

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 97	16-09101-05-BR	LIVINGSTON	23	1
FED. ROAD DIST. NO.		ILLINOIS	CONTRACT NO. 87694	

**INDEX OF SHEETS**

SHEET NO.	DESCRIPTION
1.	COVER SHEET
2.	SUMMARY OF QUANTITIES AND GENERAL NOTES
3.	TYPICAL CROSS SECTIONS
4.	PLAN AND PROFILE
5-11.	BRIDGE PLANS
12-13.	BORINGS
14-23.	STATION CROSS SECTIONS

HIGHWAY STANDARDS:

000001-07	STANDARD SYMBOLS, ABBREVIATIONS, AND PATTERNS
280001-07	TEMPORARY EROSION CONTROL SYSTEMS
515001-03	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 – BRIDGE**

**PROJECT EIIZ(942)  
SECTION 16-09101-05-BR  
ESMEN ROAD DISTRICT  
LIVINGSTON COUNTY  
T.R. 97 / 2200 N. ROAD  
PEARSON BRIDGE  
PROPOSED STRUCTURE NO. 053-4222  
C-93-009-19**



LOCATION OF SECTION INDICATED THIS: -

**UTILITIES**

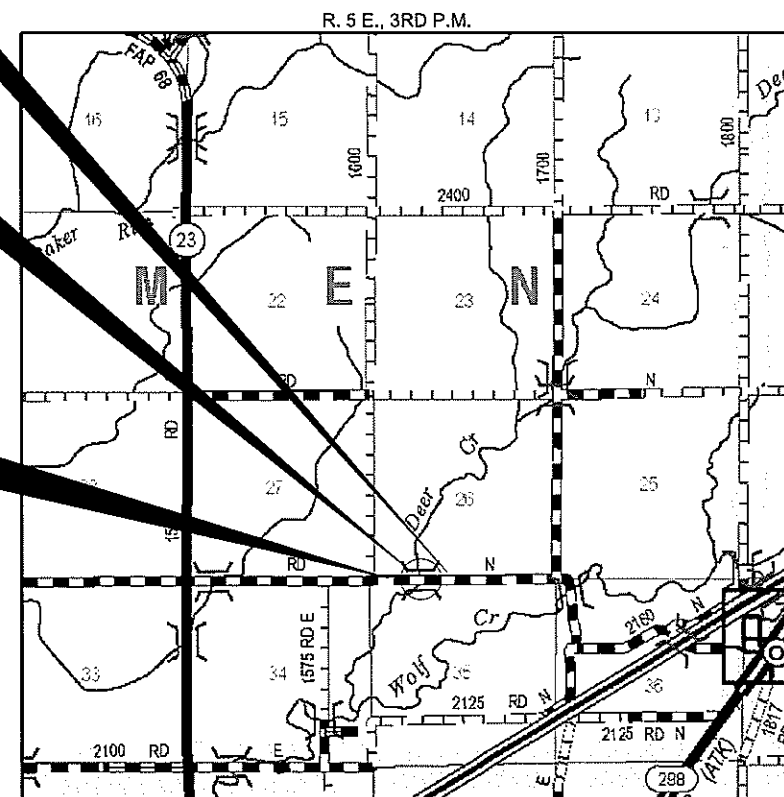
COMMONWEALTH EDISON  
1910 S. BRIGGS STREET  
JOLIET, IL 60433

FRONTIER COMMUNICATIONS  
109 E. MARKET STREET, 2ND FLOOR  
BLOOMINGTON, IL 61701

STA. 10+04  
PRECAST PRESTRESSED CONCRETE DECK  
BEAM BRIDGE, SINGLE SPAN @ 60'-0"  
27'-0" RDWY.; SKEW = 0°  
EXISTING STRUCTURE NO. 053-3216  
PROPOSED STRUCTURE NO. 053-4222

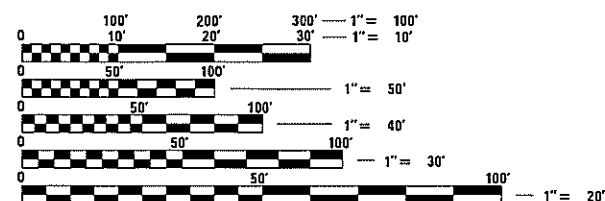
IMPROVEMENT ENDS  
STATION 11+80

IMPROVEMENT BEGINS  
STATION 5+75



LOCATION MAP

APPROXIMATE SCALE: 0 1/2 MILE  
NET LENGTH OF SECTION = 605 FEET = 0.114 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: 30 MPH  
DESIGN TRAFFIC: 125 ADT



**WARNING**

**CALL 811  
BEFORE YOU DIG**

**DIG NO: A1321332**

**ILLINOIS DEPARTMENT OF TRANSPORTATION**

APPROVED 12/4 2018  
*Clay Metzger*  
COUNTY ENGINEER

APPROVED 12/3 2018  
*Bruce Klehm*  
TOWNSHIP COMMISSIONER

PASSED 12/10 2018  
*David BEO*  
DISTRICT THREE ENGINEER OF  
LOCAL ROADS & STREETS  
12/10 2018  
*Brian Yankuba*  
REGION TWO ENGINEER

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

DATE: 11/27/2017

EXPIRES: 11/30/2019

**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

**HLR**

184.00959  
ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORPORATION

PROJECT NUMBER: 17,0166,130 DATE: 11/27/18

**SUMMARY OF QUANTITIES**

CODE NO.	ITEM	CONSTRUCTION TYPE CODE 0010	
		UNIT	TOTAL
20200100	EARTH EXCAVATION	CU YD	527
20300100	CHANNEL EXCAVATION	CU YD	135
28100107	STONE RIPRAP, CLASS A4	SQ YD	270
28200200	FILTER FABRIC	SQ YD	270
35100100	AGGREGATE BASE COURSE, TYPE A	TON	963
40600275	BITUMINOUS MATERIALS (PRIME COAT)	POUND	2,515
40600290	BITUMINOUS MATERIALS (TACK COAT)	POUND	496
40603080	HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50	TON	158
40603310	HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N50	TON	93
48101200	AGGREGATE SHOULDERS, TYPE B	TON	119
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50300225	CONCRETE STRUCTURES	CU YD	23.4
50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ FT	1,620
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	2,900
* 50900205	STEEL RAILING, TYPE S1	FOOT	116
51200957	FURNISHING METAL SHELL PILES 12" X 0.250"	FOOT	405
51202305	DRIVING PILES	FOOT	405
51203200	TEST PILE METAL SHELLS	EACH	1
51500100	NAME PLATES	EACH	1
542D0223	PIPE CULVERTS, CLASS D, TYPE 1 18"	FOOT	130
67100100	MOBILIZATION	L.SUM	1
* 72501000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
X2070302	POROUS GRANULAR EMBANKMENT, SPECIAL	TON	100
X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.3
Z0046304	PIPE UNDERDRAINS FOR STRUCTURES 4"	FOOT	110

SEE SPECIAL PROVISIONS

\* SPECIALTY ITEMS

**EARTHWORK SCHEDULE**

LOCATION	EARTH EXCAVATION	CHANNEL EXCAVATION	SHRINKAGE FACTOR	PERCENT USED	EXCAVATION ADJUSTED FOR SHRINKAGE	EMBANKMENT REQUIRED	EARTHWORK BALANCE
	CU.YD.	CU.YD.			CU.YD.	CU.YD.	CU.YD.
TR 97							
STA. 8+00 TO STA. 9+73.33	417		25.00%	100.00%	313	136	177
STA. 9+73.33 TO STA. 10+34.67		135	25.00%	70.00%	71	12	59
STA. 10+34.67 TO STA. 11+80	110		25.00%	100.00%	82	72	10
ENTRANCES						84	-84
TOTAL	527	135			466	304	162
USE	530	135					162

WASTE 162 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 "SUPPLEMENTAL SPECIFICATIONS AND RECURRING SPECIAL PROVISIONS" ADOPTED JANUARY 1, 2019; 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, GRUBBING, FENCE REMOVAL, PAVEMENT REMOVAL, AND REMOVAL OF EXISTING DRAINAGE STRUCTURES SHALL BE INCLUDED IN THE COST OF EARTH EXCAVATION. ALL BITUMINOUS MATERIAL SHALL BE REMOVED AND PROPERLY DISPOSED OF BY THE CONTRACTOR IN A METHOD APPROVED BY THE ENGINEER. REMOVAL AND 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.
- ANY REFERENCE TO HIGHWAY STANDARDS THROUGHOUT THE PLANS OR SPECIAL PROVISIONS SHALL BE INTERPRETED TO BE THE LATEST STANDARD OF THE DEPARTMENT.
- 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 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 BASE COURSE 2.05 TON/CU YD  
 HOT MIX ASPHALT 112 LBS/SQ YD./INCH THICKNESS  
 AGGR SHOULDER, TYPE B 2.0 TON/CU YD

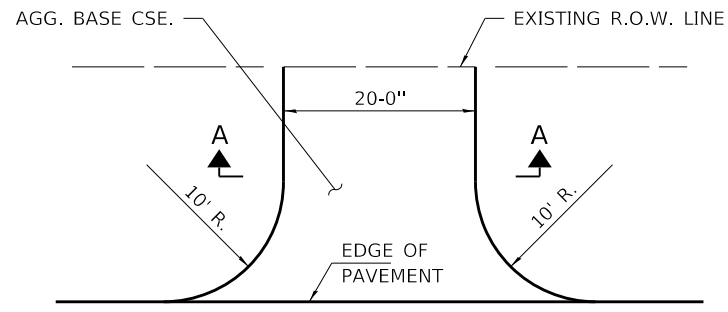
**BITUMINOUS MATERIALS RATES**

SURFACE TYPE	RESIDUAL RATE
AGGREGATE BASE	0.250 LB/SQ FT
MILLED HMA OR PCC (TACK COAT)	0.050 LB/SQ FT
EXISTING PAVEMENT (TACK COAT)	0.050 LB/SQ FT
TACK COAT (BETWEEN LIFTS)	0.025 LB/SQ FT

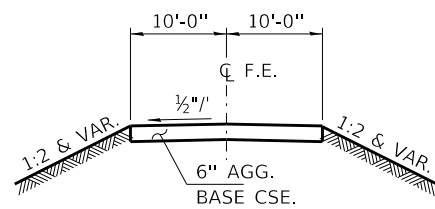
- THE FINAL SURFACE OF ALL EMBANKMENT AREAS SHALL BE SEEDED. THE TOP 4 INCHES OF THE SEEDED AREAS SHALL BE TOPSOIL SUBJECT TO THE APPROVAL OF THE ENGINEER. THE COST OF SHAPING THE SLOPES AND PROVIDING TOP SOIL WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF EARTH EXCAVATION.
- THE AREA TO BE SEEDED SHALL CONSIST OF ALL DISTURBED EARTH SURFACES WITHIN THE RIGHT OF WAY OR AS DIRECTED BY THE ENGINEER. SEEDING, CLASS 2 (SPECIAL) = 0.3 ACRES
- ALL WASTE MATERIAL FROM EXCAVATIONS SHALL BE DISPOSED OF BY THE CONTRACTOR. NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
- COMMITMENTS:  
NONE

**ROADWAY SCHEDULE**

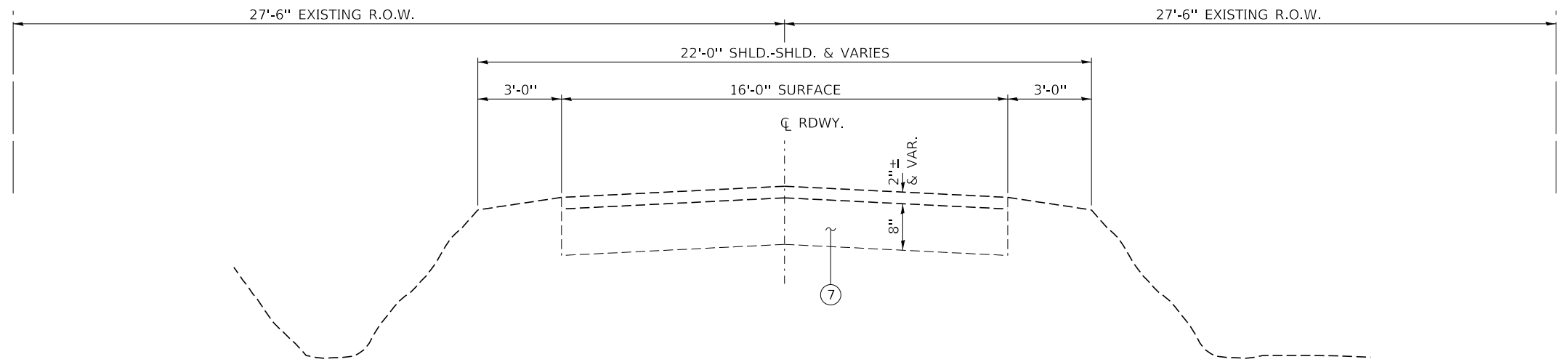
LOCATION	AGGREGATE BASE COURSE TYPE A	BITUMINOUS MATERIALS (PRIME COAT)	BITUMINOUS MATERIALS (TACK COAT)	HOT-MIX ASPHALT BINDER COURSE IL 19.0, N50	HOT-MIX ASPHALT SURFACE COURSE MIX "C", N50	AGGREGATE SHOULDERS TYPE B	POROUS GRANULAR EMBANKMENT (Special)
T.R. 97	35101100	40600275	40600290	40602978	40603310	48101500	X2070302
	TON	POUND	POUND	TON	TON	TON	TON
STA. 8+00 TO STA. 9+73.33	642	1842	363	115.5	68.0	88	50
STA. 10+34.67 TO STA. 11+80	221	672	133	42.0	25.0	31	50
ENTRANCES	100						
TOTAL	963	2515	496	158	93	119	100



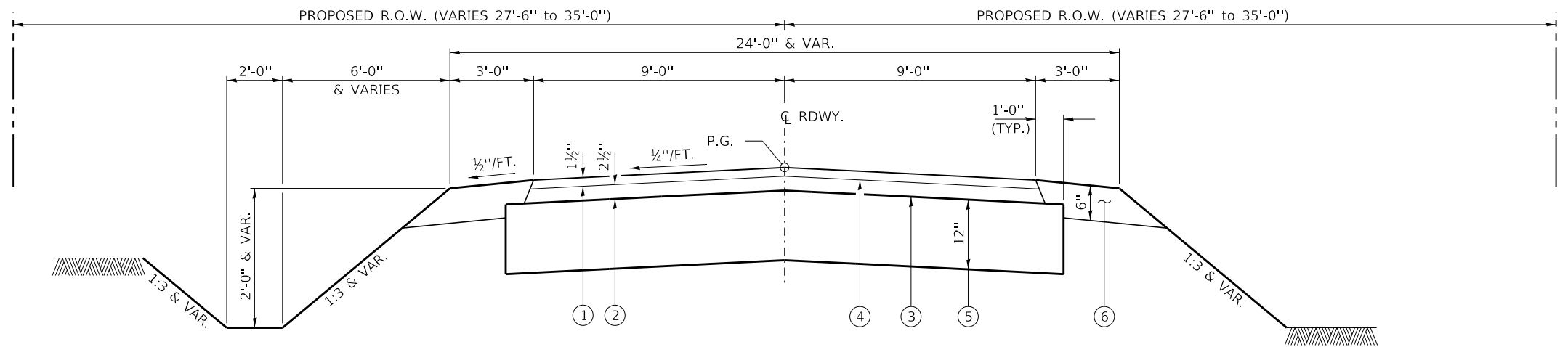
**FIELD ENTRANCE DETAIL**



**SECTION A-A**



**EXISTING TYPICAL CROSS SECTION**  
STA. 8+00 TO 11+80



SUGGESTED CUT SECTION  
CONSTRUCT AS SHOWN IN  
STATION CROSS SECTIONS

**PROPOSED TYPICAL CROSS SECTION**  
STA. 5+75 TO 11+80

SUGGESTED FILL SECTION  
CONSTRUCT AS SHOWN IN  
STATION CROSS SECTIONS

TRANSITIONS FROM THE PROPOSED SHOULDERS TO THE EXISTING SHOULDERS ARE TO BE CONSTRUCTED FROM STA. 8+00 TO 8+50 AND STA. 11+30 TO STA. 11+80. SEE SHEET 5 FOR TRANSITION AT BRIDGE.

**LEGEND**

- ① HMA SURFACE COURSE, MIX C, N50 (1 1/2" THICKNESS)
- ② HMA BINDER COURSE, IL-19.0, N50 (2 1/2" THICKNESS)
- ③ BITUMINOUS MATERIALS (PRIME COAT)
- ④ BITUMINOUS MATERIALS (TACK COAT)
- ⑤ AGGREGATE BASE COURSE, TYPE A (12")
- ⑥ AGGREGATE SHOULDERS, TYPE B (6")
- ⑦ EXISTING OIL & CHIP SURFACE (2") ON AGGREGATE BASE (8")

HOT-MIX ASPHALT MIXTURE REQUIREMENTS		
LOCATIONS(S)	TR 97	TR 97
MIXTURE USE(S)	HOT-MIX ASPHALT SURFACE COURSE	HOT-MIX ASPHALT BINDER COURSE
PG:	PG 64-22	PG 64-22
DESIGN AIR VOIDS:	4% @ 50 Gyr.	4% @ 50 Gyr.
MIXTURE COMPOSITION: (MIXTURE GRADATION)	IL 9.5	IL 19.0
FRICTION AGGREGATE:	MIXTURE C	NONE
DENSITY TEST METHOD	CORES	CORES
MIXTURE WEIGHT:	112 LBS / SY \ INCH THICKNESS	112 LBS / SY \ INCH THICKNESS
QUALITY MANAGEMENT PROGRAM	QC/QA	QC/QA

FILE NAME = 170166-shit-typesections.dgn	USER NAME = rhostick	DESIGNED - J.W.F.	REVISED -
HAMPTON, LENZINI AND RENWICK, INC. 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000959	PLOT SCALE = \$SCALE\$	DRAWN - M.M.P.	REVISED -
PLOT DATE = 11/29/2018		CHECKED - S.W.M.	REVISED -
		DATE - 11/27/18	REVISED -

STATE OF ILLINOIS  
LIVINGSTON COUNTY HIGHWAY DEPARTMENT

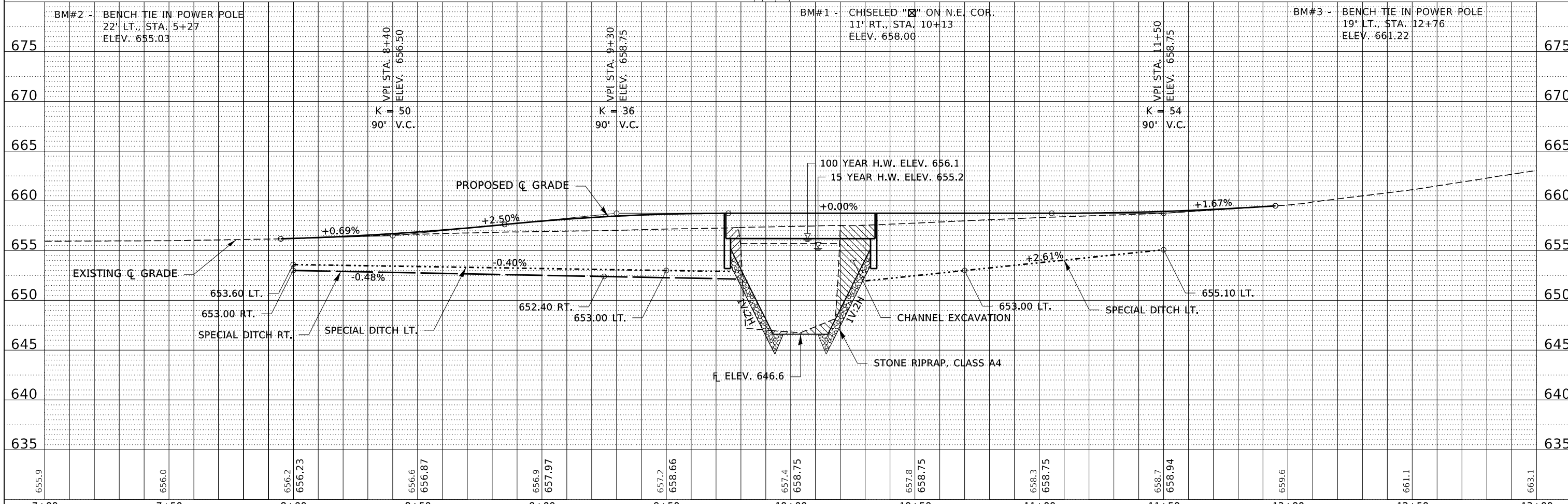
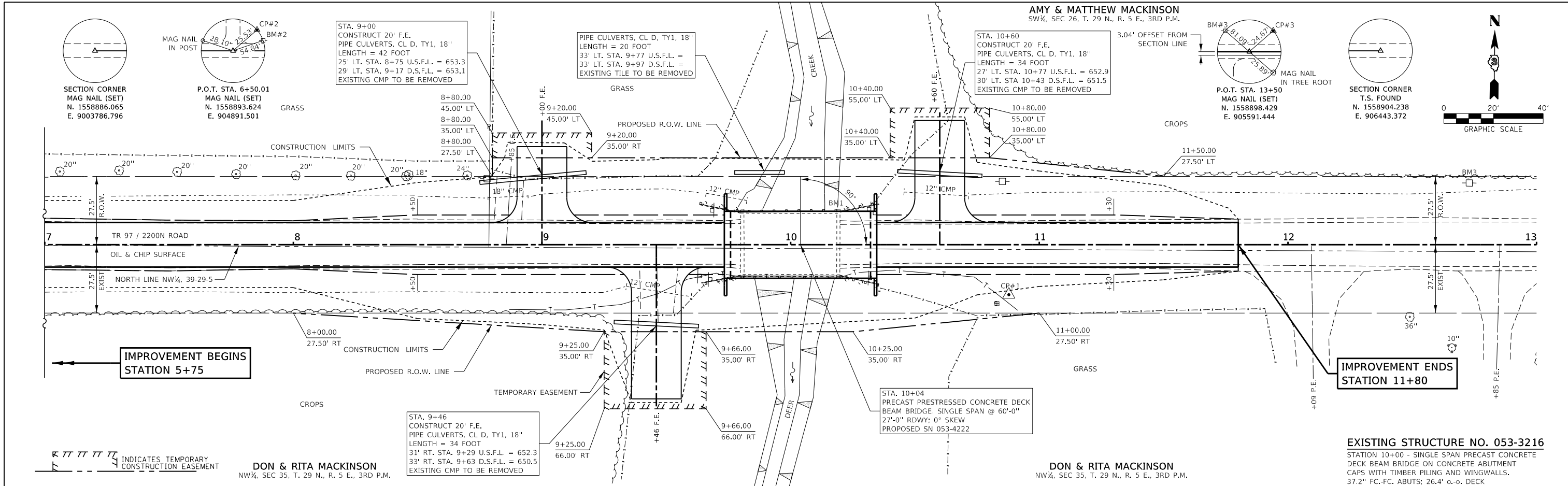
TYPICAL CROSS SECTIONS

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

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
97	16-09101-05-BR	LIVINGSTON	23	3
ESMEN ROAD DISTRICT		CONTRACT NO. 87694		
ILLINOIS FED. AID PROJECT E11Z(942)				

DATE	
BY	
REVIEWED	
PLANNED	
ALIGNED	
CHECKED	
DESIGNED	
NO.	

DATE	
BY	
REVIEWED	
PROFILES	
CHECKED	
DESIGNED	
NO.	



FILE NAME = 170166-eh-plnprLdgn	USER NAME = rhosick	DESIGNED - J.W.F.	REVISED -	<b>STATE OF ILLINOIS</b> <b>LIVINGSTON COUNTY HIGHWAY DEPARTMENT</b>	<b>PLAN &amp; PROFILE</b> <b>PEARSON BRIDGE</b>	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
HAMPTON, LENZINI AND RENWICK, INC.		DRAWN - T.W.K.	REVISED -			97	16-09101-05-BR	LIVINGSTON	23	4
3088 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62710 ILLINOIS PROFESSIONAL DESIGN FIRM L.S./P.E./S.E. CORP. 184.000959		CHECKED - S.W.M.	REVISED -			ESMEN ROAD DISTRICT		CONTRACT NO. 87694		
		DATE - 11/27/18	REVISED -			SCALE: 20V:5H		SHEET NO. 1 OF 1 SHEETS		STA. 7+00 TO STA. 13+00

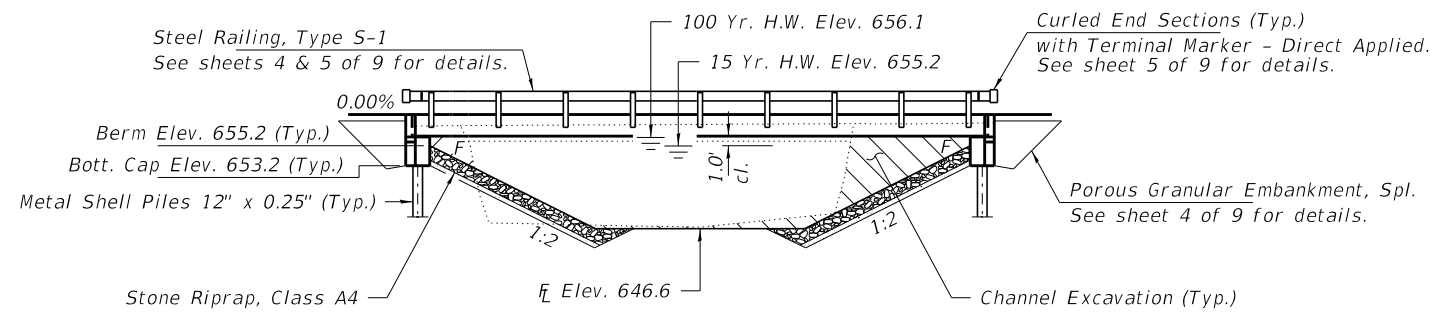


BENCHMARK: Chiseled "X" on NE corner 11.0' Rt. Sta. 10+13, Elev. 658.00

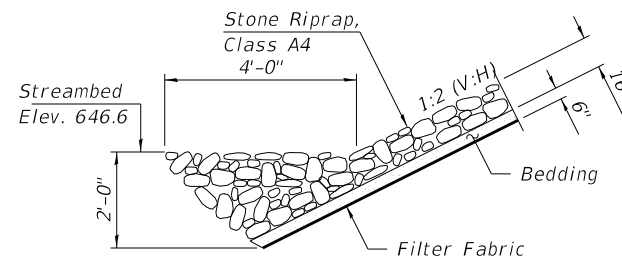
EXISTING STRUCTURE NO. 053-3216: Sta. 10+00 - Single span precast concrete deck beam bridge on concrete abutment caps with timber pilings and wingwalls. 37.2' fc.-fc. abuts; 26.4' o.-o. deck.

Structure closed to traffic during construction.

No Salvage



ELEVATION



SECTION A-A

GENERAL NOTES

Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer. The Contractor shall drive test piles to 110% of the nominal required bearing specified in production locations at the West Abutment or approved by the Engineer before ordering the remainder of piles. 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. 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.

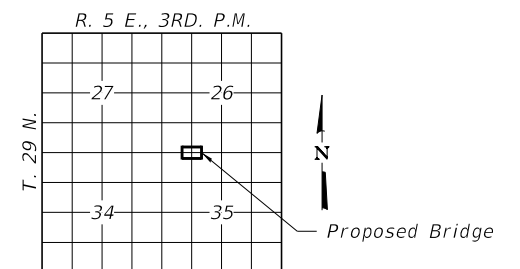
INDEX OF STRUCTURE SHEETS

1. General Plan & Elevation
2. 27"x36" PPC Deck Beam
3. 27"x36" PPC Deck Beam Details
4. Superstructure Details
5. Steel Railing, Type S-1
6. Abutments
7. Metal Shell Pile Details
- 8-9. Borings

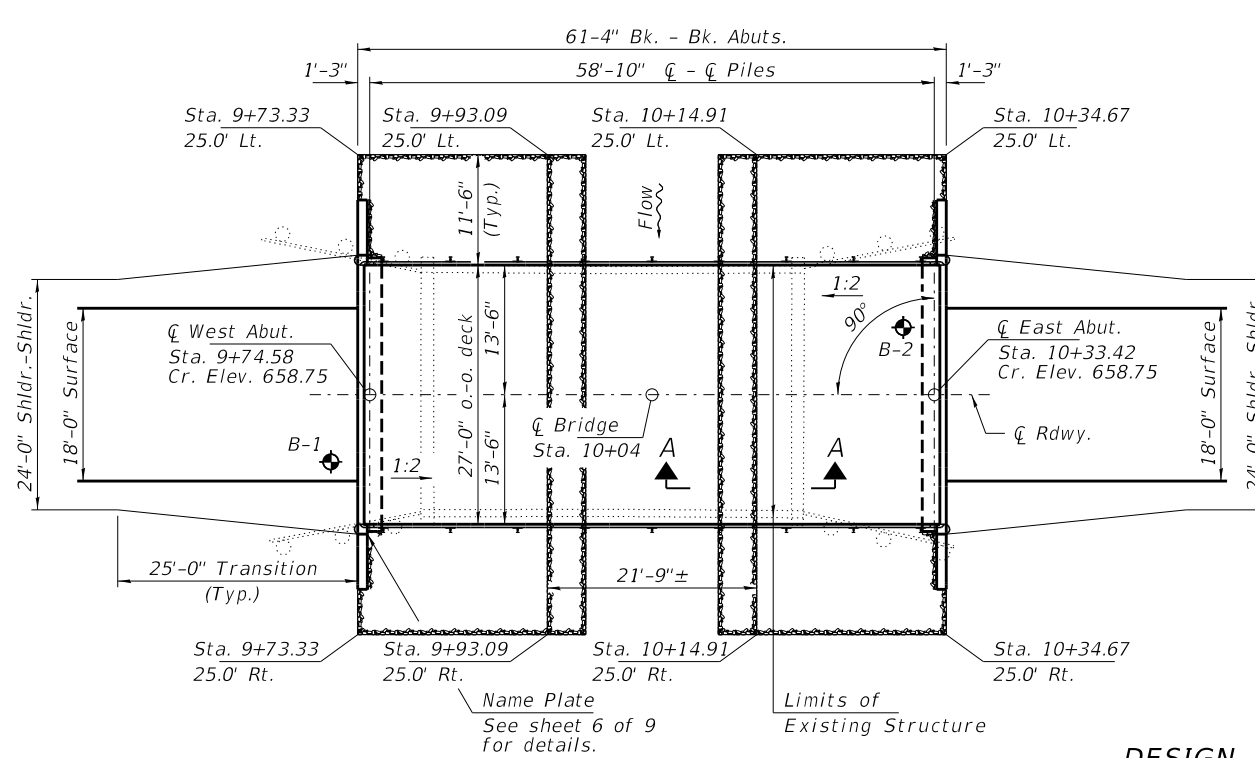
DEER CREEK  
BUILT 201\_ BY  
LIVINGSTON COUNTY  
SEC. 16-09101-05-BR  
ESMEN ROAD DISTRICT  
STR. NO. 053-4222  
LOADING HL-93

NAME PLATE

See Std. 515001



LOCATION SKETCH



PLAN

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) = 1  
Design Spectral Acceleration at 1.0 sec. (SD1) = 0.076g  
Design Spectral Acceleration at 0.2 sec. (SDS) = 0.132g  
Soil Site Class = C

WATERWAY INFORMATION

		Existing Overtopping Elev. 655.9 @ Sta. 7+00		Proposed Overtopping Elev. 655.9 @ Sta. 7+00		
		Drainage Area = 6.6 Sq. Mi.				
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist. Prop.	Nat. H.W.E. Exist. Prop.	Head - Ft. Exist. Prop.	Headwater El. Exist. Prop.
Design	10	1590	260 320	654.97 0.24 0.19	655.21 655.16	
Base	15	1830	270 340	655.20 0.91 0.32	656.11 655.52	
Scour Check	100	3090	280 390	656.10 0.93 0.81	657.03 656.91	
Max. Calc.	200	3560	280 390	656.36 0.95 0.81	657.31 657.17	
	500	4240	280 390	656.73 0.90 0.87	657.63 657.60	

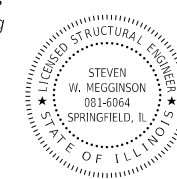
15 Year Velocity through Existing Bridge = 6.8 fps      15 Year Velocity through Proposed Bridge = 5.4 fps

DESIGN SCOUR ELEVATION TABLE

Event/Limit State	Design Scour Elev. (ft.)		Item 113
	S. Abut.	N. Abut.	
Q100	653.2	653.2	8
Q200	653.2	653.2	
Design	653.2	653.2	
Check	653.2	653.2	

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."

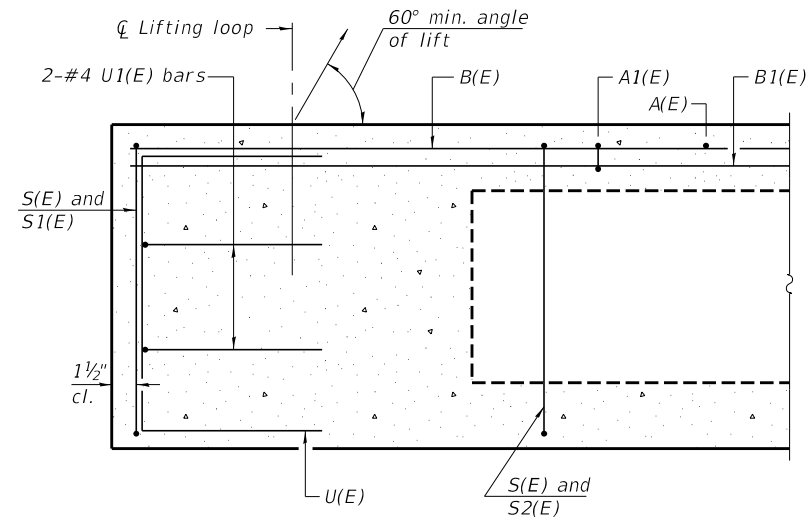
Steven W. Megginson 11/27/2018  
ILLINOIS STRUCTURAL ENGINEER NO. 081-6064



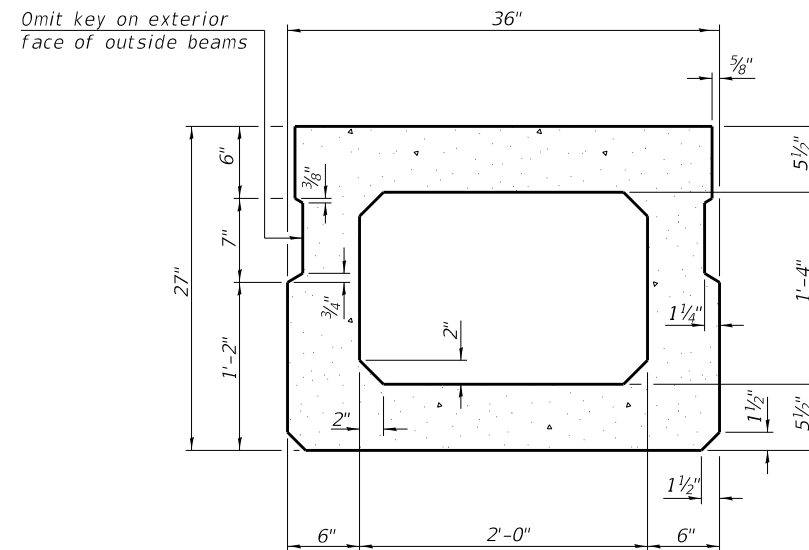
Expires 11-30-2020

TOTAL BILL OF MATERIAL

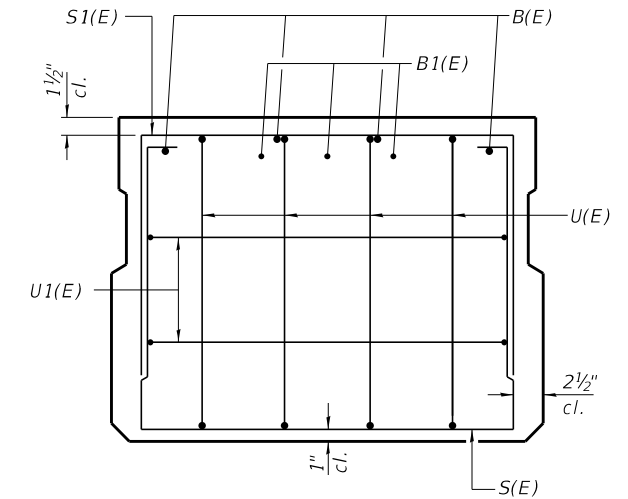
ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	Cu. Yd.			135
Stone Riprap, Class A4	Sq. Yd.			270
Filter Fabric	Sq. Yd.			270
Removal of Existing Structures	Each			1
Concrete Structures	Cu. Yd.		23.4	23.4
Precast Prestressed Conc. Deck Beams (27" Depth)	Sq. Ft.	1,620		1,620
Reinforcement Bars, Epoxy Coated	Pound		2,900	2,900
Steel Railing, Type S-1	Foot	116		116
Furnishing Metal Shell Piles 12" x 0.25"	Foot		405	405
Driving Piles	Foot		405	405
Test Pile Metal Shell	Each		1	1
Name Plates	Each		1	1
Terminal Marker - Direct Applied	Each	4		4
Porous Granular Embankment, Special	Ton		100	100
Pipe Underdrains for Structures 4"	Foot		110	110



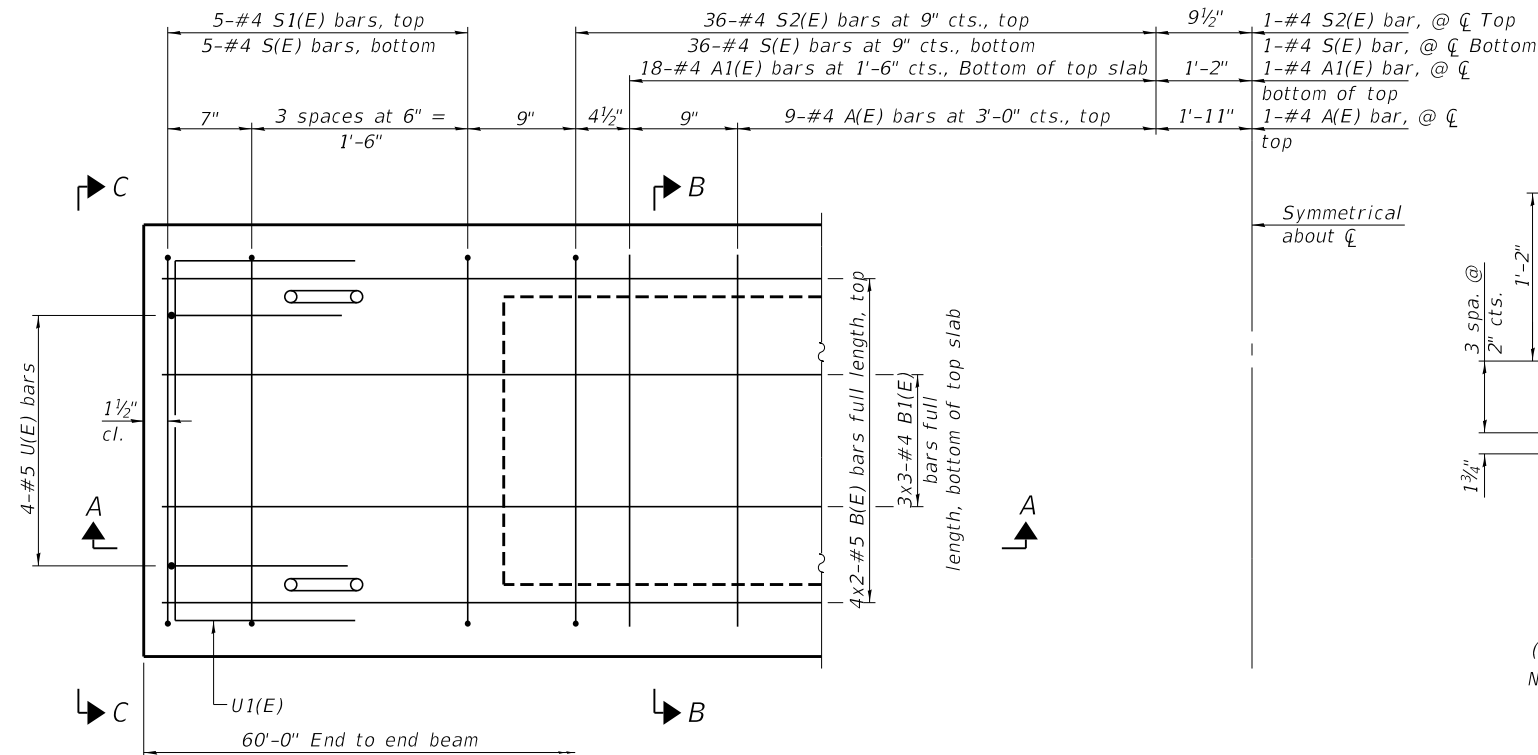
SECTION A-A



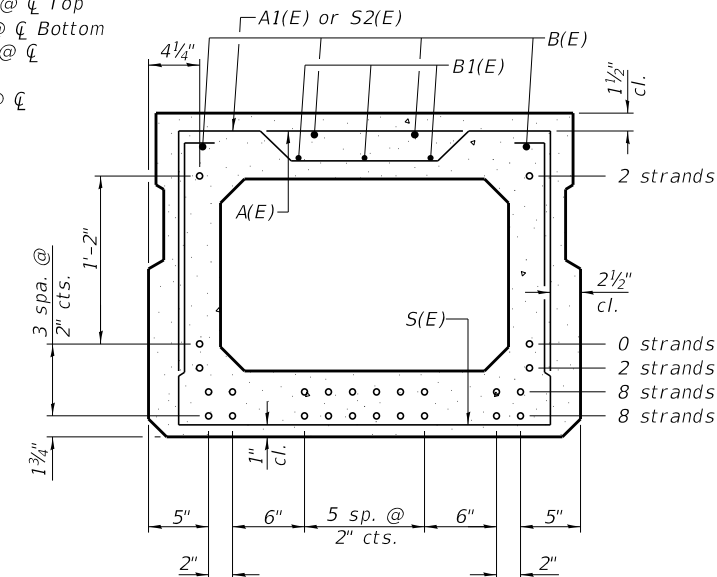
SECTION B-B  
(Showing dimensions)



VIEW C-C



PLAN VIEW



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	2'-7"	—
A1(E)	37	#4	2'-10"	~
B(E)	8	#5	31'-2"	—
B1(E)	9	#4	21'-2"	—
S(E)	83	#4	7'-5"	⌋
S1(E)	10	#4	5'-11"	⌋
S2(E)	73	#4	6'-2"	⌋
U(E)	8	#5	4'-6"	⌋
U1(E)	4	#4	5'-0"	⌋

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

Notes:  
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 4x2-#5 etc. indicates 4 lines of bars with 2 lengths per line.

MINIMUM BAR LAP  
#4 bar = 1'-11"  
#5 bar = 2'-6"

PD-2736-0

2-17-2017

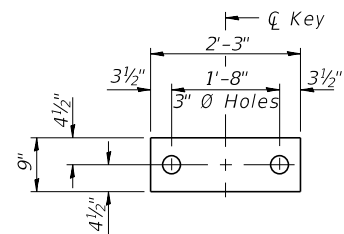
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HAMPTON, LENZINI AND RENWICK, INC. 3035 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000959	PLOT SCALE =	CHECKED - S.W.M.	REVISED -
	PLOT DATE = 11/29/2018	DRAWN - M.M.P.	REVISED -
		CHECKED - S.W.M.	REVISED -

STATE OF ILLINOIS  
LIVINGSTON COUNTY HIGHWAY DEPARTMENT

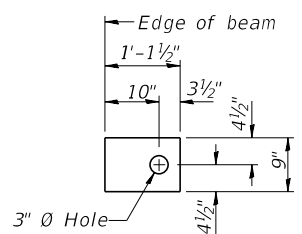
27" x 36" PPC DECK BEAM  
STRUCTURE NO. 053-4222

SHEET NO. 2 OF 9 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
97	16-09101-05-BR	LIVINGSTON	23	6
ESMEN ROAD DISTRICT		CONTRACT NO. 87694		
ILLINOIS FED. AID PROJECT E12(942)				



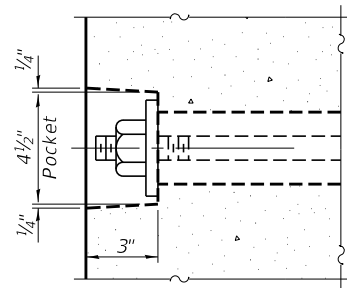
**FABRIC BEARING PAD**  
(Interior - 16 Req'd.)



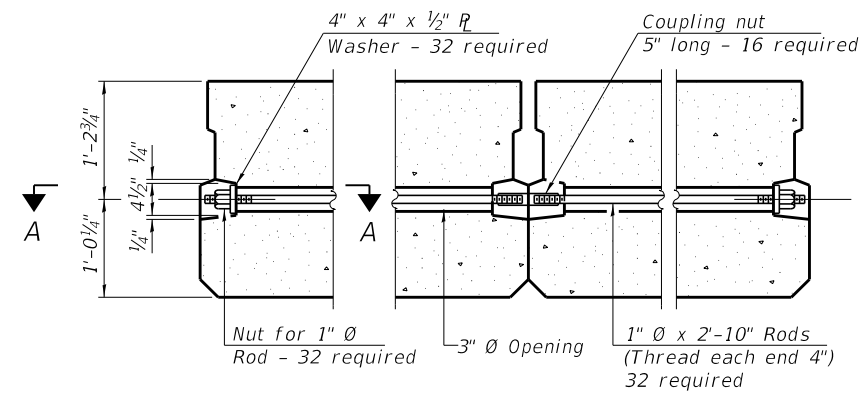
**FABRIC BEARING PAD**  
(Exterior - 4 Req'd.)

**Notes:**

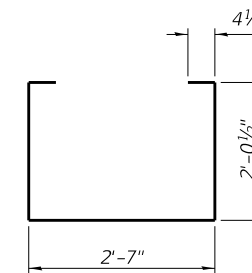
All bearing pads shall be 1" thick.  
Omit holes when using expansion bearings.  
Expansion bearing pad shall be bonded to the substructure.



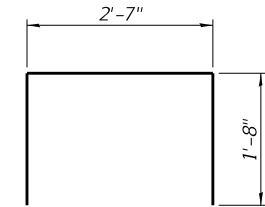
**SECTION A-A**



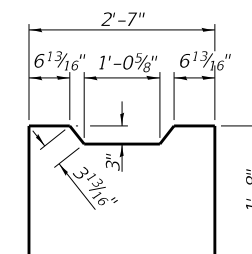
**TYPICAL TRANSVERSE TIE ASSEMBLY**



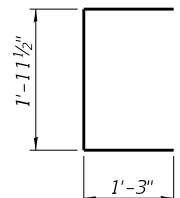
**BAR S(E)**



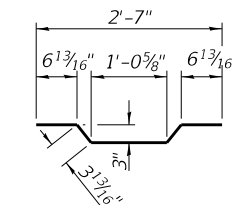
**BAR S1(E)**



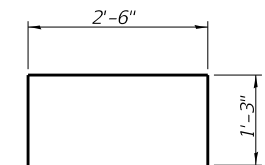
**BAR S2(E)**



**BAR U(E)**

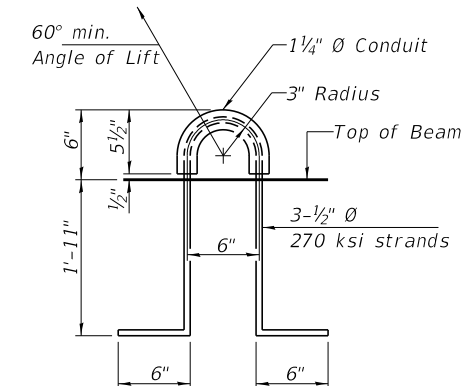


**BAR A1(E)**

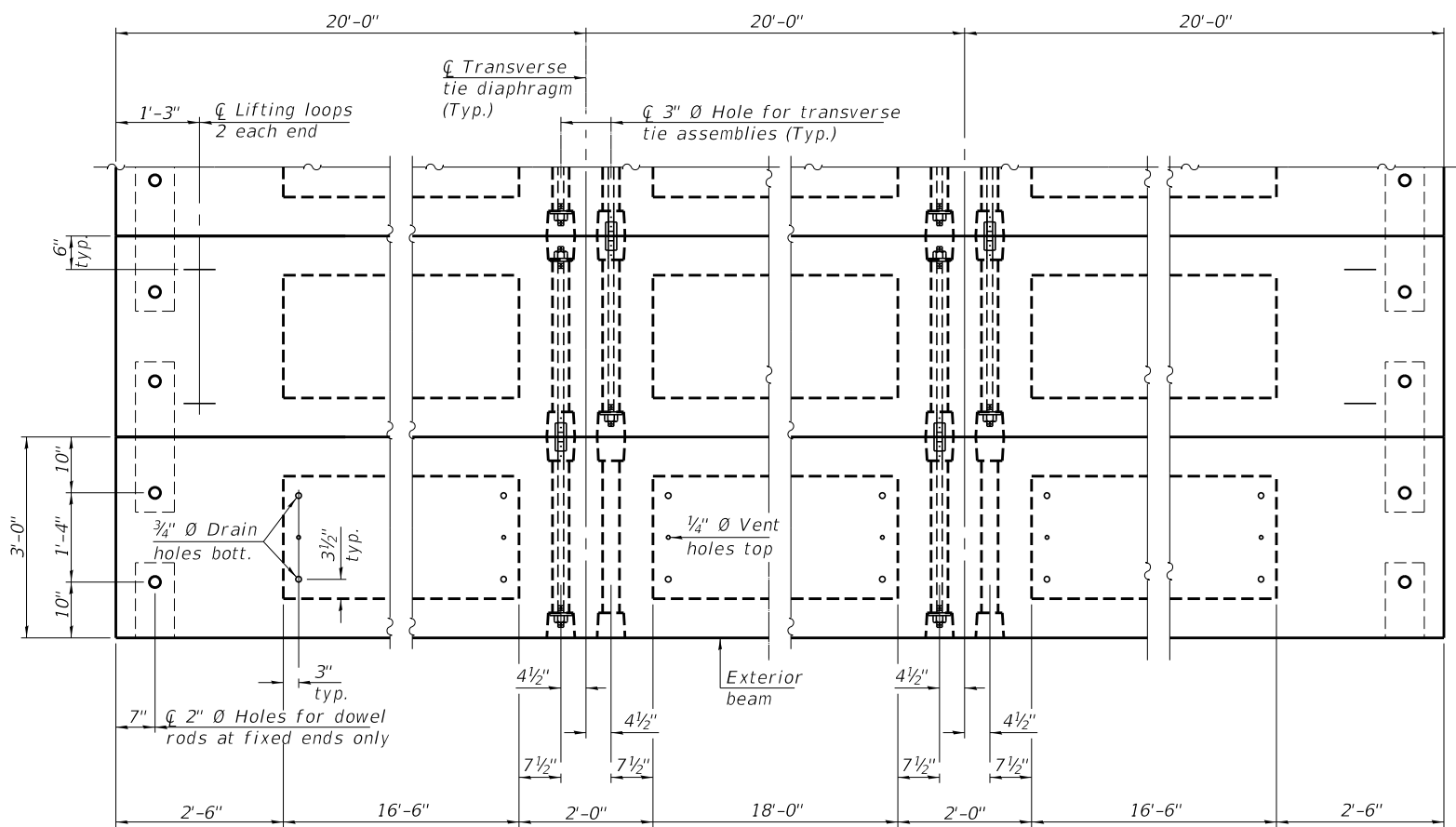


**BAR U1(E)**

**BAR A1(E)**



**LIFTING LOOP DETAIL**



**PLAN VIEW**

**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" diameter 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.

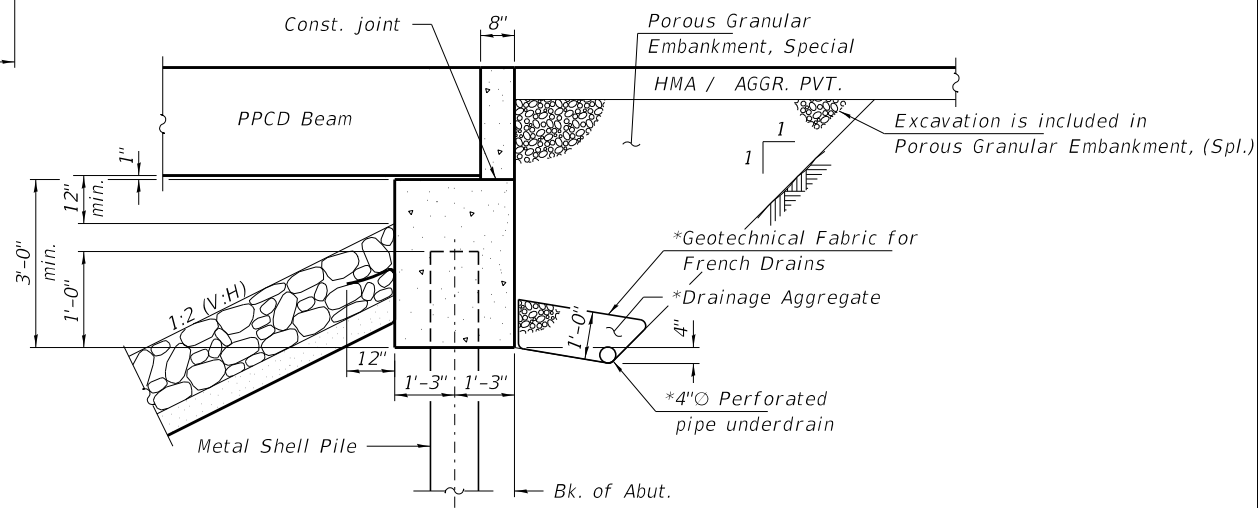
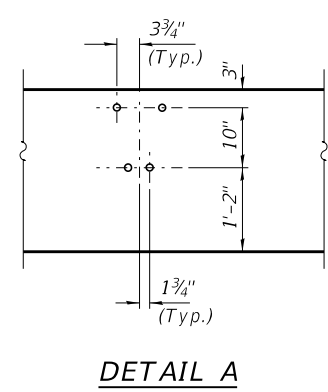
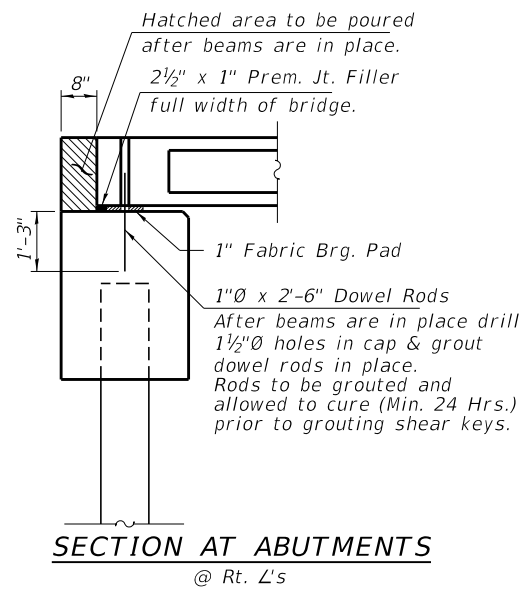
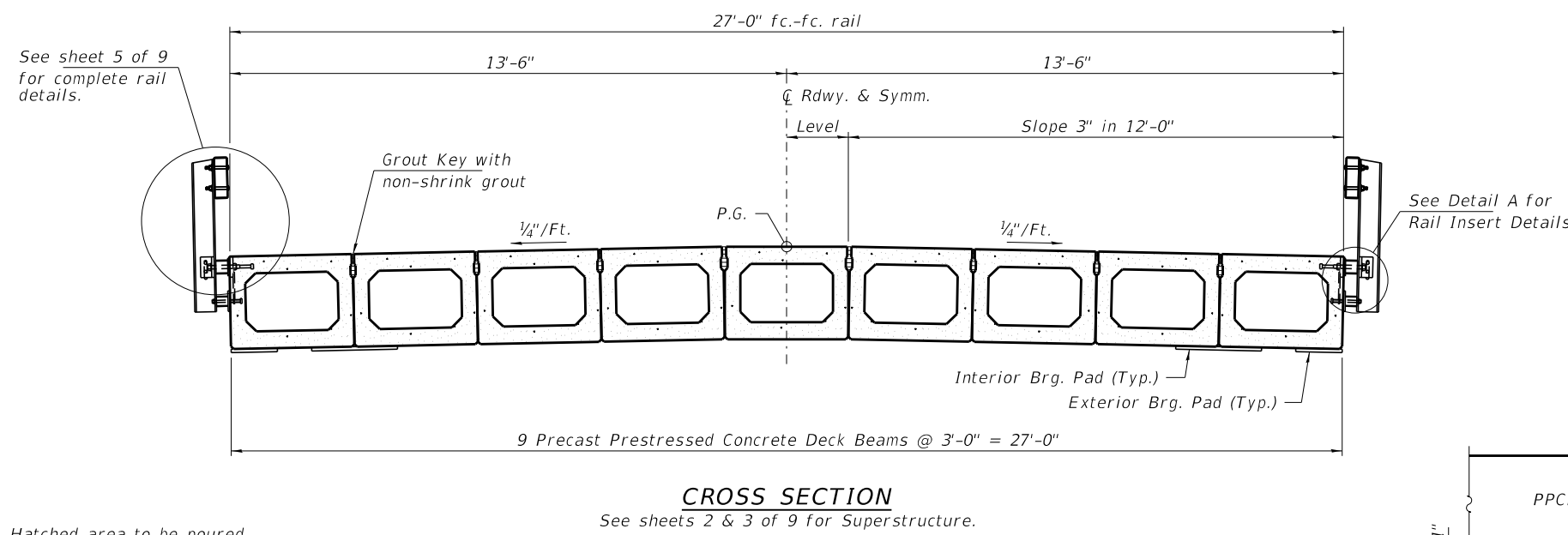
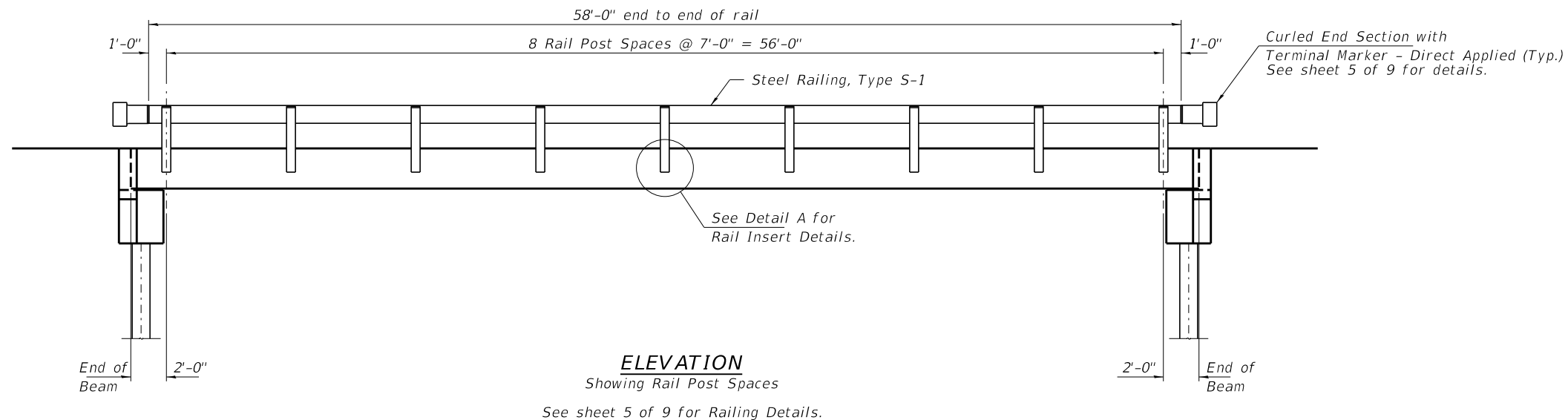
Note: Connect beams in pairs with the transverse tie configuration shown.

**BILL OF MATERIAL**

Precast Prestressed Conc. Deck Bms. (27" depth)	Sq. Ft.	1,620
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PD-2736-0D 2-17-2017

FILE NAME = 170166-shl-bridge.dgn	USER NAME = rmosick	DESIGNED - R.D.H.	REVISED -	<b>STATE OF ILLINOIS LIVINGSTON COUNTY HIGHWAY DEPARTMENT</b>	<b>27" x 36" PPC DECK BEAM DETAILS STRUCTURE NO. 053-4222</b>	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 -			97	16-09101-05-BR	LIVINGSTON	23	7
	PLOT DATE = 11/29/2018	DRAWN - M.M.P.	REVISED -			ESMEN ROAD DISTRICT		CONTRACT NO. 87694		
		CHECKED - S.W.M.	REVISED -			ILLINOIS		FED. AID PROJECT E12(942)		

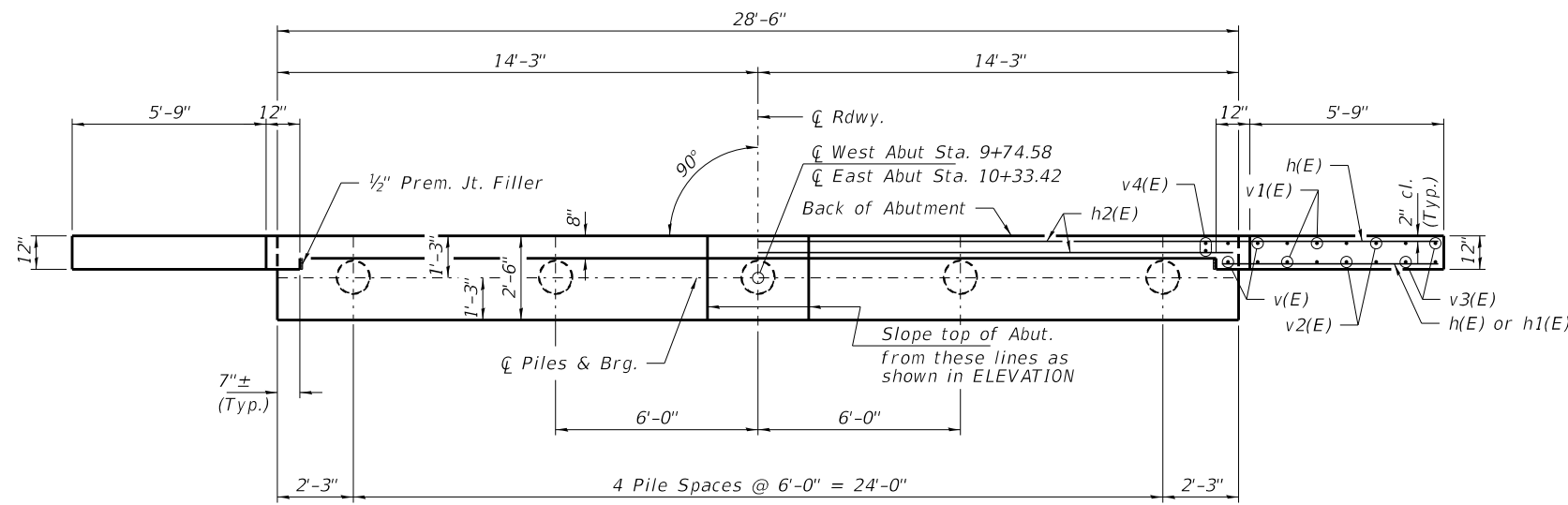


\*Included in the cost of Pipe Underdrains for Structures. (See Special Provisions)

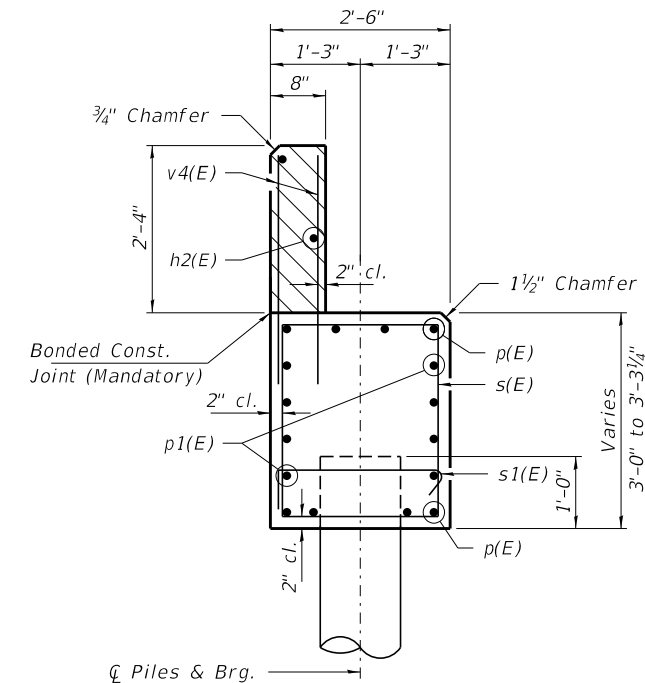
Note: Outlet pipe underdrains to the South only as directed by the Engineer.

FILE NAME = 170166-shl-bridge.dgn	USER NAME = rmosick	DESIGNED - R.D.H.	REVISED -	<b>STATE OF ILLINOIS LIVINGSTON COUNTY HIGHWAY DEPARTMENT</b>	<b>SUPERSTRUCTURE DETAILS STRUCTURE NO. 053-4222</b>	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 -			97	16-09101-05-BR	LIVINGSTON	23	8
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		CHECKED - S.W.M.	REVISED -			SHEET NO. 4 OF 9 SHEETS		ILLINOIS FED. AID PROJECT EIR2(942)		





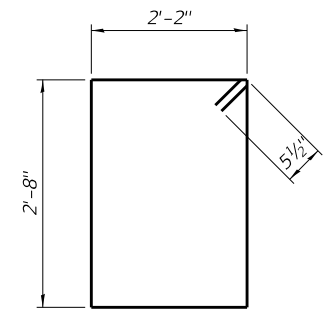
**PLAN**



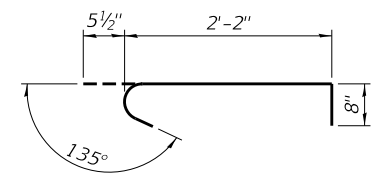
**SECTION A-A**

Hatched area to be poured after beams are in place.

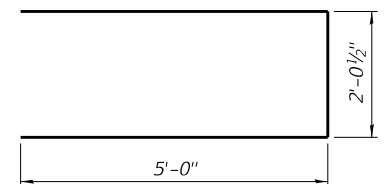
Cast top of wingwall flush with exterior beam face after beams have been erected.



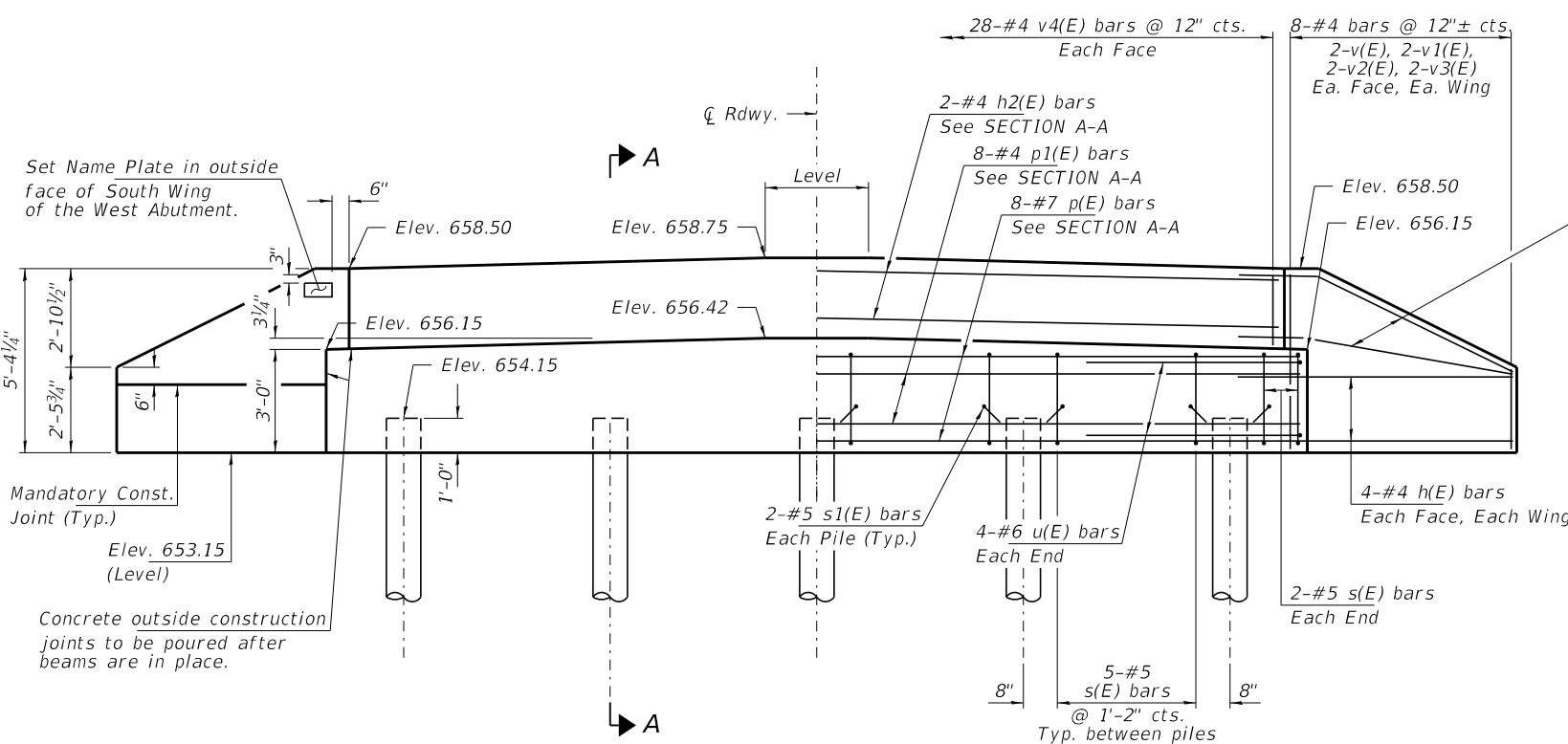
**BARS s(E)**



**BAR s1(E)**



**BAR u(E)**



**ELEVATION**

Note: Extend h(E) bars into abutment cap.

Fan 2-#4 h(E) bars (B.F.)  
Fan 2-#4 h1(E) bars (F.F.)  
Each Wing Bend in field.

**PILE DATA**

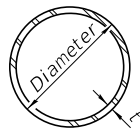
Type \_\_\_\_\_ Metal Shell 12" x 0.25"  
No. Req'd. (2 Abuts.) \_\_\_\_\_ 10\*  
Factored Resistance Available (Rf) \_\_\_\_\_ 149 Kips/Pile  
Nominal Required Bearing (Rn) \_\_\_\_\_ 271 Kips/Pile  
Est. Length \_\_\_\_\_ 45 Ft/Pile

Notes: \* Includes one test pile to be driven in a permanent location at the West Abutment.

The test pile shall be driven to 110 percent of the Nominal Required Bearing indicated in the pile data information.

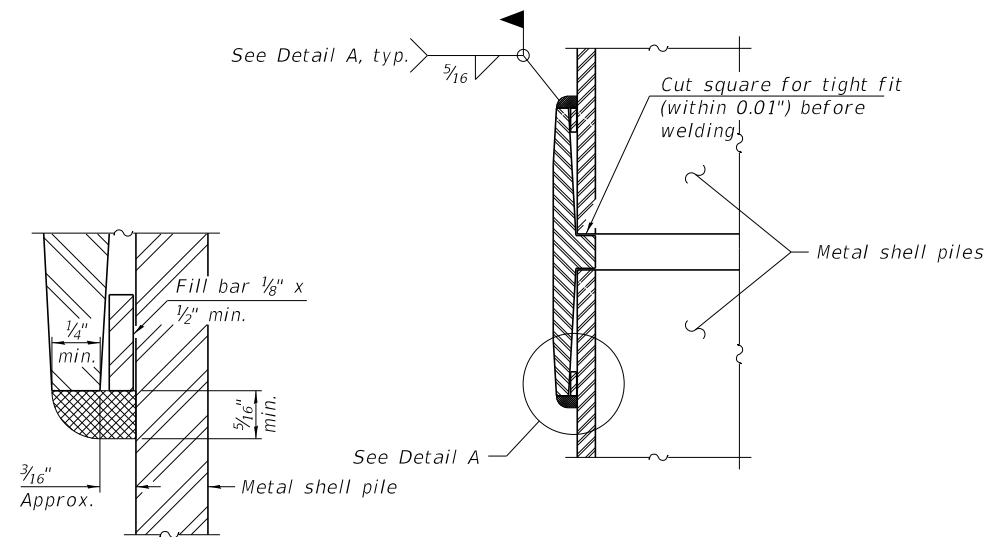
**BILL OF MATERIAL - 2 ABUTS.**

BAR	NO.	SIZE	LENGTH	SHAPE
h(E)	40	#4	8'-0"	—
h1(E)	8	#4	6'-6"	—
h2(E)	4	#4	28'-2"	—
p(E)	12	#7	28'-2"	—
p1(E)	20	#4	28'-2"	—
s(E)	48	#5	10'-7"	□
s1(E)	20	#5	3'-4"	U
u(E)	16	#6	12'-1"	U
v(E)	16	#4	4'-11"	—
v1(E)	16	#4	4'-0"	—
v2(E)	16	#4	3'-1"	—
v3(E)	16	#4	2'-2"	—
v4(E)	112	#4	3'-2"	—
Concrete Structures			Cu. Yd.	23.4
Reinforcement Bars, Epoxy Coated			Pound	2,900
Metal Shell Piles 12" x 0.25"			Foot	405
Test Pile Metal Shell			Each	1
Name Plates			Each	1



**METAL SHELL PILE TABLE**

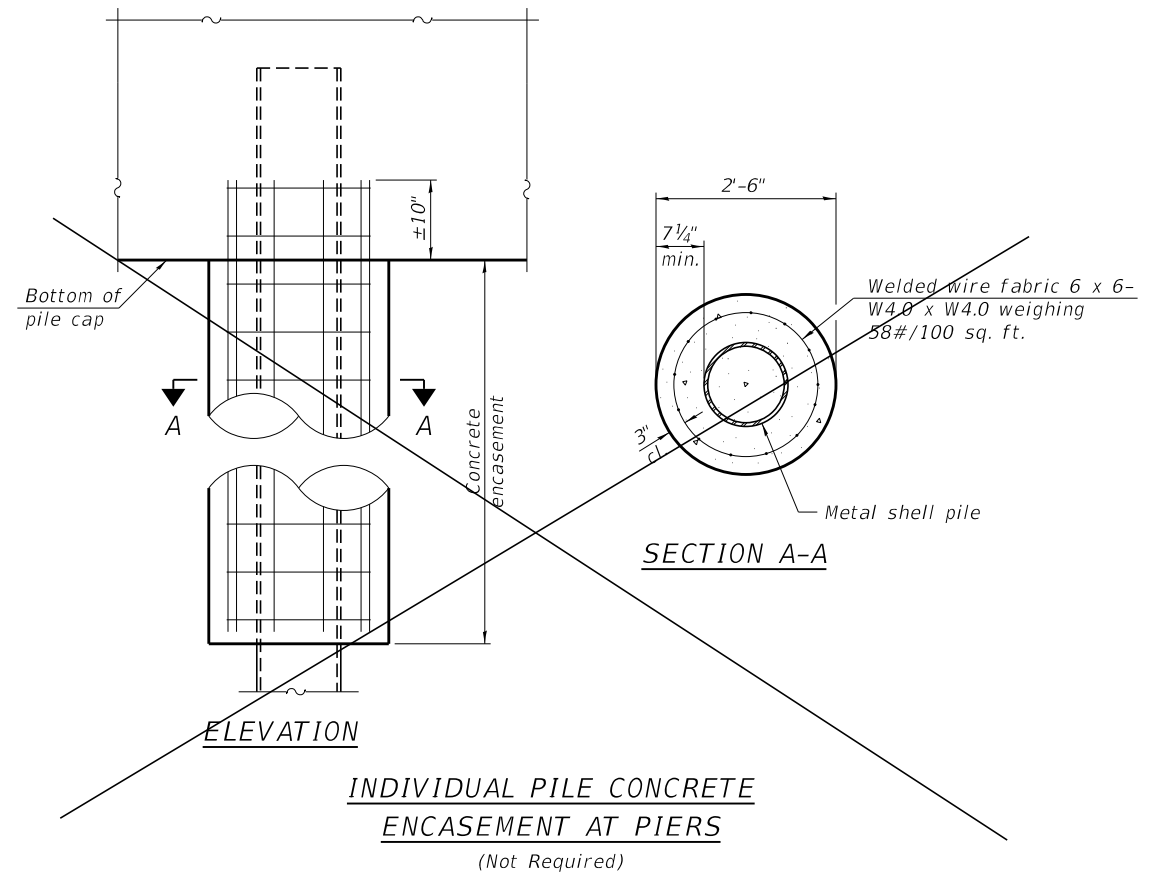
Designation and outside diameter	Wall thickness t	Weight per foot (Lbs./ft.)	Inside volume (yd. <sup>3</sup> /ft.)
PP12	0.250"	31.37	0.0267
PP14	0.250"	36.71	0.0368
PP14	0.312"	45.61	0.0361
PP16	0.312"	52.32	0.0478
PP16	0.375"	62.64	0.0470



**DETAIL A**

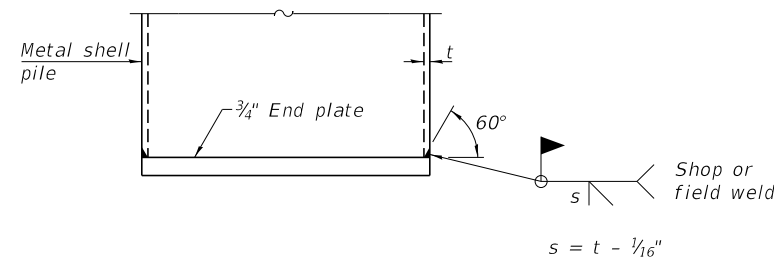
**WELDED COMMERCIAL SPLICE**

Notes:  
 The 1/8" x 1/2" min. fill bar may be constructed of 2 bars with a 1/8" max. gap between them.  
 Pile segments shall be driven to solid contact with splicer before welding.

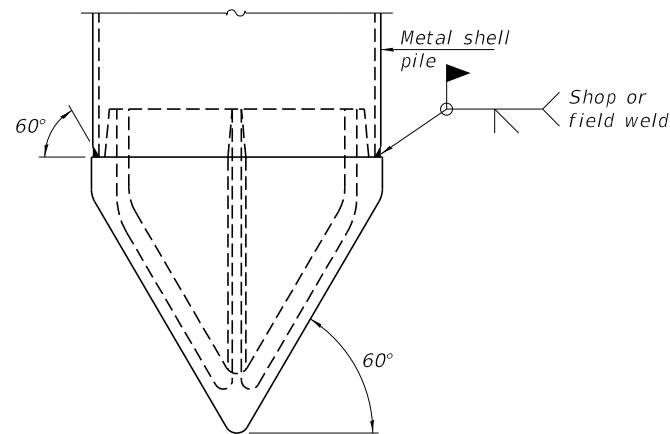


**INDIVIDUAL PILE CONCRETE ENCASEMENT AT PIERS**

(Not Required)

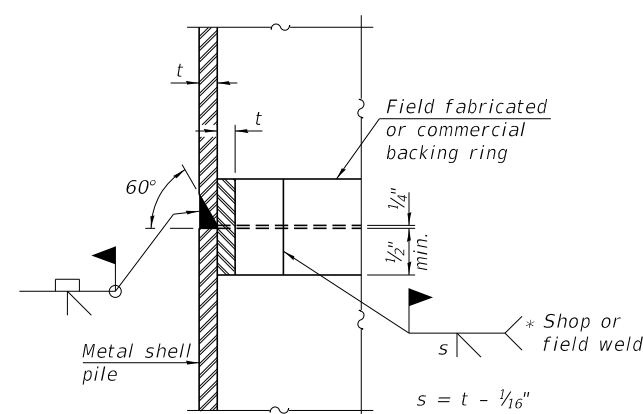


**END PLATE ATTACHMENT**



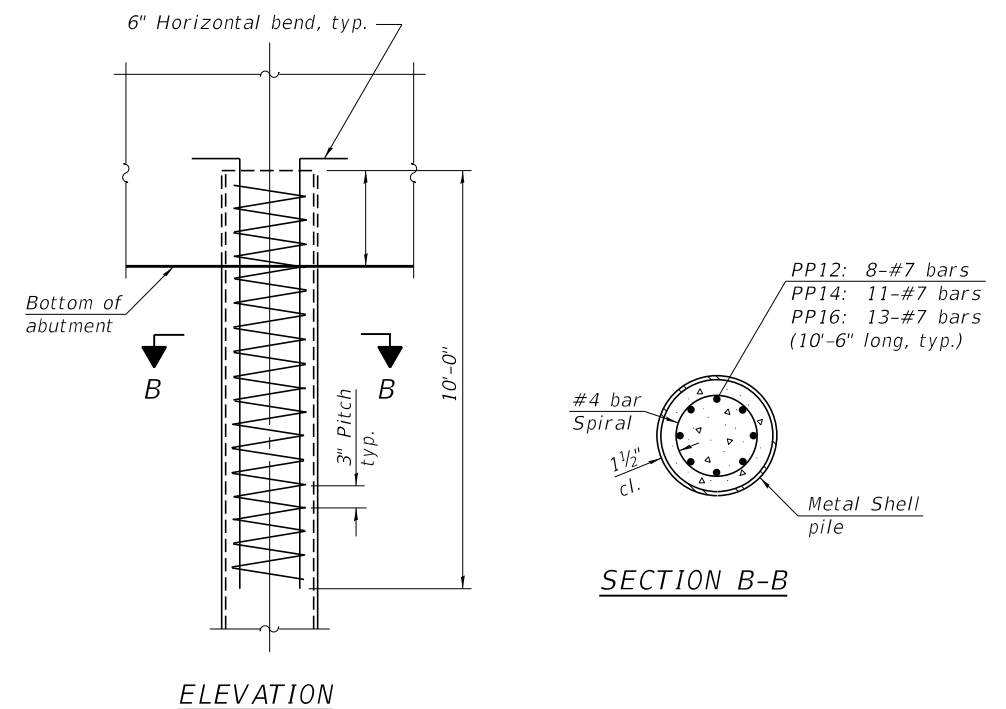
**PILE SHOE ATTACHMENT**

(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 90-60 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).



**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.



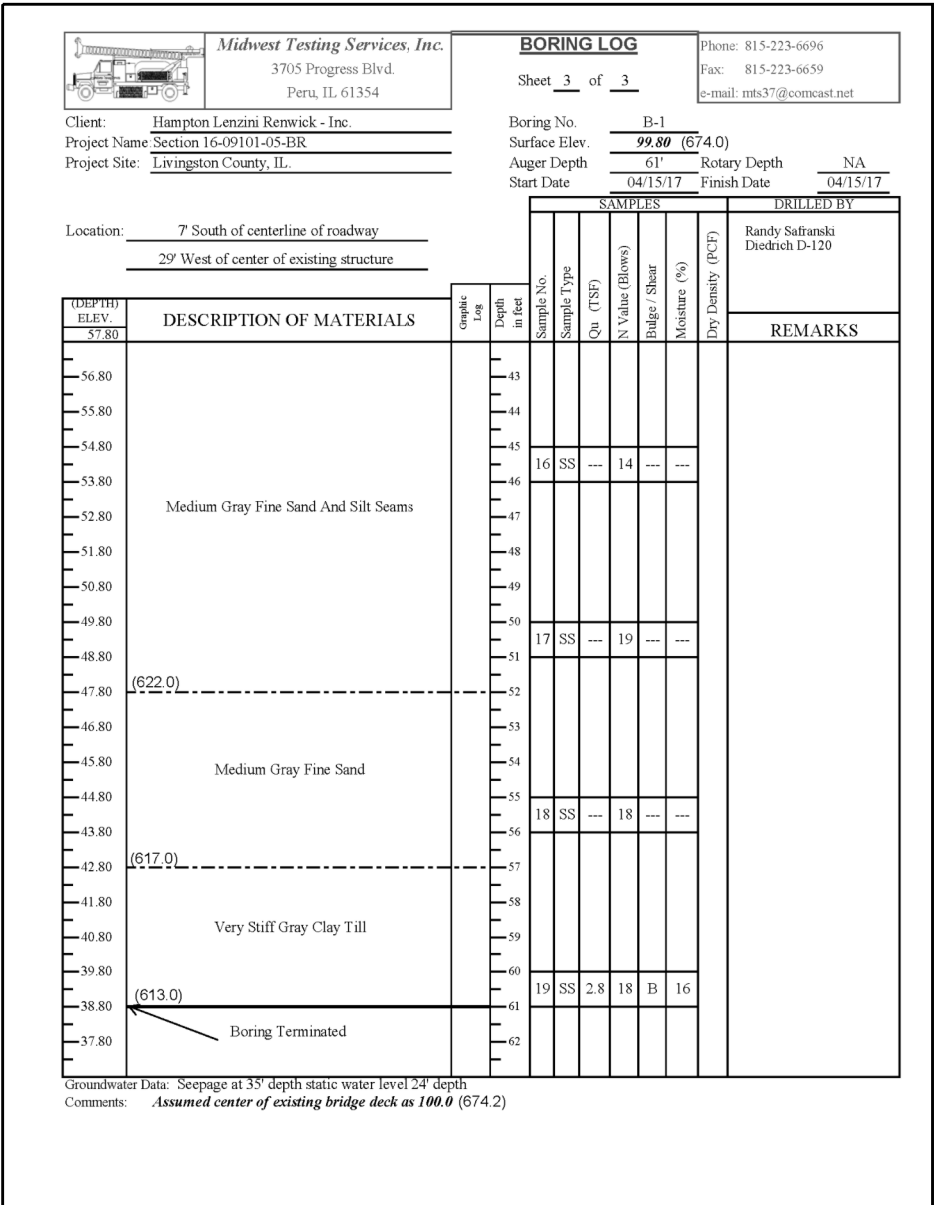
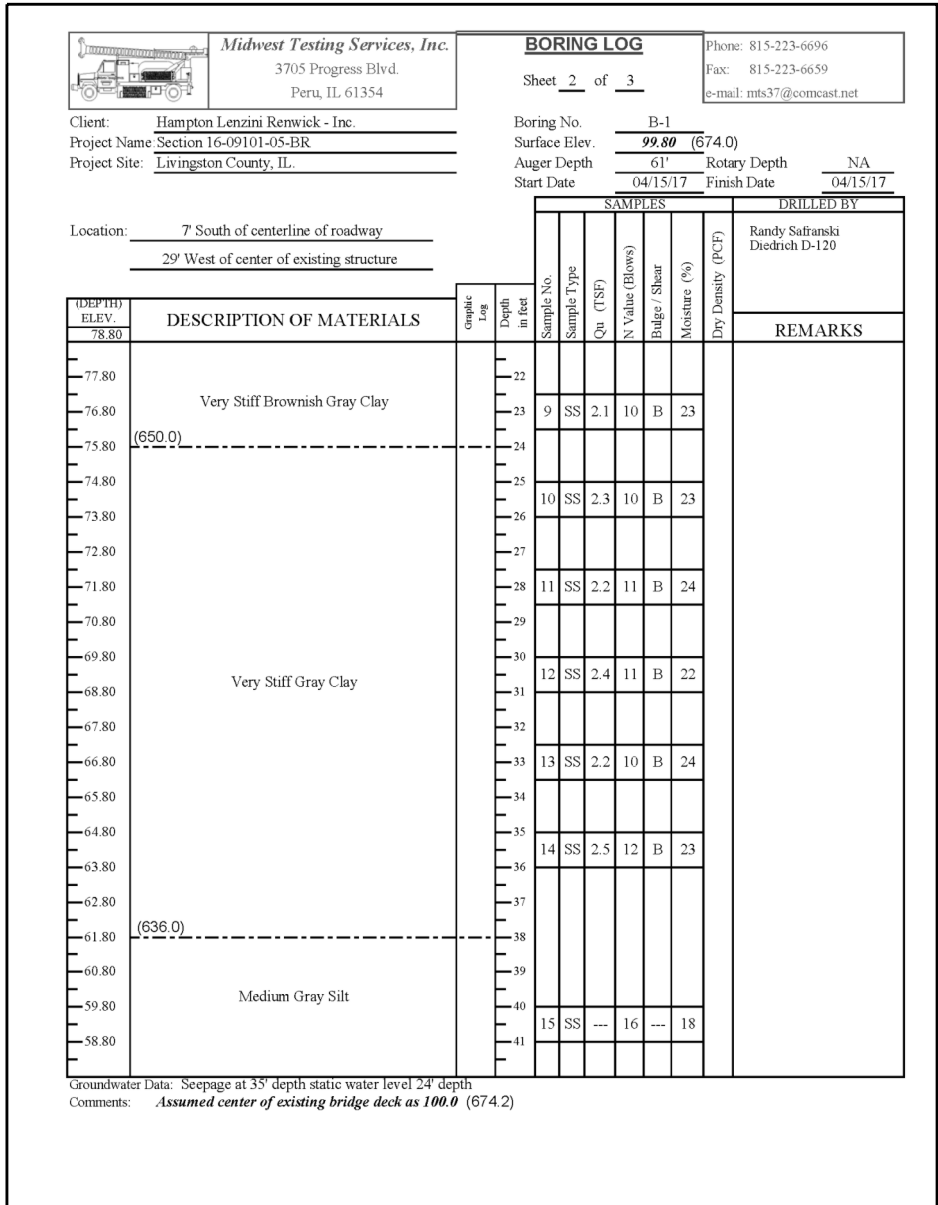
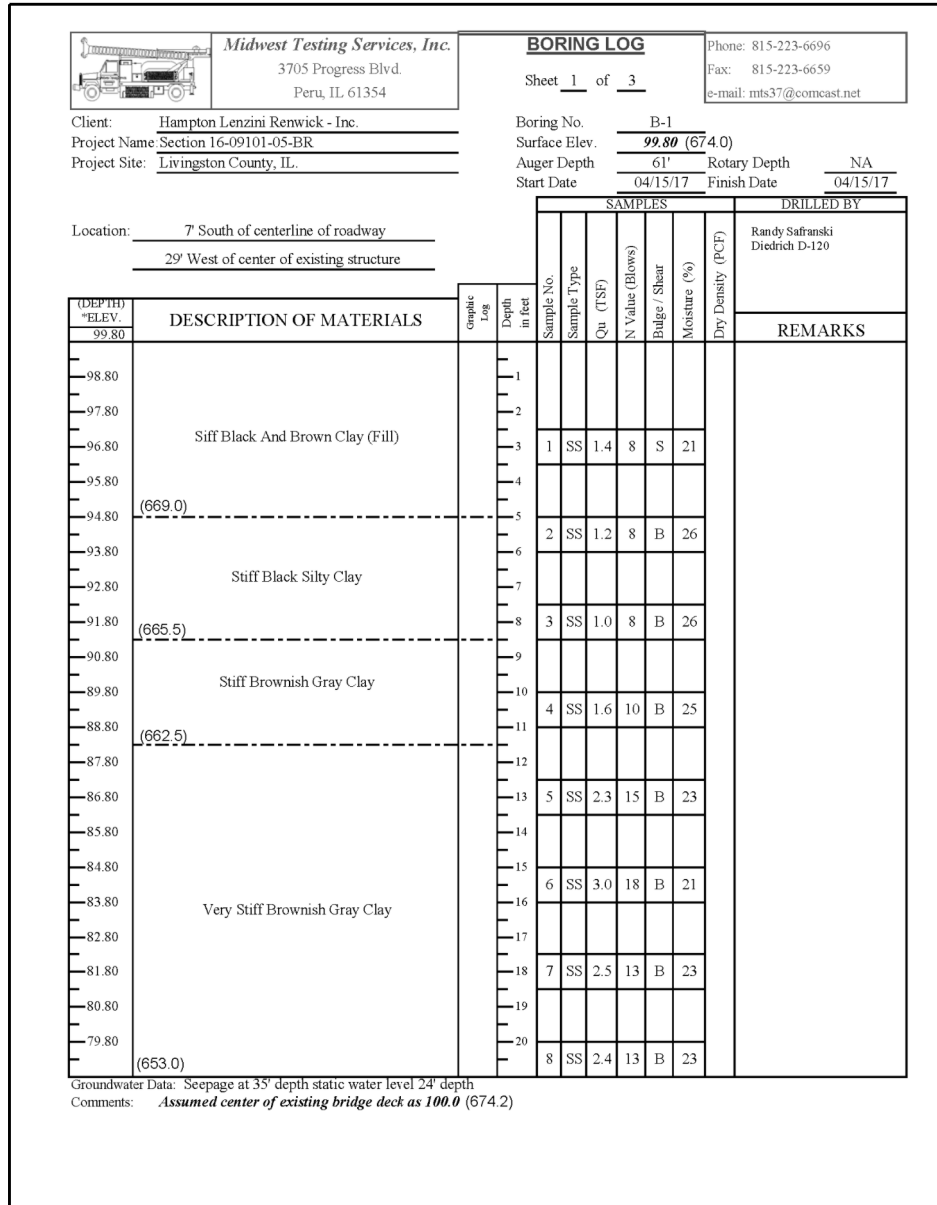
**ELEVATION**

**REINFORCEMENT AT ABUTMENTS**

Note:  
 The metal shell piles shall be according to Article 1006.05 of the Standard Specifications.

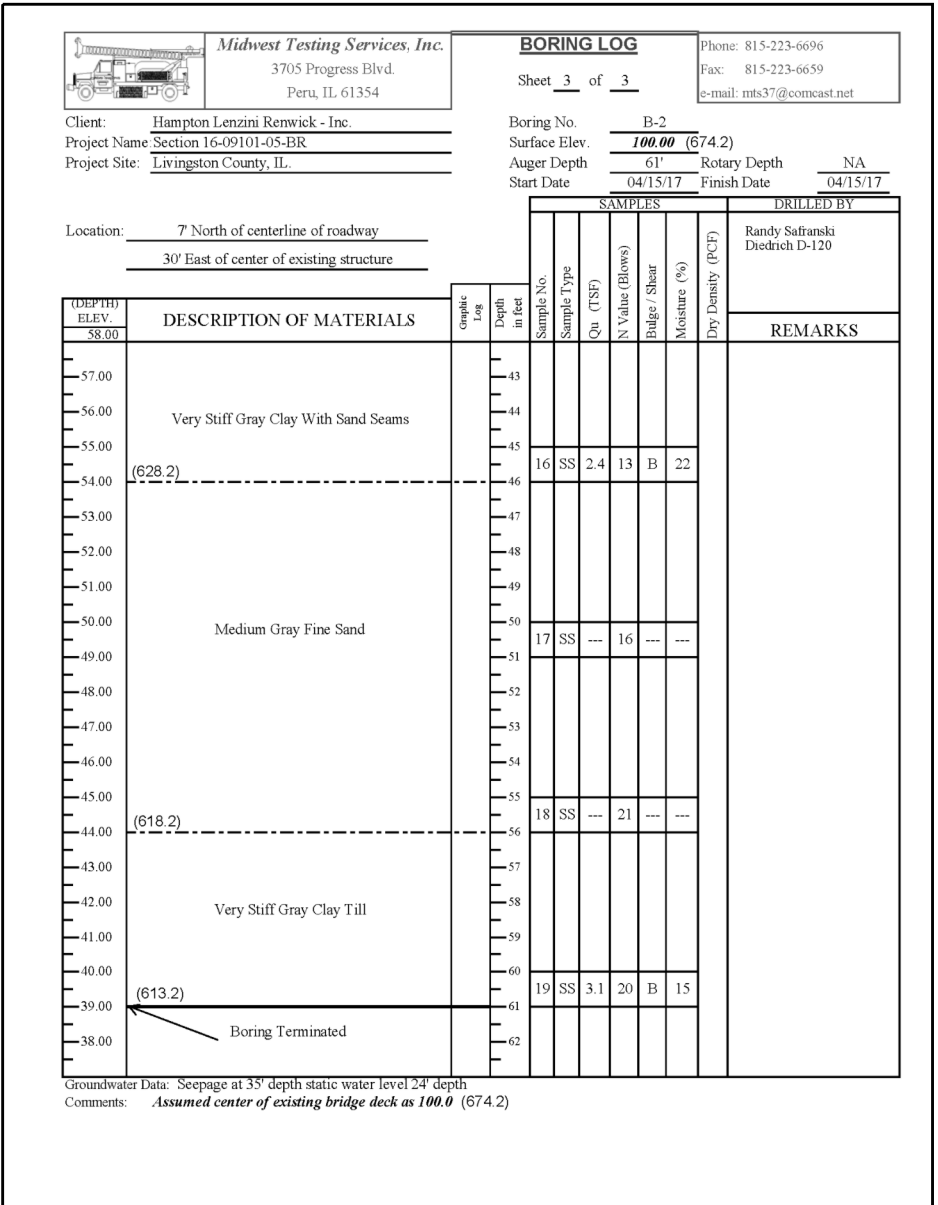
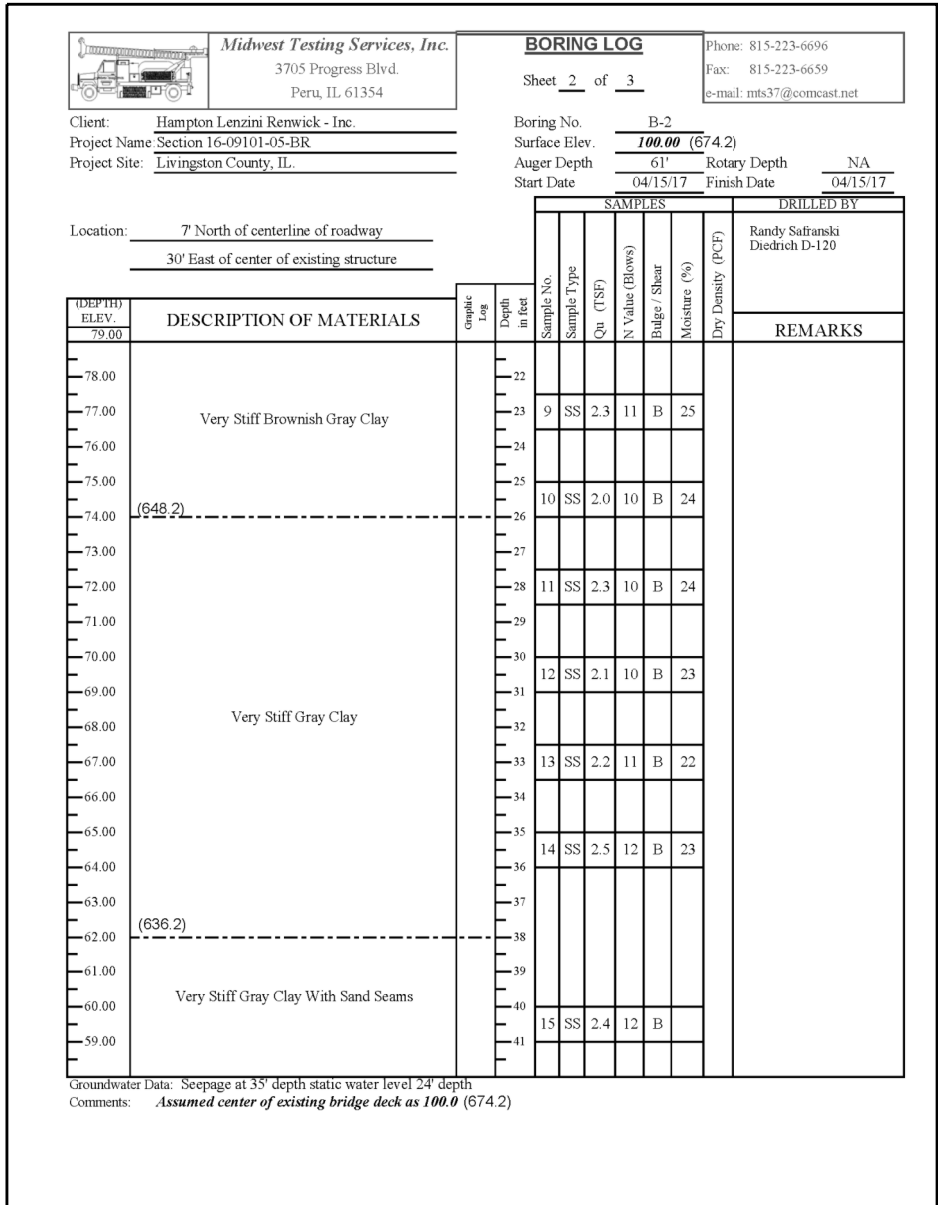
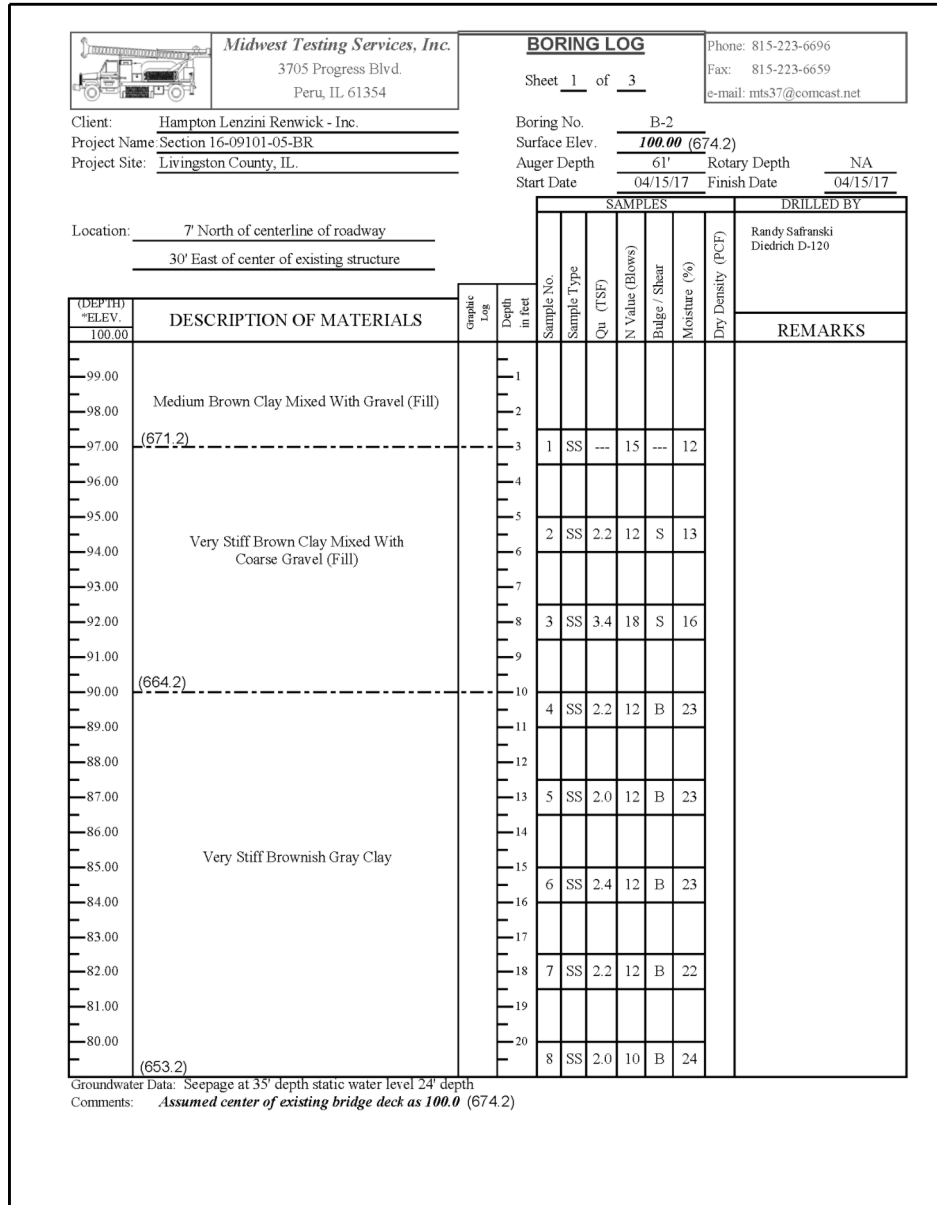
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HAMPTON, LENZINI AND RENWICK, INC. 3035 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000959	PLOT SCALE =	CHECKED - S.W.M.	REVISED -			97	16-09101-05-BR	LIVINGSTON	23	11
	PLOT DATE = 11/29/2018	DRAWN - M.M.P.	REVISED -			ESMEN ROAD DISTRICT		CONTRACT NO. 87694		
		CHECKED - S.W.M.	REVISED -			ILLINOIS		FED. AID PROJECT EIR2(942)		



**BORING-1**

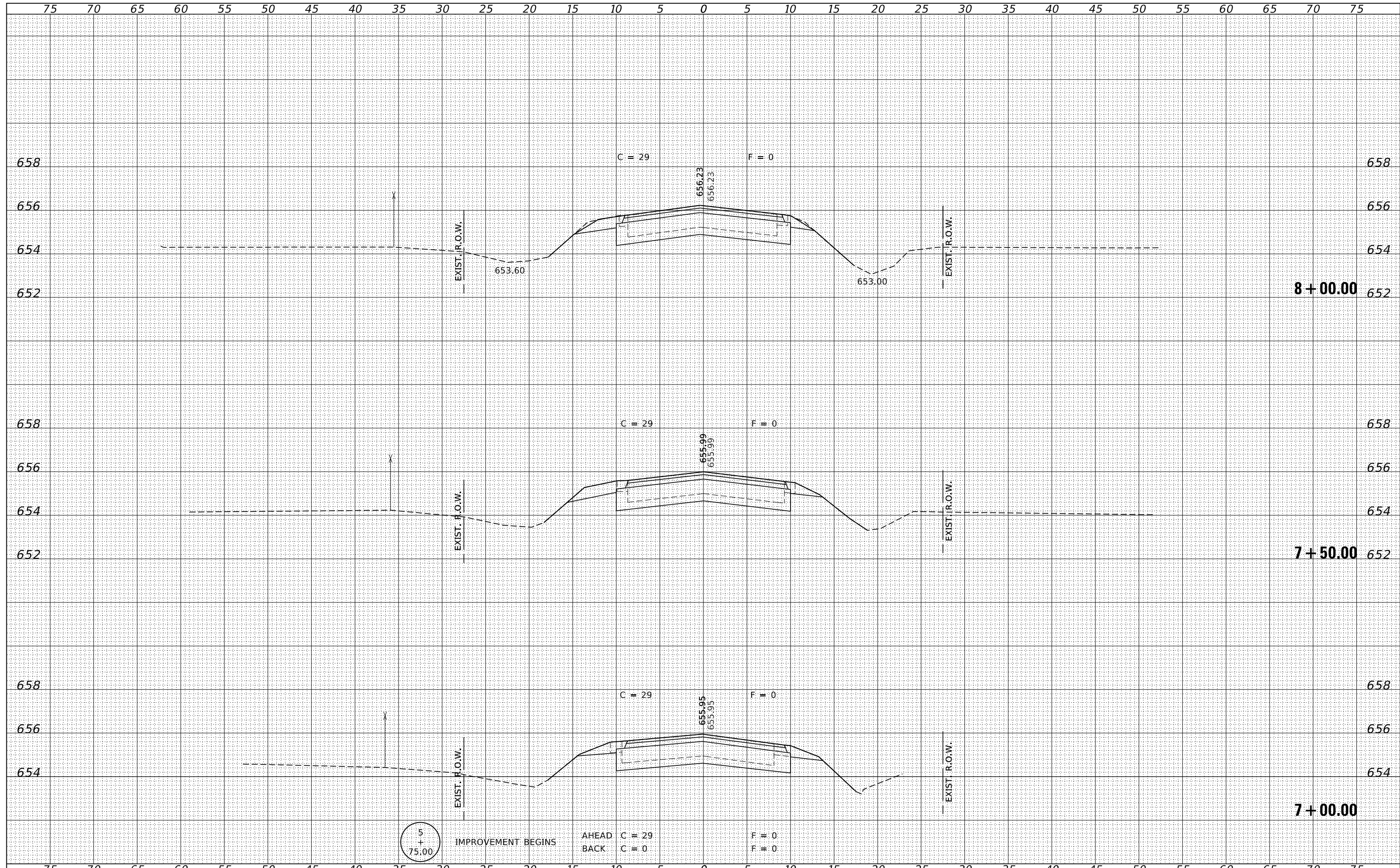




**BORING-2**

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BY	
SURVEYED	
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NOTE BOOK	
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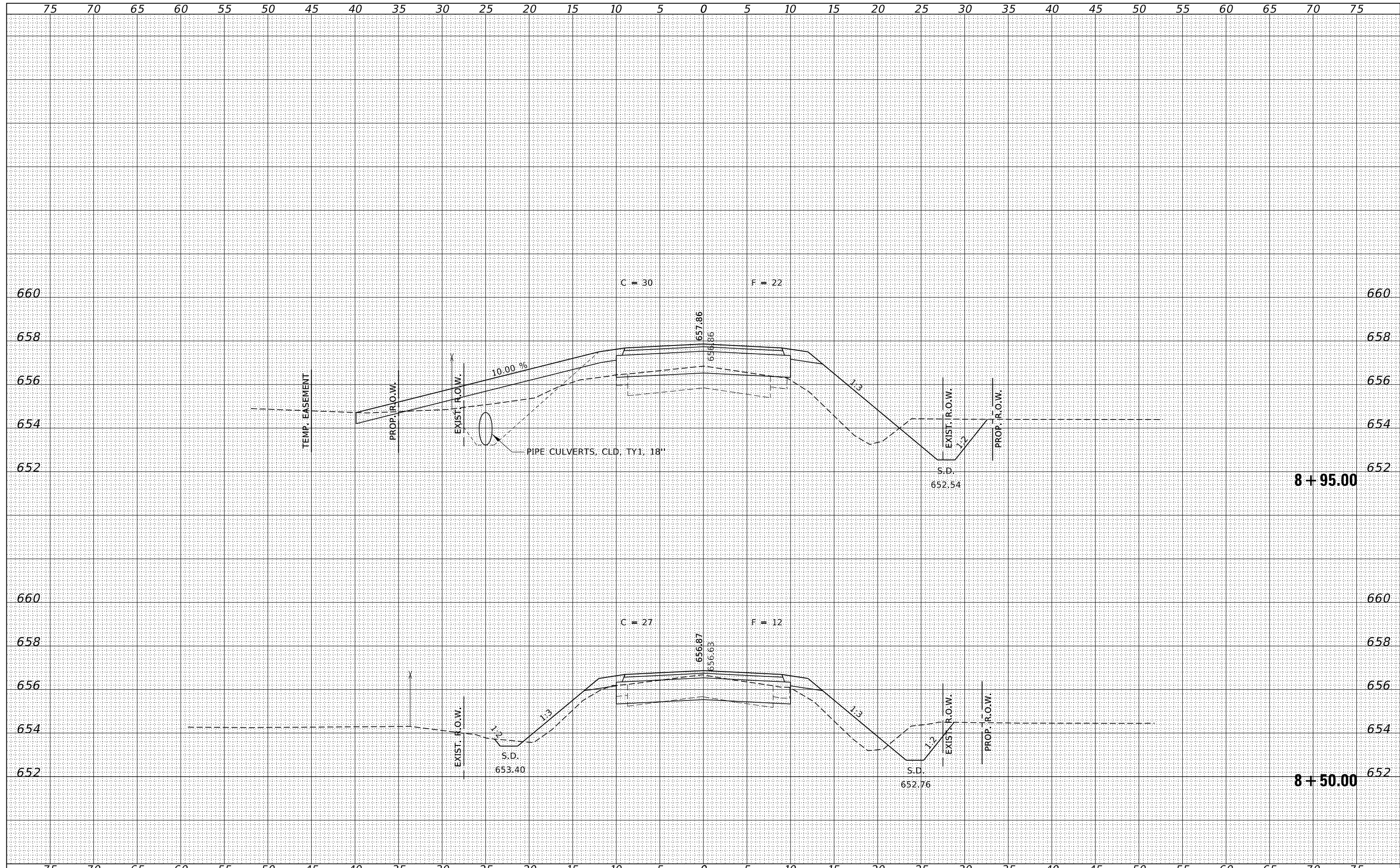
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HAMPTON, LENZINI AND RENWICK, INC. 3885 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM L.S. / P.E. / S.E. CORP. 184.000958	PLOT SCALE = \$SCALE\$	DRAWN - T.W.K.	REVISED -		97	16-09101-05-BR	LIVINGSTON	23	14			
PLOT DATE = 11/29/2018	CHECKED - S.W.M.	REVISED -	REVISI		ESMEN ROAD DISTRICT				CONTRACT NO. 87694			
DATE - 11/27/18	REVISED -	REVISI	SCALE: 5H:2V		SHEET NO. 1	OF 10 SHEETS	STA. 7+00.00	TO STA. 8+00.00	ILLINOIS FED. AID PROJECT E11Z(942)			

DATE	
BY	
FINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
NO.	TEMPLATE
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BY	
ORIGINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
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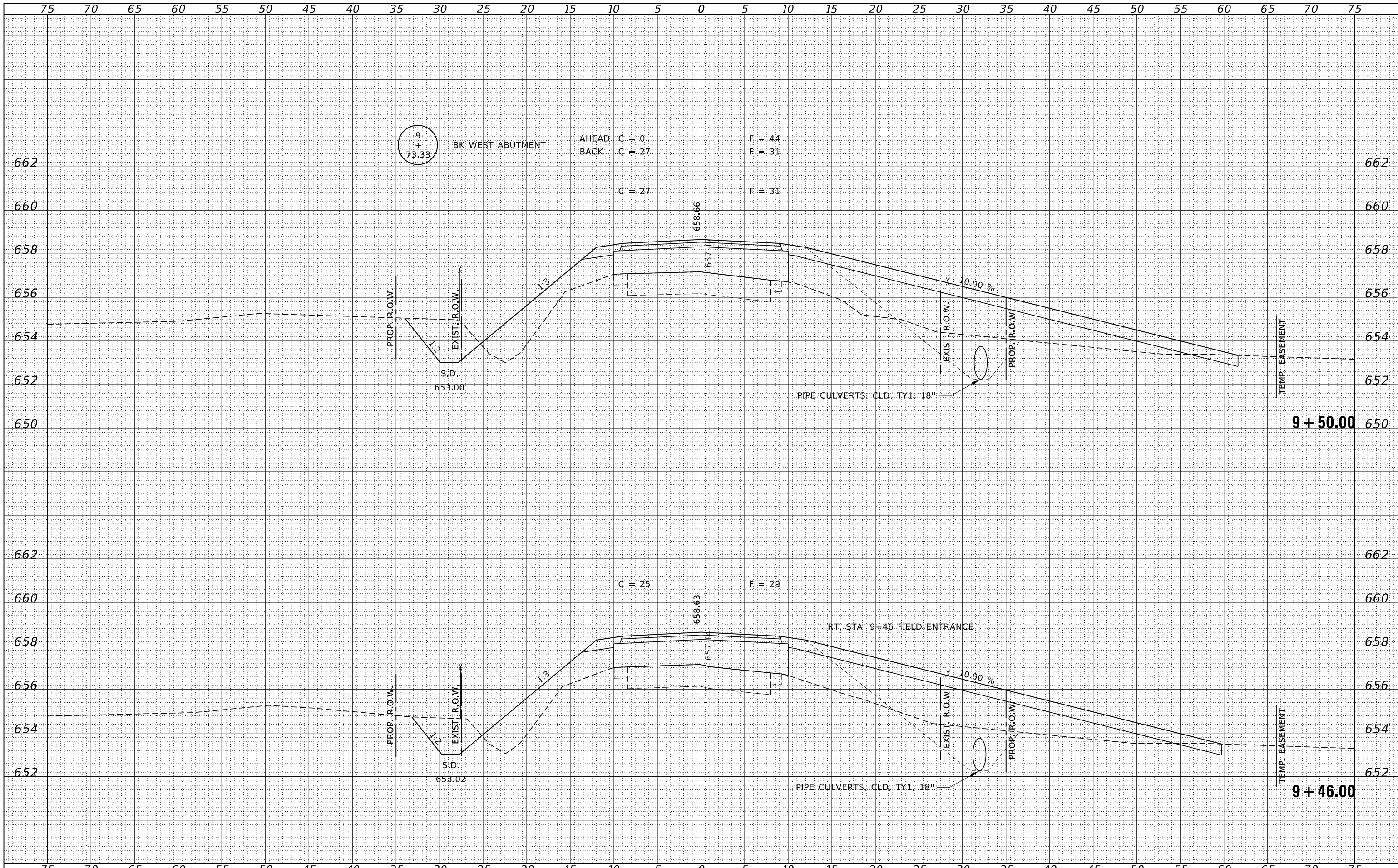


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HAMPTON, LENZINI AND RENWICK, INC. 3885 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM L.S. / P.E. / S.E. CORP. 184.009958	PLOT SCALE = \$SCALE\$	DRAWN - T.W.K.	REVISED -		97	16-09101-05-BR	LIVINGSTON	23	15			
PLOT DATE = 11/29/2018	DATE - 11/27/18	CHECKED - S.W.M.	REVISED -		ESMEN ROAD DISTRICT			CONTRACT NO. 87694				
		REVISOR -	REVISED -		ILLINOIS FED. AID PROJECT E11Z(942)							



DATE	
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NOTE BOOK	
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 DESIGNED - J.W.F.  
 DRAWN - T.W.K.  
 CHECKED - S.W.M.  
 DATE - 11/27/18  
 PLOT SCALE = \$SCALE\$  
 PLOT DATE = 11/29/2018

REVISIED -  
 REVISIED -  
 REVISIED -  
 REVISIED -

STATE OF ILLINOIS  
 LIVINGSTON COUNTY HIGHWAY DEPARTMENT

STATION CROSS SECTIONS  
 PEARSON BRIDGE

SCALE: 5H:2V SHEET NO. 4 OF 10 SHEETS STA. 9+45.98 TO STA. 9+50.00

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
97	16-09101-05-BR	LIVINGSTON	23	17
ESMEN ROAD DISTRICT		CONTRACT NO. 87694		

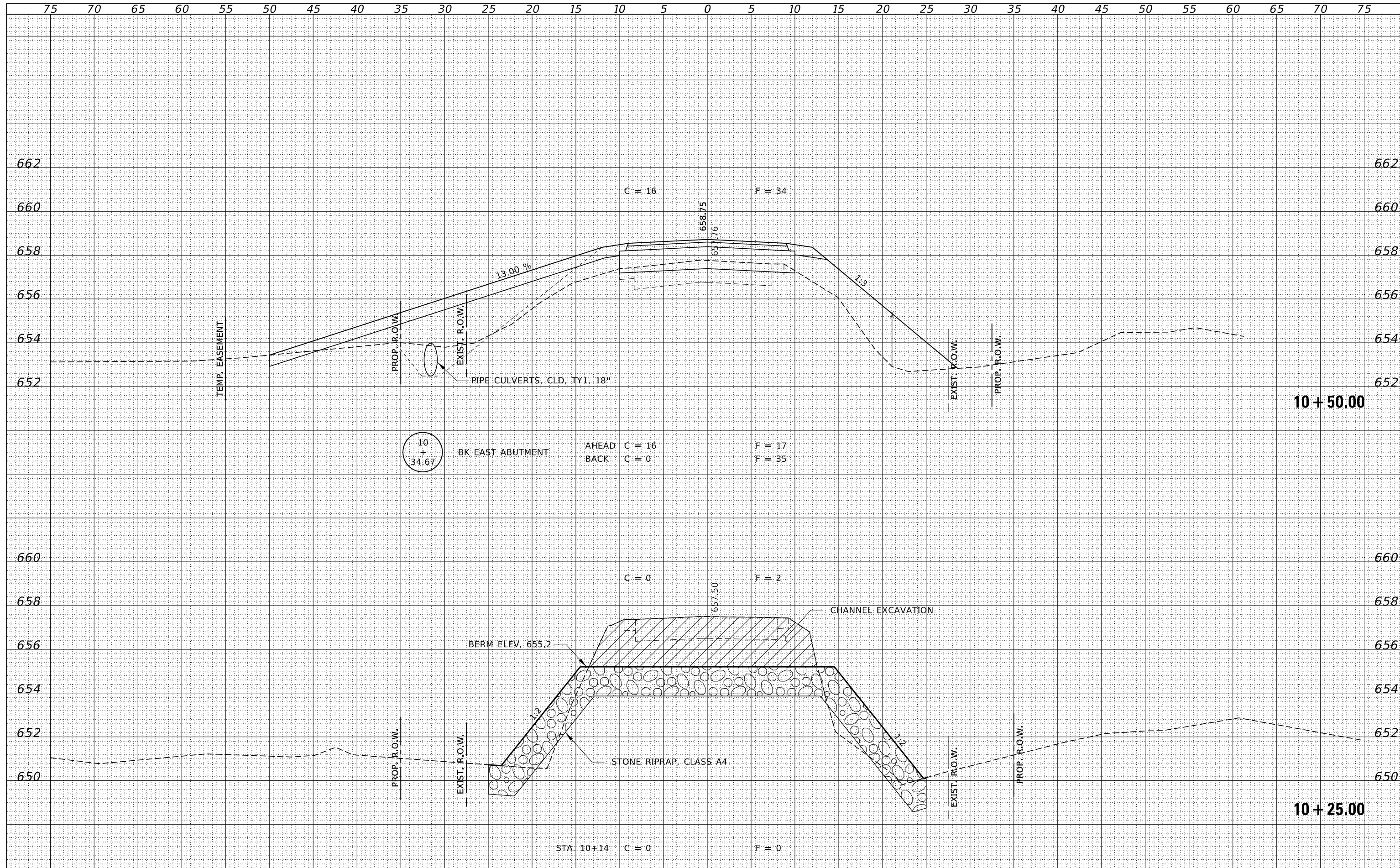
ILLINOIS FED. AID PROJECT E11Z(942)





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HAMPTON, LENZINI AND RENWICK, INC. 3885 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM L.S. / P.E. / S.E. CORP. 184.009958	PLOT SCALE = \$SCALE\$	DRAWN - T.W.K.	REVISED -		97	16-09101-05-BR	LIVINGSTON	23	19		
PLOT DATE = 11/29/2018	DATE = 11/27/18	CHECKED - S.W.M.	REVISED -		ESMEN ROAD DISTRICT		CONTRACT NO. 87694		ILLINOIS FED. AID PROJECT E112(942)		
		DATE - 11/27/18	REVISED -		SCALE: 5H:2V	SHEET NO. 6 OF 10 SHEETS	STA. 10+25.00 TO STA. 10+50.00				





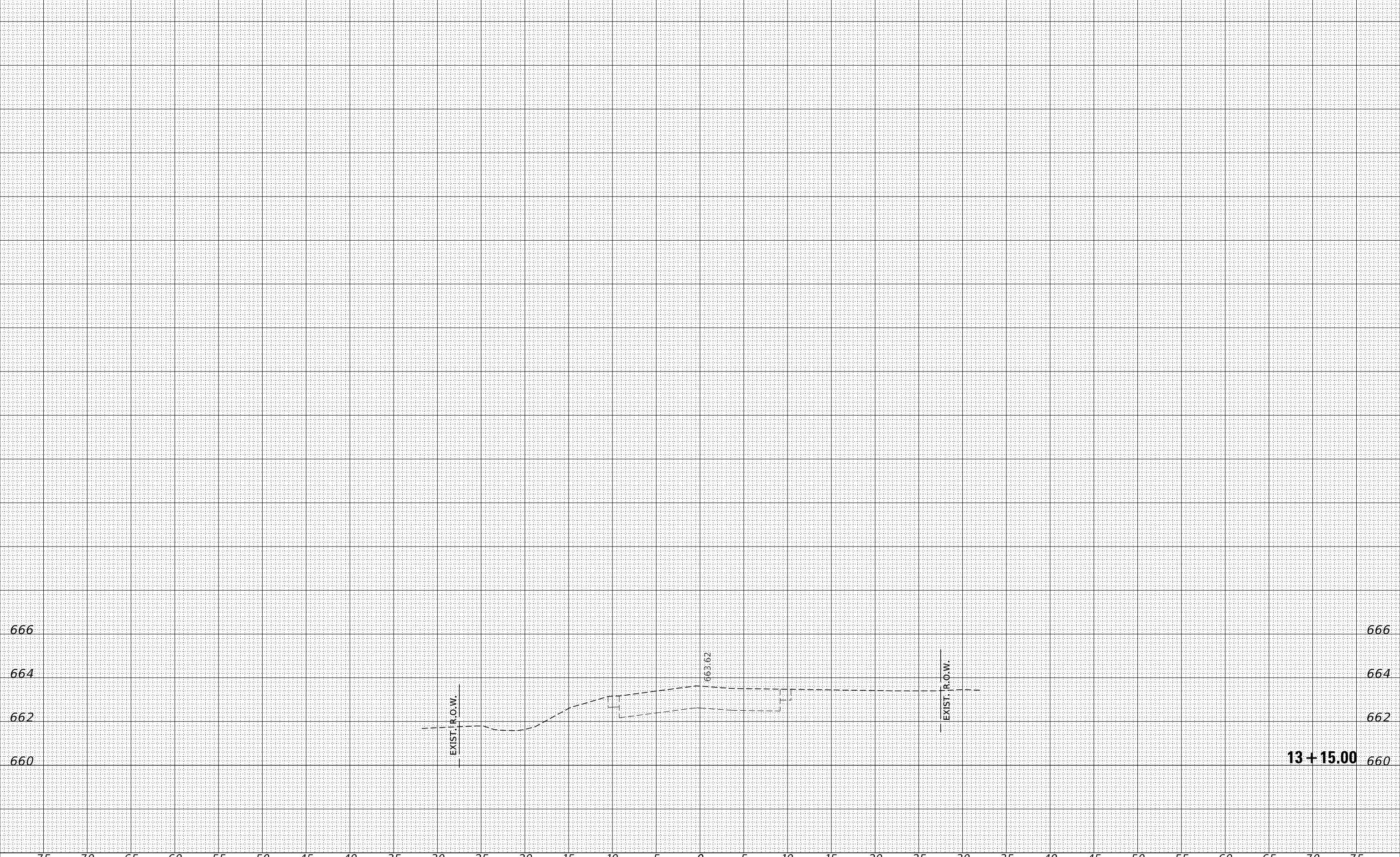




75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

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

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



FILE NAME = 170166-shl-xssheet.dgn	USER NAME = rmosck	DESIGNED - J.V.F.	REVISED -	<p align="center"><b>STATE OF ILLINOIS</b> <b>LIVINGSTON COUNTY HIGHWAY DEPARTMENT</b></p>	<b>STATION CROSS SECTIONS</b>			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 - T.W.K.	REVISED -		<b>PEARSON BRIDGE</b>			97	16-09101-05-BR	LIVINGSTON	23	23
PLOT DATE = 11/29/2018	DATE - 11/27/18	CHECKED - S.W.M.	REVISED -		SCALE: 5H:2V	SHEET NO. 10	OF 10 SHEETS	STA. 13+15.00	TO STA. 13+15.00	CONTRACT NO. 87694		
										ILLINOIS	FED. AID PROJECT	E11Z(942)

**13 + 15.00** 660