

04-24-2015 LETTING ITEM 183

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED
SURFACE TRANSPORTATION PROGRAM – BRIDGE
KNOX COUNTY
SALEM ROAD DISTRICT SECTION 12-17121-00-BR
TOWNSHIP ROAD 304 OVER SWAB RUN CREEK
PROJECT NO. BROS-0095(134)
JOB NUMBER C-94-069-12

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 304	12-17121-00-BR	KNOX	20	1
FED. ROAD DIST. NO. 7		ILLINOIS	CONTRACT NO. 89619	

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1.	COVER SHEET
2.	GENERAL NOTES, TYPICAL SECTIONS, DETAILS
3.	SUMMARY OF QUANTITIES, SCHEDULES OF QUANTITIES
4.	TRAFFIC CONTROL PLAN
5.	EROSION CONTROL PLAN
6.	PLAN AND PROFILE
7.-14.	STRUCTURE PLANS
15.-20.	CROSS SECTIONS

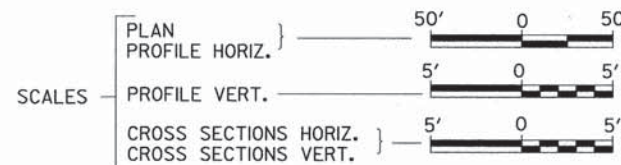
REQUIRED HIGHWAY STANDARDS

- 000001-06
- 280001-07
- 515001-03
- 635006-03
- 701901-04
- BLR 21-9

UTILITY COMPANIES

MID CENTURY TELEPHONE CO-OP
 FAIRVIEW, ILLINOIS
 VILLAGE OF YATES CITY
 YATES CITY, ILLINOIS

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

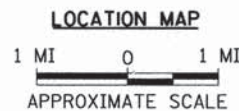


EXISTING STRUCTURE NO. 048-3179
 SINGLE SPAN PCC DECK BEAM SUPERSTRUCTURE ON TIMBER
 PILE CLOSED ABUTMENTS WITH CONCRETE CAPS,
 ±38'-0" BK TO BK, AND 24'-0" O TO O DECK,
 NO SKEW. (TO BE REMOVED)

PROPOSED STRUCTURE SN 048-3401
 SINGLE SPAN 33" PPC DECK BEAM SUPERSTRUCTURE
 ON CONCRETE SPILL-THRU PILE BENT ABUTMENTS,
 77'-0" BK TO BK, AND 24'-0" O TO O DECK,
 NO SKEW

SECTION 12-17121-00-BR
 BEGINS
 STATION 17+50.00

SECTION 12-17121-00-BR
 ENDS
 STATION 22+00.00

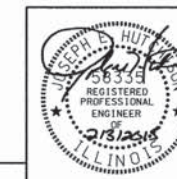


NET LENGTH OF PROJECT = 450.00 FEET = 0.085 MILES
 DESIGN CLASSIFICATION: LOCAL ROAD (NON-URBAN)
 DESIGN ADT = 25 (I5)
 DESIGN SPEED = 20 MPH

Hutchison Engineering, Inc.
 JACKSONVILLE-SHOREWOOD-PEORIA

2014

JOB#3503



Lic Exp 11/36/2015
 SIGNATURE
 ENGINEER'S SEAL



LOCATION OF SECTION INDICATED THUS: —

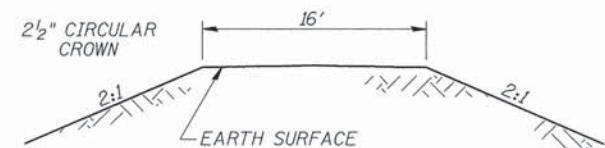
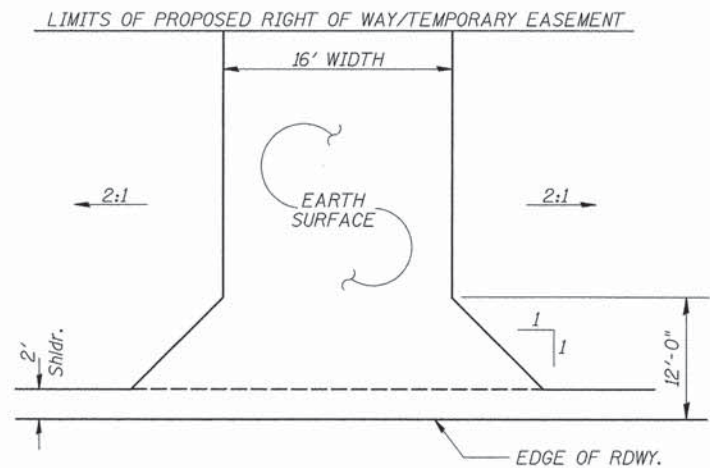
APPROVED	<i>February 9</i>	2015
	<i>David M. Hoke</i> SALEM ROAD DISTRICT HIGHWAY COMMISSIONER	
APPROVED	<i>February 9</i>	2015
	<i>Duane D. Ratterman</i> KNOX COUNTY ENGINEER	
PASSED	<i>Feb. 10th</i>	2015
	<i>Tom J. Sabie</i> DISTRICT FOUR ENGINEER OF LOCAL ROADS & STREETS	
Released For Bid Based on Limited Review	<i>Feb 10</i>	2015
	<i>Koreil G. Bennett</i> DEPUTY DIRECTOR OF HIGHWAYS, REGION THREE ENGINEER	
	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	

3503E001

SALEM ROAD DISTRICT

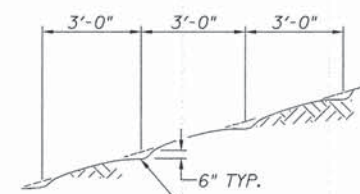
CONTRACT NO. 89619

CATALOG NO. 034785-00



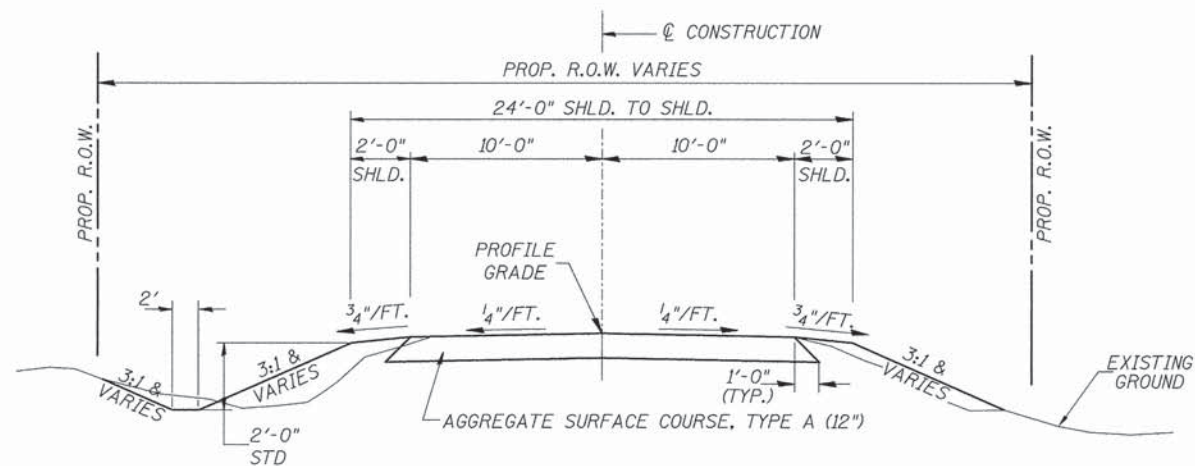
FIELD ENTRANCES

STA 18+84 RT
STA 19+25 LT



NOTE: ALL SLOPES 3:1 OR STEEPER AND GREATER THAN 5' IN HEIGHT SHALL BE CONTOUR PLOWED AS SHOWN IN DETAIL. COST SHALL BE INCLUDED WITH SEEDING, CLASS 2 (SPECIAL).

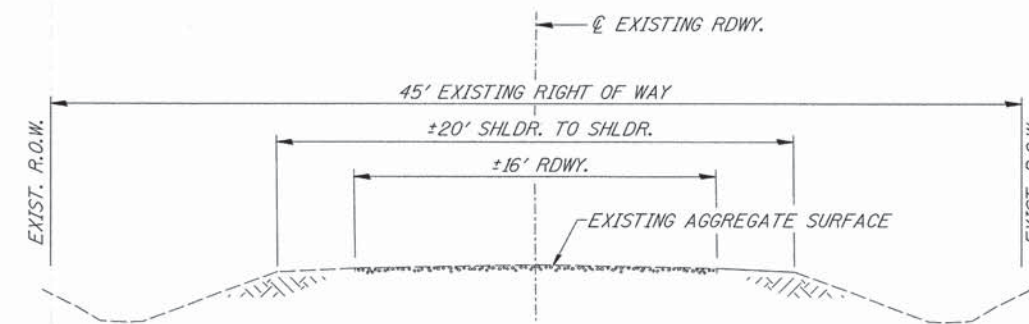
DETAIL OF CONTOUR PLOWING



PROPOSED TYPICAL SECTION

STA. 17+50.00 TO STA. 19+59.00
STA. 20+36.00 TO STA. 22+00.00
EXCEPT TRANSITIONS

BRIDGE OMISSION
STA. 19+59.00 TO STA. 20+36.00



EXISTING TYPICAL SECTION

GENERAL NOTES

THE REMOVAL OF EXISTING AGGREGATE SURFACE AND GRAVEL OR CRUSHED STONE BASE COURSE WHICH MAY BE NECESSARY FOR THE CONSTRUCTION OF THE PROJECT SHALL BE REMOVED AS EARTH EXCAVATION AND NO COMPENSATION WILL BE ALLOWED FOR ADDITIONAL LABOR OR EQUIPMENT REQUIRED.

ALL WASTE OR UNDESIRABLE MATERIAL AS IDENTIFIED BY THE ENGINEER SHALL BE DISPOSED OF OUTSIDE THE LIMITS OF THE RIGHT OF WAY AT THE CONTRACTOR'S EXPENSE.

ALL EXISTING PRIVATELY OWNED UTILITIES REQUIRING ADJUSTMENT WILL BE MADE BY THE UTILITY COMPANY INVOLVED. WHERE NO PROVISIONS HAVE BEEN MADE FOR ADJUSTMENTS ON THE PLANS, NO ADDITIONAL COMPENSATION WILL BE ALLOWED DUE TO DELAYS OR INCONVENIENCES CAUSED BY THE SAID UTILITY ADJUSTMENTS.

THE PROFILE GRADE ELEVATIONS SHOWN ON THE PLAN AND PROFILE SHEETS AND IN THE STATION CROSS SECTIONS ARE TO THE TOP OF THE FINISHED SURFACE.

ALL EXISTING DRAINAGE STRUCTURES NOT BEING REMOVED OR ADJUSTED BY THE CONTRACTOR THAT ARE DAMAGED DURING CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

ANY REFERENCE TO STANDARDS THROUGHOUT THE PLANS SHALL BE INTERPRETED TO BE THE LATEST STANDARDS OF THE ILLINOIS DEPARTMENT OF TRANSPORTATION

THE LOCATION OF UNDERGROUND UTILITIES SHOWN ON THE PLANS REPRESENTS THE BEST KNOWLEDGE OF THE COUNTY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY LOCATIONS OF UNDERGROUND INSTALLATIONS BEFORE STARTING CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL INDEMNIFY THE COUNTY, ITS OFFICERS AND EMPLOYEES AGAINST ALL CLAIMS DUE TO DAMAGE TO CORPORATE OR PRIVATE PROPERTY RESULTING FROM HIS CONSTRUCTION OPERATIONS AS DESCRIBED IN ARTICLES 107.20 AND 107.26 OF THE STANDARD SPECIFICATIONS.

THE CONTRACTOR MAY BE REQUIRED TO CONDUCT SOME OF HIS GRADING AND TRENCHING OPERATIONS AROUND TRANSMISSION POLES AND UNDER TRANSMISSION LINES. THE ADDED COST OF SO DOING SHALL BE INCLUDED IN THE COST OF EARTH EXCAVATION.

WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED BEFORE SUCH MONUMENTS ARE REMOVED. THE CONTRACTOR SHALL PROTECT AND PRESERVE PROPERTY MARKERS UNTIL THE OWNER, AN AUTHORIZED SURVEYOR, OR AGENT, HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION.

ALL ELEVATIONS SHOWN REFER TO U.S.G.S. MEAN SEA LEVEL DATUM.

FILE NAME = V:\Bridges\3503-Knox\35031001.dgn	USER NAME = JHutchison	DESIGNED -	REVISED -
		DRAWN -	REVISED -
		CHECKED -	REVISED -
		DATE -	REVISED -

**KNOX COUNTY
TOWNSHIP ROAD 304 OVER
SWAB RUN CREEK**

GENERAL NOTES, DETAILS, TYPICAL SECTIONS

SCALE: NONE SHEET NO. 1 OF 1 SHEETS STA. 17+50.00 TO STA. 22+00.00

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 304	12-17121-00-BR	KNOX	20	2
FED. ROAD DIST. NO. 7 ILLINOIS			FED. AID PROJECT NO. BR05-0095(134)	

SUMMARY OF QUANTITIES

CODE NO.	ITEM	UNIT	QUANTITY
20200100	EARTH EXCAVATION	CU YD	270
20300100	CHANNEL EXCAVATION	CU YD	335
① 20400800	FURNISHED EXCAVATION	CU YD	390
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	250
28000305	TEMPORARY DITCH CHECKS	FOOT	180
28000400	PERIMETER EROSION BARRIER	FOOT	540
28000500	INLET AND PIPE PROTECTION	EACH	2
28100209	STONE RIPRAP, CLASS A5	TON	440
28200200	FILTER FABRIC	SQ YD	545
28300400	AGGREGATE DITCH	TON	98
40200100	AGGREGATE SURFACE COURSE, TYPE A	TON	574
① 50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50105220	PIPE CULVERT REMOVAL	FOOT	41
50200100	STRUCTURE EXCAVATION	CU YD	70
50300225	CONCRETE STRUCTURES	CU YD	22.7
50300280	CONCRETE ENCASEMENT	CU YD	2.8
① 50400605	PRECAST PRESTRESSED CONCRETE DECK BEAMS (33" DEPTH)	SQ FT	1,804
① 50800105	REINFORCEMENT BARS	POUND	2,520
△ 50900205	STEEL RAILING, TYPE S1	FOOT	154
51201400	FURNISHING STEEL PILES HP10X42	FOOT	171
51202305	DRIVING PILES	FOOT	171
51203400	TEST PILE STEEL HP10X42	EACH	2
51500100	NAME PLATES	EACH	1
① 54200229	PIPE CULVERTS, CLASS D, TYPE 1 24"	FOOT	68
67100100	MOBILIZATION	L SUM	1
① 78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
① X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.4
① X7010216	TRAFFIC CONTROL AND PROTECTION (SPECIAL)	L SUM	1
① XX008385	CONCRETE REMOVAL (SPECIAL)	EACH	1

① SEE SPECIAL PROVISIONS CONSTRUCTION CODE TYPE: 0011
 △ SPECIALTY ITEMS

AGGREGATE DITCH*

STATION TO STATION	SIDE	WIDTH	TON	FILTER FABRIC (SQ YD)
17+75 - 19+09	LEFT	6'	48	94
18+25 - 18+70	RIGHT	6'	16	32
19+04 - 19+70	RIGHT	6'	24	46
19+43 - 19+71	LEFT	6'	10	20
TOTAL				192

* Aggregate Ditch shall conform to material type B-3 of the Standard Specifications

PIPE CULVERTS, CLASS D, TYPE 1 24"

STATION	SIDE	FOOT
18+84	RIGHT	34
19+25	LEFT	34
TOTAL		68

EARTHWORK SUMMARY

STATION TO STATION	EARTH EXCAVATION	CHANNEL EXCAVATION	STRUCTURE EXCAVATION	FILL	WASTE (SHORTAGE)	
	CU YD	CU YD	CU YD	CU YD	CU YD	
RDWY 17+50.00 - 19+59.00	205			546	(392)	
RDWY 20+36.00 - 22+00.00	64			46	2	
CHANNEL		335				
STRUCTURE			70			
TOTAL						269
USE						270

(⊙ 25% SHRINKAGE)

TEMPORARY DITCH CHECKS

STATION	SIDE	FOOT
17+90	LEFT	12
18+05	LEFT	12
18+20	LEFT	12
18+30	RIGHT	12
18+35	LEFT	12
18+40	RIGHT	12
18+50	LEFT	12
18+50	RIGHT	12
18+60	RIGHT	12
18+65	LEFT	12
18+80	LEFT	12
18+95	LEFT	12
19+35	RIGHT	12
19+70	RIGHT	12
19+71	LEFT	12
TOTAL		180

PERIMETER EROSION BARRIER

STATION TO STATION	SIDE	FOOT
17+50 - 17+75	LEFT	25
17+50 - 18+25	RIGHT	75
18+70 - 19+04	RIGHT	35
19+09 - 19+43	LEFT	45
20+36 - 22+00	LEFT	180
20+36 - 22+00	RIGHT	180
TOTAL		540

INLET AND PIPE PROTECTION

STATION	SIDE	EACH
18+70	RIGHT	1
19+09	LEFT	1
TOTAL		2

AGGREGATE SURFACE COURSE, TYPE A

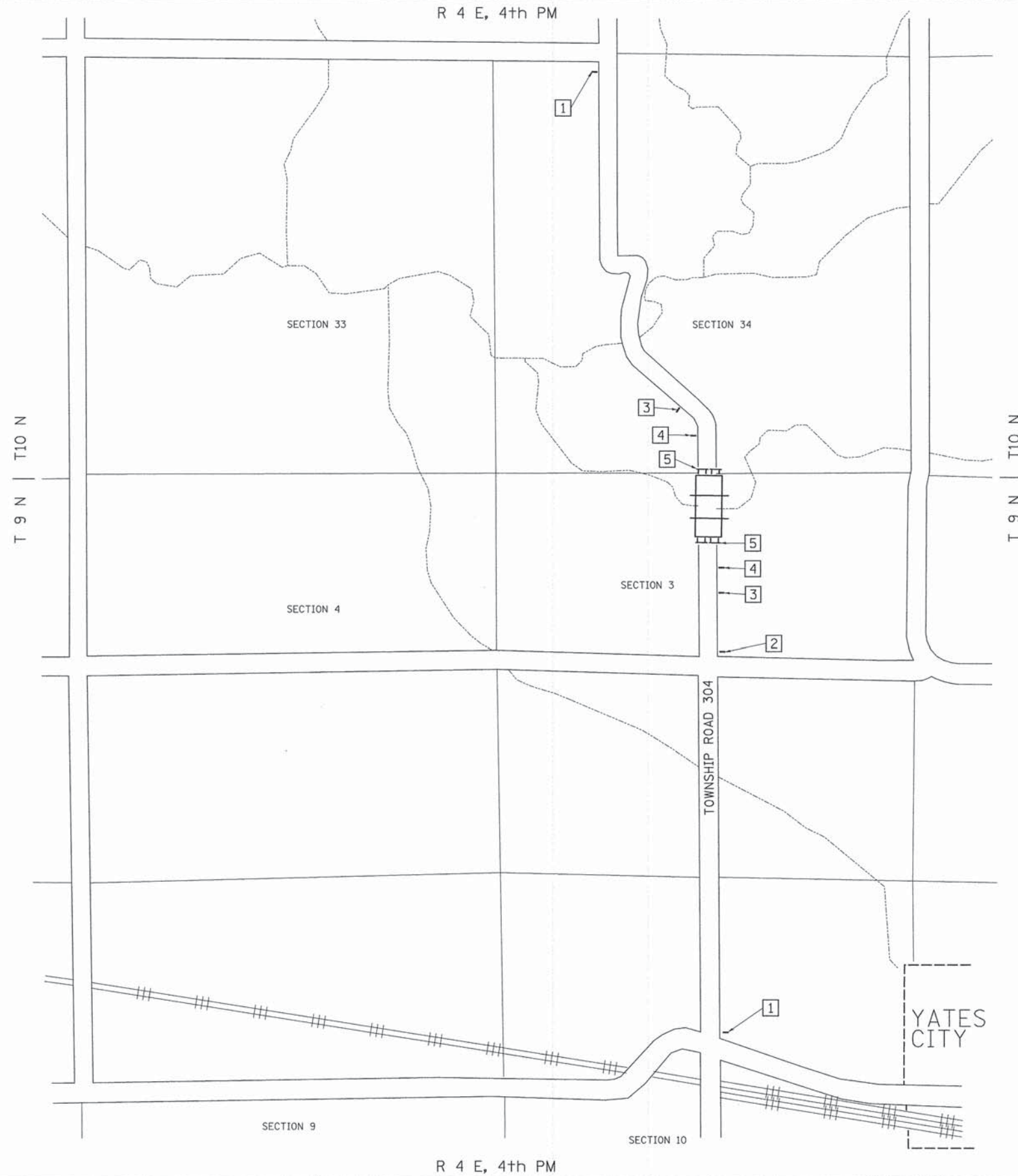
STATION TO STATION	THICKNESS	WIDTH	LENGTH	TON
17+50.00 - 18+00.00	1.00'	21.09' AVG.	50.00'	74
18+00.00 - 19+59.00	1.00'	21.00'	159.00'	234
ABUTMENT BACKFILL - SEE SPECIAL PROVISIONS				
20+36.00 - 21+50.00	1.00'	21.00'	114.00'	168
21+50.00 - 22+00.00	1.00'	19.05' AVG.	50.00'	67
TOTAL				574

PIPE CULVERT REMOVAL

STATION	SIZE	SIDE	FOOT
18+84	24"	RIGHT	21
19+25	18"	LEFT	20
TOTAL			41

CONCRETE REMOVAL (SPECIAL)

STATION TO STATION	SIDE	WIDTH	EACH
19+21 - 19+29	RIGHT	10.0'	1
TOTAL			1



- 1

ROAD CLOSED 1 1/4 MILES AHEAD LOCAL TRAFFIC ONLY	ROAD CLOSED 1 1/4 MILES AHEAD LOCAL TRAFFIC ONLY
R11-3	
- 2

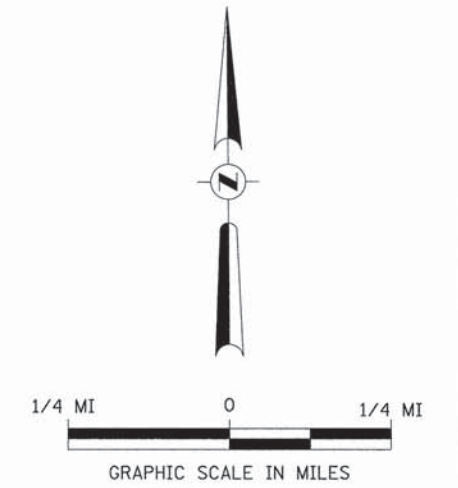
ROAD CLOSED 1/2 MILE AHEAD LOCAL TRAFFIC ONLY	ROAD CLOSED 1/2 MILE AHEAD LOCAL TRAFFIC ONLY
R11-3	
- 3

ROAD CLOSED AHEAD	ROAD CLOSED AHEAD
W20-3	
- 4

ROAD CLOSED 500 FT	ROAD CLOSED 500 FT
W20-3	
- 5

	TYPE III BARRICADES
--	---------------------

SEE STANDARD BLR 21
AND SPECIAL PROVISIONS

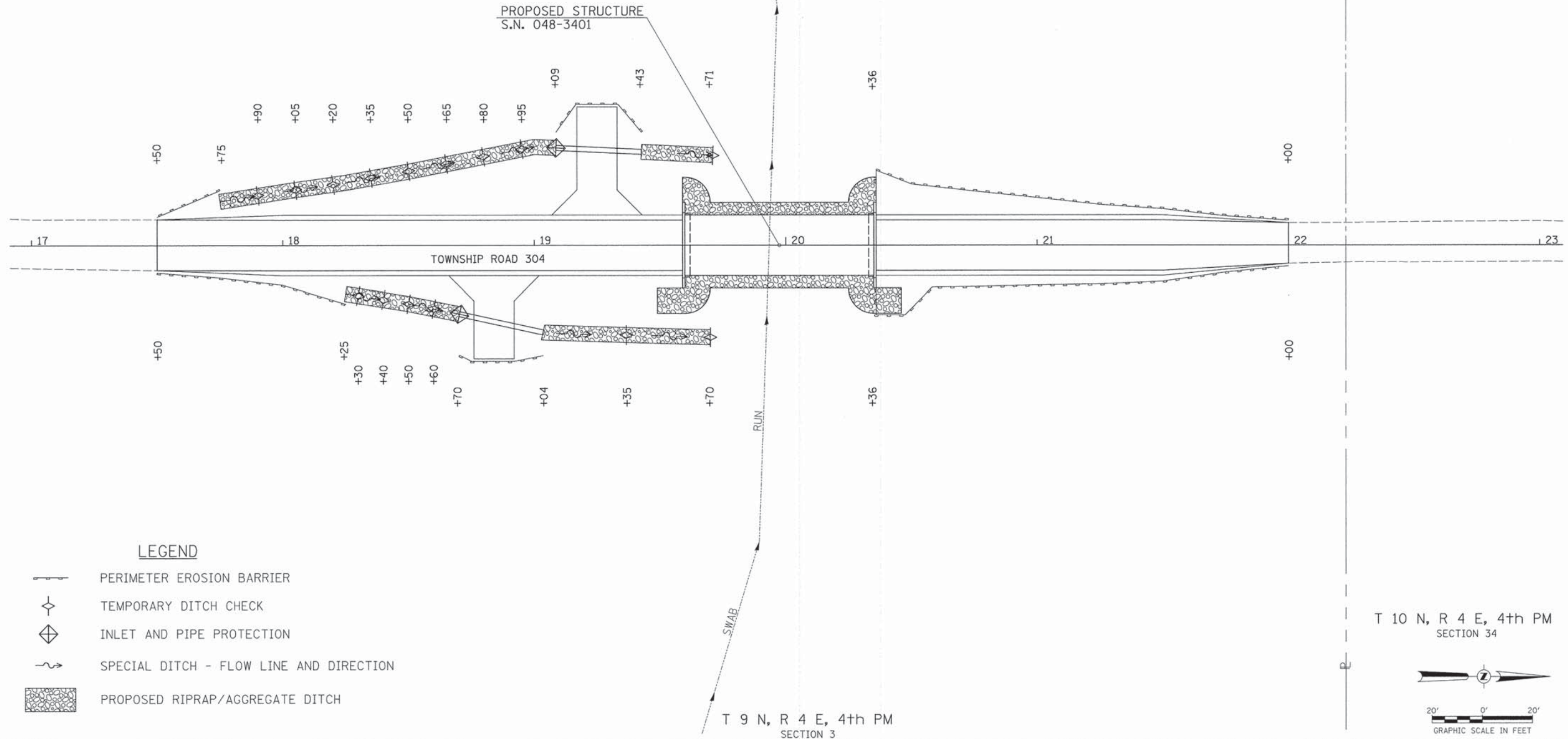


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	PLOT SCALE = 1,0000' / 1" =	CHECKED -	REVISIED -		REVISIED -	TR 304	12-17121-00-BR	KNOX	20	4	CONTRACT NO. 89619	
PLOT DATE = 2/2/2015	DATE = 08/11/14	REVISIED -	REVISIED -	SCALE: NONE	SHEET NO. 1 OF 1 SHEETS	STA. 17+50.00 TO STA. 22+00.00	FED. ROAD DIST. NO. 7 ILLINOIS		FED. AID PROJECT NO. BR05-00951341			






T 9 N, R 4 E, 4th PM
SECTION 3

T 10 N, R 4 E, 4th PM
SECTION 34

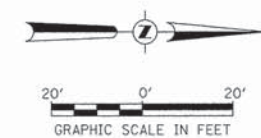
NOTE: TEMPORARY EROSION CONTROL SEEDING SHALL BE DONE IN ACCORDANCE WITH ARTICLE 280.04 OF THE STANDARD SPECIFICATIONS.



LEGEND

-  PERIMETER EROSION BARRIER
-  TEMPORARY DITCH CHECK
-  INLET AND PIPE PROTECTION
-  SPECIAL DITCH - FLOW LINE AND DIRECTION
-  PROPOSED RIPRAP/AGGREGATE DITCH

T 10 N, R 4 E, 4th PM
SECTION 34



T 9 N, R 4 E, 4th PM
SECTION 3

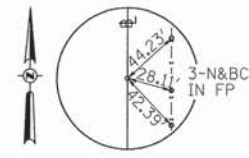
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	PLOT DATE = 2/2/2015	DATE = 8/11/14	REVISED -

**KNOX COUNTY
TOWNSHIP ROAD 304 OVER
SWAB RUN CREEK**

EROSION CONTROL PLAN

SCALE: 1" = 20' SHEET NO. 1 OF 1 SHEETS STA. 17+50.00 TO STA. 22+00.00

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 304	12-17121-00-BR	KNOX	20	5
FED. ROAD DIST. NO. 7 ILLINOIS			CONTRACT NO. 89619	
FED. AID PROJECT NO. BR05-0095134				



POT STA 15+00.00
RR SPIKE

T 9 N, R 4 E, 4th PM
SECTION 3

T 10 N, R 4 E, 4th PM
SECTION 34

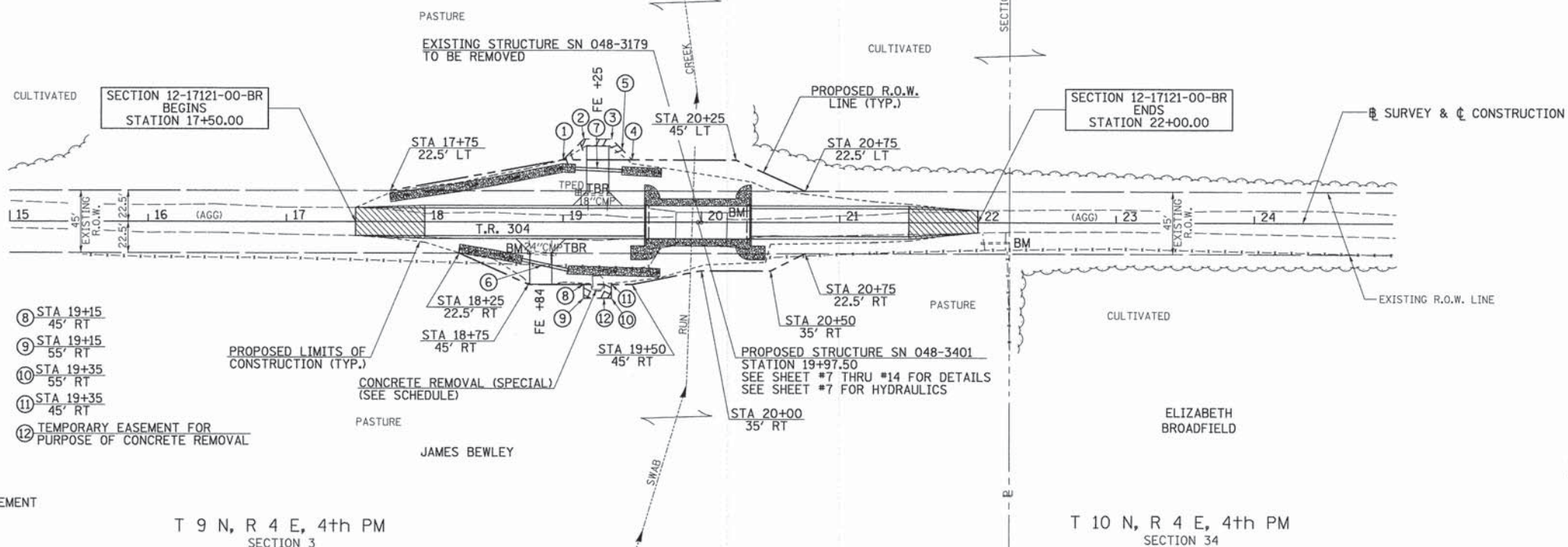


POT STA 24+99.91
RR SPIKE

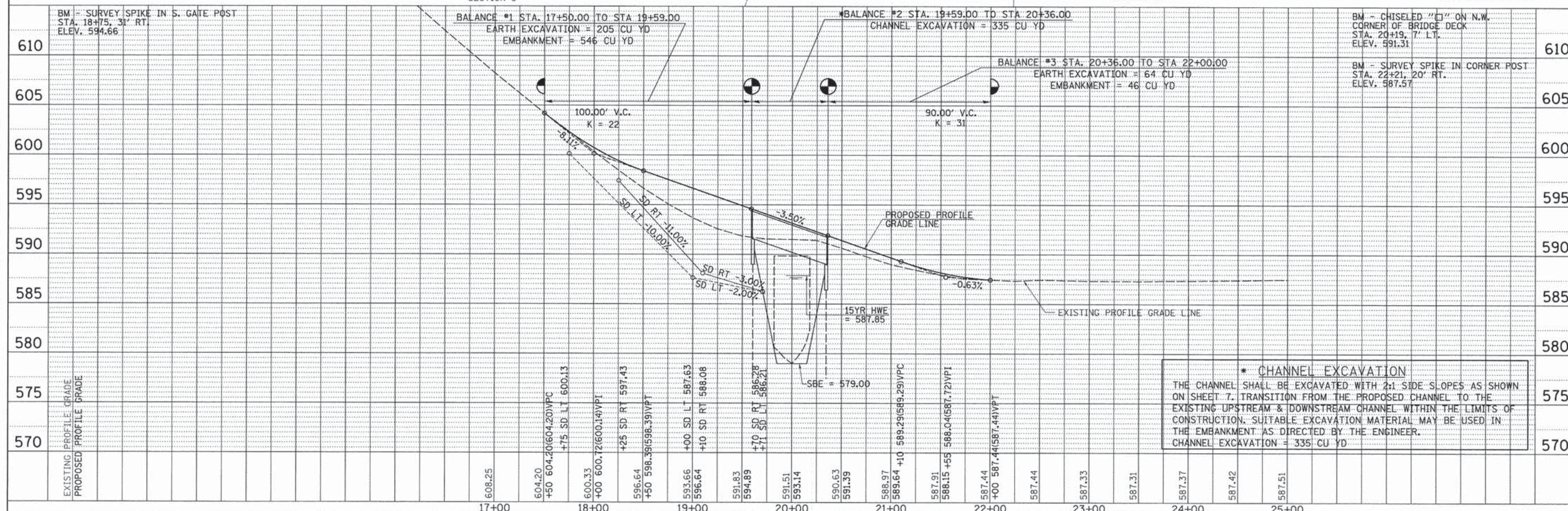
DATE	
BY	
PLAN	
NO.	
DATE	
BY	
PROFILE	
NO.	

- ① STA 19+00
45' LT
- ② STA 19+15
60' LT
- ③ STA 19+35
60' LT
- ④ STA 19+50
45' LT
- ⑤ TEMPORARY EASEMENT FOR
PURPOSE OF RECONSTRUCTING
FIELD ENTRANCE
- ⑥ STA 18+84 RT
PROPOSED PIPE CULVERT,
CLASS D, TYPE 1, 24"x34"
USFL = 592.45, STA 18+70.29, 27.3' RT
DSFL = 588.79, STA 19+03.51, 34.5' RT
- ⑦ STA 19+25 LT
PROPOSED PIPE CULVERT,
CLASS D, TYPE 1, 24"x34"
USFL = 587.46, STA 19+08.68, 38.7' LT
DSFL = 586.78, STA 19+42.64, 37.2' LT

- LEGEND**
- TRANSITION TO OR FROM EXISTING TO PROPOSED TYPICAL PAVEMENT
 - PROPOSED RIPRAP/AGGREGATE DITCH PLACEMENT
 - SPECIAL DITCH WITH FLOW DIRECTION



DATE	
BY	
PROFILE	
NO.	
DATE	
BY	
PROFILE	
NO.	



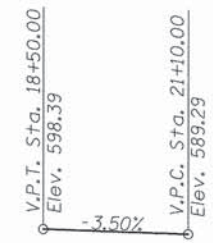
*** CHANNEL EXCAVATION**
THE CHANNEL SHALL BE EXCAVATED WITH 2:1 SIDE SLOPES AS SHOWN ON SHEET 7. TRANSITION FROM THE PROPOSED CHANNEL TO THE EXISTING UPSTREAM & DOWNSTREAM CHANNEL WITHIN THE LIMITS OF CONSTRUCTION. SUITABLE EXCAVATION MATERIAL MAY BE USED IN THE EMBANKMENT AS DIRECTED BY THE ENGINEER.
CHANNEL EXCAVATION = 335 CU YD

FILE NAME =	USER NAME = JHutchison	DESIGNED -	REVISED -	KNOX COUNTY TOWNSHIP ROAD 304 OVER SWAB RUN CREEK	PLAN AND PROFILE	SCALE: 1"=50'	SHEET NO. 1 OF 1 SHEETS	STA. 17+50.00 TO STA. 22+00.00	RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
V:\Bridge\3583-Knox\3583p001.dgn		DRAWN -	REVISED -			TR 304	12-17121-00-BR	KNOX	20	6			
PLOT SCALE = 50.0000' / 1" IN.		CHECKED -	REVISED -			CONTRACT NO. 89619							
PLOT DATE = 2/2/2015		DATE -	REVISED -			FED. ROAD DIST. NO. 7 (ILLINOIS) FED. AID PROJECT NO. BR05-0095(134)							

B.M.: Survey Spike in S. Gate Post Sta. 18+75.31' Rt. Elev. 594.66
 Survey Spike in Corner Post Sta. 22+21.20' Rt. Elev. 587.57

Existing Structure:
 Single span PPC Deck Beam Bridge on timber pile closed abutments with concrete caps.
 The structure is ±38'-0" back to back of abutments, 24'-0" out to out deck, and is not skewed.
 Str. No. 048-3179

Salvage: None
 Road to be closed to traffic during construction.

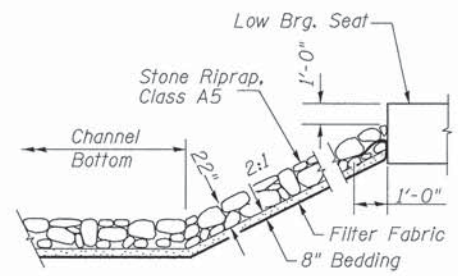


**SWAB RUN CREEK
 BUILT 20L BY
 SALEM ROAD DISTRICT
 KNOX COUNTY
 SEC. 12-17121-00-BR
 T.R. 304 STATION 19+97.50
 F.A. PROJ. BROS-0095(134)
 STR. NO. 048-3401 LOADING HL-93**

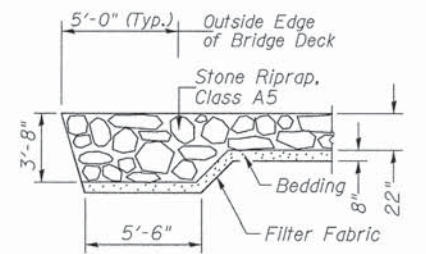
NAME PLATE

Locate Name Plate at S.E. Wingwall Corner of Bridge (See Std. 515001)

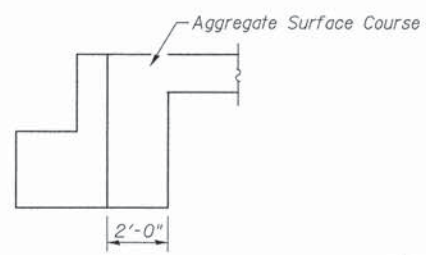
PROFILE GRADE



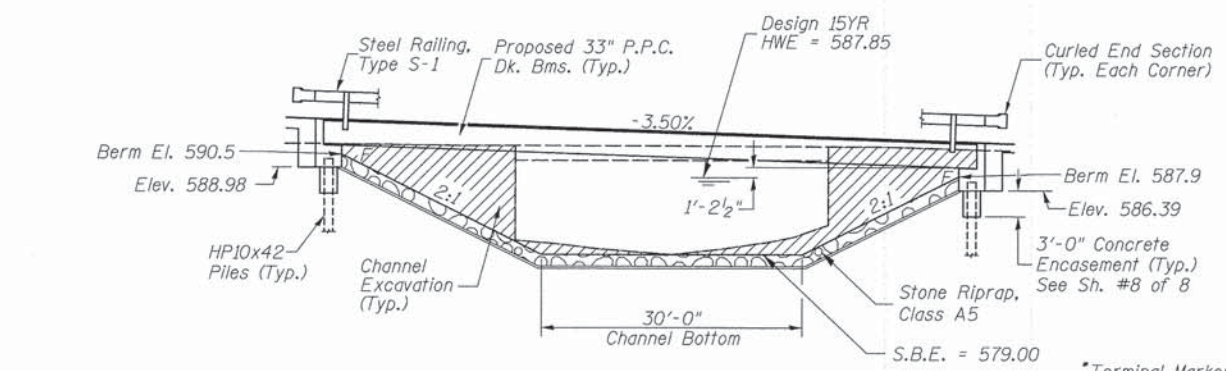
STONE RIPRAP DETAIL



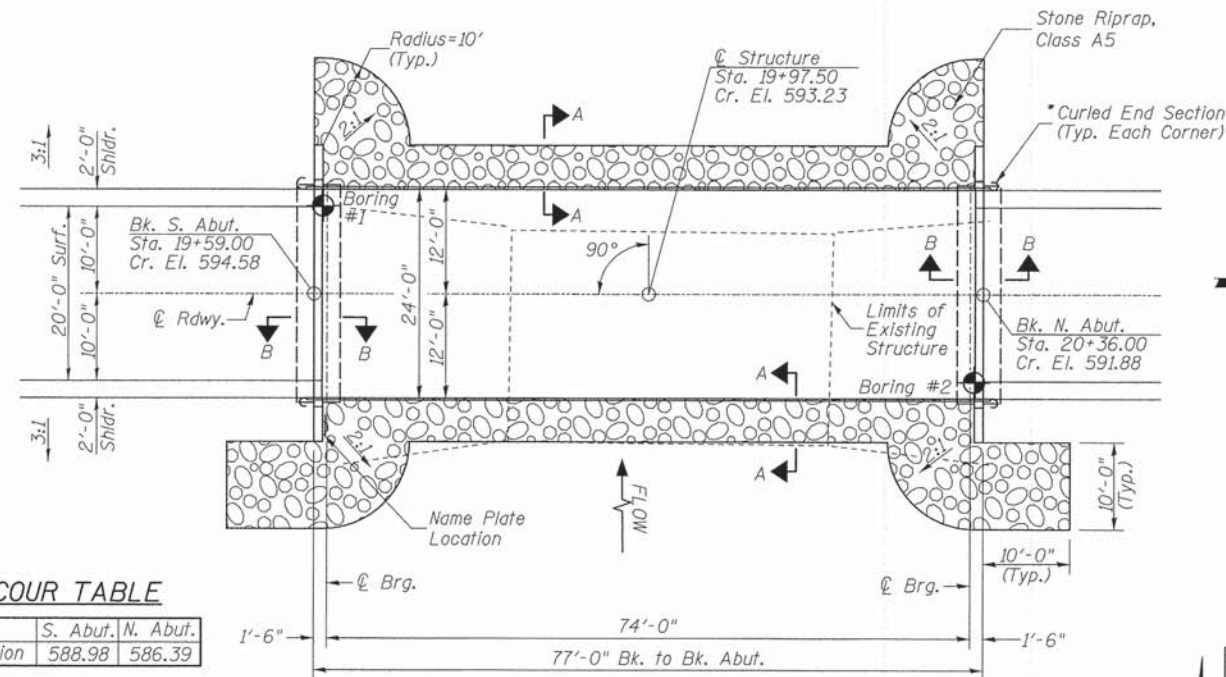
SECTION A-A



SECTION B-B



ELEVATION



PLAN

DESIGN SCOUR TABLE

Location	S. Abut.	N. Abut.
Design Scour Elevation	588.98	586.39

WATERWAY INFORMATION

Drainage Area = 17.64 Sq. Mi. Low Grade Elev. = 587.31 @ Sta. 23+50.00

Flood	Freq. Yr.	Q		Opening Sq. Ft.		Head - Ft.		Headwater El.	
		C.F.S.	Exist.	Prop.	H.W.E. Exist.	Prop.	Exist.	Prop.	
Design	15	2,676	281	422	587.85	1.41	0.19	589.26	588.04
Base	100	4,220	315	484	588.78	1.31	0.89	590.09	589.67

OVER-THE-ROAD AREA

Freq. Yr.	Existing	Proposed
15	153	149
100	497	480

Construction of this project complies with IDNR, Office of Water Resources Statewide Permit No. 2

DESIGN SPECIFICATIONS

2014 AASHTO LRFD Bridge Design Specifications 7th Edition

DESIGN STRESSES

(FIELD UNITS) f'c = 3,500 p.s.i. fy = 60,000 p.s.i. (Rein.)
 (PRECAST PRESTRESSED UNITS) f'c = 6,000 p.s.i. f'cl = 5,000 p.s.i. f's = 270,000 p.s.i. (1/2" Strands) f'si = 201,960 p.s.i. (1/2" Strands)

LOADING HL-93

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

GENERAL NOTES

The Contractor shall drive test piles to 110% of the nominal required bearing specified in production locations at the substructures specified or approved by the Engineer before ordering the remainder of the piles.
 For Soil Boring Logs, See Special Provisions.
 A Corrosion Inhibitor shall be used in the concrete for Precast Prestressed Concrete Deck Beams according to Article 1020.05(b)(12) of the Standard Specifications.
 Reinforcement Bars shall conform to the requirements of ASTM A706 Grade 60. Reinforcement Bars designated (E) shall be epoxy coated.
 Layout of the slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.
 Excavation behind existing abutment walls shall be performed to balance front and back soil pressure before removing the existing superstructure.
 The top surface of the beams shall be finished according to the IDOT Manual for Fabrication of Precast Prestressed Concrete Products.

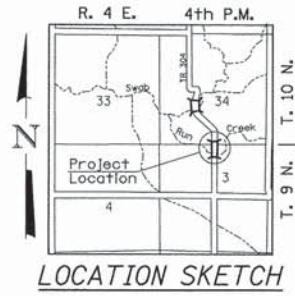
TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	CU YD	—	335	335
Stone Riprap, Class A5	TON	—	440	440
Filter Fabric	SQ YD	—	355	355
① Removal of Existing Structures	EACH	—	—	1
Structure Excavation	CU YD	—	70	70
Concrete Structures	CU YD	—	22.7	22.7
① Precast Prestressed Concrete Deck Beams (33" Depth)	SQ FT	1,804	—	1,804
① Reinforcement Bars	POUND	—	2,520	2,520
Steel Railing, Type S1	FOOT	154	—	154
Furnishing Steel Piles HP10x42	FOOT	—	171	171
Driving Piles	FOOT	—	171	171
Test Pile Steel HP10x42	EACH	—	2	2
Concrete Encasement	CU YD	—	2.8	2.8
Name Plates	EACH	—	1	1
① Terminal Marker - Direct Applied	EACH	4	—	4

① See Special Provisions

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 Standard Specification for Highway Bridges.
 This design complies with all requirements of the current AASHTO Guide Specifications for Seismic Design of highway bridges.

[Signature] 2/13/2015
 Illinois Structural No. 6440
 Expires 11/30/2016

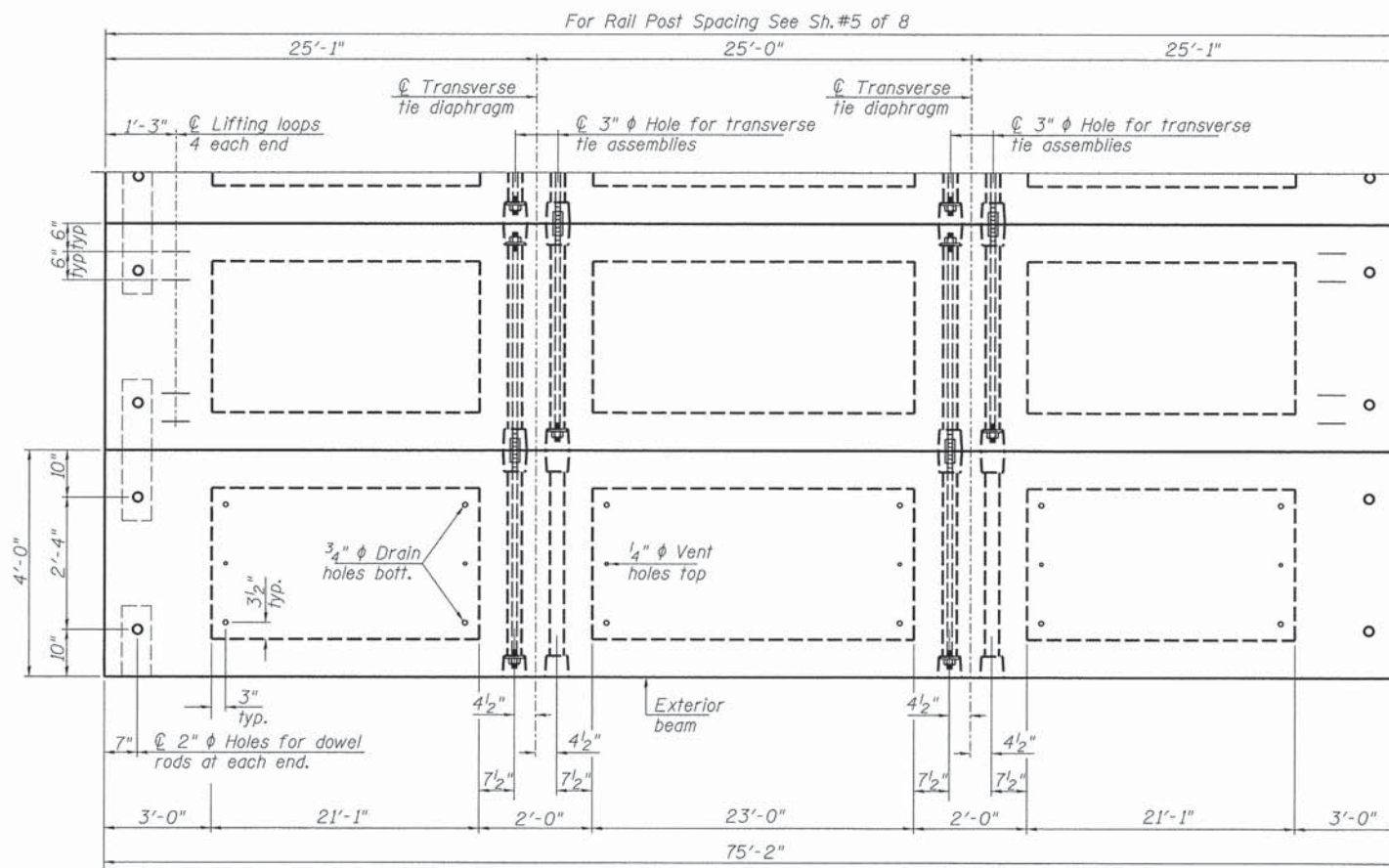


LOCATION SKETCH

**GENERAL PLAN & ELEVATION
 KNOX COUNTY
 SECTION 12-17121-00-BR
 T.R. 304 OVER SWAB RUN CREEK**

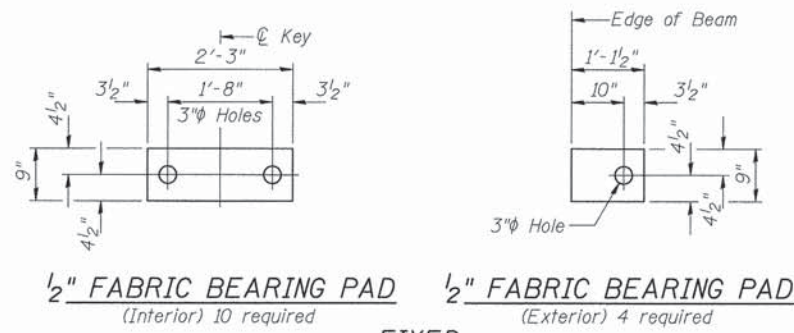
DESIGNED	S.T.M.
CHECKED	C.T.M./J.E.H.
DRAWN	S.T.M.
CHECKED	C.T.M./J.E.H.

SHEET NO. 1	ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	TR 304	12-17121-00-BR	KNOX	20	7
8 SHEETS	S.N. 048-3401		CONTRACT NO. 89619		
FED. ROAD DIST. NO. 7 ILLINOIS			FED. AID PROJECT BROS-0095(134)		



PLAN VIEW

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



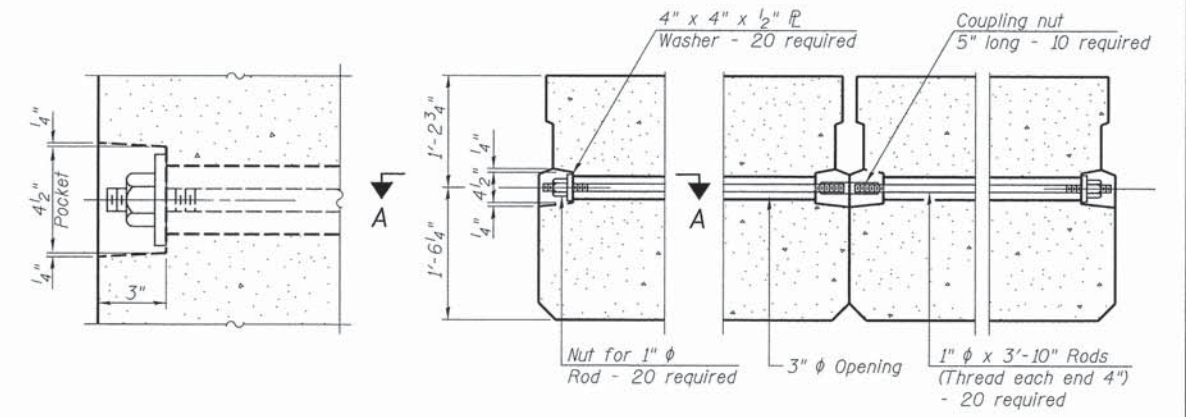
1/2" FABRIC BEARING PAD
(Interior) 10 required

1/2" FABRIC BEARING PAD
(Exterior) 4 required

FIXED

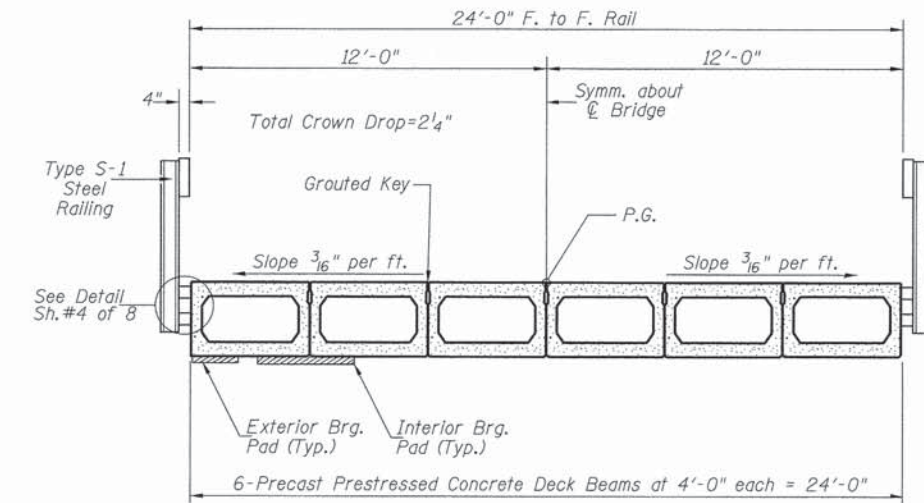
NOTES

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" ϕ 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.
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" ϕ 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.



SECTION A-A

TYPICAL TRANSVERSE TIE ASSEMBLY



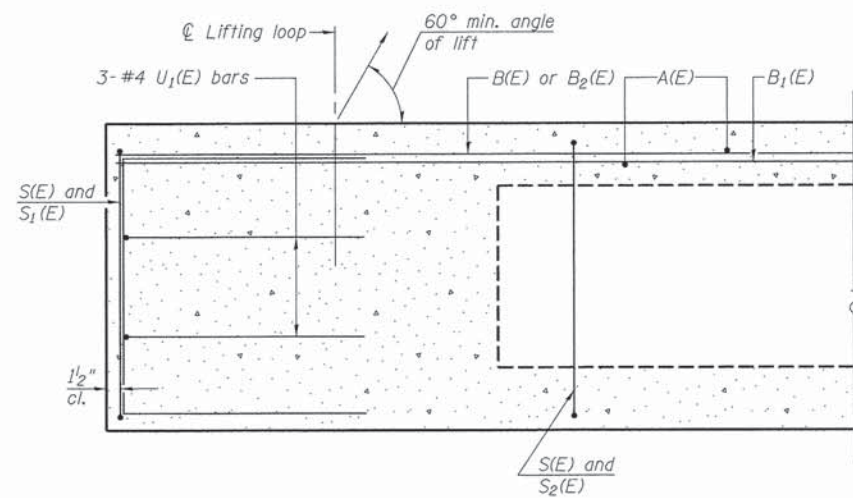
CROSS SECTION

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
① Precast Prestressed Concrete Deck Beams (33" Depth)	SQ FT	1,804
② See Special Provisions		

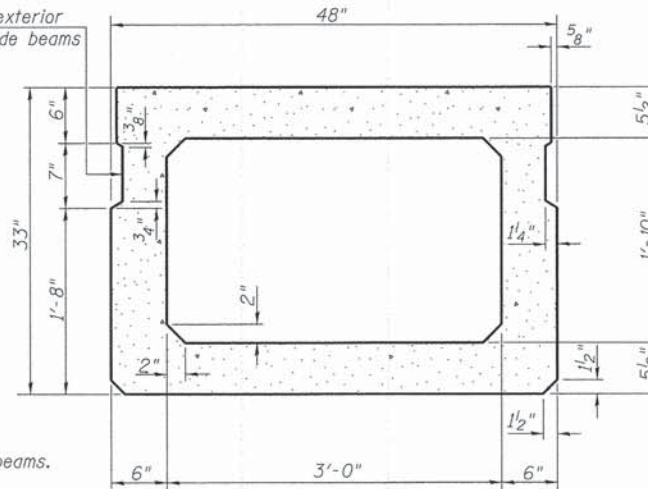
SUPERSTRUCTURE
KNOX COUNTY
SECTION 12-17121-00-BR
T.R. 304 OVER SWAB RUN CREEK

SHEET NO. 2 8 SHEETS	ROUTE NO. TR 304	SECTION 12-17121-00-BR	COUNTY KNOX	TOTAL SHEETS 20	SHEET NO. 8
	S.N. 048-3401		CONTRACT NO. 89619		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT BROS-0095(134)		

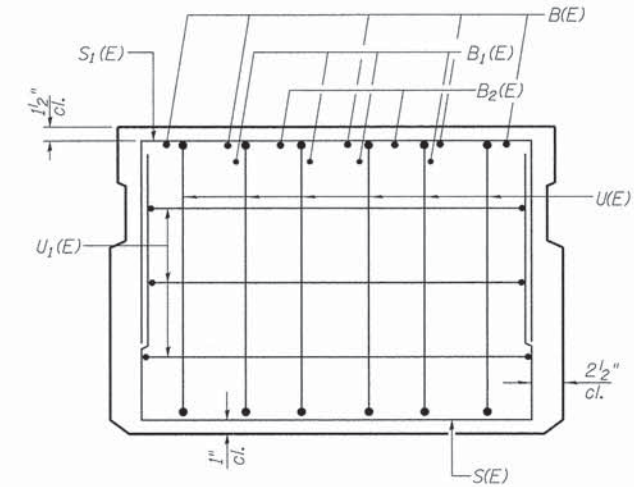


SECTION A-A

**Omit key on exterior face of outside beams



SECTION B-B
(Showing dimensions)



VIEW C-C

**Rail post anchor devices (Sheet 4 of 8) to be cast into exterior face of outside beams.

BAR LIST-ONE BEAM ONLY

(For Information Only)

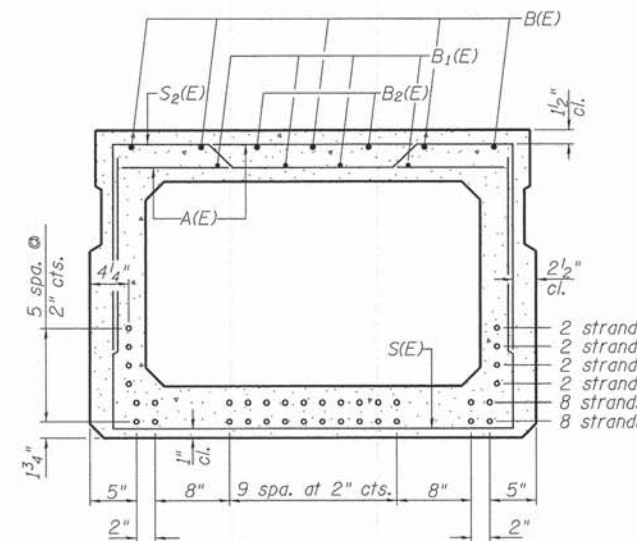
Bar	No.	Size	Length	Shape
A(E)	69	#4	3'-7"	—
B(E)	5	#5	*74'-11"	—
B1(E)	4	#4	*74'-11"	—
B2(E)	4	#5	10'-0"	—
S(E)	104	#4	8'-5"	┌
S1(E)	12	#4	7'-3"	┌
S2(E)	92	#4	7'-6"	┌
U(E)	12	#6	5'-0"	┌
U1(E)	6	#4	6'-0"	┌

* Total Length, Lap as necessary

MIN. BAR LAP

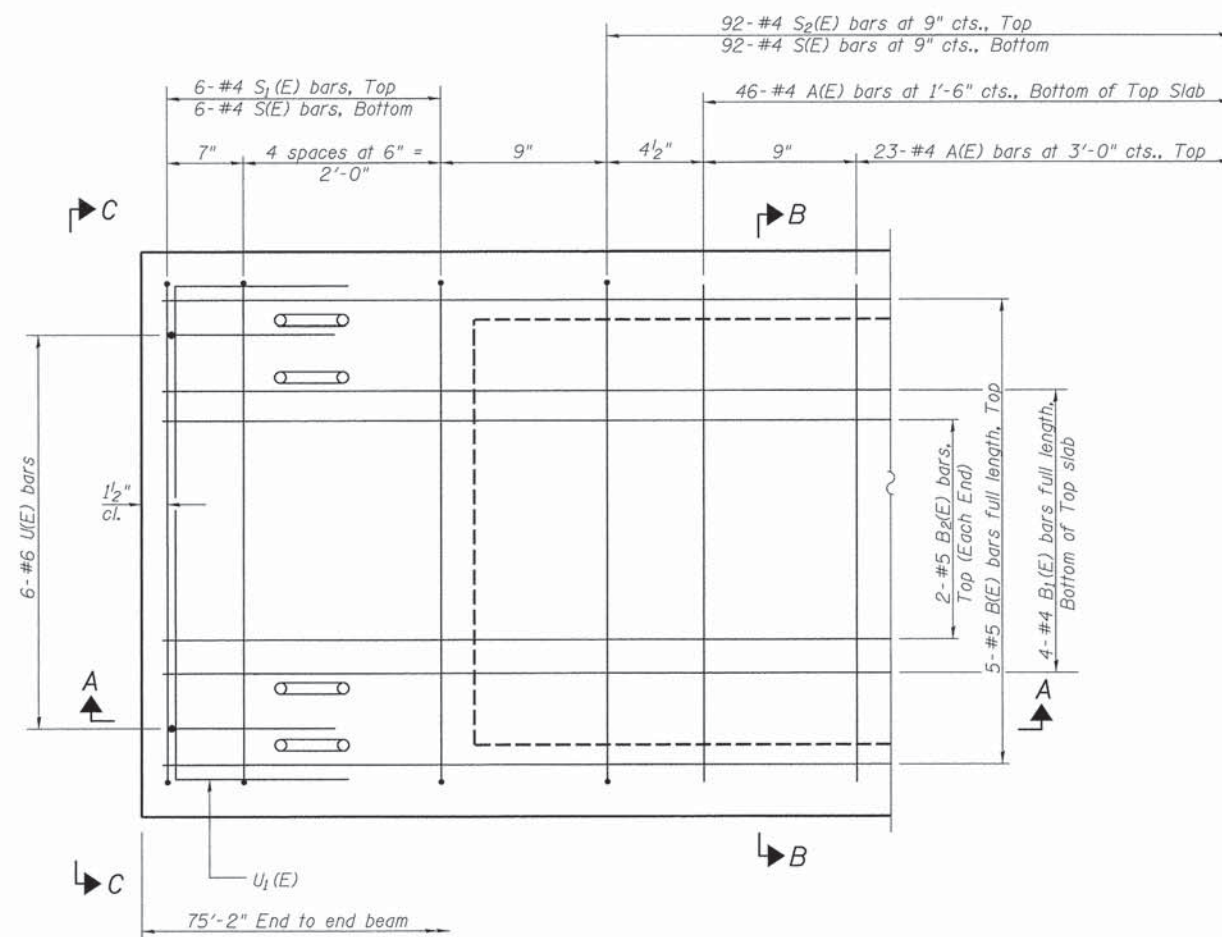
#4 bar = 2'-0"
#5 bar = 2'-6"

Note: See sheet 2 of 8 for additional details and Bill of Material.



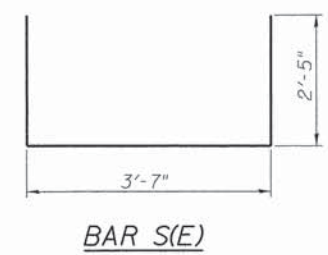
SECTION B-B

24-1/2" ϕ Strands Each Strand Stressed to 30,900 Lbs.
8-Strands 1 3/4" up, 8-Strands 3 3/4" up, 2-Strands 5 3/4" up
2-Strands 7 3/4" up, 2-Strands 9 3/4" up, 2-Strands 11 3/4" up
Note: Place the number of strands specified in each row symmetrically about the centerline of beam in the permissible strand locations shown.

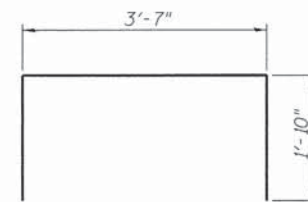


PLAN VIEW

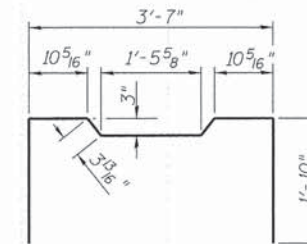
Note: Spacing of S(E) and S2(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.



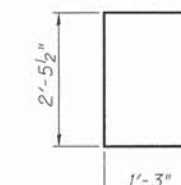
BAR S(E)



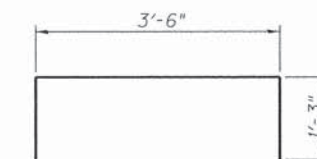
BAR S1(E)



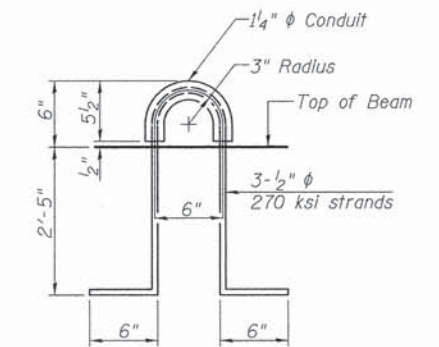
BAR S2(E)



BAR U(E)



BAR U1(E)

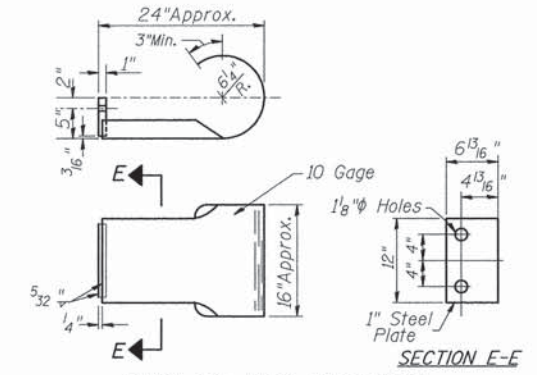
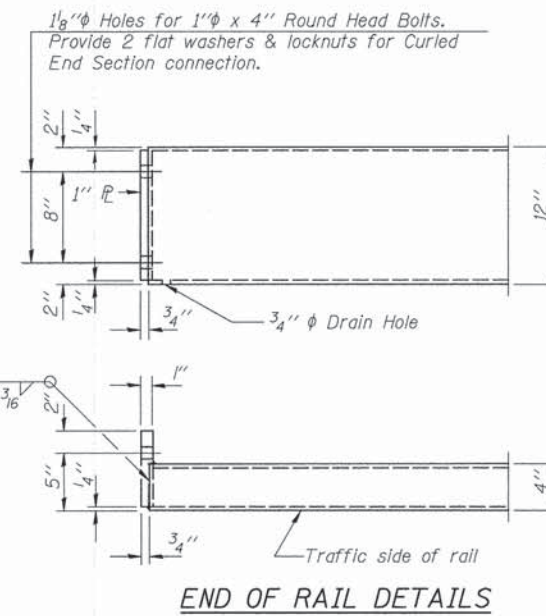
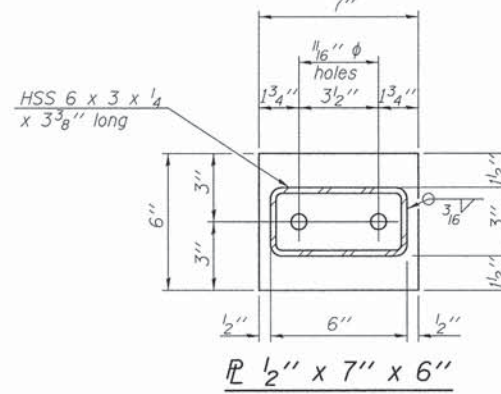
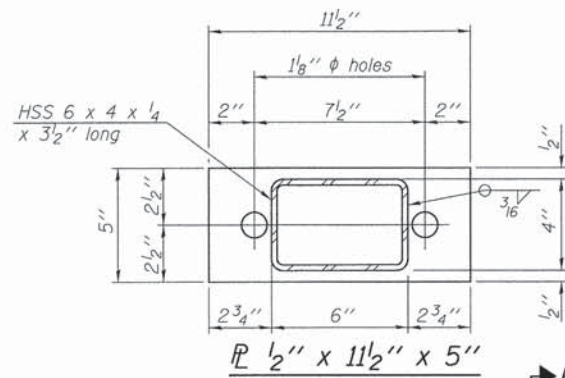
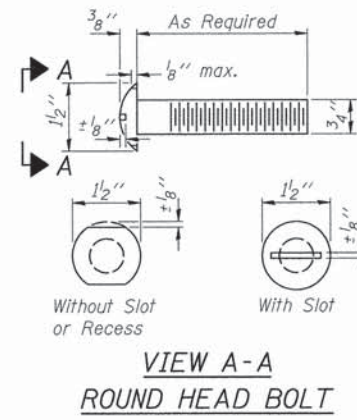


LIFTING LOOP DETAIL

SUPERSTRUCTURE DETAILS
KNOX COUNTY
SECTION 12-17121-00-BR
T.R. 304 OVER SWAB RUN CREEK

SHEET NO. 3 8 SHEETS	ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	TR 304	12-17121-00-BR	KNOX	20	9
	S.N. 048-3401		CONTRACT NO. 89619		
	FED. ROAD DIST. NO. 7 ILLINOIS		FED. AID PROJECT BR05-0095(134)		

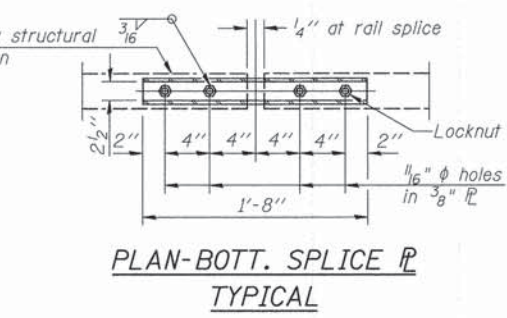
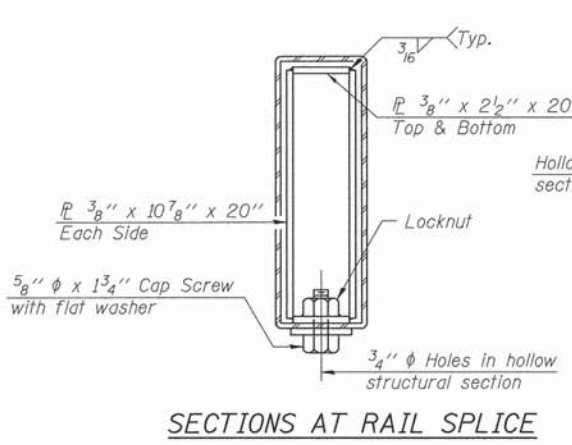
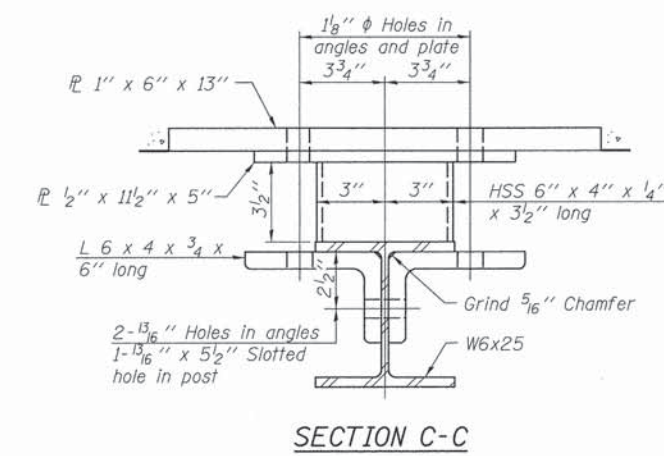
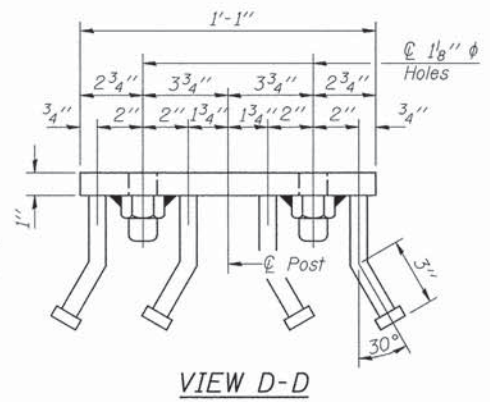
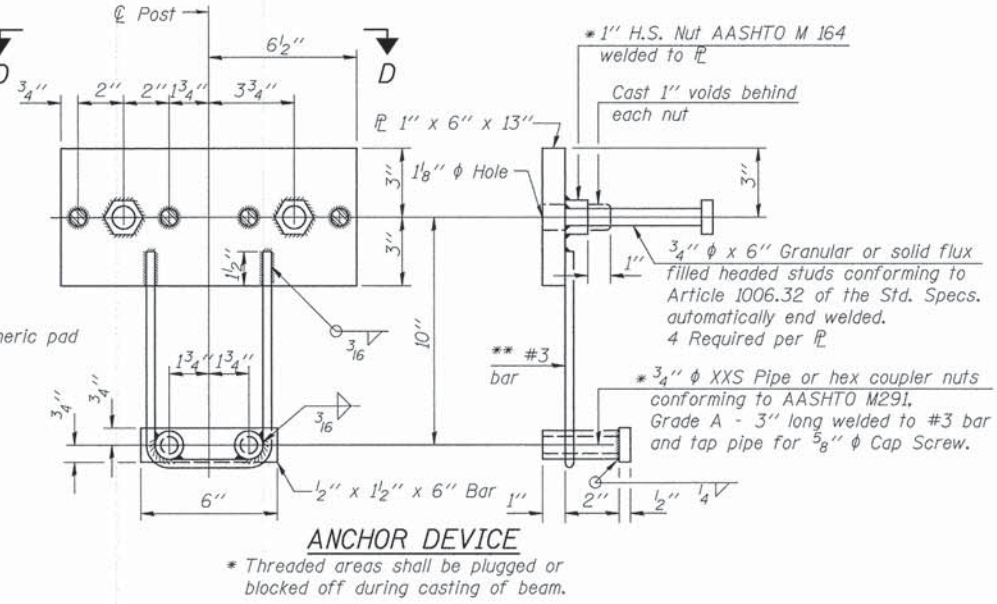
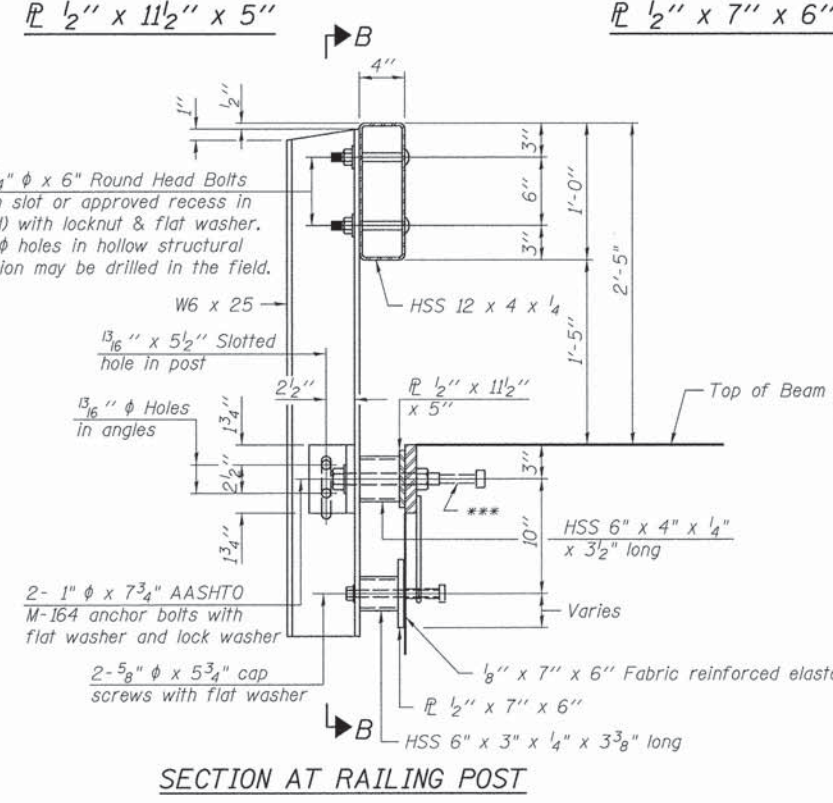
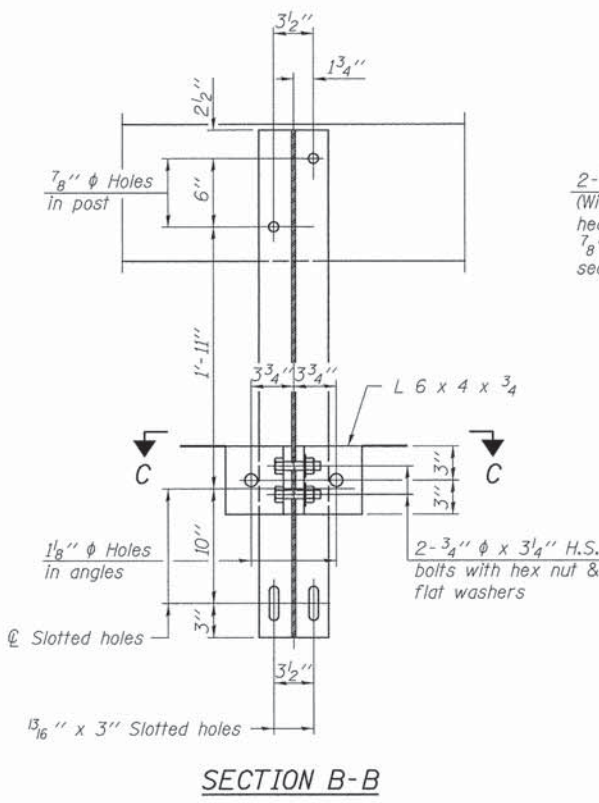
FOR RAIL POST SPACING SEE SH.#5 OF 8



**SECTION E-E
CURLLED END SECTION**
(4 Req'd) Cost Included with Steel Railing, Type S-1.
Terminal Markers - Direct Applied shall be placed on end of each Curled End Section. (Each Corner)

NOTES

All field drilled holes shall be coated with an approved zinc rich paint before erection.
For multi-span bridges, sufficient 1/4" x 6" 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.



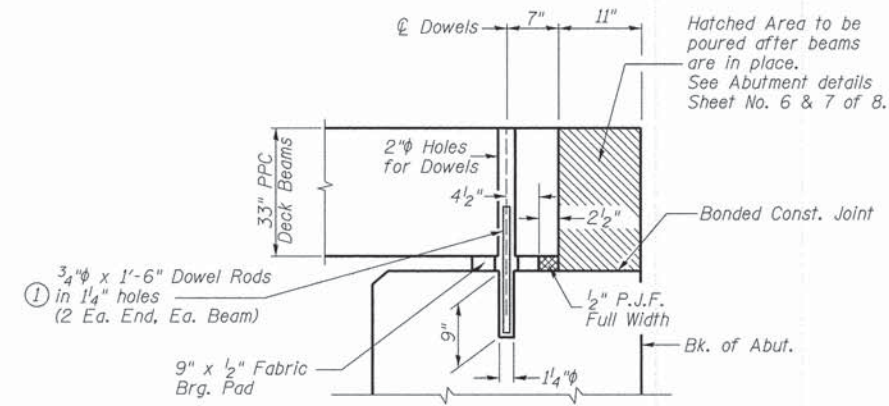
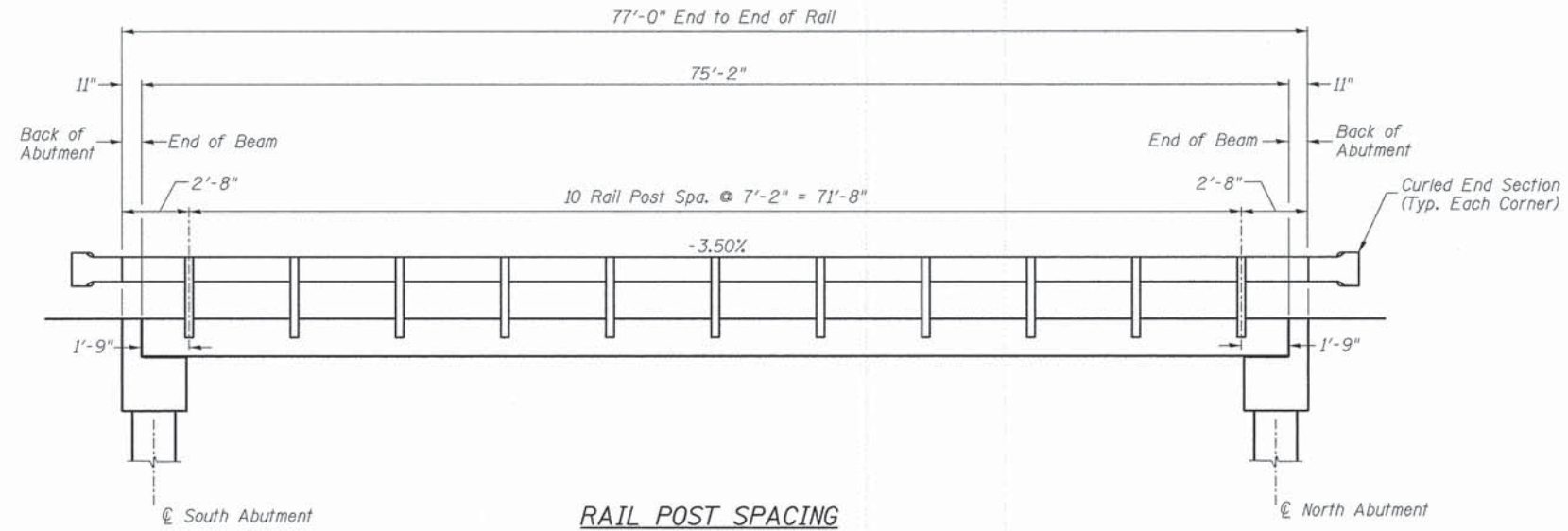
** Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 1/2 inch.

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Steel Railing, Type S-1	FOOT	154

**STEEL RAILING, TYPE S-1
KNOX COUNTY
SECTION 12-17121-00-BR
T.R. 304 OVER SWAB RUN CREEK**

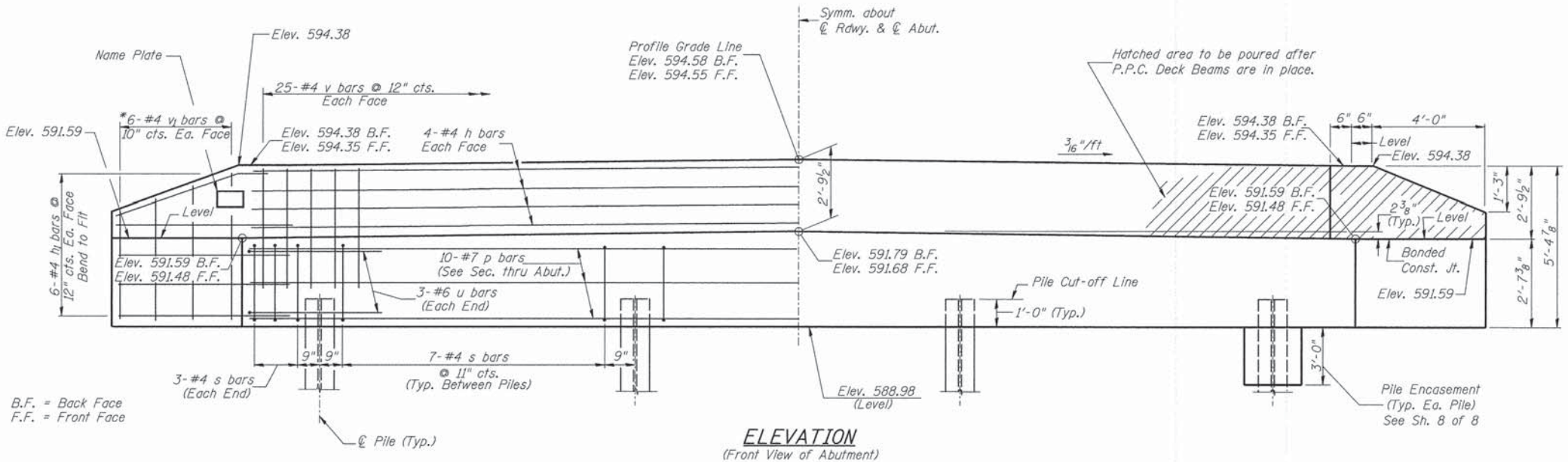
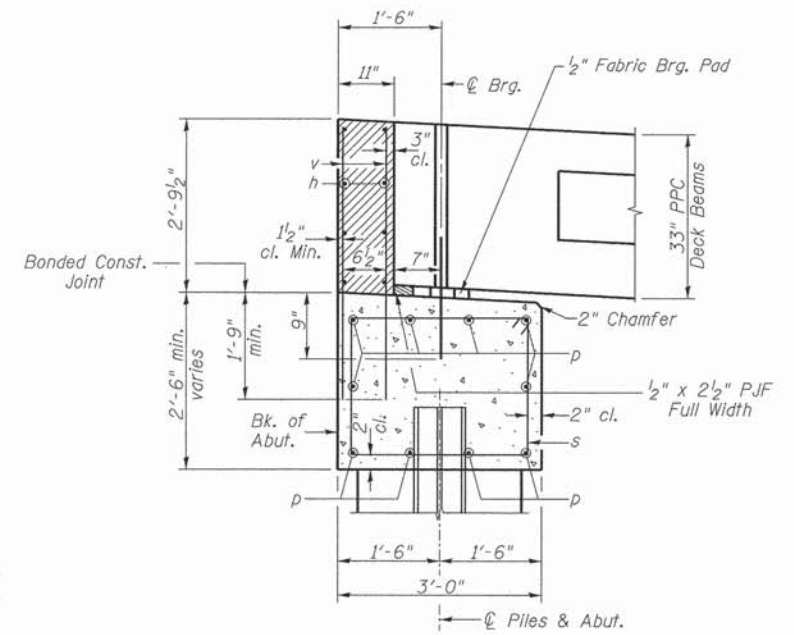
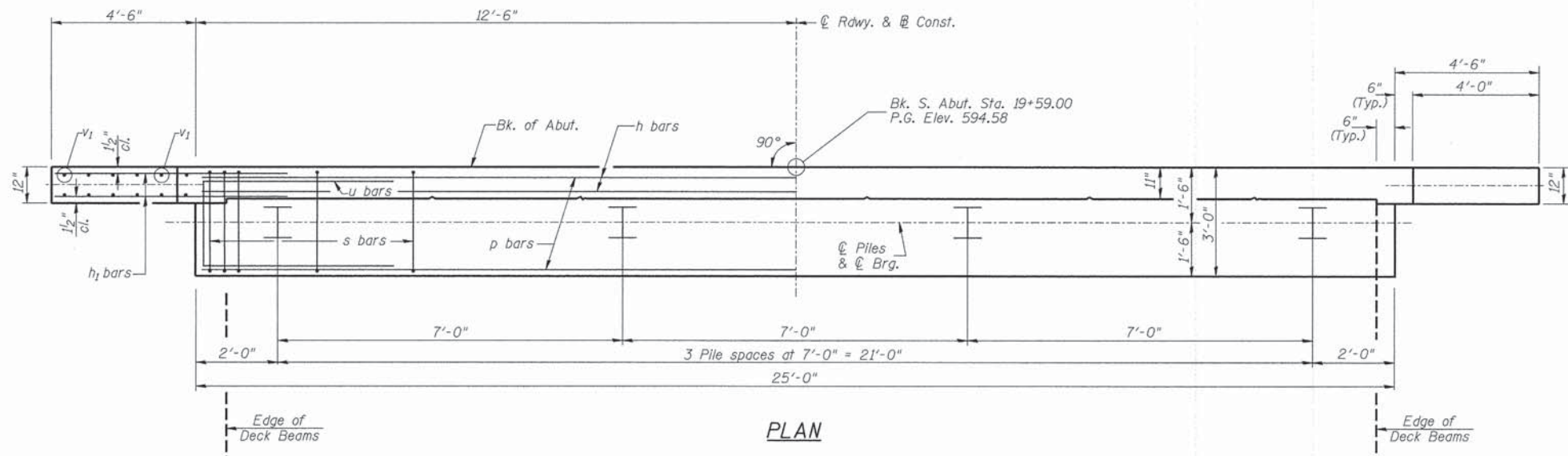
SHEET NO. 4 8 SHEETS	ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	TR 304	12-17121-00-BR	KNOX	20	10
S.N. 048-3401			CONTRACT NO. 89619		
FED. ROAD DIST. NO. 7 ILLINOIS		FED. AID PROJECT BROS-0095(134)			



① Dowel Rods to be grouted after beams are in place and allowed to cure (Min. 24 hr.) prior to grouting the shear keys.

RAIL POST SPACING AND
SUPERSTRUCTURE DETAILS
KNOX COUNTY
SECTION 12-17121-00-BR
T.R. 304 OVER SWAB RUN CREEK

SHEET NO. 5 8 SHEETS	ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	TR 304	12-17121-00-BR	KNOX	20	11
	S.N. 048-3401		CONTRACT NO. 89619		
	FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT BROS-0095(134)		



SOUTH ABUTMENT BILL OF MATERIAL

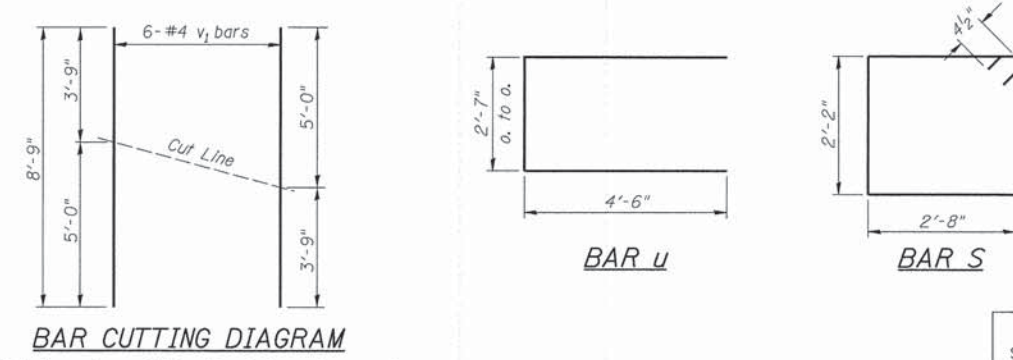
BAR NO.	SIZE	LENGTH	SHAPE
h	#4	24'-9"	—
h1	#4	6'-6"	—
p	#7	24'-9"	—
s	#4	10'-5"	□
u	#6	11'-7"	□
v	#4	4'-6"	—
v1	#4	8'-9"	—
Concrete Structures			CU YD 11.4
Reinforcement Bars			POUND 1,260
Structure Excavation			CU YD 35
Name Plates			EACH 1
Furnishing Steel Piles HP10x42			FOOT 87
Driving Piles			FOOT 87
Test Pile Steel HP10x42			EACH 1
Concrete Encasement			CU YD 1.4

① See Special Provisions

DESIGN STRESSES
 $f'_c = 3,500 \text{ p.s.i.}$
 $f_y = 60,000 \text{ p.s.i.}$

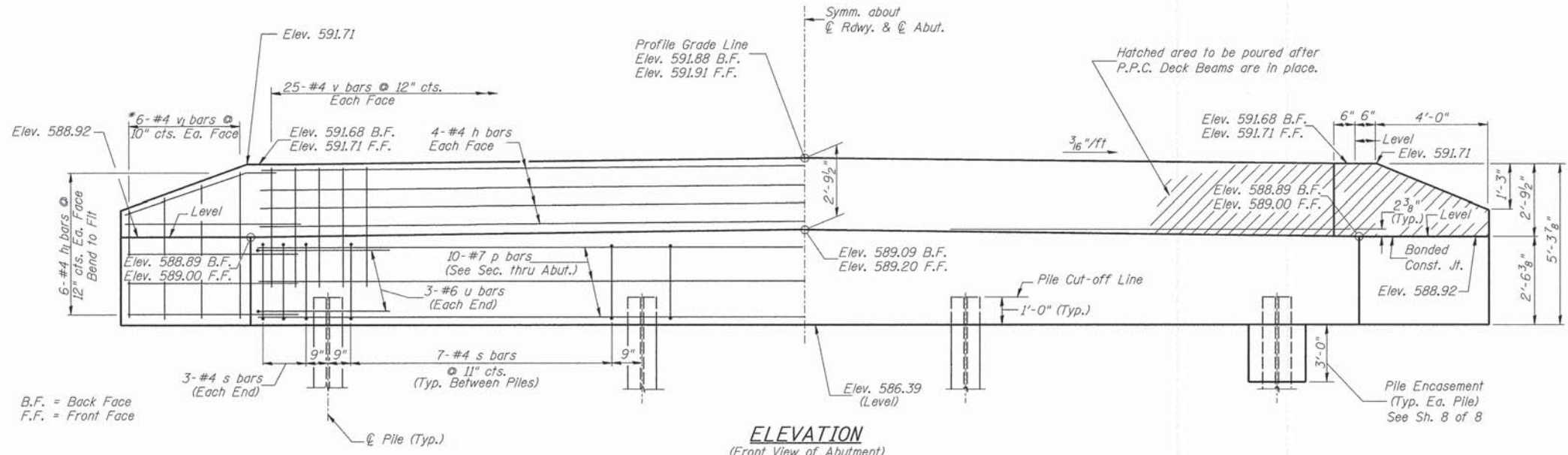
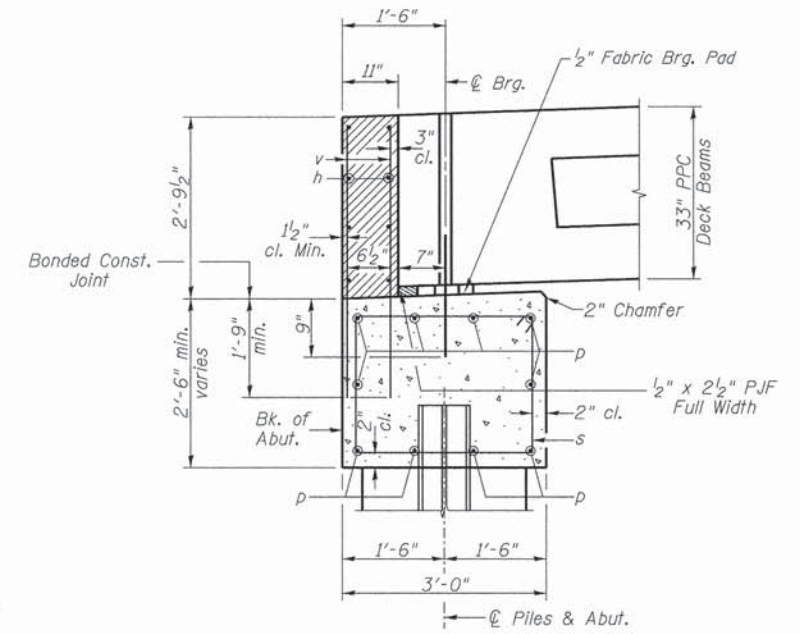
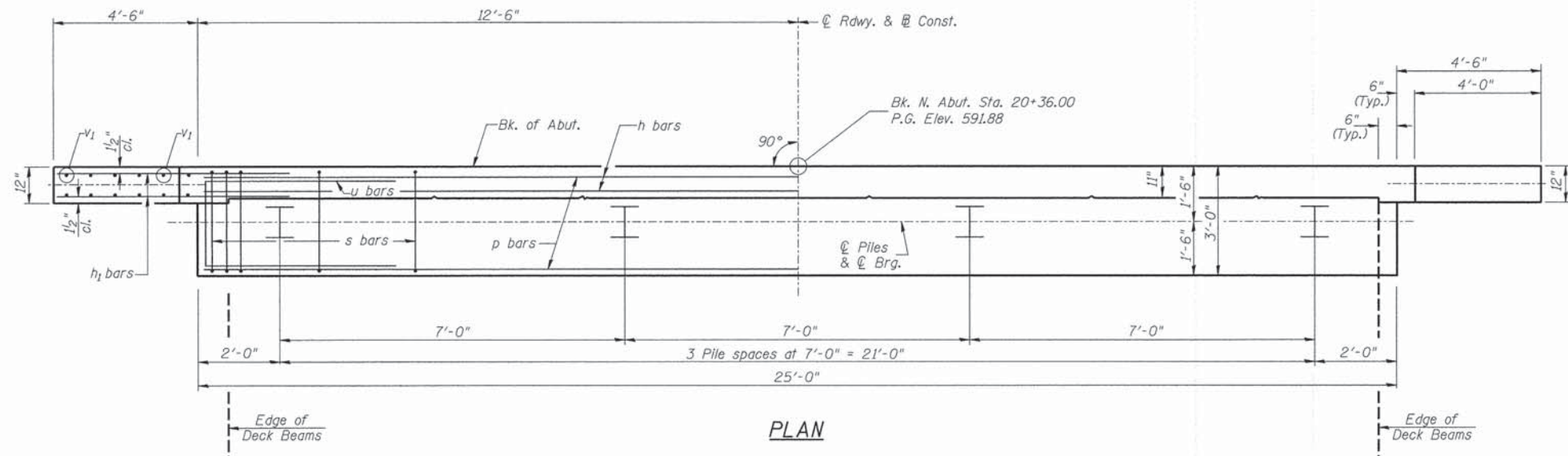
PILE DATA
 Type & Size: Steel HP10x42
 Nominal Required Bearing: 335 kips
 Factored Resistance Available: 184 kips
 Est. Length: 29'
 No. Req'd.: 4 (Includes 1 Test Pile)

NOTES
 1. The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.
 2. Reinforcement bars shall conform to ASTM A706 Grade 60.



SHEET NO. 6 8 SHEETS	ROUTE NO. TR 304	SECTION 12-17121-00-BR	COUNTY KNOX	TOTAL SHEETS 20	SHEET NO. 12
	S.N. 048-3401		CONTRACT NO. 89619		
FED. ROAD DIST. NO. 7 ILLINOIS			FED. AID PROJECT BROS-0095(134)		

**SOUTH ABUTMENT
 KNOX COUNTY
 SECTION 12-17121-00-BR
 T.R. 304 OVER SWAB RUN CREEK**



**NORTH ABUTMENT
BILL OF MATERIAL**

BAR NO.	SIZE	LENGTH	SHAPE
h	#4	24'-9"	—
h1	#4	6'-6"	—
p	#7	24'-9"	—
s	#4	10'-5"	□
u	#6	11'-7"	□
v	#4	4'-6"	—
v1	#4	8'-9"	—
Concrete Structures			CU YD 11.3
Reinforcement Bars			POUND 1,260
Structure Excavation			CU YD 35
Furnishing Steel Piles HP10x42			FOOT 84
Driving Piles			FOOT 84
Test Pile Steel HP10x42			EACH 1
Concrete Encasement			CU YD 1.4

① See Special Provisions

DESIGN STRESSES

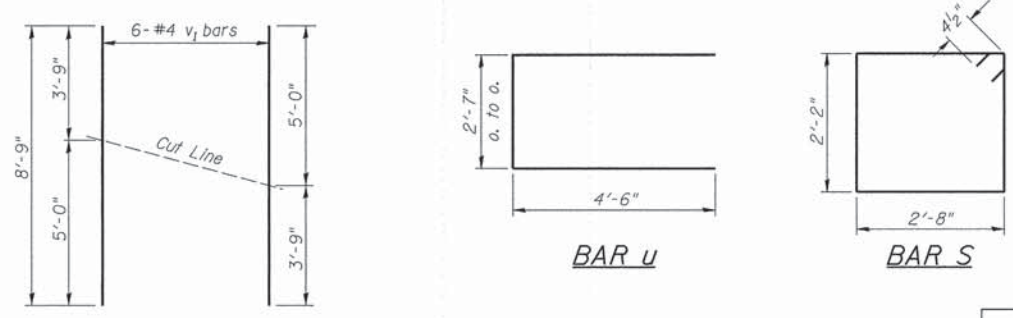
$f'_c = 3,500$ p.s.i.
 $f_y = 60,000$ p.s.i.

PILE DATA

Type & Size: Steel HP10x42
Nominal Required Bearing: 335 kips
Factored Resistance Available: 184 kips
Est. Length: 28'
No. Req'd.: 4 (Includes 1 Test Pile)

NOTES

- The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.
- Reinforcement bars shall conform to ASTM A706 Grade 60.

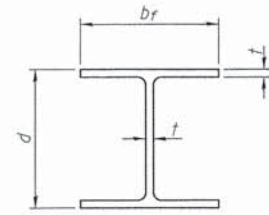


BAR CUTTING DIAGRAM

*Order v1 bars full length. Cut as shown and use remainder of bars in opposite face.

**NORTH ABUTMENT
KNOX COUNTY
SECTION 12-17121-00-BR
T.R. 304 OVER SWAB RUN CREEK**

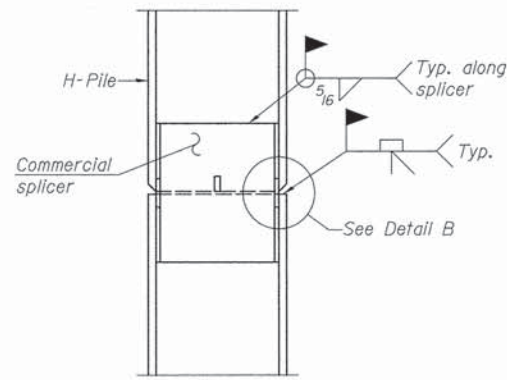
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	S.N. 048-3401		CONTRACT NO. 89619		
FED. ROAD DIST. NO. 7 ILLINOIS			FED. AID PROJECT BROS-0095(134)		



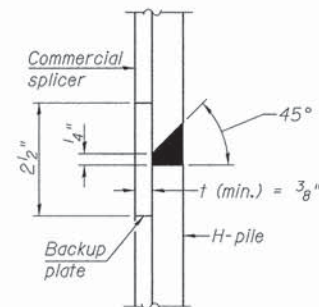
STEEL PILE TABLE

Designation	Depth d	Flange width br	Web and Flange thickness t	Encasement diameter
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"

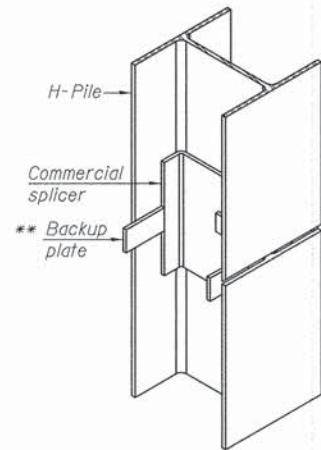
Note:
The steel H-piles shall be according to AASHTO M270 Grade 50.



ELEVATION

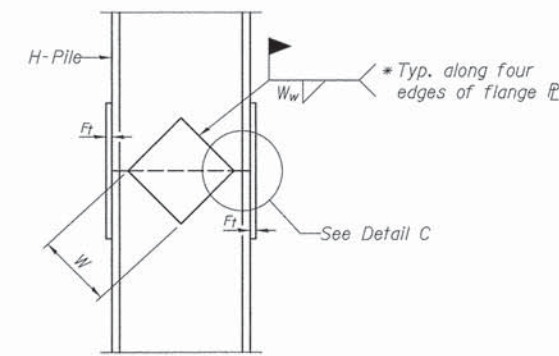


DETAIL "B"

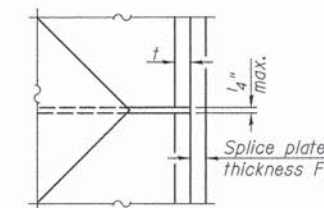


ISOMETRIC VIEW

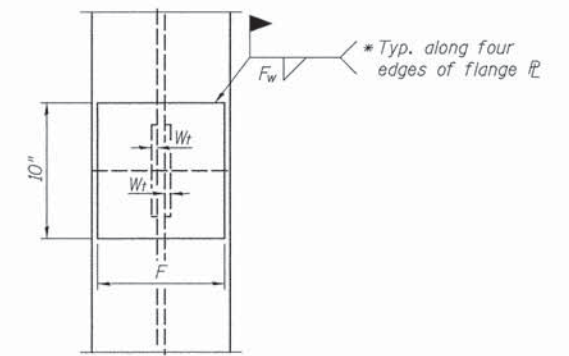
WELDED COMMERCIAL SPLICE



ELEVATION



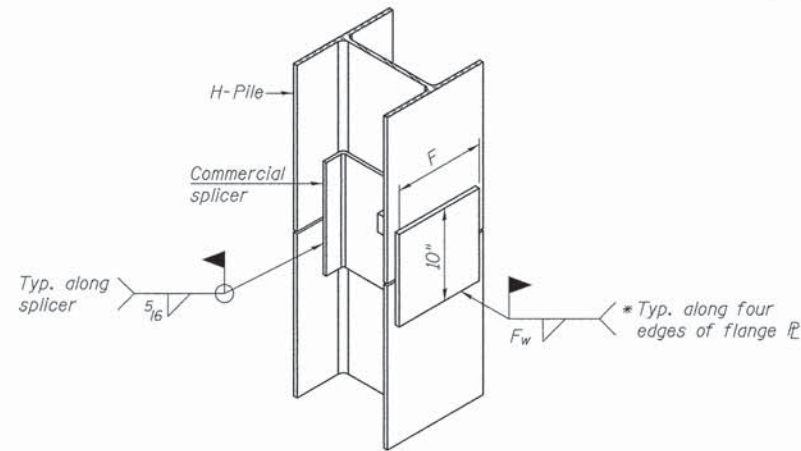
DETAIL C



END VIEW

Designation	F	Ft	Fw	W	Wt	Ww
HP 14x117	12 1/2"	1"	7/8"	7 3/4"	5/8"	1/2"
x102	12 1/2"	7/8"	3/4"	7 3/4"	5/8"	1/2"
x89	12 1/2"	3/4"	1/16"	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"

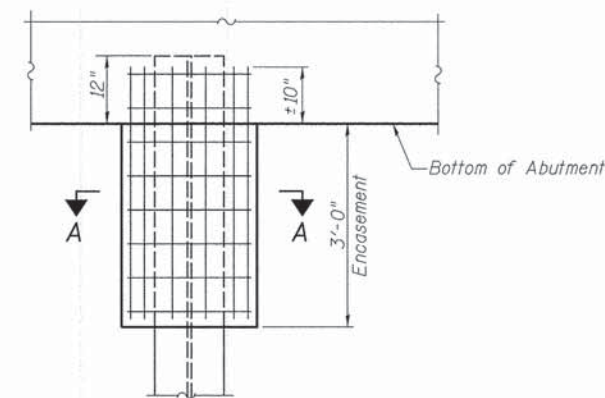
WELDED PLATE FIELD SPLICE



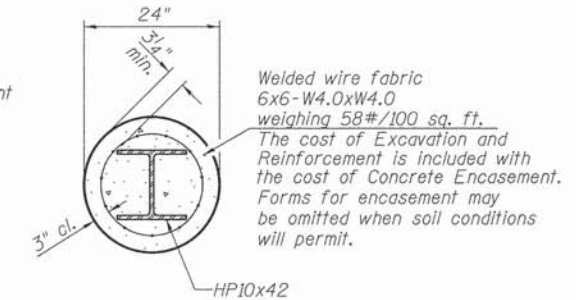
ISOMETRIC VIEW

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.



ABUTMENT ELEVATION



SECTION A-A

PILE ENCASEMENT

Welded wire fabric
6x6-W4.0xW4.0
weighing 58#/100 sq. ft.
The cost of Excavation and Reinforcement is included with the cost of Concrete Encasement. Forms for encasement may be omitted when soil conditions will permit.

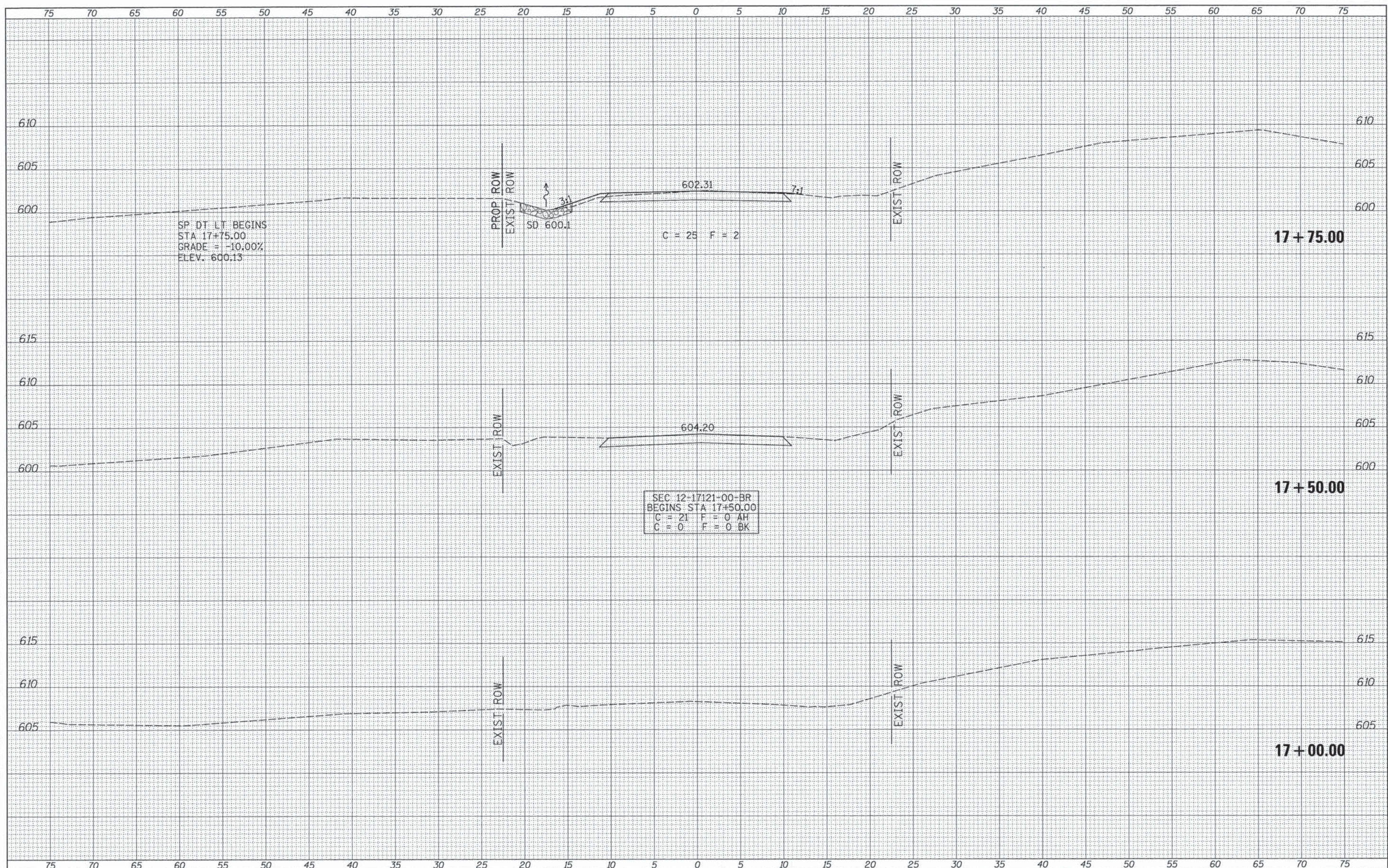
PILE DETAILS

KNOX COUNTY

SECTION 12-17121-00-BR

T.R. 304 OVER SWAB RUN CREEK

SHEET NO. 8 8 SHEETS	ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	TR 304	12-17121-00-BR	KNOX	20	14
S.N. 048-3401			CONTRACT NO. 89619		
FED. ROAD DIST. NO. 7 ILLINOIS			FED. AID PROJECT BROS-0095(134)		



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

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

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 PLOT SCALE = 5.0000' / 1"
 PLOT DATE = 2/2/2015

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

**KNOX COUNTY
 TOWNSHIP ROAD 304 OVER
 SWAB RUN CREEK**

SCALE: 1"=5'

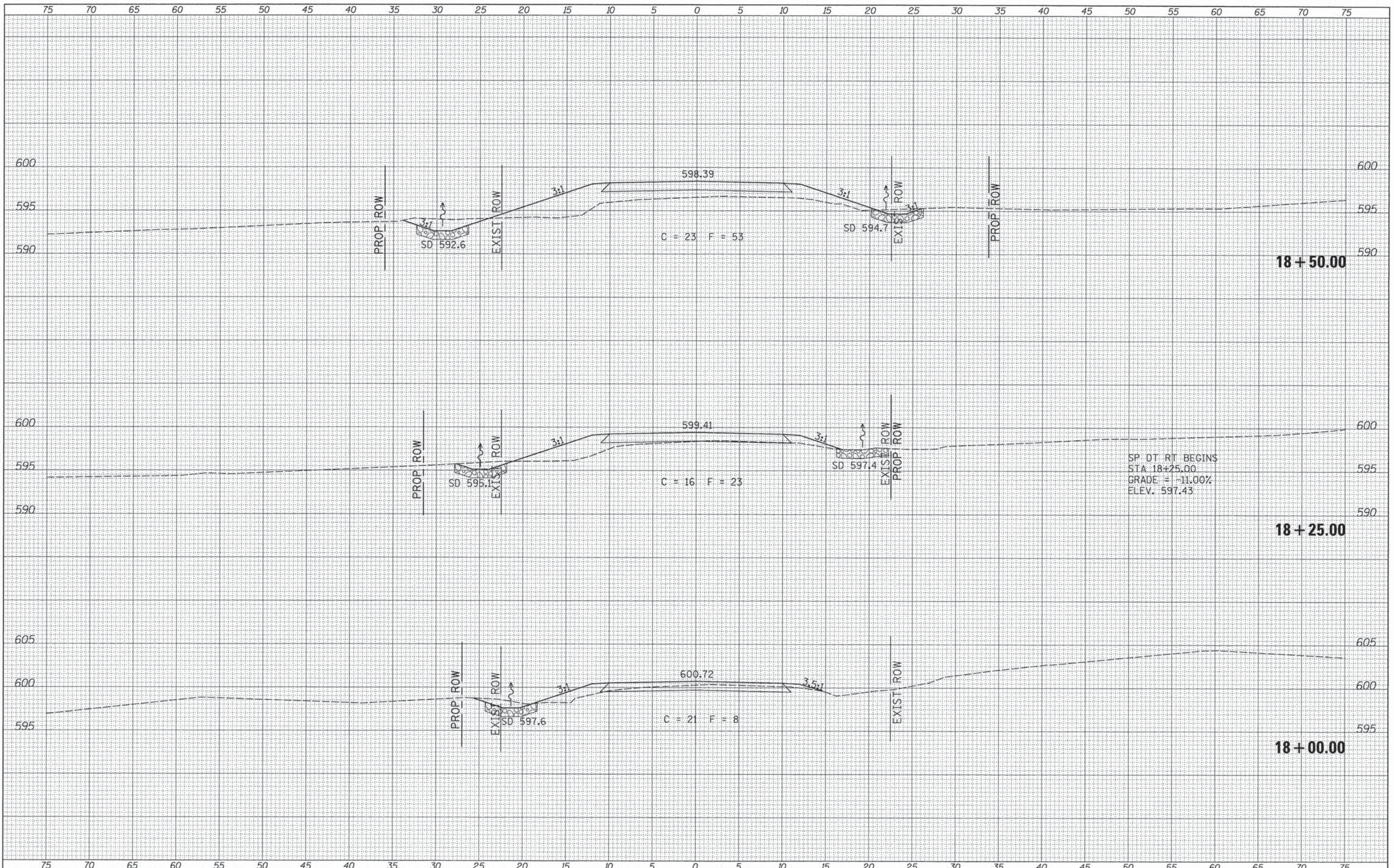
SHEET 1 OF 6 SHEETS STA. 17+00.00 TO STA. 17+75.00

CROSS SECTIONS

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 304	12-17121-00-BR	KNOX	20	15
FED. ROAD DIST. NO. 7 ILLINOIS			CONTRACT NO. 89619	
FED. AID PROJECT BR05-0095(134)				

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

DATE	
BY	
ORIGINAL SURVEY	
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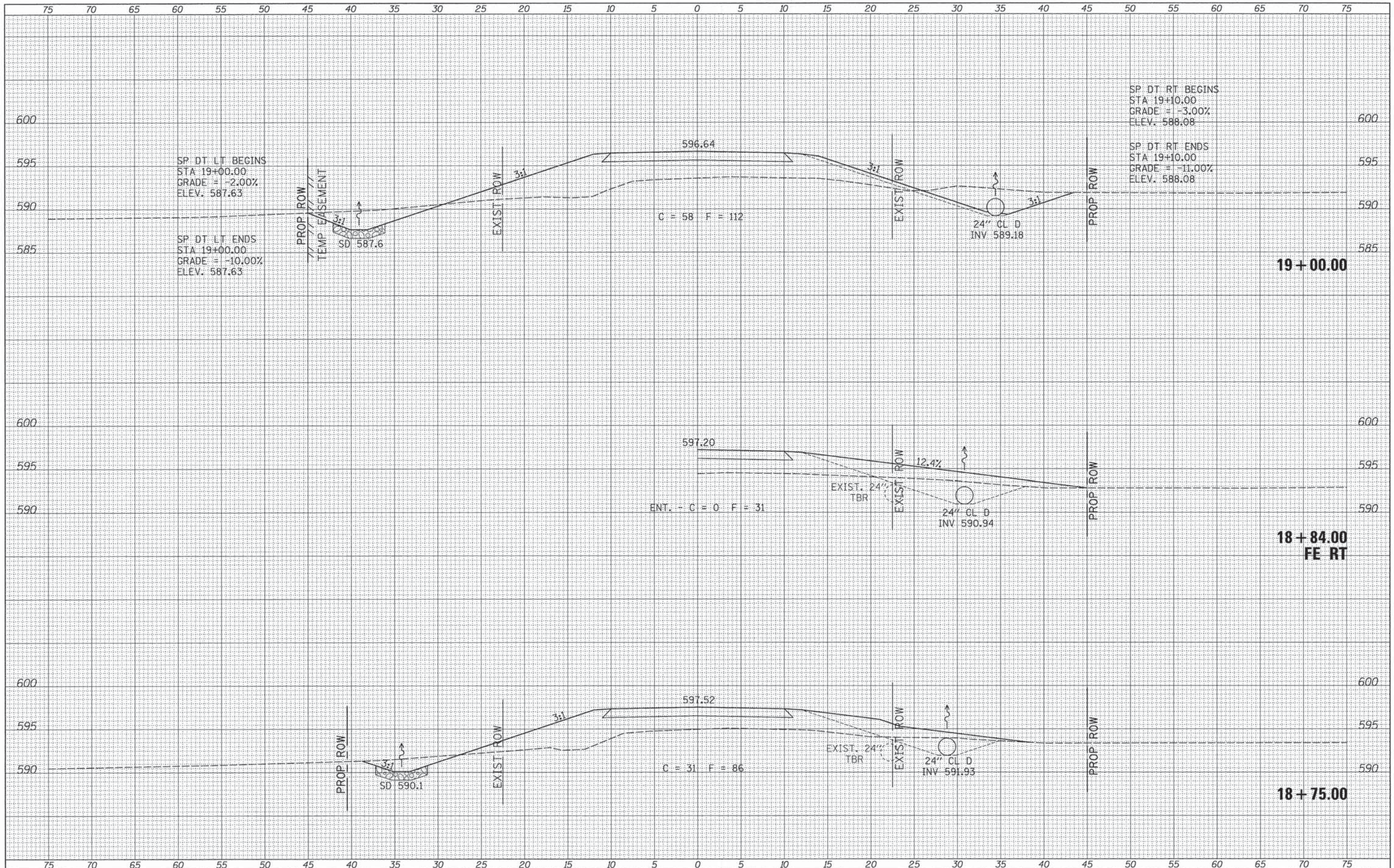
SP DT RT BEGINS
 STA 18+25.00
 GRADE = -11.00%
 ELEV. 597.43

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PLOT DATE = 2/2/2015	DATE -	REVISED -	CONTRACT NO. 89619							
Default			FED. ROAD DIST. NO. 7 (ILLINOIS) FED. AID PROJECT BROS-0095(134)							

SCALE: 1"=5' SHEET 2 OF 6 SHEETS STA. 18+00.00 TO STA. 18+50.00

DATE	
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DESIGNED	
DRAWN	
CHECKED	
DATE	
REVISIONS	
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DESCRIPTION	

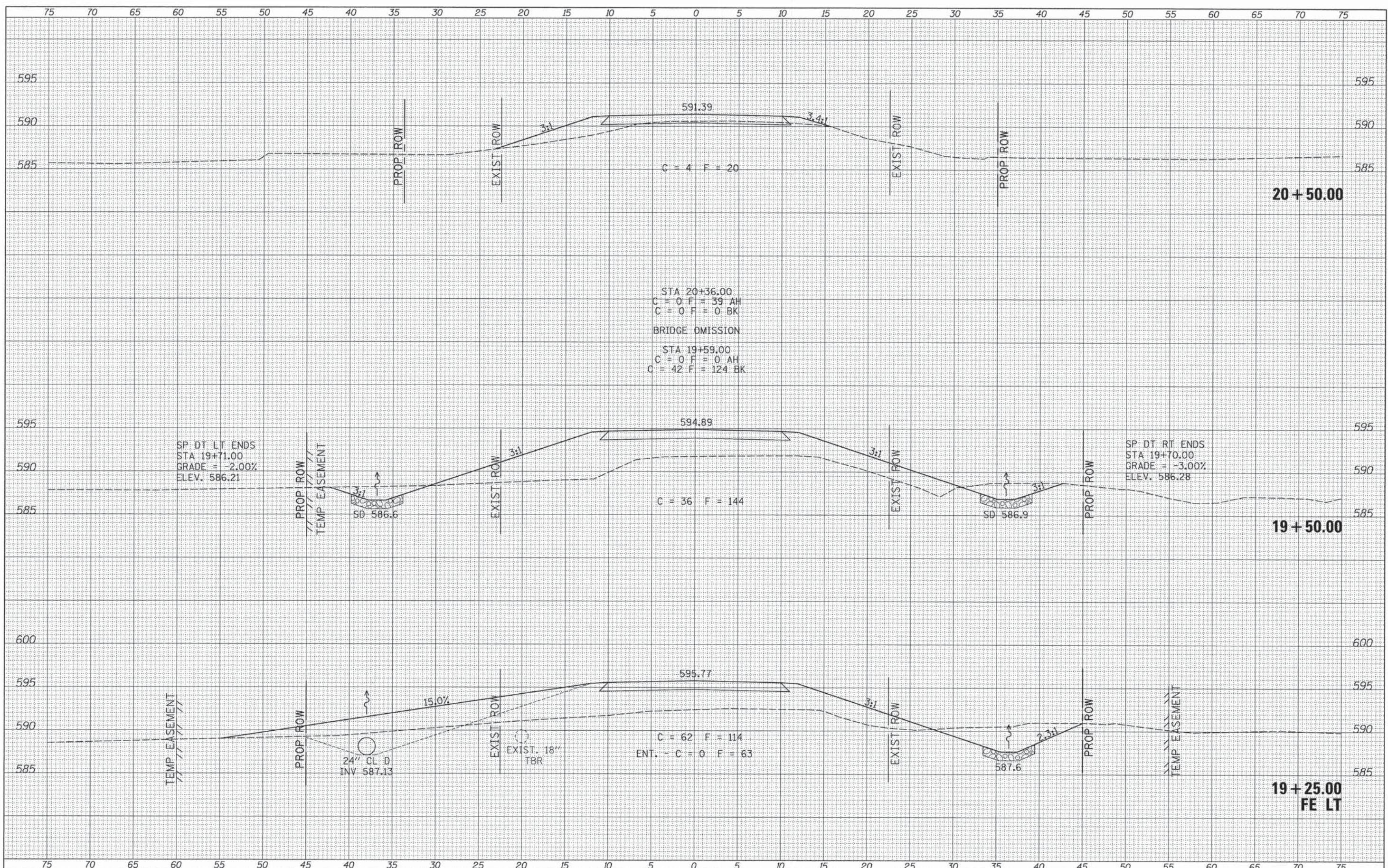
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DATE	
REVISIONS	
NO.	
DESCRIPTION	



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PLOT DATE = 2/2/2015		DATE -	REVISED -			FED. ROAD DIST. NO. 7 ILLINOIS		CONTRACT NO. 89619		FED. AID PROJECT BROS-0095(134)	

DATE	
BY	
SURVEYED	
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NOTE BOOK	
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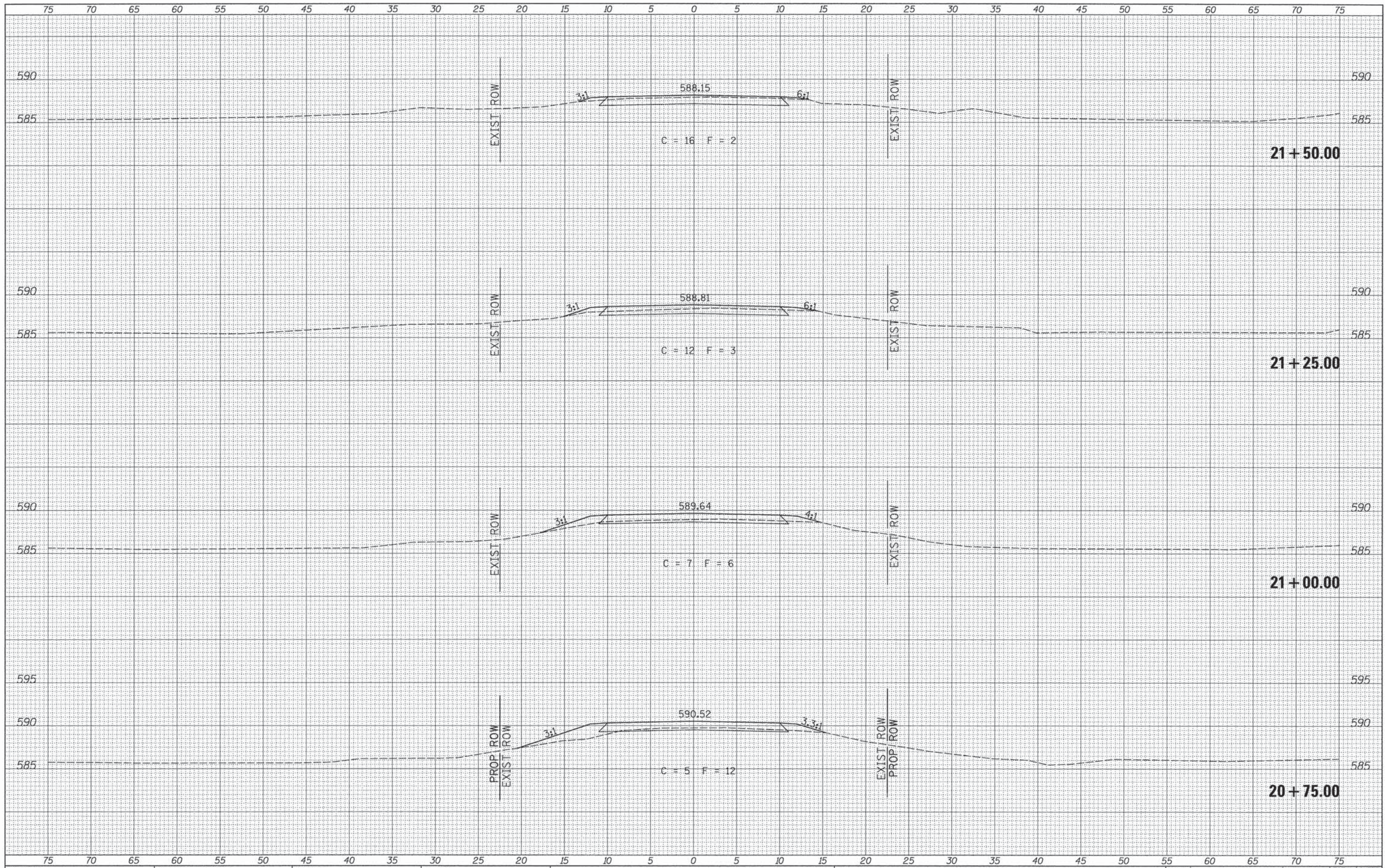
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PLOT DATE = 2/2/2015	DATE -	REVISED -

**KNOX COUNTY
 TOWNSHIP ROAD 304 OVER
 SWAB RUN CREEK**

CROSS SECTIONS
 SCALE: 1"=5'
 SHEET 4 OF 6 SHEETS
 STA. 19+25.00 TO STA. 20+50.00

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 304	12-17121-00-BR	KNOX	20	18
FED. ROAD DIST. NO. 7 (ILLINOIS)			FED. AID PROJECT BR05-00950340	



DATE	BY
SURVEYED	PLOTTED
NO. _____	DATE _____
AREAS CHECKED	

DATE	BY
ORIGINAL SURVEY	PLOTTED
NO. _____	DATE _____
AREAS CHECKED	

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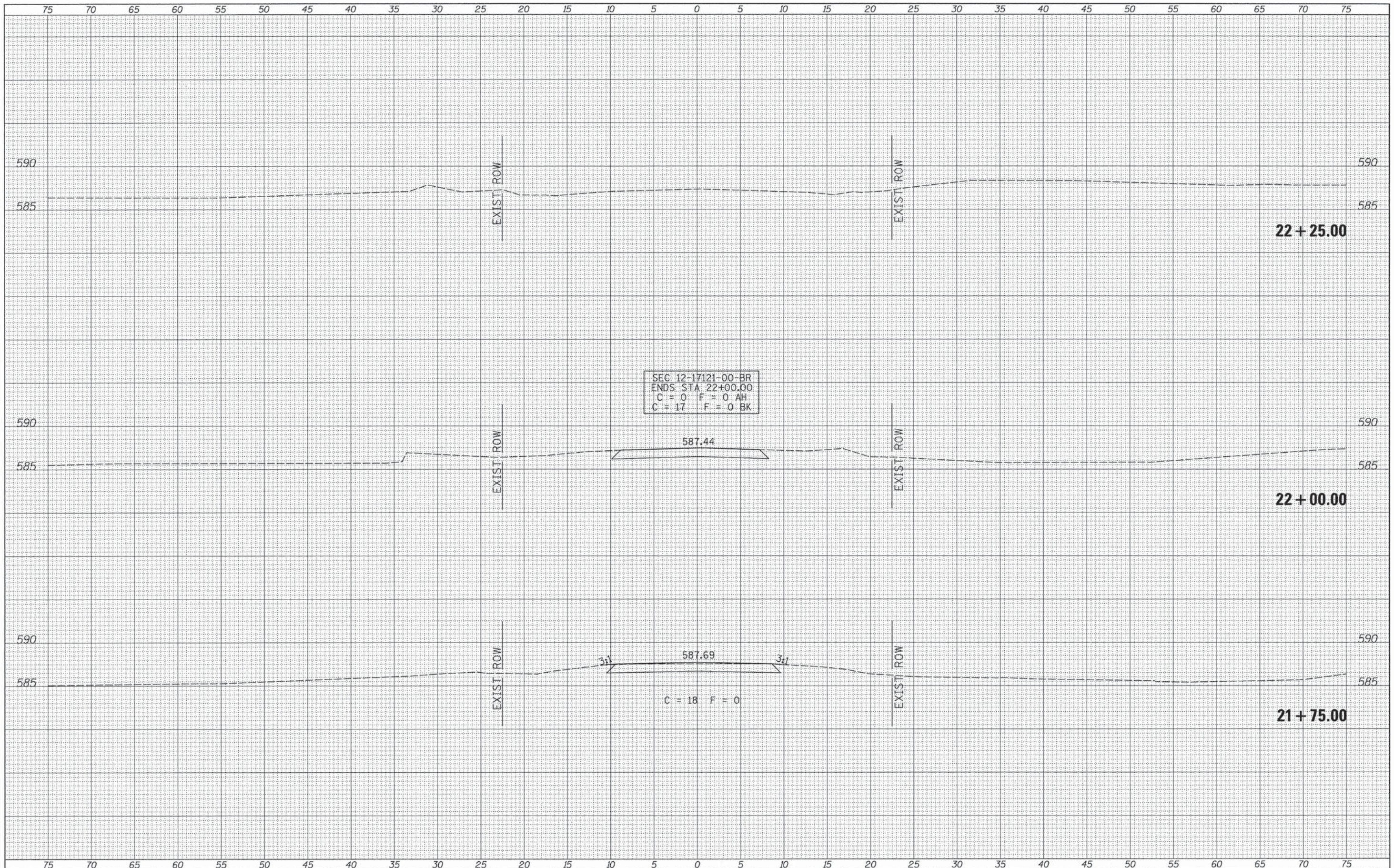
**KNOX COUNTY
 TOWNSHIP ROAD 304 OVER
 SWAB RUN CREEK**

CROSS SECTIONS
 SCALE: 1"=5' SHEET 5 OF 6 SHEETS STA. 20+75.00 TO STA. 21+50.00

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 304	12-17121-00-BR	KNOX	20	19
FED. ROAD DIST. NO. 7 ILLINOIS			FED. AID PROJECT BROS-0095(134)	

DATE	
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Default	PLOT SCALE = 5.0000' / 1"	DRAWN -	REVISED -		SCALE: 1"=5'	SHEET 6	OF 6 SHEETS	TR 304	12-17121-00-BR	KNOX	20	20
	PLOT DATE = 2/2/2015	CHECKED -	REVISED -		STA. 21+75.00	TO STA. 22+25.00	FED. ROAD DIST. NO. 7	ILLINOIS				
		DATE -	REVISED -									FED. AID PROJECT BROS-0095(134)