Routine and NSTM Member Inspection Report

Submitted to:

Ohio Department of Transportation, District 8
505 S. State Route 741
Lebanon, Ohio 45036

HAM-42-0264R
2025 Routine and NSTM Member Inspection Report
(VAR-District 8 Bridge Inspections for Steel Pier Caps)
SFN: 3101223, PID: 109781

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Submitted by:

GANNETT FLEMING

August 2025

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INTRODUCTION

Bridge Description

Bridge HAM-42-0264R is a six-span bridge built in 1969. On span 2 through span 5, the superstructure is comprised of welded steel plate girders that frame directly into the steel pier caps. Spans 1 and 6 are continuous welded steel plate girders that individually bear on the substructure units. The overall length is 525.88'. Pier Cap 2 spans over the IR 71 southbound ramp. Pier Cap 3 spans over US 42 North (Reading Road). Pier Cap 4 is cantilevered over the east two lanes of US 42 Northbound (Reading Road).

Three NSTM pier caps are supported by concrete columns at Piers 2, 3 and 4. The caps are simply supported welded steel box members with one end cantilevered. Seven welded plate girders frame into the steel caps at Piers 2 and 3; six girders frame into the steel cap at Pier 4. Refer to Appendix A for existing pier cap plans and Appendix B plans for the past rehabilitation project.

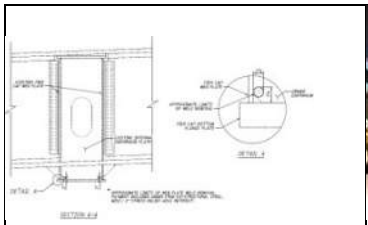
Figure 1: Bridge Location Map

A 2011 rehabilitation project performed the following repairs on this structure:

- Cleaned and painted portions of the interiors of the pier caps
- Installed bolted retrofit for welded drainage bracket connections to the pier cap webs
- Grinded miscellaneous tack welds on the pier cap
- Grinded intersecting fillet welds on the web stiffeners and the cap flanges
- Completed ultrasonic impact treatment and NDT around interior tie plates

A 2017 rehabilitation project performed the following repairs on this structure:

- Repaired fatigue cracks in Pier 2, 3, and 4 Steel Pier Caps
- Repaired 4 concrete truss support pilasters and anchor bolts, reusing existing steel support brackets below pilasters
- Note, the 2" Stress Relief Hole Retrofit detail, as specified in the PID 82975 plan set, was not installed in piers 2-4 per RFI 5. Welds do not intersect.



Retrofit Detail

Pier 2

Pier 3

Pier 4

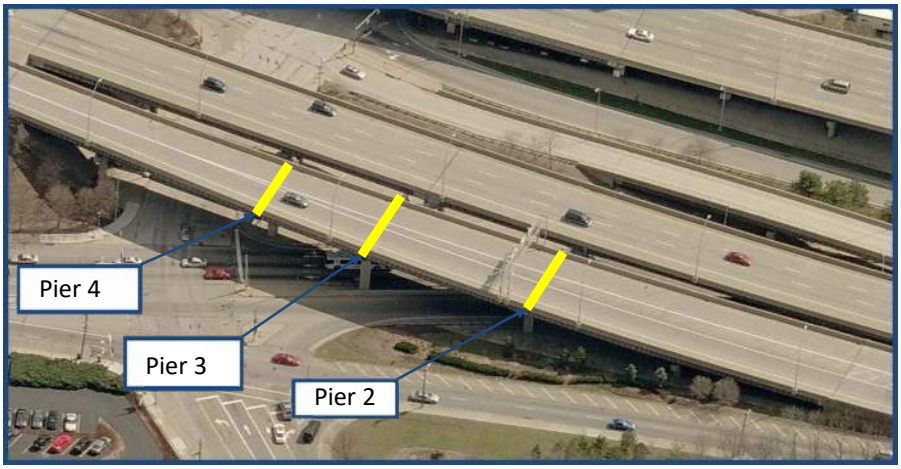


Figure 2: NSTM Pier Cap Locations

Inspection and Access Methods

From June 9 to June 24, 2025 Gannett Fleming performed a routine and NSTM member inspection of Bridge HAM-42-0264R. A 46' bucket truck was used to access the NSTM pier cap interiors (Pier 2, Pier 3, Pier 4), perform the "arms-length" inspection of the exteriors, and a routine inspection for the remaining bridge elements. Traffic control provided by A&A Safety was used to gain access to the box cap exteriors and consisted of single lane closures as follows:

- US 42 SB Ramp to IR 71S – Shoulders of this single lane ramp were closed between the hours of 8:00 AM to 3:30 PM to inspect Pier Caps 2 and 3.

- US 42 NB Exit Ramp from IR 71N – Single lane closures between the hours of 8:00 AM to 3:30 PM were necessary on the ramp to inspect Piers Caps 3 and 4.

- Eden Park Drive – Single lane closures between the hours of 8:30AM to 3:30PM were necessary to inspect Pier 5.

OSHA confined space entry procedures were followed while inspectors were working inside the pier cap. Entry was performed in accordance with complete permit-required confined space entry procedures per GF SOP #10 and 29 CFR 1910.146. This included the use of an entry permit system, pre-entry air monitoring, continuous air monitoring, the designation of qualified entrants, attendants, and supervisor(s), and available emergency response. OSHA compliant safety harnesses and lanyards were worn by inspectors when working in the lift bucket and when implementing bridge climbing techniques. The bolts securing the pier cap hatches were removed and reinstalled with an impact wrench and the hatches were sealed with exterior-grade caulking once the interior inspection was complete. Various socket sizes from ½" to 22mm were required to remove the hatch bolts.

Field measurements were taken using tape measures, calipers, and an ultrasonic thickness gauge to verify structural component dimensions. Observed deficiencies were recorded on member-specific field inspection forms. Digital photographs were taken of the fatigue prone details and other areas of interest or concern to further document the physical condition of the pier caps.

Inspection Team

The following individuals were part of the inspection team:

- Daniel E. Kent, Jr., PE, CBI — Team Leader
- Matthew McFadden, EI, CBI — Inspector
- Rob Parker, CBI — Inspector

Condition Rating

Our inspection team utilized the rating system given in the ODOT Bridge Inspection Manual to evaluate the current condition of the HAM-71-0264R bridge and steel pier caps. This system is summarized in the following table. To maximize accuracy of the ratings, the NBIS scoring system has been used for all rating scores.

Summary Items (NBIS)	Condition	Defects
9	Excellent	Excellent Condition.
8	Very Good	No problems noted.
7	Good	Some minor problems.
6	Satisfactory	Structural elements show some minor deterioration.
5	Fair	All primary structural elements are sound but may have minor section loss, cracking, spalling, or scour.
4	Poor	Advanced section loss, deterioration, spalling, or scour.
3	Serious	Loss of section, deterioration, spalling, or scour have 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 support. 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 put it back in light service.
0	Failed	Out of service-beyond corrective action.

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

1. *Manual of Bridge Inspection*, Ohio Department of Transportation (ODOT), 2025.
2. *Manual for Bridge Element Inspection*, *2nd Edition with 2022,2024, and 2025 Interim Revisions* AASHTO, 2019.
3. *Bridge Inspector's Reference Manual (BIRM)*, U.S. Department of Transportation, 2002 (rev 2012).
4. *Inspection of Fracture Critical Bridge Members*, U.S. Department of Transportation, 1986.
5. *National Bridge Inspection Standards*, U.S. Department of Transportation, 2004 (rev. 2009.

AASHTO National Bridge Element Quantities:

NATIONAL BRIDGE ELEMENTS RECORDING SHEET[1]									
Element	Defect	Env	Element/Defect Description	Total Qty	Units	Condition State Quantity			
						CS1	CS2	CS3	CS4
Superstructure									
PIER 2									
231		3	Steel Pier Cap	60	FT	45	15		
PIER 3									
231		3	Steel Pier Cap	64	FT	24	40		
PIER 4									
231		3	Steel Pier Cap	56	FT	56			
515		3	Steel Protective Coating[2]	59566	SQ FT	59546	14	6	
Substructure									
PIER 2									
205		3	Reinforced Concrete Column	2	EA	2			
PIER 3									
205		3	Reinforced Concrete Column	2	EA	2			
PIER 4									
205		3	Reinforced Concrete Column	2	EA	1	1		

[1] Includes only the defects for the portions of the elements that were inspected during the NSTM inspection

[2] Protective Coating system total quantity is for the entire superstructure. Pier caps and associated protective coating defects are included in the overall condition state quantities.

PIER CAP 2

The pier cap is in overall FAIR condition [5] (Photo 1). The web plates have been retrofit with stress relief drilled holes connected by vertical saw-cuts adjacent to the welded connections of the girder bottom flange tie plates at all girders unless otherwise noted. Additional retrofits noted at the time of inspection were the drilling out of cracks and touch up paint of girder knee plate connections. Round cover plates are utilized to seal the drilled stress relief holes and are held in place by nuts and bolts (Photo 2).

Pier Cap 2 Interior

The drilled holes and sawcut retrofits are present at all girders except Girder A. There are localized areas of porosity in the fillet welds between both webs and the top flange (Photo 3). There is a 1" L x 1/2" H weld undercut in the fillet weld at the bottom of the south web and bottom flange between the two stiffeners between Girder C and D diaphragms.

During previous rehabilitation, tack welds were ground on the web and flange plates. Areas of removed tack welds that still have exposed bare steel were noted at the following locations:

- Between Girders B and C on north web west of stiffener
- Between the Girders C and D diaphragms
- West of the stiffener between Girders D and E diaphragms
- West of the stiffener between Girders E and F diaphragms
- Two areas at east side of stiffener between Girder F and G diaphragms (Photo 4)
- Bottoms of stiffeners between Girders C and E.

Tack welds that were not removed along the interior were noted at the following locations:

- Two tack welds west of the stiffener between A and B (Photo 5)
- One tack weld east of the stiffener between B and C
- Two tack welds west of the stiffener between B and C
- One tack weld east of the stiffener between Girders D and E diaphragms.

The interior paint is in SATISFACTORY condition [6] with some light scattered surface rust. Isolated areas of heavy pitting were noted along the bottom of both web plates at the west bearings (Photo 6). The lower flange at the East Bearing has active corrosion. Lower corners have areas of rust at east end of cap.

Photo 1: Pier Cap 2 Elevation

Photo 2: Typical Dog-Bone Retrofit

Photo 3: Weld Porosity in South Web Between Diaphragm E and F

Photo 6: Typical Pitting on Bottom Flange and Bottom of Webs

Photo 4: Removed Tack Weld, Ground Area Left Unpainted on North Web Between Girder G and F

Photo 5: N Web Remaining Tack Welds Between Girder A and B

Pier Cap Exterior

The exterior of the pier cap is in good condition (Photo 7). The welded connection of a drainpipe support bracket on the north web was replaced with a bolted connection (Photo 8). Both cap doors are in place and secure (Photo 9). One bolt is missing on the east access hatch.

During previous rehabilitation, the web plates were retrofit with stress relief drilled holes connected by vertical saw cuts adjacent to the welded connections of the girder bottom flange tie plates, except at girder A. The round cover plates on the drilled retrofits were noted to be held in place with bolts and wingnuts.

Isolated locations of extra weld passes were noted on the fillet weld between the north web and the bottom flange along the full length.

There are three areas of reactivating corrosion on the pier cap web above the bottom flange tie plates of the girders. The worst cases noted were along the fascia girders with areas up to 10” L x 2” H at Girder A on the north web of the pier cap. Corrosion is also reactivating between the girder bottom flange and the tie plate at this location. There is a 7” L x 5” W area of moderate reactivating painted over pitting on top of the bottom flange tie plate of Girders A.

Previously documented cracks at knee brace locations have been drilled out and areas cleaned and painted since the previous inspection. Monitor locations during future inspections (Photos 10-12).

The exterior paint is in GOOD condition [7]. A 7" x 3" area of isolated pitting was found on the south web above the bottom flange tie plate of girder G. There is active rust with minor section loss at Girder G east face (Photo 13). In a previous rehabilitation project, the exterior surfaces of the superstructure were cleaned and painted.

The pot bearings are in good condition and appear to function properly.

Photo 7: Typical condition of lower flange of steel cap

Photo 8: Bolted Connection Retrofit for Drain Connection

Photo 9: West Hatch for Pier 2

Photo 10: Retrofit at Bottom of Knee Brace at Girder G

Photo 11: Retrofit at South Web and Bottom of Knee Brace at Girder G

Photo 12: North Web, Knee Brace, retrofit below Girder C. Undercut Welds at Bottom of Knee Brace

Photo 13: Active rust at Girder G, east face

Fatigue Prone Details

Fatigue Prone Detail 1
Fillet welds between diaphragms or stiffeners and web plates.
Category: C'
Location: All girder diaphragms and web stiffeners.

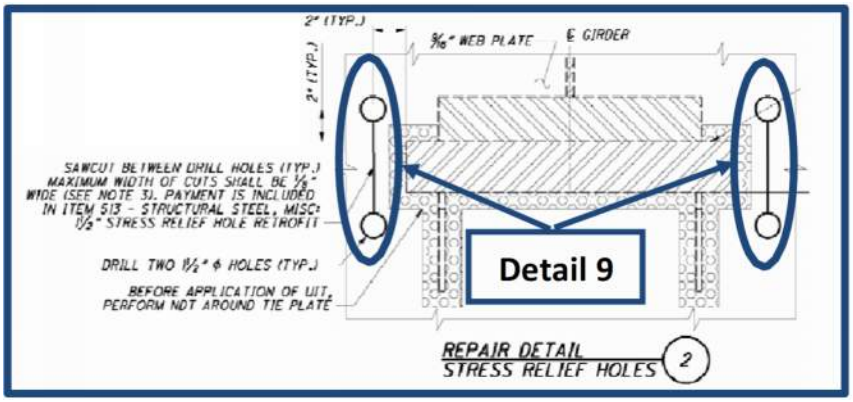


Figure 3: Web Plate Retrofit of Pier Cap 2

Fatigue Prone Detail 3
Tack welds, less than 2", on web and flange
Category: C
Location: Two tack welds on the interior of the north web plate between Girders A and B, and between Girders B and C, and one tack weld on the interior of the north web plate between Girders D and E (5 total, previously ground but not completely removed).

Fatigue Prone Detail 8
Intersection of fillet welds. Category: E
Location: Fillet weld of the web plates and the bottom flange tie plates of Girders D, E, F and G intersecting the fillet welds of the web plates and stiffeners. Although 2017 repair contract specified repairs to cracks on the north web of pier cap at Girder G, new cracks exist at the fatigue prone detail location.

Fatigue Prone Detail 9
Drilled hole stress relief retrofit in web plates.
Category: B
Location: Both web plates on each side of all girder connections, except girder A.

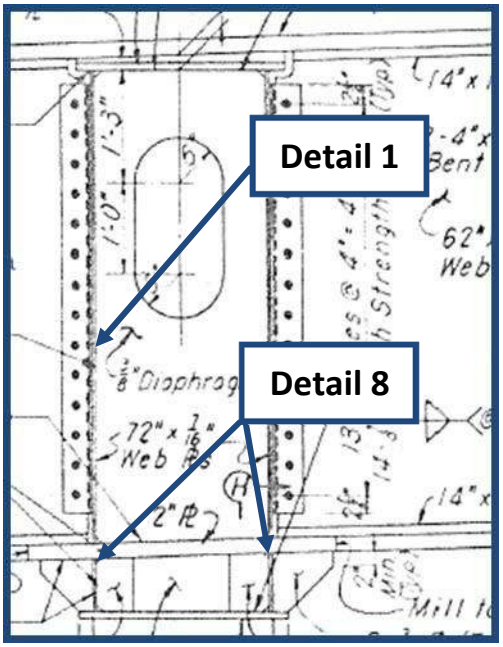


Figure 4: Section of Pier Cap 2

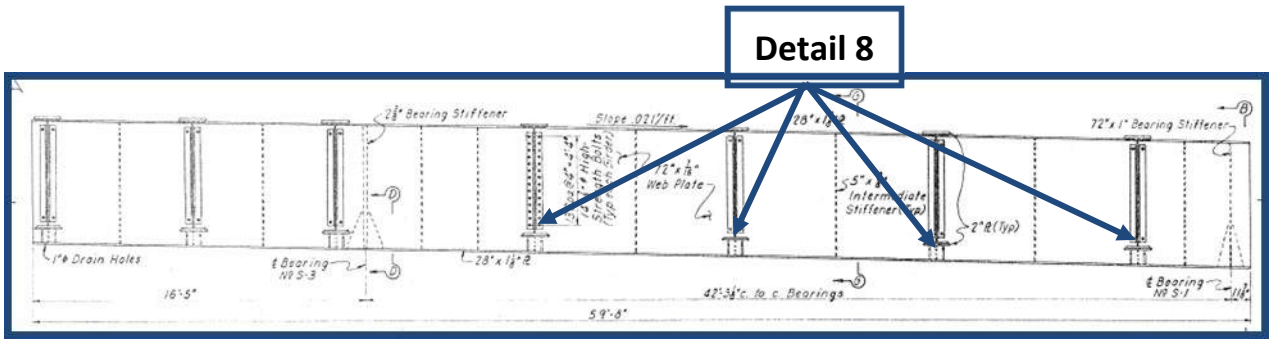


Figure 5: Elevation of Pier Cap 2

PIER CAP 3

Pier Cap 3 is in FAIR condition [5] (Photo 14). At the time of the inspection the pier cap interior was dry.

Photo 14: Pier Cap 3 Elevation

Pier Cap Interior

The drilled stress relief holes and sawcut retrofits are present at all girders except Girders A and B.

There is painted over pitting up to 1/8" D on the bottom flange adjacent to the east access hatch at the east end.

There is a 3/4" L backer bar remnant in the fillet weld between the top flange and south web. west of the Girder G diaphragm (Photo 15).

Photo 15: ¾" Backer Bar Remnant Between South Web, Top Flange, West of Girder G Diaphragm

There are two 3" L undercuts along the fillet weld between the south web and the bottom flange, both east of Girder D (Photo 16). A 2" L painted over gouge, possibly due to tack weld removal was found in the North Web between Girder E and F Diaphragm (Photo 17). A 1-1/4" L tack weld was observed on the north web, west of the Girder D diaphragm at the stiffener (Photo 18). A 3" undercut was observed between the Girder G Diaphragm and the south web (Photo 19).

At several locations in the tension zones, the fillet welds of the web and flange plates intersect the fillet welds of the web plates and stiffeners. Those weld intersections were coped. The fillet weld between the north web and the Girder F bottom flange tie plate intersects the fillet weld of the web and stiffeners plates (Photo 20).

The interior paint is in GOOD condition [7]. An isolated area of moderate pitting was noted on the bottom flange at the east bearing. In the last rehabilitation project, areas of rust were cleaned and painted, and the corrosion is no longer active (Photo 21).

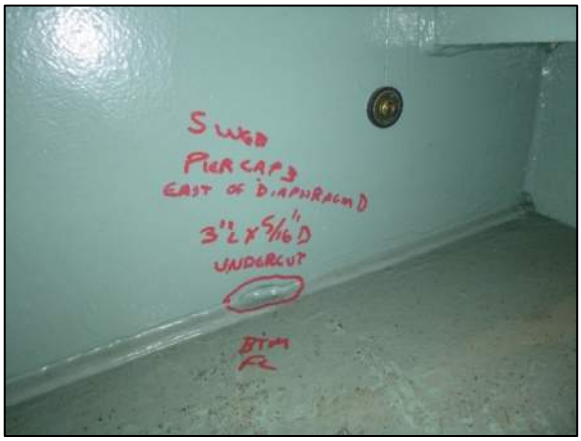


Photo 16: 3" L Undercut at South Web and Bottom Flange Interface, East of Girder D

Photo 17: 2" L Gouge Between Diaphragm F and E, North Web

Photo 20: Triaxial Weld at Diaphragm F

Photo 18: 1 1/4" L Tack Weld West of Diaphragm D, North Web

Photo 21: Painted Interior; Bottom Flange and Web. Typical Dog-Bone Retrofit

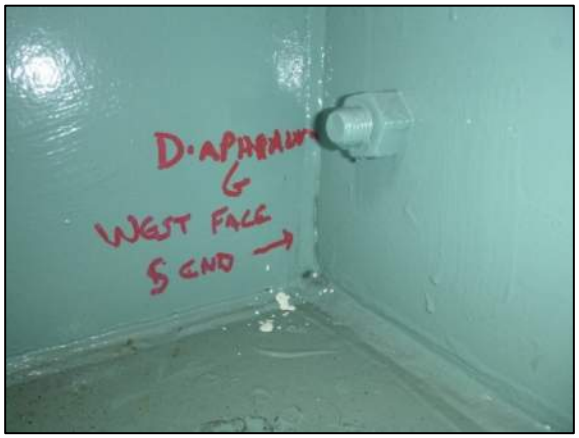


Photo 19: 3" Undercut in Fillet Weld Between Diaphragm and S Web

Pier Cap Exterior

The exterior of the pier cap is in good condition. One bolt is missing from the West access hatch (Photo 22). The middle south bolt is missing at the west access hatch. Missing bolt holes were sealed with caulk to achieve a proper seal.

The knee braces at the connections between the pier cap webs and the girder bottom flange tie plates were coped to remove intersecting fillet welds.

The pot bearings are in good condition and appear to function properly (Photo 23). Painted over section loss was noted on the top of the bottom flange, interior face of the ends of the web plates, and large corrosion holes were noted in the exterior knee braces . The bearing seat at the east column holds water around the masonry plate.

The exterior paint is in GOOD condition [7]. A 7" L x 2" H area of up to 3/16" D painted over pitting exists on the south web of the pier cap above the bottom flange tie plate of Girder G (Photo 24). There is also a 7" L x 2" H area of pitting on the north web of the pier cap above the bottom flange tie plate of Girder A. Active corrosion exists on the fillet weld between the knee brace and north web below Girder G. The crack has not propagated into the base metal. Typical porosity exists in the toe of weld at bottom flange of Girder C and North Web (Photo 25).

During previous rehabilitation, the web plates were retrofit with stress relief drilled holes connected by vertical saw cuts adjacent to the welded connections of the girder bottom flange tie plates, except at Girders A and B. The welded connection of a drainpipe support bracket on the north web was replaced with a bolted connection.

Previously documented cracks at knee brace locations have been drilled out and areas cleaned and painted since the previous inspection. Monitor locations during future inspections (Photo 26).

Photo 22: Missing bolt in West Access Hatch

Photo 23: Typical view of West bearing

Photo 24: 7" L X 2" H Area of Up To 3/16" Section Loss in South Web and Girder G Tie Plate

Photo 25: Fillet Weld Porosity at Bottom Flange of Girder C and North Web

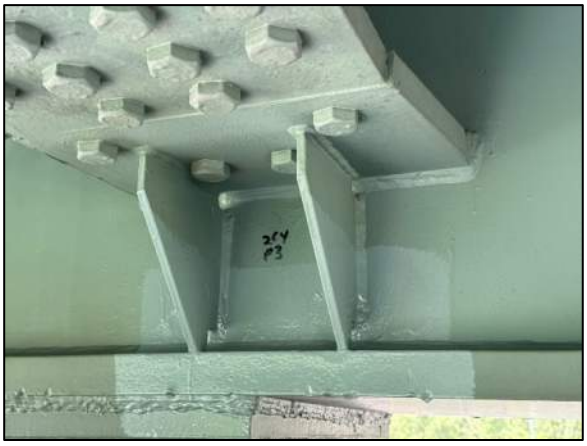


Photo 26: Retrofit of drilling out cracks in Fillet Weld Between Knee Brace and South Web Below Girder B

Fatigue Prone Details

Fatigue Prone Detail 1
Fillet welds between diaphragms or stiffeners and web or flange plates.
Category: C'
Location: All girder diaphragms and web stiffeners.

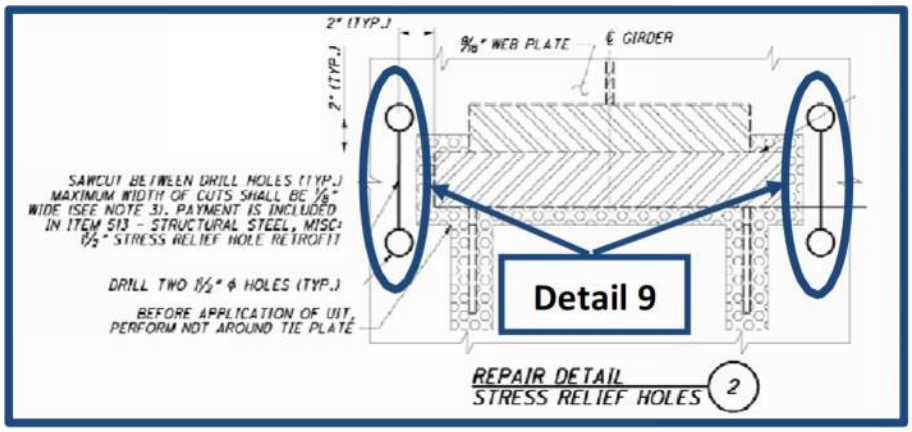


Figure 6: Web Plate Retrofit of Pier Cap 3

Fatigue Prone Detail 2
Full penetration groove weld of flange splice.
Category: B
Location: Two bottom flange splices.

Fatigue Prone Detail 8
Intersection of fillet welds.
Category: E
Location: Fillet weld of the north web and the bottom flange tie plate of Girder F intersecting the fillet weld of the north web and stiffener.

Fatigue Prone Detail 9
Drilled hole stress relief retrofit in web plates.
Category: B
Location: Both web plates on each side of all girder connections, except Girder A and B.

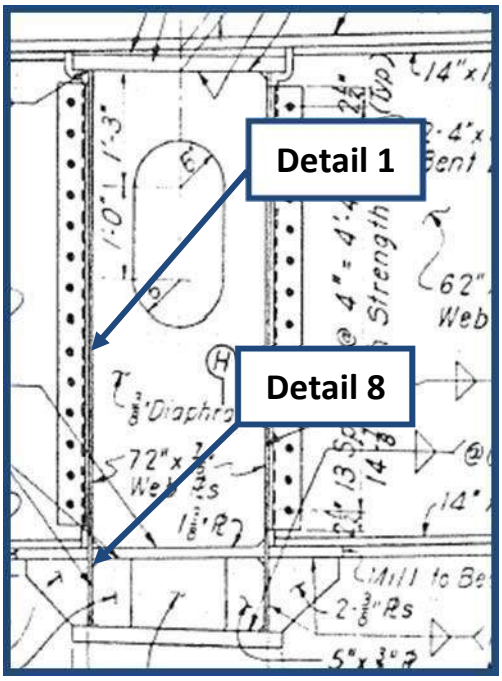


Figure 7: Section of Pier Cap 3

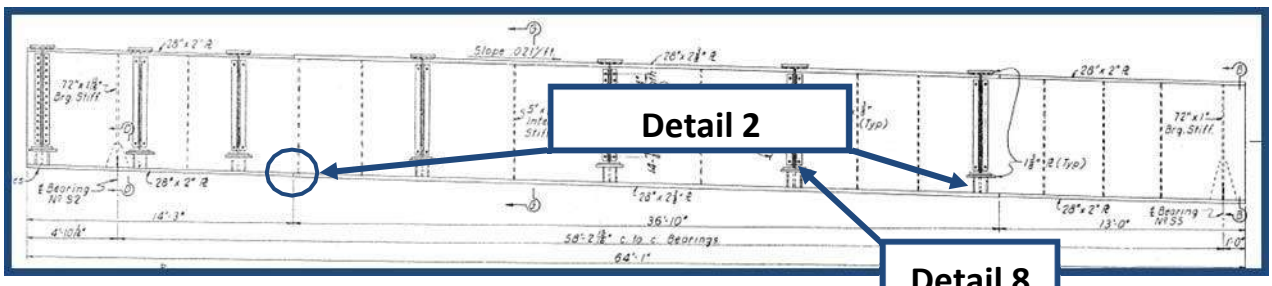


Figure 8: Elevation of Pier Cap 3

PIER CAP 4

Pier Cap 4 is in FAIR condition [5] with a few welds of poor quality and scattered areas of light surface rust (Photo 27). At the time of the inspection the pier cap interior was dry.

Photo 27: Pier Cap 4 Elevation

Pier Cap Interior

The interior paint is in GOOD condition [7], with minor peeling paint on the top flange throughout the pier cap. Moisture has penetrated the cope holes of the Girder A diaphragm and flowed along the bottom flange to the vertical web stiffeners above the west bearing. There is a 3' L x Full Width area of laminating corrosion on the bottom flange east and west of the diaphragm above the west bearing (Photo 28) and a 3' L x 27" W, L-shaped area of laminating corrosion on the bottom flange west of the Girder D diaphragm (Photos 29).

Photo 28: Pooling Water Caused Active Corrosion at West End Bottom Flange and Lower Webs

There are two discontinuities in the fillet welds in north web:

- Between the web and bottom flange between the Girder A and C diaphragms (Photo 30)
- Between the web and vertical stiffener between the Girder E and F diaphragms.

A divergent fillet weld was noted between the bottom of the south web and vertical web stiffener between Girder D diaphragm and the vertical stiffener for the west bearing (Photo 31). Two 4" L areas of porosity were noted along the fillet weld between the south web and vertical stiffener between Girder E and F diaphragms (Photo 32).

There is a 1" L undercut welds along the fillet weld between south web and the bottom flange west of the stiffener between Girder F and G diaphragms.

Photo 29: Bottom Flange, West of Girder D Diaphragm, Active Corrosion

Isolated locations of intersecting fillet welds have been ground down, left unpainted and starting to rust, to create a weld cope mainly at the intersection of the web stiffeners, north web, and top flange (Photo 33).

Photo 30: Discontinuity in Fillet Weld Between North Web and Bottom Flange Between Girder A and C Diaphragms

Photo 33: Unpainted Ground Area at Fillet Weld Intersection Between Girder D and West Bearing Stiffener

Photo 31: Divergent Fillet Weld in Interface of South Web and Vertical Web Stiffener, West of Girder D Diaphragm

Photo 32: Fillet Weld Porosity Between South Web and Vertical Web Stiffener Between Girder E and F Diaphragms

Pier Cap Exterior

The exterior of the pier cap is in good condition. During previous rehabilitation, the web plates were retrofitted with stress relief drilled holes connected by vertical saw cuts adjacent to the welded connections of the girder bottom flange tie plates, except at Girder A. The welded connection of a drainpipe support bracket on the south web was replaced with a bolted connection.

The exterior paint is in GOOD condition [7]. There is no change in the multiple shallow gouges were noted along the north edge of the bottom flange of the pier cap at the cantilevered section (Photo 34). Painted over pitting was noted on the bottom of the east end plate and the knee braces at the east end of the pier cap (Photo 36). A 1' L x 4" W area of painted over pitting was observed on top of the bottom flange tie plate for Girder A.

There is no change in the 3/4" H x 1/8" D inclusion in the fillet weld on the east side of Girder A bottom flange between the north web and the bottom flange tie plate of Girder A, but no signs of distress were observed (Photo 35). A 2" H x 9" L x 3/16" D Section Loss was noted in the North Web above the East Bottom Flange of Girder G. A 2" L tack weld was noted on top of the bottom flange below the Girder G connection to the south web. A 2" tack weld was identified, on the top surface of the bottom flange below the Girder G connection to the south web.

Previously documented cracks at knee brace locations have been drilled out and areas cleaned and painted since the previous inspection. Monitor locations during future inspections.

The pot bearings are in good condition and appear to function properly (Photo 37).

Photo 34: Shallow Gouges Along North Edge of Bottom Flange at Cantilevered Section

Photo 35: ¾" H X 1/8" D Inclusion of Fillet Weld Between East Side of Girder A Bottom Flange and North Web

Photo 36: Typical Girder to Pier cap connection with knee plate retrofit

Photo 37: Typical West Bearing

Fatigue Prone Details

Fatigue Prone Detail 1
Fillet welds between diaphragms or stiffeners and web or flange plates.
Category: C'
Location: All girder diaphragms and web stiffeners.

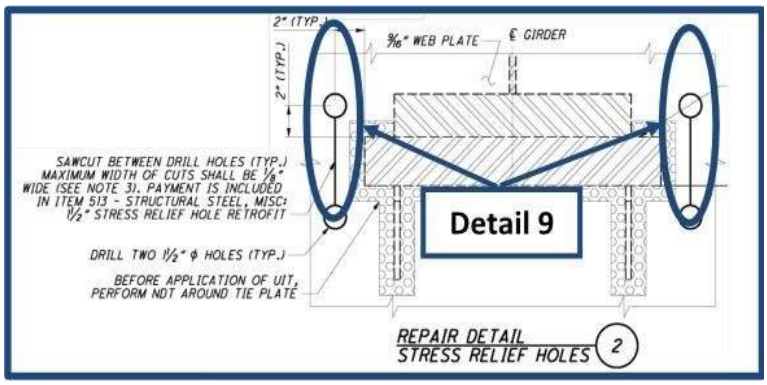


Figure 9: Drilled and Sawcut Stress Relief Retrofits

Fatigue Prone Detail 2
Full Penetration groove weld of flange splice.
Category: B
Location: One top flange splice and one bottom flange splice.

Fatigue Prone Detail 4
Tack welds, greater than, or equal to, 2" and less than, or equal to 4", on the flange plates.
Category: D
Location: 2" tack weld on top side of bottom flange below Girder G connection to south web.

Fatigue Prone Detail 8
Intersection of fillet welds.
Category: E
Location: Fillet weld of the north web plate and top flange intersects the web stiffener fillet welds between Girders A and C, and between Girders C and D.

Fatigue Prone Detail 9
Drilled hole stress relief retrofit in web plates.
Category: B
Location: Both web plates on each side of all girder connections, except Girder A.

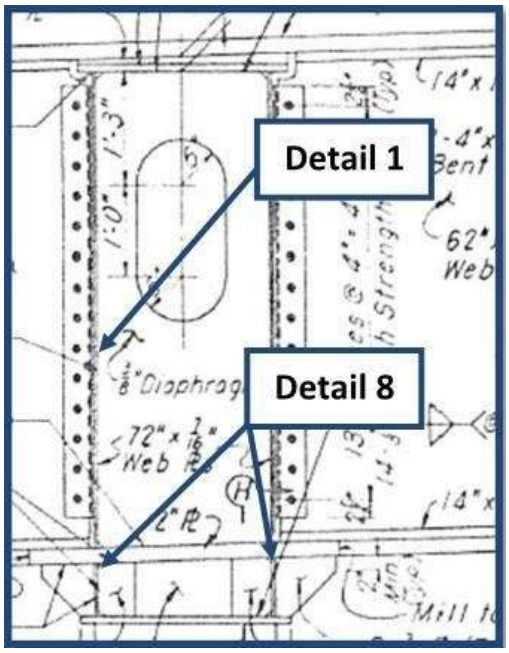


Figure 10: Typical End View of Pier Cap 4

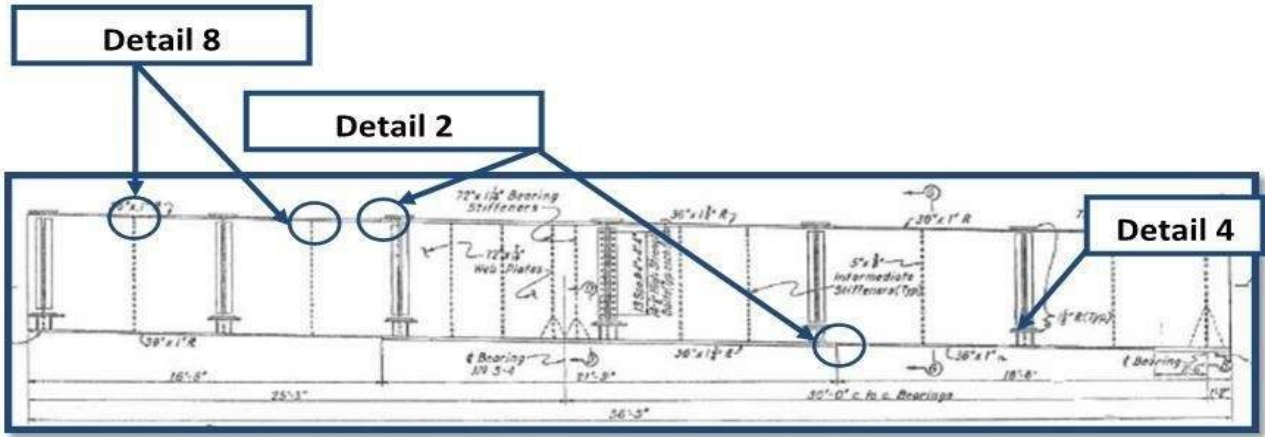


Figure 11: Elevation of Pier Cap 4

ROUTINE INSPECTION FINDINGS

Deck (7, Good Condition)

The deck is in satisfactory condition (Photo 38). The top of deck was inspected from the deck corners and from a manlift adjacent to the east deck edge in span 4 during the 2025 routine inspection. Many of the ratings were carried over from the last routine inspection since our team had limited top of deck access.

Photo 38: Typical Deck

Floor (Good Condition)

The floor is in good condition. Random areas of map cracking exist over cross frame locations. An isolated location of honeycombing with exposed steel reinforcing was noted in Bay 2 near Abutment 2. The deck underside has map cracking and efflorescence throughout, up to 1/32" W. Minor haunch spalls throughout.

Edge of Floor/Slab (Satisfactory Condition)

The edge of the floor is in satisfactory condition. Isolated hairline vertical cracks were noted along the edge of the floor.

Wearing Surface (Satisfactory Condition)

The wearing surface was inspected from the deck corners and from a manlift adjacent to the east deck edge in span 4 during the 2021 routine inspection. There are areas of light cracking and map cracking throughout.

Railing (Satisfactory Condition)

The railing was inspected from the deck corners and from a manlift adjacent to the east deck edge in span 4 during the 2025 routine inspection. The parapet was sealed in the past; however, the parapet exhibits minor vertical cracking at intervals spaced 3’ to 5’ throughout (Photo 39). Minor impact damage and scrapes are present.

Drainage (Poor Condition)

The drainage is in poor condition due to continued active corrosion and not functioning properly due to clogs. Drains and scuppers exhibit signs of being clogged due to debris and rust staining along downspouts. (Photos 40-41). The drainage at Abutment 1 is clogged and exhibits rust staining down the abutment wall. The drainpipes through the slope protection at Abutment 2 have advanced section loss up to 100 (Photos 42-43). The previously welded brackets to the pier cap webs were removed as part of past rehabilitation efforts and are now secured via bolts.

Photo 39: Typical Cracking and Scrapes on Rail

Photo 40: Down Spout Scupper Connection

Photo 41: Down Spout Scupper Connection

Photo 42: Abutment 2 Slope Protection Drainpipe Section Loss

Photo 43: Abutment 2 Slope Protection Drainpipe Section Loss

Expansion Joints (Satisfactory Condition)
The expansion joints are in satisfactory condition. The deck joint over Abutment 1 appears to be leaking in Bay 4. The deck joint over Abutment 2 appears to be leaking in Bay 3.

Superstructure (5, Fair Condition)
The superstructure is in fair condition.

Alignment of Members (Fair Condition)
The alignment of the superstructure is in good condition. Localized minor distortion possibly caused during construction was noted on the bottom flange of Girder G just north of the south bottom flange transition in Span 4. The east edge of the flange is bent downward, and the west half of the flange is bent upward.

Beams/Girders (Fair Condition)
The girders are in fair condition. Localized corrosion staining was observed in the bottom flange splice for Girders F and G in Span 2. Sign support brackets are connected to fascia girder webs north of Pier Cap 3 in Span 4 to support the overhead sign supports for the overhead signs above the roadway (Photo 44). No signs of crack initiation were found. Girders B and C terminate (as designed) prior to Abutment 2.

Isolated locations of tack welds exist between the connection angles and the girder webs at the girder connections to the pier caps. Most of the tack welds have been removed (ground down) at these locations.

A web stiffener in Span 3 on Girder G, just north of the sign supports is bent (Photo 45). Section loss of up to 1/8” was observed on Girder G lower flange and stiffener behind the rocker bearing at Abutment 2 (Photo 46).

Diaphragms or Cross Frames
The cross-frames and diaphragms are in good condition. The cross frames are welded and bolted to the vertical stiffeners of the girders.

Photo 44: Sign Support Brackets Connected to Fascia Girder, North of Pier Cap 3

Photo 45: Bent Web Stiffener in Span 3 On Girder G

Photo 46: Section Loss on Girder G Lower Flange and Stiffener Behind Rocker Bearing at Abutment 2

Bearing Devices (Fair Condition)

The bearings are in fair condition. Laminating corrosion exists on the bottom of the rocker bearings at Abutment 1. Painted over pitting was noted on the masonry plate for the Girder D rocker bearing at Abutment 1. The rocker bearings at Abutment 1 were not uniformly in expansion at the time of the inspection (see Abutment 1 Bearing Measurements Table). The bearings for Girders A and G were minimally in expansion at the time of the inspection.

The movement of the expansion bearings at both abutments appear consistent with design expectations. The angle observed was approximately 5° extended north at 88°F

The rocker bearings for Pier Caps 1 and 5 are in good condition and appear to be functioning as intended. The rocker bearing anchor bolt under Girder B at Pier Cap 5 is loose.

The pot bearings for Pier Caps 2, 3, and 4 are in good condition and appear to be functioning as intended. Minor surface corrosion was noted along the bottom edge of the masonry plate for the east pot bearing at Pier Cap 2 and Pier Cap 3. The bearings for Girders A, F, and G at Abutment 2 have corrosion staining and debris on the bearing and the masonry plate (Photo 47). The remaining bearings at Abutment 2 have debris on the masonry plate (Photo 48). Peeling paint was also noted on the underside of the rocker bearing for Girder G.

Protective Coating System (Good Condition)

The protective coating system is in good condition. Isolated areas of reactivating corrosion exist at isolated connections.

Fatigue Prone Details (Fair Condition)

The fatigue prone details are in fair condition.

A 2017 repair contract repaired the fatigue cracks within the interior of steel Pier Caps 2, 3 and 4. Multiple vertical cracks were noted. One was located at the bottom of the fillet weld between the north web of Pier Cap 2 and the

east knee brace below Girder G, and one the west knee brace below Girder C. Another was observed on interface between the South web of pier cap 3 and the East knee brace below Girder B. The cracks have not propagated into the base metal of the web. For a detailed list of fatigue prone details for Pier Caps 2, 3, and 4, see the NSTM Member Inspection Findings for Piers 2-4 above.

Substructure (6, Satisfactory Condition)

Abutment Walls (Fair Condition) The abutment walls are in fair condition.

Abutment 1:
The east end of the bearing seat has a deck drainpipe that runs through the stem. It appears that the drainpipe is blocked inside the stem due to sediment on the abutment seat and overflowing onto the abutment seat and onto the face of the stem in Bay 6 (Photos 49-50).

Abutment 2:
There is staining on the stem and abutment seat due to the deck joint leaking above (Photo 51). Along the top face of the stem, there are 2" diameter spalls due to prior formwork attachments during construction. At the back of the abutment seat, there is poor concrete finish work for the Full-Length x 5" W with exposed vertical reinforcing steel ends that have been sealed when the abutment was sealed (Photo 52).

Photo 48: Debris on the Masonry Plate at Rocker Bearing Below Girder B

Photo 49: Typical View of Abutment 1

Photo 47: Corrosion and Staining in Rocker Bearing

Photo 50: Rust Staining from Drainage Block Along Abutment 1

Pier Columns (Good Condition)

The pier columns in good condition with no significant deficiencies. The west column for Pier Cap 3 has an overhead light and junction box mounted to the north face.

Backwalls (Fair Condition)

The abutment backwalls are in fair condition. Leakage staining was noted on the Abutment 1 backwall in Bay 4 along the vertical construction joint (Photo 53). Isolated vertical hairline cracking and areas of honeycombing up to 1-1/2" D were noted in the backwall; worst case was noted behind Girder E (Photo 54). Vertical hairline cracks were also noted in the Abutment 2 backwall.

Photo 53: Leakage Staining on Abutment 2 Backwall

Photo 51: Rust Staining on Stem and Abutment Seat Due to Leaking Deck Joint

Photo 54: Abutment 2 Back Wall Vertical Cracking

Photo 52: Poor Concrete Finish Behind Abutment 2 With Exposed Reinforcing Steel

Photo 55: Abutment 1 SE Wingwall Protruding Joint Filler

Wingwalls (Fair Condition)

The wingwalls are in fair condition. The southwest wingwall has sealed cracks with efflorescence at the west corner of Abutment 1 (Photo 55). There is a 1.5' H x 6" L x up to 1.5' D spall at the southeast wingwall joint with a 3' L section of missing joint filler (Photo 56). A 5’ H x 3" L x 8" D spall at a joint was observed in the southeast wingwall joint approximately 100' south of the abutment (Photo 57). Minor spalls are typical along the wingwalls due to formwork attachments during construction. The northeast wingwall could be considered a continuation of Abutment 2 due to proximity to the adjacent bridge abutment.

Photo 56: Cracking and Efflorescence in SW Wingwall of Abutment 1

Photo 57: 5’ H x 3” L Spall in SE Wingwall Of Abutment 1

Photo 58: Vegetation Growing Through Joints at Abutment 2 Slope Protection

Slope Protection (Fair Condition)

The slope protection is in fair condition. The slope protection near Abutment 1 has light vegetation growth along the joints throughout (Photo 58). Under Pier 1 at Column 3, the slope protection has settled up to 4” (Photo 59). The east side of the concrete slope protection along Abutment 2 also has vegetation growth along the joints (Photo 60). Corrugated metal pipe drains at Abutment 2 are corroded with heavy section loss, see previous photos in the drainage section. There is a full length 2” W x 1” D settlement along one joint of the slope protection under Bay 1. There is a Full height 2” wide 1” deep settlement in the slope protection at Abutment 2 (Photo 61).

Photo 59: Settlement of slope protection at Pier 1

Photo 60: Abutment 2 Slope Protection Vegetation Growing Through Joints

Photo 61: Settlement of Slope Protection at Abutment 2

Approaches Summary (6, Satisfactory Condition)

Approach Wearing Surface (Good Condition)
The approach wearing surface was inspected from the deck corners during the 2021 routine inspection. Map cracking is evident in the wearing surface.

Approach Slabs (Fair Condition)
The approach slabs were inspected from the deck corners during the 2021 routine inspection. No significant deficiencies were noted.

Embankment (Good Condition)
The embankments are in good condition with no significant deficiencies.

Guardrail (Good Condition)
The concrete approach parapets were inspected from the deck corners during the 2021 routine inspection. No significant deficiencies were noted.

General Appraisal and Operations Status (6, Satisfactory Condition; A, Open with No Restriction)

Signs (Good Condition)
The signs attached to the overhead sign structure are in good condition with no significant deficiencies.

Sign Supports (Good Condition)
The overhead sign structure is good condition with minor surface corrosion of the bolts and slight discoloration of the galvanization.

Utilities (1, Good Condition)
The utilities for the lighting are in good condition with no significant deficiencies.

Conclusions and Recommendations

Based on the routine and NSTM member inspection, the bridge and the NSTM pier caps of Bridge No. HAM-42-0264R are in FAIR condition [5] overall.

The recommendations for maintenance are presented in the following four categories:

Priority Repairs (Within 1 Year Period)
Work which should be performed as soon as possible to address deficiencies which affect the capacity of the structure or public safety

Rehabilitation/Evaluation (Within 5 Year Period)
Recommendations for large-scale deficiencies which are extensive in nature and require engineering analysis.

Maintenance (Within 2-4 Month Period)
Recommendations that are minor in nature and can be performed by maintenance personnel or through small maintenance repair contracts.

Monitoring (As Recommended)
Regular field observations of deficiencies which are not currently in need of repair but will require corrective action if deterioration continues.

Pier Cap 2 – Recommendations:

Priority Repairs:	None
Rehabilitation/Evaluation:	Consider retrofits of Category E details of intersecting welds. Simple drilled and ground retrofit at intersection recommended.
Maintenance:	Replace the missing bolt on the east access hatch.
Monitoring:	Continue to monitor fatigue prone details and drilled out areas at a 24-month cycle.

Pier Cap 3 – Recommendations:

Priority Repairs:	None
Rehabilitation/Evaluation:	Consider retrofits of Category E details of intersecting welds. Simple drilled and ground retrofit at intersection recommended.
Maintenance:	Replace the missing bolt on the east access hatch.

Monitoring:	Continue to monitor fatigue prone details and drilled out areas at a 24-month cycle.

Pier Cap 4 – Recommendations:

Priority Repairs:	None
Rehabilitation/Evaluation:	Consider retrofits of Category E details of intersecting welds. Simple drilled and ground retrofit at intersection recommended.
Maintenance:	Plug the lower vent holes of the Girder A diaphragm to prevent moisture penetration.
Monitoring:	Continue to monitor fatigue prone details and drilled out areas at a 24-month cycle.

Routine Inspection – Recommendations:

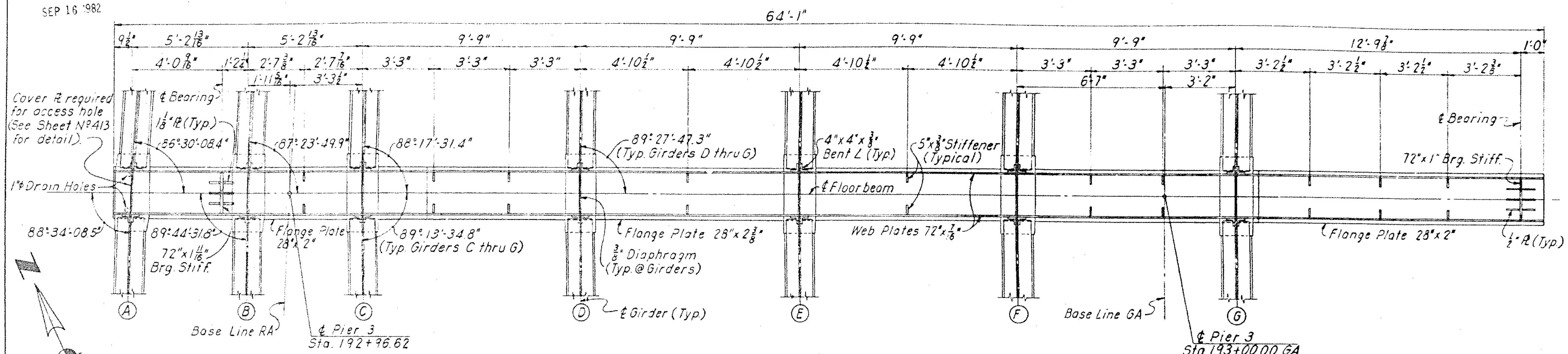
Priority Repairs:	None
Rehabilitation/Evaluation:	Repair the settlement of slope protection at Pier 1, Column 3 and at Abutment 2. Repair deck joints to prevent leakage.
Maintenance:	Clean the plugged deck drains embedded in Abutment 1.
Monitoring:	Monitor the localized distortion in bottom flange of Girder G.

APPENDIX A

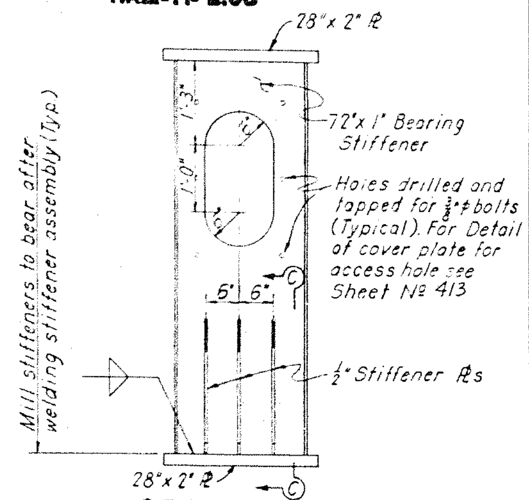
EXISTING PIER CAP PLANS

FED. RD. DIV.	STATE	PROJECT	FISCAL YEAR	SHEET
2	OHIO			414 / 460

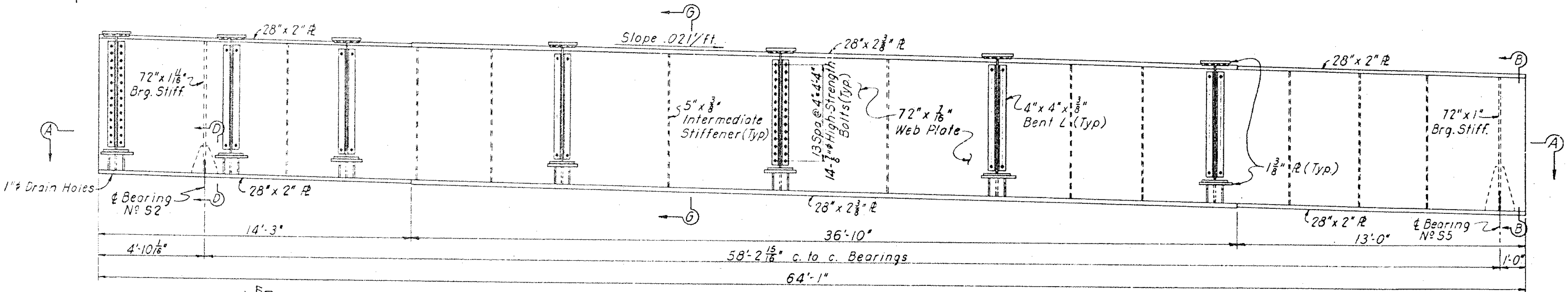
HAMILTON COUNTY
HAM-71- 2.08



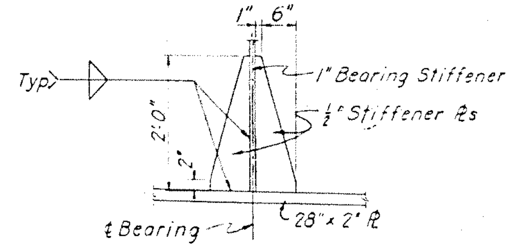
SECTION A-A



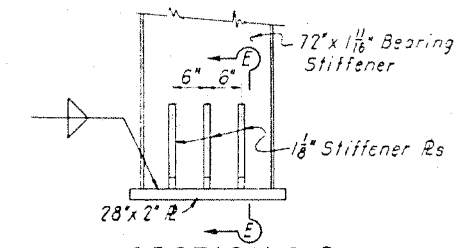
SECTION B-B



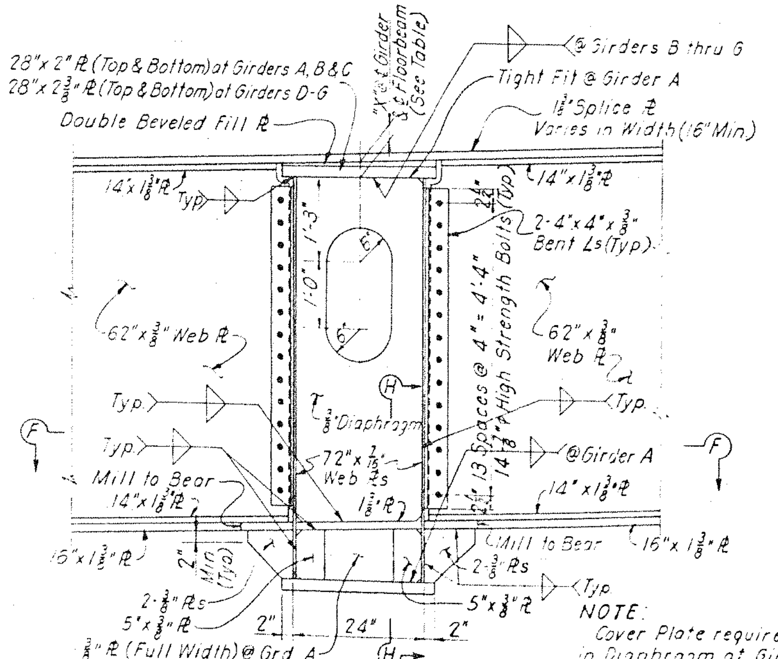
ELEVATION
FLOORBEAM AT PIER 3



SECTION C-C



SECTION D-D

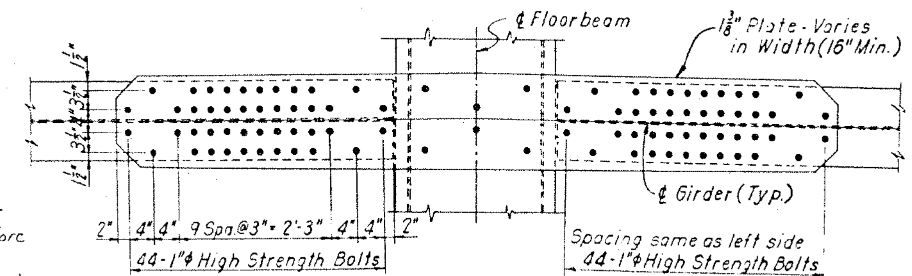


NOTE:
Cover Plate required for Access Hole in Diaphragm at Girder A only. For Detail of Cover Plate see Sheet Nº 413

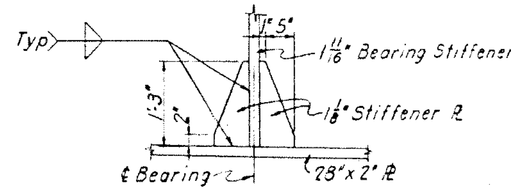
TYPICAL SECTION
(Thru Floorbeam showing Diaphragm & Girder Connection)

Girder	Dimension "X"
A	3 3/16"
B	3 1/4"
C	3 3/8"
D	3 9/16"
E	3 11/16"
F	3 11/16"
G	3 1/2"

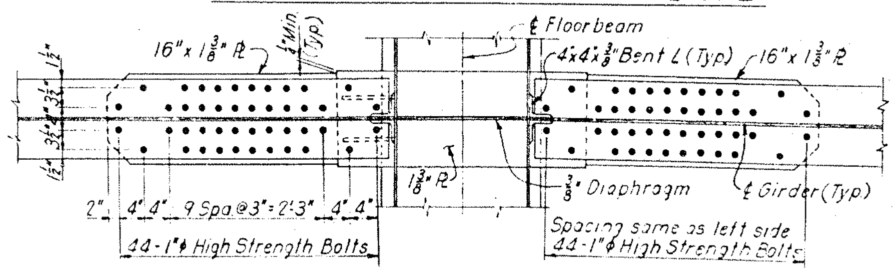
Note: Milled ends of compression splice on bottom flanges of girders shall be brought to full bearing against milled ends of pier girder brackets before bolts are tightened (Typ at all floorbeams)



PLAN OF TOP SPLICE PLATE



SECTION E-E



SECTION F-F

NOTES:
For fillet weld sizes see "TABLE OF FILLET WELD SIZES" on Typical Drawing Nº 427
For Bearing Details see Sheet Nº 416
For Section G-G & Section H-H see Sheet Nº 413

Work this Sheet with Sheets Nº 411 thru 413 & 415 thru 417

HAZELET & ERDAL
CONSULTING ENGINEERS
CINCINNATI, OHIO

STRUCTURAL STEEL DETAILS
BRIDGE No. HAM-71-0231

H&E BRIDGE No. 18

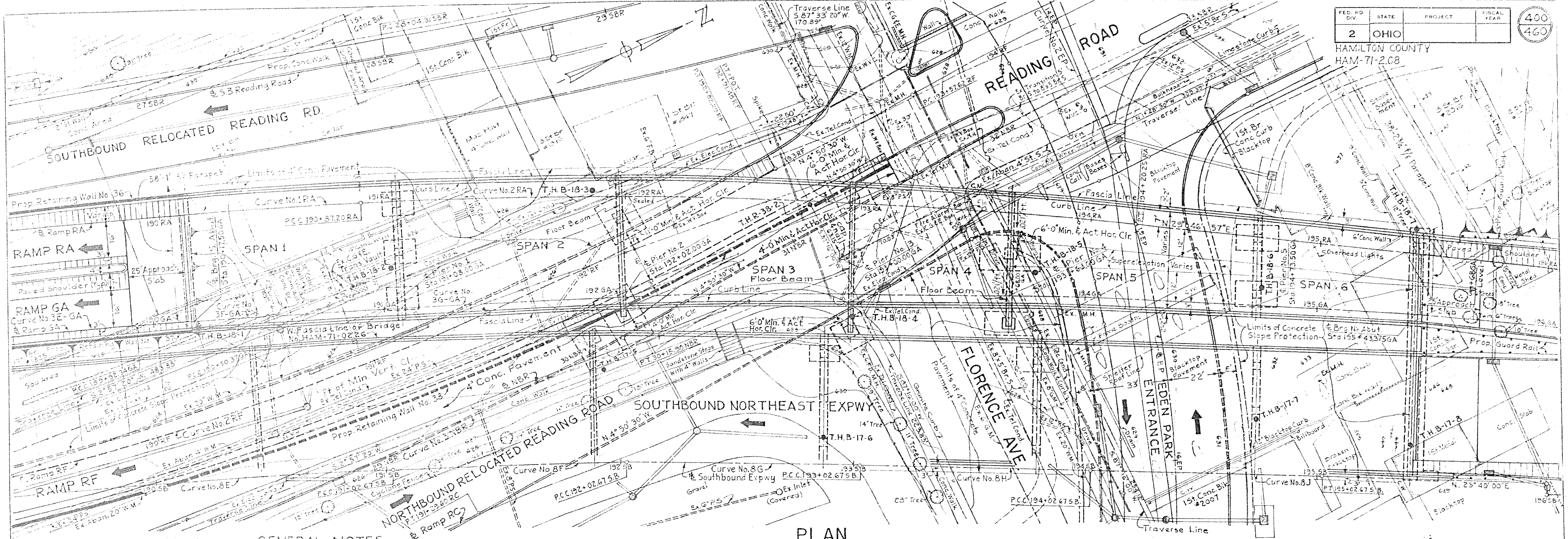
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISED
OAF	RLR 1-13-65		OAF 4-19-65		

SFN 3101223

FED. RD. DIV.	STATE	PROJECT	FISCAL YEAR
2	OHIO		

400/460

HAMILTON COUNTY
HAM-71-2.08

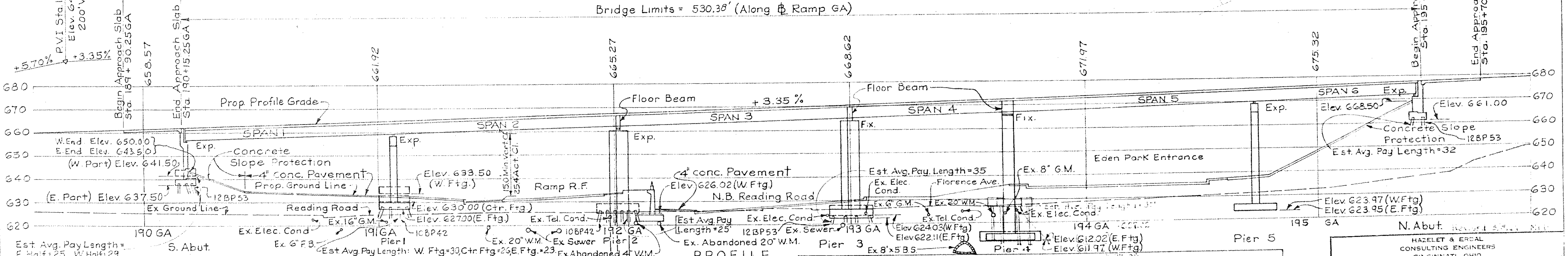


PLAN

GENERAL NOTES

MICROFILMED SEP 16 1982

- ⊗ Symbol denotes drill hole.
- For test boring data see sheets 16 & 17 of 23
- For Bench Marks, see sheet 39
- Span lengths are measured along Ramp GA ℄.



PROFILE
(Along ℄ Ramp GA)

CURVE DATA

RAMP GA			RAMP RA	
Curve No. 3E	Curve No. 3F	Curve No. 3G	Curve No. 1RA	Curve No. 2RA
P.I. Sta. = 186+76.54 GA	P.I. Sta. = 190+21.35 GA	P.I. Sta. = 193+57.95 GA	P.I. Sta. = 189+32.68 RA	P.I. Sta. = 192+54.02 RA
Δ = 12°20'22"	Δ = 0°34'49"	Δ = 9°41'47"	Δ = 5°55'38"	Δ = 8°19'34"
D = 1°56'46"	D = 1°00'00"	D = 1°34'48"	D = 1°54'58"	D = 2°30'00"
R = 2,944.12'	R = 5,729.58'	R = 3,626.32'	R = 2,990.12'	R = 2,291.83'
L = 634.06'	L = 58.03'	L = 613.70'	L = 309.33'	L = 333.05'
T = 318.26'	T = 29.01'	T = 307.58'	T = 154.80'	T = 166.82'

PROPOSED STRUCTURE

Type: Continuous Steel Plate Girders with reinforced Concrete Deck and Substructure.
Spans: 90'-6", 94'-0", 98'-0", 68'-0", 105'-6", 69'-10½" c/c bearings
Roadway: Varies (see Plan) With 1'-0" Curbs.
Skew: ℄ Pier No. 3 is radial; the ℄ of other Piers and Abutments ℄ Brg. are parallel to ℄ Pier No. 3.
Loading Frequency: C.F. = 2000 (57) Adequate for AASHO alternate loading.
Wearing Surface: 1" Monolithic Concrete.
Approach Slabs: AS-1-54 (25'-0" Long).
Alignment: Varies; see Plan.
Superelevation: Varies; see Plan.

Traffic Count 1985 A.D.T. = 22,300
D.H.V. = 2,680

HAZELET & ERDAL
CONSULTING ENGINEERS
CINCINNATI, OHIO

SITE PLAN

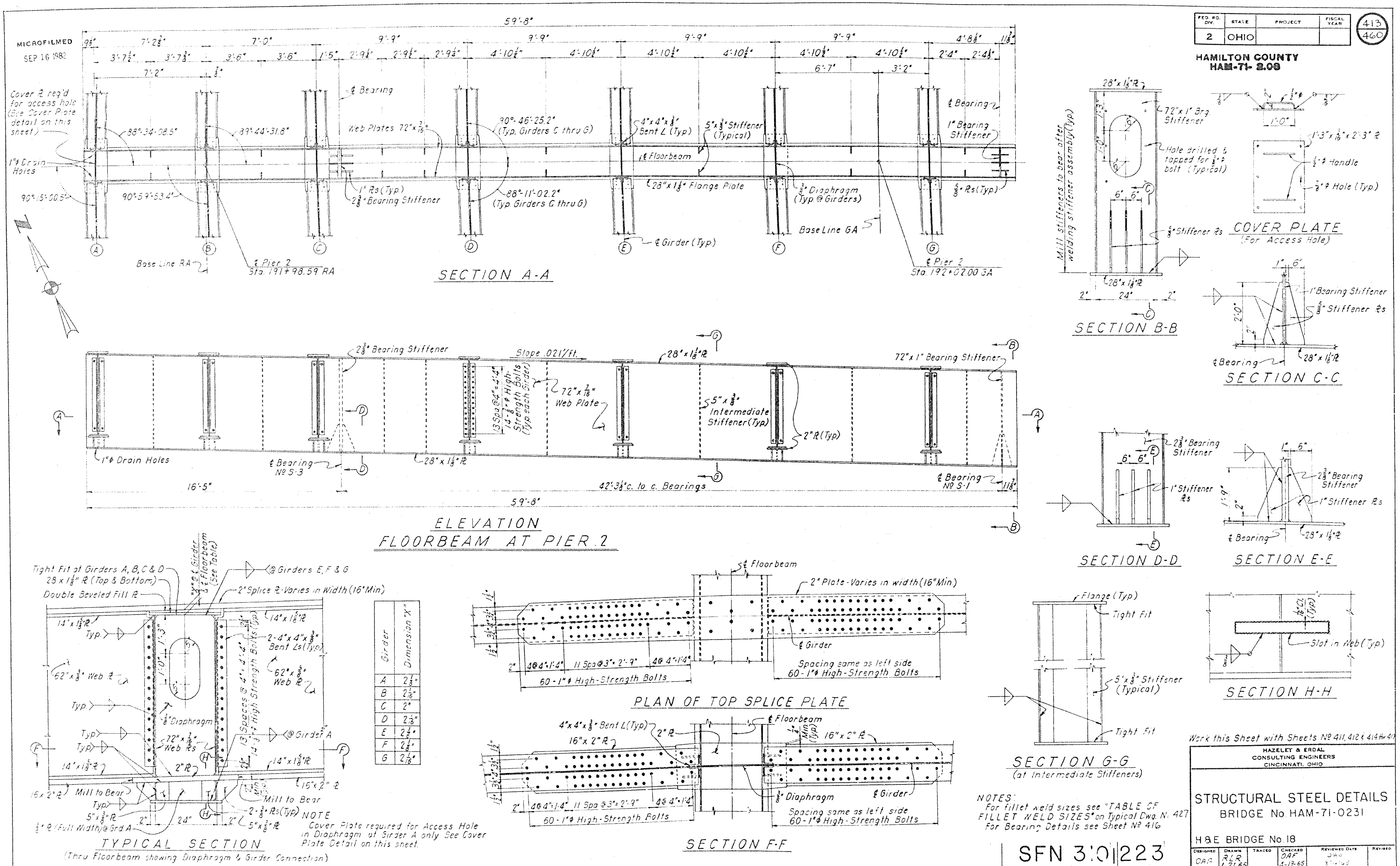
BRIDGE No. HAM-71-0231
RAMPS GA and RA OVER RAMP RF NORTHBOUND READING RD. and EDEN PARK ENT.
H & E BRIDGE No. 18

Designed	Drawn	Traced	Checked	Reviewed Date
	WDK		RLZ	

SFN 3101223

FED. RD. DIV.	STATE	PROJECT	FISCAL YEAR	
2	OHIO			413 / 460

HAMILTON COUNTY
HAM-71- 2.08



Girder	Dimension "X"
A	2 1/8"
B	2 1/16"
C	2"
D	2 1/16"
E	2 1/8"
F	2 1/8"
G	2 1/16"

NOTE
Cover Plate required for Access Hole in Diaphragm at Girder A only. See Cover Plate Detail on this sheet.

NOTES:
For fillet weld sizes see "TABLE OF FILLET WELD SIZES" on Typical Dwg. N: 427
For Bearing Details see Sheet Nº 416

Work this Sheet with Sheets Nº 411, 412 & 414 thr 417

HAZELET & ERDAL
CONSULTING ENGINEERS
CINCINNATI, OHIO

STRUCTURAL STEEL DETAILS
BRIDGE No. HAM-71-0231

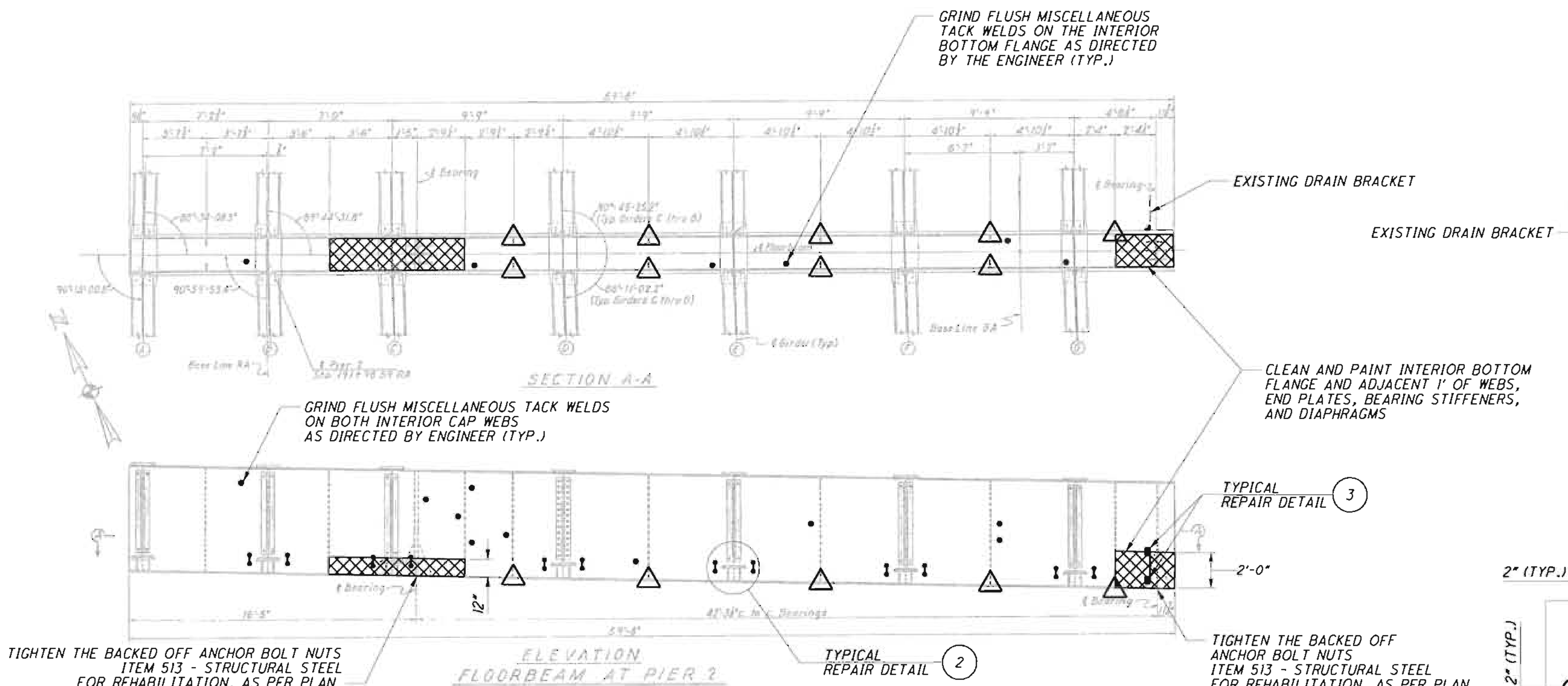
H&E BRIDGE No. 18

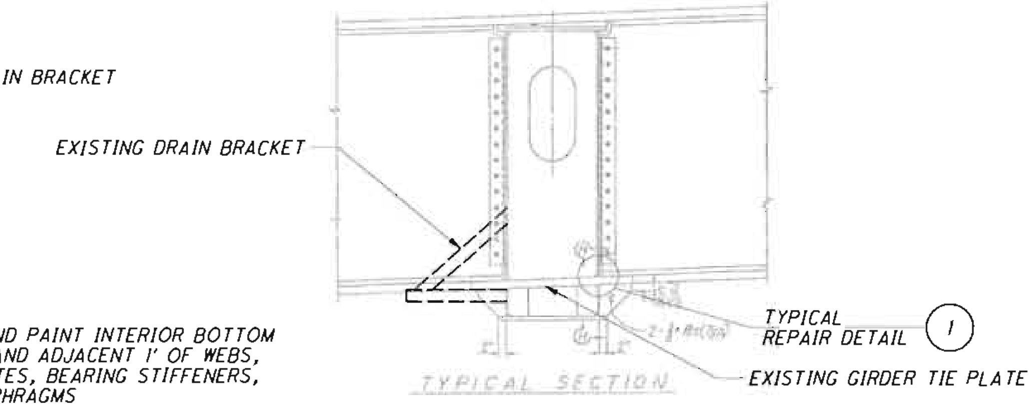
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISED
OAF	RLR 1-21-55		OAF 4-19-65	JHO	

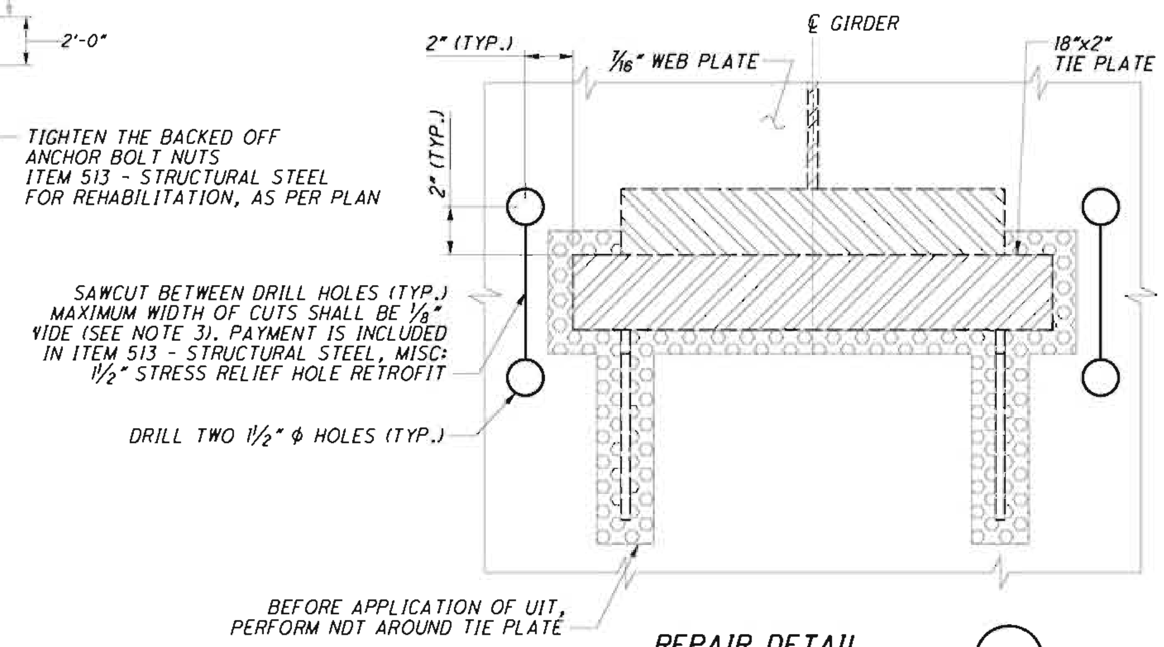
SFN 3101223

APPENDIX B

REHABILITATION PLANS

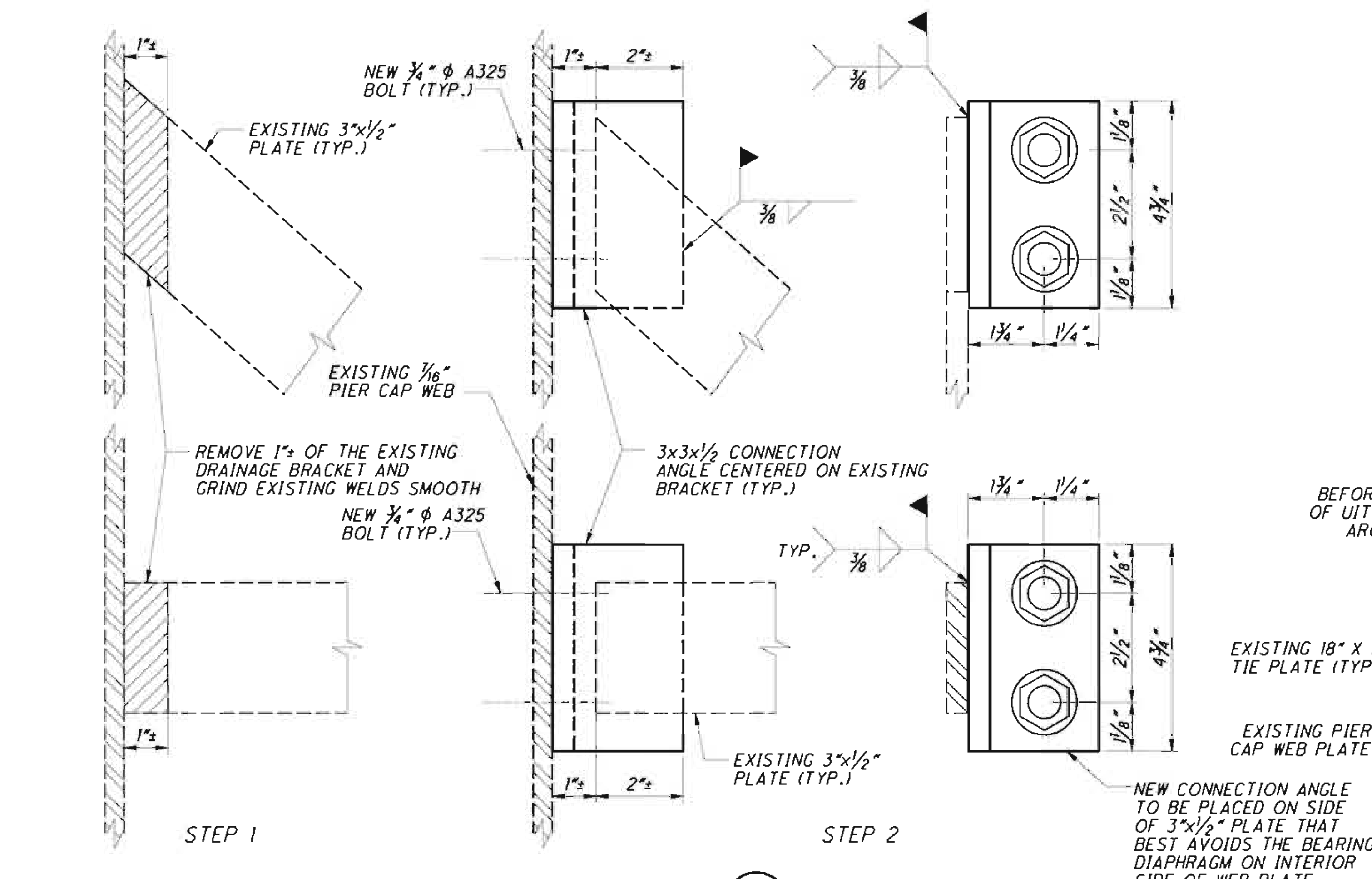




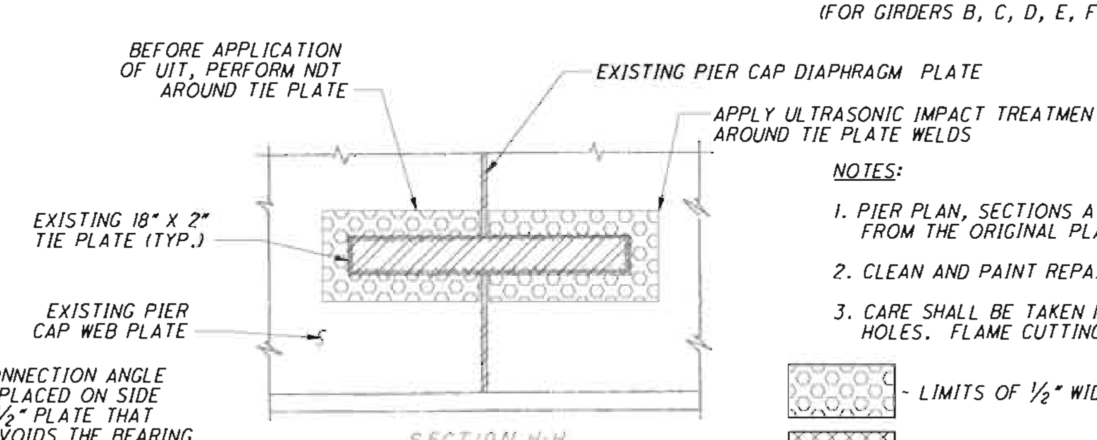


REPAIR DETAIL 2
STRESS RELIEF HOLES

(FOR GIRDERS B, C, D, E, F AND G AT BOTH SIDES OF PIER CAP)



REPAIR DETAIL 3
DRAIN BRACKET RETROFIT



REPAIR DETAIL 1
INTERIOR TIE PLATE TREATMENT

NOTES:

1. PIER PLAN, SECTIONS A-A AND H-H, AND TYPICAL SECTION ARE TAKEN FROM THE ORIGINAL PLANS.
2. CLEAN AND PAINT REPAIR AREAS ON INTERIOR OF PIER CAP.
3. CARE SHALL BE TAKEN NOT TO OVERCUT SAWCUT BEYOND DRILLED HOLES. FLAME CUTTING IS NOT PERMITTED.

- LIMITS OF 1/2" WIDE ULTRASONIC IMPACT TREATMENT (UIT)
- LIMITS OF PAINTING INTERIOR OF PIER CAP
△ - LOCATION OF INTERSECTING WELD BETWEEN PIER CAP WEB STIFFENER WELD AND PIER CAP FLANGE WELD TO BE REMOVED BY GRINDING

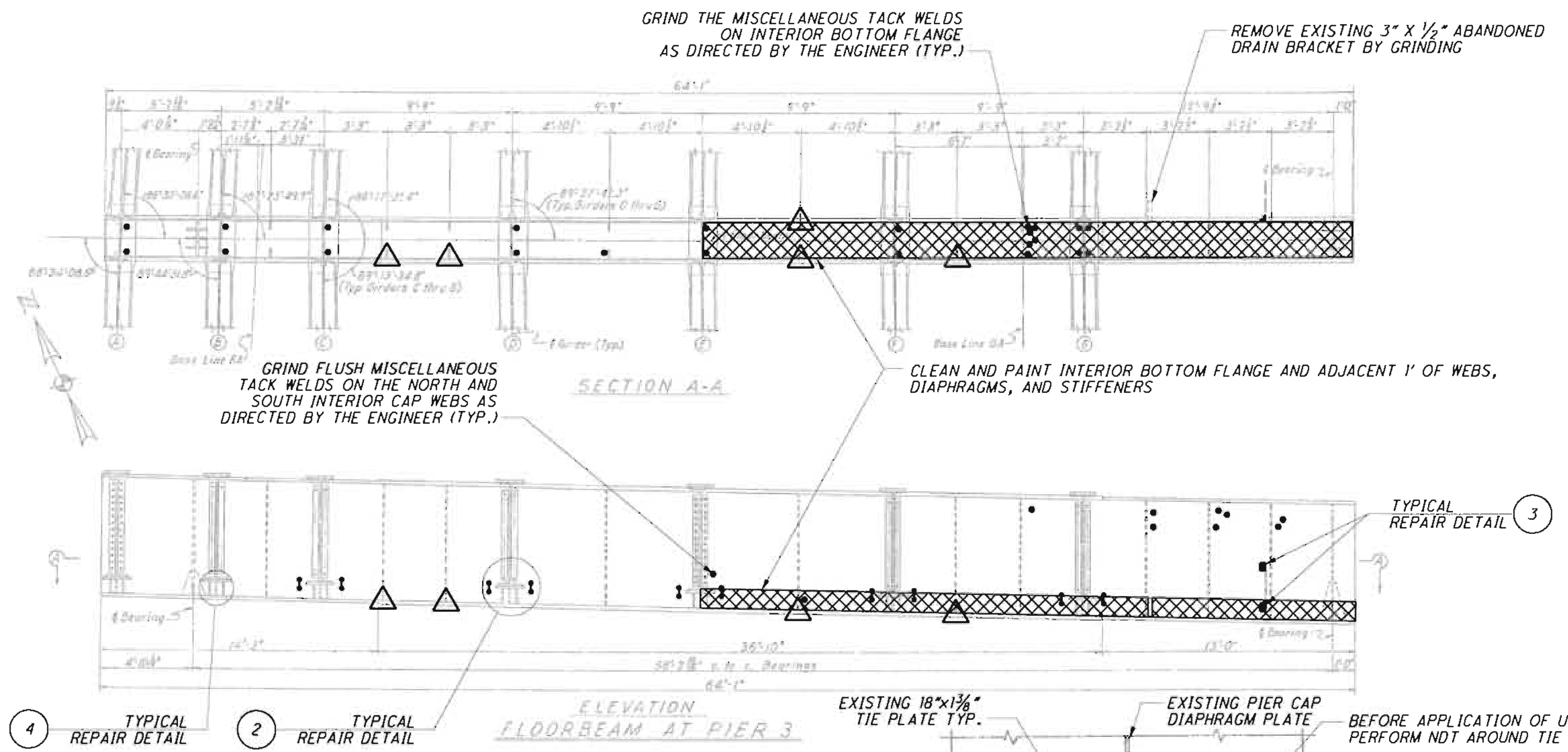
PIER 2 CAP RETROFIT DETAILS
BRIDGE NO. HAM-42-0264R
RAMP TO US 42 OVER NORTHBOUND US 42, RAMP TO SB I-71 AND EDEN PARK DRIVE

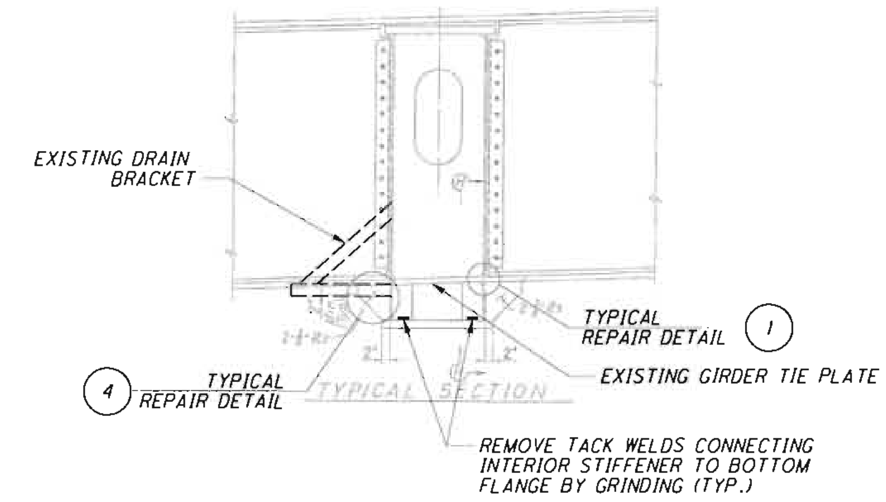
TranSystems, 55 PUBLIC SQUARE, SUITE 1900, CLEVELAND, OHIO 44113

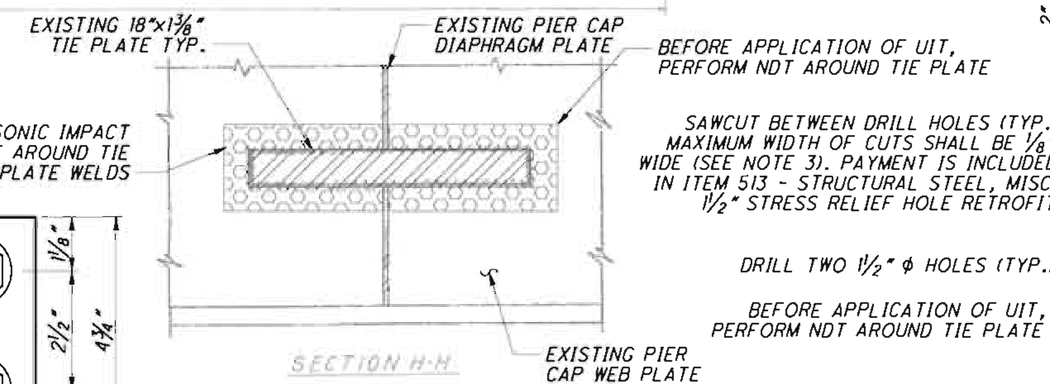
DESIGNED NBR | CHECKED BKC | DRAWN NBR | REVIEWED WRW | DATE 12-05-07 | STRUCTURE FILE NUMBER 3101223

HAM-BH-VAR
PID No. 25374

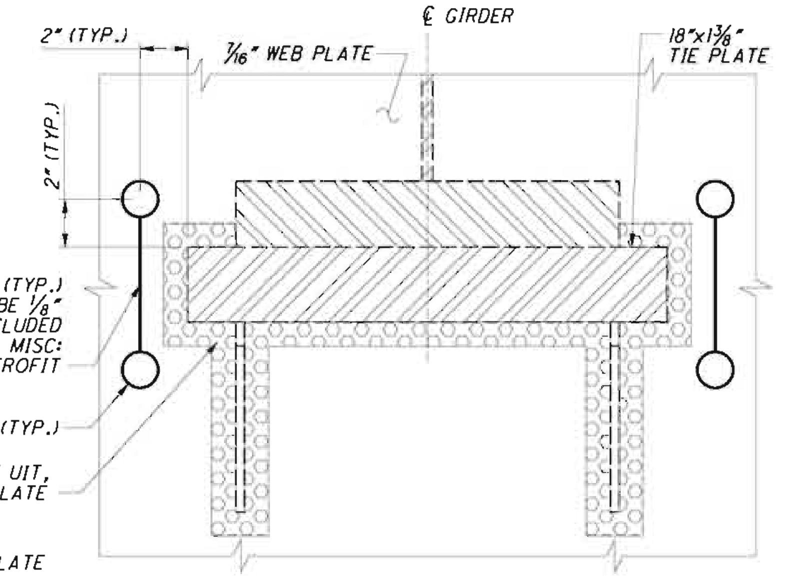
34/38





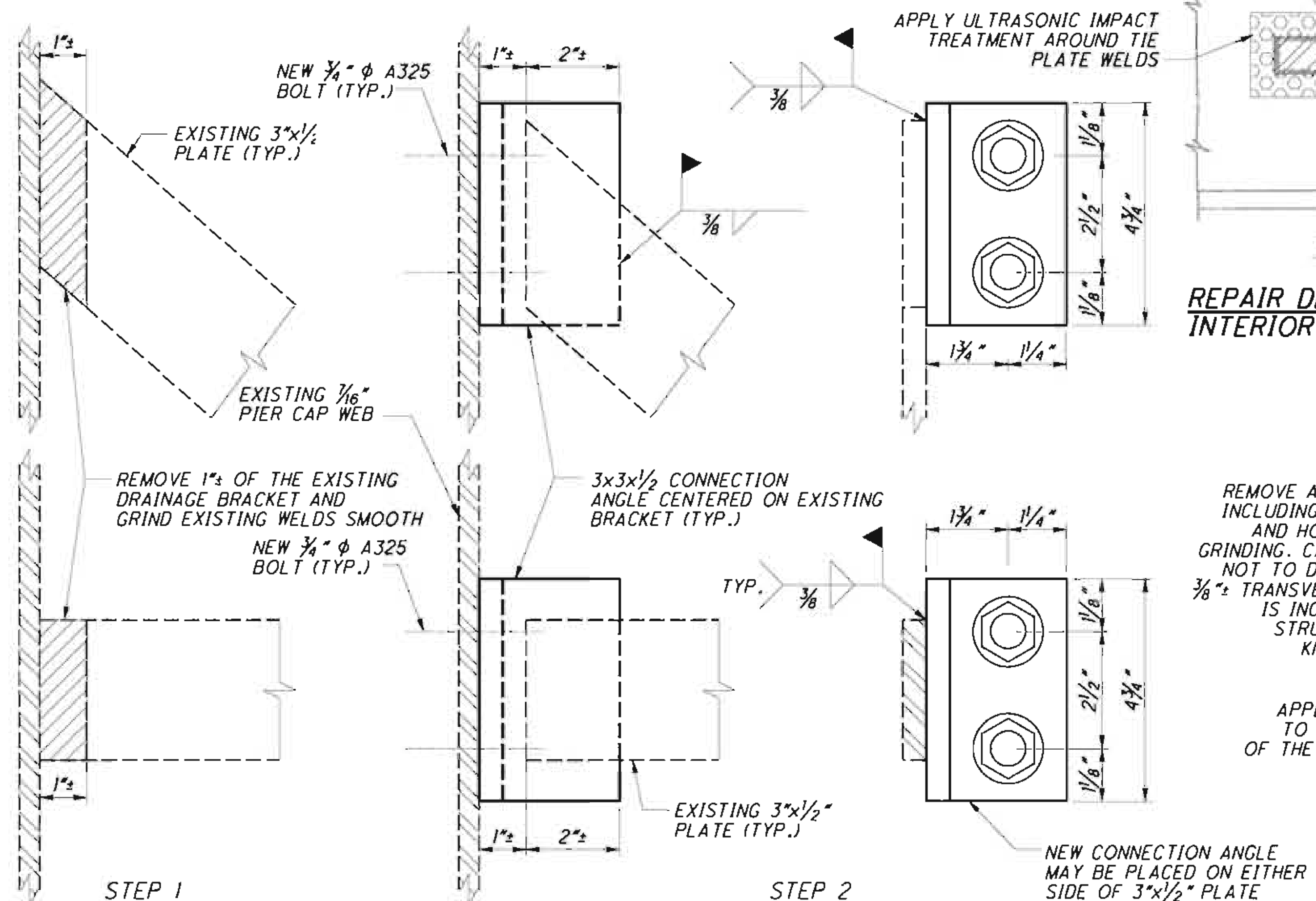


REPAIR DETAIL
INTERIOR TIE PLATE RETROFIT (1)

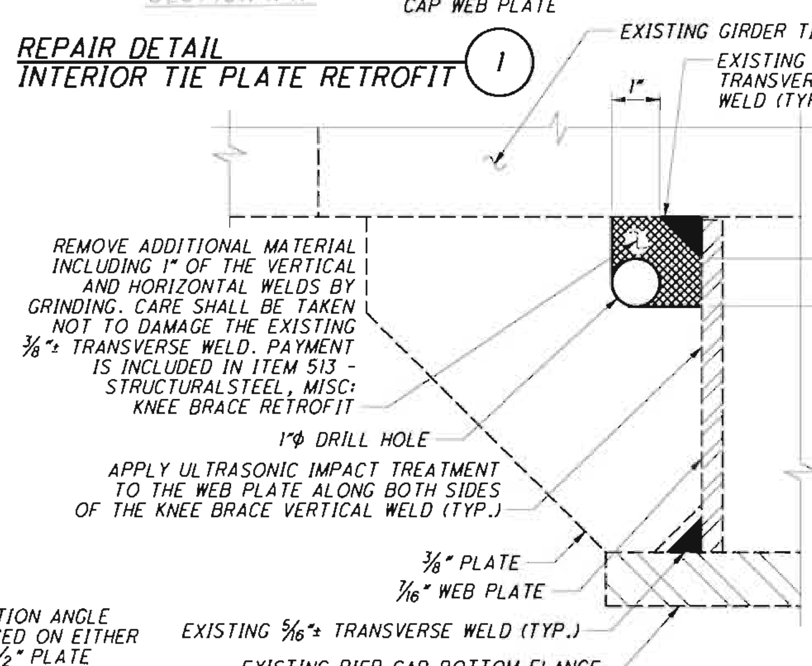


REPAIR DETAIL
STRESS RELIEF HOLES (2)

(FOR GIRDERS C, D, E, F AND G AT NORTH AND SOUTH WEB PLATES)



REPAIR DETAIL
DRAIN BRACKET RETROFIT (3)



REPAIR DETAIL
EXTERIOR KNEE BRACE RETROFIT (4)

NOTES:

1. PIER ELEVATION, SECTIONS A-A AND H-H AND TYPICAL SECTION ARE TAKEN FROM THE ORIGINAL PLANS.
2. CLEAN AND PAINT REPAIR AREAS ON INTERIOR OF PIER CAP.
3. CARE SHALL BE TAKEN NOT TO OVERCUT SAWCUT BEYOND DRILLED HOLES. FLAME CUTTING IS NOT PERMITTED.

- LIMITS OF 1/2" WIDE ULTRASONIC IMPACT TREATMENT (UIT)
- LIMITS OF PAINTING ON PIER CAP INTERIOR
- LIMITS OF STEEL REMOVAL ON EXTERNAL KNEE BRACES BY GRINDING
△ - LOCATION OF INTERSECTING WELD BETWEEN PIER CAP WEB STIFFENER WELD AND PIER CAP FLANGE WELD TO BE REMOVED BY GRINDING

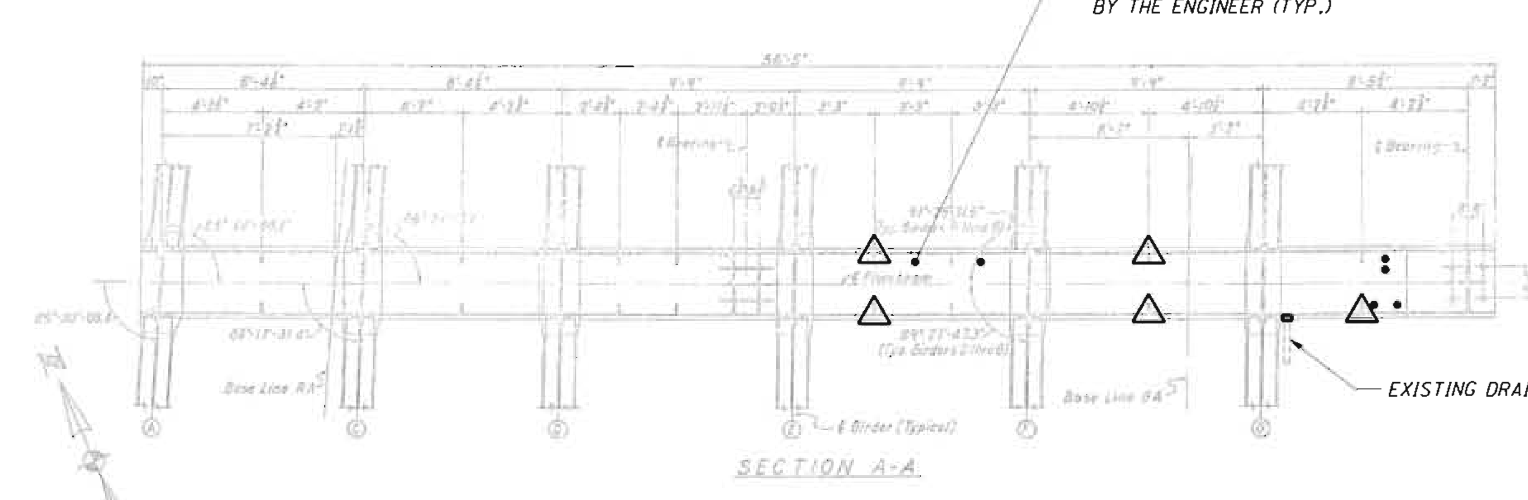
PIER 3 CAP RETROFIT DETAILS
BRIDGE NO. HAM-42-0264R
RAMP TO US 42 OVER NORTHBOUND US 42, RAMP TO SB I-71 AND EDEN PARK DRIVE

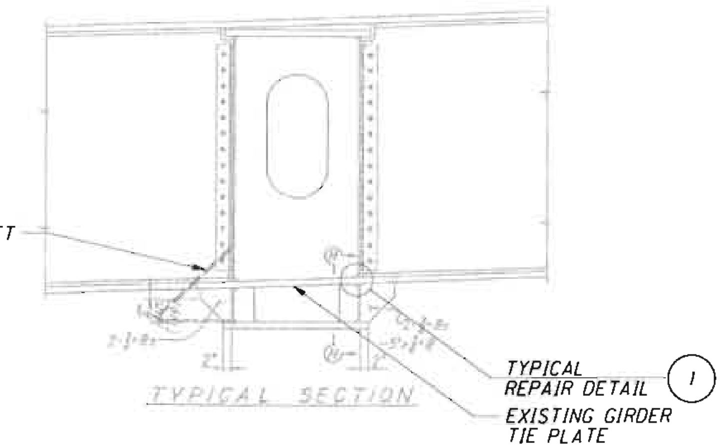
HAM-BH-VAR
PID No. 25374

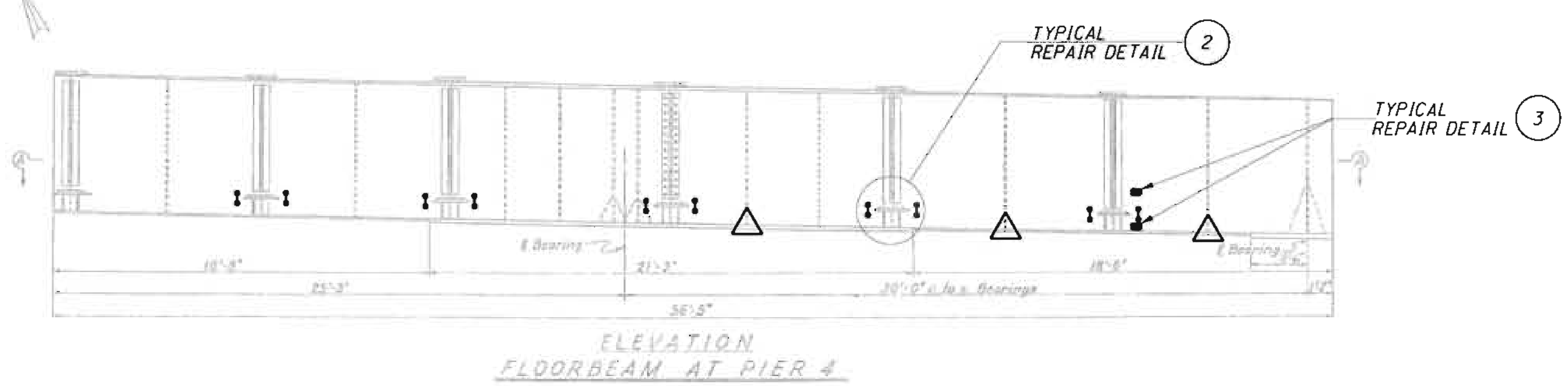
TranSystems, 55 PUBLIC SQUARE, SUITE 1900, CLEVELAND, OHIO 44113
DESIGNED NBR | DRAWN NBR | REVIEWED WRW | DATE 12-05-07
CHECKED BKC | 3101223

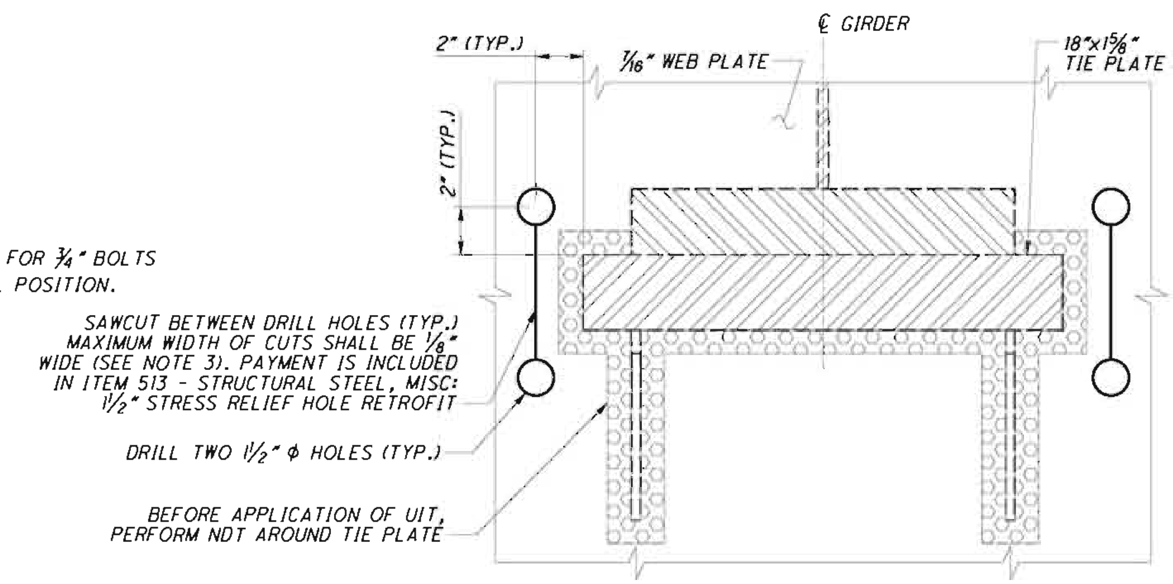
35/38

4/17/2008
P:\2426.03-ODOT B Pier Cap\2007 PID25374 DRAWINGS\(#10) HAM-42-0264R\HAM-42-0264R P3.dgn



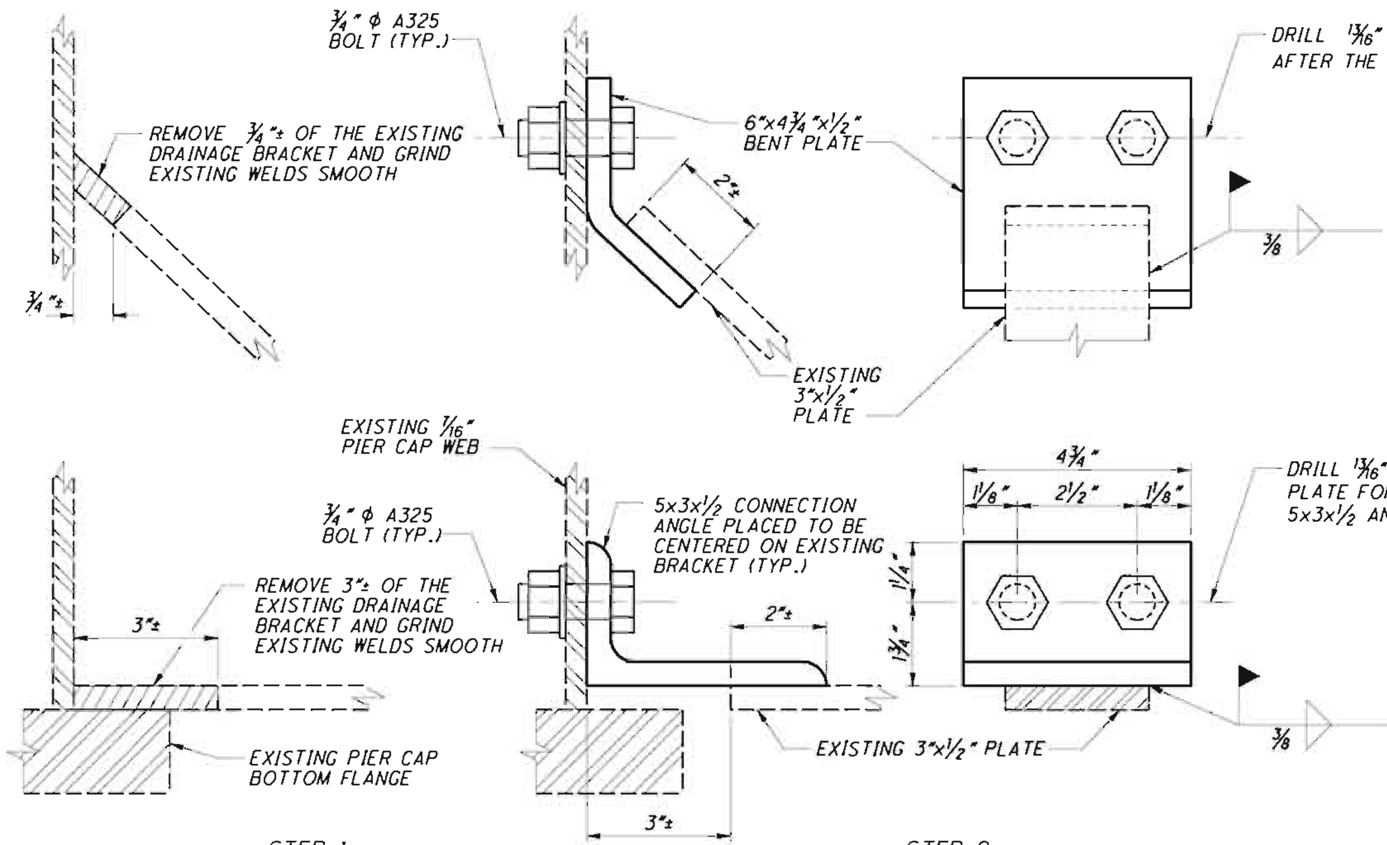




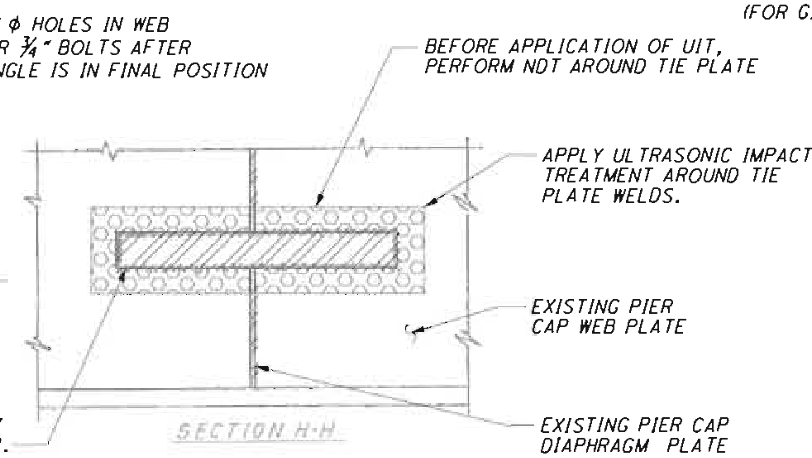


REPAIR DETAIL
STRESS RELIEF HOLES (2)

(FOR GIRDERS C, D, E, F AND G AT NORTH AND SOUTH WEB PLATES)



REPAIR DETAIL
DRAIN BRACKET RETROFIT (3)



REPAIR DETAIL
INTERIOR TIE PLATE TREATMENT (1)

NOTES:

1. PIER ELEVATION, SECTIONS A-A AND H-H, AND TYPICAL SECTION ARE TAKEN FROM THE ORIGINAL PLANS.
2. CLEAN AND PAINT REPAIR AREAS ON INTERIOR OF PIER CAP.
3. CARE SHALL BE TAKEN NOT TO OVERCUT SAWCUT BEYOND DRILLED HOLES. FLAME CUTTING IS NOT PERMITTED.

- LIMITS OF ULTRASONIC IMPACT TREATMENT

△ - LOCATION OF INTERSECTING WELD BETWEEN PIER CAP WEB STIFFENER WELD AND PIER CAP FLANGE WELD TO BE REMOVED BY GRINDING

TranSystems
55 PUBLIC SQUARE, SUITE 1900 CLEVELAND, OHIO 44113

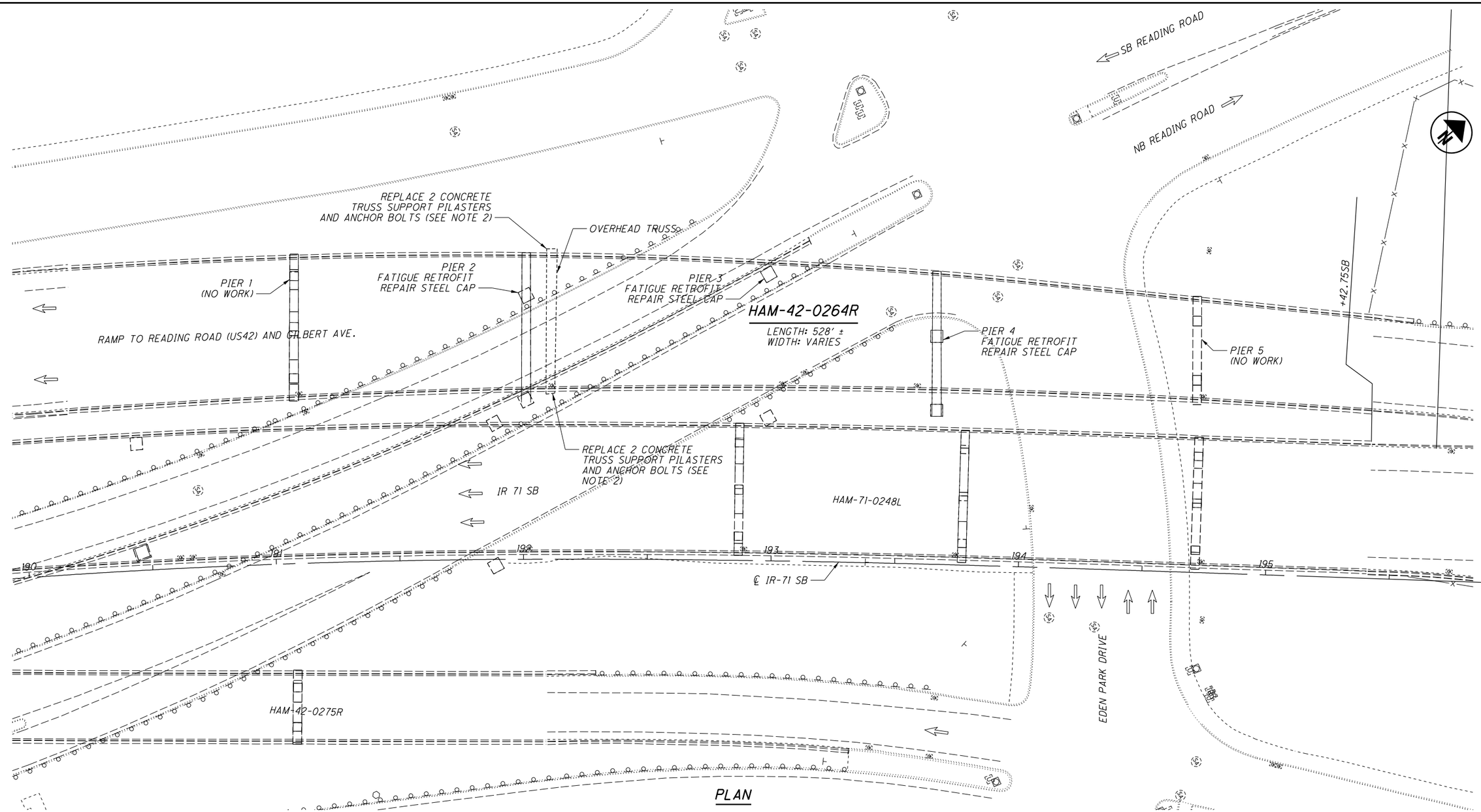
DESIGNED NBR | DRAWN NBR | REVIEWED WRW | DATE 12-20-07 | CHECKED BKC | STRUCTURE FILE NUMBER 3101223

PIER 4 CAP RETROFIT DETAILS
BRIDGE NO. HAM-42-0264R
RAMP TO US 42 OVER NORTHBOUND US 42, RAMP TO SB I-71 AND EDEN PARK DRIVE

HAM-BH-VAR
PID No. 25374

36/38

4/17/2008 P:\2426.03-ODOT B Pier Cap\2007 PID25374 DRAWINGS\(#10) HAM-42-0264R\HAM-42-0264R P4.dgn



PLAN

EXISTING STRUCTURE

TYPE: CONTINUOUS WELDED PLATE GIRDER WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE

SPANS: 90'-6"±, 94'-0"±, 98'-0"±, 68'-0"±, 105'-6"±, 69'-10½"±

ROADWAY: VARIES

LOADING: C.F. = 2000 (57)

SKEW: VARIES

APPROACH SLABS: AS-1-54 (25'-0" LONG)

ALIGNMENT: VARIES

SUPERELEVATION: VARIES

STRUCTURAL FILE NUMBER: 3101223

DATE BUILT: 1969

PROPOSED STRUCTURE

TYPE: CONTINUOUS WELDED PLATE GIRDER WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE

SPANS: 90'-6"±, 94'-0"±, 98'-0"±, 68'-0"±, 105'-6"±, 69'-10½"±

ROADWAY: VARIES

LOADING: C.F. = 2000 (57)

SKEW: VARIES

APPROACH SLABS: AS-1-54 (25'-0" LONG)

ALIGNMENT: VARIES

SUPERELEVATION: VARIES

COORDINATES: LATITUDE 39°7'2" N
LONGITUDE 84°30'2" W

PROPOSED WORK:

1. REPAIR FATIGUE CRACKS IN PIER 2, 3 & 4 STEEL CAPS.
2. REPLACE 4 CONCRETE TRUSS SUPPORT PILASTERS AND ANCHOR BOLTS. SEAL CONCRETE SURFACES OF NEW PILASTERS. THE 4 EXISTING STEEL SUPPORT BRACKETS BELOW PILASTERS ARE TO BE RE-USED.

DESIGN AGENCY
BURGESS & NIPLE
312 PLUM ST. CINCINNATI OH

DESIGNED	DRAWN	REVIEWED	DATE
SJA	SJA	JSB	8/31/2016
CHECKED	REVISED	STRUCTURE FILE NUMBER	
XAC	XXX	3101223	

GENERAL PLAN
HAM-42-0264R
RAMP FROM I-71 SB TO SB US42/US22 OVER US 42 NB

HAM-71-1.97
PID No. 82975

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292

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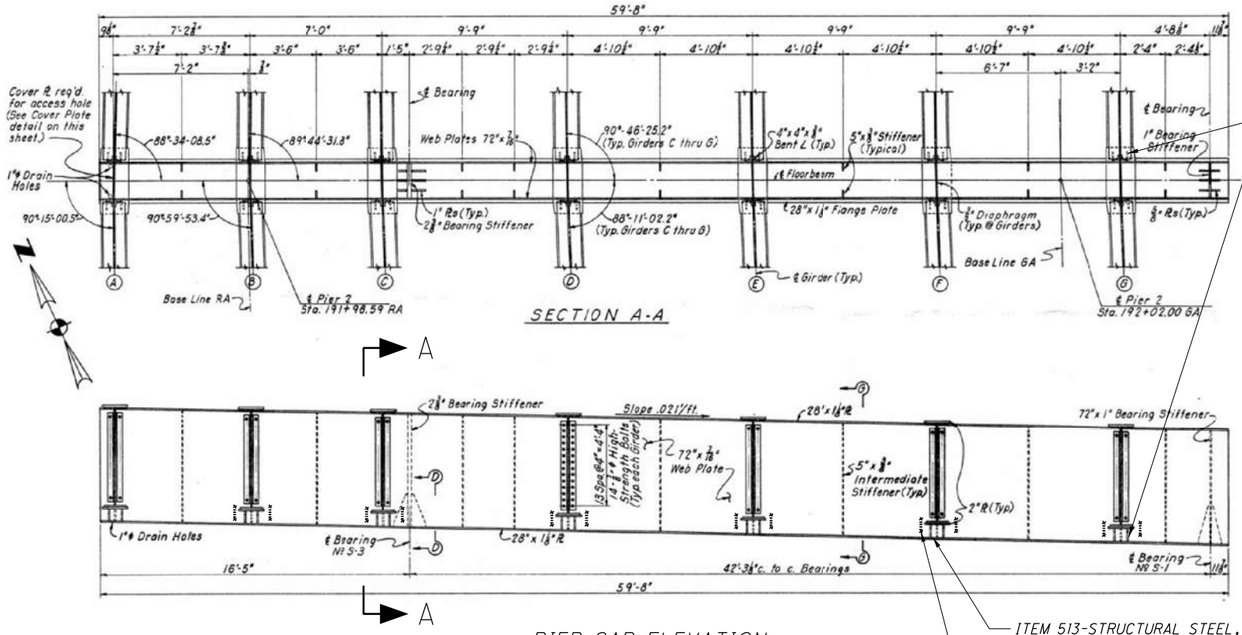
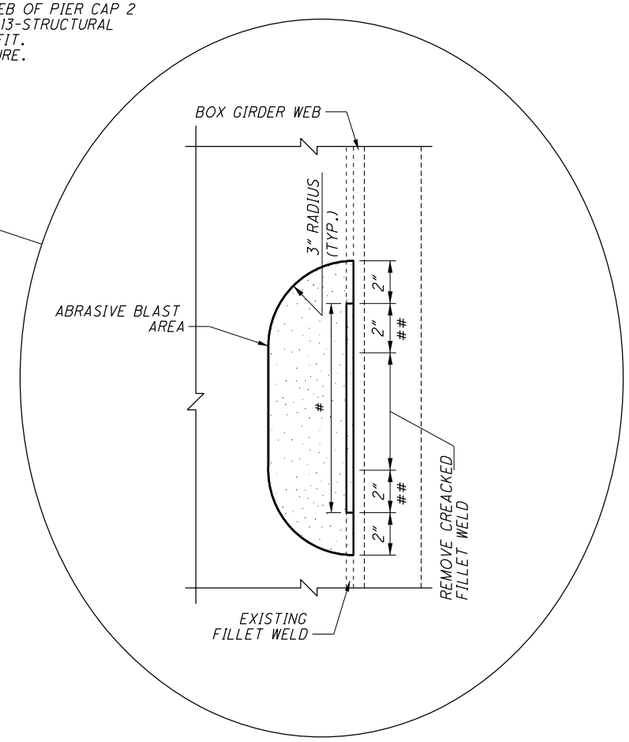


REMOVE AND REPLACE ONE CRACK IN FILLET WELD BETWEEN EAST GIRDER G KNEE BRACE AND NORTH WEB OF PIER CAP 2 PAYMENT SHALL BE INCLUDED WITH ITEM 513-STRUCTURAL STEEL, MISC.: FILLET WELD CRACK RETROFIT. SEE GENERAL NOTES FOR REPAIR PROCEDURE.

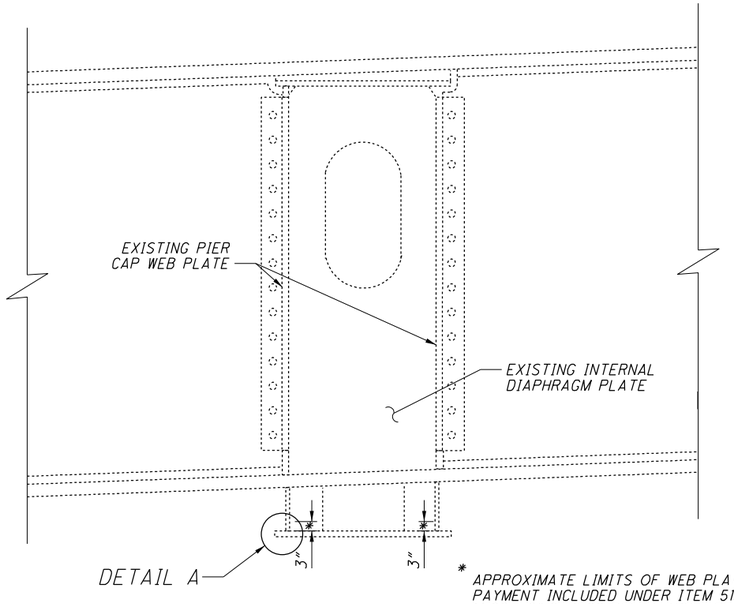
ITEM 513-STRUCTURAL STEEL, MISC.: 2" STRESS RELIEF HOLE RETROFIT TYPICAL AT ALL EXISTING STRESS RELIEF RETROFIT LOCATIONS (DOG-BONE REPAIRS) DONE PREVIOUSLY.

EXISTING STRESS RELIEF RETROFIT LOCATIONS (DOG-BONE REPAIRS) DONE PREVIOUSLY.



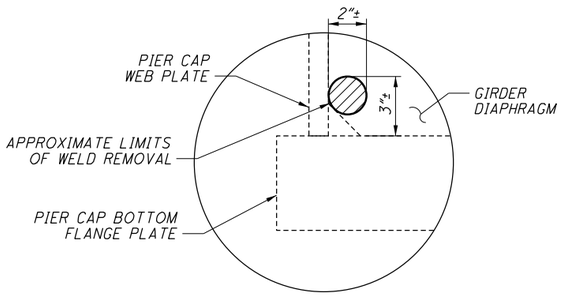
FILLET WELD CRACK RETROFIT DETAILS
(INSIDE ELEVATION)

\# = PROVIDE NEW FILLET WELD
\## = REMELT EXISTING FILLET WELD AND INCORPORATE IN THE NEW WELD



* APPROXIMATE LIMITS OF WEB PLATE WELD REMOVAL. PAYMENT INCLUDED UNDER ITEM 513-STRUCTURAL STEEL, MISC.: 2" STRESS RELIEF HOLE RETROFIT.

SECTION A-A



DETAIL A

ITEM 513-STRUCTURAL STEEL, MISC.: 2" STRESS RELIEF HOLE RETROFIT

PERFORM THE REPAIRS DESCRIBED BELOW AT PIERS 2, 3 & 4.

PIER 2 - 12 LOCATIONS
PIER 3 - 10 LOCATIONS
PIER 4 - 10 LOCATIONS

SEE GENERAL NOTES FOR REPAIR PROCEDURE.

DESIGN AGENCY
BURGESS & NIPLE
312 PLUM ST. CINCINNATI OH

DESIGNED	DRAWN	REVIEWED	DATE
SJA	SJA	JSB	8/31/2016
CHECKED	REVISED	STRUCTURE FILE NUMBER	
XAC	XXX	3101223	

PIER CAP RETROFIT DETAILS
HAM-42-0264R
RAMP FROM I-71 SB TO SB US42/US22 OVER US 42 NB

HAM-71-1.97
PID No. 82975

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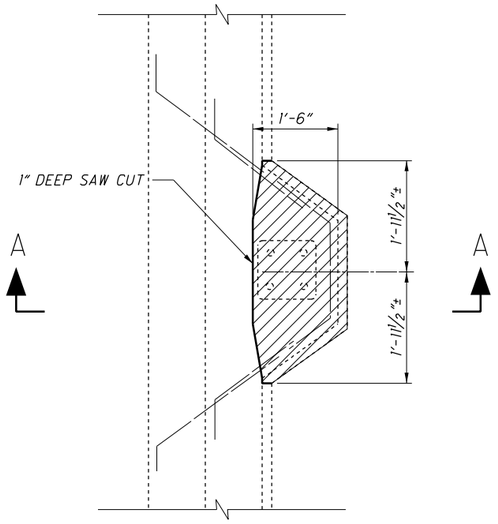
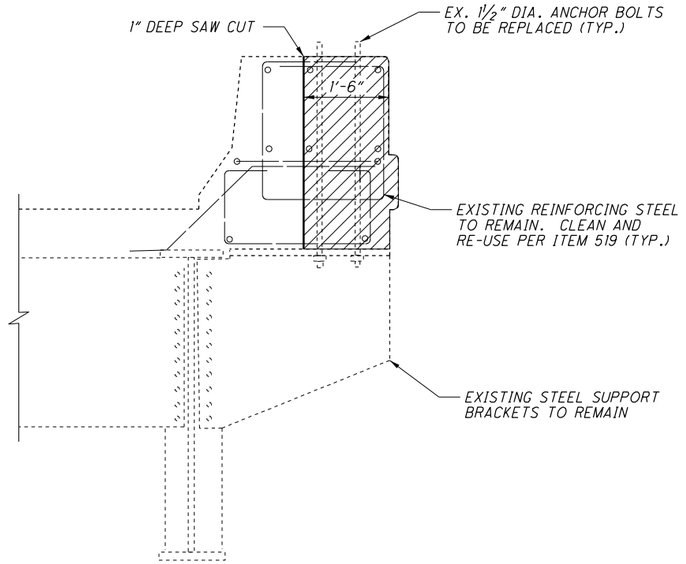


REMOVAL PLAN

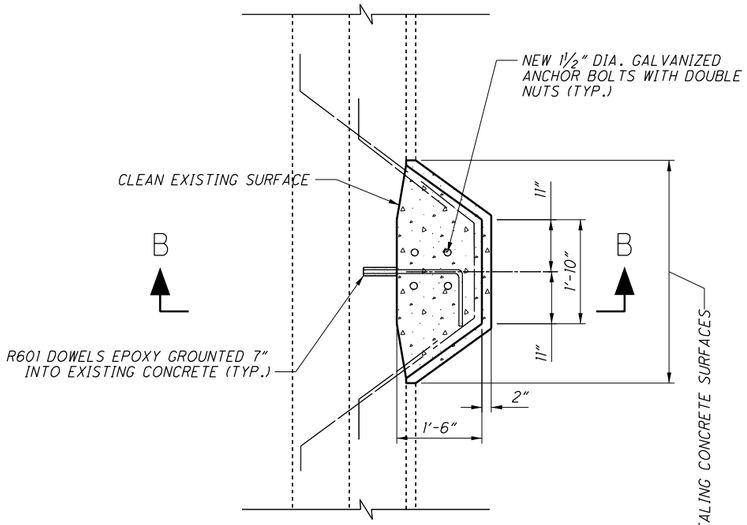


SECTION A-A

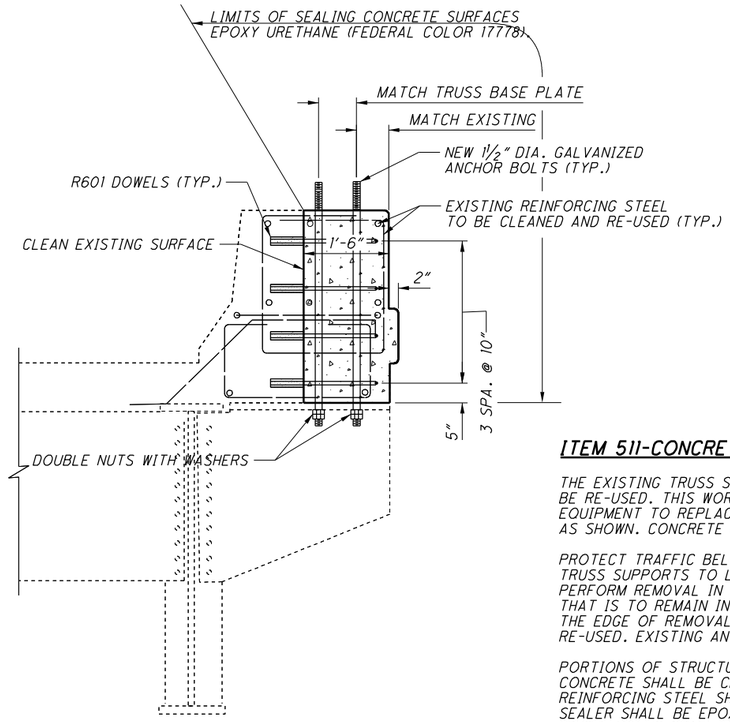
LEGEND:

= LIMITS OF EXISTING CONCRETE REMOVAL

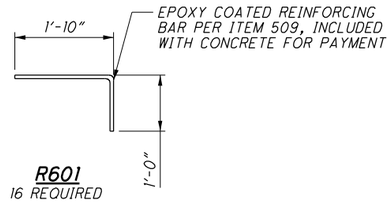
= LIMITS OF NEW CONCRETE



REPAIR PLAN



SECTION B-B



R601
16 REQUIRED

ITEM 511-CONCRETE, MISC.: REPLACE CONCRETE PILASTERS

THE EXISTING TRUSS SUPPORT ANCHOR BOLTS ARE RUSTED TO A POINT THEY CANNOT BE RE-USED. THIS WORK CONSISTS OF FURNISHING ALL NECESSARY LABOR, MATERIALS AND EQUIPMENT TO REPLACE THE EXISTING 16 ANCHOR BOLTS AND 4 CONCRETE PILASTERS AS SHOWN. CONCRETE PILASTER DIMENSIONS TO MATCH THE EXISTING STRUCTURE.

PROTECT TRAFFIC BELOW STRUCTURE BEFORE REMOVALS. REMOVE EXISTING CONCRETE TRUSS SUPPORTS TO LIMITS SHOWN AFTER SAW-CUTTING PERIMETER 1" DEEP. PERFORM REMOVAL IN SUCH A MANNER AS NOT TO DAMAGE OR SHATTER THE CONCRETE THAT IS TO REMAIN IN PLACE. MAKE SQUARE OR SLIGHTLY UNDER CUT SHOULDERS AT THE EDGE OF REMOVAL AREAS. EXISTING REINFORCING STEEL IS TO BE CLEANED AND RE-USED. EXISTING ANCHOR BOLTS SHALL BE REPLACED.

PORTIONS OF STRUCTURE REMOVED SHALL BE PER ITEM 202
CONCRETE SHALL BE CLASS QC2, BRIDGE DECK (PARAPET) PER ITEM 511.
REINFORCING STEEL SHALL BE EPOXY COATED GRADE 60 PER ITEM 509.
SEALER SHALL BE EPOXY URETHANE PER ITEM 512.
DOWEL HOLES SHALL BE PER ITEM 510.
GALVANIZED ANCHOR BOLTS, WASHERS AND NUTS SHALL BE PER ITEM 630.

THE COST OF ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO PERFORM WORK SHOWN ON THIS SHEET SHALL BE INCLUDED IN THE LUMP SUM PAYMENT FOR ITEM 511 - CONCRETE, MISC.: REPLACE CONCRETE PILASTERS

DESIGN AGENCY
BURGESS & NIPLE
312 PLUM ST. CINCINNATI OH

DESIGNED	DRAWN	REVIEWED	DATE
SJA	SJA	JSB	8/31/2016
CHECKED	REVISED	STRUCTURE FILE NUMBER	
XAC	XXX	3101223	

LIGHT PILASTER REPLACEMENT DETAILS
HAM-42-0264R
RAMP FROM I-71 SB TO SB US42/US22 OVER US 42 NB

HAM-71-1.97
PID No. 82975

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APPENDIX C

OHIO BRIDGE INSPECTION SUMMARY REPORT (FIELD REPORT)

Inspector: Kent Jr.,Daniel
Inspection Date: 06/24/2025
Structure Number: 3101223
Facility Carried: RMP I71 TO US22/42

Ohio Bridge Inspection Summary Report

HAM-00042-0264R (3101223)

B.L.04: District	District 0815000 - CINCINNATI (HAM county)	
B.CL.02: Major Maint	01 - State Highway Agency	/
225 Routine Main A/B	01 - State Highway Agency	/
221 Inspection A/B	01 - State Highway Agency	/

Condition

B.C.01: Deck	**7**
58.01: Wearing Surface	7
B.C.08: Joint	6
B.C.02: Superstructure	**5**
59.01: Paint & PCS	7
B.C.03: Substructure	**6**
B.C.09: Channel	**N**
B.C.11: Scour	**N**
B.C.10: Channel Prot.	**N**
B.C.05: Bridge Railing	**7**
B.C.06: Transitions	**7**
B.C.07: Bearings	**7**
B.C.04: Culverts	**N**
Ohio GA	**5**

Appraisal

B.AP.03: Scour Vul. Not over Waterway

Geometric

48: Max Span Length (ft)	106.0
49: Structure Length (ft)	528.0
52: Deck Width, Out-To-Out (ft)	40.3
424: Deck Area (sf)	21278.4
32: Appr Roadway Width (ft)	43.0
51: Road Width, Curb-Curb (ft)	38.0
50A: Curb/SW Width: Left (ft)	0
50A: Curb/SW Width: Right (ft)	0
34: Skew (deg)	3
33: Bridge Median	0 - No median
54B: Min Vert Underclearance (ft)	31.5
336A: Min Vert Clrnce IR Cardinal (ft)	99
336B: Min V Clr IR Non-Cardinal (ft)	0
578: Culvert Length (ft)	0

Load Posting

41: Op/Post/Closed	A - Open
70: Posting	5 - Equal to or above legal loads
70.01: Date	
70.02: Sign Type	
734: Percent Legal (%)	150
704: Analysis Date	07/01/1983
63: Analysis Method	7 - Allowable Stress (AS) rating reported by rating factor (RF) method using MS18 loading.

5A: Inventory Route	1	00071
7: Facility On	RMP I71 TO US22/42	
6: Feature Ints	I71S RMP/US42/EDEN PARK	
9: Location	W OF EDEN PARK	
Lat, Lon	39.118489	,-84.499739

Structure Type

43: Bridge Type	4 - Steel continuous 02 - Stringer/Multi-beam or Girder N- Not Applicable
45: Spans Main / Approach	6 / 0
107: Deck Type	1 - Concrete Cast-in-Place
408: Composite Deck	U - Unknown
414A Joint Type 1	8 - Elastomeric Strip Seal
414B: Joint Type 2	N - None
108A: Wearing Surface	3 - Latex Concrete or similar additive N - Not Applicable
422: WS Date	08/30/1996
423: WS Thick (in)	1.7
482: Protective Coating	5 - Paint System OZEU
483: PCS Date	07/01/2010
453: Bearing Type 1	2 - Rockers & Bolsters
455: Bearing Type 2	N - None
528: Foundn: Abut Fwd	1 - Steel H Piles (Other size)
533: Foundn: Abut Rear	1 - Steel H Piles (Other Size)
536: Foundn: Pier 1	1 - Steel H Piles (Other size)
539: Foundn: Pier 2	4 - Spread Footing (on Soil)

Age and Service

27: Year Built/ 106 Rehab	1969 / 0000
42A: Service On	6 - Overpass structure at an interchange or second level of a multilevel interchange
42B: Service Under	1 - Highway, with or w/out pedestrian
28A: Lanes on	02
28B: Lanes Under	09
19: Bypass Length	2
29: ADT	9785
109: % Trucks (%)	5

Inspections

		Months	
B.IE.03 Routine Insp.		12	06/24/2025
B.IE.03: NSTM Insp.	Y	24	06/24/2025
B.IE.03: UW Insp.	N	0	
B.IE.03: Special Insp.			
UBIT Insp.	N	0	11/05/2014
Drone Insp.	N	0	

Inspector Kent Jr.,Daniel

Inspector:	Kent Jr.,Daniel			**Structure Number:**	3101223		
Inspection Date:	06/24/2025			**Facility Carried:**	RMP I71 TO US22/42		

	Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4
12-Reinforced Concrete Deck	3 - Mod.	21252	sq. ft.	18779	2470	3	0
	No significant changes observed during the GF 2025 NSTM & Routine Inspection. Reference attached NSTM Summary Report for Additional Information. ++ -The top of deck was walked along the right shoulder for the 2023 inspection. -The deck is in good condition overall. There are minor haunch spalls with exposed rebar chairs. -CS2: The soffit exhibited map and transverse cracks at crossframe locations, and transverse cracks with efflorescence randomly throughout the structure(2470 SF). No major changes overall from the 2022 inspection. -CS3: An isolated location of honeycombing/spall (3SF) with exposed steel reinforcing was noted in Bay 2 near Abutment 2.						
510-Wearing Surfaces		20064	sq. ft.	17481	2583	0	0
	No significant changes observed during the GF 2025 NSTM & Routine Inspection. Reference attached NSTM Summary Report for Additional Information. ++ The wearing surface is in good condition, with minor random cracks and small isolated delaminations at random locations. CS2: Hairline transverse and longitudinal cracks throughout, and minor delamination in the right lane over Span 5. (2583 SF)						
107-Steel Open Girder/Beam	3 - Mod.	3454	ft.	3435	19	0	0
	No significant changes observed during the GF 2025 NSTM & Routine Inspection. Reference attached NSTM Summary Report for Additional Information. ++ CS2: Section loss of up to 1/8in. was observed on the Girder G lower flange and web stiffener behind the rocker bearing at Abutment 2. This is past the bearing and the load has been transferred to the substructure at this location (2LF). - Localized corrosion and water staining is present on the bottom flange splices in Span 2 and the outside beams ends at the forward part of the bridge. This has not changed. (8LF) - The 13th web stiffener in Span 3 (from Pier 4) on Girder G is bent (just north of the sign supports). No change (1LF). - Localized minor distortion (likely construction damage) was noted on the bottom flange of Girder G just north of the south bottom flange transition in Span 4. The east edge of the flange is bent downward, and the west half of the flange is bent upward (8LF). - Sign support brackets are connected to the fascia girder webs north of Pier Cap 3 in Span 4 to support the overhead sign supports for the overhead signs above the roadway. No changes or cracks noted. General: Girders B and C terminate prior to Abutment 2. The superstructure alignment is good with no major defects to note. Isolated locations of tack welds exist between the connection angles and the girder webs at girder connections to the pier caps. Most of the tack welds have been removed (ground down) at these locations. No change. The cross frames are welded and bolted to the vertical stiffeners of the girders.						

Inspector: Kent Jr.,Daniel
Inspection Date: 06/24/2025
Structure Number: 3101223
Facility Carried: RMP I71 TO US22/42

	Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4
515-Steel Protective Coating		59566	sq. ft.	59546	14	6	0
	No significant changes observed during the GF 2025 NSTM & Routine Inspection. Reference attached NSTM Summary Report for Additional Information. ++ CS2: Very minor areas of active corrosion throughout (20SF). CS3: Localized corrosion and water staining is present on the bottom flange splices in Span 2 and the outside beams ends at the forward part of the bridge. Section loss of up to 1/8in. was observed on the Girder G lower flange and web stiffener behind the rocker bearing at Abutment 2. This is past the bearing and the load has been transferred to the substructure at this location.						
205-Reinforced Concrete Column	3 - Mod.	11	each	7	4	0	0
	No significant changes observed during the GF 2025 NSTM & Routine Inspection. Reference attached NSTM Summary Report for Additional Information. ++ The west column for Pier Cap 3 has an overhead light and junction box mounted to the north face. CS2: There are isolated spalls and delaminations on the columns, generally at the corners. No exposed rebar was present. The largest is on the west column of Pier 4. (4)						
215-Reinforced Concrete Abutment	3 - Mod.	108	ft.	87	21	0	0
	No significant changes observed during the GF 2025 NSTM & Routine Inspection. Reference attached NSTM Summary Report for Additional Information. ++ CS2: Abutment 1: The east end of the bearing seat between Girders 6 and 7 has a deck drainpipe that runs through the stem. It appears that the drainpipe is clogged inside the stem due to water staining and small sediment present on the abutment seat, the breastwall, and down along the slope protection. This is an old comment that does not appear to have changed since the prior inspection. Some minor crack (7LF) are present on the abutment around this area. - Abutment 2: At the corner where the backwall meets the abutment seat, the concrete has poor finish work behind Girders C and D (old comment); there is one errant rebar that sticks up (stem reinforcing is exposed) and minor cracks are present. There is water and rust staining on the backwall and abutment seat due to the leaking joint above. The abutment has previously been sealed and painted (14LF).						
231-Steel Pier Cap	3 - Mod.	180	ft.	125	55	0	0

Inspector:	Kent Jr.,Daniel	**Structure Number:**	3101223
Inspection Date:	06/24/2025	**Facility Carried:**	RMP I71 TO US22/42

	Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4
	No significant changes observed during the GF 2025 NSTM & Routine Inspection. Reference attached NSTM Summary Report for Additional Information. ++ The web plates have been retrofit with stress relief drilled holes connected by vertical saw-cuts adjacent to the welded connections of the girder bottom flange tie plates at all girders, 2017. The retrofit for the intersecting welds of the girder interior diaphragm stiffeners to the bottom flange were non-performed due to the welds not intersecting. See inspection report for RFI 5 details. No change to this. CS2: Pier 3, corrosion holes are present at the base of the knee braces at the east end of the cap. The northern knee brace corrosion hole measures 5 in. x 5 in and the center brace measures 3 in. high x up to 4-1/2 in. wide (Photographs 29 and 30). This has increased since the prior inspection. Painted over pitting is present in isolated areas on the exterior of the cap and on the interior near the ends. On the interior some of this has reactivated. CS2: several minor cracks to the knee braces supporting girders framing into pier caps, see below: Pier 2 -A 1/4 in. long vertical crack was present at the bottom of the fillet weld between the pier cap south web and the east knee brace below Girder G on the west stiffener of the seat connection -A 3/16 in. long vertical crack was present at the bottom of the fillet weld between the pier cap north web and the east knee brace below Girder C on the north cap web plate -A 1/8 in. long vertical crack was present at the bottom of the fillet weld between the pier cap north web and the west knee brace below Girder C Pier 3 -A 3/16 in. long vertical crack was present at the bottom of the fillet weld between the pier cap south web and the east knee brace below Girder B. The crack has not propagated into the base metal and has not changed since the prior inspection -There are minor areas of active corrosion or pitting and various weld defects. Several previous repair areas were not repainted and the bare steel is exposed on cap interiors. (50ft). -There are various gouges, tack welds, weld remnants, undercuts, porosity, backing bars, etc. present on the cap interiors. These are all old comments and have not changed for this inspection. -Triaxial welds are present but no cracks have currently resulted from excessive restraint.						
300-Strip Seal Joint	3 - Mod.	81	ft.	57	24	0	0
	No significant changes observed during the GF 2025 NSTM & Routine Inspection. Reference attached NSTM Summary Report for Additional Information. ++ CS2: The deck joint over Abutment 1 is leaking in Bay 4 (no change). The deck joint over Abutment 2 is leaking in Bays 3 and 4 (no change). 24LF total						
311-Movable Bearing	3 - Mod.	25	each	13	9	3	0

Inspector: Kent Jr.,Daniel
Inspection Date: 06/24/2025

Structure Number: 3101223
Facility Carried: RMP I71 TO US22/42

	Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4
	No significant changes observed during the GF 2025 NSTM & Routine Inspection. Reference attached NSTM Summary Report for Additional Information. ++ CS2: Active laminating surface corrosion is present throughout the bearings, usually on the masonry plate (9). Painted over pitting up to 1/16in. deep is present on the masonry plate at Girder D, Abutment 1. Fascia girder bearings exhibit active corrosion with minor soil and debris present. Steel cap pot bearings are in good condition. The bearings overall function as designed. - The bearings at Abutment 2 have active corrosion and rust staining and debris on the bearing and the masonry plate. The bearings appear to function as intended. - The rocker bearings at Abutment 1 were not uniformly in expansion at the time of the inspection. Girders A and G were expanded less than the others. This appears similar to prior inspections. - The rocker bearings at Abutment 2 are in expansion between 8 and 11 degrees at 70F. - The rocker bearing anchor bolt under Girder B at Pier Cap 5 is not fully seated. CS3 - Bearings 1 and 5 at the FWD and bearing 1 at rear have pack rust.						
321-Reinforced Concrete Approach Slab	3 - Mod.	2150	sq. ft.	2062	88	0	0
	No significant changes observed during the GF 2025 NSTM & Routine Inspection. Reference attached NSTM Summary Report for Additional Information. ++ CS2: The forward approach slab and the forward approach roadway have a minor vertical misalignment, which is causing minor impact damage to the end of the approach slab. Both approach slabs have a few small spalls/popouts along the edges. Light is present scaling in the forward slab and has not changed. (88 SF)						
331-Reinforced Concrete Bridge Railing	3 - Mod.	1060	ft.	625	435	0	0
	No significant changes observed during the GF 2025 NSTM & Routine Inspection. Reference attached NSTM Summary Report for Additional Information. ++ CS2: The parapet was sealed in the past; however, the parapet exhibits minor vertical cracks at intervals spaced 3ft to 5ft throughout. Minor impact scrapes are present. Delaminations are present on the top corner of the left rear parapet, with some minor areas of collision damage (435ft). No major changes overall.						
815-Drainage	3 - Mod.	4	each	2	0	2	0
	No significant changes observed during the GF 2025 NSTM & Routine Inspection. Reference attached NSTM Summary Report for Additional Information. ++ - The previously welded brackets to the pier cap webs have been removed as part of past rehabilitation efforts and are now secured via bolted connections. - CS3: The drainage at Abutment 1 is clogged and exhibits rust staining down the abutment wall and section loss/small rust holes at ends of downspout; this is an old comment that has not changed. - CS2: The drainpipes through the slope protection at Abutment 2 have corrosion and section loss up to 1/8in. at the outlets of the pipes. - CS2: Drains and scuppers exhibit signs of being clogged due to debris.						

Inspector: Kent Jr.,Daniel
Inspection Date: 06/24/2025

Structure Number: 3101223
Facility Carried: RMP I71 TO US22/42

	Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4
830-Abutment Backwall	3 - Mod.	108	ft.	100	8	0	0
	No significant changes observed during the GF 2025 NSTM & Routine Inspection. Reference attached NSTM Summary Report for Additional Information. ++ CS2: Minor vertical cracks in both abutment backwalls, along with rust staining in abutment 1 backwall in bay 4. (8')						

Inspector:	Kent Jr.,Daniel	**Structure Number:**	3101223
Inspection Date:	06/24/2025	**Facility Carried:**	RMP I71 TO US22/42

HAM-00042-0264R_(3101223)

ODOT District:	District 08					Date Built:	07/01/1969
Major Maint:	01 - State Highway Agency	Facility Carried:	RMP I71 TO US22/42	Traffic On:	6 - Overpass structure at an interchange or second level of a	Rehab Date:	
Routine Maint:	01 - State Highway Agency	Feature Inters:	I71S RMP/US42/EDEN PARK	Traffic Under:	1 - Highway, with or w/out pedestrian	Insp. Resp A:	01 - State Highway Agency
FIPS Code:	15000 - CINCINNATI (HAM county)	Location:	DISTRICT 08	W OF EDEN PARK		Insp Resp B:	
Inspector	Kent Jr.,Daniel	Inspection Date	06/24/2025	Reviewer	Not Approved		

Inspector Comments - Deck and Approach

Deck, Wearing Surface, Joints, Railing

NO SIGNIFICANT CHANGES
OBSERVED DURING THE GF 2025 NSTM & ROUTINE INSPECTION. REFERENCE
ATTACHED NSTM SUMMARY REPORT FOR ADDITIONAL INFORMATION.

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- The top of deck was walked along the right shoulder for the 2023 inspection.
- The deck is in good condition overall. There are minor haunch spalls with exposed rebar chairs.
- The soffit exhibited map and transverse cracks over the crossframes, with efflorescence present randomly along the structure. No major changes overall from the 2022 inspection.
- An isolated location of honeycombing (2SF) with exposed steel reinforcing was noted in Bay 2 near Abutment 2.
- The wearing surface is in good condition, with minor random cracks and small isolated delaminations at random locations.
- The parapet was sealed in the past; however, the parapet exhibits minor vertical cracks at intervals spaced 3ft to 5ft throughout. Minor impact scrapes are present. No major changes overall.
- See the individual element comments for specifics.

Approach

NO SIGNIFICANT CHANGES
OBSERVED DURING THE GF 2025 NSTM & ROUTINE INSPECTION. REFERENCE
ATTACHED NSTM SUMMARY REPORT FOR ADDITIONAL INFORMATION.

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- The right shoulder of the approach was walked in 2022.
- The south approach has a few broken up sections, mostly towards the center, with potholes and cold patch repairs present. A few random cracks are present in the asphalt.
- The approach roadway is ravelly but overall has a smooth transition from the approach slab.
- Approach guardrail is in good condition, no defects noted.
- Approach slab visible and has minor cracking and small spalls throughout.
- Trees are present on the roadway shoulder at the west end of Span 1 and the west (right) shoulder in the south approach. These can be cut back.

Inspector:	Kent Jr.,Daniel	**Structure Number:**	3101223
Inspection Date:	06/24/2025	**Facility Carried:**	RMP I71 TO US22/42

Inspector Comments - General Appraisal

Superstructure, Bearings

NO SIGNIFICANT CHANGES
OBSERVED DURING THE GF 2025 NSTM & ROUTINE INSPECTION. REFERENCE
ATTACHED NSTM SUMMARY REPORT FOR ADDITIONAL INFORMATION.

++

- Superstructure have minor corrosion and pitting to girders and steel pier caps.
- Bearings have minor surface corrosion/pitting to bearings throughout.
- Steel pier caps have areas of corrosion and pitting as well as non-active small cracks in steel knee braces supporting girders. Retrofits were performed in 2017 to address fatigue prone details throughout the three caps. The web plates have been retrofit with stress relief drilled holes connected by vertical saw-cuts adjacent to the welded connections of the girder bottom flange tie plates at all girders, 2017. The retrofit for the intersecting welds of the girder interior diaphragm stiffeners to the bottom flange were non-performed due to the welds not intersecting. See inspection report for RFI 5 details.
- Pier 2 knee brace below Girder G, north web, 1/4" crack in weld, Pier 2 knee brace below Girder C, north web, 3/16" crack, Pier 2 knee brace below Girder C, south web, 1/8" crack in weld, Pier 3 knee brace below Girder B, south web, 3/16" crack in weld. No crack propagation observed during 2021 inspection.
- See the individual element comments for specifics.

Substructure

NO SIGNIFICANT CHANGES
OBSERVED DURING THE GF 2025 NSTM & ROUTINE INSPECTION. REFERENCE
ATTACHED NSTM SUMMARY REPORT FOR ADDITIONAL INFORMATION.

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- Substructures have minor vertical cracking throughout pier columns and abutments and some minor spalls in wingwalls.
- Abutments have minor vertical cracking and rust staining in stems and backwalls.
- Wingwalls have minor cracking and some spalls throughout, one with exposed rebar.
- Piers have only minor cracking and very small spalls some pier columns.
- See the individual element comments for specifics.

Non-element substructure comments include:

Slope Protection

-Under Pier 1 at Column 3, the slope protection has settled up to 4 inches.

-The slope protection around Abutment 1 and the east side of the slope protection at Abutment 2 has light vegetation growth along the joints throughout. Vegetation is starting in the western joint at Abutment 2.

-There is a full length 2in. wide x 1in. deep settlement along one joint of the slope protection under Bay 1.

Wingwalls

-The southwest wingwall has sealed cracks with efflorescence at the west corner of Abutment 1; no change.

-Spalls are present on the wingwalls. These are at: 1.5ft high x 6in. long x up to 2ft deep spall at the southeast wingwall joint with a 4ft long section of missing joint filler; 5ft high x 5in. long x 10in. deep spall at a joint in the southeast wingwall joint approximately 100' south of the abutment; has slightly grown.

-The northeast wingwall could be considered a continuation of Abutment 2 due to proximity to the adjacent bridge abutment.

-Minor spalls/popouts are typical along the wingwalls due to formwork attachments during construction.

-The embankments are in good conditin with no major defects.

Culvert

Inspector Comments - Waterway

Channel Protection

Channel

Scour

Inspector: Daniel Kent Jr. **Structure Number:** 3101223

Inspection Date: 06/24/2025 **Facility Carried:** RMP I71 TO US22/42

Bridge Inspection Report

Pictures

PHOTO 1

Description South abutment

PHOTO 2

Description North abutment

Pictures

PHOTO 3

Description West bridge elevation

PHOTO 4

Description Typical pier 1

Pictures

PHOTO 5

Description Pier 2 and typical superstructure

PHOTO 6

Description Typical condition of abutment bearings

Pictures

PHOTO 7

Description West fascia girder elevation

PHOTO 8

Description Typ. steel pier cap bearing

Pictures

PHOTO 9

Description Typical deck

PHOTO 10

Description Typical deck

Pictures

PHOTO 11

Description Typical steel pier cap welded drain pipe connections

GANNETT FLEMING

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