June 17, 2024

VAR-District 8 Bridge Inspections

(2024)

PROJECT NO. 105475

SUBMITTED TO:
ODOT District 8

Department of Transportation

SUBMITTED BY:
MICHAEL BAKER INTERNATIONAL, INC.

Michael Baker
INTERNATIONAL

INTRODUCTION:

LOCATION MAP:s

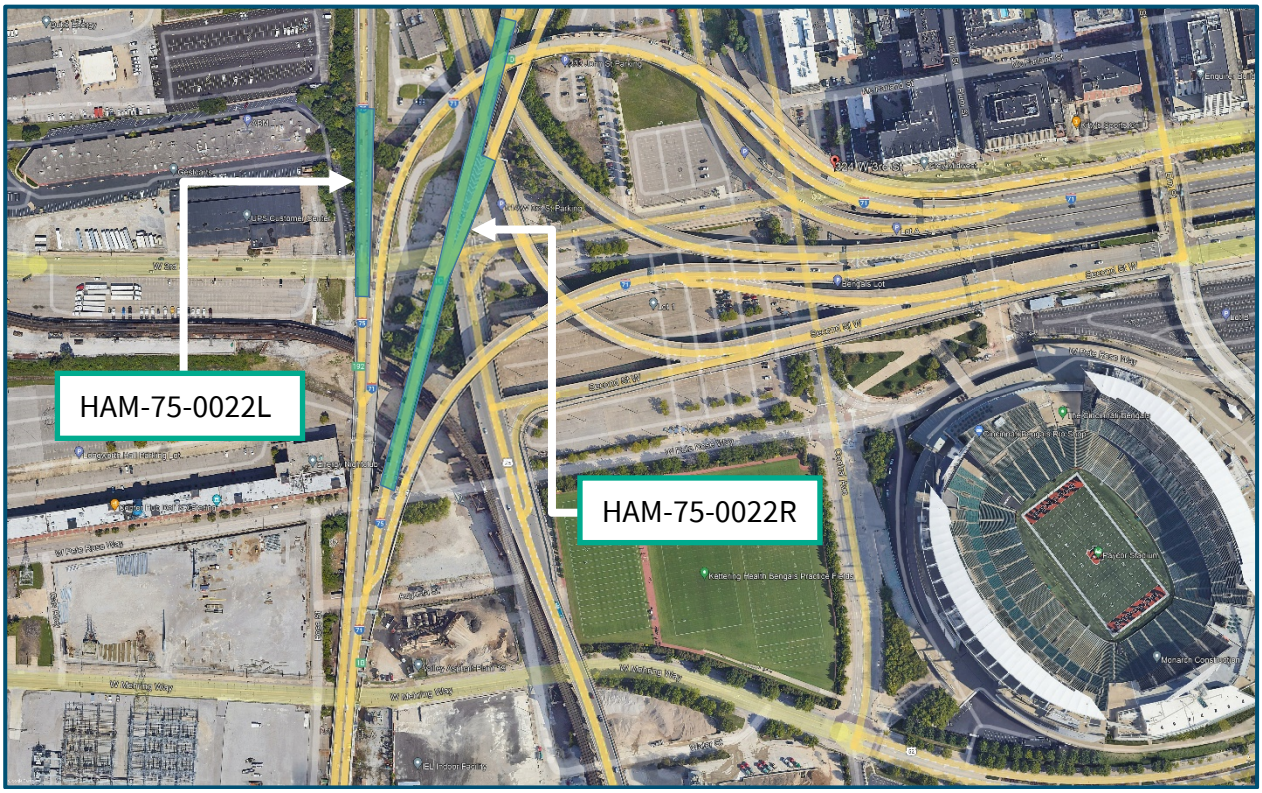


Figure 1 - I-75 Southbound over West Third Street & I-75 Northbound over West Third Street & US 50 Ramps, Cincinnati, Ohio Location Map.

INSPECTION DETAILS:

Bridge No.:	HAM-75-0022L --- SFN 3108791 HAM-75-0022R --- SFN 3108805
Features Intersected:	I-71 Southbound, CSX Railroad, Local Parking Lots, Third Street, US 42 Ramp, US 50 Ramps
Locations to Inspect:	HAM-75-0022L (From Pier 19A to Abutment A): Routine Element Level HAM-75-0022R (From Pier 15C to Abutment C and Pier 22J to 26J): Routine Element Level
Number of Caps to Inspect:	2
Number of Inspection Days:	Estimated 4 days & 1 night
Inspection Dates:	August 19 - September 11, 2024
Inspection Hours:	7:00 AM to 5:00 PM (Day), 11:00 PM to 5:00 AM (Night)
Inspection Equipment:	80’ Manlift, 120’ Manlift, Ladders

BRIDGE INFORMATION:

HAM-75-0022L

The Brent Spence Approach Bridge (HAM-75-0022L) consists of a six-span welded steel plate girder structure that carries two lanes of I-75 southbound traffic over West Third Street. The structure was constructed in 1963 by Penker Construction and consists of a reinforced concrete deck that varies in width and bears directly on five continuous, welded, built-up steel girders supported by reinforced concrete piers. Crossframe angles spanning the width of the bays between the girders are welded to the transverse stiffeners of the girders. The structure is 428'-0" long and the longest spans (Span 21A and 24A) are each 78'-0" in length. The bridge numbering system follows the convention set in the design plans. Access to the structure will be from ladders, bucket truck, and manlift.

The nomenclature for this bridge follows the convention set in the design plans with spans, substructure units, and cross frames labeled from south to north and girders labeled from west to east. The substructure units are numbered from Pier 19A to Abutment A, spans are numbered from Span 20A to Span 25A, and girders are labeled from A to E.

HAM-75-0022R

The Brent Spence Approach Bridge (HAM-75-0022R) is a 14-span structure that carries three lanes of I-75 northbound traffic over West Third Street, a railroad, and US 50 and I-75 Ramps. The structure was constructed in 1963 by Penker Construction. The original structure consists of a reinforced concrete deck that varies in width and bears directly on up to six continuous, welded, built-up steel girders supported by reinforced concrete piers. Crossframe angles spanning the width of the bays between the girders are welded to the transverse stiffeners of the girders.

A retrofit of the bridge was performed in 2000 and included widening of the east side of the bridge in Spans 21C through 29C. Steel beams, crossframes, and concrete piers were added to the structure along with two fracture critical steel pier caps at Piers 25J and 26C/J. The structure is approximately 1,187 feet long and the longest span (Span 28C) is approximately 117' in length.

The nomenclature of this bridge will follow the convention set in the design plans and retrofit plans with:

- Spans, substructure units and cross frames labeled from south to north.
- Original girders labeled A through F from west to east, and retrofit beams labeled B1 through B4 for east to west.
- The substructure units are numbered form Pier 15C to Abutment C on the original structure and from Pier 22J to 26J on the retrofit substructure units.
- Spans are numbered from Span 16C to 29C.

INSPECTION METHOD AND PLAN:

Michael Baker Internationals engineers, subcontracted by Transystems, will perform routine element level inspections on the Ohio portion of the Brent Spence Bridges HAM-75-0022L/R as defined by the Scope of Services. This will not include entering the steel pier caps at Piers 25J and 26C/J as they were entered as part of the in-depth inspection during 2023. Measurements and observations will be recorded to determine the physical and functional condition of the bridges, to identify any changes from previously recorded conditions, and to ensure that the structures continue to satisfy present service conditions.

FIELD COORDINATION:

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

HAM-75-0022L & HAM-75-0022R Field Contacts

Michael Baker International:

Team Leader; Project Manager	Cory Larkin, PE, SE Cory.Larkin@mbakerintl.com	(513) 227-7486
Team Leader	Gustin Cleary, EI Gustin.Cleary@mbakerintl.com	(330) 843-1113
Team Leader	Mike Baron, PE Michael.Baron@mbakerintl.com	(502) 403-6676
Team Leader	Shelby Wilson, PE Shelby.Wilson@mbakerintl.com	(740) 406-8194

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 – Work performed on City owned property will be done so within ODOT easements therefore no right-of-entry permit is required.

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

CSX RAILROAD – Visual inspection of the HAM-75-0022R structure over railroad tracks will be performed, thus no right of entry permit is required through CSX Transportation, Inc. to access railroad right-of-way.

TRAFFIC CONTROL:

Michael Baker International has contracted Intech Contracting, LLC. 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.

A maintenance of traffic scheme for closure of one (east) lane of the combined ramps from SB I-75 and EB US 50 to Second Street will be necessary to access the steel box girder pier caps of the HAM-75-0022R Bridge. This will be coordinated with inspection of the HAM-71-0000L Bridge.

The anticipated traffic control schedule is as follows:

Date	Structure	Traffic Control
Night of 8/22/24	HAM-75-0022R (coordinate with HAM-71-0000L)	Single left lane closure of I-75 SB at exit to 2nd Street Ramp

The remainder of the structures will be inspected from the ground using manlifts and bucket trucks and will not require roadway closures.

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.

APPENDIX A

RIGHT OF ENTRY PERMITS & MAINTENANCE OF TRAFFIC DRAWINGS

Permitting Note:
ODOT, City of Cincinnati, and KYTC permits will be applied for no more than 30 days from the date of inspection, using the attached MOT plan sheets.

Requires ODOT permit - applying for with this application

LOCATION 1 – September of 2024

Location 1A

I-71/75 NB (lower level Brent Spence)

39.095170°, -84.522188°

Night time closure – double left lane I-71/75 northbound

Night time closure – double right lane I-71/75 northbound

Location 1B

I-75 SB Second St. Ramp

Night time closure – left lane of ramp to Second St.

Location 1C

West 3rd St.

Day time closure – closure of left turn lane

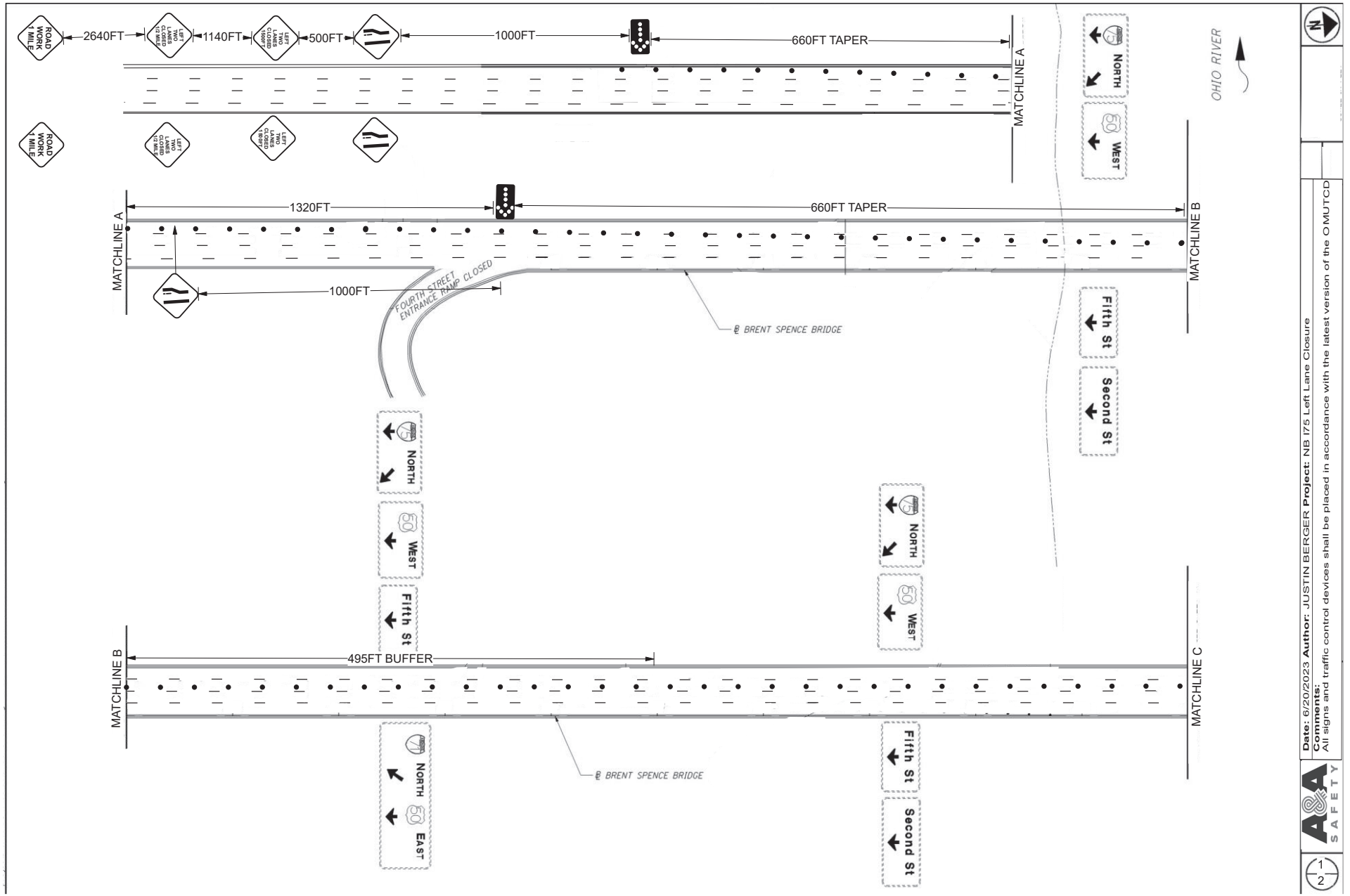
Location 1B
Inspection work zone ≈ 0.02 mi

Location 1C
Inspection work zone ≈ 0.02 mi

Location 1A
Inspection work zone ≈ 0.15 mi

Deeper Roots Coffee
W 4th St
Mc Farland St
Lot A
UPS Customer Center
Lot 1
W Pete Rose Way
Energy Nightclub
Valley Asphalt Plant 19
Hilltop
Imagery Date: 3/19/2021 39°05'45.95" N 84°31'31.36" W elev 487 f

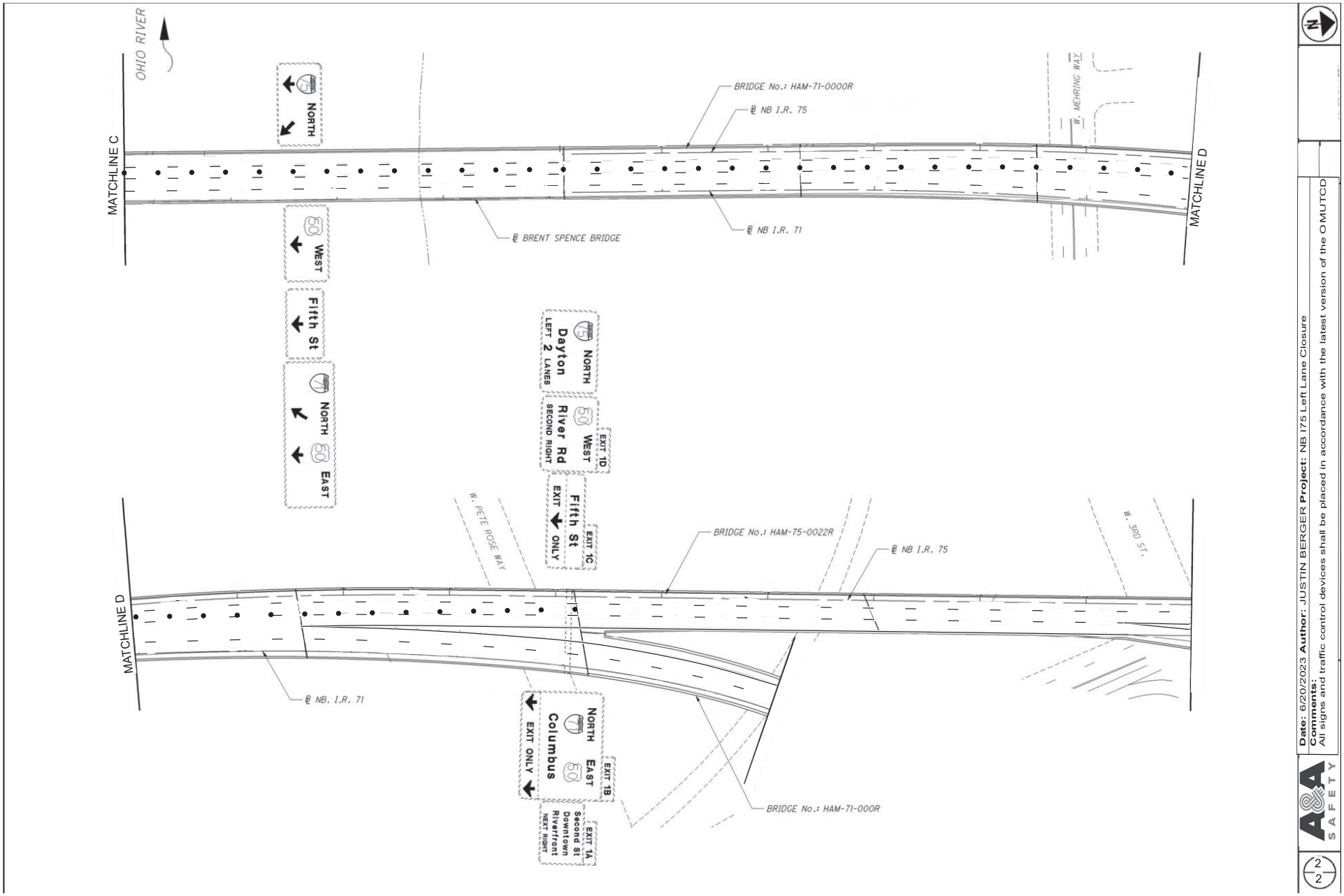
Michael Baker INTERNATIONAL
We Make a Difference



Date: 6/20/2023 **Author:** JUSTIN BERGER **Project:** NB I75 Left Lane Closure
Comments:
All signs and traffic control devices shall be placed in accordance with the latest version of the OMUTCD

AJA SAFETY

1/2



Date: 6/20/2023 **Author:** JUSTIN BERGER **Project:** NB I75 Left Lane Closure
Comments:
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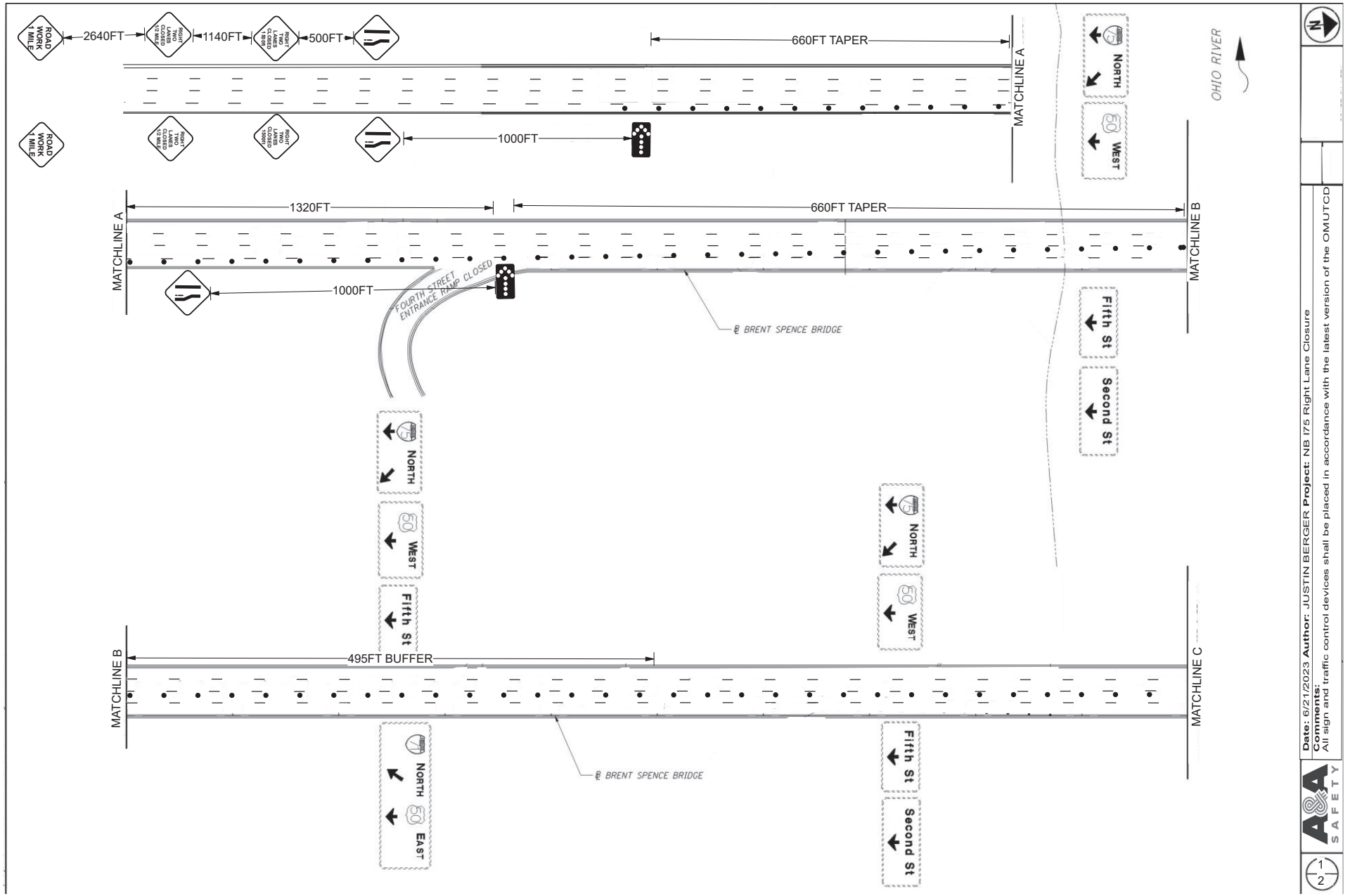
A&A SAFETY



Date: 6/21/2023 **Author:** JUSTIN BERGER **Project:** NB I75 Right Lane Closure
Comments:
All sign and traffic control devices shall be placed in accordance with the latest version of the OMUTCD

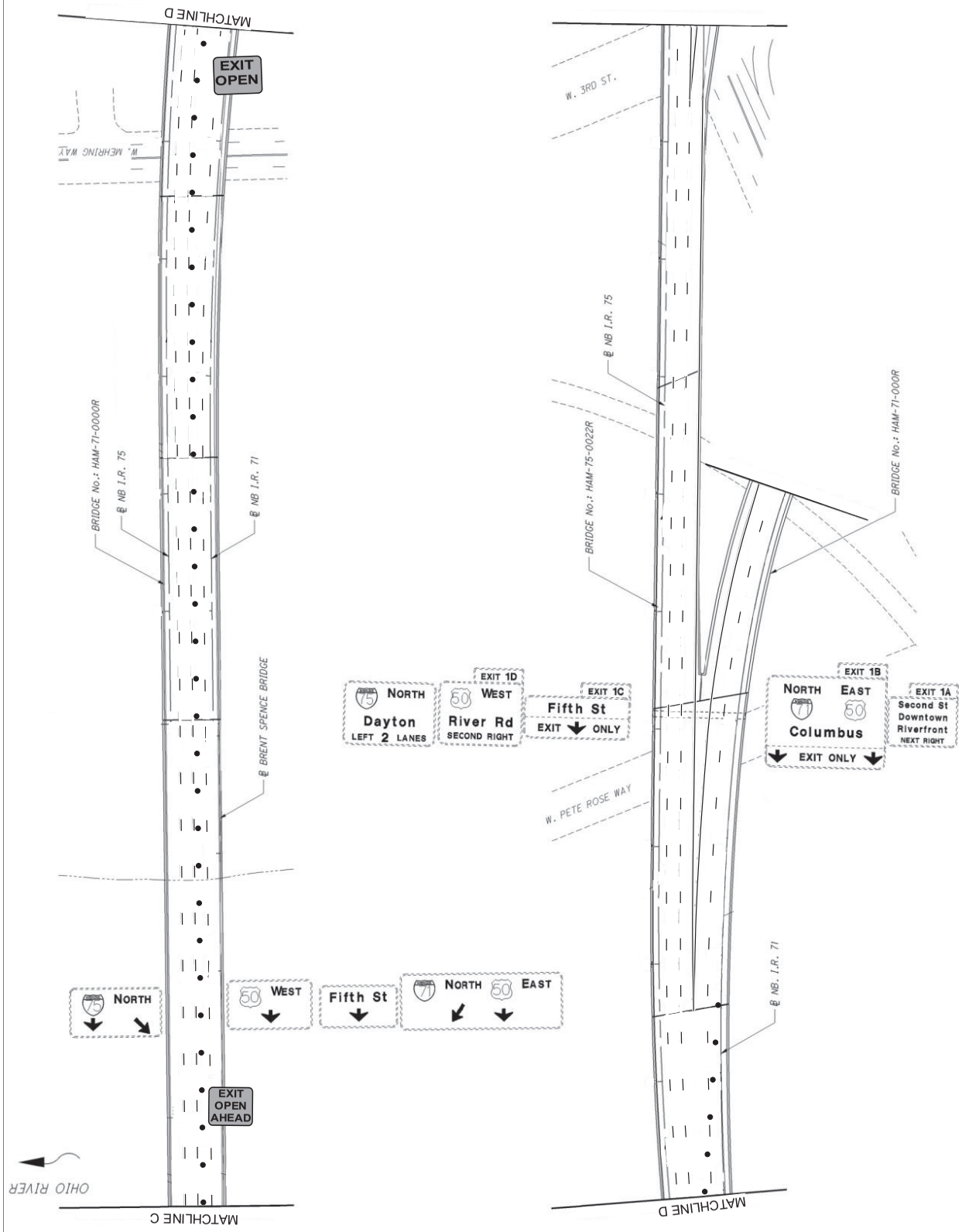
AJA SAFETY

1
2

SAFETY

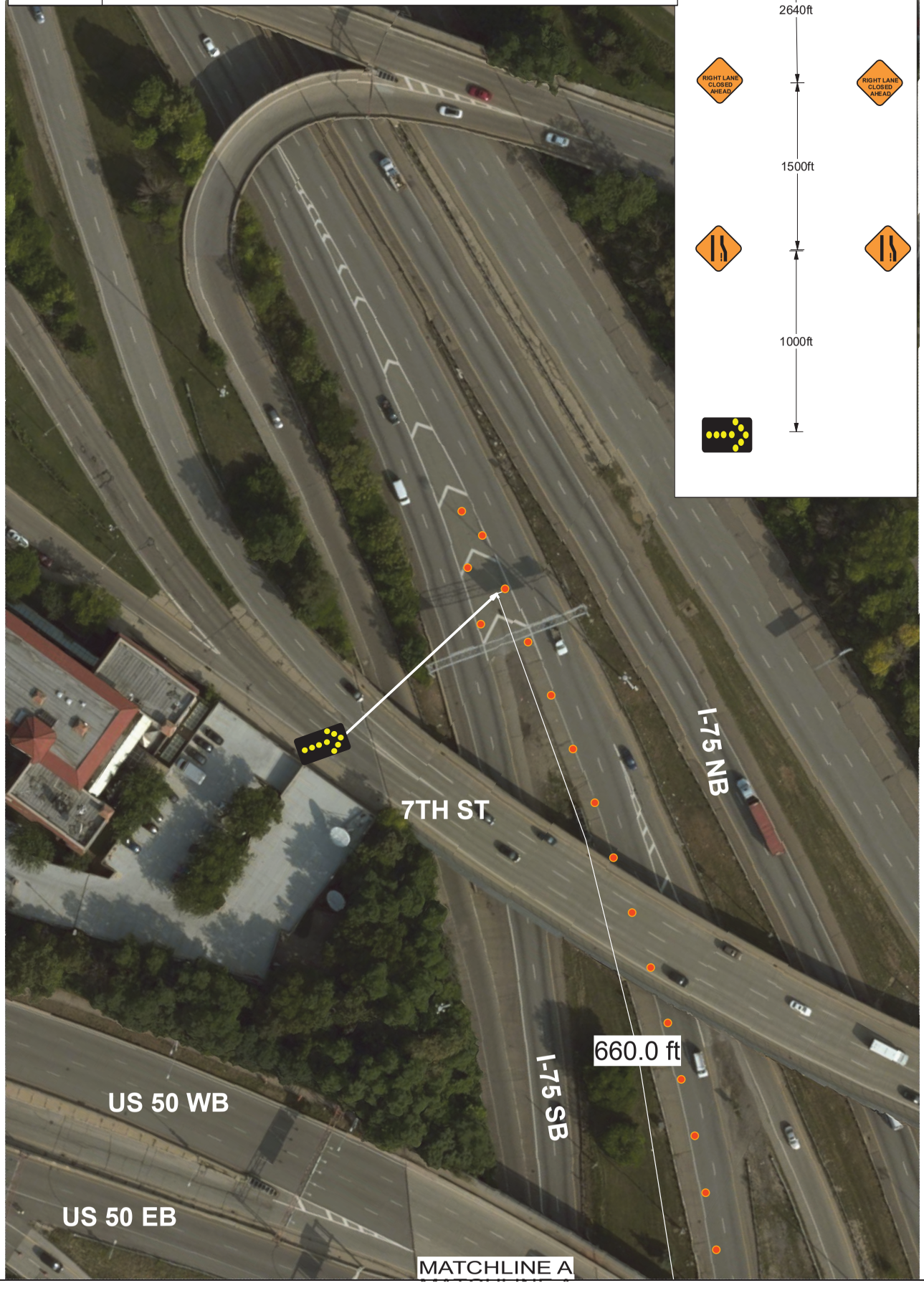
Date: 6/21/2023 **Author:** JUSTIN BERGER **Project:** NB I75 Right Lane Closure

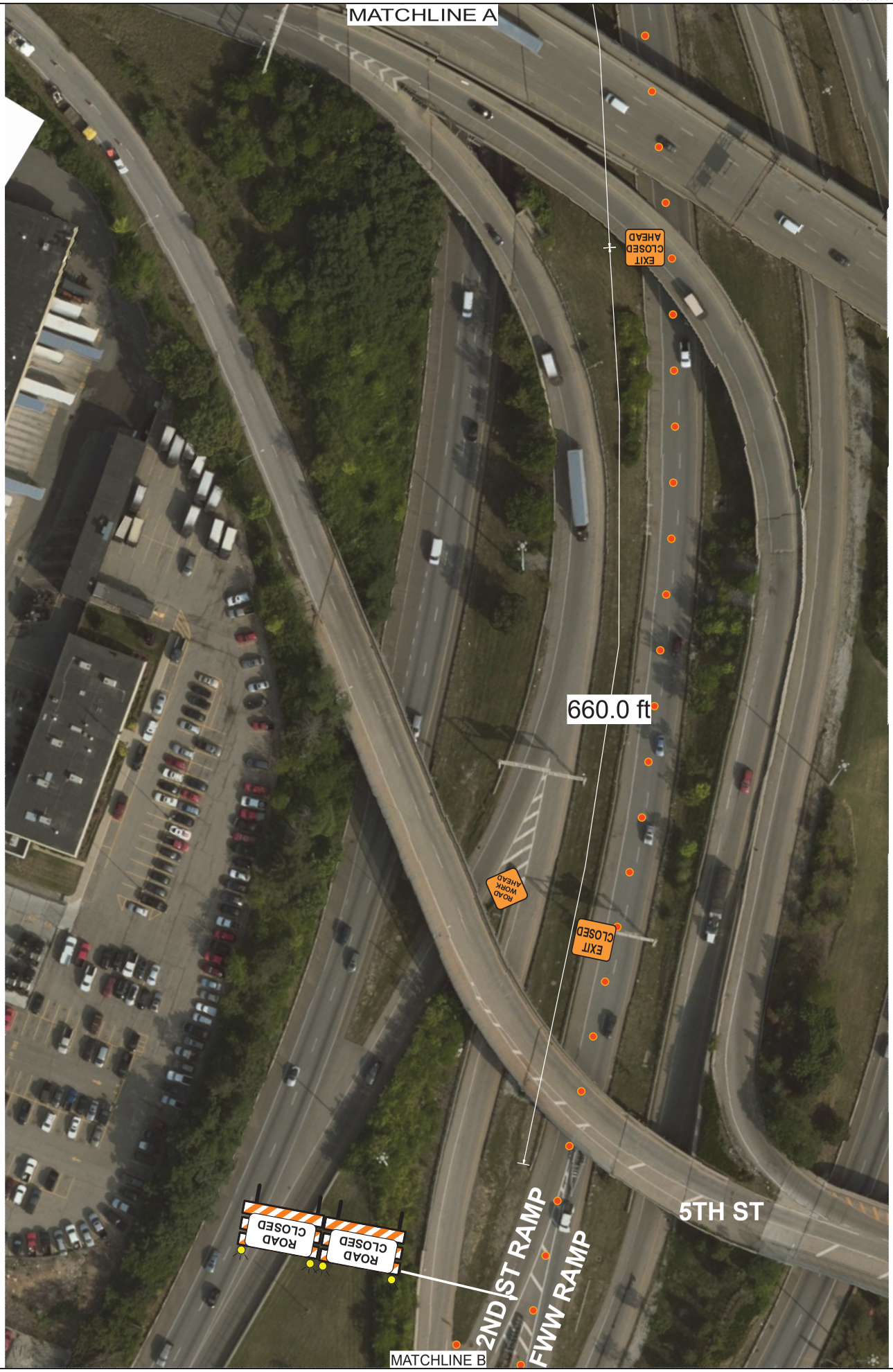
Comments:
All sign and traffic control devices shall be placed in accordance with the latest version of the OM UTCD



Date: 6/26/2023 **Author:** Justin Berger **Project:** SB I71 to 2ND ST. Closure

Comments:
All sign and traffic control devices shall be placed in accordance with the latest version of the OMUTCD




MATCHLINE A
EXIT CLOSED AHEAD
660.0 ft
ROAD WORK AHEAD
EXIT CLOSED
ROAD CLOSED
ROAD CLOSED
5TH ST
2ND ST RAMP
FWW RAMP
MATCHLINE B


MATCHLINE B
75
75
75
1D
John St
John St
John St
42
127
W 3rd St
127
W 3rd St
Paul Brown Stadium
W 3rd St
John St
127
W 3rd St
42
127
W 3rd St
71
71
Paul Brown Stadium

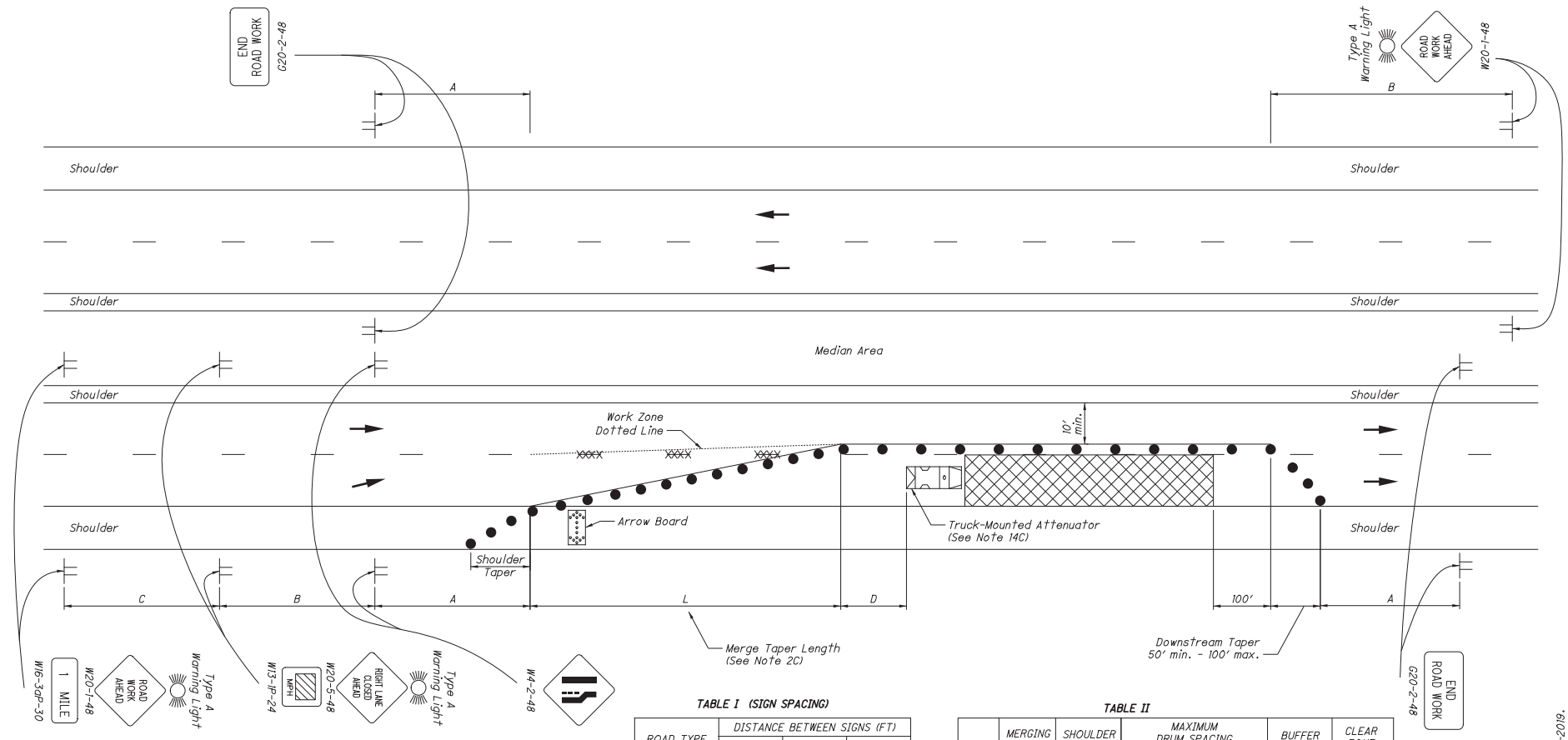


TABLE I (SIGN SPACING)

ROAD TYPE	DISTANCE BETWEEN SIGNS (FT)		
	A	B	C
MAJOR CONVENTIONAL	500	500	500
FREEWAY & EXPRESSWAY	1000	1500	2640

TABLE II

SPEED LIMIT (MPH)	MERGING TAPER RATE MINIMUM	SHOULDER TAPER RATE MINIMUM	MAXIMUM DRUM SPACING (FT)		BUFFER (D) (FT)	CLEAR ZONE WIDTH (E) (FT)
			TAPER SEC.	TANGENT SEC.		
25	11:1	4:1	25	40	155	15
30	15:1	5:1	30	40	200	15
35	21:1	7:1	35	40	250	15
40	27:1	9:1	40	80	305	15
45	45:1	15:1	45	80	360	19
50	50:1	17:1	50	80	425	19
55	55:1	19:1	55	80	495	23
60	60:1	20:1	60	120	570	30
65	65:1	22:1	65	120	645	30
70	70:1	24:1	70	120	730	30

LEGEND

- WORK AREA
- DRUMS/CONES
- REMOVE EXISTING MARKINGS
- DIRECTION OF TRAVEL
- SHADOW VEHICLE WITH TMA

THIS DRAWING REPLACES MT-95.30 DATED 04-19-2019.

STANDARD ROADWAY CONSTRUCTION DRAWING

SCD NUMBER **MT-95.30**

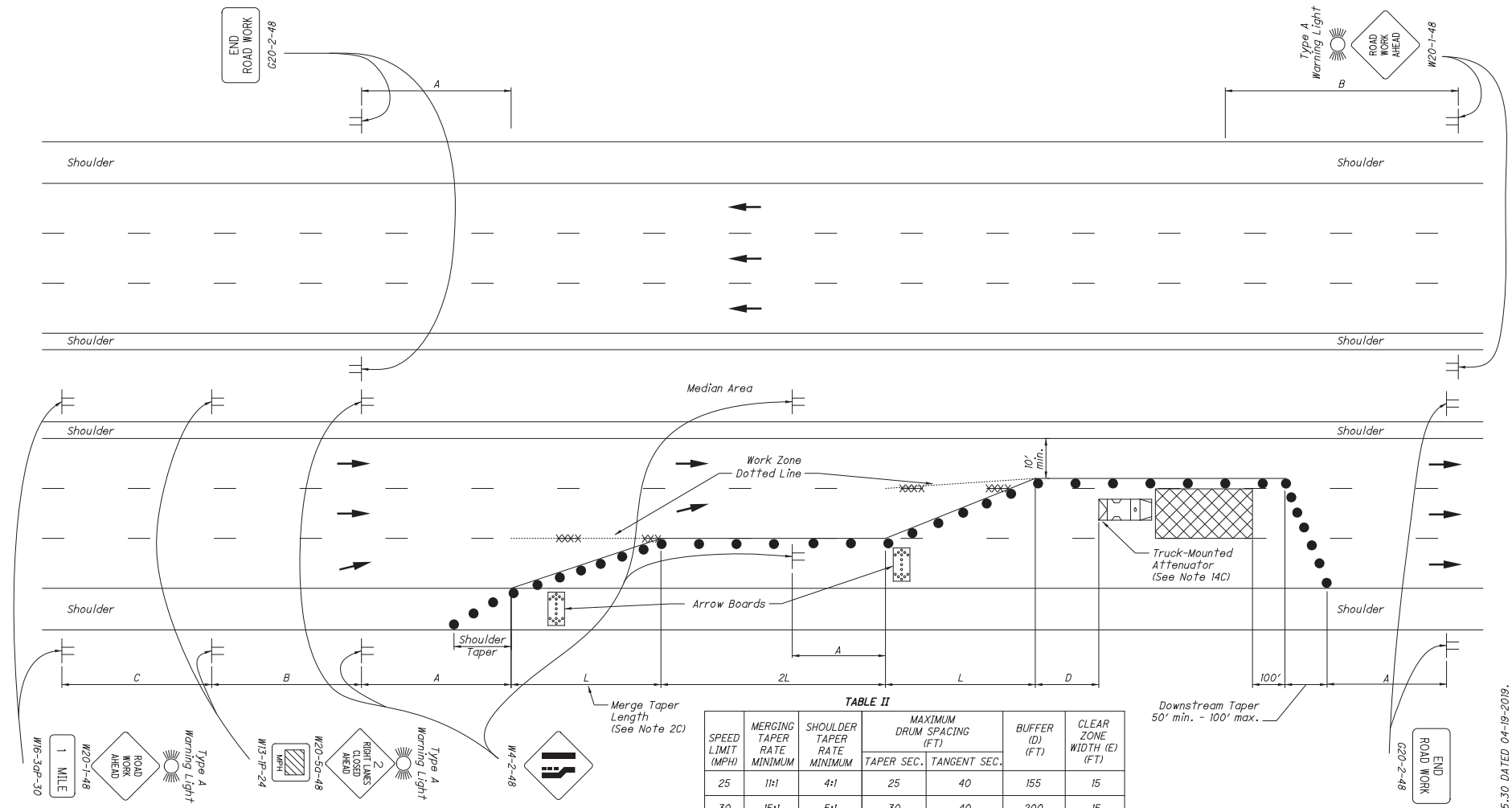
CLOSING RIGHT OR LEFT LANE OF A MULTI-LANE DIVIDED HIGHWAY WITH DRUMS

OFFICE OF ROADWAY ENGINEERING

STDS. ENGINEER Soisson

STATE OF OHIO DEPARTMENT OF TRANSPORTATION ADMINISTRATOR David L. Holstein

REVISION DATE 07-19-2019



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			TAPER SEC.	TANGENT SEC.		
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30	15:1	5:1	30	40	200	15
35	21:1	7:1	35	40	250	15
40	27:1	9:1	40	80	305	15
45	45:1	15:1	45	80	360	19
50	50:1	17:1	50	80	425	19
55	55:1	19:1	55	80	495	23
60	60:1	20:1	60	120	570	30
65	65:1	22:1	65	120	645	30
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THIS DRAWING REPLACES MT-95.30 DATED 04-19-2019.

STANDARD ROADWAY CONSTRUCTION DRAWING

CLOSING RIGHT OR LEFT LANE OF A MULTI-LANE DIVIDED HIGHWAY WITH DRUMS

OFFICE OF ROADWAY ENGINEERING

STDS. ENGINEER: Soisson

STATE OF OHIO DEPARTMENT OF TRANSPORTATION ADMINISTRATOR: David L. Holstein

REVISION DATE: 07-19-2019

SCD NUMBER: MT-95.30

NOTES:

DESIGN SPEED

1. The design speed used for taper rates should typically be the permanent legal speed. However, on construction projects for which the speed limit is reduced, the reduced speed may be used in determining the taper rate when the taper is not the first active construction area within the project.

TAPERS

2A. The minimum acceptable length for the merge taper shall be determined by multiplying the width of offset by the merge taper rate. The merge taper rate is provided in Table II.

2B. The minimum acceptable length for the shoulder taper shall be determined by multiplying the width of the shoulder by the shoulder taper rate. The shoulder taper rate is provided in Table II.

2C. The tangent section between the two merge tapers should be two times the longer of the two merge tapers.

SIGN SPACING

3A. The work zone sign spacings shown in Table I are minimums. Maximum spacing should not be greater than 1.5 times the distances shown in Table I.

3B. Sign spacing should be adjusted to avoid conflict with existing signs. Minimum spacing to existing signs shall be 200′ for speeds of 45 mph or less and a minimum of 400′ for speeds 50 mph or greater.

ADJUSTMENTS FOR SIGHT DISTANCE

4. The location of the merging taper and the advance warning signs should be adjusted to provide for adequate sight distance for the existing vertical and horizontal roadway alignment.

BASIC SIGNING

5A. ROAD WORK AHEAD (W20-1) signs shall be provided on entrance ramps or roadways entering the work limits.

5B. END ROAD WORK (G20-2) signs are only required for lane closures of more than 1 day. It is intended that these signs be placed on the mainline, on all exit ramps, and on roadways exiting the work limits.

5C. Overlapping of signing for adjacent projects should be avoided where the messages could be confusing. Any W20-1 or G20-2 signs which falls within the limits of another traffic control zone shall be omitted or covered during the period when both projects are active.

SIGNING DETAILS

6A. The Advisory Speed (W13-1P) plaque shall be used when specified in the plan.

6B. When the approach speed limit is 40 mph or less, 36″ warning signs may be used.

6C. The distance plaque W16-3aP (or W16-2aP if the distance shown is in feet) shall indicate the distance to the beginning of the merging taper. Distances less than 1 mile may be expressed in feet. The plaque may be omitted if Extra Advance Sign Groups are not used.

6D. Provide signing on the inactive side of the highway, as shown, when specified in the plans.

6E. Provide the appropriate word or symbol legend necessary on Lane Reduction (W4-2, W20-5, W20-5a) signs to correctly identify which lane is to be closed.

EXTRA ADVANCE WARNING SIGNING

7. Extra Advance Warning Sign Groups consisting of ROAD WORK AHEAD (W20-1), LANE CLOSED AHEAD (W20-5), LANES CLOSED AHEAD (W20-5a), and WATCH FOR STOPPED TRAFFIC (W3-H4b) signs plus Distance plaques may be specified in the plans or may be required to be erected, as determined by the Engineer (See Standard Construction Drawing (SCD) MT-95.50).

PAVEMENT MARKINGS / RPMs

8A. If the construction operation requires a lane closure for more than 1 day, the existing conflicting reflectors shall be removed from the raised pavement markers (RPMs).

8B. Additionally, if a lane closure of greater than 3 days is required, the following shall be performed:

a) The appropriate color work zone edge lines shall be applied along the taper and tangent sections.
b) The existing conflicting pavement markings shall be removed or covered per CMS 614.11G.
c) Work zone dotted lines, 3′ in length separated by 9′ gaps, shall be provided to identify the merge.

8C. Work zone pavement markings which would conflict with final traffic lanes shall be removable tape (CMS 740.06, Type I) unless the area will be resurfaced prior to project completion.

8D. After completion of the work, pavement markings other than CMS 740.06, Type I shall be removed in accordance with CMS 614.111. The original markings and raised pavement marker reflectors shall be restored at no additional cost unless separately itemized in the plans.

(RESERVED FOR FUTURE USE)

9A. (intentionally blank)

ARROW BOARD

10. The arrow board shall be chosen from the ODOT approved list and follow the guidelines in Supplemental Specification 821.

FLASHING WARNING LIGHTS

11. Type A flashing warning lights shown on the ROAD WORK AHEAD (W20-1) signs, on the LANE CLOSED AHEAD (W20-5), and on the LANES CLOSED AHEAD (W20-5a) signs are required whenever a night lane closure is necessary.

INTERSECTION / DRIVEWAY ACCESS

12. Within the length of the closure, provision shall be made to control traffic entering from intersecting streets and major drives as necessary to prevent wrong-way movements and to keep vehicles off of new pavement not ready for traffic. The Contractor shall:

a) Place across the closed lane, either 3 drums (cones) or barricades, and/or
b) Provide an additional flagger at every public street intersection and major driveway.

Drums (cones) placed across the closed lane shall be located 25′ beyond the projected pavement edges of the driveway or cross highway, as shown in SCD MT-97.11. For barricades, see SCD MT-101.60.

Existing STOP signs shall be relocated as necessary to assure proper location for the traffic conditions.

The method of control shall be subject to the approval of the Engineer.

DRUMS / CONES

13A. The maximum drum spacing along tapers and along tangent sections shall be as shown in Table II. A minimum of 3 drums shall be used to close the upstream shoulder. The downstream taper drum spacing shall be approximately 20′.

13B. Cones may be substituted for drums as follows:

a) Use of cones is permissible for either daytime operation or for nighttime operation, but shall not be used continuously, day and night. Upon completion of work within the work period, the cones shall be removed. They may again be placed on the highway in order to resume work in the following such work period.
b) Cones used for daytime traffic control shall have a minimum height of 28″.
c) Cones used for nighttime traffic control shall have a minimum height of 42″.
d) Use of cones at night shall be prohibited along tapers.
e) Cone spacing at night shall be at a maximum of 40′.
f) Where cones are substituted for drums along tangents, intermixing of channelizing devices within the same run will not be permitted. Either cones shall be used for the entire length of the tangent section, or drums shall be used for the entire length.

13C. Provisions shall be made to stabilize the cones and drums to prevent them from blowing over.

13D. All drums and cones should have a minimum offset from the edge of the traveled lanes of 1.5 feet.

SHADOW VEHICLE

14A. The shadow vehicle shall be in place and unoccupied whenever workers are in the work area. This vehicle shall be removed from the pavement whenever workers are not in the work area.

14B. The shadow vehicle shall be equipped with a high-intensity yellow rotating, flashing, oscillating, or strobe light(s).

14C. The shadow vehicle shall be equipped with a truck-mounted or trailer attenuator (TMA) in accordance with CMS 614.03.

BUFFER SPACE

15A. Where space constraints do not allow for the buffer space, a shorter length may be used.

THIS DRAWING REPLACES MT-95.30 DATED 04-19-2019.

REVISION DATE	STATE OF OHIO DEPARTMENT OF TRANSPORTATION ADMINISTRATOR	STDS. ENGINEER	OFFICE OF ROADWAY ENGINEERING
07-19-2019	David L. Holstein	Soisson	

STANDARD ROADWAY CONSTRUCTION DRAWING

SCD NUMBER **MT-95.30**

CLOSING RIGHT OR LEFT LANE OF A MULTI-LANE DIVIDED HIGHWAY WITH DRUMS

LEGEND

DRUMS	● ● ●
REMOVE EXISTING MARKINGS	~~XXXX~~
DIRECTION OF TRAVEL	→
ORIGINAL POSTED SPEED LIMIT (MPH)	XX
APPROVED WORK ZONE SPEED LIMIT (MPH)	YY

TABLE I (SIGN SPACING)

ROAD TYPE	DISTANCE BETWEEN SIGNS (FT)		
	A	B	C
MAJOR CONVENTIONAL	500	500	500
FREEWAY & EXPRESSWAY	1000	1500	2640

THIS DRAWING REPLACES MT-95.50 DATED 10-16-2015.

STANDARD ROADWAY CONSTRUCTION DRAWING

SUPPLEMENTAL ADVANCED SIGNS USED WITH LANE CLOSURES

OFFICE OF ROADWAY ENGINEERING

STDS. ENGINEER: Soisson

STATE OF OHIO DEPARTMENT OF TRANSPORTATION ADMINISTRATOR: David L. Holstein

REVISION DATE: 07-21-2017

SCD NUMBER: MT-95.50

NOTES:

INTENDED USE

1. This Standard Construction Drawing (SCD) is intended for use as a supplement to SCDs MT-95.30, MT-95.31, MT-95.32, MT-95.40, and MT-95.41. It is not intended to be used as a stand-alone drawing.

GENERAL SIGNING

2A. Maximum spacing between adjacent signs in a series should not be greater than 1.5 times the distances specified in Table 1.

2B. END ROAD WORK (G20-2) signs are only required for lane closures of more than one day. It is intended that these signs be placed on the mainline, on all exit ramps, and on roadways exiting the work limits.

2C. Overlapping of signing for adjacent projects should be avoided where the messages could be confusing. Any W20-1 or G20-2 sign which falls within the limits of another trafffic control zone shall be omitted or covered during the period when both projects are active.

2D. Median signing shall not apply to undivided highways.

2E. Provide the appropriate word or symbol legend necessary on Lane Reduction (W4-2, W20-5) signs to correctly identify which lane is to be closed.

2F. Signing for speed reduction and/or for increased penalties shall be provided when called for in the plans.

EXTRA ADVANCE WARNING SIGNS

3A. Extra Advance Warning Sign Groups consisting of ROAD WORK AHEAD (W20-1), LANE CLOSED AHEAD (W20-5) and WATCH FOR STOPPED TRAFFIC (W3-H4b) signs plus distance plaques may be specified in the plans or may be required to be erected, as determined by the Engineer.

3B. Installation of Extra Advance Warning Sign Groups shall not serve as a substitute for the standard advance signing group, beginning with the W20-1 sign, typically located at approximately 1 mile in advance of the beginning of the work area or the merge or shift taper.

3C. If a series of several Extra Advance Warning Sign Groups is provided in advance of the same work area or roadway restriction, the ROAD WORK AHEAD (W20-1) sign may be omitted from all but the first of the Extra Advance Warning Sign Groups in the series.

THIS DRAWING REPLACES MT-95.50 DATED 10-16-2015.

STANDARD ROADWAY CONSTRUCTION DRAWING

SUPPLEMENTAL ADVANCED SIGNS USED WITH LANE CLOSURES

OFFICE OF ROADWAY ENGINEERING

STDS. ENGINEER: Soisson

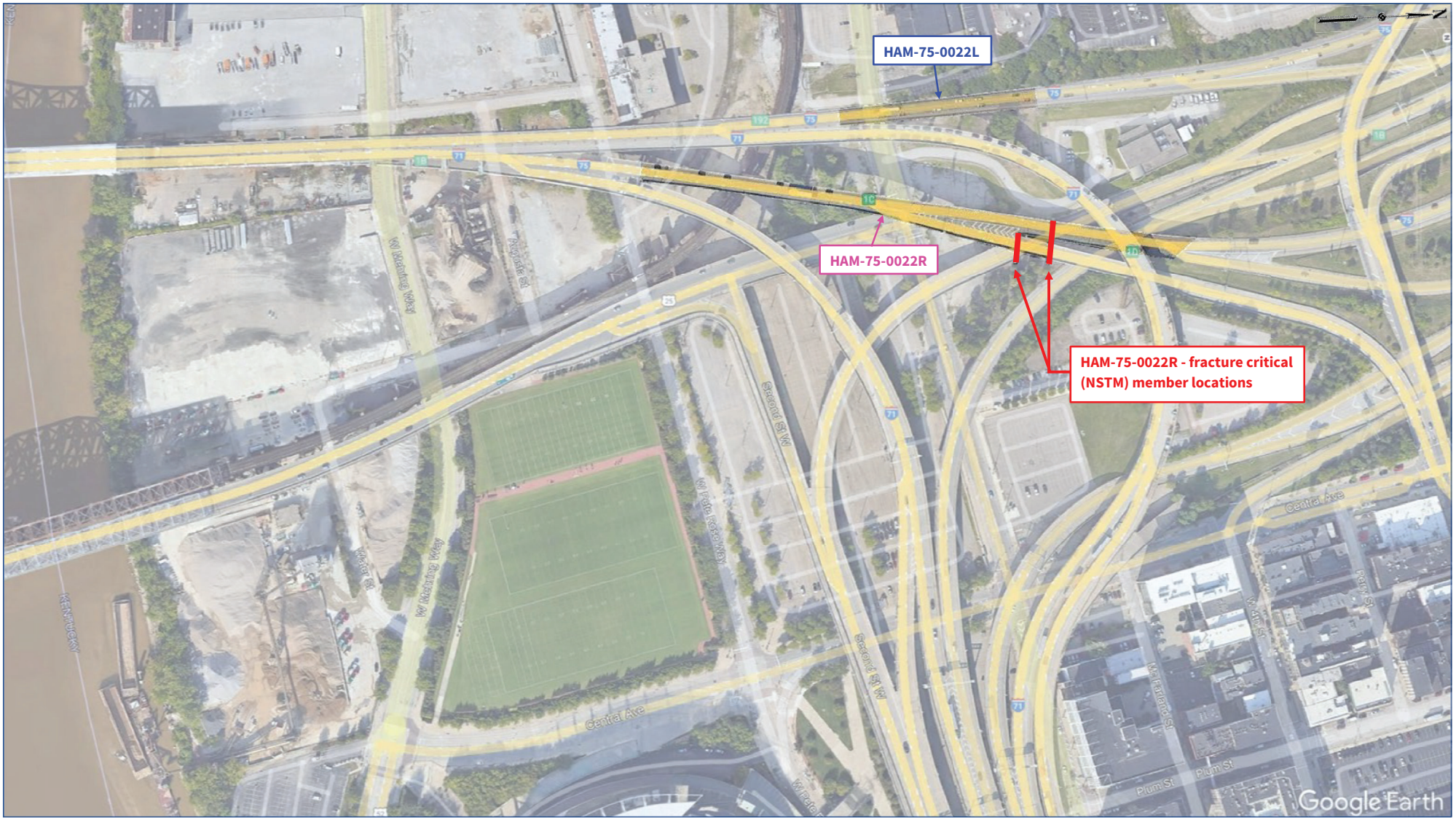
STATE OF OHIO DEPARTMENT OF TRANSPORTATION ADMINISTRATOR: David L. Holstein

REVISION DATE: 07-21-2017

SCD NUMBER: MT-95.50

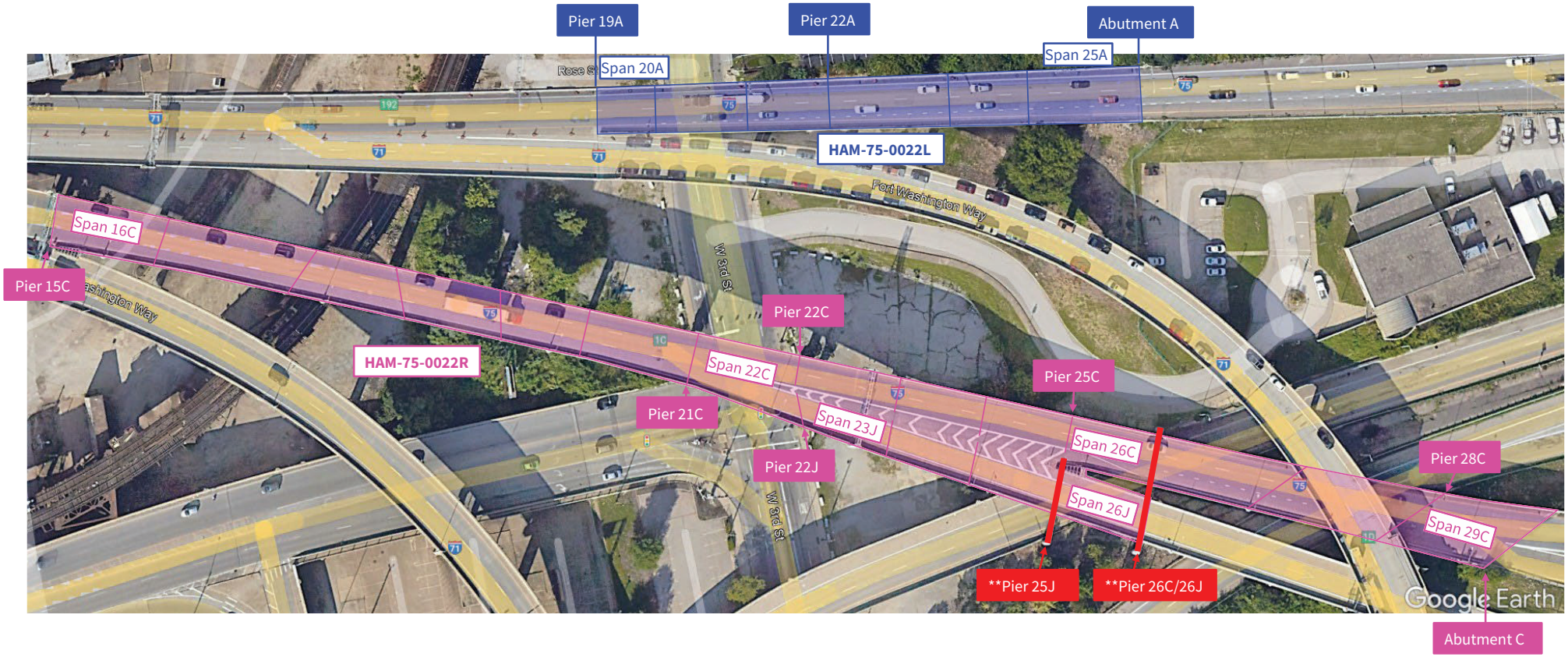
APPENDIX B

STRUCTURE LOCATION/IDENTIFICATION MAPS
&
EXISTING PLANS



HAM-75-0022L/R

Overall location map and fracture critical (NSTM) member location



HAM-75-0022L/R

Structure nomenclature and fracture critical (NSTM) member identification

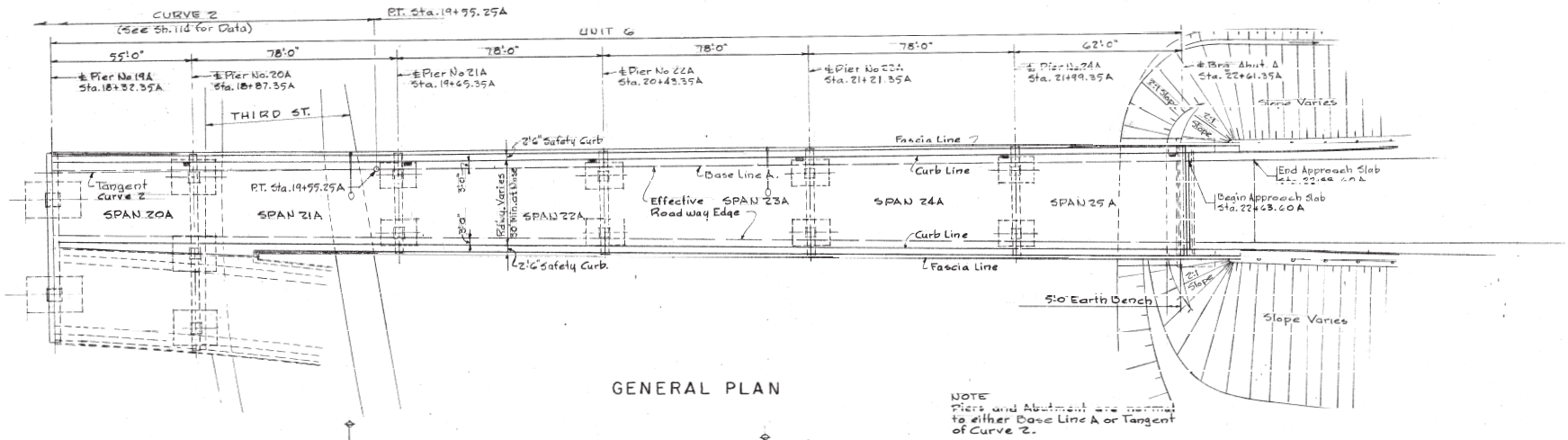
****Fracture critical (NSTM) members are shown in red**

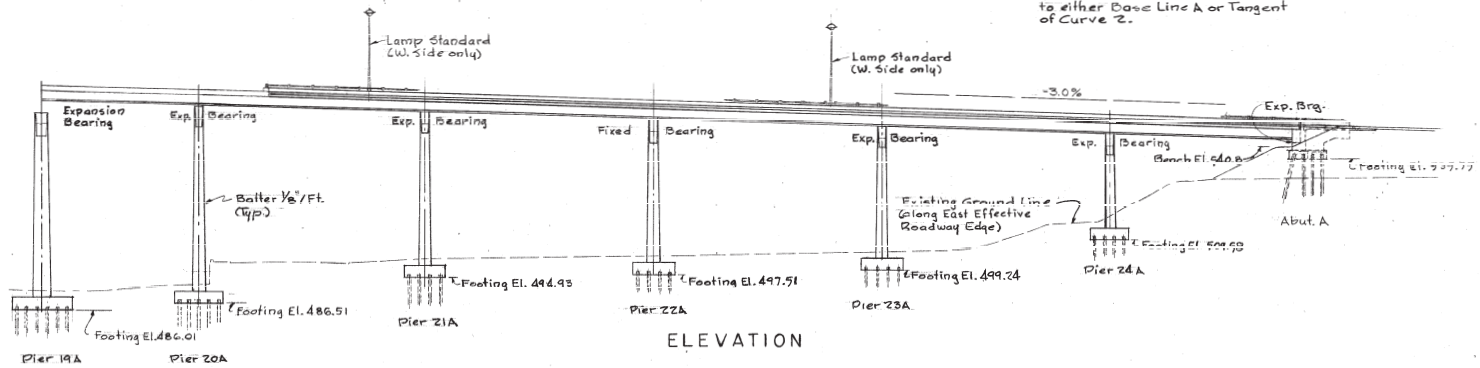
Not to scale

Michael Baker INTERNATIONAL | *We Make a Difference*

FED. RD.	STATE		FISCAL
2	OHIO		

HAM-23-0.04





For Railing & Lighting Details See Sh. 25S
For General Notes See Sh. 97
For Estimate of Quantities See Sh. 97

HAZELET & ERDAL
CONSULTING ENGINEERS
CINCINNATI, OHIO

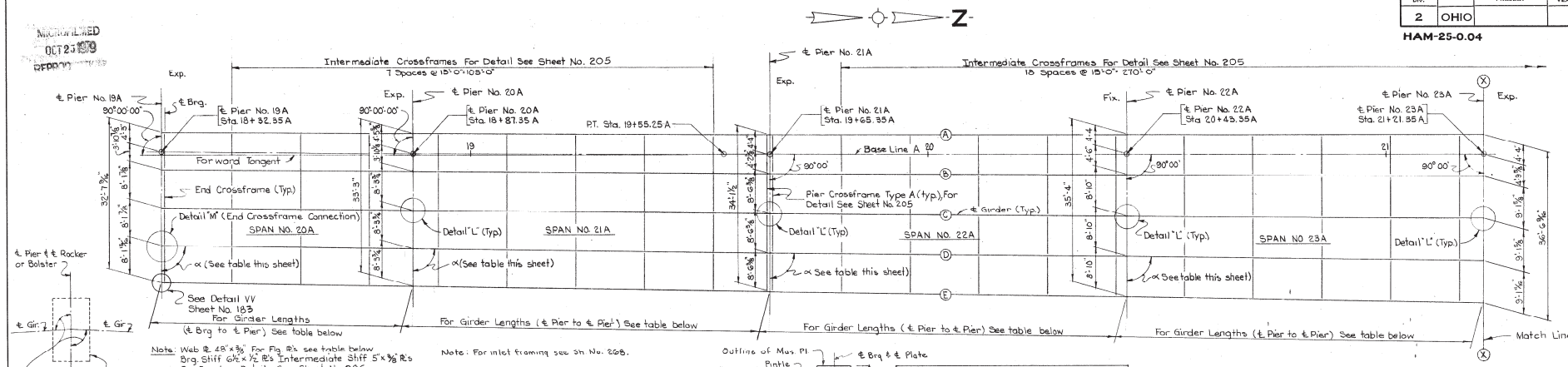
GENERAL PLAN & ELEVATION
UNIT 6

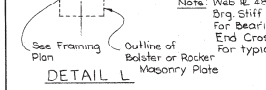
Designed	Drawn	Traced	Checked	Reviewed Date	Revised
	J.C.D. 6-9-59		G.J.T. 9-23-60	W.A.T. 10-13-60	

FED. NO. DIV.	STATE	PROJECT	FISCAL YEAR
2	OHIO		

HAM-25-0.04

182





DETAIL L

Note: Web ℄ 48"x⅜" For Flg ℄'s see table below
Brg. Stiff 6½"x½" ℄'s Intermediate Stiff 5"x⅜" ℄'s
For Bearing Details See Sheet No. 206
End Crossframe, for detail see Sheet No. 215
For typical girder elevation see Sheet No. 205

Note: For inlet framing see Sh. No. 268.

FRAMING PLAN UNIT NO. 6
(Spans No. 20A thru 23A)

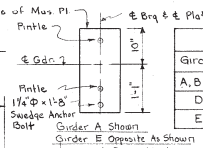
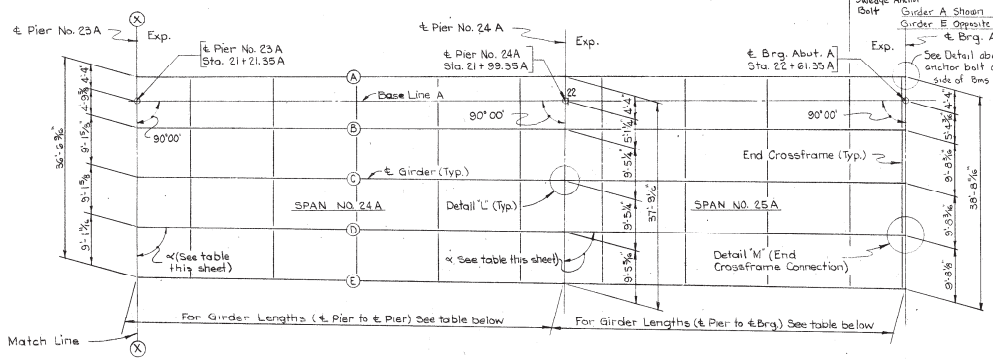


TABLE OF GIRDER LENGTHS			
Girder	Span No 20A	Spans No. 21A thru No. 24A	Span No. 25A
A, B & C	54'-4⅞"	78'-0"	62'-0"
D	54'-4⅞"	78'-0⅛"	62'-0⅛"
E	54'-4⅞"	78'-0⅛"	62'-0⅛"

GIRDER SPLICE WELDING PROCEDURE

Raise the ends of girders in Span No. 21A at Pier No. 20A, 1⅜" and the ends of girders in Span No. 23A at Pier No. 23A, 1½"
Butt weld girder flanges and webs at Piers No. 21A & 22A, using the sequence outlined in Note "A" Sheet No. 181
Weld all pier crossframes at Pier No. 21A into place
Lower girders to their final positions.
Raise the ends of girders in Span No. 20A at Pier No. 19A, 9/16" and the ends of girders in Span No. 24A at Pier No. 24A 1⅜"
Butt weld girder flanges and webs at Piers No. 20A & 23A, using the sequence outlined in Note "A" Sheet No. 181
Lower girders to their final positions.
Raise the ends of girders in Span No. 25A at N. Abut., 1/16"
Butt weld girder flanges and webs at Pier No. 24A, using the sequence outlined in Note "A" Sheet No. 181
Lower girders to their final positions.



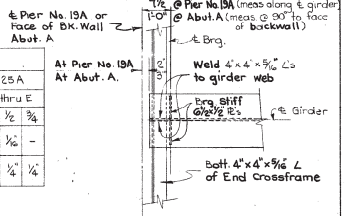
FRAMING PLAN UNIT NO. 6
(Spans No. 24A & No. 25A)

Girder	Angle ∝ Piers No. 19A & 20A	Piers No. 21A thru 24A
A	89°45'07"	90°00'00"
B	89°35'29"	89°46'38"
C	89°25'51"	89°33'18"
D	89°16'12"	89°19'57"
E	89°06'36"	89°06'36"

Note: ℄'s of Piers No. 19A thru 24A and ℄ Brg. Abut. A are parallel

DEAD LOAD DEFLECTIONS																				
Span No.	20A			21A			22A			23A			24A			25A				
Girder	A thru E			A thru E			A thru E			A thru E			A thru E			A thru E				
Location	¼	½	¾	¼	½	¾	¼	½	¾	¼	½	¾	¼	½	¾	¼	½	¾		
Deflection due to weight of steel	–	–	–	–	1/16"	–	–	1/16"	–	–	1/16"	–	–	1/16"	–	–	1/16"	–		
Deflection due to remaining Dead Load	1/8"	1/8"	1/16"	1/4"	3/8"	1/4"	3/16"	5/16"	3/16"	3/16"	5/16"	3/16"	3/16"	5/16"	3/16"	3/16"	5/16"	3/16"	1/4"	1/4"

Girders for Unit No 6 shall not be cambered



DETAIL "M"
(End Crossframe connection at Pier No 19A, Span No. 20A)
(Rotate thru 180° for connection at Abut. A, Span No. 25A)

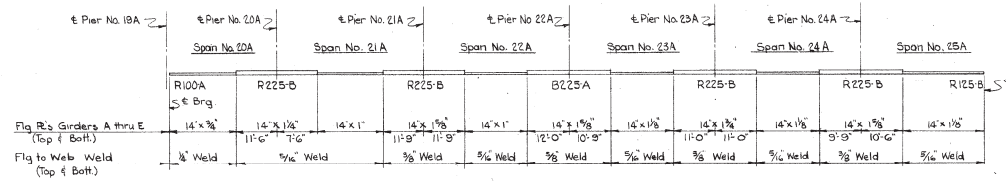
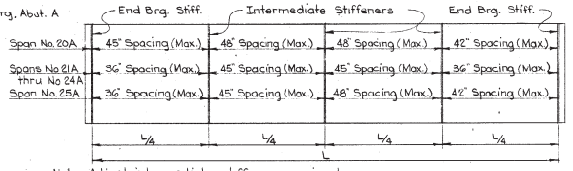


TABLE OF FLANGE PLATES AND WELD SIZES



Note: Adjust intermediate stiffener spacing to conform to intermediate crossframe spacing

INTERMEDIATE STIFFENER SPACING

HAZELET & ERDAL
CONSULTING ENGINEERS
CINCINNATI, OHIO

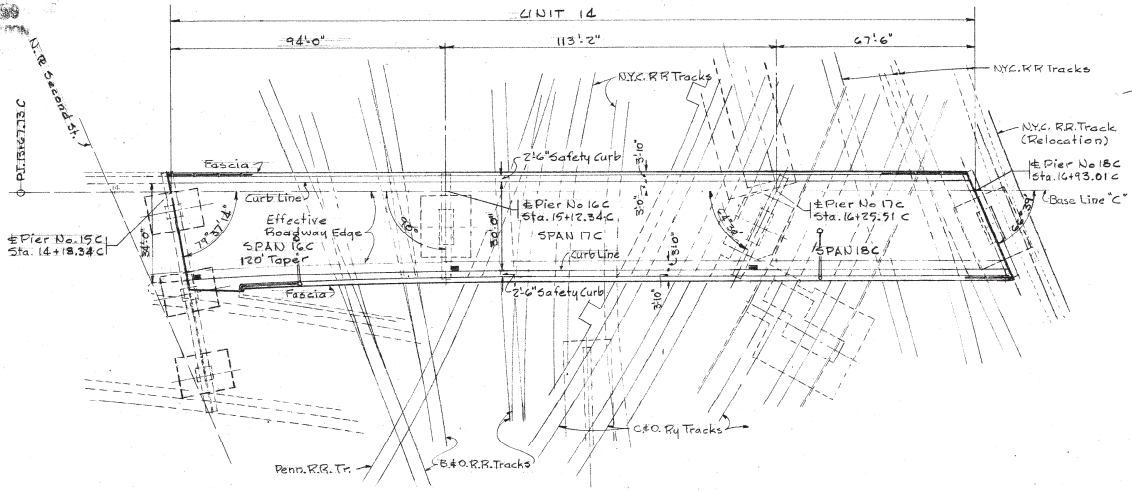
STRUCTURAL STEEL DETAILS UNIT NO. 6.

Designed	Drawn	Traced	Checked	Reviewed Date	Revised
M.K.K. 2-15-60	J.C. 5-1-60		JHD 9/27/60	10-14-60	

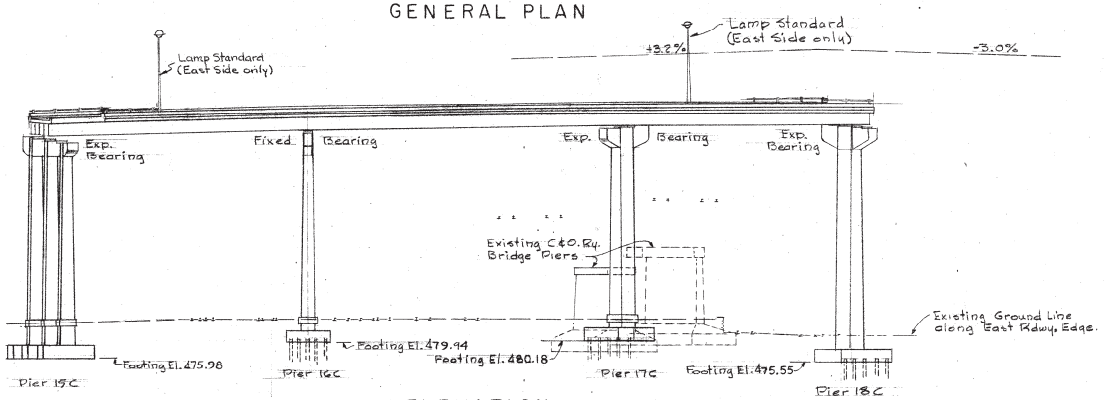
FED. RD. DIV.	STATE	PROJECT	FISCAL YEAR
2	OHIO		

92

HAM-25-0.04



GENERAL PLAN



ELEVATION

For Railing & Lighting Details See Sh. No. 260
For General Notes see Sheet No. 97
For Estimate of Quantities see Sheet No. 97

HAM-75-0022R
SPANS 16C-18C

HAZELET & ERDAL
CONSULTING ENGINEERS
CINCINNATI, OHIO

GENERAL PLAN & ELEVATION
UNIT 14

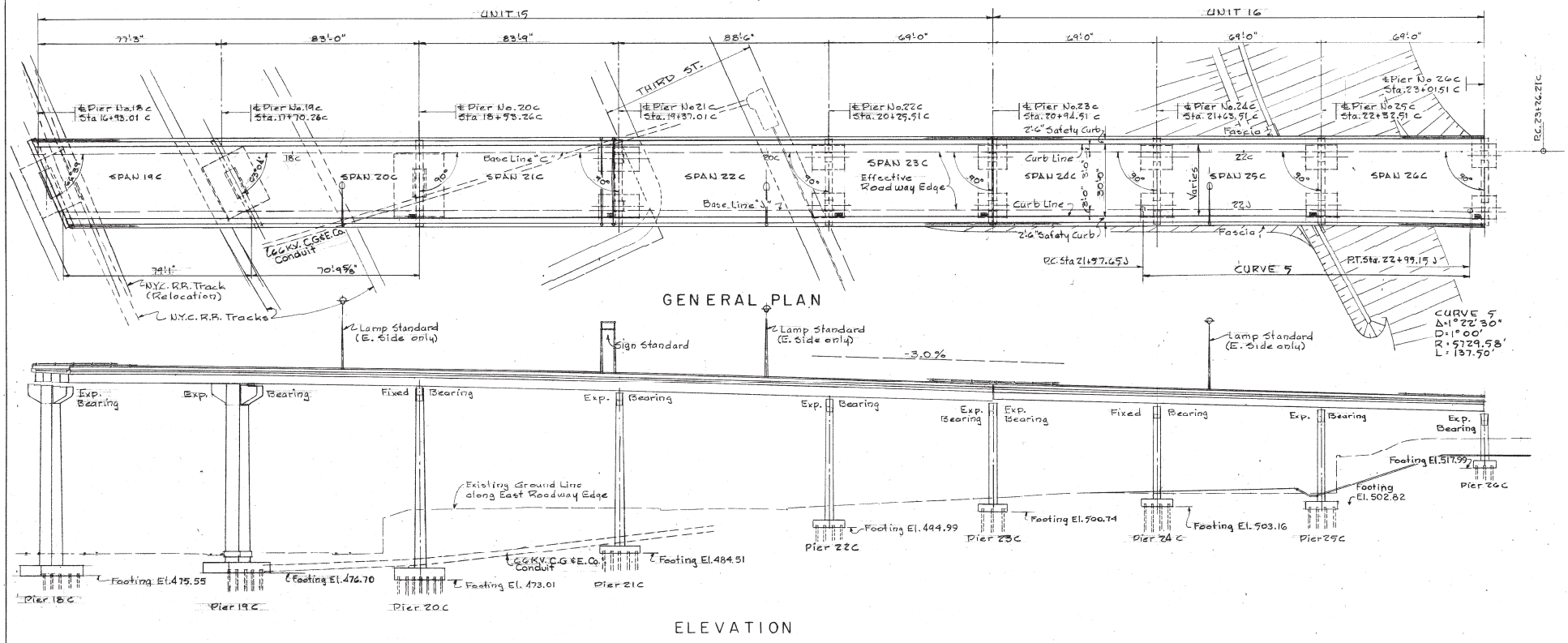
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISED
	J.C.D. 9-4-59		G.J.T. 9-23-60	11-1-60 10-13-60	

MICROFILMED
OCT 24 1979
REPRODUCTION

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

93

HAM-25-0.04



For Railing & Lighting Details See Sheets 260 & 261
For General Notes see Sheet 97
For Estimate of Quantities See Sheet 97

HAM-75-0022R
SPANS 19C-26C

HAZELET & ERDAL
CONSULTING ENGINEERS
CINCINNATI, OHIO

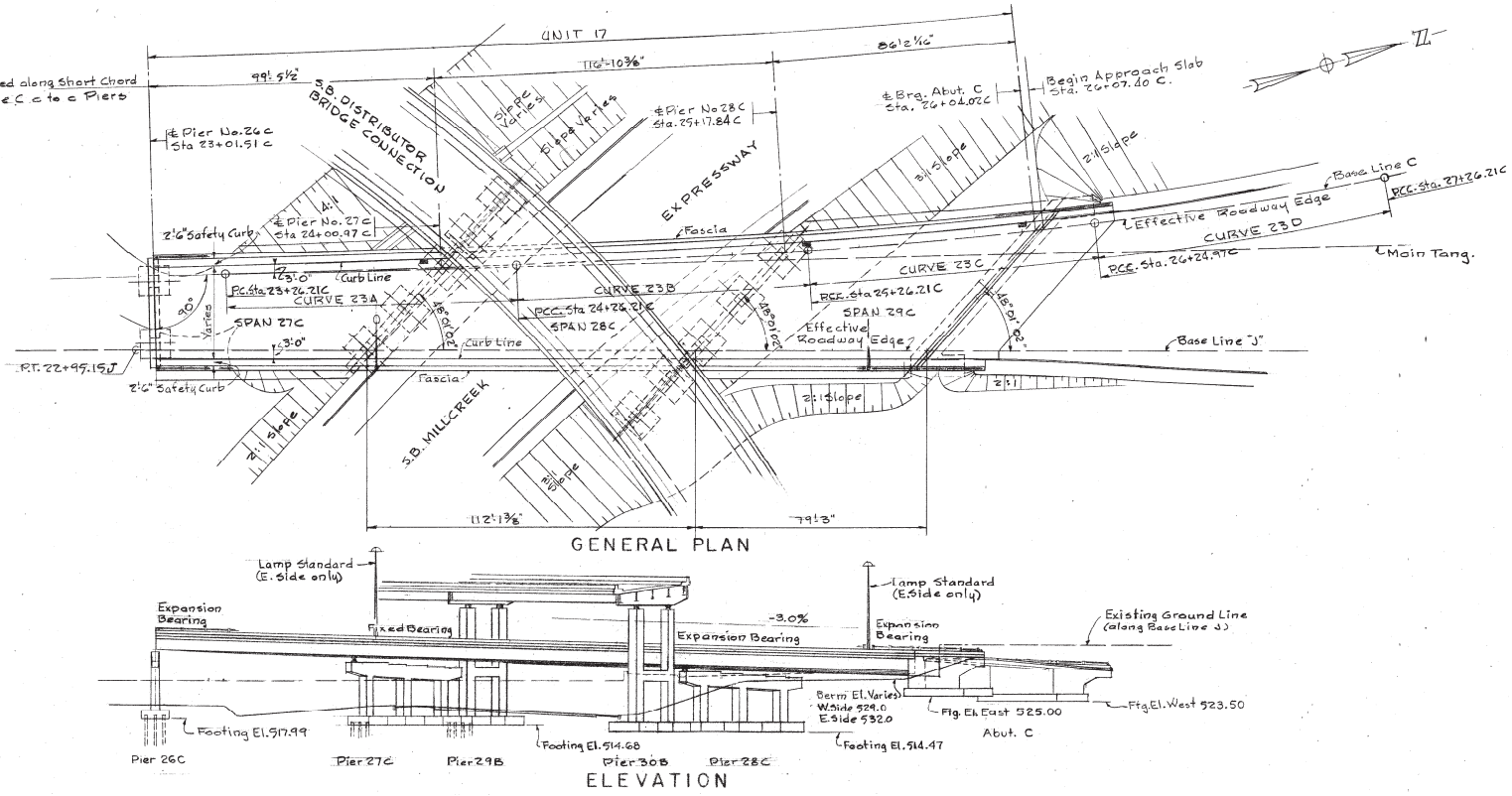
GENERAL PLAN & ELEVATION
UNITS 15 & 16

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISED
	J.C.D. 9-8-59		G.J.T. 9-23-60	W.A.E. 10-13-60	

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

94

HAM-25-0.04



CURVE 23A	CURVE 23B
Δ = 0°25'	Δ = 2°04'34"
D = 0°25'	D = 2°04'34"
R = 13,750.99'	R = 2,759.77'
L = 100.0'	L = 100.0'

CURVE 23C	CURVE 23D
Δ = 2°53'04"	Δ = 4°37'22"
D = 2°55'14"	D = 4°33'58"
R = 1,961.81'	R = 1,254.81'
L = 98.76'	L = 101.24'

ALIGNMENT NOTE
See Sheet 85

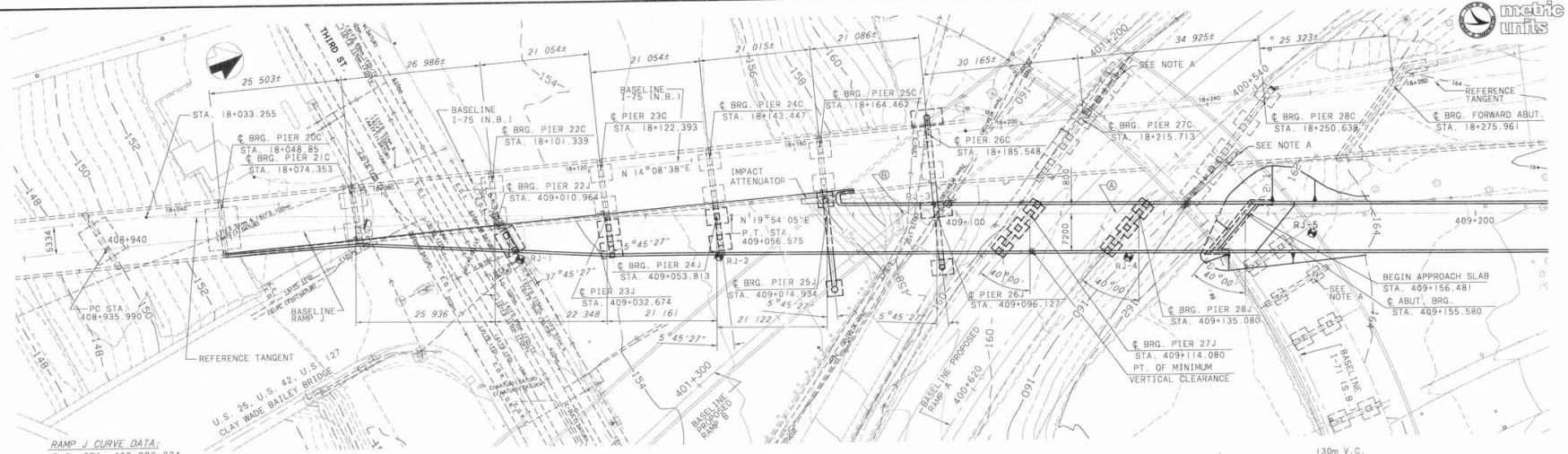
For Railing & Lighting Details See Sheet No. 261
For General Notes See Sheet No. 97
For Estimate of Quantities See Sheet No. 97

HAM-75-0022R
SPANS 27C-29C

HAZELET & ERDAL
CONSULTING ENGINEERS
CINCINNATI, OHIO

GENERAL PLAN & ELEVATION
UNIT 17

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISED
	J.C.D. 9-16-59		G.J.T. 9-26-60	M.I.S. 10-13-60	



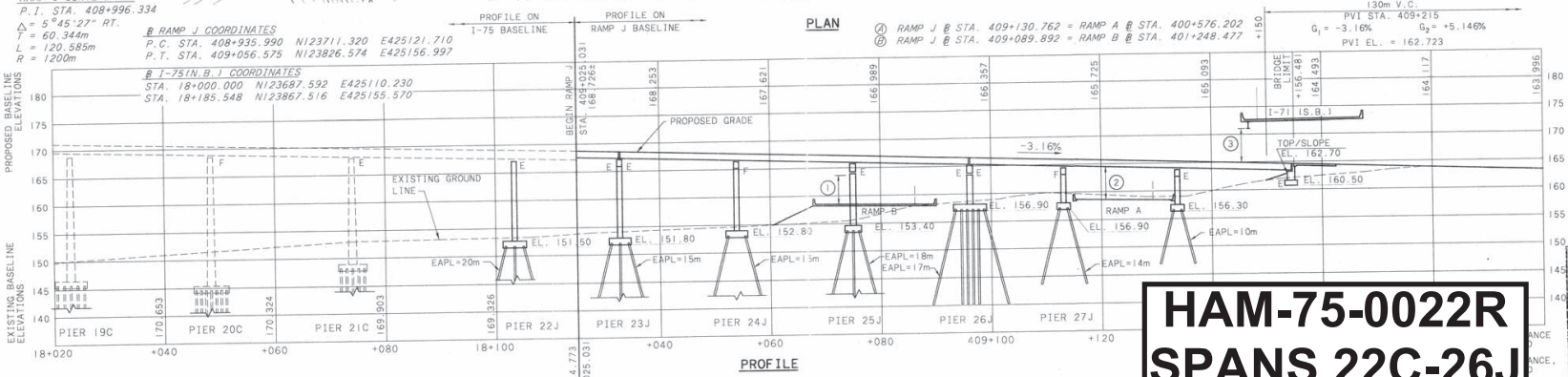
RAMP J CURVE DATA:
P.I. STA. 408+996.334
△ = 5°45'27" RT.
T = 60.34m
L = 120.585m
R = 1200m

℄ RAMP J COORDINATES
P.C. STA. 408+935.990 N123711.320 E425121.710
P.T. STA. 409+056.575 N123826.574 E425156.997

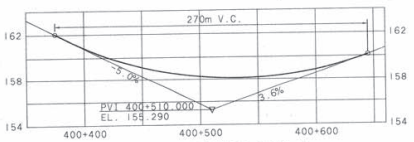
℄ I-75(N.B.) COORDINATES
STA. 18+000.000 N123687.592 E425110.230
STA. 18+185.548 N123867.516 E425155.570

PLAN

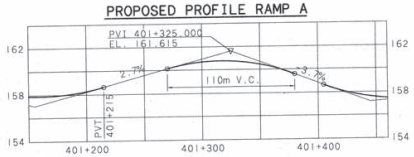
Ⓐ RAMP J ℄ STA. 409+130.762 = RAMP A ℄ STA. 400+576.202
Ⓑ RAMP J ℄ STA. 409+089.892 = RAMP B ℄ STA. 401+248.477



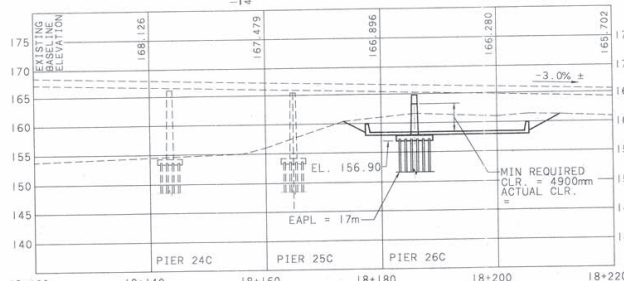
PROFILE



PROPOSED PROFILE RAMP A



PROPOSED PROFILE RAMP B



PROFILE
ALONG BASELINE EXISTING I-75 (N.B.)

NOTE A: FUTURE PROPOSED PIER[illegible] OF I-71 (S.B.). UNDER SEPERATE CONTRACT.

EAPL DENOTES ESTIMATED AVERAGE PILE LENGTH

⊠ DENOTES BORING LOCATION

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

EXISTING STRUCTURE (I-75 N.B.)

TYPE: CONTINUOUS STEEL GIRDER WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE
SPANS: 28 652, 34 495, 20 524, 23 500, 25 300
25 503, 26 986, 21 054, 21 054, 21 015
21 086, 30 165, 34 925, 25 323 ALL±
STRUCTURE FILE NO.: 3111709
ROADWAY: 10 465± TOE/TOE PARAPET SKEW: VARIES
ORIGINAL DESIGN LOADING: CF2000 (57)
WEARING SURFACE: CONCRETE
SUPERELEVATION: 0.016 AND VARIES
APPROACH SLABS: 7620±
YEAR BUILT: 1963

PROPOSED STRUCTURE (RAMP J)

TYPE: COMPOSITE CONTINUOUS STEEL BEAM WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE
SPANS: 25 936, 22 348, 21 161, 21 122
21 193, 17 953, 21 000, 20 500
c/c PIERS ALONG REFERENCE LINE
ROADWAY: 9000 TOE/TOE PARAPET SKEW: VARIES
DESIGN LOADING: HS20-44 (CASE II) AND ALT. MILITARY
WEARING SURFACE: CONCRETE
CROWN: 0.016 (ONE-WAY)
APPROACH SLAB: AS-1-81M, 7600 LONG
ALIGNMENT: CURVED AND TANGENT
CURRENT ADT: NA
DESIGN YEAR ADT (2020): 11 000
DESIGN YEAR ADTT (2020): 440
LATITUDE: 39°05'50"
LONGITUDE: 84°31'13"

HAM-75-0022R
SPANS 22C-26J

FINAL FOR CONSTRUCTION

SITE PLAN
BRIDGE NO. 1
RAMP J

FORT WASHINGTON WAY
CONTRACT NO. 6

HAMILTON COUNTY
STA. 409+025.031
STA. 409+156.481

DESIGNED MPB
DRAWN JB/AAA
CHECKED RMK/JB
REVISED RMK 7/8/98
STRUCTURE FILE NUMBER

1 / 55

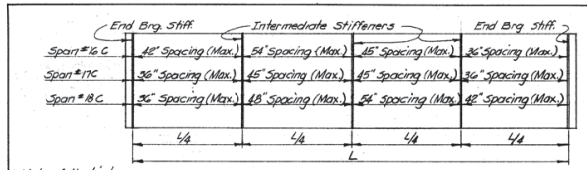
534
588

SITEPLO2.DWG 4-30-98

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

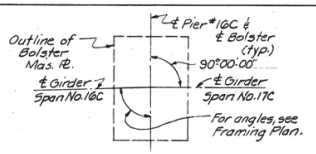
195

HAM-25-0.04

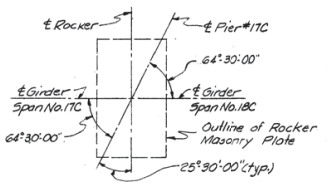


INTERMEDIATE STIFFENER SPACING

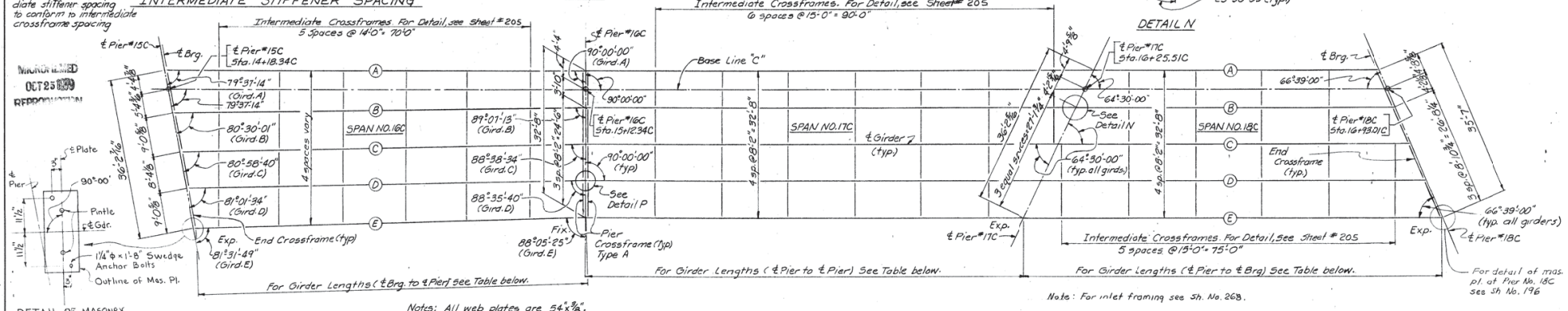
Note: Adjust intermediate stiffener spacing to conform to intermediate crossframe spacing



DETAIL P



DETAIL N



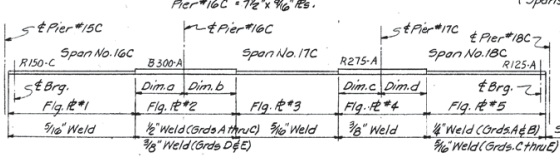
Note: For inlet framing see Sh. No. 268.

For detail of mas. pl. at Pier No. 18C see Sh No. 196

DETAIL OF MASONRY PLATE AT PIER 15C

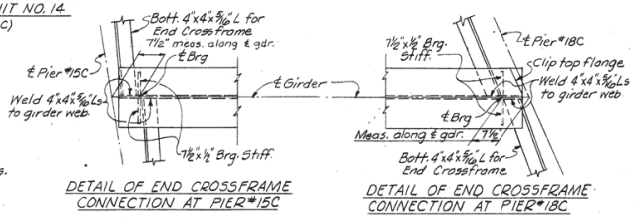
Notes: All web plates are 54"x⅜".
All intermediate stiffeners are 4"x⅜".
End bearing stiffeners are as follows:
Piers #15C, 17C & 18C = 7½"x½" Prs.
Pier #16C = 7⅛"x 9/16" Prs.

FRAMING PLAN UNIT NO. 14.
(Spans No. 16C thru 18C)



Notes: For flange plate sizes for Pl's #1 thru #5, see Table O, below.
For dimensions a thru d, see Table P, left.

DETAIL OF FLANGE PLATES AND WELDS



DETAIL OF END CROSSFRAME CONNECTION AT PIER #15C

DETAIL OF END CROSSFRAME CONNECTION AT PIER #18C

Note: Work these details with "Plan of Expansion Joint", Sheet No. 215

TABLE P (See Detail at right.)				
Girder	Dim. a	Dim. b	Dim. c	Dim. d
A	17'-9"	16'-3"	8'-6"	24'-0"
B	17'-9"	16'-3"	8'-6"	24'-0"
C	15'-6"	16'-0"	11'-3"	18'-6"
D	13'-0"	16'-6"	14'-0"	19'-0"
E	13'-0"	16'-6"	14'-0"	19'-0"

TABLE Q		
Dim. to raise girds. for welding.		
Girder	Span #16C	Span #18C
A	3⅜"	1¾"
B	3"	1⅜"
C	2¾"	2⅛"
D	2½"	2¼"
E	2¼"	2⅜"

Note: Convexity includes variations due to vertical curvature, superelevation and horizontal curvature.

TABLE O (See Detail above)					
Girder	Flg. Pl #1	Flg. Pl #2	Flg. Pl #3	Flg. Pl #4	Flg. Pl #5
A	16"x1⅜"	16"x2⅛"	16"x1⅜"	16"x1¾"	16"x¾"
B	do	do	16"x1⅜"	do	16"x¾"
C	do	16"x2⅜"	16"x1¼"	16"x1¾"	16"x1"
D	do	16"x2⅛"	16"x1⅛"	16"x1⅜"	16"x1¼"
E	16"x1⅜"	16"x2⅛"	16"x1⅛"	16"x1⅜"	16"x1¼"

TABLE OF GIRDER LENGTHS			
Girder	Span No.16C	Span No.17C	Span No.18C
A	94'-2"	115'-2⅜"	62'-11¼"
B	92'-5⅛"	111'-4⅛"	70'-4⅜"
C	90'-9⅛"	107'-5⅜"	77'-9⅜"
D	89'-9⅜"	105'-6⅜"	85'-2⅜"
E	87'-8⅜"	99'-7⅛"	92'-7⅛"

DEFLECTION AND CAMBER

SPAN	SPAN NO. 16C										SPAN NO. 17C										SPAN NO. 18C									
GIRDER	A		B		C		D		E		A		B		C		D		E		A		B		C		D		E	
LOCATION	¼	½	¾	¼	½	¾	¼	½	¾	¼	½	¾	¼	½	¾	¼	½	¾	¼	½	¾	¼	½	¾	¼	½	¾	¼	½	¾
Deflection due to weight of steel	1/16"	1/8"	1/16"	1/8"	1/8"	1/16"	1/8"	3/16"	1/16"	1/8"	1/8"	1/16"	1/8"	1/8"	1/16"	1/8"	1/8"	1/16"	1/16"	0	1/16"	0	-1/16"	0	0	0	0	1/8"	0	1/16"	1/16"	1/16"
Deflection due to remaining Dead Load	1/8"	5/16"	1/4"	7/16"	9/16"	1/4"	7/16"	1/2"	5/16"	7/16"	1/2"	5/16"	7/16"	1/2"	5/16"	7/16"	1/2"	5/16"	5/16"	1/8"	5/16"	0	-1/16"	0	1/16"	0	3/16"	1/16"	1/8"	5/16"	1/4"	3/16"
Convexity (See note above)	1"	1⅛"	1"	1"	1⅛"	1"	1⅛"	1¼"	1⅛"	1⅛"	1¼"	1⅛"	1⅛"	1¼"	1⅛"	1⅛"	1¼"	1⅛"	1⅛"	1¼"	1⅛"	1¼"	1¼"	1¼"	1¼"	1⅛"	1⅛"	1⅛"	1⅛"	1⅛"	1⅛"
Sum of deflection and convexity	1⅛"	2⅛"	1⅛"	1⅛"	2"	1⅛"	1⅛"	1½"	1⅛"	1⅛"	1⅜"	1⅛"	1⅛"	1⅜"	1⅛"	1⅛"	1⅜"	1⅛"	1⅛"	1⅜"	1⅛"	1⅜"	1⅜"	1⅜"	1⅜"	1⅛"	1⅛"	1⅛"	1⅛"	1⅛"	1⅛"
Required Camber	2⅛"		2⅛"		2⅛"		2⅛"		2⅛"		3⅜"		2⅞"		2⅝"		2¼"		2"		1"		1"		1⅜"		1¾"		2¼"	

Girder web plates shall be cut to a parabolic crown.

GIRDER SPLICE WELDING PROCEDURE

1. Raise the ends of girders of Span #16C at Pier #15C, and ends of girders of Span #18C at Pier #18C; the dimensions shown for each span in Table Q.
2. Butt-weld girder flanges and webs at Piers #16C & 17C, using the following welding sequence:
   Make two passes on each flange, then two on the web; repeat using one pass at each location until welds are completed.
3. Weld all Pier Crossframes at Pier #16C into place.
4. Lower the girders of Spans #16C & 18C into final positions.

HAM-75-0022R
SPANS 16C-18C

Notes:
For Details of End Crossframes see Sheet # 215
For Details of Pier Crossframes, see Sheet #205
For Details of Intermediate & Bearing Stiffeners, see Sheet # 205
For Rocker & Bolster Details, see Sheet # 206
For Typical Girder Elevation, see Sheet # 205

HAZELET & ERDAL
CONSULTING ENGINEERS
CINCINNATI, OHIO

STRUCTURAL STEEL DETAILS
UNIT NO. 14.

DESIGNED	DRAWN	TRACED	CHECKED	REVISED DATE	REVISED
REL	REL 4-28-60		JHO 8/2/60	N.A.B. 10-14-60	

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

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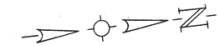
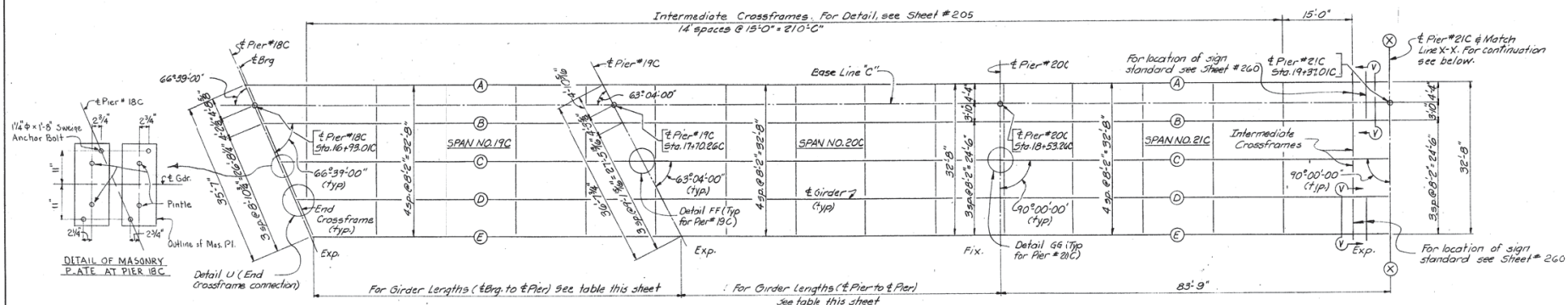
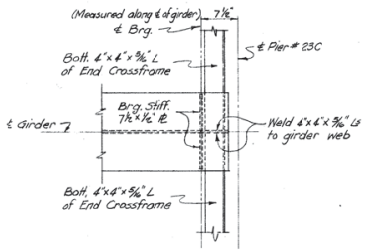
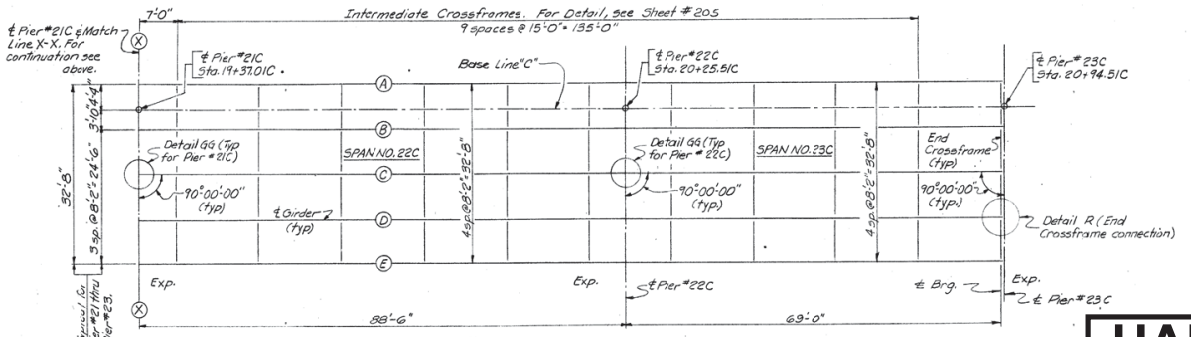
OCT 25 1960
REPRODUCTION







DETAIL R
(End Crossframe connection @ Pier # 23C, Span 23C)

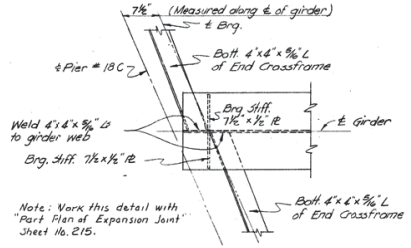


GIRDER LENGTHS		
Girder	Span # 19C	Span # 20C
A	76'-3½"	85'-2⅞"
B	76'-11"	81'-0⅝"
C	77'-6½"	76'-10⅞"
D	78'-2"	72'-9"
E	78'-9½"	68'-7⅛"

Note: Web Pl. 48"x⅜" For Flg. Pl's see table below.
Brg. Stiff. 7½"x⅜" Pl's Intermediate Stiff. 6"x⅜" Pl's
For bearing details see Sheet No. 206
For Typical Girder Elevation see Sheet No. 205
For End Crossframe detail see Sheet No. 215
For Detail GG, See Sheet No. 197

FRAMING PLAN - UNIT NO. 15
(Spans No. 19C thru 23C)

HAM-75-0022R
SPANS 19C-23C



Note: Work this detail with "Part Plan of Expansion Joint" Sheet No. 215.

DETAIL U
(End Crossframe connection @ Pier # 18C, Span # 19C)

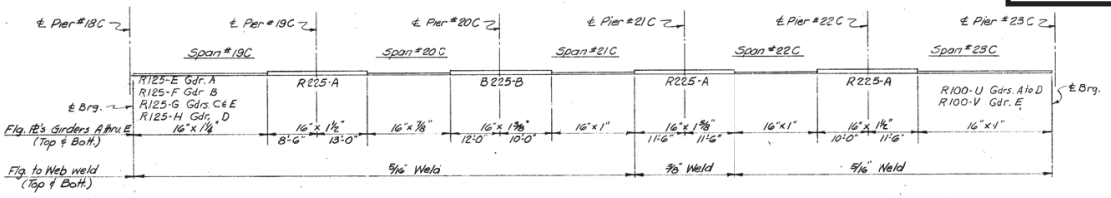


TABLE OF FLANGE PLATES AND WELD SIZE

Work this sheet with Sheet No. 197

HAZELET & ERDAL
CONSULTING ENGINEERS
CINCINNATI, OHIO

STRUCTURAL STEEL DETAILS
UNIT NO. 15.

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISED
RCF	REL		JHO 8/1/60	A.I.S. 10-14-60	

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

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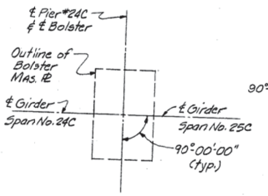
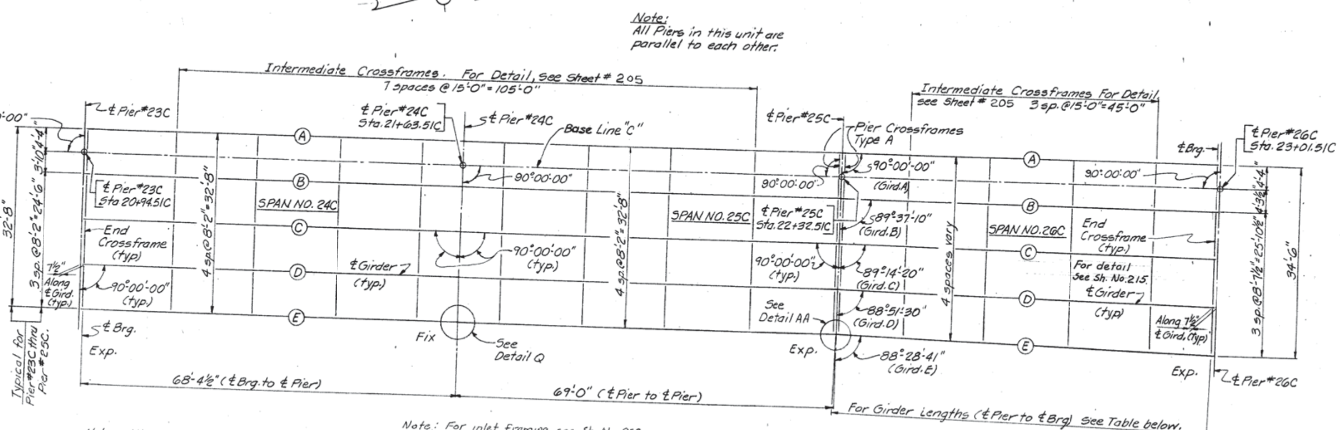


DETAIL Q

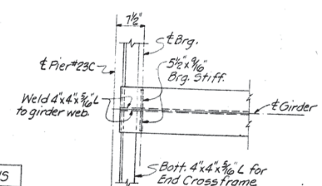
Note: All Piers in this unit are parallel to each other.



Note: For inlet Framing see Sh. No. 268

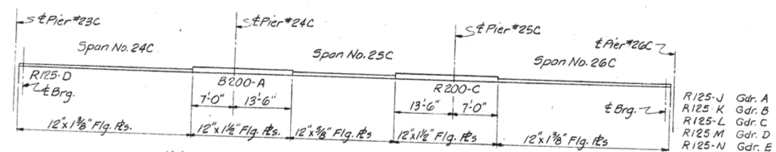
Notes: All web plates are 48"x⅜".
All intermediate stiffeners are 4"x⅜".
All end bearing stiffeners are 5½"x9/16".

FRAMING PLAN - UNIT NO. 16
(Spans No. 24C thru 26C)



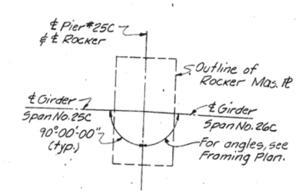
DETAIL OF END CROSSFRAME CONNECTION AT PIER #23C

Note: Work this detail with "Part Plan of Expansion Joint," Sheet No. 215.

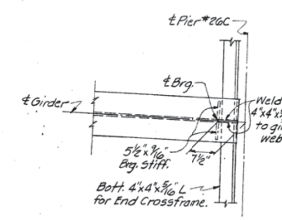


Note: Flange to web welds are 5/16" fillet welds throughout.

DETAIL OF FLANGE PLATES AND DIMENSIONS



DETAIL A A



DETAIL OF END CROSSFRAME CONNECTION AT PIER #26C

Note: Work this detail with "Part Plan of Expansion Joint," Sheet No. 215

GIRDER LENGTHS	
SPAN NO. 26C	
Girder	Length
A	68'-4½"
B	68'-4½"
C	68'-4 9/16"
D	68'-4 11/16"
E	68'-4 13/16"

HAM-75-0022R
SPANS 24C-26C

DEFLECTION AND CAMBER									
SPAN	SPAN NO. 24C			SPAN NO. 25C			SPAN NO. 26C		
GIRDER	A thru E			A thru E			A thru E		
LOCATION	¼	½	¾	¼	½	¾	¼	½	¾
Deflection due to weight of steel	1/16"	⅛"	1/16"	0	0	0	1/16"	⅛"	1/16"
Deflection due to remaining Dead Load	5/16"	5/16"	3/16"	1/16"	⅛"	1/16"	3/16"	5/16"	5/16"

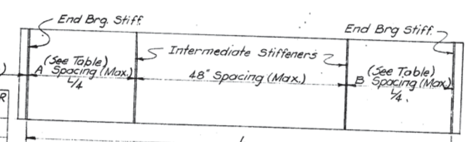
Girders for Unit #16 shall not be cambered

GIRDER SPLICE WELDING PROCEDURE

1. Raise the ends of girders of Span #26C at Pier #26C 1", and ends of girders of Span #24C at Pier #23C - 1".
2. Butt-weld girder flanges and webs at Piers #24C & 25C, using the following welding sequence:
   Make two passes on each flange, then two on the web; repeat using one pass at each location until welds are completed.
3. Weld all Pier Crossframes at Pier #25C into place.
4. Lower the girders of Spans #24C & 26C into final positions.

All girders (Unit #16)

INTERMEDIATE STIFFENER SPACING		
Span	A	B
24C	42"	39"
25C	42"	42"
26C	39"	42"



Note: Adjust intermediate stiffener spacing to conform to intermediate crossframe spacing.

INTERMEDIATE STIFFENER SPACING

Notes:
For Details of Crossframes, see Sheet # 205
For Details of Intermediate & Bearing Stiffeners, see Sheet # 205
For Rocker & Bolster Details, see Sheet # 206
For Typical Girder Elevations, see Sheet # 205
For Details of End Crossframes, see Sh. # 215

HAZELET & ERDAL
CONSULTING ENGINEERS
CINCINNATI, OHIO

STRUCTURAL STEEL DETAILS
UNIT NO. 16

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISED
RCF	RFI				

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

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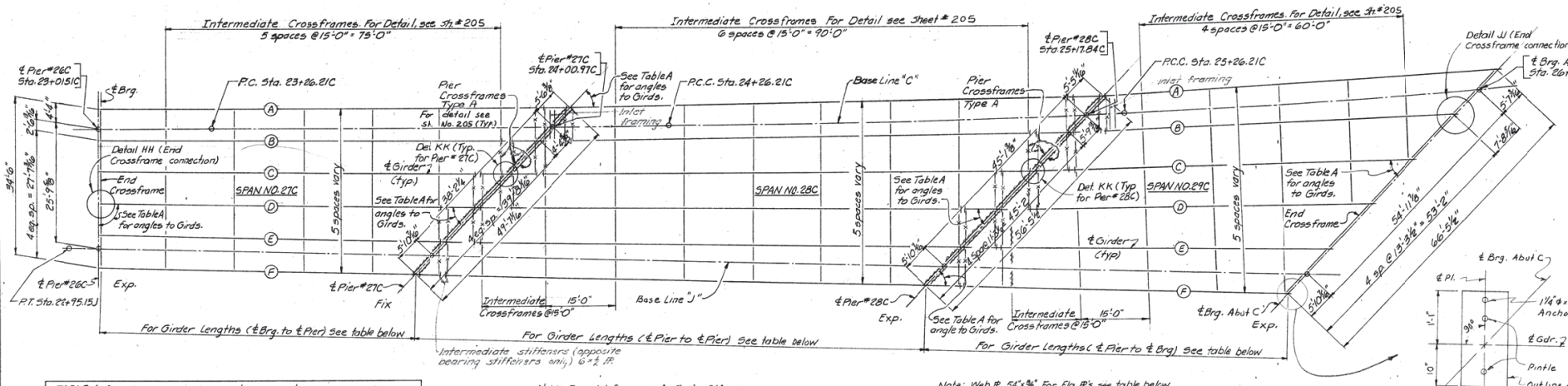
HAM-25-0.04

RECEIVED OCT 25 1960 REVISION

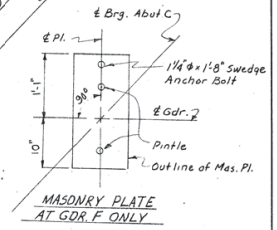
Note: ℄ Pier #27C, ℄ Pier #28C & ℄ Brg. N. Abut are parallel to each other.



Note: For inlet framing see Sh. No. 268

FRAMING PLAN - UNIT NO. 17
(Spans No. 27C thru 29C)

Note: Web ℔ 54"x⅜". For Flg. ℔'s see table below
Brg. Stiff. 7½"x½" ℔'s. Intermediate Stiff. 6"x⅜" ℔'s
For bearing details see Sheet # 206
For detail of End Crossframe see Sheet No. 215
For Typical Girder Elevation see Sheet No. 205
For Detail KK, See Sheet # 200



MASONRY PLATE AT GDR. F ONLY

TABLE A (Angles from ℄ Piers or ℄ Brgs. to ℄ Girds.) See Plan.						
	Pier #26C	Pier #27C		Pier #28C		Abut. C
Girder	Span #27C	Span #27C	Span #28C	Span #28C	Span #29C	Span #29C
A	89°-56'-20"	46°-42'-12"	45°-30'-38"	Same as shown for Span #27C	43°-04'-31"	Same as shown for Span #29C
B	89°-44'-56"	46°-53'-29"	45°-59'-45"		43°-59'-49"	
C	89°-31'-59"	47°-06'-33"	46°-29'-18"		44°-57'-04"	
D	89°-16'-41"	47°-21'-40"	46°-59'-18"		45°-56'-15"	
E	88°-58'-52"	47°-39'-36"	47°-29'-56"		46°-57'-36"	
F	88°-37'-27"	48°-01'-02"	48°-01'-02"		48°-01'-02"	

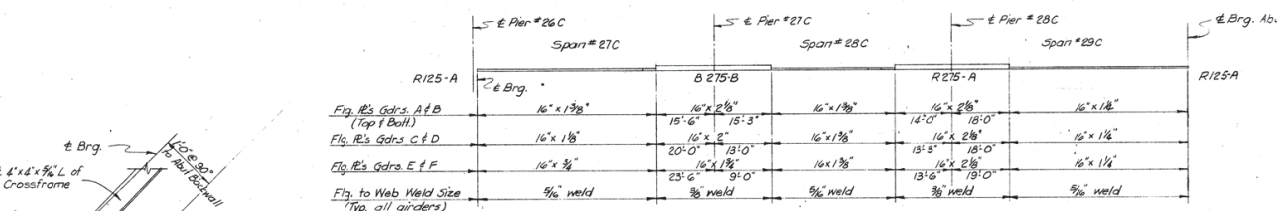
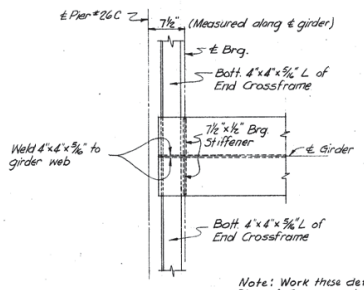
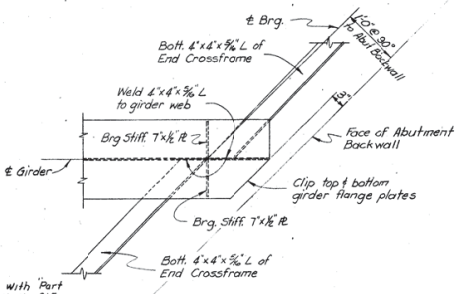


TABLE OF FLANGE PLATES AND WELD SIZES



DETAIL HH
(End Crossframe connection)
(at Pier #26C, Span 27C)



Note: Work these details with "Part Plan of Expansion Joint," Sh. No. 215.

DETAIL JJ
(End Crossframe connection)
(at Abutment C)

GIRDER LENGTHS			
Girder	Span # 27C	Span # 28C	Span # 29C
A	102'-7 9/16"	116'-9 1/8"	86'-3 3/16"
B	95'-9 7/8"	115'-10 3/8"	84'-9 7/16"
C	89'-0 3/16"	114'-10 5/16"	83'-4 1/16"
D	82'-2 3/16"	113'-11 5/8"	81'-11 9/16"
E	75'-4 1/16"	113'-0 1/16"	80'-7 1/8"
F	68'-7 9/16"	112'-1 3/8"	79'-2 11/16"

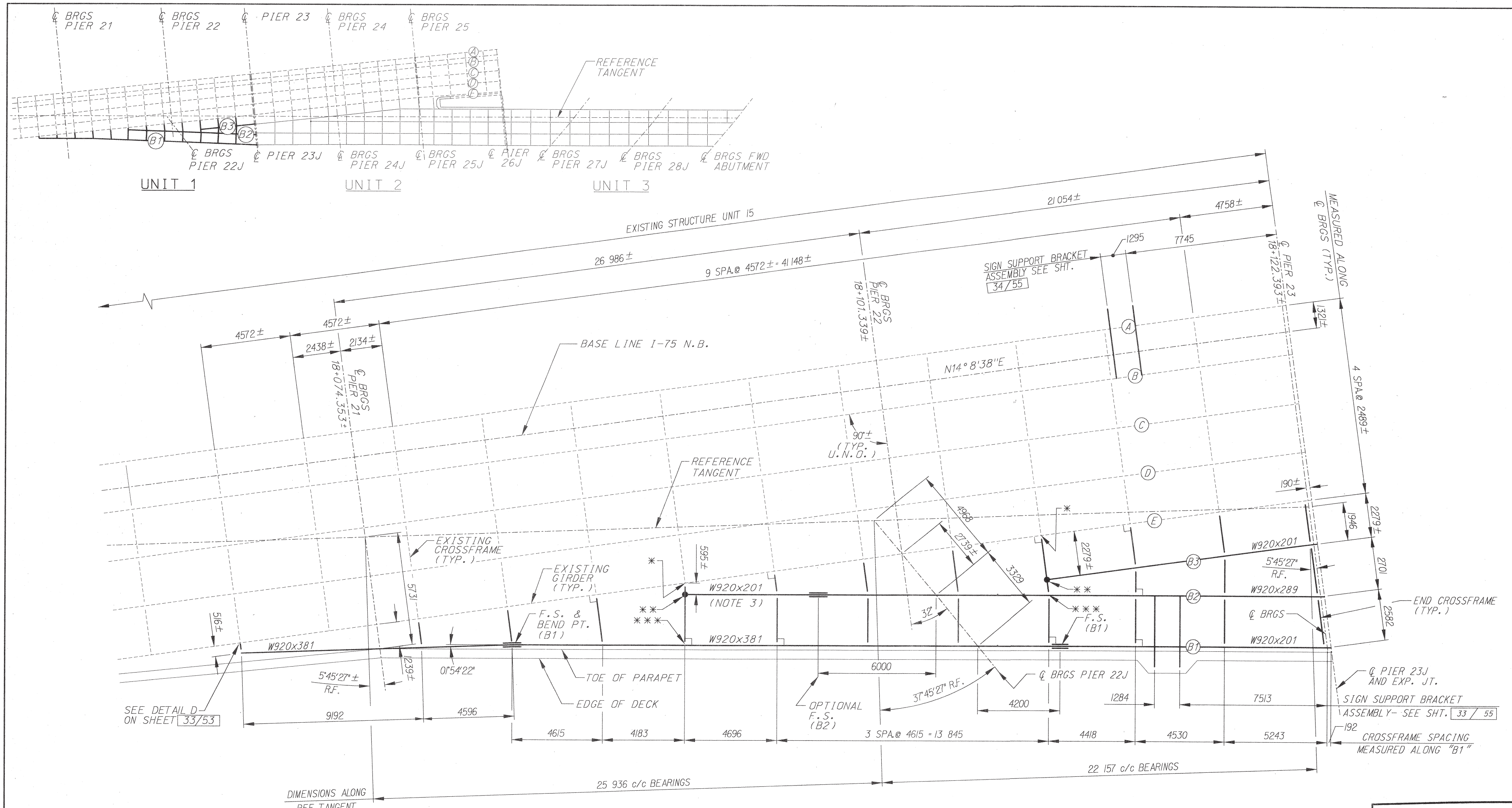
Work this sheet with Sheet # 200

HAZELET & ERDAL
CONSULTING ENGINEERS
CINCINNATI, OHIO

STRUCTURAL STEEL DETAILS
UNIT NO. 17.

DESIGNED	DRAWN	TRACED	CHECKED	REVISED DATE	REVISED
RCF	REF-JJC 7-13-60		JHO 8-11-60	9-14-60 10-14-60	6-5-61

HAM-75-0022R
SPANS 27C-29C



FRAMING PLAN
(UNIT 1)

HAM-75-0022R
SPANS 22C-23J

FINAL FOR CONSTRUCTION

NOTES:
1. STRUCTURAL STEEL SHALL BE ASTM A572. LEVEL 3 FABRICATION.
2. SEE SHEET 48/55 FOR BEARING DETAILS.
3. USE W920x289 FULL LENGTH OF "B2" IF OPTIONAL FIELD SPLICE IS NOT USED.

LEGEND:
F.S. = FIELD SPLICE
BRGS = BEARINGS
(X) = BEAM LINE DESIGNATION
U.N.O. = UNLESS NOTED OTHERWISE
⊣ = BEAM SUPPORT DIAPHRAGM

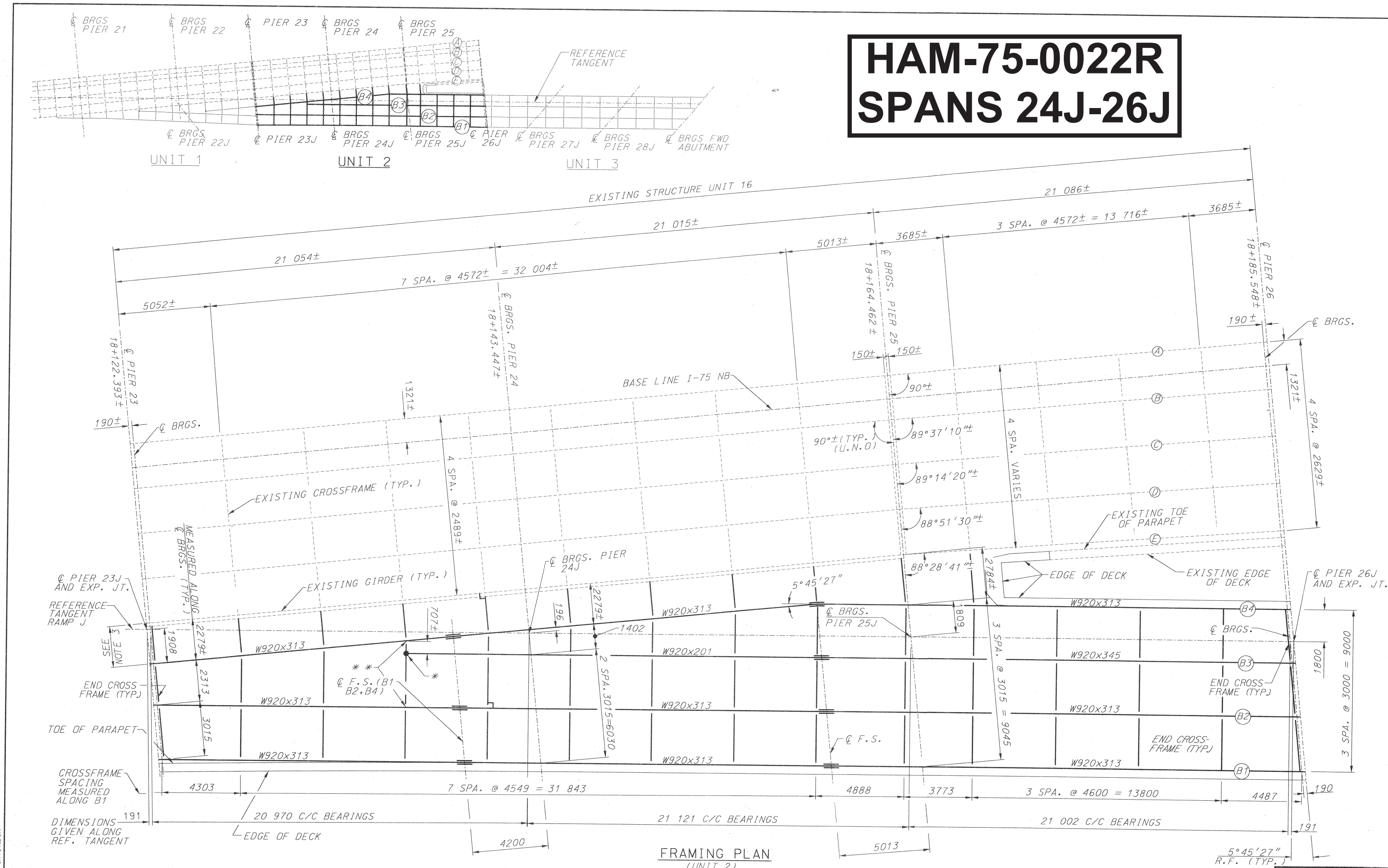
ROCKER BEARINGS			
BEAM	PIER 21	PIER 22J	PIER 23J
B3	–	–	R575A
B2	–	R1100	R575B
B1	R1000	R1100	R575C

* = SEE DIAPHRAGM CONNECTION DETAIL C ON SHEET 32/55.
** = SEE DIAPHRAGM CONNECTION DETAIL B ON SHEET 32/55.
*** = SEE DIAPHRAGM CONNECTION DETAIL A ON SHEET 32/55.

P:/PR21442/CADD/BRDGSHTS/SHT31.DGN

FRAMING PLAN – UNIT 1

HAM-75-0022R
SPANS 24J-26J



FRAMING PLAN
(UNIT 2)

ROCKER & BOLSTER BEARINGS				
BEAM	PIER 23 J	PIER 24 J	PIER 25 J	PIER 26 J
B4	R575	B1000	R1000A	R675A
B3	---	B775	R1225A	R675B
B2	R675	B1225	R1225B	R675C
B1	R675	B1225	R1225	R675D

* = SEE DIAPHRAGM CONNECTION DETAIL B ON SHEET 32/55.

* * = SEE DIAPHRAGM CONNECTION DETAIL A ON SHEET 32/55.

NOTES:

1. STRUCTURAL STEEL SHALL BE ASTM A572M LEVEL 3 FABRICATION.
2. SEE SHEET 48/55 FOR BEARING DETAILS.
3. CROSSFRAMES IN THIS BAY SHALL NOT BE WELDED UNTIL AFTER STAGE 1 DECK PLACEMENT.

LEGEND:

F.S. = FIELD SPLICE
BRGS. = BEARINGS
Ⓧ = BEAM LINE DESIGNATION
U.N.O. = UNLESS NOTED OTHERWISE
—•— = BEAM SUPPORT DIAPHRAGM

FINAL FOR CONSTRUCTION

BURGESS & NIPLE ENGINEERS ARCHITECTS

DESIGNED	DRAWN	REVIEWED	DATE
JCS	AAA	RMK	7/8/98
CHECKED	REVISED	STRUCTURE FILE NUMBER	
TMB			

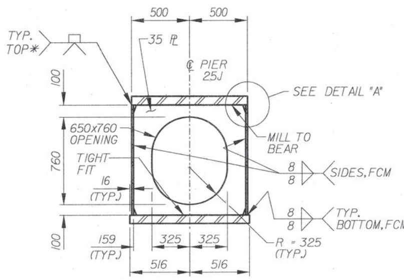
FRAMING PLAN - UNIT 2
BRIDGE NO. 1 RAMP J

FORT WASHINGTON WAY CONTRACT NO. 6

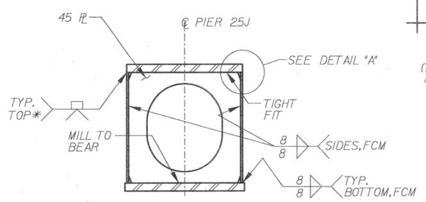
23/55

556/588

P:\PR0442\CADD\BRDGSHTS\SHT37.DGN

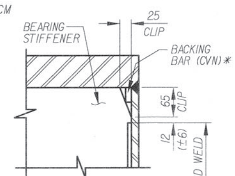


BEARING STIFFENER TYPE ①

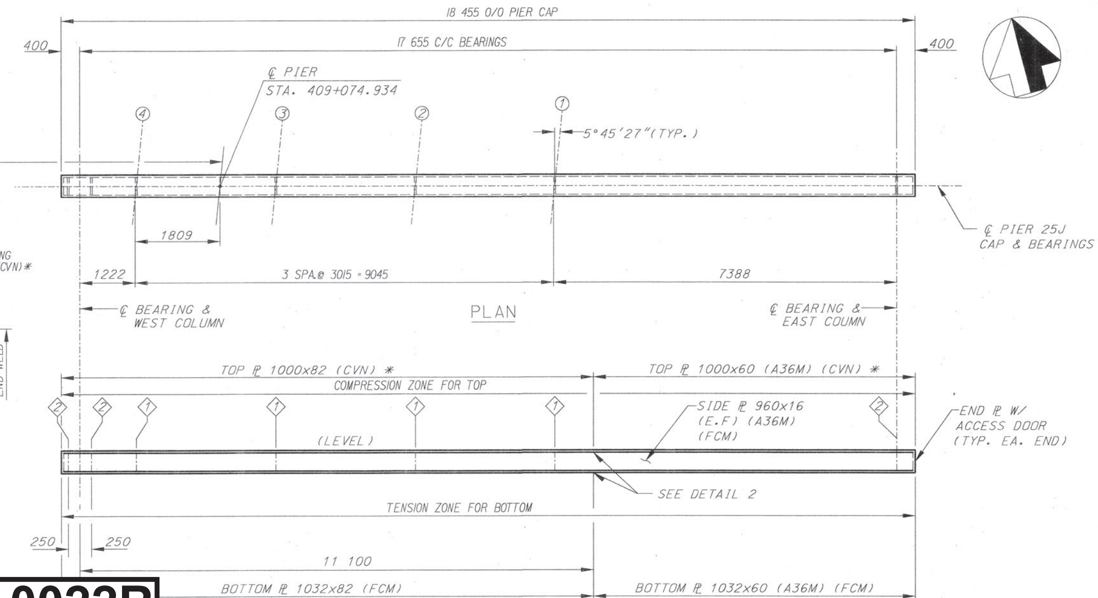


BEARING STIFFENER TYPE ②

FOR DETAILS SHOWN BUT NOT NOTED, SEE TYPE 1 STIFFENER DETAIL.



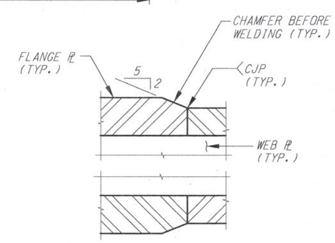
DETAIL A
(TYPICAL DIAPHRAGM CLIP AND WELD TERMINATION. TOP SHOWN, BOTTOM SIMILAR)



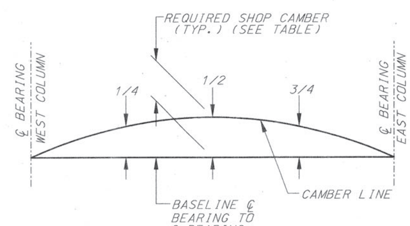
ELEVATION

* - FABRICATOR MAY SUBSTITUTE 1032mm WIDE TOP PLATE ATTACHED TO WEBS WITH DOUBLE 8mm FILLET WELDS AT EACH WEB ℙ IN PLACE OF 1000mm WIDE TOP PLATE WITH FULL PENETRATION WELDS AND BACKING BAR.

HAM-75-0022R
PIER 25J

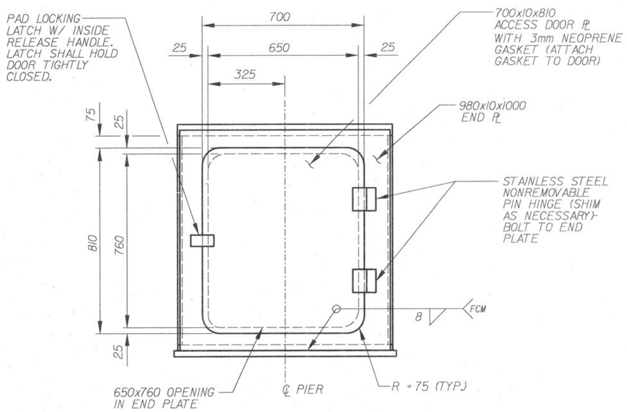


DETAIL 2



CAMBER DIAGRAM

DEFLECTION AND CAMBER (mm)			
STEEL CAP			
POINT	1/4	1/2	3/4
DEFLECTION DUE TO WEIGHT OF CAP	2	2	2
DEFLECTION DUE TO REAINING D.L.	19	27	19
REQUIRED SHOP CAMBER	21	29	21



END PLATE WITH ACCESS DOOR DETAIL

LEGEND:
Ⓧ = BEAM LINE DESIGNATION
◇X = INDICATES BEARING STIFFENER TYPE
FCM = FRACTURE CRITICAL MEMBER

NOTES:
1. ALL STRUCTURAL STEEL THIS SHEET SHALL BE A572M GR345 UNLESS OTHERWISE NOTED.
2. CAP BOTTOM & SIDE PLATES ARE FRACTURE CRITICAL COMPONENTS AND SHALL CONFORM TO THE PROVISIONS OF CHAPTER 12 OF ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE AND THE WELDING REQUIREMENTS OF SUPPLEMENTAL SPECIFICATION 863.23. CHARPY V-NOTCH IMPACT TEST REQUIREMENTS SHALL MEET OR EXCEED THE FCM VALUES FOR ZONE 2.
3. INTERIOR SURFACES OF BOX SHALL BE PRIME PAINTED WITH A WHITE PAINT PRIOR TO WELDING OF FINAL BOX FLANGE.

FINAL FOR CONSTRUCTION

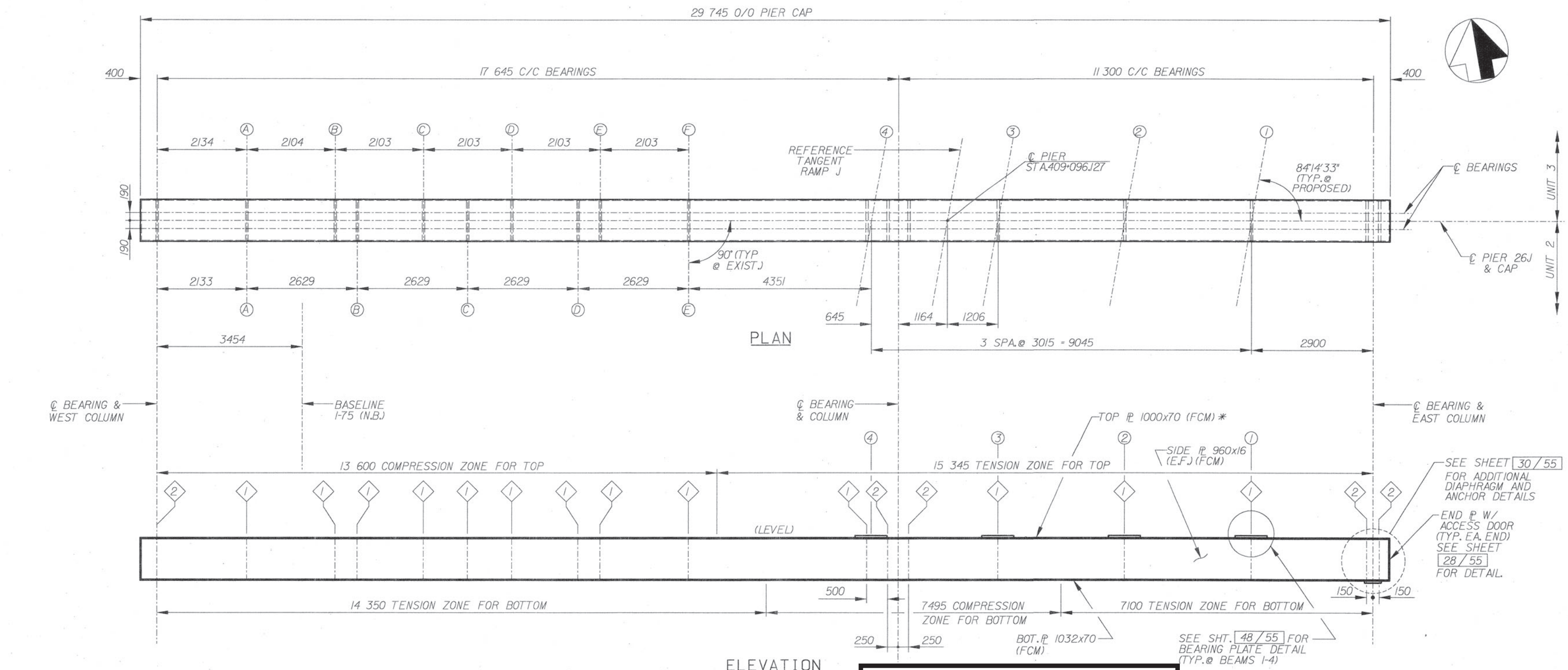
P:/PR214442/CADD/BRDGSHTS/SHT20.DGN

BURGESS & NIPLE ENGINEERS ARCHITECTS

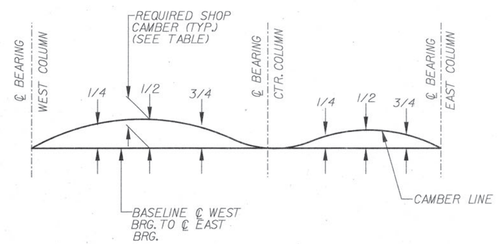
DATE 7/8/98
REVIEWED RMK
STRUCTURE FILE NUMBER
DRAWN DEP
REVISED
DESIGNED MJM
CHECKED CAS

PIER 25J STEEL BOX GIRDER CAP
BRIDGE NO. 1 RAMP J

FORT WASHINGTON WAY CONTRACT NO. 6

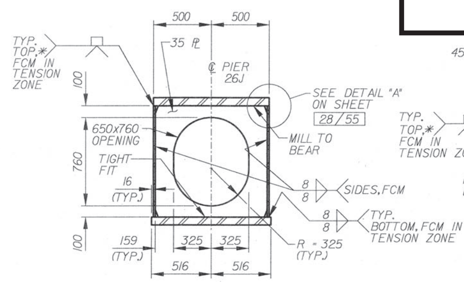


HAM-75-0022R
PIER 26J



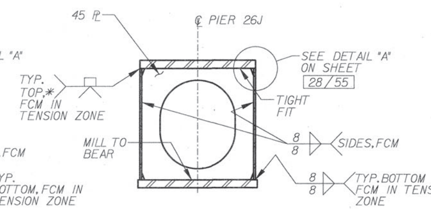
CAMBER AND BLOCKING DIAGRAM

DEFLECTION AND CAMBER (mm)						
STEEL CAP	SPAN 1			SPAN 2		
POINT	1/4	1/2	3/4	1/4	1/2	3/4
DEFLECTION DUE TO WEIGHT OF CAP	1	1	1	0	0	0
DEFLECTION DUE TO REMAINING D.L.	13	16	9	1	1	0
REQUIRED SHOP CAMBER	14	17	10	1	1	0



BEARING STIFFENER TYPE 1

✻ - FABRICATOR MAY SUBSTITUTE 1032mm WIDE TOP PLATE ATTACHED TO WEBS WITH DOUBLE 8mm FILLET WELDS AT EACH WEB ℞ IN PLACE OF 1000mm WIDE TOP PLATE WITH FULL PENETRATION WELDS AND BACKING BAR.



BEARING STIFFENER TYPE 2

FOR DETAILS SHOWN BUT NOT NOTED, SEE TYPE 1 STIFFENER DETAIL.

FINAL FOR CONSTRUCTION

LEGEND:

- (X) = BEAM LINE DESIGNATION
- ◇X = INDICATES BEARING STIFFENER TYPE
- FCM = FRACTURE CRITICAL MEMBER

NOTES:

1. ALL STRUCTURAL STEEL THIS SHEET SHALL BE ASTM A36M, LEVEL 6 FABRICATION UNLESS OTHERWISE NOTED.
2. CAP TOP, BOTTOM & SIDE PLATES ARE FRACTURE CRITICAL COMPONENTS AND SHALL CONFORM TO THE PROVISIONS OF CHAPTER 12 OF ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE AND THE WELDING REQUIREMENTS OF SUPPLEMENTAL SPECIFICATION 863.23. CHARPY V-NOTCH IMPACT TEST REQUIREMENTS SHALL MEET OR EXCEED THE FCM VALUES FOR ZONE 2.
3. INTERIOR SURFACES OF BOX SHALL BE PRIME PAINTED WITH WHITE PAINT PRIOR TO WELDING OF FINAL BOX FLANGE.

BURGESS & NIPLE ENGINEERS ARCHITECTS

DATE 7/8/98 | DESIGNED MJM | DRAWN DEP | REVIEWED RMK | CHECKED CAS

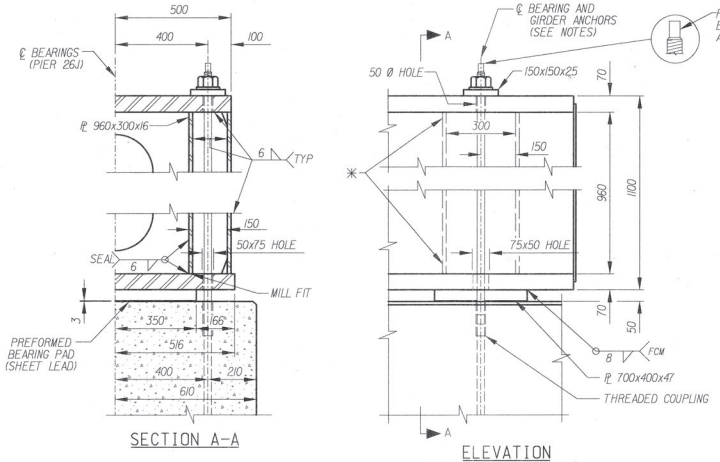
PIER 26J STEEL BOX GIRDER CAP
BRIDGE NO. 1
RAMP J

FORT WASHINGTON WAY
CONTRACT NO. 6

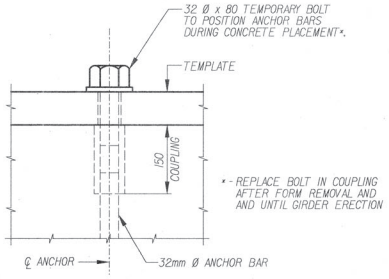
29/55

562/588

P:\PR214442\CADD\BRDGSHTS\SHT22.DGN



HAM-75-0022R
PIER 26J



SECTION B-B

FINAL FOR CONSTRUCTION

NOTE

GIRDER ANCHORS: PROVIDE 2-32mm ø ANCHOR RODS FOR THE EAST COLUMN OF PIER 26J. THESE ANCHORS INCLUDE 2-150x150x25 SQUARE WASHERS, 2 ROUND WASHERS, 2-THREADED COUPLINGS WITH 2-32mm ø CAST-IN-PLACE ANCHOR RODS AND 2-32x80 TEMPORARY BOLTS TO SECURE CAST-IN-PLACE ANCHOR RODS IN POSITION DURING PLACEMENT OF CONCRETE. MATERIALS FOR ANCHORS AND HARDWARE SHALL CONFORM TO ASTM A325M, TYPE 3 SPECIFICATIONS. COUPLING SHALL BE SUITABLE TO DEVELOP THE FULL STRENGTH OF THE ANCHOR BOLTS. USE FORM TEMPLATE TO POSITION ANCHOR BAR IN PROPER POSITION DURING CONCRETE PLACEMENT. AFTER REMOVAL OF TEMPLATE, PLACE TEMPORARY BOLTS INTO EXPOSED COUPLINGS UNTIL THEY ARE REPLACED BY PERMANENT ANCHOR BARS DURING GIRDER ERECTION.

AFTER GIRDER ERECTION AND BEFORE RELEASING AND REMOVING TEMPORARY SUPPORTS UNDER THE EXISTING STRUCTURE, BOLTS SHOULD BE TIGHTENED. TO TIGHTEN, TURN NUTS UNTIL STEEL IS FULLY COMPACTED IN BEARING PLATE. THEN TURN NUTS 2/3 TURN RELATIVE TO ROD. INCLUDE ALL MATERIALS, LABOR AND EQUIPMENT TO PLACE AND STRESS GIRDER ANCHORS WITH STRUCTURE LUMP SUM BID PAYMENT. ANCHORS AND HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH CMS 711.02.

BURGESS & NIPLE ENGINEERS ARCHITECTS

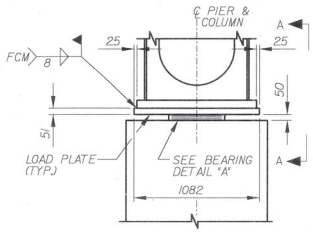
DATE 7/8/98
REVIEWED RMK
DRAWN AAA
DESIGNED MPB
CHECKED TAB
REVISED
STRUCTURE FILE NUMBER

PIER 26 EAST COLUMN BEARING ANCHOR DETAILS
BRIDGE NO. 1
RAMP J

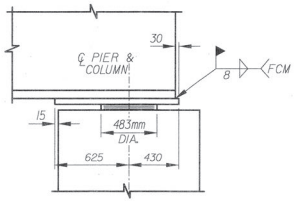
FORT WASHINGTON WAY
CONTRACT NO. 6

30 / 55
563
588

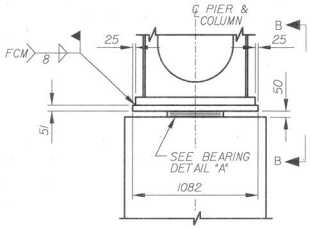
P:\PR2442\CADD\BRDGSHTS\SHT22A.DGN



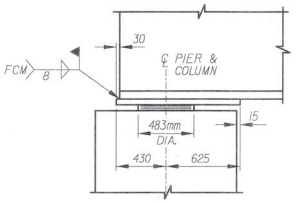
PIER 25J EAST COLUMN DETAIL
(BEARING DETAIL)



VIEW A–A

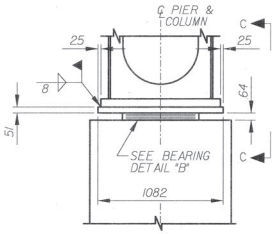


PIER 26J WEST COLUMN DETAIL
(BEARING DETAIL)

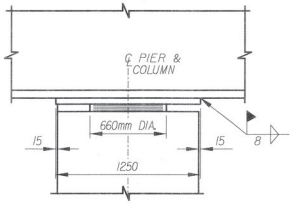


VIEW B–B

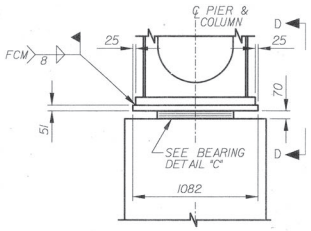
HAM-75-0022R
PIERS 25J-26J



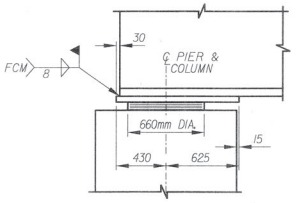
PIER 26J MIDDLE COLUMN
(BEARING DETAIL)



VIEW C–C



PIER 25J WEST COLUMN
(BEARING DETAIL)



VIEW D–D

ELASTOMERIC BEARINGS:

ELASTOMERIC BEARINGS SHALL COMPLY WITH 5.6 AND ARTICLES 18.4.5.1 THROUGH 18.5.6.2 OF SECTION 18, BEARING DEVICES, DIVISION II, CONSTRUCTION OF THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES. BEARINGS SHALL BE GRADE 3, 60 DUROMETER ELASTOMER, AND SHALL BE SUBJECTED TO THE LOAD TESTING REQUIREMENTS OF ARTICLE 18.7.4.5 CORRESPONDING TO DESIGN BY ARTICLE 14.6.5. PAYMENT FOR TESTING SHALL BE INCLUDED IN THE STRUCTURE LUMP SUM BID.

BEARING REPOSITIONING:

IF STEEL PIER CAPS ARE PLACED AT AN AMBIENT TEMPERATURE HIGHER THAN 27°C OR LOWER THAN 4°C, AND THE BEARING SHEAR DEFLECTION EXCEEDS 1/6 OF THE BEARING HEIGHT AT 15°C ±5°C, THE STEEL PIER CAPS SHALL BE RAISED TO ALLOW THE BEARINGS TO RETURN TO THEIR UNDEFORMED SHAPE AT 15°C ±5°C.

LOAD PLATE:

THE STEEL LOAD PLATE SHALL BE THE SAME MATERIAL AS THE ATTACHED STRUCTURAL STEEL AND BE SIMILARLY CLEANED AND COATED. PAINTING SHALL BE DONE IN THE SHOP, EXCEPT THE EDGES TO BE WELDED SHALL BE MASKED OFF. PAINTING SHALL BE INCLUDED IN THE PRICE BID FOR THE BEARINGS.

THE STEEL PLATE SHALL BE BONDED BY VULCANIZATION TO THE ELASTOMER DURING THE MOLDING PROCESS. WELDING OF THE LOAD PLATE TO THE SUPERSTRUCTURE SHALL BE CONTROLLED SO THAT THE PLATE TEMPERATURE AT THE ELASTOMER BONDED SURFACE SHALL NOT EXCEED 150°C AS DETERMINED BY THE USE OF PYROMETRIC STICKS OR OTHER TEMPERATURE MONITORING DEVICES.

DESIGN LOADING:

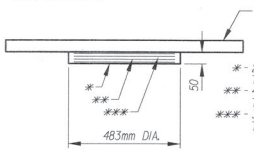
BEARINGS ARE DESIGNED FOR THE FOLLOWING LOADS:

PIER NO.	PIER 25J		PIER 26J	
COLUMN LOCATION	WEST	EAST	WEST	MIDDLE
DEAD LOAD (kN)	2015	979	1112	2831
LIVE LOAD w/o IMPACT (kN)	512	334	535	728
TOTAL DESIGN LOAD (kN)	2527	1313	1647	3559

BEARING LOCATIONS (25 W, 26 M, TYP.) SHALL BE CLEARLY MARKED ON THE BEARINGS PRIOR TO SHIPMENT.

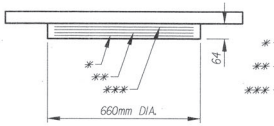
LEGEND:

DIA. = DIAMETER



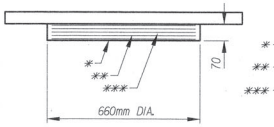
* - 2 EXTERNAL ELASTOMER LAYERS THICKNESS = 6.8mm
** - 4 INTERNAL STEEL LAMINATES THICKNESS = 1.9mm
*** - 3 INTERNAL ELASTOMER LAYERS THICKNESS = 9.5mm

BEARING DETAIL A
(PIER 25J EAST COLUMN AND PIER 26J WEST COLUMN)



* - 2 EXTERNAL ELASTOMER LAYERS THICKNESS = 9.0mm
** - 4 INTERNAL STEEL LAMINATES THICKNESS = 1.9mm
*** - 3 INTERNAL ELASTOMER LAYERS THICKNESS = 12.7mm

BEARING DETAIL B
(PIER 26J MIDDLE COLUMN)



* - 2 EXTERNAL ELASTOMER LAYERS THICKNESS = 8.0mm
** - 5 INTERNAL STEEL LAMINATES THICKNESS = 1.9mm
*** - 4 INTERNAL ELASTOMER LAYERS THICKNESS = 11.0mm

BEARING DETAIL C
(PIER 25J WEST COLUMN)

FINAL FOR CONSTRUCTION

BURGESS & NIPLE ENGINEERS ARCHITECTS

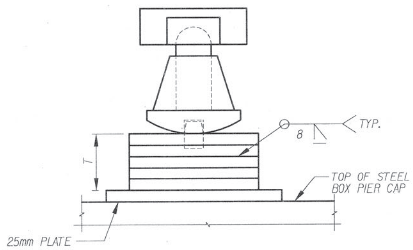
DESIGNED DWF | DRAWN AAA | CHECKED EMC | REVIEWED RMK 7/8/98 | DATE | REVISED | STRUCTURE FILE NUMBER

BEARING DETAILS
BRIDGE NO. 1
RAMP J

FORT WASHINGTON WAY
CONTRACT NO. 6

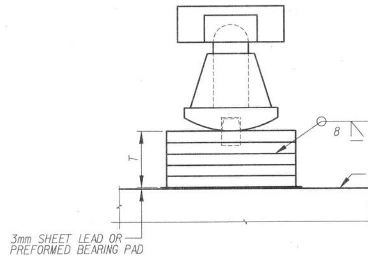
47 / 55
580
588

PLPRZ1442/CAD/BRDSHTS/SHT50.DGN



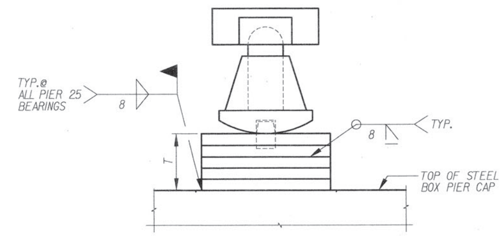
BASE PLATE THICKNESS DETAIL
(PIER 26J)

BEARING	R575D	R575E	R575F	R575G
DIMENSION "T"	282	224	171	113
BEARING	R675A	R675B	R675C	R675D
DIMENSION "T"	218	180	103	45



BASE PLATE THICKNESS DETAIL
(PIER 23)

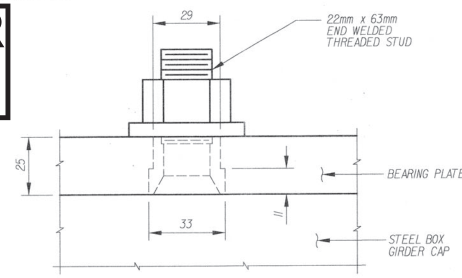
BEARING	R575A	R575B	R575C
DIMENSION "T"	78	79	87



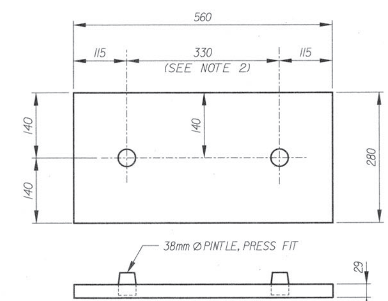
BASE PLATE THICKNESS DETAIL
(PIER 25)

BEARING	R1000A	R1225A	R1225B
DIMENSION "T"	298	205	127

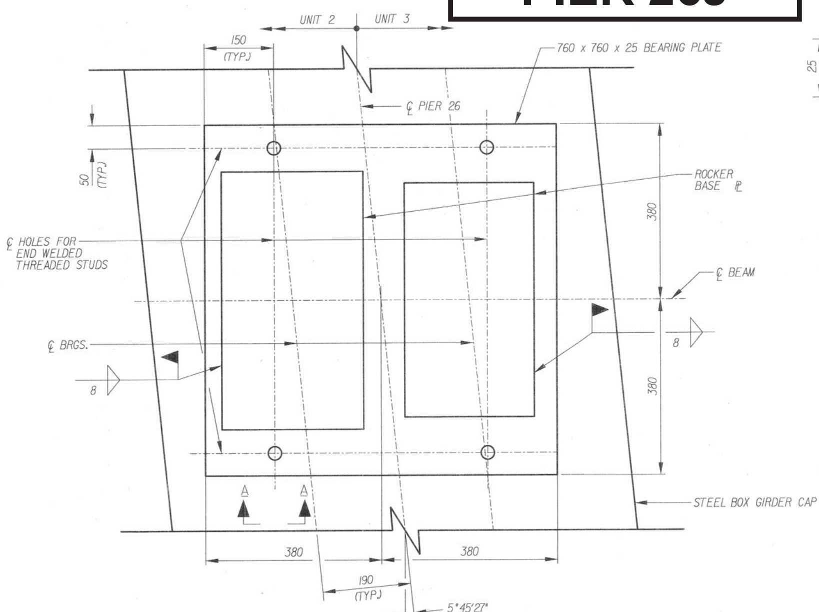
HAM-75-0022R
PIER 26J



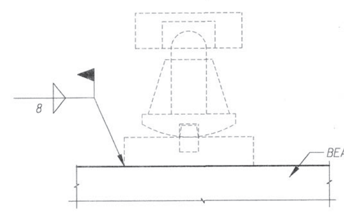
VIEW A



BASE PLATE
(FOR EXISTING BEARINGS AT GIRDER A,
PIER 26, 2 REQUIRED)



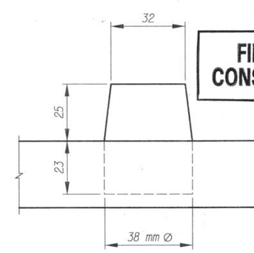
BEARING PLATE DETAIL
(PIER 26J)
(4 REQUIRED)



BASE PLATE WELDING DETAIL
(EXISTING GIRDERS @ PIER 26)

NOTES:

1. ROCKERS AND BOLSTERS SHALL BE IN ACCORDANCE WITH STANDARD DRAWING RB-1-55M, EXCEPT THAT DIMENSION "T" SHALL BE AS SHOWN IN THE TABLE ON THIS SHEET FOR BEARING DESIGNATIONS WITH A LETTER SUFFIX. BASE PLATES MAY BE ONE SINGLE PLATE OR MULTIPLE LAYERS WELDED TOGETHER AS SHOWN.
2. CONTRACTOR SHALL VERIFY EXISTING PINTLE SPACING PRIOR TO FABRICATION OF REPLACEMENT BASE PLATE.



PINTLE DETAIL

FINAL FOR CONSTRUCTION

BURGESS & NIPLE
ENGINEERS
ARCHITECTS

DESIGNED BES | DRAWN BES | REVIEWED RMK | DATE 7/8/98
CHECKED RMK | REVISED | STRUCTURE FILE NUMBER

BEARING DETAILS II
BRIDGE NO. 1
RAMP J

FORT WASHINGTON WAY
CONTRACT NO. 6

48 / 55

581 / 588

P:\PR\1442\CADD\BR\1\SHTS\SHT50.DGN