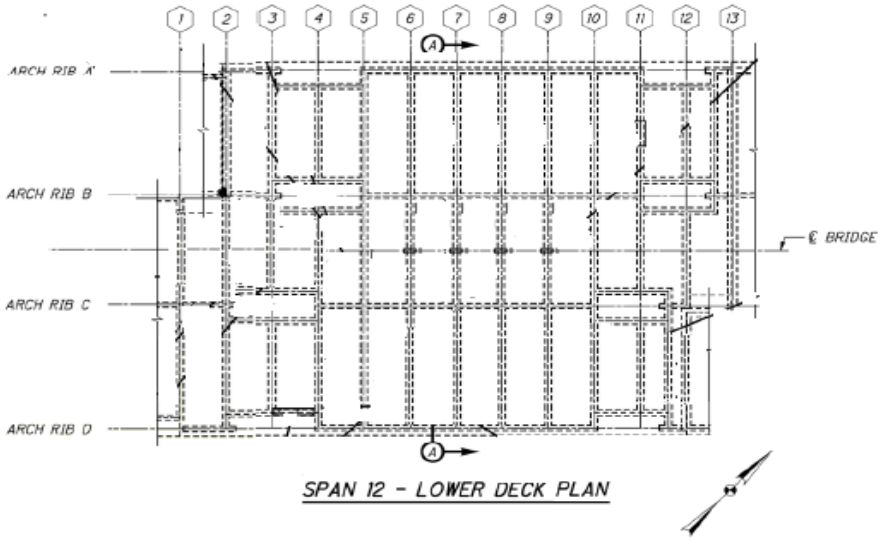
SPAN 12 - UPPER DECK PLAN

SPAN 12 - UPPER DECK DEFICIENCIES			
#	DEFECT	#	DEFECT
1	Delamination - 1 SF (1 LF)	12	Spall w/ exp. Reinf., 1" D - 2 SF (2 LF)
2	Spall w/ exp. Reinf. - 1 SF (1 LF)	13	Delam. w/ Spall w/ exp. Reinf., 1" D - 3 SF (3 LF)
3	Delamination - 4 SF (2 LF)		
4	Delamination - 3 SF (3 LF)	14	Spall w/ exp. Reinf. - 1 SF (1 LF)
5	Delamination - 3 SF (3 LF)	15	Delamination - 6 SF
6	Spall w/ exp. Reinf. - 1 SF (1 LF)	16	Delamination - 1 SF
7	Spall w/ exp. Reinf. - 3 SF (3 LF)	17	Delamination - 1 SF (1 LF)
8	Delamination - 2 SF (2 LF)	18	Spall w/ exp. Reinf. - 1 SF (1 LF)
9	Delamination - 27 SF (9 LF)		
10	Spall w/ exp. Reinf. - 1 SF (1 LF)		
11	Spall w/ exp. Reinf. - 1 SF (1 LF)		

X = Area of Moisture Staining around the deck drains

☐ = Area of Moisture Staining with efflorescence

See the next sheet for note A



SPAN 12 - LOWER DECK PLAN

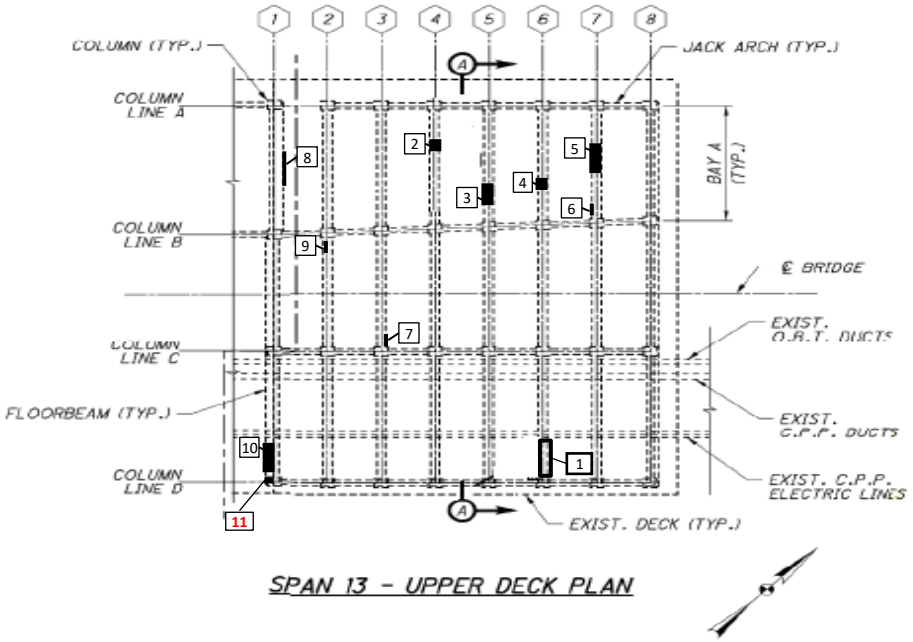
SPAN 12, LOWER DECK DEFICIENCIES				
FB #	Defect	Bay A (sf)	Bay B (sf)	Bay C (sf)
1	Delamination		0	0
	Spall w/ exp. Reinf.		0	0
2	Delamination	4 (4)	19 (8)	13 (5)
	Spall w/ exp. Reinf.	5 (5)	14 (6)	5 (3)
3	Delamination	1 (1)	3 (3)	0
	Spall w/ exp. Reinf.	0	0	0
4	Delamination	6 (3)	6 (6)	33 (12)
	Spall w/ exp. Reinf.	6 (3)	4 (3)	16 (6)
5	Delamination	8 (8)	6 (3)	17 (9)
	Spall w/ exp. Reinf.	16 (7)	0	6 (4)
6	Delamination	94 (30)	0	12 (8)
	Spall w/ exp. Reinf.	0	1 (1)	1 (1)
7	Delamination	2 (2)	0	0
	Spall w/ exp. Reinf.	0	0	0
8	Delamination	2 (2)	11 (6)	4 (2)
	Spall w/ exp. Reinf.	2 (2)	2 (2)	1 (1)
9	Delamination	22 (10)	19 (7)	45 (15)
	Spall w/ exp. Reinf.	0	0	2 (2)
10	Delamination	14 (7)	0	8 (4)
	Spall w/ exp. Reinf.	32 (8)	0	0
11	Delamination	4 (2)	0	8 (4)
	Spall w/ exp. Reinf.	7 (4)	2 (4)	0
12	Delamination	10 (5)	4 (2)	20 (10)
	Spall w/ exp. Reinf.	8 (6)	0	2 (1)
13	Delamination	0	0	
	Spall w/ exp. Reinf.	0	0	

LF in (x)

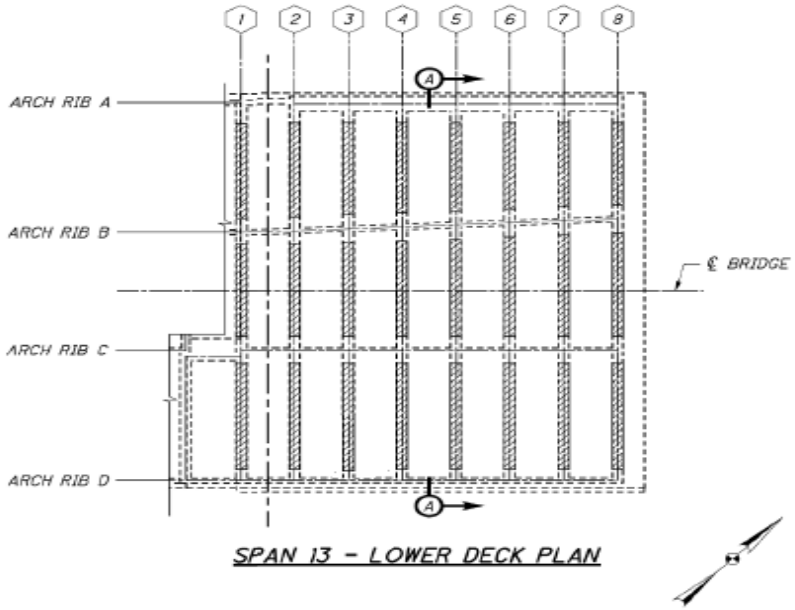
SPAN 12 - UPPER DECK FINDINGS:

Note A: Between the deck underside and the top of the transverse floorbeam overs Piers 11 and 12, there are 3" H concrete pedastals with galvanized steel plates sitting on top and between each pedestal. In several locations these plates are missing and no longer support the deck underside, or have displaced from the bearing pedestal. See Table below for locations and description of displaced plates.

Joint	Location	Description
Pier 11	Ribs A-B	One plate missing and one displaced 3.5" east
	Ribs B-C	Two plates missing and one plate displaced up to 1.5" west
	Ribs C-D	Six plates displaced up to 6.5" west
Pier 12	Ribs A-B	One plate missing and three displaced up to 1" east

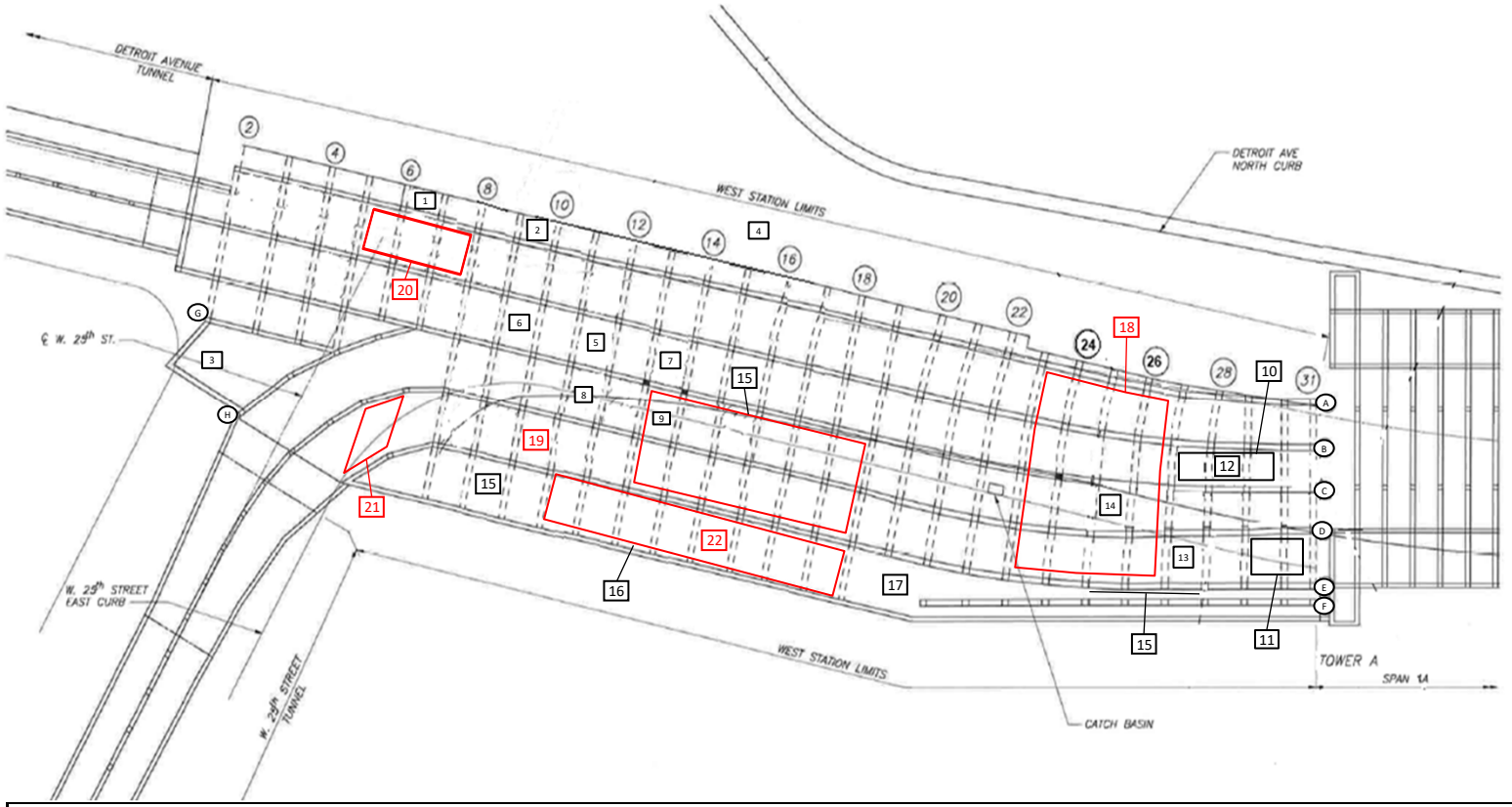


SPAN 13 – UPPER DECK PLAN



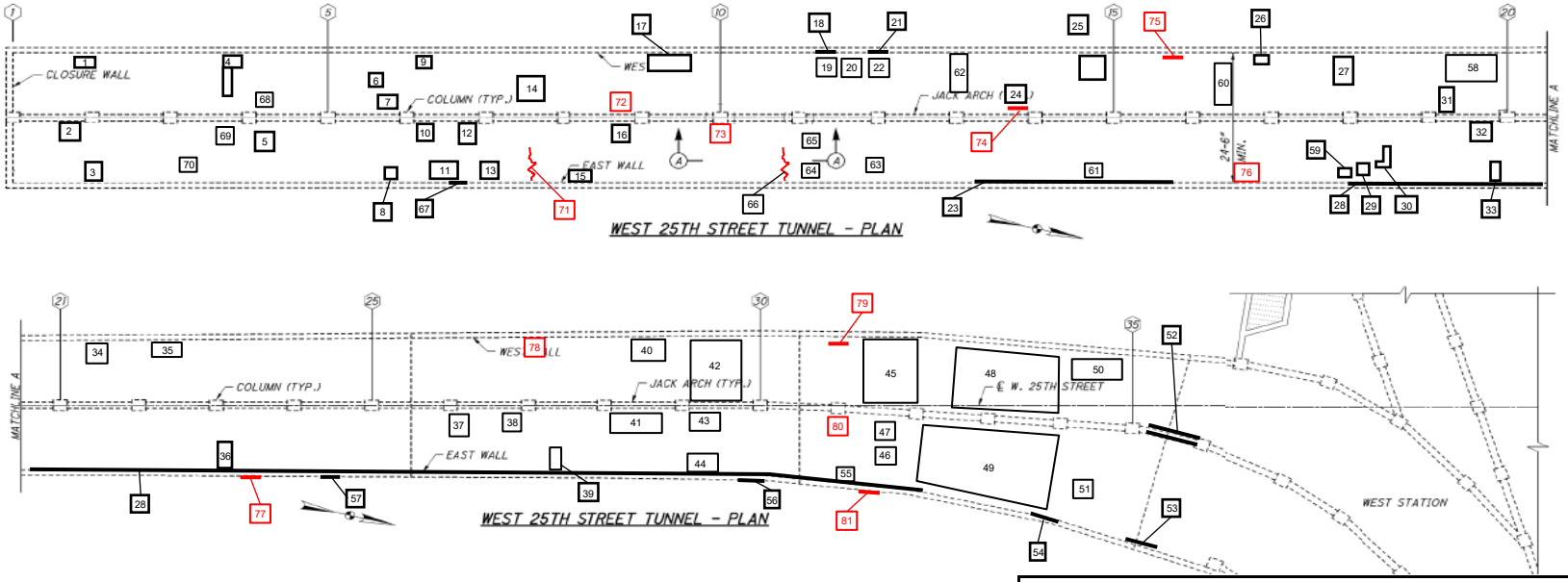
SPAN 13 – LOWER DECK PLAN

SPAN 13, UPPER DECK DEFICIENCIES	
#	DEFECT
1	Delam. w/ Spalling w/ exp. Reinf. - 24 SF, 4" D (8 LF)
2	Incomplete Sawcut Repair Location w/ exp. Reinf. (I.S.R.) - 4 SF (2 LF)
3	I.S.R. - 9 SF (6 LF)
4	I.S.R. - 4 SF (4 LF)
5	I.S.R. - 12 SF (4 LF)
6	I.S.R. - 2 SF (2 LF)
7	I.S.R. - 1 SF (1 LF)
8	Area of deck leakage - 2 LF
9	I.S.R. - 1 SF (1 LF)
10	Delamination - 12 SF (6 LF)
11	**Spall w/ exp. Reinf. - 2 SF (2 LF)**



West Station Ceiling Deficiencies

#	Defect	#	Defect	#	Defect
1	Spall w/ exp. Reinf. - 1 bar w/ 100% section loss; Adjacent bars have advanced section loss.	8	Spall w/ exp. Reinf. - 1 completely exposed bar, not broken; Adjacent bars have advanced section loss.	16	Leakage near wires
				17	Spall w/ exp. Reinf. (40 SF)
2	Spall w/ exp. Reinf. - 1 bar w/ 100% section loss; Adjacent bars have advanced section loss.	9	Spall w/ exp. Reinf. - 1 completely exposed bar, not broken.	18	Area typically has spalling with exposed rebar throughout
		10	Area typ. has numerous transverse and longitudinal cracking w/ heavy efflorescence and delam.	19	Spall w/ exp. Reinf. - 2 adjacent transverse bars w/ section loss
3	Spall w/ exp. Reinf. - 2 completely exposed bars, no broken; Adjacent bars have heavy advanced section loss.			20	Transverse cracks with efflorescence and exposed transverse reinforcing bars
		11	Spall w/ exp. Reinf. - Bars have advanced section loss.		
4	Spall w/ exp. Reinf. - 1 bar about to break.	12	Spall w/ exp. Reinf. - Adjacent bars have advanced section loss.	21	Spalls w/ exp. transverse reinforcing bars w/ section loss
5	Spall w/ exp. Reinf. - 1 completely exposed bar, not broken.	13	Spall w/ exp. Reinf. - 1 completely exposed bar, not broken; Adjacent bars have advanced section loss.	22	Spalls w/ exp. transverse reinforcing bars w/ section loss
6	Spall w/ exp. Reinf. - 1 completely exposed bar, not broken.				
7	Spall w/ exp. Reinf. - Rebar has heavy section loss & one bar hanging loose.	14	Spall w/ exp. Reinf. - 3 adjacent bars w/ complete exposure.		
		15	Excessive stalactites formation		

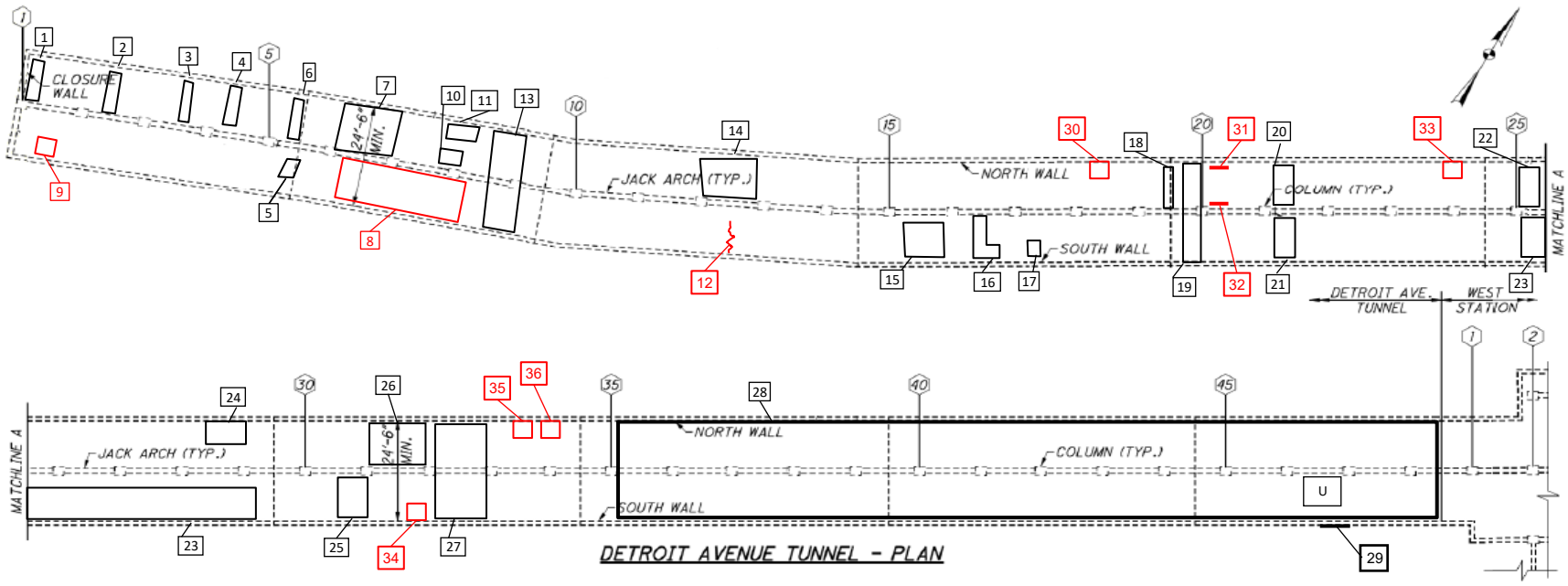


W 25TH STREET TUNNEL CEILING DEFICIENCIES
(QUANTITIES ARE CS3 UNLESS OTHERWISE NOTED)

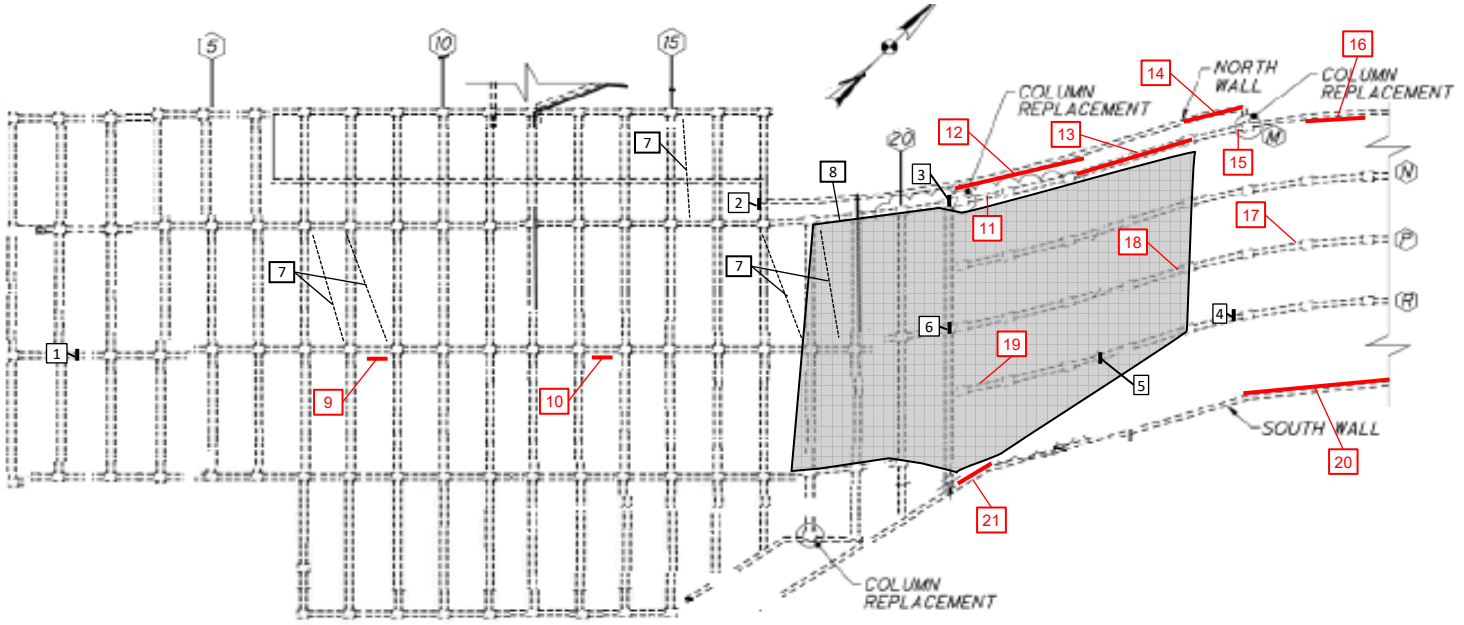
#	SF	#	SF	#	SF	#	SF	#	SF
1	**12**	*15*	**4**	*33*	**15**	*47*	**4**	66	**15**
2	**20**	*16*	**5**	*34*	**1**	*48*	**50**	68	**3**
3	**30**	*17*	**24**	*35*	**2**	*49*	**300**	69	**1**
4	**40**	*19*	**4**	*36*	**15**	*50*	**28**	70	**1**
5	**6**	*20*	**1**	*37*	**15**	*51*	**16**	71	**2 (CS2)**
6	**2**	*22*	**15**	*38*	**2**	*55*	**15**	72	**4**
7	**1**	*24*	**12**	*39*	**9**	58	**30**	73	**6 (CS2)**
8	**4**	*25*	**10**	*40*	**54**	59	**2**	76	**4**
9	**20**	*26*	**2**	*41*	**45**	60	**10 (CS2)**	78	**1**
10	**24**	*27*	**6**	*42*	**77**	61	**5 (CS2)**	80	**2**
11	**16**	*29*	**4**	*43*	**9**	62	**14 (CS2)**		
12	**5**	*30*	**8**	*44*	**9**	63	**2**		
13	**16**	*31*	**5**	*45*	**40**	64	**2**		
14	**10**	*32*	**5**	*46*	**3**	65	**9 (CS2)**		

W 25TH STREET TUNNEL DEFICIENCIES

#	Comments
18	Bottom of wall - 2 SF
21	Bottom of wall - 18 SF
23	Bottom of wall - 60 SF
28	Bottom of wall - 2.5' high spalling from columns 18-32
52	Top of arch - 75% of length, both faces
53	Wall - Full Ht x 4' Spall w/ exp. Reinf. + 10 SF spall area
54	Top of Wall - 12 SF
56	Top of wall - 10 SF Spall w/ exp. Reinf.
57	Top of wall - 1 SF Spall w/ exp. Reinf.
67	Top of wall - 4 SF Spall w/ exp. Reinf.
74	Jack Arch - N face - 2 SF Spall w/ exp. Reinf.
75	Bottom of wall - 4 SF Spall w/ exp. Reinf.
77	Top of wall - 1 SF Spall w/ exp. Reinf.
79	Bottom of wall - 5 SF Spall w/ efflo. & exp. Reinf.
81	Full height crack & 18 SF delam (spalling imminent)

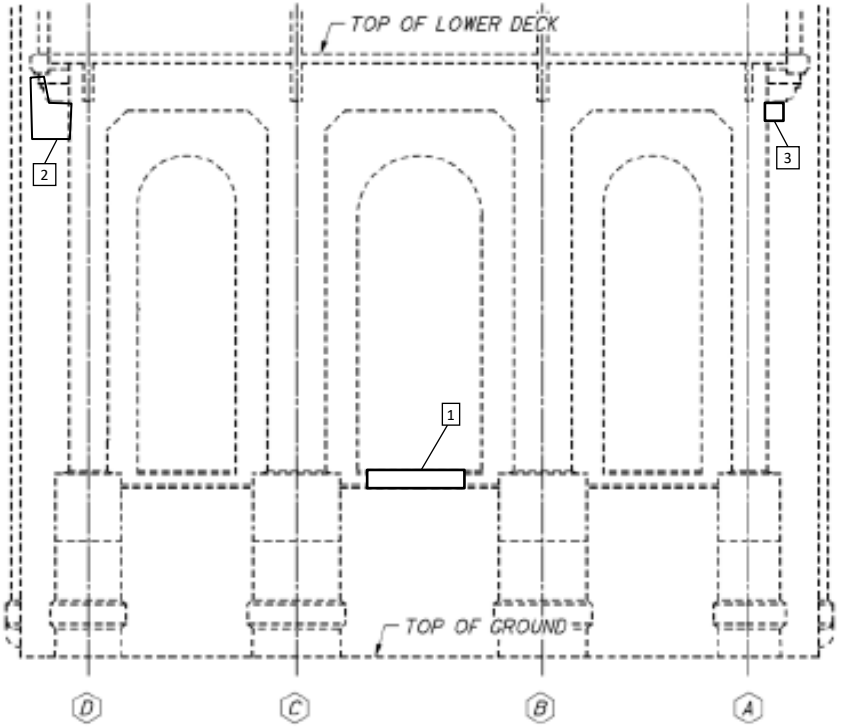


Detroit Avenue Tunnel Ceiling Deficiencies					
#	Defect	15	Spall w/ efflorescence & heavy rust staining - 96 SF	27	Spall w/ exp. Rebar - 196 SF
1	Spall w/ exp. Rebar - 50 SF			28	From C35-48, app. 55% of the ceiling is Spall w/ exp. Rebar (2630 SF) and 20% is cracking w/ seepage (956 SF).
2	Cracking w/ efflorescence & stalagtites & seepage - 66 SF	16	Spall w/ exp. Rebar - 36 SF		
		17	Spall w/ exp. Rebar - 5 SF		
3	Spall w/ exp. Rebar - 44 SF	18	Transverse & longitudinal cracks in the joint header. Joint is leaking.	29	Spall w/ exp. Rebar. - 150 SF
4	Cracking w/ efflorescence & stalagtites & seepage - 30 SF			30	Spall w/ exp. Rebar. - 1 SF
		19	Area of cracking, spalling, delamination w/ eff. & exp. Rebar - 150 SF	31	Spall w/ exp. Rebar. - 2 SF, top wall
5	Spall w/ exp. Rebar & efflo. - 6 SF			32	Spall w/ exp. Rebar. - 1 SF, jack arch, N face
6	Cracking w/ efflorescence - 30 SF	20	Spall w/ exp. Rebar - 96 SF		
7	Spall w/ exp. Rebar - 180 SF	21	Spall w/ exp. Rebar & efflo. - 48 SF	33	Spall w/ exp. Rebar. - 2 SF
8	Spall w/ exp. Rebar. - 75 SF	22	Cracking - 36 SF	34	Spall w/ exp. Rebar. - 4 SF
9	Spall w/ exp. Rebar. - 4 SF	23	Spall w/ exp. Rebar w/ seepage & rust staining - 192 SF. Also Delamination w/ cracking - 76 SF	35	Spall w/ exp. Rebar. - 4 SF
10	Cracking w/ efflorescence - 3 SF			36	Spall w/ exp. Rebar. - 4 SF
11	Spall w/ exp. Rebar - 12 SF				
12	Cracking w/ efflorescence - 2 SF	24	Spall w/ exp. Rebar - 50 SF		
13	Several spalls w/ exp. Rebar - 12 SF	25	Spall w/ exp. Rebar - 2 SF	x	The lower up to 3-ft of walls are spalled w/ exp. Reinf. For 25% of their length.
14	Spall w/ exp. Rebar - 120 SF	26	Spall w/ exp. Rebar - 80 SF		

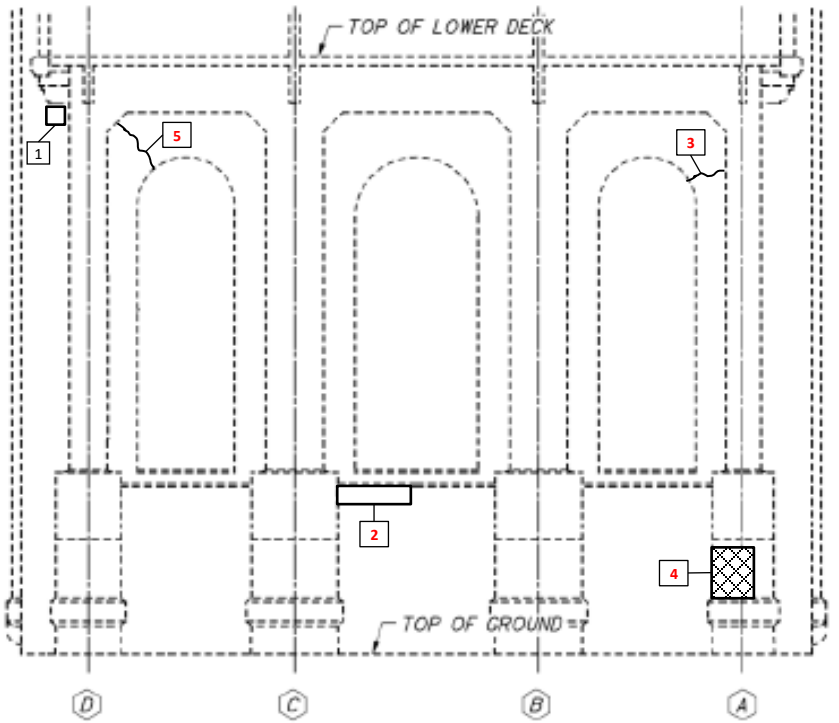


EAST STATION & SUBWAY - PLAN

EAST STATION & SUBWAY DEFICIENCIES			
#	DEFECT	#	DEFECT
1	Spall w/ exp. Reinf. - 1 SF, 1" D (underside of arch)	12	Spall w/ exp. Reinf - 25 SF (on N wall near top)
2	Spall w/ exp. Reinf. - 24 SF (in wall) and Spall - 6 SF (in btm of FB)	13	Cracks w/ efflorescence (jack arch M24-M25 & M25-M26 bot. face)
3	Spall w/ exp. Reinf. - 8 SF (top of Col. 22)	14	Spall w/ exp. Reinf - 8 SF (on N wall near top)
4	Spall w/ exp. Reinf. (N. side of jack arch 26-27) - 1 SF (1 LF)	15	Spall w/ exp. Reinf - 6 SF (on Col. M26)
5	Spall w/ exp. Reinf. (S. side of jack arch 24-25) - 1 SF (1 LF)	16	Spall w/ exp. Reinf - 6 SF (on N wall, various spalls)
6	Delamination (Both sides of Col. 22) - 2 SF	17	Spall w/ exp. Reinf - 1 SF (on jack arch P26-P27 bottom face)
7	Leaking slab cracks	18	Spall w/ exp. Reinf - 1 SF (on jack arch P24-P25 bottom face)
8	Standing water - depth varies 3"(W) to 12"(±)(E)	19	Spall w/ exp. Reinf - 1 SF (on jack arch R21-R22 bottom face)
9	Spall w/ exp. Reinf - 1 SF (on jack arch P8-P9 S. face)	20	Spall w/ exp. Reinf - 30 SF (on S wall, various spalls along top and bottom of wall, column line 27 to abutment)
10	Spall w/ exp. Reinf - 2 SF (on jack arch P13-P14 S. face)		
11	Spall w/ exp. Reinf - 1 SF (on jack arch M21-M22 S. and bottom face)	21	Spall w/ exp. Reinf - 10 SF (on S wall near bottom)



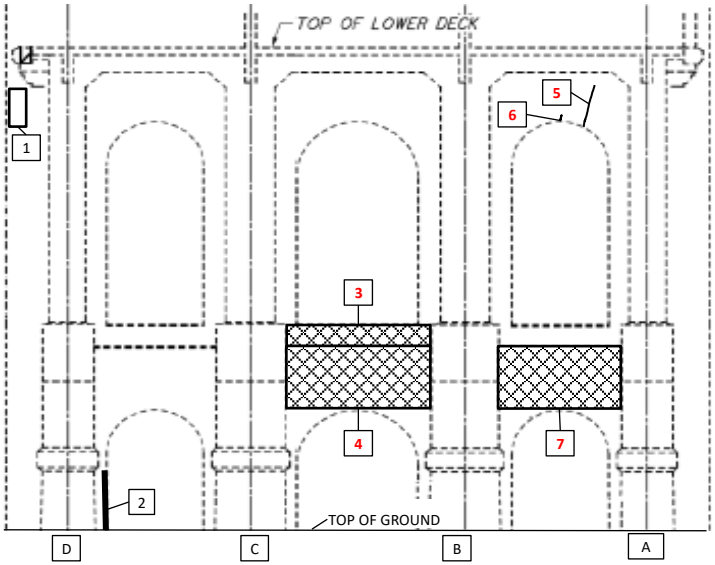
PIER 1 – EAST ELEVATION



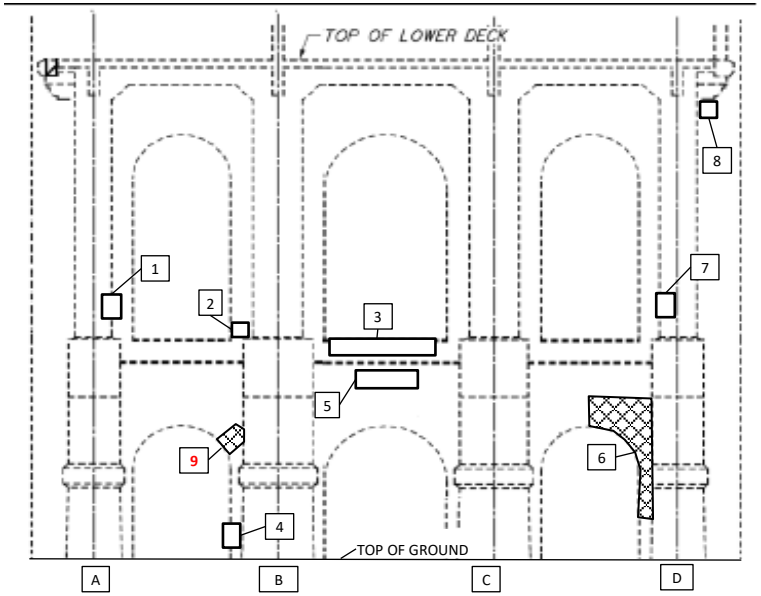
PIER 1 - WEST ELEVATION

Pier 1 - East Elevation Deficiencies	
#	Deficiency
1	Delamination - 8 SF
2	Spall w/ exp. Reinf., 8" D - 9 SF
3	Spall w/ exp. Reinf. - 4 SF

Pier 1 - West Elevation Deficiencies	
#	Deficiency
1	Delamination - 2 SF
2	**Delamination - 10 SF**
3	**Crack - 6 LF**
4	**Map Cracking - 8 SF**
5	**Crack - 8 LF**



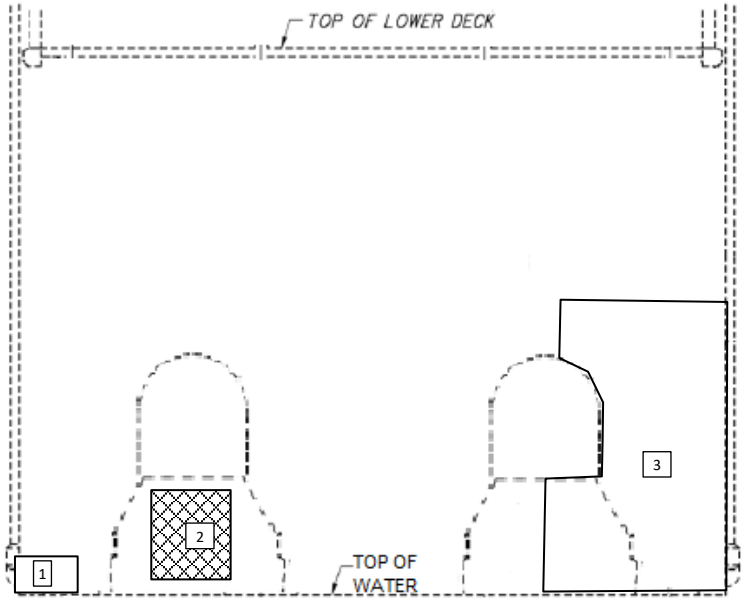
PIER 2 - EAST ELEVATION



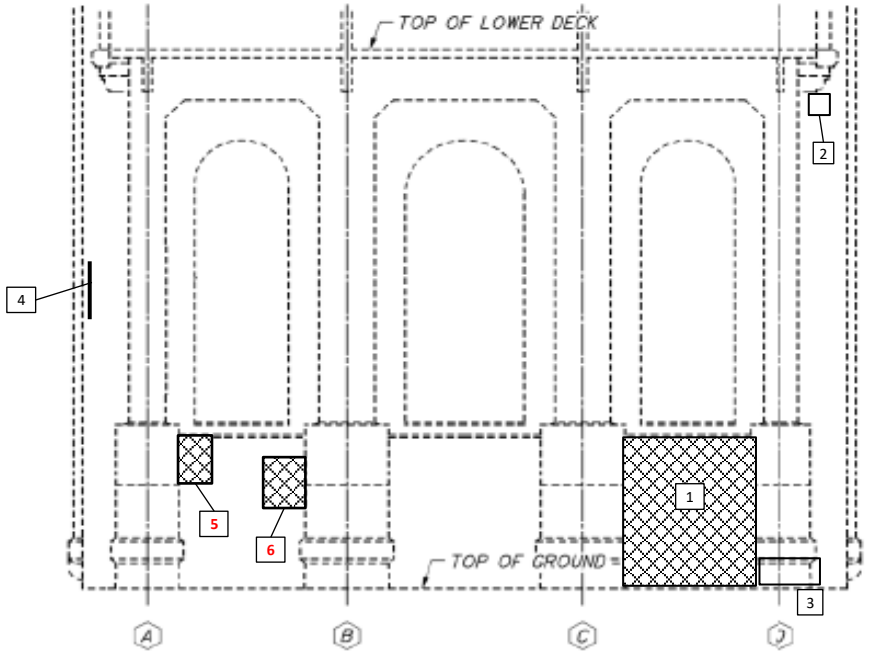
PIER 2 - WEST ELEVATION

Pier 2 - East Elevation Deficiencies	
#	Deficiency
1	Spall w/ exp. Reinf. - 6 SF
2	Map Cracking (inside face) - 15 SF
3	**Map Cracking - 45 SF**
4	**Map Cracking - 75 SF**
5	**Crack - 10 LF**
6	**Crack - 1 LF**
7	**Map Cracking - 75 SF**

Pier 2 - West Elevation Deficiencies	
#	Deficiency
1	Delamination (south inner face) - 4 SF
2	Delamination - 1 SF
3	Delamination - 20 SF
4	Delam. w/ Spall - 4 SF
5	Delamination - 10 SF
6	Map Cracking - **45** SF
7	Delamination (north inner face) - 9 SF
8	Spall w/ exp. Reinf., 4" D - 4 SF
9	**Map Cracking - 10 SF**



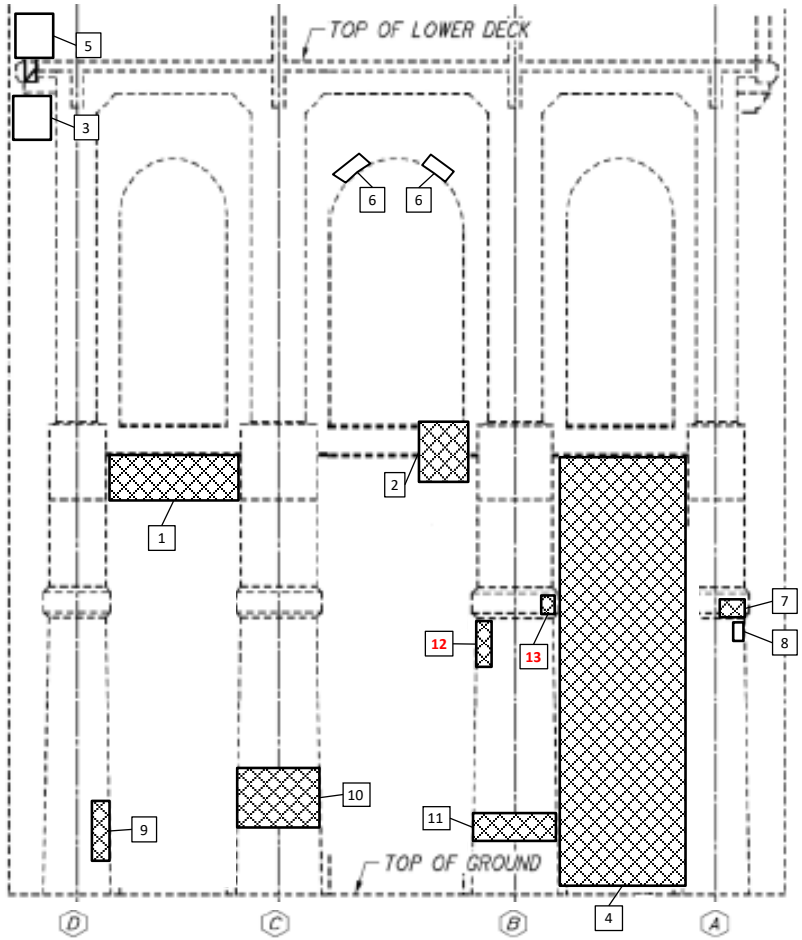
PIER 3 – EAST ELEVATION



PIER 3 – WEST ELEVATION

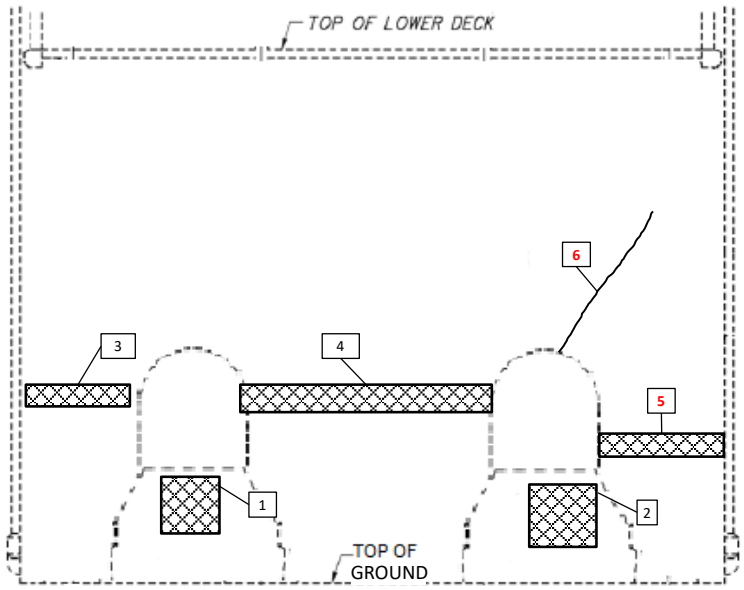
Pier 3 - East Elevation Deficiencies	
#	Deficiency
1	Corner Spall
2	Map Cracking - 144 SF
3	Vine growth covering concrete

Pier 3 - West Elevation Deficiencies	
#	Deficiency
1	Map Cracking - 80 SF
2	Spall - 1 SF
3	Base of pier has 1" D abrasion for 1' above the waterline. Embankment is steep and erodible despite placement of rubble rip rap.
4	Spall w/ exp. Reinf., 1.5" D - 5 SF
5	**Map Cracking - 8 SF**
6	**Map Cracking - 12 SF**



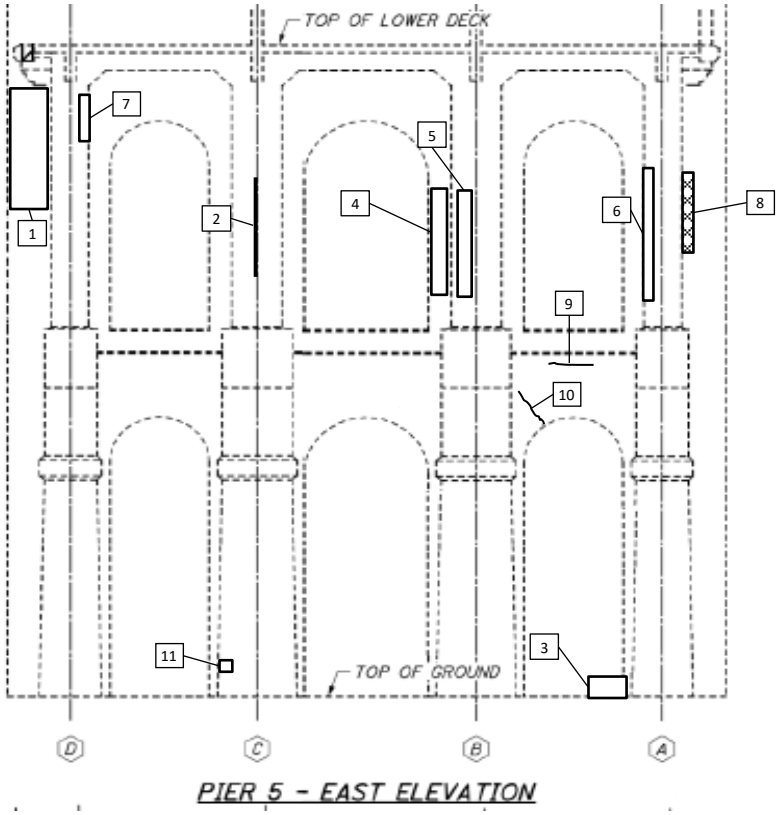
PIER 4 – EAST ELEVATION

Pier 4 - East Elevation Deficiencies			
#	Deficiency	#	Deficiency
1	Map Cracking - 32 SF	8	Spalling - 2 SF
2	Map Cracking - 16 SF	9	Map Cracking - 16 SF
3	Spalling - 1 SF	10	Map Cracking - 80 SF
4	Map Crack./Delam. - 600 SF	11	Map Cracking - 48 SF
5	Incomp. Repair - 2 SF	**12**	**Map Cracking - 7 SF**
6	Spall w/ Det. Rebar - 4 SF	**13**	**Map Cracking - 3 SF**
7	Map Cracking - 10 SF		

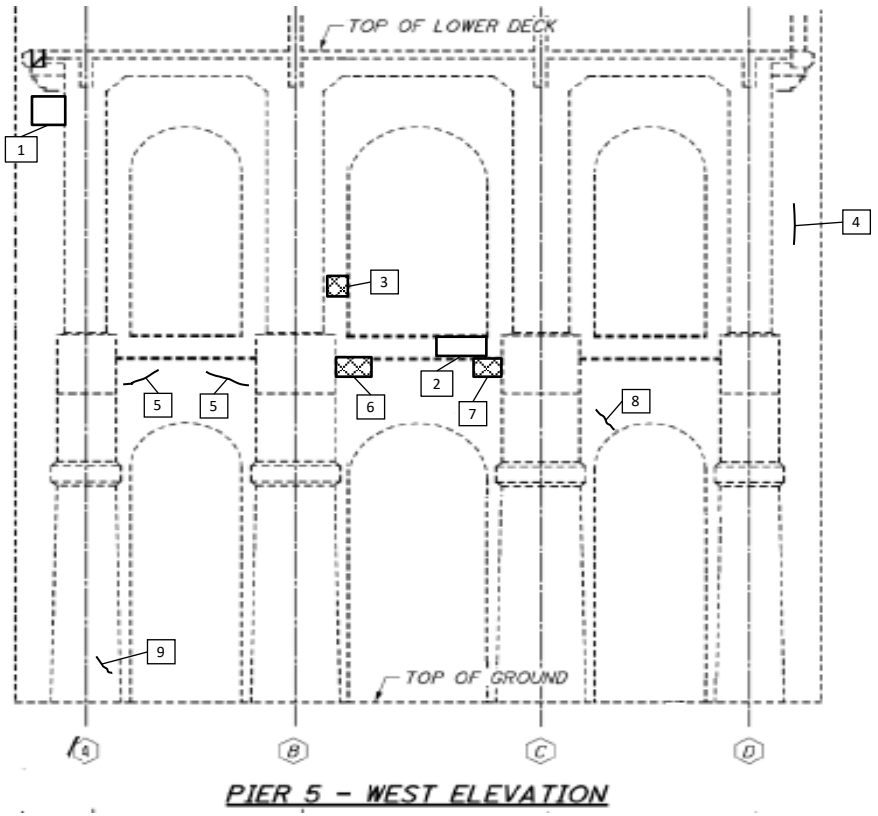


PIER 4 – WEST ELEVATION

Pier 4 - West Elevation Deficiencies	
#	Deficiency
1	Map Cracking - 144 SF
2	Map Cracking - 144 SF
3	Map Cracking - 20 SF
4	Map Cracking and Delamination - 170 SF
5	**Map Cracking and Delamination - 20 SF**
6	**Crack - 15 LF**



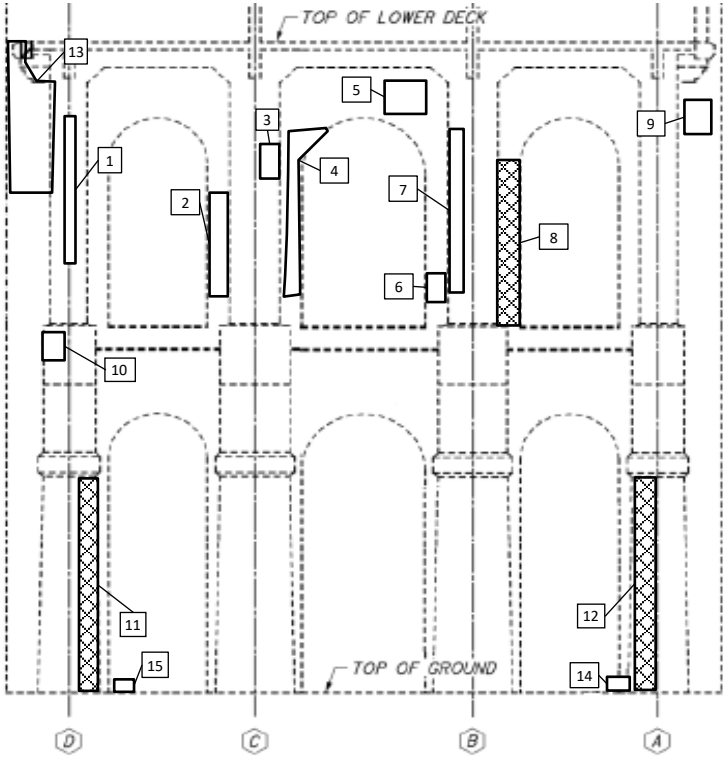
PIER 5 – EAST ELEVATION



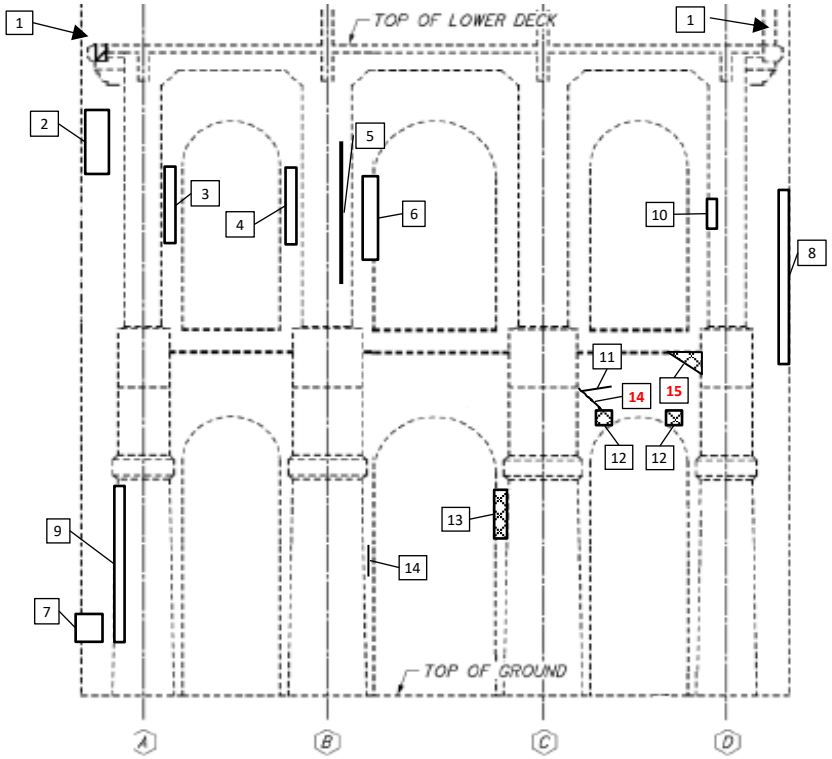
PIER 5 – WEST ELEVATION

Pier 5 - East Elevation Deficiencies			
#	Deficiency	#	Deficiency
1	Delam. - 40 SF & Spall w/ exp. Reinf. - 10 SF, 8" D	6	Delamination - 20 SF
		7	Spalling - 6 SF
2	Delam. w/ map cracks - 40 SF	8	Map Cracking - 40 SF
		9	Crack - 4 LF
3	Catch basin shifted and spalled w/ exp. Reinf.	10	Crack - 6 LF
		11	Spalling - 2 SF
4	Delamination - 70 SF		
5	Delamination - 35 SF		

Pier 5 - East Elevation Deficiencies			
#	Deficiency	#	Deficiency
1	Delamination - 10 SF	6	Map Cracking - 24 SF
2	Delamination - 6 SF	7	Map Cracking - 16 SF
3	Map Cracking - 25 SF	8	Crack - 4 LF
4	Crack - 10 LF	9	Crack - 3 LF
5	Crack - 8 LF		



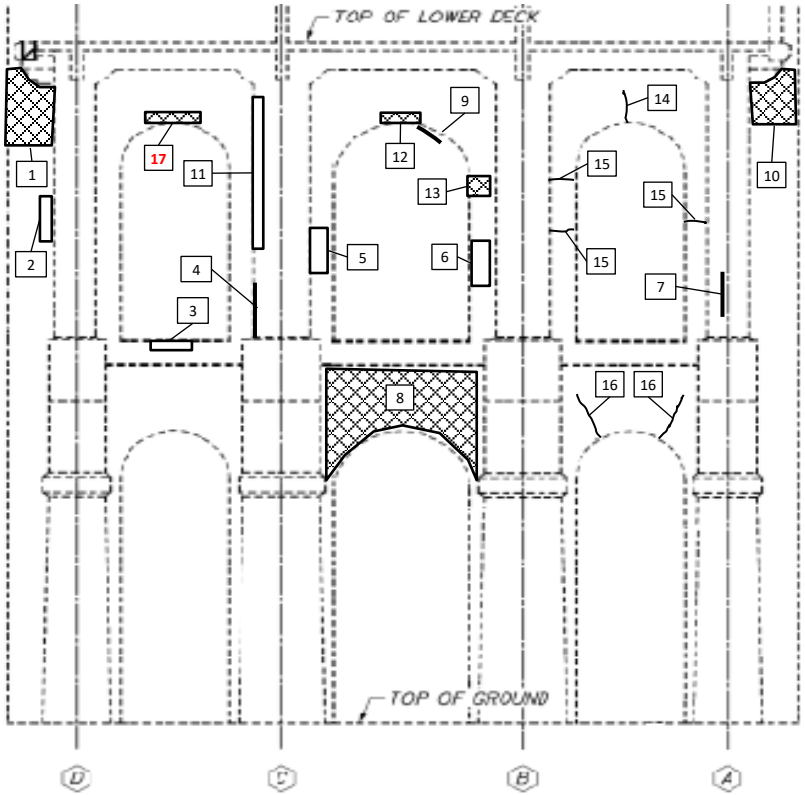
PIER 6 – EAST ELEVATION



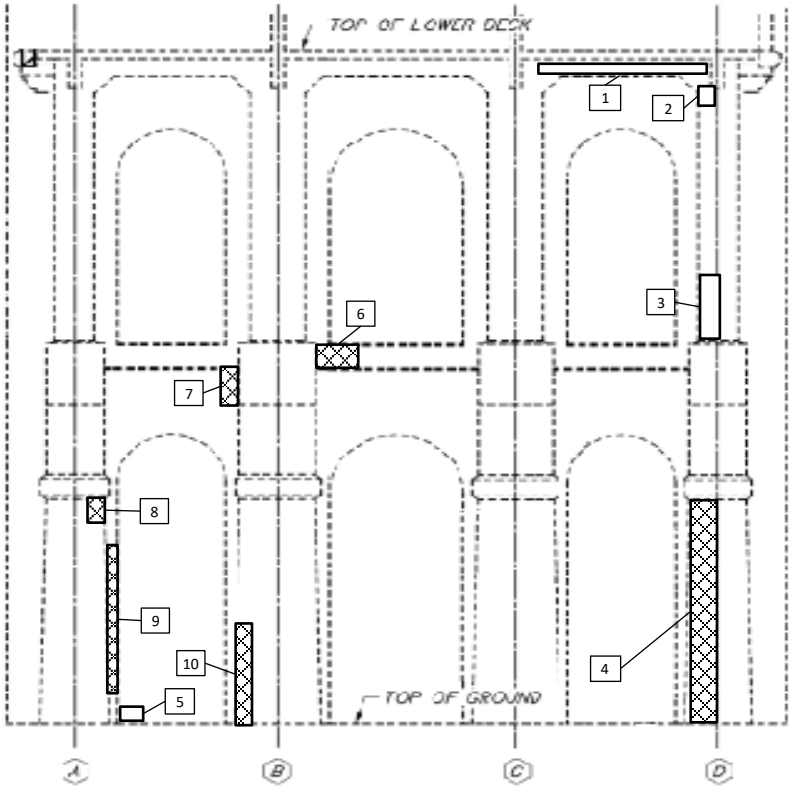
PIER 6 – WEST ELEVATION

Pier 6 - East Elevation Deficiencies			
#	Deficiency	#	Deficiency
1	Delamination - 30 SF	10	Spall, 6" D - 15 SF
2	Delamination - 80 SF	11	Map Cracking (inside face) - 60 SF
3	Delamination - 5 SF		
4	Delamination - 20 SF	12	Map Cracking - 60 SF
5	Delamination - 10 SF	13	Delam. w/ Spall w/ exp. Reinf. - 40 SF
6	Delamination - 20 SF		
7	Delamination - 35 SF	14	Catch basin cover has shifted.
8	Map Cracking - 30 SF		
9	Delamination- 20 SF Spall - 5 SF	15	Catch Basin cover rotated and shifted.

Pier 6 - West Elevation Deficiencies			
#	Deficiency	#	Deficiency
1	The top North Pylon is pulling away 3/4". The top South Pylon is pulling away 2-1/4".	7	Spall - 3 SF
		8	Delam. w/ Spall (outside face) - 210 SF
		9	Close Cracks - 20 LF
2	Spall - 5 SF, 7" D	10	Spall - 2 SF
3	Delamination - 15 SF	11	Crack - 5 LF
4	Delamination - 15 SF	12	Map Cracking - **50** SF
5	Delamination - 30 SF (south face)	13	Map Cracking - 8 SF
		14	Crack - 3 LF
6	Map Cracking - 50 SF	**15**	**Map Cracking - 8 SF**



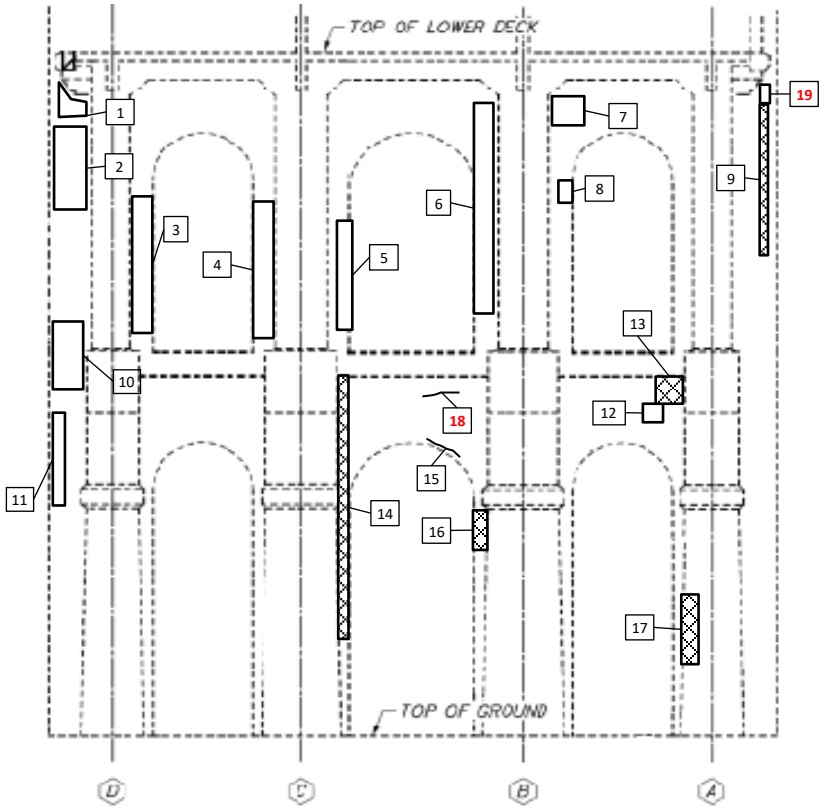
PIER 7 – EAST ELEVATION



PIER 7 – WEST ELEVATION

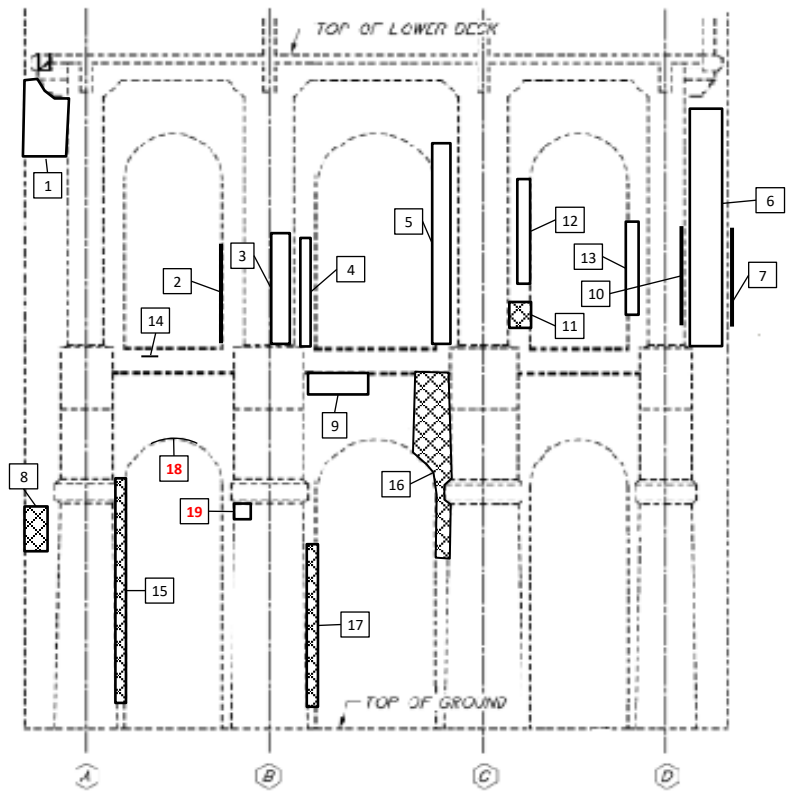
Pier 7 - East Elevation Deficiencies			
#	Deficiency	#	Deficiency
1	Map Cracking - 30 SF	10	Delamination - 24 SF
2	Delam. w/ spalling - 7 SF	11	Spall w/ Det. Rebar - 45 SF
3	Delamination - 8 SF	12	Map Cracking - **5** SF
4	Spall w/ exp. Reinf. (South face) - 3 SF	13	Map Cracking - 4 SF
		14	Crack - 3 LF
5	Delamination - 4 SF	15	Crack - 2 LF
6	Delamination - 15 SF	16	Crack - 5 LF
7	Spall w/ exp. Reinf. - 6 SF	**17**	**Map Cracking - 16 SF**
8	Map Crack/Delam. - 30 SF		
9	Delamination - 2 SF		

Pier 7 - West Elevation Deficiencies			
#	Deficiency	#	Deficiency
1	Delamination - 20 SF	6	Map Cracking - 18 SF
2	Delamination - 15 SF	7	Map Cracking - 12 SF
3	Delamination - 10 SF	8	Close Cracks - 2 SF
4	Map Crack/Delam. - 60 SF	9	Close Cracks - 15 SF
5	Catch basin cover rotated	10	Map Cracking - 10 SF



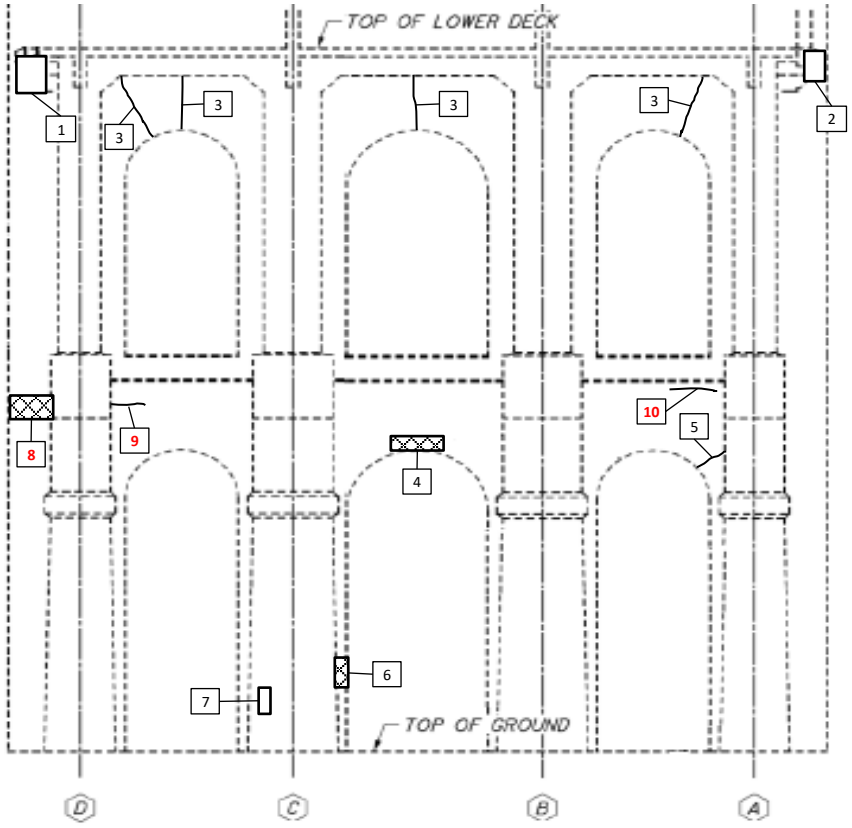
PIER 8 – EAST ELEVATION

Pier 8 - East Elevation Deficiencies			
#	Deficiency	#	Deficiency
1	Spall w/ det. Reinf. - 9 SF	11	Delam. w/ some spalling - 10 SF
2	Delamination - 42 SF		
3	Delamination - 75 SF	12	Delamination - 4 SF
4	Delamination - 100 SF	13	Map Cracking - 9 SF
5	Delamination - 40 SF	14	Map Cracking - 20 SF
6	Delamination - 50 SF	15	Crack - 5 LF
7	Delamination - 9 SF	16	Map Cracking - 3 SF
8	Delamination - 2 SF	17	Map Cracking - 12 SF
9	Map Cracking - 30 SF	**18**	**Crack - 2 LF**
10	Delamination - 21 SF	**19**	**Spall w/ det. Reinf. - 3 SF**



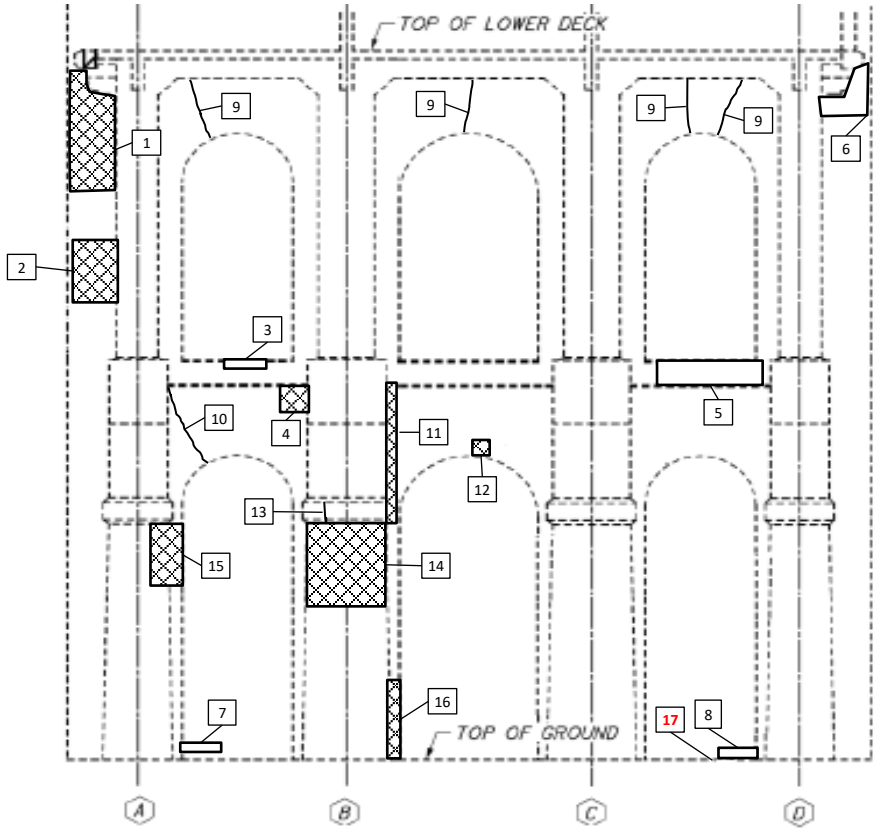
PIER 8 – WEST ELEVATION

Pier 8 - West Elevation Deficiencies			
#	Deficiency	#	Deficiency
1	Delam. w/ spalling - 32 SF	11	Delamination - 3 SF
2	Delamination - 15 SF	12	Spall w/ Crack - 10 SF
3	Delamination - 30 SF	13	Spall w/ Crack - 10 SF
4	Delamination - 35 SF	14	Crack - 1 LF
5	Delamination - 60 SF	15	Close Cracks - 15 SF
6	Delam. w/ spalling - 68 SF	16	Map Cracking - 30 SF
7	Delamination - 9 SF	17	Map Cracking - 10 SF
8	Map Cracking - 10 SF	**18**	**Crack (bot. face) - 10 LF**
9	Delamination - 4 SF	**19**	**Spall - 1 SF**
10	Delamination - 10 SF		



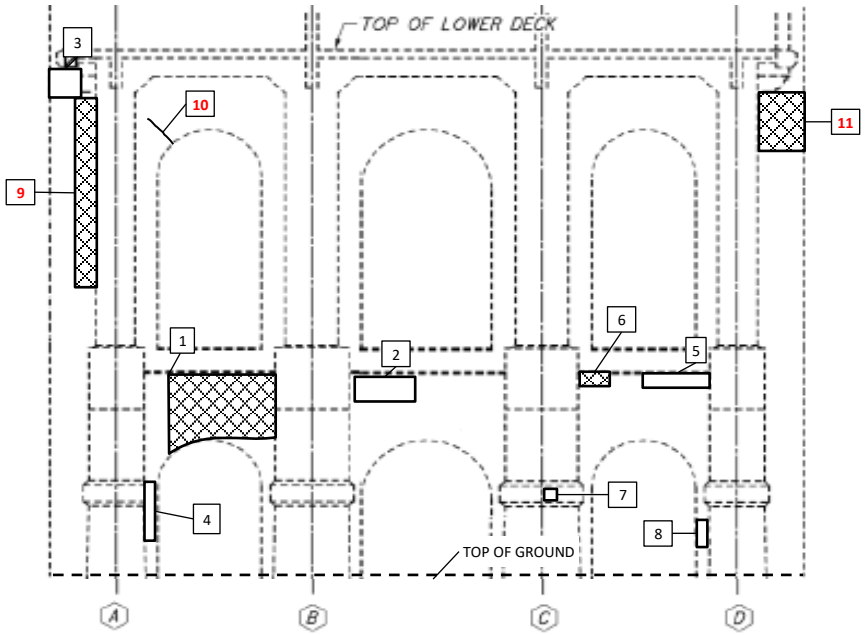
PIER 9 – EAST ELEVATION

Pier 9 - East Elevation Deficiencies			
#	Deficiency	#	Deficiency
1	Delamination - 2 SF	6	Map Cracking - 2 SF
2	Delamination - 3 SF	7	Spall - 2 SF
3	Crack - 8 LF	**8**	**Map Cracking - 6 SF**
4	Map Cracking - 4 SF	**9**	**Crack - 3 LF**
5	Crack - 3 LF	**10**	**Crack - 6 LF**

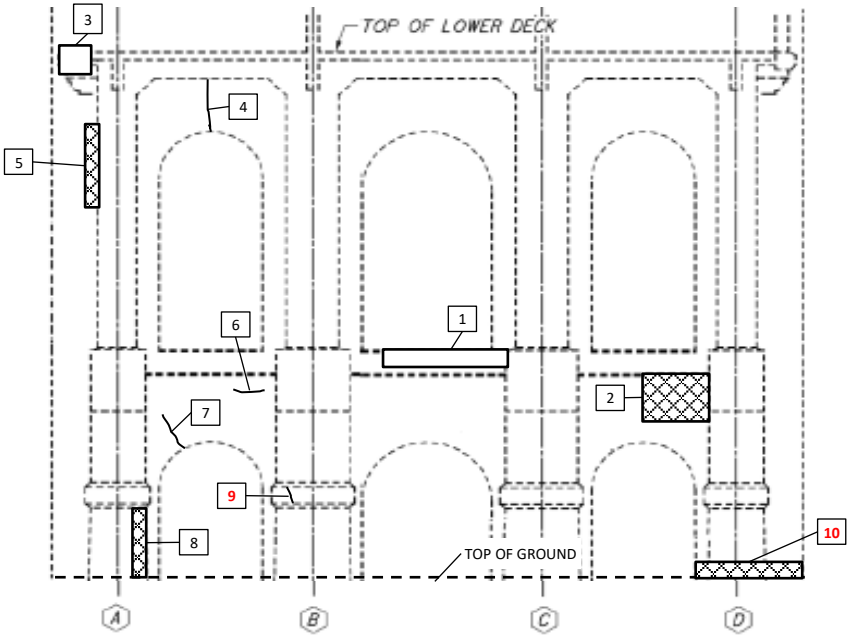


PIER 9 – WEST ELEVATION

Pier 9 - West Elevation Deficiencies			
#	Deficiency	#	Deficiency
1	Map Cracking - 34 SF	10	Crack - 7 LF
2	Spall w/ Det. Rebar - 8 SF	11	Map Cracking - 20 SF
3	Delamination - 1 SF	12	Map Cracking - 1 SF
4	Map Cracking - 9 SF	13	Crack - 2 LF
5	Delamination - 20 SF	14	Map Cracking - 36 SF
6	Delam. w/ Spalling - 20 SF	15	Close Cracks - **20** SF
7	Catch basin frame shifted	16	Map Cracking - 12 SF
8	Catch basin frame shifted	**17**	**Significant rutting at CB**
9	Crack - 8 LF		



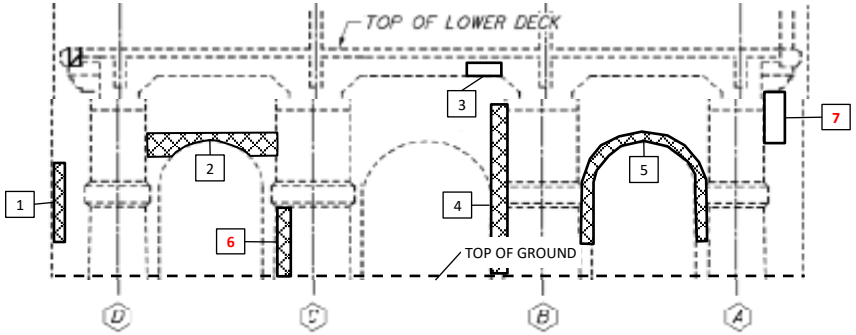
PIER 10 – EAST ELEVATION



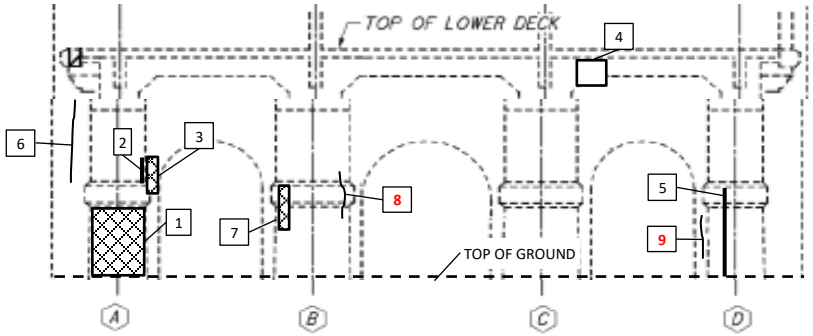
PIER 10 – WEST ELEVATION

Pier 10 - East Elevation Deficiencies	
#	Deficiency
1	Map Cracking - 30 SF
2	Delamination - 3 SF
3	Spall - 2 SF
4	Map Cracking - 15 SF
5	Poor Patching / Delamination - 8 SF
6	Map Cracking - 2 SF
7	Spall - 1 SF
8	Spall - 2 SF
9	**Map Cracking - 15 SF**
10	**Crack - 6 LF**
11	**Map Cracking - 20 SF**

Pier 10 - West Elevation Deficiencies	
#	Deficiency
1	Delamination - 10 SF
2	Map Cracking - 24 SF
3	Spall - 5 SF
4	Crack - 8 LF
5	Map Cracking - 20 SF
6	Crack - 4 LF
7	Crack - 5 LF
8	Map Cracking - 24 SF
9	**Crack - 5 LF**
10	**Delamination - 10 SF**



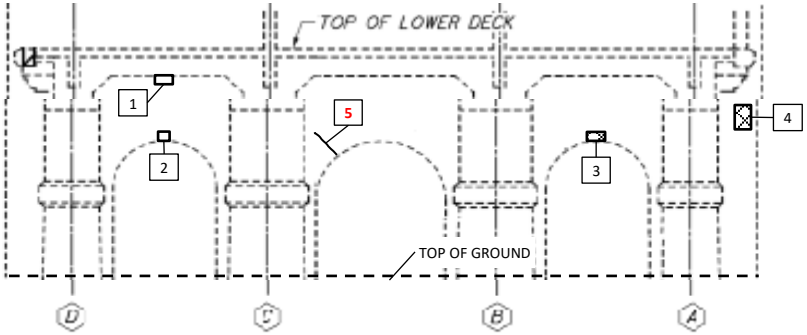
PIER 11 - EAST ELEVATION



PIER 11 - WEST ELEVATION

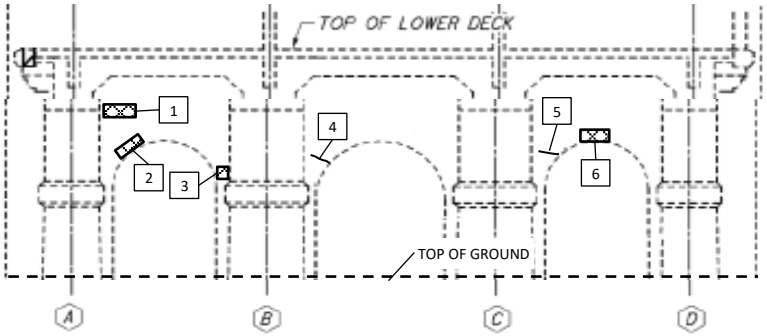
Pier 11 - East Elevation Deficiencies	
#	Deficiency
1	Map Cracking - 11 SF
2	Map Cracking - 90 SF
3	Incomp. Repair - 12 SF
4	Map Cracking - 40 SF
5	Map Cracking - 42 SF
6	**Map Cracking - 6 SF**
7	**Spall w/ Det. Rebar - 8 SF**

Pier 11 - West Elevation Deficiencies	
#	Deficiency
1	Map Cracking - 30 SF
2	Map Cracking - 6 SF
3	Delamination and Map Cracking - 10 SF
4	Delamination - 2 SF
5	Delamination (Inside face) - 4 SF
6	Crack - 15 LF
7	Map Cracking - 4 SF
8	**Crack - 8 LF**
9	**Crack - 6 LF**



PIER 12 - EAST ELEVATION

Pier 12 - East Elevation Deficiencies	
#	Deficiency
1	Spall - 3 SF
2	Spall w/ Det. Rebar - 1 SF
3	Close Cracks - 1 SF
4	Map Cracking - 8 SF
5	**Crack - 5 LF**



PIER 12 - WEST ELEVATION

Pier 12 - West Elevation Deficiencies	
#	Deficiency
1	Map Cracking - 8 SF
2	Map Cracking - 3 SF
3	Map Cracking - 1 SF
4	Crack - 2 LF
5	Crack - 2 LF
6	Map Cracking - 2 SF

APPENDIX D – Fracture Critical Member Plan

Ohio Department of Transportation

Fracture Critical Member and Fatigue Prone Connection Identification Plan

Reference: ODOT Manual of Bridge Inspection Chapter 4 & Appendix E

District:	12
County-Route-SLM	CUY-006-1456
Structural File Number:	1800930
Fatigue Life Study:	Year of Study ___N/A____ Remaining Fatigue Life ___N/A___
Load Path Redundant:	No, structure is fracture critical, inspect FCM's every 24 months
Structurally Redundant:	No, acts as simple span
Internally Redundant:	Yes/No, some built up riveted members present
System Redundant:	Analysis has not been performed to determine

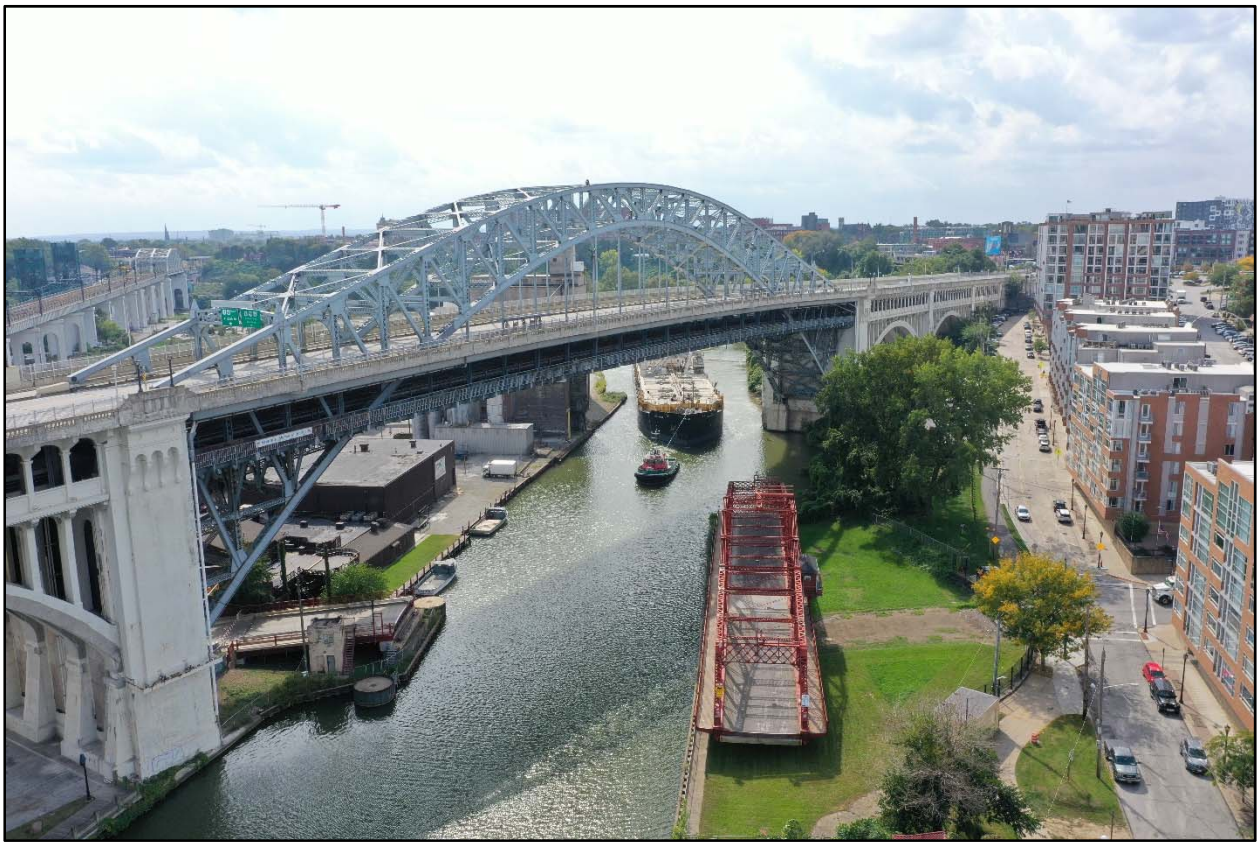


Figure 1: CUY-6-1456 over the Cuyahoga River

Location: The CUY-6-1456 Bridge (Veterans Memorial/Detroit-Superior Bridge) carries three lanes of vehicular traffic and one lane of bike traffic over the Cuyahoga River Valley, local streets, and RTA railroad tracks, in Cleveland, OH.

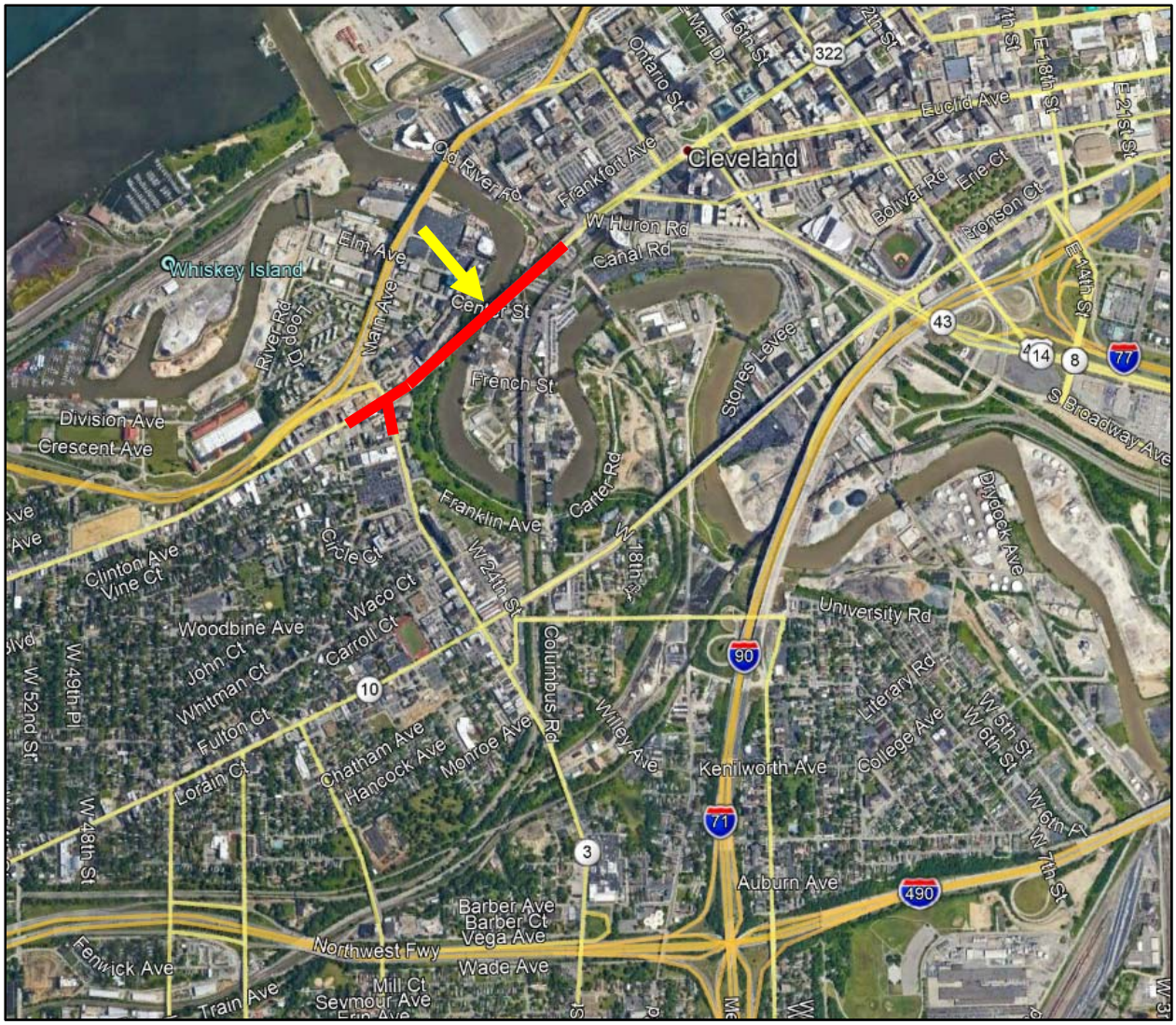


Figure 2: CUY-6-1456 in Cleveland over the Cuyahoga River

Description: The bridge is approximately 2,880 feet long, including 1,673 feet of subway tunnel that is linked by the lower deck. The bridge was constructed from 1912 to 1917. The majority of the main spans are reinforced concrete deck arches. Span 4 is a 591-foot long, three-hinged steel half through arch truss in a Pratt configuration. In this steel arch span, portions of the arch truss, pins, hangers, upper deck floorbeams and upper deck overhang brackets are considered fracture critical (see *Figures 3 & 4*).

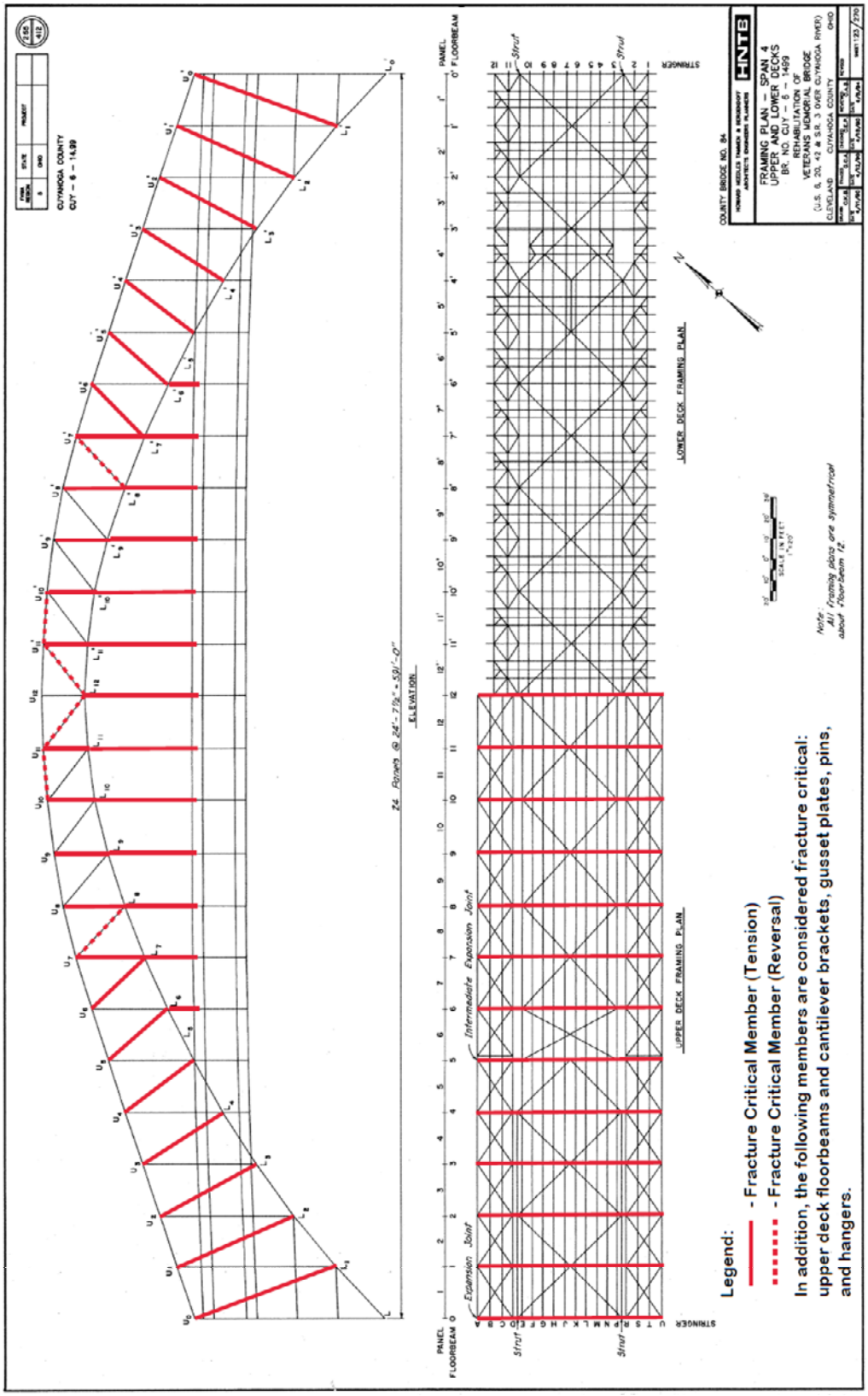


Figure 3: Fracture Critical Member Locations (Highlighted Red)

Fracture Critical Member and Fatigue Prone Connection Identification Plan

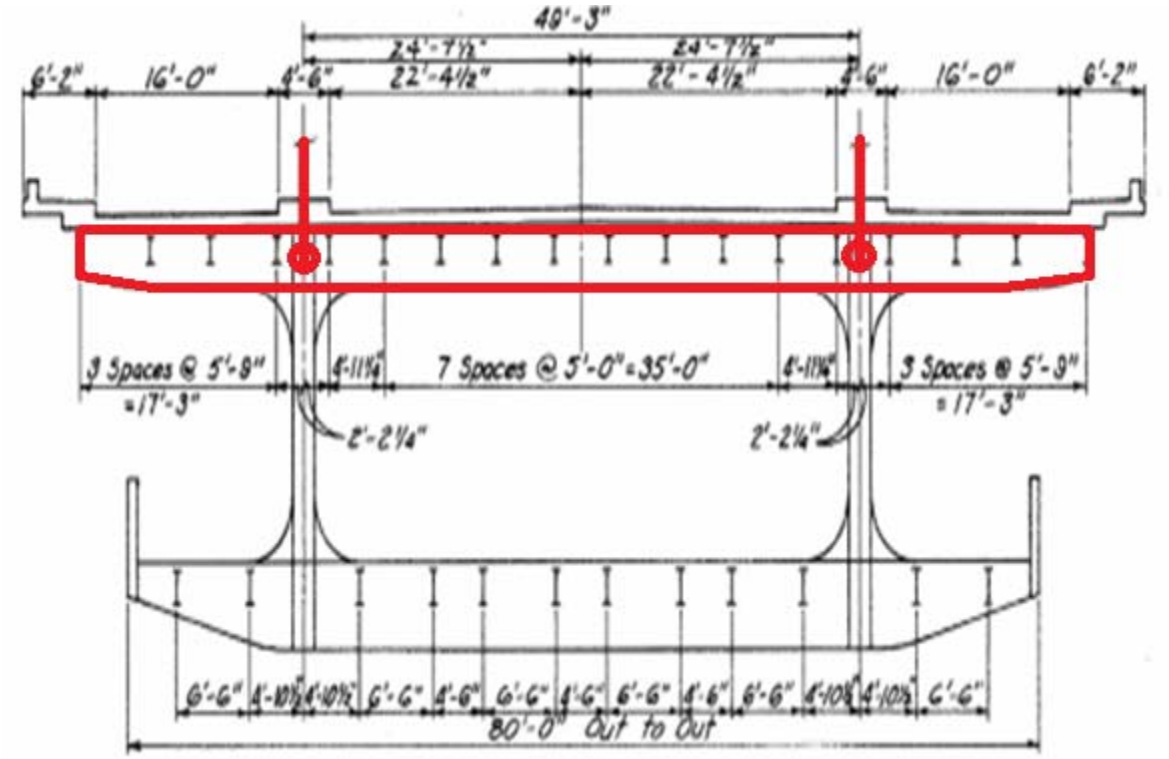


Figure 4: Fracture Critical Member Locations (Highlighted Red)

FCM Access: A combination of aerial work platform, ladder and climbing techniques were used in previous inspections to achieve arms' length inspection. Alternate techniques to those described below may be employed at the discretion of the inspection team.

Aerial Work Platform / Ladder: 40' straight boom unit placed on lower (maintenance) deck to access upper deck floorbeams, cantilever brackets, and lower pins. This work is assisted with a 24' ladder, placed on the exterior walkways, in areas of utility conflict.

Climbing Techniques: All portions of the arch truss, hangers, pins, and gusset plates.

Known Structural Risk Factors & Fatigue Prone Details

Category reference: AASHTO LRFD Bridge Design Specs, 9th Ed. Table 6.6.1.2.3-1

Photo Reference	Label / Fatigue Category	Where?	Description
1a, 1b	Top Flange Stiffening Plate Retrofit, Fatigue Category E	Lower Deck Floorbeams	Fillet welds connecting top flange stiffening plate retrofits to existing top flange plates at truss lines. Fillet welds have cracked at several locations. No propagation into base metal noted.

*Blank cells are for inspectors to add FPD's, retrofits or fatigue crack locations in future inspections

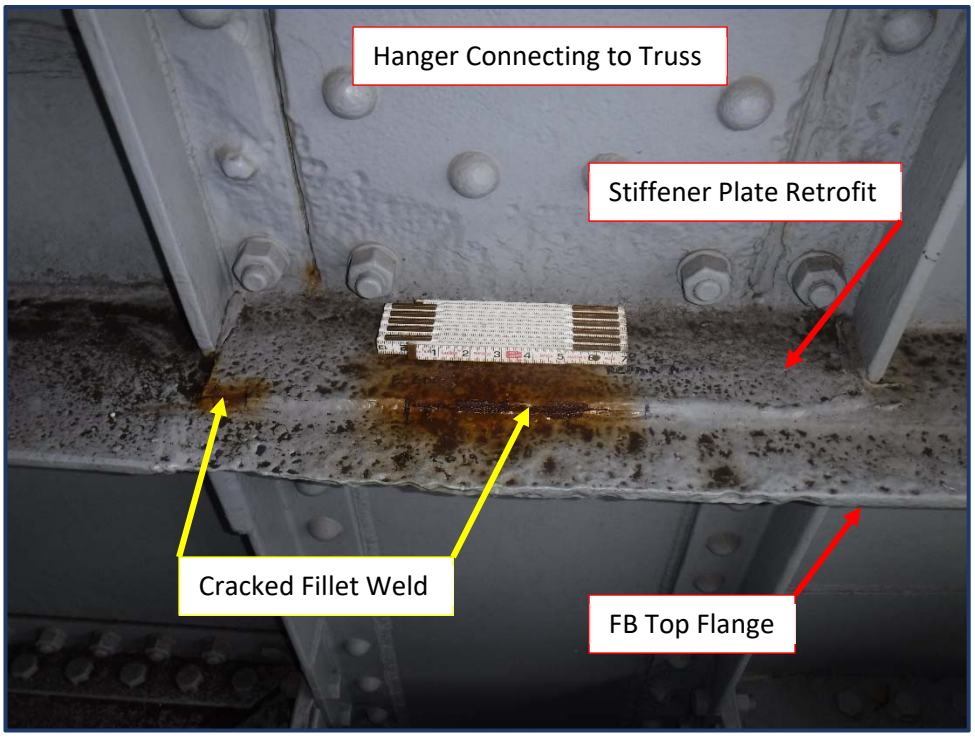


Photo 1a – Cracking at Lower Deck Floorbeam Stiffener Plate Retrofit

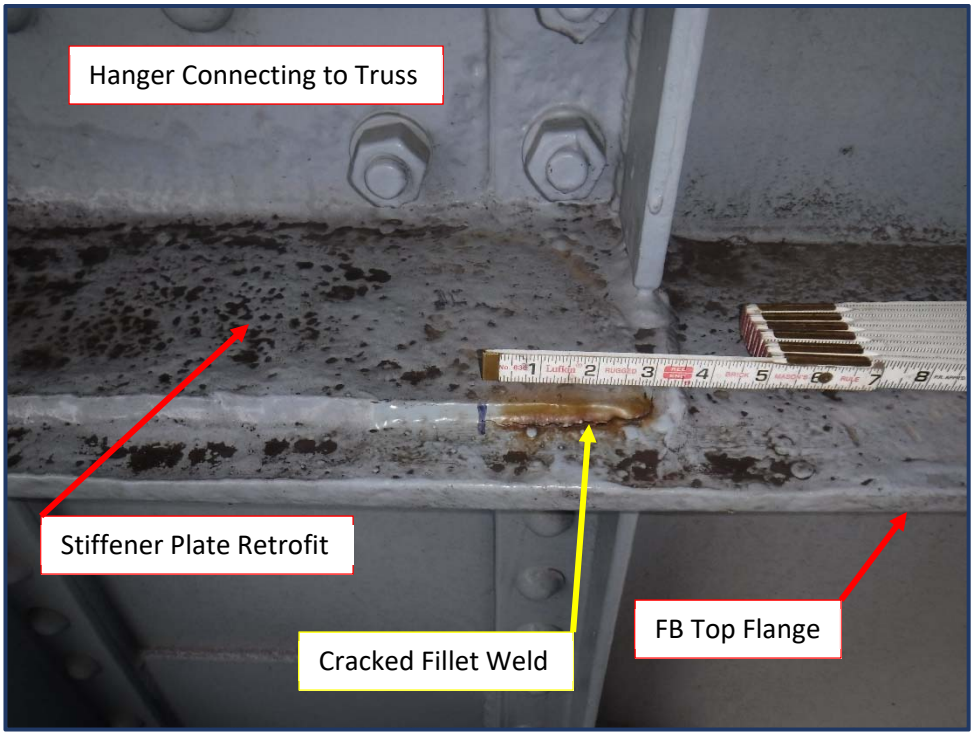


Photo 1b – Cracking at Lower Deck Floorbeam Stiffener Plate Retrofit