

INDEX OF SHEETS

1. COVER SHEET
2. SUMMARY OF QUANTITIES, DETAILS, & TYPICAL SECTIONS
3. PLAN AND PROFILE
- 4.-12. BRIDGE PLANS
- 13-16. CROSS SECTIONS

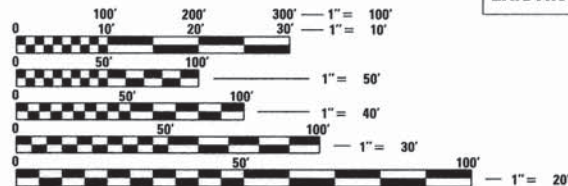
HIGHWAY STANDARDS

- 000001-06 STANDARD SYMBOLS, ABBREVIATIONS, AND PATTERNS
- 515001-03 NAME PLATE FOR BRIDGES
- 631011-09 TRAFFIC BARRIER TERMINAL, TYPE 2
- 701901-05 TRAFFIC CONTROL DEVICES
- 725001 OBJECT AND TERMINAL MARKERS
- BLR-21-9 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION OF RURAL LOCAL HIGHWAYS
- BLR-27-1 TRAFFIC BARRIER TERMINAL, TYPE 5A

UTILITIES

ELECTRIC: AMEREN ILLINOIS
711 SOUTH 9th STREET
MATTOON, IL 61938
(217)-234-0441

FUNCTIONAL CLASSIFICATION = LOCAL ROAD (NON-URBAN)
DESIGN SPEED = 30 MPH
DESIGN ADT = 50 (2015), 75 (2035)
DESIGN DHV = 6 (2015), 9 (2035)
% TRUCKS = 8% (2035)



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.

J.U.L.I.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
1-800-892-0123
OR 811

**PROJECT ENGINEER
PROJECT MANAGER**

CONTRACT NO. 95787

The Upchurch Group, Inc.
architects - engineers - surveyors
123 North 15th Street
Mattoon, IL 61938
217.235.3177
IL PROFESSIONAL DESIGN FIRM LICENSE NO. 184-003401

STATE OF ILLINOIS

**DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS**

**PLANS FOR PROPOSED
STP-BRIDGE**

**SECTION 13-10113-00-BR
PARADISE ROAD DISTRICT
COLES COUNTY
T.R. 28 OVER BRUSH CREEK
PROPOSED STRUCTURE NO. 015-3430
JOB # C-97-039-14
PROJ # BROS-0029(300)**

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
28	13-10113-00-BR	COLES	16	1
ILLINOIS CONTRACT			95787	



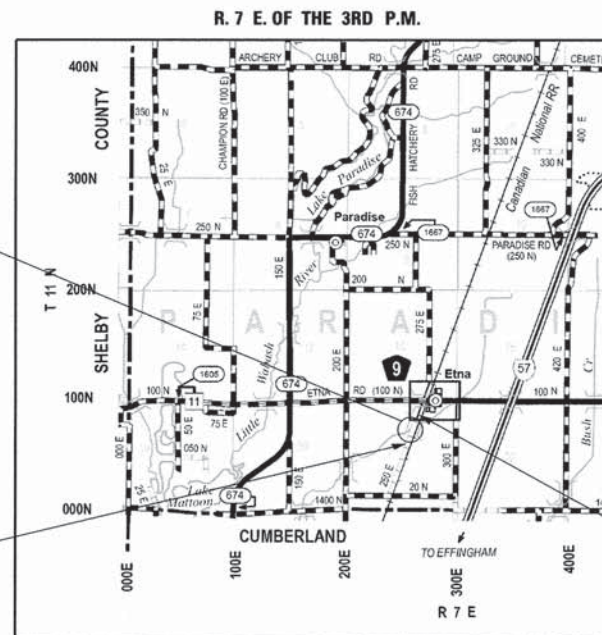
LOCATION OF SECTION INDICATED THIS: - [Black Box]

APPROVED 03/22/16
Neil G. Glavin
COLES COUNTY ENGINEER

APPROVED 03/22/16
Stan Lophoff
PARADISE ROAD COMMISSIONER

PASSED 3-29-16
Wanda Taylor
DISTRICT SEVEN ENGINEER OF LOCAL ROADS & STREETS

Releasing For Bid Based on Limited Review 3-29-16
Jeffrey M. Southard
REGION FOUR ENGINEER



LOCATION MAP

BEGIN IMPROVEMENTS
STA. 12+50

END IMPROVEMENTS
STA. 16+50

GROSS LENGTH = 400 FT. = 0.075 MILES
NET LENGTH = 400 FT. = 0.075 MILES



Andy L. Baker
Andy L. Baker Date 3/21/2016
Licensed Professional Engineer
State of Illinois No. 062-057920
Expires 11-30-2017

SUMMARY OF QUANTITIES

CODE	ITEM	UNIT	QUANTITY
20100500	TREE REMOVAL, ACRES	ACRES	0.2
20200100	EARTH EXCAVATION	CU. YD.	367
20300100	CHANNEL EXCAVATION	CU. YD.	331
25000200	SEEDING, CLASS 2	ACRE	0.50
25000400	NITROGEN FERTILIZER NUTRIENT	POUND	45
25000500	PHOSPHORUS FERTILIZER NUTRIENT	POUND	45
25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	45
• 25100115	MULCH, METHOD 2	ACRE	0.50
28100107	STONE RIPRAP, CLASS A4	SO. YD.	315
28200200	FILTER FABRIC	SO. YD.	315
28400100	GABIONS	CU. YD.	21
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	256
• 50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50200100	STRUCTURE EXCAVATION	CU. YD.	40
50300225	CONCRETE STRUCTURES	CU. YD.	30.1
50300280	CONCRETE ENCASEMENT	CU. YD.	3.5
• 50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SO. FT.	1573
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	4355
Δ 50900205	STEEL RAILING, TYPE S1	FOOT	120
51201400	FURNISHING STEEL PILES HP10x42	FOOT	300
51202305	DRIVING PILES	FOOT	300
51203400	TEST PILE STEEL HP10x42	EACH	2
51500100	NAME PLATES	EACH	1
54200220	PIPE CULVERTS, CLASS D, TYPE 1, 15"	FOOT	48
59300100	CONTROLLED LOW-STRENGTH MATERIAL	CU. YD.	68.0
Δ 63100045	TRAFFIC BARRIER TERMINAL, TYPE 2	EACH	1
Δ 63100075	TRAFFIC BARRIER TERMINAL, TYPE 5A	EACH	1
67100100	MOBILIZATION	L. SUM	1
Δ 78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4

• SEE SPECIAL PROVISIONS
Δ SPECIALTY ITEMS

EARTHWORK SCHEDULE

1 LOCATION	2 EARTH EXCAVATION CU YD	3 STRUCTURE EXCAVATION CU YD	4 CHANNEL EXCAVATION CU YD	5 EARTH EXCAVATION ADJUSTED FOR SHRINKAGE CU YD	6 EMBANKMENT CU YD	7 EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-) CU YD
STA 12+50 TO STA 14+70	310	12		242	355	-113
STA 15+30 TO STA 16+50	57	28		64	76	-12
CHANNEL			298	224		224
TOTAL	367	40	298	530	431	+99

COLUMN 1,2,&6 - LOCATION AND QUANTITIES FROM CROSS SECTIONS,
CUT = EARTH EXCAVATION FILL = EMBANKMENT

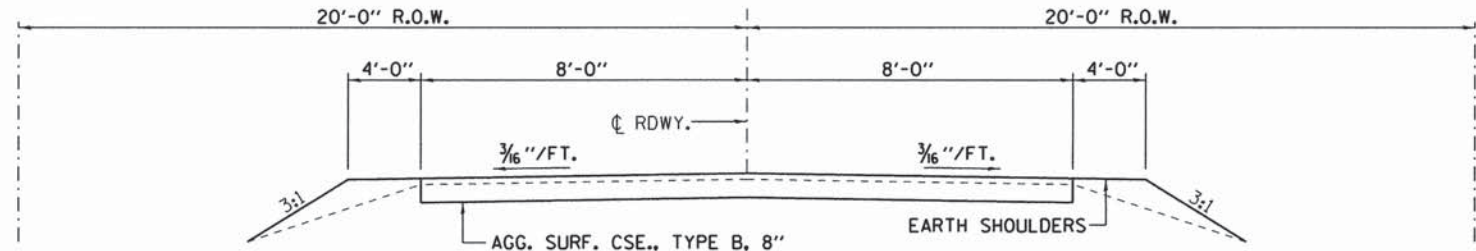
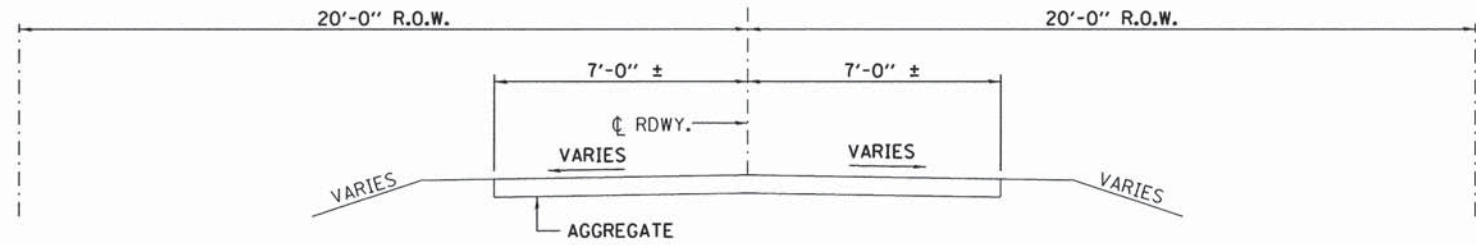
COLUMN 3 - QUANTITIES OF STRUCTURAL EXCAVATION (CUT) FROM BRIDGE PLANS

COLUMN 4 - QUANTITY OF CHANNEL EXCAVATION (CUT) REDUCED 10% FOR UNSUITABLE MATERIAL FOR USE AS FILL

COLUMN 5 - QUANTITY OF EARTH EXCAVATION (CUT) ADJUSTED FOR A SHRINKAGE FACTOR OF 25%

COLUMN 7 - EARTHWORK BALANCE (-) = QUANTITY OF FURNISHED EXCAVATION NEEDED EARTHWORK BALANCE (+) = QUANTITY OF EARTH EXCAVATION ADJUSTED FOR SHRINKAGE TO BE WASTED

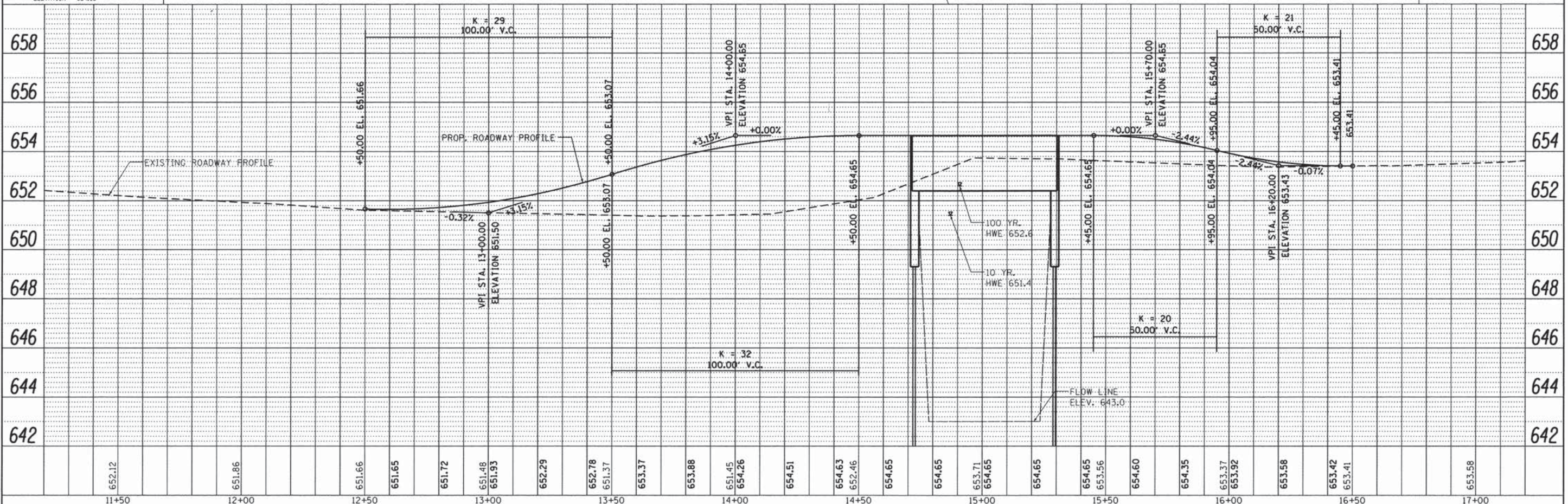
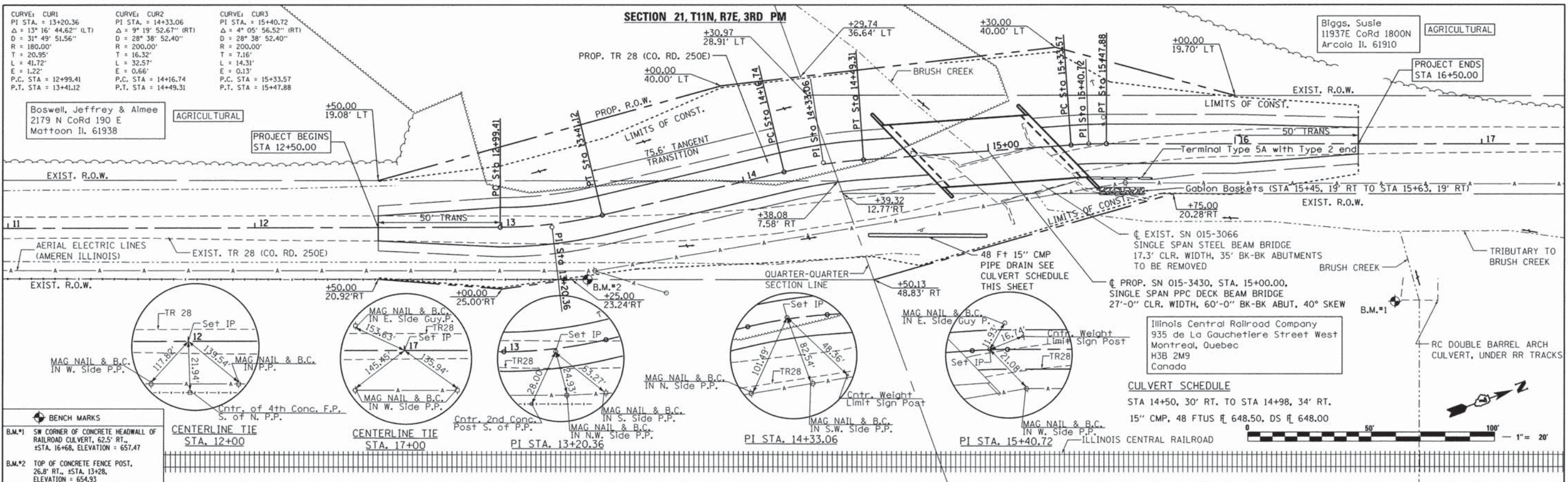
*COST OF DISPOSING EXCESS CHANNEL AND STRUCTURE EXCAVATION SHALL BE INCLUDED IN COST OF EARTH EXCAVATION.



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, 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 OF THE EXISTING AGGREGATE SURFACE SHALL BE PAID FOR AS EARTH EXCAVATION. ANY OIL AND CHIP MATERIAL SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR OR IN A METHOD APPROVED BY THE ENGINEER. PROPER DISPOSAL OF OIL AND CHIP MATERIAL SHALL BE INCLUDED IN THE COST OF EARTH EXCAVATION AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
- THE LOCATION OF EXISTING UTILITIES AS SHOWN ON THE PLANS ARE BASED ON FIELD INVESTIGATION AND THE BEST INFORMATION AVAILABLE. HOWEVER, THE EXACT 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.
- TEMPORARY EROSION CONTROL TO BE IMPLEMENTED AS DIRECTED BY THE ENGINEER.
- THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AT ALL TIMES WITHIN THE CONSTRUCTION AREAS AND PREVENT DRAINAGE OR PONDING OF WATER ONTO PRIVATE PROPERTY.
- TREES WITHIN THE RIGHT-OF-WAY WHICH INTERFERE WITH CONSTRUCTION ACTIVITIES SHALL BE REMOVED ONLY AT THE DIRECTION OF THE ENGINEER. THE AREA DESIGNATED FOR REMOVAL SHALL BE CLEARLY MARKED AND MEASURED FOR PAYMENT BY THE ENGINEER PRIOR TO REMOVAL.
- ALL DISTURBED EARTH SURFACES WITHIN THE LIMITS OF THE R.O.W. AND EASEMENTS SHALL BE SEEDED AS DIRECTED BY THE ENGINEER.
- THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER IN REGARD TO THE EXACT LENGTHS OF PIPE CULVERTS PRIOR TO ORDERING THESE ITEMS.
- THE FOLLOWING APPLICATION RATES HAVE BEEN USED TO CALCULATE PLAN QUANTITIES:
AGGREGATE SURFACE COURSE = 2.05 TONS PER CU. YD.
STONE RIPRAP, CLASS A4 = 1.75 TONS PER CU. YD.
NITROGEN FERTILIZER NUTRIENT = 90 LBS PER ACRE
PHOSPHOROUS FERTILIZER NUTRIENT = 90 LBS PER ACRE
POTASSIUM FERTILIZER NUTRIENT = 90 LBS PER ACRE
MULCH, METHOD 2 = 2 TONS PER ACRE

FILE NAME =	USER NAME =	DESIGNED - ADB	REVISED -	STATE OF ILLINOIS COLES COUNTY HIGHWAY DEPARTMENT	SUMMARY OF QUANTITIES, DETAILS, & TYPICAL SECTIONS	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
		CHECKED - ALB	REVISED -			28	13-10113-00-BR	COLES	16	2	
		DRAWN - ADB	REVISED -			PARADISE ROAD DISTRICT CONTRACT No. 95787					
		CHECKED - ALB	REVISED -			ILLINOIS FED. AID PROJECT					

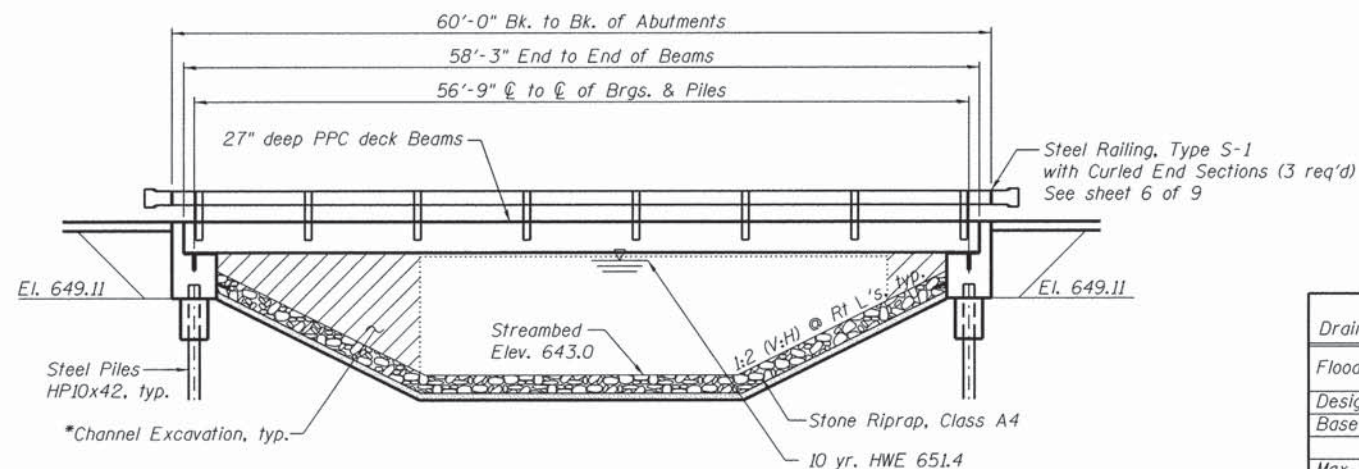


DATE	
BY	
REVISIONS	
NO.	
DATE	
BY	
REVISIONS	
NO.	
DATE	
BY	
REVISIONS	
NO.	

DATE	
BY	
REVISIONS	
NO.	
DATE	
BY	
REVISIONS	
NO.	
DATE	
BY	
REVISIONS	
NO.	

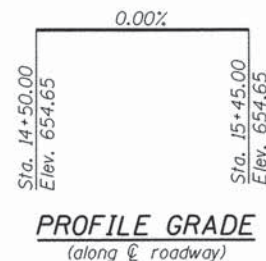
Bench Marks: SW corner of RR culvert concrete headwall at Sta. 16+68, 62.5' Rt., Elev. 657.47, & top of concrete post at Sta. 13+28, 26.8' Rt., Elev. 654.93.

Existing Structure: S.N. 015-3066 was built in 1939. Existing structure is a single span steel beam bridge with timber planks, on closed concrete abutments, 35' back to back abutments, and 17.3' width of deck. Road shall be closed to traffic during construction.



ELEVATION

*Channel shall be excavated as shown with 2:1 slopes within the ROW. Suitable excavated materials may be used in embankments.



WATERWAY INFORMATION

Drainage Area = 3.04 mi ²		Exist. Low Grade Elev. 651.4		Sta. 13+50		
		Prop. Low Grade Elev. 651.7		Sta. 12+50		
Flood	Freq. Yr.	0	Opening Sq. Ft.	Nat. H.W.E.	Head - Ft.	Headwater El.
		C.F.S.	Exist.	Prop.	Exist.	Prop.
Design	10	916	146.0	342.2	651.4	0.0
Base	100	1800	149.4	370.0	652.6	0.0
Max. Calc.	500	2490	149.4	370.0	653.2	0.0
					651.7	0.0
					652.6	652.6
					653.1	653.2

10 year velocity through existing bridge = 3.7 fps
10 year velocity through prop. bridge = 3.0 fps

DESIGN SPECIFICATIONS

2013 AASHTO LRFD Bridge Design Specifications, 7th Edition

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 (Reinforcement)

PRECAST PRESTRESSED UNITS

f'_c = 6,000 psi
 f_{ci} = 5,000 psi
 f'_s = 270,000 psi ($\frac{1}{2}$ " ϕ low lax. strands)
 f_{si} = 201,960 psi ($\frac{1}{2}$ " ϕ low lax. strands)

SEISMIC DATA

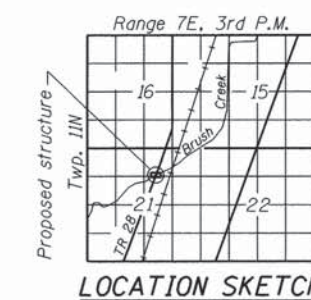
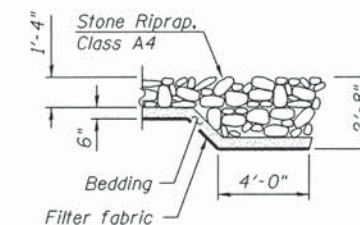
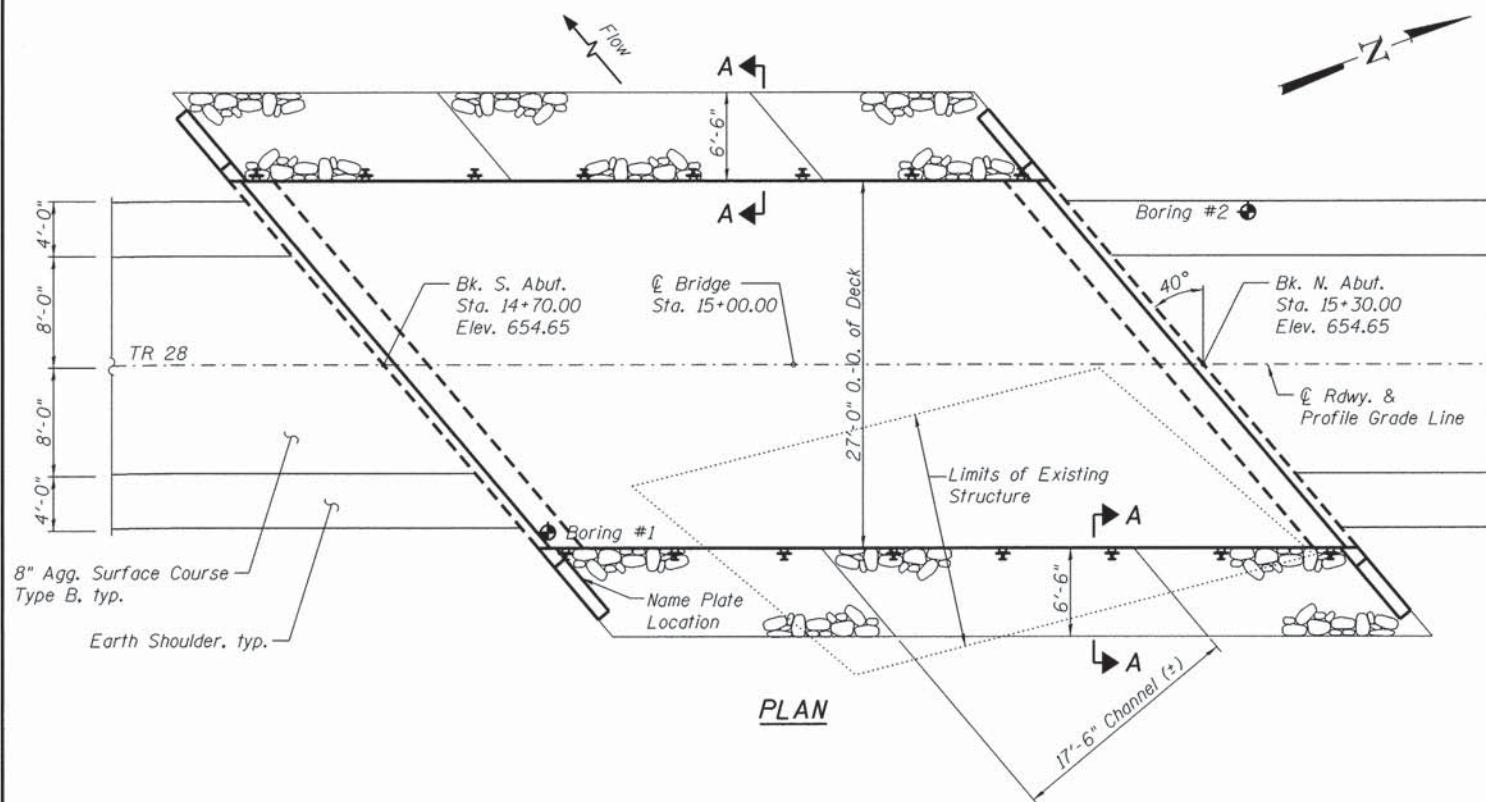
Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.131g
Design Spectral Acceleration at 0.2 sec. (S_{D5}) = 0.293g
Soil Site Class = C

DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation (ft.)	W. Abut.	E. Abut.
	649.11	649.11

INDEX OF SHEETS

1. General Plan and Elevation
2. General Data
3. 27" x 36" PPC Deck Beam
4. 27" x 36" PPC Deck Beam Details
5. Superstructure Details
6. Steel Railing, Type S-1
7. Abutment Details
8. HP Pile Details
9. Boring Logs



M. Silvester

Martin Silvester Date 3/18/2016
Licensed Structural Engineer
State of Illinois No. 081-004873
Expires 11-30-2016



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

GENERAL PLAN AND ELEVATION
T.R. 28 OVER BRUSH CREEK
SEC. 13-10113-00-BR
COLES COUNTY
STATION 15+00.00
STRUCTURE NO. 015-3430

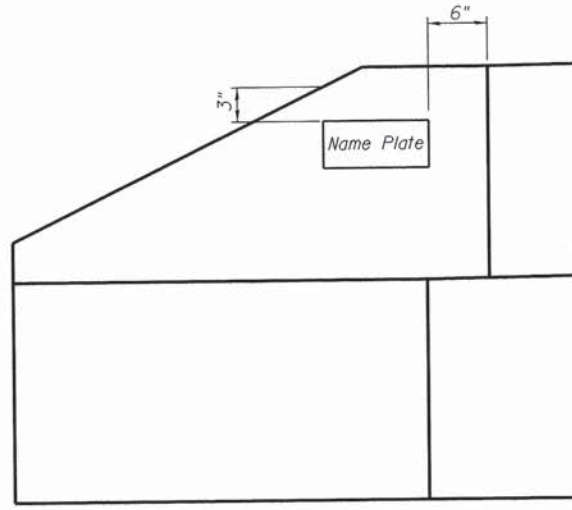
FILE NAME =	USER NAME =	DESIGNED - ADB	REVISED -	STATE OF ILLINOIS COLES COUNTY HIGHWAY DEPARTMENT	GENERAL PLAN AND ELEVATION	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
		CHECKED - ALB	REVISED -			28	13-10113-00-BR	COLES	16	4	
		DRAWN - ADB	REVISED -			PARADISE ROAD DISTRICT		CONTRACT NO. 95787			
		CHECKED - ALB	REVISED -			ILLINOIS FED. AID PROJECT					

GENERAL NOTES

Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60. See Special Provisions.
 Reinforcement bars designated (E) shall be epoxy coated.
 Layout of slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
 The Contractor shall drive one test pile in a permanent location at the North and South Abutments to 110% of the nominal required bearing specified as directed by the Engineer in the field prior to ordering the remainder of piles.

T.R. 28 OVER BRUSH CREEK
 BUILT 20 BY
 PARADISE ROAD DISTRICT
 COLES COUNTY
 SEC. 13-10113-00-BR
 STA. 15+00.00
 STR. NO. 015-3430 LOADING HL-93

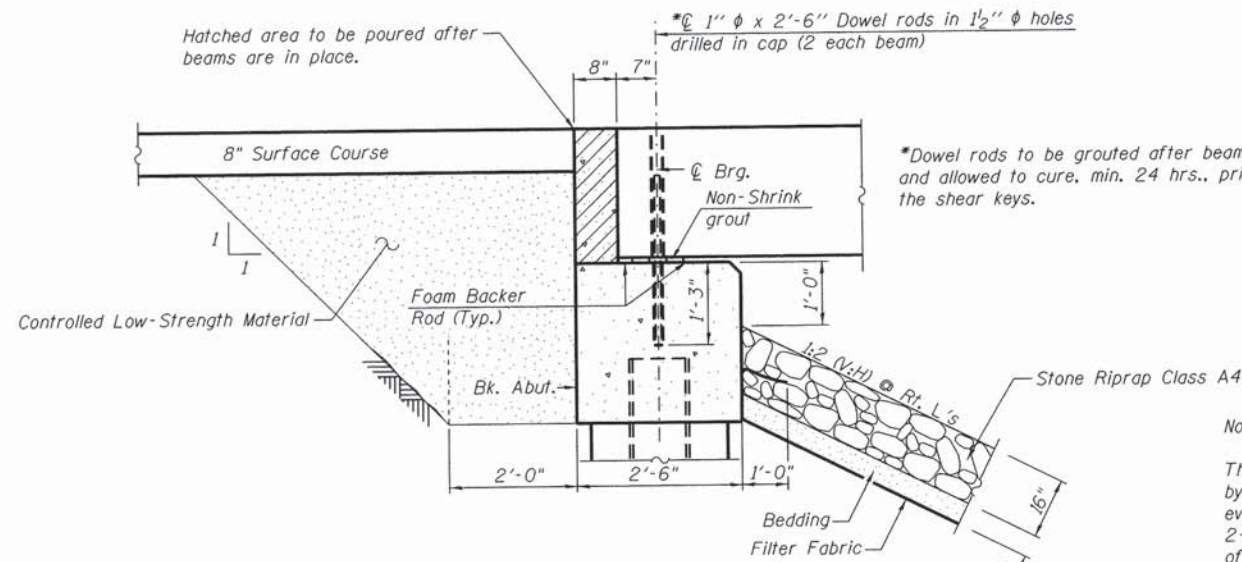
NAME PLATE
 See Std. 515001



SOUTHEAST WINGWALL ELEVATION

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	Cu. Yd.			331
Stone Riprap, Class A4	Sq. Yd.		315	315
Filter Fabric	Sq. Yd.		315	315
Removal of Existing Structures	Each			1
Structure Excavation	Cu. Yd.		40	40
Concrete Structures	Cu. Yd.		30.1	30.1
Concrete Encasement	Cu. Yd.		3.5	3.5
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq. Ft.	1573		1573
Reinforcement Bars, Epoxy Coated	Pound		4355	4355
Steel Railing, Type S1	Foot	120		120
Furnishing Steel Piles HP10x42	Foot		300	300
Driving Piles	Foot		300	300
Test Pile Steel HP10x42	Each		2	2
Name Plates	Each		1	1
Controlled Low-Strength Material	Cu. Yd.		68	68

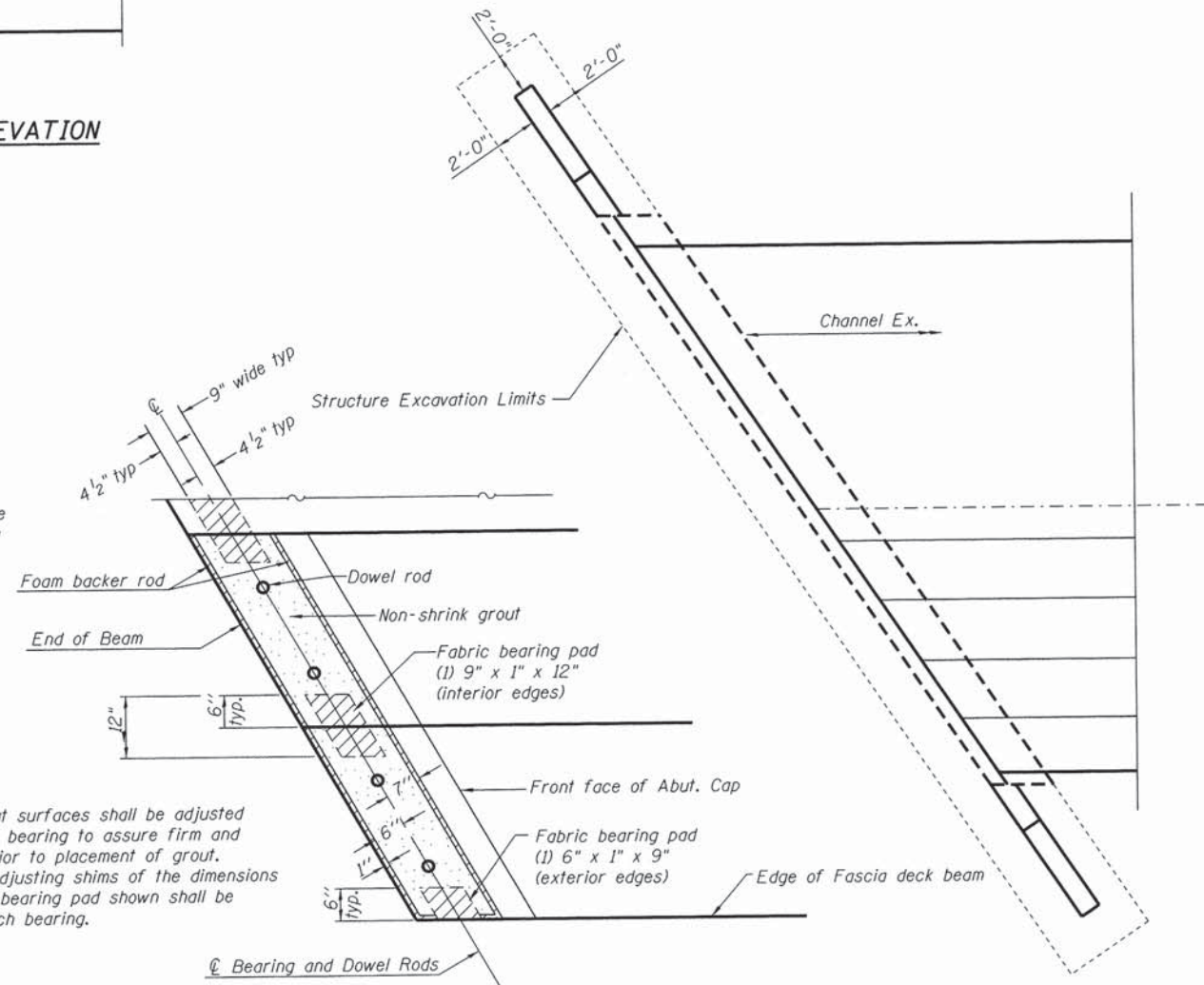


SECTION THRU ABUTMENT

Pay limits of Controlled Low-Strength Material shall extend to within 2'-6" from the end of each wingwall. Place up to the bottom of Aggregate Surface Course, Type B.

Note:

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

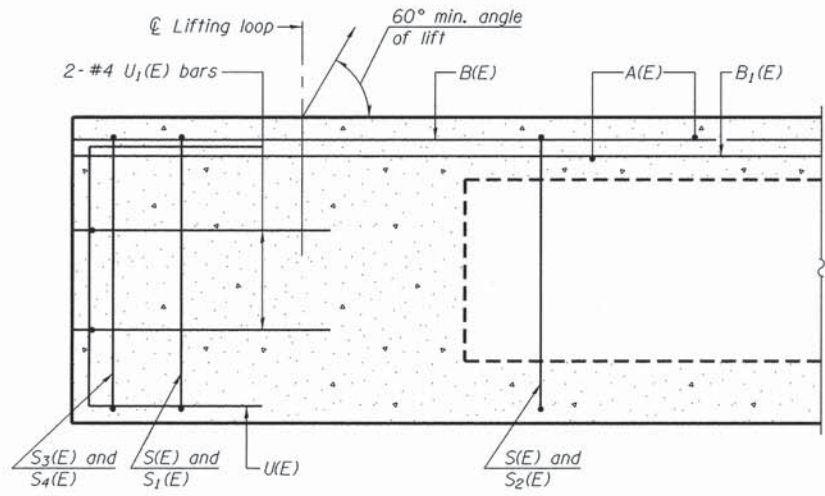


FIXED BEARINGS AT ABUTMENT

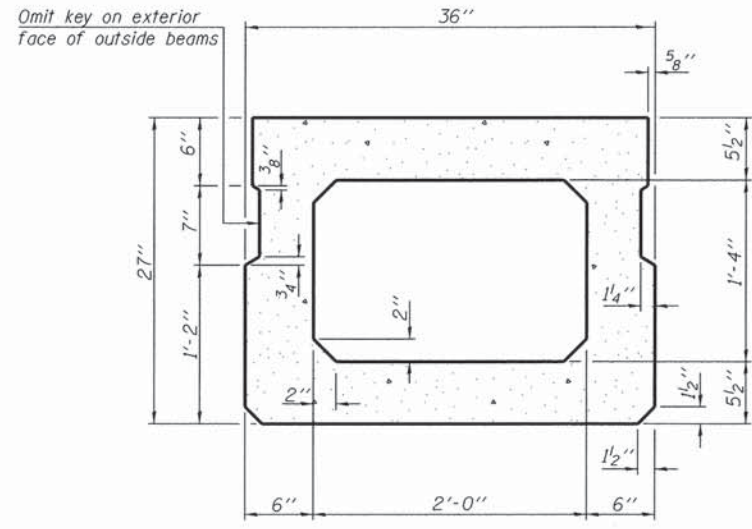
PARTIAL PLAN

STRUCTURE NO. 015-3430

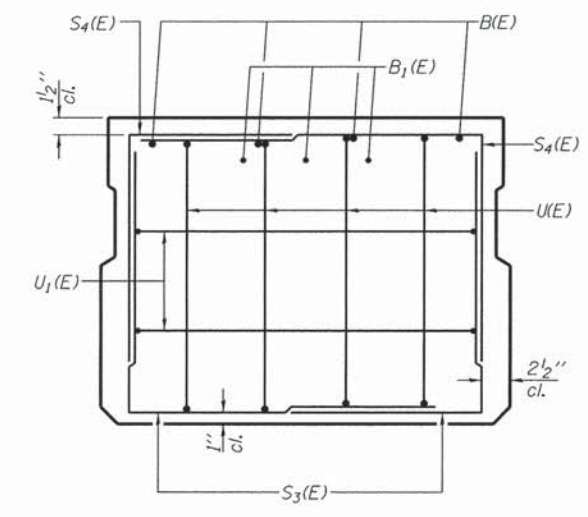
FILE NAME	USER NAME	DESIGNED - ADB	REVISIONS	STATE OF ILLINOIS COLES COUNTY HIGHWAY DEPARTMENT	GENERAL DATA STRUCTURE NO. 015-3430 SHEET NO. 2 OF 9 SHEETS	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
						28	13-10113-00-BR	COLES	16	5
						PARADISE ROAD DISTRICT		CONTRACT NO. 95787		
						ILLINOIS FED. AID PROJECT				



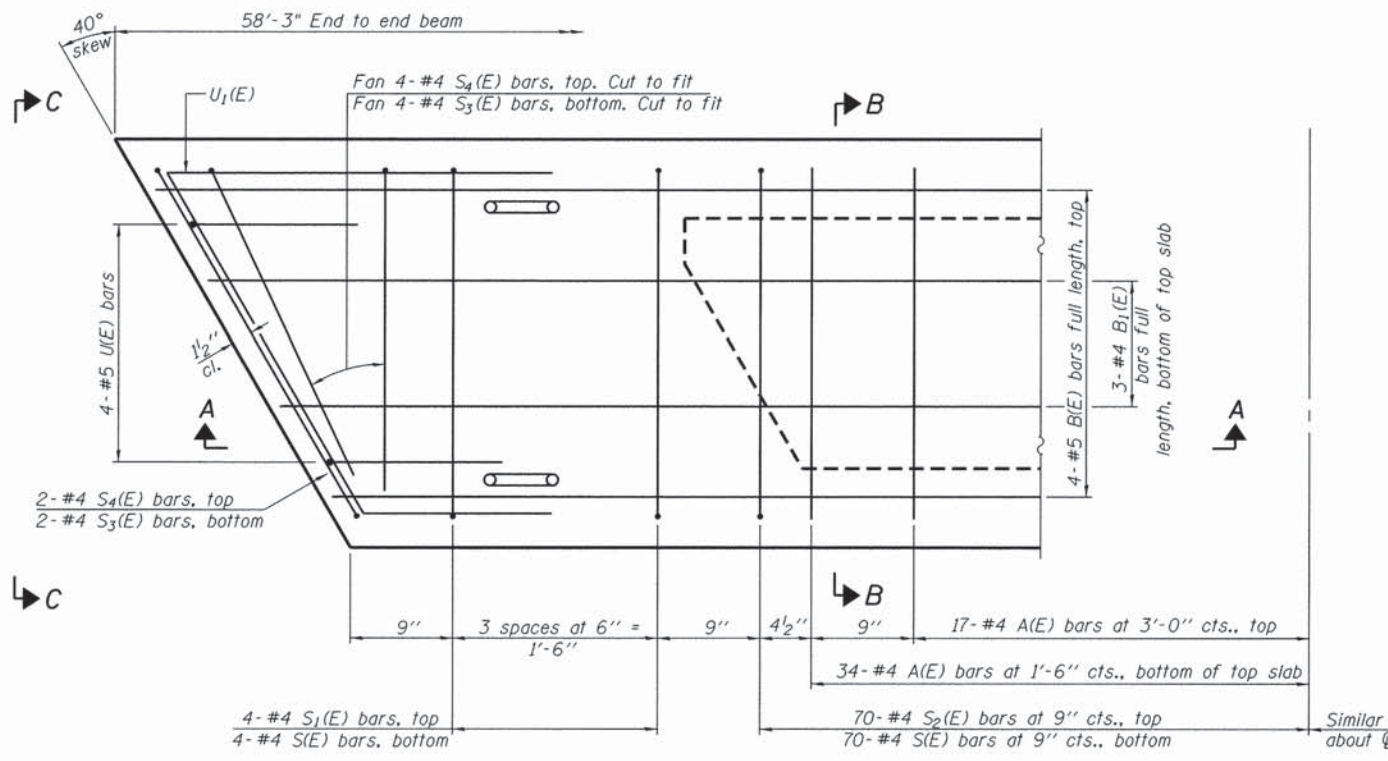
SECTION A-A



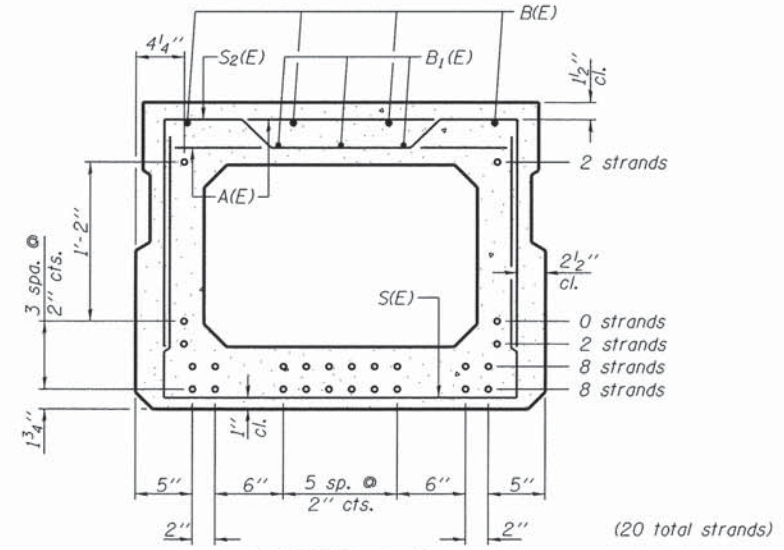
SECTION B-B
(Showing dimensions)



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)	51	#4	2'-7"	—
B(E)	8	#5	30'-3"	—
B1(E)	9	#4	20'-8"	—
S(E)	74	#4	6'-5"	—
S1(E)	4	#4	5'-11"	⌌
S2(E)	70	#4	6'-2"	⌌
S3(E)	12	#4	4'-4"	⌌
S4(E)	12	#4	4'-4"	⌌
U(E)	8	#5	4'-6"	⌌
U1(E)	4	#4	7'-10"	⌌

Note: Spacing of S(E) and S2(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.

MINIMUM BAR LAP
#4 bar = 2'-0"
#5 bar = 2'-6"

Note: 1. See sheet 4 of 9 for additional details and Bill of Material.
2. Reinforcement designated (E) shall be epoxy coated.

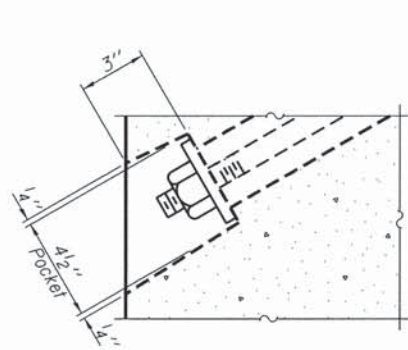
PD-2736-R 7-1-10

STRUCTURE NO. 015-3430

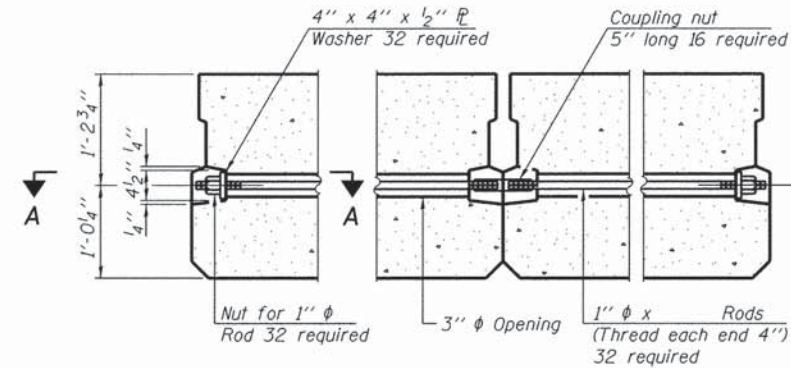
STATE OF ILLINOIS
COLES COUNTY HIGHWAY DEPARTMENT

27" x 36" PPC DECK BEAM
STRUCTURE NO. 015-3430
SHEET NO. 3 OF 9 SHEETS

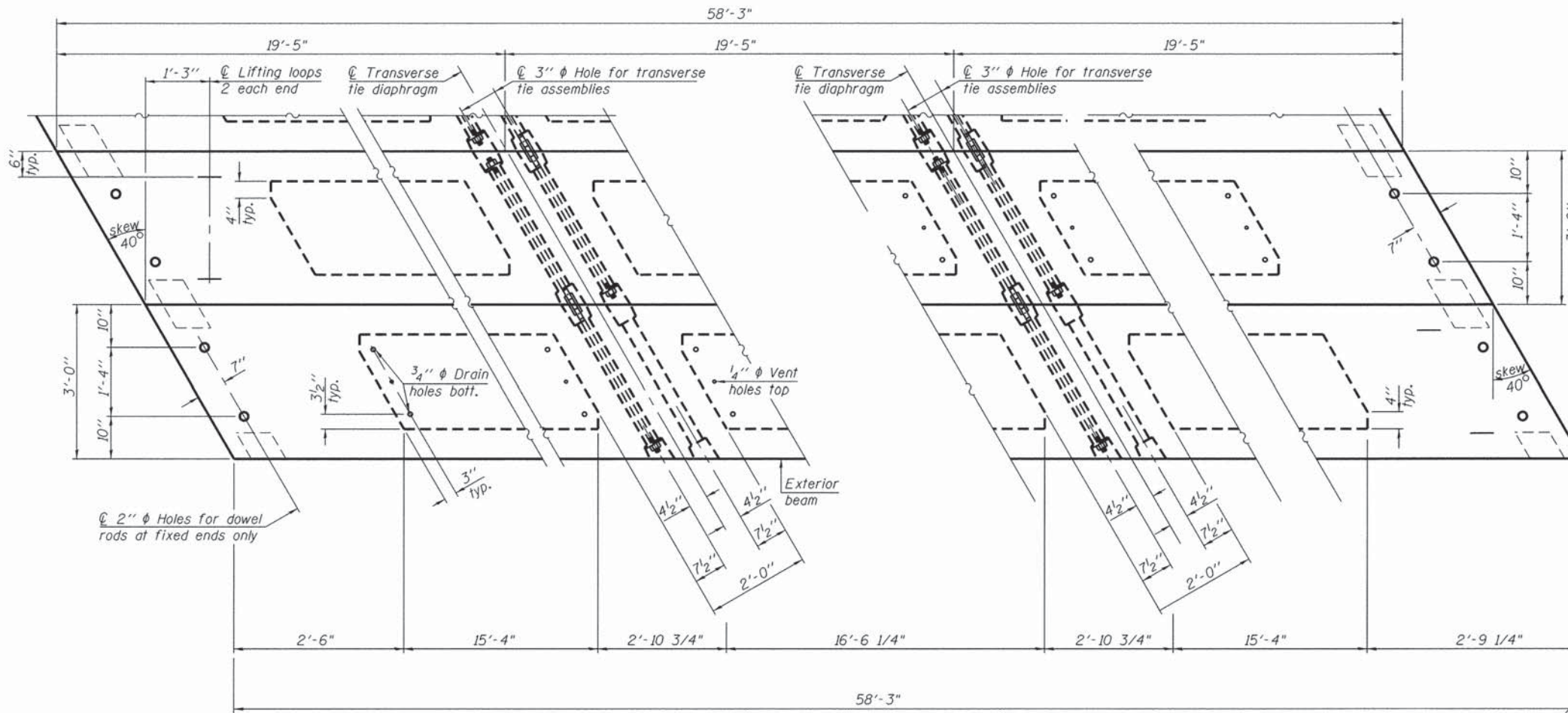
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
28	13-10113-00-BR	COLES	16	6
PARADISE ROAD DISTRICT		CONTRACT NO. 951981		
ILLINOIS FED. AID PROJECT				



SECTION A-A



TYPICAL TRANSVERSE TIE ASSEMBLY



PLAN VIEW

NOTES

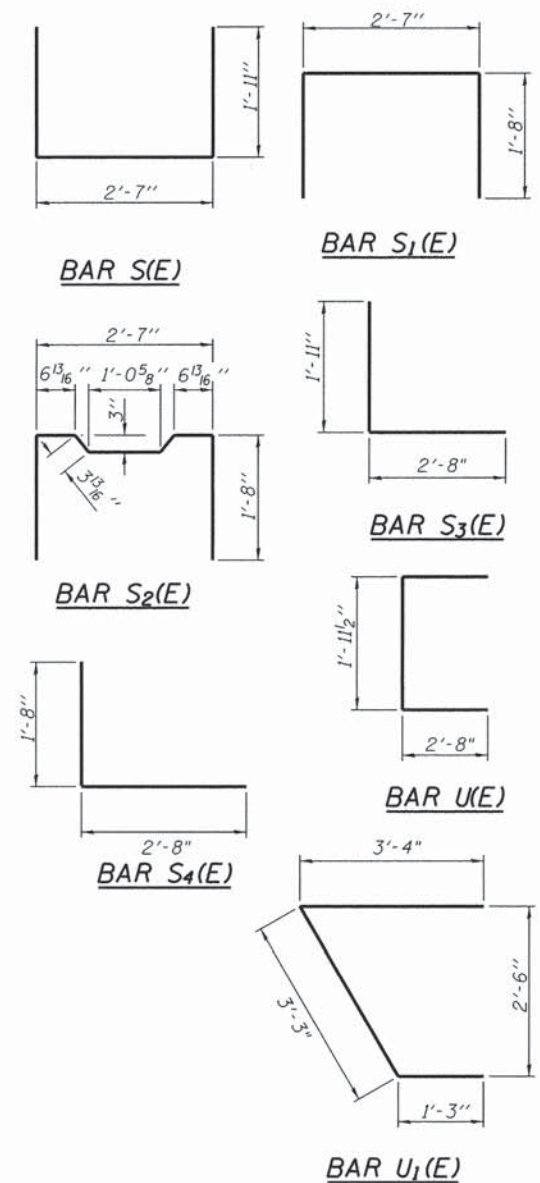
Note: Connect beams in pairs with the transverse tie configuration shown.

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). 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 1021.06 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.

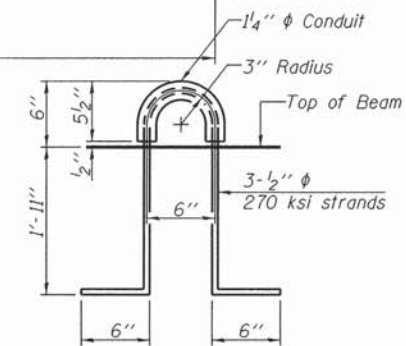
Compressive strength of prestressed concrete, f'c, shall be 6000 psi.

Compressive strength of prestressed concrete at release, f'ci, shall be 5000 psi.



BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (27" depth)	Sq. Ft.	1573
---	---------	------



LIFTING LOOP DETAIL

STRUCTURE NO. 015-3430

PD-2736-RD

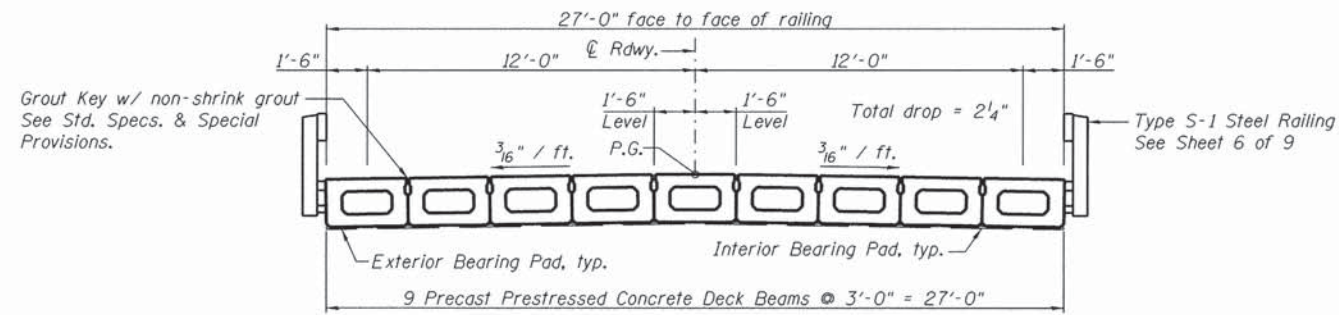
7-1-10

STATE OF ILLINOIS
COLES COUNTY HIGHWAY DEPARTMENT

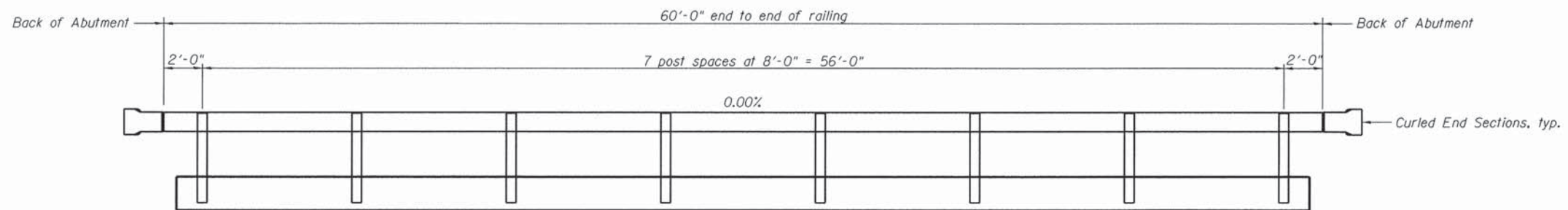
27" x 36" PPC DECK BEAM DETAILS
STRUCTURE NO. 015-3430

SHEET NO. 4 OF 9 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
28	13-1013-00-BR	COLES	16	7
PARADISE ROAD DISTRICT		CONTRACT No. 95787		
ILLINOIS FED. AID PROJECT				



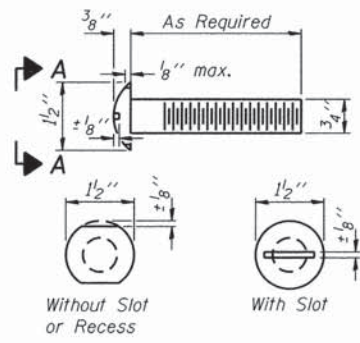
TYPICAL CROSS SECTION



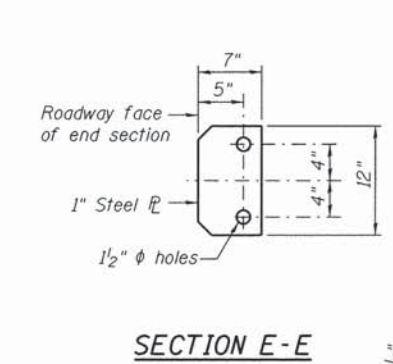
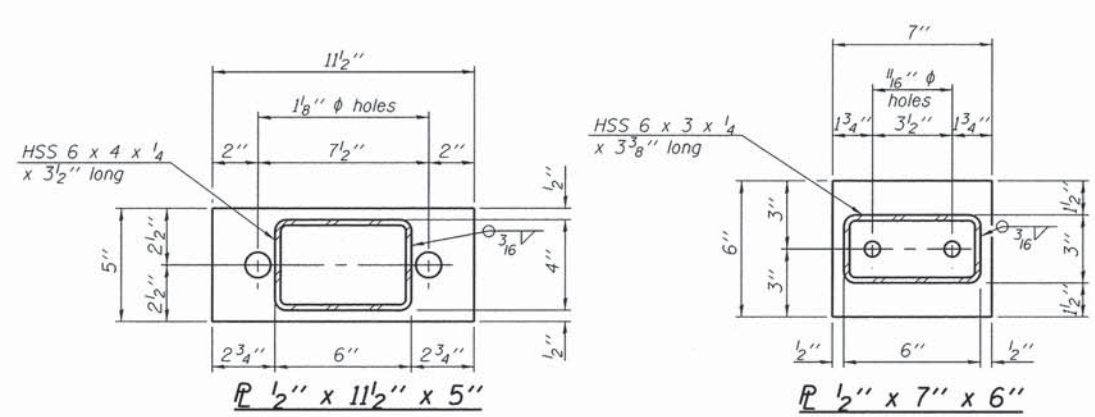
RAIL POST SPACING

STRUCTURE NO. 015-3430

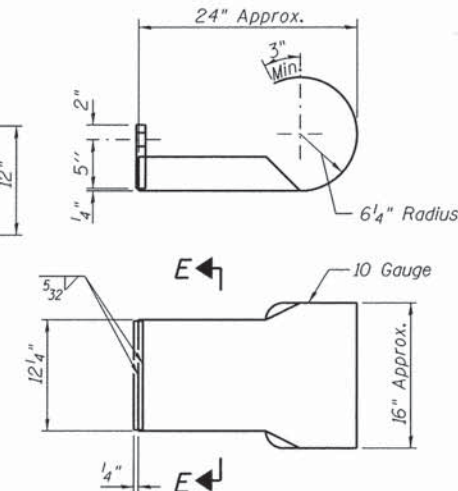
FILE NAME =	USER NAME =	DESIGNED - ADB	REVISED -	STATE OF ILLINOIS COLES COUNTY HIGHWAY DEPARTMENT	SUPERSTRUCTURE DETAILS STRUCTURE NO. 015-3430	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
		CHECKED - ALB	REVISED -			28	13-10113-00-BR	COLES	16	8	
		DRAWN - ADB	REVISED -			PARADISE ROAD DISTRICT CONTRACT NO. 95189					
		CHECKED - ALB	REVISED -			ILLINOIS FED. AID PROJECT					
				SHEET NO. 5 OF 9 SHEETS							



**VIEW A-A
ROUND HEAD BOLT**

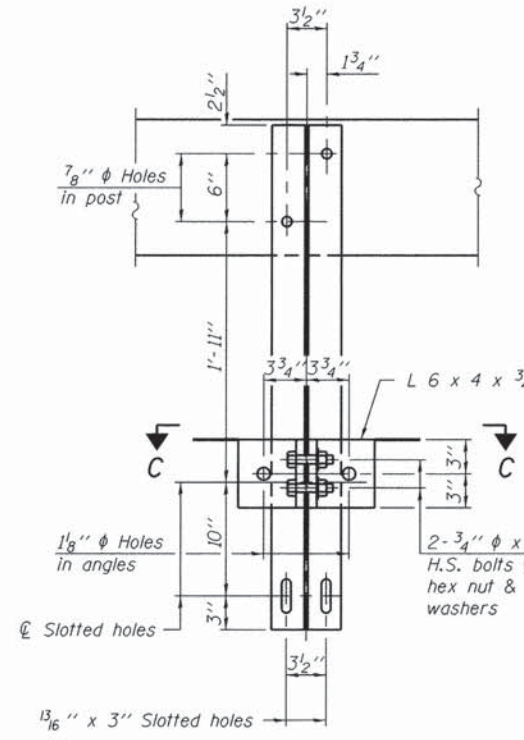


SECTION E-E

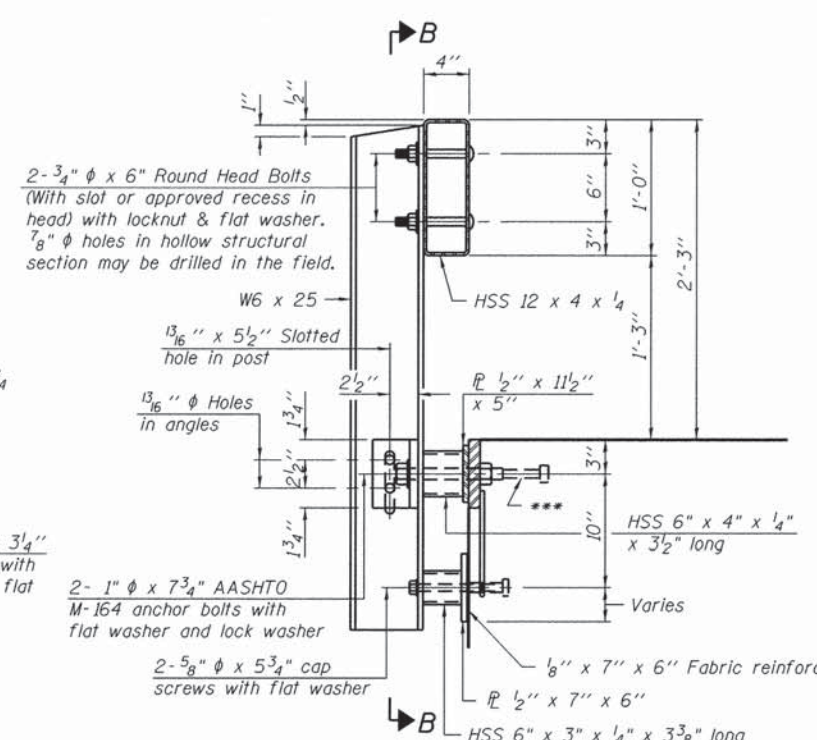


CURLED END SECTION DETAIL

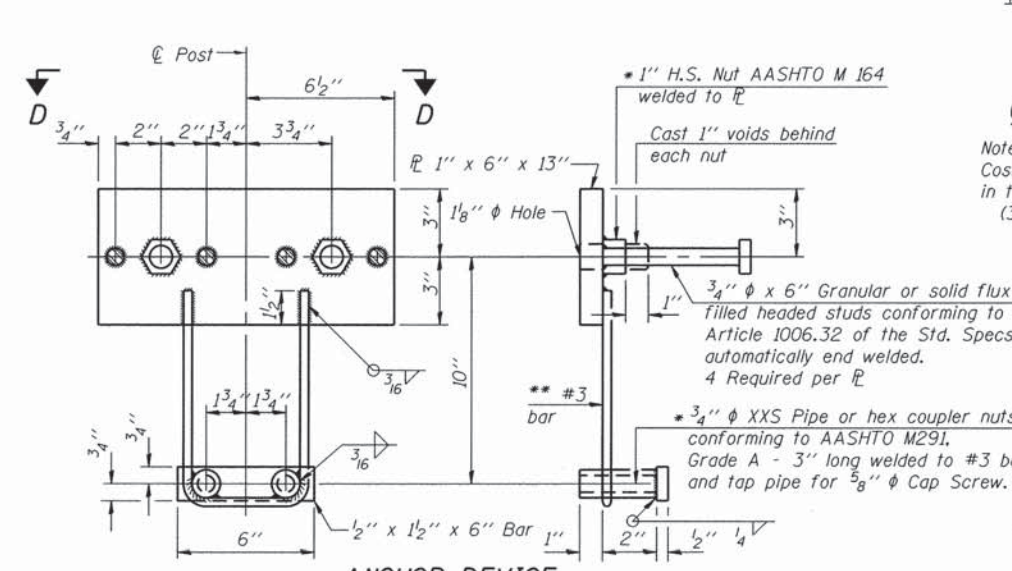
Note:
Cost of Curled End Sections shall be included in the cost of Steel Railing, Type S-1. (3 Required)



SECTION B-B



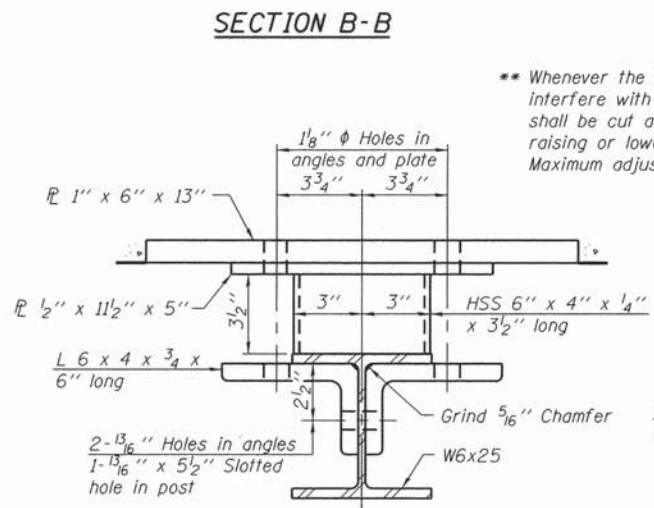
SECTION AT RAILING POST



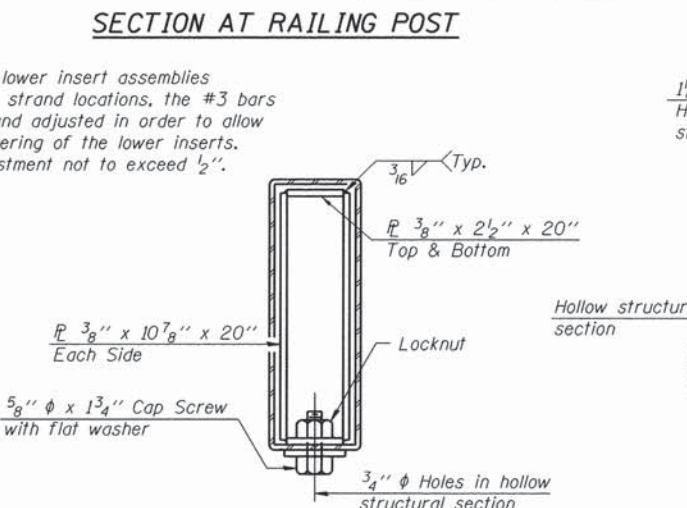
ANCHOR DEVICE

* Threaded areas shall be plugged or blocked off during casting of beam.

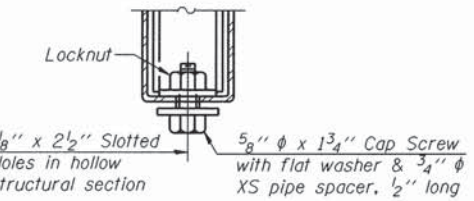
Notes:
All field drilled holes shall be coated with an approved zinc rich paint before erection.
For multi-span bridges, sufficient 1/4 inch x 6 inch x 1-2 inch galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type S-1.
All steel rail elements 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.



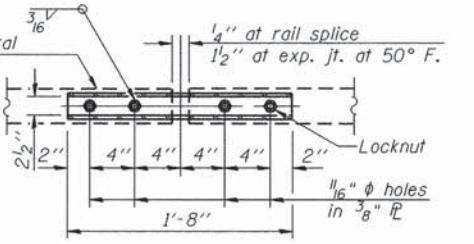
SECTION C-C



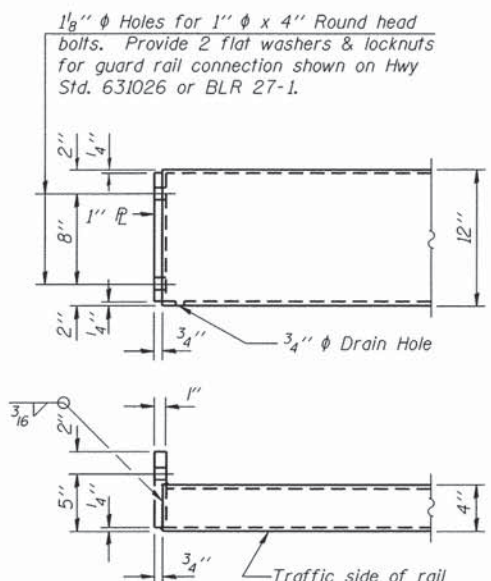
SECTIONS AT RAIL SPLICE



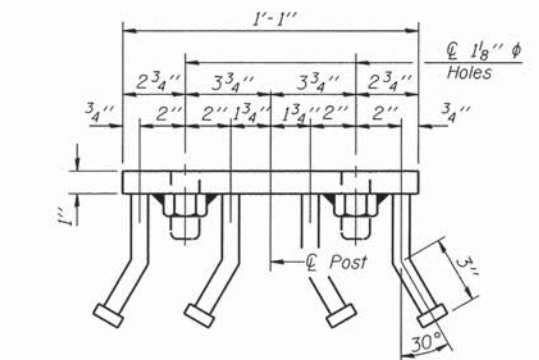
RAIL SPLICE CONNECTION AT EXPANSION JT.



PLAN-BOTT. SPLICE RAIL TYPICAL



END OF RAIL DETAILS



VIEW D-D

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	120

STRUCTURE NO. 015-3430

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

**STATE OF ILLINOIS
COLES COUNTY HIGHWAY DEPARTMENT**

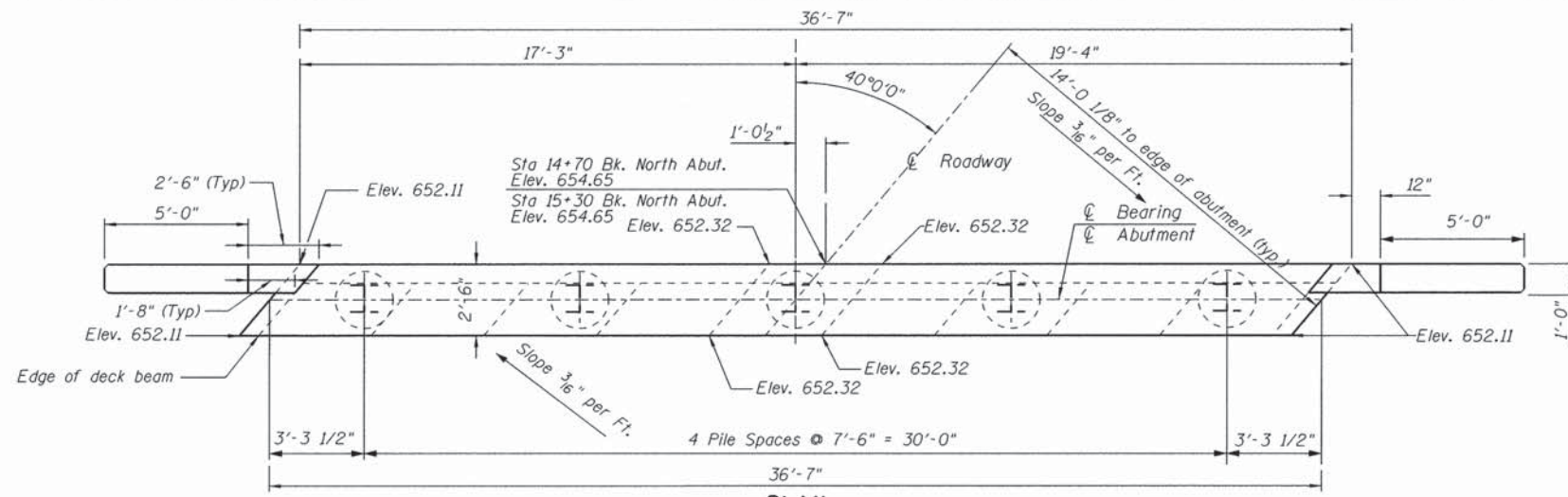
**STEEL RAILING, TYPE S-1
STRUCTURE NO. 015-3430**

SHEET NO. 6 OF 9 SHEETS

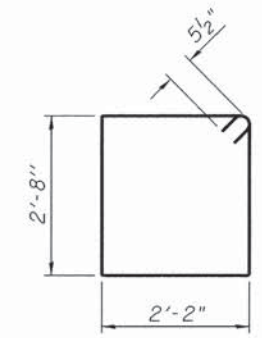
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
28	13-10113-00-BR	COLES	16	9

PARADISE ROAD DISTRICT CONTRACT NO. 95787
ILLINOIS FED. AID PROJECT

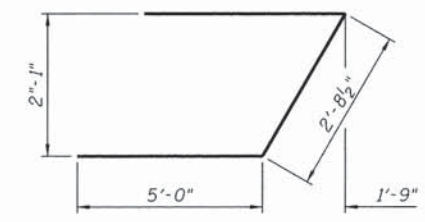
FILE NAME =	USER NAME =	DESIGNED - ADB	REVISED -
		CHECKED - ALB	REVISED -
		DRAWN - ADB	REVISED -
		CHECKED - ALB	REVISED -
PLOT SCALE =			
PLOT DATE =			



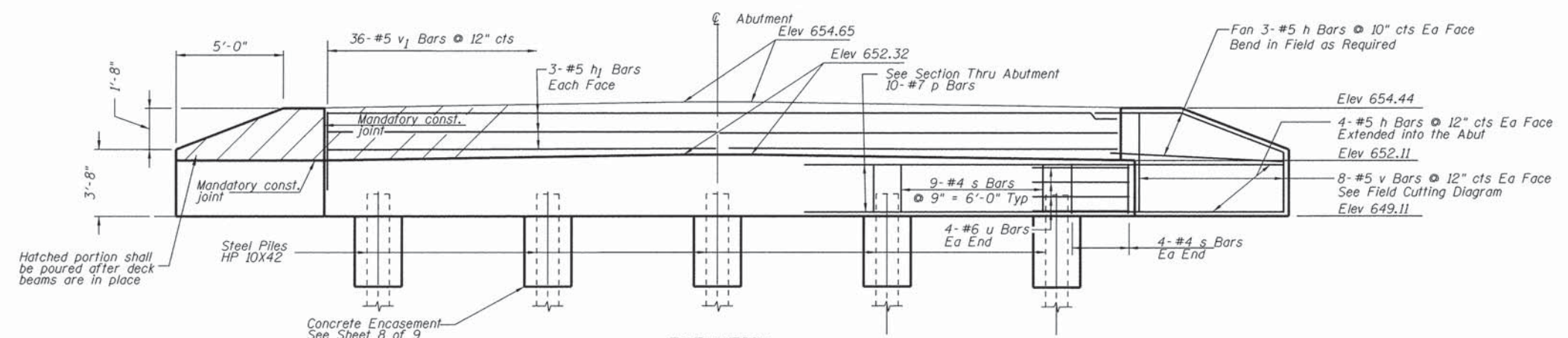
PLAN
(North and South Abutments Similar)



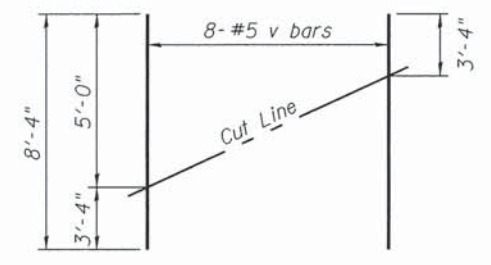
BARS s



BAR u

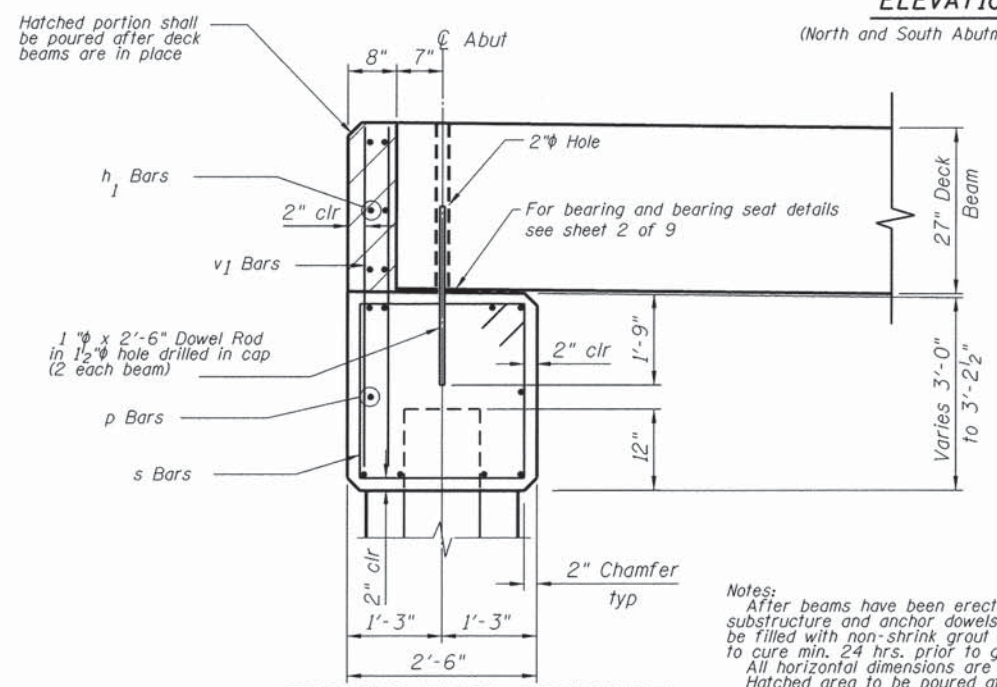


ELEVATION
(North and South Abutments Similar)



FIELD CUTTING DIAGRAM

Order v full length. Cut as shown and use remainder of bars in opposite face of each wingwall.



SECTION THRU ABUTMENT
Not to Scale

PILE DATA

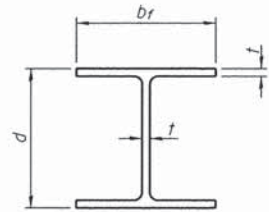
Type: Steel Pile HP10X42
No. Required: 5* (N. Abut.)
No. Required: 5* (S. Abut.)
Nominal Required Bearing: 335 kips
Allowable Resistance Available: 232 kips
Est. Length (N. Abut.): 39 Ft.
Est. Length (S. Abut.): 36 Ft.

*Includes one Test Pile at East Abutment and one Test Pile at West Abutment

Notes:
After beams have been erected, holes shall be drilled into substructure and anchor dowels placed. Dowel holes shall be filled with non-shrink grout to top of beam and allowed to cure min. 24 hrs. prior to grouting the shear keys. All horizontal dimensions are at right angles to beam ends. Hatched area to be poured after beams are in place. See sheet 4 of 9 for bearing pad details.

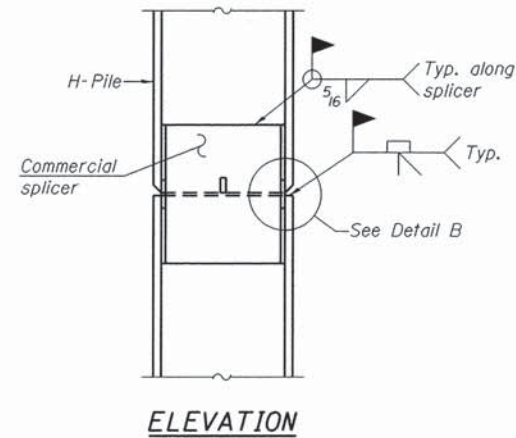
BILL OF MATERIAL

BOTH ABUTMENTS AND FOUR WINGS				
BAR	SIZE	NO. REQ'D.	LENGTH	SHAPE
h	#5	56	9'-0"	—
h ₁	#5	12	34'-9"	—
p	#7	20	36'-3"	—
s	#4	88	10'-7"	□
u	#6	16	12'-9"	—
v	#5	32	8'-4"	—
v _j	#5	144	4'-8"	—
Structure Excavation			Cu. Yd.	40.0
Concrete Structures			Cu. Yd.	30.1
Reinforcement Bars			Pound	4355
Furnishing Steel Piles HP 10X42			Foot	300
Driving Piles			Foot	300
Test Pile Steel HP 10X42			Each	2
Concrete Encasement			Cu. Yd.	3.5

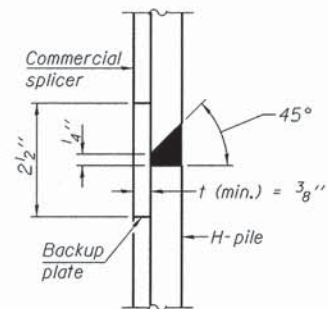


STEEL PILE TABLE

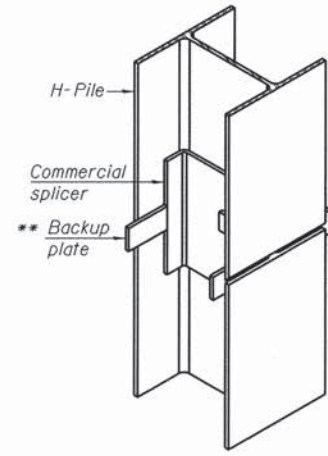
Designation	Depth d	Flange width bf	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	13/16"	30"
x102	14"	14 3/4"	11/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	11/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"
x53	11 3/4"	12"	7/16"	24"
HP 10x57	10"	10 1/4"	9/16"	24"
x42	9 3/4"	10 1/8"	7/16"	24"
HP 8x36	8"	8 1/8"	7/16"	18"



ELEVATION

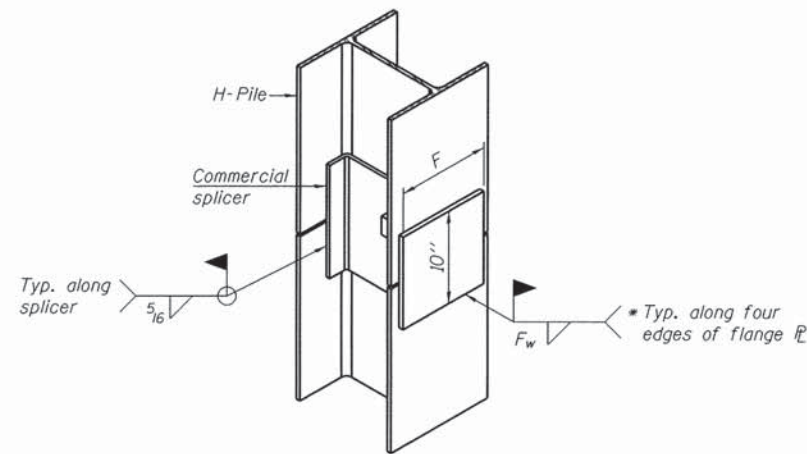


DETAIL "B"



ISOMETRIC VIEW

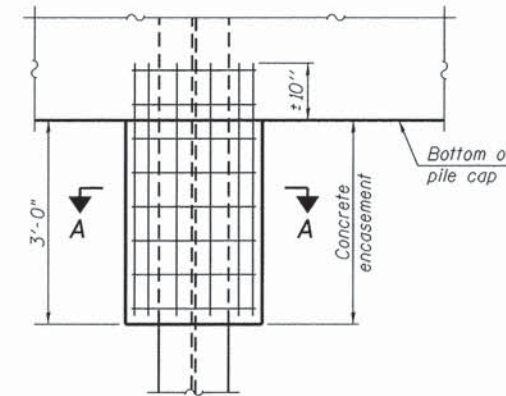
WELDED COMMERCIAL SPLICE



ISOMETRIC VIEW

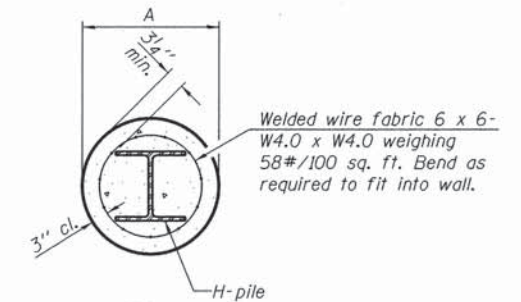
WELDED COMMERCIAL SPLICE ALTERNATE

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



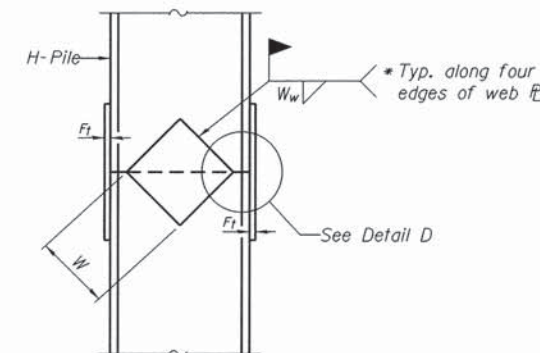
ELEVATION

PILE ENCASEMENT

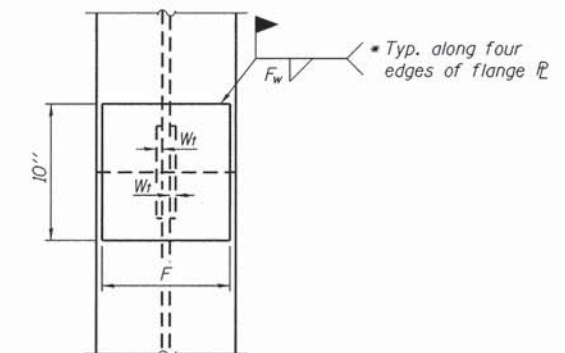


SECTION A-A

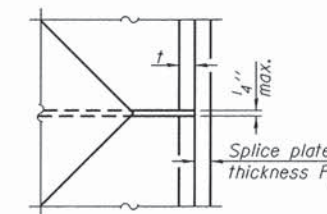
Note:
Forms for encasement may be omitted when soil conditions permit.



ELEVATION



END VIEW



DETAIL D

WELDED PLATE FIELD SPLICE

Designation	F	F1	Fw	W	W1	Ww
HP 14x117	12 1/2"	1"	7/8"	7 3/4"	5/8"	1/2"
x102	12 1/2"	7/8"	3/4"	7 3/4"	5/8"	1/2"
x89	12 1/2"	3/4"	11/16"	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"	11/16"	6 1/2"	5/8"	1/2"
x74	10"	7/8"	11/16"	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.

STRUCTURE NO. 015-3430

F-HP

1-27-12

FILE NAME =	USER NAME =	DESIGNED - ADB	REVISED -	STATE OF ILLINOIS COLES COUNTY HIGHWAY DEPARTMENT	HP PILE DETAILS STRUCTURE NO. 015-3430	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
		CHECKED - ALB	REVISED -			28	13-10113-00-BR	COLES	16	11	
		DRAWN - ADB	REVISED -			PARADISE ROAD DISTRICT CONTRACT No. 95787					
		CHECKED - ALB	REVISED -			ILLINOIS FED. AID PROJECT					

SHEET NO. 8 OF 9 SHEETS

Bridge Foundation Boring Log

Project: H-14079 Bridge Co Rd 270 E over Brush Creek Date: 4/9/2014
 Section: _____ Station: _____
 Structure: 015-3066 Bored by: B. Schwartz
 County: Coles Checked By: T. Holcomb

Boring No: <u>1</u>	Surface Water Elev. _____
Station: _____	Ground Water Elev. During Drilling <u>82.7</u>
Offset: _____	Upon Completion <u>76.7</u>

Elevation	N	Qu tsf	w %	Surface Water Elev.	Elevation	N	Qu tsf	w %
98.7	0							
4" Topsoil								
sandy clay continued								
	7	1.0S	17		-25	56	2.3S	9
	7	1.7B	21			36	5.7S	9
	7	1.9B	20			35	6.4S	16
	4	0.3B	26					
	22	4.6S	10			62	4.1S	14
	67	5.4S	7					
					60.2	100	/1"	12
81.7	50	--	16		Gray LIMESTONE			
						100	/2"	1
79.7						100	/2"	1
	61	10.3S	9			100	/2"	7
	53	4.0S	8		54.7	100	/2"	7
End of Boring @ -44.0'								

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

Bridge Foundation Boring Log

Project: H-14079 Bridge Co. Rd 270 E over Brush Creek Date: 4/9/2014
 Section: _____ Station: _____
 Structure: 015-3066 Bored by: B. Schwartz
 County: Coles Checked By: T. Holcomb

Boring No: <u>2</u>	Surface Water Elev. _____
Station: _____	Ground Water Elev. During Drilling <u>72.7</u>
Offset: _____	Upon Completion <u>67.7</u>

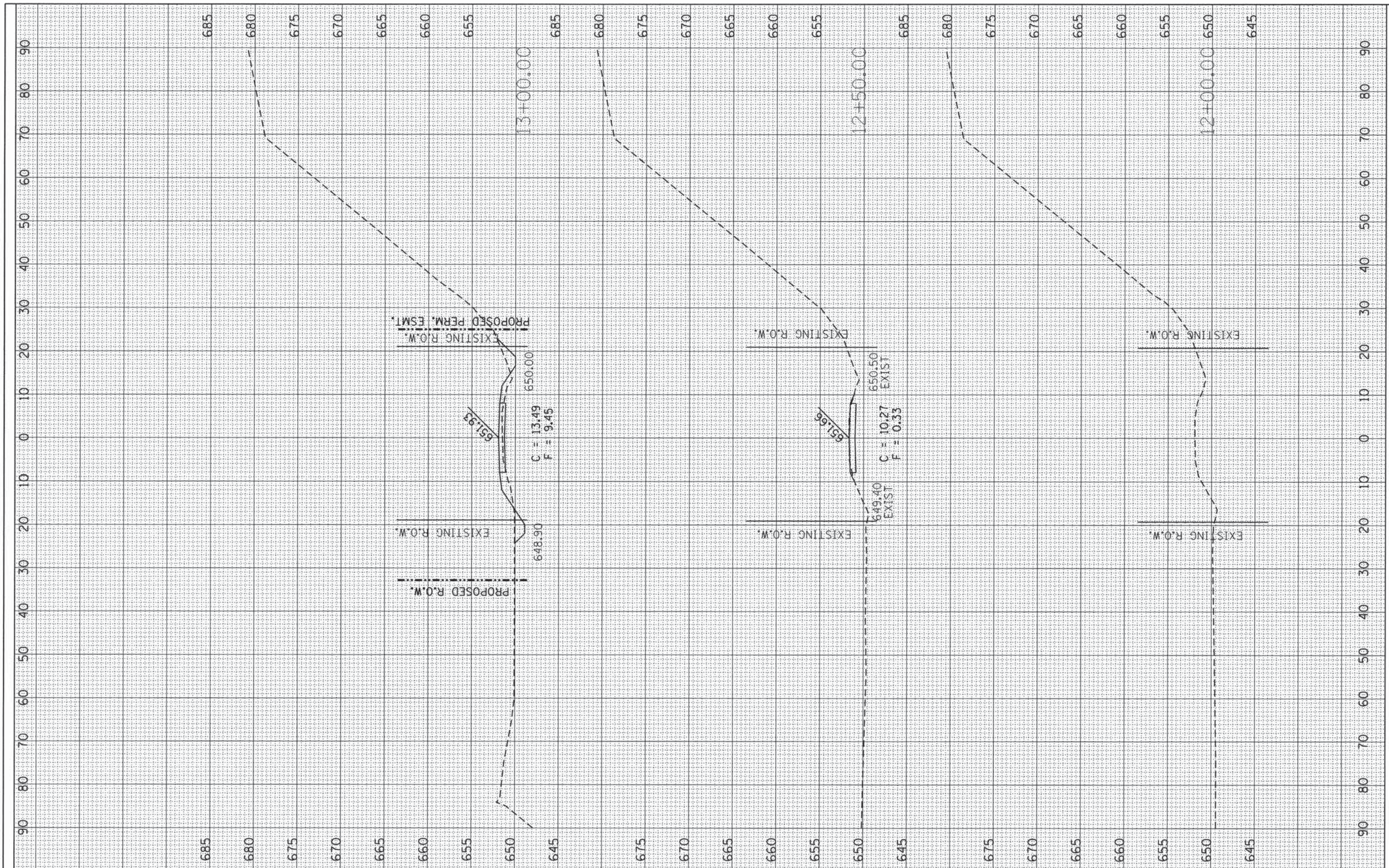
Elevation	N	Qu tsf	w %	Surface Water Elev.	Elevation	N	Qu tsf	w %
98.7	0							
4" Topsoil								
sandy clay continued								
	4	0.8S	11		-25	35	4.5S	9
	4	--	21			47	--	9
	7	1.0S	16			45	--	9
	3	0.6S	25					
	21	6.2S	10			76	5.4S	8
	26	6.0S	11					
	40	4.5S	8		64.2	100	/5"	7
	46	5.4S	8			100	/2"	2
	35	8.7S	9			100	/2"	5
End of Boring @ -44.0'								

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

STRUCTURE NO. 015-3430

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

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



FILE NAME = P:\Civ11\COLES_COUNTY\Paradise_5_6114018\Survey\Cross Sections_Shts_Rev_Align_4.dgn

USER NAME = Ste34
 PLOT SCALE = 10.0000' / in.
 PLOT DATE = 3/21/2016

DESIGNED -	REVISED -
DRAWN -	REVISED -
CHECKED -	REVISED -
DATE -	REVISED -

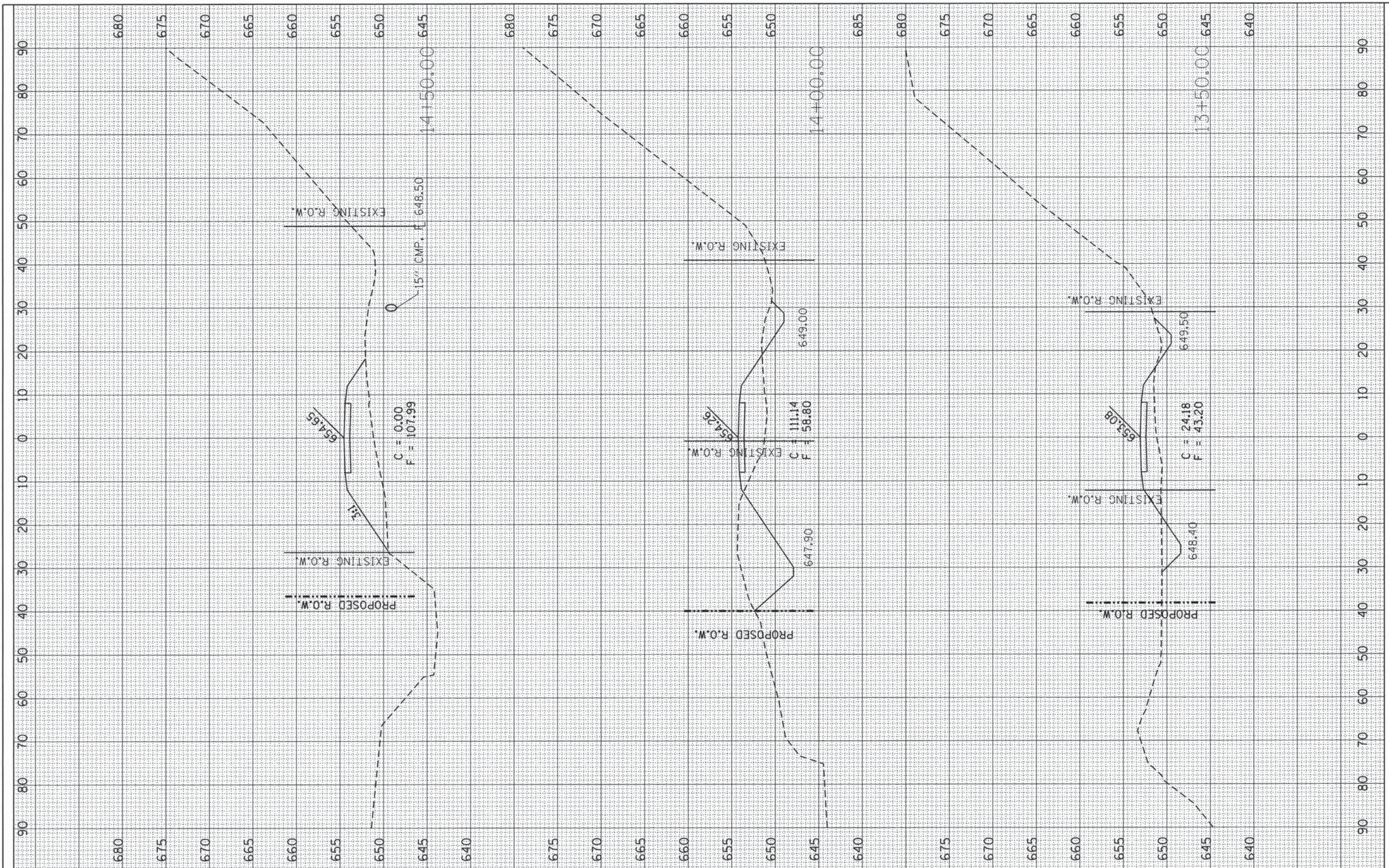
**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

SCALE: SHEET OF SHEETS STA. 12+00.00 TO STA. 13+00.00

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR28	13-1013-00-BR	COLES	16	13
CONTRACT NO. 95787				
ILLINOIS FED. AID PROJECT				

BY	DATE

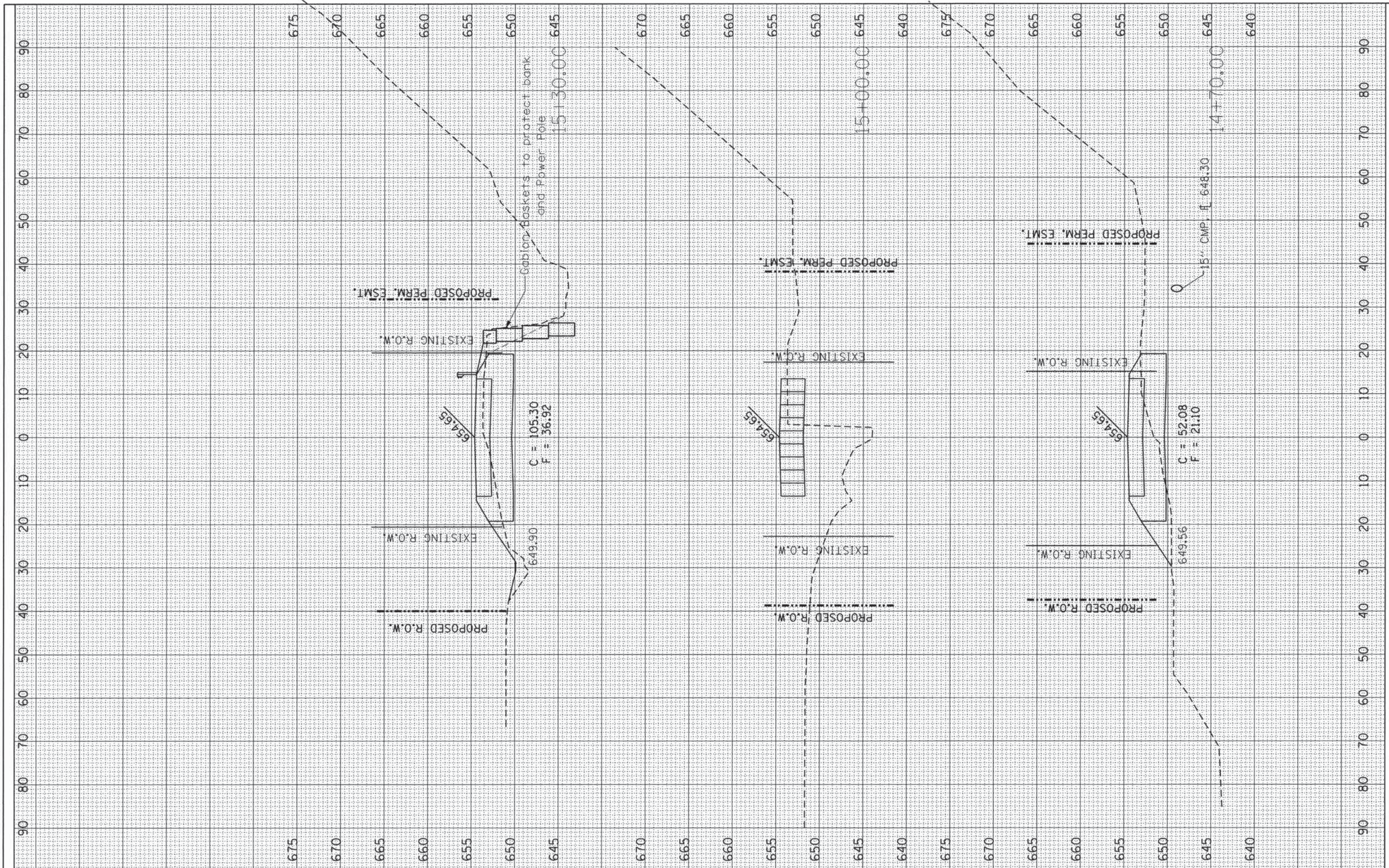
BY	DATE



FILE NAME =	USER NAME = 5ta34	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SCALE: SHEET OF SHEETS STA. 13+50.00 TO STA. 14+50.00	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
P:\Civil\COLES COUNTY\Paradise_5_6114018\Survey\Cross Sections_Shts_Rev_Align_4.dgn	DRAWN -	REVISED -	TR28			13-10113-00-BR	COLES	16	14	
PLOT SCALE = 1/8" = 10.0000' / 1"	CHECKED -	REVISED -	CONTRACT NO. 95787							
PLOT DATE = 3/21/2016	DATE -	REVISED -	ILLINOIS FED. AID PROJECT							
Default										

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

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



FILE NAME = P:\Civ11\COLES_COUNTY\Paradise_5_6114018\Survey\Cross Sections_Shts_Rev_Align_4.dgn

USER NAME = Ste34
 PLOT SCALE = 18.0000' / in.
 PLOT DATE = 3/21/2016

DESIGNED -	REVISED -
DRAWN -	REVISED -
CHECKED -	REVISED -
DATE -	REVISED -

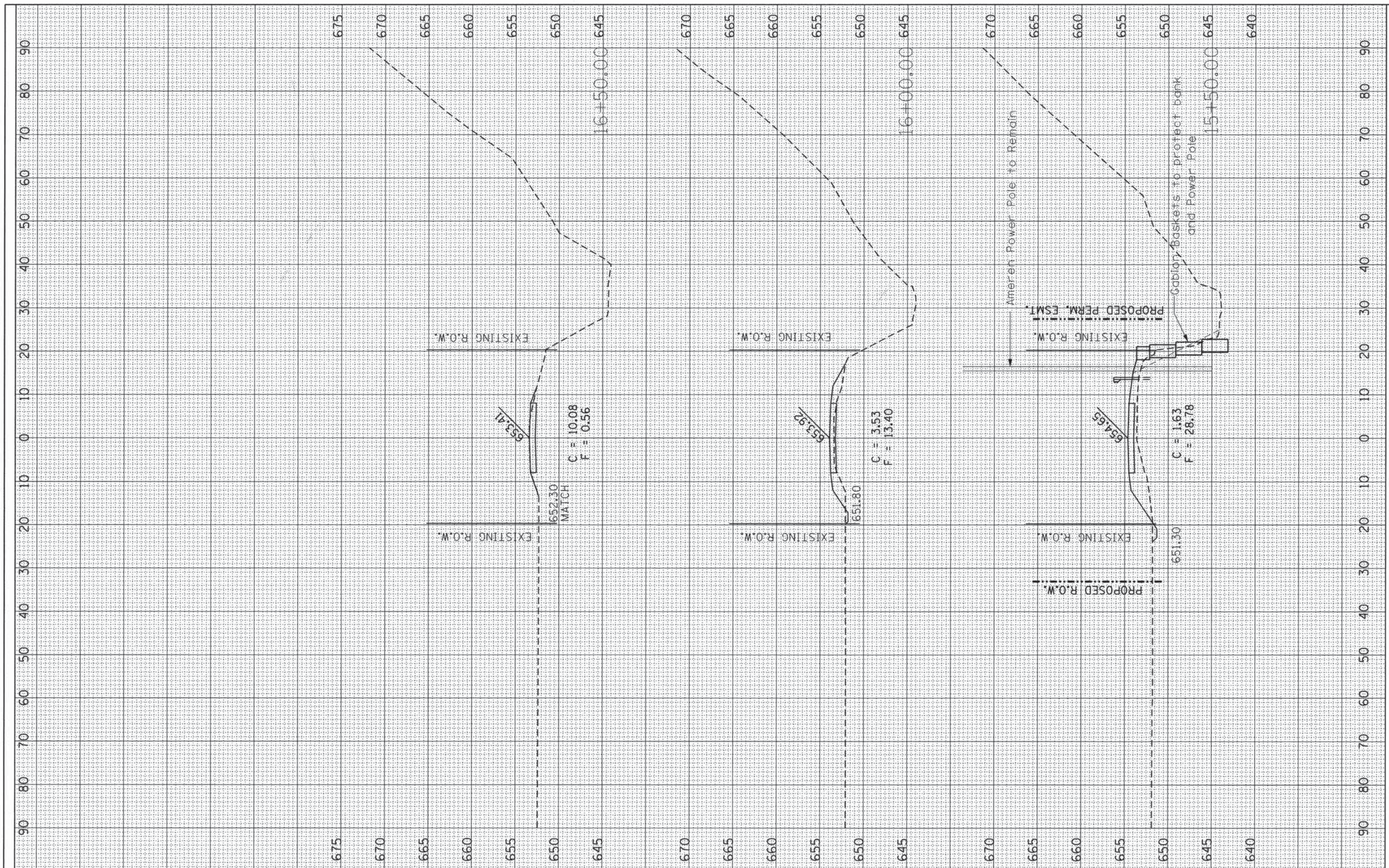
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

SCALE: SHEET OF SHEETS STA. 14+70.00 TO STA. 15+30.00

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR28	13-10113-00-BR	COLES	16	15
CONTRACT NO. 95787				
ILLINOIS FED. AID PROJECT				

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

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



FILE NAME = P:\Civ11\COLES_COUNTY\Paradise_5_6114818\Survey\Cross Sections_Shts_Rev_Align_4.dgn
 PLOT SCALE = 10.0000' / in.
 PLOT DATE = 3/21/2016

USER NAME = Ste34	DESIGNED -	REVISED -
	DRAWN -	REVISED -
	CHECKED -	REVISED -
	DATE -	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

SCALE: SHEET OF SHEETS STA. 15+50.00 TO STA. 16+50.00

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR28	13-10113-00-BR	COLES	16	16
CONTRACT NO. 95787				
ILLINOIS FED. AID PROJECT				