

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 112	*	SHELBY	9	1
PROJECT				

\* 02-19114-00-BR

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**PLANS FOR PROPOSED  
HIGHWAY BRIDGE REPLACEMENT  
AND REHABILITATION PROGRAM**

**PROJECT NO. BROS-173(138)**

**T.R. 112 OVER MUD CREEK**

**SECTION 02-19114-00-BR**

**SHELBY COUNTY**

**JOB NO. C-95-340-05**

INDEX OF SHEETS

- 1 - TITLE SHEET
- 2 - SUMMARY OF QUANTITIES, DETAILS, & TYPICAL SECTIONS
- 3 - PLAN & PROFILE
- 4 - GENERAL PLAN & ELEVATION
- 5 - SUPERSTRUCTURE
- 6 - RAILING
- 7 - ABUTMENTS
- 8 & 9 - CROSS SECTIONS

STANDARDS

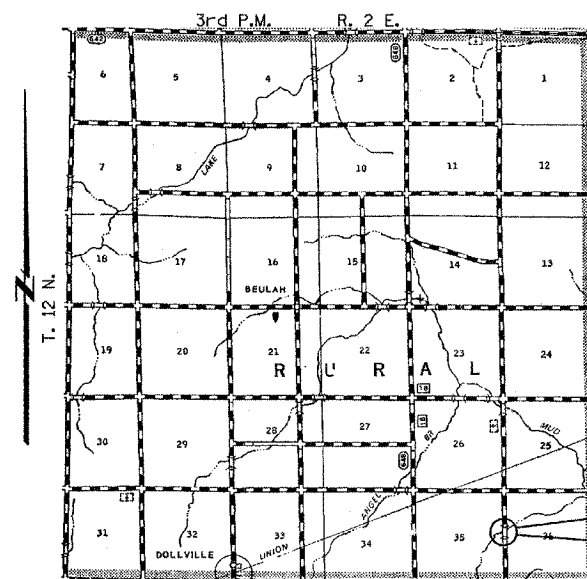
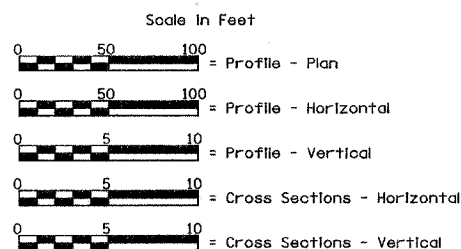
STANDARD 515001-02  
STANDARD 635006-02  
STANDARD 702001-05  
STANDARD BLR 21-6

DESCRIPTION

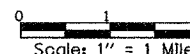
NAME PLATE FOR BRIDGES  
REFLECTOR AND TERMINAL MARKER PLACEMENT  
TRAFFIC CONTROL DEVICES  
TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

EXISTING STRUCTURE: SINGLE SPAN TIMBER DECK ON STEEL STRINGERS, CLOSED TIMBER ABUTMENTS AND WINGWALLS. ±40'-0" BK.-BK. ABUTMENTS, ±21'-0" CLEAR DECK WIDTH, ±0° SKEW.  
EXISTING STRUCTURE NO. 087-3340

PROPOSED STRUCTURE: SINGLE SPAN REINFORCED CONCRETE DECK BEAM (27") BRIDGE ON OPEN CONCRETE ABUTMENTS. 57'-6" BK.-BK. ABUTMENTS, 24'-0" CLEAR DECK WIDTH, TYPE S1 RAILING. 20° SKEW RT. FORWARD.  
PROPOSED STRUCTURE NO. 087-3536



LOCATION PLAN  
Length of Section - 465.00 Feet = 0.088 Miles



Land Sections - 35 & 36  
Land Quarter Section - N.E. & N.W.  
Functional Classification: Local (Rural)  
A.D.T. - 125(1999)  
A.D.T. - 50(2023)  
30 M.P.H. Design Speed



Christopher P. Kohlen 9/12/05  
Expiration: 11/30/2005

APPROVED: *[Signature]* 09/08/05  
COUNTY ENGINEER

APPROVED: *[Signature]* 09-08-2005  
ROAD COMMISSIONER

PASSED: *[Signature]* 12/20/05  
DISTRICT FIVE ENGINEER OF LOCAL ROADS & STREETS

Releasing For Bid Based on Listed Plans: *[Signature]* 04/20/05  
DEPUTY DIRECTOR OF HIGHWAYS, REGION THREE ENGINEER  
STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

FILE NAME: SCH1215.80REV. 8/23/05

TOLL FREE  
"JOINT UTILITY LOCATION INFORMATION FOR EXCAVATORS"  
(U.L.I.E.) TELEPHONE NUMBER  
1-800-892-9123

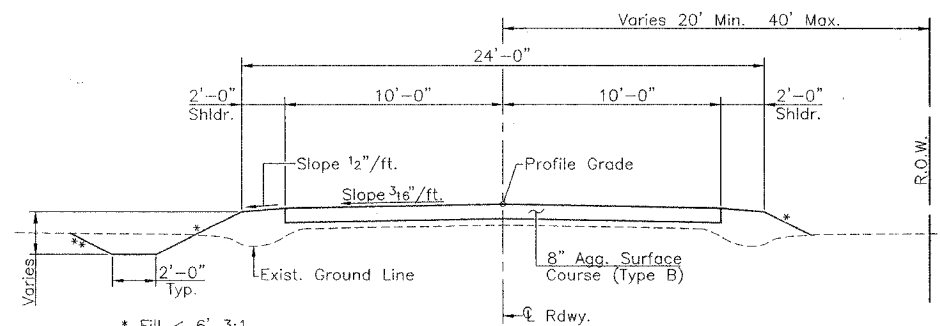
CONTRACT NO. 91352

**ALLEN HENDERSON & ASSOCIATES, INC.**

CONSULTING CIVIL AND STRUCTURAL ENGINEERS SPRINGFIELD, IL. PHONE: (217) 544-8033

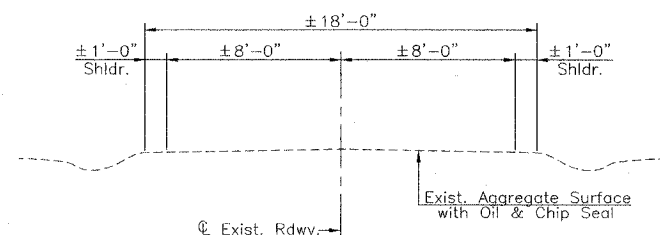
RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 112	*	SHELBY	9	2
PROJECT				

\* 02-19114-00-BR



PROPOSED CROSS SECTION

\* Fill < 6' 3:1  
 Fill > 6' 2:1  
 \*\* Fill < 10' 3:1  
 Fill > 10' 2:1



EXISTING CROSS SECTION

**EARTHWORK SCHEDULE**

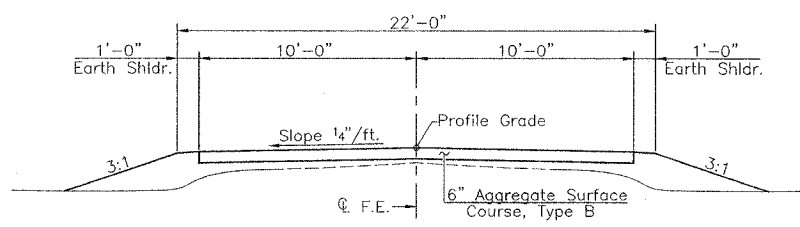
Location	Earth Excavation	Earth Excavation Adjusted For Shrinkage	Embankment	Earthwork Balance Waste (+) or Shortage (-)
	Cubic Yard	Cubic Yard	Cubic Yard	Cubic Yard
Sta. 8+00 to Sta. 9+00	76	57	52	+5
Sta. 9+00 to Sta. 9+50	55	41	54	-13
Sta. 9+50 to Sta. 10+00	48	36	78	-42
Sta. 10+00 to Sta. 10+01.50	1	1	3	-2
Bridge Omission - Sta. 10+01.50 to Sta. 10+59.00				
Sta. 10+59.00 to Sta. 11+00	14	11	30	-19
Sta. 11+00 to Sta. 12+00	44	33	97	-64
Sta. 12+00 to Sta. 12+65	31	23	36	-13
<b>Total</b>	<b>269</b>	<b>202</b>	<b>350</b>	<b>-148</b>

**SUMMARY OF QUANTITIES**

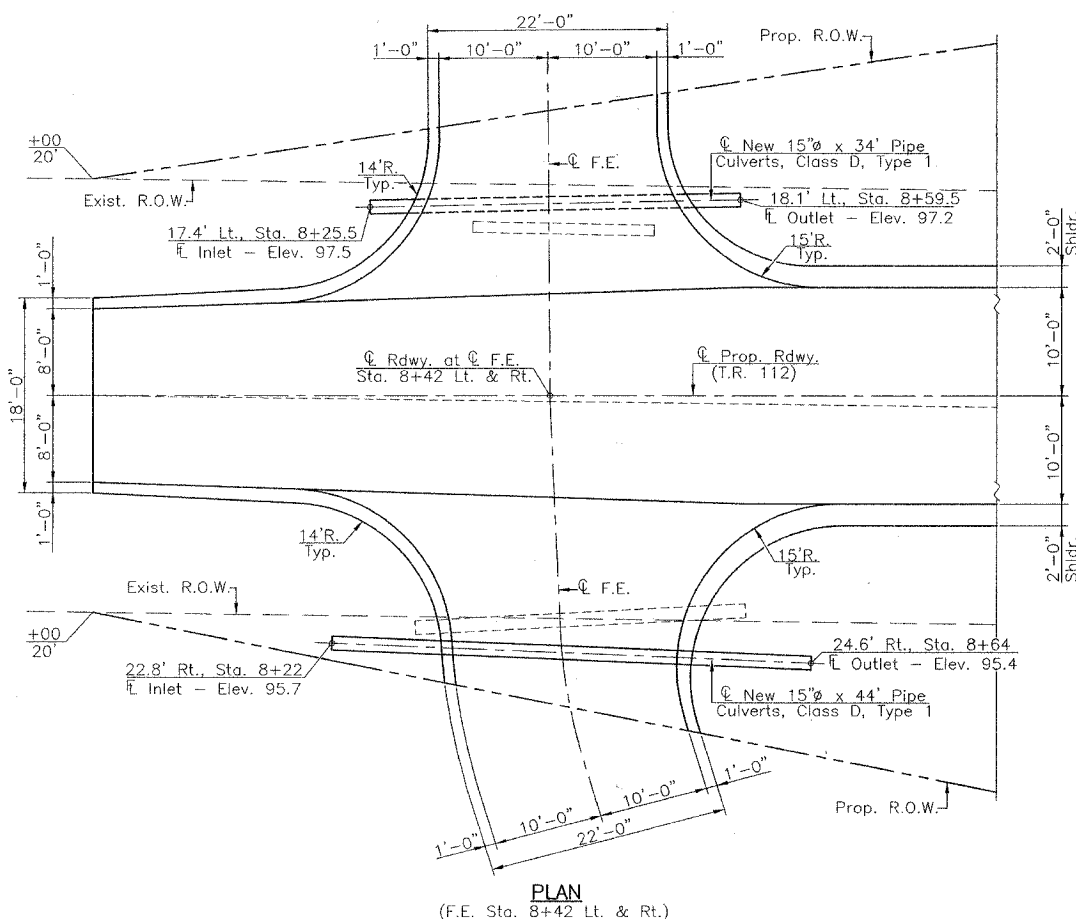
X081-2A

Item	Unit	Quantity
20100110 Tree Removal (6 to 15 Units Diameter)	Unit	64
20100210 Tree Removal (Over 15 Units Diameter)	Unit	18
20200100 Earth Excavation	Cu. Yd.	269
20300100 Channel Excavation	Cu. Yd.	219
* 20400800 Furnished Excavation	Cu. Yd.	148
* 25000200 Seeding Class 2	Acre	0.5
25000400 Nitrogen Fertilizer Nutrient	Pound	45
25000500 Phosphorus Fertilizer Nutrient	Pound	45
25000600 Potassium Fertilizer Nutrient	Pound	45
* 25100115 Mulch, Method 2	Acre	0.5
28000250 Temporary Erosion Control Seeding	Pound	100
28000300 Temporary Ditch Checks	Each	4
28100207 Stone Riprap, Class A4	Ton	303
28200200 Filter Fabric	Sq. Yd.	488
* 40200800 Aggregate Surface Course, Type B	Ton	457
* 50100100 Removal of Existing Structures	Each	1
50200100 Structure Excavation	Cu. Yd.	138
50300225 Concrete Structures	Cu. Yd.	28.1
50400505 Precast Prestressed Concrete Deck Beams (27" Depth)	Sq. Ft.	1346
50800105 Reinforcement Bars	Pound	2665
50900205 Steel Railing, Type S1	Foot	115
51201400 Furnishing Steel Piles HP10x42	Foot	210
51202700 Driving Steel Piles	Foot	210
51203400 Test Piles, Steel HP10x42	Each	1
51204315 Concrete Encasement	Cu. Yd.	2.2
51500100 Name Plates	Each	1
54200220 Pipe Culverts, Class D, Type 1 15"	Foot	114
* 67100100 Mobilization	L. Sum	1
78201000 Terminal Marker - Direct Applied	Each	4

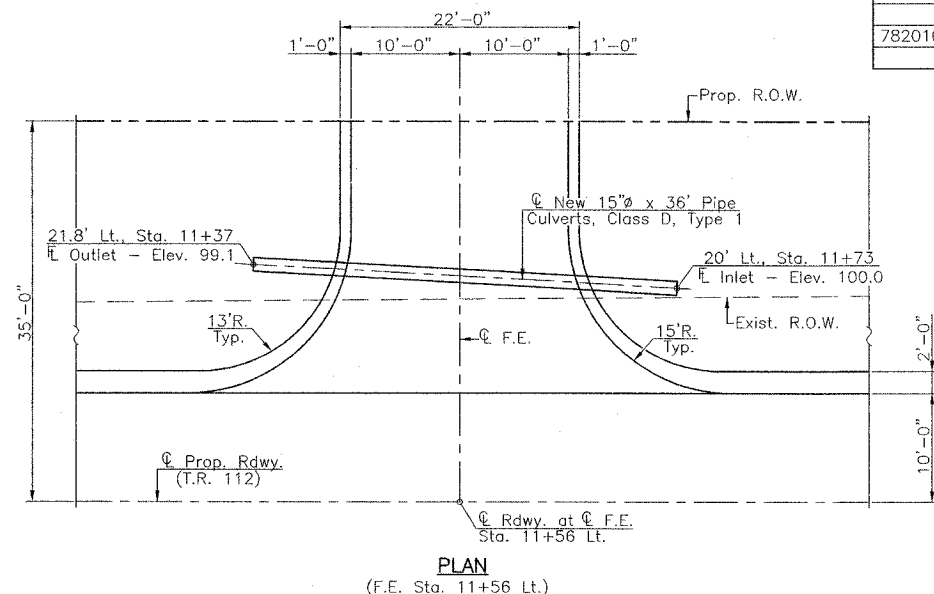
\* See Special Provisions



TYPICAL FIELD ENTRANCE  
 (Sta. 8+42 Lt. & Rt. & Sta. 11+56 Lt.)



PLAN  
 (F.E. Sta. 8+42 Lt. & Rt.)



PLAN  
 (F.E. Sta. 11+56 Lt.)

**GENERAL NOTES**

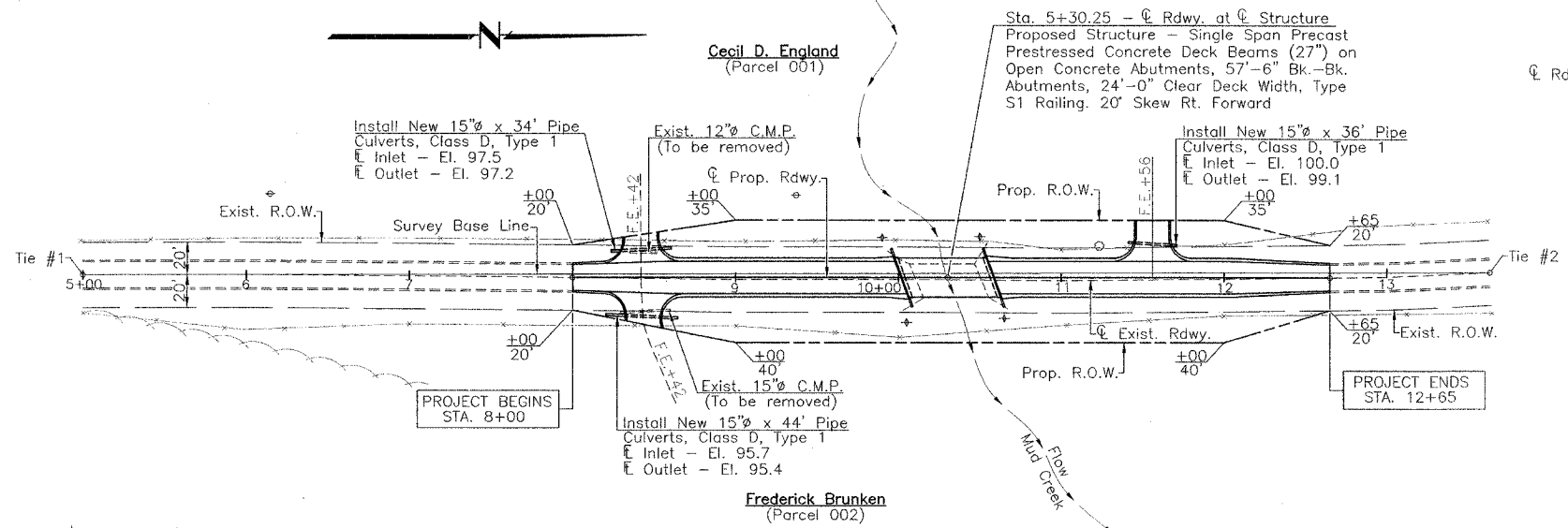
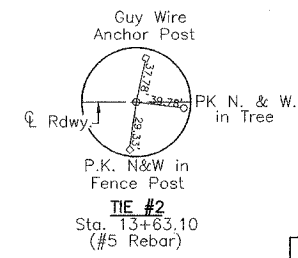
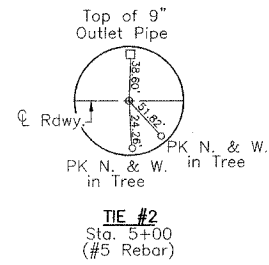
Where section or subsection stones are encountered, the Engineer shall be notified before such stones are removed. The contractor shall protect and preserve all property markers and monuments until the owner, authorized surveyor, or agent has witnessed or referenced their location.  
 Areas to be seeded shall consist of all disturbed earth surfaces within the right-of-way as directed by the Engineer.

SUMMARY OF QUANTITIES  
 DETAILS & TYPICAL SECTIONS  
 T.R. 112 OVER MUD CREEK  
 SECTION 02-19114-00-BR  
 SHELBY COUNTY

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R.112	*	SHELBY	9	3
PROJECT				

\* 02-19114-00-BR

SECTION 35, T. 12 N., R. 2 E., 3rd P.M.



**SCHEDULE DITCH CHECKS**

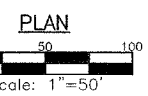
LOCATION	EACH
STA. 9+90 24.5' LT.	1
STA. 10+05 27.5' RT.	1
STA. 10+50 25' LT.	1
STA. 10+65 25' RT.	1
<b>TOTAL</b>	<b>4</b>

**SCHEDULE TREE REMOVAL (OVER 15 UNITS DIAMETER)**

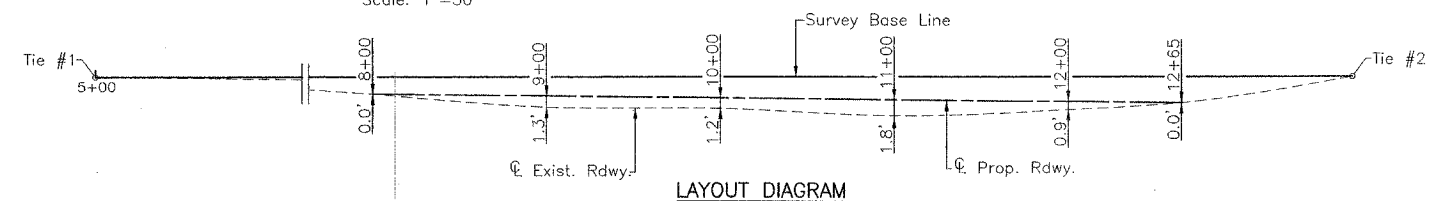
LOCATION	UNITS(DIAMETER)
STA. 11+28 20' LT.	18
<b>TOTAL</b>	<b>18</b>

Seeding - Sta. 8+00 to Sta. 12+65 R.O.W. to R.O.W. - 0.5 Acre  
 Temporary Seeding - Sta. 8+00 to Sta. 12+65 R.O.W. to R.O.W. - 100 Pounds

Frederick Brunken (Parcel 002)

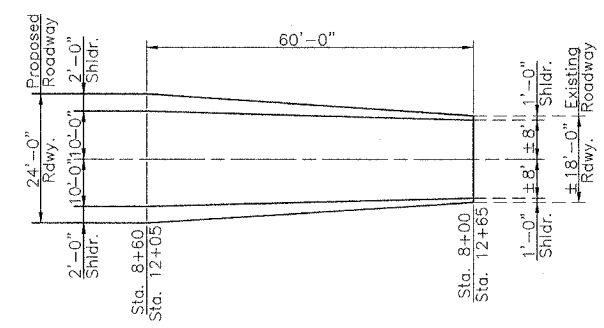


+- Indicates Temporary Ditch Check



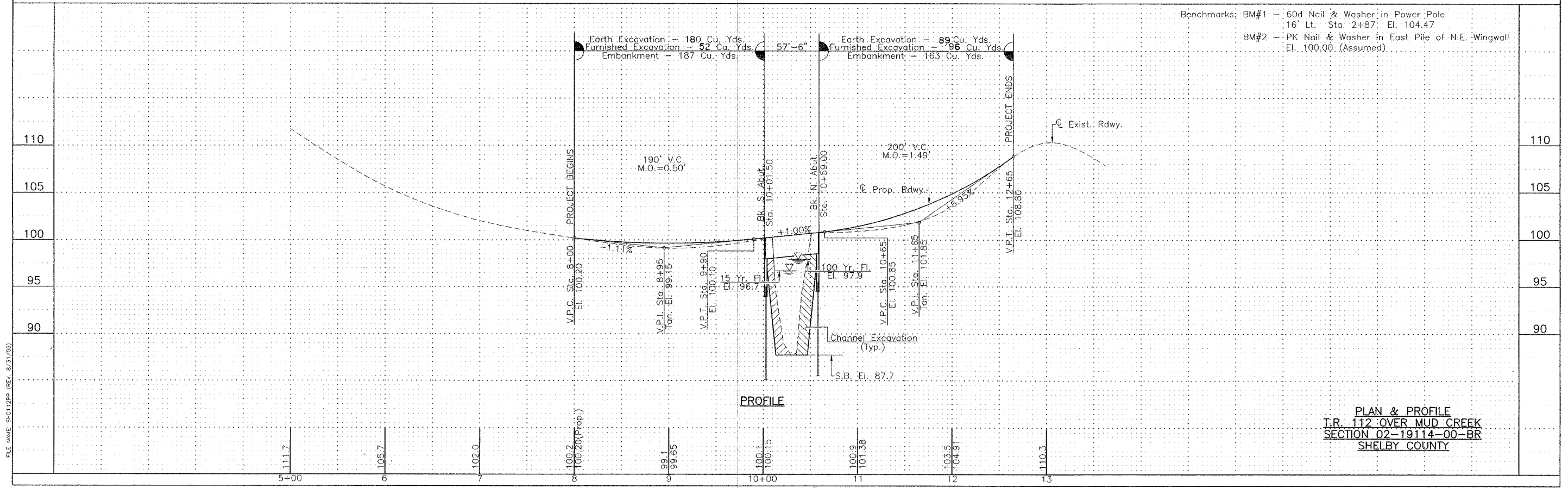
LAYOUT DIAGRAM

**UTILITIES**  
 Shelby Electric Cooperative  
 North Route 128  
 Shelbyville, Illinois  
 Consolidated Communications  
 121 South 17th Street  
 Mattoon, Illinois 61938  
 217-235-3311



ROADWAY TRANSITION DETAIL

SECTION 36, T. 12 N., R. 2 E., 3rd P.M.



Benchmarks: BM#1 - 60d Nail & Washer in Power Pole  
 16' Lt. Sta: 2+87: El. 104.47  
 BM#2 - PK Nail & Washer in East Pile of N.E. Wingwall  
 El. 100.00 (Assumed)

PROFILE

PLAN & PROFILE  
 T.R. 112 OVER MUD CREEK  
 SECTION 02-19114-00-BR  
 SHELBY COUNTY

Existing Structure: Single Span Timber Deck on Steel Stringers, Closed Timber Abutments and Wingwalls, ±40'-0" Bk.-Bk. Abutments, ±19'-3" Clear Deck Width. Tubular Steel Railing, ±20' Skew Rt. Fwd.

Benchmarks: BM#1 - 60d Nail & Washer in Power Pole  
16' Lt. Sta. 2+87 El. 104.47  
BM#2 - PK Nail & Washer in N.E. Wingwall Pile  
El. 100.00 (Assumed)

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 112	*	SHELBY	9	4

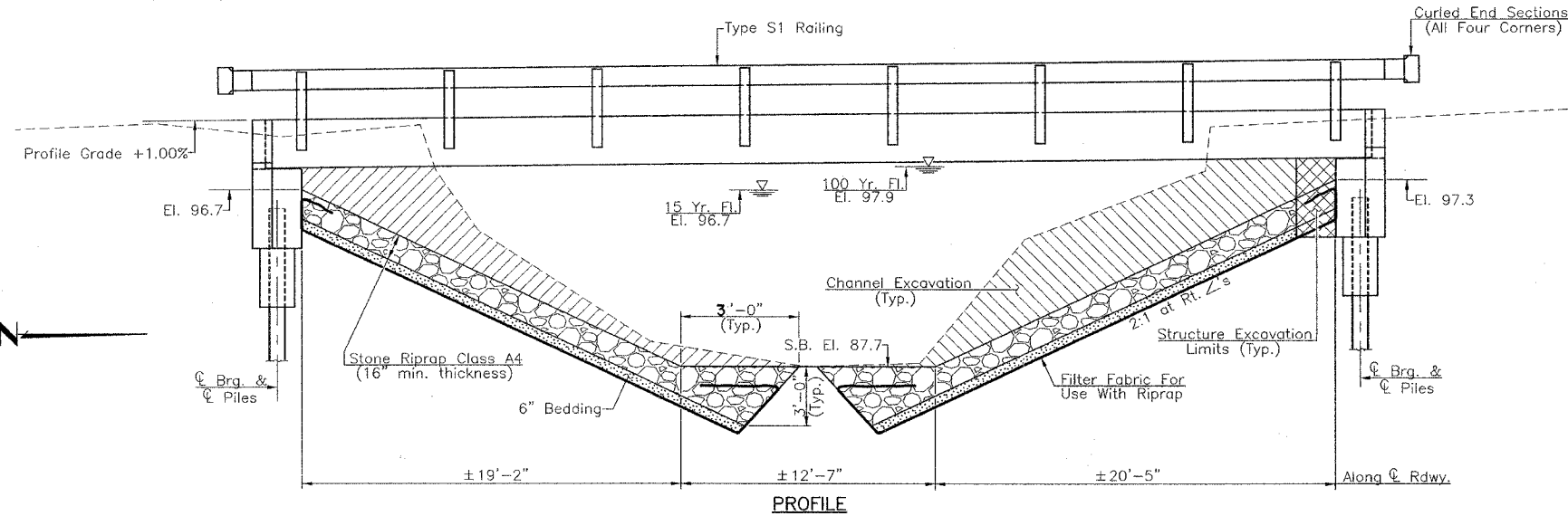
PROJECT \* 02-19114-00-BR

**TOTAL BILL OF MATERIAL**

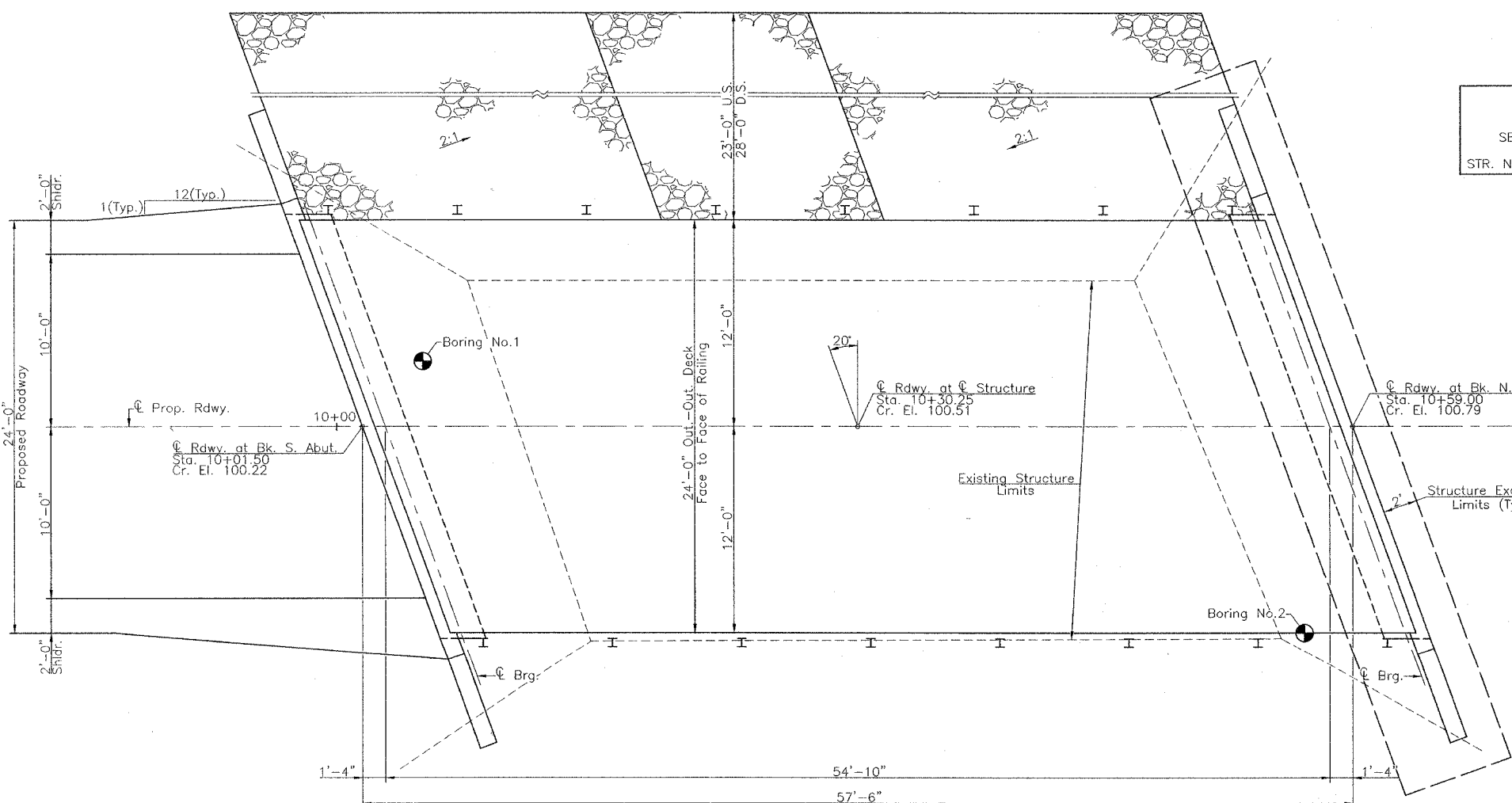
Item	Super	Sub	Total
Channel Excavation			219
Stone Riprap, Class A4			303
Filter Fabric For Use With Riprap			488
Removal of Existing Structures			1
Structure Excavation			138
Concrete Structures		28.1	28.1
Precast Prestressed Concrete Deck Beams (27" Depth)	1346		1346
Reinforcement Bars		2665	2665
Steel Railing Type S1		115	115
Furnishing Steel Piles HP 10x42		210	210
Driving Steel Piles		210	210
Test Pile, Steel HP 10x42		1	1
Concrete Encasement		2.2	2.2
Name Plates	1		1

**WATERWAY INFORMATION**

Flood		Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head-Ft.		Headwater El.
Design	Base	15	795	Exist.	Prop.	96.7	Exist.	Prop.	96.7
		100	1341	233	322	97.9	0.6	0.1	98.5
Exist. Overtop. Greater than 500 years									
Prop. Overtop. Greater than 500 years									
Max. Calc.		500	1812	233	328	98.5	1.4	0.5	99.9



PROFILE



PLAN

MUD CREEK  
BUILT 200 BY  
SHELBY COUNTY  
SECTION 02-19114-00-BR  
STA. 10+30.25  
STR. NO. 087-3536 LOADING HS20  
**NAME PLATE**  
(Standard 515001)

**FIELD UNITS**  
fc = 1400 psi  
vc = 56.2 psi  
fs = 24000 psi  
n = 9

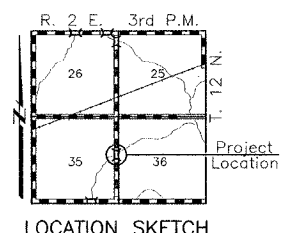
**DESIGN STRESSES**

**PRECAST PRESTRESSED UNITS**  
f'c = 5000 psi  
f'ci = 4000 psi  
f's = 270000 psi  
f'si = 189000 psi  
1/2" Strands

**GENERAL NOTES**  
See Proposal for Boring Data.  
Reinforcement bars shall conform to the requirements of A.A.S.H.T.O. M-31, M-42, or M-53, Grade 60.  
The layout of the riprap slope may be varied to suit conditions in the field as determined by the engineer.  
The contractor shall drive one test pile in a permanent location at the South abutment as directed by the Engineer in the field prior to ordering the remainder of piles.

**DESIGN SPECIFICATIONS**  
2002 A.A.S.H.T.O. Specifications with 2003 Interim Specifications.

**LOADING HS 20-44**

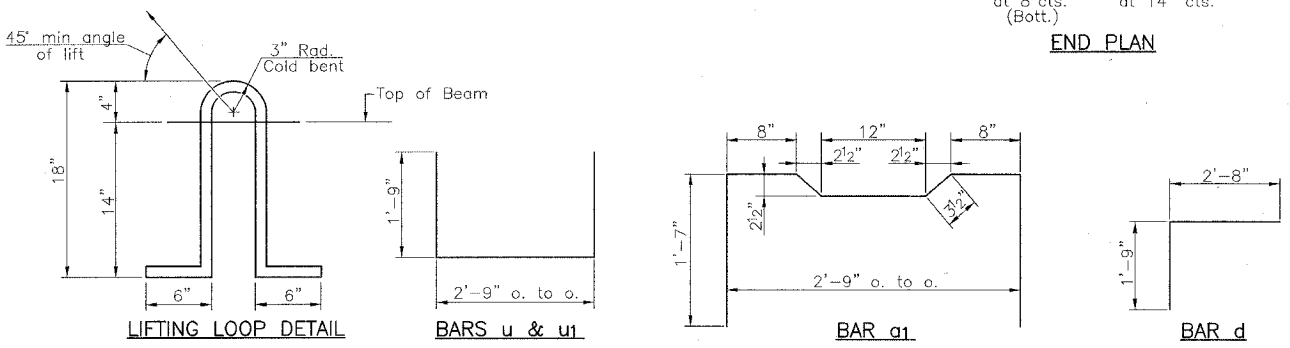
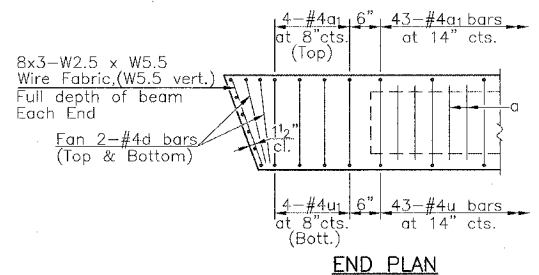
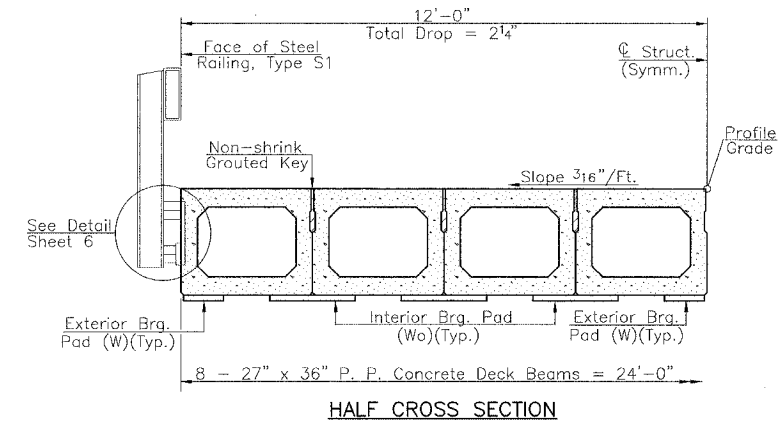
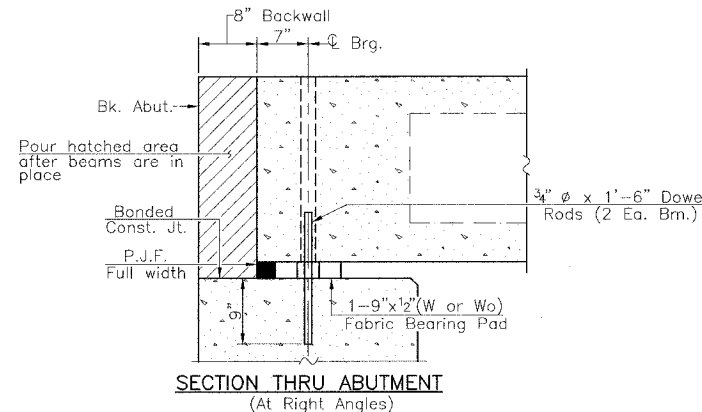
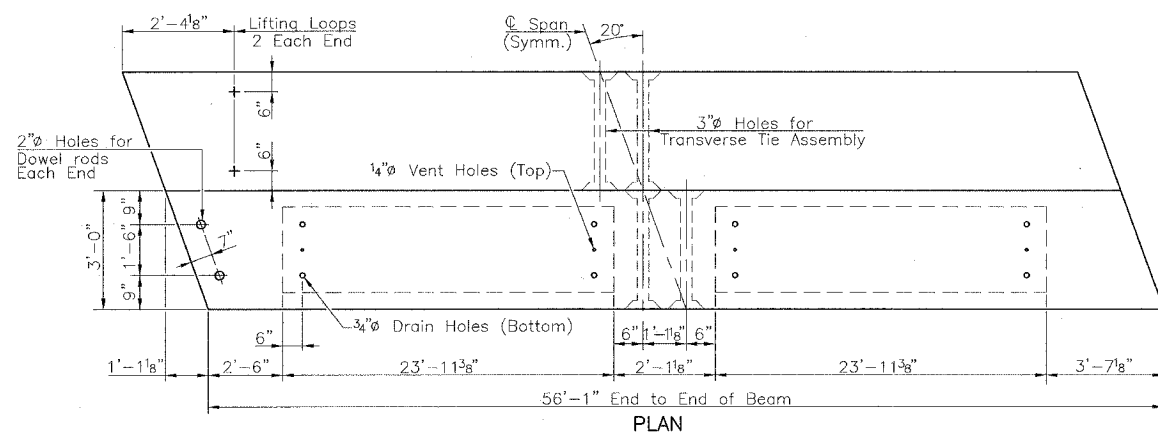
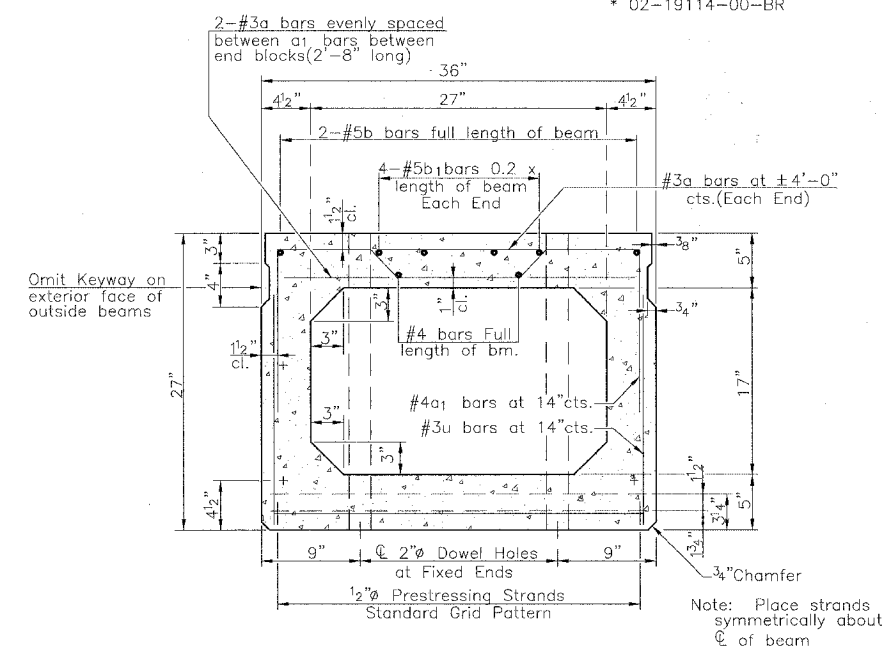
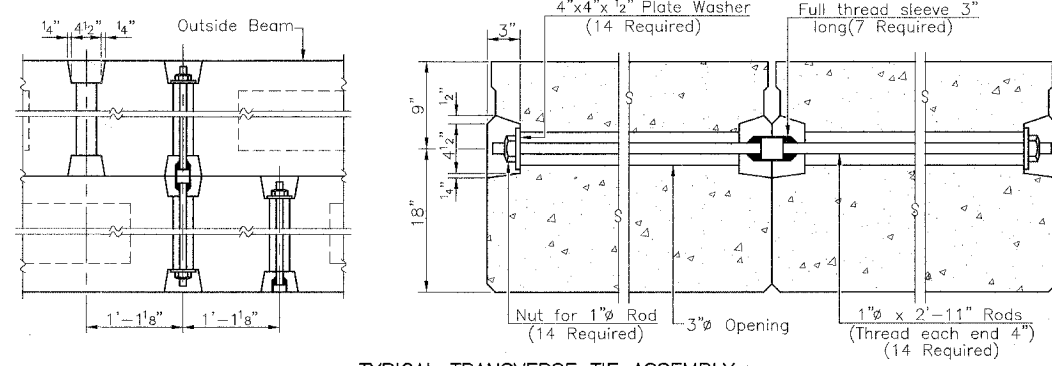
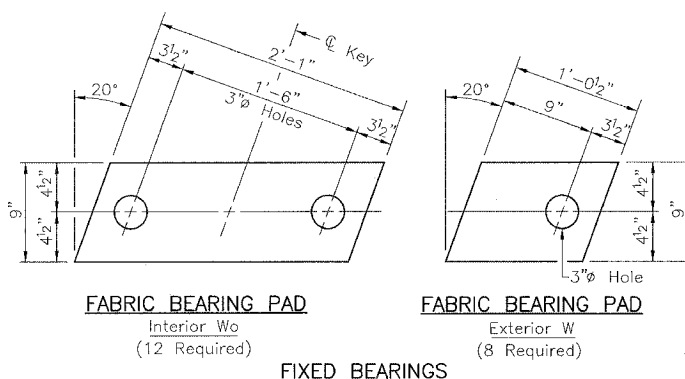


Mark A. Henderson 9/12/2005  
Expiration Date 11/30/2006

**GENERAL PLAN & ELEVATION**  
T.R. 112 OVER MUD CREEK  
SECTION 02-19114-00-BR  
SHELBY COUNTY

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 112	*	SHELBY	9	5
PROJECT				

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**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.

Lifting loops shall be 2-1/2" diameter 270 ksi strands, as shown.

Non-Prestressing Steel shall conform to AASHTO M-31, M-42 or M-53, Grade 60.

The bearing seat surfaces shall be adjusted by shimming to assure firm and even bearing. Two 1/8" fabric adjusting shims of the dimensions of the Exterior Bearing Pad shall be provided for each bearing.

Keyway surfaces shall be cleaned to remove form oil or other bond breaking material prior to shipment of the beams. Cleaning shall be done by sandblasting the keyway areas between top of the beams and the bottom edge of the key.

Required Release Strength, f'ci, shall be 4000 p.s.i.

The 1" rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets that receive transverse tie bar on outside shall be filled with grout after Transverse Tie Assembly is in place.

A Corrosion Inhibitor, as covered in the Special Provisions, shall be used in the concrete for Precast Prestressed Concrete Deck Beams.

Rail Post Anchor Devices shall be cast into exterior face of outside beams as specified on Sheet No. 6.

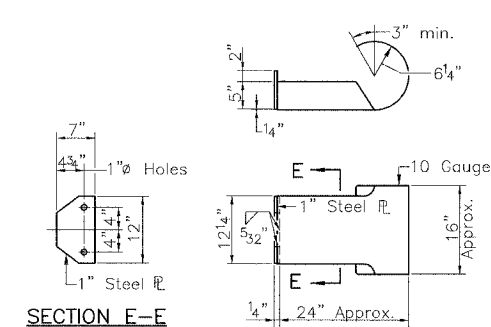
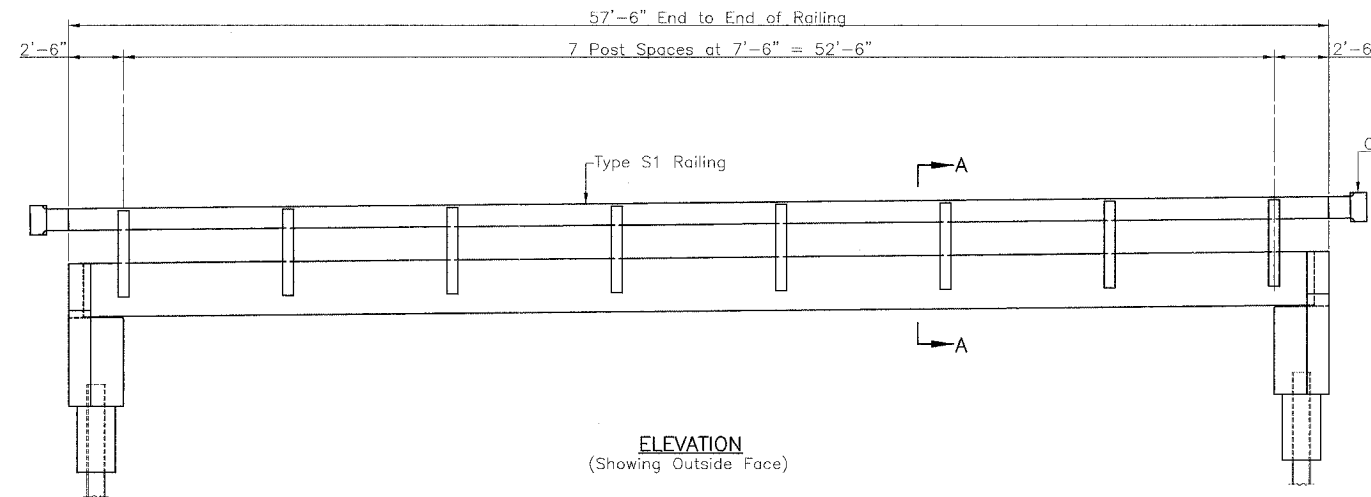
**BILL OF MATERIAL**

BAR	NO.	SIZE	LENGTH	SHAPE
Precast Prestressed Concrete Deck Beams (27" Depth)			Sq. Ft.	1346

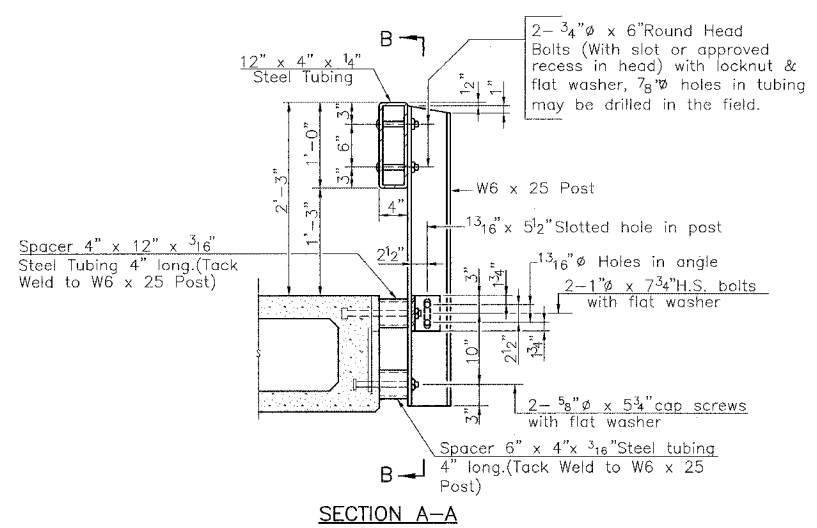
**SUPERSTRUCTURE**  
T.R. 112 OVER MUD CREEK  
SECTION 02-19114-00-BR  
SHELBY COUNTY

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R.112	*	SHELBY	9	6

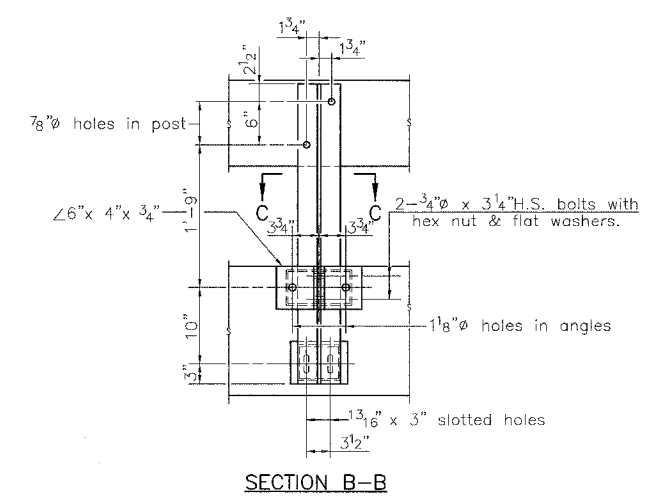
PROJECT \* 02-19114-00-BR



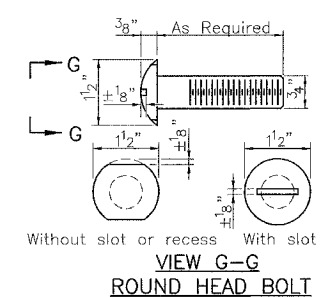
CURLLED END SECTION DETAILS (4 Required)



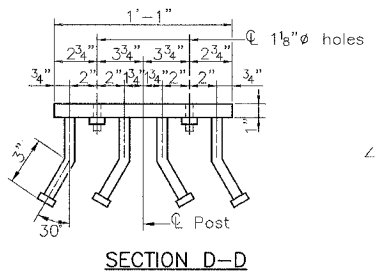
SECTION A-A



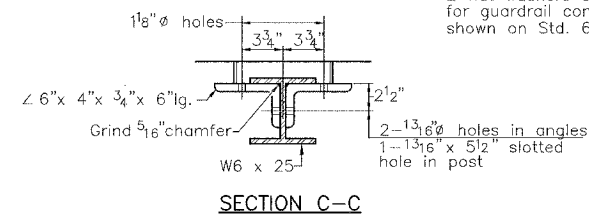
SECTION B-B



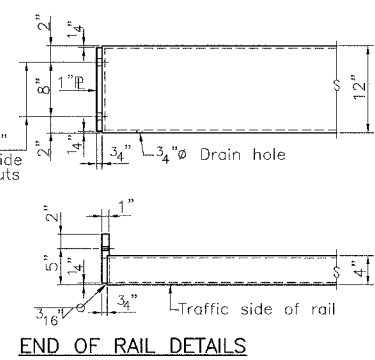
VIEW G-G ROUND HEAD BOLT



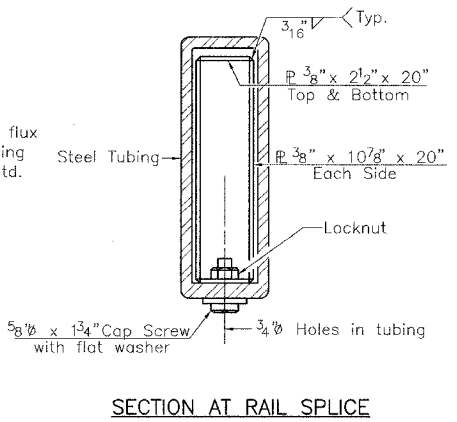
SECTION D-D



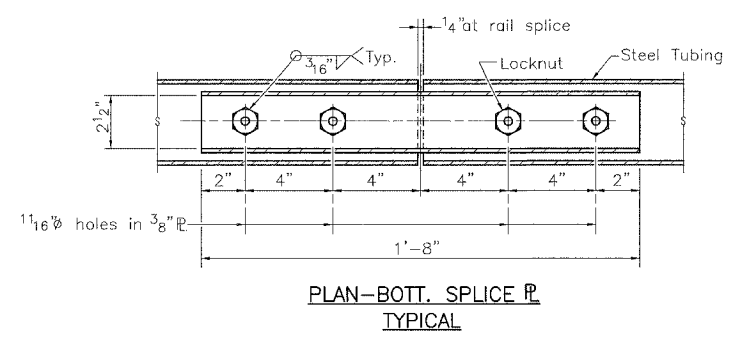
SECTION C-C



END OF RAIL DETAILS



SECTION AT RAIL SPLICE



PLAN-BOTT. SPLICE R TYPICAL

**NOTES**

Hollow structural steel tubing shall conform to the requirements of A.S.T.M. A-500 Grade B Structural Steel Tubing and shall meet the longitudinal CVN requirements of 15 ft-lbs at 0° F.

All other steel shapes and plates shall conform to the requirements of A.A.S.H.T.O. M-270 Grade 36 except posts and angles shall conform to A.A.S.H.T.O. M-270, Grade 50.

Bolts, cap screws, and nuts shall conform to the requirement of A.S.T.M. designation A-307 except for high strength bolts, nuts, and washers noted which shall conform to A.A.S.H.T.O. M-164.

All posts, railing, rail splices, anchor devices, angles and tube spacers shall be galvanized after shop fabrication in accordance with A.A.S.H.T.O. M-111 and A.S.T.M. A-385. Galvanized rail shall not be painted.

All bolts, nuts, cap screws, washers and lock washers shall be galvanized in accordance with A.A.S.H.T.O. M-232.

Railing shall be in accordance with Section 509 of the Standard Specifications, except as noted, and will be paid for at the contract unit price per foot for Steel Railing, Type S1.

All field drilled holes shall be coated with an approved zinc rich paint before erection.

The lower portion of the post flange in contact with concrete shall receive two coats of asphalt paint conforming to Section 1060.07 Type II or place a 1/8" fabric bearing pad between the post and concrete.

The 3/4" high strength bolts used to connect the 6 x 4 x 3/4 angles to the post shall be tightened in accordance with Article 505.04(1)(2) of the Standard Specifications. The 1" high strength bolts connecting the angles to the concrete shall be tightened to a snug fit and given an additional 1/8 turn. The 5/8" cap screws in bottom of posts shall be tightened to a snug fit only.

The cost of curled end sections shall be incidental to the contract unit price per foot for Steel Railing, Type S1.

**BILL OF MATERIAL**

Item	Foot	Total
Steel Railing, Type S1		115

RAILING  
T.R. 112 OVER MUD CREEK  
SECTION 02-19114-00-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".

3/4" XXS Pipe or Hex Nuts conforming to AASHTO M291 Grade A-3" long welded to #3 bar and tap pipe for 5/8" Cap Screw.

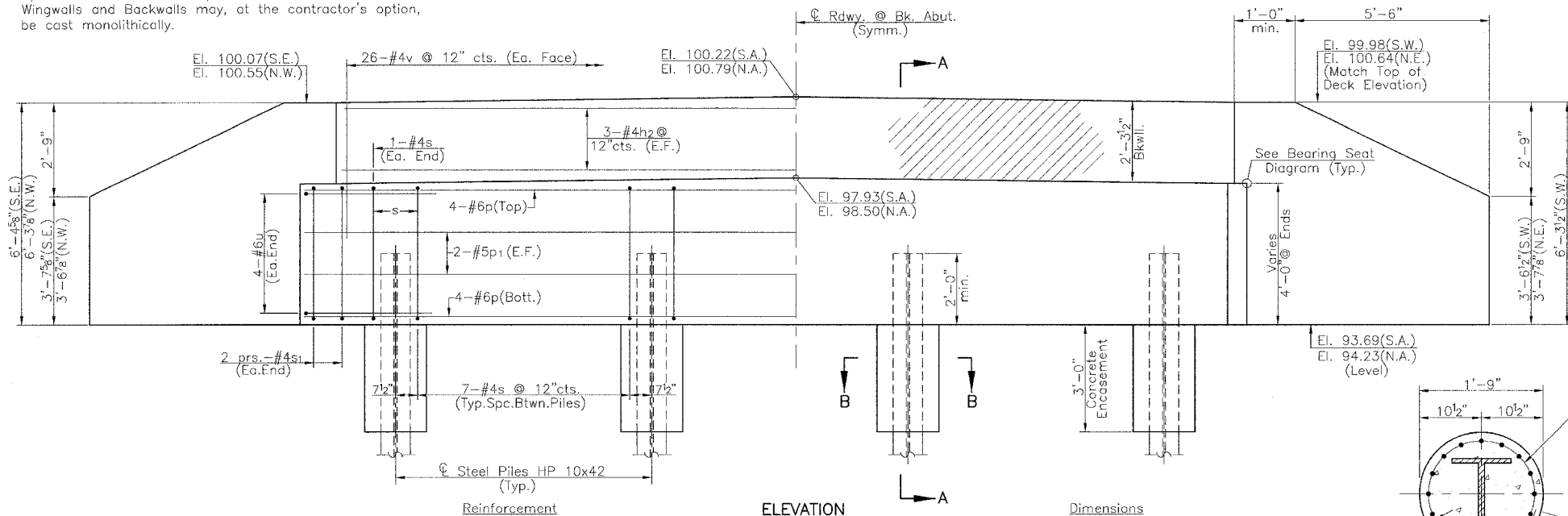
**ANCHOR DEVICE**  
\* Threaded areas shall be plugged or blocked off during casting of beam.

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 112	*	SHELBY	9	7
PROJECT				
* 02-19114-00-BR				

**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.

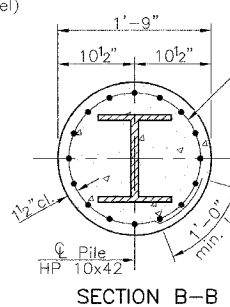
Note: Hatched area and wingwalls shall be poured after deck beams are anchored in place. Quantity for Concrete Structures is included in Bill of Material, this sheet.



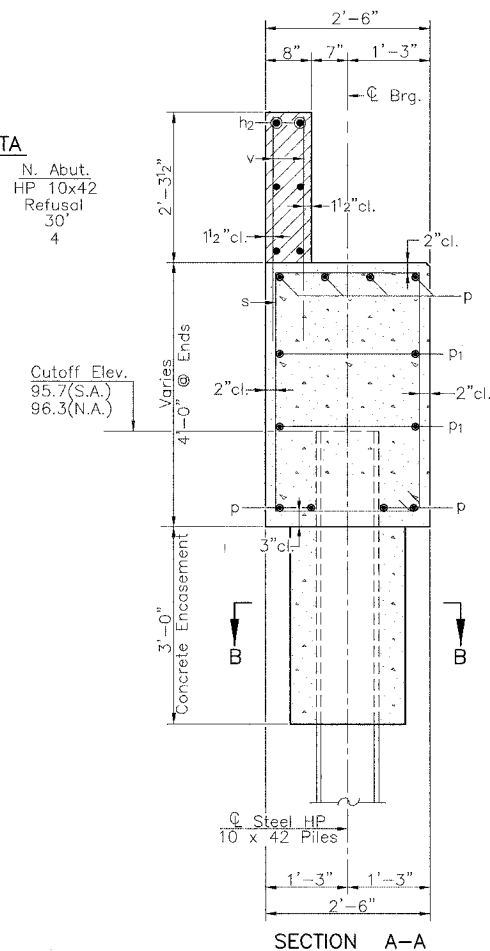
**ELEVATION**  
 (S. Abut. Looking South)  
 (N. Abut. Looking North)

**PILE DATA**

Type:	S. Abut. HP 10x42	N. Abut. HP 10x42
Capacity:	Refusal	Refusal
Est. Length:	30'	30'
No. Req'd.:	3 + 1 Test Pile	4



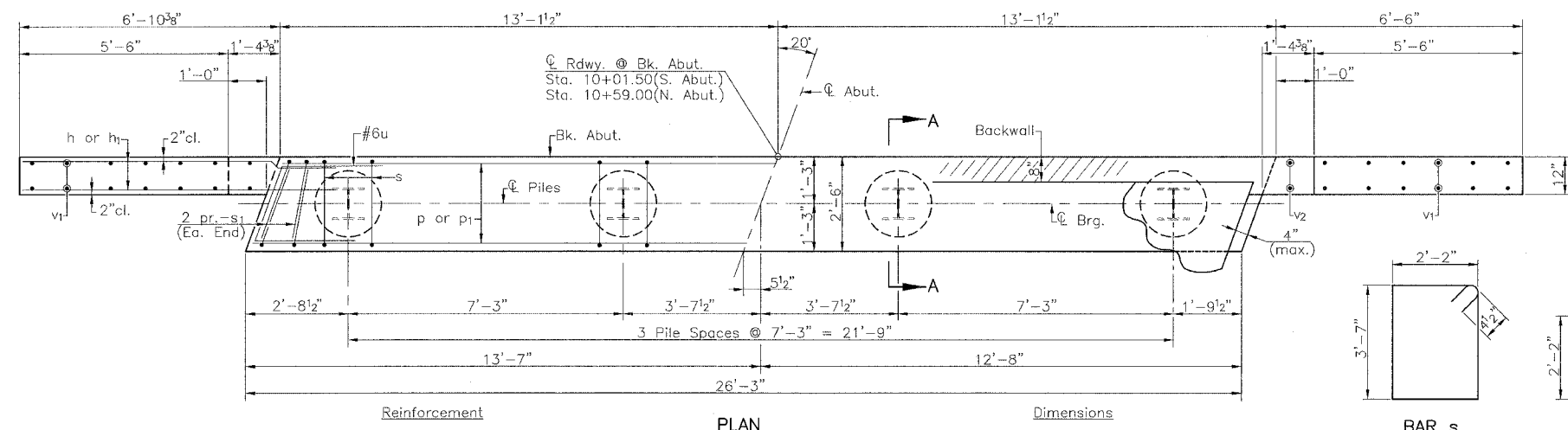
Welded Wire Fabric 6x6-W4.0-W4.0 weighing 58#/100 sq.ft. Cost incidental to Concrete Encasement. (Excavation for placement of Encasement shall be incidental to the unit price for Concrete Encasement. (Extend W.W.F. 9" min. into cap).



**TWO ABUTMENTS BILL OF MATERIAL**

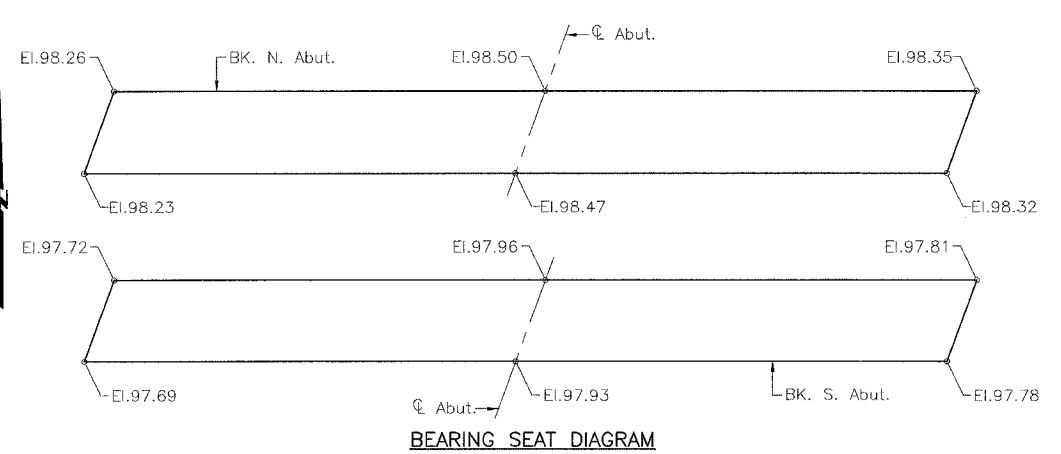
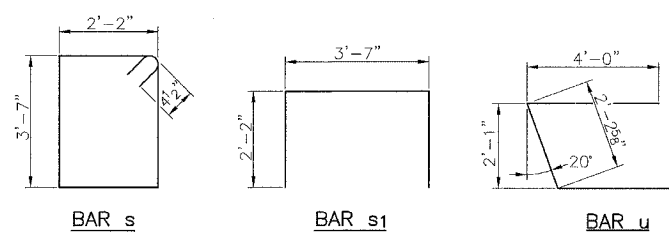
BAR	NO.	SIZE	LENGTH	SHAPE
h	32	#5	9'-0"	—
h1	24	#5	6'-2"	—
h2	12	#4	28'-0"	—
p	16	#6	25'-11"	—
p1	8	#5	25'-11"	—
s	46	#4	12'-3"	□
s1	16	#4	7'-11"	□
u	16	#6	10'-3"	—
v	104	#4	3'-9"	—
v1	24	#4	9'-1"	—
v2	8	#4	5'-11"	—
Concrete Structures		Cu. Yd.	28.1	
Reinforcement Bars		Pound	2665	
Furnishing Steel Piles HP 10x42		Foot	210	
Driving Steel Piles		Foot	210	
Test Pile Steel HP10x42		Each	1	
Concrete Encasement		Cu. Yd.	2.2	
Structure Excavation		Cu. Yd.	138	

**ABUTMENTS**  
 T.R. 112 OVER MUD CREEK  
 SECTION 02-19114-00-BR  
 SHELBY COUNTY

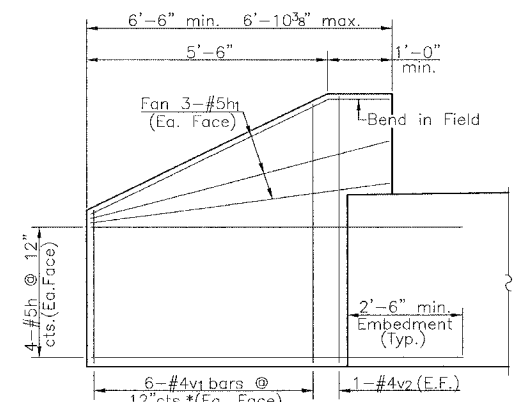


**Reinforcement**

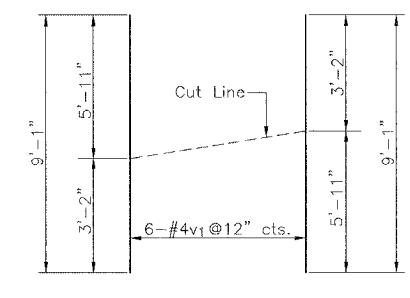
**Dimensions**



**BEARING SEAT DIAGRAM**



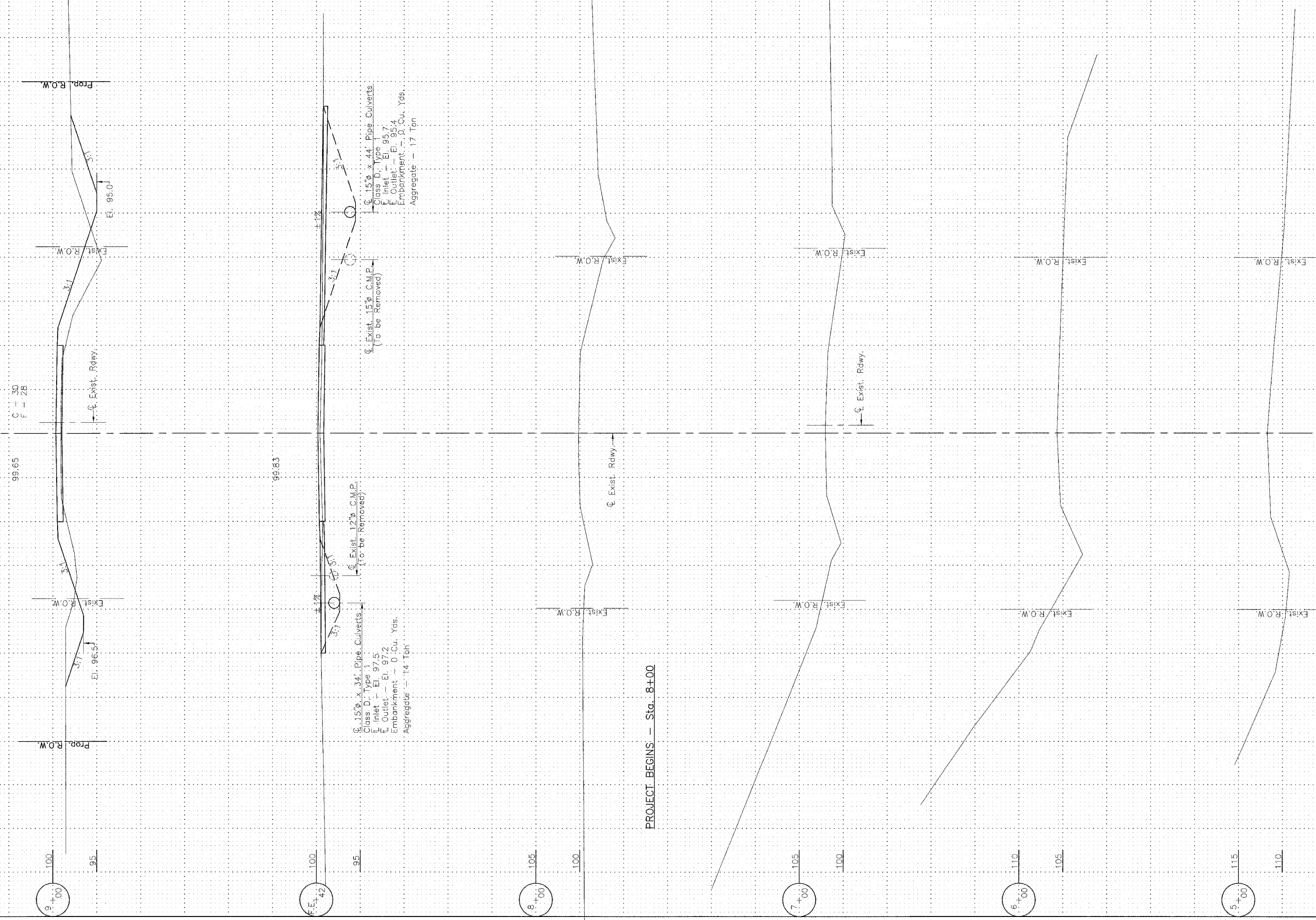
**WINGWALL ELEVATION**  
 (Showing Reinforcement)  
 \* See v1-bar cut diagram



**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.

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 112	*	SHELBY	9	8
PROJECT			* 02-19114-00-BR	

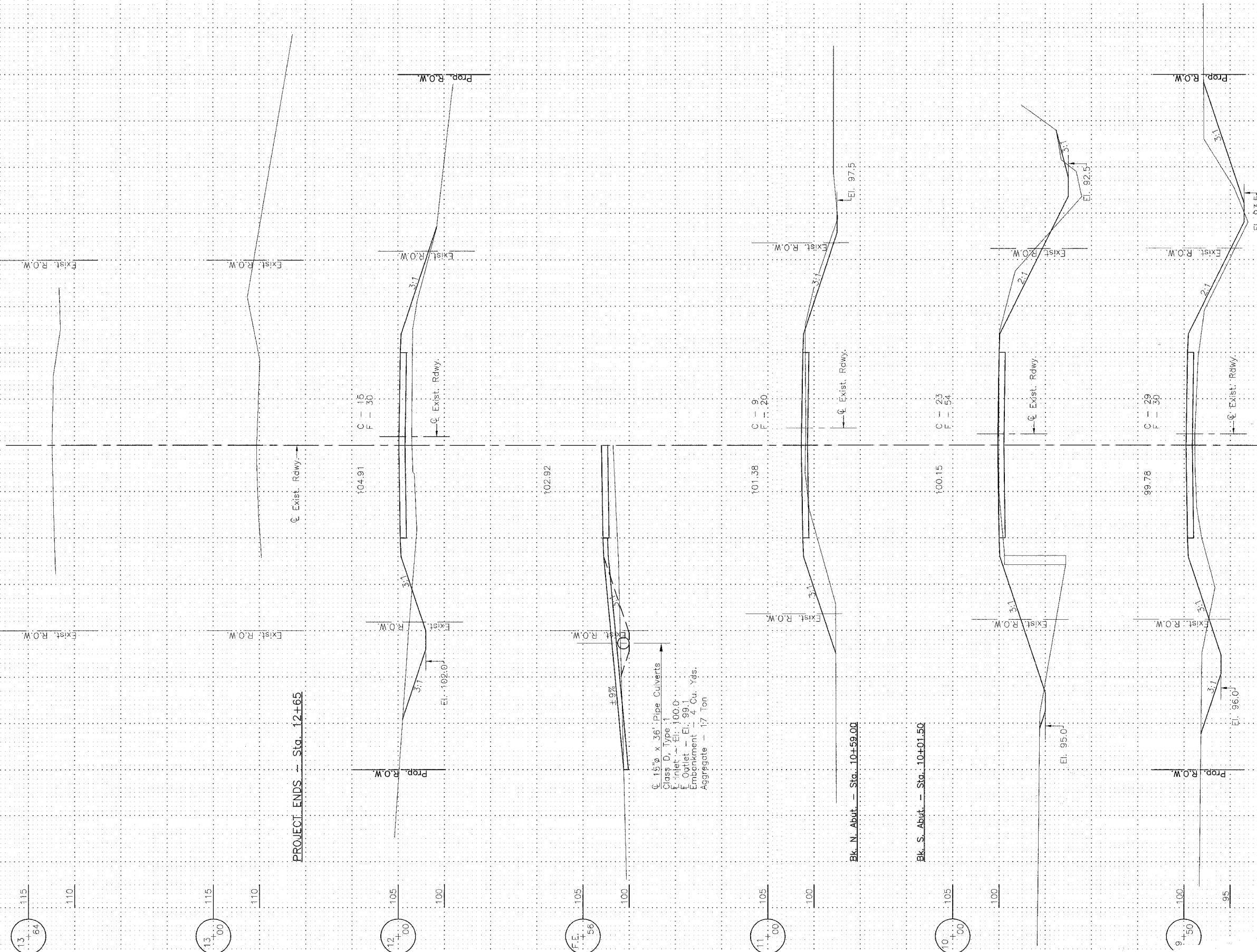


PROJECT BEGINS - Sta. 8+00

CROSS SECTIONS  
T.R. 112 OVER MUD CREEK  
SECTION 02-19114-00-BR  
SHELBY COUNTY



RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 112	*	SHELBY	9	9
PROJECT		* 02-19114-00-BR		



PROJECT ENDS - Sta. 12+65

C. 15" x 36" Pipe Culverts  
 Class D, Type 1  
 E. Inlet - El. 100.0  
 F. Outlet - El. 99.0  
 Embankment - 4 Cu. Yds.  
 Aggregate - 17 Ton

Bk. N. Abut. - Sta. 10+59.00

Bk. S. Abut. - Sta. 10+01.50

CROSS SECTIONS  
 T.R. 112 OVER MUD CREEK  
 SECTION 02-19114-00-BR  
 SHELBY COUNTY