ODOT District 8
2024 Pre-Inspection Report

Final June 2024

Bridge No. HAM-50-2180N
SFN: 3103390

Bridge No. HAM-50-2181N
SFN: 3103404

Prepared for:

ODOT District 8
505 South SR 741
Lebanon, Ohio 45036

PID No. 105475

Prepared by:

TRANSYSTEMS

1100 Superior Avenue, Suite 1000
Cleveland, OH 44114

Project Number P402220026

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INTRODUCTION

LOCATION MAP

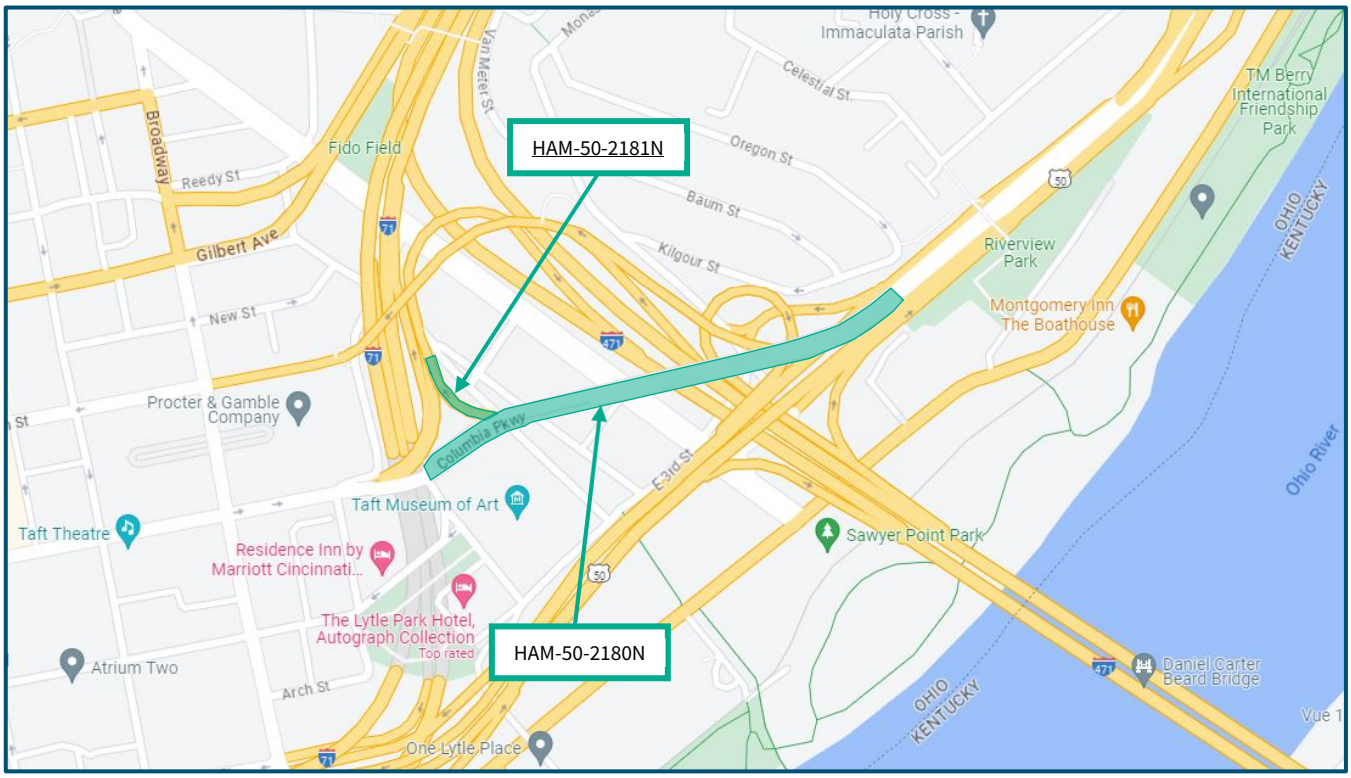


Figure 1 - US Route 50 over Butler Street, Culvert Street, Parking Area, Eggleston Avenue, Interstate Route 471, & Interstate Route 471 Ramps, Cincinnati, Ohio Location Map

INSPECTION DETAILS

Bridge No.:	HAM-50-2180N --- SFN 3103390 HAM-50-2181N --- SFN 3103404
Features Intersected:	Butler Street, Culvert Street, Parking Area, Eggleston Avenue, Interstate 471 and Interstate 471 Ramps
Locations to Inspect:	HAM-50-2180N: • Nonredundant Steel Tension Members - Girders - Truss Tension Members - Floorbeams • In-Depth Element Level - Entire Structure HAM-50-2181N: • Nonredundant Steel Tension Members - Girders • In-Depth Element Level - Entire Structure
Number of Inspection Days:	Estimated 8 days
Inspection Dates:	July 8-10, 2024 (ODOT Snooper and Traffic Control) August 12-16, 2024
Inspection Hours:	7:00 AM to 5:00 PM
Inspection Equipment:	ODOT snooper, 85' manlift, bucket truck, rope access techniques, and ladders

NONREDUNDANT STEEL TENSION MEMBER (NSTM) 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 Nonredundant Steel Tension Members (NSTMs).

To perform an effective NSTM 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 Nonredundant Steel Tension Members
   (*Contained in this document)*

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 INFORMATION

HAM-50-2180N

The Columbia Parkway Viaduct (HAM-50-2180N) connects East 5th Street to US 50 in Downtown Cincinnati carrying eastbound and westbound vehicular traffic and a pedestrian sidewalk over Butler Street, Culvert Street, local parking lots, Eggleston Avenue, Interstate 471, and ramps to US 50. The overall bridge length is 1,660'-9" and the structure was opened to traffic in 1938 with rehabilitations in 1997-1998 and 2017-2018. The rear approach spans (Spans 1-4) and the forward approach spans (Spans 12-17) consist of three lines of simple span, built-up steel girders. The main spans (Spans 5-11) consist of three Pratt deck truss lines. Spans 5-6 and 10-11 are two-span continuous units, while Spans 7-9 are a three-span continuous unit. In the truss spans, the diagonals and verticals consist of rolled members and the upper and lower chords consist of built-up box sections. The floorbeams consist of rolled members and the cantilevered floor beam extensions consist of welded plate girders. In the truss spans, sway bracing, and lower lateral bracing are riveted to gusset plates at even-numbered panel points. In girder spans, cross-frame and lower lateral bracing spacing varies due to the curved geometry. A reinforced concrete deck, with a roadway width of 56'-4", carries four lanes of traffic across the structure. A sidewalk with a width of 10'-8" carries pedestrian traffic on the south side of the structure. The Rear Abutment (Abutment 1) and the Forward Abutment (Abutment 18) are wall type substructures. All piers (Piers 2-17) are cap and column substructure units. The bridge follows a west to east stationing. Girders and truss lines are labeled north, center, and south. Floorbeams are numbered from west to east starting with Floorbeam 0 at the start of each continuous unit. **Appendix D** contains select plan sheets for HAM-50-2180N.

HAM-50-2181N

HAM-50-2181N carries a one lane ramp from westbound Columbia Parkway to southbound Interstate 471 over a parking area and a sidewalk. The bridge was constructed in 1978 and is a 3-span bridge consisting of (2) 3-girder spans and (1) 1-girder span that widens span 3 of the existing Columbia Parkway Viaduct (HAM-50-2180N). The bridge has a reinforced concrete deck that is supported by continuous steel girders resting on reinforced concrete piers. The structure is 194'-0" long and has a 25'-0" wide deck. In 2001 the structure was rehabilitated, receiving a deck overlay, steel painting, and other structure repairs. The spans and

substructure units are numbered from north to south. Spans 1 and 2 consist of a steel plate girder three-girder system and Span 3 consists of a single girder with floorbeams extending between the girder and HAM-50-2180N Girder 1 in Span 3. The girders are labeled east, center, and west. **Appendix E** contains select plan sheets for HAM-50-2181N.

NONREDUNDANT STEEL TENSION MEMBER LOCATIONS

HAM-50-2180N

The tension regions of the girders, tension and reversal members of the trusses, and the floorbeams/cantilevered brackets are considered to be nonredundant steel tension members (**see Appendix B**).

HAM-50-2181N

The tension regions of the girders are considered to be nonredundant steel tension members (**see Appendix C**).

FATIGUE PRONE DETAILS

Tack welds are typical between chord members and fill plates, lower chord web plates and gusset plates, lateral bracing connection angles and upper chord splice plates, and lateral brace connection plates to upper chord cover plate.

INSPECTION METHOD AND PLAN

TranSystems Corporation and TRC Engineers Inc. will perform nonredundant steel tension member and in-depth inspections on HAM-50-2180N and HAM-50-2181N. The superstructure including all truss web members, upper chord, lower chord, floor system and the piers for HAM-50-2180N and HAM-50-2181N will be accessed using a combination of the ODOT Snooper, manlift, bucket truck, rope access techniques, and ladders. Permission from the parking lot operators will be obtained prior to accessing the parking lots below the structures. The contact information for the parking lot owners and operators is listed below.

Address	Location	Owner	Operator Contact Information
421 Butler St.	Under HAM-2181N west of Butler St.	City of Cincinnati 801 Plum St. Room 122 Cincinnati, OH 45202	Jay Hollmeyer Park Place at Lytle 513-751-5040
421 Culvert St.	Under HAM-2180N between Butler St. and Culvert St.	Gray, Gilbert L 529 E 5th St. Cincinnati, OH 45202	Jay Hollmeyer Park Place at Lytle 513-751-5040
404 Culvert St.	Under HAM-2180N between Culvert St. and Eggleston Ave.	City of Cincinnati 801 Plum St. Room 122 Cincinnati, OH 45202	Amy Pangallo ABM Parking 513-241-0629 Amy.pangallo@abm.com (Email is preferred)

Traffic control will be provided by A&A Safety according to the traffic control plans shown in Appendix B. Traffic control for the use of the ODOT snooper will be provided by ODOT as stated in the Scope of Services.

FIELD COORDINATION

The following personnel are anticipated to be involved with the coordination and/or field work associated with the inspection of these structures.

TranSystems:

Project Manager	Steven Hammerschmidt, PE sfhammerschmidt@transystems.com	(785) 623-6704
Team Leader	Ann Griessmann, PE amgriessmann@transystems.com	(513) 405-4858
Team Leader	Josh Sadlock, PE jdsadlock@transystems.com	(717) 554-2073
Team Leader	Jake Adamrovich, EI jaadamrovich@transystems.com	(724) 787-2250
Team Member	Hailey DeGeorge hldegeorge@transystems.com	(616) 216-1192

TRC Engineers, Inc:

Team Leader	Craig Jacob CJacob@trccompanies.com	(513) 222-0344
Team Member	Lisa Brown, EI LBrown@trccompanies.com	(513) 728-0567

PERMITTING AND COORDINATION

The following entities will be involved in the permitting and coordination of all work associated with the inspection of these structures. Copies of permits from all entities will be kept on site at all times.

ODOT – A right of entry permit is necessary through ODOT District 8 and will be secured via the ODOT Right of Way E-Permitting System. The following ODOT personnel will be contacts:

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

District Work Zone Traffic Manager	Scott Kraus Scott.Kraus@dot.state.oh.us	(513) 933-6519
Right-of-Way Use Permits	Chris Bass Chris.Bass@dot.state.oh.us	(513) 933-6577
Right-of- Permit Coordinator	Kimberly Giffin Kim.Giffin@dot.ohio.gov	(513) 933-6580

City of Cincinnati – A lane closure permit through the City of Cincinnati is required. See Appendix A. Work performed on City owned property will be done so within ODOT easements therefore no right-of-entry permit is required. Contacts are:

DOTE Permit and License Center row.permits@cincinnati-oh.gov	(513) 352-3463

TRAFFIC CONTROL

TranSystems has contracted A&A Safety, Inc. to provide the necessary traffic control for these inspections. They will be responsible for all signs and devices which shall be placed in accordance with the latest Ohio Manual for Uniform Traffic Control Devices.

The inspection crew plans to utilize single lane closures on Eggleston Avenue and single-lane closures with flagging on Culvert Street and Butler Street in order to access the structures with an 85' manlift. The single lane closures will follow OMUTCD TA-33 for Eggleston Avenue and OMUTCD TA-10 for Culvert Street and Butler Street.

Traffic control for the use of the ODOT snooper will be provided by ODOT as stated in the Scope of Services.

FOLLOW-UP PROCEDURES

Critical inspection findings will be reported to the District within 24 hours and details/ photographs will be provided via email. These along with other findings will be documented in the final inspection report.

QUALITY CONTROL/QUALITY ASSURANCE

TranSystems' Quality Assurance/Quality Control Plan will be followed. The team leaders were chosen to ensure that inspector qualifications are met. The team leaders have completed the course FHWA-NHI-130078, "Fracture Critical Inspection Techniques for Steel Bridges."

SPECIAL CONSIDERATIONS

Based on the items discussed during the scoping meeting and in the previous inspection reports, the following will receive special consideration:

- Section loss on truss members and gusset plates on HAM-50-2180N
- Out-of-plane bowing of gusset plates and zero force members on HAM-50-2180N
- Loose concrete at the haunches on HAM-50-2180N
- Erosion and undermining of substructure units at piers 12-15 on HAM-50-2180N
- Flame cuts on bottom flange of girders in Spans 13, 14, and 15 of HAM-50-2180N
- Unsanitary conditions around substructure units
- Any small delaminations found over public areas during inspections shall be removed on-site with a hammer. ODOT shall be notified of larger spalls and may remove them during the inspection.

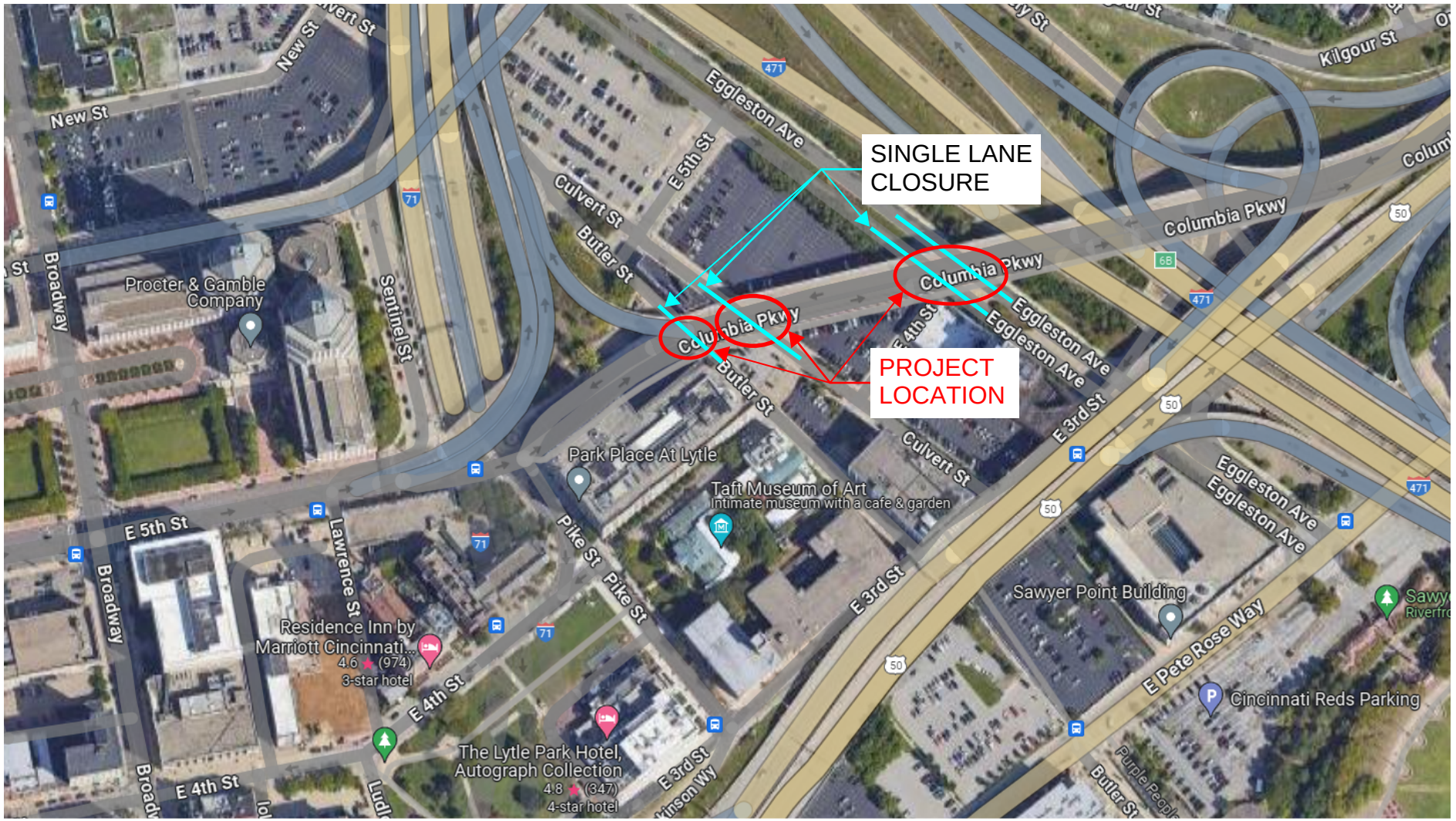
APPENDIX A

RIGHT OF ENTRY PERMITS & MAINTENANCE OF TRAFFIC DRAWINGS

PROJECT NO. P402220026
DATE 3/4/2024

BRIDGE NO. HAM-50-2180N
SHEET 1 of 4

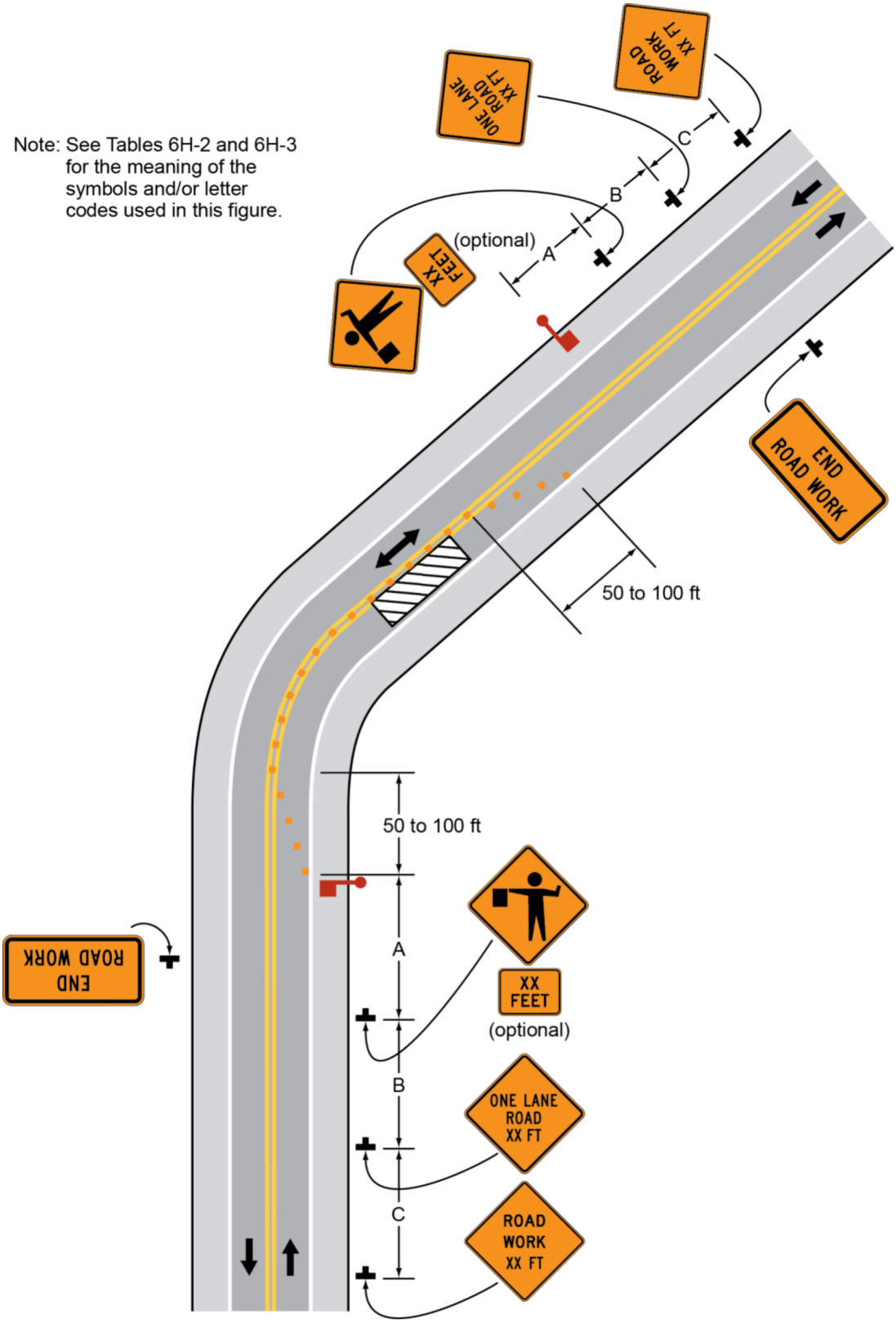
TRANSYSTEMS



REVISION 1	DATE		REVISION 2	DATE	
REVISION 3	DATE		REVISION 4	DATE	

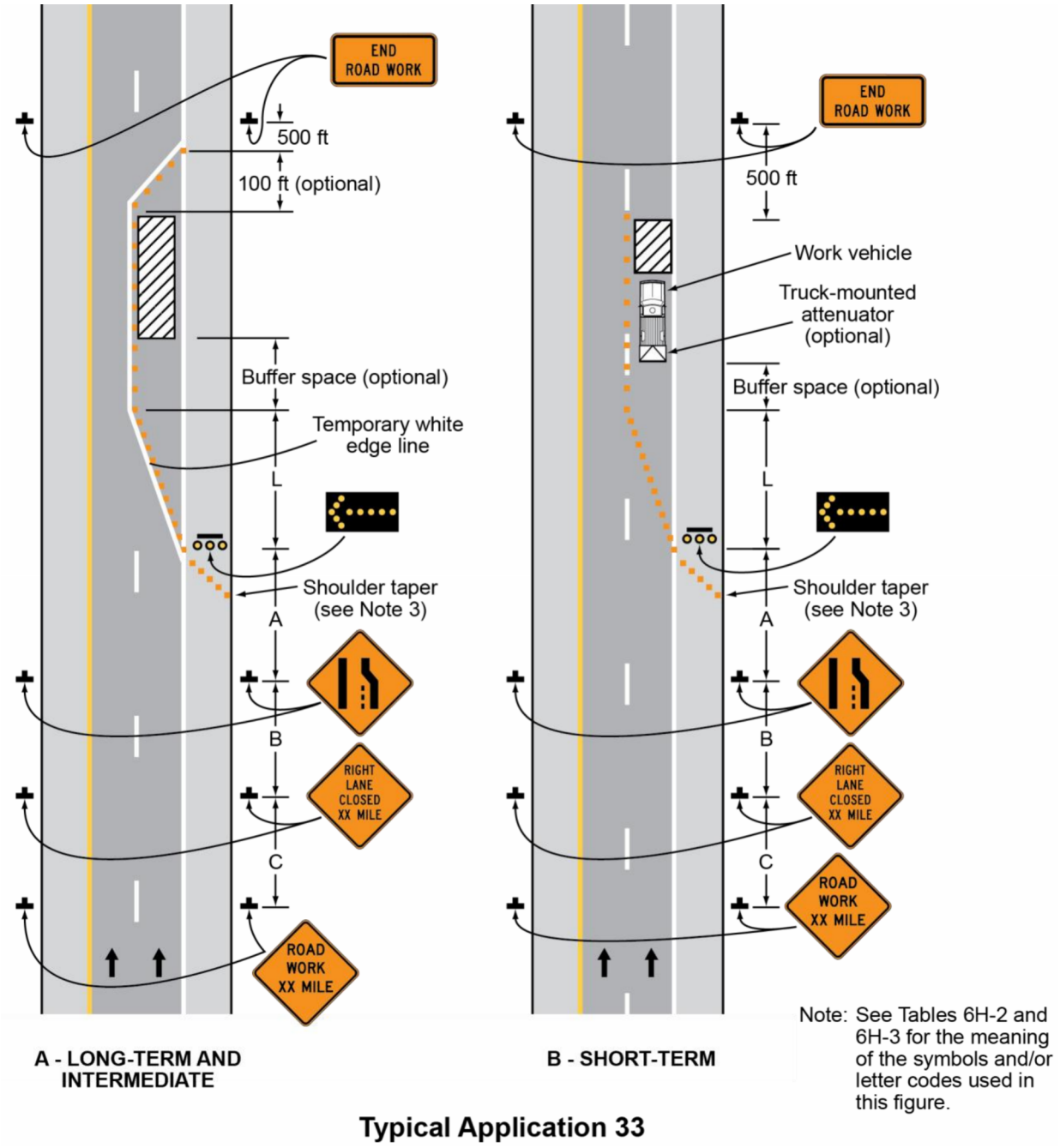
CITY OF CINCINNATI
LANE CLOSURE LOCATIONS

Figure 6H-10. Lane Closure on a Two-Lane Road Using Flaggers (TA-10)



Typical Application 10

Figure 6H-33. Stationary Lane Closure on a Divided Highway (TA-33)



Typical Application 33

Josh Sadlock

From: EPermitting <EPermitting@bemsys.com>
Sent: Wednesday, April 17, 2024 10:18 AM
To: Josh Sadlock
Subject: ODOT Real Estate E-Permitting Application # 24-12839 Submitted for Lane Closure

ODOT REAL ESTATE E-PERMITTING APPLICATION # 24-12839 SUBMITTED FOR LANE CLOSURE

Your application for a Lane Closure has been submitted as Application # 24-12839. You may use the Permit List button in the ODOT E-Permitting application to review the status of your submitted applications and the permits that are granted to you. Please do not reply to this auto-generated email.

You may contact the Real Estate Right of Way E-Permitting Office
Visit - ODOT Real Estate EPermitting System [u7920085.ct.sendgrid.net] for more information.

Note: Please do not reply to this auto-generated email.

APPENDIX B

HAM-50-2180N
NONREDUNDANT STEEL TENSION MEMBER LOCATIONS

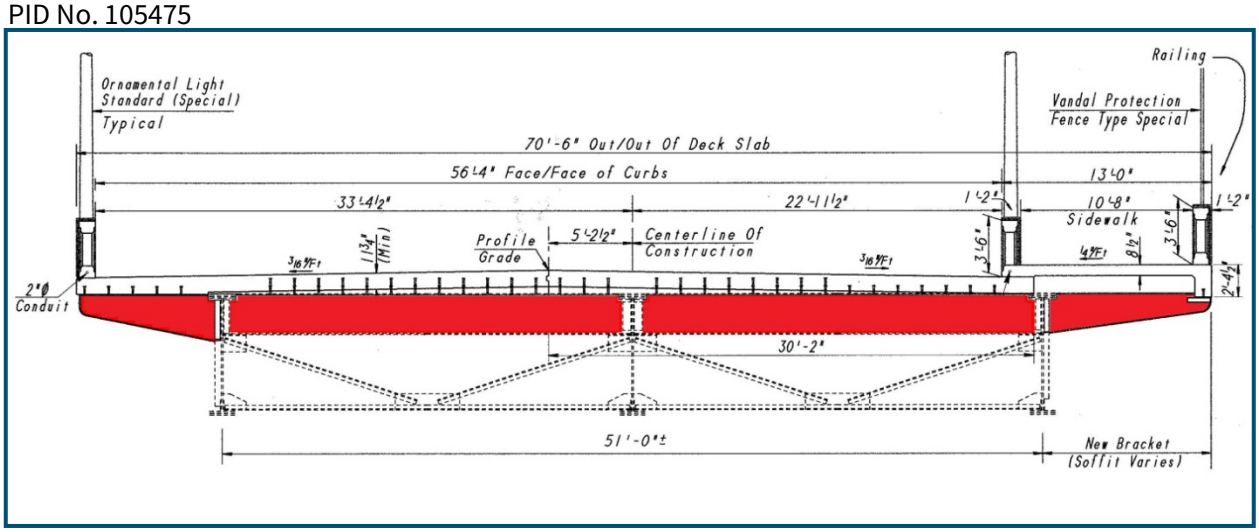


Figure 2 – Transverse deck section showing typical NSTM floorbeam elevation in girder spans.

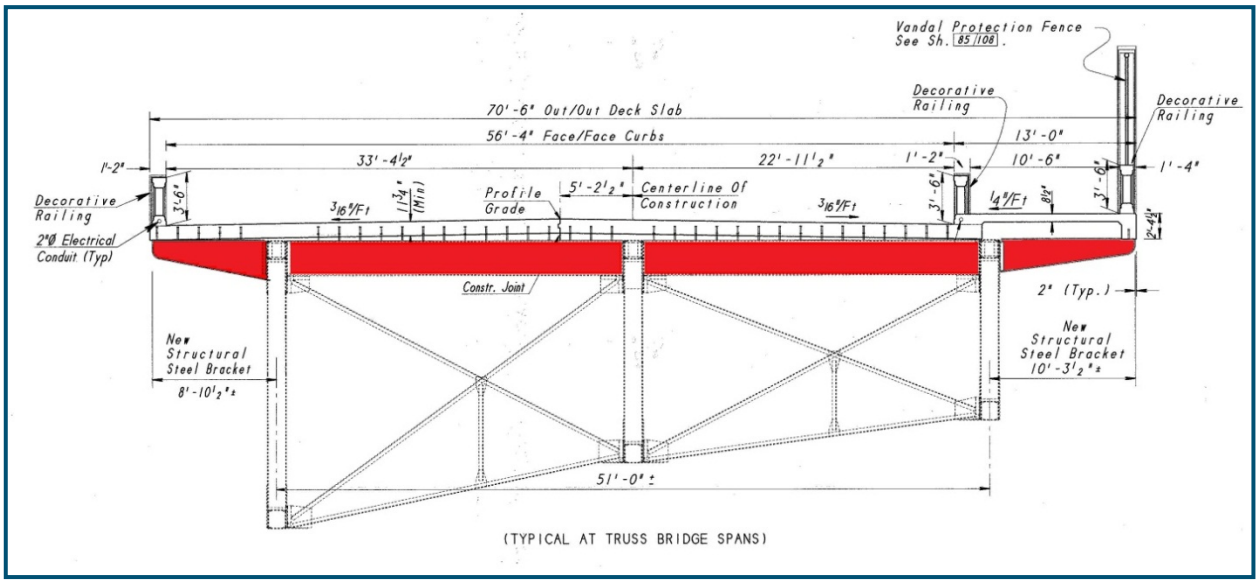
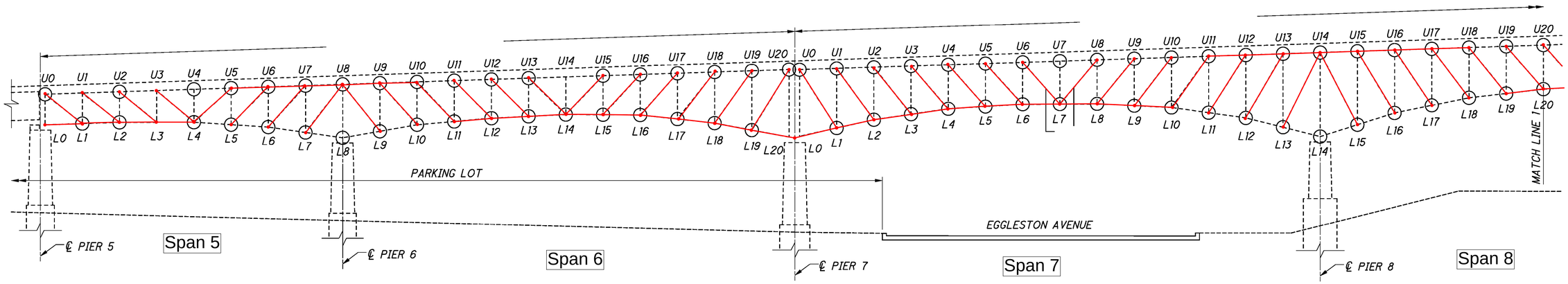
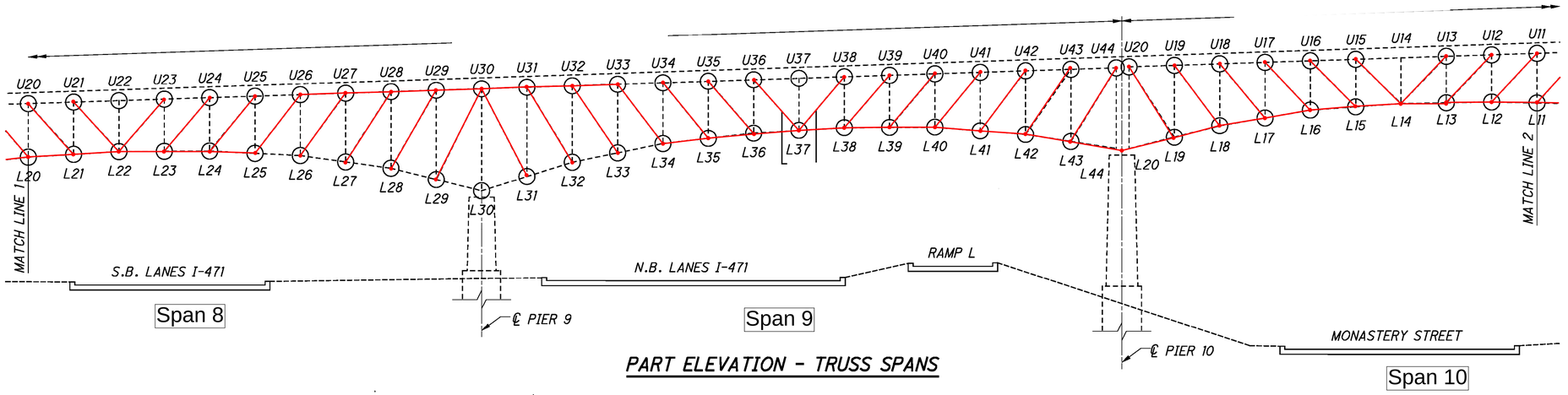


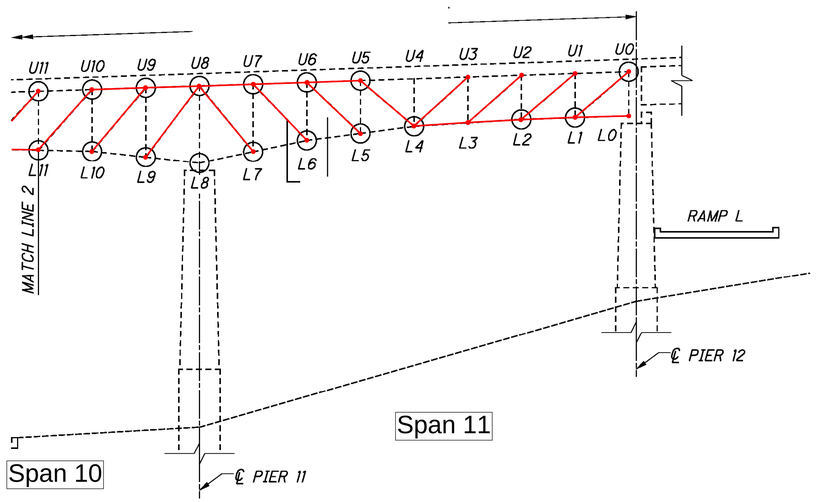
Figure 3 – Transverse deck section showing typical NSTM floorbeam elevation in truss spans.



PART ELEVATION - TRUSS SPANS



PART ELEVATION - TRUSS SPANS



PART ELEVATION - TRUSS SPANS

Notes:

1. Image is taken from the 2016 Rehabilitation Drawings, Sheet 19 of 156, Truss Spans Elevations - Repair Locations Bridge No. Ham-50-2180N (Columbia Parkway Viaduct Over I-471). Some information from the original sheet has been removed and or updated.

NSTM Member

TRUSS SPANS ELEVATION
BRIDGE No. HAM-50-2180N
COLUMBIA PARKWAY VIADUCT OVER I-471

HAM-50-2180N

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

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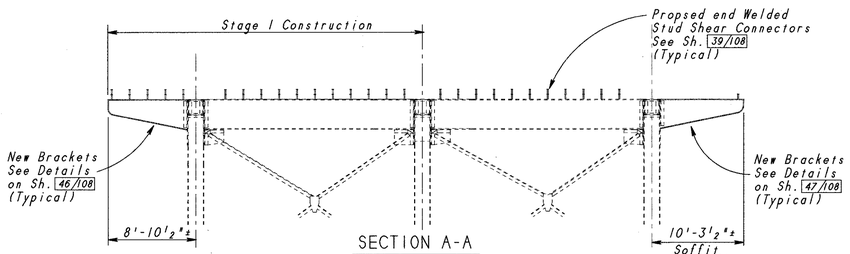
116
182



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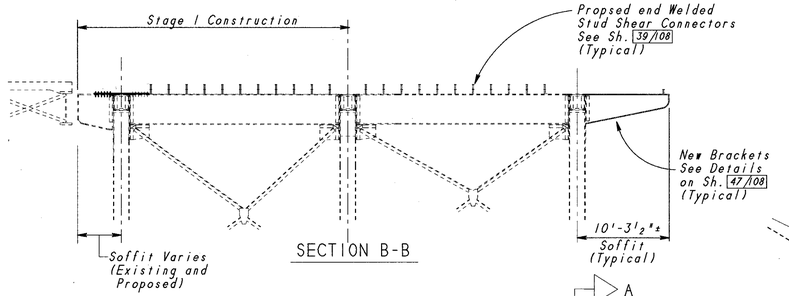
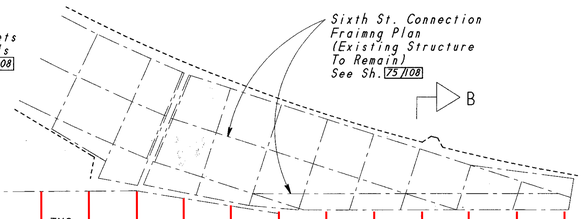
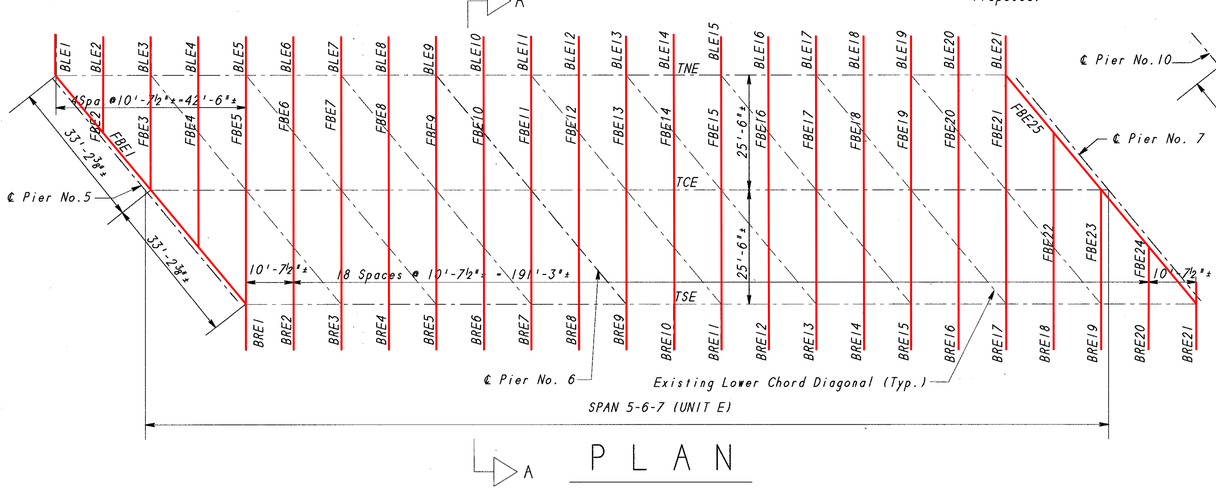


SECTION B-B





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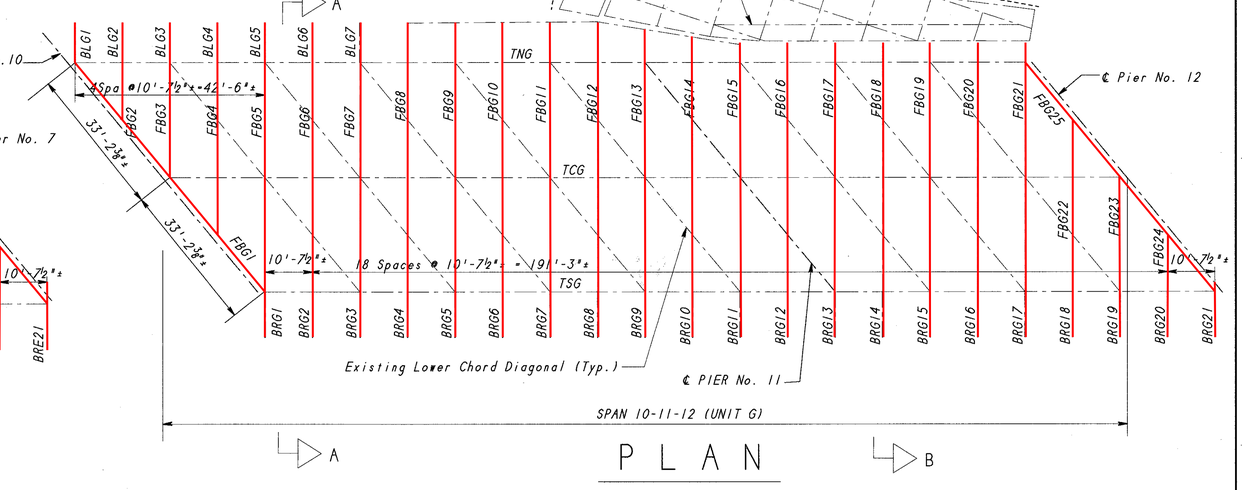

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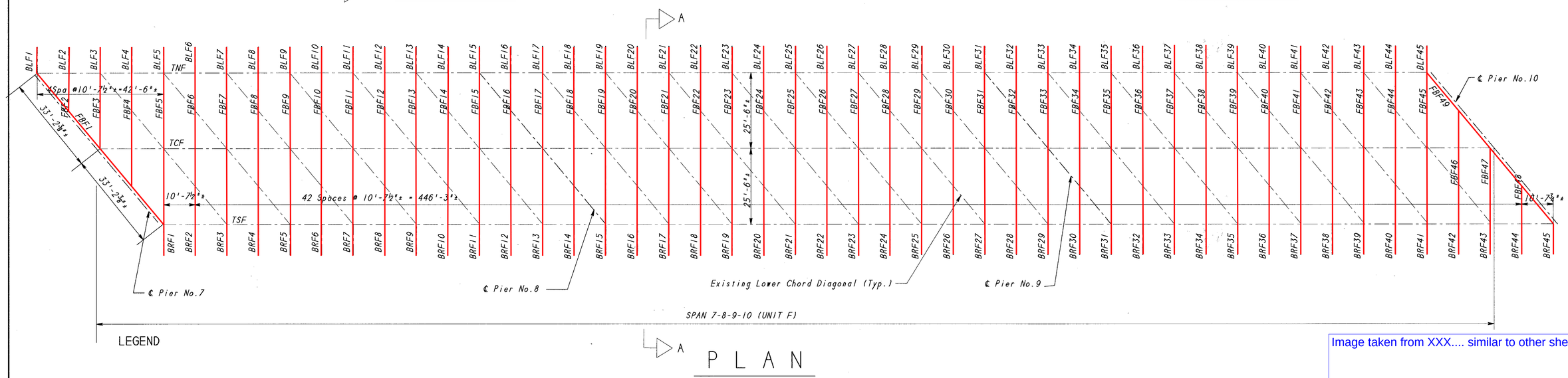

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LEGEND

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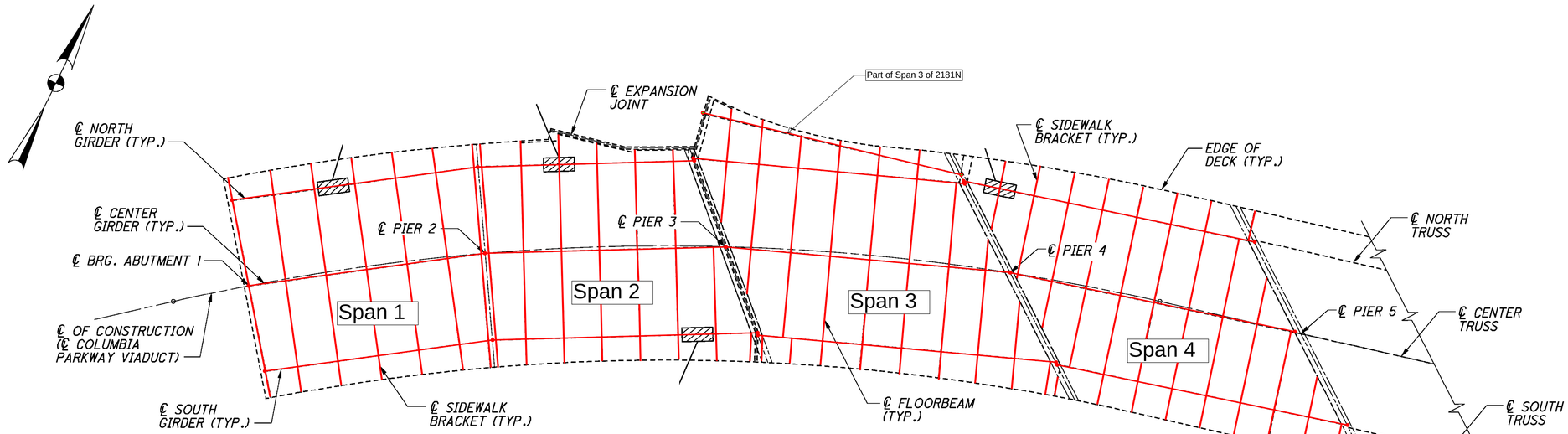
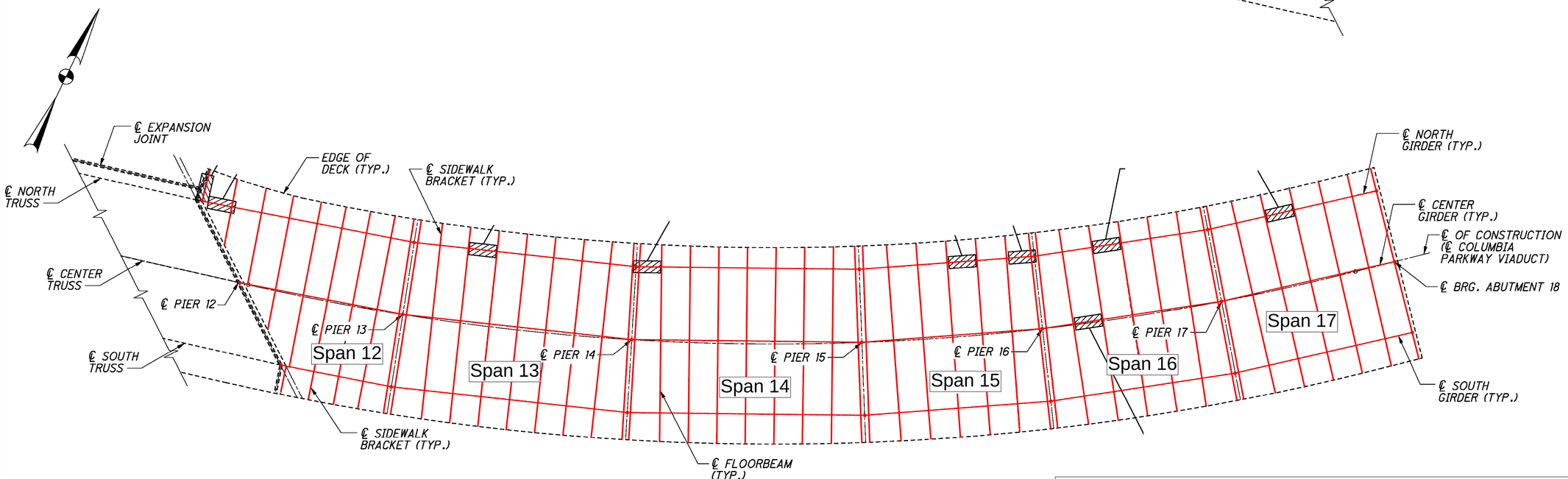
NSTM Member

STLEFG Scale 16



PART FRAMING PLAN - SPANS 1 THRU 4



PART FRAMING PLAN - SPANS 12 THRU 17

Notes:

1. Image is taken from the 2016 Rehabilitation Drawings, Sheet 150 of 156,Girder Spans Framing - Painting Locations Bridge No. Ham-50-2180N (Columbia Parkway Viaduct Over I-471). Some information from the original sheet has been removed and or updated.

NSTM Member

GIRDER SPANS FRAMING
BRIDGE No. HAM-50-2180N
COLUMBIA PARKWAY VIADUCT OVER I-471

HAM-50-2180N

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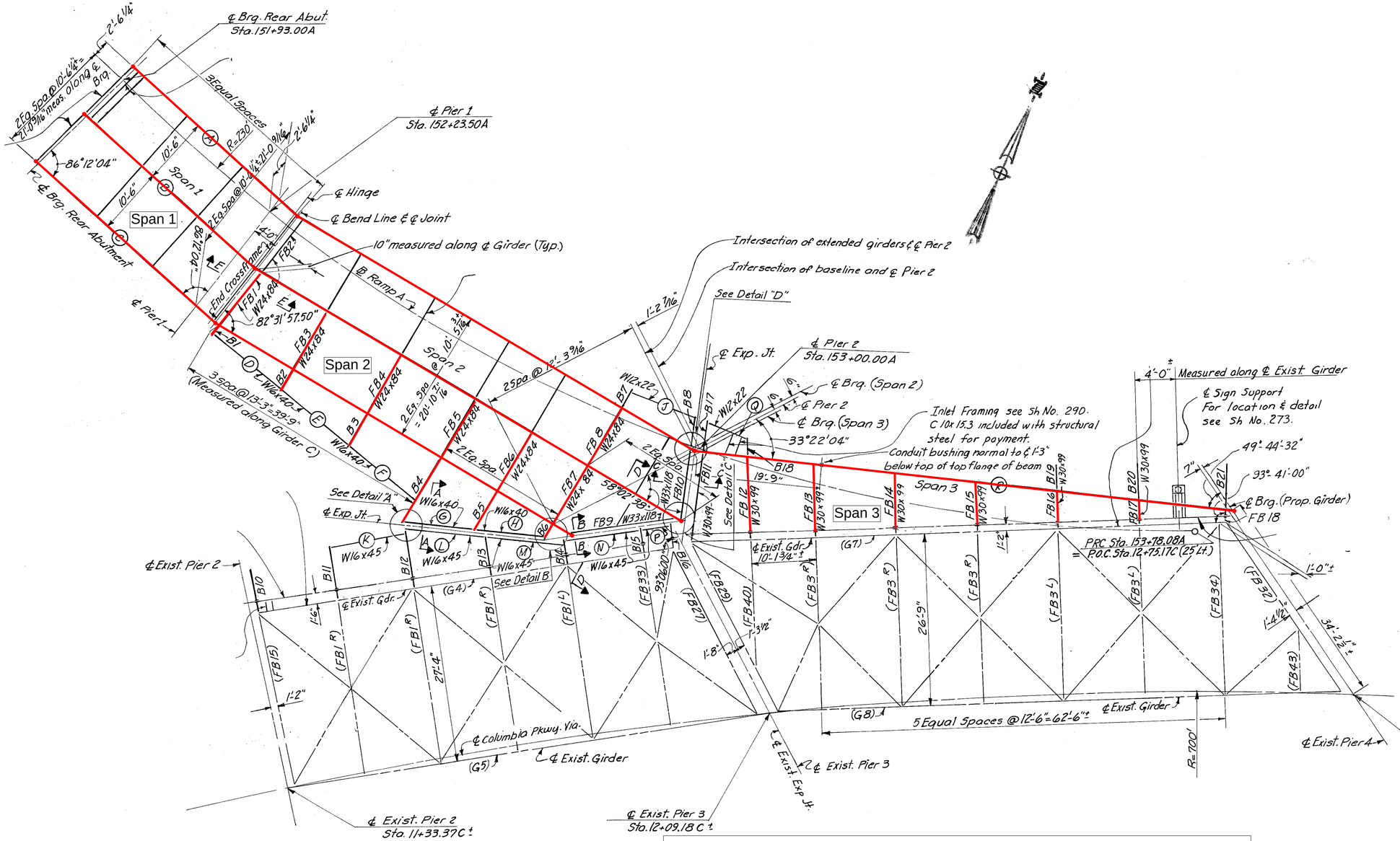
APPENDIX C

HAM-50-2181N
NONREDUNDANT STEEL TENSION MEMBER LOCATIONS



FRAMING PLAN

Notes:

1. Image is taken from the 1978 Original Construction Drawings, Sheet 265 of 494, Structural Steel Bridge No. HAM-471-0.30 Ramp A Off Columbia Viaduct. Some information from the original sheet has been removed and or updated.

NSTM Member

10/39

STRUCTURAL STEEL
BRIDGE NO. HAM-50-2181N
RAMP A OFF COLUMBIA VIADUCT

APPENDIX D

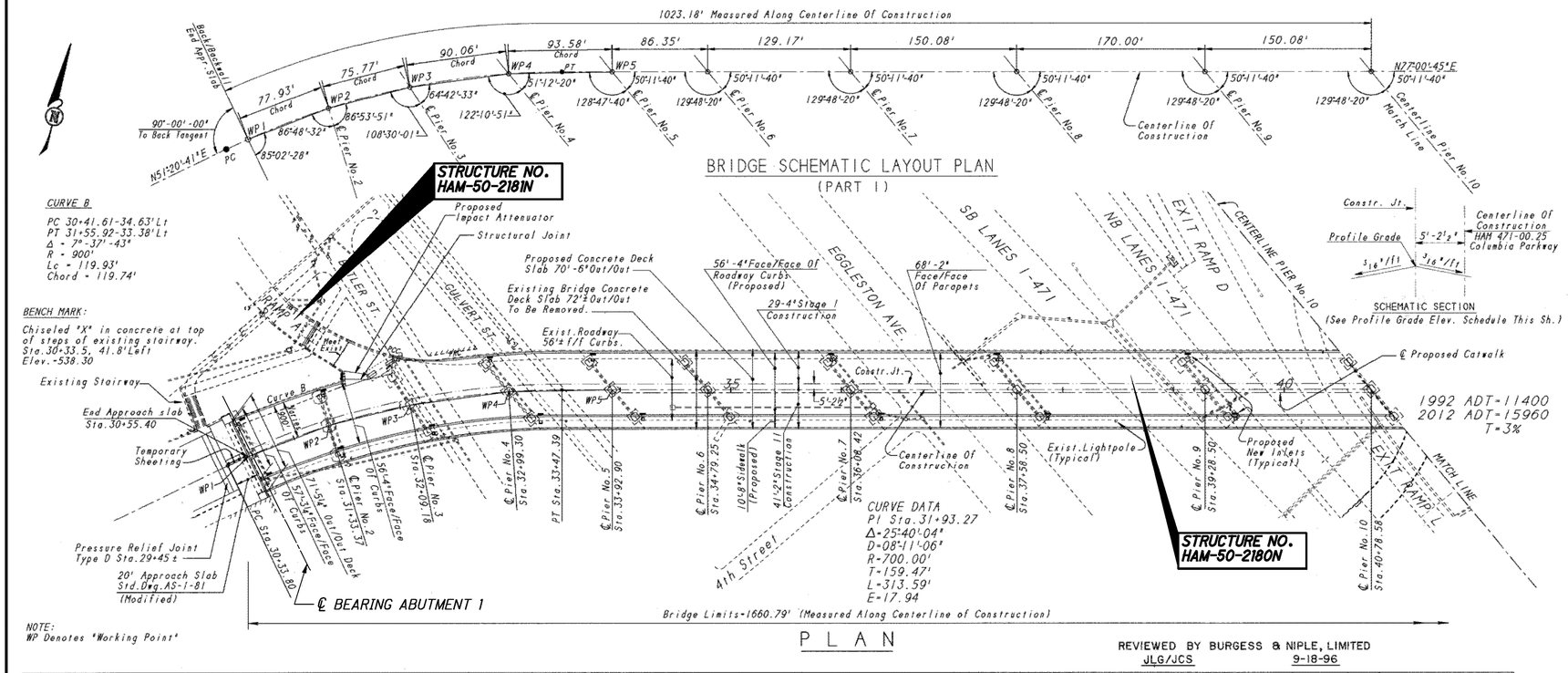
HAM-50-2180N
SELECT PLAN SHEETS

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

HAM-471-00.25

PROFILE GRADE ELEVATIONS SCHEDULE

LOCATION	STATION, OFFSET	ELEVATION
BEGIN BRIDGE	30+55.24, 5.21' LT	538.55
PIER NO. 2	31+33.37, 5.21' LT	539.39
PIER NO. 3	32+07.13, 5.21' LT	540.57
PIER NO. 4	32+95.57, 5.21' LT	542.29
PIER NO. 5	33+88.56, 5.21' LT	544.60
PIER NO. 6	34+74.91, 5.21' LT	547.28
PIER NO. 7	36+04.08, 5.21' LT	551.55
PIER NO. 8	37+54.16, 5.21' LT	556.52
PIER NO. 9	39+24.16, 5.21' LT	562.15
PIER NO. 10	40+74.24, 5.21' LT	567.12
PIER NO. 11	42+03.41, 5.21' LT	571.39
PIER NO. 12	42+89.91, 5.21' LT	574.25
PIER NO. 13	43+54.30, 5.21' LT	576.38
PIER NO. 14	44+36.95, 5.21' LT	579.12
PIER NO. 15	45+19.60, 5.21' LT	581.86
PIER NO. 16	45+84.60, 5.21' LT	584.01
PIER NO. 17	46+49.60, 5.21' LT	586.16
END BRIDGE	47+16.19, 5.21' LT	588.34



PLAN

REVIEWED BY BURGESS & NIPLE, LIMITED
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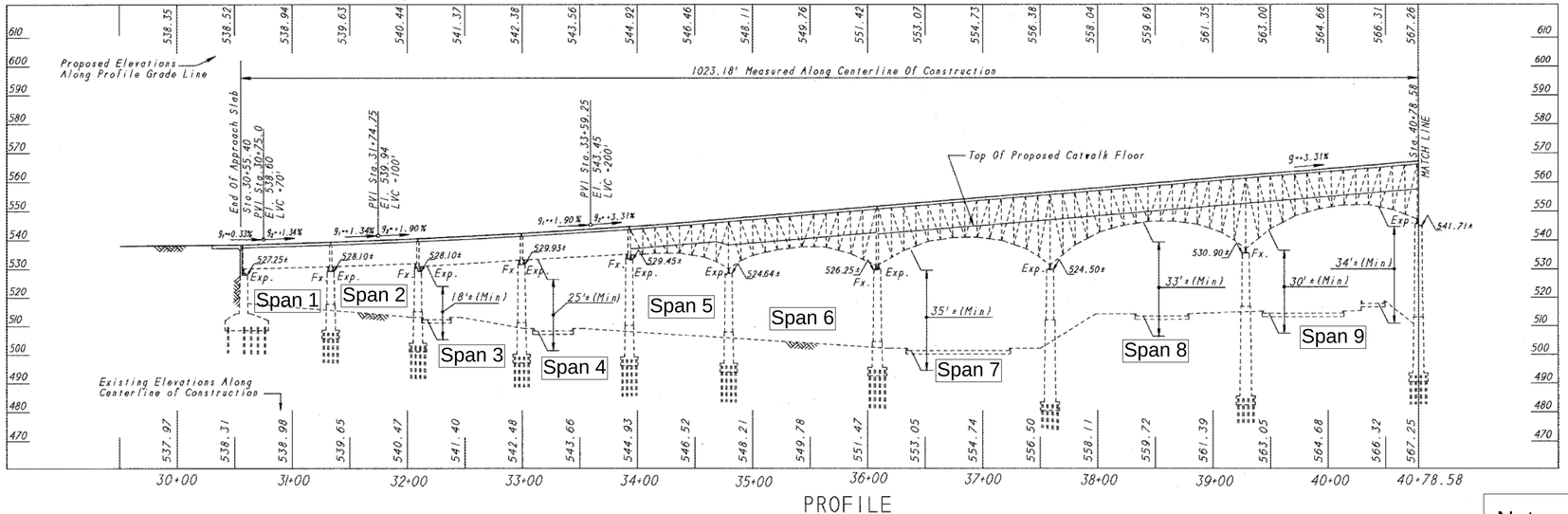

PROFILE

EXISTING STRUCTURE

TYPE: STEEL GIRDERS AND DECK TRUSSES WITH REINFORCED CONCRETE DECK SUPERSTRUCTURE ON REINFORCED CONCRETE SUBSTRUCTURE

SPANS: AS NOTED ON BRIDGE SCHEMATIC LAYOUT PLAN

ROADWAY: 56'-4"± CURB TO CURB WITH 10'-8"± SIDEWALK ON RIGHT SIDE

LOADING: HS20-44 CASE II AND THE ALTERNATE MILITARY LOADING

SKEW: VARIES

ALIGNMENT: CURVE RIGHT 700'R, THEN TANGENT, THEN CURVE LEFT 850'R, THEN TANGENT

STRUCTURE FILE NUMBER: 3103390

DATE BUILT: 1938 ORIGINAL CONSTRUCTION, 1997 REHABILITATION

DISPOSITION: BRIDGE REHABILITATION

Notes:

1. Image is taken from the 2016 Rehabilitation Drawings, Sheet 1 of 156, Site Plan (1 of 2) Bridge No. Ham-50-2180N (Columbia Parkway Viaduct Over I-471). Some information from the original sheet has been removed and or updated.

HAMILTON COUNTY
STA. 30+55.40
STA. 47+16.19

SITE PLAN (1 OF 2)
BRIDGE No. HAM-50-2180N
COLUMBIA PARKWAY VIADUCT OVER I-471

HAM-50-2180N

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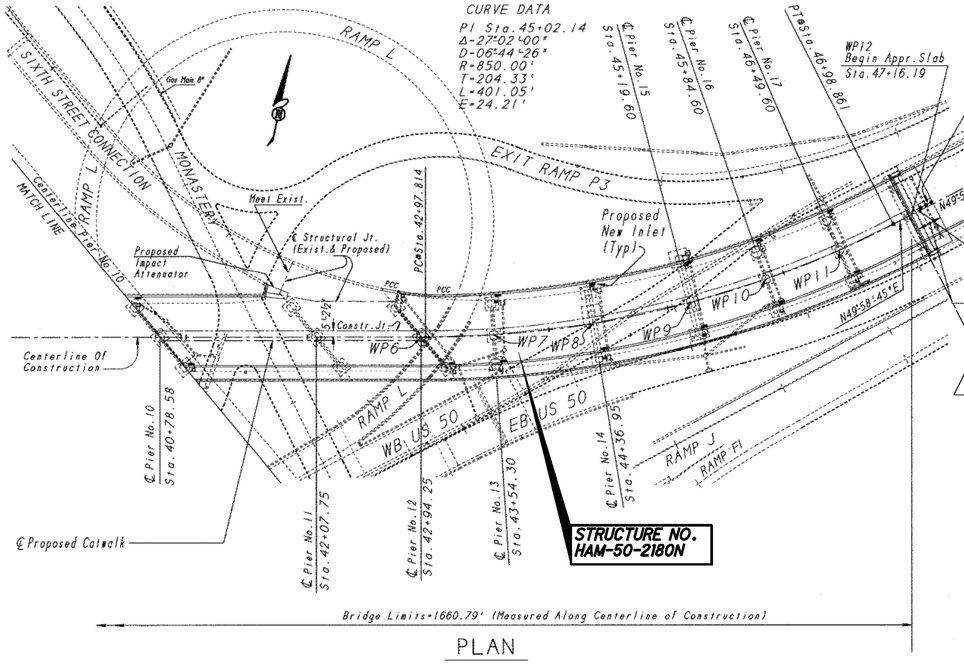
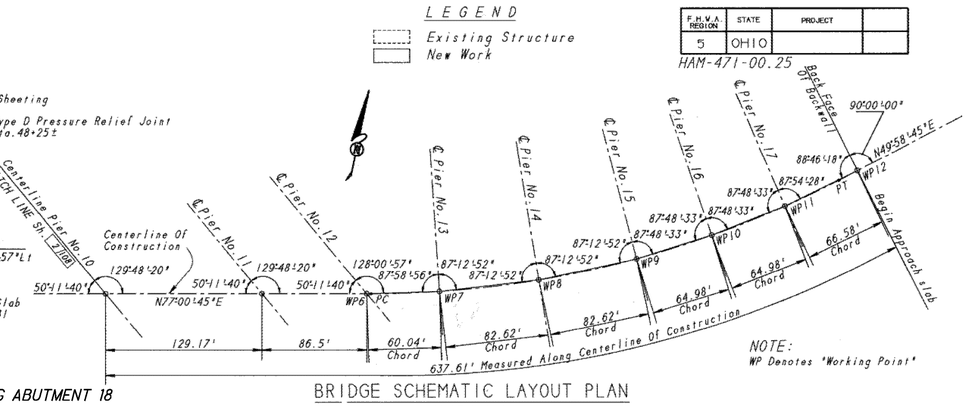
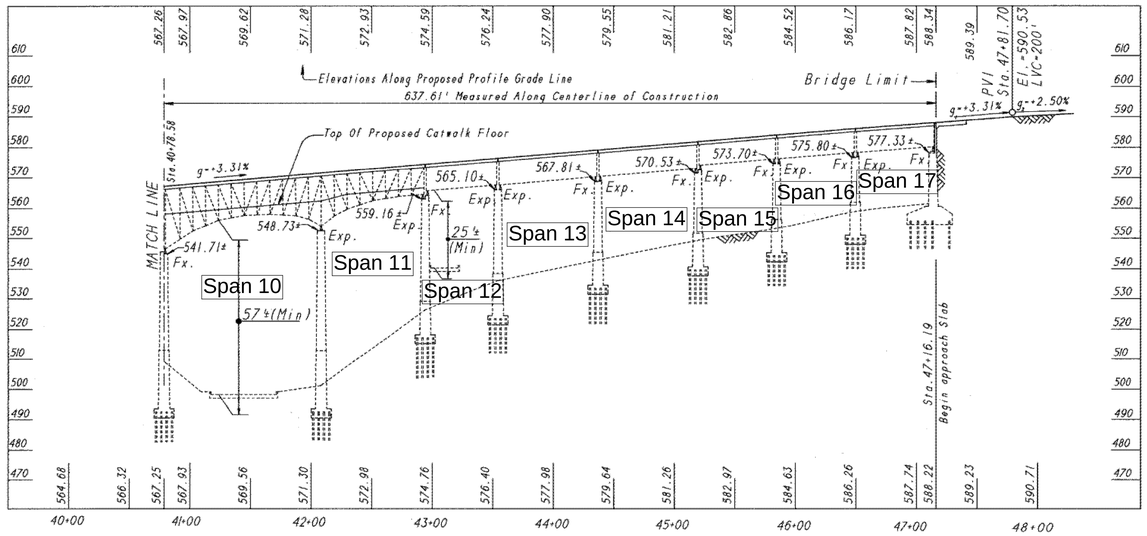


PLAN



BRIDGE SCHEMATIC LAYOUT PLAN
(PART 11)



PROFILE

Notes:

1. Image is taken from the 2016 Rehabilitation Drawings, Sheet 2 of 156, Site Plan (2 of 2) Bridge No. Ham-50-2180N (Columbia Parkway Viaduct Over I-471). Some information from the original sheet has been removed and or updated.

HAMILTON COUNTY
STA. 30+55.40
STA. 47+16.19

SITE PLAN (2 OF 2)
BRIDGE No. HAM-50-2180N
COLUMBIA PARKWAY VIADUCT OVER I-471

HAM-50-2180N

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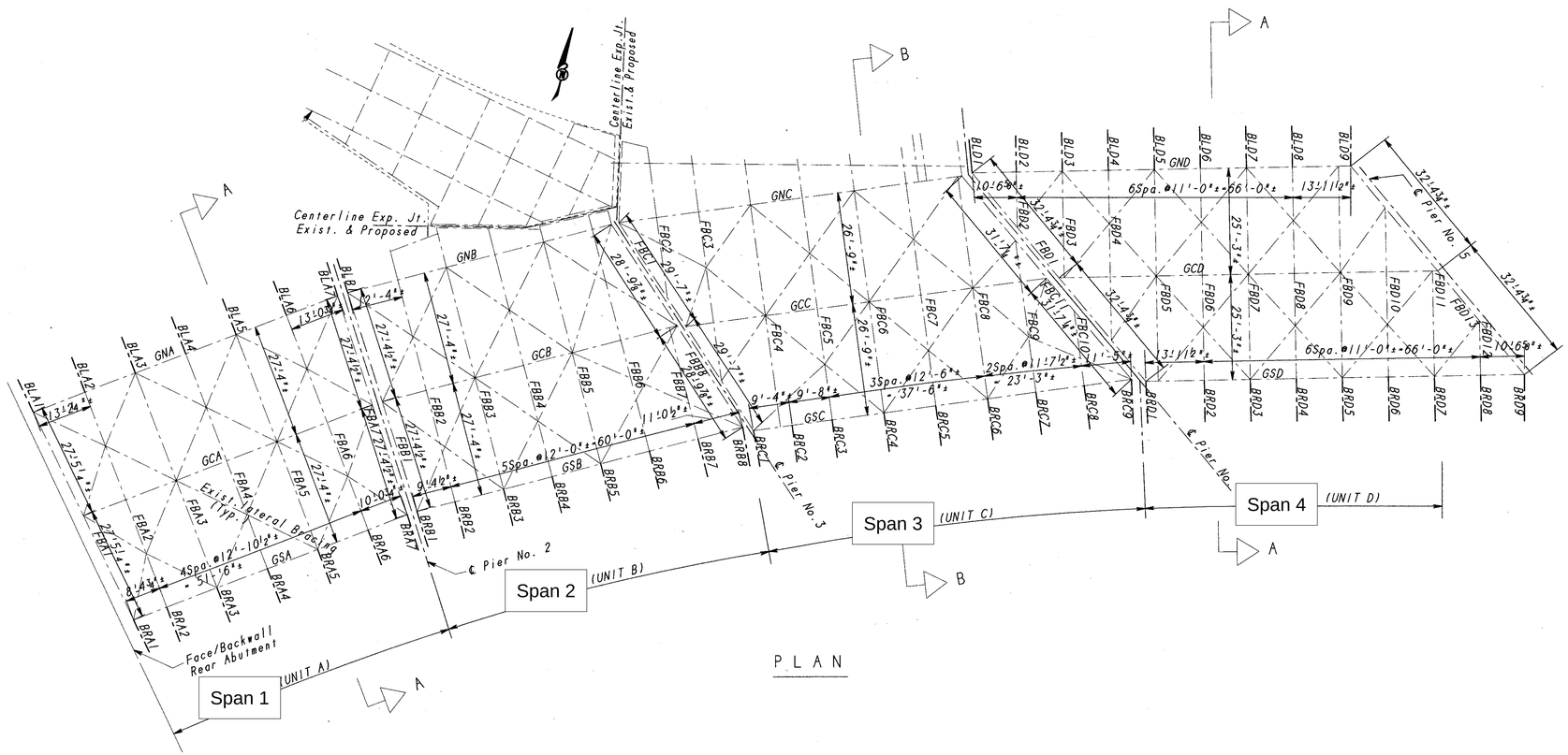
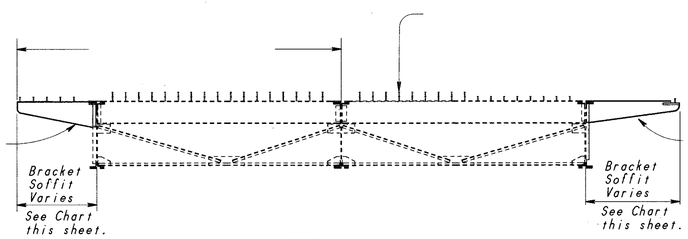
F.H.W.A. REGION	STATE	PROJECT	
5	OH10		

HAM-471-00.25

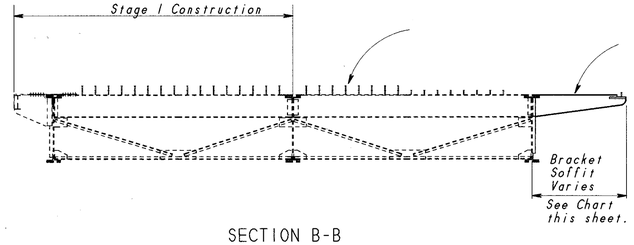
115
182



PLAN



SECTION A-A



SECTION B-B

LEGEND

BLA1 - Bracket Left Unit A Number 1
FBA1 - Floor Beam Unit A Number 1
GNA - Girder North Unit A
GCA - Girder Center Unit A
GSA - Girder South Unit A
BRA1 - Bracket Right Unit A Number 1

Existing Structure

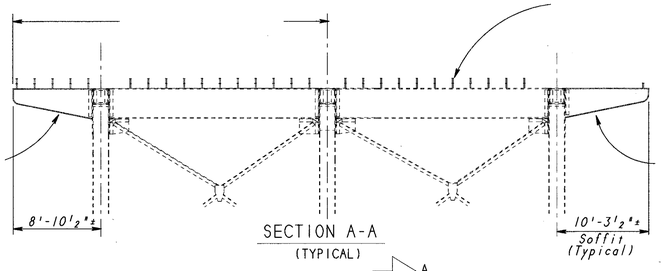
Notes:

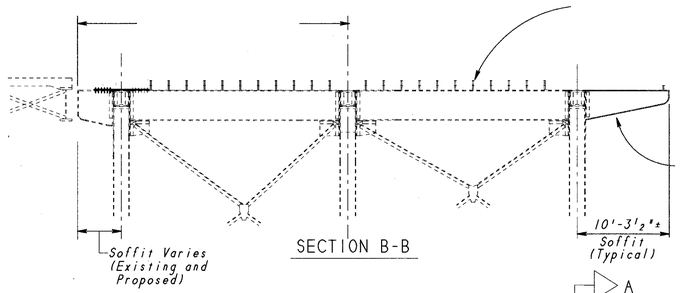
1. Image is taken from the 1997 Rehabilitation Drawings, Sheet 115 of 182, Structural Steel Details New Brackets Spans 1-2 Thru 4-5 (Slab Units A B C & D) Bridge No. HAM-471-0025 (Columbia Parkway Viaduct Over I-471). Some information from the original sheet has been removed and or updated.

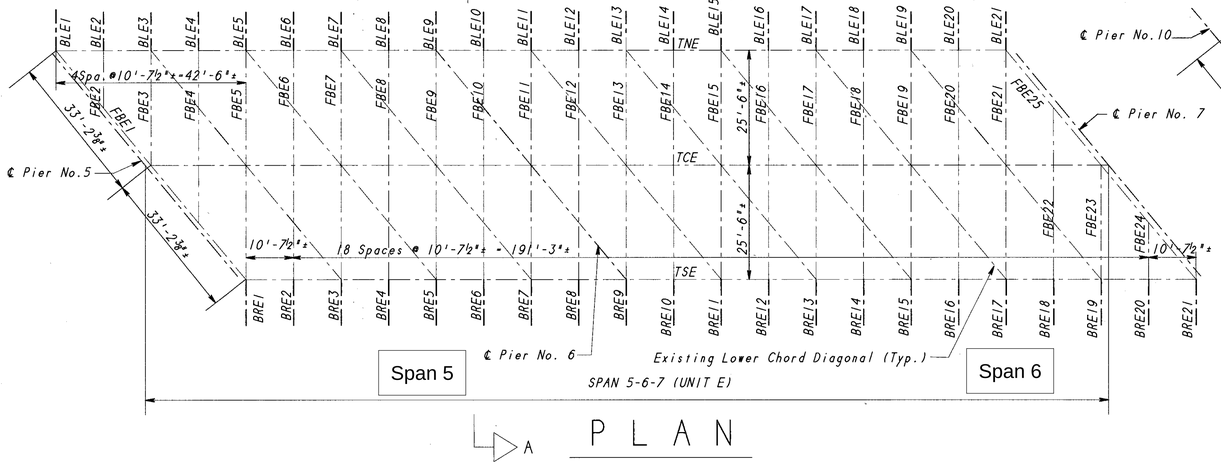
STRUCTURAL STEEL DETAILS
NEW BRACKETS
SPANS 1-2 THRU 4-5
(SLAB UNITS A B C & D)
BRIDGE No. HAM-471-0025
(COLUMBIA PARKWAY VIADUCT OVER I-471)

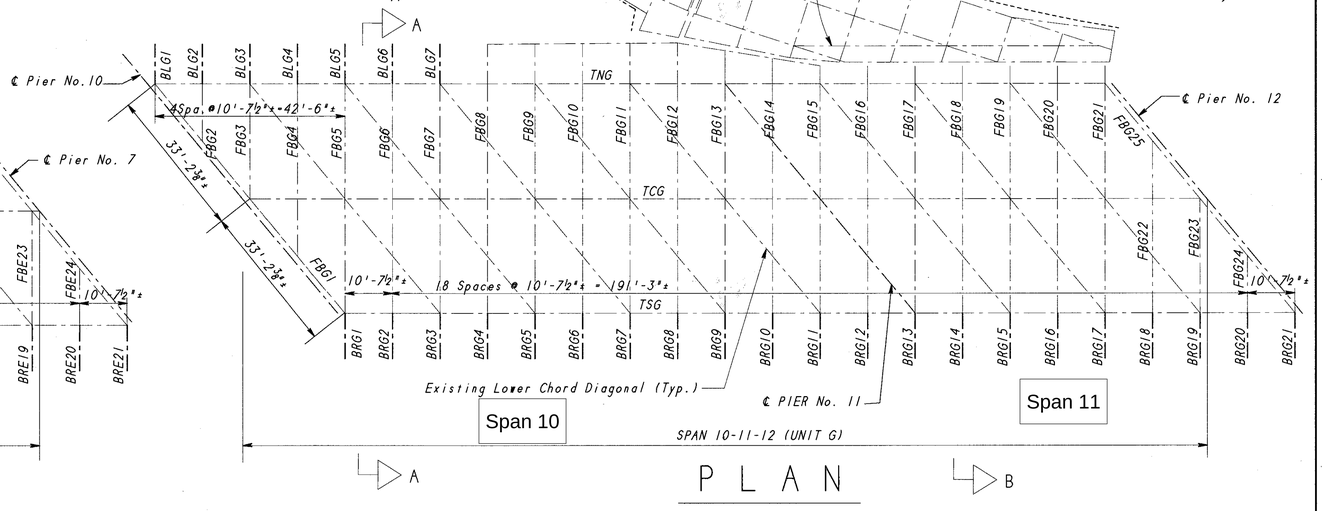
HAMILTON COUNTY

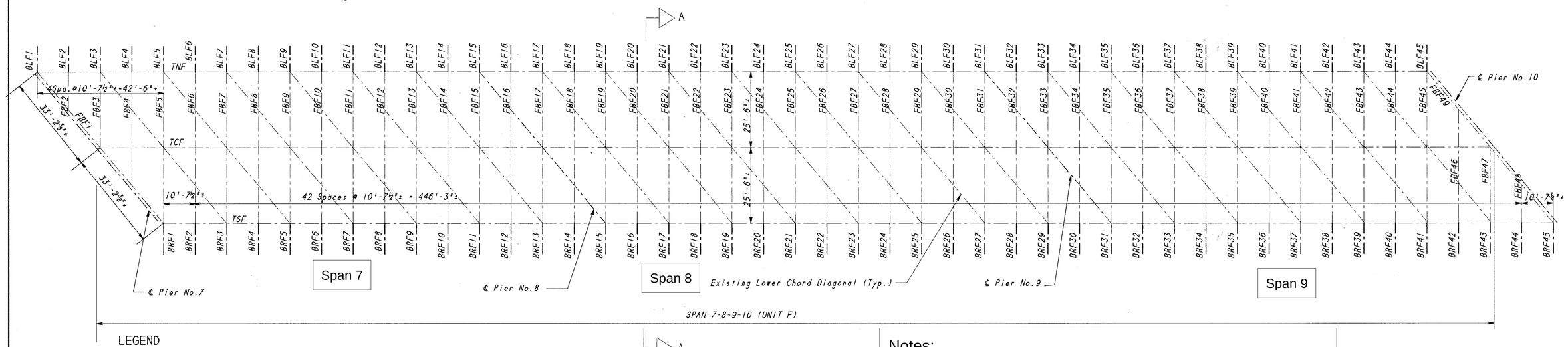
STLABCD Scale 1/6











LEGEND

BLF1 - Bracket Left Unit F Number 1
FBF1 - Floor Beam Unit F Number 1
TNF - Truss North Unit F
TCF - Truss Center Unit F
TSF - Truss South Unit F
BRF1 - Bracket Right Unit F Number 1

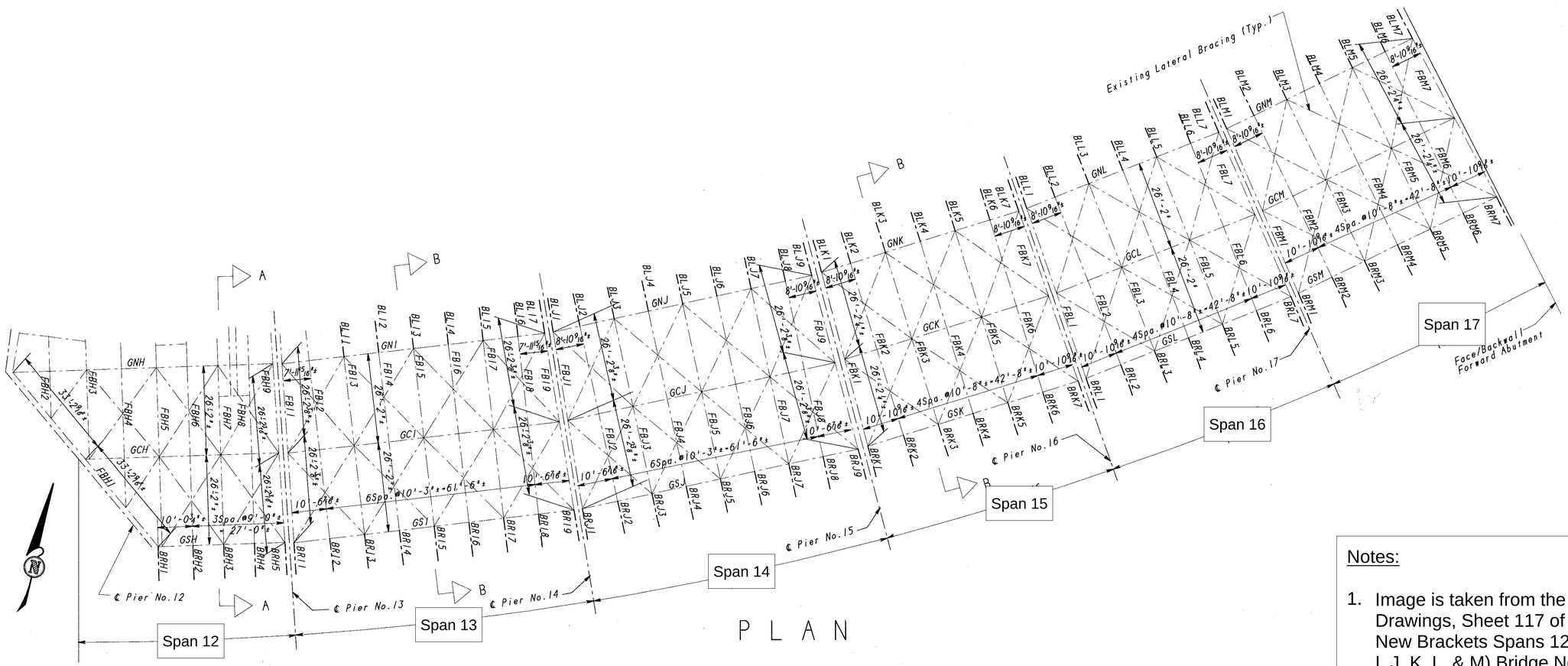
Existing Structure

Notes:

1. Image is taken from the 1997 Rehabilitation Drawings, Sheet 116 of 182, Structural Steel Details New Brackets Truss Spans 5-6-7, 7-8-9-10, & 10-11-12 (Slab Units E F & G) Bridge No. HAM-471-0025 (Columbia Parkway Viaduct Over I-471). Some information from the original sheet has been removed and or updated.

STRUCTURAL STEEL DETAILS
NEW BRACKETS
TRUSS SPANS 5-6-7, 7-8-9-10, & 10-11-12
(SLAB UNITS E F & G)
BRIDGE No. HAM-471-0025
(COLUMBIA PARKWAY VIADUCT OVER I-471)
HAMILTON COUNTY

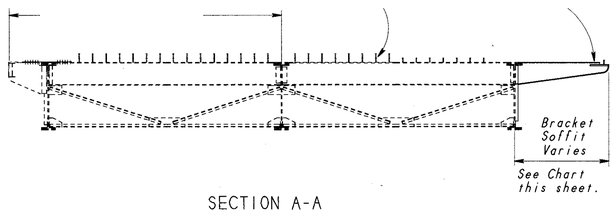
STLEFG Scale 16



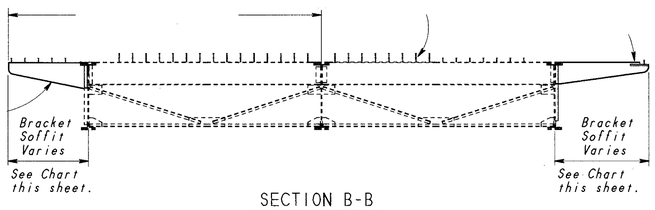
LEGEND

BLJI - Bracket Left Unit J Number I
FBHI - Floor Beam Unit H Number I
GNH - Girder North Unit H
GCH - Girder Center Unit H
GSH - Girder South Unit H
BRHI - Bracket Right Unit H Number I

Existing Structure



SECTION A-A



SECTION B-B
(TYPICAL)

Notes:

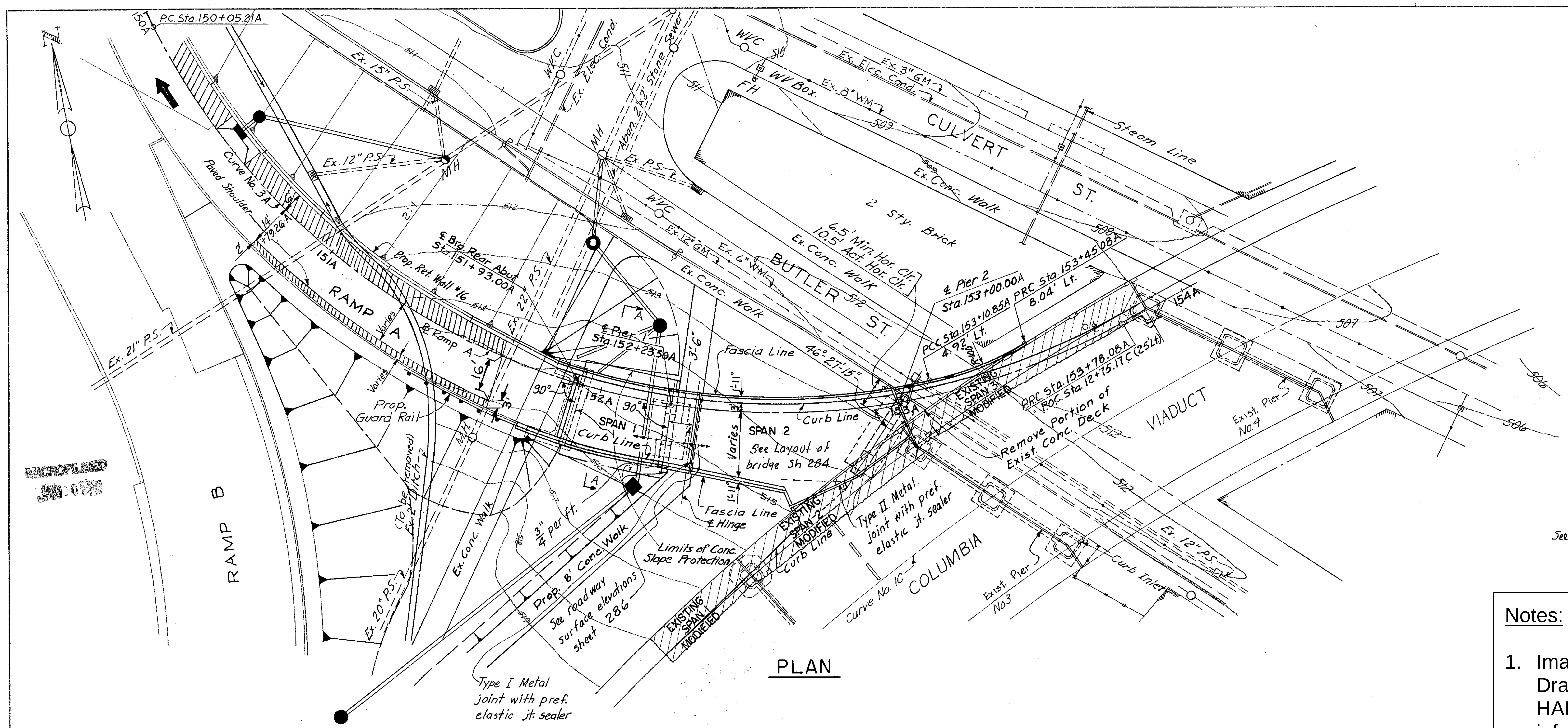
1. Image is taken from the 1997 Rehabilitation Drawings, Sheet 117 of 182, Structural Steel Details New Brackets Spans 12-13 Thru 17-18 (Slab Units H, I, J, K, L, & M) Bridge No. HAM-471-0025 (Columbia Parkway Viaduct Over I-471). Some information from the original sheet has been removed and or updated.

STRUCTURAL STEEL DETAILS
NEW BRACKETS
SPANS 12-13 THRU 17-18
(SLAB UNITS H,I,J,K,L,& M)
BRIDGE No. HAM-471-0025
(COLUMBIA PARKWAY VIADUCT OVER I-471)
HAMILTON COUNTY

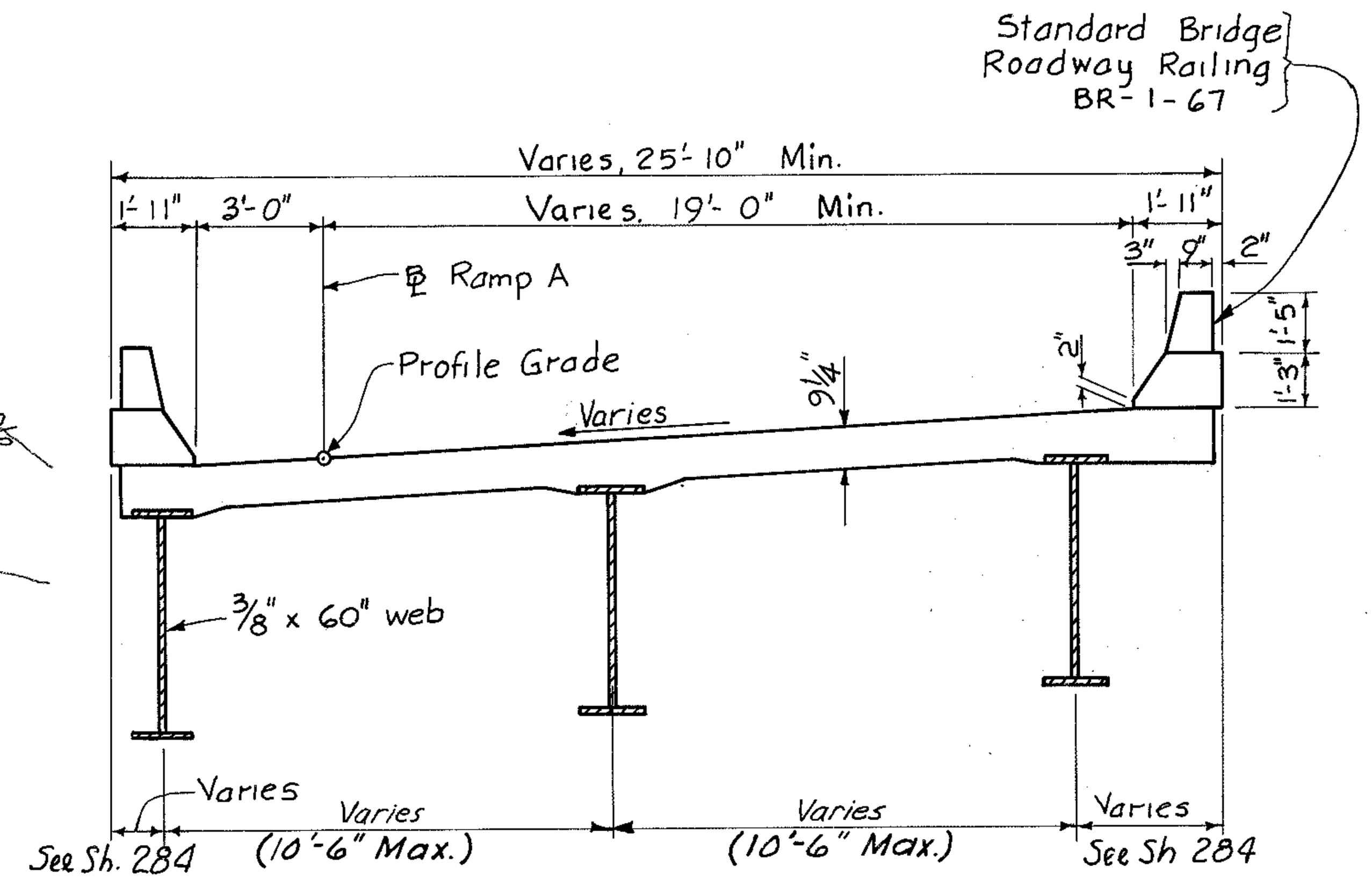
STLH-M Scale 16

APPENDIX E

HAM-50-2181N
SELECT PLAN SHEETS



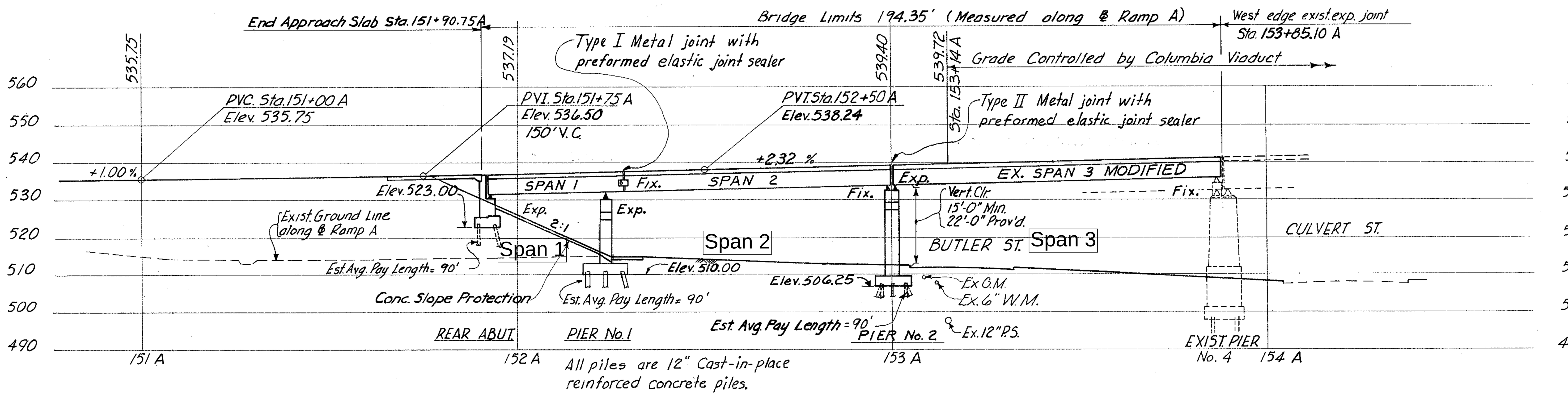
PLAN



SECTION A-A

Notes:

1. Image is taken from the 1978 Original Construction Drawings, Sheet 256 of 494, Site Plan Bridge No. HAM-471-0.30 Ramp A Off Columbia Viaduct. Some information from the original sheet has been removed and or updated.



PROFILE ON BASE LINE

CURVE DATA

Curve No. 3A
Δ = 92°53'08"
R = 230'
T = 241.89'
L = 372.87'
D = 24°54'40.4"

Curve No. 1C
P.C. Sta. 10+33.80C
P.I. Sta. 11+93.27C
P.T. Sta. 13+47.39C
Δ = 25°40'04"
D = 8°11'06.4"
R = 700'
L = 313.59'
T = 159.47'

Existing STRUCTURE

TYPE: Steel Plate Girders; span 1 simple span with 3'-6" cantilever arm in span 2; Span 2 & 3 simple spans. Reinforced Concrete deck and substructure
SPANS: Span 1 = 30.5', Span 2 = 76.5', Span 3 = 85.1' measured along Base Line Ramp A.
LIVE LOAD: HS 20-44
ROADWAY: Varies, 23.5' f/f parapet (min.)
SKEW: Varies, see Plan
WEARING SURFACE: 1" Monolithic Concrete
ALIGNMENT: See Curve Data
SUPERELEVATION: Varies, see Plan
APPROACH SLAB: AS-1-67 25' Long

EXISTING COLUMBIA VIADUCT

TYPE: Riveted Plate Girder with reinforced concrete deck
SPANS: Existing spans to be affected are simple spans
ROADWAY: 56'-0" f/f curbs with reinforced concrete sidewalk and railing
PIERS: Reinforced Concrete (on piles)
ALIGNMENT: R = 700' (℄ Viaduct)

SITE PLAN
BRIDGE NO. HAM-50-2181N
RAMP A OFF COLUMBIA VIADUCT