

Route	Section	County	Sheet of Total Sheets	
TR 437	04-07120-00-BR	SHELBY	1	17
ILLINOIS PROJECT		BROS - 173 (112)		

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED  
HIGHWAY BRIDGE PROGRAM

SHELBY COUNTY  
SECTION 04-07120-00-BR  
PROJECT BROS-173(112)  
JOB NO. C-97-017-08

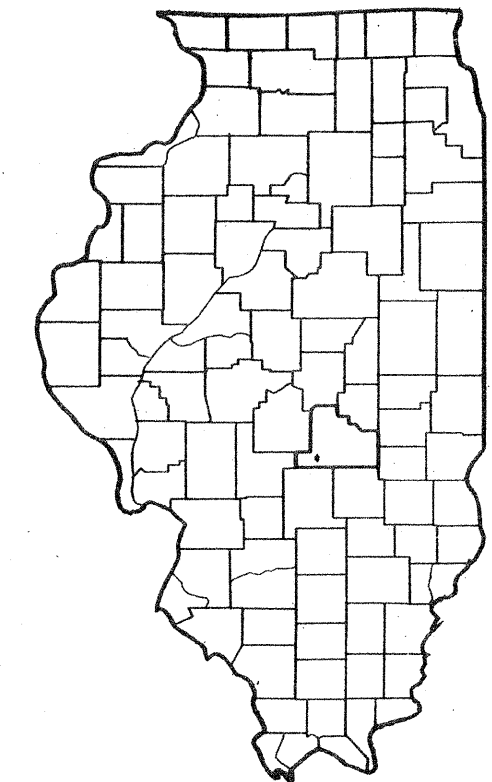
HERRICK TOWNSHIP  
TR - 437

INDEX OF SHEETS

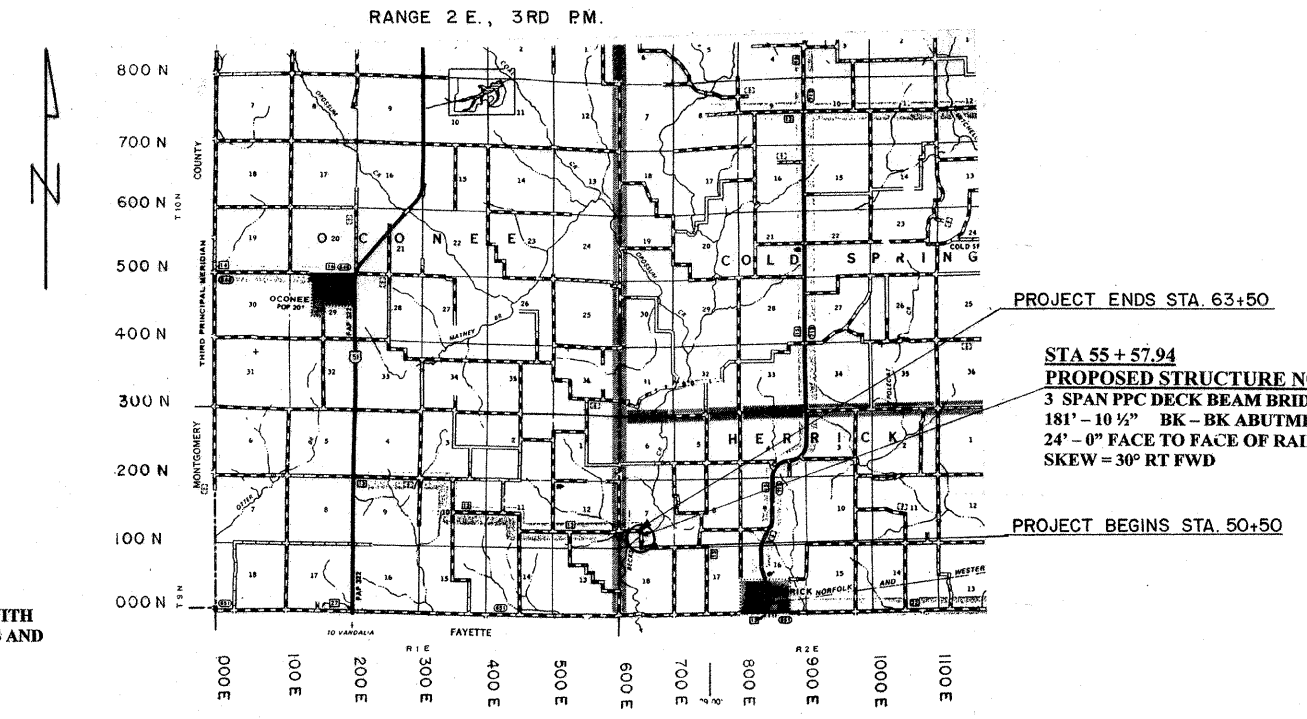
- 1) COVER SHEET
- 2) SCHEDULE OF QUANTITIES AND GENERAL NOTES
- 3) TYPICAL SECTIONS AND DETAILS
- 4) EROSION CONTROL PLAN
- 5-6) PLAN AND PROFILE SHEETS
- 7-9) CROSS SECTION
- 10-17) BRIDGE PLANS

STANDARDS

STANDARD NUMBER	STANDARD NAME
000001-05	STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
280001-04	TEMPORARY EROSION CONTROL SYSTEMS
5150001-02	NAME PLATE FOR BRIDGES
542401	METAL END SECTION FOR PIPE CULVERT
542406	METAL END SECTIONS FOR PIPE ARCHES
635006-02	REFLECTOR AND TERMINAL MARKER
666001	RIGHT OF WAY MARKERS
701006-02	OFF ROAD OPERATIONS 2L, 2W, 15' TO 24" FROM PAVEMENT EDGE
701901	TRAFFIC CONTROL DEVICES
BLR-21-7	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS



LOCATION OF SECTION INDICATED THIS -



PROJECT ENDS STA. 63+50  
**STA 55 + 57.94**  
**PROPOSED STRUCTURE NO. 087-3546**  
3 SPAN PPC DECK BEAM BRIDGE  
181' - 10 1/2" BK - BK ABUTMENT  
24' - 0" FACE TO FACE OF RAIL  
SKEW = 30° RT FWD

**STA 55 + 55**  
**EXISTING STRUCTURE NO. 087-3018**  
THREE SPAN TIMBER DECK ON STEEL STRINGERS WITH  
CLOSED TIMBER ABUTMENTS, TIMBER WINGWALLS AND  
TIMBER PILE BENT PILES  
129' - 0" BK - BK OF ABUTMENT

LOCATION MAP  
NET LENGTH OF SECTION = 1,300 FEET = 0.246 MILES

Plans Prepared by: *S. Alan Spesard*  
Date: 10-27-07  
S. ALAN SPESARD  
Illinois Professional No. 062-052965  
Expires on 11-30-07



Approved	10-29	2007
	<i>Ralph Bohm</i>	Township Highway Commissioner
Approved	10-29	2007
	<i>S. Alan Spesard</i>	County Engineer
Passed	11-2	2007
	<i>Maurice Koval</i>	District Engineer of Local Roads & Streets
Releasing For Bid Based on Limited Review	11-2	2007
	<i>Chris J. Koval</i>	Deputy Director of Highways, Regional Engineer Region 4

Contract No. 95528

FUNCTIONAL CLASSIFICATION: RURAL LOCAL ROAD  
DESIGN YEAR: 2027  
CURRENT ADT = 175  
DESIGN ADT = 225  
DESIGN SPEED = 30 MPH

Toll Free Joint Utility Locating  
Information For Excavators (J.U.L.I.E.)  
Telephone Number 1-800-892-0123

Shelby County Highway Department  
R.R. 3, Box 38 A  
Shelbyville, IL 62565  
Phone (217) 774-2721

**SUMMARY OF QUANTITIES**

CODE NO.	ITEM	UNIT	QUANTITY
20100500	TREE REMOVAL, ACRES	ACRE	2.5
20200100	EARTH EXCAVATION	CU YD	2470
20300100	CHANNEL EXCAVATION	CU YD	1726
20400800	FURNISHED EXCAVATION	CU YD	560
25000200	SEEDING, CLASS 2	ACRE	2.7
25000400	NITROGEN FERTILIZER NUTRIENT	POUND	243
25000500	PHOSPHORUS FERTILIZER NUTRIENT	POUND	243
25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	243
25100115	MULCH, METHOD 2	ACRE	2.7
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	800
28000300	TEMPORARY DITCH CHECKS	EACH	8
28000400	PERIMETER EROSION BARRIER	FOOT	200
28000500	INLET AND PIPE PROTECTION	EACH	2
28100207	STONE RIPRAP, CLASS A4	TON	540
28200200	FILTER FABRIC	SQ YD	670
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	1207
50100300	REMOVAL OF EXISTING STRUCTURES NO. 1	EACH	1
50100400	REMOVAL OF EXISTING STRUCTURES NO. 2	EACH	1
50200100	STRUCTURE EXCAVATION	CU YD	114
50300225	CONCRETE STRUCTURES	CU YD	122.6
50300280	CONCRETE ENCASEMENT	CU YD	18.6
50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ FT	4324
50800105	REINFORCEMENT BARS	POUND	9190
50900205	STEEL RAILING, TYPE S1	FOOT	364
51201400	FURNISHING STEEL PILES HP10X42	FOOT	532
51500100	NAME PLATES	EACH	1
542D0223	PIPE CULVERTS, CLASS D, TYPE 1 18"	FOOT	40
542D5491	PIPE CULVERTS, CLASS D, TYPE 1 EQUIVALENT ROUND-SIZE 36"	FOOT	40
54215553	METAL END SECTIONS 18"	EACH	2
54215781	METAL END SECTIONS, EQUIVALENT ROUND-SIZE 36"	EACH	2
66600105	FURNISHING AND ERECTING RIGHT-OF-WAY MARKERS	EACH	22
67000500	ENGINEER'S FIELD OFFICE, TYPE B	CAL MO	7
67100100	MOBILIZATION	L SUM	1
78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
X5020501	UNDERWATER STRUCTURE EXCAVATION PROTECTION - LOCATION 1	EACH	1
X5020502	UNDERWATER STRUCTURE EXCAVATION PROTECTION - LOCATION 2	EACH	1
Z0065000	SETTING PILES IN ROCK	EACH	20

**GENERAL NOTES**

ALL ELEVATIONS SHOWN ON THE PLANS ARE BASED ON AN U.S.G.S. DATUM.

THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER IN REGARD TO THE EXACT LENGTHS OF PIPE CULVERTS PRIOR TO ORDERING THESE ITEMS.

**EARTHWORK SCHEDULE**

LOCATION	EARTH EXCAVATION	EARTH EXCAVATION ADJUSTED FOR SHRINKAGE	EMBANKMENT	EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-)
	Cubic Yard	Cubic Yard	Cubic Yard	Cubic Yard
STA. 50+50 - STA. 51+00	19	14	4	+10
STA. 51+00 - STA. 52+00	44	33	48	-15
STA. 52+00 - STA. 53+00	94	70	222	-152
STA. 53+00 - STA. 54+00	120	90	563	-473
STA. 54+00 - STA. 54+67	74	56	511	-455
STA. 56+49 - STA. 57+00	176	132	404	-272
STA. 57+00 - STA. 58+00	389	292	704	-412
STA. 58+00 - STA. 59+00	398	298	430	-132
STA. 59+00 - STA. 60+00	380	285	141	+144
STA. 60+00 - STA. 61+00	360	270	22	+248
STA. 61+00 - STA. 62+00	244	183	2	+181
STA. 62+00 - STA. 63+00	135	101	6	+95
STA. 63+00 - STA. 63+50	37	28	2	+26
<b>Total</b>	<b>2470</b>	<b>1852</b>	<b>3059</b>	<b>-1207</b>

CHANNEL EXCAVATION = 1726 CU YD  
 50% OF CHANNEL EXCAVATION SUITABLE FOR EMBANKMENT = 863 CU YD  
 CHANNEL EXCAVATION ADJUSTED FOR SHRINKAGE = 647  
 FURNISHED EXCAVATION = 560

**UTILITIES INFORMATION**

POWER: JAMES VARWIG MAIL CODE - 450  
 AMEREN  
 1901 CHOUTEAU AVE  
 P.O. Box 66149  
 ST. LOUIS MO. 63103

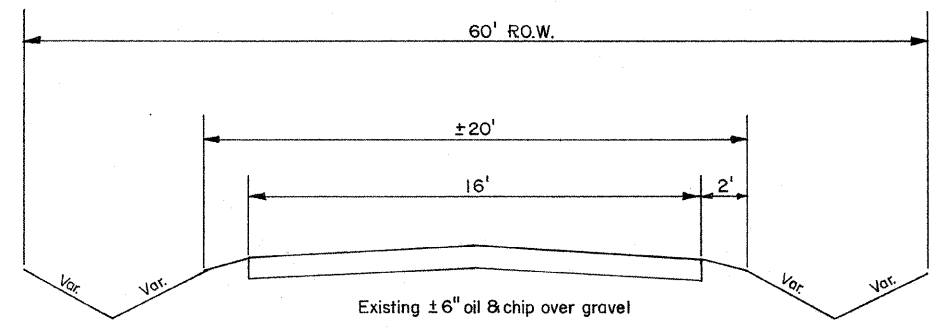
TELEPHONE: FRONTIER COMMUNICATIONS  
 801 WEST JACKSON STREET  
 ALTAMONT ILLINOIS 62411

TREE REMOVAL ACRES	
LOCATION	QUANTITY
STA 50+50 - 30 LT & RT TO STA 52+00 - 30 LT & RT	0.2 ACRE
STA 52+00 - 30 LT & RT TO STA 53+00 - 40 LT & RT	0.2 ACRE
STA 53+00 - 40 LT & RT TO STA 54+00 - 40 LT & RT	0.2 ACRE
STA 54+00 - 50 LT & RT TO STA 60+00 - 50 LT & RT	1.4 ACRE
STA 60+00 - 40 LT & RT TO STA 61+00 - 40 LT & RT	0.2 ACRE
STA 61+00 - 30 LT & 40 RT TO STA 62+00 - 30 LT & 35 RT	0.1 ACRE
STA 62+00 - 30 LT & 35 RT TO STA 62+40.20 - 30 LT & 30 RT	0.1 ACRE
STA 62+40.20 - 30 LT & RT TO STA 63+50 - 30LT & RT	0.1 ACRE
<b>TOTAL</b>	<b>2.5 ACRES</b>

**ROW MARKERS**

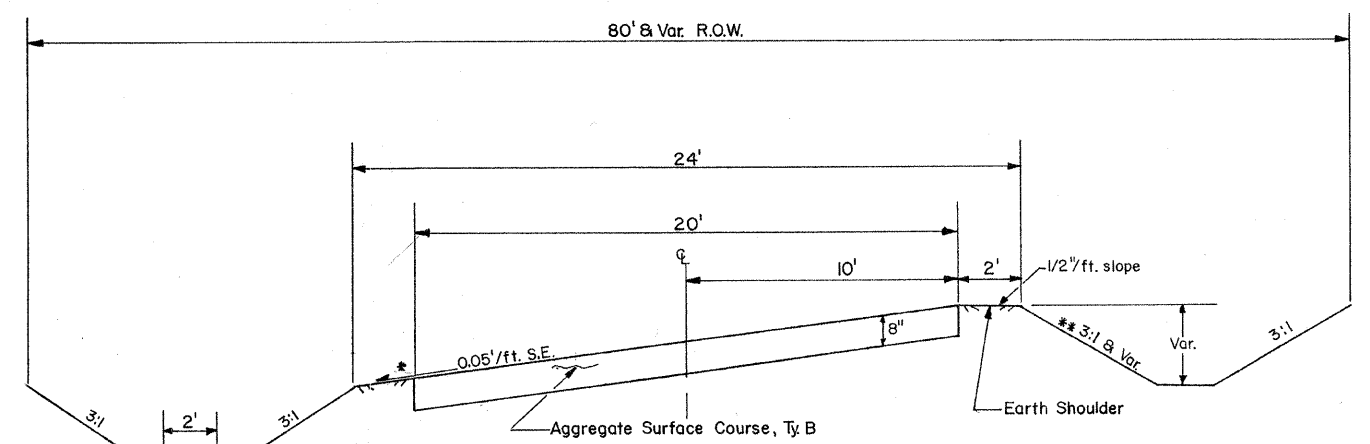
STA	OFFSET	QUANTITY
52+00.00	30' Lt & 30' Rt	2.0
53+00.00	40' Lt & 40' Rt	2.0
54+00.00	40' Lt & 50' Lt	2.0
54+00.00	40' Rt & 50' Rt	2.0
P.C. 58+16.30	50' Lt & 50' Rt	2.0
60+00.00	40' Lt & 50' Lt	2.0
60+00.00	40' Rt & 50' Rt	2.0
61+00.00	30' Lt & 40' Lt	2.0
61+00.00	40' Rt	1.0
62+00.00	35' Rt	1.0
P.T. 62+40.20	30' Lt & 30' Rt	2.0
63+00.00	30' Lt & 30' Rt	2.0
<b>TOTAL</b>		<b>22.0</b>

**SUMMARY OF QUANTITIES**  
**TR- 437 OVER BECKS CREEK**  
**SECTION 04-07120-00-BR**  
**SHELBY COUNTY**



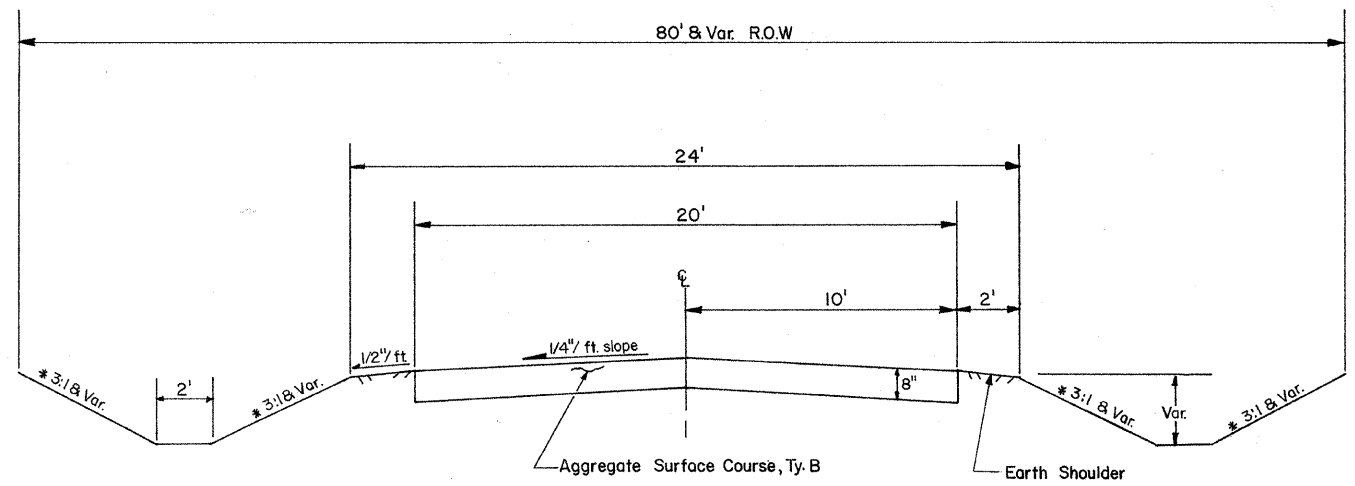
**EXISTING TYPICAL SECTION**

STA. 50+50 — STA. 63+50



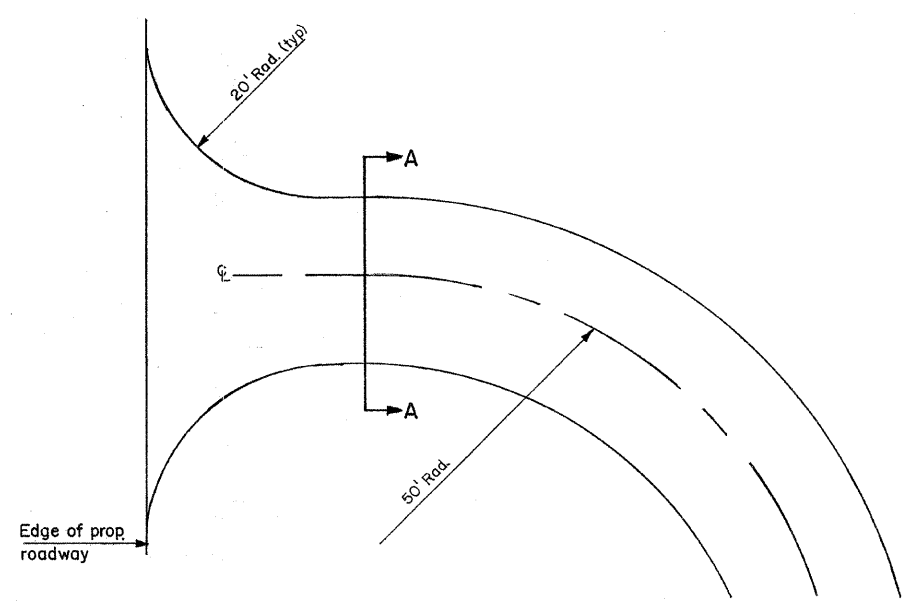
**PROPOSED TYPICAL SECTION**

Sta. 58+50 to Sta. 62+07  
 S.E. Transitions  
 Sta. 57+50 to Sta. 58+50  
 Sta. 62+07 to Sta. 63+07

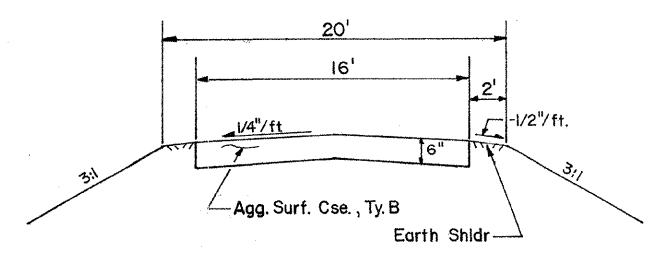


**PROPOSED TYPICAL SECTION**

Sta. 50+50 to Sta. 57+50  
 Sta. 63+07 to Sta. 63+50



**PROPOSED FIELD ENTRANCE RT. STA. 60+65**



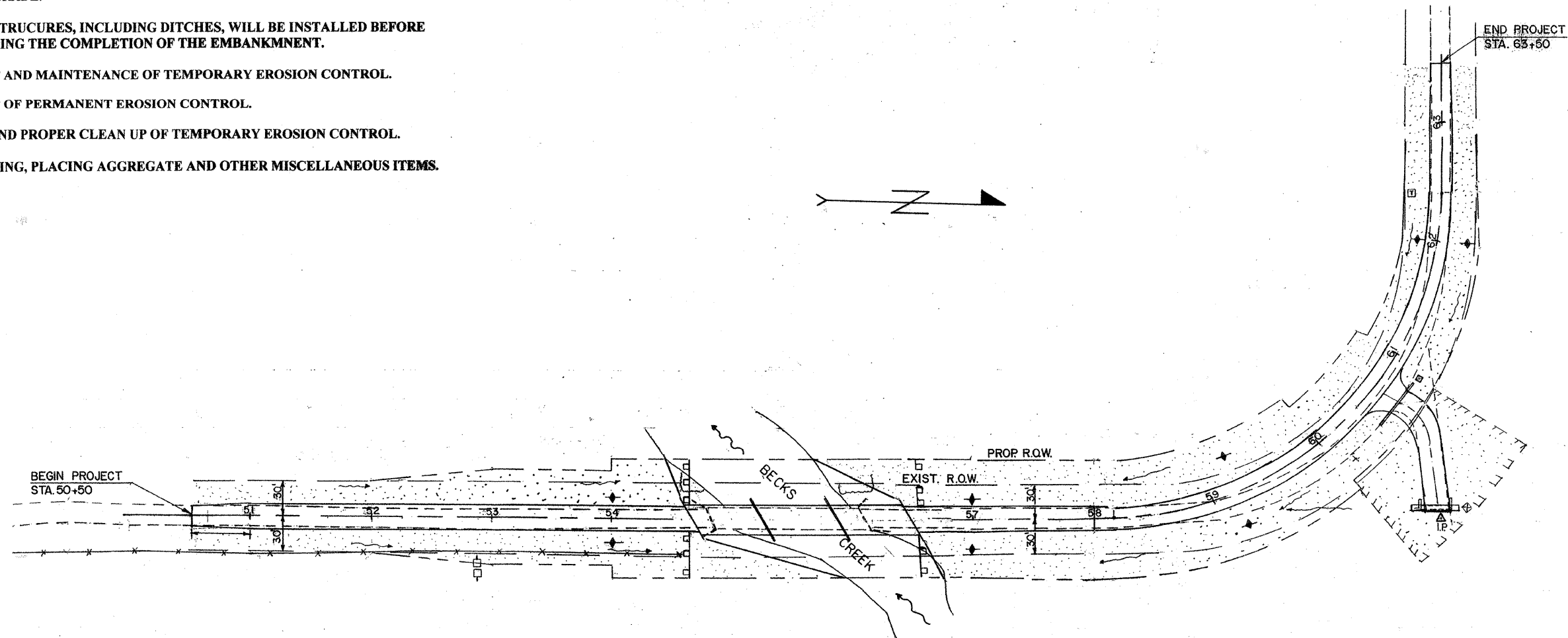
**SECTION A-A**

PROPOSED TYPICAL SECTIONS		
SCALE:	APPROVED BY:	DRAWN BY:
DATE:	REVISION:	
		DRAWING NUMBER

**DESCRIPTION OF INTENDED SEQUENCE OF MAJOR CONSTRUCTION ACTIVITIES WHICH WILL DISTURB EARTH AND LEAD TO POSSIBLE EROSION FOR MAJOR PORTIONS OF THE CONSTRUCTION SITE:**

SHELBY COUNTY  
SECTION 04-07120-00-BR  
ROUTE TR-437  
SHEET 4 OF 17 SHEETS  
CONTRACT NO. 95528

1. REMOVAL OF THE EXISTING STRUCTURE.
2. CONSTRUCTION OF THE REPLACEMENT STRUCTURE
3. PLACEMENT OF ROADWAY EMBANKMENT TO RAISE THE ROADWAY TO PROPOSED GRADE.
4. DRAINAGE STRUCTURES, INCLUDING DITCHES, WILL BE INSTALLED BEFORE AND/OR DURING THE COMPLETION OF THE EMBANKMENT.
5. PLACEMENT AND MAINTENANCE OF TEMPORARY EROSION CONTROL.
6. PLACEMENT OF PERMANENT EROSION CONTROL.
7. REMOVAL AND PROPER CLEAN UP OF TEMPORARY EROSION CONTROL.
8. FINAL GRADING, PLACING AGGREGATE AND OTHER MISCELLANEOUS ITEMS.



**BILL OF MATERIALS**

ITEM	UNIT	QUANTITY
TEMPORARY EROSION CONTROL SEEDING	POUND	800
TEMPORARY DITCH CHECKS	EACH	8
INLET AND PIPE PROTECTION	EACH	2
PERIMETER EROSION BARRIER	FEET	200

THE ABOVE QUANTITIES ARE ESTIMATES ONLY. ACTUAL QUANTITIES FOR EROSION CONTROL WILL BE DETERMINED BY THE ENGINEER IN THE FIELD AND THERE WILL BE NO ADJUSTMENT IN ANY UNIT PRICE DUE TO A CHANGE IN PLAN QUANTITY.

**TEMPORARY EROSION CONTROL:**

- PERIMETER EROSION BARRIER
- ◆ TEMPORARY DITCH CHECK
- ⊕ INLET AND PIPE PROTECTION

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**PERMANENT EROSION CONTROL:**

- SEEDING CLASS 2, FERTILIZERS, & MULCH, METHOD 2

**TEMPORARY DITCH CHECKS**

LT. & RT. STA. 54+00 = 2 EACH  
 LT. & RT. STA. 57+00 = 2 EACH  
 LT. & RT. STA. 59+25 = 2 EACH  
 LT. & RT. STA. 62+00 = 2 EACH  
 TOTAL = 8 EACH

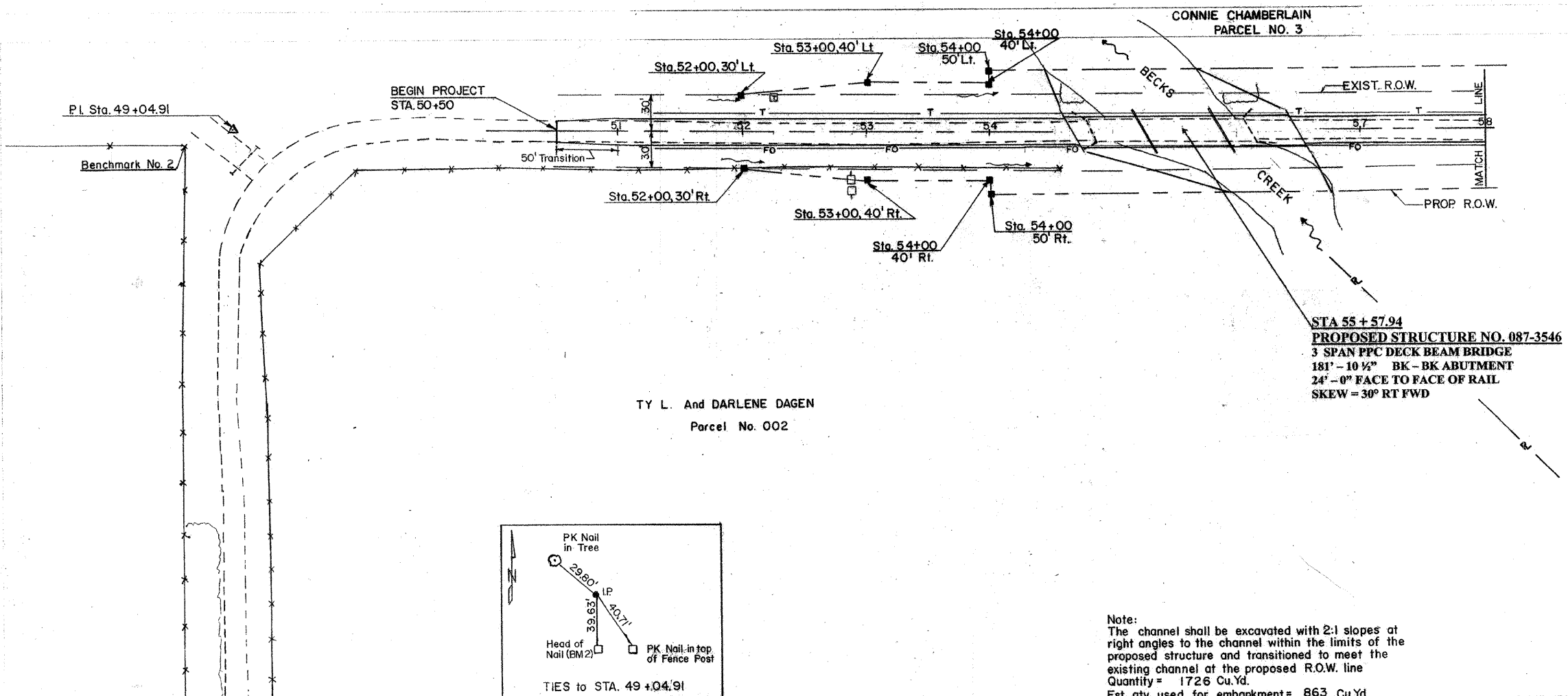
**PERIMETER EROSION BARRIER**

STA. 54+67 (50'LT. - 50'RT.) = 100 Ft.  
 STA. 56+49 (50'LT. - 50'RT.) = 100 Ft.  
 TOTAL = 200 Ft.

**INLET AND PIPE PROTECTION**

RT. STA. 60+45 = 1 EACH  
 RT. STA. 60+85 = 1 EACH  
 TOTAL = 2 EACH

**EROSION CONTROL PLAN**  
**TR-437 OVER BECK'S CREEK**  
**SECTION 04-07120-00-BR**  
**SHELBY COUNTY**

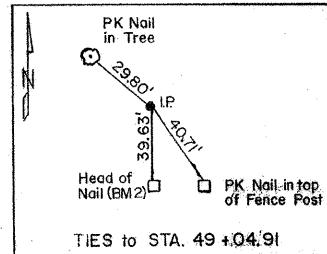


**STA 55 + 55**  
**EXISTING STRUCTURE NO. 087-3018**  
 THREE SPAN TIMBER DECK ON STEEL STRINGERS WITH  
 CLOSED TIMBER ABUTMENTS, TIMBER WINGWALLS AND  
 TIMBER PILE BENT PILES  
 129' - 0" BK - BK OF ABUTMENT

**STA 55 + 57.94**  
**PROPOSED STRUCTURE NO. 087-3546**  
 3 SPAN PPC DECK BEAM BRIDGE  
 181' - 10 1/2" BK - BK ABUTMENT  
 24' - 0" FACE TO FACE OF RAIL  
 SKEW = 30° RT FWD

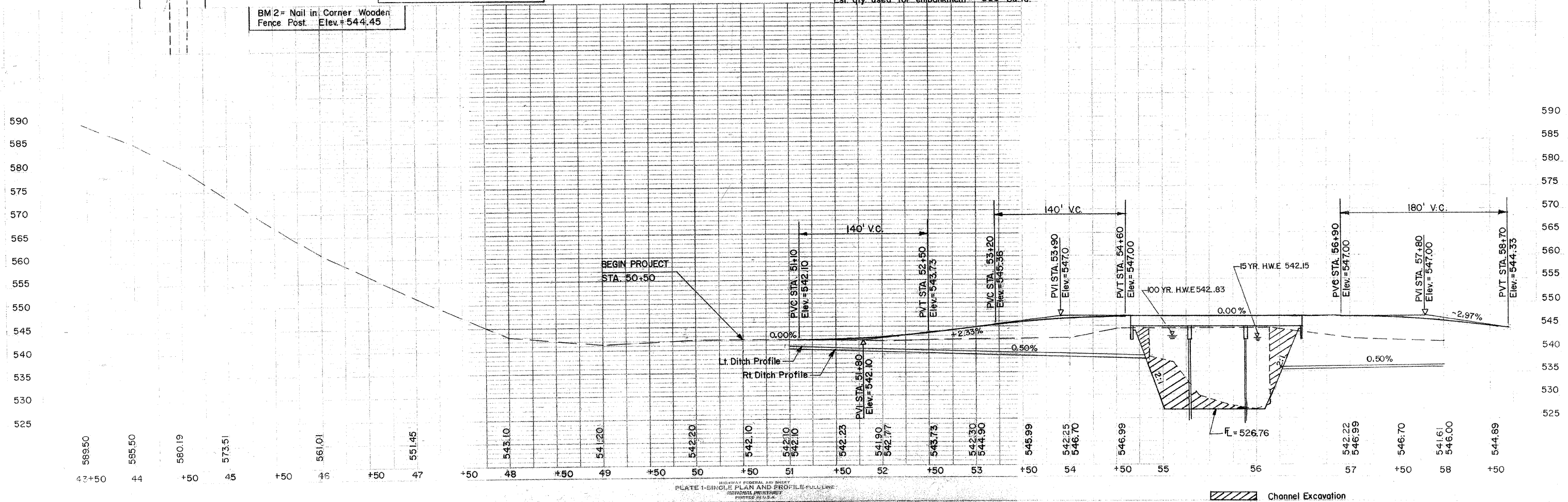
RALPH And AUDREY CHAMBERLAIN  
 Parcel No. 001

TY L. And DARLENE DAGEN  
 Parcel No. 002

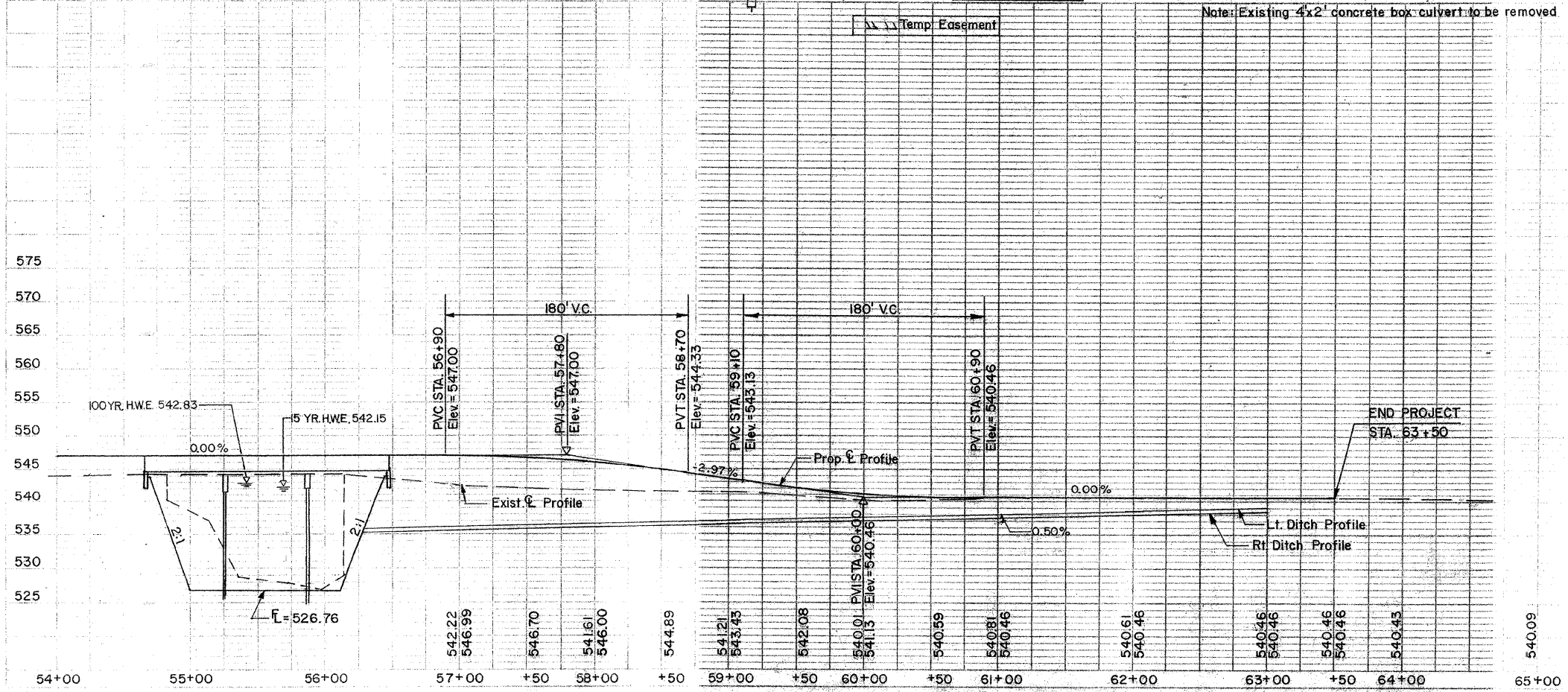
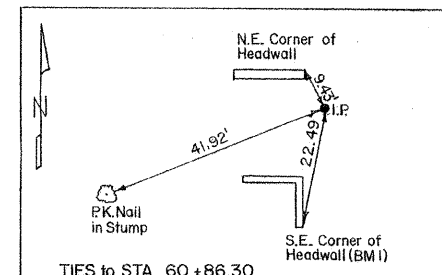
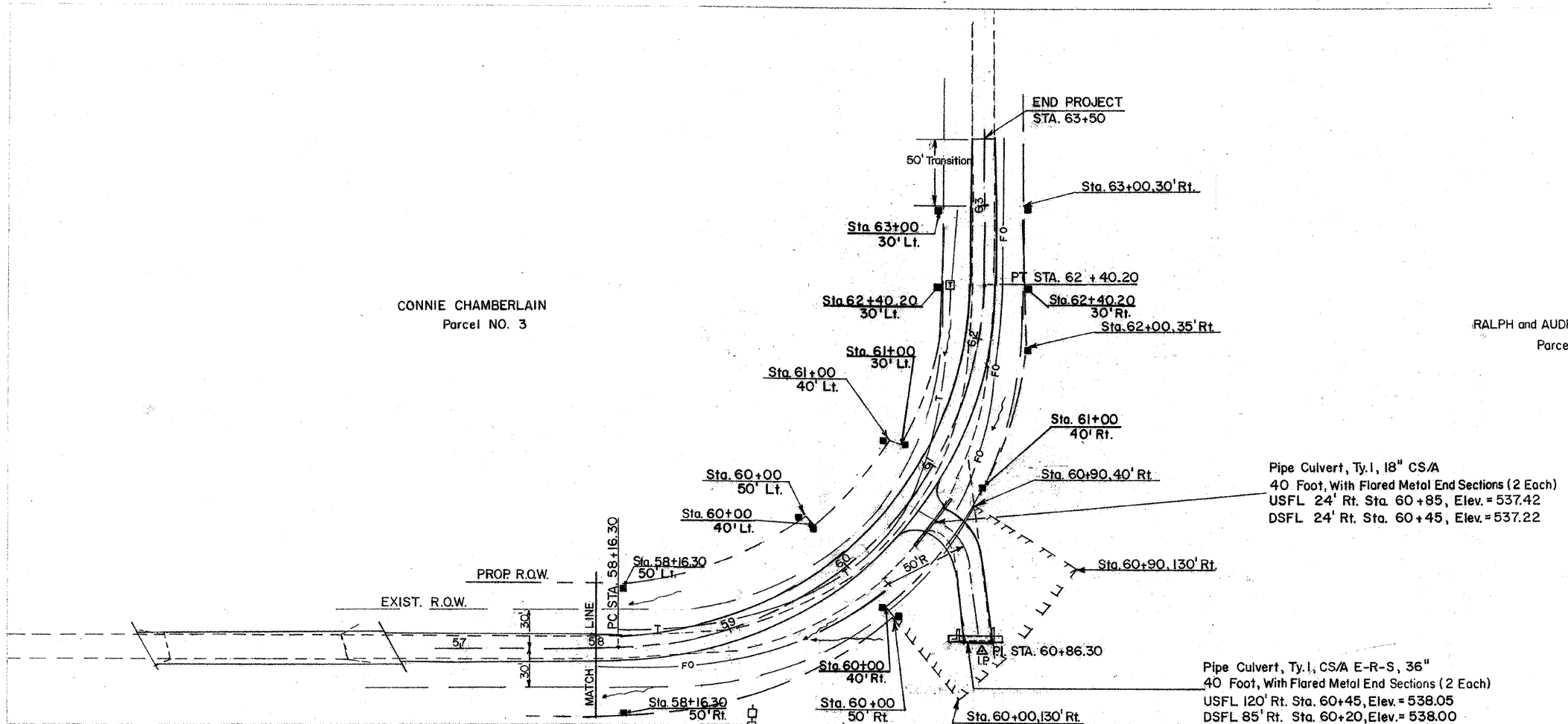


BM/2 = Nail in Corner Wooden  
 Fence Post. Elev. +544.45

Note:  
 The channel shall be excavated with 2:1 slopes at  
 right angles to the channel within the limits of the  
 proposed structure and transitioned to meet the  
 existing channel at the proposed R.O.W. line  
 Quantity = 1726 Cu.Yd.  
 Est. qty. used for embankment = 863 Cu.Yd.



**CURVE DATA**  
 $\Delta = 90^{\circ}-04'-40''$   
 $T = 270.00'$   
 $R = 269.63'$   
 $L = 423.90'$   
 $D = 12^{\circ}-15'-00''$   
 $E = 111.95'$   
 S.E. Transition Sta. 57+50 to 58+50  
 Super Elev. 0.05'/ft. Sta. 58+50 to 62+07  
 S.E. Transition Sta. 62+07 to 63+07



BM 1 = Chiseled Square on S.E. Corner of S.E. Headwall  
Elev. = 542.54

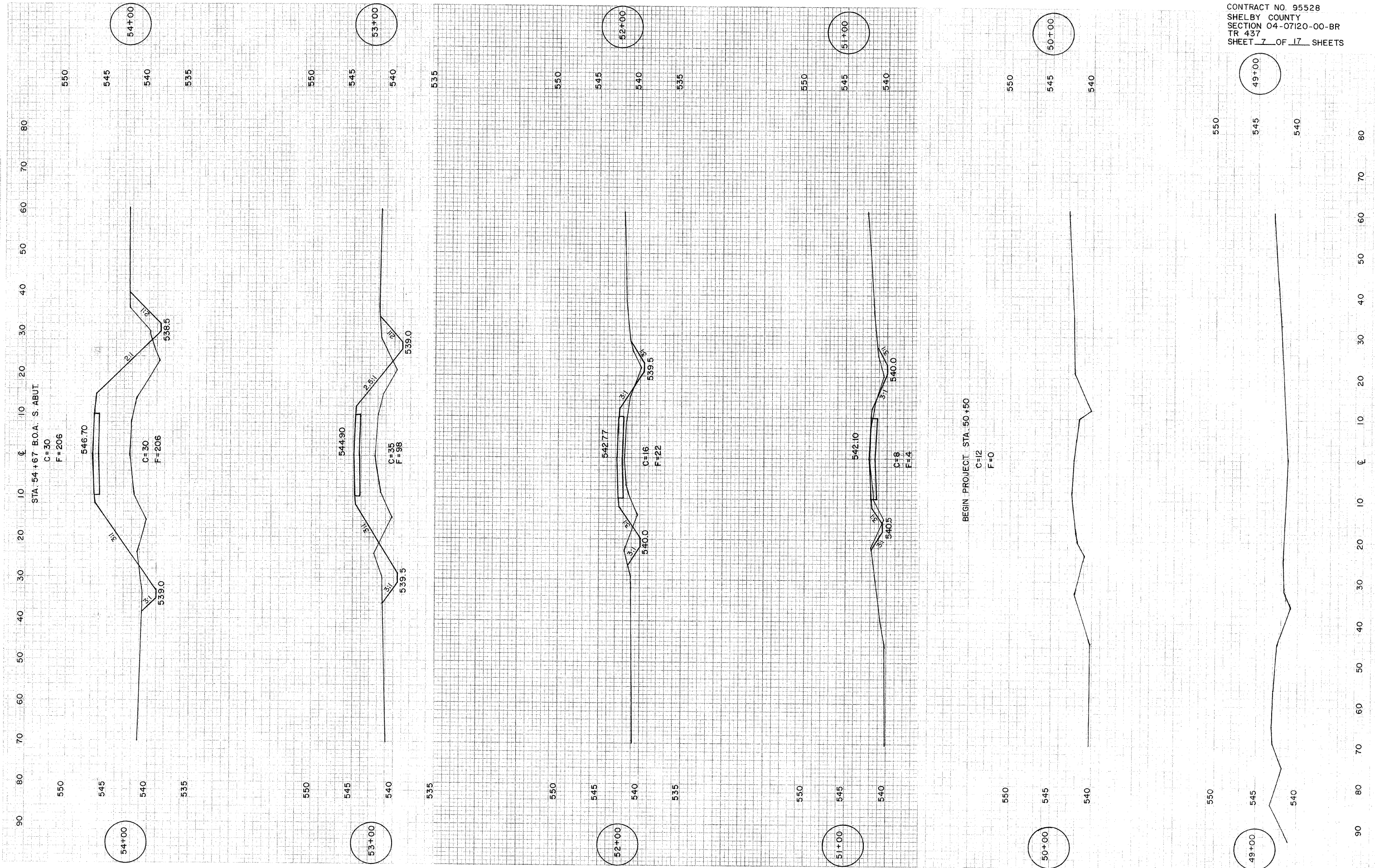
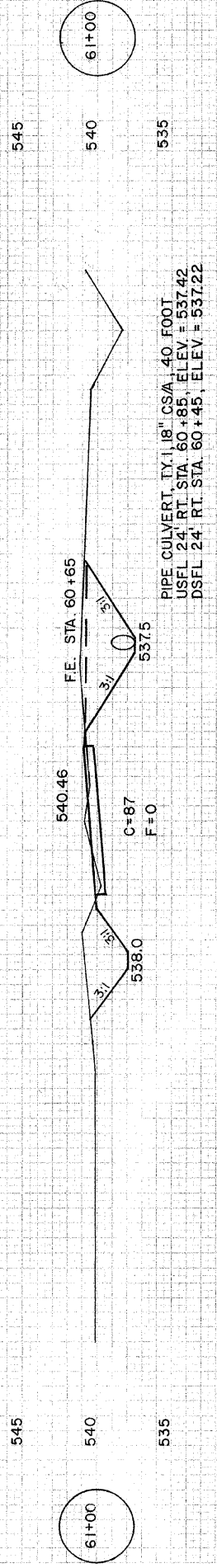


PLATE 3-FULL CROSS SECTION-FULL LINE  
 HIGHWAY FEDERAL AID SHEET  
 SHELBY COUNTY

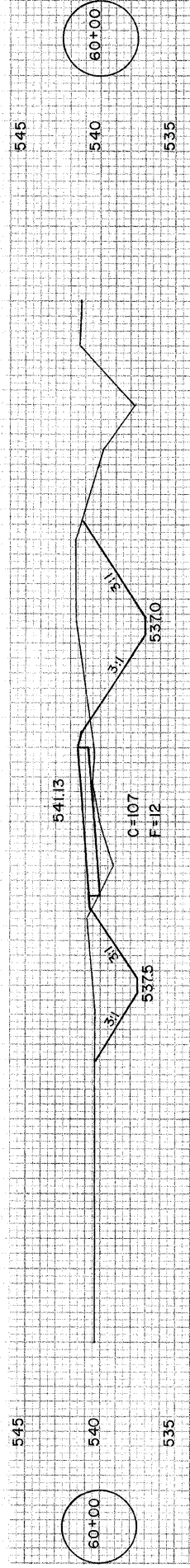
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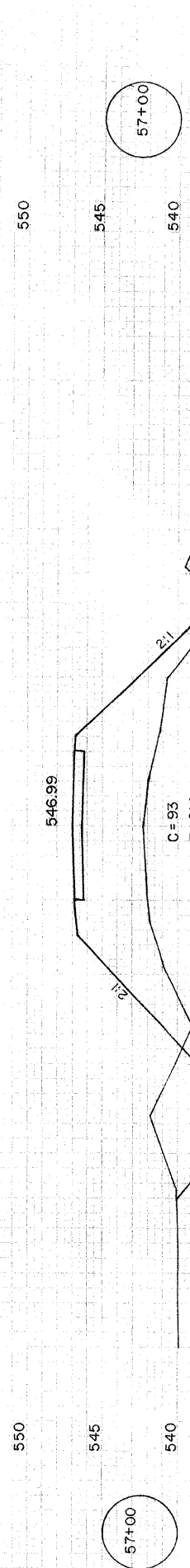
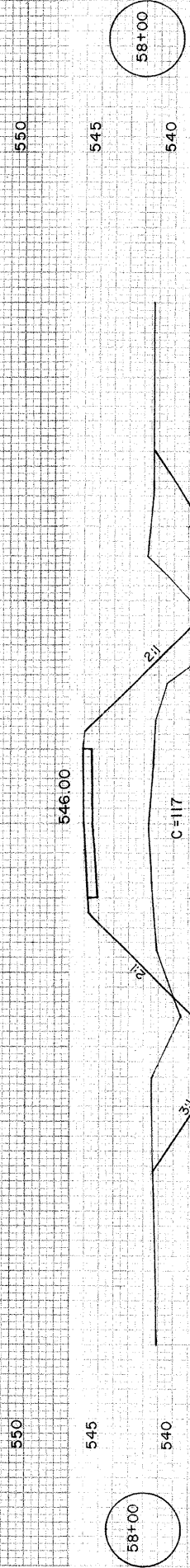
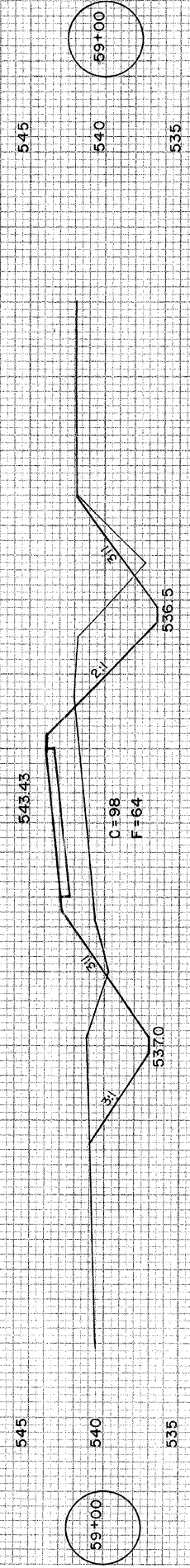
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80



PIPE CULVERT 18" DIA. 40' LONG  
 USFL 24' RT. STA. 60+85, ELEV. = 537.42  
 DSFL 24' RT. STA. 60+45, ELEV. = 537.22



Note: Existing Rt. ditch is to be drained into proposed Rt. ditch.



STA. 56+48.88 BOA. N. ABUT.

C=93  
 F=214

80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80



70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

545

65+00

540

535

545

65+00

540

535

545

64+00

540

535

545

64+00

540

535

END PROJECT STA. 63+50

C=12  
 F=0

545

63+00

540

535

545

63+00

540

535

540.46

539.0  
 538.5

C=28  
 F=2

545

62+00

540

535

545

62+00

540

535

540.46

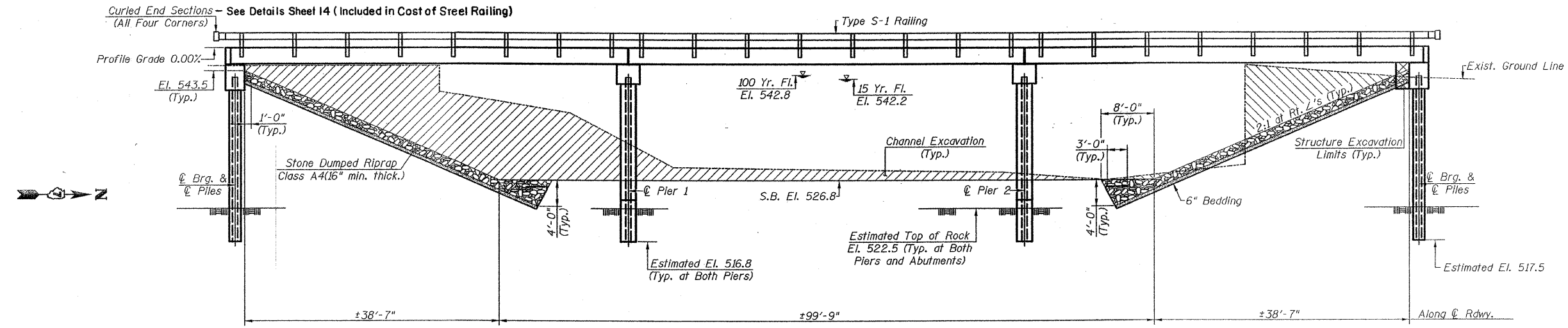
538.5  
 538.0

C=45  
 F=1

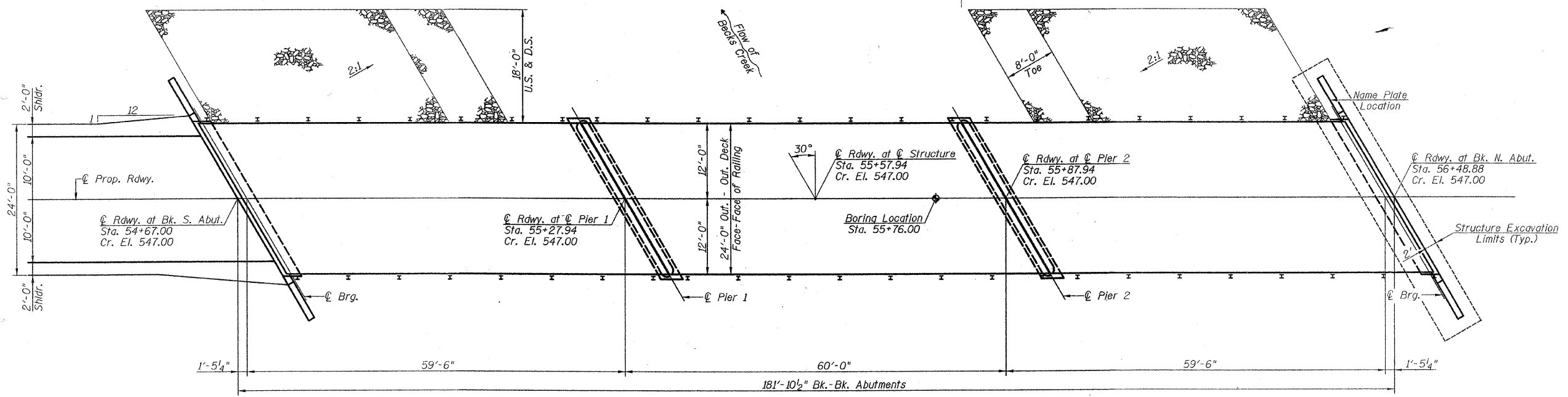
T.R. NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
437	04-07120-00-BR	SHELBY	17	10
STA. 51+10		TO STA. 63+50		
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

Existing Structure: Three Span Timber Deck on Steel Stringers with Closed Timber Abutments, Timber Wingwalls, and Timber Pile Bent Piers. ±129'-0" Bk.-Bk. Abutments, ±20'-0" Clear Deck Width.

Benchmarks: BM#1 - Chiseled Square on S.E. Corner of S.E. Headwall El. 542.54



**ELEVATION**  
(Looking Downstream)



**PLAN**

**GENERAL PLAN & ELEVATION**  
**T.R. 437 OVER BECKS CREEK**  
**SECTION 04-07120-00-BR**  
**SHELBY COUNTY**

PLOT DATE = 4/20/04  
FILE NAME = 8FILEL8

CONTRACT NO. 95528			
T.R. NO.	SECTION	COUNTY	TOTAL SHEETS
437	04-07120-00-BR	SHELBY	17
STA. 51+00		TO STA. 63+50	
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT	

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	Cu. Yd.			1726
Stone Riprap, Class A4	Ton			540
Filter Fabric	Sq. Yd.			670
Removal of Existing Structures	Each			1
Structure Excavation	Cu. Yd.			14
Concrete Structures	Cu. Yd.		122.6	122.6
Concrete Encasement	Cu. Yd.		18.6	18.6
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq. Ft.	4324		4324
Reinforcement Bars	Pound		9190	9190
Steel Railing, Type S-1	Foot	364		364
Furnishing Steel Piles HP 10x42	Foot		532	532
Setting Piles in Rock	Each		20	20
Name Plates	Each	1		1
Underwater Structure Excavation Protection - Location 1 (Pier 1)	Each			1
Underwater Structure Excavation Protection - Location 2 (Pier 2)	Each			1

**WATERWAY INFORMATION**

Drainage Area = 91.3 Sq. Mi.		Low Grade Elev. = 540.46		@ Sta. 63+00		
Flood	Freq. Yr.	0 C.F.S.	Opening Sq. Ft.	Nat. H.W.E.	Head - Ft.	Headwater El.
			Exist. Prop.		Exist. Prop.	Exist. Prop.
Design	15	7982	1112 1622	542.2	0.3 0.6	542.5 542.8
Base	100	12652	1112 1725	542.8	0.4 0.7	543.2 543.5
Exist. Overtop.						
Prop. Overtop.						
Max. Calc.	500	16482	1112 1796	543.3	0.4 0.8	543.7 544.1

**DESIGN STRESSES**

<b>FIELD UNITS</b>	<b>PRECAST PRESTRESSED UNITS</b>
$f_c = 1400$ psi	$f'_c = 5000$ psi
$f_s = 24000$ psi	$f'_{ci} = 4000$ psi
	$f'_s = 270000$ psi
	$f'_{si} = 201960$ psi

1/2" Strands

**GENERAL NOTES**

See Proposal for Boring Data.  
 Reinforcement bars shall conform to the requirements of ASTM A 706, GR 60 (IL Modified). See Special Provisions.  
 The layout of the riprap slopedwall may be varied to suit conditions in the field as determined by the Engineer.

**DESIGN SPECIFICATIONS**

2002 AASHTO Standard Specifications.  
**LOADING HS 20-44**  
 Allow 50#/sq. ft. for future wearing surface.

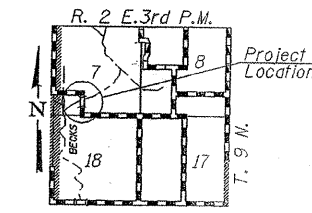
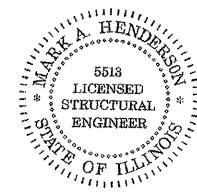
I certify that to the best of my knowledge, information and belief, this bridge is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current "A.A.S.H.T.O. Standard Specifications For Highway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

*Mark A. Henderson* 10/23/07  
 Expiration Date 11/30/2008

**GENERAL PLAN & ELEVATION**  
**T.R. 437 OVER BECKS CREEK**  
**SECTION 04-07120-00-BR**  
**SHELBY COUNTY**

BECKS CREEK  
 BUILT 200 BY  
 SHELBY COUNTY  
 SECTION 04-07120-00-BR  
 STA. 55+57.94  
 PROJECT BR05-173(112)  
 STR. NO. 087-3546 LOADING HS20

**NAME PLATE**  
 (Standard 515001)



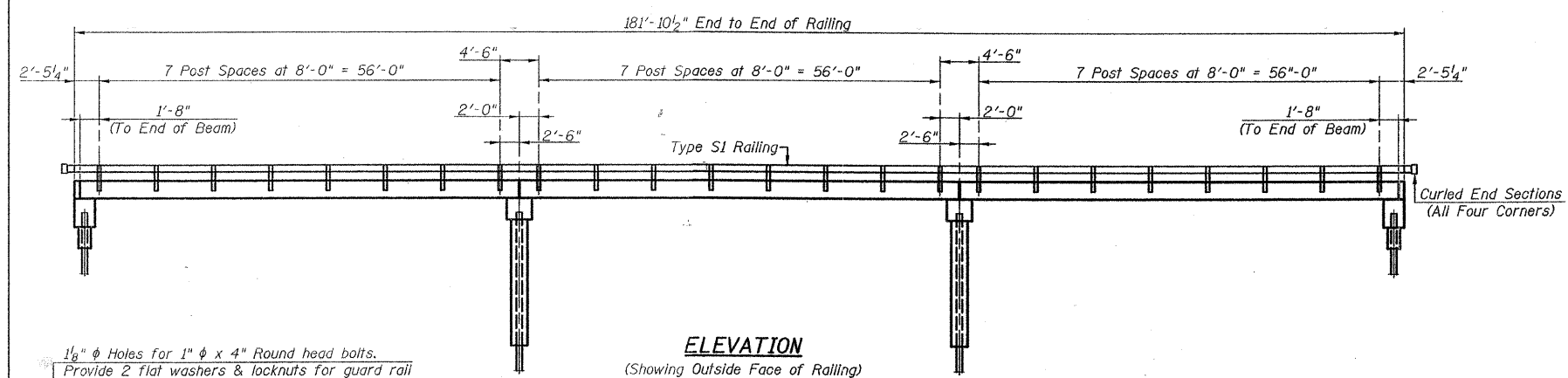
**LOCATION SKETCH**

PLOT DATE \* DATES  
 FILE NAME \* FILE#



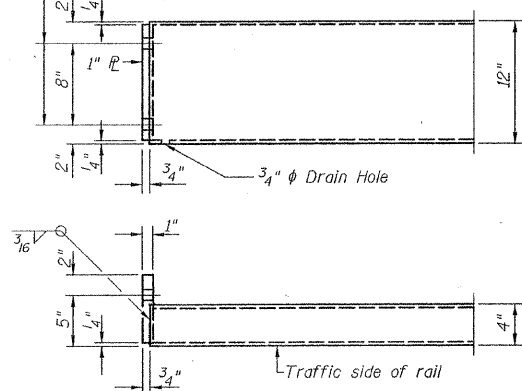


T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
437	04-07120-00-BR	SHELBY	17	14
STA. 51+10		TO STA. 63+50		
FED. ROAD DIST. NO. 1		ILLINOIS FED. AID PROJECT		

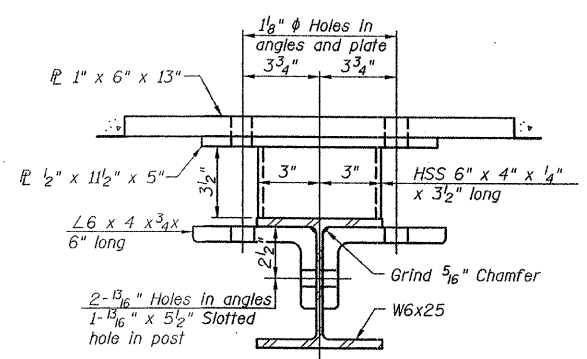


**ELEVATION**  
(Showing Outside Face of Railing)

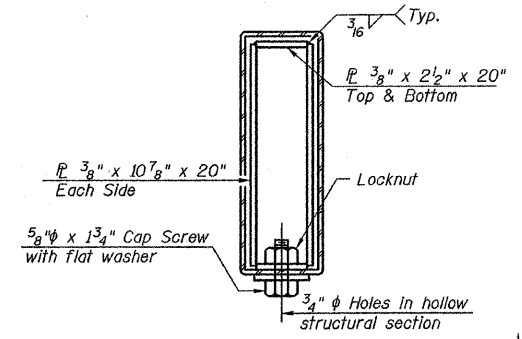
1/8" φ Holes for 1" φ x 4" Round head bolts.  
Provide 2 flat washers & locknuts for guard rail connection shown on Std. 631026



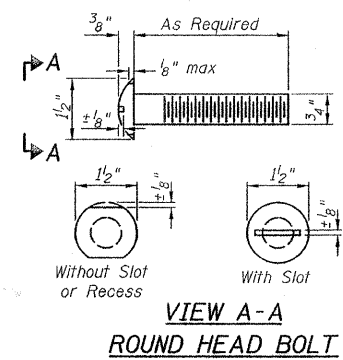
**END OF RAIL DETAILS**



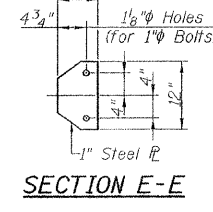
**SECTION C-C**



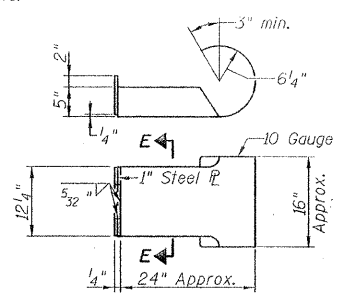
**SECTIONS AT RAIL SPLICE**



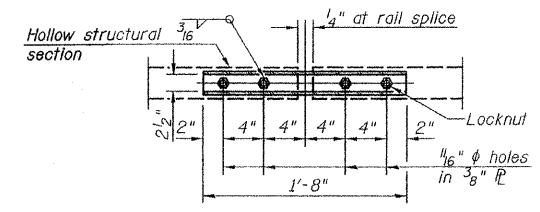
**VIEW A-A**  
**ROUND HEAD BOLT**



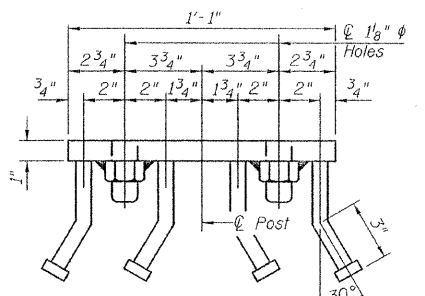
**SECTION E-E**



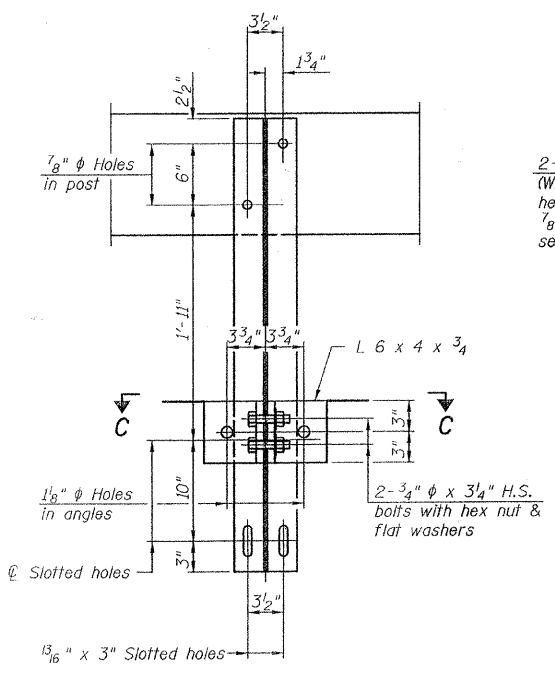
**CURLED END SECTION**  
**DETAILS (4 REQUIRED)**



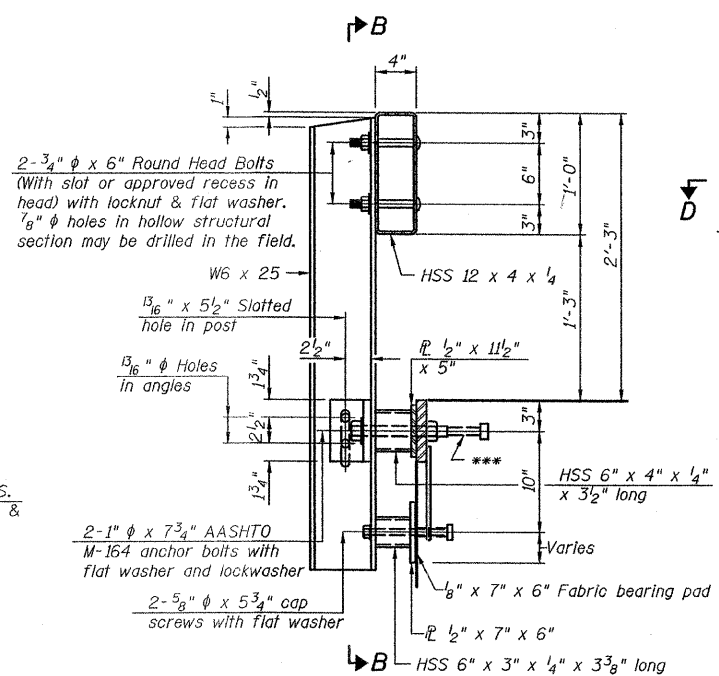
**PLAN-BOTT. SPLICE**  
**TYPICAL**



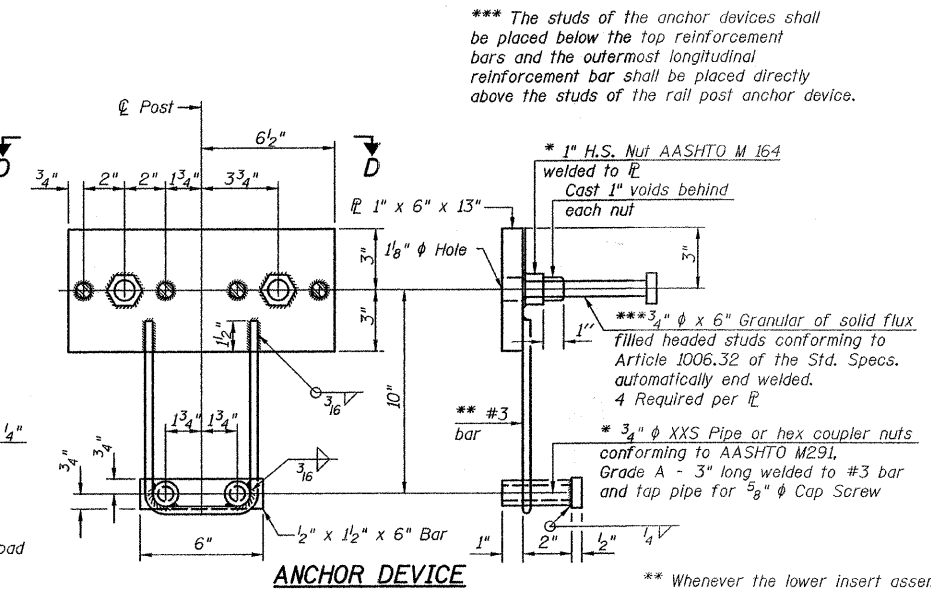
**SECTION D-D**



**SECTION B-B**



**SECTION AT RAILING POST**



**ANCHOR DEVICE**

\*\*\* 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.

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 cost of curled end sections shall be included in the cost of Steel Railing, Type S-1.

**BILL OF MATERIAL**

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	364

**STEEL RAILING, TYPE S-1**  
**T.R. 437 OVER BECKS CREEK**  
**SECTION 04-07120-00-BR**  
**SHELBY COUNTY**

\*\* 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".

PLOT DATE = 04/25/07  
 FILE NAME = 04R14.DWG



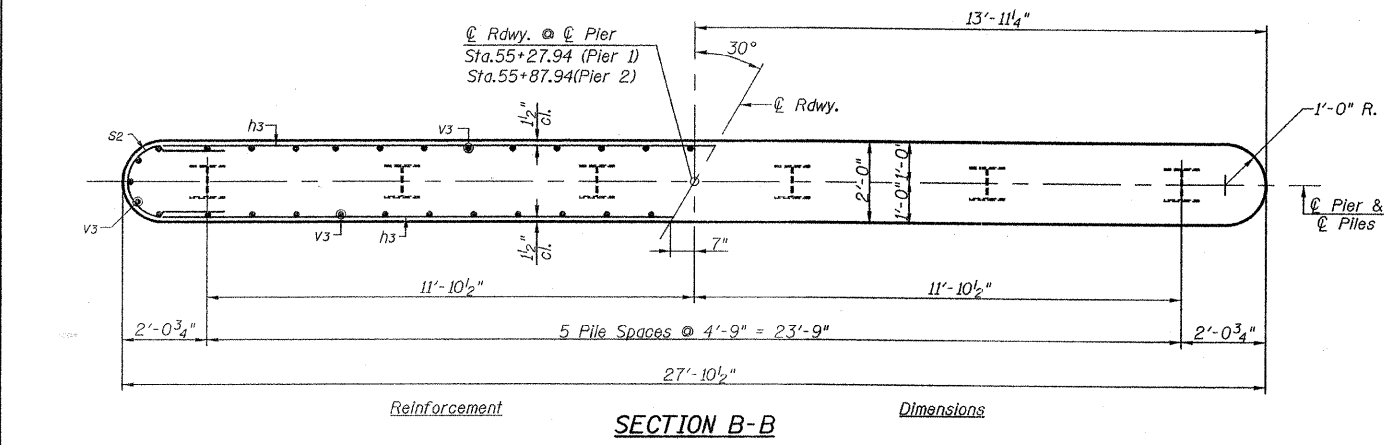
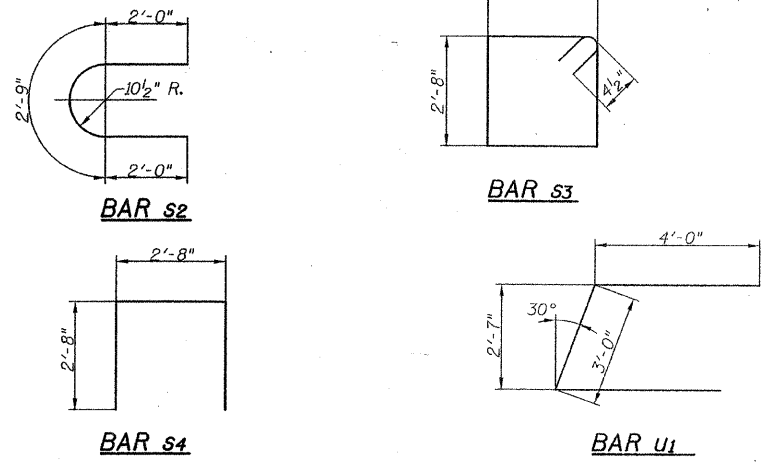
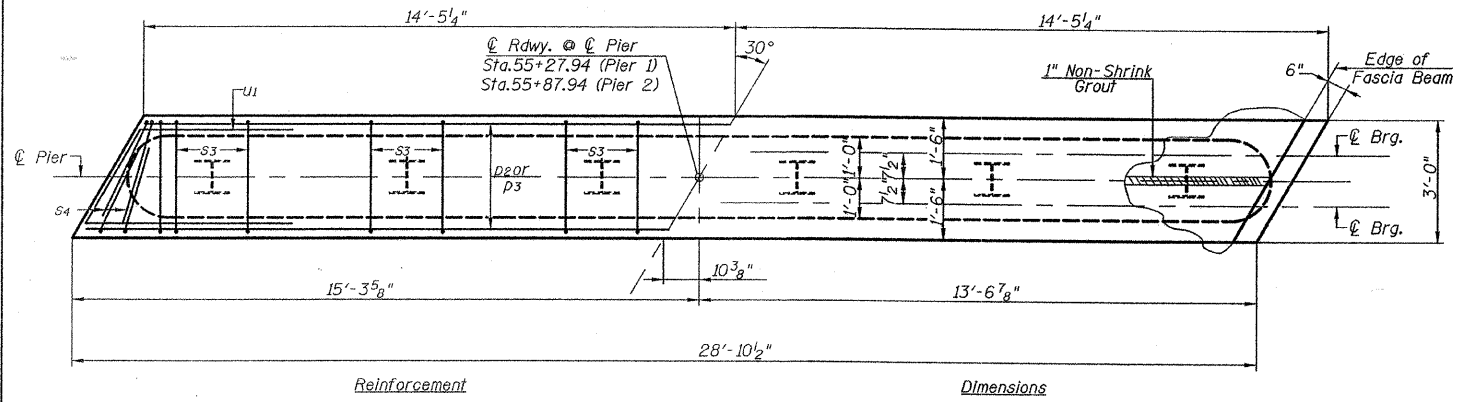
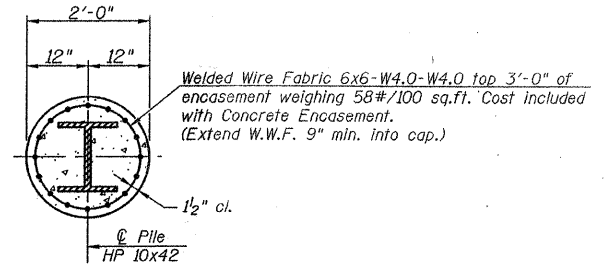
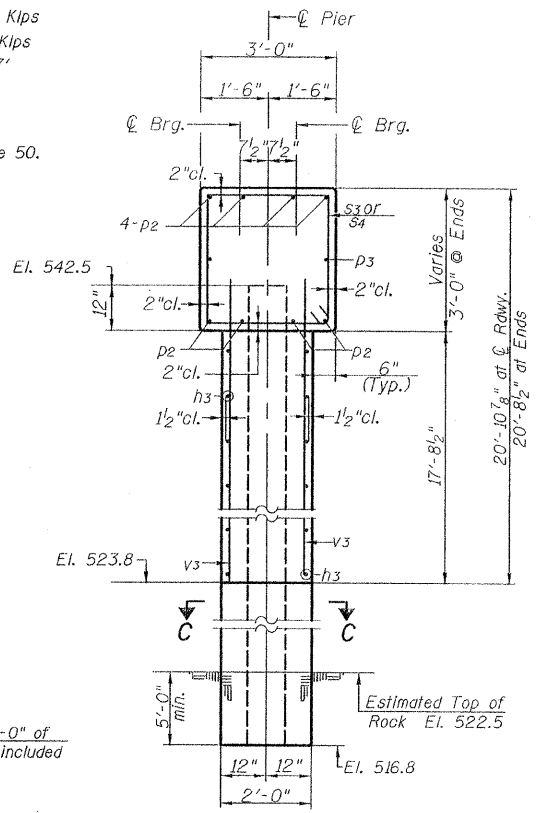
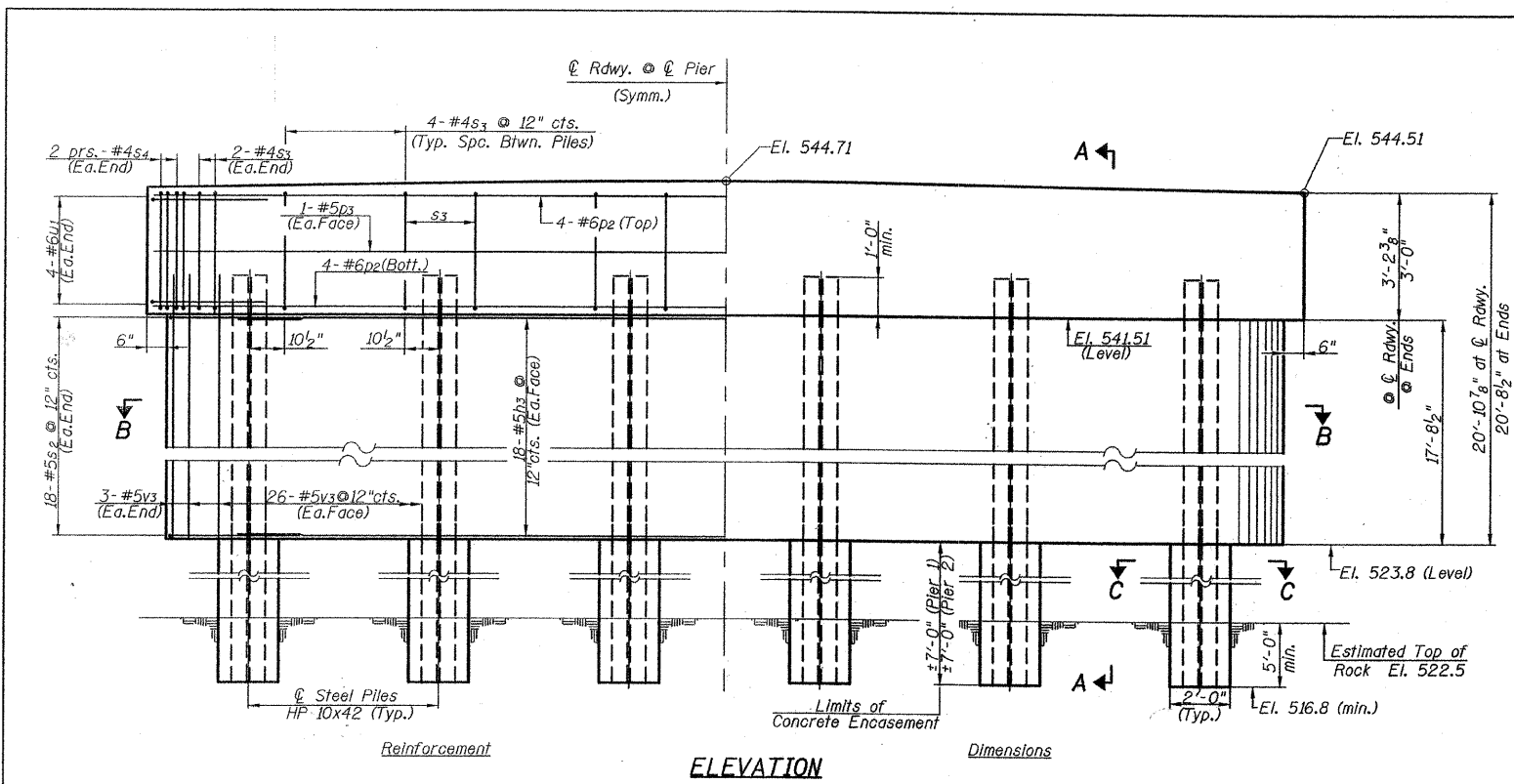
T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
437	04-07120-00-BR	SHELBY	17	16
STA. 51+10		TO STA. 63+50		
FED. ROAD DIST. NO. ILLINOIS		FED. AID PROJECT		

**PILE DATA**  
**PIER 1      PIER 2**

Pile Type & Size:	Steel HP 10x42	Steel HP 10x42
Nominal Required Bearing:	335 Kips	335 Kips
Allowable Resistance Available:	111 Kips	111 Kips
Estimated Pile Length:	27'	27'
Number of Piers:	6	6

The Steel H-Piles shall be according to AASHTO M270 Grade 50.

**NOTES**  
 All exposed concrete edges shall have standard 3/4" chamfer except as noted.  
 Space reinforcement in pier caps to miss beam anchor dowels.



**SECTION A-A**

**BILL OF MATERIAL - TWO PIERS**

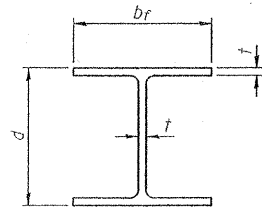
BAR	NO.	SIZE	LENGTH	SHAPE	
h3	72	#5	25'-9"	—	
p2	16	#6	28'-6"	—	
p3	4	#5	28'-6"	—	
s2	72	#5	6'-9"	⊓	
s3	48	#4	11'-5"	⊓	
s4	16	#4	8'-0"	⊓	
u1	16	#6	11'-0"	⊓	
v3	116	#5	19'-0"	—	
Concrete Structures				Cu. Yd.	92.0
Reinforcement Bars				Pound	6260
Furnishing Steel Piles HP 10x42				Foot	324
Setting Piles in Rock				Each	12
Underwater Structure Excavation Protection- Location 1 (Pier 1)				Each	1
Underwater Structure Excavation Protection- Location 2 (Pier 2)				Each	1
Structure Excavation				Cu. Yd.	43
Concrete Encasement				Cu. Yd.	1.8

**PIERS**  
**T.R. 437 OVER BECKS CREEK**  
**SECTION 04-07120-00-BR**  
**SHELBY COUNTY**

PLOT DATE = 8/17/88  
 DRAWN BY = JHE  
 MODEL NAME = BRIDGE.PIG

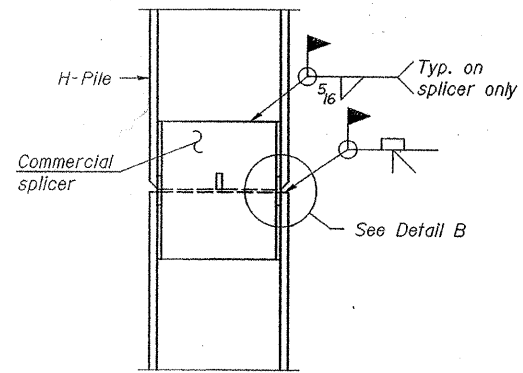


ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR-437	04-0720-00	SHELBY	17	17
FED. ROAD DIST. NO.		ILLINOIS PROJECT	BROS-173(112)	

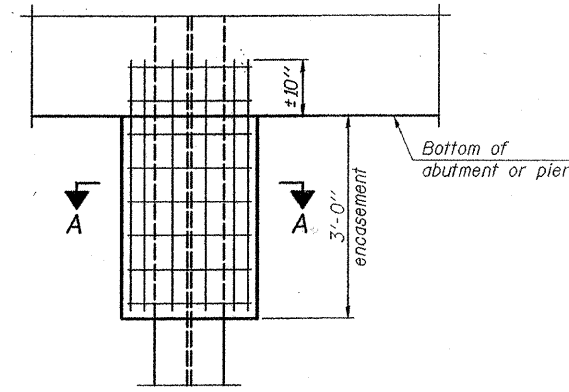


STEEL PILE TABLE

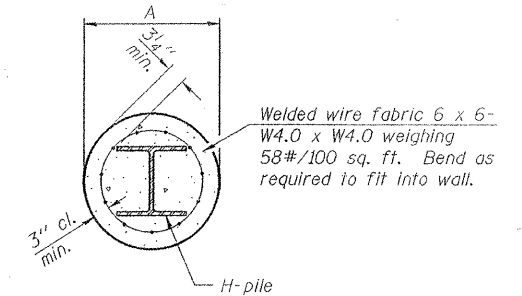
Designation	Depth d	Flange width bf	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	13/16"	30"
x102	14"	14 3/4"	1/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	1/16"	24"
x74	12 1/2"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"
x53	11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



ELEVATION



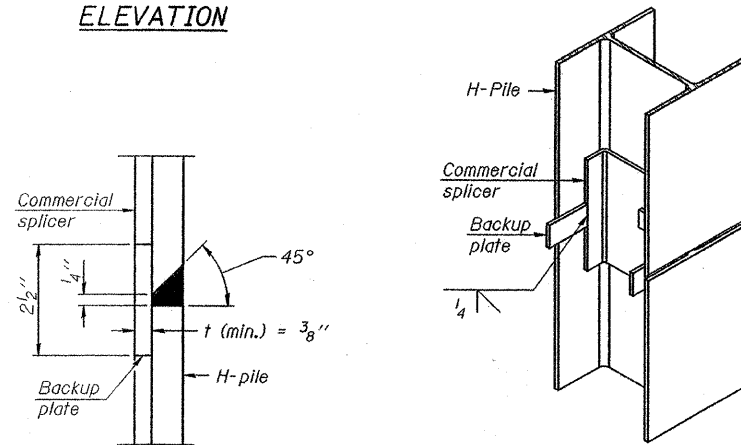
ELEVATION



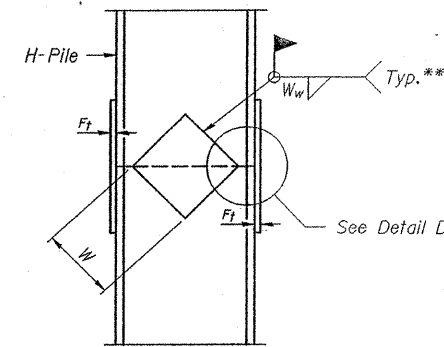
SECTION A-A

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

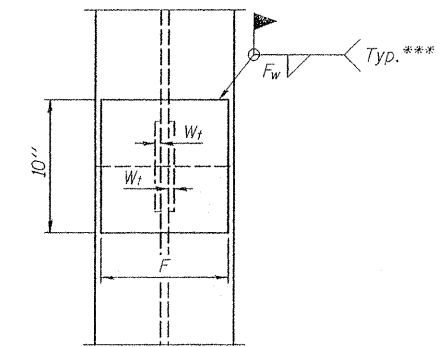
PILE ENCASUREMENT



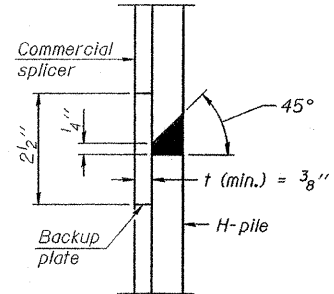
ISOMETRIC VIEW



ELEVATION

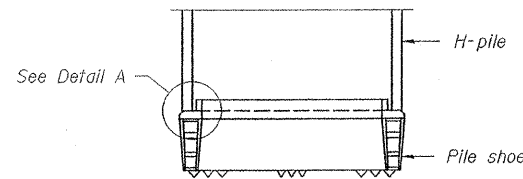


END VIEW

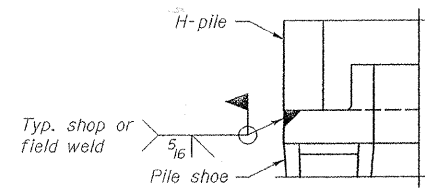


DETAIL "B"

WELDED COMMERCIAL SPLICE

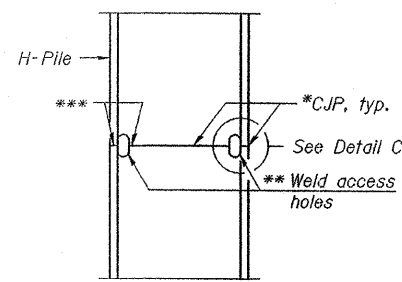


ELEVATION

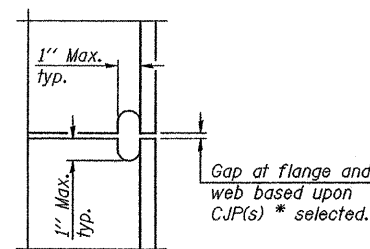


DETAIL A

H-PILE SHOE ATTACHMENT

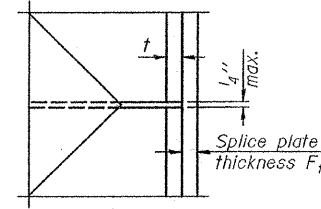


ELEVATION



DETAIL C

COMPLETE PENETRATION WELD SPLICE



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"

STEEL H PILE DETAILS

- \* Use joint conforming to Figure 3.4 in AWS D1.1, Structure Welding Code - Steel.
- \*\* Preparation per Fig. 5.2 in AWS D1.1, Structure Welding Code - Steel.
- \*\*\* Interrupt welds 1/4" from end of each pile.

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