

66932

01-21-2022 LETTING ITEM 137

IROQUOIS

STATE OF ILLINOIS

DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

PROPOSED  
HIGHWAY PLANSFAP ROUTE 332 (IL 1)  
SECTION 15R-BR  
PROJECT NHPP-85JV(533)  
BRIDGE REPLACEMENT  
IROQUOIS COUNTY

C-93-023-22

CONTRACT NO. 66932

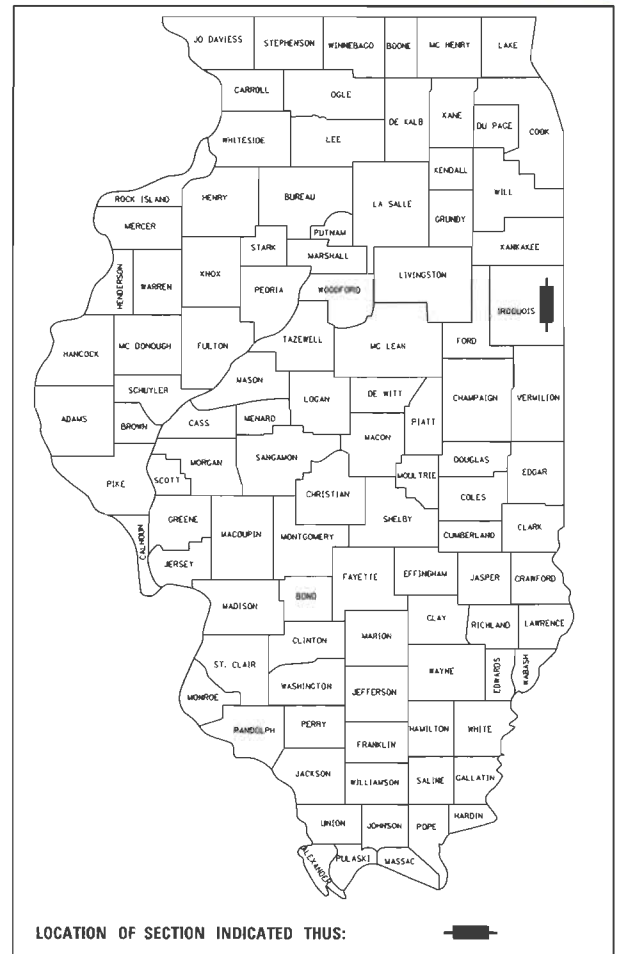
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
332	15R-BR	IROQUOIS	54	1

D-93-051-01

137

## INDEX OF SHEETS

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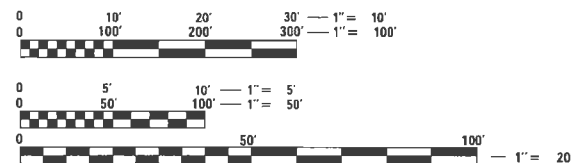
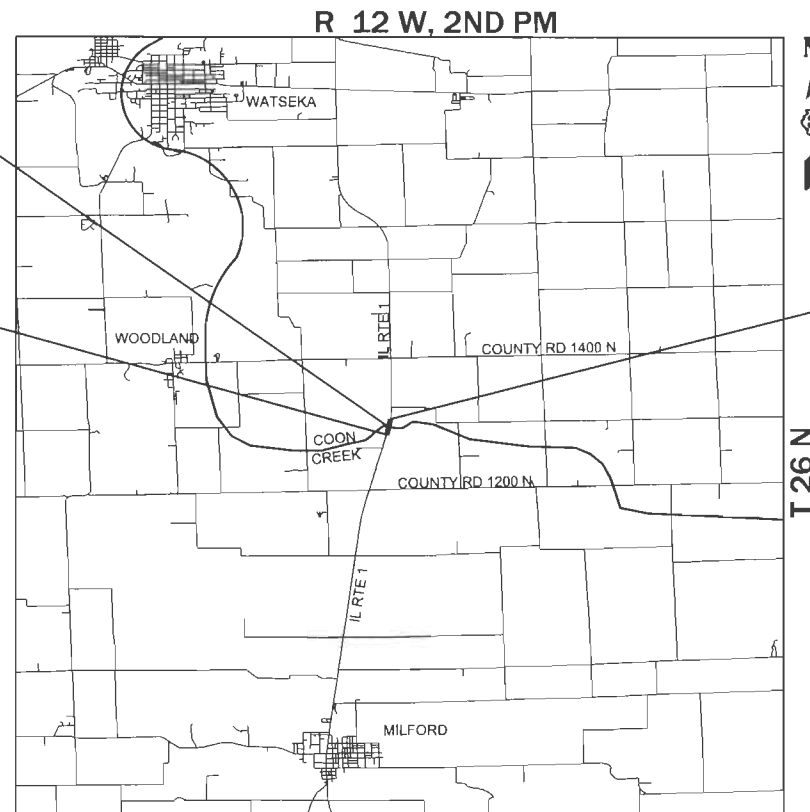
LOCATION OF SECTION INDICATED THUS:

## FUNCTIONAL CLASSIFICATION

OTHER PRINCIPAL ARTERIAL

2022 ADT = 2,781

P.V. = 86.8% S.U. = 5.2% M.U. = 8.0%

PROJECT LOCATION  
PROPOSED STRUCTURE SN 038-0209  
EXISTING STRUCTURE SN 038-0023BEGIN IMPROVEMENT  
STA. 1147 + 54.20END IMPROVEMENT  
STA. 1155 + 78.12FULL 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  
1-800-892-0123PROJECT ENGINEER: JOSEPH KANNEL, P.E.  
UNIT CHIEF: JORDAN LONGNECKER  
DISTRICT 3 NO. (815) 434-6131  
CONTRACT NO. 66932

GROSS LENGTH = 723.50 FT. = 0.137 MILE

NET LENGTH = 723.50 FT. = 0.137 MILE

10/26/2021  
DATE

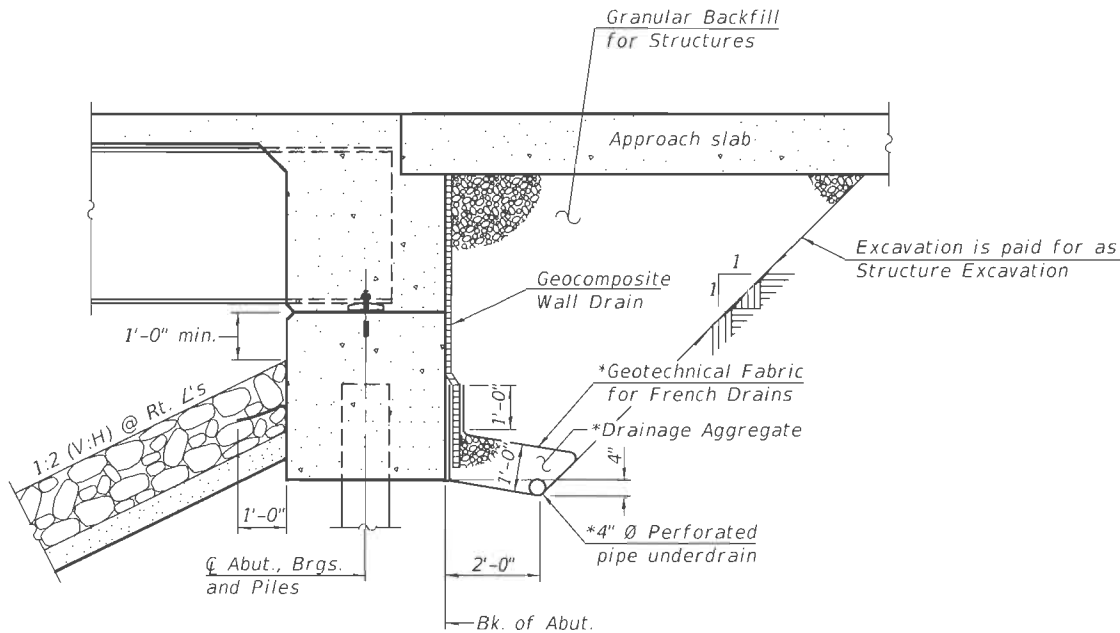
EXPIRES 11-30-2021

SIGNATURE  
PROFESSIONAL DESIGN FIRM  
LICENSE NO. 184-006877STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

SUBMITTED October 29, 2021

DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER  
December 10, 2021ENGINEER OF DESIGN AND ENVIRONMENT  
December 10, 2021  
DIRECTOR OF HIGHWAYS PROJECT IMPLEMENTATIONPRINTED BY THE AUTHORITY  
OF THE STATE OF ILLINOIS



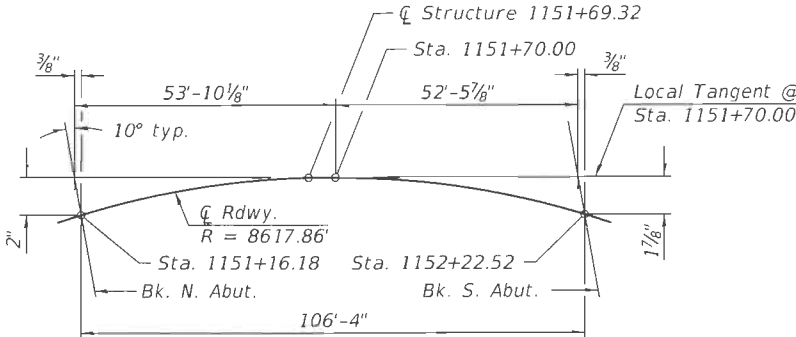


SECTION THRU INTEGRAL ABUTMENT  
(Horiz. dim. @ Rt. L's)

\*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).



OFFSET SKETCH

HORIZONTAL CURVE DATA

PI Sta. = 1144+19.85  
 $\Delta = 14^{\circ}-07'-42''$  (RT)  
 $R = 8617.86'$   
 $T = 1067.94'$   
 $L = 2125.05'$   
 $E = 65.92'$   
P.C. Sta. = 1133+51.91  
P.T. Sta. = 1154+76.96  
S.E. = 1.56%  
S.E. attained from Sta. 1131+71.91 to Sta. 1134+11.91  
S.E. removed from Sta. 1154+16.96 to Sta. 1156+56.96

STATION 1151+69.32  
BUILT 20 BY  
STATE OF ILLINOIS  
F.A.P. RTE. 332 SEC. 15R-BR  
LOADING HL-93  
STRUCTURE NO. 038-0209

NAME PLATE

See Std. 515001

WATERWAY INFORMATION

Drainage Area = 40.4 sq. miles		Low Grade Elev. = 658.64 at Sta. 1156+00							
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
10 Yr.	10	2980	683	846	651.0	0.2	0.1	651.3	651.2
Design	50	4770	791	974	652.4	0.6	0.4	653.0	652.8
Base	100	5560	831	1021	652.9	0.8	0.5	653.7	653.4
Scour Check	200	6400	868	1065	653.4	1.0	0.6	654.4	654.0
Max. Calc.	500	7490	914	1118	653.9	1.3	0.8	655.2	654.7

Existing 10 Year Average Velocity = 4.6 fps  
Proposed 10 Year Average Velocity = 3.6 fps

DESIGN SCOUR ELEVATION TABLE

Event / Limit State	Design Scour Elevations (ft.)		Item 113
	N. Abut.	S. Abut.	
Q100	650.91	650.79	8
Q200	650.91	650.79	
Design	650.91	650.79	
Check	650.91	650.79	

GENERAL NOTES

Fasteners shall be ASTM F3125 Grade A325 Type 1, mechanically galvanized bolts in painted or metallized areas and ASTM F3125 Grade A325 Type 3 weathering steel bolts in unpainted areas. Bolts  $\frac{3}{4}"$   $\varnothing$ , holes  $\frac{15}{16}"$   $\varnothing$ , unless otherwise noted.  
Calculated weight of Structural Steel = 162,800 lbs.  
All structural steel shall be AASHTO M270 Grade 50W.  
No field welding is permitted except as specified in the contract documents.  
Reinforcement bars designated (E) shall be epoxy coated.  
Structural steel shall be painted for a distance equal to the depth of embedment into the concrete cap plus 1'-6". Painted areas shall be primed in the shop with a Department approved zinc rich primer. Field painting will not be required.  
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 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

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Stone Riprap, Class A4	Sq. Yd.		1065	1065
Filter Fabric	Sq. Yd.		1065	1065
Removal of Existing Structures	Each			1
Structure Excavation	Cu. Yd.		262	262
Concrete Structures	Cu. Yd.		73.2	73.2
Concrete Superstructure	Cu. Yd.	181.0		181.0
Bridge Deck Grooving	Sq. Yd.	621		621
Protective Coat	Sq. Yd.	785		785
Concrete Superstructure (Approach Slab)	Cu. Yd.	106.1		106.1
Furnishing and Erecting Structural Steel	L. Sum	1.00		1.00
Stud Shear Connectors	Each	1533		1533
Reinforcement Bars, Epoxy Coated	Pound	78330	9940	88270
Bar Splicers	Each	531	100	631
Furnishing Metal Shell Piles 14" x 0.312"	Foot		390	390
Driving Piles	Foot		390	390
Test Pile Metal Shells	Each		2	2
Pile Shoes	Each		14	14
Name Plates	Each	1		1
Anchor Bolts, 1"	Each		28	28
Temporary Sheet Piling	Sq. Ft.		441	441
Granular Backfill for Structures	Cu. Yd.		152	152
Geocomposite Wall Drain	Sq. Yd.		79	79
Drainage Scuppers, D5-11	Each	4		4
Pipe Underdrains for Structures 4"	Foot		151	151

MODEL: 0380209-66932-002  
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DESIGNED -	TIFFANY L. MEIER
CHECKED -	RYAN P. NEGANGARD
DRAWN -	ANTHONY J. NOVELLO
CHECKED -	R.P.N. / G.R.A.

EXAMINED		DATE -	DECEMBER 2, 2021
PASSED		REVISED -	
	ENGINEER OF BRIDGES AND STRUCTURES	REVISED -	

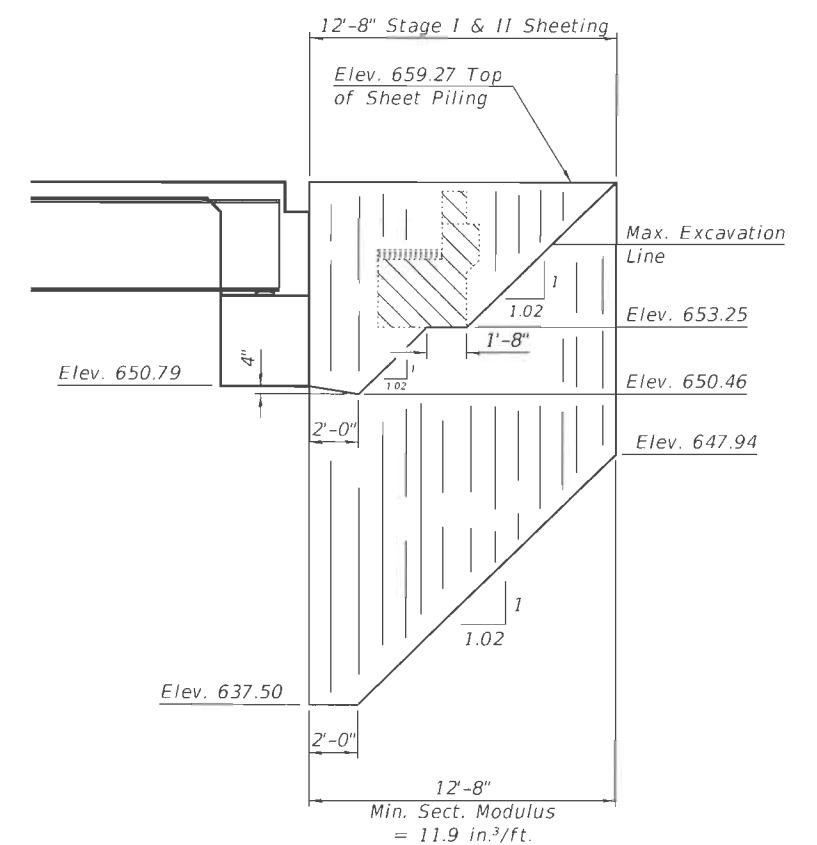
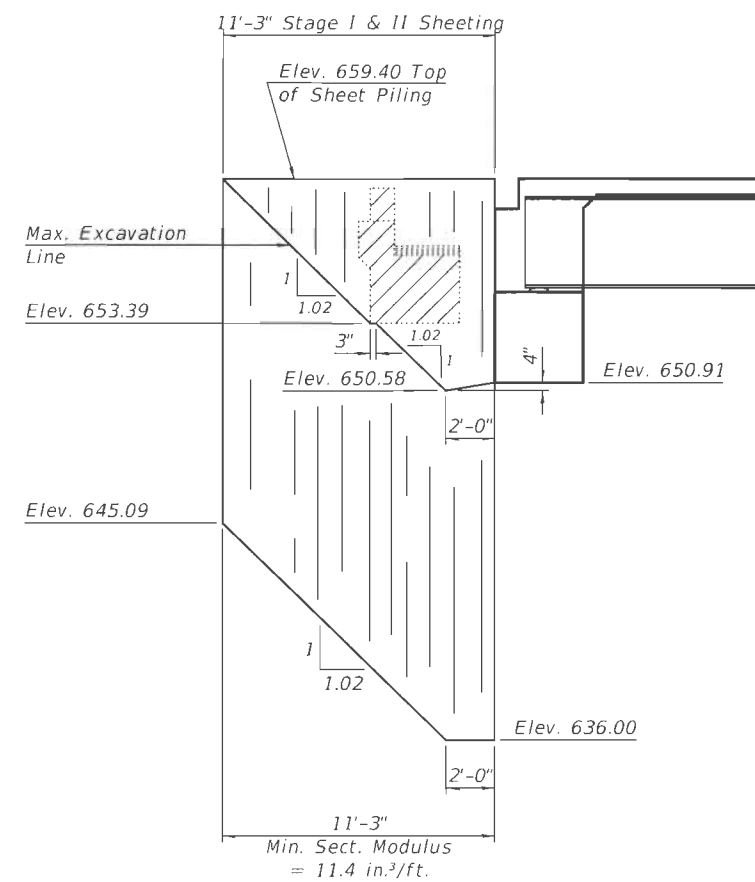
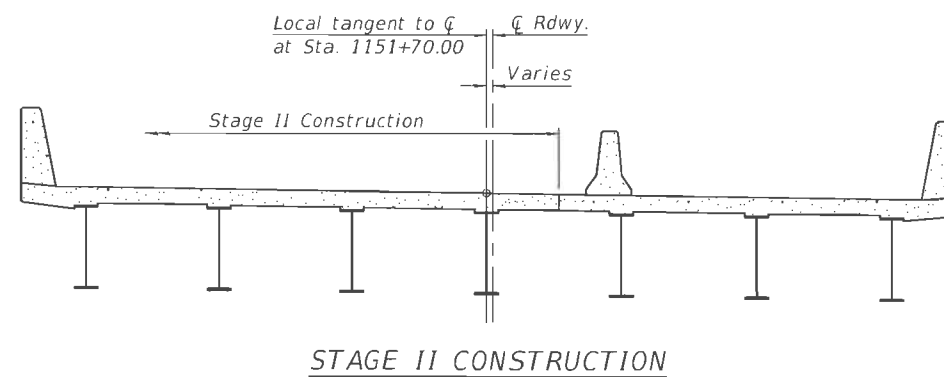
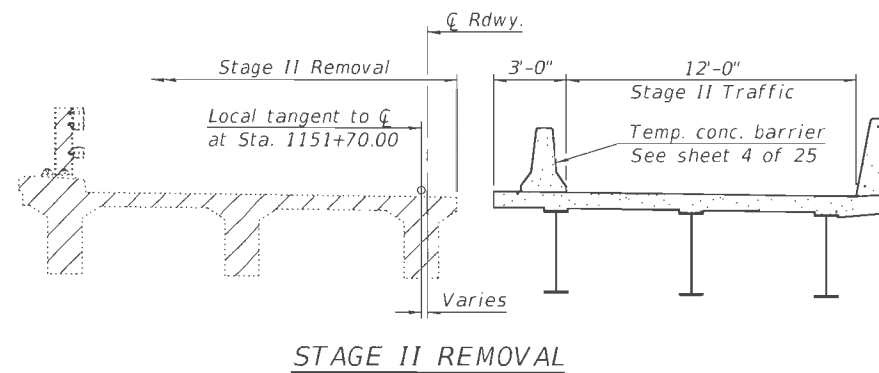
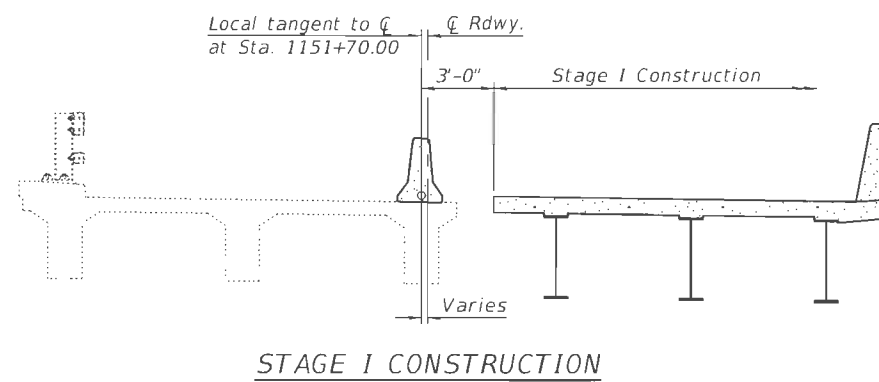
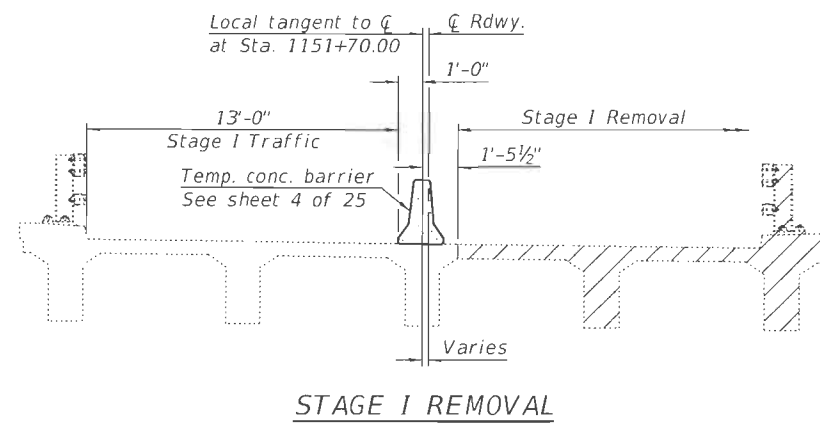
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

GENERAL DATA  
STRUCTURE NO. 038-0209

SHEET 2 OF 25 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
332	15R-BR	IROQUOIS	54	24
CONTRACT NO. 66932				
ILLINOIS FED. RD. PROJECT				

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Note:  
*All staging cross sections are looking South.*  
*For quantity of Temporary Concrete Barrier, see roadway plans.*  
*Hatched area indicates Removal of Existing Structures.*  
*If the Contractor chooses to alter the temporary cantilevered sheet piling design requirements shown on the plans, a design submittal including plan details and calculations will be required for review and acceptance by the Engineer.*

DESIGNED	-	TIFFANY L. MEIER
CHECKED	-	RYAN P. NEGANGARD
DRAWN	-	ANTHONY J. NOVELLO
CHECKED	-	R.P.N. / G.R.A.

EXAMINED	<i>Jayne F. Laffey</i>
PASSED	<i>Carl Kroyer</i>

ENGINEER OF BRIDGE DESIGN

ENGINEER OF BRIDGES AND STRUCTURES

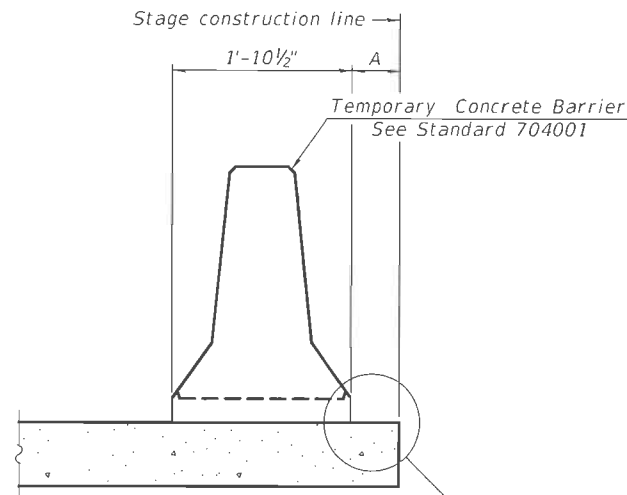
DATE	-	DECEMBER 2, 2021
REVISED	-	
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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

STAGE CONSTRUCTION DETAILS & TEMPORARY SHEET PILING  
STRUCTURE NO. 038-0209

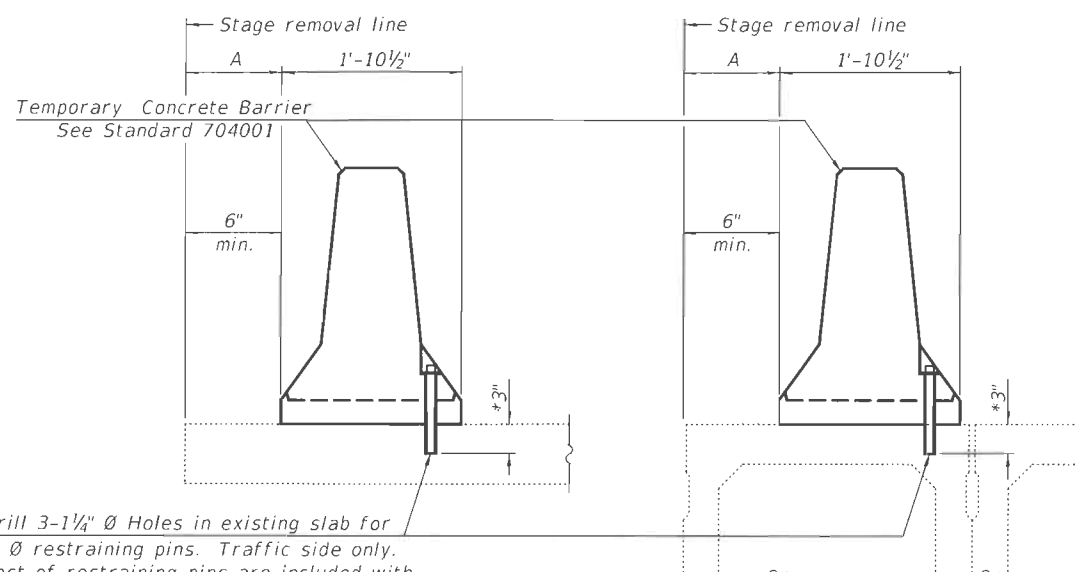
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332	15R-BR	IROQUOIS	54	25
CONTRACT NO. 66932				
ILLINOIS		FED. AID PROJECT		

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When "A" is 3'-1" or less, the temporary concrete barrier shall be restrained to the new slab according to Detail I, II or III. No restraint is required when "A" is greater than 3'-1".

NEW SLAB OR NEW DECK BEAM



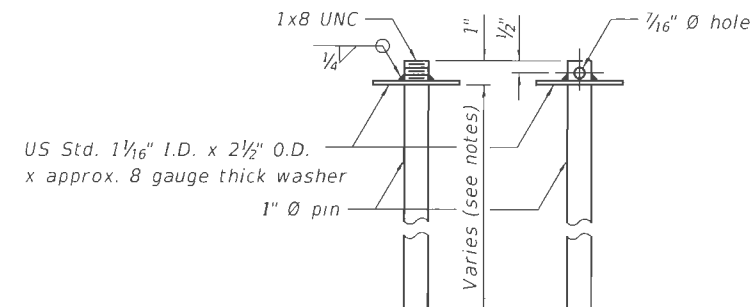
Drill 3-1 1/4" Ø Holes in existing slab for 1" Ø restraining pins. Traffic side only. Cost of restraining pins is included with Temporary Concrete Barrier. No restraint is required when "A" is greater than 3'-1".

EXISTING SLAB

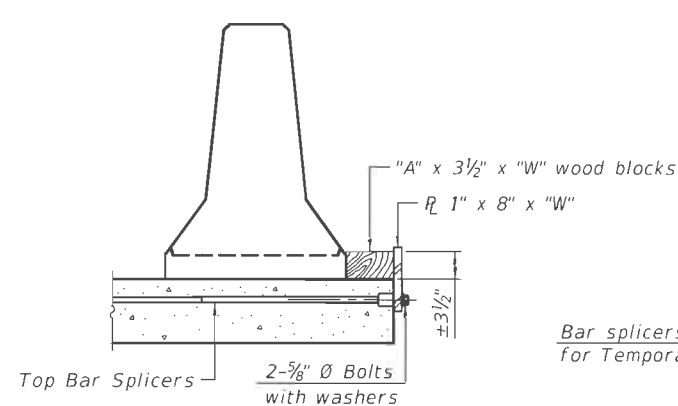
\* When hot-mix asphalt wearing surface is present, embedment shall be 3" plus the wearing surface depth.

EXISTING DECK BEAM

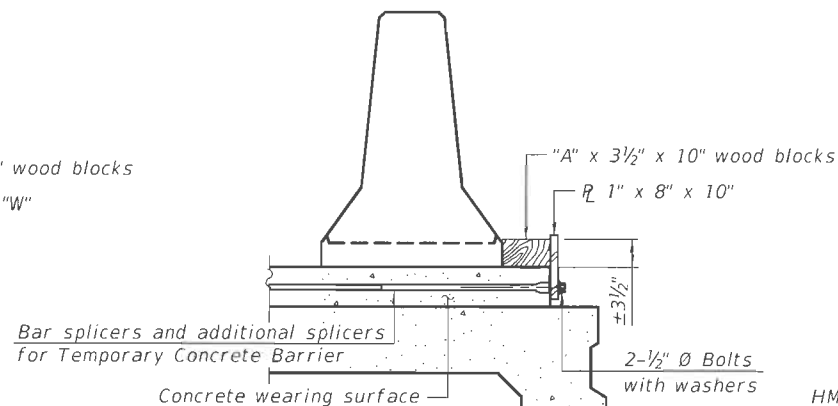
SECTIONS THRU SLAB OR DECK BEAM



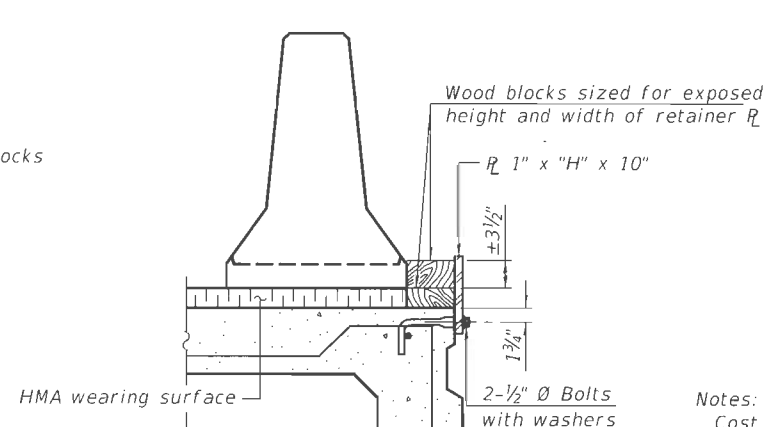
RESTRAINING PIN



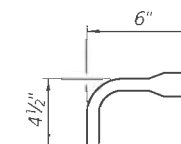
DETAIL I



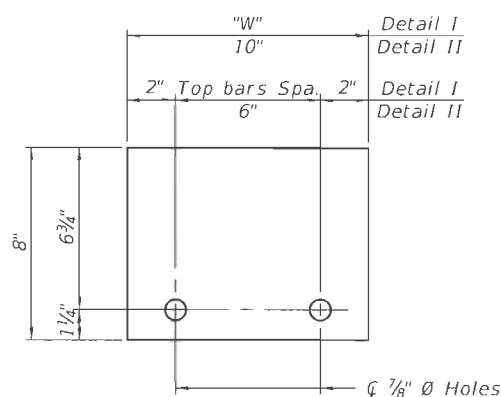
DETAIL II



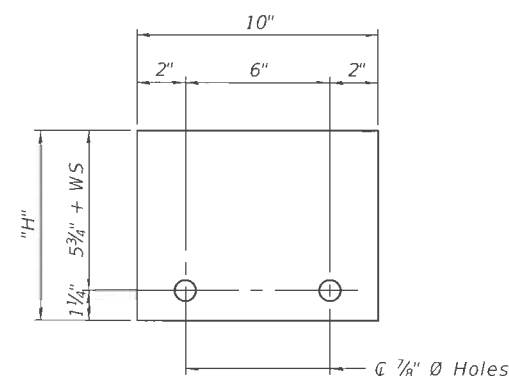
DETAIL III



BAR SPLICER FOR #4 BAR - DETAIL III



STEEL RETAINER  $R$  1" x 8" x "W"  
(Detail I and II)



STEEL RETAINER  $R$  1" x "H" x 10"  
(Detail III)

RAILING CRITERIA

NCHRP 350 Test Level	3
Railing Weight (plf)	440

R-27

10-12-2021

DESIGNED -	TIFFANY L. MEIER
CHECKED -	RYAN P. NEGANGARD
DRAWN -	ANTHONY J. NOVELLO
CHECKED -	R.P.N. / G.R.A.

EXAMINED	<i>Joanne F. Delfino</i> ENGINEER OF BRIDGE DESIGN
PASSED	<i>Carl R. R...</i> ENGINEER OF BRIDGES AND STRUCTURES

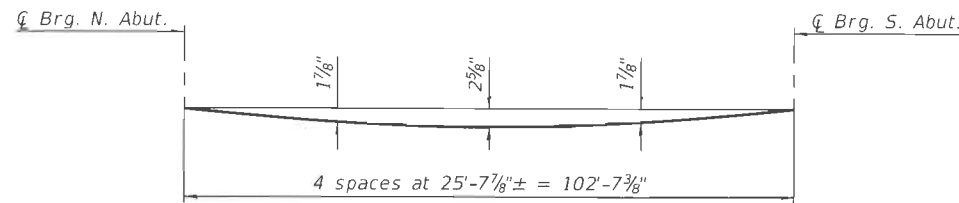
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REVISED -	
REVISED -	

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

TEMPORARY CONCRETE BARRIER  
STRUCTURE NO. 038-0209

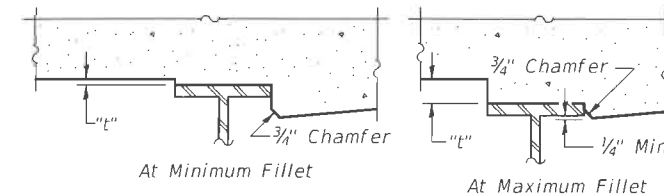
SHEET 4 OF 25 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
332	15R-BR	IROQUOIS	54	26
CONTRACT NO. 66932				
ILLINOIS FED. AID PROJECT				



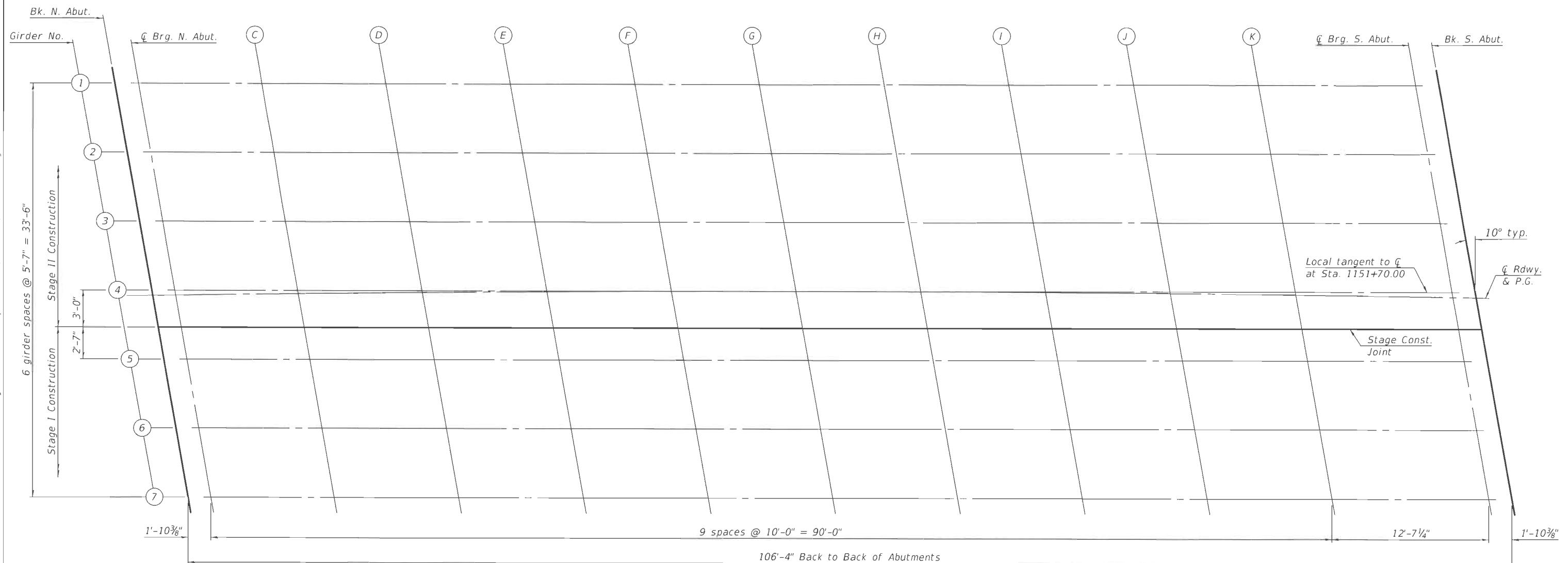
**DEAD LOAD DEFLECTION DIAGRAM**  
(Includes weight of concrete only)

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 sheet 6 of 25.



To determine "t": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown on sheet 6 of 25. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown on sheet 6 of 25, minus slab thickness, equals the fillet heights "t" above top flange of beams.

**FILLET HEIGHTS**



**PLAN**

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

TOP OF SLAB ELEVATIONS  
STRUCTURE NO. 038-0209

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
332	15R-BR	IROQUOIS	54	27
CONTRACT NO. 66932				
ILLINOIS FED. AID PROJECT				

DESIGNED - TIFFANY L. MEIER  
CHECKED - RYAN P. NEGANGARD  
DRAWN - ANTHONY J. NOVELLO  
CHECKED - R.P.N. / G.R.A.

EXAMINED - *Joanne F. Duff*  
PASSED - *Carl R. Rugg*  
ENGINEER OF BRIDGES AND STRUCTURES

DATE - DECEMBER 2, 2021  
REVISED -  
REVISED -

SHEET 5 OF 25 SHEETS

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GIRDER 1

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	1151+13.31	-16.94	659.67	659.67
☒ Brg. N. Abut.	1151+15.17	-16.92	659.66	659.66
C	1151+25.15	-16.87	659.65	659.71
D	1151+35.13	-16.82	659.64	659.76
E	1151+45.11	-16.79	659.63	659.79
F	1151+55.09	-16.76	659.61	659.80
G	1151+65.07	-16.75	659.60	659.81
H	1151+75.05	-16.75	659.59	659.78
I	1151+85.03	-16.76	659.58	659.75
J	1151+95.01	-16.79	659.57	659.70
K	1152+04.99	-16.82	659.56	659.63
☒ Brg. S. Abut.	1152+17.58	-16.88	659.54	659.54
Bk. S. Abut.	1152+19.44	-16.89	659.54	659.54

GIRDER 2

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	1151+14.26	-11.35	659.58	659.58
☒ Brg. N. Abut.	1151+16.12	-11.34	659.58	659.58
C	1151+26.10	-11.28	659.56	659.62
D	1151+36.09	-11.23	659.55	659.67
E	1151+46.08	-11.20	659.54	659.70
F	1151+56.06	-11.18	659.53	659.71
G	1151+66.05	-11.17	659.51	659.73
H	1151+76.04	-11.17	659.50	659.70
I	1151+86.03	-11.18	659.49	659.66
J	1151+96.01	-11.21	659.48	659.61
K	1152+06.00	-11.24	659.47	659.54
☒ Brg. S. Abut.	1152+18.59	-11.30	659.45	659.45
Bk. S. Abut.	1152+20.45	-11.31	659.45	659.45

GIRDER 3

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	1151+15.21	-5.76	659.49	659.49
☒ Brg. N. Abut.	1151+17.07	-5.75	659.49	659.49
C	1151+27.06	-5.69	659.47	659.53
D	1151+37.05	-5.65	659.46	659.58
E	1151+47.05	-5.61	659.45	659.61
F	1151+57.04	-5.59	659.44	659.63
G	1151+67.03	-5.58	659.43	659.64
H	1151+77.03	-5.59	659.41	659.61
I	1151+87.02	-5.60	659.40	659.57
J	1151+97.01	-5.63	659.39	659.53
K	1152+07.01	-5.66	659.38	659.46
☒ Brg. S. Abut.	1152+19.61	-5.73	659.37	659.37
Bk. S. Abut.	1152+21.47	-5.74	659.36	659.36

GIRDER 4

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	1151+16.15	-0.17	659.40	659.40
☒ Brg. N. Abut.	1151+18.02	-0.16	659.40	659.40
C	1151+28.02	-0.10	659.39	659.45
D	1151+38.02	-0.06	659.37	659.49
E	1151+48.01	-0.03	659.36	659.53
F	1151+58.01	-0.01	659.35	659.54
G	1151+68.01	0.00	659.34	659.55
H	1151+78.01	0.00	659.33	659.52
I	1151+88.01	-0.02	659.31	659.48
J	1151+98.01	-0.05	659.30	659.44
K	1152+08.01	-0.08	659.29	659.37
☒ Brg. S. Abut.	1152+20.62	-0.15	659.28	659.28
Bk. S. Abut.	1152+22.49	-0.16	659.28	659.28

☒ ROADWAY & PROFILE GRADE

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	1151+16.18	0.00	659.40	659.40
☒ Brg. N. Abut.	1151+18.04	0.00	659.40	659.40
C	1151+28.04	0.00	659.38	659.44
D	1151+38.04	0.00	659.37	659.49
E	1151+48.04	0.00	659.36	659.52
F	1151+58.04	0.00	659.35	659.54
G	1151+68.04	0.00	659.34	659.55
H	1151+78.04	0.00	659.33	659.52
I	1151+88.04	0.00	659.31	659.48
J	1151+98.04	0.00	659.30	659.44
K	1152+08.04	0.00	659.29	659.37
☒ Brg. S. Abut.	1152+20.65	0.00	659.28	659.28
Bk. S. Abut.	1152+22.52	0.00	659.27	659.27

STAGE CONSTRUCTION JOINT

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	1151+16.66	2.83	659.35	659.35
☒ Brg. N. Abut.	1151+18.53	2.85	659.35	659.35
C	1151+28.53	2.90	659.34	659.40
D	1151+38.53	2.94	659.33	659.45
E	1151+48.54	2.97	659.31	659.48
F	1151+58.54	2.99	659.30	659.49
G	1151+68.54	3.00	659.29	659.50
H	1151+78.55	3.00	659.28	659.47
I	1151+88.55	2.98	659.27	659.44
J	1151+98.55	2.95	659.26	659.39
K	1152+08.56	2.91	659.24	659.32
☒ Brg. S. Abut.	1152+21.17	2.85	659.23	659.23
Bk. S. Abut.	1152+23.03	2.84	659.23	659.23

GIRDER 5

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	1151+17.10	5.42	659.31	659.31
☒ Brg. N. Abut.	1151+18.97	5.43	659.31	659.31
C	1151+28.97	5.49	659.30	659.36
D	1151+38.98	5.53	659.29	659.40
E	1151+48.99	5.56	659.27	659.44
F	1151+58.99	5.58	659.26	659.45
G	1151+69.00	5.58	659.25	659.46
H	1151+79.01	5.58	659.24	659.43
I	1151+89.01	5.56	659.23	659.40
J	1151+99.02	5.53	659.21	659.35
K	1152+09.02	5.49	659.20	659.28
☒ Brg. S. Abut.	1152+21.64	5.43	659.19	659.19
Bk. S. Abut.	1152+23.51	5.42	659.19	659.19

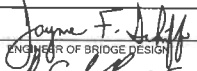

GIRDER 6

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	1151+18.06	11.01	659.22	659.22
☒ Brg. N. Abut.	1151+19.92	11.02	659.22	659.22
C	1151+29.93	11.07	659.21	659.27
D	1151+39.95	11.11	659.20	659.32
E	1151+49.96	11.14	659.18	659.35
F	1151+59.97	11.16	659.17	659.36
G	1151+69.98	11.17	659.16	659.37
H	1151+80.00	11.16	659.15	659.34
I	1151+90.01	11.14	659.14	659.31
J	1152+00.02	11.11	659.13	659.26
K	1152+10.04	11.07	659.12	659.19
☒ Brg. S. Abut.	1152+22.66	11.01	659.10	659.10
Bk. S. Abut.	1152+24.53	10.99	659.10	659.10

GIRDER 7

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	1151+19.01	16.60	659.14	659.14
☒ Brg. N. Abut.	1151+20.87	16.61	659.13	659.13
C	1151+30.89	16.66	659.12	659.18
D	1151+40.91	16.70	659.11	659.23
E	1151+50.93	16.73	659.10	659.26
F	1151+60.95	16.75	659.08	659.27
G	1151+70.97	16.75	659.07	659.28
H	1151+80.99	16.74	659.06	659.25
I	1151+91.01	16.72	659.05	659.22
J	1152+01.03	16.69	659.04	659.17
K	1152+11.05	16.65	659.03	659.10
☒ Brg. S. Abut.	1152+23.68	16.58	659.01	659.01
Bk. S. Abut.	1152+25.55	16.57	659.01	659.01

DESIGNED -	TIFFANY L. MEIER
CHECKED -	RYAN P. NEGANGARD
DRAWN -	ANTHONY J. NOVELLO
CHECKED -	R.P.N. / G.R.A.

EXAMINED		DATE -	DECEMBER 2, 2021
PASSED		REVISD -	
	ENGINEER OF BRIDGES AND STRUCTURES	REVISD -	

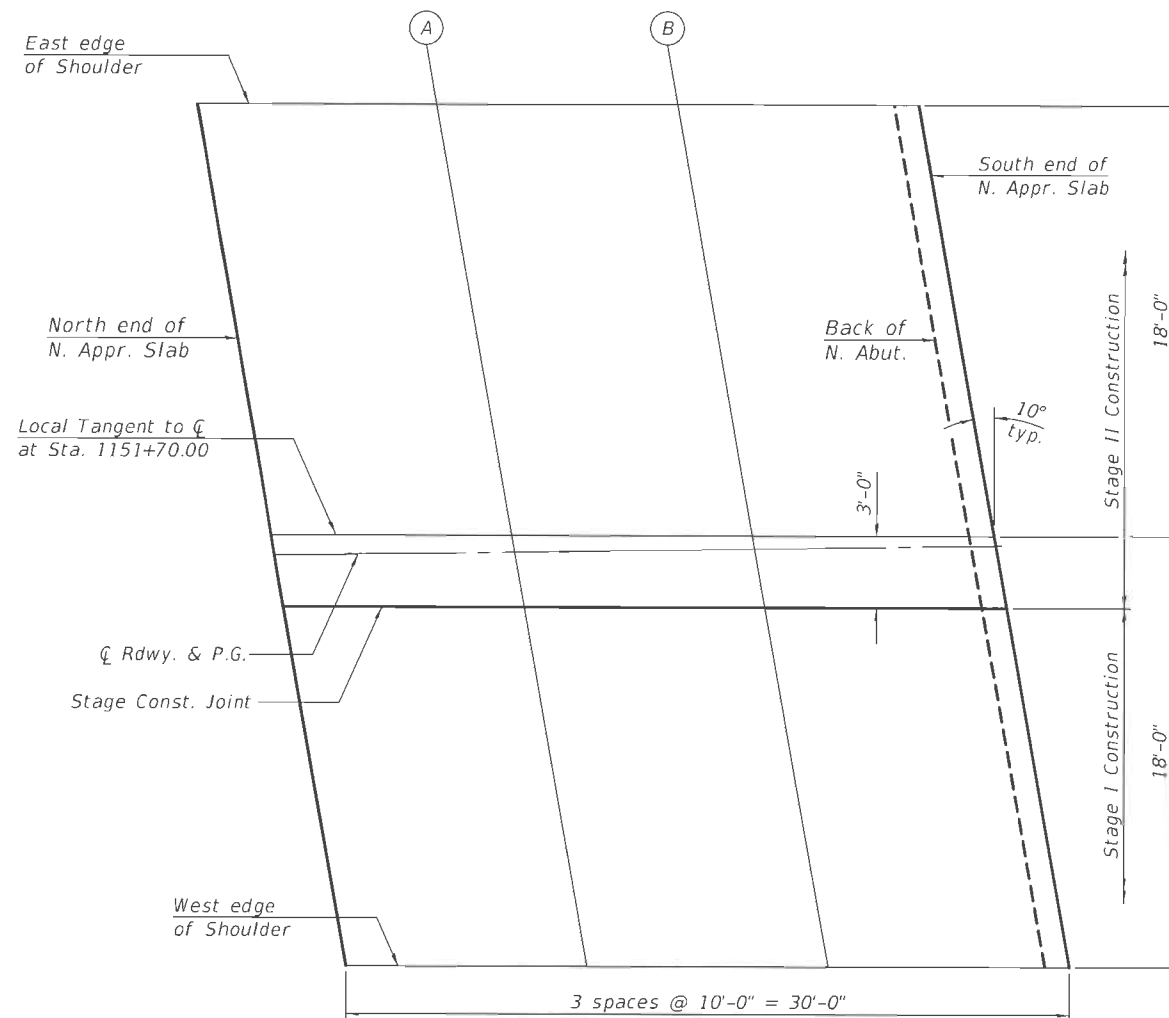
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

TOP OF SLAB ELEVATIONS  
STRUCTURE NO. 038-0209

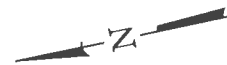
SHEET 6 OF 25 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
332	15R-BR	IROQUOIS	54	28
CONTRACT NO. 66932				
ILLINOIS FED. AID PROJECT				

MODEL: 0380209-66932-007  
FILE NAME: pw:\idot-pw-bentley.com\pw\idot\Documents\IDOT\_Offices\Bureau of Bridges and Structures\Projects\0380209\CADD Plans\0380209-66932.dgn



PLAN



EAST EDGE OF SHOULDER

Location	Station	Offset	Theoretical Grade Elevations
North end of N. Appr. Slab	1150+84.18	-18.43	659.72
A	1150+94.16	-18.33	659.71
B	1151+04.13	-18.25	659.70
South end of N. Appr. Slab	1151+14.11	-18.18	659.68

$\phi$  ROADWAY & PROFILE GRADE

Location	Station	Offset	Theoretical Grade Elevations
North end of N. Appr. Slab	1150+87.24	0.00	659.43
A	1150+97.24	0.00	659.42
B	1151+07.24	0.00	659.41
South end of N. Appr. Slab	1151+17.20	0.00	659.40

STAGE CONSTRUCTION JOINT

Location	Station	Offset	Theoretical Grade Elevations
North end of N. Appr. Slab	1150+87.67	2.61	659.39
A	1150+97.67	2.70	659.38
B	1151+07.68	2.77	659.36
South end of N. Appr. Slab	1151+17.68	2.84	659.35

WEST EDGE OF SHOULDER

Location	Station	Offset	Theoretical Grade Elevations
North end of N. Appr. Slab	1150+90.18	17.63	659.15
A	1151+00.20	17.72	659.14
B	1151+10.22	17.79	659.13
South end of N. Appr. Slab	1151+20.24	17.86	659.11

DESIGNED -	TIFFANY L. MEIER
CHECKED -	RYAN P. NEGANGARD
DRAWN -	ANTHONY J. NOVELLO
CHECKED -	R.P.N. / G.R.A.

EXAMINED	
PASSED	
ENGINEER OF BRIDGES AND STRUCTURES	

DATE -	DECEMBER 2, 2021
REVISED -	
REVISED -	

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

TOP OF NORTH APPROACH SLAB ELEVATIONS  
STRUCTURE NO. 038-0209

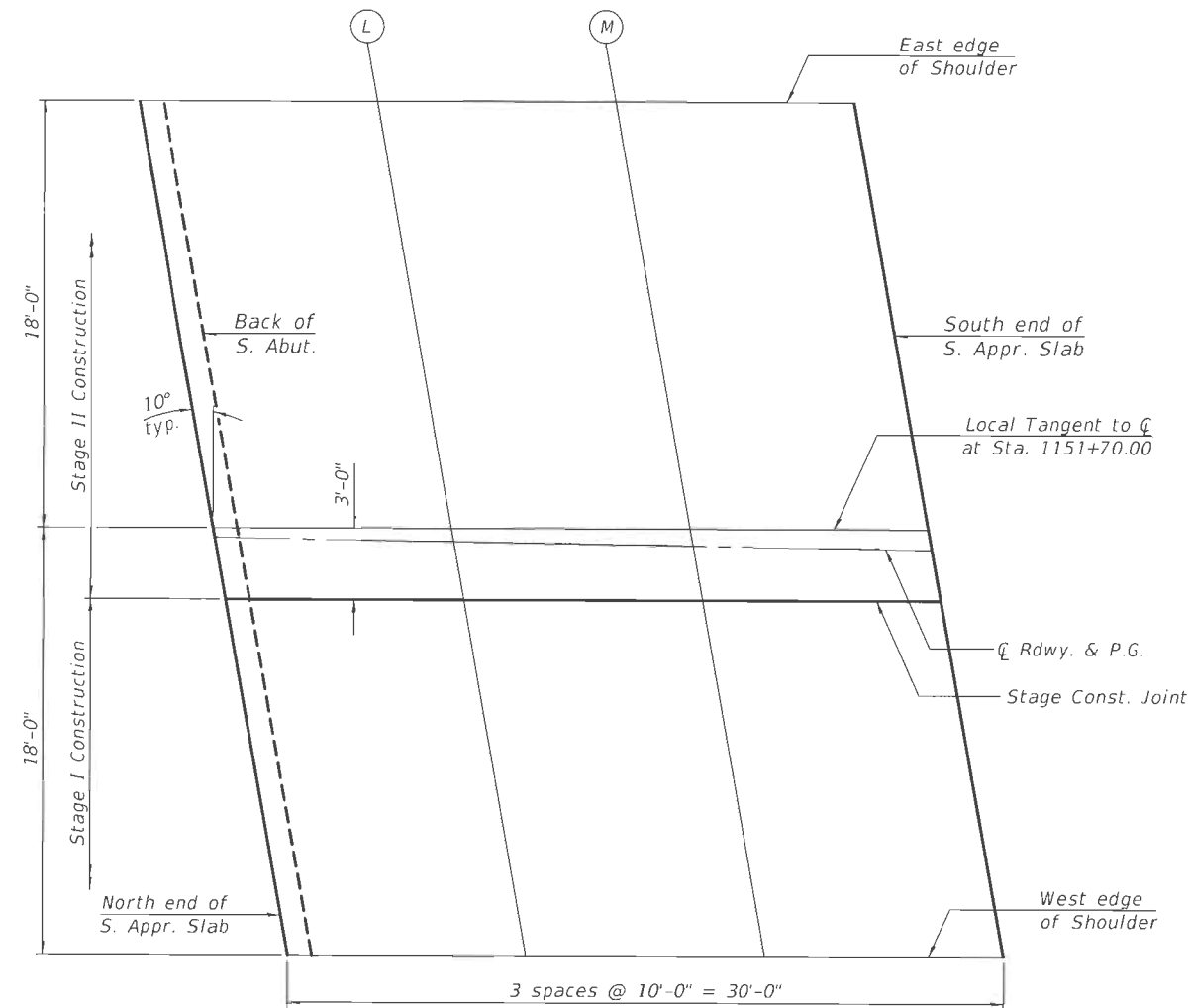
SHEET 7 OF 25 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
332	15R-BR	IROQUOIS	54	29
CONTRACT NO. 66932				
ILLINOIS FED. AID PROJECT				

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PLAN

EAST EDGE OF SHOULDER

Location	Station	Offset	Theoretical Grade Elevations
North end of S. Appr. Slab	1152+18.20	-18.14	659.56
L	1152+28.17	-18.20	659.55
M	1152+38.15	-18.27	659.54
South end of S. Appr. Slab	1152+48.13	-18.35	659.53

C ROADWAY & PROFILE GRADE

Location	Station	Offset	Theoretical Grade Elevations
North end of S. Appr. Slab	1152+21.50	0.00	659.27
L	1152+31.50	0.00	659.26
M	1152+41.50	0.00	659.25
South end of S. Appr. Slab	1152+51.54	0.00	659.24

STAGE CONSTRUCTION JOINT

Location	Station	Offset	Theoretical Grade Elevations
North end of S. Appr. Slab	1152+22.02	2.84	659.23
L	1152+32.02	2.78	659.22
M	1152+42.02	2.70	659.21
South end of S. Appr. Slab	1152+52.03	2.61	659.20

WEST EDGE OF SHOULDER

Location	Station	Offset	Theoretical Grade Elevations
North end of S. Appr. Slab	1152+24.76	17.83	658.99
L	1152+34.78	17.76	658.98
M	1152+44.80	17.68	658.97
South end of S. Appr. Slab	1152+54.82	17.58	658.96

DESIGNED - TIFFANY L. MEIER  
CHECKED - RYAN P. NEGANGARD  
DRAWN - ANTHONY J. NOVELLO  
CHECKED - R.P.N. / G.R.A.

EXAMINED  
PASSED

JOYCE F. J. J.  
ENGINEER OF BRIDGE DESIGN  
CARL R. R.  
ENGINEER OF BRIDGES AND STRUCTURES

DATE - DECEMBER 2, 2021  
REVISED -  
REVISED -

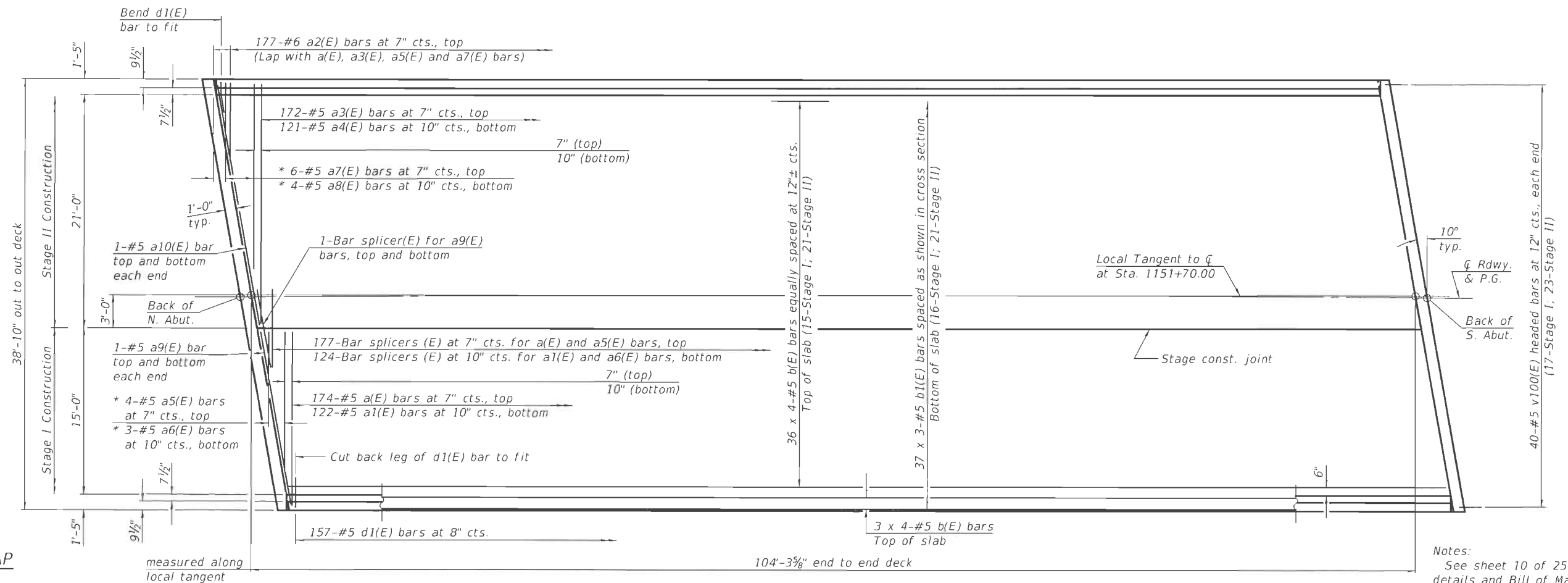
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

TOP OF SOUTH APPROACH SLAB ELEVATIONS  
STRUCTURE NO. 038-0209

SHEET 8 OF 25 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
332	15R-BR	IROQUOIS	54	30
CONTRACT NO. 66932				
ILLINOIS FED. AID PROJECT				

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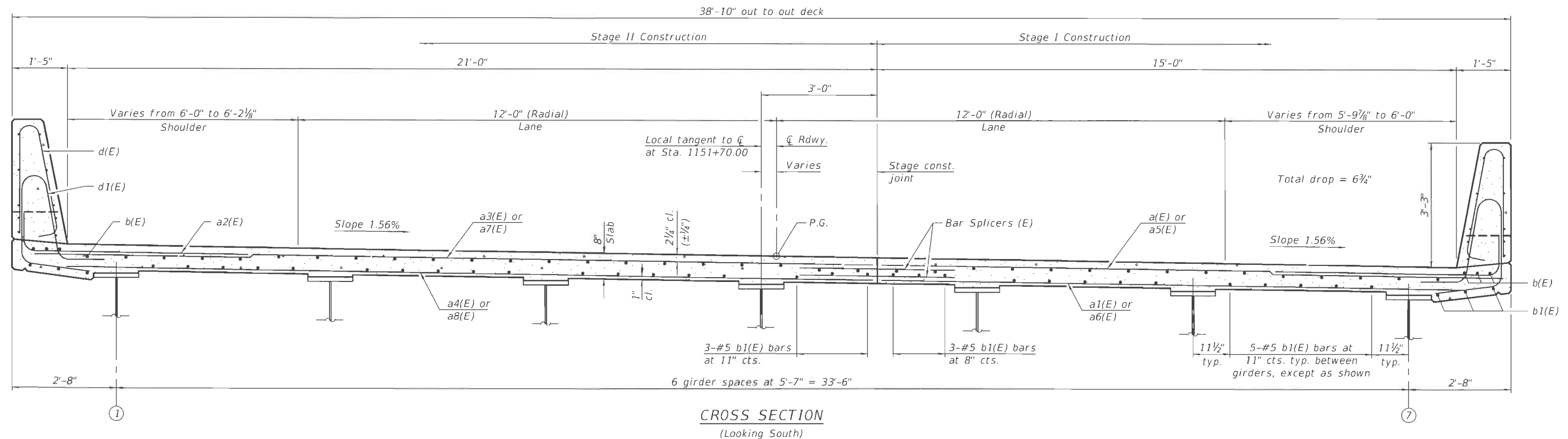
#### MINIMUM BAR LAP

#5 bar = 3'-6"

\* See Field Cutting Diagram  
on sheet 10 of 25.

#### PLAN

Notes:  
See sheet 10 of 25 for superstructure  
details and Bill of Material.  
Bars indicated thus 36 x 4-#5 etc.  
indicates 36 lines of bars with 4 lengths  
per line.



#### CROSS SECTION (Looking South)

DESIGNED - TIFFANY L. MEIER  
CHECKED - RYAN P. NEGANGARD  
DRAWN - ANTHONY J. NOVELLO  
CHECKED - R.P.N. / G.R.A.

EXAMINED  
PASSED

ENGINEER OF BRIDGE DESIGN  
ENGINEER OF BRIDGES AND STRUCTURES

DATE - DECEMBER 2, 2021  
REVISED -  
REVISED -

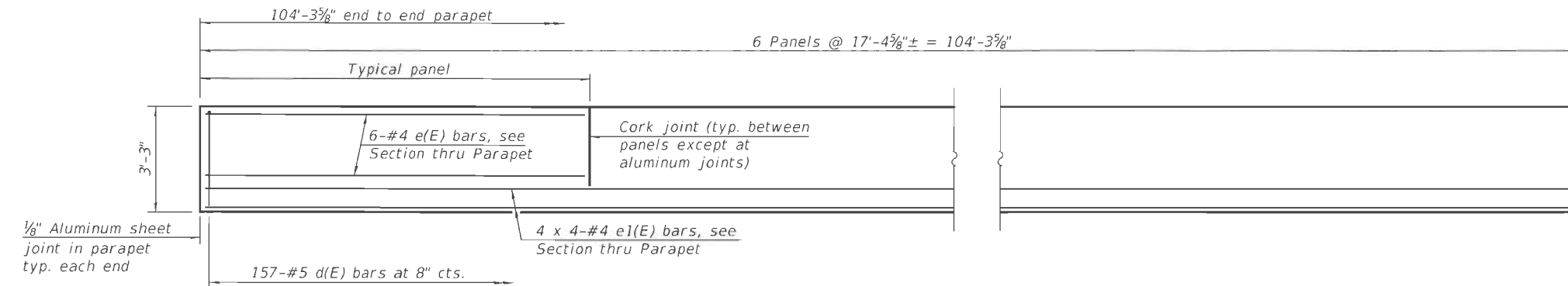
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE  
STRUCTURE NO. 038-0209

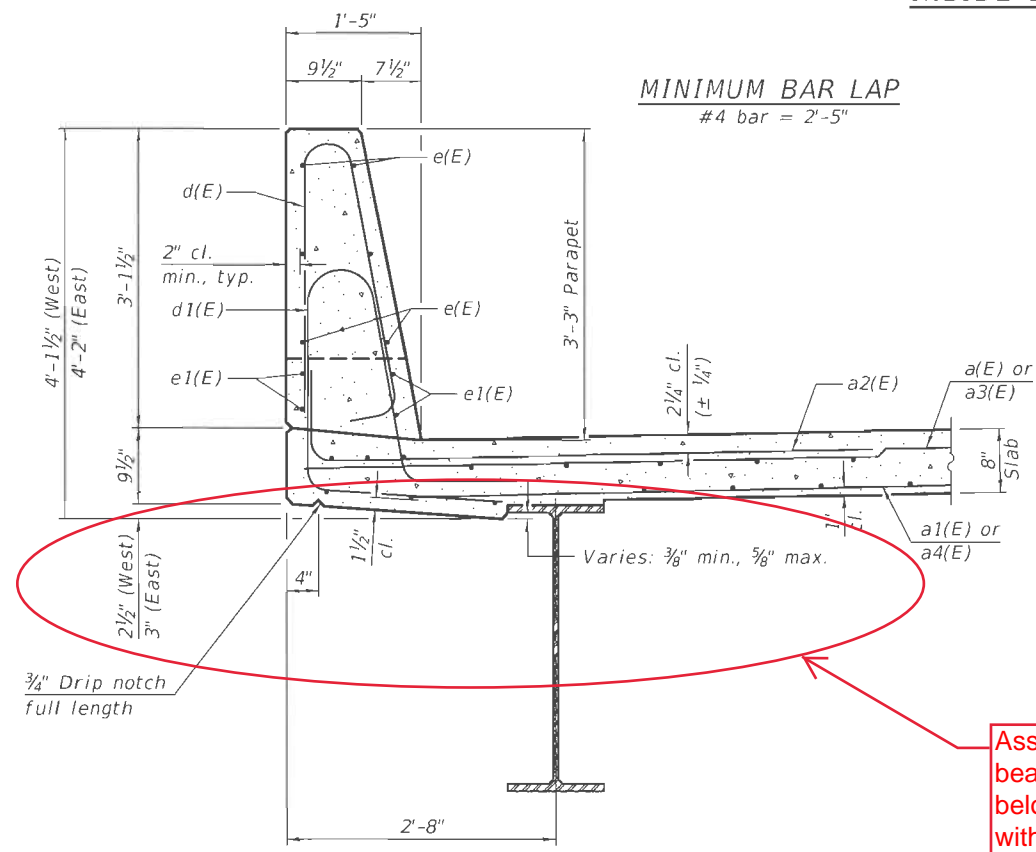
SHEET 9 OF 25 SHEETS

F.A.P. RTE. 332	SECTION 15R-BR	COUNTY IROQUOIS	TOTAL SHEETS 54	SHEET NO. 31
CONTRACT NO. 66932				
ILLINOIS FED. AID PROJECT				

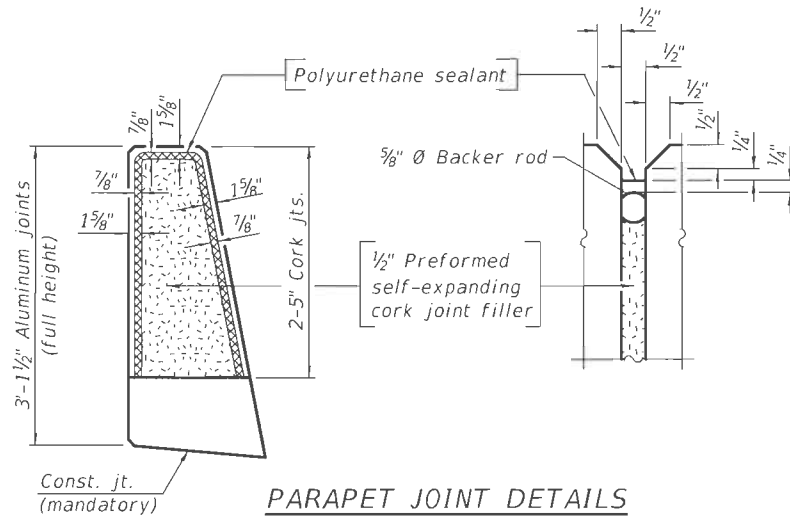
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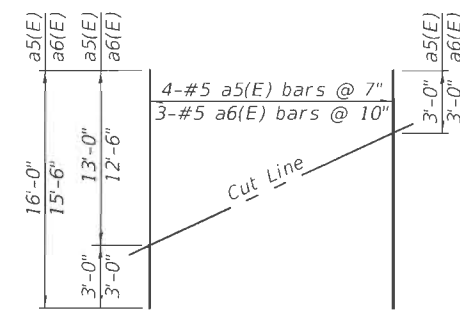
INSIDE ELEVATION OF PARAPET



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

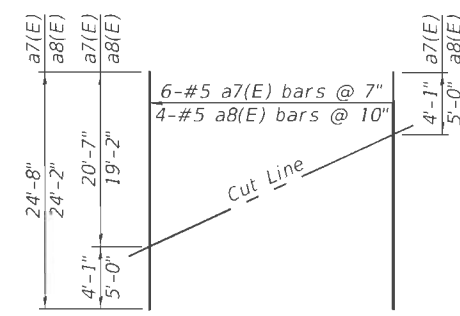


PARAPET JOINT DETAILS



FIELD CUTTING DIAGRAM

Order a5(E) and a6(E) bars full length. Cut as shown and use remainder of bars in opposite end of deck.



FIELD CUTTING DIAGRAM

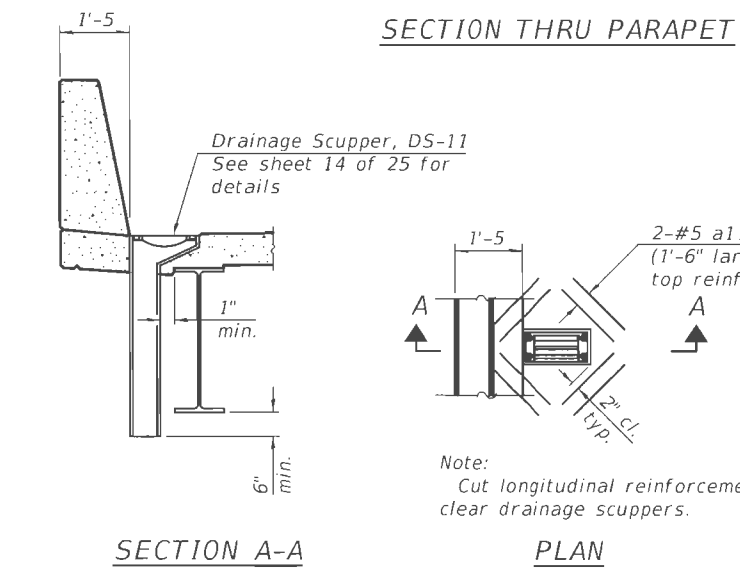
Order a7(E) and a8(E) bars full length. Cut as shown and use remainder of bars in opposite end of deck.

SUPERSTRUCTURE  
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a(E)	174	#5	16'-1"	
a1(E)	122	#5	15'-3"	
a2(E)	354	#6	8'-4"	
a3(E)	172	#5	22'-1"	
a4(E)	121	#5	21'-3"	
a5(E)	4	#5	16'-0"	
a6(E)	3	#5	15'-6"	
a7(E)	6	#5	24'-8"	
a8(E)	4	#5	24'-2"	
a9(E)	4	#5	16'-4"	
a10(E)	4	#5	22'-6"	
a11(E)	32	#5	1'-6"	
b(E)	168	#5	28'-8"	
b1(E)	111	#5	37'-0"	
d(E)	314	#5	6'-5"	
d1(E)	314	#5	7'-11"	
e(E)	72	#4	17'-1"	
e1(E)	32	#4	27'-10"	
m10(E)	10	#6	16'-4"	
m11(E)	40	#6	5'-4"	
m12(E)	16	#6	2'-4"	
m13(E)	10	#6	22'-6"	
s10(E)	74	#5	9'-1"	
s11(E)	74	#5	12'-1"	
v100(E)	80	#5	3'-1"	
Reinforcement Bars, Epoxy Coated			Pound	34,780
Concrete Superstructure			Cu. Yd.	173.2

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.

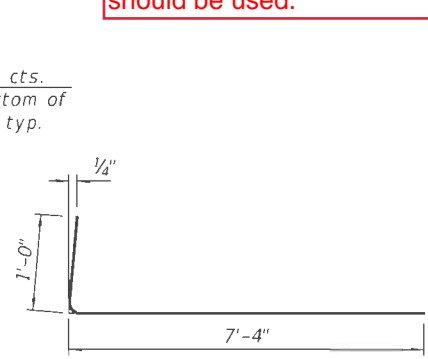
Assumed haunch thickness of 1" used for all interior beams. AASHTOWare does not allow for a haunch to go below the top flange. The closest configuration to flush with the bottom of the top flange is the minimum 3/8" case. The haunch thickness on the interior side of the edge beam was calculated based on the configuration of the exterior haunch flush with the bottom of the top flange, plus the 3/8" minimum overhang. Note: In cases where the haunch is very thick, more refined techniques should be used.



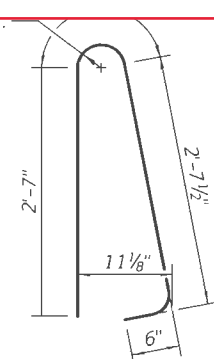
SECTION THRU PARAPET

SECTION A-A

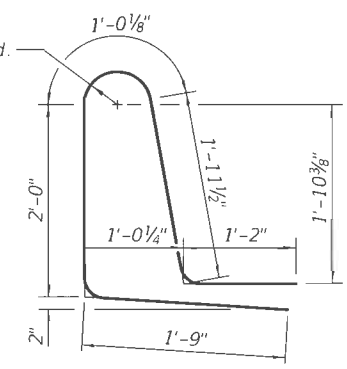
PLAN



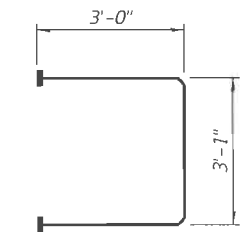
BAR a2(E)



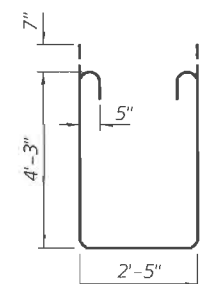
BAR d(E)



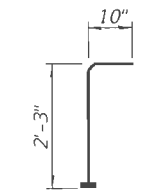
BAR d1(E)



BAR s10(E)  
(Headed)

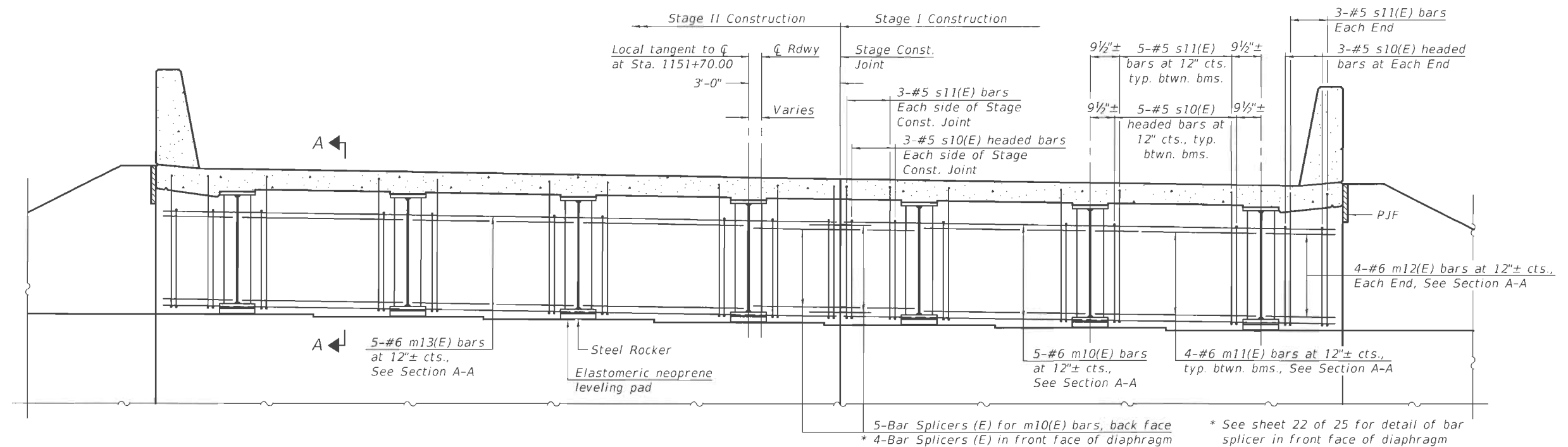


BAR s11(E)



BAR v100(E)  
(Headed)

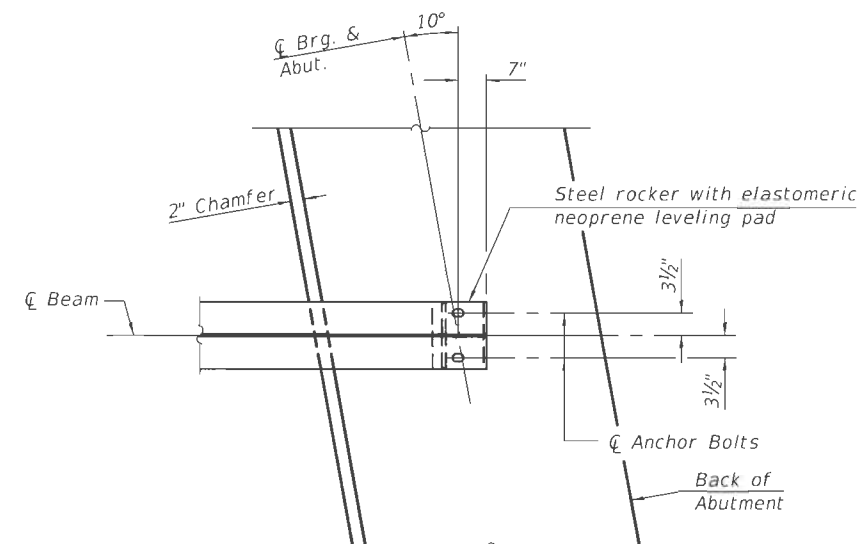
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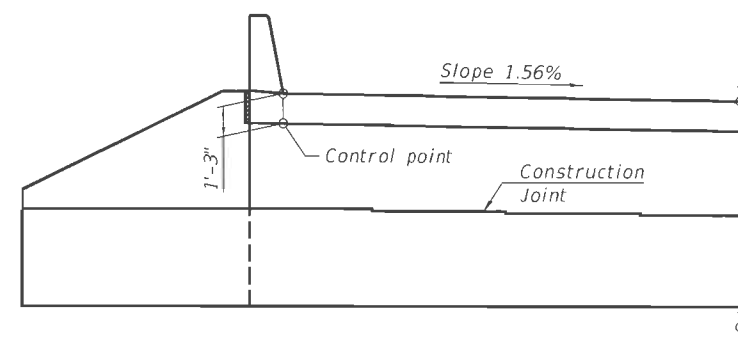
**DIAPHRAGM AT ABUTMENT**  
(South diaphragm shown - looking South  
North diaphragm similar)

**Notes:**

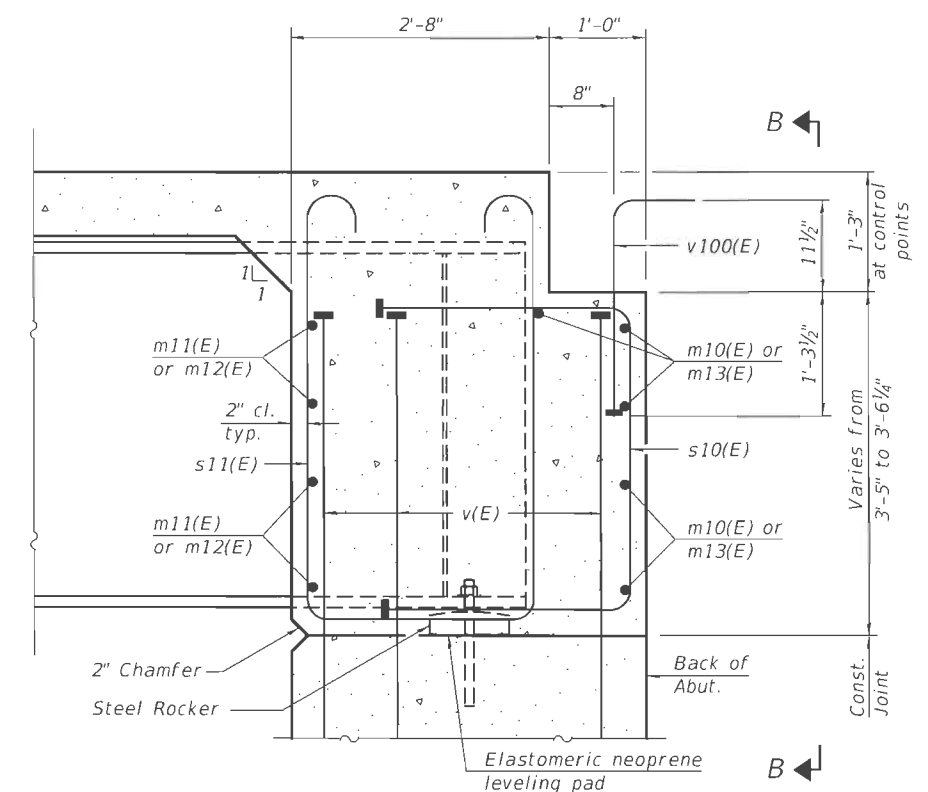
See sheet 10 of 25 for superstructure details and Bill of Material.  
See sheet 13 of 25 for PJF details.  
The s10(E) and s11(E) bars shall be placed parallel to the beams.  
Spacing for these bars shall be at right angles to the beams.  
The approach slab seat shall have a constant slope determined from the control points shown.



**PLAN AT ABUTMENT**  
(Showing bottom flange of beam)



**VIEW B-B**



**SECTION A-A**  
(at Rt.  $\angle$ 's)

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FILE NAME: pw:\ildot-pw.bentley.com\PWIDOT\Documents\IDOT Offices\Bureau of Bridges and Structures\Projects\0380209\CADD Plans\0380209-66932.dgn

DESIGNED - TIFFANY L. MEIER  
CHECKED - RYAN P. NEGANGARD  
DRAWN - ANTHONY J. NOVELLO  
CHECKED - R.P.N. / G.R.A.

EXAMINED  
PASSED

JOYCE F. JEFF  
ENGINEER OF BRIDGE DESIGN  
CARL R. RYAN  
ENGINEER OF BRIDGES AND STRUCTURES

DATE - DECEMBER 2, 2021  
REVISED -  
REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

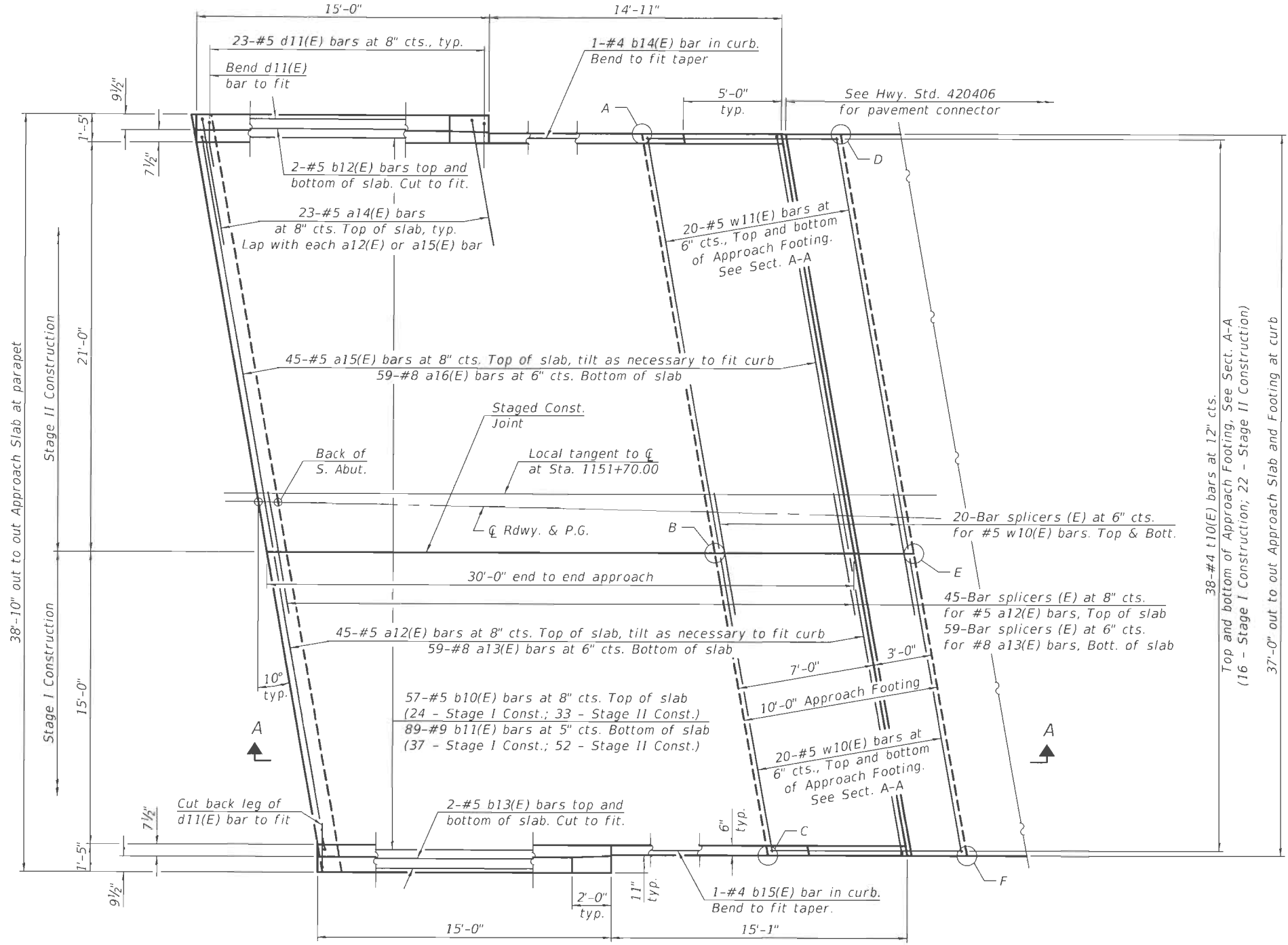
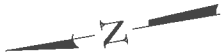
DIAPHRAGM DETAILS  
STRUCTURE NO. 038-0209

SHEET 11 OF 25 SHEETS

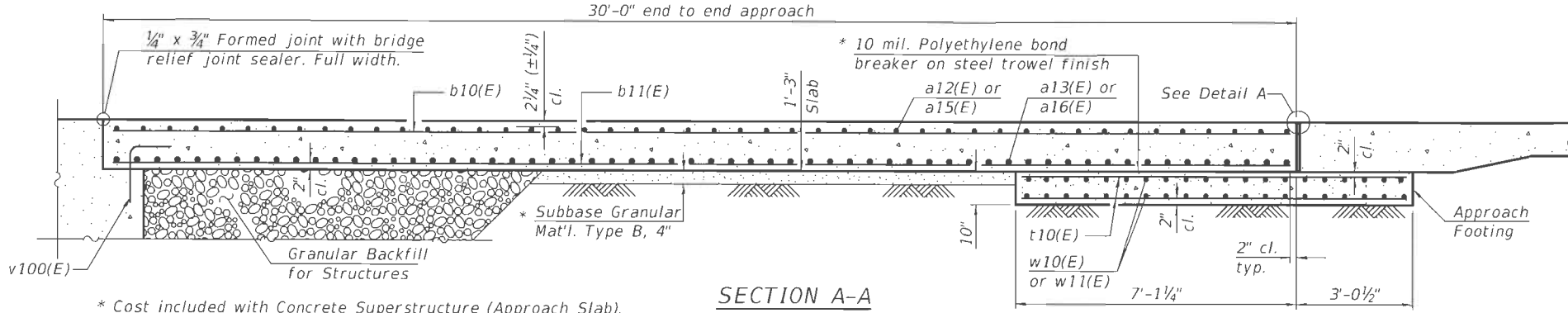
F.A.P. RTE. 332	SECTION 15R-BR	COUNTY IROQUOIS	TOTAL SHEETS 54	SHEET NO. 33
CONTRACT NO. 66932				
ILLINOIS FED. AID PROJECT				

TOP AND BOTTOM ELEVATIONS  
FOR APPROACH FOOTING

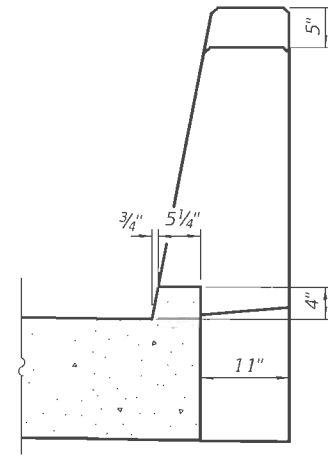
Point / Location	North		Point / Location	South	
	Top	Bottom		Top	Bottom
A - SW	657.89	657.06	A - NE	658.29	657.46
B - S SCJ	658.13	657.30	B - N SCJ	657.96	657.13
C - SE	658.47	657.64	C - NW	657.71	656.88
D - NW	657.90	657.07	D - SE	658.28	657.45
E - N SCJ	658.15	657.32	E - S SCJ	657.94	657.11
F - NE	658.49	657.66	F - SW	657.70	656.87



PLAN  
(South Approach shown; North Approach similar by 180° rotation)



SECTION A-A



VIEW B-B

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DESIGNED - TIFFANY L. MEIER	EXAMINED - <i>Joanne F. Joffe</i>	DATE - DECEMBER 2, 2021
CHECKED - RYAN P. NEGANGARD	PASSED - <i>Paul Joffe</i>	REVISD -
DRAWN - ANTHONY J. NOVELLO	ENGINEER OF BRIDGES AND STRUCTURES	REVISD -
CHECKED - R.P.N./G.R.A.		

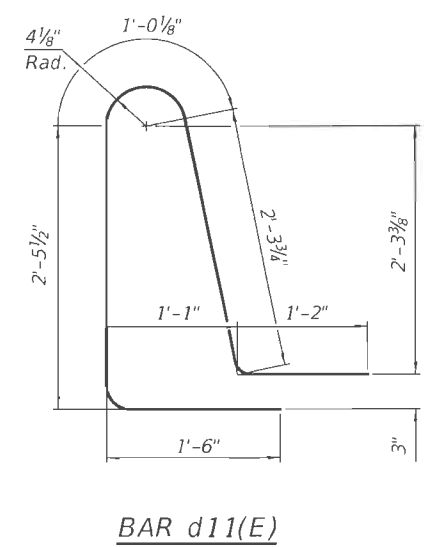
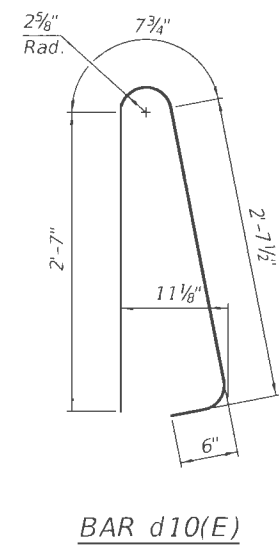
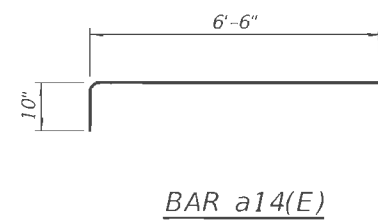
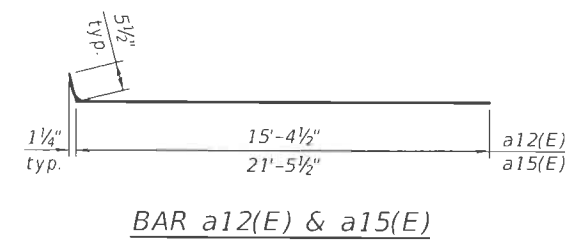
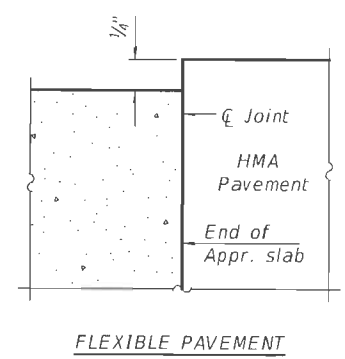
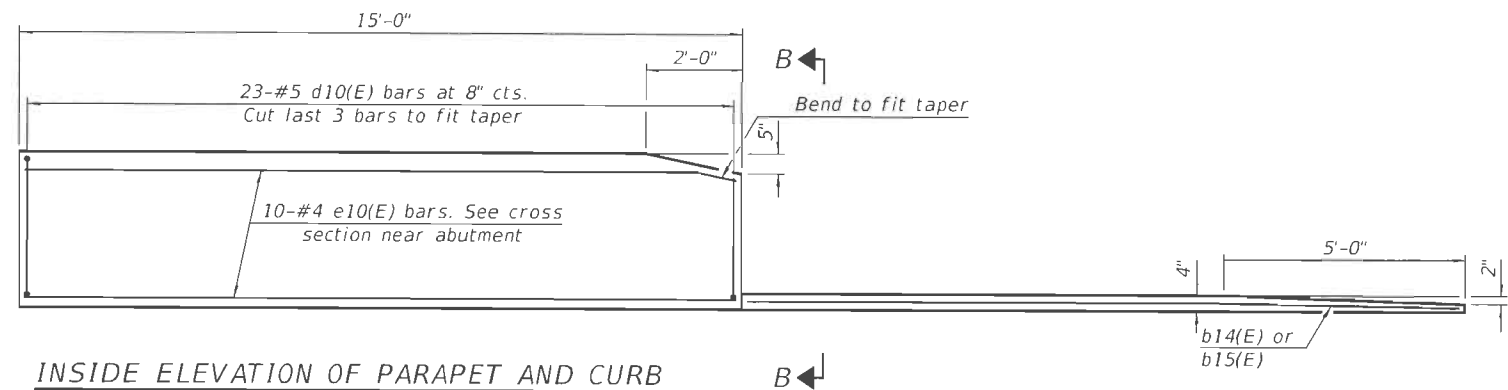
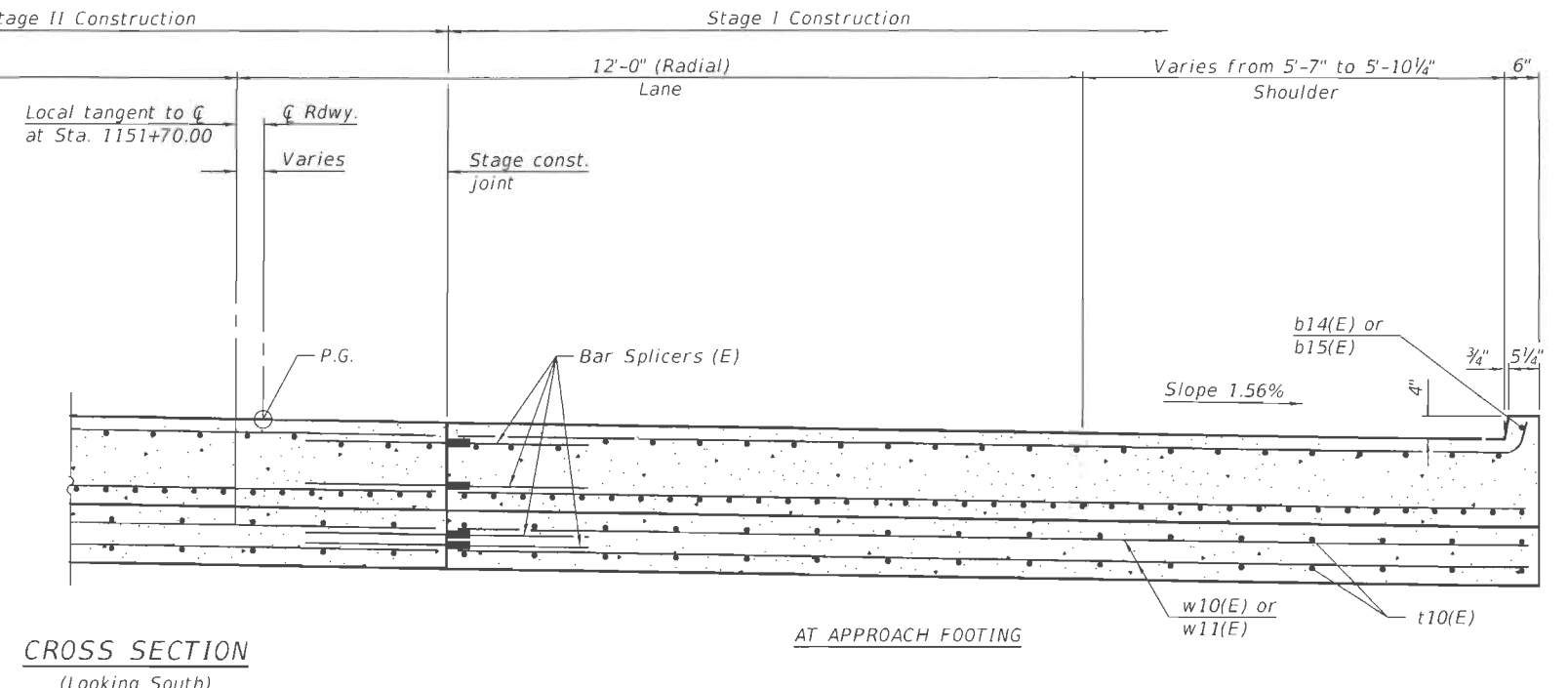
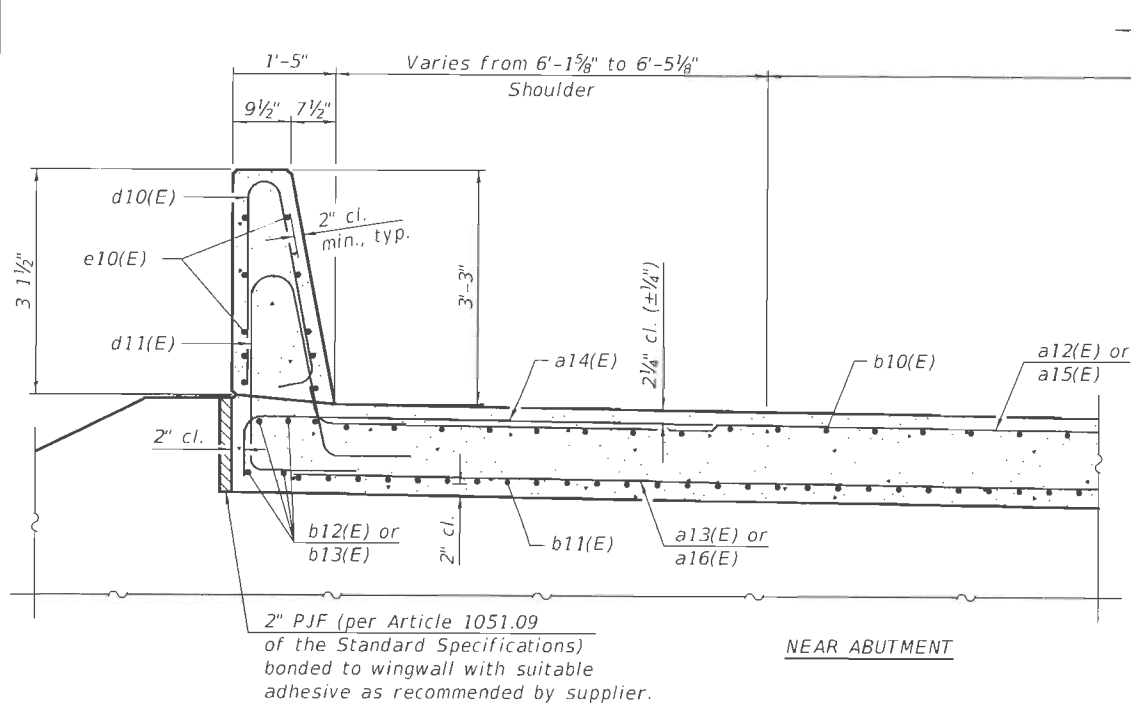
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

(Sheet 1 of 2)  
BRIDGE APPROACH SLAB DETAILS  
STRUCTURE NO. 038-0209

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
332	15R-BR	IROQUOIS	54	34
CONTRACT NO. 66932				
ILLINOIS FED. AID PROJECT				

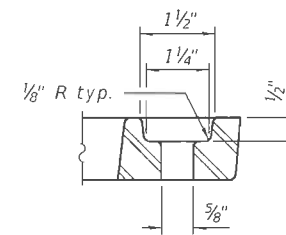
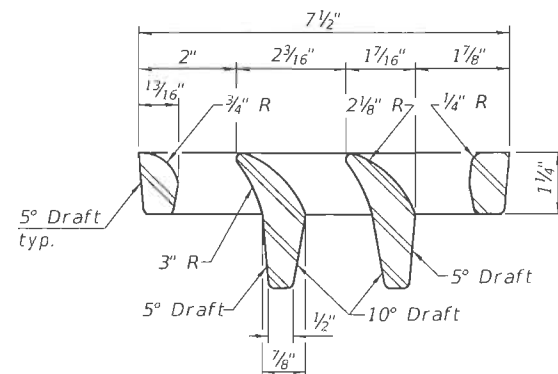
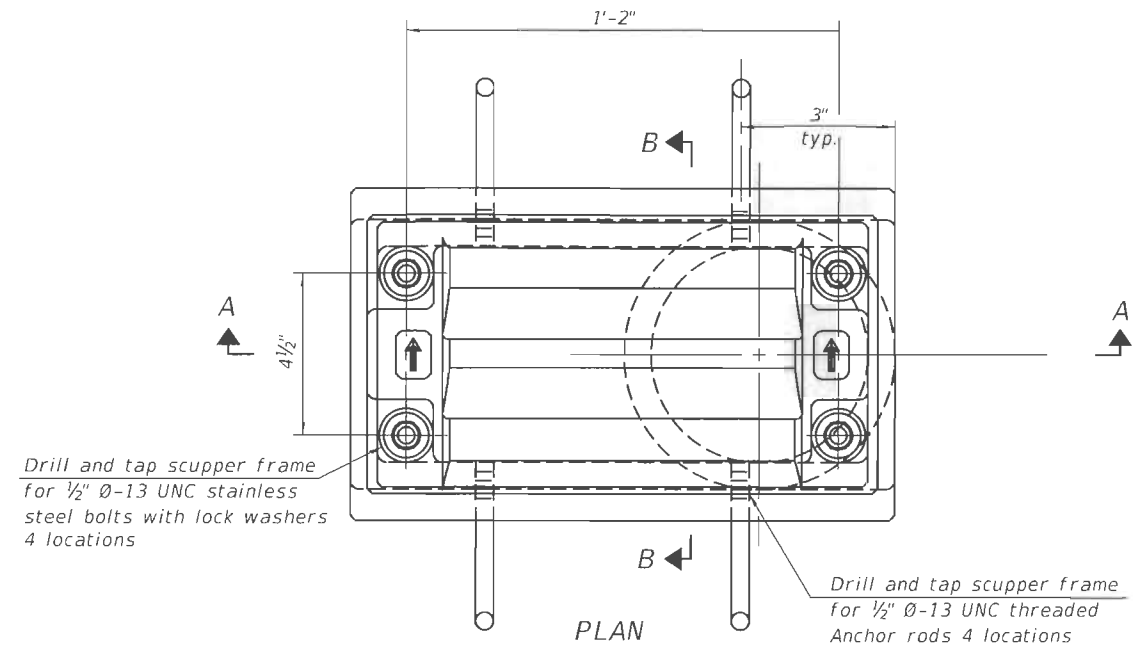
SHEET 12 OF 25 SHEETS

MODEL: 0380209-66932-013  
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Bar	No.	Size	Length	Shape
a12(E)	90	#5	15'-10"	
a13(E)	118	#8	15'-5"	
a14(E)	92	#5	7'-4"	
a15(E)	90	#5	21'-11"	
a16(E)	118	#8	21'-6"	
b10(E)	114	#5	29'-8"	
b11(E)	178	#9	29'-8"	
b12(E)	8	#5	14'-11"	
b13(E)	8	#5	14'-7"	
b14(E)	2	#4	14'-8"	
b15(E)	2	#4	14'-9"	
d10(E)	92	#5	6'-5"	
d11(E)	92	#5	8'-6"	
e10(E)	40	#4	14'-8"	
t10(E)	152	#4	9'-10"	
w10(E)	80	#5	15'-5"	
w11(E)	80	#5	21'-6"	
Concrete Superstructure			Cu. Yd.	7.8
Concrete Superstructure (Approach Slab)			Cu. Yd.	106.1
Concrete Structures			Cu. Yd.	23.2
Reinforcement Bars, Epoxy Coated			Pound	43,550

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 (Qmax) = 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.



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.

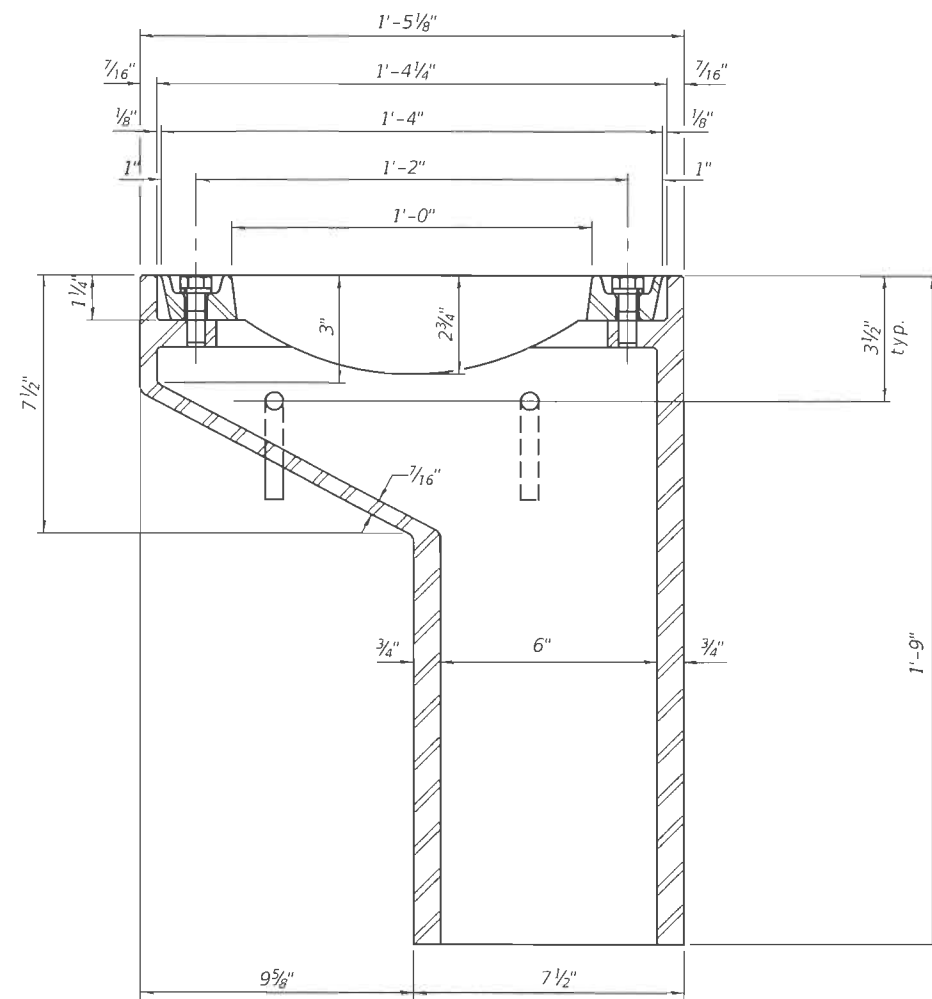
Structural steel scupper frames and downspouts, when utilized, shall be galvanized according to AASHTO M111.

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.

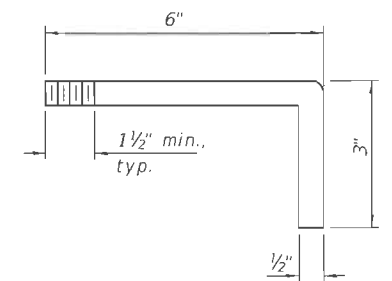
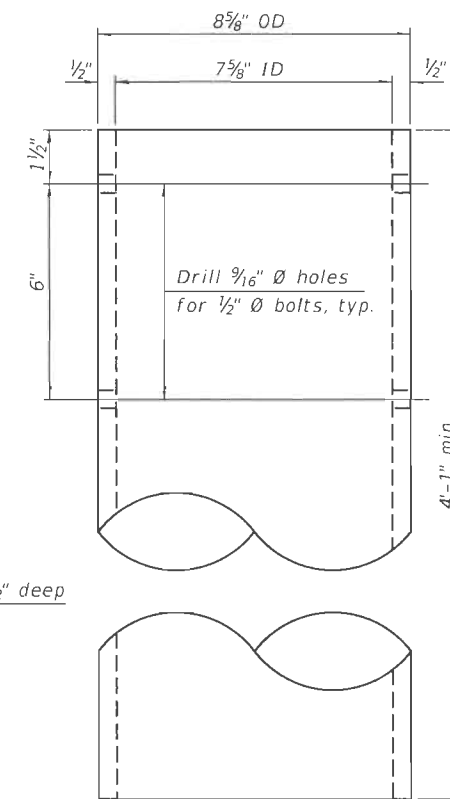
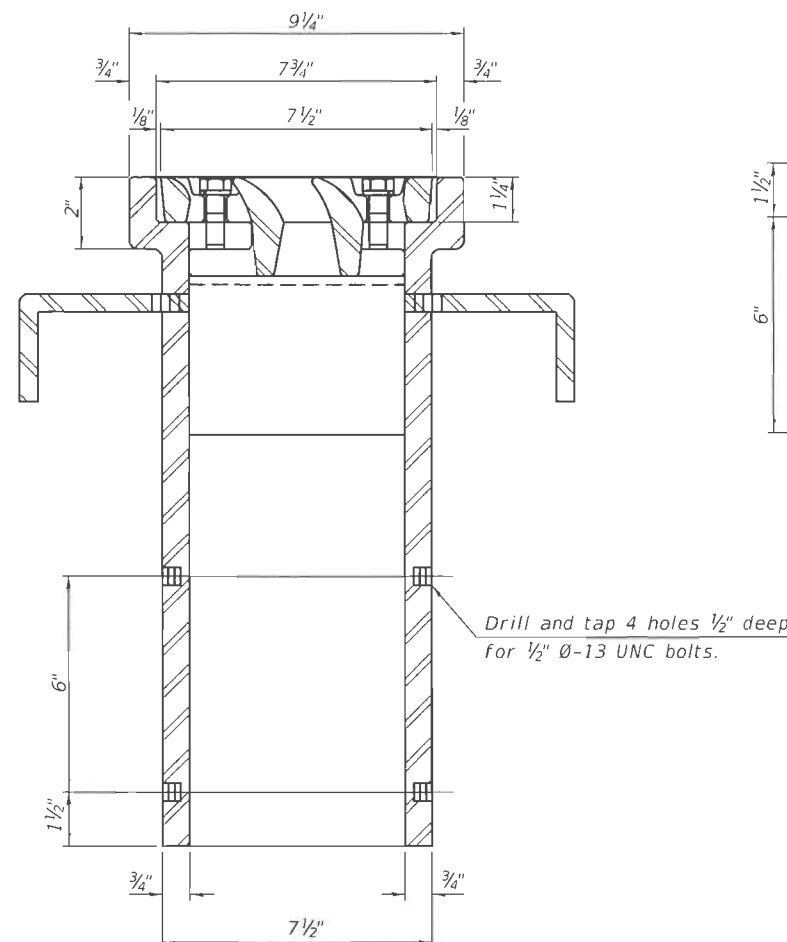
Exterior surfaces of downspouts and exterior exposed surfaces of the scupper frame below deck shall be treated as specified on sheet 10 of 25.

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.



See sheet 10 of 25 for scupper location relative to parapet.



# BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Drainage Scupper, DS-11	Each	4

DS-11

1-1-2020

DESIGNED - TIFFANY L. MEIER  
 CHECKED - RYAN P. NEGANGARD  
 DRAWN - ANTHONY J. NOVELLO  
 CHECKED - R.P.N. / G.R.A.

EXAMINED  
 PASSED

ENGINEER OF BRIDGE DESIGN  
 ENGINEER OF BRIDGES AND STRUCTURES

DATE - DECEMBER 2, 2021  
 REVISED -  
 REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

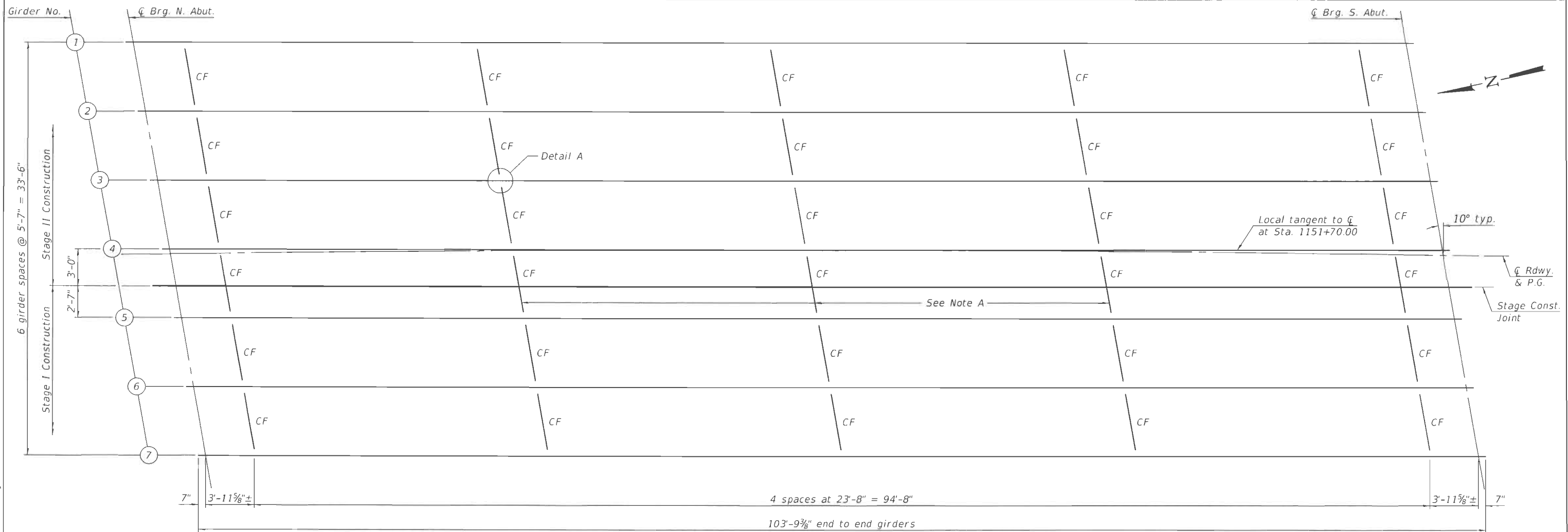
DRAINAGE SCUPPER, DS-11  
 STRUCTURE NO. 038-0209

SHEET 14 OF 25 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
332	15R-BR	IROQUOIS	54	36
CONTRACT NO. 66932				
ILLINOIS FED. AID PROJECT				

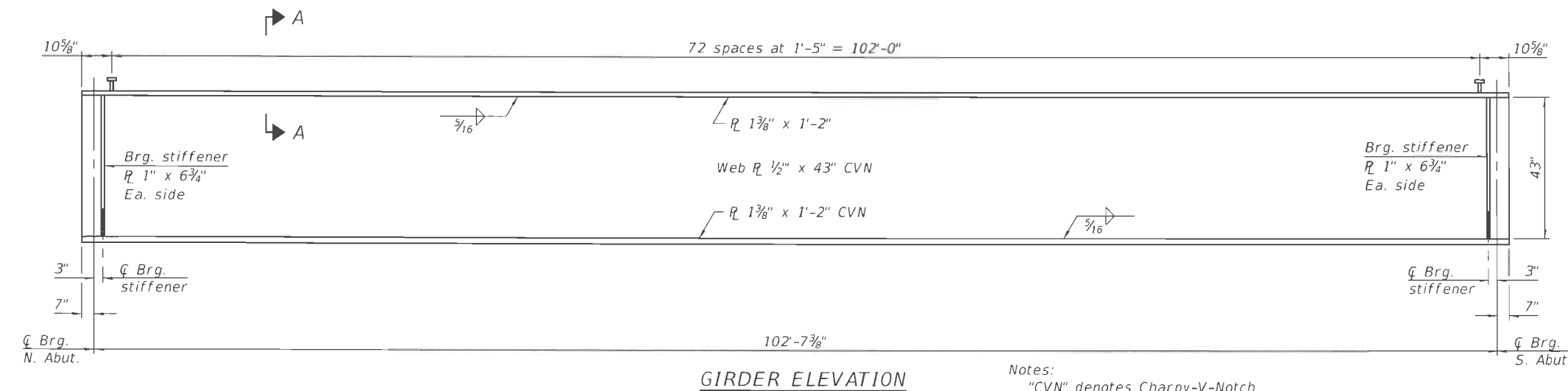


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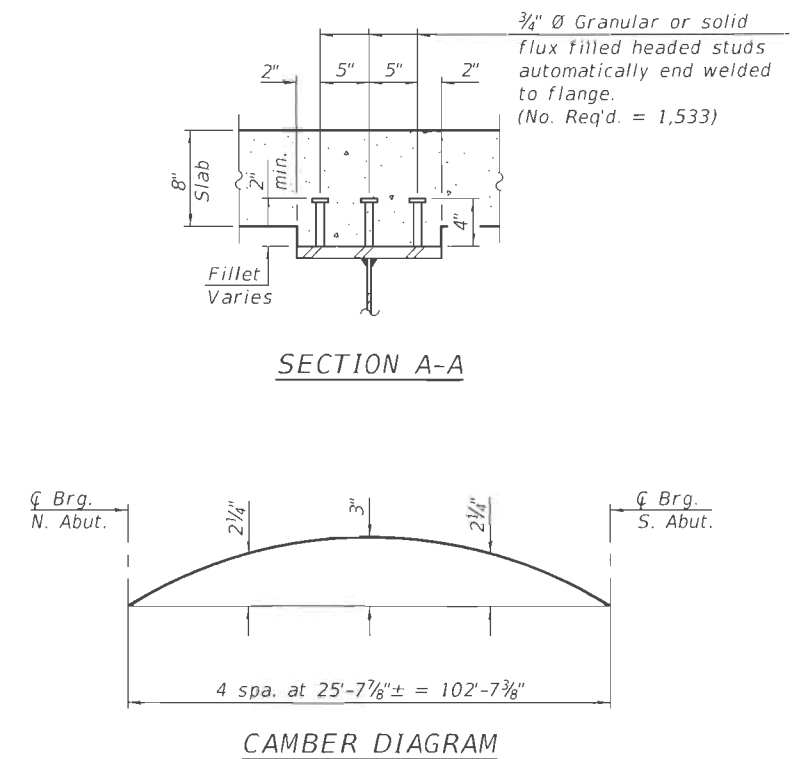


Note A: For details of Temporary Bracing for Stage I & II Construction, see sheet 16 of 25.  
For Detail A, see sheet 16 of 25.

\* Member(s) that controls the overall load rating should have " - X" as a suffix in the Member Name and both the "Existing" and "Current" boxes should be checked in the Member window. Non-controlling members should only have the "Current" box checked.



Notes:  
"CVN" denotes Charpy-V-Notch  
impact energy requirements, Zone 2.



DESIGNED - TIFFANY L. MEIER  
CHECKED - RYAN P. NEGANGARD  
DRAWN - ANTHONY J. NOVELLO  
CHECKED - R.P.N. / G.R.A.

EXAMINED  
PASSED  
ENGINEER OF BRIDGES AND STRUCTURES

DATE - DECEMBER 2, 2021  
REVISED -  
REVISED -

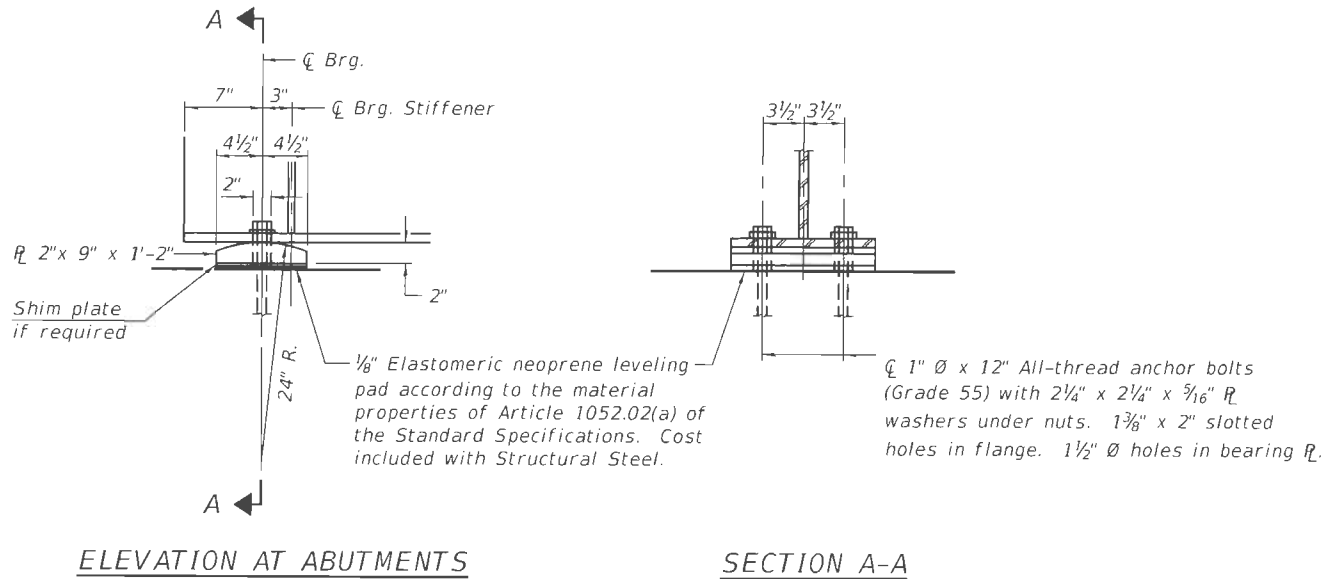
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL  
STRUCTURE NO. 038-0209

SHEET 15 OF 25 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
332	15R-BR	IROQUOIS	54	37
CONTRACT NO. 66932				
ILLINOIS FED. AID PROJECT				





FIXED ABUTMENT BEARING  
(14 Required)

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

INTERIOR GIRDER MOMENT TABLE		
0.5 Span		
$I_s$	(in <sup>4</sup> )	22,272
$I_c(n)$	(in <sup>4</sup> )	47,909
$I_c(3n)$	(in <sup>4</sup> )	35,708
$S_s$	(in <sup>3</sup> )	974.0
$S_c(n)$	(in <sup>3</sup> )	1,257.0
$S_c(3n)$	(in <sup>3</sup> )	1,156.0
$DC1$	(k/ft)	0.833
$M_{DC1}$	(k)	1,096.3
$DC2$	(k/ft)	0.175
$M_{DC2}$	(k)	230.3
$DW$	(k/ft)	0.279
$M_{DW}$	(k)	367.2
$LLDF$		0.489
$M_L + IM$	(k)	1,431.0
$M_u$ (Strength I)	(k)	4,713.4
$\phi_r M_n$	(k)	6,121.8
$f_s DC1$	(ksi)	13.51
$f_s DC2$	(ksi)	2.39
$f_s DW$	(ksi)	3.81
$f_s (L + IM)$	(ksi)	13.66
$f_s$ (Service II)	(ksi)	37.47
$0.95R_n F_{yr}$	(ksi)	47.50
$f_s$ (Total)(Strength I)	(ksi)	-
$\phi_r F_n$	(ksi)	-
$V_r$	(k)	27.4

GIRDER REACTION TABLE		
	Interior	Exterior
$LLDF$	0.640	0.519
$OCF$	-	1.038
$R_{DC1}$ (k)	42.7	42.1
$R_{DC2}$ (k)	9.0	9.0
$R_{DW}$ (k)	14.3	10.4
$R_L$ (k)	65.1	52.9
$R_{IM}$ (k)	14.3	11.7
$R_{TOTAL}$ (k)	145.4	126.1

\*TOP OF WEB ELEVATIONS

Location	Q Brg. N. Abut.	Q Brg. S. Abut.
Girder 1	658.82	658.70
Girder 2	658.74	658.61
Girder 3	658.65	658.53
Girder 4	658.56	658.44
Girder 5	658.47	658.35
Girder 6	658.38	658.26
Girder 7	658.29	658.17

\* For fabrication use only.

$I_s, S_s$  : Non-composite moment of inertia and section modulus of the steel section used for computing  $f_s$ (Total-Strength I, and Service II) due to non-composite dead loads (in.<sup>4</sup> and in.<sup>3</sup>).

$I_c(n), S_c(n)$ : Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing  $f_s$ (Total-Strength I, and Service II) in uncracked sections due to short-term composite live loads (in.<sup>4</sup> and in.<sup>3</sup>).

$I_c(3n), S_c(3n)$ : Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing  $f_s$ (Total-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>).

$DC1$ : Un-factored non-composite dead load (kips/ft.).

$M_{DC1}$ : 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.).

$M_{DC2}$ : 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.).

$M_{DW}$ : 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.

$M_L + IM$ : Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).

$M_u$  (Strength I): Factored design moment (kip-ft.).

$\phi_r M_n$ : 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.).

$f_s DC1$ : Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).

$f_s DC2$ : Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).

$f_s DW$ : Un-factored stress at edge of flange for controlling steel flange due to vertical composite future wearing surface loads as calculated below (ksi).

$f_s (L + IM)$ : Un-factored stress at edge of flange for controlling steel flange due to vertical composite live load plus impact loads as calculated below (ksi).

$f_s$  (Service II): Sum of stresses as computed below (ksi).

$0.95R_n F_{yr}$ : Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

$f_s$  (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).

$\phi_r F_n$ : Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7 or 6.10.8 (ksi).

$V_r$ : Maximum factored shear range in span computed according to Article 6.10.10.

$OCF$ : Obtuse Correction Factor applied to non-continuous exterior beam ends and computed according to Article 4.6.2.2.3c-1 or as further simplified by IDOT provisions.

$R_{DC1}$ : 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).

$R_L$ : Un-factored live load reaction (kip).

$R_{IM}$ : Un-factored dynamic load allowance (impact) (kip).

BILL OF MATERIAL

Item	Unit	Total
Anchor Bolts, 1"	Each	28

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FILE NAME: pw:\ilddot-pw.bentley.com:\PWIDOT\Documents\DOT\ Offices\Bureau of Bridges and Structures\Projects\0380209\CADD Plans\0380209-66932.dgn

DESIGNED -	TIFFANY L. MEIER
CHECKED -	RYAN P. NEGANGARD
DRAWN -	ANTHONY J. NOVELLO
CHECKED -	R.P.N. / G.R.A.

EXAMINED	
PASSED	

DATE -	DECEMBER 2, 2021
REVISED -	
REVISED -	

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL DETAILS  
STRUCTURE NO. 038-0209

SHEET 17 OF 25 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
332	15R-BR	IROQUOIS	54	39
CONTRACT NO. 66932				
ILLINOIS FED. AID PROJECT				

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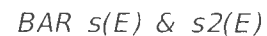
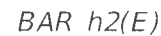
*Dimensions at right angles to abutment.*



Order h3(E) and v4(E) full length. Cut as shown and use remainder of bars in opposite face (NE & SE wingwalls).



Order h1(E) and v2(E) full length. Cut as shown and use remainder of bars in opposite face (NW & SW wingwalls).



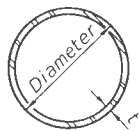
Bar	No.	Size	Length	Shape
h(E)	38	#6	13'-11"	_____
h1(E)	5	#6	21'-4"	_____
h2(E)	4	#5	10'-1"	_____
h3(E)	5	#6	21'-9"	_____
p(E)	10	#7	16'-4"	_____
p1(E)	10	#7	22'-6"	_____
s(E)	33	#6	14'-4"	□
s1(E)	14	#5	4'-4"	┌
s2(E)	4	#6	14'-6"	□
u(E)	8	#6	11'-11"	└
v(E)	101	#8	6'-4"	└
v1(E)	4	#5	8'-0"	_____
v2(E)	9	#5	11'-8"	_____
v3(E)	4	#5	8'-7"	_____
v4(E)	9	#5	12'-11"	_____
Structure Excavation			Cu. Yd.	131
Concrete Structures			Cu. Yd.	25
Reinforcement Bars, Epoxy Coated			Pound	4,970
Furnishing Metal Shell Piles 14" x 0.312"			Foot	192
Driving Piles			Foot	192
Test Pile Metal Shells			Each	1
Pile Shoes			Each	7

Bar	No.	Size	Length	Shape
h(E)	38	#6	13'-11"	—
h1(E)	5	#6	21'-4"	—
h2(E)	4	#5	10'-1"	—
h3(E)	5	#6	21'-9"	—
p(E)	10	#7	16'-4"	—
p1(E)	10	#7	22'-6"	—
s(E)	33	#6	14'-4"	□
s1(E)	14	#5	4'-4"	□
s2(E)	4	#6	14'-6"	□
u(E)	8	#6	11'-11"	—
v(E)	101	#8	6'-4"	—
v1(E)	4	#5	8'-0"	—
v2(E)	9	#5	11'-8"	—
v3(E)	4	#5	8'-7"	—
v4(E)	9	#5	12'-11"	—
Structure Excavation			Cu. Yd.	131
Concrete Structures			Cu. Yd.	25
Reinforcement Bars, Epoxy Coated			Pound	4,970
Furnishing Metal Shell Piles 14" x 0.312"			Foot	198
Driving Piles			Foot	198
Test Pile Metal Shells			Each	1
Pile Shoes			Each	7

Type: Metal Shell - 14" x 0.312"  
Nominal Required Bearing: 424k  
Factored Resistance Available: 233k  
Est. Length: 32'  
No. Production Piles: 6  
No. Test Piles: 1

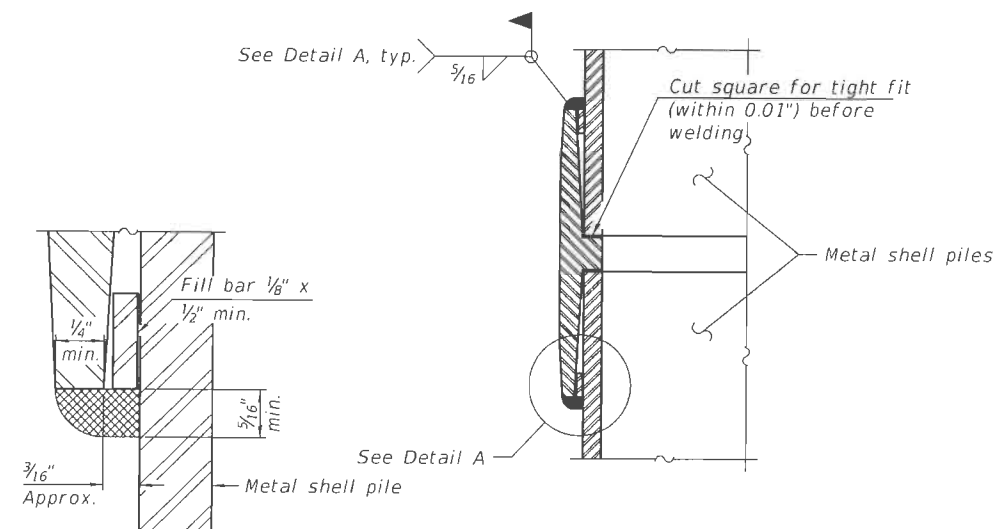
Type: Metal Shell - 14" x 0.312"  
Nominal Required Bearing: 424k  
Factored Resistance Available: 233k  
Est. Length: 33'  
No. Production Piles: 6  
No. Test Piles: 1

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.

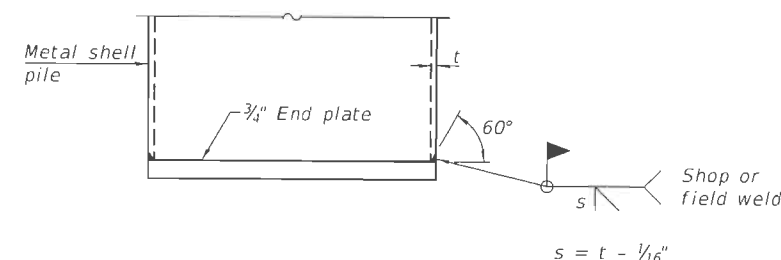


### METAL SHELL PILE TABLE

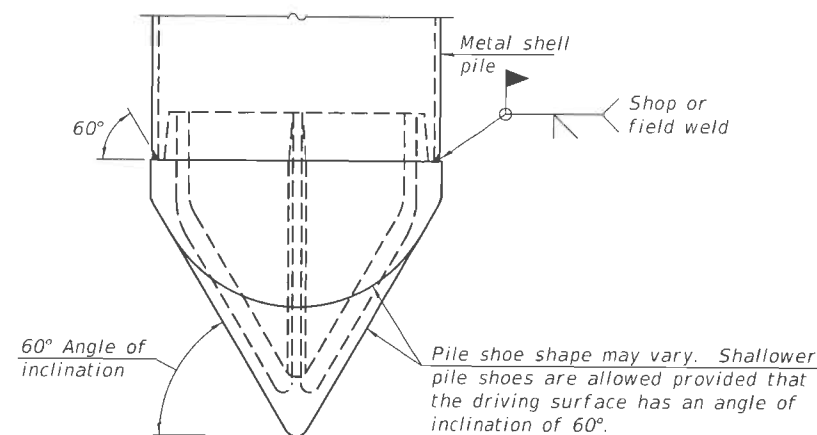
Designation and outside diameter	Wall thickness t	Weight per foot (Lbs./ft.)	Inside volume (yd. <sup>3</sup> /ft.)
PP12	0.250"	31.37	0.0267
PP14	0.250"	36.71	0.0368
PP14	0.312"	45.61	0.0361
PP16	0.312"	52.32	0.0478
PP16	0.375"	62.64	0.0470



DETAIL A



END PLATE ATTACHMENT



### PILE SHOE ATTACHMENT

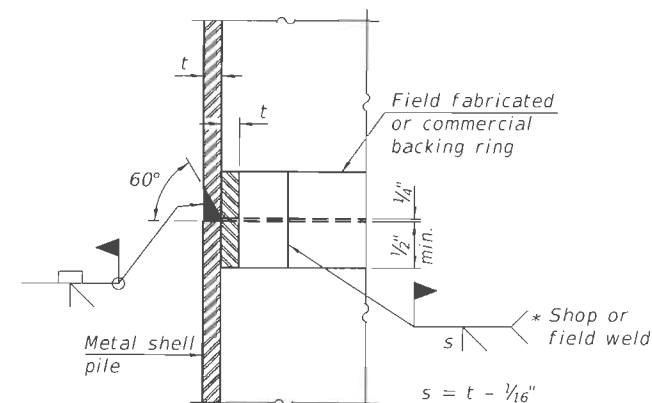
(When called for on the plans, the Contractor shall furnish metal shell pile shoes consisting of a single piece conical pile point as shown. The pile shoes shall be cast in one piece steel according to either ASTM A 148 Grade 80-50 or AASHTO M 103 Grade 65-35 and shall provide full bearing over the full circumference of the metal shell pile. The pile shoe shall have tapered leads to assure proper alignment and fitting and shall be secured to the pile with a circumferential weld).

### WELDED COMMERCIAL SPLICE

Notes:

The 1/8 inch x 1/2 inch min. fill bar may be constructed of 2 bars with a 1/8 inch max. gap between them.

Pile segments shall be driven to solid contact with splicer before welding.

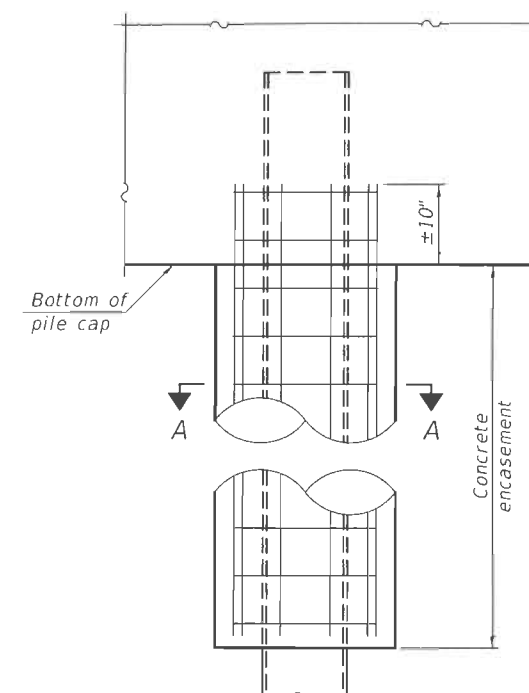


### COMPLETE PENETRATION WELD SPLICE

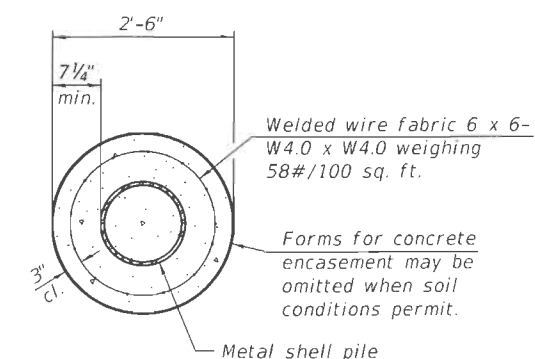
\* Field fabricated backing ring may be made from pile shell by removing segment to allow reducing circumference and vertically rejoin with partial joint penetration weld.

Note:

The metal shell piles shall be according to Article 1006.05 of the Standard Specifications. If the Contractor chooses to alter the temporary cantilevered sheet piling design requirements shown on the plans, a design submittal including plan details and calculations will be required for review and acceptance by the Engineer.

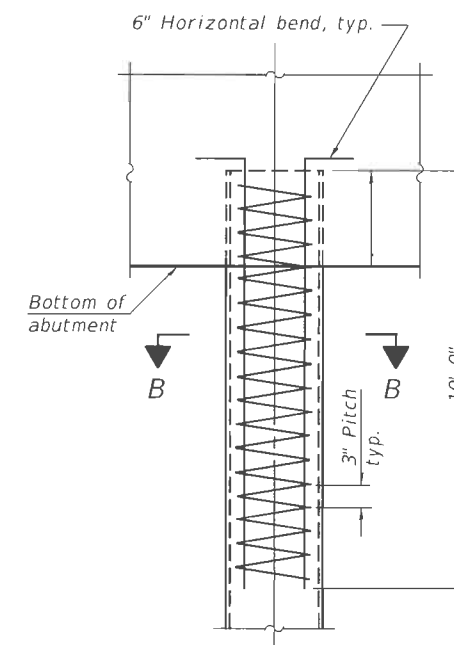


ELEVATION

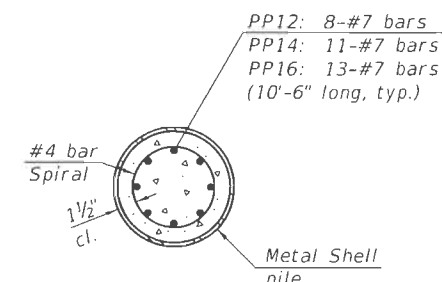


SECTION A-A

### INDIVIDUAL PILE CONCRETE ENCASEMENT (When specified)



ELEVATION



SECTION B-B

### REINFORCEMENT AT ABUTMENTS (Omit when concrete encasement is specified)

F-MS

1-1-2020

DESIGNED - TIFFANY L. MEIER  
CHECKED - RYAN P. NEGANGARD  
DRAWN - ANTHONY J. NOVELLO  
CHECKED - R.P.N./G.R.A.

EXAMINED  
PASSED

JOHN F. JEFF  
ENGINEER OF BRIDGE DESIGN  
CARL J. JEFF  
ENGINEER OF BRIDGES AND STRUCTURES

DATE - DECEMBER 2, 2021  
REVISED -  
REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

METAL SHELL PILE DETAILS  
STRUCTURE NO. 038-0209

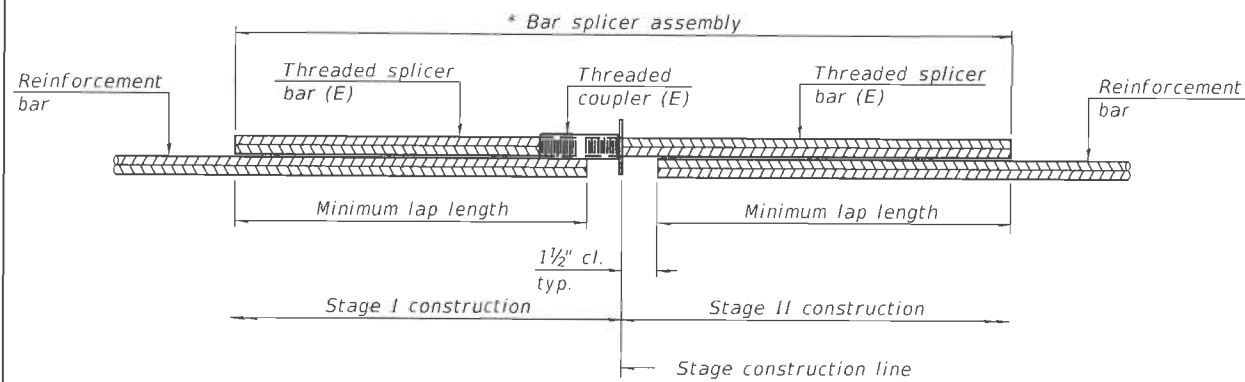
SHEET 21 OF 25 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
332	15R-BR	IROQUOIS	54	43
CONTRACT NO. 66932				
ILLINOIS FED. AID PROJECT				

MODEL: 0380209-66932-021  
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MODEL: 0380209-66932-022  
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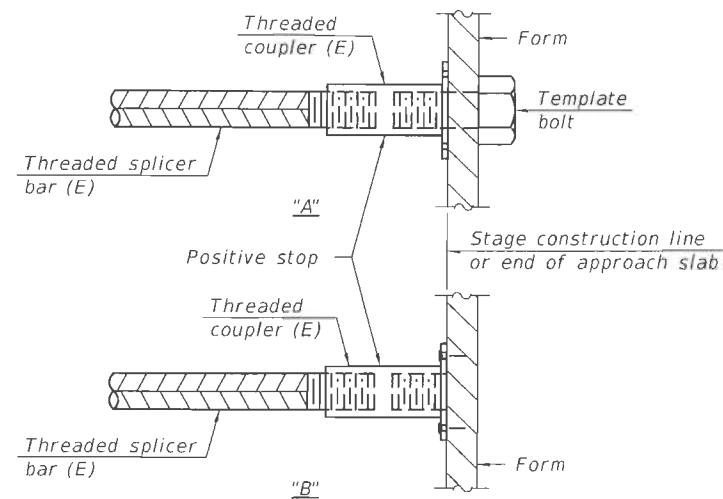


**STANDARD BAR SPLICER ASSEMBLY PLAN**  
(All components shall be provided from one supplier)

Threaded splicer bar length = min. lap length + 1 1/2" + thread length

\* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

Location	Bar size	No. assemblies required	Minimum lap length
Slab Top	#5	177	3'-0"
Slab Bottom	#5	124	3'-6"
Slab Along Ends	#5	4	3'-4"
Abutment Diaphragm Back Face	#6	10	4'-0"
Abutment Diaphragm, Front Face	#6	8	See Diaphragm Bar Splicer Detail
Approach Slab Top	#5	90	3'-4"
Approach Slab Bottom	#8	118	4'-9"
Approach Slab Footing	#5	80	3'-2"
Abutment Caps	#7	20	5'-0"

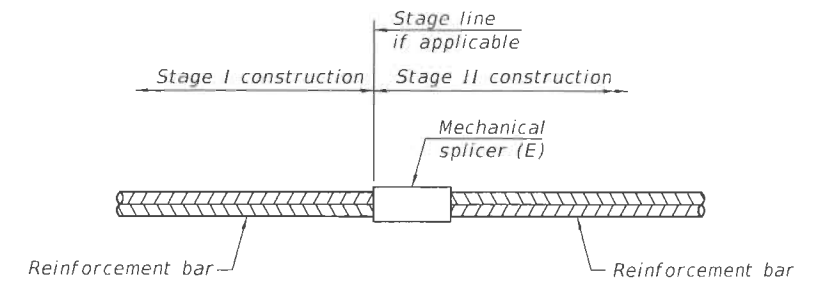


**INSTALLATION AND SETTING METHODS**

"A" : Set bar splicer assembly by means of a template bolt.

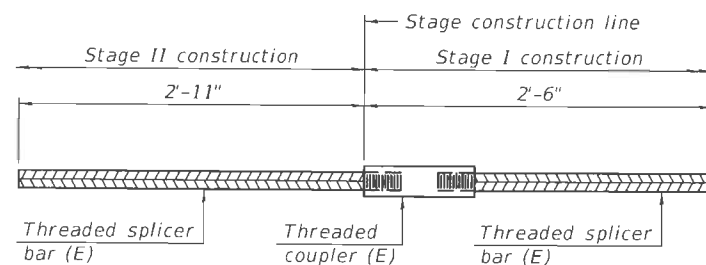
"B" : Set bar splicer assembly by nailing to wood forms or cementing to steel forms.

(E) : Indicates epoxy coating.



**STANDARD MECHANICAL SPLICER**

Location	Bar size	No. assemblies required



**DIAPHRAGM BAR SPLICER DETAIL**

**Notes:**

Splicer bars shall be deformed with threaded ends and have a minimum 60 ksi yield strength.

All reinforcement shall be lapped and tied to the splicer bars.

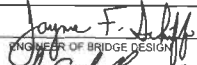

Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars. See Section 508 of the Standard Specifications.

See approved list of bar splicer assemblies and mechanical splicers for alternatives.

BSD-1

1-1-2020

DESIGNED -	TIFFANY L. MEIER
CHECKED -	RYAN P. NEGANGARD
DRAWN -	ANTHONY J. NOVELLO
CHECKED -	R.P.N. / G.R.A.

EXAMINED	
PASSED	
ENGINEER OF BRIDGES AND STRUCTURES	

DATE -	DECEMBER 2, 2021
REVISED -	
REVISED -	

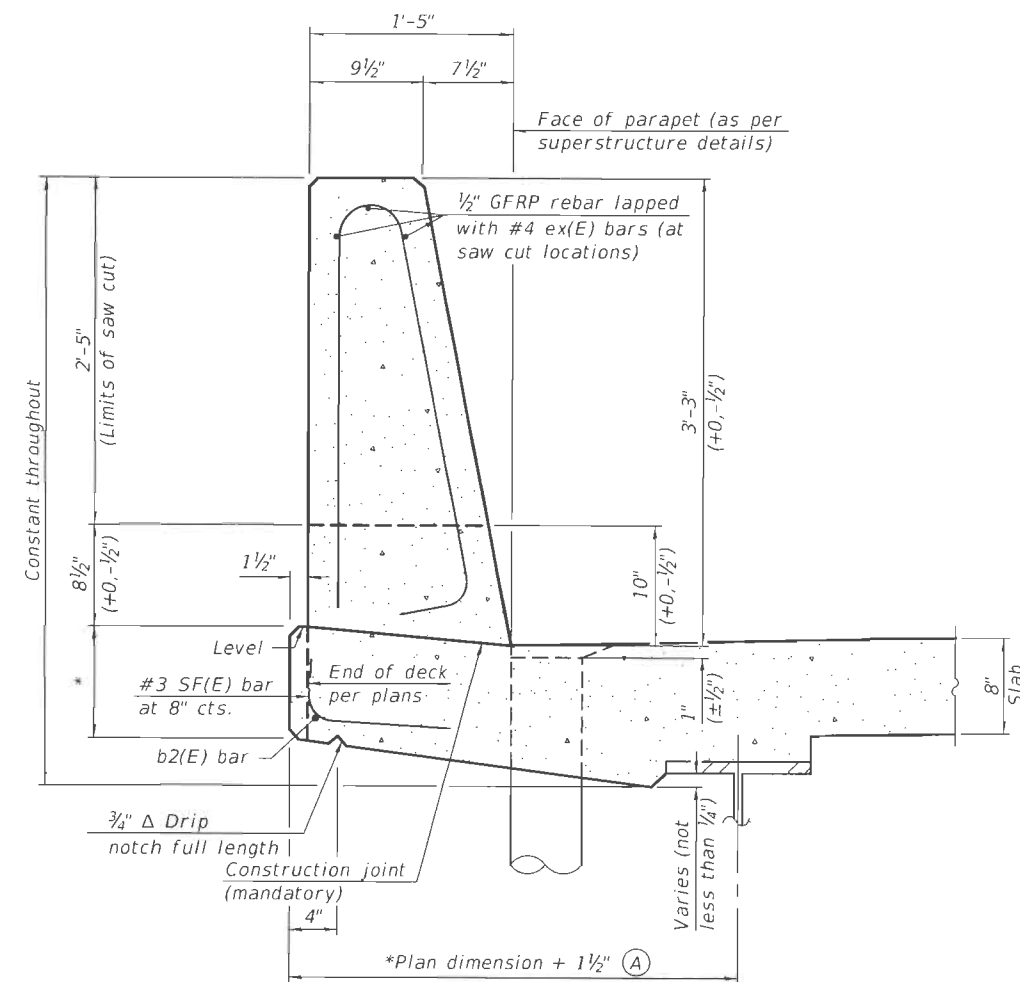
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**BAR SPLICER DETAILS  
STRUCTURE NO. 038-0209**

SHEET 22 OF 25 SHEETS

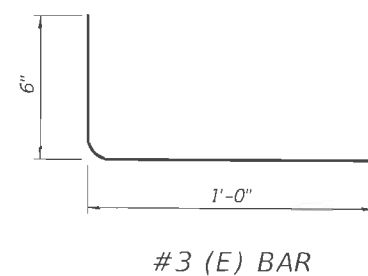
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
332	15R-BR	IROQUOIS	54	44
CONTRACT NO. 66932				
ILLINOIS FED. AID PROJECT				

12/2/2021 9:21:41 AM

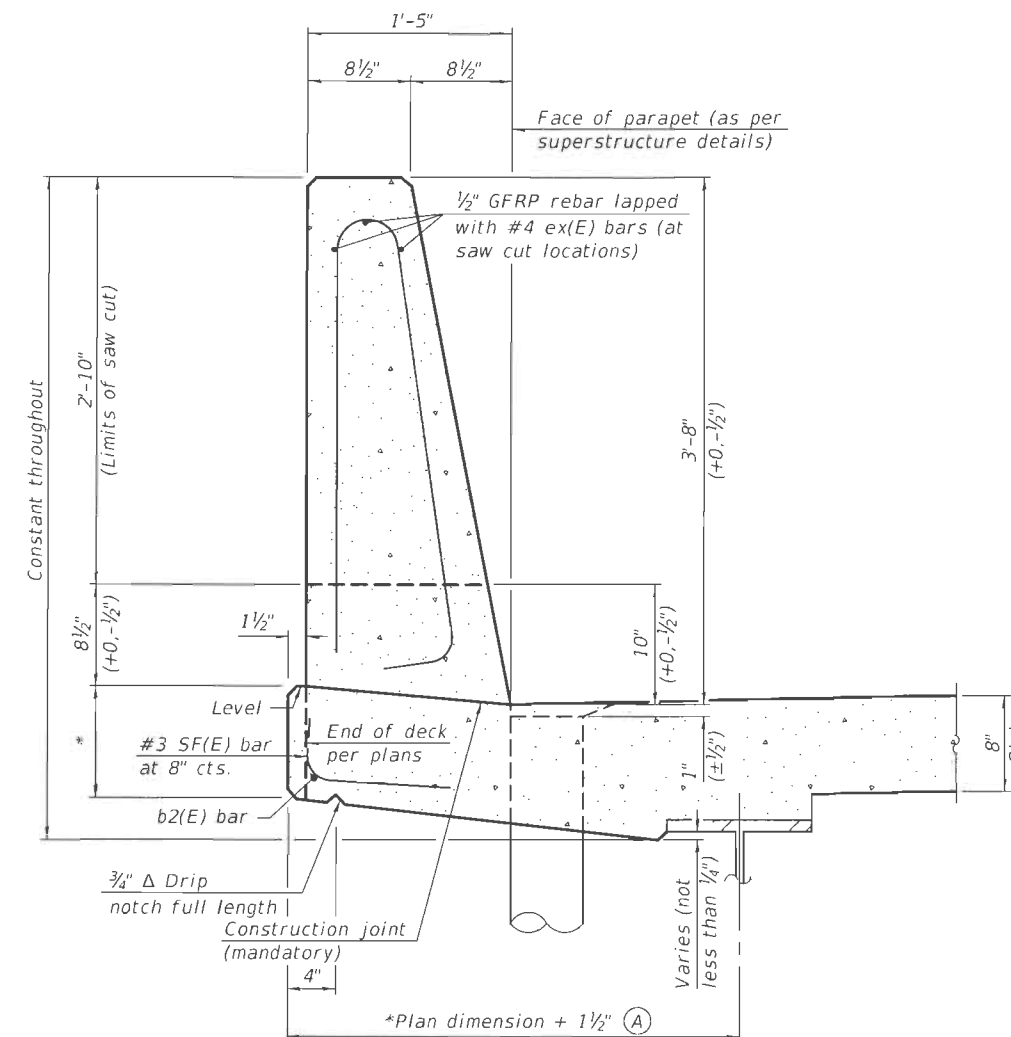


39" CONSTANT-SLOPE  
PARAPET SECTION

(Showing dimensions,  $d(E)$ , and  $1/2"$   $\varnothing$  GFRP rebar)

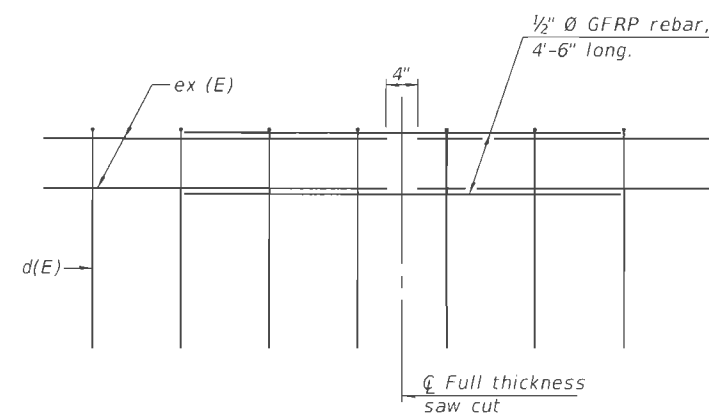


#3 (E) BAR



44" CONSTANT-SLOPE  
PARAPET SECTION

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



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.

\*See Superstructure Details.

SFP 39-44

1-1-2020

DESIGNED	-	TIFFANY L. MEIER
CHECKED	-	RYAN P. NEGANGARD
DRAWN	-	ANTHONY J. NOVELLO
CHECKED	-	R.P.N. / G.R.A.

EXAMINED	<i>Jayne F. Duff</i> ENGINEER OF BRIDGE DESIGN
PASSED	<i>A. Carl Brown</i> ENGINEER OF BRIDGES AND STRUCTURES

DATE	-	DECEMBER 2, 2021
REVISED	-	
REVISED	-	

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

CONCRETE PARAPET SLIPFORMING OPTION  
STRUCTURE NO. 038-0209

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
332	15R-BR	IROQUOIS	54	45
CONTRACT NO. 66932				


SHEET 23 OF 25 SHEETS

MODEL: 0380209-66932-023  
FILE NAME: pw:\ldo-pw.bentley.com\PW\DOT\Documents\DOT Offices\Bureau of Bridges and Structures\Projects\0380209\CADD Plans\0380209-66932.dgn

EXAMINED	 ENGINEER OF BRIDGE DESIGN	DATE -	DECEMBER 2, 2021
PASSED	 ENGINEER OF BRIDGES AND STRUCTURES	REVISED -	
		REVISED -	

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SOIL BORING LOGS STRUCTURE NO. 038-0209				F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
					332	15R-BR	IROQUOIS	54	46
					CONTRACT NO. 66932				
SHEET 24 OF 25 SHEETS					ILLINOIS FED. AID PROJECT				

MODEL: 0380209-66932-025  
FILE NAME: pw:\idot-pw-bentley.com\PW\DOT\Documents\IDOT Offices\Bureau of Bridges and Structures\Projects\0380209\CADD Plans\0380209-66932.dgn



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

**SOIL BORING LOG**

Page 1 of 2

Date 1/25/01

ROUTE FAP 332(IL1) DESCRIPTION IL 1 over Coon Creek, 5.35 miles South of US 24 LOGGED BY B.S.

SECTION 15R-B LOCATION NW 1/4, SEC. 35, TWP. 26N, RNG. 12W, 2nd PM, Latitude , Longitude

COUNTY IROQUOIS DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. 038-0023 Exst.  
Station 038-0209 Prop.  
1151+70

BORING NO. 2 (S. Abut.)  
Station 1152+42  
Offset 6.5 ft Lt.  
Ground Surface Elev. 659.25 ft

DEPTH	TEST	W	QU	TSF	PERCENT
1	3				
2	3				
3	3				
4	3				
5	3				
6	3				
7	3				
8	3				
9	3				
10	3				
11	3				
12	3				
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37	3				
38	3				
39	3				
40	3				

DEPTH	TEST	W	QU	TSF	PERCENT
1	3				
2	3				
3	3				
4	3				
5	3				
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8	3				
9	3				
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35	3				
36	3				
37	3				
38	3				
39	3				
40	3				

Surface Water Elev. \_\_\_\_\_ ft

Stream Bed Elev. \_\_\_\_\_ ft

Groundwater Elev.:  
First Encounter \_\_\_\_\_ ft  
Upon Completion \_\_\_\_\_ ft  
After \_\_\_\_\_ Hrs. \_\_\_\_\_ ft

4" BITUMINOUS Over 12" CONCRETE

657.95

Loose Fine to Medium Grained Brown SAND

637.25

Hard Gray SANDY CLAY

634.75

Hard Gray CLAY TILL

632.25

Hard Gray SILTY CLAY TILL

629.75

Very Stiff Gray SILTY CLAY LOAM TILL

627.25

Dense (Hard) Gray SILT

607.25

Stiff Gray SILTY CLAY


604.75

Stiff Gray CLAY

57.5' - 59.0' No Recovery

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)  
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, form 137 (Rev. 8-99)



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

**SOIL BORING LOG**

Page 2 of 2

Date 1/25/01

ROUTE FAP 332(IL1) DESCRIPTION IL 1 over Coon Creek, 5.35 miles South of US 24 LOGGED BY B.S.

SECTION 15R-B LOCATION NW 1/4, SEC. 35, TWP. 26N, RNG. 12W, 2nd PM, Latitude , Longitude

COUNTY IROQUOIS DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. 038-0023 Exst.  
Station 038-0209 Prop.  
1151+70

BORING NO. 2 (S. Abut.)  
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Offset 6.5 ft Lt.  
Ground Surface Elev. 659.25 ft

DEPTH	TEST	W	QU	TSF	PERCENT
1	3				
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DEPTH	TEST	W	QU	TSF	PERCENT
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36	3				
37	3				
38	3				
39	3				
40	3				

Surface Water Elev. \_\_\_\_\_ ft

Stream Bed Elev. \_\_\_\_\_ ft

Groundwater Elev.:  
First Encounter \_\_\_\_\_ ft  
Upon Completion \_\_\_\_\_ ft  
After \_\_\_\_\_ Hrs. \_\_\_\_\_ ft

Dense (Hard) Gray SILT (continued)

607.25

Stiff Gray CLAY (continued)

604.75



Stiff Gray SILTY CLAY

57.5' - 59.0' No Recovery

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)  
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, form 137 (Rev. 8-99)

DESIGNED -	TIFFANY L. MEIER
CHECKED -	RYAN P. NEGANGARD
DRAWN -	ANTHONY J. NOVELLO
CHECKED -	R.P.N. / G.R.A.

EXAMINED	
PASSED	

DATE -	DECEMBER 2, 2021
REVISED -	
REVISED -	

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

SOIL BORING LOGS  
STRUCTURE NO. 038-0209

SHEET 25 OF 25 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
332	15R-BR	IROQUOIS	54	47
CONTRACT NO. 66932				
ILLINOIS FED. AID PROJECT				