

06-14-13 LETTING ITEM 128

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 239	11-01201-00-BR	UNION	20	1
FED. ROAD DIST. NO.	ILLINOIS CONTRACT NO.		99503	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**PLANS FOR PROPOSED
SURFACE TRANSPORTATION PROGRAM – BRIDGE**

**PROJECT BROS-0181(058)
SECTION 11-01201-00-BR
COUNTY UNIT ROAD DISTRICT
UNION COUNTY
T.R. 239 / LIGHT LANE
PROPOSED STRUCTURE NO. 091-3241
C-99-543-12**

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.	STATION CROSS SECTIONS
12-19.	BRIDGE PLANS
20.	BORINGS

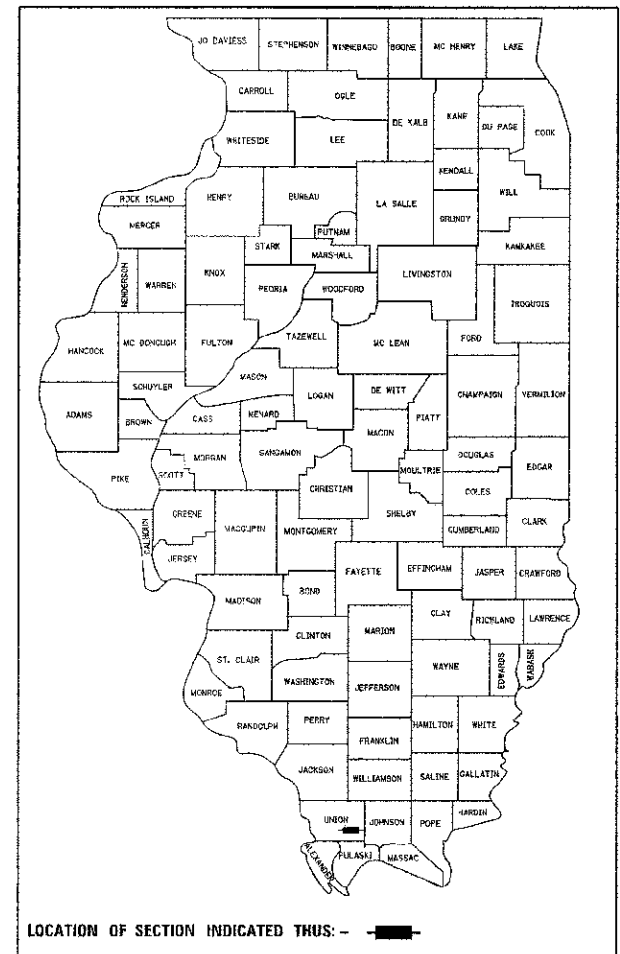
HIGHWAY STANDARDS:

000001-06	STANDARD SYMBOLS, ABBREVIATIONS, AND PATTERNS
515001-03	NAME PLATE FOR BRIDGES
635006-03	REFLECTOR AND TERMINAL MARKER PLACEMENT
701901-02	TRAFFIC CONTROL DEVICES
BLR 21-9	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

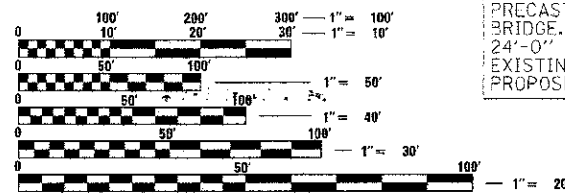
UTILITIES

FRONTIER COMMUNICATIONS
208 W. UNION
MARTON, IL 62959
ATTN: DARRELL SENIOR

SOUTHERN ILLINOIS ELEC. COOP
P.O. BOX 100
7420 U.S. HWY. 51 SOUTH
DONGOLA, IL 62926
ATTN: MICHAEL LOGEMAN



FUNCTIONAL CLASSIFICATION: LOCAL ROAD (ADT <250)
DESIGN SPEED: 30 MPH
DESIGN TRAFFIC: 25 ADT (2013)

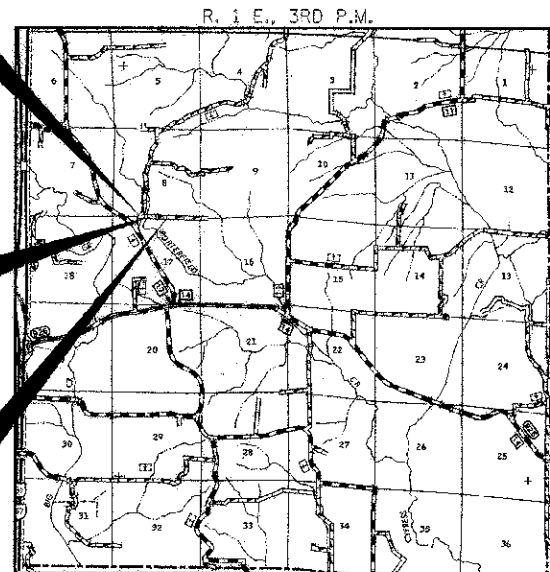


FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

STA. 9+97
PRECAST PRESTRESSED CONCRETE DECK BEAM
BRIDGE. SINGLE SPAN @ 45'-0"
24'-0" RDWY.; SKEW = 0°
EXISTING STRUCTURE NO. 091-3183
PROPOSED STRUCTURE NO. 091-3241

IMPROVEMENT BEGINS
STATION 8+50

IMPROVEMENT ENDS
STATION 11+00

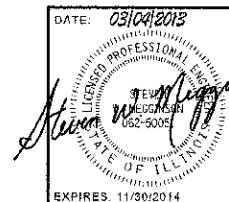


LOCATION MAP

APPROXIMATE SCALE: 0 1 MILE
NET LENGTH OF SECTION = 250 FEET = 0.047 MILES



ILLINOIS DEPARTMENT OF TRANSPORTATION	
APPROVED	March 27 2013 Theresa Grammes COUNTY ENGINEER
PASSED	MARCH 28 2013 Dennis W. Hill DISTRICT NINE ENGINEER OF LOCAL ROADS & STREETS
Releasing For Bid Based on Unlimited Review	March 28 2013 Jeffrey L. Keirn, P.E. ACTING DEPUTY DIRECTOR OF HIGHWAYS 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.hirengineering.com
184.000959
ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORPORATION

CONTRACT NO. 99503

PROJECT NUMBER: 12.0023.130 DATE: 03/04/13

SUMMARY OF QUANTITIES			
CODE NO.	ITEM	UNIT	TOTAL
			CONSTRUCTION TYPE CODE 0011
^ 20100110	TREE REMOVAL (6 TO 15 UNITS DIAMETER)	UNIT	60
^ 20100210	TREE REMOVAL (OVER 15 UNITS DIAMETER)	UNIT	60
^ 20200100	EARTH EXCAVATION	CU YD	116
20200200	ROCK EXCAVATION	CU YD	1.2
^ 20300100	CHANNEL EXCAVATION	CU YD	138
^ 28100807	STONE DUMPED RIPRAP, CLASS A4	TON	170
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	119
^ 50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
^ 50105220	PIPE CULVERT REMOVAL	FOOT	80
50300225	CONCRETE STRUCTURES	CU YD	23.6
50400305	PRECAST PRESTRESSED CONCRETE DECK BEAMS (17" DEPTH)	SQ FT	1,080
50900105	REINFORCEMENT BARS	POUND	2,360
* 50900205	STEEL RAILING, TYPE S1	FOOT	87
51201300	FURNISHING STEEL PILES HP8X36	FOOT	120
51202305	DRIVING PILES	FOOT	120
51500100	NAME PLATES	EACH	1
542A0220	PIPE CULVERTS, CLASS A, TYPE 1 15"	FOOT	56
67100100	MOBILIZATION	LSUM	1
* 78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
^ X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.3

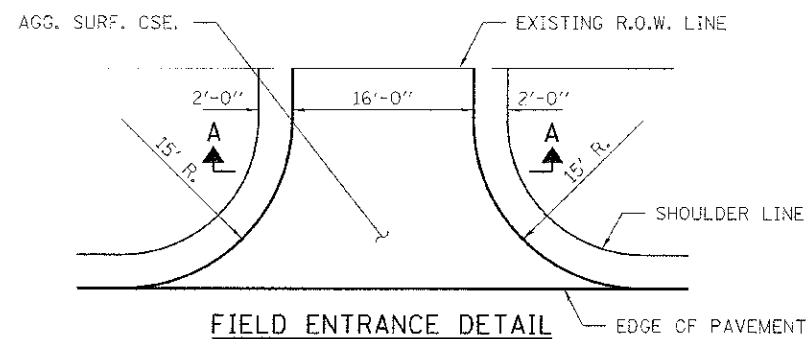
^ SEE SPECIAL PROVISIONS
* SPECIALTY ITEMS

GENERAL NOTES

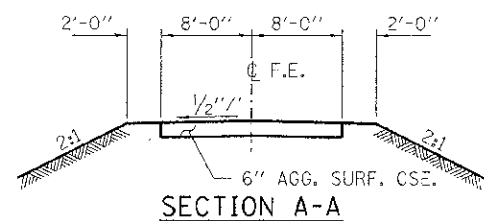
- ALL CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE STATE OF ILLINOIS "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION ADOPTED JANUARY 1, 2012," THESE PLANS AND THE SPECIAL PROVISIONS INCLUDED IN THE CONTRACT DOCUMENTS.
- THE REVISION NUMBERS OF THE STANDARDS LISTED IN THE PLANS ARE TO BE USED FOR CONSTRUCTING OF THIS SECTION.
- ALL CLEARING AND GRUBBING, FENCE REMOVAL AND REMOVAL OF EXISTING DRAINAGE STRUCTURES SHALL BE INCLUDED IN THE COST OF EARTH EXCAVATION.
- THE LOCATION OF EXISTING GAS MAINS, ELECTRIC POWER LINES, TELEPHONE LINES AND OTHER UTILITIES AS SHOWN ON THE PLANS ARE BASED ON CAREFUL 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.
- 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 FOLLOWING RATES OF APPLICATION HAVE BEEN USED IN CALCULATING PLAN QUANTITIES:
AGGREGATE SURFACE COURSE, TYPE B 2.05 TON/CU YD
STONE DUMPED RIPRAP, CLASS A4 1.75 TON/CU YD
- THE AREA TO BE SEEDED SHALL CONSIST OF ALL DISTURBED EARTH SURFACES WITHIN THE RIGHT OF WAY AS DIRECTED BY THE ENGINEER.
ESTIMATED QUANTITY: SEEDING, CLASS 2 (SPECIAL) = 0.3 ACRES
- TREES WITHIN THE RIGHT-OF-WAY WHICH INTERFERE WITH CONSTRUCTION SHALL BE REMOVED ONLY AT THE DIRECTION OF THE ENGINEER. SEE SPECIAL PROVISIONS - REQUIRED FOR REMOVAL HAVE BEEN FELLED.
- ALL WASTE MATERIAL FROM EXCAVATIONS SHALL BE DISPOSED OF BY THE CONTRACTOR. NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

EARTHWORK SCHEDULE							
LOCATION	EARTH EXCAVATION	CHANNEL EXCAVATION	SHRINKAGE FACTOR	PERCENT USED	EARTH EXCAVATION ADJUSTED FOR SHRINKAGE	EMBANKMENT REQUIRED	EARTHWORK BALANCE
	20200100 CU.YD.	20300100 CU.YD.			CU.YD.	CU.YD.	CU.YD.
TR 239 / LIGHT LANE							
STA 9+00 TO STA 9+73.83	66		25.00%	100.00%	50	15	35
STA 9+73.83 TO STA 10+20.17		138	25.00%	70.00%	72	0	72
STA 10+20.17 TO STA 11+00	50		25.00%	100.00%	38	1	37
ENTRANCE EMBANKMENT						15	-15
TOTAL	116	138			160	31	129
USE	116	138					129

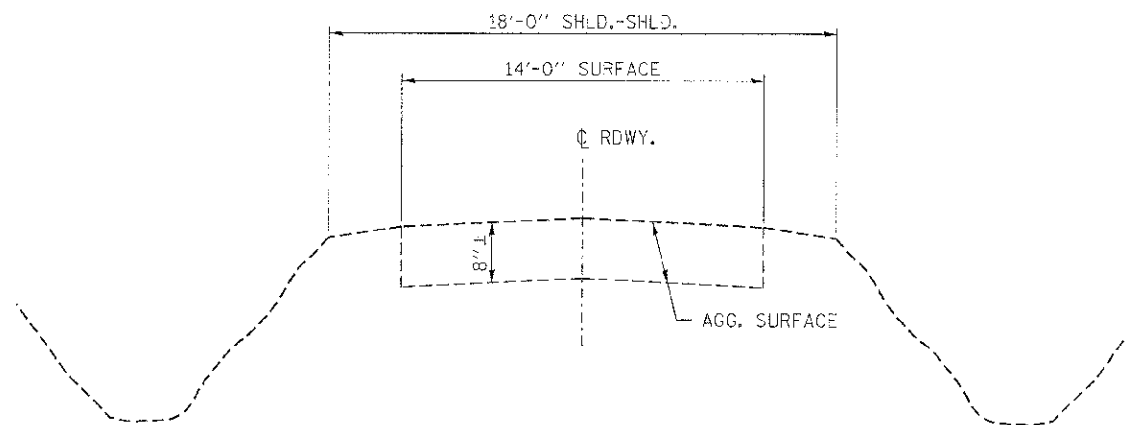
WASTE EXCAVATION 129 CU YDS



FIELD ENTRANCE DETAIL

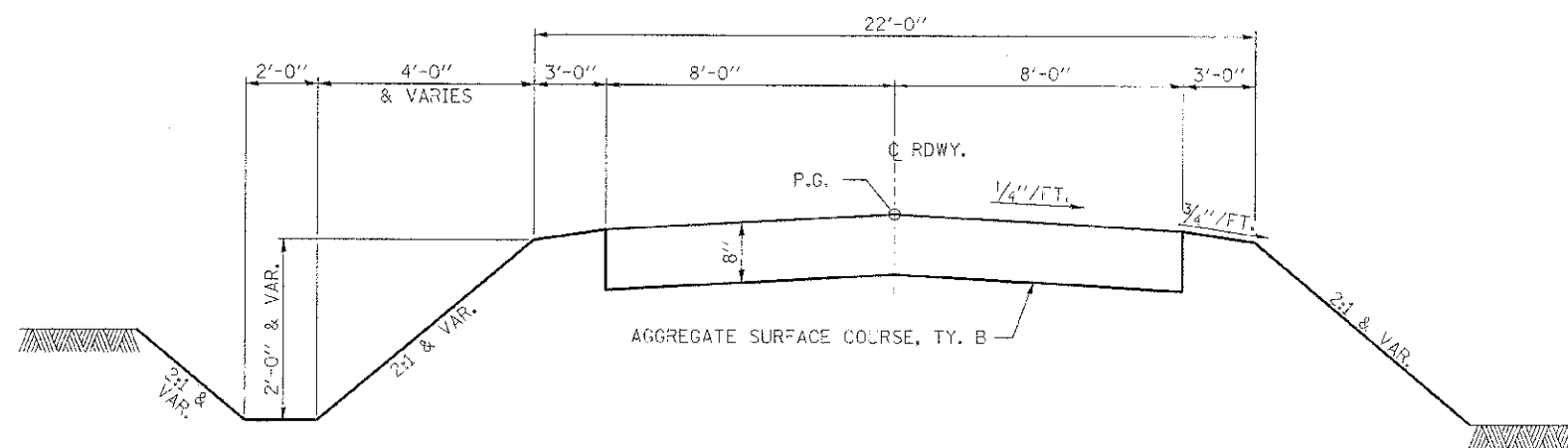


SECTION A-A



EXISTING TYPICAL CROSS SECTION

STA. 7+00 TO 13+00



PROPOSED TYPICAL CROSS SECTION

STA. 9+00 TO 11+00

TRANSITIONS FROM THE PROPOSED ROADWAY TO THE EXISTING ROADWAY ARE TO BE CONSTRUCTED FROM STA. 9+00 TO 9+50 AND STA. 10+50 TO 11+00. SEE SHEET 12 FOR TRANSITION AT BRIDGE.

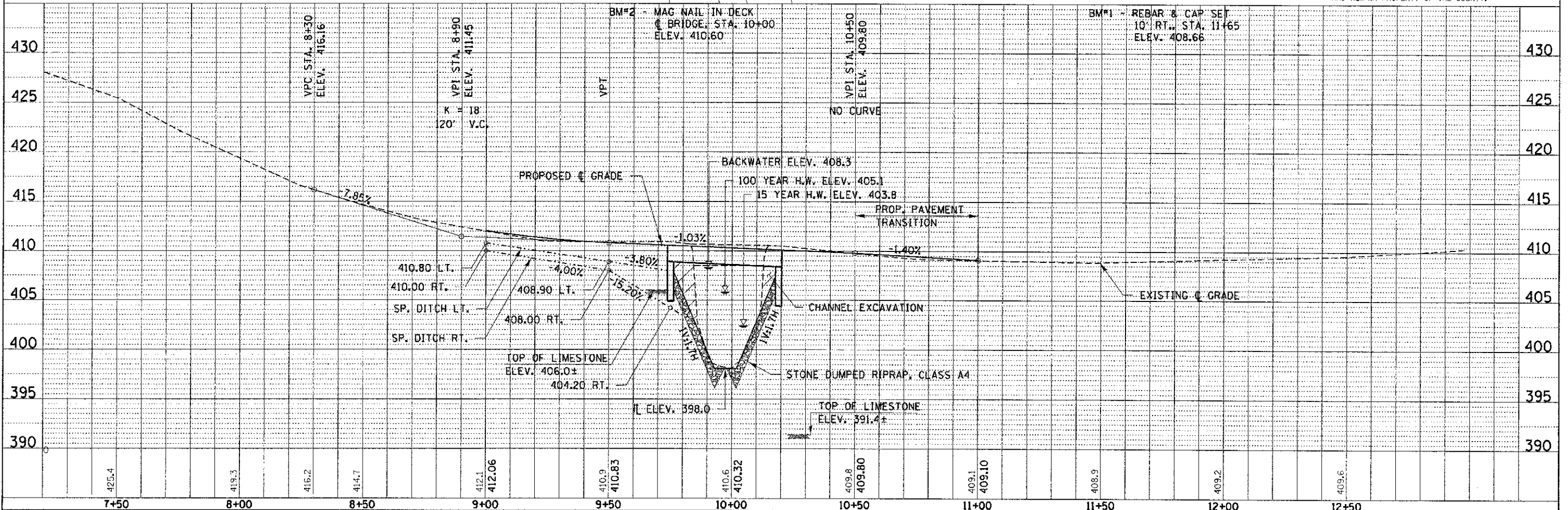
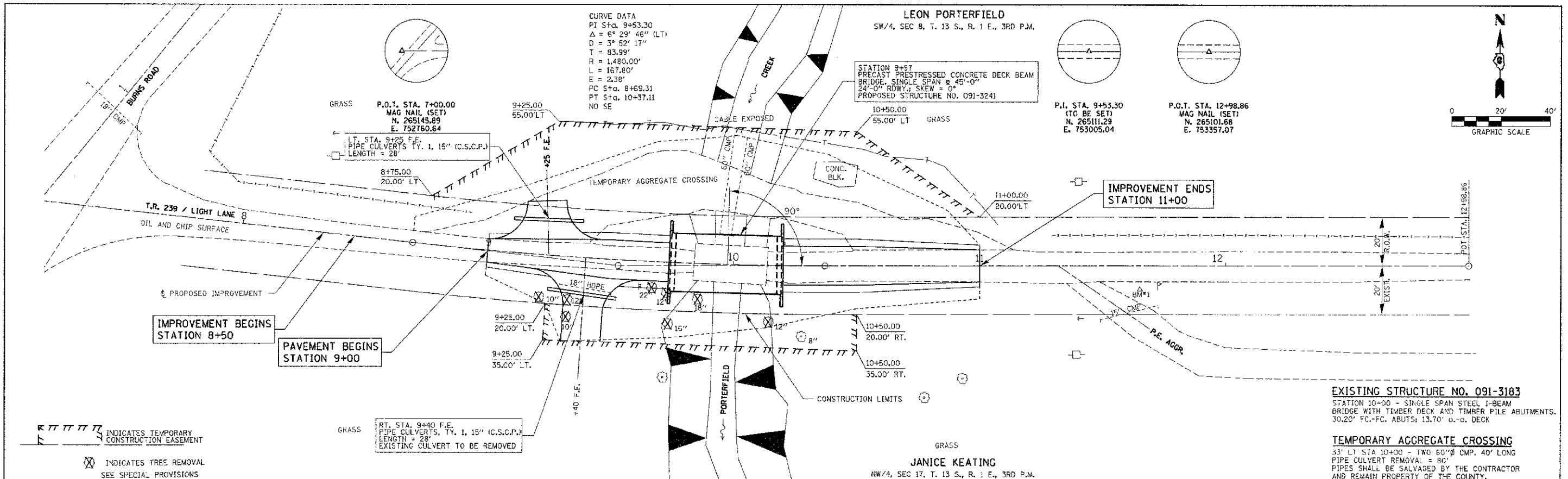
SUGGESTED CUT SECTION
CONSTRUCT AS SHOWN IN
STATION CROSS SECTIONS

SUGGESTED FILL SECTION
CONSTRUCT AS SHOWN IN
STATION CROSS SECTIONS

FILE NAME = 122023-ent-typsections.dgn	USDR NAME =	DESIGNED - J.W.F.	REVISED -	STATE OF ILLINOIS UNION COUNTY HIGHWAY DEPARTMENT	TYPICAL CROSS SECTIONS LIGHT LANE	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
HAMPTON, LENZINI AND RENWICK, INC. 306 STEVENSON DRIVE, SUITE 301 SPRINGFIELD, ILLINOIS 62760	PLD SCALE =	DRAWN - R.D.H.	REVISED -			239	11-01201-00-BR	UNION	20	3	
ILLINOIS PROFESSIONAL DESIGN FIRM L5/PE/SE/CCRP 184-02385	PLD DATE = 3/15/2013	CHECKED - S.W.M.	REVISED -			COUNTY UNIT ROAD DISTRICT	CONTRACT NO. 99503		ILLINOIS FED. AID PROJECT BR05-01810581		
		DATE - 03/15/13	REVISED -			SCALE:	SHEET NO. 1 OF 1 SHEETS	STA.	TO STA.		

DATE	
BY	
REVISION	
NOTED	
PLANNED	
APPROVED	
DESIGNED	
CHECKED	
DRAWN	
FILE NAME	
NO.	
PLAN	
NOTE BOOK	
NO.	

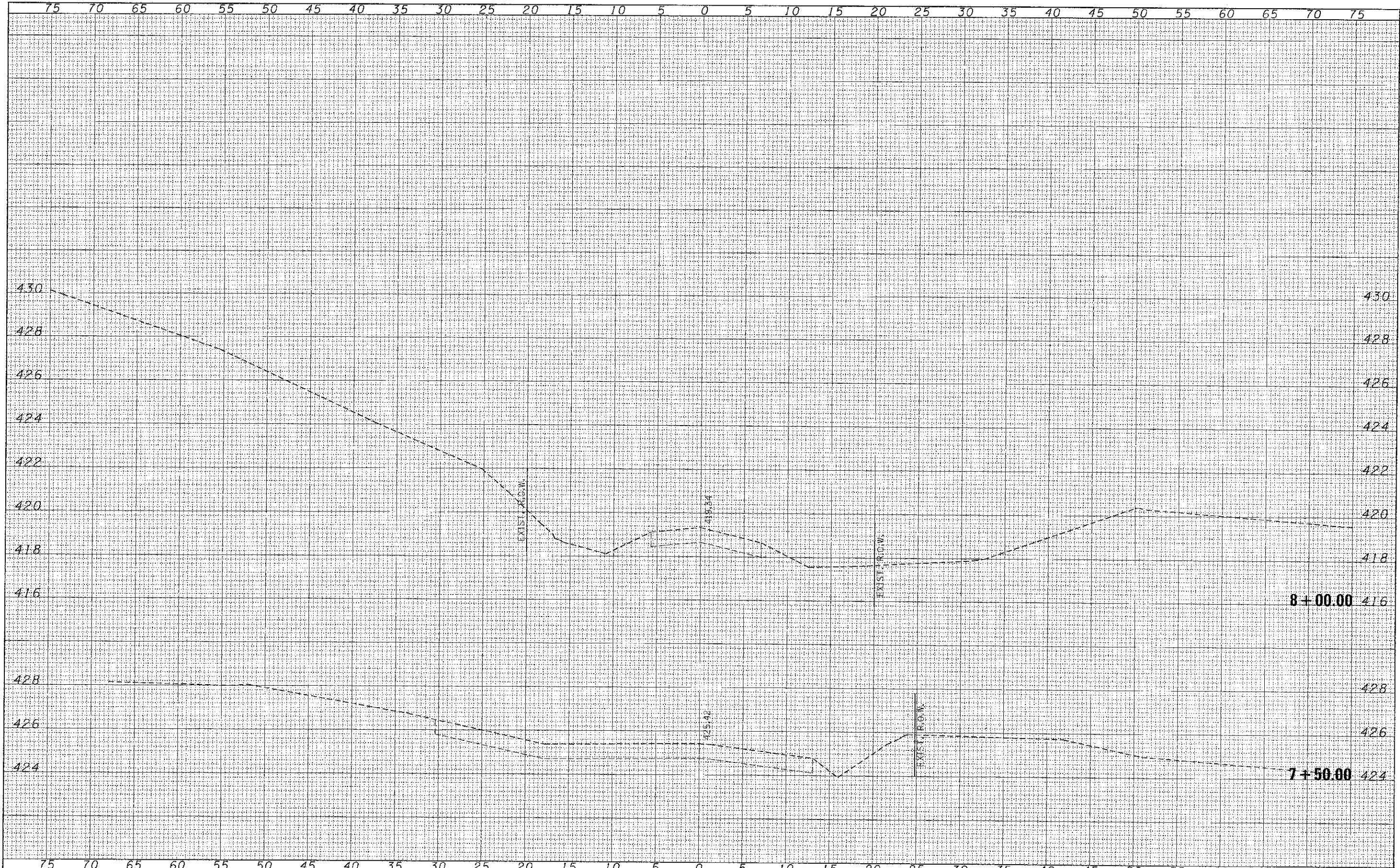
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REVISION	
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APPROVED	
DESIGNED	
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DRAWN	
FILE NAME	
NO.	
PROFILE	
NOTE BOOK	
NO.	



FILE NAME = 120023-sh1.ppl.dgn	USER NAME =	DESIGNED - J.W.F.	REVISED -	STATE OF ILLINOIS UNION COUNTY HIGHWAY DEPARTMENT	PLAN & PROFILE LIGHT LANE	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
HAMPTON, LENZINI AND RENWICK, INC.		DRAWN - L.G.C.	REVISED -			239	11-012C1-00-B9	UNION	20	4
1000 STEVENSON DRIVE, SUITE 200 SPRINGFIELD, ILLINOIS 62704	PL07 SCALE =	CHECKED - S.W.M.	REVISED -			COUNTY UNIT ROAD DISTRICT	CONTRACT NO. 99503	ILLINOIS	FED. AID PROJECT BRGS-0181058	
ILLINOIS PROFESSIONAL DESIGN FIRM LST.FE/ISE CORP. 124-30889	PL07 DATE = 3/25/2013	DATE - 03/15/13	REVISED -			SCALE: H20xV5	SHEET NO. 1 OF 1 SHEETS	STA. 7+00	TO STA. 13+00	

DATE	
BY	
DESIGNED	
DRAWN	
CHECKED	
DATE	

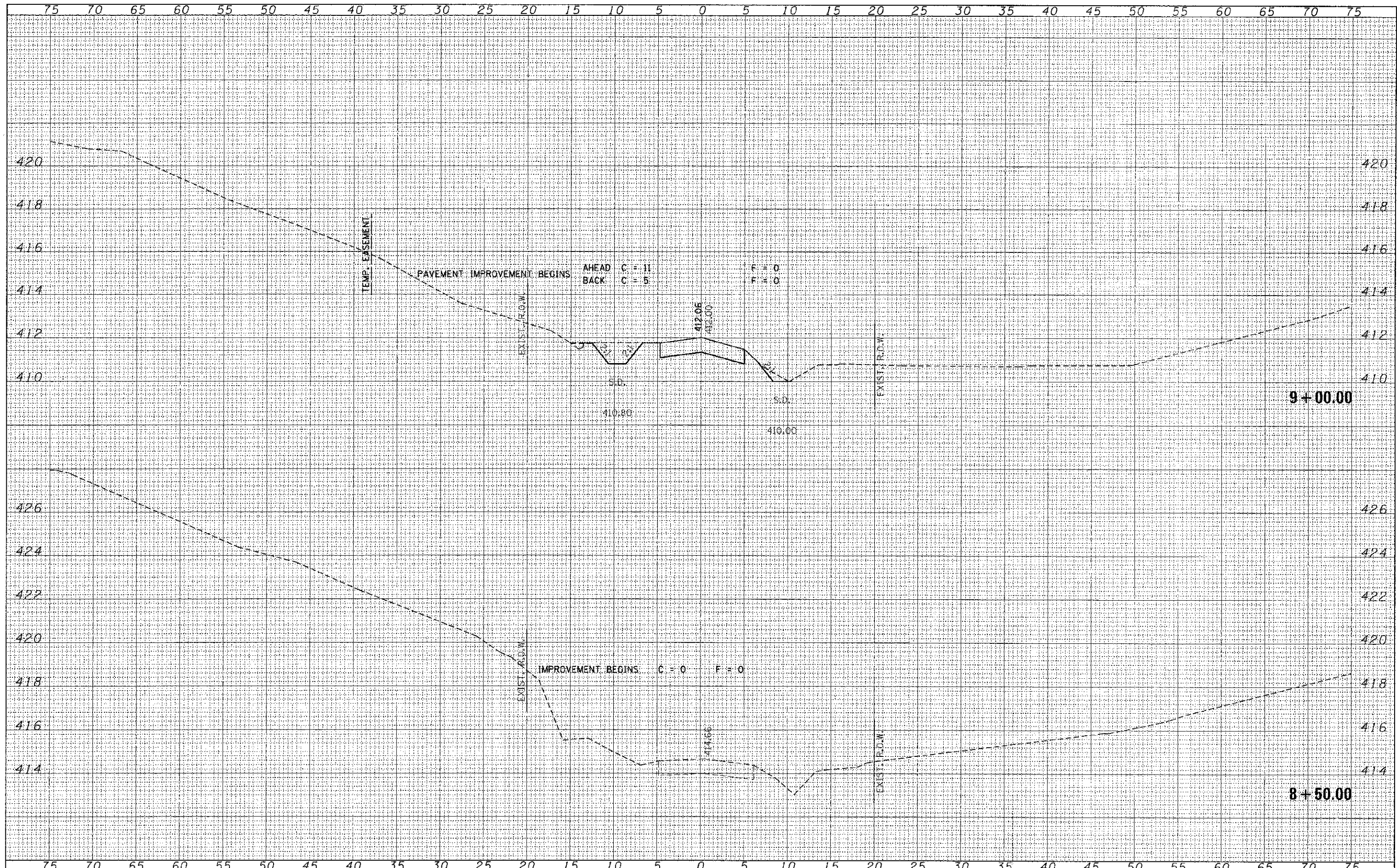
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BY	
DESIGNED	
DRAWN	
CHECKED	
DATE	



FILE NAME - 128823-shr-ss.dgn	USER NAME -	DESIGNED - J.W.F.	REVISED -	<p align="center">STATE OF ILLINOIS UNION COUNTY HIGHWAY DEPARTMENT</p>	STATION CROSS SECTIONS		T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
HAMPTON, LENZINI AND RENWICK, INC.		DRAWN - L.G.C.	REVISED -		239	11-01201-CO-BR	UNION	20	5		
268 W. WASHINGTON AVE., SUITE 214 SPRINGFIELD, ILLINOIS 62761		CHECKED - S.W.M.	REVISED -		COUNTY UNIT ROAD DISTRICT		CONTRACT NO. 99503				
41 N.W. PROFESSIONAL DESIGN FIRM 18 1/2 E. SE CORNER 144.00366		DATE - 03/15/13	REVISED -		ILLINOIS		FED. AID PROJECT BR05-01810581				
PLOT SCALE -				SCALE: H5:V2	SHEET NO. 1 OF 7 SHEETS		STA. 7+50.00 TO STA. 8+00.00				

DATE	
BY	
FINAL SURVEY	
PLOTTED	
NOTE BOOK	
AREAS CHECKED	

DATE	
BY	
ORIGINAL SURVEY	
PLOTTED	
NOTE BOOK	
AREAS CHECKED	



FILE NAME = 120023-eh-ssu.dgn
 HAMPTON, LENZINI AND RENWICK, INC.
 3001 W. HENRY DRIVE, SUITE 201
 SPRINGFIELD, ILLINOIS 62703
 ILLINOIS PROFESSIONAL ENGINEERING FIRM
 LICENSE NO. 184-000959

USER NAME =
 PLOT SCALE =
 PLOT DATE = 3/15/2013

DESIGNED -	J.W.F.	REVISED -	
DRAWN -	L.G.C.	REVISED -	
CHECKED -	S.W.M.	REVISED -	
DATE -	03/15/13	REVISED -	

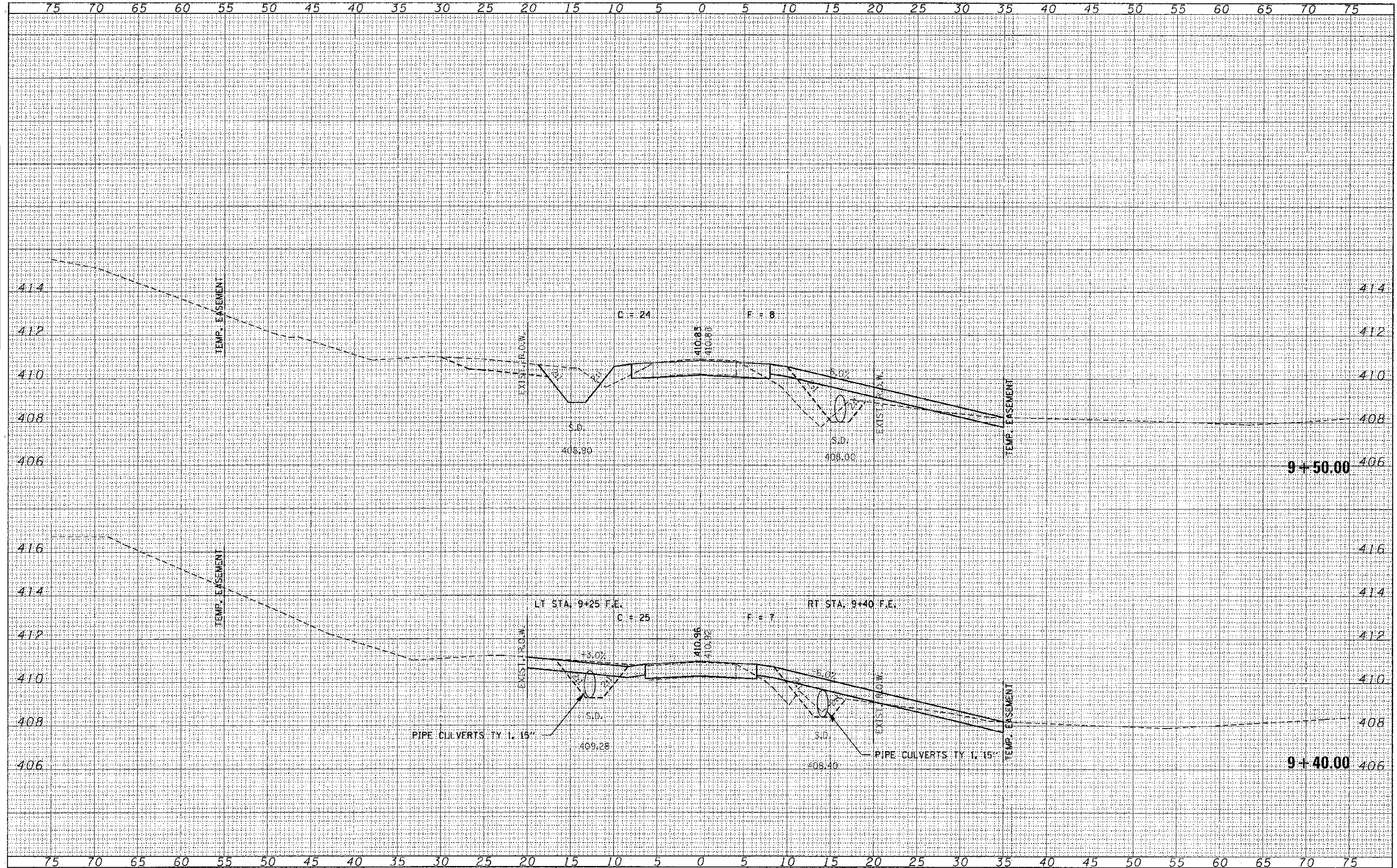
STATE OF ILLINOIS
 UNION COUNTY HIGHWAY DEPARTMENT

STATION CROSS SECTIONS
 LIGHT LANE
 SCALE: H&V2
 SHEET NO. 2 OF 7 SHEETS | STA. 8+50.00 TO STA. 9+00.00

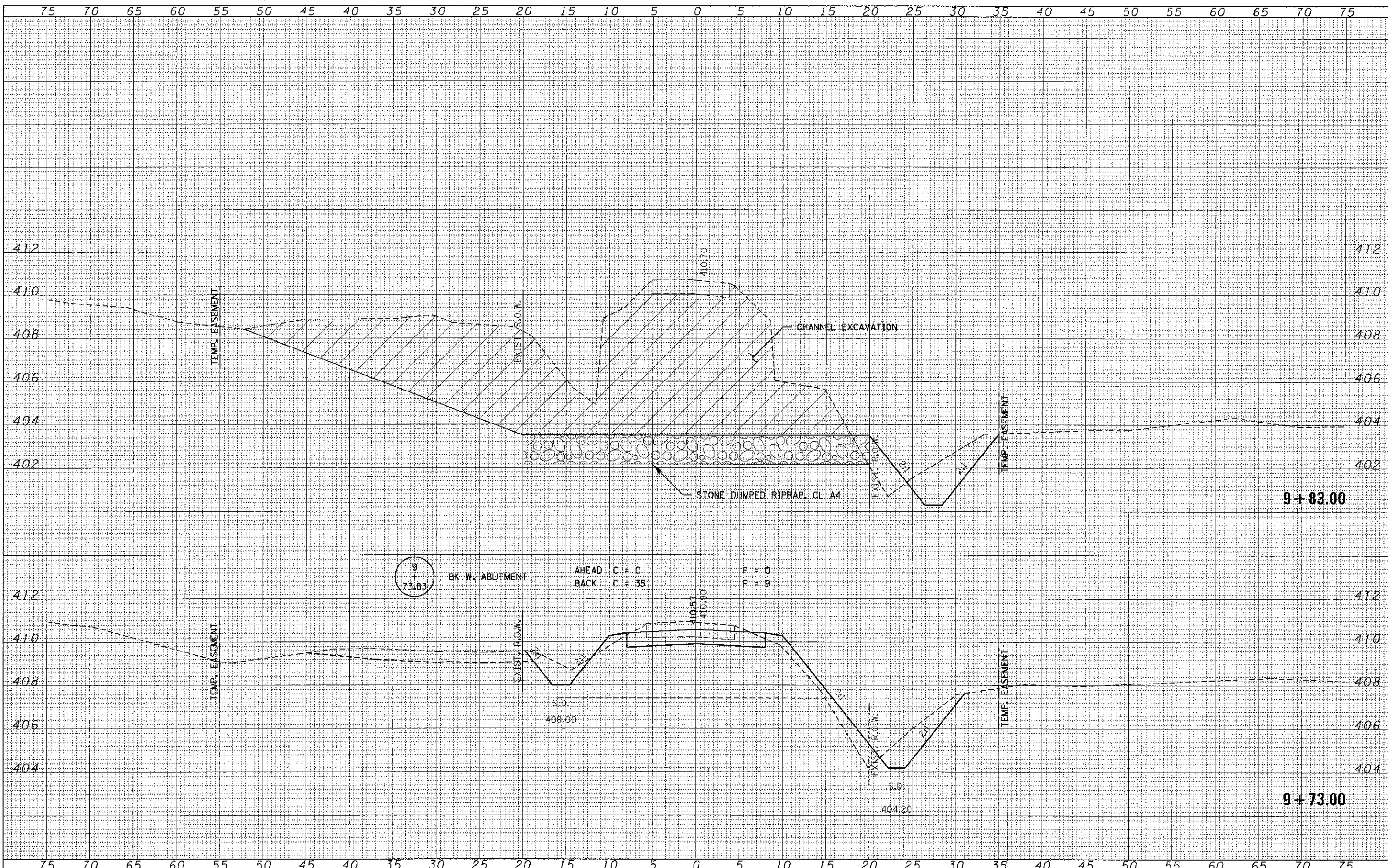
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239	11-01201-00-BR	UNION	20	6
COUNTY UNIT ROAD DISTRICT			CONTRACT NO. 99503	
ILLINOIS			FED. AID PROJECT # BR05-018(05B)	

FINAL SURVEY	DATE
DATE	BY
NOTE BOOK	NO.
AREAS DRETTED	

OPTIONAL SURVEY	DATE
DATE	BY
NOTE BOOK	NO.
AREAS DRETTED	

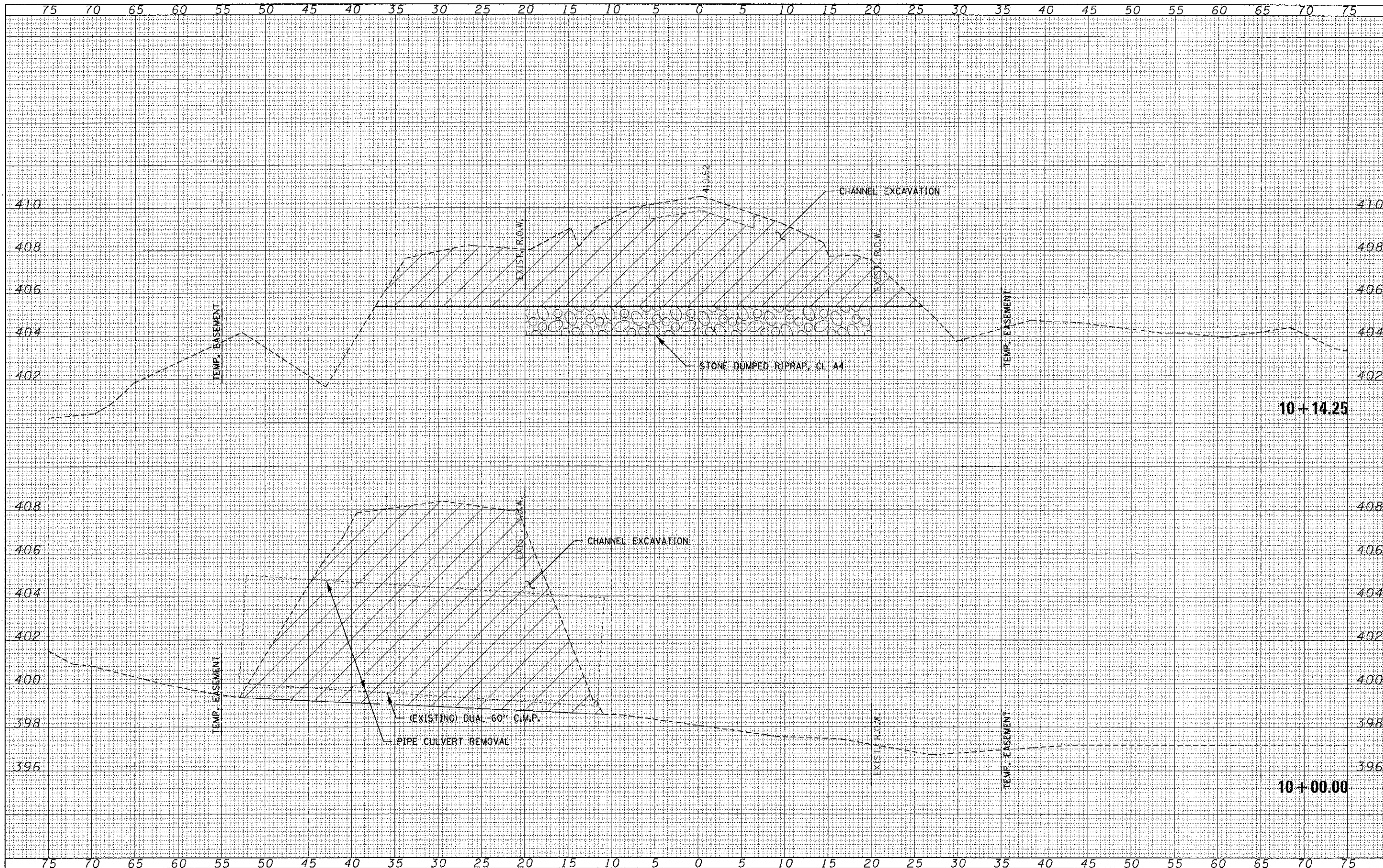


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HAMPTON, LENZINI AND RENWICK, INC.		DRAWN - L.G.C.	REVISED -			239	11-01201-00-BR	UNION	20	7
1385 S. EVANSTON DRIVE, SUITE 200 EVANSTON, IL 60120-1000	PLOT SCALE =	CHECKED - S.W.M.	REVISED -			COUNTY UNIT ROAD DISTRICT		CONTRACT NO. 99503		
ILLINOIS PROFESSIONAL DESIGNER P. 001 LS / PE / SE / CW	PLOT DATE = 3/15/2013	DATE - 03/15/13	REVISED -			ILLINOIS		FED. AID PROJECT BR05-018105B		
				SCALE: H&V2		SHEET NO. 3 OF 7 SHEETS		STA. 9+40.00 TO STA. 9+50.00		



DATE	
BY	
REVISIONS	
NO.	
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BY	DATE
FINAL SURVEY	
NOTE BOOK	
AREAS CHECKED	

BY	DATE
ORIGINAL SURVEY	
NOTE BOOK	
AREAS CHECKED	

FILE NAME = 12P021-ahr-rwa.dgn	USER NAME =	DESIGNED - J.W.F.	REVISED -
HAMPTON, LENZINI AND RENWICK, INC. 1000 STEPHENSON DRIVE SUITE 201 SPRINGFIELD, ILLINOIS 62709		DRAWN - L.G.C.	REVISED -
PLOT SCALE =		CHECKED - S.W.M.	REVISED -
PLCT DATE = 3/13/2013		DATE - 03/15/13	REVISED -

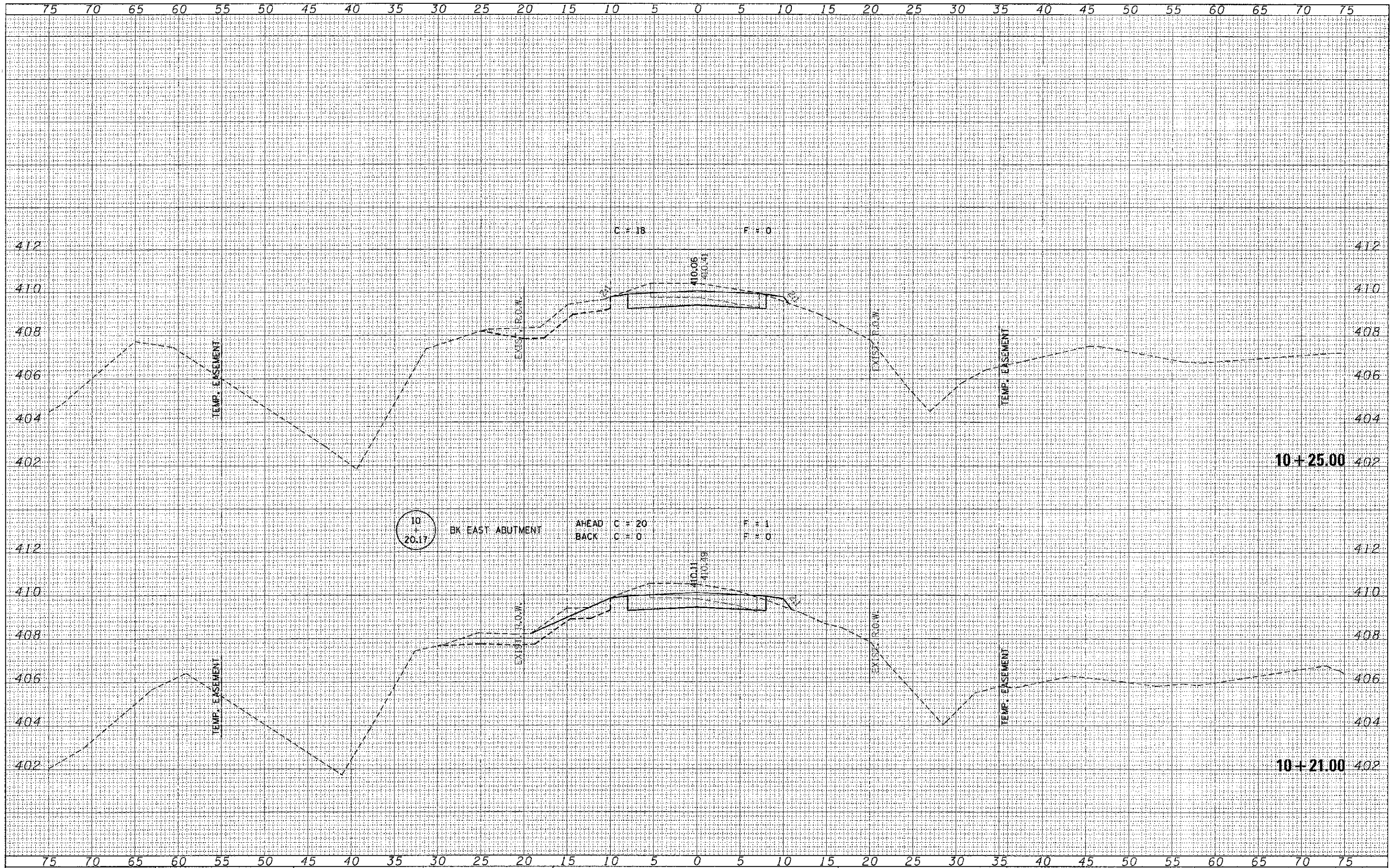
**STATE OF ILLINOIS
UNION COUNTY HIGHWAY DEPARTMENT**

STATION CROSS SECTIONS LIGHT LANE	
SCALE: H5:V2	SHEET NO. 5 OF 7 SHEETS
STA. 10+00.00 TO STA. 10+14.25	

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
239	11-01201-00-BR	UNION	20	9
CO. UNIT ROAD DISTRICT		CONTRACT NO. 99503		
ILLINOIS FED. AID PROJECT 0805-010059				

DATE	
BY	
FINAL SURVEY	
NOTE BOOK	
AREAS	
DESIGNED	

DATE	
BY	
ORIGINAL SURVEY	
NOTE BOOK	
AREAS	
DESIGNED	



FILE NAME = 120023-sh-rws.dgn
 HAMPTON, LENZINI AND RENWICK, INC.
 2001 GLENVIEW DRIVE, SUITE 201
 SPRINGFIELD, ILLINOIS 62703
 ILLINOIS PROFESSIONAL DESIGN FIRM
 I-17 PE / SE 004P 184-00020

USER NAME =	DESIGNED - J.W.F.	REVISED -
	DRAWN - L.G.C.	REVISED -
	CHECKED - S.W.M.	REVISED -
	DATE - 03/15/13	REVISED -
PLOT SCALE =		
PLOT DATE = 3/15/2013		

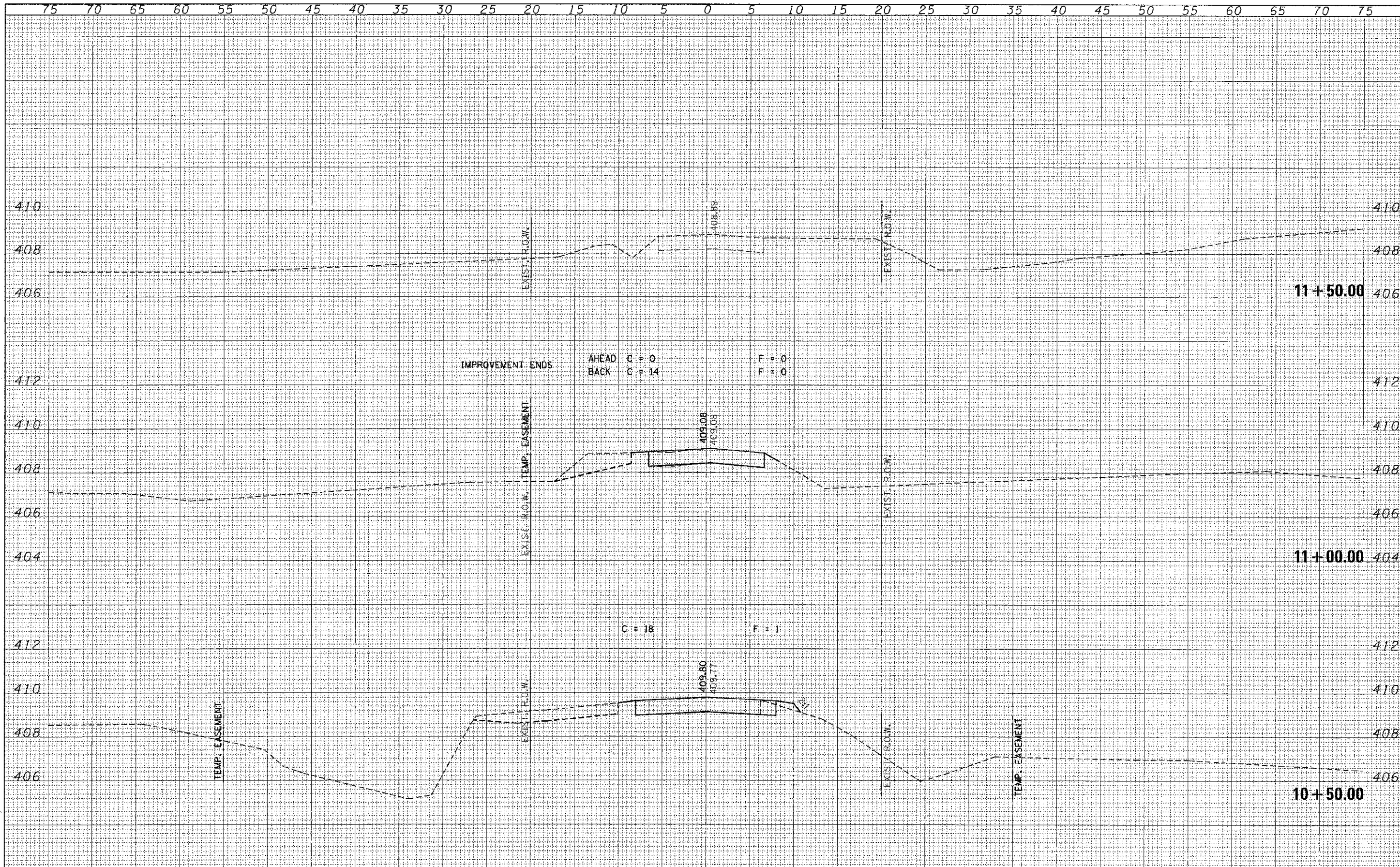
STATE OF ILLINOIS
 UNION COUNTY HIGHWAY DEPARTMENT

STATION CROSS SECTIONS
 LIGHT LANE
 SCALE: H5/1V2 SHEET NO. 6 OF 7 SHEETS STA. 10+21.00 TO STA. 10+25.00

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
239	11-01201-00-BR	UNION	20	10
COUNTY UNIT ROAD DISTRICT		CONTRACT NO. 99503		
ILLINOIS		FED. AID PROJECT BR03-018K05B		

BY	DATE
REVISIONS	
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AREAS CHECKED	
NO.	

BY	DATE
REVISIONS	
PLotted	
TEMP. EASEMENT	
AREAS CHECKED	
NO.	



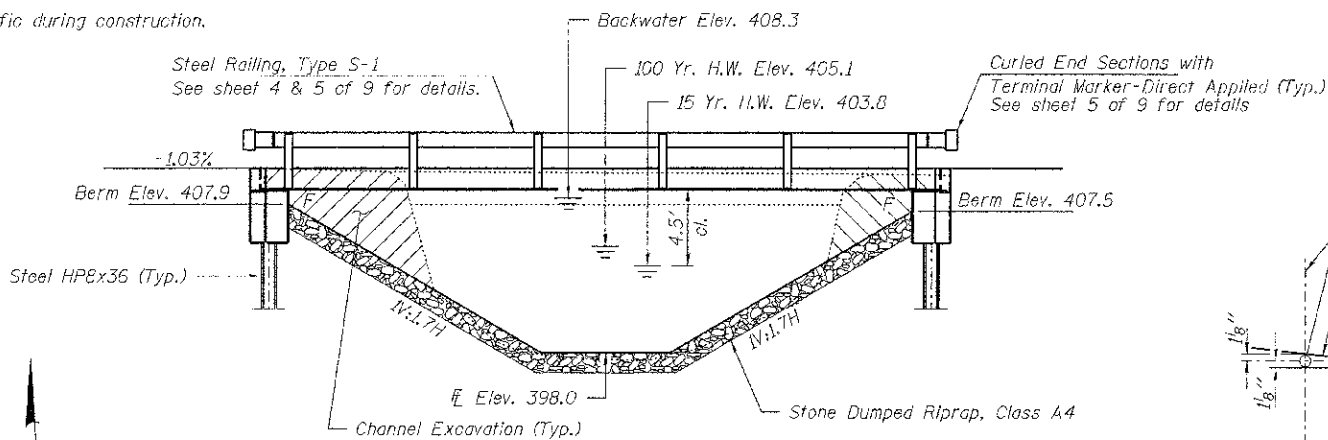
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HAMPTON, LENZINI AND RENWICK, INC.		DRAWN - L.G.C.	REVISED -		239 11-01201-00-BR UNION 20 11		
1111 STEVENSON DRIVE SUITE 201 SPRINGFIELD, ILLINOIS 62705	PLOT SCALE =	CHECKED - S.W.M.	REVISED -		COUNTY UNIT ROAD DISTRICT CONTRACT NO. 99503		
ILLINOIS PROFESSIONAL DES. OR FIRM L&L P.E.#8198 CORP. 18400098	PLOT DATE = 3/15/2013	DATE - 03/15/13	REVISED -		ILLINOIS FED. AID PROJECT BR05-018(059)		
				SCALE: H5:V2	SHEET NO. 7 OF 7 SHEETS	STA. 10+50.00 TO STA. 11+50.00	

BENCHMARK:

EXISTING STRUCTURE: NO. 091-3183 Single span steel I-Beam bridge with timber deck and timber pile abutments. 30.20' fo.-to. abutts: 13.70' o.-c. deck

Structure closed to traffic during construction.

No Salvage



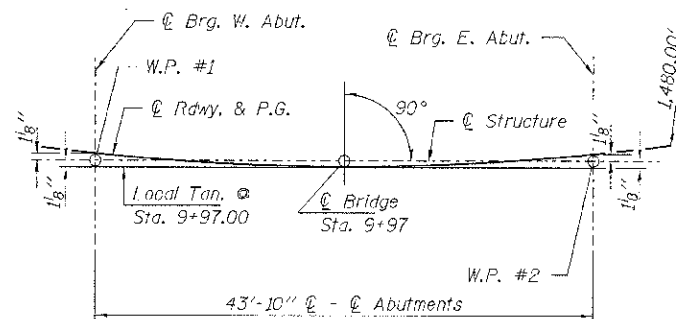
ELEVATION

HORIZONTAL CURVE DATA

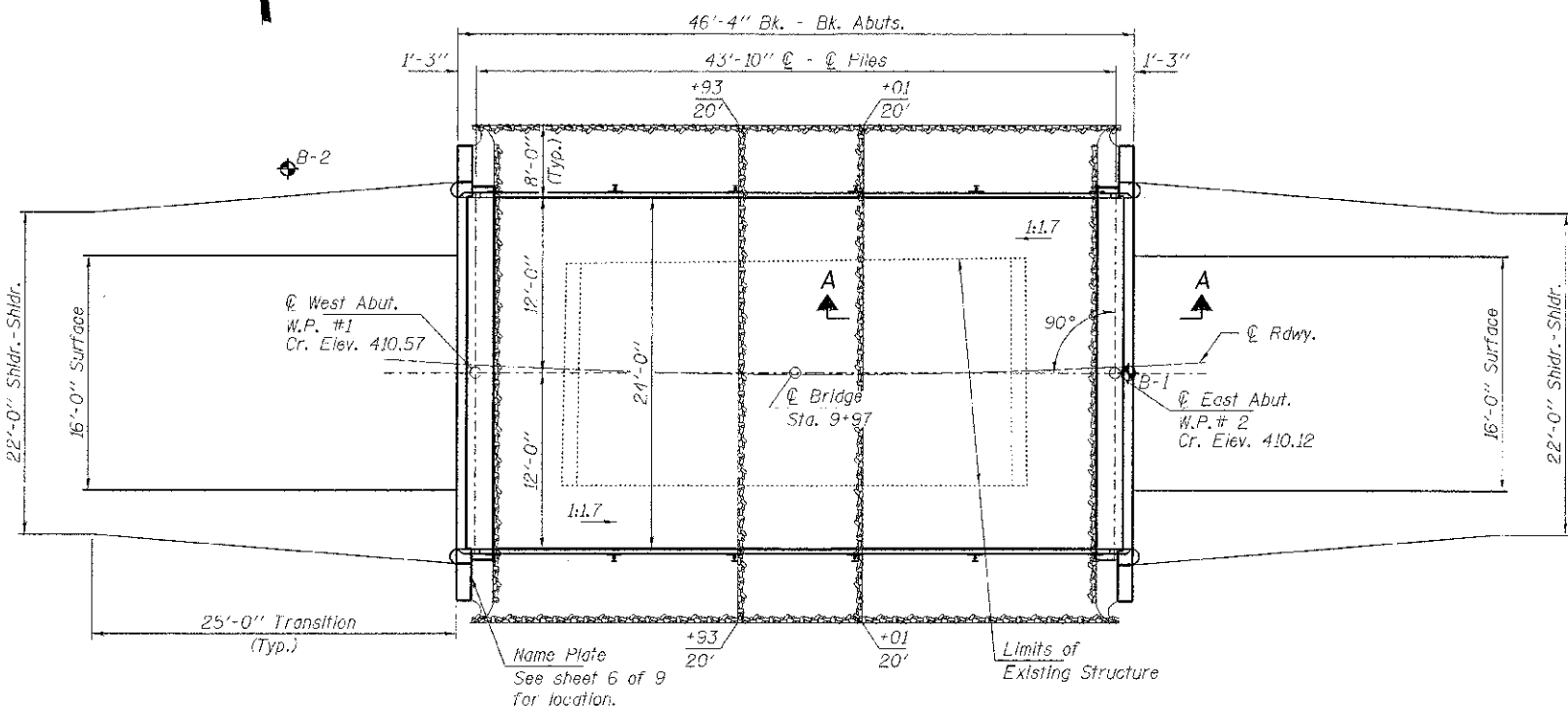
P.I. Sta. 9+53.30
 $\Delta = 6^{\circ}29'46''$ (L.I.)
 $D = 3^{\circ}52'17''$
 $R = 1,180.00'$
 $L = 167.80'$
 $T = 83.99'$
 $E = 2.38'$
 P.C. Sta. 8+69.31
 P.T. Sta. 10+37.11
 NO SE

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.
 Earth 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 IFPA has issued Section 401 Water Quality Certification for this activity. See Special Provisions for conditions.
 Steel piles shall be constructed at the West Abutment only if determined by the Engineer to be required for capacity. The top of limestone elevation may vary greatly or be a false surface. In this case, the pile foundation will be constructed as directed by the Engineer. If adequate capacity is determined at the rock surface, no piling is required.



OFFSET SKETCH



PLAN

DESIGN STRESSES

FIELD UNITS

$f'_c = 3,500$ psi
 $f_y = 60,000$ psi (Reinf.)

PRECAST PRESTRESSED UNITS

$f'_c = 6,000$ psi
 $f'_{ci} = 5,000$ psi
 $f_{pu} = 270,000$ psi ($\frac{1}{2}$ " low lax. strands)
 $f_{pbt} = 201,960$ psi ($\frac{1}{2}$ " low lax. strands)
 $f_y = 60,000$ psi (Reinf.)

LOADING HL-93

Design Specifications: 2012 AASHTO LRFD with all applicable interims.
 50#/Sq. Ft. included in dead load for future wearing surface.

SEISMIC DATA

Seismic Performance Zone (SPZ) = 3
 Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.469g
 Design Spectral Acceleration at 0.2 sec. (S_{D5}) = 1.241g
 Soil Site Class = C

DESIGN SCOUR ELEVATION TABLE

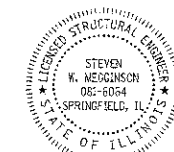
Design Scour Elevation (ft.)	W. Abut. 404.5	E. Abut. 404.8
------------------------------	----------------	----------------

WATERWAY INFORMATION

Drainage Area = 1.23 Sq. Mi.		Existing Low Grade Elev. 408.9 @ Sta. 11+50		Proposed Low Grade Elev. 408.9 @ Sta. 11+50	
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.	Natural Head - Ft.	Headwater E.L.
			Exist. Prop.	Exist. Prop.	Exist. Prop.
Design	10	785	80	100	403.46
	15	890	90	110	403.79
	100	1410	110	150	405.11
Base	500	1900	120	180	406.10
Max. Calc.					408.66

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."

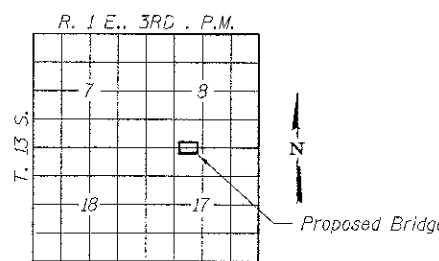
Steven W. Megawson 03/15/2013
 ILLINOIS STRUCTURAL ENGINEER NO. 081-6064



Expires 11-30-2014

SECTION A-A

Note: See Special Provisions for Stone Dumped Riprap, Class A4

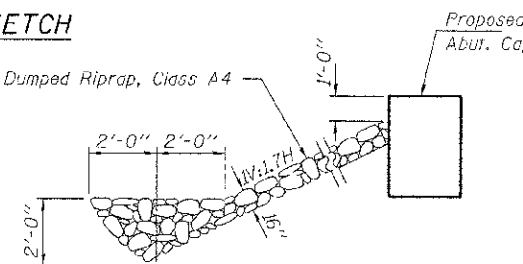


LOCATION SKETCH

INDEX OF STRUCTURE SHEETS

1. General Plan & Elevation
2. 17"x48" PPC Deck Beam
3. 17"x48" PPC Deck Beam Details
4. Superstructure Details
5. Steel Railing, Type S-1
6. W. Abutment
7. E. Abutment
8. HP Pile Details
- 9-10. Borings

PROFILE GRADE



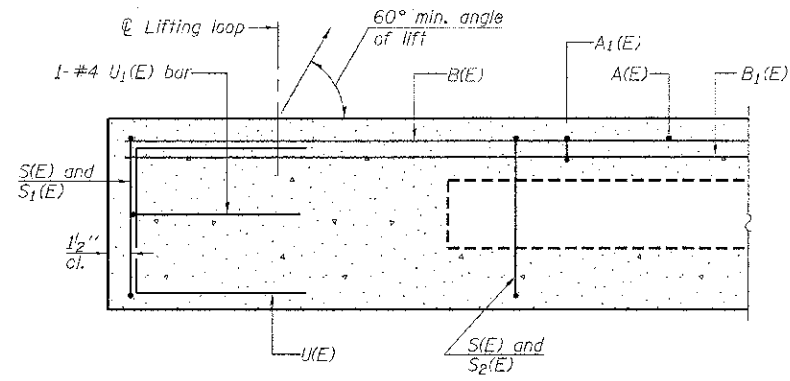
NAME PLATE

See Std. 515001

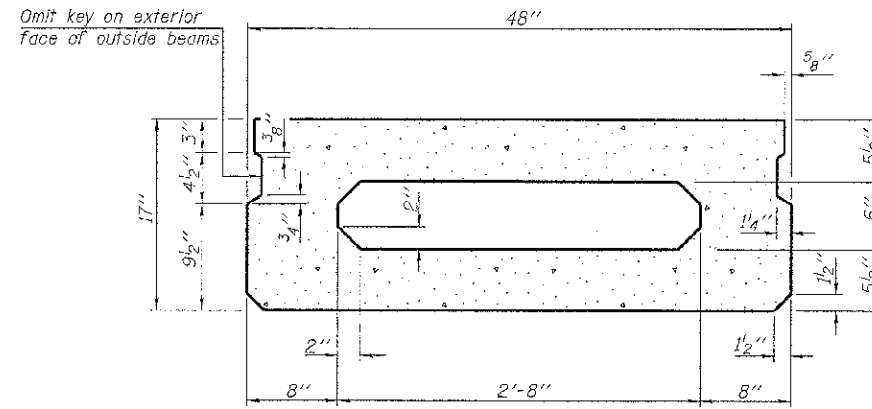
TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	Cu. Yd.			80
Rock Excavation	Cu. Yd.			1.2
Stone Dumped Riprap, Class A4	Ton			170
Removal of Existing Structures	Each			1
Concrete Structures	Cu. Yd.		23.6	23.6
Precast Prestressed Concrete Deck Beams (17" Depth)	Sq. Ft.	1,080		1,080
Reinforcement Bars	Pound		2,360	2,360
Steel Railing, Type S1	Foot	87		87
Furnishing Steel Piles HP8x36	Foot		120	120
Driving Piles	Foot		120	120
Name Plates	Each		1	1

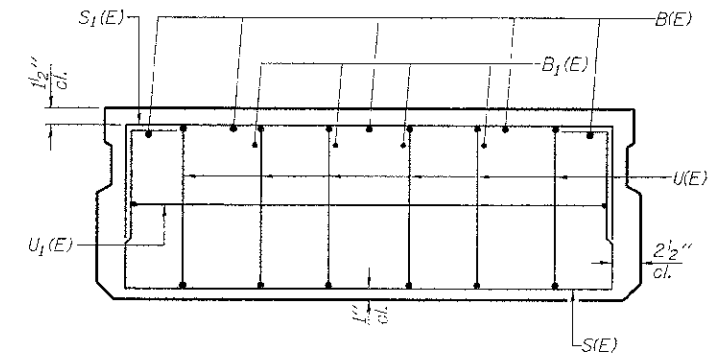
PORTERFIELD CREEK
 BUILT 2011 BY
 UNION COUNTY
 SEC. 11-01201-00-BR
 COUNTY UNIT ROAD DISTRICT
 STR. NO. 091-3241
 LOADING HL-93



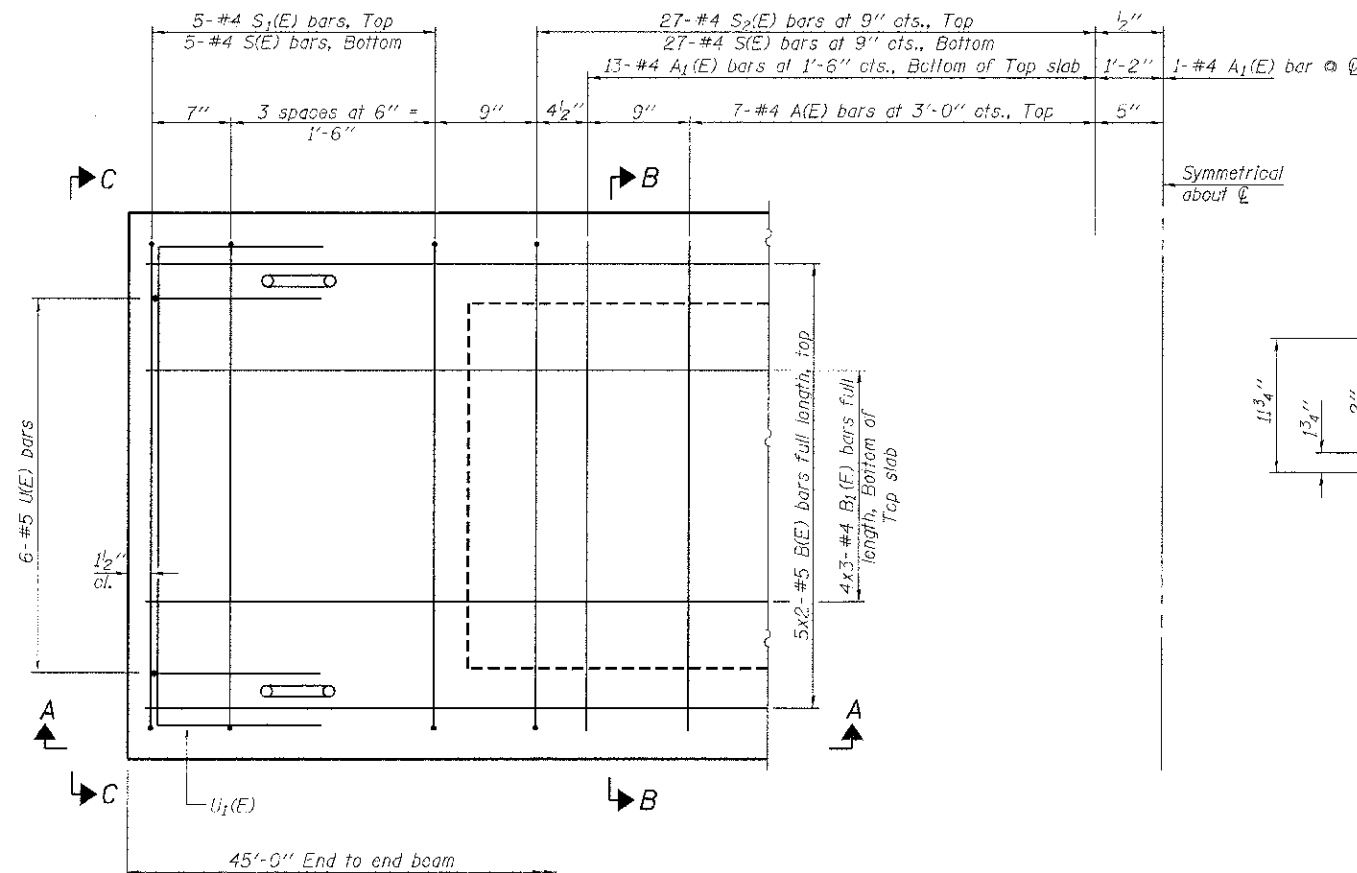
SECTION A-A



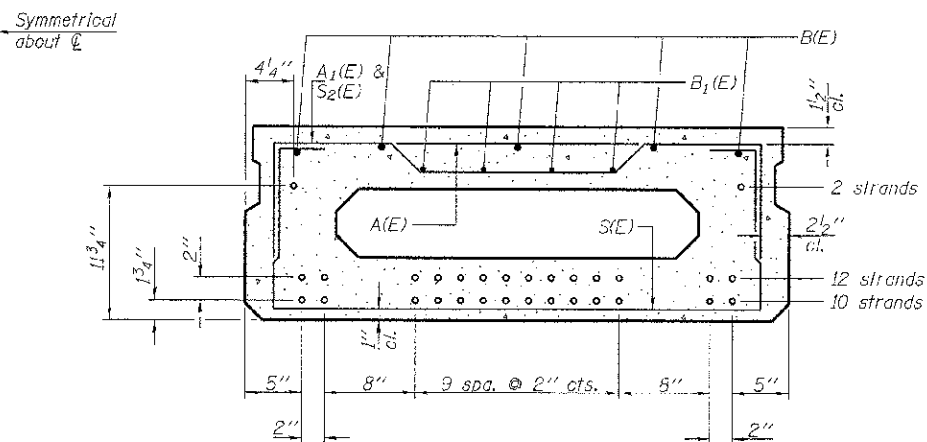
SECTION B-B
(Showing dimensions)



VIEW C-C



PLAN VIEW



SECTION B-B

(Showing reinforcement and permissible strand locations)

Note: Place the number of strands specified in each row symmetrical 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)	14	#4	3'-7"	—
A1(E)	27	#4	3'-10"	—
B(E)	10	#5	23'-8"	—
B1(E)	12	#4	16'-3"	—
S(E)	64	#4	6'-9"	—
S1(E)	10	#4	5'-3"	—
S2(E)	54	#4	5'-6"	—
U(E)	12	#5	3'-8"	—
U1(E)	2	#4	6'-0"	—

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

MINIMUM BAR LAP

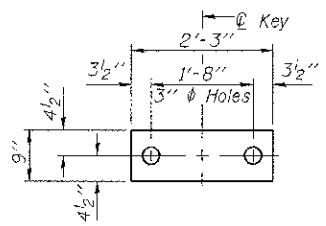
#4 bar = 2'-0"
#5 bar = 2'-6"

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 cuts for the transverse ties.
Bars indicated thus 5x2-#5 etc. indicates 5 lines of bars with 2 lengths per line.

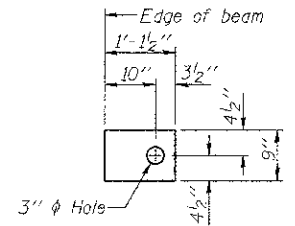
PD-1748-0

7-1-10

FILE NAME = 128223-sh2-br-dgn	USER NAME =	DESIGNED - L.A.P.	REVISED -	STATE OF ILLINOIS UNION COUNTY HIGHWAY DEPARTMENT	17" x 48" PPC DECK BEAM STRUCTURE NO. 091-3241	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
HAMPTON, LENZINI AND RENWICK, INC. 3001 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62707	PLOT SCALE =	CHECKED - S.W.M.	REVISED			239	11-01201-0C-BR	UNION	20	13	
PLotted by: S.W.M.	PLOT DATE = 3/15/2013	DRAWN - R.D.H.	REVISED -			COUNTY UNIT ROAD DISTRICT	CONTRACT NO. 99503				
ILLINOIS PROFESSIONAL ENGINEERING BOARD 11/97 IBE CCRP 384.002625		CHECKED - S.W.M.	REVISED -			SHEET NO. 2 OF 9 SHEETS		ILLINOIS FED. AID PROJECT BRGS-01810581			

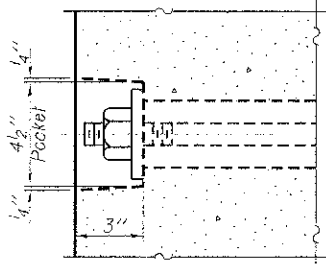


FABRIC BEARING PAD
(Interior)

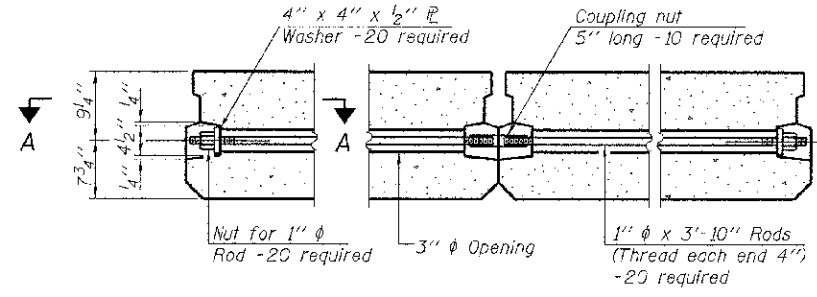


FABRIC BEARING PAD
(Exterior)

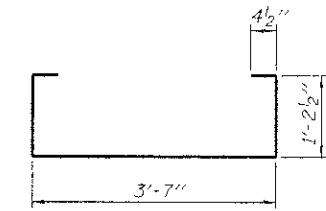
FIXED
Notes:
All bearing pads shall be 1" thick.
Omit holes when using expansion bearings.
Expansion bearing pad shall be bonded to the substructure.



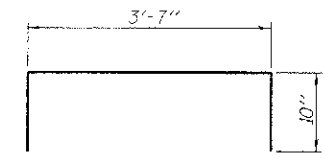
SECTION A-A



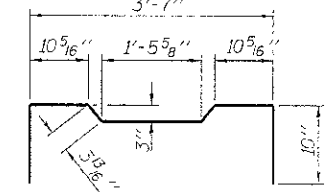
TYPICAL TRANSVERSE TIE ASSEMBLY



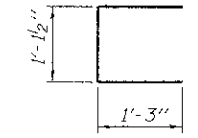
BAR S(E)



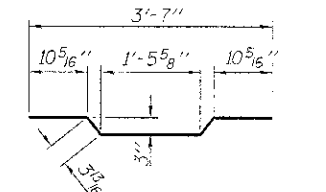
BAR S1(E)



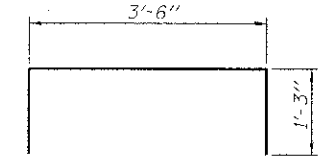
BAR S2(E)



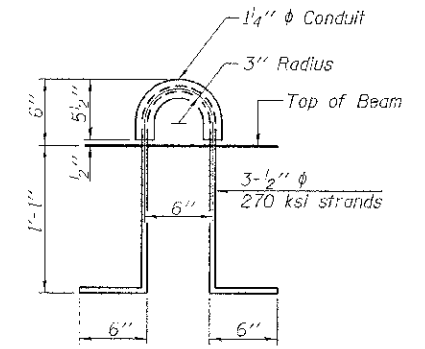
BAR U(E)



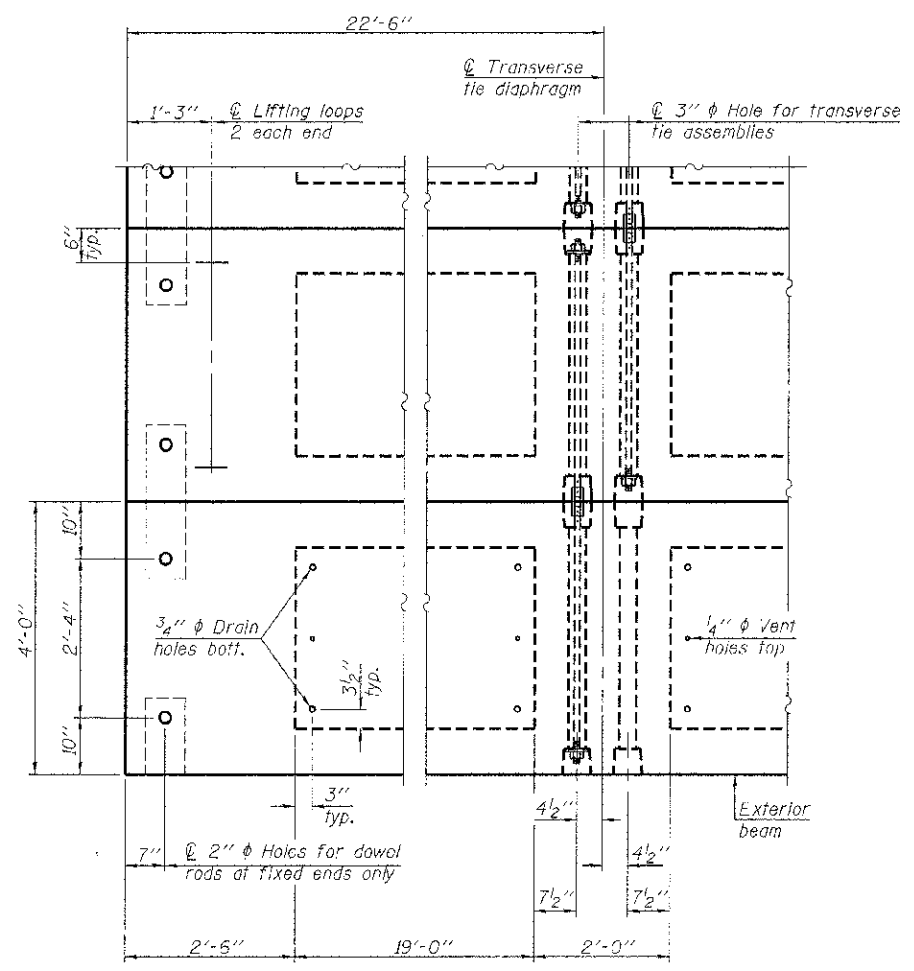
BAR A1(E)



BAR U1(E)



LIFTING LOOP DETAIL



PLAN VIEW

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

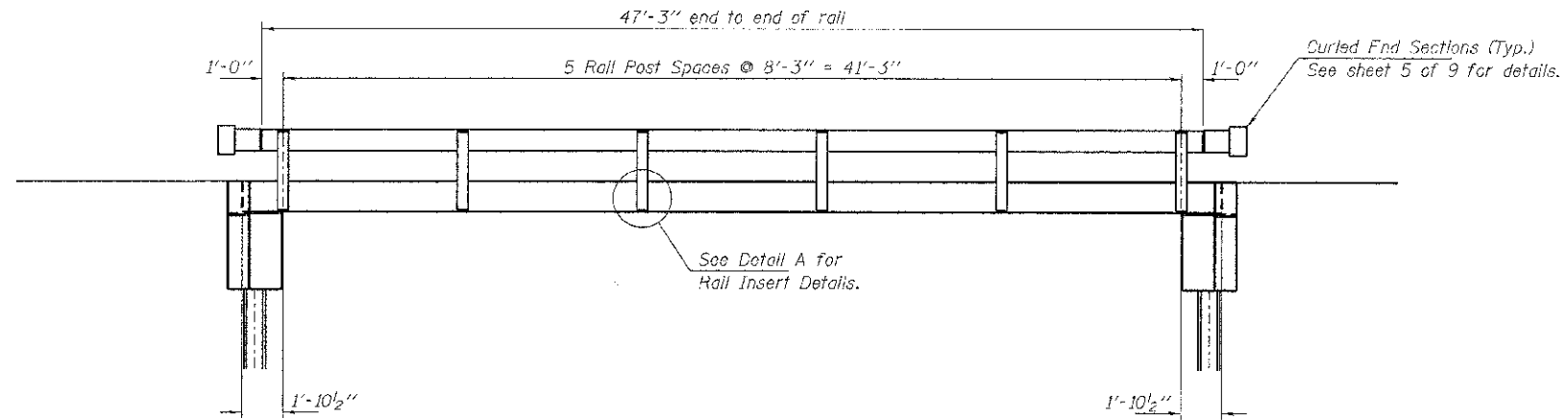
NOTES
Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. The 1" rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place.
Reinforcement bars shall conform to ASTM A 706, Grade 60. (See Special Provisions).
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" lifting pin shall be used to engage the lifting loops during handling.
Corrosion inhibitor, per Article 1020.05(b)(12) 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.
All bars shall be epoxy coated.

BILL OF MATERIAL

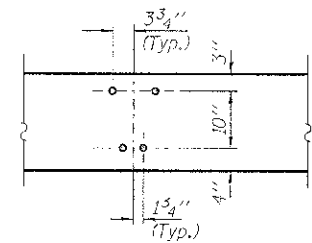
Precast Prestressed Conc. Deck Bms. (17" Depth)	Sq. Ft.	1,080
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PD-1748-OD 1-27-12

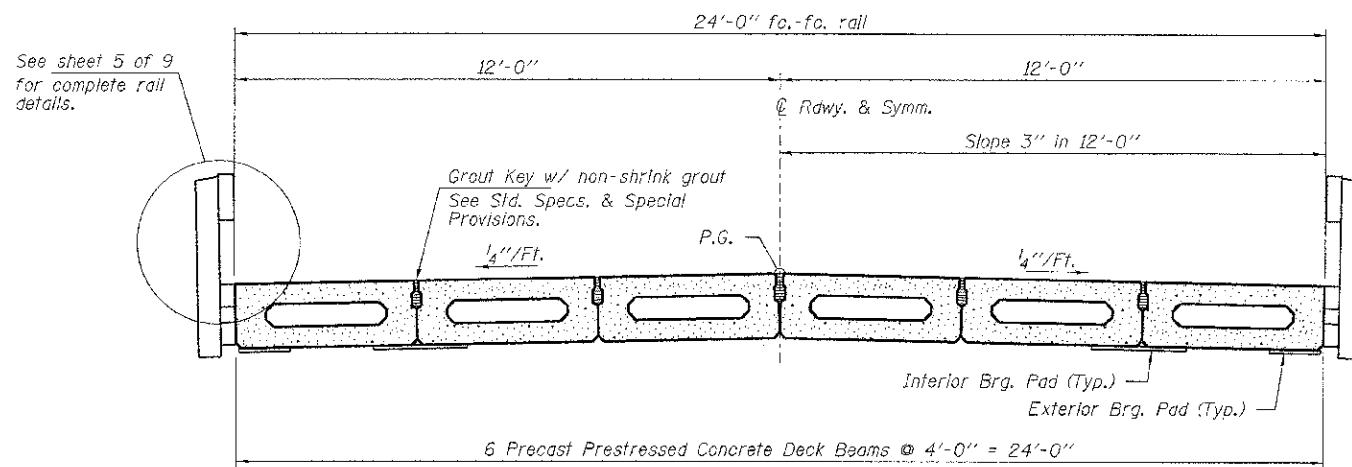
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HAMPTON, LENZINI AND RENWICK, INC.		CHECKED - S.W.M.	REVISED -			239	11-01201-00-BR	UNION	20	14
384 STEVENSON PARKWAY, SUITE 101 SPRINGFIELD, ILLINOIS 62760	PLOT SCALE =	DRAWN - R.D.H.	REVISED -			COUNTY UNIT ROAD DISTRICT	CONTRACT NO. 99503			
ILLINOIS PROFESSIONAL DESIGN FIRM L3 / P E / S E CORP. 184.000933	PLOT DATE = 3/15/2013	CHECKED - S.W.M.	REVISED -			SHEET NO. 3 OF 9 SHEETS				
						ILLINOIS FED. AID PROJECT BROS-0181058				



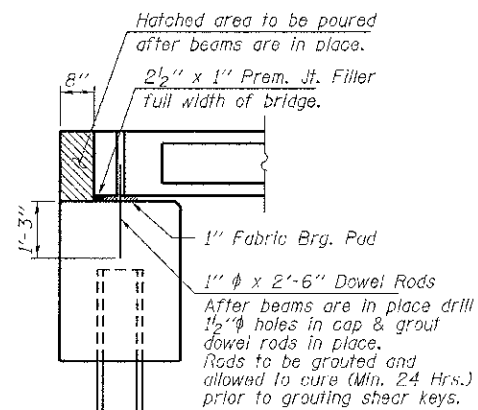
ELEVATION
Showing Rail Post Spaces
See sheet 5 of 9 for Railing Details.



DETAIL A

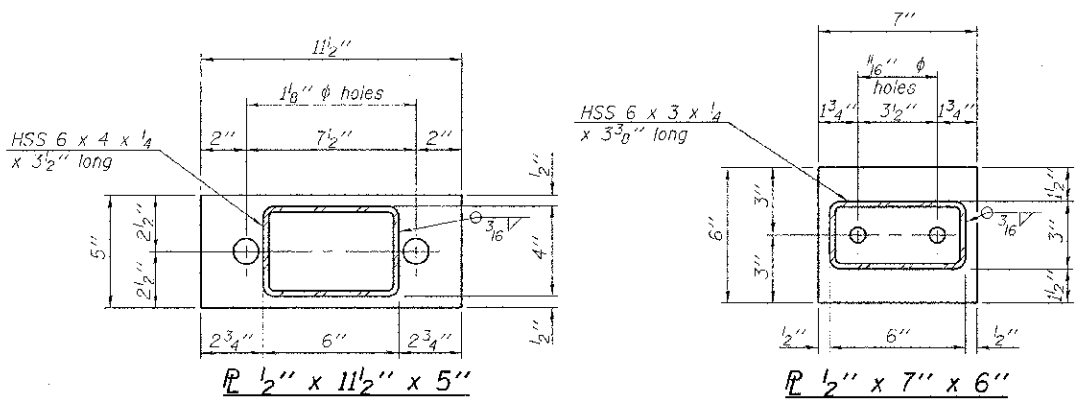
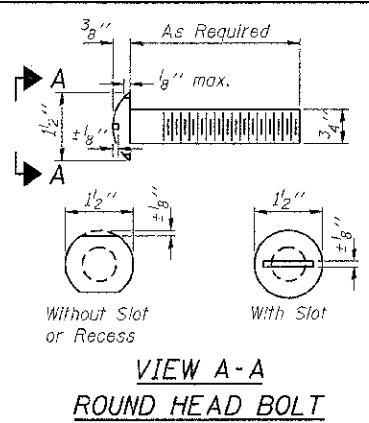


CROSS SECTION
See sheets 3 & 4 of 9 for Superstructure.

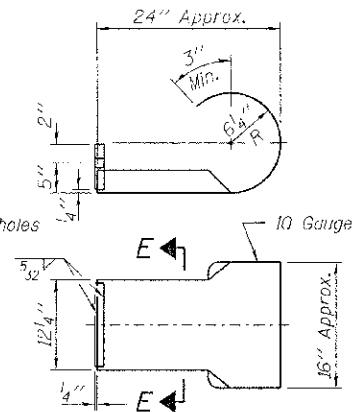
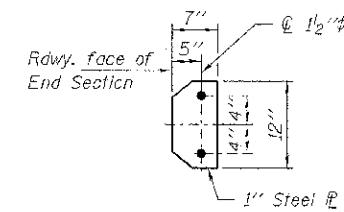


SECTION AT ABUTMENTS
@ Rt. L's

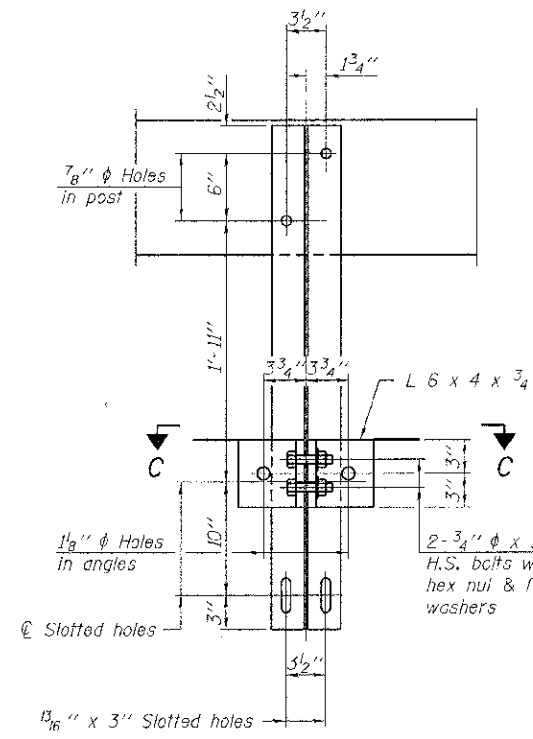
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HAMPTON, LENZINI AND RENWICK, INC.	CHECKED - S.W.M.	REVISED -	239			11-01201-00-BR	UNION	20	15
1843 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62762	DRAWN - R.D.H.	REVISED -	COUNTY UNIT ROAD DISTRICT			CONTRACT NO. 99503			
ILLINOIS PROFESSIONAL DESIGNER - FIRM L.S.J. REG. NO. 0089 184-000839	PLOT SCALE =	CHECKED - S.W.M.	REVISED -			SHEET NO. 4 OF 9 SHEETS			
	PLOT DATE = 3/15/2013					ILLINOIS FED. AID PROJECT BR05-01810581			



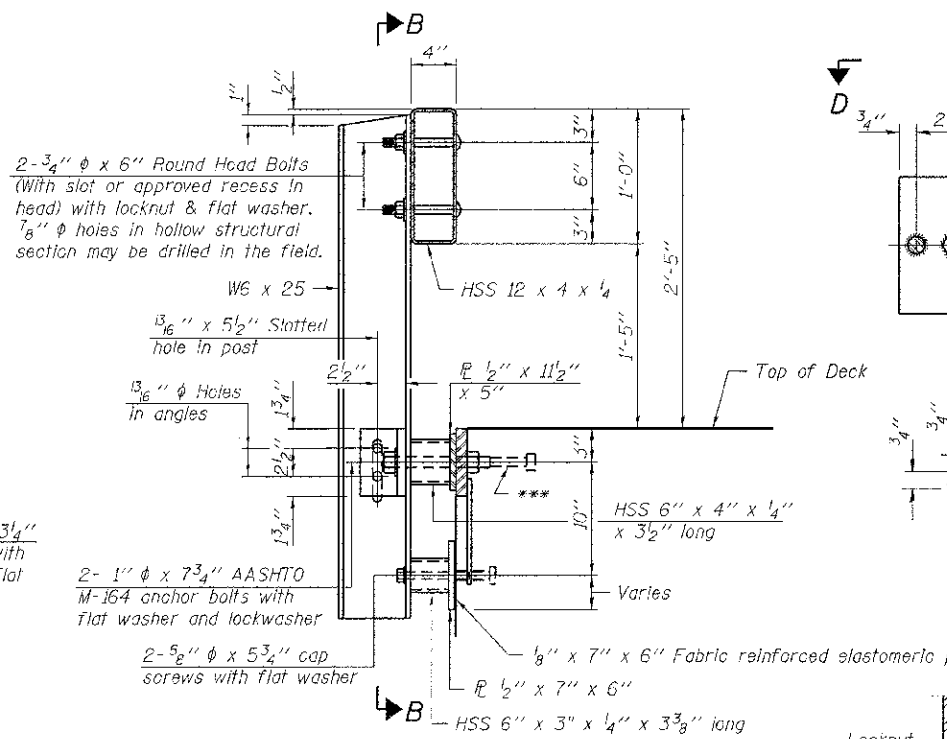
Note: Cost of curled end sections shall be included with the Steel Railing. (4 Required)



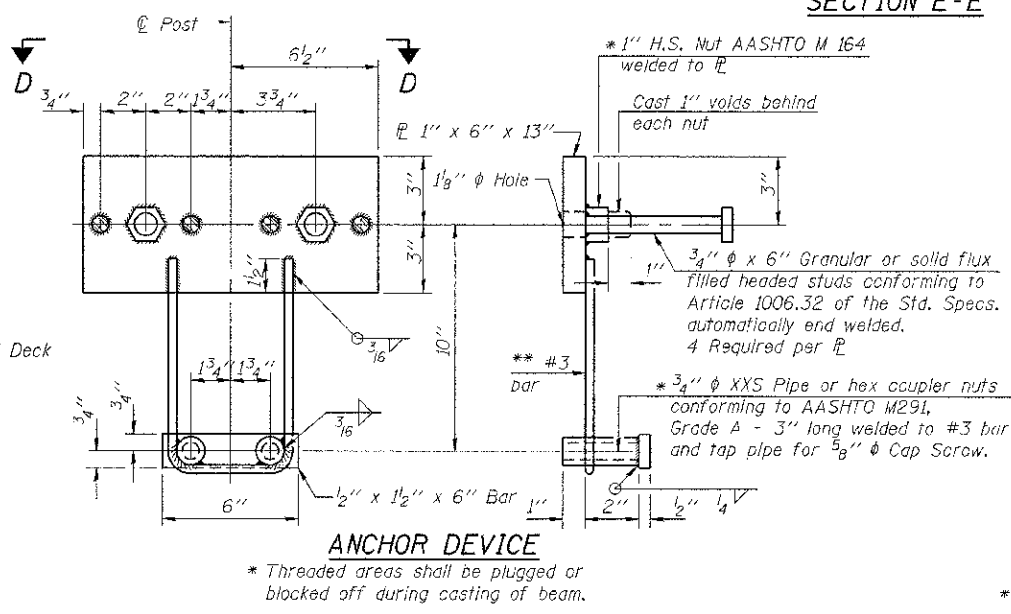
SECTION E-E CURLED END SECTION DETAILS



SECTION B-B

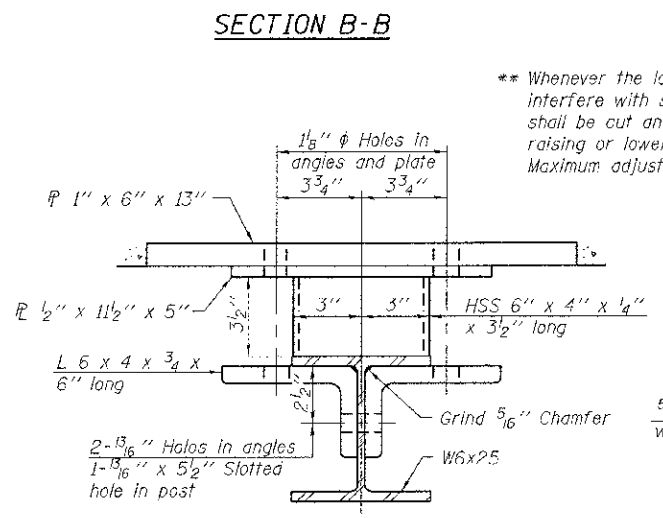


SECTION AT RAILING POST

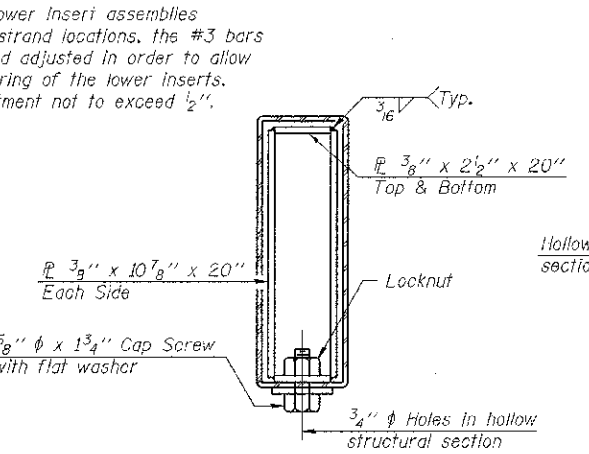


ANCHOR DEVICE

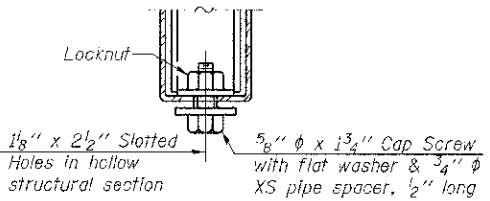
Notes:
 All field drilled holes shall be coated with an approved zinc rich paint before erection.
 For multi-span bridges, sufficient 1/4 inch x 6 inch x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type S-1.
 All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.
 *** The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.



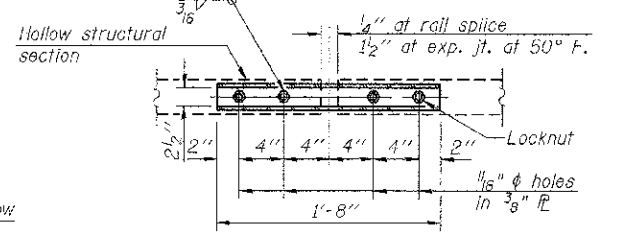
SECTION C-C



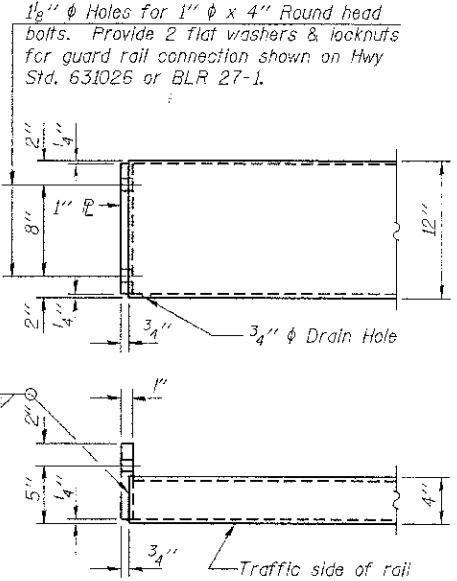
SECTIONS AT RAIL SPLICE



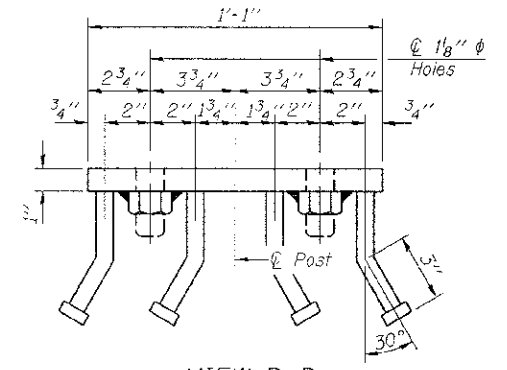
RAIL SPLICE CONNECTION AT EXPANSION JT.



PLAN-BOTT. SPLICE R TYPICAL



STEEL RAILING, TYPE S-1 END OF RAIL DETAILS



VIEW D-D

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	87

R-23A 7-1-10 (10'-9" Maximum Post Spacing)

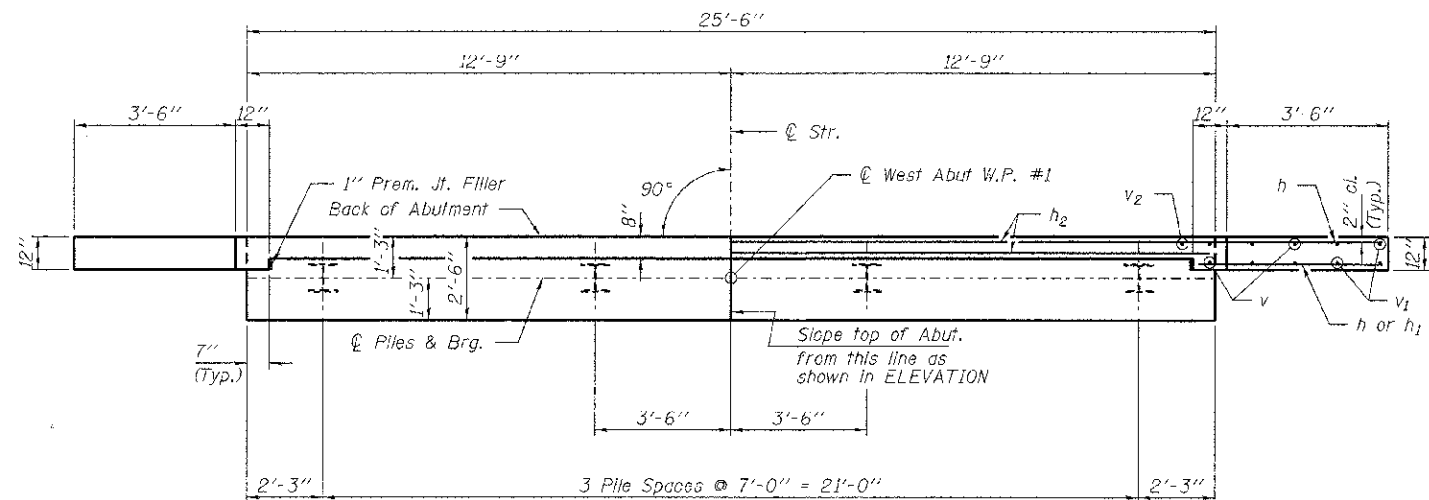
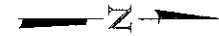
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HAMPTON, LENZINI AND RENWICK, INC.	CHECKED - S.W.M.	REVISIONS -	
3645 STEVENSON DRIVE, SUITE 201	DRAWN - R.D.H.	REVISIONS -	
SPRINGFIELD, ILLINOIS 62704	CHECKED - S.W.M.	REVISIONS -	
ILLINOIS PROFESSIONAL DESIGN FIRM			
LSI/PE/SC/OSDP 152-02665			

STATE OF ILLINOIS
 UNION COUNTY HIGHWAY DEPARTMENT

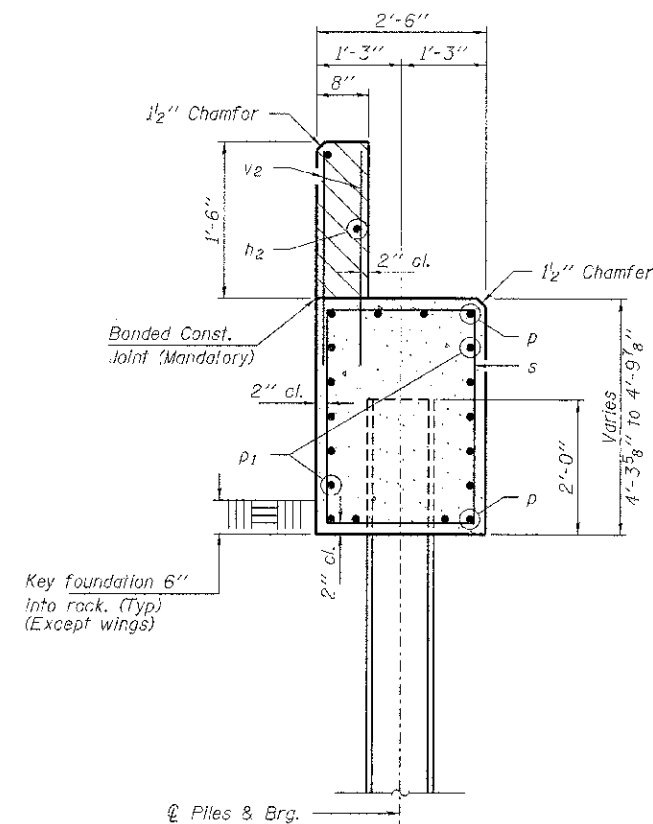
STEEL RAILING, TYPE S-1
 STRUCTURE NO. 091-3241

SHEET NO. 5 OF 9 SHEETS

T.R. 239	SECTION 11-01201-00-BR	COUNTY UNION	TOTAL SHEETS 20	SHEET NO. 16
COUNTY UNIT ROAD DISTRICT			CONTRACT NO. 99503	
ILLINOIS FED. AID PROJECT BR05-08H0581				

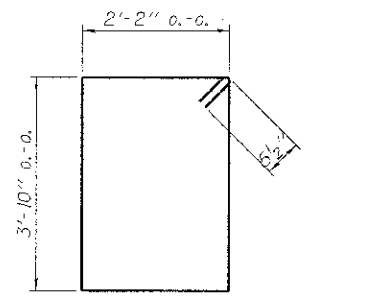


PLAN

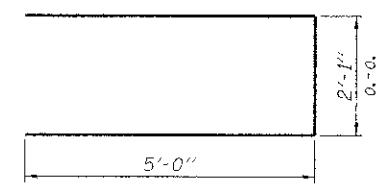


SECTION A-A

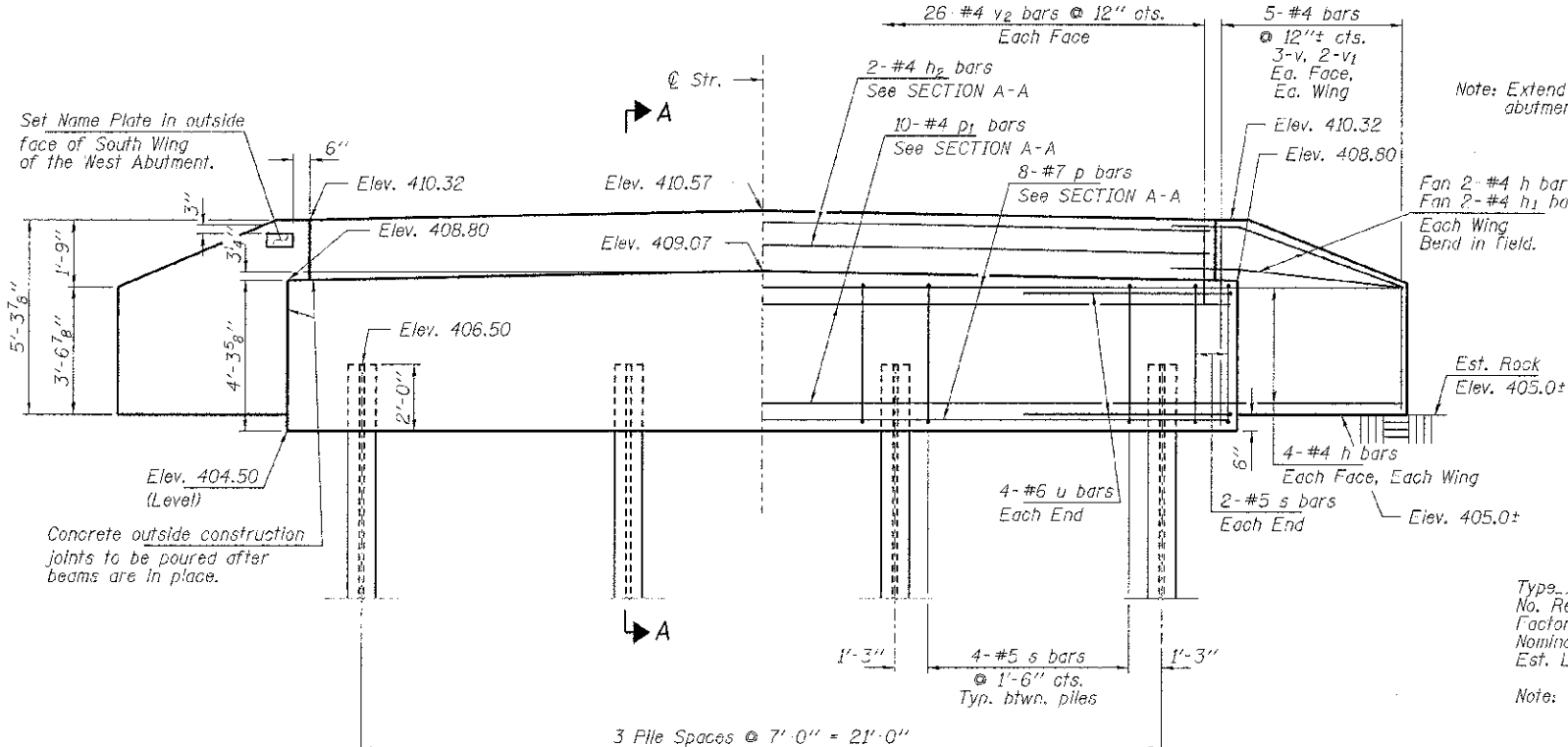
Hatched area to be poured after beams are in place.



BAR s



BAR u



ELEVATION
(Looking West)

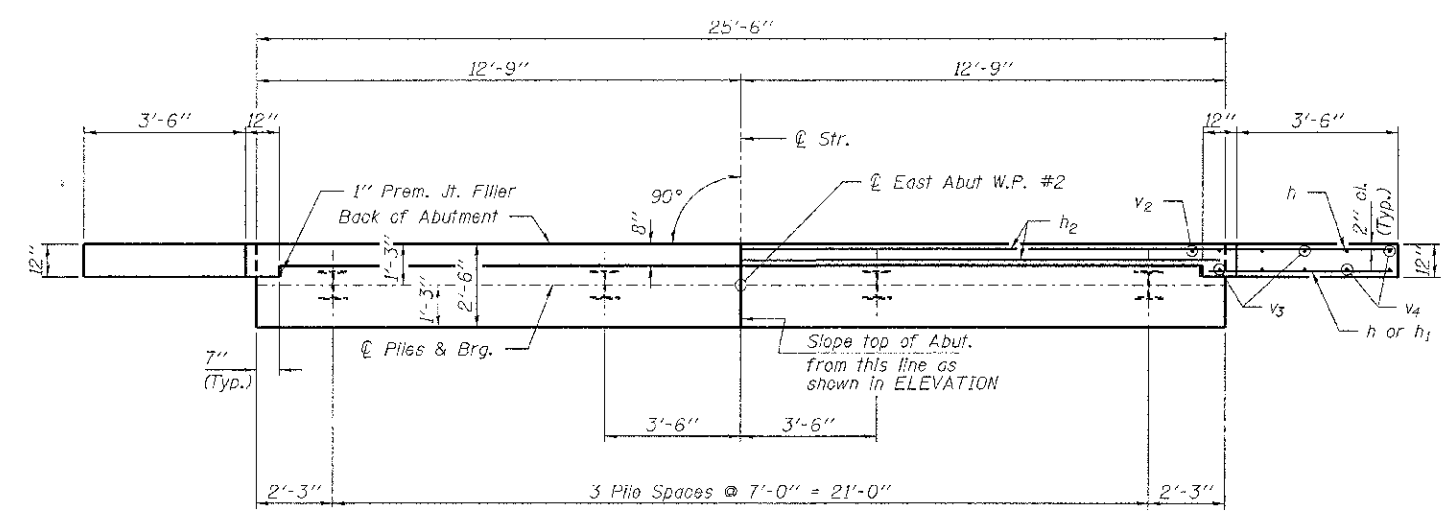
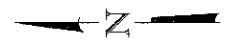
PILE DATA

Type: Steel HP8x36
 No. Req'd. (1 Abut.) 4
 Factored Resistance Available (Rf) 157 Kips/Pile
 Nominal Required Bearing (Rn) 286 Kips/Pile
 Est. Length 15 ft/Pile

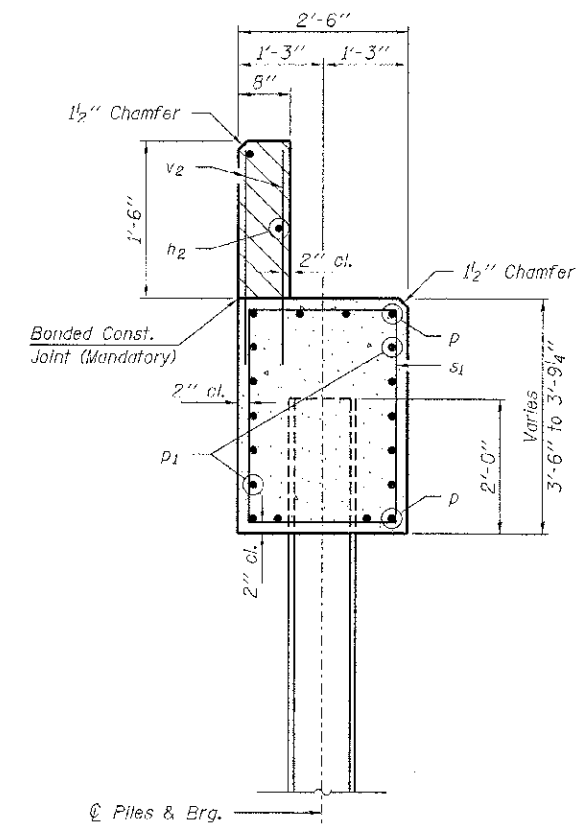
Note: Steel piles shall be constructed at the West Abutment only if determined by the Engineer to be required for capacity. The top of limestone elevation may vary greatly or be a false surface. In this case, the pile foundation will be constructed as directed by the Engineer. If adequate capacity is determined at the rock surface no piling is required.

BILL OF MATERIAL - W. ABUT.

BAR	NO.	SIZE	LENGTH	SHAPE
h	20	#4	5'-6"	—
h1	4	#4	4'-0"	—
h2	2	#4	25'-2"	—
p	8	#7	25'-2"	—
p1	10	#4	25'-2"	—
s	16	#5	12'-6"	□
u	8	#6	12'-11"	—
v	12	#4	4'-9"	—
v1	8	#4	3'-3"	—
v2	52	#4	2'-4"	—
Rock Excavation			Cu. Yd.	1.2
Concrete Structures			Cu. Yd.	12.8
Reinforcement Bars			Found	1,190
Steel Piles HP8x36			Foot	60
Name Plates			Each	1

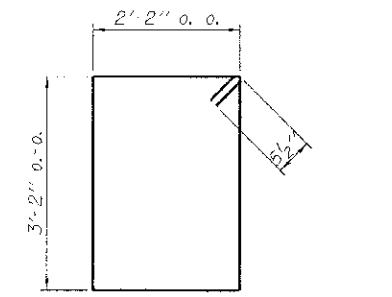


PLAN

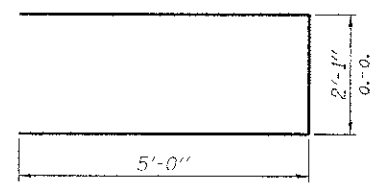


SECTION A-A

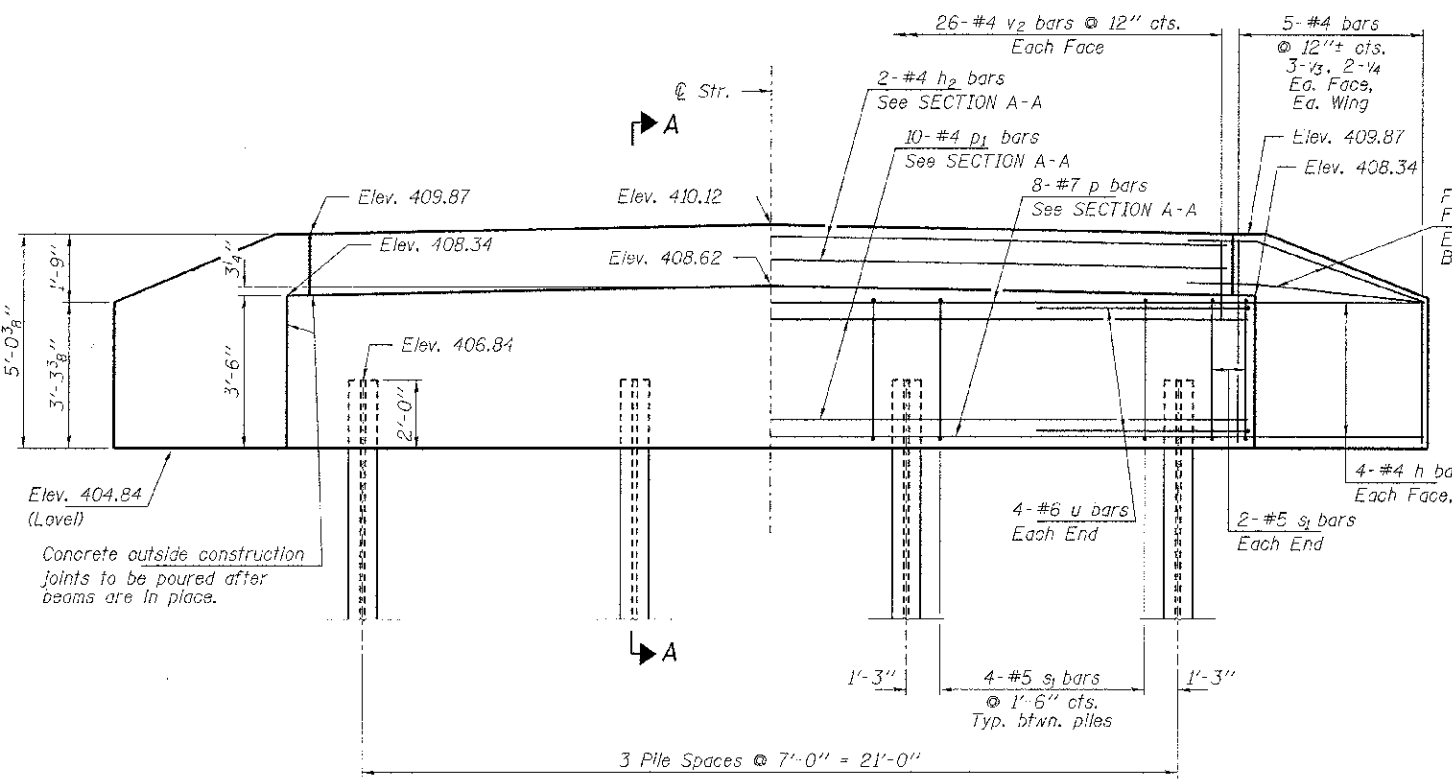
Hatched area to be poured after beams are in place.



BAR s1



BAR u



ELEVATION
(Looking East)

Note: Extend h bars into abutment cap.

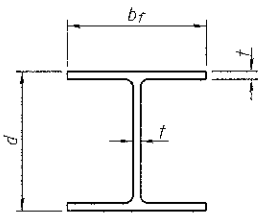
Fan 2-#4 h bars (D.F.)
Fan 2-#4 h1 bars (F.F.)
Each Wing
Bend in Field.

PILE DATA

Type Steel HP8x36
No. Req'd. (1 Abut.) 4
Factored Resistance Available (Rf) 157 Kips/Pile
Nominal Required Bearing (Rn) 286 Kips/Pile
Est. Length 15 Ft/Pile

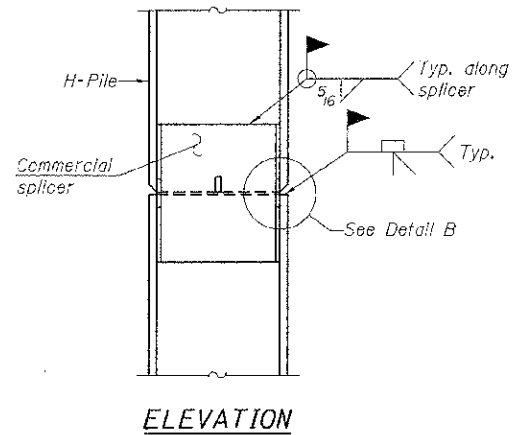
BILL OF MATERIAL - E. ABUT.

BAR	NO.	SIZE	LENGTH	SHAPE
h	20	#4	5'-6"	—
h1	4	#4	4'-0"	—
h2	2	#4	25'-2"	—
p	8	#7	25'-2"	—
p1	10	#4	25'-2"	—
s1	16	#5	11'-7"	□
u	8	#6	12'-1"	—
v3	12	#4	4'-6"	—
v4	8	#4	3'-0"	—
v2	52	#4	2'-4"	—
Concrete Structures			Cu. Yd.	10.8
Reinforcement Bars			Pound	1,170
Steel Piles HP8x36			Foot	60

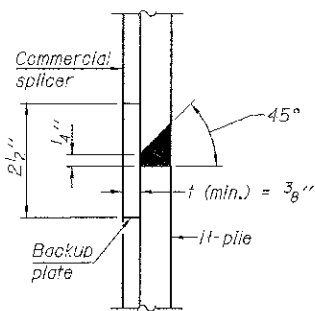


STEEL PILE TABLE

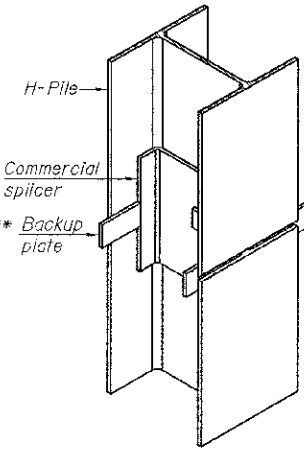
Designation	Depth d	Flange width bf	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	1 5/8"	30"
x102	14"	14 3/4"	1 5/8"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	1 5/8"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"
x53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

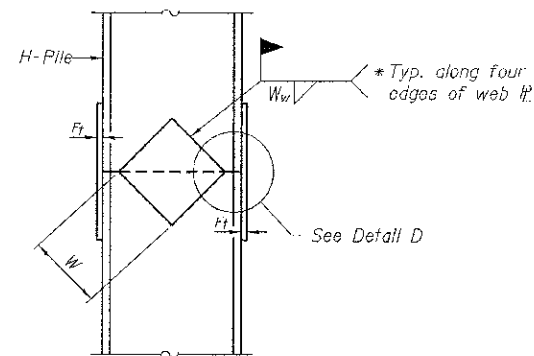


DETAIL "B"

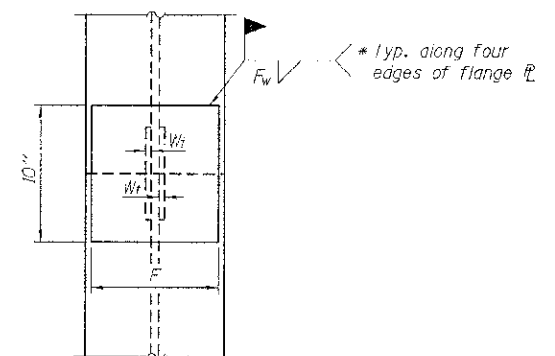


ISOMETRIC VIEW

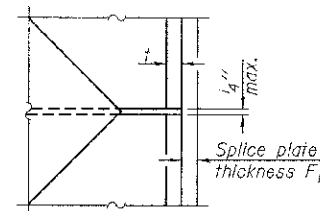
WELDED COMMERCIAL SPLICE



ELEVATION



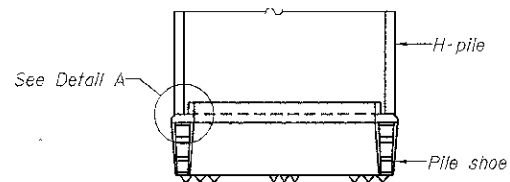
END VIEW



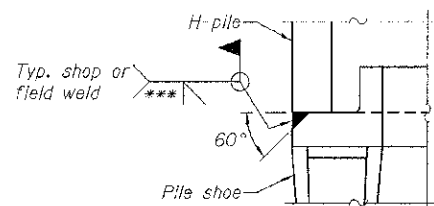
DETAIL D

WELDED PLATE FIELD SPLICE

Designation	F	F _t	F _w	W	W _t	W _w
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"	1/2"	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"	1/2"	1/2"	6 1/2"	5/8"	1/2"
x74	10"	7/8"	1/2"	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"	3/8"	9/16"	5 1/4"	1/2"	3/8"
HP 8x36	7"	5/8"	1/2"	4 1/4"	1/2"	3/8"

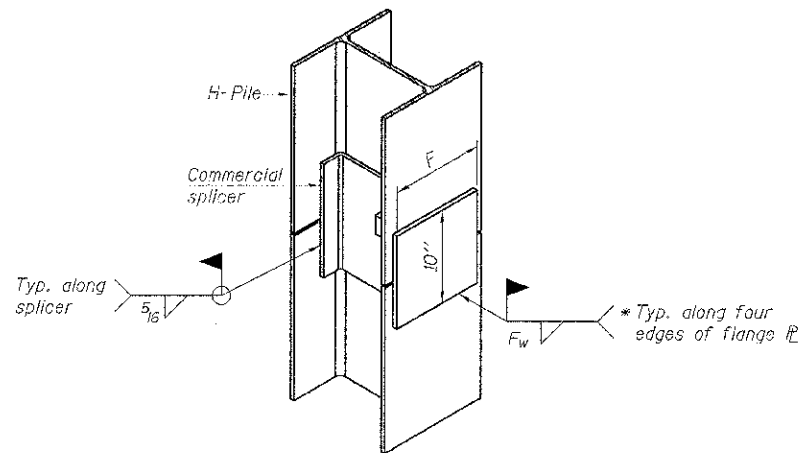


ELEVATION



DETAIL A

H-PILE SHOE ATTACHMENT



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.).

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

F-HP 1-27-12

HOLCOMB FOUNDATION ENGINEERING INC.
 P.O. Box 88 618-529-5262
 Carbondale, Il. 62903 618-457-8991 fax Page 1 of 1

Bridge Foundation Boring Log

Project: H-12100 Bridge Light Lane Date: 6/21/2012
 Section: 11-01201-00-BR Station _____ Bored by: R. Schwarz
 Structure: _____ Checked By: J. Holcomb
 County: Union _____

Boring No.:	Station:	Offset:	Elevation	N	Qu	w %	Surface Water Elev.	Elevation	N	Qu	w %
1	10+24	0'									
Ground Surface			410.4	99.75	0						
5" C. Stone			409.4	95.75							
Brown Mottled Gray Sandy CLAY to Clayey SILT (A-6-4)					11	1.35	17				
							385.4	74.75	-25		
			-5		8	1.35	21				
					3	1.25	27				
			-10		2	1.25	29				
Gray Clayey SILT (A-4)			398.9	83.25	0	0.48	33				
			-15		0	0.58	32				
Gray Sandy CLAY w/gravel (fill) (A-6)			393.9	83.25	12	0.98	23				
					100						
Grey LIMESTONE			391.4	80.75	75	1.08	24				
			-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-%
 P = Penetrometer
 B = Bulge Failure
 S = Shear Failure
 E = Estimated Value

100.00 = 410.6 (U.S.G.S.)

BORING 1

HOLCOMB FOUNDATION ENGINEERING INC.
 P.O. Box 88 618-529-5262
 Carbondale, Il. 62903 618-457-8991 fax Page 1 of 1

Bridge Foundation Boring Log

Project: H-12100 Bridge Light Lane Date: 6/21/2012
 Section: 11-01201-00-BR Station _____ Bored by: R. Schwarz
 Structure: _____ Checked By: J. Holcomb
 County: Union _____

Boring No.:	Station:	Offset:	Elevation	N	Qu	w %	Surface Water Elev.	Elevation	N	Qu	w %
2	9+64	14' Lt.									
Ground Surface			408.5	97.91	0						
Brown Clayey SILT (A-4)											
					6	0.75	14				
Gray LIMESTONE			405.0	94.41	100		6				
			-5								
					100		1				
			-10								
					100		1				
End of Boring @ -9.0'			399.5	88.91	73		1				
			-10								
			-15								
			-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-%
 P = Penetrometer
 B = Bulge Failure
 S = Shear Failure
 E = Estimated Value

BORING 2