

ROUTE	SECTION	COUNTY	TOWNSHIP	TOTAL SHEETS	SHEET NUMBER
T.R. 93	04-01178-00-BR	UNION	SEC 33, T11S, R1W	14	1
JOB NO. C-99-545-04			PROJECT NO. BROS-181 (22)		
JOHN RICH SCHOOL ROAD			CONTRACT NO. 99271		

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 PLANS FOR PROPOSED  
**HIGHWAY BRIDGE PROGRAM**  
 SECTION 04-01178-00-BR UNION COUNTY  
 TOWNSHIP ROAD 93 - JOHN RICH SCHOOL ROAD  
 JOB NO. C-99-545-04  
 PROJECT NO. BROS-181 (22)  
 CONTRACT NO. 99271  
 TRIBUTARY TO BRADSHAW CREEK

**INDEX OF SHEETS**

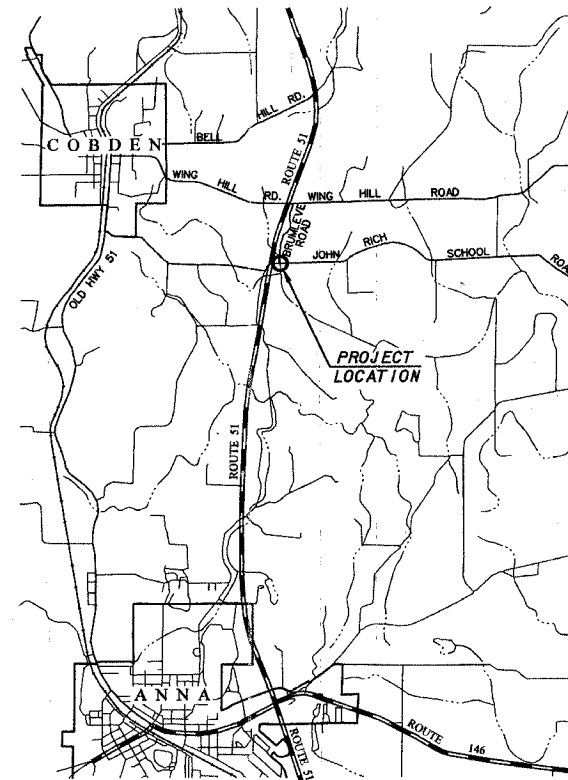
SHEET NO	DESCRIPTION
1	TITLE AND COVER SHEET INDEX OF SHEETS SUMMARY OF QUANTITIES
2	PLAN AND PROFILE TYPICAL SECTION
3-7	CROSS SECTIONS
8	GENERAL PLAN AND ELEVATION
9	STD. CS-2427-50 P.P.C. DECK BEAM SUPERSTRUCTURE
10	STD. CB-2427-36 P.P.C. DECK BEAM DETAILS
11	STD. CB-2427-48 P.P.C. DECK BEAM DETAILS
12	STD. CA-2427-10 P.P.C. DECK BEAMS - PILE BENT ABUTMENT
13	STD. CR-TS1 STEEL RAILING, TYPE S1
14	STD. CN NAME PLATE, SOIL BORINGS AND DETAILS

**LIST OF STANDARDS**

STD. NO.	DESCRIPTION
542401	METAL END SECTION FOR PIPE CULVERTS
542546	FLUSH INLET BOX FOR MEDIAN
631026-02	TRAFFIC BARRIER TERMINAL TYPE 5 & 5A
702001-06	TRAFFIC CONTROL DEVICES
B.L.R. 21-6	ROAD CLOSED TO ALL TRAFFIC
B.L.R. 23-1	TRAFFIC BARRIER TERMINAL TYPE 1

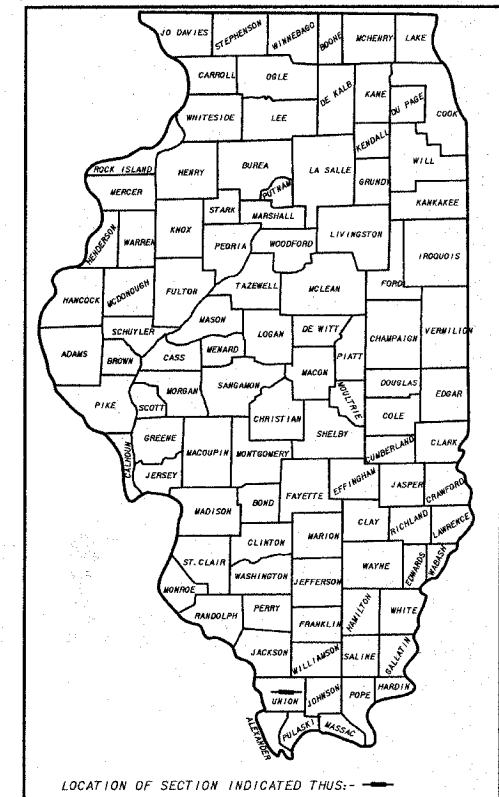
**SUMMARY OF QUANTITIES**

CODE NO.	ITEM	UNIT	X081-2A AWARDED QUANTITY	AS-BUILT QUANTITY
20200410	EARTH EXCAVATION (SPECIAL)	CU YD	640	
20400800	FURNISHED EXCAVATION	CU YD	175	
25001000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.6	
28100807	STONE DUMPED RIPRAP, CLASS A4	TON	650	
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	1,600	
50100100	REMOVE EXISTING STRUCTURES	EACH	1	
50105200	REMOVAL OF EXISTING CULVERTS	EACH	3	
50300225	CONCRETE STRUCTURES	CU YD	18.2	
50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ FT	1,200	
50800105	REINFORCEMENT BARS	POUND	2,300	
50900205	STEEL RAILING, TYPE S1	FOOT	100	
51201400	FURNISHING STEEL PILES HP10X42	FOOT	125	
51204315	CONCRETE ENCASEMENT	CU YD	8.0	
51500100	NAME PLATES	EACH	1	
54200640	PIPE CULVERTS, TYPE 1, CORRUGATED STEEL OR ALUMINUM CULVERT PIPE 15"	FOOT	73	
54200643	PIPE CULVERTS, TYPE 1, CORRUGATED STEEL OR ALUMINUM CULVERT PIPE 18"	FOOT	95	
54201477	PIPE CULVERTS, TYPE 2, CORRUGATED STEEL OR ALUMINUM CULVERT PIPE 12"	FOOT	42	
54215547	METAL END SECTIONS 12"	EACH	1	
54215550	METAL END SECTIONS 15"	EACH	3	
54215553	METAL END SECTIONS 18"	EACH	1	
54244405	FLUSH INLET BOX FOR MEDIAN, STANDARD 542546	EACH	1	
63100075	TRAFFIC BARRIER TERMINAL, TYPE 5A	EACH	2	
67100100	MOBILIZATION	L SUM	1	
70101700	TRAFFIC CONTROL AND PROTECTION	L SUM	1	
LR631020	TRAFFIC BARRIER TERMINAL, TYPE 1	EACH	2	
Z0065000	SETTING PILES IN ROCK	EACH	8	



LAYOUT  
 APPROXIMATE SCALE: 1 INCH = 0.758 MILE  
 NET LENGTH OF PROJECT - 475 FT. - 0.090 MI.

SCALES  
 PLAN 1 INCH = 20 FEET  
 PROFILE 1 INCH = 20 FEET HORIZ.  
 PROFILE 1 INCH = 5 FEET VERT.  
 CROSS SECTIONS 1 INCH = 5 FEET HORIZ.  
 CROSS SECTIONS 1 INCH = 5 FEET VERT.



J.U.L.I.E - 1-800-892-0123  
 CLASSIFICATION - LOCAL ROAD  
 A.D.T. - 200  
 DESIGN SPEED - 30MPH

APPROVED July 20 2006  
Bill R. Boyd  
 COUNTY ENGINEER - UNION COUNTY

APPROVED AUGUST 28 2006  
Dan W. Hill  
 DISTRICT ENGINEER OF LOCAL ROADS & STREETS

APPROVED Aug 31, 2006  
Mary C. Lame  
 MARY C. LAME, P.E.  
 DEPUTY DIRECTOR OF HIGHWAYS  
 REGION FIVE ENGINEER

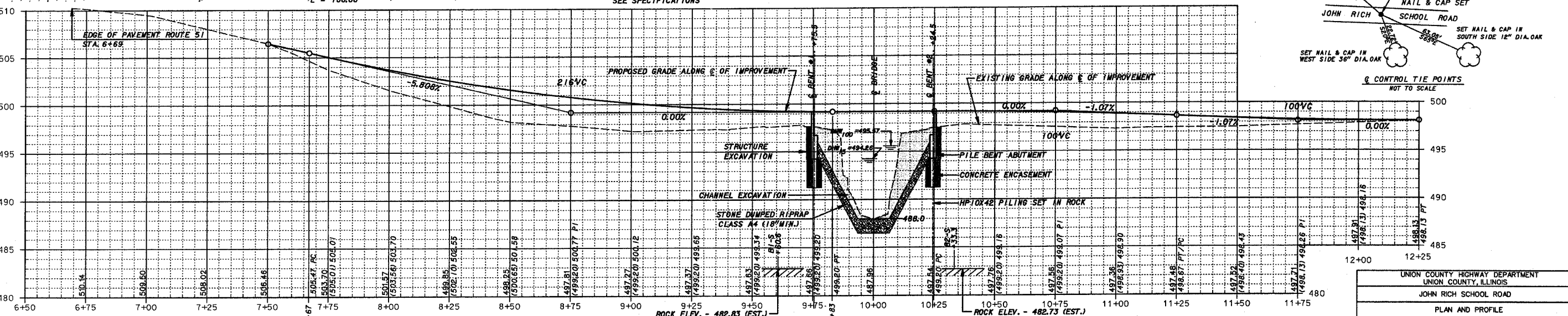
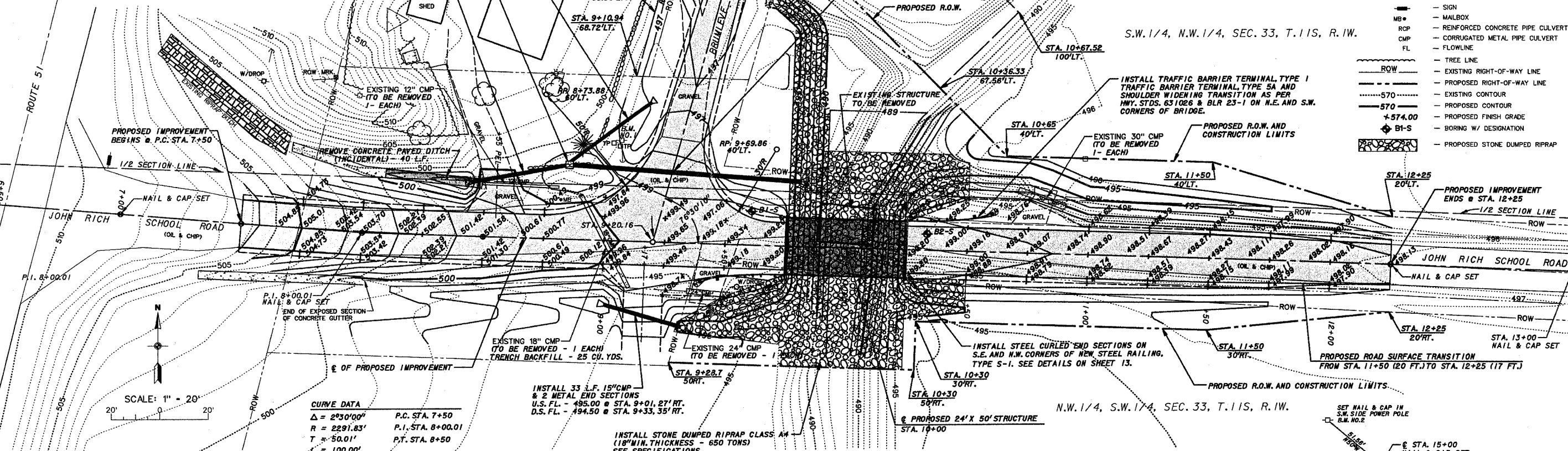
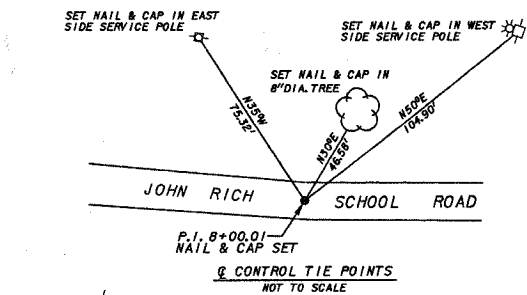


TED R. BEGGS, P.E.  
 REG. NO. 62-68776  
 DATE 7-20-06  
 EXPIRES 11-30-07

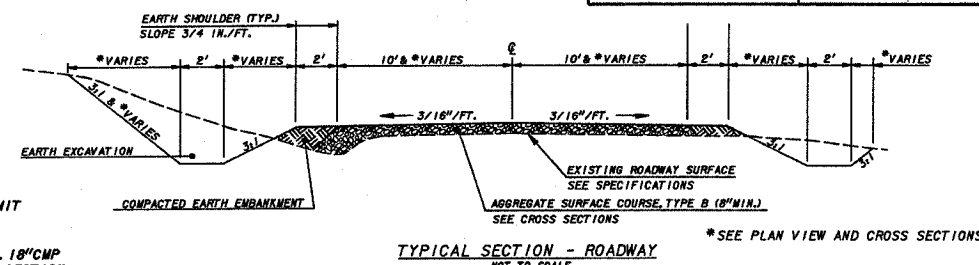
SCALE AS SHOWN	PLANS PREPARED BY J. T. BLANKINSHIP AND ASSOCIATES CONSULTING ENGINEERS	BOOK 461-N FILE NO. E*8573 SHEET NO. 1 OF 14
DATE JUNE 2006	401 S. 17TH STREET MURPHYSBORO, ILLINOIS	

**NOTES**

1. ALL PHYSICAL FEATURES DEPICTED BY THIS SURVEY WERE CONDITIONS AS OF MAY 2004.
2. THE ACCURACY OF THE HORIZONTAL AND VERTICAL TOPOGRAPHIC FEATURES DEPICTED HEREON WERE DERIVED BY SURVEY METHODS THAT EXCEED THE ACCURACY OF THE PLOTTED DOCUMENT AS DEFINED BY THE MAP SCALE. THE USE OF THIS SURVEY INFORMATION IN A DIGITAL ENVIRONMENT, CAD OR GIS SHALL NOT BE RELIED UPON TO AN ACCURACY GREATER THAN THAT OF THE MAP SCALE.
3. NO UNDERGROUND UTILITIES WERE LOCATED BY THIS SURVEY. THE POSITION OF ALL UNDERGROUND UTILITIES ARE APPROXIMATE AS SHOWN. THE LOCATIONS HAVE BEEN DETERMINED FROM THE BEST AVAILABLE INFORMATION. THE EXISTENCE AND POSITION OF ANY UNDERGROUND UTILITIES SHOULD BE VERIFIED PRIOR TO ANY CONSTRUCTION.



ROUTE	SECTION	COUNTY	TOWNSHIP	TOTAL SHEETS	SHEET NUMBER
T.R. 93	04-01178-00-BR	UNION	SEC. 33, T11S, R1W	14	2
JOB NO. C-99-545-04			PROJECT NO. BROS-181(22)		
JOHN RICH SCHOOL ROAD			CONTRACT NO. 99271		

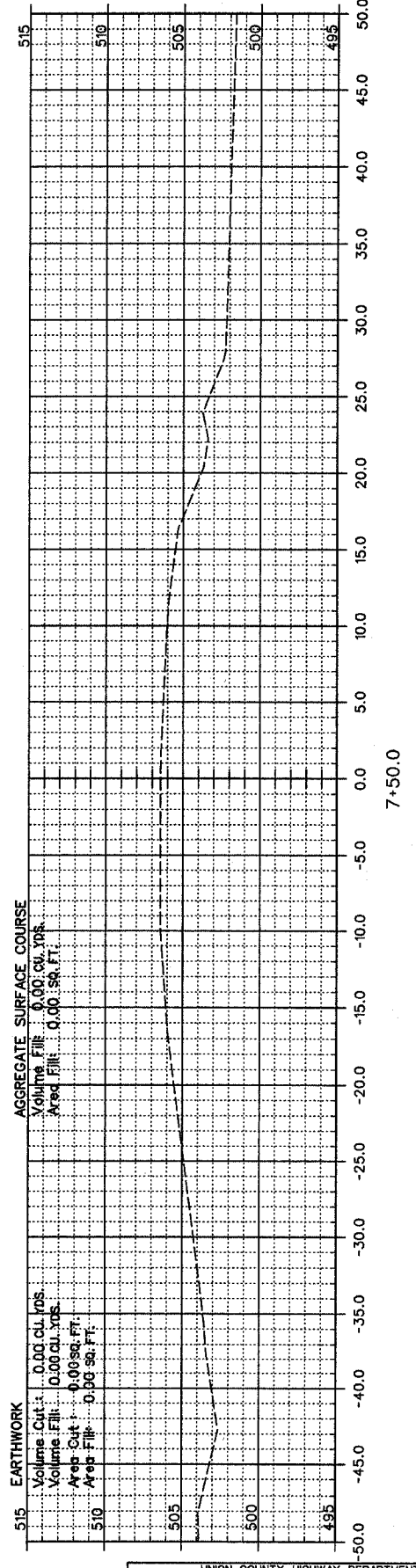
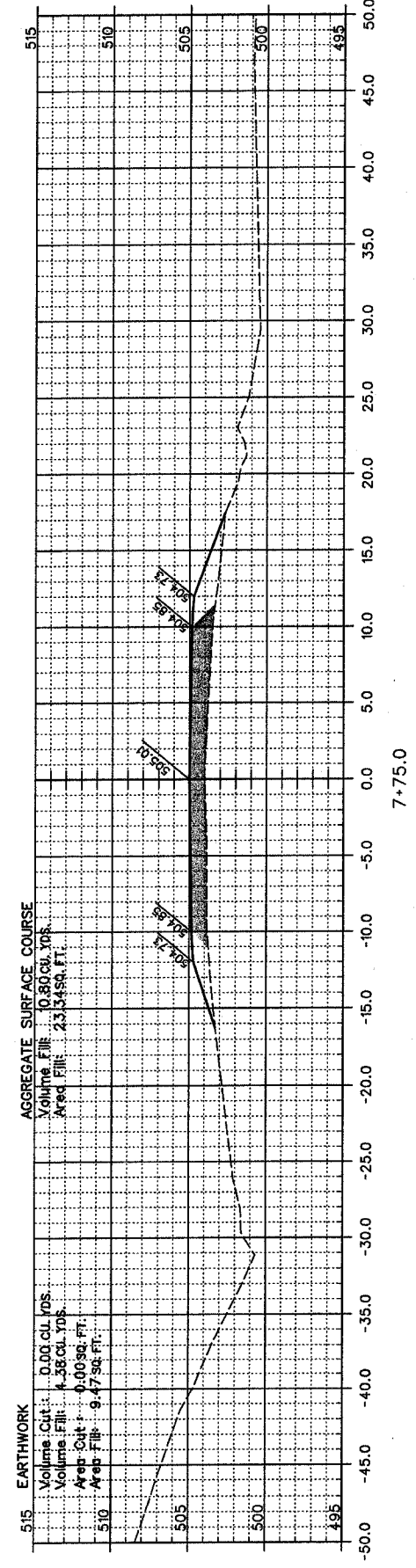
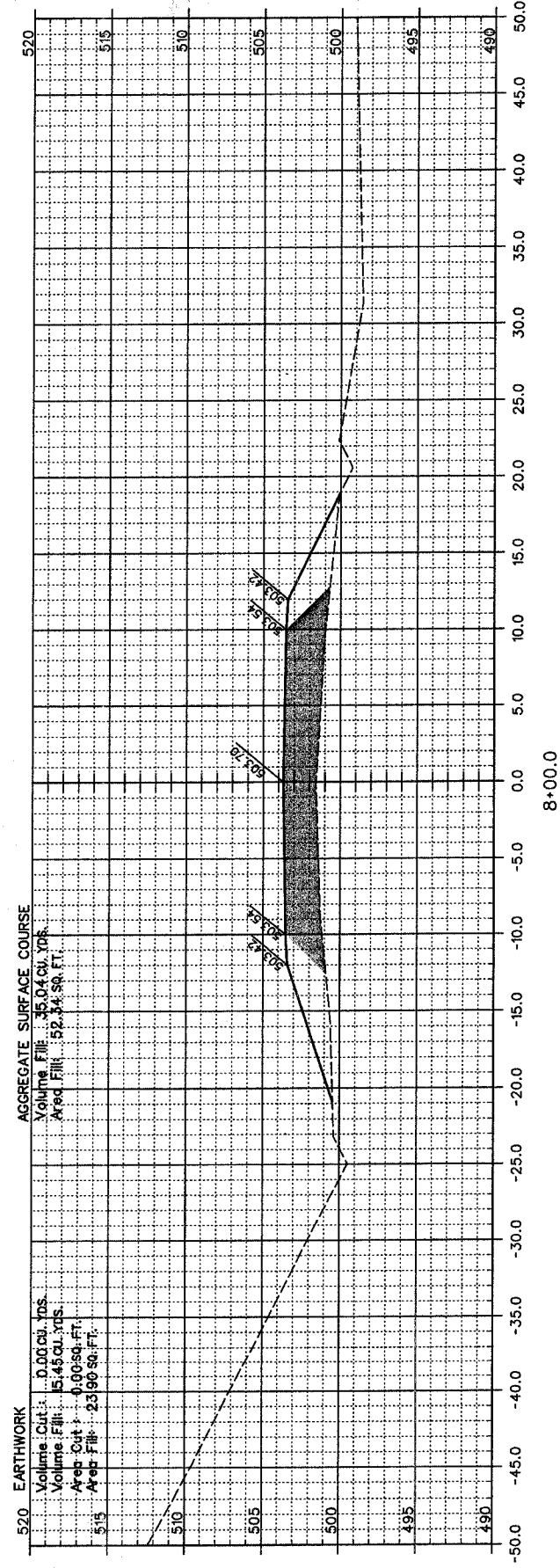
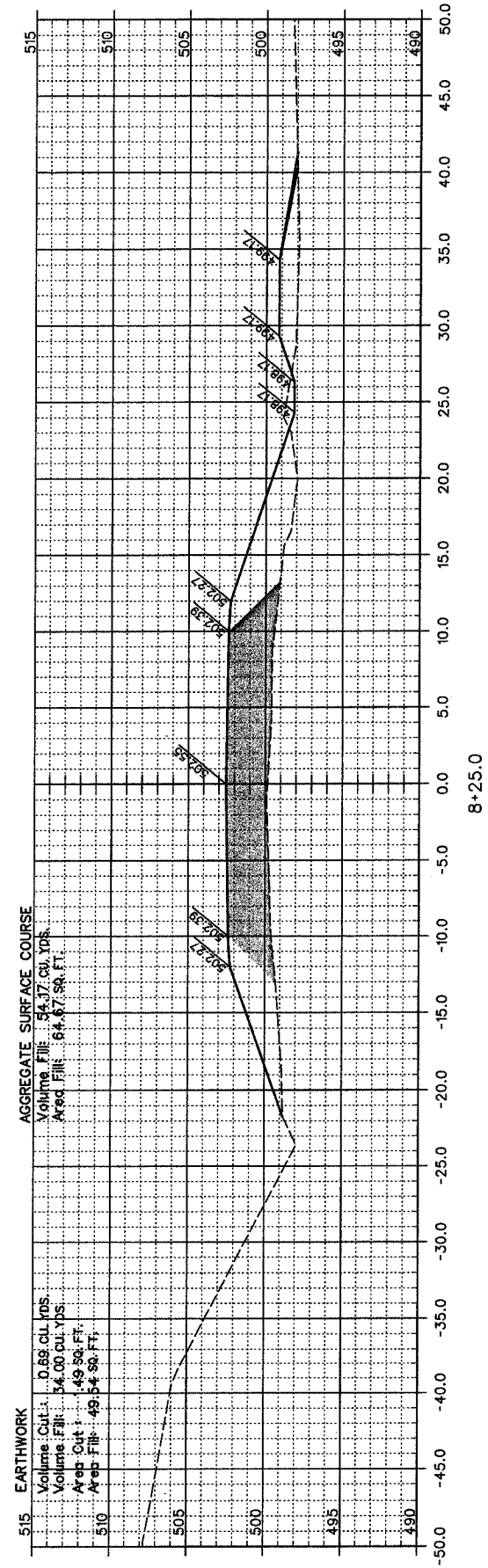
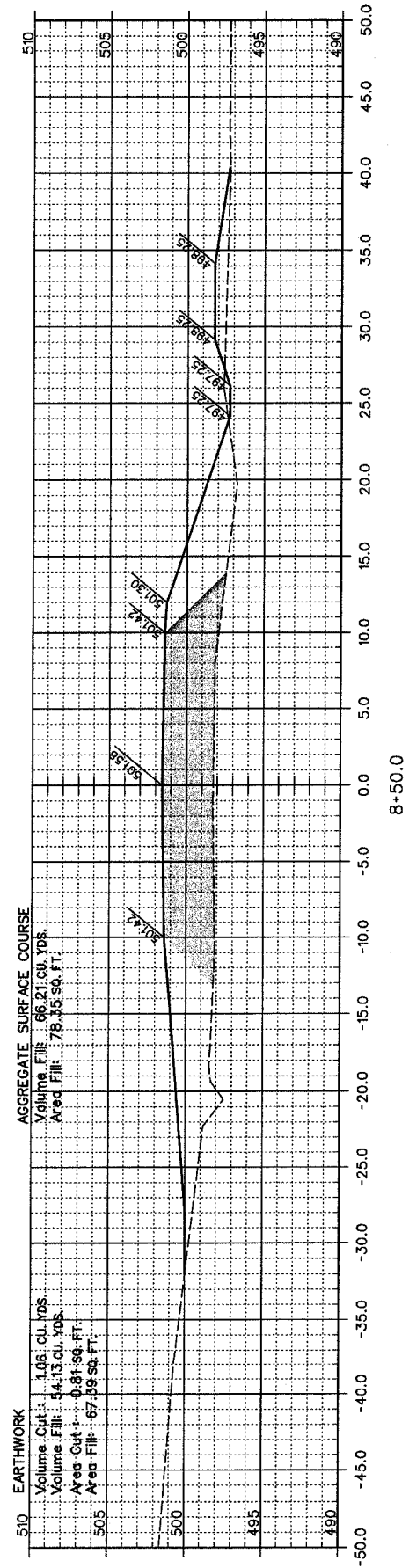


**LEGEND**

- - POWER POLE
- - TELEPHONE POLE
- ⊕ - POWER / TELEPHONE POLE
- ⊕ - TELEPHONE PEDESTAL
- ⊕ - ANCHOR
- ⊕ - SIGN
- MB - MAILBOX
- RCP - REINFORCED CONCRETE PIPE CULVERT
- CMP - CORRUGATED METAL PIPE CULVERT
- FL - FLOWLINE
- - TREE LINE
- - EXISTING RIGHT-OF-WAY LINE
- - PROPOSED RIGHT-OF-WAY LINE
- - EXISTING CONTOUR
- - PROPOSED CONTOUR
- +574.00 - PROPOSED FINISH GRADE
- ⊕ - BORING W/ DESIGNATION
- - PROPOSED STONE DUMPED RIPRAP

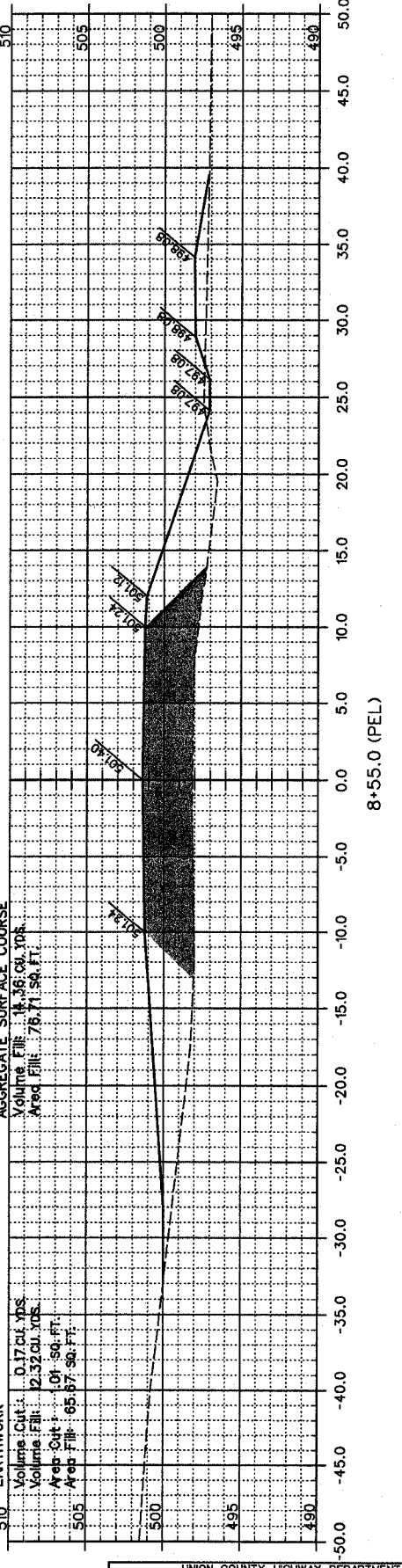
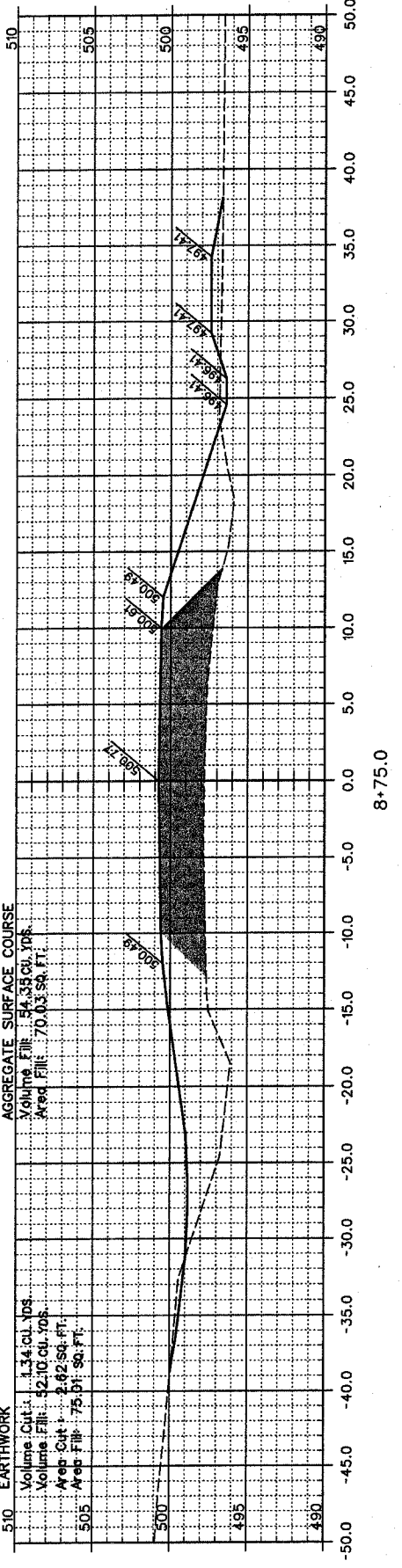
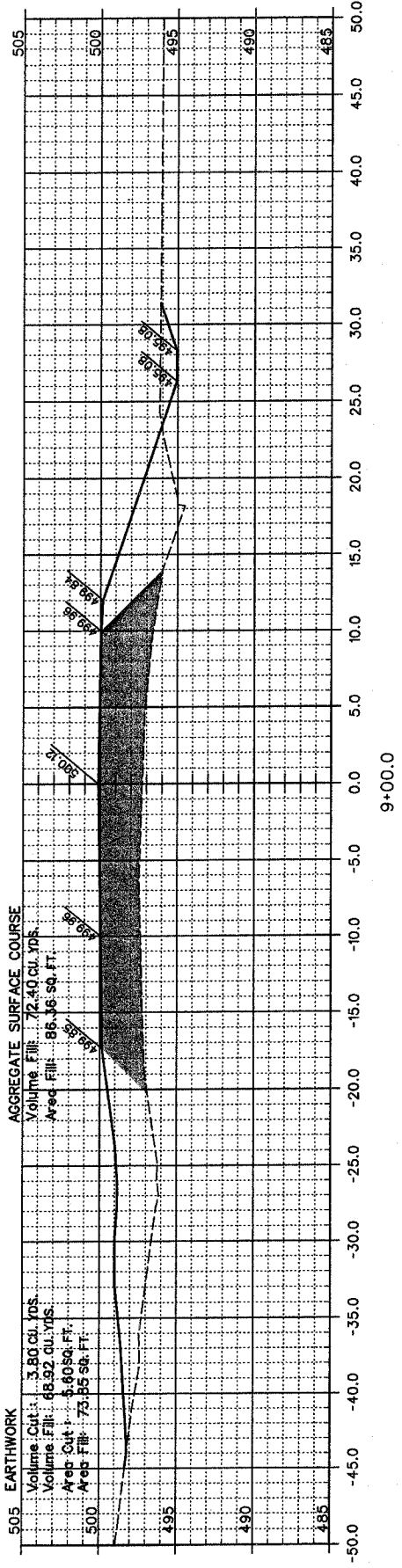
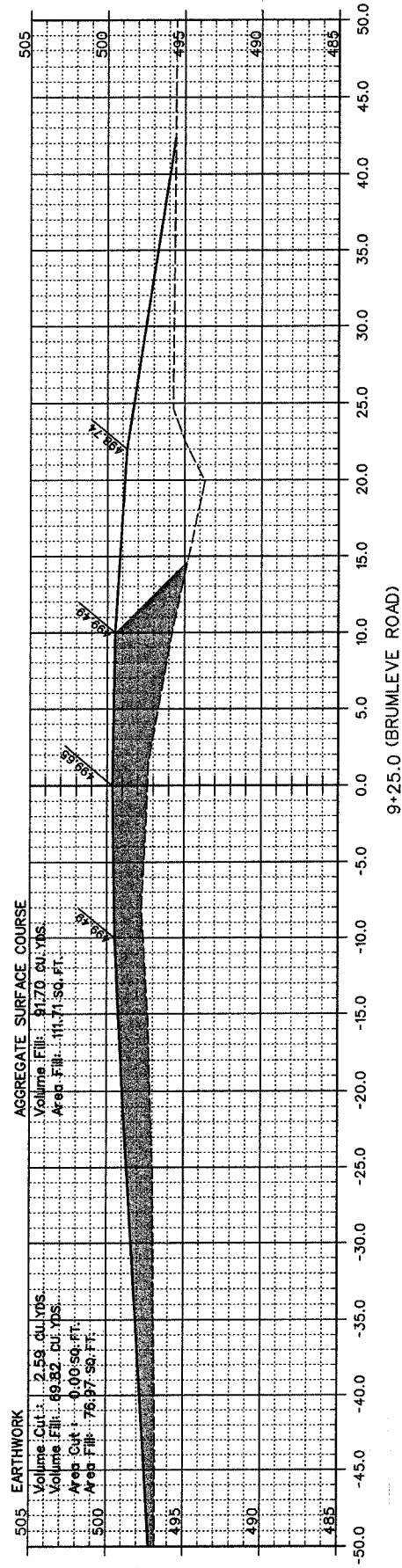
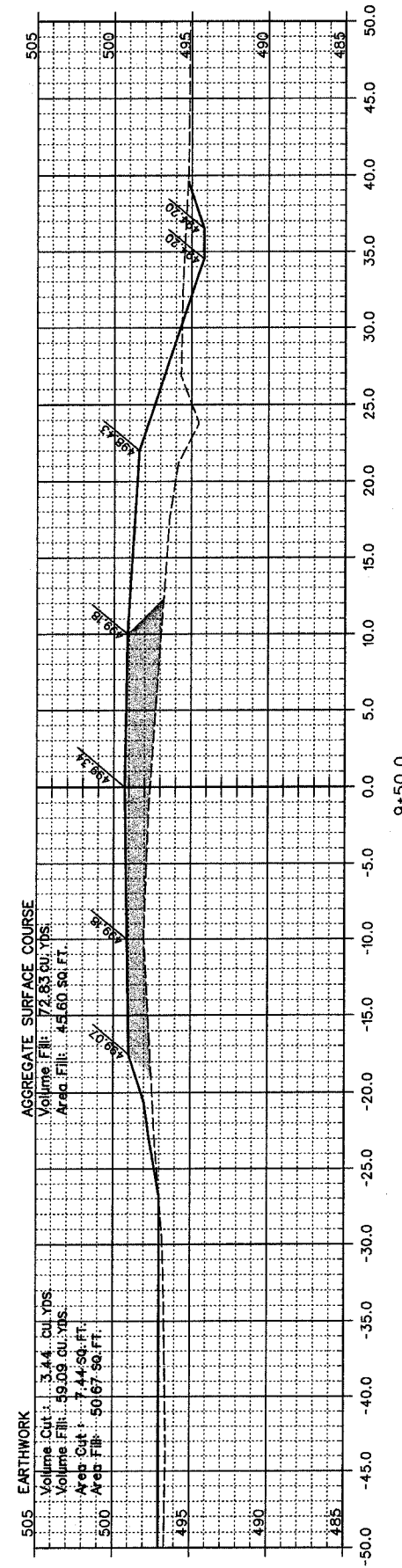
UNION COUNTY HIGHWAY DEPARTMENT  
UNION COUNTY, ILLINOIS  
JOHN RICH SCHOOL ROAD  
PLAN AND PROFILE

ROUTE	SECTION	COUNTY	TOWNSHIP	TOTAL SHEETS	SHEET NUMBER
T.R. 83	04-01178-00-BR	UNION	SEC 33, TNS, RW	14	3
JOB NO. C-99-545-04			PROJECT NO. BROS-181 (22)		
JOHN RICH SCHOOL ROAD			CONTRACT NO. 99271		



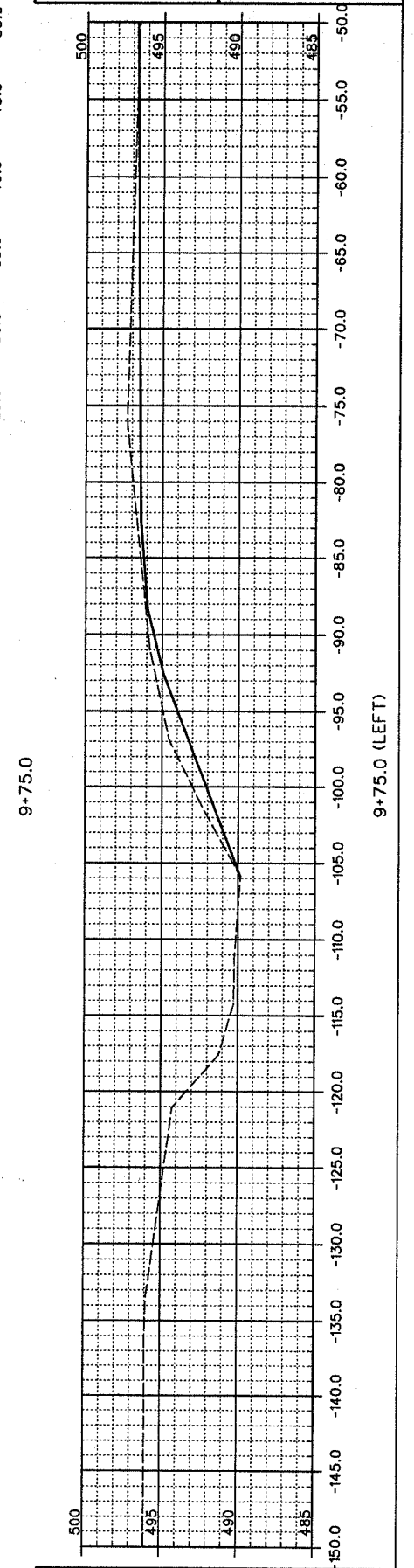
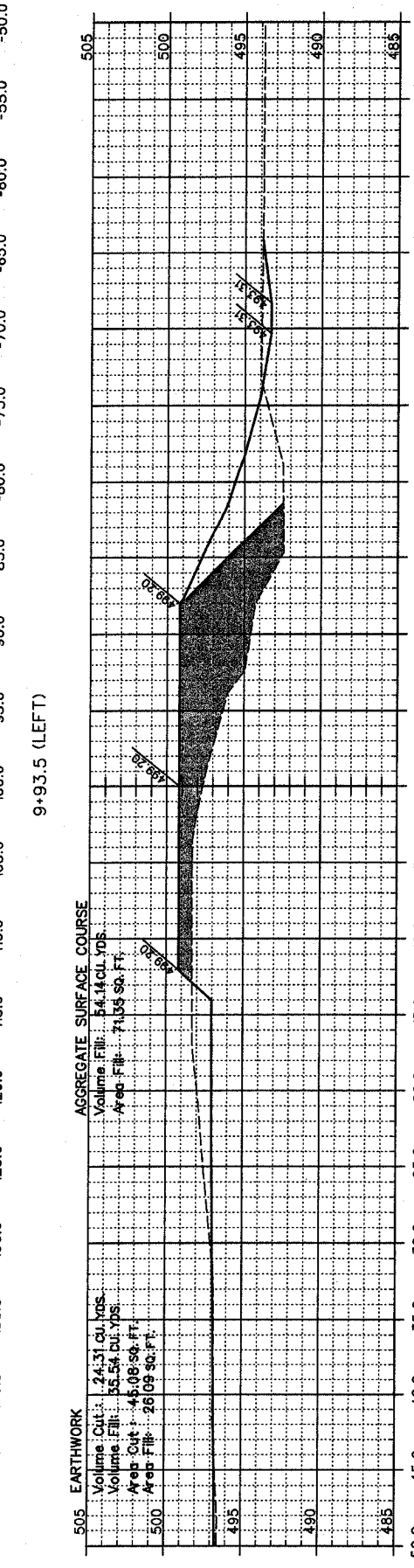
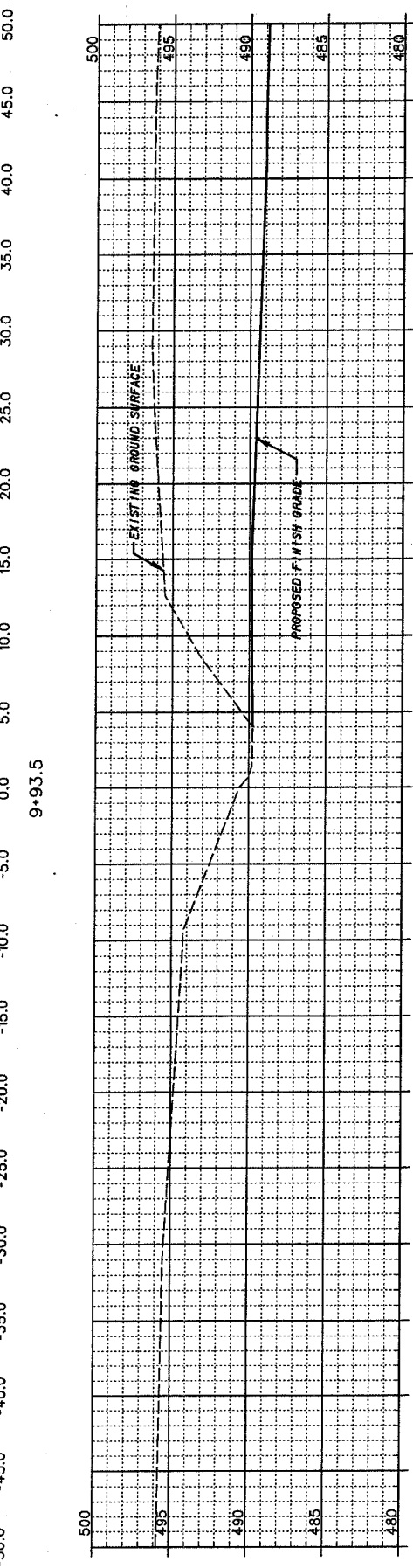
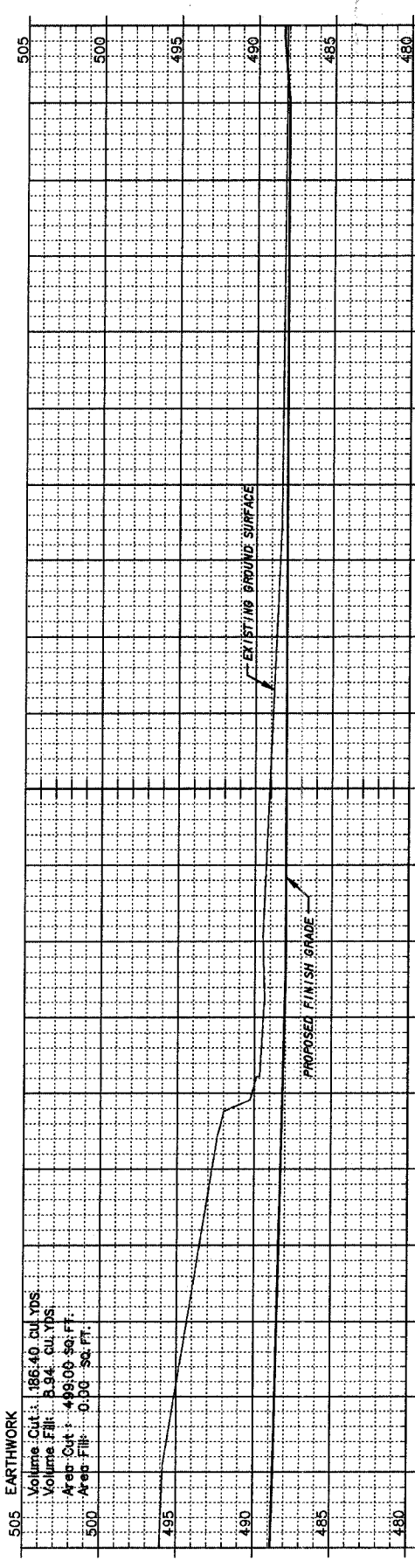
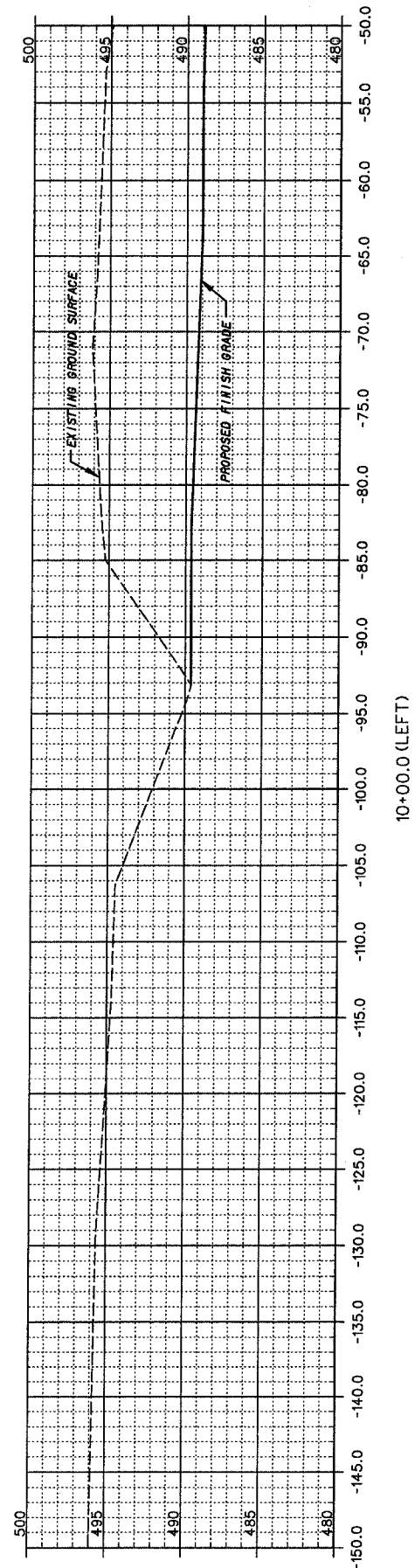
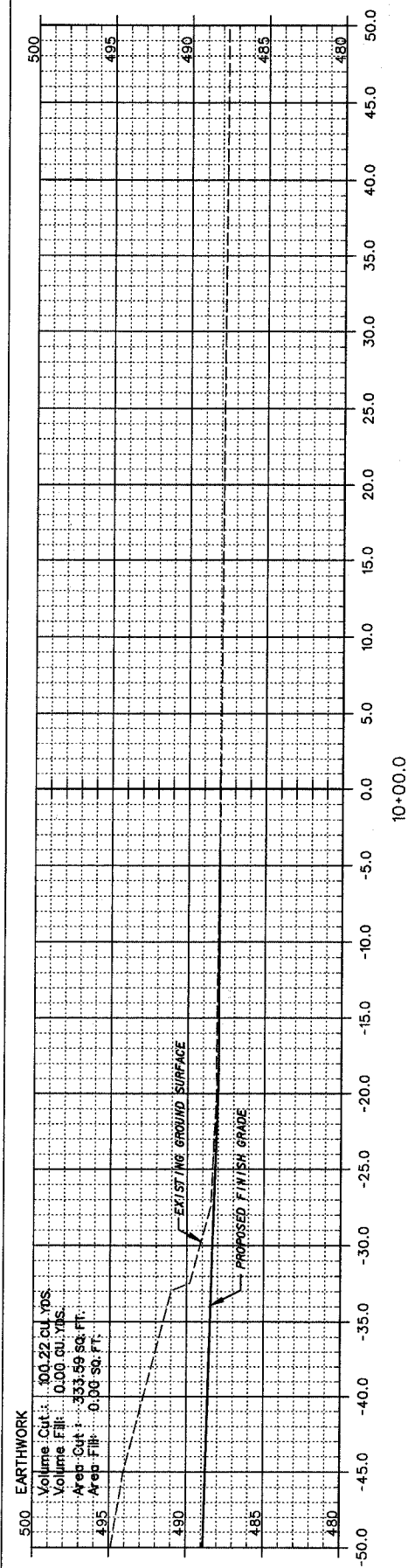
NOTE: SHADED AREA DENOTES AGGREGATE SURFACE COURSE.

ROUTE	SECTION	COUNTY	TOWNSHIP	TOTAL SHEETS	SHEET NUMBER
T.R. 93	04-01178-00-BR	UNION	SEC. 33, T11S, R1W	14	4
JOB NO. C-99-545-04			PROJECT NO. BROS-181 (22)		
JOHN RICH SCHOOL ROAD			CONTRACT NO. 99271		



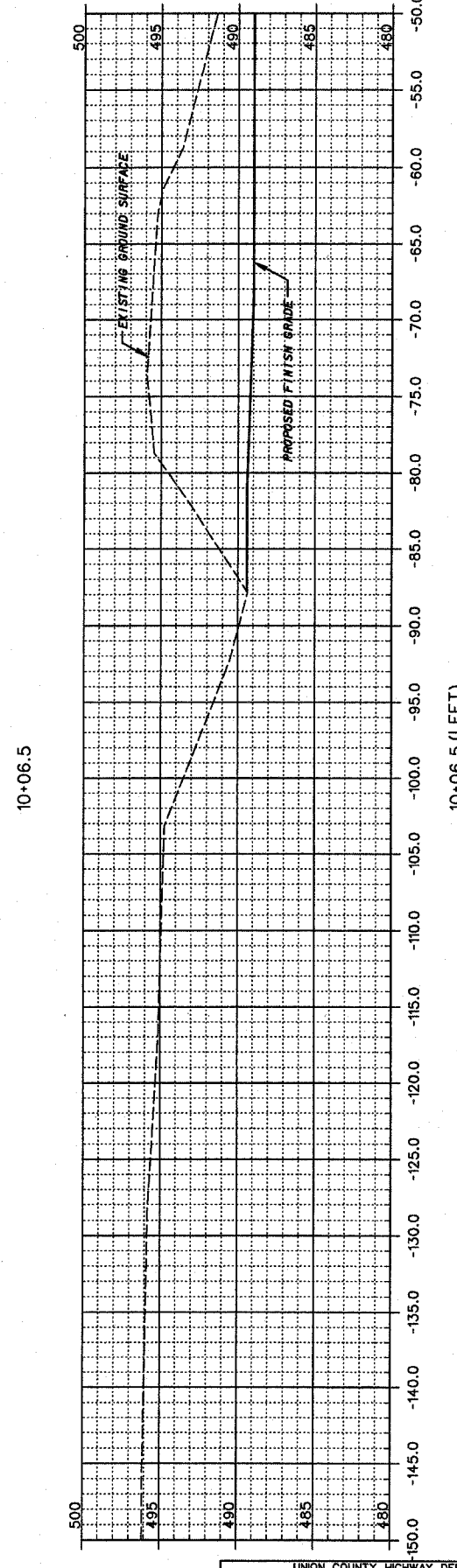
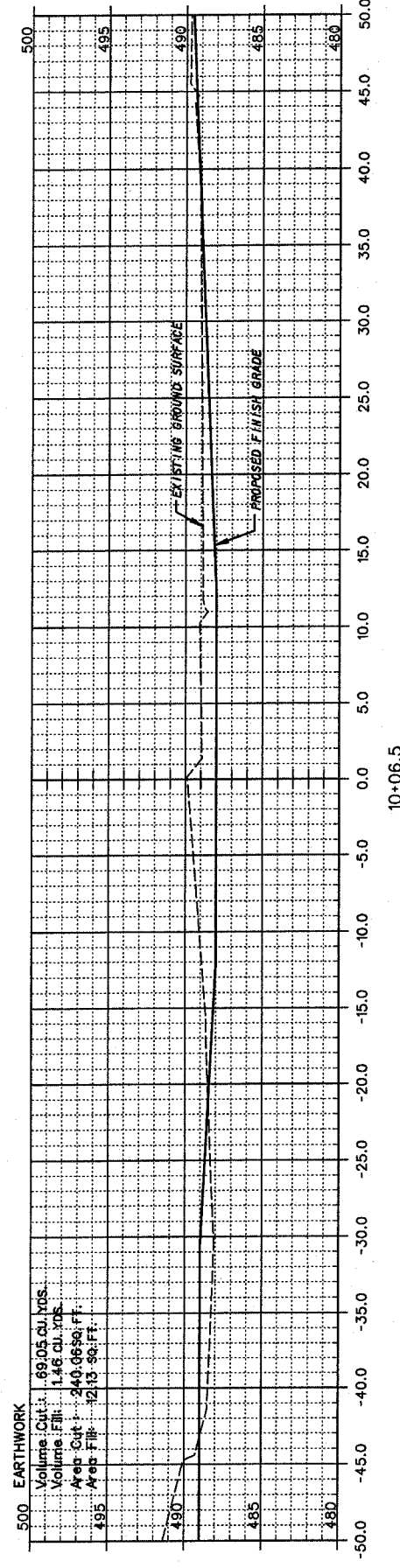
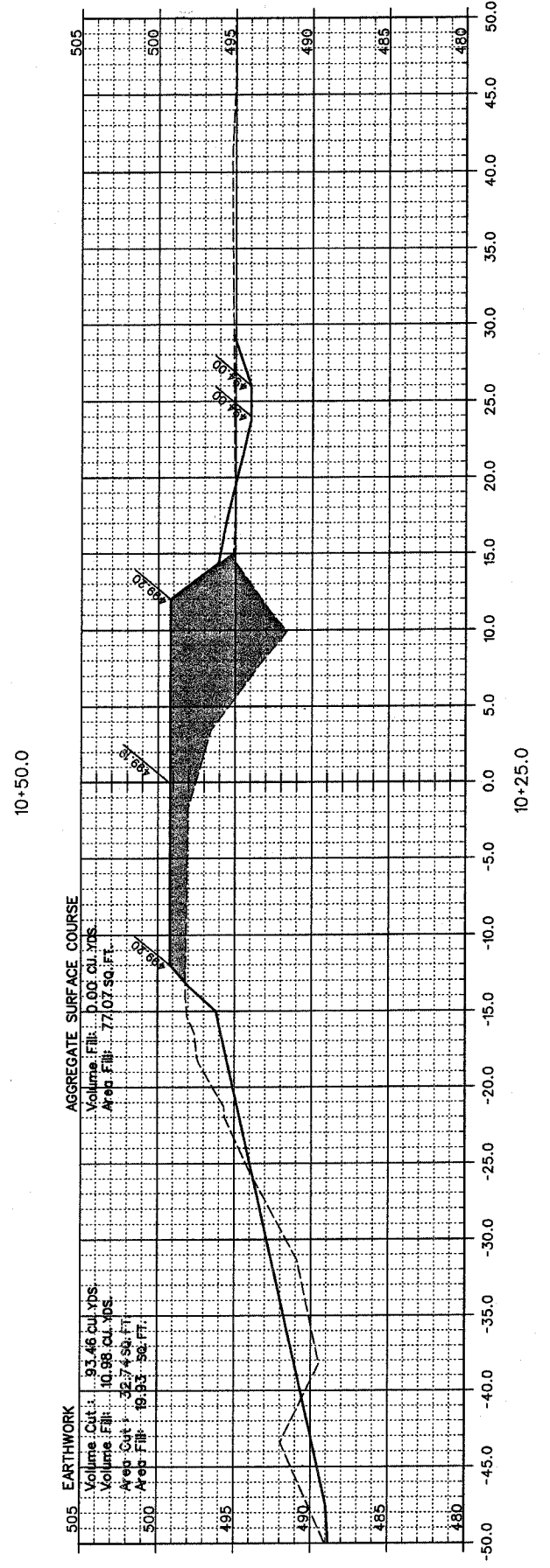
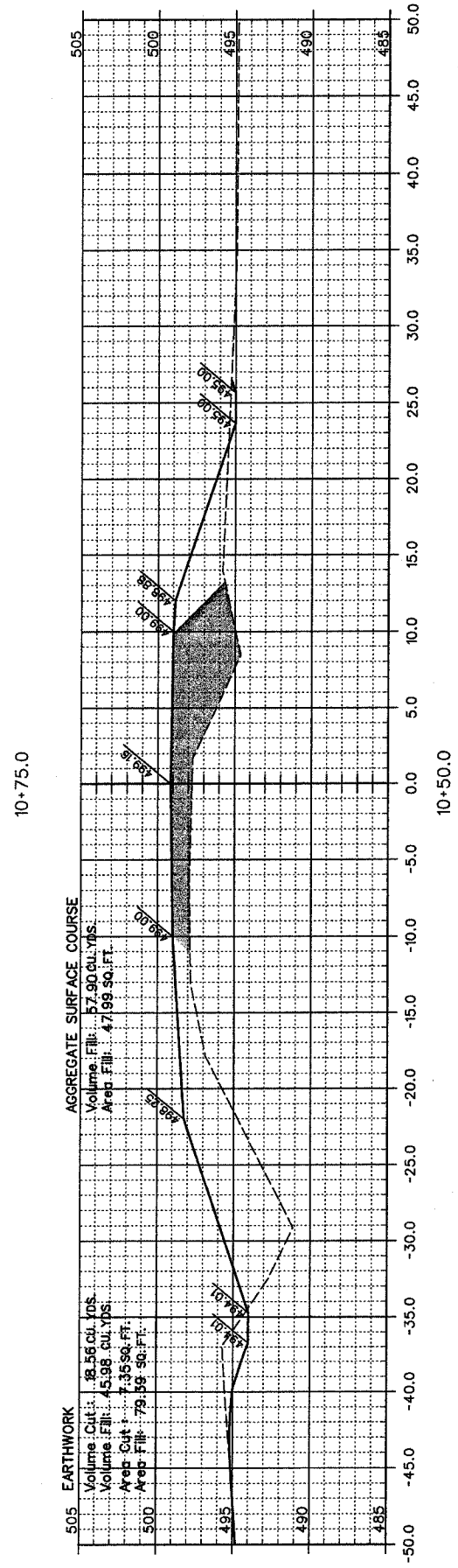
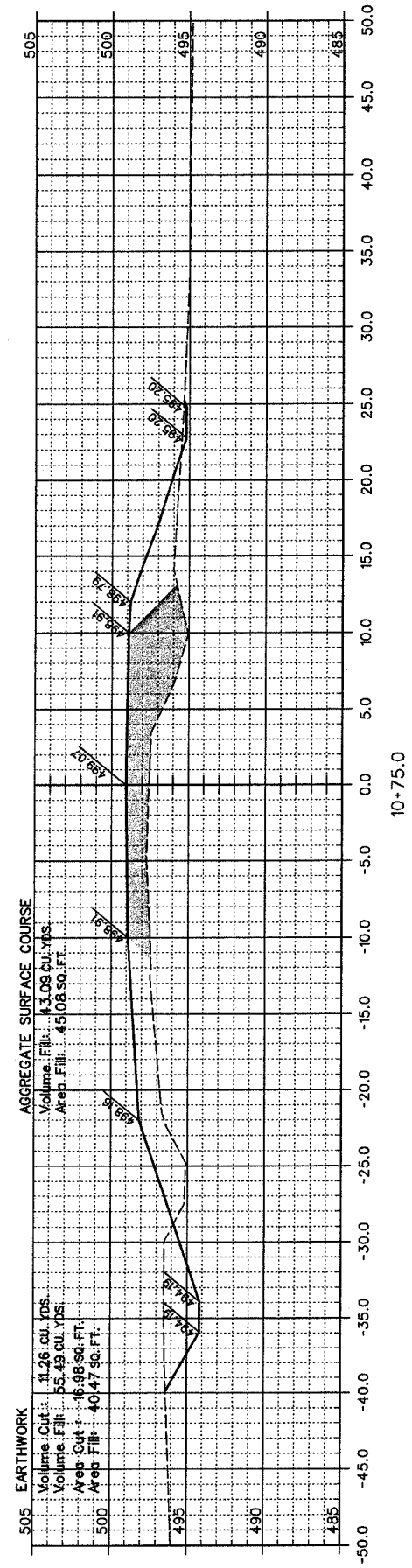
NOTE: SHADED AREA DENOTES AGGREGATE SURFACE COURSE.

ROUTE	SECTION	COUNTY	TOWNSHIP	TOTAL SHEETS	SHEET NUMBER
T.R. 93	04-0178-00-BR	UNION	SEC 33, T11S, R11W	14	5
JOB NO. C-99-545-04			PROJECT NO. BROS-181 (22)		
JOHN RICH SCHOOL ROAD			CONTRACT NO. 99271		



NOTE: SHADED AREA DENOTES AGGREGATE SURFACE COURSE.

ROUTE	SECTION	COUNTY	TOWNSHIP	TOTAL SHEETS	SHEET NUMBER
T.R. 93	04-01178-00-BR	UNION	SEC 33, T11S, R1W	14	6
JOB NO. C-99-545-04			PROJECT NO. BROS-181 (22)		
JOHN RICH SCHOOL ROAD			CONTRACT NO. 99271		

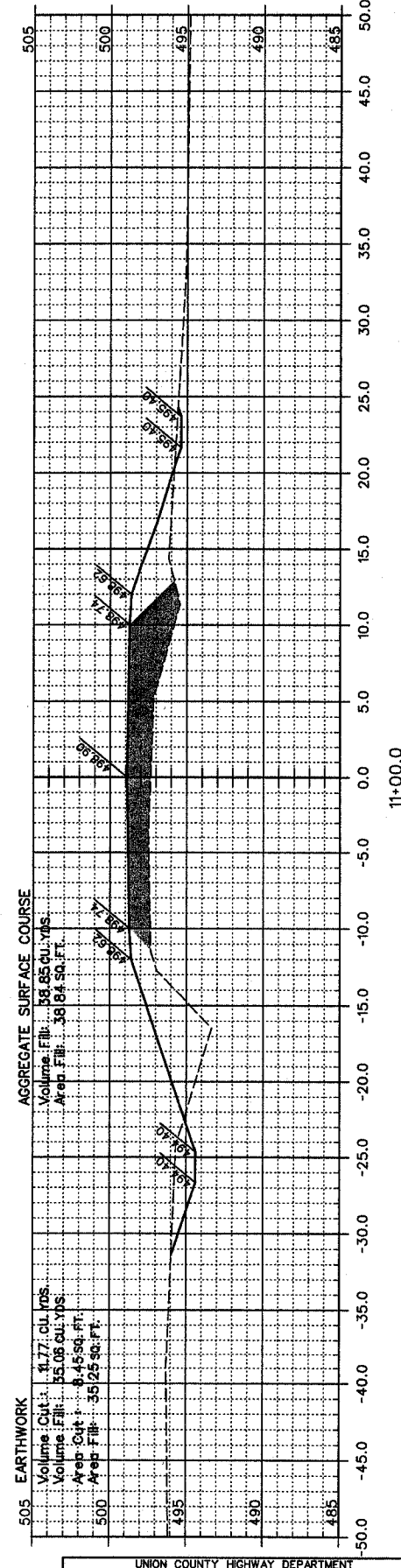
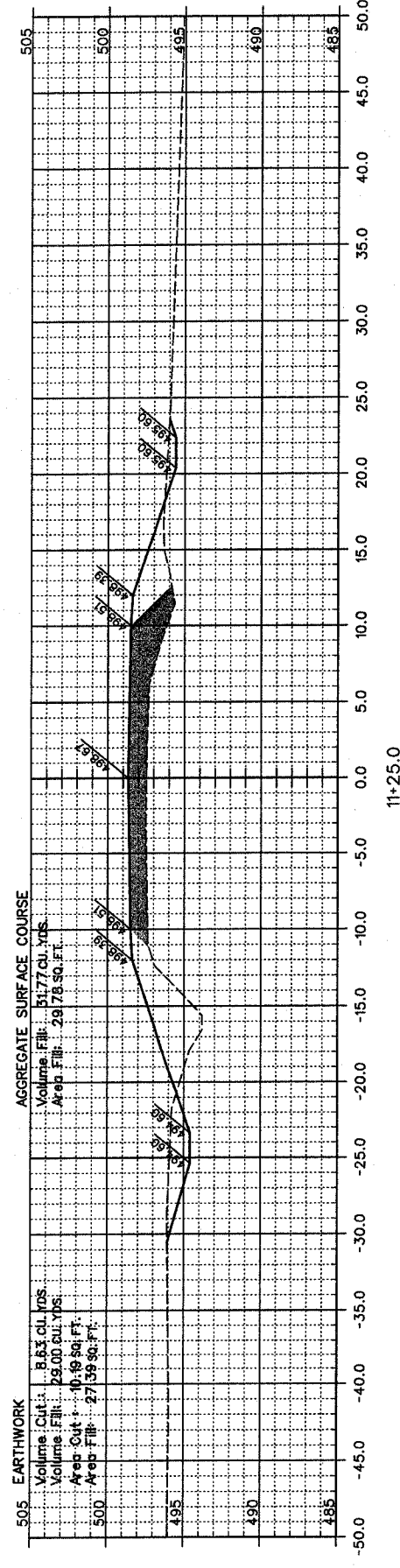
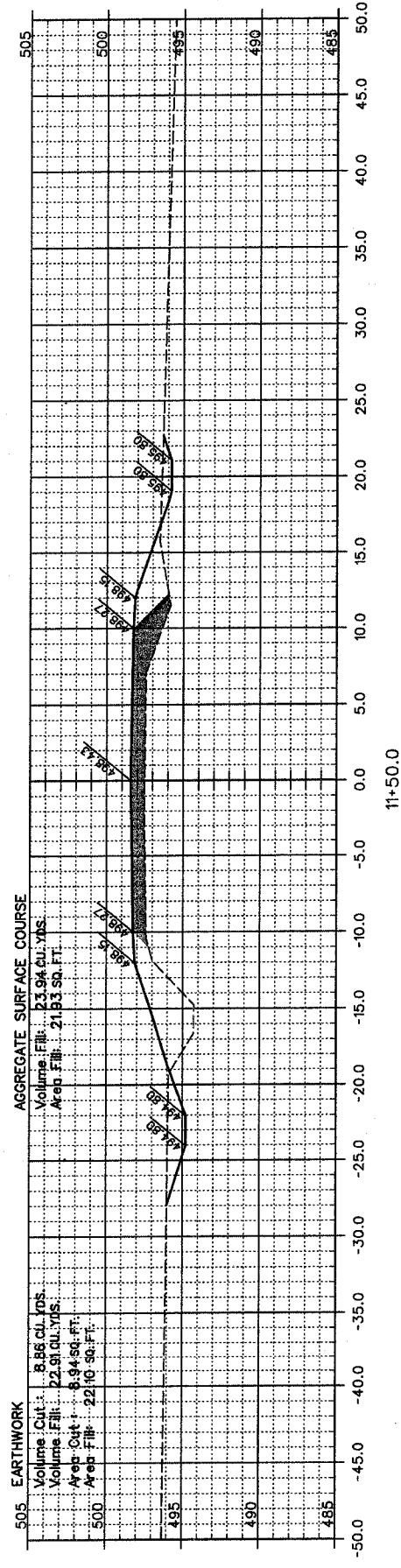
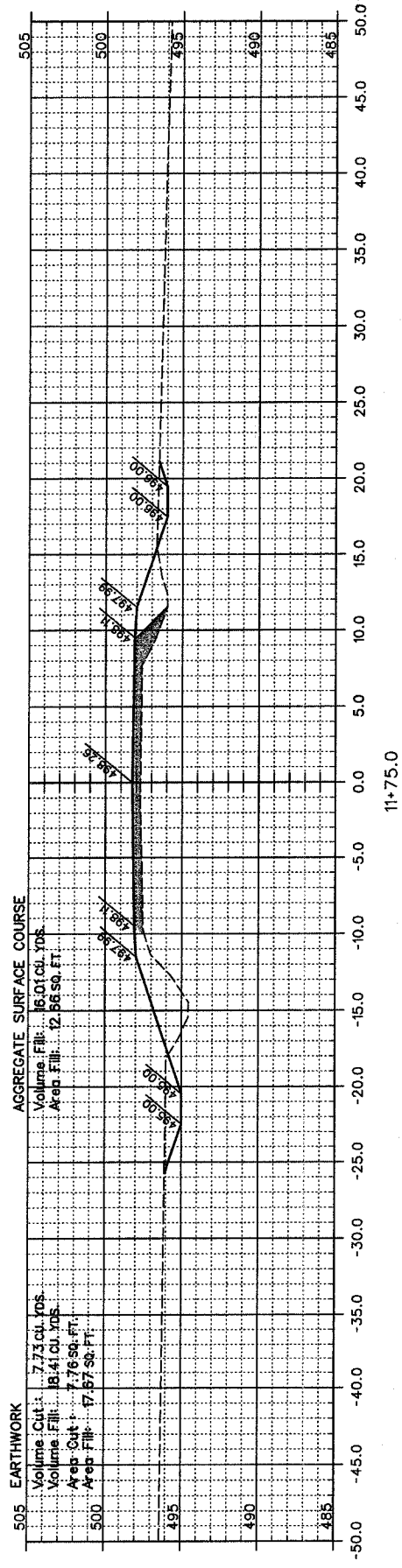
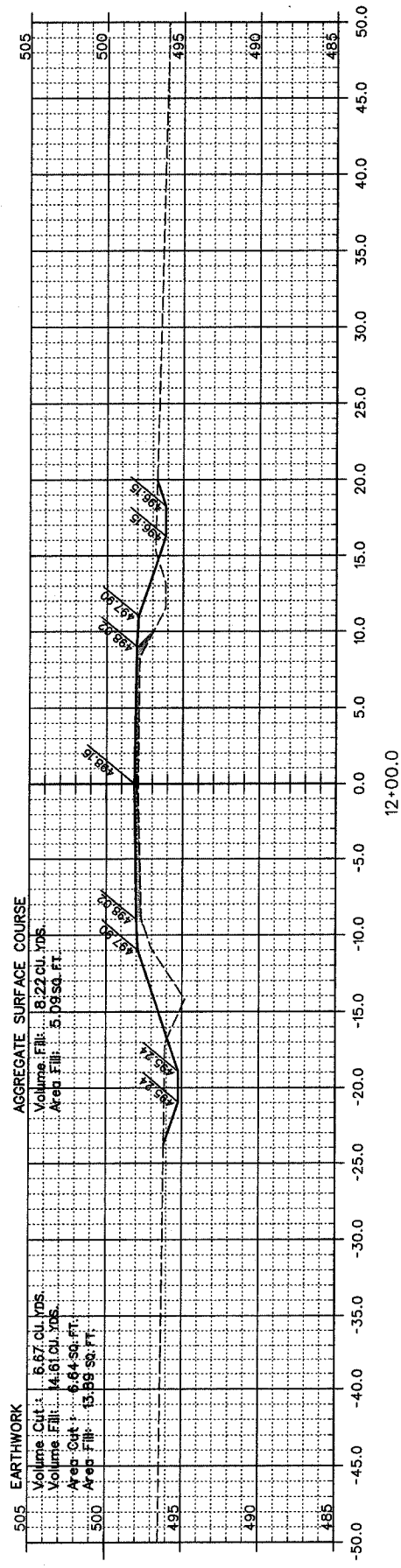
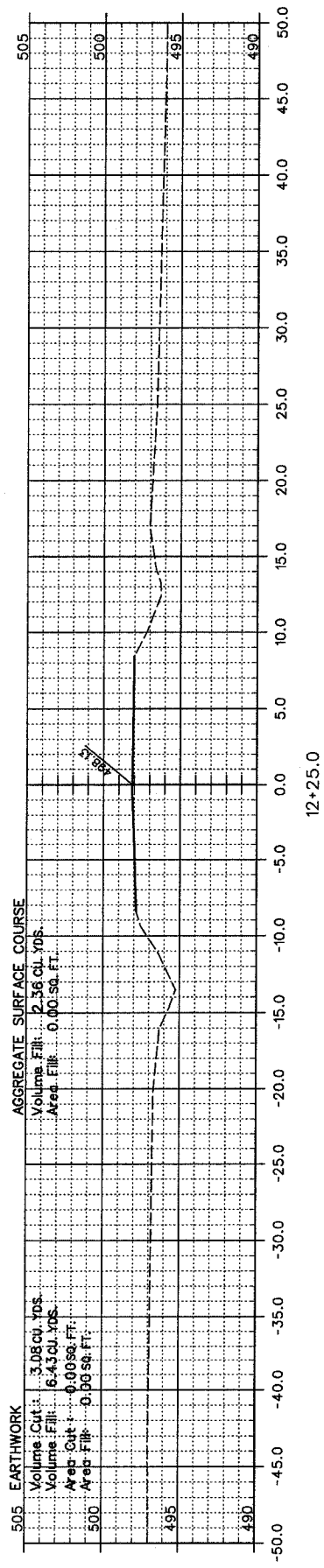


NOTE: SHADED AREA DENOTES AGGREGATE SURFACE COURSE.

UNION COUNTY HIGHWAY DEPARTMENT UNION COUNTY, ILLINOIS	
JOHN RICH SCHOOL ROAD BRIDGE REPLACEMENT	
CROSS SECTIONS STA. 10+06.5 TO STA. 10+75	

ROUTE	SECTION	COUNTY	TOWNSHIP	TOTAL SHEETS	SHEET NUMBER
T.R. 93	04-01178-00-BR	UNION	SEC 33, T11S, R1W	14	7
JOB NO. C-99-545-04			PROJECT NO. BROS-181 (22)		
JOHN RICH SCHOOL ROAD			CONTRACT NO. 99271		

TOTAL ESTIMATED EARTHWORK QUANTITIES  
 EARTH EXCAVATION (SPECIAL) - 640 CU. YDS. (EARTH EXC., CHANNEL EXC. & STRUCTURE EXC.)  
 EARTH EMBANKMENT - 655 CU. YDS.  
 FURNISHED EXCAVATION - 175 CU. YDS. @ 25% LOSS



NOTE: SHADED AREA DENOTES AGGREGATE SURFACE COURSE.

UNION COUNTY HIGHWAY DEPARTMENT  
 UNION COUNTY, ILLINOIS  
 JOHN RICH SCHOOL ROAD BRIDGE REPLACEMENT  
 CROSS SECTIONS  
 STA. 11+00 TO STA. 12+25

ROUTE	SECTION	COUNTY	TOWNSHIP	TOTAL SHEETS	SHEET NUMBER
T.R. 93	04-01178-00-BR	UNION	SEC 33, T11S, R1W	14	8
JOB NO. C-99-545-04		PROJECT NO. BROS-181 (22)			
JOHN RICH SCHOOL ROAD		CONTRACT NO. 99271			

B.M. - 2-60D NAILS SET IN P.P. STA. 9+06, 42' LT.  
ELEV. 499.00

EXISTING STRUCTURE - STA. 9+88.5 - STA. 10+11.5, 23' SPAN,  
(NO. 1) 16' WIDTH, TIMBER RUNNERS AND DECK,  
STEEL I-BEAM STRINGERS AND STEEL  
RAILS. STONE AND MORTAR ABUTMENTS  
WITH TIMBER PILING.

SALVAGE - CONTRACTOR TO SALVAGE STONE FROM  
(STRUCTURE NO. 1) EXISTING ABUTMENTS. STONE TO BE  
DELIVERED TO UNION COUNTY  
HIGHWAY DEPARTMENT IN  
JONESBORO, ILLINOIS.

**DESIGN SPECIFICATIONS**

2002 AASHTO Standard Specifications - 17th ed.

**LOADING HS20-44**

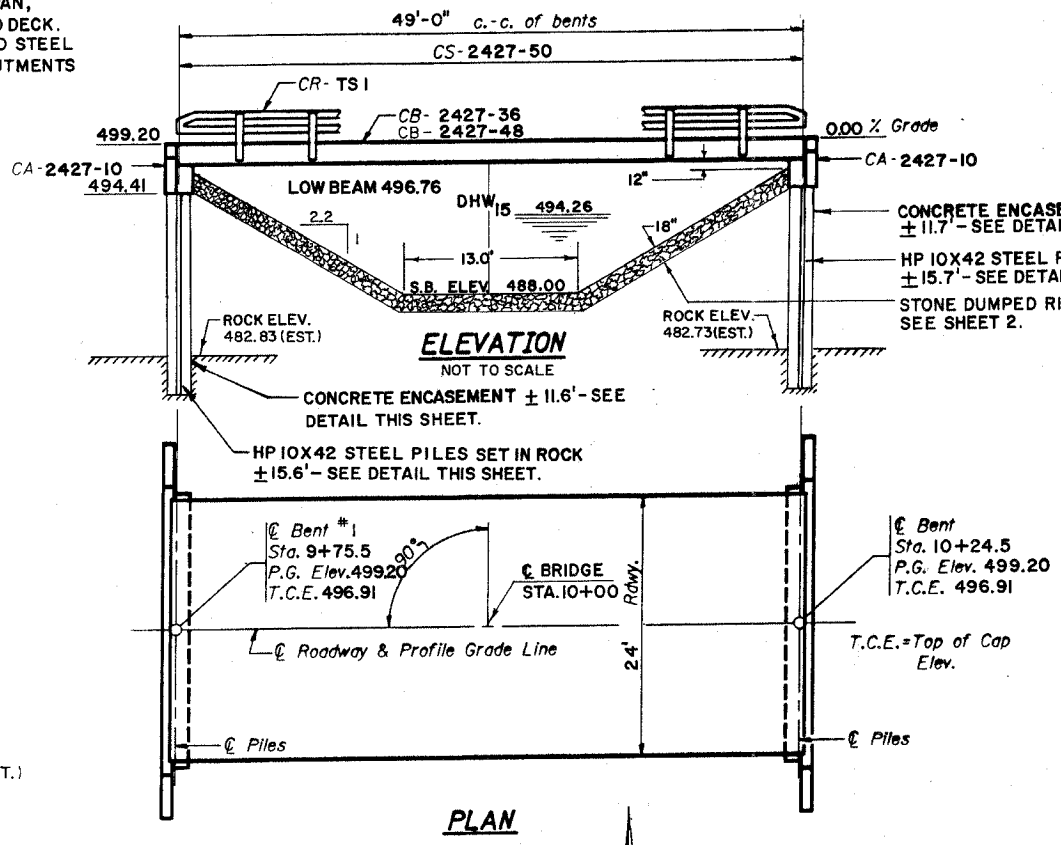
Allow 25#/sq. ft. for future  
wearing surface.

**SEISMIC DATA**

Seismic Performance Category (SPC) = B  
Bedrock Acceleration Coefficient (A) = 0.145  
Site Coefficient (S) = 1.0

**PILE DATA (2-ABUTS.)**

TYPE HP 10X42 STEEL PILES  
CAPACITY SET PILES IN ROCK  
ESTIMATED LENGTH 125 FEET (4 @ 15.6 FT. + 4 @ 15.7 FT.)  
NUMBER REQUIRED 8 EACH



**GENERAL NOTES**

- See Special Provisions for boring logs.
- A Corrosion inhibitor, as covered in the Special Provisions, shall be used in the concrete for precast prestressed concrete deck beams.
- AFTER DECK BEAMS HAVE BEEN SET, THE DECK SURFACE SHALL BE INSPECTED.

**TOTAL BILL OF MATERIAL**

Item	Unit	Super	Sub.		Total
			Piers	Abuts.	
Removal of Existing Structures	Each				1
STONE DUMPED RIP-RAP, CLASS A-4	Ton				650
Concrete Structures	Cu. Yd.			18.2	18.2
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq. Ft.	1200			1200
Steel Railing, Type S-1	Foot	100			100
Reinforcement Bars	Pound			2300	2300
Furnishing STEEL PILES HP 10X42	Foot			125	125
SETTING PILES IN ROCK	EACH			8	8
Name Plates					
CONCRETE ENCASEMENT	Cu. Yd.			8.0	8.0

NOTE:  
CHANNEL AND STRUCTURE EXCAVATION TO  
BE PAID FOR AS EARTH EXCAVATION.

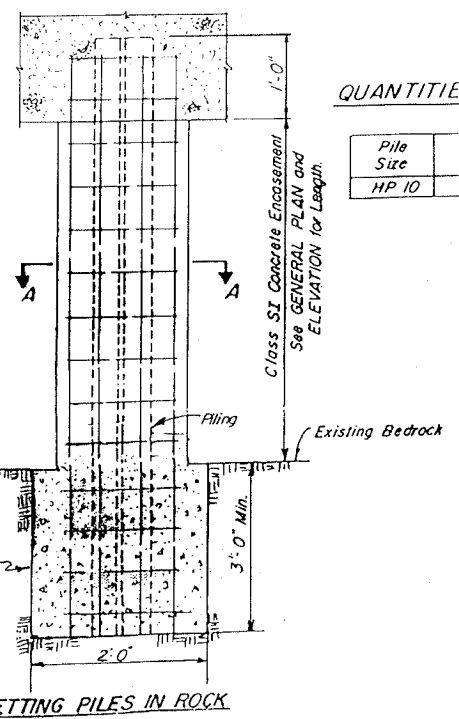
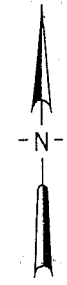
**INDEX OF SHEETS**

- STANDARD CS-2427-50
- STANDARD CB-2427-36
- STANDARD CB-2427-48
- STANDARD CA-2427-10
- STANDARD CR-TS1
- STANDARD CN

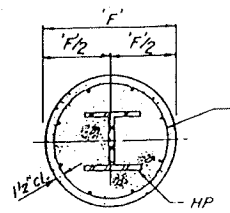
**QUANTITIES / LIN. FT. OF ENCASEMENT (STEEL PILES)**

Pile Size	Item	Quantity
HP 10	Concrete Encasement	0.006 CY

**PLAN**



Concrete Encasement to be constructed from  
existing bedrock to bottom of bent when piles  
are set in rock.



**SECTION A-A  
DETAIL OF HP  
PILE ENCASEMENT**

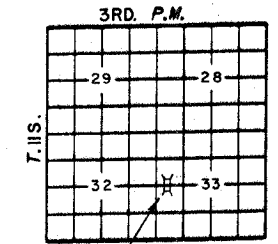
Welded wire fabric 6 x 6' W40 x W40  
weighing 58#/100sq.ft. The cost of  
Reinforcement is incidental to the cost  
of CONCRETE ENCASEMENT.  
Forms for encasement may be omitted  
when soil conditions will permit.

Pile	Length
HP 10	1'-9"

**PILE DETAILS**

A TRIBUTARY TO  
CACHE RIVER  
SEC. 04-01178-00-BR BUILT 2007  
TR 93-JOHN RICH SCHOOL ROAD  
UNION COUNTY  
LOADING HS20  
STR. NO. 091-3223

**LETTERING FOR NAME PLATE**  
Locate Name Plate at NORTHWEST  
Corner of Bridge (See Std. CN)



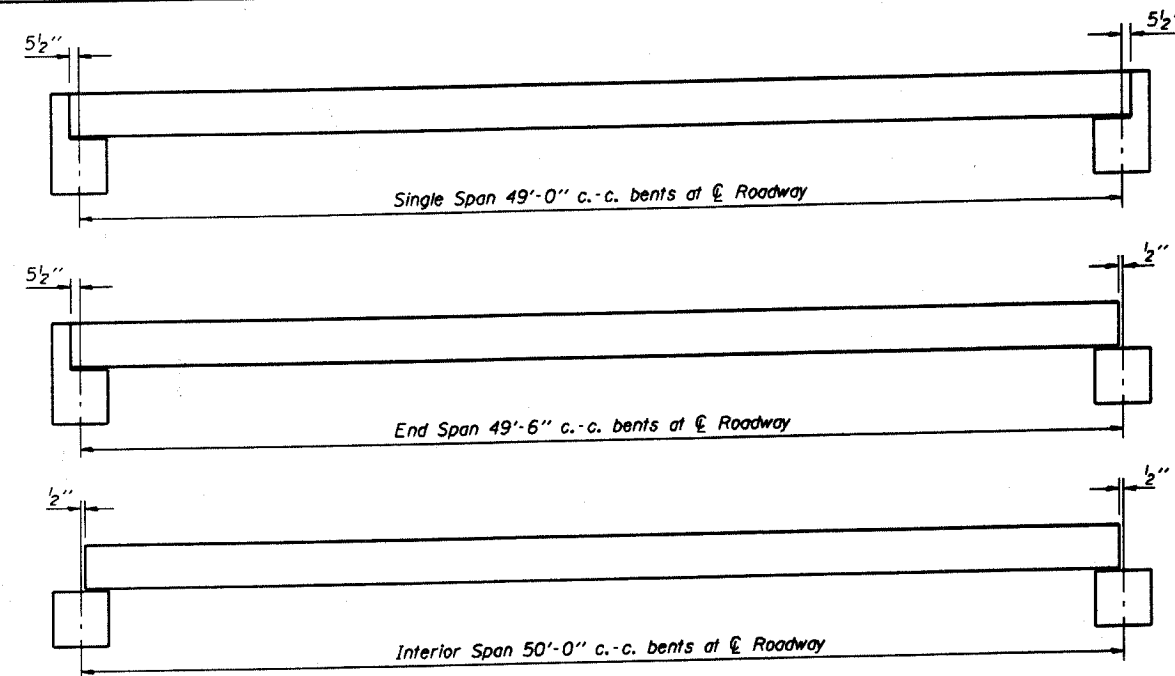
**LOCATION SKETCH**

**WATERWAY INFORMATION**

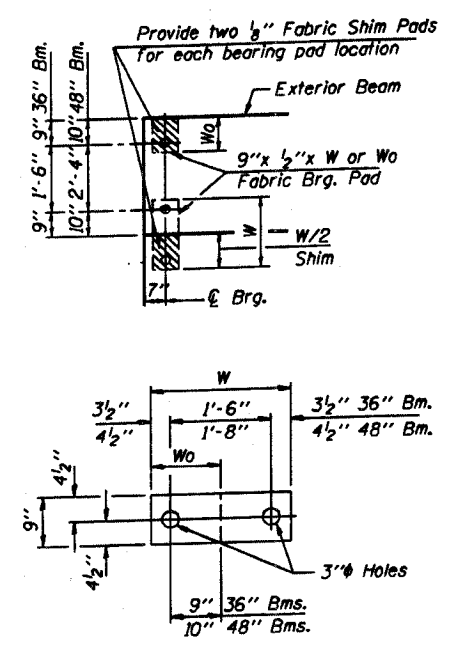
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Not. H.W.E.	Head - Ft.		Headwater El.
			Exist.	Prop.		Exist.	Prop.	
Design	15	770	102	166	494.06	0.43	0.20	494.49
Base	100	1242	155	266	494.98	2.02	0.59	497.00
Overtopping								495.57
Max. Calc.	500	1632						

**GENERAL PLAN & ELEVATION**  
TR 93-JOHN RICH SCHOOL ROAD  
OVER TRIBUTARY TO CACHE RIVER  
**SECTION 04-01178-00-BR**  
UNION COUNTY  
**STATION 10+00**



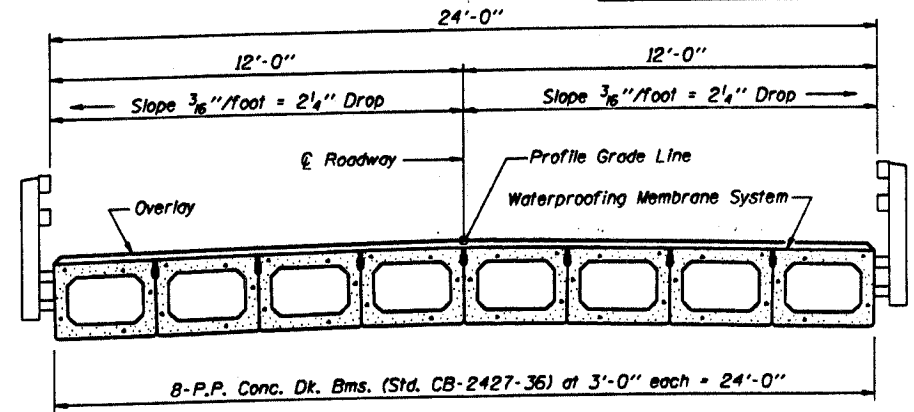


TYPICAL ELEVATIONS

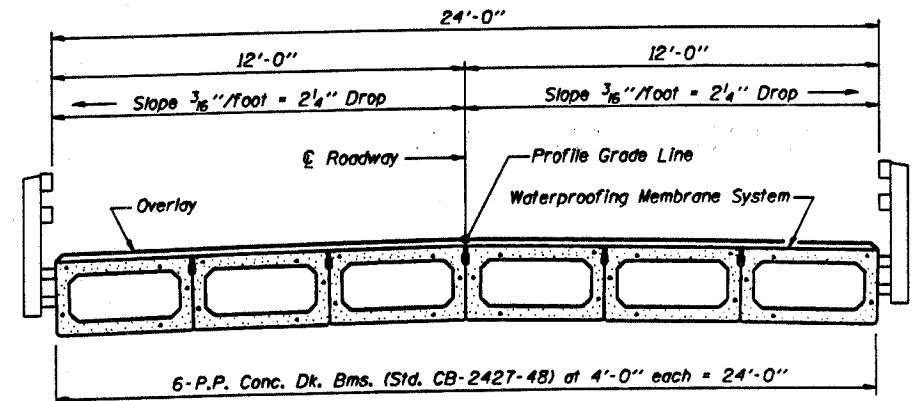


Beam	W	Wp
36"	2'-1"	1'-0 1/2"
48"	2'-5"	1'-2 1/2"

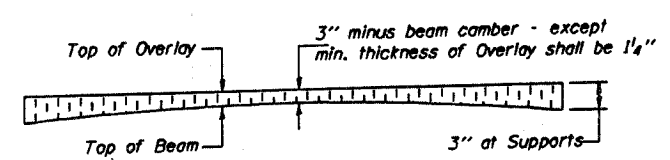
1/2" FABRIC BRG. PAD DETAILS



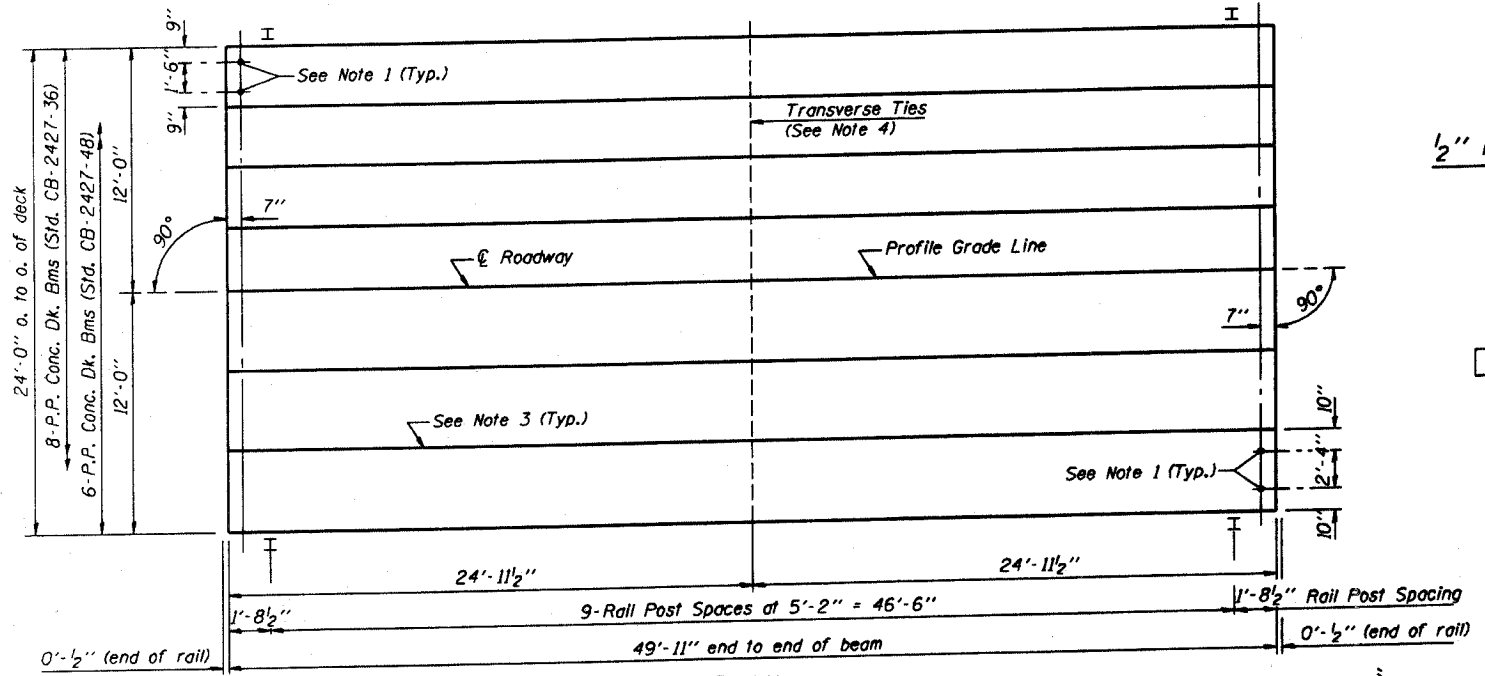
CROSS SECTION



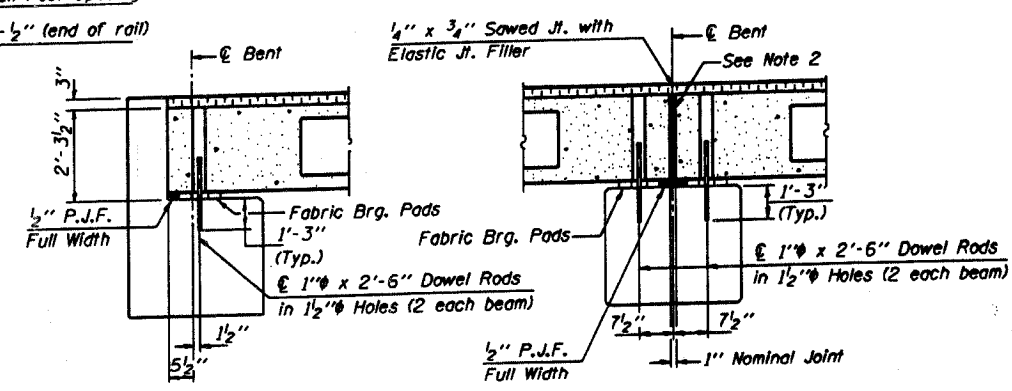
CROSS SECTION



PROFILE OF OVERLAY



PLAN



SECTION AT ABUTS.  
(Along centerline of Beams)

SECTION AT PIERS  
(Along centerline of Beams)

QUANTITIES FOR ONE SPAN

P.P. Conc. Dk. Bm. 27" Dp.	1200 Sq. Ft.
Steel Rolling	100 Ft.
Portland Cement Mortar	350 Ft.
Fairing Course	250 Ft.

Note: Quantity of overlay for one span = 18.2 Tons

P.P.C. DECK BEAM SUPERSTRUCTURE			
24' RDWY.	27" BMS.	50' SPAN	0° SKEW
STANDARD CS-2427-50			

NOTES

- After beams have been erected, holes shall be drilled into substructure and anchor dowels placed. Dowel holes shall be filled with non-shrink grout to top of beam and allowed to cure min. 24 hrs. prior to grouting the shear keys.
- Nominal 1" joint at centerline of Pier shall be filled with non-shrink grout.
- Longitudinal keys shall be grouted.
- The 1" diameter rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets that receive transverse tie bar outside shall be filled with grout after transverse tie assembly is in place.

Illinois Department of Transportation

PASSED APRIL 4, 2005

Theresa J. [Signature]

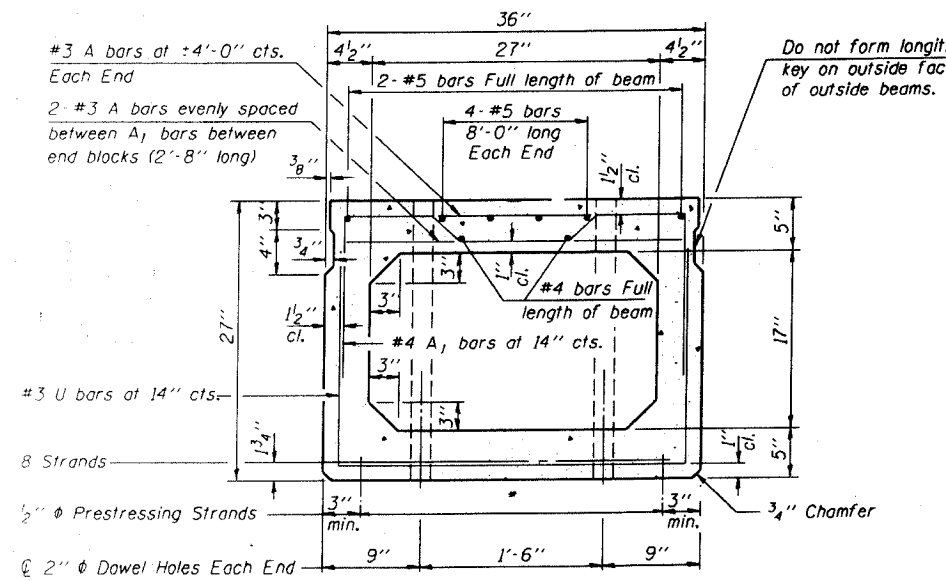
Engineer of [Title]

APPROVED APRIL 4, 2005

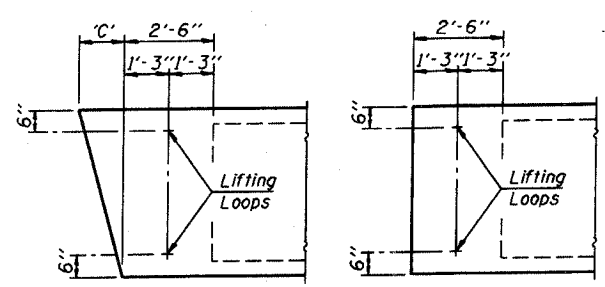
Ralph E. [Signature]

Engineer of Bridges and Structures

ROUTE	SECTION	COUNTY	TOWNSHIP	TOTAL SHEETS	SHEET NUMBER
T.R. 83	04-01178-00-BR	UNION	SEC. 33, T11S, R1W	14	10
JOB NO. C-99-545-04			PROJECT NO. BROS-181 (22)		
JOHN RICH SCHOOL ROAD			CONTRACT NO. 99271		

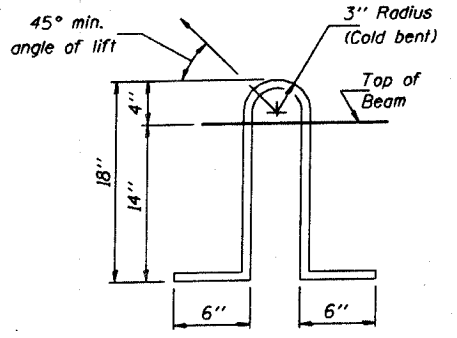


**CROSS SECTION**  
(40' SPAN)



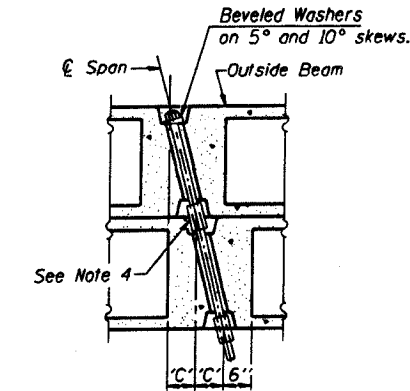
**END BLOCK DETAILS**

Each beam shall have four Lifting Loops, two at each end of beam cast in locations shown above. Loops shall be burned off after beams have been erected.

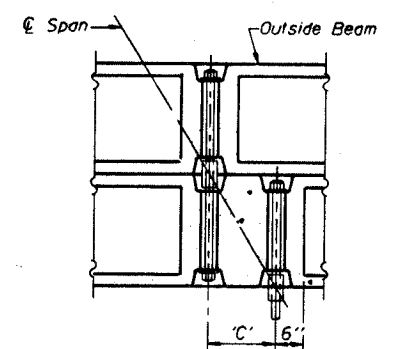


**LIFTING LOOP DETAIL**

Lifting loops shall be 2-1/2" #270 ksi strands, as shown. Alternate approved lifting devices are also acceptable.



**PARTIAL PLAN TRANSVERSE TIE ASSEMBLY**  
(D=0°, 5° and 10°)



**PARTIAL PLAN TRANSVERSE TIE ASSEMBLY**  
(D=15°, 20°, 25° and 30°)

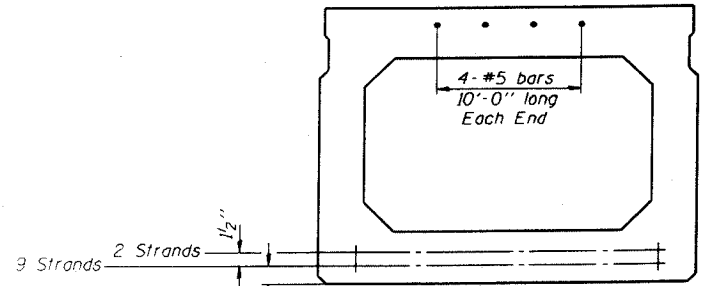
**DIMENSION 'C'**

Skew Angle 'D'	0°	5°	10°	15°	20°	25°	30°
Dimension 'C' (Inches)	0	3 3/8	6 3/8	9 5/8	13 3/8	16 3/4	20 3/4

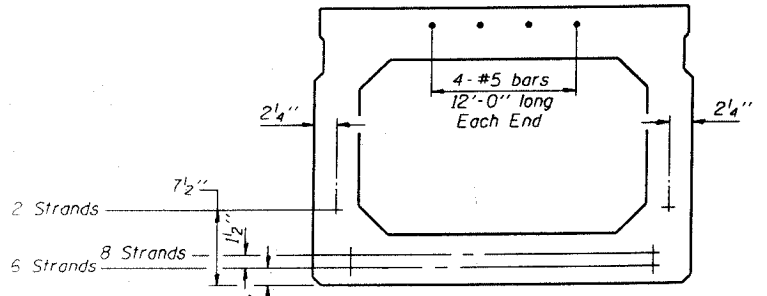
**\* TRANSVERSE STRAND PLACEMENT GUIDELINES**

1. Place strands symmetrically about centerline of beam.
2. The minimum distance from center to center of strands in all directions shall be 2".
3. The minimum clearance from strand to dowel hole shall be 1/2".
4. The minimum clearance from strand to void shall be 1/2".

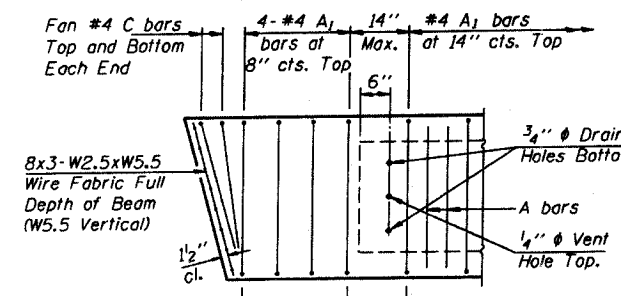
Vertical placement of strands shall not be adjusted to satisfy the above guidelines.



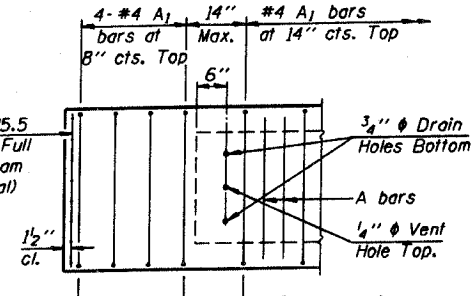
**CROSS SECTION**  
(50' SPAN)



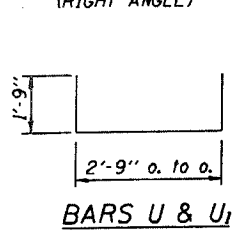
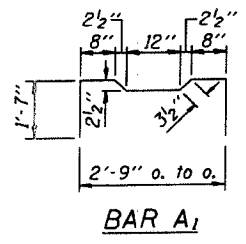
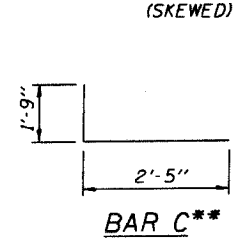
**CROSS SECTION**  
(60' SPAN)



**END REINFORCEMENT**  
(SKEWED)



**END REINFORCEMENT**  
(RIGHT ANGLE)

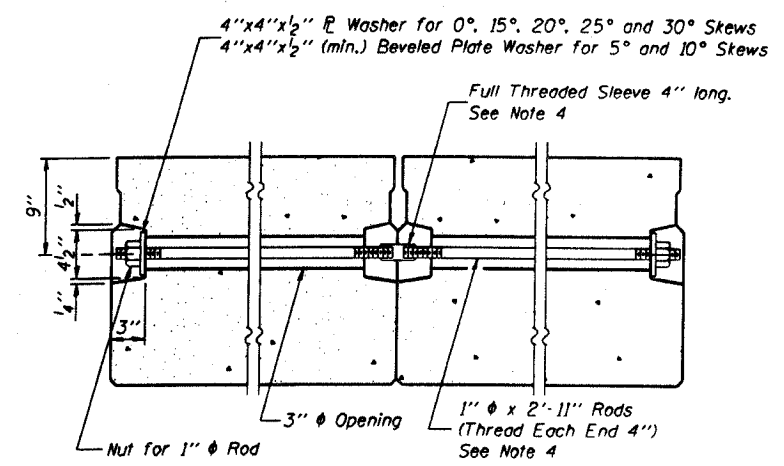


**DESIGN STRESSES**

$f'_c = 5,000$  p.s.i.  
 $f'_{ci} = 4,000$  p.s.i.  
 $f'_s = 270,000$  p.s.i. (1/2" # Strand)  
 $f_{sl} = 201,960$  p.s.i. (1/2" # Strand)  
 $f_y = 60,000$  p.s.i.

**MIN. BAR LAP**

#4 bars = 1'-4"  
 #5 bars = 1'-8"



**SECTION ALONG TRANSVERSE TIE ASSEMBLY**  
(REQUIRED FOR 50' & 60' SPANS ONLY)

**NOTES**

1. Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270.
2. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 square inches.
3. Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-322, Grade 60.
4. On 0°, 5° and 10° skews, alternate approved transverse tie rods of increased segmental length are acceptable.
5. Rail Post anchor devices shall be cast into outside beam as elsewhere specified.
6. When a Waterproofing Membrane System is specified, the top surface of the beams shall be screeded with a straightedge and finished with a hand float. The finished surface shall be free of depressions or high spots with sharp corners and the top edge of keys shall be rounded or chamfered a minimum of 1/4".
7. 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 the top of the beam and the bottom edge of the key.

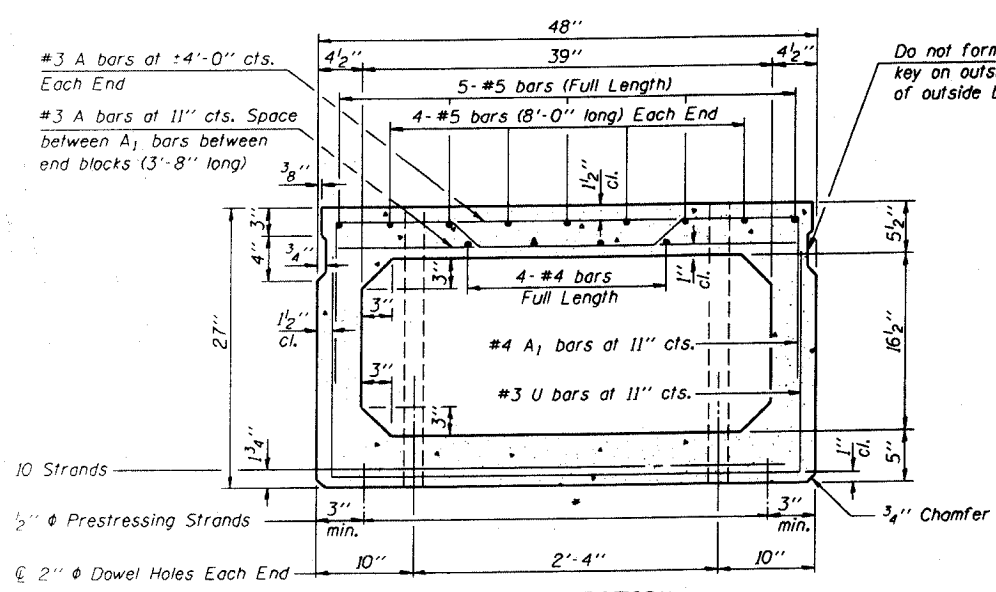
Illinois Department of Transportation  
 PASSED APRIL 4, 2005  
 Thomas J. Demas  
 Engineer of Bridge Design  
 APPROVED APRIL 4, 2005  
 Ralph E. Cook  
 Engineer of Bridges and Structures

**NOTE:**  
 The std. reinf. and dimensions shown on the 40' span cross section is typical for all spans, except as shown.

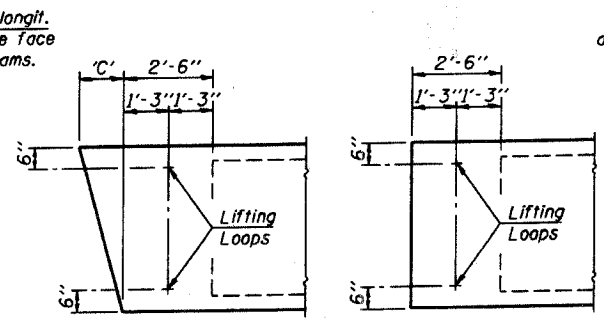
**\*\*NOTE:**  
 The following number of C bars shall be used:  
 Skew No.  
 5° and 10° — 1  
 15° and 20° — 2  
 25° and 30° — 3

<b>P.P.C. DECK BEAM DETAILS</b>	
24' ROADWAY	27" x 36" BEAMS
STANDARD CB-2427-36	

ROUTE	SECTION	COUNTY	TOWNSHIP	TOTAL SHEETS	SHEET NUMBER
T.R. 93	04-0178-00-BR	UNION	SEC. 33, T115, R1W	14	11
JOB NO. C-99-545-04			PROJECT NO. BROS-181 (22)		
JOHN RICH SCHOOL ROAD			CONTRACT NO. 89271		

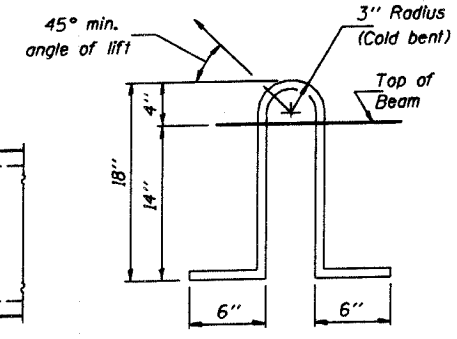


**CROSS SECTION**  
(40' SPAN)



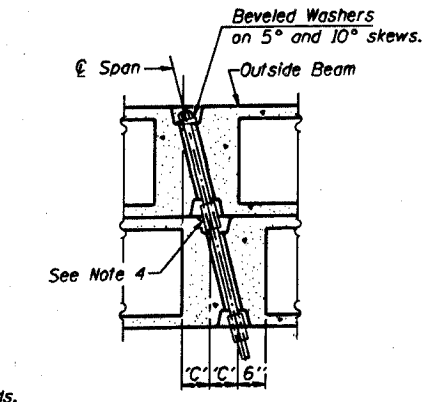
**END BLOCK DETAILS**

Each beam shall have four Lifting Loops, two at each end of beam cast in locations shown above. Loops shall be burned off after beams have been erected.

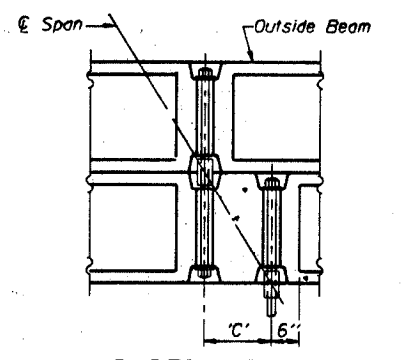


**LIFTING LOOP DETAIL**

Lifting loops shall be 3. 1/2 #270 ksi strands, as shown. Alternate approved lifting devices are also acceptable.



**PARTIAL PLAN TRANSVERSE TIE ASSEMBLY**  
(D=0°, 5° and 10°)



**PARTIAL PLAN TRANSVERSE TIE ASSEMBLY**  
(D=15°, 20°, 25° and 30°)

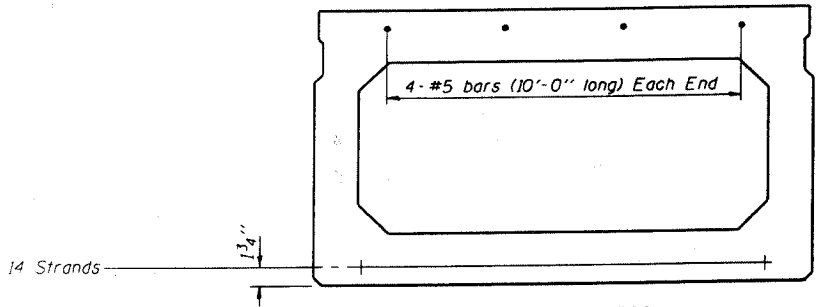
**DIMENSION 'C'**

Skew Angle 'D'	0°	5°	10°	15°	20°	25°	30°
Dimension 'C' (Inches)	0	4 1/4	8 1/2	12 7/8	17 1/2	22 3/8	27 3/4

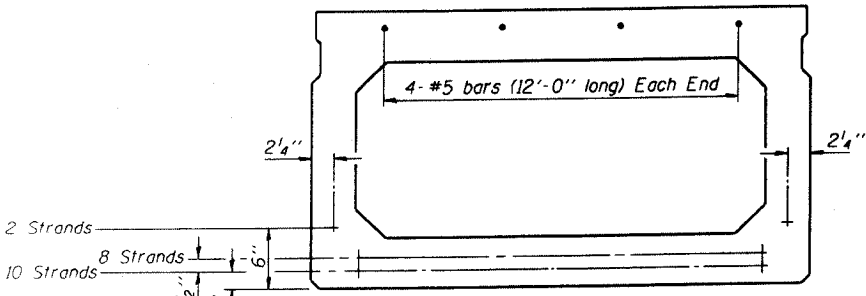
**\* TRANSVERSE STRAND PLACEMENT GUIDELINES**

1. Place strands symmetrically about centerline of beam.
2. The minimum distance from center to center of strands in all directions shall be 2".
3. The minimum clearance from strand to dowel hole shall be 1/2".
4. The minimum clearance from strand to void shall be 1/2".

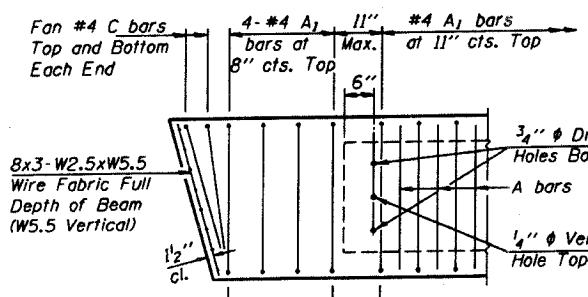
Vertical placement of strands shall not be adjusted to satisfy the above guidelines.



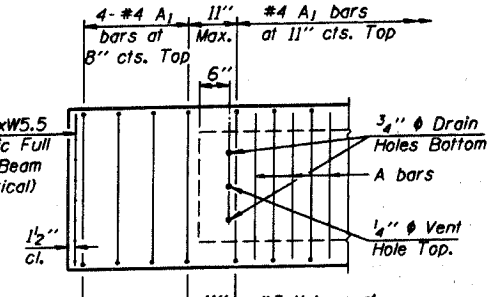
**CROSS SECTION**  
(50' SPAN)



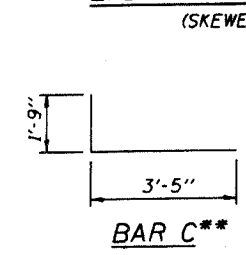
**CROSS SECTION**  
(60' SPAN)



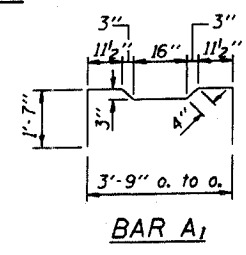
**END REINFORCEMENT**  
(SKEWED)



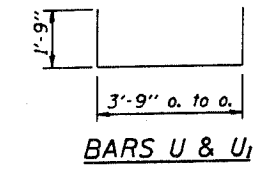
**END REINFORCEMENT**  
(RIGHT ANGLE)



**BAR C\*\***



**BAR A1**



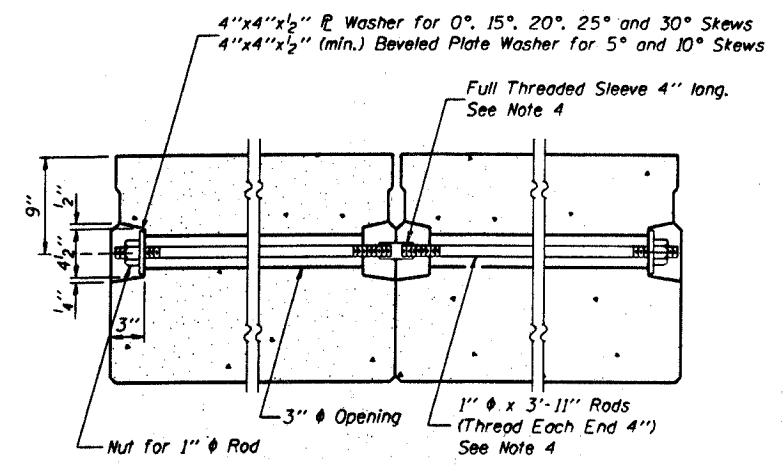
**BARS U & U1**

**DESIGN STRESSES**

- $f_c = 5,000$  p.s.i.
- $f_{ci} = 4,000$  p.s.i.
- $f_s = 270,000$  p.s.i. (1/2" # Strand)
- $f_{si} = 201,960$  p.s.i. (1/2" # Strand)
- $f_y = 60,000$  p.s.i.

**MIN. BAR LAP**

- #4 bars = 1'-4"
- #5 bars = 1'-8"



**SECTION ALONG TRANSVERSE TIE ASSEMBLY**  
(REQUIRED FOR 50' & 60' SPANS ONLY)

**NOTES**

1. Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270.
2. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 square inches.
3. Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-322, Grade 60.
4. On 0°, 5° and 10° skew angles, alternate approved transverse tie rods of increased segmental length are acceptable.
5. Rail Post anchor devices shall be cast into outside beam as elsewhere specified.
6. When a Waterproofing Membrane System is specified, the top surface of the beams shall be screeded with a straightedge and finished with a hand float. The finished surface shall be free of depressions or high spots with sharp corners and the top edge of keys shall be rounded or chamfered a minimum of 1/4".
7. 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 the top of the beam and the bottom edge of the key.

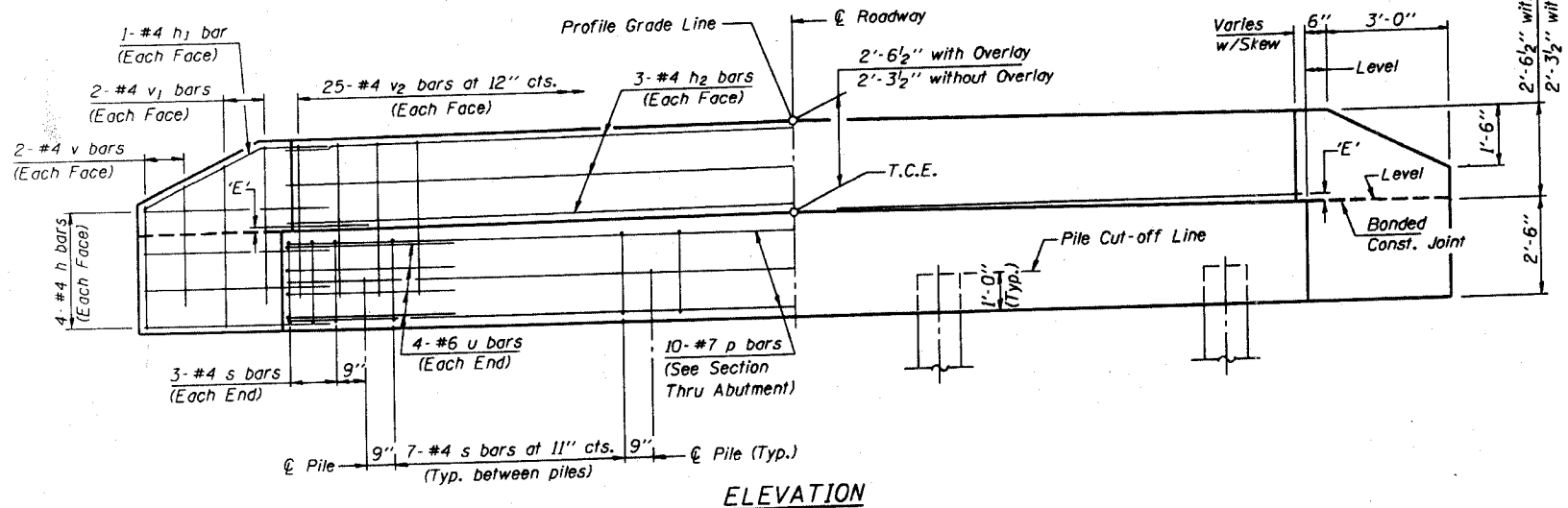
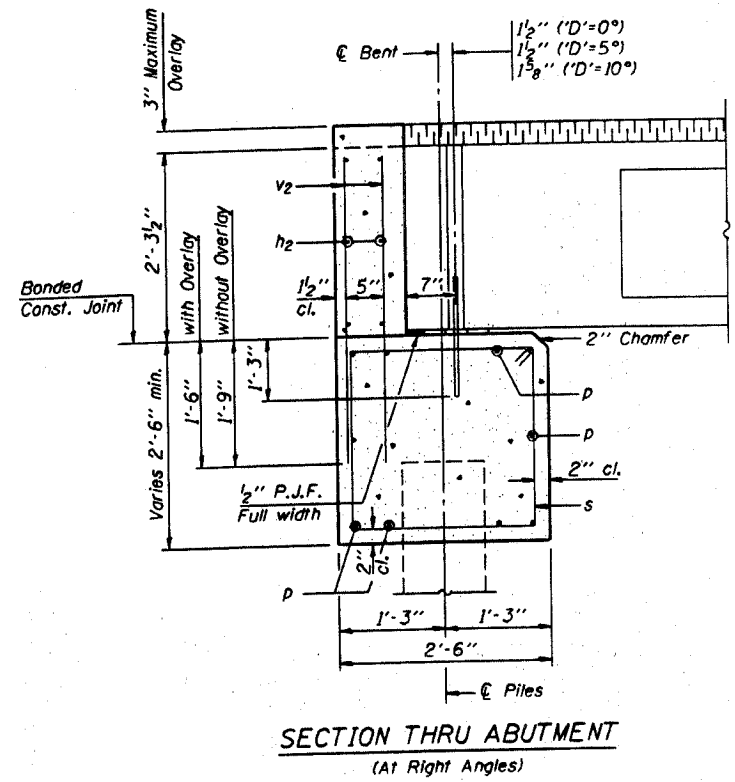
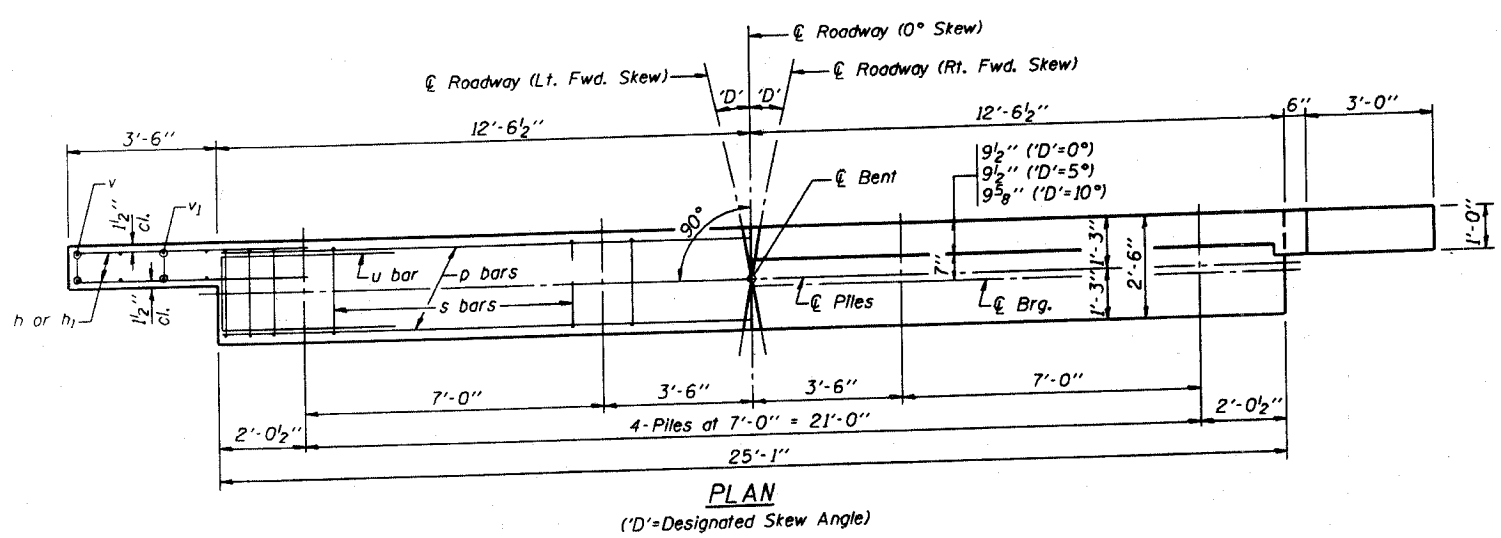
**NOTE**  
The std. reinf. and dimensions shown on the 40' span cross section is typical for all spans, except as shown.

**\*\*NOTE:**  
The following number of C bars shall be used:  
Skew No.  
5° and 10° — 1  
15° and 20° — 2  
25° and 30° — 3

Illinois Department of Transportation  
PASSED APRIL 4, 2005  
Thomson Namagala  
Engineer of Bridge Design  
APPROVED APRIL 4, 2005  
Ralph E. Anderson  
Engineer of Bridges and Structures

**P.P.C. DECK BEAM DETAILS**  
24' ROADWAY | 27" x 48" BEAMS  
STANDARD CB-2427-48

ROUTE	SECTION	COUNTY	TOWNSHIP	TOTAL SHEETS	SHEET NUMBER
T.R. 93	D4-0178-00-BR	UNION	SEC 33, T1S, R1W	14	12
JOB NO. C-99-545-04			PROJECT NO. BROS-181 (22)		
JOHN RICH SCHOOL ROAD			CONTRACT NO. 99271		



**DIMENSION 'E'**

GRADE	D'=0°		D'=5°		D'=10°	
	UPGRADE END	DOWNGRADE END	UPGRADE END	DOWNGRADE END	UPGRADE END	DOWNGRADE END
0%	2 3/8"	2 3/8"	2 3/8"	2 3/8"	2 3/8"	2 3/8"
Over 0% to 1%	2 3/8"	2 3/8"	2 1/4"	2 3/8"	2 3/8"	2 1/2"
Over 1% to 2%	2 3/8"	2 3/8"	2 1/8"	2 1/2"	1 7/8"	2 3/4"
Over 2% to 3%	2 3/8"	2 3/8"	2"	2 5/8"	1 5/8"	3"
Over 3% to 4%	2 3/8"	2 3/8"	1 7/8"	2 3/4"	1 3/8"	3 1/4"

**NOTES**

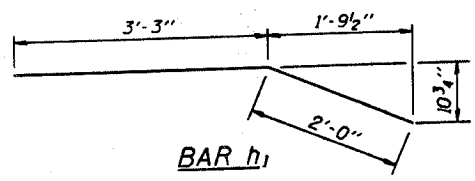
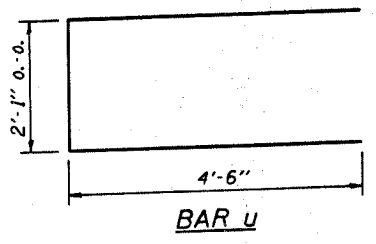
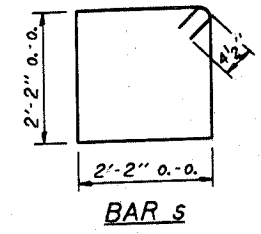
- The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.
- Reinforcement bars shall conform to the requirements of A.A.S.H.T.O. M-31 or M-322, Grade 60.
- Space reinforcement in cap to miss anchor bolts.

**MAXIMUM PILE LOADS**

SPAN	TONS
40'	34
50'	38
60'	43

**DESIGN STRESSES**

f'c = 3,500 psi  
fy = 60,000 psi



**BILL OF MATERIAL FOR ONE ABUTMENT**

Bar	No.	Size	Length	Shape
h	16	#4	5'-0"	—
h1	4	#4	5'-3"	—
h2	6	#4	24'-9"	—
p	10	#7	24'-9"	—
s	27	#4	9'-5"	□
u	8	#6	11'-1"	—
v	8	#4	3'-2"	—
v1	8	#4	4'-2"	—
v2	50	#4	3'-11"	—
Concrete Structures			9.1 Cu. Yds.	
Reinforcement Bars			1150 Lb.	

**P.P.C. DECK BEAMS  
PILE BENT ABUTMENT**

24' RDWY. 27" BMS. D'=0°, 5° OR 10°

STANDARD CA-2427-10

Illinois Department of Transportation  
 PASSED APRIL 4, 2005  
 THOMAS J. DOMAGALA  
 Engineer of Bridge Design  
 APPROVED APRIL 4, 2005  
 RALPH E. CARLSON  
 Engineer of Bridges and Structures  
 ISSUED 1-1-1981

ROUTE	SECTION	COUNTY	TOWNSHIP	TOTAL SHEETS	SHEET NUMBER
T.R. 93	04-0178-00-BR	UNION	SEC. 33, T11S, R11W	14	13
JOB NO. C-99-545-04				PROJECT NO. BROS-181 (22)	
JOHN RICH SCHOOL ROAD				CONTRACT NO. 99271	

**NOTES**

Hollow structural steel tubing shall conform to the requirements of ASTM designation A500 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 AASHTO M 270 Grade 36 except posts and angles shall conform to AASHTO M 270 Grade 50.

Bolts, cap screws, and nuts shall conform to the requirement of ASTM designation A307 except for high strength bolts, nuts and washers noted which shall conform to AASHTO M 164.

All bolts, nuts, cap screws, washers and lock washers shall be galvanized according to AASHTO M 232.

All posts, railing, rail splices, anchor devices and angles shall be galvanized after shop fabrication according to AASHTO M-111 and ASTM A 385. Galvanized rail shall not be painted.

Railing shall be according to 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 S-1.

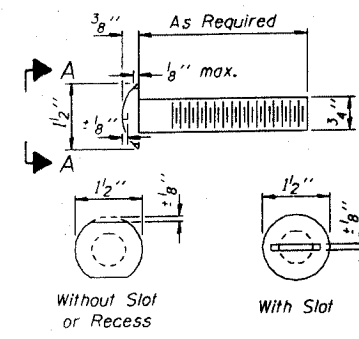
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with STEEL RAILING, TYPE S-1.

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

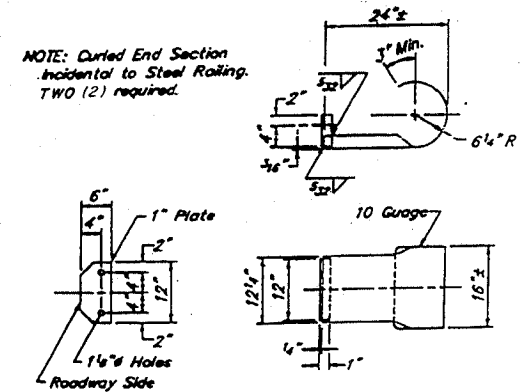
The 1/2" x 7" x 6" plates that come in contact with concrete shall either receive two coats of asphalt paint conforming to Section 1060.07 Type II, or 1/2" fabric bearing pads shall be placed between the plates and concrete.

The 3/4" high strength bolts used to connect the 6 x 4 x 3/4 angles to the post shall be tightened according to Article 505.04 (1X2) 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.

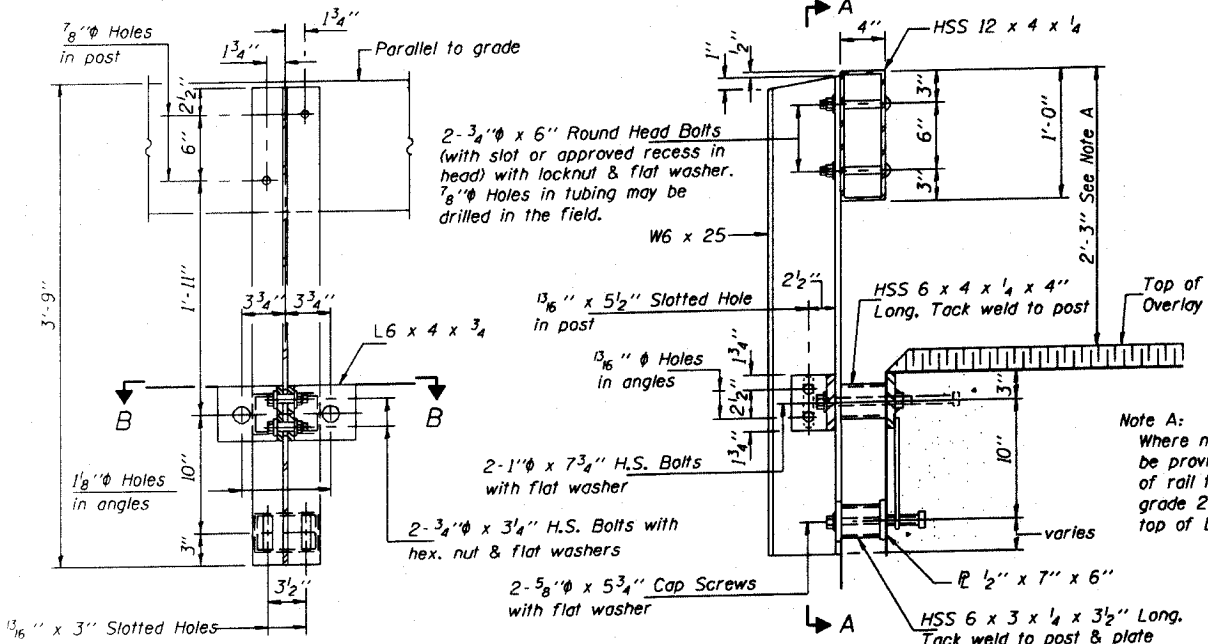
The maximum allowable rail post spacing shall be 10'-6". The rail post spacing shown elsewhere in the plans is based on the allowable spacing for another type of rail. When this type of rail is used, the number of posts may be decreased and the post spacing increased to provide equal post spaces of 10'-6" or less.



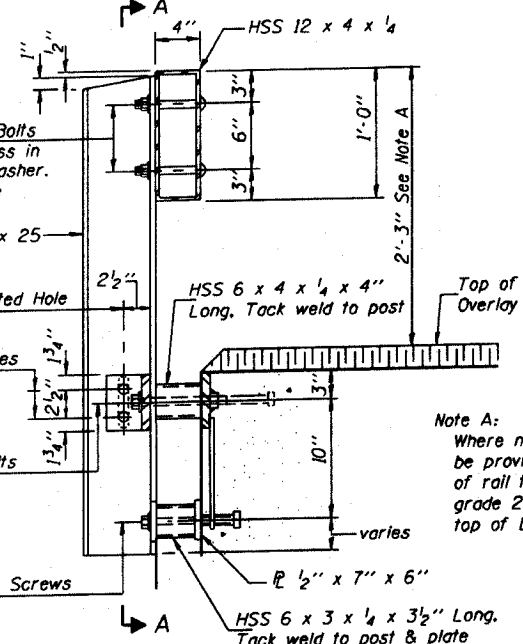
VIEW A-A  
ROUND HEAD BOLT



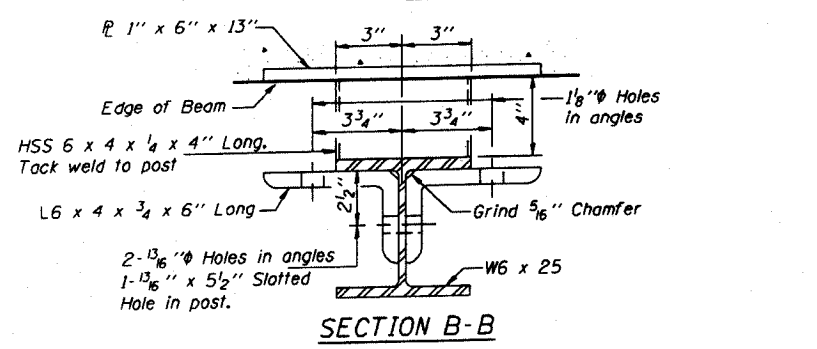
CURLIED END SECTION DETAILS



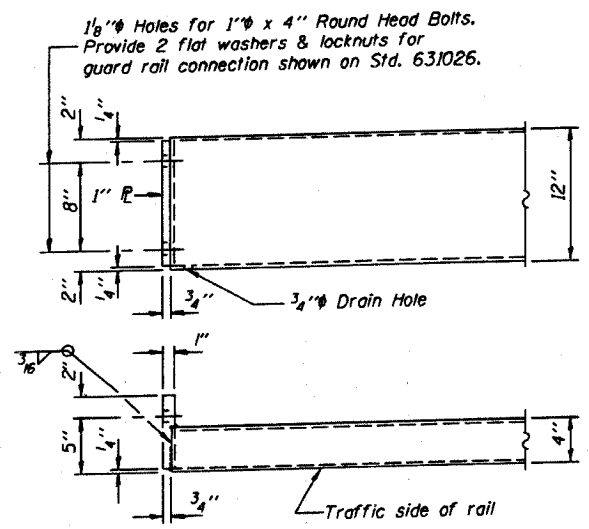
SECTION A-A



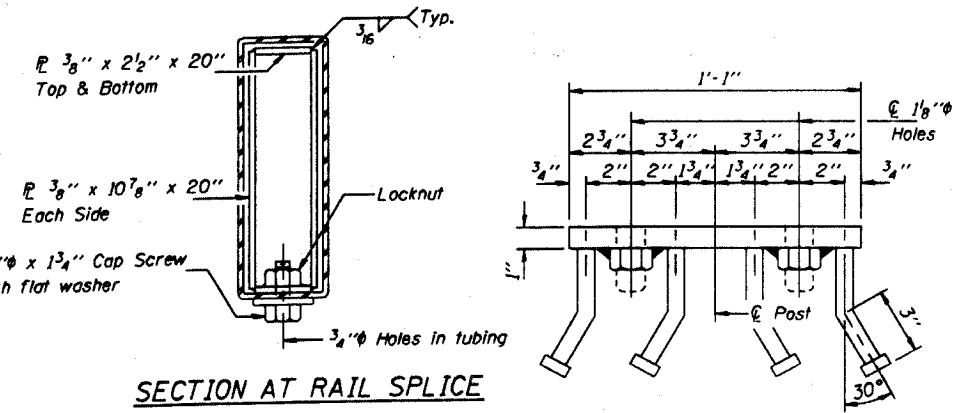
SECTION AT RAIL POST



SECTION B-B

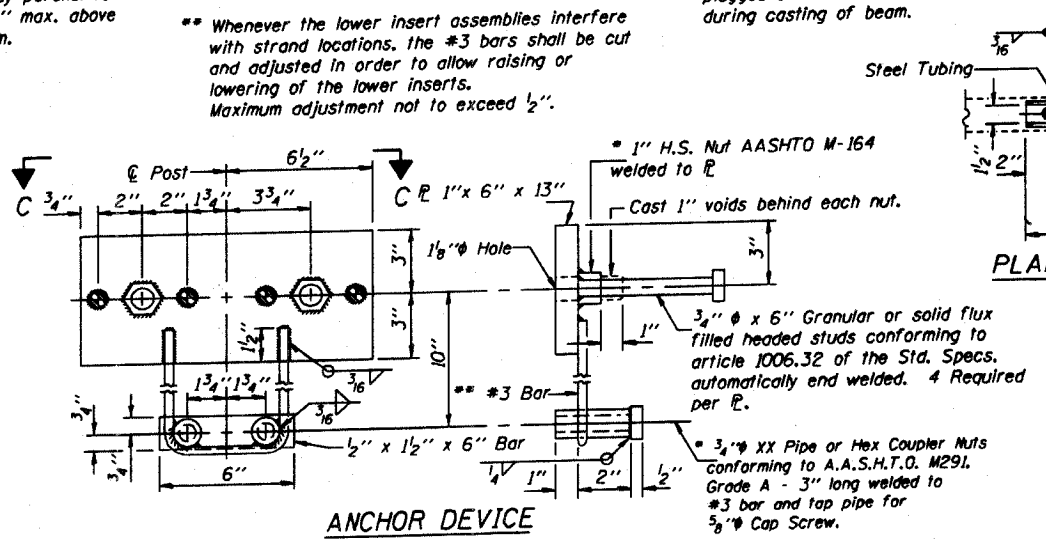


END OF RAIL DETAILS

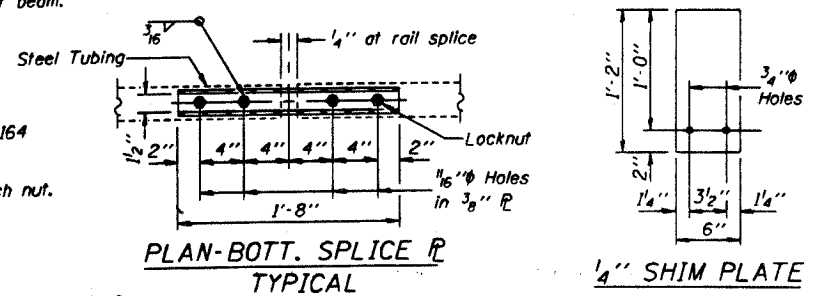


SECTION AT RAIL SPLICE

VIEW C-C



ANCHOR DEVICE



PLAN-BOTT. SPLICE TYPICAL

1/4\"/>

Illinois Department of Transportation

PASSED APRIL 4, 2005

Theresa S. Romagosa  
Engineer of Bridge Design

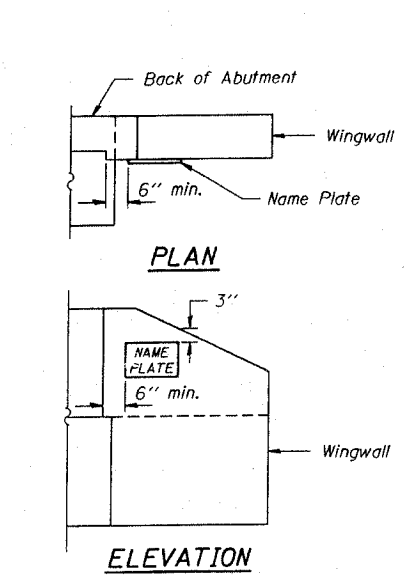
APPROVED APRIL 4, 2005

Ralph E. Anderson  
Engineer of Bridges and Structures

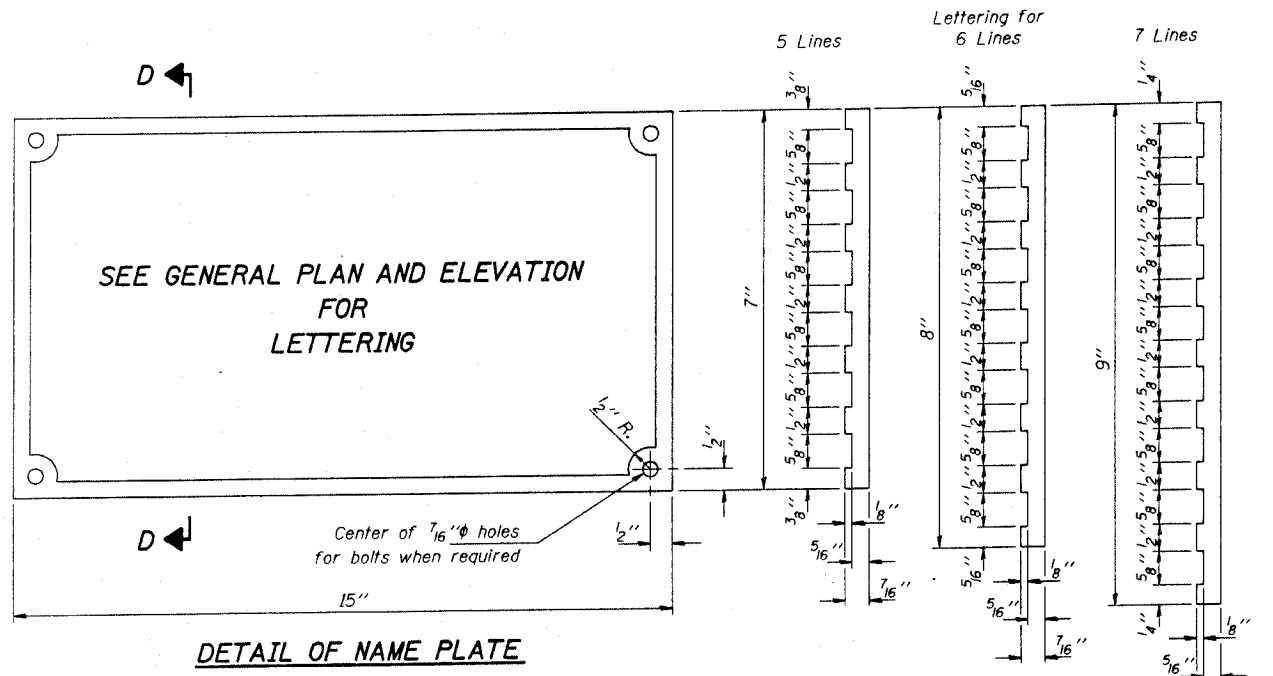
1887-1-1 03/05/51

STEEL RAILING, TYPE S-1  
STANDARD CR-TS1

ROUTE	SECTION	COUNTY	TOWNSHIP	TOTAL SHEETS	SHEET NUMBER
T.R. 93	04-0178-00-BR	UNION	SEC 33, T15S, R1W	14	14
JOB NO. C-98-545-04				PROJECT NO. BR05-181 (22)	
JOHN RICH SCHOOL ROAD				CONTRACT NO. 98271	



LOCATION OF NAME PLATE



DETAIL OF NAME PLATE

Material: Best quality brass or bronze.  
 Border & Lettering: Raised 1/8 inch. Square cut and not tapered. Top surface polished.  
 Fastenings: Four lugs at least three inches long, cast on back of plate.

PIPE SIZE	TYPE	DESCRIPTION	QUANTITY	REMARKS
12"	1	Standard	1	
12"	2	Standard	1	
12"	3	Standard	1	
12"	4	Standard	1	
12"	5	Standard	1	
12"	6	Standard	1	
12"	7	Standard	1	
12"	8	Standard	1	
12"	9	Standard	1	
12"	10	Standard	1	
12"	11	Standard	1	
12"	12	Standard	1	
12"	13	Standard	1	
12"	14	Standard	1	
12"	15	Standard	1	
12"	16	Standard	1	
12"	17	Standard	1	
12"	18	Standard	1	
12"	19	Standard	1	
12"	20	Standard	1	
12"	21	Standard	1	
12"	22	Standard	1	
12"	23	Standard	1	
12"	24	Standard	1	
12"	25	Standard	1	
12"	26	Standard	1	
12"	27	Standard	1	
12"	28	Standard	1	
12"	29	Standard	1	
12"	30	Standard	1	
12"	31	Standard	1	
12"	32	Standard	1	
12"	33	Standard	1	
12"	34	Standard	1	
12"	35	Standard	1	
12"	36	Standard	1	
12"	37	Standard	1	
12"	38	Standard	1	
12"	39	Standard	1	
12"	40	Standard	1	
12"	41	Standard	1	
12"	42	Standard	1	
12"	43	Standard	1	
12"	44	Standard	1	
12"	45	Standard	1	
12"	46	Standard	1	
12"	47	Standard	1	
12"	48	Standard	1	
12"	49	Standard	1	
12"	50	Standard	1	

SECTIONS D-D

ILLINOIS DEPARTMENT OF TRANSPORTATION  
 District Nine Materials  
 Job 93 (John Rich School Road) Open Cut  
 Section 33-34  
 Station 0+00 to 0+100  
 Checked By: Bob Grant

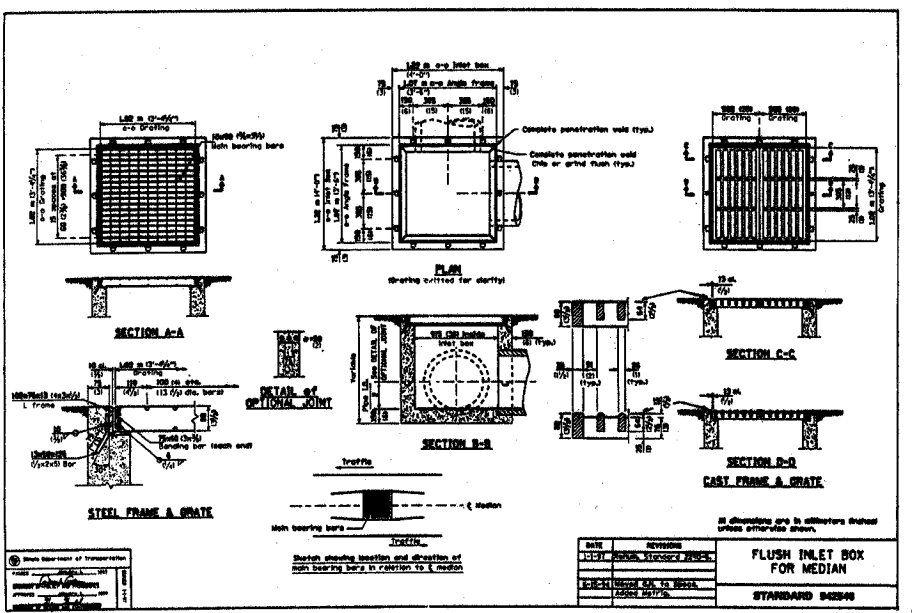
NO.	DESCRIPTION	DEPTH (ft)	TEST NO.	TEST RESULTS
1	Surface	0 to 1.00	492.75	20.0
2	Subgrade	1.00 to 2.00	492.75	20.0
3	1st Base	2.00 to 3.00	492.75	20.0
4	2nd Base	3.00 to 4.00	492.75	20.0
5	Subgrade	4.00 to 5.00	492.75	20.0
6	Subgrade	5.00 to 6.00	492.75	20.0
7	Subgrade	6.00 to 7.00	492.75	20.0
8	Subgrade	7.00 to 8.00	492.75	20.0
9	Subgrade	8.00 to 9.00	492.75	20.0
10	Subgrade	9.00 to 10.00	492.75	20.0
11	Subgrade	10.00 to 11.00	492.75	20.0
12	Subgrade	11.00 to 12.00	492.75	20.0
13	Subgrade	12.00 to 13.00	492.75	20.0
14	Subgrade	13.00 to 14.00	492.75	20.0
15	Subgrade	14.00 to 15.00	492.75	20.0
16	Subgrade	15.00 to 16.00	492.75	20.0
17	Subgrade	16.00 to 17.00	492.75	20.0
18	Subgrade	17.00 to 18.00	492.75	20.0
19	Subgrade	18.00 to 19.00	492.75	20.0
20	Subgrade	19.00 to 20.00	492.75	20.0

Back Elev. = 492.75

ILLINOIS DEPARTMENT OF TRANSPORTATION  
 District Nine Materials  
 Job 93 (John Rich School Road) Open Cut  
 Section 33-34  
 Station 0+100 to 0+200  
 Checked By: Bob Grant

NO.	DESCRIPTION	DEPTH (ft)	TEST NO.	TEST RESULTS
1	Surface	0 to 1.00	492.85	20.0
2	Subgrade	1.00 to 2.00	492.85	20.0
3	1st Base	2.00 to 3.00	492.85	20.0
4	2nd Base	3.00 to 4.00	492.85	20.0
5	Subgrade	4.00 to 5.00	492.85	20.0
6	Subgrade	5.00 to 6.00	492.85	20.0
7	Subgrade	6.00 to 7.00	492.85	20.0
8	Subgrade	7.00 to 8.00	492.85	20.0
9	Subgrade	8.00 to 9.00	492.85	20.0
10	Subgrade	9.00 to 10.00	492.85	20.0
11	Subgrade	10.00 to 11.00	492.85	20.0
12	Subgrade	11.00 to 12.00	492.85	20.0
13	Subgrade	12.00 to 13.00	492.85	20.0
14	Subgrade	13.00 to 14.00	492.85	20.0
15	Subgrade	14.00 to 15.00	492.85	20.0
16	Subgrade	15.00 to 16.00	492.85	20.0
17	Subgrade	16.00 to 17.00	492.85	20.0
18	Subgrade	17.00 to 18.00	492.85	20.0
19	Subgrade	18.00 to 19.00	492.85	20.0
20	Subgrade	19.00 to 20.00	492.85	20.0

Back Elev. = 492.85



ILLINOIS DEPARTMENT OF TRANSPORTATION  
 PASSED APRIL 4, 2005  
 THOMAS J. DEMAGNANO  
 Engineer of Bridge Design  
 APPROVED APRIL 4, 2005  
 ROBERT E. JOHNSON  
 Engineer of Bridges and Structures

NAME PLATE-BORING LOGS AND DETAILS  
 STANDARD CN