

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

**PROPOSED  
HIGHWAY PLANS**

FAP ROUTE 824 (US 45)  
SECTION (20XB) B-1  
PROJECT HBFP-RSAF(461)  
BRIDGE REPLACEMENT COLES  
COUNTY

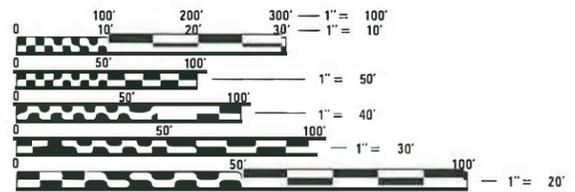
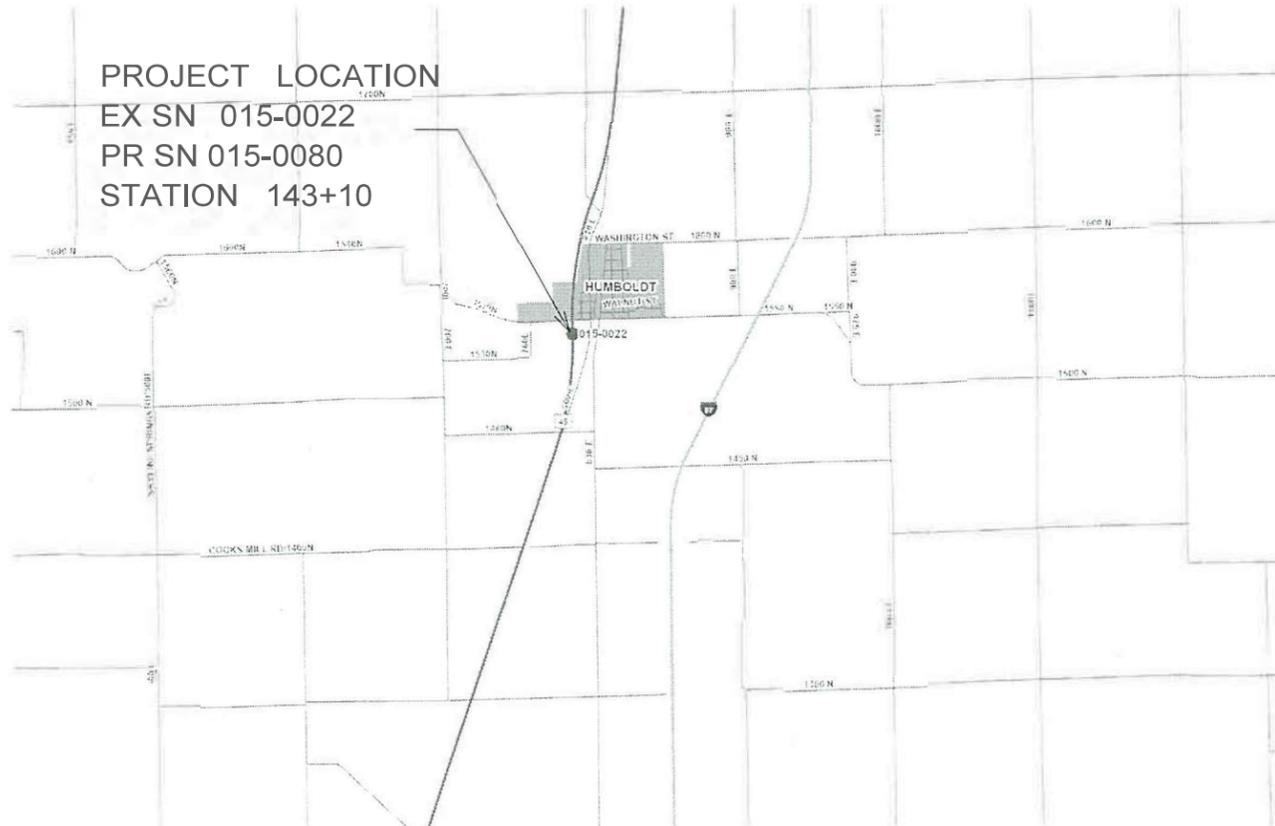
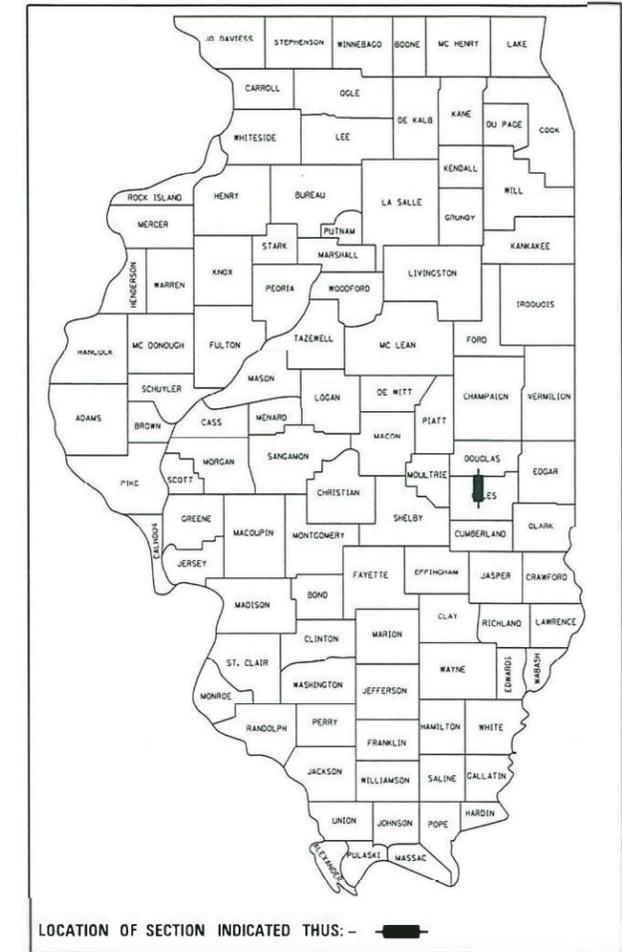
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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
824	(20XB)B-1	COLES	39*	1
		ILLINOIS	CONTRACT NO. 74362	

\* 39 - 1 = 38 TOTAL SHEETS

FOR INDEX OF SHEETS, SEE SHEET NO. 2

ADT = 1200(2021)



FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.  
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION  
1-800-892-0123  
OR 811

PROJECT ENGINEER: DEBRA BARRETT  
PROJECT MANAGER: AARON J METTE

GROSS LENGTH = 675 FT. = 0.13 MILES  
NET LENGTH = 675 FT. = 0.13 MILES

CONTRACT NO. 74362

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

SUBMITTED August 4 2022  
Jeffrey P. Meyer, Esq.  
DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER

October 14, 2022  
Scott A. Etkin  
ENGINEER OF DESIGN AND ENVIRONMENT

October 14, 2022  
Stephen M. Smith  
DIRECTOR OF HIGHWAYS PROJECT IMPLEMENTATION

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**GENERAL NOTES**

THIS PROJECT IS LOCATED ON FAP 824 (US-45) IN COLES COUNTY, OVER FLAT BRANCH, WEST OF HUMBOLDT

THE WORK ON THIS PROJECT CONSISTS OF BRIDGE REPLACEMENT AND ANY OTHER WORK NECESSARY TO COMPLETE THIS SECTION. THIS WORK WILL BE COMPLETED UTILIZING A ROAD CLOSURE WITH A MARKED ROUTE DETOUR.

PERMANENT SURVEY MARKER TYPE 1 WILL BE PLACED IN A SECURE, FLAT AND STABLE LOCATION DETERMINED BY THE ENGINEER TO BE USED AS A BENCHMARK.

**INDEX OF SHEETS**

1	COVER SHEET
2	GENERAL NOTES, INDEX OF SHEETS & LIST OF STANDARDS
3-5*	SUMMARY OF QUANTITIES
6	TYPICAL SECTION
7	SCHEDULES OF QUANTITIES
8	PLAN AND PROFILE SHEET
9	DETOUR MAP
10	GUARDRAIL DETAILS
11-35	BRIDGE PLAN DETAILS
36-39	PAVEMENT MARKING DETAILS

\* SHEET 5 HAS BEEN DELETED

## HIGHWAY STANDARDS

THE FOLLOWING MIXTURE REQUIREMENTS ARE APPLICABLE FOR THIS PROJECT:

APPLICATION	AC/PG	DESIGN AIR VOIDS	MIXTURE COMPOSITION	FRICTION AGGREGATE	TEST PARAMETER
HMA SURFACE COURSE MIX "C" N70	PG 64-22	4.0% @ N=70	IL-9.5	MIXTURE C	QC/QA
HMA BINDER COURSE IL-9.5 FG N70 (VAR DEPTH)	PG 64-22	4.0% @ N=70	IL-9.5 FG	N/A	QC/QA
HMA SHOULDERS (TOP LIFT)	PG 64-22	4.0% @ N=70	IL-9.5	MIXTURE C	QC/QA
HMA SHOULDERS (BOTTOM LIFT)	PG 64-22	4.0% @ N=70	IL-19.0	N/A	QC/QA

<u>STANDARD NO.</u>	<u>DESCRIPTION</u>
000001-08	STANDARD SYMBOLS ABBREVIATIONS & PATTERNS
001001-02	AREAS OF REINFORCEMENT BARS
001006	DECIMAL OF INCH & FOOT
280001-07	TEMPORARY EROSION CONTROL SYSTEMS
420401-13	PAVEMENT CONNECTOR (PCC) FOR BRIDGE APPROACH SLAB
515001-04	NAME PLATE FOR BRIDGES
630001-12	STEEL PLATE BEAM GUARDRAIL
631031-17	TRAFFIC BARRIER TERMINAL TYPE 6
667101-02	PERMANENT SURVEY MARKERS
701001-02	OFF-ROAD OPERATIONS, 2L, 2W, MORE THAN 15' (4.5 M) AWAY
701006-05	OFF-ROAD OPERATIONS, 2L, 2W, 15' TO 24" FROM PAVEMENT EDGE
701901-08	TRAFFIC CONTROL DEVICES
725001-01	OBJECT AND TERMINAL MARKERS
780001-05	TYPICAL PAVEMENT MARKINGS
781001-04	TYPICAL APPLICATIONS RAISED REFLECTIVE PAVEMENT MARKERS
782006-01	GUARDRAIL AND BARRIER WALL REFLECTOR MOUNTING DETAILS
BLR21-9	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL HIGHWAYS
420001-10	PAVEMENT JOINTS
601001-05	PIPE UNDERDRAINS
630301-09	SHOULDER WIDENING FOR TYPE 1 (SPECIAL) GUARDRAIL TERMINALS

REV. - MS

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PLOT SCALE = 100.0000' / in.	DRAWN -	REVISED -		SCALE:	SHEET OF SHEETS	STA. TO STA.	ILLINOIS FED. AID PROJECT				
PLOT DATE = 8/8/2022	CHECKED -	REVISED -									
	DATE -	REVISED -									

SUMMARY OF QUANTITIES			TOTAL QUANTITIES	CONSTRUCTION TYPE CODE		
CODE NO	ITEM	UNIT		80% FED 20% STATE 0010		
20200600	EXCAVATING AND GRADING EXISTING SHOULDER	UNIT	5	5		
20300100	CHANNEL EXCAVATION	CU YD	863	863		
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	50	50		
28000400	PERIMETER EROSION BARRIER	FOOT	570	570		
28100109	STONE RIPRAP, CLASS A5	SQ YD	924	924		
28200200	FILTER FABRIC	SQ YD	924	924		
40600290	BITUMINOUS MATERIALS (TACK COAT)	POUND	515	515		
40600982	HOT-MIX ASPHALT SURFACE REMOVAL - BUTT JOINT	SQ YD	160	160		
40602970	HOT-MIX ASPHALT BINDER COURSE, IL-9.5FG, N70	TON	28	28		
40604052	HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "C", N70	TON	77	77		
42000080	PAVEMENT CONNECTOR (PCC) FOR BRIDGE APPROACH SLAB	SQ YD	71	71		
48102100	AGGREGATE WEDGE SHOULDER, TYPE B	TON	13	13		
48203023	HOT-MIX ASPHALT SHOULDERS, 6 1/2"	SQ YD	229	229		

SUMMARY OF QUANTITIES			TOTAL QUANTITIES	CONSTRUCTION TYPE CODE		
CODE NO	ITEM	UNIT		80% FED 20% STATE 0010		
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1	1		
50200100	STRUCTURE EXCAVATION	CU YD	166	166		
50200300	COFFERDAM EXCAVATION	CU YD	149	149		
50201121	COFFERDAM (TYPE 2) (LOCATION - 1)	EACH	1	1		
50201122	COFFERDAM (TYPE 2) (LOCATION - 2)	EACH	1	1		
50300225	CONCRETE STRUCTURES	CU YD	158.9	158.9		
50300255	CONCRETE SUPERSTRUCTURE	CU YD	193.1	193.1		
50300260	BRIDGE DECK GROOVING	SQ YD	669	669		
50300300	PROTECTIVE COAT	SQ YD	874	874		
50301350	CONCRETE SUPERSTRUCTURE (APPROACH SLAB)	CU YD	95.4	95.4		
50500105	FURNISHING AND ERECTING STRUCTURAL STEEL	L SUM	1	1		
50500505	STUD SHEAR CONNECTORS	EACH	3546	3546		
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	98570	98570		
51201610	FURNISHING STEEL PILES HP12X63	FOOT	685	685		

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**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**SUMMARY OF QUANTITIES**

SCALE: SHEET 1 OF 3 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
824	(20XB)B-1	COLES	39	3
			CONTRACT NO. 74362	
ILLINOIS FED. AID PROJECT				

SUMMARY OF QUANTITIES			TOTAL QUANTITIES	CONSTRUCTION TYPE CODE		
CODE NO	ITEM	UNIT		80% FED 20% STATE 0010		
51201700	FURNISHING STEEL PILES HP12X74	FOOT	740	740		
51202305	DRIVING PILES	FOOT	1425	1425		
51203610	TEST PILE STEEL HP12X63	EACH	1	1		
51203700	TEST PILE STEEL HP12X74	EACH	1	1		
51204650	PILE SHOES	EACH	24	24		
51500100	NAME PLATES	EACH	1	1		
52100510	ANCHOR BOLTS, 3/4"	EACH	24	24		
52100520	ANCHOR BOLTS, 1"	EACH	24	24		
58600101	GRANULAR BACKFILL FOR STRUCTURES	CU YD	86	86		
59100100	GEOCOMPOSITE WALL DRAIN	SQ YD	50	50		
60146304	PIPE UNDERDRAINS FOR STRUCTURES 4"	FOOT	130	130		
* 63000001	STEEL PLATE BEAM GUARDRAIL, TYPE A, 6 FOOT POSTS	FOOT	450	450		
* 63100085	TRAFFIC BARRIER TERMINAL, TYPE 6	EACH	4	4		

SUMMARY OF QUANTITIES			TOTAL QUANTITIES	CONSTRUCTION TYPE CODE		
CODE NO	ITEM	UNIT		80% FED 20% STATE 0010		
* 63100167	TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT	EACH	4	4		
63200310	GUARDRAIL REMOVAL	FOOT	800	800		
66700205	PERMANENT SURVEY MARKERS, TYPE I	EACH	1	1		
67000400	ENGINEER'S FIELD OFFICE, TYPE A	CAL MO	6	6		
67100100	MOBILIZATION	L SUM	1	1		
70107025	CHANGEABLE MESSAGE SIGN	CAL DA	28	28		
* 72501000	TERMINAL MARKER - DIRECT APPLIED	EACH	4	4		
* 78001110	PAINT PAVEMENT MARKING - LINE 4"	FOOT	1035	1035		
* 78100100	RAISED REFLECTIVE PAVEMENT MARKER	EACH	6	6		
* 78200005	GUARDRAIL REFLECTORS, TYPE A	EACH	16	16		
X7011800	TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 21	L SUM	1	1		
Z0016702	DETOUR SIGNING	L SUM	1	1		
Z0018002	DRAINAGE SCUPPERS, DS-11	EACH	4	4		

\* SPECIALTY ITEM

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**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

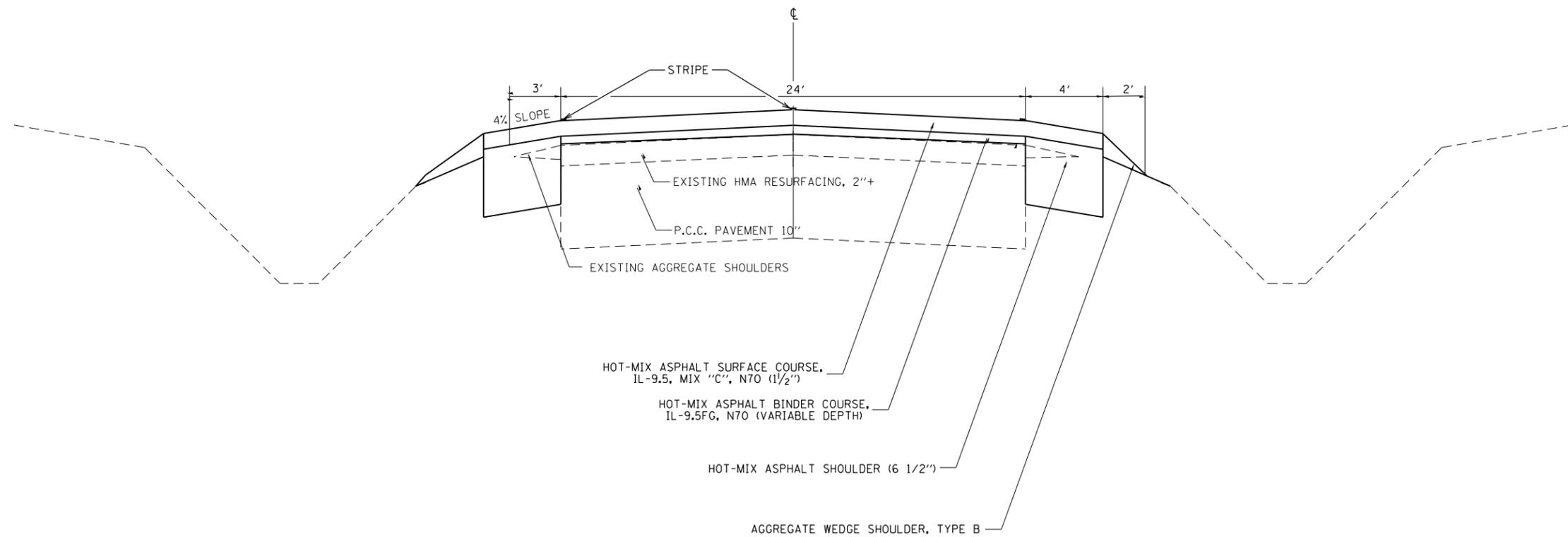
**SUMMARY OF QUANTITIES**

SCALE: SHEET 2 OF 3 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
824	(20XB)B-1	COLES	39	4
CONTRACT NO. 74362			ILLINOIS FED. AID PROJECT	

# TYPICAL CROSS SECTION

STATION 141+20 TO 145+80



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

**TYPICAL CROSS SECTIONS**

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

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
824	(20XB)B-1	COLES	39	6
CONTRACT NO. 74362			ILLINOIS FED. AID PROJECT	

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PAVING												
STATION	TO	STATION	LENGTH	SOYD	POUND	TON	TON	SOYD	UNIT	TON		
141+20.00	-	141+50.00	30.0	80	60	0	9.0	27	0.6	1.5		
141+50.00	-	141+60.00	10.0	0	20	1.1	3.0	9	0.2	0.5		
141+60.00	-	141+70.00	10.0	0	20	1.1	3.0	9	0.2	0.5		
141+70.00	-	141+80.00	10.0	0	20	1.1	3.0	9	0.2	0.5		
141+80.00	-	141+90.00	10.0	0	20	1.3	3.0	9	0.2	0.5		
141+90.00	-	142+00.00	10.0	0	20	1.5	3.0	9	0.2	0.5		
142+00.00	-	142+08.67	8.7	0	17	1.3	2.6	8	0.17	0.4		
142+08.67	-	142+38.67	30.0	APPROACH PAVEMENT								
142+38.67	-	143+81.33	142.7	BRIDGE DECK								
143+81.33	-	144+11.33	30.0	APPROACH PAVEMENT								
144+11.33	-	144+20.00	8.7	0	17	1.4	2.6	8	0.17	0.4		
144+20.00	-	144+30.00	10.0	0	20	1.7	3.0	9	0.2	0.5		
144+30.00	-	144+40.00	10.0	0	20	1.5	3.0	9	0.2	0.5		
144+40.00	-	144+50.00	10.0	0	20	1.5	3.0	9	0.2	0.5		
144+50.00	-	144+60.00	10.0	0	20	1.5	3.0	9	0.2	0.5		
144+60.00	-	144+70.00	10.0	0	20	1.7	3.0	9	0.2	0.5		
144+70.00	-	144+80.00	10.0	0	20	1.7	3.0	9	0.2	0.5		
144+80.00	-	144+90.00	10.0	0	20	1.5	3.0	9	0.2	0.5		
144+90.00	-	145+00.00	10.0	0	20	1.3	3.0	9	0.2	0.5		
145+00.00	-	145+10.00	10.0	0	20	1.3	3.0	9	0.2	0.5		
145+10.00	-	145+20.00	10.0	0	20	1.3	3.0	9	0.2	0.5		
145+20.00	-	145+30.00	10.0	0	20	1.3	3.0	9	0.2	0.5		
145+30.00	-	145+40.00	10.0	0	20	1.1	3.0	9	0.2	0.5		
145+40.00	-	145+50.00	10.0	0	20	1.1	3.0	9	0.2	0.5		
145+50.00	-	145+80.00	30.0	80	60	0	9.0	27	0.6	1.5		
TOTAL			460.0	160	515	28	77	229	5	13		

GUARDRAIL REMOVAL				
	STATION	TO	STATION	FOOT
LT.	142+38.67	-	141+01.17	137.5
LT.	143+81.33	-	146+43.83	262.5
RT.	142+38.67	-	139+76.17	262.5
RT.	143+81.33	-	145+18.83	137.5
				FOOT
TOTAL =				800.0

GUARDRAIL							
	STATION	TO	STATION	FOOT	EACH	EACH	EACH
LT.	141+01.20	-	141+51.20	0.0		1.0	1.0
LT.	141+51.20	-	142+01.20	50.0			
LT.	142+01.20	-	142+38.67	0.0	1.0		
LT.	143+81.33	-	144+18.83	0.0	1.0		
LT.	144+18.80	-	145+93.80	175.0			
LT.	145+93.80	-	146+43.80	0.0		1.0	1.0
RT.	139+76.20	-	140+26.20	0.0		1.0	1.0
RT.	140+26.20	-	142+01.20	175.0			
RT.	142+01.20	-	142+38.67	0.0	1.0		
RT.	143+81.33	-	144+18.83	0.0	1.0		
RT.	144+18.80	-	144+68.80	50.0			
RT.	144+68.80	-	145+18.80	0.0		1.0	1.0
TOTAL =				450.0	4.0	4.0	4.0

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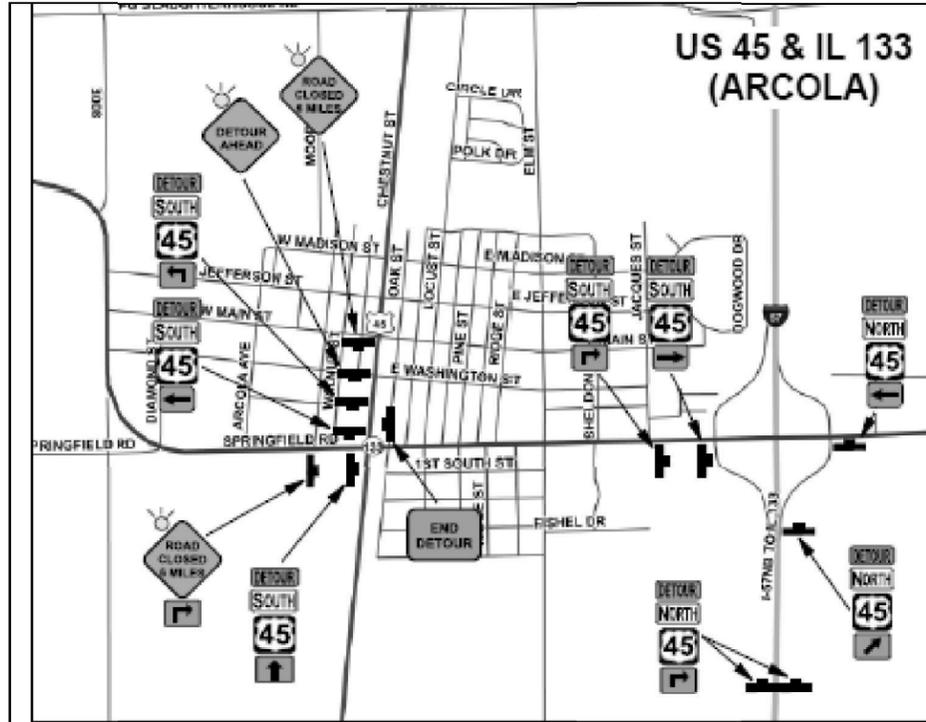
**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**SCHEDULE OF QUANTITIES**

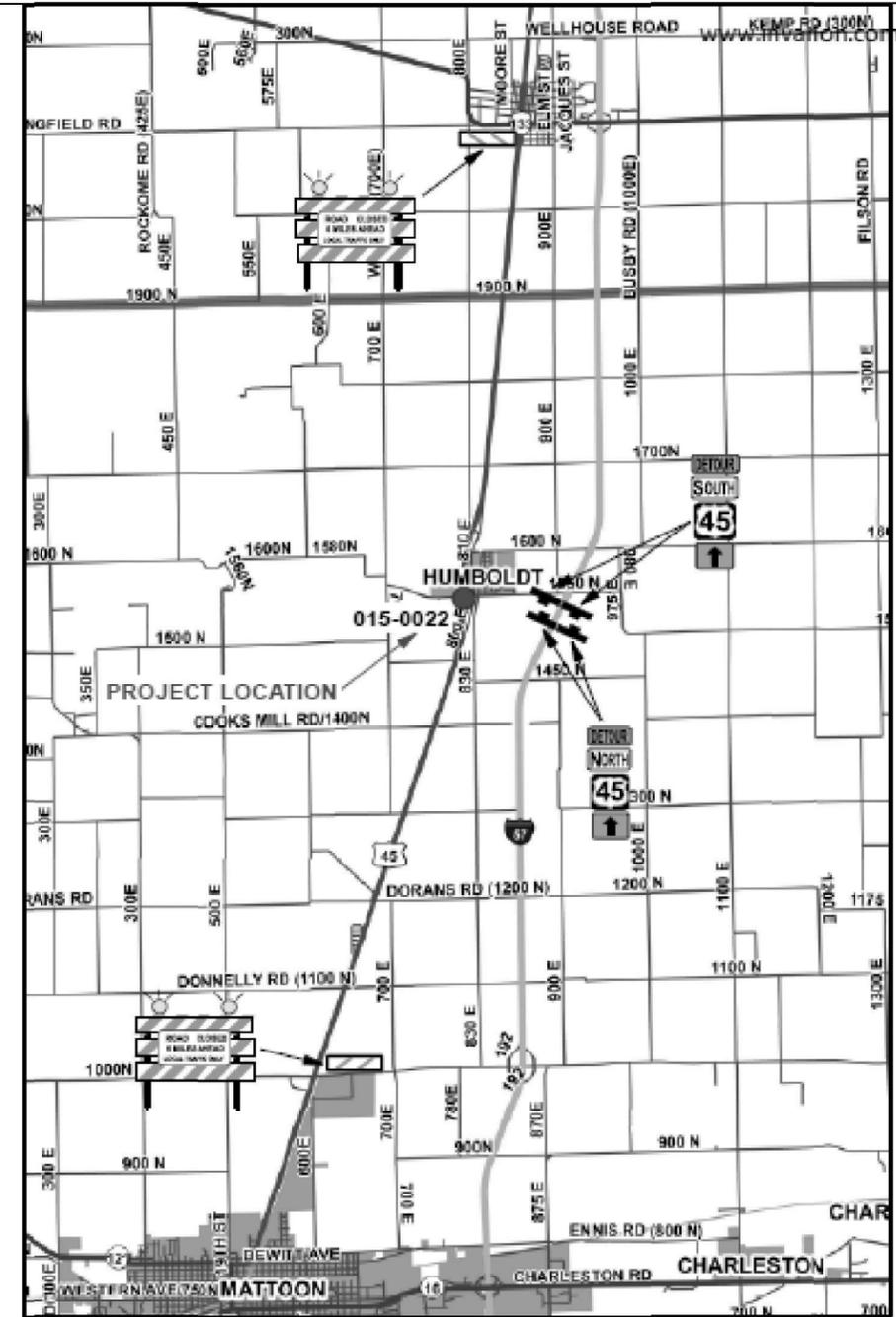
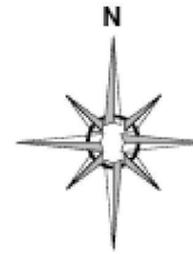
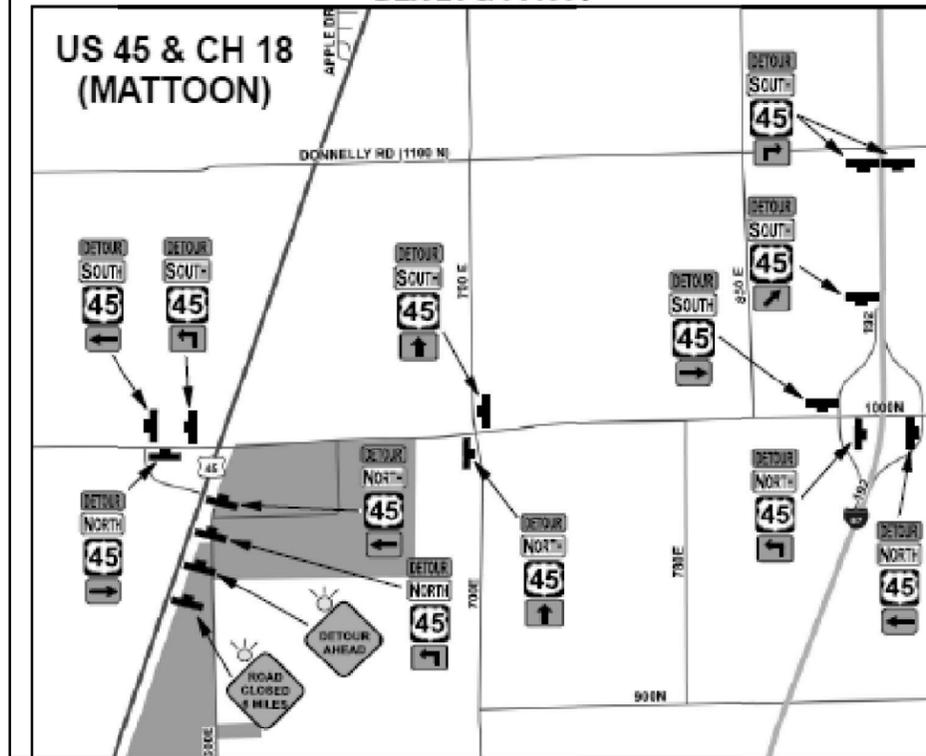
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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
824	(20XB)B-1	COLES	39	7
CONTRACT NO. 74362				
ILLINOIS FED. AID PROJECT				





Closure of US 45 shall be in accordance with Standards BLR 21 & 701901



SIGN LEGEND		R11-3a	M6-2R(O)-3018
	W20-3-48	NORTH M3-1-3015	
	W20-2(O)-48	SOUTH M3-3-3015	
	W20-2(O)-48		M1-4-36
	M6-3(O)-3018		M5-1L(O)-3018
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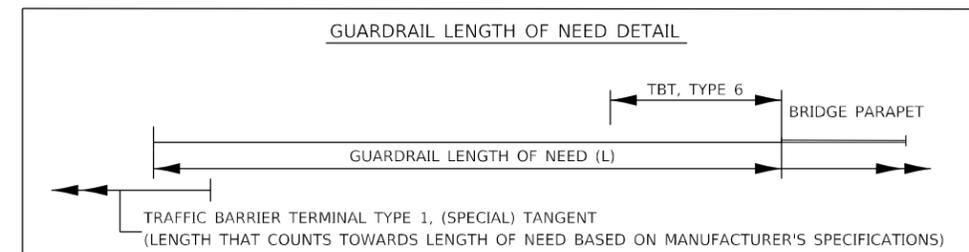
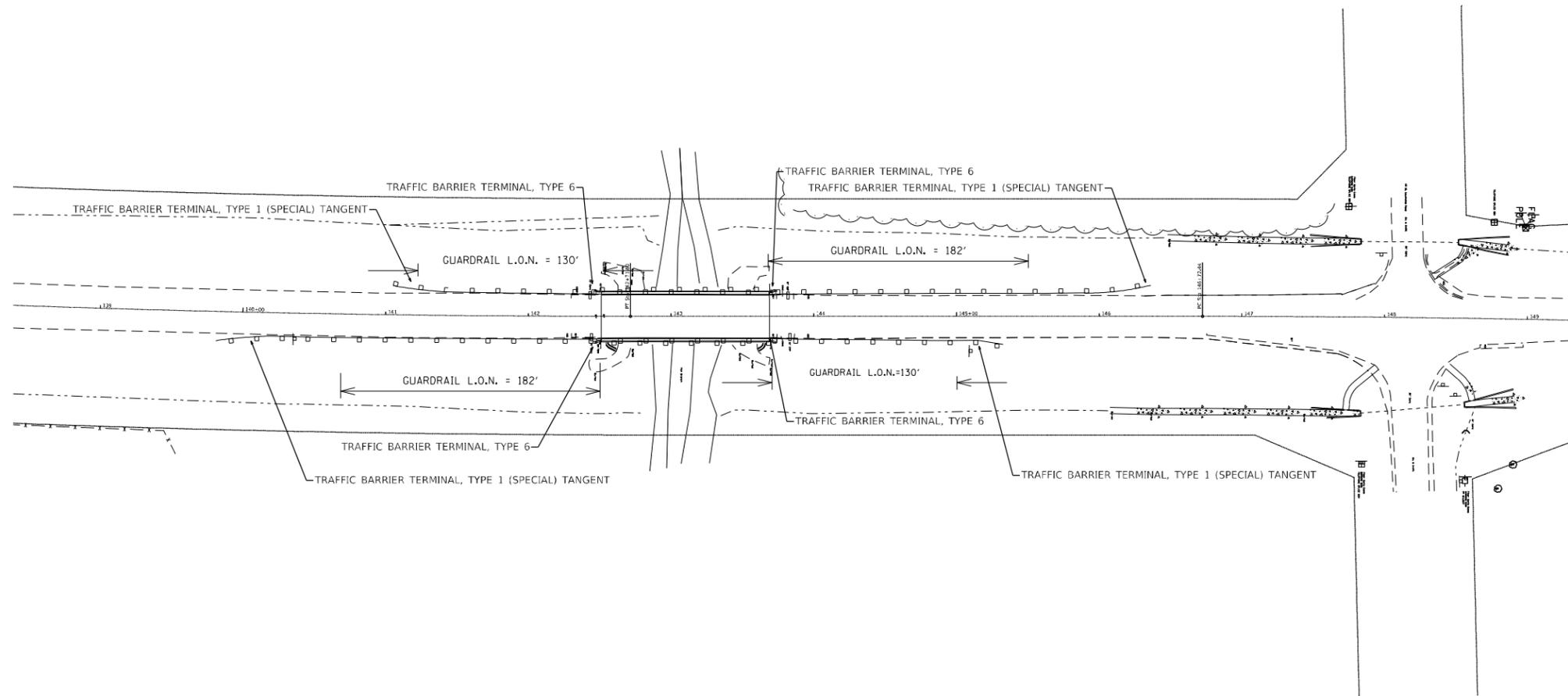
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

DETOUR MAP

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
824	(20XB)B-1	COLES	39	9
CONTRACT NO. 74362				
ILLINOIS FED. AID PROJECT				

# GUARDRAIL DETAILS



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

**GUARDRAIL DETAILS**  
**S.N. 015-0080**

SCALE:      SHEET      OF      SHEETS      STA.      TO      STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
824	(20XB)B-1	COLES	39	10
CONTRACT NO. 74362			ILLINOIS FED. AID PROJECT	

Benchmark : Chiseled square on top of southeast wingwalls of SN 015-0022. Sta. 142 + 46, 15' Rt., Elev. 654.40.

Existing structure: SN 015-0022 was built in 1954 as F.A. RT. 26 (S.B.I. RT. 25) Section 20X-B at Sta. 143 + 10. The existing structure consists of a three-span reinforced concrete haunch T-beam superstructure with a reinforced concrete deck on precast concrete pile supported open abutments and untreated timber supported solid concrete piers. The superstructure is composed of 5 concrete T-beams integrated with a 7 inch thick reinforced concrete slab. The bridge deck has a 30'-0" roadway width. The structure is 120'-3" long from back to back of abutments, no skew, and has a 35'-8" out to out bridge width. Road closure and a detour route will be used during construction.

Salvage: None

**DESIGN SPECIFICATIONS**

2020 AASHTO LRFD Bridge Design Specifications, 9th Edition

**LOADING HL-93**

Allow 50#/sq. ft. for future wearing surface.

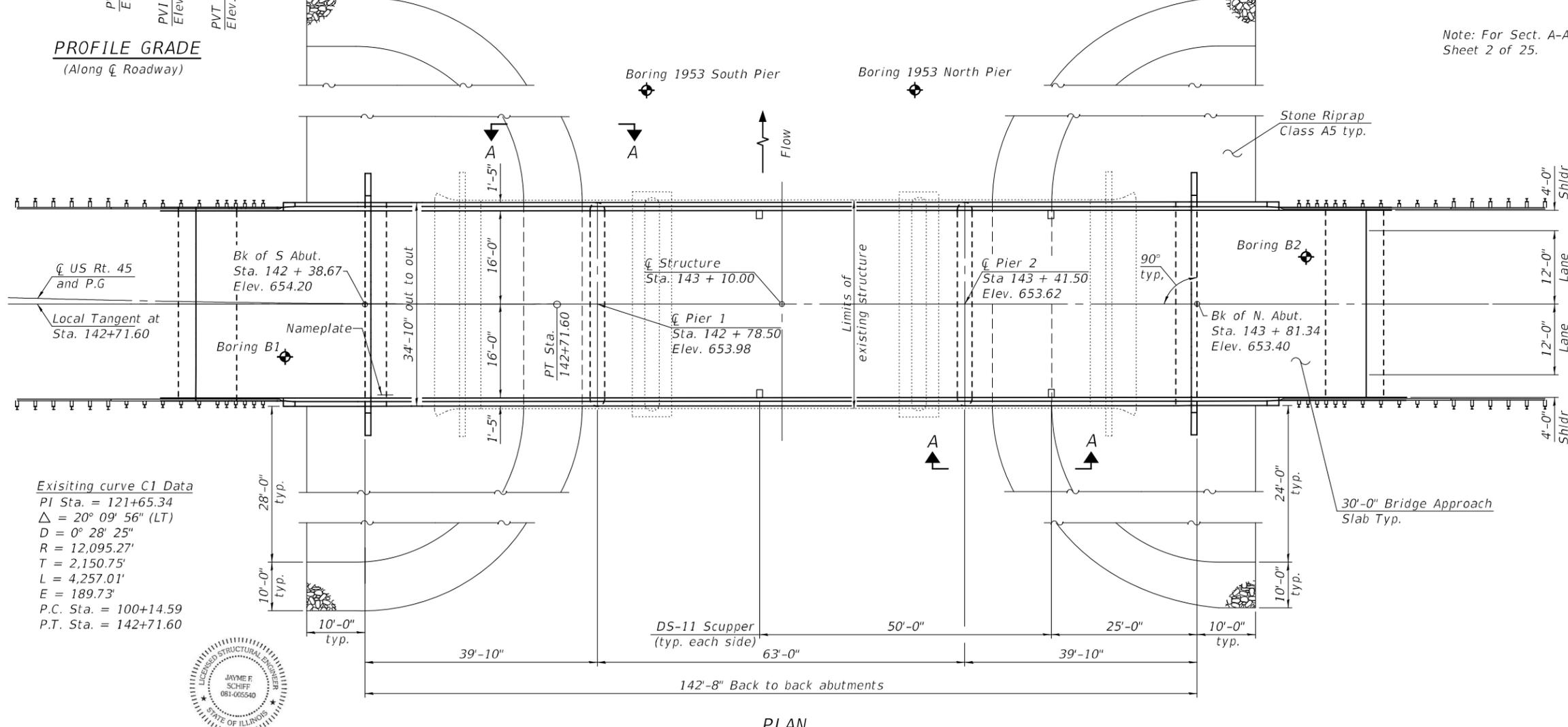
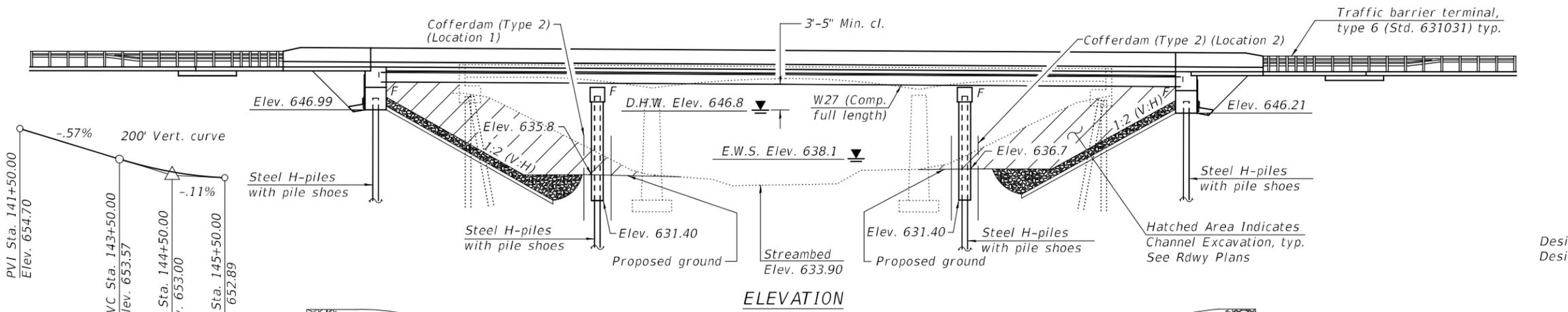
**DESIGN STRESSES**

**FIELD UNITS**

f'c = 3,500 psi  
 f'c = 4,000 psi (Superstructure Concrete)  
 fy = 60,000 psi (Reinforcement)  
 fy = 50,000 psi (M270 Grade 50)  
 fy = 36,000 psi (M270 Grade 36)  
 All structural steel shall be galvanized

**SEISMIC DATA**

Seismic Performance Zone (SPZ) = 1  
 Design Spectral Acceleration at 1.0 sec. (SD1) = 0.119g  
 Design Spectral Acceleration at 0.2 sec. (SDS) = 0.248g  
 Soil Site Class = C



**PROFILE GRADE**  
(Along  $\bar{C}$  Roadway)

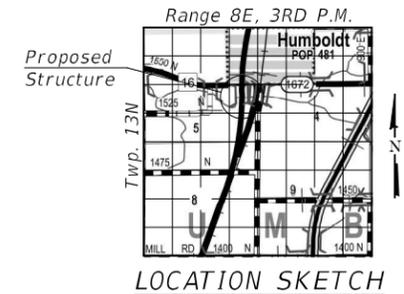
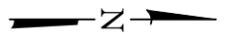
Existing curve C1 Data  
 PI Sta. = 121+65.34  
 $\Delta = 20^\circ 09' 56''$  (LT)  
 D =  $0^\circ 28' 25''$   
 R = 12,095.27'  
 T = 2,150.75'  
 L = 4,257.01'  
 E = 189.73'  
 P.C. Sta. = 100+14.59  
 P.T. Sta. = 142+71.60



EXPIRES 11-30-2022

STATION 143+10.00  
 BUILT 20 BY  
 STATE OF ILLINOIS  
 F.A.P. RTE. 824 SEC. (20XB) B-1  
 LOADING HL-93  
 STRUCTURE NO. 015-0080

**NAME PLATE**  
 See Std. 515001



**GENERAL PLAN AND ELEVATION**  
**US ROUTE 45 OVER FLAT BRANCH**  
**FAP 824 - SEC. (20XB) B-1**  
**COLES COUNTY**  
**STATION 143 + 10.00**  
**STRUCTURE NO. 015-0080**

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DESIGNED - HAREEM I DAR	EXAMINED - Jayme F. Schiff
CHECKED - ADAM STAGGEMEYER	ENGINEER OF BRIDGE DESIGN
DRAWN - ALAN JOHNSTONE	PASSED - Jayme F. Schiff
CHECKED - H.I.D / A.L.S	ENGINEER OF BRIDGES AND STRUCTURES

DATE - 10-11-2022
REVISD -
REVISD -

DATE - 10-11-2022
REVISD -
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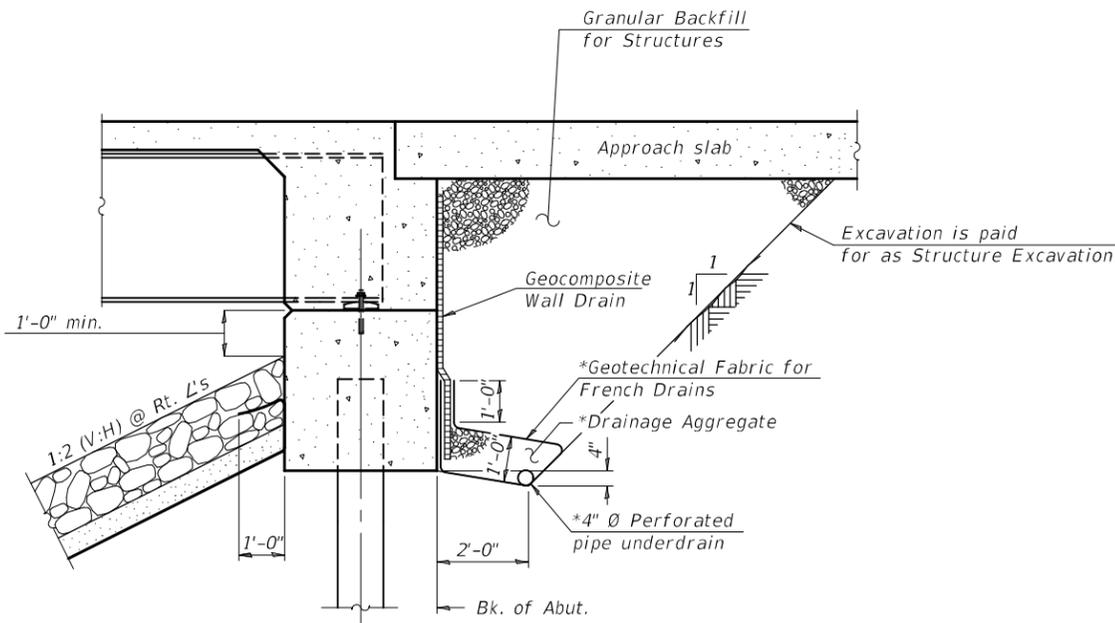
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

SHEET 1 OF 25 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
824	(20XB)B-1	COLES	39	11
CONTRACT NO. 74362				
ILLINOIS FED. AID PROJECT				

**GENERAL NOTES**

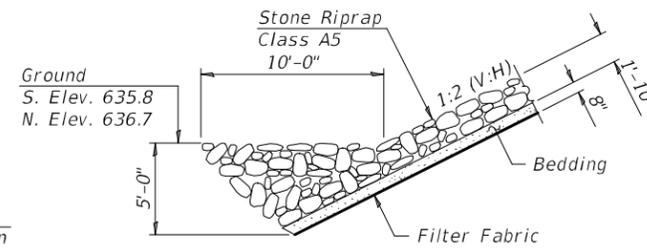
Fasteners shall be ASTM F 3125 Grade A325 Type 1. Fasteners shall be hot dip galvanized. See Special Provision for "Hot Dip Galvanizing for Structural Steel." Bolts 7/8" Ø, holes 1 1/16" Ø, unless otherwise noted.  
 Calculated weight of Structural Steel= 86,890 lbs. (M270 Grade 50).  
 Calculated weight of Structural Steel= 15,030 lbs. (M270 Grade 36).  
 No field welding is permitted except as specified in the contract documents.  
 Reinforcement bars designated (E) shall be epoxy coated.  
 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 shimming the bearings.  
 All new structural steel shall be galvanized. See Special Provision for "Hot Dip Galvanizing for Structural Steel."  
 Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.  
 The embankment configuration shown shall be the minimum that must be placed and compacted prior to construction of the abutments.  
 The existing bearings contain lead plates. The Contractor shall take appropriate precautions to deal with the presence of lead on this project.  
 The finishing machine rails shall be placed on the top flange of the exterior beams.  
 The Contractor is advised that the existing concrete superstructure is a continuous structure and removal must be done in a proper sequence, possibly with falsework support. See Special Provisions.



**SECTION THRU INTEGRAL ABUTMENT**

\*Included in the cost of Pipe Underdrains for Structures.

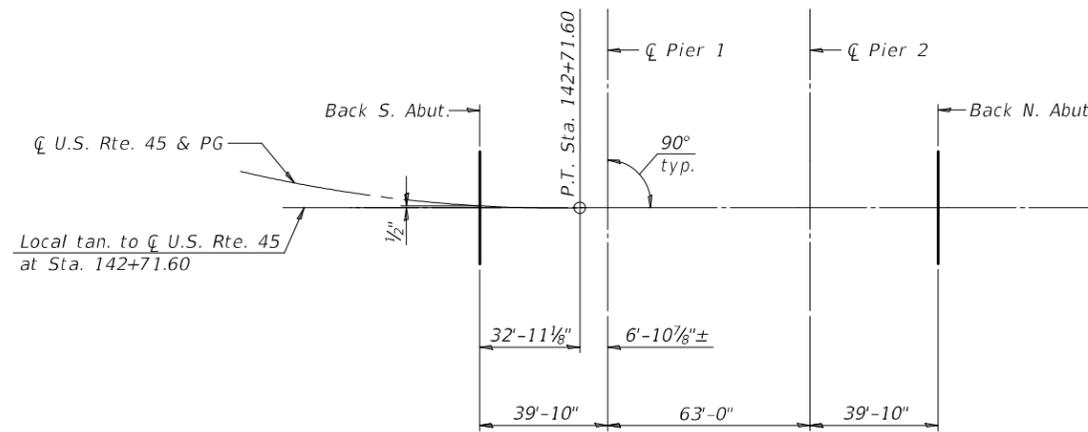
Note:  
 All drainage system components shall extend to 2'-0" from the end of each wingwall except an outlet pipe shall extend until intersecting with the side slopes. The pipes shall drain into concrete headwalls. (See Article 601.05 of the Standard Specifications and Highway Standard 601101).



**SECTION A-A**

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	SUPER	SUB	TOTAL
Stone Riprap, Class A5	Sq. Yd.		924	924
Filter Fabric	Sq. Yd.		924	924
Removal of Existing Structures	Each	1		1
Structure Excavation	Cu. Yd.		166	166
Cofferdam Excavation	Cu. Yd.		149	149
Cofferdam (Type 2) (Location-1)	Each		1	1
Cofferdam (Type 2) (Location-2)	Each		1	1
Concrete Structures	Cu. Yd.		158.9	158.9
Concrete Superstructure	Cu. Yd.	193.1		193.1
Bridge Deck Grooving	Sq. Yd.	669		669
Protective Coat	Sq. Yd.	874		874
Concrete Superstructure (Approach Slab)	Cu. Yd.	95.4		95.4
Furnishing and Erecting Structural Steel	L. Sum	1		1
Stud Shear Connectors	Each	3,546		3,546
Reinforcement Bars, Epoxy Coated	Pound	83,770	14,800	98,570
Furnishing Steel Piles HP 12 X 74	Foot		740	740
Furnishing Steel Piles HP 12 X 63	Foot		685	685
Driving Piles	Foot		1,425	1,425
Test Pile Steel HP 12 X 74	Each		1	1
Test Pile Steel HP 12 X 63	Each		1	1
Pile Shoes	Each		24	24
Name Plates	Each	1		1
Anchor Bolts, 3/4"	Each	24		24
Anchor Bolts, 1"	Each	24		24
Granular Backfill for Structures	Cu. Yd.		86	86
Geocomposite Wall Drain	Sq. Yd.		50	50
Pipe Underdrains for Structures, 4"	Foot		130	130
Drainage Scuppers, DS-11	Each	4		4



**OFFSET SKETCH**

Existing curve C1  
 Horizontal dimensions measured along tangent.

**DESIGN SCOUR ELEVATION TABLE**

Event / Limit	Design Scour Elevations (ft.)				Item 113
	S. Abut.	Pier 1	Pier 2	N. Abut.	
Q100	646.99	629.00	629.00	646.21	8
Q200	646.99	628.90	628.90	646.21	
Design	646.99	629.00	629.00	646.21	
Check	646.99	628.90	628.90	646.21	

**WATERWAY INFORMATION TABLE**

Drainage Area = 35.7 sq. mi.		Existing Overtopping Elev. = 652.85 at Sta. 145 + 62		Proposed Overtopping Elev. = 652.85 at Sta. 145 + 62		Headwater Elev. ft.	
Flood Event	Freq. Yr.	Discharge Ft <sup>3</sup> /s	Waterway Opening-ft <sup>2</sup> Existing	Waterway Opening-ft <sup>2</sup> Proposed	Natural H.W.E. ft.	Existing	Proposed
Design	10	1900	634	941	645.4	0.2	0.1
Base	50	2950	752	1106	646.8	0.5	0.3
Scour Design Chk	100	3400	805	1179	647.4	0.5	0.3
Max. Calc.	200	3872	851	1241	647.9	0.8	0.4
	500	4490	907	1317	648.5	0.8	0.6

10 Year velocity through existing bridge = 3.1 ft/s

10 Year velocity through proposed bridge = 2.1 ft/s

**INDEX OF SHEETS**

- 1 General Plan & Elevation
- 2 General Data
- 3-4 Top of Slab Elevations
- 5-6 Top of Approach Slab Elevations
- 7 Superstructure
- 8 Superstructure Details
- 9 Diaphragm Details
- 10 Drainage Scupper, DS-11
- 11-12 Bridge Approach Slab Details
- 13 Structural Steel
- 14 Structural Steel & Bearing Details
- 15 Structural Steel Details
- 16 South Abutment
- 17 North Abutment
- 18 Pier 1
- 19 Pier 2
- 20 Pier Details
- 21 HP Pile Details
- 22 Concrete Parapet Slipforming Option
- 23-25 Boring Logs

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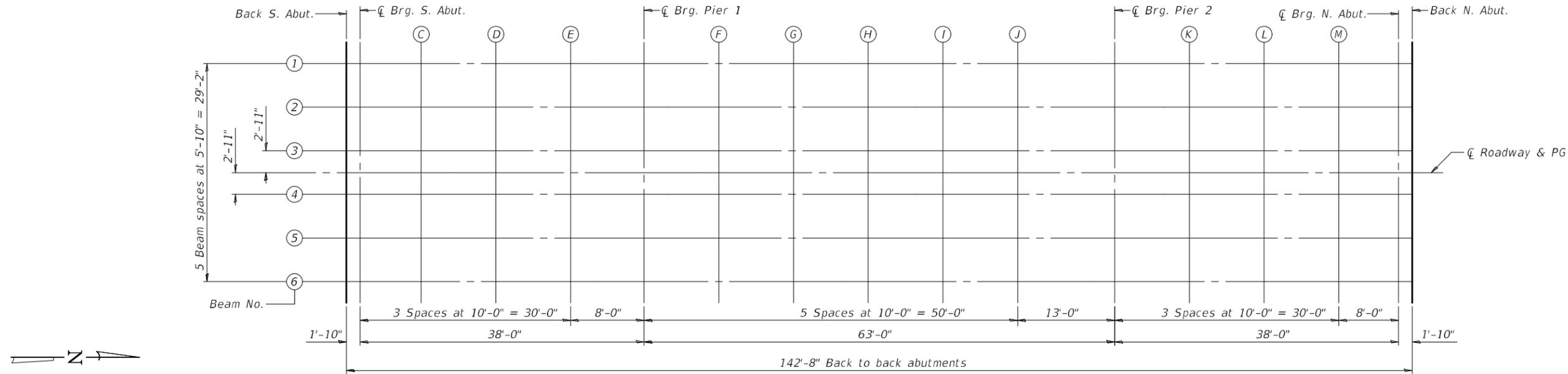
DESIGNED - HAREEM I DAR	EXAMINED - <i>Joanne F. Jeff</i>	DATE - OCTOBER 11, 2022
CHECKED - ADAM STAGGEMEYER	PASSED - <i>Joanne F. Jeff</i>	REVISER -
DRAWN - ALAN JOHNSTONE	ENGINEER OF BRIDGES AND STRUCTURES	REVISER -
CHECKED - H.I.D./A.L.S.		

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**GENERAL DATA  
 STRUCTURE NO. 015-0080**

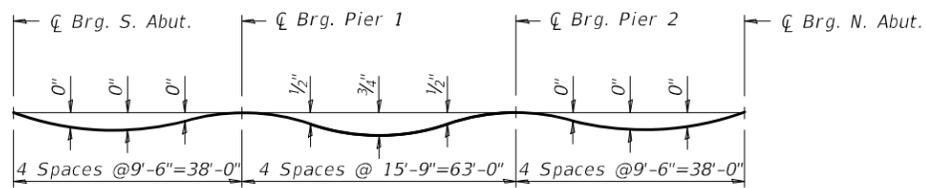
SHEET 2 OF 25 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
824	(20XB)B-1	COLES	39	12
CONTRACT NO. 74362				
ILLINOIS FED. AID PROJECT				



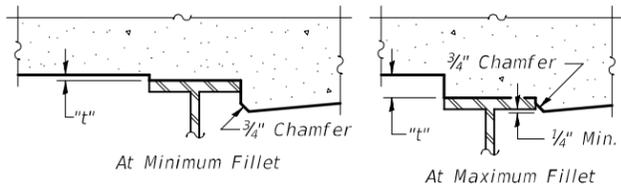
PLAN

Note: There is a horizontal curve located south of Station 142+71.60 (see Sheets 1 and 2 of 25). The top of slab elevations shown on this sheet and sheet 4 of 25 are detailed as if there is no curve present. The Contractor may stripe the lanes and shoulders following the curve.



DEAD LOAD DEFLECTION DIAGRAM  
(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 this sheet and sheet 4 of 25.



FILLET HEIGHTS

To determine "t": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown above. These elevations subtracted from the "Theoretical Grade Elevations Adjusted For Dead Load Deflection" shown on this sheet and sheet 4 of 25, minus slab thickness, equals the fillet heights "t" above top flange of beams.

BEAM 1

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Back S. Abut.	142+38.67	-14.58	653.97	653.97
☐ Brg. S. Abut	142+40.50	-14.58	653.96	653.96
C	142+50.50	-14.58	653.91	653.91
D	142+60.50	-14.58	653.85	653.85
E	142+70.50	-14.58	653.79	653.79
☐ Brg. Pier 1	142+78.50	-14.58	653.75	653.75
F	142+88.50	-14.58	653.69	653.72
G	142+98.50	-14.58	653.63	653.68
H	143+08.50	-14.58	653.58	653.64
I	143+18.50	-14.58	653.52	653.57
J	143+28.50	-14.58	653.46	653.50
☐ Brg. Pier 2	143+41.50	-14.58	653.39	653.39
K	143+51.50	-14.58	653.33	653.33
L	143+61.50	-14.58	653.27	653.28
M	143+71.50	-14.58	653.22	653.22
☐ Brg. N. Abut.	143+79.50	-14.58	653.18	653.18
Back N. Abut.	143+81.34	-14.58	653.17	653.17

BEAM 2

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Back S. Abut.	142+38.67	-8.75	654.07	654.07
☐ Brg. S. Abut	142+40.50	-8.75	654.06	654.06
C	142+50.50	-8.75	654.01	654.01
D	142+60.50	-8.75	653.95	653.95
E	142+70.50	-8.75	653.89	653.89
☐ Brg. Pier 1	142+78.50	-8.75	653.85	653.85
F	142+88.50	-8.75	653.79	653.82
G	142+98.50	-8.75	653.73	653.78
H	143+08.50	-8.75	653.68	653.74
I	143+18.50	-8.75	653.62	653.67
J	143+28.50	-8.75	653.57	653.60
☐ Brg. Pier 2	143+41.50	-8.75	653.49	653.49
K	143+51.50	-8.75	653.43	653.43
L	143+61.50	-8.75	653.37	653.38
M	143+71.50	-8.75	653.32	653.32
☐ Brg. N. Abut.	143+79.50	-8.75	653.28	653.28
Back N. Abut.	143+81.34	-8.75	653.27	653.27

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DESIGNED - HAREEM I DAR  
CHECKED - ADAM STAGGEMEYER  
DRAWN - ALAN JOHNSTONE  
CHECKED - H.I.D./A.L.S.

EXAMINED  
PASSED  
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DATE - OCTOBER 11, 2022  
REVISIONS

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

TOP OF SLAB ELEVATIONS  
STRUCTURE NO. 015-0080

SHEET 3 OF 25 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
824	(20XB)B-1	COLES	39	13
CONTRACT NO. 74362				
ILLINOIS FED. AID PROJECT				

**BEAM 3**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Back S. Abut.	142+38.67	-2.92	654.16	654.16
☒ Brg. S. Abut	142+40.50	-2.92	654.15	654.15
C	142+50.50	-2.92	654.09	654.10
D	142+60.50	-2.92	654.04	654.04
E	142+70.50	-2.92	653.98	653.98
☒ Brg. Pier 1	142+78.50	-2.92	653.94	653.94
F	142+88.50	-2.92	653.88	653.90
G	142+98.50	-2.92	653.82	653.87
H	143+08.50	-2.92	653.77	653.83
I	143+18.50	-2.92	653.71	653.76
J	143+28.50	-2.92	653.65	653.69
☒ Brg. Pier 2	143+41.50	-2.92	653.58	653.58
K	143+51.50	-2.92	653.52	653.51
L	143+61.50	-2.92	653.46	653.46
M	143+71.50	-2.92	653.41	653.41
☒ Brg. N. Abut.	143+79.50	-2.92	653.37	653.37
Back N. Abut.	143+81.34	-2.92	653.36	653.36

**☒ ROADWAY & PG**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Back S. Abut.	142+38.67	0.00	654.20	654.20
☒ Brg. S. Abut	142+40.50	0.00	654.19	654.19
C	142+50.50	0.00	654.14	654.14
D	142+60.50	0.00	654.08	654.08
E	142+70.50	0.00	654.02	654.02
☒ Brg. Pier 1	142+78.50	0.00	653.98	653.98
F	142+88.50	0.00	653.92	653.95
G	142+98.50	0.00	653.87	653.91
H	143+08.50	0.00	653.81	653.87
I	143+18.50	0.00	653.75	653.80
J	143+28.50	0.00	653.70	653.73
☒ Brg. Pier 2	143+41.50	0.00	653.62	653.62
K	143+51.50	0.00	653.56	653.56
L	143+61.50	0.00	653.51	653.51
M	143+71.50	0.00	653.45	653.45
☒ Brg. N. Abut.	143+79.50	0.00	653.41	653.41
Back N. Abut.	143+81.34	0.00	653.40	653.40

**BEAM 4**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Back S. Abut.	142+38.67	2.92	654.16	654.16
☒ Brg. S. Abut	142+40.50	2.92	654.15	654.15
C	142+50.50	2.92	654.09	654.10
D	142+60.50	2.92	654.04	654.04
E	142+70.50	2.92	653.98	653.98
☒ Brg. Pier 1	142+78.50	2.92	653.94	653.94
F	142+88.50	2.92	653.88	653.90
G	142+98.50	2.92	653.82	653.87
H	143+08.50	2.92	653.77	653.83
I	143+18.50	2.92	653.71	653.76
J	143+28.50	2.92	653.65	653.69
☒ Brg. Pier 2	143+41.50	2.92	653.58	653.58
K	143+51.50	2.92	653.52	653.51
L	143+61.50	2.92	653.46	653.46
M	143+71.50	2.92	653.41	653.41
☒ Brg. N. Abut.	143+79.50	2.92	653.37	653.37
Back N. Abut.	143+81.34	2.92	653.36	653.36

**BEAM 5**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Back S. Abut.	142+38.67	8.75	654.07	654.07
☒ Brg. S. Abut	142+40.50	8.75	654.06	654.06
C	142+50.50	8.75	654.01	654.01
D	142+60.50	8.75	653.95	653.95
E	142+70.50	8.75	653.89	653.89
☒ Brg. Pier 1	142+78.50	8.75	653.85	653.85
F	142+88.50	8.75	653.79	653.82
G	142+98.50	8.75	653.73	653.78
H	143+08.50	8.75	653.68	653.74
I	143+18.50	8.75	653.62	653.67
J	143+28.50	8.75	653.57	653.60
☒ Brg. Pier 2	143+41.50	8.75	653.49	653.49
K	143+51.50	8.75	653.43	653.43
L	143+61.50	8.75	653.37	653.38
M	143+71.50	8.75	653.32	653.32
☒ Brg. N. Abut.	143+79.50	8.75	653.28	653.28
Back N. Abut.	143+81.34	8.75	653.27	653.27

**BEAM 6**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Back S. Abut.	142+38.67	14.58	653.97	653.97
☒ Brg. S. Abut	142+40.50	14.58	653.96	653.96
C	142+50.50	14.58	653.91	653.91
D	142+60.50	14.58	653.85	653.85
E	142+70.50	14.58	653.79	653.79
☒ Brg. Pier 1	142+78.50	14.58	653.75	653.75
F	142+88.50	14.58	653.69	653.72
G	142+98.50	14.58	653.63	653.68
H	143+08.50	14.58	653.58	653.64
I	143+18.50	14.58	653.52	653.57
J	143+28.50	14.58	653.46	653.50
☒ Brg. Pier 2	143+41.50	14.58	653.39	653.39
K	143+51.50	14.58	653.33	653.33
L	143+61.50	14.58	653.27	653.28
M	143+71.50	14.58	653.22	653.22
☒ Brg. N. Abut.	143+79.50	14.58	653.18	653.18
Back N. Abut.	143+81.34	14.58	653.17	653.17

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DESIGNED - HAREEM I DAR	EXAMINED - 	DATE - OCTOBER 11, 2022
CHECKED - ADAM STAGGEMEYER	PASSED - 	REVISED -
DRAWN - ALAN JOHNSTONE		REVISED -
CHECKED - H.I.D./A.L.S.		

ENGINEER OF BRIDGES AND STRUCTURES  
 ENGINEER OF BRIDGES AND STRUCTURES

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

TOP OF SLAB ELEVATIONS  
 STRUCTURE NO. 015-0080

SHEET 4 OF 25 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
824	(20XB)B-1	COLES	39	14
CONTRACT NO. 74362				
ILLINOIS FED. AID PROJECT				

WEST EDGE OF SHOULDER

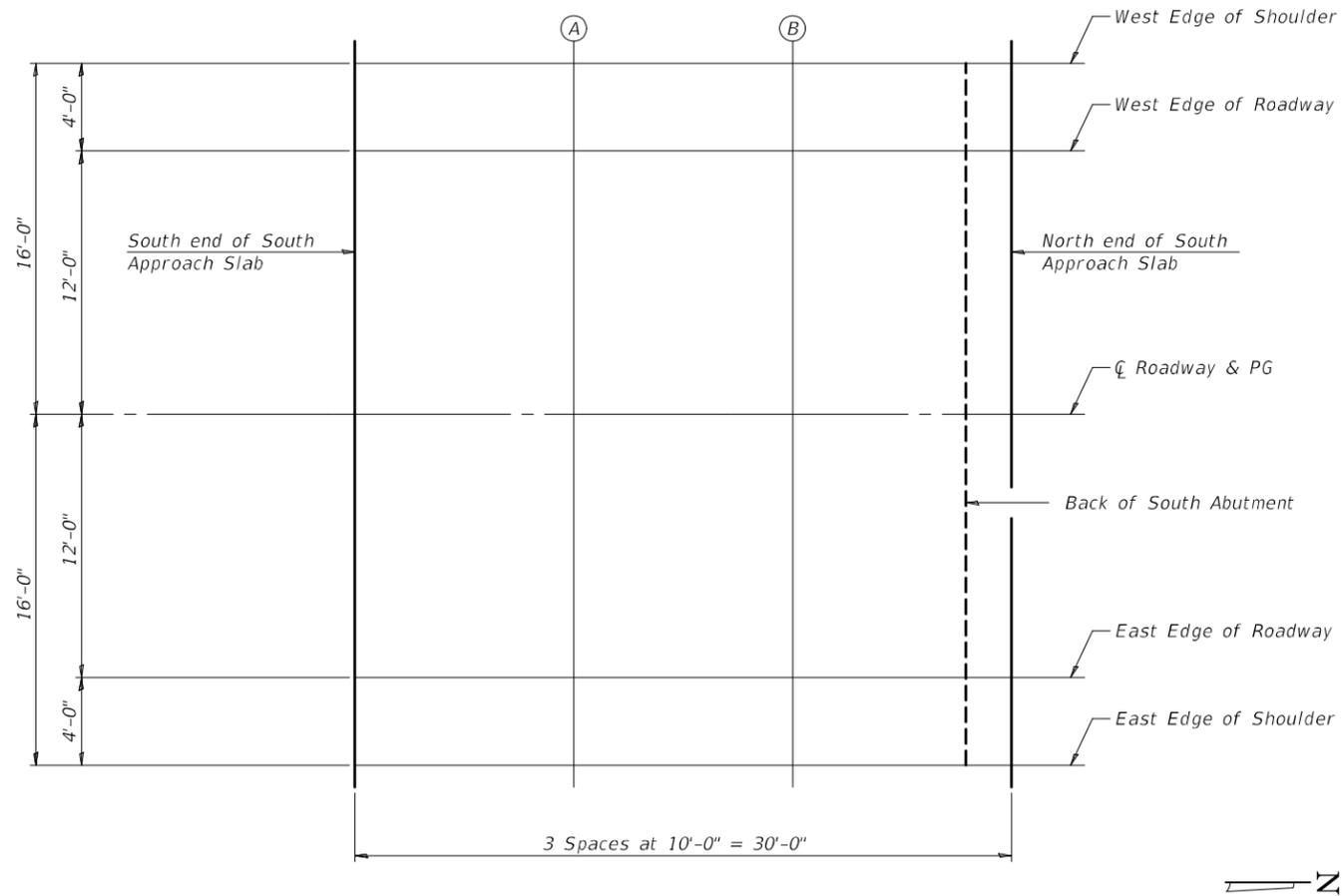
Location	Station	Offset	Theoretical Grade Elevations
S. End of S. Appr. Slab	142+09.67	-16.00	654.10
A	142+19.67	-16.00	654.05
B	142+29.67	-16.00	653.99
N. End of S. Appr. Slab	142+39.67	-16.00	653.93

WEST EDGE OF ROADWAY

Location	Station	Offset	Theoretical Grade Elevations
S. End of S. Appr. Slab	142+09.67	-12.00	654.18
A	142+19.67	-12.00	654.13
B	142+29.67	-12.00	654.07
N. End of S. Appr. Slab	142+39.67	-12.00	654.01

CL ROADWAY & PG

Location	Station	Offset	Theoretical Grade Elevations
S. End of S. Appr. Slab	142+09.67	0.00	654.36
A	142+19.67	0.00	654.31
B	142+29.67	0.00	654.25
N. End of S. Appr. Slab	142+39.67	0.00	654.19



PLAN

EAST EDGE OF ROADWAY

Location	Station	Offset	Theoretical Grade Elevations
S. End of S. Appr. Slab	142+09.67	12.00	654.18
A	142+19.67	12.00	654.13
B	142+29.67	12.00	654.07
N. End of S. Appr. Slab	142+39.67	12.00	654.01

EAST EDGE OF SHOULDER

Location	Station	Offset	Theoretical Grade Elevations
S. End of S. Appr. Slab	142+09.67	16.00	654.10
A	142+19.67	16.00	654.05
B	142+29.67	16.00	653.99
N. End of S. Appr. Slab	142+39.67	16.00	653.93

Note: There is a horizontal curve located south of Station 142+71.60 (see Sheets 1 and 2 of 25). The top of slab elevation shown on this sheet are detailed as if there is no curve present. The Contractor may stripe the lanes and shoulders following the curve.

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E-AS 2-17-2017

DESIGNED - HAREEM I DAR	EXAMINED
CHECKED - ADAM STAGGEMEYER	PASSED
DRAWN - ALAN JOHNSTONE	
CHECKED - H.I.D./A.L.S.	

Signature: *Joanne F. Hoff*  
ENGINEER OF BRIDGES AND STRUCTURES

DATE - OCTOBER 11, 2022
REVISED -
REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**TOP OF SOUTH APPROACH SLAB ELEVATIONS  
STRUCTURE NO. 015-0080**

SHEET 5 OF 25 SHEETS

F.A.P. RTE. 824	SECTION (20XB)B-1	COUNTY COLES	TOTAL SHEETS 39	SHEET NO. 15
CONTRACT NO. 74362				
ILLINOIS FED. AID PROJECT				

WEST EDGE OF SHOULDER

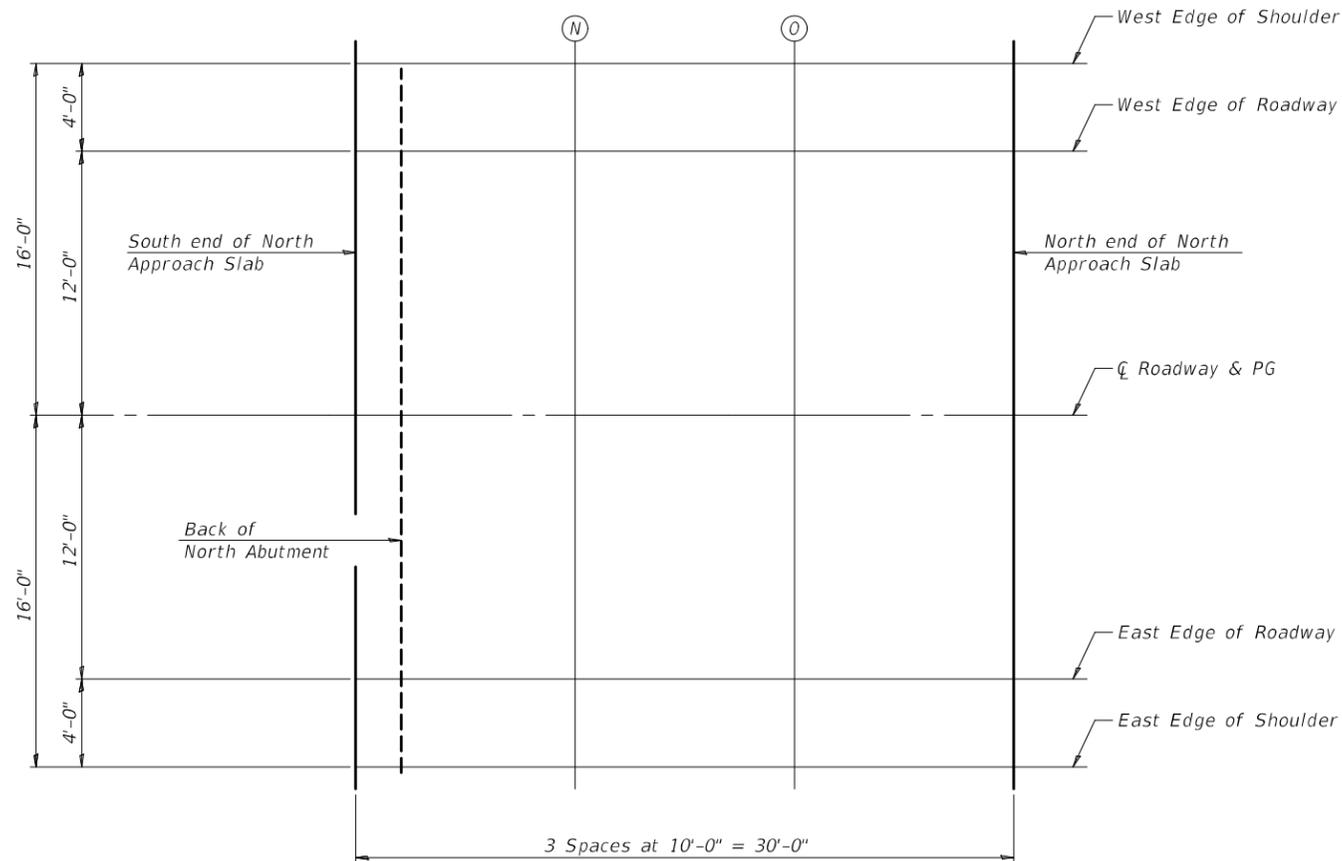
Location	Station	Offset	Theoretical Grade Elevations
S. End of N. Appr. Slab	143+80.34	-16.00	653.15
N	143+90.34	-16.00	653.10
O	144+00.34	-16.00	653.05
N. End of N. Appr. Slab	144+10.34	-16.00	653.01

WEST EDGE OF ROADWAY

Location	Station	Offset	Theoretical Grade Elevations
S. End of N. Appr. Slab	143+80.34	-12.00	653.23
N	143+90.34	-12.00	653.18
O	144+00.34	-12.00	653.13
N. End of N. Appr. Slab	144+10.34	-12.00	653.09

CL ROADWAY & PG

Location	Station	Offset	Theoretical Grade Elevations
S. End of N. Appr. Slab	143+80.34	0.00	653.41
N	143+90.34	0.00	653.36
O	144+00.34	0.00	653.31
N. End of N. Appr. Slab	144+10.34	0.00	653.27



PLAN

EAST EDGE OF ROADWAY

Location	Station	Offset	Theoretical Grade Elevations
S. End of N. Appr. Slab	143+80.34	12.00	653.23
N	143+90.34	12.00	653.18
O	144+00.34	12.00	653.13
N. End of N. Appr. Slab	144+10.34	12.00	653.09

EAST EDGE OF SHOULDER

Location	Station	Offset	Theoretical Grade Elevations
S. End of N. Appr. Slab	143+80.34	16.00	653.15
N	143+90.34	16.00	653.10
O	144+00.34	16.00	653.05
N. End of N. Appr. Slab	144+10.34	16.00	653.01

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E-AS 2-17-2017

DESIGNED - HAREEM I DAR	EXAMINED	DATE - OCTOBER 11, 2022
CHECKED - ADAM STAGGEMEYER	PASSED	
DRAWN - ALAN JOHNSTONE		REVISED -
CHECKED - H.I.D./A.L.S.		REVISED -

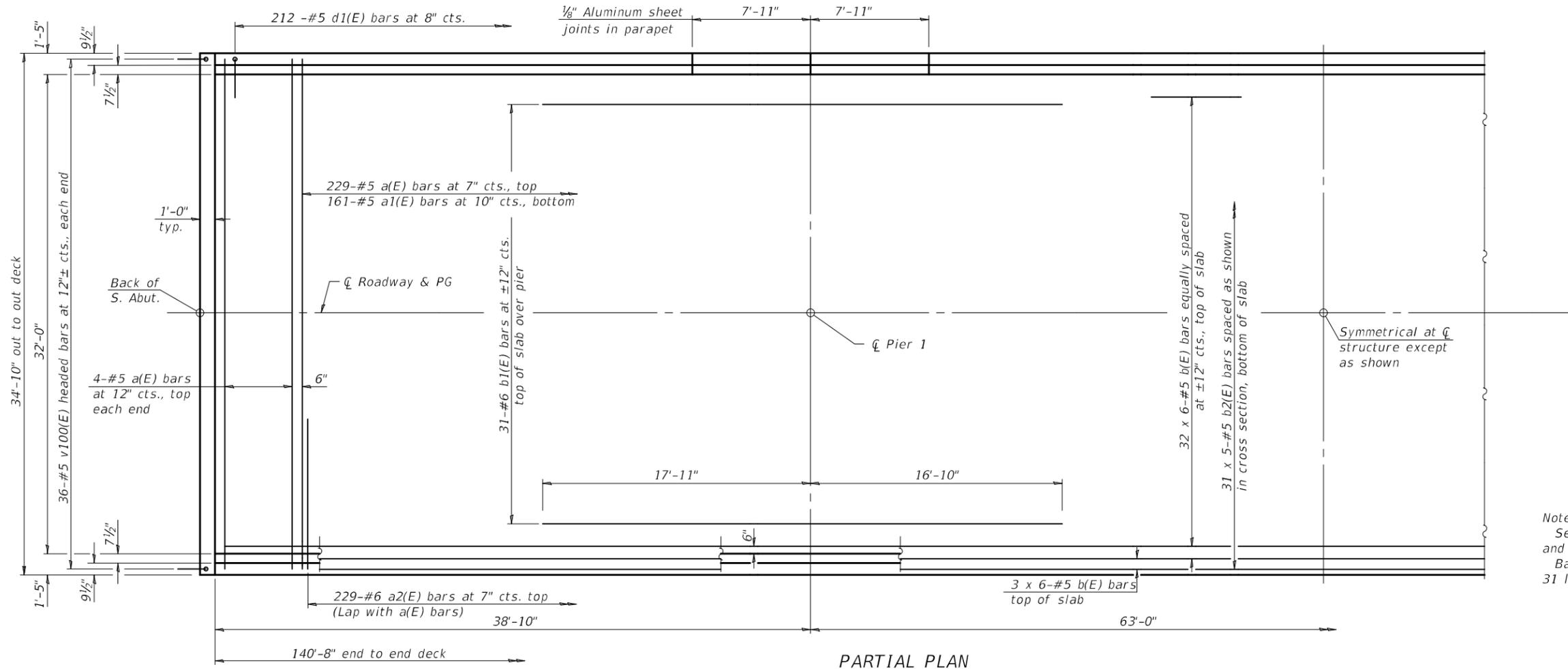
*Joanne F. Joffe*  
ENGINEER OF BRIDGES AND STRUCTURES

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

TOP OF NORTH APPROACH SLAB ELEVATIONS  
STRUCTURE NO. 015-0080

SHEET 6 OF 25 SHEETS

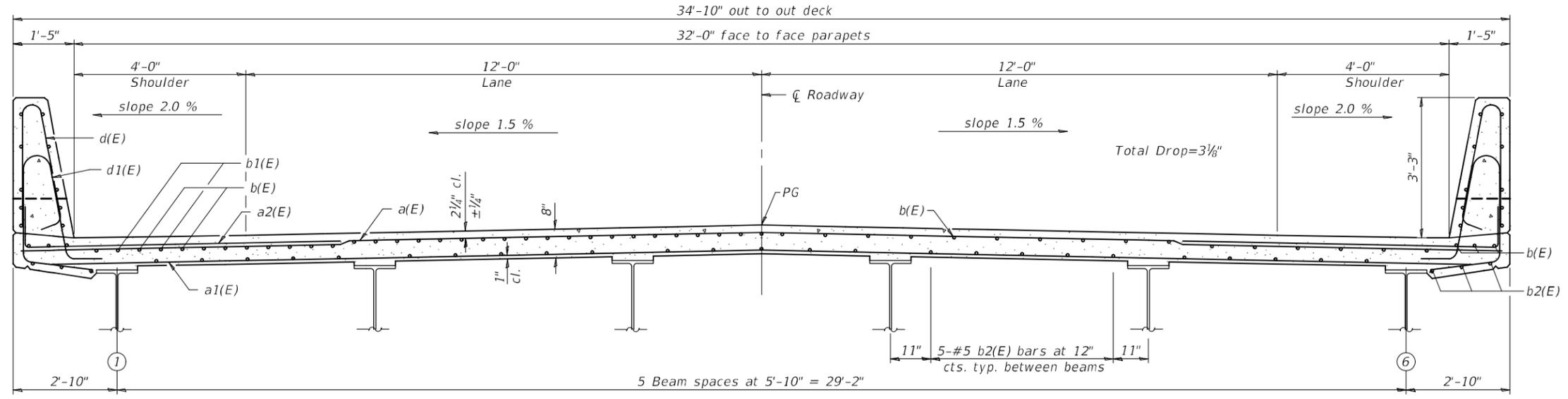
F.A.P. RTE. 824	SECTION (20XB)B-1	COUNTY COLES	TOTAL SHEETS 39	SHEET NO. 16
CONTRACT NO. 74362				
ILLINOIS FED. AID PROJECT				



Notes:  
 See sheet 8 of 25 for superstructure details and Bill of Material.  
 Bars indicated thus 31 x 5-#5 etc. indicates 31 lines of bars with 5 lengths per line.

PARTIAL PLAN

MINIMUM BAR LAP  
 #5 bar = 3'-6"



CROSS SECTION  
 (Looking North)

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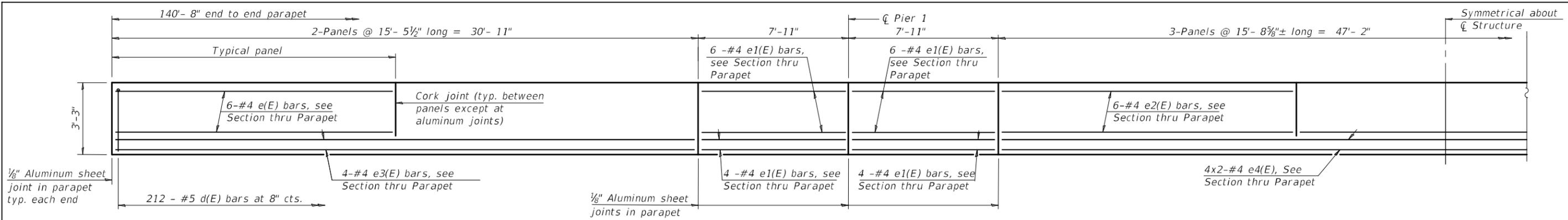
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CHECKED - ADAM STAGGEMEYER	PASSED - <i>Joanne F. Jeff</i>	REVISER -
DRAWN - ALAN JOHNSTONE	ENGINEER OF BRIDGES AND STRUCTURES	REVISER -
CHECKED - H.I.D./A.L.S.		

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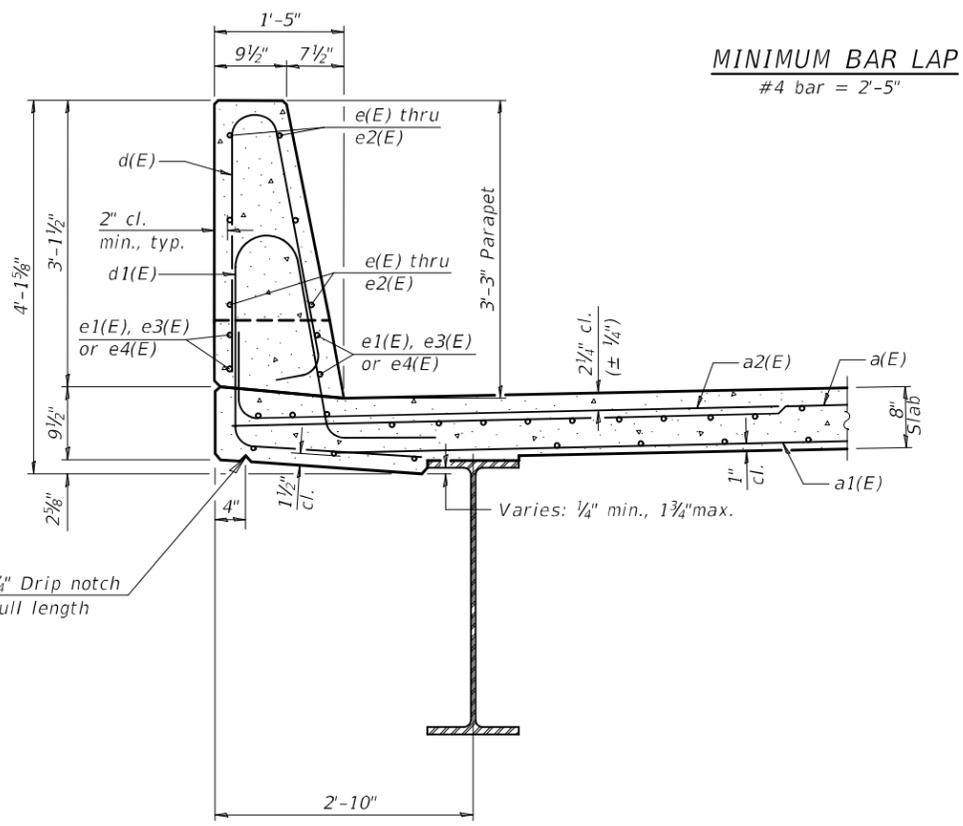
SUPERSTRUCTURE  
 STRUCTURE NO. 015-0080

SHEET 7 OF 25 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
824	(20XB)B-1	COLES	39	17
CONTRACT NO. 74362				
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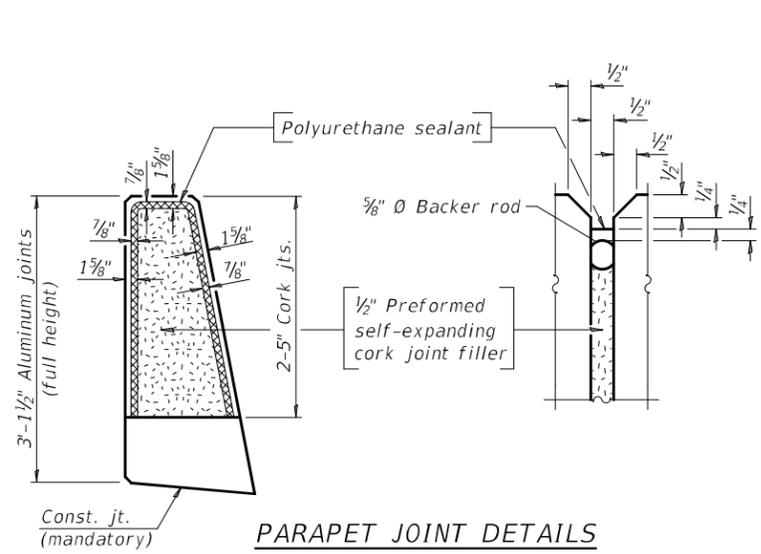


INSIDE ELEVATION OF PARAPET

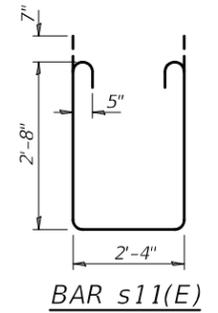
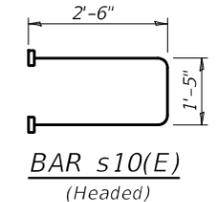
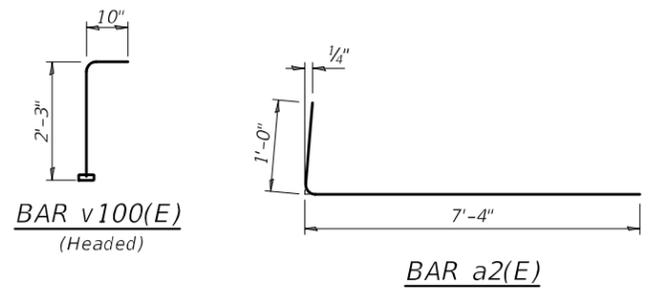


SECTION THRU PARAPET

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



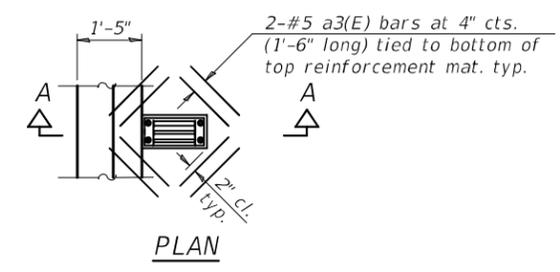
PARAPET JOINT DETAILS



SUPERSTRUCTURE  
BILL OF MATERIAL

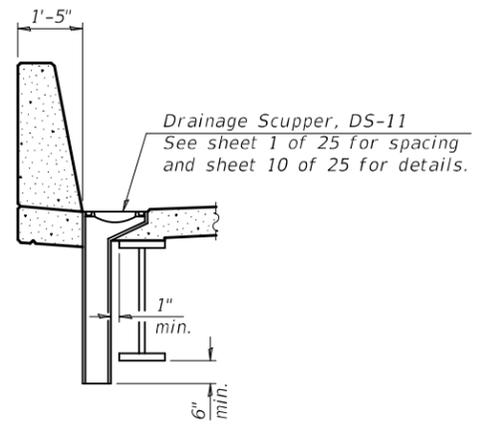
Bar	No.	Size	Length	Shape
† a(E)	237	#5	34'-6"	—
† a1(E)	161	#5	32'-9"	—
† a2(E)	458	#6	8'-4"	—
† a3(E)	32	#5	1'-6"	—
† b(E)	228	#5	26'-6"	—
† b1(E)	62	#6	34'-9"	—
† b2(E)	155	#5	31'-0"	—
d(E)	424	#5	6'-5"	—
d1(E)	424	#5	8'-4"	—
† e(E)	48	#4	15'-2"	—
† e1(E)	80	#4	7'-7"	—
† e2(E)	36	#4	15'-5"	—
† e3(E)	16	#4	30'-7"	—
† e4(E)	16	#4	24'-9"	—
m10(E)	8	#6	34'-6"	—
m11(E)	30	#6	5'-6"	—
m12(E)	12	#6	2'-6"	—
s10(E)	62	#5	6'-5"	—
s11(E)	62	#5	8'-10"	—
v100(E)	72	#5	3'-1"	—
Reinforcement Bars, Epoxy Coated		Lbs.	44,660	
Concrete Superstructure		Cu. Yds.	185.3	

Notes:  
The 1/8" aluminum sheet shall be ASTM B 209 alloy 3003-H14 and coated to minimize reaction with wet concrete. Cost included with Concrete Superstructure.  
The polyurethane sealant shall be according to Article 1050.04 of the Std. Spec. and the color shall be gray.  
Headed bars shall conform to ASTM A970 with threaded attachment; Class HA; and reinforcement bars conforming to ASTM A706. Cost included with Reinforcement Bars, Epoxy Coated.

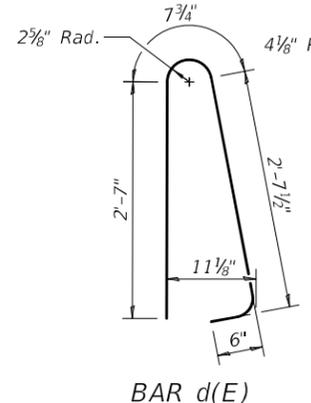


PLAN

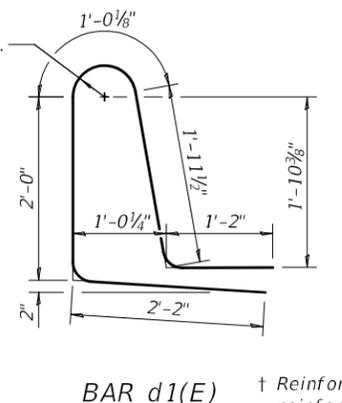
Note:  
Cut longitudinal reinforcement to clear drainage scuppers.



SECTION A-A



BAR d(E)



BAR d1(E)

† Reinforcement bars shall be textured epoxy coated reinforcement bars. See Special Provisions.

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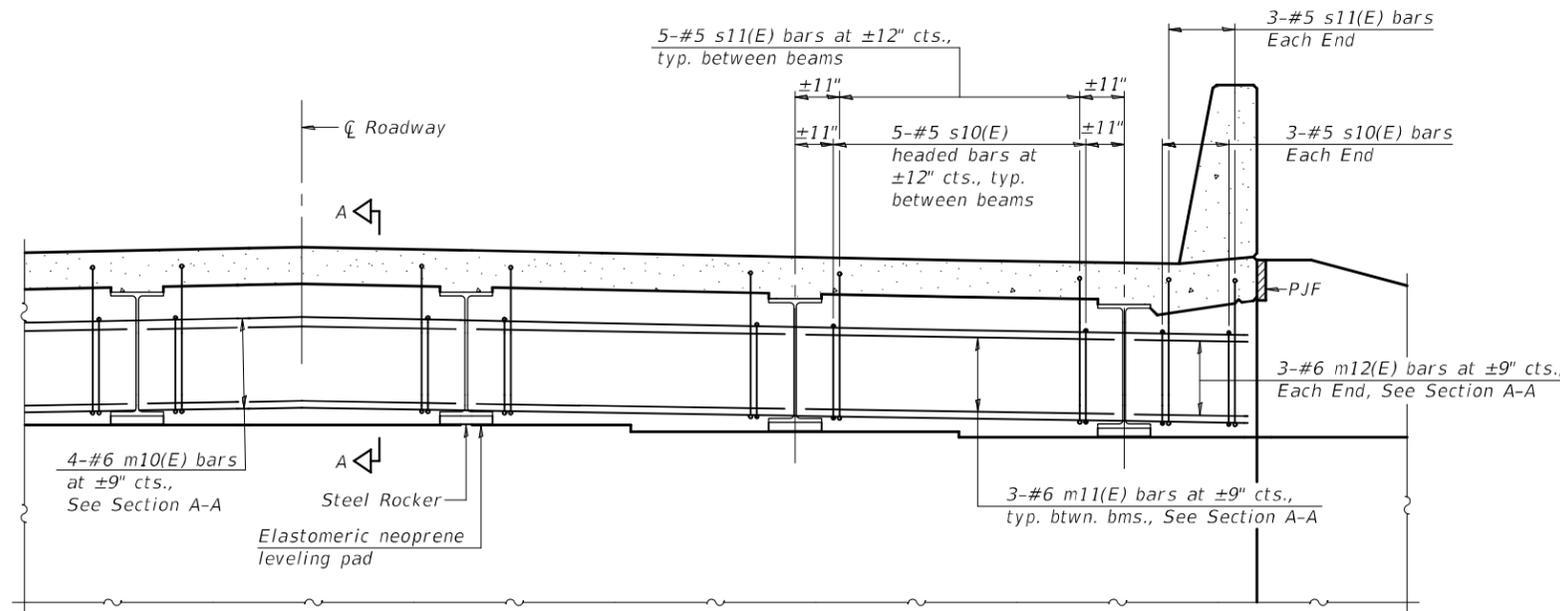
DESIGNED - HAREEM I DAR	EXAMINED - <i>Joanne F. Jeff</i>	DATE - OCTOBER 11, 2022
CHECKED - ADAM STAGGEMEYER	PASSED - <i>Joanne F. Jeff</i>	REVISOR -
DRAWN - ALAN JOHNSTONE		REVISOR -
CHECKED - H.I.D./A.L.S.		

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

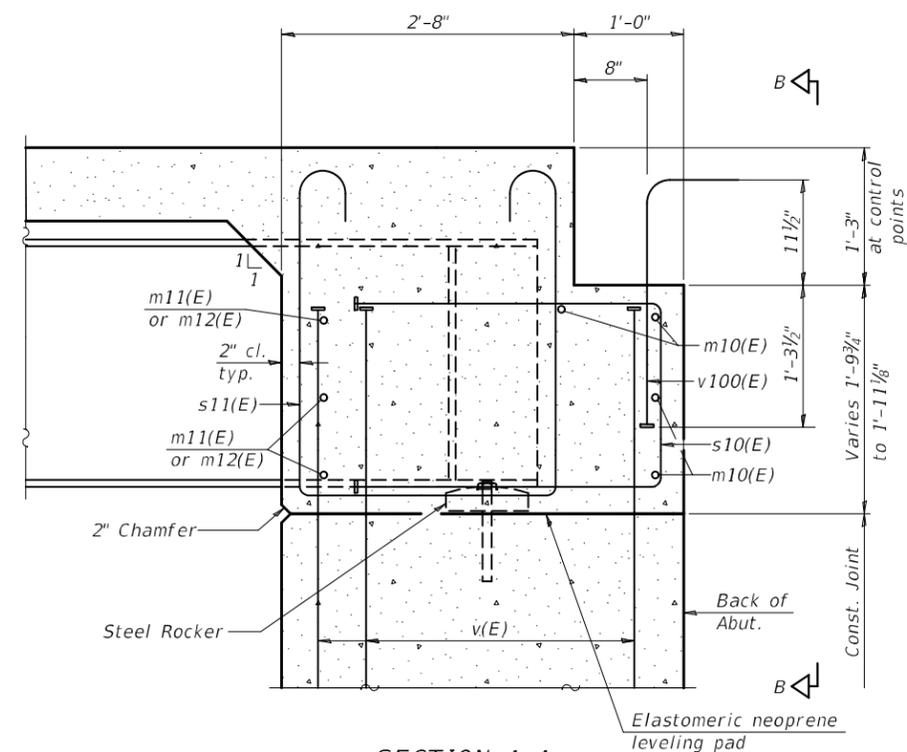
SUPERSTRUCTURE DETAILS  
STRUCTURE NO. 015-0080

SHEET 8 OF 25 SHEETS

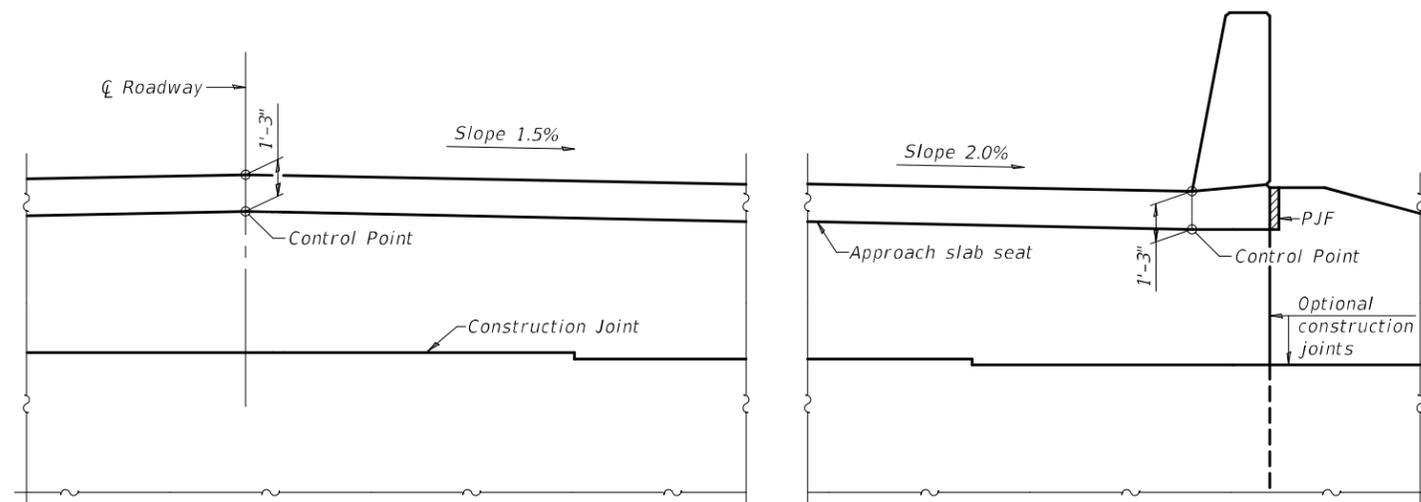
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
824	(20XB)B-1	COLES	39	18
CONTRACT NO. 74362				
ILLINOIS FED. AID PROJECT				



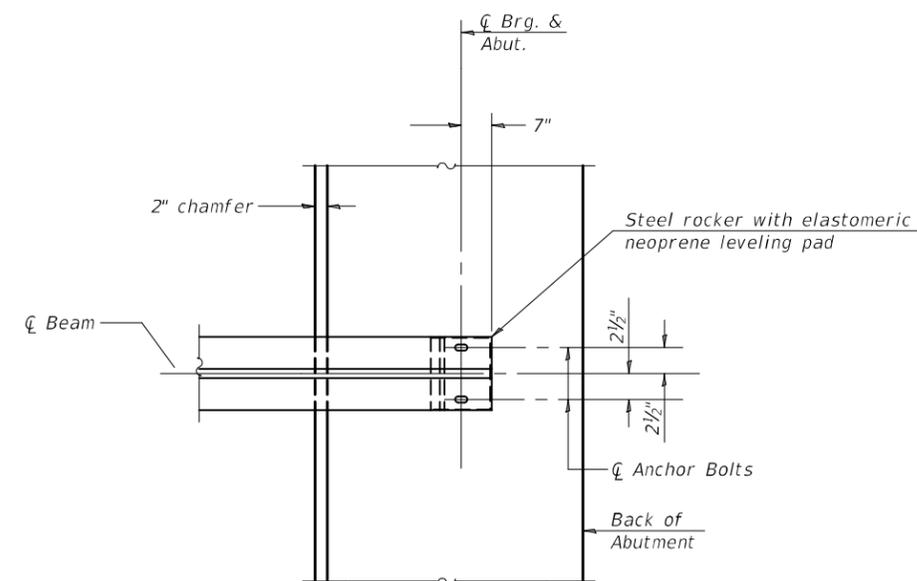
DIAPHRAGM AT ABUTMENT



SECTION A-A



VIEW B-B



PLAN AT ABUTMENT

(Showing bottom flange of beam)

Notes:  
 See sheet 8 of 25 for superstructure details and Bill of Material.  
 See sheet 11 of 25 for P.J.F. details.  
 The approach slab seat shall have a constant slope determined from the control points shown.

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DIA-SB-0 06-15-2019

DESIGNED - HAREEM I DAR	EXAMINED
CHECKED - ADAM STAGGEMEYER	PASSED
DRAWN - ALAN JOHNSTONE	
CHECKED - H.I.D./A.L.S.	

Signature: *Joanne F. Jeff*  
 ENGINEER OF BRIDGES AND STRUCTURES

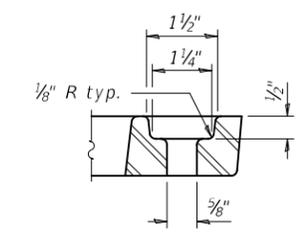
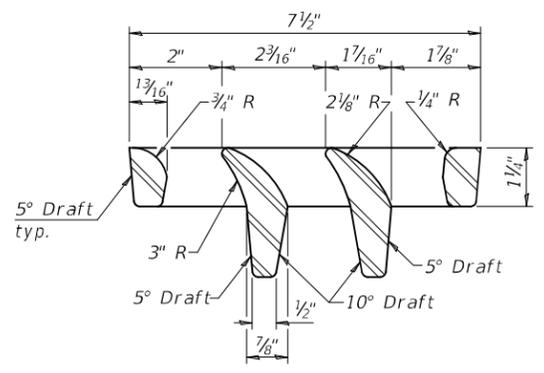
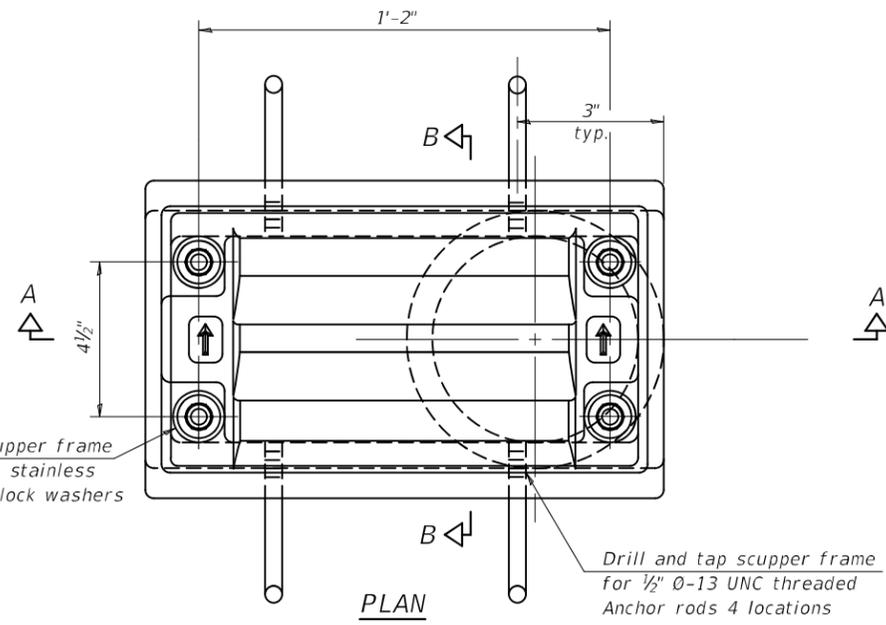
DATE - OCTOBER 11, 2022
REVISED -
REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

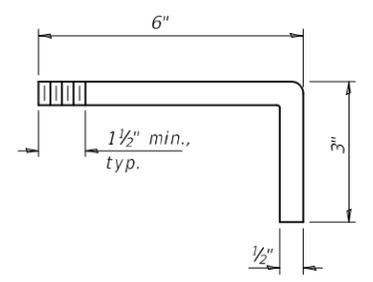
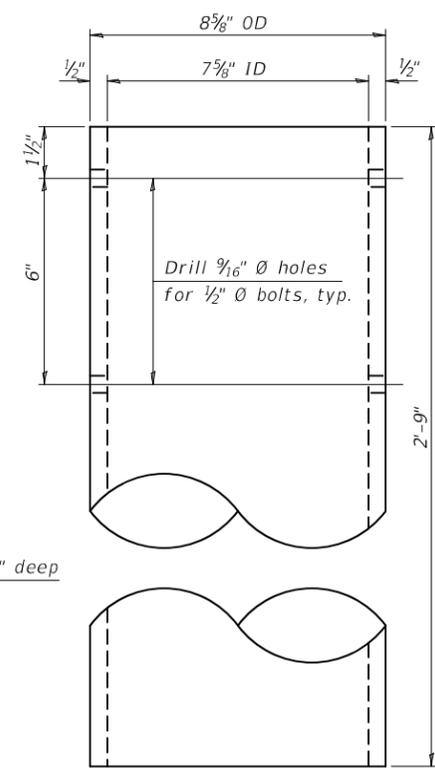
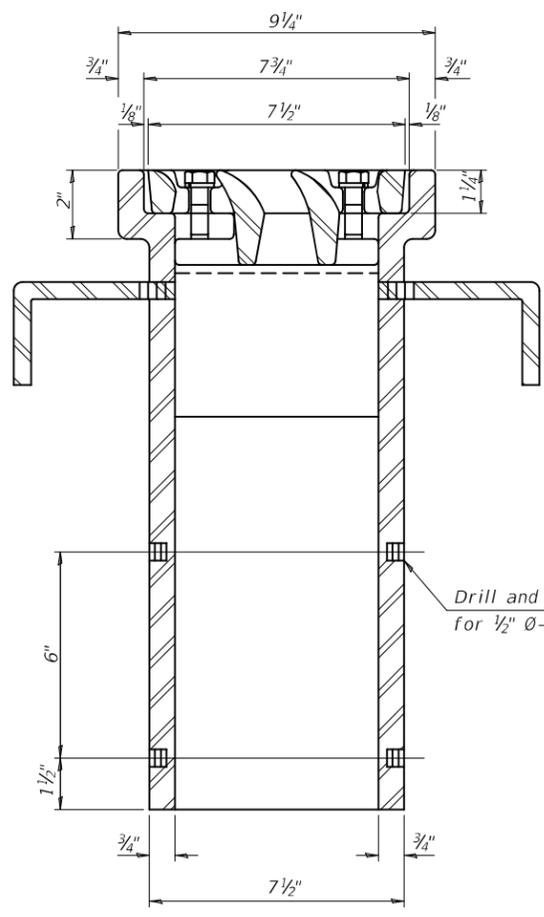
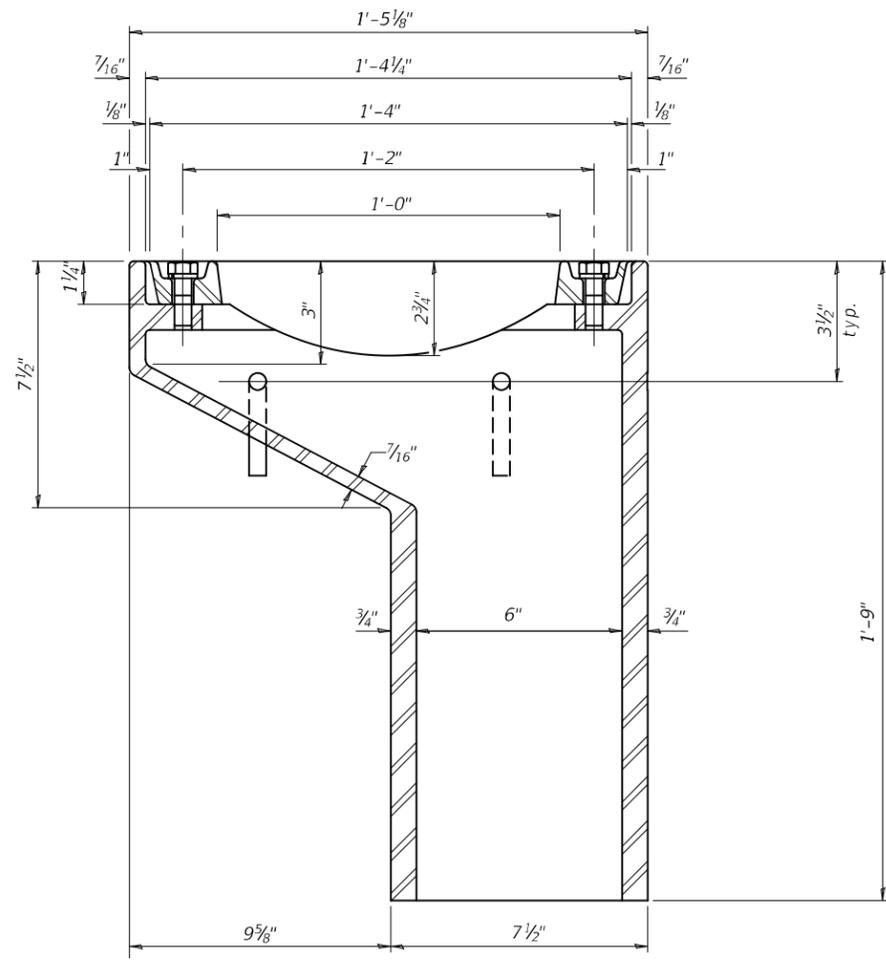
DIAPHRAGM DETAILS  
 STRUCTURE NO. 015-0080

SHEET 9 OF 25 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
824	(20XB)B-1	COLES	39	19
CONTRACT NO. 74362				
ILLINOIS FED. AID PROJECT				



Notes:  
 All cast iron parts shall be gray iron conforming to the requirements of AASHTO M105, Class 35B and AASHTO M306.  
 Bolts, anchor rods, nuts and washers shall be according to ASTM A307 and shall be galvanized according to AASHTO M232. As an alternate stainless steel may be used.  
 Stainless steel hardware shall be according to Article 1006.29(d) of the Standard Specifications.  
 Structural steel weldments of equal sections and of the same configuration may be substituted for the cast iron scupper frames and downspouts; however, the scupper grates shall remain cast iron. Fillet or full penetration welds shall be used for the weldments. Details shall be submitted to the Engineer for approval.  
 Structural steel scupper frames and downspouts, when utilized, shall be galvanized according to AASHTO M111.  
 As an alternate, fiberglass may be used for downspouts according to ASTM D2996 with a short-time rupture strength hoop tensile stress of 30,000 psi min. in lieu of the cast iron or structural steel.  
 Exterior surfaces of downspouts and exterior exposed surfaces of the scupper frame below deck shall be pigmented or painted to match the color of the adjacent girder.  
 The Contractor shall take appropriate measures to assure that Protective Coat is not applied to the scupper.  
 Cost of the grate, frame, downspout, anchor rods, nuts and washers including complete installation of the scupper shall be paid for at the contract unit price for Drainage Scupper, DS-11.



**BILL OF MATERIAL**

ITEM	UNIT	QUANTITY
Drainage Scupper, DS-11	Each	4

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DS-11

1-1-2020

DESIGNED - HAREEM I DAR	EXAMINED -
CHECKED - ADAM STAGGEMEYER	PASSED -
DRAWN - ALAN JOHNSTONE	
CHECKED - H.I.D./A.L.S.	

DATE - OCTOBER 11, 2022

REVISOR: *Joanne F. Hoff*  
 ENGINEER OF BRIDGES AND STRUCTURES

REVISOR -	DATE -
REVISOR -	DATE -

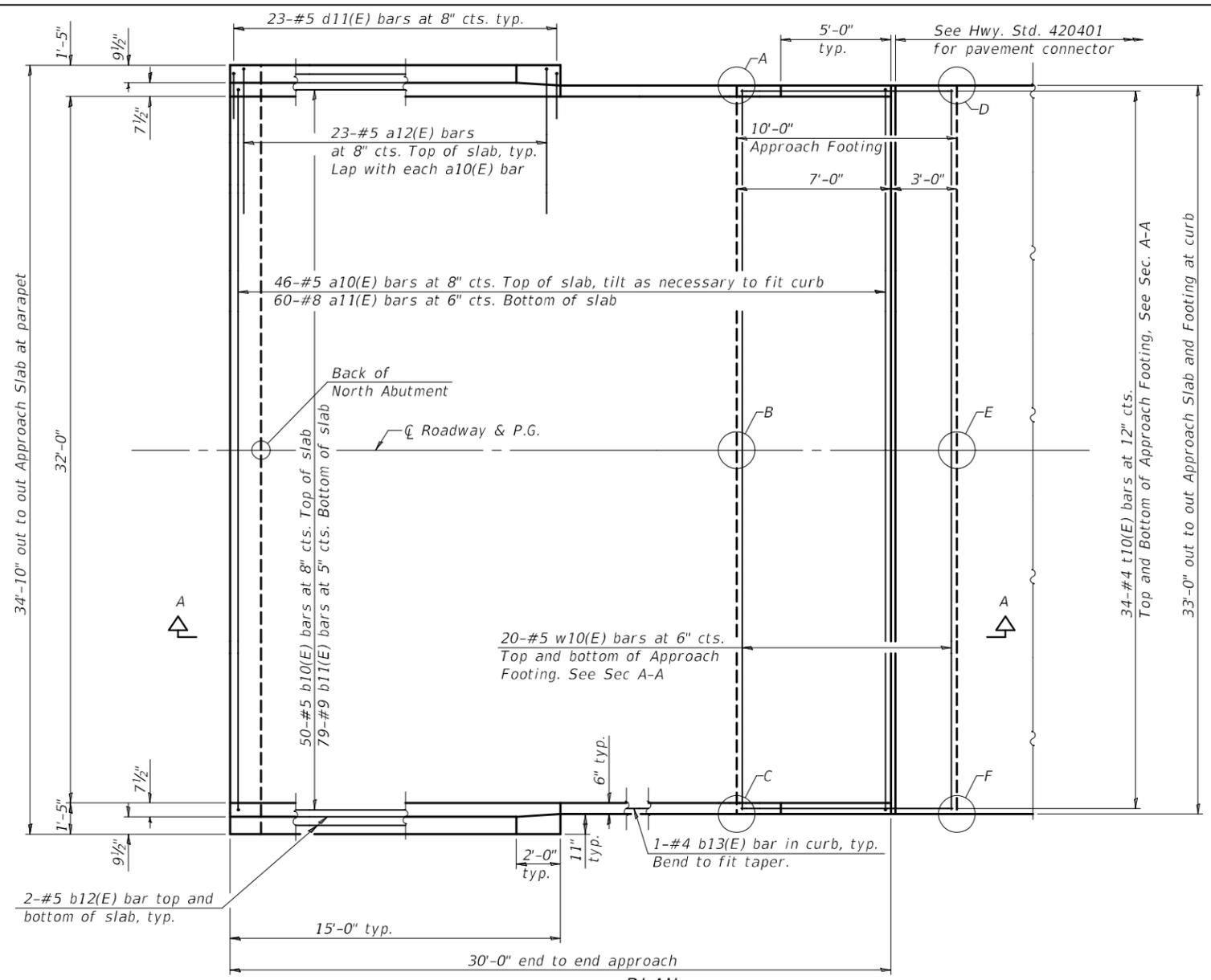
STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

DRAINAGE SCUPPER, DS-11  
 STRUCTURE NO. 015-0080

SHEET 10 OF 25 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
824	(20XB)B-1	COLES	39	20
CONTRACT NO. 74362				
ILLINOIS FED. AID PROJECT				

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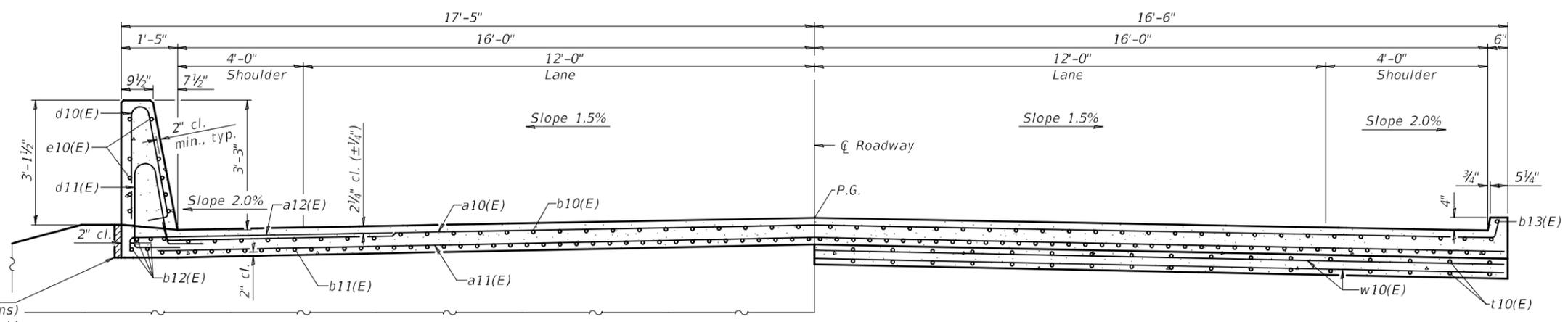


**PLAN**

(North approach slab shown; South approach slab similar by 180° rotation)

**TOP AND BOTTOM ELEVATIONS  
FOR APPROACH FOOTING**

South Approach			North Approach		
Point/Location	Top	Bottom	Point/Location	Top	Bottom
A - NE	652.80	651.97	A - SW	651.78	650.95
B - N CL	653.07	652.24	B - S CL	652.05	651.22
C - NW	652.80	651.97	C - SE	651.78	650.95
D - SE	652.86	652.03	D - NW	651.74	650.91
E - S CL	653.13	652.30	E - N CL	652.01	651.18
F - SW	652.86	652.03	F - NE	651.74	650.91



**NEAR ABUTMENT**

**CROSS SECTION**

(Looking North)

**AT APPROACH FOOTING**

(Sheet 1 of 2)

BAIA-CIP-39CS-0 10-12-2021

DESIGNED - HAREEM I DAR  
 CHECKED - ADAM STAGGEMEYER  
 DRAWN - ALAN JOHNSTONE  
 CHECKED - H.I.D./A.L.S.

EXAMINED  
 PASSED  
 ENGINEER OF BRIDGES AND STRUCTURES

DATE - OCTOBER 11, 2022  
 REVISED -  
 REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

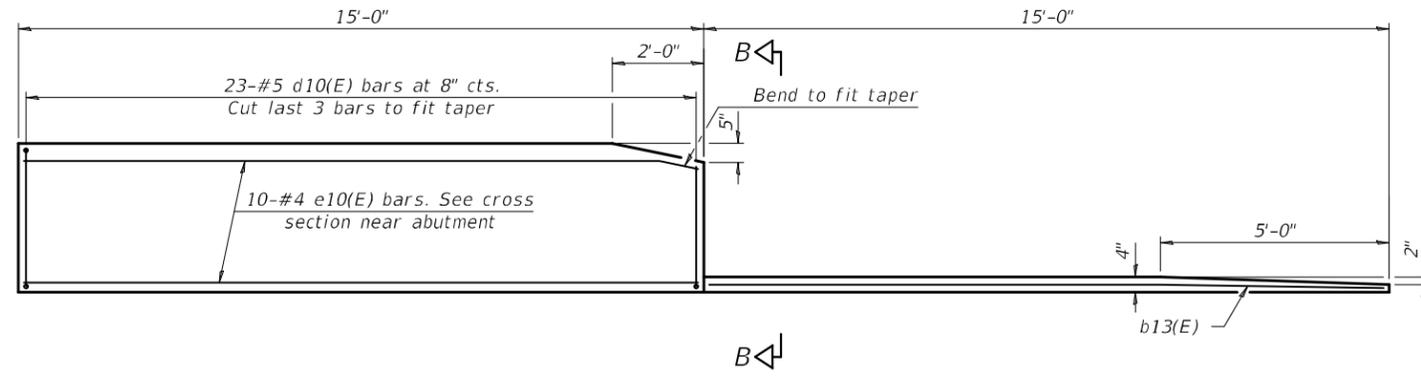
**BRIDGE APPROACH SLAB DETAILS  
STRUCTURE NO. 015-0080**

SHEET 11 OF 25 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
824	(20XB)B-1	COLES	39	21
CONTRACT NO. 74362				

ILLINOIS FED. AID PROJECT

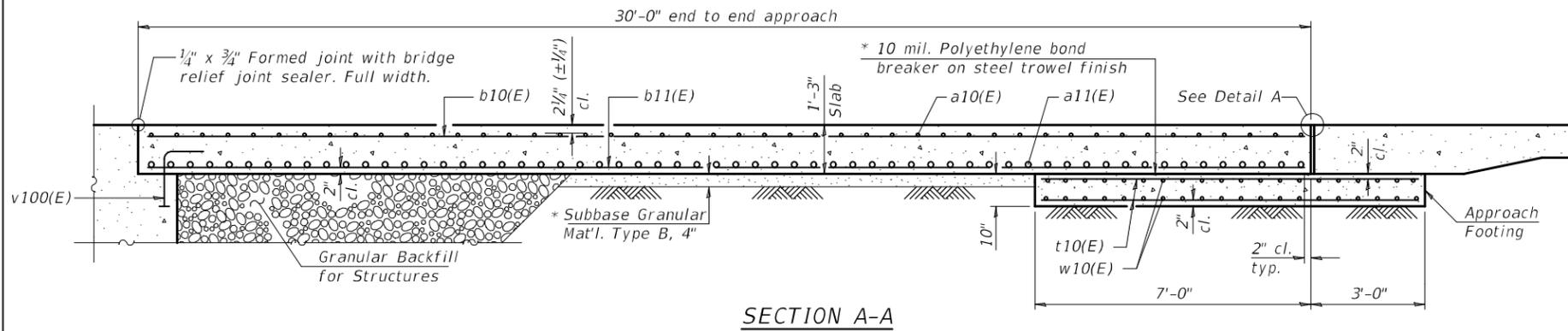
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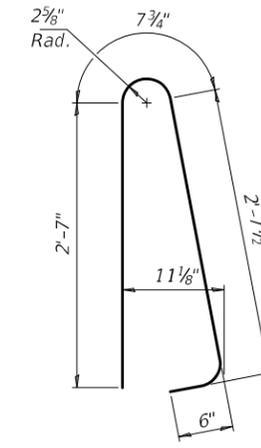
INSIDE ELEVATION OF PARAPET AND CURB

Notes:

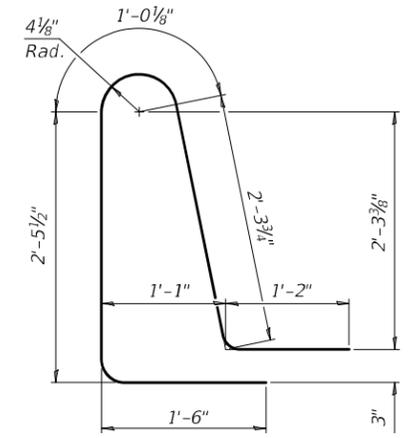
The joint opening shall be adjusted for temperature per Article 520.04 of the Standard Specifications. However, since this detail is for jointless structures, the length of bridge used to calculate the adjustment shall be equal to half the total bridge length plus the length of the bridge approach slab.  
 Parapet concrete shall be paid for as Concrete Superstructure.  
 Approach slab shall be paid for as Concrete Superstructure (Approach Slab).  
 Approach footing concrete shall be paid for as Concrete Structures.  
 The approach footing maximum applied service bearing pressure ( $Q_{max}$ ) = 2.0 ksf.  
 Cost of excavation for approach footing included with Concrete Structures.  
 For Granular Backfill for Structures and drainage treatment details, see sheet 2 of 25.



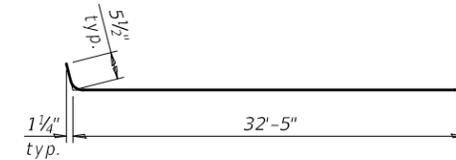
SECTION A-A



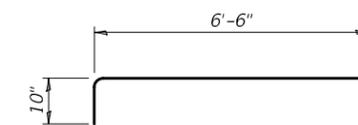
BAR d10(E)



BAR d11(E)



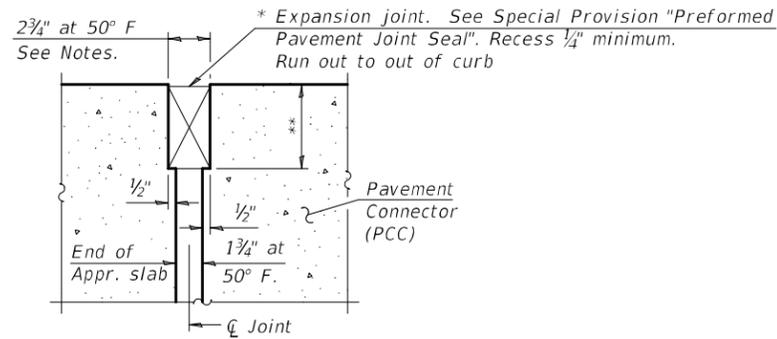
BAR a10(E)



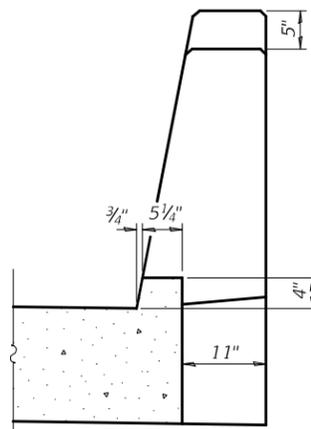
BAR a12(E)

TWO APPROACHES  
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a10(E)	92	#5	33'-4"	—
a11(E)	120	#8	32'-8"	—
a12(E)	92	#5	7'-4"	—
b10(E)	100	#5	29'-8"	—
b11(E)	158	#9	29'-8"	—
b12(E)	16	#5	14'-8"	—
b13(E)	4	#4	14'-8"	—
d10(E)	92	#5	6'-5"	U
d11(E)	92	#5	8'-6"	U
e10(E)	40	#4	14'-8"	—
t10(E)	136	#4	9'-8"	—
w10(E)	80	#5	32'-8"	—
Concrete Superstructure		Cu. Yd.	7.8	
Concrete Superstructure (Approach Slab)		Cu. Yd.	95.4	
Concrete Structures		Cu. Yd.	20.4	
Reinforcement Bars, Epoxy Coated		Pound	39,110	



DETAIL A



VIEW B-B

\* Cost included with Concrete Superstructure (Approach Slab).  
 \*\* Per manufacturer recommendations

† Reinforcement bars shall be textured epoxy coated reinforcement bars. See Special Provisions.

BAIA-CIP-39CS-0 10-12-2021

(Sheet 2 of 2)

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FILE NAME: p:\w\p\w\benley.com\FWIDOT\Documents\DOT Offices\Bureau of Bridges and Structures\Projects\0150080\CADD Plans\0150080-74362.dgn

DESIGNED - HAREEM I DAR	EXAMINED - <i>Joanne F. Joffe</i>	DATE - OCTOBER 11, 2022
CHECKED - ADAM STAGGEMEYER	PASSED - <i>Joanne F. Joffe</i>	REVISER -
DRAWN - ALAN JOHNSTONE	ENGINEER OF BRIDGES AND STRUCTURES	REVISER -
CHECKED - H.I.D./A.L.S.		

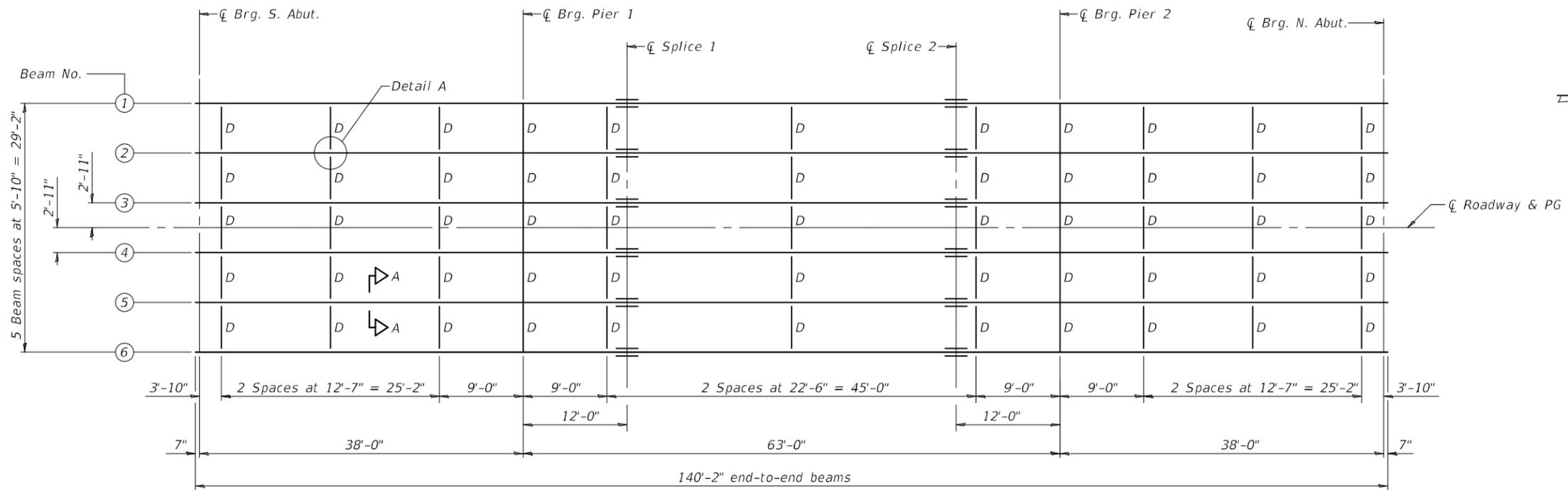
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

BRIDGE APPROACH SLAB DETAILS  
STRUCTURE NO. 015-0080

SHEET 12 OF 25 SHEETS

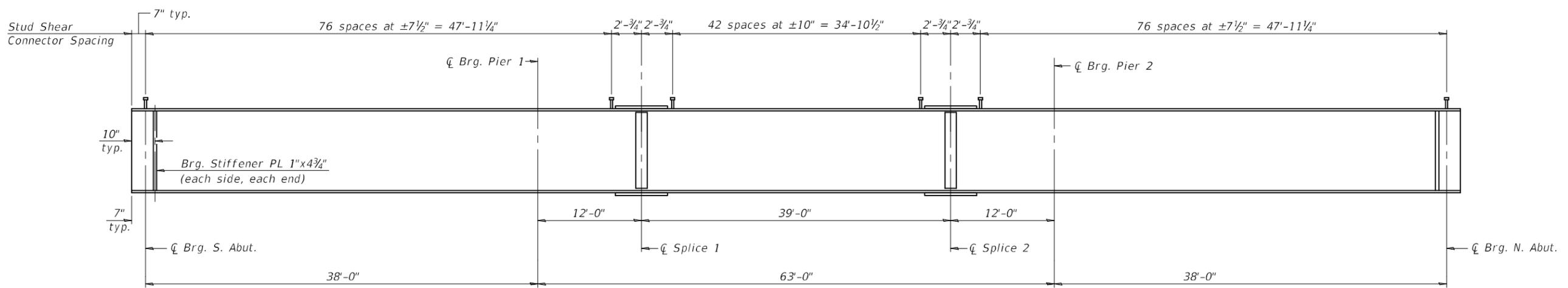
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
824	(20XB)B-1	COLES	39	22
CONTRACT NO. 74362				
ILLINOIS FED. AID PROJECT				

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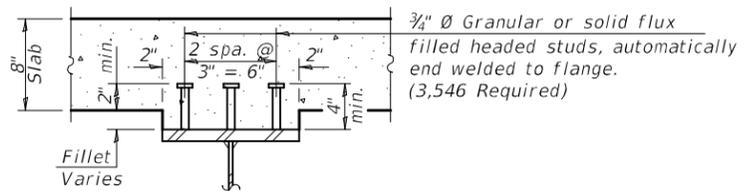


**PLAN**

(All beams are W27x94, AASHTO M270, Grade 50, CVN)



**BEAM ELEVATION**



**SECTION A-A**

**\* TOP OF BEAM ELEVATIONS**

Location	☐ Brg. S. Abut.	☐ Brg. Pier 1	☐ Splice 1	☐ Splice 2	☐ Brg. Pier 2	☐ Brg. N. Abut.
Beam 1	653.25	653.01	652.93	652.71	652.65	652.47
Beam 2	653.35	653.11	653.03	652.81	652.75	652.57
Beam 3	653.44	653.20	653.12	652.90	652.84	652.66
Beam 4	653.44	653.20	653.12	652.90	652.84	652.66
Beam 5	653.35	653.11	653.03	652.81	652.75	652.57
Beam 6	653.25	653.01	652.93	652.71	652.65	652.47

\* For Fabrication use only

Note: See sheet 14 of 25 for additional notes and details.

MODEL: 0150080-74362-013  
FILE NAME: p:\w\pwbentley.com\FWIDOT\Documents\IDOT Offices\Bureau of Bridges and Structures\Projects\0150080\CADD Plans\0150080-74362.dgn

DESIGNED - HAREEM I DAR	EXAMINED - <i>Joanne F. Jeff</i>	DATE - OCTOBER 11, 2022
CHECKED - ADAM STAGGEMEYER	PASSED - <i>Joanne F. Jeff</i>	REVISOR -
DRAWN - ALAN JOHNSTONE	ENGINEER OF BRIDGES AND STRUCTURES	REVISOR -
CHECKED - H.I.D./A.L.S.		

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

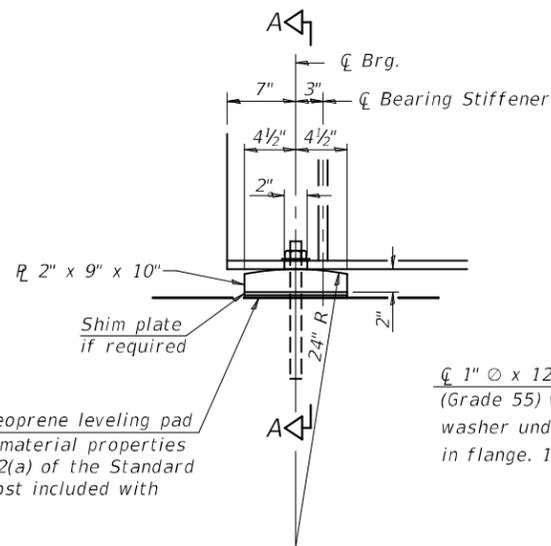
**STRUCTURAL STEEL  
STRUCTURE NO. 015-0080**

F.A.P. RTE. 824	SECTION (20XB)B-1	COUNTY COLES	TOTAL SHEETS 39	SHEET NO. 23
CONTRACT NO. 74362				
ILLINOIS FED. AID PROJECT				

SHEET 13 OF 25 SHEETS

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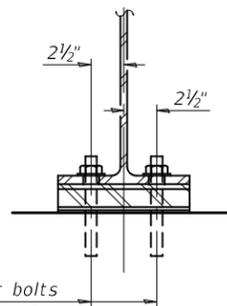
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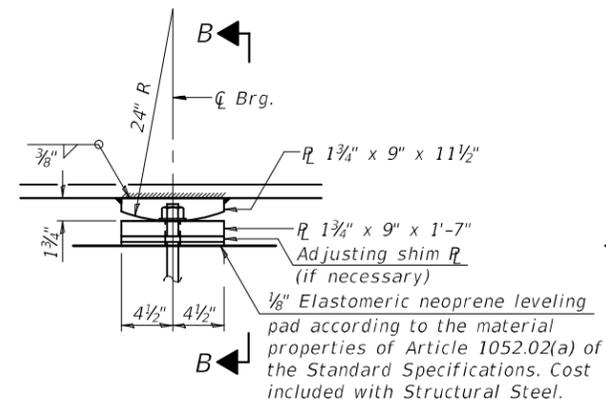
1/8" elastomeric neoprene leveling pad according to the material properties of Article 1052.02(a) of the Standard Specifications. Cost included with Structural Steel.

$\bar{C}$  1"  $\bar{O}$  x 12" All-thread anchor bolts (Grade 55) with 2 1/2" x 2 1/2" x 5/16"  $\bar{R}$  washer under nut. 1 3/8" x 2" slotted holes in flange. 1 1/2"  $\bar{O}$  holes in bearing plates.

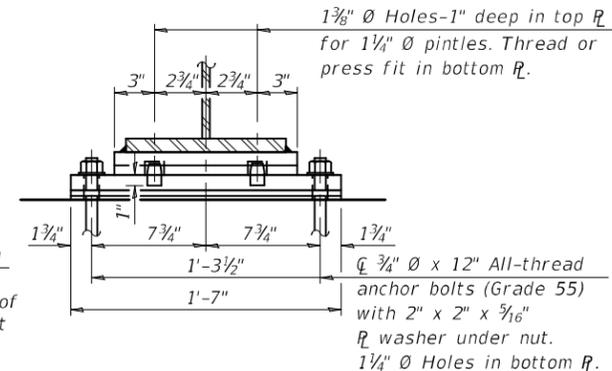
ELEVATION AT ABUTMENT



SECTION A-A

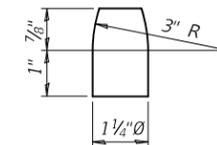


ELEVATION AT PIER



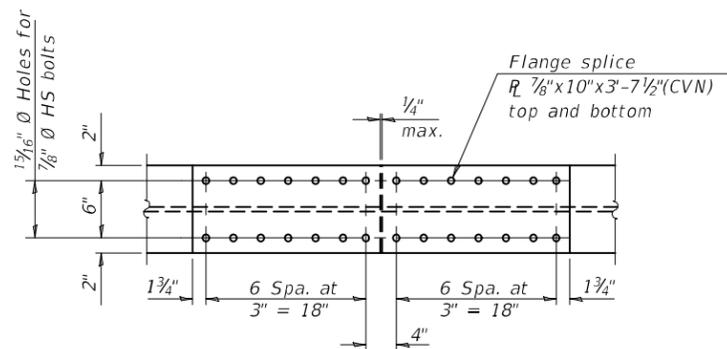
SECTION B-B

FIXED BEARING  
 (12 Required)

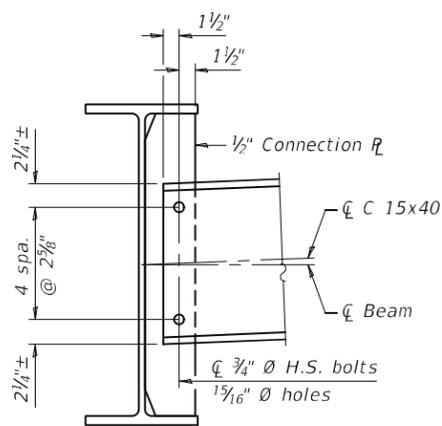


PINTLE

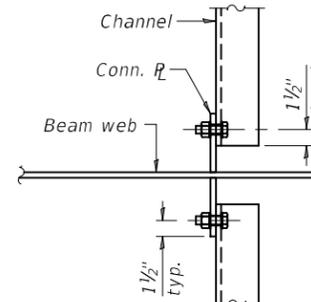
FIXED BEARING  
 (12 Required)



PLAN

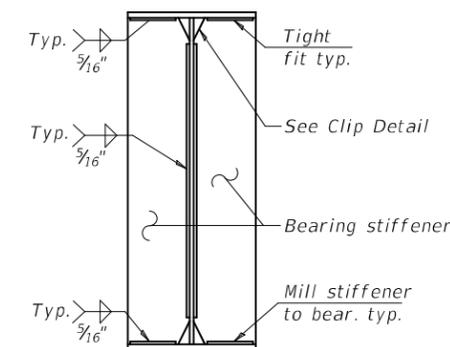


DIAPHRAGM D



DETAIL A

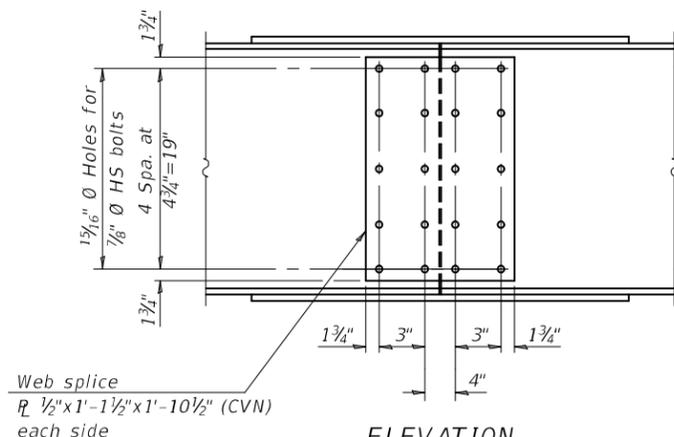
(See sheet 13 of 25 for location.)



BEARING STIFFENER  
 DETAIL

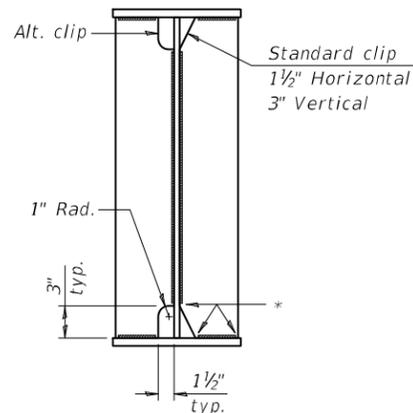
BILL OF MATERIAL

Item	Unit	Total
Anchor Bolts, 3/4"	Each	24
Anchor Bolts, 1"	Each	24



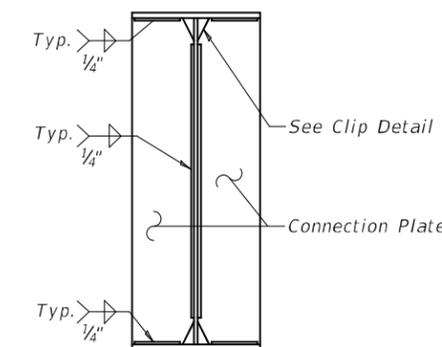
ELEVATION

SPLICE DETAIL  
 (12 Required)



WELD LIMITS AND CLIP DETAILS

\* Stop welds 1/4" ( $\pm$  1/8") from edges as shown. Typical.



CONNECTION PLATE DETAIL

Notes:

Anchor bolts at all supports shall be installed as each member is erected unless an equivalent temporary means of lateral restraint is used.

Two 1/8 inch adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

All bearing plates and pintles shall be AASHTO M270, Grade 50.

All bearing plates, shim plates, anchor bolts, nuts, washers and pintles shall be galvanized according to AASHTO M111 or M232 as applicable.

Two hardened washers required for each set of oversized holes.

Alternate channels of equal depth and larger weight are permitted to facilitate material acquisition. Alternate channels, if utilized, shall be provided at no additional cost to the Department.

All splice plates and bearing stiffeners shall be AASHTO M270, Grade 50.

All diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted. Individual diaphragms at supports may be temporarily disconnected to install bearing anchor rods.

"CVN" denotes Charpy-V-Notch impact energy requirements, zone 2.

DESIGNED - HAREEM I DAR  
 CHECKED - ADAM STAGGEMEYER  
 DRAWN - ALAN JOHNSTONE  
 CHECKED - H.I.D./A.L.S.

EXAMINED  
 PASSED

Jaime F. Joffe  
 ENGINEER OF BRIDGES AND STRUCTURES

DATE - OCTOBER 11, 2022

REVISED -  
 REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL & BEARING DETAILS  
 STRUCTURE NO. 015-0080

SHEET 14 OF 25 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
824	(20XB)B-1	COLES	39	24
CONTRACT NO. 74362				
ILLINOIS FED. AID PROJECT				

MODEL: 0150080-74362-015  
 FILE NAME: p:\w\lido-ppw-bentley.com\FWIDOT\Documents\DOT-Offices\Bureau of Bridges and Structures\Projects\0150080\CADD Plans\0150080-74362.dgn

INTERIOR BEAM MOMENT TABLE				
		0.4 Sp. 1 or 0.6 Sp. 3	Pier 1 or Pier 2	0.5 Sp. 2
Is	(in <sup>4</sup> )	3270	3270	3270
Ic(n)	(in <sup>4</sup> )	10244	10244	10244
Ic(3n)	(in <sup>4</sup> )	7699	7699	7699
Ic(cr)	(in <sup>4</sup> )	-	4810	-
Ss	(in <sup>2</sup> )	243	243	243
Sc(n)	(in <sup>3</sup> )	384	384	384
Sc(3n)	(in <sup>3</sup> )	349	349	349
Sc(cr)	(in <sup>3</sup> )	-	290	-
DC1	(k')	0.724	0.724	0.724
MDC1	('k)	42.1	208.3	150.5
DC2	(k')	0.175	0.175	0.175
MDC2	('k)	10.2	50.3	36.5
DW	(k')	0.292	0.292	0.292
MDW	('k)	17.0	84.0	60.9
LLDF		0.541	0.475	0.541
M <sub>l</sub> + IM	('k)	311.6	365.9	391.2
Mu (Strength I)	('k)	636.2	1089.6	1009.7
Øf Mn	('k)	1838	1487	1838
fs DC1	(ksi)	2.08	10.29	7.43
fs DC2	(ksi)	0.35	1.73	1.26
fs DW	(ksi)	0.58	2.89	2.09
fs (l+IM)	(ksi)	9.74	11.43	12.23
fs (Service II)	(ksi)	15.67	29.77	26.67
0.95Rh Fyf	(ksi)	47.50	47.50	47.50
fs (Total) (Strength I)	(ksi)	-	-	-
Øf Fn	(ksi)	-	-	-
Vf	(k)	20.2	24.2	20.2

BEAM REACTION TABLE					
		Abut.		Pier	
		Interior	Exterior	Interior	Exterior
LLDF		0.658	0.488	0.658	0.488
RDC1	(k)	8.3	8.2	42.0	41.6
RDC2	(k)	2.0	2.0	10.2	10.2
RDW	(k)	3.3	3.1	17.0	15.5
R <sub>l</sub>	(k)	41.4	30.7	70.8	52.5
R <sub>IM</sub>	(k)	11.2	8.3	15.0	11.1
RTotal	(k)	66.2	52.3	155.0	130.9

Is, Ss: Non-composite moment of inertia and section modulus of the steel section used for computing fs(Total-Strength I, and Service II) 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 fs(Total-Strength I, and Service II) in uncracked sections 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 fs(Total-Strength I, and Service II) in uncracked sections, due to long-term composite (superimposed) dead loads (in.<sup>4</sup> and in.<sup>3</sup>).

Ic(cr), Sc(cr): Composite moment of inertia and section modulus of the steel and longitudinal deck reinforcement, used for computing fs (Total-Strength I and Service II) in cracked sections, due to both short-term composite live loads and long-term composite (superimposed) dead loads (in.<sup>4</sup> and in.<sup>3</sup>).

DC1: Un-factored non-composite dead load (kips/ft.).  
 MDC1: Un-factored moment due to non-composite dead load (kip-ft.).  
 DC2: Un-factored long-term composite (superimposed excluding future wearing surface) dead load (kips/ft.).  
 MDC2: Un-factored moment due to long-term composite (superimposed excluding future wearing surface) dead load (kip-ft.).  
 DW: Un-factored long-term composite (superimposed future wearing surface only) dead load (kips/ft.).  
 MDW: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).  
 LLDF: Live Load Distribution Factor for moment and shear computed according to Article 4.6.2.2 and further IDOT provisions.

M<sub>l</sub> + IM: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).  
 Mu (Strength I): Factored design moment (kip-ft.).  
 1.25 (MDC1 + MDC2) + 1.5 MDW + 1.75 M<sub>l</sub> + IM  
 Øf Mn: Compact composite positive moment capacity computed according to Article 6.10.7.1 or non-slender negative moment capacity according to Article A6.1.1 or A6.1.2 (kip-ft.).  
 fs DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).  
 MDC1/ Snc  
 fs DC2: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).  
 MDC2/ Sc(3n) or MDC2/ Sc(cr) as applicable.  
 fs DW: Un-factored stress at edge of flange for controlling steel flange due to vertical composite future wearing surface loads as calculated below (ksi).  
 MDW/ Sc(3n) or MDW/ Sc(cr) as applicable.  
 fs (l+IM): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live load plus impact loads as calculated below (ksi).  
 M<sub>l</sub> + IM / Sc(n) or M<sub>l</sub> + IM / Sc(cr) as applicable.  
 fs (Service II): Sum of stresses as computed below (ksi).  
 fsDC1 + fsDC2 + fsDW + 1.3 fs(l+IM)  
 0.95RhFyf: Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).  
 fs (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).  
 1.25 (fsDC1 + fsDC2) + 1.5 fsDW + 1.75 fs(l+IM)  
 Øf Fn: Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7 or 6.10.8 (ksi).  
 Vf: Maximum factored shear range in span computed according to Article 6.10.10.  
 R DC1: Un-factored reaction due to non-composite dead load (kip).  
 R DC2: Un-factored reaction due to long-term composite (superimposed excluding future wearing surface) dead load (kip).  
 R DW: Un-factored reaction due to long-term composite (superimposed future wearing surface only) dead load (kip).  
 R<sub>l</sub>: Un-factored live load reaction (kip).  
 R<sub>IM</sub>: Un-factored dynamic load allowance (impact)(kip).

DESIGNED - HAREEM I DAR
CHECKED - ADAM STAGGEMEYER
DRAWN - ALAN JOHNSTONE
CHECKED - H.I.D. / A.L.S.

EXAMINED	
PASSED	

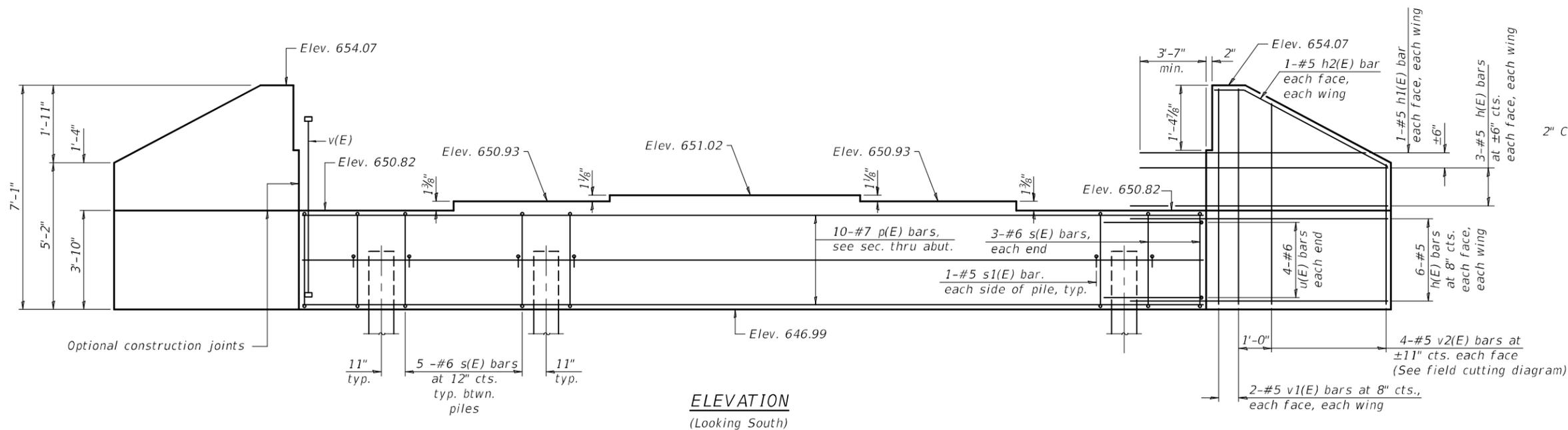
DATE - OCTOBER 11, 2022
REVISED -
REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

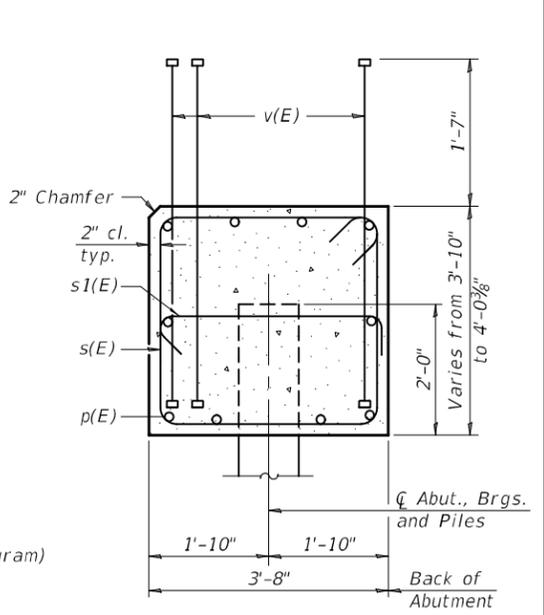
STRUCTURAL STEEL DETAILS  
 STRUCTURE NO. 015-0080

SHEET 15 OF 25 SHEETS

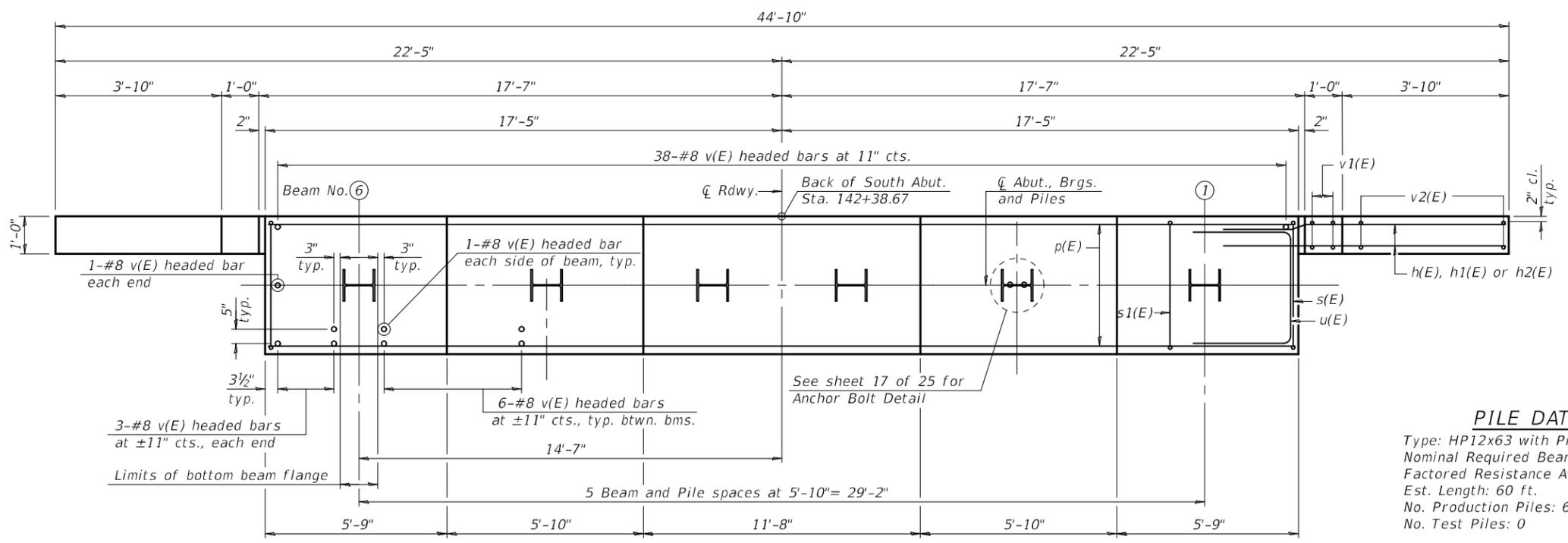
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
824	(20XB)B-1	COLES	39	25
CONTRACT NO. 74362				
ILLINOIS FED. AID PROJECT				



**ELEVATION**  
(Looking South)



**SEC. THRU ABUT.**

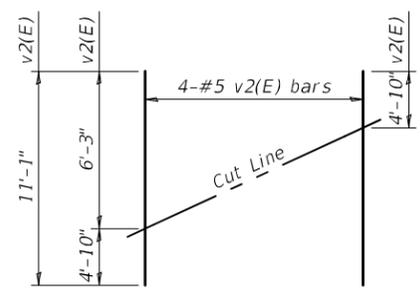


**PLAN**

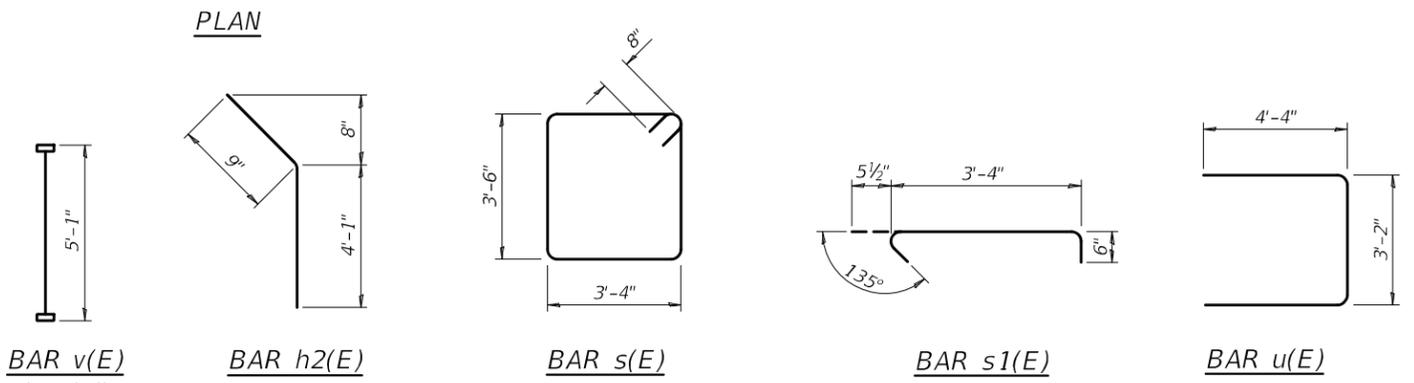
**SOUTH ABUTMENT  
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h(E)	36	#5	8'-5"	—
h1(E)	4	#5	7'-6"	—
h2(E)	4	#5	4'-10"	—
p(E)	10	#7	34'-6"	—
s(E)	31	#6	15'-0"	⊞
s1(E)	12	#5	4'-4"	⊞
u(E)	8	#6	11'-10"	⊞
v(E)	88	#8	5'-1"	⊞
v1(E)	8	#5	6'-9"	⊞
v2(E)	8	#5	11'-1"	⊞
Structure Excavation		Cu. Yd.	83	
Concrete Structures		Cu. Yd.	21.0	
Reinforcement Bars, Epoxy Coated		Pound	3,310	
Furnishing Steel Piles HP 12x63		Foot	360	
Driving Piles		Foot	360	
Pile Shoes		Each	6	

**PILE DATA**  
Type: HP12x63 with Pile Shoes  
Nominal Required Bearing: 497 kips  
Factored Resistance Available: 273 kips  
Est. Length: 60 ft.  
No. Production Piles: 6  
No. Test Piles: 0



**FIELD CUTTING DIAGRAM**



**Notes:**  
Pour steps monolithically with cap.  
Headed bars shall conform to ASTM A970 with threaded attachment; Class HA; and reinforcement bars conforming to ASTM A706. Cost included with Reinforcement Bars, Epoxy Coated.  
For details of piles see sheet 21 of 25.

MODEL: 0150080-74362-016  
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AI-SB-0

6-15-2019

Order v2(E) full length. Cut as shown and use remainder of bars in opposite wing.

DESIGNED - HAREEM I DAR	EXAMINED - <i>Joanne F. Jeff</i>	DATE - OCTOBER 11, 2022
CHECKED - ADAM STAGGEMEYER	PASSED - <i>Joanne F. Jeff</i>	REVISIONS -
DRAWN - ALAN JOHNSTONE		
CHECKED - H.I.D./A.L.S.		

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	
SOUTH ABUTMENT STRUCTURE NO. 015-0080	
SHEET 16 OF 25 SHEETS	

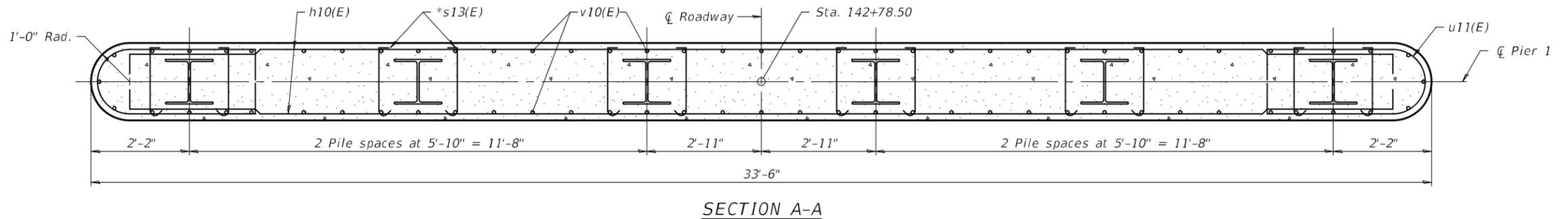
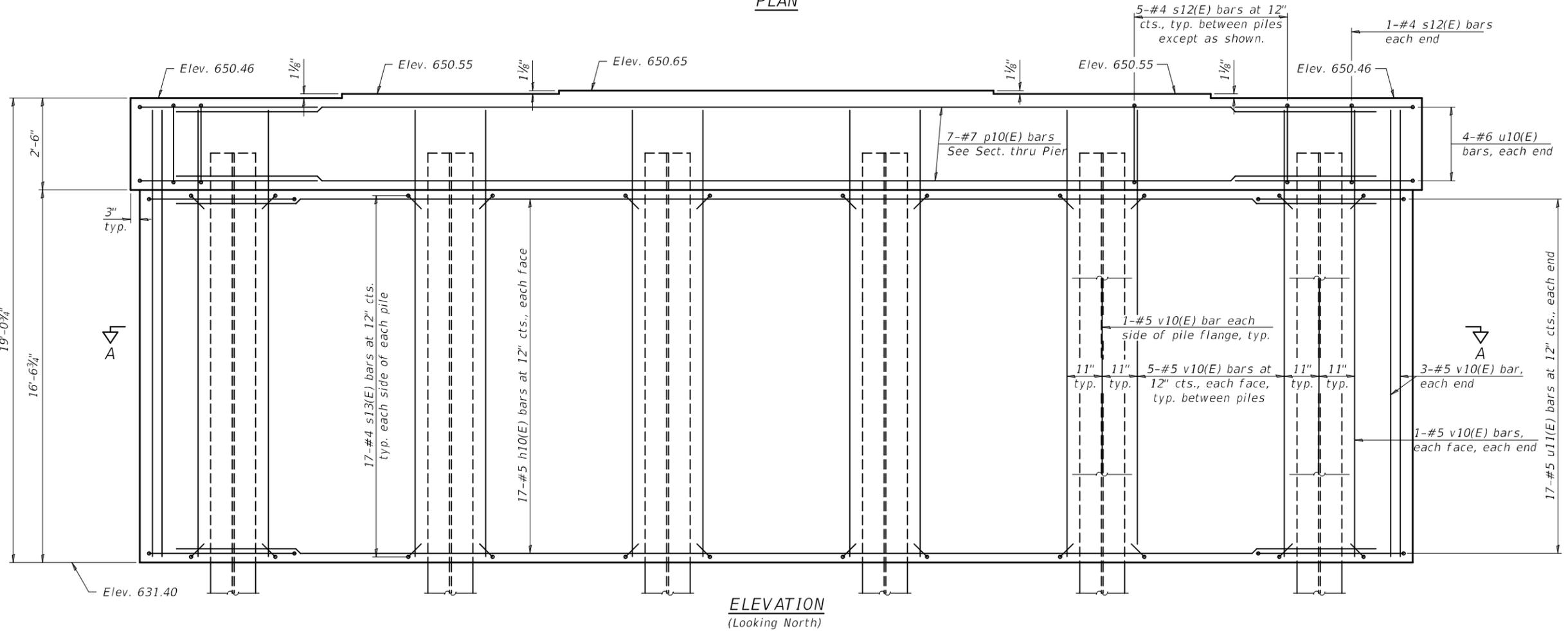
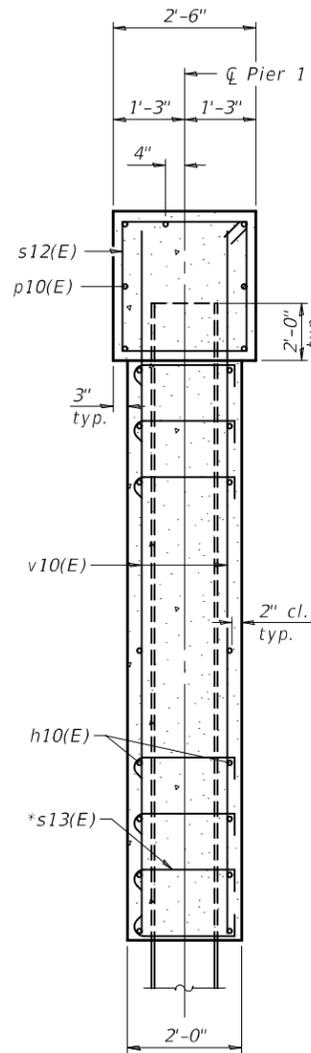
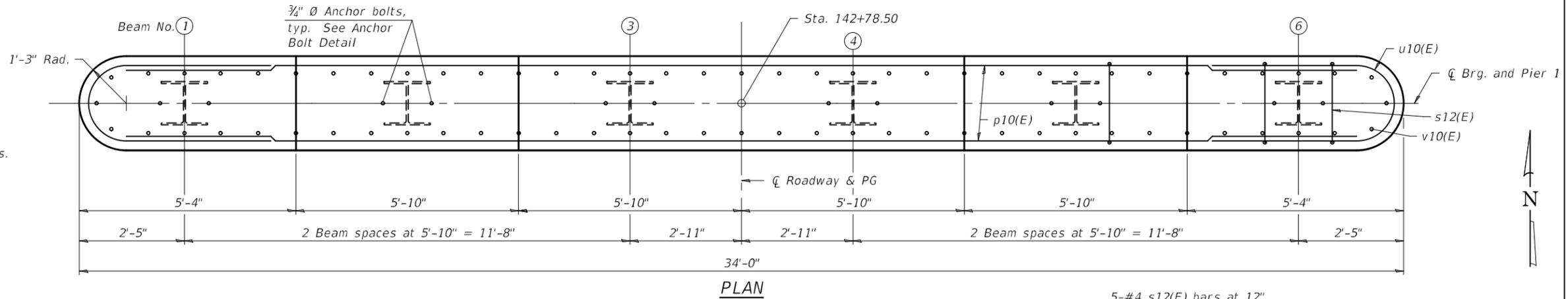
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
824	(20XB)B-1	COLES	39	26
CONTRACT NO. 74362				
ILLINOIS FED. AID PROJECT				

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION				
SOUTH ABUTMENT STRUCTURE NO. 015-0080				
SHEET 16 OF 25 SHEETS				



Notes:  
 Pour steps monolithically with cap.  
 See sheet 20 of 25 for additional pier details and Bill of Material.  
 Space reinforcement in cap to miss anchor bolts.  
 For details of piles, see sheet 21 of 25.  
 For Cofferdam Details, see sheet 20 of 25.

\*Hook s13(E) bar around h10(E) and v10(E) bars.  
 Clear cover for the s13(E) bar will be 1 1/2".



MODEL: 0150080-74362-018  
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DESIGNED - HAREEM I DAR	EXAMINED -
CHECKED - ADAM STAGGEMEYER	PASSED -
DRAWN - ALAN JOHNSTONE	
CHECKED - H.I.D./A.L.S.	

10/12/2022 3:48:38 PM  
 Joanne F. Joffe  
 ENGINEER OF BRIDGES AND STRUCTURES

DATE - OCTOBER 11, 2022
REVISED -
REVISED -

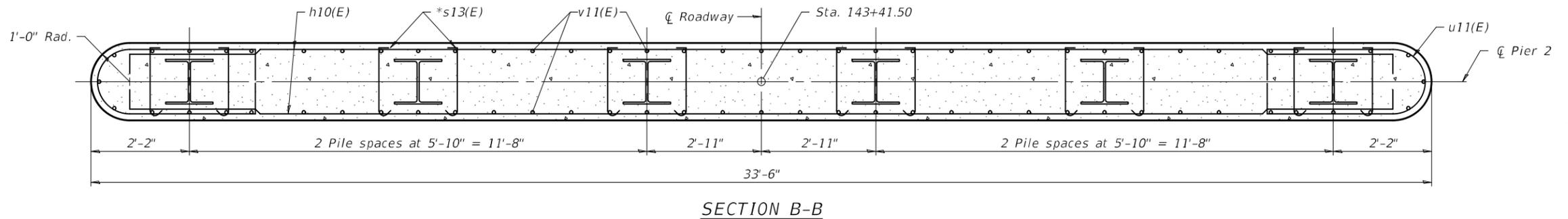
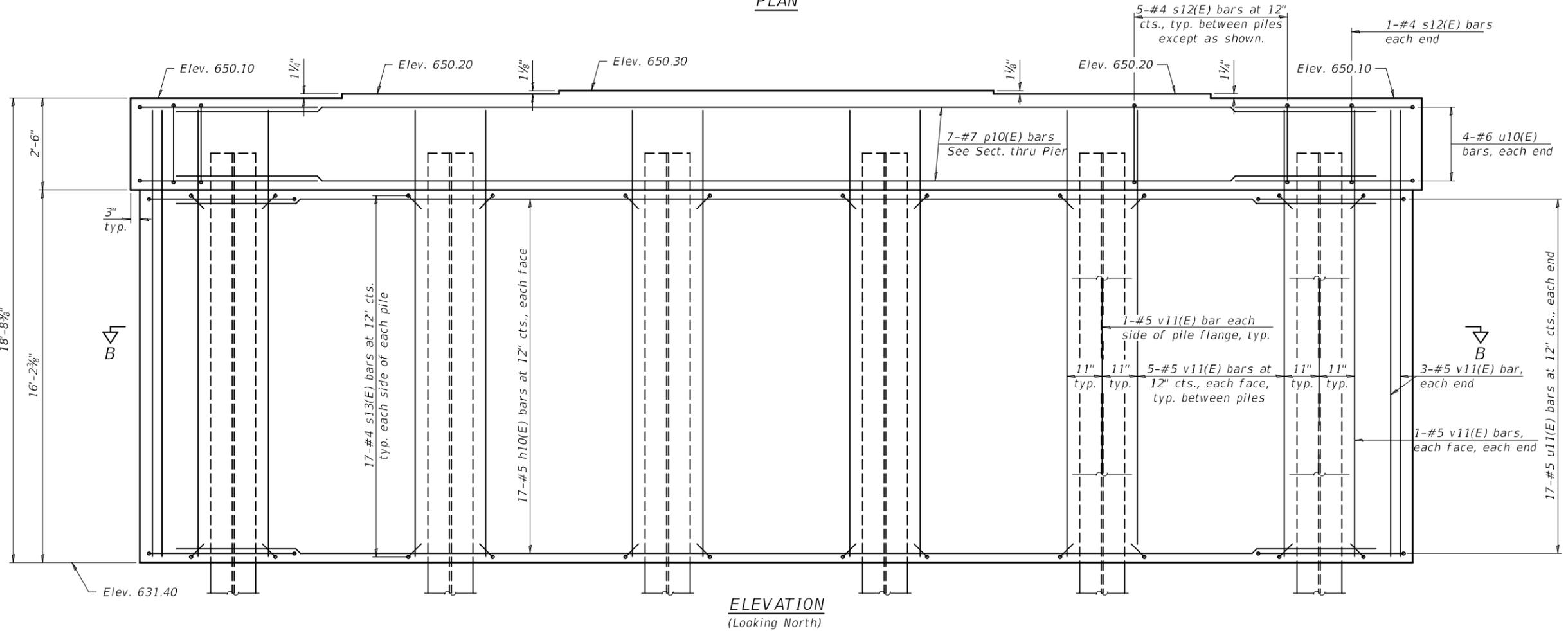
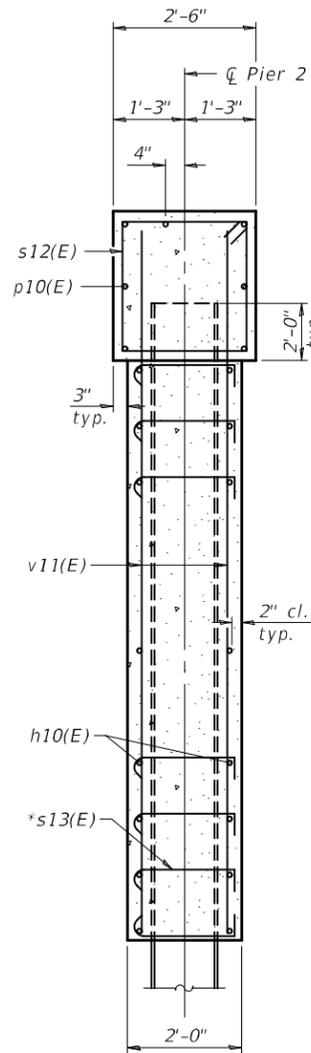
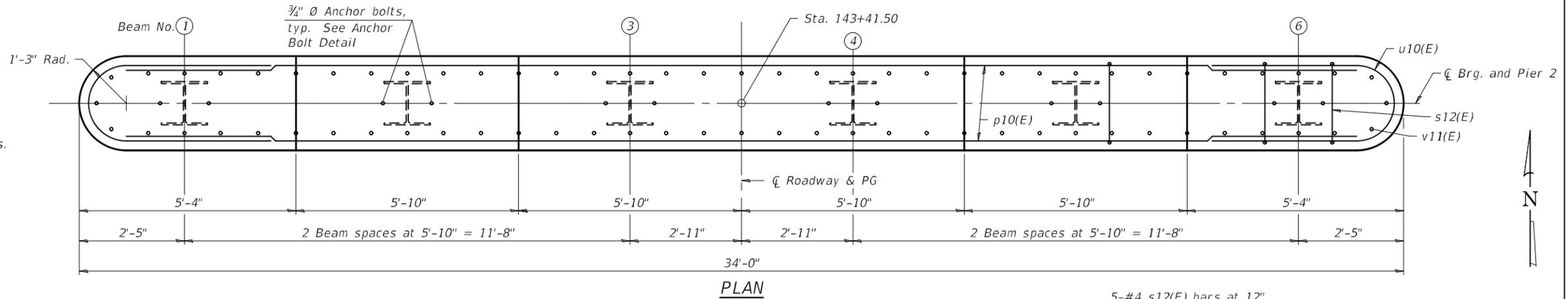
STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

PIER 1  
 STRUCTURE NO. 015-0080  
 SHEET 18 OF 25 SHEETS

F.A.P. RTE. 824	SECTION (20XB)B-1	COUNTY COLES	TOTAL SHEETS 39	SHEET NO. 28
CONTRACT NO. 74362				
ILLINOIS FED. AID PROJECT				

Notes:  
 Pour steps monolithically with cap.  
 See sheet 20 of 25 for additional pier details and Bill of Material.  
 Space reinforcement in cap to miss anchor bolts.  
 For details of piles, see sheet 21 of 25.  
 For Cofferdam Details, see sheet 20 of 25.

\*Hook s13(E) bar around h10(E) and v11(E) bars.  
 Clear cover for the s13(E) bar will be 1 1/2".



MODEL: 0150080-74362-019  
 FILE NAME: p:\w\pwbentley.com\FWIDOT\Documents\Bureau of Bridges and Structures\Projects\0150080\CADD Plans\0150080-74362.dgn

DESIGNED - HAREEM I DAR	EXAMINED -
CHECKED - ADAM STAGGEMEYER	PASSED -
DRAWN - ALAN JOHNSTONE	
CHECKED - H.I.D./A.L.S.	

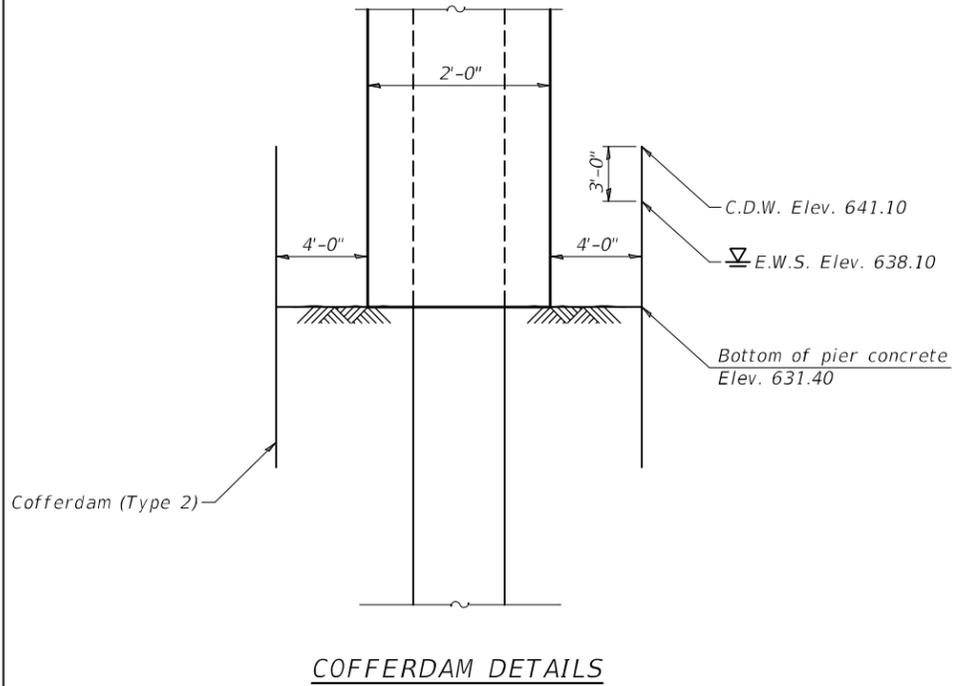
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*Joanne F. Jeff*  
 ENGINEER OF BRIDGES AND STRUCTURES

DATE - OCTOBER 11, 2022
REVISED -
REVISED -

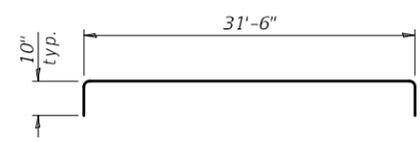
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**PIER 2**  
**STRUCTURE NO. 015-0080**  
 SHEET 19 OF 25 SHEETS

F.A.P. RTE. 824	SECTION (20XB)B-1	COUNTY COLES	TOTAL SHEETS 39	SHEET NO. 29
CONTRACT NO. 74362				
ILLINOIS FED. AID PROJECT				



**COFFERDAM DETAILS**



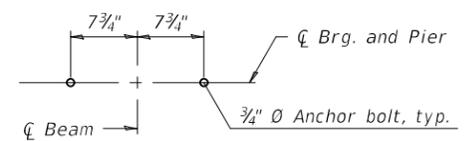
**BAR h10(E)**

**PIER 1  
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h10(E)	34	#5	33'-2"	[Symbol]
p10(E)	7	#7	31'-6"	[Symbol]
s12(E)	27	#4	9'-5"	[Symbol]
s13(E)	204	#4	2'-10"	[Symbol]
u10(E)	8	#6	12'-0"	[Symbol]
u11(E)	34	#5	10'-6"	[Symbol]
v10(E)	72	#5	18'-8"	[Symbol]
Concrete Structures			Cu. Yd.	48.7
Reinforcement Bars, Epoxy Coated			Pound	4,100
Furnishing Steel Piles HP 12x74			Foot	320
Cofferdam Excavation			Cu. Yd.	68
Cofferdam (Type 2) (Location - 1)			Each	1
Test Pile Steel HP 12x74			Each	1
Driving Piles			Foot	320
Pile Shoes			Each	6

**PIER 2  
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h10(E)	34	#5	33'-2"	[Symbol]
p10(E)	7	#7	31'-6"	[Symbol]
s12(E)	27	#4	9'-5"	[Symbol]
s13(E)	204	#4	2'-10"	[Symbol]
u10(E)	8	#6	12'-0"	[Symbol]
u11(E)	34	#5	10'-6"	[Symbol]
v11(E)	72	#5	18'-4"	[Symbol]
Concrete Structures			Cu. Yd.	47.8
Reinforcement Bars, Epoxy Coated			Pound	4,080
Furnishing Steel Piles HP 12x74			Foot	420
Cofferdam Excavation			Cu. Yd.	81
Cofferdam (Type 2) (Location - 2)			Each	1
Driving Piles			Foot	420
Pile Shoes			Each	6



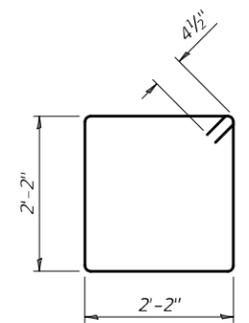
**ANCHOR BOLT DETAIL**

**PIER 1 PILE DATA**

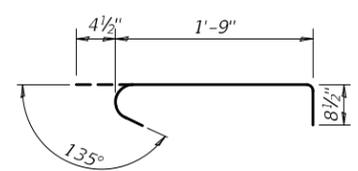
Type: HP 12x74 with pile shoes  
 Nominal Required Bearing: 589 kips  
 Factored Resistance Available: 324 kips  
 Est. Length: 64 ft  
 No. Production Piles: 5  
 No. Test Piles: 1

**PIER 2 PILE DATA**

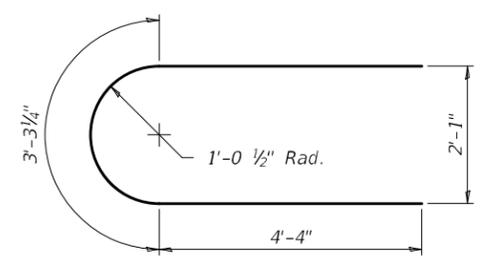
Type: HP 12x74 with pile shoes  
 Nominal Required Bearing: 589 kips  
 Factored Resistance Available: 324 kips  
 Est. Length: 70 ft  
 No. Production Piles: 6  
 No. Test Piles: 0



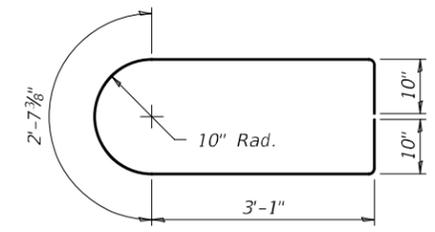
**BAR s12(E)**



**BAR s13(E)**



**BAR u10(E)**



**BAR u11(E)**

MODEL: 0150080-74362-020  
 FILE NAME: p:\w\p\w\benley.com\FWIDOT\Documents\DOT Offices\Bureau of Bridges and Structures\Projects\0150080\CADD Plans\0150080-74362.dgn

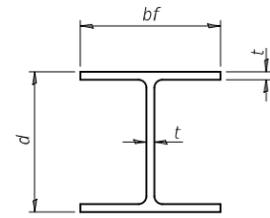
DESIGNED - HAREEM I DAR	EXAMINED - <i>Joanne F. Joffe</i>	DATE - OCTOBER 11, 2022
CHECKED - ADAM STAGGEMEYER	PASSED - <i>Joanne F. Joffe</i>	REVISOR -
DRAWN - ALAN JOHNSTONE	ENGINEER OF BRIDGES AND STRUCTURES	REVISOR -
CHECKED - H.I.D./A.L.S.		

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**PIER DETAILS  
STRUCTURE NO. 015-0080**

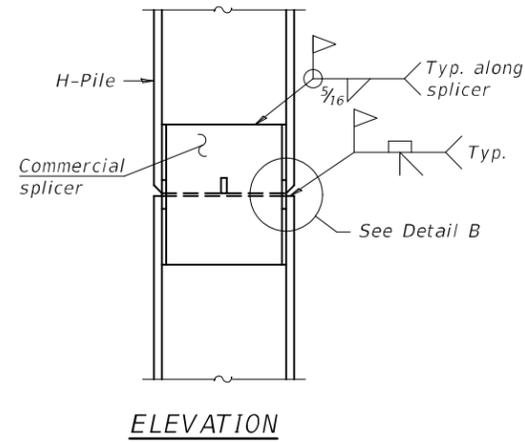
SHEET 20 OF 25 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
824	(20XB)B-1	COLES	39	30
CONTRACT NO. 74362				
ILLINOIS FED. AID PROJECT				

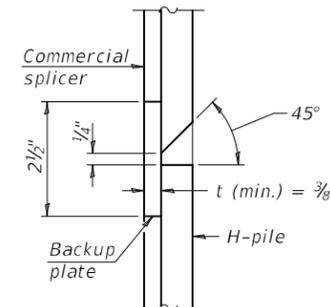


**STEEL PILE TABLE**

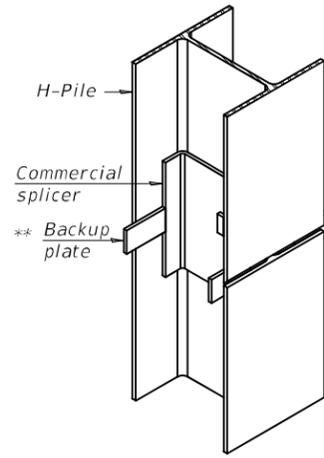
Designation	Depth d	Flange width bf	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	1 3/16"	30"
x102	14"	14 3/4"	1 1/16"	30"
x89	13 3/8"	14 3/4"	5/8"	30"
x73	13 3/8"	14 3/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	1 1/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"
x53	11 3/4"	12"	7/16"	24"
HP 10x57	10"	10 1/4"	9/16"	24"
x42	9 3/4"	10 1/8"	7/16"	24"
HP 8x36	8"	8 1/8"	7/16"	18"



**ELEVATION**

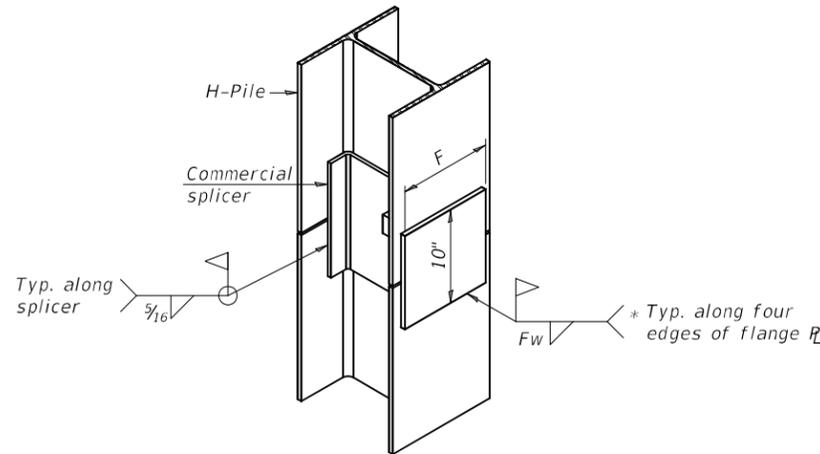


**DETAIL "B"**



**ISOMETRIC VIEW**

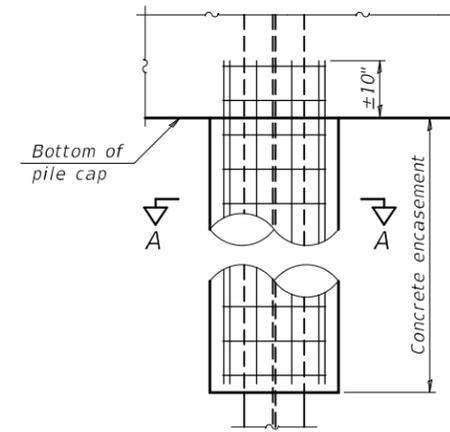
**WELDED COMMERCIAL SPLICE**



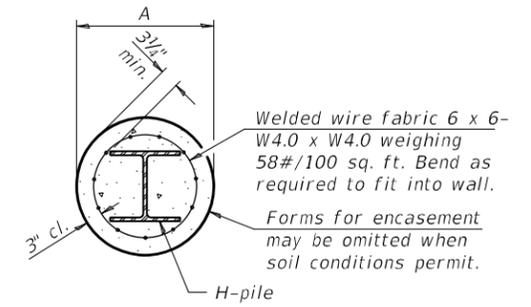
**ISOMETRIC VIEW**

**WELDED COMMERCIAL SPLICE ALTERNATE**

- \* Interrupt welds 1/4" from end of web and/or each flange.
- \*\* Remove portions of backup plates that extend outside the flanges.
- \*\*\* Weld size per pile shoe manufacturer (5/16" min.).

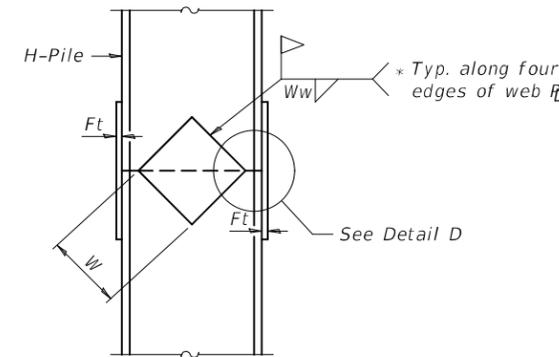


**ELEVATION**

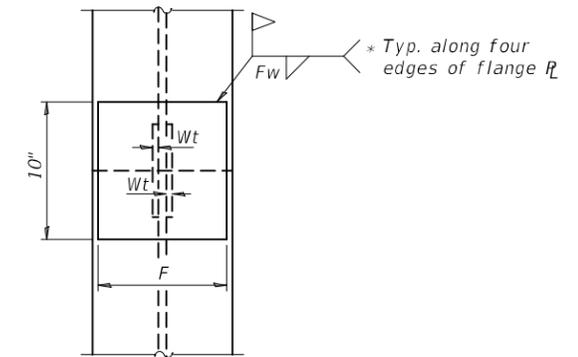


**SECTION A-A**

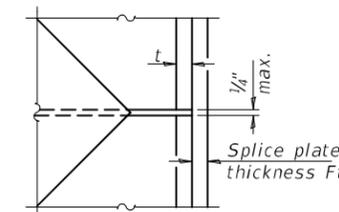
**INDIVIDUAL PILE CONCRETE ENCASUREMENT**  
(when specified)



**ELEVATION**



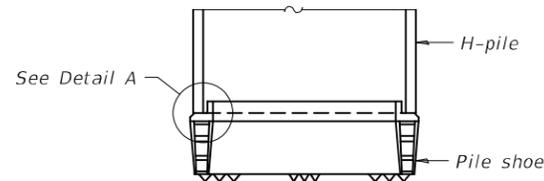
**END VIEW**



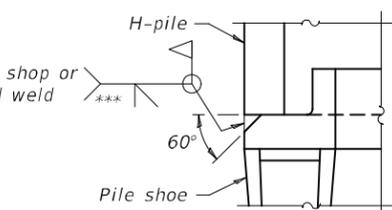
**DETAIL D**

**WELDED PLATE FIELD SPLICE**

Designation	F	Ft	Fw	W	Wt	Ww
HP 14x117	12 1/2"	1"	7/8"	7 3/4"	5/8"	1/2"
x102	12 1/2"	7/8"	3/4"	7 3/4"	5/8"	1/2"
x89	12 1/2"	3/4"	1 1/16"	7 3/4"	5/8"	1/2"
x73	12 1/2"	5/8"	9/16"	7 3/4"	5/8"	1/2"
HP 12x84	10"	7/8"	1 1/16"	6 1/2"	5/8"	1/2"
x74	10"	7/8"	1 1/16"	6 1/2"	5/8"	1/2"
x63	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
x53	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
HP 10x57	8"	3/4"	9/16"	5 1/4"	1/2"	3/8"
x42	8"	5/8"	9/16"	5 1/4"	1/2"	3/8"
HP 8x36	7"	5/8"	7/16"	4 1/4"	1/2"	3/8"



**ELEVATION**



**DETAIL A**

**SHOE ATTACHMENT**

Note:  
The steel H-piles shall be according to AASHTO M270 Grade 50.

F-HP 1-1-2020

DESIGNED - HAREEM I DAR	EXAMINED
CHECKED - ADAM STAGGEMEYER	PASSED
DRAWN - ALAN JOHNSTONE	
CHECKED - H.I.D./A.L.S.	

Signature: *Jaime F. Joffe*  
ENGINEER OF BRIDGES AND STRUCTURES

DATE - OCTOBER 11, 2022
REVISED -
REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

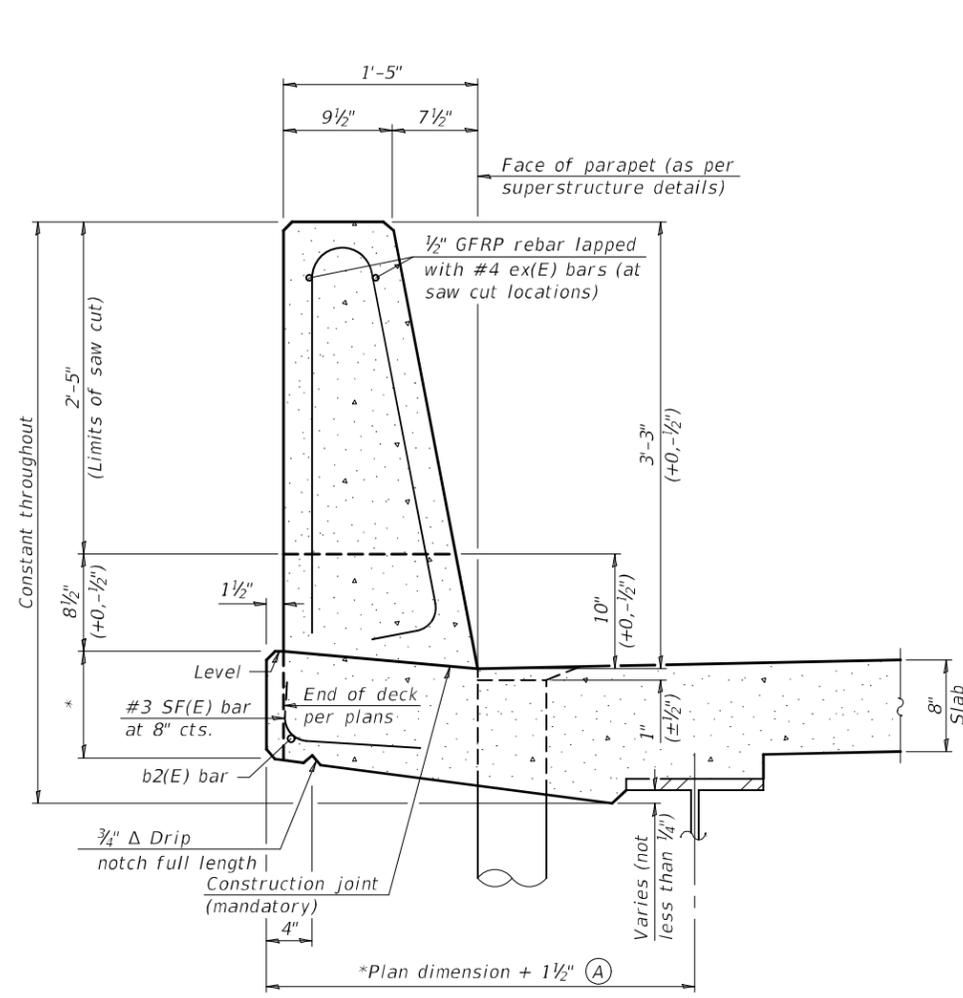
HP PILE DETAILS  
STRUCTURE NO. 015-0080

SHEET 21 OF 25 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
824	(20XB)B-1	COLES	39	31
CONTRACT NO. 74362				
ILLINOIS FED. AID PROJECT				

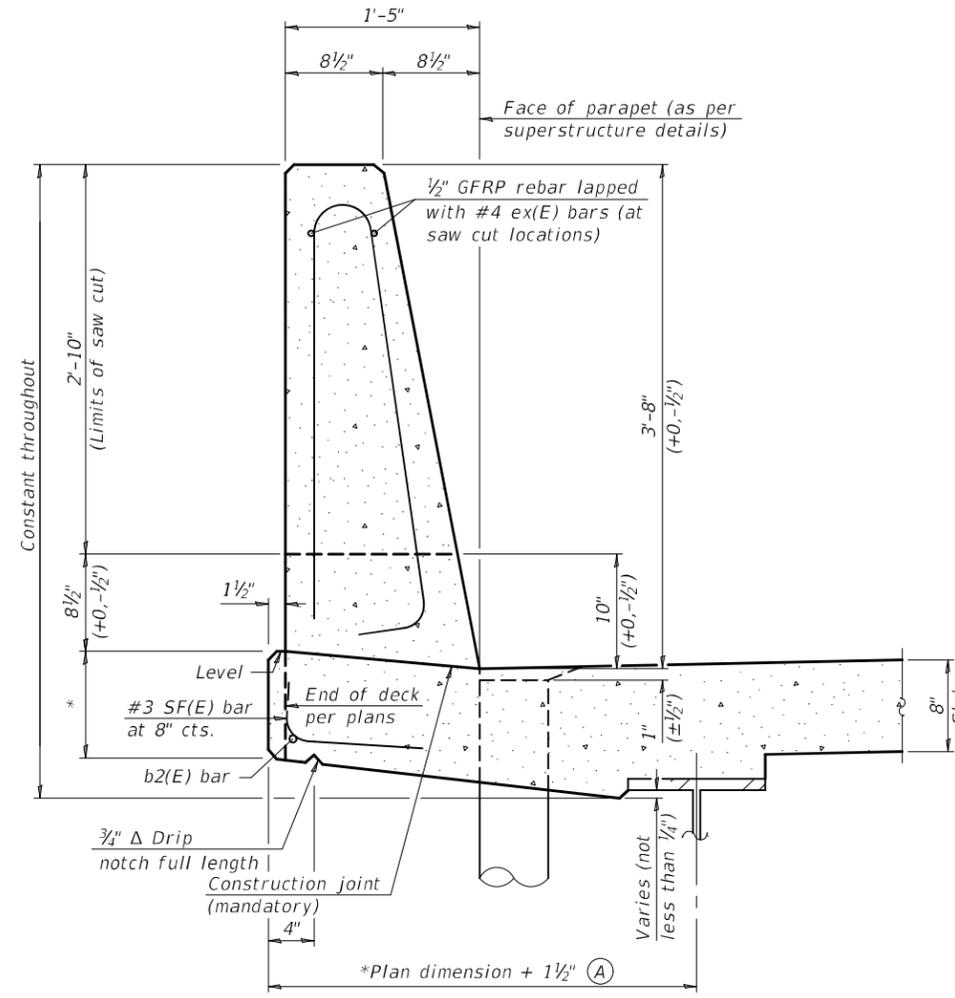
MODEL: 0150080-74362-021  
FILE NAME: p:\w\idol-pw-bentley.com\FWIDOT\Documents\DOT Offices\Bureau of Bridges and Structures\Projects\0150080\CADD Plans\0150080-74362.dgn

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**39" CONSTANT-SLOPE  
PARAPET SECTION**

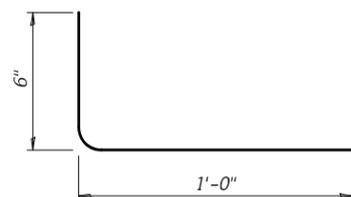
(Showing dimensions, d(E), and 1/2" Ø GFRP rebar)



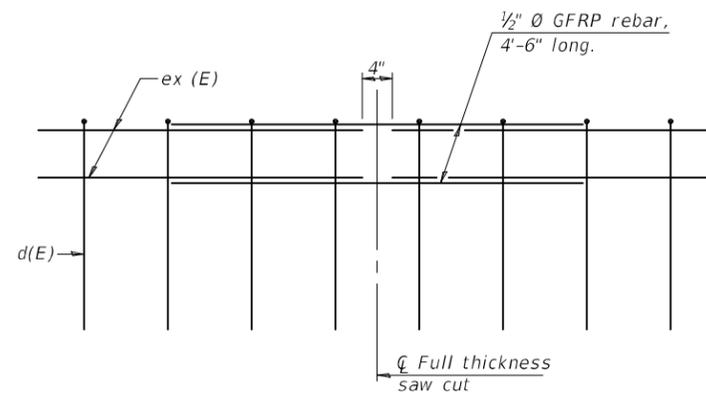
**44" CONSTANT-SLOPE  
PARAPET SECTION**

(Showing dimensions, d(E), and 1/2" Ø GFRP rebar)

\*See Superstructure Details.



**#3 SF(E) BAR**



**GFRP REBAR STIFFENING DETAIL**

(Place as shown in parapet section at each parapet joint location.)

Notes:  
All dimensions shall remain the same as shown on superstructure details, except dimension A which is to be revised as shown. Additional concrete needed to revise dimension A = 0.00348 cu. yds./ft. for 39" and 44" parapets.  
Place full depth aluminum sheets as shown on superstructure details.  
Replace all cork joint filler locations with a full thickness saw cut.  
Steel superstructure shown. Other superstructure types similar.

MODEL: 0150080-74362-022  
FILE NAME: p:\w\idol-pw\benley.com\FWIDOT\Documents\DOT Offices\Bureau of Bridges and Structures\Projects\0150080\CADD Plans\0150080-74362.dgn

SFP 39-44

1-1-2020

DESIGNED - HAREEM I DAR	EXAMINED -
CHECKED - ADAM STAGGEMEYER	PASSED -
DRAWN - ALAN JOHNSTONE	
CHECKED - H.I.D. / A.L.S.	

Signature: *Jaime F. Hoff*  
ENGINEER OF BRIDGES AND STRUCTURES

DATE - OCTOBER 11, 2022
REVISED -
REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**CONCRETE PARAPET SLIPFORMING OPTION  
STRUCTURE NO. 015-0080**

SHEET 22 OF 25 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
824	(20XB)B-1	COLES	39	32
CONTRACT NO. 74362				
ILLINOIS FED. AID PROJECT				

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**Illinois Department of Transportation**  
Division of Highways  
IDOT - D7

### SOIL BORING LOG

Page 1 of 2

Date 7/10/19

ROUTE FAP 824 (US 45) DESCRIPTION US 45 over Flat Branch Creek LOGGED BY Sandschafer

SECTION (20XB)B-1 LOCATION SE 1/4, SEC. 5, TWP. 13N, RNG. 8E, 3rd PM.  
Latitude N 39.599364, Longitude W 88.324385

COUNTY Coles DRILLING METHOD Hollow stem auger & split spoon HAMMER Auto SPT 140#

STRUCT. NO. 015-0022 (E)  
Station 143+10.76  
BORING NO. 1 S. Abutment  
Station 142+25  
Offset 9.0 ft East  
Ground Surface Elev. 654.21 ft

DEPTH (ft)	BLOW COUNT (SPT)	UNIFORMITY COEFFICIENT (U)	MOISTURE (%)	DESCRIPTION	DEPTH (ft)	BLOW COUNT (SPT)	UNIFORMITY COEFFICIENT (U)	MOISTURE (%)	DESCRIPTION
				3-1/4" Asphalt over 9-1/2" Concrete					
				Grey, CLAY					
				Stiff, moist, dark grey					
				Very stiff					
				Very dense, moist, grey, very fine SANDY LOAM					
				Very stiff, moist, dark grey, CLAY					
				Soft, moist, grey, LOAM					

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer, E-Estimated)  
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206), WH-Weight of Hammer, NT-Not Tested.

BBS, form 137 (Rev. 8-99)



**Illinois Department of Transportation**  
Division of Highways  
IDOT - D7

### SOIL BORING LOG

Page 2 of 2

Date 7/10/19

ROUTE FAP 824 (US 45) DESCRIPTION US 45 over Flat Branch Creek LOGGED BY Sandschafer

SECTION (20XB)B-1 LOCATION SE 1/4, SEC. 5, TWP. 13N, RNG. 8E, 3rd PM.  
Latitude N 39.599364, Longitude W 88.324385

COUNTY Coles DRILLING METHOD Hollow stem auger & split spoon HAMMER Auto SPT 140#

STRUCT. NO. 015-0022 (E)  
Station 143+10.76  
BORING NO. 1 S. Abutment  
Station 142+25  
Offset 9.0 ft East  
Ground Surface Elev. 654.21 ft

DEPTH (ft)	BLOW COUNT (SPT)	UNIFORMITY COEFFICIENT (U)	MOISTURE (%)	DESCRIPTION	DEPTH (ft)	BLOW COUNT (SPT)	UNIFORMITY COEFFICIENT (U)	MOISTURE (%)	DESCRIPTION
				Very stiff, moist, grey, CLAY LOAM Till with 3/4" to 1" rounded gravel					
				Hard, moist, grey, CLAY LOAM Till					
				Hard, moist, grey, SANDY CLAY LOAM Till					
				Very dense, moist, grey, thinly layered, SILTY CLAY SHALE					
				Benchmark: TBM 1 - Chiseled square on top of southeast wingwall of Structure No. 015-0022. End of Boring					
				Hard, moist, grey, CLAY LOAM Till with 3/4" rounded gravel					
				Very stiff					
				Very dense, moist, grey, SAND 11% Passing 200 Sieve					

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer, E-Estimated)  
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206), WH-Weight of Hammer, NT-Not Tested.

BBS, form 137 (Rev. 8-99)

MODEL: 0150080-74362-023  
FILE NAME: p:\w\idot-pw\benley.com\FWIDOT\Documents\IDOT - Offices\Bureau of Bridges and Structures\Projects\0150080\CADD Plans\0150080-74362.dgn

DESIGNED - HAREEM I DAR	EXAMINED - <i>Joanne F. Jeff</i>	DATE - OCTOBER 11, 2022
CHECKED - ADAM STAGGEMEYER	PASSED - <i>Joanne F. Jeff</i>	REVISED -
DRAWN - ALAN JOHNSTONE	ENGINEER OF BRIDGES AND STRUCTURES	REVISED -
CHECKED - H.I.D./A.L.S.		

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**BORING LOGS  
STRUCTURE NO. 015-0080**

SHEET 23 OF 25 SHEETS

F.A.P. RTE. 824	SECTION (20XB)B-1	COUNTY COLES	TOTAL SHEETS 39	SHEET NO. 33
CONTRACT NO. 74362				
ILLINOIS FED. AID PROJECT				

Page 1 of 1

Date 7/20/53

**Illinois Department of Transportation**  
Division of Highways  
IDOT - D7

**SOIL BORING LOG**

ROUTE FAP 824 (US 45) DESCRIPTION US 45 over Flat Branch Creek LOGGED BY Unknown

SECTION (20XB)B-1 LOCATION SE 1/4, SEC. 5, TWP. 13N, RNG. 8E, 3rd PM,  
Latitude, Longitude

COUNTY Coles DRILLING METHOD Unknown HAMMER Unknown

STRUCT. NO. 015-0022 (E)  
015-0080 (P)  
Station 143+10.76

BORING NO. 1953-South Pier S. Pier  
Station 142+87  
Offset 32.0 ft West  
Ground Surface Elev. 642.50 ft (ft) (/6") (tsf) (%)

DEPTH (ft)	SOIL DESCRIPTION	DEPTH (ft)	BLU (ft)	UCS (%)
0	Stiff, black, SILTY CLAY	0		
640.50		0		
	Stiff, dark brown, CLAY	12		
		0		
		12	1.5	
617.50-25				
	Hard, greenish gray, stoney CLAY TILL			
636.50		0		
	Stiff, mottled SANDY GRAVELLY CLAY	33	4.1	
		0		
632.50-10		30	4.1	
	Stiff, grey, fine, SANDY SILTY CLAY			
630.50		0		
	Hard, gray, SANDY SILTY CLAY TILL	80	4.1	
		0		
		15		
622.50-20		33	1.2	
		0		
		30	4.1	
		0		
		10	4.1	
622.50-20				

Dark brown, medium, highly organic, CLAYEY SILT

End of Boring

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer, E-Estimated)  
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206), WH-Weight of Hammer, NT-Not Tested.

BBS, form 137 (Rev. 8-99)

Page 1 of 1

Date 7/20/53

**Illinois Department of Transportation**  
Division of Highways  
IDOT - D7

**SOIL BORING LOG**

ROUTE FAP 824 (US 45) DESCRIPTION US 45 over Flat Branch Creek LOGGED BY Unknown

SECTION (20XB)B-1 LOCATION SE 1/4, SEC. 5, TWP. 13N, RNG. 8E, 3rd PM,  
Latitude, Longitude

COUNTY Coles DRILLING METHOD Unknown HAMMER Unknown

STRUCT. NO. 015-0022 (E)  
015-0080 (P)  
Station 143+10.76

BORING NO. 1953-North Pier N. Pier  
Station 143+33  
Offset 32.0 ft West  
Ground Surface Elev. 643.00 ft (ft) (/6") (tsf) (%)

DEPTH (ft)	SOIL DESCRIPTION	DEPTH (ft)	BLU (ft)	UCS (%)
0	Stiff, black SILTY CLAY	0		
641.00		0		
	Stiff, dark brown, CLAY	20	4.1	
		0		
		10	3.9	
638.00				
	Stiff, mottled SANDY GRAVELLY CLAY			
		0		
		10	4.1	
634.00				
	Stiff, gray, fine, SANDY SILTY CLAY	12	4.1	
		0		
		80	4.1	
631.00				
	Medium, gray, fine, SANDY CLAYEY SILT			
		0		
		15		
628.50				
	Medium, gray, fine, SILTY SAND			
		0		
		26		
626.00				
	Medium, dark brown, highly organic, CLAYEY SILT			
		0		
		30	1.5	
623.00-20				

Hard, gray, stoney, CLAY till

End of Boring

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer, E-Estimated)  
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206), WH-Weight of Hammer, NT-Not Tested.

BBS, form 137 (Rev. 8-99)

MODEL: 0150080-74362-024  
FILE NAME: p:\w\idot-pw\benley.com\FWIDOT\Documents\IDOT - Offices\Bureau of Bridges and Structures\Projects\0150080\CADD Plans\0150080-74362.dgn

DESIGNED - HAREEM I DAR	EXAMINED - <i>Joanne F. Jeff</i>
CHECKED - ADAM STAGGEMEYER	PASSED - <i>Joanne F. Jeff</i>
DRAWN - ALAN JOHNSTONE	
CHECKED - H.I.D. / A.L.S.	

DATE - OCTOBER 11, 2022	REVISER -
	REVISER -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**BORING LOGS  
STRUCTURE NO. 015-0080**

SHEET 24 OF 25 SHEETS

F.A.P. RTE. 824	SECTION (20XB)B-1	COUNTY COLES	TOTAL SHEETS 39	SHEET NO. 34
			CONTRACT NO. 74362	
		ILLINOIS FED. AID PROJECT		

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**Illinois Department of Transportation**  
Division of Highways  
IDOT - D7

**SOIL BORING LOG**

Page 1 of 3

Date 7/11/19

ROUTE FAP 824 (US 45) DESCRIPTION US 45 over Flat Branch Creek LOGGED BYE, Sandschafer

SECTION (20XB)B-1 LOCATION SE 1/4, SEC. 5, TWP. 13N, RNG. 8E, 3rd PM.

Latitude N 39.599848, Longitude W 88.324494

COUNTY Coles DRILLING METHOD Hollow stem auger & split spoon HAMMER Auto SPT 140#

STRUCT. NO. 015-0022 (E)  
015-0080 (P)  
Station 143+10.76

BORING NO. 2 N, Abutment  
Station 144+00  
Offset 8.0 ft West  
Ground Surface Elev. 653.16 ft

DEPTH (ft)	BULGE (in)	WEIGHT (lb)	QUANTITY	SOIL DESCRIPTION	DEPTH (ft)	BULGE (in)	WEIGHT (lb)	QUANTITY
0				3-1/8" Asphalt over 9-1/2" Concrete	0			
0.66				Very stiff, moist, dark grey, CLAY	0.66			
1.0	1				1.0			
2.0	2	2.1	20	Medium, moist, grey, CLAY LOAM	2.0			
4.0	4				4.0			
5.0	5	2.5	16		5.0			
6.0	6				6.0			
10.0	3			Stiff, moist, grey, SANDY LOAM	10.0			
15.0	5	2.3	17		15.0			
17.0	6				17.0			
19.0					19.0			
25.0	3			Medium, moist, grey, SANDY CLAY LOAM	25.0			
30.0	6	2.1	14		30.0			
34.0	7				34.0			
37.0					37.0			
40.0	3			Stiff, moist, grey, CLAY TILL	40.0			
45.0	5	1.7	20		45.0			
47.0	7				47.0			
55.0	3				55.0			
60.0	4	1.0	18		60.0			
64.0	4				64.0			
66.0	2			Medium, moist, grey, CLAY LOAM	66.0			
70.0	2	0.8	13		70.0			
73.0	3				73.0			
80.0	4				80.0			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer, E-Estimated)  
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206), WH-Weight of Hammer, NT-Not Tested.

BBS, form 137 (Rev. 8-99)



**Illinois Department of Transportation**  
Division of Highways  
IDOT - D7

**SOIL BORING LOG**

Page 2 of 3

Date 7/11/19

ROUTE FAP 824 (US 45) DESCRIPTION US 45 over Flat Branch Creek LOGGED BYE, Sandschafer

SECTION (20XB)B-1 LOCATION SE 1/4, SEC. 5, TWP. 13N, RNG. 8E, 3rd PM.

Latitude N 39.599848, Longitude W 88.324494

COUNTY Coles DRILLING METHOD Hollow stem auger & split spoon HAMMER Auto SPT 140#

STRUCT. NO. 015-0022 (E)  
015-0080 (P)  
Station 143+10.76

BORING NO. 2 N, Abutment  
Station 144+00  
Offset 8.0 ft West  
Ground Surface Elev. 653.16 ft

DEPTH (ft)	BULGE (in)	WEIGHT (lb)	QUANTITY	SOIL DESCRIPTION	DEPTH (ft)	BULGE (in)	WEIGHT (lb)	QUANTITY
15.0	15	5.2	17	Hard, moist, grey, CLAY LOAM TILL	15.0			
31.0	31				31.0			
33.0				Very dense, moist, grey, SANDY CLAY LOAM TILL	33.0			
35.0				Poker chipped	35.0			
45.0	26				45.0			
50.0	34	8.2	7		50.0			
55.0	50				55.0			
58.0	5-5/8				58.0			
60.0					60.0			
63.0					63.0			
65.0					65.0			
70.0				Very dense, moist, grey, SANDY CLAY TILL	70.0			
75.0				Poker chipped & powdered	75.0			
80.0					80.0			
81.0					81.0			
84.0					84.0			
85.0					85.0			
86.0					86.0			
87.0					87.0			
88.0					88.0			
89.0					89.0			
90.0					90.0			
91.0					91.0			
92.0					92.0			
93.0					93.0			
94.0					94.0			
95.0					95.0			
96.0					96.0			
97.0					97.0			
98.0					98.0			
99.0					99.0			
100.0					100.0			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer, E-Estimated)  
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206), WH-Weight of Hammer, NT-Not Tested.

BBS, form 137 (Rev. 8-99)



**Illinois Department of Transportation**  
Division of Highways  
IDOT - D7

**ROCK CORE LOG**

Page 3 of 3

Date 7/11/19

ROUTE FAP 824 (US 45) DESCRIPTION US 45 over Flat Branch Creek LOGGED BYE, Sandschafer

SECTION (20XB)B-1 LOCATION SE 1/4, SEC. 5, TWP. 13N, RNG. 8E, 3rd PM.

Latitude N 39.599848, Longitude W 88.324494

COUNTY Coles CORING METHOD Rotary, surf set diamond bit

STRUCT. NO. 015-0022 (E)  
015-0080 (P)  
Station 143+10.76

BORING NO. 2 N, Abutment  
Station 144+00  
Offset 8.0 ft West  
Ground Surface Elev. 653.16 ft

DEPTH (ft)	REMARKS	DEPTH (ft)	REMARKS	DEPTH (ft)	REMARKS	DEPTH (ft)	REMARKS
585.16	Gray, weathered, silty clay SHALE with 1/4" sandstone partings	585.16		585.16		585.16	
70.0		70.0		70.0		70.0	
75.0	No recovery at bottom 1.13' of core run.	75.0		75.0		75.0	
80.0	Gray, weathered, silty clay SHALE with thin sandstone partings	80.0		80.0		80.0	
81.6	Depth 74.1', Moisture Content: 5.6%, Dry Density: 143.2 pcf	81.6		81.6		81.6	
85.0		85.0		85.0		85.0	
87.5	Depth 76.2', Moisture Content: 7.7%, Dry Density: 135.2 pcf	87.5		87.5		87.5	
90.0		90.0		90.0		90.0	
95.16	Benchmark: TBM 1 - Chiseled square on top of southeast wingwall of Structure No. 015-0022.	95.16		95.16		95.16	
95.16	End of Boring	95.16		95.16		95.16	
98.0		98.0		98.0		98.0	
100.0		100.0		100.0		100.0	

Color pictures of the cores Available on Request  
Cores will be stored for examination until 07/10/24  
The "Strength" column represents the uniaxial compressive strength of the core sample (ASTM D-2938)

BBS, form 138 (Rev. 8-99)

MODEL: 0150080-74362-025  
FILE NAME: pw:\idot-pw-bentley.com\FWIDOT\Documents\IDOT - Offices\Bureau of Bridges and Structures\Projects\0150080\CADD Plans\0150080-74362.dgn

DESIGNED - HAREEM I DAR  
CHECKED - ADAM STAGMEYER  
DRAWN - ALAN JOHNSTONE  
CHECKED - H.I.D. / A.L.S.

EXAMINED Joanne F. Jeff  
PASSED Joanne F. Jeff

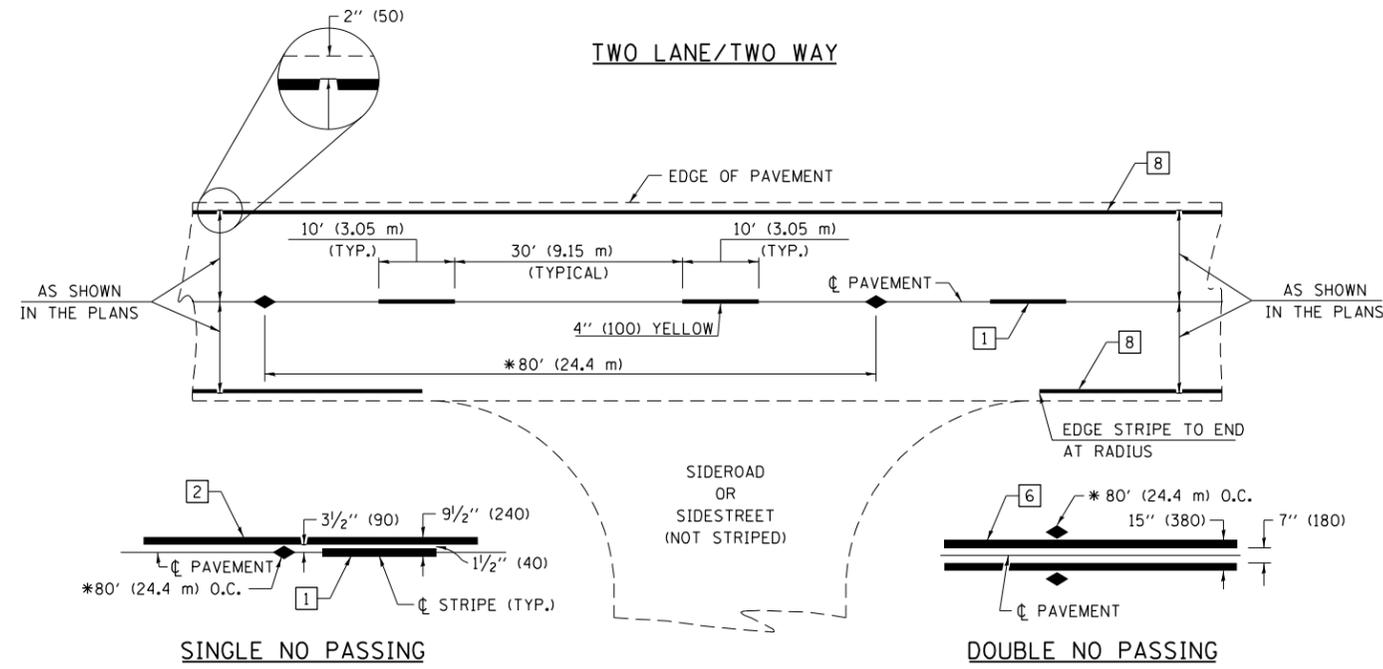
DATE - OCTOBER 11, 2022  
REVISED -  
REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

BORING LOGS  
STRUCTURE NO. 015-0080

SHEET 25 OF 25 SHEETS

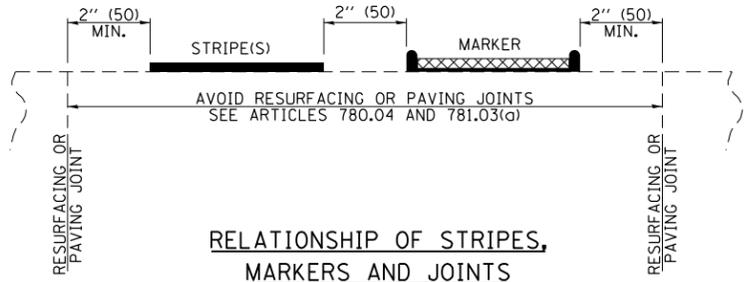
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
824	(20XB)B-1	COLES	39	35
CONTRACT NO. 74362				
ILLINOIS FED. AID PROJECT				



PAVEMENT MARKING LEGEND

- 1 4" (100) SKIP-DASH (YELLOW)
- 2 4" (100) SOLID (YELLOW)
- 3 12" (300) DIAGONAL (YELLOW)
- 4 4" (100) DOUBLE YELLOW (NARROW)
- 5 12" (300) SOLID WHITE
- 6 4" (100) DOUBLE YELLOW (WIDE)
- 7 6" (150) SKIP-DASH (WHITE)
- 8 4" (100) SOLID (WHITE)
- 9 12" (300) DIAGONAL (WHITE)
- 10 6" (150) SOLID (WHITE)
- 11 24" (600) STOP BAR (WHITE)
- 12 8" (200) SOLID (WHITE)
- 13 4" (100) PARKING WHITE

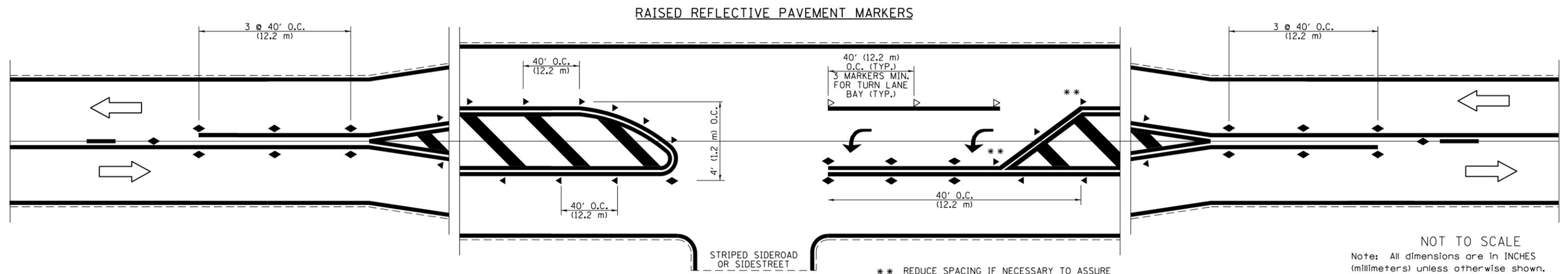
\* REDUCE TO 40' (12.2 m) O.C. ON CURVES WITH POSTED OR ADVISORY SPEEDS OF 45 mph (70 km/h) OR LESS.



RELATIONSHIP OF STRIPES, MARKERS AND JOINTS

TYPICAL PAVEMENT MARKERS LEGEND

- ◆ TWO-WAY AMBER MARKER
- ▶ ONE-WAY AMBER MARKER
- ▷ ONE-WAY CRYSTAL MARKER



RAISED REFLECTIVE PAVEMENT MARKERS

\*\* REDUCE SPACING IF NECESSARY TO ASSURE MARKERS AT CORNER POINTS.

NOT TO SCALE  
Note: All dimensions are in INCHES (millimeters) unless otherwise shown.

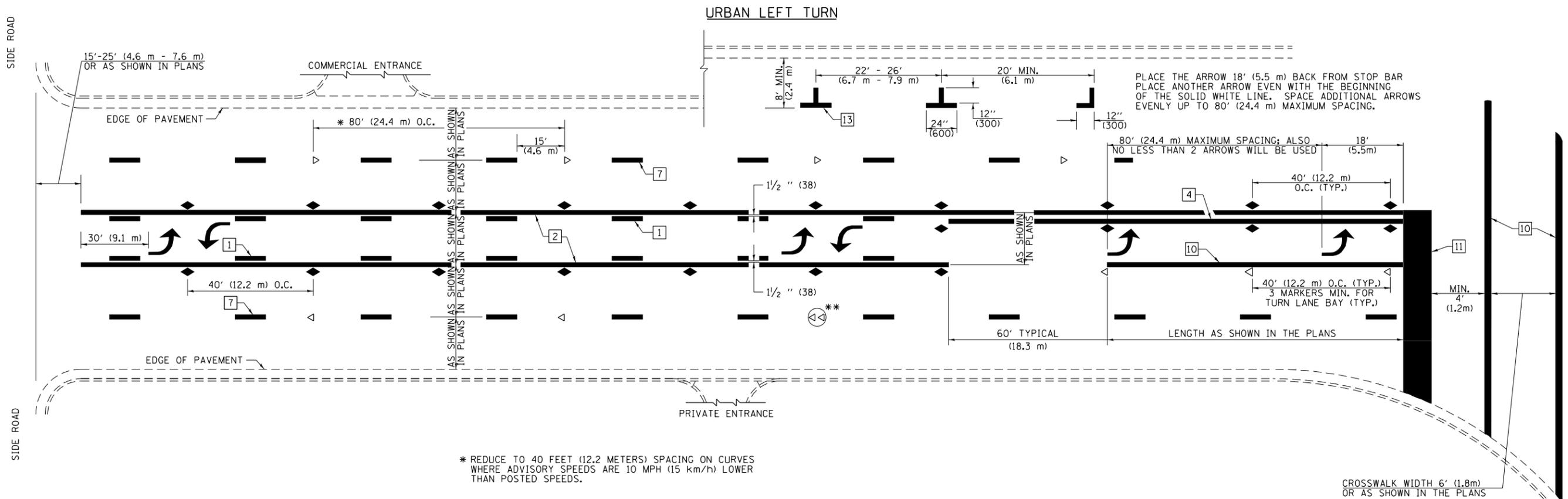
FILE NAME =	USER NAME = Mono.Steffen	DESIGNED -	REVISED - NAS 06/22
pw:\idot-pw\bentley.com\PWIDOT\Documents\IDOT Offices\District 7\Projects\74362\CADD\Drawings\Drawings\74362-sht-Dist7 Detail.dwg		CHECKED -	REVISED -
		DATE -	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING AND RAISED REFLECTIVE PAVEMENT MARKERS  
(RURAL & URBAN APPLICATIONS)

SCALE: SHEET NO. 1 OF 4 SHEETS STA. TO STA.

DISTRICT 7 DETAIL NO. 7800001				
F.A.P. RTE. 824	SECTION (20XB)B-1	COUNTY COLES	TOTAL SHEETS 39	SHEET NO. 36
			CONTRACT NO. 74362	
ILLINOIS FED. AID PROJECT				



PLACE THE ARROW 18' (5.5 m) BACK FROM STOP BAR  
 PLACE ANOTHER ARROW EVEN WITH THE BEGINNING  
 OF THE SOLID WHITE LINE. SPACE ADDITIONAL ARROWS  
 EVENLY UP TO 80' (24.4 m) MAXIMUM SPACING.

\* REDUCE TO 40 FEET (12.2 METERS) SPACING ON CURVES  
 WHERE ADVISORY SPEEDS ARE 10 MPH (15 km/h) LOWER  
 THAN POSTED SPEEDS.

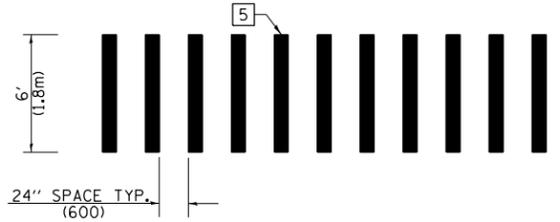
\*\* DOUBLE LANE LINE MARKERS SHALL BE SPECIFIED  
 AND SPACED AS SHOWN IN HIGHWAY STANDARD  
 781001 FOR MULTI-LANE DIVIDED AND UNDIVIDED  
 HIGHWAYS.

**PAVEMENT MARKING LEGEND**

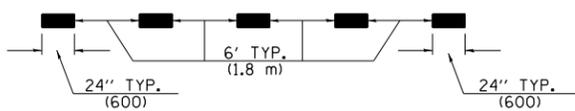
- 1 4" (100) SKIP-DASH (YELLOW)
- 2 4" (100) SOLID (YELLOW)
- 3 12" (300) DIAGONAL (YELLOW)
- 4 4" (100) DOUBLE YELLOW (NARROW)
- 5 12" (300) SOLID WHITE
- 6 4" (100) DOUBLE YELLOW (WIDE)
- 7 6" (150) SKIP-DASH (WHITE)
- 8 4" (100) SOLID (WHITE)
- 9 12" (300) DIAGONAL (WHITE)
- 10 6" (150) SOLID (WHITE)
- 11 24" (600) STOP BAR (WHITE)
- 12 8" (200) SOLID (WHITE)
- 13 4" (100) PARKING WHITE

**GENERAL NOTES**

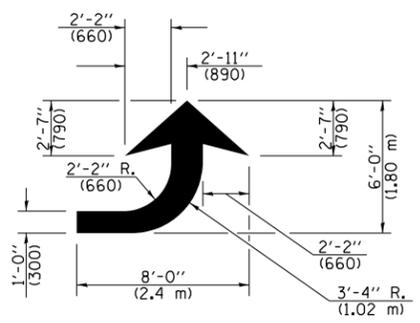
1. TURN ARROW PAIRS SHALL BE PLACED AT 250' (75 m) INTERVALS AND SHALL BE EVENLY SPACED BETWEEN BOTH ENDS OF THE BIDIRECTIONAL LEFT TURN LANE. USE A MINIMUM OF TWO PAIRS PER BLOCK.
2. THE SOLID YELLOW PAVEMENT MARKINGS [2] SHOULD GENERALLY START OR END NEAR THE RADIUS POINT OF EACH STREET RETURN EXCEPT WHERE ONE OR BOTH ENDS WOULD INCLUDE STOP BARS.
3. THE SKIP-DASH PAVEMENT MARKINGS [1] OR [7] SHOULD BE CENTERED BETWEEN BOTH ENDS OF EACH CITY BLOCK AND SHALL BE PLACED SO THEY LINE UP ACROSS FROM EACH OTHER.
4. USE LARGE ARROW SIZE FOR BOTH RURAL AND URBAN LOCATIONS. (SEE SECTION 780 FOR SYMBOLS TABLE)
5. LANE LINE EXTENSIONS SHALL BE THE SAME COLOR AND WIDTH AS THE LANE LINE BEING EXTENDED.
6. ALL WHITE SKIP-DASH LINES SHALL BE 6" IN WIDTH.



**CROSSWALK DETAIL  
 (DECATUR CITY LIMITS ONLY)**

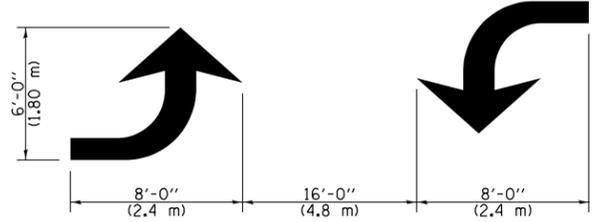


**LANE LINE EXTENSIONS**



**LEFT ARROW**

REVERSE FOR RIGHT ARROW  
 AREA = 15.6 SQ. FT. (1.47 m<sup>2</sup>)  
 (WHITE)



**TYPICAL DOUBLE  
 TURN ARROWS (WHITE)**

NOT TO SCALE

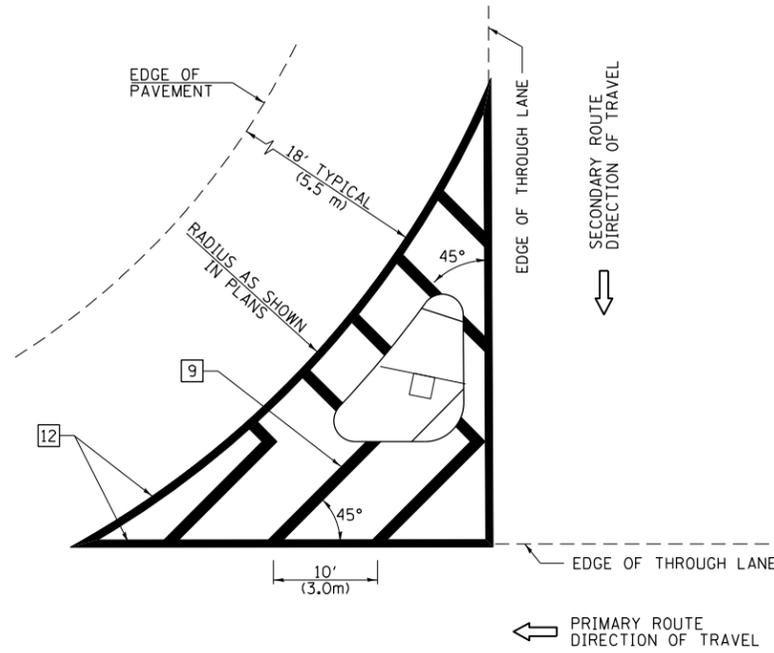
Note: All dimensions are in INCHES (millimeters) unless otherwise shown.

**DISTRICT 7 DETAIL NO. 7800001**

FILE NAME =	USER NAME = Mono.Steffen	DESIGNED -	REVISED - NAS 06/22	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>PAVEMENT MARKING AND RAISED REFLECTIVE PAVEMENT MARKERS (RURAL &amp; URBAN APPLICATIONS)</b>	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
pw:\idot-pw\entley.com\PWIDOT\Documents\IDOT Offices\District 7\Projects\74362\CADD\Drawings\74362-sht-Dist7 Detail.dwg	PROJECT = 74362	CHECKED -	REVISED -			824	(20XB)B-1	COLES	39	37	
PLOT SCALE = 100.0000' / 1" =	DATE = 8/8/2022	DATE -	REVISED -			CONTRACT NO. 74362					
						ILLINOIS FED. AID PROJECT					

**ISLANDS**

**OPTION 1**

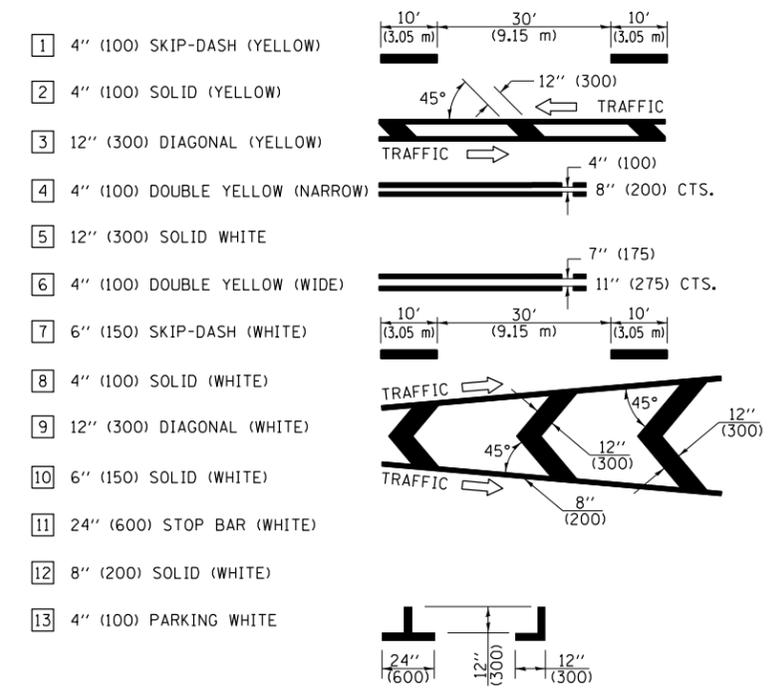


**GENERAL NOTES**

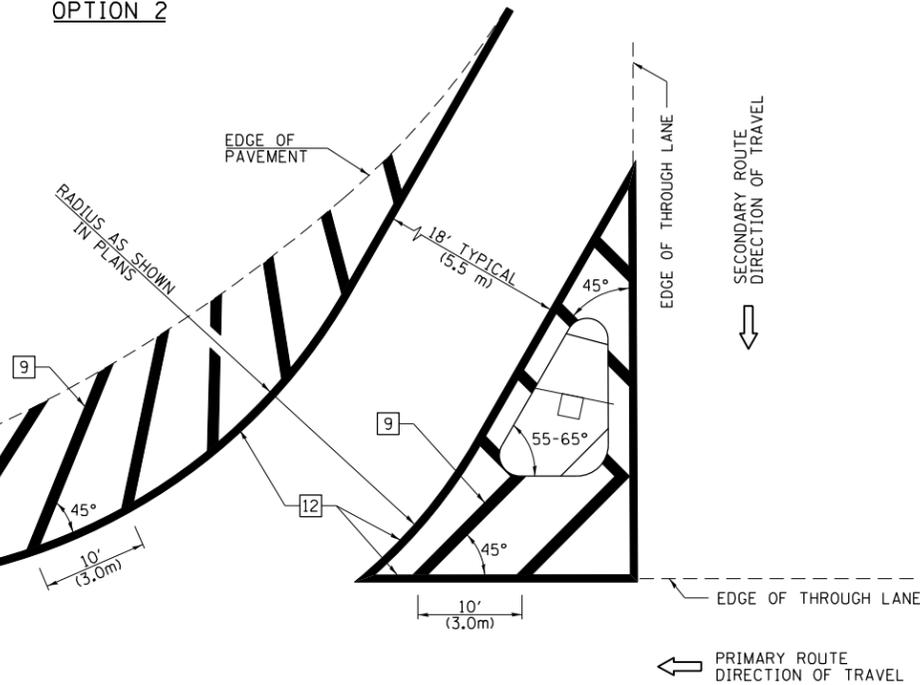
1. RAISED AND CORRUGATED MEDIANS SHALL BE OUTLINED WITH [2].
2. SOME OF THE INFORMATION INCLUDED WITH THIS DETAIL MAY NOT BE APPLICABLE TO THIS IMPROVEMENT.
3. PAVEMENT MARKINGS ARE TO BE EXTENDED THROUGH OMISSIONS WHEN APPLICABLE.
4. FINAL PAVEMENT MARKINGS SHALL BE IN PLACE PRIOR TO PLACING ANY RAISED REFLECTIVE PAVEMENT MARKERS.
5. THE FOLLOWING CRITERIA SHALL BE USED FOR SELECTING THE DIAGONAL PAVEMENT MARKING SPACING:
 

< 30 MPH (< 50 km/h)	15' (4.5 m)
30-45 MPH (50-75 km/h)	20' (6.0 m)
> 45 MPH (> 75 km/h)	30' (9.0 m)
6. THE USE OF ISLAND STRIPING OPTION 1 OR OPTION 2 SHALL BE AS SHOWN ON THE PLANS.

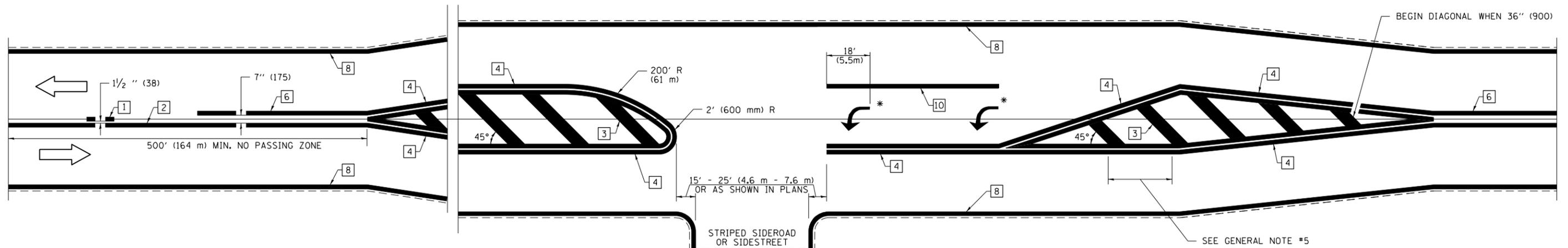
**PAVEMENT MARKING LEGEND**



**OPTION 2**



**RURAL LEFT TURN STRIPING**



\* PLACE AN ARROW 18' (5.5 m) BACK FROM END OF THE SOLID WHITE LINE. PLACE ANOTHER ARROW EVEN WITH THE BEGINNING OF THE SOLID WHITE LINE. SPACE ADDITIONAL ARROWS EVENLY UP TO 80' (24.4 m) MAXIMUM SPACING. USE MINIMUM OF 2 ARROWS.

NOT TO SCALE

Note: All dimensions are in INCHES (millimeters) unless otherwise shown.

**DISTRICT 7 DETAIL NO. 78000001**

FILE NAME =	USER NAME = Mono.Steffen	DESIGNED -	REVISED - NAS 06/22
pw:\idot-pw\bentley.com\PWIDOT\Documents\IDOT Offices\District 7\Projects\74362\CADD\Drawings\Drawings\74362-sht-Dist7 Detail.dwg		REVISIONS	
	PLOT SCALE = 100.0000' / 1"	CHECKED -	REVISED -
	PLOT DATE = 8/8/2022	DATE -	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**PAVEMENT MARKING AND RAISED REFLECTIVE PAVEMENT MARKERS  
(RURAL & URBAN APPLICATIONS)**

SCALE: SHEET NO. 3 OF 4 SHEETS STA. TO STA.

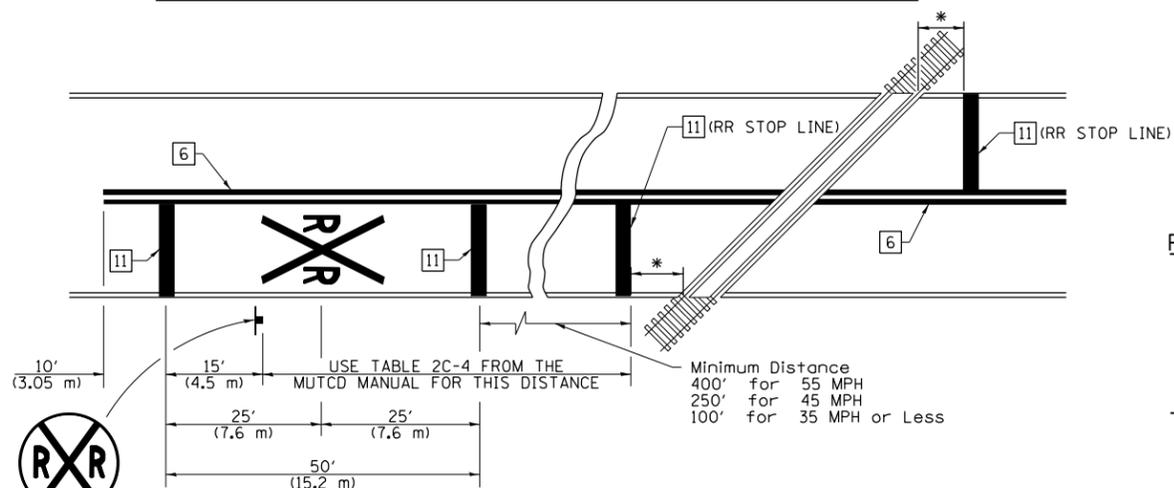
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
824	(20XB)B-1	COLES	39	38
CONTRACT NO. 74362				
ILLINOIS FED. AID PROJECT				

# SUPPLEMENTAL PAVEMENT MARKING TREATMENT FOR RAILROAD-HIGHWAY GRADE CROSSING

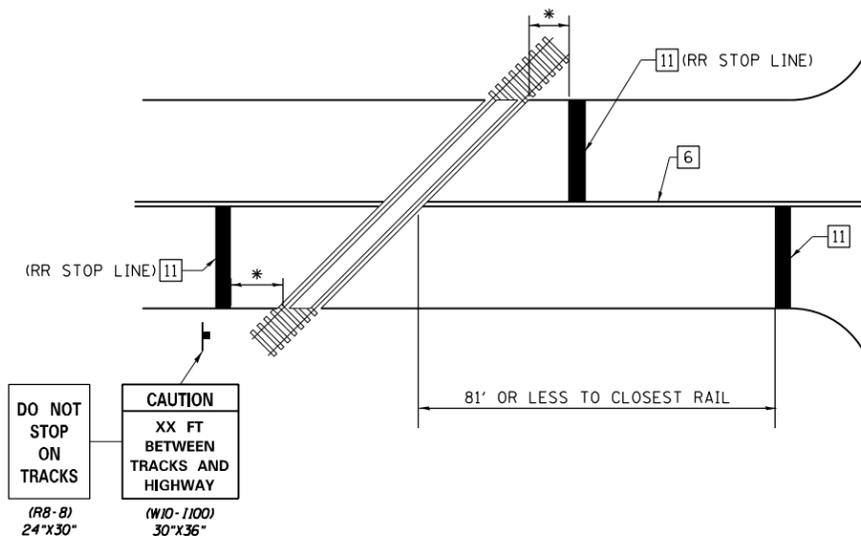
## PAVEMENT MARKING LEGEND

- 1 4" (100) SKIP-DASH (YELLOW)
  - 2 4" (100) SOLID (YELLOW)
  - 3 12" (300) DIAGONAL (YELLOW)
  - 4 4" (100) DOUBLE YELLOW (NARROW)
  - 5 12" (300) SOLID WHITE
  - 6 4" (100) DOUBLE YELLOW (WIDE)
  - 7 6" (150) SKIP-DASH (WHITE)
  - 8 4" (100) SOLID (WHITE)
  - 9 12" (300) DIAGONAL (WHITE)
  - 10 6" (150) SOLID (WHITE)
  - 11 24" (600) STOP BAR (WHITE)
  - 12 8" (200) SOLID (WHITE)
  - 13 4" (100) PARKING WHITE
- 

### PAVEMENT MARKINGS AT RAILROAD-HIGHWAY GRADE CROSSING



### RAILROAD CROSSING WITH NON-SIGNALIZED INTERSECTION

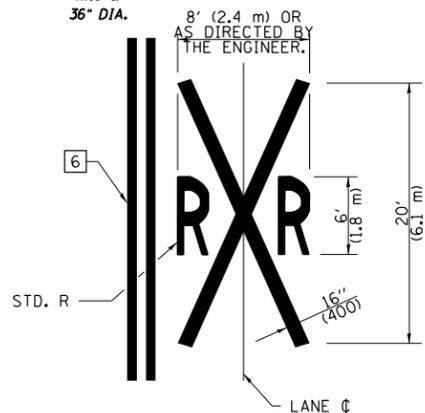


### NOTES

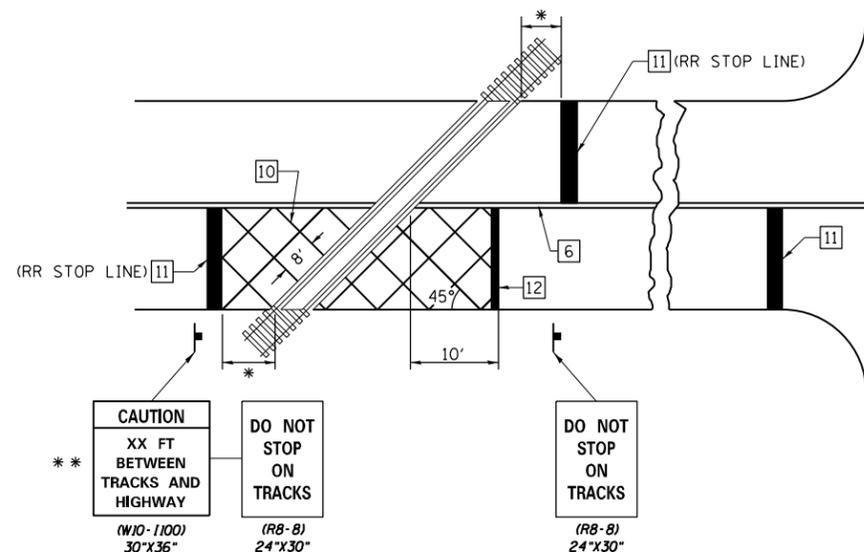
THE TRAVERSE SPREAD OF THE "X" MAY VARY ACCORDING TO LANE WIDTH.

ON MULTI-LANE ROADS, THE STOP LINES SHALL EXTEND ACROSS ALL APPROACH LANES AND SEPARATE RRR SYMBOLS SHALL BE PLACED ADJACENT TO EACH OTHER IN EACH LANE.

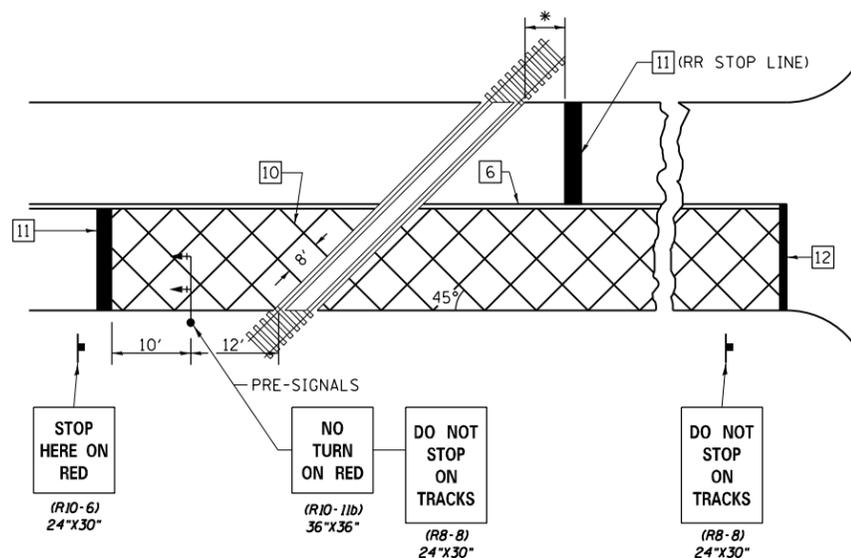
WHEN THE PAVEMENT MARKING SYMBOL IS USED, A PORTION OF THE SYMBOL SHOULD BE LOCATED DIRECTLY ADJACENT TO THE ADVANCE WARNING SIGN (W10-1) AS PLACED BY TABLE II-1, CONDITION B OF THE MUTCD.



### RAILROAD CROSSING WITH INTERCONNECT ONLY

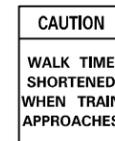


### RAILROAD CROSSING WITH INTERCONNECT AND PRE-SIGNALS



### GENERAL NOTES

- SUPPLEMENTAL PAVEMENT MARKINGS TO BE INSTALLED ONLY ON APPROACHES TO INTERSECTIONS CONTROLLED BY TRAFFIC SIGNALS WHICH ARE INTERCONNECTED WITH THE RAILROAD WARNING SIGNALS.
- EXTEND PAVEMENT MARKINGS TO THE INTERSECTION ONLY WHERE PRE-SIGNALS ARE USED.
- WHEN PEDESTRIAN SIGNALS ARE PRESENT WITH INTERCONNECTED SIGNALS, WARNING SIGN W10-1101 (18"X24") SHALL BE PLACED NEAR EACH PEDESTRIAN SIGNAL HEAD. COUNTDOWN PEDESTRIAN SIGNAL HEADS SHALL NOT BE UTILIZED ALONG WITH INTERCONNECTED SIGNALS.
- PLEASE REFER TO THE IDOT BUREAU OF OPERATION MEMO OPS T-06 DATED DECEMBER 1, 2020 FOR ADDITIONAL INFORMATION.



\* 15' FROM NEAR RAIL OR 8' FROM AND PARALLEL TO GATE IF PRESENT

\*\* WARNING SIGN W10-1100 SHALL BE USED AS AN INTERIM MEASURE AT INTERCONNECTED SIGNAL LOCATIONS WHERE PRE-SIGNALS ARE TO BE INSTALLED IN THE FUTURE. THIS SIGN SHALL BE REMOVED WHEN THE PRE-SIGNALS ARE INSTALLED AND THE PAVEMENT MARKINGS ARE EXTENDED TO THE INTERSECTION.

NOT TO SCALE

Note: All dimensions are in INCHES (millimeters) unless otherwise shown.

### DISTRICT 7 DETAIL NO. 78000001

FILE NAME =	USER NAME = Mono.Steffen	DESIGNED -	REVISED - NAS 06/22
pw:\idot-pw\bentley.com\PIDOT\Documents\IDOT Offices\District 7\Projects\74362\CADD\Drawings\74362-sht-Dist7 Detail.dwg		CHECKED -	REVISED -
		DATE -	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING AND RAISED REFLECTIVE PAVEMENT MARKERS  
(RURAL & URBAN APPLICATIONS)

SCALE: SHEET NO. 4 OF 4 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
824	(20XB)B-1	COLES	39	39
CONTRACT NO. 74362			ILLINOIS FED. AID PROJECT	