



**PROPERTY OWNER ACCESS REQUIREMENT**

ACCESS MUST BE MAINTAINED TO ALL EXISTING PROPERTIES DURING CONSTRUCTION PER ARTICLE 107.09 UNLESS ARRANGEMENTS ARE MADE IN WRITING BY THE CONTRACTOR WITH THE PROPERTY OWNERS WITH A COPY TO THE ENGINEER FOR SHORT-TERM CLOSURES.

**GENERAL NOTES**

- 1.) THE THICKNESS OF HOT-MIX ASPHALT MIXTURES SHOWN ON THE PLANS IS THE NOMINAL THICKNESS. DEVIATIONS FROM THE NOMINAL THICKNESS WILL BE PERMITTED WHEN SUCH DEVIATIONS OCCUR DUE TO IRREGULARITIES IN THE EXISTING SURFACE OR BASE ON WHICH THE BITUMINOUS MIXTURE IS PLACED.
- 2.) EXCEPT AS NOTED IN THE PLANS, PAVEMENT GRADES SHOWN ARE AT THE TOP OF PAVEMENT SURFACES.
- 3.) WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED BEFORE SUCH MONUMENTS ARE REMOVED. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL PROPERTY MARKERS AND MONUMENTS UNTIL THE OWNER OR AN AUTHORIZED SURVEYOR OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION. THE CONTRACTOR WILL BE RESPONSIBLE FOR HAVING AN AUTHORIZED SURVEYOR RE-ESTABLISH ANY SECTION OR SUBSECTION MONUMENTS DESTROYED BY HIS OPERATIONS.
- 4.) SEEDING WILL NOT BE PERMITTED AT ANY TIME WHEN THE GROUND IS FROZEN, WET OR IN AN UNTILLABLE CONDITION. AREAS TO BE SEEDED SHALL BE DETERMINED BY THE ENGINEER AND SEEDED AS SOON AS POSSIBLE.
- 5.) ALL SAW CUTS, NECESSARY TO COMPLETE THE WORK DETAILED IN THESE PLANS, SHALL BE INCLUDED IN THE COST FOR THE VARIOUS PAY ITEMS INVOLVED. THE MINIMUM SAW CUT DEPTH IN THE PAVEMENT SHALL BE 1/2" UNLESS UNLESS OTHERWISE SPECIFIED IN A DETAIL SHOWN IN THE PLANS.
- 6.) UNLESS DIRECTED BY THE ENGINEER, PAVEMENT MARKING LINES SHALL NOT BE LAID DIRECTLY OVER A LONGITUDINAL CRACK OR JOINT NOR OVER A TAR OR ASPHALT PAINTED LINE. THE EDGE OF A CENTERLINE OR LANE LINE SHALL BE OFFSET A MINIMUM DISTANCE OF 2" FROM A LONGITUDINAL CRACK OR JOINT. EDGE LINES SHALL BE APPROXIMATELY 2" FROM THE EDGE LINE OF PAVEMENT. SEE SECTION 780 OF THE STANDARD SPECIFICATIONS FOR TRAFFIC CONTROL ITEMS.
- 7.) ABANDONED UNDERGROUND UTILITIES THAT CONFLICT WITH CONSTRUCTION SHALL BE DISPOSED OUTSIDE THE LIMITS OF RIGHT OF WAY ACCORDING TO ARTICLE 202.03 OF THE STANDARD SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER. THIS WORK WILL NOT BE PAID FOR SEPERATELY BUT SHALL BE INCLUDED IN THE COST PER CUBIC YARD FOR EARTH EXCAVATION AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
- 8.) ANY REFERENCE TO A STANDARD IN THESE PLANS SHALL BE INTERPRETED TO MEAN THE EDITION AS INDICATED BY THE SUBNUMBER LISTED IN THE INDEX OF SHEETS OR THE COPY OF THE STANDARD INCLUDED IN THESE PLANS.
- 9.) IN ADDITION TO THE FIELD SURVEYS, PLAN DIMENSIONS AND DETAILS RELATIVE TO THE EXISTING FACILITIES HAVE BEEN TAKEN FROM EXISTING PLANS AND ARE SUBJECT TO CONSTRUCTION VARIATIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY SUCH DIMENSIONS AND DETAILS IN THE FIELD. SUCH VARIATIONS SHALL NOT BE A CAUSE FOR ADDITIONAL COMPENSATION DUE TO CHANGE IN THE SCOPE OF WORK. HOWEVER, THE CONTRACTOR WILL BE PAID FOR THE QUANTITY ACTUALLY FURNISHED AT THE UNIT PRICE BID FOR THE WORK.
- 10.) THE EXISTING ROAD SIGNS THAT INTERFERE WITH CONSTRUCTION WILL BE REMOVED OR RELOCATED AS DIRECTED BY THE ENGINEER. AFTER THE CONSTRUCTION IS COMPLETED, THE CONTRACTOR WILL REPLACE THE SIGNS AS DIRECTED BY THE ENGINEER. THIS WORK WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE CONSIDERED INCLUDED IN THE CONTRACT, AND NO COMPENSATION WILL BE ALLOWED.
- 11.) THE LOCATION OF ALL UTILITIES ARE BASED ON INFORMATION PROVIDED BY OTHERS AND IS INTENDED TO BE APPROXIMATE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE HIS CONSTRUCTION ACTIVITIES WITH THE VARIOUS UTILITY OWNERS. ALL POTENTIAL CONFLICTS SHALL BE INVESTIGATED AND REMEDIAL ACTION TAKEN PRIOR TO INTERRUPTION OF THE CONTRACTOR'S PROGRESS.
- 12.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING UTILITY PROPERTY FROM CONSTRUCTION OPERATIONS AS OUTLINED IN ARTICLE 107.31 OF THE STANDARD SPECIFICATIONS. THE J.U.L.I.E. NUMBER IS 800-892-0123. A MINIMUM OF FORTY-EIGHT HOURS ADVANCE NOTICE IS REQUIRED.
- 13.) ALL ELEVATIONS SHOWN ON THE PLANS ARE BASED ON U.S.G.S. MEAN SEA LEVEL DATUM. ALL STATION AND OFFSET REFERENCES ARE TO THE ROADWAY CENTERLINE UNLESS OTHERWISE NOTED.
- 14.) THE SANGAMON COUNTY ENGINEER SHALL BE NOTIFIED AT LEAST 21 DAYS PRIOR TO CLOSING THE ROAD TO TRAFFIC (PH: 217-535-3070).

THE FOLLOWING RATES OF APPLICATION HAVE BEEN USED TO CALCULATE THE PLAN QUANTITIES:

BITUMINOUS MATERIALS (PRIME COAT)	0.375 GAL/SQ.YD. (ON AGG)
HOT MIX ASPHALT SURFACE / BINDER	0.056 TON/SQ. YD. PER 1"
AGGREGATE MATERIAL	2.05 TON/CU. YD.
RIPRAP	1.5 TON/CU. YD.
NITROGEN FERTILIZER NUTRIENT	90 LBS./ACRE
PHOSPHOROUS FERTILIZER NUTRIENT	90 LBS./ACRE
POTASSIUM FERTILIZER NUTRIENT	90 LBS./ACRE
AGGREGATE PRIME COAT	0.002 TON/SQ. YD.
AGRICULTURAL GROUND LIMESTONE	2.0 TON/ACRE

**MIXTURE REQUIREMENTS**

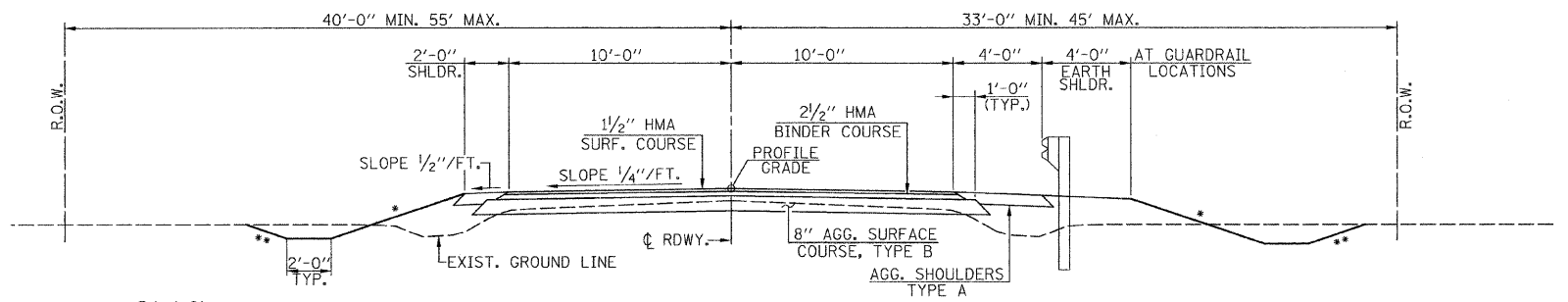
MIXTURE USE(S)	HOT MIX ASPHALT SURFACE COURSE, MIX "C", N50	HOT MIX ASPHALT BINDER COURSE IL. 19.0
AC/PG	PG 64-22	PG 64-22
DESIGN AIR VOIDS	4.0% @ N DESIGN = 50	4.0% @ N DESIGN = 50
MIXTURE COMPOSITION	IL 9.5 OR 12.5	IL 19.0
FRICTION AGGREGATE	MIX C	N/A

**SUMMARY OF QUANTITIES**

	ITEM	UNIT	QUANTITY
20100110	TREE REMOVAL (6 TO 15 UNITS DIAMETER)	UNIT	30
20200100	EARTH EXCAVATION	CU. YD.	341
20300100	CHANNEL EXCAVATION	CU. YD.	168
20400800	FURNISHED EXCAVATION	CU. YD.	1302
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	100
28000305	TEMPORARY DITCH CHECKS	FOOT	48
28000400	PERIMETER EROSION BARRIER	FOOT	1639
28100807	STONE DUMPED RIPRAP, CLASS A4	TON	616
28200200	FILTER FABRIC	SQ. YD.	995
35100100	AGGREGATE BASE COURSE, TYPE A	TON	815
40600100	BITUMINOUS MATERIALS (PRIME COAT)	GALLON	527
40603080	HOT MIX ASPHALT BINDER COURSE, IL-19.0 N50	TON	201
40603310	HOT MIX ASPHALT SURFACE COURSE, MIX C N50	TON	146
48100100	AGGREGATE SHOULDERS, TYPE A	TON	175
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50105220	PIPE CULVERT REMOVAL	FOOT	36
50200100	STRUCTURE EXCAVATION	CU. YD.	153
50300225	CONCRETE STRUCTURES	CU. YD.	43.2
50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ. FT.	1852
50800105	REINFORCEMENT BARS	POUND	4720
50901050	STEEL RAILING, TYPE SM	FOOT	136
51201400	FURNISHING STEEL PILES HP 10X42	FOOT	350
51202305	DRIVING PILES	FOOT	350
51203400	TEST PILE STEEL HP 10X42	EACH	2
51204650	PILE SHOES	EACH	12
51500100	NAME PLATES	EACH	1
54200220	PIPE CULVERTS, CLASS D, TYPE 1 15"	FOOT	46
58100200	WATERPROOFING MEMBRANE SYSTEM	SQ. YD.	212
58300100	PORTLAND CEMENT MORTAR FAIRING COURSE	FOOT	200
63100087	TRAFFIC BARRIER TERMINAL TYPE 6A	EACH	4
63100167	TRAFFIC BARRIER TERMINAL TYPE 1, (SPECIAL) TANGENT	EACH	4
66600105	FURNISHING AND ERECTING RIGHT OF WAY MARKERS	EACH	8
67100100	MOBILIZATION	L. SUM	1
70101830	TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 21	L. SUM	1
78001110	PAINT PAVEMENT MARKING - LINE 4"	FOOT	1580
78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	1.0

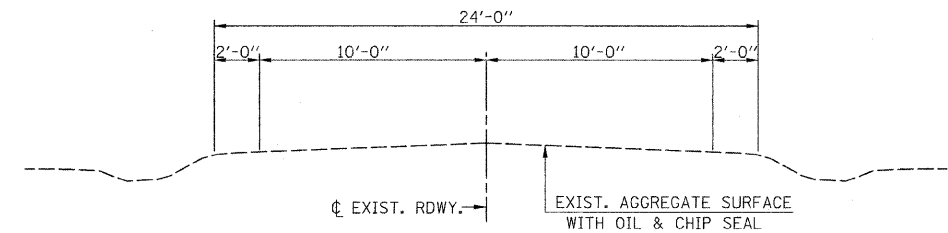
\* SEE SPECIAL PROVISIONS  
 Δ SPECIALTY ITEMS

CONSTRUCTION TYPE CODE: 0011  
 BRIDGE TYPE: X080

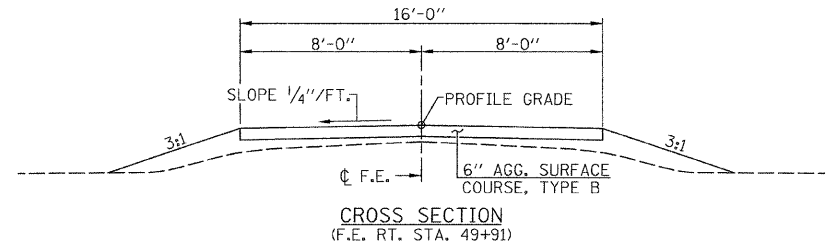


- 3:1 < 6'
- 2:1 > 6' OR AT SPECIFIED GUARDRAIL LOCATIONS
- 3:1 < 10'
- 2:1 > 10'

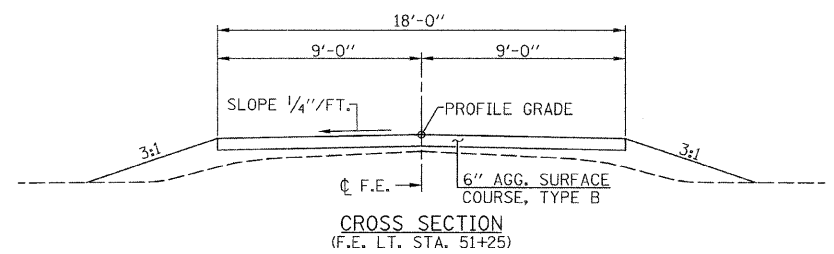
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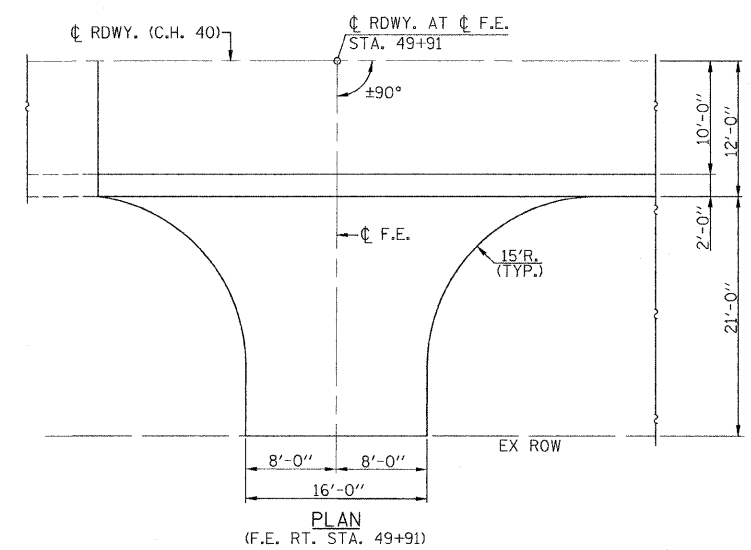
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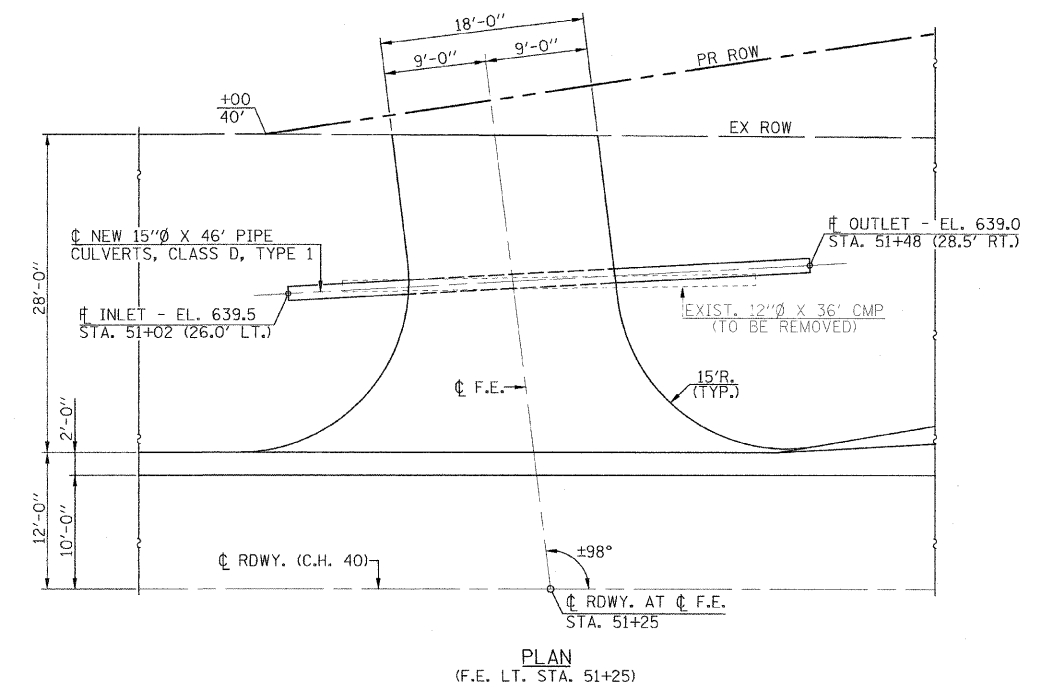
CROSS SECTION (F.E. RT. STA. 49+91)



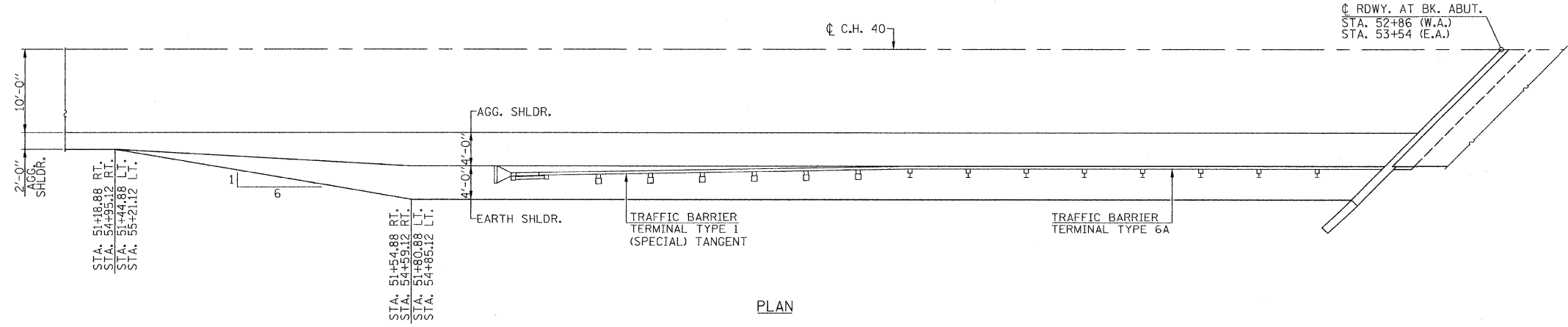
CROSS SECTION (F.E. LT. STA. 51+25)



PLAN (F.E. RT. STA. 49+91)



PLAN (F.E. LT. STA. 51+25)



PLAN

FILE NAME =	USER NAME = #USER#	DESIGNED -	REVISED -	<p><b>Allen Henderson &amp; Associates, Inc.</b> Civil and Structural Engineers Springfield, IL 62703 Phone: (217)544-8033 IL Design Firm No. 184-001907</p>	<p><b>DETAILS &amp; TYPICAL SECTIONS</b></p> <p>SCALE: 1" = 1 MILE   SHEET NO. 3 OF 18 SHEETS   STA. 49+70.00 TO STA. 56+70.00</p>	C.H. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
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	PLOT DATE = #DATE#	CHECKED -	REVISED -			CONTRACT NO. 93572					
		DATE -	REVISED -			FED. ROAD DIST. NO. - ILLINOIS FED. AID PROJECT					

**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. 49+70 TO STA. 50+00	8	6	1	5
STA. 50+00 TO STA. 50+50	20	15	6	9
STA. 50+50 TO STA. 51+00	11	8	17	-9
STA. 51+00 TO STA. 51+50	18	13	82	-69
STA. 51+50 TO STA. 52+00	31	23	158	-135
STA. 52+00 TO STA. 52+50	31	23	209	-186
STA. 52+50 TO STA. 52+86	19	14	455	-441
BRIDGE OMISSION STA. 52+86 TO STA. 53+54				
STA. 53+54 TO STA. 54+00	30	23	240	-217
STA. 54+00 TO STA. 54+50	60	45	169	-124
STA. 54+50 TO STA. 55+00	49	37	131	-94
STA. 55+00 TO STA. 55+50	33	25	56	-31
STA. 55+50 TO STA. 56+00	19	14	20	-6
STA. 56+00 TO STA. 56+50	12	9	13	-4
<b>TOTAL</b>	<b>341</b>	<b>255</b>	<b>1557</b>	<b>-1302</b>

**SCHEDULE HOT MIX ASPHALT**

LOCATION	HMA BINDER COURSE IL-19.0 N50 (TON)	HMA SURF. COURSE MIX C N50 (TON)	BIT. MATERIALS (PRIME COAT) (GALLON)
STA. 49+70 TO STA. 52+86	100.5	60	263.5
STA. 52+86 TO STA. 53+54		26	
STA. 53+54 TO STA. 56+70	100.5	60	263.5
<b>TOTAL</b>	<b>201</b>	<b>146</b>	<b>527</b>

**SCHEDULE AGGREGATE**

LOCATION	AGG. BASE COURSE, TYPE A (TON)	AGG. SHOULDERS (TON)
STA. 49+70 TO STA. 56+70	815	
STA. 49+70 TO STA. 52+76 RT.		33
STA. 49+70 TO STA. 52+96 LT.		35
STA. 53+44 TO STA. 56+70 RT.		35
STA. 53+64 TO STA. 56+70 LT.		33
F.E. STA. 49+91 RT.		16
F.E. STA. 51+25 LT.		23
<b>TOTAL</b>	<b>815</b>	<b>175</b>

**SCHEDULE TEMPORARY EROSION CONTROL SEEDING & SEEDING, CLASS 2 (SPECIAL)**

LOCATION	SEEDING CLASS 2 QUANTITY (ACRE)	TEMPORARY EROSION CONTROL SEEDING QUANTITY (POUND)
STA. 49+70 TO STA. 56+70 R.O.W. TO R.O.W. & EASEMENT	1.0	100
<b>TOTAL</b>	<b>1.0</b>	<b>100</b>

**SCHEDULE ERECTING RIGHT OF WAY MARKERS**

LOCATION	QUANTITY (EACH)
STA. 51+00 33' RT. & 40' LT.	2
STA. 52+00 45' RT. & 55' LT.	2
STA. 55+00 45' RT. & 55' LT.	2
STA. 56+00 33' RT. & 40' LT.	2
<b>TOTAL</b>	<b>8</b>

**SCHEDULE PERIMETER EROSION BARRIER**

LOCATION	QUANTITY (FOOT)
STA. 50+00 35' RT. TO STA. 52+55 45' RT.	256
STA. 53+00 45' RT. TO STA. 56+70 33' RT.	671
STA. 49+70 40' LT. TO STA. 51+00 40' LT.	130
STA. 51+35 45' LT. TO STA. 53+00 55' LT.	166
STA. 53+00 55' LT. TO STA. 54+50 80' LT.	195
STA. 54+50 55' LT. TO STA. 56+70 40' LT.	221
<b>TOTAL</b>	<b>1639</b>

**SCHEDULE PAINT PAVEMENT MARKING-LINE 4"**

LOCATION	WHITE (FOOT)	YELLOW (FOOT)
STA. 49+70 TO STA. 56+70 (SKIP DASH)		180
STA. 49+70 TO STA. 56+70 (EDGE LINE)	1400	
<b>SUB-TOTAL</b>	<b>1400</b>	<b>180</b>
<b>TOTAL</b>	<b>1400</b>	<b>1580</b>

**SCHEDULE TREE REMOVAL (6 TO 15 UNITS)**

LOCATION	QUANTITY (UNIT)
STA. 52+59 43' RT.	12
STA. 53+52 55' LT.	6
STA. 53+55 50' LT.	12
<b>TOTAL</b>	<b>30</b>

**SCHEDULE PIPE CULVERTS, CLASS D, TYPE 1 15"**

LOCATION	QUANTITY (FOOT)
STA. 51+02 (26' LT.) TO STA. 51+48 (28.5' LT.)	46
<b>TOTAL</b>	<b>46</b>

**SCHEDULE PIPE CULVERT REMOVAL**

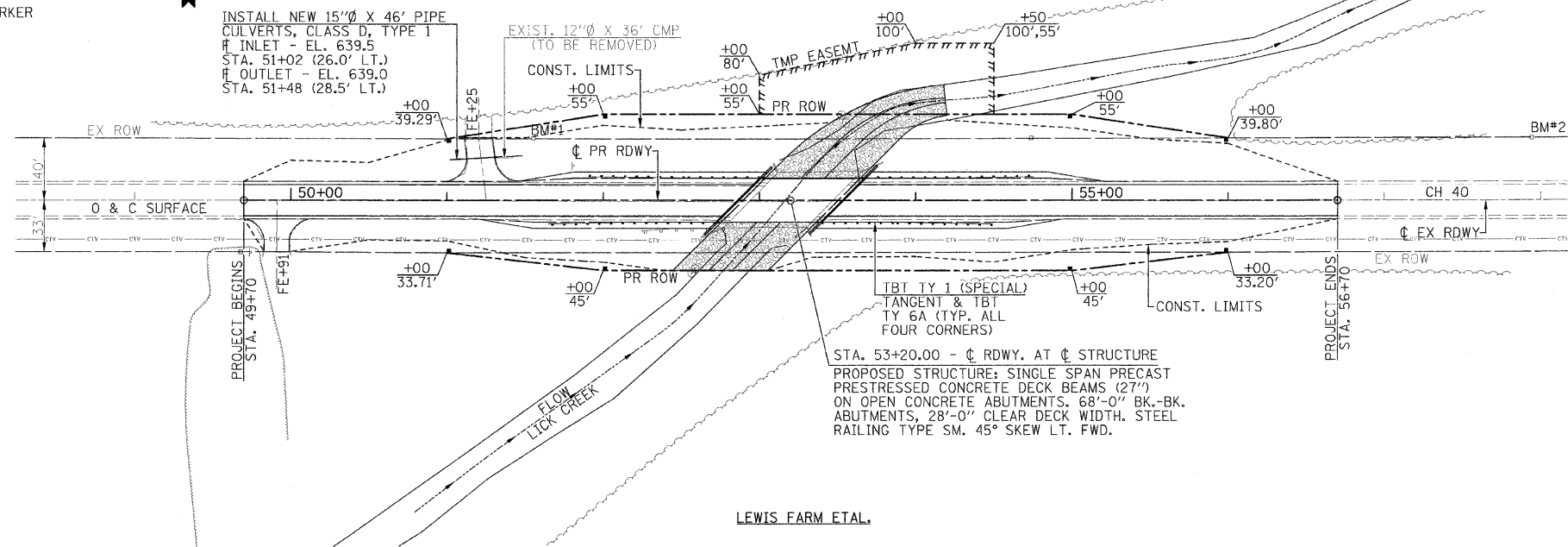
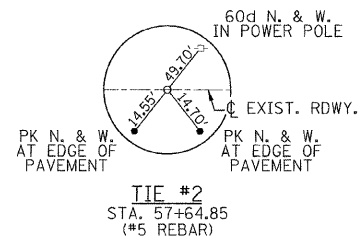
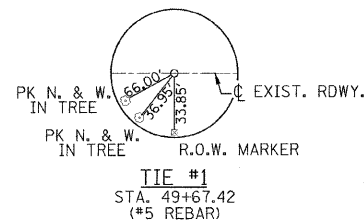
LOCATION	QUANTITY (FOOT)
STA. 51+07 TO STA. 51+43 (27' LT.)	36
<b>TOTAL</b>	<b>36</b>

**SCHEDULE TEMPORARY DITCH CHECKS**

LOCATION	QUANTITY (FOOT)
STA. 51+50 29' LT. & 33' RT.	16
STA. 52+50 35' LT. & 33.5' RT.	16
STA. 54+50 42' LT. & 33.5' RT.	16
<b>TOTAL</b>	<b>48</b>

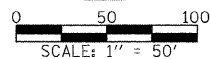
SECTION 11, T. 14 N., R. 8 W. 3rd P.M.

PAUL & FRANCINE LEWIS

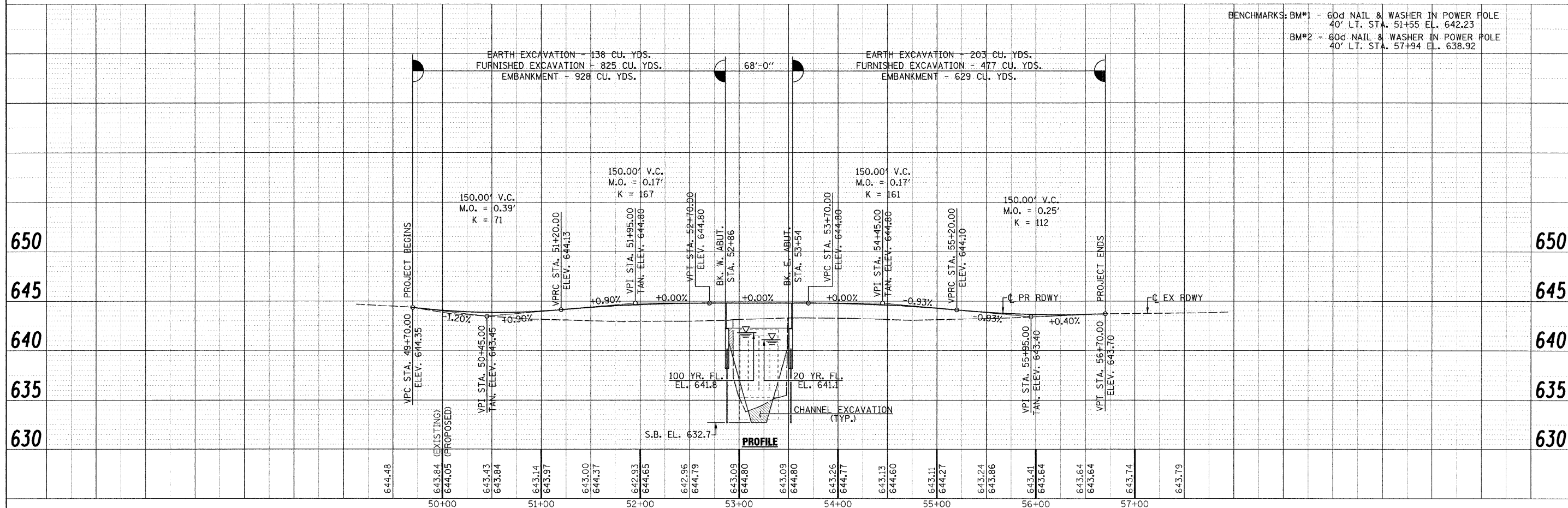


LEWIS FARM ETAL.

PLAN



BENCHMARKS: BM#1 - 60d NAIL & WASHER IN POWER POLE  
40' LT. STA. 51+55 EL. 642.23  
BM#2 - 60d NAIL & WASHER IN POWER POLE  
40' LT. STA. 57+94 EL. 638.92

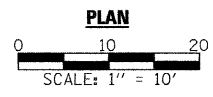
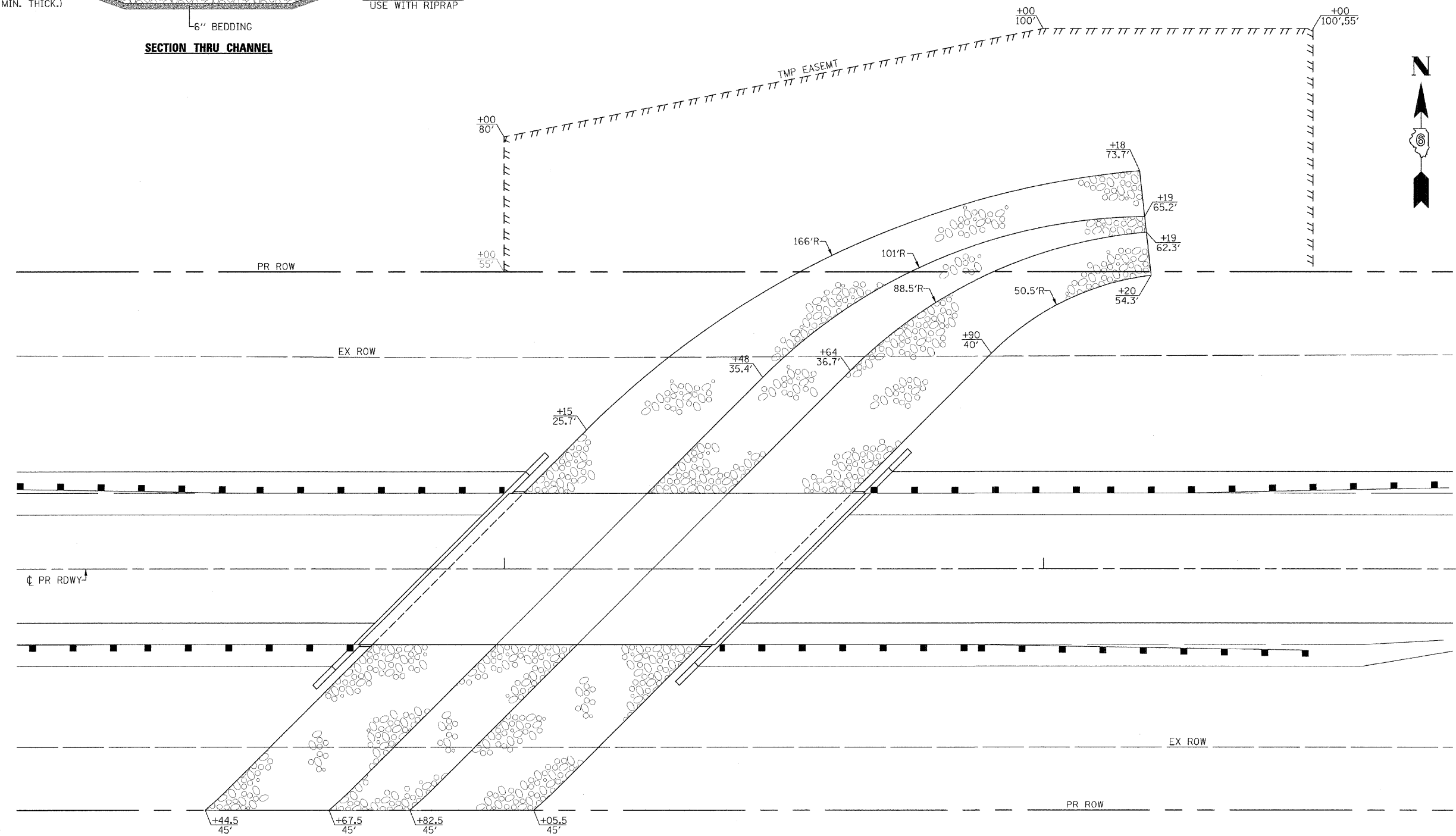
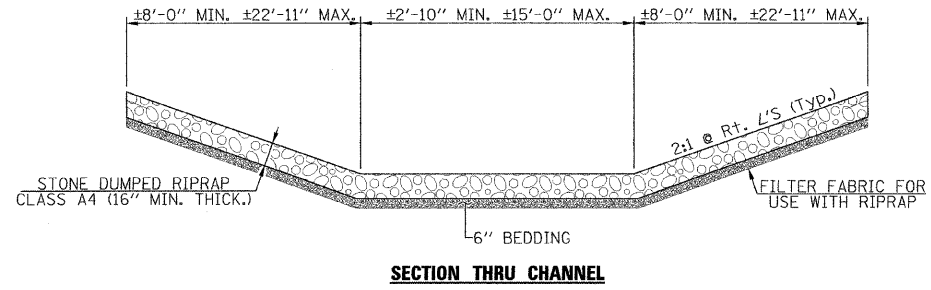



PROFILE

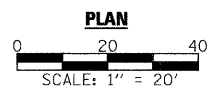
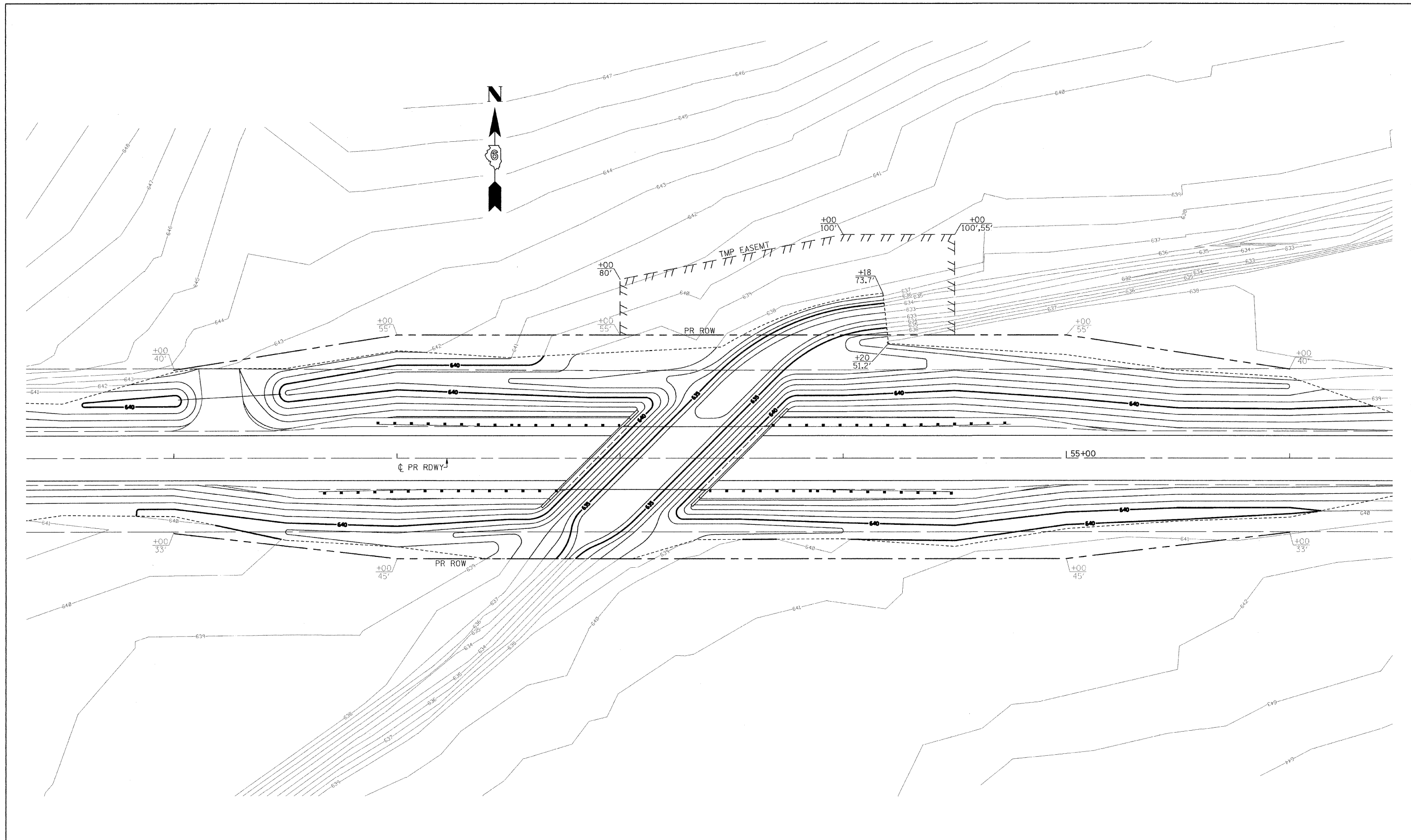
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PLOT SCALE = #SCALE#		DRAWN -	REVISED -			CONTRACT NO. 93572				
PLOT DATE = #DATE#		CHECKED -	REVISED -			FED. ROAD DIST. NO. [ILLINOIS] FED. AID PROJECT				



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		DATE -	REVISED -		SCALE: 1" = 10'	SHEET NO. 6 OF 18 SHEETS	STA. 49+70.00 TO STA. 56+70.00	FED. ROAD DIST. NO. - ILLINOIS FED. AID PROJECT				



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

**GRADING PLAN**

SCALE: 1" = 20'    SHEET NO. 7 OF 18 SHEETS    STA. 49+70.00 TO STA. 56+70.00

C.H. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
40	08-00054-01-BR	SANGAMON	18	7
CONTRACT NO. 93572				
FED. ROAD DIST. NO. - ILLINOIS FED. AID PROJECT				

Existing Structure: Cast in place concrete quadruple barrel box culvert,  
 Inside cell span - 10'-0", Outside cell span - 8'-0", All  
 cells 5'-6" Height, ±50'-0" Width, Concrete railing,  
 45° Skew Lt. Fwd.  
 Existing Structure No. 084-5005

Estimated concrete to be removed - 102.5 cu. yd.

Benchmarks: BM#1 - 60d Nail & Washer in Power Pole

40' Lt. Sta. 51+55 El. 642.23

BM#2 - 60d Nail & Washer in Power Pole

40' Lt. Sta. 57+94 El. 638.92

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	Cu. Yd.		168	168
Stone Dumped Riprap, Class A4	Ton			616
Filter Fabric	Sq. Yd.			995
Hot-Mix Asphalt Surface Course, Mix "C", N50	Ton			26
Removal of Existing Structures	Each			1
Structure Excavation	Cu. Yd.			153
Concrete Structures	Cu. Yd.		43.2	43.2
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq. Ft.	1852		1852
Reinforcement Bars	Pound		4720	4720
Steel Railing, Type SM	Foot	136		136
Furnishing Steel Piles HP10X42	Foot		350	350
Driving Piles	Foot		350	350
Test Pile Steel HP10X42	Each		2	2
Pile Shoes	Each		12	12
Name Plates	Each		1	1
Waterproofing Membrane System	Sq. Yd.	212		212
Portland Cement Mortar Fairing Course	Foot	200		200

**WATERWAY INFORMATION**

Drainage Area = 5.05 Sq. Mi. Pr. Low Grade Elev. 643.73 @ Sta. 57+00

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Natural H.W.E.	Head - ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	20	1072	198	235	641.1	0.7	0.2	641.8	641.3
Base	100	1557	198	265	641.8	1.3	0.5	643.1	642.3
Exist. Overtop.	93	1525							
Prop. Overtop.	Greater than 500 Years								
Max. Calc.	500	2023	198	278	642.4	1.2	0.8	643.6	643.2

**DESIGN SCOUR ELEVATION TABLE**

Design Scour Elevation (Ft.)	W. Abut.	E. Abut.
	637.9	637.9

**LOADING HL-93**

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

**DESIGN SPECIFICATIONS**

2010 AASHTO LRFD Bridge Design Specifications

**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 (1/2" low lax strands)  
 fpbt = 201960 psi (1/2" low lax strands)

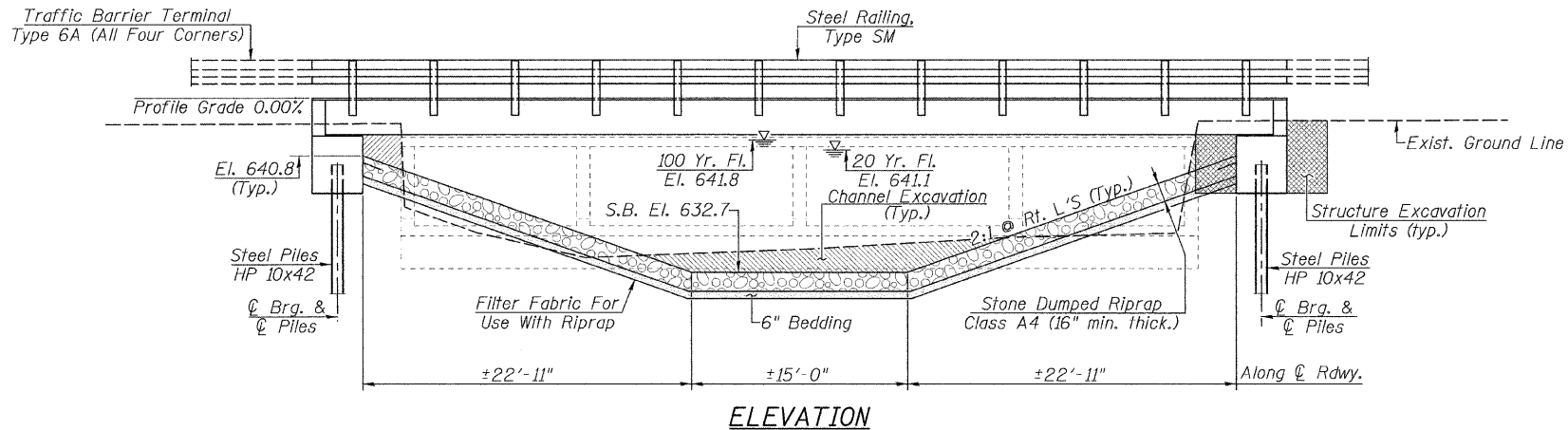
**GENERAL NOTES**

See Proposal for Boring Data.  
 Reinforcement bars shall conform to the requirements of ASTM A706, Grade 60.  
 Reinforcement bars designated (E) to be epoxy coated.  
 The layout of the riprap sloped wall may be varied to suit ground conditions in the field as determined by the Engineer.  
 The contractor shall drive one test pile in a permanent location at both abutments as directed by the Engineer in the field prior to ordering the remainder of piles.

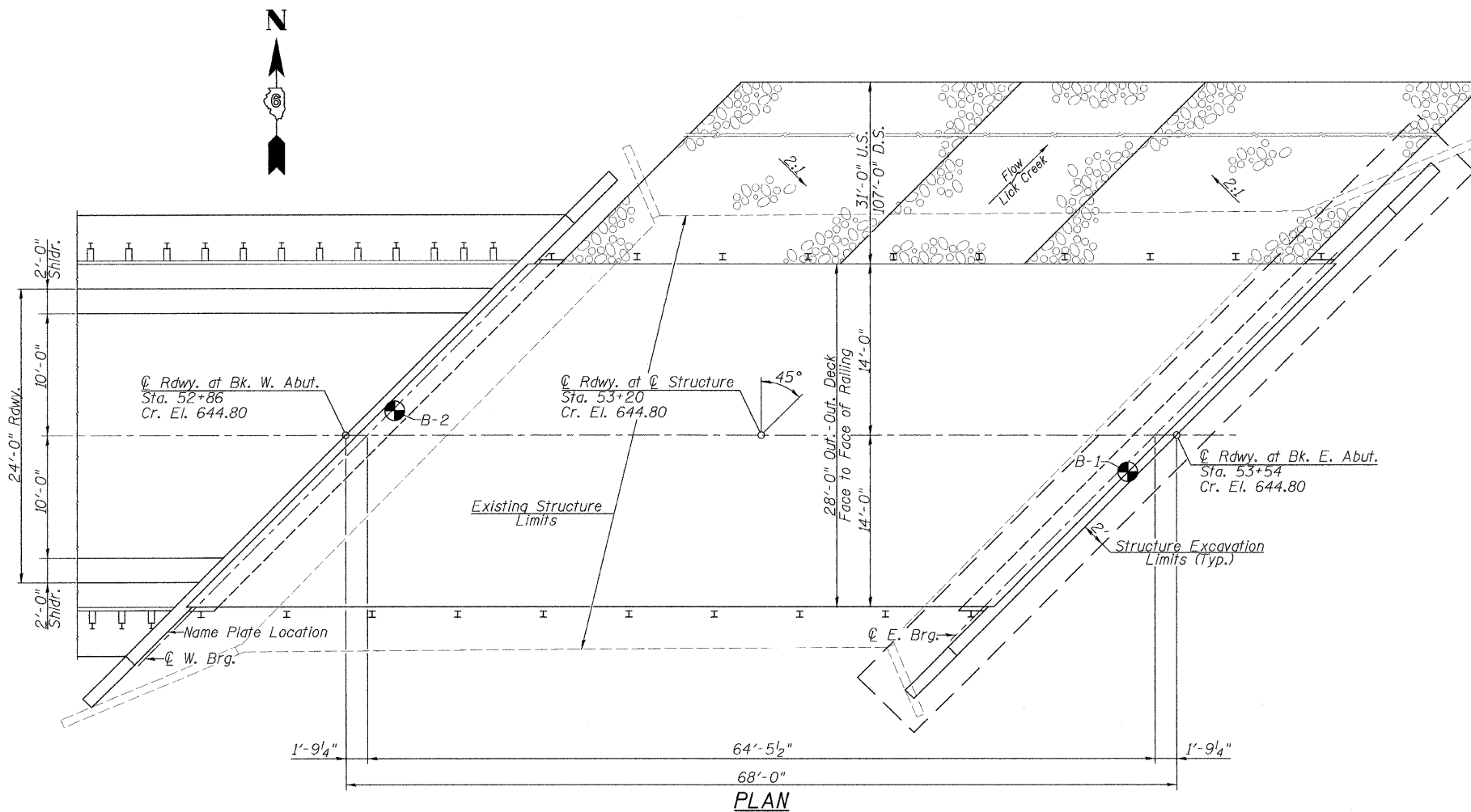
I certify that to the best of my knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current "A.A.S.H.T.O. LRFD Bridge Design Specifications.



M. A. Henderson 3/7/2012  
 Expiration Date 11/30/2012



**ELEVATION**

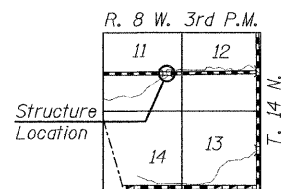


**PLAN**

LICK CREEK  
 BUILT 20 BY  
 SANGAMON COUNTY  
 SECTION 08-0054-01-BR  
 PROJECT BRS-0624(112)  
 STA. 53+20.00  
 STR. NO. 084-3645 LOADING HL-93

**NAME PLATE**

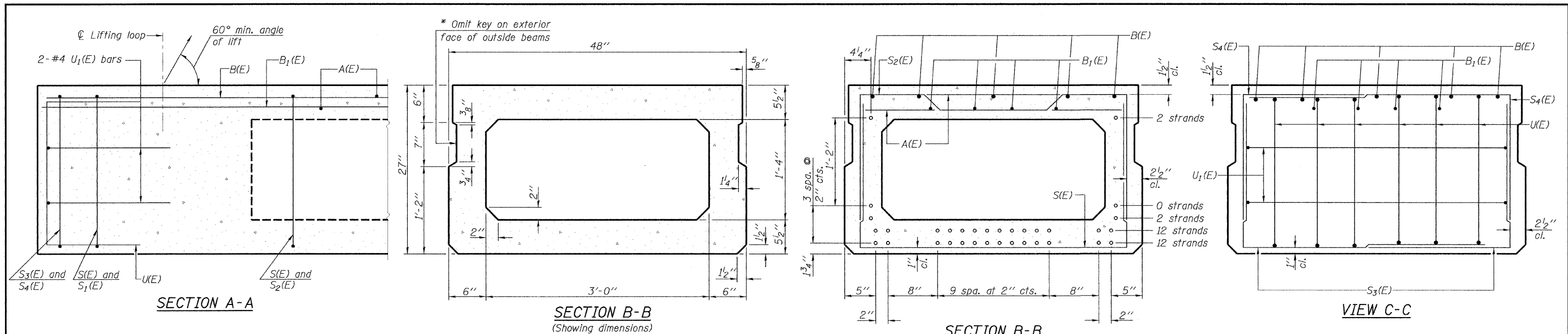
(Standard 515001)



**LOCATION SKETCH**

FILE NAME =	USER NAME =	DESIGNED -	REVISED -	<b>Allen Henderson &amp; Associates, Inc.</b> Civil and Structural Engineers Springfield, IL. 62703 Phone: (217)544-8033 IL Design Firm No. 184-001907	<b>GENERAL PLAN &amp; ELEVATION</b>  SHEET NO. 1 OF 6 SHEETS	C.H. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
PLOT SCALE =	CHECKED -	REVISED -	40			08-0054-01-BR	SANGAMON	18	8	
PLOT DATE =	DRAWN -	REVISED -	CONTRACT NO. 93572							
	CHECKED -	REVISED -	ILLINOIS FED. AID PROJECT							

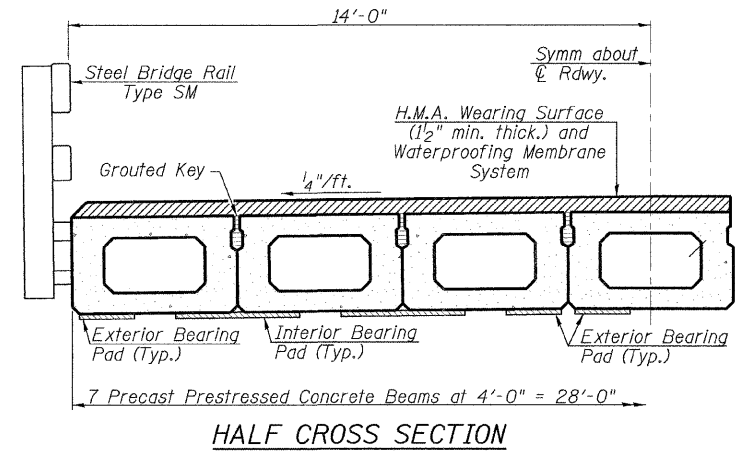
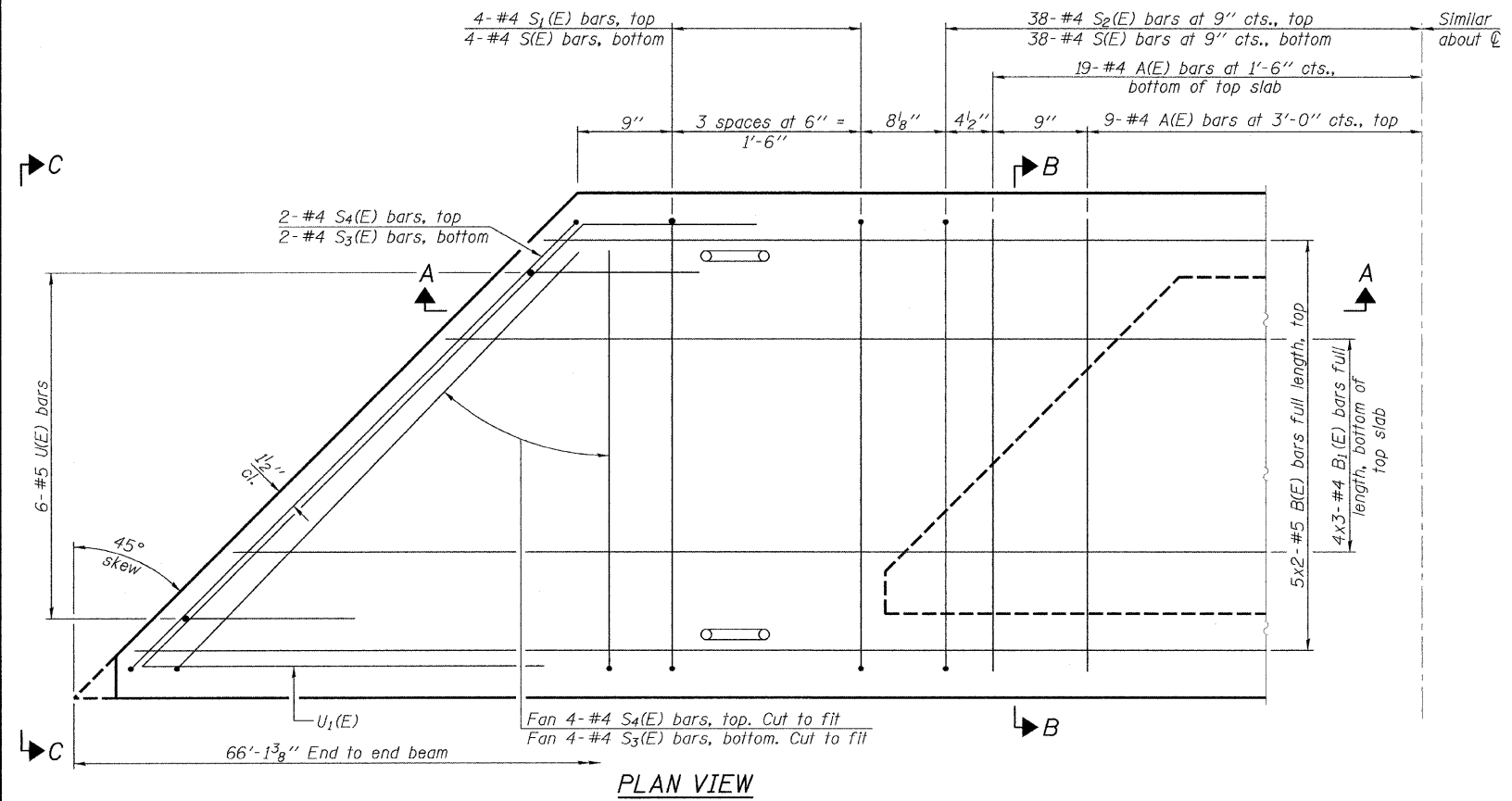
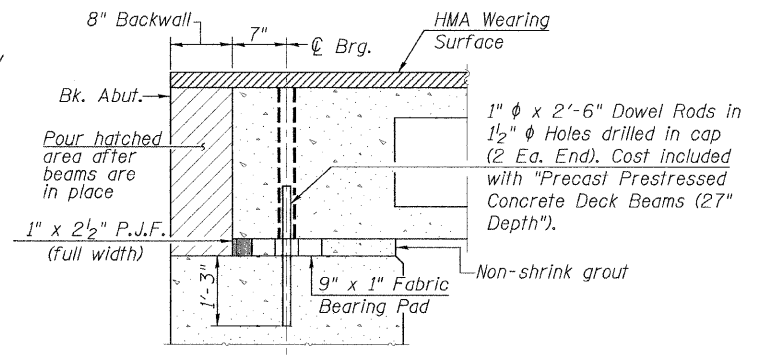




\* Rail post anchor devices (Sheet 11) to be cast into exterior face of outside beams

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

**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)	57	#4	3'-7"	—
B(E)	10	#5	34'-4"	—
B1(E)	12	#4	23'-5"	—
S(E)	84	#4	7'-5"	—
S1(E)	8	#4	6'-11"	┌
S2(E)	76	#4	7'-2"	┌
S3(E)	12	#4	5'-6"	┌
S4(E)	12	#4	5'-3"	┌
U(E)	12	#5	4'-6"	┌
U1(E)	4	#4	11'-0"	┌

Note: See sheet 3 of 6 for additional details and Bill of Material.

PD-2748-L

7-1-10

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

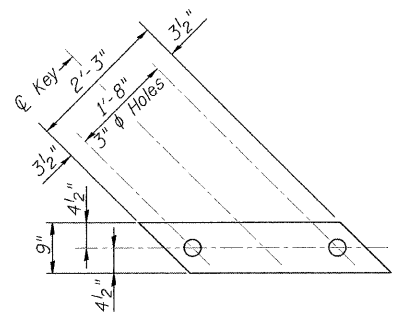
FILE NAME =	USER NAME =	DESIGNED -	REVISD -
		CHECKED -	REVISD -
PLOT SCALE =		DRAWN -	REVISD -
PLOT DATE =		CHECKED -	REVISD -

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

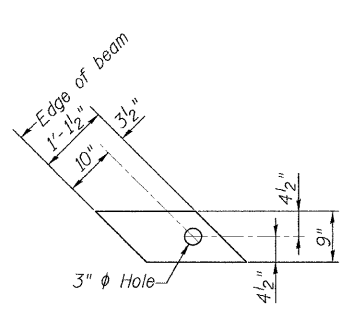
**27" x 48" PPC DECK BEAM**  
**STRUCTURE NO. 084-3645**  
 SHEET NO. 2 OF 6 SHEETS

C.H. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
40	08-00054-01-BR	SANGAMON	18	9

CONTRACT NO. 9 3 5 7 2  
 ILLINOIS FED. AID PROJECT

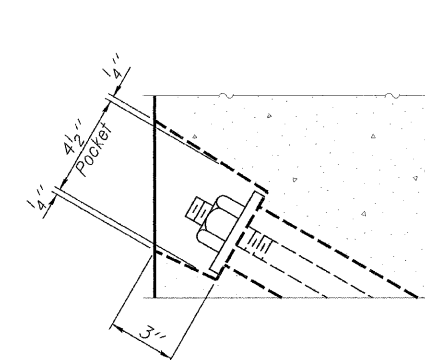


**FABRIC BEARING PAD**  
(Interior)

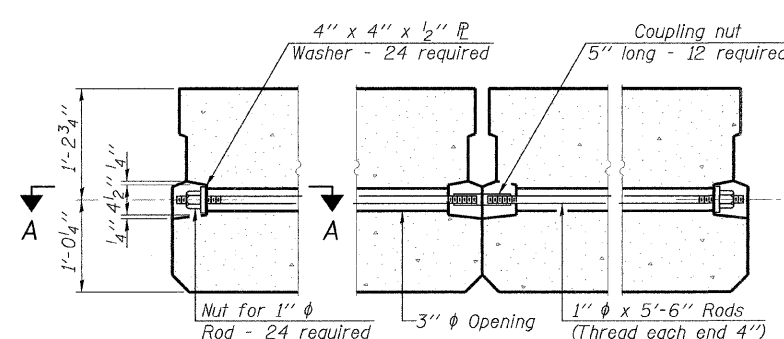


**FABRIC BEARING PAD**  
(Exterior)

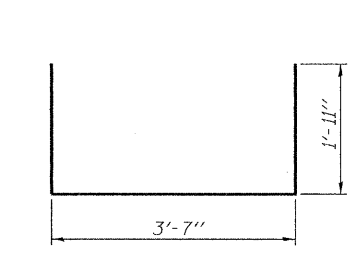
**FIXED**



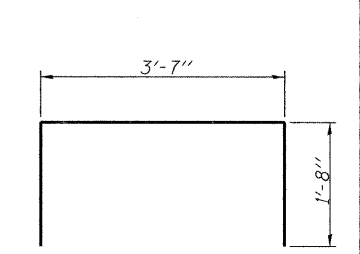
**SECTION A-A**



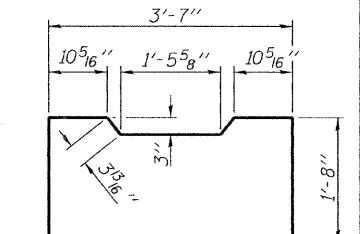
**TYPICAL TRANSVERSE TIE ASSEMBLY**



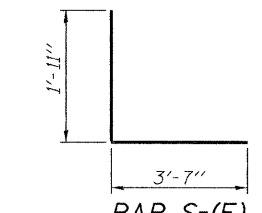
**BAR S(E)**



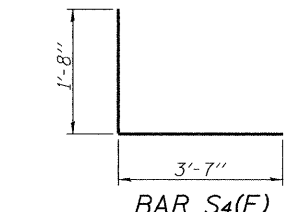
**BAR S1(E)**



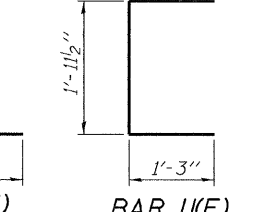
**BAR S2(E)**



**BAR S3(E)**

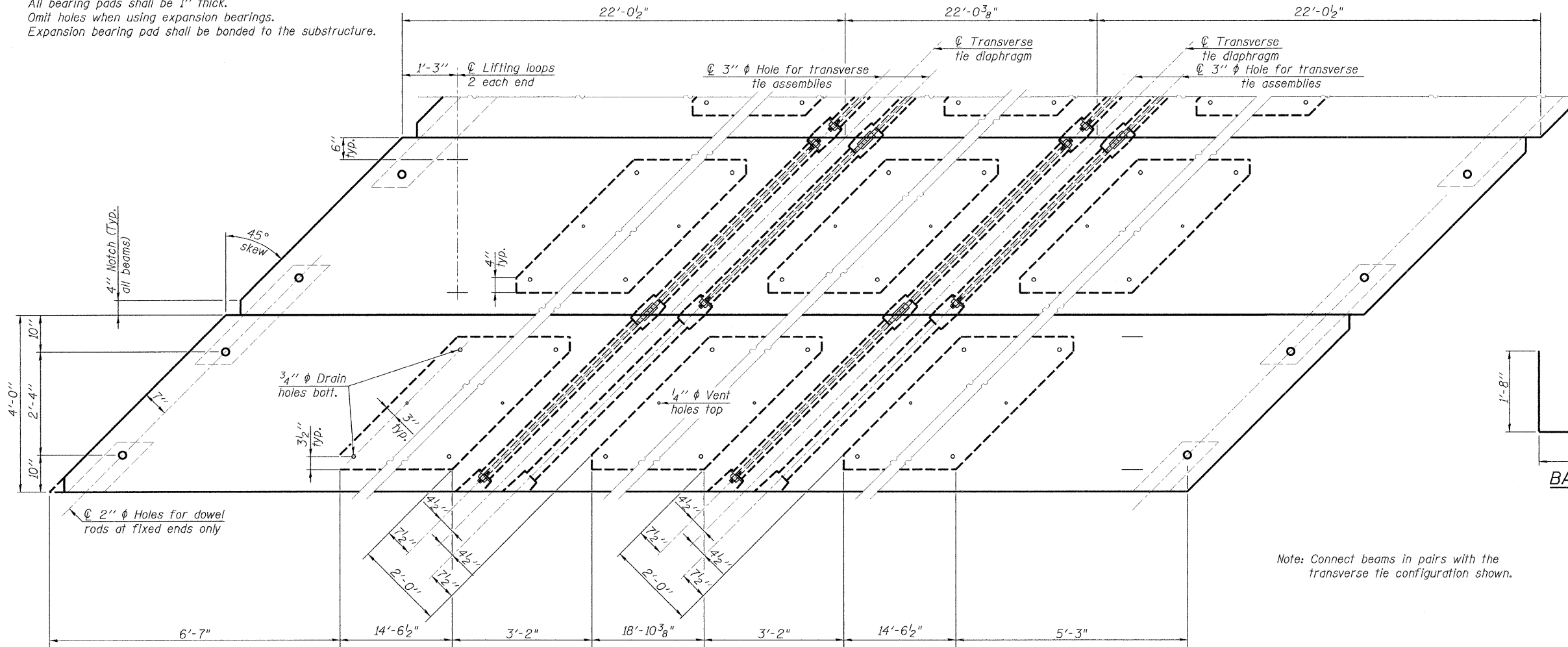


**BAR S4(E)**



**BAR U(E)**

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

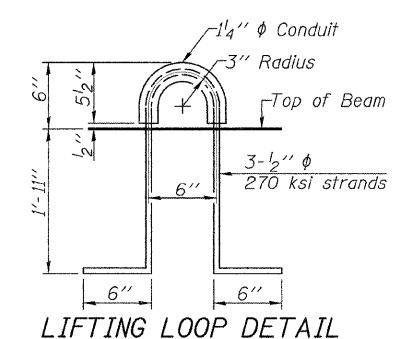


**PLAN VIEW**

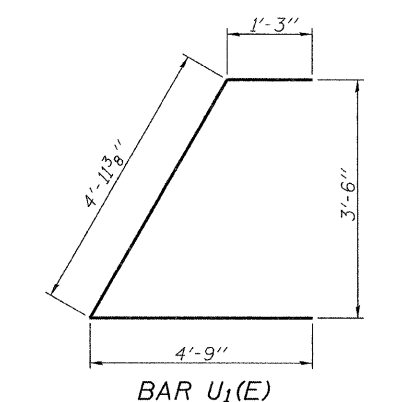
**NOTES**

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" phi 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 3/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.  
A minimum 2 1/2" phi 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.  
Non-shrink grout shall be used in all longitudinal keyways, drilled dowel holes, and between bottom of beams and top of abutments.

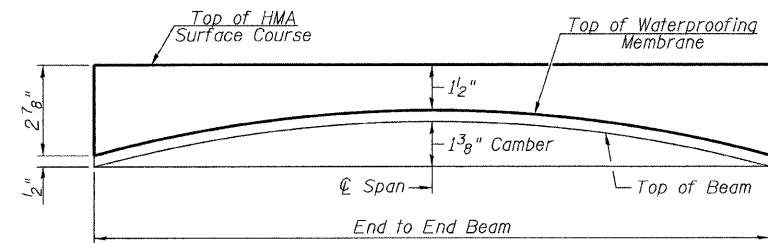
Note: Connect beams in pairs with the transverse tie configuration shown.



**LIFTING LOOP DETAIL**



**BAR U1(E)**



**HMA SURFACE COURSE PROFILE & ANTICIPATED CAMBER DIAGRAM SPAN**

**BILL OF MATERIAL**

Precast Prestressed Conc. Deck Bms. (27" depth)	Sq. Ft.	1852
---	---------	------

PD-2748-LD

7-1-10

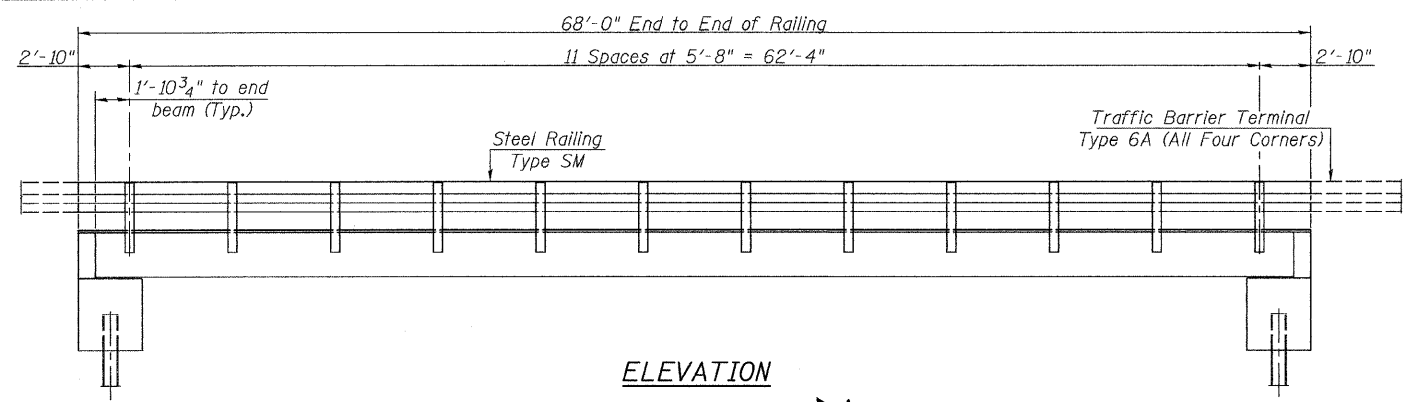
FILE NAME =	USER NAME =	DESIGNED -	REVISIONS -
		CHECKED -	REVISIONS -
		DRAWN -	REVISIONS -
		CHECKED -	REVISIONS -



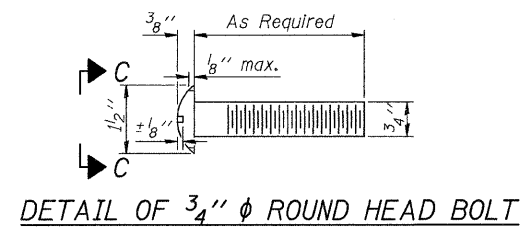
**Allen Henderson & Associates, Inc.**  
Civil and Structural Engineers Springfield, IL.  
62703 Phone: (217)544-8033 IL Design Firm  
No. 184-001907

**27" x 48" PPC DECK BEAM DETAILS**  
**STRUCTURE NO. 084-3645**  
SHEET NO. 3 OF 6 SHEETS

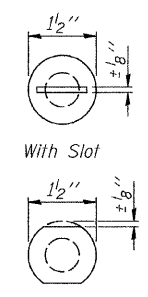
C.H. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
40	08-00054-01-BR	SANGAMON	18	10
CONTRACT NO. 93572				
ILLINOIS FED. AID PROJECT				



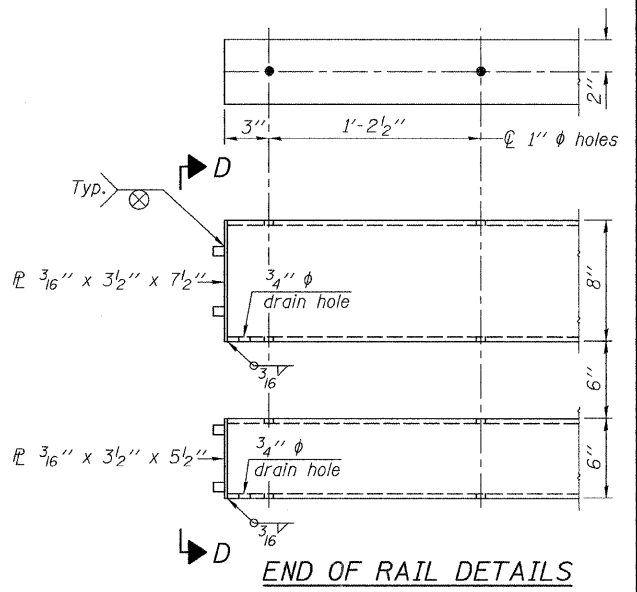
**ELEVATION**



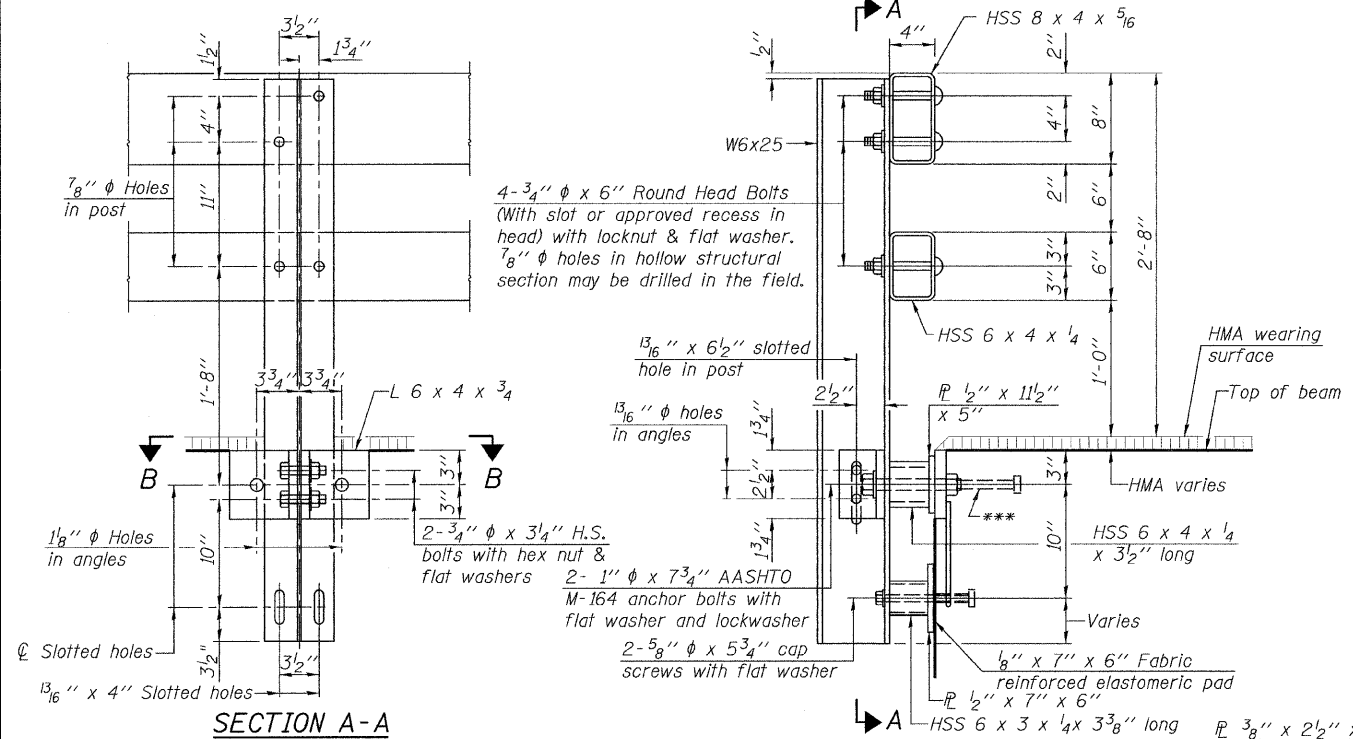
**DETAIL OF 3/4" ϕ ROUND HEAD BOLT**



**VIEW C-C**

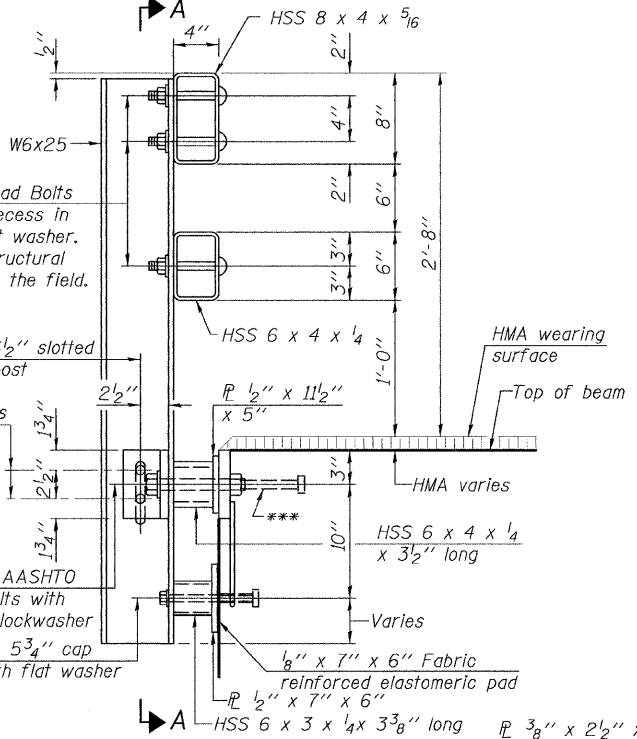


**END OF RAIL DETAILS**

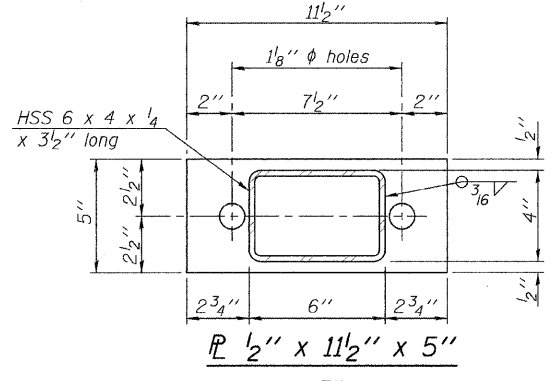


**SECTION A-A**

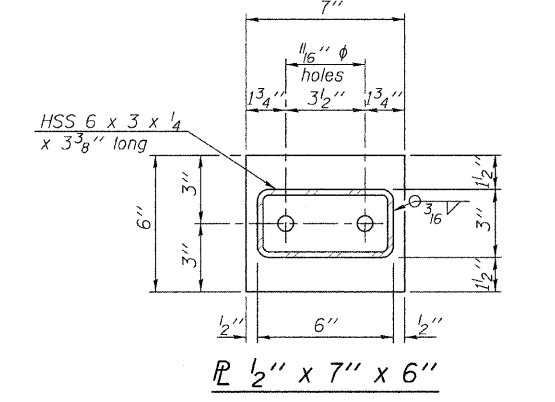
4-3/4" ϕ x 6" Round Head Bolts (With slot or approved recess in head) with locknut & flat washer. 7/8" ϕ holes in hollow structural section may be drilled in the field.



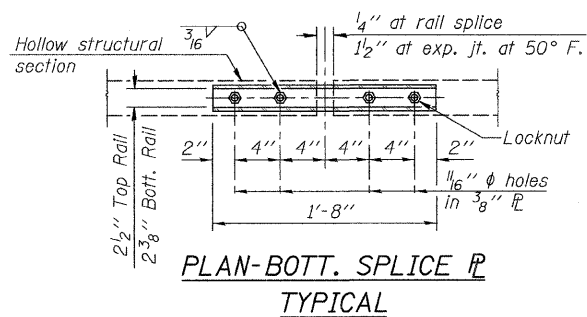
**SECTION AT RAIL POST**



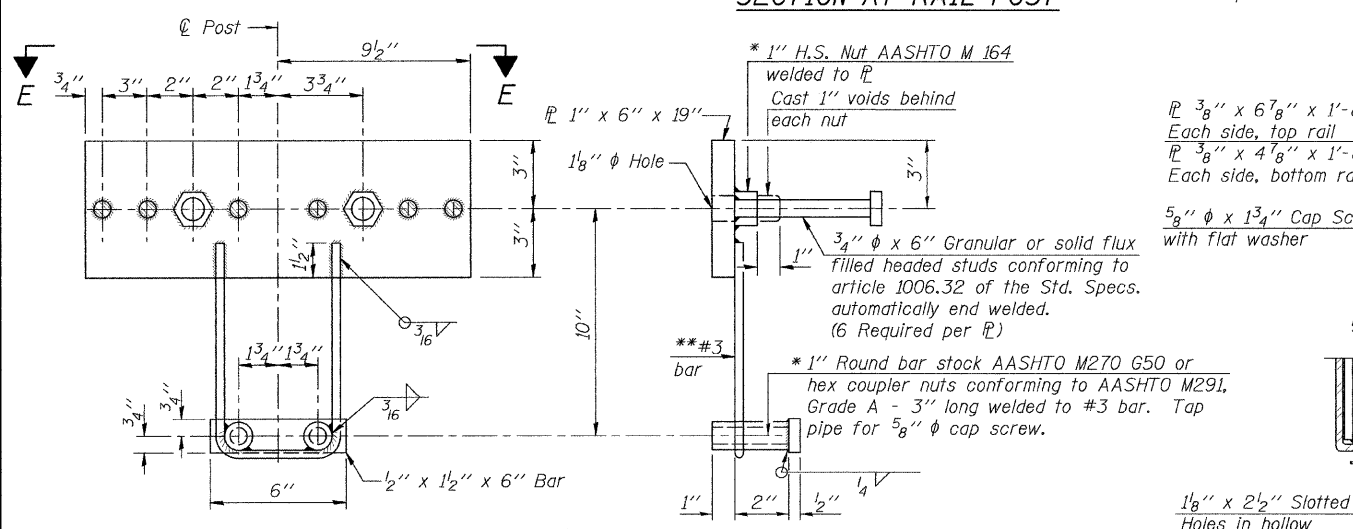
**SECTION B-B**



**SECTION AT RAIL SPLICE**

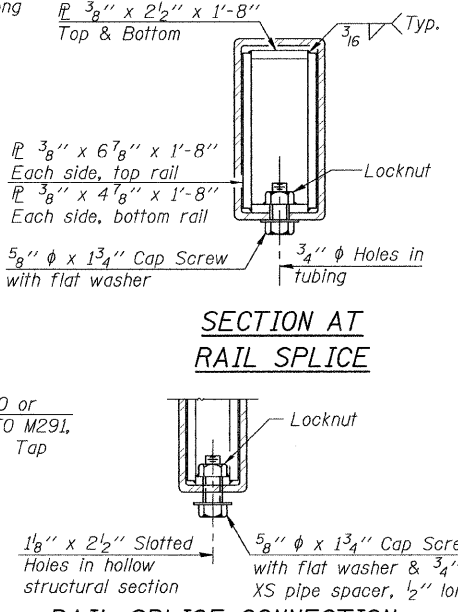


**PLAN-BOTT. SPLICE TYPICAL**

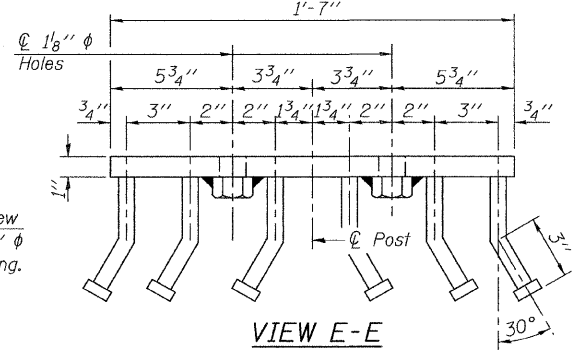


**ANCHOR DEVICE**

\*Threaded areas shall be plugged or blocked off during casting of beam. Galvanized after fabrication.



**RAIL SPLICE CONNECTION AT EXPANSION JT.**



**VIEW E-E**

**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 SM.  
 All steel rail members shall be galvanized according to Article 509.05 of the Standard Specifications.  
 \*\*\* The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.  
 \*\* Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 1/2".

**BILL OF MATERIAL**

Item	Unit	Quantity
Steel Railing, Type SM	Foot	136

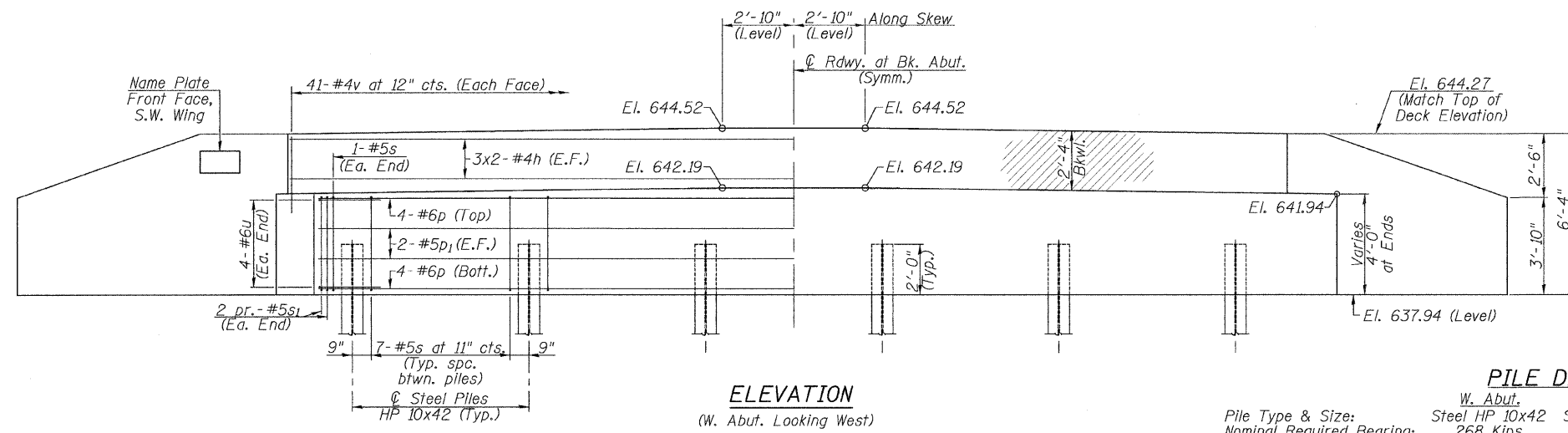
R-34HMAWS 7-1-10 (6'-3" Maximum Post Spacing) (1 1/4" minimum to 3 1/8" maximum HMA thickness)

FILE NAME =	USER NAME =	DESIGNED -	REVISED -
		CHECKED -	REVISED -
		DRAWN -	REVISED -
		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 SM WITH HOT-MIX ASPHALT WEARING SURFACE**  
**STRUCTURE NO. 084-3645**  
 SHEET NO. 4 OF 6 SHEETS

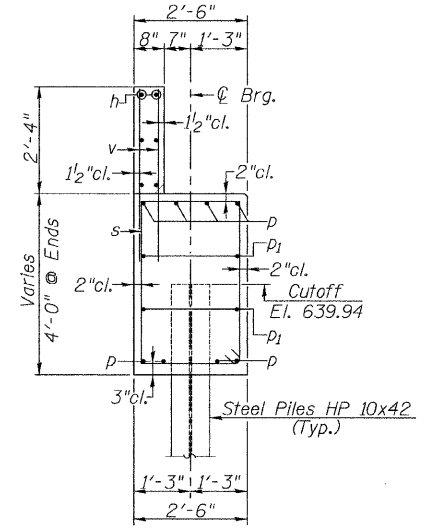
C.H. RTE. 40	SECTION 08-00054-01-BR	COUNTY SANGAMON	TOTAL SHEETS 18	SHEET NO. 11
CONTRACT NO. 93572			ILLINOIS FED. AID PROJECT	



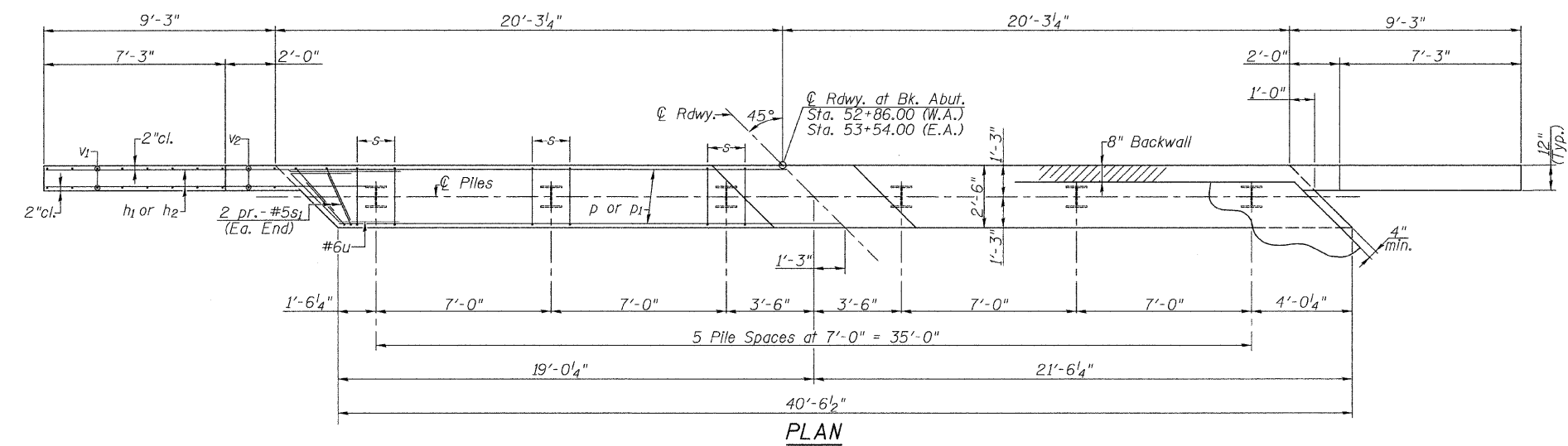
**ELEVATION**  
(W. Abut. Looking West)  
(E. Abut. Looking East)

**PILE DATA**

	W. Abut.	E. Abut.
Pile Type & Size:	Steel HP 10x42	Steel HP 10x42
Nominal Required Bearing:	268 Kips	268 Kips
Factored Resistance Available:	147 Kips	147 Kips
Estimated Pile Length:	35'	35'
Number of Production:	5	5
Number of Test Piles:	1	1
Pile Shoes:	6	6



**SECTION THRU ABUTMENT**

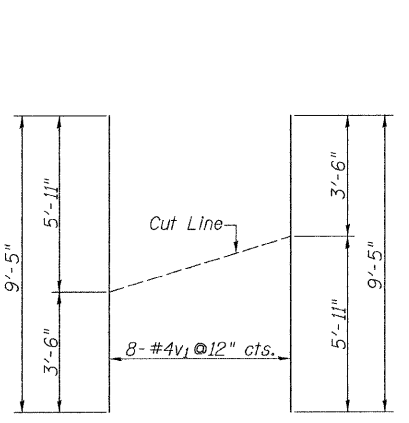


**PLAN**

**NOTES**  
All exposed edges shall have standard 3/4" 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 Test Pile shall be driven to 110 percent of the Nominal Required Bearing indicated in the pile data information.  
The Steel H Piles shall be according to AASHTO M270, Grade 50.

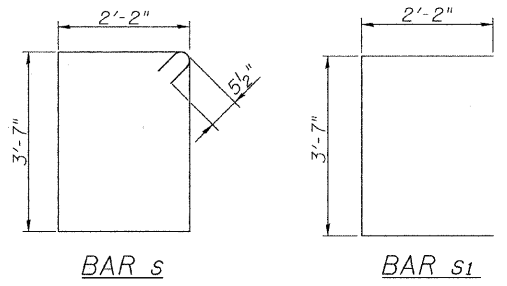
**BILL OF MATERIAL  
TWO ABUTMENTS**

BAR	NO.	SIZE	LENGTH	SHAPE
h	24	#4	23'-2"	—
h1	40	#6	12'-9"	—
h2	24	#5	8'-3"	—
p	16	#6	40'-0"	—
p1	8	#5	40'-0"	—
s	74	#5	12'-5"	□
s1	16	#5	7'-11"	┌
u	16	#6	11'-0"	└
v	164	#4	4'-2"	—
v1	32	#4	9'-5"	—
v2	16	#4	5'-11"	—
Concrete Structures			Cu. Yd.	43.2
Reinforcement Bars			Pound	4720
Structure Excavation			Cu. Yd.	153
Furnishing Steel Piles HP 10x42			Foot	350
Driving Piles			Foot	350
Test Pile Steel HP 10x42			Each	2
Pile Shoes			Each	12



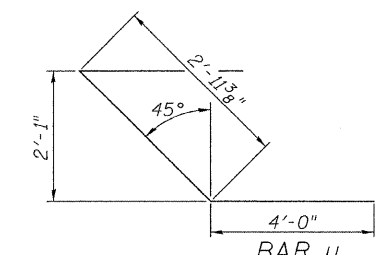
**v1 - BAR CUT DIAGRAM**

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



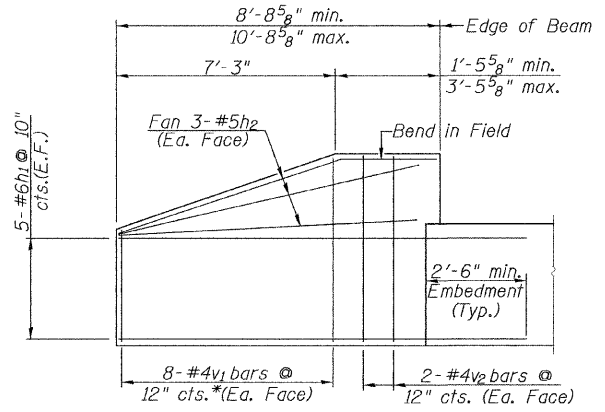
**BAR s**

**BAR s1**



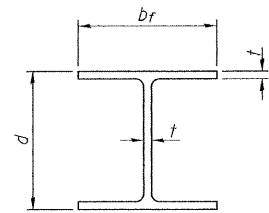
**BAR u**

**MIN. BAR LAP**  
#4 bar = 1'-8"



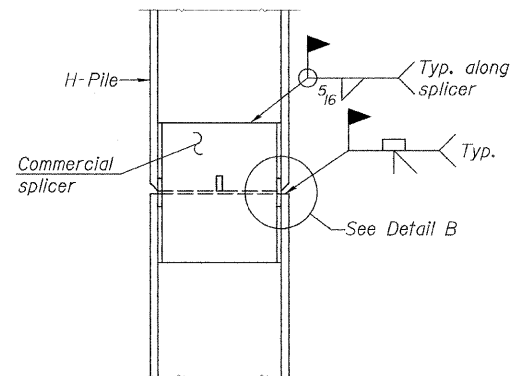
**WINGWALL ELEVATION**  
(Showing Reinforcement)

\* See v1-bar cut diagram

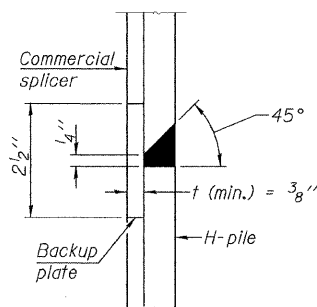


**STEEL PILE TABLE**

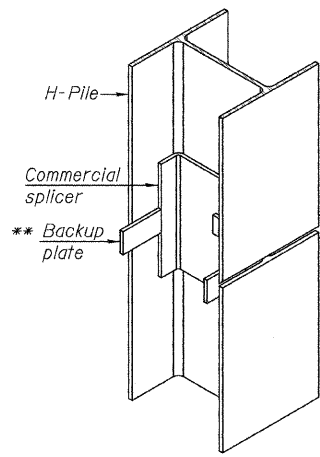
Designation	Depth d	Flange width br	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	13/16"	30"
x102	14"	14 3/4"	1/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	1/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"
x53	11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



**ELEVATION**

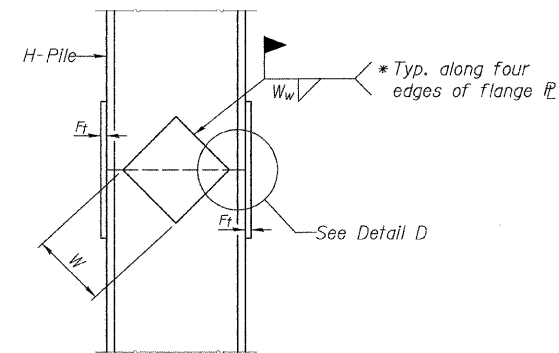


**DETAIL "B"**

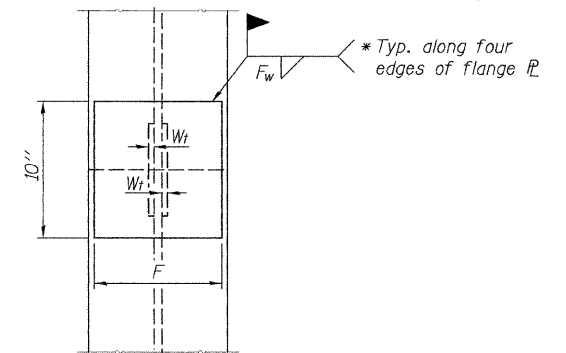


**ISOMETRIC VIEW**

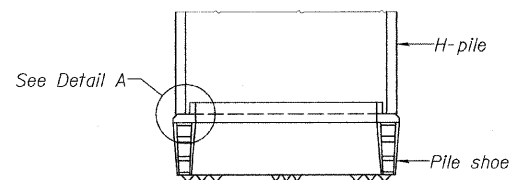
**WELDED COMMERCIAL SPLICE**



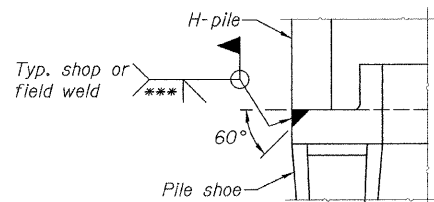
**ELEVATION**



**END VIEW**

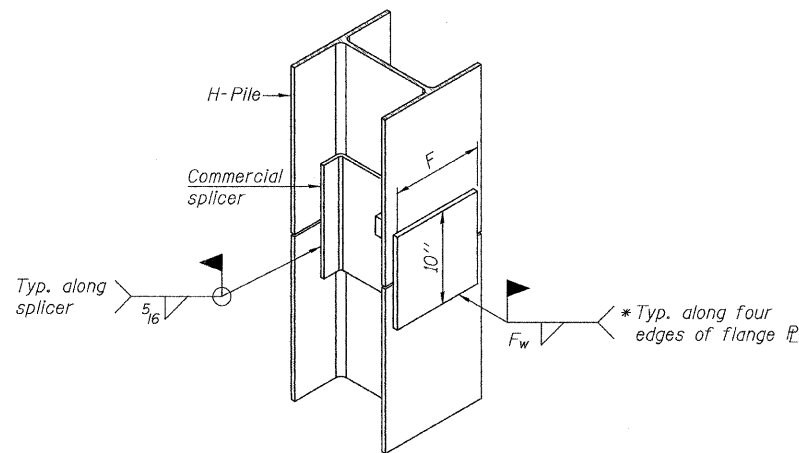


**ELEVATION**



**DETAIL A**

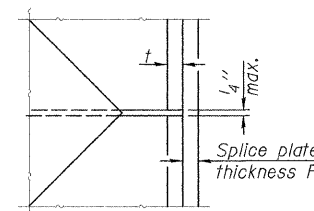
**H-PILE SHOE ATTACHMENT**



**ISOMETRIC VIEW**

**WELDED COMMERCIAL SPLICE ALTERNATE**

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



**DETAIL D**

**WELDED PLATE FIELD SPLICE**

Designation	F	Ft	Fw	W	Wt	Ww
HP 14x117	12 1/2"	1"	7/8"	7 3/4"	5 1/2"	1/2"
x102	12 1/2"	7/8"	3/4"	7 3/4"	5 1/2"	1/2"
x89	12 1/2"	3/4"	1/16"	7 3/4"	5 1/2"	1/2"
x73	12 1/2"	5/8"	9/16"	7 3/4"	5 1/2"	1/2"
HP 12x84	10"	7/8"	1/16"	6 1/2"	5 1/2"	1/2"
x74	10"	7/8"	1/16"	6 1/2"	5 1/2"	1/2"
x63	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
x53	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
HP 10x57	8"	3/4"	9/16"	5 1/4"	1/2"	3/8"
x42	8"	5/8"	9/16"	5 1/4"	1/2"	3/8"
HP 8x36	7"	5/8"	7/16"	4 1/4"	1/2"	3/8"

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

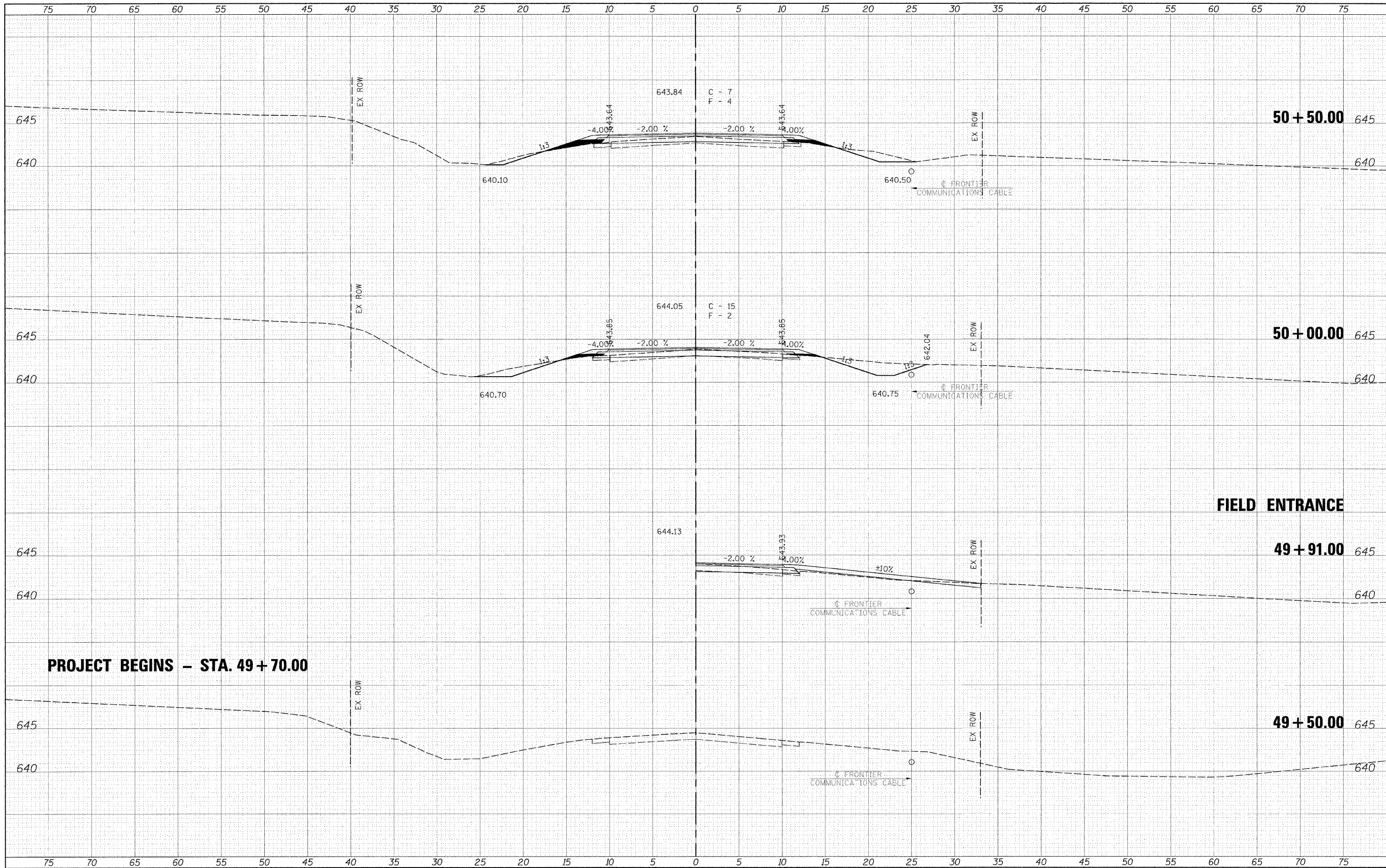
F-HP

7-1-10

FILE NAME =	USER NAME =	DESIGNED -	REVISED -		<b>Allen Henderson &amp; Associates, Inc.</b> Civil and Structural Engineers Springfield, IL. 62703 Phone: (217)544-8033 IL Design Firm No. 184-001907	<b>HP PILE DETAILS</b> <b>STRUCTURE NO. 084-3645</b> SHEET NO. 6 OF 6 SHEETS	C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		CHECKED -	REVISED -				40	08-00054-01-BR	SANGAMON	18	13
PLOT SCALE =		DRAWN -	REVISED -				STR. NO.			CONTRACT NO. 93572	
PLOT DATE =		CHECKED -	REVISED -				ILLINOIS FED. AID PROJECT				

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

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



FILE NAME =  
 #FILE#

USER NAME = #USER#  
 DESIGNED -  
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 DATE -

REVISOR -  
 REVISION -  
 REVISION -  
 REVISION -

DESIGNED -  
 DRAWN -  
 CHECKED -  
 DATE -



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

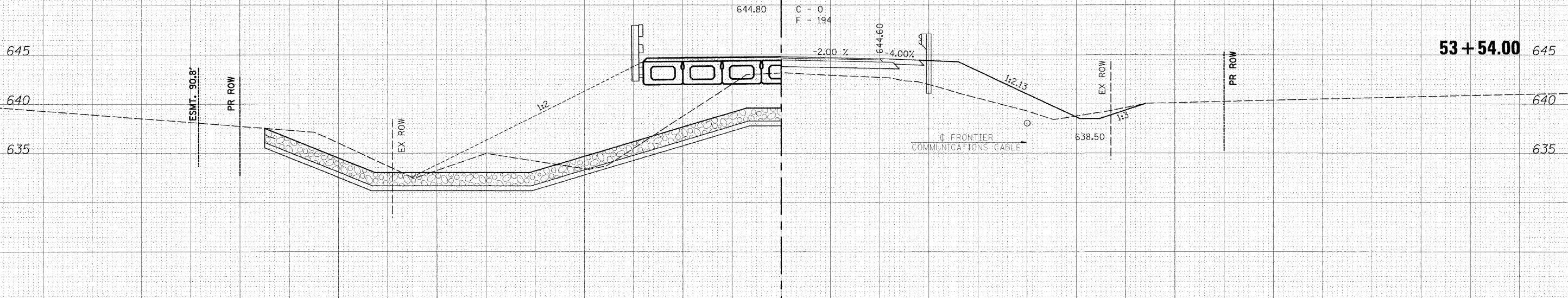
**CROSS SECTIONS**  
 SCALE: 1" = 5'  
 SHEET NO. 14 OF 18 SHEETS  
 STA. 49+50.00 TO STA. 50+50.00

C.H. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
40	08-00054-01-BR	SANGAMON	18	14
FED. ROAD DIST. NO. - [ILLINOIS] FED. AID PROJECT			CONTRACT NO. 93572	

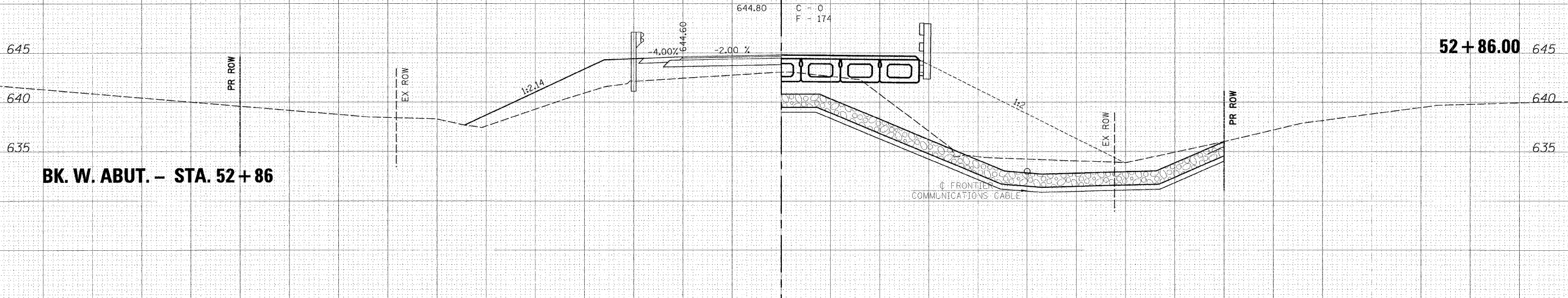


75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

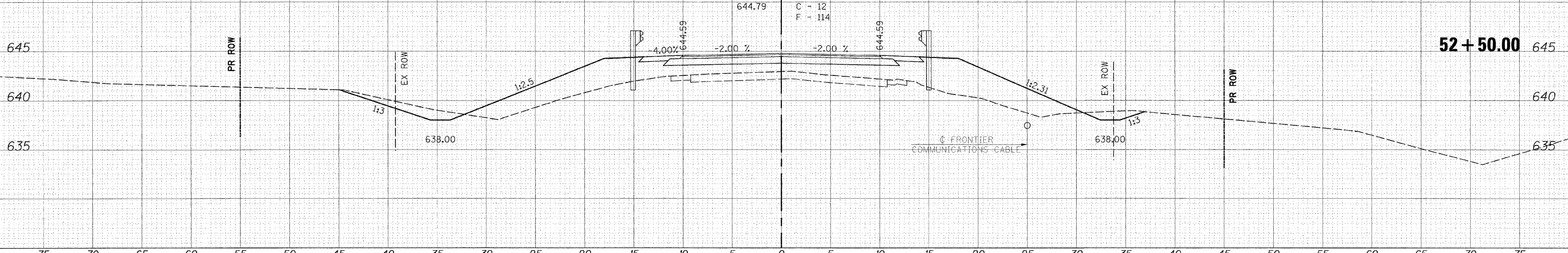
**BK. E. ABUT. - STA. 53+54**



**BK. W. ABUT. - STA. 52+86**



**BK. W. ABUT. - STA. 52+50**



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

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

FILE NAME =  
#JL6

USER NAME = #USER#  
DESIGNED -  
DRAWN -  
CHECKED -  
DATE -

REVISER -  
REVISER -  
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REVISER -



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

**CROSS SECTIONS**

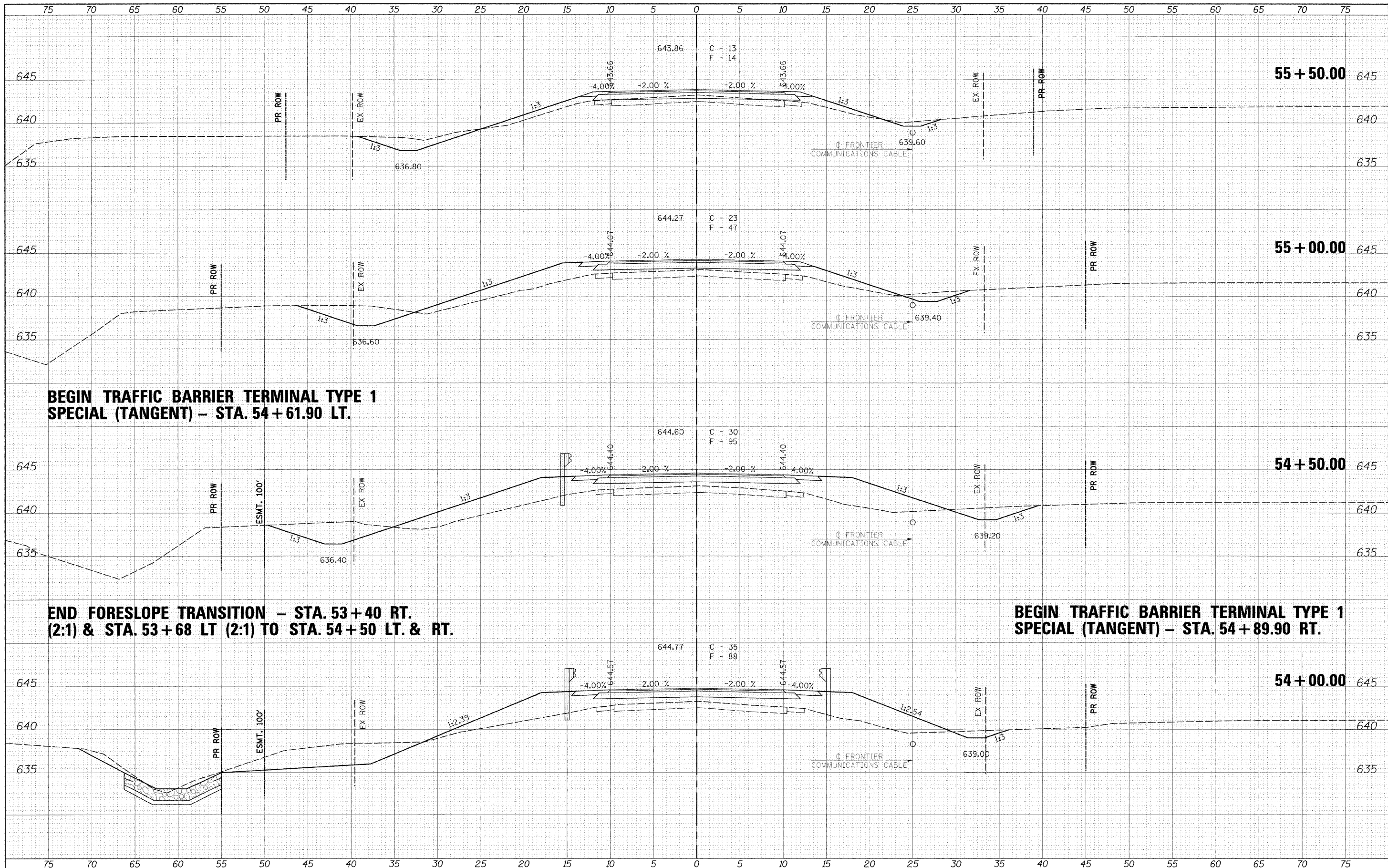
SCALE: 1" = 5' SHEET NO. 16 OF 18 SHEETS STA. 52+50.00 TO STA. 53+54.00

C.H. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
40	08-00054-01-BR	SANGAMON	18	16
FED. ROAD DIST. NO. [ILLINOIS] FED. AID PROJECT			CONTRACT NO. 93572	



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


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



**BEGIN TRAFFIC BARRIER TERMINAL TYPE 1  
SPECIAL (TANGENT) – STA. 54 + 61.90 LT.**

**END FORESLOPE TRANSITION – STA. 53 + 40 RT.  
(2:1) & STA. 53 + 68 LT (2:1) TO STA. 54 + 50 LT. & RT.**

**BEGIN TRAFFIC BARRIER TERMINAL TYPE 1  
SPECIAL (TANGENT) – STA. 54 + 89.90 RT.**

FILE NAME -	USER NAME - #USER#	DESIGNED -	REVISED -	 <b>Allen Henderson &amp; Associates, Inc.</b> Civil and Structural Engineers Springfield, IL. 62703 Phone: (217)544-8033 IL Design Firm No. 184-001907	<b>CROSS SECTIONS</b>			C.H. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
\$FILEL\$		DRAWN -	REVISED -		40	08-00054-01-BR	SANGAMON	18	17			
		CHECKED -	REVISED -		SCALE: 1" = 5'			SHEET NO. 17 OF 18 SHEETS			STA. 54+00.00 TO STA. 55+00.00	
		DATE -	REVISED -		FED. ROAD DIST. NO. -			ILLINOIS FED. AID PROJECT			CONTRACT NO. 93572	

