

CONSTR. CODE	
80% FED	20% STATE
BRIDGE	
0010	
S.N. 053-0194	

CODE NO.	ITEM	UNIT	TOTAL QUANTITY	
50300300	PROTECTIVE COAT	SQ YD	595	595
50301350	CONCRETE SUPERSTRUCTURE (APPROACH SLAB)	CU YD	105.6	105.6
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	113960	113960
50800515	BAR SPLICERS	EACH	723	723
50900211	STEEL RAILING, TYPE IL-OH	FOOT	219	219
51200959	FURNISHING METAL SHELL PILES 14" X 0.312"	FOOT	670	670
51202305	DRIVING PILES	FOOT	670	670
51203200	TEST PILE METAL SHELLS	EACH	4	4
51204650	PILE SHOES	EACH	24	24
51500100	NAME PLATES	EACH	1	1
52200010	TEMPORARY SHEET PILING	SQ FT	509	509
542D0223	PIPE CULVERTS, CLASS D, TYPE 1 18"	FOOT	108	108
54213453	END SECTIONS 18"	EACH	4	4
58600101	GRANULAR BACKFILL FOR STRUCTURES	CU YD	55	55

\*SPECIALITY ITEM

MODEL: Default  
FILE NAME: c:\paw\work\paw\work\zagar\jkt1008618\66L79-SOC.dgn

USER NAME = Joseph.Zagar	DESIGNED -	REVISED -
	DRAWN -	REVISED -
	CHECKED -	REVISED -
PLOT DATE = 8/13/2024	DATE -	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**SUMMARY OF QUANTITIES**

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
673	(112BR)ES	WINGSTON	65	6
CONTRACT NO. 66L79				
ILLINOIS FED. AID PROJECT				

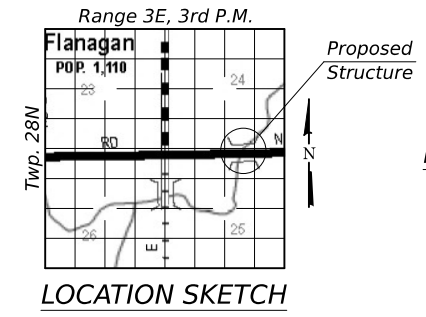
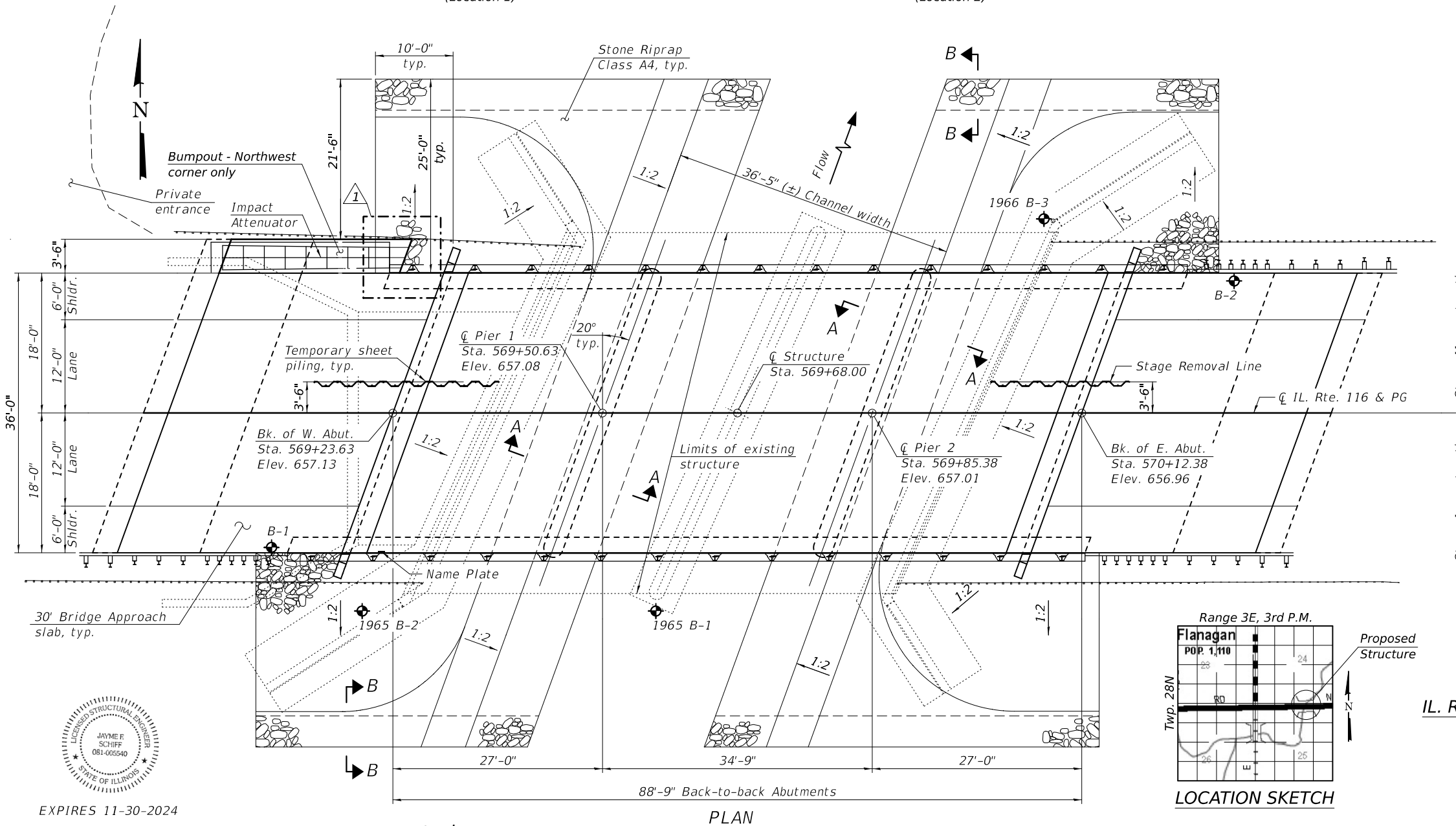
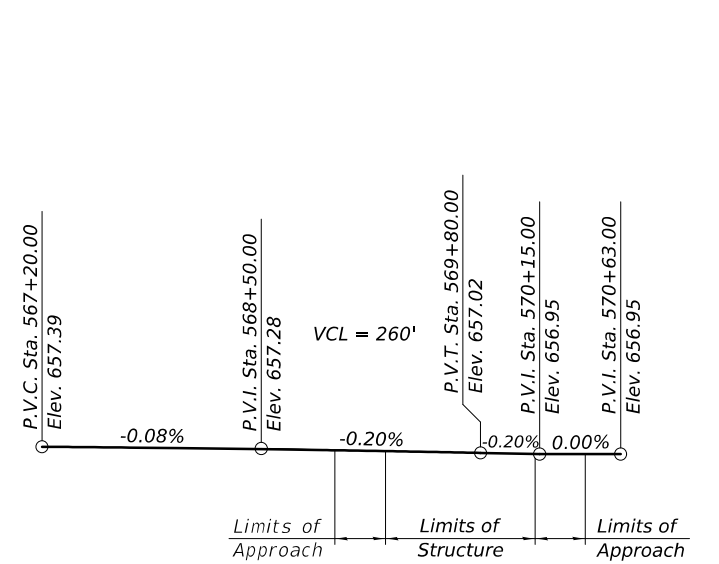
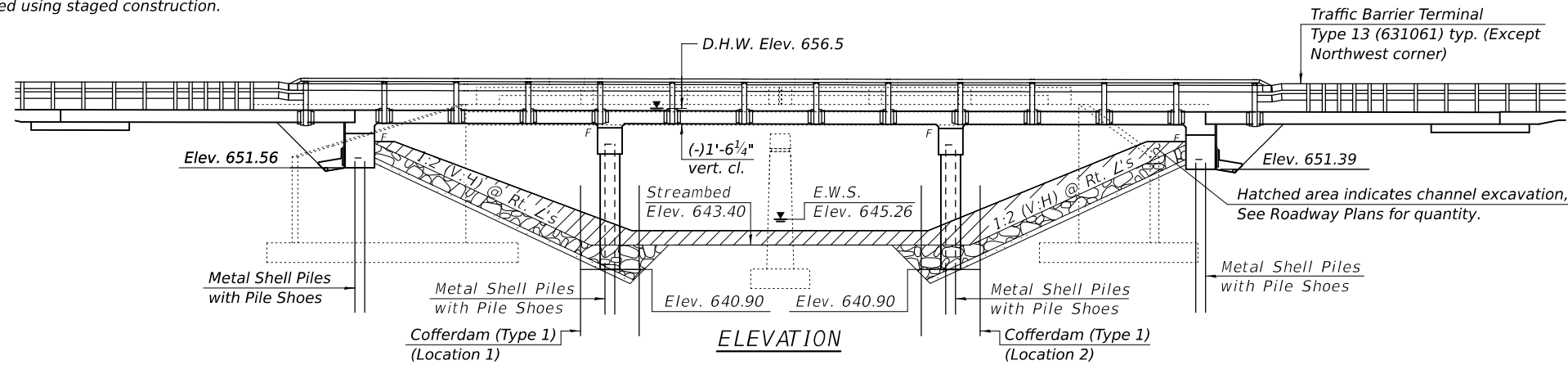
Benchmark: Cut " □ " on top of S.W. Wingwall, Station 569+25.51, 24.86' Rt., Elev. = 657.302.

**Existing Structure (No. 053-0062):**

Was originally constructed in 1970 under F.A. Route 147, Section 112-BR at Sta. 569+68. The superstructure consists of a 2-span continuous 16" slab, all supported on solid battered stem pier and cantilever-type closed abutments supported on spread footings. The structure has a 24°15'00" left ahead skew, a 46'-6" out-to-out width and an overall length of 63'-5½" back-to-back. In 2002, the bridge was rehabilitated.

Traffic to be maintained using staged construction.

No Salvage.



**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)  
fy = 60,000 psi (Reinforcement)

**SEISMIC DATA**

Seismic Performance Zone (SPZ) = 1  
Design Spectral Acceleration at 1.0 sec. (SD1) = 0.078g  
Design Spectral Acceleration at 0.2 sec. (SDS) = 0.133g  
Soil Site Class = C

**GENERAL PLAN & ELEVATION**  
**IL. ROUTE 116 OVER OVER SCATTERING POINT CREEK**  
**F.A.P. ROUTE 673 - SECTION (112BR)ES**  
**LIVINGSTON COUNTY**  
**STATION 569+68.00**  
**STRUCTURE NO. 053-0194**

EXPIRES 11-30-2024  
JAYME F. SCHIFF  
LICENSED STRUCTURAL ENGINEER  
STATE OF ILLINOIS  
081-005540

DESIGNED - RYAN P. NEGANGARD	EXAMINED - <i>Mark Stuffer</i>
CHECKED - TIFFANY L. ADAMS	PASSED - <i>Jayne F. Schiff</i>
DRAWN - DENNIS A. POP	
CHECKED - R.P.N. / T.L.A.	

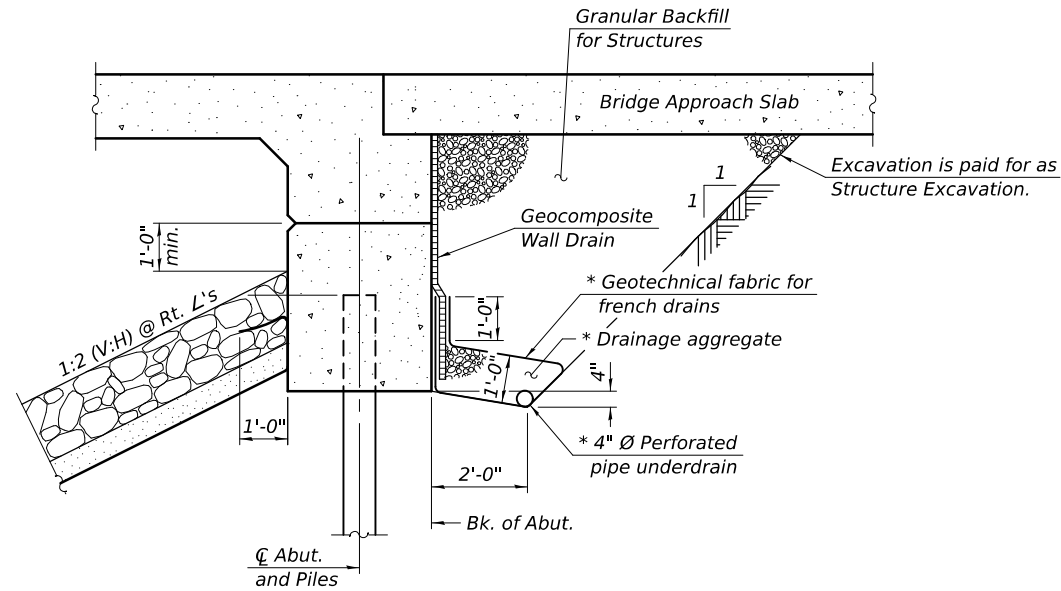
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	1 - 10/25/2024 R.P.N.
	2 -

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

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
673	(112BR)ES	LIVINGSTON	65	23

CONTRACT NO. 66L79	
ILLINOIS	FED. AID PROJECT

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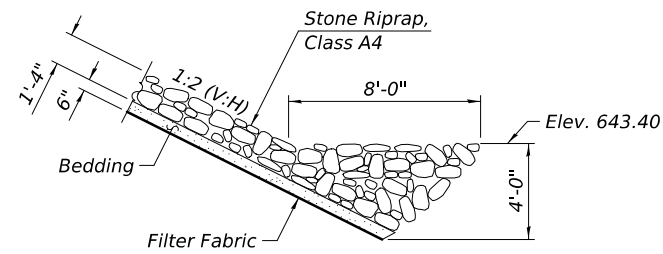


**SECTION THRU INTEGRAL ABUTMENT**  
(Horiz. dim. at Rt. L's)

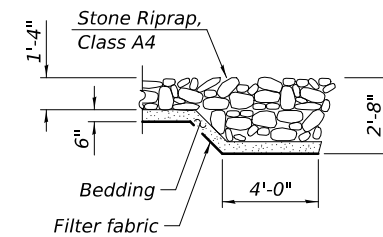
\* Included in the cost of Pipe Underdrains for Structures.

**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).



**SECTION A-A**



**SECTION B-B**

**DESIGN SCOUR ELEVATION TABLE**

Event / Limit State	Design Scour Elevations (ft.)				Item 113
	W. Abut.	Pier 1	Pier 2	E. Abut.	
Q100	651.56	638.40	638.40	651.39	8
Q200	651.56	638.30	638.30	651.39	
Design	651.56	638.40	638.40	651.39	
Check	651.56	638.30	638.30	651.39	

**WATERWAY INFORMATION**

Flood		Freq. Yr.	Q C.F.S.	Opening Ft <sup>2</sup>		Nat. H.W.E.		Head - Ft.		Headwater El.	
				Exist.	Prop.	Exist.	Prop.	Exist.	Prop.	Exist.	Prop.
Ten-Year		10	2,460	554	649	655.2	0.8	0.6	656.0	655.8	
Overtop Existing		28	3,440	554	-	656.1	1.8	-	657.9	-	
Overtop Proposed		36	3,690	-	649	656.3	-	1.2	-	657.5	
Design		50	3,970	554	649	656.5	1.9	1.4	658.3	657.9	
Base		100	4,650	554	649	656.9	1.9	1.5	658.9	658.4	
Scour Check		200	5,360	554	649	657.4	2.0	1.2	659.4	658.6	
Max. Calc.		500	6,300	554	649	658.0	1.2	0.9	659.2	658.9	

10 year velocity through existing bridge = 4.7 ft/s  
10 year velocity through proposed bridge = 3.8 ft/s

STA. 569+68.00  
BUILT BY  
STATE OF ILLINOIS  
F.A.P. RTE. 673 SEC. (112BR)ES  
LOADING HL-93  
STR. NO. 053-0194

**NAME PLATE**  
See Std. 515001

**INDEX OF SHEETS**

1. General Plan & Elevation
2. General Data
3. Stage Construction Details
4. Temporary Sheet Piling
5. Temporary Concrete Barrier
- 6-7. Top of Slab Elevations
- 8-9. Top of Approach Slab Elevations
10. Superstructure
11. Superstructure Details
- 12-14. Bridge Approach Slab Details
- 15-18. Steel Railing, Type IL-OH
19. West Abutment
20. East Abutment
21. Abutment Details
22. Piers
23. Pier Details
24. Metal Shell Pile Details
25. Bar Splicer Details
- 26-29. Soil Boring Logs

**GENERAL NOTES**

Reinforcement bars designated (E) shall be epoxy coated.  
The Contractor shall make allowance for the deflection of forms, shrinkage and settlement of falsework, in addition to allowance for dead load deflection. Forms for deck slab shall be removed prior to placement of bridge approach slab.  
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 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. The sequence of removal and the use of any required falsework is the responsibility of the Contractor.

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	SUPER	SUB	TOTAL
Stone Riprap, Class A4	Sq. Yd.		776	776
Filter Fabric	Sq. Yd.		776	776
Removal of Existing Structures	Each	1		1
Structure Excavation	Cu. Yd.		112	112
Cofferdam Excavation	Cu. Yd.		132	132
Cofferdam (Type 1) (Location - 1)	Each		1	1
Cofferdam (Type 1) (Location - 2)	Each		1	1
Concrete Structures	Cu. Yd.		147.4	147.4
Concrete Superstructure	Cu. Yd.	169.2		169.2
Bridge Deck Grooving	Sq. Yd.	554		554
Protective Coat	Sq. Yd.	595		595
Concrete Superstructure (Approach Slab)	Cu. Yd.		105.6	105.6
Reinforcement Bars, Epoxy Coated	Pound	101440	12520	113960
Bar Splicers	Each	561	162	723
Steel Railing, Type IL-OH	Foot	219		219
Furnishing Metal Shell Piles 14" x 0.312"	Foot		670	670
Driving Piles	Foot		670	670
Test Pile Metal Shells	Each		4	4
Pile Shoes	Each		24	24
Name Plates	Each	1		1
Temporary Sheet Piling	Sq. Ft.		509	509
Granular Backfill for Structures	Cu. Yd.		55	55
Geocomposite Wall Drain	Sq. Yd.		37	37
Pipe Underdrains for Structures 4"	Foot		123	123

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DESIGNED - RYAN P. NEGANGARD	EXAMINED - <i>Mark Shuffler</i>	DATE - 10/4/2024
CHECKED - TIFFANY L. ADAMS	ENGINEER OF BRIDGE DESIGN	
DRAWN - DENNIS A. POP	PASSED - <i>Jayne F. [Signature]</i>	REVISED - $\Delta$ 10/25/2024 R.P.N.
CHECKED - R.P.N. / T.L.A.	ENGINEER OF BRIDGES AND STRUCTURES	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

GENERAL DATA  
STRUCTURE NO. 053-0194

SHEET 2 OF 29 SHEETS

F.A.P. RTE. 673	SECTION (112BR)ES	COUNTY LIVINGSTON	TOTAL SHEETS 65	SHEET NO. 24
CONTRACT NO. 66L79				
ILLINOIS FED. AID PROJECT				

**NORTH EDGE OF SHOULDER**

Location	Station	Offset	Theoretical Grade Elevations
W. End of W. Appr. Slab	569+01.24	-18.00	656.86
A	569+11.24	-18.00	656.85
B	569+21.24	-18.00	656.83
E. End of W. Appr. Slab	569+31.24	-18.00	656.81

**NORTH EDGE OF ROADWAY**

Location	Station	Offset	Theoretical Grade Elevations
W. End of W. Appr. Slab	568+99.06	-12.00	656.99
A	569+09.06	-12.00	656.97
B	569+19.06	-12.00	656.95
E. End of W. Appr. Slab	569+29.06	-12.00	656.94

**☉ ROADWAY, PG & STAGE CONSTRUCTION JOINT**

Location	Station	Offset	Theoretical Grade Elevations
W. End of W. Appr. Slab	568+94.69	0.00	657.17
A	569+04.69	0.00	657.16
B	569+14.69	0.00	657.14
E. End of W. Appr. Slab	569+24.69	0.00	657.12

**SOUTH EDGE OF ROADWAY**

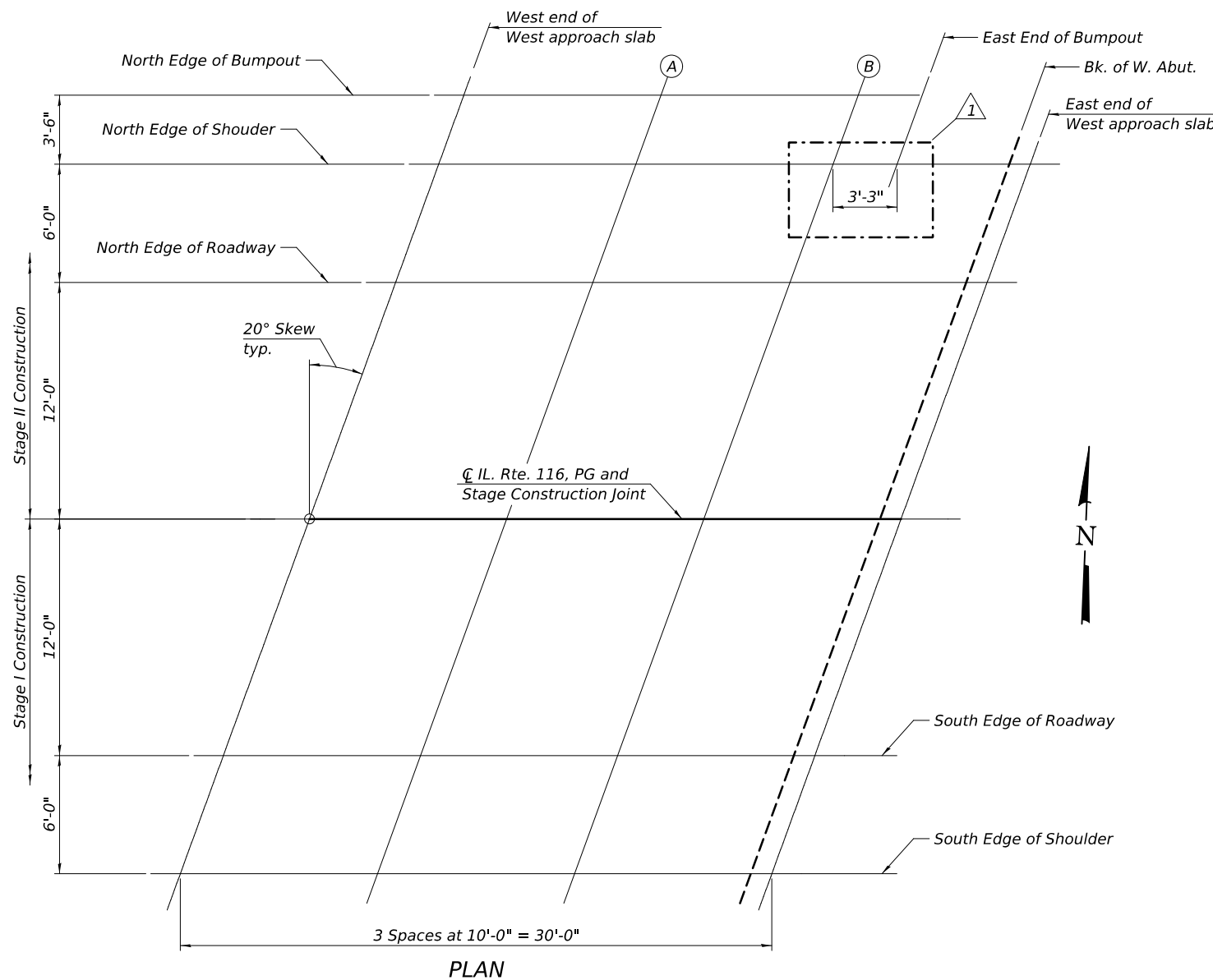
Location	Station	Offset	Theoretical Grade Elevations
W. End of W. Appr. Slab	568+90.32	12.00	657.00
A	569+00.32	12.00	656.99
B	569+10.32	12.00	656.97
E. End of W. Appr. Slab	569+20.32	12.00	656.95

**SOUTH EDGE OF SHOULDER**

Location	Station	Offset	Theoretical Grade Elevations
W. End of W. Appr. Slab	568+88.14	18.00	656.88
A	568+98.14	18.00	656.87
B	569+08.14	18.00	656.85
E. End of W. Appr. Slab	569+18.14	18.00	656.84

**NORTH EDGE OF BUMPOUT**

Location	Station	Offset	Theoretical Grade Elevations
W. End of Bumpout	569+02.51	-21.50	656.79
A	569+12.51	-21.50	656.77
B	569+22.51	-21.50	656.76
E. End of Bumpout	569+25.76	-21.50	656.75



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DESIGNED - RYAN P. NEGANGARD	EXAMINED	DATE - 10/4/2024
CHECKED - TIFFANY L. ADAMS	PASSED	REVISD - 10/25/2024 R.P.N.
DRAWN - DENNIS A. POP		REVISD -
CHECKED - R.P.N. / T.L.A.		

*Mark Shuffen*  
ENGINEER OF BRIDGE DESIGN

*James T. [Signature]*  
ENGINEER OF BRIDGES AND STRUCTURES

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

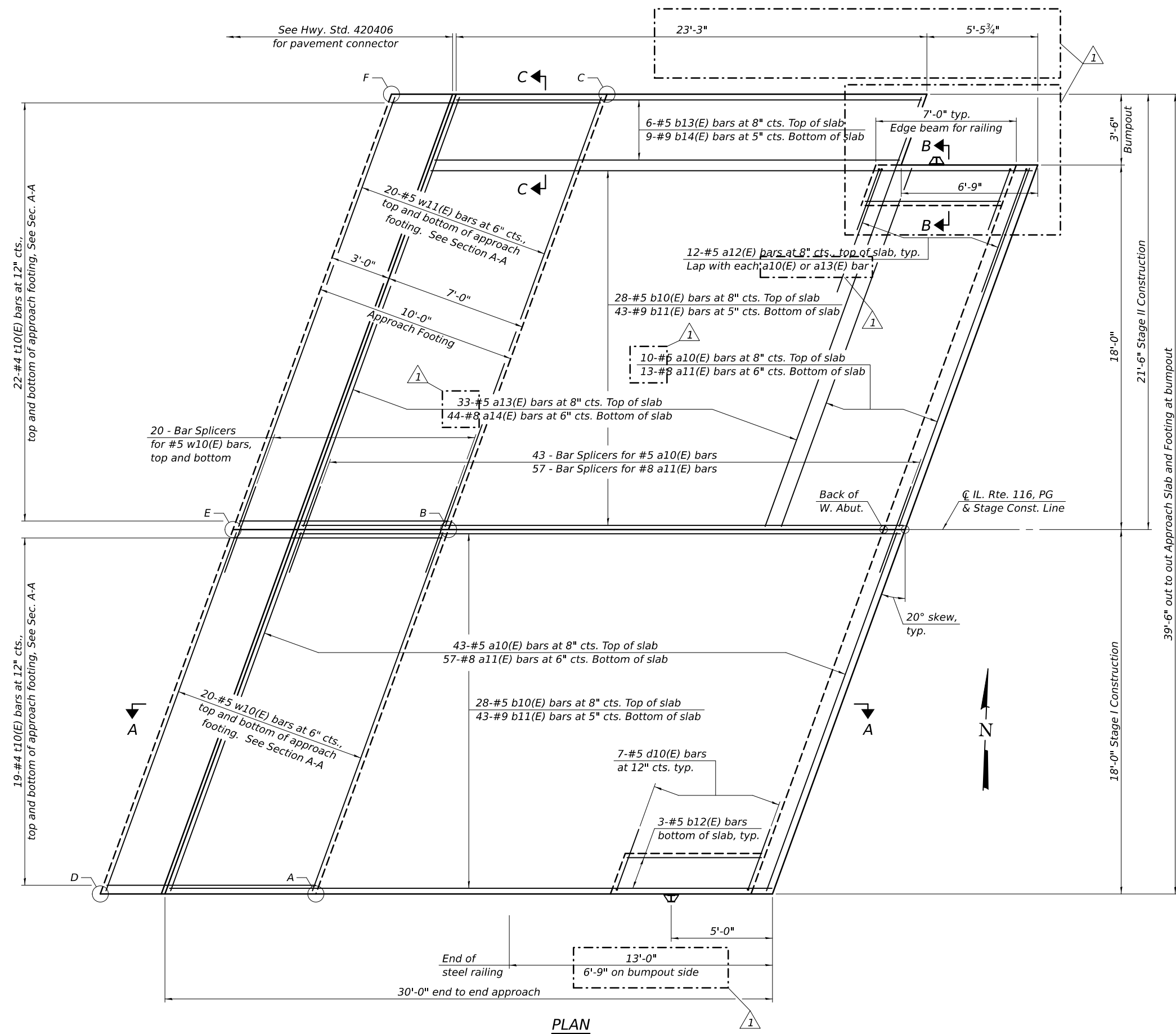
**TOP OF WEST APPROACH SLAB ELEVATIONS  
STRUCTURE NO. 053-0194**

F.A.P. RTE. 673	SECTION (112BR)ES	COUNTY LIVINGSTON	TOTAL SHEETS 65	SHEET NO. 30
CONTRACT NO. 66L79				
ILLINOIS FED. AID PROJECT				

SHEET 8 OF 29 SHEETS

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**TOP AND BOTTOM ELEVATIONS FOR APPROACH FOOTING**

West Approach		
Point/Location	Top	Bottom
A - SE	655.62	654.79
B - E CL	655.91	655.08
C - NE	655.53	654.70
D - SW	655.64	654.81
E - W CL	655.93	655.10
F - NW	655.55	654.72

DESIGNED - RYAN P. NEGANGARD  
 CHECKED - TIFFANY L. ADAMS  
 DRAWN - DENNIS A. POP  
 CHECKED - R.P.N. / T.L.A.

EXAMINED  
 PASSED  
 ENGINEER OF BRIDGES AND STRUCTURES

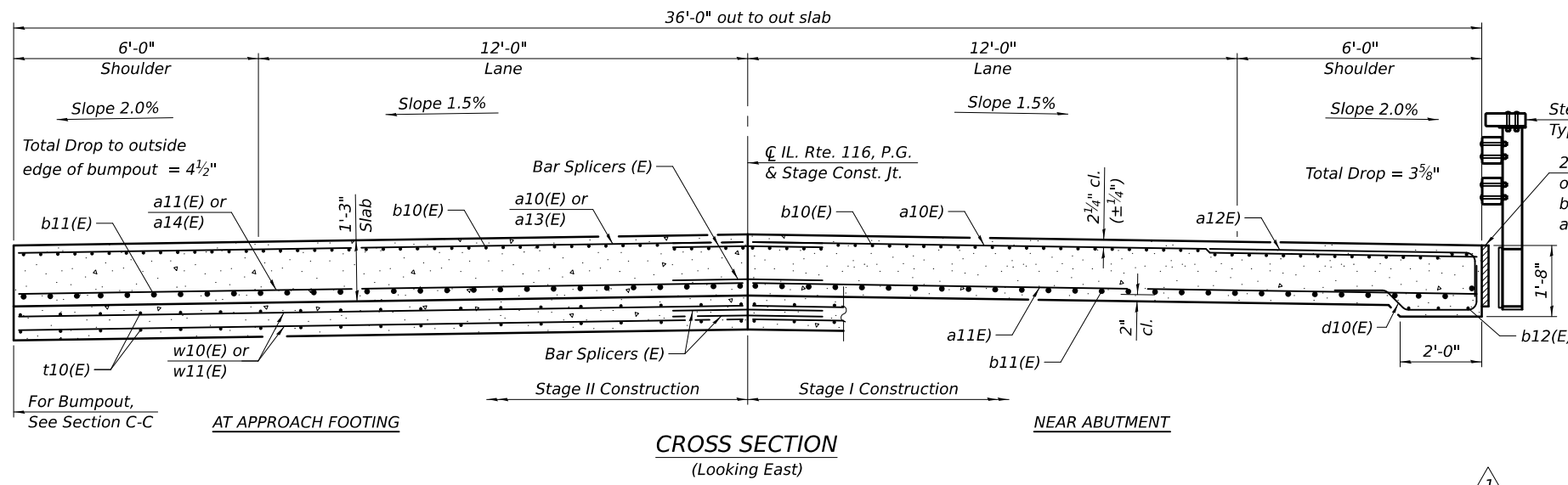
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 REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

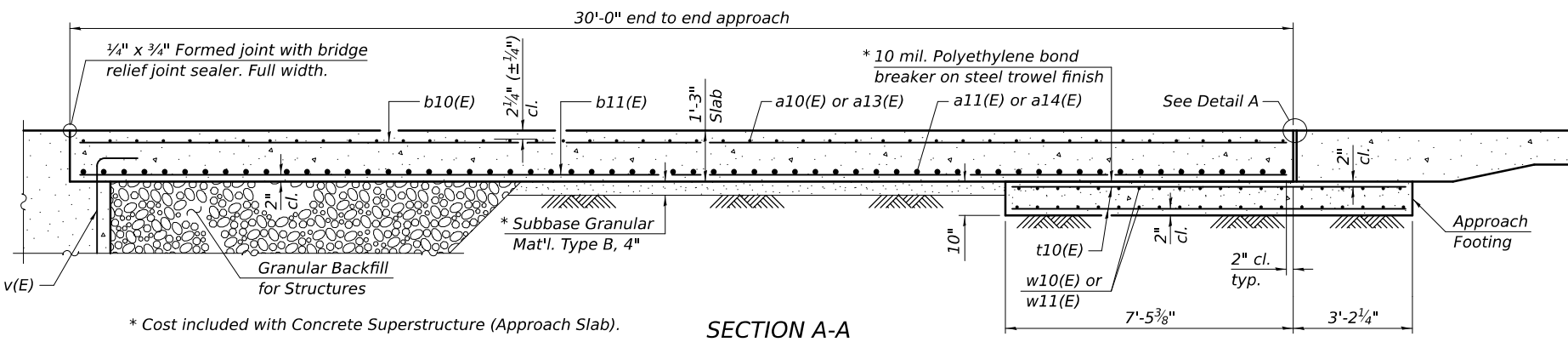
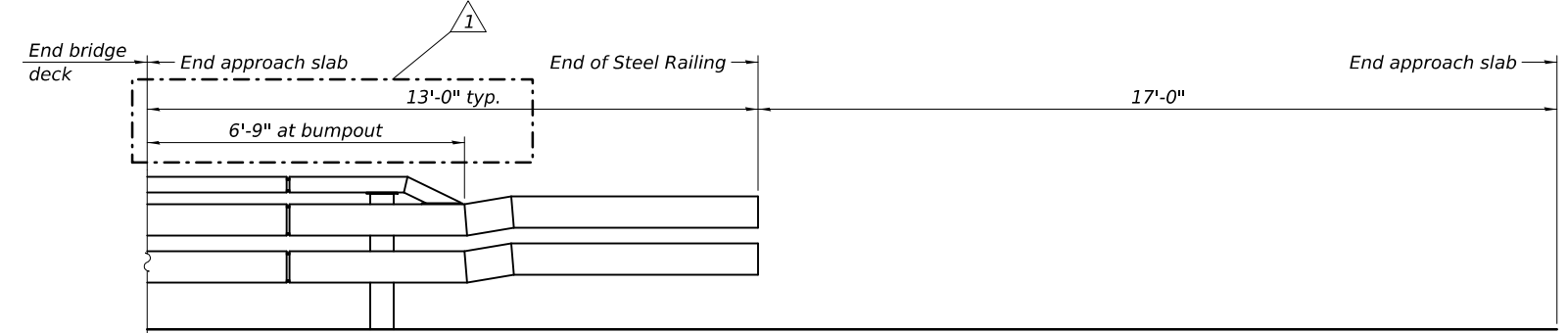
WEST BRIDGE APPROACH SLAB  
 STRUCTURE NO. 053-0194

SHEET 12 OF 29 SHEETS

F.A.P. RTE. 673 SECTION (112BR)ES COUNTY LIVINGSTON TOTAL SHEETS 65 SHEET NO. 34 CONTRACT NO. 66L79 ILLINOIS FED. AID PROJECT



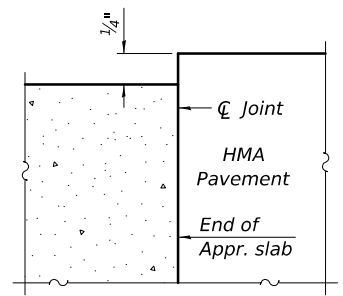
Notes:  
 Approach slab shall be paid for as Concrete Superstructure (Approach Slab).  
 Approach footing concrete shall be paid for as Concrete Structures.  
 The approach footing maximum applied service bearing pressure ( $Q_{max}$ ) = 2.0 ksf.  
 Cost of excavation for approach footing included with Concrete Structures.  
 For Granular Backfill for Structures and drainage treatment details, see sheet 2 of 29.  
 For railing details, see sheets 15 thru 18 of 29.



INSIDE ELEVATION OF RAILING

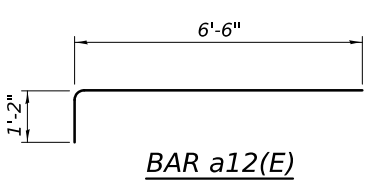
TWO APPROACHES  
 BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a10(E)	139	#5	18'-10"	
a11(E)	184	#8	18'-10"	
a12(E)	48	#5	7'-8"	
a13(E)	33	#5	22'-7"	
a14(E)	44	#8	22'-7"	
b10(E)	112	#5	29'-8"	
b11(E)	172	#9	29'-8"	
b12(E)	12	#5	6'-8"	
b13(E)	6	#5	22'-11"	
b14(E)	9	#9	22'-11"	
d10(E)	28	#5	5'-2"	
t10(E)	158	#4	10'-4"	
w10(E)	120	#5	18'-10"	
w11(E)	40	#5	22'-7"	
Concrete Superstructure (Approach Slab)				Cu. Yd. 105.6
Concrete Structures				Cu. Yd. 24.8
Reinforcement Bars, Epoxy Coated				Pound 42,080

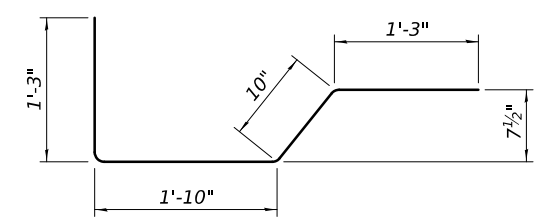


FLEXIBLE PAVEMENT

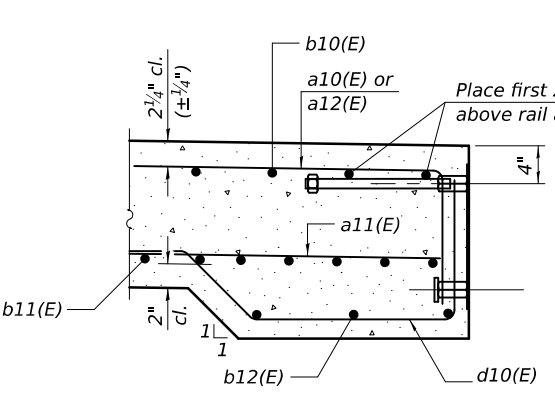
DETAIL A



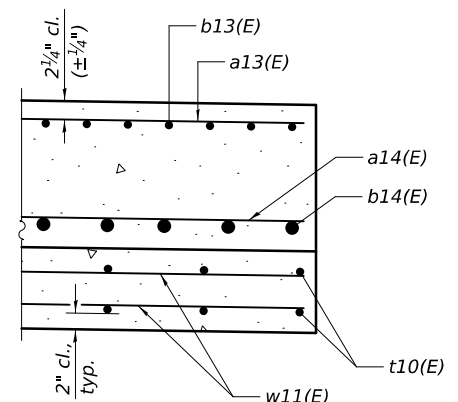
BAR a12(E)



BAR d10(E)



SECTION B-B



SECTION C-C

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DESIGNED - RYAN P. NEGANGARD  
 CHECKED - TIFFANY L. ADAMS  
 DRAWN - DENNIS A. POP  
 CHECKED - R.P.N. / T.L.A.

EXAMINED  
 PASSED  
 ENGINEER OF BRIDGE DESIGN  
 ENGINEER OF BRIDGES AND STRUCTURES

DATE - 10/4/2024  
 REVISED - 10/25/2024 R.P.N.  
 REVISED -

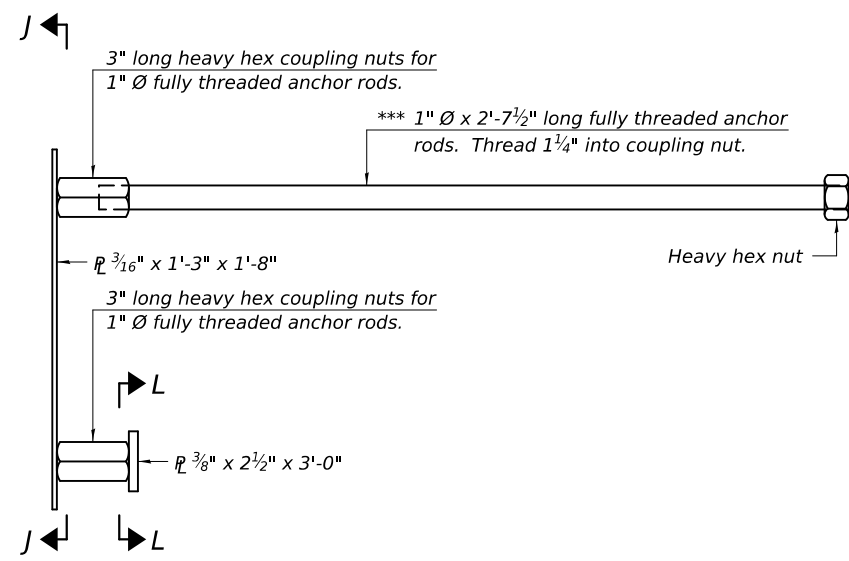
STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

BRIDGE APPROACH SLAB DETAILS  
 STRUCTURE NO. 053-0194

SHEET 14 OF 29 SHEETS

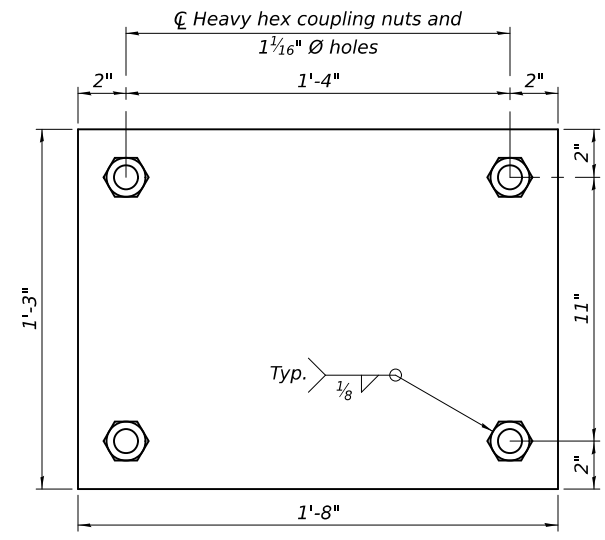
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
673	(112BR)ES	LIVINGSTON	65	36
CONTRACT NO. 66L79				
ILLINOIS FED. AID PROJECT				

REV. 10/28/24

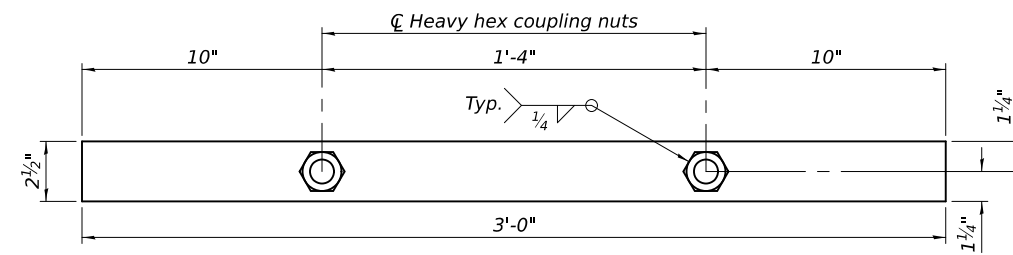


**ANCHORAGE ASSEMBLY**

\*\*\* For skewed bridge decks use 1" Ø x 1'-3" long fully threaded anchor rods at acute corners of bridge deck.

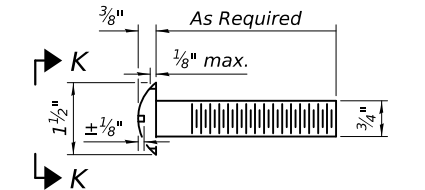


**SECTION J-J**

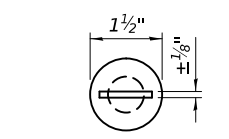


**SECTION L-L**

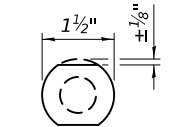
Notes:  
 All plates shall be AASHTO M270 grade 50.  
 All HSS tubing shall be ASTM A500 grade C.  
 All heavy hex nuts including heavy hex coupling nuts shall be according to ASTM A563 grade DH.  
 All fully threaded anchor rods shall be ASTM F1554 grade 105.  
 All round head bolts shall be ASTM A449.  
 All steel rail elements including shims shall be galvanized according to Article 509.05 of the Standard Specifications.  
 Rail splice inserts may be built out of 2 - 3/8" bent plates in lieu of the 4 plate rail splice inserts shown, provided the outside dimensions are matched.  
 A sufficient number shims of various thicknesses, built to the dimensions shown in the shim plate detail, shall be provided to adjust posts for plumbness and horizontal alignment. Cost included with Steel Railing, Type IL-OH.  
 The spacer tubes shall be fastened to the bridge deck and bridge approach slab snug tight and given an additional 1/3 turn. The 1" diameter high strength bolts used to connect the spacer tubes to the post assemblies shall be tightened according to Article 505.04(f)(2) of the Standard Specifications.  
 All HSS tubing serving as railing shall be CVN tested according to Article 1006.34(b) of the Standard Specifications.



**ROUND HEAD BOLT DETAIL**



With Slot (shown) or Approved Recess



Without Slot or Recess

**VIEW K-K**

**BILL OF MATERIAL**

Item	Unit	Quantity
Steel Railing, Type IL-OH	Foot	219

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5-15-2023

(Sheet 4 of 4)

DESIGNED - RYAN P. NEGANGARD	EXAMINED - <i>Mark Shuffler</i>	DATE - 10/4/2024
CHECKED - TIFFANY L. ADAMS	PASSED - <i>Jayne F. [Signature]</i>	REVISOR - [Signature]
DRAWN - DENNIS A. POP	ENGINEER OF BRIDGES AND STRUCTURES	REVISION - 10/25/2024 R.P.N.
CHECKED - R.P.N. / T.L.A.		REVISION -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**STEEL RAILING, TYPE IL-OH  
 STRUCTURE NO. 053-0194**

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
673	(112BR)ES	LIVINGSTON	65	40
CONTRACT NO. 66L79				
ILLINOIS FED. AID PROJECT				

SHEET 18 OF 29 SHEETS