03-06-2015 LETTING ITEM 209

INDEX OF SHEETS

STANDARDS

STANDARD 280001-07
STANDARD 515001-03
STANDARD 630301-06
STANDARD 635006-03
STANDARD 701901-04
STANDARD BLR 21-9
STANDARD BLR 27-1

LIST OF UTILITIES

SHELBY ELECTRIC COOPERATIVE
NORTH ROUTE 128
SHELBYVILLE, ILLINOIS 62562

CONSOLIDATED COMMUNICATIONS INC.
121 SOUTH 17TH STREET
MATTOON, ILLINOIS 61938-3915
217-234-9971

EJ WATER COOP
P.O. BOX 336
DIETRICH, IL. 62424

SCALE IN FEET

0 50 100 = PROFILE - PLAN
0 50 100 = PROFILE - HORIZONTAL
0 5 10 = PROFILE - VERTICAL
0 5 10 = CROSS SECTIONS - HORIZONTAL
0 5 10 = CROSS SECTIONS - VERTICAL

LAND SECTION - 8 & 17
LAND QUARTER SECTION - S.E. & N.E.
FUNCTIONAL CLASSIFICATION: LOCAL ROAD (NON-URBAN)
A.D.T. - 200 (2012)
A.D.T. - 225 (2032)
30 M.P.H. DESIGN SPEED

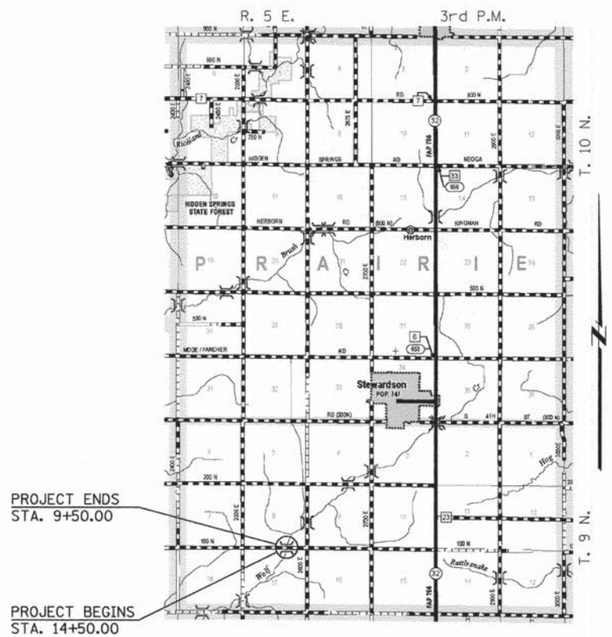
TOLL FREE
"JOINT UTILITY LOCATION INFORMATION FOR EXCAVATORS"
(J.U.L.I.E.) TELEPHONE NUMBER
1-800-892-0123

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED SURFACE TRANSPORTATION – BRIDGE

PROJECT NO. BROS – 0173(185)
T.R. 431A OVER WOLF CREEK
SECTION 12–15134–00–BR
SHELBY COUNTY
JOB NO. C–97–037–15
CONTRACT # 95752

LOCATION OF SECTION INDICATED THUS:- ■



LOCATION PLAN
LENGTH OF SECTION - 500.00 FEET = 0.095 MILES

0 1 2
SCALE: 1" = 1 MILE

EXISTING STRUCTURE: SINGLE SPAN POURED CONCRETE DECK ON STEEL STRINGERS WITH CLOSED TIMBER ABUTMENTS AND WINGWALLS ON TIMBER PILES. ±45'-0" BK.-BK. ABUTMENTS, ±21'-0" CLEAR DECK WIDTH, STEEL CHANNEL RAILING. ±0° SKEW.
EXISTING S.N. 087-3336

PROPOSED STRUCTURE: SINGLE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAMS (33") ON OPEN CONCRETE ABUTMENTS. 79'-0" BK.-BK. ABUTMENTS, 24'-0" CLEAR DECK WIDTH. STEEL RAILING TYPE S1. 0° SKEW.
PROPOSED S.N. 087-3581

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

APPROVED 12/17, 2014
COUNTY ENGINEER

APPROVED 12-17-, 2014
TOWNSHIP ROAD COMMISSIONER

PASSED 1-2, 2015
DISTRICT SEVEN ENGINEER OF LOCAL ROADS & STREETS

Releasing For Bid Based on Limited Review 1-2, 2015
DEPUTY DIRECTOR OF HIGHWAYS, REGION FOUR ENGINEER

CHRISTOPHER P. KOHLRUS
062-046658
LICENSED PROFESSIONAL ENGINEER OF
STATE OF ILLINOIS

Christopher P Kohlrus 12/11/14
EXPIRATION: 11/30/2015

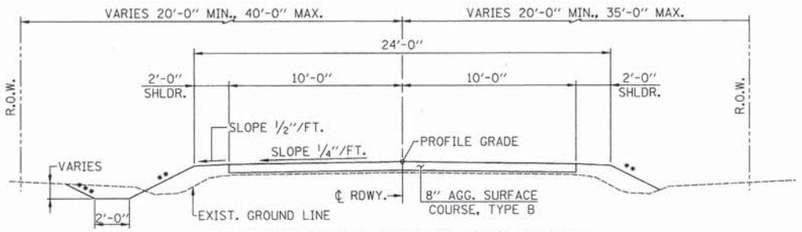
PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS

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

Allen Henderson & Associates, Inc.
Civil and Structural Engineers Springfield, IL.
62703 Phone: (217)544-8033 IL. Design Firm
No. 184-001907

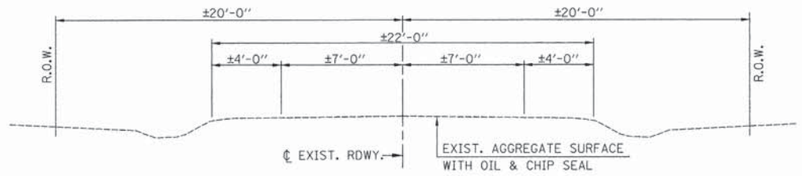
TITLE SHEET
SHEET NO. 1 OF 16 SHEETS

T.R	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
431A	12-15134-00-BR	SHELBY	16	1
STR. NO.		CONTRACT NO. 95752		
		ILLINOIS FED. AID PROJECT		



PROPOSED TYPICAL ROADWAY CROSS SECTION

••3:1 ≤ 6'
2:1 > 6'
•••3:1 ≤ 10'
2:1 > 10'



EXISTING TYPICAL ROADWAY CROSS SECTION

AGGREGATE DITCH DETAIL
(SEE SPECIAL PROVISIONS)
(STA. 9+25 TO STA. 11+68.50 LT. & RT.)

GENERAL NOTES

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

SEEDING: FERTILIZER NUTRIENTS SHALL BE APPLIED AT A RATIO OF 1:1:1 AND AT A RATE OF 90 POUNDS PER ACRE FOR EACH NUTRIENT.

MULCH SHALL BE APPLIED AT THE RATE OF 2 TONS PER ACRE.

AREAS TO BE SEEDED SHALL CONSIST OF ALL DISTURBED EARTH SURFACES WITHIN THE RIGHT OF WAY AND EASEMENT AS DIRECTED BY THE ENGINEER.

BEFORE ORDERING PIPE CULVERTS CONTRACTOR SHALL CONSULT WITH ENGINEER TO VERIFY LENGTHS.

TEMPORARY EROSION CONTROL SEEDING TO BE APPLIED AT A RATE OF 200 LBS./ACRE.

SCHEDULE
AGGREGATE DITCH

LOCATION	AGGREGATE DITCH QUANTITY	
	LT. (TON)	RT. (TON)
STA. 9+75 TO STA. 11+68.5	90	90
SUB-TOTAL	90	90
TOTAL	180	

SCHEDULE
TREE REMOVAL

LOCATION	QUANTITY (ACRE)
STA. 11+50 TO STA. 11+68 100' RT.	0.05
STA. 12+35 TO STA. 12+55 100' RT.	0.05
TOTAL	0.10

SAY 0.1 ACRE

SCHEDULE
AGGREGATE SURFACE COURSE, TYPE B

LOCATION	QUANTITY (TON)
STA. 9+50 TO STA. 10+50	404
F.E. STA. 11+28 LT.	18
TOTAL	422

SCHEDULE
TEMPORARY DITCH CHECKS

LOCATION	QUANTITY (FOOT)
STA. 10+25 22' LT. & RT.	28
STA. 11+50 27' LT. & RT.	28
STA. 12+75 31' LT. & RT.	18
TOTAL	74

SCHEDULE
INLET & PIPE PROTECTION

LOCATION	QUANTITY (EACH)
STA. 11+14 25' LT.	1
TOTAL	1

SUMMARY OF QUANTITIES

	ITEM	UNIT	QUANTITY
20100500	TREE REMOVAL, ACRES	ACRE	0.10
20200100	EARTH EXCAVATION	CU. YD.	307
20300100	CHANNEL EXCAVATION	CU. YD.	861
• 25000200	SEEDING, CLASS 2	ACRE	0.7
25000400	NITROGEN FERTILIZER NUTRIENT	POUND	63
25000500	PHOSPHORUS FERTILIZER NUTRIENT	POUND	63
25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	63
25100115	MULCH, METHOD 2	ACRE	0.7
• 28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	140
28000305	TEMPORARY DITCH CHECKS	FOOT	74
28000500	INLET AND PIPE PROTECTION	EACH	1
28100807	STONE DUMPED RIPRAP, CLASS A4	TON	345
28200200	FILTER FABRIC	SQ. YD.	467
• 28300400	AGGREGATE DITCH	TON	180
• 40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	422
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50200100	STRUCTURE EXCAVATION	CU. YD.	169
50300225	CONCRETE STRUCTURES	CU. YD.	39.1
50300280	CONCRETE ENCASEMENT	CU. YD.	3.6
50400605	PRECAST PRESTRESSED CONCRETE DECK BEAMS (33" DEPTH)	SQ. FT.	1864
50800105	REINFORCEMENT BARS	POUND	5010
Δ 50900205	STEEL RAILING, TYPE S1	FOOT	158
51201400	FURNISHING STEEL PILES HP 10X42	FOOT	208
51202305	DRIVING PILES	FOOT	208
51203400	TEST PILE STEEL HP10X42	EACH	2
51204650	PILE SHOES	EACH	10
51500100	NAME PLATES	EACH	1
542D0220	PIPE CULVERTS, CLASS D, TYPE 1 15"	FOOT	30
Δ 63100075	TRAFFIC BARRIER TERMINAL, TYPE 5A	EACH	2
Δ 63100167	TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT	EACH	2
67100100	MOBILIZATION	L. SUM	1
Δ 78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4

• SEE SPECIAL PROVISIONS
Δ SPECIALTY ITEMS

CONSTRUCTION TYPE CODE: 0011
BRIDGE TYPE CODE: X080

EARTHWORK SCHEDULE

LOCATION	EARTH EXCAVATION	EARTH EXCAVATION ADJUSTED FOR SHRINKAGE	EMBANKMENT	EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-)
	CU. YD.	CU. YD.	CU. YD.	CU. YD.
STA. 9+50 TO STA. 10+00	55	41	1	40
STA. 10+00 TO STA. 10+50	81	61	2	59
STA. 10+50 TO STA. 11+00	64	48	12	36
STA. 11+00 TO STA. 11+50	44	33	45	-12
STA. 11+50 TO STA. 11+65	7	5	31	-26
STA. 11+65 TO STA. 11+68.50	3	2	7	-5
BRIDGE OMISSION - STA. 11+68.50 TO STA. 12+47.50				
STA. 12+47.50 TO STA. 12+50	0	0	9	-9
STA. 12+50 TO STA. 13+00	13	10	136	-126
STA. 13+00 TO STA. 13+50	11	8	65	-57
STA. 13+50 TO STA. 14+00	16	12	19	-7
STA. 14+00 TO STA. 14+50	13	10	3	7
TOTAL	307	230	330	-100••••

•••• NO FURNISHED EXCAVATION REQUIRED. SUITABLE CHANNEL AND STRUCTURE EXCAVATION SHALL BE PLACED IN EMBANKMENT AS DIRECTED BY THE ENGINEER.

THE COST OF DISPOSING EXCESS CHANNEL AND STRUCTURE EXCAVATION SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR EARTH EXCAVATION.

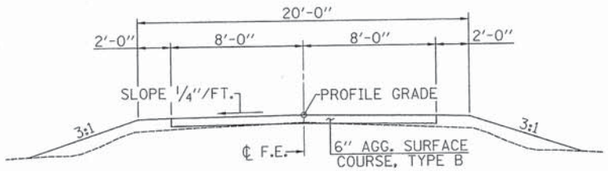
FILE NAME = $FILEL$	USER NAME = $USER$	DESIGNED - ___	REVISED - ___
		DRAWN - ___	REVISED - ___
	PLOT SCALE = $SCALE$	CHECKED - ___	REVISED - ___
	PLOT DATE = $DATE$	DATE - _____	REVISED - ___

Allen Henderson & Associates, Inc.
Civil and Structural Engineers Springfield, IL.
62703 Phone: (217)544-8033 IL. Design Firm
No. 184-001907

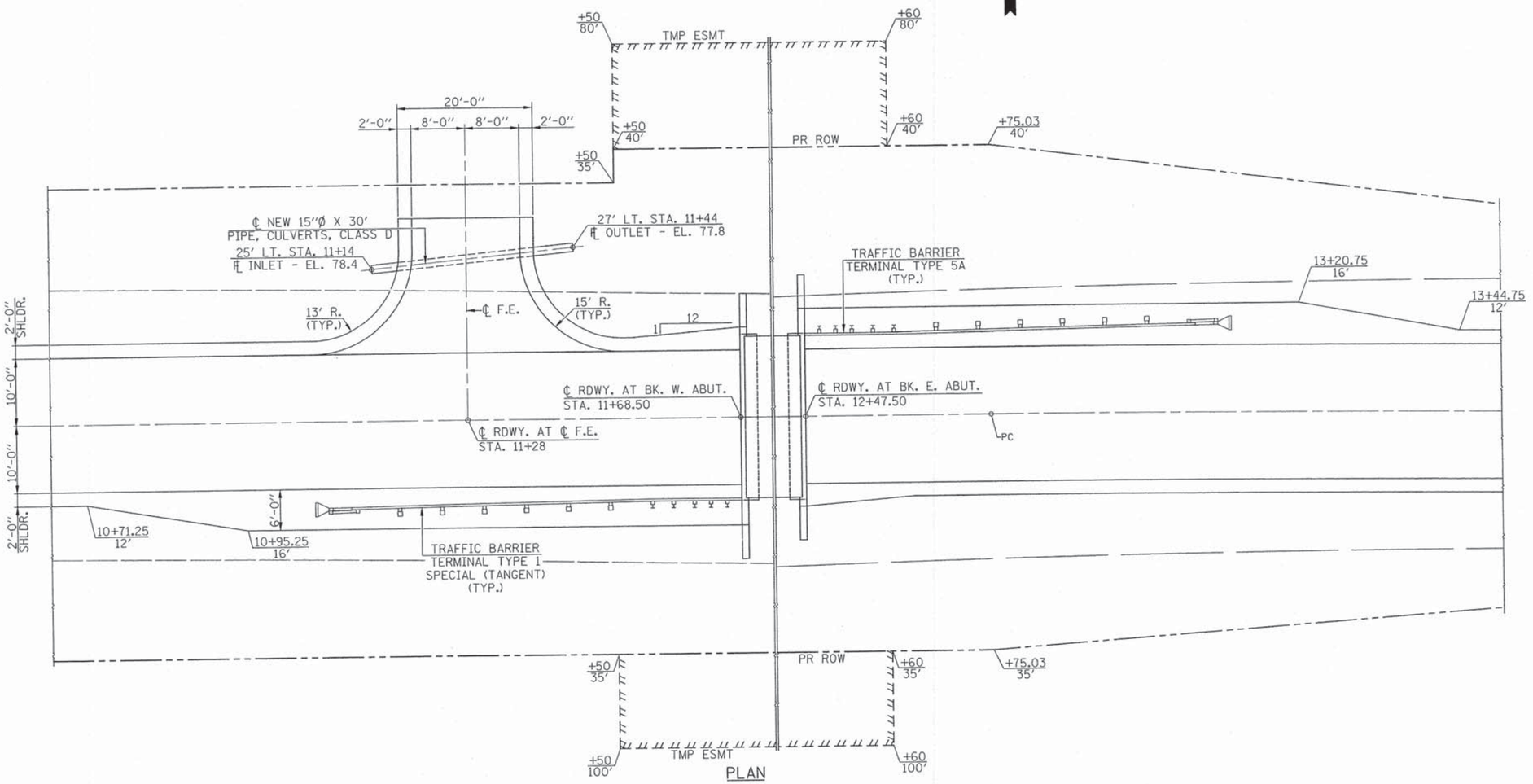
SUMMARY OF QUANTITIES, DETAILS, TYPICAL SECTIONS & SCHEDULES

SCALE: VARIES | SHEET NO. 1 OF 1 SHEETS | STA. 9+50.00 TO STA. 14+50.00

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
431A	12-15134-00-BR	SHELBY	16	15
		CONTRACT NO. 95752		
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		



TYPICAL FIELD ENTRANCE
(F.E. - STA. 11+28 LT.)



PLAN

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		DRAWN - ___	REVISED - ___
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	PLOT DATE = #DATE#	DATE - _____	REVISED - ___

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Civil and Structural Engineers Springfield, IL.
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No. 184-001907

DETAILS

SCALE: VARIES | SHEET NO. 1 OF 1 SHEETS | STA. 9+50.00 TO STA. 14+50.00

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
431A	12-15134-00-BR	SHELBY	16	3
		CONTRACT NO. 75752		
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

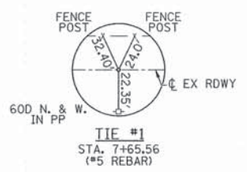
75752

SECTION 8, T. 9 N., R. 5 E., 3RD PM

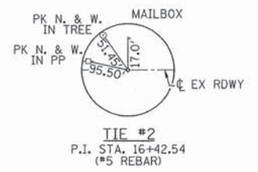
STA. 12+08.00 - ℄ RDWY. ⊕ ℄ STRUCTURE

PROPOSED STRUCTURE: SINGLE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAMS (33") ON OPEN CONCRETE ABUTMENTS WITH CONCRETE WINGWALLS. 79'-0" BK.-BK. ABUTMENTS, 24'-0" OUT-OUT. DECK. STEEL RAILING TYPE S-1. 0° SKEW

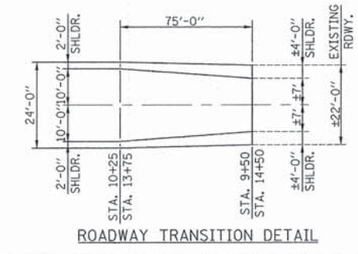
℄ NEW 15"Ø X 30' PIPE CULVERTS, CLASS D, TYPE 1
℄ INLET - EL. 78.4
25' LT. STA. 11+14
℄ OUTLET - EL. 77.8
27.5' LT. STA. 11+44



TIE #1
STA. 7+65.56
(#5 REBAR)



TIE #2
P.I. STA. 16+42.54
(#5 REBAR)



ROADWAY TRANSITION DETAIL

SECTION 17, T. 9 N., R. 5 E., 3RD PM

PLAN

0 50 100
SCALE: 1" = 50'

TYPICAL SECTION THROUGH CHANNEL

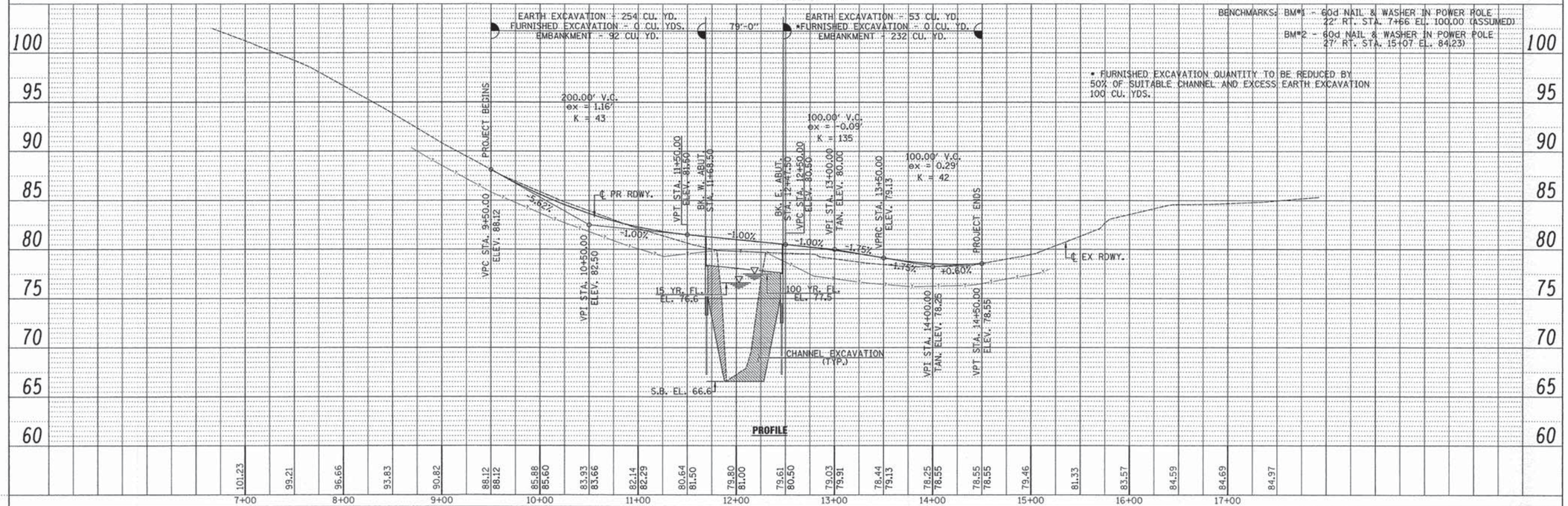
SEEDING CLASS 2 STA. 9+50 TO STA. 14+50 R.O.W. TO R.O.W. - 0.7 ACRE

EARTH EXCAVATION = 254 CU. YD.
FURNISHED EXCAVATION = 0 CU. YDS.
EMBANKMENT = 92 CU. YD.

EARTH EXCAVATION = 53 CU. YD.
*FURNISHED EXCAVATION = 0 CU. YD.
EMBANKMENT = 232 CU. YD.

BENCHMARKS: BM#1 - 60d NAIL & WASHER IN POWER POLE
22' RT. STA. 7+66 EL. 100.00 (ASSUMED)
BM#2 - 60d NAIL & WASHER IN POWER POLE
27' RT. STA. 15+07 EL. 84.23)

* FURNISHED EXCAVATION QUANTITY TO BE REDUCED BY 50% OF SUITABLE CHANNEL AND EXCESS EARTH EXCAVATION 100 CU. YDS.



PROFILE

PLAN	DATE
SURVEYED	
PLOTTED	BY
ALIGNMENT CHECKED	
GRADES CHECKED	
NOTE BOOK	ALL NOTATIONS CKED
NO.	C.ADD FILE NAME

PROFILE	DATE
PLOTTED	
PLOTTED	BY
GRADES CHECKED	
NOTE BOOK	ALL NOTATIONS CKED
NO.	STRUCTURE NOTATIONS CKED

FILE NAME = #FILEL#	USER NAME = #USER#	DESIGNED -	REVISED -
		CHECKED -	REVISED -
	PLOT SCALE = #SCALE#	DRAWN -	REVISED -
	PLOT DATE = #DATE#	CHECKED -	REVISED -

Allen Henderson & Associates, Inc.
Civil and Structural Engineers Springfield, IL.
62703 Phone: (217)544-8033 IL. Design Firm
No. 184-001907

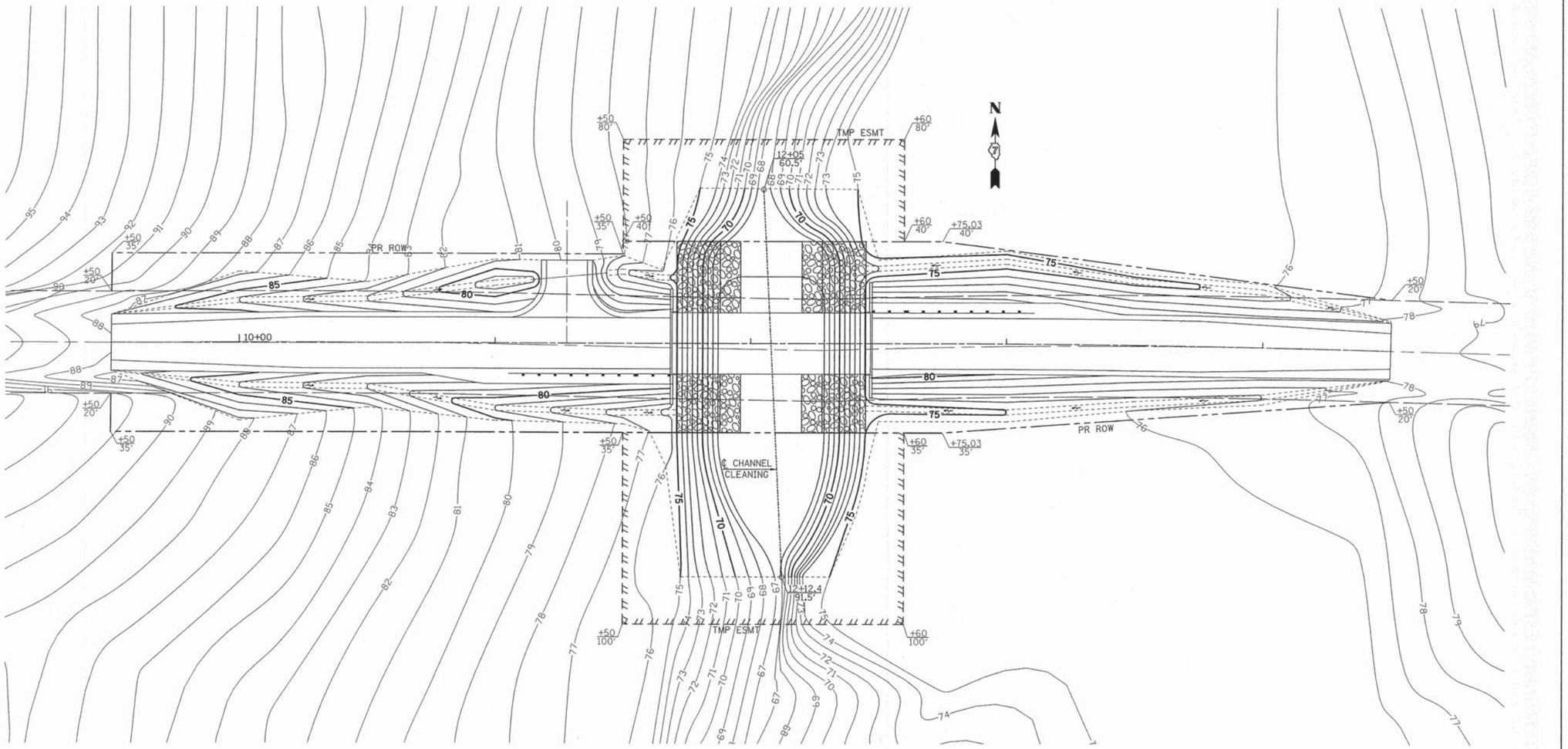
PLAN & PROFILE

SCALE: 1" = 50' | SHEET NO. 1 OF 1 SHEETS | STA. 9+50.00 TO STA. 14+50.00

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
431A	12-15134-00-BR	SHELBY	16	4

CONTRACT NO. 85752

FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT



PLAN

0 20 40

SCALE: 1" = 20'

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		DRAWN -	REVISED -
	PLOT SCALE = #SCALE#	CHECKED -	REVISED -
	PLOT DATE = #DATE#	DATE -	REVISED -

Allen Henderson & Associates, Inc.
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No. 184-001907

GRADING PLAN

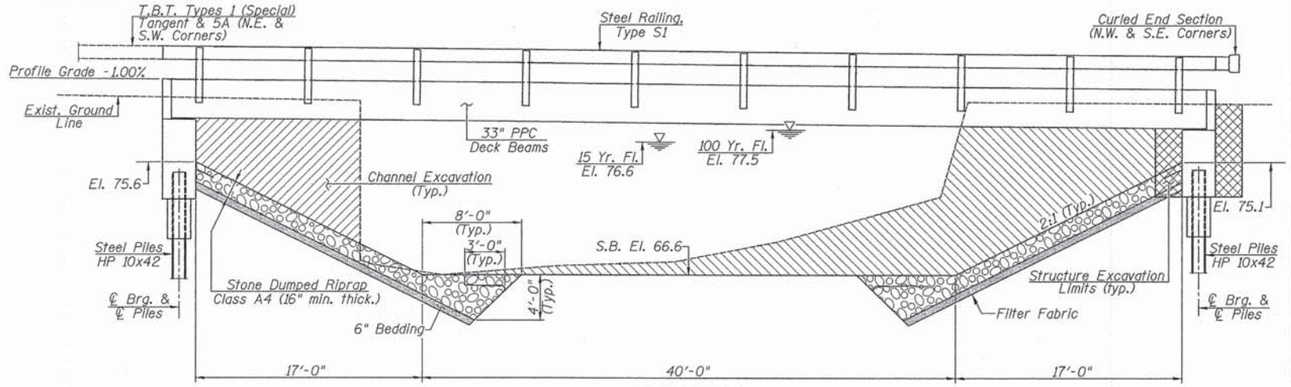
SCALE: 1" = 20' | SHEET NO. 1 OF 1 SHEETS | STA. 9+50.00 TO STA. 14+50.00

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
431A	12-15134-00-BR	SHELBY	45 74	2.5
		CONTRACT NO. 95762		
FED. ROAD DIST. NO. -	ILLINOIS	FED. AID PROJECT		

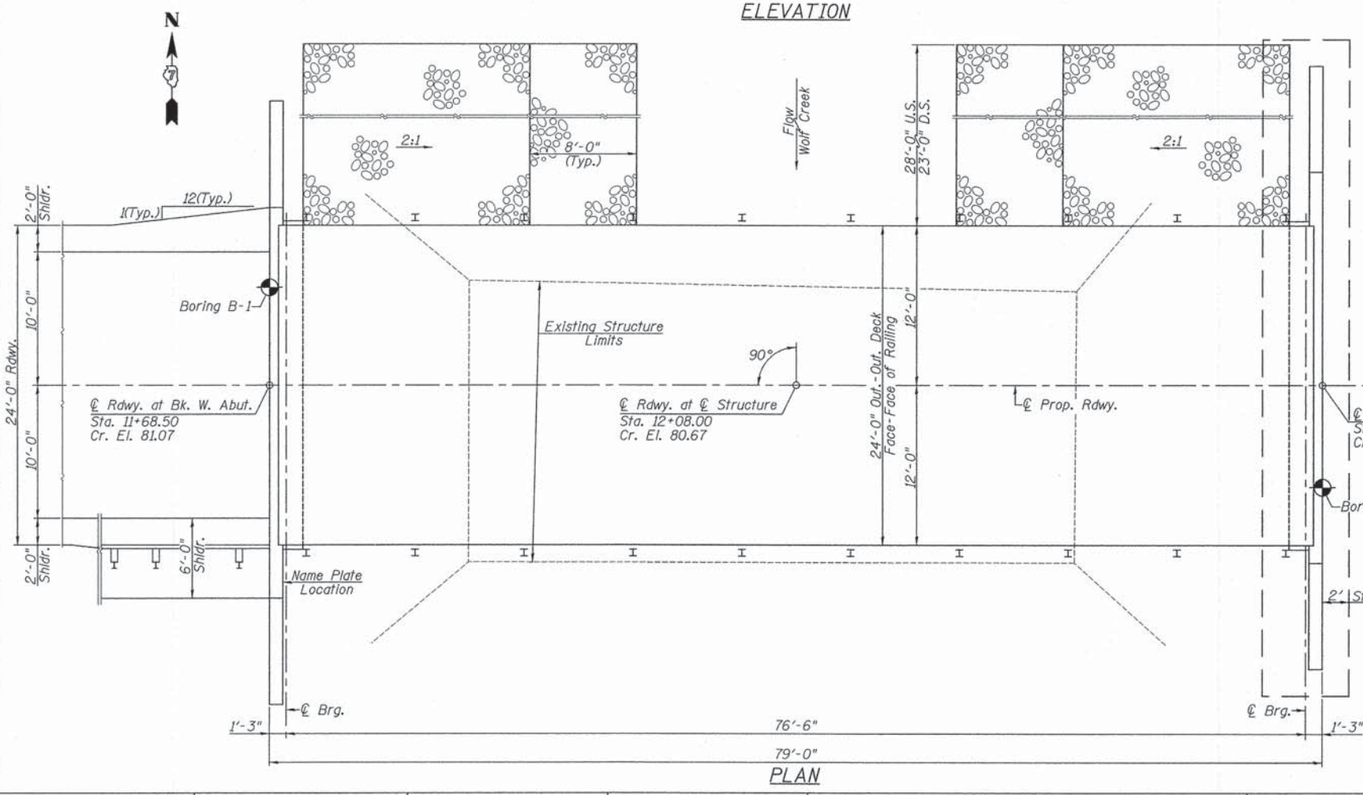
Existing Structure: Single Span Poured Concrete Deck on Steel Stringers with Closed Timber Abutments and Wingwalls on Timber Piles. ±46'-0" Bk.-Bk. Abutments. ±20'-0" Out.-Out. Deck. Steel Railing. ±0° Skew. Existing Structure No. 087-3336

No Salvage

Benchmarks: BM#1 - 60d N & W In Power Pole Sta. 7+65, 22' Rt. El. 100.00 (Assumed)
BM#2 - 60d N & W In Power Pole Sta. 15+07, 27' Rt. El. 84.23



ELEVATION



PLAN

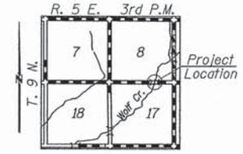
TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	Cu. Yd.			861
Stone Dumped Riprap, Class A4	Ton			345
Filter Fabric	Sq. Yd.			467
Removal of Existing Structures	Each			1
Structure Excavation	Cu. Yd.			169
Concrete Structures	Cu. Yd.		39.1	39.1
Concrete Encasement	Cu. Yd.		3.6	3.6
Precast Prestressed Concrete Deck Beams (33" Depth)	Sq. Ft.	1864		1864
Reinforcement Bars	Pound		5010	5010
Steel Railing, Type S1	Foot	158		158
Furnishing Steel Piles HP10X42	Foot		208	208
Driving Piles	Foot		208	208
Test Pile Steel HP10X42	Each		2	2
Pile Shoes	Each			
Name Plates	Each		1	1

WATERWAY INFORMATION

Drainage Area = 12.07 Sq. Mi. Pr. Low Grade Elev. 78.55 @ Sta. 14+50

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Natural H.W.E.	Head - ft. Exist.	Head - ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
Design	15	1921	361	596	76.6	1.1	0.4	77.6	77.0
Base	100	3183	392	663	77.5	1.9	0.7	79.4	78.2
Exist. Overtop.	62	2900							
Prop. Overtop.	390	3870							
Max. Calc.	500	4250	392	678	78.1	3.1	1.1	81.2	79.2



LOCATION SKETCH

WOLF CREEK
STA. 12+08.00
BUILT 20 BY
SHELBY COUNTY
SECTION 12-15134-00-BR
STR. NO. 087-3581 LOADING HL-93

NAME PLATE
(Standard 515001)

LOADING HL-93

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

DESIGN SPECIFICATIONS

2010 AASHTO LRFD Bridge Design Specifications
5th Edition with 2010 Interims

DESIGN STRESSES

FIELD UNITS

f'c = 3,500 psi
fy = 60,000 psi (Reinforcement)

PRECAST PRESTRESSED UNITS

f'c = 6000 psi
f'ci = 5000 psi
fpu = 270000 psi (½"ϕ low lax strands)
fpbt = 201960 psi (½"ϕ low lax strands)

GENERAL NOTES

See Proposal for Boring Data.
Reinforcement bars shall conform to the requirements of ASTM A706, Grade 60.
The layout of the riprap slopewall may be varied to suit ground conditions in the field as determined by the Engineer.

STONE RIPRAP TREATMENT
(Typ. Each End)

Expires 11/30/2016
GERALD B. HOTHERSALL
081-005671
LICENSED STRUCTURAL ENGINEER
STATE OF ILLINOIS

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 "A.A.S.H.T.O. LRFD Bridge Design Specifications.

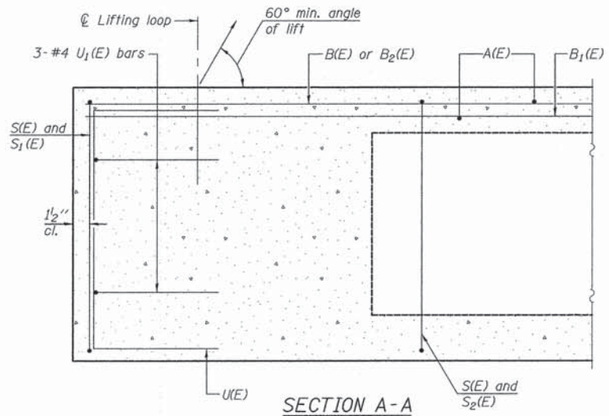
Expiration Date 11/30/2016

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

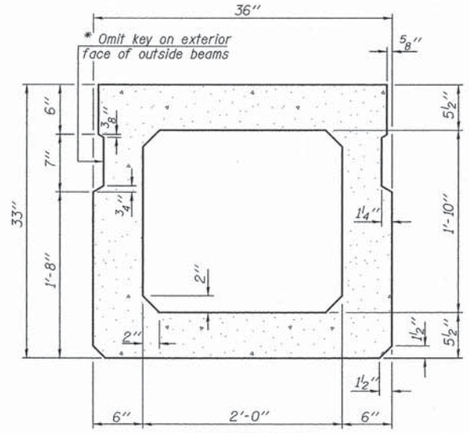
Allen Henderson & Associates, Inc.
Civil and Structural Engineers Springfield, IL.
62703 Phone: (217)544-8033 IL. Design Firm No. 184-001907

GENERAL PLAN & ELEVATION
STR. NO. 087-3581
SHEET NO. 1 OF 7 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
431A	12-15134-00-BR	SHELBY	16	6
		CONTRACT NO. 95452		
		ILLINOIS FED. AID PROJECT		

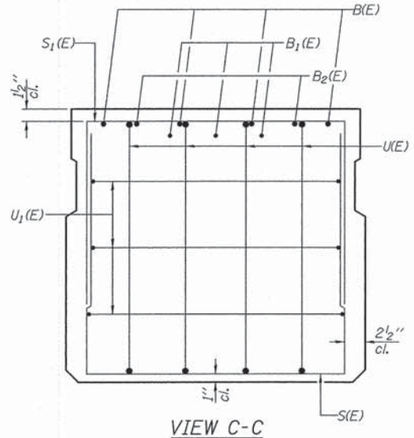


SECTION A-A

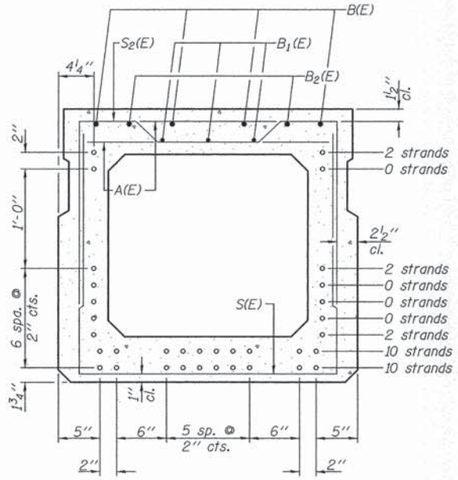


SECTION B-B
(Showing dimensions)

* Rail post anchors to be cast into exterior face of outside beams (Per Sheet 4 of 6)



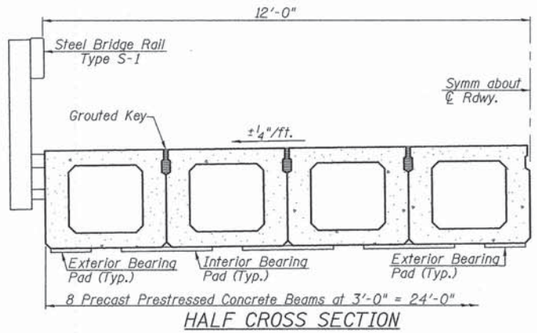
VIEW C-C



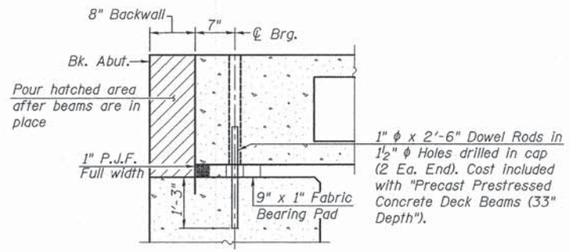
SECTION B-B
(Showing reinforcement and permissible strand locations)

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

Notes: After beams have been erected, holes shall be drilled into substructure and anchor dowels placed. Dowel holes shall be filled with non-shrink grout to top of beam and allowed to cure min. 24 hrs. prior to grouting the shear keys.
All horizontal dimensions are at right angles to beam ends.

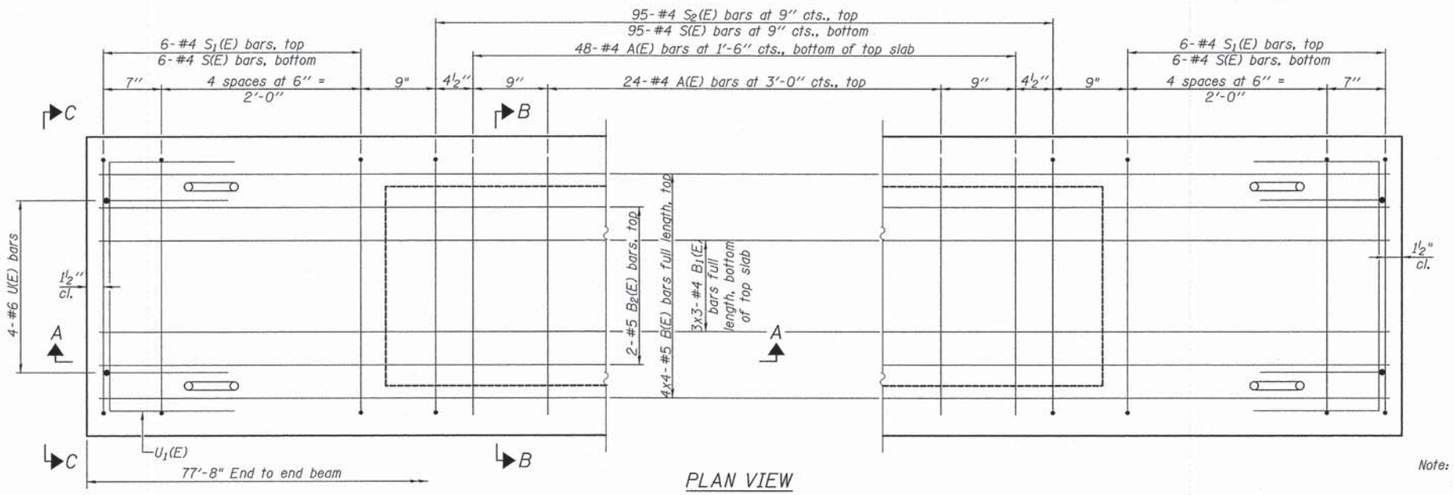


HALF CROSS SECTION



SECTION THRU ABUTMENT
(At Right Angles)

1" ϕ x 2'-6" Dowel Rods in 1½" ϕ Holes drilled in cap (2 Ea. End). Cost included with "Precast Prestressed Concrete Deck Beams (33" Depth").



PLAN VIEW

MINIMUM BAR LAP

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

BAR LIST
ONE BEAM ONLY
(For information only)

Bar	No.	Size	Length	Shape
A(E)	72	#4	2'-7"	—
B(E)	16	#5	21'-11"	—
B1(E)	9	#4	27'-11"	—
B2(E)	4	#5	10'-0"	—
S(E)	107	#4	7'-5"	⌊
S1(E)	12	#4	6'-3"	⌐
S2(E)	95	#4	6'-6"	⌐
U(E)	8	#6	5'-0"	⊏
U1(E)	6	#4	5'-0"	⌐

Note: See sheet 3 of 7 for additional details and Bill of Material.
Bars indicated thus 4x4-#5 etc. indicates 4 lines of bars with 4 lengths per line.
Reinforcement designated (E) to be epoxy coated.

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.

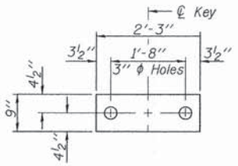
PD-3336-0 7-1-10

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

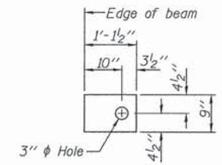
Allen Henderson & Associates, Inc.
Civil and Structural Engineers Springfield, IL.
62703 Phone: (217)544-8033 IL. Design Firm
No. 184-001907

33" x 36" PPC DECK BEAM
STRUCTURE NO. 087-3581
SHEET NO. 2 OF 7 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
431A	12-15134-00-BR	SHELBY	16	7
		CONTRACT NO. 85152		
	ILLINOIS FED. AID PROJECT			



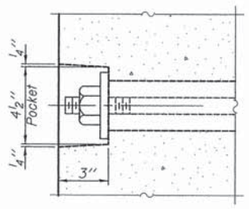
FABRIC BEARING PAD
(Interior)
(12 Required)



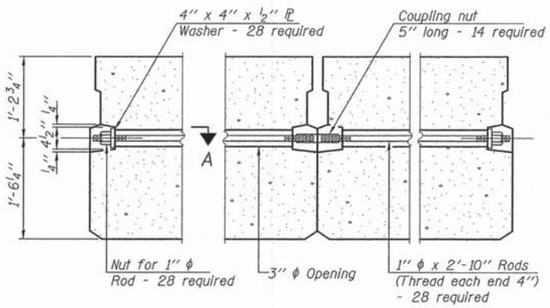
FABRIC BEARING PAD
(Exterior)
(8 Required)

FIXED

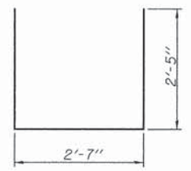
Note:
All bearing pads shall be 1" thick.



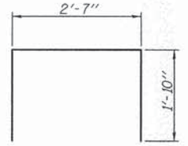
SECTION A-A



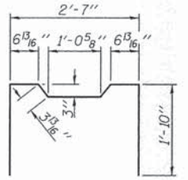
TYPICAL TRANSVERSE TIE ASSEMBLY



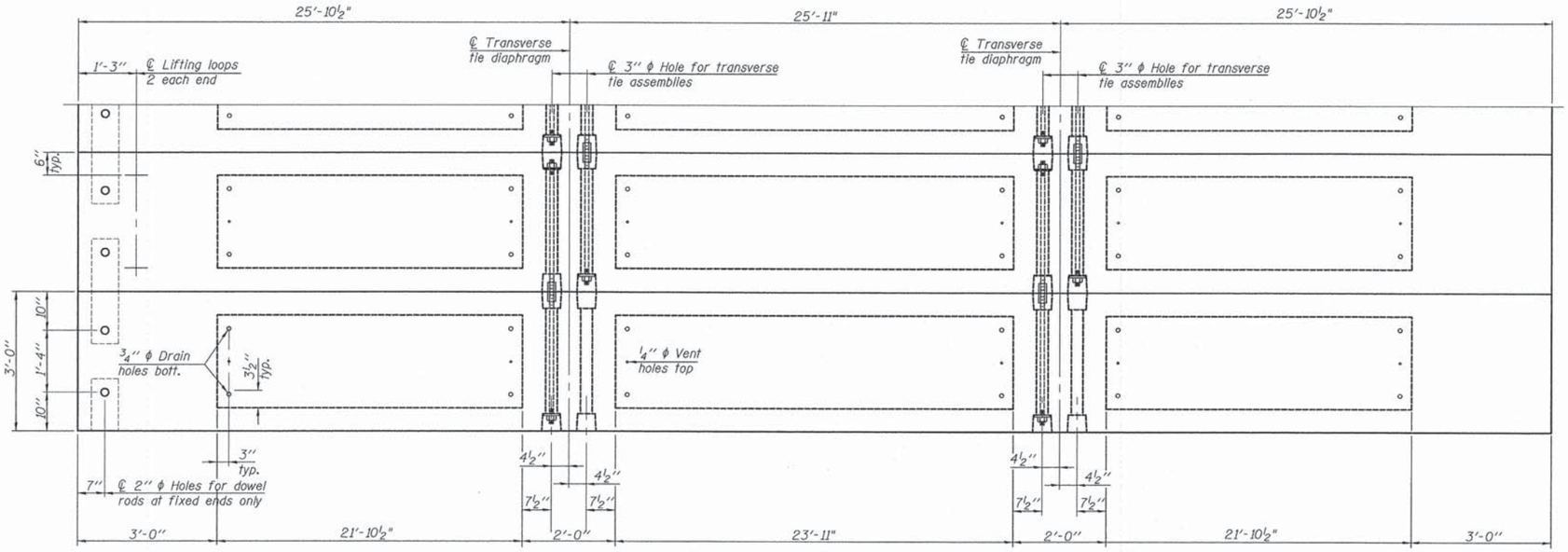
BAR S(E)



BAR S_1(E)

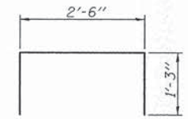


BAR S_2(E)

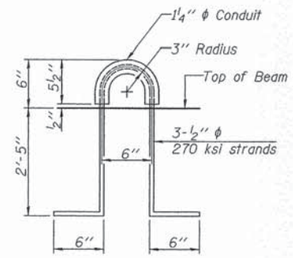


PLAN VIEW

BAR U(E)



BAR U_1(E)



LIFTING LOOP DETAIL

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 ½" 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 ⅛" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.

A minimum 2½" 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.

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (33" depth)	Sq. Ft.	1864

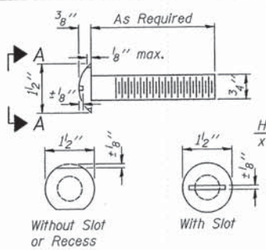
PD-3336-0D 7-1-10

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

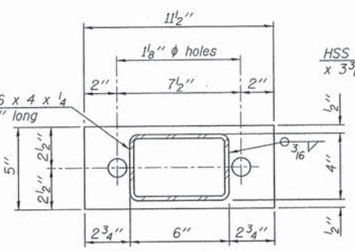
Allen Henderson & Associates, Inc.
Civil and Structural Engineers Springfield, IL.
62703 Phone: (217)544-8033 IL. Design Firm
No. 184-001907

33" x 36" PPC DECK BEAM DETAILS
STRUCTURE NO. 087-3581
SHEET NO. 3 OF 7 SHEETS

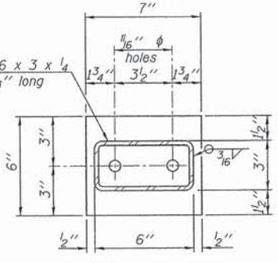
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
431A	12-15134-00-BR	SHELBY	16	8
		CONTRACT NO. 95758		
		ILLINOIS FED. AID PROJECT		



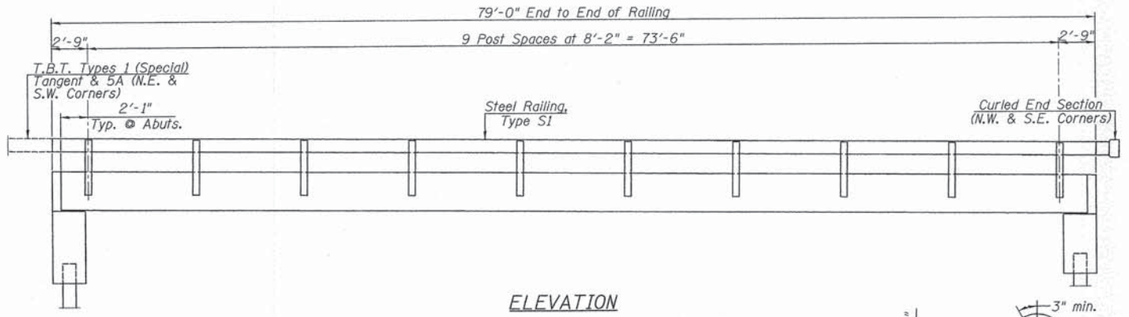
VIEW A-A
ROUND HEAD BOLT



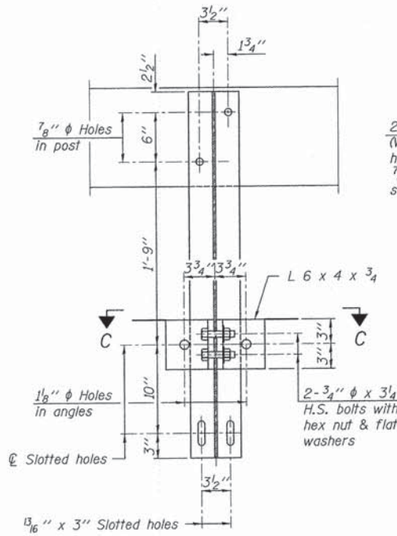
℄ 1/2" x 11 1/2" x 5"



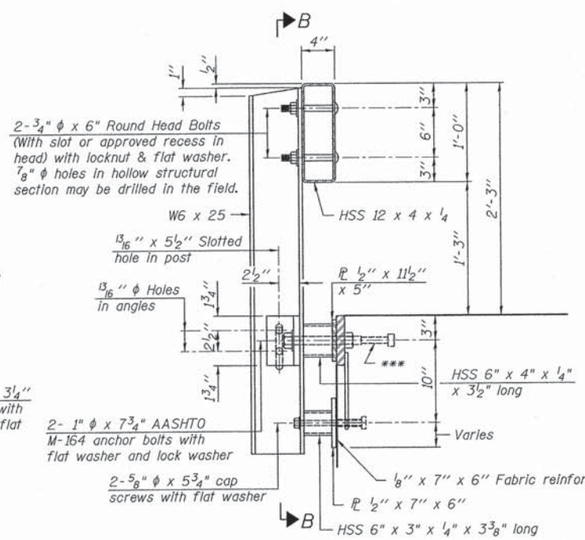
℄ 1/2" x 7" x 6"



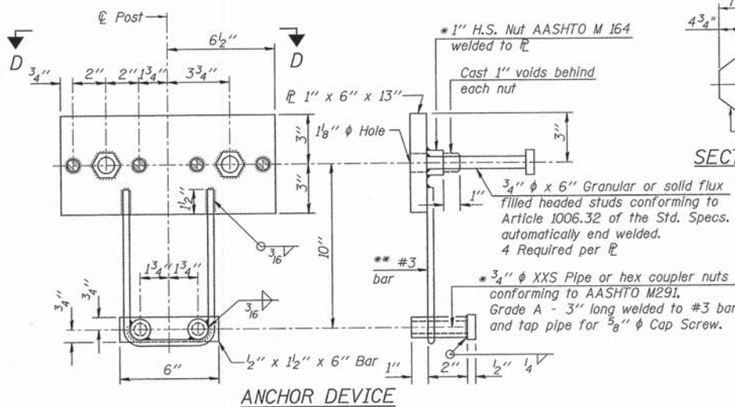
ELEVATION



SECTION B-B

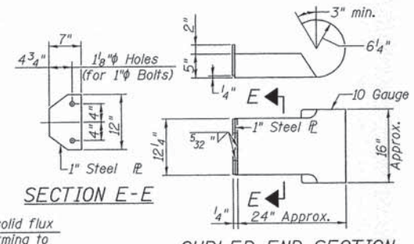


SECTION AT RAILING POST



ANCHOR DEVICE

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



SECTION E-E

CURLED END SECTION DETAILS (4 Required)

Cost of Curled End Sections to be included in the cost of Steel Railing, Type S1

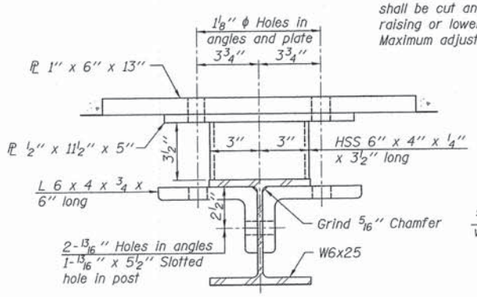
Notes:

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.

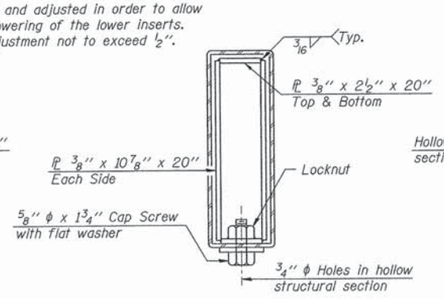
All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.

*** 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.

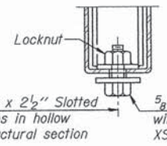


SECTION C-C

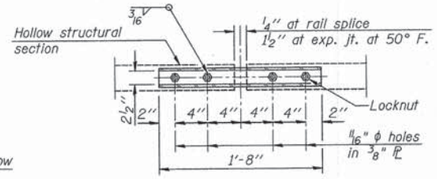
** Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 1/2".



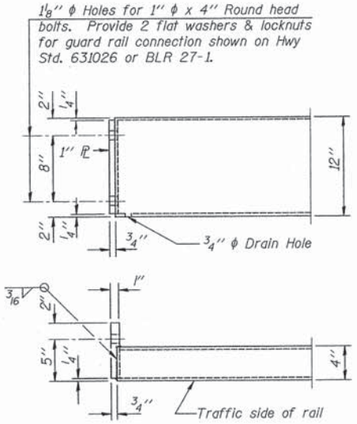
SECTIONS AT RAIL SPLICE



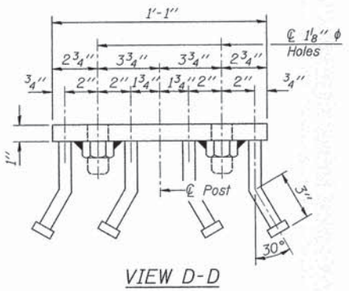
RAIL SPLICE CONNECTION AT EXPANSION JT.



PLAN-BOTT. SPLICE ℄ TYPICAL



END OF RAIL DETAILS



VIEW D-D

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S1	Foot	158

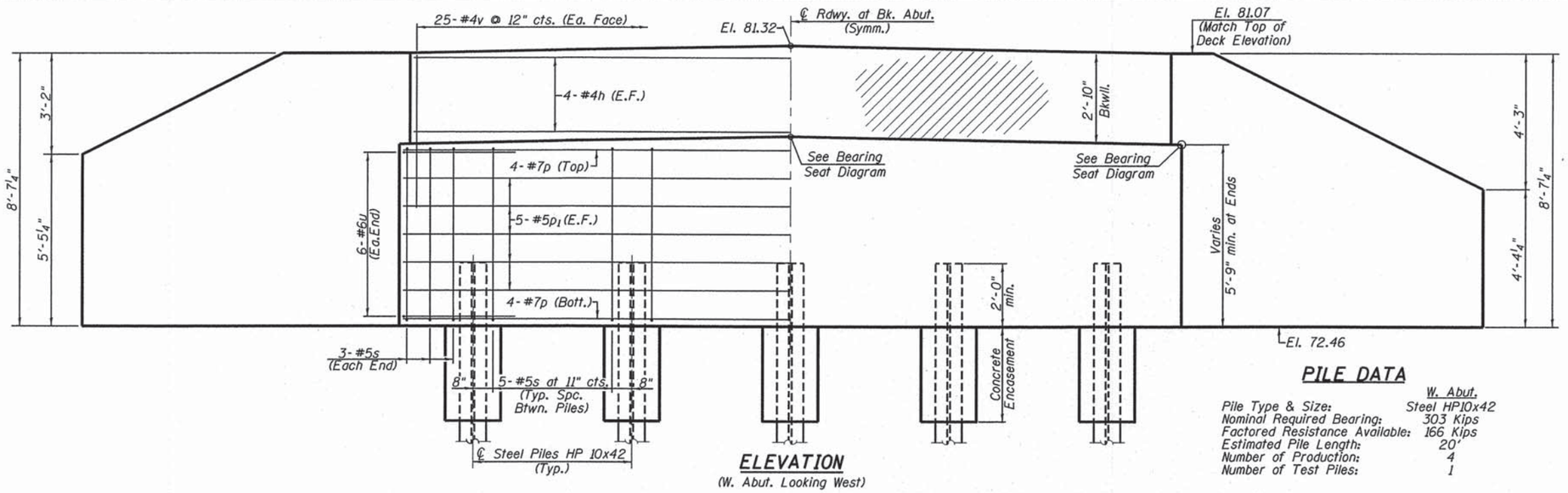
R-23A 7-1-10 (10'-9" Maximum Post Spacing)

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

Allen Henderson & Associates, Inc.
Civil and Structural Engineers Springfield, IL.
62703 Phone: (217)544-8033 IL. Design Firm No. 184-001907

STEEL RAILING, TYPE S1
STRUCTURE NO. 087-3581
SHEET NO. 4 OF 7 SHEETS

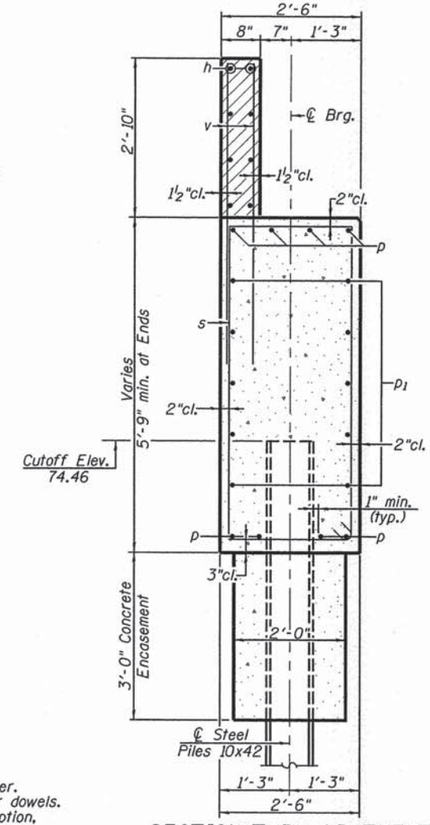
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
431A	12-15134-00-BR	SHELBY	16	9
		CONTRACT NO. 95752		
		ILLINOIS FED. AID PROJECT		



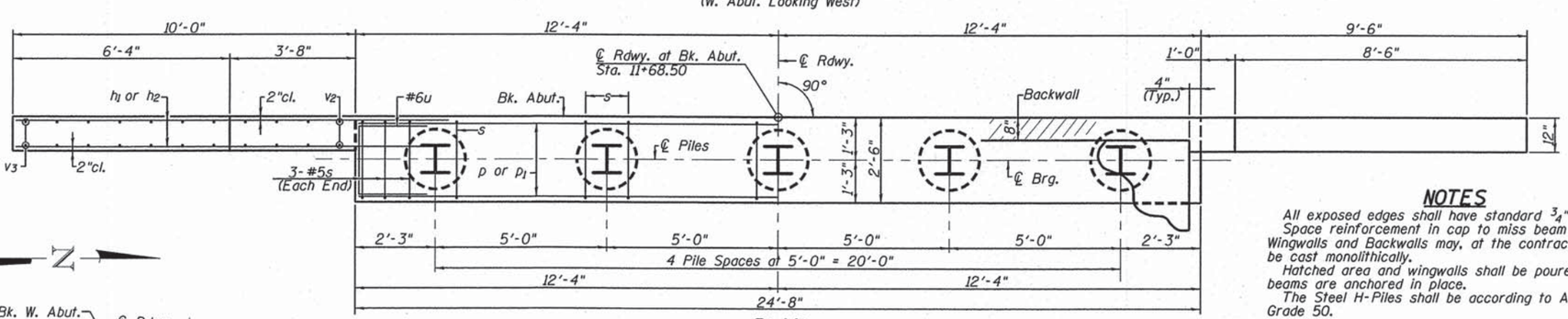
ELEVATION
(W. Abut. Looking West)

PILE DATA

	W. Abut.
Pile Type & Size:	Steel HP10x42
Nominal Required Bearing:	303 Kips
Factored Resistance Available:	166 Kips
Estimated Pile Length:	20'
Number of Production:	4
Number of Test Piles:	1



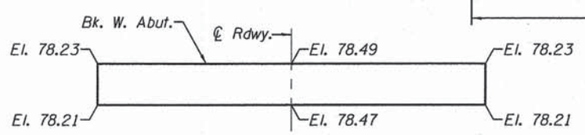
SECTION THRU ABUTMENT



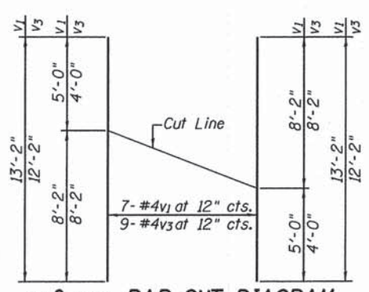
PLAN

NOTES

All exposed edges shall have standard ¾" chamfer.
Space reinforcement in cap to miss beam anchor dowels.
Wingwalls and Backwalls may, at the contractor's option, be cast monolithically.
Hatched area and wingwalls shall be poured after deck beams are anchored in place.
The Steel H-Piles shall be according to AASHTO M270, Grade 50.

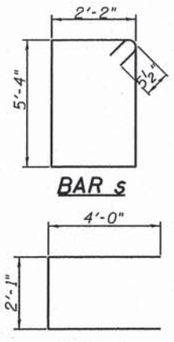


BEARING SEAT DIAGRAM



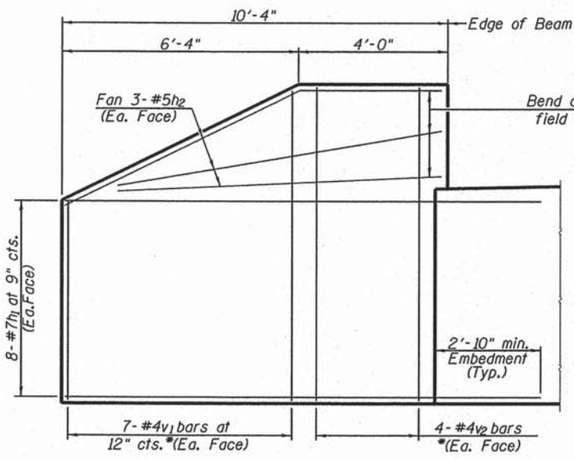
v1 & v3 - BAR CUT DIAGRAM

Order v1 & v3 bars full length. Layout in field according to diagram. Cut v1 & v3 bars along cut line. Use remainder of each bar in opposite face.

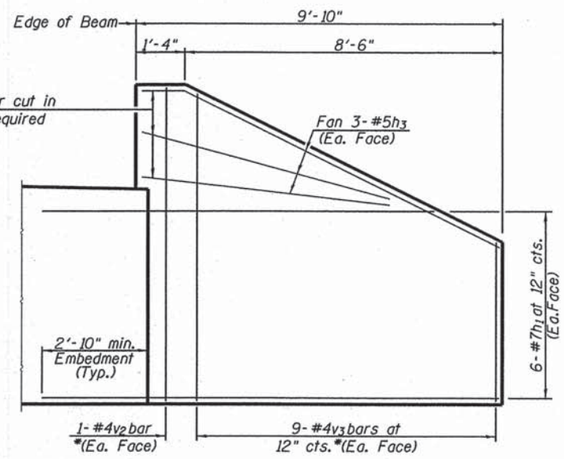


BAR s

BAR u



WINGWALL ELEVATION
* See v1 & v3-bar cut diagram



WINGWALL ELEVATION
* See v1 & v3-bar cut diagram

WEST ABUTMENT BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	SHAPE
h	8	#4	26'-8"	——
h1	28	#7	12'-10"	——
h2	6	#5	11'-1"	——
h3	6	#5	10'-10"	——
p	8	#7	24'-4"	——
p1	10	#5	24'-4"	——
s	26	#5	15'-11"	□
u	12	#6	10'-1"	⊏
v	50	#4	4'-3"	——
v1	7	#4	13'-2"	——
v2	10	#4	8'-2"	——
v3	9	#4	12'-2"	——

Structure Excavation	Cu. Yd.	89
Concrete Structures	Cu. Yd.	20.7
Concrete Encasement	Cu. Yd.	1.8
Reinforcement Bars	Pound	2615
Furnishing Steel Piles HP10x42	Foot	80
Driving Piles	Foot	80
Test Pile Steel HP10x42	Each	1
Pile Shoes	Each	5

95752

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

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Civil and Structural Engineers Springfield, IL.
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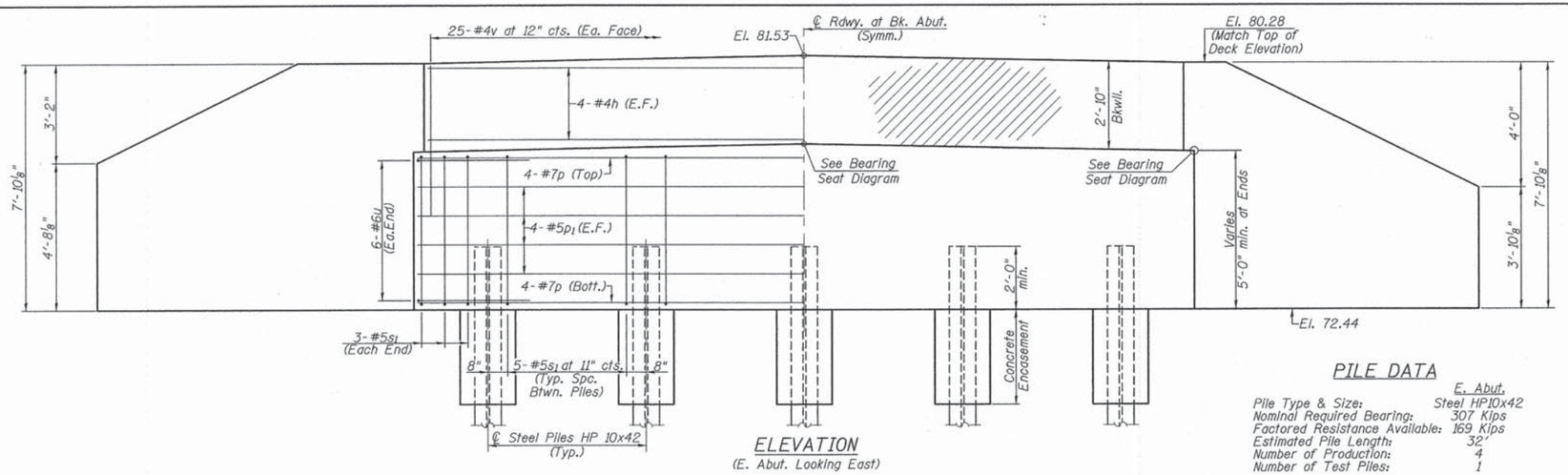
WEST ABUTMENT
STRUCTURE NO. 087-3581
SHEET NO. 5 OF 7 SHEETS

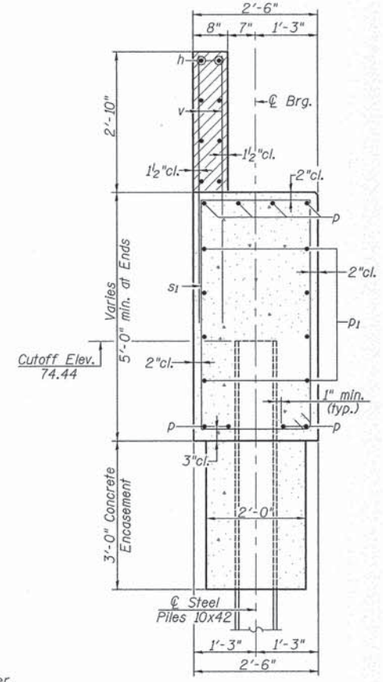
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
431A	12-15134-00-BR	SHELBY	16	10
		CONTRACT NO. 95752		
	ILLINOIS FED. AID PROJECT			



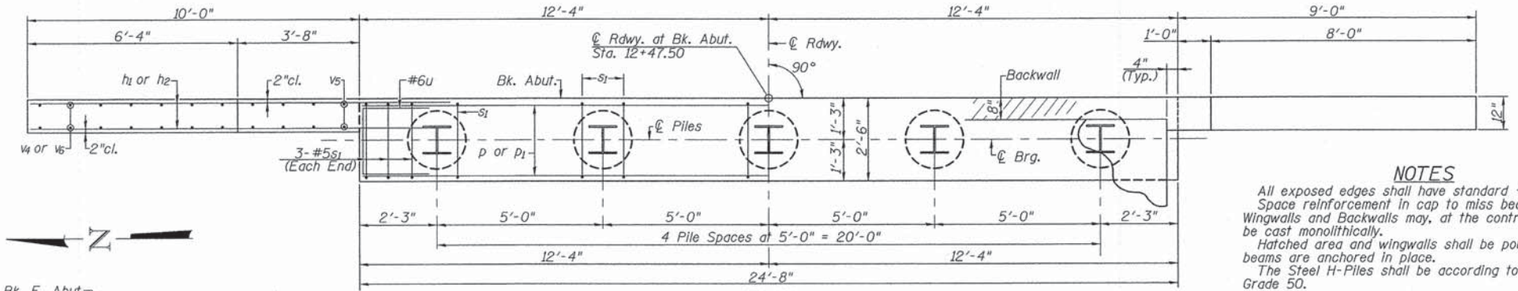
ELEVATION
(E. Abut. Looking East)

PILE DATA

	E. Abut.
Pile Type & Size:	Steel HP10x42
Nominal Required Bearing:	307 Kips
Factored Resistance Available:	169 Kips
Estimated Pile Length:	32'
Number of Production:	4
Number of Test Piles:	1



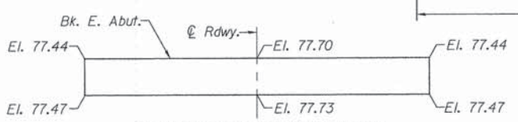
SECTION THRU ABUTMENT



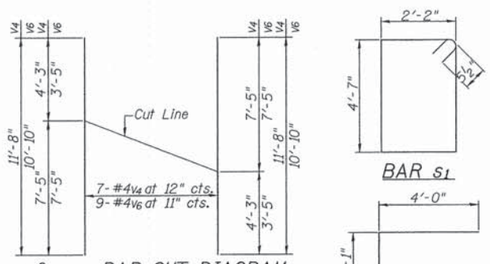
PLAN

NOTES

All exposed edges shall have standard ¾" chamfer.
Space reinforcement in cap to miss beam anchor dowels.
Wingwalls and Backwalls may, at the contractor's option, be cast monolithically.
Hatched area and wingwalls shall be poured after deck beams are anchored in place.
The Steel H-Piles shall be according to AASHTO M270, Grade 50.



BEARING SEAT DIAGRAM

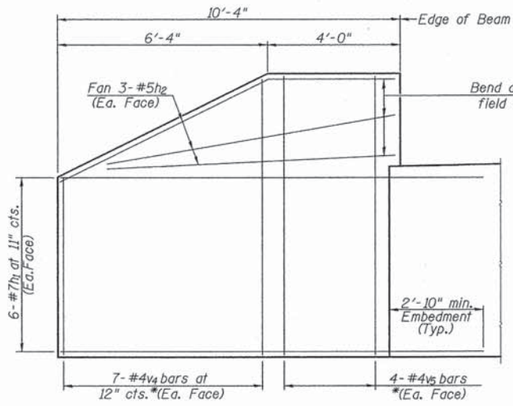


V4 & V6 - BAR CUT DIAGRAM

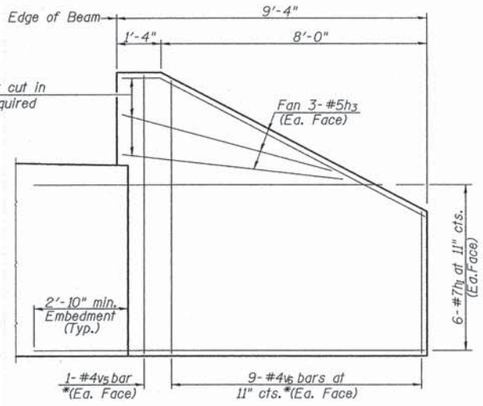
Order v4 & v6 bars full length: Layout in field according to diagram. Cut v4 & v6 bars along cut line. Use remainder of each bar in opposite face.

BAR s1

BAR u



WINGWALL ELEVATION
* See v4 & v6-bar cut diagram



WINGWALL ELEVATION
* See v4 & v6-bar cut diagram

EAST ABUTMENT BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	SHAPE
h	8	#4	26'-8"	——
h1	24	#7	12'-10"	——
h2	6	#5	11'-1"	——
h3	6	#5	10'-10"	——
p	8	#7	24'-4"	——
p1	8	#5	24'-4"	——
s1	26	#5	14'-5"	⌐
u	12	#6	10'-1"	⊏
v	50	#4	4'-3"	——
v4	7	#4	11'-8"	——
v5	10	#4	7'-5"	——
v6	9	#4	10'-10"	——

Structure Excavation	Cu. Yd.	80
Concrete Structures	Cu. Yd.	18.4
Concrete Encasement	Cu. Yd.	1.8
Reinforcement Bars	Pound	2395
Furnishing Steel Piles HP10x42	Foot	128
Driving Piles	Foot	128
Test Pile Steel HP10x42	Each	1
Pile Shoes	Each	5

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

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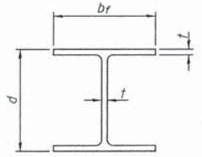
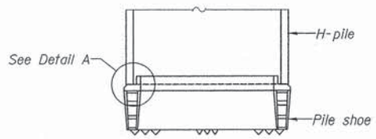
EAST ABUTMENT
STRUCTURE NO. 087-3581
SHEET NO. 6 OF 7 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
431A	12-15134-00-BR	SHELBY	16	11
		CONTRACT NO. 95752		
		ILLINOIS FED. AID PROJECT		

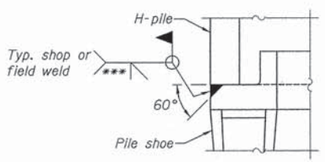


STEEL PILE TABLE

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

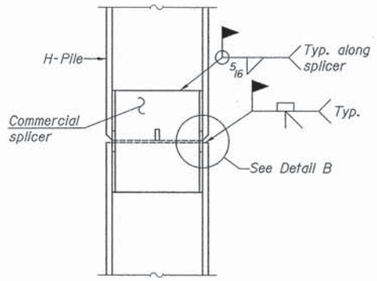


ELEVATION

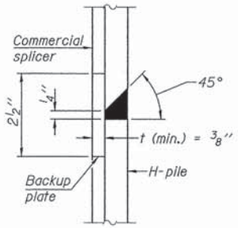


DETAIL A

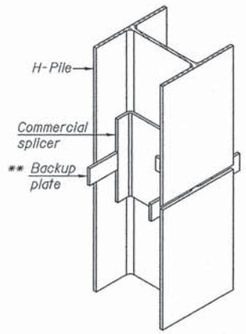
H-PILE SHOE ATTACHMENT



ELEVATION

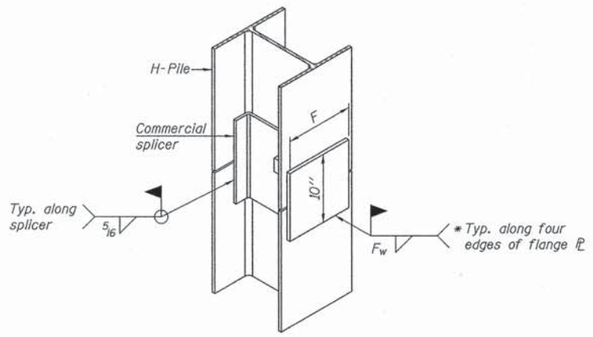


DETAIL "B"



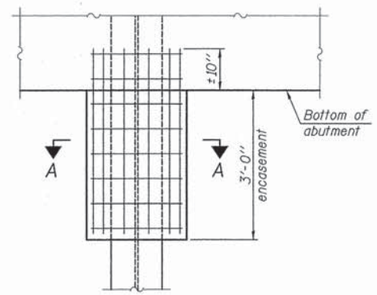
ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE

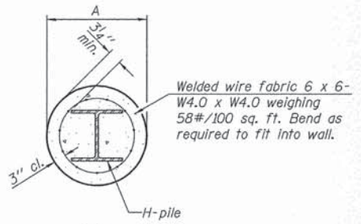


ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE ALTERNATE



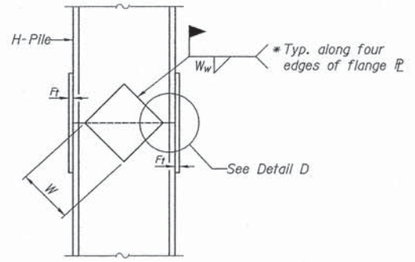
ELEVATION



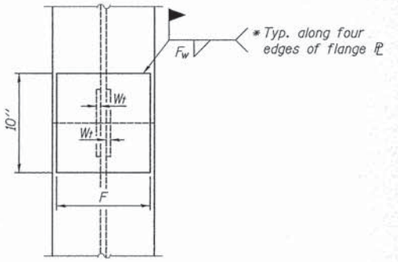
Note:
Forms for encasement may be omitted when soil conditions permit.

SECTION A-A

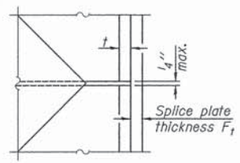
PILE ENCASEMENT



ELEVATION



END VIEW



DETAIL D

Designation	F	F_f	F_w	W	W_f	W_w
HP 14x117	12 1/2"	1"	7/8"	7 3/4"	5/8"	1/2"
x102	12 1/2"	7/8"	3/4"	7 3/4"	5/8"	1/2"
x89	12 1/2"	3/4"	11/16"	7 3/4"	5/8"	1/2"
x73	12 1/2"	5/8"	9/16"	7 3/4"	5/8"	1/2"
HP 12x84	10"	7/8"	11/16"	6 1/2"	5/8"	1/2"
x74	10"	7/8"	11/16"	6 1/2"	5/8"	1/2"
x63	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
x53	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
HP 10x57	8"	3/4"	9/16"	5 1/4"	1/2"	3/8"
x42	8"	5/8"	9/16"	5 1/4"	1/2"	3/8"
HP 8x36	7"	5/8"	7/16"	4 1/4"	1/2"	3/8"

WELDED PLATE FIELD SPLICE

* Interrupt welds 1/4" from end of web and/or each flange.

** Remove portions of backup plates that extend outside the flanges.

*** Weld size per pile shoe manufacturer (5/16" min.).

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

F-HP 7-1-10

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

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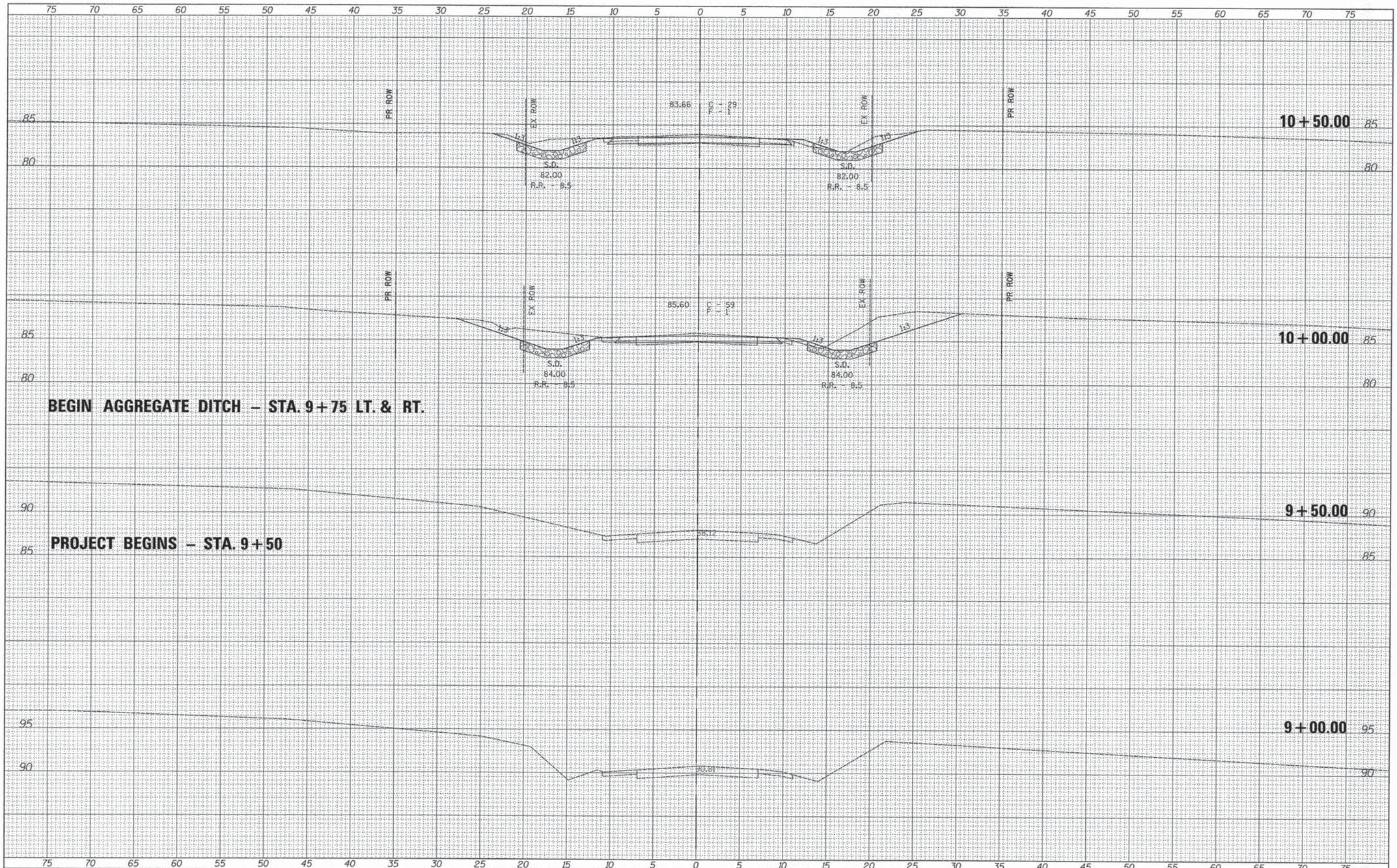
No. 184-001907

HP PILE DETAILS
STRUCTURE NO. 087-3581
SHEET NO. 7 OF 7 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
431A	12-15134-00-BR	SHELBY	16	12
		CONTRACT NO. 95762		
		ILLINOIS FED. AID PROJECT		



FINAL SURVEY — NOTE BOOK — NO.

SURVEYED	BY	DATE
PLOTTED		
TEMPLATE		
AREAS		
AREAS CHECKED		

ORIGINAL SURVEY — NOTE BOOK — NO.

SURVEYED	BY	DATE
PLOTTED		
TEMPLATE		
AREAS		
AREAS CHECKED		

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	PLOT DATE = $DATE$	DATE -	REVISED -

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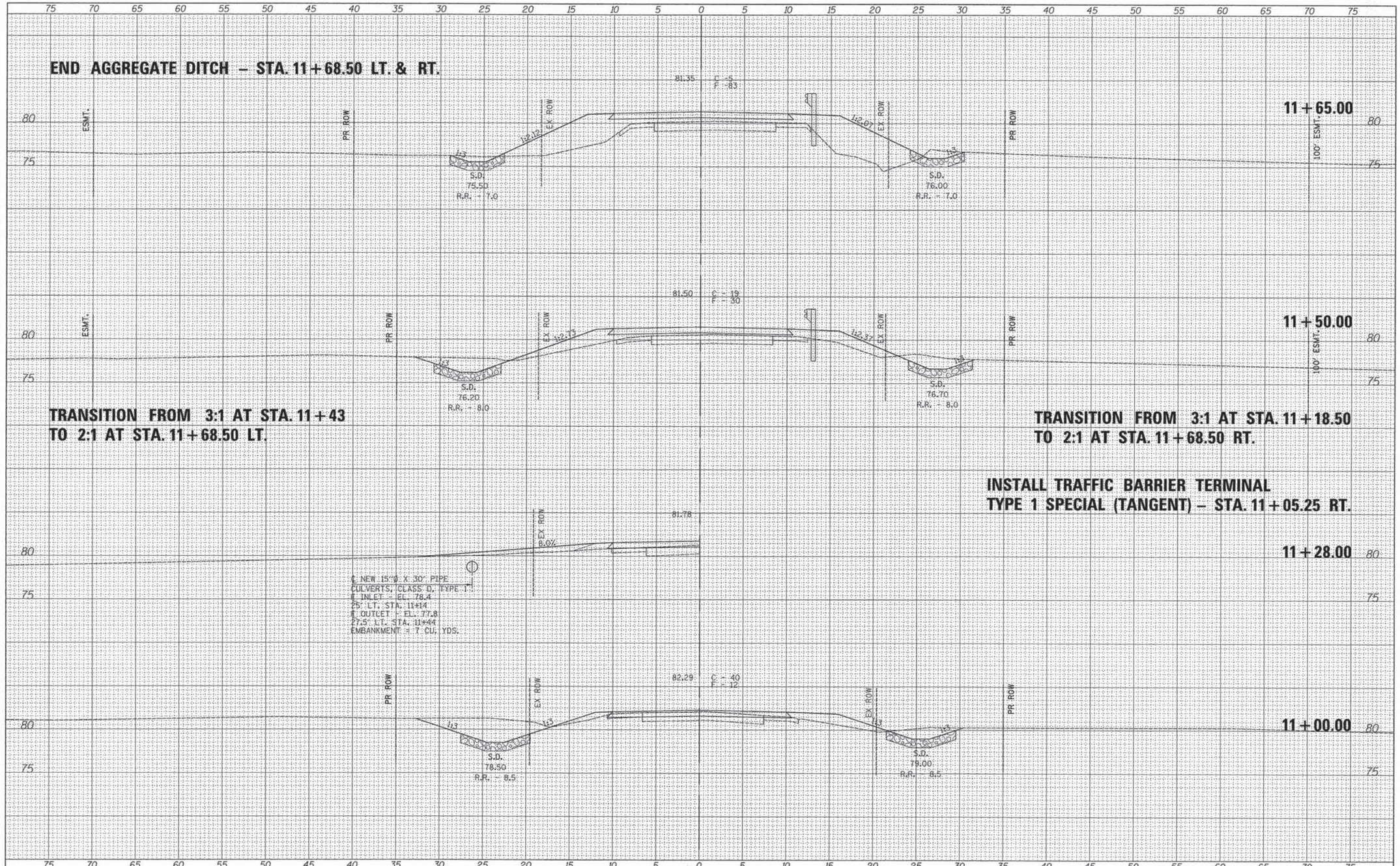
CROSS SECTIONS

SCALE: | SHEET NO. 1 OF 4 SHEETS | STA. 9+00.00 | TO STA. 10+50.00

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
431A	12-15134-00-BR	SHELBY	16	13
		CONTRACT NO. 45752		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



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

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

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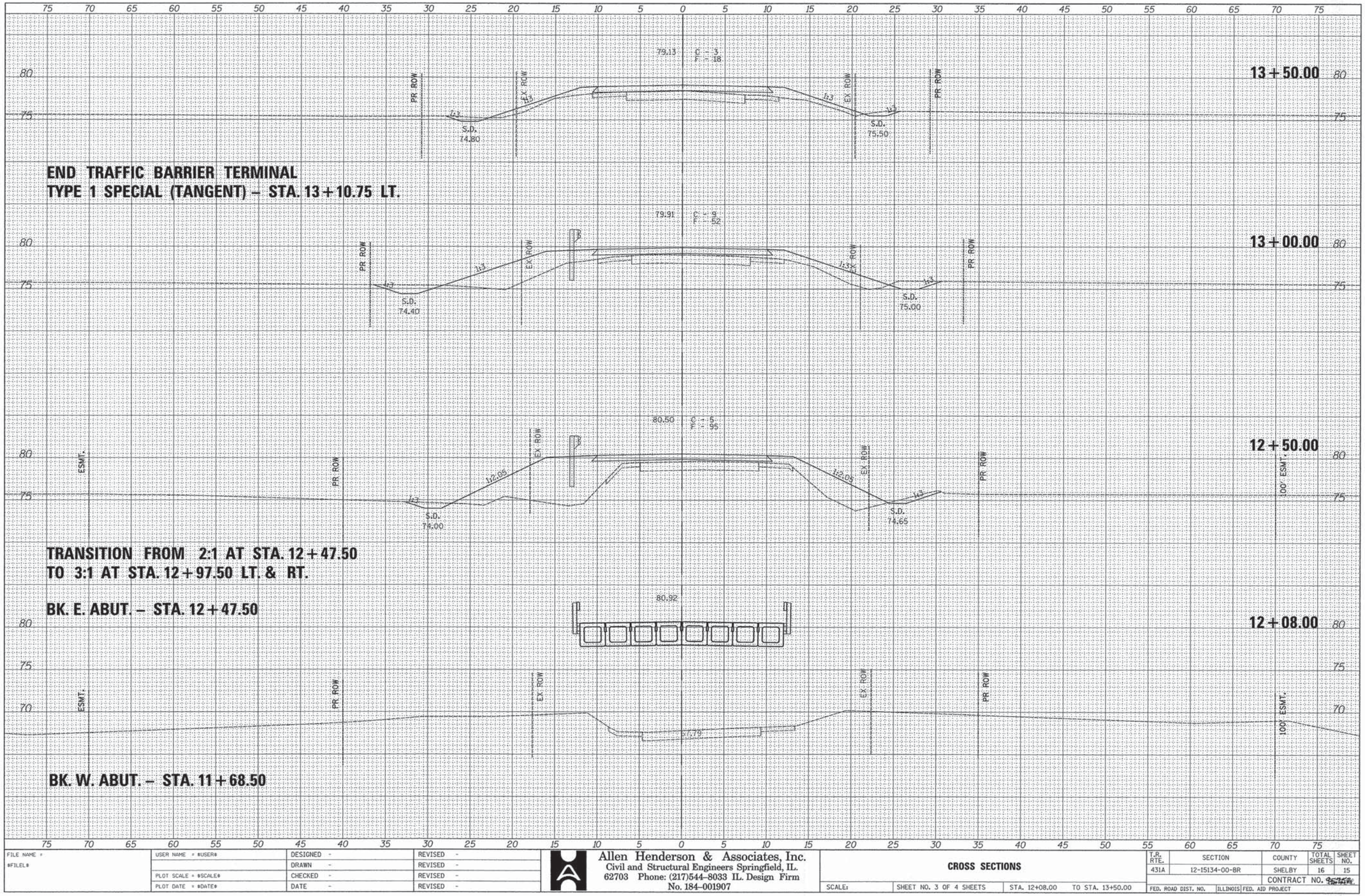
No. 184-001907

CROSS SECTIONS

SCALE: | SHEET NO. 2 OF 4 SHEETS | STA. 11+00.00 | TO STA. 11+65.00

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
431A	12-15134-00-BR	SHELBY	16	14
		CONTRACT NO. 95753		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



END TRAFFIC BARRIER TERMINAL
TYPE 1 SPECIAL (TANGENT) – STA. 13 + 10.75 LT.

TRANSITION FROM 2:1 AT STA. 12 + 47.50
TO 3:1 AT STA. 12 + 97.50 LT. & RT.

BK. E. ABUT. – STA. 12 + 47.50

BK. W. ABUT. – STA. 11 + 68.50

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

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

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		DRAWN -	REVISED -
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	PLOT DATE = #DATE#	DATE -	REVISED -

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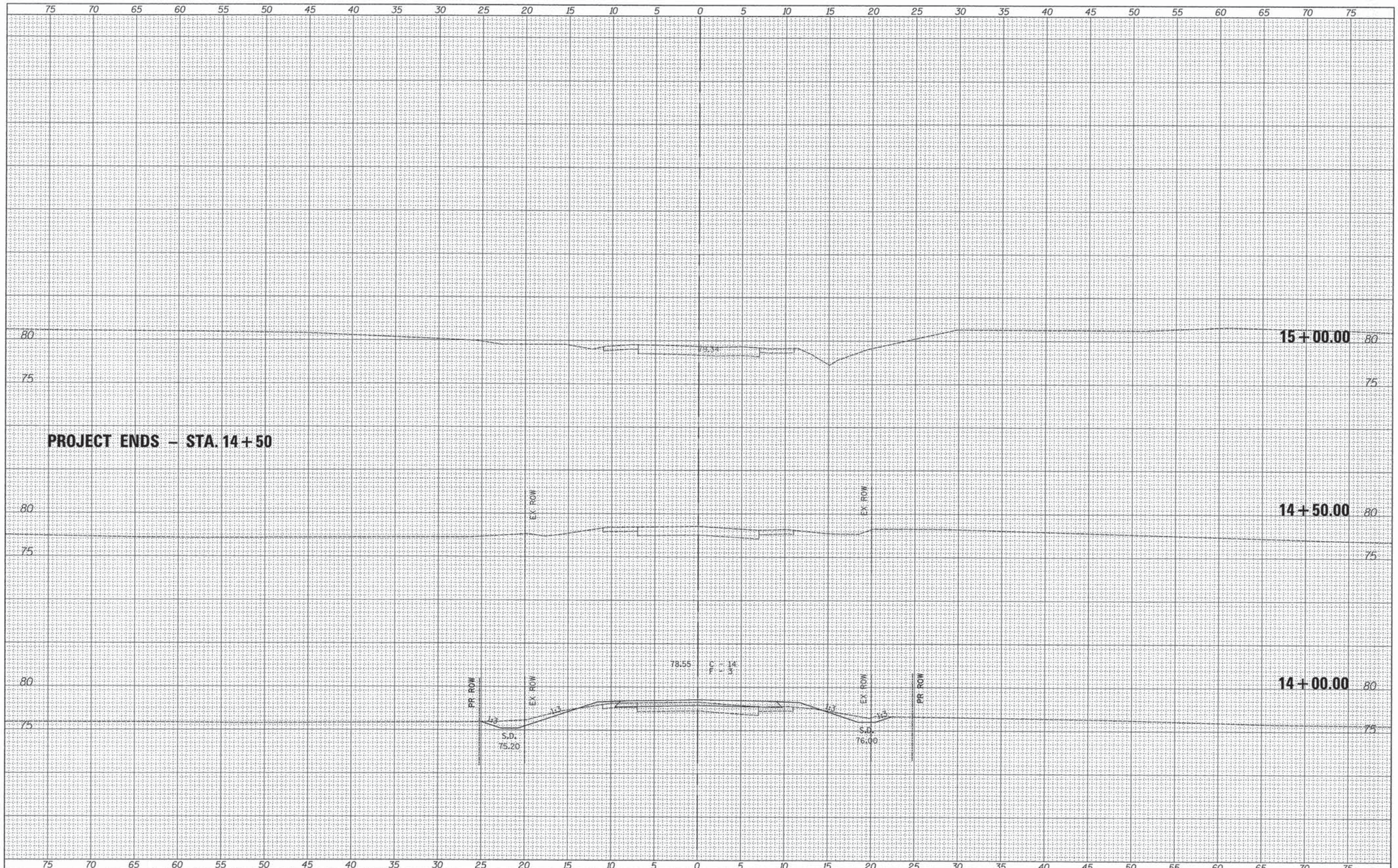
CROSS SECTIONS

SCALE: | SHEET NO. 3 OF 4 SHEETS | STA. 12+08.00 | TO STA. 13+50.00

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
431A	12-15134-00-BR	SHELBY	16	15
		CONTRACT NO. 84F46		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

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



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

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Civil and Structural Engineers Springfield, IL.
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No. 184-001907

CROSS SECTIONS

SCALE: | SHEET NO. 4 OF 4 SHEETS | STA. 14+00.00 | TO STA. 15+00.00

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
431A	12-15134-00-BR	SHELBY	16	16
		CONTRACT NO. 96652		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		