

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**PLANS FOR PROPOSED
SURFACE TRANSPORTATION PROGRAM
OFF SYSTEM BRIDGE**

**PROJECT BROS-0181(060)
SECTION 12-01203-00-BR
COUNTY UNIT ROAD DISTRICT
UNION COUNTY
T.R. 174 / KERR CANYON ROAD
PROPOSED STRUCTURE NO. 091-3243
C-99-522-13**

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 174	12-01203-00-BR	UNION	21	1
FED. ROAD DIST. NO.	ILLINOIS	CONTRACT NO. 99558		

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1.	COVER SHEET
2.	SUMMARY OF QUANTITIES AND GENERAL NOTES
3.	TYPICAL CROSS SECTIONS
4.	PLAN AND PROFILE
5-13.	STATION CROSS SECTIONS
14-20.	BRIDGE PLANS
21.	BORINGS

HIGHWAY STANDARDS:

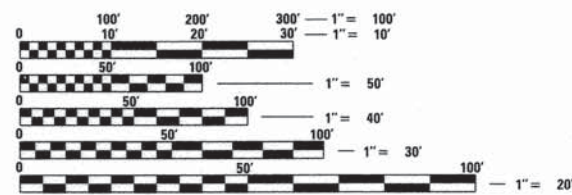
000001-06	STANDARD SYMBOLS, ABBREVIATIONS, AND PATTERNS
515001-03	NAME PLATE FOR BRIDGES
635006-03	REFLECTOR & TERMINAL MARKER PLACEMENT
701901-04	TRAFFIC CONTROL DEVICES
BLR 21-9	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

UTILITIES

FRONTIER COMMUNICATIONS
208 W. UNION
MARION, ILLINOIS 62959

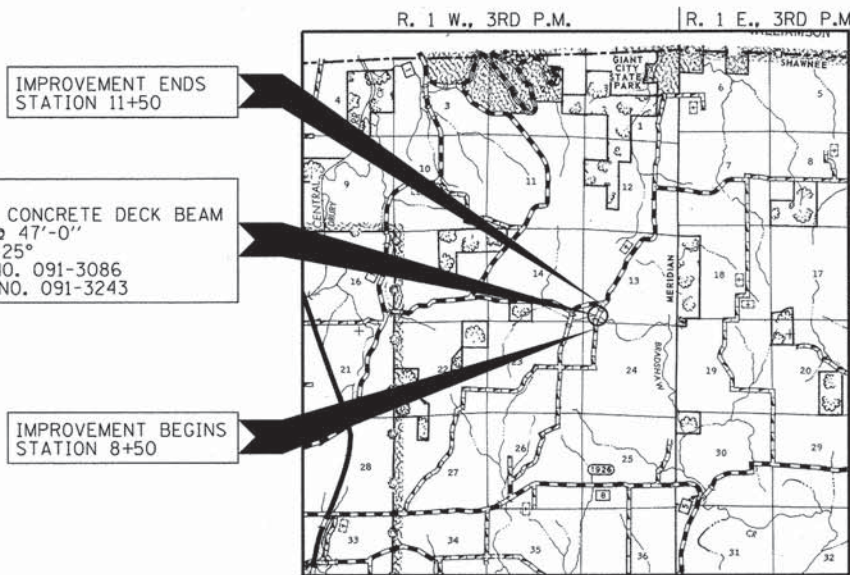


FUNCTIONAL CLASSIFICATION: LOCAL ROAD
DESIGN SPEED: 30 MPH
DESIGN TRAFFIC: 25 ADT (2015)



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. 10+00
PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE. SINGLE SPAN @ 47'-0"
24'-0" RDWY.; SKEW = 25°
EXISTING STRUCTURE NO. 091-3086
PROPOSED STRUCTURE NO. 091-3243

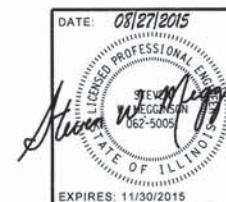


LOCATION MAP

APPROXIMATE SCALE: 0 1 MILE
NET LENGTH OF SECTION = 300 FEET = 0.057 MILES



ILLINOIS DEPARTMENT OF TRANSPORTATION	
APPROVED	<i>December 7, 2015</i> <i>Dustin E. Hammel</i> COUNTY ENGINEER
PASSED	<i>December 7, 2015</i> <i>Dawn Hill</i> DISTRICT NINE ENGINEER OF LOCAL ROADS & STREETS
Releasing For Bid Based on Limited Review	<i>Dec. 7, 2015</i> <i>Dolores L. Kavin</i> 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.hlrengineering.com

SUMMARY OF QUANTITIES			
CODE NO.	ITEM	UNIT	TOTAL
			CONSTRUCTION TYPE CODE 0011
^ 20100110	TREE REMOVAL (6 TO 15 UNITS DIAMETER)	UNIT	112
^ 20100210	TREE REMOVAL (OVER 15 UNITS DIAMETER)	UNIT	44
20200100	EARTH EXCAVATION	CU YD	140
20300100	CHANNEL EXCAVATION	CU YD	105
^ 28100809	STONE DUMPED RIPRAP, CLASS A5	TON	310
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	230
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50300225	CONCRETE STRUCTURES	CU YD	24.8
^ 50400305	PRECAST PRESTRESSED CONCRETE DECK BEAMS (17" DEPTH)	SQ FT	1,128
^ 50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	2,870
* 50900205	STEEL RAILING, TYPE S1	FOOT	89
51201400	FURNISHING STEEL PILES HP10X42	FOOT	112
51500100	NAME PLATES	EACH	1
58700300	CONCRETE SEALER	SQ FT	104
67100100	MOBILIZATION	LSUM	1
* ^ 78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
^ X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.25
^ Z0065000	SETTING PILES IN ROCK	EACH	8

^ SEE SPECIAL PROVISIONS

* SPECIALTY ITEMS

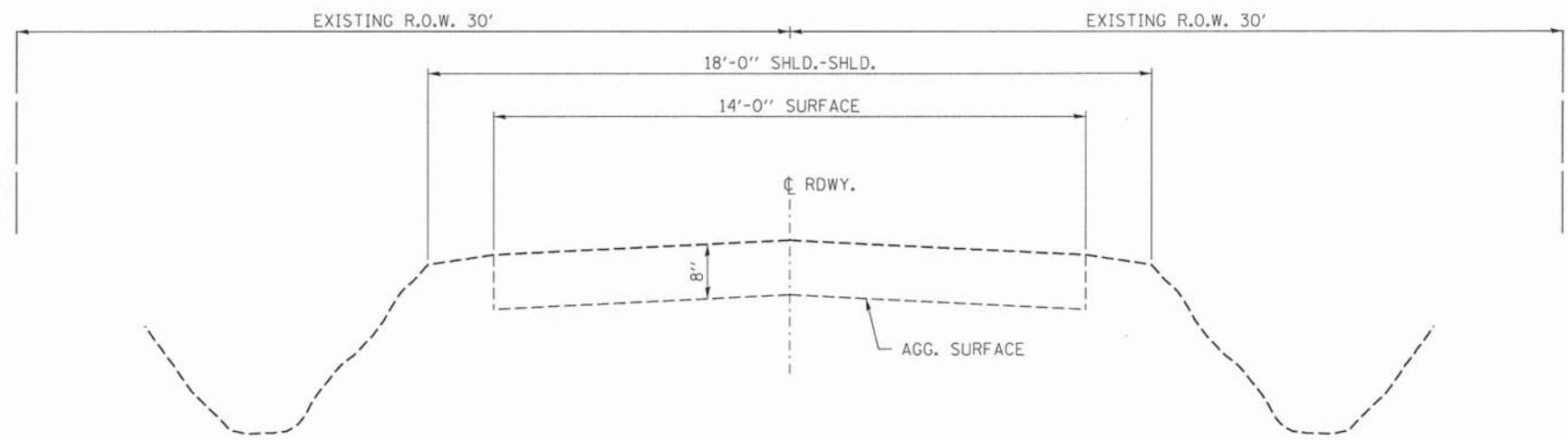
EARTHWORK SCHEDULE							
LOCATION	EARTH EXCAVATION	CHANNEL EXCAVATION	SHRINKAGE FACTOR	PERCENT USED	EARTH EXCAVATION ADJUSTED FOR SHRINKAGE	EMBANKMENT REQUIRED	EARTHWORK BALANCE
	20200100 CU.YD.	20300100 CU.YD.			CU.YD.	CU.YD.	CU.YD.
TR 174 / KERR CANYON ROAD							
STA 8+50 TO STA 9+77.14	104		25.00%	100.00%	78	6	72
STA 9+77.14 TO STA 10+22.86		105	25.00%	70.00%	55		55
STA 10+22.86 TO STA 11+50	36		25.00%	100.00%	27	61	-34
TOTAL	141	105			160	67	93
USE	140	105					95

WASTE EXCAVATION 95 CU YDS

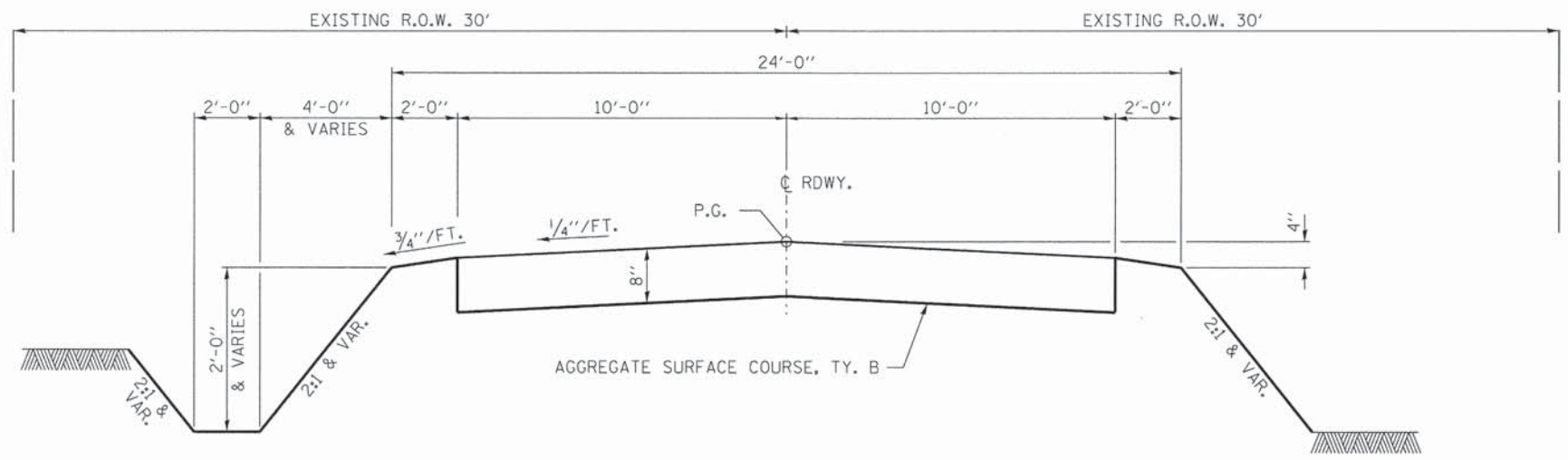
GENERAL NOTES

- 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.
- ALL CLEARING AND GRUBBING, FENCE REMOVAL AND REMOVAL OF EXISTING DRAINAGE STRUCTURES SHALL BE INCLUDED IN THE COST OF EARTH EXCAVATION. THE REMOVAL AND DISPOSAL OF EXISTING AGGREGATE PAVEMENT SHALL BE INCLUDED IN THE COST OF EARTH EXCAVATION AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
- 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	2.05 TON/CU YD
STONE DUMPED RIPRAP	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) = 0.25 ACRES



EXISTING TYPICAL CROSS SECTION
STA. 8+50 TO 11+50



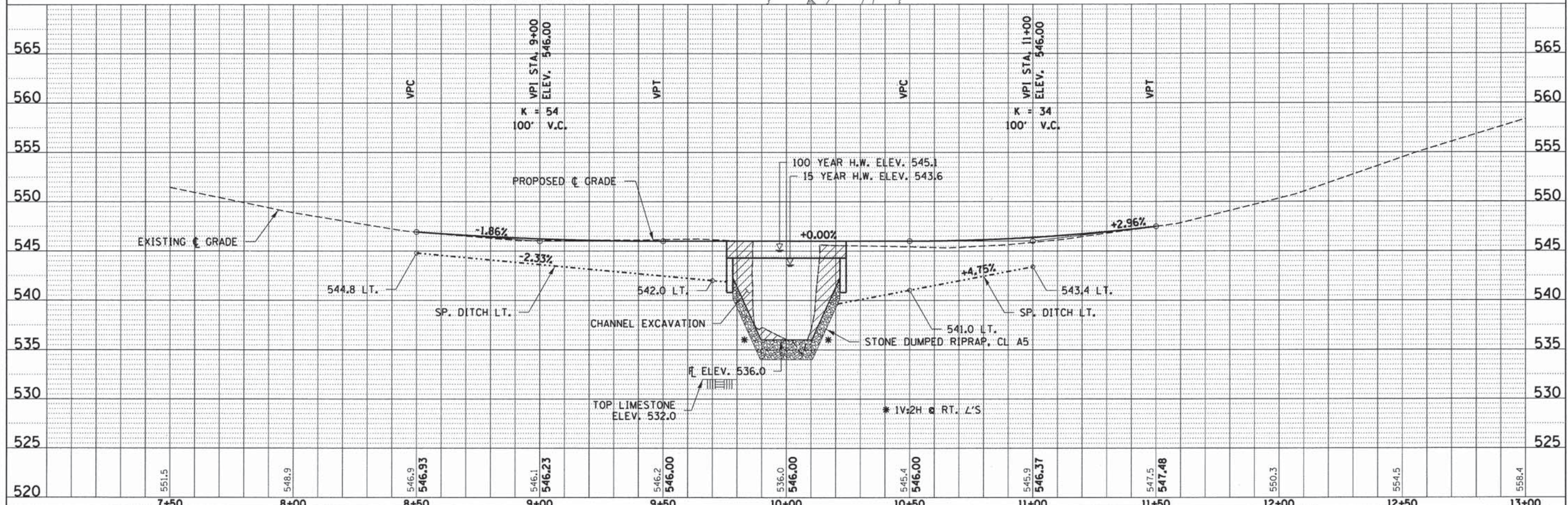
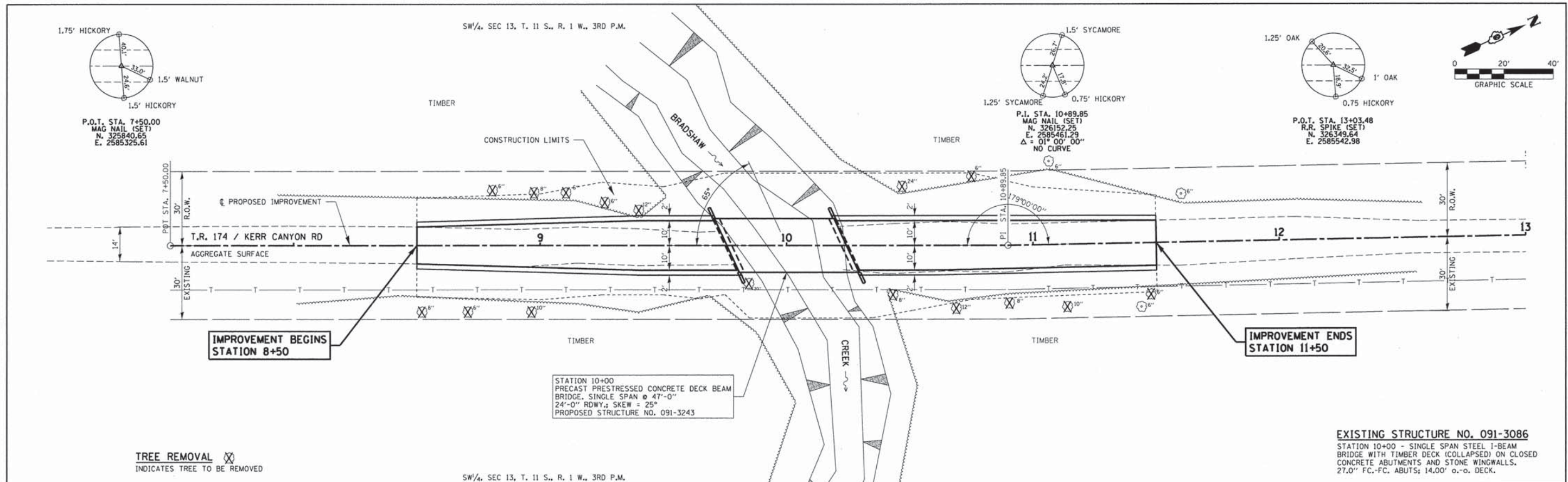
PROPOSED TYPICAL CROSS SECTION
STA. 8+50 TO 11+50

SUGGESTED CUT SECTION
CONSTRUCT AS SHOWN IN
STATION CROSS SECTIONS

SUGGESTED FILL SECTION
CONSTRUCT AS SHOWN IN
STATION CROSS SECTIONS

TRANSITIONS FROM THE PROPOSED ROADWAY TO THE EXISTING ROADWAY ARE TO BE CONSTRUCTED FROM STA. 8+50 TO 9+40 AND STA. 10+60 TO 11+50. SEE SHEET 14 FOR TRANSITION AT BRIDGE.

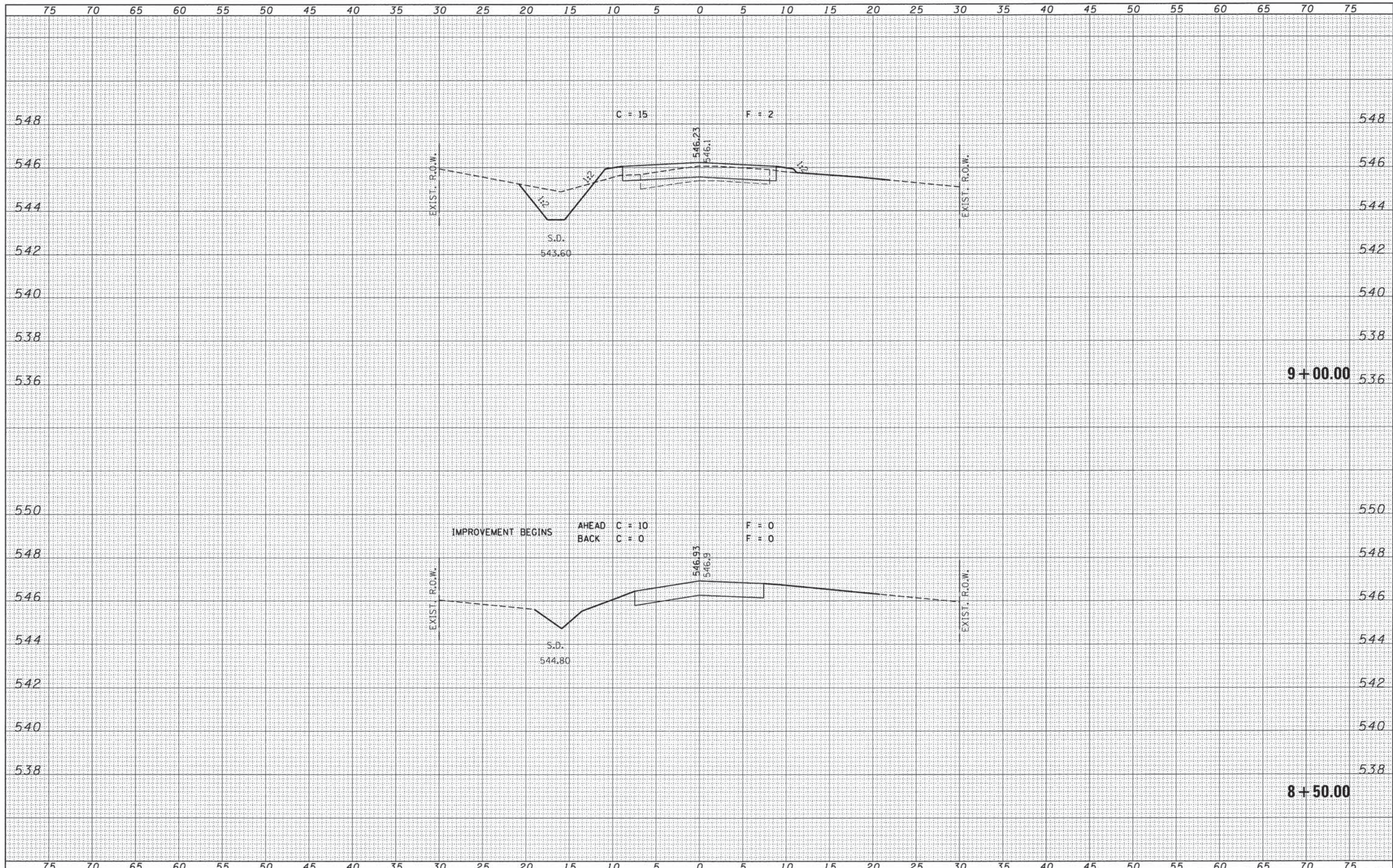
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HAMPTON, LENZINI AND RENWICK, INC.		DRAWN - R.D.H.	REVISED -				174	12-01203-00-BR	UNION	21	3
3080 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703		CHECKED - S.W.M.	REVISED -				COUNTY UNIT ROAD DISTRICT		CONTRACT NO. 99558		
ILLINOIS PROFESSIONAL DESIGN FIRM L3 / PE / SE CORP. 184.000989		DATE - 08/27/15	REVISED -				SCALE:	SHEET NO. 1 OF 1 SHEETS	STA.	TO STA.	ILLINOIS FED. AID PROJECT BROS-01810601
PLOT SCALE =	PLOT DATE = 8/31/2015										



PLAN	SURVEYED	DATE
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	ALIGNED	
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	NO.	

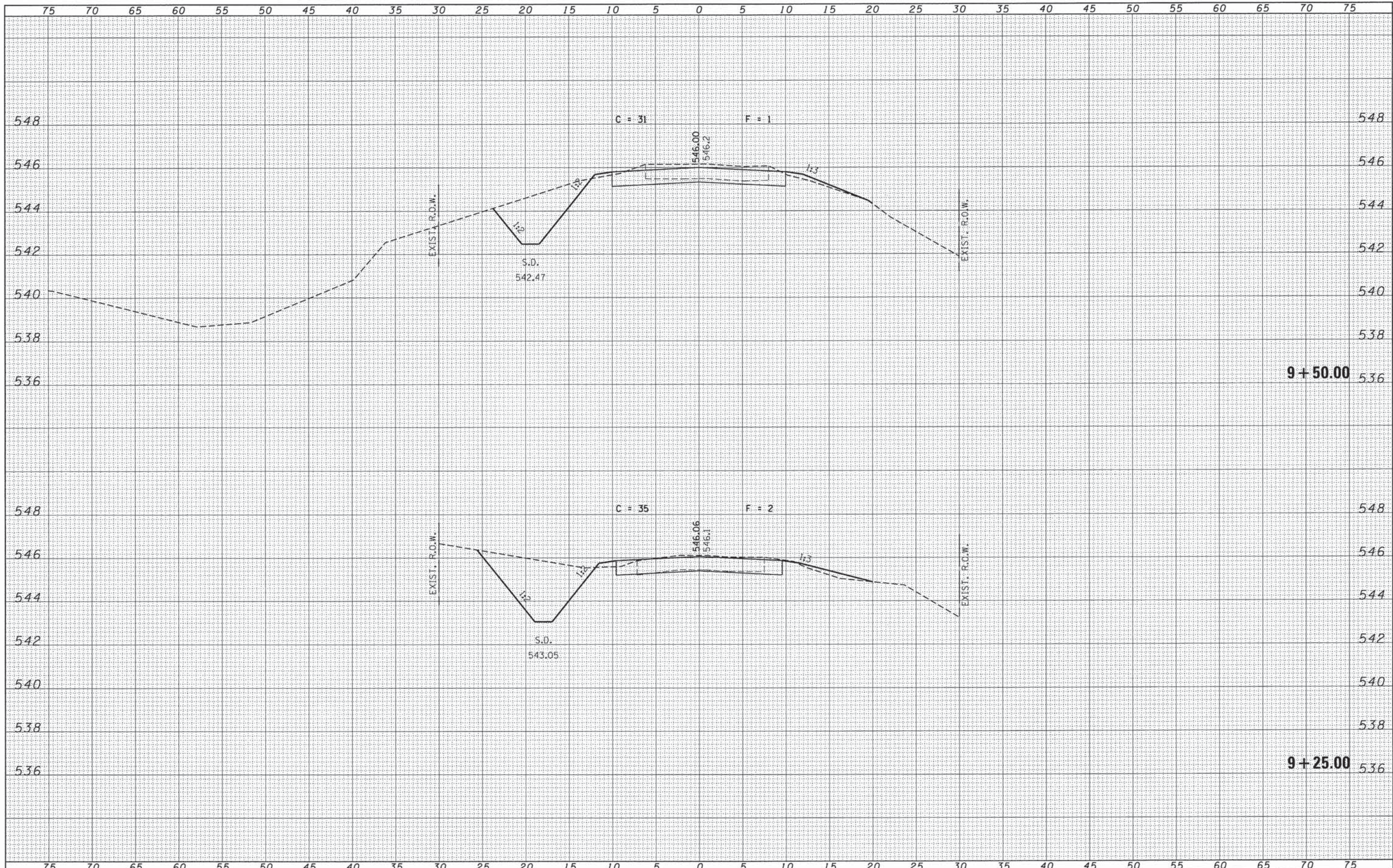
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	NOTED	
	ALIGNED	
	CHECKED	
	BY	
	NO.	

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HAMPTON, LENZINI AND RENWICK, INC.	PLOT SCALE =	DRAWN - L.G.C.	REVISED -		
3095 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62793	PLOT DATE = 9/18/2015	CHECKED - S.W.M.	REVISED -		
ILLINOIS PROFESSIONAL DESIGN FIRM L3 / PE / SE CORP. 184.009959	DATE = 08/27/15	REVISIONS	REVISED -		
SCALE: 20H:5V	SHEET NO. 1 OF 1 SHEETS	STA. 7+50.00 TO STA. 13+00.00			



DATE	
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REVISIONS	
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 DRAWN - L.G.C.
 CHECKED - S.W.M.
 DATE - 08/27/15

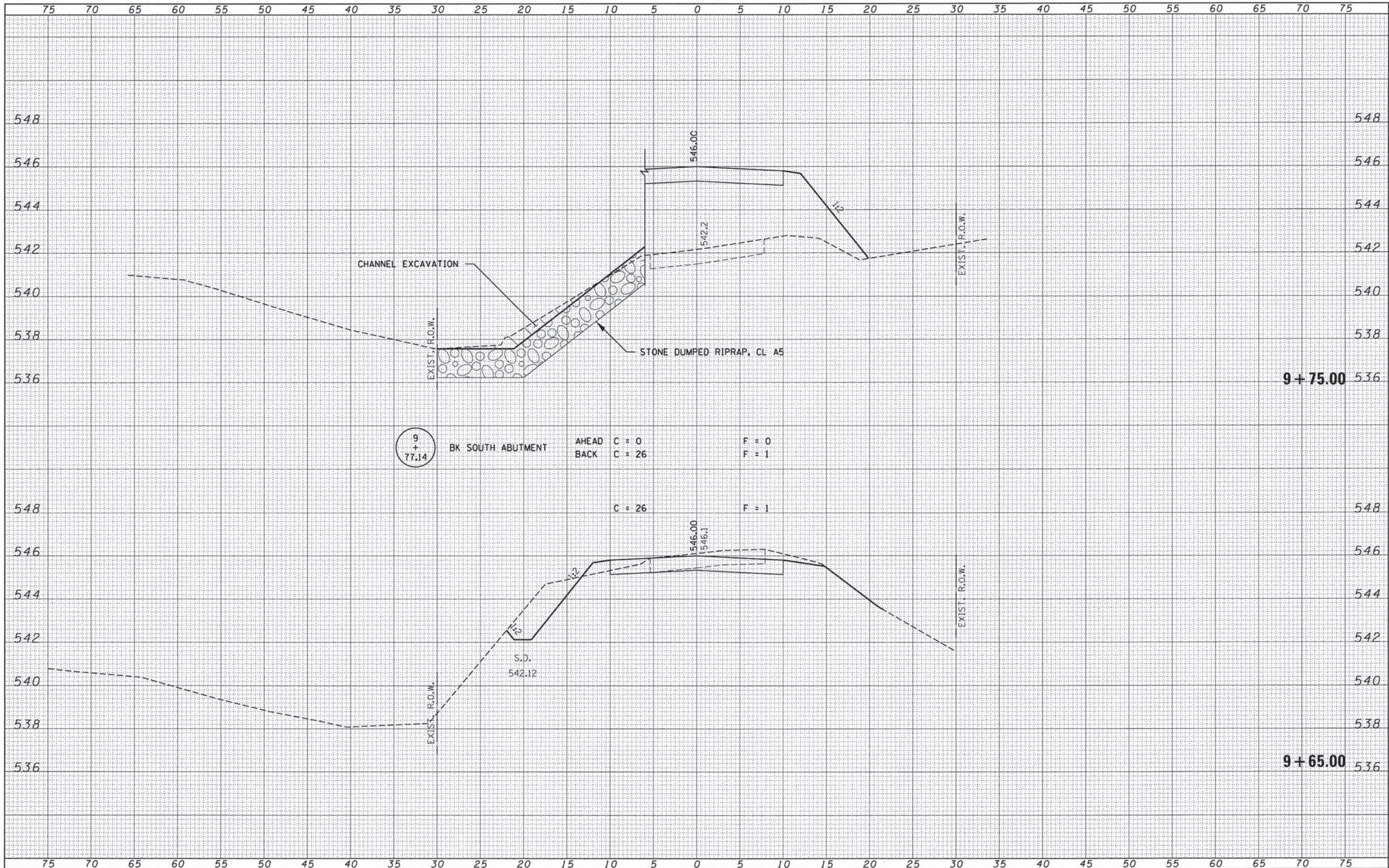
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CHECKED	-	S.W.M.	REVISED	-
DATE	-	08/27/15	REVISED	-

STATE OF ILLINOIS
 UNION COUNTY HIGHWAY DEPARTMENT

STATION CROSS SECTIONS

SCALE: 5H:2V SHEET NO. 3 OF 9 SHEETS STA. 9+25.00 TO STA. 9+50.00

TR	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
174	12-01203-00-BR	UNION	21	7
COUNTY UNIT ROAD DISTRICT			CONTRACT NO. 99558	
ILLINOIS FED. AID PROJECT BROS-01810601				



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9
+
77.14

BK SOUTH ABUTMENT

AHEAD C = 0 F = 0
BACK C = 26 F = 1

C = 26 F = 1

FILE NAME = 140003-sht-sxs.dgn
HAMPSON, LENZINI AND RENWICK, INC.
388 STEVENSON DRIVE, SUITE 201
SPRINGFIELD, ILLINOIS 62761
ILLINOIS PROFESSIONAL DESIGN FIRM
LS / PE / SE CORP. 184-000888

USER NAME =
DESIGNED - L.A.P.
DRAWN - L.G.C.
CHECKED - S.W.M.
DATE - 08/27/15
PLOT SCALE =
PLOT DATE = 8/31/2015

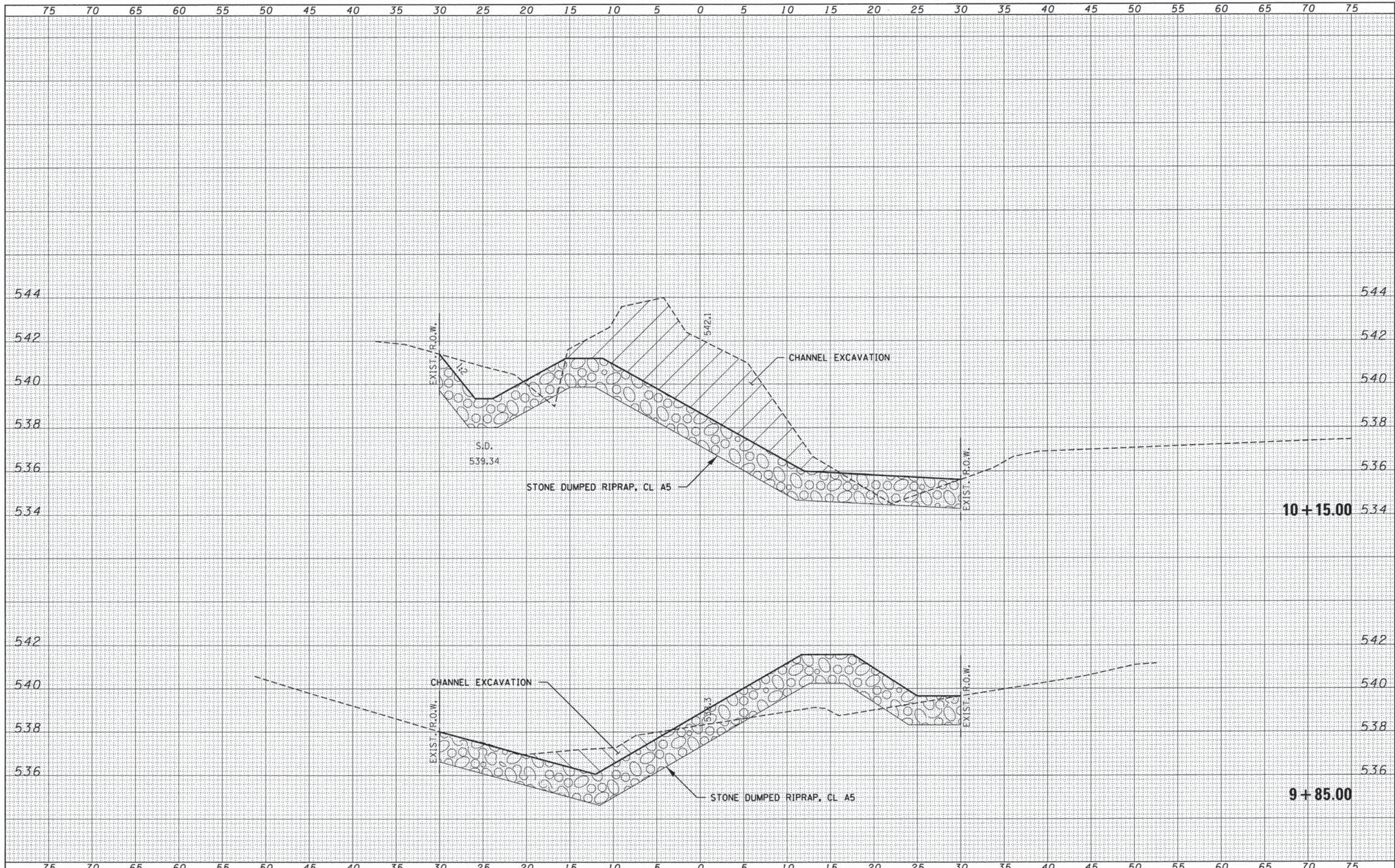
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CHECKED - S.W.M.	REVISED -
DATE - 08/27/15	REVISED -

STATE OF ILLINOIS
UNION COUNTY HIGHWAY DEPARTMENT

SCALE: 5H:2V
SHEET NO. 4 OF 9 SHEETS
STA. 9+65.00 TO STA. 9+75.00

STATION CROSS SECTIONS

TR	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
174	12-01203-00-BR	UNION	21	8
COUNTY UNIT ROAD DISTRICT			CONTRACT NO. 99558	
ILLINOIS FED. AID PROJECT BR05-01810601				



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TEMPLATE	
AREAS CHECKED	
FINAL SURVEY	
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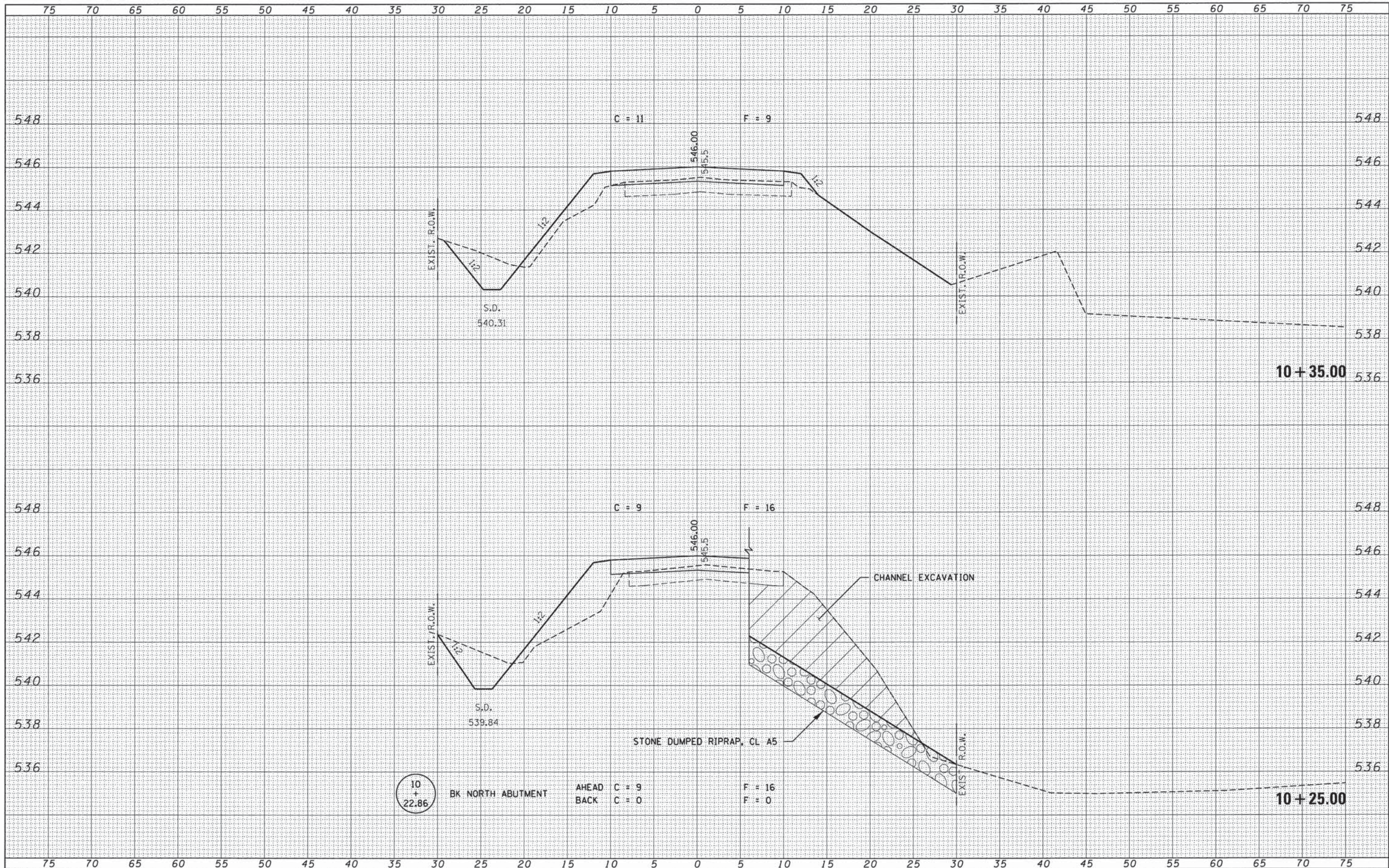
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 CHECKED - S.W.M.
 DATE - 08/27/15

DESIGNED - L.A.P.
 DRAWN - L.G.C.
 CHECKED - S.W.M.
 DATE - 08/27/15

STATE OF ILLINOIS
 UNION COUNTY HIGHWAY DEPARTMENT

STATION CROSS SECTIONS
 SCALE: 5H:2V
 SHEET NO. 5 OF 9 SHEETS
 STA. 9+85.00 TO STA. 10+15.00

TR	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
174	12-01203-00-BR	UNION	21	9
COUNTY UNIT ROAD DISTRICT			CONTRACT NO. 99558	
ILLINOIS FED. AID PROJECT BROS-01B10601				



DATE	
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NOTE BOOK	
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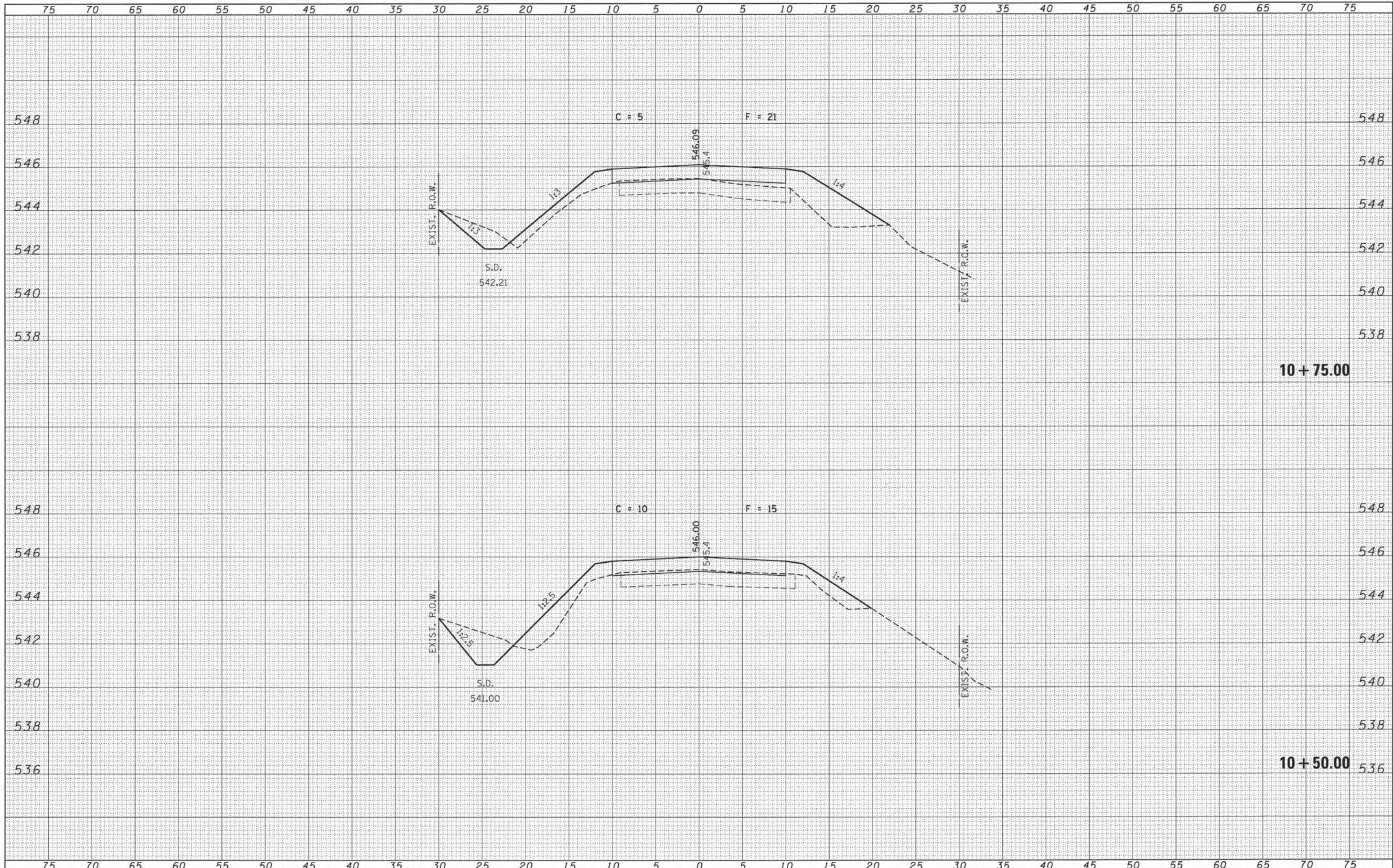
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STATE OF ILLINOIS
 UNION COUNTY HIGHWAY DEPARTMENT

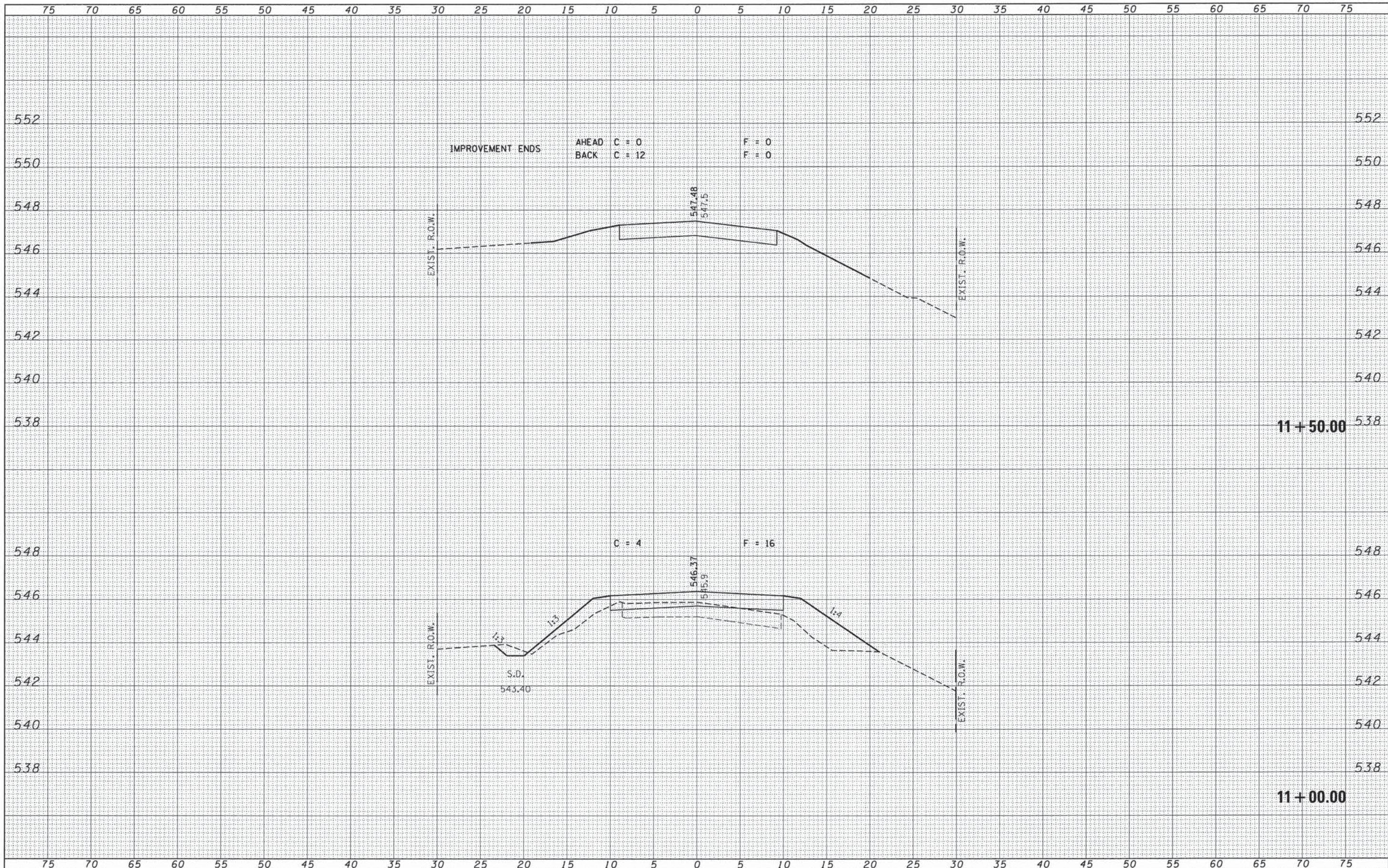
STATION CROSS SECTIONS
 SCALE: 5H:2V
 SHEET NO. 6 OF 9 SHEETS
 STA. 10+25.00 TO STA. 10+35.00

TR	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
174	12-01203-00-BR	UNION	21	10
COUNTY UNIT ROAD DISTRICT			CONTRACT NO. 99558	
ILLINOIS FED. AID PROJECT BROS-01810601				



DATE	
BY	
FINAL SURVEY	
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 DRAWN - L.G.C.
 CHECKED - S.W.M.
 DATE - 08/27/15

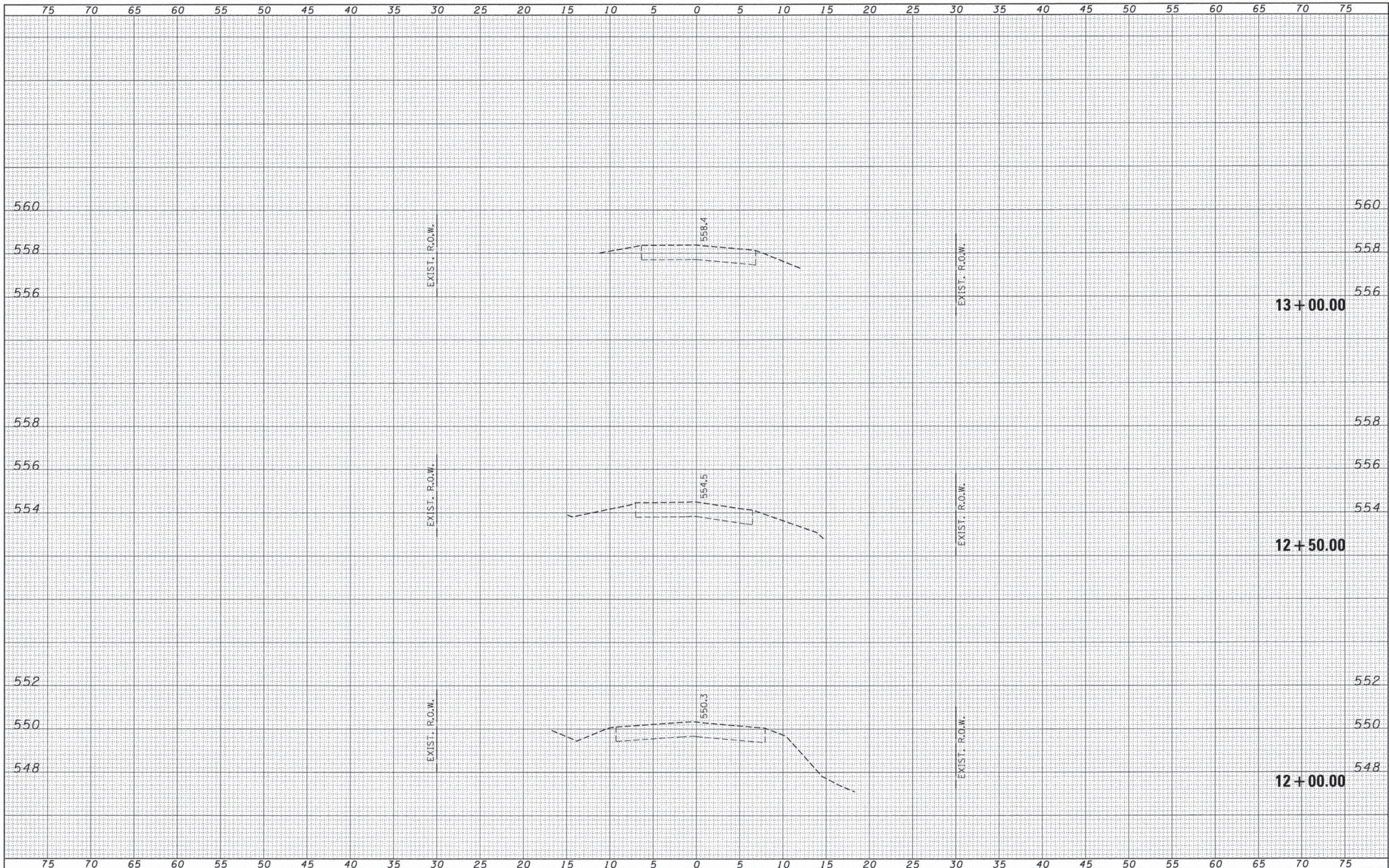
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STATE OF ILLINOIS
 UNION COUNTY HIGHWAY DEPARTMENT

STATION CROSS SECTIONS

SCALE: 5H:2V
 SHEET NO. 8 OF 9 SHEETS
 STA. 11+00.00 TO STA. 11+50.00

TR	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
174	12-01203-00-BR	UNION	21	12
COUNTY UNIT ROAD DISTRICT			CONTRACT NO. 99558	
ILLINOIS FED. AID PROJECT BROS-01810601				



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

DATE	BY
NO.	NO.
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ORIGINAL SURVEY	ORIGINAL SURVEY
NOTE BOOK	NOTE BOOK

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 HAMPTON, LENZINI AND RENWICK, INC.
 3884 STEVENSON DRIVE, SUITE 201
 SPRINGFIELD, ILLINOIS 62761
 ILLINOIS PROFESSIONAL DESIGN FIRM
 LS / PE / SE CORP. 184.000859

USER NAME =
 PLOT SCALE =
 PLOT DATE = 8/31/2015

DESIGNED -	L.A.P.	REVISED -	
DRAWN -	L.G.C.	REVISED -	
CHECKED -	S.W.M.	REVISED -	
DATE -	08/27/15	REVISED -	

STATE OF ILLINOIS
 UNION COUNTY HIGHWAY DEPARTMENT

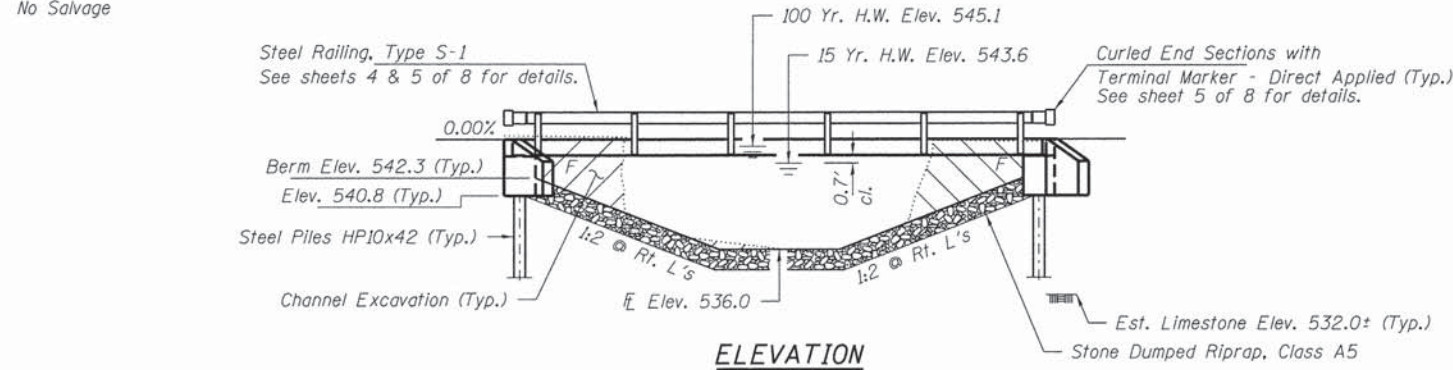
STATION CROSS SECTIONS
 SCALE: 5H:2V
 SHEET NO. 9 OF 9 SHEETS
 STA. 12+00.00 TO STA. 13+00.00

TR	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
174	12-01203-00-BR	UNION	21	13
COUNTY UNIT ROAD DISTRICT			CONTRACT NO. 99558	
ILLINOIS FED. AID PROJECT BROS-01810601				

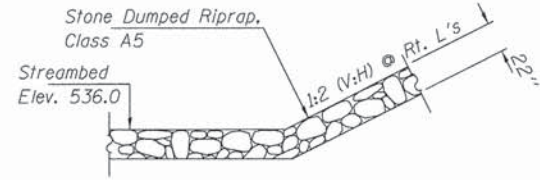
EXISTING STRUCTURE NO. 091-3086: Single span steel I-beam bridge with timber deck on closed concrete abutments and stone wingwalls. 27.0' fc.-fc. abuts.; 14.0' o.-o. deck.

Structure closed to traffic during construction.

No Salvage

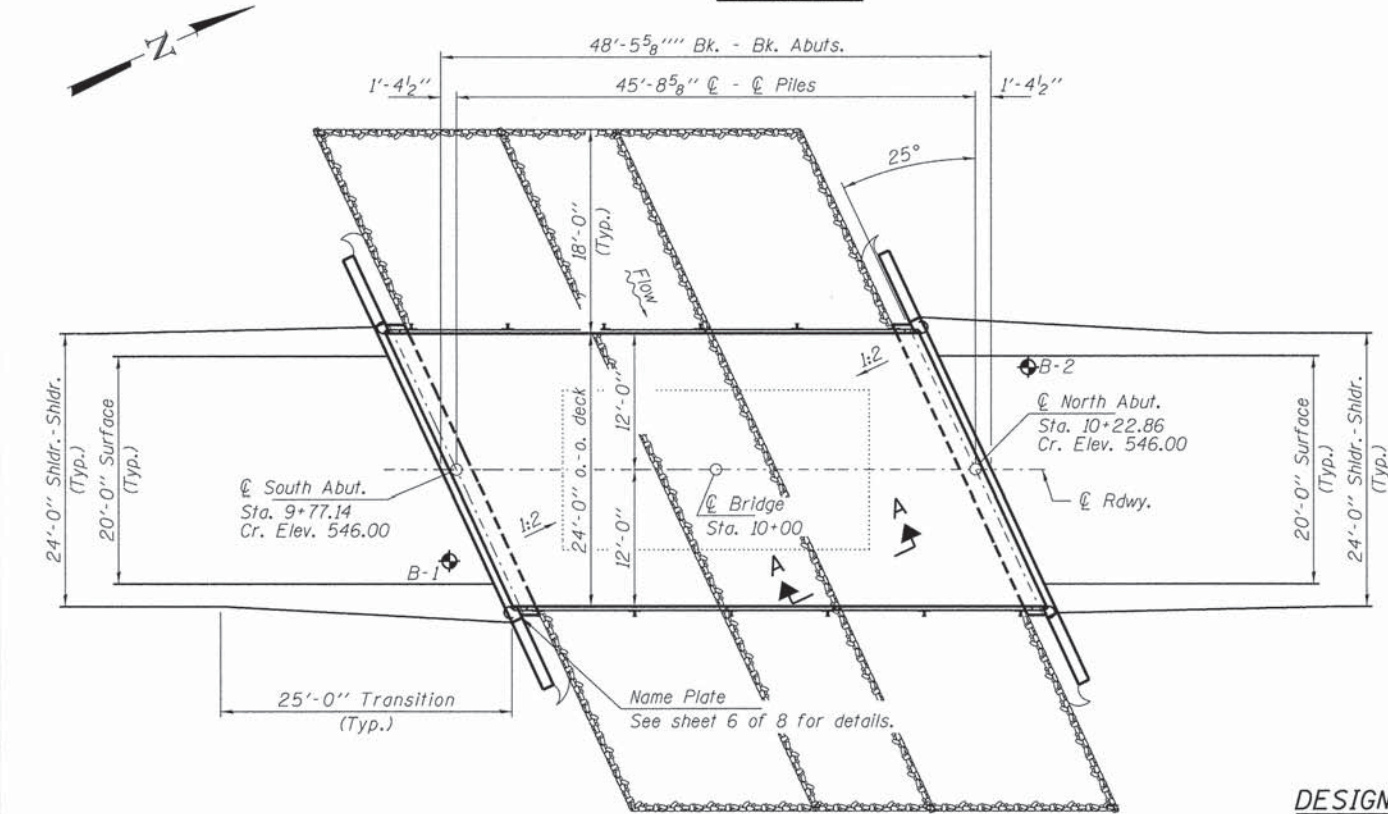


ELEVATION



SECTION A-A

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



PLAN

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 shall 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.

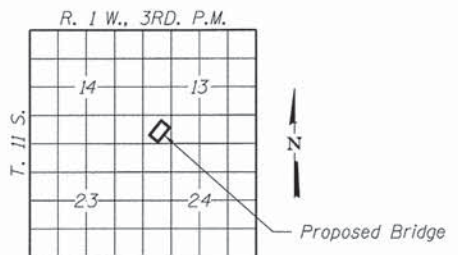
Concrete sealer shall be applied to the designated areas of the abutments.

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. Abutments
7. HP Pile Details
8. Borings

BRADSHAW CREEK
BUILT 201. BY
UNION COUNTY
SEC. 12-01203-00-BR
COUNTY UNIT ROAD DISTRICT
STR. NO. 091-3243
LOADING HL - 93

NAME PLATE
See Std. 515001



LOCATION SKETCH

DESIGN SPECIFICATIONS

2014 AASHTO LRFD Bridge Design Specifications, 6th Edition with 2015 Interims.

LOADING HL - 93

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

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.)

SEISMIC DATA

Seismic Performance Zone (SPZ) = 3
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.346g
Design Spectral Acceleration at 0.2 sec. (S_{D5}) = 0.910g
Soil Site Class = C

WATERWAY INFORMATION

Drainage Area = 2.1 Sq. Mi.		Existing Low Grade Elev. 545.4 @ Sta. 10+50 Proposed Low Grade Elev. 546.0 @ Sta. 9+00							
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.	Natural H.W.E.	Head - Ft.	Headwater El.			
			Exist.	Prop.	Exist.	Prop.	Exist.	Prop.	
Existing Overtop	10	1476	150	190	543.20	1.44	0.88	544.64	544.08
Design	15	1720	160	210	543.62	1.40	0.78	545.02	544.40
Base (Prop. Overtop)	100	3030	170	240	545.10	1.20	1.00	546.30	546.10
Max. Calc.	500	4350	170	240	546.15	0.47	0.21	546.62	546.36

10 Year Velocity through Existing Bridge = 9.8 fps
10 Year Velocity through Proposed Bridge = 7.8 fps

DESIGN SCOUR ELEVATION TABLE

Event/Limit State	Design Scour Elevations (ft.)		Item 113
	S. Abut.	N. Abut.	
Q100	540.8	540.8	8
Q200	540.8	540.8	
Design	540.8	540.8	
Check	540.8	540.8	

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 08/27/2015
ILLINOIS STRUCTURAL ENGINEER NO. 081-6064



Expires 11-30-2016

TOTAL BILL OF MATERIAL

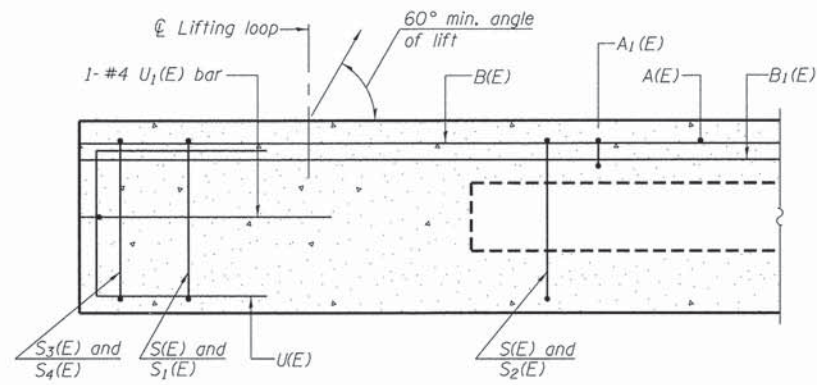
ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	Cu. Yd.			105
Stone Dumped Riprap, Class A5	Ton			310
Removal of Existing Structures	Each			1
Concrete Structures	Cu. Yd.		24.8	24.8
Precast Prestressed Concrete Deck Beams (17" Depth)	Sq. Ft.	1,128		1,128
Reinforcement Bars, Epoxy Coated	Pound		2,870	2,870
Steel Railing, Type S-1	Foot	89		89
Furnishing Steel Piles HP10x42	Foot		112	112
Setting Piles in Rock	Each		8	8
Name Plates	Each		1	1
Terminal Marker - Direct Applied	Each	4		4
Concrete Sealer	Sq. Ft.		104	104

FILE NAME = 142023-shr-bridge.dgn	USER NAME =	DESIGNED - L.A.P.	REVISED -
HAMPTON, LENZINI AND RENWICK, INC. 3033 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62763 ILLINOIS PROFESSIONAL DESIGN FIRM L3 / PE / SE CORP. 184.000099	PLOT SCALE =	CHECKED - S.W.M.	REVISED -
PLOT DATE = 8/31/2015		DRAWN - R.D.H.	REVISED -
		CHECKED - S.W.M.	REVISED -

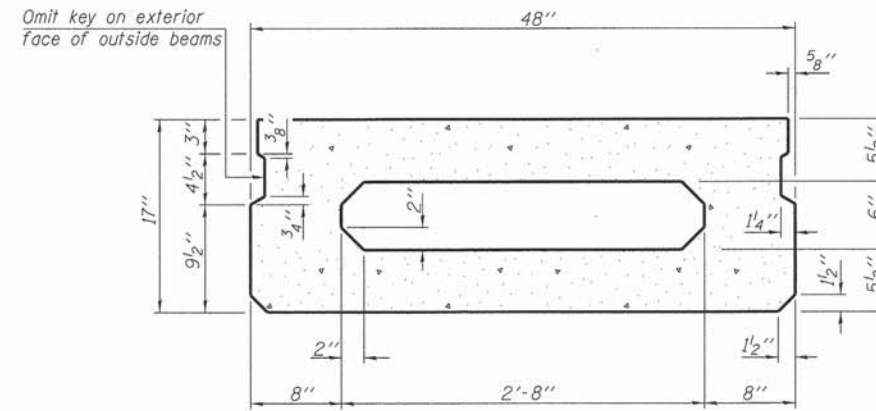
STATE OF ILLINOIS
UNION COUNTY HIGHWAY DEPARTMENT

GENERAL PLAN & ELEVATION
STRUCTURE NO. 091-3243
SHEET NO. 1 OF 8 SHEETS

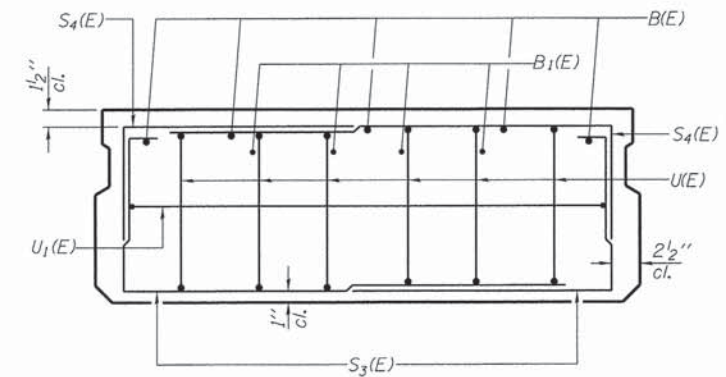
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
174	12-01203-00-BR	UNION	21	14
COUNTY UNIT ROAD DISTRICT			CONTRACT NO. 99558	
ILLINOIS FED. AID PROJECT BROS-01810601				



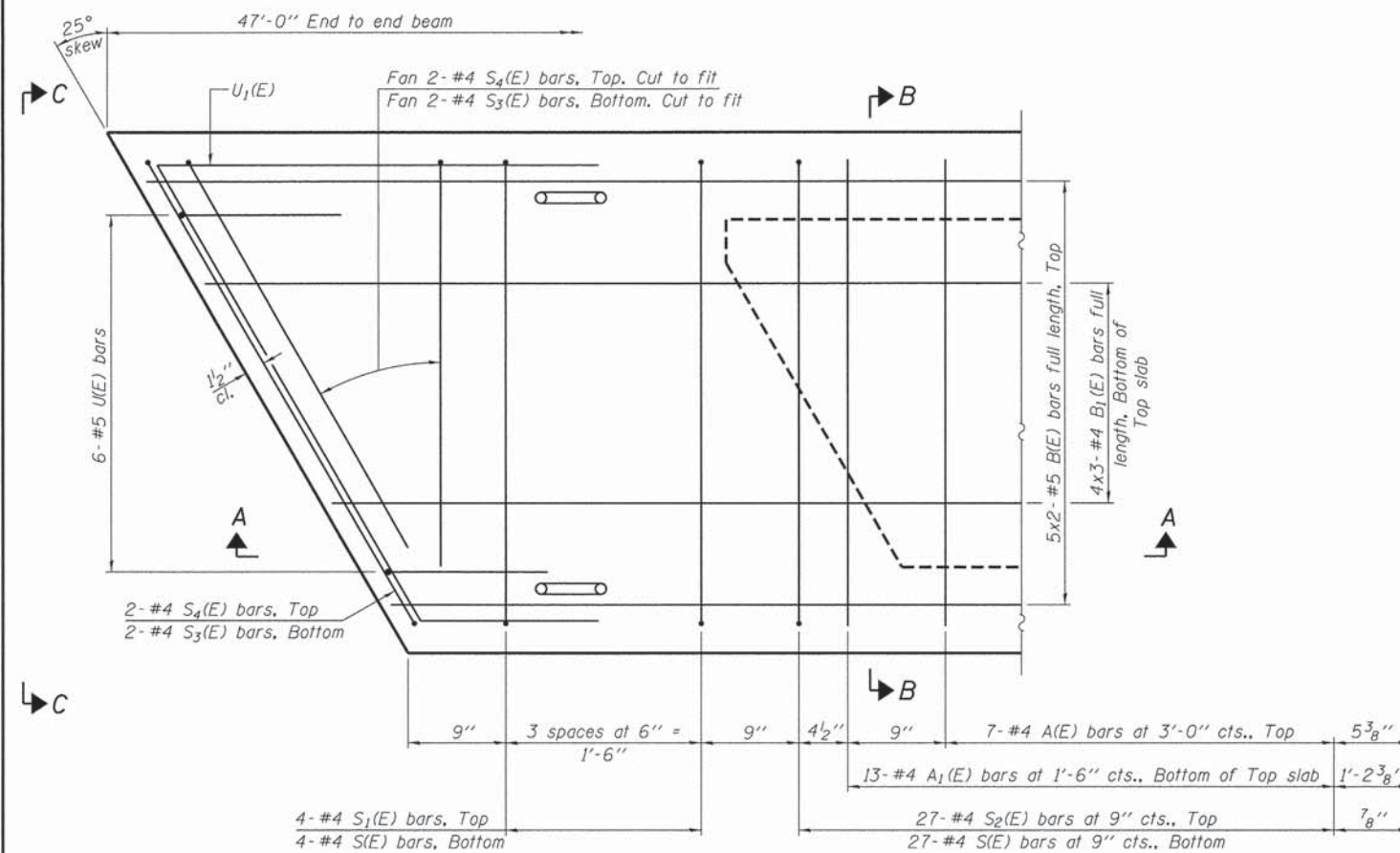
SECTION A-A



SECTION B-B
(Showing dimensions)

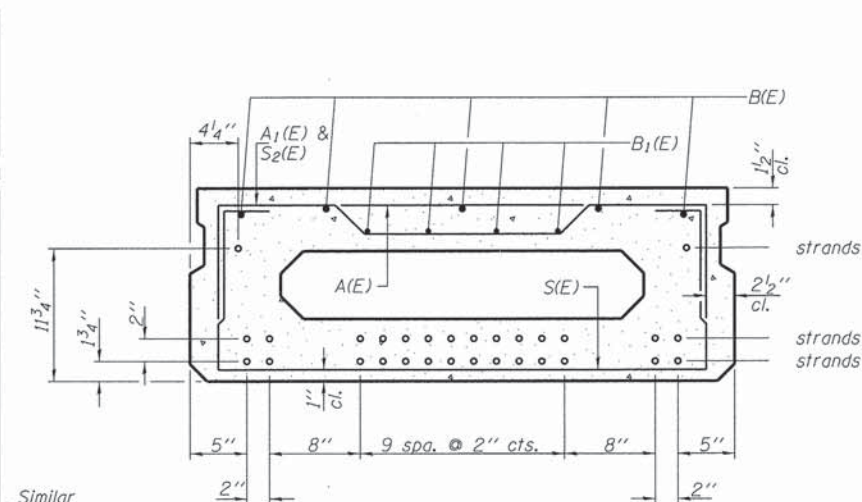


VIEW C-C



PLAN VIEW

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



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)	14	#4	3'-7"	—
A ₁ (E)	27	#4	3'-10"	~
B(E)	10	#5	24'-8"	—
B ₁ (E)	12	#4	16'-11"	—
S(E)	62	#4	6'-9"	⌋
S ₁ (E)	8	#4	5'-3"	⌋
S ₂ (E)	54	#4	5'-6"	⌋
S ₃ (E)	8	#4	4'-6"	⌋
S ₄ (E)	8	#4	3'-9"	⌋
U(E)	12	#5	3'-8"	⌋
U ₁ (E)	2	#4	8'-0"	⌋

Note: See sheets 3 & 4 of 8 for additional details and Bill of Material.

MINIMUM BAR LAP

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

PD-1748-R

6-8-15

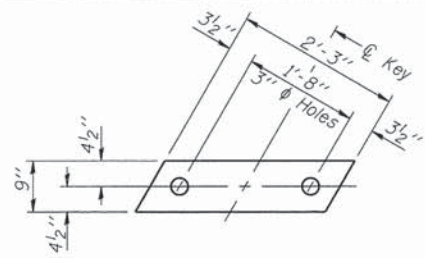
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HAMPTON, LENZINI AND RENWICK, INC. 3033 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62761 ILLINOIS PROFESSIONAL DESIGN FIRM L8 / PE / SE CORP. 184-00099	PLOT SCALE =	CHECKED - S.W.M.	REVISED -
	PLOT DATE = 8/31/2015	DRAWN - R.D.H.	REVISED -
		CHECKED - S.W.M.	REVISED -

STATE OF ILLINOIS
UNION COUNTY HIGHWAY DEPARTMENT

17' x 48" PPC DECK BEAM
STRUCTURE NO. 091-3243

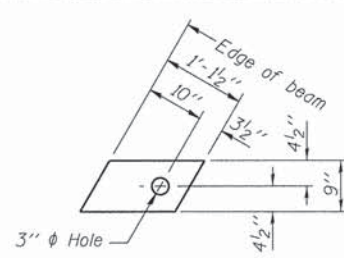
SHEET NO. 2 OF 8 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
174	12-01203-00-BR	UNION	21	15
COUNTY UNIT ROAD DISTRICT			CONTRACT NO. 99558	
ILLINOIS FED. AID PROJECT BROS-0181060				



FABRIC BEARING PAD

(Interior - 10 Req'd.)



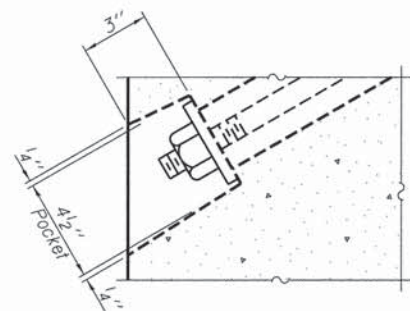
FABRIC BEARING PAD

(Exterior - 4 Req'd.)

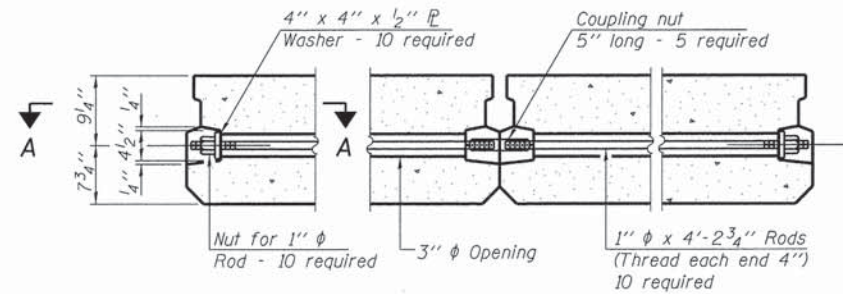
Notes:

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

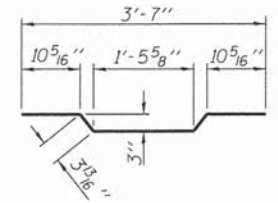
FIXED



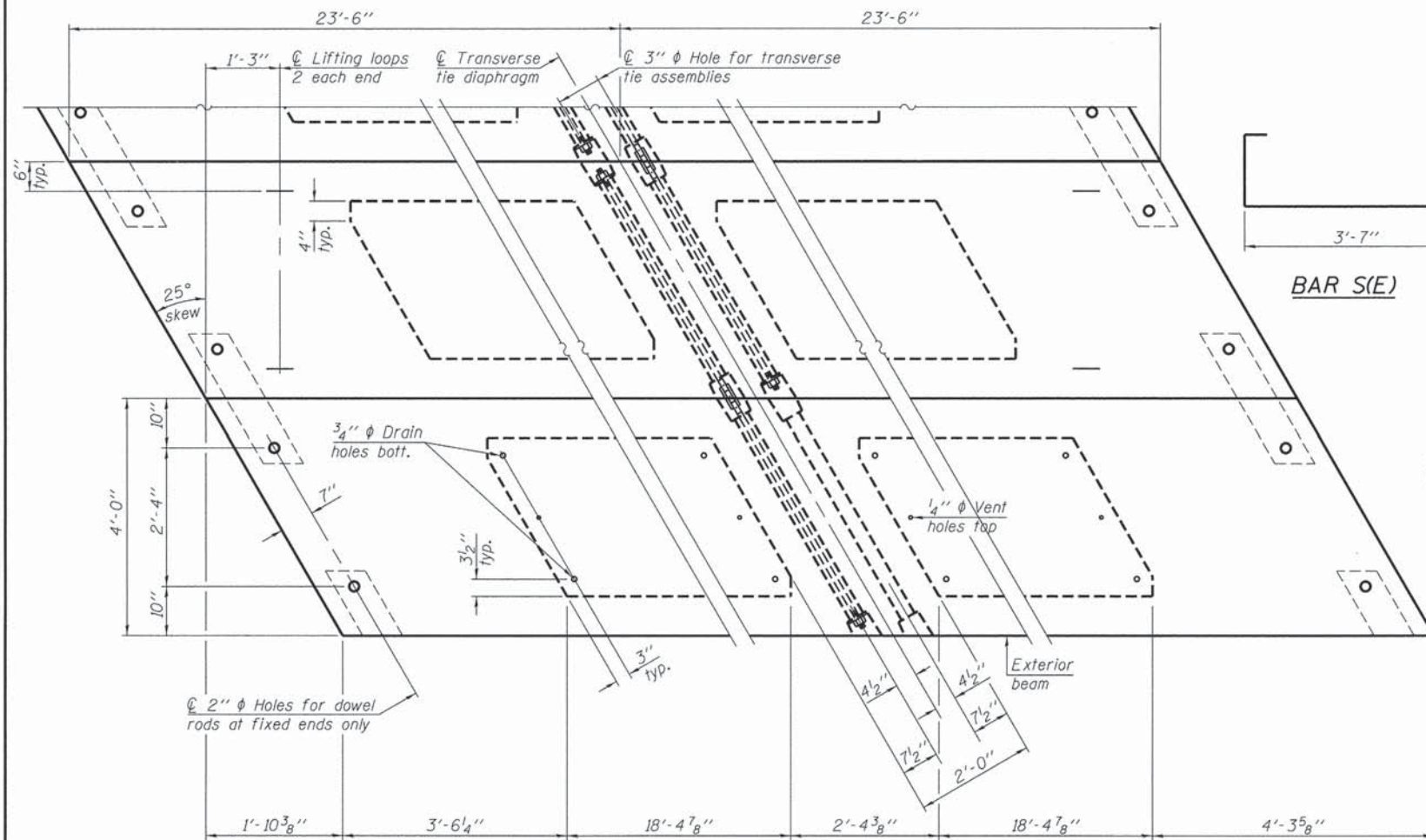
SECTION A-A



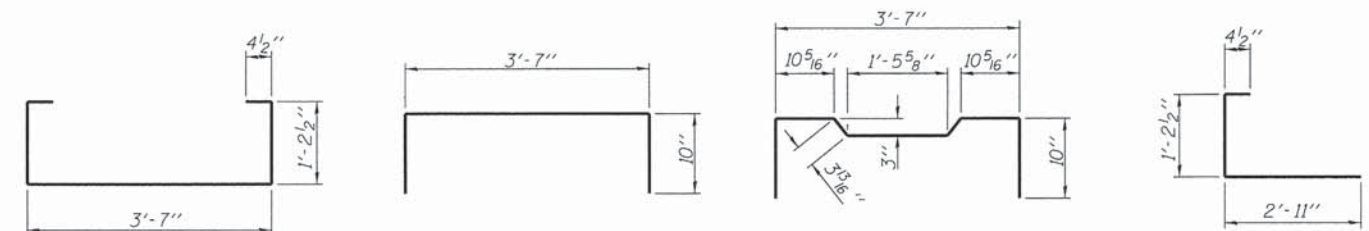
TYPICAL TRANSVERSE TIE ASSEMBLY



BAR A1(E)



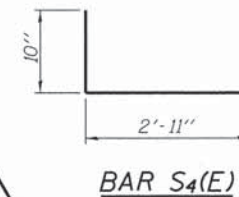
PLAN VIEW



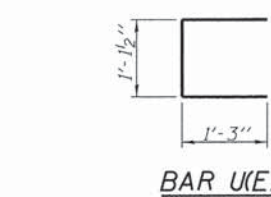
BAR S1(E)

BAR S2(E)

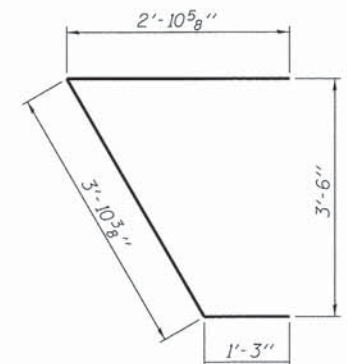
BAR S3(E)



BAR S4(E)



BAR U1(E)

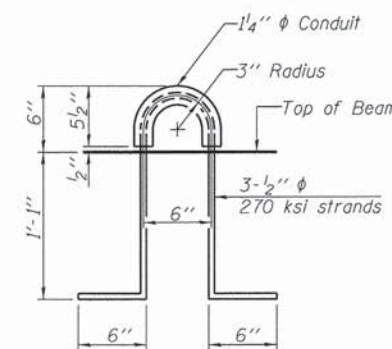


BAR U1(E)

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" diameter 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'cl, 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. (17" depth)	Sq. Ft.	1,128
---	---------	-------

PD-1748-RD 7-1-10

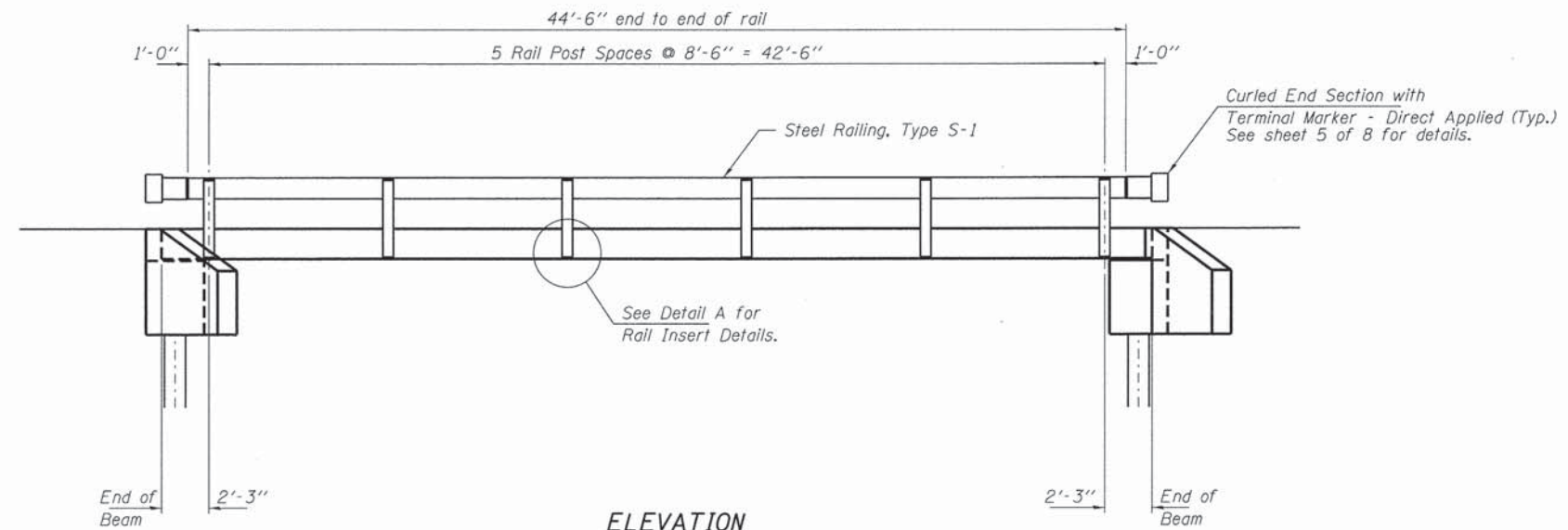
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HAMPTON, LENZINI AND RENWICK, INC.		CHECKED - S.W.M.	REVISED -
3880 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62763		DRAWN - R.D.H.	REVISED -
ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE COMP. 184.000698	PLOT SCALE =	CHECKED - S.W.M.	REVISED -
	PLOT DATE = 8/31/2015		

STATE OF ILLINOIS
UNION COUNTY HIGHWAY DEPARTMENT

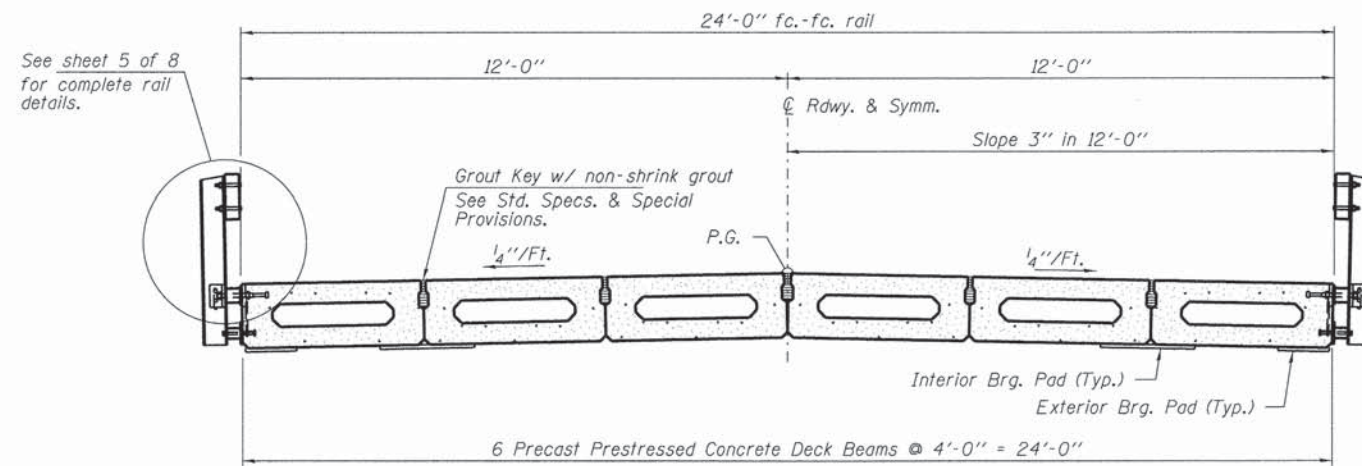
17" x 48" PPC DECK BEAM DETAILS
STRUCTURE NO. 091-3243

SHEET NO. 3 OF 8 SHEETS

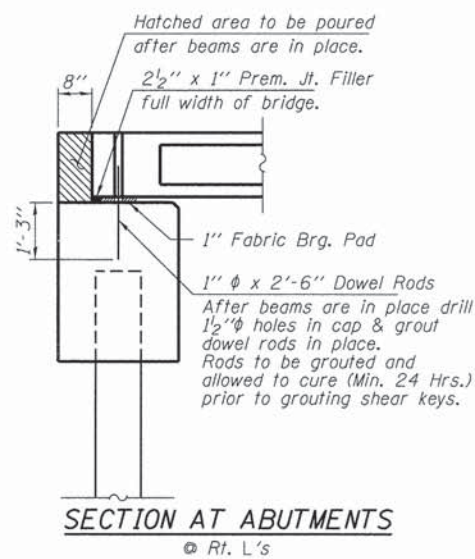
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
174	12-01203-00-BR	UNION	21	16
COUNTY UNIT ROAD DISTRICT			CONTRACT NO. 99558	
ILLINOIS FED. AID PROJECT BROS-01810601				



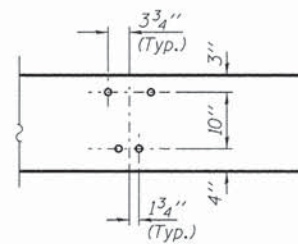
ELEVATION
 Showing Rail Post Spaces
 See sheet 5 of 8 for Railing Details.



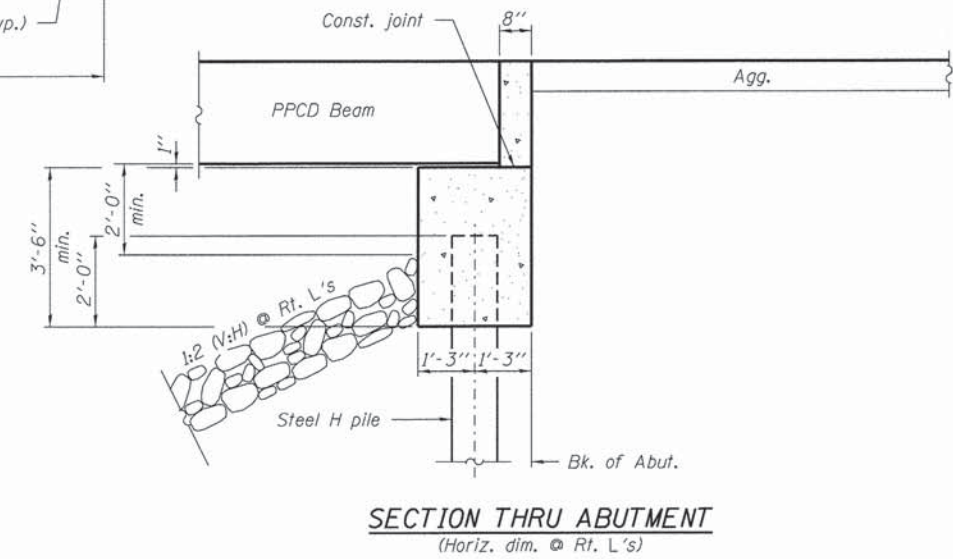
CROSS SECTION
 See sheets 2 & 3 of 8 for Superstructure.



SECTION AT ABUTMENTS
 @ Rt. L's



DETAIL A



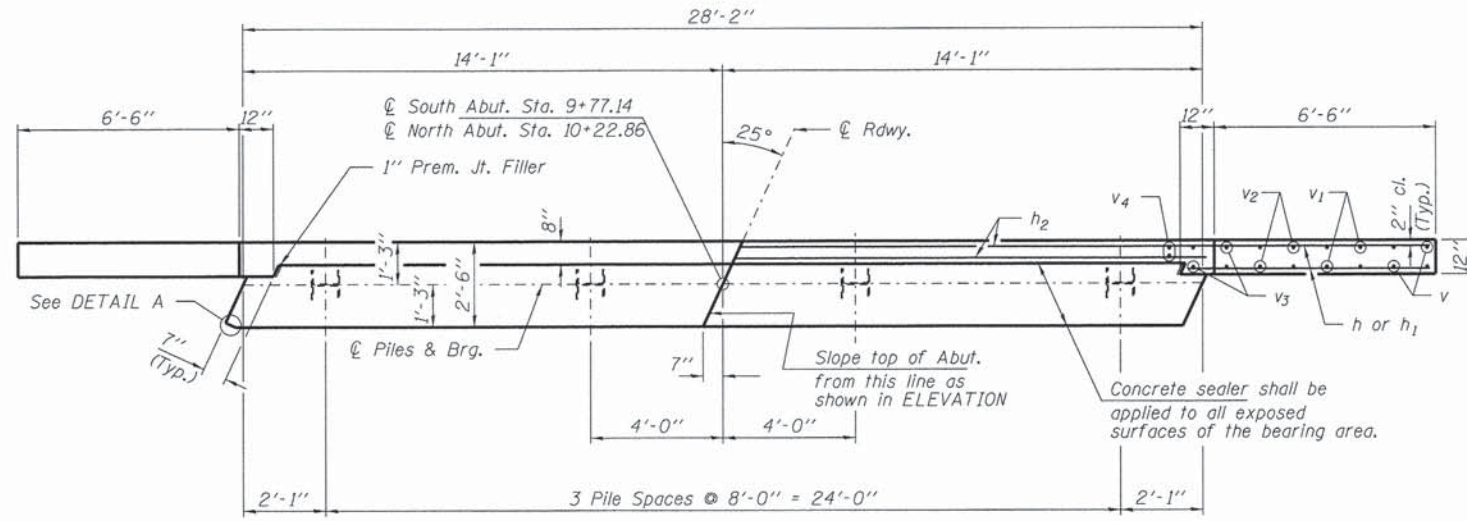
SECTION THRU ABUTMENT
 (Horiz. dim. @ Rt. L's)

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ILLINOIS PROFESSIONAL DESIGN FIRM L.B. / P.E. / S.E. CORP. 184.000989	PLOT DATE = 8/31/2015	DRAWN - R.D.H.	REVISED -
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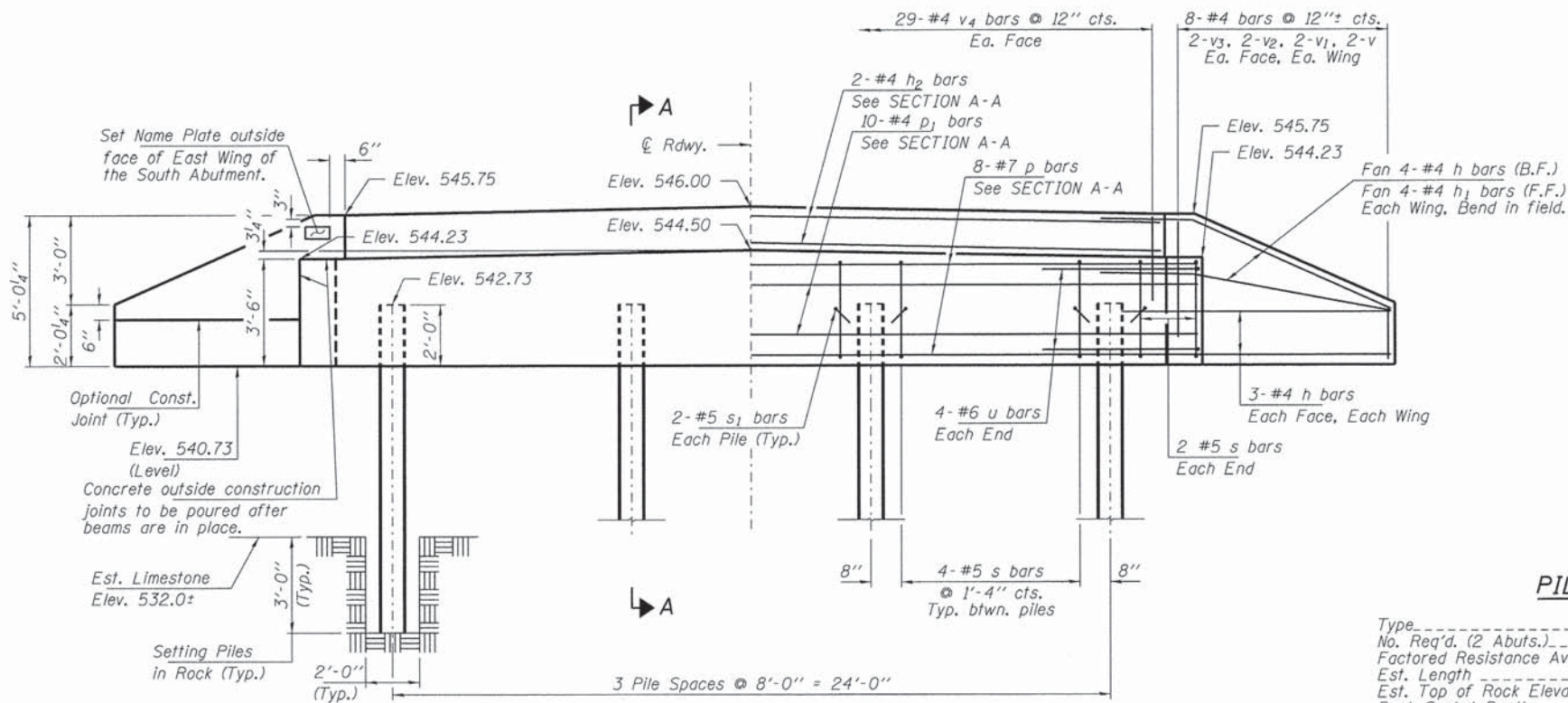
STATE OF ILLINOIS
 UNION COUNTY HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS
 STRUCTURE NO. 091-3243
 SHEET NO. 4 OF 8 SHEETS

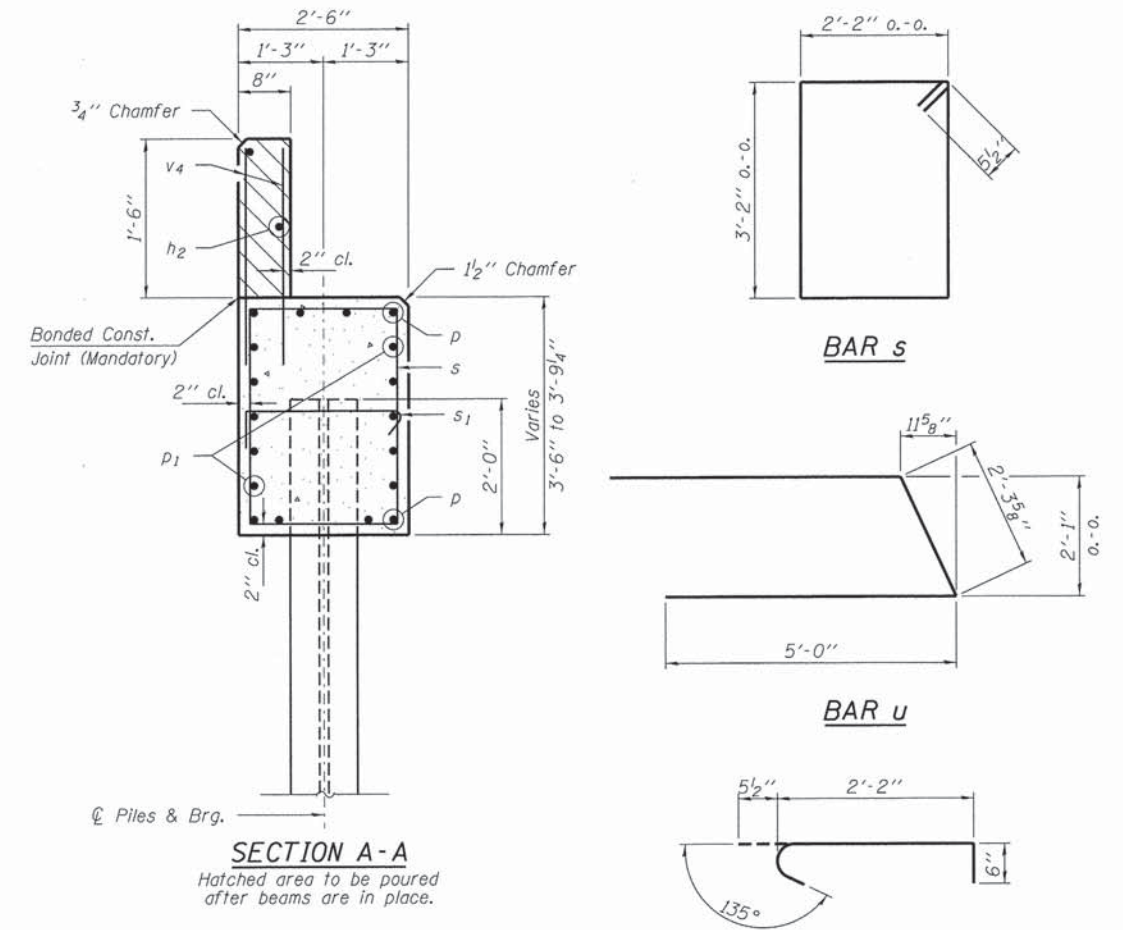
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
174	12-01203-00-BR	UNION	21	17
COUNTY UNIT ROAD DISTRICT			CONTRACT NO. 99558	
(ILLINOIS FED. AID PROJECT BROS-0181060)				



PLAN



ELEVATION



SECTION A-A

Hatched area to be poured after beams are in place.

DETAIL A

PILE DATA

Type.....Steel HP10x42 / Set in Rock
 No. Req'd. (2 Abutments).....8
 Factored Resistance Available (RF).....184 Kips/Pile
 Est. Length.....14 Ft./Pile
 Est. Top of Rock Elevation.....532.0
 Rock Socket Depth.....3.0'
 Rock Socket Diameter.....24"

BILL OF MATERIAL - 2 ABUTS.

BAR	NO.	SIZE	LENGTH	SHAPE	
h	40	#4	8'-9"	—	
h1	16	#4	7'-3"	—	
h2	4	#4	27'-10"	—	
p	16	#7	27'-10"	—	
p1	20	#4	27'-10"	—	
s	44	#5	11'-7"	□	
s1	16	#5	3'-2"	┌	
u	16	#6	12'-4"	└	
v	16	#4	1'-9"	—	
v1	16	#4	2'-9"	—	
v2	16	#4	3'-8"	—	
v3	16	#4	4'-7"	—	
v4	116	#4	2'-4"	—	
Concrete Structures				Cu. Yd.	24.8
Reinforcement Bars, Epoxy Coated				Pound	2,870
Steel Piles HP10x42				Foot	112
Setting Piles in Rock				Each	8
Name Plates				Each	1
Concrete Sealer				Sq. Ft.	104

All bars shall be epoxy coated

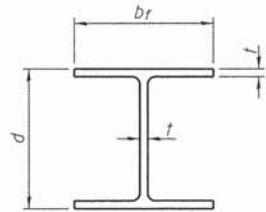
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HAMPTON, LENZINI AND RENWICK, INC. 3090 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62763 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.00068	PLOT SCALE =	CHECKED - S.W.M.	REVISED -
PLOT DATE = 8/31/2015		DRAWN - R.D.H.	REVISED -
		CHECKED - S.W.M.	REVISED -

STATE OF ILLINOIS
 UNION COUNTY HIGHWAY DEPARTMENT

ABUTMENTS
 STRUCTURE NO. 091-3243

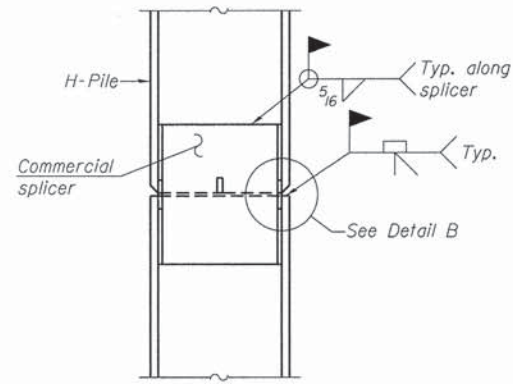
SHEET NO. 6 OF 8 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
174	12-01203-00-BR	UNION	21	19
COUNTY UNIT ROAD DISTRICT			CONTRACT NO. 99558	
ILLINOIS FED. AID PROJECT BROS-01810601				

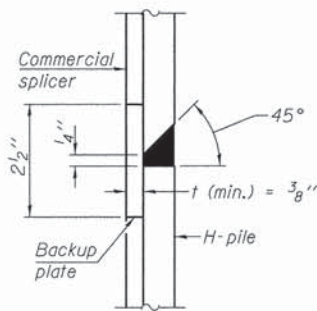


STEEL PILE TABLE

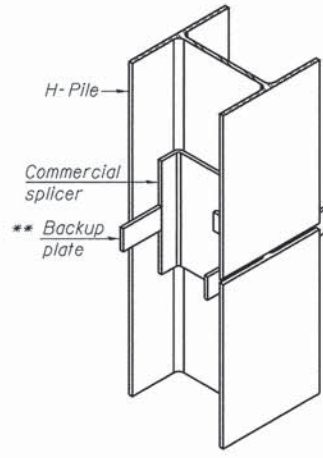
Designation	Depth d	Flange width b _f	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	13/16"	30"
x102	14"	14 3/4"	1/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	1/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"
x53	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

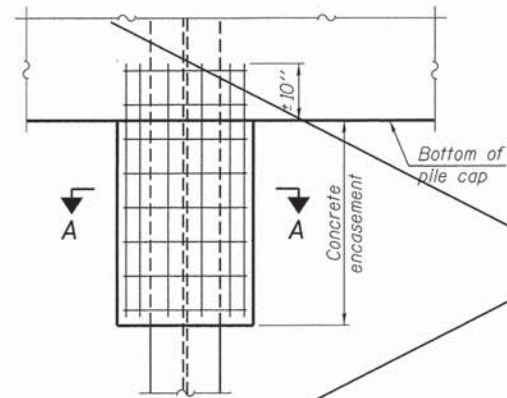


DETAIL "B"



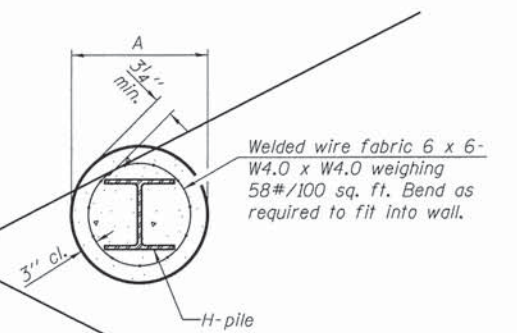
ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE



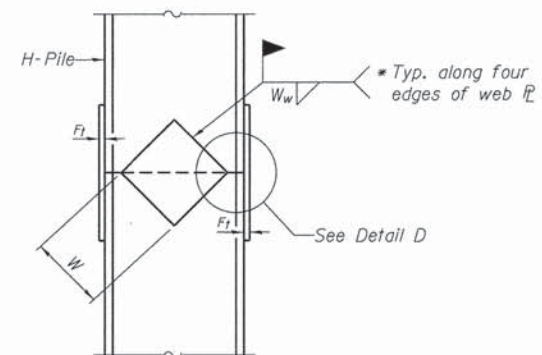
ELEVATION

PILE ENCASEMENT
(Not Required)

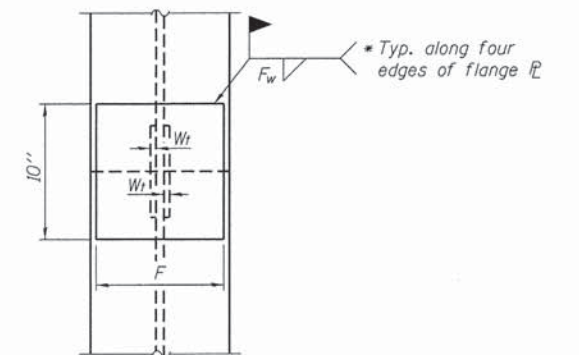


SECTION A-A

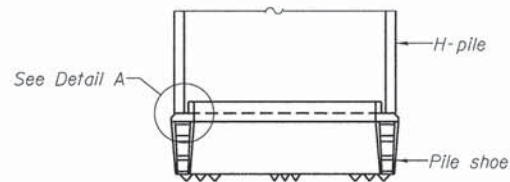
Note:
Forms for encasement may be omitted when soil conditions permit.



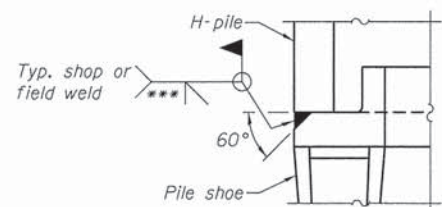
ELEVATION



END VIEW

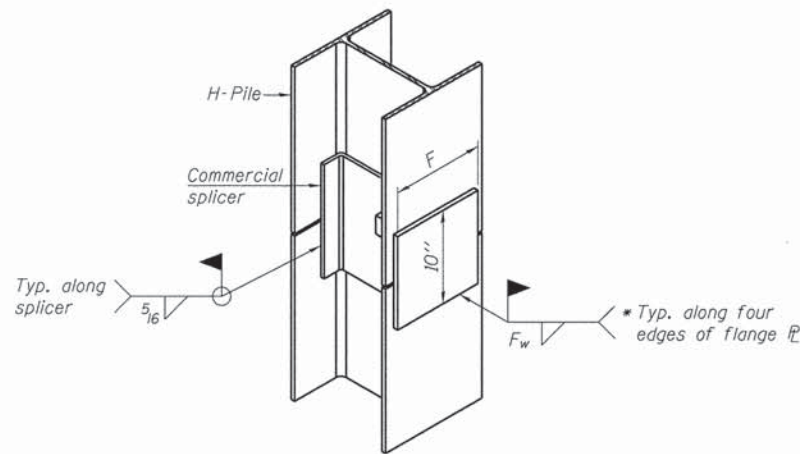


ELEVATION



DETAIL A

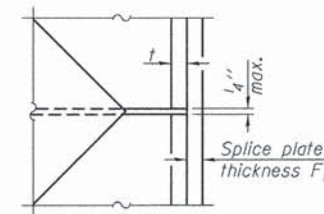
H-PILE SHOE ATTACHMENT



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.).



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"	1/16"	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"	1/16"	6 1/2"	5/8"	1/2"
x74	10"	7/8"	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"

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

F-HP

1-27-12

FILE NAME = 140003-shr-bridge.dgn	USER NAME =	DESIGNED - L.A.P.	REVISED -	STATE OF ILLINOIS UNION COUNTY HIGHWAY DEPARTMENT	HP PILE DETAILS STRUCTURE NO. 091-3243	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
HAMPTON, LENZINI AND RENWICK, INC. 3045 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703	PLOT SCALE =	CHECKED - S.W.M.	REVISED -			174	12-01203-00-BR	UNION	21	20	
ILLINOIS PROFESSIONAL DESIGN FIRM L.P. / P.E. / S.E. CORP. 184.000999	PLOT DATE = 8/31/2015	DRAWN - R.D.H.	REVISED -			SHEET NO. 7 OF 8 SHEETS		CONTRACT NO. 99558		ILLINOIS FED. AID PROJECT BROS-081060	
		CHECKED - S.W.M.	REVISED -								

Bridge Foundation Boring Log

Project: H-14022 Bridge Kerr Canyon Rd over Bradshaw Creek Date: 2/21/2014
Section: 12-01203-00-BR Station _____ Bored by: D. Russell
Structure: _____ Checked By: T. Holcomb
County: Union

Boring No. 1	Station	Offset	Surface Water Elev.			Ground Water Elev.				
			Elevation	N	Qu tsf	w %	Elevation	N	Qu tsf	w %
Ground Surface 545.0 99.9			0							
4" Topsoil										
Brown Sandy CLAY (A-6)										
				9	0.5B	19				
				2	0.3B	22				
				26		10				
				536.5	91.4					
Gray Silty CLAY (A-6)										
				12	2.7S	26				
				533.0	87.9					
Gray SHALE										
				100	3.9S	12				
				532.0	86.9					
Gray LIMESTONE										
				70"						
				Recovery = 100%						
				RQD = 98%						
				527.0	81.9					
End of Boring @ -18.0'										

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

Bridge Foundation Boring Log

Project: H-14022 Bridge Kerr Canyon Rd over Bradshaw Creek Date: 2/21/2014
Section: 12-01203-00-BR Station _____ Bored by: D. Russell
Structure: _____ Checked By: T. Holcomb
County: Union

Boring No. 2	Station	Offset	Surface Water Elev.			Ground Water Elev.				
			Elevation	N	Qu tsf	w %	Elevation	N	Qu tsf	w %
Ground Surface 545.0 99.8			0							
4" Topsoil										
Brown Sandy CLAY (A-6)										
				2	0.3B	21				
				8		23				
				538.0	92.8					
Gray Silty CLAY (A-6)										
				12	3.4S	31				
				535.5	90.3					
Gray SHALE										
				36	3.4S	21				
				72		9				
				532.0	86.8					
Gray LIMESTONE										
				100		6				
End of Boring @ -13.5'										

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