Physical Condition Report for

CUY-002-1441

SFN 1800035

Main Avenue Bridge over the Cuyahoga River

2020 Routine Inspection

Prepared for:

Ohio Department of Transportation

District 12

5500 Transportation Blvd.

Garfield Heights, OH 44125

Prepared By:

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1/26/21

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Inspection Dates and Procedure

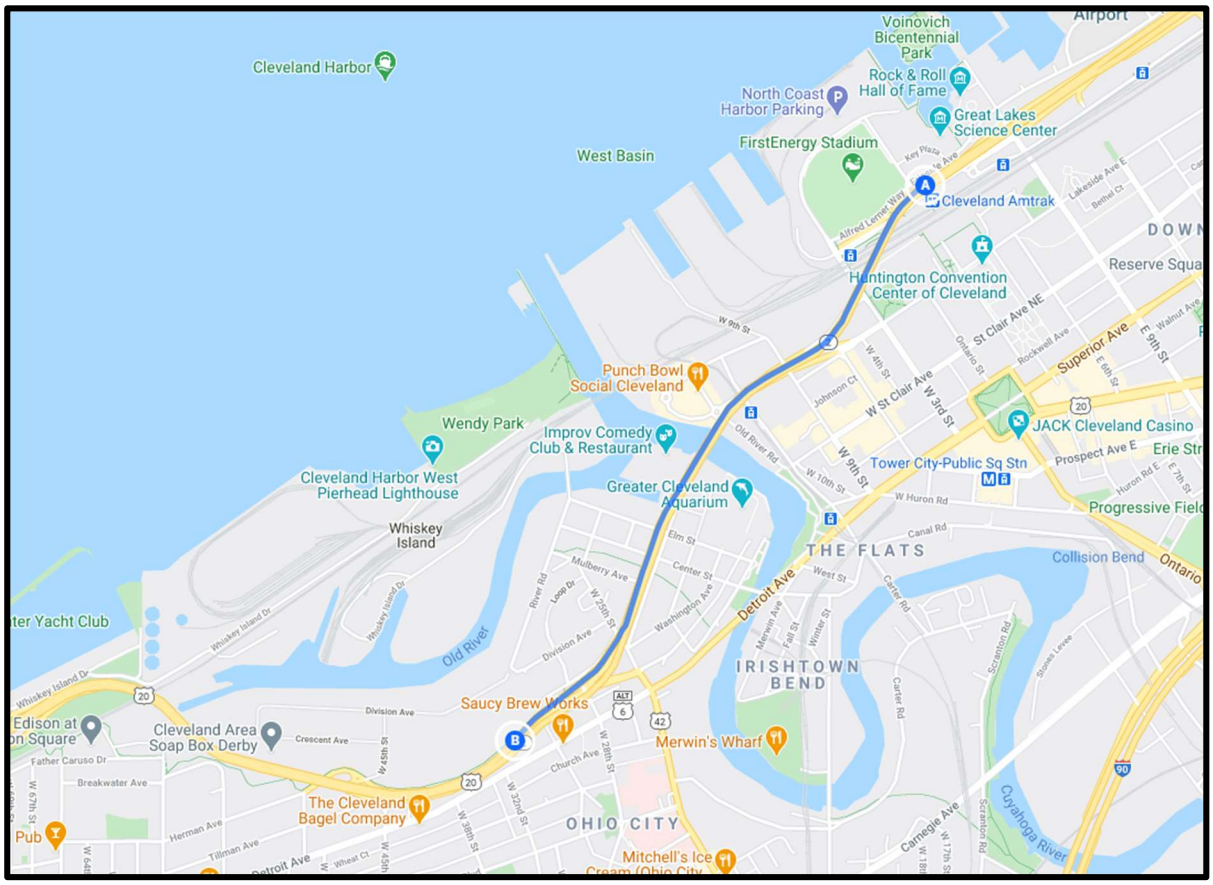
NBI Inspection Completion Date: 08/14/2020

Palmer Engineering with the assistance of Patrick Engineering conducted a routine inspection of the bridge between the dates of August 3, 2020 and August 14, 2020 with the catwalk inspection being completed on September 15, 2020. The bridge was accessed using an A-62 Underbridge Inspection Vehicle (Snooper), a 135-ft aerial work platform, a 42-ft bucket truck, and the existing inspection catwalk under the structure. The bucket truck was used in Unit I, portions of Unit III, and all of Unit IV. The snooper was used in Unit II and Unit III. The 135' aerial lift was used in Unit II. The existing catwalk was used in Unit V. Traffic control was provided by A&A Safety.

The following personnel were involved in the bridge inspection:

- Matt Johnson, PE, Team Leader (Palmer)
- Justin Rufener, PE, Team Leader (Palmer)
- Adam Lenemier (Palmer)
- Vince Dragich (Palmer)
- Pete Anamasi, PE, Team Leader (Patrick)
- Curtis Wood, PE, Team Leader (Patrick)
- Jonathan Pyles, EI (Patrick)
- Trevor Gerstner, EI (Patrick)

Location Map



Structure: CUY-2-1441
Main Avenue Bridge over Cuyahoga River
Cleveland, OH

General Bridge Description

The Main Avenue Bridge (CUY-2-1441, SFN 1800035) carries between four to six lanes of vehicular traffic over the Cuyahoga River, several city streets, the GCRTA Waterfront Line tracks, and Norfolk Southern/CSX railroad tracks. The bridge was constructed between 1938 and 1940 and the bridge is approximately 6,580 feet long. On October 6, 1939, the West Approach, Main Truss Spans, and East Approach-Forward Sections were opened to traffic. The Lakefront Trestle and Lakefront Ramp were opened to traffic in 1940. The bridge was closed to traffic for a major rehabilitation project between April 13, 1991 and October 6, 1992. Rehabilitation work included replacing and widening the deck, updating safety features, improving the drainage system, installing new floor system members, and strengthening or replacing deteriorated portions of the bridge.

The Main Avenue Bridge is comprised of five distinct units of varying structure types within each section.

Unit I – West Approach
Unit II – Main Truss Spans
Unit III – East Approach - Forward Section
Unit IV – East Approach – Lakefront Trestle Section
Unit V – East Approach – Lakefront Ramp Section

For plan views of the bridge with the units and sections identified refer to Figures 1 to 5 in Appendix A.

The alignment of the bridge varies throughout the length of the structure. The nomenclature of the bridge will follow the 1990 rehabilitation plans and previous inspection reports. All compass directions will be based upon this relative assignment.

Unit I – West Approach

The West Approach section consists of east and west bound structures separated by the ramps at W. 28th Street. Each portion of the structure carries three lanes of traffic from near West 29th Street to 250 feet east of West 25th Street. These separate structures then merge into one structure near West 25th Street.

The West Approach section consists of four main structure types: Transverse rigid concrete frames supporting a concrete deck slab (Sections B', D, J' and M), concrete stringers and diaphragms (Section P), longitudinal rigid steel frames supporting floorbeams and stringers (Sections C, K and L'), and a steel floorbeam/stringer system (Section N). The steel floorbeam/stringer system consists of continuous stringers bearing on top of floorbeams that are supported by steel columns. The various steel sections consist of rolled beams, welded plate girders, and riveted built-up plate girders.

Unit II – Main Truss Spans

Beginning at the termination of Section I (West Approach) east of W. 25th Street, the Main Truss Spans carry six lanes of traffic over several city streets and the Cuyahoga River ending near West 10th Street.

The Main Truss Spans section consists of ten (10) cantilevered Pratt deck trusses. The upper and lower truss chord members are composed of riveted built-up box sections. The truss diagonals and verticals are a combination of rolled wide flange sections and riveted box sections. The floor system is comprised of rolled steel beam stringers supported on riveted and welded floorbeams. The floorbeams frame into the truss at the upper chord panel point connections.

Unit III – East Approach – Forward Section

Beginning at the end of Unit II (Main Truss Spans), the Forward Section starts just west of West 10th Street at the base of the Flats and carries the six lanes of traffic from the Cuyahoga River Valley over the western portion of the GCRTA Waterfront Line tracks and up to West 9th Street. The Forward Section consists of steel truss bents that support rolled steel floorbeams with rolled steel stringers bearing on top. The steel truss bent members consist of rolled steel sections connected by riveted gusset plates. Below the eastbound lanes, a lower utility/parking deck was removed, however, portions of the steel support structure remain in place. The Pratt deck truss members consist of rolled wide flange sections with a similar deck framing system to the main truss spans of Unit II.

Unit IV – East Approach – Lakefront Trestle

Beginning at the end of Unit III (Forward Section), the Lakefront Trestle starts just west of West 9th Street and continues to West 3rd Street carrying four lanes of traffic over parking lots and city streets. Two ramp structures tie into the main structure in this area as well. The Lakefront Trestle superstructure is supported by two lines of steel longitudinal rigid frames comprised of riveted built-up beams and columns. Transverse floorbeams frame into the steel longitudinal rigid frames and support rolled stringers.

Unit V – East Approach – Lakefront Ramp

Beginning at the end of Unit IV (Lakefront Trestle), the Lakefront Ramp starts just east of West 3rd Street and carries four lanes of traffic continuing over the eastern end of the GCRTA Waterfront Line and the Norfolk Southern/CSX railroad tracks and terminating near First Energy Stadium. The superstructure consists of three riveted, built-up plate girders with rolled floorbeams and stringers.

Construction and Maintenance History

The following is a summary of significant events in the history of the Main Avenue Bridge:

- 1930-37: Planning and design for the Main Avenue Bridge was performed following the Cuyahoga County Engineer's Office decision to build the Lorain-Carnegie Bridge first as a means to relieve congestion on the Detroit-Superior Bridge. The structure was designed by Fred L. Plummer, Chief Design Engineer of the Cuyahoga County Engineer's Office. Consulting engineer was Wilbur Watson & Associates.
- 1937-40: The West Approach, Main Truss Spans, East Approach-Forward Section, and East Approach-Lakefront Trestle were constructed in 17 months. The bridge project was one of the initial projects funded by the Federal Emergency for Public Works.
- October 6, 1939: Main Avenue Bridge was dedicated and opened to traffic the following morning.
- 1954-55: Bridge superstructure was repainted.
- April 1984-November 1985: Complete removal of the existing paint and application of a Zinc-Vinyl-Vinyl (ZVV) paint system on the steel superstructure was performed.
- 1986: Bridge was rededicated as the Harold Burton Memorial Bridge.
- April 13, 1991 to October 6, 1992: The Main Avenue Bridge was closed to traffic for an 18-month major rehabilitation. Repair work consists of the following activities:
    - Removal of the existing concrete filled steel grid deck, sidewalks, and stringers.
    - Placement of new stringers on top of existing floor beams.
    - Replacement of approximately 40% of the main truss spans floor beam cantilevers with welded floor beam brackets.
    - Removal of the existing drainage system, including drain troughs along interior portions of the lower chord.
    - Local painting of new steel elements with an OZEU protective coating system.
    - Application of pack rust caulk sealant along open structural steel seams.
- 2007: Main Truss Spans – Complete painting of the steel superstructure.
- 2007: Emergency retrofits were performed on L24L25, North and South Trusses, Span 8.
- 2014 to 2016: A series of minor rehabilitation projects have been conducted: Construction tasks include:
    - Gusset plate retrofits.
    - Truss member repairs and strengthening.
    - Replacement of select lower lateral bracing members.
    - Drainage replacement, Main Truss Spans.
    - Removal of sheared rivets due to vehicular impact and installation of high-strength bolts, Lakefront Ramp.
    - Concrete railing and median repairs (2016).

  - Combination of expansion joint membrane replacement and expansion joint membrane replacement (2016).

- 2017-2019: A major paint project was completed on the east and west approaches. In addition, patching concrete substructure units, patching both median and exterior parapets, superstructure steel repairs, replacement of deck joint armor and joint glands, drainage replacement, and drainage repairs were completed as part of the rehabilitation project.

Structure Typical Photos

West 28th Street Overpass Looking West

Section C Over W. 28th Street Looking North

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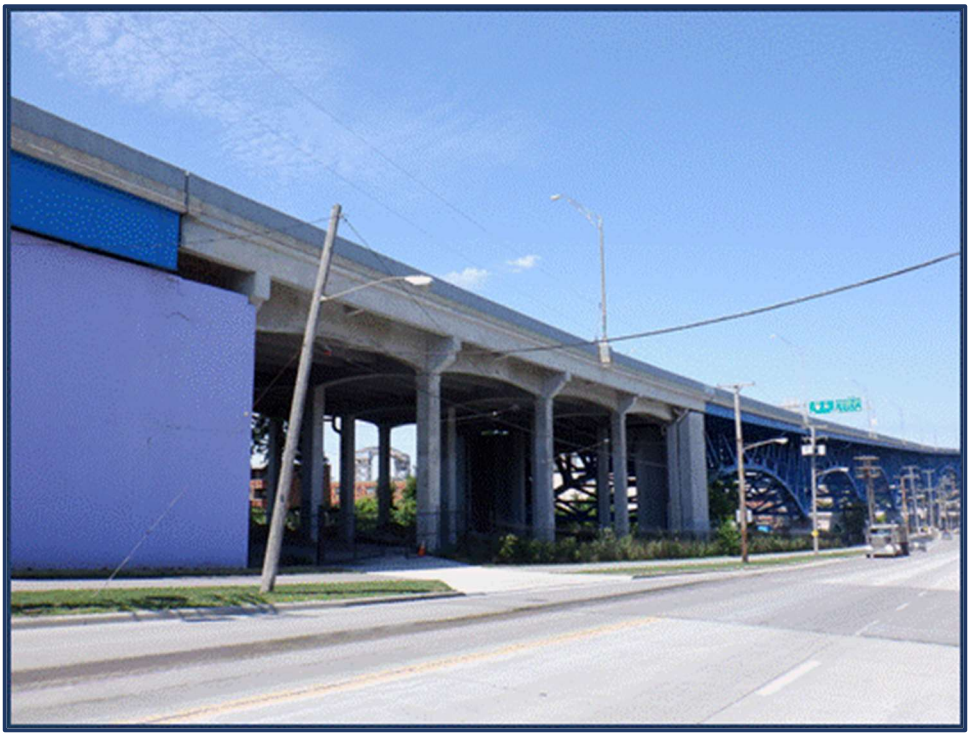
Section N at W. 25th Street Looking North

Section N Typical Superstructure Over W. 25th Street Looking East



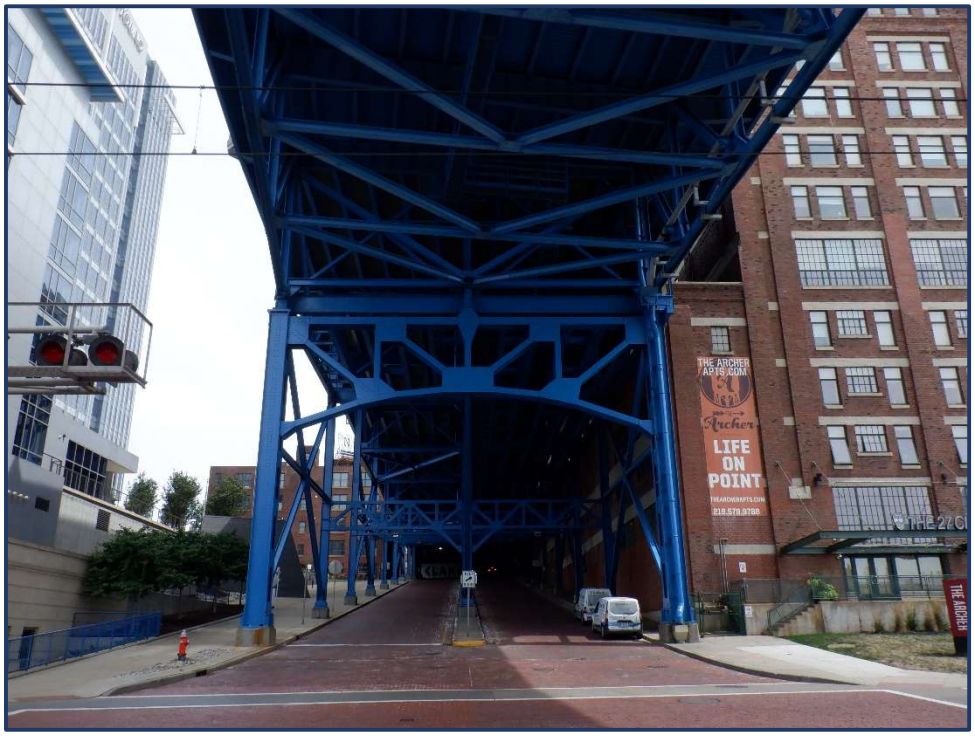
Section P Looking Northeast

Unit II – Main Truss Span 1 Looking Northeast

Unit II Span 9 Over the Cuyahoga River Looking South

Unit II Span 9 Over the Cuyahoga River Typical Superstructure Looking West

Unit III Span 11 Over West 10th Street Looking North



Unit III Bent 0 at West 10th Street Looking East

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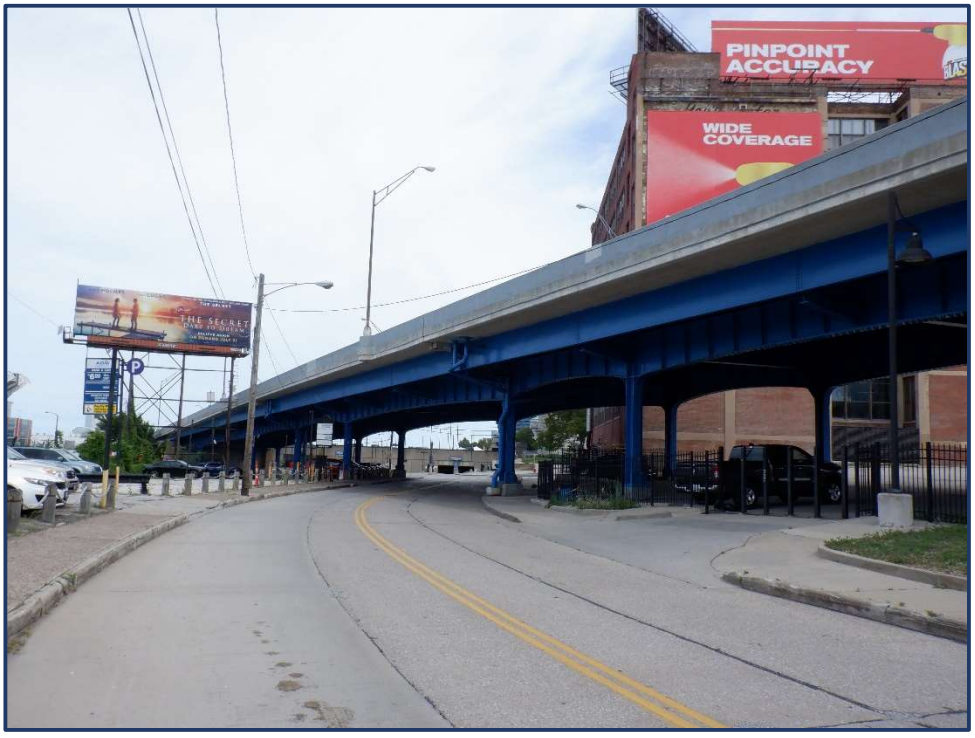
Unit III – Frame and Brace Typical Structure View Looking West



Unit IV North Elevation Over Summit Avenue Looking Southeast

Unit IV Over West Lakeside Avenue Looking West

Unit V Lakefront Ramp Over CSX and NS Railroad Tracks Looking East

Condition and Element Rating Guidelines

In the period between the 2019 and 2020 inspection, ODOT has made significant changes to their bridge inspection procedures and reporting. The main change was the adoption of National Bridge Inspection Standards (NBIS) elements, and the removal of numerous ODOT defined components and elements which were present in the 2014 ODOT Manual of Bridge Inspection. The ODOT component condition ratings of 1-Good through 4-Critical have also been eliminated. A new ODOT bridge inspection manual is in production, but it has not been released at the time of writing this report.

The table below contains the bridge inspection rating matrix established by the Federal Highway Administration (FHWA), using a 0-Failure through 9-Excellent scale, and used by the Ohio Department of Transportation (ODOT). The General Appraisal, Deck, Wearing Surface, Expansion Joint, Superstructure, Protective Coating System, Substructure, and Channel rating will follow these 0 through 9 rating guidelines.

Summary Items (NBIS)	Condition	Defect
9	Excellent	Excellent condition.
8	Very Good	No problems noted.
7	Good	Some minor problems.
6	Satisfactory	Structural elements show minor deterioration.
5	Fair	All primary structural elements are sound but may have minor section loss, crackling, spalling or scour.
4	Poor	Advanced section loss, deterioration, spalling or scour.
3	Serious	Loss of section, deterioration, spalling or scour has seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.
2	Critical	Advanced deterioration of primary structural elements, Fatigue cracks in steel or shear cracks in concrete may be present or scour may have removed substructure report. Unless closely monitored it may be necessary to close the bridge until corrective action is taken.
1	"Imminent Failure"	Major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Bridge is closed to traffic but corrective action may be put it back in light service.
0	Failed	Out of service – beyond corrective action.

Manual of Bridge Inspection, Ohio Department of Transportation (ODOT), 2014
Bridge Inspector's Reference Manual, Federal Highway Administration (FHWA), 2015
Manual for Bridge Element Inspection, 2nd Edition, AASHTO, 2019
National Bridge Inspection Standards, U.S. Department of Transportation, 2004
Inspection of Fracture Critical Bridge Members, U.S. Department of Transportation, 1986

Inspection Findings

Inspection findings are presented below. As noted in the Condition and Element Rating Guidelines report section, some elements included in the 2019 Inspection have been removed or modified. Comments and inspection information for these items have been retained without ratings or moved under the appropriate new element.

NBI Item N58 – Deck (7, Good Condition)

The deck is in overall ***Good*** condition, a rating of 7 on the NBIS condition rating guidelines. There are two NBI sub-items under the deck condition:

NBI Item N58.01 – Wearing Surface (7, Good Condition)
NBI Item N58.02 – Expansion Joint (6, Satisfactory Condition)

The wearing surface is overall in ***Good*** condition. The expansion joints are overall in ***Satisfactory*** condition.

The deck findings and summary of deck conditions for individual deck elements are as follows:

Element 12 – Reinforced Concrete Deck
The reinforced concrete deck is in **Good** condition.

Total Quantity	CS 1	CS 2	CS 3	CS 4
502,787 SF	487,693 SF	15,094 SF		

The replacement deck, opened to traffic in 1992, consists of epoxy coated reinforcement with stay-in-place metal galvanized steel forms. The haunches in the deck above the stringers have areas of minor spalling. In Unit 1, Section P, the underside of the deck has cracking with efflorescence throughout. Isolated edge spalls were noted adjacent to the expansion joint armor. Areas of isolated spalling were noted along the gutter line on the eastbound roadway in Unit II, Main Truss spans. At Joint L between Spans 5 and 6, the underside of the joint header on the east side of the joint is delaminated and spalling with loose concrete falling onto the catwalk below. The underside of deck exhibits spalling at several joint locations in Unit II.

Element 300 – Strip Seal Expansion Joint
The strip seal expansion joints are in **Satisfactory** condition.

Total Quantity	CS 1	CS 2	CS 3	CS 4
1750 LF	651 LF	869 LF	230 LF	

At Joint O on the westbound side of the bridge, the west joint armor in the left lane near the W. 28th Street exit ramp is loose and banging under vehicular impact **(Photo 1)**. The west joint header exhibits spalls on the top of deck at the area of loose joint armor. Throughout the structure, joints have significant debris impaction and corrosion with section loss typically 3/16" deep on the joint plates **(Photo 2)**. Some joints are depressed up to 1" deep. Joint Q1 is leaking for approximately 8 LF and Joint Q is leaking for the full length of the joint. Joint G exhibits evidence of minor leakage over the south cantilever.

Element 302 – Compression Joint Seal
The compression joints are in **Satisfactory** condition.

Total Quantity	CS 1	CS 2	CS 3	CS 4
1055 LF	392 LF	524 LF	139 LF	4 LF

Throughout the structure, joints have significant debris impaction and corrosion with section loss typically 3/16" deep on the joint plates. Some joints are depressed, up to 1" deep. Isolated joints exhibit evidence of leakage.

Element 303 – Assembly Joint with Seal
The modular joints are in **Satisfactory** condition.

Total Quantity	CS 1	CS 2	CS 3	CS 4
595 LF	222 LF	295 LF	78 LF	

At Joint L between Spans 5 and 6, the joint header on the east side of the joint is delaminated and spalling with loose concrete falling onto the catwalk below **(Photo 3)**. This joint is located over Elm Street in Unit II.

Element 331 – Reinforced Concrete Bridge Railing
The concrete railings are in **Fair** condition.

Total Quantity	CS 1	CS 2	CS 3	CS 4
20,150 LF	17,645 LF	2,368 LF	137 LF	

The median and railing constructed during the 1991-1992 rehabilitation were poured using slip form construction. Both the median and the parapets were repaired in the last rehabilitation project between 2017 and 2018. Many of the large spalls facing traffic were patched, however, isolated patches are spalled again. Several spalls exhibit exposed reinforcing steel. The spalls previously noted on the exterior faces of the parapets have sealed; however, surface corrosion is reactivating on the exposed reinforcing bars that were sealed **(Photo 4).** Vertical, horizontal, and map cracking are common throughout the bridge railings. Spalls exist in the bridge railing at or near the deck joints with isolated spalls up to 2-3/4" deep at the joint armor in the parapets **(Photo 5)**. There are isolated spalls up to 3" deep in the median.

Element 815 – Drainage
The deck drainage is in **Good** condition.

Total Quantity	CS 1	CS 2	CS 3	CS 4
268 EA	250 EA	14 EA	4 EA	

The scuppers and catch basins along the edge of roadway are partially or fully clogged with debris that is visible from the top of deck. In Unit II, the downspout at the South Truss panel point L6U6 is broken which is allowing water to drain directly onto the superstructure (**Photo 6**). At the Pier 5 South Column, the bottom angle scupper piece is broken. In Unit III, Pier 11, the scupper basin at the South Column scupper is clogged and filled with water. Scuppers catch basins inside vaulted areas are also clogged **(Photo 7)**

Element 510 – Wearing Surface
The concrete wearing surface is in Good condition.

Total Quantity	CS 1	CS 2	CS 3	CS 4
464,586 SF	430,615 SF	33,873 SF	98 SF	

The wearing surface consists of a 1.2" layer of latex modified concrete on top of the reinforced concrete deck. Typical deterioration includes minor wear in the wheel path and isolated minor hairline cracking. There are isolated areas of surface scaling or spalling up to 1" deep. Some of the scaled/spalled areas are patched with bituminous

material. There is spalling up to ½" deep along the joints and areas of vegetation are growing along the curbline. There is spalling up to ½" deep along the joints. There is an area of spalling in the westbound left lane at Joint O where the joint armor is loose (**Photo 1**).

Lighting
The deck lighting is in ***Fair*** condition. The deck lighting consists of metal poles with cobra head fixtures. Several pull boxes at the base of the light poles across the structure have either missing or loose covers with exposed wiring (**Photo 8**).

Deck deficiencies and specific defect locations with photo references are listed in Tables 1 to 5 below:

Table 1: Unit I Deck Deficiencies

Travel Direction	Span	Joint	Component	Note	Photo
West	B		Deck	On the south fascia, located two sections west of Joint X1, the underside edge of deck at bridge rail joint has a 1' H x 1'-6" W x 5" D spall.	
East	K		Deck	1' L haunch spall above Stringer 1 by Floorbeam 3.	
East	M	Q5	Deck	Along length of adjacent deck, edge spalling up to 10' L x 2" W x 1/2" D (35 SF).	
East	J'		Wearing Surface	Typical vegetation growth along south shoulder, eastbound lane.	
West	J'		Wearing Surface	Throughout west approach, asphalt patches.	
East	J'		Wearing Surface	Along length of deck adjacent to joints, edge spalling up to 3' L x 4" W x 1/2" D (30 SF).	
East	M		Wearing Surface	Entrance/exit ramp approximately 23' from Joint Q, asphalt patch FW x 3' raised higher than roadway up to 5".	

Table 1: Unit I Deck Deficiencies					
Travel Direction	**Span**	**Joint**	**Component**	**Note**	**Photo**
West	D		Wearing Surface	At 10' from Joint Q2 at north parapet, wearing surface has a spall 5' x up to 7' x up to 1" D.	
West			Wearing Surface	Throughout west approach westbound lanes have multiple spalls/potholes and patches up to FW x 3' with vegetation growth at both shoulders.	
East	J’	T	Railing	Debris impaction (15LF), spot/freckled rust (5LF).	2
East	J’		Railing	Throughout parapets, multiple vertical cracks up to FH x up to 1/32" W (15%).	
East	K		Railing	Throughout parapets, multiple vertical cracks up to FH x up to 1/32" W (15%).	
East	M	Q5	Railing	On the south railing, the outside face has a 5' W x 6" H spall with exposed reinforcing.	
East	M	Q6	Railing	Spall with exposed reinforcing 4' L x 6" H x 3" D, one exposed bar.	
East	M	R	Railing	Debris impaction (18LF).	
East	M		Railing	Parapets at Joint S, spalls up to 11" H x 3-1/2" W x 2-3/4" D (1LF per rail).	
East	M		Railing	Left parapet along top edge between Joint R and Q6, spalling up to 5' L x 1" H x 1/2" D (20 LF), at Joint Q6, spall 18" H x FW x 5" D with 5 exposed rebar which has been painted.	
East	M		Railing	Throughout entrance/exit ramp, multiple asphalt patches with adjacent broken up concrete.	
East	M		Railing	Right Parapet has a 14" long x full width void.	

Table 1: Unit I Deck Deficiencies					
Travel Direction	**Span**	**Joint**	**Component**	**Note**	**Photo**
Typical	M		Railing	Through parapets at entrance/exit ramp multiple vertical cracks up to FH x 1/32" W (50%).	
Typical	All		Railing	Throughout all parapets all units all spans have sound patching (5-10%).	
West	B		Railing	Two sections west of Joint X1, Bridge rail has 1' H x 6" W delamination.	
West	All		Railing	Along length of parapet, horizontal, map cracks and vertical cracks up to FH x 1/32" W (15%).	
West		Q	Railing	Both parapets westbound lane at Joint Q spalls up to FH x 12” H x 4” D.	
East	M	Q	Median	At concrete median sound patch 15' L x 5' H.	
East	K	S	Joints	Debris impaction (13LF), spot/freckled rust (4LF).	
East	M	Q6	Joints	Debris impaction (15LF), spot/freckled rust (5LF).	
East	J′	T2	Joints	Joint filled with water, debris impaction (12LF), spot/freckled rust (5LF).	
East	J′	T1	Joints	Debris impaction (8LF), spot/freckled rust (5LF).	
East	M	Q5	Joints	Debris impaction (8LF), spot/freckled rust (4LF), near center line of roadway joint is depressed up to 1" (8LF).	
East	M	Q	Joints	Debris impaction (26LF), spot/freckled rust (5LF).	
East	M		Joints	Throughout parapets Section M, vertical and horizontal cracks up to FH x up to 1/32" W (15%).	
West	All	All	Joints	Throughout all joints, debris impaction (65%).	
West		X	Joints	Corrosion with section loss up to 3/16" D (4LF), joint is depressed up to 1" H x FL, edge spalling adjacent wearing surface FL x up to 2" W x 1/4" D.	

Table 1: Unit I Deck Deficiencies					
Travel Direction	**Span**	**Joint**	**Component**	**Note**	**Photo**
West		Q4	Joints	Corrosion with section loss up to 3/16" D (6LF), joint is depressed up to 1" H x FL, edge spalling adjacent wearing surface FL x up to 2" W x 1/4" D.	
West		Q3	Joints	Corrosion with section loss up to 3/16" D (9LF), joint is depressed up to 1" H x FL, edge spalling adjacent wearing surface FL x up to 2" W x 1/4" D.	
West		Q2	Joints	Corrosion with section loss up to 3/16" D (8LF), joint is depressed up to 1" H x FL.	
West		Q	Joints	Corrosion with section loss up to 3/16" D (15LF).	
West		P	Joints	Corrosion with section loss up to 3/16" D (11LF), joint is depressed up to 1" H x FL.	
West	All		Drainage	Throughout all deck drains, partially filled with debris and sediment.	
West			Guardrails	Throughout approach guardrails multiple spalls/delaminations up to 2.5' x 18" x up to 5" D.	
West	D	Q3	Wearing Surface	18" D spall with poor patching in center lane westbound.	

Table 1: Unit I Deck Deficiencies					
Travel Direction	**Span**	**Joint**	**Component**	**Note**	**Photo**
East	N		Railing	Multiple vertical cracks around the utility pole.	
East	N	P	Railing	Both parapets at Joint P, spalling up to 12” L x 15” H x up to 6" D (1LF each rail).	
East	N		Railing	Right parapet near Joint Q, multiple spalls up to 12” L x 12” H x 3” D with one with exposed rebar.	5
East	N		Median	Median near Joint Q, multiple spalls up to 12” L x 12” H x 3” D with one with exposed rebar.	
East	N	P	Joints	Debris impaction (13LF), corrosion with section loss up to 1/16"D (6LF).	
East	P	O	Joint	Debris impaction full length. Loose joint armor and spalling at header.	1

Table 2: Unit II Deck Deficiencies					
Travel Direction	**Span**	**Joint**	**Component**	**Note**	**Photo**
Center	5	L	Deck	Underside of deck at Joint L, corrosion of stay in place form up to 100% with multiple spalls up to 5' L x 2' W x up to 3" D with exposed rebar and section loss up to 15%.	3
Center	8		Deck	Underside of deck at Floorbeam 0, corrosion of stay in place form up to 100% with multiple spalls up to 2' L x 1' W x 11" D with exposed rebar and section loss up to 15%.	
Center	9		Deck	Underside of deck at Floorbeam 0, corrosion of stay in place form up to 100% with multiple spalls up to 2' L x 2' D x up to 1" D with exposed rebar and section loss up to 15%.	
East	4		Wearing Surface	Spall in the South lanes near parapet up to 15" W x 15 ' L.	
East	1		Railing	Parapets have horizontal and vertical cracks up to full height x up to 1/32" W (10%).	
East	2		Railing	Parapets have vertical cracks up to full height x up to 1/32" W (10%).	
East	2	M1	Railing	Spall in the South railing next to the joint 8" W x 12" H x 1-1/2" D.	
East	2		Railing	Spall in the South railing with map cracking 8" W x 6" L x 1-1/4" D.	
East	2		Railing	Median and right parapet at Joint M1, spalls/delaminations up to 12” x 12” x up to 1" D (1LF each rail).	
East	2		Railing	Spall with exposed reinforcing in the south fascia rail between Joints 2H and M1, east of the signpost, measuring 6' L x 1' H x 2" D.	
East	3		Railing	Parapets have vertical and horizontal cracks up to full height x up to 1/32" W (10%).	
East	3		Railing	South fascia has a spall just west of Joint M 9’ L x 2’ H x 2-1/2” D with one exposed rebar.	
East	4		Railing	Parapets have vertical and horizontal cracks up to full height x up to 1/32" W (10%).	
East	4		Railing	Right parapet between Joints 4H and L1, sound patching (25LF).	
East	4		Railing	South fascia spall 5’ W x 1-1/2’ H x 3” D with one exposed rebar. Spall is just west of center street.	
East	4		Railing	South fascia spall / delamination 5’ W x 1-1/2’ H x 2-1/2” D between floorbeams 9-10.	

Table 2: Unit II Deck Deficiencies					
Travel Direction	**Span**	**Joint**	**Component**	**Note**	**Photo**
East	4		Railing	South fascia spall 3’ W x 1’ H x 2” D exposed corroded rebar at FB10 between joints 4H and M	
East	5		Railing	Parapets have vertical and horizontal cracking with adjacent map cracking up to full height x up to 1/32" W (10%).	
East	6		Railing	South fascia between Joints KC1 and KC2, spall with exposed corroding rebar 12’ L x 2’ H x up to 3” D.	
East	6		Railing	South fascia west of Joint KC1, spall 15’ W x 1-1/2’ H with 3 longitudinal and 7 vertical rebar exposed. One of the longitudinal rebar is broken.	4
East	6		Railing	Parapets have vertical and horizontal cracking with adjacent map cracking up to full height x up to 1/32" W (10%), (8LF) efflorescence.	
East	6		Railing	Cracking and spalling on top of the South rail 18" L x 1" W x 3/8" D.	
East	7		Railing	South fascia spall 15” W x 7” H x 2” D at FB 6.	
East	7		Railing	South fascia spall 1’ H x 6” H x 2” D at FB 6.	

Table 2: Unit II Deck Deficiencies					
Travel Direction	**Span**	**Joint**	**Component**	**Note**	**Photo**
East	7		Railing	South parapet top face at end of first rail segment spall / delamination 12” x FW x up to 3/4" D.	
East	7		Railing	Parapets have vertical and horizontal cracking with adjacent map cracking up to full height x hairline (10%), (8LF efflorescence).	
East	7		Railing	Right parapet at Joint K, spall 6" x 8" x 1-1/2" D with one exposed rebar.	
East	7-8	K	Railing	6' L x Full Width x 18" H spall with exposed rebar and adjacent delaminations on South parapet.	
East	8		Railing	Parapets have vertical and horizontal cracking with adjacent map cracking up to full height x up to 1/32" (10%).	
East	8		Railing	Median rail at Joint J, spall 12” diameter x 3/4" D.	
East	8	J	Railing	1' diameter delamination located 3' West of Joint J.	
East	8-9	J	Railing	Missing junction cover at base of light 15' West of Joint J.	
East	9		Railing	Median rail at Joint J, spall 14" x up to 5" x 3/4" D.	
East	9		Railing	Parapets have vertical and horizontal cracking with adjacent map cracking up to full height x up to 1/32" (10%).	
East	10		Railing	Parapets have vertical and horizontal cracking with adjacent map cracking up to full height x up to 1/32" (10%).	
East	10		Railing	Top of south rail has multiple small spalls, the largest of which is 6" L x 3" H x 2" D.	

Table 2: Unit II Deck Deficiencies					
Travel Direction	**Span**	**Joint**	**Component**	**Note**	**Photo**
West	All		Railing	Along length of parapet, multiple vertical cracks up to FH x 1/32" W (10%).	
West	1		Railing	9' west of Joint N at top outside edge of north parapet spall/delamination 8” L x 4” H x up to 1” D with one exposed rebar on outside face.	
West	2		Railing	4' west of Joint 2H on north face of median parapet spall 8” L x 5” H x 1” D.	
East	2		Railing	Median and right parapet at Joint M1, spalls/delaminations up to 12” x 12” x up to 1" D (1LF each rail).	
West	2	Btwn. FB 13-14	Railing	12’ L x 2’ H x 3” D spall with exposed and corroded rebar.	
West	4		Railing	15' west of Joint 4H on north parapet spall 8” L x 9” H x 1-3/4” D.	
West	6		Railing	4' west of Joint KC1 on north parapet spall 17” L x 10” H x 1” D.	
West	7	At FB 1	Railing	12’ L x 1’ H x 3” D spall/delamination with exposed and corroded rebar.	
West	8	At FB 4	Railing	15’ L x 2’ H x 4” D spall with two longitudinal and 14 vertical exposed and corroded rebar.	

Table 2: Unit II Deck Deficiencies					
Travel Direction	**Span**	**Joint**	**Component**	**Note**	**Photo**
East	1	N	Joints	Debris impaction full length, corrosion with section loss up to 3/16" D.	
East	2	2H	Joints	Debris impaction (28LF), corrosion with section loss up to 1/8" D (8LF).	
East	3	M1	Joints	Debris impaction full length, corrosion with section loss up to 3/16" D.	
East	4	M	Joints	Debris impaction (30LF), corrosion with section loss up to 3/16" D (9LF).	
East	4	4H	Joints	Debris impaction (28LF), corrosion with section loss up to 3/16" (17LF).	
East	5	L1	Joints	Debris impaction (35LF), corrosion with section loss up to 3/16" (20LF), depressed up to 1" (18LF).	
East	6	K-C2	Joints	Debris impaction x FL, corrosion with section loss up to 1/8" (13LF).	
East	6	K-C1	Joints	Debris impaction x FL, corrosion with section loss up to 3/16" (6LF).	
East	7	K1	Joints	Debris impaction (28LF), corrosion with section loss up to 3/16" (17LF).	
East	8	K	Joints	Debris impaction x FL, corrosion with section loss up to 3/16" (9LF).	
East	8	8I	Joints	Debris impaction x FL, corrosion with section loss up to 3/16" (6LF), depressed up to 1" (5LF).	
East	8	8Q	Joints	Debris impaction x FL, corrosion with section loss up to 3/16" (10LF), depressed up to 1" (18LF).	
East	9	J	Joints	Debris impaction (30LF) corrosion with section loss up to 3/16" (9LF). Joint plate under FB 25 has corrosion with up to 100% section loss.	

Table 2: Unit II Deck Deficiencies					
Travel Direction	**Span**	**Joint**	**Component**	**Note**	**Photo**
East	10	I1	Joints	Debris impaction full length, corrosion with section loss up to 3/16" D. Bottom joint plate at FB 8 has up to 100% section loss.	
East	10	I-C2	Joints	Debris impaction full length, corrosion with section loss up to 3/16" D. (12 LF)	
East	10	I-C1	Joints	Debris impaction full length, corrosion with section loss up to 3/16" D. (5 LF)	
West	2	N	Joints	Corrosion with section loss up to 3/16" D (13LF).	
West	3	M1	Joints	Corrosion with section loss up to 3/16" D (17LF).	
West	4	M	Joints	Corrosion with section loss up to 3/16" D (11LF).	
West	7	K1	Joints	Corrosion with section loss up to 3/16" D (14LF).	
West	8	K	Joints	Corrosion with section loss up to 3/16" D (4LF).	
West	8	8I	Joints	Corrosion with section loss up to 3/16" D (6LF), bottom joint plate at U8 has 100% section loss.	
West	8	8Q	Joints	Corrosion with section loss up to 1/8" D (5LF).	
West	9	J	Joints	Corrosion with section loss up to 3/16" D (7LF).	
West	10	I1	Joints	Corrosion with section loss up to 3/16" D (8LF).	
East	2		Lighting	Missing cover plate.	
East	5		Lighting	Pole on South rail over Elm St. is missing its cover.	8

Table 3: Unit III Deck Deficiencies					
Travel Direction	**Span**	**Joint**	**Component**	**Note**	**Photo**
East		D/E	Railing	Top of south rail has a spall with delamination 18" W x Full Height x 2"D.	
East		F/E	Railing	Parapets between Joints F and E have vertical and horizontal cracking with adjacent mc up to full height x up to 1/32" W (10%).	
East		F/E	Railing	Median rail with 8 LF of rust staining.	
East		G/F	Railing	Right parapet between Joints G and F, impact damage with seven spalls up to 14" L x 8" W x up to 2" D.	
East		H/I	Railing	Delamination 3' L x 1' H on south side of south rail over railroad.	
East	11		Railing	Parapets have vertical and horizontal cracking with adjacent map cracking up to full height x up to 1/32" W (10%).	
West	All		Railing	Throughout parapet, multiple vertical cracks up to full height x 1/32" W (10%). Horizontal cracking at the top of the parapets typical (10% South, 5% North).	
East	11	I	Joints	Debris impaction (10LF), corrosion with section loss up to 3/16" (7LF).	
East		H	Joints	Debris impaction (18LF).	
East		G	Joints	Debris impaction (22LF).	
East		F	Joints	Debris impaction (24LF), corrosion with section loss up to 1/8" D (21LF).	
East		E	Joints	Debris impaction (13LF), corrosion with section loss up to 3/16" D(15LF), depressed up to 1" H x FL.	
East		D	Joints	Debris impaction (17LF).	

Table 3: Unit III Deck Deficiencies					
Travel Direction	**Span**	**Joint**	**Component**	**Note**	**Photo**
East		C	Joints	Debris impaction (FL).	
West	11	I	Joints	Corrosion with section loss up to 3/16" D (7LF).	
West		H	Joints	1/4" vertical offset between joint edges, East is higher.	
West		H	Joints	Along length of joint corrosion with section loss up to 1/8" D (18LF).	
West		F	Joints	Joint is depressed up to 1" H (24LF).	
West	All	All	Joints	Throughout joints debris impaction (65%).	
East	All		Drainage	Deck drains partially filled with debris and sediment.	
East		C	Drainage	Deck drains at right parapet near Joint C, 2/3 of the drains are 100% clogged.	
West	All		Drainage	Throughout deck drains debris and sediment partially blocking deck drains.	
West		E/F	Lighting	Attached lighting between Joints E and F, missing conduit cover.	

Table 4: Unit IV Deck Deficiencies						
Travel Direction	**Span**	**Bent/ Pier**	**Component**	**Note**	**Joint**	**Photo**
West	B	18/19	Deck	6” W x 3” L corrosion hole in deck pan above diaphragm above floorbeam cantilever South of North exterior girder.		
West	H		Wearing Surface	South lane; 8' L x 8' W area of 1" D spalling with staining.		
East	A		Railing	North Parapet of South ramp 40' from Joint C, spall/delamination 4' x FW x up to 5" D.		
East	All		Railing	Throughout parapets, multiple horizontal, vertical and map cracking to FH x 1/32" W (10%).		
East	E		Railing	Right (south) parapet at first segment end past Joint B4, spall 11” L x FW x 1-1/2” D.		
East	G		Railing	Outside face of South parapet has a 4' L x 12" H x 2" D spall.		
East	G		Railing	Outside face of South parapet has a 2' diameter x 2-1/2" D spall with three exposed rebar.		
West	E		Railing	5' L x 1' H x 5" D spall with exposed rebar and utility chase on the North parapet.		
West	F		Railing	1' W x 4" L x 2" D spall at south end of 3' L crack emanating from curb inlet.	Drain	
West	H		Railing	6' L x FW x 6" D spall with exposed rebar. Outboard faces have been sealed (over West 3rd Street).		
West	North Ramp		Railing	Spalling 1’ L x 3’ W x up to 3” D, patched with bituminous material.	C	
West	H	37	Railing	North parapet, West of joint, 25' L patch.	B	
East	E		Railing	Median parapet at Joint B4, spall 12” L x 12” W x 3” D.	B4	
East	F		Railing	Median parapet at Joint B4, spall 12” L x 15” W x up to 2” deep.	B2	
East	All		Joints	Throughout joints from Joint C to Joint B, debris impaction (60%), corrosion with section loss up to 1/8" D (20%).	All	
West	A	14	Joints	West Lakeside Avenue exit ramp: At Joint C, the west wall for filled ramp has a 1/16” W x Full Height vertical crack at centerline.	C	

Table 4: Unit IV Deck Deficiencies						
Travel Direction	**Span**	**Bent/ Pier**	**Component**	**Note**	**Joint**	**Photo**
East	All		Drainage	Throughout all deck drains, partially filled with debris sediment.		
West	H		Lighting	Loose light base cover, North parapet, 25' east of joint.	B1	

Table 5: Unit V Deck Deficiencies					
Travel Direction	**Span**	**Joint**	**Component**	**Deficiency**	**Photo**
East	Approach	East	Wearing Surface	Throughout approach, multiple spalls, potholes, and patched areas up to 5' L x 3' W x 1" D.	
West	40		Wearing Surface	Minor wear in wheel paths.	
West	41		Wearing Surface	Minor wear in wheel paths.	
West	Approach	East	Wearing Surface	24" W x 4" L bituminous patch in the centerline of the south lane at the asphalt plug joint on the east end of the slab.	
East	Approach	East	Railing	Along length of the South parapet, multiple spalls up to 8" x FW x 6" D.	
East	All		Railing	Throughout parapets, multiple horizontal, vertical and map cracking to full height x 1/32" D (10%).	
West	Approach	East	Railing	North curb height varies 1-2" above the roadway.	
West	41		Railing	20' east of Pier 40, 5' L x 16" H area of delaminations with small spalls along south parapet.	

NBI Item N59 – Superstructure (5, Fair Condition)

The superstructure is in ***Fair*** condition. There is an NBI sub-item under the substructure condition:

NBI Item N59.01 – Protective Coating System (7, Good Condition)

The protective coating system is in ***Good*** condition.

The superstructure findings and summary of conditions for individual items are as follows:

Element 107 – Steel Open Girder/Beam
The steel beams and girders are in overall **Fair** condition.

Total Quantity	CS 1	CS 2	CS 3	CS 4
8,898 LF	7,346 LF	1,510 LF	42 LF	

The West Approach, Unit I, Section K / C and N superstructure consists of rolled beams, welded plate girders, and riveted built-up plate girders. Typical conditions found include areas of minor corrosion and broken rivets.

The East Approach, Unit IV Lakefront Trestle consists of riveted built-up girders with isolated areas of painted over pitting up to 1/8" deep and pack rust along the bottom flange up to 1" thick (**Photo 9**). There are cutouts in the girder webs up to 11.5" L x 10" H in various locations throughout Unit IV. These cutouts are present for drainage troughs that were removed in 1991.

The East Approach, Unit V Lakefront Ramp superstructure consists of three riveted built-up plate girders with painted over pitting up to 1/16" deep typical on the girder webs with isolated locations of up to ¼" deep.

In Unit III over West 9th Street, the south fascia beam is misaligned slightly to the north due to vehicular impact. There are also impact scrapes visible on the recently painted bottom flange **(Photo 10)**. Beam FSS was previously heat straightened and nearly returned to its original alignment. Measured minimum clearance at this beam is 13'-6" (posting) feet along the right curb.

Element 113 – Steel Stringer
The stringers are in **Good** condition.

Total Quantity	CS 1	CS 2	CS 3	CS 4
62,103 LF	61,648 LF	455 LF		

The steel stringers across the structure were replaced in the 1991-1992 deck replacement project. The stringers on the approaches were all repainted in the recent rehabilitation project. Typical conditions found are isolated freckled corrosion across the structure.

Element 116 – Reinforced Concrete Stringer
The reinforced concrete stringers are in **Satisfactory** condition.

Total Quantity	CS 1	CS 2	CS 3	CS 4
3,611 LF	3,584 LF	27 LF		

The reinforced concrete stringers in West Approach Sections D, M, J', P, and B' are in overall Satisfactory condition. There are hairline cracks with and without efflorescence throughout the concrete stringers. There are isolated patches throughout the stringers with some areas of unconsolidated concrete and delaminations. The stringers in Section P are in fair to poor condition. There are spalls and delaminated areas up to 12' long x 4' high and isolated spalls up to 3" deep in stringers in Section P (**Photo 11**).

Element 120 - Steel Truss
The truss is in **Fair** condition.

Total Quantity	CS 1	CS 2	CS 3	CS 4
5,360 LF	1,978 LF	2,150 LF	1,178 LF	54 LF

Overall, the truss members are in Fair condition with typical areas of minor section loss, pitting, reactivated pack rust, distortion due to pack rust, and surface corrosion throughout all truss members **(Photos 12 through 15)**. A summary of defects on each truss member type is listed below. Refer to the deficiency tables for further details.

The truss verticals exhibit varying section loss due to pack rust between the gusset plates, fill plates, cover plates, and vertical flanges **(Photo 16)**.

The truss diagonals exhibit section loss with pitting typical in the top face of the web plates of the rolled sections and pack rust along the flanges and connection fill plates. There are locations where section loss in the web was repaired with bolted repair plates.

The truss upper chord exhibits areas of painted over section loss, pitting, and pack rust induced distortion/ There are isolated areas of reactivating corrosion near the joints.

The lower chord exhibits more numerous deficiencies across the structure. Section loss is affecting up to approximate 25% of the total calculated length of the lower chord members. These areas include section loss due to previously noted and reactivated areas

of pack rust and pitting. There are previously caulked areas of pack rust at the lower chord to gusset plate interfaces that are cracked and no longer effective.

There are numerous locations noted of pack rust, both sealed and reactivated, located between the flange angles and the web plates that are distorting the web plates up to 2" high **(Photo 11).** Isolated perforations are also noted along the top and bottom flange plates. The Unit II lower chord (Span 8, L2425) at the South Truss, has a full length retrofit around the original steel member. There is minor surface corrosion on the retrofit bolt heads at this location.

The lower lateral bracing exhibits areas of pack rust and pitting. Isolated locations exhibit missing rivets and broken and painted over section loss on the rivet heads **(Photo 17)**. The connection plates have areas of significant section loss with isolated corrosion holes typical.

Element 152 – Steel Floor Beam
The floorbeams are in overall **Good** condition.

Total Quantity	CS 1	CS 2	CS 3	CS 4
23,487 LF	18,359 LF	5,111 LF	17 LF	

The floorbeams were recently repainted in Unit I, Unit III, Unit IV, and Unit V. Typical conditions found in those areas include areas of painted over pitting ranging up to 1/4" D and reactivated areas of pack rust and freckled surface corrosion. Weld remnants and random attachments remain on the floorbeams from previous drainage assemblies. In the Unit II main truss spans, areas of painted over pitting were found along the bottom of top flange tension tie plates connecting the center floor beam section and the floor beam cantilever brackets. A previously unreported but repaired cracked floorbeam bracket was found in Span 8 at Floorbeam 25 **(Photo 18 and 19).** The previously reported cracks in Span 1 at Floorbeam 7 have not propagated since the 2019 inspection **(Photo 20).** New cracks were found at floorbeam top flange copes in Span 6 at Floorbeam 0. Along the inboard east face, the crack is 2 1/8" long and along the outboard east face, the crack is 2" at the top flange cope **(Photos 21 and 22)**. New cracks were found at the floorbeam top flange copes in Span 10 at Floorbeam 22. Along the inboard east face, the crack is 6½" long and along the inboard west face, the crack is 4" long **(Photos 23 and 24)**. Along the inboard east face, the crack is 6" long and along the outboard west face, the crack is 3¼" long **(Photos 25 and 26)**.

Element 155 – Reinforced Concrete Floor Beam
The floorbeams are in overall **Good** condition.

Total Quantity	CS 1	CS 2	CS 3	CS 4
5,407 LF	5,400 LF	7 LF		

There are reinforced concrete floorbeams in the West Approach, Unit I, Section J', B', M, D and P. In Section P, Floorbeam 0 exhibits a 2' high x 3' wide spall with exposed reinforcing steel in the north cantilever. The south face of Floorbeam 0 exhibits a 7' long x 4' high x 3" deep with exposed rebar with 100% section loss in the west cantilever at Girder 15 **(Photo 27)**. There are isolated hairline cracks and areas of delamination throughout the floorbeams in Section P. In Section J', Floorbeam 17 exhibits exposed reinforcing steel at the north end due to poor consolidation.

Item 161 – Steel Pin and Pin & Hanger Assembly
The pins, hangers, and hinges are in **Good** condition.

Total Quantity	CS 1	CS 2	CS 3	CS 4
14 EA	11 EA	3 EA		

In the Lakefront Trestle, there are pin and hanger locations where rivet heads on the girders interfere with hangers. Evidence of movement of the pin and hanger was noted due to cracked paint between the hangers and the beam webs. Isolated pins exhibit painted over pitting less than 1/8" D.

In Unit II, Span 9, South Truss at L0L1 the inboard and outboard oval pin plates have rotated **(Photo 14)**. The pin plates are rotated to the point where they are in contact with gusset stiffening channels on both the inboard and outboard gusset. The channel flange/rivets are beginning to push the edge of the pin plate outward**.** There is also moderate surface corrosion around the slot opening of the pin chord at both inboard and outboard gusset plates.

Item 162 – Steel Gusset Plate
The truss gusset plates are in **Good** condition.

Total Quantity	CS 1	CS 2	CS 3	CS 4
1,096 EA	803 EA	206 EA	87 EA	

The truss gusset plates typically exhibit painted over pitting up to ¼" deep. There are several locations of reactivating pitting throughout the Main Truss spans**.** There is pack rust between various truss members and gusset plates at both the upper and lower

chords. Fill plates across the structure typically exhibit painted over section loss with to 100% section loss in isolated locations outside of the gusset plates **(Photo 16).** At the north truss, Span 4, lower chord panel point L8, there is a painted over 2" diameter corrosion hole and a 1¼" thick retrofit plate on the inboard gusset plate.

Item 311 Moveable Bearing

The moveable bearings are in **Good** condition.

Total Quantity	CS 1	CS 2	CS 3	CS 4
103 EA	83 EA	14 EA	6 EA	

The moveable bearings in Unit II exhibit moderate surface corrosion throughout the bearing components. Several bearings in Unit II have standing water and debris accumulation in the bearing assembly **(Photo 27).** The moveable bearings in Unit III were cleaned and in the latest rehabilitation project. Typical conditions found are painted over section loss up to 3/16" deep throughout the lower portion of the columns and cleaned and caulked areas of pack rust. The anchor bolts at the base of Bents 1 through 10 exhibit moderate painted over section loss. Masonry plates typically exhibit painted over pitting up to 3/16" deep.

Item 313 Fixed Bearing
The fixed bearings are in **Good** condition.

Total Quantity	CS 1	CS 2	CS 3	CS 4
100 EA	80 EA	14 EA	6 EA	

The fixed bearings in Unit II exhibit moderate corrosion throughout the bearing components. Several bearings in Unit II have standing water and debris accumulation in the bearing assembly.

Item 515 – Steel Protective Coating
The protective coating system (PCS) is in **Good** condition.

Total Quantity	CS 1	CS 2	CS 3	CS 4
1,500,000 SF	1,438,032 SF	61,355 SF	50 SF	

The PCS in the Main Truss Spans was applied in 2007. The PCS in the West Approach, Forward Section, Lakefront Trestle, and Lakefront Ramp was applied in 2017 and 2018 and in is very good condition. The paint system in Unit II typically exhibits reactivating corrosion throughout with isolated locations of moderate section loss **(Photo 28)**.

Alignment

In Unit II, there are several pin locations along the upper chord and lower chord where the trusses are not aligned along a linear plane. This is due to an intentional change in alignment of the structure. These locations should continue to be monitored.

In Unit III, between Bent 8 and 9, the south diagonal is bent upward and to the South due to vehicular impact. The member has not been braced or straightened.

In Unit IV, Section E at Bent 26, the north girder bottom flange on the north side is bent at Joint B4 and the pin nuts show evidence of movement. Continue to monitor this location.

Fatigue Prone Details

The fatigue prone details are in **Good** condition. In the Lakefront Trestle, Unit IV, Bents 14 and 15, Section A, there is an obsolete utility bracket welded to the south twin girder. The top flange weld on the field splice of Girder GF2 exhibits a deep crevice between adjacent weld passes. These types of welded connections represent stress risers and potential fatigue prone details that should be monitored in future inspections.

Table 6: Unit I Superstructure Deficiencies					
Section	**Frame**	**Floorbeam**	**Girder**	**Note**	**Photo**
D				Joint Q is leaking for full length.	
D				Joint Q1 is leaking for 8 LF.	
J'		17		At Floorbeam 17, North End, there is exposed rebar due to poor consolidation with surface corrosion and no section loss.	
K				The 6” L horizontal cracked weld in Floorbeam 2 south cantilever knee brace at east side, caused by pack rust has been repaired.	
K/M				1/8” D pitting on girder ends at Frame 1 below Joint S.	
L'		Joint R		There is 1/8" D painted over pitting on the end of the girders and columns.	
M		2		The previously noted 4” L vertical crack in south exterior stringer to floorbeam cantilever west connection angles at top was not found.	
M	2 South	3		The previously noted 1/2” T pack rust between column and floorbeam cantilever bottom flange was not observed.	
M	3 South	5		The sheared rivet head on south girder connection (North side) to west face of Column 3 has been repaired.	
M		7	North	3/16” T pack rust between girder top flange and tie plate for floorbeam.	
M			North	Typical painted over 1/8” T pack rust between girder top flange cover plates at the transverse ends.	

Table 6: Unit I Superstructure Deficiencies					
Section	**Frame**	**Floorbeam**	**Girder**	**Note**	**Photo**
M		4	North	1/8” pack rust between girder top flange and tie plate for floorbeam.	
M		3	North	1/2” T painted over pack rust between girder top flange and floorbeam tie plate.	
M		2	North	1/8” pack rust between girder top flange and tie plate for floorbeam.	
M		1	North	Opening in wall for girder pass thru is rough cut with exposed rebar and stirrups along all edges.	
M				Steel components in Span M have been cleaned and painted. Overall good condition with isolated areas of pitting up to 1/16” D at stringer to floorbeam connections and at the base of the support columns.	
N			North	Not fully engaged bolt between girder web and top flange connection angle, also to north face cantilever connection angle.	
N	5		Center	Sheared bolt at end of top flange due to pack rust.	
N		All	North	Knee braces have a 12” L x 3” W cutouts.	
N		1	North and Center	Between the north and center girders, there is up to 1/8" D painted over section loss on the web and flanges in a 9' L section.	
N		4	Center	West of the center girder, there are 2 bent areas in the knee brace flange.	
N		5	South	East bearing all anchor bolt nuts are missing.	
N		5	South	Pack rust between girder top flange and floorbeam to cantilever tie plate up to 3/4” thick.	
N		8	North	1/16” D painted over pitting on east end of girder near bearing.	
N		8	North	South guide bar welds on north side previously noted as broken have been painted and are disconnected. No anchor bolts.	

Table 6: Unit I Superstructure Deficiencies					
Section	**Frame**	**Floorbeam**	**Girder**	**Note**	**Photo**
P	1	2	South	Girder; Full Height x Full Width x up to 2” D spall with exposed rebar along overhang (7LF).	
P		0	14	West cantilever south face has 5’-5” L x 4’ H x 3” D spall with exposed rebar with 100% section loss (5LF).	
P		0	15	West cantilever south face has 7’ L x 4’ H x 3” D spall with exposed rebar with 100% section loss. North face with 3’ diameter delamination (7LF).	27
P		0		Floorbeam; North cantilever has a 2’ H x 3’ W spall with exposed rebar with 30% section loss (3LF).	
P		0 to 1	15	Floorbeam; North face near Floorbeam 0 has a 5’ L x 2’ H delamination (5LF).	
P		0 to 1	2	There is a spall with exposed reinforcement 1 LF, and a delamination 1' H x 7' L at Floorbeam 0.	
				Isolated Hairline cracks on the floorbeams and girders.	
P		4	1	Girder; East cantilever south face with a 4’ L x 3’ H delamination (4LF).	
P		2 to 3	15	Girder; South face near floorbeam 2 has 12’ L x 4’ H area with spalls (12LF).	11
P		2 to 3	5	Girder; Underside has areas of unconsolidated concrete (4LF).	
P		1 to 2	15	Girder; Underside near midspan sounds hollow 8’ L (8LF).	
P		2		West face of floorbeam 2 has a 3’ L x 3’ H delamination (3LF).	
P		1 to 2	14	Girder; South face of girder 14 at floorbeam 2 has 3’ L x 2’ H delamination with cracks (3LF).	
P		2		Floorbeam; West face of floorbeam 2 in middle section has numerous hairline cracks and an isolated 2’ x 2’ delamination between girder 10 and 11 (2LF).	

Table 6: Unit I Superstructure Deficiencies					
Section	**Frame**	**Floorbeam**	**Girder**	**Note**	**Photo**
P		2		Floorbeam; West face of floorbeam 2 in middle section has numerous hairline cracks and an isolated 2’ x 2’ delamination between girder 10 and 11 (2LF).	
P		1 to 2	1	Girder; South face of girder at FB 2 has a 2’ diameter delamination (2LF).	
P		1 to 2	4	At Floorbeam 2, there is an area of delamination 2' L x 1.5' W.	

Table 7.0: Unit II Floorbeam Deficiencies				
Span	**FB**	**CS 3**	**CS 4**	**Photo**
1	7	Crack in top of web of cantilever Floorbeam; West Face 2-7/8" & East face 4.5" at South Truss.		20
2	6	The previously noted 1/4" section loss to top flange was not observed.		
4	0	2 of 3 bolts are loose on the inboard sliding plate for the north truss at U0. Movement noted.		
4	14	Painted over section loss up to 1/8" D on the web and flanges at midspan for 15 LF.		
6	0	Typical stringer bearings (sliding plate) on east face of Floorbeam 0, evidence of movement. Surface corrosion is present.		
6	0	Two (2) new cracks found in East face of floorbeam. Inboard 2" long crack at top cope, outboard 2 1/8" long crack at top cope.		21,22
8	8	Significant painted over section loss up to 1/4" that is beginning to reactivate.		
8	16	1/8 -1/4" D painted over section loss with 2 small web perforations for 15 LF on the inboard side of the north truss.		
8	25	6 crack arrest holes and multiple cracks present in the North Cantilever at the Stringer 6 bracket.		18,19
9	7	Drainage downspout on north overhang is disconnected.		
9	8	1/8" - 1/4" D painted over section loss beginning to reactivate due to joint leakage.		
10	7	Section Loss, 1/8" D pitting in both flanges.		
10	10	Section Loss, 1/8" D pitting in bottom flange.		
10	9	Painted over section loss up to 1/8" D on the web and flanges at midspan for 10 LF.		
10	10	Section Loss, 1/8" D pitting in both flanges and web for 20 LF.		
10	18	Painted over section loss up to 1/8" D on the web and flanges at midspan for 10 LF.		
10	22	The end bracing has painted over pitting and a few small corrosion holes.		
10	22	Four (4) new cracks found in floorbeam at south truss. Inboard east face 6½" long crack at top cope, outboard east face 6" long crack at top cope, inboard west face 4" long crack at top cope, outboard west face 3¼" crack at top cope.		23-26

Table 7.1: Unit II Main Truss Vertical Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
1	S	L0U0	Pack rust between flange plate and member up to 3/4" D.		
2	N	L11U11	4” W x 2” H corrosion hole in inboard fill plate above main inboard L11 gusset plate.		
2	N	L15U15	8” W x 4-1/2” H corrosion hole in inboard fill plate above main inboard L15 gusset plate. 3/4" T reactivating pack rust and scalloping of edges of outboard flange plate.		
2	N	L16U16	Painted over up to 1/4” D section loss throughout.		
2	S	L6U6	Downspout is broken allowing water to drain directly onto lower chord.		6
2	S	L10	Lower lateral bracing top horizontal gusset at L10 south truss has two sheared bolt heads, pitting up to 3/16" D and pack rust up to 1" T with an adjacent fill plate. Fill plate has a 2" L and 6 1/2" W corrosion hole.		
2	S	L15U15	Vertical fill plates between vertical and gusset at L15 on the inboard and the outboard have pack rust and scalloping due to pack rust up to 1" T and an 8" L x 3" H area of 100% section loss. Riveted plate attached to the flanges of the verticals has up to 7/8" T pack rust and scalloping, heaviest near L15, extending the full height.		16
4	S	L2U2	1’ L x 4” H cutout on the east web.		
4	N	L0U0	Full height up to 1/4” D painted over pitting throughout.		
4	S	L0U0	Up to 1/8" D painted over section loss. There is 1/2" T arrested pack rust on the flange plates.		
4	N	L8U8	Painted over section loss ranging from 1/8" D to 1/4" D. There is up to 1/2" T arrested pack rust at the fill plates.		
4	N	L10U10	14" L x 2" W corrosion hole to interior horizontal diaphragm plate near L10		
5	S	L1U1	At L1, painted over pack rust up to 1-5/8" T on inboard and outboard fill plate. Inboard fill plate has a 3-1/2" tear due to pack rust.		
5	N	L0U0	Pack rust up to 1/4” T forming between angles and north/south webs.		

Table 7.1: Unit II Main Truss Vertical Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
5	N	L1U1	Up to 3/16” D painted over pitting near L1. 1/2" T pack rust between fill plates and vertical.		
5	N	L5U5	1/2" T pack rust between fill plates and vertical.		
5	S	L5U5	Up to 1” T painted over and caulked pack rust between inboard web and gusset fill plate.		
6	S	L5U5	Caulked and painted over pack rust up to 1” T along both the interior and exterior stiffening plates resulting in scalloped edges along full height. Up to 1” T painted over pack rust typical between inboard and outboard web and fill plate. 2- 3/16” L crack in inboard fill plate.		
5	S	L6U6	Painted over section loss ranging from 1/8" D to 1/4" D on the flanges at L6.		
6	S	L10U10	Caulked and painted over pack rust with a 6” H x 2” W corrosion hole along the top edge of the fill plate.		
6	N	L0U0	Pack rust up to 1/4” T forming between angles and north/south webs. Painted over 1/4" section loss along top flange. Painted over pitting up to 1/8” D in east web and angles. Pack rust and failing caulking repair at inboard gusset and vertical.		
6	S	L17U17	1” L x 5” x 1/8” D painted over pitting on pin against the outboard plate. 3/8” pack rust between the gusset plate and vertical flange at L0.		
7	S	L6U6	1-1/2” Diameter corrosion hole and 1/8” deep pitting in the web plate at east face at U6.		

Table 7.1: Unit II Main Truss Vertical Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
8	N	L8U8	Painted over and reactivating pack rust between built up members with pitting up to 1/8" D along flanges.		
8	N	L9U9	Pack rust between fill plates was removed with painted over 100% section loss in outboard fill plate at L9 and U9.		
8	N	L12U12	Painted over and reactivated pack rust up to 3/4" T between cover plates. Pack rust up to 3/4" T between fill plates with complete section loss in outboard fill plate at L12. Pitting up to 1/4" D along flange and web interface, full length of member.		
8	N	L13U13	Painted over pitting up to 1/4" T between cover plates. Up to 1/8" deep pitting in both fill plates.		
8	N	L15U15	Corrosion holes on the interior horizontal diaphragm plate FL x 7” W.		
8	N	L25U25	Areas of Painted over pitting up to 1/8” D. Misdrilled rivet hole in interior web at upper bracing connection.		
8	S	L0U0	Painted over pitting up to 1/8” deep on all faces. Riveted repair plates with up to 1/2” pack rust. Up to 1” thick pack rust between flanges and the gusset plates at the bottom.		
8	S	L9U9	Painted over and reactivated pack rust between built up members. Pack rust up to 3/4" T between fill plates.		
8	S	L19U19	At L19 there is an open electrical box with exposed wires.		

Table 7.1: Unit II Main Truss Vertical Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
8	S	L21U21	Rough cut holes in inboard web near L21.		
8	S	L25U25	Areas of painted over pitting up to 1/8” D. Misdrilled rivet hole in interior web at upper bracing connection. Vertical has reactivating surface corrosion along the flanges and at all connection points to the bracing members. Reactivated pack rust was also noted at all gusset and strengthening plate edges. Horizontal plate at base of vertical plate within the lower chord has 100% section loss throughout. Reactivated surface corrosion and debris build up typical along base of vertical. The horizontal bracing attached to this vertical near U25 has multiple corrosion holes in the web up to 1 1/2” H x 1/2” W, in area 15” L.		
9	S	L1U1	1/2" T pack rust at the lower fill plate.		
9	S	L8U8	Up to 1/16” D painted over pitting on outboard flange plate above lower vertical member pin and gusset plate connection. Reactivating 1" T pack rust behind outboard pin plate for lower vertical member pin at gusset plate connection.		
9	N	L8U8	At L8: up to 1/8” D painted over pitting on outboard flange plate above lower vertical member pin and gusset plate connection. 1” T pack rust between outboard pin plate and vertical.		
10	S	L9U9	Interior lower diaphragm plate is missing due to section loss above diagonal connection. Area has been painted.		
10	S	L16U16	Painted over section loss ranging from 1/8" to 1/4" D on the flanges.		
10	S	L20U20	Painted over pitting up to 1/8” D on interior faces of web plates at bottom interior deteriorated diaphragm above L20.		
10	N	L1U1, L2U2, L3U3	Pack rust up to 1/4” T between riveted flange cover plates and rolled beam flange. Fill plates generally exhibit pack rust and section loss up to 100%.		
10	N	L9U9	Internal diaphragm above L9 has a 4” W x 2” L corrosion hole with adjacent pinholes.		

Table 7.2: Unit II Main Truss Diagonal Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
1	S	L5U6	Up to 1/8" D painted over pitting in top face of web for bottom 4’ of diagonal.		
1	N	U1L2	1/2" T pack rust between L1U0 and inboard fill plate at L1.		
2	S	L0U1	Up to 1/8" D painted over pitting in top face of web at bottom 6’ of diagonal.		
2	S	U4L5	Up to 3/16" D painted over pitting at bottom 3rd on the top face of the web.		
2	S	L10U11	Up to 3/16" D pitting in the top face of the web at the bottom 6’ of diagonal.		
2	N	L5U4	Up to 1/8” D painted over pitting on web near L5.		
2	N	L6U5	Up to 1/8” D painted over pitting on web at midpoint.		
2	N	L10U11	Up to 1/8” D painted over pitting on web near L10.		
2	N	L11U12	Up to 1/8” D painted over pitting on web near L11. 12” W x 5” L area of 1/8” D painted over pitting on inboard flange near L11 gusset plate.		
2	N	L12U13	Reactivating pack rust, up to 3/16” T scalloping top edge of outboard flange plate.		
2	S	L15U14	Isolated areas of up to 8" diameter x up to 3/16" D pitting on the top face of the web near L15.		
2	S	L16U15	Isolated areas of up to 8" diameter x up to 3/16" D pitting on the top face of the web near L16.		
4	N	L0U1	Up to 5/16" D pitting. Additional retrofit bolted plate added to web.		

Table 7.2: Unit II Main Truss Diagonal Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
4	S	U1L0	Both flanges exhibit isolated areas of up to 1/4" D pitting along with the bottom half of the member. The bottom half of the top face of the web has widespread pitting and is retrofitted with a new plate bolted onto the bottom face.		
4	S	L5U4	Fill plates at L5 have severe distortion and 100% painted over section loss.		
4	S	L9U10	Outboard fill plate at L9 is distorted with 100% painted over section loss.		
4	S	L10U11	The top of the web has up to 1/8" D painted over pitting.		
4	N	U3L4	Painted over pack rust up to 1/4" T between inboard and outboard fill plates and diagonal at L4.		
4	N	U4L5	Severe pack rust has been removed from fill plate between inboard and outboard fill plates and diagonal at L5 and U4. Fill plates have areas of 100% section loss. Painted over pitting up to 1/8" D throughout lower half of diagonal.		
4	N	U9L8	Up to 1/4" D pitting in web of diagonal near L8.		
4	N	U10L9	1/2" T x 20" W retrofit has been bolted to the lower half of U10L9. Inboard/outboard fill plates at L9 and Outboard fill plate at U10 have pack rust up to 3/8" T with areas of painted over 100% section loss and/or removed sections.		
4	N	U11L10	1/8" D pitting in web of diagonal near L10.		
4	N	U12L11	1/16" D pitting in web of diagonal near L11.		
4	N	U12L13	Misdrilled rivet hole in south bottom flange at L13		

Table 7.2: Unit II Main Truss Diagonal Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
4	N	U13L14	1/2" T x 20" W retrofit has been bolted to the lower half of U13L14. Section loss up to 7/16" D pitting along web and flanges near L14.		
5	S	L1U0	Up to 1/8" D painted over pitting on top of web, typical lower half.		
5	N	U0L1	Section loss up to 1/4" D pitting along web near L1.		
5	N	U1L2	Section Loss, 1/16" D pitting throughout.		
5	N	U6L5	Section Loss, 1/16" D pitting throughout.		
6	S	L0U1	Up to 1/4" D painted over section loss to top of web with a strengthening plate has bolted to the web along the lower half.		
6	S	U4L5	Up to 3/16” D pitting along the lower 5’ of the web (strengthening plate along underside) with up to 1” T of caulked and painted over pack rust between the inboard and outboard fill plates and diagonal flanges. The outboard caulking is cracked and deteriorated.		
6	S	L10U11	3/4” T painted over and caulked pack rust along the north and south edges. Both plates exhibit scalloping of the plate edge. bolted retrofit plate on the lower half.		
6	N	L0U1	1/2" T x 20" W retrofit has been bolted to the lower half of L0U1. Up to 7/16" D painted over pitting along web near L0. Inboard fill plate has up to 3/16" D pitting at L0.		
6	N	L3U2	Pack rust up to 1/8” T beginning to develop between original flange and retrofit flange plates.		
6	N	L4U3	Pack rust up to 1/4” T between original flange and retrofit flange plates with scalloping.		

Table 7.2: Unit II Main Truss Diagonal Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
6	N	L5U4	Up to 3/16” D painted over pitting on web for bottom half of member. Strengthening plate added to bottom side of web. Painted over pack rust 1-1/2” T and corrosion holes in fill plate extension for inboard L5 gusset plate. Painted over pack rust 1” T and corrosion holes in fill plate extension for outboard L5 gusset plate.		
6	N	L9U10	Pack rust up to 1/4” T between original flange and flange retrofit.	Four corrosion holes in bottom of web at L9; One 3- 1/2” L x 2-1/2” W and three 1/4"- 1/2” Diameter holes. Varying depths of painted over pitting on lower 1/3 of web.	
6	N	L10U11	Up to 5/16” D painted over pitting on web for bottom half of member. Strengthening plate added to bottom side of web.		
6	N	L11U12	Two areas of 100% section loss 6” L x 2” W and 6” W x 2” L, on fill plate extension for outboard gusset plate L11. Top fill plate also has 100% section loss at U12.		
6	N	U16L17	Section Loss, 1/8" D pitting throughout, up to 1/4”.		
7	N	U1L2	Pitting up to 1/4” D in lower portion of web.		
8	S	L9U8	Up to 3/16" D painted over pitting on the top of the web near L9.		
8	S	L9U8	Painted over and reactivated pack rust between built up members. Pack rust up to 3/4" T between fill plates.		
8	S	L11U12	The inboard and outboard fill plates at L11 are distorted up to 1/2" due to painted over pack rust.		

Table 7.2: Unit II Main Truss Diagonal Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
8	S	L13U14	Up to 1/8" D painted over pitting in the top of the web near L13.		
8	S	L14U15	Inboard fill plates near L14 with painted over corrosion holes.		
8	S	L16U17	Up to 1/8" D painted over section loss near L16.		
8	S	L8U7	Reactivated pack rust under flange and built up section at L8		
8	N	L0U1	Pitting up to 1/4” D.		
8	N	L4U3	Reactivated pitting on flange south gusset side north face of gusset		
8	N	U5L6	Section loss, 1/8" D pitting in web of diagonal near L6.		
8	N	U6L7	Section loss, 1/16" D pitting in web of diagonal near L7. Painted over pack rust up to 1/8" T between outboard fill plates and diagonal at L7.		
8	N	U7L8	Section loss, up to 3/8" D pitting in web and flanges of diagonal in lower half. Painted over pack rust up to 1" T between both cover plates along full length.		
8	N	U8L9	Up to 1/4" D pitting in web and flanges of diagonal in lower half. Pack rust up to 1/2" T between fill plates and diagonal at L9.		
8	N	L11U10	Section loss, 1/8" D pitting in web of diagonal near L11.		

Table 7.2: Unit II Main Truss Diagonal Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
8	N	L11U12	Section loss, 1/8" D pitting in web of diagonal near L11. Pack rust up to 3/4" T between both inboard outboard fill plates and diagonal at both U12 and L11 connections.		
8	N	L12U13	Section loss, 1/8" D pitting in web of diagonal near L12. 1/4" T pack rust between outboard fill plate and diagonal at U13.		
8	N	L13U14	Section loss, 1/8" D pitting in web of diagonal in lower half.		
8	N	L13U14	Pack rust between fill plates at U14.		
8	N	L14U15	Section loss, 1/8" D pitting in web of diagonal near L14.		
8	N	L14U15	Pack rust was removed w/areas off painted over 100% section loss to the inboard and outboard fill plates.		
8	N	L15U16	Section loss, 1/16" D pitting in web of diagonal near L15. Pack rust was removed with areas of painted over 100% section loss to the inboard and outboard fill plates and diagonal at both U16 and L15 connections.		
8	N	L16U17	Section loss, 1/8" D pitting in web of diagonal in lower half.		
8	N	L25U24	Painted over pack rust up to 1/2" T between flange cover plates and diagonals.		
9	S	U1L2	Typical scalloping of flange plates due to painted over pack rust.		
9	N	L2U1	Up to 1/4" scalloping between the flange cover plates and flanges.		
9	N	L6U7	Reactivating pack rust 1/2” T scalloping top edge of both built-up flanges.		
9	N	L2U1	Painted over pack rust up to 1/4" T between inboard and outboard cover plates and diagonal flange.		

Table 7.2: Unit II Main Truss Diagonal Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
10	S	U0L1	Minor scalloping of cover plates due to painted over pack rust.		
10	S	L10U9	Up to 1/2” T painted over and caulked pack rust along the edges of both the interior and exterior fill plates at L10.		
10	S	L14U13	There is up to 1/2” T painted over and caulked packed rust between the fill plate and both the interior and exterior flanges of the diagonal. Both the interior and exterior fill plates exhibit 100% section loss around and between the rivet heads. The average hole size is 4” x 3”.		
10	S	L15U16	Up to 1/4" D painted over pitting in the flanges of the diagonal. The web lower half has moderate painted over section loss up to 1/4” D with a bolted repair plate.		
10	S	L16U17	Painted over pitting up to 1/8” D on web.		
10	S	L19U20	Up to 7/8" T scalloping between the flange cover plates and flanges. Retrofit installed along the bottom half of the web.		
10	N	L11U10	1/8" D pitting along web.		
10	N	L12U11	Damage, 3/4" D gouge in web plate.		
10	N	L17U18	Multiple areas of fill plate removed at L17 and one area 6" L with painted over pack rust up to 3/4" T.		
10	N	L15U16	Up to 1/16” D painted over pitting on bottom 5’ of web near inboard flange.		

Table 7.3: Unit II Main Truss Upper Chord Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS4**	**Photo**
1	S	U5U6	1/8" D pitting in bottom flange plate at midpoint. 1/8" D pitting along outboard face at U5.		
1	S	U2U3	1/8" D pitting along outboard face.		
2	N	U4U5	1/8" D painted over pitting in web plate at U5.		
2	N	U10U11	1/8" D painted over pitting on underside of bottom flange plate.		
4	S	U4U5	There is up to 1" T pack rust throughout the member, and up to 1/16" D painted over section loss for 6 LF.		
4	S	U6U7	Pack rust caulk repair is beginning to fail.		
6	S	U4U5	1/8" D pitting in web plates.		
6	N	U0U1	1/4" D pitting in both web plates.		
6	N	U4U5	1/8" D pitting in web plates.		
6	S	U10U11	Painted over 1/8" deep pitting near top of south face flange		
6	N	U14U15	1/8" D pitting in top flange plate. Pack rust induced scalloping up to 3/4" T.		
7	S	U1U2	1/8" D pitting in both web plates.		
7	N	U0U1	1/8" D painted over pitting in top flange and both webs. A new bottom plate was added.		
7	N	U1U2	1/8" D pitting in top flange plate.		
8	N	U0U1	Top of exterior web plate at U0 has 100% section loss for 12” L x 1” H.		
8	S	U0U1	Reactivating pack rust north face		
8	N	U4U5	1/16" D painted over section loss and 3/4" T pack rust for 10 LF.		

Table 7.3: Unit II Main Truss Upper Chord Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS4**	**Photo**
8	N	U7U8	1/8" D painted over section loss and up to 1/2" T pack rust for 10 LF.		
8	S	U7U8	Reactivating pack rust north face between flange and web and plate		
8	N	U8U9	Up to 1/4” D painted over section loss for end 3’ at U9.		
8	N	U12U13	1/8" D painted over section loss for 8 LF at U12.		
8	N	U8U9	Up to 1/4” D painted over section loss for end 3’ at U9.		
8	N	U12U13	1/8" D painted over section loss for 8 LF at U12.		
8	N	U13U14	Up to 1/4” painted over section loss to member and up to 100% section loss painted over to fill plate at U13.		
8	N	U17U18	1/8" D painted over section loss and rivet head loss on the flanges and webs with 1" T arrested pack rust at the top flanges for 10 LF.		
8	N	U20U21	Up to 1/4” D painted over section loss for end 5’ at U21.		
8	S	U24U25	1/8" - 1/4" D painted over section loss at U25. There is 100% section loss in the bottom flange angle and lower stiffener plate.		
8	N	U24U25	The bottom flange angle of the expansion section has 2’ L on north face and 3’ L on south face x 100% section loss at U25. The interior web also has 100% section loss around opening at U25. Corrosion of the member reactivating		

Table 7.4: Unit II Main Truss Lower Chord Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
1	S	L2L3	Section Loss, 1” T reactivating pack rust distorting top flange plate and web plates.		
1	S	L3L4	Section Loss, isolated locations of 1/2" T pack rust distorting top flange plate.		
1	S	L5L6	Section Loss up to 1/8" D to top cover plate at L5.		
1	S	L6L7	1/8" D painted over pitting with a 3/4” diameter area of perforations at L7. The top cover plate and side plates are distorted up to 1/2" due to painted over pack rust.		
1	S	L7	Lower lateral bracing horizontal gusset plate connection is heavily distorted along the edges due to pack rust and small areas of up to 100% painted over section loss. 2 broken bolts at angle connection to vertical gusset plate.		17
1	N	L0L1	Section Loss, 1/8" T pack rust between outboard web plate and top flange plate at L0. Section loss, 1/8" T painted over pack rust beneath on top flange adjacent to inboard gusset plate at L0.		
1	N	L1L2	Section loss, 1/4" T pack rust between outboard web and top flange near centerline of L1L2.		
1	N	L2L3	Section Loss, 1/2" T pack rust distorting top flange plate and both inboard and outboard webs.		
1	N	L3L4	Section Loss, 1/4" T painted over pack rust distorting top flange plate and both inboard and outboard webs.		
1	N	L5L6	Section loss, widespread painted over pitting up to 1/8" D on top flange at L5. Section loss, painted over laminar corrosion and pack rust up to 1/2" T between top flange and splice plate at L6.		

Table 7.4: Unit II Main Truss Lower Chord Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
1	N	L6L7	Section loss, heavy painted over pack rust and heavily deformed outboard web in the interior of built up bottom 2 1/2" ± distortion in chord member at the pin at L7. 1/2" T pack rust between inboard web and gusset plate at L7.		
2	S	L0L1	Up to 3/4" T distortion in the top flange plate and web plates due to pack rust.		
2	S	L1	Lower lateral bracing connection angle to the truss is missing two rivets.		
2	S	L1L2		Scalloping due to pack rust up to 2" T between the inboard and outboard edges of the top cover plate due to reactivated pack rust.	12
2	S	L2L3	Section Loss, 1/2" T pack rust distorting both edges of top flange plate. 3/4” T pack rust between inboard pin plate and inboard vertical gusset plate at L3.		
2	S	L3L4	1-1/8" T pack rust between gusset and the inboard pin plate at L3. Painted over scalloping of inboard and outboard edges of top flange due to 7/8" T pack rust near L3.		
2	S	Bearing at L3	Laminating corrosion of steel side plates for bearing.		
2	S	L4L5	Pitting up 1/8" D around top flange inboard rivets with scalloping and pack rust up to 1/2" T along inboard edge of top flange and web. More pack rust near L5 than L4.		
2	S	L5	Missing 2 rivets LLB horizontal gusset plate		

Table 7.4: Unit II Main Truss Lower Chord Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
2	S	L5L6	Lower lateral bracing connection angle to the truss is missing two rivets. Broken downspout at L6U6 is allowing water to drain directly onto lower chord.		
2	S	L6L7	Lower lateral bracing connection angle to the truss is missing two rivets.		
2	S	L10	Lower lateral bracing connection plate fill plate has a 2” L x 6 1/2” W corrosion hole and 2 sheared bolts. Up to 3/16” D pitting on lower lateral connection plate.		
2	S	L10	Lower lateral connection plate had 2 broken bolts at angle connection to vertical gusset plate.		
2	S	L10L11	Painted over scalloping of inboard and outboard edges of top flange due to 3/4" to 1" T pack rust.		
2	S	L10L11	Isolated areas of reactivating corrosion around outboard top flange rivets.		
2	S	L11L12	Scalloping: 1-1/2" T pack rust distorting bottom edge of both web plates.		
2	S	L12L13	1” T pack rust distorting top edge of both web plates, maximum noted at L13, up to 1-1/2". 1/2” T pack rust between pin plates and vertical gusset plates at L13.		
2	S	L13L14	At L13, pack rust between gusset plate and lower chord pin plate up to 1/2” which is bowing out the pin plate. 1” T pack rust distorting both edges of top flange plate. Isolated areas of painted over pitting up to 8" diameter by up to 3/16" D and 1" T pack rust with scalloping along both top flanges.		
2	N	L1L2	Section Loss, 1-1/2" T pack rust distorting top flange plate. 1/2" T pack rust is reactivating along length.		

Table 7.4: Unit II Main Truss Lower Chord Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
2	N	L3L4	Bearing at L3, active corrosion with section loss up to 1/4" on steel plates surrounding bearing.		
2	N	L4L5	Panted over pack rust 1/4” T with scalloping edges of top plate. Up to 1/8” D painted over pitting on top plate.		
2	N	L5L6	Painted over pack rust 1/4” T with scalloping edges of top plate. Up to 1/4” D painted over pitting on top plate.		
2	N	L9L10	Painted over pack rust 1/4” T with scalloping edges of top plate. Up to 1/8” D painted over pitting on top plate near L10.		
2	N	L10L11	1/2" T pack rust distorting top flange plate and painted over pitting up to 1/8".		
2	N	L13-L14	1" thick pack rust @top plate results in distortion on top of plate. 1" diameter corrosion hole in top flange plate @midspan near south side of chord (lower chord)		13
2	N	L13-L12	1 1/2" f and 1/2" f corrosion holes, lower 2' of top flange plate on west side of L13 bearing.		
2	N	L1-L2	Top plate of L1-L2 lower chord distorted 1 1/2" ± due to pack rust - painted over not active		
2	N	L3-L2	Distorted edge of top plate and south web plate due to pack rust lower chord between L3-L2		
2	Lateral Bracing	L11M12	Diagonal bracing top flange has steel plate bolted for full length (retrofit).		
2	N	L11L12	Reactivating pack rust 1” T with scalloping edges of top plate. Up to 3/16” D painted over pitting on top plate.		

Table 7.4: Unit II Main Truss Lower Chord Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
2	N	L12L13	Reactivating pack rust 1” T with scalloping edges of top plate. Up to 1/8” D painted over pitting on top plate.		
2	N	L12L13	North side of top flange at L13, two areas up to 4" x 2" area up to 100% section loss.		
2	N	L13	South side between pin connection and gusset plate on both sides of L13, pack rust up to 1/4".		
2	N	L14L15	Reactivating pack rust up to 5/8” T with scalloping edges of top plate. Up to 3/16” D painted over pitting on top plate. 3” L x 1” W corrosion hole in top plate along outboard edge at midpoint near drainpipe tubular support.		
2	N	L15L16	Reactivating pack rust 1/2” T with scalloping edges of top plate. Up to 3/16” D painted over pitting on top plate.		
3	S	L4L5	Top flange of the member has painted over pitting up to 1/4" D along 50% of the top face, worst case noted at L5.		
3	S	L0	Caulked over pack rust between gusset plates, lower chord, and vertical. 1/8" D pitting around pin nut with 1/2" T reactivated pack rust between the bottom of the pin plate and inboard and outboard gusset plates		

Table 7.4: Unit II Main Truss Lower Chord Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
3	N	L0L1	Up to 1/8” D painted over section loss along the top plate. Areas of previously caulked pack rust along the top flanges are beginning to reactivate with minor surface corrosion noted. There are three painted over corrosion holes, up to 1” Diameter in the top plate at L0. 1” T reactivated pack rust with deteriorated caulking repair between the lower chord and the interior gusset at L0.		
3	N	L4L5	Painted over pitting up to 3/16” D along top plate.	The end 16” of the top plate at L5 exhibits painted over section loss with maximum 1/8” T remaining section and a 1/2” Diameter corrosion hole.	
4	N	L0L1	3/8" T pack rust with failing caulking is distorting the top flange plate.	14" L x 11" W painted over corrosion hole in top plate.	
4	N	L0L1	Two caulked and painted 2” Diameter corrosion holes along inboard edge near middle.	20” W x 7” L hole in the bottom plate.	
4	N	L1L2	Painted over pitting and pack rust typical and areas of reactivated pack rust and surface corrosion along the north edge. L2 bearing is full of water.		28

Table 7.4: Unit II Main Truss Lower Chord Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
4	N	Bearing	L2 has heavy laminar corrosion / pack rust between the bearing edge plates separating the edge plates up to 1.5”.		
4	N	L4L5	Section loss, 1/4" T pack rust between outboard web plate and top flange.		
4	N	L5L6	Section loss, up to 5/8" T pack rust between outboard web plate and top flange. Areas of 1/16" D pitting adjacent to rivet heads.		
4	N	L7L8	Section Loss, 1/8" D pitting in north web plate near L8.		
4	N	L8L9	Section loss and heavy pack rust with deformation up to 1-1/2" in both inboard and outboard webs and top flange. Pitting top plate up to 1/8" D.		
4	N	L9L10	Section Loss, 1/8" D pitting in top flange plate.		
4	N	L10L11	Section Loss, 1/8" D pitting in top flange plate		
4	N	L12 Bearing	L12 fixed bearing exhibits painted over pitting up to 1/4” D on the masonry plate and 1/8” D on other bearing components. Bleeding rust is dripping down below pinned connections. Anchor bolt nuts have laminar corrosion and up to 20% section loss.		

Table 7.4: Unit II Main Truss Lower Chord Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
4	N	L12L13	Section Loss, 1/8" D pitting in top flange plate. Reactivating corrosion on rivet heads.		
4	N	L13L14	Section Loss, 1/4" D pitting in top flange plate, 1/2" T pack rust distorting top flange plate. There is a 2-1/4” L x 1-1/4” W corrosion hole in the top plate near mid length. The bottom of both webs have a bolted angle attached to the bottom for reinforcement. The interior diaphragm inside the member at L14 has a 3” H x 1” W corrosion hole.		
4	S	L0L1	1” T caulked over pack rust along both edges of the top plate.	Two corrosion holes up to 1-1/2" Diameter and three pinholes under L0 in bottom plate. Section Loss, 1/4" D pitting in top flange plate. Areas of active corrosion.	
4	S	L1L2	1/2” T caulked over pack rust along both edges of the top plate.	Section Loss, 1/4" D pitting in top flange plate.	
4	S	L1L2	Pack rust between L2 gusset plate and Lower chord pin plate up to 1” thick on outboard plate which is bowing out the pin plate. 1/2” on inboard plate.		
4	S	L1L2	L2 bearing is full of water.	Painted over 1" Diameter and 3- 1/2" L x 4" W area of corrosion holes at the end of the member at L2 in the top plate.	
4	S	L2L3	Pack rust between L2 gusset plate and Lower chord pin plate up to 1/2” which is bowing out the pin plate.		

Table 7.4: Unit II Main Truss Lower Chord Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
4	S	L4L5	Section Loss, 1/8" D pitting in top flange plate.		
4	S	L5L6	Section Loss, 1/4" bow/distortion in top cover plate from pack rust. Some reactivating.		
4	S	L8L9	Fill plate at L8 has reactivating corrosion and distortion due to pack rust.		
4	S	L9L10	Up to 1/8" D painted over pitting in the top cover plate at L10.		
4	S	L10L11	Up to 1/8" D painted over pitting in the top cover plate.		
4	S	L12	The bearing assembly anchor bolts nuts exhibit up to 25% section loss. South pin plates both have 1/4" ± gaps with cracked caulk and reactivating pack rust		
4	S	L13L14	Section Loss, 1/4” L perforation in bottom flange plate. Typical reactivated caulk area of pack rust along top edges with the end 4’ adjacent L14 with freckled corrosion on the top plate.		
5	S	L0L1	Section Loss, 1/8" D pitting in top flange plate and along the tops of the web plates. Reactivated pack rust at the lower chord to gusset connection at L0.		
5	S	L1L2	Up to 1/4” deformation typical along edges of inboard and outboard web plates due to painted over pack rust.		

Table 7.4: Unit II Main Truss Lower Chord Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
5	S	L4L5	1/2” painted over pack rust between web plates with scalloping of plate edges.		
5	S	L5L6	1/2” scalloping from reactivated pack rust on interior and exterior web plate.		
6	S	L0L1	Section Loss, up to 1/4" D pitting on top and inboard face of member. Plate edges are typically knifed edged and bowed outward. The connection angles between the inboard face of the gussets and top plate of the lower chord at L0 exhibit significant painted over pack rust up to 1” T with section loss up to 100% along edges at the ends.		
6	S	L0L1	1/4" scalloping from reactivated pack rust in exterior web plates. Typical painted over pack rust between lower chord and gusset plates at L1.		
6	S	L1L2	Section Loss, 1/8" D painted over pitting typical on all faces. Reactivated pack rust noted along both top edges.		
6	S	Bearing	The bearing assembly has moderate surface corrosion along the rocker containment plates. It also appears to be full of debris.		
6	S	L2L3	Reactivated pack rust up to 1" T distorting north and south web plate.		
6	S	L3L4	Reactivated pack rust up to 1" T distorting north and south web plate.		

Table 7.4: Unit II Main Truss Lower Chord Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
6	S	L4L5	Caulked and painted pack rust up to 1/2” T creating scalloping of the plates along both the upper and lower edges of the inboard and outboard web plates.		
6	S	L5L6	Caulked and painted pack rust up to 1” T creating scalloping of the plates along both the upper and lower edges of the inboard and outboard web plates.		
6	S	L6L7	Minor section Loss, up to 1/2" caulked and painted pack rust distorting both north and south web plate.	The top plate has only 1/8” T remaining section for an 8” L x Full Width area with a 2” Diameter hole at L7.	
6	S	L7L8	Up to 1/2" T caulked and painted pack rust distorting inboard and outboard edges of web and top plates.		
6	S	L9L10	Up to 1” T caulked and painted over pack rust distorting north and south web plates top and bottom edges and the top plate edges. Areas of reactivated pack rust and cracked caulking noted along the top edge.		
6	S	L10L11	Up to 1” T caulked and painted over pack rust distorting north and south web plate. Areas of reactivated pack rust noted along the top edge.		
6	S	L11L12	Up to 1” T caulked and painted over pack rust distorting north and south web plate. Areas of reactivated pack rust and cracked caulking noted along the top edge.		

Table 7.4: Unit II Main Truss Lower Chord Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
6	S	L12L13	Up to 1” T caulked and painted over pack rust distorting north and south web plate. Areas of reactivated pack rust and cracked caulking noted along the top edge.		
6	S	L13L14	Up to 1” T caulked and painted over pack rust distorting north and south web plate. Areas of reactivated pack rust and cracked caulking noted along the top edge.		
5	N	L0L1	Section Loss, 1/4" D pitting in top flange plate. Pack rust up to 1/2" T forming between bottom flange angles and webs.		
6	S	L12L13	Up to 1” T caulked and painted over pack rust distorting north and south web plate. Areas of reactivated pack rust and cracked caulking noted along the top edge.		
6	S	L13L14	Up to 1” T caulked and painted over pack rust distorting north and south web plate. Areas of reactivated pack rust and cracked caulking noted along the top edge.		
5	N	L0L1	Section Loss, 1/4" D pitting in top flange plate. Pack rust up to 1/2" T forming between bottom flange angles and webs.		
5	N	L1L2	Section Loss, 1/16" D pitting in top flange plate.		
5	N	L1L2	Pack rust up to 1/4" T and scalloping between inboard and outboard web plates.		

Table 7.4: Unit II Main Truss Lower Chord Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
5	N	L3L4	Section Loss, 1/8" D pitting in top flange plate at L4 with pack rust up to 1/8" T between splice plate and top flange.		
5	N	L4L5	Section loss, moderate pack rust with deformation up to 1/2" in both inboard and outboard webs and top flange.		
5	N	L5L6	Section loss, moderate pack rust with deformation up to 1/2" in both inboard and outboard webs and top flange. Inboard web is bowed to the north 3/4" at L6.		
6	S	L14L15	Up to 1” T caulked and painted over pack rust distorting north and south web plate. Areas of reactivated pack rust and cracked caulking noted along the top edge. Sheared rivet head at L14 and one towards L15 on top flange.		
6	S	L16L17	Up to 1” T caulked and painted over pack rust distorting north and south web plate. Areas of reactivated pack rust and cracked caulking noted along the top edge.		
6	N	L0L1	Moderate pack rust and distortion up to 1/2" along inboard and outboard web and top flange.	Three large corrosion holes on the bottom flange at L1, largest is 6" x 2". Corrosion hole at L0 measuring 6" x 3".	

Table 7.4: Unit II Main Truss Lower Chord Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
6	N	L1L2	Pack rust and scalloping up to 3/4" T. Popped rivet in top flange near midspan	Four large corrosion holes on the bottom flange up to 7" L x 4" W and 1/4" D pitting in bottom flange plate under L1. At L2, 8" L x 1-1/2" W corrosion hole in bottom right side of bottom flange, adjacent 2" diameter area of pinholes and a 6" W x 1.5" L corrosion hole	
6	N	L3L4	Up to 1/4" reactivated pack rust distorting outboard web plate.		
6	N	L4L5	Pack rust up to 1/2" T between gusset plate and lower chord at both gussets.	The previously noted painted over section loss, 1/8" T section remaining in 5" Diameter area on top flange of L4 was not found.	
6	N	L5L6	Missing rivet head on top plate along outboard edge 5' from L6. Pack rust up to 1/2" T between web and top flange angles with scalloping.		
6	N	L7L8	Pack rust up to 1" T between top flange plate and angles, caulked over.		
6	N	L8L9	Reactivating pack rust with 1" scalloping edges of top plate near panel points. Painted over pitting up to 3/16" D on top flange.		
6	N	L10L11	Reactivating pack rust 3/4" T with scalloping edges of both web plates. Up to 1/8" D painted over pitting on top plate. Sheared rivet on top flange 4' from L11.		

Table 7.4: Unit II Main Truss Lower Chord Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
6	N	L11L12	1/4" D painted over pitting and 1/4" Diameter corrosion hole in top flange plate at L11. Pack rust up to 3/4” T with scalloping. Caulked over.		
6	N	L12L13	Reactivating pack rust 3/4” T with scalloping both edges of both web plates caulked over.		
6	N	L13L14	Sheared rivet head at bottom inboard rivet line at L14. Reactivating pack rust 3/4” T with scalloping both edges of both web plates.		
6	N	L16L17	5" x 2” corrosion hole in vertical end plate at L17.		
6	N	L14L15	Missing rivet head		
7	N	L5L6	1/4" pack rust reactivation on outboard web plate. 1/4" D pitting near L6.		
7	S	L0L1	1/8” deep pitting on top plate. 1/2” thick painted over pack rust between web and top plate with reactivating rust.		
7	S	L3L4	1/8” T pack rust along the top edge of the outboard plate at L3.		
7	S	L5L6	Area of up to 3/16” D painted over pitting adjacent to L6. Reactivated pack rust adjacent the inboard and outboard gusset plate at L6. 1/4" x 5" hole in north flange pin opening.		
8	S	L0L1	Painted over pitting several spots, reactivating top and sides		
8	S	L1L2	Scalloping of all plates up to 1-1/4” with some reactivating rust. Isolated 2” diameter rust hole in top plate.		

Table 7.4: Unit II Main Truss Lower Chord Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
8	S	L2L3	Pack rust between outside of gusset plates and lower chord pin plates bowing out the pin plates up to 3/4” on inboard face and 1/2” on outboard face. 1/2" x 1" hole at top plate of L3		
8	S	L3L4	Pack rust between outside of gusset plates and lower chord pin plates bowing out the pin plates up to 5/8” on inboard face and 3/8” on outboard face.		
8	S	L4L5	Up to 1/8" D painted over pitting in top flange plate. Up to 1/2" scalloping between the top plate and side web plates.		
8	S	L5L6	3/4" distortion of the top and side cover plates due to pack rust.		
8	S	L6L7	Reactivated pack rust @L6 between top and south side plate		
8	S	L8L9	Up to 1/4" D painted over pitting throughout the top cover plate with 3/4" scalloping along the edges.		
8	S	L13L14	Up to 3/16" D painted over pitting with minor scalloping along the edges of the top cover plate.		
8	S	L14L15	Inboard and outboard fill plates at L14 are severely distorted due to painted over pack rust.		
8	S	L15L16	Inboard and outboard fill plates at L15 are severely distorted due to painted over pack rust.		

Table 7.4: Unit II Main Truss Lower Chord Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
8	S	L19L20	Access cover plate on top of lower chord at L19 has reactivated pack rust up to 3/4” T full perimeter Reactivated pack rust was also noted along the inboard and outboard edges of the top plate.		
8	S	L20L21	Typical painted over section loss up to 1/8” D on inboard face.		
8	S	L22L23	Lower chord top plate fill plate has corroded away along the last two rivet lines with section loss up to 1/8” typical FW x 8” L. Area has been cleaned and painted but reactivated pack rust and surface corrosion was noted.		
8	S	L23L24	Up to 1/8” T reactivated pack rust between the inboard and outboard vertical web plates. Areas of up to 1/8” T section loss typical along the top plate, especially towards L24, and the upper half of the inboard vertical plate.		
8	S	L24L25	Lower chord retrofit: steel channels added parallel to the lower chord webs with bolted steel channels crossing perpendicular to the chord. Minor surface corrosion noted on retrofit bolt heads.		
8	N	LLB	Corrosion hole on horizontal lower bracing gusset 1 3/4” L x 5/8” W.		
8	N	L2L3	1/2” thick reactivated pack rust.		
8	N	L1L2	1/2” thick reactivated pack rust.		
8	N	L2L3	Section loss painted top @L3		
8	S	L16L17	1/4" painted over pitting multiple up to 4" deep		

Table 7.4: Unit II Main Truss Lower Chord Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
8	N	L3L4	Reactivated pack rust and deformation of bottom flange up to 3/4" at inboard and outboard connections.		
8	N	L4L5	Reactivated pack rust deforming both inboard and outboard web plates and the top flange plate up to 3/4".		
8	N	L5L6	Reactivated pack rust deforming both inboard and outboard web plates and the top flange plate up to 3/4".		
8	N	L6L7	Reactivated pack rust deforming both inboard and outboard web plates and the top flange plate up to 3/4".		
8	N	L7L8	Pitting up to 1/4” D.		
8	N	L8L9	Section loss, up to 3/16" D throughout. Reactivated pack rust and deformation of interior and exterior webs and top flange up to 3/4".		
8	N	L9L10	Section loss, up to 1/8" D pitting near L10. Pack rust and deformation of interior and exterior webs and top flange up to 3/4".		
8	N	L11L12	Section loss, up to 1/8" D pitting throughout.		
8	N	L12L13	Section loss, up to 3/16" D throughout. Painted over and reactivated pack rust and deformation of interior and exterior webs and top flange up to 3/4".		
8	N	L14L15	Section loss, up to 1/8" D pitting throughout.		

Table 7.4: Unit II Main Truss Lower Chord Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
8	N	L15L16	Section loss, up to 1/8" D pitting		
8	N	L16L17	Section loss, up to 1/8" D pitting in top flange and inboard web near L17.		
8	N	L17L18	Section loss, up to 1/8" D pitting with 3" Diameter area of bubbling and blistering paint near L18.		
8	N	L18L19	Corrosion hole in top plate repair 2” L x 1” W.		
8	N	L22L23	Reactivated laminating corrosion over a 6” L x 18” W x 1/2" T area just above the top flange splice at L22, negligible section loss. Laminar corrosion along the outboard edge of the top flange near L22.		
8	N	L23L24	Painted over pitting up to 1/16" D in the top flange at the splice plate at L23 and in inboard web near L24.		
8	N	L24L25	Bolted retrofit steel channels added parallel to the lower chord webs with bolted steel channels crossing perpendicular to the chord. Isolated areas of blistering paint and surface/laminar corrosion. Original member exhibits pack rust up to 1” T between plates, pitting up to 1/4” D on the top flange, and knife edging at L25. The end connection into the gusset plate past the retrofit at L25 exhibits heavy corrosion, the top flange is nearly completely gone with corrosion holes up to 1’ W x 1’ L.		

Table 7.4: Unit II Main Truss Lower Chord Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
9	S	L0L1	Inboard and outboard oval pin plate have rotated. The pin plates are rotated to the point where they are in contact with gusset stiffening channels on both the inboard and outboard gusset. The channel flange/rivets are beginning to push the edge of the pin plate outward. Moderate surface corrosion noted around the slot opening of the pin chord, inboard and outboard gusset at L0.	Painted over heavy section loss, 1/4" D pitting along top flange plate with 1/2" Diameter corrosion holes for 5 LF.	14
9	S	L0L1	The inboard and outboard vertical fill plates between the gussets and lower chord are corroded away along the end vertical line of rivets with reactivated pack rust noted.		
9	S	L7L8	Typical areas of painted over section loss up to 1/4” D on inboard plate. The inboard oval pin plate is bowed outward at ends up to 1- 1/2” due to pack rust between L8 gusset plate and oval pin plate. 1/4” T pack rust between outboard gusset plate and oval pin plate is causing the caulk at top and bottom edges to crack. Reactivated pack rust up to 1” T at L8 between the lower chord top plate and the stiffening plate between the gusset plates.		

Table 7.4: Unit II Main Truss Lower Chord Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
9	N	L0L1	Section Loss, 1/4" D pitting in top flange plate. Multiple corrosion holes in top flange plate below the extra gusset stiffener at L0. The stiffener plate also has a 1.5” diameter corrosion hole and is bowed upwards slightly. Two plates around the pin inside the member exhibit multiple corrosion holes. Inboard oval pin plate has rotated clockwise at L0.		
9	N	L1L2	Up to 1/16” D painted over pitting on top plate at L1.		
9	N	L2L3	The top plate has up to 1/16" D painted over pitting and is bowing up to 1/2" due to pack rust.		
9	N	L3L4	Up to 1/16” D painted over pitting on top plate at L3.		
9	N	L4L5	Up to 1/16” D painted over pitting on top plate at L4.		
9	N	L5L6	Localized 3” Diameter area of 5/16” D painted over pitting along outboard rivet line at midpoint. Up to 1/16” D painted over pitting on top plate at L5.		
9	N	L6L7	Up to 1/16” D painted over pitting on top plate at L6 and L7.		
9	N	L7L8	Oval pin plates have rotated at L8. Inboard pin nut is not fully engaged. The nut is tight but 3/4 of the nut threads are not being utilized. Up to 1/8” deep painted over pitting on top plate at L7.		

Table 7.4: Unit II Main Truss Lower Chord Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
10	S	L0L1	Areas of painted over pitting along top plate. 1” T reactivating pack rust causing scalloping along north and south web plate.		
10	S	L1L2	There is up to 1/4” T reactivated pack rust between the top chord fill plate and the top plate at L2. The fill plate exhibits corrosion holes around 4 rivet heads.		
10	S	L5L6	The access cover located on the top plate at L6 has 2 areas of painted over section loss up to 100%. Painted over pack rust is typical along the plate edges.		
10	S	L6	The bearing assembly anchor bolts nuts exhibit up to 50% section loss.		
10	S	L7	6” L x 3” H area of 100% section loss at bottom of diagonal cross bracing web plate. Area is painted over.		
10	S	L8	6” Diameter hole in the diagonal cross bracing member web at the south truss.		
10	S	L10L11	Areas of 1/8” D painted over pitting at the ends of the chord with isolated areas of 3/16” D pitting.		
10	S	L11L12	Areas of 1/8” D painted over pitting at the ends of the chord with isolated areas of 3/16” D pitting.		

Table 7.4: Unit II Main Truss Lower Chord Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
10	S	L12L13	Areas of 1/8” D painted over pitting at the ends of the chord with isolated areas of 3/16” D pitting.		
10	S	L13L14	Areas of 1/8” D painted over pitting at the ends of the chord with isolated areas of 3/16” D pitting.		
10	S	L15L16	Up to 1/4" D painted over pitting along the inboard web plate and top plate.		
10	S	L18L19	There is up to 1/4" T pack rust with scalloping of the top plate for 10 LF.		
10	S	L19L20	Up to 1" T scalloping between the web cover plates and webs.		
10	S	L20L21	2" to 4" Diameter corrosion holes with 1/8" D pitting along bottom plate.		
10	S	L21L22	2" to 4" Diameter corrosion holes with 1/8" D pitting along bottom plate.		
10	N	L0L1	Section Loss up to 3/16" D on the top flange at both ends, 1/4" bow / distortion from pack rust in top flange plate.		
10	N	L7L8	Section Loss, 1/8" D pitting along top flange plate and top splice at L8.		
10	N	L10L11	Up to 1/8" D painted over pitting on the top plate at L10.		

Table 7.4: Unit II Main Truss Lower Chord Deficiencies					
Span	**Truss**	**Member**	**CS 3**	**CS 4**	**Photo**
10	N	L11L12	Section Loss, 1/8" D pitting along top flange plate.		
10	N	L12L13	Up to 1/8" D painted over pitting on the top plate at L13.		
10	N	L14L15	Up to 1/18” D painted over pitting on top plate at L14.		
10	N	L16L17	Section Loss, 1/8" D pitting along top flange plate.		
10	N	L17L18	Pack rust up to 1/2" T and removed section of fill plates with pitting in L17L18 up to 1/8" D at L17 in top flange. Pitting up to 1/8" D along the top flange.		
10	N	L18L19	Section Loss, 1/8" D pitting on top flange plate at L19.		
10	N	L19L20	Pack rust up to 1/2" T and removed section of fill plates with pitting in L19L20 up to 1/8" D at L19 and at L20 in top flange.		
10	N	L20L21	At L21 painted over pitting top flange full width x 3" x 1/8" loss.		
10	N	L21L22	Reactivating pack rust up to 1/2" T and removed section of inboard and outboard fill plates with pitting in L21L22 up to 1/8" D at L22. Pitting up to 1/8" D along top flange. 50% of length is in CS 3 condition.		

Table 7.5: Unit II Main Truss Gusset Plate Deficiencies					
Span	**Truss**	**Member**	**Quantity**	**CS 3**	**Photo**
1	S	L2	1	Pack rust, 1/2” T at connection with L1L2 south web plate.	
1 & 2	S	L7 / L0		Up to 3/8” W gap due to pack rust between outboard gusset plate and lower chord at L7. Inboard and outboard gusset plate at L7 has up to 3/16” D painted over pitting on the interior faces. The inboard and outboard gusset plate, exterior face has up to 1/16” D pitting throughout and up to 1/8” D around the pin.	
1	S	L7		Pack rust, 1/2” T between vertical gusset plates and web plates of L6L7. Section Loss, 1/8” D pitting on north face of north vertical plate, more noticeable at pin for vertical.	
2	S	L0	2	There is up to 3/8” T pack rust between the outboard gusset plate and lower chord at L0 Span 2. Section Loss, 1/8” D pitting on both plates.	
2	S	L2	2	Section Loss, 1/8” D pitting on both plates.	
2	S	L3	2	Section Loss, 1/8” D pitting on both plates.	
2	N	L0	2	Section loss, up to 3/16” D pitting on both faces of both outboard and inboard gusset plates primarily around pins.	
2	N	U11	1	1/4” D painted over pitting on exterior face of exterior plate. Interior gusset has 3/16” D painted over pitting.	
2	N	L14	2	1/8” D painted over pitting on interior faces of both gusset plates just above the lower chord.	
3	N	L0	1	Section loss, 1/4” D pitting on exterior face of exterior plate and both faces of interior gusset plate. Up to 1/8” T active pack rust between the pin strengthening plate and both the interior and exterior gusset plates.	
3	S	L0	1	Inboard gusset plate has active corrosion and ½” pack rust between vertical member connection plate and gusset plate.	
4	N	U0	2	Up to 1/8” deep painted over pitting to both interior and exterior plates.	

Table 7.5: Unit II Main Truss Gusset Plate Deficiencies					
Span	**Truss**	**Panel Pt.**	**Span**	**CS 3**	**Photo**
2	N	L5	1	Up to 1/8" ± deep pitting painted over in south face of north gusset at L5	
2	S	L14	2	North gusset, south face, up to 1/8" ± deep pitting typical at lower chord of south gusset, north face of north gusset	
2	N	U13	1	1/4" ± deep pitting north face north gusset non-active	
2	N	L5	1	Minor pitting on south face of inboard gusset plate @L5 north truss	
2	N	L6-L7	1	L6 north/outboard gusset plate, 1/8" thick reactivated pack rust between gusset plate and fill plate on east side of L6 connection	
2	S	L5	1	North gusset plate, south face 1/8" ± pitting throughout on east side of L5 connection	
4	N	L8	1	Section Loss, 2” Diameter corrosion hole in outboard gusset plate under L8U8. 1-1/4” T fill plate retrofit at inboard gusset plate.	
4	N	U8	2	Up to 1/8" D painted over pitting and rivet head loss to both plates.	
4	N	L14	1	1/2” T pack rust between L14U14 and both gusset plates with failed caulk and active corrosion, gusset is bowed 1/4".	
5	N	L0	1	1/8” T pack rust beginning to form along connection with L0L1.	
4	S	L0	1	Inboard gusset, inside face has painted over pitting up to 1/8” deep x 8” diameter.	
4	S	L2		2” x 3/16” deep painted over pitting on inboard and outboard gusset plates around L2L3 pin plates.	
5	S	L0	1	Inboard gusset has typical painted over section loss up to 1/8” D along the lower chord L13L14 bolted connection.	
5	S	L1	1	Up to 3/4” T painted over pack rust between outboard gusset plate and L0L1 at L1.	
5	S	L2	1	Up to 3/4” T painted over pack rust between outboard gusset plate and L1L2 at L2.	

Table 7.5: Unit II Main Truss Gusset Plate Deficiencies					
Span	**Truss**	**Member**	**Quantity**	**CS 3**	**Photo**
5	N	L4	2	Up to 1/8" D painted over section loss along the lower chord, both plates.	
5	N	U6	2	1/8" to 1/4" D painted over section loss of both plates and 3/4" T pack rust at the verticals.	
5	S	L6	2	Inboard gusset plate is bowed to the north, this is due to the truss alignment. The truss alignment changes in a slight SE direction at this pin location.	
5	S	L6	2	Outboard gusset plate is bowed to the north 1/2”, this is due to the truss alignment. The truss alignment changes in a slight SE direction at this pin location	
6	S	L0	1	Inboard faces of both gusset plates have up to 1/4” D painted over pitting typical with corrosion staining noted along the edges of the truss members. Inboard gusset plate has various areas of section loss up to 3/16” D along the exterior face above the lower chord and scupper connections. Inboard gusset plate is bowed to the north, this is due to the truss alignment. The truss alignment changes in a slight SE direction at this pin location. Outboard gusset plate is bowed to the north 1/2”, this is due to the truss alignment. The truss alignment changes in a slight SE direction at this pin location.	
6	S	U0	2	1/8" - 1/4" D painted over section loss around the pins.	15
6	S	L1	2	Up to 1/8” D painted over pitting on both gusset plates.	
6	S	L2	2	Up to 1/8” D painted over pitting on both gusset plates, especially around the lower chord pin connection plates.	
6	S	L4	1	U to 1/8” T pack rust along the top edge of the outboard gusset plate between the vertical. 1/16” D pitting along the inboard faces of both gussets above the lower chord.	
6	N	L2	1	Painted over pitting 1/8" on east pin of L2 bearing connection	

Table 7.5: Unit II Main Truss Gusset Plate Deficiencies					
Span	**Truss**	**Member**	**Quantity**	**CS 3**	**Photo**
6	S	L5	2	3” L x 1” H area of section loss with up to 1-1/8” bowing of exterior vertical filler plate due to pack rust. A 2-3/16” long crack was noted in the fill plate. The interior plate exhibits up to 1” distortion due to pack rust along top of fill plate. The pack rust is beginning to reactivate along the top edge and has caused pin holes and corrosion cracks. There is up to 1/8” D painted over section loss on inboard gusset plate above lower chord and strut connection.	
6	S	L6	1	Caulked and painted over pack rust along top edge of outboard fill plate. The vertical edges of the fill plate to vertical connection exhibit up to 1/8” T pack rust.	
6	S	L10	1	Up to 3/16” D painted over pitting typical along the interior gusset plate, especially adjacent the L10L11 lower chord connection.	
6	S	L10 @ L10U11	1	The interior and exterior fill plates exhibit painted and caulked pack rust up to 3/4” T with a 6” L x 3” H corrosion hole along the top edge of the interior plate and a 4” L x 2” W and 2” L x 1” W corrosion hole along the fill plate on the outboard face of the diagonal.	
6	S	L11	2	1/8” D painted over pitting on both plates. Typical painted over pack rust up to 1/2” T between all gusset fill plates and the vertical and diagonal. Typical interior and exterior gusset plates.	
6	S	L12	2	Isolated 1/8” D painted over pitting on both plates.	
6	S	L15	2	1/8” D painted over pitting on inside of both plates.	
6	S	L17	2	Up to 1/2” T pack rust between the inboard and outboard gusset plates and the vertical. 1/8" pack rust in/out between gusset and lower chord	
6	S	U17	1	3/16” bowing of inboard and outboard plate due to pack rust.	
6	N	L0	2	Section Loss, 1/4” D pitting on both plates. Bowing outboard (north) at both inboard and outboard gussets.	

Table 7.5: Unit II Main Truss Gusset Plate Deficiencies					
Span	**Truss**	**Member**	**Quantity**	**CS 3**	**Photo**
6	N	U0	2	Section Loss, 1/4” D pitting on both plates. Section loss and bowing approximately 1-1/2” D at outboard gusset and 3/4” D at inboard. Both bowed to the outboard (north).	
6	N	U2	1	Broken rivet in exterior plate on U2L3 connection.	
6	N	L4	1	Section Loss, 1/8” T pack rust in top joint on exterior plate.	
6	N	U6	1	Section Loss, 5/16” D pitting on exterior plate.	
6	N	L7	1	1/8” D painted over pitting on interior face of outboard gusset plate.	
6	N	L7	1	Broken rivet on inboard gusset plate for member L6L7	
6	N	L8	2	3/16” D painted over pitting on interior faces of both gusset plates just above the lower chord.	
6	N	L9	2	Section Loss, 1/8” D pitting on both plates.	
6	N	L10	2	3/16” D painted over pitting on interior faces both gusset plates.	
7	N	L3	1	Section Loss, 1/8” D pitting on exterior plate.	
7	N	L0	1	Section Loss, 3/8” T reactivated pack rust is distorting the inboard and outboard plates.	
7	N	U1	1	Section Loss, distorting the exterior plate from previous pack rust	
7	S	L1	2	1/8” deep painted over pitting along top of lower chord with isolated location on inboard gusset plate 3” diameter x 3/16” deep.	
7	S	L2	2	Painted over pitting along top of lower chord on inside of both gusset plates typ. 2” H x up to 3/16” deep	

Table 7.5: Unit II Main Truss Gusset Plate Deficiencies					
Span	**Truss**	**Member**	**Quantity**	**CS 3**	**Photo**
8	S	L0	2	Inside of both gusset plates with areas of painted over pitting up to 1/4” deep. Outside of the inboard gusset plate has painted over pitting up to 3/16” deep, typically 1/8” deep. The inboard vertical member pin head has 1/8” deep painted over pitting.	
8	S	L4-L6	3	Outboard gusset plate has up to 1/2” T painted over pack rust between it and the lower chord.	
8	S	L8, L9	4	Both gusset plates have up to 1/8” D painted over section loss.	
8	S	L13		Added 1/2" gusset plate to inboard plate.	
8	S	U16	1	Outboard gusset plate exterior face has up to 3/16” D painted over pitting.	
8	S	L16	1	Inboard gusset plate has up to 1/8” D painted over pitting along the inside face at the lower chord interface.	
8	S	L25	2	At L25, there is reactivating pack rust between the vertical and the inboard and outboard gusset plate up to 1-1/4” T.	
8	S	L21	2	Both gusset plates have up to 1/8" painted over section loss.	
8	S	L23	2	Both gusset plates have up to 1/8" painted over section loss.	
8	S	L25	2	Typical painted section loss up to 1/4” around the vertical pin and adjacent the strut and bracing connections, inboard plate. At L25, there is reactivating pack rust between the vertical and the inboard and outboard gusset plate up to 1-1/4” T. Heavy debris accumulation within the panel point.	
8	N	L25	2	Up to 1/8" D painted over section loss on the gusset plates. Up to 1" T pack rust between the gusset plates and the vertical.	
8	N	L0	2	Pack rust up to 1/2” thick on both gusset plates inside connection.	
8	N	L3	1	Pitting and section loss in south gusset north face	
8	N	L8	2	Section Loss, 1/8” T pack rust in top joint on both plates.	

Table 7.5: Unit II Main Truss Gusset Plate Deficiencies					
Span	**Truss**	**Member**	**Quantity**	**CS 3**	**Photo**
8	N	U8	2	Exterior and interior gusset plate has up to 1/4” D painted over pitting throughout.	
8	N	U10	1	Manufacturing defect in outboard gusset near L11U10 connection.	
8	N	U12	1	Pitting up to 1/8” on outboard face of outboard gusset	
8	N	U13	1	Reactivating 1/4” pack rust between gusset plate and member. Up to 1/8" D painted over section loss.	
8	N	L13	2	Both interior and exterior gusset plates have painted over section loss up to 1/4” on the east half.	
8	N	L16	2	Section Loss, 1/8” D pitting in both plates.	
8	N	U16	1	Exterior gusset plate has up to 1/4” d painted over pitting throughout.	
8	N	L21	2	1/8" - 1/4" D painted over section loss on both plates.	
8	N	U21	2	Both interior and exterior gusset plates have painted over section loss up to 1/4” on the west half.	
8	N	L24	2	3” H x up to 1/8” D painted over pitting along the interior face of both gussets above the lower chord. Isolated 1/2” diameter areas of 1/4” D pitting	
8	N	L25	2	Pitting up to 1/8” D in both plates and adjacent to pin. Random areas of painted over pitting up to 3/16” D. Some areas of pitting beginning to reactivate. Reactivating corrosion on the inside face of both gusset plates.	
9	N	L1	2	Up to 1/16" D painted over section loss on both plates.	
9	N	L2	2	1/16” D painted over pitting on interior faces of both gusset plates just above the lower chord.	
9	N	L3	2	1/8” D painted over pitting on interior faces of both gusset plates just above the lower chord.	

Table 7.5: Unit II Main Truss Gusset Plate Deficiencies					
Span	**Truss**	**Member**	**Quantity**	**CS 3**	**Photo**
9	N	L4	2	1/8” D painted over pitting on interior faces of both gusset plates just above the lower chord.	
9	N	L5	2	Up to 1/8” D painted over pitting on interior faces of both gusset plates just above the lower chord.	
9	N	L6	1	1/8” D painted over pitting on interior face of outboard gusset plate.	
9	N	L7	2	Up to 1/8" D painted over pitting along the lower chord.	
9	S	L1	2	Typical painted over pack rust up to 1/2” between vertical and inboard and outboard fill plates. Reactivated pack rust noted.	
9	S	L4	2	1/8” D painted over section loss along the lower chord.	
9	S	L5	2	1/8” D painted over section loss along the lower chord.	
9	S	L7	2	Typical areas of painted over section loss up to 1/4” D around diagonal connection and lower chord rivet heads.	
10	S	L0	2	The exterior pin nut spacer plate exhibits 1” T painted and caulked pack rust at the corners. Reactivated pack rust is noted at all corners. Up to 1/4” T pack rust between gusset plates and vertical connection with painted over 1/8” D pitting to the inboard faces of the inboard gusset.	
10	S	L1	2	Up to 1/8” T painted and caulked pack rust between outboard gusset and lower chord L1L2. Up to 1/8" painted over section loss along the lower chord.	
10	S	L12	2	Isolated areas of 1/8” painted over section loss along inside face of both gussets.	
10	S	U15	2	Section Loss, 1/4” D pitting in both plates.	
10	S	L16	2	Painted over pitting up to 1/8” D on interior face of both gusset plates.	
10	S	L22	2	Both gusset plates have up to 1/4” D painted over pitting. Painted over pitting up to 1/8” D on interior face of outboard gusset plate.	

Table 7.5: Unit II Main Truss Gusset Plate Deficiencies					
Span	**Truss**	**Member**	**Quantity**	**CS 3**	**Photo**
10	N	L0	2	1/8” – 1/4” D pitting and pack rust on both interior and exterior plates.	
10	N	U1	2	1/8” D painted over pitting on both interior and exterior plates.	
10	N	U7	2	1/8" D painted over pitting on both interior and exterior gusset plates.	
10	N	U0	2	1/8” – 1/4” D pitting and pack rust on both interior and exterior plates.	
10	N	L8	2	1/8” – 1/4” D pitting and pack rust on both interior and exterior plates.	
10	N	L9	2	1/8” – 1/4” D pitting and pack rust on both interior and exterior plates.	
10	N	L10	2	1/8” – 1/4” D pitting and pack rust on both interior and exterior plates.	
10	N	L11	2	1/8” – 1/4” D pitting and pack rust on both interior and exterior plates.	
10	N	L12	2	1/8” – 1/4” D pitting and pack rust on both interior and exterior plates.	
10	N	L13	2	1/8” – 1/4” D pitting and pack rust on both interior and exterior plates.	
10	N	L14	2	1/8” – 1/4” D pitting and pack rust on both interior and exterior plates.	
10	N	L15	2	1/8” – 1/4” D pitting and pack rust on both interior and exterior plates.	
10	N	U15	2	1/8” – 1/4” D pitting and pack rust on both interior and exterior plates.	
10	N	L16	2	1/8” – 1/4” D pitting and pack rust on both interior and exterior plates.	
10	N	L17	2	1/8” – 1/4” D pitting and pack rust on both interior and exterior plates.	
10	N	U17	2	1/8” – 1/4” D pitting and pack rust on both interior and exterior plates.	
10	N	L18	2	1/8” – 1/4” D pitting and pack rust on both interior and exterior plates.	

Table 7.5: Unit II Main Truss Gusset Plate Deficiencies					
Span	**Truss**	**Member**	**Quantity**	**CS 3**	**Photo**
10	N	L19	2	1/8” – 1/4” D pitting and pack rust on both interior and exterior plates.	
10	N	L20	2	1/8” – 1/4” D pitting and pack rust on both interior and exterior plates.	
10	N	L21	2	1/8" - 1/4" D painted over pitting on both interior and exterior plates.	
10	N	U22	2	1/8" D painted over pitting and rivet head loss on both interior and exterior plates.	

Table 7.6: Unit II Main Truss Bearing Deficiencies				
Span	**Truss / Girder / Column**	**Location**	**Comment**	**Photo**
1	North Truss	Pier O, L0	No Significant Deficiencies.	
1	South Truss	Pier O, L0	No Significant Deficiencies.	
2	North Truss	Pier 1, L3	Bearing is full of water. Active corrosion with section loss up to 1/4" on steel plates surrounding bearing.	
2	South Truss	Pier 1, L3	Laminating corrosion of steel side plates for bearing.	
2	North Truss	Pier 2, L13	No Significant Deficiencies.	
2	South Truss	Pier 2, L13	No Significant Deficiencies.	
4	North Truss	Pier 3, L2	Bearing is full of water. There is heavy laminar corrosion and pack rust between the bearing edge plates separating the edge plates up to 1.5”.	
4	South Truss	Pier 3, L2	Bearing area full of water.	
4	North Truss	Pier 4, L12	L12 fixed bearing exhibits painted over pitting up to 1/4” D on the masonry plate and 1/8” D on other bearing components. Bleeding rust is dripping down below pinned connections. Anchor bolt nuts have laminar corrosion and up to 20% section loss.	
4	South Truss	Pier 4, L12	The bearing assembly anchor bolts nuts exhibit up to 25% section loss.	
6	North Truss	Pier 5, L2	No Significant Deficiencies.	
6	South Truss	Pier 5, L2	The bearing assembly has moderate surface corrosion along the rocker containment plates. It also appears to be full of debris.	
6	North Truss	Pier 6, L14	Bearing is full of water. 50% section loss to anchor bolts.	
6	South Truss	Pier 6, L14	No Significant Deficiencies.	

Table 7.6: Unit II Main Truss Bearing Deficiencies				
Span	**Truss / Girder / Column**	**Location**	**Comment**	**Photo**
8	North Truss	Pier 7, L3	There is heavy laminar corrosion / pack rust between the bearing edge plates separating the edge plates up to 1.25". North side of the bearing is ponding water between the stiffeners.	
8	South Truss	Pier 7, L3	No Significant Deficiencies.	
8	North Truss	Pier 8, L19	No Significant Deficiencies.	
8	South Truss	Pier 8, L19	Anchor nuts exhibit up to 50% section loss.	
10	North Truss	Pier 9, L6	No Significant Deficiencies.	
10	South Truss	Pier 9, L6	Anchor bolt nuts exhibit 50% section loss.	
10	North Truss	Pier 10, L22	No Significant Deficiencies.	
10	South Truss	Pier 10, L22	No Significant Deficiencies.	
11	North Truss	U0	2 of 3 bolts are loose on the inboard sliding plate for the north truss at U0. Movement noted.	

Table 8: Unit III Superstructure Deficiencies				
Span	**Bent/ Truss**	**Column/ Member**	**Note**	**Photo**
11	N	East Bearing	Bearing is in expanded position at 86 F and exhibits active pack rust up to 1/4".	
11		South	Debris on horizontal strut at Level 1 over Pier 11.	
11		North	The cross bracing connection to the column exhibits typical pack rust up to 1/4” T with a 4” hole in the web of the brace at the connection.	
11	S	L0	Section loss, pitting up to 1/8” D on top face of lower lateral bracing strut flanges full length.	
11	S	L1U0	Inboard and outboard flanges have up to 3/16" D painted over pitting at L1 where the old fill plate was located.	
11	S	L2U2	The inboard flange of each of these members has a left in place flame cut bracket.	
11	S	L3U2	The inboard flange of each of these members has a left in place flame cut bracket.	
11	S	L3U3	The inboard flange of each of these members has a left in place flame cut bracket.	
11	S	L6	Gusset plates - inboard gusset plate has up to 1/4" D painted over pitting on the inboard face. Outboard gusset plate has up to 1/8" D painted over pitting on the inboard face.	
11	S	L7L8	Painted over pack rust 1/2” T between fill plates and webs for lower chord at L7. Up to 1/8" D painted over section loss near L8 for 4 LF.	
11	S	L8	Reactivating pack rust between fill plates at vertical gusset plate connections.	
11	S	L8U8	The vertical has up to 1/4" D painted over pitting on the east face of the web and the inboard face of the inboard flange at east side of the vertical. Section loss, pitting up to 1/8” D on top face of lower lateral bracing strut flanges full length.	
11	S	Near bearing	Rocker bearing is rotated in expansion 2.6 degrees (east) at 77 degrees F. There is 3/4” T pack rust between the rocker bearing and the masonry plate on the west side of bearing and 1/4” T on the east side of bearing. It appears that the bearing might not be able to rotate in contraction at cooler air temperatures.	

Table 8: Unit III Superstructure Deficiencies				
Span	**Bent/ Truss**	**Column/ Member**	**Note**	**Photo**
11		North/South	Section loss, pitting up to 1/8” D in web of strut below Span 11 (horizontal strut at level 1 over Pier 11). Light debris accumulation on web along flanges.	
11	N	Near bearing	Top bearing plate has painted over pitting up to 1/2" and exterior bolt is missing.	
11	N	L1U0	Painted over pack rust up to 1/2" T between diagonal and outboard fill plate at U0.	
11	N	L1	Painted over pitting up to 1/8" D on interior faces of both inboard and outboard gusset plates (along bottom above lower chord interface).	
11	N	L1L2	Painted over pitting up to 1/4" D in web.	
11	N	Typical	Painted over pitting up to 1/16" D on interior faces of both inboard and outboard gusset plates (along bottom above lower chord interface).	
11	N	L2	Lower chord web splice plates and rivets at L2 have heavy painted over pitting up to 100% section loss. Lower chord outboard flange splice plate has pack rust up to 1/2" T.	
11	N	L2U1	Painted over pack rust up to 1/2" T between diagonal and outboard and inboard fill plates at U1.	
11	N	Typical	Painted over pitting up to 3/16" D in webs and top flanges of lateral bracing.	
11	N	L4	Painted over pack rust up to 1/2" T between gusset plate and exterior lower chord splice plate and inboard and outboard gusset plates. Moderate painted over pitting up to 1/4" D on interior faces of inboard and outboard flange splice plates.	
11	N	L5L6	2-inch diameter drilled hole near L6 bottom chord splice plate (similar on East side of L2 splice plate.	
11	N	L6	Moderate painted over pitting up to 3/16" D on interior faces of inboard and outboard flange splice plates.	
11	N	L7	On top of bottom chord web at L7, concrete/grout debris 3ft x up to 2in deep.	

Table 8: Unit III Superstructure Deficiencies				
Span	**Bent/ Truss**	**Column/ Member**	**Note**	**Photo**
11	N	L7U7	1/4" T pack rust around rivet heads and removed sections of inboard and outboard fill plates at L7. Painted over pitting up to 1/8" D where fill plates have been removed.	
11	N	L7U8	The previously painted over pack rust up to 3/8" T with removed sections on inboard and outboard fill plates at U8.	
11	N	L8U8	Up to 1/8" D painted over pitting on the flanges near U8.	
Frame and Braced Column	0	Center	Center column from Level 2 extending up to level 3 has isolated areas of painted over pitting up to 1/8" D along the lower 4' of the member. The longitudinal truss support between tower 1 and 2 below Level 3 has 100% section loss to the end 12" of the bottom horizontal member and typical cleaned pack rust at the gusset connection.	
Frame and Braced Column	0	Diagonal bracing between 0 and 1	End 12" adjacent Pier 11 north column, bottom connection, has section loss with only 1/8" T RS and up to 100% section loss lower 4". Typical areas of up to 1/8" D section loss noted throughout the bracing with small isolated holes up to 1/4" Diameter noted in isolated areas. The bracing gusset plates have typical painted over pack rust at the corners causing minor deformation of the gusset plate edges.	
Frame and Braced Column	0	Stringers between Tower 0 and 1	Stringers on Level 2 exhibit typical painted over pitting up to 1/8" D throughout especially along the lower 5" of the web, full length. The top face of the top flanges exhibits isolated areas of painted over pitting up to 3/16" D with water ponding on the pitting.	
Frame and Braced Column	0	Floorbeam at 0	Top flange with 3/16" D painted over pitting and wavy areas. There are isolated small locations of painted over pitting up to 1/4" D. The rivet heads typically have 10% SL. The rivet heads at the bottom flange connection to the south column have 60-80% section loss.	

Table 8: Unit III Superstructure Deficiencies				
Span	**Bent/ Truss**	**Column/ Member**	**Note**	**Photo**
Frame and Braced Column	0	Truss strut below level 2	The upper transverse member of the truss strut has typical pitting up to 3/16” D on the horizontal surface with minor debris accumulation FL. The upper edges of the gusset plate connections have painted over pack rust up to 1/8” T at all member connections. Typical pitting up to 1/8” D throughout the horizontal surfaces with isolated areas of section loss up to 1/4” D. The lower 6” of all diagonal members also have typical section loss with 1/8” RS and areas of up to 100% section loss. The corners of the gusset plates located at the lower connection to the north and south column have cleaned and caulked pack rust up to 3/4” T.	
Frame and Braced Column	0	Floorbeam at Level 3	Typical condition. Cleaned and painted with minor pitting up to 1/16”.	
Frame and Braced Column	1	North	Areas of painted over pitting up to 1/8” D at the bracing connections. Cleaned and caulked. Pack rust typical up to 1/8” T at all bracing connections.	
Frame and Braced Column	1	Floorbeam at 1	Floorbeam between trusses on level 2 has painted over pitting on the bottom flange and top flange typically 1/8”.	
Frame and Braced Column	1	Floorbeam between lines	Painted over pitting on the bottom flanges lower 2" of web and the top flange up to 1/4" D.	
Frame and Braced Column	1	Strut above roadway	The struts at Level 1 above the roadway are in good condition with laminar and surface corrosion beginning to form on nuts and bolts and debris buildup on the top face of horizontal members. Light surface corrosion is beginning to form along flanges.	
Frame and Braced Column	2	Floorbeam	Painted over pitting up to 3/16” D on top of both flanges and locations on the web at Level 3.	

Table 8: Unit III Superstructure Deficiencies				
Span	**Bent/ Truss**	**Column/ Member**	**Note**	**Photo**
Frame and Braced Column	2	Struts	Struts between Bents 2 and 3 south columns at Level 1 exhibit painted over pitting up to 1/8” D on the top of the web. Upper and lower chord members for the truss strut between south and middle columns at Level 1 exhibit painted over pitting up to 1/8” D on the top of the webs. Struts at Level 1 exhibit sporadic locations of surface corrosion and has light debris buildup on the web of the top beam. The top beam between the center and the north lines has two corrosion holes in the web measuring 2" L x 6" W and 2" W x 1" L. The ends of the gusset between the north and middle column are bowed outward up to 1-1/4” due to previous pack rust at that location.	
Frame and Braced Column	2	Floorbeam	Level 3 floorbeam with peeling paint has been repainted.	
Frame and Braced Column	2/3	Middle	Along length of level 1 longitudinal member, painted over pitting up to 1/4" with multiple corrosion holes up to 3" x 1". Repair plates bolted to web at center between bents 2 and 3. Diagonal bracing exhibits painted over pitting up to 3/16" throughout. The center bracing gusset has up to 1-3/4" deflection where pack rust was removed and repainted and 1/4" pitting.	
Frame and Braced Column	2/3	North/	Typical painted over pitting up to 1/4".	
Frame and Braced Column	2/3	North diagonal	Bent 2.5 at L2 - Bent 3 at L3 diagonal at mid length has a 6” diameter area of paper thin section with a 2-1/2” H x 2” W hole.	
Frame and Braced Column	2/3	Level 2 north horizontal	Level 2 horizontal beam between Bent 2-3 north columns has a 2” L x 1/2” H hole in the bottom of the web near Bent 3.	

Table 8: Unit III Superstructure Deficiencies				
Span	**Bent/ Truss**	**Column/ Member**	**Note**	**Photo**
Frame and Braced Column	3	Level 2-Level 3 diagonal	Diagonal between north and middle column at middle column at Level 2 connection appears to be shift to the east. It is unknown if this is a construction defect.	
Frame and Braced Column	3	Floorbeam	Painted over pitting up to 1/8” D on top of both flanges and isolated locations on the web between south and middle columns.	
Frame and Braced Column	3	Strut	Upper and lower chord members for the truss strut between south and middle columns at Level 1 exhibit painted over pitting up to 1/8” D on the top of the webs. Struts exhibit light to moderate surface corrosion and light debris buildup on the top and bottom horizontal members. Peeling paint on the south strut top horizontal is more significant. Two up to 2" Diameter corrosion holes noted in the north strut.	
Frame and Braced Column	3	Floorbeam	Painted over pitting up to 1/8” D on top of both flanges and isolated locations on the web between south and middle columns.	
Frame and Braced Column	3	North/South	The built-up strut between the North and South trusses exhibits painted over section loss up to 3/16" pitting with 3” Diameter corrosion holes throughout the horizontal members. Bottom gusset plates have up to 3/4" deflection due to previous pack rust.	
Frame and Braced Column	4	Floorbeam	Level 2 floorbeam between center and south lines with 1/16" to 5/16" D pitting on the top flange, up to 1/4" D pitting with surface corrosion on the bottom flange and sporadic areas of surface corrosion located on the web throughout. Struts with areas of light surface corrosion, light buildup of debris on the top member and pack rust up to 1/2" T at random gusset plate connections. Level 3 floorbeam with painted over areas of pitting up to 1/4" D on the lower 8” of the web the west face and flanges. Plated over pinholes north of the Center column.	
Frame and Braced Column	4	Strut	Level 2 strut; corrosion hole in web near N column 5” L x 1.5” H.	

Table 8: Unit III Superstructure Deficiencies				
Span	**Bent/ Truss**	**Column/ Member**	**Note**	**Photo**
Frame and Braced Column	4	Center/North	Level 2 rolled I-beam strut with surface corrosion along flanges and pitting along the web. There is a 5-1/2" W x 1.5" H corrosion hole above the north column bearing plate.	
Frame and Braced Column	4	South	At level 2 the inboard C-channel flange has three pinholes above the floorbeam on the west side and a 3/4" Diameter corrosion hole on the east side.	
Frame and Braced Column	5	Floorbeam	Level 3 floorbeam with isolated painted over pitting up to 1/16” on bottom flange and lower portion of web.	
Frame and Braced Column	5	Center Column	Up to 5/16" D painted over section loss on both flanges, Level 2 at the struts.	
Frame and Braced Column	5	Center/North	Complete web loss on the lower horizontal of sway truss at Level 2.	
Frame and Braced Column	5/6	Center	The north mid-gusset plate connecting the bracing between Bents 5 and 6 is lightly bowed to the North along the top edge. The south plate is bowed south this is due to pack rust up to 1” T. The south plate has a corrosion holes measuring 2" x 1/2".	
Frame and Braced Column	5/6	North	Misaligned bolt hole for catwalk splice at U14, Span 6N. The misaligned hole is the bottom east bolt hole for each splice.	
Frame and Braced Column	6	Floorbeam	Level 3 floorbeam with isolated painted over pitting up to 1/16” on bottom flange and lower portion of web.	
Frame and Braced Column	7	Floorbeam	Level 3 floorbeam with isolated painted over pitting up to 1/16” on bottom flange and full height of web, both faces. Painted over up to 3/16” d pitting to the web north end.	

Table 8: Unit III Superstructure Deficiencies				
Span	**Bent/ Truss**	**Column/ Member**	**Note**	**Photo**
Frame and Braced Column	7	South	Areas of painted over section loss up to 1/4" D totaling 6" x 5' H.	
Frame and Braced Column	8/9	South	The diagonal from Bent 8 to Bent 9 is bent upward and to the south due to collision damage.	
Frame and Braced Column	8	Floorbeam	Level 3 floorbeam with typical pitting up to 1/16” D along southern overhang and isolated areas up to 1/8” D.	
Frame and Braced Column	8	North Cantilever	East Face of web has two areas of section loss up to 43” L x 3” H x 1/4” D. West face has areas of section loss up to 37” L x 3” H x 1/4” D. Bottom flange and top flange have full width x 3/16” D average section loss. Two 2" diameter corrosion holes are present at the old stringer connection in the web.	
Frame and Braced Column	9	North	3/4" L crack in south diagonal brace gusset plate at the coping for the bottom flange of the upper floorbeam.	
Frame and Braced Column	10	Southern floorbeam column	The base of the southernmost columns for towers 8 - 10 in the parking lot have a rocker bearing at the base that sits in a metal pan/base plate. Minor debris accumulation typical in pan with typical painted over pitting up to 1/16”.	
Frame and Braced Column	11	Stringers	1st stringer north of 3rd column from the north has a missing nut above the bearing on the south side.	
Frame and Braced Column	11/12		Chipped paint on the bottom flange of Stringer 1 between Bent 11 and 12 over West 9th Street lane indicates vehicular impact. There are slight bends from impacts and heat straightening.	10
Frame and Braced Column	14	South Center Column	Up to 1/8" D painted over section loss in webs and flanges, knife edging, and a small perforation on the East side of the transverse stiffeners.	

Table 9: Unit IV Superstructure Deficiencies				
Section	**Bent**	**Item**	**Note**	**Photo**
B		Girder	North girder; 11.5” L x 10” H cutout 15” west of column 15.	
B	17	Pin & Hanger	Recently painted. Painted over pack rust between built up flange components. Up to 1/8” D pitting on bottom flange angle.	
B	17	Stringer	2nd stringer from south has abrasion dust between sliding plates and visible gap between plates that moves under load on the south side.	
B	Joint B7	Girder	North girder: 11.5” L x 10” H cutout 6' east of Joint B7 and bent 17. (Typ. Detail)	
B	17/18	North girder	Abandoned welded lighting attachments to south face of North girder between Bents 17 and 18.	
B	18/19	Floorbeam	Typical 1/16” D painted over pitting on bottom of web and bottom flange. Middle floorbeam, east face, 1/16" ± deep pitting	
B	19/20		Abandoned welded attachments to south face of North girder between Bents 19 & 20.	
B	20	Pin & Hanger	North girder: Painted over pack rust between built up flange components. Up to 1/8” D pitting on bottom flange angle. Present in isolated locations (south side of bottom flange)	
C	21-22	Girder	North girder over Lakeside Ave. there is pack rust between bottom flange plates up to 1" thick (painted over)	9
C	20	North Floorbeam cantilever	Sheared bolt head at North stringer connection angle to East face of floorbeam cantilever. 3rd bolt from bottom of connection not sheared. No bolt there due to conflict with stringer beam set on west face.	
C/D	23	Pin & Hanger	Typical pin-hanger East of bent North girder. Edges have been caulked, but new movement is evident.	
E	26	Girder	North girder; bottom flange angle on north side is bent at the Joint B4. Pin nuts show evidence of movement.	
G	32-33	FLBM	Cantilever west bottom flange is bent 24" L x 1" H near FLBM between bents 33 and 34. Midspan of bottom flange bent up 1" over 24" ±	

Table 9: Unit IV Superstructure Deficiencies				
Section	**Bent**	**Item**	**Note**	**Photo**
	32	South Column	1/4" ± corrosion hole 1" high X 1/4" wide area of pitting located 3' below cantilever FLBM. Joint leaking in south cantilever region @ this location	
	37	Bent 37	West face of bent 36, web exhibits 1/16" ± deep pits throughout	

Table 10: Unit V Superstructure Deficiencies				
Span	**Girder**	**Face**	**Note**	**Photo**
All Spans	All	All	Girder webs have up to 1/16" D painted over pitting.	
All Spans	All	All	Typical up to 1/16" D pitting on all girders typically on the top half of the girder but can extend down to 3/4 of the girder height.	
All Spans	All	All	All floorbeams have painted over pitting up to 1/16" D.	
38	South	North	Previously noted corrosion hole has been plated over.	
38	Center		Bleeding corrosion along the middle bearing.	
39	Center	Both	3/16" D painted over pitting between Floorbeams 38 and 39, and also between Floorbeams 60 and 61. Transverse catwalk extension at these locations removed due to excessive section loss in supports. Longitudinal catwalk is in good condition.	
39	South	North	Painted over pitting up to 1/4" D in web from Floorbeams 75 and 77 and in vertical stiffener to Floorbeam 76.	
39	Center	North	Painted over pitting up to 1/4" D in web and bottom flange above bearing. 4 rivet heads have popped off and been painted over on bottom flange and several web rivet heads have up to 90% section loss and are painted over. Several rivets have been repaired at this location.	
39	Center		Rocker bearing at Pier 39 has typical 3/16" D, up to 3/8” D painted over pitting.	
39/40	South		Arrested pack rust up to 1" T at the bottom flange plate.	
40	North/Center		Typical 1/8" D painted over pitting along bearing.	
40	North/Center		1-1/2" L x 1/2" H area of corrosion holes between girders near North girder support. The lower lateral brace east of Pier 39 has up to 3/16" D section loss in the web and rivet heads neat the top flange.	
40	North/Center		100% section loss in the knee brace at this location.	

Table 10: Unit V Superstructure Deficiencies				
Span	**Girder**	**Face**	**Note**	**Photo**
40	North	South	At the second portal brace east of Pier 39, there is up to 3/16" D web loss and rivet head loss near the top flange at the lower lateral brace.	
40/41	Center		Up to 1/4" T pack rust between bottom flange built up plates near Pier 40. This has been cleaned and sealed. Painted over section loss at the floorbeam connection to the Center girder.	
41	South	North	Flame cut hole in South girder web past Pier 40	
41	North	North	Up to 1" Painted over pack rust between the bottom flange plates east of Pier 40.	
41	All Bearings		All rocker bearings at the East Abutment are at or near full expansion. North 3.6 degrees, Mid 6.9 degrees, South 6.6 degrees. All rotated east.	

NBI Item N60 – Substructure (6, Satisfactory Condition)

The superstructure is in ***Satisfactory*** condition.

The substructure findings and summary of conditions for individual items are as follows:

Item 215 – Reinforced Concrete Abutment
The abutment walls are in **Good** condition.

Total Quantity	CS 1	CS 2	CS 3	CS 4
110 LF	59 LF	51 LF		

There are isolated areas of hairline vertical cracking with isolated areas of efflorescence and water staining. In Unit V, the East Abutment exhibits approximately 31 SF of patched concrete area.

Item 210 – Reinforced Concrete Pier Wall
The pier walls are in **Good** condition.

Total Quantity	CS 1	CS 2	CS 3	CS 4
55 LF	55 LF			

Item 231 – Steel Pier Cap
The pier caps are in **Good** condition.

Total Quantity	CS 1	CS 2	CS 3	CS 4
5,655 LF	5,425 LF	209 LF	20 LF	

The steel pier caps at Pier 38, 39 & 40 in Unit V exhibit painted over pitting and pack rust up to 1” thick.

Item 234 – Reinforced Concrete Pier Caps
The pier caps are in **Good** condition.

Total Quantity	CS 1	CS 2	CS 3	CS 4
212 LF	203 LF	9 LF		

In Unit I, there are 2 areas of delaminations in the underside of Pier O in Section P near the middle of the cap measuring approximately 5’ x 3’ and 4’ x 2’ **(Photo 29).** The Pier

12 cap in Section M exhibits a 3' x 1' spall with exposed reinforcing steel**.** In Unit II, Pier 10 Cap exhibits a patched and fiber wrapped area on the underside of the cap.

Item 202 – Steel Column
The steel pier columns are in **Fair** condition.

Total Quantity	CS 1	CS 2	CS 3	CS 4
151 EA	120 EA	31 EA		

The steel bents in Unit I, Unit III and Unit IV exhibit areas of painted over pitting up to 3/16" D and isolated painted over corrosion holes. There are areas of painted over pack rust up to 1/4" thick between plates. The anchor bolts nuts exhibit up to 40% painted over section loss. Anchor bolts have painted over section loss up to 25% **(Photo 30)**. The reinforced concrete bases exhibit isolated spalls up to 4" deep. There is a 6' diameter x 4' deep sink hole near the North column of Bent 30 in Unit IV. The sink hole has grown in size since the 2019 inspection but there are still traffic cones delineating the hole **(Photo 31)**.

Item 205 – Reinforced Concrete Column
The reinforced concrete pier columns are in **Fair** condition.

Total Quantity	CS 1	CS 2	CS 3	CS 4
268 EA	213 EA	53 EA	2 EA	

In Unit I, Section M and D, the reinforced concrete columns are generally in good condition with one isolated column with significant spalling. In Unit I, Section P, the reinforced concrete base at the third column from the south in the second row of columns is delaminated.

Item 830 – Abutment Backwalls
The backwalls are in **Good** condition.

Total Quantity	CS 1	CS 2	CS 3	CS 4
110 LF	50 LF	60 LF		

Minor vertical cracking and staining are present on the East Abutment backwall.

Wingwalls
The wingwalls are in **Good** condition.

Mask Walls

In Unit I, there are mask walls in each section except for B and J where the roadway is built on fill. The mask walls have significant areas of spalling, delaminations, and cracking on the inside and outside faces of the walls. Several spalls exhibit exposed reinforcing steel with significant section loss. In Section C & K, some of the delaminations are above pedestrian walkways.

In Unit III, there are mask walls at the north and south chambers east of West 9th Street. The inside faces of the walls have significant areas of spalling, delaminations and cracking. Several spalls have exposed rebar with up to 100% section loss **(Photo 32).**

Substructure deficiencies and specific locations with photo references are listed in Tables 11 to 15 below:

Table 11: Unit I Substructure Deficiencies

Section	Inside / Outside	Face	Location	Note	Photo
B	Outside	North	At end of Section 5 West of Joint X	12” x 8” x 3” D spall.	
B	Outside	North	At end of Section 4 West of Joint X	12” x 6” x 1” D spall.	
B	Outside	North	West end of Section 1	6' H x 10" W delamination.	
B	Outside	North	30' west of Joint X1	4' H x 5" W delamination.	
B & B'	Outside	North		Multiple vertical cracks typically full height x 1/16" W but up to 1/8" W (30 LF).	
B'	Outside	North	Joint X	5' H x 16" W x up to 2" D spall / delamination with one vertical and four horizontal exposed rebar with up to 80% section loss.	
B'	Outside	South	Section 3 right wall	8" H x 1' W x 2" D spall with exposed rebar.	
B'	Outside	South	Joint between Section 4 & 5	Full height x 4” W x 3” D spalling.	

Table 11: Unit I Substructure Deficiencies					
Section	**Inside / Outside**	**Face**	**Location**	**Note**	**Photo**
B	Outside	South	Joint between Section 6 & 7	2’ H x 4” W x 2-1/2” D spall at top of wall.	
B	Outside	South	Joint between Section 6 & 7	4’ H x 6” W x 5” D spall at mid height.	
B	Outside	South	Joint between Section 7 & 8	2' H x 4' W incipient spall at top right section of wall.	
B	Outside	South	At Joint X1	2' H x 6" W x 1' D spall with exposed and corroded rebar at the top of the joint.	
D	Both	North	Joint W	15" x 8" delamination at top of the joint.	
D	Inside	East	West Wall, At Joint W	Scaling with secure aggregate over 25% of surface area.	
D	Inside	East	West Wall North Corner	6' H x up to 3' W x up to 2" D spall with exposed rebar with minor section loss.	
D	Inside	North	Between Columns 5 & 6	10' H x 4' W x up to 2" D spall with exposed rebar with minor section loss.	
C	Outside	North	West Wall, Near Joint X	3' H x 16" W spall with exposed reinforcing.	

Table 11: Unit I Substructure Deficiencies					
Section	**Inside / Outside**	**Face**	**Location**	**Note**	**Photo**
D	Inside	South	West of Joint Q4	Full height x up to 1.5' W x up to 4" D spall with exposed vertical and horizontal rebar with minor section loss.	
D	Inside	South	Between Columns 18 & 19	6’ H x 1’ W x up to 2” D spall with exposed rebar with minor section loss. Also, a Full height x 1/16” W vertical crack.	
D	Inside		Typical	There are isolated instances of hairline cracking in the walls up to 1/32” W, some with minor moisture/rust staining.	
D	Inside		Typical	Some of the columns have spalling in the corners up to 1’ diameter from machine impact.	
D	Inside		Typical	Concrete beams have isolated instances of scaling and minor spalls less than 6” diameter.	
D	Inside	South	Between Column 5 & 6	10' H x 1.5' W area of delamination with 3.5' H x 1.5' W x up to 1.5" D spall with exposed rebar with minor section loss.	
N	Inside	North	East of Joint Q	3' H x 10" W x up to 5" D spall with exposed rebar with minor section loss.	
N	Inside	North	East of Joint Q	4' H x 1.5' W x up to 4" D spall with exposed rebar with minor section loss. Adjacent to this spall is an area of delamination 8' W x 3.5' H.	
N	Inside	North	East of Joint Q	Full height x 1/4" W vertical crack.	
N	Inside	North	East of Joint Q	4' H x 1' W x 3" D spall with exposed reinforcement. Below this spall is an area of delamination 4' H x 1' W.	
D	Outside	North	Between Joint Q3 and Q4	Vertical cracks up to full height x up to 1/8" W and four spalls / delaminations up to 4' x 2' x 1" D (Spalls 7LF, Cracks 5LF).	
D	Outside	North	Between Joint Q2 and Q3	Spalls / delaminations up to 4' H x 5' W x up to 2" D with two exposed rebar painted over (Spalls 9LF).	
D	Outside	North	Between Joint Q2 and Q3	8 vertical cracks up to full height x 1/16" W (Cracks 8LF).	
D	Outside	North	Between Joint Q1 and Q2	7 vertical cracks up to full height x 1/8" W (Cracks 7LF).	

Table 11: Unit I Substructure Deficiencies					
Section	**Inside / Outside**	**Face**	**Location**	**Note**	**Photo**
D	Outside	North	Between Joints Q to Q4	Numerous full height vertical cracks up to 1/16" W. Numerous delam measuring 6' x 4' Several spalls with exposed reinforcing.	
D	Outside	North	Between Joint Q1 and Q2	12 Spalls / delaminations up to 6' H x 4' W x up to 2" D with two exposed rebar painted over (Spalls 16LF).	
D	Outside	North	Between Joint Q and Q1	5 vertical cracks up to full height x 1/16" W (Cracks 5LF).	
D	Outside	North	Between Joint Q and Q1	Spalls / delaminations up to 4' H x 4' W x up to 1" D with two exposed rebar painted over (Spalls 11LF).	
J	Outside	North	West half of wall	Full height vertical cracks up to 1/16” W with efflorescence and some rust staining spaced 10’ apart on average, with isolated diagonal cracks as well.	
J	Outside	North	Mask Wall	Concrete around second joint from Joint T2 is spalling out 1' W x 12' H.	
J	Outside	North	Mask Wall	At Joint T2 the west wall panel is leaning to the north approximately 2.5” more than the east panel (approximated at the top).	
J	Outside	North	Mask Wall	At the first panel east of Joint T2, delamination at top of Wall 5’ H x 2’ W.	
J	Outside	North	Mask Wall	First panel west of Joint T1 has 15 SF of delaminations.	
J’	Inside	South	At Joint T2	Full height x 3’ W x 4” D spall w/ exposed rebar.	
D	Inside	Both	Joint Q4	At the south face, 4' H x Full Height delamination. At the North face, 14' H x 1' W spall with exposed reinforcing with minor section loss of rebar.	
D	Inside	South	Between Columns 15 and 16	8' H L x 2' W delamination with 4 SF spall with exposed reinforcing.	
D	Inside	Both	Q3	At the south face, 2' H x 2' W spall with exposed reinforcing. At the north face, 4' H x 2' W spall.	
D	Inside	North	Between Columns 25 and 26	4' H x 6" W x 6" D spall with exposed reinforcing.	
D	Inside	North	Q2	3' H x 2' W spall with exposed reinforcing.	

Table 11: Unit I Substructure Deficiencies					
Section	**Inside / Outside**	**Face**	**Location**	**Note**	**Photo**
D	Inside	North	Between Columns 35 and 36	10' H x 1.5' W delamination.	
D	Inside	Both	Between Columns 45 and 46	At south face, 3' H x 6" W x 4" D spall. At north face, 2' H x 1' W spall with exposed reinforcing.	

Table 11: Unit I Substructure Deficiencies					
Section	**Inside / Outside**	**Face**	**Location**	**Note**	**Photo**
J	Outside	South	Between Section 2 & 4	Full Height vertical cracks.	
J’	Inside	South	At Joint T1	Full height x 3’ W delamination.	
J’	Outside	South	Section 5	30 SF of spalls and delaminations some with exposed rebar with 30% section loss. Full height hairline cracks.	
J’	Outside	South	Section 6	30 SF of spalls and delaminations some with exposed rebar. Full height hairline cracks.	
J’	Outside	South	Section 7	25 SF of spalls and delaminations some with exposed rebar with 30% section loss. Full height hairline cracks.	
J’	Outside	South	Section 8	10 SF of delaminations. Full height HL cracks.	
J'	Inside			Spall in Wall 4’ H x 2’W x 2” D with exposed rebar with minor section loss.	
J'	Inside	South	Near Joint T1	3.5' H x 2' W x 2.5" D spall with exposed rebar and minor section loss.	
J'	Inside	South	Near Joint T	Delamination in Wall 20” diameter.	
J'	Inside	Both	Near Joint T1	On south wall, 2' W x 11' H delamination centered at joint. On north wall, 2' W x 12' H delam with exposed reinforcing. Signs of leakage and rusting through joint.	
J'	Outside	North	Near Joint T2	Spall on outside of Wall beneath bearing 1.5’ L x 1.5’ H with exposed rebar with minor SL	
J'	Inside	Both	At Joint T2	Cracking with efflorescence of header. At south wall, 16 SF spalling with exposed reinforcement. At north wall, edge spalling and minor delaminations.	
J'	Inside	West	Near Joint T	Spall / Delamination in Wall 5’ H x 3’ H.	
J'	Inside		Catch Basins	Catch basins are typically clogged.	
K	Outside	West	East Concrete Wall along W. 28th Street.	Below Girder 2, there is an 8’ H x 32” W delamination.	
K	Outside	East	West Wall	Top of wall has a 4' diameter delamination at north and south ends.	
K	Both	Both	West Wall	West face and east face of west concrete wall have a full height x up to 6’ W delamination below girder 2.	
K	Outside	North	Top of wall	2’ diameter x 3” D spall with exposed rebar.	

Table 11: Unit I Substructure Deficiencies					
Section	**Inside / Outside**	**Face**	**Location**	**Note**	**Photo**
B’	Inside	South	West of Column 0	Top has a 3’ diameter delamination.	
B’	Inside	South	Between Column 7 & 8	Full height x 1/16” W crack.	
B’	Inside	North	Between Column 7 & 8	Full height x 1/16” W crack.	
C			Columns 2 and 3 north and south	The anchor bolts have been cleaned and painted with 20% section loss with minor necking of the bolt between the column sleeve and base plate. This is typical of all 4 anchor bolts. The bottom base plate has up to 1/8” D painted over pitting throughout	
C	Inside	North	West Wall	4' W x 5' H delamination.	
D	Outside	South	Section 1 (Starting from W. 28th Street)	10 SF of delaminations.	
D	Outside	South	Section 2	10 SF of delaminations.	
D	Outside	South	Section 3	30 SF of delaminations. 2 SF spall 2" D.	
D	Outside	South	Section 4	10 SF of delaminations. 1 SF shallow spall.	
D	Outside	South	Section 5	15 SF of delaminations.	
D				North column has a 1’-10” H x 1’ W x 3” D spall.	
M				The bottom base plate has up to 3/16” D painted over pitting. The west flange just above the vertical gusset plate has up to 3/16” D painted over pitting for 2” H.	
M				Cap with 2’ L x 6” W x 3” D spall with exposed rebar.	
M	Inside	North	Between Joint S and R	Interior of concrete wall has full height x 8” H x 2” D spalling with exposed rebar. The stabilizing column at this location also has full height x 8” W x 8” D spalling with exposed rebar.	
M	Inside	North	West of Joint R	Spall 1.5' diameter x 1.5" D with exposed rebar and minor section loss.	

Table 11: Unit I Substructure Deficiencies					
Section	**Inside / Outside**	**Face**	**Location**	**Note**	**Photo**
M	Inside	North	Joint Q6	Spall in wall 4’ H x 6” W x 2” D, exposed rebar with minor section loss.	
M	Inside	South	Joint Q6	2 spalls in the wall up to 4' H x 2' W x up to 4" D with exposed rebar.	
M	Outside	South	2nd Panel East of Joint S	1' H x 1' W delamination near top.	
M	Outside	North	West of Joint R	4' W x 2' H delamination at top of wall.	
M	Inside	North	Between Joint Q6 and Q5	Spall in wall between Columns 5-6, 2’ diameter x 2” D, exposed rebar with minor section loss.	
M	Inside	North	Between Joint Q and Q5	Spall in wall between Columns 5-6, 4’ H x 2’ W x up to 3” D, exposed rebar with minor section loss.	
M	Outside	West	East Wall	2 spalls with exposed reinforcing at corner, 6' W x 6' H and 3' W x 2' H.	
N	Inside	East	Wall East of 25th St	100 SF delaminations. Numerous 1/16" vertical cracks.	
N	Inside	South Wall North Face	Wall East of 25th St	1000 SF delaminations.	
P		East	3rd Column from South, 2nd Row of Columns from east	The base of the column is delaminated around the north and east faces below the original ground level and is marked for repair.	
P		Underside	East End Pier Cap	Bottom face of cap has two delaminations, 5' x 3' and 4' x 2', near the middle of the cap with surrounding vertical cracks.	29
P	Inside	North	South Wall West End	Curtain walls at both north and south ends, multiple spalls and delaminations up to 6' L x up to 4' H x 5" D with exposed rebar with 10% section loss; several areas on curtain walls marked for repair.	
P	Inside		East Pier, South End	4' L delamination with rust staining.	
P	Inside		East Pier, North Column	8' H x 1' W delamination, 6 SF spall with exposed reinforcing.	
P	Inside	Both	East Curtain Walls	North wall, 40 SF delaminations and 5 SF spall with exposed reinforcing. South wall, 60 SF delamination.	

Table 11: Unit I Substructure Deficiencies					
Section	**Inside / Outside**	**Face**	**Location**	**Note**	**Photo**
L'	Inside	South	East Vault	25 SF delamination and 1 SF spall with exposed reinforcing.	
L'	Inside	North	East Vault	35 SF delamination and 4 Full Height vertical cracks with leakage.	
M	Inside		Pier Cap 12	3' x 1' spall with exposed reinforcing.	
L'	Inside		Joint R	Catch basin is clogged.	7
M	Inside		Column 13	Catch basin is clogged.	
M	Inside	South	Between Columns 18 and 19	3' H x 2' W spall with exposed reinforcing.	
M	Inside		South Wall, Between Columns 28 and 29	3' H x 2' W spall with exposed reinforcing.	
N	Inside		Wall West of 25th St	Spalling around garage door.	
N	Outside		South Wall	6' x 3' spall with exposed reinforcing on top of wall.	
M	Outside		2nd Panel West of Joint Q	5' H x 2' W delamination.	
M	Outside		3rd Panel West of Joint Q	3' H x 4' W delamination.	
M	Outside		4th Panel West of Joint Q	7' H x 2' W delamination. 3.5' H x 1' W x 4" D spall with exposed reinforcing.	
M	Outside		5th Panel West of Joint Q	3 SF small delaminations.	
M	Outside		6th Panel West of Joint Q	Three delaminations 6' H x 2' W, 4' H x 4' W, and 1' H x 6" W.	
M	Outside	South	South Wall	Typical up to 1/16" W cracks (20 LF total).	
N	Outside	North	East Vault	3' H x 2' W delamination.	
N	Outside		Panel adjacent to Joint P	Multiple delaminations - 4' H x 4' W, 2'W x 1' H, and 1/8" W x Full Height crack with 2' W delaminations.	
N	Outside		2nd Panel West of Joint P	Multiple delaminations - 3' W x 6' H, 4' W x 1.5' H, 4' W x 2' H, 6' W x 2' H, 4' W x 6' H, 3' W x 2' H, 2' W x 2' H.	

Table 12: Unit II Substructure Deficiencies				
Span/Pier	**Column**	**Face**	**Note**	**Photo**
Pier 1	North	All	Mapcracking typical on most piers.	
Pier 2	South	NE	Northeast corner of pier 2, south column exhibits cracking within shallow spall over 18" high X 6" wide @ corner	
Pier 4	North	North	3 linear feet of exposed horizontal reinforcement with minor section loss 6’ above ground line.	
Pier 4	Both		Concrete repairs have up to 1/16” W map cracks with light efflorescence and rust staining on both columns.	
Pier 5	South	North	Hairline map cracking with rust staining in concrete repairs. The bottom angle piece of the scupper is missing.	
Pier 5	North	South	Hairline map cracking with rust staining in concrete repairs.	
Pier 6	South	All	Concrete repairs on each face. The north and west face top and middle repair areas have full height hairline map cracking with efflorescence with areas of rust staining.	
Pier 6	North		Concrete repairs on the east and south face of north column. Hairline map cracks with rust staining throughout the repairs.	
Pier 7	South		South column has concrete repairs on each face. The north and west face top and middle repair areas have full height hairline map cracking with efflorescence. North face also has areas of rust staining.	
Pier 7	North		East, west, and south face of north column has multiple areas of concrete repairs.	
Pier 8	Both		Typical, some mapcracks isolated throughout	
Pier 10	Cap	Underside	Fiber wrapped repair	

Table 13: Unit III Substructure Deficiencies				
Span/Pier	**Bent**	**Column**	**Note**	**Photo**
Typical			Unit III has been cleaned and painted since the previous inspection. Typical areas of painted over section loss up to 3/16” D were noted throughout the lower portions of the columns and along the lower bracing members. Areas of pack rust have been cleaned and caulked throughout.	
11	-	South	22” W x 6” H x 4” D spall on West face of concrete base above drainpipe catch basin connection. 4” W x 3” H x 1” D spall with vertical hairline cracks extending downward on East face of concrete base. Anchor bolt nuts with 20-40% section loss. Scupper basin clogged and filled with water. Corrosion holes in the 2nd and 3rd north web plates up to 2” diameter.	
11	-	North	The bottom of the column has been cleaned. The interior faces of the column plates exhibit up to 1/8” D section loss along the lower 2.5’. Drain holes are open but minor trash and debris noted. The anchor bolts exhibit up to 25% section loss at the base. The exterior surface of the column has painted over section loss up to 1/8" D x full height.	

Table 13: Unit III Substructure Deficiencies				
Span/Pier	**Bent**	**Column**	**Note**	**Photo**
Frame and Braced Column	1	North	The column has been cleaned and painted with typical painted over pitting up to 1/8” D on web. The lower batten plates on the east and west faces above the bearing seat have been replaced. The anchor bolts exhibit up to 10% section loss with minor necking of the bolt between the column sleeve and base plate. This is typical of all 4 anchor bolts.	
Frame and Braced Column	1	Center	Typical painted over pitting up to 1/8” D on all faces from Level 2 to the base. Isolated areas up to 3/16” D section loss noted at the bracing connections. The web stiffening angles located at the Level 1 bolted connection for the transverse strut truss exhibit up to 75% section loss with the upper angle having FL x FW section loss up to 100%. The lower stiffening plate above the bearing plates have been replaced. New plates have been welded to the column flanges. The bearing pedestal typically exhibits 2-3 full height 1/16" W cracks and one full width horizontal crack. The anchor bolts have up to 10% section loss between the vertical and the base plate with up to 50% section loss of the anchor bolt nuts. The previously noted section loss on the web plate at the base of the column has been repaired with a FW x 12” H steel plate that has been welded to web and flanges. This repair plate is only located on the west face. Up to 50% section loss of rivet head in east face column web near base plate	
	1	South	1"X1" corrosion hole on east bottom batten plate	

Table 13: Unit III Substructure Deficiencies				
Span/Pier	**Bent**	**Column**	**Note**	**Photo**
Frame and Braced Column	2	North	The bottom 3” H of the column and the base plate have typical painted over pitting up to 1/8” D. The anchor bolts have been cleaned and painted with 20% section loss with minor necking of the bolt between the column sleeve and base plate. This is typical of all 4 anchor bolts. The anchor bolt nuts on the north side have up to 20% painted over section loss. There is a Full Height x 1/16” W vertical crack at the southwest and southeast corners of the concrete pedestal. The east bottom batten plate of the column has a 1/2” diameter hole. The northeast corner of the pedestal has a 1’-9” H x 5” W x 1” D spall/delamination. The southeast corner at the bottom has a 6” H x 10” W x 2” D spall. The southwest corner has a 3” H x 5” W x 1” D spall at the top edge and a 3” H x 2” W x 1/2” D spall at the bottom.	
Frame and Braced Column	2	Center	The base of the column exhibits painted over pitting of the base plate up to 1/8” D and minor debris build up between the stay plate and vertical web plate. The lower up to 4” H of the web exhibits painted over pitting 1/8" with a corrosion hole 3" x 1" West bottom batten plate of column has 1"X2" corrosion hole	
Frame and Braced Column	3	North	The bottom 3” H of the column and the base plate have typical painted over pitting up to 1/8” D. The anchor bolts have been cleaned and painted with 35% section loss with minor necking of the bolt between the column sleeve and base plate. This is typical of all 4 anchor bolts. The anchor bolt nuts have up to 20% painted over section loss. The west bottom batten plate of the column has a 1/2” diameter hole.	
Frame and Braced Column	3	Center	The base of the column has painted pitting of the base plate up to 1/8” D and painted over pitting on lower web at base full width x up to 3" H x up to 3/16" D pitting.	

Table 13: Unit III Substructure Deficiencies				
Span/Pier	**Bent**	**Column**	**Note**	**Photo**
Frame and Braced Column	4	North	The base of the vertical has pitting up to 1/16” D. The east and west stay plate has 100% section loss up to 6” H along the lower edge. The anchor bolts also exhibit up to 10% section loss between the vertical collar and the base plate. Column from Level 0 to Level 2 have painted over pitting up to 1/8" D on the inboard flange C-channel flanges. At Level 2 on the east inboard flange C-channel there is a 11/2" H x 1/2" L corrosion hole. Level 2 to Level 3 are in similar conditions. At Level 3 the inboard C-channel flange has a 6" H x 3/4" L corrosion hole. Bottom of column web has 4" ϕ corrosion hole and 2, 1/2" ϕ corrosion holes. South side rivet heads between level 0 and 1 have up to 25% section loss	
Frame and Braced Column	4	Center	The base of the vertical has painted pitting up to 1/16” D. The west stay plate has 100% section loss Full Width x up to 6” L along the lower edge. The anchor bolts also exhibit up to 10% section loss between the vertical collar and the base plate. Anchor bolt head up to 25% section loss The west edge of the concrete pedestal is spalled Full Length x 3” H x up to 1” D with up to 1/2” D void underneath the base plate. Column Level 0 to Level 3 has painted over pitting up to 1/16" to 1/8" D in isolated locations on the exterior webs. Exterior web channels on the north end of the member just above Level 2 has two corrosion holes 3/4" H x 3/8" L.	
Frame and Braced Column	4	South	Painted over pitting from 1/16” D to 1/8” D on masonry plate, anchor bolt assemblies, and bottom of column. Up to 10% section loss to anchor bolts. Masonry plates with up to 1/4” D painted over pitting. South flanges exhibit knife edging with up to 1” diameter areas of 100% section loss above the masonry plate.	

Table 13: Unit III Substructure Deficiencies				
Span/Pier	**Bent**	**Column**	**Note**	**Photo**
Frame and Braced Column	5	North	The base of the column exhibits pitting up to 1/16” D. The anchor bolts also exhibit up to 10% section loss between the vertical collar and the base plate. Vertical collar exhibits up to 3/8" pitting	
Frame and Braced Column	5	Center	The base of the column exhibits pitting up to 1/16” D. The anchor bolts also exhibit up to 10% section loss between the vertical collar and the base plate. Anchor bolts 1/4" low	
Frame and Braced Column	6	North	7/16" D pitting in outboard flange at horizontal connection for longitudinal bracing to Bent 5 at Level 2. Original thickness 7/8". Up to 50% section loss.	
Frame and Braced Column	6 to 7		Diagonal cross bracing between Bent 5 and 6. Utility pipe at cross bracing from Level 2, Bent 6 to Level 1 cross bracing is completely corroded with 100% section loss exposing electrical wires.	
Frame and Braced Column	6 to 9	All	The base of the vertical exhibits pitting up to 1/16” D. The anchor bolts also exhibit up to 10% section loss between the vertical collar and the base plate.	
	7	Center	Anchor bolts up to 25% section loss between vertical collar and base plate with necking present. Anchor bolt nuts up to 50% section loss.	
Frame and Braced Column	10	South	2’ x 4” x 4” delamination on north face with efflorescence.	
Frame and Braced Column	10		The base of the column exhibits painted over pitting up to 1/8” D. The anchor bolts also exhibit painted over up to 10% section loss between the vertical collar and the base plate.	
	10	North	1"X5" corroded section on west side bottom batten plate. Up to 3" 100% section loss in bottom of column web to base plate	

Table 13: Unit III Substructure Deficiencies				
Span/Pier	**Bent**	**Column**	**Note**	**Photo**
Frame and Braced Column	11		The base of the column exhibits painted over pitting up to 1/8” D. The anchor bolts also exhibit painted over up to 10% section loss between the vertical collar and the base plate.	
Frame and Braced Column	11	North Interior	2"X3"X1" delamination and 8"X5"X2" spall both on north face	
Frame and Braced Column	12	South Interior	6"X2"X1" spall with exposed rebar on west face	
Frame and Braced Column	12		The base of the column exhibits painted over pitting up to 1/8” D. The anchor bolts also exhibit painted over up to 10% section loss between the vertical collar and the base plate.	
Frame and Braced Column	13	North	Spall with exposed reinforcing in NE corner of concrete column base 18” L x 7” W x 1" D.	
Frame and Braced Column	14	South	Base of column painted over pitting up to 1/8" deep. Anchor bolts exhibit painted over up to 100% section loss between vertical collar and base plate.	
Frame and Braced Column	14	North	Anchor bolts exhibit painted over up to 20% section loss between the vertical collar and base plate. Anchor bolt heads up to 20% section loss.	
Frame and Braced Column	South Chamber		South wall, north face has a full height x 3’ W spall with exposed rebar. South wall, north face west side has a 6’ H x 8’ W spall with exposed rebar and a 30” H x 8” W x 5” D spall with exposed rebar. West wall, east face has a 10’ H x 4’ W spall with exposed rebar and a 5’ W x 2’ H delamination at the top.	
Frame and Braced Column	South Chamber		North wall, south face is spalled over 10’ W x full height area with exposed rebar with section loss.	

Table 13: Unit III Substructure Deficiencies				
Span/Pier	**Bent**	**Column**	**Note**	**Photo**
Frame and Braced Column	South Chamber		Drainage pipe along south wall is exposed. Catch basin is blocked.	
Frame and Braced Column	North Chamber		South wall, north face, in the southeast corner of the North Ramp vault under Joint C has a Full Height x 44" W spall with exposed rebar and adjacent delaminations. Does not impact load bearing members. Catch basin along north wall appears to be blocked, causing drainage and debris to back up and flow through vault.	
Frame and Braced Column	North Chamber		North wall, inside face has a 2’ diameter spall with exposed reinforcement, minor section loss. Adjacent delamination 2' x 8'.	
Frame and Braced Column	North Chamber		Large area of spalling and delaminations 8' x 10' x up to 3" D.	
Frame and Braced Column	North Chamber		18" x 18" spall with exposed reinforcing on south wall interior.	
Frame and Braced Column	13	Outside Columns	The base of the column exhibits painted over pitting up to 1/8” D. The anchor bolts also exhibit painted over up to 10% section loss between the vertical collar and the base plate.	
Frame and Braced Column	13		3' x 1' delamination north wall inside face.	
Frame and Braced Column	14		The base of the column exhibits painted over pitting up to 1/8” D. The anchor bolts also exhibit painted over up to 10% section loss between the vertical collar and the base plate.	

Table 14: Unit IV Substructure Deficiencies			
Bent	**Note**	**Photo**	**New Photo**
14	West Lakeside Avenue exit ramp: South wall, south face; previously noted spalling has been repaired each side of Joint C.		
14	West Lakeside Avenue exit ramp: South face of south wall, west end of Panel 1; previously noted spalling has been repaired along top half of south wall.		
14	West Lakeside Ave. entrance ramp (North ramp): North wall has spall and delamination along joint.		
15-14	West Lakeside Avenue exit ramp north face top half 1'X2' up to 1 1/2" deep spalling and exposed rebar		
15	West Lakeside Avenue exit ramp: South wall, south face between Panels 1 and 2; previously noted spalling has been repaired on each side of joint.		
16	West Lakeside Avenue exit ramp: South wall, south face of Panel 2; previously noted spalling has been repaired. The east end at the top has two 1’ diameter delamination.		
17	North column at base of web, painted over pitting up to 1/8" D with pin holes.		
17	West Lakeside Avenue exit ramp: South wall, south face of Panel 3; the east end at the top has 8” L x 2’ H x 1” D spall/delamination with one exposed corroded rebar.		
18	North column at base of web, painted over pitting up to 1/8" D with corrosion hole 2” x 1” with adjacent pin holes.		
18	West Lakeside Avenue exit ramp: South wall, south face, Panel 3 and 4; Hairline to 1/16” W vertical cracks throughout.		
19	West Lakeside Avenue exit ramp: South wall, south face of Panel 5; 3 hairline vertical cracks.		
	Lakefront entrance ramp South wingwall; delaminations and spalls with exposed reinforcement. Many patched areas, multiple areas of covered graffiti.		
	East Abutment/entrance ramp North wingwall; vertical cracking primarily at joints and east side of wall		
	East Abutment/entrance ramp South wingwall. Vertical full height cracking with moisture leakage and minor efflorescence, spaced 10'-15' apart.		
21	North column base plate sections up to 1/8" deep painted over pitting around column		

Table 14: Unit IV Substructure Deficiencies		
Bent	**Note**	**Photo**
25	South and north column anchor bolts are short 3/8”	
26	South concrete is in poor condition, has Full Height hairline cracking with rust stains extending from SE and SW anchor bolt	
27	1/8" painted over pitting on south column base plate around column	
28	South column anchor bolts are short 1/4”.	
29	South column north face anchor bolts are short 1/4”.	
30	South column north face anchor bolts and north column south anchor bolts are short 1/4”.	
30	6’ Diameter x 4’ deep sink hole near North column. Sinkhole was not fixed but they did fill it with traffic cones. Sink hole has grown since 2019 inspection.	31
31	North column south face anchor bolts are short 1/4”.	
32	1/8" painted over pitting on north column base plate around column	
32	Small, filled sink hole south side	
32	Pitting on the column web, north face up to 1/4” D.	
34	South column north face has bent anchor bolt stiffeners and the anchor bolts are short 1/4”.	
34	North column anchor bolts have section loss up to 25% at the NW bolt.	30
34	South; north face of concrete; hairline crack.	
34	South column SE anchor bolt has up to 15% section loss	
37	Spalling and delamination with exposed rebar 30" W x 4' H along west face of bearing pedestal, South Girder.	
37	West face south backwall south end west corner has 6' H x 18" W spall with exposed reinforcing.	
37	West face Pier wall 5.5' W x 7' H delam between North and Middle Girders	
37	3' L x 1/4" W crack along South edge of East Face of Pier wall (Non-structural)	
37	East face north end, cracking in patched and non-patched areas.	

Table 15: Unit V Substructure Deficiencies				
Span	**Pier**	**Face**	**Note:**	**Photo**
37/38	37	Pedestal	North face middle bearing pedestal has 24" W x 30" H x 1.5" D delamination. South face middle bearing pedestal has 60" W x 30" H x 3" D delamination with spall.	
38/39	38		Center bearing and surrounding area has 1/4" D painted over pitting on the bearing. The lower lateral bracing gusset plate has advanced painted over section loss including knife-edging and perforations and rivet head loss. The lateral brace from Center Girder to South Girder has advanced painted over section loss with small perforations.	
38/39	38	Top	Top of pier cap exhibits painted pitting up to 3/16" D. Up to 1/4" T pack rust between top plate and web plates.	
	38	Bottom	Inside face of bottom flange pate has a corrosion hole inside the member at the connection to the N column 9” L x 4” W.	
39/40	39	Top	Top of pier cap between the north and center girders has painted over pitting up to 3/16" D and up to 1/4" T pack rust between top plate and web plates.	
40	40	Top	Pier strut face plates and top face plates have up to 1” T pack rust with scalloping.	
40	East Abutment	Backwall	Minor vertical cracking and staining.	
41			31 LF of patches on the East Abutment stem. Backwall has hairline cracks and stains.	
41	East Abutment	Backwall	Minor vertical cracking and staining. 2' x 2' delamination.	

NBI Item N61 –Channel (7, Good Condition)

The Channel is in ***Good*** condition. There is an NBI sub-item under the Channel condition:

NBI Item N61.01.01 – Scour (7, Good Condition)

The bridge scour is in ***Good*** condition.

The channel findings and summary of conditions are as follows:

Alignment
The alignment is in **Good** condition.

Protection
The channel protection is in **Good** condition.

Hydraulic Openings
The hydraulic opening is in **Good** condition. The hydraulic opening is sufficient.

Navigation Lights
The navigation lights are in **Good** condition.

Approaches

The approaches are in ***Satisfactory*** condition. The approach findings and summary of conditions for individual items are as follows:

Item 321 – Approach Slab (1, Good Condition)
The approach slabs are in **Good** condition.

Total Quantity	CS 1	CS 2	CS 3	CS 4
6,788 SF	6,788 SF			

Approach Wearing Surface
The approach wearing surfaces are in **Fair** condition. The West Approach wearing surface exhibits numerous spalls and potholes, especially in the eastbound lanes. Several patched areas exist on the West Approach. There is minor cracking and spalling along the East Approach wearing surface.

Embankment
The approach embankments are in **Good** condition.

Guardrail
The approach guardrails are in **Good** condition.

Signs & Utilities

Item 55 – Signs (1, Good Condition)
The signs on the structure are in **Good** condition.

Recommendations

The General Appraisal and Operating Status for the Main Avenue Bridge over the Cuyahoga River is 5 (Fair Condition). The Superstructure components, particularly the Unit II - Main Truss lower chord members, are the governing element for this condition rating. The following items are recommendations by Patrick Engineering:

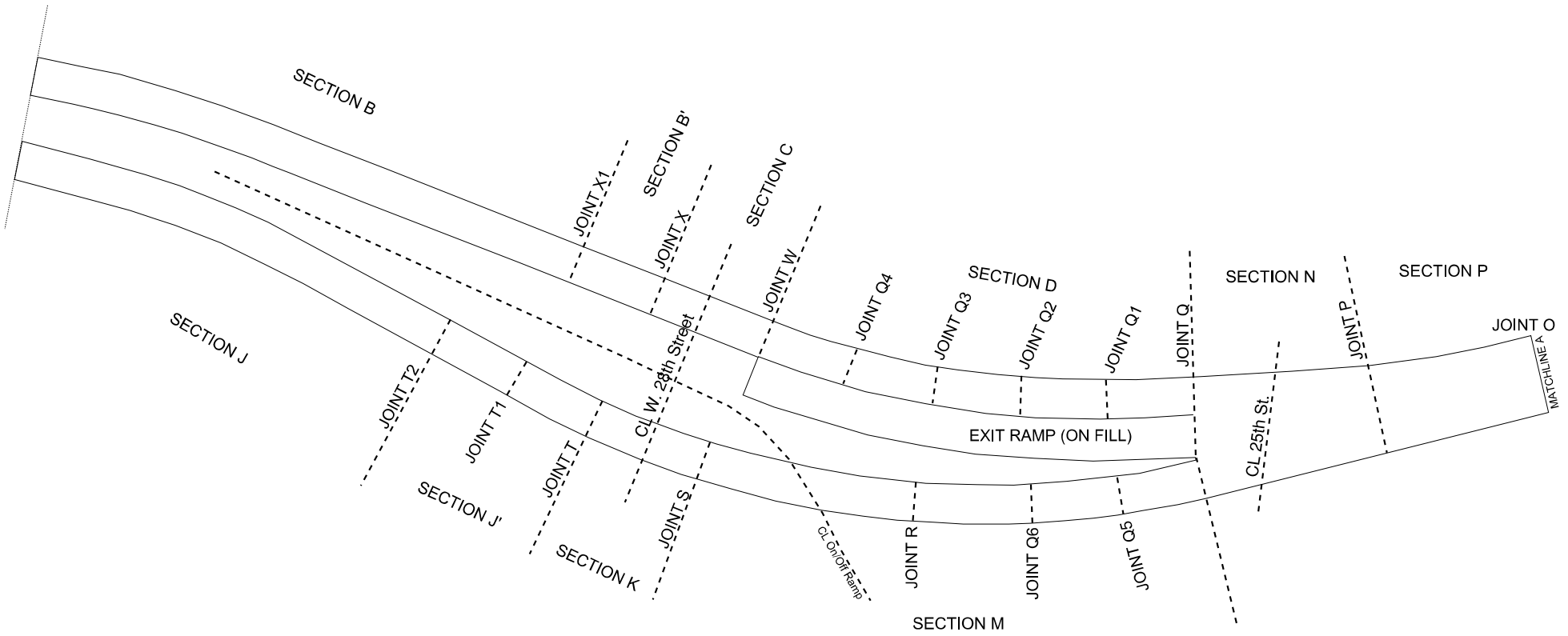
Immediate:

- Remove delaminated concrete from Joint X concrete header above Elm Street in Span X.
- Drill crack arrest holes in Floorbeam 7, south truss cantilever floorbeam bracket in Span 1.
- Secure loose joint armor at Joint O in westbound left lane.

Routine:

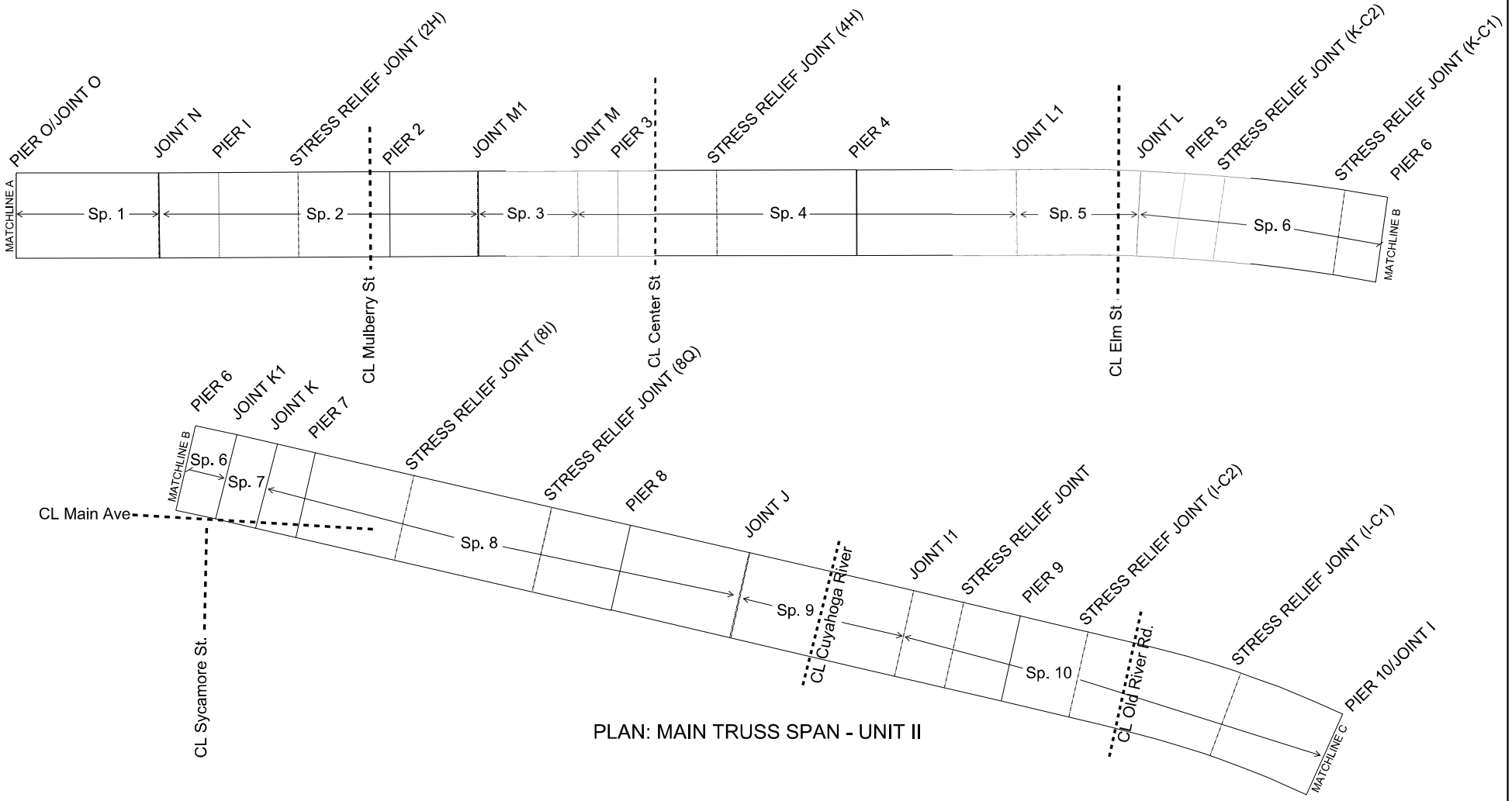
- Monitor areas of fatigue cracking and fatigue crack repairs during future inspections.
- Clean out debris from all joints.
- Continue to monitor the areas of reactivating pack rust and corrosion throughout the structural members. Spot paint areas of corrosion in Unit II.
- Install minimum overhead clearance signs as required by ODOT & City of Cleveland policy.
- Clean out all scuppers at deck level and under structure. (Pier 11, Unit III, south column)
- Replace the broken downspout bottom angle piece at Unit II, Span 2, South Truss, L6U6.
- Install utility access covers on bridge light poles as needed.
- Remove obsolete and random welded attachments.
- Clean out drain holes to drain water from bearings. Drill drain holes in bearings where needed to avoid water collecting in casting.
- Reset expansion bearings at Pier 3 and Pier 11.
- Clean out debris and secure gate at Unit V West Abutment.
- Main Truss Spans: Remove expansion bearing guide plates, remove debris and paint roller nest.
- Repair sink hole in Unit IV at Bent 30.

Appendix A: Bridge Layout Drawings



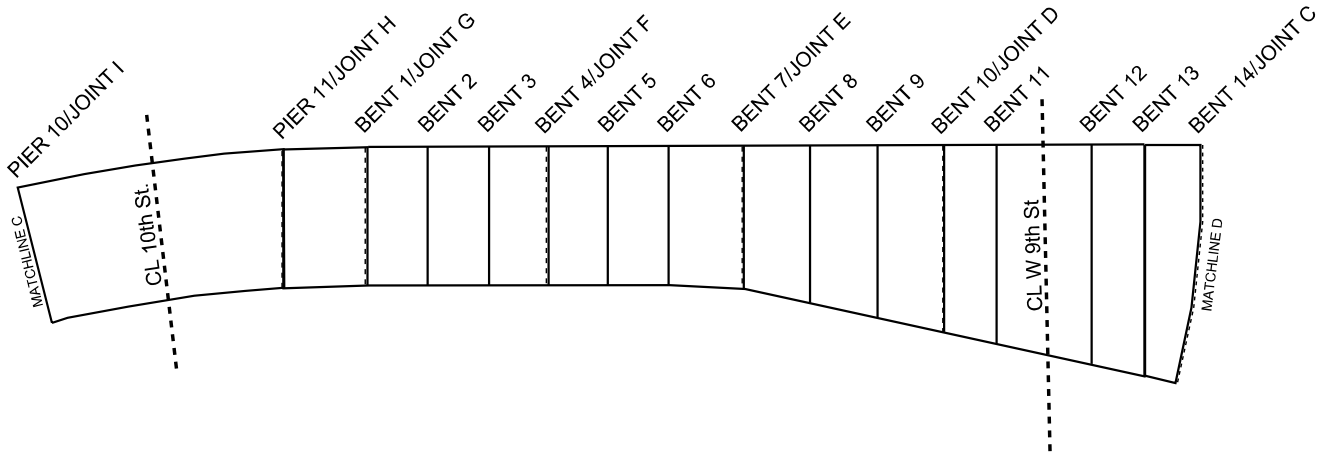
PLAN: WEST APPROACH - UNIT I

GRAPHIC SCALE MEASURED IN FEET NOT TO SCALE	DATE August, 2020	PATRICK	MAIN AVENUE OVER CUYAHOGA RIVER BRIDGE NO. CUY-2-1441 WEST APPROACH - UNIT I PAGE A-1



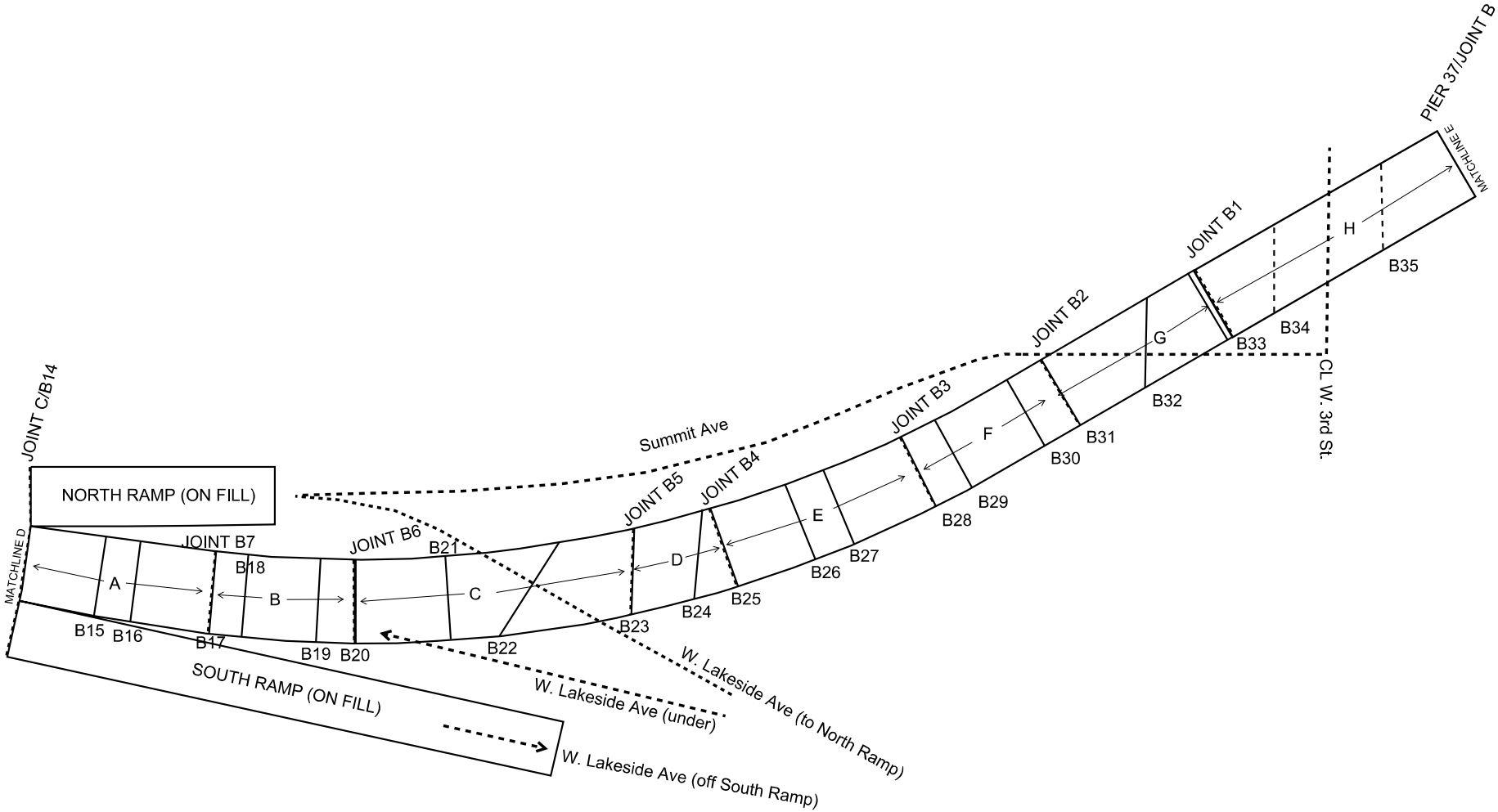
PLAN: MAIN TRUSS SPAN - UNIT II

GRAPHIC SCALE MEASURED IN FEET	DATE	PATRICK	MAIN AVENUE OVER CUYAHOGA RIVER BRIDGE NO. CUY-2-1441
NOT TO SCALE	August, 2020		MAIN TRUSS SPAN - UNIT II — PAGE A-2



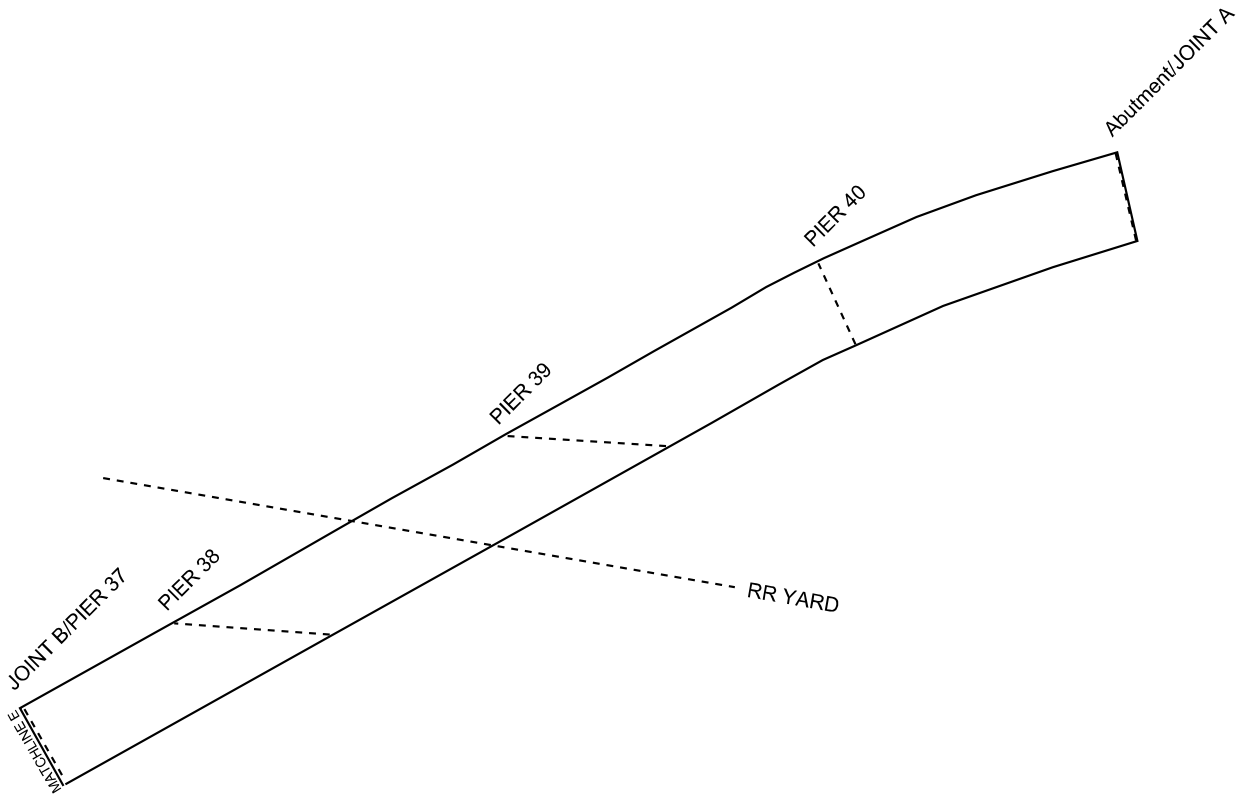
PLAN: FRAMED & BRACED COLUMN - UNIT III

GRAPHIC SCALE MEASURED IN FEET	DATE		MAIN AVENUE OVER CUYAHOGA RIVER BRIDGE NO. CUY-2-1441	
NOT TO SCALE	August, 2020	PATRICK	FRAMED AND BRACED COLUMN - UNIT III	PAGE A-3



PLAN: EAST APPROACH - UNIT IV

GRAPHIC SCALE MEASURED IN FEET	DATE	PATRICK	MAIN AVENUE OVER CUYAHOGA RIVER BRIDGE NO. CUY-2-1441
NOT TO SCALE	August, 2020		EAST APPROACH - UNIT IV — PAGE A-4



PLAN: LAKEFRONT RAMP - UNIT V

GRAPHIC SCALE MEASURED IN FEET	DATE	PATRICK	MAIN AVENUE OVER CUYAHOGA RIVER BRIDGE NO. CUY-2-1441	
NOT TO SCALE	August, 2020		LAKE FRONT RAMP - UNIT IV	PAGE A-5

Appendix B: Unit II Main Truss Span Deficiency Drawings

LEGEND

1 - Pack Rust

2 - Pack Rust With Plate Distortion

3 - Painted Over Pack Rust

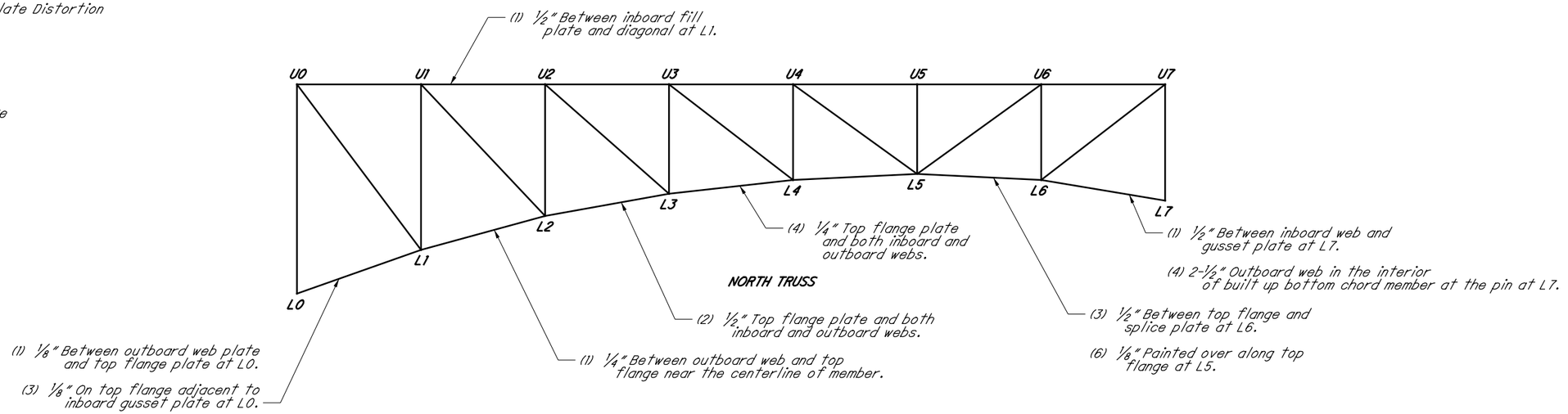
4 - Painted Over Pack Rust With Plate Distortion

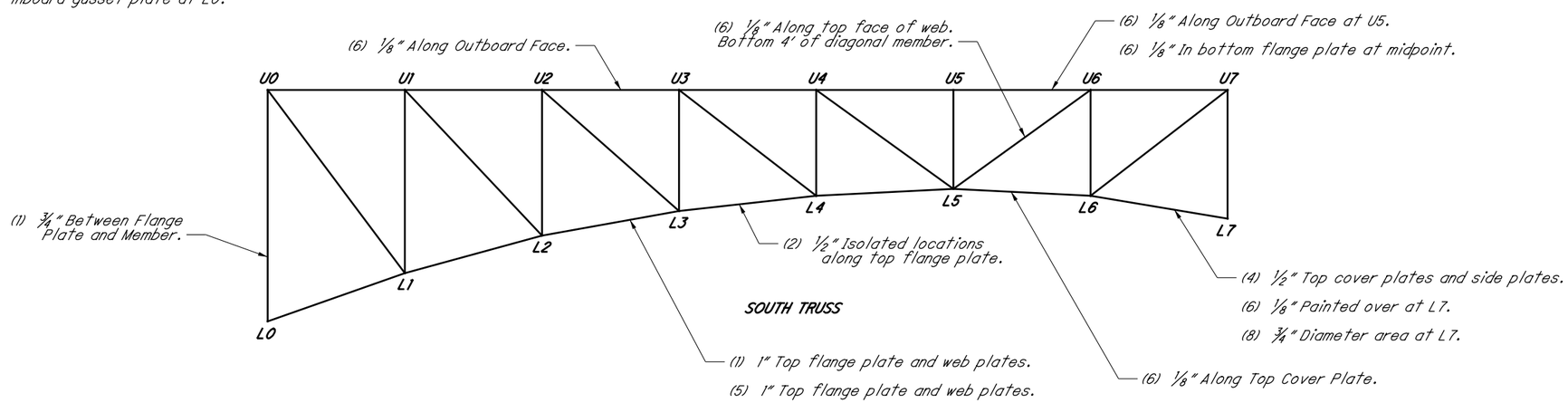
5 - Reactivating Pack Rust

6 - Pitting

7 - 100% Section Loss

8 - Perforations In The Steel Plate





Floorbeam Deficiencies:

Crack in top of web of cantilever Floorbeam; West Face 2-⅞" & East face 4-½" at Panel 7 south truss.

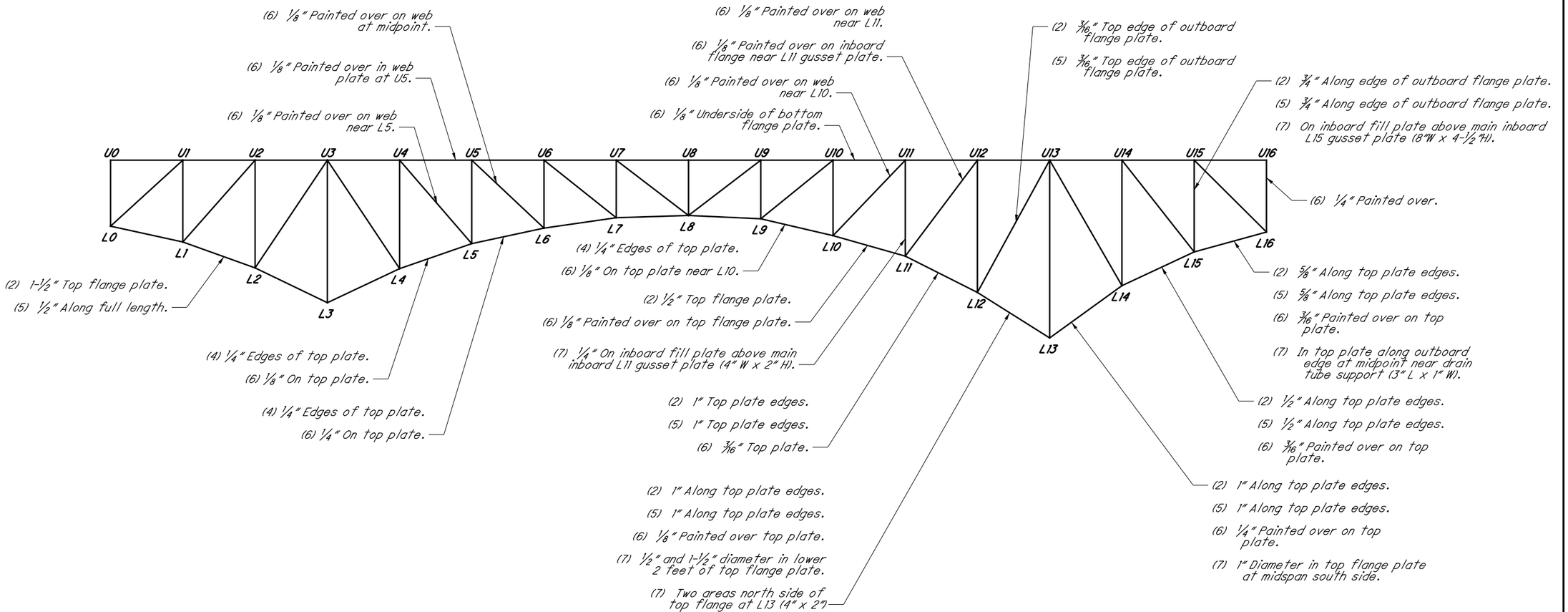
South Truss Gusset Plate Deficiencies:

L0, Up to ⅜" gap due to pack rust between outboard gusset plate and lower chord at L7.
Inboard and outboard gusset plate at L7 has up to 3/16" painted over pitting on the interior faces.
The inboard and outboard gusset plate, exterior face has up to 1/16" pitting throughout and up to ⅛" around the pin.

L2, Pack rust, ½" T at connection with L1L2 south web plate.

L7, Lower lateral bracing horizontal gusset plate connection is heavily distorted along the edges due to pack rust and small areas of up to 100% painted over section loss.
Two broken bolts at angle connection to vertical gusset plate.
Up to ⅜" wide gap due to pack rust between outboard gusset plate and lower chord at L7.
Inboard and outboard gusset plate at L7 has up to 3/16" painted over pitting on the interior faces.
The inboard and outboard gusset plate, exterior face has up to 1/16" pitting throughout and up to ⅛" around the pin.
Pack rust, ½" between vertical gusset plates and web plates of L6L7.
Section Loss, ⅛" pitting on north face of north vertical plate, more noticeable at pin for vertical.

GRAPHIC SCALE MEASURED IN FEET NOT TO SCALE	DATE AUGUST 2020	PATRICK ENGINEERING	MAIN AVENUE OVER CUYAHOGA RIVER BRIDGE NO. CUY-2-14.41 TRUSS ELEVATION - SPAN 1 — PAGE B-1



LEGEND

1 - Pack Rust

2 - Pack Rust With Plate Distortion

3 - Painted Over Pack Rust

4 - Painted Over Pack Rust With Plate Distortion

5 - Reactivating Pack Rust

6 - Pitting

7 - 100% Section Loss

8 - Perforations In The Steel Plate

North Truss Gusset Plate Deficiencies:

L0, Section loss, up to 3/16" pitting on both faces of both outboard and inboard gusset plates primarily around pins.

L5, Up to 1/8" pitting painted over in south face of north gusset at L5.
Minor pitting on south face of inboard gusset plate at L5 north truss.

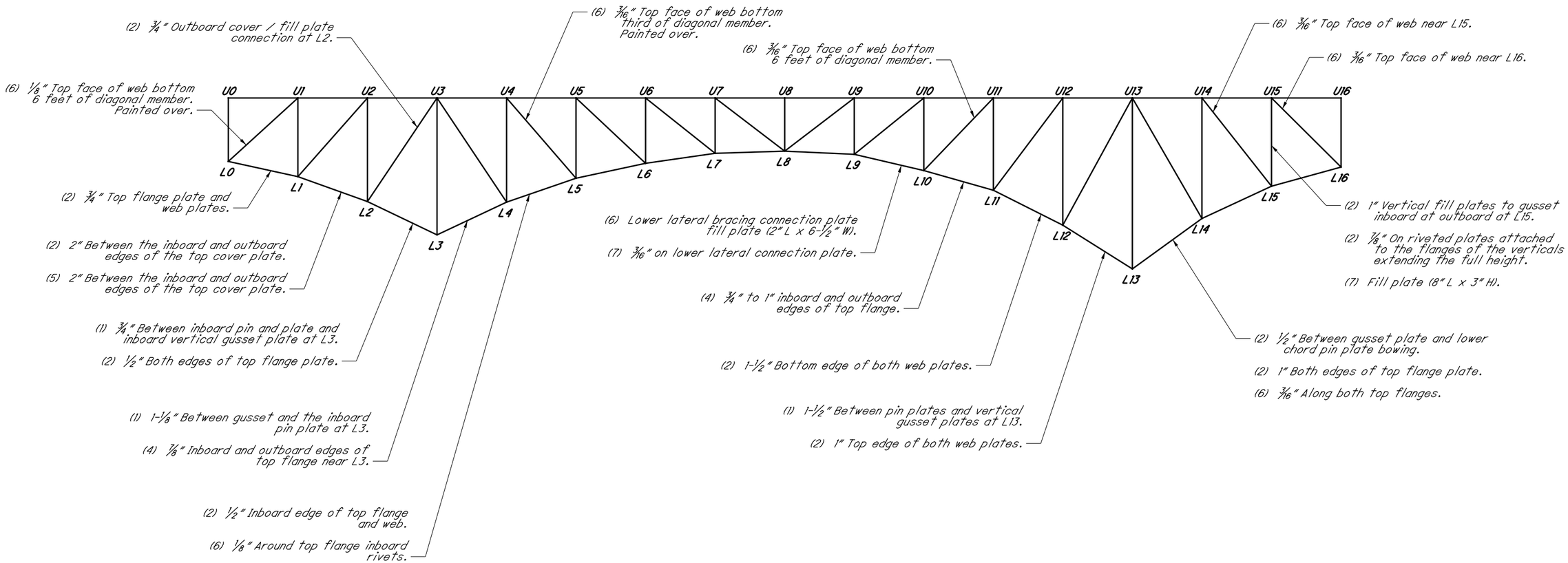
L6, L6 north/outboard gusset plate, 1/8" thick reactivated pack rust between gusset plate and fill plate on east side of L6 connection.

L14, 1/8" painted over pitting on interior faces of both gusset plates just above the lower chord.

U11, 1/4" painted over pitting on exterior face of exterior plate. Interior gusset has 3/16" painted over pitting.

U13, 1/4" pitting north face north gusset inactive.

GRAPHIC SCALE MEASURED IN FEET NOT TO SCALE	DATE AUGUST 2020	PATRICK ENGINEERING	MAIN AVENUE OVER CUYAHOGA RIVER BRIDGE NO. CUY-2-14.41 TRUSS ELEVATION - SPAN 2 NORTH — PAGE B-2



South Truss Gusset Plate Deficiencies:

L0, Up to ⅜" gap due to pack rust between outboard gusset plate and lower chord at L7.
Inboard and outboard gusset plate at L7 has up to 3/16" painted over pitting on the interior faces.
The inboard and outboard gusset plate, exterior face has up to 1/16" pitting throughout and up to ⅛" around the pin.
⅜" pack rust between the outboard gusset plate and lower chord at L0 Span 2 and ⅛" pitting on both plates.

L2, Section Loss, ⅛" pitting on both plates.

L3, Section Loss, ⅛" pitting on both plates.

L5, North gusset plate, south face ⅛" pitting throughout on east side of L5 connection.

L7, Up to ⅜" wide gap due to pack rust between outboard gusset plate and lower chord at L7.
Inboard and outboard gusset plate at L7 has up to 3/16" painted over pitting on the interior faces.
The inboard and outboard gusset plate, exterior face has up to 1/16" pitting throughout and up to ⅛" around the pin.
Pack rust, ½" between vertical gusset plates and web plates of L6L7.
Section Loss, ⅛" pitting on north face of north vertical plate, more noticeable at pin for vertical.

L14, North gusset, south face, up to ⅛" pitting typical at lower chord of south gusset, north face of north gusset.

LEGEND

1 - Pack Rust
2 - Pack Rust With Plate Distortion
3 - Painted Over Pack Rust
4 - Painted Over Pack Rust With Plate Distortion
5 - Reactivating Pack Rust
6 - Pitting
7 - 100% Section Loss
8 - Perforations In The Steel Plate

GRAPHIC SCALE MEASURED IN FEET	DATE	PATRICK ENGINEERING	MAIN AVENUE OVER CUYAHOGA RIVER BRIDGE NO. CUY-2-14.41
NOT TO SCALE	AUGUST 2020		TRUSS ELEVATION - SPAN 2 SOUTH — PAGE B-2

LEGEND

1 - Pack Rust

2 - Pack Rust With Plate Distortion

3 - Painted Over Pack Rust

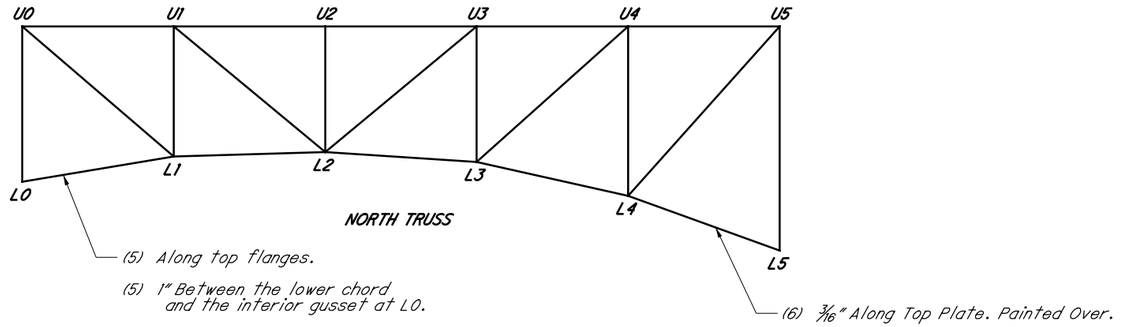
4 - Painted Over Pack Rust With Plate Distortion

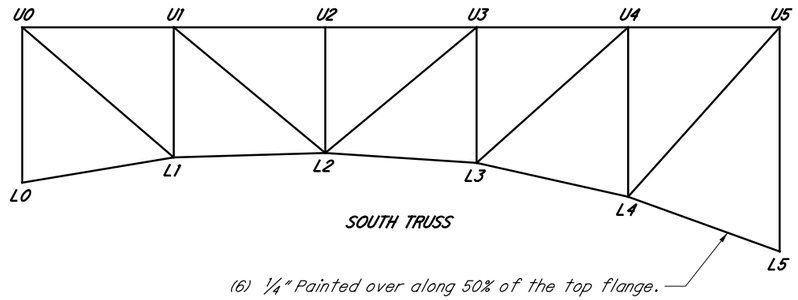
5 - Reactivating Pack Rust

6 - Pitting

7 - 100% Section Loss

8 - Perforations In The Steel Plate





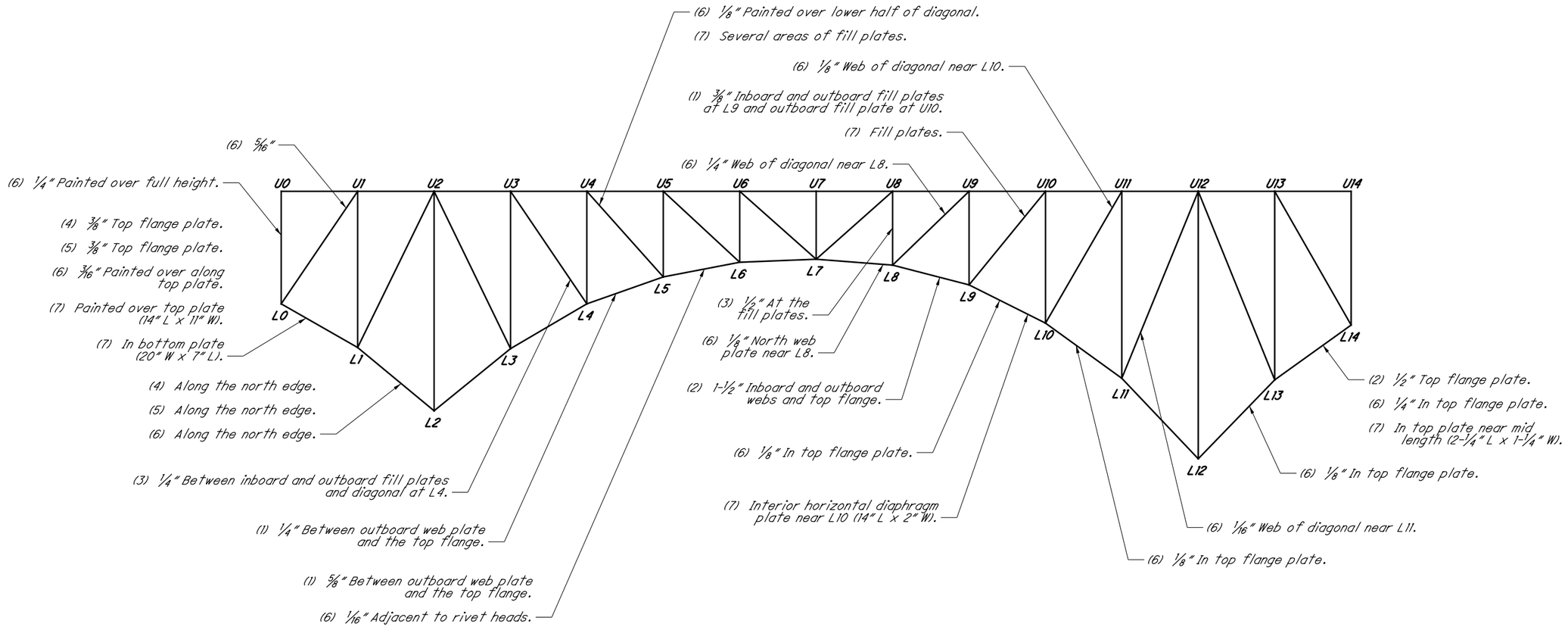
South Truss Gusset Plate Deficiencies:

L0, Caulked over pack rust between gusset plates, lower chord, and vertical.
1/8" D pitting around pin nut with 1/2" reactivated pack rust between the bottom of the pin plate and inboard and outboard gusset plates.
Inboard gusset plate has active corrosion and 1/2" pack rust between vertical member connection plate and gusset plate.

North Truss Gusset Plate Deficiencies:

L0, Section loss, 1/4" pitting on exterior face of exterior plate and both faces of interior gusset plate.
Up to 1/8" active pack rust between the pin strengthening plate and both the interior and exterior gusset plates.

GRAPHIC SCALE MEASURED IN FEET NOT TO SCALE	DATE AUGUST 2020	PATRICK ENGINEERING	MAIN AVENUE OVER CUYAHOGA RIVER BRIDGE NO. CUY-2-14.41 TRUSS ELEVATION - SPAN 3 — PAGE B-3



LEGEND

1 - Pack Rust

2 - Pack Rust With Plate Distortion

3 - Painted Over Pack Rust

4 - Painted Over Pack Rust With Plate Distortion

5 - Reactivating Pack Rust

6 - Pitting

7 - 100% Section Loss

8 - Perforations In The Steel Plate

North Truss Gusset Plate Deficiencies:

L0, Inboard gusset, inside face has painted over pitting up to 1/8" deep x 8" diameter.

L2, 2" x 3/16" deep painted over pitting on inboard and outboard gusset plates around L2L3 pin plates.

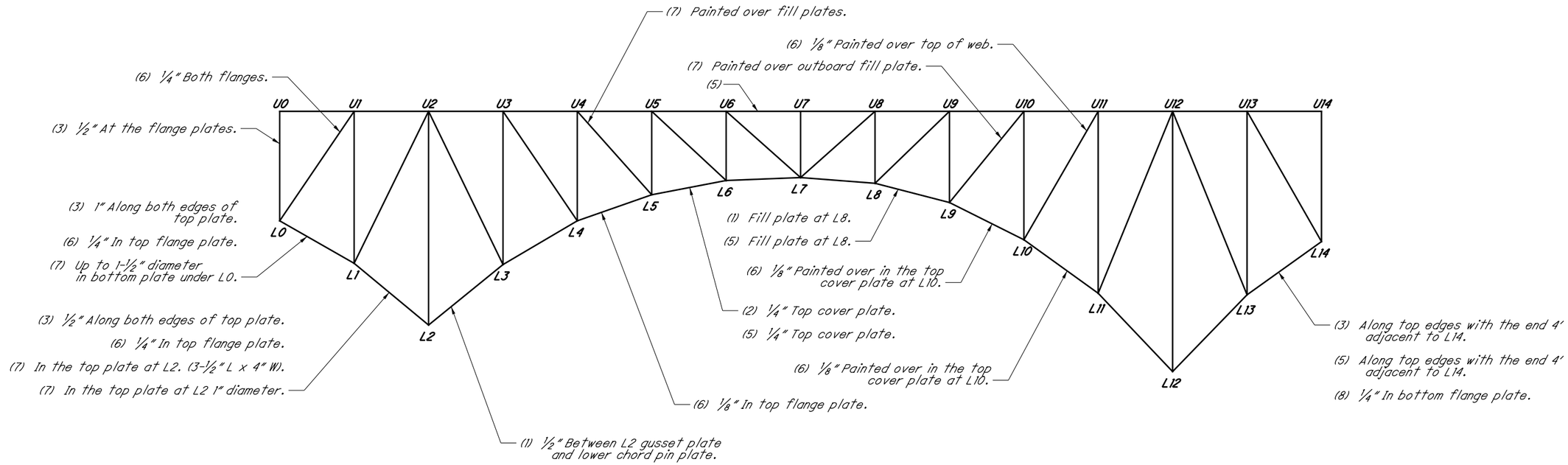
L8, Section Loss, 2" Diameter corrosion hole in outboard gusset plate under L8U8.
1-1/4" fill plate retrofit at inboard gusset plate.

L14, 1/2" pack rust between L14U14 and both gusset plates with failed caulk and active corrosion, gusset is bowed 1/4".

U0, Up to 1/8" painted over pitting to both interior and exterior plates.

U8, Up to 1/8" painted over pitting and rivet head loss to both plates.

GRAPHIC SCALE MEASURED IN FEET	DATE	PATRICK ENGINEERING	MAIN AVENUE OVER CUYAHOGA RIVER BRIDGE NO. CUY-2-14.41
NOT TO SCALE	AUGUST 2020		TRUSS ELEVATION - SPAN 4 NORTH — PAGE B-4



LEGEND

1 - Pack Rust

2 - Pack Rust With Plate Distortion

3 - Painted Over Pack Rust

4 - Painted Over Pack Rust With Plate Distortion

5 - Reactivating Pack Rust

6 - Pitting

7 - 100% Section Loss

8 - Perforations In The Steel Plate

Floorbeam Deficiencies:

2 of 3 bolts are loose on the inboard sliding plate for the north truss at U0. Movement noted.

Painted over section loss up to 1/8" on the web and flanges at midspan for 15 LF at panel 14.

South Truss Gusset Plate Deficiencies:

L0, Inboard gusset, inside face has painted over pitting up to 1/8" deep x 8" diameter.

L2, 2" x 3/16" deep painted over pitting on inboard and outboard gusset plates around L2L3 pin plates.

GRAPHIC SCALE MEASURED IN FEET	DATE	PATRICK ENGINEERING	MAIN AVENUE OVER CUYAHOGA RIVER BRIDGE NO. CUY-2-14.41
NOT TO SCALE	AUGUST 2020		TRUSS ELEVATION - SPAN 4 SOUTH — PAGE B-4

LEGEND

1 - Pack Rust

2 - Pack Rust With Plate Distortion

3 - Painted Over Pack Rust

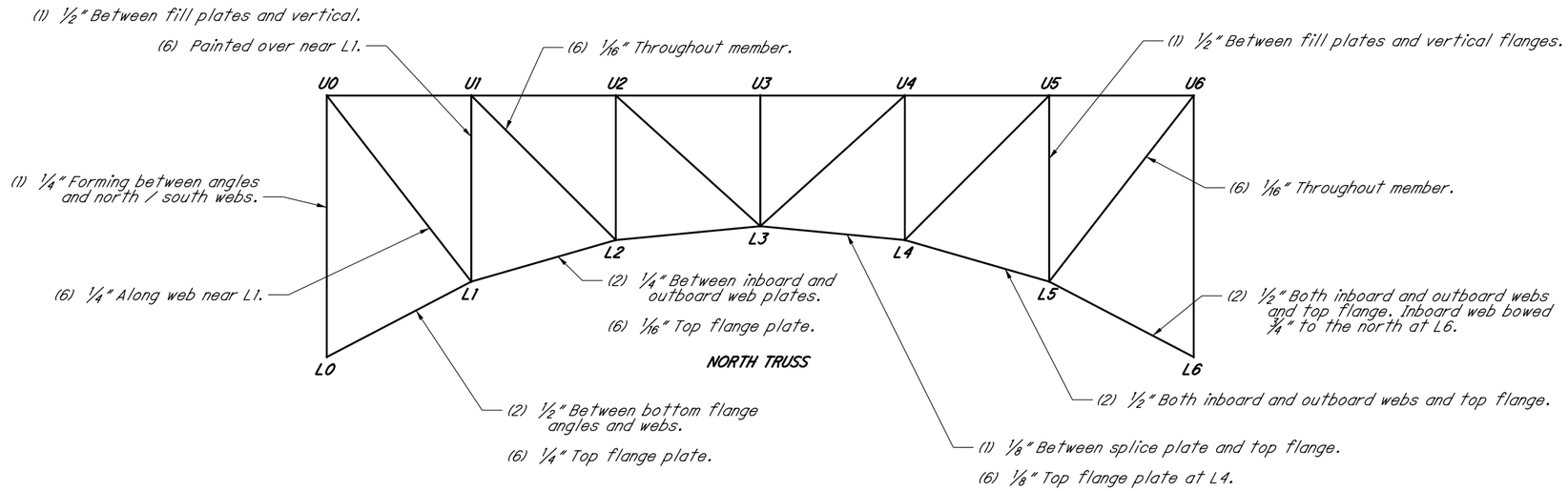
4 - Painted Over Pack Rust With Plate Distortion

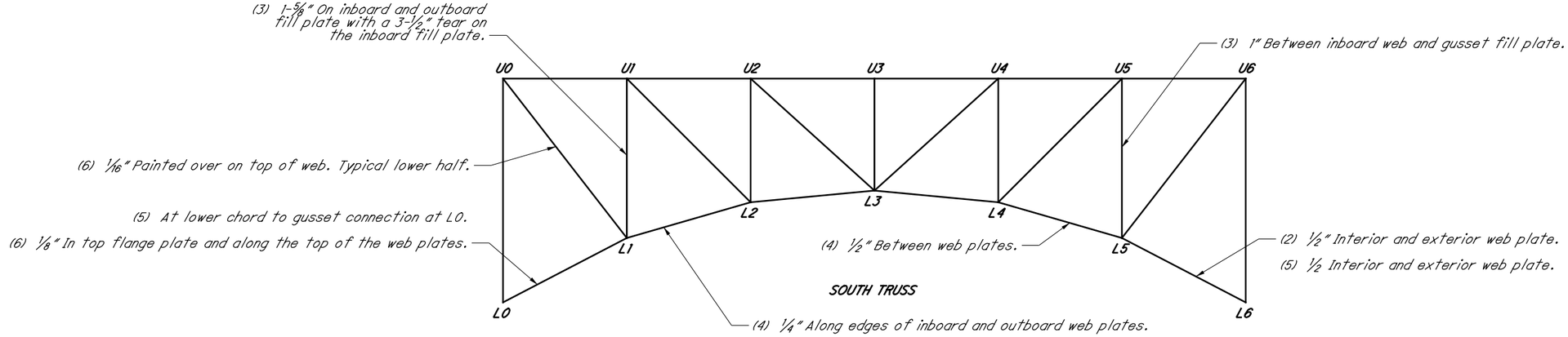
5 - Reactivating Pack Rust

6 - Pitting

7 - 100% Section Loss

8 - Perforations In The Steel Plate





South Truss Gusset Plate Deficiencies:

L0, Inboard gusset has typical painted over section loss up to ⅛" along the lower chord L13L14 bolted connection.

L1, Up to ¾" painted over pack rust between outboard gusset plate and L0L1 at L1.

L2, Up to ¾" painted over pack rust between outboard gusset plate and L1L2 at L2.

L6, Inboard faces of both gusset plates have up to ¼" painted over pitting typical with corrosion staining noted along the edges of the truss members.
Inboard gusset plate is bowed to the north, this is due to the truss alignment. The truss alignment changes in a slight SE direction at this pin location.
Outboard gusset plate is bowed to the north ½", this is due to the truss alignment. The truss alignment changes in a slight SE direction at this pin location

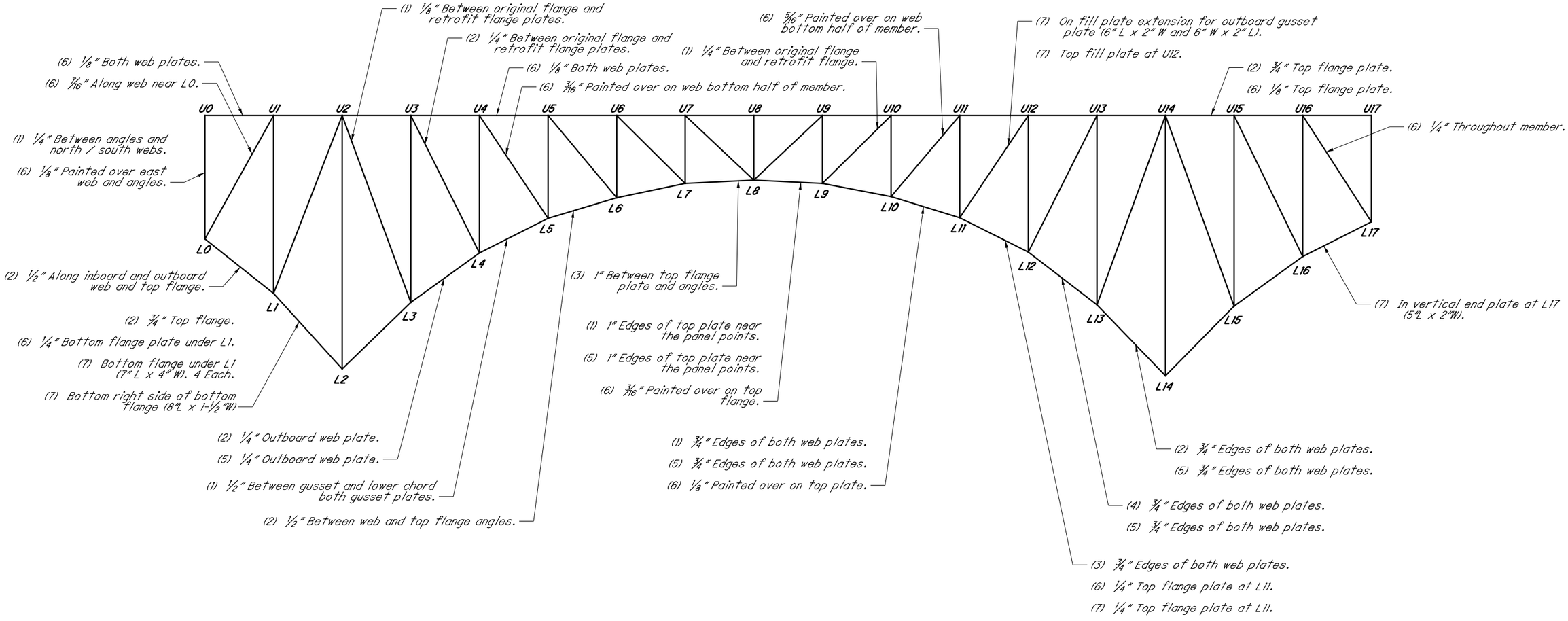
North Truss Gusset Plate Deficiencies:

L0, ⅛" pack rust beginning to form along connection with L0L1.

L4, Up to ⅛" painted over section loss along the lower chord, both plates.

U6, ⅛" to ¼" painted over section loss of both plates and ¾" pack rust at the verticals.

GRAPHIC SCALE MEASURED IN FEET NOT TO SCALE	DATE AUGUST 2020	PATRICK ENGINEERING	MAIN AVENUE OVER CUYAHOGA RIVER BRIDGE NO. CUY-2-14.41 TRUSS ELEVATION - SPAN 5 — PAGE B-5



Floorbeam Deficiencies:

Typical stringer bearings (sliding plate) on east face of Floorbeam 0, evidence of movement at Panel 0.

Surface corrosion is present at Panel 0.

Two new cracks found in east face of the floorbeam. Inboard 2" long crack at top cope, outboard 2 1/8" long crack at top cope.

North Truss Gusset Plate Deficiencies:

L0, Section Loss, 1/4" pitting on both plates. Bowing outboard (north) at both inboard and outboard gussets.

L4, Section Loss, 1/8" pack rust in top joint on exterior plate.

L7, 1/8" painted over pitting on interior face of outboard gusset plate.
Broken rivet on inboard gusset plate for member L6L7

L8, 3/16" painted over pitting on interior faces of both gusset plates just above the lower chord.

L9, Section Loss, 1/8" pitting on both plates.

L10, 3/16" painted over pitting on interior faces both gusset plates.

U0, Section Loss, 1/4" pitting on both plates.
Section loss and bowing approximately 1-1/2" at outboard gusset and 3/4" at inboard.

U2, Broken rivet in exterior plate on U2L3 connection.

U6, Section Loss, 5/16" pitting on exterior plate.

LEGEND

1 - Pack Rust

2 - Pack Rust With Plate Distortion

3 - Painted Over Pack Rust

4 - Painted Over Pack Rust With Plate Distortion

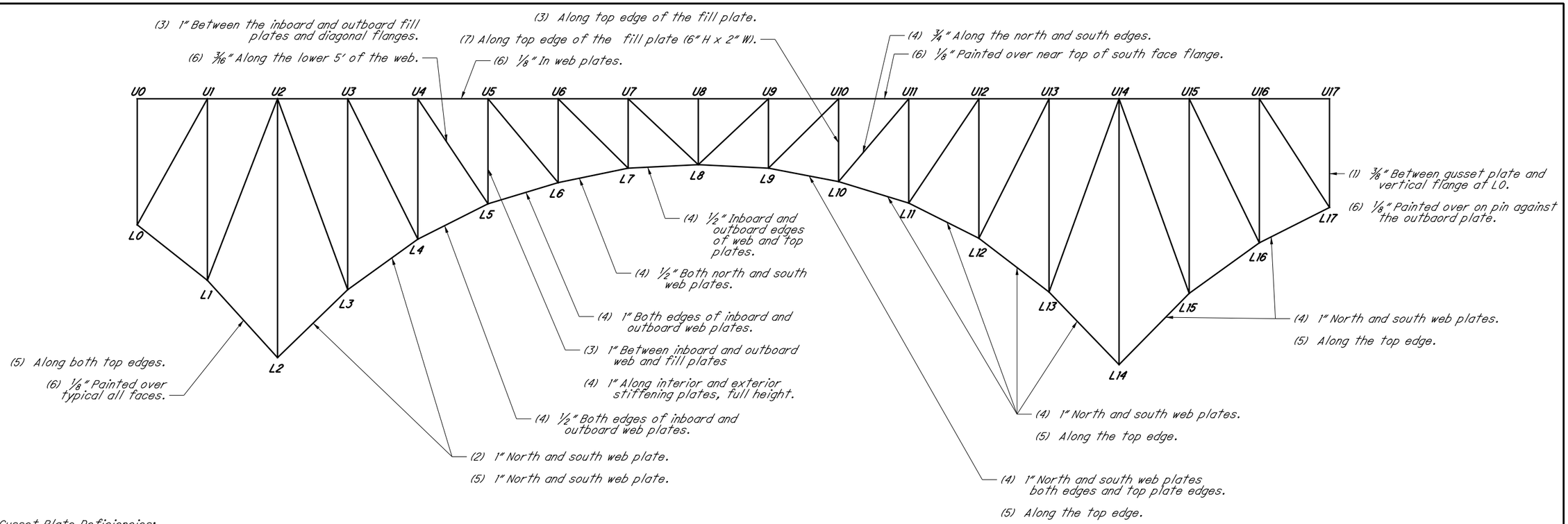
5 - Reactivating Pack Rust

6 - Pitting

7 - 100% Section Loss

8 - Perforations In The Steel Plate

GRAPHIC SCALE MEASURED IN FEET NOT TO SCALE	DATE AUGUST 2020	PATRICK ENGINEERING	MAIN AVENUE OVER CUYAHOGA RIVER BRIDGE NO. CUY-2-14.41 TRUSS ELEVATION - SPAN 6 NORTH — PAGE B-6



South Truss Gusset Plate Deficiencies:

L0, Inboard faces of both gusset plates have up to 1/4" painted over pitting typical
Inboard gusset plate has various areas of section loss up to 3/16" along the exterior face above the lower chord and scupper connections.

L1, Up to 1/8" painted over pitting on both gusset plates.

L2, Up to 1/8" painted over pitting on both gusset plates, especially around the lower chord pin connection plates.
Painted over pitting 1/8" on east pin of L2 bearing connection

L4, U to 1/8" pack rust along the top edge of the outboard gusset plate between the vertical.
1/16" pitting along the inboard faces of both gussets above the lower chord.

L5, 3"L x 1"H area of section loss with up to 1-1/8" bowing of exterior vertical filler plate due to pack rust.
A 2-3/16" long crack was noted in the fill plate.
The interior plate exhibits up to 1" distortion due to pack rust along top of fill plate.
The pack rust is beginning to reactivate along the top edge and has caused pin holes and corrosion cracks.
There is up to 1/8" painted over section loss on inboard gusset plate above lower chord and strut connection.

L6, Caulked and painted over pack rust along top edge of outboard fill plate.
The vertical edges of the fill plate to vertical connection exhibit up to 1/8" pack rust.

L10, Up to 3/16" painted over pitting typical along the interior gusset plate
The interior and exterior fill plates exhibit painted and caulked pack rust up to 3/4"
6"L x 3"H corrosion hole along the top edge of the interior plate
4"L x 2"W and 2"L x 1"W corrosion hole along the fill plate on the outboard face of the diagonal.

L11, 1/8" painted over pitting on both plates.
Typical painted over pack rust up to 1/2" between all gusset fill plates and the vertical and diagonal.

L12, Isolated 1/8" painted over pitting on both plates.

L15, 1/8" painted over pitting on inside of both plates.

L17, Up to 1/2" pack rust between the inboard and outboard gusset plates and the vertical.
1/8" pack rust in/out between gusset and lower chord

U17, 3/16" bowing of inboard and outboard plate due to pack rust.

LEGEND

1 - Pack Rust
2 - Pack Rust With Plate Distortion
3 - Painted Over Pack Rust
4 - Painted Over Pack Rust With Plate Distortion
5 - Reactivating Pack Rust
6 - Pitting
7 - 100% Section Loss
8 - Perforations In The Steel Plate

GRAPHIC SCALE MEASURED IN FEET	DATE	PATRICK ENGINEERING	MAIN AVENUE OVER CUYAHOGA RIVER BRIDGE NO. CUY-2-14.41
NOT TO SCALE	AUGUST 2020		TRUSS ELEVATION - SPAN 6 SOUTH — PAGE B-6

LEGEND

1 - Pack Rust

2 - Pack Rust With Plate Distortion

3 - Painted Over Pack Rust

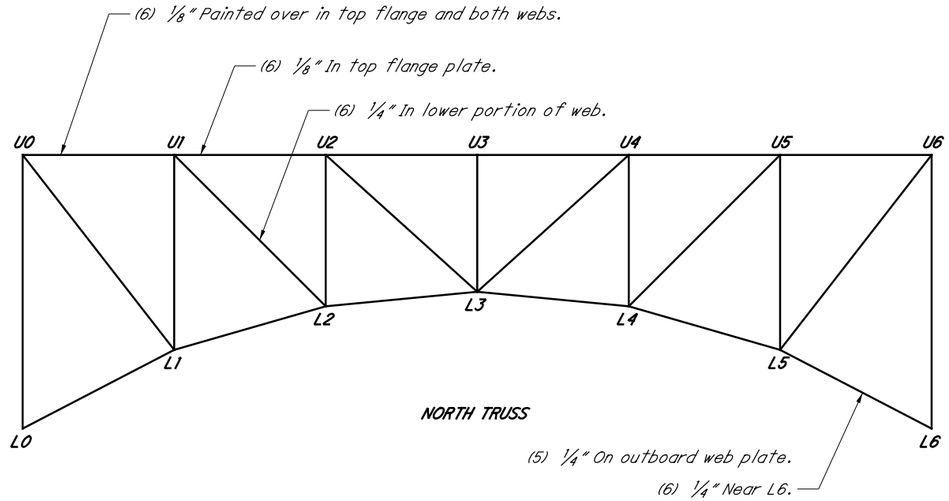
4 - Painted Over Pack Rust With Plate Distortion

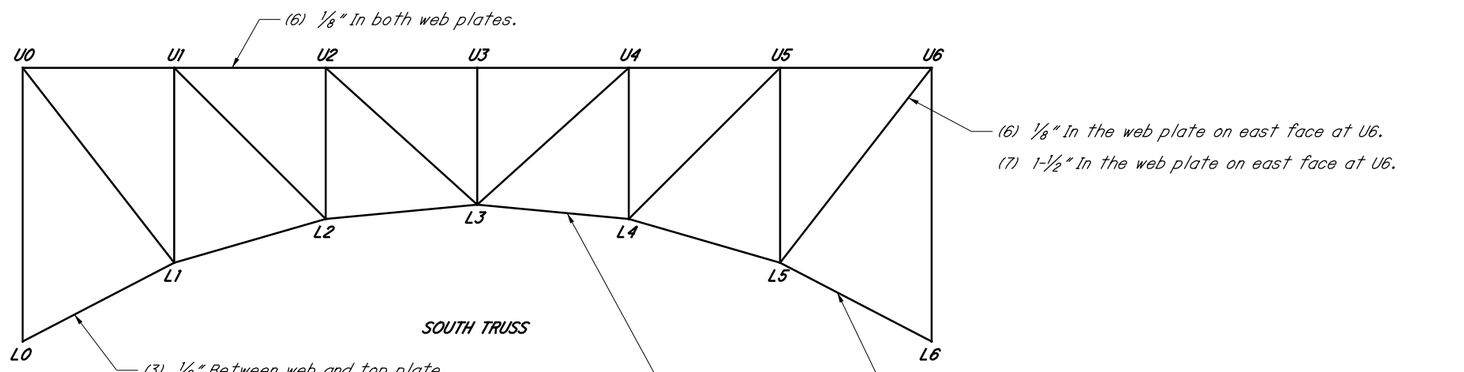
5 - Reactivating Pack Rust

6 - Pitting

7 - 100% Section Loss

8 - Perforations In The Steel Plate





South Truss Gusset Plate Deficiencies:

L1, 1/8" deep painted over pitting along top of lower chord with isolated location on inboard gusset plate 3" diameter x 3/16" deep.

L2, Painted over pitting along top of lower chord on inside of both gusset plates typ. 2"H x up to 3/16" deep

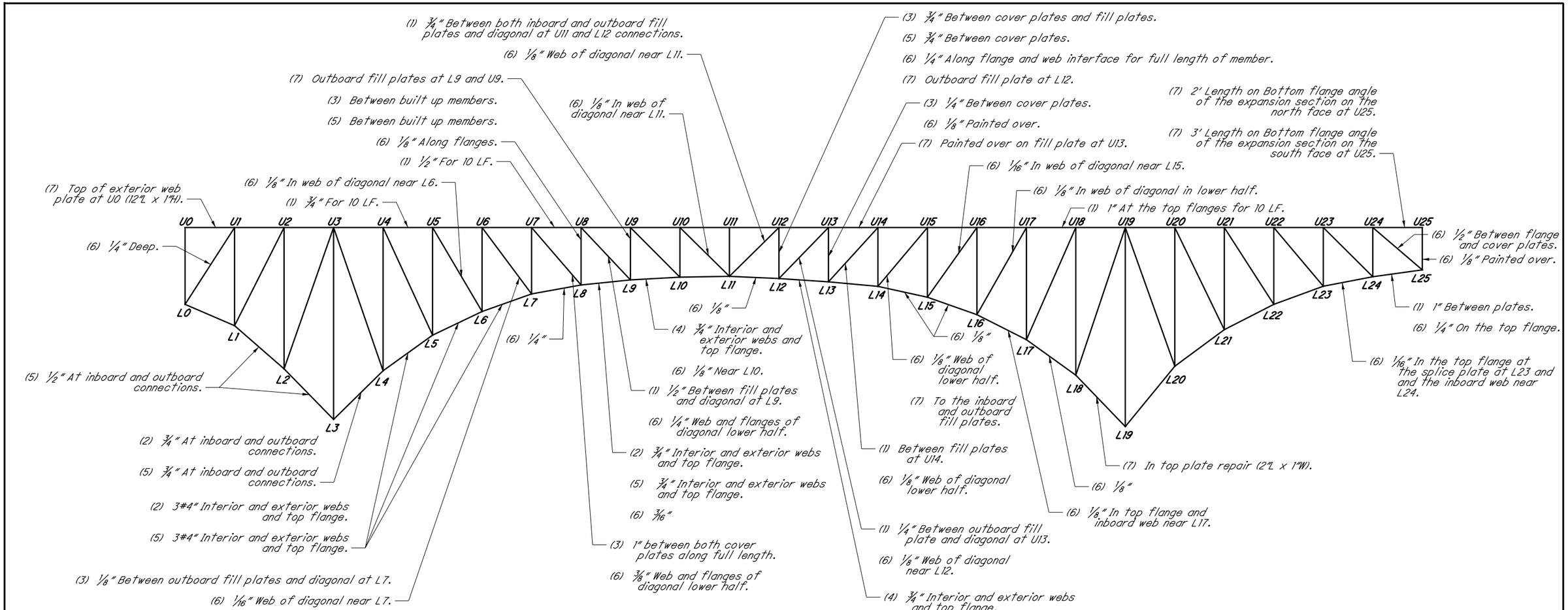
North Truss Gusset Plate Deficiencies:

L0, Section Loss, 3/8" reactivated pack rust is distorting the inboard and outboard plates.

L3, Section Loss, 1/8" pitting on exterior plate.

U1, Section Loss, distorting the exterior plate from previous pack rust.

GRAPHIC SCALE MEASURED IN FEET NOT TO SCALE	DATE AUGUST 2020	PATRICK ENGINEERING	MAIN AVENUE OVER CUYAHOGA RIVER BRIDGE NO. CUY-2-14.41 TRUSS ELEVATION - SPAN 7 — PAGE B-7



North Truss Gusset Plate Deficiencies:

L0, Pack rust up to ½" thick on both gusset plates inside connection.

L3, Pitting and section loss in south gusset north face.

L8, Section Loss, ⅛" pack rust in top joint on both plates.

L13, Both interior and exterior gusset plates have painted over section loss up to ¼" on the east half.

L16, Section Loss, ⅛" pitting in both plates.

L21, ⅛" - ¼" painted over section loss on both plates.

L24, 3"H x up to ⅛" painted over pitting along the interior face of both gussets above the lower chord.
Isolated ½" diameter areas of ¼" pitting

L25, Up to ⅛" painted over section loss on the gusset plates.
Up to 1" pack rust between the gusset plates and the vertical.

U8, Exterior and interior gusset plate has up to ¼" painted over pitting throughout.

U10, Manufacturing defect in outboard gusset near L11U10 connection.

U12, Pitting up to ⅛" on outboard face of outboard gusset.

U13, Reactivating ¼" pack rust between gusset plate and member.
Up to ⅛" painted over section loss.

U16, Exterior gusset plate has up to ¼" painted over pitting throughout.

U21, Both interior and exterior gusset plates have painted over section loss up to ¼" on the west half.

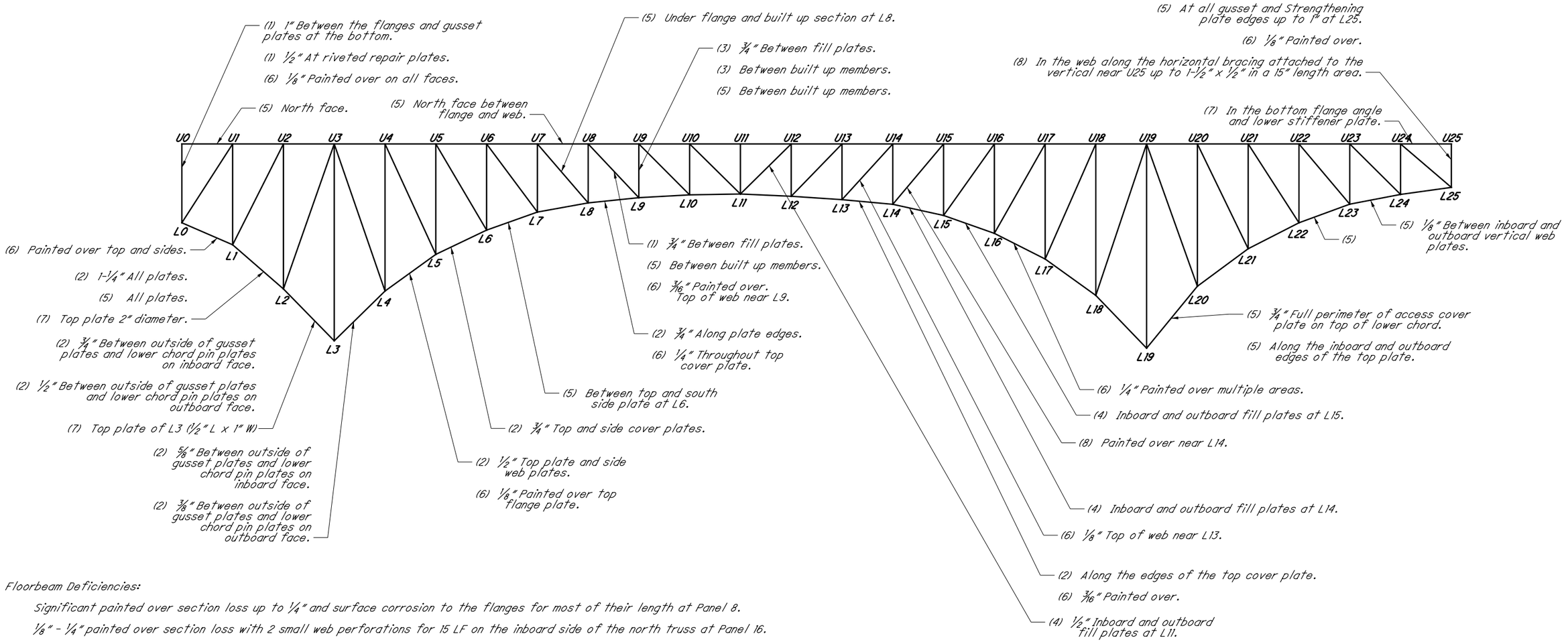
LEGEND

1 - Pack Rust
2 - Pack Rust With Plate Distortion
3 - Painted Over Pack Rust
4 - Painted Over Pack Rust With Plate Distortion
5 - Reactivating Pack Rust
6 - Pitting
7 - 100% Section Loss
8 - Perforations In The Steel Plate

Floorbeam Deficiencies:

6 crack arrest holes and multiple cracks present in the North Cantilever at the Stringer 6 bracket at Panel 25.

GRAPHIC SCALE MEASURED IN FEET NOT TO SCALE	DATE AUGUST 2020	PATRICK ENGINEERING	MAIN AVENUE OVER CUYAHOGA RIVER BRIDGE NO. CUY-2-14.41 TRUSS ELEVATION - SPAN 8 NORTH — PAGE B-8



Floorbeam Deficiencies:

Significant painted over section loss up to ¼" and surface corrosion to the flanges for most of their length at Panel 8.

⅛" - ¼" painted over section loss with 2 small web perforations for 15 LF on the inboard side of the north truss at Panel 16.

South Truss Gusset Plate Deficiencies:

L0, Inside of both gusset plates with areas of painted over pitting up to ¼" deep.
Outside of the inboard gusset plate has painted over pitting up to 3/16" deep, typically ⅛" deep.
The inboard vertical member pin head has ⅛" deep painted over pitting.

L4, Outboard gusset plate has up to ½" painted over pack rust between it and the lower chord.

L5, Outboard gusset plate has up to ½" painted over pack rust between it and the lower chord.

L6, Outboard gusset plate has up to ½" painted over pack rust between it and the lower chord.

L8, Both gusset plates have up to ⅛" painted over section loss.

L9, Both gusset plates have up to ⅛" painted over section loss.

L13, Added ½" gusset plate to inboard plate.

L16, Inboard gusset plate has up to ⅛" painted over pitting along the inside face at the lower chord interface.

L21, Both gusset plates have up to ⅛" painted over section loss.

L23, Both gusset plates have up to ⅛" painted over section loss.

L25, At L25, there is reactivating pack rust between the vertical and the inboard and outboard gusset plate up to 1-¼".
Typical painted section loss up to ¼" around the vertical pin and adjacent the strut and bracing connections, inboard plate.
At L25, there is reactivating pack rust between the vertical and the inboard and outboard gusset plate up to 1-¼".
Heavy debris accumulation within the panel point.

U16, Outboard gusset plate exterior face has up to 3/16" painted over pitting.

LEGEND

1 - Pack Rust
2 - Pack Rust With Plate Distortion
3 - Painted Over Pack Rust
4 - Painted Over Pack Rust With Plate Distortion
5 - Reactivating Pack Rust
6 - Pitting
7 - 100% Section Loss
8 - Perforations In The Steel Plate

GRAPHIC SCALE MEASURED IN FEET NOT TO SCALE	DATE AUGUST 2020	PATRICK ENGINEERING	MAIN AVENUE OVER CUYAHOGA RIVER BRIDGE NO. CUY-2-14.41
			TRUSS ELEVATION - SPAN 8 SOUTH — PAGE B-8

LEGEND

1 - Pack Rust

2 - Pack Rust With Plate Distortion

3 - Painted Over Pack Rust

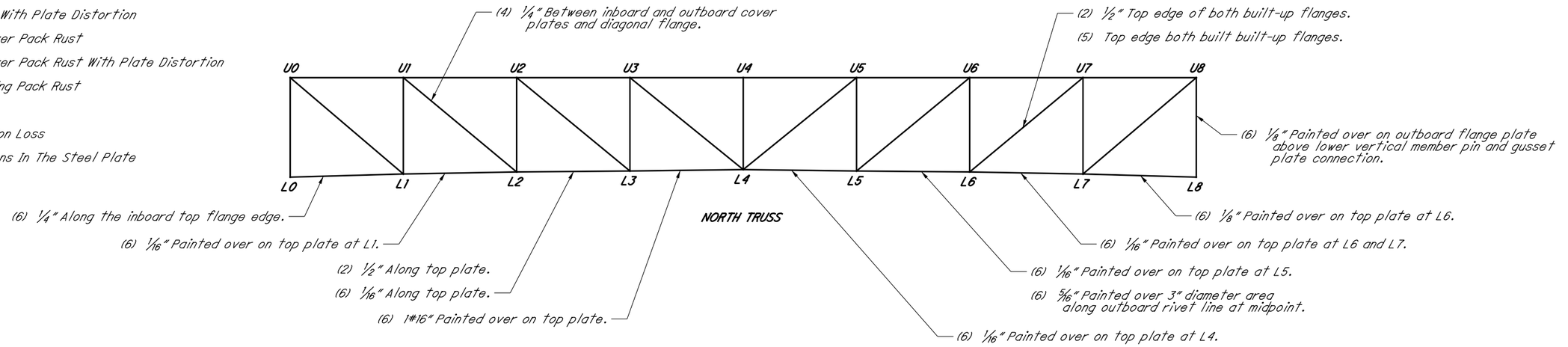
4 - Painted Over Pack Rust With Plate Distortion

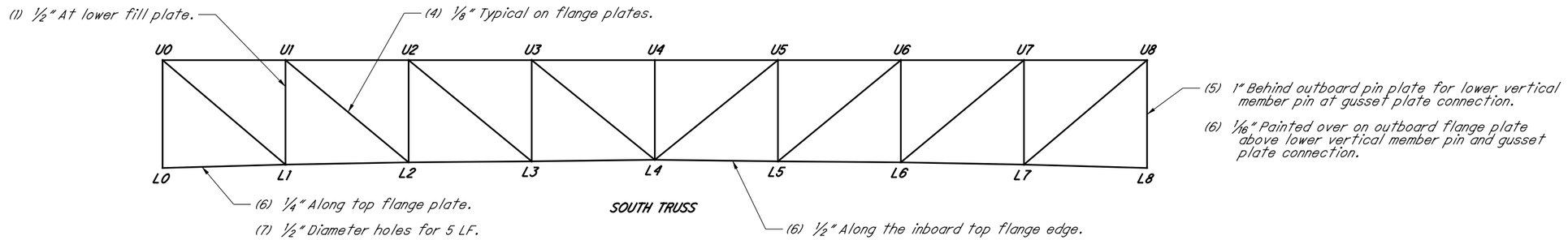
5 - Reactivating Pack Rust

6 - Pitting

7 - 100% Section Loss

8 - Perforations In The Steel Plate





Floorbeam Deficiencies:

Drainage downspout on north overhang is disconnected at Panel 7.

⅛" - ¼" Painted over section loss beginning to reactivate due to joint leakage at Panel 8.

North Truss Gusset Plate Deficiencies:

L1, Up to 1/16" painted over section loss on both plates.

L2, 1/16" painted over pitting on interior faces of both gusset plates just above the lower chord.

L3, ⅛" painted over pitting on interior faces of both gusset plates just above the lower chord.

L4, ⅛" painted over pitting on interior faces of both gusset plates just above the lower chord.

L5, Up to ⅛" painted over pitting on interior faces of both gusset plates just above the lower chord.

L6, ⅛" painted over pitting on interior face of both gusset plates.

L7, Up to ⅛" painted over pitting along the lower chord.

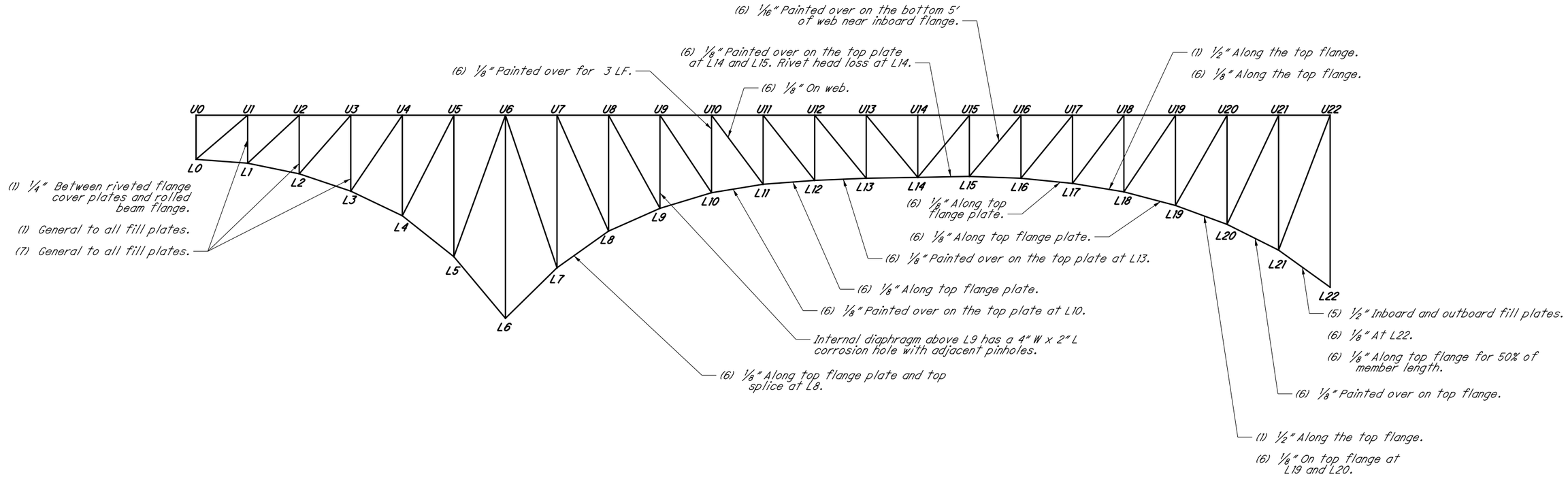
South Truss Gusset Plate Deficiencies:

L4, ⅛" painted over section loss along the lower chord.

L5, ⅛" painted over section loss along the lower chord.

L7, Typical areas of painted over section loss up to ¼" around diagonal connection and lower chord rivet heads.

GRAPHIC SCALE MEASURED IN FEET NOT TO SCALE	DATE AUGUST 2020	PATRICK ENGINEERING	MAIN AVENUE OVER CUYAHOGA RIVER BRIDGE NO. CUY-2-14.41 TRUSS ELEVATION - SPAN 9 — PAGE B-9



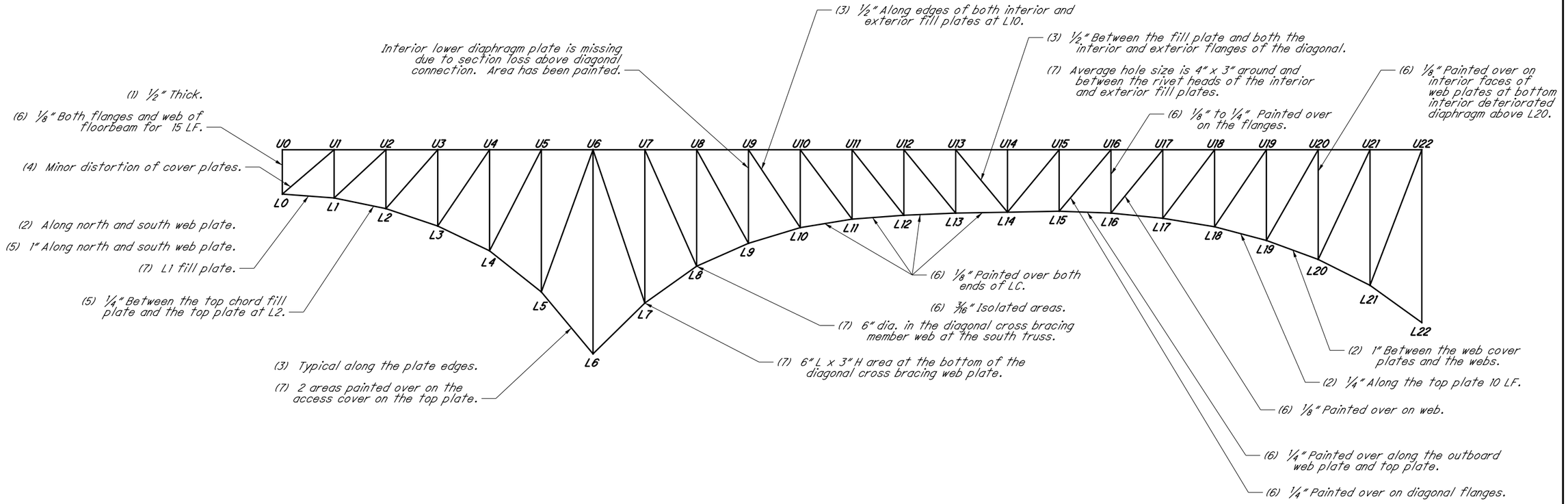
North Truss Gusset Plate Deficiencies:

L0, 1/8" - 1/4" pitting and pack rust on both interior and exterior plates.
L8, 1/8" - 1/4" pitting and pack rust on both interior and exterior plates.
L9, 1/8" - 1/4" pitting and pack rust on both interior and exterior plates.
L10, 1/8" - 1/4" pitting and pack rust on both interior and exterior plates.
L11, 1/8" - 1/4" pitting and pack rust on both interior and exterior plates.
L12, 1/8" - 1/4" pitting and pack rust on both interior and exterior plates.
L13, 1/8" - 1/4" pitting and pack rust on both interior and exterior plates.
L14, 1/8" - 1/4" pitting and pack rust on both interior and exterior plates.
L15, 1/8" - 1/4" pitting and pack rust on both interior and exterior plates.
L16, 1/8" - 1/4" pitting and pack rust on both interior and exterior plates.
L17, 1/8" painted over section loss along the lower chord.
1/8" - 1/4" pitting and pack rust on both interior and exterior plates.
L18, 1/8" - 1/4" pitting and pack rust on both interior and exterior plates.
L19, 1/8" - 1/4" pitting and pack rust on both interior and exterior plates.
L20, 1/8" - 1/4" pitting and pack rust on both interior and exterior plates.
L21, 1/8" - 1/4" pitting and pack rust on both interior and exterior plates.
U0, 1/8" - 1/4" pitting and pack rust on both interior and exterior plates.
U1, 1/8" painted over pitting on both interior and exterior plates.
U7, 1/8" painted over pitting on both interior and exterior plates.
U15, 1/16" - 1/8" pitting and pack rust on both interior and exterior plates.
U17, 1/8" - 1/4" pitting and pack rust on both interior and exterior plates.
U22, 1/8" painted over pitting and rivet head loss on both interior and exterior plates.

LEGEND

1 - Pack Rust
2 - Pack Rust With Plate Distortion
3 - Painted Over Pack Rust
4 - Painted Over Pack Rust With Plate Distortion
5 - Reactivating Pack Rust
6 - Pitting
7 - 100% Section Loss
8 - Perforations In The Steel Plate

GRAPHIC SCALE MEASURED IN FEET	DATE AUGUST 2020	PATRICK ENGINEERING	MAIN AVENUE OVER CUYAHOGA RIVER BRIDGE NO. CUY-2-14.41
NOT TO SCALE			TRUSS ELEVATION - SPAN 10 NORTH — PAGE B-10



Floorbeam Deficiencies:

Pitting ⅛" Both flanges and web for 15 LF at Panel 7.

Section Loss ⅛" painted over on web and flanges for 10 LF at midspan of Panel 9.

Pitting ⅛" both flanges and web for 20 LF at Panel 10.

Section Loss 1#8" painted over on web and flanges for 10 LF at midspan of Panel 18.

The end bracing has painted over pitting and a few small corrosion holes.

Four new cracks found in floorbeam at south truss. Inboard east face 6 ½" long crack at top cope, outboard east face 6" long crack at top cope, inboard west face 4" long crack at top cope, outboard west face 3 ¼" crack at top cope.

South Truss Gusset Plate Deficiencies:

L0, The exterior pin nut spacer plate exhibits 1" painted and caulked pack rust at the corners. Reactivated pack rust is noted at all corners.

Up to ¼" pack rust between gusset plates and vertical connections.

Painted over ⅛" pitting to the inboard faces of the inboard gusset.

L1, Up to ⅛" T painted and caulked pack rust between outboard gusset and lower chord L1L2.

Up to ⅛" painted over section loss along the lower chord.

L12, Isolated areas of ⅛" painted over section loss along inside face of both gussets.

L16, Painted over pitting up to ⅛" on interior face of both gusset plates.

L22, Both gusset plates have up to ¼" painted over pitting.

Painted over pitting up to ⅛" on interior face of outboard gusset plate.

U15, Section Loss, ¼" pitting in both plates.

LEGEND

1 - Pack Rust

2 - Pack Rust With Plate Distortion

3 - Painted Over Pack Rust

4 - Painted Over Pack Rust With Plate Distortion

5 - Reactivating Pack Rust

6 - Pitting

7 - 100% Section Loss

8 - Perforations In The Steel Plate

GRAPHIC SCALE MEASURED IN FEET	DATE AUGUST 2020	PATRICK ENGINEERING	MAIN AVENUE OVER CUYAHOGA RIVER BRIDGE NO. CUY-2-14.41
NOT TO SCALE			TRUSS ELEVATION - SPAN 10 SOUTH — PAGE B-10

Appendix C: Inspection Photos

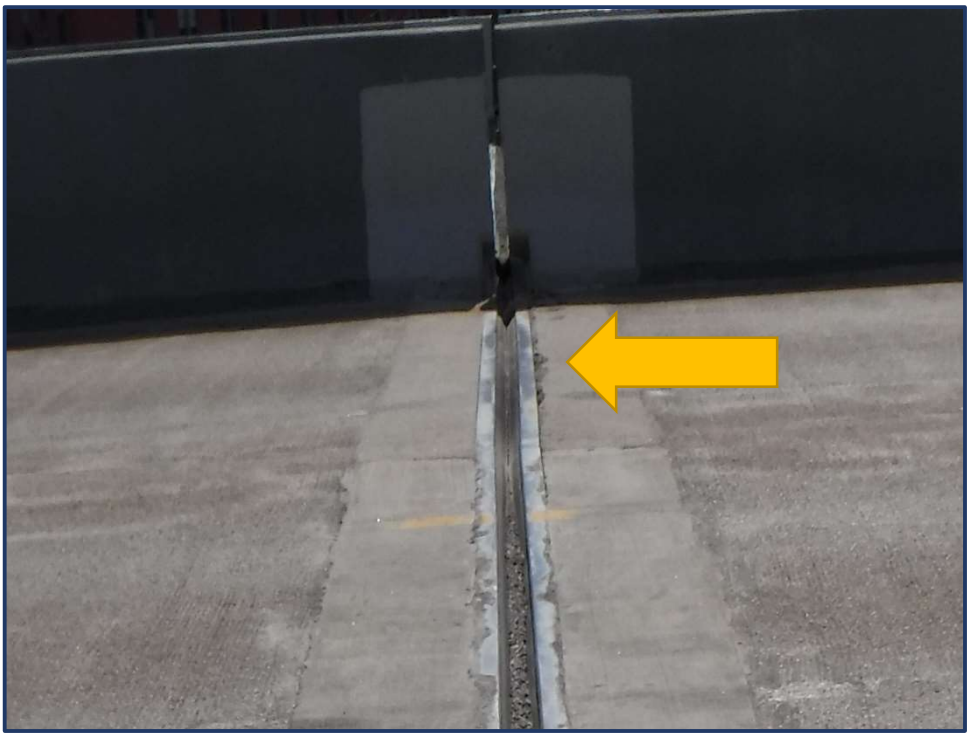


Photo 1 – Joint O Loose Joint Armor and Spalled Header

Photo 2 – Span J' Joint T Typical Rusting and Debris Impaction in Joints

Photo 3 – Joint L Header Spalled and Delaminated Concrete

Photo 4 – Typical sealed spalls in exterior of parapet with corroded reinforcing South fascia west of Joint KC1 in Span 6 shown

Photo 5 – Spalled parapet in Section N near Joint Q

Photo 6 – Broken Downspout at South Truss L6U6 in Span 2

Photo 7 – Clogged catch basin at Joint R in Unit 1

Photo 8 – Typical missing utility cover at light pole, Span 5 over Elm Street

Photo 9 – 1" thick pack rust between bottom flange cover plate and flange. North girder over Lakeside Avenue shown

Photo 10 – South fascia beam over W. 9th Street impact damage and impact scrapes on bottom flange

Photo 11 – 12’ long x 4’ high delaminated area in Girder 15 in Section P

Photo 12 – Pack Rust Induced Distortion in Lower Chord L1L2, Span 2, South Truss

Photo 13 –1" Diameter Corrosion Hole, L13L14, Span 2, North Truss

Photo 14 – Pin plate rotated, L0L1, Span 9, South Truss

Photo 15 – Up to ¼" deep pitting in pin plate, U0, Span 6, South Truss

Photo 16 – 100% Section Loss in Fill Plate L15-U15, Span 2, South Truss

Photo 17 –Lower Lateral Bracing Gusset Defects, L7, Span 1, South Truss

Photo 18 – Span 8, Floorbeam 25 Fatigue Cracks with Arrest Holes

Photo 19 – Span 8, Floorbeam 25 North Cantilever Arrested Fatigue Cracks

Photo 20 – Span 1, FLBM 7 South Cantilever 5½" Long Crack at Top Flange

Photo 21 – 2" long crack in east face of top cope of Floorbeam 0 in Span 6

Photo 22 – 2 1/8" long crack in west face of top cope of Floorbeam 0 in Span 6

Photo 23 – 6½" long crack in east face top cope of Floorbeam 22 in Span 10

Photo 24 – 4" long crack in east face top cope of Floorbeam 22 in Span 10

Photo 25 – 6" long crack east face outboard top cope of FLBM 22 in Span 10

Photo 26 – 3¼" long crack west face outboard top cope of FLBM 22 Span 10

Photo 27 – 7' long x 4' high x 3" deep spall with exposed rebar with 100% section log, Floorbeam 0 west cantilever, south face,Section P,

Photo 28 – Bearing assembly full of water, L1L2, Span 4, South Truss

Photo 29 – Delaminated Areas in Pier O Cap

Photo 30 – Typical painted over section loss in anchor bolts, Bent 34, Unit IV

Photo 31 – 6' diameter x 4' deep sink hole in parking lot at Bent 30

Photo 32 – Spall with exposed rebar in north wall of south vault at W. 9th Street

Appendix D: Vertical Underclearance Table

Table 1 - Main Avenue Bridge Minimum Vehicular Vertical Underclearance		
Roadway Below	**Vertical Clearance**	**Comments**
W. 28th Street - North	NB: 16.10'	At east curb
	SB: 15.94'	At west curb
W. 28th Street - South	NB: 14.07'	At centerline roadway
	SB: 14.40'	At west curb
W. 25th Street Ramps (Subway)	WB Entrance: 18.1’	W. 28th Street overpass poses restrictive clearance
	EB Exit: >25.0'	W. 28th Street overpass poses restrictive clearance
W. 25th Street	NB: 15.00'	At east curb
	SB: 16.51'	At west curb
Main Avenue (East)	EB: 14.20'	At knee brace at Bent
	WB: 14.79'	At knee brace at Bent
W. 9th Street	NB: 13.60'	At east curb
	SB: 13.89'	At centerline of center turn lane
W. Lakeside Westbound	14.58'	At Floorbeam between Bents 14 & 15 at centerline roadway
W. Lakeside Avenue Ramp to SR 2	Superstructure: 14.62'	Most restrictive clearance along west curb at drainpipe
	Drain Pipe: 13.58'	
Summit Avenue	EB: 16.50'	At south girder at north curb
	WB: 16.50'	At north girder at north curb
W. 3rd Street	NB: 14.90'	At east curb
	SB: 16.50'	At centerline of NB right lane
W. 3rd Street/Port Authority Ramp to SR 2 EB	14.07'	Along north curb