

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 164	17-01209-00-BR	UNION	25	1
FED. ROAD DIST. NO.		ILLINOIS CONTRACT NO.	99646	

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1.	COVER SHEET
2.	SUMMARY OF QUANTITIES AND GENERAL NOTES
3.	TYPICAL CROSS SECTIONS
4.	PLAN AND PROFILE
5-12.	BRIDGE PLANS
13.	BORINGS
14-25.	STATION CROSS SECTIONS

HIGHWAY STANDARDS:

000001-07	STANDARD SYMBOLS, ABBREVIATIONS, AND PATTERNS
515001-04	NAME PLATE FOR BRIDGES
701901-08	TRAFFIC CONTROL DEVICES
725001-01	OBJECT AND TERMINAL MARKERS
BLR 21-9	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

PLANS FOR PROPOSED
SURFACE TRANSPORTATION PROGRAM
OFF SYSTEM BRIDGE

PROJECT KTV2(308)
SECTION 17-01209-00-BR
COUNTY UNIT ROAD DISTRICT
UNION COUNTY
T.R. 164 / NASH ROAD
PROPOSED STRUCTURE NO. 091-3248
C-99-037-18



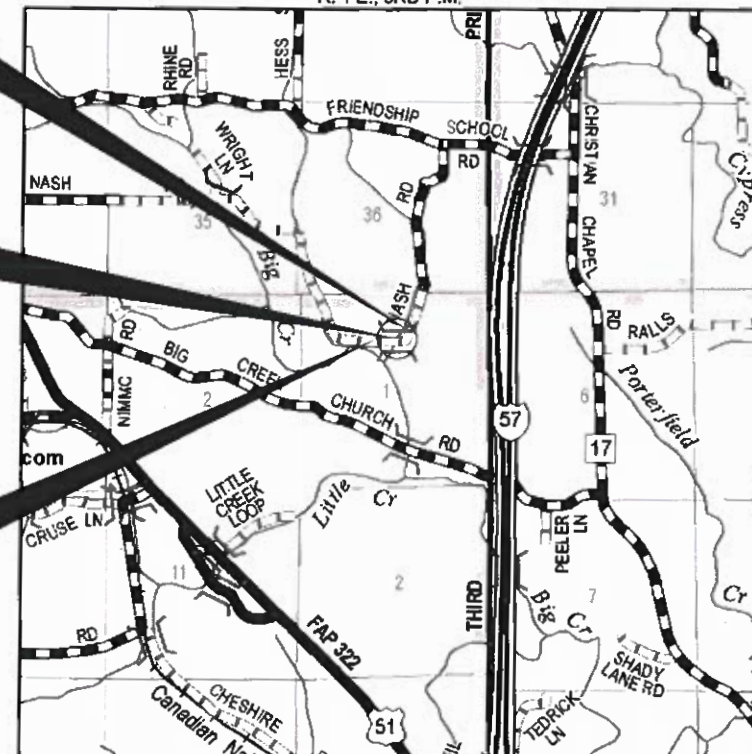
UTILITIES

FRONTIER COMMUNICATIONS
206 WEST UNION
MARION, IL. 62659

STA. 10+15
PRECAST PRESTRESSED CONCRETE DECK BEAM
BRIDGE, SINGLE SPAN AT 62'-0"
24'-0" RDWY.; SKEW = 35°
EXISTING STRUCTURE NO. 091-3184
PROPOSED STRUCTURE NO. 091-3248

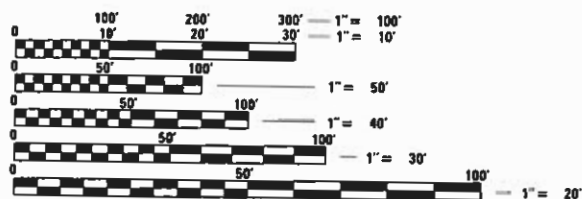
IMPROVEMENT ENDS
STATION 12+00

IMPROVEMENT BEGINS
STATION 8+00



LOCATION MAP

APPROXIMATE SCALE: 1" = 1/2 MILE
NET LENGTH OF SECTION = 400 FEET = 0.076 MILES



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.

FUNCTIONAL CLASSIFICATION: LOCAL ROAD
DESIGN SPEED: 20 MPH
DESIGN TRAFFIC: 25 ADT



WARNING
CALL JULIE TOLL FREE
1-800-892-0123
CALL 811
BEFORE YOU DIG
DIG NO: A000170177

ILLINOIS DEPARTMENT OF TRANSPORTATION
APPROVED April 29 2020
Kevin Hammer
COUNTY ENGINEER
PASSED May 18 2020
[Signature]
DISTRICT NINE ENGINEER OF LOCAL ROADS & STREETS
Releasing For Bid Based on Limited Review
MAY 18 2020
Keith Polity
REGION FIVE ENGINEER
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



HAMPTON, LENZINI AND RENWICK, INC.
CIVIL ENGINEERS - STRUCTURAL ENGINEERS - LAND SURVEYORS
3085 STEVENSON DRIVE, SUITE 201
SPRINGFIELD, ILLINOIS 62703
217.546.3400 www.hlrengineering.com
184.000959
ILLINOIS PROFESSIONAL DESIGN FIRM L.S./P.E./S.E. CORPORATION

SUMMARY OF QUANTITIES

ITEM NO.	ITEM	CONSTRUCTION TYPE CODE	
		0010	
		UNIT	TOTAL
^ 20100110	TREE REMOVAL (6 TO 15 UNITS DIAMETER)	UNITS	46
^ 20100210	TREE REMOVAL (OVER 15 UNITS DIAMETER)	UNITS	42
20200100	EARTH EXCAVATION	CU YD	55
20300100	CHANNEL EXCAVATION	CU YD	200
20400800	FURNISHED EXCAVATION	CU YD	230
20700110	POROUS GRANULAR EMBANKMENT	TON	100
^ 28100809	STONE DUMPED RIPRAP, CLASS A5	TON	390
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	263
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50300225	CONCRETE STRUCTURES	CU YD	30.0
50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ FT	1,560
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	3,640
* 50900205	STEEL RAILING, TYPE S1	FOOT	124
51201400	FURNISHING STEEL PILES HP10X42	FOOT	120
51500100	NAME PLATES	EACH	1
* 72501000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
67100100	MOBILIZATION	L SUM	1
^ X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.3
^ X7011800	TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 21	L SUM	1
^ Z0065000	SETTING PILES IN ROCK	EACH	8

^ SEE SPECIAL PROVISIONS

* SPECIALTY ITEMS

EARTHWORK SUMMARY

LOCATION	EARTH EXCAVATION	CHANNEL EXCAVATION	SHRINKAGE FACTOR	% USED	EARTH EXCAVATION ADJUSTED FOR SHRINKAGE (25%)	EMBANKMENT REQUIRED	EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-)
	CUBIC YARD	CUBIC YARD			CUBIC YARD	CUBIC YARD	CUBIC YARD
TR 164 / Nash Road							
STA. 8+00 TO STA. 9+83.19	38		25.00%	100.00%	29	156	-127
STA. 9+83.19 TO STA. 10+46.81		200	25.00%	70.00%	105		105
STA. 10+46.81 TO STA. 12+00	18		25.00%	100.00%	13	221	-208
TOTAL	56	200			147	377	-230
USE	55	200					230

FURNISHED 230 CU YDS

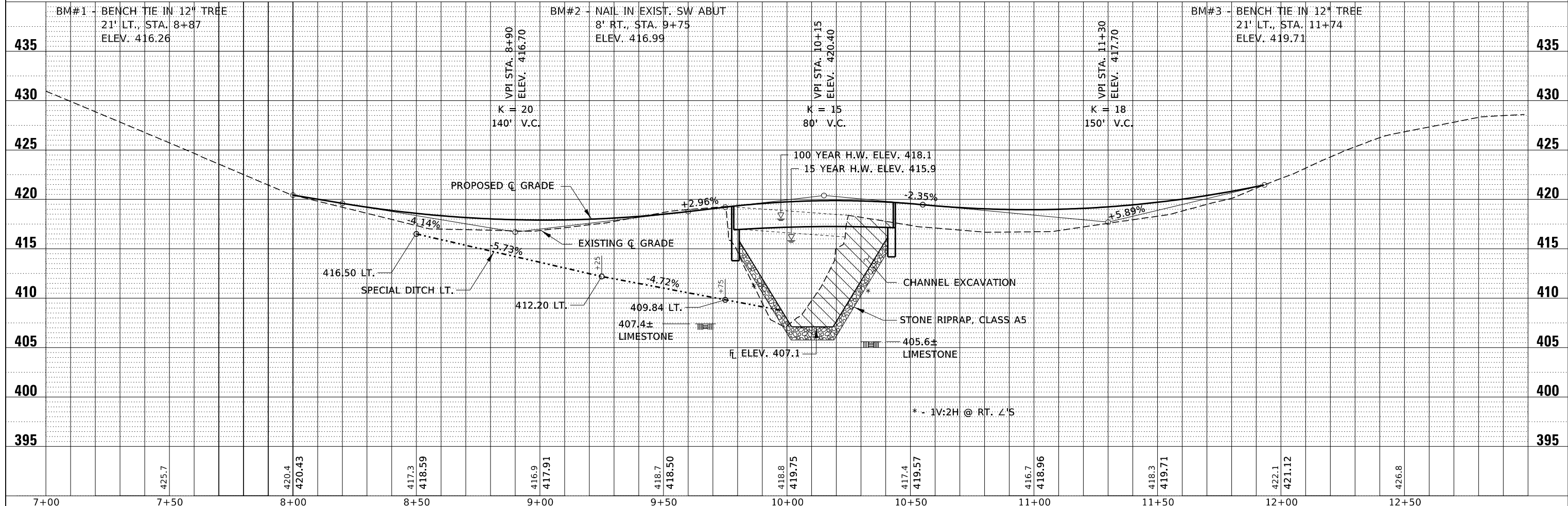
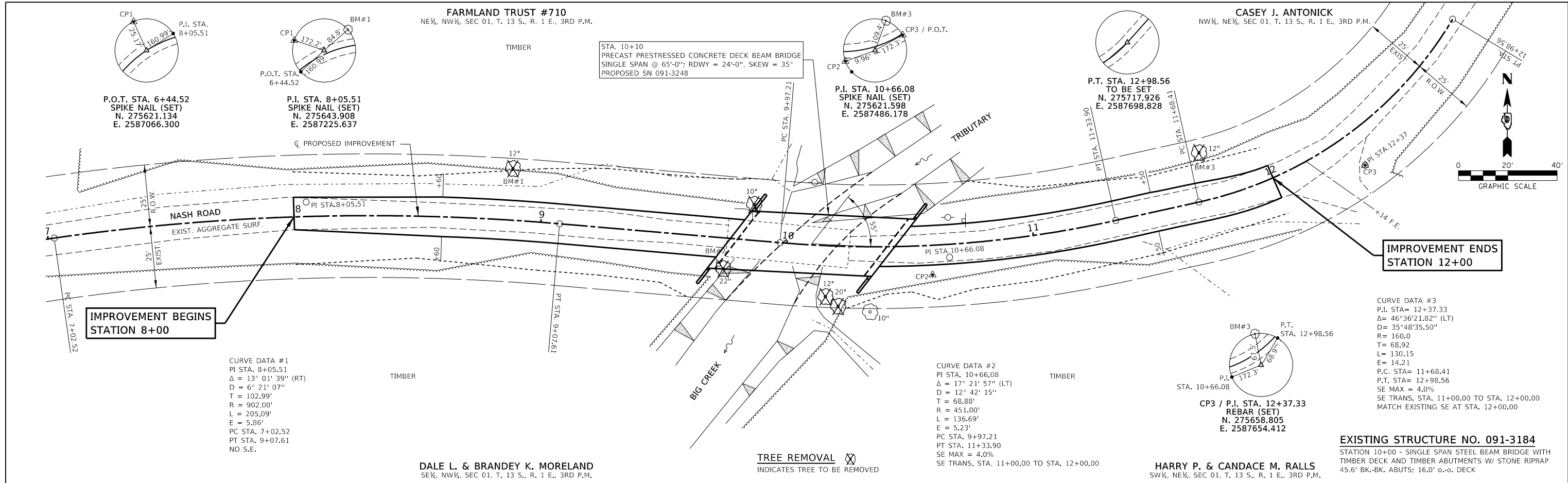
GENERAL NOTES

- ALL CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE STATE OF ILLINOIS "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, ADOPTED APRIL 1, 2016", (HERE IN AFTER REFERRED TO AS THE STANDARD SPECIFICATIONS); THE LATEST EDITION OF THE "ILLINOIS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS"; THE DETAILS IN THE PLANS AND THE "SPECIAL PROVISIONS" INCLUDED IN THE DOCUMENTS.
- ALL CLEARING AND GRUBBING, AND REMOVAL OF EXISTING DRAINAGE STRUCTURES SHALL BE INCLUDED IN THE COST OF EARTH EXCAVATION. THE REMOVAL OF THE EXISTING BITUMINOUS SURFACE WILL BE PAID FOR AS EARTH EXCAVATION. ALL BITUMINOUS MATERIAL SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR IN A METHOD APPROVED BY THE ENGINEER. PROPER DISPOSAL OF BITUMINOUS MATERIAL SHALL BE INCLUDED IN THE COST OF EARTH EXCAVATION AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
- WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED BEFORE SUCH MONUMENTS ARE REMOVED. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL PROPERTY MARKS AND MONUMENTS UNTIL THE OWNER, AN AUTHORIZED SURVEYOR OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION.
- THE LOCATION ON THE PLANS OF EXISTING DRAINAGE STRUCTURES, TELEPHONE LINES, ELECTRIC LINES, WATER SERVICE LINES, GAS MAINS, AND OTHER UTILITY FACILITIES AS SHOWN ON THE PLANS ARE BASED ON FIELD INVESTIGATIONS AND THE BEST INFORMATION AVAILABLE, BUT THE LOCATIONS ARE NOT GUARANTEED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ASCERTAIN THEIR EXACT LOCATION FROM THE INDIVIDUAL UTILITY COMPANIES AND BY FIELD INSPECTION.
- THE REVISION NUMBER INDICATED FOR THE STANDARDS LISTED IN THE INDEX SHEETS SHALL BE USED IN THE CONSTRUCTION OF THIS SECTION.
- THE CONTRACTOR SHALL PROVIDE ACCESS TO ABUTTING PROPERTY AT ALL TIMES DURING CONSTRUCTION OF THE PROJECT.
- THE FOLLOWING RATES OF APPLICATION HAVE BEEN USED IN CALCULATING PLAN QUANTITIES

AGGREGATE SURFACE COURSE	2.05 TON/CU.YD.
STONE RIPRAP, CLASS A5	1.75 TON/CU.YD.
POROUS GRANULAR EMBANKMENT	1.50 TON/CU.YD.
- EARTH SURFACES SHALL BE SEEDED WITHIN 14 DAYS OF THE END OF ACTIVE DISTURBANCE. THE AREA TO BE SEEDED SHALL CONSIST OF ALL EARTH SURFACES DISTURBED DURING CONSTRUCTION AND AS DIRECTED BY THE ENGINEER. ESTIMATED AREAS OF SEEDING: SEEDING, CLASS 2 (SPECIAL) 0.3 ACRES
- ANY SUITABLE MATERIAL FROM EXCAVATION IN THE CHANNEL MAY BE USED IN THE CONSTRUCTION AT THE ROADWAY EMBANKMENTS AS DIRECTED BY THE ENGINEER, AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
- COMMITMENTS:
 - TREES GREATER THAN 3" DIA. SHALL NOT BE CLEARED FROM APRIL 1 TO SEPTEMBER 30.

PLAN	DATE
BY	
REVIEWED	
PLOTTED	
ALIGNMENT CHECKED	
GRADES CHECKED	
NOTE BOOK NO.	
FILE NAME	

PROFILE	DATE
BY	
REVIEWED	
PLOTTED	
GRADES CHECKED	
STRUCTURE NOTATING CHECKED	
NOTE BOOK NO.	
FILE NAME	



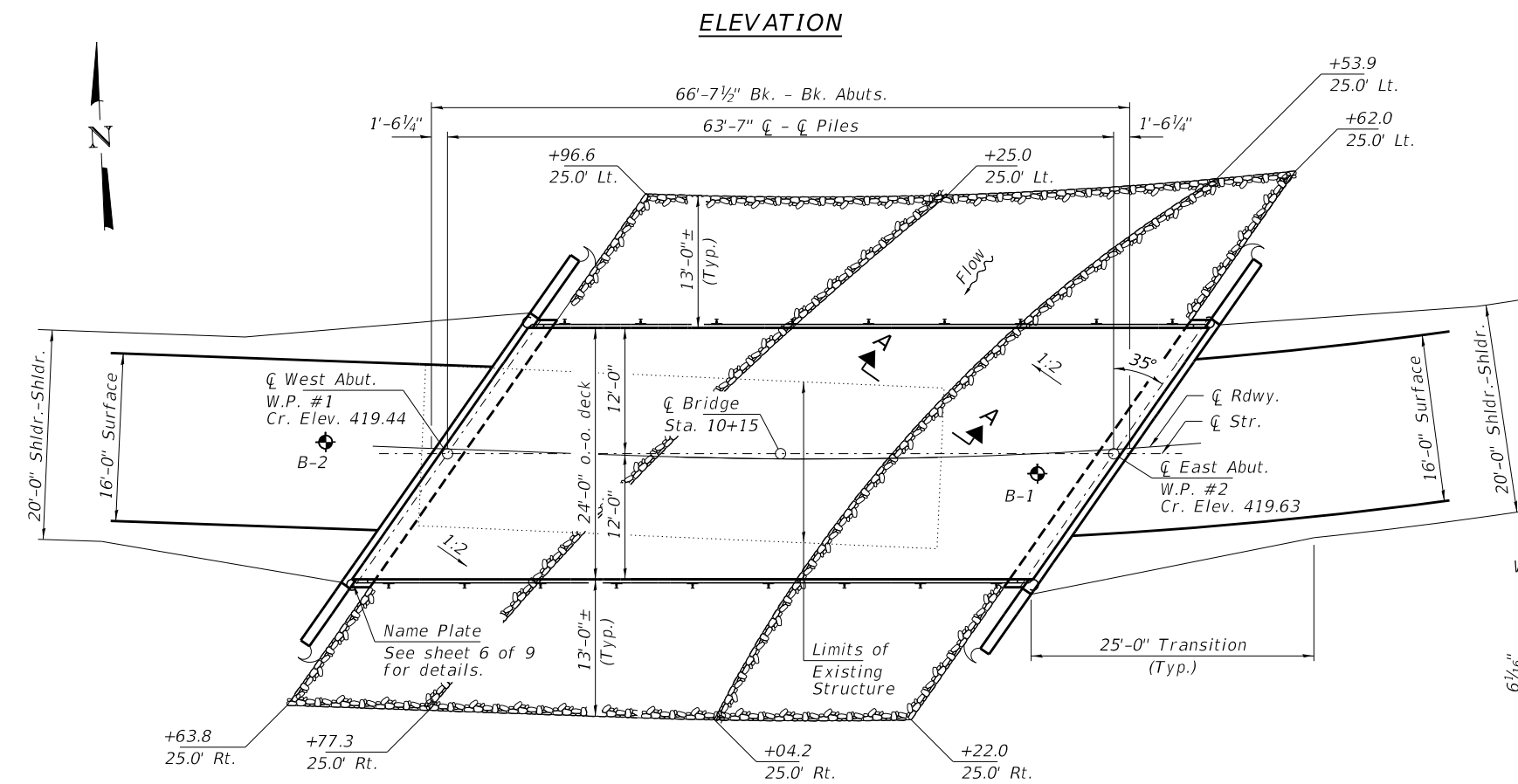
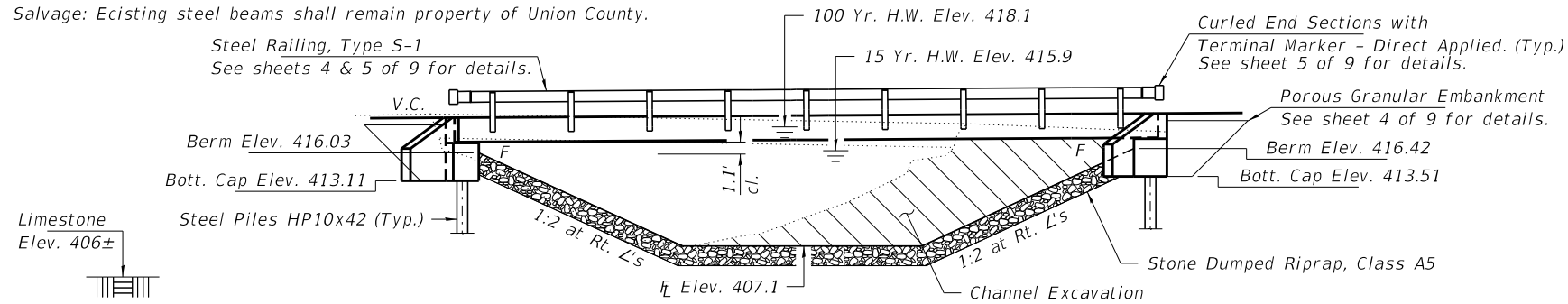
FILE NAME = 180610-shl-planprLdgn	USER NAME = rmosick	DESIGNED - P.S.	REVISED -	STATE OF ILLINOIS UNION COUNTY HIGHWAY DEPARTMENT	PLAN & PROFILE SCALE: 20H:5V SHEET NO. 1 OF 1 SHEETS STA. 7+00.00 TO STA. 13+00.00	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
HAMPTON, LENZINI AND RENWICK, INC. 3088 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000959						164	17-01209-00-BR	UNION	25	4	
PLOT SCALE = \$SCALE\$	CHECKED - J.W.F.	REVISOR -	REVISOR -			COUNTY UNIT ROAD DISTRICT	CONTRACT NO. 99646				
PLOT DATE = 5/4/2020	DATE = 04/28/2020	REVISOR -	REVISOR -			ILLINOIS FED. AID PROJECT KTV2(308)					

BENCHMARK: Nail in southwest abutment 8' Rt. Sta. 9+75, Elev. 416.99

EXISTING STRUCTURE NO. 091-3184: Sta. 10+00 - Single span steel beam bridge with timber deck and stone abutments. 45.6' bk.-bk.; 19.8' o.-o. deck.

Structure closed to traffic during construction.

Salvage: Existing steel beams shall remain property of Union County.



DESIGN SPECIFICATIONS

2017 AASHTO LRFD Bridge Design Specifications, 8th Edition with all interims.

LOADING HL-93

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

DESIGN STRESSES

FIELD UNITS

f'c = 3,500 psi
fy = 60,000 psi (Reinf.)

PRECAST PRESTRESSED UNITS

f'c = 6,000 psi
f'ci = 5,000 psi
fpu = 270,000 psi (1/2"Ø low lax. strands)
fpbt = 201,960 psi (1/2"Ø low lax. strands)
fy = 60,000 psi (Reinf.)

SEISMIC DATA

Seismic Performance Zone (SPZ) = 3
Design Spectral Acceleration at 1.0 sec. (SD1) = 0.444g
Design Spectral Acceleration at 0.2 sec. (SD5) = 1.169g
Soil Site Class = C

WATERWAY INFORMATION

		Drainage Area = 1.2 Sq. Mi.		Existing Low Grade Elev. 416.7 @ Sta. 11+00		Proposed Low Grade Elev. 417.9 @ Sta. 9+00	
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.	Nat. H.W.E. Exist.	Prop. H.W.E. Exist.	Head - Ft. Exist.	Headwater El. Prop.
Design	10	859	140	415.35	415.35	0.38	415.73
Base	15	970	160	415.87	415.87	0.38	416.25
Scour Check	100	1560	210	418.14	418.14	0.88	419.02
	200	1800	210	418.94	418.94	0.78	419.72

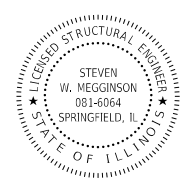
10 Year Velocity through Existing Bridge = 6.1 fps
10 Year Velocity through Proposed Bridge = 3.4 fps

DESIGN SCOUR ELEVATION TABLE

Event/Limit State	Design Scour Elev. (ft.) W. Abut.	Design Scour Elev. (ft.) E. Abut.	Item
Q100	413.5	413.5	113
Q500	413.5	413.5	
Design	413.5	413.5	8
Check	413.5	413.5	

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

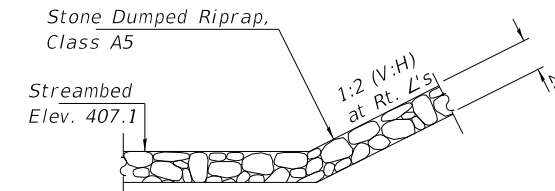
Steven W. Megginson 04/28/2020
ILLINOIS STRUCTURAL ENGINEER NO. 081-6064



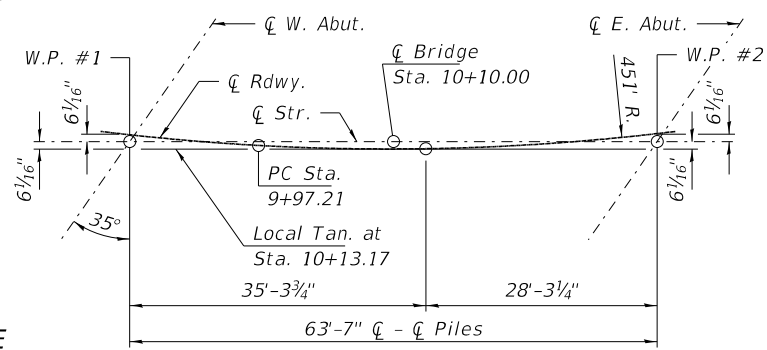
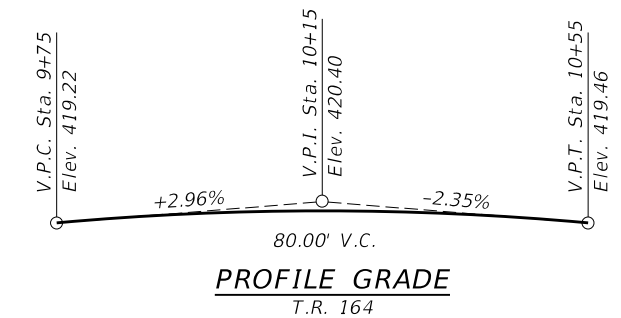
Expires 11-30-2020

GENERAL NOTES

Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60 (IL Modified). See Special Provisions.
All bars to be epoxy coated.
Excavation required to construct the Abutments shall be included in the cost of Concrete Structures. No additional compensation will be allowed for Structure Excavation or Rock Excavation.
All proposed construction activities shall be in accordance with Nationwide Permit number 14 of the Department of the Army authorized under Section 404 of the Clean Water Act.
The IEPA has issued Section 401 Water Quality Certification for this activity. See Special Provisions for conditions.

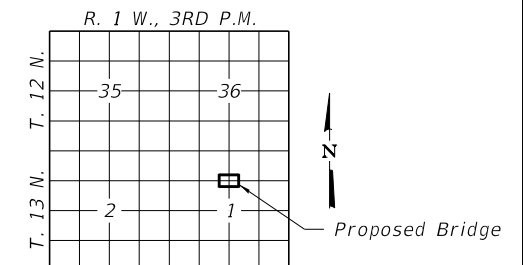


Note: See Special Provisions for Stone Dumped Riprap, Class A5.



INDEX OF STRUCTURE SHEETS

1. General Plan & Elevation
2. 27"x48" PPC Deck Beam
3. 27"x48" PPC Deck Beam Details
4. Superstructure Details
5. Steel Railing, Type S-1
6. West Abutment
7. East Abutment
8. HP Pile Details
9. Borings



NAME PLATE

BUILT 202 BY UNION COUNTY
SEC. 17-01209-00-BR
STR. NO. 091-3248
LOADING HL-93

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	Cu. Yd.			200
Porous Granular Embankment	Ton			100
Stone Dumped Riprap, Class A5	Ton			390
Removal of Existing Structures	Each			1
Concrete Structures	Cu. Yd.		30.0	30.0
Precast Prestressed Conc. Deck Beams (27" Depth)	Sq. Ft.	1,560		1,560
Reinforcement Bars, Epoxy Coated	Pound		3,640	3,640
Steel Railing, Type S-1	Foot	124		124
Furnishing Steel Piles HP10x42	Foot		120	120
Setting Piles in Rock	Each		8	8
Name Plates	Each		1	1
Terminal Marker - Direct Applied	Each	4		4

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USER NAME = rmosick
DESIGNED - J.R.B.
CHECKED - S.W.M.
DRAWN - M.M.P.
CHECKED - S.W.M.

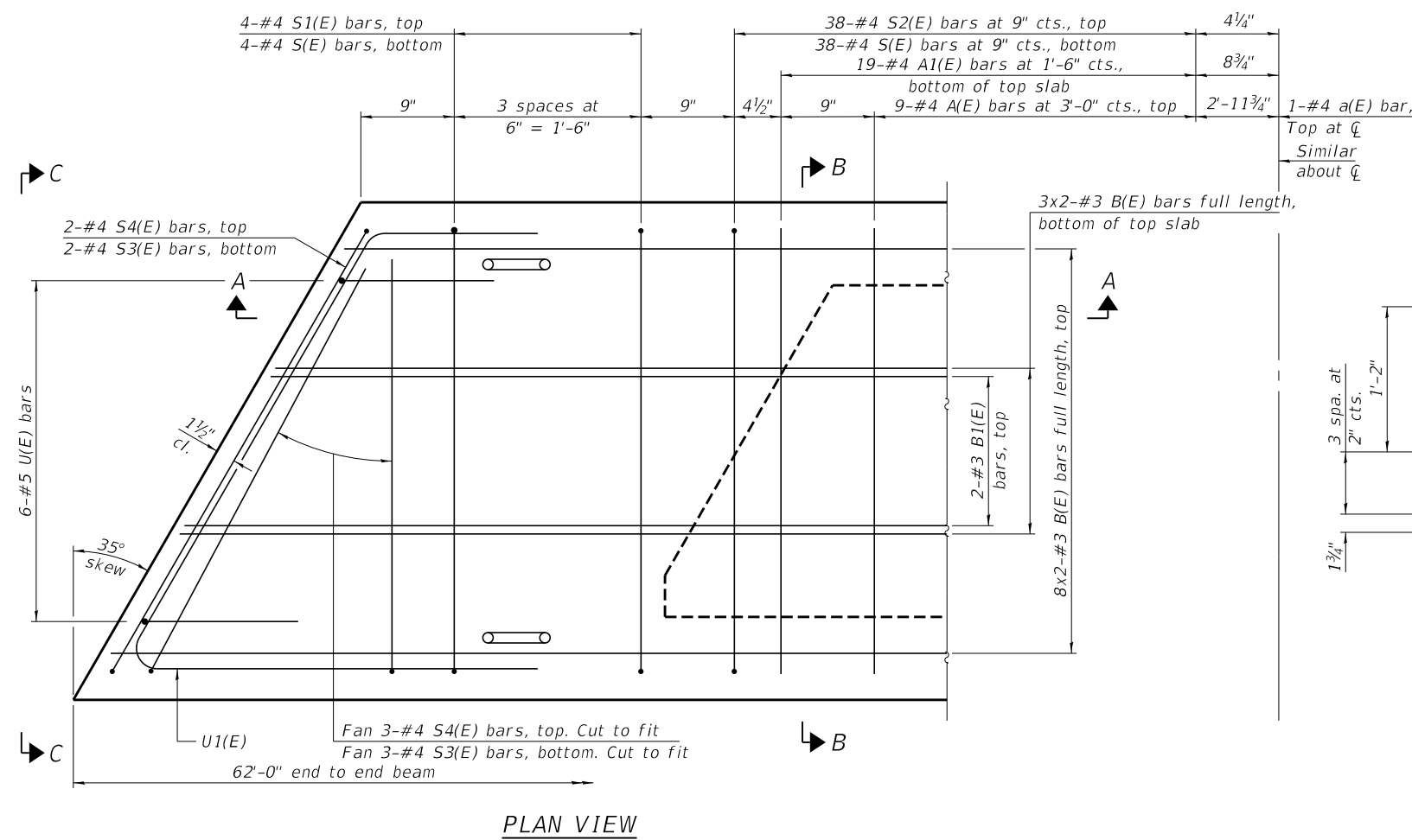
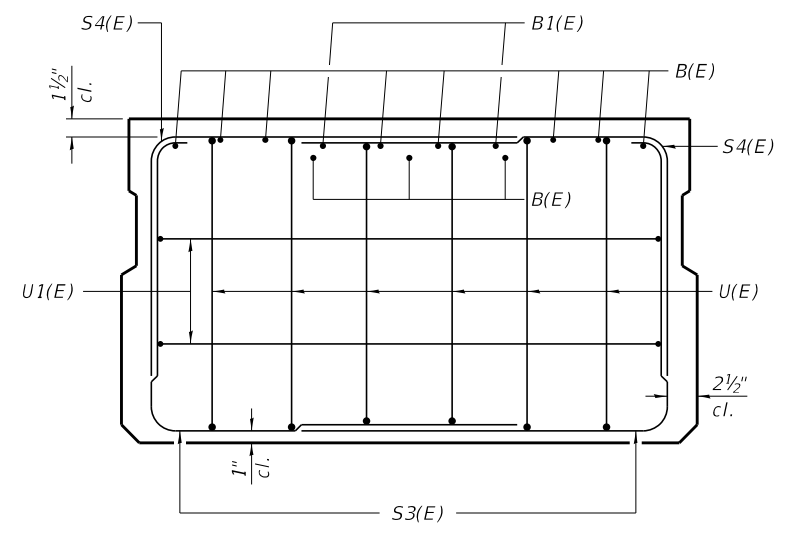
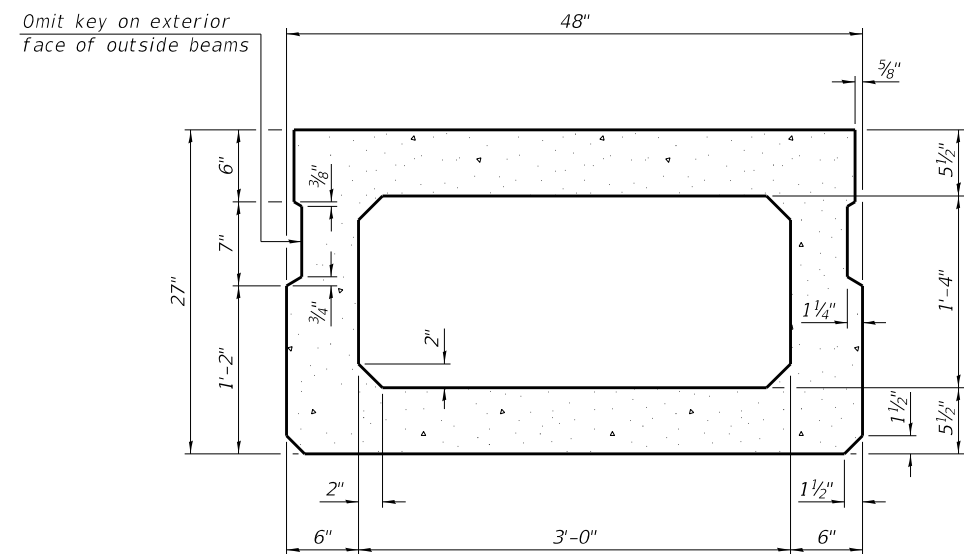
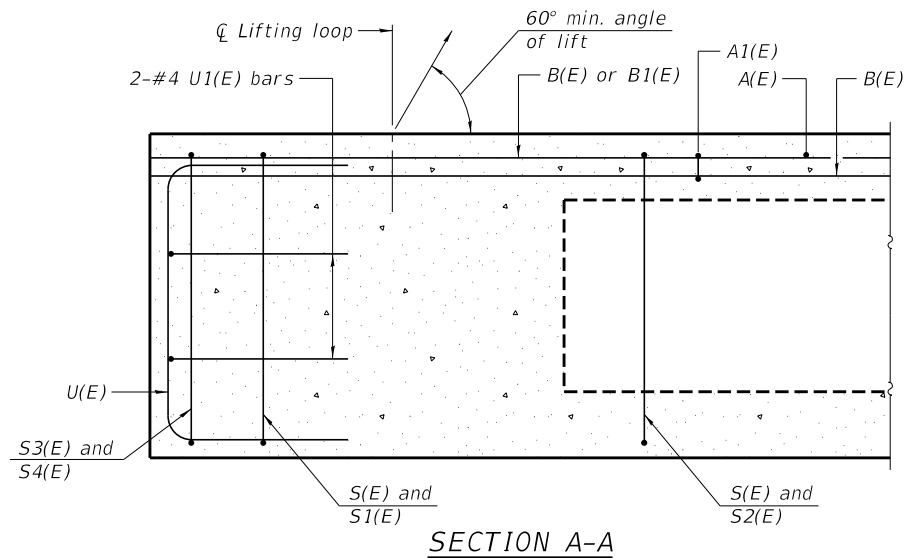
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STATE OF ILLINOIS
UNION COUNTY HIGHWAY DEPARTMENT

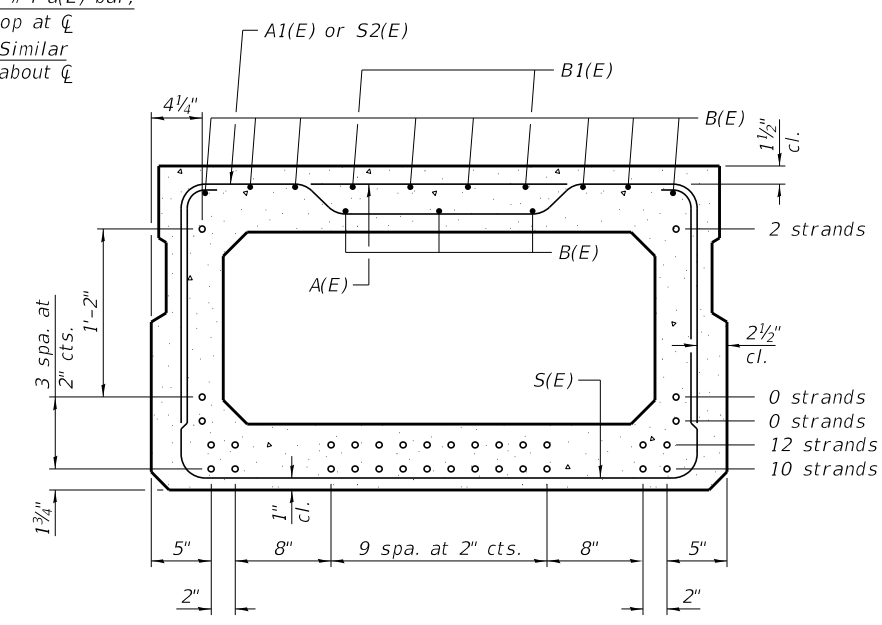
GENERAL PLAN & ELEVATION
STRUCTURE NO. 091-3248
SHEET NO. 1 OF 9 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
164	10-06129-00-BR	UNION	25	5
COUNTY UNIT ROAD DISTRICT		CONTRACT NO. 99646		

ILLINOIS FED. AID PROJECT KTY2(308)



SECTION B-B
(Showing dimensions)



SECTION B-B
(Showing reinforcement and permissible strand locations)

Note:
Place the number of strands specified in each row symmetrically about the centerline of beam in the permissible strand locations shown.

BAR LIST
ONE BEAM ONLY
(For information only)

Bar	No.	Size	Length	Shape
A(E)	19	#4	3'-7"	—
A1(E)	38	#4	3'-10"	—
B(E)	22	#3	31'-8"	—
B1(E)	4	#3	10'-0"	—
S(E)	84	#4	8'-5"	U
S1(E)	8	#4	6'-11"	U
S2(E)	76	#4	7'-2"	U
S3(E)	10	#4	5'-6"	U
S4(E)	10	#4	4'-9"	U
U(E)	12	#5	4'-6"	C
U1(E)	4	#4	9'-3"	C

Note:
See sheet 3 & 4 of 9 for additional details and Bill of Material.

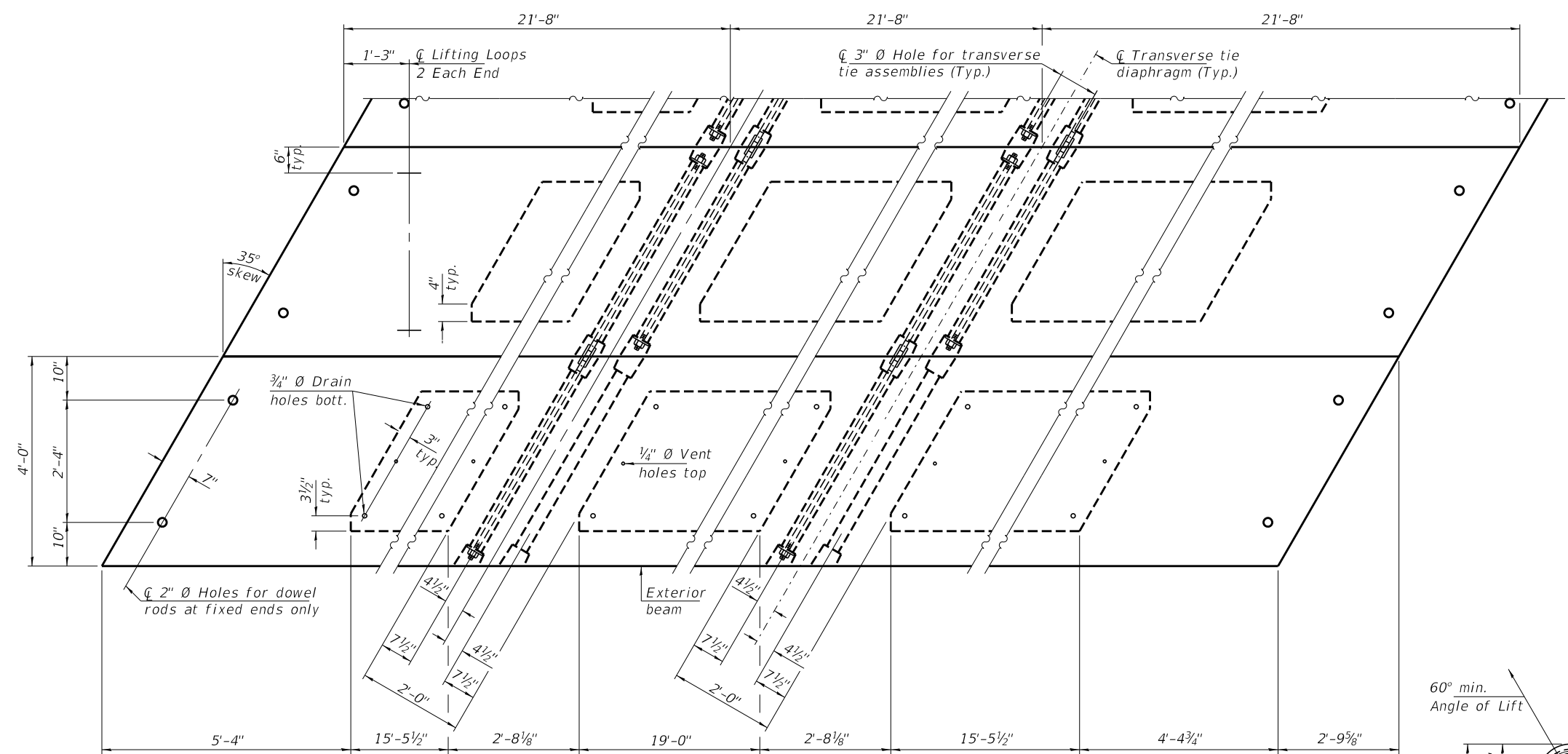
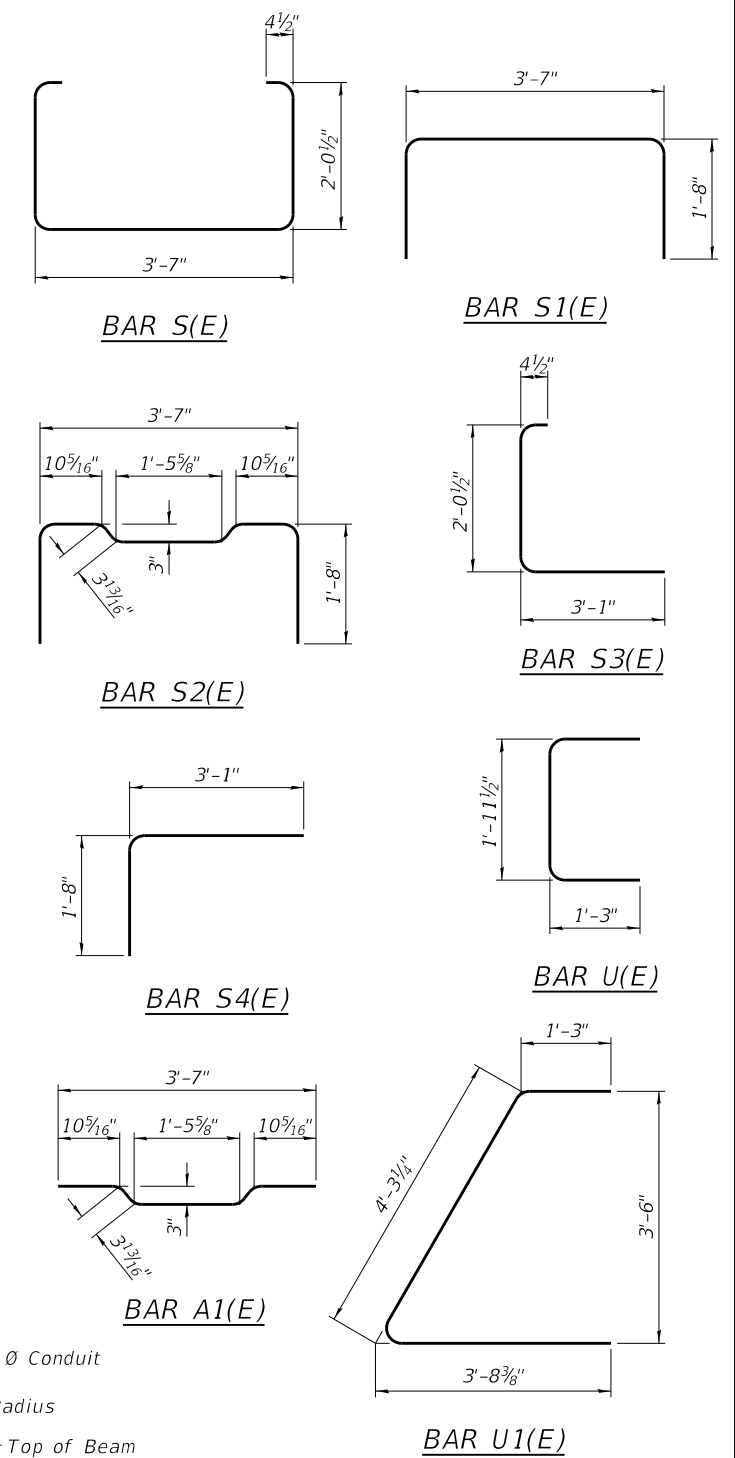
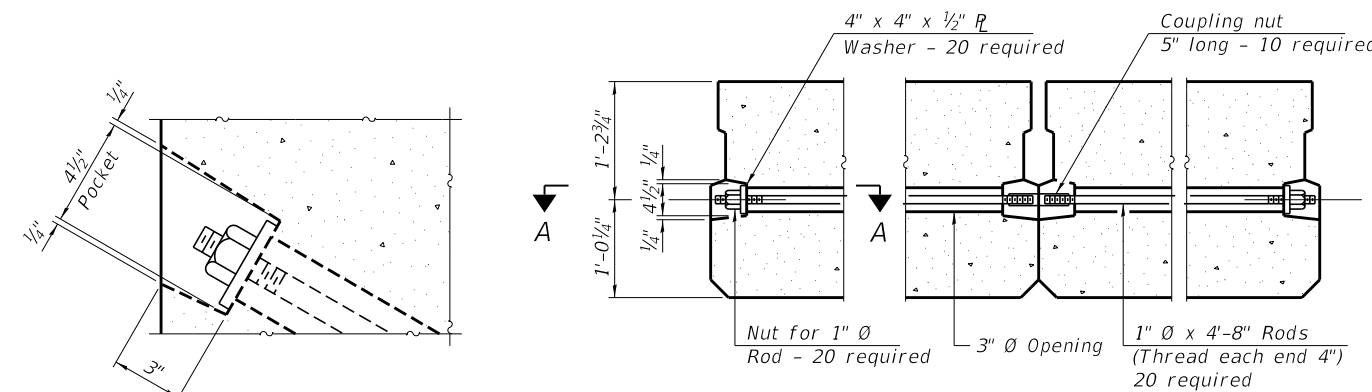
Contractor has the option to use 36" wide beams.

MINIMUM BAR LAP
#3 bar = 1'-6"

Note:
Spacing of S(E) and S2(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.
Bars indicated thus 8x2-#3 etc. indicates 8 lines of bars with 2 lengths per line.

PD-2748-L 1-1-2020

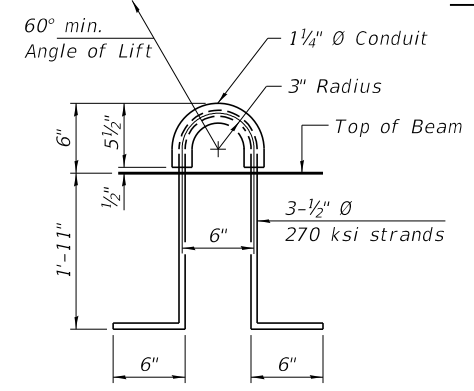
FILE NAME = 180610-shi-bridge.dgn	USER NAME = rmosick	DESIGNED - J.R.B.	REVISED -	STATE OF ILLINOIS UNION COUNTY HIGHWAY DEPARTMENT	27" x 48" PPC DECK BEAM STRUCTURE NO. 091-3248	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
HAMPTON, LENZINI AND RENWICK, INC. 3035 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000959	PLOT SCALE =	CHECKED - S.W.M.	REVISED -			164	10-06129-00-BR	UNION	25	6
	PLOT DATE = 5/4/2020	DRAWN - M.M.P.	REVISED -			COUNTY UNIT ROAD DISTRICT		CONTRACT NO. 99646		
		CHECKED - S.W.M.	REVISED -			ILLINOIS		FED. AID PROJECT KTY2(308)		



NOTES

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. The 1" rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place. Two 1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location. A minimum 2 1/2" diameter lifting pin shall be used to engage the lifting loops during handling. Corrosion Inhibitor, per Article 1020.05(b)(10) and 1021.07 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams. Compressive strength of prestressed concrete, f'c, shall be 6000 psi. Compressive strength of prestressed concrete at release, f'ci, shall be 5000 psi. Reinforcement bars designated (E) shall be epoxy coated.

Note:
Connect beams in pairs with the transverse tie configuration shown.



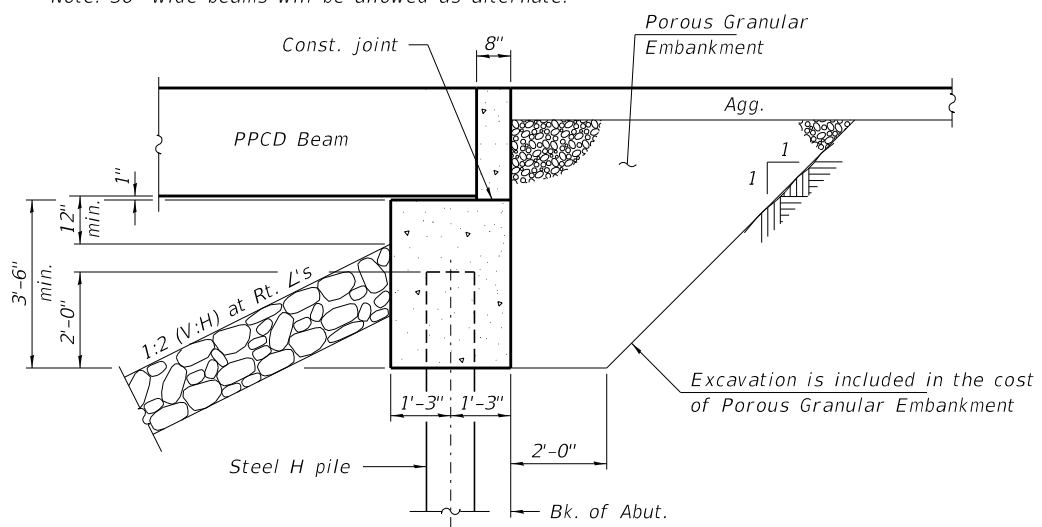
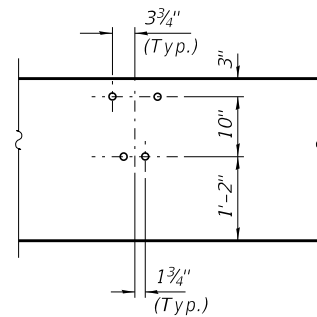
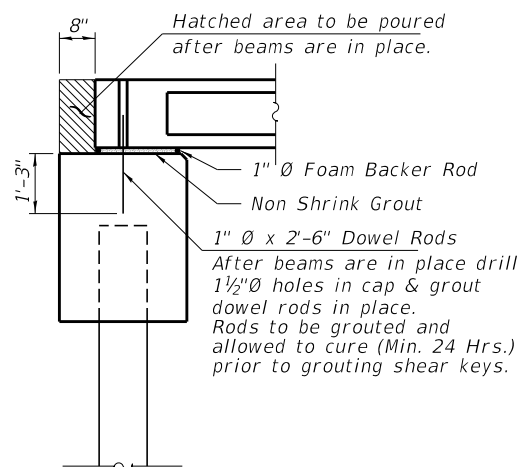
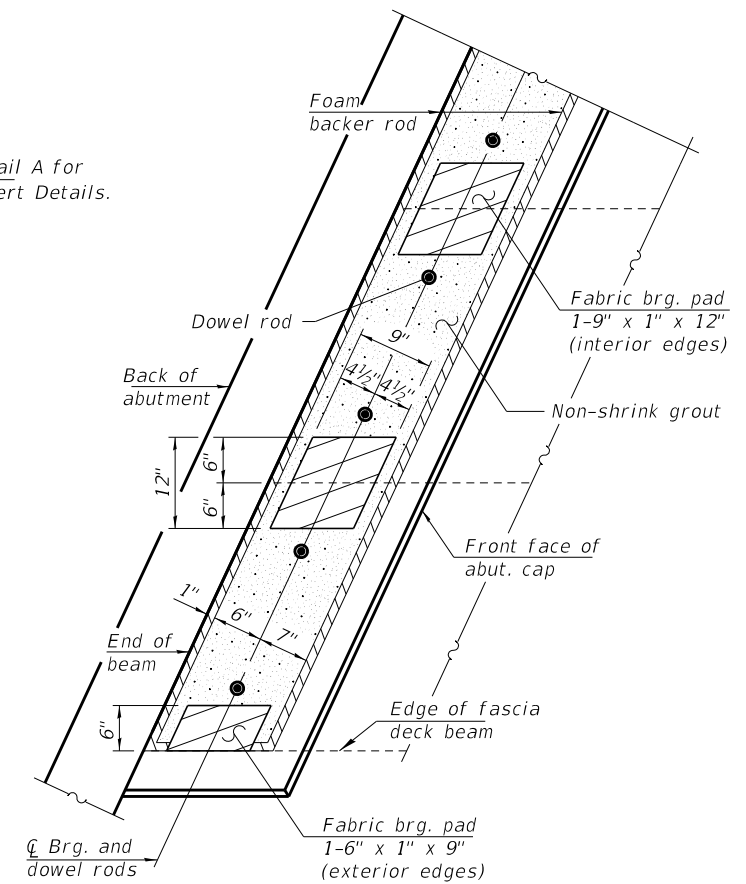
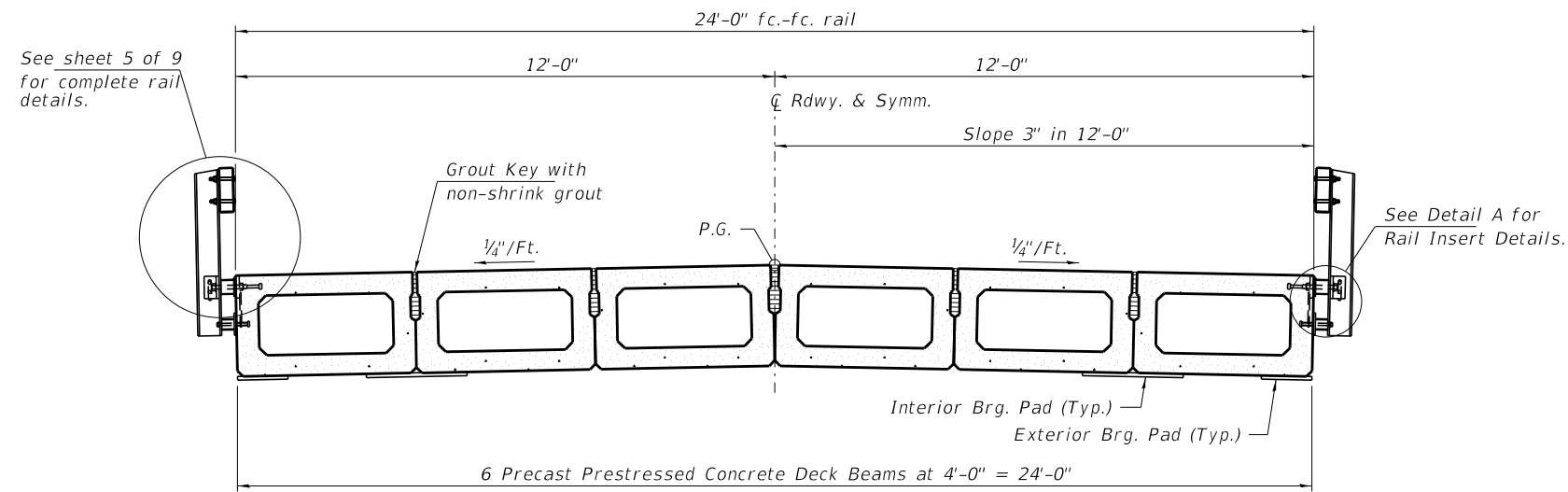
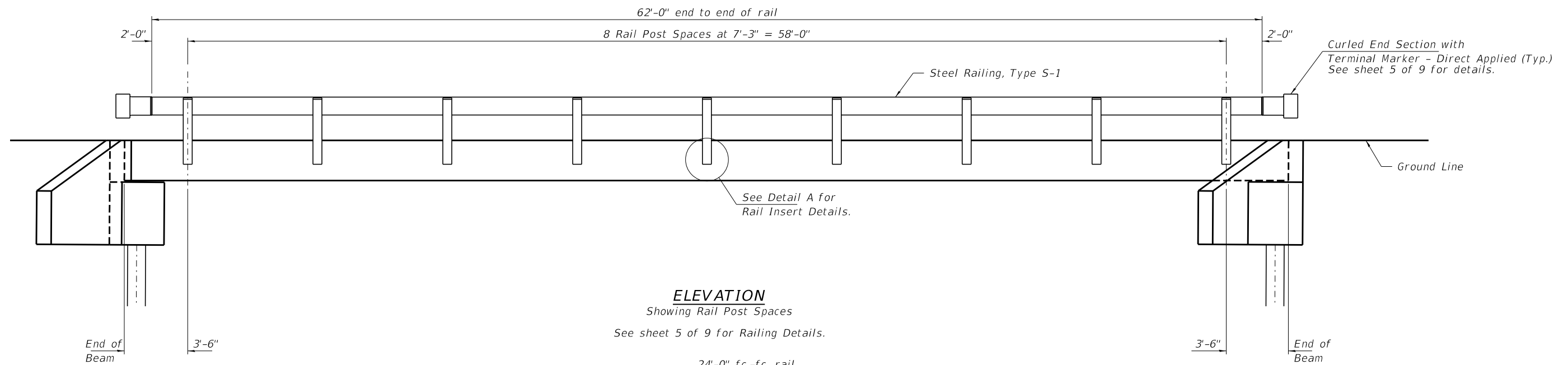
LIFTING LOOP DETAIL

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (27" depth)	Sq. Ft.	1,560
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PDD-2748-L 1-1-2020

FILE NAME = 180610-shl-bridge.dgn	USER NAME = rmosick	DESIGNED - J.R.B.	REVISIONS -	STATE OF ILLINOIS UNION COUNTY HIGHWAY DEPARTMENT	27" x 48" PPC DECK BEAM DETAILS STRUCTURE NO. 091-3248	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
HAMPTON, LENZINI AND RENWICK, INC. 3035 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000959	PLOT SCALE =	CHECKED - S.W.M.	REVISIONS -			164	10-06129-00-BR	UNION	25	7
	PLOT DATE = 5/4/2020	DRAWN - M.M.P.	REVISIONS -			COUNTY UNIT ROAD DISTRICT		CONTRACT NO. 99646		
		CHECKED - S.W.M.	REVISIONS -			ILLINOIS		FED. AID PROJECT KTV2(308)		



Notes:
The bearing seat surfaces shall be adjusted by shimming the bearing to assure firm and even bearing prior to placement of grout. 2-1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shown shall be provided for each bearing.

FILE NAME = 180610-shl-bridge.dgn	USER NAME = rmosck	DESIGNED - J.R.B.	REVISED - 09/20/18 S.W.M.
HAMPTON, LENZINI AND RENWICK, INC. 3035 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000959	PLOT SCALE =	CHECKED - S.W.M.	REVISED -
	PLOT DATE = 5/4/2020	DRAWN - M.M.P.	REVISED -
		CHECKED - S.W.M.	REVISED -

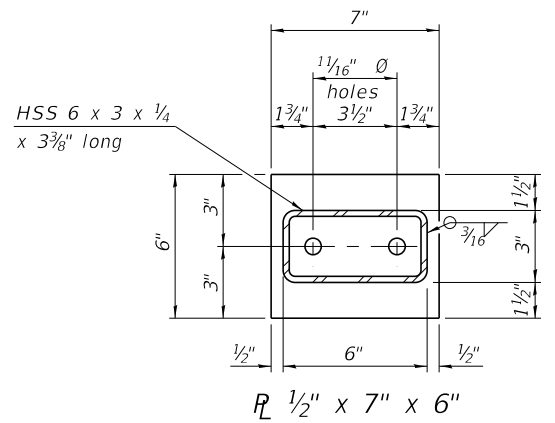
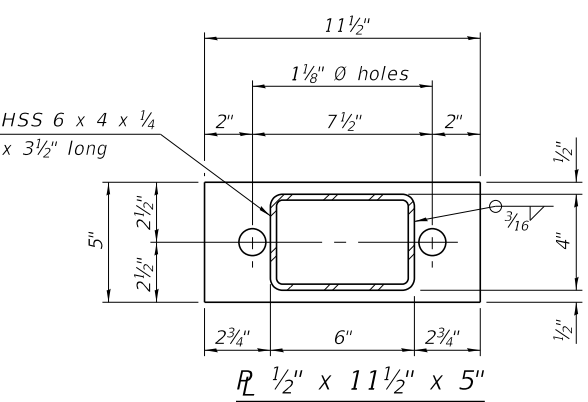
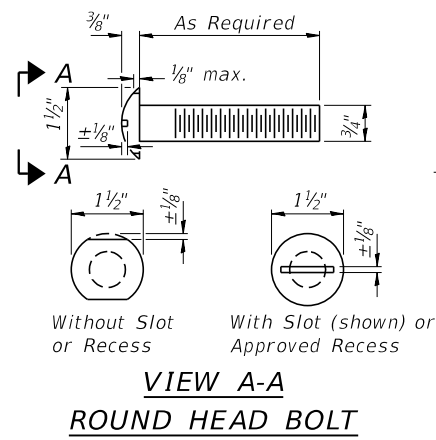
STATE OF ILLINOIS
UNION COUNTY HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS
STRUCTURE NO. 091-3248

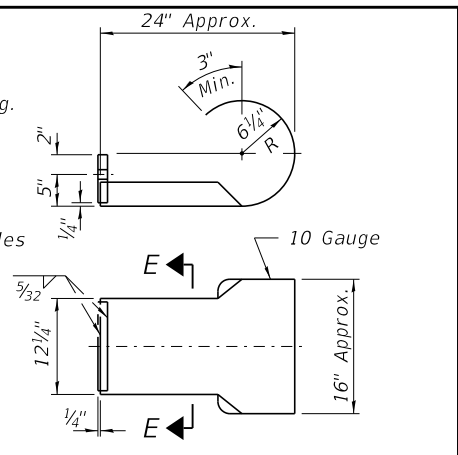
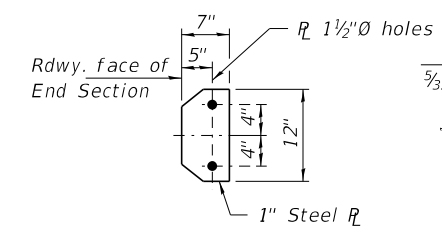
SHEET NO. 4 OF 9 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
164	10-06129-00-BR	UNION	25	8
COUNTY UNIT ROAD DISTRICT		CONTRACT NO. 99646		

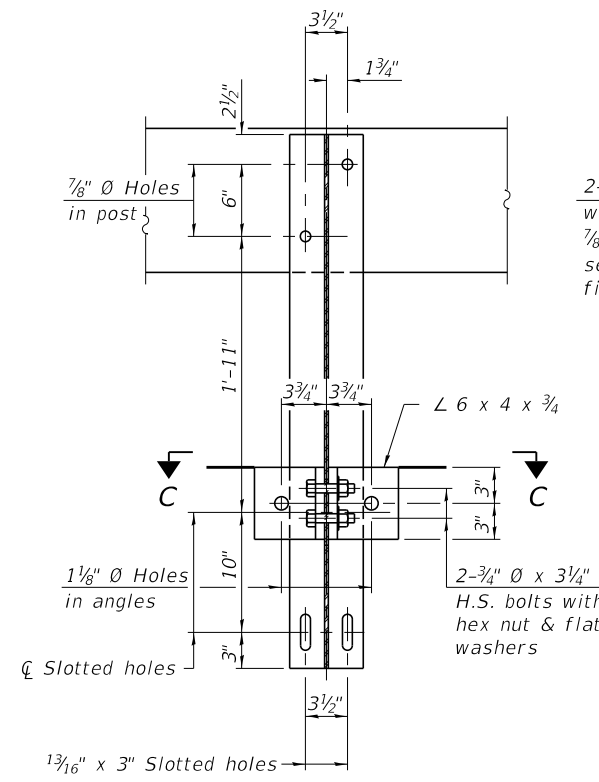
ILLINOIS FED. AID PROJECT KTY2(308)



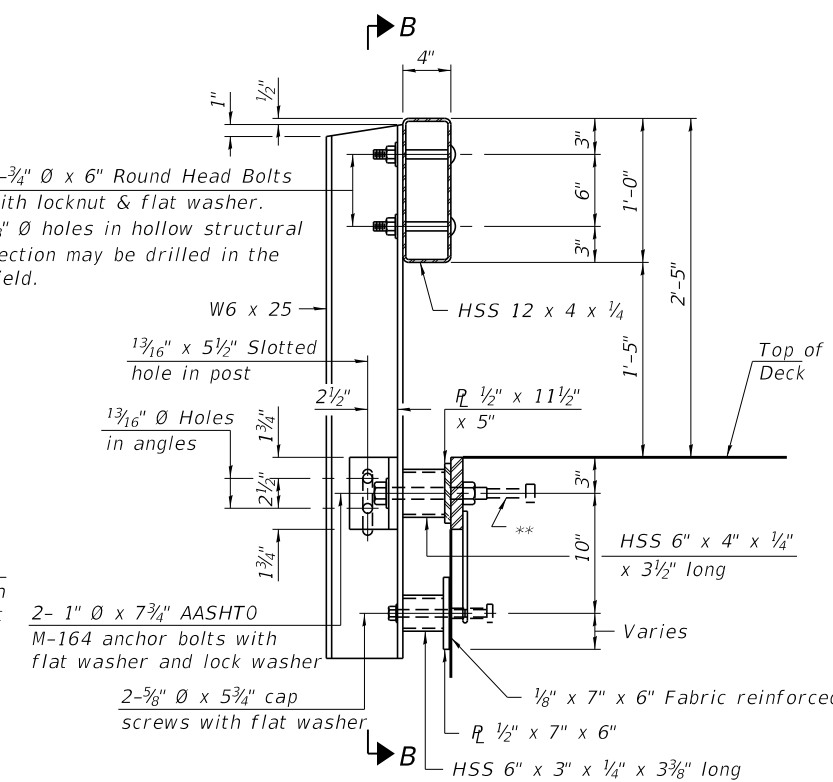
Note: Cost of curled end sections shall be included with the Steel Railing. (4 Required)



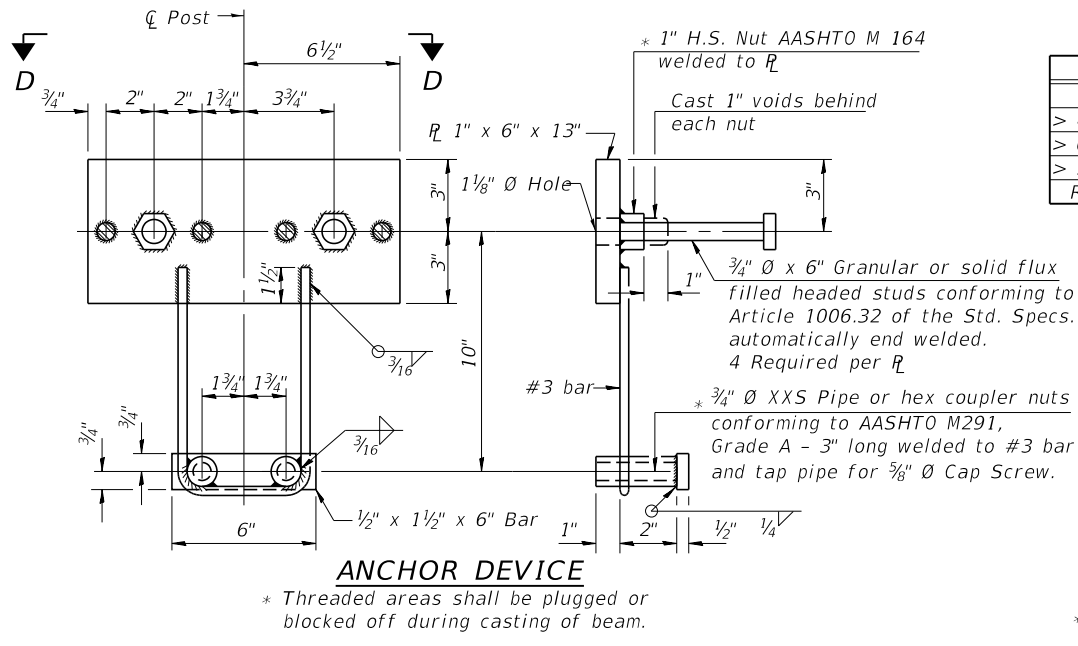
SECTION E-E CURLED END SECTION DETAILS



SECTION B-B



SECTION AT RAILING POST



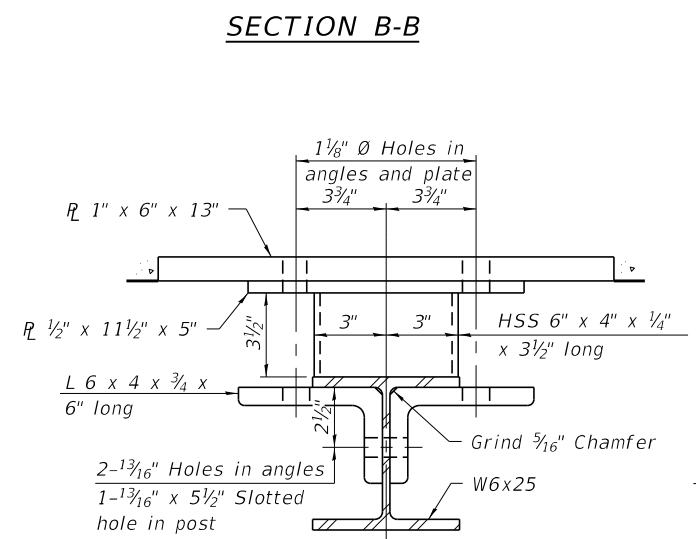
ANCHOR DEVICE

SPLICE DIMENSIONS

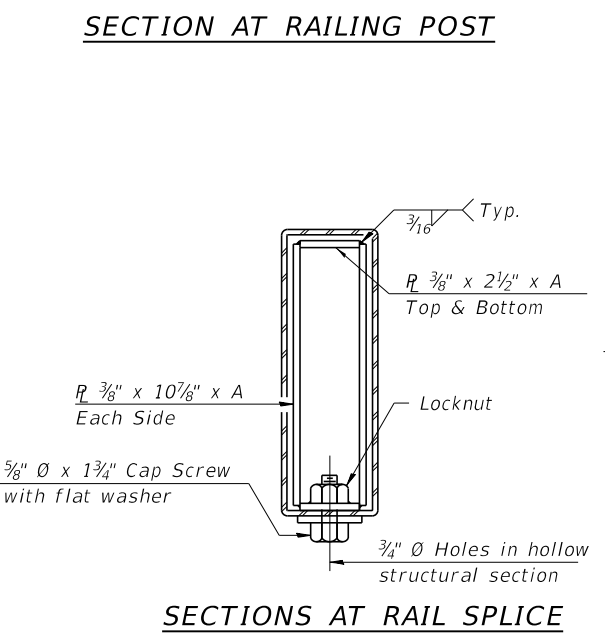
T	D	A	B	C	E
≤ 4"	2 1/2"	1'-8"	2"	4"	2 1/2"
> 4" ≤ 6 1/2"	3 3/4"	2'-0"	2 1/2"	5 1/2"	3 1/2"
> 6 1/2" ≤ 9"	5"	2'-4"	3 1/2"	6 1/2"	9"
> 9" ≤ 13"	7"	2'-10"	4 1/2"	8 1/2"	11"
Rail Splice	1/4"	1'-8"	2"	4"	—

T = Total movement at expansion joint as shown on the design plans.

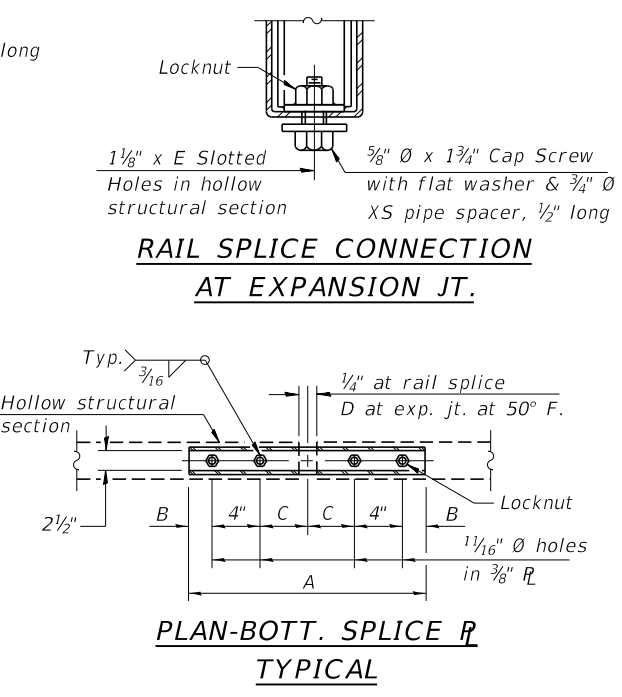
Notes:
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Provided with Steel Railing, Type S-1.
All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.



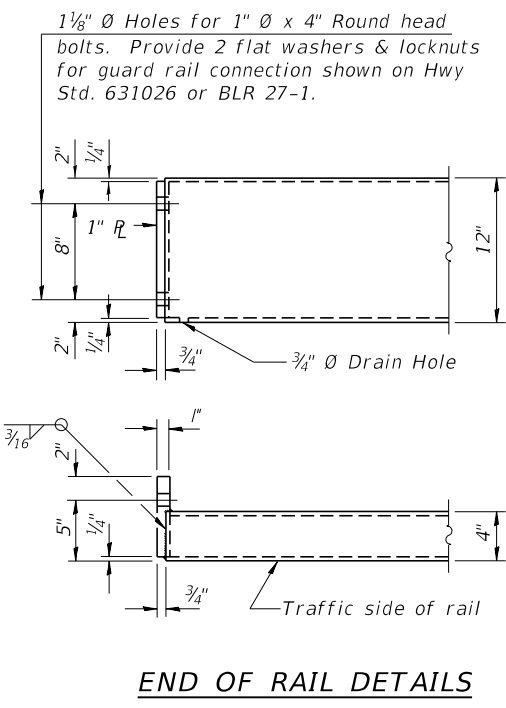
SECTION C-C



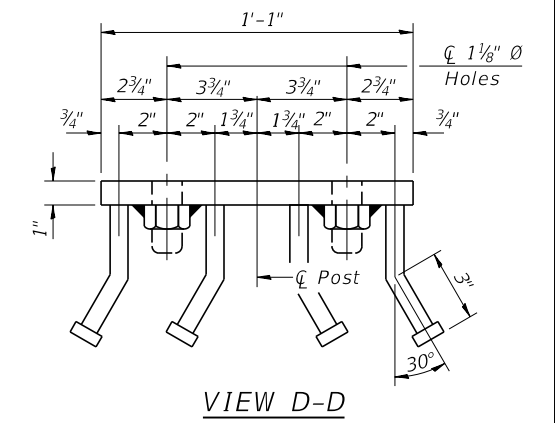
SECTIONS AT RAIL SPLICE



PLAN-BOTT. SPLICE R TYPICAL



END OF RAIL DETAILS



VIEW D-D

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	124

R-23A 2-17-2017 (10'-9" Maximum Post Spacing)

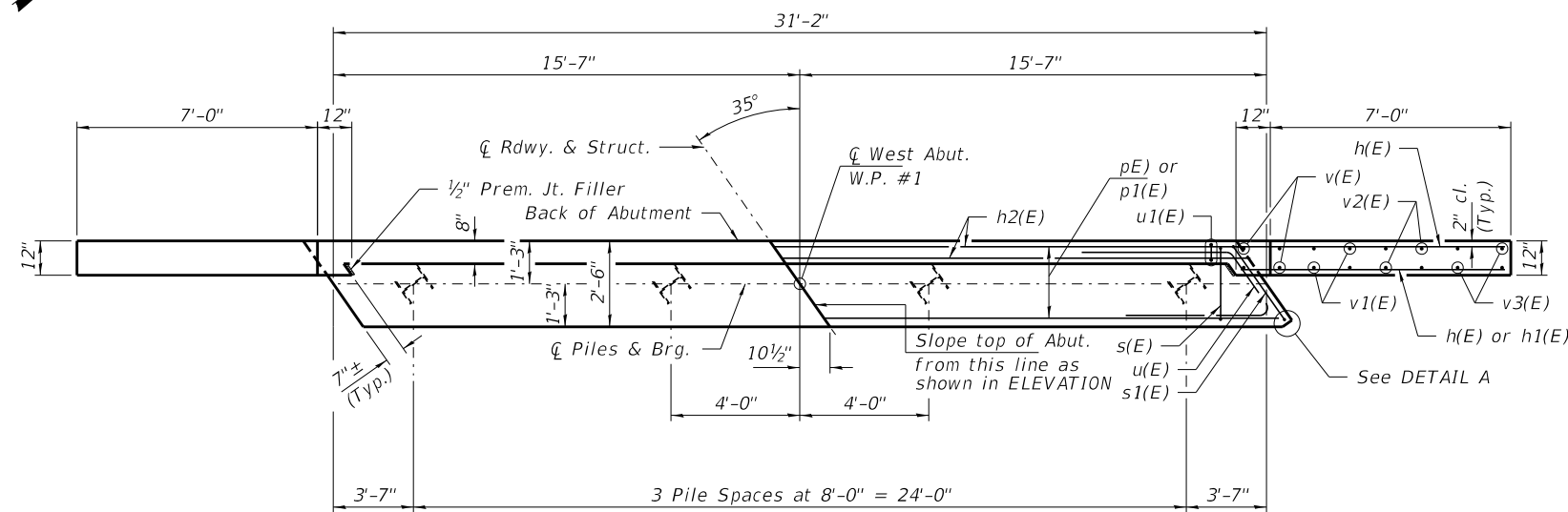
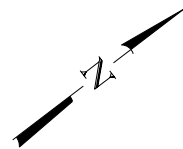
FILE NAME = 180610-shil-bridge.dgn	USER NAME = rmosck	DESIGNED - J.R.B.	REVISED -
HAMPTON, LENZINI AND RENWICK, INC.		CHECKED - S.W.M.	REVISED -
3035 STEVENSON DRIVE, SUITE 201		DRAWN - M.M.P.	REVISED -
SPRINGFIELD, ILLINOIS 62703		CHECKED - S.W.M.	REVISED -
ILLINOIS PROFESSIONAL DESIGN FIRM			
LS / PE / SE CORP. 184.00959			

STATE OF ILLINOIS
UNION COUNTY HIGHWAY DEPARTMENT

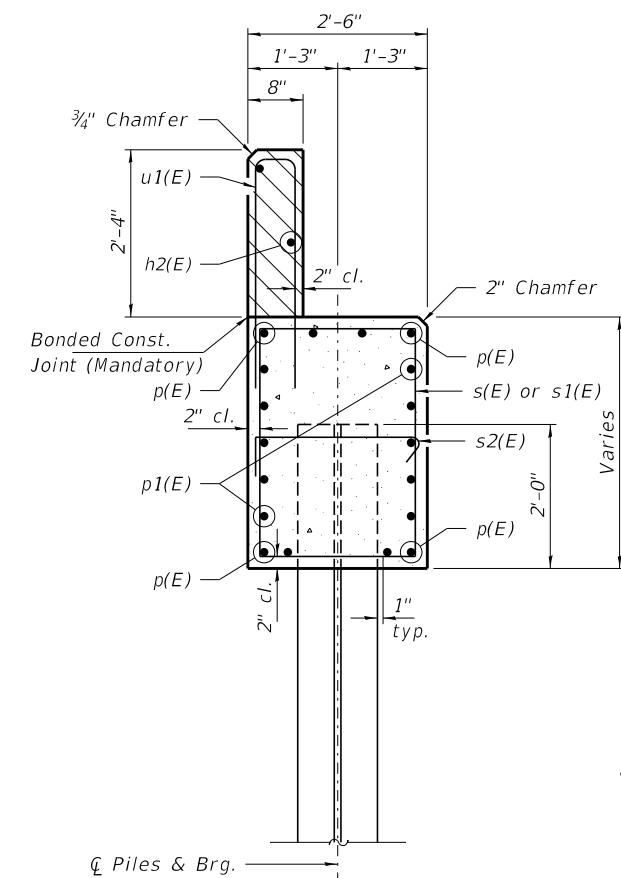
STEEL RAILING, TYPE S-1
STRUCTURE NO. 091-3248

SHEET NO. 5 OF 9 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
164	10-06129-00-BR	UNION	25	9
COUNTY UNIT ROAD DISTRICT		CONTRACT NO. 99646		
ILLINOIS FED. AID PROJECT KTY2(308)				

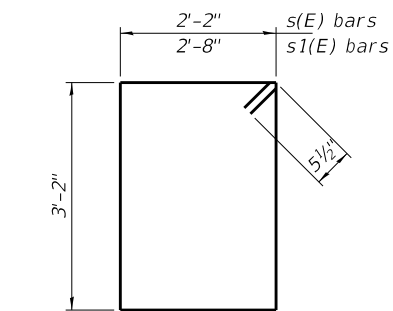


PLAN

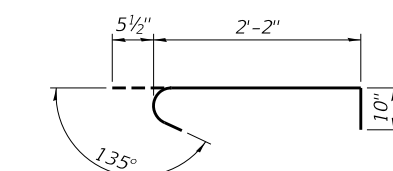


SECTION A-A

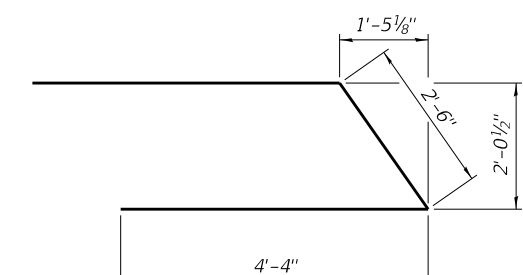
Hatched area to be poured after beams are in place.
Cast top of wingwall flush with exterior beam face after beams have been erected.



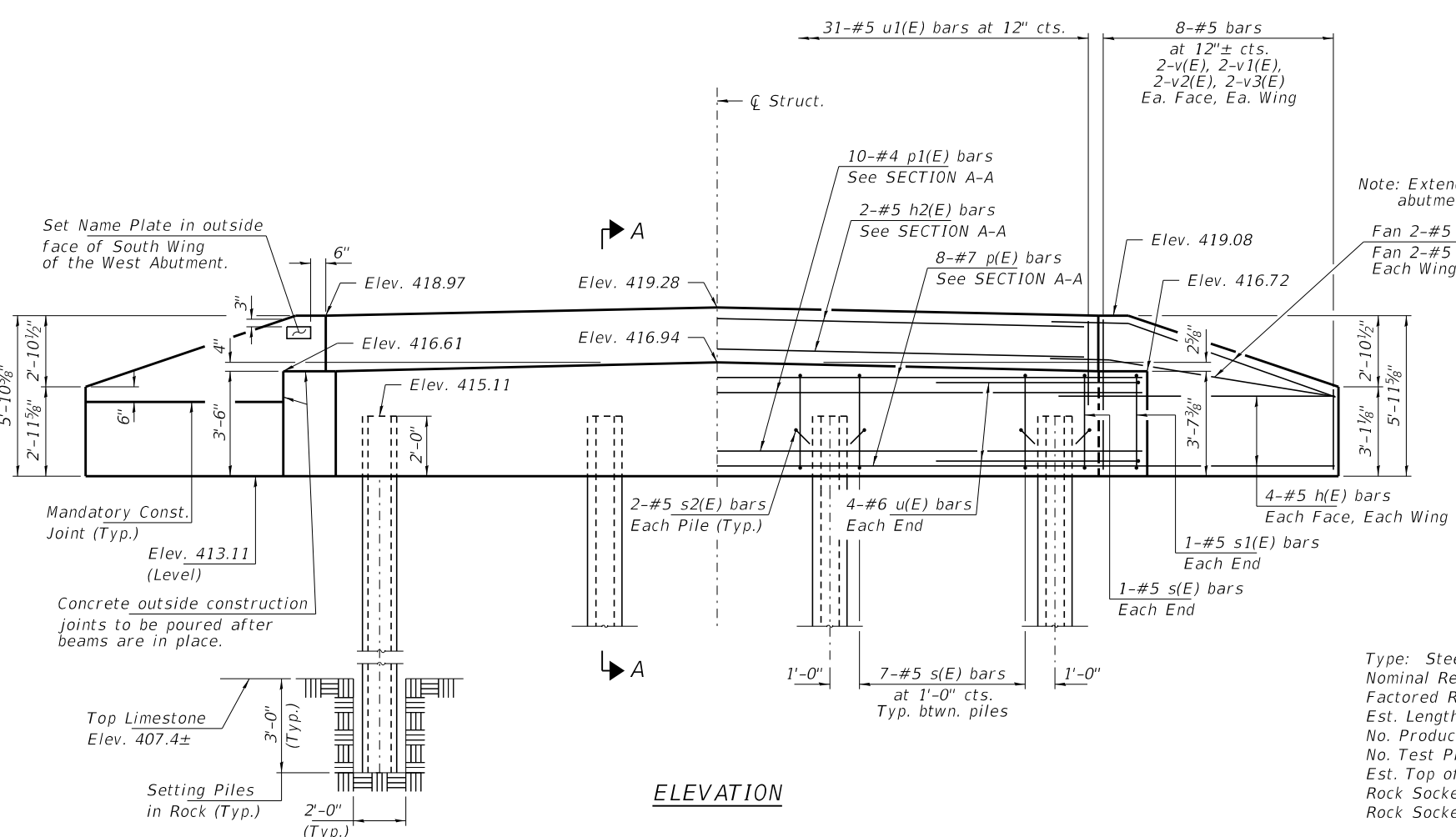
BAR s(E) & s1(E)



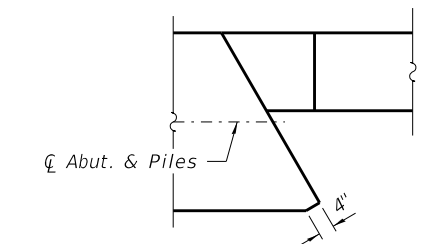
BAR s2(E)



BAR u(E)



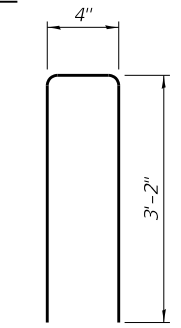
ELEVATION



DETAIL A

PILE DATA

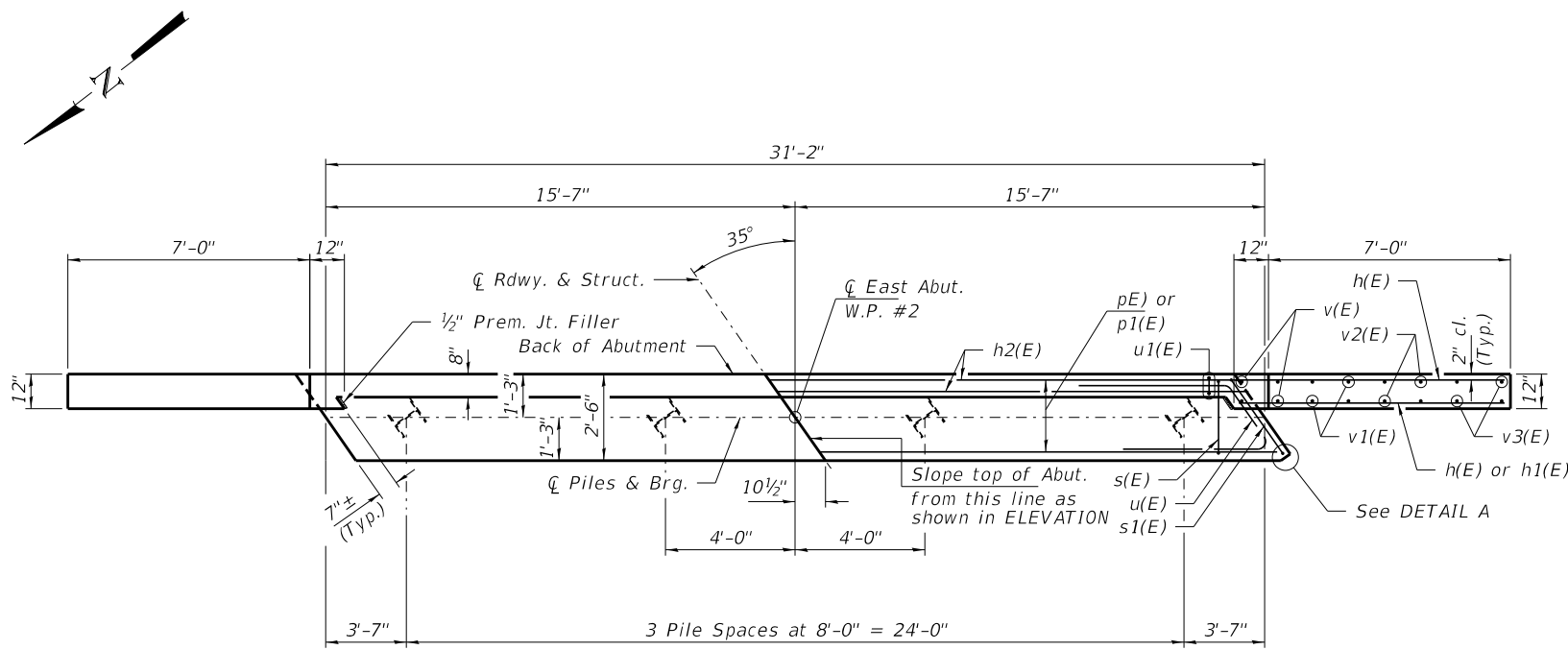
Type: Steel HP10X42
Nominal Required Bearing: Set in Rock
Factored Resistance Available: 184 Kips/pile
Est. Length: 15'
No. Production Piles: 4
No. Test Piles: 0
Est. Top of Rock Elevation: 407.4
Rock Socket Depth: 3.0'
Rock Socket Diameter: 24"



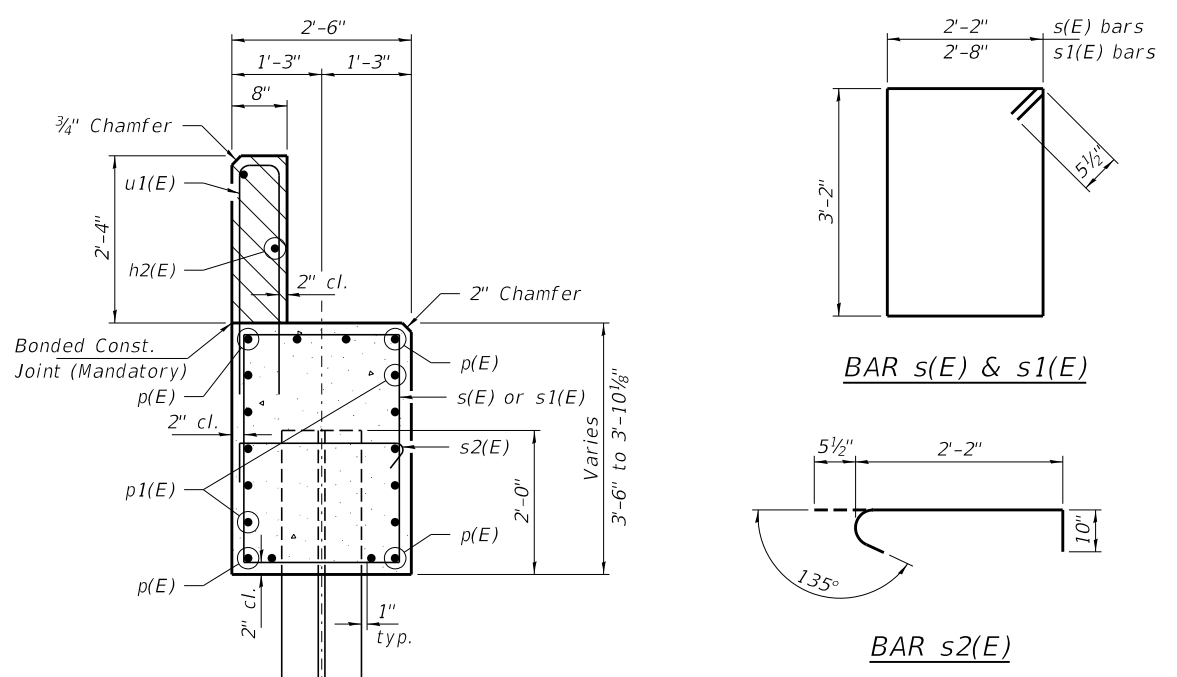
BAR u1(E)

BILL OF MATERIAL - W. ABUT.

BAR	NO.	SIZE	LENGTH	SHAPE
h(E)	20	#5	9'-3"	—
h1(E)	4	#5	7'-9"	—
h2(E)	2	#5	30'-10"	—
p(E)	8	#7	30'-10"	—
p1(E)	10	#4	30'-10"	—
s(E)	23	#5	11'-7"	□
s1(E)	2	#5	12'-7"	□
s2(E)	8	#5	3'-6"	┌
u(E)	8	#6	11'-2"	—
u1(E)	31	#5	6'-8"	—
v(E)	8	#5	5'-5"	—
v1(E)	8	#5	4'-6"	—
v2(E)	8	#5	3'-7"	—
v3(E)	8	#5	2'-8"	—
Concrete Structures			Cu. Yd.	15.0
Reinf. Bars, Epoxy Coated			Pound	1,820
Steel Piles HP10x42			Foot	60
Setting Piles in Rock			Each	4
Name Plates			Each	1

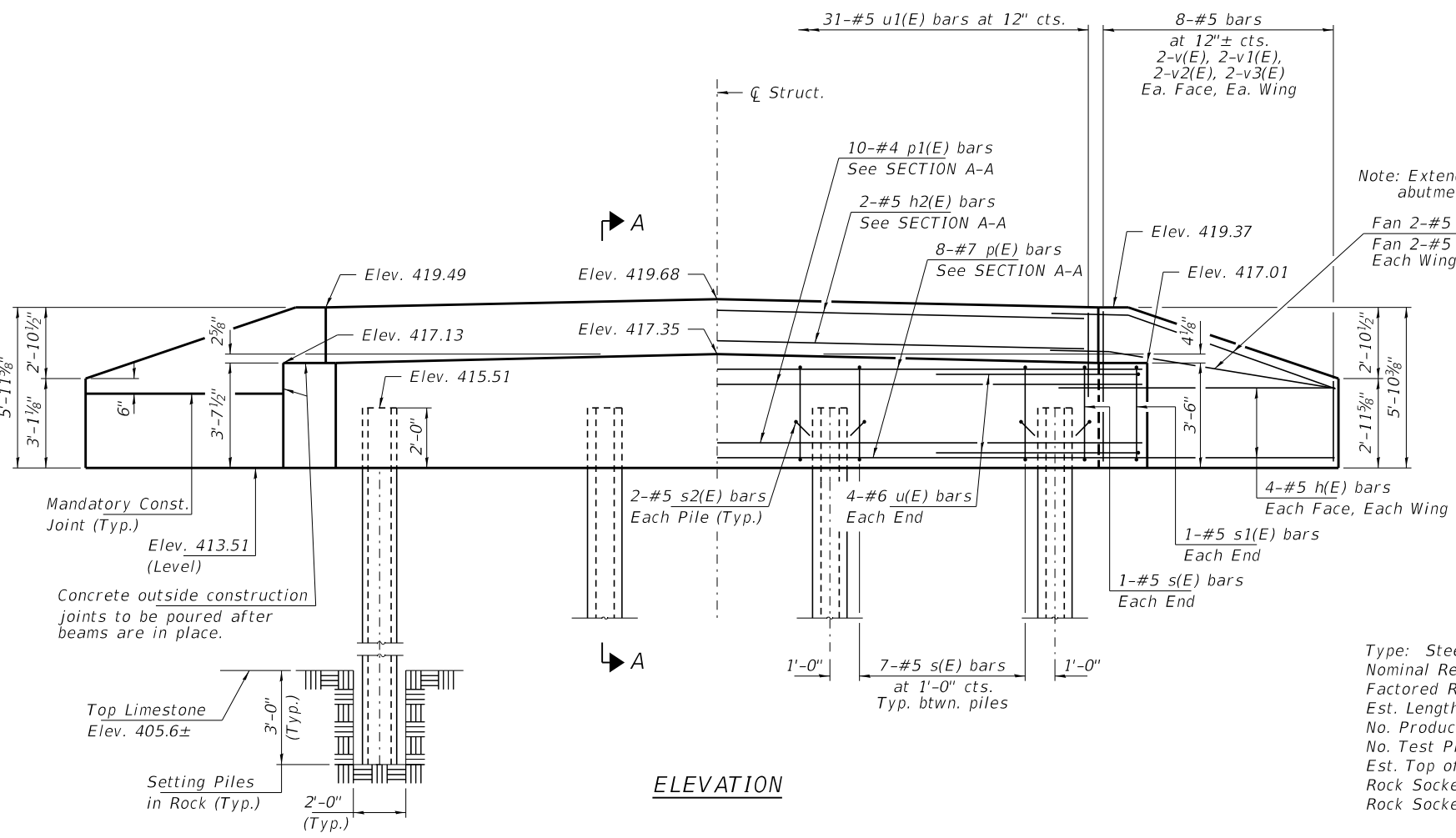


PLAN



SECTION A-A

Hatched area to be poured after beams are in place.
Cast top of wingwall flush with exterior beam face after beams have been erected.



ELEVATION

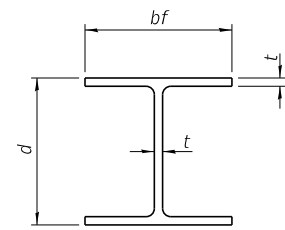
PILE DATA

Type: Steel HP10X42
Nominal Required Bearing: Set in Rock
Factored Resistance Available: 184 Kips/pile
Est. Length: 15'
No. Production Piles: 4
No. Test Piles: 0
Est. Top of Rock Elevation: 405.6
Rock Socket Depth: 3.0'
Rock Socket Diameter: 24"

BAR u1(E)

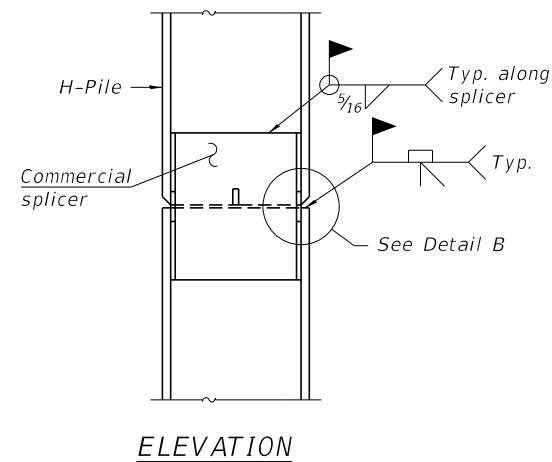
BILL OF MATERIAL - E. ABUT.

BAR	NO.	SIZE	LENGTH	SHAPE
h(E)	20	#5	9'-3"	—
h1(E)	4	#5	7'-9"	—
h2(E)	2	#5	30'-10"	—
p(E)	8	#7	30'-10"	—
p1(E)	10	#4	30'-10"	—
s(E)	23	#5	11'-7"	□
s1(E)	2	#5	12'-7"	□
s2(E)	8	#5	3'-6"	┌
u(E)	8	#6	11'-2"	U
u1(E)	31	#5	6'-8"	U
v(E)	8	#5	5'-5"	—
v1(E)	8	#5	4'-6"	—
v2(E)	8	#5	3'-7"	—
v3(E)	8	#5	2'-8"	—
Concrete Structures			Cu. Yd.	15.0
Reinf. Bars, Epoxy Coated			Pound	1,820
Steel Piles HP10x42			Foot	60
Setting Piles in Rock			Each	4

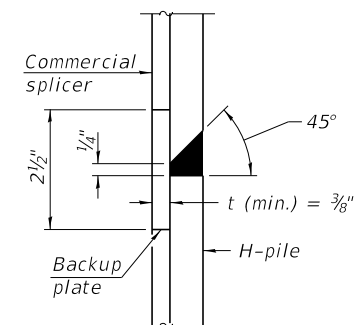


STEEL PILE TABLE

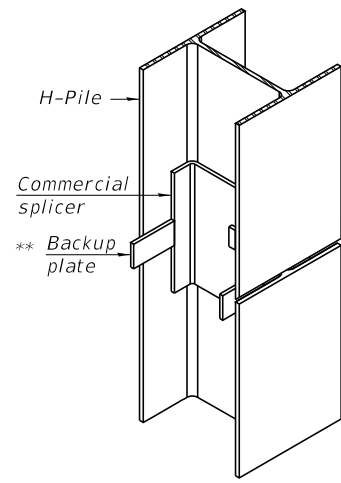
Designation	Depth d	Flange width bf	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	1 3/16"	30"
x102	14"	14 3/4"	1 1/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 3/8"	14 3/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	1 1/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"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

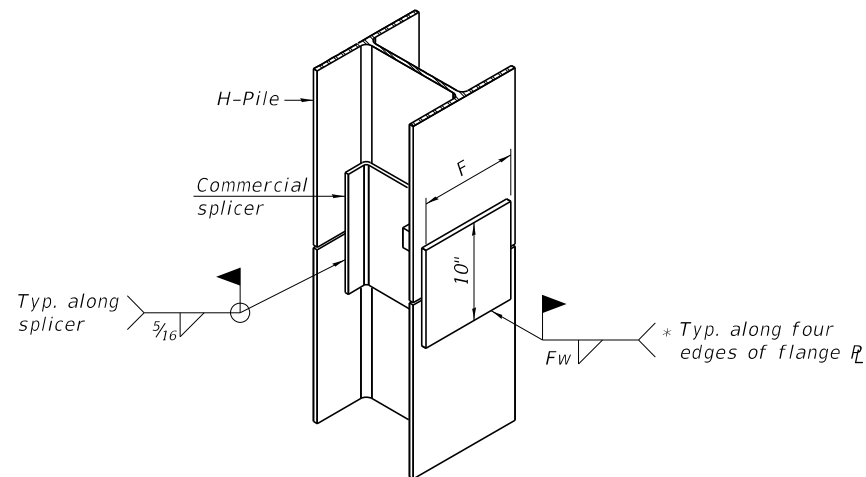


DETAIL "B"



ISOMETRIC VIEW

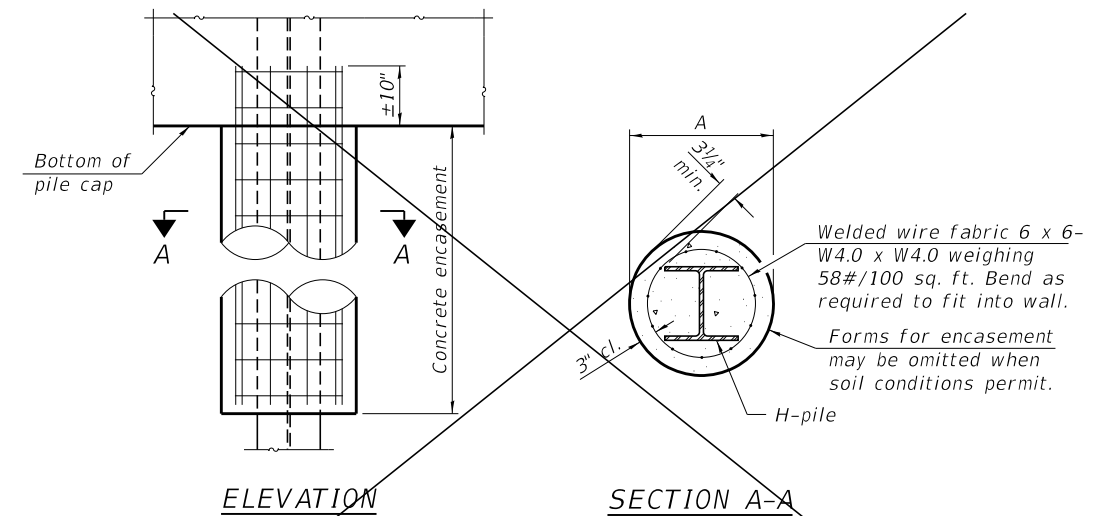
WELDED COMMERCIAL SPLICE



ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE ALTERNATE

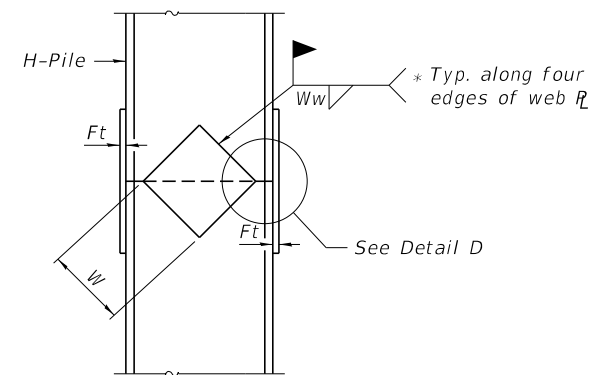
- * Interrupt welds 1/4" from end of web and/or each flange.
- ** Remove portions of backup plates that extend outside the flanges.
- *** Weld size per pile shoe manufacturer (5/16" min.).



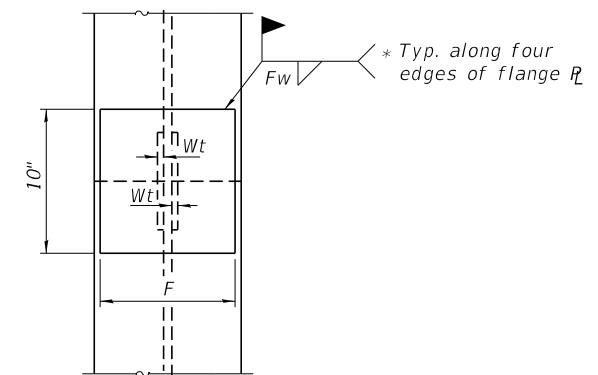
ELEVATION

SECTION A-A

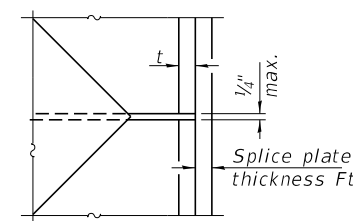
INDIVIDUAL PILE CONCRETE ENCASEMENT - (NOT REQUIRED)



ELEVATION



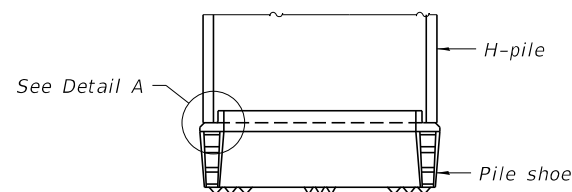
END VIEW



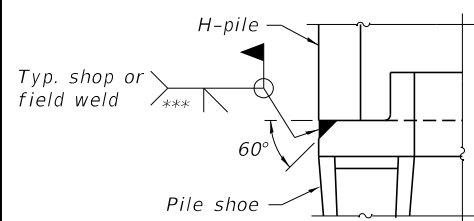
DETAIL D

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

FILE NAME = 180610-shi-brdige.dgn	USER NAME = rmosck	DESIGNED - J.R.B.	REVISED -	STATE OF ILLINOIS UNION COUNTY HIGHWAY DEPARTMENT	HP PILE DETAILS STRUCTURE NO. 091-3248	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
HAMPTON, LENZINI AND RENWICK, INC. 3035 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM L.S./P.E./S.E. CORP. 184.000959	PLOT SCALE =	CHECKED - S.W.M.	REVISED -			164	10-06129-00-BR	UNION	25	12
	PLOT DATE = 5/4/2020	DRAWN - M.M.P.	REVISED -			COUNTY UNIT ROAD DISTRICT		CONTRACT NO. 99646		
		CHECKED - S.W.M.	REVISED -			ILLINOIS		FED. AID PROJECT KTY2(308)		

HOLCOMB FOUNDATION ENGINEERING INC.
 393 Wood Road 618-529-5262
 Carbondale, IL 62901 618-457-8991 fax

Bridge Foundation Boring Log

Project: H-18184 Bridge Nash Road over Big Creek Date: 8/23/2018
 Section: 17-01209-00-BR Station _____
 Structure: 091-3184 Bored by: J. Carter
 County: Union Checked By: T. Holcomb

Boring No: <u>1</u>	Elevation	N	Qu	tsf	Surface Water Elev. _____	Elevation	N	Qu	tsf
Station: _____					Ground Water Elev. _____				
Offset: _____					During Drilling <u>91.5</u>				
					Upon Completion <u>97.0</u>				

Ground Surface	417.65	100.0							
15" Crushed Stone									
Gray Mottled Brown Silty CLAY (A-6)	415.65	98.0	24	1.6S	19				
Gray Sandstone/Limestone Boulder						-25			
	414.15	96.5							
Brown Mottled Gray Silty CLAY w/ Limestone Lense (A-6)			10	--	14				
			7	--	--				
						-30			
	409.15	91.5							
Gray Sandy SILT (A-4)			2	0.4B	29				
	406.65	89.0							
Brown SANDSTONE	405.65	88.0	100	--	16				
Gray LIMESTONE						-35			
Rock Core 100% Recovery 98% RQD						-15			
	400.65	83.0							
End of Boring @ -17.0'						-40			
						-20			

N = Standard Penetration Test Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with a 140 lbs. hammer falling 30"
 Qu-Unconfined Compressive Strength in tons/sq.ft.
 w-Water Content-percentage of oven dry weight-%
 B = Bulge Failure
 S = Shear Failure
 E = Estimated Value
 P = Penetrometer

BORING 1

HOLCOMB FOUNDATION ENGINEERING INC.
 393 Wood Road 618-529-5262
 Carbondale, IL 62901 618-457-8991 fax

Bridge Foundation Boring Log

Project: H-18184 Bridge Nash Road over Big Creek Date: 8/23/2018
 Section: 17-01209-00-BR Station _____
 Structure: 091-3184 Bored by: J. Carter
 County: Union Checked By: T. Holcomb

Boring No: <u>2</u>	Elevation	N	Qu	tsf	Surface Water Elev. _____	Elevation	N	Qu	tsf
Station: _____					Ground Water Elev. _____				
Offset: _____					During Drilling <u>88.5</u>				
					Upon Completion <u>96.0</u>				

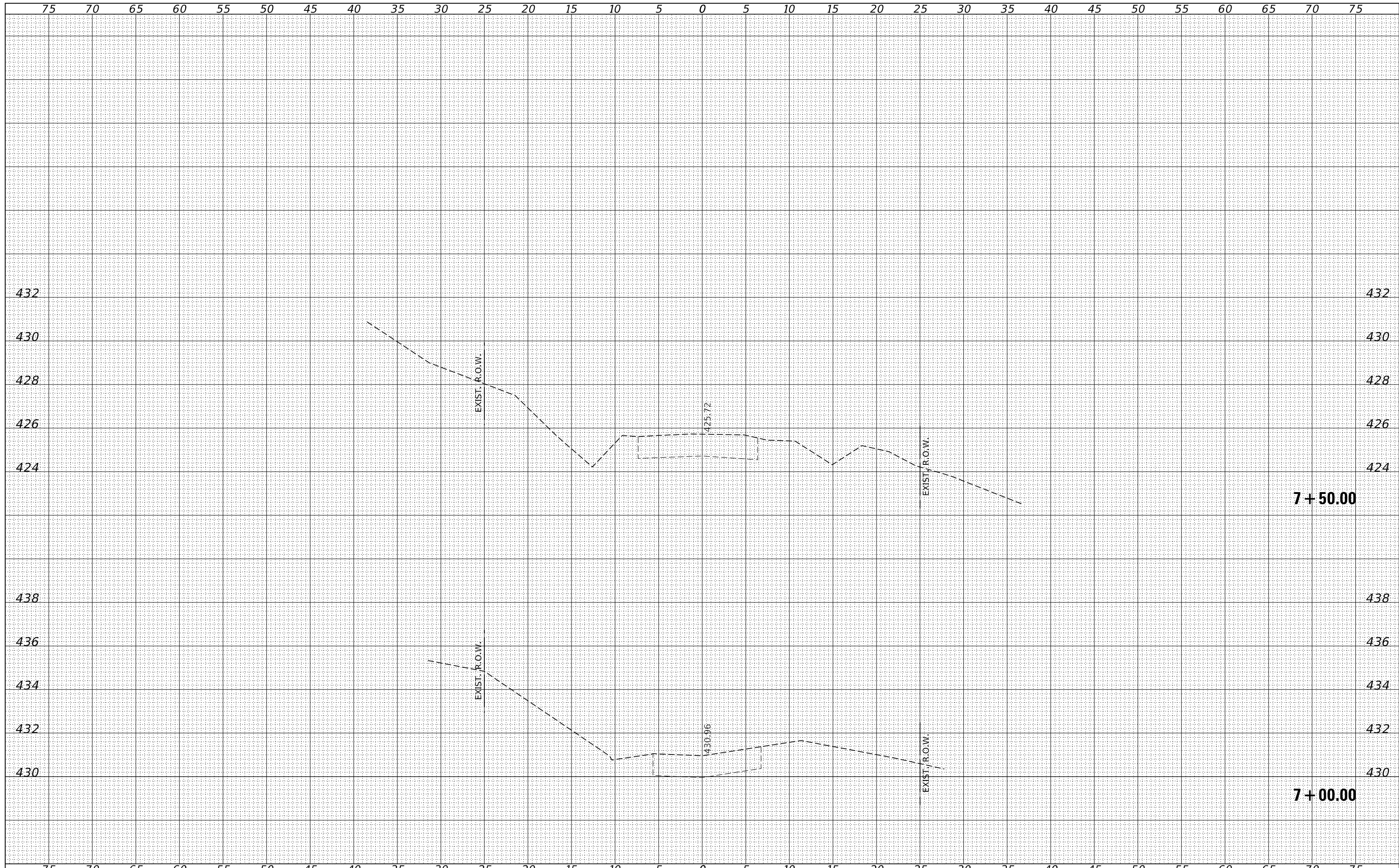
Ground Surface	418.93	100.0							
7" Crushed Stone									
GRAVEL									
			10	--	13				
						-25			
	415.43	96.5							
Brown Silty CLAY (A-6)			11	2.4S	18				
			5	0.6S	22				
						-30			
	410.43	91.5							
Brown Sandy CLAY (A-6)			2	0.6B	24				
	407.93	89.0							
Brown Silty CLAY w/ gravel (A-6)	407.43	88.5	100	--	14				
Gray LIMESTONE						-35			
Rock Core 100% Recovery 63% RQD						-15			
	401.93	83.0							
End of Boring @ -17.0'						-40			
						-20			

N = Standard Penetration Test Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with a 140 lbs. hammer falling 30"
 Qu-Unconfined Compressive Strength in tons/sq.ft.
 w-Water Content-percentage of oven dry weight-%
 B = Bulge Failure
 S = Shear Failure
 E = Estimated Value
 P = Penetrometer

BORING 2

BY	DATE
ORIGINAL SURVEY	
NOTED SURVEY	
NO. :	

BY	DATE
ORIGINAL SURVEY	
NOTED SURVEY	
NO. :	



FILE NAME = 180610-shi-xssheets.dgn
HAMPPTON, LENZINI AND RENWICK, INC.
3885 STEVENSON DRIVE, SUITE 201
SPRINGFIELD, ILLINOIS 62703
ILLINOIS PROFESSIONAL DESIGN FIRM
L.S. / P.E. / S.E. CORP. 184.000958

USER NAME = rmosck
DESIGNED - J.W.F.
DRAWN - M.M.P.
CHECKED - J.W.F.
DATE - 04/28/2020
PLOT SCALE = 5/8" = 1' 0"
PLOT DATE = 5/4/2020

REVISD -
REVISD -
REVISD -
REVISD -

STATE OF ILLINOIS
UNION COUNTY HIGHWAY DEPARTMENT

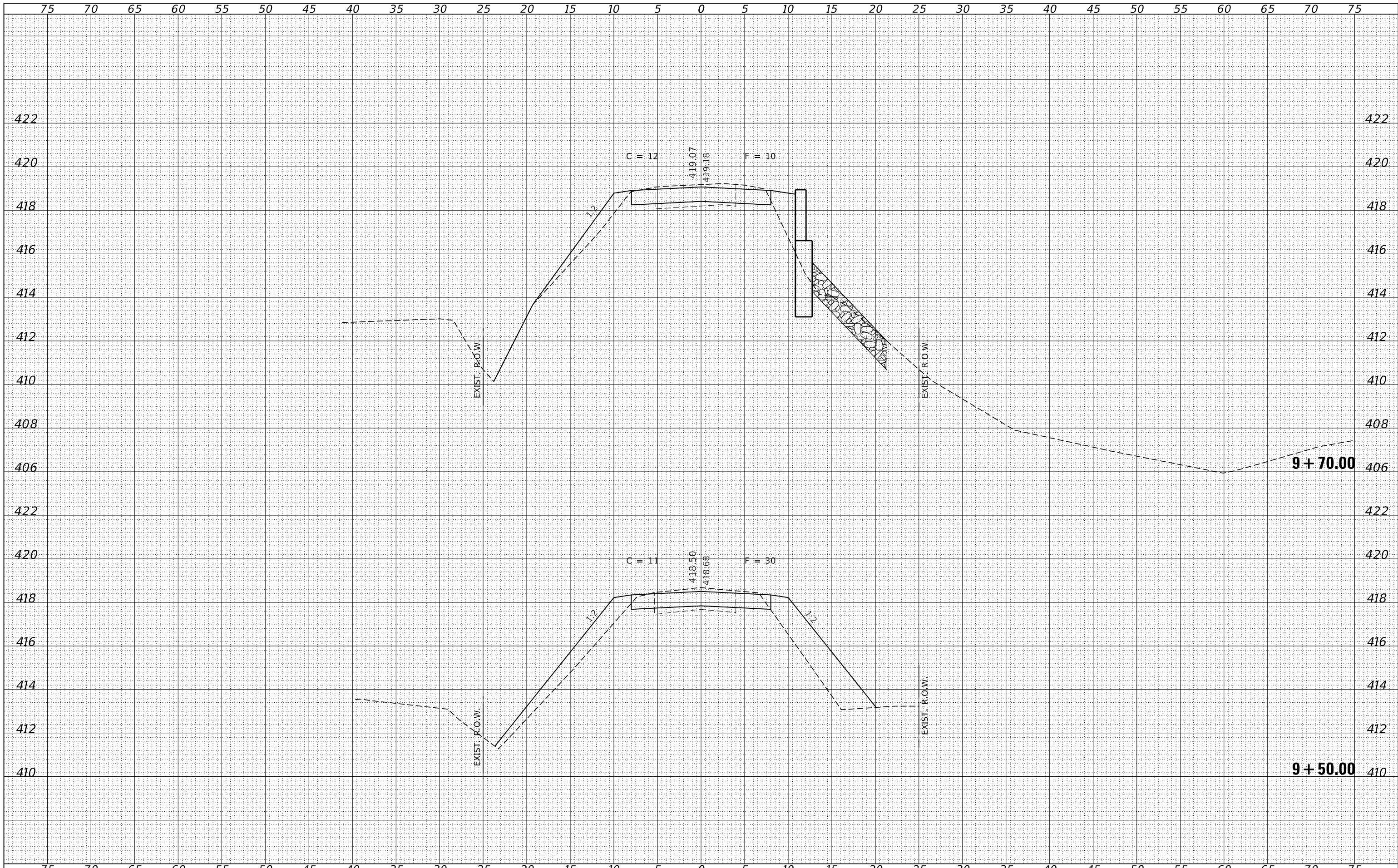
STATION CROSS SECTIONS

SCALE: 5H:2V
SHEET NO. 1 OF 12 SHEETS
STA. 7+00.00 TO STA. 7+50.00

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
164	17-01209-00-BR	UNION	25	14
COUNTY UNIT ROAD DISTRICT			CONTRACT NO. 99646	
ILLINOIS FED. AID PROJECT KT2(308)				

DATE	
BY	
SURVEYED	
PLOTTED	
TEMPLATE	
AREAS	
CHECKED	
FINAL SURVEY	
NOTE BOOK	
NO.	

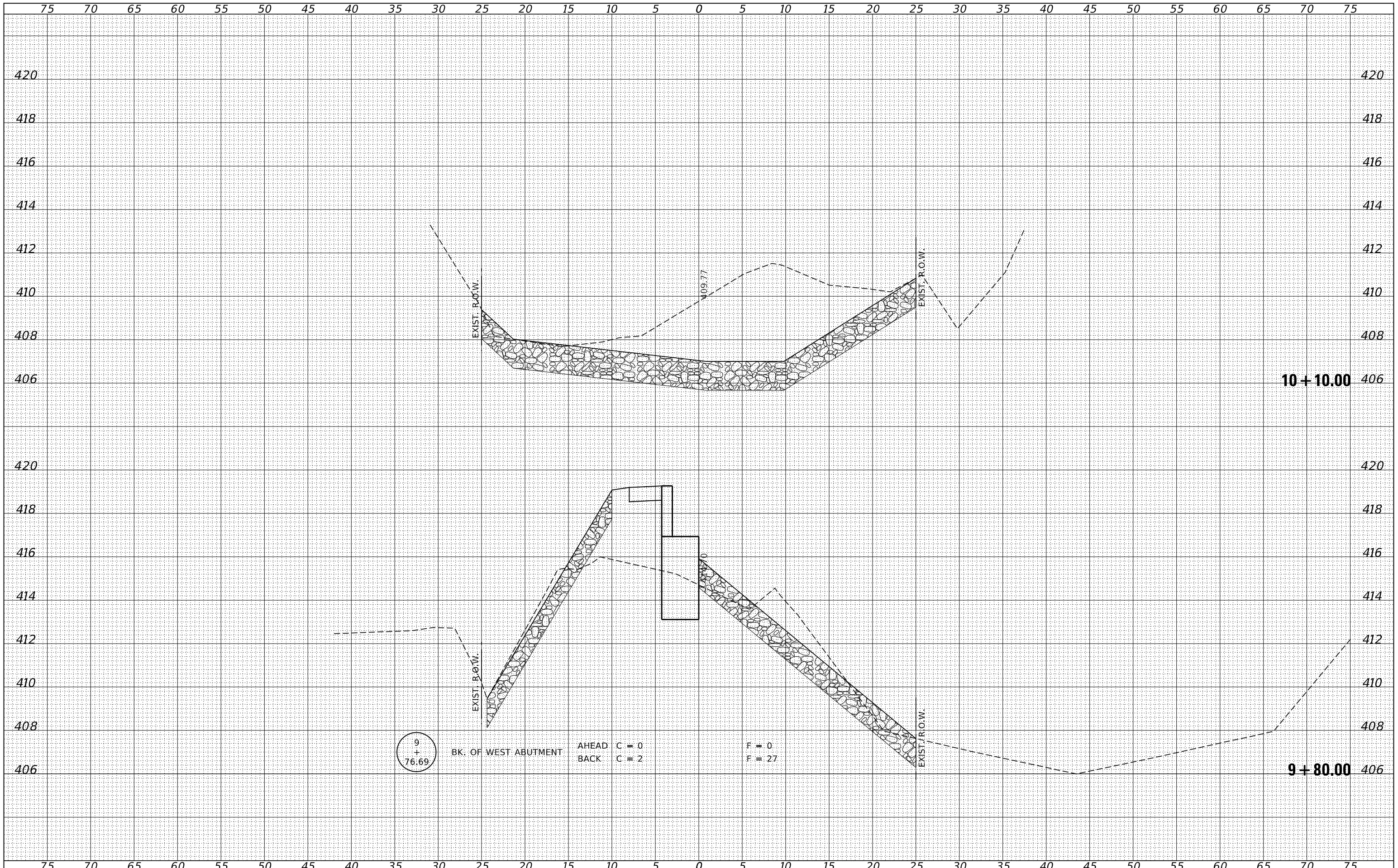
DATE	
BY	
SURVEYED	
PLOTTED	
TEMPLATE	
AREAS	
CHECKED	
ORIGINAL SURVEY	
NOTE BOOK	
NO.	



FILE NAME = 180610-sh1-xssheets.dgn	USER NAME = rmosck	DESIGNED - J.W.F.	REVISD -	STATE OF ILLINOIS UNION COUNTY HIGHWAY DEPARTMENT	STATION CROSS SECTIONS			T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
HAMPTON, LENZINI AND RENWICK, INC. 3885 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.009958	PLOT SCALE = \$SCALE\$	DRAWN - M.M.P.	REVISD -		164	17-01209-00-BR	UNION	25	17			
PLOT DATE = 5/4/2020	CHECKED - J.W.F.	REVISD -	SCALE: 5H:2V		SHEET NO. 4	OF 12 SHEETS	STA. 9+50.00	TO STA. 9+70.00	ILLINOIS FED. AID PROJECT KT2(308)			
DATE - 04/28/2020	REVISD -	CONTRACT NO. 99646										

BY	DATE

ORIGINAL SURVEY	SURVEYED	DATE
NOTE BOOK	PLOTTED	
	TEMPLATE	
	AREAS	
	CHECKED	



FILE NAME = 180610-shl-xssheets.dgn	USER NAME = rmosck	DESIGNED - J.W.F.	REVISED -	<p align="center">STATE OF ILLINOIS UNION COUNTY HIGHWAY DEPARTMENT</p> <p align="center">STATION CROSS SECTIONS</p>	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
HAMPTON, LENZINI AND RENWICK, INC.		DRAWN - M.M.P.	REVISED -		164	17-01209-00-BR	UNION	25	19
3885 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM L/S / PE / SE CORP. 184-000958		CHECKED - J.W.F.	REVISED -		COUNTY UNIT ROAD DISTRICT		CONTRACT NO. 99646		
PLOT SCALE = \$\$CALES	PLOT DATE = 5/4/2020	DATE - 04/28/2020	REVISED -		SCALE: 5H:2V	SHEET NO. 6 OF 12 SHEETS	STA. 9+80.00	TO STA. 10+10.00	ILLINOIS FED. AID PROJECT KTV2(308)

DATE	
BY	
SURVEYED	
PLOTTED	
TEMPLATE	
AREAS	
CHECKED	
NO.	

DATE	
BY	
SURVEYED	
PLOTTED	
TEMPLATE	
AREAS	
CHECKED	
NO.	

