

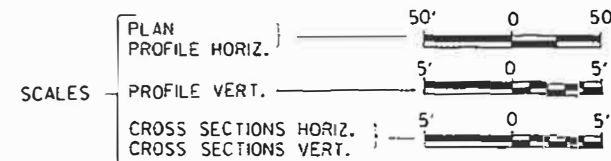
03-08-2019 LETTING ITEM 179

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED
SURFACE TRANSPORTATION PROGRAM-BRIDGE
UNION COUNTY
SECTION 17-01208-00-BR
TOWNSHIP ROAD 116 OVER DUTCH CREEK
PROJECT NO. 4KCS(772)
JOB NUMBER C-99-036-18**

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 116	17-01208-00-BR	UNION	19	1
FED. ROAD DIST. NO. 7		ILLINOIS	CONTRACT NO. 99611	

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1.	COVER SHEET
2.	GENERAL NOTES, TYPICAL SECTIONS, DETAILS
3.	SUMMARY OF QUANTITIES, SCHEDULES OF QUANTITIES
4.	PLAN AND PROFILE
5. -12.	STRUCTURE PLANS
13. -19.	CROSS SECTIONS



SECTION 17-01208-00-BR ENDS STATION 22+25.00

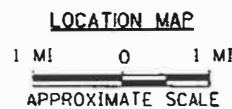
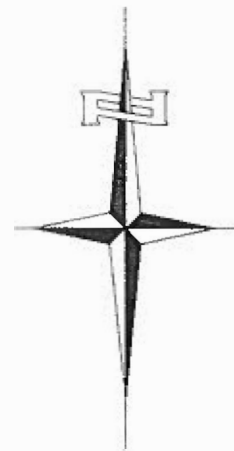
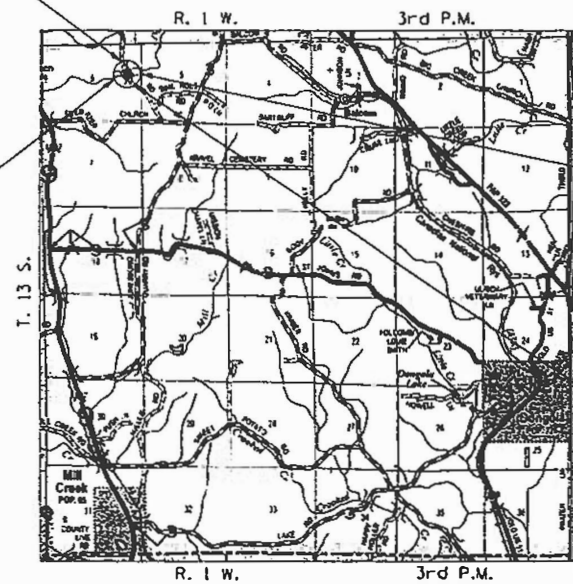
REQUIRED HIGHWAY STANDARDS

- 000001-07
- 515001-03
- 630301-09
- 701901-08
- 725001-01
- BLR 21-9
- BLR 26-3
- BLR 27-1

PROPOSED STRUCTURE SN 091-3247
SINGLE SPAN 17" PPC DK BM SUPERSTRUCTURE ON CONCRETE SPILL THRU PILE BENT ABUTMENTS, 46'-0" BK TO BK, AND 24'-0" O TO O DECK, NO SKEW.

EXISTING STRUCTURE SN 091-3153
SINGLE SPAN STEEL STRINGER SUPERSTRUCTURE WITH A TIMBER DECK ON A TIMBER PILE BENT ABUTMENT (NORTH) AND A CONCRETE CAP ON A TIMBER PILE BENT ABUTMENT (SOUTH) ±37'-0" BK TO BK, ±12'-9" O TO O, NO SKEW, ITO BE REMOVED

SECTION 17-01208-00-BR BEGINS STATION 17+75.00



NET LENGTH OF PROJECT = 450.00 FEET = 0.085 MILES
DESIGN CLASSIFICATION: LOCAL ROAD (NON-URBAN)
DESIGN ADT = 30 (2019)
DESIGN SPEED: 20 MPH
3R DESIGN GUIDELINES ARE USED

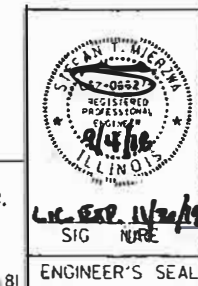
UTILITY COMPANIES

SOUTHWATER, INC.
TAMMS, ILLINOIS

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

CONTRACT NO. 99611

Hutchison Engineering, Inc.
JACKSONVILLE-SHOREWOOD
PEORIA-QUAD CITIES



APPROVED August 30, 2018
Shirley Frammer
UNION COUNTY ENGINEER

PASSED September 26, 2018
Paul J. Meyer
DISTRICT NINE ENGINEER OF LOCAL ROADS & STREETS

Released For Bid Based on Limited Review September 26, 2018
Jeffrey A. Meyer
REGISTERED PROFESSIONAL ENGINEER
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

481-E001

GENERAL NOTES

PLAN QUANTITIES FOR TREE REMOVAL HAVE BEEN BASED ON ALL TREES WITHIN THE EXISTING RIGHT OF WAY. THIS QUANTITY MAY BE REVISED DURING CONSTRUCTION, AT THE DIRECTION OF THE ENGINEER, BY DELETING FROM THE TREE REMOVAL QUANTITIES, SUCH TREES THAT DO NOT INTERFERE WITH THE PROPOSED CONSTRUCTION.

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 BY THE CONTRACTOR THAT ARE DAMAGED DURING CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

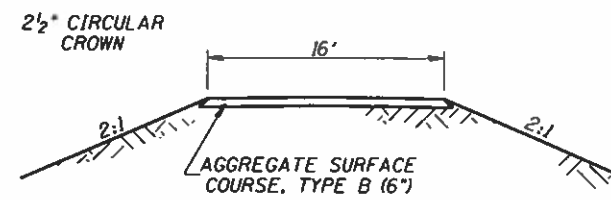
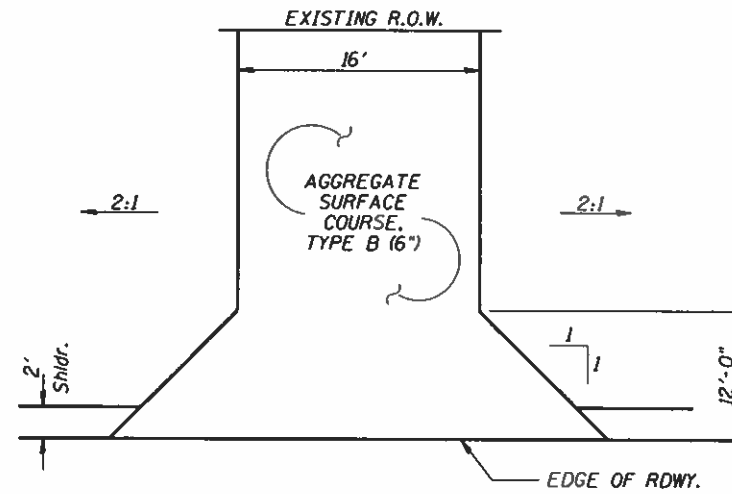
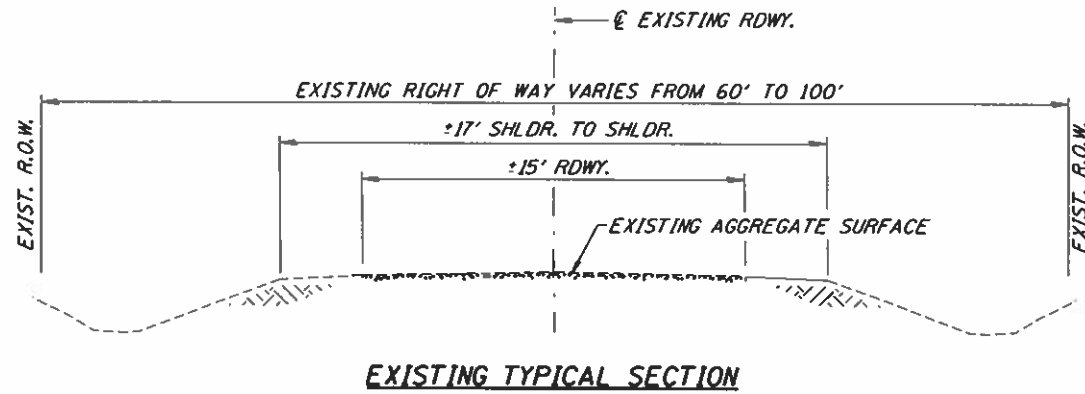
ANY REFERENCE TO STANDARDS THROUGHOUT THE PLANS SHALL BE INTERPRETED TO BE THE LATEST STANDARDS OF THE ILLINOIS DEPARTMENT OF TRANSPORTATION.

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.

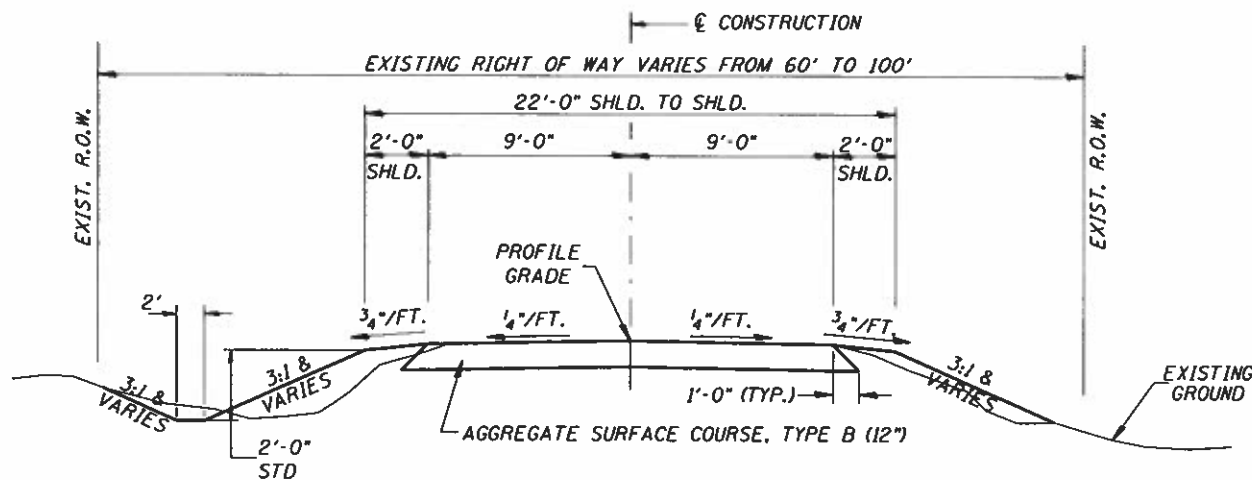
THE CONTRACTOR MAY BE REQUIRED TO CONDUCT SOME OF HIS GRADING AND TRENCHING OPERATIONS AROUND TRANSMISSION POLES AND UNDER TRANSMISSION LINES. THE ADDED COST OF SO DOING SHALL BE INCLUDED IN THE COST OF EARTH EXCAVATION.

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.



FIELD ENTRANCE
STA 20+50 RT



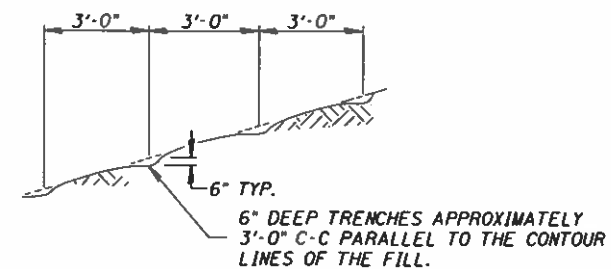
CONSTRUCT GUARDRAIL
SHOULDER WIDENING IN
ACCORDANCE WITH STD 630301

PROPOSED TYPICAL SECTION

STA. 17+75.00 TO STA. 19+80.00
STA. 20+26.00 TO STA. 22+25.00

EXCEPT TRANSITIONS

BRIDGE OMISSION
STA. 19+80.00 TO STA. 20+26.00



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

FILE NAME = V:\4181 - TR 116 over Dutch Creek (Union)	USER NAME = SMarzo	DESIGNED =	REVISED =	UNION COUNTY TOWNSHIP ROAD 116 OVER DUTCH CREEK	GENERAL NOTES, TYPICAL SECTIONS, DETAILS							
CADD\CADD Sheets\4181-481.dgn	PLOT SCALE = 2.0000" = 1'	DRAWN =	REVISED =		SCALE: NONE	SHEET NO. 1 OF 1 SHEETS	STA. 17+75.00 TO STA. 22+25.00	RT. TR 116	SECTION 17-01208-00-BR	COUNTY UNION	TOTAL SHEETS 19	SHEET NO. 2
PLOT DATE = 8/30/2018	DATE =	CHECKED =	REVISED =					CONTRACT NO. 99611				
								FED. ROAD DIST. NO. 1 ILLINOIS		FED. AID PROJECT NO. 4KCS1772		

SUMMARY OF QUANTITIES

CODE NO.	ITEM	UNIT	QUANTITY
① 20100110	TREE REMOVAL (6 TO 15 UNITS DIAMETER)	UNIT	192
① 20100210	TREE REMOVAL (OVER 15 UNITS DIAMETER)	UNIT	456
20200100	EARTH EXCAVATION	CU YD	415
20300100	CHANNEL EXCAVATION	CU YD	50
20400800	FURNISHED EXCAVATION	CU YD	200
① 40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	565
① 50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50105220	PIPE CULVERT REMOVAL	FOOT	54
50200100	STRUCTURE EXCAVATION	CU YD	40
50300225	CONCRETE STRUCTURES	CU YD	20.6
50300280	CONCRETE ENCASEMENT	CU YD	6.2
50400305	PRECAST PRESTRESSED CONCRETE DECK BEAMS (17" DEPTH)	SQ FT	1,060
50800105	REINFORCEMENT BARS	POUND	2,540
Δ 50900205	STEEL RAILING, TYPE S1	FOOT	92
51201400	FURNISHING STEEL PILES HP10X42	FOOT	104
51500100	NAME PLATES	EACH	1
54200220	PIPE CULVERTS, CLASS D, TYPE 1 15"	FOOT	40
Δ 63100075	TRAFFIC BARRIER TERMINAL, TYPE 5A	EACH	1
Δ 63100167	TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT	EACH	1
67100100	MOBILIZATION	L SUM	1
Δ 72501000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
① X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.6
① X2810210	STONE RIPRAP, CLASS A5 (SPECIAL)	TON	305
① Z0065000	SETTING PILES IN ROCK	EACH	8

① SEE SPECIAL PROVISIONS

Δ SPECIALTY ITEMS

PIPE CULVERT REMOVAL

STATION	SIZE	SIDE	FOOT
20+36	12"	℄	54
TOTAL			54

TRAFFIC BARRIER TERMINAL, TYPE 5A

SIDE	STATION TO STATION	EACH
LEFT	20+26.00 - 20+39.13	1
TOTAL		1

PIPE CULVERTS, CLASS D, TYPE 1 15"

STATION	SIDE	FOOT
20+50	RIGHT	40
TOTAL		40

TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT

SIDE	STATION TO STATION	EACH
LEFT	20+39.13 - 20+88.03	1
TOTAL		1

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+75.00 - 19+80.00	340			236	19
RDWY 20+26.00 - 22+25.00	77			278	(220)
CHANNEL		50			
STRUCTURE			40		
TOTAL	417	50	40	514	(201)
USE	415	50	40	-	(200)

(@ 25% SHRINKAGE)

AGGREGATE SURFACE COURSE, TYPE B

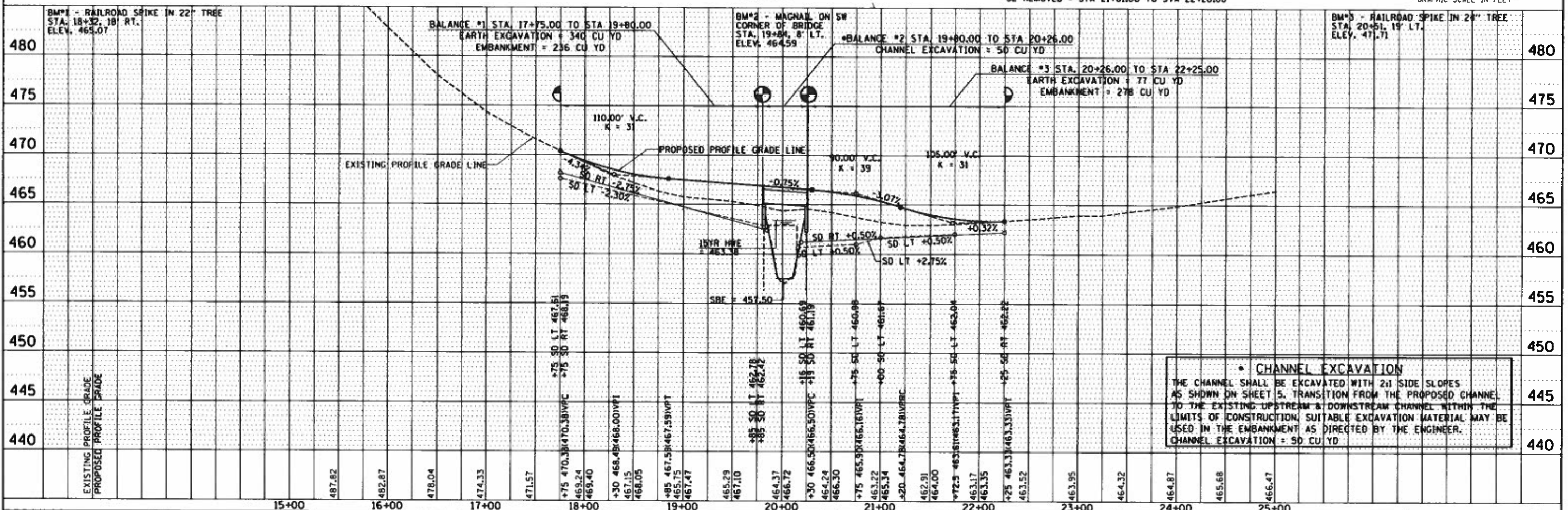
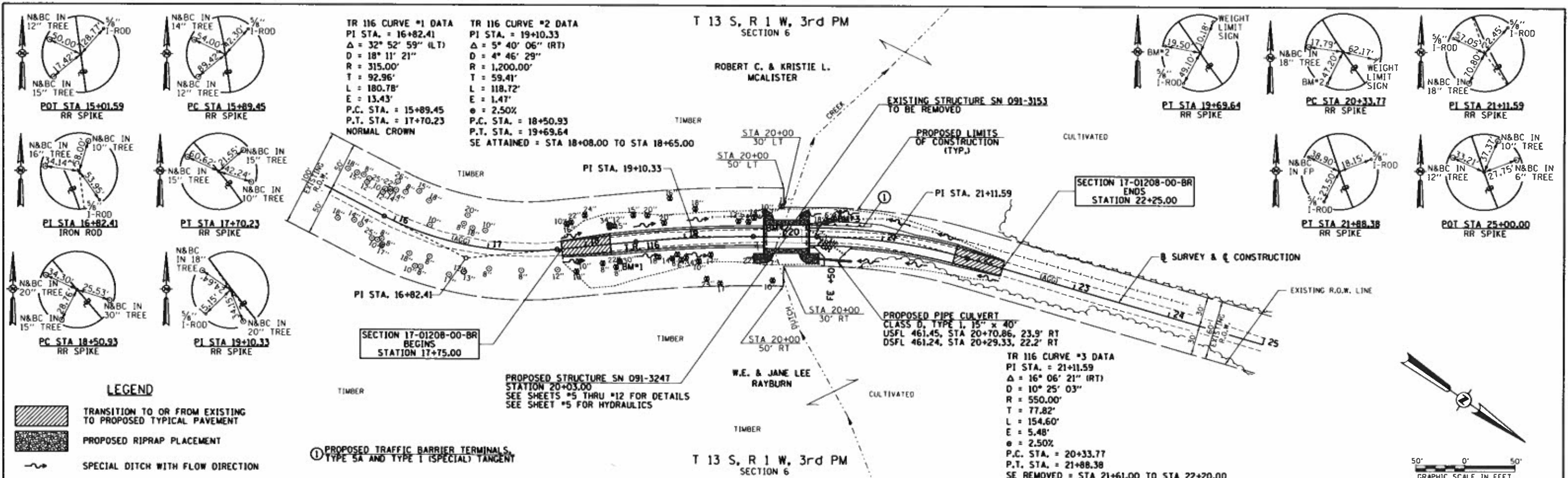
STATION TO STATION	THICKNESS	WIDTH	LENGTH	TON
17+75.00 - 18+25.00	1.00'	17.09' AVG.	50.00'	60
18+25.00 - 19+80.00	1.00'	19.00'	155.00'	206
ABUTMENT BACKFILL - SEE SPECIAL PROVISIONS				
20+26.00 - 21+75.00	1.00'	19.00'	149.00'	198
21+75.00 - 22+25.00	1.00'	17.31' AVG.	50.00'	61
ENTRANCE - 20+50 RT	0.50'	16' & VAR.	21.00'	17
TOTAL				565

TREE REMOVAL

STATION	OFFSET	SIDE	6 TO 15 UNITS	OVER 15 UNITS
17+82	25'	LEFT	10	
17+83	25'	LEFT		16
17+87	26'	LEFT		22
17+88	24'	RIGHT	10	
17+91	14'	RIGHT	10	
18+02	32'	LEFT		24
18+15	19'	RIGHT	8	
18+26	20'	LEFT		34
18+26	17'	LEFT	12	
18+28	24'	RIGHT	8	
18+30	18'	LEFT	15	
18+32	18'	RIGHT		22
18+33	19'	RIGHT		30
18+51	27'	LEFT	15	
18+65	26'	LEFT		20
18+73	17'	RIGHT		18
18+81	17'	LEFT		20
18+86	20'	RIGHT	14	
18+88	42'	LEFT		16
18+92	16'	RIGHT	8	
18+96	22'	RIGHT	6	
19+00	20'	RIGHT		34
19+12	29'	LEFT		18
19+13	24'	RIGHT	10	
19+21	42'	RIGHT		24
19+26	18'	RIGHT		17
19+35	47'	RIGHT		17
19+55	16'	LEFT	12	
19+65	15'	LEFT		24
19+70	19'	LEFT	14	
19+71	21'	RIGHT		22
19+81	25'	LEFT	10	
19+82	24'	LEFT	7	
19+86	21'	RIGHT	7	
19+89	45'	RIGHT	10	
19+98	31'	LEFT		16
20+42	15'	LEFT		18
20+45	17'	LEFT	6	
20+50	20'	LEFT		20
20+51	19'	LEFT		24
TOTAL			192	456

DATE: _____
 BY: _____
 CHECKED: _____
 DATE: _____

DATE: _____
 BY: _____
 CHECKED: _____
 DATE: _____



FILE NAME: V:\4181 - TR 116 over Dutch Creek (Union) CAD	USER NAME: SMarzke	DESIGNED: _____	REVISED: _____	UNION COUNTY TOWNSHIP ROAD 116 OVER DUTCH CREEK	PLAN AND PROFILE	SCALE: 1"=50'	SHEET 1 OF 1 SHEETS	STA. 17+75.00 TO STA. 22+25.00	RT. SECTION COUNTY TOTAL SHEETS SHEET NO. TR 116 17-01208-00-BR UNION 19 4	
MODEL NAME: _____	PLOT SCALE: 1/8"=1'-0"	CHECKED: _____	REVISED: _____			CONTRACT NO. 99611			FED. ROAD DIST. NO. 7 (ILLINOIS)	FED. AID PROJECT NO. 4KCS972D
DATE: 8/28/2018	DATE: _____	DATE: _____	DATE: _____							

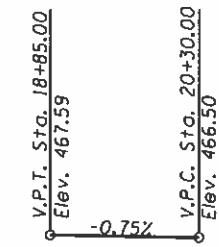
B.M.: RR Spike in 22" Tree
Sta. 18+32, 18' RI.
Elev. 465.07

RR Spike in 24" Tree
Sta. 20+51, 19' LI.
Elev. 471.71

Existing Structure:
Single span steel stringer superstructure with a timber deck. The north abutment consists of a timber pile bent abutment and the south abutment consists of a concrete cap on a timber pile bent abutment. The structure is ±37'-0" back to back of abutments, ±12'-9" out to out deck, and is not skewed.
Str. No. 091-3153

Salvage: See Special Provisions

Road to be closed to traffic during construction.



PROFILE GRADE

**DUTCH CREEK
BUILT 20... BY
UNION COUNTY
SEC. 17-01208-00-BR
T.R. 116 STATION 20+03.00
F.A. PROJ. NO. 4KCS1772
STR. NO. 091-3247 LOADING HL-93**

NAME PLATE

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

GENERAL NOTES

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)(10) 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.
The top surface of the beams shall be finished according to the IDOT Manual for Fabrication of Precast Prestressed Concrete Products.
The existing structural steel coating may contain lead. The contractor should take appropriate precautions to deal with the presence of lead on this project.
The substructure piles shall be oriented so that the pile flanges are parallel with the proposed profile grade line.

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	CU YD	—	50	50
① Stone Riprap, Class A5 (Special)	TON	—	305	305
① Removal of Existing Structures	EACH	—	—	1
Structure Excavation	CU YD	—	40	40
Concrete Structures	CU YD	—	20.6	20.6
Precast Prestressed Concrete Deck Beams (17" Depth)	SQ FT	1,060	—	1,060
Reinforcement Bars	POUND	—	2,540	2,540
Steel Railing, Type S1	FOOT	92	—	92
Furnishing Steel Piles HP10x42	FOOT	—	104	104
① Setting Piles in Rock	EACH	—	8	8
Concrete Encasement	CU YD	—	6.2	6.2
Name Plates	EACH	—	1	1
Terminal Marker - Direct Applied	EACH	3	—	3

① See Special Provisions

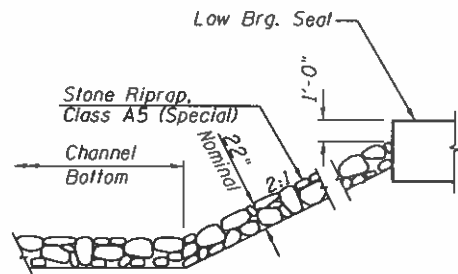
I certify that to the best of my knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current AASHTO Standard Specification for Highway Bridges.
This design complies with all requirements of the current AASHTO Guide Specifications for Seismic Design of highway bridges.

Greg J. Moran
Illinois Structural No. 7999
Expires 11/30/2018

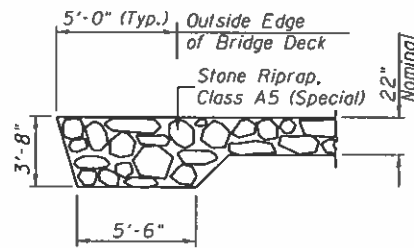


Lic Exp. 11/30/2018

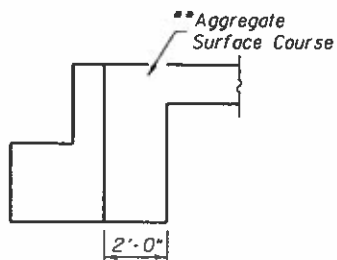
**GENERAL PLAN & ELEVATION
UNION COUNTY
SECTION 17-01208-00-BR
TOWNSHIP ROAD 116
OVER DUTCH CREEK**



STONE RIPRAP DETAIL



SECTION A-A



SECTION B-B

**See Special Provisions for gradation requirements.

CURVE DATA #2

PI STA. = 19+10.33
Δ = 5° 40' 06" (RT)
D = 4° 46' 29"
R = 1,200.00'
T = 59.41'
L = 118.72'
E = 1.47'
e = 2.50%
P.C. STA. = 18+50.93
P.T. STA. = 19+69.64
SE ATTAINED = STA 18+08.00 TO STA 18+65.00

OVER-THE-ROAD AREA

Freq. Yr.	Existing	Proposed
15	41	2
100	125	45

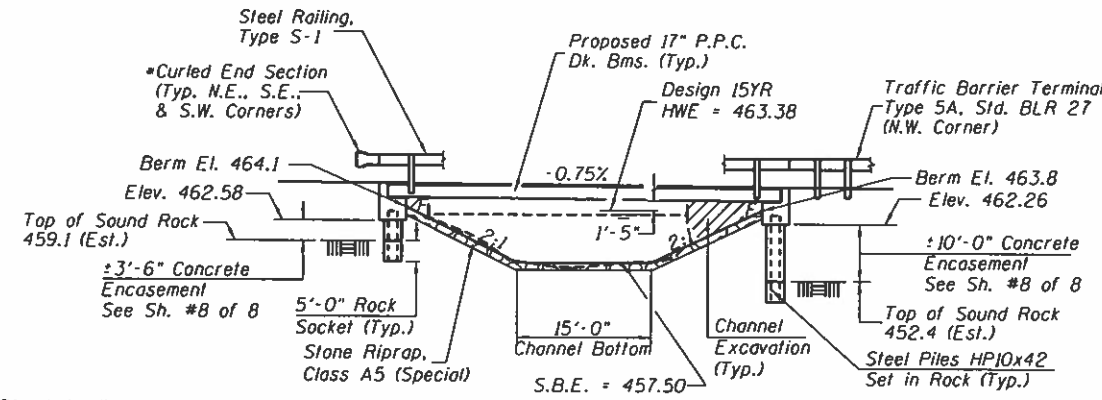
DESIGN SCOUR TABLE

Location	S. Abut.	N. Abut.
Design Scour Elevation	462.58	462.26

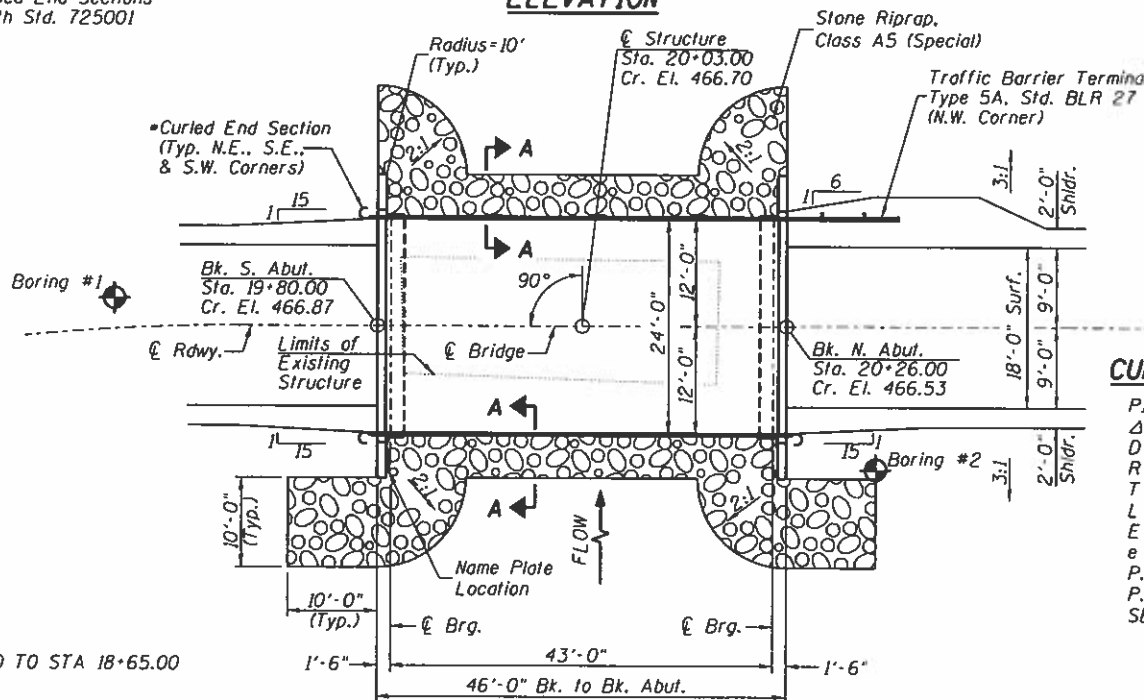
WATERWAY INFORMATION

Drainage Area = 1.47 Sq. Mi.		Low Grade Elev. = 463.32 @ Sta. 22+14.21					
Flood	Freq. Yr.	C.F.S.	Opening	Nat. H.W.E.	Head - Ft.	Headwater El.	
			Sq. Ft.				
Design	15	1,132	129	160	463.38	0.44	0.47
Base	100	1,778	129	178	463.85	0.60	0.68
					464.45	463.85	464.53

DESIGNED	S.T.M.
CHECKED	C.T.M.
DRAWN	S.T.M.
CHECKED	C.T.M.



ELEVATION



PLAN

CURVE DATA #3

PI STA. = 21+11.59
Δ = 16° 06' 21" (RT)
D = 10° 25' 03"
R = 550.00'
T = 77.82'
L = 154.60'
E = 5.48'
e = 2.50%
P.C. STA. = 20+33.77
P.T. STA. = 21+88.38
SE REMOVED = STA 21+61.00 TO STA 22+20.00

DESIGN SPECIFICATIONS

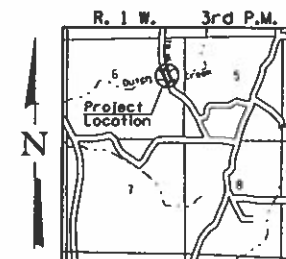
2017 AASHTO LRFD Bridge Design Specifications, 8th Edition

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'ci = 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)

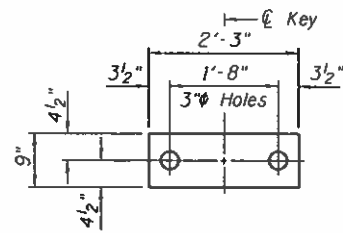
LOADING HL-93

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

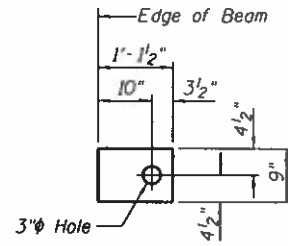


LOCATION SKETCH

SHEET NO. 1	ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	TR 116	17-01208-00-BR	UNION	19	5
8 SHEETS	S.N. 091-3247		CONTRACT NO. 99611		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT NO. 4KCS1772		

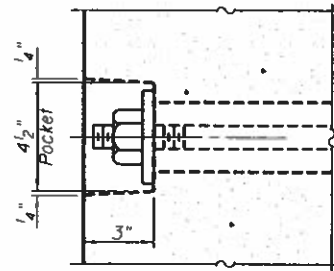


1/2" FABRIC BEARING PAD
(Interior) 10 required

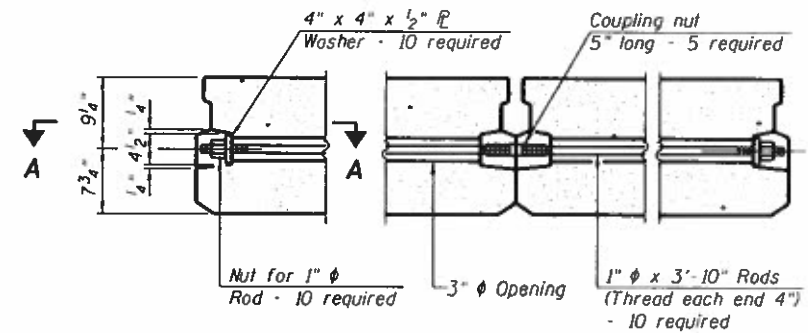


1/2" FABRIC BEARING PAD
(Exterior) 4 required

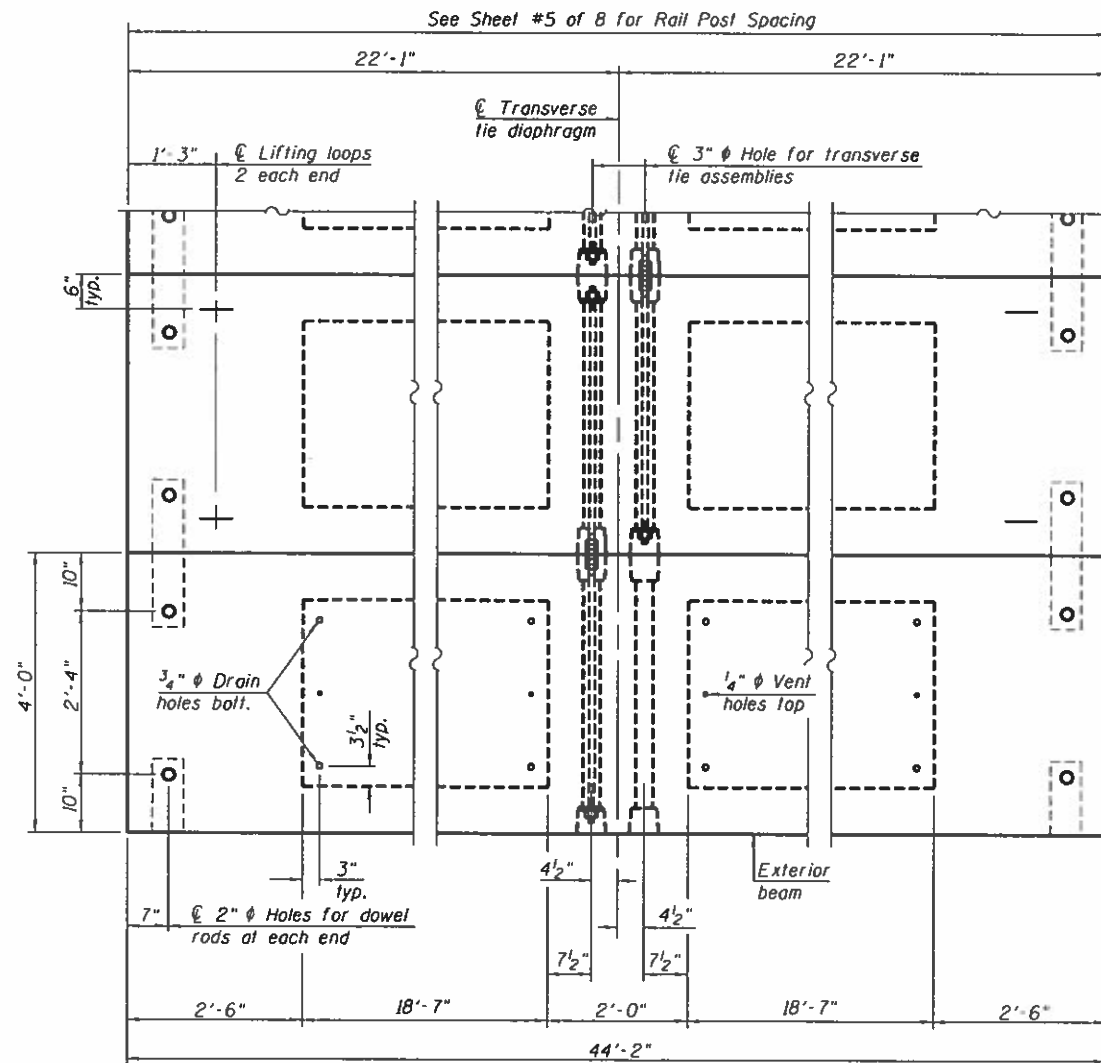
FIXED



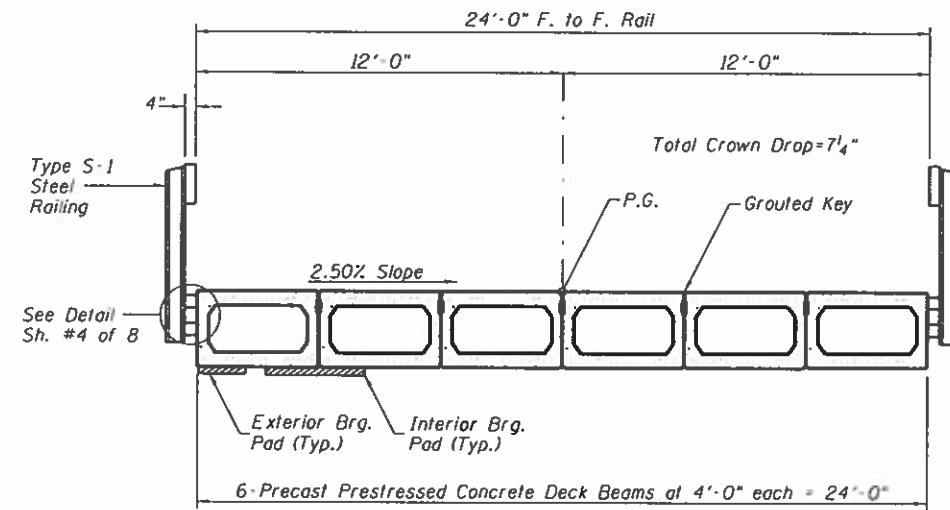
SECTION A-A



TYPICAL TRANSVERSE TIE ASSEMBLY



PLAN VIEW



CROSS SECTION
(Looking North)

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Precast Prestressed Concrete Deck Beams (17" Depth)	SO FT	1,060

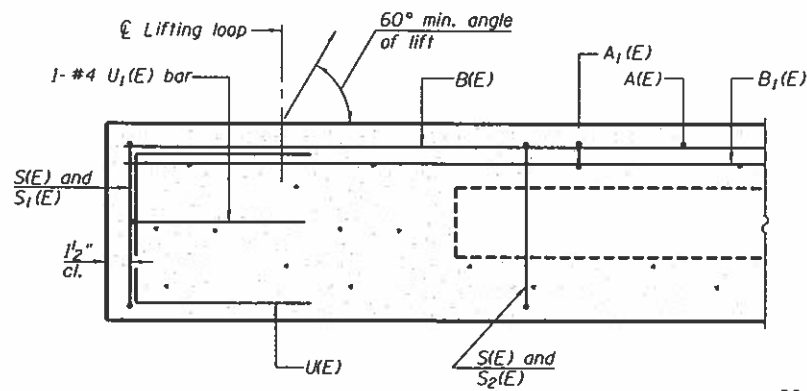
Note: Connect beams in pairs with the transverse tie configuration shown.

NOTES

- Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. The 1" rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place.
- Reinforcement bars shall conform to ASTM A706, 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" diameter lifting pin shall be used to engage the lifting loops during handling.
- Corrosion Inhibitor, per Article 1020.05(b)(10) and 1021.07 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.
- Compressive strength of prestressed concrete, f'c, shall be 6000 psi.
- Compressive strength of prestressed concrete at release, f'ci, shall be 5000 psi.

SUPERSTRUCTURE
UNION COUNTY
SECTION 17-01208-00-BR
TOWNSHIP ROAD 116
OVER DUTCH CREEK

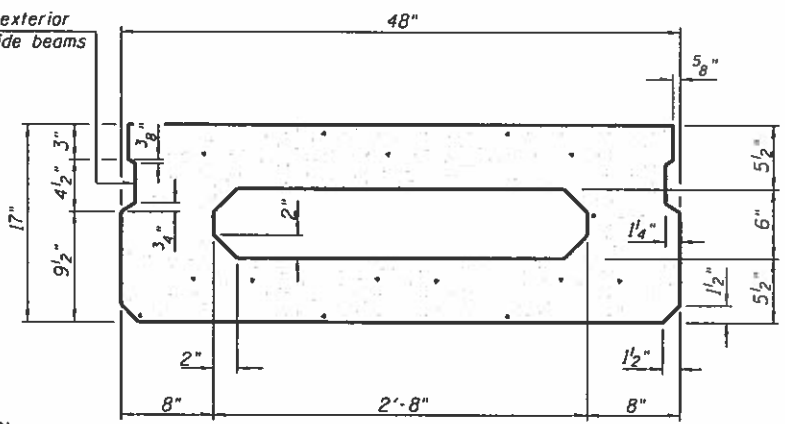
SHEET NO. 2	ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
8 SHEETS	TR 116	17-01208-00-BR	UNION	19	6
S.N. 091-3247			CONTRACT NO. 99611		
FED. ROAD DIST. NO. 7 ILLINOIS			FED. AID PROJECT NO. 4KCS(772)		



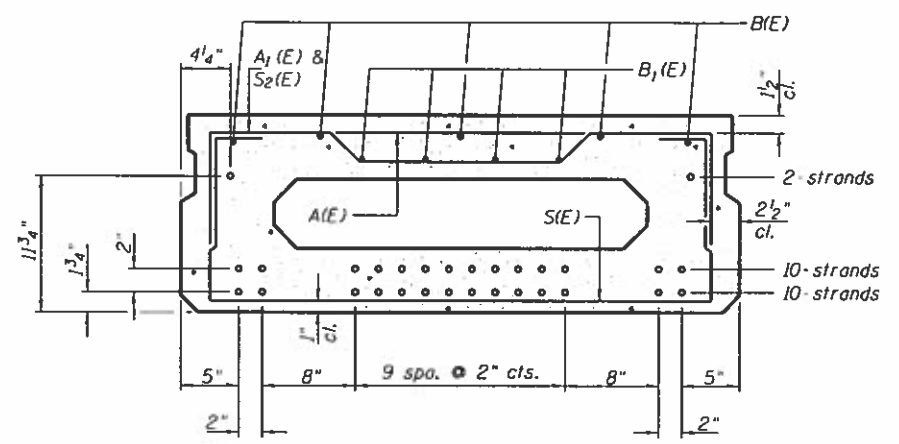
SECTION C-C

**Omit key on exterior face of outside beams

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



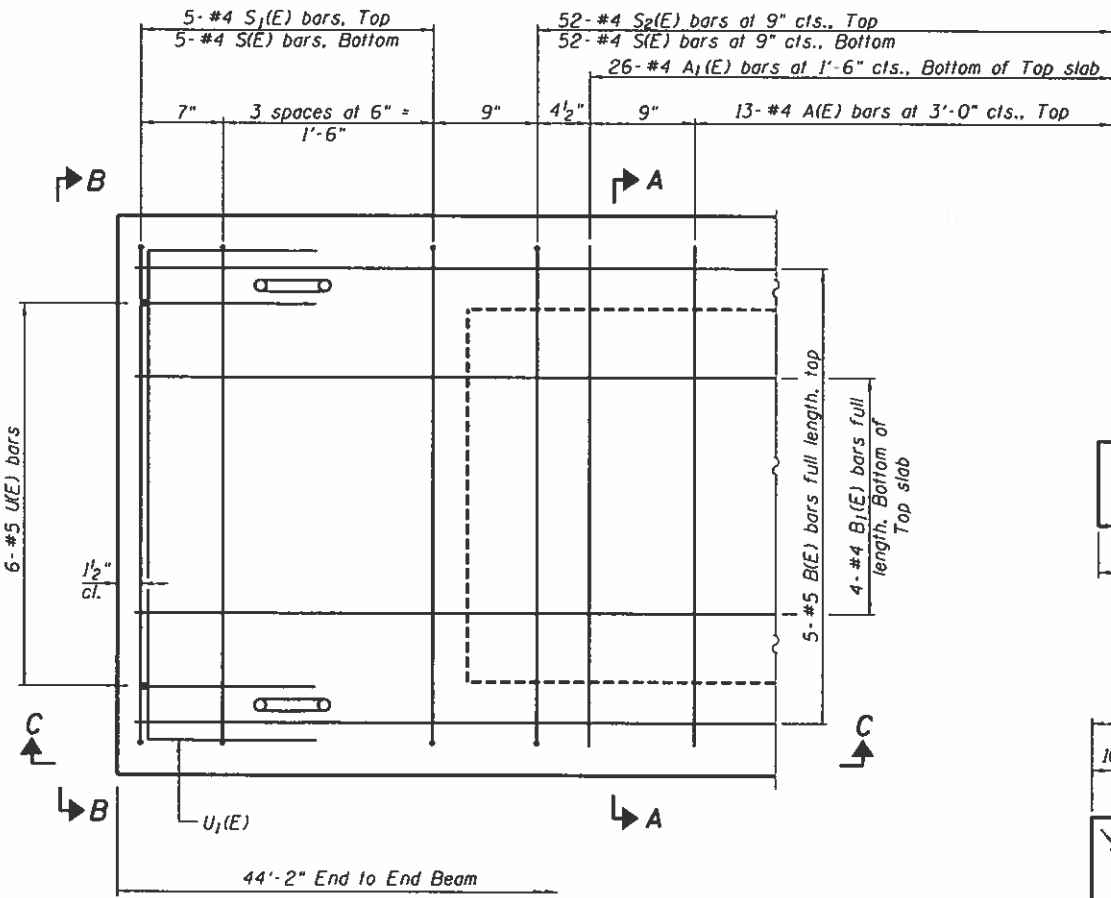
SECTION A-A
(Showing dimensions)



SECTION A-A

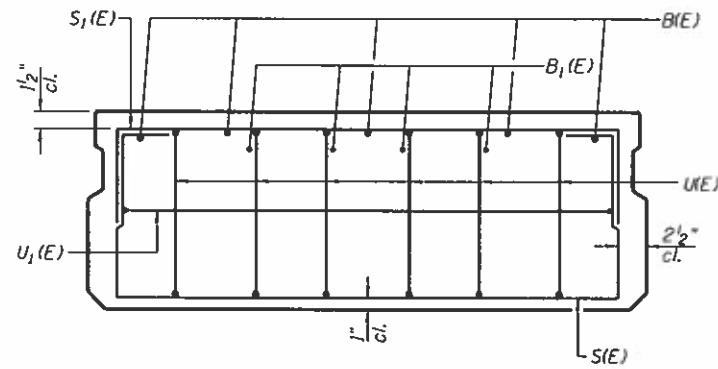
22-1/2 Strands Each Strand Stressed to 30,900 Lbs.
10-Strands 1 3/4" up, 10-Strands 3 3/4" up, 2-Strands 11 3/4" up

Note: Place the number of strands specified in each row symmetrically about the centerline of beam in the permissible strand locations shown.

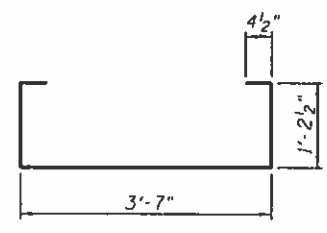


PLAN VIEW

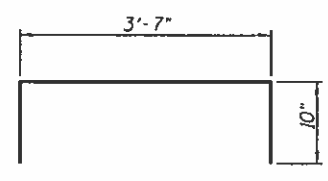
Note: Spacing of S1(E) and S2(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the black outs for the transverse ties.



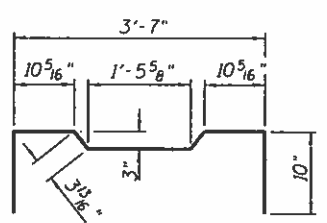
VIEW B-B



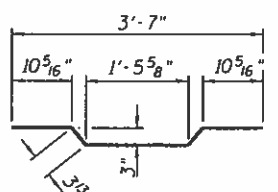
BAR S1(E)



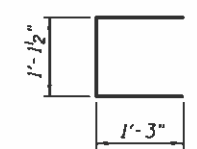
BAR S2(E)



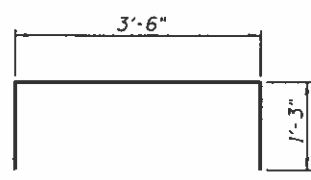
BAR A1(E)



BAR B1(E)



BAR U1(E)



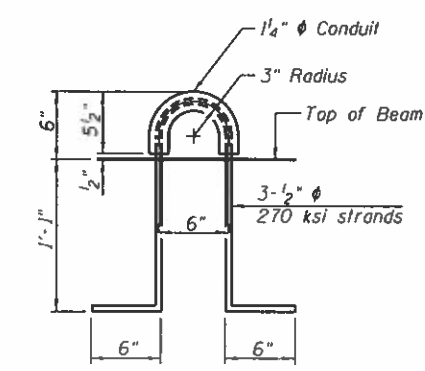
BAR U1(E)

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

BAR LIST ONE BEAM ONLY
(For information only)

BAR NO.	SIZE	LENGTH	SHAPE
A1(E)	#4	3'-7"	—
A1(E)	#4	3'-10"	—
B1(E)	#5	43'-11"	—
B1(E)	#4	43'-11"	—
S1(E)	#4	6'-9"	U
S1(E)	#4	5'-3"	U
S2(E)	#4	5'-6"	U
U1(E)	#5	3'-8"	U
U1(E)	#4	6'-0"	U

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



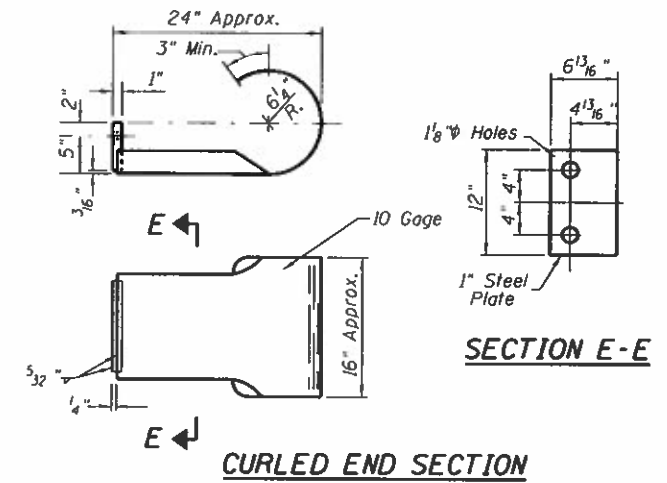
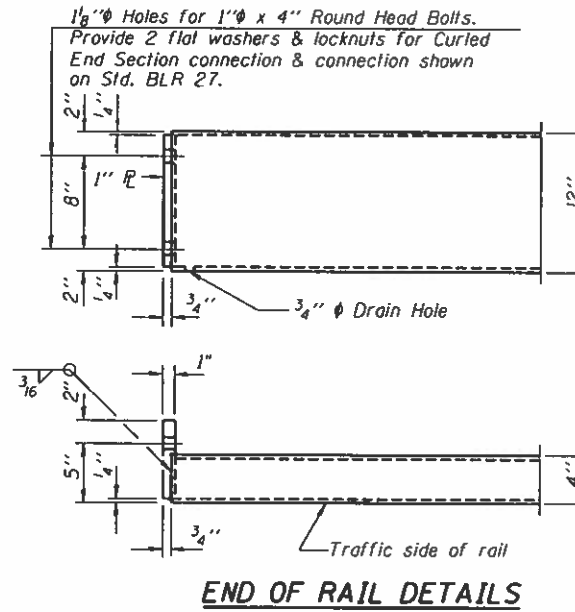
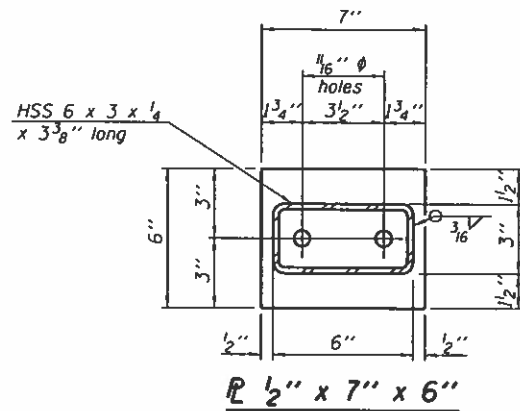
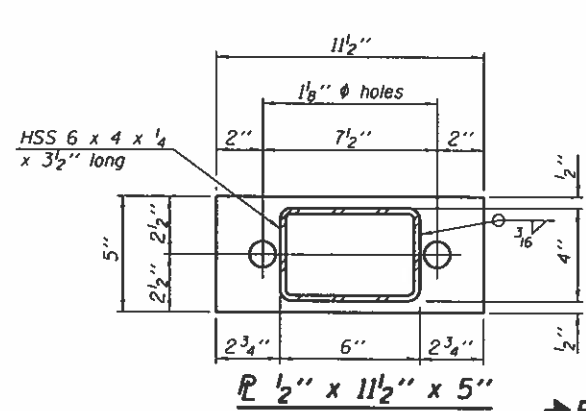
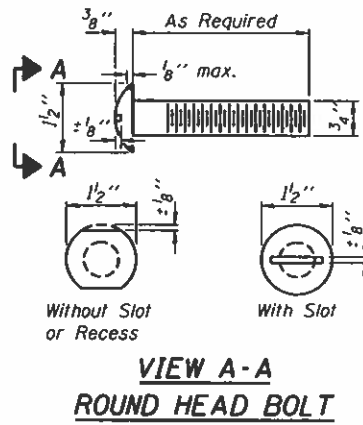
LIFTING LOOP DETAIL

* Total Length, Lap as necessary

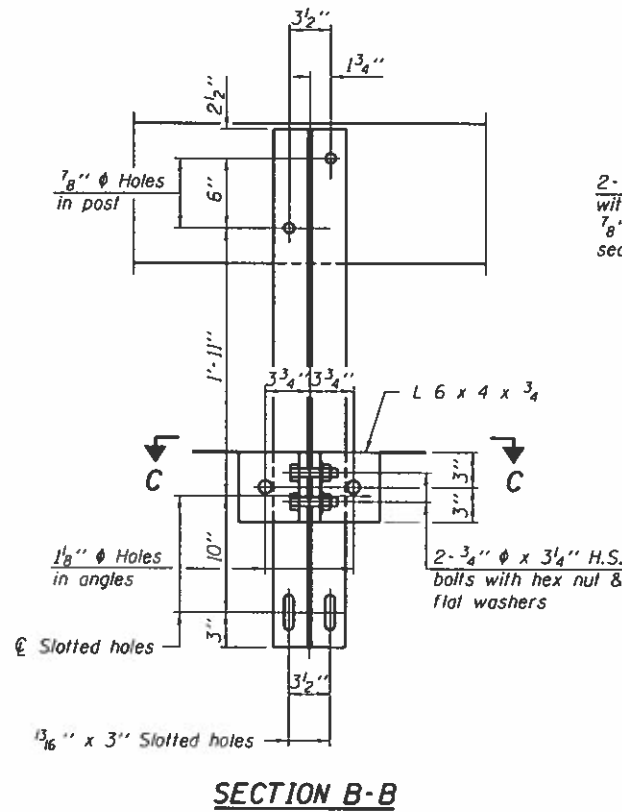
SUPERSTRUCTURE DETAILS
UNION COUNTY
SECTION 17-01208-00-BR
TOWNSHIP ROAD 116
OVER DUTCH CREEK

SHEET NO. 3 8 SHEETS	ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	TR 116	17-01208-00-BR	UNION	19	7
	S.N. 091-3247		CONTRACT NO. 99611		
FED. ROAD DIST. NO. 7 ILLINOIS			FED. AID PROJECT NO. 4KCS1772		

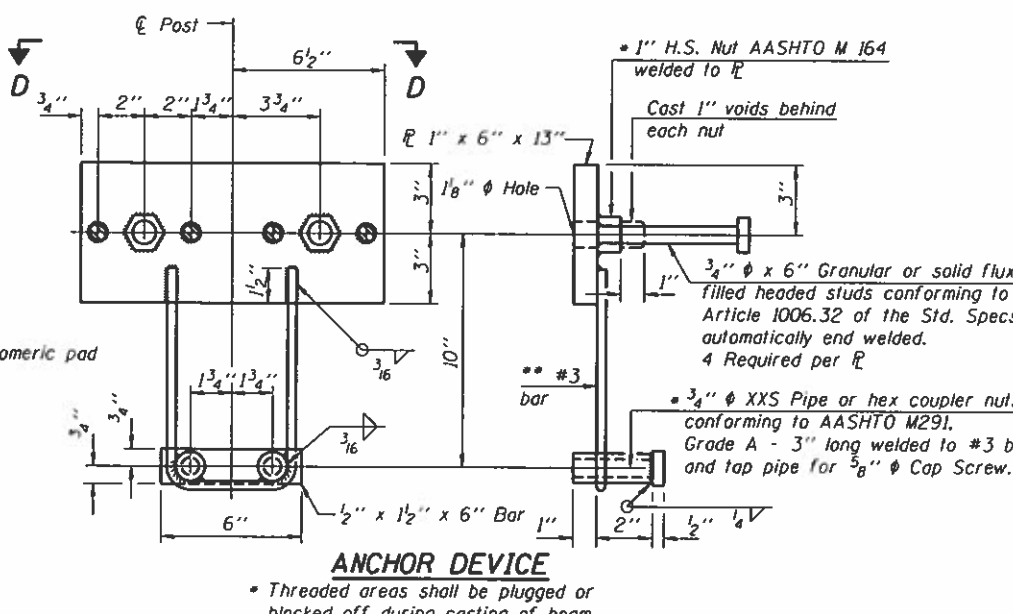
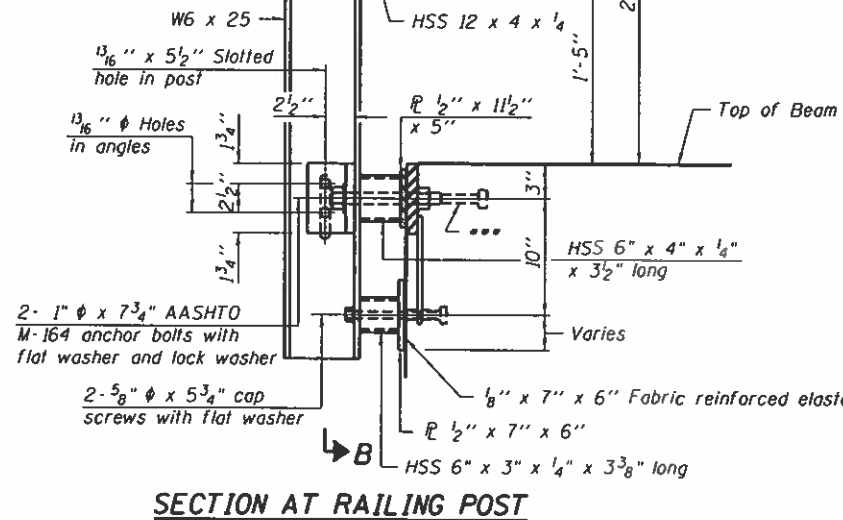
FOR RAIL POST SPACING SEE SH.#5 OF 8



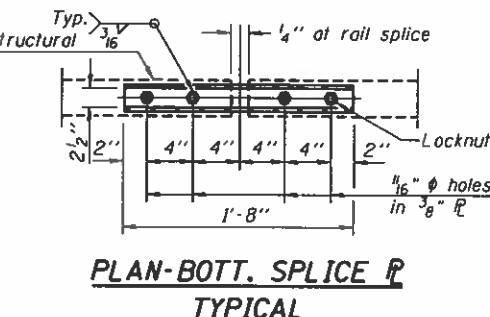
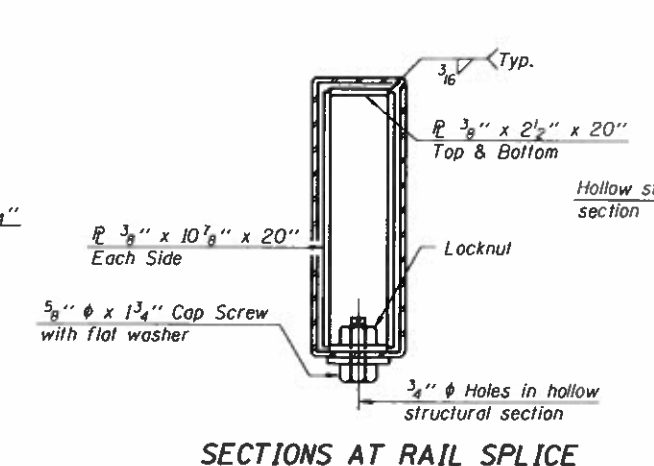
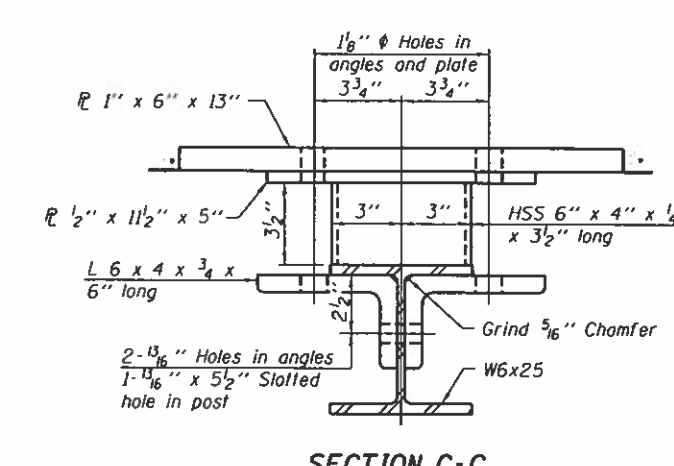
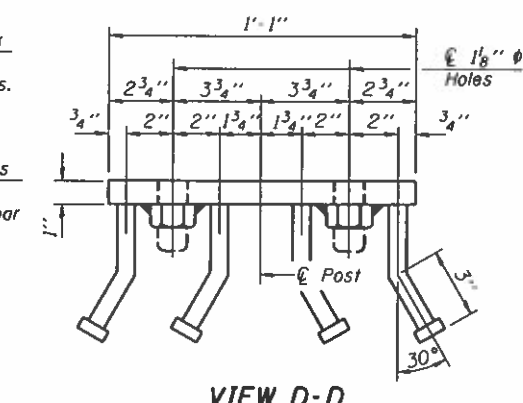
(3 Req'd) Cost Included with Steel Railing, Type S-1. Terminal Markers - Direct Applied shall be placed on end of each Curled End Section. (N.E., S.W., & S.E. Corners)



2- 3/4\"/>



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



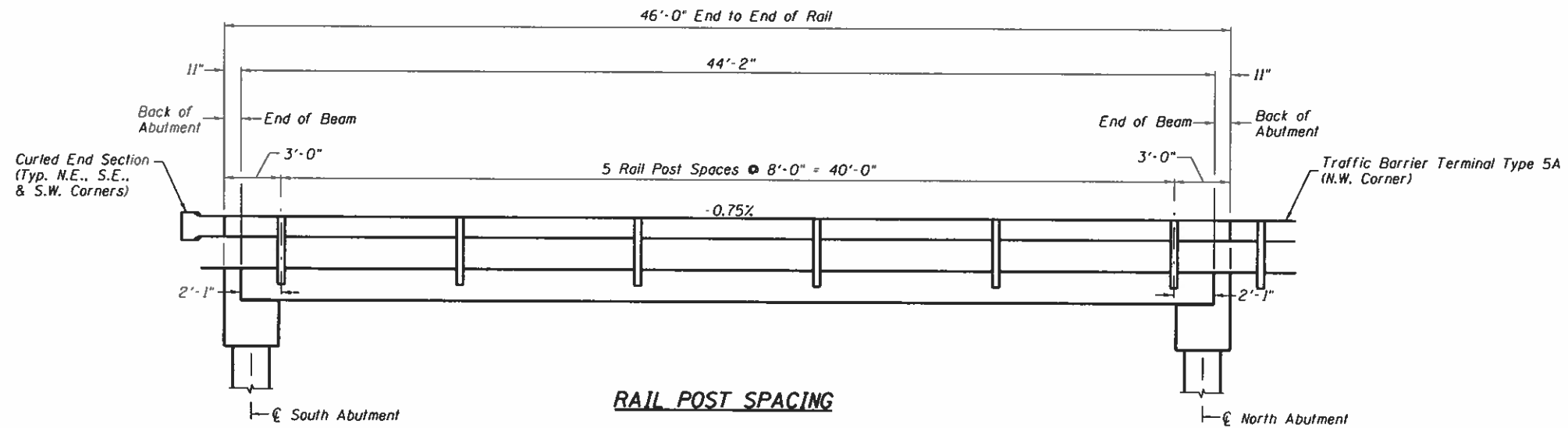
** Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 1/2\"/>

BILL OF MATERIAL

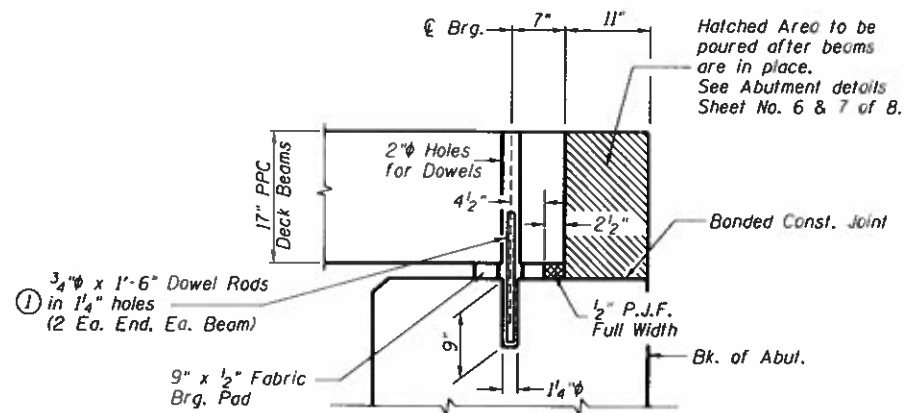
ITEM	UNIT	QUANTITY
Steel Railing, Type S-1	FOOT	92

STEEL RAILING, TYPE S-1
 UNION COUNTY
 SECTION 17-01208-00-BR
 TOWNSHIP ROAD 116
 OVER DUTCH CREEK

SHEET NO. 4 8 SHEETS	ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	TR 116	17-01208-00-BR	UNION	19	8
S.N. 091-3247			CONTRACT NO. 99611		
FED. ROAD DIST. NO. 7 ILLINOIS			FED. AID PROJECT NO. 4KCS(172)		



RAIL POST SPACING

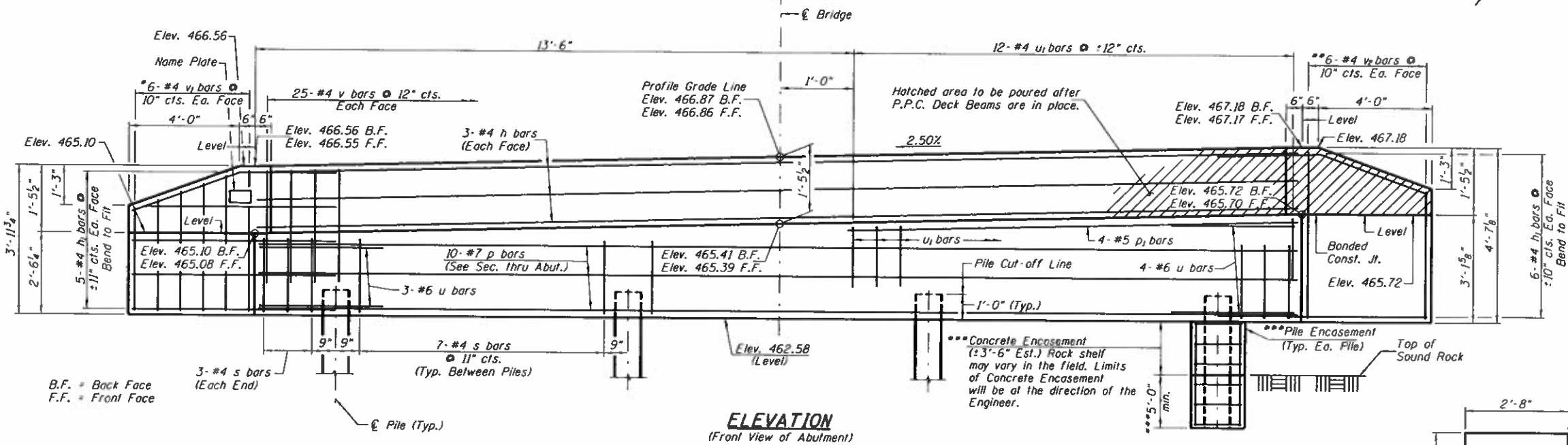
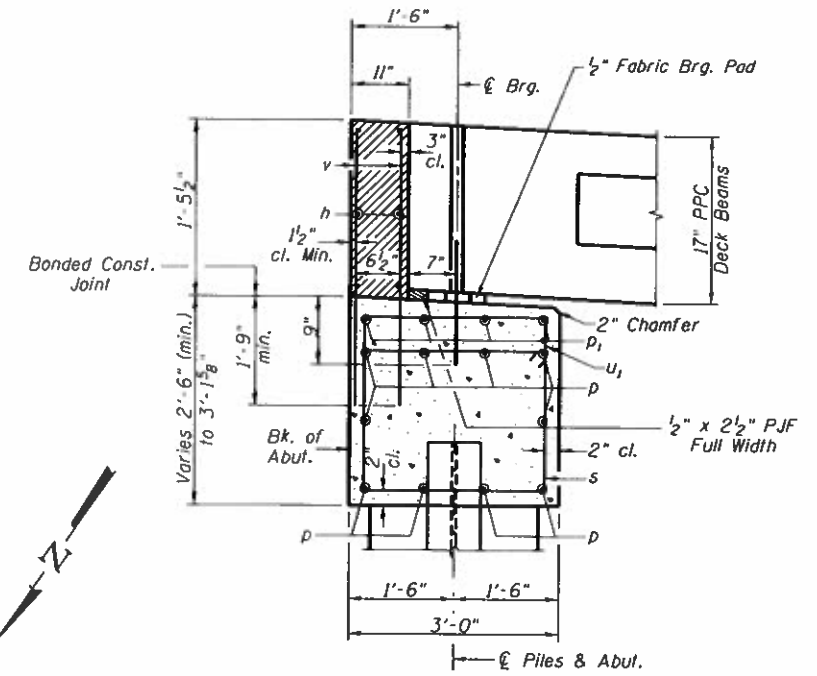
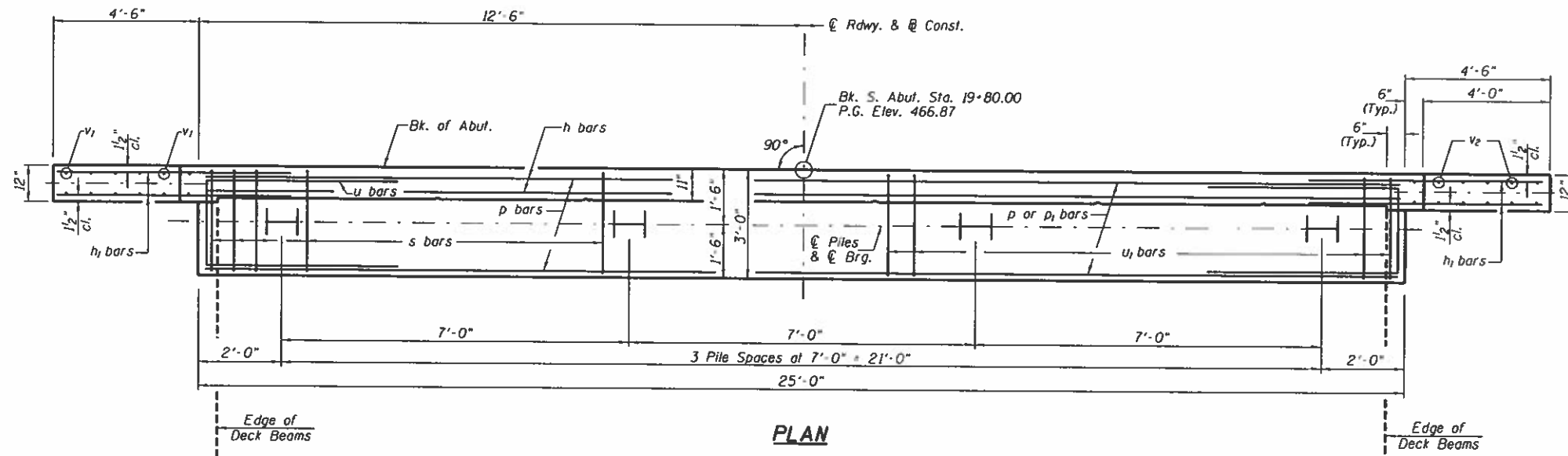


SECTION THRU ABUTMENTS

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
UNION COUNTY
SECTION 17-01208-00-BR
TOWNSHIP ROAD 116
OVER DUTCH CREEK**

SHEET NO. 5	ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	TR 116	17-01208-00-BR	UNION	19	9
B SHEETS	S.N. 091-3247		CONTRACT NO. 99611		
	FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT NO. 4KCS(772)		



SECTION THRU ABUT.

**SOUTH ABUTMENT
BILL OF MATERIAL**

BAR	NO.	SIZE	LENGTH	SHAPE
h	6	#4	24'-9"	—
h1	22	#4	6'-6"	—
p	10	#7	24'-9"	—
p1	4	#5	11'-5"	—
s	27	#4	10'-5"	□
u	7	#6	11'-7"	—
u1	12	#4	6'-8"	—
v	50	#4	3'-2"	—
v1	6	#4	6'-1"	—
v2	6	#4	7'-4"	—
Concrete Structures			CU YD	10.3
Reinforcement Bars			POUND	1,270
Structure Excavation			CU YD	20
Name Plates			EACH	1
Furnishing Steel Piles HP10x42			FOOT	40
Setting Piles in Rock			EACH	4
Concrete Encasement			CU YD	1.6

① See Special Provisions

DESIGN STRESSES

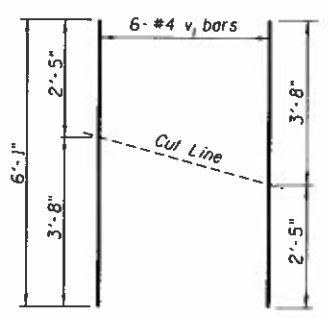
$f'c = 3,500$ p.s.i.
 $f_y = 60,000$ p.s.i.

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.
- The substructure piles shall be oriented such that the pile flanges parallel the centerline of the proposed roadway.

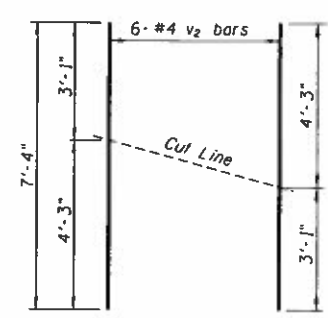
PILE DATA

Type & Size: Steel HP10x42
Nominal Required Bearing: Set in Rock (335 kips)
Factored Resistance Available: Set in Rock (184 kips)
Est. Length: 10'
No. Req'd.: 4



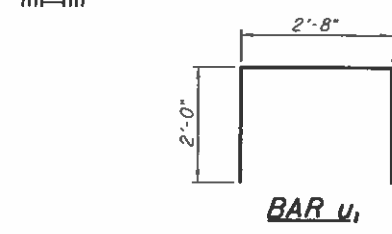
BAR CUTTING DIAGRAM

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

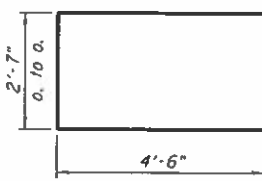


BAR CUTTING DIAGRAM

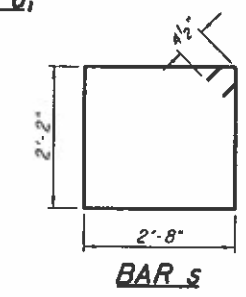
**Order v2 bars full length. Cut as shown and use remainder of bars in opposite face.



BAR u1



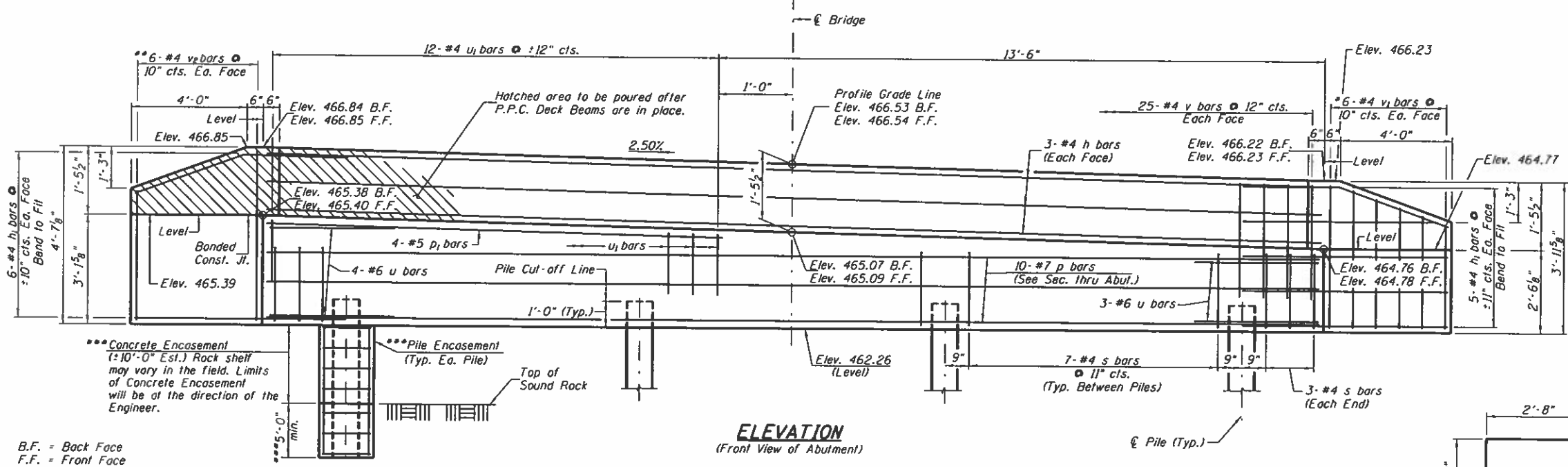
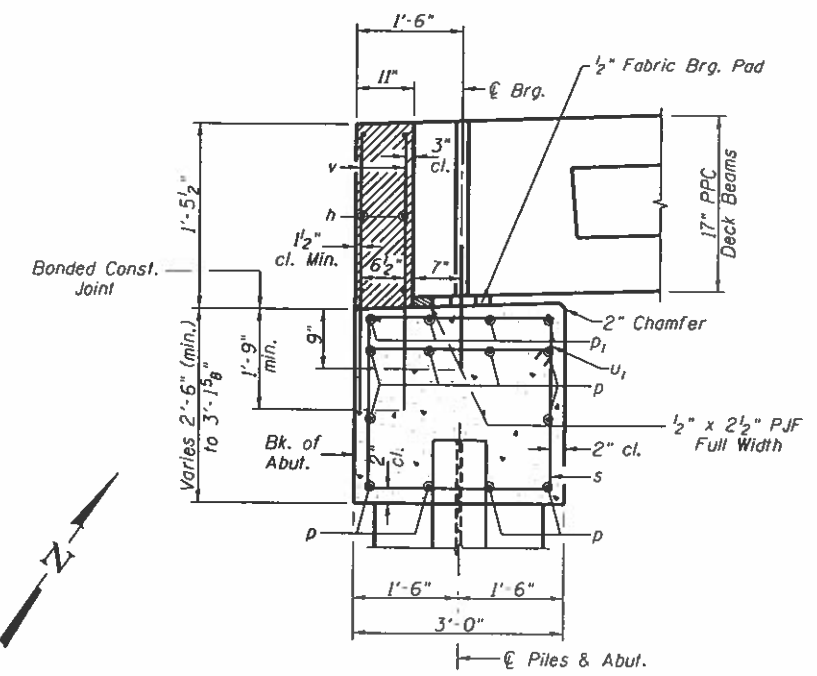
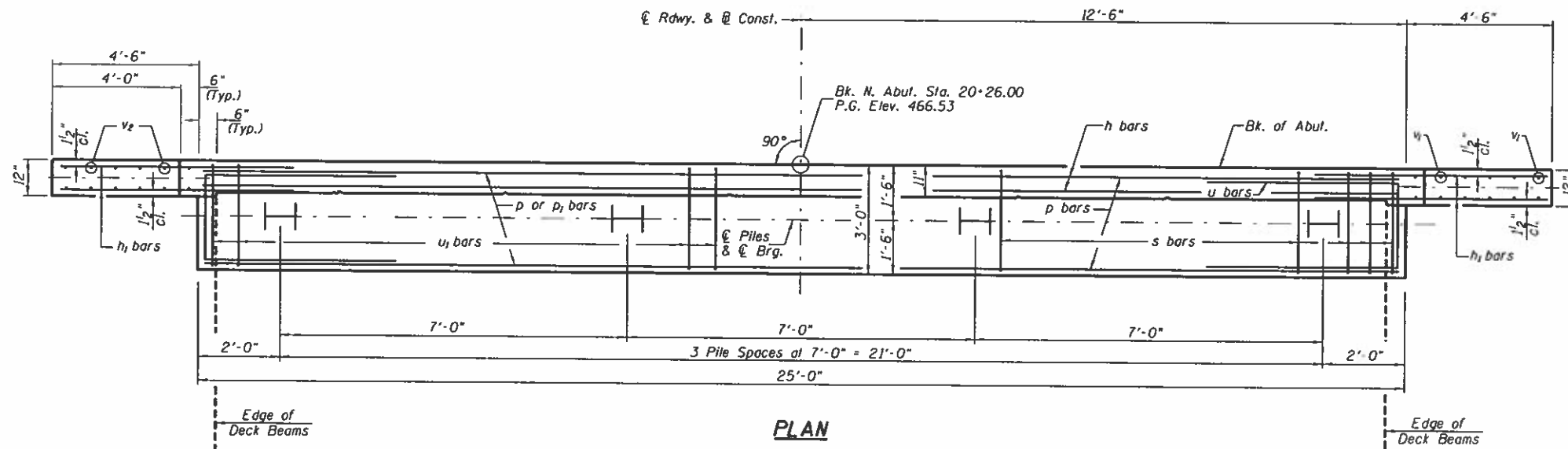
BAR u



BAR s

**SOUTH ABUTMENT
UNION COUNTY
SECTION 17-01208-00-BR
TOWNSHIP ROAD 116
OVER DUTCH CREEK**

SHEET NO. 6 B SHEETS	ROUTE NO. TR 116	SECTION 17-01208-00-BR	COUNTY UNION	TOTAL SHEETS 19	SHEET NO. 10
	S.N. 091-3247		CONTRACT NO. 99611		
FED. ROAD DIST. NO. 7 ILLINOIS			FED. AID PROJECT NO. 4KCS1772		



SECTION THRU ABUT.

**NORTH ABUTMENT
BILL OF MATERIAL**

BAR	NO.	SIZE	LENGTH	SHAPE		
h	6	#4	24'-9"	—		
h ₁	22	#4	6'-6"	—		
p	10	#7	24'-9"	—		
p ₁	4	#5	11'-5"	—		
s	27	#4	10'-5"	□		
u	7	#6	11'-7"	□		
u ₁	12	#4	6'-8"	□		
v	50	#4	3'-2"	—		
v ₁	6	#4	6'-1"	—		
v ₂	6	#4	7'-4"	—		
Concrete Structures				CU YD	10.3	
Reinforcement Bars				POUND	1,270	
Structure Excavation				CU YD	20	
Furnishing Steel Piles				HP10x42	FOOT	64
Setting Piles in Rock				EACH	4	
Concrete Encasement				CU YD	4.6	

① See Special Provisions

B.F. = Back Face
F.F. = Front Face

*** See Sheet 8 of 8
for additional details.

DESIGN STRESSES

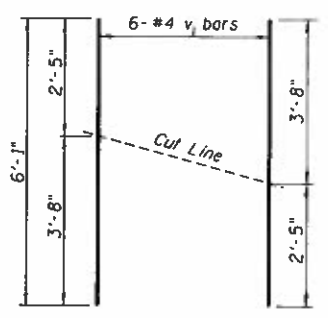
f'c = 3,500 p.s.i.
fy = 60,000 p.s.i.

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.
- The substructure piles shall be oriented such that the pile flanges parallel the centerline of the proposed roadway.

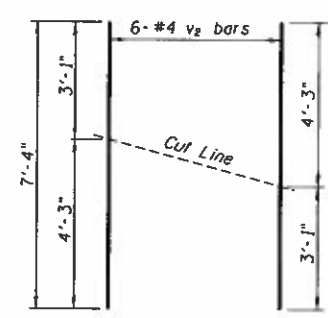
PILE DATA

Type & Size: Steel HP10x42
Nominal Required Bearing: Set in Rock (335 kips)
Factored Resistance Available: Set in Rock (184 kips)
Est. Length: 16'
No. Req'd.: 4



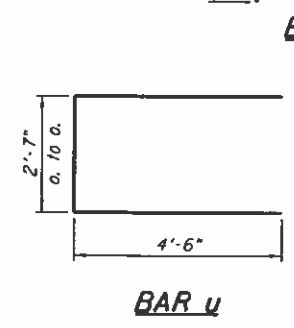
BAR CUTTING DIAGRAM

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

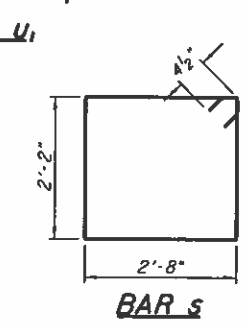


BAR CUTTING DIAGRAM

**Order v₂ bars full length. Cut as shown and use remainder of bars in opposite face.



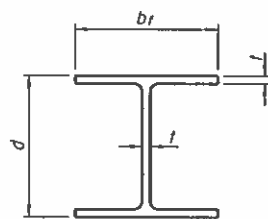
BAR u



BAR s

**NORTH ABUTMENT
UNION COUNTY
SECTION 17-01208-00-BR
TOWNSHIP ROAD 116
OVER DUTCH CREEK**

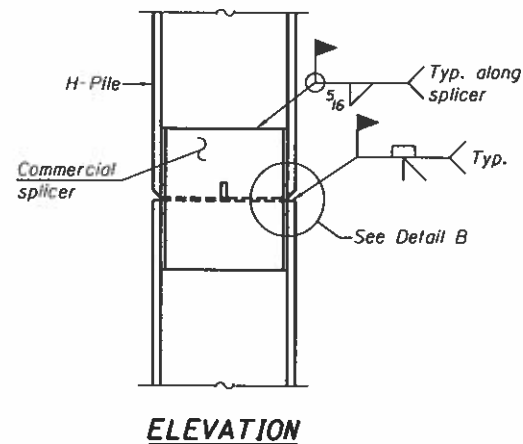
SHEET NO. 7 8 SHEETS	ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	TR 116	17-01208-00-BR	UNION	19	11
S.N. 091-3247			CONTRACT NO. 99611		
FED. ROAD DIST. NO. 7 ILLINOIS			FED. AID PROJECT NO. 4KCS(772)		



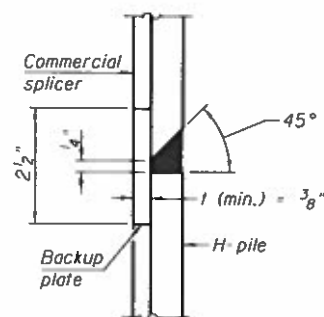
STEEL PILE TABLE

Designation	Depth d	Flange width bf	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"

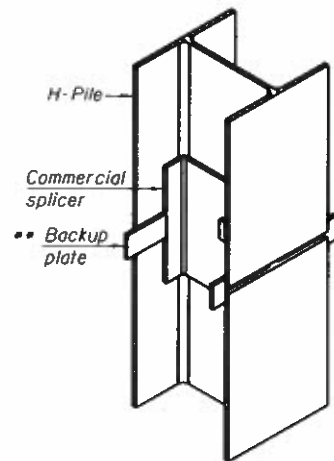
Note:
The steel H-piles shall be according to AASHTO M270 Grade 50.



ELEVATION

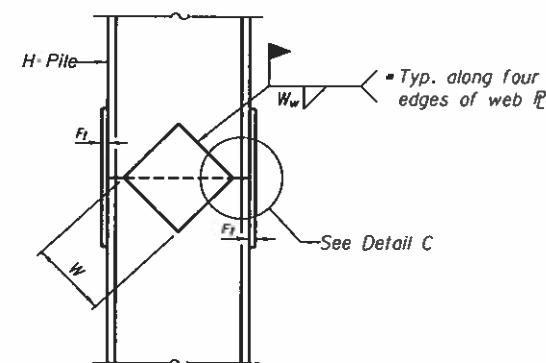


DETAIL "B"

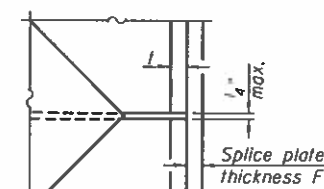


ISOMETRIC VIEW

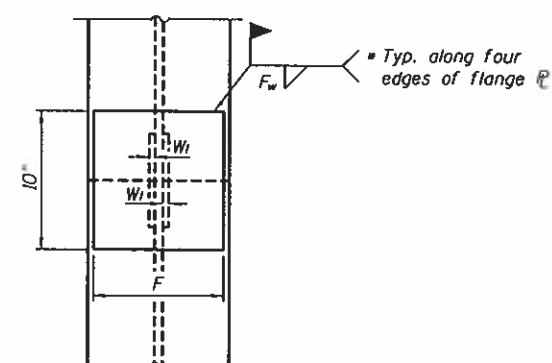
WELDED COMMERCIAL SPLICE



ELEVATION



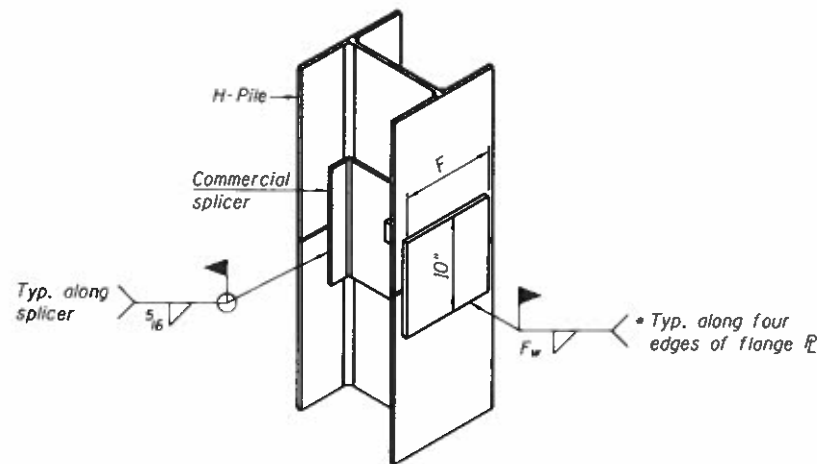
DETAIL C



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"

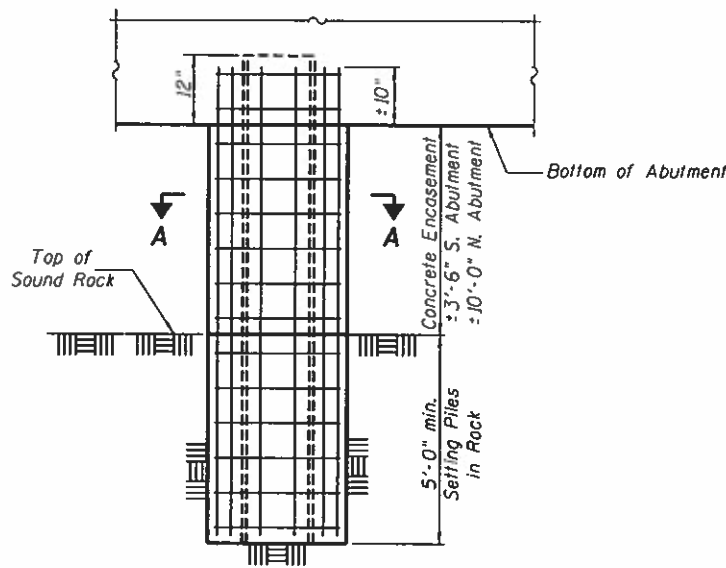
WELDED PLATE FIELD SPLICE



ISOMETRIC VIEW

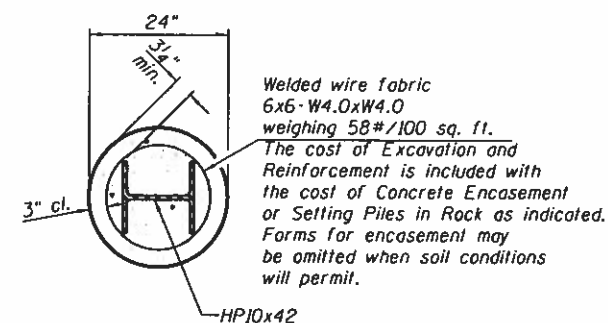
WELDED COMMERCIAL SPLICE ALTERNATE

- Interrupt welds 1/4" from end of web and/or each flange.
- Remove portions of backup plates that extend outside the flanges.



ABUTMENT ELEVATION

PILE ENCASEMENT

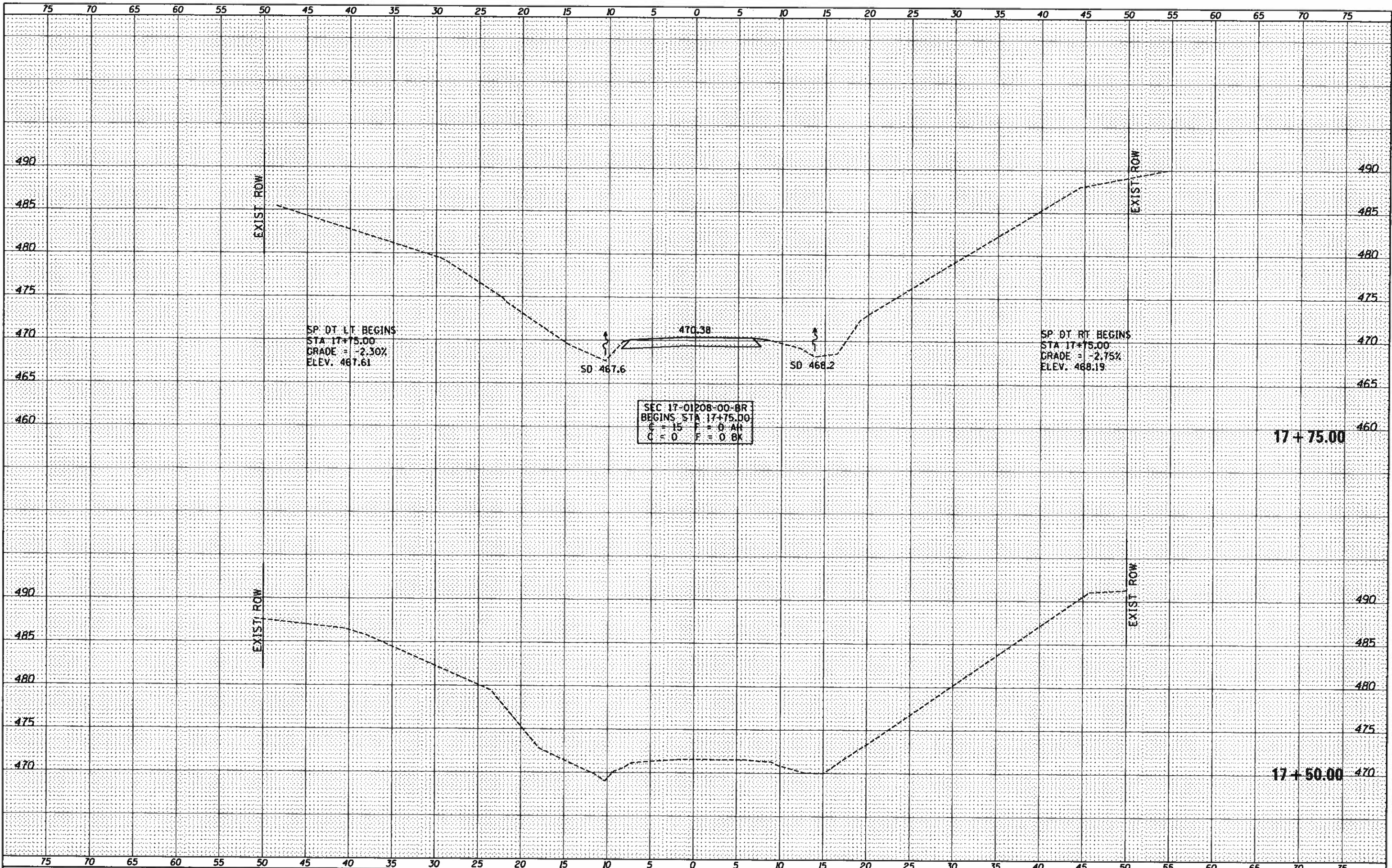


SECTION A-A

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 or Setting Piles in Rock as indicated. Forms for encasement may be omitted when soil conditions will permit.

**PILE DETAILS
UNION COUNTY
SECTION 17-01208-00-BR
TOWNSHIP ROAD 116
OVER DUTCH CREEK**

SHEET NO. 8 8 SHEETS	ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	TR 116	17-01208-00-BR	UNION	19	12
S.N. 091-3247			CONTRACT NO. 99611		
FED. ROAD DIST. NO. 7 ILLINOIS			FED. AID PROJECT NO. 4KCS(772)		



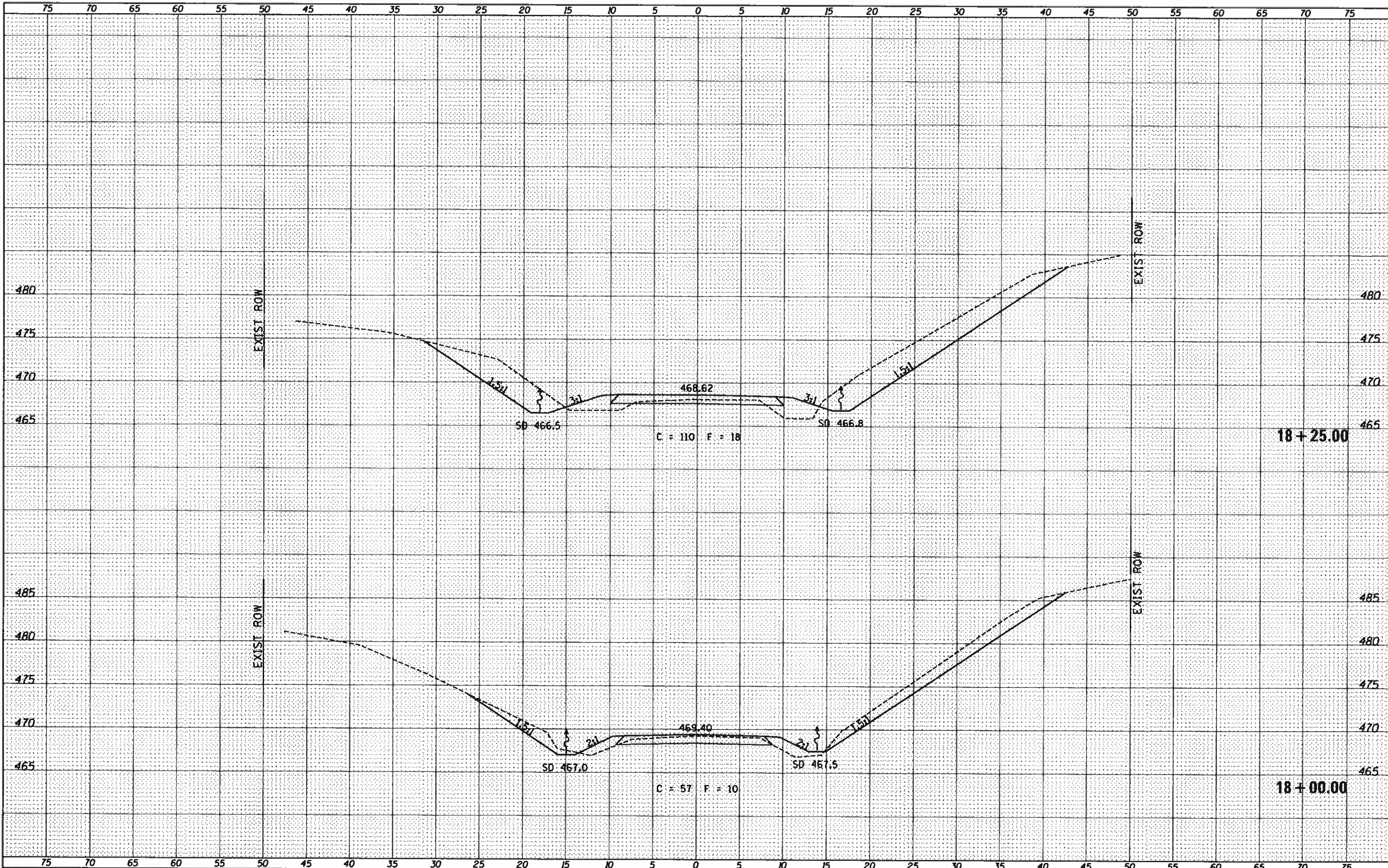
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FINAL SURVEY	
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NOTE BOOK	
AREAS CHECKED	

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BY	
ORIGINAL SURVEY	
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NOTE BOOK	
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FILE NAME =	USER NAME = Spharzo	DESIGNED -	REVISED -	UNION COUNTY TOWNSHIP ROAD 116 OVER DUTCH CREEK	CROSS SECTIONS		RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.			
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		DATE - 8/30/2018	REVISED -											
											CONTRACT NO. 99611			
											FED. ROAD DIST. NO. 7 ILLINOIS FED. AID PROJECT NO. 46CS1772			

DATE	
BY	
FINAL SURVEY	
SUBMITTED	
PLOTTED	
TEMPLATE	
NOTE BOOK	
AREAS CHECKED	
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DATE	
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ORIGINAL SURVEY	
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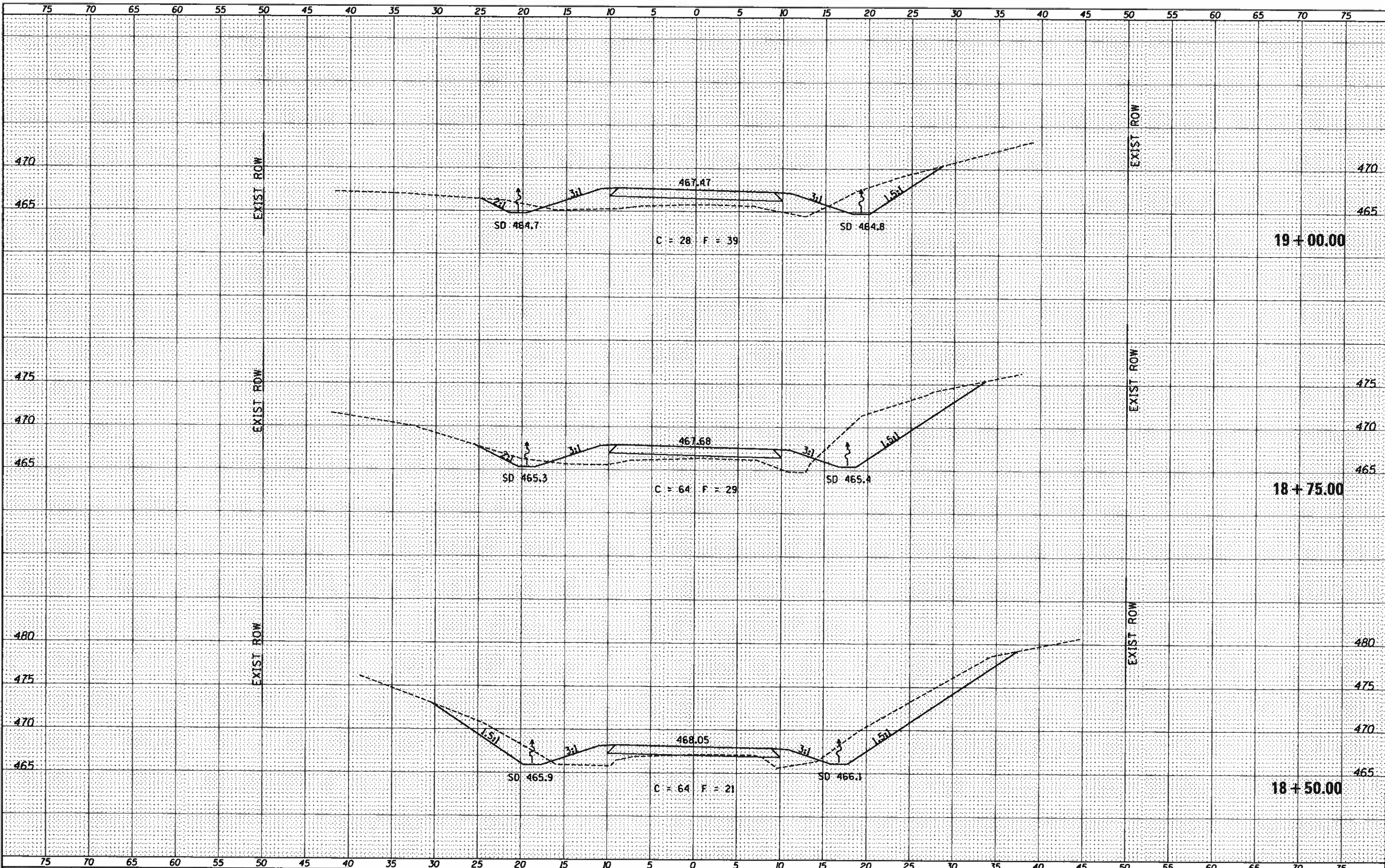
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**UNION COUNTY
 TOWNSHIP ROAD 116
 OVER DUTCH CREEK**

CROSS SECTIONS

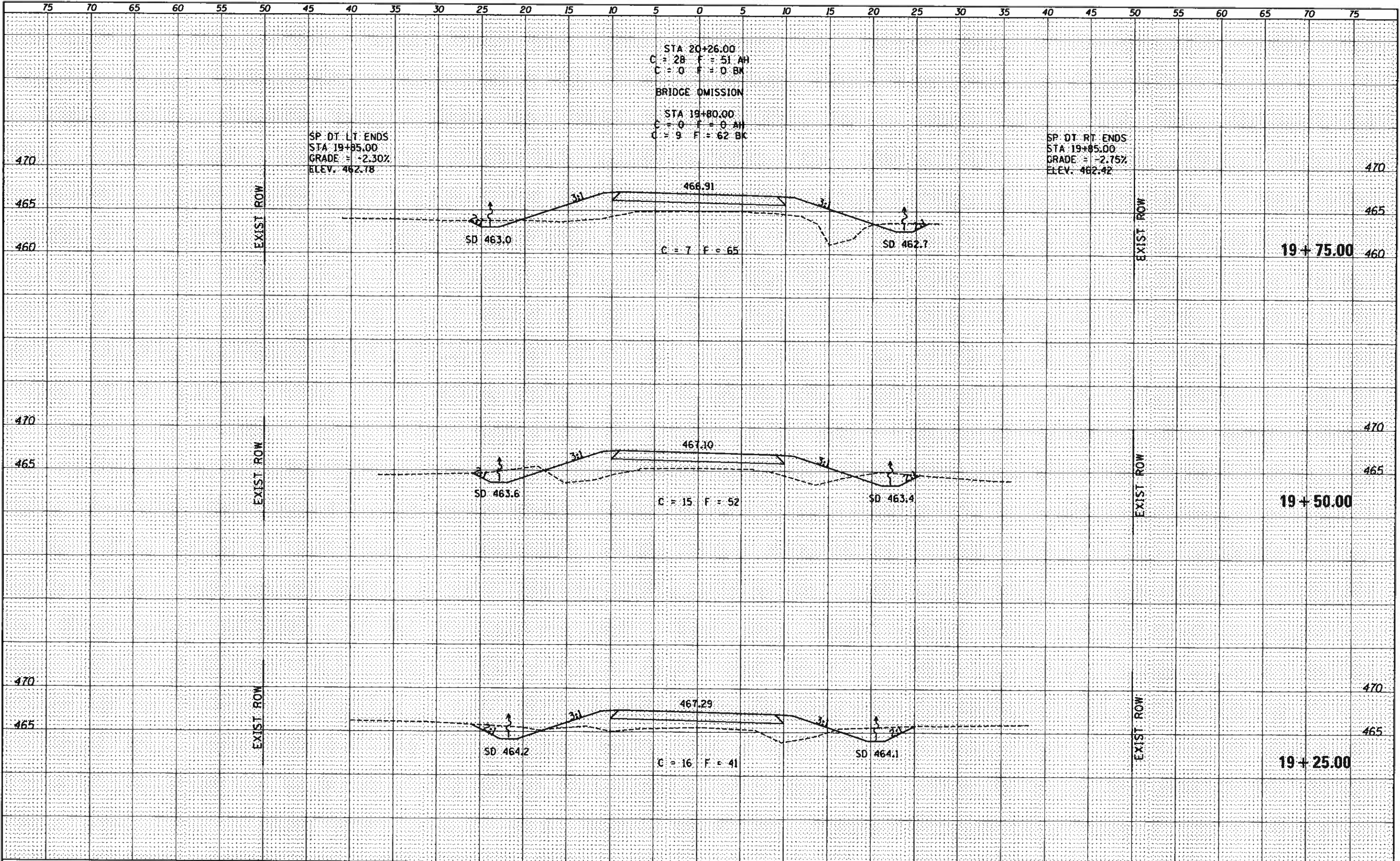
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RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 116	17-01208-00-BR	UNION	19	14
CONTRACT NO. 99611				
FED. ROAD DIST. NO. 7 [ILLINOIS]			FED. AID PROJECT NO. 4EC51722	



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NOTE BOOK	PLOTTED
NO.	TEMPLATE
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ORIGINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
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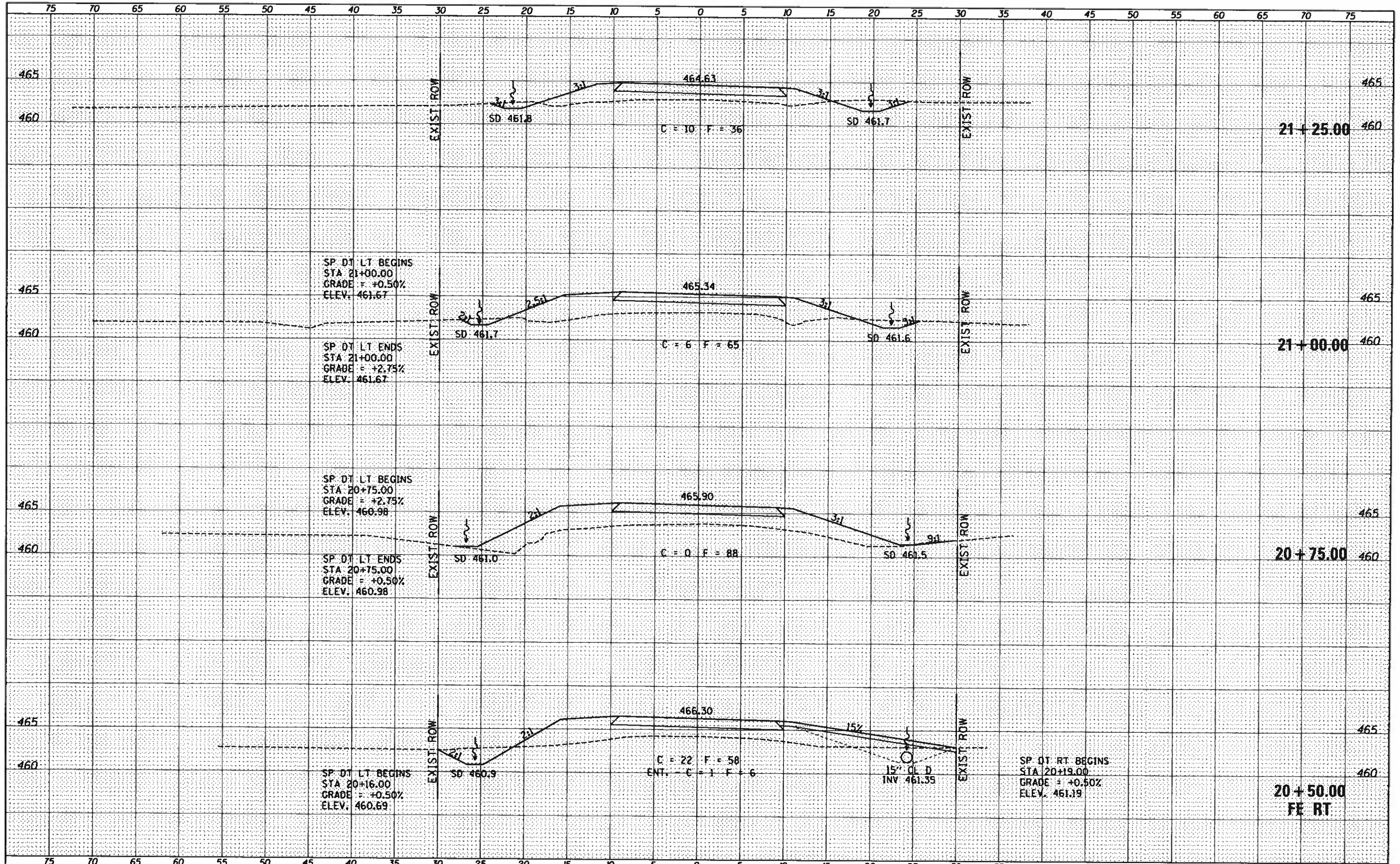


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NOTE BOOK	
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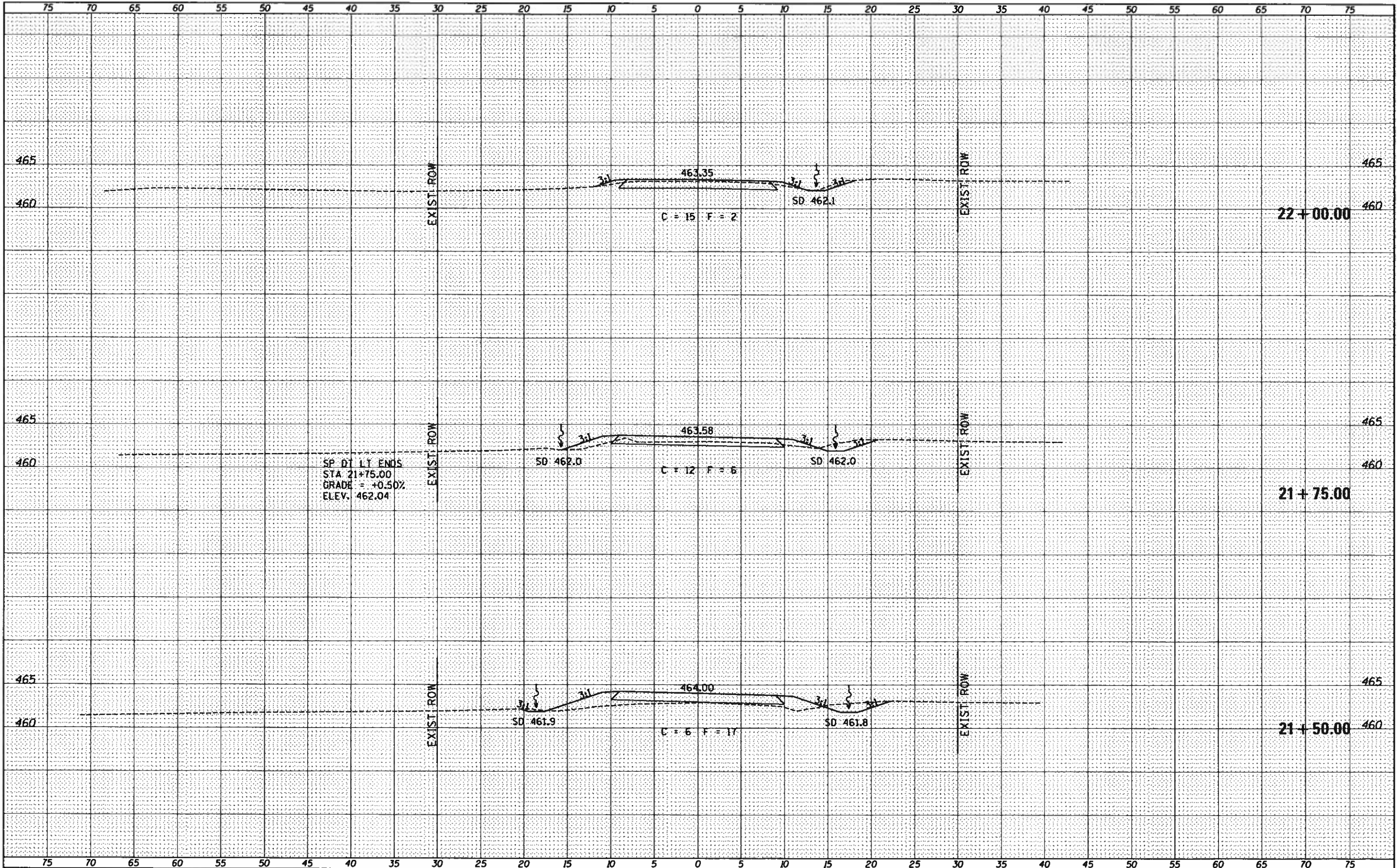
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FILE NAME	USER NAME	DESIGNED	REVISED	UNION COUNTY TOWNSHIP ROAD 116 OVER DUTCH CREEK	CROSS SECTIONS		RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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MODELNAME	PLOT SCALE = 10.0000 / in.	CHECKED	REVISED		SCALE: 1"=5'	SHEET 5 OF 7 SHEETS	STA. 20+50.00 TO STA. 21+25.00	FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT NO. 4KCS1772	
	PLOT DATE = 8/30/2018	DATE	REVISED								



SP DT LT ENDS
 STA 21+75.00
 GRADE = +0.50%
 ELEV. 462.04

**UNION COUNTY
 TOWNSHIP ROAD 116
 OVER DUTCH CREEK**

CROSS SECTIONS

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USER NAME = SMierzwa
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 PLOT DATE = 8/30/2018

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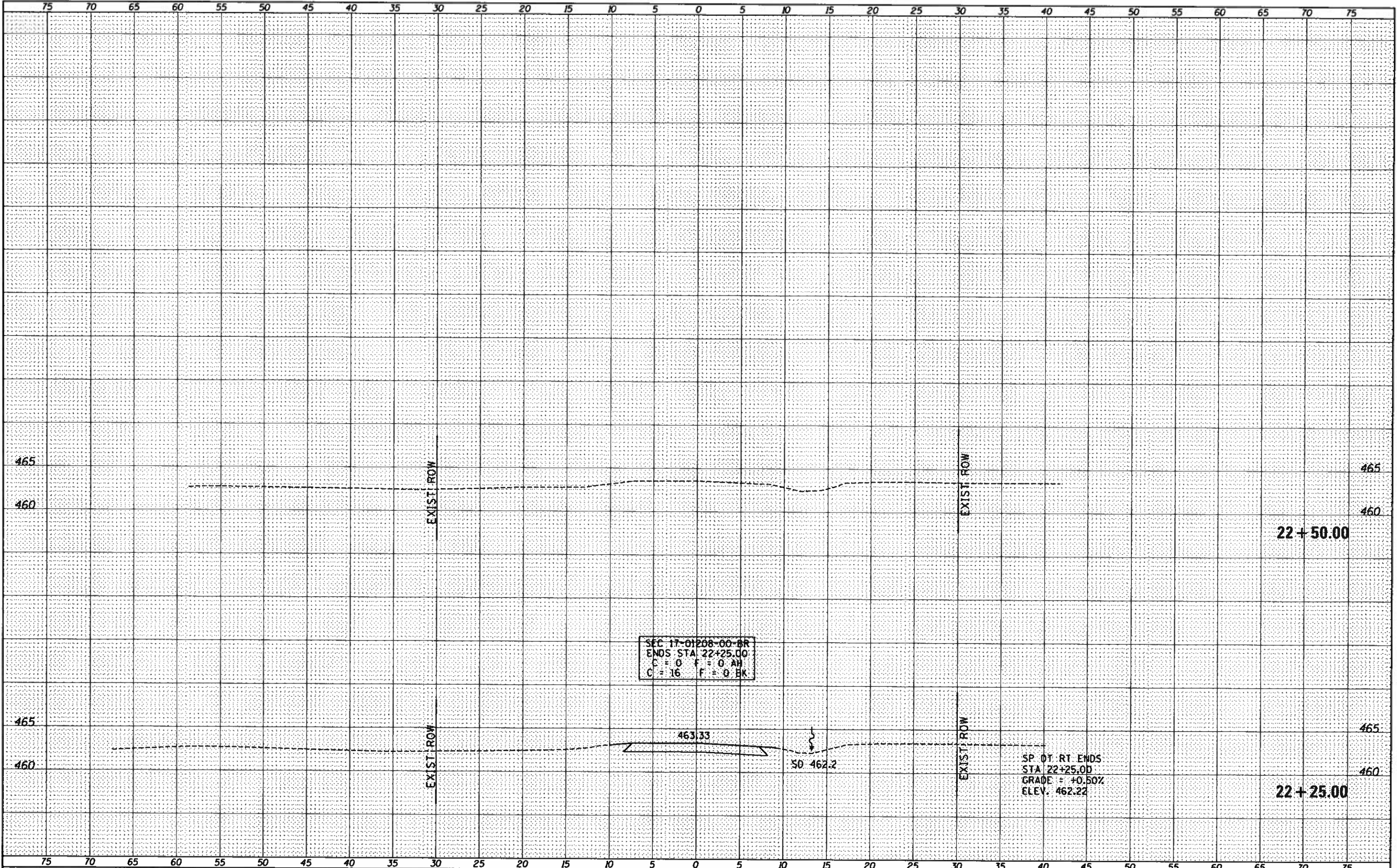
REVISED -
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SCALE: 1"=5' SHEET 6 OF 7 SHEETS STA. 21+50.00 TO STA. 22+00.00

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 116	17-D1208-00-BR	UNION	19	18
CONTRACT NO. 99611				
FED. ROAD DIST. NO. 1 (ILLINOIS) FED. AID PROJECT NO. 46CS1172				

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FILE NAME =	USER NAME = Shterzwo	DESIGNED -	REVISED -	UNION COUNTY TOWNSHIP ROAD 116 OVER DUTCH CREEK	CROSS SECTIONS		RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
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		DATE - 8/30/2018	REVISED -					FED. ROAD DIST. NO. 7 (ILLINOIS) FED. AID PROJECT NO. 48CS172				