

CONSTRUCTION CODE
6-00200-0300
NHPP - FEDERAL (90%) STATE(10%)

CODE NO.	ITEM	UNIT	TOTAL QUANTITY	BRIDGE
				0013 URBAN
X5030250	BRIDGE DECK GROOVING (LONGITUDINAL)	SQ YD	9,470	9,470
X5080530	BAR TERMINATORS	EACH	3,592	3,592
X5211420	HIGH LOAD MULTI-ROTATIONAL BEARINGS, DISC, FIXED-400K	EACH	18	18
X5211620	HIGH LOAD MULTI-ROTATIONAL BEARINGS, DISC, GUIDED EXPANSION-400K	EACH	18	18
X6430210	REMOVE AND REINSTALL IMPACT ATTENUATORS	EACH	2	2
X7011850	REAL-TIME TRAFFIC CONTROL SYSTEM	L SUM	1	1
X7040012	TEMPORARY CONCRETE BARRIER (TO REMAIN PERMANENTLY)	FOOT	600	600
X7830050	RAISED REFLECTIVE PAVEMENT MARKER, REFLECTOR REMOVAL	EACH	29	29
* X7830052	RAISED REFLECTIVE PAVEMENT MARKER, REFLECTOR REPLACEMENT	EACH	29	29
Z0001899	JACK AND REMOVE EXISTING BEARINGS	EACH	132	132
Z0001903	STRUCTURAL STEEL REMOVAL	POUND	94,540	94,540
Z0003802	REMOVE EXISTING BEARINGS	EACH	84	84
Z0001905	STRUCTURAL STEEL REPAIR	POUND	57,005	57,005
Z0007101	CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES NO. 1	L SUM	1	1
Z0007102	CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES NO. 2	L SUM	1	1

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△

△ REVISED 5-28-2024

REV. - MS

\* SPECIALTY ITEM

MODEL: BDC6 (Sheet)  
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USER NAME = vramachandra	DESIGNED - VJR	REVISED -
PLOT SCALE = 0.16666667' / in.	DRAWN - RAH	REVISED -
PLOT DATE = 3/28/2024	CHECKED - KLT	REVISED -
	DATE - MARCH 2024	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**FAI ROUTE 55 - INTERSTATE 55  
SUMMARY OF QUANTITIES**

SCALE: N/A | SHEET 6 OF 8 SHEETS | STA. TO STA.

FAI RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	(84-2BR-1) D, BY, BP, BRR	SANGAMON	139	9
CONTRACT NO. 72K98				
ILLINOIS   FED. AID PROJECT				

**BENCHMARK**

BM TJM-126: FD Chiseled square on SE abutment of SBL Sangamon River Bridge. Sta. 793+03.12, Offset 8.63' Lt., Elev. 539.79.

BM TJM-127: FD Chiseled square on NW abutment of NBL Sangamon River Bridge. Sta. 804+26.20, Offset 8.82' Rt., Elev. 539.79.

**TRAFFIC CONTROL**

Staging will be utilized to maintain traffic during construction.

No salvage

**EXISTING STRUCTURE**

Structures 084-0018 and 084-0019 were constructed in 1963 under Section 84-2B-2F. The dual structures consist of eleven spans. Each structure measures 1125'-0" back-to-back abutments and has no skew. The bearing to bearing measurement for Spans 1, 4, 8, and 11 is 71'-9". For Spans 2, 3, 9, and 10 the bearing to bearing measurement is 91'-10", for Span 6 it is 180'-0", and for Spans 5 and 7 it is 141'-9". The original deck was a 7" thick concrete slab and was 35'-8" out-to-out deck. The deck was supported by W36 beams for all spans except Spans 5 thru 7, which were supported by a 87" deep built-up girder. In 1993, under Section 84-2BR-1, the bridge concrete decks were reconstructed and widened to be 47'-2" out to out with a 7½" thickness. One new girder line on each side of each structure was added with in kind beams and 87½" web plate girders. For all piers except piers 4 thru 7, the original pile supported hammer head piers were widened with wall piers supported on a single row of H-piles to accommodate the widened deck and for future widening. Piers 4 thru 7 were widened as hammer head piers on piles. The stub abutments were also widened to accommodate the wider deck and future widening.

**DESIGN STRESSES**

**FIELD UNITS**

**NEW CONSTRUCTION**  
 f'c = 4,000 psi (Superstructure)  
 fy = 60,000 psi (Reinforcement)  
 fy = 50,000 psi (M270 Grade 50)  
 fy = 36,000 psi (M270 Grade 36)  
 All structural steel shall be painted.

**ORIGINAL STRUCTURE**  
 f'c = 1,400 psi  
 fs = 20,000 psi (Reinforcement)  
 fs = 18,000 psi (Structural steel)

**1993 WIDENED STRUCTURE**  
 f'c = 3,500 psi (Class X Concrete)  
 fy = 60,000 psi (Reinforcement)  
 fy = 50,000 psi (M270 Grade 50 Structural Steel)  
 fy = 36,000 psi (M270 Grade 36 Structural Steel)

**DESIGN SPECIFICATIONS**

2002 AASHTO LFD Bridge Design Specifications, 17th Edition  
 2006 Seismic Retrofitting Manual for Highway Structures: Part 1 - Bridges (FHWA-HRT-06-032)

**LOADING HS20-44**

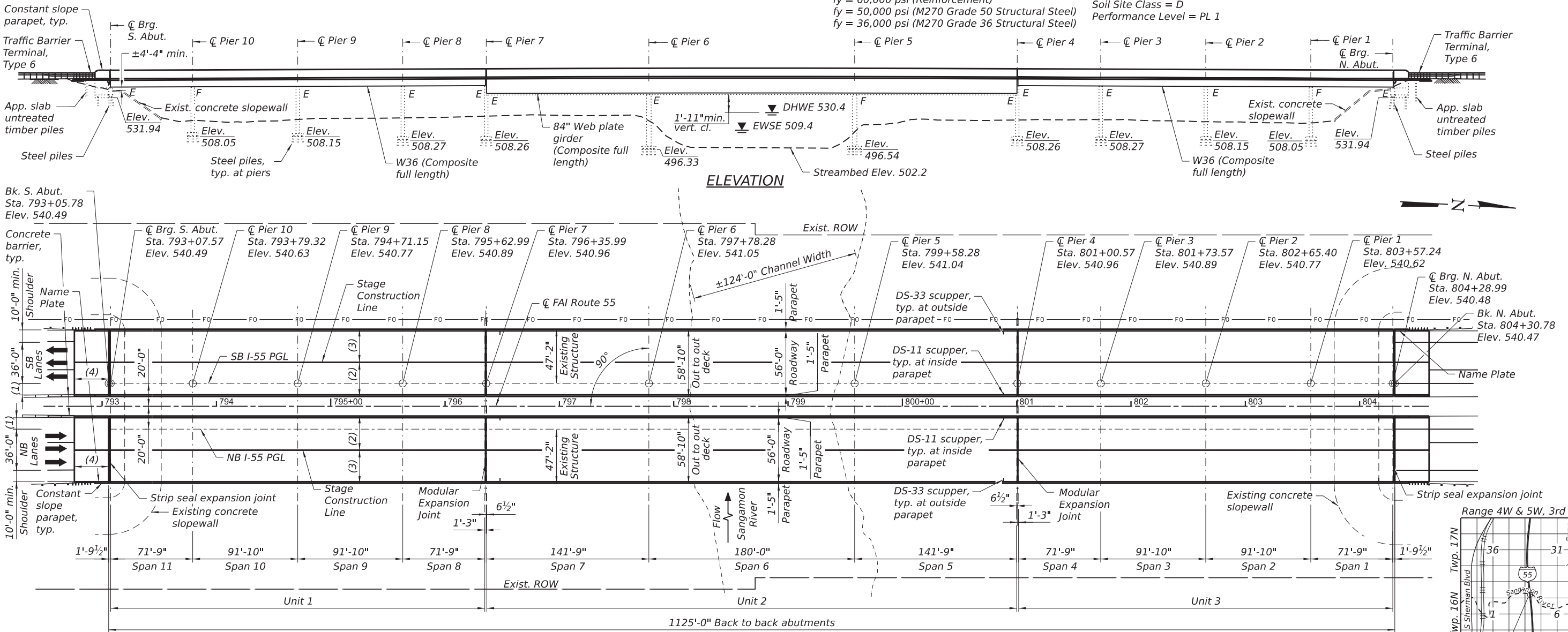
Allow 25 psf for future wearing surface.

**SEISMIC DATA**

Seismic Retrofit Category (SRC) = A  
 Design Spectral Acceleration at 1.0 sec (SD1) = 0.131g  
 Design Spectral Acceleration at 0.2 secs (SDS) = 0.199g  
 Soil Site Class = D  
 Performance Level = PL 1

**PROPOSED WORK:**

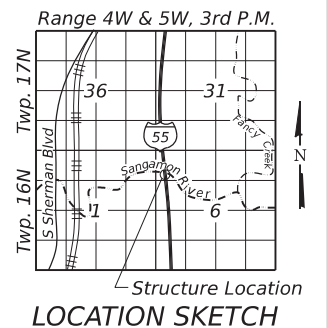
1. Deck replacement and widening with new girders.
2. Clean and paint existing structural steel.
3. Structural steel repair.
4. Replace all bearings.
5. Pier and abutment concrete repair.
6. Concrete slopewall repair.



**ELEVATION**

**PLAN**

(Stations and elevations shown on the piers and abutments on the SB bridge are the same for the NB bridge)



- (1) 10'-0" Shoulder
- (2) 29'-10½" Stage I
- (3) 28'-11½" Stage II
- (4) 30'-0" Approach Slab

**APPROVED**  
 For Structural Adequacy Only  
 [Signature]  
 Engineer of Bridges & Structures

**LEGEND**

FO Existing Lumen fiber optic

- Notes:
1. Elevations shown on plan view are after grinding.
  2. See sheet 2 of 67 for Waterway Information table and Design Scour Elevation table.
  3. See sheets 23 thru 26 of 67 for scupper and floor drain spacing.

LICENSED STRUCTURAL ENGINEER  
 DENISE HERRERA  
 081-008841  
 STATE OF ILLINOIS  
 [Signature]  
 Exp. date 11/30/2024

"I certify that to the best of my knowledge, information and belief, this design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of the structure and complies with the requirements of the current Design Specifications listed."

REVISD SHEET 5-22-2024



USER NAME = bholland	DESIGNED - DH	REVISED -
PLOT SCALE = N/A	DRAWN - BLH	REVISED -
PLOT DATE = 5/1/2024	CHECKED - DH	REVISED -
	DATE - MARCH 2024	REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

GENERAL PLAN AND ELEVATION  
 STRUCTURE NO. 084-0018 (NB) & 084-0019 (SB)

SCALE: SHEET 1 OF 67 SHEETS STA. TO STA.

**GENERAL PLAN AND ELEVATION**  
**I-55 OVER SANGAMON RIVER**  
**FAI ROUTE 55 SEC. (84-2BR-1)D,BY,BP,BRR**  
**SANGAMON COUNTY**  
**STATION 798+68.28**  
**STRUCTURE NO. 084-0018 (NB)**  
**STRUCTURE NO. 084-0019 (SB)**

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	(84-2BR-1)D,BY,BP,BRR	SANGAMON	139	43
CONTRACT NO.			72K98	
ILLINOIS / FED. AID PROJECT				

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	SUPER	SUB	TOTAL
Porous Granular Backfill	Cu. Yd.		34	34
Concrete Removal	Cu. Yd.		76.4	76.4
Slope Wall Removal	Sq. Yd.		80	80
Removal of Existing Concrete Deck	Each	2		2
Floor Drains	Each	244		244
Concrete Structures	Cu. Yd.		194.4	194.4
Concrete Superstructure	Cu. Yd.	4,429.0		4,429.0
Protective Coat	Sq. Yd.	17,034		17,034
Concrete Superstructure (Approach Slab)	Cu. Yd.	314.8		314.8
Furnishing and Erecting Structural Steel	L Sum	1		1
Stud Shear Connectors	Each	35,124		35,124
Reinforcement Bars, Epoxy Coated	Pound	1,221,290	15,460	1,236,750
Bar Splicers	Each	8,688	60	8,748
Slope Wall 6 Inch	Sq. Yd.		80	80
Name Plates	Each	2		2
Preformed Joint Strip Seal	Foot	236		236
Elastomeric Bearing Assembly, Type I	Each		138	138
Elastomeric Bearing Assembly, Type II	Each		58	58
Anchor Bolts, 3/4"	Each		232	232
Anchor Bolts, 1"	Each		384	384
Concrete Sealer	Sq. Ft.		3,489	3,489
Bridge Deck Grooving (Longitudinal)	Sq. Yd.	9,470		9,470
Bar Terminator	Each	3,592		3,592
High Load Multi-Rotational Bearings, Disc, Fixed-400k	Each		18	18
High Load Multi-Rotational Bearings, Disc, Guided Expansion-400k	Each		18	18
Jack and Remove Existing Bearings	Each	132		132
Structural Steel Removal	Pound	94,540		94,540
Structural Steel Repair	Pound	57,005		57,005
Removal of Existing Bearings	Each		84	84
Containment and Disposal of Lead Paint Cleaning Residues No. 1	L Sum	1		1
Containment and Disposal of Lead Paint Cleaning Residues No. 2	L Sum	1		1
Cleaning and Painting Steel Bridge No. 1	L Sum	1		1
Cleaning and Painting Steel Bridge No. 2	L Sum	1		1
Structural Repair of Concrete (Depth Equal to or Less than 5 inches)	Sq. Ft.		173	173
Structural Repair of Concrete (Depth Greater than 5 inches)	Sq. Ft.		42	42
Drainage Scuppers, DS-11	Each	8		8
Drainage Scuppers, DS-33	Each	8		8
Diamond Grinding (Bridge Section)	Sq. Yd.	13,678		13,678
Jacking Existing Superstructure	L Sum	1		1
Modular Expansion Joint, 6"	Foot	118		118
Modular Expansion Joint, 9"	Foot	118		118
Slope Wall Repair	Sq. Yd.		209	209
Slope Wall Slurry Pumping	Cu. Yd.		14	14

**GENERAL NOTES**

- Fasteners shall be ASTM F 3125 Grade A325 Type I, mechanically galvanized bolts in painted areas. Bolts 7/8 in. dia., holes 1 1/16 in. dia., unless otherwise noted.
- Calculated weight of new Structural Steel:  
M270 Grade 36 = 159,017 lbs.  
M270 Grade 50 = 1,121,610 lbs.
- No field welding is permitted except as specified in the contract documents.
- Reinforcement bars designated (E) shall be epoxy coated.
- Prior to pouring the new concrete deck, all heavy or loose rust, loose mill scale, and other loose detrimental foreign material shall be removed from the surfaces in contact with concrete (SSPC-SP3 standards). Tightly adhered paint may remain unless otherwise noted. Removal shall be accomplished by methods that will not damage the steel and the cost will be paid for according to "Article 109.04 of the Standard Specifications.
- As directed by the Engineer, existing construction accessories welded to the top flange of beams and girders shall be removed. The weld areas shall be ground flush and inspected for cracks using magnetic particle testing (MT) or dye penetrant testing (PT) by qualified personnel approved by the Engineer. Any cracks that cannot be removed by grinding 1/4 in. deep shall be identified and reported to the Bureau of Bridges & Structures for further disposition. The cost of removing welded accessories, grinding, and inspecting weld areas and grinding cracks will be paid for according to Article 109.04 of the Standard Specifications.
- If the Contractor elects to use cantilever forming brackets on the exterior beams or girders, the brackets shall be placed at the same locations as required for the hardwood blocks in Article 503.06(b) of the Standard Specifications. If additional cantilever forming brackets are required, hardwood blocking shall be wedged between the exterior and first interior girder at each of these additional bracket locations.
- Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of 1/8 in. (0.01 ft.). Adjustment shall be made either by grinding the surface or by shimmed the bearings.
- Plan dimensions and details relative to the existing structure have been taken from existing plans and are subject to nominal construction variations. The Contractor shall field verify existing dimensions and details affecting new construction and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.
- The existing structural steel coating contains lead. The Contractor shall take appropriate precautions to address the presence of lead on this project.
- Cleaning and painting of the existing and new structural steel shall be as specified in the special provision for "Cleaning and Painting Existing Steel Structures". All steel shall be cleaned per Near White Blast Cleaning - SSPC-SP10. All steel shall be painted according to the requirements of Paint System 1 - OZ/E/U. The color of the final finish coat for all interior steel surfaces shall be Gray, Munsell No. 5B 7/1. The color of the final finish coat for the exterior and bottom flange of the fascia beams shall be Interstate Green, Munsell No. 7.5G 4/8.
- All proposed structural steel (excluding beams) and steel components of bearings located underneath expansion joints shall be hot-dipped galvanized per the special provisions.
- SSPC QP1 (and QP2) Contractor Certification is Required for this Contract.
- A film forming Concrete Sealer shall be applied to horizontal surfaces and a penetrating Concrete Sealer on the vertical surfaces for new concrete under the expansion joints.
- No torch cutting of existing reinforcement is allowed.
- Following deck & diaphragm/cross-frame removal, the Stage I beams/girders shall be raised by three inches (3") in order to avoid excessive fillet heights. See special provision for jacking Existing Superstructure.
- A structural assessment report shall be submitted for removal and replacement of diaphragms or cross frames, jacking of beams and girders, and removal of rivets or bolts in the existing built-up girders for steel repairs. See Special Provisions for Structural Assessment Reports.

- Current Ratings on File for Existing Structure  
SN 084-0018:  
Inventory: HS16  
Operating: HS20.8  
Live Load Restrictions: No  
SN 084-0019:  
Inventory: HS16  
Operating: HS20.8  
Live Load Restrictions: No

Inventory and Operating Ratings and Live Load Restrictions are provided for information only. Inventory and Operating Ratings are based on HS loading and configuration. Live Load restrictions are based on Illinois legal loads and configurations. The Ratings and Live Load Restrictions are not necessarily representative of capacities to support the Contractor's equipment.

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**WATERWAY INFORMATION**

Drainage Area = 2,731 sq. mi. Low Grade Elev. 540.00 @ Sta. 790+53.37

Flood	Freq. Yr.	Q C.F.S.	Opening Ft <sup>2</sup>		Nat. H.W.E.		Head - Ft.		Headwater El.	
			Exist.	Prop.	Exist.	Prop.	Exist.	Prop.	Exist.	Prop.
Design	50	42,800	14,716	14,716	530.2	0.2	0.2	530.4	530.4	530.4
Base	100	46,850	16,285	16,285	531.7	0.2	0.2	531.9	531.9	531.9
Scour Check	200	53,040	17,491	17,491	533.2	0.2	0.2	533.4	533.4	533.4
Max. Calc.	500	60,450	18,753	18,753	535.2	0.3	0.3	535.5	535.5	535.5

Existing and proposed 10 year average velocity = 2.6 ft/s

**DESIGN SCOUR ELEVATION TABLE**

Event / Limit	Design Scour Elevations (ft.)												Item
	S. Abut.	Pier 10	Pier 9	Pier 8	Pier 7	Pier 6	Pier 5	Pier 4	Pier 3	Pier 2	Pier 1	N. Abut.	
Q100	531.94	513.04	513.04	513.04	495.92	495.92	495.92	495.92	513.27	513.27	513.27	531.94	113
Design	531.94	508.05	508.05	508.27	495.92	495.92	495.92	495.92	508.27	508.15	508.05	531.94	5

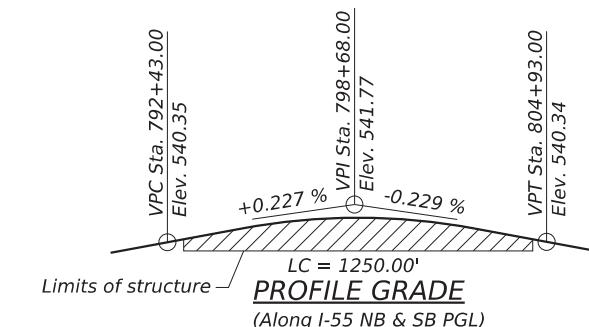
STA. 798+68.28  
RE-BUILT 20\_\_ BY  
STATE OF ILLINOIS  
F.A.I. RT. 55  
SEC. (84-2BR-1)D,BY,BP,BRR  
LOADING HS20-44  
STR. NO. 084-0018

STA. 798+68.28  
RE-BUILT 20\_\_ BY  
STATE OF ILLINOIS  
F.A.I. RT. 55  
SEC. (84-2BR-1)D,BY,BP,BRR  
LOADING HS20-44  
STR. NO. 084-0019

**NAME PLATE**  
See Std. 515001

**NAME PLATE**  
See Std. 515001

Existing Name Plate shall be cleaned and relocated next to the new Name Plate. Cost included with Name Plates.



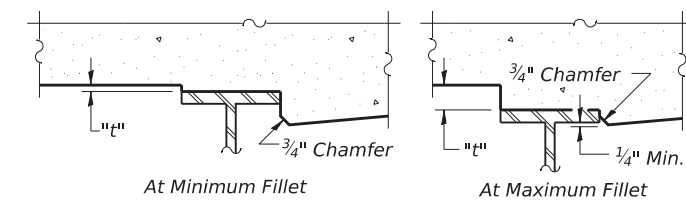
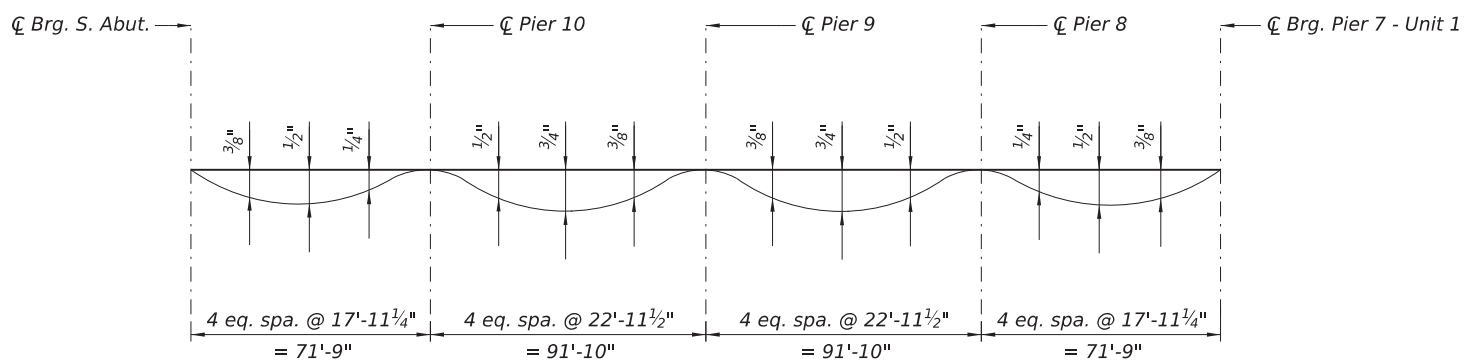
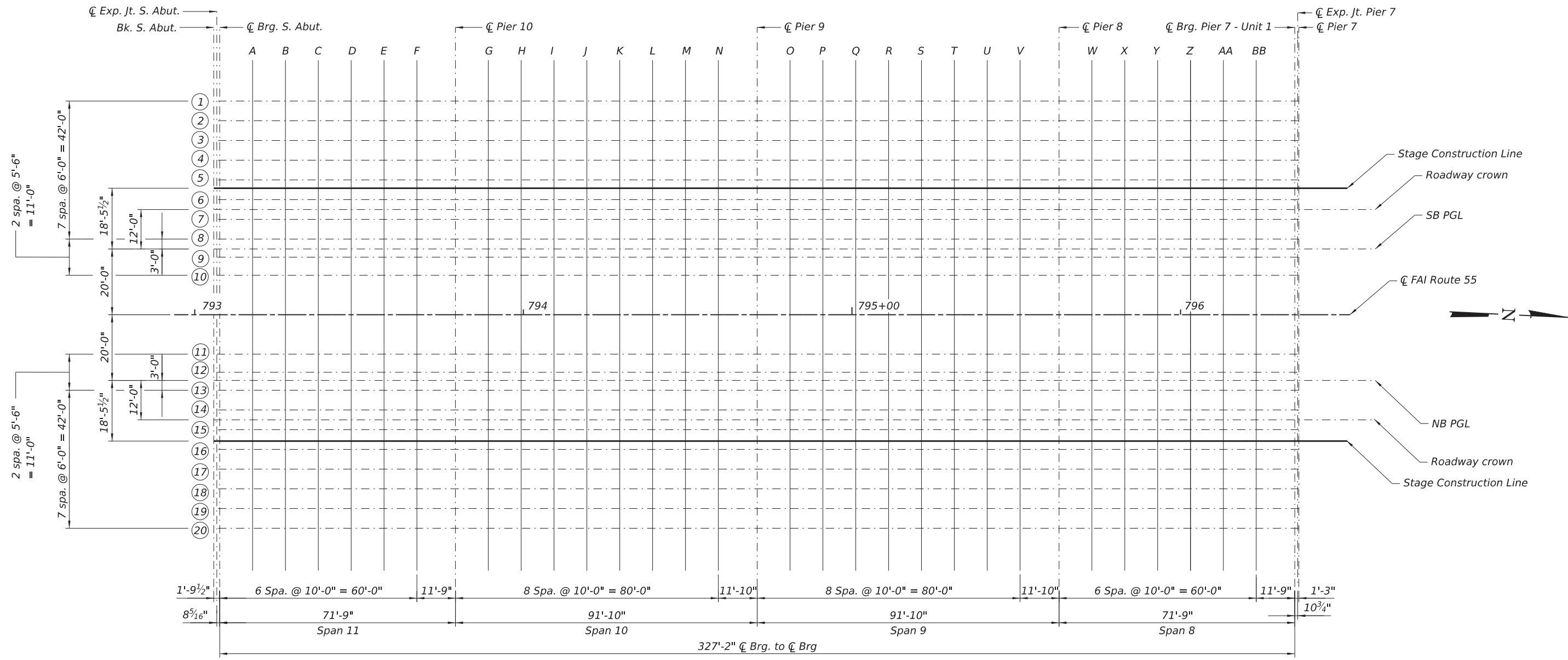
(Up to 1/4 in. to be ground off the bridge deck and the bridge approach slabs. The Profile Grade shows the final grade after grinding.)

REVISED SHEET 5-22-2024

	USER NAME = dherrera	DESIGNED - DH	REVISED -	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	GENERAL DATA		F.A.I. RTE. 55 SECTION (84-2BR-1)D,BY,BP,BRR COUNTY SANGAMON TOTAL SHEETS 139 SHEET NO. 44
	PLOT SCALE = N/A	CHECKED - DH	REVISED -		SCALE:	SHEET 2 OF 67 SHEETS	
License No. 184-00613	PLOT DATE = 5/13/2024	DATE - MARCH 2024	REVISED -				CONTRACT NO. 72K98

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After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown on this sheet. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown on sheets 7 thru 10 of 67, minus slab thickness, equals the fillet heights "t" above top flange of beams.

1 REVISED SHEET 5-22-2024



USER NAME = bholland	DESIGNED - MAC	REVISED -
PLOT SCALE = N/A	DRAWN - VT	REVISED -
PLOT DATE = 5/3/2024	CHECKED - DH	REVISED -
	DATE - MARCH 2024	REVISED -

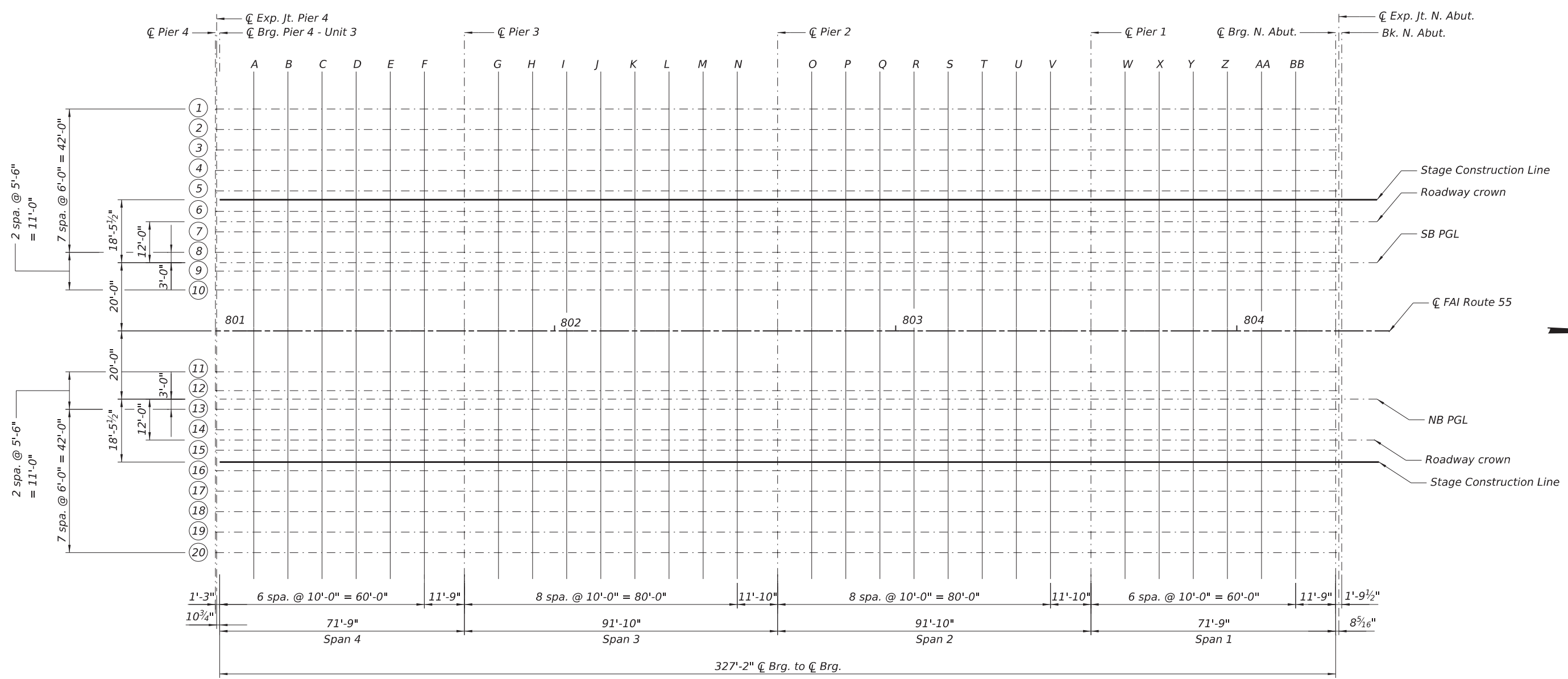
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**DECK ELEVATIONS - I  
STRUCTURE NO. 084-0018 (NB) & 084-0019 (SB)**

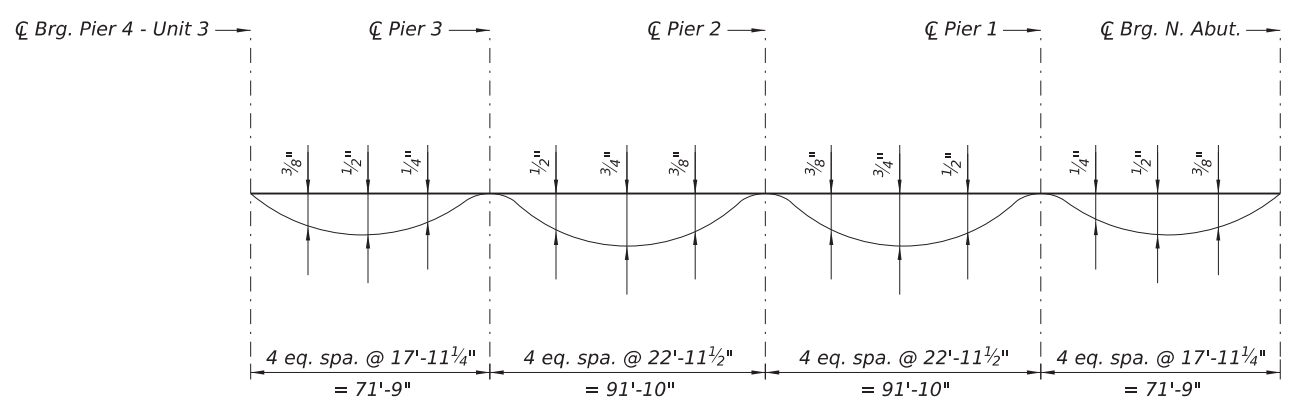
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CONTRACT NO. 72K98			ILLINOIS FED. AID PROJECT	

SCALE: SHEET 6 OF 67 SHEETS STA. TO STA.

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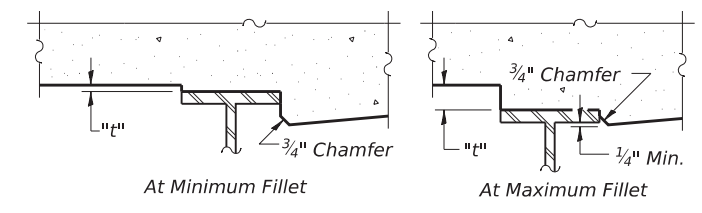
**DECK ELEVATION LAYOUT - UNIT 3**



**DEAD LOAD DEFLECTION DIAGRAM**

(For new beams only.)  
(Includes weight of concrete only.)

Note:  
The above deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown on sheets 17 through 20 of 67.



**FILLET HEIGHTS**

After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown on this sheet. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown on sheets 17 thru 20 of 67, minus slab thickness, equals the fillet heights "t" above top flange of beams.

1 REVISED SHEET 5-22-2024



USER NAME = bholland	DESIGNED - MAC	REVISED -
PLOT SCALE = N/A	DRAWN - VT	REVISED -
PLOT DATE = 5/3/2024	CHECKED - DH	REVISED -
	DATE - MARCH 2024	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

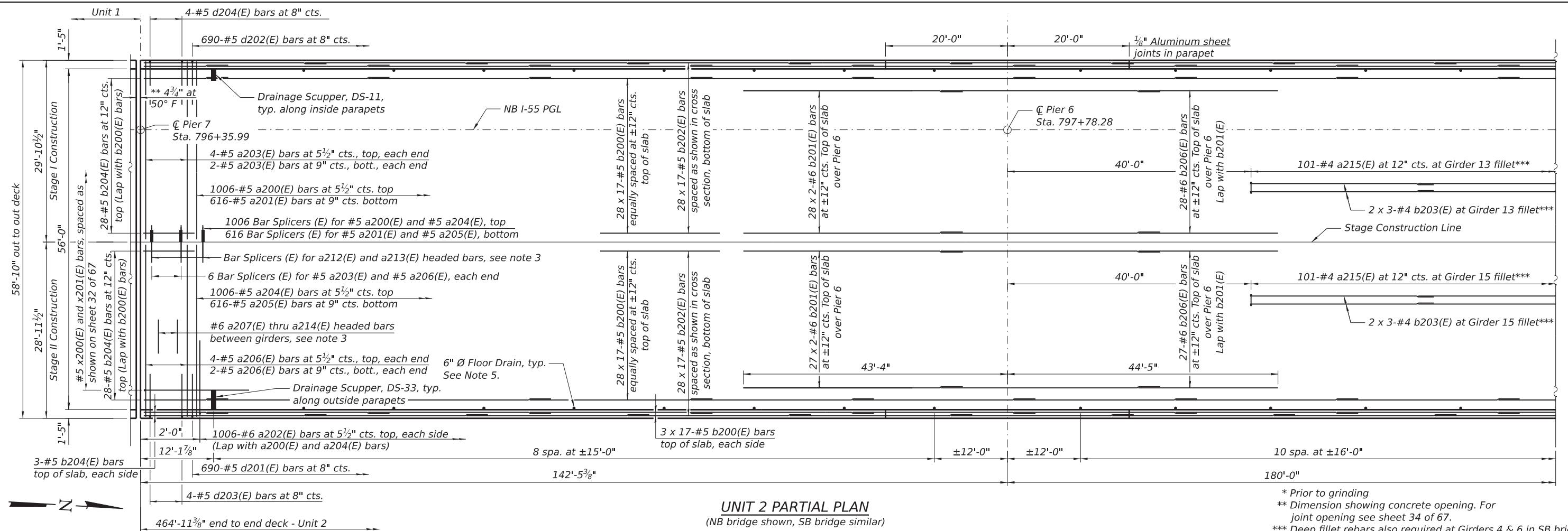
**DECK ELEVATIONS - XI  
STRUCTURE NO. 084-0018 (NB) & 084-0019 (SB)**

SCALE: SHEET 16 OF 67 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	(84-2BR-1)D,BY,BP,BRR	SANGAMON	139	58
CONTRACT NO.			72K98	
ILLINOIS FED. AID PROJECT				



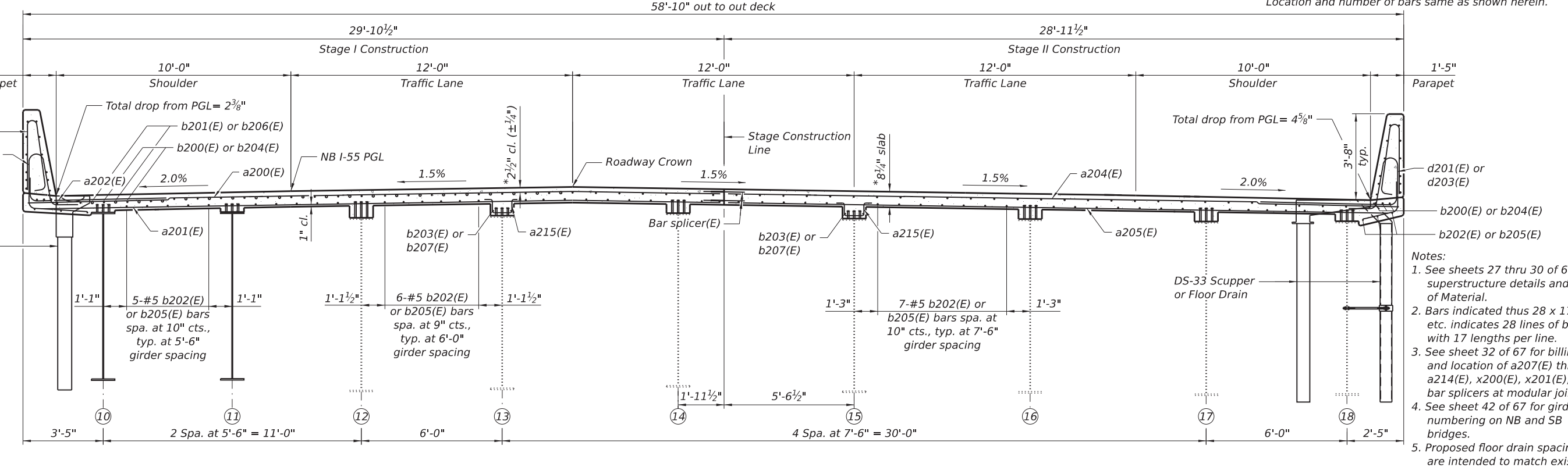




\* Prior to grinding  
 \*\* Dimension showing concrete opening. For joint opening see sheet 34 of 67.  
 \*\*\* Deep fillet rebars also required at Girders 4 & 6 in SB bridge. Location and number of bars same as shown herein.

**MINIMUM BAR LAP**

- #4 bar = 2'-7"
- #5 bar = 3'-6"
- #6 bar = 3'-7"



REVISD SHEET 5-22-2024

NEAR PIER

**UNIT 2 CROSS SECTION**  
(Looking North)  
(NB bridge shown, SB bridge similar)

NEAR MIDSPAN



USER NAME = bholland	DESIGNED - BLH	REVISED -
PLOT SCALE = N/A	DRAWN - BLH	REVISED -
PLOT DATE = 5/3/2024	CHECKED - DH	REVISED -
	DATE - MARCH 2024	REVISED -

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**SUPERSTRUCTURE - III**  
**STRUCTURE NO. 084-0018 (NB) & 084-0019 (SB)**

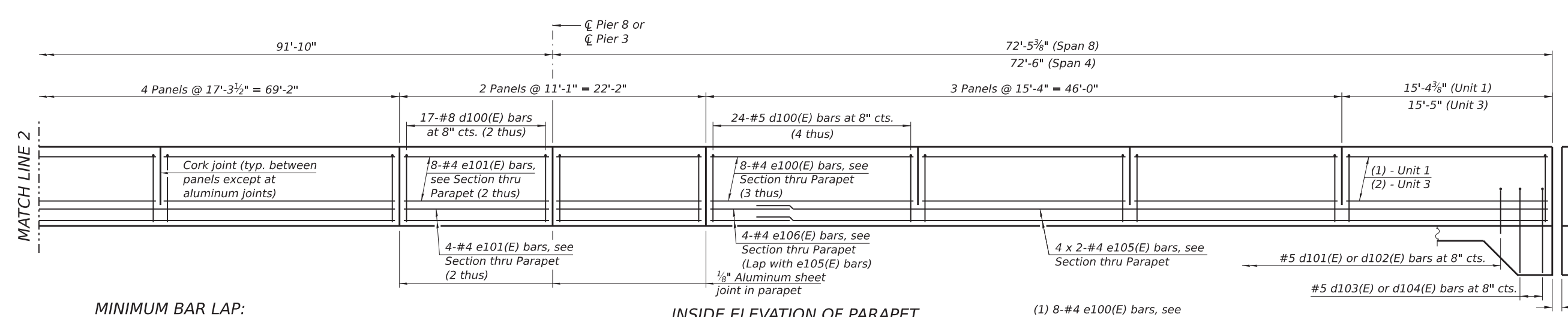
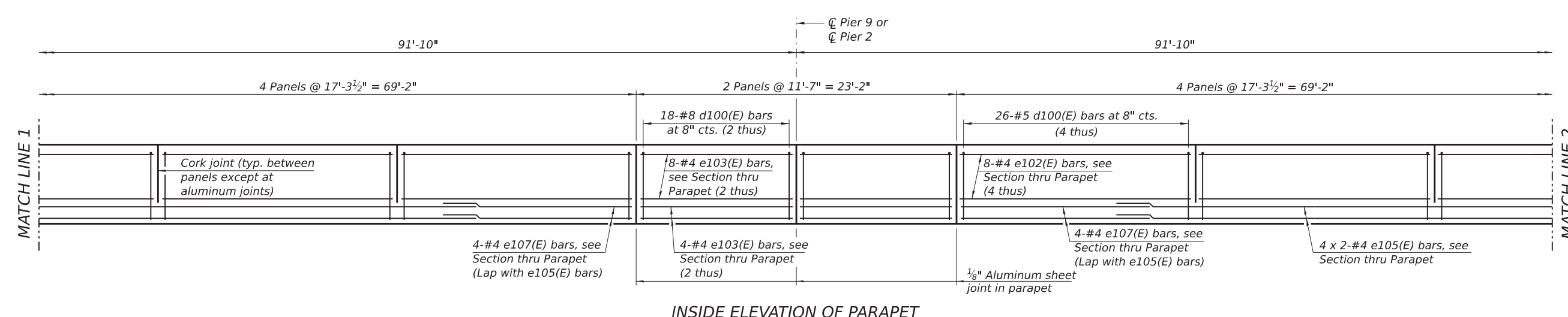
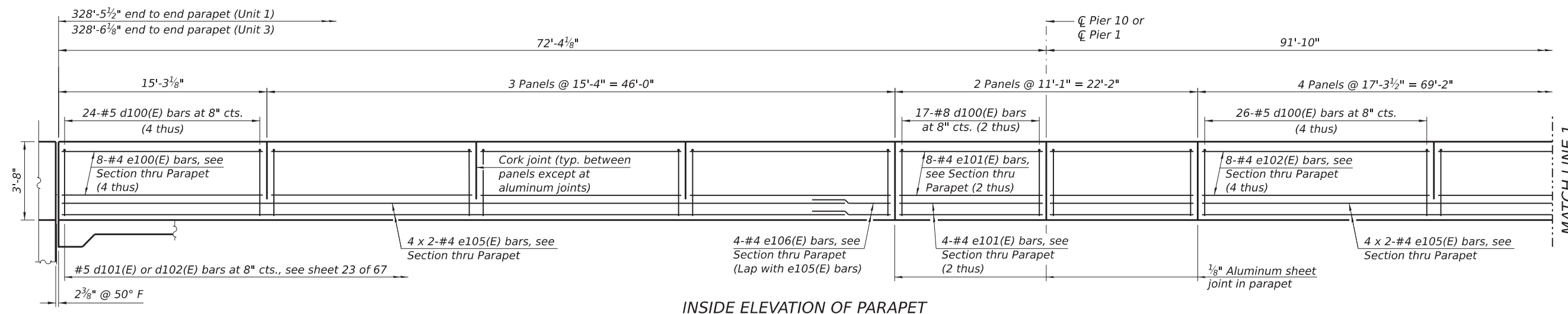
SCALE: SHEET 25 OF 67 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	(84-2BR-1)D,BY,BP,BRR	SANGAMON	139	67
CONTRACT NO.			72K98	
ILLINOIS FED. AID PROJECT				

FILE NAME: p:\cmt\engr\proj\benitey.com\cmt\connect\projects\Documents\084-0018 & 084-0019\2024\05-03\084-0018-III-Superstructure - III







**MINIMUM BAR LAP:**  
#4 bar = 2'-5"

- (1) 8-#4 e100(E) bars, see Section thru Parapet
- (2) 8-#4 e104(E) bars, see Section thru Parapet

- Notes:
1. See sheet 29 of 67 for section thru parapet.
  2. Bars indicated thus 4 x 2-#4 etc. indicates 4 lines of bars with 2 lengths per line.
  3. See sheets 32 thru 34 of 67 for modular joint details.

1 REVISED SHEET 5-22-2024



USER NAME = bholland	DESIGNED - BLH	REVISED -
PLOT SCALE = N/A	DRAWN - BLH	REVISED -
PLOT DATE = 5/2/2024	CHECKED - DH	REVISED -
	DATE - MARCH 2024	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

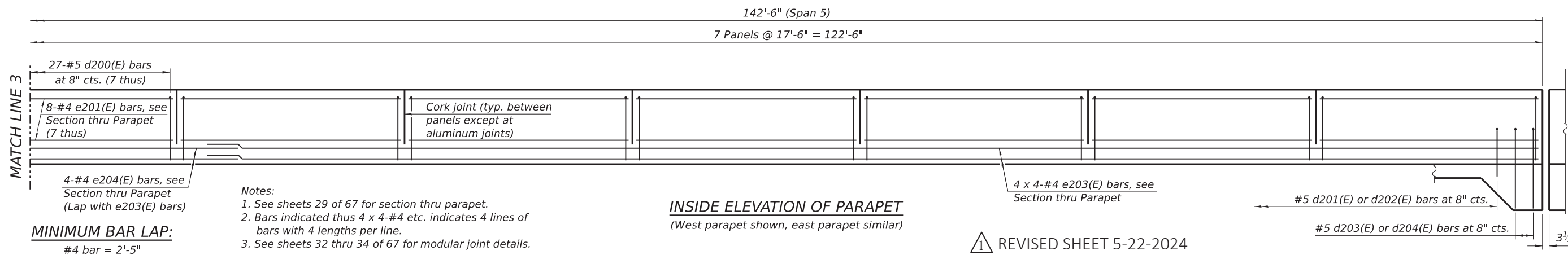
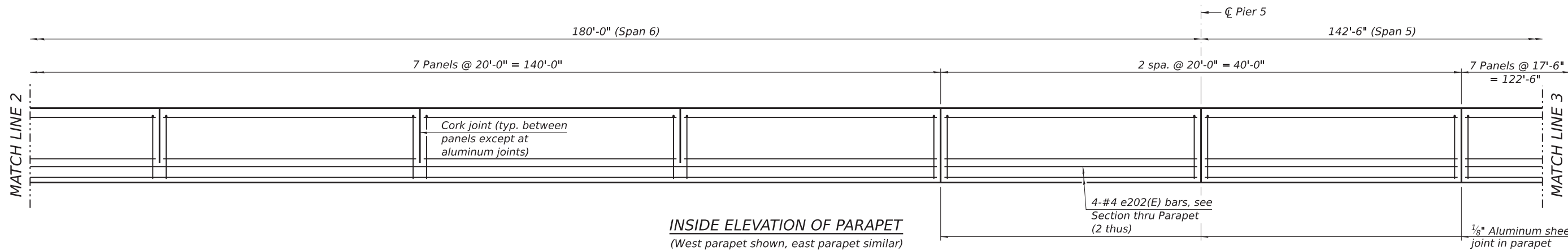
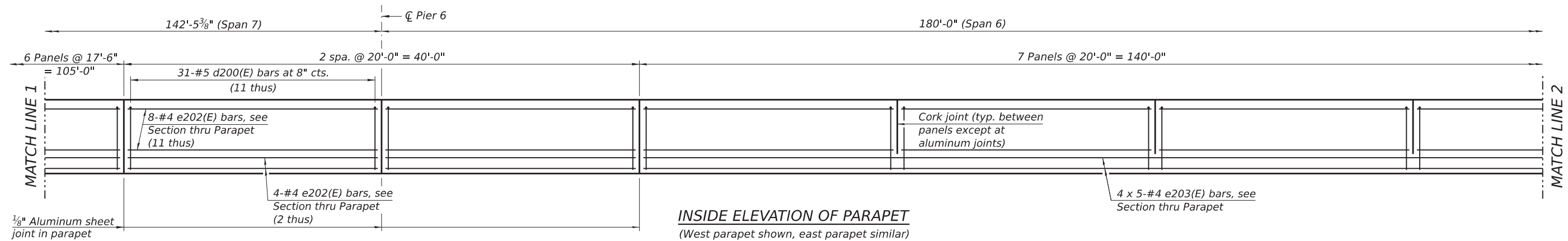
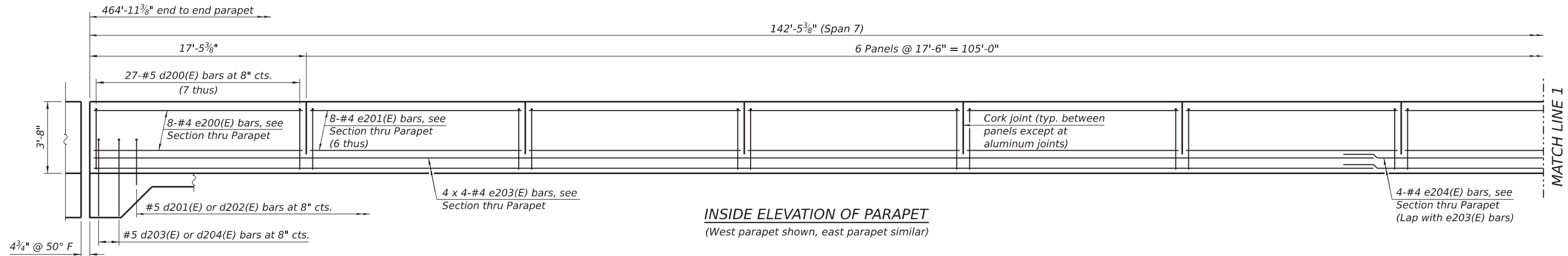
SUPERSTRUCTURE DETAILS - I  
STRUCTURE NO. 084-0018 (NB) & 084-0019 (SB)

SCALE: SHEET 27 OF 67 SHEETS STA. TO STA.

F.A.I. RTE. 55	SECTION (84-2BR-1)D,BY,BP,BRR	COUNTY SANGAMON	TOTAL SHEETS 139	SHEET NO. 69
CONTRACT NO. 72K98			ILLINOIS FED. AID PROJECT	

FILE NAME: p:\cmt\eng\proj\ben\itv\connect\connect-projects\documents\007121004103-20041030008\bridge\superstructure\blh\rev\Bridges\CADD\_Sheets\0840018 & 0840019-72K98-07-Superstructure Details-1

FILE NAME: p:\cmt\engr\proj\ben\files\cmt\cnc\connect\projects\Documents\DOT\1004103-200\4103000\Bridges\Sangamon\_Bldg\_Bridges\CADD\_Sheets\0840018 & 0840019-2\084-028-Superstructure Details - II



**MINIMUM BAR LAP:**  
#4 bar = 2'-5"

- Notes:**
1. See sheets 29 of 67 for section thru parapet.
  2. Bars indicated thus 4 x 4-#4 etc. indicates 4 lines of bars with 4 lengths per line.
  3. See sheets 32 thru 34 of 67 for modular joint details.

▲ REVISED SHEET 5-22-2024



USER NAME = bholland	DESIGNED - BLH	REVISED -
PLOT SCALE = N/A	DRAWN - BLH	REVISED -
PLOT DATE = 5/3/2024	CHECKED - DH	REVISED -
	DATE - MARCH 2024	REVISED -

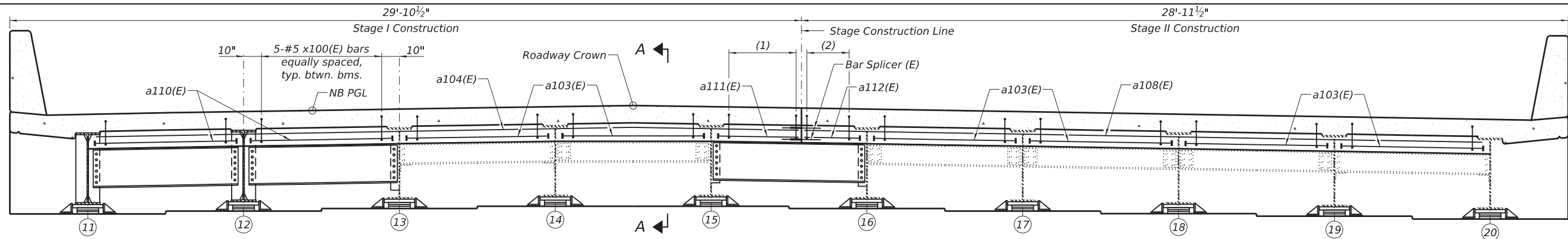
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**SUPERSTRUCTURE DETAILS - II**  
**STRUCTURE NO. 084-0018 (NB) & 084-0019 (SB)**

SCALE: SHEET 28 OF 67 SHEETS STA. TO STA.

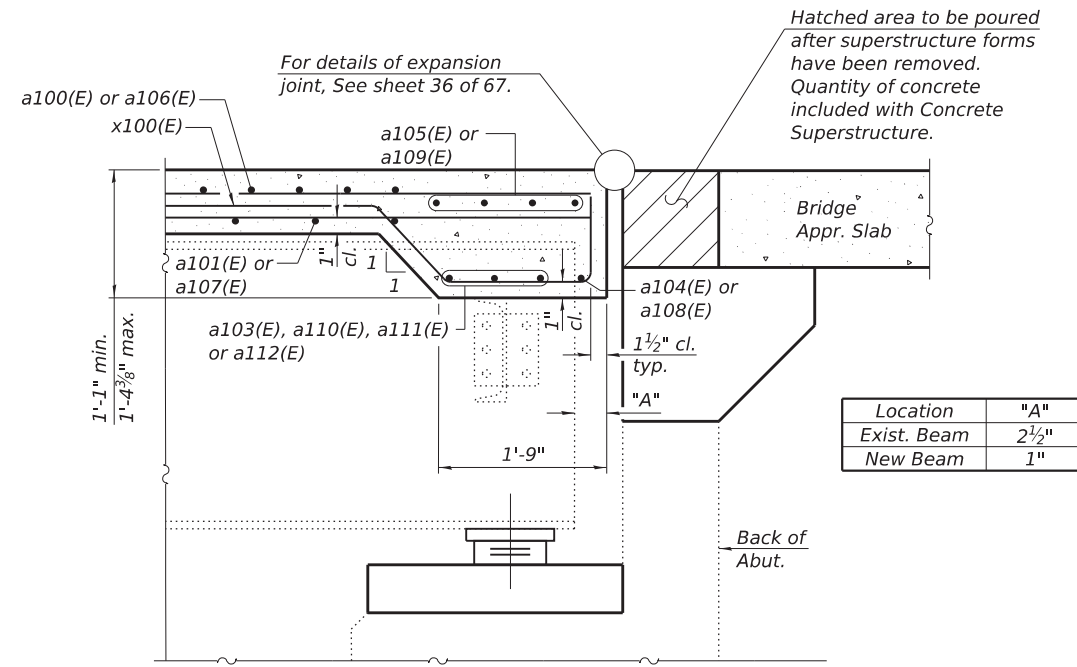
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	(84-2BR-1)D,BY,BP,BRR	SANGAMON	139	70
CONTRACT NO.			72K98	
ILLINOIS		FED. AID PROJECT		





**DIAPHRAGM AT ABUTMENT**

(Looking North. NB north abutment shown, NB south abutment and SB abutments similar)



**SECTION A-A**

(Full diaphragm not shown for clarity)

- (1) 3-#5 x100(E) bars equally spaced
- (2) 2-#5 x100(E) bars equally spaced

Location	"A"
Exist. Beam	2 1/2"
New Beam	1"

**NB & SB UNIT 1 SUPERSTRUCTURE    NB & SB UNIT 2 SUPERSTRUCTURE    NB & SB UNIT 3 SUPERSTRUCTURE**

**BILL OF MATERIAL**

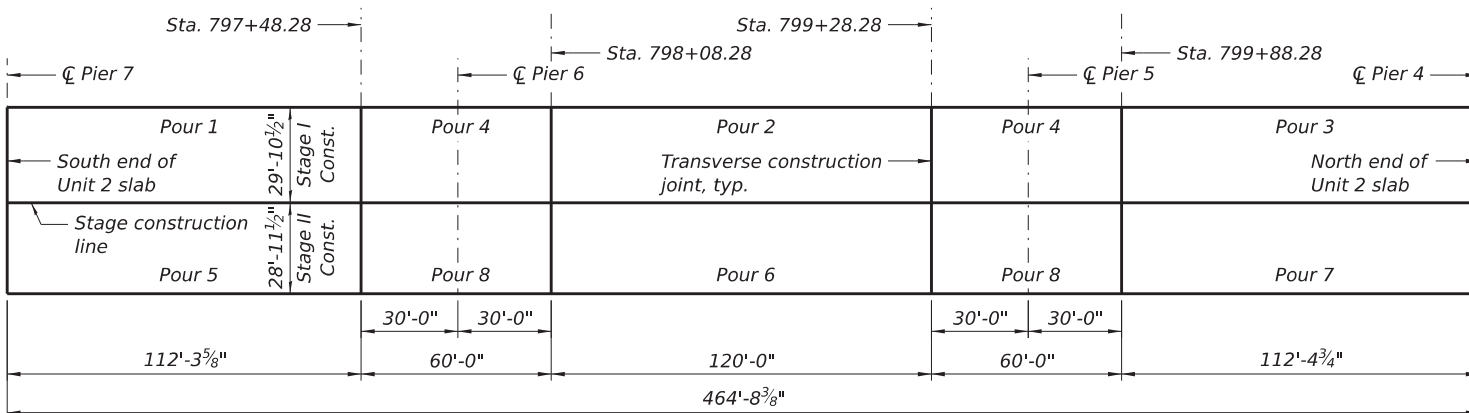
Bar	No.	Size	Length	Shape
a100(E)	1112	#5	29'-7"	—
a101(E)	778	#5	29'-7"	—
a102(E)	2224	#6	8'-4"	└
a103(E)	300	#6	5'-9"	└
a104(E)	2	#5	29'-7"	—
a105(E)	20	#5	29'-7"	—
a106(E)	1112	#5	28'-8"	—
a107(E)	778	#5	28'-8"	—
a108(E)	2	#5	28'-8"	—
a109(E)	20	#5	28'-8"	—
a110(E)	100	#6	5'-3"	└
a111(E)	50	#6	3'-3"	└
a112(E)	50	#6	2'-4"	└
a113(E)	44	#6	3'-1"	└
a114(E)	44	#6	2'-1"	└
a115(E)	48	#5	1'-6"	└
a116(E)	48	#5	2'-0"	└
b100(E)	1488	#5	30'-0"	—
b101(E)	330	#6	36'-0"	—
b102(E)	1224	#5	30'-0"	—
b103(E)	220	#6	13'-3"	—
b104(E)	124	#5	8'-4"	—
b105(E)	102	#5	8'-4"	—
b106(E)	110	#6	19'-1"	—
d100(E)	2016	#5	7'-0"	└
d101(E)	978	#5	7'-11"	└
d102(E)	978	#5	8'-11"	└
d103(E)	8	#5	9'-10"	└
d104(E)	8	#5	10'-10"	└
e100(E)	256	#4	15'-0"	—
e101(E)	192	#4	10'-9"	—
e102(E)	256	#4	17'-0"	—
e103(E)	192	#4	11'-3"	—
e105(E)	128	#4	30'-0"	—
e106(E)	32	#4	5'-9"	—
e107(E)	32	#4	13'-8"	—
x100(E)	90	#5	5'-10"	└
x101(E)	104	#5	4'-7"	└
x102(E)	104	#5	6'-1"	└
Floor Drains	Each		68	
Concrete Superstructure	Cu. Yd.		1,289.7	
Protective Coat	Sq. Yd.		4,735	
Reinforcement Bars, Epoxy Coated	Pound		305,560	
Bar Splicers	Each		2,188	
Bridge Deck Grooving (Longitudinal)	Sq. Yd.		2,628	
Bar Terminator	Each		1,076	
Diamond Grinding (Bridge Section)	Sq. Yd.		3,795	

**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
a200(E)	2012	#5	29'-7"	—
a201(E)	1232	#5	29'-7"	—
a202(E)	4024	#6	8'-4"	└
a203(E)	24	#5	29'-7"	—
a204(E)	2012	#5	28'-8"	—
a205(E)	1232	#5	28'-8"	—
a206(E)	24	#5	28'-8"	—
a207(E)	8	#6	3'-1"	└
a208(E)	80	#6	14'-1"	└
a209(E)	16	#6	5'-3"	└
a210(E)	176	#6	5'-9"	└
a211(E)	264	#6	7'-2"	└
a212(E)	88	#6	1'-9"	└
a213(E)	88	#6	5'-4"	└
a214(E)	88	#6	2'-1"	└
a215(E)	404	#4	3'-2"	└
a216(E)	32	#5	1'-6"	└
a217(E)	32	#5	2'-0"	└
b200(E)	2108	#5	30'-0"	—
b201(E)	440	#6	36'-0"	—
b202(E)	1904	#5	30'-0"	—
b203(E)	24	#4	30'-0"	—
b204(E)	124	#5	10'-2"	—
b205(E)	112	#5	10'-2"	—
b206(E)	220	#6	22'-11"	—
b207(E)	8	#4	17'-9"	—
d200(E)	2876	#5	7'-0"	└
d201(E)	1380	#5	7'-11"	└
d202(E)	1380	#5	8'-11"	└
d203(E)	16	#5	9'-10"	└
d204(E)	16	#5	10'-10"	└
e200(E)	32	#4	17'-0"	—
e201(E)	416	#4	17'-2"	—
e202(E)	416	#4	19'-8"	—
e203(E)	208	#4	30'-0"	—
e204(E)	32	#4	11'-8"	—
x200(E)	228	#5	6'-1"	└
x201(E)	228	#5	4'-7"	└
x202(E)	228	#5	5'-10"	└
Floor Drains	Each		108	
Concrete Superstructure	Cu. Yd.		1,842.0	
Protective Coat	Sq. Yd.		6,701	
Reinforcement Bars, Epoxy Coated	Pound		481,700	
Bar Splicers	Each		3,804	
Bridge Deck Grooving (Longitudinal)	Sq. Yd.		3,718	
Bar Terminator	Each		1,440	
Diamond Grinding (Bridge Section)	Sq. Yd.		5,370	

**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
a100(E)	1112	#5	29'-7"	—
a101(E)	778	#5	29'-7"	—
a102(E)	2224	#6	8'-4"	└
a103(E)	300	#6	5'-9"	└
a104(E)	2	#5	29'-7"	—
a105(E)	20	#5	29'-7"	—
a106(E)	1112	#5	28'-8"	—
a107(E)	778	#5	28'-8"	—
a108(E)	2	#5	28'-8"	—
a109(E)	20	#5	28'-8"	—
a110(E)	100	#6	5'-3"	└
a111(E)	50	#6	3'-3"	└
a112(E)	50	#6	2'-4"	└
a113(E)	44	#6	3'-1"	└
a114(E)	44	#6	2'-1"	└
a115(E)	48	#5	1'-6"	└
a116(E)	48	#5	2'-0"	└
b100(E)	1488	#5	30'-0"	—
b101(E)	330	#6	36'-0"	—
b102(E)	1224	#5	30'-0"	—
b103(E)	220	#6	13'-3"	—
b104(E)	124	#5	8'-4"	—
b105(E)	102	#5	8'-4"	—
b106(E)	110	#6	19'-1"	—
d100(E)	2016	#5	7'-0"	└
d101(E)	978	#5	7'-11"	└
d102(E)	978	#5	8'-11"	└
d103(E)	8	#5	9'-10"	└
d104(E)	8	#5	10'-10"	└
e100(E)	224	#4	15'-0"	—
e101(E)	192	#4	10'-9"	—
e102(E)	256	#4	17'-0"	—
e103(E)	192	#4	11'-3"	—
e104(E)	32	#4	15'-1"	—
e105(E)	128	#4	30'-0"	—
e106(E)	32	#4	5'-9"	—
e107(E)	32	#4	13'-8"	—
x100(E)	90	#5	5'-10"	└
x101(E)	104	#5	4'-7"	└
x103(E)	104	#5	5'-10"	└
Floor Drains	Each		68	
Concrete Superstructure	Cu. Yd.		1,287.1	
Protective Coat	Sq. Yd.		4,737	
Reinforcement Bars, Epoxy Coated	Pound		305,530	
Bar Splicers	Each		2,188	
Bridge Deck Grooving (Longitudinal)	Sq. Yd.		2,628	
Bar Terminator	Each		1,076	
Diamond Grinding (Bridge Section)	Sq. Yd.		3,796	



**DECK POURING SEQUENCE - UNIT 2**

- Note:
- When the deck pour is stopped for the day at one or more of the transverse bonded construction joints in the deck pouring sequence as shown, the next pour shall not be made until both of the following are met:
    - At least 72 hours shall have elapsed from the end of the previous pour.
    - The concrete strength shall have attained a minimum flexural strength of 675 psi or a minimum compressive strength of 4000 psi.

REVISED SHEET 5-22-2024



USER NAME = bholland	DESIGNED - BLH	REVISED -
PLOT SCALE = N/A	DRAWN - BLH	REVISED -
PLOT DATE = 5/2/2024	CHECKED - DH	REVISED -
	DATE - MARCH 2024	REVISED -

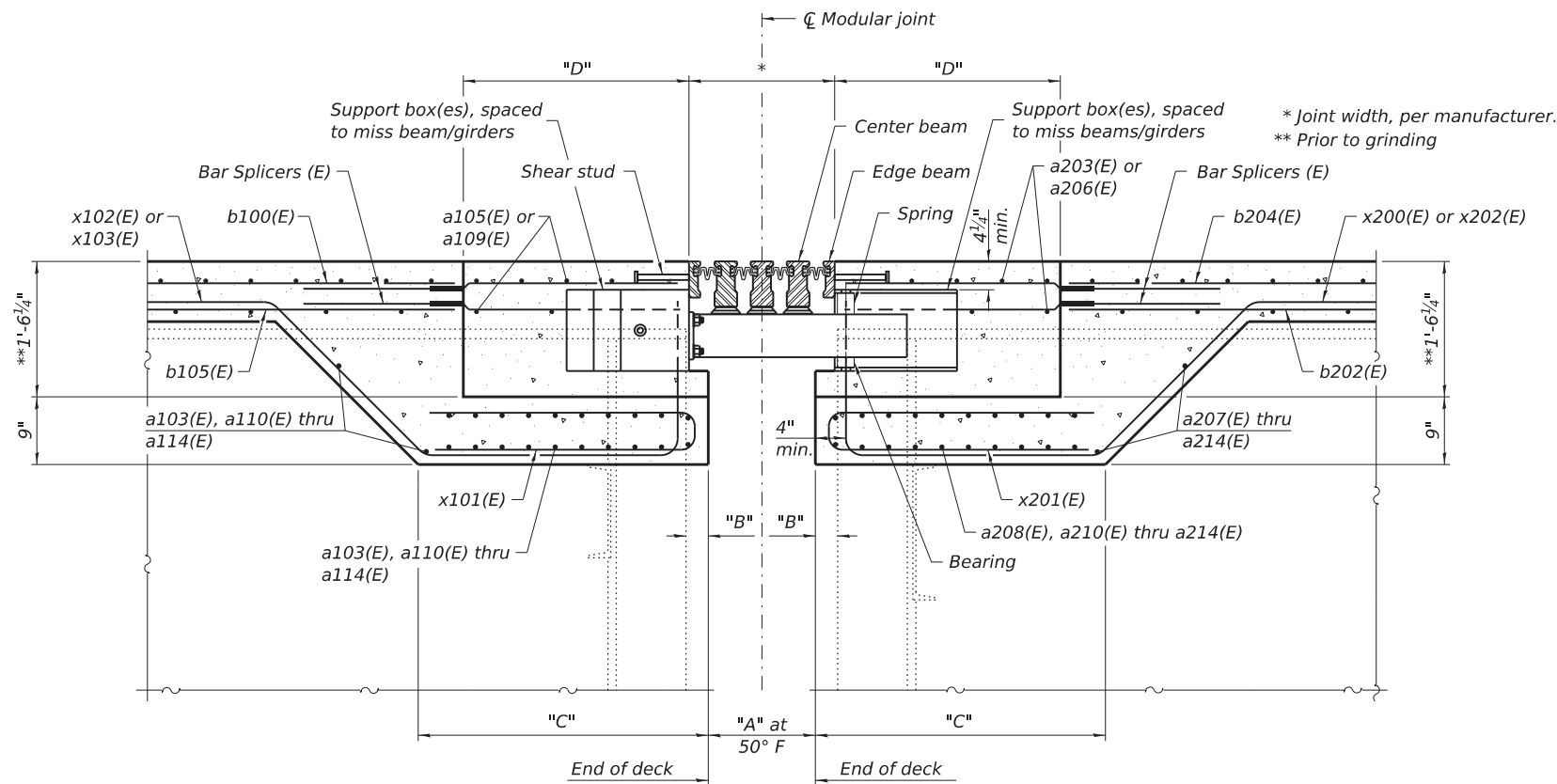
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE DETAILS - IV  
STRUCTURE NO. 084-0018 (NB) & 084-0019 (SB)

SCALE: SHEET 30 OF 67 SHEETS STA. TO STA.

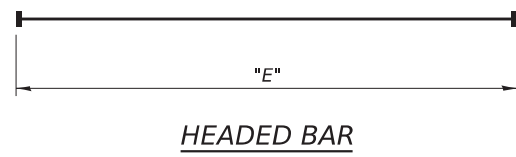
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	(84-2BR-1)D,BY,BP,BRR	SANGAMON	139	72
CONTRACT NO.			72K98	
ILLINOIS / FED. AID PROJECT				

FILE NAME: p:\cmteng\proj\benitoy\cmt\cmt-connect\projects\documents\DOT\084-0018\084-0019-2\084-0019-Superstructure Details - IV

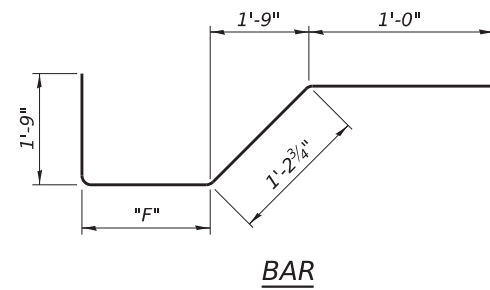


Location	"A"	"B" at new beams/girders	"B" at existing beams/girders	"C"	"D"
Pier 4	3½"	1¾"	3½"	27"	21"
Pier 7	4¾"	2¾"	2¾"	30"	24"

**SECTION C-C**  
(Pier 7 shown, Pier 4 similar)

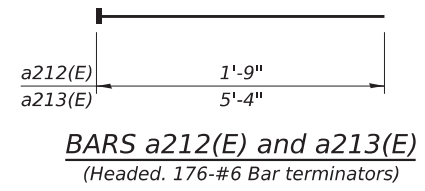


Bar	"E"	Bar size	Number of bar terminators
a113(E)	3'-1"	#6	176
a114(E)	2'-1"	#6	176
a207(E)	3'-1"	#6	16
a208(E)	14'-1"	#6	160
a209(E)	5'-3"	#6	32
a210(E)	5'-9"	#6	352
a211(E)	7'-3"	#6	528
a214(E)	2'-1"	#6	176

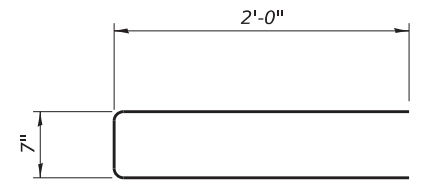


Bar	"F"
x102(E)	2'-1"
x103(E)	1'-10"
x200(E)	2'-1"
x202(E)	1'-10"

- Notes:
- Actual dimensions may vary depending on modular joint manufacturer's design.
  - Modular expansion joint assembly shall be installed after the concrete ledge below the blockout has been poured and reached required strength as specified on the General Plan and Elevation.
  - Modular expansion joints shall be adjusted for temperature prior to pouring the blockout area.
  - Modular expansion joints shall be assembled in their final relative position with ends in place for shop inspection and acceptance.
  - For modular joint cross frame and diaphragm details, see sheets 47 and 48 of 67.
  - Bars in the blockout may be adjusted in the field if necessary to miss joint support boxes, as approved by the Engineer.
  - See sheets 3 and 4 of 67 for staging details.
  - Cut x102(E), x103(E), x200(E), and x202(E) bars as required at support boxes.
  - See sheets 23 thru 26 of 67 for primary slab reinforcement size and spacing.
  - See sheet 35 of 67 for sliding plate details.
  - Bar terminators, paid for separately. See Total Bill of Material.



**BARS a212(E) and a213(E)**  
(Headed. 176-#6 Bar terminators)



**BARS x101(E) and x201(E)**

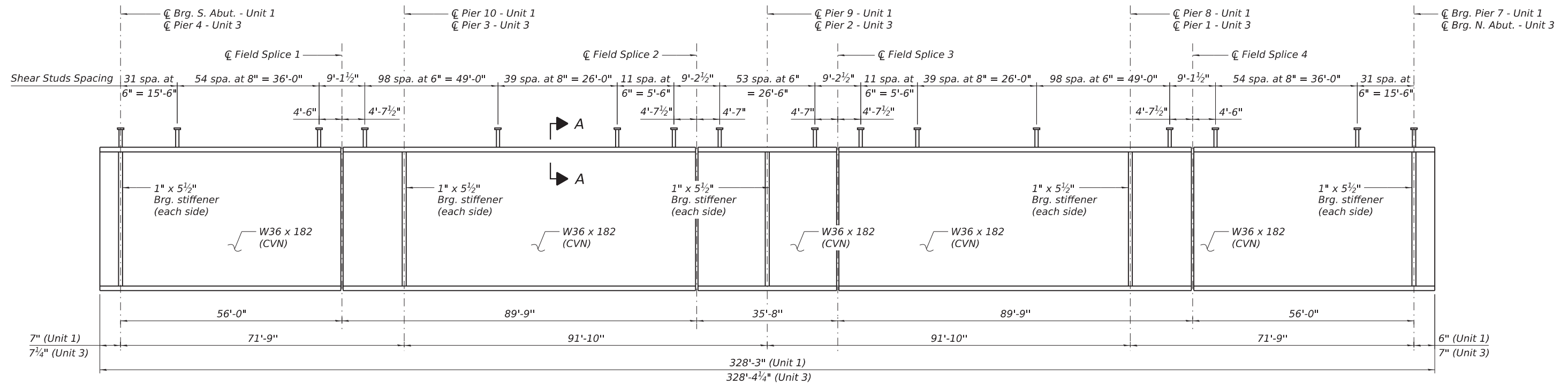
Location	Total Long. Movement (in.)	Total Lateral Movement (in.)	Joint Size (in.)
Pier 4	5¼"	0"	6"
Pier 7	7⅝"	0"	9"

**BILL OF MATERIAL**

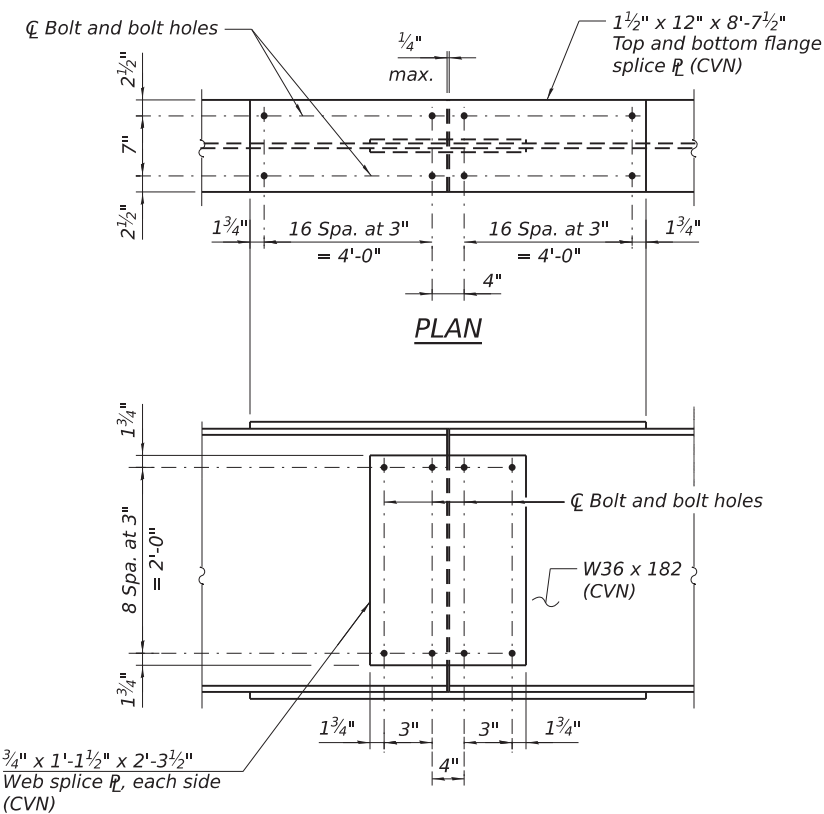
Item	Unit	Quantity
Modular Expansion Joint 6"	Foot	118
Modular Expansion Joint 9"	Foot	118

REVISED SHEET 5-22-2024

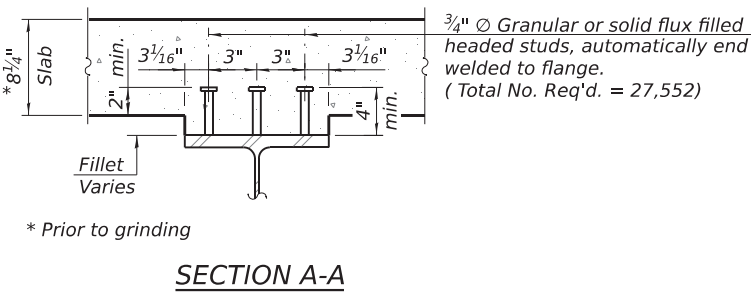
FILE NAME: p:\cmt\engr\proj\benitey.com\cmt\connect\projects\Documents\DOT\721004103-0010\Bridges\Sangamon\_Bldg\_Bridges\CADD\_Sheets\0840018 & 0840019-72K98-034-Modular Joint Details - III



**BEAMS 9 THRU 12 ELEVATION - UNITS 1 & 3**



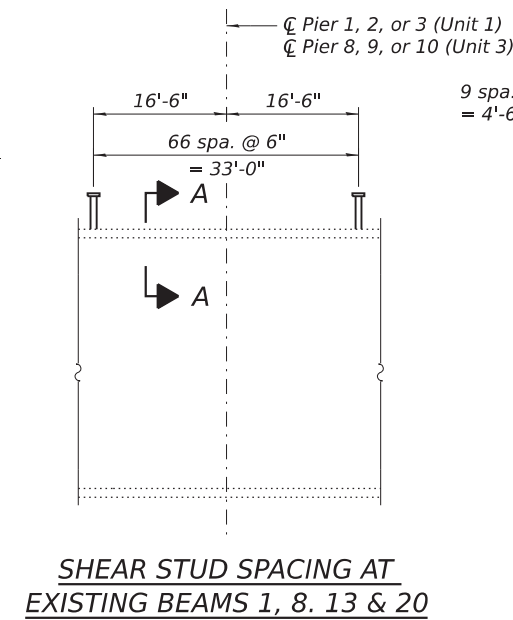
**ELEVATION  
SPLICE DETAIL**  
Field Splice 1 thru 4  
(32 Required)



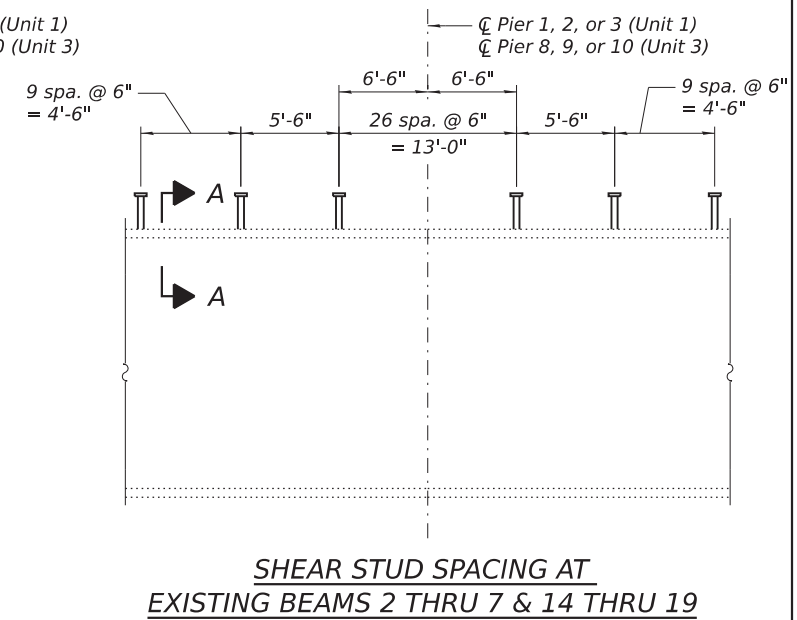
**SECTION A-A**

**TOP OF BEAM ELEVATIONS**  
(For fabrication only)

Unit 1	Beam		Unit 3	Beam	
	10	9		10	9
⊕ Brg. S. Abut.	539.61	539.72	⊕ Brg. Pier 4	540.08	540.19
⊕ Field Splice 1	539.61	539.72	⊕ Field Splice 1	539.91	540.02
⊕ Pier 10	539.64	539.75	⊕ Pier 3	539.90	540.01
⊕ Field Splice 2	539.78	539.89	⊕ Field Splice 2	539.82	539.93
⊕ Pier 9	539.80	539.91	⊕ Pier 2	539.79	539.90
⊕ Field Splice 3	539.83	539.94	⊕ Field Splice 3	539.77	539.88
⊕ Pier 8	539.91	540.02	⊕ Pier 1	539.63	539.74
⊕ Field Splice 4	539.92	540.03	⊕ Field Splice 4	539.60	539.71
⊕ Brg. Pier 7	540.08	540.19	⊕ Brg. N. Abut.	539.60	539.71



**SHEAR STUD SPACING AT  
EXISTING BEAMS 1, 8, 13 & 20**



**SHEAR STUD SPACING AT  
EXISTING BEAMS 2 THRU 7 & 14 THRU 19**

- Notes:
1. Load carrying components designated "CVN" shall conform to the Charpy-V-Notch Impact Energy Requirement, Zone 2.
  2. For Bearing Stiffener details, see sheet 47 of 67.
  3. Rolled beams, bearing stiffeners, and splice plates shall be AASHTO M270, Grade 50.

REVISIONS  
REVISED SHEET 5-22-2024



USER NAME = dherrera  
DESIGNED - MAC  
DRAWN - MAC  
PLOT SCALE = N/A  
PLOT DATE = 5/13/2024

DESIGNED - MAC  
DRAWN - MAC  
CHECKED - DH  
DATE - MARCH 2024

REVISED -  
REVISED -  
REVISED -  
REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

BEAM ELEVATION  
STRUCTURE NO. 084-0018 (NB) & 084-0019 (SB)

SCALE: SHEET 44 OF 67 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	(84-2BR-1)D,BY,BP,BRR	SANGAMON	139	86
CONTRACT NO.			72K98	
ILLINOIS FED. AID PROJECT				

FILE NAME: p:\cmt\engr\proj\beam\cmt\connect\projects\Documents\DOT\1004103-20041030008\Bridges\Sangamon\_River\_Bridges\CADD\_Sheets\0840018 & 0840019\72K98-044-Beam Elevation





FILE NAME: p:\c\cmengr\proj\benitey.com\cmt\connect\projects\Documents\DOT1004103-20041030008\Bridg\Sangamon\_Brivr\_Bridges\CADD\_Sheets\0840018 & 0840019\21084046-Structural Steel Details - I

Unit 1	0.4 Sp. 11 or 0.6 Sp. 8		Pier 8 or Pier 10		0.5 Sp. 9 & Sp. 10		Pier 9		
Unit 3	0.4 Sp. 4 or 0.6 Sp. 1		Pier 1 or Pier 3		0.5 Sp. 2 & Sp. 3		Pier 2		
	Beam 9 & 12	Beam 10 & 11	Beam 9 & 12	Beam 10 & 11	Beam 9 & 12	Beam 10 & 11	Beam 9 & 12	Beam 10 & 11	
Is	(in <sup>4</sup> )	11300	11300	11300	11300	11300	11300	11300	
Ic(n)	(in <sup>4</sup> )	28512	29413	13896	14185	28512	29413	13896	14185
Ic(3n)	(in <sup>4</sup> )	20569	21326	13896	14185	20569	21326	13896	14185
Ss	(in <sup>3</sup> )	623	623	623	623	623	623	623	623
Sc(n)	(in <sup>3</sup> )	911	919	694	702	911	919	694	702
Sc(3n)	(in <sup>3</sup> )	813	824	694	702	813	824	694	702
Z	(in <sup>3</sup> )	--	--	--	--	--	--	--	--
ϕ	(k')	0.78	0.85	0.78	0.85	0.78	0.85	0.78	0.85
M <sub>ϕ</sub>	(k')	270	293	511	556	281	305	546	593
s <sub>ϕ</sub>	(k')	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
M <sub>sϕ</sub>	(k')	115	115	222	222	118	118	237	237
M <sub>ϕ</sub>	(k')	413	413	384	384	435	435	420	420
MIM	(k')	105	105	93	93	100	100	97	97
<sup>5</sup> / <sub>3</sub> [M <sub>ϕ</sub> + i]	(k')	863	863	795	795	892	892	862	862
Ma	(k')	1623	1653	--	--	1678	1710	--	--
Mu	(k')	4039	3963	--	--	4292	4397	--	--
f s <sub>ϕ</sub> non-comp	(ksi)	5.20	5.65	9.85	10.70	5.41	5.88	10.51	11.42
f s <sub>ϕ</sub> (comp)	(ksi)	1.70	1.68	3.84	3.80	1.75	1.72	4.09	4.05
f s <sub>5</sub> [M <sub>ϕ</sub> + M <sub>i</sub> ]	(ksi)	11.38	11.27	13.74	13.60	11.75	11.64	14.89	14.74
f s (Overload)	(ksi)	18.28	18.60	27.43	28.10	18.91	19.24	29.49	30.21
f s (Total)	(ksi)	--	--	35.66	36.53	--	--	38.34	39.27
VR	(k)	43.29	43.29	46.02	46.02	37.95	37.95	44.72	44.72

Unit 1	S. Abut. or Pier 7		Pier 8 or Pier 10		Pier 9		
Unit 3	N. Abut. or Pier 4		Pier 1 or Pier 3		Pier 2		
	Beam 9 & 12	Beam 10 & 11	Beam 9 & 12	Beam 10 & 11	Beam 9 & 12	Beam 10 & 11	
R <sub>ϕ</sub>	(k)	29.92	31.76	99.46	105.50	101.88	108.07
R <sub>⊥</sub>	(k)	30.29	30.29	44.48	44.48	46.10	46.10
R <sub>i</sub>	(k)	7.70	7.70	10.76	10.76	10.63	10.63
R <sub>Total</sub>	(k)	67.91	69.75	154.70	160.74	158.61	164.80

\* Compact section  
 \*\* Braced non-compact and partially braced section

	0.4 Sp. 7 or 0.6 Sp. 5		Pier 5 or Pier 6		0.5 Sp. 6		
	Girder 8 & 11	Girder 9 & 10	Girder 8 & 11	Girder 9 & 10	Girder 8 & 11	Girder 9 & 10	
Is	(in <sup>4</sup> )	78360	78360	118602	118602	78360	78360
Ic(n)	(in <sup>4</sup> )	155566	160307	128299	129421	155566	160307
Ic(3n)	(in <sup>4</sup> )	116922	120378	128299	129421	116922	120378
Ss	(in <sup>3</sup> )	1822	1822	2726	2726	1822	1822
Sc(n)	(in <sup>3</sup> )	2401	2424	2823	2833	2401	2424
Sc(3n)	(in <sup>3</sup> )	2169	2193	2823	2833	2169	2193
Z	(in <sup>3</sup> )	--	--	--	--	--	--
ϕ	(k')	0.852	0.918	0.941	1.007	0.852	0.918
M <sub>ϕ</sub>	(k')	1079	1164	2421	2611	1016	1097
s <sub>ϕ</sub>	(k')	0.346	0.346	0.346	0.346	0.346	0.346
M <sub>sϕ</sub>	(k')	444	445	975	974	429	429
M <sub>⊥</sub>	(k')	920	920	1293	1293	954	954
MIM	(k')	172	172	226	226	156	156
<sup>5</sup> / <sub>3</sub> [M <sub>ϕ</sub> + i]	(k')	1820	1820	2532	2532	1850	1850
Ma	(k')	--	--	--	--	--	--
Mu	(k')	--	--	--	--	--	--
f s <sub>ϕ</sub> non-comp	(ksi)	7.11	7.66	10.66	11.49	6.69	7.22
f s <sub>ϕ</sub> (comp)	(ksi)	2.46	2.43	4.14	4.13	2.37	2.35
f s <sub>5</sub> [M <sub>ϕ</sub> + M <sub>i</sub> ]	(ksi)	9.10	9.01	10.76	10.72	9.25	9.16
f s (Overload)	(ksi)	18.66	19.11	25.56	26.34	18.31	18.73
f s (Total)	(ksi)	24.26	24.84	33.23	34.25	23.80	24.35
VR	(k)	46.80	46.80	57.27	57.27	44.32	44.32

	Pier 4 or Pier 7		Pier 5 or Pier 6		
	Girder 8 & 11	Girder 9 & 10	Girder 8 & 11	Girder 9 & 10	
R <sub>ϕ</sub>	(k)	61.32	64.77	219.94	231.99
R <sub>⊥</sub>	(k)	33.69	33.69	74.59	74.59
R <sub>i</sub>	(k)	6.31	6.31	13.05	13.05
R <sub>Total</sub>	(k)	101.32	104.77	307.58	319.63

Is, Ss: Non-composite moment of inertia and section modulus of the steel section used for computing f s (Total and Overload) due to non-composite dead loads (in.<sup>4</sup> and in.<sup>3</sup>).

Ic(n), Sc(n): Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing f s (Total and Overload) due to short-term composite live loads (in.<sup>4</sup> and in.<sup>3</sup>).

Ic(3n), Sc(3n): Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing f s (Total and Overload) due to long-term composite (superimposed) dead loads (in.<sup>4</sup> and in.<sup>3</sup>).

Z: Plastic Section Modulus of the steel section in non-composite areas (in.<sup>3</sup>).

ϕ: Un-factored non-composite dead load (kips/ft.).

M<sub>ϕ</sub>: Un-factored moment due to non-composite dead load (kip-ft.).

s<sub>ϕ</sub>: Un-factored long-term composite (superimposed) dead load (kips/ft.).

M<sub>sϕ</sub>: Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).

M<sub>⊥</sub>: Un-factored live load moment (kip-ft.).

MI: Un-factored moment due to impact (kip-ft.).

Ma: Factored design moment (kip-ft.).  
 1.3 [M<sub>ϕ</sub> + M<sub>sϕ</sub> + <sup>5</sup>/<sub>3</sub> (M<sub>⊥</sub> + MI)]

Mu: Compact composite moment capacity according to AASHTO LFD 10.50.1.1 or compact non-composite moment capacity according to AASHTO LFD 10.48.1 (kip-ft.).

f s (Overload): Sum of stresses as computed from the moments below (ksi).  
 M<sub>ϕ</sub> + M<sub>sϕ</sub> + <sup>5</sup>/<sub>3</sub> (M<sub>⊥</sub> + MI)

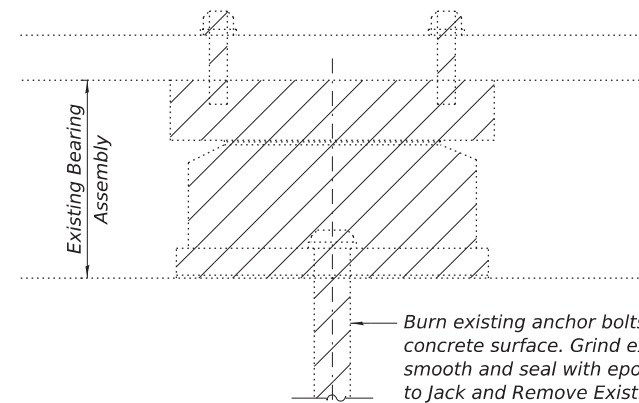
f s (Total): Sum of stresses as computed from the moments below on non-compact section (ksi).  
 1.3 [M<sub>ϕ</sub> + M<sub>sϕ</sub> + <sup>5</sup>/<sub>3</sub> (M<sub>⊥</sub> + MI)]

VR: Maximum<sub>⊥</sub> + impact shear range within the composite portion of the span for stud shear connector design (kips).

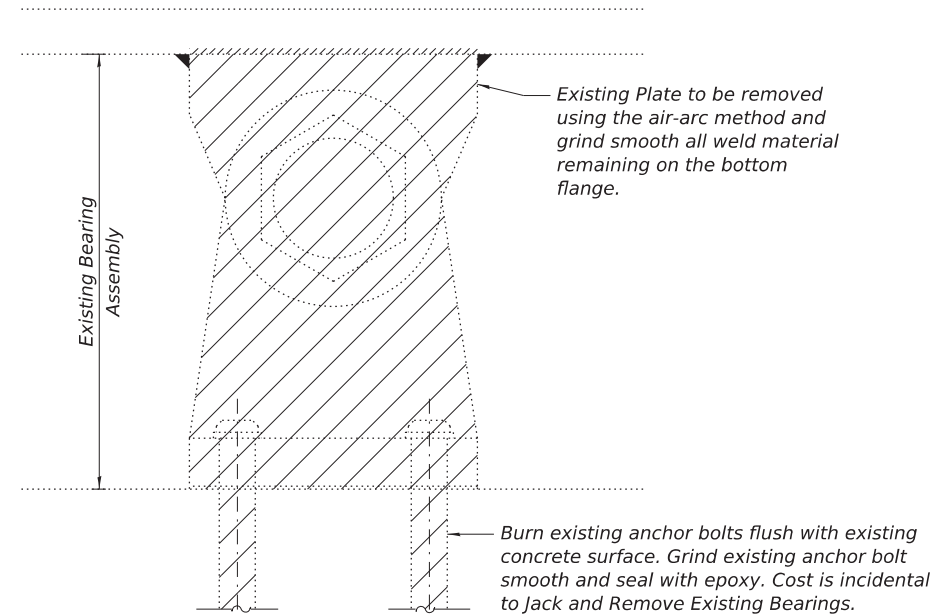
⚠ REVISED SHEET 5-22-2024

	USER NAME = dherrera	DESIGNED - MAC	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>STRUCTURAL STEEL DETAILS - I STRUCTURE NO. 084-0018 (NB) &amp; 084-0019 (SB)</b>	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE = N/A	CHECKED - DH	REVISED -			55	(84-2BR-1)D,BY,BP,BRR	SANGAMON	139	88
PLOT DATE = 5/2/2024	DATE - MARCH 2024	REVISED -	SCALE: SHEET 46 OF 67 SHEETS STA. TO STA.			CONTRACT NO. 72K98		ILLINOIS FED. AID PROJECT		
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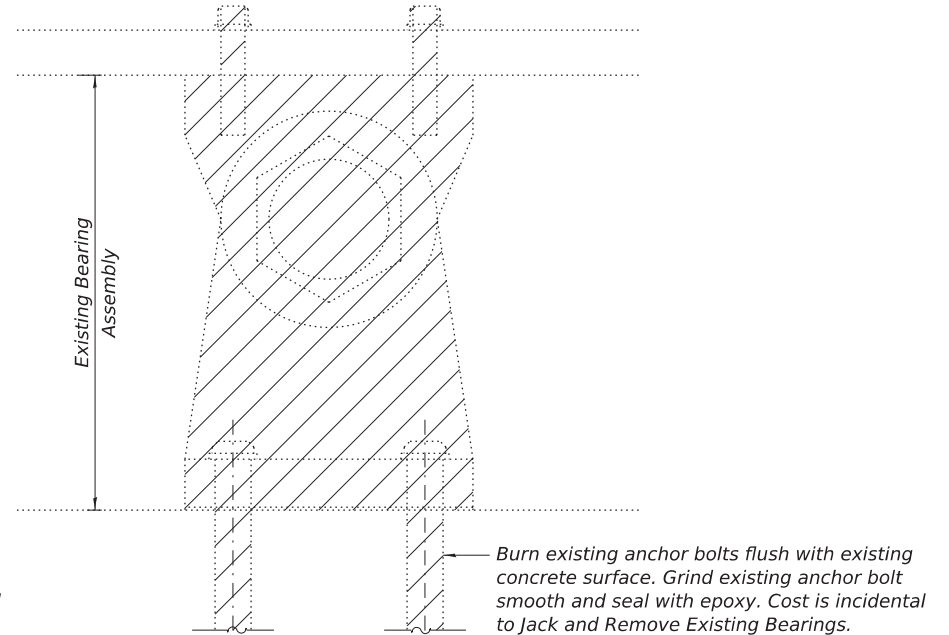
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**EXISTING BEARING REMOVAL DETAIL**  
 (Existing Type II bearings shown, all existing elastomeric bearing types similar)



**EXISTING BEARING REMOVAL DETAIL**  
 (At Pier 5, Girders 2 thru 6 and 13 thru 17)



**EXISTING BEARING REMOVAL DETAIL**  
 (At Pier 5, Girders 1, 7, 12, and 18)

**Note:**  
 Grinding and epoxy sealing of burned-off anchor bolts is not required at locations where a new concrete pedestal will be constructed.

⚠️ REVISED SHEET 5-22-2024



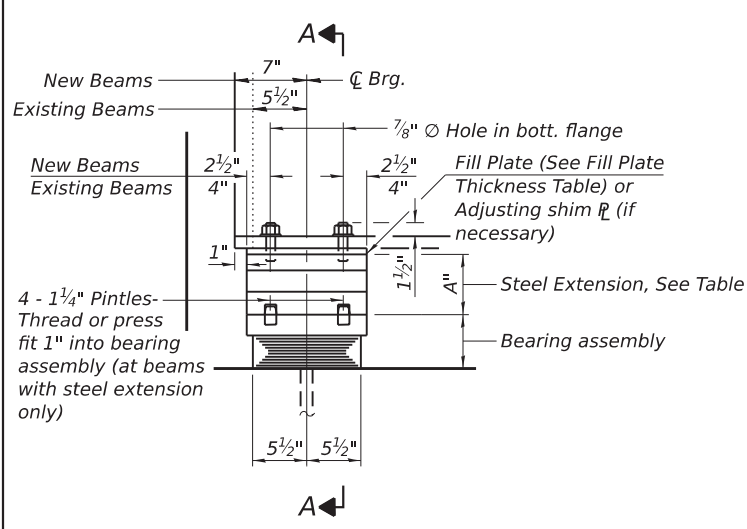
USER NAME = bholland	DESIGNED - BLH	REVISED -
	DRAWN - BLH	REVISED -
PLOT SCALE = N/A	CHECKED - DH	REVISED -
PLOT DATE = 5/3/2024	DATE - MARCH 2024	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

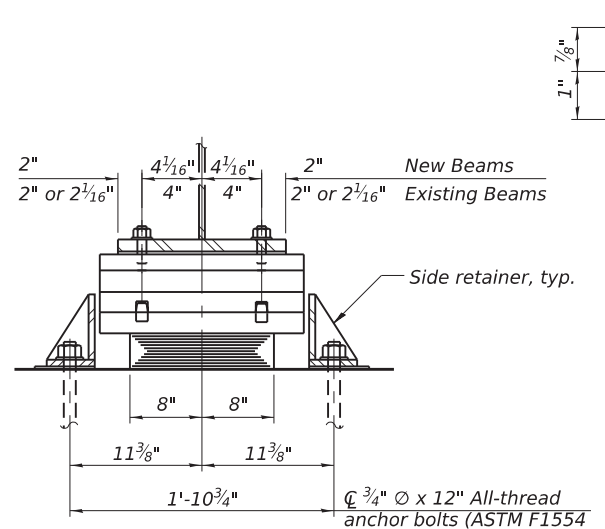
**BEARING REMOVAL DETAILS  
 STRUCTURE NO. 084-0018 (NB) & 084-0019 (SB)**

SCALE: SHEET 51 OF 67 SHEETS STA. TO STA.

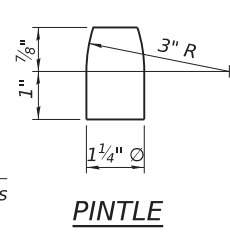
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55	(84-2BR-1)D,BY,BP,BRR	SANGAMON	139	93
			CONTRACT NO. 72K98	
		ILLINOIS	FED. AID PROJECT	



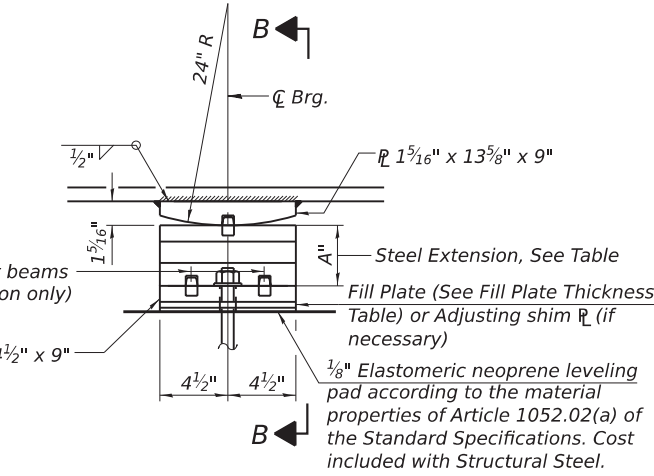
**ELEVATION AT N. AND S. ABUT.**



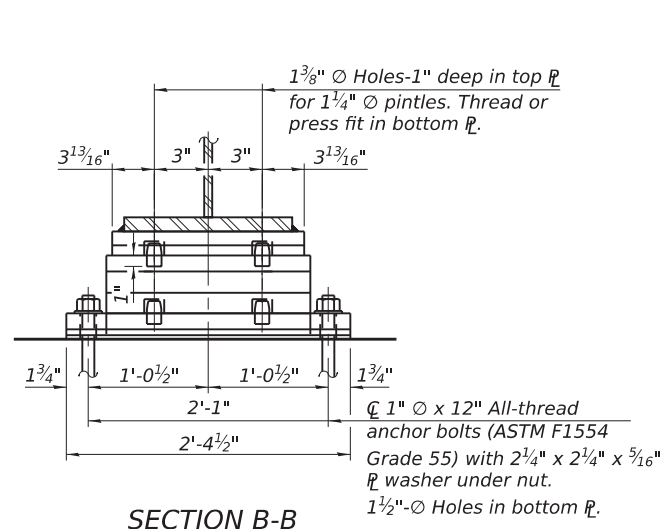
**SECTION A-A**



4 - 1 1/4" Pintles (at beams with steel extension only)



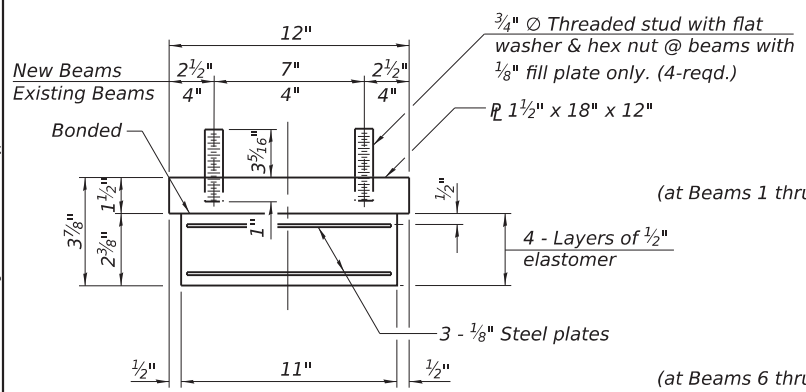
**ELEVATION AT PIER 1 & PIER 10**



**SECTION B-B**

**FIXED BEARING**

**TYPE I ELASTOMERIC EXP. BRG.**



**BEARING ASSEMBLY**

**FILL PLATE THICKNESS**

(at Beams 1 thru 5 & 16 thru 19, and Beam 20 at Piers 1, 10, & S. Abut. only)

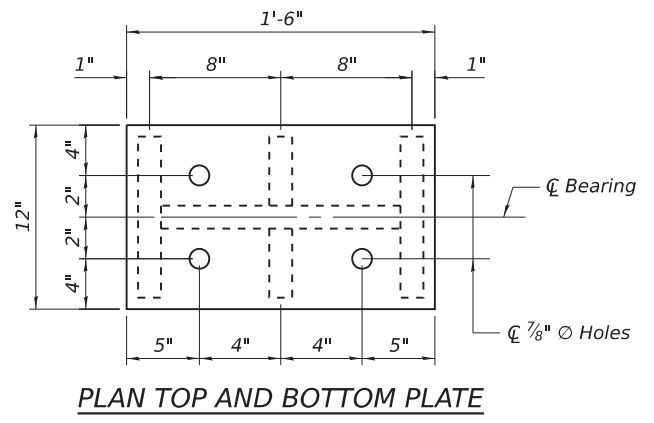
Location	Thickness
N. & S. Abut. Piers 1 & 10	1/8"
	5/16"

**STEEL EXTENSION TABLE**

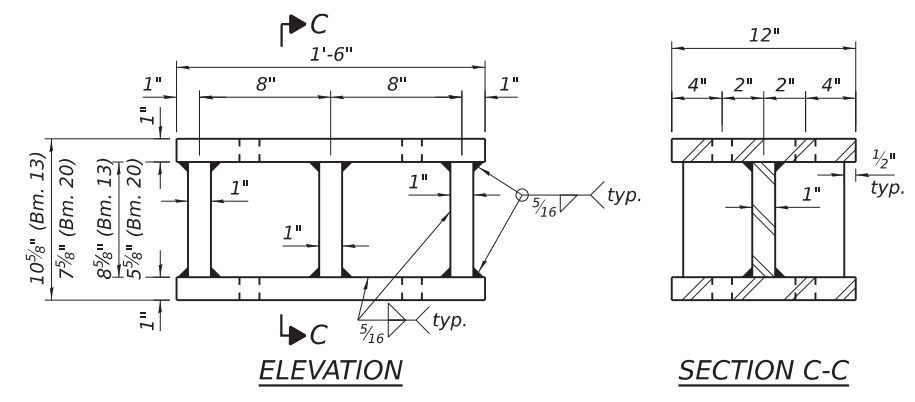
(at Beams 6 thru 8 & 14 thru 15, and Beam 13 at Piers 1, 10, & S. Abut. only)

Location	A	B	C	D	E
N. & S. Abut.	3 1/8"	1"	1 1/8"	12"	1'-6"
Piers 1 & 10	3 5/16"	1"	1 3/16"	9"	1'-1 5/8"

Note:  
Shim plates shall not be placed under bearing assembly.



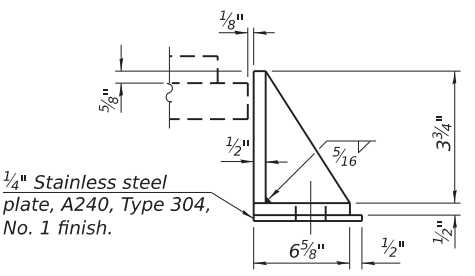
**PLAN TOP AND BOTTOM PLATE**



**FABRICATED STEEL EXTENSION DETAIL**

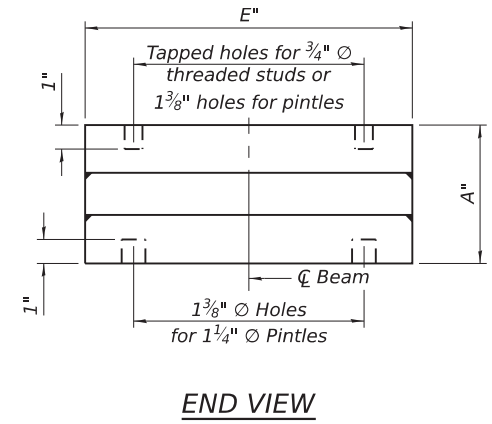
(at Beams 13 & 20 at the north abutment)

- Notes:
- Side retainers and stainless steel plates shall be included in the cost of Elastomeric Bearing Assembly, Type I.
  - Anchor bolts and side retainers at all supports shall be installed as each member is erected unless an equivalent temporary means of lateral restraint is used.
  - The structural steel plates of the Bearing Assembly shall conform to the requirements of AASHTO M270 Grade 50.
  - Two 3/8 in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on the bearing details.
  - Prior to ordering any material, the Contractor shall verify in the field all bearing height and shim thickness dimensions.
  - No steel extension or fill plates required for Beams 9 thru 12.
  - Cost of steel extension and fill plates included with Furnishing and Erecting Structural Steel pay item.
  - Beams 13 and 20 at the north abutment shall have the concrete pedestal removed prior to installing new bearing assemblies.



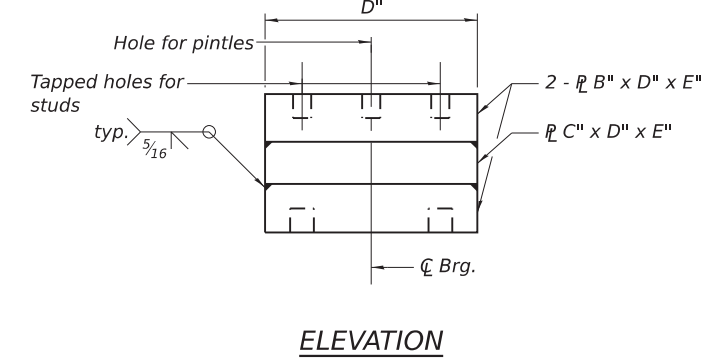
**SIDE RETAINER**

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.



**STEEL EXTENSION DETAIL**

(See table for dimensions)



REVISIONS  
REVISED SHEET 5-22-2024

**BILL OF MATERIAL**

Item	Unit	Total
Elastomeric Bearing Assembly Type I	Each	40
Anchor Bolts, 3/4"	Each	80
Anchor Bolts, 1"	Each	80



USER NAME = bholland	DESIGNED - BLH	REVISED -
PLOT SCALE = N/A	DRAWN - BLH	REVISED -
PLOT DATE = 5/3/2024	CHECKED - DH	REVISED -
	DATE - MARCH 2024	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

BEARING DETAILS - ELASTOMERIC TYPE I - I  
STRUCTURE NO. 084-0018 (NB) & 084-0019 (SB)

SCALE: SHEET 52 OF 67 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	(84-2BR-1)D,BY,BP,BRR	SANGAMON	139	94
CONTRACT NO.			72K98	
ILLINOIS FED. AID PROJECT				



