

April 4, 2023

## PRE-INSPECTION REPORT

BRIDGE NO HAM-42-0257R

PID No. 105476



RAMP FROM I-71 SOUTHBOUND TO EDEN PARK DRIVE  
OVER NORTHBOUND READING ROAD

**INSPECTION DETAILS:**

Bridge No.: HAM-42-0257R  
Features intersected: Northbound Reading Road (US 42), Ramp from I-71 Southbound to Eden Park Drive

Locations to Inspect: HAM-42-0257R: 1 steel pier cap (Pier 1)

No. of Inspection Days: Anticipated 1 night  
No. of Caps to Inspect: 1  
Anticipated Inspection Dates: Week of June 19, 2023 (tentative)  
Inspection Hours: 10:00 PM to 5:00 AM  
Inspection Access Equipment: Bucket Truck, Ladders

**FRACTURE CRITICAL INSPECTION REQUIREMENTS:**

The inspection will consist of an In-Depth “Arms-Reach” inspection, performed in accordance with the guidelines of the current FHWA National Bridge Inspection Standards for Fracture Critical Members. To perform an effective Fracture Critical Inspection, the following tasks must be performed:

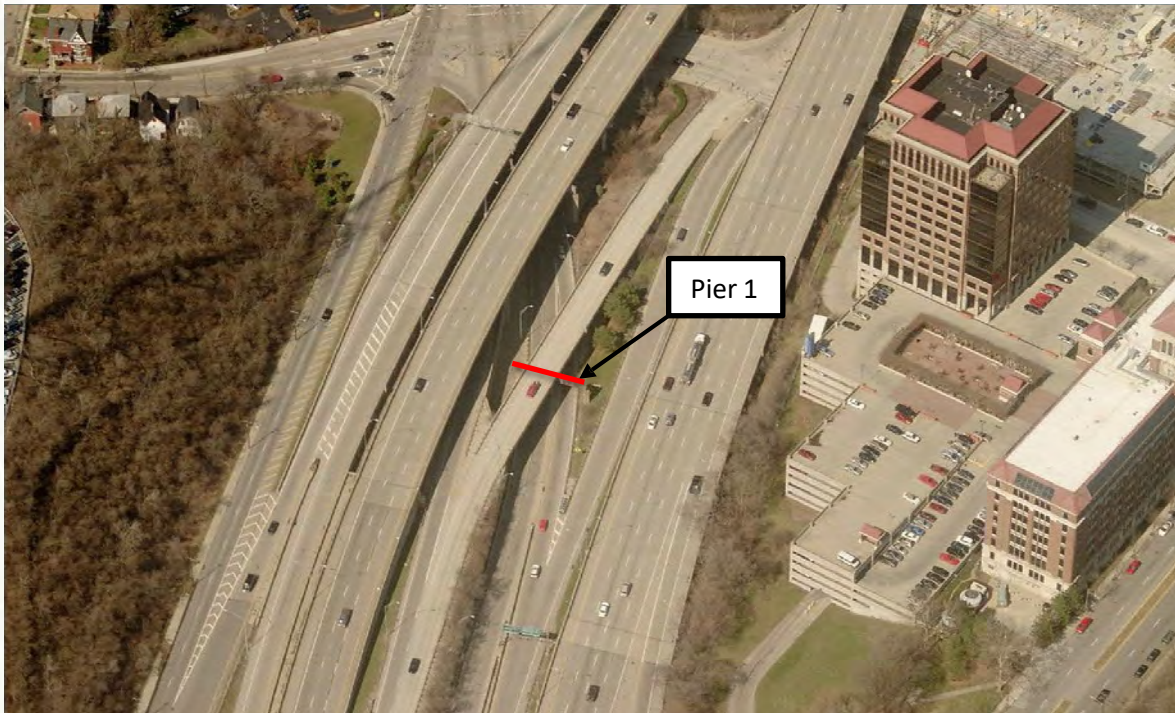
1. Determine Resource Requirements.  
*(Identify qualified inspection staff, use appropriate inspection access and inspection equipment).*
2. Identify the Fracture Critical Members.
3. Develop the Inspection Procedure.  
*(Contained in this document)*
4. Prepare Follow-up Procedure.  
*(Recommendations will be made as part of this current project)*
5. Provide Quality Control/Quality Assurance for the inspection and report.  
*(Procedures outlined in this document)*
6. Develop a Periodic Inspection Plan  
*(Already in place with the Ohio Department of Transportation, District 8)*

**BRIDGE DESCRIPTION:**

The HAM-42-0257R Bridge is a 3-span welded steel plate girder structure with a reinforced concrete deck that carries one lane of ramp traffic from Eden Park Drive to southbound Interstate I-71. The bridge passes over two lanes of northbound US Route 42 (Reading Road) and a single lane ramp that runs from northbound Interstate I-71 to northbound US Route 42. The bridge numbering system follows the convention set in the design plans. Access to the structure will be from ladders and a bucket truck.

**FRACTURE CRITICAL MEMBER LOCATIONS:**

The pier cap is a welded steel plate box girder that straddles northbound US Route 42 and the ramp from NB Interstate I-71 to NB US Route 42. It is simply supported on two square reinforced concrete columns spaced at 64'-6" center-to-center. Four continuous I-girders frame into the pier cap and are made continuous by tie plates that are bolted to the top and bottom flanges of both the girders and the pier cap. The girder webs are connected to the pier cap webs by bolted clip angles.



**INSPECTION METHOD & PLAN:** The Collins Team will perform inspections on one fracture critical pier cap on HAM-42-0257R, as defined by the Scope of Services. The cap spans the northbound lanes of Reading Road. The work will be performed for 1 night. The inspection will adhere to the Confined Space Entry Procedures defined herein, and in the Collins safety procedures. Traffic control will be provided by A&A Safety according to the standards shown in the Appendix.

**FIELD COORDINATION** - The following entities will be involved in coordinating and performing all field work associated with the inspection of these structures.

**COLLINS** – Field Team Contacts:

Michael Seal, P.E., CBI: Team Leader, Project Manager (614) 849-2277 (C)  
[mseal@collinsengr.com](mailto:mseal@collinsengr.com)

Matt Rogers, P.E., CBI: Team Leader (859) 630-2238 (C)  
[mrogers@collinsengr.com](mailto:mrogers@collinsengr.com)

Kevin Mitchell, CBI, Asst. Team Leader, (606) 344-3000 (C)  
[kmitchell@collinsengr.com](mailto:kmitchell@collinsengr.com)

**ODOT (Project and Permitting Contacts)** – A right of entry permit is necessary through ODOT District 8. See Appendix A. The following ODOT personnel will be contacts.

Brandon Collett: Project Manager (513) 933-6643  
[Brandon.Collett@dot.state.oh.us](mailto:Brandon.Collett@dot.state.oh.us)

Jeff Meyer: Assistant Structures Engineer (513) 933-6630

Scott Kraus: District Work Zone Traffic Manager (513) 933-6519  
[Scott.Kraus@dot.state.oh.us](mailto:Scott.Kraus@dot.state.oh.us)

Chris Bass: Right-of-Way Use Permits (513) 933-6575  
[Christopher.Bass@dot.state.oh.us](mailto:Christopher.Bass@dot.state.oh.us)

**CITY OF CINCINNATI (Permitting)** – A right of entry permit is required through the City of Cincinnati. This permit will stipulate lane closure limitations and approve any proposed traffic control. Contacts are:

DOT Permit and License Center (513) 352-3463

Anthony Bennett: ROW Permitting (513) 352-3405  
[Anthony.bennett@cincinnati-oh.gov](mailto:Anthony.bennett@cincinnati-oh.gov)

Tom Klumb: Real Estate (513) 352-1571  
[Tom.klumb@cincinnati-oh.gov](mailto:Tom.klumb@cincinnati-oh.gov)

**A&A Safety** – A&A Safety will be the traffic control subcontractor for this inspection. Refer to Appendix A for proposed maintenance of traffic schemes. Contacts are:

Don Beagle/Keith Gilbert: A&A Safety (513) 276-2153  
[donb@aasafetyinc.com](mailto:donb@aasafetyinc.com)

Approved right of entry permits from both ODOT and the City of Cincinnati will be kept on the job site throughout the inspection period.

**TRAFFIC CONTROL** – A&A Safety will be responsible for installation of traffic control devices to close lanes of Northbound Reading Road which carries traffic from I-71 then merges with the other northbound lanes of Reading Road below HAM-42-0257R, and the I-71 northbound ramp to Eden Park Drive. A brief description of the anticipated closures is as follows. Refer to Appendix A.

Northbound Reading Road & Ramp from I-71 to Reading Road – Alternating lane closures of Northbound Reading Road underneath the ramp for Eden Park Drive to I-71 Southbound during night work. The lanes will be closed from 10:00 pm to 5:00 am.

Ramp Northbound I-71 to Eden Park Drive – Full closure of ramp from I-71NB to Eden Park Drive. The ramp will be closed from 10:00 pm to 5:00 am.

**CONFINED SPACE ENTRY PROCEDURE:** See below.

**INSPECTION PLAN:**

The condition inspection of the steel box girder pier caps on HAM-42-0257R will involve a 1-night field effort to completely inspect both the interior and exterior. The exterior will be inspected from bucket

truck and ladders for access and the interior will be inspected by entering the box girder per the procedures outlined below. A 3-man inspection team will perform the confined space inspection. Collins will open the pier caps 1 hr prior to entering to ventilate the piers. Prior to the start of the inspection, the inspection team shall meet at the site for a safety meeting and review the details of this inspection plan.

Entry will be performed in accordance with permit-required confined space entry procedures. This includes the use of an entry permit system, pre-entry and continuous air monitoring, and designating qualified entrants, attendants, and supervisor(s). The Project Work Plan will outline safety procedures for confined space work and contain contact information for local EMS services and for the local Hospital.

Prior to the inspection, initial air monitoring for O<sub>2</sub>, %LEL, CO, and H<sub>2</sub>S will be performed by one designated certified entrant climbing the length of the steel box girder pier caps and the certified attendant documenting the readings every 25 feet. Radios will be used for team communications during the inspection. At the conclusion of the initial entry and air monitoring, the confined space air readings will be evaluated and if no hazards exist, the space will be designated a non-permit required confined space. Members of the inspection team entering the confined space will continuously monitor the air, and the attendant will document readings in the box every 30 minutes for the duration of the work inside of the confined space.

If the monitor alarms go off during the initial entrance indicating that unsafe atmospheric conditions exist, the entrant will immediately exit the steel box girder (using a 10-minute escape pack if needed). If unsafe atmospheric conditions continue to exist, further ventilation will continue, and the initial air monitoring performed again at a later time after proper ventilation. A blower and generator will be used to provide proper ventilation to the box girder, if necessary. If the atmospheric hazards cannot be removed from the confined space, the box girder will NOT be entered and the District's Project Manager will be contacted to notify and to receive further instructions.

#### **FOLLOW-UP PROCEDURES FOR INSPECTION FINDINGS:**

Fracture critical inspection findings shall be documented in the final inspection report.

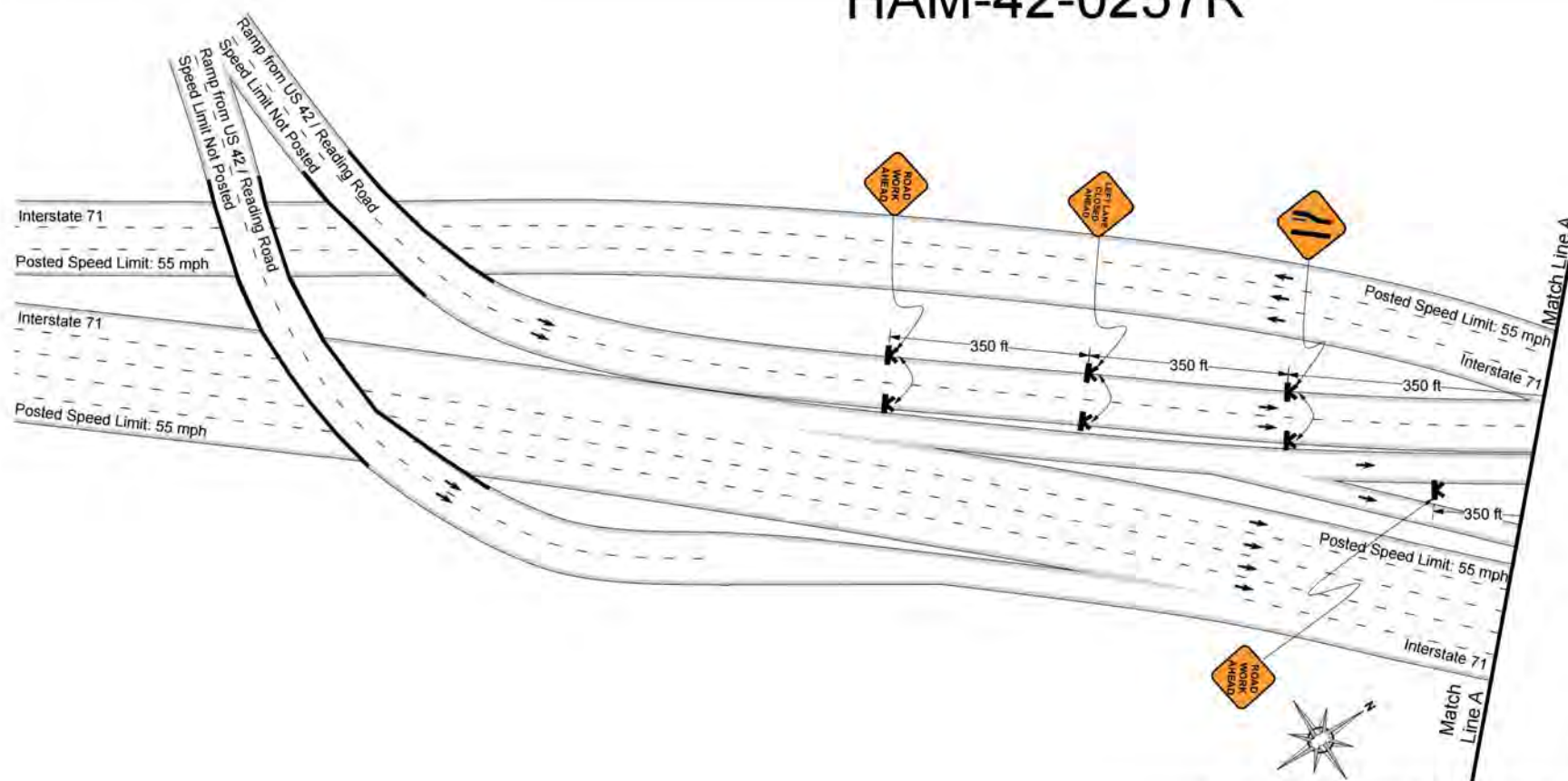
#### **Quality Control/Quality Assurance**

The standard Collins Quality Control Plan will be utilized. Such steps include: completion of field task checklist prior to leaving site, team leader review of all field notes and photographs before leaving the site, either the report originator or checker will be part of the field team, the report checker will be an NBI Team Leader, the report corrector cannot be the checker, the backchecker cannot be the corrector, and the field team leader will be involved for at least one phase of the reporting process.

## APPENDIX A – RIGHT OF ENTRY PERMIT APPLICATIONS

## APPENDIX B – TRAFFIC CONTROL DETAILS

## HAM-42-0257R



Legend  
 Portable Sign Stand

## Notes:

- Sign spacing and buffer space may be adjusted to fit field conditions.
- "Road Work Ahead" signs shall be placed on all cross streets intersecting within the work area. The signs should be placed a minimum of 100 feet in advance of the intersection.

Date: 4/26/2017 Author: P. McCarty Project: D8 Steel Pier Caps - Cincinnati, OH  
 Customer: Gannett Fleming Reviewer: J. McCarty Bridge Number: HAM-42-0257R

## Comments:

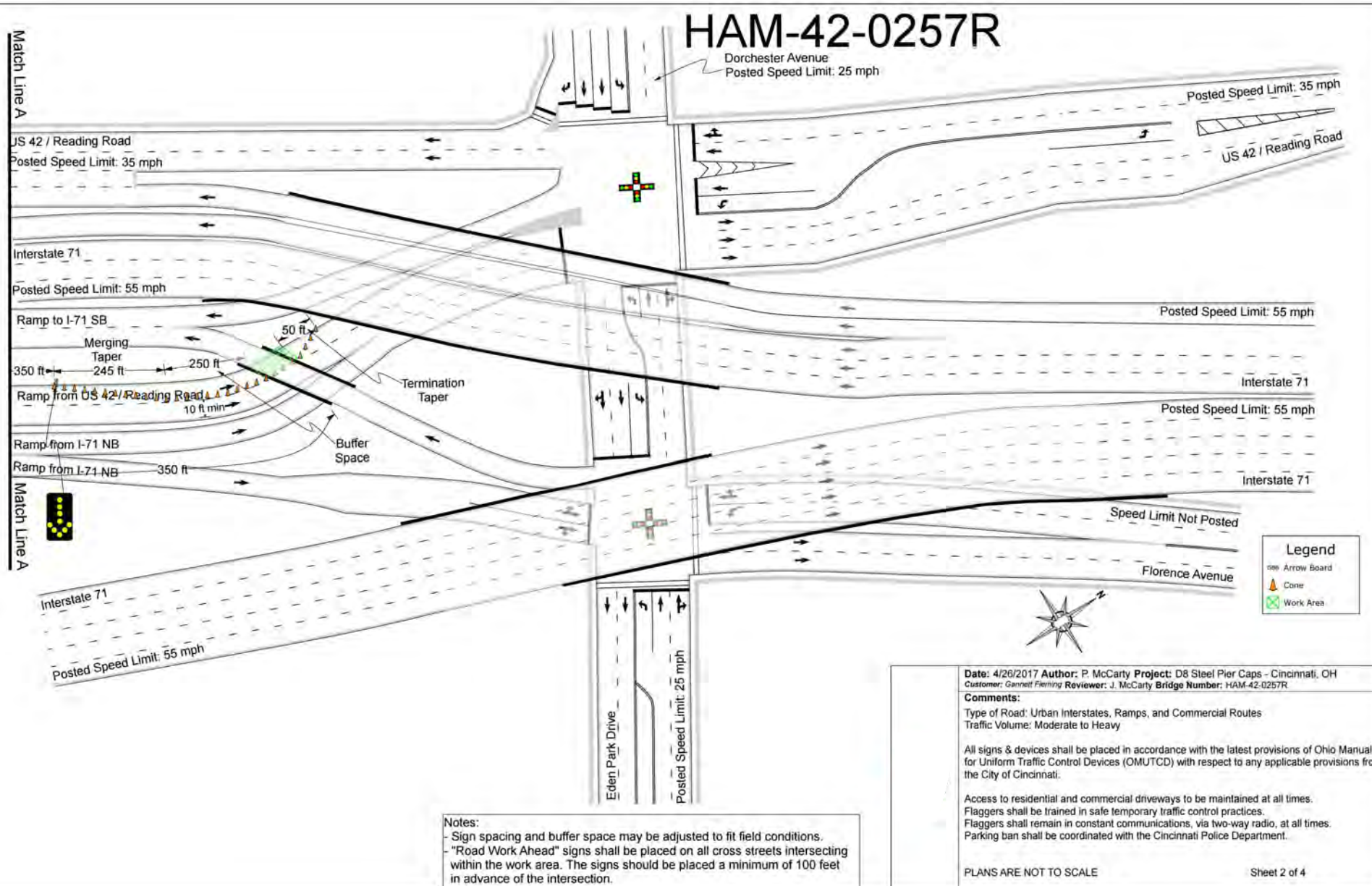
Type of Road: Urban Interstates, Ramps, and Commercial Routes  
 Traffic Volume: Moderate to Heavy

All signs & devices shall be placed in accordance with the latest provisions of Ohio Manual for Uniform Traffic Control Devices (OMUTCD) with respect to any applicable provisions from the City of Cincinnati.

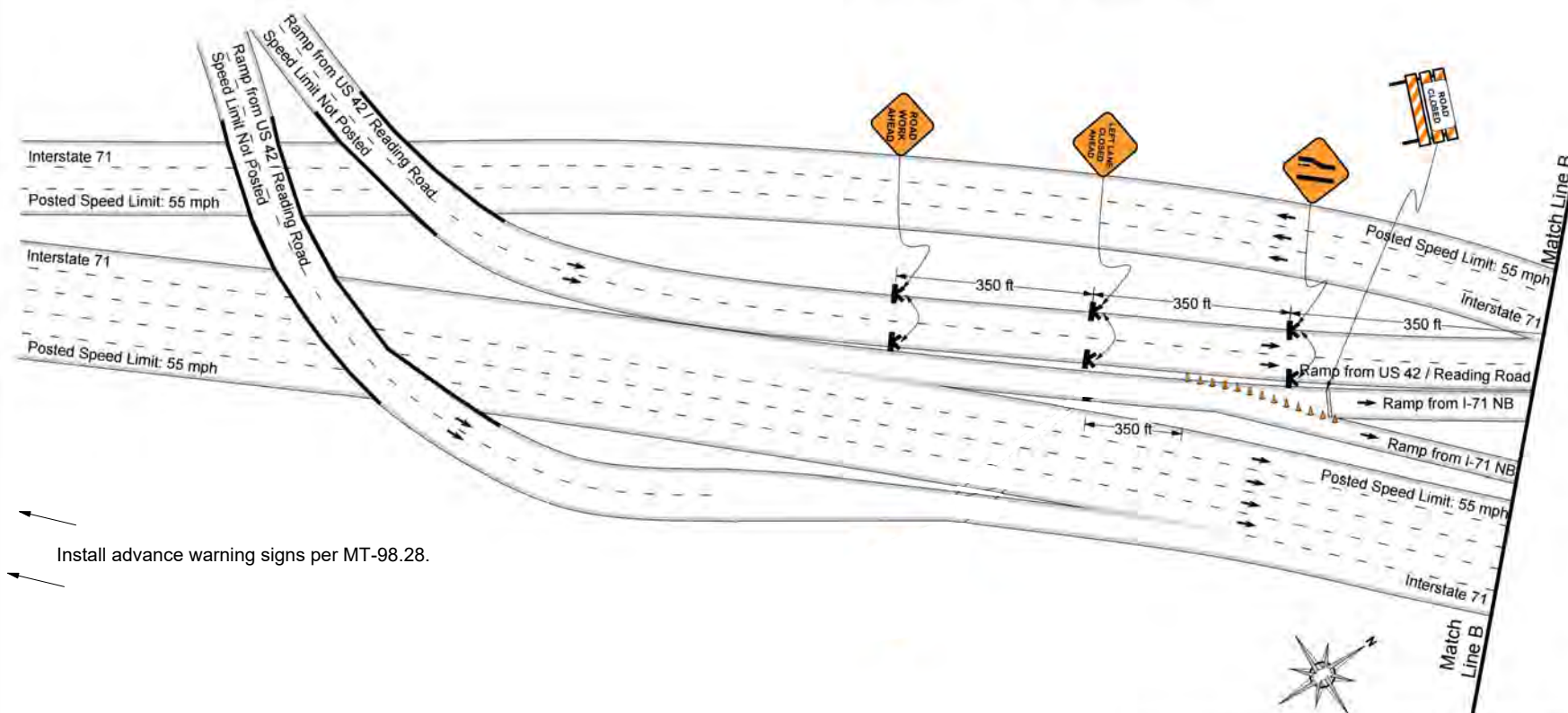
Access to residential and commercial driveways to be maintained at all times.  
 Flaggers shall be trained in safe temporary traffic control practices.  
 Flaggers shall remain in constant communications, via two-way radio, at all times.  
 Parking ban shall be coordinated with the Cincinnati Police Department.

PLANS ARE NOT TO SCALE

Sheet 1 of 4



## HAM-42-0257R



Install advance warning signs per MT-98.28.

## Notes:

- Sign spacing and buffer space may be adjusted to fit field conditions.
- "Road Work Ahead" signs shall be placed on all cross streets intersecting within the work area. The signs should be placed a minimum of 100 feet in advance of the intersection.

Date: 4/26/2017 Author: P. McCarty Project: D8 Steel Pier Caps - Cincinnati, OH  
 Customer: Garment Fleming Reviewer: J. McCarty Bridge Number: HAM-42-0257R  
 Revised: 5/11/2017

## Comments:

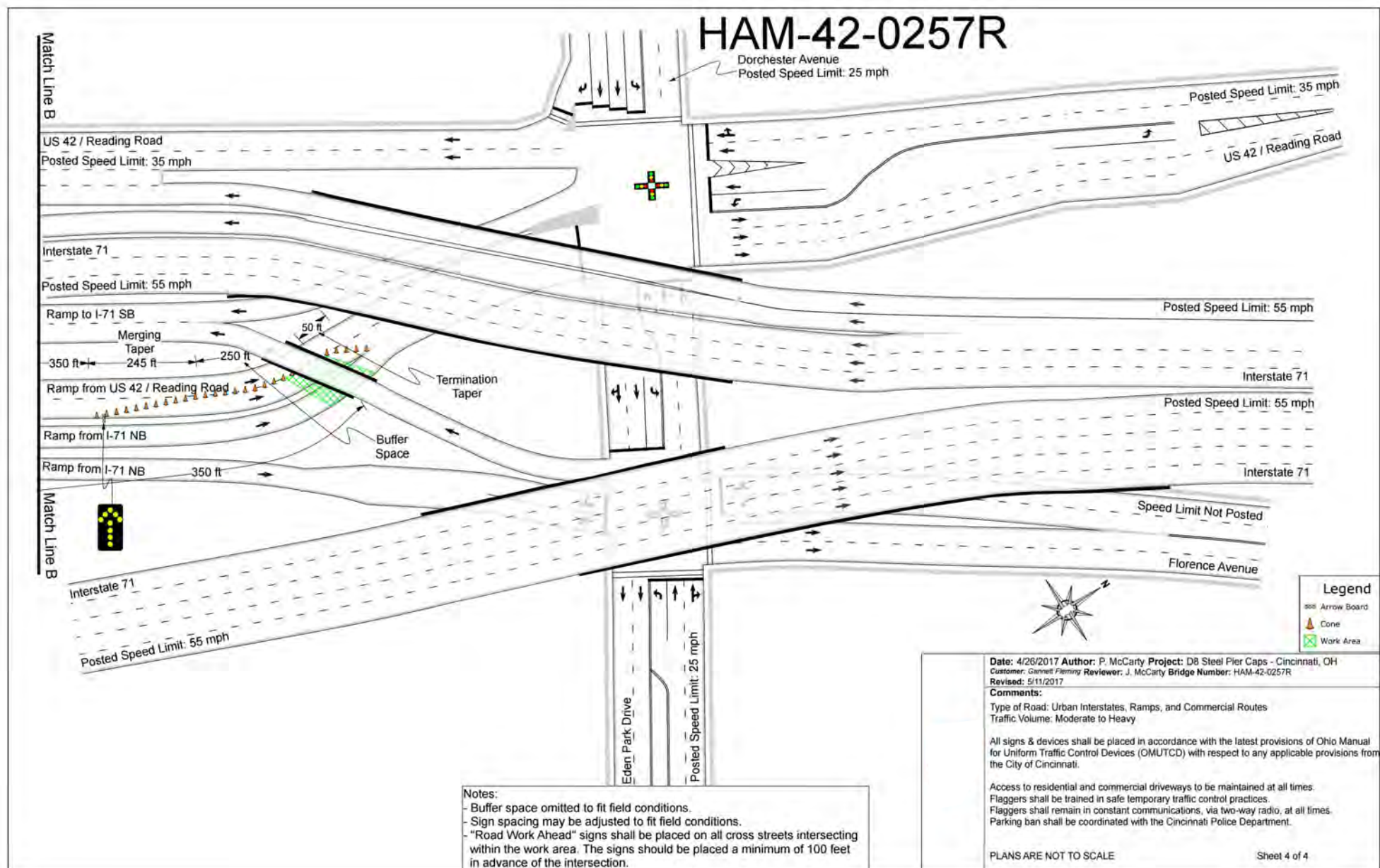
Type of Road: Urban Interstates, Ramps, and Commercial Routes  
 Traffic Volume: Moderate to Heavy

All signs & devices shall be placed in accordance with the latest provisions of Ohio Manual for Uniform Traffic Control Devices (OMUTCD) with respect to any applicable provisions from the City of Cincinnati.

Access to residential and commercial driveways to be maintained at all times.  
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 Flaggers shall remain in constant communications, via two-way radio, at all times.  
 Parking ban shall be coordinated with the Cincinnati Police Department.

PLANS ARE NOT TO SCALE

Sheet 3 of 4



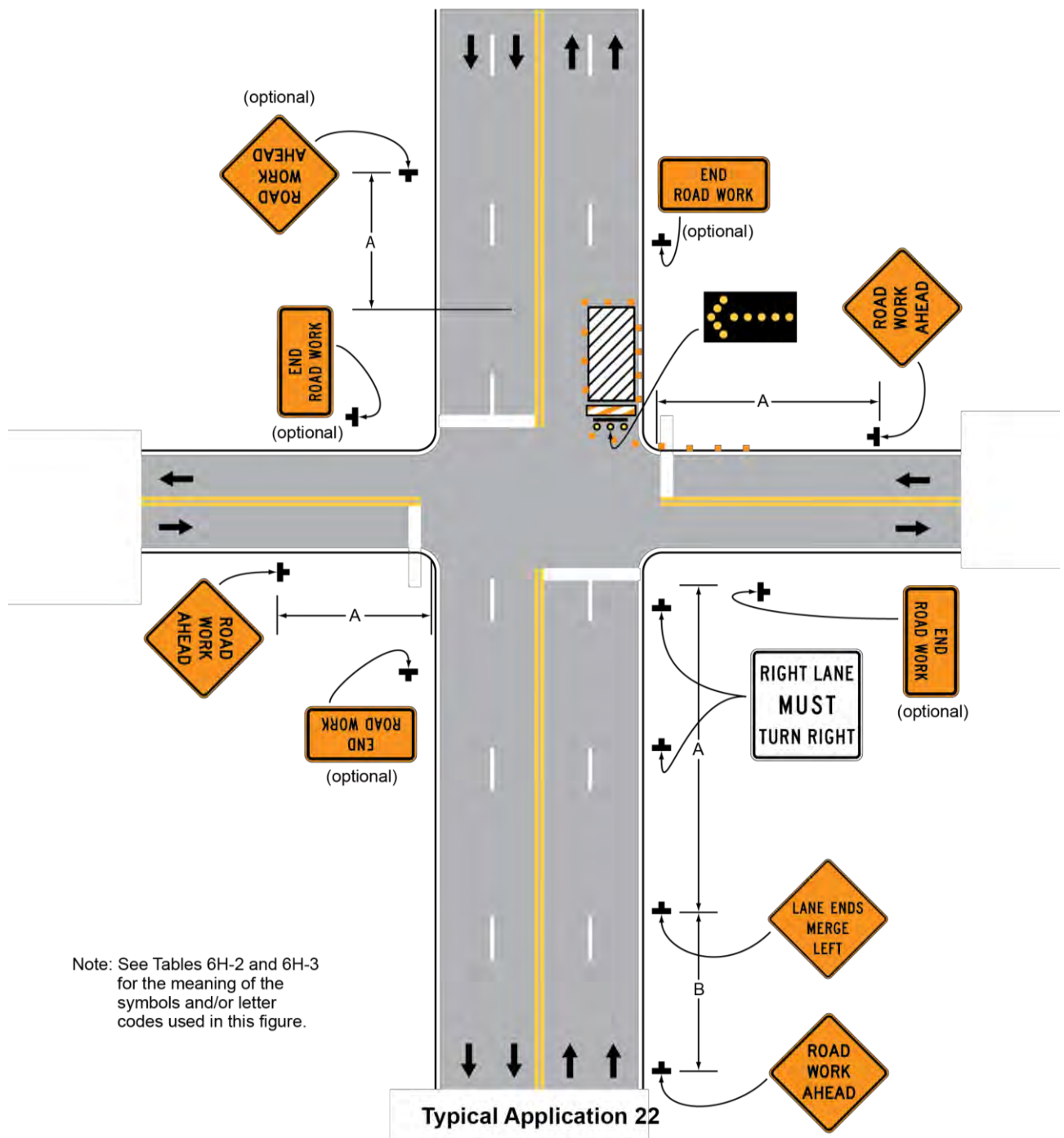
**Notes for Figure 6H-22—Typical Application 22**  
**Right-Hand Lane Closure on the Far Side of an Intersection**

*Guidance:*

1. *If the work space extends across a crosswalk, the crosswalk should be closed using the information and devices shown in Figure 6H-29.*

*Option:*

2. The normal procedure is to close on the near side of the intersection any lane that is not carried through the intersection. However, when this results in the closure of a right-hand lane having significant right turning movements, then the right-hand lane may be restricted to right turns only, as shown. This procedure increases the through capacity by eliminating right turns from the open through lane.
3. For intersection approaches reduced to a single lane, left-turning movements may be prohibited to maintain capacity for through vehicular traffic.
4. Flashing warning lights and/or flags may be used to call attention to the advance warning signs.
5. Where the turning radius is large, it may be possible to create a right-turn island using channelizing devices or pavement markings.

**Figure 6H-22. Right-Hand Lane Closure on the Far Side of an Intersection (TA-22)**

**Notes for Figure 6H-29—Typical Application 29**  
**Crosswalk Closures and Pedestrian Detours**

**Standard:**

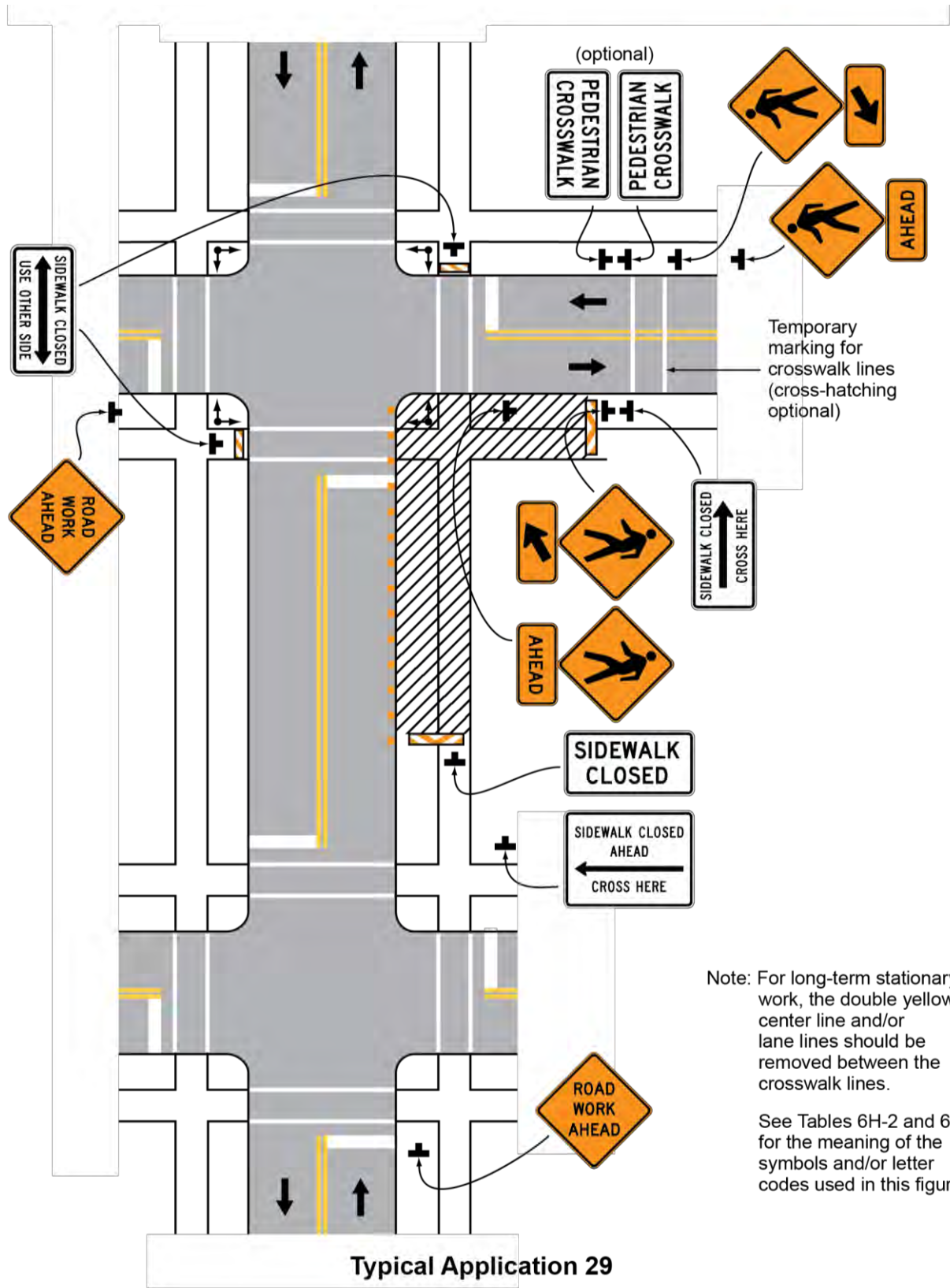
- 1. When crosswalks or other pedestrian facilities are closed or relocated, temporary facilities shall be detectable and shall include accessibility features consistent with the features present in the existing pedestrian facility.**
- 2. Curb parking shall be prohibited for at least 50 feet in advance of the midblock crosswalk.**

*Guidance:*

- 3. Audible information devices should be considered where midblock closings and changed crosswalk areas cause inadequate communication to be provided to pedestrians who have visual disabilities.*
- 4. Pedestrian traffic signal displays controlling closed crosswalks should be covered or deactivated.*

*Option:*

5. Street lighting may be considered.
6. Only the TTC devices related to pedestrians are shown. Other devices, such as lane closure signing or ROAD NARROWS signs, may be used to control vehicular traffic.
7. For nighttime closures, Type A Flashing warning lights may be used on barricades supporting signs and closing sidewalks.
8. Type C Steady-Burn or Type D 360-degree Steady-Burn warning lights may be used on channelizing devices separating the work space from vehicular traffic.
9. In order to maintain the systematic use of the fluorescent yellow-green background for pedestrian, bicycle, and school warning signs in a jurisdiction, the fluorescent yellow-green background for pedestrian, bicycle, and school warning signs may be used in TTC zones.

**Figure 6H-29. Crosswalk Closures and Pedestrian Detours (TA-29)**

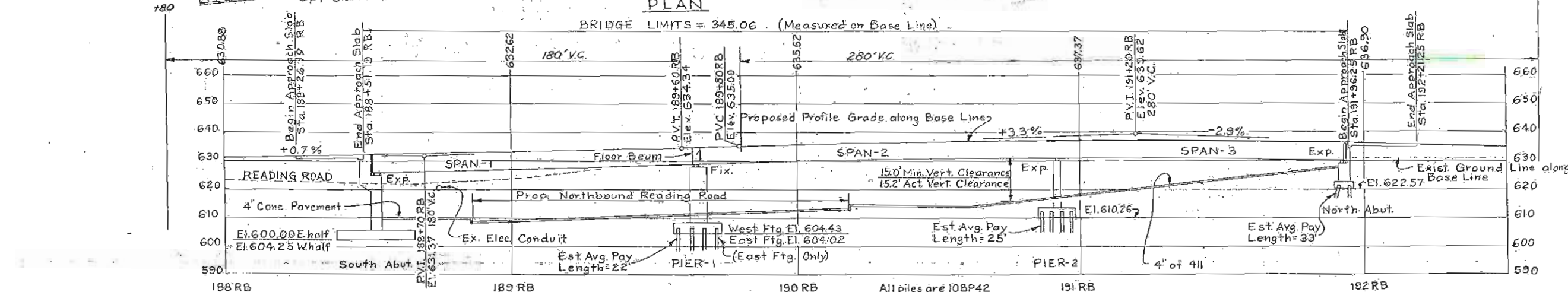
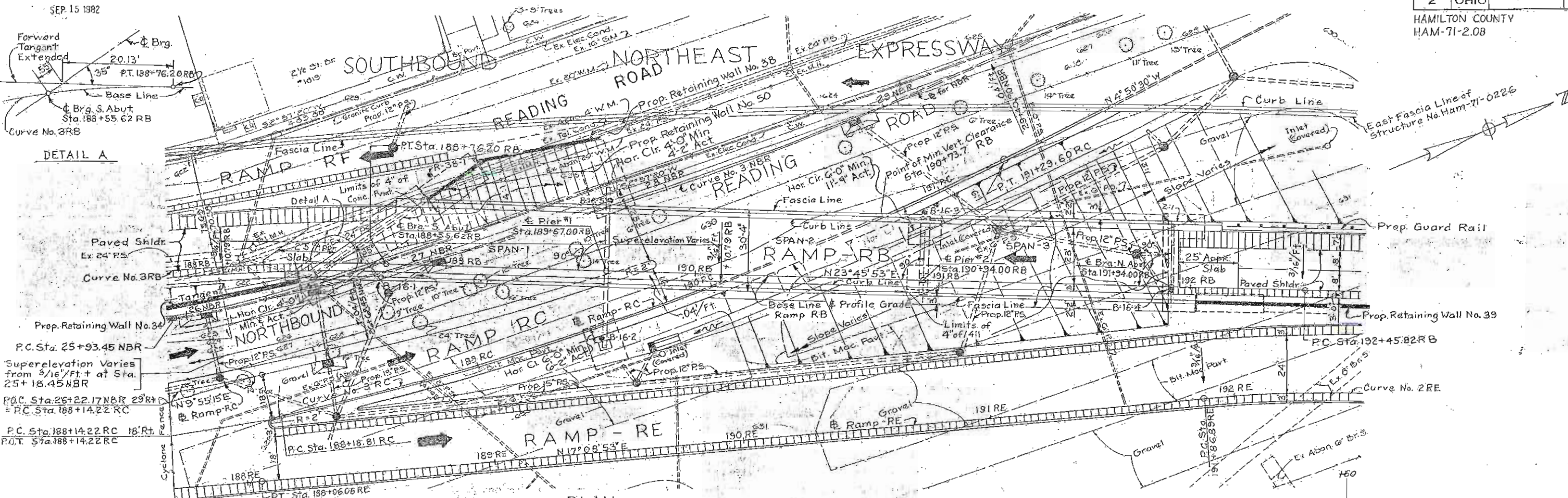
## APPENDIX C – FATIGUE PRONE DETAILS FOR HAM-42-0257R

MICROFILMED  
SEP 15 1982

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

HAMILTON COUNTY  
HAM-71-2.08

383  
460



# CURVE DATA

Curve No. 3RB  
PI = 188+11.00 RB  
 $\Delta = 11^\circ 07' 12''$   
D = 8° 30'  
R = 674.07  
L = 130.82  
T = 65.62

# PROFILE

**PROPOSED STRUCTURE**  
TYPE: Continuous Steel Plate girder with reinforced concrete deck and substructure.  
Span: 111'-4 1/2", 127'-0", 100'-0" c to c bearings.  
Roadway: 26'-0" f/f curbs with 1'-0" curbs (28'-0" f/f parapets)  
Skew: 0° (Piers 1 & 2 & N. Abut), 55° S. Abut.  
(Measured from forward tangent).  
Load frequency: CF = 2000 (57) Adequate for AASHTO alternate loading.  
Wearing Surface: 1" Monolithic Concrete  
Approach Slabs: AS-1-54 (25'-0" long)  
Alignment: Varies, see Plan  
Super-elevation: Varies, see Plan

# GENERAL NOTES

Span lengths are measured along Base Line  
• Symbol denotes drill hole  
For test boring data, see Sheet 15 of 23  
For Bench Marks, see Sheet 39

Traffic Count: 1986 A.D.T. 6500  
D.H.V. 780

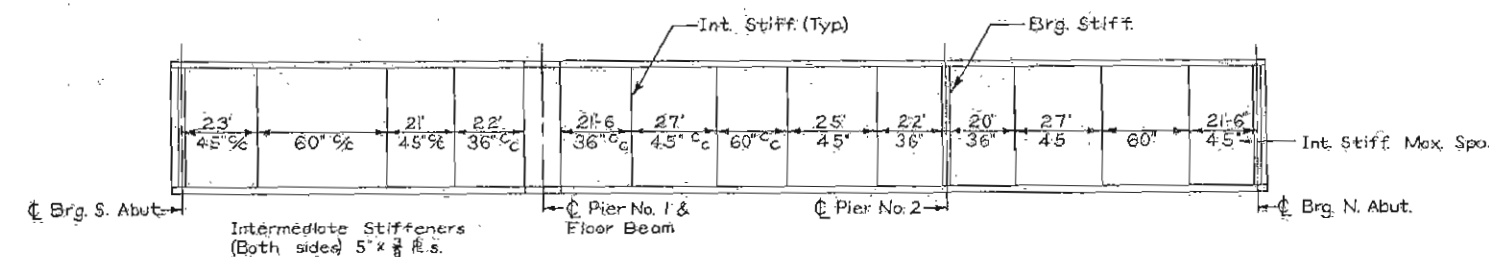
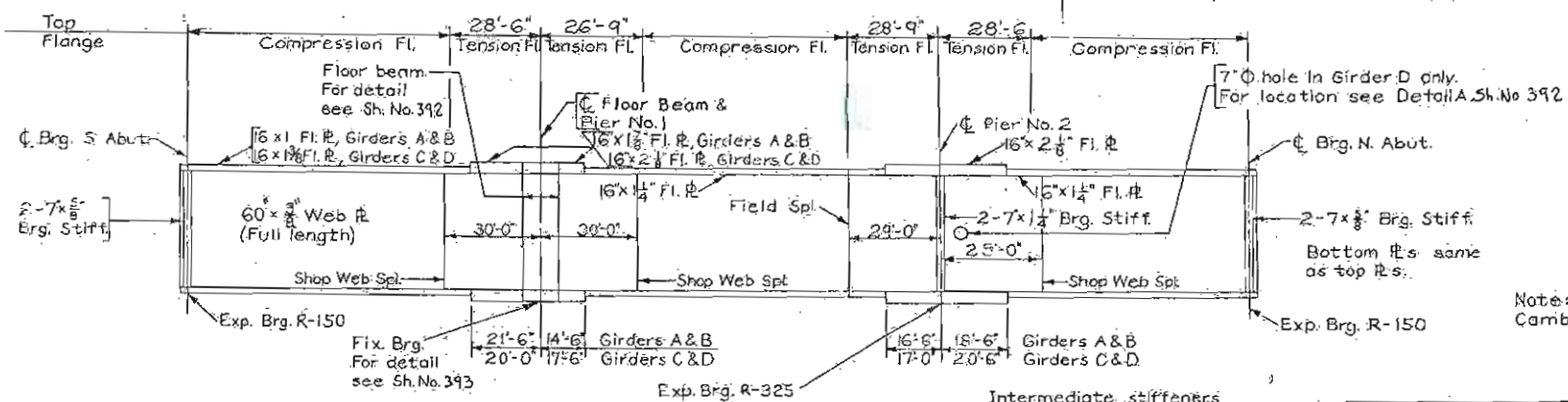
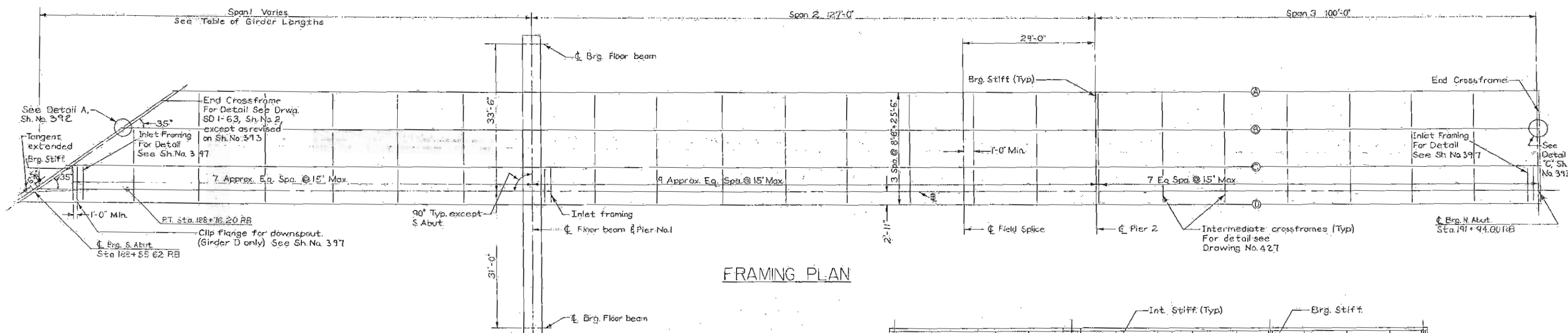
# SITE PLAN

BRIDGE No. HAM-71-0228  
RAMP RB OVER NORTHBOUND  
READING ROAD  
H&E BRIDGE No. 16

| DESIGNED | DRAWN  | TRACED | CHECKED | REVIEWED DATE | REVIEWED |
|----------|--------|--------|---------|---------------|----------|
|          | M.K.K. | J.D.C. | H.A.B.  | 4/85          |          |

MICROFILMED  
SEP 16 1982

HAMILTON COUNTY  
HAM-71-2.00



### INTERMEDIATE STIFFENER SPACING

Note: Camber girders by cutting webs to a smooth curve.

### GIRDER ELEVATION

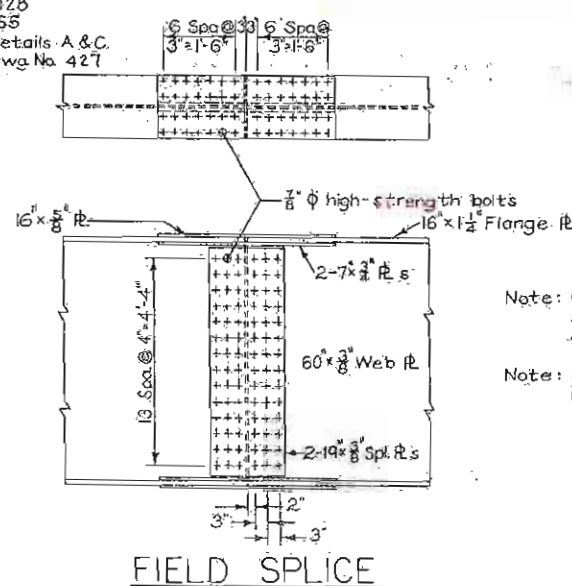
For bearing detail (R-325) see Drwg. No. 428  
For bearing detail (R-150) see Drwg. No. RB-1-55  
except masonry plates modified as shown on details A & C.  
For typical plate girder elevation see Typ. Drwg. No. 427  
For detail of roadway end dam see Sh. No. 395

For treatment of ends of bridge see  
Drawing No. SD-1-63, Sh. No. 2, "Longitudinal  
Section."

Note: Girder Length measured from  
to Brg. S. Abut. to Pier No. 1.

| Girder | Span 1       |
|--------|--------------|
| A      | 78'-8 1/8"   |
| B      | 90'-9 1/8"   |
| C      | 102'-11 1/8" |
| D      | 115'-1 1/8"  |

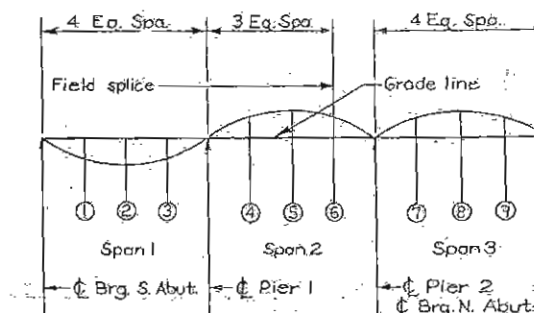
TABLE OF  
GIRDER LENGTHS



Note: Contact surface of  
splice shall be free  
of all oil or paint

Note: Bottom flange splice  
material same as top  
flange splice material.

| Girder |                                                          | LOCATION |        |      |         |         |        |        |         |         | Girder |                                                          | LOCATION |         |        |        |         |        |        |        |       |
|--------|----------------------------------------------------------|----------|--------|------|---------|---------|--------|--------|---------|---------|--------|----------------------------------------------------------|----------|---------|--------|--------|---------|--------|--------|--------|-------|
|        |                                                          | 1        | 2      | 3    | 4       | 5       | 6      | 7      | 8       | 9       |        |                                                          | 1        | 2       | 3      | 4      | 5       | 6      | 7      | 8      | 9     |
| A      | Deflection due to weight of steel.                       | 1/8      | 3/16   | 1/8  | 7/16    | 9/16    | 5/16   | 0      | 1/16    | 1/16    | C      | Deflection due to weight of steel.                       | 5/16     | 1/2     | 5/16   | 7/16   | 9/16    | 5/16   | 0      | 1/16   | 1/16  |
|        | Deflection due to remaining dead load                    | 1/8      | 1/8    | 0    | 1/16    | 1/8     | 5/8    | 3/16   | 1/2     | 1/2     |        | Deflection due to remaining dead load                    | 1/2      | 9/16    | 1/4    | 3/8    | 1/16    | 3/8    | 1/4    | 9/16   | 1/2   |
|        | Convexity required for vertical curve and superelevation | -1       | -1/4   | -1   | 2 1/2   | 3 3/4   | 3      | 2 1/2  | 3 3/8   | 2 1/2   |        | Convexity required for vertical curve and superelevation | -5/8     | -2 1/4  | -5/8   | 3/2    | 4 3/4   | 3 1/2  | 2 1/2  | 3 3/8  | 2 1/2 |
|        | Sum of deflection and convexity                          | -7/8     | -1/8   | -1   | 3 3/16  | 4 7/8   | 3 5/8  | 2 1/16 | 3 7/8   | 2 7/8   |        | Sum of deflection and convexity                          | -1 1/8   | -1 1/16 | -3/8   | 3 3/8  | 5 7/16  | 3 7/8  | 2 3/4  | 3 5/8  | 3     |
|        | Required camber                                          | 3/4      | 15/16  | 7/8  | 3 5/8   | 5 7/16  | 3 5/16 | 2 1/16 | 3 15/16 | 3 1/16  |        | Required camber                                          | 13/16    | 13/16   | 1 1/16 | 4 5/16 | 4 3/8   | 2 3/4  | 4      | 3 1/16 |       |
| B      | Deflection due to weight of steel                        | 1/4      | 5/16   | 1/4  | 7/16    | 9/16    | 5/16   | 0      | 1/16    | 1/16    | D      | Deflection due to weight of steel                        | 1/2      | 3/4     | 1/2    | 7/16   | 9/16    | 5/16   | 0      | 1/16   | 1/16  |
|        | Deflection due to remaining dead load                    | 5/16     | 3/8    | 1/8  | 3/8     | 1 1/16  | 3/8    | 3/16   | 1/2     | 3/8     |        | Deflection due to remaining dead load                    | 15/16    | 1 1/8   | 9/16   | 1/4    | 9/16    | 5/16   | 1/4    | 5/8    | 1/2   |
|        | Convexity required for vertical curve and superelevation | -1/4     | -3/4   | -1/4 | 3       | 4 1/4   | 3 3/8  | 2 1/2  | 3 3/8   | 2 1/2   |        | Convexity required for vertical curve and superelevation | -2       | -2 3/4  | -2 1/8 | 4      | 5 1/4   | 3 1/4  | 2 1/2  | 3 3/8  | 2 1/2 |
|        | Sum of deflection and convexity                          | 15/16    | 3/8    | 1/8  | 3 3/8   | 4 15/16 | 3 3/4  | 2 1/16 | 3 7/8   | 2 7/8   |        | Sum of deflection and convexity                          | 1 1/16   | 1 3/8   | 1 9/16 | 4 1/4  | 5 13/16 | 4 1/16 | 2 3/4  | 4      | 3     |
|        | Required camber                                          | 1 1/16   | 1 1/16 | 7/8  | 3 13/16 | 5 1/2   | 4 1/16 | 2 1/16 | 3 15/16 | 2 15/16 |        | Required camber                                          | 9/16     | 7/8     | 1 1/16 | 4 1/16 | 3 3/8   | 2 3/4  | 4 1/16 | 3 1/16 |       |



### CAMBER DIAGRAM

Note: Minus sign in table indicates camber ordinates measured below chord. No sign indicates camber ordinates measured above chord.

HAEZLET & EROAL  
CONSULTING ENGINEERS  
CINCINNATI, OHIO

STRUCTURAL STEEL DETAILS  
BRIDGE No. HAM-71-0228

H&E BRIDGE No. 16

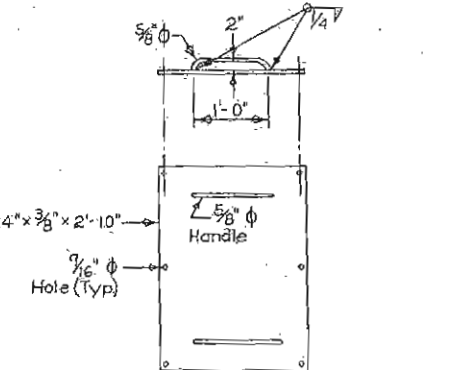
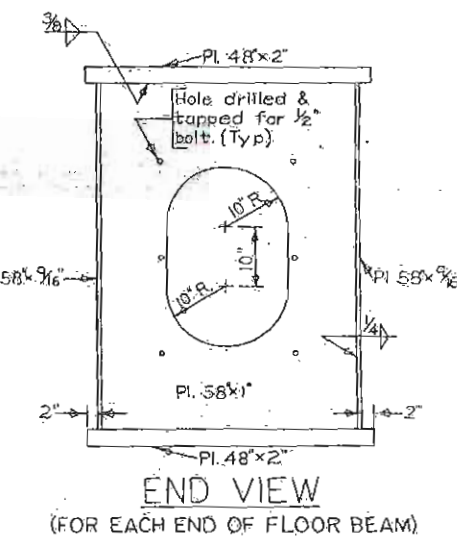
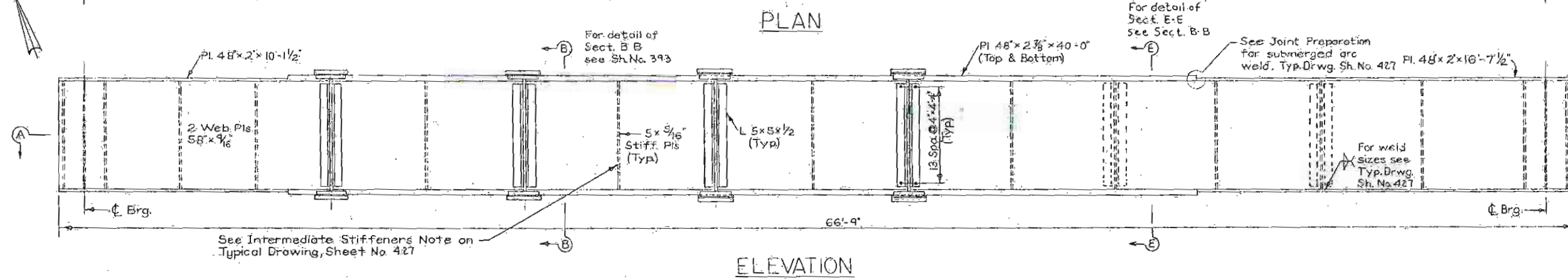
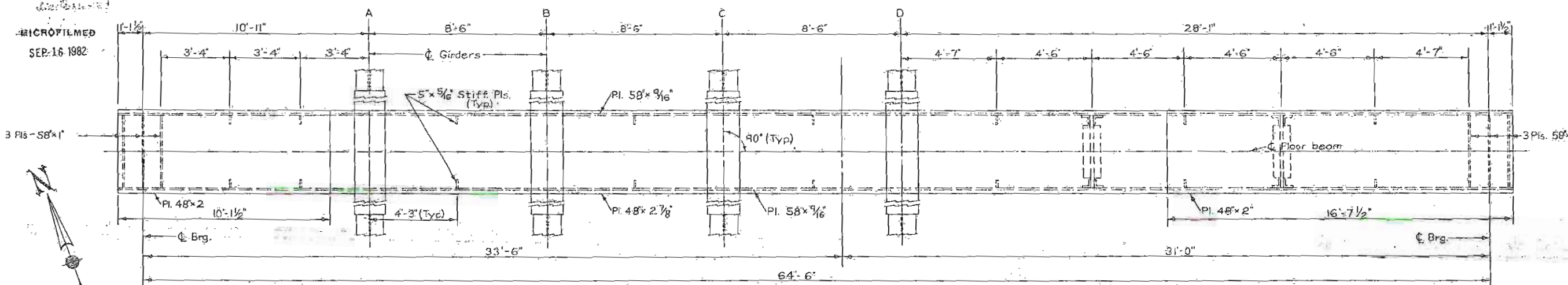
|          |       |        |         |               |        |
|----------|-------|--------|---------|---------------|--------|
| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVIEW |
| W.L.     | CIB   |        | JND     | 8-30-65       |        |

MICROFILMED  
SEP-16-1982

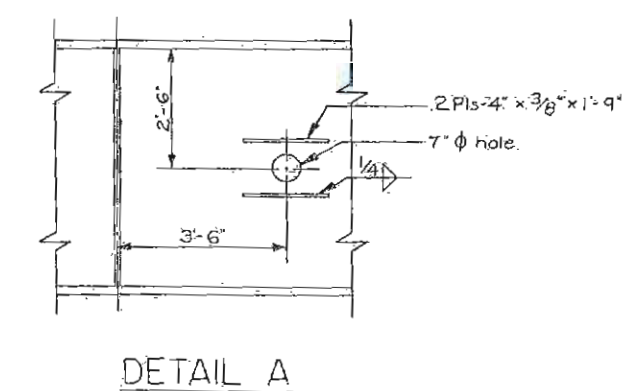
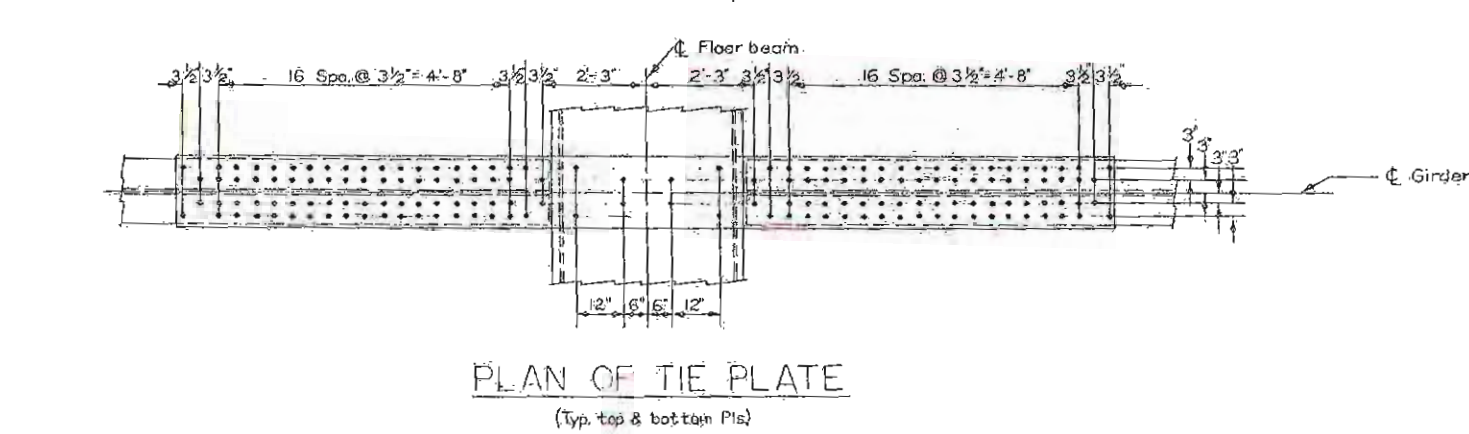
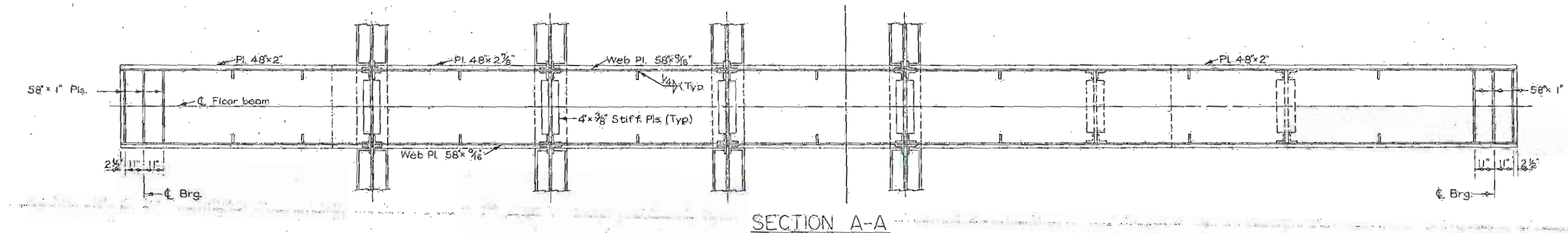
| FED. RD. DIV. | STATE | PROJECT | FISCAL YEAR |
|---------------|-------|---------|-------------|
| 2             | OHIO  |         |             |

HAMILTON COUNTY  
HAM-71-0228

392  
460



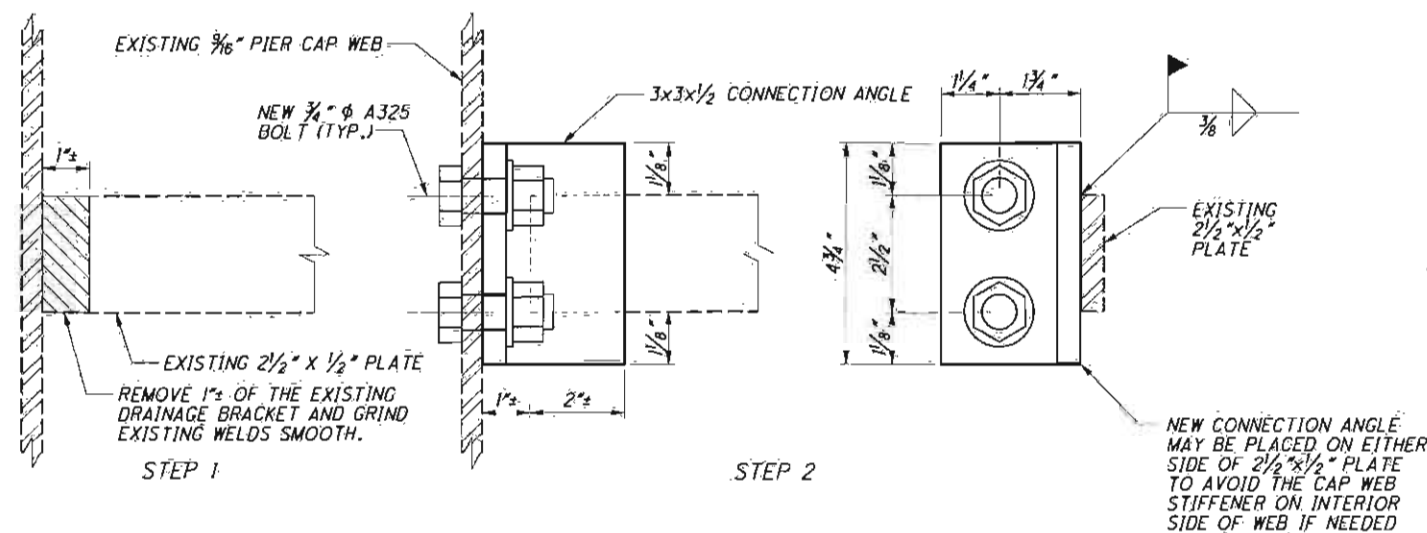
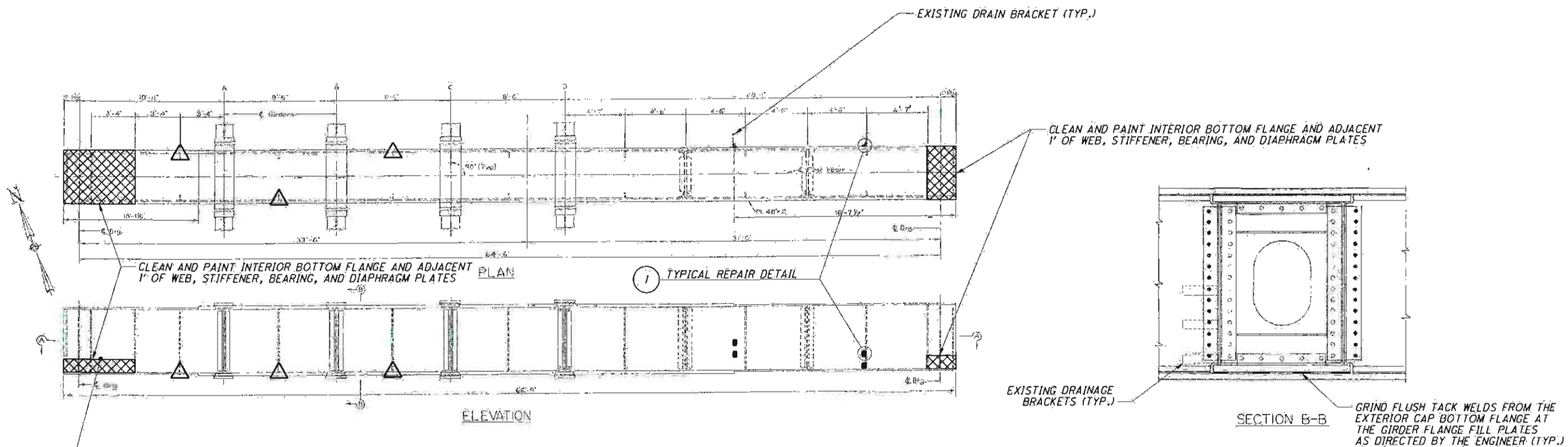
Note: Stiffeners to be grooved and fully butt-welded to the bottom flange plate. Weld to top flange plate as shown in End View above.



For notes see Typ. Drwg. No. 427  
 Bolts shall be 7/8" φ high-strength bolts unless noted otherwise.

|                                                             |              |                |                          |          |  |
|-------------------------------------------------------------|--------------|----------------|--------------------------|----------|--|
| HAZELET & EROAL<br>CONSULTING ENGINEERS<br>CINCINNATI, OHIO |              |                |                          |          |  |
| STRUCTURAL STEEL DETAILS<br>BRIDGE NO. HAM-71-0228          |              |                |                          |          |  |
| H&E BRIDGE No 16                                            |              |                |                          |          |  |
| DESIGNED<br>W.L.                                            | DRAWN<br>CIB | CHECKED<br>JND | APPROVED DATE<br>8-30-65 | REVISION |  |

4/17/2008  
 P:\2426.03-0001 8 Pier Cap\2007 PID25374 DRAWINGS\19) HAM-42-0257R\HAM-42-0257R P.dgn



REPAIR DETAIL  
 DRAIN BRACKET RETROFIT

1

NOTES:

1. PIER PLAN, ELEVATION AND SECTION B-B ARE TAKEN FROM THE ORIGINAL PLANS.
2. CLEAN AND PAINT REPAIR AREAS ON INTERIOR OF PIER CAP.



- LIMITS OF PAINTING OF 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 1 CAP RETROFIT DETAILS  
 BRIDGE NO. HAM-42-0257R  
 1-71' RAMP OVER US 42 (READING ROAD)

HAM-BH-VAR  
 PID NO. 25374

DESIGN AGENCY  
 TranSystems  
 58 PUBLIC SQUARE, SUITE 300  
 CLEVELAND, OHIO 44115

|          |          |                        |         |
|----------|----------|------------------------|---------|
| DESIGNED | NBR      | CHECKED                | BKC     |
| DRAWN    | NBR      | REVIEWED               |         |
| REVIEWED | NRW      | STRUCTURAL FILE NUMBER | 3101215 |
| DATE     | 12-20-07 |                        |         |

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**Pier Cap 1 – Fatigue Prone Details**

**Fatigue Prone Detail 1**

Fillet welds between diaphragms or stiffeners and web plates.

Category: C'

Location: All pier cap web stiffeners.

**Fatigue Prone Detail 2**

Full penetration groove weld of flange splice.

Category: B

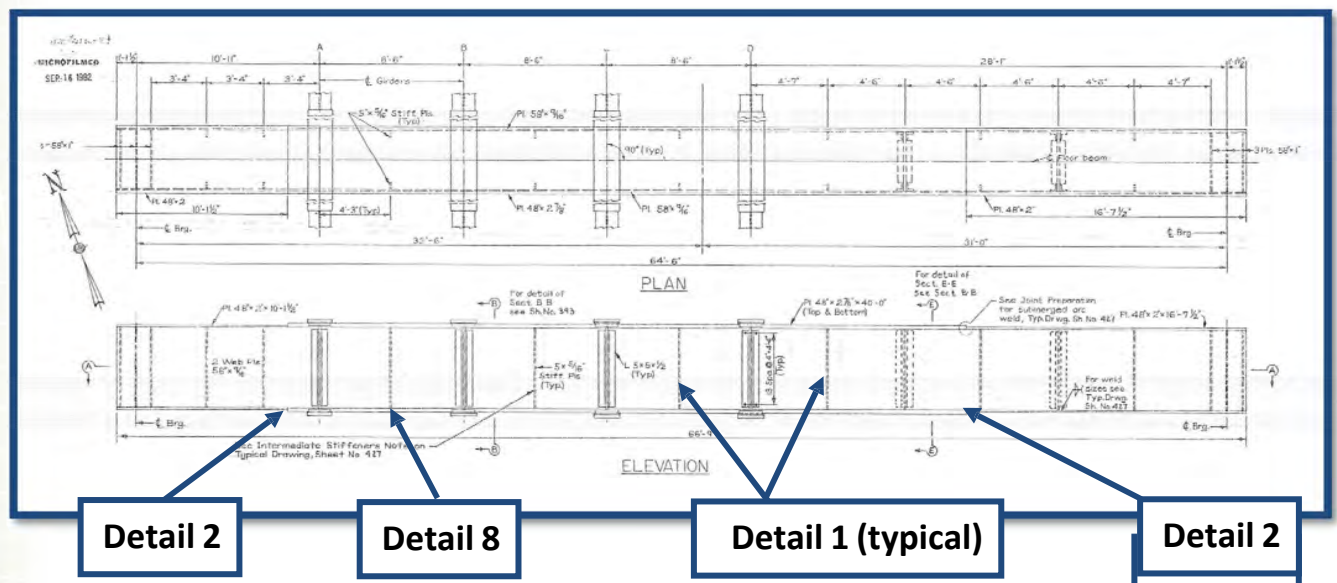
Location: Two bottom flange splices.

**Fatigue Prone Detail 8**

Intersection of fillet welds.

Category: E

Location: Fillet welds of bottom flange and north web plate intersecting fillet weld of north web plate and stiffener between girders A and B.



Plan and elevation of Pier Cap 1