4-29-05 Letting, Item 074

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 5	03-00121-00-BR	MARION	11	1
FED. ROAD DIST. NO. 7	ILLINOIS	FEDERAL AID PROJECT		
		CONTRACT NO. 95401		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED FEDERAL – AID BRIDGE REPLACEMENT AND REHABILITATION PROGRAM

CH 5 (MARSHALL CREEK ROAD)
SECTION 03–00121–00–BR
PROJECT NO. BROS–121(38)
MARION COUNTY
OVER EAST FORK KASKASKIA RIVER
C–97–038–04

INDEX OF SHEETS

1. COVER SHEET
2. SUMMARY OF QUANTITIES AND TYPICAL SECTIONS
3. PLAN AND PROFILE OF ROADWAY
4.-5. CROSS SECTIONS OF ROADWAY
6. GENERAL PLAN AND ELEVATION
7.-8. PRECAST PRESTRESSED CONCRETE DECK BEAM DETAILS
9. STEEL RAILING, TYPE S1 DETAILS
10. ABUTMENT DETAILS
11. PIER DETAILS

STANDARDS ARE INCLUDED IN PLANS AFTER SHEET NO. 11

000001-04	STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
280001-02	TEMPORARY EROSION CONTROL SYSTEMS
515001-02	NAME PLATE FOR BRIDGES
~~630001-05~~	~~STEEL PLATE BEAM GUARD RAIL~~
~~630301-03~~	~~SHOULDER WIDENING FOR TYPE 1 GUARDRAIL TERMINALS~~
~~631026-02~~	~~TRAFFIC BARRIER TERMINAL, TYPE 5 &5A~~
635006-02	REFLECTOR AND TERMINAL MARKER PLACEMENT
702001-05	TRAFFIC CONTROL DEVICES
BLR 21-6	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

SOIL BORINGS (SEE SPECIFICATIONS)

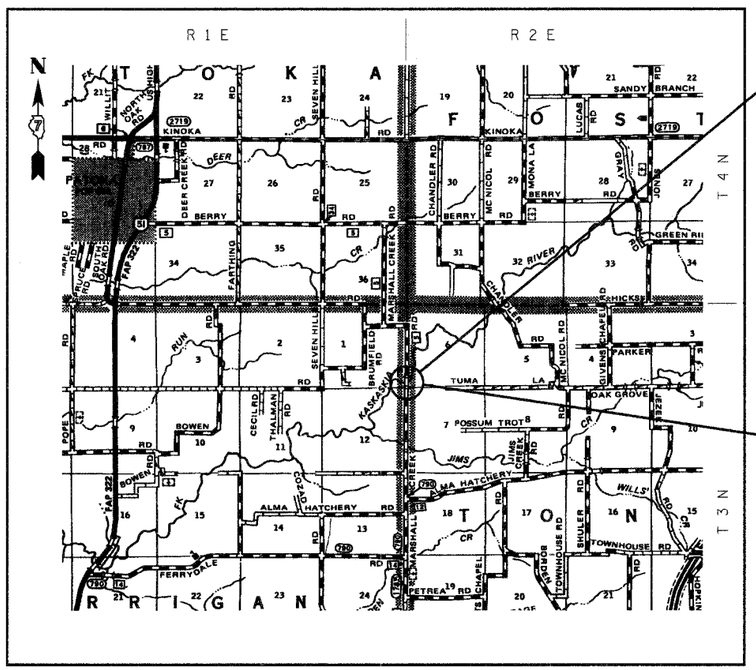
DESIGN CLASSIFICATION: LOCAL ROAD (RURAL)
ADT$_{2004}$: 150
ADT$_{2024}$: 200
DESIGN SPEED - 30 MPH

100' 200' 300' 1"= 100'
0 10' 20' 30' 1"= 10'
0 50' 100' 1"= 50'
0 50' 100' 1"= 40'
0 50' 100' 1"= 30'
0 50' 100' 1"= 20'

FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES, REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES, IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.
JOINT UTILITY LOCATING INFORMATION FOR EXCAVATORS
1–800–892–0123 Website: http://julie1call.com/

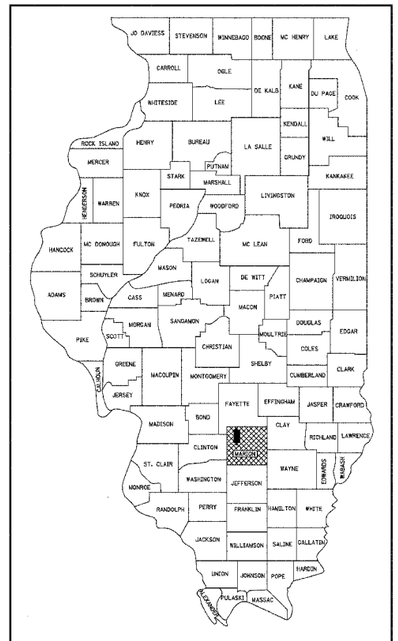
CONTRACT NUMBER: 95401



SECTION 03-00121-00-BR

INCLUDES THE CONSTRUCTION OF A THREE (3) SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE CARRYING CH 5 OVER EAST FORK KASKASKIA RIVER, 111'-8" BK TO BK ABUTMENTS. NO SKEW.
EXISTING STRUCTURE NO. 061-3028
PROPOSED STRUCTURE NO. 061-3296

LOCATION: NEAR THE SE CORNER, SECTION 1, T3N, R1E, 3RD P.M.
NET LENGTH OF PROJECT: 634.71 FT = 0.120 MI



LOCATION OF SECTION INDICATED THUS: –

APPROVED 02-04, 2005
COUNTY ENGINEER

THE ACCEPTANCE OF THIS PROJECT IS BASED ON THE MINIMUM DESIGN CRITERIA FOR A FEDERAL-AID BRIDGE REPLACEMENT AND REHABILITATION PROGRAM.

PASSED 2-18, 2005
DISTRICT ENGINEER OF LOCAL ROADS AND STREETS

APPROVED 2-24, 2005
DEPUTY DIRECTOR OF HIGHWAYS
REGION FOUR ENGINEER

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GARY L. HAHN
62-42606
LICENSED PROFESSIONAL ENGINEER
STATE OF ILLINOIS

Gary L. Hahn 02.04.05
GARY L. HAHN
CENTRALIA, ILLINOIS
ILLINOIS LICENSED PROFESSIONAL ENGINEER NO. 62-42606
EXPIRES NOV. 30, 2005

GARY L. HAHN
81-4853
LICENSED STRUCTURAL ENGINEER
STATE OF ILLINOIS

Gary L. Hahn 02.04.05
GARY L. HAHN
CENTRALIA, ILLINOIS
ILLINOIS LICENSED STRUCTURAL ENGINEER NO. 81-4853
EXPIRES NOV. 30, 2006

RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

02/04/2005
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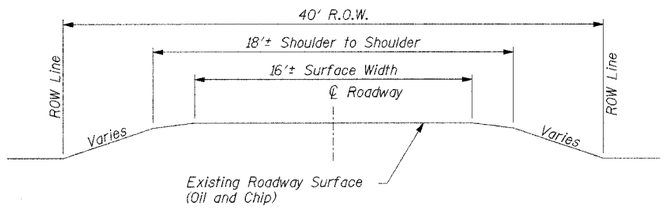
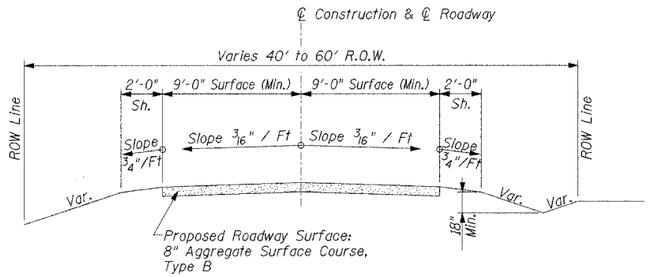
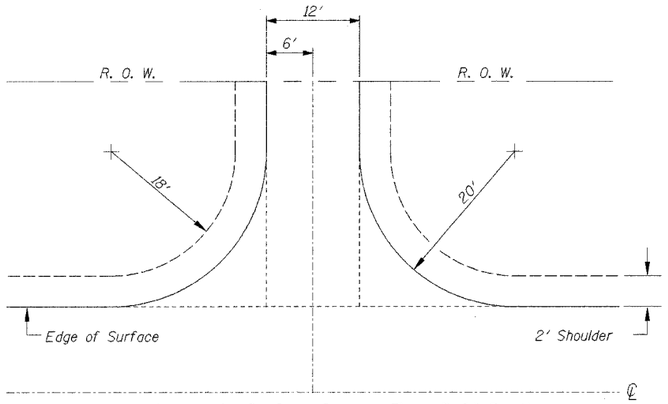
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 5	03-00121-00-BR	MARION	11	2
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		
		CONTRACT NO. 95401		



TYPICAL SECTION
EXISTING APPROACH ROADWAY



TYPICAL SECTION
PROPOSED APPROACH ROADWAY



Aggregate Surface Course, Type B 6" Depth
Rt., Sta. 15+00 - 18 Tons (Included in Summary of Quantities)

TYPICAL FIELD ENTRANCE

SUMMARY OF QUANTITIES

	Code No.	Item	Unit	Quantity	Bridge Sta. Sta. 16+44.17 to Sta. 17+55.83 Construct. Type Code X080-2A	Road Sta. 12+00.00 - 16+44.17 17+55.83 - 21+00.00 Construct. Type Code E000
	20100500	TREE REMOVAL, ACRES	ACRE	0.3	-	0.3
	20200100	EARTH EXCAVATION	CU YD	253	-	253
	20300100	CHANNEL EXCAVATION	CU YD	760	760	-
	20400800	FURNISHED EXCAVATION	CU YD	1103	-	1103
*	20700110	POROUS GRANULAR EMBANKMENT	TON	26	26	-
*	25001000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.6	-	0.6
	28000300	TEMPORARY DITCH CHECKS	EACH	5	-	5
*	28100807	STONE DUMPED RIPRAP, CLASS A4	TON	220	220	-
*	40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	754	-	754
*	50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1	1	-
	50300225	CONCRETE STRUCTURES	CU YD	33.0	33.0	-
	50400305	PRECAST PRESTRESSED CONCRETE DECK BEAMS (17" DEPTH)	SQ FT	1200	1200	-
	50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ FT	1440	1440	-
	50800105	REINFORCEMENT BARS	POUND	4280	4280	-
	50900205	STEEL RAILING, TYPE S1	FOOT	224	224	-
**	51201600	FURNISHING STEEL PILES HP12X53	FOOT	525	525	-
**	51202700	DRIVING STEEL PILES	FOOT	525	525	-
**	51203600	TEST PILE STEEL HP 12X53	EACH	1	1	-
	51204315	CONCRETE ENCASEMENT	CU YD	14.0	14.0	-
	51500100	NAME PLATES	EACH	1	1	-
	542A0223	PIPE CULVERTS, CLASS A, TYPE 1 18"	FOOT	26	-	26
	54213663	PRECAST REINFORCED CONCRETE FLARED END SECTIONS 18"	EACH	2	-	2
	78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4	-	4

* See Special Provisions

** The Contractor shall drive one (1) Steel HP12x53 Test Pile in a permanent location at the South Abutment as directed by the Engineer before ordering the remainder of the piles.

GENERAL NOTES

Centerline profiles refer to the finished surface.

Construction limits refer to the top of the backslope or the toe of the fillslope.

Any reference to a Standard in these plans shall be interpreted to mean the edition as indicated by the sub-number listed in the Index of Sheets or the copy of the Standard included in these plans.

Existing utilities shown are located from surface observations or information provided by the respective utilities and must be considered approximate. There may be others, the exact location of which are unknown and not shown. The Contractor will be responsible for notifying the respective utilities before work is begun. Field marking of underground utilities may be obtained by providing a minimum of 48 hours advance notice through the J.U.L.I.E. system by calling 1-800-892-0123, or by direct contact with non-members of J.U.L.I.E.

The nominal thickness for surface course is shown on the Typical Sections, Standards, Schedules, or Special Details. The constructed thickness of the above item shall not be less than 90 percent of the nominal thickness at any location.

Factors used for quantity calculations are as follows:

Porous Granular Embankment	2.1 tons/cu. yd.
Stone Dumped Riprap	130 pounds/cu. ft.
Aggregate Surface Course	2.1 tons/cu. yd.

03/10/2004

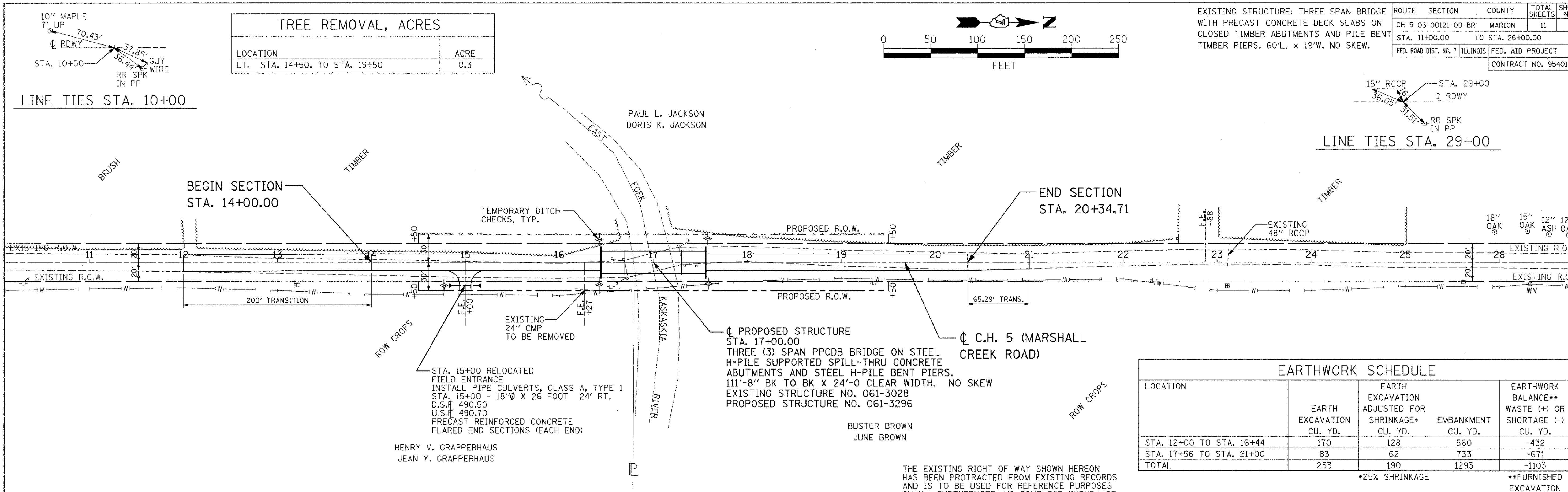
RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS

SUMMARY OF QUANTITIES
AND TYPICAL SECTIONS
PROPOSED BRIDGE CARRYING CH 5
OVER EAST FORK KASKASKIA RIVER
SECTION 03-00121-00-BR
MARION COUNTY, ILLINOIS

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 5	03-00121-00-BR	MARION	11	3
STA. 11+00.00 TO STA. 26+00.00				
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		
		CONTRACT NO. 95401		

EXISTING STRUCTURE: THREE SPAN BRIDGE WITH PRECAST CONCRETE DECK SLABS ON CLOSED TIMBER ABUTMENTS AND PILE BENT TIMBER PIERS. 60'L. x 19'W. NO SKEW.

TREE REMOVAL, ACRES	
LOCATION	ACRE
LT. STA. 14+50. TO STA. 19+50	0.3



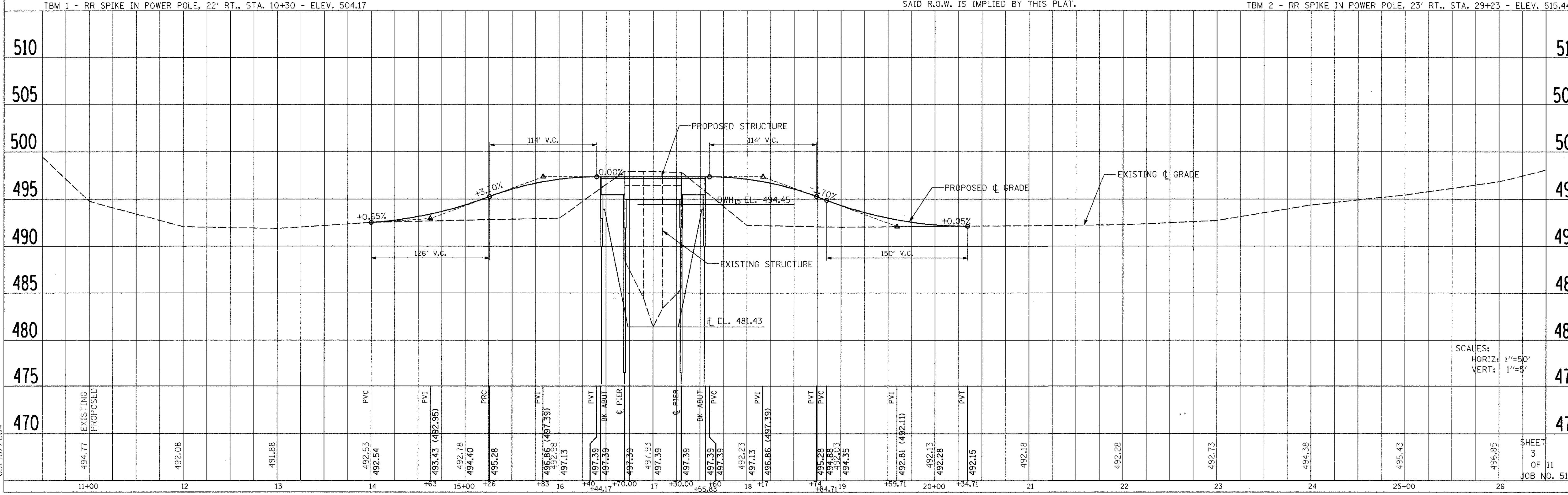
EARTHWORK SCHEDULE				
LOCATION	EARTH EXCAVATION CU. YD.	EARTH EXCAVATION ADJUSTED FOR SHRINKAGE* CU. YD.	EMBANKMENT CU. YD.	EARTHWORK BALANCE** WASTE (+) OR SHORTAGE (-) CU. YD.
STA. 12+00 TO STA. 16+44	170	128	560	-432
STA. 17+56 TO STA. 21+00	83	62	733	-671
TOTAL	253	190	1293	-1103

*25% SHRINKAGE **FURNISHED EXCAVATION

THE EXISTING RIGHT OF WAY SHOWN HEREON HAS BEEN PROTRACTED FROM EXISTING RECORDS AND IS TO BE USED FOR REFERENCE PURPOSES ONLY. FURTHERMORE, NO COMPLETE SURVEY OF SAID R.O.W. IS IMPLIED BY THIS PLAT.

TBM 1 - RR SPIKE IN POWER POLE, 22' RT., STA. 10+30 - ELEV. 504.17

TBM 2 - RR SPIKE IN POWER POLE, 23' RT., STA. 29+23 - ELEV. 515.44



SHEET 3 OF 11
JOB NO. 51103

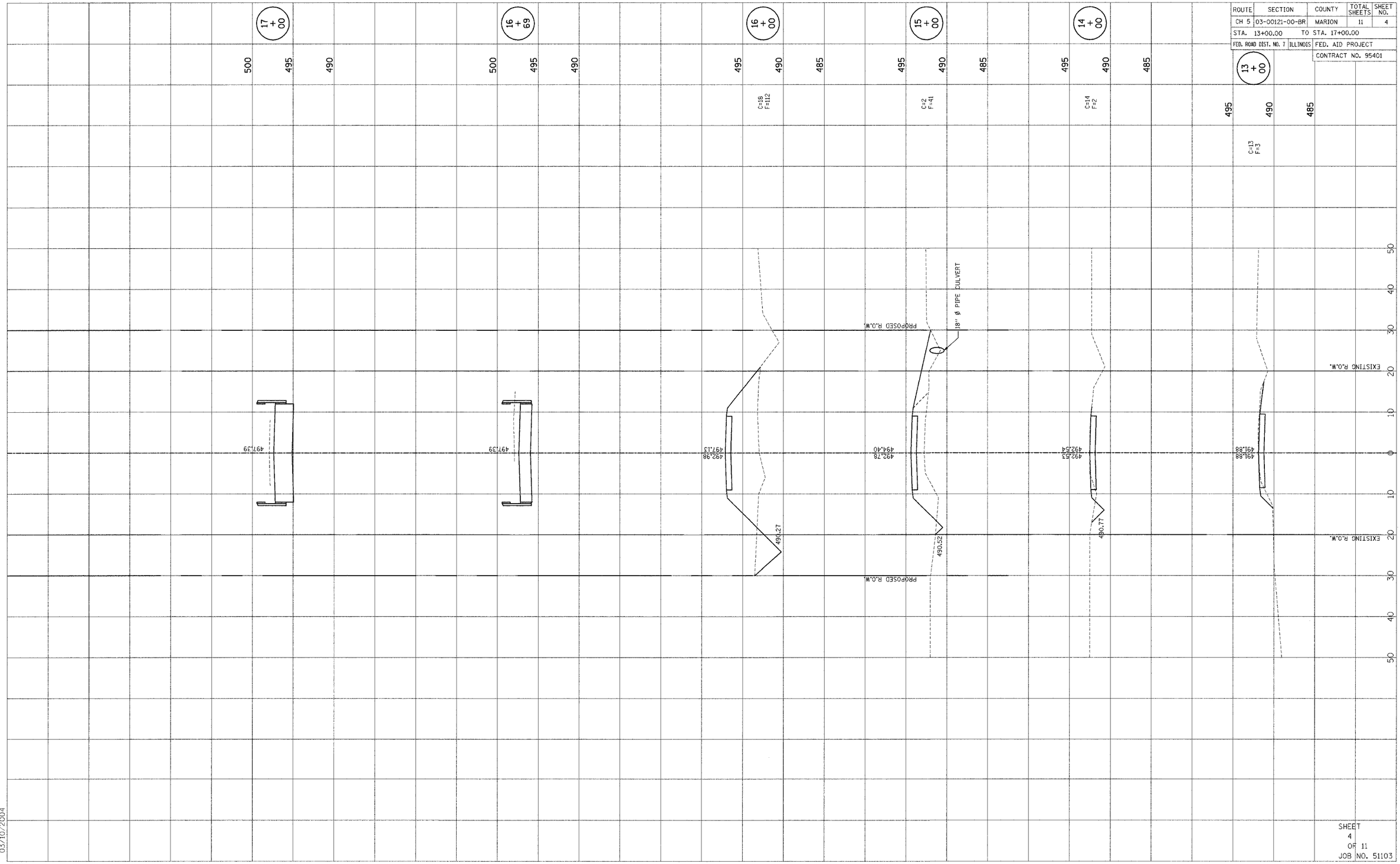
PLAN	NOTE BOOK NO.	SURVEYED / PLOTTED / ALIGNMENT CHECKED / RT. OF WAY CHECKED / CADD FILE NAME	BY	DATE

PROFILE	NOTE BOOK NO.	SURVEYED / PLOTTED / GRADES CHECKED / B.M. NOTED / STRUCTURE NOTAT'NS CH'KD	BY	DATE

03/10/2004

PLAN AND PROFILE OF ROADWAY BRIDGE OVER EAST FORK KASKASKIA RIVER
CH 5 SECTION 03-00121-00-BR MARION COUNTY

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 5	03-00121-00-BR	MARION	11	4
STA. 13+00.00	TO STA. 17+00.00			
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		
		CONTRACT NO. 95401		



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

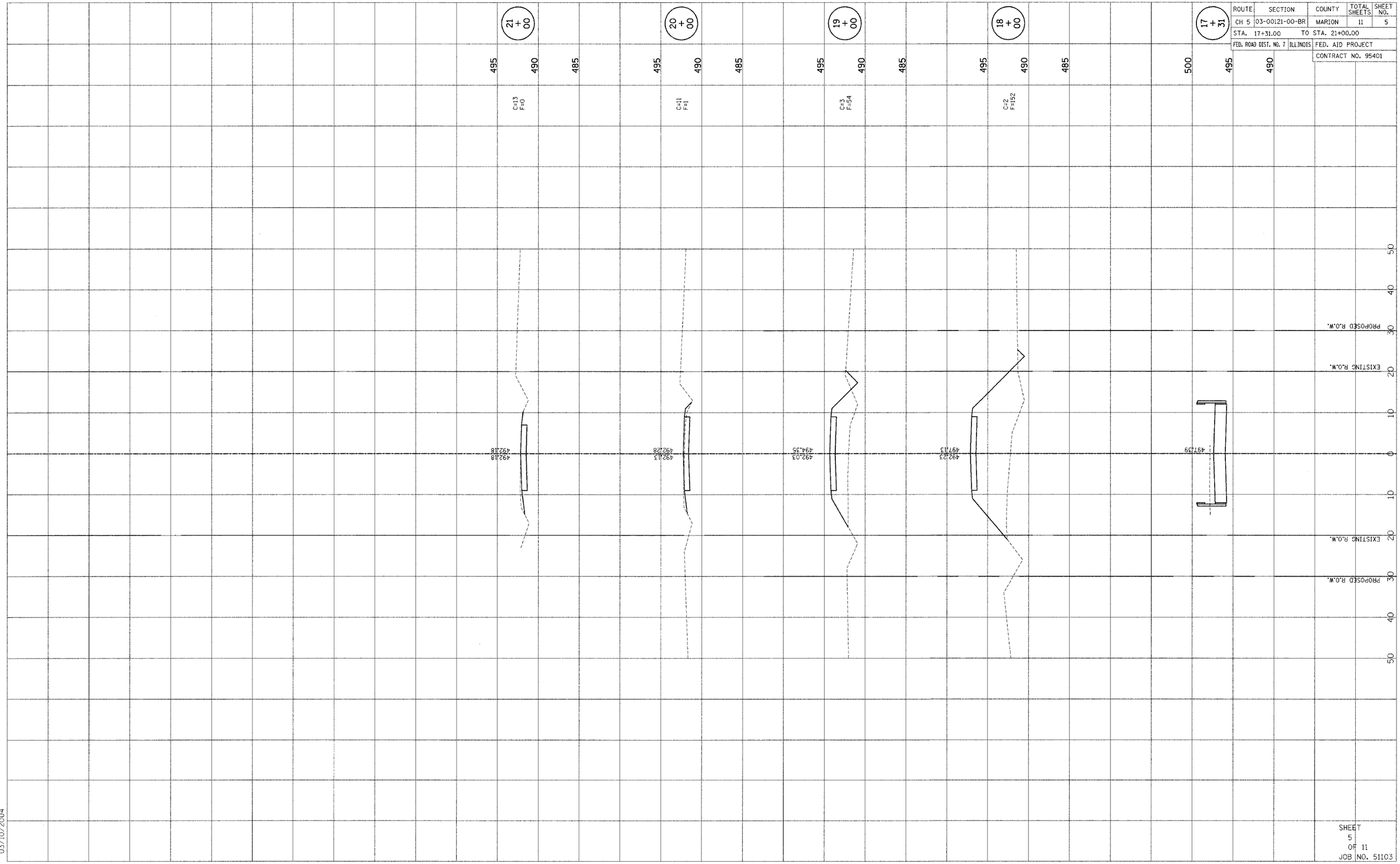
ORIGINAL SURVEY — NOTE BOOK — NO. — SUPPICKED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

03/10/2004

SHEET
4
OF 11
JOB NO. 51103

CROSS SECTIONS OF ROADWAY BRIDGE OVER EAST FORK KASKASKIA RIVER
CH 5 SECTION 03-00121-00-BR MARION COUNTY

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 5	03-00121-00-BR	MARION	11	5
STA. 17+31.00	TO STA. 21+00.00			
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		
CONTRACT NO. 95401				



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

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

03/10/2004

SHEET
5
OF 11
JOB NO. 51103

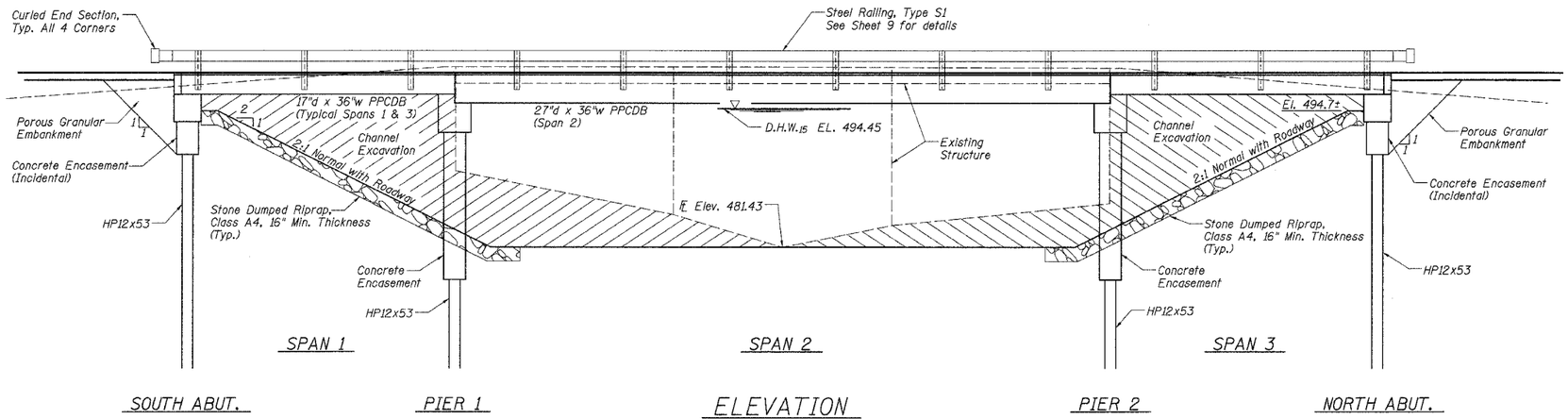
CROSS SECTIONS OF ROADWAY BRIDGE OVER EAST FORK KASKASKIA RIVER
CH 5 SECTION 03-00121-00-BR MARION COUNTY

T.B.M. 1 - RR Spike in Power Pole,
22' Rt., Sta. 10+30 - Elev. 504.17

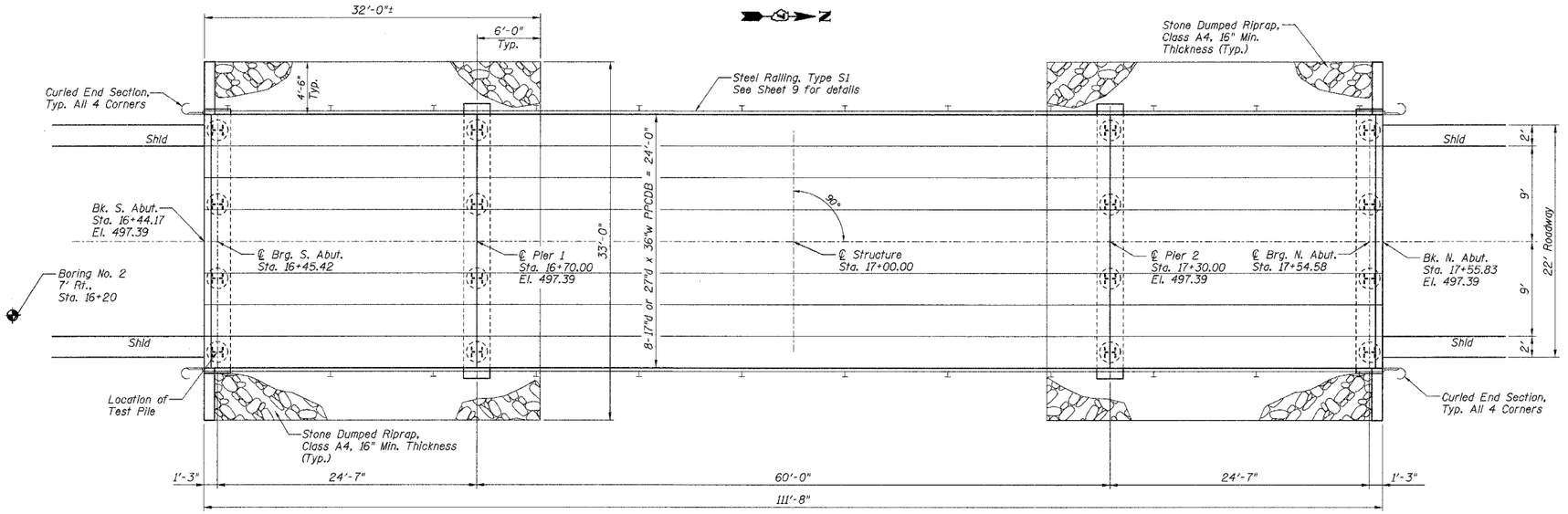
T.B.M. 2 - RR Spike in Power Pole,
23' Rt., Sta. 29+23 - Elev. 515.44

Existing Structure: Three span bridge with precast concrete deck slabs on closed timber abutments and pile bent timber piers. 60'L x 19'W

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 5	03-00121-00-BR	MARION	11	6
FED. ROAD DIST. NO. 7	ILLINOIS	FEDERAL AID PROJECT		
		CONTRACT NO. 95401		



ELEVATION



PLAN

WATERWAY DATA

Drainage Area = 71.85 Sq. Mi. Low Grade Elev. 491.88 ℄ Sta. 13+00

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Natural H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
Design	15	4950	596	773	494.45	0.12	0.17	494.57	494.62
Base	100	7653	684	850	495.92	0.08	0.13	496.00	496.05
Max. Calc.	500	9801	715	850	496.92	0.04	0.10	496.96	497.02

DESIGN SPECIFICATIONS

AASHTO - 2002 17th Edition

LOADING HS 20-44

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

DESIGN STRESSES

FIELD UNITS

f'_c = 3,500 psi

f_y = 60,000 psi

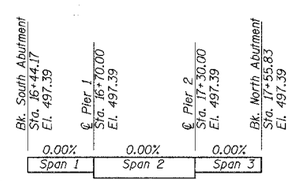
PRECAST PRESTRESSED UNITS

f'_c = 5,000 psi

f'_{ci} = 4,000 psi

f'_s = 270,000 psi ($\frac{1}{2}$"℄ strands)

f'_{si} = 189,000 psi ($\frac{1}{2}$"℄ strands)



GRADE ON STRUCTURE

BILL OF MATERIALS (BRIDGE ONLY)

ITEM	UNIT	SUB	SUPER	TOTAL
CHANNEL EXCAVATION	CU YD	760	-	760
POROUS GRANULAR EMBANKMENT	TON	26	-	26
STONE DUMPED RIPRAP, CLASS A4	TON	220	-	220
REMOVAL OF EXISTING STRUCTURES	EACH	-	-	1
CONCRETE STRUCTURES	CU YD	33.0	-	33.0
PRECAST PRESTRESSED CONCRETE DECK BEAMS (17" DEPTH)	SQ FT	-	1200	1200
PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ FT	-	1440	1440
REINFORCEMENT BARS	POUND	4280	-	4280
STEEL RAILING, TYPE S1	FOOT	-	224	224
FURNISHING STEEL PILES HP 12x53	FOOT	525	-	525
DRIVING STEEL PILES	FOOT	525	-	525
TEST PILE STEEL HP 12x53	EACH	1	-	1
CONCRETE ENCASEMENT	CU YD	14.0	-	14.0
NAME PLATES	EACH	1	-	1

GENERAL NOTES

See Section 502 of the Standard Specifications for Structural Excavation.

Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.

Channel excavation shall be excavated as shown within the limits of the proposed bridge, then tapered to the existing channel at the ROW line. If the Engineer deems the material satisfactory, it may be used to construct the roadway embankment.

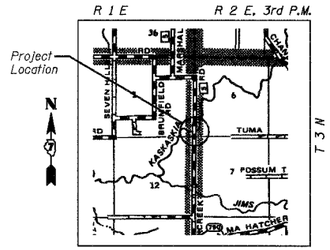
Reinforcement Bars shall conform to AASHTO M-31, M-42, or M-53, Grade 60 requirements.

See Specifications for Soil Borings.

Do not scale these drawings.

The Contractor shall drive one (1) Steel HP12x53 Test Pile in a permanent location at the South Abutment as directed by the Engineer before ordering the remainder of the piles.

Boring No. 1
8' Lt.,
Sta. 17+85



LOCATION SKETCH

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

GARY L. HAHN
81-4853
LICENSED STRUCTURAL ENGINEER
STATE OF ILLINOIS

Gary L. Hahn 02-04-05

GARY L. HAHN
CENTRALIA, ILLINOIS
ILLINOIS LICENSED STRUCTURAL ENGINEER NO. 81-4853
EXPIRES NOV. 30, 2006

EAST FORK KASKASKIA RIVER
BUILT 200_ BY
MARION COUNTY
PROJECT NO. BROS-121(38)
SEC. 03-00121-00-BR
LOADING HS-20
STRUCTURE NO. 061-3296

NAME PLATE

(See State Standard 515001 for details)

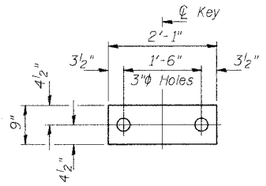
GENERAL PLAN AND ELEVATION
PROPOSED BRIDGE CARRYING CH 5 OVER EAST FORK KASKASKIA RIVER
SECTION 03-00121-00-BR
MARION COUNTY, ILLINOIS

Sheet 6 of 11
Job No. 51103

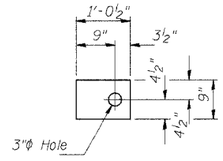
03/10/2004

RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS

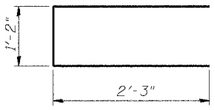
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 5	03-00121-00-BR	MARION	11	7
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		
		CONTRACT NO. 95401		



FABRIC BEARING PAD
(Interior)



FABRIC BEARING PAD
(Exterior)



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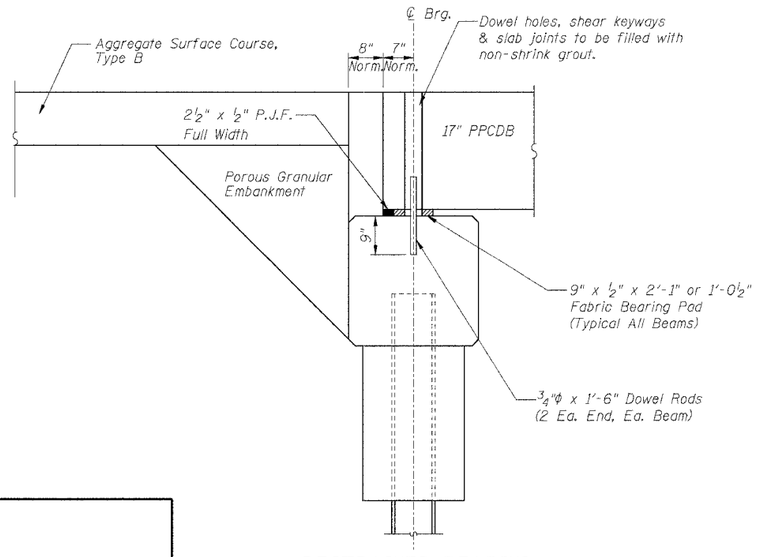
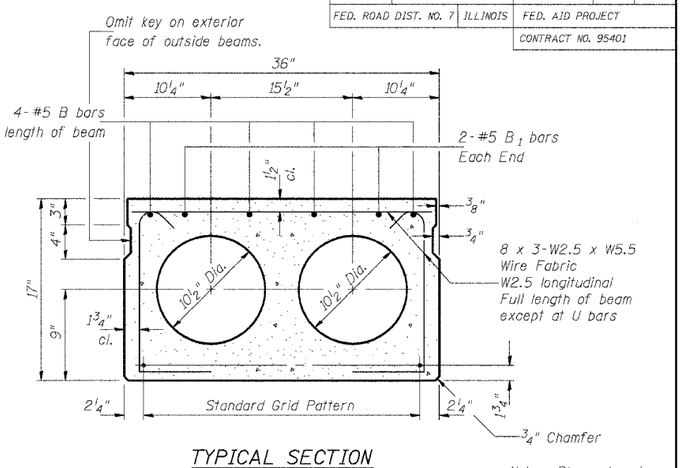


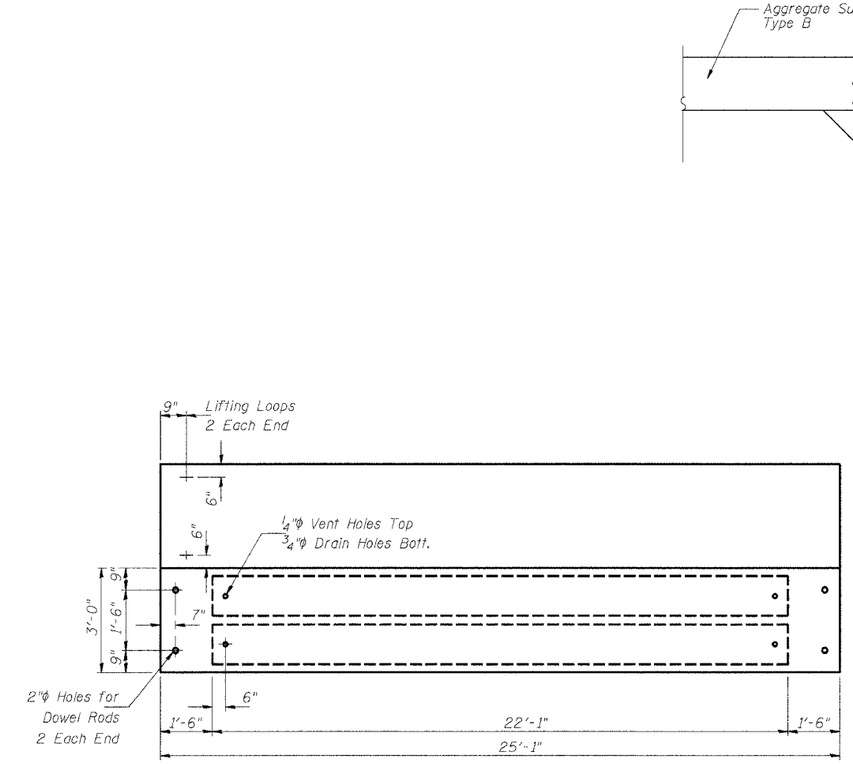
RESTRAINED BEARING
ABUTMENT



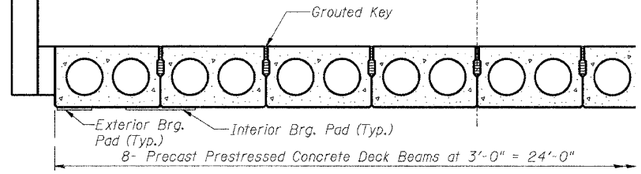
TYPICAL SECTION

5-½"ϕ Strands, Each Strand Stressed to 28,900 Lbs.
5-Strands 1¾" up

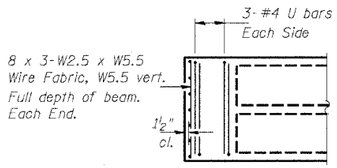
Note: Place strands symmetrically about ℄ of beam.



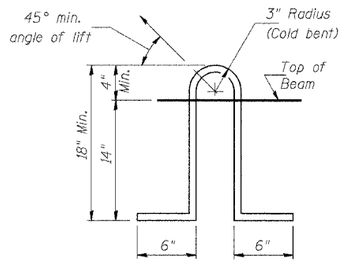
PLAN



HALF CROSS SECTION



END PLAN



LIFTING LOOP DETAIL

BILL OF MATERIAL
FOR ONE BEAM

Bar	No.	Size	Length	Shape
B	4	#5	24'-6"	——
B_1	4	#5	5'-0"	——
U	12	#4	5'-8"	⊏
Precast Prestressed Conc. Deck Bms.			Sq. Ft.	75
Reinforcement Bars			Pound	170
Total Weight Each Beam			Pound	12100

NOTES

Prestressing steel shall be uncoated high strength, stress-relieved 7-wire strand, Grade 270.

The nominal diameter shall be ½" and the nominal cross-sectional area shall be 0.153 sq. in.

Lifting loops shall be 3 - ½"ϕ-270 ksi strands, as shown.

Reinforcement bars shall conform to the requirements of 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 ⅛" 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 beam and the bottom edge of the key.

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

An equal substitution of the low-relaxation strands for the stress-relieved strands will be permitted. However, all strands shall be stressed to a maximum of 28,900 pounds per strand.

SPAN 1 OR 3

PRECAST PRESTRESSED CONCRETE DECK BEAM DETAILS

PROPOSED BRIDGE CARRYING CH 5 OVER EAST FORK KASKASKIA RIVER

SECTION 03-00121-00-BR

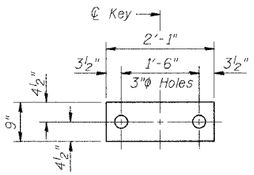
MARION COUNTY, ILLINOIS

Sheet 7 of 11
Job No. 51103

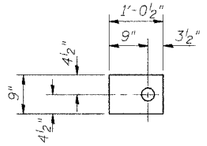
0/10/2004

RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS

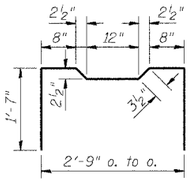
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 5	03-00121-00-BR	MARION	11	8
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		
		CONTRACT NO. 95401		



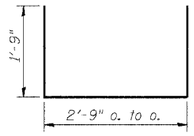
FABRIC BEARING PAD
(Interior)



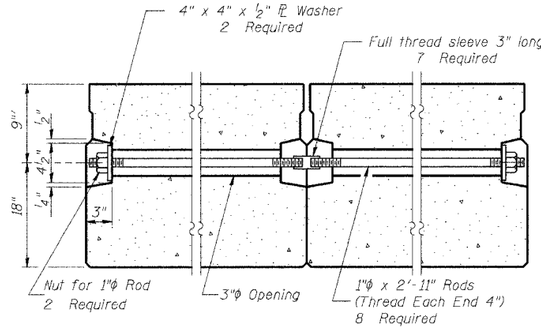
FABRIC BEARING PAD
(Exterior)



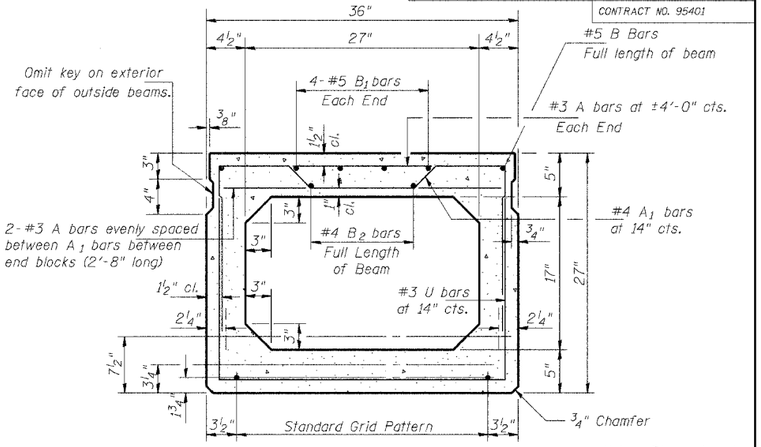
BAR A_1



BARS U & U_1



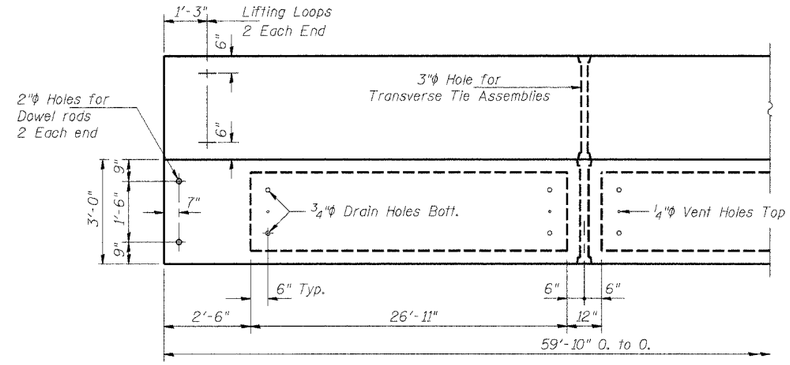
TYPICAL TRANSVERSE TIE ASSEMBLY



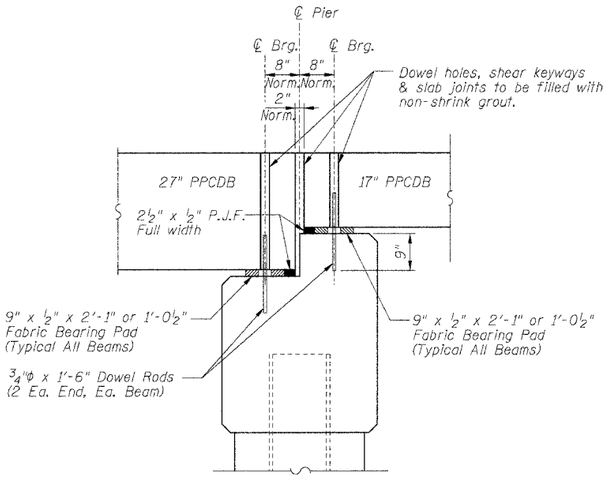
TYPICAL SECTION

16 - ½"ϕ Strands Each Strand Stressed to 28,900 Lbs.
8 Strands 1¾" up, 6 Strands 3¼" up, 2 Strands 7½" up

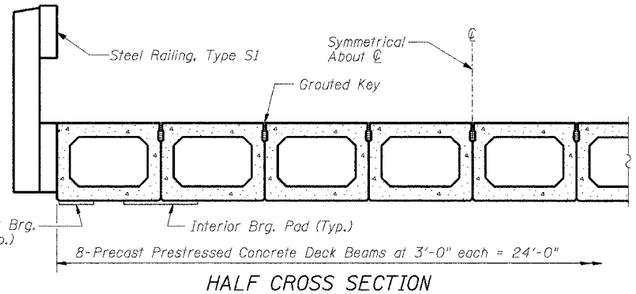
Note: Place strands symmetrically about ℄ of beam.



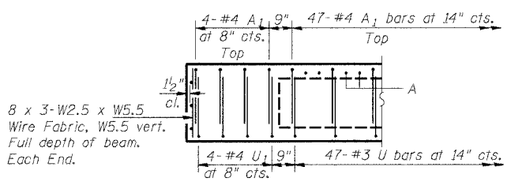
PLAN



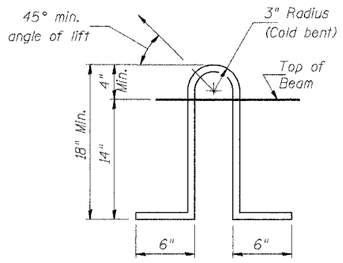
RESTRAINED BEARING
PIER



HALF CROSS SECTION



END ELEVATION



LIFTING LOOP DETAIL

BILL OF MATERIAL
FOR ONE BEAM

Bar	No.	Size	Length	Shape
A	98	#3	2'-8"	——
A_1	55	#4	6'-1"	⊓
B	4	#5	31'-0"	——
B_1	8	#5	12'-0"	——
B_2	6	#4	21'-6"	——
U	47	#3	6'-3"	⊔
U_1	8	#4	6'-3"	⊔
Precast Prestressed Conc. Deck Bms.		Sq. Ft.	180	
Reinforcement Bars		Pound	780	
Total Weight Each Beam		Pound	35850	

NOTES

Prestressing steel shall be uncoated high strength, stress-relieved 7-wire strand, Grade 270.

The nominal diameter shall be ½" and the nominal cross-sectional area shall be 0.153 sq. in.

Lifting loops shall be 3 - ½"ϕ-270 ksi strands, as shown.

The 1"ϕ 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.

Reinforcement bars shall conform to the requirements of 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 ⅛" 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 beam and the bottom edge of the key.

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

An equal substitution of the low-relaxation strands for the stress-relieved strands will be permitted. However, all strands shall be stressed to a maximum of 28,900 pounds per strand.

03/10/2004

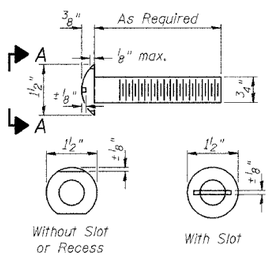
RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS

SPAN 2

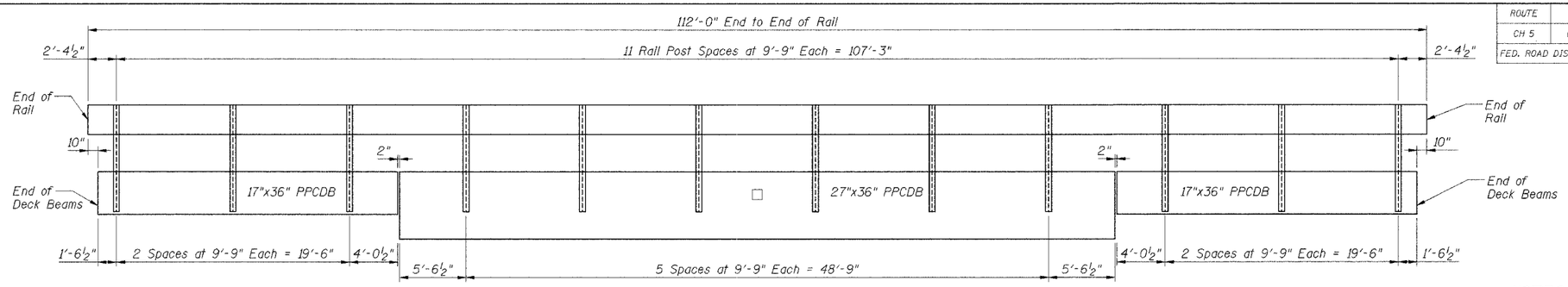
PRECAST PRESTRESSED CONCRETE DECK BEAM DETAILS
PROPOSED BRIDGE CARRYING CH 5
OVER EAST FORK KASKASKIA RIVER
SECTION 03-00121-00-BR
MARION COUNTY, ILLINOIS

Sheet 8 of 11
Job No. 51103

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 5	03-00121-00-BR	MARION	11	9
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		
		CONTRACT NO. 95401		



VIEW A-A
ROUND HEAD BOLT



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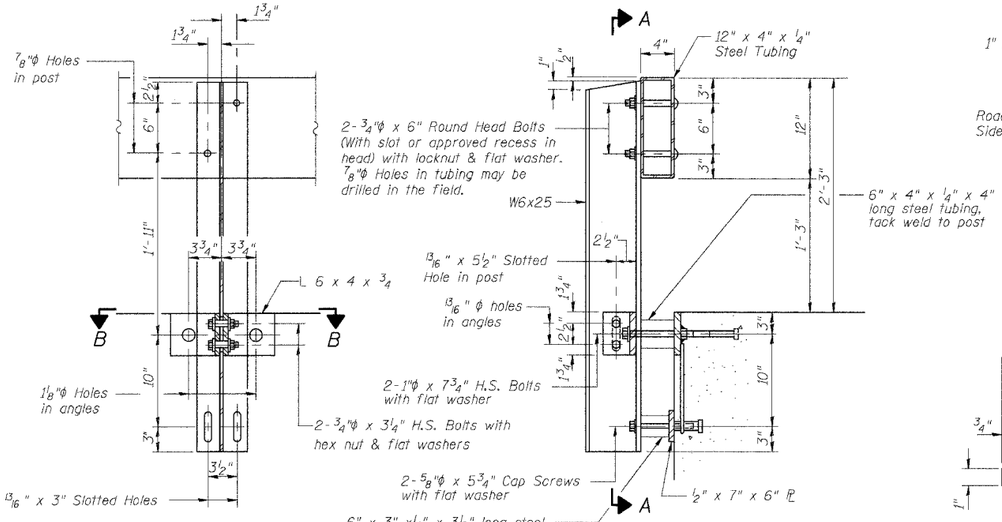
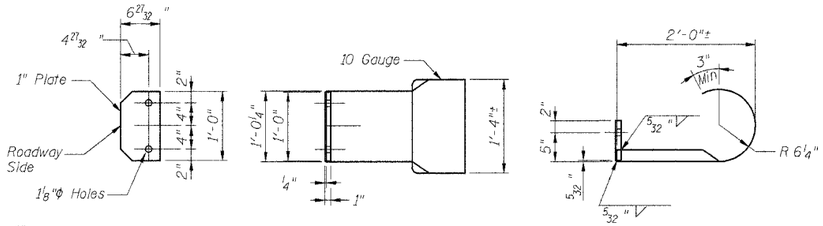


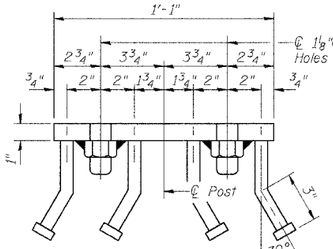
SECTION A-A

SECTION AT RAIL POST

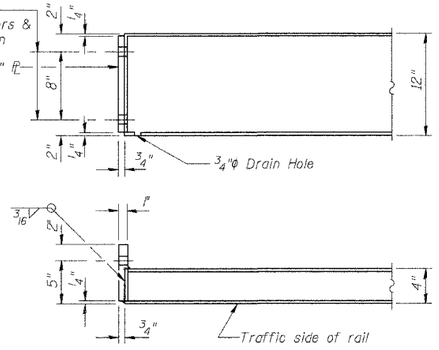


CURLED END SECTION DETAILS

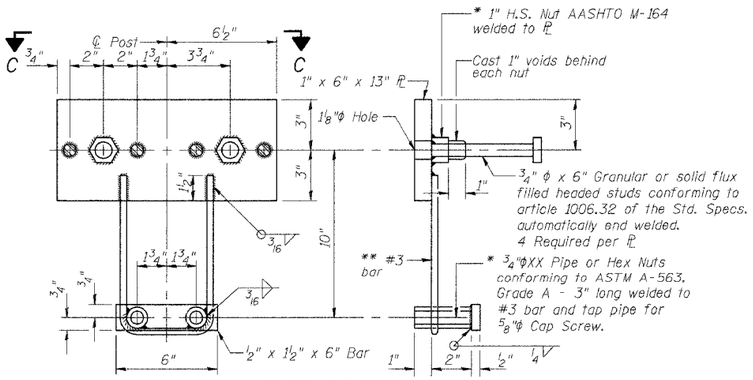
1 1/8"ϕ Holes for 1"ϕ x 4" Round Head Bolts. Provide 2 flat washers & locknuts for guard rail connection shown on Std. 631026.



VIEW C-C



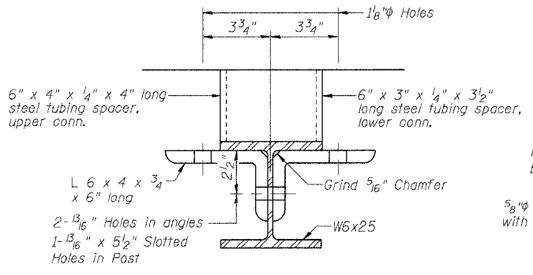
END OF RAIL DETAILS



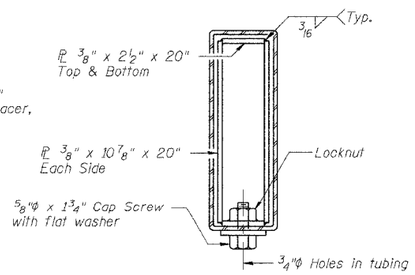
ANCHOR DEVICE

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

** 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".



SECTION B-B



SECTIONS AT RAIL SPLICE

NOTES

Hollow structural steel tubing shall conform to the requirements of ASTM designation 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 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 A-307 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 in accordance with AASHTO M-232.

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

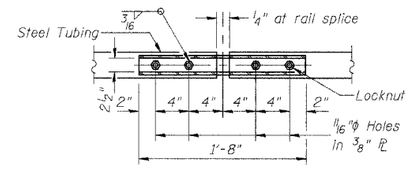
Railing shall be in accordance with Section 509 of the Standard Specifications, except as noted, and will be paid for at the contract unit price per foot for STEEL RAILING, TYPE S1.

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 1/8" fabric bearing pad between the post and concrete.

The 3/4"ϕ 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(f)(2) of the Standard Specifications. The 1"ϕ high strength bolts connecting the angles to the concrete shall be tightened to a snug fit and given an additional 1/3 turn. The 5/8"ϕ cap screws in bottom of posts shall be tightened to a snug fit only.

The Curled End Section shall be considered incidental to the cost of the "STEEL RAILING, TYPE S1", and no additional compensation will be allowed.



PLAN-BOTT. SPLICE PL
TYPICAL

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S1	Foot	224

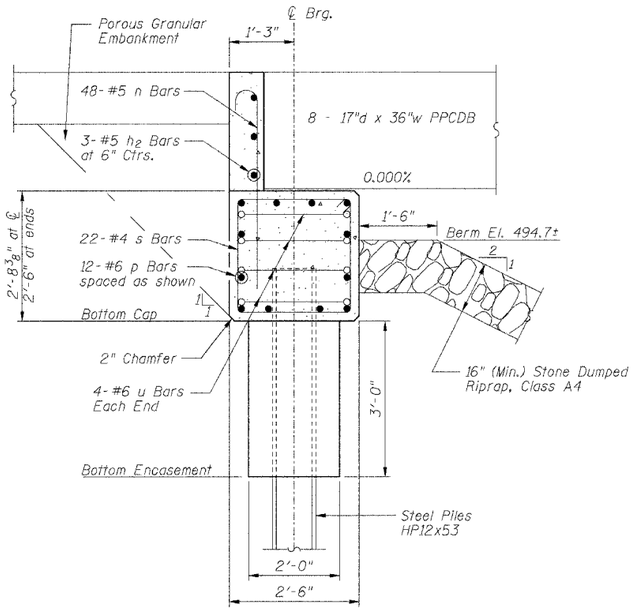
STEEL RAILING, TYPE S1 DETAILS
PROPOSED BRIDGE CARRYING CH 5 OVER EAST FORK KASKASKIA RIVER
SECTION 03-00121-00-BR
MARION COUNTY, ILLINOIS

Sheet 9 of 11
Job No. 51103

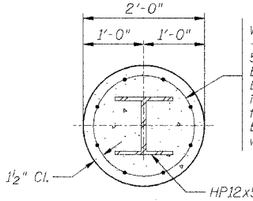
03/10/2004

RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS

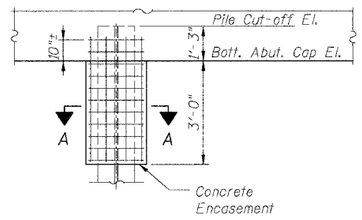
ROUTE	SECTION		COUNTY	TOTAL SHEETS	SHEET NO.
CH 5	03-00121-00-BR		MARION	11	10
FED. ROAD DIST. NO. 7	ILLINOIS		FEDERAL AID PROJECT		
			CONTRACT NO. 95401		



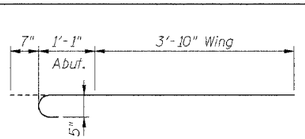
SECTION THRU ABUTMENT



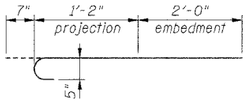
SECTION A-A



PILE ENCASEMENT DETAIL



#5 h BARS



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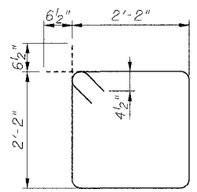

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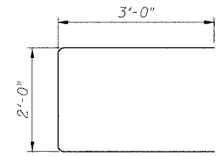


#6 u BARS

PILE DATA

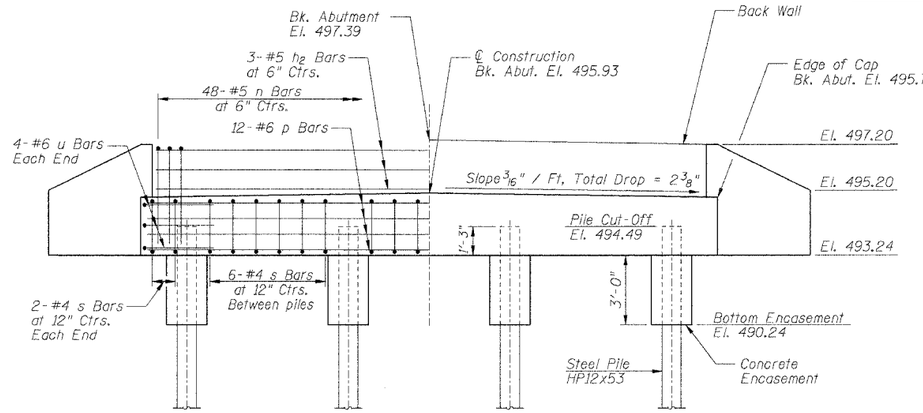
Type:
- South Abutment — Steel HP12x53
- North Abutment — Steel HP12x53

Number Required:
- South Abutment — 3+1 Test Pile
- North Abutment — 4

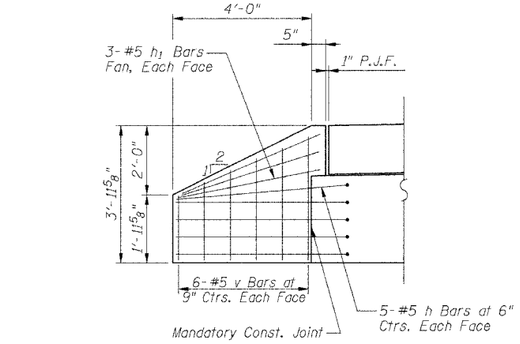
Capacity: Drive to Refusal

Estimated Length:
- South Abutment — 35 foot
- North Abutment — 35 foot

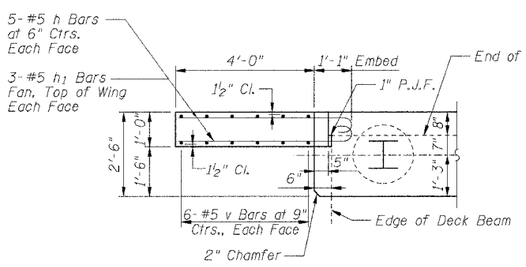
Total Estimated Length:
(Does not include Test Pile)
- Steel HP12x53 — 245 foot



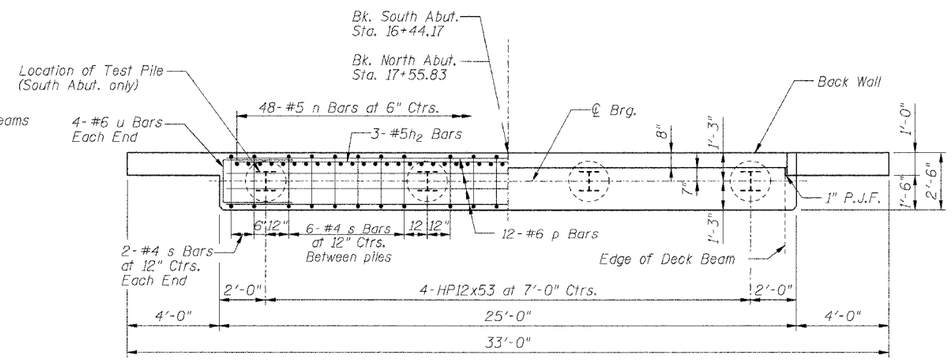
ELEVATION



ELEVATION OF WINGWALL



WINGWALL CONNECTION DETAIL



PLAN

BILL OF MATERIALS
ONE ABUTMENT w/ WINGWALLS

Bar	No.	Size	Length	Shape
h	20	#5	5'-6"	
h_1	12	#5	4'-6"	
h_2	3	#5	23'-8"	
n	48	#5	3'-9"	
p	12	#6	24'-8"	
s	22	#4	9'-9"	
u	8	#6	8'-0"	
v	24	#5	4'-0"	CUT IN FIELD
Concrete Structures			Cu. Yd.	7.8
Reinforcement Bars			Pound	1220

GENERAL NOTES

All exposed edges shall have standard ¾" chamfer, unless otherwise noted.

All clearances between rebar and form surface shall be 2", unless otherwise noted.

Space reinforcement in cap to miss PPCDB dowel rods.

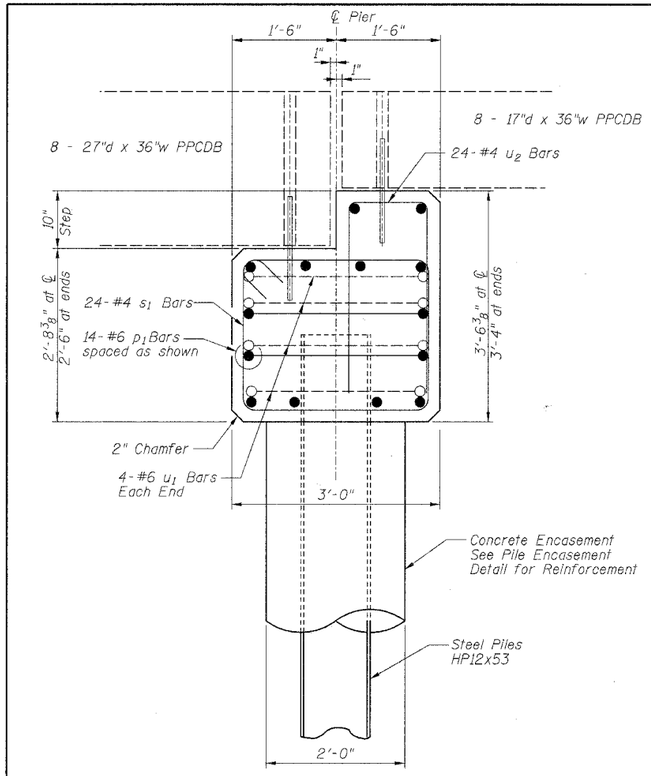
ABUTMENT DETAILS
PROPOSED BRIDGE CARRYING CH 5 OVER EAST FORK KASKASKIA RIVER
SECTION 03-00121-00-BR
MARION COUNTY, ILLINOIS

Sheet 10 of 11
Job No. 51103

03/10/2004

RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 5	03-00121-00-BR	MARION	11	11
FED. ROAD DIST. NO. 7	ILLINOIS	FEDERAL AID PROJECT		
		CONTRACT NO. 95401		



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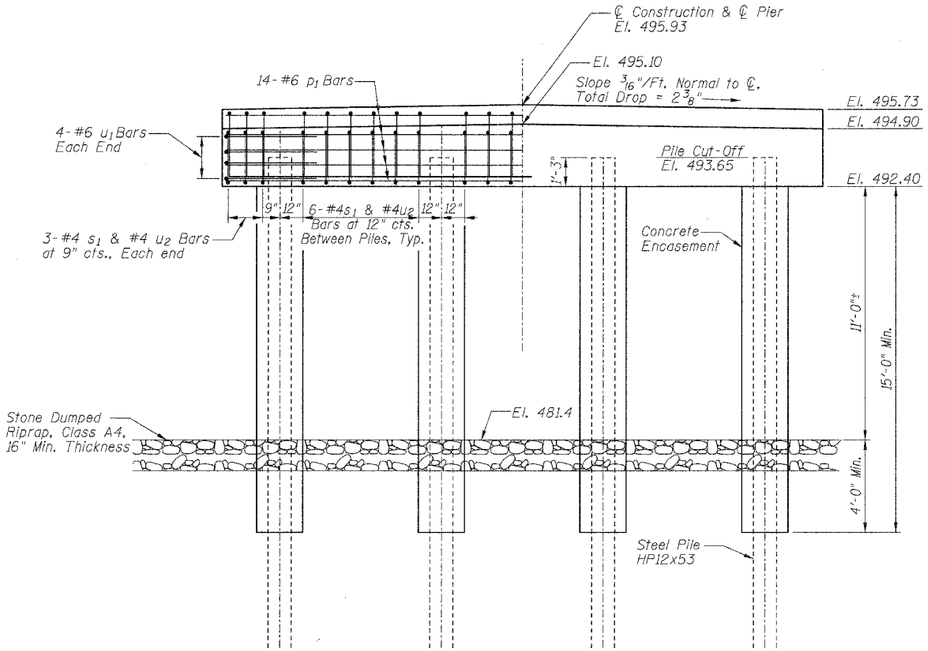
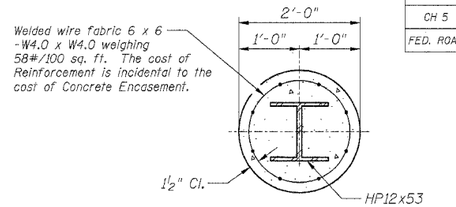
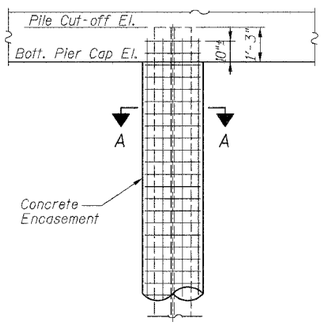


ELEVATION



SECTION A-A



PILE ENCASEMENT DETAIL

PILE DATA

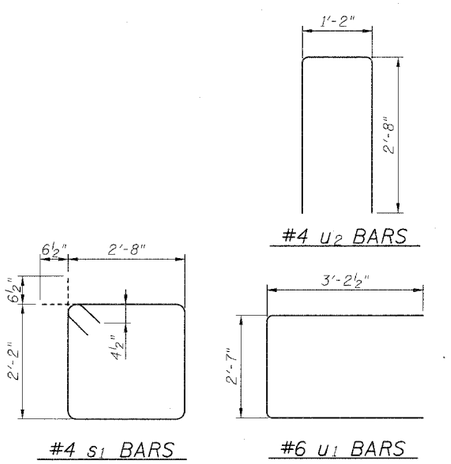
Type:
- Pier No. 1 — Steel HP12x53
- Pier No. 2 — Steel HP12x53

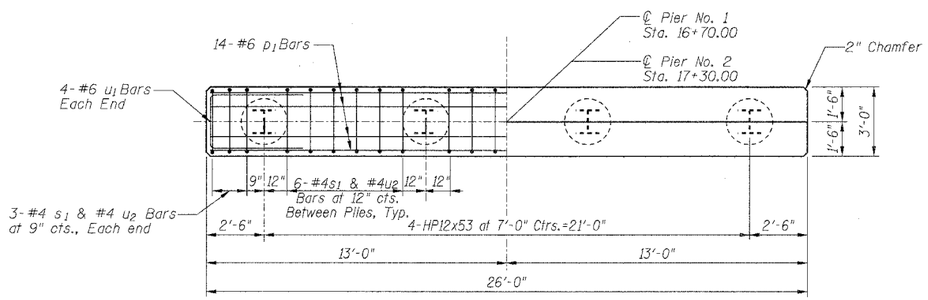
Number Required:
- Pier No. 1 — 4
- Pier No. 2 — 4

Capacity: Drive to Refusal

Estimated Length:
- Pier No. 1 — 35 foot
- Pier No. 2 — 35 foot

Total Estimated Length:
- Steel HP12x53 — 280 foot





PLAN

BILL OF MATERIALS
ONE PIER

Bar	No.	Size	Length	Shape
p_1	14	#6	25'-8"	
s_1	24	#4	10'-9"	
u_1	8	#6	9'-0"	
u_2	24	#4	6'-6"	
Concrete Structures		Cu. Yd.	8.7	
Concrete Encasement		Cu. Yd.	7.0	
Reinforcement Bars		Pound	920	

GENERAL NOTES

All exposed edges shall have 2" chamfer, unless otherwise noted.

All clearances between rebar and form surface shall be 2", unless otherwise noted.

Space reinforcement in cap to miss PPCDB dowel rods.

03/10/2004

RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS

PIER DETAILS
PROPOSED BRIDGE CARRYING CH 5
OVER EAST FORK KASKASKIA RIVER
SECTION 03-00121-00-BR
MARION COUNTY, ILLINOIS