F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	14BR-1 & 16BR-1	PULASKI	68	1
FED. ROAD DIST. NO.	ILLINOIS	CONTRACT NO. 78071		

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
	ROADWAY PLANS
1.	COVER SHEET
2.	GENERAL NOTES AND STANDARDS
3.	SUMMARY OF QUANTITIES
4.-5.	TYPICAL SECTIONS
6.-7.	SCHEDULES OF QUANTITIES
8.	SN 077-0016 PLAN AND PROFILE
9.	SN 077-0035 PLAN AND PROFILE
10.-11.	STAGE CONSTRUCTION PLANS
12.	DETOUR SIGNAGE PLAN
13.	EROSION CONTROL AND DRAINAGE PLAN
14.	MISCELLANEOUS DETAILS
15.	RURAL SIDE APPROACH DETAILS
	STRUCTURE PLANS SN 077-0016
16.	GENERAL PLAN
17.	GENERAL DATA
18.	STAGE CONSTRUCTION DETAILS
19.	TOP OF NORTH APPROACH SLAB ELEVATIONS
20.	TOP OF SOUTH APPROACH SLAB ELEVATIONS
21.	SUPERSTRUCTURE
22.	SUPERSTRUCTURE DETAILS
23.-24.	BRIDGE APPROACH SLAB DETAILS
25.	STEEL RAILING, TYPE SM WITH CONCRETE WEARING SURFACE
26.	27"x48" PPC DECK BEAM
27.	27"x48" PPC DECK BEAM DETAILS
28.	ABUTMENT CONCRETE REMOVAL
29.	NORTH ABUTMENT REPAIRS AND MODIFICATIONS
30.	SOUTH ABUTMENT REPAIRS AND MODIFICATIONS
31.	PIER REPAIRS
32.	PIER DETAILS
33.	BAR SPLICER ASSEMBLY AND MECHANICAL SPLICER DETAILS
34.	TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION
35.	SOIL BORING LOG
	EXISTING STRUCTURE PLANS SN 077-0016
36.-45.	EXISTING STRUCTURE PLANS
	STRUCTURE PLANS SN 077-0035
46.	GENERAL PLAN & ELEVATION
47.	SUPERSTRUCTURE
48.	SUPERSTRUCTURE DETAILS
49.	11"x48" PPC DECK BEAM
50.	STEEL RAILING, TYPE SM
51.	ABUTMENT CONCRETE REMOVAL
52.	ABUTMENT DETAILS
53.	DOWEL ROD LOCATION DETAILS
54.	ABUTMENT REPAIR DETAILS
55.	PIER REPAIR DETAILS
	EXISTING STRUCTURE PLANS SN 077-0035
56.-62.	EXISTING STRUCTURE PLANS
	CROSS SECTIONS
63.-65.	SN 077-0016 CROSS SECTIONS
66.-68.	SN 077-0035 CROSS SECTIONS

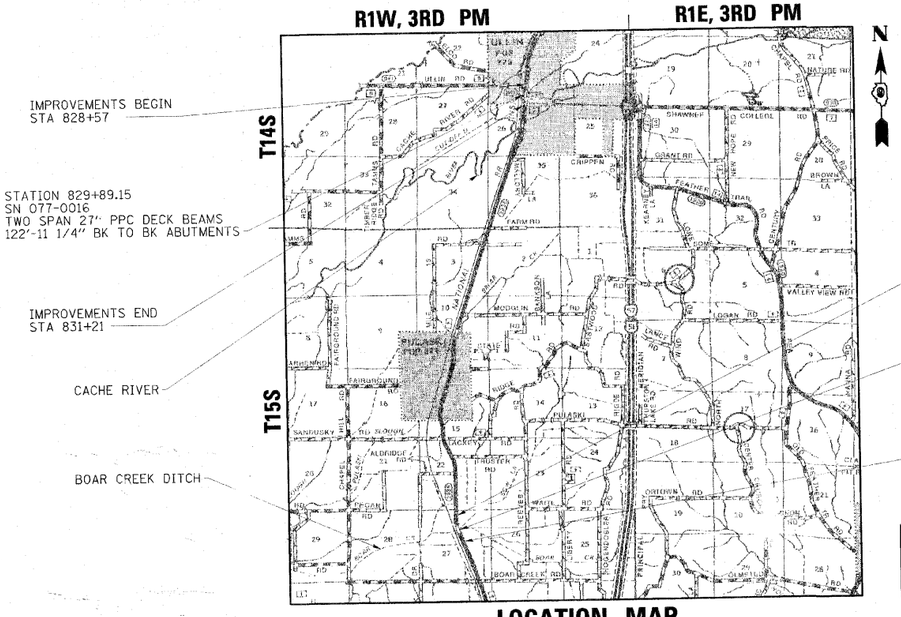
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROPOSED HIGHWAY PLANS

FAS ROUTE 2936 (OLD US 51)
SECTIONS 14BR-1 & 16BR-1
PROJECT: ACBHS-2936(118)
PULASKI COUNTY

C-99-057-08

PPC DECK BEAM SUPERSTRUCTURE REPLACEMENTS OVER CACHE RIVER AND BOAR CREEK DITCH

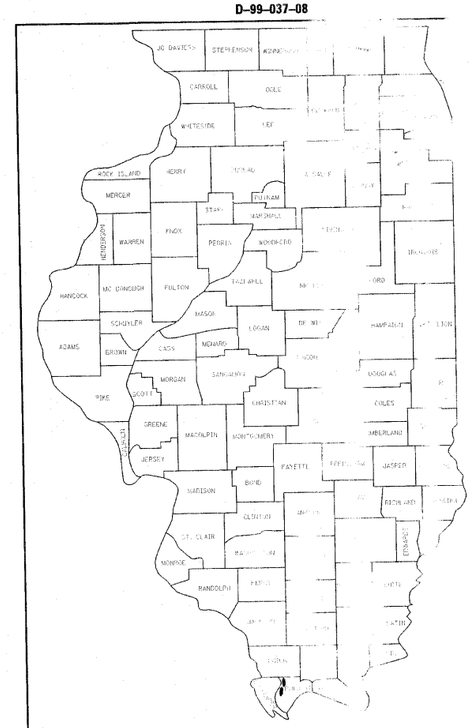


LOCATION MAP

SCALE
0 1 2 3 4 5 6 MILES
0 5000 10000 15000 20000 25000 FEET

DESIGN DESIGNATION N.A.

D-99-037-08



LOCATION OF SECTION INDICATED THUS: –

FUNCTIONAL CLASSIFICATION: MAJOR COLLECTOR (NHS-1/RB4N)
DESIGN SPEED: 55 mph
POSTED SPEED: 55 mph
ADT: (077-0016; 077-0035) 2470; 1080 (in 10)
PV: (077-0016; 077-0035) 90.9 • 91.4%
TRUCKS: (077-0016; 077-0035) 9.1% 8.6%
TOWNSHIP: COUNTY UNIT ROAD DISTRICT

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED July 22 2010
DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER
October 1 2010
Scott E. Stitt, P.E. /a
acting ENGINEER OF DESIGN AND ENVIRONMENT
October 1 2010
Christine M. Reed /a
DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

MICROFILMED
REEL NUMBER
AWARDED
RESIDENT ENGINEER
AS BUILT CHANGES WERE MADE
ON THE FOLLOWING SHEETS

0' 100' 200' 300' 1"=100'
0 10' 20' 30' 1"=10'
0' 50' 100' 1"=50'
0' 40' 80' 1"=40'
0' 40' 30' 90' 1"=30'
0' 20' 40' 60' 80' 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 LOCATION INFORMATION FOR EXCAVATION
1-800-892-0123
OR 811

DISTRICT 9 NO. (618) 549-2171
PROJECT ENGINEER: DAVID PICHE
PROJECT MANAGER:
PRECINCT: ULLIN, PULASKI
CONTRACT NO. 78071

RICHARD D. PAYNE 37421 LICENSED PROFESSIONAL ENGINEER OF STATE OF ILLINOIS

THIS PROFESSIONAL ENGINEER'S SEAL APPLIES ONLY TO SHEETS 1.-44. AND 55.-67.

Richard D. Payne DATE: 5/18/10
ILLINOIS PROFESSIONAL LICENSE NO. 37421
(EXPIRATION DATE: 11-30-11)

ESCA CONSULTANTS, INC.

	14BR-1	16BR-1
GROSS LENGTH	= 264 FT. = 0.050 MI.	; 334 FT. = 0.063 MI.
NET LENGTH	= 264 FT. = 0.050 MI.	; 334 FT. = 0.063 MI.

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ESCA CONSULTANTS, INC. CIVIL & STRUCTURAL ENGINEERS SPRINGFIELD, ILLINOIS

LIST OF ILLINOIS DOT HIGHWAY STANDARDS

STANDARD NO.	DESCRIPTION
000001-05	STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
001001-02	AREAS OF REINFORCEMENT BARS
001006	DECIMAL OF AN INCH AND OF A FOOT
280001-05	TEMPORARY EROSION CONTROL SYSTEMS
420001-07	PAVEMENT JOINTS
420401-08	BRIDGE APPROACH PAVEMENT CONNECTOR
515001-03	NAME PLATE FOR BRIDGES
601101-01	CONCRETE HEADWALL FOR PIPE DRAIN
630001-08	STEEL PLATE BEAM GUARDRAIL
631032-05	TRAFFIC BARRIER TERMINAL, TYPE 6A
635001-01	DELINEATORS
635006-03	REFLECTOR AND TERMINAL MARKER PLACEMENT
635011-02	REFLECTOR MARKER AND MOUNTING DETAILS
701001-02	OFF-RD OPERATIONS, 2L, 2W, MORE THAN 15' (4.5 m) AWAY
701006-03	OFF-RD OPERATIONS, 2L, 2W, 15' (4.5 m) TO 24" (600 mm) FROM PAVEMENT EDGE
701011-02	OFF-RD MOVING OPERATIONS, 2L, 2W, DAY ONLY
701201-03	LANE CLOSURE, 2L, 2W, DAY ONLY, FOR SPEEDS $\geq$ 45 MPH
701301-03	LANE CLOSURE, 2L, 2W, SHORT TIME OPERATIONS
701311-03	LANE CLOSURE, 2L, 2W, MOVING OPERATIONS - DAY ONLY
701321-10	LANE CLOSURE, 2L, 2W, BRIDGE REPAIR WITH BARRIER
701326-03	LANE CLOSURE, 2L, 2W, PAVEMENT WIDENING, FOR SPEEDS $\geq$ 45 MPH
701901-01	TRAFFIC CONTROL DEVICES
704001-06	TEMPORARY CONCRETE BARRIER
720001-01	SIGN PANEL MOUNTING DETAILS
720006-02	SIGN PANEL ERECTION DETAILS
720011-01	METAL POSTS FOR SIGNS, MARKERS & DELINEATORS
729001-01	APPLICATIONS OF TYPES A & B METAL POSTS (FOR SIGNS & MARKERS)
780001-02	TYPICAL PAVEMENT MARKINGS
781001-03	TYPICAL APPLICATIONS RAISED REFLECTIVE PAVEMENT MARKERS
B.L.R. 21-8	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

GENERAL NOTES

1. THE ENGINEER SHALL BE THE SOLE JUDGE CONCERNING CURING TIME FOR THE VARIOUS HMA LIFTS.
2. EXCEPT AS NOTED ON THE PLANS, PAVEMENT GRADES SHOWN ARE AT THE TOP OF PAVEMENT SURFACES.
3. ALL SAWCUTTING OF EXISTING PAVEMENT SHALL BE CONSIDERED INCLUDED IN THE PAY ITEMS INVOLVED. THE MINIMUM SAW DEPTH IN THE PAVEMENT SHALL BE 1½" UNLESS OTHERWISE NOTED.
4. WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED BEFORE SUCH MONUMENTS ARE REMOVED. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL MONUMENTS UNTIL AN AUTHORIZED SURVEYOR OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING AN AUTHORIZED SURVEYOR REESTABLISH ANY SECTION OR SUBSECTION MONUMENTS DESTROYED BY HIS OPERATIONS.
5. THE THICKNESS OF HMA MIXTURES SHOWN ON THE PLANS IS THE NOMINAL THICKNESS. DEVIATIONS FROM THE NOMINAL THICKNESS WILL BE PERMITTED WHEN SUCH DEVIATIONS OCCUR DUE TO IRREGULARITIES IN THE EXISTING SURFACE OR BASE ON WHICH THE HMA MIXTURE IS PLACED.
6. ANY REFERENCE TO A STANDARD IN THESE PLANS SHALL BE INTERPRETED TO MEAN THE EDITION AS INDICATED BY THE SUBNUMBER LISTED ON THE INDEX OF SHEETS OR THE COPY OF THE STANDARD INCLUDED IN THESE PLANS.
7. FACTORS USED FOR ESTIMATING PLAN QUANTITIES ARE AS FOLLOWS AND SHALL NOT BE USED FOR THE BASIS OF FINAL QUANTITIES:

ALL HOT-MIX ASPHALT	2.016 TONS/CU YD
ALL AGGREGATE	2.05 TONS/CU YD
BITUMINOUS MATERIALS:	
ON PAVEMENT	0.09 GAL/SQ YD
INTERMEDIATE LIFTS (FOG COAT)	0.04 GAL/SQ YD
ON AGGREGATE SURFACE	0.32 GAL/SQ YD
AGGREGATE (PRIME COAT)	0.0015 TONS/SQ YD

8. ABANDONED UNDERGROUND UTILITIES THAT CONFLICT WITH CONSTRUCTION SHALL BE DISPOSED OF OUTSIDE THE LIMITS OF THE RIGHT OF WAY ACCORDING TO ARTICLE 202.03 OF THE STANDARD SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER. THIS WORK WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF PAVEMENT REMOVAL.
9. ALL DISTURBED AREAS WITHIN THE CONSTRUCTION LIMITS SHALL BE FERTILIZED AND SEEDED. SEEDING SHALL BE CLASS 2A ACCORDING TO THE APPLICABLE ARTICLES OF SECTION 250 OF THE STANDARD SPECIFICATIONS. SEEDING SHALL NOT BE PERMITTED AT ANY TIME WHEN THE GROUND IS FROZEN, WET, OR IN AN UNTILLABLE CONDITION. LOCATIONS TO BE SEEDED WILL BE DETERMINED BY THE ENGINEER.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING UTILITY PROPERTY FROM CONSTRUCTION OPERATIONS AS OUTLINED IN ARTICLE 107.31 OF THE STANDARD SPECIFICATIONS. THE JULIE NUMBER IS 800-892-0123. A MINIMUM OF 48 HOURS ADVANCE NOTICE IS REQUIRED.
11. EXISTING TRAFFIC BARRIER TERMINALS TO BE REMOVED SHALL BE PAID FOR AS GUARDRAIL REMOVAL.
12. FOR STABILIZATION, ALL TYPE III BARRICADES SHALL REQUIRE A MINIMUM OF FOUR SANDBAGS PER BARRICADE.
13. ALL ELEVATIONS REFERRING TO U.S.G.S. MEAN SEA LEVEL DATUM.
14. TREES SHALL BE PRESERVED THROUGHOUT THIS SECTION AS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER EXCEPT AS DESCRIBED IN NOTE 19. GENERALLY, TREES OUTSIDE THE CLEAR ZONE, AND WHICH DO NOT INTERFERE WITH CONSTRUCTION, SHALL NOT BE DISTURBED.
15. THE QUANTITY OF SHORT TERM PAVEMENT MARKING SHOWN IN THE PLANS IS BASED ON ONE APPLICATION EACH FOR THE INITIAL OPENING OF THE COMPLETED STRUCTURE TO TWO LANE TRAFFIC, THE PRIME COAT, BINDER COURSE, AND THE SURFACE COURSE.
16. THE ADVANCE DETECTOR LOOPS ARE TYPICALLY LOCATED 275 FEET IN ADVANCE OF THE STOP BAR. THE BUREAU OF OPERATIONS SHOULD APPROVE THE LOOP LOCATIONS PRIOR TO INSTALLATION.
17. THE CENTERLINE PAVEMENT MARKING SHOULD BE REMOVED FROM THE STOP BAR TO THE SAND ATTENUATORS OR DRUMS. EDGE LINE PAVEMENT MARKING SHOULD BE REMOVED IF A 10 FOOT LANE WIDTH CANNOT BE MAINTAINED. TEMPORARY EDGE LINES SHOULD BE INSTALLED WHEN THE EDGE LINES ARE REMOVED.
18. ANY TIME THE CONCRETE BARRIER IS NOT IN THE PROPER POSITION, FLAGGERS SHALL BE IN PLACE TO CONTROL TRAFFIC AND THE TEMPORARY TRAFFIC SIGNALS SHALL BE TURNED OFF OR COVERED.
19. ALL OBSTRUCTIONS WHICH ARE WITHIN 30' OF THE CENTERLINE OF THE ROADWAY AND ARE NOT SHIELDED BY THE PROPOSED GUARDRAIL, SHALL BE REMOVED FROM STATION 826+00 TO 834+00 AND STATION 148+00 TO 154+00. TYPICAL OBSTRUCTIONS ARE HEADWALLS, FOUNDATIONS, ETC. WHICH PROJECT 4 IN. OR MORE ABOVE THE GROUNDLINE; AND TREES WHICH WILL MATURE TO A DIAMENTER OF 4 IN. OR GREATER.
20. VERTICAL PANELS SHOWN ON STANDARD 701321 WILL NOT BE REQUIRED ON THE STAGE II NEW BRIDGE RAIL. THE BARRIER WALL REFLECTORS SHALL BE INSTALLED PRIOR TO OPENING TO TRAFFIC.

COMMITMENTS

1. THE RESIDENT ENGINEER WILL CALL STACY EARNHART, PULASKI COUNTY ENGINEER, AT 618-342-6208, 14 DAYS PRIOR TO ANY ROAD CLOSURES FOR STRUCTURE WORK.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PREPARED BY: _____
DISTRICT STUDIES & PLANS ENGINEER

EXAMINED BY: _____
DISTRICT LAND ACQUISITION ENGINEER

EXAMINED BY: _____
DISTRICT PROGRAM DEVELOPMENT ENGINEER

EXAMINED BY: _____
DISTRICT OPERATIONS ENGINEER

EXAMINED BY: _____
DISTRICT CONSTRUCTION ENGINEER

EXAMINED BY: _____
DISTRICT MATERIALS ENGINEER

EXAMINED BY: _____
DISTRICT PROJECT IMPLEMENTATION ENGINEER

EXAMINED BY: _____
ASSISTANT REGIONAL ENGINEER

APPROVED BY: _____
DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER

July 22 20 10
DATE

FILE NAME: D978071 sht_generalnote51.dgn	USER NAME = HAS	DESIGNED - DAJ	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	GENERAL NOTES AND STANDARDS	F.A.S. RTE. 2936	SECTION 14BR-1 & 16BR-1	COUNTY PULASKI	TOTAL SHEETS 68	SHEET NO. 2
	PLOT SCALE = 0.0833 ' / IN.	DRAWN - DWH/HAS	REVISED -		SCALE:	FED. ROAD DIST. NO.	ILL. ROUTE NO.	CONTRACT NO. 78071		
	PLOT DATE = 5/18/2010 7:42:54 AM	CHECKED - MTD	REVISED -		SHEET NO. 1 OF 1 SHEETS STA. TO STA.			PROJECT		
		DATE - 5/10	REVISED -							

ESCA CONSULTANTS, INC.
CIVIL & STRUCTURAL ENGINEERS URBANA, ILLINOIS

SUMMARY OF QUANTITIES

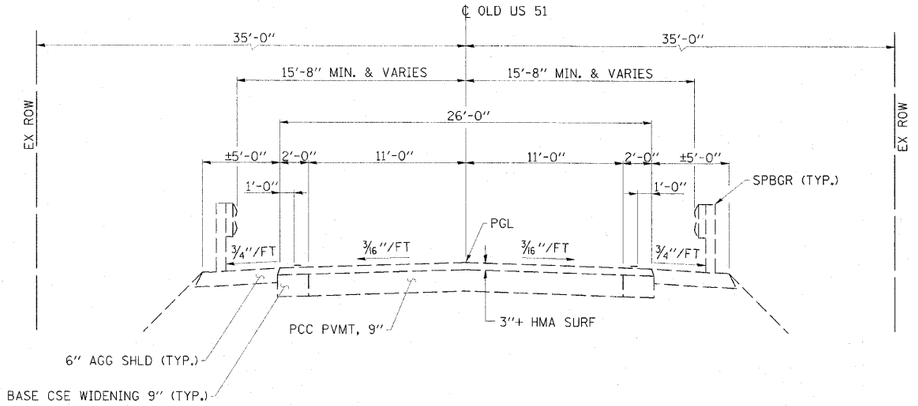
CODE NO.	ITEM	UNIT	HBP FUNDING 80% FEDERAL 20% STATE	CONSTRUCTION TYPE CODE	
			TOTAL	0014 SN 077 -0016	0014 SN 077 -0035
20200500	EARTH EXCAVATION (WIDENING)	CU YD	45	45	
X2070304	POROUS GRANULAR EMBANKMENT, SPECIAL	CU YD	40	40	
25000210	SEEDING, CLASS 2A	ACRE	0.4	0.4	
25000350	SEEDING, CLASS 7	ACRE	0.4	0.4	
25000400	NITROGEN FERTILIZER NUTRIENT	POUND	36	36	
25000500	PHOSPHORUS FERTILIZER NUTRIENT	POUND	36	36	
25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	36	36	
25000700	AGRICULTURAL GROUND LIMESTONE	TON	0.8	0.8	
25100115	MULCH, METHOD 2	ACRE	0.8	0.8	
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	80	80	
28000400	PERIMETER EROSION BARRIER	FOOT	560	560	
28100705	STONE DUMPED RIPRAP, CLASS A3	SQ YD	60	60	
35650500	BASE COURSE WIDENING 10"	SQ YD	158	158	
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	6		6
40600100	BITUMINOUS MATERIALS (PRIME COAT)	GALLON	131	43	88
40600300	AGGREGATE (PRIME COAT)	TON	0.4	0.4	
40600645	LEVELING BINDER (MACHINE METHOD), N90	TON	60		60
40600982	HOT-MIX ASPHALT SURFACE REMOVAL - BUTT JOINT	SQ YD	433	259	174
40600990	TEMPORARY RAMP	SQ YD	136	136	
40603320	HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N90	TON	86	18	68
42001420	BRIDGE APPROACH PAVEMENT CONNECTOR (PCC)	SQ YD	43	43	
44000100	PAVEMENT REMOVAL	SQ YD	206	206	
48102100	AGGREGATE WEDGE SHOULDER, TYPE B	TON	30		30
48203100	HOT-MIX ASPHALT SHOULDERS	TON	4	4	
50101700	REMOVAL OF EXISTING SUPERSTRUCTURES NO. 1	EACH	1	1	
50101800	REMOVAL OF EXISTING SUPERSTRUCTURES NO. 2	EACH	1		1
50102400	CONCRETE REMOVAL	CU YD	10.1	6.6	3.5
50200100	STRUCTURE EXCAVATION	CU YD	58	55	3
50300225	CONCRETE STRUCTURES	CU YD	31.0	31.0	
50300255	CONCRETE SUPERSTRUCTURE	CU YD	99.2	95.0	4.2
50300260	BRIDGE DECK GROOVING	SQ YD	880	638	242
50300300	PROTECTIVE COAT	SQ YD	880	638	242
50400205	PRECAST PRESTRESSED CONCRETE DECK BEAMS (11" DEPTH)	SQ FT	2,177		2,177
50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ FT	3,818	3,818	
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	37,250	33,700	3,550
50800515	BAR SPLICERS	EACH	352	352	
50901050	STEEL RAILING, TYPE SM	FOOT	469	332	137

SUMMARY OF QUANTITIES

CODE NO.	ITEM	UNIT	HBP FUNDING 80% FEDERAL 20% STATE	CONSTRUCTION TYPE CODE	
			TOTAL	0014 SN 077 -0016	0014 SN 077 -0035
Z0026407	TEMPORARY SHEET PILING	SQ FT	300	300	
51500100	NAME PLATES	EACH	2	1	1
59000200	EPOXY CRACK INJECTION	FOOT	71	68	3
59100100	GEOCOMPOSITE WALL DRAIN	SQ YD	27	27	
Z0046304	PIPE UNDERDRAINS FOR STRUCTURES 4"	FOOT	100	100	
* 63100087	TRAFFIC BARRIER TERMINAL, TYPE 6A	EACH	7	4	3
* 63100088	TRAFFIC BARRIER TERMINAL TYPE 6A (SPECIAL)	EACH	1		1
* 63100167	TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT	EACH	1	1	
63200310	GUARDRAIL REMOVAL	FOOT	341	181	160
67000400	ENGINEER'S FIELD OFFICE, TYPE A	CAL MO	6	4	2
67100100	MOBILIZATION	L SUM	1	0.5	0.5
70100405	TRAFFIC CONTROL AND PROTECTION, STANDARD 701321	EACH	1	1	
70100450	TRAFFIC CONTROL AND PROTECTION, STANDARD 701201	L SUM	1	0.5	0.5
70100500	TRAFFIC CONTROL AND PROTECTION, STANDARD 701326	L SUM	1	1	
70103815	TRAFFIC CONTROL SURVEILLANCE	CAL DA	6	6	
70106500	TEMPORARY BRIDGE TRAFFIC SIGNALS	EACH	1	1	
70106800	CHANGEABLE MESSAGE SIGN	CAL MO	13	9	4
70300100	SHORT-TERM PAVEMENT MARKING	FOOT	324	216	108
70300220	TEMPORARY PAVEMENT MARKING - LINE 4"	FOOT	1,762	1,004	758
70301000	WORK ZONE PAVEMENT MARKING REMOVAL	SQ FT	696	407	289
70400100	TEMPORARY CONCRETE BARRIER	FOOT	400	400	
70400200	RELOCATE TEMPORARY CONCRETE BARRIER	FOOT	400	400	
* 78001110	PAINT PAVEMENT MARKING - LINE 4"	FOOT	1,762	1,004	758
* 78200410	GUARDRAIL MARKERS, TYPE A	EACH	8	4	4
* 78200520	BARRIER WALL MARKERS, TYPE B	EACH	6	4	2
* 78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	1	1	
78300100	PAVEMENT MARKING REMOVAL	SQ FT	217	217	
78300200	RAISED REFLECTIVE PAVEMENT MARKER REMOVAL	EACH	6	2	4
* 86200300	UNINTERRUPTIBLE POWER SUPPLY, EXTENDED	EACH	1	1	
X0324744	REMOVAL OF EXISTING PRECAST CONCRETE UNITS	SQ FT	300	300	
Z0012754	STRUCTURAL REPAIR OF CONCRETE (DEPTH EQUAL TO OR LESS THAN 5 INCHES)	SQ FT	65	46	19
X5030305	CONCRETE WEARING SURFACE, 5"	SQ YD	425	425	
X7013015	TRAFFIC CONTROL FOR ROAD CLOSURE	L SUM	1		1
Z0001900	ASBESTOS BEARING PAD REMOVAL	EACH	40	40	
Z0030250	IMPACT ATTENUATORS, TEMPORARY (NON-REDIRECTIVE), TEST LEVEL 3	EACH	2	2	
Z0030350	IMPACT ATTENUATORS, RELOCATE (NON-REDIRECTIVE), TEST LEVEL 3	EACH	2	2	
X5030307	CONCRETE WEARING SURFACE, 7"	SQ YD	242		242

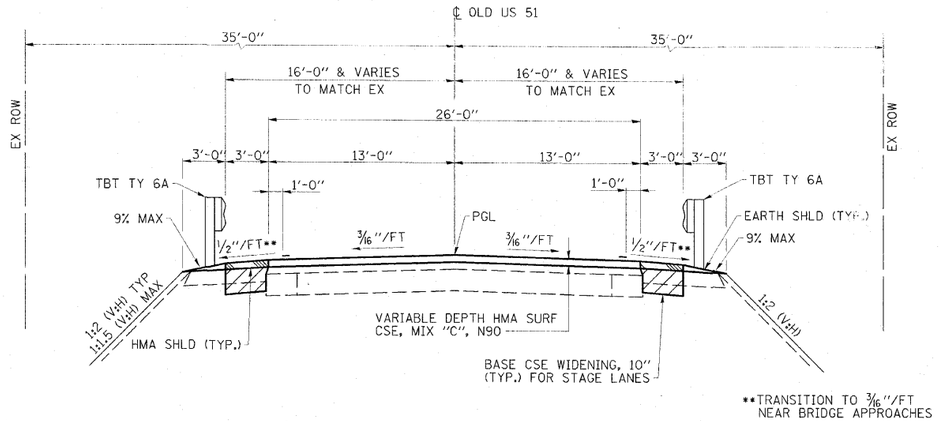
*Specialty Items

FILE NAME =	USER NAME =	DESIGNED - DAJ	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SUMMARY OF QUANTITIES	F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
D97407\sht-soq51.dgn	PLOT SCALE = IN.	DRAWN - DWH	REVISED -			2936	14BR & 16BR-1	PULASKI	68	3
	PLOT DATE = 7:52:19 AM	CHECKED - MTD	REVISED -		SCALE: SHEET NO. 1 OF 1 SHEETS STA. TO STA.			CONTRACT NO. 78071		
		DATE - 5/10	REVISED -			FED. ROAD DIST. NO.	ILLINOIS FED.	PROJECT		



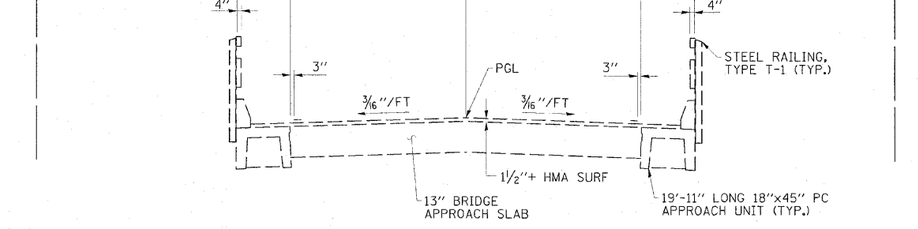
EXISTING TYPICAL ROADWAY SECTION

STA 826+00.00 TO 829+08.58
STA 830+69.72 TO 834+00.00



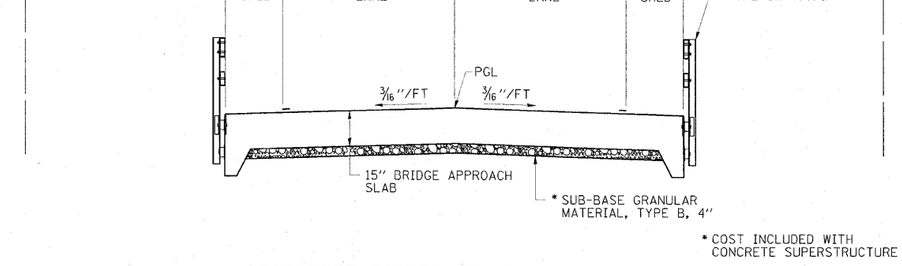
PROPOSED TYPICAL ROADWAY SECTION

STA 827+57.00 TO 828+99.46
STA 830+78.84 TO 831+21.00



EXISTING BRIDGE APPROACH SECTION

STA 829+08.58 TO 830+69.72
BRIDGE OMISSION STA 829+28.49 TO 830+49.81



PROPOSED BRIDGE APPROACH SECTION

STA 828+99.46 TO 830+78.84
BRIDGE OMISSION STA 829+29.46 TO 830+48.84

HMA MIXTURES REQUIREMENTS

LOCATION(S):	HOT MIX ASPHALT SURFACE COURSE AND LEVELING BINDER	BASE COURSE WIDENING, APPR CONNECTOR	HOT MIX ASPHALT SHOULDERS
MIXTURE USE(S):	HOT MIX ASPHALT SURFACE COURSE, MIX C, N90	HOT MIX ASPHALT BINDER COURSE, N90, IL-19.0	HOT MIX ASPHALT SHOULDERS
AC/PG:	PG64-22	PG64-22	PG58-22
RAP % (MAX): ***	10	10	50
DESIGN AIR VOIDS:	4.0%, 90 GYRATION DESIGN	4.0%, 90 GYRATION DESIGN	2.0%, 30 GYRATION DESIGN
MIXTURE COMPOSITION: (GRADATION MIXTURE)	IL-9.5 OR IL-12.5	IL-19.0	HMA SHOULDERS
FRICTION AGGREGATE:	C SURFACE	NONE	NONE

*** IF RAP OPTION IS SELECTED, THE ASPHALT CEMENT GRADE MAY NEED TO BE ADJUSTED. THIS WILL BE DETERMINED BY THE ENGINEER.

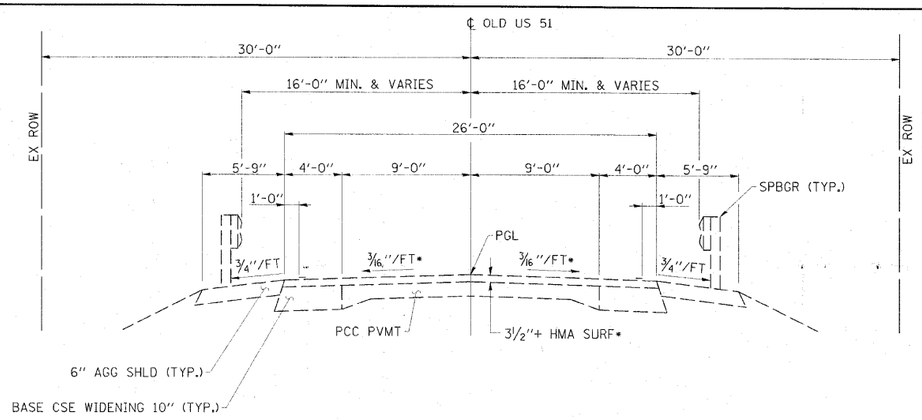
FILE NAME = 0976871-sht-typsect51.dgn	USER NAME = HAS	DESIGNED - DAJ	REVISED -
		DRAWN - DWH	REVISED -
	PLOT SCALE = 0.0833 ' / IN.	CHECKED - MTD	REVISED -
	PLOT DATE = 5/17/2010 9:47:28 AM	DATE - 5/10	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TYPICAL SECTIONS

SCALE: | SHEET NO. 1 OF 2 SHEETS | STA. | TO STA.

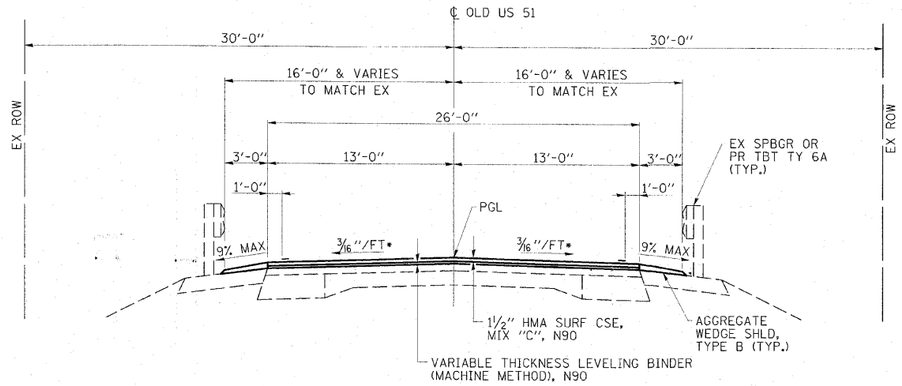
F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	14BR-1	PULASKI	68	4
		CONTRACT NO. 78071		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



*VARIES IN SUPERELEVATION TRANSITION FROM STA 148+73.00 TO 150+47.00

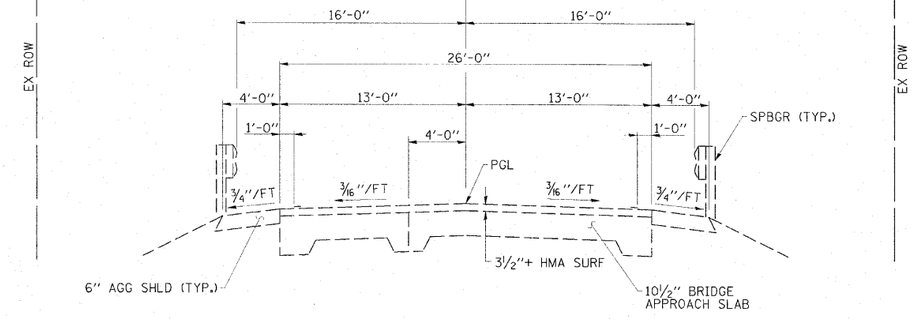
EXISTING TYPICAL ROADWAY SECTION

STA 148+73.00 TO 150+64.92
STA 151+75.08 TO 154+50.00



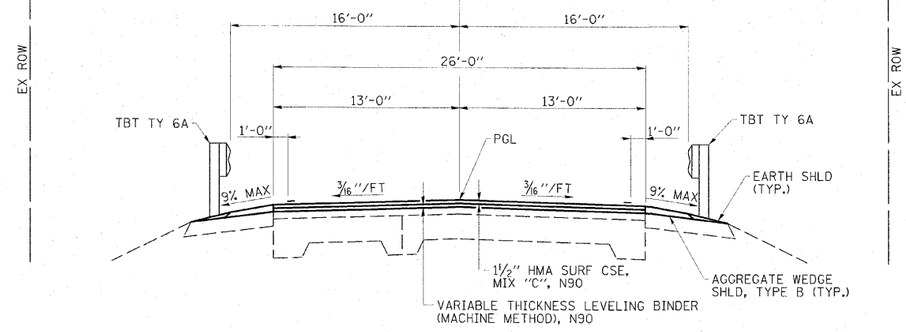
PROPOSED TYPICAL ROADWAY SECTION

STA 149+51.00 TO 150+64.92
STA 151+75.08 TO 152+85.00



EXISTING BRIDGE APPROACH SECTION

STA 150+64.92 TO 151+75.08
BRIDGE OMISSION STA 150+84.92 TO 151+55.08



PROPOSED BRIDGE APPROACH SECTION

STA 150+64.92 TO 151+75.08
BRIDGE OMISSION STA 150+84.92 TO 151+55.08

HMA MIXTURES REQUIREMENTS

LOCATION(S):	HOT MIX ASPHALT SURFACE COURSE AND LEVELING BINDER	BASE COURSE WIDENING	HOT MIX ASPHALT SHOULDERS
MIXTURE USE(S):	HOT MIX ASPHALT SURFACE COURSE, MIX C, N90	HOT MIX ASPHALT BINDER COURSE, N90, IL-19.0	HOT MIX ASPHALT SHOULDERS
AC/PG:	PG64-22	PG64-22	PG58-22
RAP % (MAX): ***	10	10	50
DESIGN AIR VOIDS:	4.0%, 90 GYRATION DESIGN	4.0%, 90 GYRATION DESIGN	2.0%, 30 GYRATION DESIGN
MIXTURE COMPOSITION: (GRADATION MIXTURE)	IL-9.5 OR IL-12.5	IL-19.0	HMA SHOULDERS
FRICTION AGGREGATE:	C SURFACE	NONE	NONE

*** IF RAP OPTION IS SELECTED, THE ASPHALT CEMENT GRADE MAY NEED TO BE ADJUSTED. THIS WILL BE DETERMINED BY THE ENGINEER.

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	PLOT DATE = 5/17/2020 11:26:46 PM	DATE - 5/10	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TYPICAL SECTIONS

SCALE: | SHEET NO. 2 OF 2 SHEETS | STA. | TO STA.

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	16BR-1	PULASKI	68	5

CONTRACT NO. 78071

FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT

ESCA CONSULTANTS, INC.

EARTHWORK SCHEDULE

LOCATION	SUITABLE EARTH EXCAVATION (WIDENING)	SUITABLE EARTH EXCAVATION ADJUSTED FOR SHRINKAGE	SUITABLE INCIDENTAL EXCAVATION MATERIAL	SUITABLE INCIDENTAL EXC. MATERIAL ADJUSTED FOR SHRINKAGE	EMBANKMENT (NOT A PAY ITEM)	EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-)
	CU YD	CU YD	CU YD	CU YD	CU YD	CU YD
NE QUADRANT CUTS & FILLS	9.2	6.9			12.1	-5.2
SE QUADRANT CUTS & FILLS	12.0	9.0			8.3	+0.7
NW QUADRANT CUTS & FILLS	9.8	7.4			3.0	+4.4
SW QUADRANT CUTS & FILLS	11.5	8.6			4.1	+4.5
EXCAVATION FOR PGE			45	34		+34
EXCAVATION FOR APPR FOOTING			20	15		+15
TOTALS	42.5	31.9	65	49	27.5	+53.4

NOTES:
1. EXCAVATION USED AS EMBANKMENT = (SUITABLE EARTH EXCAVATION + SUITABLE INCIDENTAL EXCAVATION)*0.75

EROSION CONTROL SCHEDULE

LOCATION	PERIMETER EROSION BARRIER	TEMPORARY EROSION CONTROL SEEDING (2 APPLICATIONS)
	FOOT	POUND
NE QUADRANT CUTS & FILLS	140	20
SE QUADRANT CUTS & FILLS	140	20
NW QUADRANT CUTS & FILLS	140	20
SW QUADRANT CUTS & FILLS	140	20
TOTALS	560	80

SEEDING SCHEDULE

LOCATION	SEEDING, CLASS 2A	SEEDING, CLASS 7	NITROGEN FERTILIZER NUTRIENT	PHOSPHORUS FERTILIZER NUTRIENT	POTASSIUM FERTILIZER NUTRIENT	AGRICULTURAL GROUND LIMESTONE	MULCH, METHOD 2
	ACRE	ACRE	POUND	POUND	POUND	TON	ACRE
NE QUADRANT CUTS & FILLS	0.1	0.1	9	9	9	0.2	0.2
SE QUADRANT CUTS & FILLS	0.1	0.1	9	9	9	0.2	0.2
NW QUADRANT CUTS & FILLS	0.1	0.1	9	9	9	0.2	0.2
SW QUADRANT CUTS & FILLS	0.1	0.1	9	9	9	0.2	0.2
TOTALS	0.4	0.4	36	36	36	0.8	0.8

REMOVAL SCHEDULE

LOCATION	PAVEMENT REMOVAL
	SQ YD
STA 828+93.46 TO 829+08.58	48.8
STA 829+08.58 TO 829+28.49	54.2
STA 830+49.61 TO 830+69.72	54.2
STA 830+69.72 TO 830+84.84	48.8
TOTAL	206.0

GUARDRAIL REMOVAL SCHEDULE

LOCATION	FOOT
STRUCTURE NO. 077-0016 - NE	47
STRUCTURE NO. 077-0016 - SE	47
STRUCTURE NO. 077-0016 - NW	47
STRUCTURE NO. 077-0016 - SW	40
TOTAL	181

PAVEMENT MARKING SCHEDULE

LOCATION	DESCRIPTION	SHORT-TERM PAVEMENT MARKING (1)	PAINT PAVEMENT MARKING - LINE	TEMP PAVEMENT MARKING - LINE
			4"	4"
		FOOT	FOOT	FOOT
STA 826+26.65 TO 833+51.65, CL	SKIP-DASH YELLOW CENTERLINE	216	180	180
STA 827+83 TO STA 831+95, LT	SOLID WHITE EDGE LINE		412	412
STA 827+83 TO STA 831+95, RT	SOLID WHITE EDGE LINE		412	412
	TOTALS	216	1,004	1,004

(1) INCLUDES 2 ADDITIONAL APPLICATIONS

PAVEMENT MARKER REMOVAL SCHEDULE

LOCATION	RRPM REMOVAL
	EACH
NORTH APPROACH	1
SOUTH APPROACH	1
TOTAL	2

WORK ZONE AND PAVEMENT MARKING REMOVAL SCHEDULE

LOCATION	PAVEMENT MARKING DESCRIPTION	WORK ZONE PAVEMENT MARKING REMOVAL	PAVEMENT MARKING REMOVAL
		SQ FT	SQ FT
CENTERLINE	SHORT-TERM	72	33.4
EDGE LINE	TEMPORARY	275	
CENTERLINE	TEMPORARY	60	
STA 828+02.65 TO 831+75.65, LT	EDGE LINE		124.4
STA 827+90.65 TO 828+79.46, RT	EDGE LINE		29.6
STA 830+98.84 TO 831+87.65, RT	EDGE LINE		29.6
	TOTALS	407	217.0

BASE COURSE SCHEDULE

LOCATION	BASE COURSE WIDENING, 10"
	SQ YD
NE QUADRANT	42
SE QUADRANT	37
NW QUADRANT	42
SW QUADRANT	37
TOTAL	158

HMA SURF REMOVAL AND TEMP RAMP SCHEDULE

LOCATION	HMA SURF REMOVAL BUTT JOINT	TEMPORARY RAMP
	SQ YD	SQ YD
STA 828+57	130	18
NORTH BRIDGE APPROACH		50
SOUTH BRIDGE APPROACH		50
STA 831+21	129	18
TOTALS	259	136

PAVING SCHEDULE

LOCATION	BITUMINOUS MATERIALS (PRIME COAT)	AGGREGATE (PRIME COAT)	BRIDGE APPR PVMT CONNECTOR (PCC)	HMA SURFACE COURSE, MIX "C", N90	HMA SHOULDERS
	GALLON	TON	SQ YD	TON	TON
NORTH APPROACH	21.5	0.2	21.5	9	2
SOUTH APPROACH	21.5	0.2	21.5	9	2
TOTALS	43	0.4	43.0	18	4

GUARDRAIL SCHEDULE

LOCATION	TRAFFIC BARRIER TERMINAL TYPE 6A	TRAFFIC BARRIER TERMINAL TYPE 1 (SPECIAL) TANGENT	GUARDRAIL MARKERS, TYPE A	BARRIER WALL MARKERS, TYPE B	TERMINAL MARKER, DIRECT APPLIED	STEEL RAILING, TYPE SM
	EACH	EACH	EACH	EACH	EACH	EACH
STRUCTURE NO. 077-0016 - NE	1		1			
STRUCTURE NO. 077-0016 - SE	1		1			
STRUCTURE NO. 077-0016 - NW	1		1			
STRUCTURE NO. 077-0016 - SW	1	1	1		1	
STRUCTURE NO. 077-0016 - BRIDGE				4		332
TOTALS	4	1	4	4	1	332

FILE NAME = 097807I-sht-schedule5I.dgn	USER NAME = HAS	DESIGNED - DAJ	REVISED -
		DRAWN - DWH	REVISED -
	PLOT SCALE = 0.0833 '/ IN.	CHECKED - MYD	REVISED -
	PLOT DATE = 5/18/20.0 7:49:32 AM	DATE - 5/10	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SCHEDULES OF QUANTITIES - SN 077-0016

SCALE: | SHEET NO. 1 OF 2 SHEETS | STA. TO STA.

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	14BR-1	PULASKI	68	6

CONTRACT NO. 78071

FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT

ESCA CONSULTANTS, INC.
CIVIL & STRUCTURAL ENGINEERS URBANA, ILLINOIS

PAVEMENT MARKING SCHEDULE

LOCATION	DESCRIPTION	SHORT-TERM PAVEMENT MARKING ①	PAINT PAVEMENT MARKING - LINE 4"	TEMP PAVEMENT MARKING - LINE 4"
		FOOT	FOOT	FOOT
STA 149+51 TO 152+85, CL	SKIP-DASH YELLOW CENTERLINE	108	90	90
STA 149+51 TO 152+85, LT	SOLID WHITE EDGE LINE		334	334
STA 149+51 TO 152+85, RT	SOLID WHITE EDGE LINE		334	334
	TOTALS	108	758	758

① INCLUDES 2 ADDITIONAL APPLICATIONS

GUARDRAIL SCHEDULE

LOCATION	TRAFFIC BARRIER TERMINAL TYPE 6A	TRAFFIC BARRIER TERMINAL TYPE 6A (SPECIAL)	GUARDRAIL MARKERS, TYPE A	BARRIER WALL MARKERS, TYPE B	STEEL RAILING, TYPE SM
	EACH	EACH	EACH	EACH	EACH
STRUCTURE NO. 077-0035 - NE		1	1		
STRUCTURE NO. 077-0035 - SE	1		1		
STRUCTURE NO. 077-0035 - NW	1		1		
STRUCTURE NO. 077-0035 - SW	1		1		
STRUCTURE NO. 077-0035 - BRIDGE				2	137
TOTALS	3	1	4	2	137

WORK ZONE PAVEMENT MARKING REMOVAL SCHEDULE

LOCATION	PAVEMENT MARKING DESCRIPTION	WORK ZONE PAVEMENT MARKING REMOVAL
		SQ FT
CENTERLINE	SHORT-TERM	36
EDGE LINE	TEMPORARY	223
CENTERLINE	TEMPORARY	30
	TOTAL	289

PAVEMENT MARKER REMOVAL SCHEDULE

LOCATION	RRPM REMOVAL
	EACH
NORTH APPROACH	2
SOUTH APPROACH	2
TOTAL	4

PAVING SCHEDULE

LOCATION	BITUMINOUS MATERIALS (PRIME COAT)	LEVELING BINDER (MACHINE METHOD), N90	HMA SURFACE COURSE, MIX "C", N90	AGG WEDGE SHOULDERS, TYPE B
	GALLON	TON	TON	TON
NORTH APPROACH	45	32.6	34.5	15
SOUTH APPROACH	43	27.4	33.5	15
TOTALS	88	60.0	68.0	30

HMA SURF REMOVAL SCHEDULE

LOCATION	BUTT JOINT
	SQ YD
STA 149+51	87
STA 152+85	87
TOTAL	174

GUARDRAIL REMOVAL SCHEDULE

LOCATION	FOOT
STRUCTURE NO. 077-0035 - NE	28
STRUCTURE NO. 077-0035 - SE	44
STRUCTURE NO. 077-0035 - NW	44
STRUCTURE NO. 077-0035 - SW	44
TOTAL	160

AGGREGATE SURFACE COURSE SCHEDULE

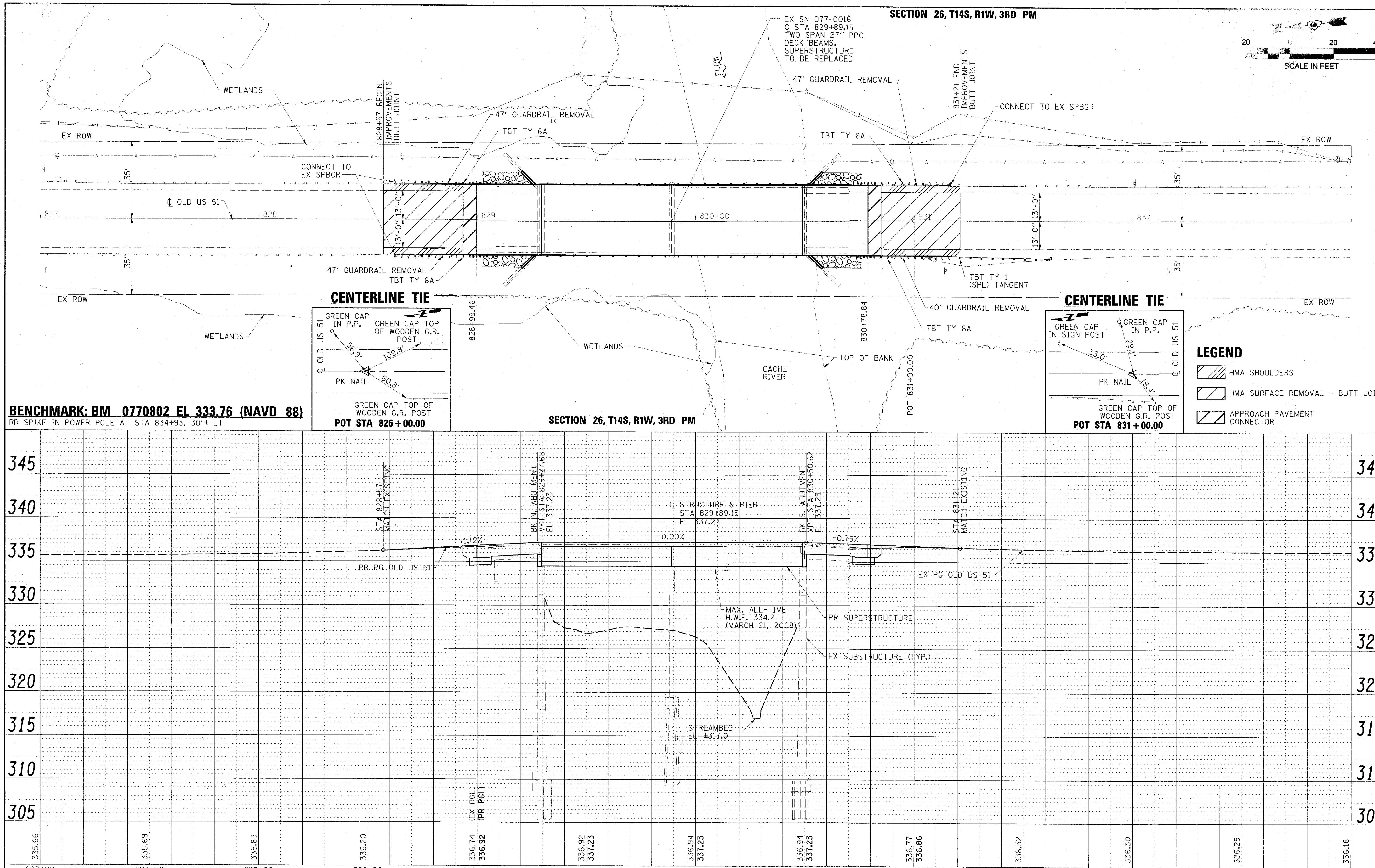
LOCATION	TYPE B
	TON
STA 150+15.4, FE LT	6
TOTAL	6

DESIGNED - DAJ	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SCHEDULES OF QUANTITIES - SN 077-0035
DRAWN - DWH	REVISED -		SCALE:
CHECKED - MTD	REVISED -		SHEET NO. 2 OF 2 SHEETS
DATE - 5/10	REVISED -		STA. TO

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	16BR-1	PULASKI	68	7

CONTRACT NO. 78071

FED. ROAD DIST. ILLINOIS AID PROJECT

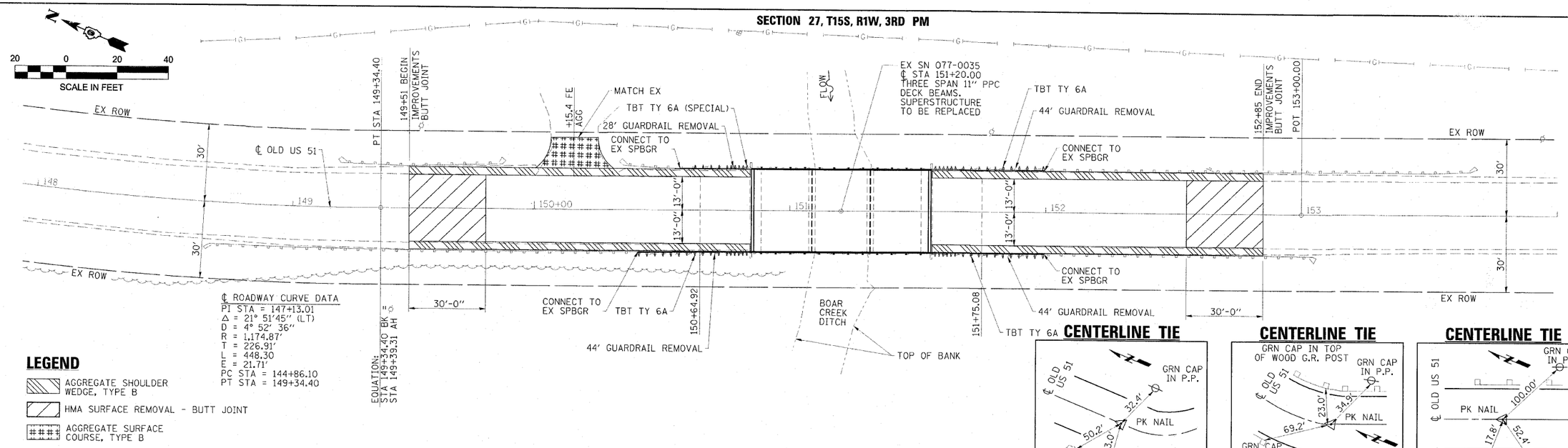

SECTION 26, T14S, R1W, 3RD PM
EX SN 077-0016
℄ STA 829+89.15
TWO SPAN 27" PPC
DECK BEAMS.
SUPERSTRUCTURE
TO BE REPLACED
FLOW
20 0 20 40
SCALE IN FEET
WETLANDS
828+57 BEGIN IMPROVEMENTS BUTT JOINT
47' GUARDRAIL REMOVAL
TBT TY 6A
831+21 END IMPROVEMENTS BUTT JOINT
CONNECT TO EX SPBGR
EX ROW
CONNECT TO EX SPBGR
35'
℄ OLD US 51
827
828
829
830+00
831
832
13'-0" 13'-0"
47' GUARDRAIL REMOVAL
TBT TY 6A
TBT TY 1 (SPL) TANGENT
40' GUARDRAIL REMOVAL
TBT TY 6A
CENTERLINE TIE
GREEN CAP IN P.P.
GREEN CAP TOP OF WOODEN G.R. POST
56.9'
109.8'
60.8'
PK NAIL
GREEN CAP TOP OF WOODEN G.R. POST
POT STA 826+00.00
828+99.46
830+78.84
POT 831+00.00
TOP OF BANK
CACHE RIVER
CENTERLINE TIE
GREEN CAP IN SIGN POST
GREEN CAP IN P.P.
33.0'
29.1'
19.4'
PK NAIL
GREEN CAP TOP OF WOODEN G.R. POST
POT STA 831+00.00
LEGEND
HMA SHOULDERS
HMA SURFACE REMOVAL - BUTT JOINT
APPROACH PAVEMENT CONNECTOR
BENCHMARK: BM 0770802 EL 333.76 (NAVD 88)
RR SPIKE IN POWER POLE AT STA 834+93, 30'± LT
SECTION 26, T14S, R1W, 3RD PM
345
340
335
330
325
320
315
310
305
STA 828+57 MATCH EXISTING
BK N. ABUTMENT VPI STA 829+27.68 EL 337.23
℄ STRUCTURE & PIER STA 829+89.15 EL 337.23
BK S. ABUTMENT VPI STA 830+50.62 EL 337.23
STA 831+21 MATCH EXISTING
+1.12%
0.00%
-0.75%
PR PG OLD US 51
EX PG OLD US 51
MAX. ALL-TIME H.W.E. 334.2 (MARCH 21, 2008)
PR SUPERSTRUCTURE
EX SUBSTRUCTURE (TYP.)
STREAMBED EL ±317.0
(EX PGL)
(PR PGL)
335.66
335.69
335.83
336.20
336.74
336.92
336.92
337.23
336.94
337.23
336.94
337.23
336.77
336.86
336.52
336.30
336.25
336.18
827+00
827+50
828+00
828+50
829+00
829+50
830+00
830+50
831+00
831+50
832+00
832+50
833+00

FILE NAME =	USER NAME = HAS	DESIGNED - DAJ	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	FAS 2936 (OLD US 51) PLAN AND PROFILE
D97827-sht-plnprf81.dgn	PLOT SCALE = 2.00 ' / IN.	DRAWN - RJT/HAS	REVISED -		
		CHECKED - MTD	REVISED -		
SCALES: (HORIZ) 1"=20' (VERT) 1"=5'	PLOT DATE = 5/17/2010 10:01:53 AM	DATE - 5/10	REVISED -		SCALE: 1"=20'-0" SHEET NO. 1 OF 2 SHEETS STA. 827+00 TO STA. 833+00

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	14BR-1	PULASKI	68	8
		CONTRACT NO. 78071		
FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT			

ESCA CONSULTANTS, INC.
CIVIL & STRUCTURAL ENGINEERS
SPRINGFIELD, ILLINOIS

SECTION 27, T15S, R1W, 3RD PM

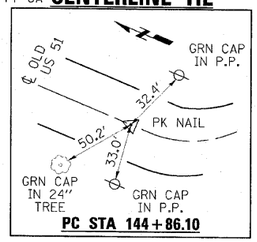


℄ ROADWAY CURVE DATA
PI STA = 147+13.01
Δ = 21° 51'45" (LT)
D = 4° 52' 36"
R = 1,174.87'
T = 226.91'
L = 448.30
E = 21.71'
PC STA = 144+86.10
PT STA = 149+34.40

LEGEND

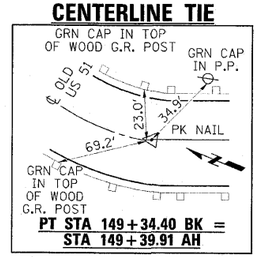
- AGGREGATE SHOULDER WEDGE, TYPE B
- HMA SURFACE REMOVAL - BUTT JOINT
- AGGREGATE SURFACE COURSE, TYPE B

CENTERLINE TIE



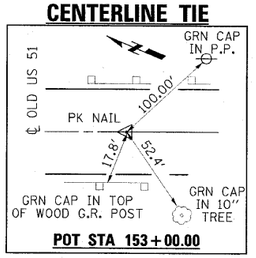
PC STA 144+86.10

CENTERLINE TIE



PT STA 149+34.40 BK = STA 149+39.91 AH

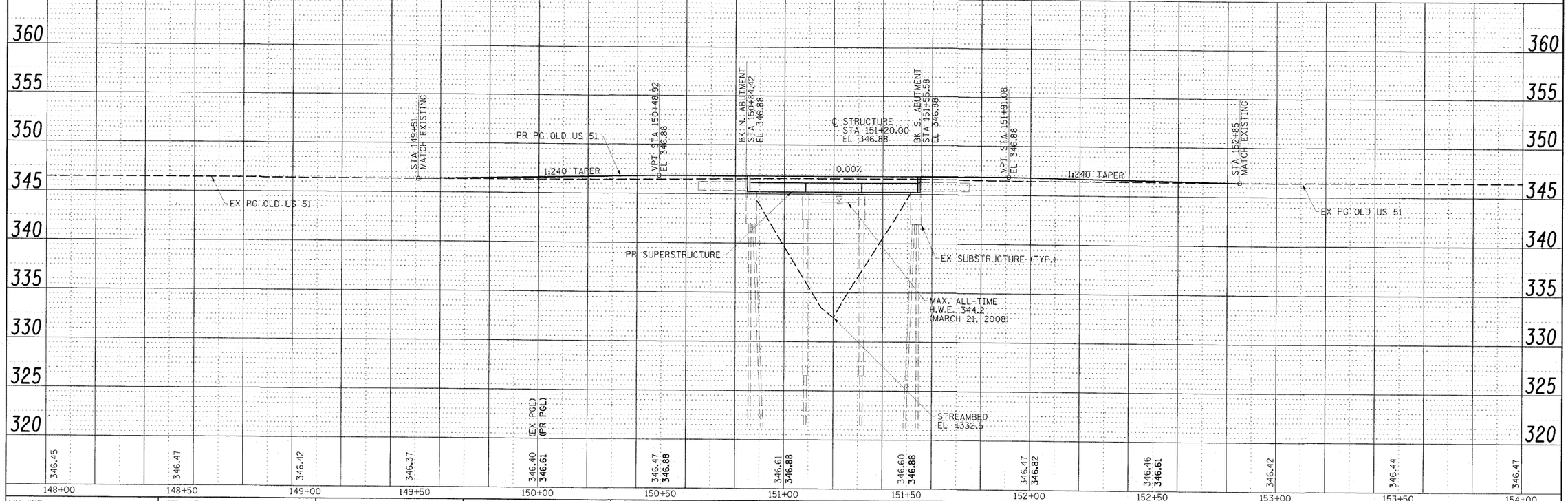
CENTERLINE TIE



POT STA 153+00.00

BENCHMARK: BM 77352 EL 343.16 (NAVD 88)
RR SPIKE IN POWER POLE AT STA 156+11, 34'± LT

SECTION 27, T15S, R1W, 3RD PM



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	PLOT SCALE = 20.0000 ' / IN.	DRAWN - DWH/HAS	REVISED -		SCALE: 1"=20'-0" | SHEET NO. 2 OF 2 SHEETS | STA. 148+00 TO STA. 154+00
SCALES: (HORIZ) 1"=20' (VERT) 1"=5'	PLOT DATE = 5/17/2010 10:00:54 AM	CHECKED - MTD	REVISED -		
		DATE - 5/10	REVISED -		

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	16BR-1	PULASKI	68	9
		CONTRACT NO. 78071		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

SCHEDULE OF QUANTITIES

TEMPORARY CONCRETE BARRIER

STATION	TO	STATION	FEET
827+89.15		831+89.15	400
		TOTAL -	400

TEMPORARY BRIDGE TRAFFIC SIGNALS - 1 EACH

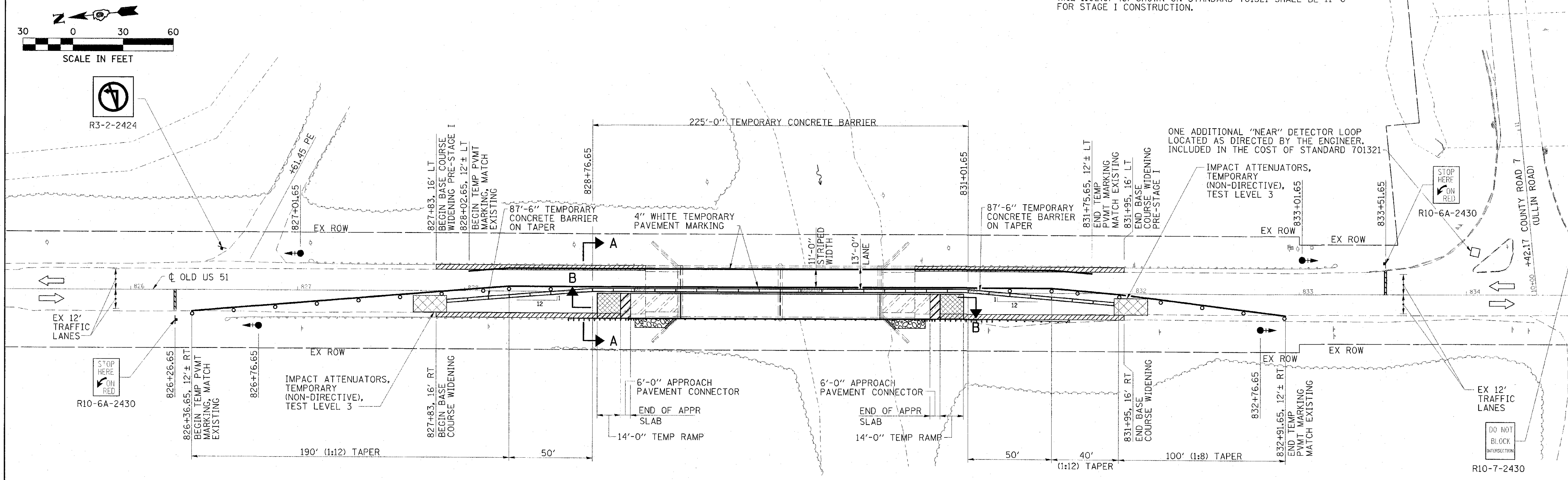
IMPACT ATTENUATORS, TEMPORARY (NON-REDIRECTIVE), TEST LEVEL 3 - 2 EACH

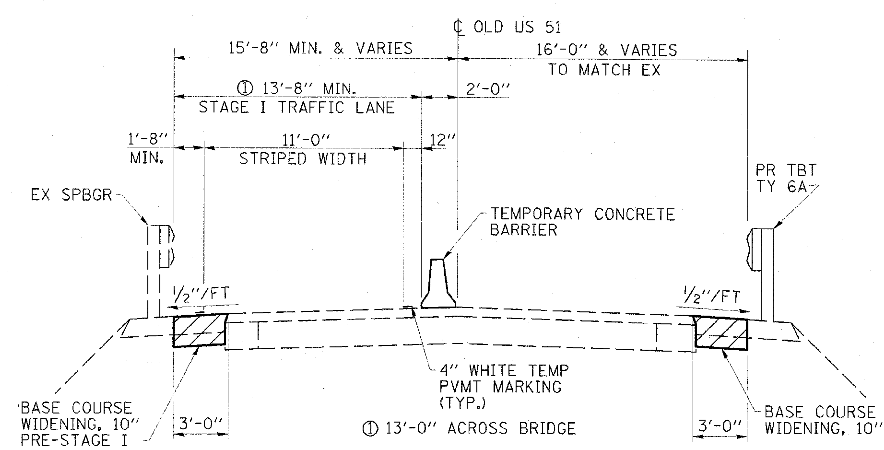
LEGEND

- TRAFFIC SIGNAL WITH BACKPLATE, SIGNAL DIRECTION INDICATED
- BASE COURSE WIDENING, 10″
- TEMPORARY RAMP
- PAVEMENT REMOVAL

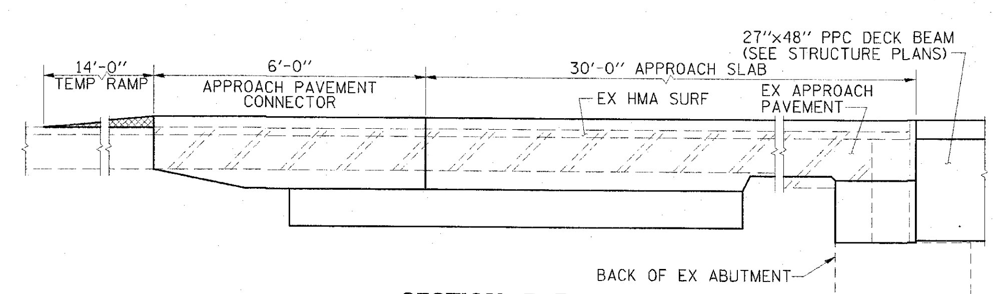
GENERAL NOTES

1. TRAFFIC CONTROL SHALL BE ERECTED AS SHOWN AND ACCORDING TO "TRAFFIC CONTROL AND PROTECTION, STANDARD 701321."
2. SEE SPECIAL PROVISIONS FOR ADDITIONAL TRAFFIC CONTROL REQUIREMENTS.
3. COORDINATE LOCATION OF SIGNALS WITH FINAL WORK AS DIRECTED BY THE ENGINEER.
4. SIGNS SHOWN IN ADVANCE OF THE STOP BARS ON STANDARD 701321 ARE ALSO REQUIRED ALONG COUNTY ROAD 7. LOCATIONS OF SIGNS SHALL BE AS DIRECTED BY THE ENGINEER.
5. ADDITIONAL SIGNAGE FOR SIDE ROADS AND ENTRANCES SHALL BE INCLUDED IN THE COST OF STANDARD 701321.
6. THE DIMENSION SHOWN ON THE WIDTH RESTRICTION SIGN (W12-I102(O)-48) SHOWN ON STANDARD 701321 SHALL BE 11′-0″ FOR STAGE I CONSTRUCTION.





SECTION A–A



SECTION B–B

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		DATE - 5/10	REVISED -

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

STAGE I CONSTRUCTION

SCALE: 1″=30′-0″ | SHEET NO. 1 OF 2 SHEETS | STA. 825+50 TO STA. 834+50

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	14BR-1	PULASKI	68	10
		CONTRACT NO. 78071		

FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT

SCHEDULE OF QUANTITIES

RELOCATE TEMPORARY CONCRETE BARRIER

STATION	TO	STATION	FEET
827+89.15		831+89.15	400
		TOTAL -	400

IMPACT ATTENUATORS, RELOCATE (NON-REDIRECTIVE), TEST LEVEL 3 - 2 EACH

LEGEND

TRAFFIC SIGNAL WITH BACKPLATE, SIGNAL DIRECTION INDICATED

TEMPORARY RAMP

PAVEMENT REMOVAL

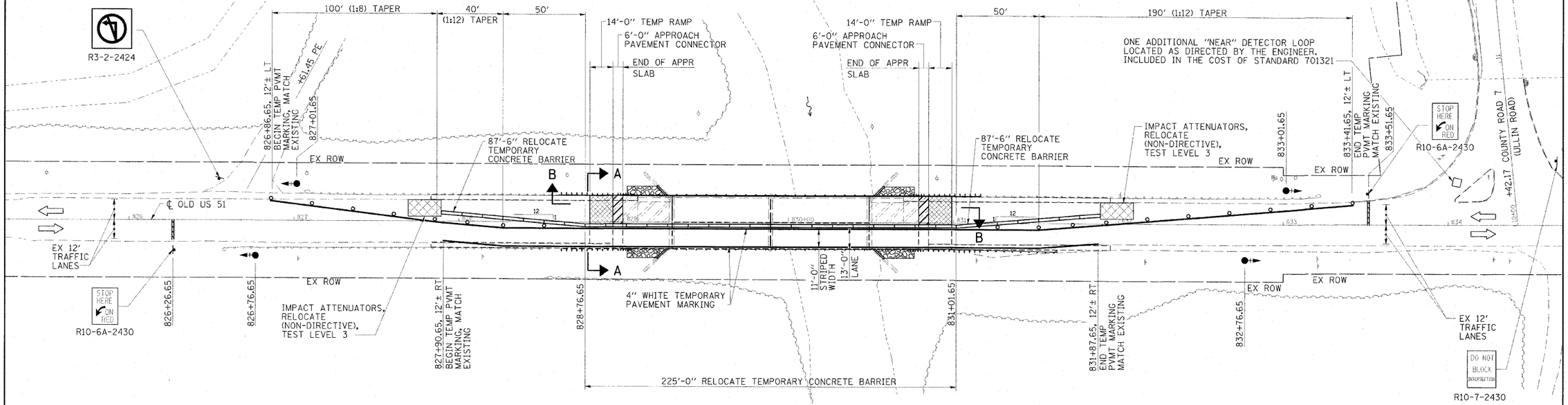
N

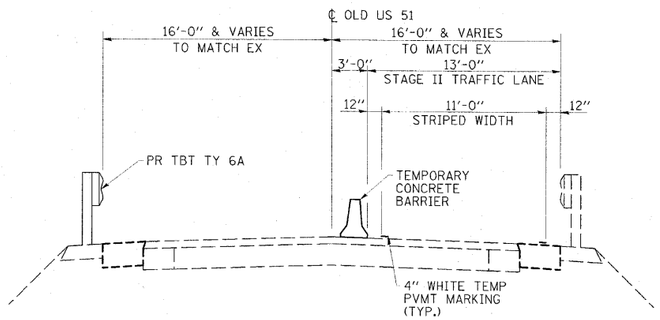
30 0 30 60

SCALE IN FEET

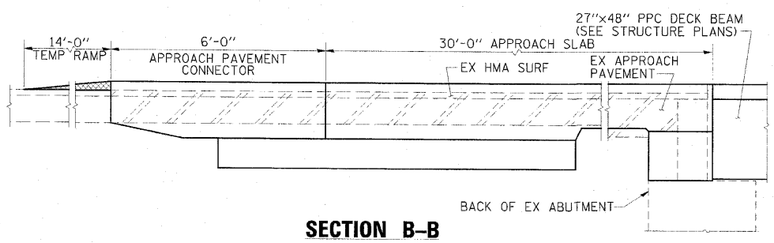
GENERAL NOTES

1. TRAFFIC CONTROL SHALL BE ERECTED AS SHOWN AND ACCORDING TO "TRAFFIC CONTROL AND PROTECTION, STANDARD 701321."
2. SEE SPECIAL PROVISIONS FOR ADDITIONAL TRAFFIC CONTROL REQUIREMENTS.
3. COORDINATE LOCATION OF SIGNALS WITH FINAL WORK AS DIRECTED BY THE ENGINEER.
4. SIGNS SHOWN IN ADVANCE OF THE STOP BARS ON STANDARD 701321 ARE ALSO REQUIRED ALONG COUNTY ROAD 7. LOCATIONS OF SIGNS SHALL BE AS DIRECTED BY THE ENGINEER.
5. ADDITIONAL SIGNAGE FOR SIDE ROADS AND ENTRANCES SHALL BE INCLUDED IN THE COST OF STANDARD 701321.
6. THE DIMENSION SHOWN ON THE WIDTH RESTRICTION SIGN (W12-1102(O)-48) SHOWN ON STANDARD 701321 SHALL BE 11'-0" FOR STAGE II CONSTRUCTION.





SECTION A–A



SECTION B–B

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

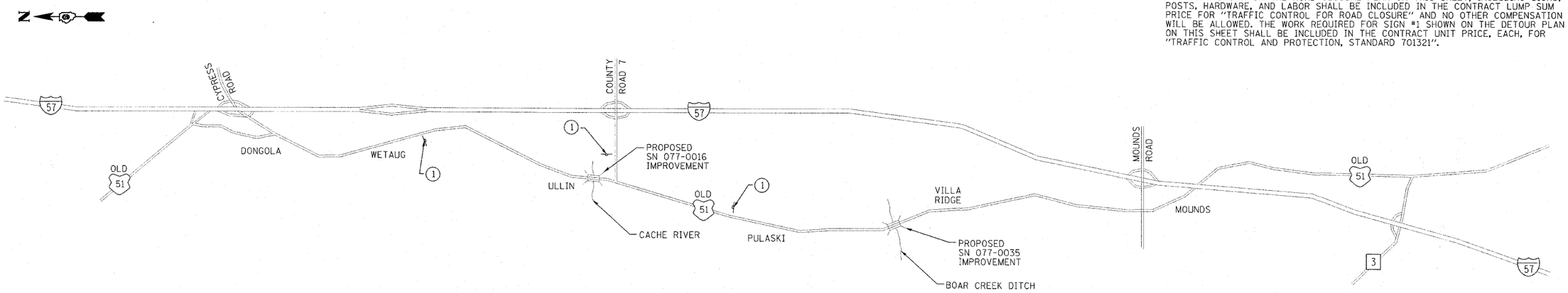
STAGE II CONSTRUCTION

SCALE: 1"=30'-0" | SHEET NO. 2 OF 2 SHEETS | STA. 825+50 | TO STA. 834+50

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	14BR-1	PULASKI	68	11
		CONTRACT NO. 78071		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

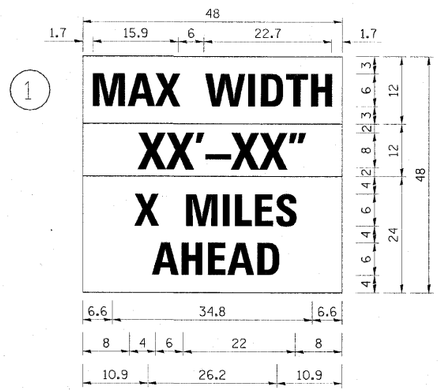
NOTES

1. THE CONTRACTOR SHALL FURNISH THE POSTS AND ERECT THE SIGNS AT THE LOCATIONS DIRECTED BY THE ENGINEER. ALL SIGNS SHALL BE POST MOUNTED.
2. THE WIDTH SHOWN ON SIGN #1 (W12-I103) SHALL BE 11'-0" OR AS DIRECTED BY THE ENGINEER. THE 'X' MILES AHEAD WILL BE DETERMINED BY THE ENGINEER.
3. ALL WORK SHOWN ON THE ROAD CLOSURE PLAN ON THIS SHEET, INCLUDING SIGNS, POSTS, HARDWARE, AND LABOR SHALL BE INCLUDED IN THE CONTRACT LUMP SUM PRICE FOR "TRAFFIC CONTROL FOR ROAD CLOSURE" AND NO OTHER COMPENSATION WILL BE ALLOWED. THE WORK REQUIRED FOR SIGN #1 SHOWN ON THE DETOUR PLAN ON THIS SHEET SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE, EACH, FOR "TRAFFIC CONTROL AND PROTECTION, STANDARD 701321".



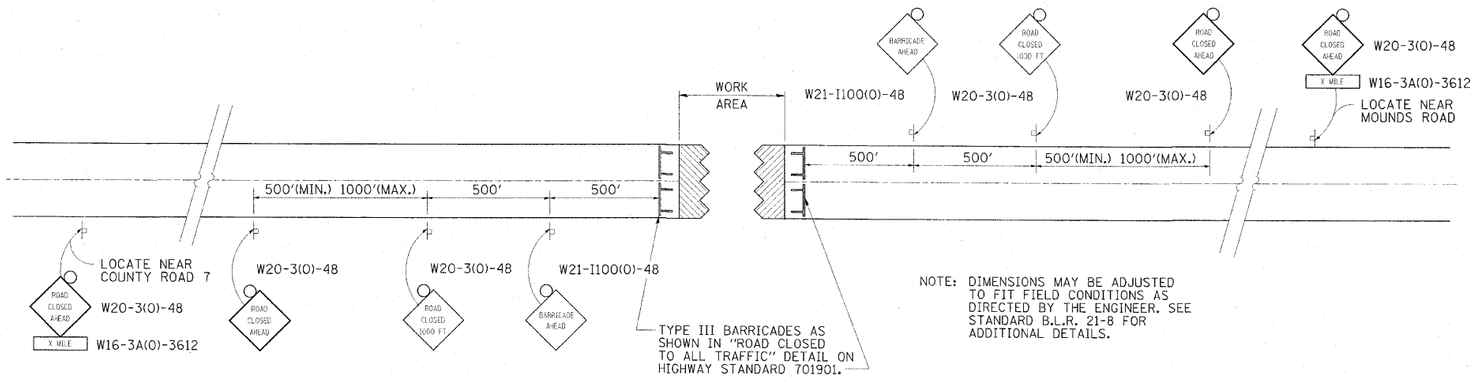
SN 077-0016
DETOUR PLAN

SIGN LEGEND



W12-I103

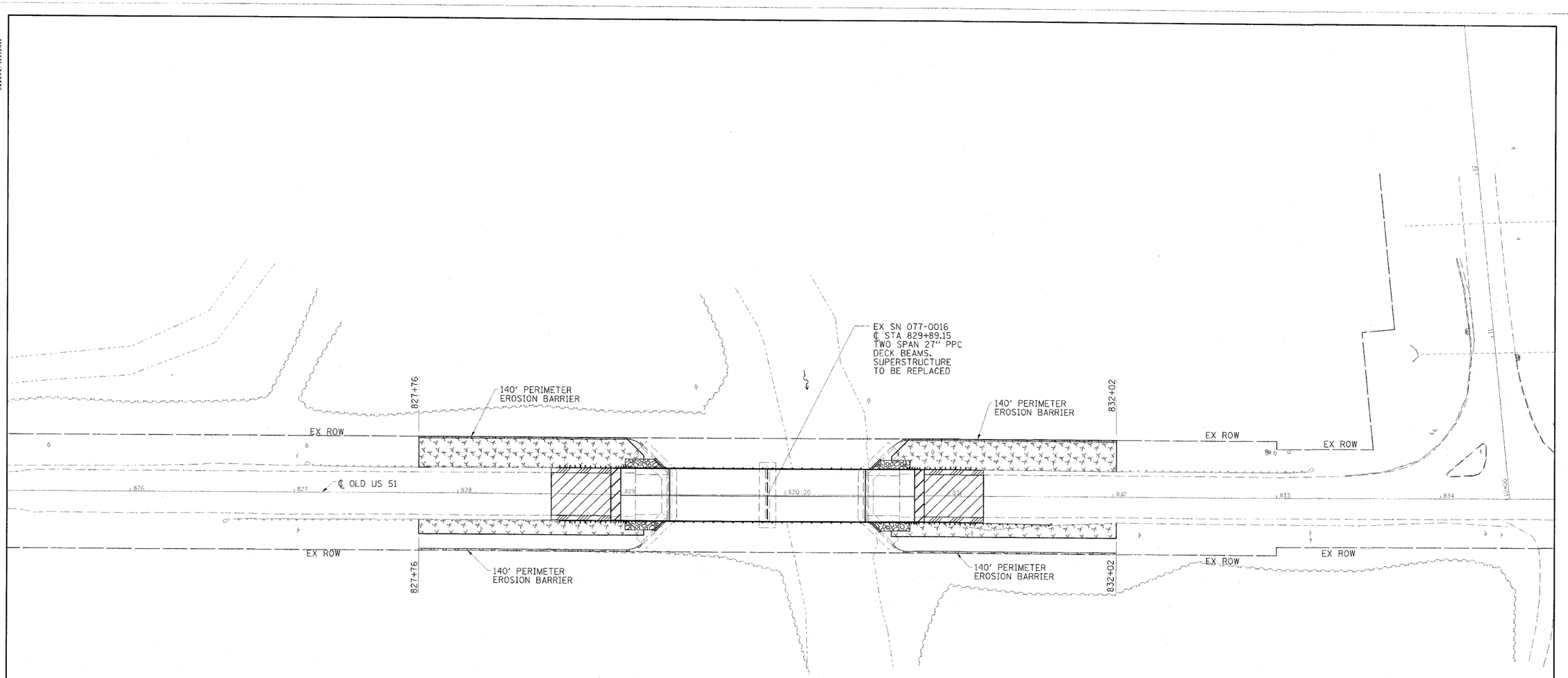
W12-I103 (Width is 8D);
No border, Black on White;
"MAX WIDTH" D;
No border, Black on Orange;
"XX'-XX"" D;
No border, Black on White;
"X MILES" D; "AHEAD" D



SN 077-0035
ROAD CLOSURE PLAN

FILE NAME = 077077-sht-sign51.dgn	USER NAME = HAS	DESIGNED - DAJ	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	DETOUR SIGNING PLAN	F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE = 0.0833 ' / IN.	DRAWN - DWH/HAS	REVISED -			2936	14BR-1 & 16BR-1	PULASKI	68	12
	PLOT DATE = 5/17/2010 10:10:13 AM	CHECKED - MTD	REVISED -		SCALE: SHEET NO. 1 OF 1 SHEETS STA. TO STA.			CONTRACT NO. 78071		
		DATE - 5/10	REVISED -			FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

ESCA CONSULTANTS, INC.
CIVIL, STRUCTURAL AND ENVIRONMENTAL ENGINEERS



N

30 0 30 60

SCALE IN FEET

LEGEND

- APPROXIMATE SEEDING AND MULCH AREAS
- PERIMETER EROSION BARRIER
- STONE DUMPED RIPRAP, CLASS A3

FILE NAME = D:\78071-sht-ero-ea51.dgn	USER NAME = HAS	DESIGNED - DAJ	REVISED -
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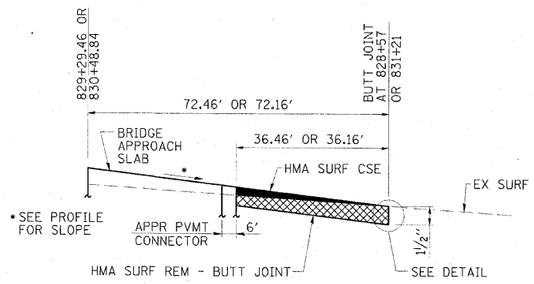
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

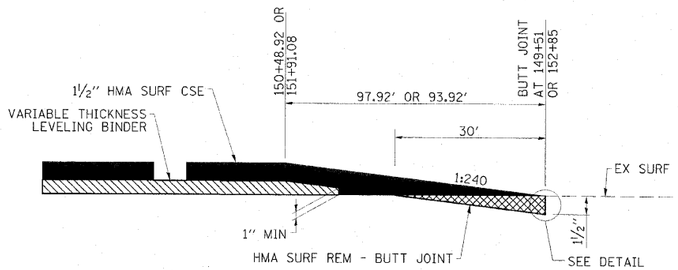
EROSION CONTROL AND DRAINAGE PLAN

SCALE: 1"=30'-0" | SHEET NO. 1 OF 1 SHEETS | STA. 825+50 | TO STA. 834+50

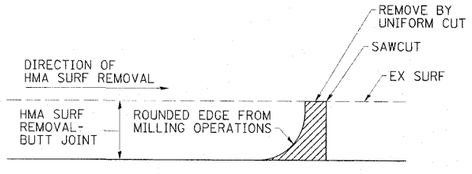
F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	14BR-1	PULASKI	68	13
		CONTRACT NO. 78071		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



TYPICAL BUTT JOINT SECTION SN077–0016

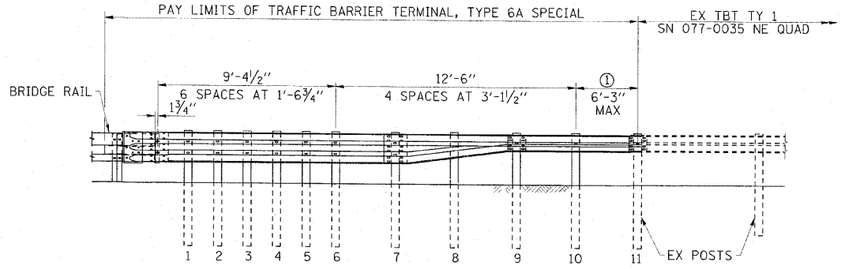


TYPICAL BUTT JOINT SECTION SN077–0035



DETAIL AT BUTT JOINT

NOTE:
WHEN MILLING OPERATIONS PRODUCE A ROUNDED EDGE, THEN A SAWCUT SHALL BE USED TO MANUFACTURE A PERPENDICULAR EDGE AS SHOWN IN THE DETAIL. THE COST OF ALL WORK SHOWN IN THE DETAIL IS INCLUDED IN HOT-MIX ASPHALT SURFACE REMOVAL - BUTT JOINT. THE ENGINEER SHALL BE THE SOLE JUDGE CONCERNING THE USE OF THIS DETAIL.



① DIMENSION TO BE DETERMINED IN THE FIELD.

TBT, TYPE 6A SPECIAL (ONLY AT SN 077–0035)

NOTES: 1. OMIT SINGLE SECTION OF THRIE BEAM SHOWN ON STANDARD 631032.

2. SEE STANDARD 631032 FOR ADDITIONAL DETAILS.

FILE NAME = 077027-sht-details51.dgn	USER NAME = HAS	DESIGNED - DAJ	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	MISCELLANEOUS DETAILS
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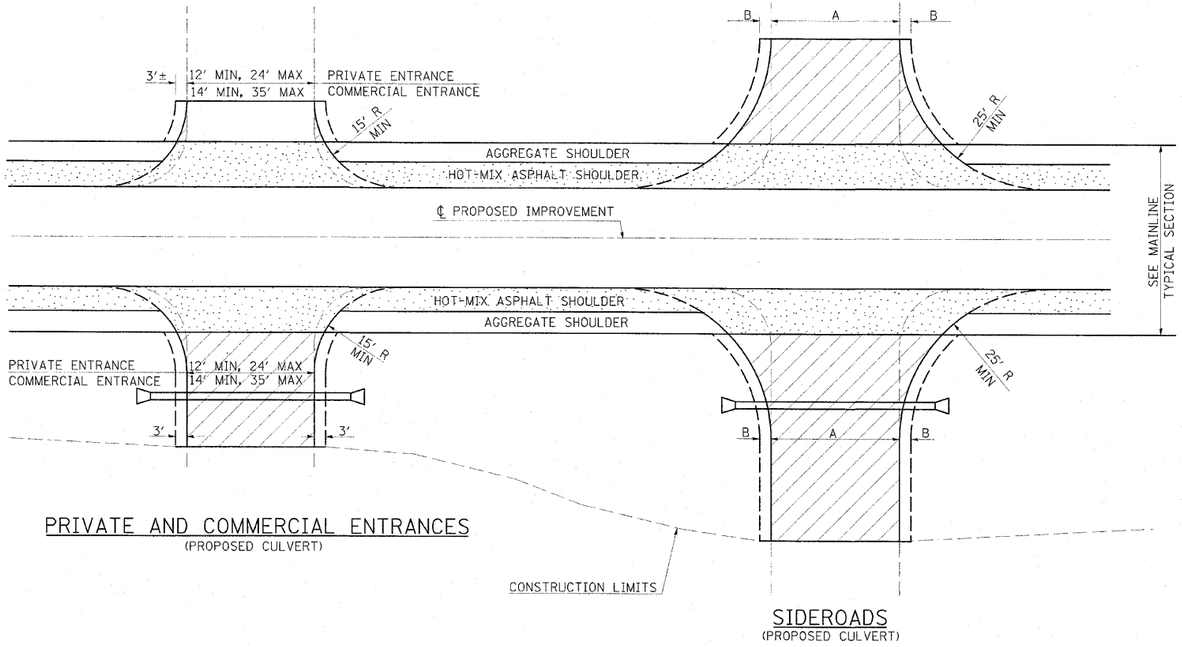
F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	14BR-1 & 16BR-1	PULASKI	68	14
		CONTRACT NO. 78071		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

RURAL SIDE APPROACH DETAILS

PRIVATE AND COMMERCIAL ENTRANCES



PRIVATE AND COMMERCIAL ENTRANCES
(PROPOSED CULVERT)

SIDEROADS

SIDEROADS
(PROPOSED CULVERT)

SIDEROAD DIMENSIONS (MIN.)

ADT	A (FT)	B (FT)
0 TO 250	18'	2'
250 TO 400	20'	2'
GREATER THAN 400	22'	4'

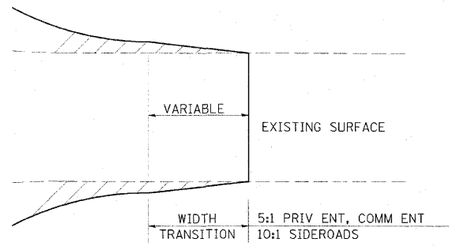
FIELD ENTRANCE TREATMENT

CONSTRUCT MAINLINE HOT-MIX ASPHALT AND AGGREGATE SHOULDERS THROUGH FIELD ENTRANCES.

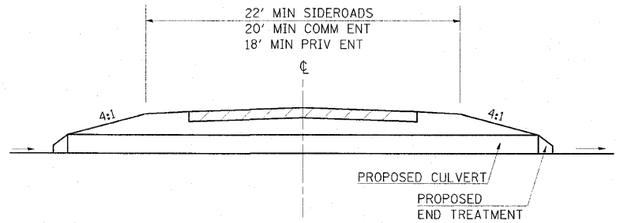
IF A PIPE IS REQUIRED, PROVIDE A 22' WIDE EARTH EMBANKMENT WITH 15' RADII AT THE INTERSECTION.

WIDTH TRANSITION DETAIL TO EXISTING

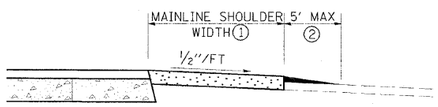
(IF APPLICABLE)

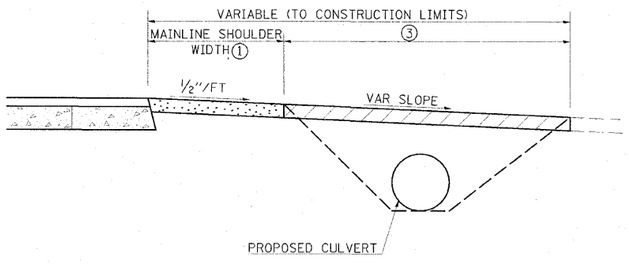


DETAIL FOR CALCULATING CULVERT LENGTH

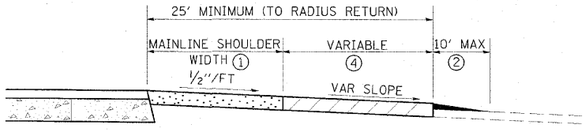


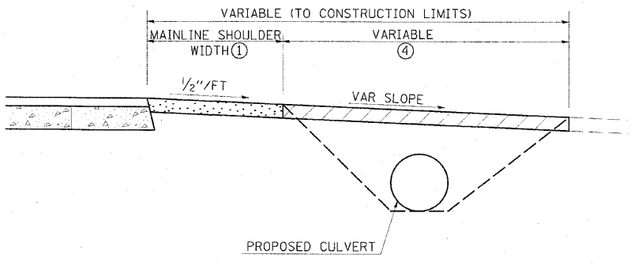
PRIVATE AND COMMERCIAL ENTRANCES





SIDEROADS





LEGEND

① CONSTRUCT HOT-MIX ASPHALT SHOULDER "FULL SHOULDER WIDTH" THROUGH ENTRANCE/INTERSECTION UNLESS OTHERWISE SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

② IF REQUIRED, AGGREGATE TAPER FOR EXISTING GRAVEL SURFACE; HOT-MIX ASPHALT TAPER FOR EXISTING HIGHER TYPE SURFACES.

③ 6" AGGREGATE SURFACE COURSE FOR EXISTING GRAVEL SURFACE; 2" HOT-MIX ASPHALT RESURFACING ON 4" AGGREGATE BASE COURSE FOR EXISTING HOT-MIX ASPHALT SURFACE; PCC DRIVEWAY PAVEMENT (6" - PE; 7" - CE) FOR EXISTING CONCRETE SURFACE.

④ 3" MINIMUM HOT-MIX ASPHALT RESURFACING ON 8" MINIMUM AGGREGATE BASE COURSE FOR EXISTING GRAVEL SURFACE OR OIL & CHIP SURFACE; MATCH EXISTING FOR EXISTING HIGHER TYPE SURFACES.

GENERAL NOTES

1. ENTRANCE LOCATIONS ARE TO COMPLY WITH IDOT'S POLICY "ACCESS TO STATE HIGHWAYS".
2. IN GENERAL, RELOCATED PRIVATE ENTRANCES ARE TO HAVE A 16' WIDE SURFACE WITH 3' WIDE SHOULDERS (22' WIDE EMBANKMENT).
3. SEE PLANS FOR PROPOSED PROFILE GRADES AT ENTRANCES/SIDEROADS. THE DESIRABLE MAXIMUM PROFILE GRADE FOR ENTRANCES ARE 12% FOR PE; 10% FOR CE.
4. ENTRANCE PIPE CULVERTS ARE TO BE A MINIMUM 15" DIAMETER AND NORMALLY REPLACED IN KIND; SIDEROAD PIPE CULVERTS ARE GENERALLY TO BE CONCRETE (18" MINIMUM DIAMETER).
5. THE INTERSECTION RADII OF SIDEROADS CONSTRUCTED TO FULL POLICY STANDARDS SHOULD COMPLY WITH THAT NOTED IN THE BUREAU OF LOCAL ROADS ADMINISTRATIVE POLICIES MANUAL (5-8-13).

REVISIONS	
DRAWN	3-15-91
REVISED	10-02-91
REVISED	5-15-92
REVISED	1-20-00
REVISED	01-11-07
RESIZED	5-7-08

STD. 9-83

FILE NAME =	USER NAME = HAS	DESIGNED - MTD	REVISED -	
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

RURAL SIDE APPROACH DETAILS

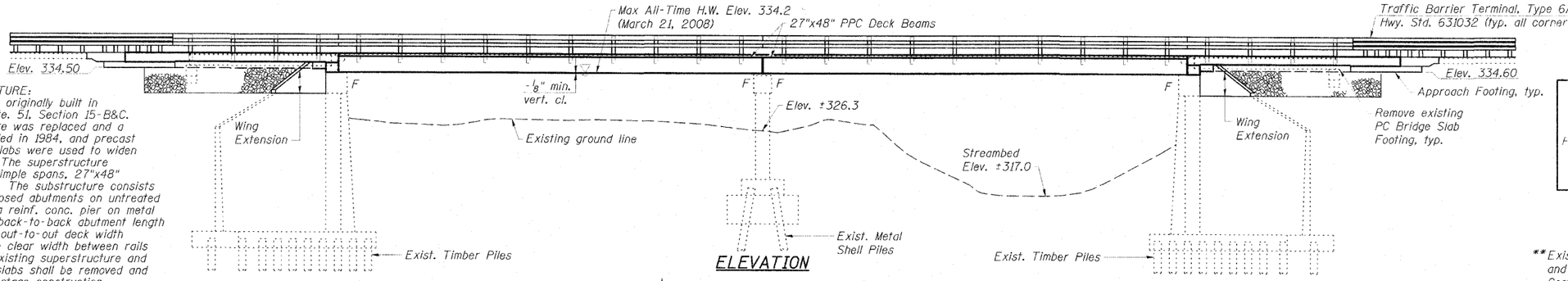
SCALE: | SHEET NO. 1 OF 1 SHEETS | STA. | TO STA.

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	14BR-1 & 16BR-1	PULASKI	68	15
		CONTRACT NO. 78071		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

BENCHMARK: BM 0770802 - RR spike in power pole at Sta. 834+93, 30'± Lt., Elev. 333.76 (NAVD 88)

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

Note: See sheet 2 of 20 for Structure Index of Sheets.



ELEVATION

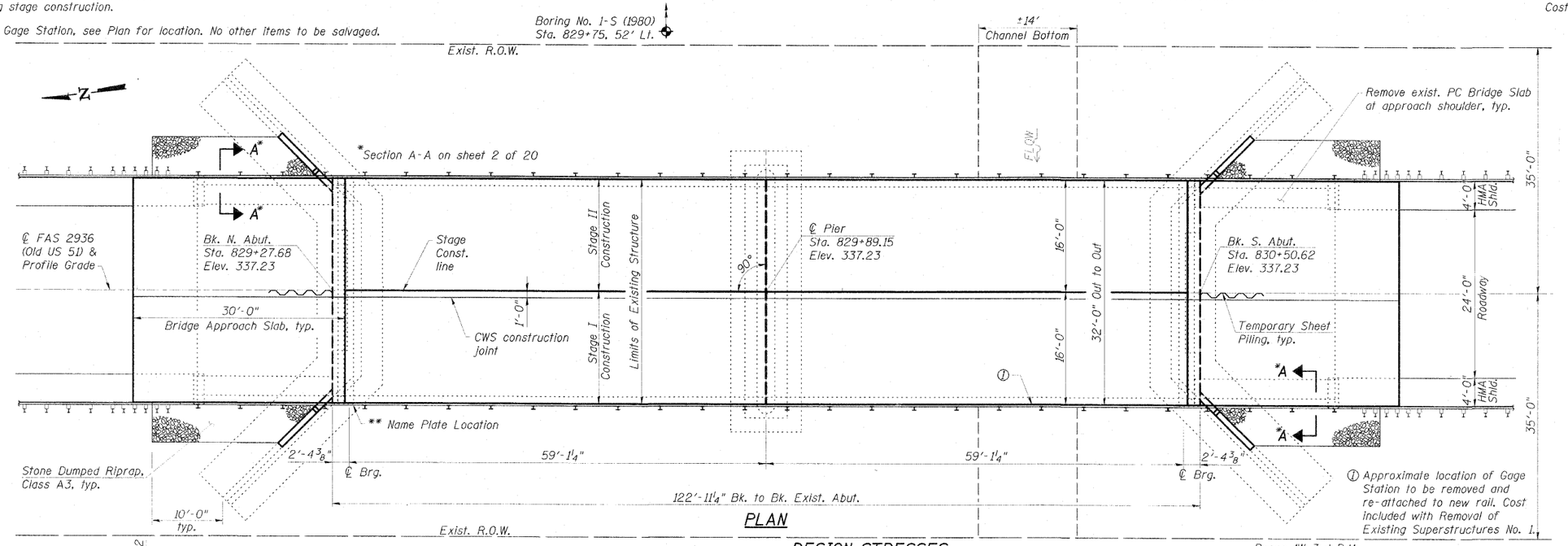
EXISTING STRUCTURE:
SN 077-0016 was originally built in 1920 as S.B.I. Rte. 51, Section 15-B&C. The superstructure was replaced and a new pier was added in 1984, and precast concrete bridge slabs were used to widen the approaches. The superstructure consists of two simple spans, 27"x48" PPC deck beams. The substructure consists of reinf. conc. closed abutments on untreated timber piles and a reinf. conc. pier on metal shell piles. The back-to-back abutment length is 122'-11¼", the out-to-out deck width is 32'-0" and the clear width between rails is 31'-4". The existing superstructure and bridge approach slabs shall be removed and replaced utilizing stage construction.

Salvage existing Gage Station, see Plan for location. No other items to be salvaged.

STATION 829+89.15
RE-BUILT 20__ BY
STATE OF ILLINOIS
F.A.S. RT. 2936 SEC. 14BR-1
LOADING HL-93
STR. NO. 077-0016

NAME PLATE
(See Hwy. Std. 515001)

**Existing Name Plate shall be cleaned and relocated next to new Name Plate. Cost included with Name Plates.

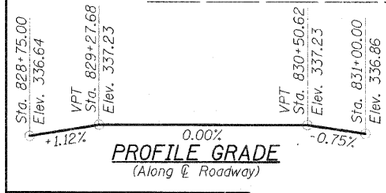


PLAN

① Approximate location of Gage Station to be removed and re-attached to new rail. Cost included with Removal of Existing Superstructures No. 1.

APPROVED
FOR STRUCTURAL ADEQUACY ONLY
Ralph E. Anderson (TDD)
ENGINEER OF BRIDGES AND STRUCTURES

STATE OF ILLINOIS
RICHARD D. PAYNE
No. 4647
LICENSED STRUCTURAL ENGINEER
EXPIRES 11-30-10
SIGNATURE
05-18-10
DATE



PROFILE GRADE
(Along ℄ Roadway)

DESIGN STRESSES

NEW CONSTRUCTION

FIELD UNITS
f'c = 3,500 psi
f'c = 5,000 psi (CWS only)
fy = 60,000 psi (Reinforcement)

PRECAST PRESTRESSED UNITS
f'c = 6,000 psi
f'ci = 5,000 psi
fpu = 270,000 psi (½"ϕ low lax strands)
fpbt = 201,960 psi (½"ϕ low lax strands)

EXISTING CONSTRUCTION

FIELD UNITS

ABUTMENT CAPS AND PIER (1984)
f'c = 3,500 psi
fy = 60,000 psi (Reinforcement)

ORIGINAL ABUTMENT ELEMENTS (1920)
(ASSUMED VALUES)
f'c = 3,000 psi
fy = 32,000 psi (Reinforcement)

SEISMIC DATA

EXISTING CONSTRUCTION
Seismic Performance Category (SPC) = B
Horizontal Bedrock Acceleration Coefficient (A) = 0.168g
Site Coefficient (S) = 1.0

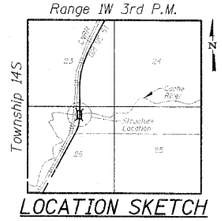
LOADING HL-93 (NEW CONST.)
LOADING HS20-44 (EXIST. CONST.)

No allowance for future wearing surface.

DESIGN SPECIFICATIONS

NEW CONSTRUCTION
2007 AASHTO LRFD Bridge Design Specifications with 2008 & 2009 Interims

EXISTING CONSTRUCTION
2002 AASHTO Bridge Design Specifications
1995 FHWA Seismic Retrofitting Manual for Highway Bridges



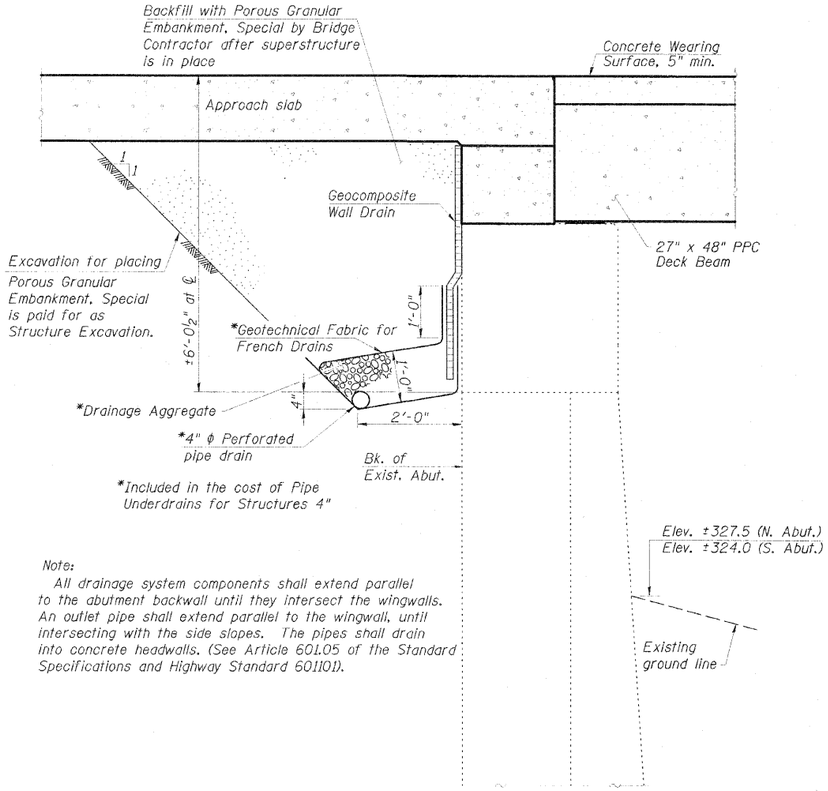
LOCATION SKETCH

GENERAL PLAN
OLD US 51 OVER CACHE RIVER
FAS ROUTE 2936 - SECTION 14BR-1
PULASKI COUNTY
STATION 829+89.15
STRUCTURE NO. 077-0016

SHEET NO. 1	F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
20 SHEETS	2936	14BR-1	PULASKI	68	16
	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJ.	CONTRACT NO. 78071	

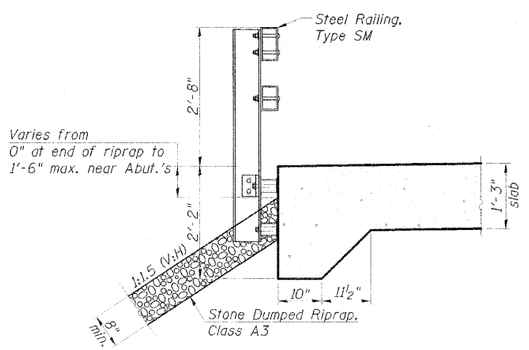
ESCA CONSULTANTS, INC.

DESIGNED BY:	MTD	01/10
DRAWN BY:	DWH/KAH	01/10
CHECKED BY	MTD	01/10
APPROVED BY:	RDP	05/10



Note:
All drainage system components shall extend parallel to the abutment backwall until they intersect the wingwalls. An outlet pipe shall extend parallel to the wingwall, until intersecting with the side slopes. The pipes shall drain into concrete headwalls. (See Article 601.05 of the Standard Specifications and Highway Standard 601101).

SECTION THRU ABUTMENT
(Dimensions are at Rt. L's)



SECTION A-A

ESCA CONSULTANTS, INC.		
DESIGNED BY:	MTD	01/10
DRAWN BY:	DWH	01/10
CHECKED BY:	MTD	01/10
APPROVED BY:	RDP	05/10

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

1. Reinforcement bars shall conform to the requirements of ASTM A706 Gr 60. See Special Provisions.
2. Reinforcement bars designated (E) shall be epoxy coated.
3. Plan dimensions and details relative to existing plans are subject to nominal construction variations. The Contractor shall field verify existing dimensions and details affecting new construction and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.
4. The existing structural steel coating contains lead. The Contractor shall take appropriate precautions to deal with the presence of lead on this project.
5. Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
6. Excavation shown behind existing abutment walls shall be performed before setting the new PPC deck beams.
7. No in-stream work will be allowed on this project.
8. The Contractor is advised that the existing PPC deck beams are in a deteriorated condition with reduced load carrying capacity. It is the Contractor's responsibility to account for the condition of the beams when developing construction procedures for removal and replacement of the superstructure.
9. Any damage done to the bridge during beam removal shall be repaired by the Contractor. Cost included with Removal of Existing Superstructures No. 1.
10. If the Contractor's procedures for existing beam removal or placement of new beams involves placement of heavy equipment on the new or existing deck beams, a detailed procedure shall be submitted to the Engineer for approval. The procedure shall include calculations, sealed by an Illinois Licensed Structural Engineer, verifying the structural adequacy of the beams for the proposed loads. Cost included with Precast Prestressed Concrete Deck Beams (27" Depth).
11. No drilling will be permitted into the new PPC deck beams.
12. The minimum thickness of the Concrete Wearing Surface shall be 5" and shall vary as required to adjust for the new profile grade and beam camber.
13. Concrete Removal and substructure repairs required for the stage being constructed shall be completed prior to placement of the new PPC deck beams.
14. The existing bearing pads at the expansion ends of the deck beams contain asbestos. See Special Provisions.
15. Out to out widths shown for deck and approach slabs are the minimum widths required. Variations in the new deck beams and erection tolerances may result in additional width. The Contractor will be paid for the quantity actually furnished based upon the unit price bid for the work.

STRUCTURE INDEX OF SHEETS

General Plan	Sheet No. 1 of 20
General Data	Sheet No. 2 of 20
Stage Construction Details	Sheet No. 3 of 20
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Top of South Approach Slab Elevations	Sheet No. 5 of 20
Superstructure	Sheet No. 6 of 20
Superstructure Details	Sheet No. 7 of 20
Bridge Approach Slab Details	Sheet No. 8-9 of 20
Steel Railing, Type SM with Concrete Wearing Surface	Sheet No. 10 of 20
27"x48" PPC Deck Beam	Sheet No. 11 of 20
27"x48" PPC Deck Beam Details	Sheet No. 12 of 20
Abutment Concrete Removal	Sheet No. 13 of 20
North Abutment Repairs and Modifications	Sheet No. 14 of 20
South Abutment Repairs and Modifications	Sheet No. 15 of 20
Pier Repairs	Sheet No. 16 of 20
Pier Details	Sheet No. 17 of 20
Bar Splicer Assembly and Mechanical Splicer Details	Sheet No. 18 of 20
Temporary Concrete Barrier for Stage Construction	Sheet No. 19 of 20
Soil Boring Log	Sheet No. 20 of 20

TOTAL BILL OF MATERIAL

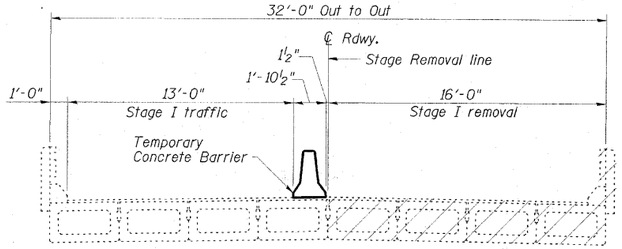
ITEM	UNIT	SUPER	SUB	TOTAL
Porous Granular Embankment, Special	Cu. Yd.		40	40
Stone Dumped Riprap, Class A3	Sq. Yd.		60	60
Removal of Existing Superstructures No. 1	Each	1		1
Concrete Removal	Cu. Yd.		6.6	6.6
Structure Excavation	Cu. Yd.		55	55
Concrete Structures	Cu. Yd.		31.0	31.0
Concrete Superstructure	Cu. Yd.	95.0		95.0
Bridge Deck Grooving	Sq. Yd.	638		638
Protective Coat	Sq. Yd.	638		638
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq. Ft.	3,818		3,818
Reinforcement Bars, Epoxy Coated	Pound	28,810	4,890	33,700
Bar Splicers	Each	262	90	352
Steel Railing, Type SM	Foot	332		332
Temporary Sheet Piling	Sq. Ft.		300	300
Name Plates	Each	1		1
Epoxy Crack Injection	Foot		68	68
Geocomposite Wall Drain	Sq. Yd.		27	27
Pipe Underdrains for Structures 4"	Foot		100	100
Removal of Existing Precast Concrete Units	Sq. Ft.	300		300
Structural Repair of Concrete (Depth Equal to or Less Than 5")	Sq. Ft.		46	46
Concrete Wearing Surface, 5"	Sq. Yd.	425		425
Asbestos Bearing Pad Removal	Each	40		40

GENERAL DATA
STRUCTURE NO. 077-0016

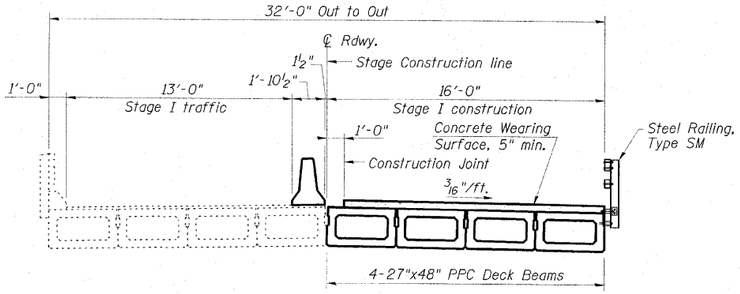
SHEET NO. 2	F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
20 SHEETS	2936	14BR-1	[illegible] KI	68	17
	FED. ROAD D[illegible]	NO.	ILLINOIS	FED. AID PROJ[illegible]	

CONTRACT NO. 78071

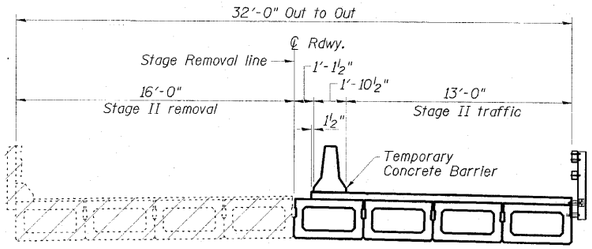
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



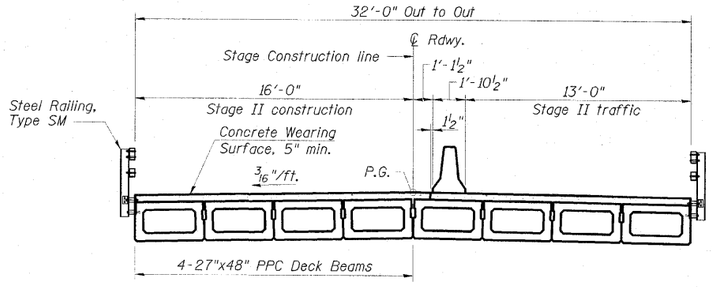
STAGE I REMOVAL



STAGE I CONSTRUCTION

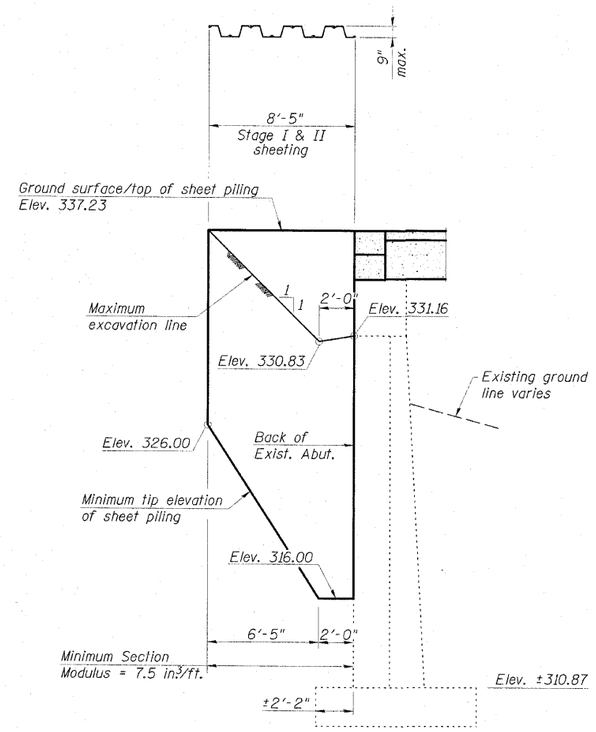


STAGE II REMOVAL



STAGE II CONSTRUCTION

Notes:
All staging sections are looking south.
See sheet 12 of 20 for details at Stage Construction line.
Stage Construction line for abutments and approach slabs matches construction joint in concrete wearing surface.
Removal of existing bridge rails, concrete curbs and expansion joints is included with Removal of Existing Superstructures No. 1.
For quantity of Temporary Concrete Barrier, see Roadway Plans.



TEMPORARY SHEET PILING
(Dimensions are along ℄ Rdwy.)

Notes:
If the Contractor chooses to alter the temporary cantilevered sheet piling design requirements shown on the plans, a design submittal including plan details and calculations will be required for review and acceptance by the Engineer.
The Contractor shall connect the first sheet to the existing abutment cap to ensure stability of sheets driven adjacent to the abutment. This connection shall be reviewed and accepted by the Engineer and included in the cost for Temporary Sheet Piling.

ESCA CONSULTANTS, INC.		
DESIGNED BY:	MTD	01/10
DRAWN BY:	DWH	01/10
CHECKED BY:	MTD	01/10
APPROVED BY:	RDP	05/10

STAGE CONSTRUCTION DETAILS
STRUCTURE NO. 077-0016

SHEET NO. 3	F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
20 SHEETS	2936	14BR-1	PULASKI	68	18
			CONTRACT NO. 78071		
	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EAST EDGE OF SHOULDER

Location	Station	Offset (ft.)	Theoretical Grade Elevations
N. End of North Appr. Slab	828+99.46	-16.00	336.66
A1	829+09.46	-16.00	336.78
A2	829+19.46	-16.00	336.89
A3	829+27.68	-16.00	336.98
S. End of North Appr. Slab	829+29.46	-16.00	336.98

EAST EDGE OF PAVEMENT

Location	Station	Offset (ft.)	Theoretical Grade Elevations
N. End of North Appr. Slab	828+99.46	-12.00	336.73
A1	829+09.46	-12.00	336.84
A2	829+19.46	-12.00	336.95
A3	829+27.68	-12.00	337.04
S. End of North Appr. Slab	829+29.46	-12.00	337.04

℄ ROADWAY & P.G.

Location	Station	Offset (ft.)	Theoretical Grade Elevations
N. End of North Appr. Slab	828+99.46	0.00	336.91
A1	829+09.46	0.00	337.03
A2	829+19.46	0.00	337.14
A3	829+27.68	0.00	337.23
S. End of North Appr. Slab	829+29.46	0.00	337.23

STAGE CONSTRUCTION JOINT

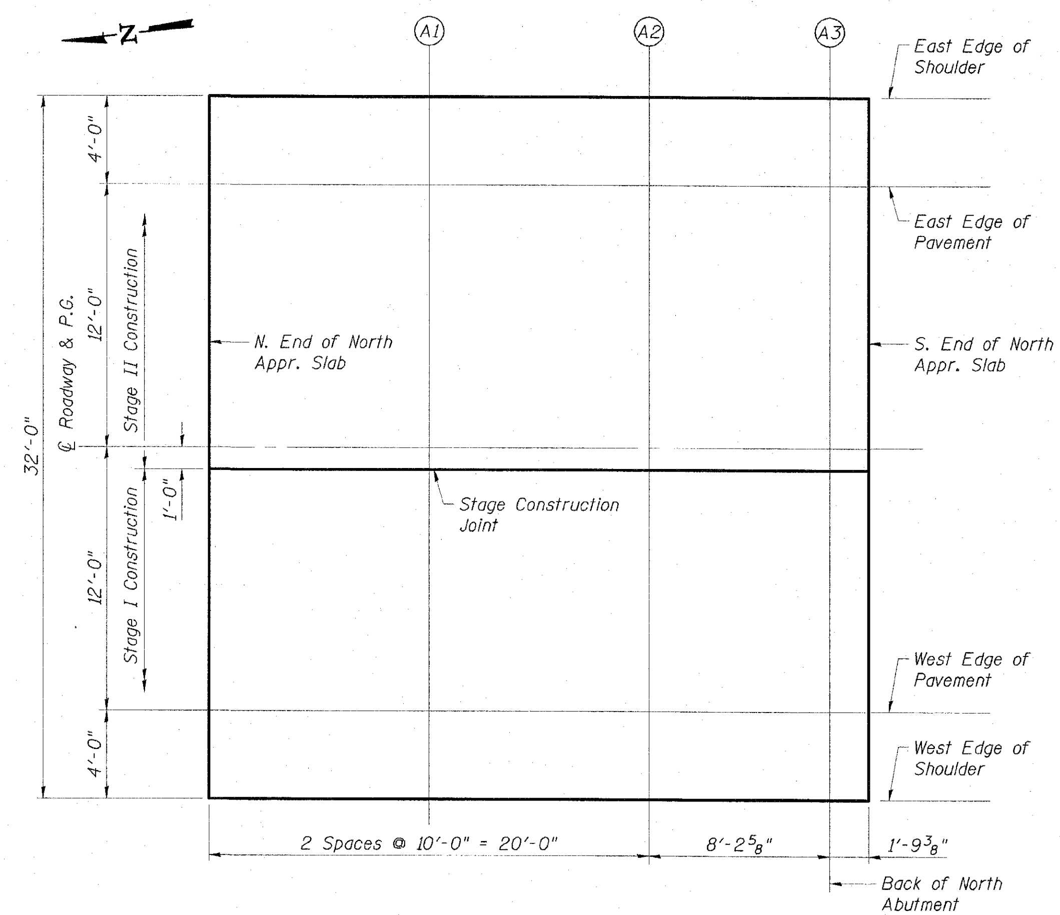
Location	Station	Offset (ft.)	Theoretical Grade Elevations
N. End of North Appr. Slab	828+99.46	1.00	336.90
A1	829+09.46	1.00	337.01
A2	829+19.46	1.00	337.12
A3	829+27.68	1.00	337.21
S. End of North Appr. Slab	829+29.46	1.00	337.21

WEST EDGE OF PAVEMENT

Location	Station	Offset (ft.)	Theoretical Grade Elevations
N. End of North Appr. Slab	828+99.46	12.00	336.73
A1	829+09.46	12.00	336.84
A2	829+19.46	12.00	336.95
A3	829+27.68	12.00	337.04
S. End of North Appr. Slab	829+29.46	12.00	337.04

WEST EDGE OF SHOULDER

Location	Station	Offset (ft.)	Theoretical Grade Elevations
N. End of North Appr. Slab	828+99.46	16.00	336.66
A1	829+09.46	16.00	336.78
A2	829+19.46	16.00	336.89
A3	829+27.68	16.00	336.98
S. End of North Appr. Slab	829+29.46	16.00	336.98



PLAN

TOP OF NORTH APPROACH SLAB ELEVATIONS STRUCTURE NO. 077-0016

ESCA CONSULTANTS, INC.			
DESIGNED BY:	MTD	01/10	
DRAWN BY:	RJT	01/10	
CHECKED BY:	MTD	01/10	
APPROVED BY:	RDP	05/10	E-AS

11-1-09

SHEET NO. 4	F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
20 SHEETS	2936	14BR-1	PULASKI	68	19
			CONTRACT NO. 78071		
	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EAST EDGE OF SHOULDER

Location	Station	Offset (ft.)	Theoretical Grade Elevations
N. End of South Appr. Slab	830+48.84	-16.00	336.98
A4	830+50.62	-16.00	336.98
A5	830+58.84	-16.00	336.92
A6	830+68.84	-16.00	336.84
S. End of South Appr. Slab	830+78.84	-16.00	336.77

EAST EDGE OF PAVEMENT

Location	Station	Offset (ft.)	Theoretical Grade Elevations
N. End of South Appr. Slab	830+48.84	-12.00	337.04
A4	830+50.62	-12.00	337.04
A5	830+58.84	-12.00	336.98
A6	830+68.84	-12.00	336.91
S. End of South Appr. Slab	830+78.84	-12.00	336.83

℄ ROADWAY & P.G.

Location	Station	Offset (ft.)	Theoretical Grade Elevations
N. End of South Appr. Slab	830+48.84	0.00	337.23
A4	830+50.62	0.00	337.23
A5	830+58.84	0.00	337.17
A6	830+68.84	0.00	337.09
S. End of South Appr. Slab	830+78.84	0.00	337.02

STAGE CONSTRUCTION JOINT

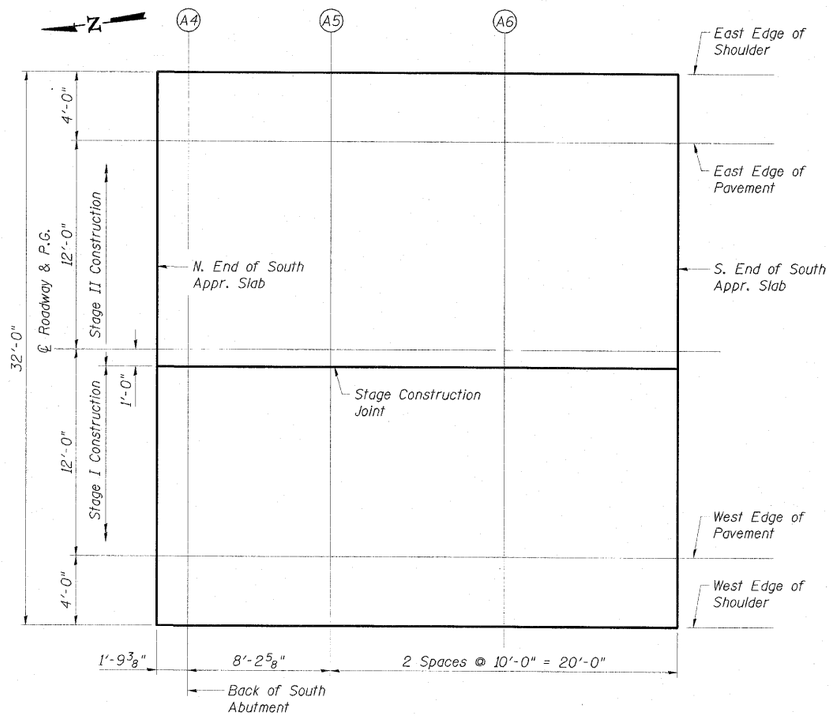
Location	Station	Offset (ft.)	Theoretical Grade Elevations
N. End of South Appr. Slab	830+48.84	1.00	337.21
A4	830+50.62	1.00	337.21
A5	830+58.84	1.00	337.15
A6	830+68.84	1.00	337.08
S. End of South Appr. Slab	830+78.84	1.00	337.00

WEST EDGE OF PAVEMENT

Location	Station	Offset (ft.)	Theoretical Grade Elevations
N. End of South Appr. Slab	830+48.84	12.00	337.04
A4	830+50.62	12.00	337.04
A5	830+58.84	12.00	336.98
A6	830+68.84	12.00	336.91
S. End of South Appr. Slab	830+78.84	12.00	336.83

WEST EDGE OF SHOULDER

Location	Station	Offset (ft.)	Theoretical Grade Elevations
N. End of South Appr. Slab	830+48.84	16.00	336.98
A4	830+50.62	16.00	336.98
A5	830+58.84	16.00	336.92
A6	830+68.84	16.00	336.84
S. End of South Appr. Slab	830+78.84	16.00	336.77



PLAN

TOP OF SOUTH APPROACH SLAB ELEVATIONS STRUCTURE NO. 077-0016

SHEET NO. 5	F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
20 SHEETS	2936	14BR-1	PULASKI	68	20
			CONTRACT NO. 78071		
	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

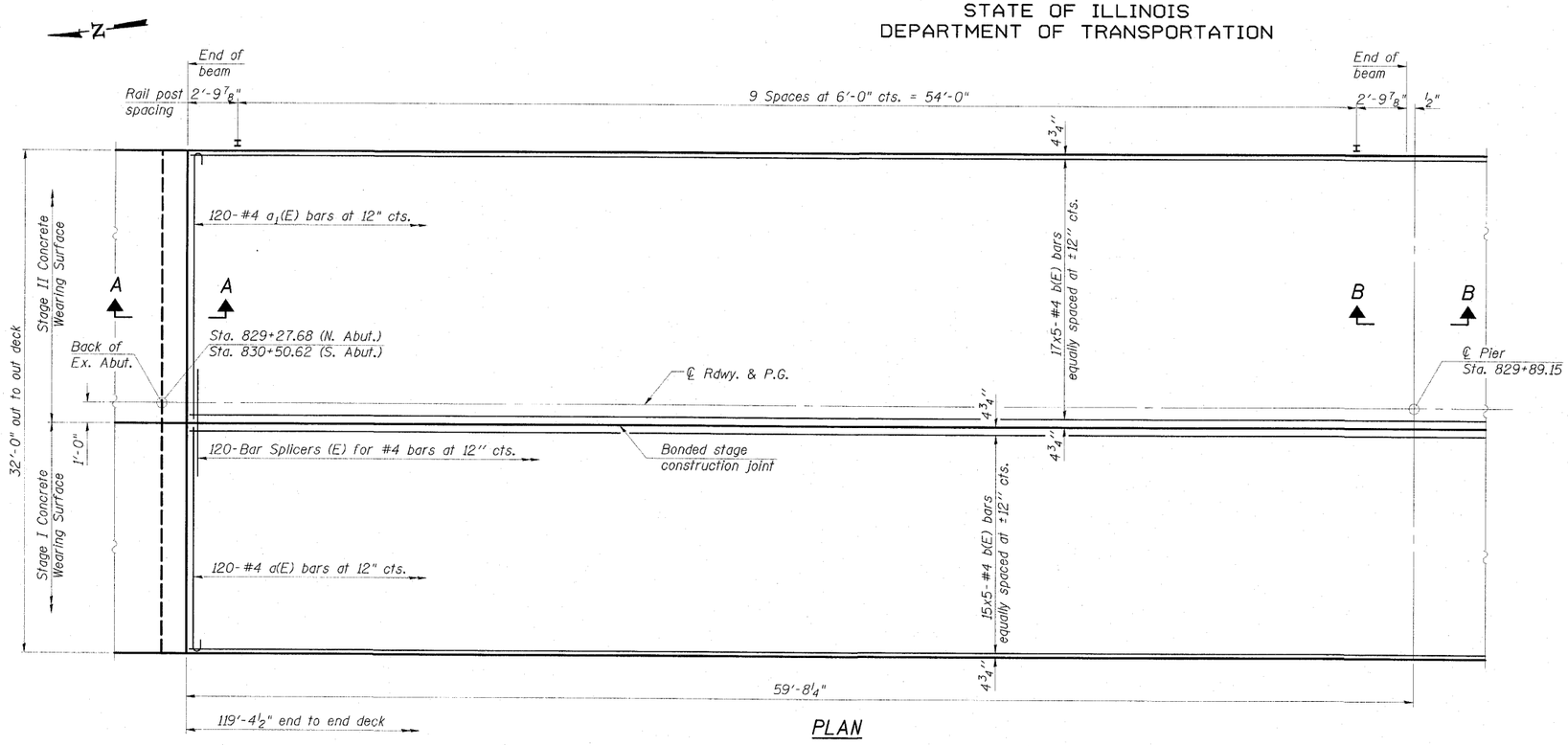
ESCA CONSULTANTS, INC.

DESIGNED BY:	MTD	01/10
DRAWN BY:	RJT	01/10
CHECKED BY:	MTD	01/10
APPROVED BY:	RDP	05/10

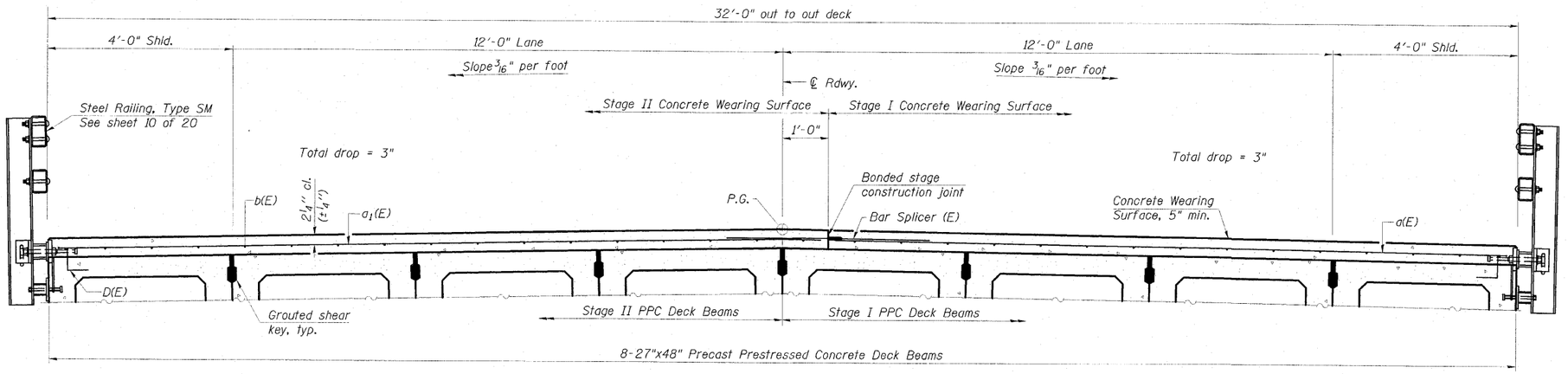
E-AS

11-J-09

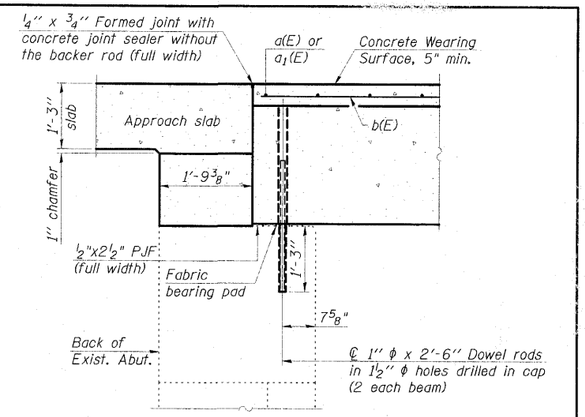
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



PLAN

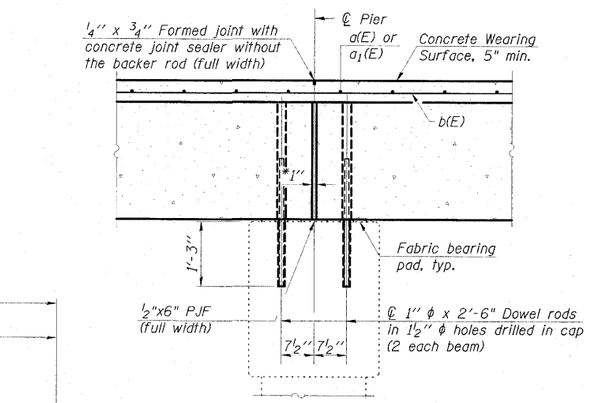


CROSS SECTION
(Looking South)



SECTION A-A
(Dimensions are at Rt. L's)

Notes:
All concrete wearing surfaces shall be placed prior to casting a backwall and/or approach slab.
See sheet 12 of 20 for fabric bearing pad details.



SECTION B-B
(Dimensions are at Rt. L's)

* 1" Joint shall be filled with non-shrink grout. 1" dimension may vary to accommodate tolerance in beam lengths.

Notes:
See sheet 7 of 20 for Superstructure Details and Bill of Material.
Bars indicated thus 15x5- #4 etc. indicates 15 lines of bars with 5 lengths per line.
For Bar Splicer details, see sheet 18 of 20.
The Concrete Wearing Surface shall be poured after the beams have been erected and the shear keys have been grouted.

MINIMUM BAR LAP
#4 bar = 2'-1"

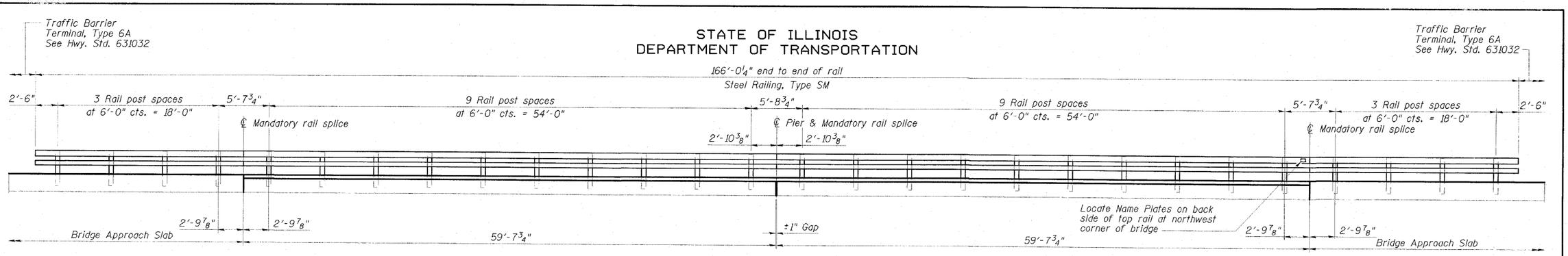
ESCA CONSULTANTS, INC.		
DESIGNED BY:	MTD	01/10
DRAWN BY:	KAH	01/10
CHECKED BY:	MTD	01/10
APPROVED BY:	RDP	05/10

PDS-M-R34-0 11-1-09

SUPERSTRUCTURE DETAILS
STRUCTURE NO. 077-0016

SHEET NO. 6 20 SHEETS	F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	2936	14BR-1	PULASKI	68	21
			CONTRACT NO. 78071		
	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

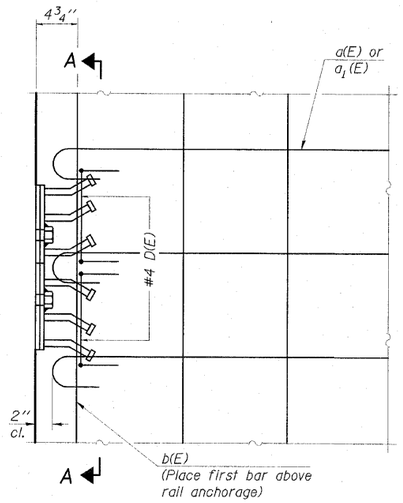
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



Abut. Abut.

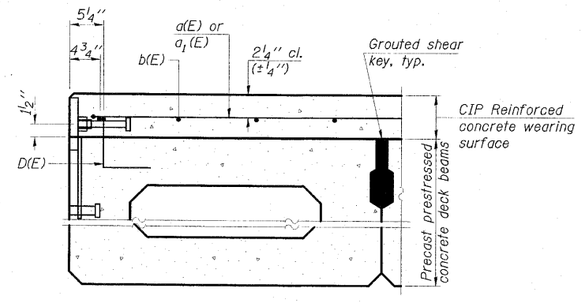
RAILING ELEVATION

Note:
See sheet 10 of 20 for railing details.

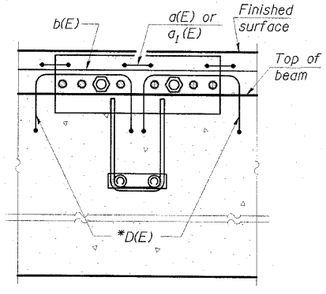


PLAN

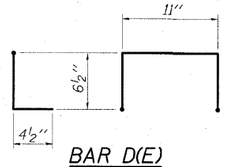
Note:
Formwork necessary for the wearing surface may be secured utilizing the bottom rail anchorage inserts and/or additional inserts cast into the beam.



SECTION THRU FASCIA BEAM

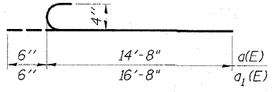


SECTION A-A

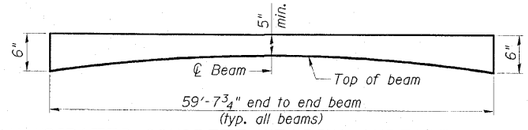


BAR D(E)

* Place 2-#4 D(E) bars in beam at each post location as shown. D(E) bar included in cost of beam.



BARS a(E) & a₁(E)



ANTICIPATED CONCRETE WEARING SURFACE PROFILE
(For information only)

SUPERSTRUCTURE BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a(E)	120	#4	15'-2"	
a₁(E)	120	#4	17'-2"	
b(E)	160	#4	25'-6"	
Reinforcement Bars, Epoxy Coated			Pound	5,320
Concrete Wearing Surface, 5"			Sq. Yd.	425

SUPERSTRUCTURE DETAILS
STRUCTURE NO. 077-0016

SHEET NO. 7	F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
20 SHEETS	2936	14BR-1	PULASKI	68	22
			CONTRACT NO. 78071		
	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

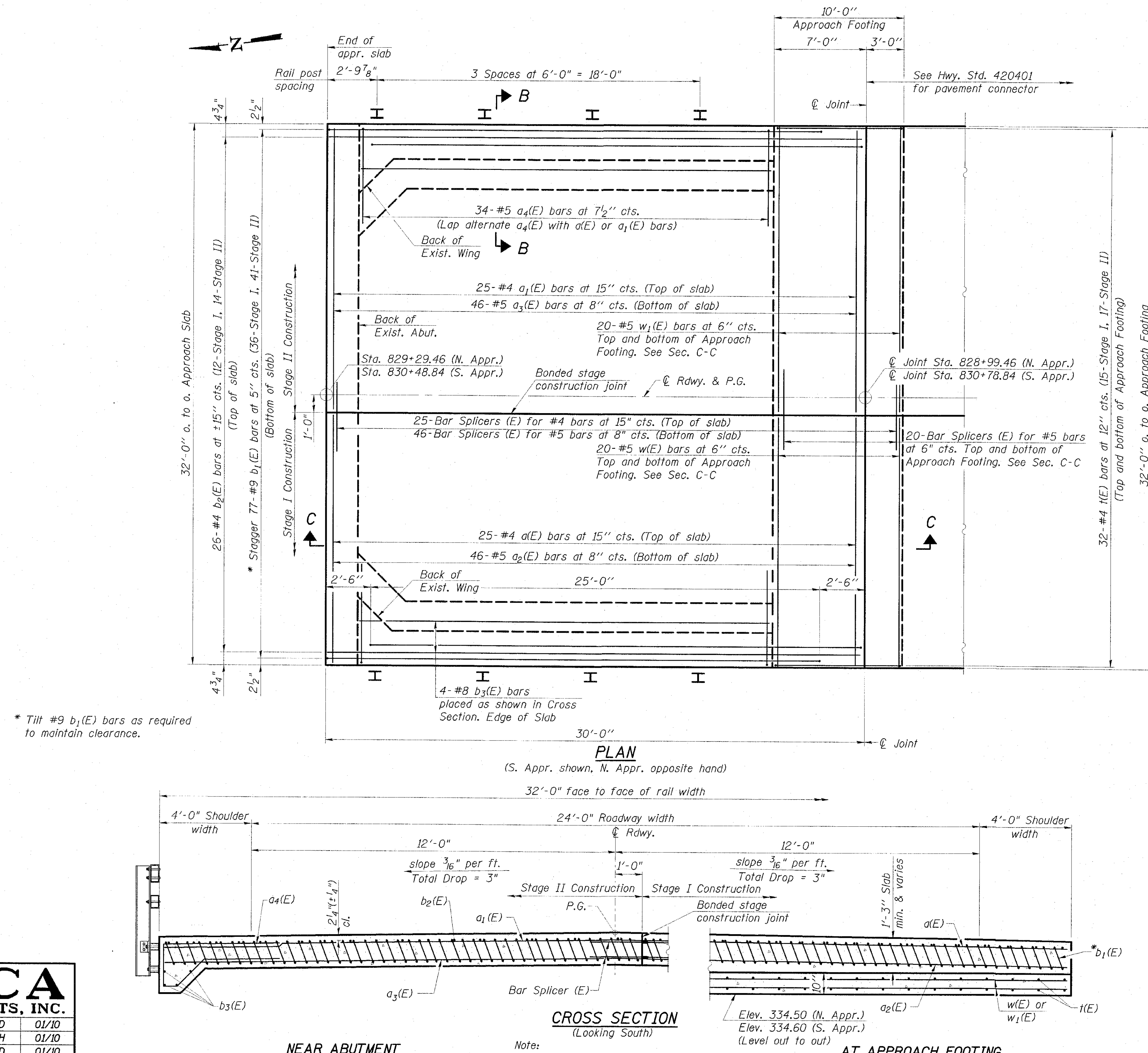
ESCA CONSULTANTS, INC.

DESIGNED BY:	MTD	01/10
DRAWN BY:	KAH	01/10
CHECKED BY:	MTD	01/10
APPROVED BY:	RDP	05/10

PDS-M-R34-D 11-1-09

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

Notes:
See sheet 9 of 20 for Sections and Bill of Material.
a(E) thru a4(E) bar spacings measured along ℄ Rdwy.



MINIMUM BAR LAP
#4 bar = 2'-1"
#5 bar = 2'-7"

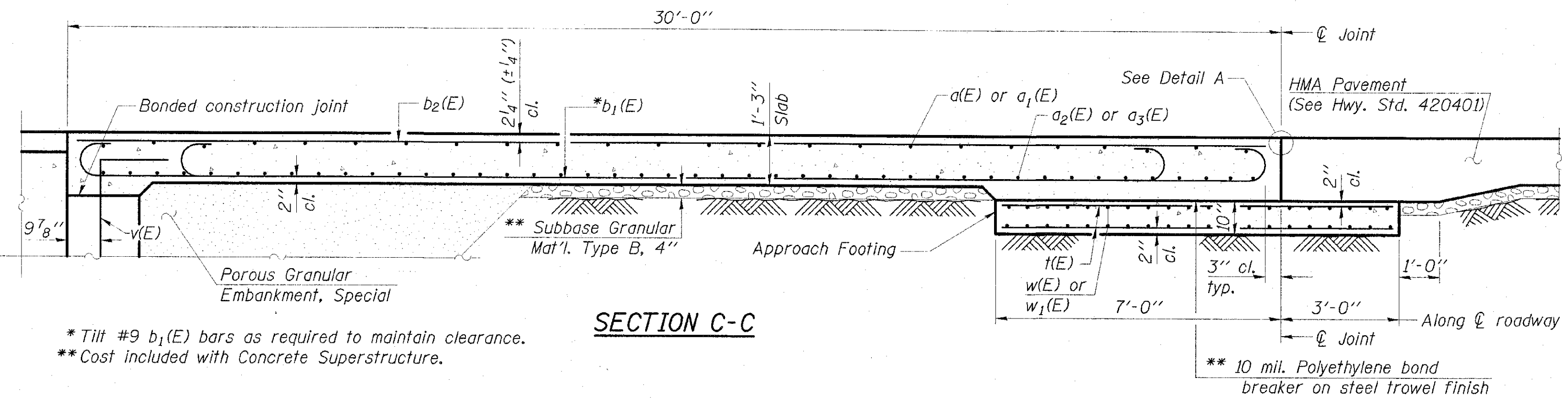
(Sheet 1 of 2)
BRIDGE APPROACH SLAB DETAILS
STRUCTURE NO. 077-0016

ESCA CONSULTANTS, INC.		
DESIGNED BY:	MTD	01/10
DRAWN BY:	KAH	01/10
CHECKED BY:	MTD	01/10
APPROVED BY:	RDP	05/10

SHEET NO. 8 / 20 SHEETS	F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	2936	14BR-1	PULASKI	68	23
			CONTRACT NO. 78071		
	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

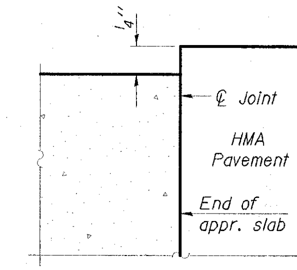
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

Notes:
Approach slab concrete shall be paid for as Concrete Superstructure.
Approach footing concrete shall be paid for as Concrete Structures.
Reinforcement shall be paid for as Reinforcement Bars, Epoxy Coated.
For v(E) bar details, see sheets 13 and 14 of 20.
The approach footing maximum applied service bearing pressure (Qmax) = 2.0 ksf.
For Bar Splicer details, see sheet 18 of 20.
Cost of excavation for approach footing included with Concrete Structures.
For Porous Granular Embankment, Special and drainage treatment details, see sheet 2 of 20.



SECTION C-C

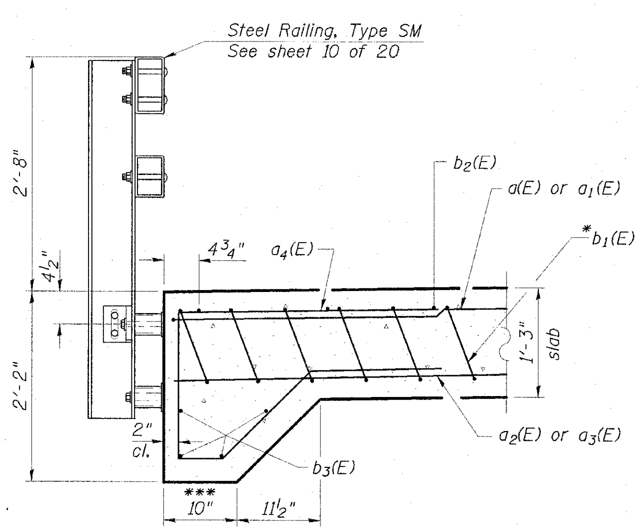
* Tilt #9 b1(E) bars as required to maintain clearance.
** Cost included with Concrete Superstructure.



DETAIL A

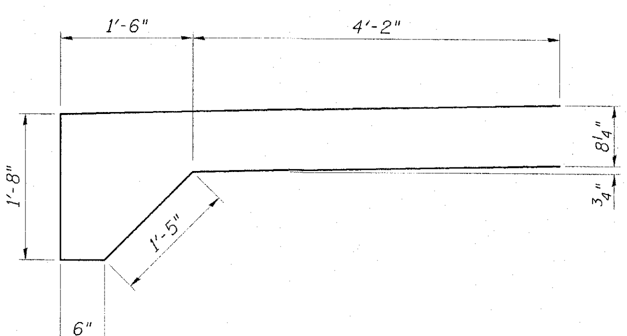
TWO APPROACHES
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a(E)	50	#4	15'-2"	
a1(E)	50	#4	17'-2"	
a2(E)	92	#5	14'-8"	
a3(E)	92	#5	16'-8"	
a4(E)	136	#5	13'-5"	
b1(E)	154	#9	29'-9"	
b2(E)	52	#4	29'-8"	
b3(E)	16	#8	20'-10"	
f(E)	128	#4	9'-8"	
w(E)	80	#5	14'-8"	
w1(E)	80	#5	16'-8"	
Concrete Structures			Cu. Yd.	19.8
Concrete Superstructure			Cu. Yd.	95.0
Reinforcement Bars, Epoxy Coated			Pound	26,930

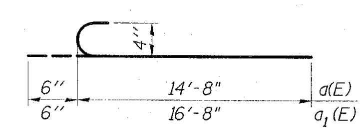


SECTION B-B

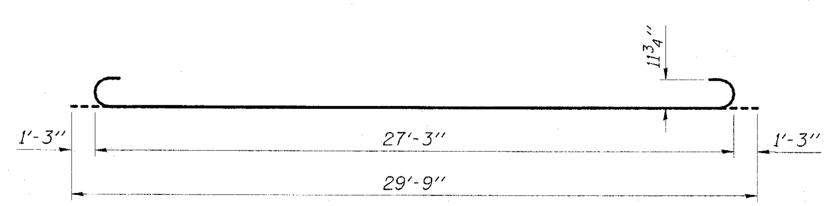
*** Varies near abutment to match Back of Exist. Wing



BAR a4(E)



BARS a(E) & a1(E)



BAR b1(E)

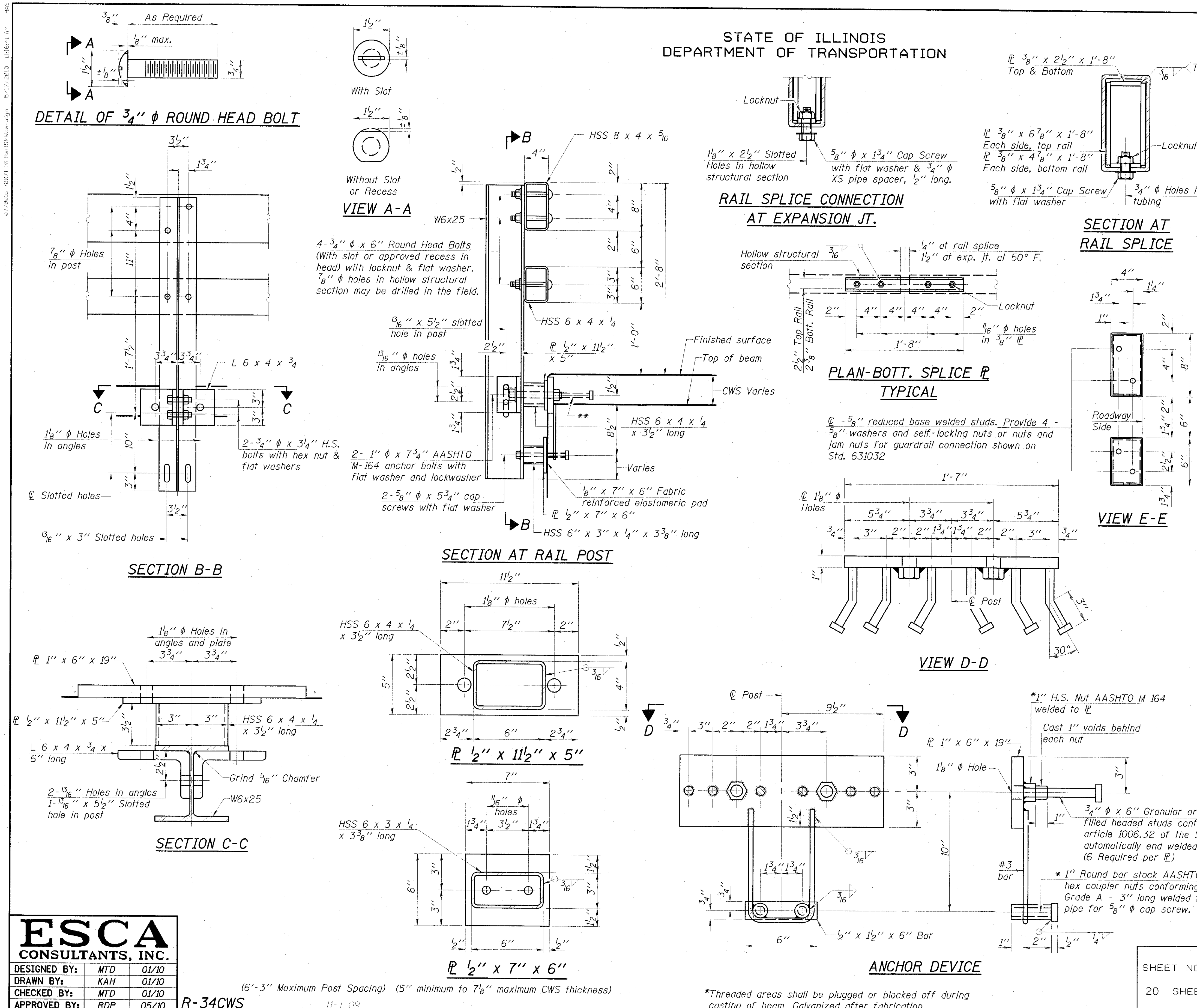
(Sheet 2 of 2)
BRIDGE APPROACH SLAB DETAILS
STRUCTURE NO. 077-0016

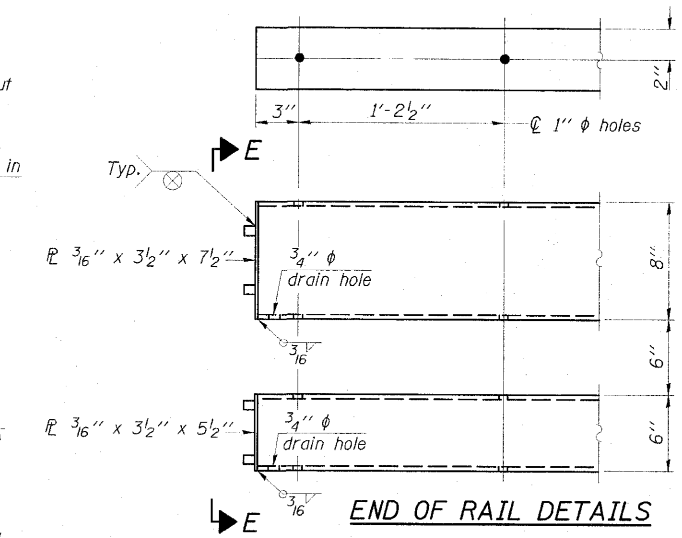
ESCA CONSULTANTS, INC.

DESIGNED BY:	MTD	01/10
DRAWN BY:	KAH	01/10
CHECKED BY:	MTD	01/10
APPROVED BY:	RDP	05/10

SHEET NO. 9 / 20 SHEETS	F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	2936	14BR-1	PULASKI	68	24
			CONTRACT NO. 78071		
	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION





(6'-3" Maximum Post Spacing) (5" minimum to 7 1/8" maximum CWS thickness)

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

Notes:

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

For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type SM.

Steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.

** The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type SM	Foot	332

STEEL RAILING, TYPE SM
WITH CONCRETE WEARING SURFACE
STRUCTURE NO. 077-0016

ESCA CONSULTANTS, INC.

DESIGNED BY:	MTD	01/10
DRAWN BY:	KAH	01/10
CHECKED BY:	MTD	01/10
APPROVED BY:	RDP	05/10

R-34CWS 11-1-09

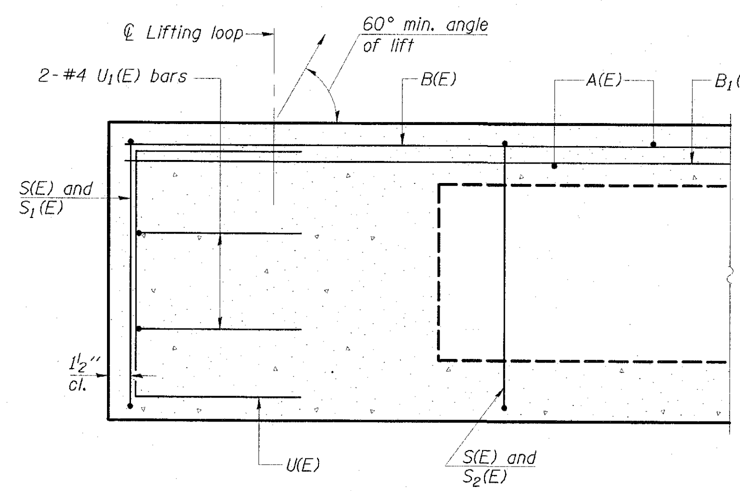
SHEET NO. 10
20 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	14BR-1	PULASKI	68	25

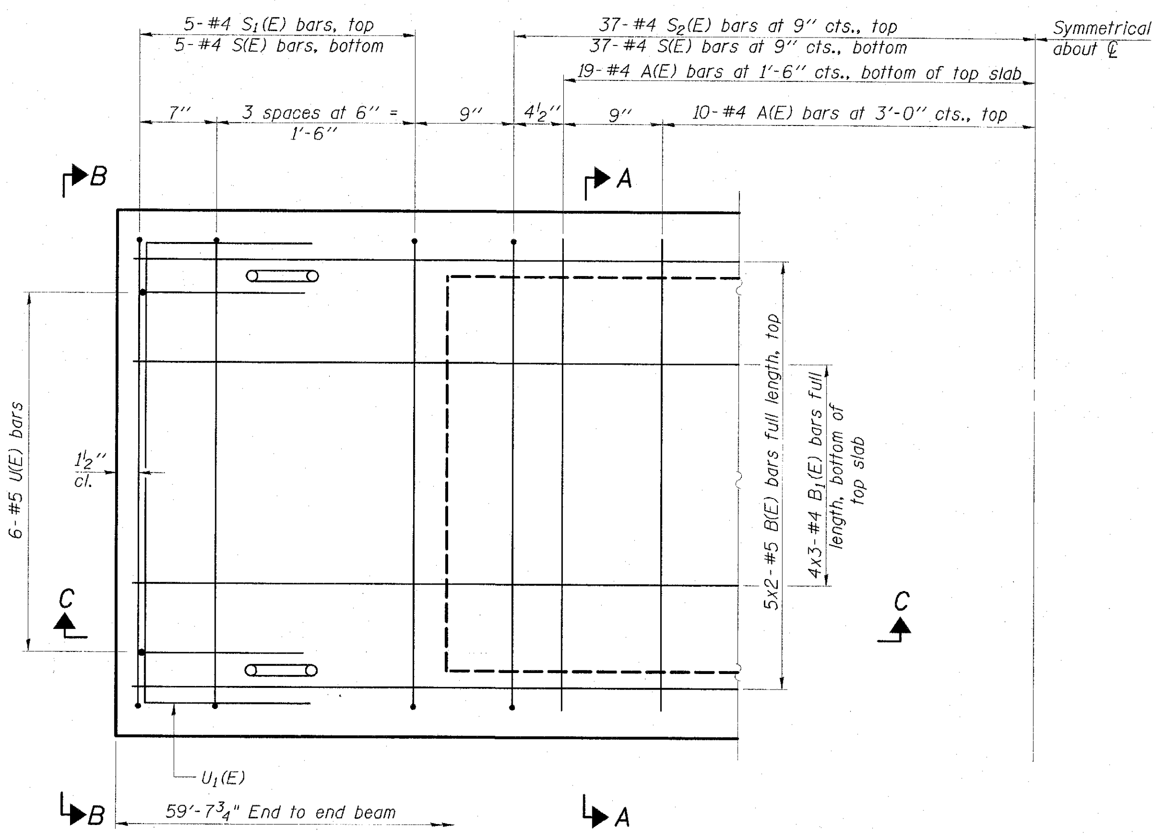
CONTRACT NO. 78071

FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT

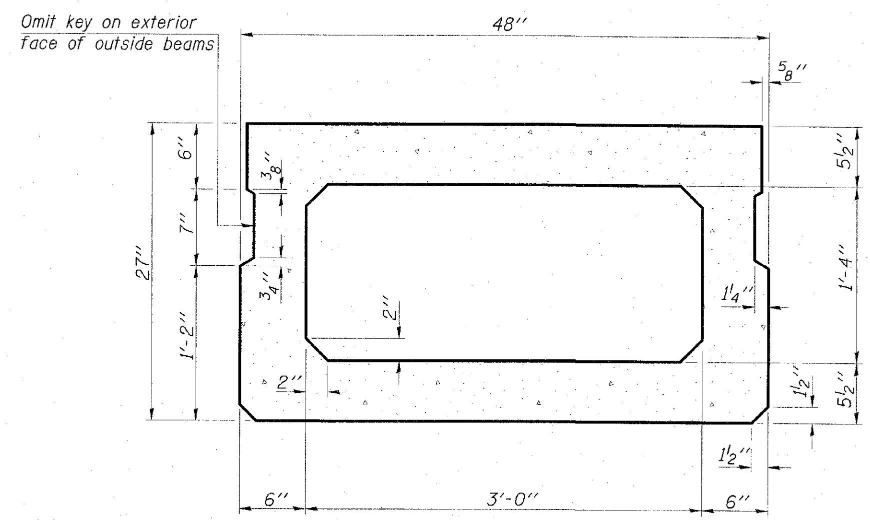
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



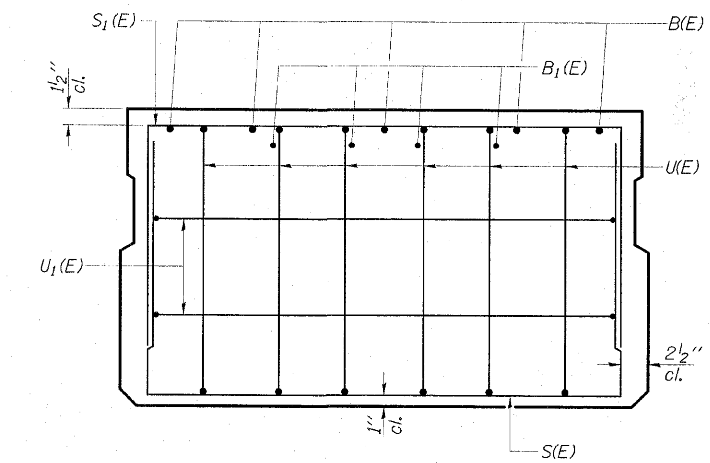
SECTION C-C



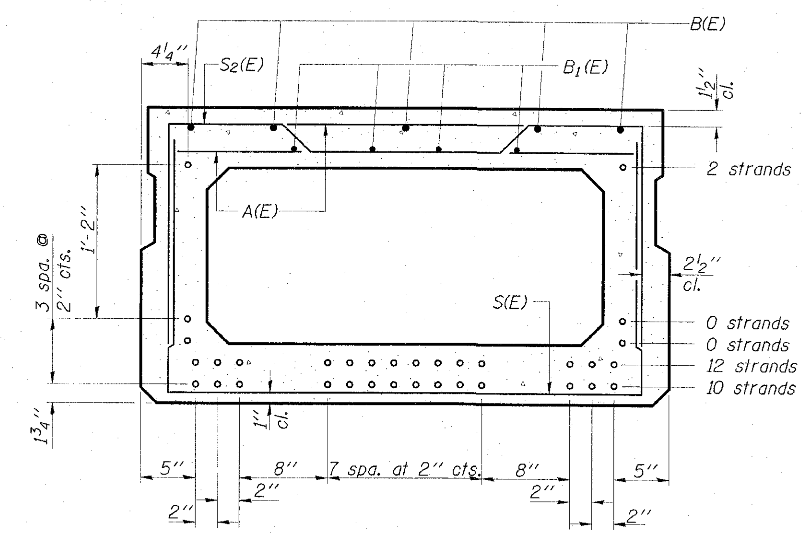
PLAN VIEW



SECTION A-A
(Showing dimensions)



VIEW B-B



SECTION A-A
(Showing reinforcement and permissible strand locations)

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

BAR LIST
ONE BEAM ONLY
(For information only)

Bar	No.	Size	Length	Shape
A(E)	56	#4	3'-7"	—
B(E)	10	#5	31'-0"	—
B_1(E)	12	#4	21'-3"	—
S(E)	83	#4	7'-5"	⊔
S_1(E)	10	#4	6'-11"	⊓
S_2(E)	73	#4	7'-2"	⊓
U(E)	12	#5	4'-6"	⊏
U_1(E)	4	#4	6'-0"	⊓

Notes: See sheet 12 of 20 for additional details and Bill of Material.
See sheet 7 of 20 for details of D(E) bars required at post locations on outside beams.

Note: Spacing of S(E) and S_2(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.

MINIMUM BAR LAP
#4 bar = 2'-1"
#5 bar = 2'-7"

27" X 48" PPC DECK BEAM
STRUCTURE NO. 077-0016

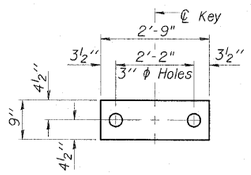
ESCA CONSULTANTS, INC.

DESIGNED BY:	MTD	01/10
DRAWN BY:	KAH	01/10
CHECKED BY:	MTD	01/10
APPROVED BY:	RDP	05/10

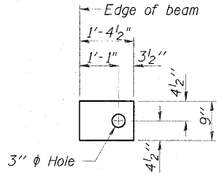
PD-2748-0
11-1-09

SHEET NO. 11 20 SHEETS	F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	2936	14BR-1	PULASKI	68	26
			CONTRACT NO. 78071		
	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



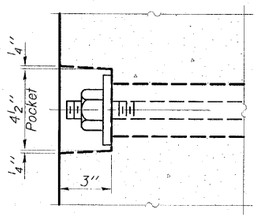
FABRIC BEARING PAD
(Interior)



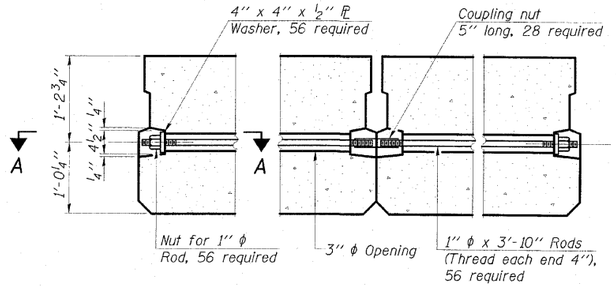
FABRIC BEARING PAD
(Exterior)

FIXED

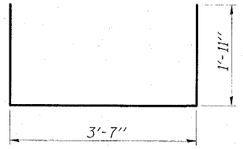
Note:
All bearing pads shall be ½" thick.



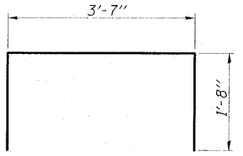
SECTION A-A



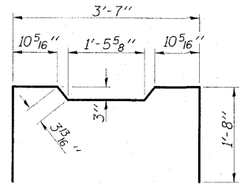
TYPICAL TRANSVERSE TIE ASSEMBLY
Stage II Construction Stage I Construction



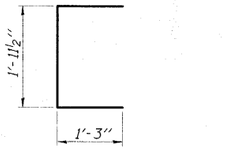
BAR S(E)



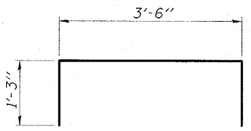
BAR S_1(E)



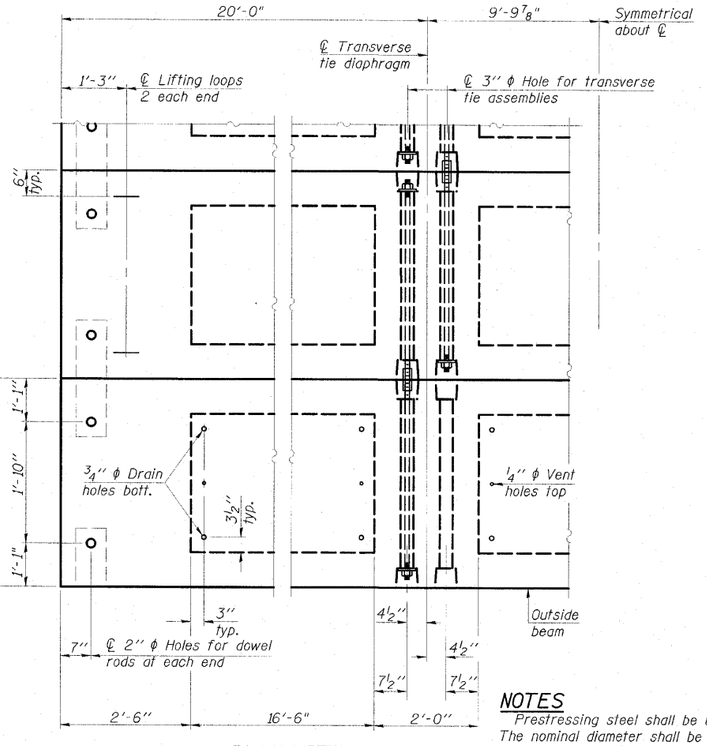
BAR S_2(E)



BAR U(E)

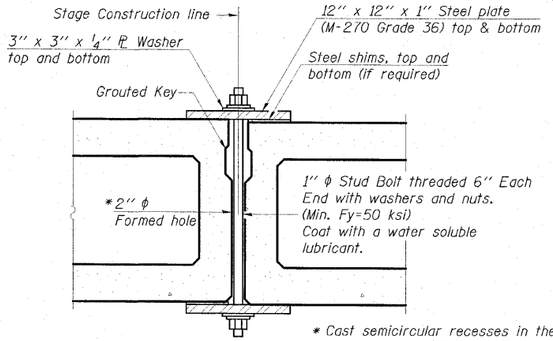


BAR U_1(E)



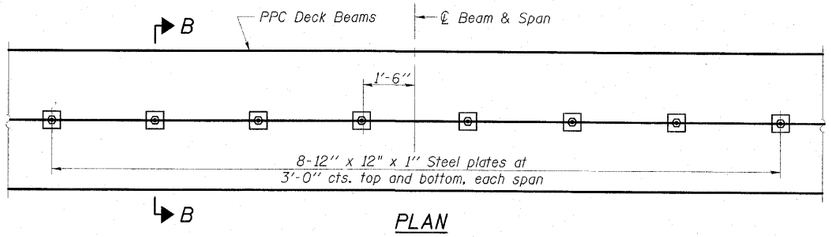
PLAN VIEW

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



SECTION B-B

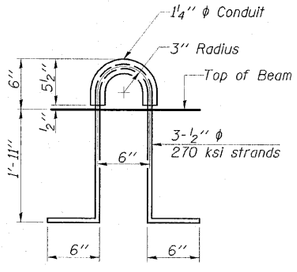
* Cast semicircular recesses in the sides of each beam adjacent to the Stage Construction line. These recesses should align to form a hole at the appropriate locations for the clamping device bolts.



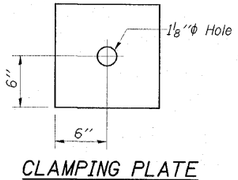
PLAN

SHEAR KEY CLAMPING DETAILS AT STAGE CONST. LINE

Notes:
Cost included with Precast Prestressed Concrete Deck Beams (27" Depth).
See Stage Construction Details for traffic lanes.



LIFTING LOOP DETAIL



CLAMPING PLATE

NOTES

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be ½" and the nominal cross-sectional area shall be 0.153 sq. in.

The 1" ϕ rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place.

Reinforcement bars shall conform to ASTM A 706, Grade 60. (See Special Provisions).

Two ⅛" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.

A minimum 2½" ϕ lifting pin shall be used to engage the lifting loops during handling.

Corrosion Inhibitor, per Article 1020.05(b)(12) and 1021.06 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.

Compressive strength of prestressed concrete, f'c, shall be 6000 psi.

Compressive strength of prestressed concrete at release, f'ci, shall be 5000 psi.

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.

For Rail Anchor Device details and locations, see sheets 6 and 10 of 20.

Exterior face of outside beams only.

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (27" Depth)	Sq. Ft.	3,818

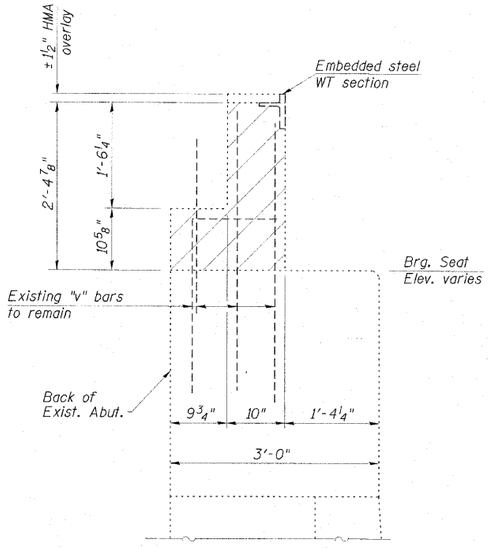
ESCA CONSULTANTS, INC.		
DESIGNED BY:	MTD	01/10
DRAWN BY:	KAH	01/10
CHECKED BY:	MTD	01/10
APPROVED BY:	RDP	05/10

PD-2748-0D 11-1-09

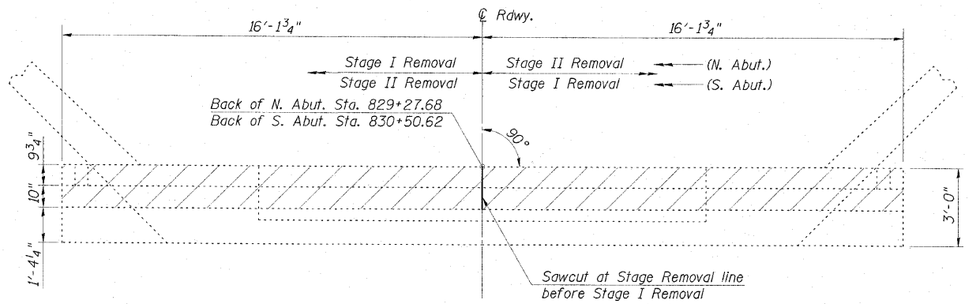
27" X 48" PPC DECK BEAM DETAILS
STRUCTURE NO. 077-0016

SHEET NO. 12	F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
20 SHEETS	2936	14BR-1	PULASKI	68	27
			CONTRACT NO. 78071		
	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

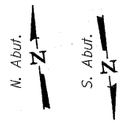
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



SECTION THRU ABUTMENT



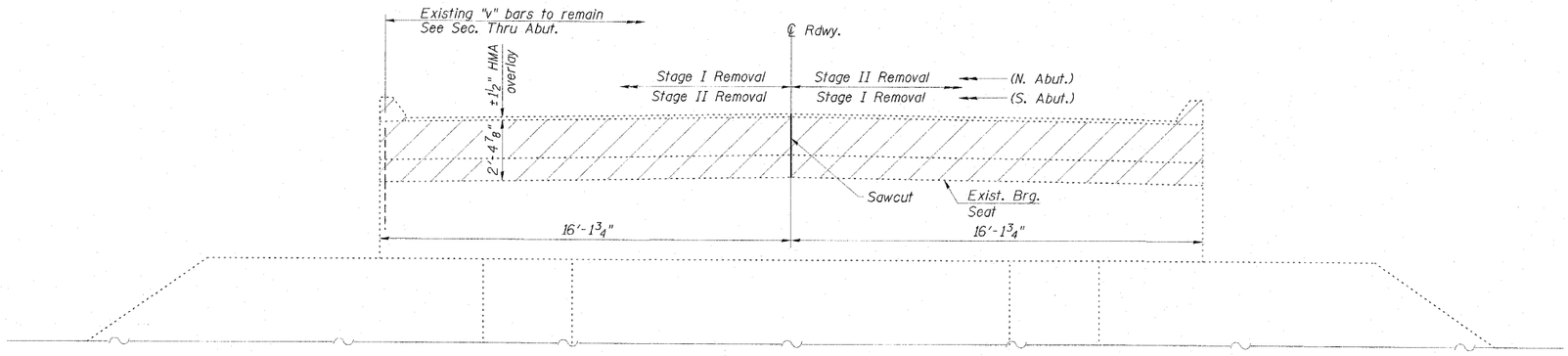
PLAN



Notes:
Hatched areas indicate Concrete Removal.
Existing reinforcement to remain shall be cleaned and incorporated into the new construction. Any such bars damaged during concrete removal shall be replaced with bar splicer or anchorage system approved by the Engineer. Cost included with Concrete Removal.
Embedded steel WT section and HMA overlay on top of existing backwall shall be removed. Cost included with Concrete Removal.

TWO ABUTMENTS
BILL OF MATERIAL

Item	Unit	Total
Concrete Removal	Cu. Yd.	6.6



ELEVATION

ABUTMENT CONCRETE REMOVAL
STRUCTURE NO. 077-0016

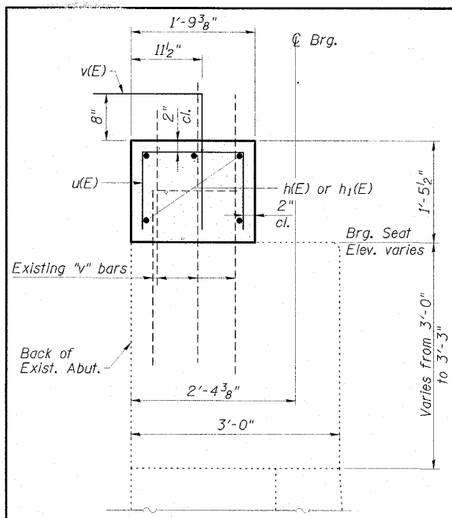
ESCA CONSULTANTS, INC.

DESIGNED BY:	MTD	01/10
DRAWN BY:	DWH/JPC	01/10
CHECKED BY:	MTD	01/10
APPROVED BY:	RDP	05/10

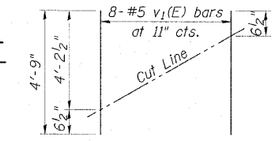
SHEET NO. 13
20 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	14BR-1	PULASKI	68	28
		CONTRACT NO. 78071		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

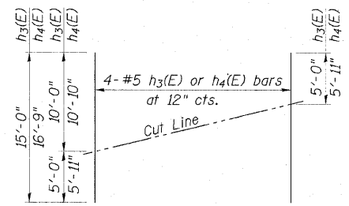


SECTION THRU ABUTMENT



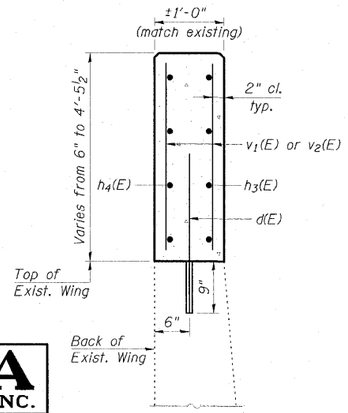
FIELD CUTTING DIAGRAM

Order $v_1(E)$ bars full length. Cut as shown and use remainder of bars in opposite face.

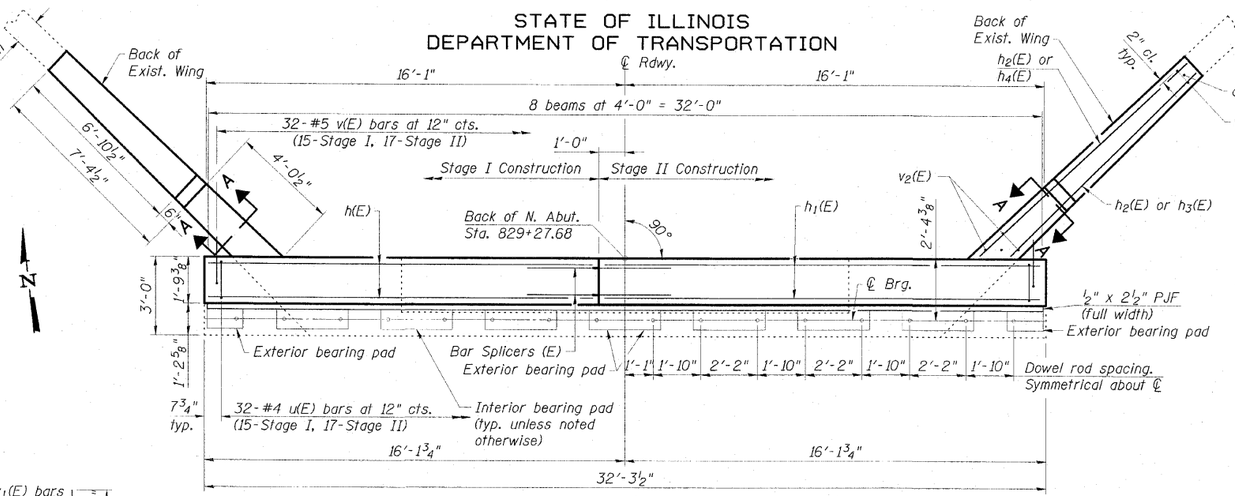


FIELD CUTTING DIAGRAM

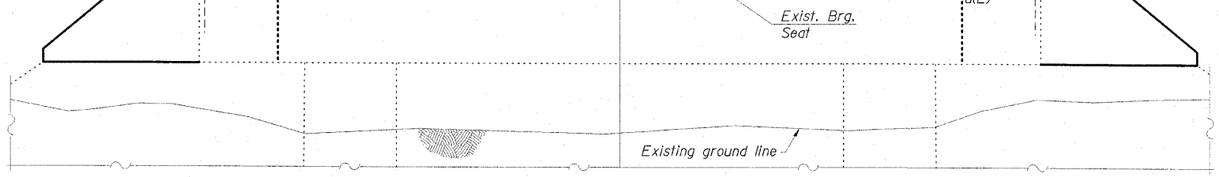
Order $h_3(E)$ and $h_4(E)$ bars full length. Cut as shown and use remainder of bars in opposite wing.



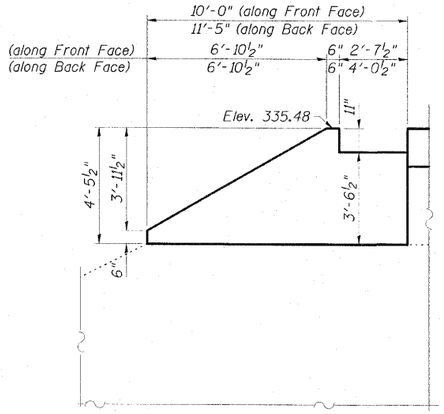
SECTION THRU WING



PLAN

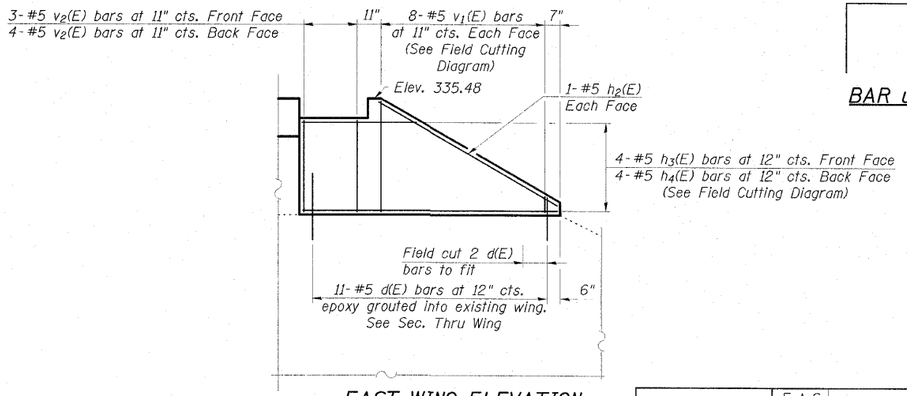


ELEVATION



WEST WING ELEVATION

SHOWING DIMENSIONS



EAST WING ELEVATION

SHOWING REINFORCEMENT

Notes:

End of new deck beams shall be aligned at the abutment. Any variation in the length of the deck beams shall be placed at the pier.

Cast backwall after new deck beams have been erected and concrete wearing surface has been poured.

Backfill required for the stage being constructed shall be placed behind the abutment after the new deck beams have been set, the backwall has been poured, and formwork removed. See Article 502.10 of the Standard Specifications.

For details of Bar Splicers, see sheet 18 of 20.

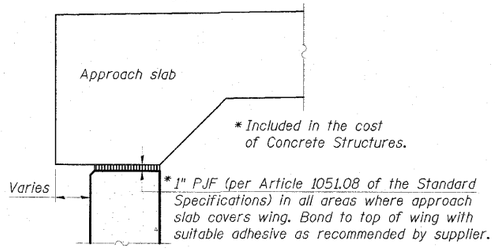
For drainage treatment details, see sheet 2 of 20.

d(E) bars shall be epoxy grouted into existing wings according to Section 584 of the Standard Specifications.

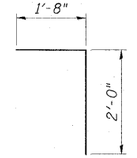
Existing bearing seat to be inspected by the Engineer after deck beam removal. Deteriorated concrete areas shall be repaired (estimated 15 sq. ft. Structural Repair of Concrete) and cracks shall be sealed (estimated 20' Epoxy Crack Injection) as required.

Structural Repair of Concrete and Epoxy Crack Injection locations and dimensions are estimated from 06/24/2009 survey work. Actual locations and dimensions shall be shown by the Engineer on the as-built plans for this section.

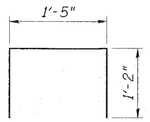
For bearing pad details, see sheet 12 of 20.



SECTION A-A



BAR v(E)



BAR u(E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
d(E)	22	#5	2'-6"	——
h(E)	5	#5	14'-10"	——
h1(E)	5	#5	16'-10"	——
h2(E)	4	#5	8'-0"	——
h3(E)	4	#5	15'-9"	——
h4(E)	4	#5	16'-9"	——
u(E)	32	#4	3'-9"	⌐
v(E)	32	#5	3'-8"	¬
v1(E)	16	#5	4'-9"	——
v2(E)	14	#5	3'-3"	——
Structure Excavation			Cu. Yd.	27.5
Concrete Structures			Cu. Yd.	5.6
Reinforcement Bars, Epoxy Coated			Pound	725
Epoxy Crack Injection			Foot	20
Structural Repair of Concrete (Depth Equal to or Less Than 5")			Sq. Ft.	15

REPAIR LEGEND

Inspection Date: 06/24/2009

C-4' — Epoxy Crack Injection (Crack-Length)

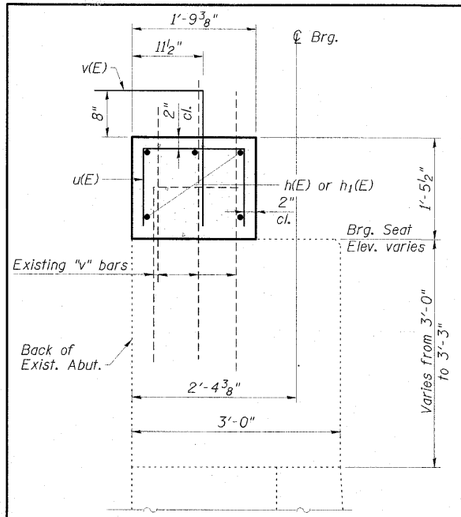
Structural Repair of Concrete (Depth Equal to or Less Than 5")

NORTH ABUTMENT REPAIRS AND MODIFICATIONS STRUCTURE NO. 077-0016

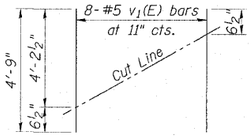
ESCA CONSULTANTS, INC.		
DESIGNED BY:	MTD	01/10
DRAWN BY:	DWH/JPC	01/10
CHECKED BY:	MTD	01/10
APPROVED BY:	RDP	05/10

SHEET NO. 14	F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
20 SHEETS	2936	14BR-1	PULASKI	68	29
			CONTRACT NO. 78071		
	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

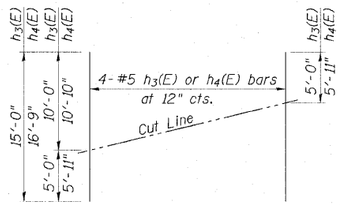


SECTION THRU ABUTMENT



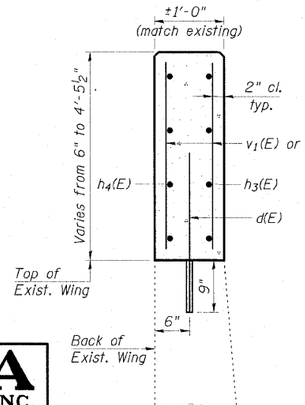
FIELD CUTTING DIAGRAM

Order $v_1(E)$ bars full length. Cut as shown and use remainder of bars in opposite face.

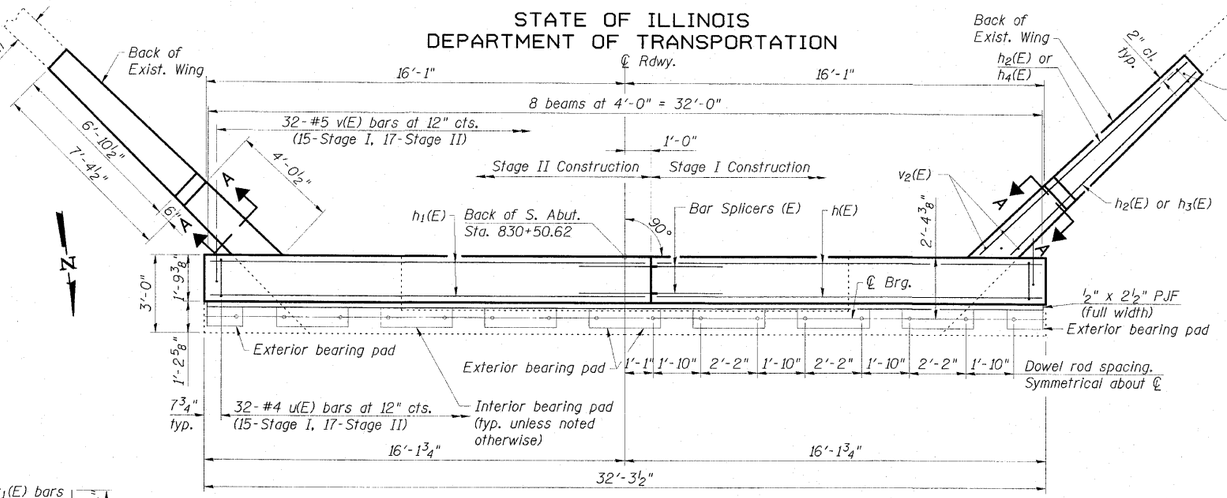


FIELD CUTTING DIAGRAM

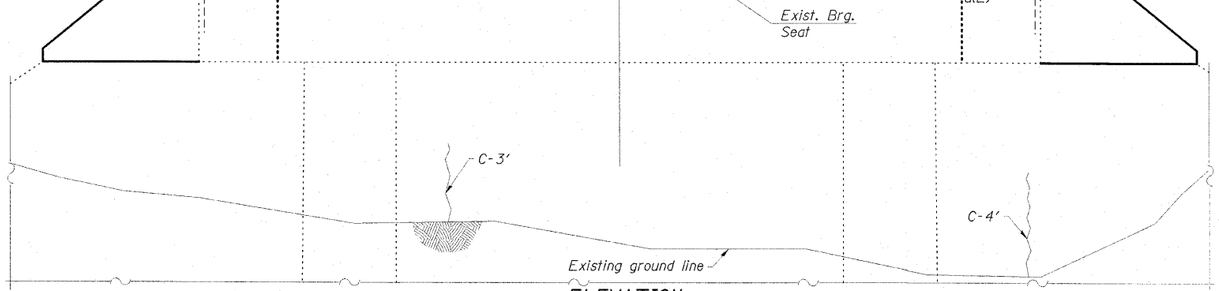
Order $h_3(E)$ and $h_4(E)$ bars full length. Cut as shown and use remainder of bars in opposite wing.



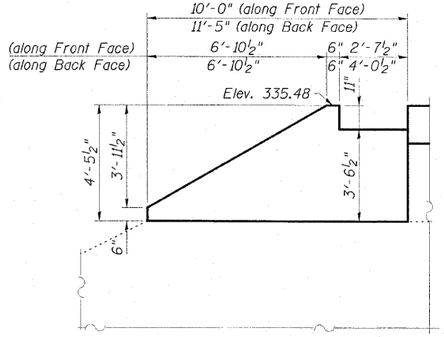
SECTION THRU WING



PLAN

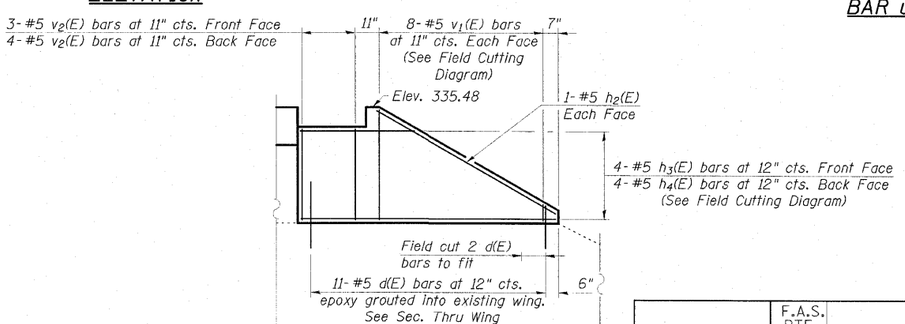


ELEVATION



WEST WING ELEVATION

SHOWING DIMENSIONS



EAST WING ELEVATION

SHOWING REINFORCEMENT

Notes:

End of new deck beams shall be aligned at the abutment. Any variation in the length of the deck beams shall be placed at the pier.

Cast backwall after new deck beams have been erected and concrete wearing surface has been poured.

Backfill required for the stage being constructed shall be placed behind the abutment after the new deck beams have been set, the backwall has been poured, and formwork removed. See Article 502.10 of the Standard Specifications.

For details of Bar Splicers, see sheet 18 of 20.

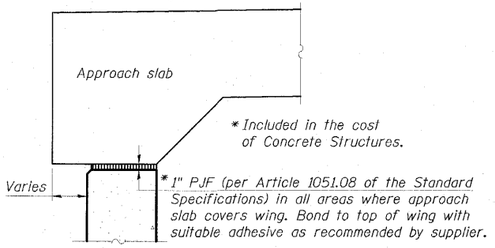
For drainage treatment details, see sheet 2 of 20.

d(E) bars shall be epoxy grouted into existing wings according to Section 584 of the Standard Specifications.

Existing bearing seat to be inspected by the Engineer after deck beam removal. Deteriorated concrete areas shall be repaired (estimated 15 sq. ft. Structural Repair of Concrete) and cracks shall be sealed (estimated 20' Epoxy Crack Injection) as required.

Structural Repair of Concrete and Epoxy Crack Injection locations and dimensions are estimated from 06/24/2009 survey work. Actual locations and dimensions shall be shown by the Engineer on the as-built plans for this section.

For bearing pad details, see sheet 12 of 20.



SECTION A-A

BAR v(E)

BAR u(E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
d(E)	22	#5	2'-6"	——
h(E)	5	#5	14'-10"	——
$h_1(E)$	5	#5	16'-10"	——
$h_2(E)$	4	#5	8'-0"	——
$h_3(E)$	4	#5	15'-9"	——
$h_4(E)$	4	#5	16'-9"	——
u(E)	32	#4	3'-9"	⊓
v(E)	32	#5	3'-8"	⅂
$v_1(E)$	16	#5	4'-9"	——
$v_2(E)$	14	#5	3'-3"	——
Structure Excavation			Cu. Yd.	27.5
Concrete Structures			Cu. Yd.	5.6
Reinforcement Bars, Epoxy Coated			Pound	725
Epoxy Crack Injection			Foot	27
Structural Repair of Concrete (Depth Equal to or Less Than 5")			Sq. Ft.	15

REPAIR LEGEND

Inspection Date: 06/24/2009

C-4' } Epoxy Crack Injection (Crack-Length)

Structural Repair of Concrete (Depth Equal to or Less Than 5")

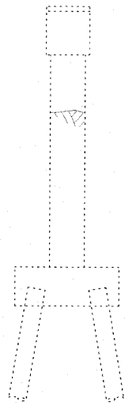
SOUTH ABUTMENT REPAIRS AND MODIFICATIONS STRUCTURE NO. 077-0016

DESIGNED BY:	MTD	01/10
DRAWN BY:	DWH/JPC	01/10
CHECKED BY:	MTD	01/10
APPROVED BY:	RDP	05/10

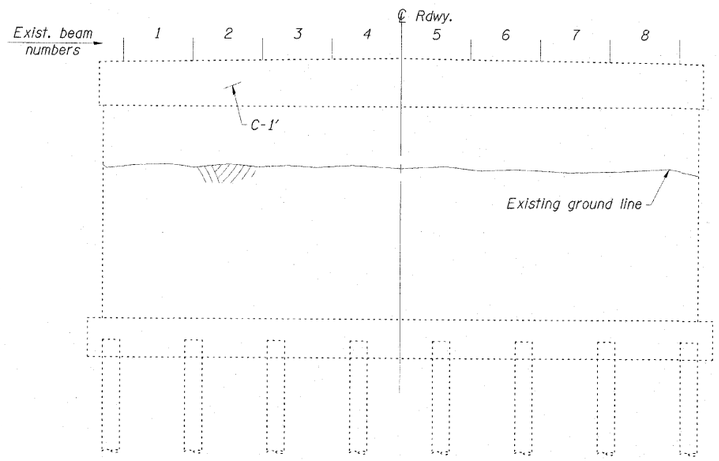
ESCA CONSULTANTS, INC.

SHEET NO. 15	F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
20 SHEETS	2936	14BR-1	PULASKI	68	30
			CONTRACT NO. 78071		
	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



EAST END



NORTH ELEVATION

Notes:
Existing bearing seat to be inspected by the Engineer after deck beam removal. Deteriorated concrete areas shall be repaired (estimated 15 sq. ft. Structural Repair of Concrete) and cracks shall be sealed (estimated 20' Epoxy Crack Injection) as required.
Structural Repair of Concrete and Epoxy Crack Injection locations and dimensions are estimated from 06/24/2009 survey work. Actual locations and dimensions shall be shown by the Engineer on the as-built plans for this section.

REPAIR LEGEND

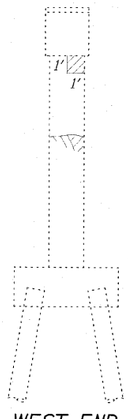
Inspection Date: 06/24/2009

C-1' } Epoxy Crack Injection (Crack-Length)

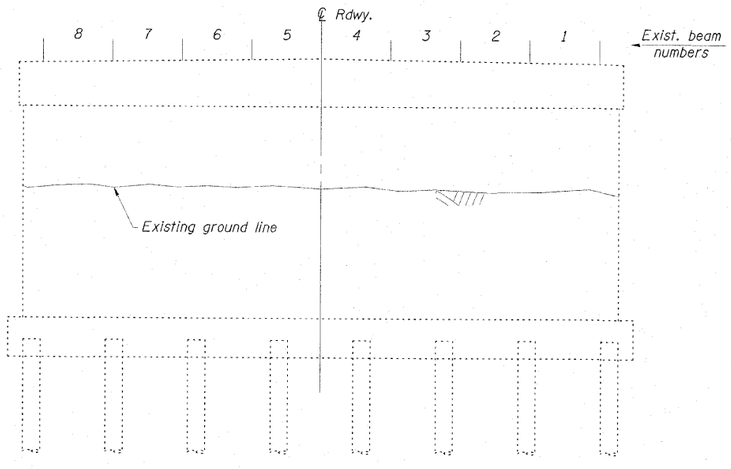
Structural Repair of Concrete (Depth Equal to or Less Than 5")

BILL OF MATERIAL

Item	Unit	Total
Epoxy Crack Injection	Foot	21
Structural Repair of Concrete (Depth Equal to or Less Than 5")	Sq. Ft.	16



WEST END



SOUTH ELEVATION

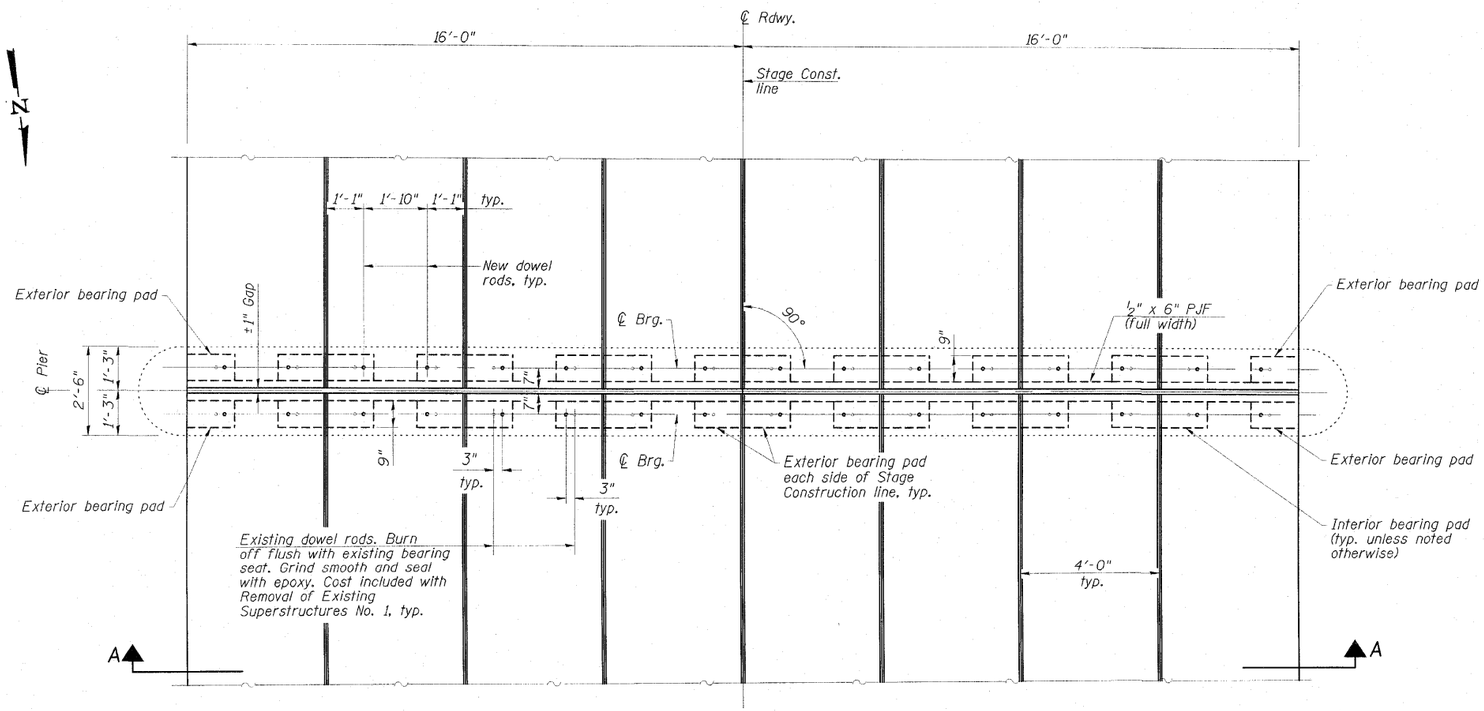
DESIGNED BY:	MTD	01/10
DRAWN BY:	DWH/JPC	01/10
CHECKED BY:	MTD	01/10
APPROVED BY:	RDP	05/10

ESCA CONSULTANTS, INC.

PIER REPAIRS
STRUCTURE NO. 077-0016

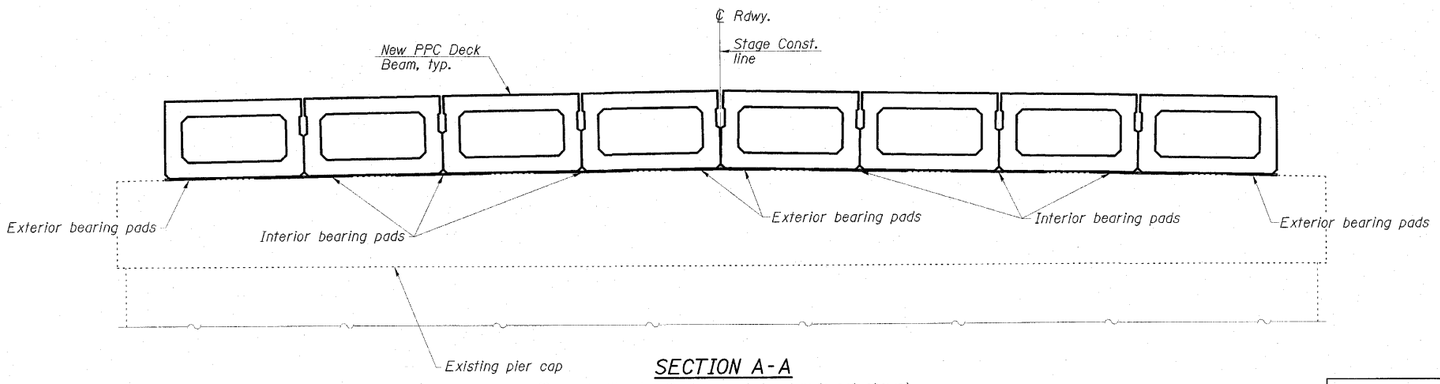
SHEET NO. 16	F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
20 SHEETS	2936	14BR-1	PULASKI	68	31
			CONTRACT NO. 78071		
	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



PIER BEARING SEAT PLAN
(Concrete Wearing Surface not shown)

Note:
For bearing pad details, see sheet 12 of 20.



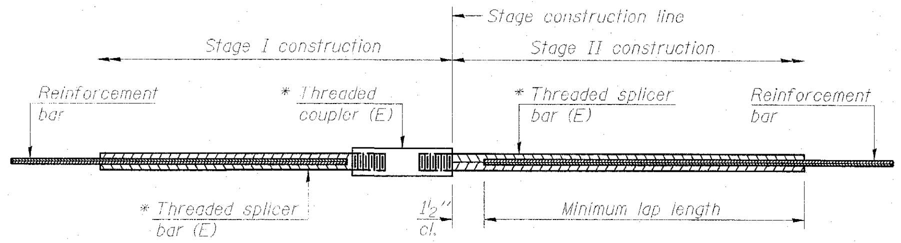
SECTION A-A
(Concrete Wearing Surface and dowel rods not shown)

PIER DETAILS
STRUCTURE NO. 077-0016

DESIGNED BY:	MTD	01/10
DRAWN BY:	DWH/HAS	01/10
CHECKED BY:	MTD	01/10
APPROVED BY:	RDP	05/10

ESCA CONSULTANTS, INC.

SHEET NO. 17	F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
20 SHEETS	2936	14BR-1	PULASKI	68	32
			CONTRACT NO. 78071		
	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



STANDARD BAR SPLICER ASSEMBLY

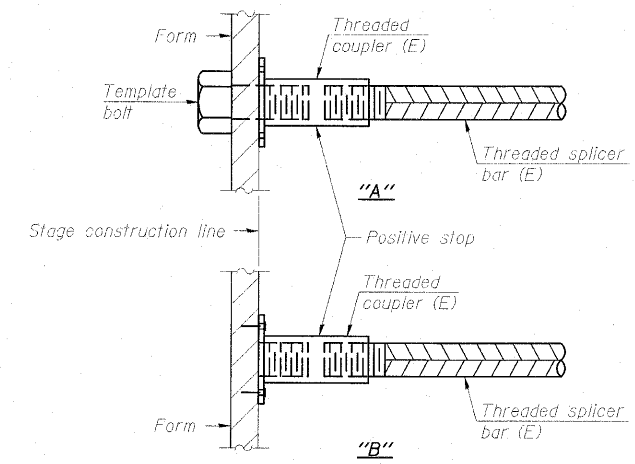
Minimum Lap Lengths				
Bar size to be spliced	Table 1	Table 2	Table 3	Table 4
3, 4	1'-5"	1'-11"	2'-1"	2'-4"
5	1'-9"	2'-5"	2'-7"	2'-11"
6	2'-1"	2'-11"	3'-1"	3'-6"
7	2'-9"	3'-10"	4'-2"	4'-8"
8	3'-8"	5'-1"	5'-5"	6'-2"
9	4'-7"	6'-5"	6'-10"	7'-9"

Table 1: Black bar, 0.8 Class C
Table 2: Black bar, Top bar lap, 0.8 Class C
Table 3: Epoxy bar, 0.8 Class C
Table 4: Epoxy bar, Top bar lap, 0.8 Class C

Threaded splicer bar length = min. lap length + 1½" + thread length

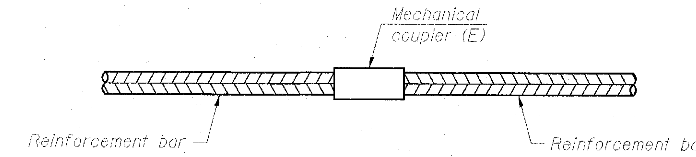
* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

Location	Bar size	No. assemblies required	Table for minimum lap length
Wearing Surface	#4	120	3
Appr. Footing	#5	80	3
Appr. Slab top	#4	50	3
Appr. Slab bott.	#5	92	3
Abut. Backwalls	#5	10	3



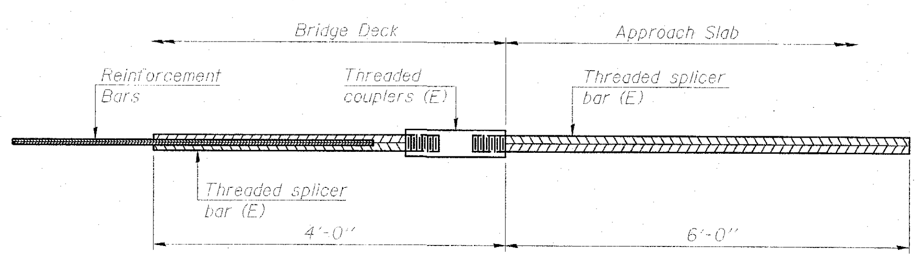
INSTALLATION AND SETTING METHODS

"A" : Set bar splicer assembly by means of a template bolt.
"B" : Set bar splicer assembly by nailing to wood forms or cementing to steel forms.
(E) : Indicates epoxy coating.



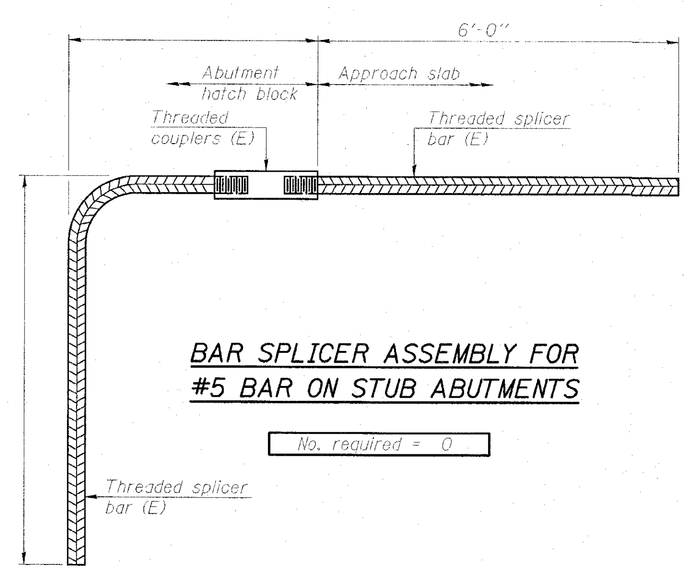
STANDARD MECHANICAL SPLICER

Location	Bar size	No. assemblies required



BAR SPLICER ASSEMBLY FOR #5 BAR ON INTEGRAL OR SEMI-INTEGRAL ABUTMENTS

No. required = 0



BAR SPLICER ASSEMBLY FOR #5 BAR ON STUB ABUTMENTS

No. required = 0

NOTES

Splicer bars shall be deformed with threaded ends and have a minimum 60 ksi yield strength.
All reinforcement shall be lapped and tied to the splicer bars.
Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars. See Section 508 of the Standard Specifications.
See special provision for Mechanical Splicers.
See approved list of bar splicer assemblies and mechanical splicers for alternatives.

BAR SPLICER ASSEMBLY AND MECHANICAL SPLICER DETAILS STRUCTURE NO. 077-0016

ESCA CONSULTANTS, INC.

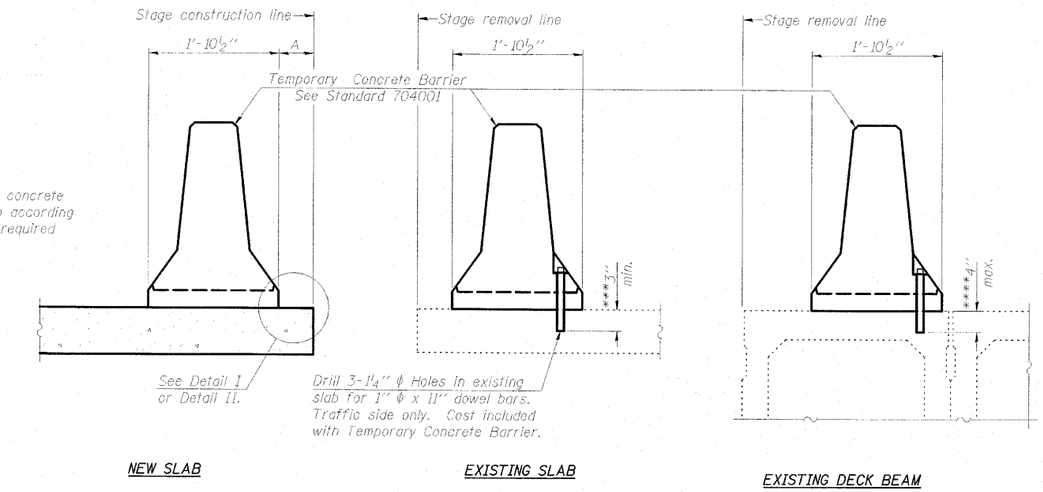
DESIGNED BY:	MTD	01/10
DRAWN BY:	RJT	01/10
CHECKED BY:	MTD	01/10
APPROVED BY:	RDP	05/10

BSD-1 11-1-09

SHEET NO. 18 / 20 SHEETS	F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	2936	14BR-1	PULASKI	68	33
			CONTRACT NO. 78071		
	FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT			

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

When "A" is 3'-6" or less, the temporary concrete barrier shall be anchored to the new slab according to Detail I or Detail II. No anchorage is required when "A" is greater than 3'-6".



NEW SLAB | EXISTING SLAB | EXISTING DECK BEAM

SECTIONS THRU SLAB OR DECK BEAM

NOTES

Detail I - With Bar Splicer or Couplers:
Connect one (1) 1"x1"x"W" steel ℄ to the top layer of couplers with 2-½" ϕ bolts screwed to coupler at approximate ℄ of each barrier panel.

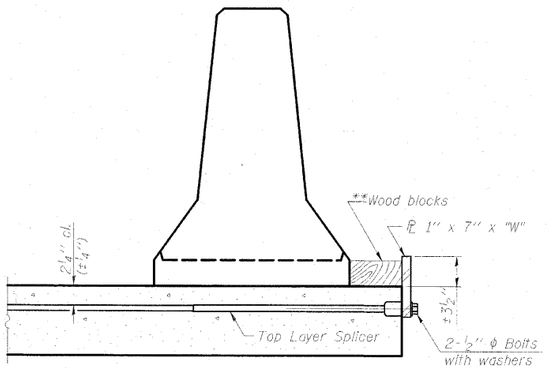
Detail II - With Extended Reinforcement Bars:
Connect one (1) 1"x7"x"W" steel ℄ to the concrete slab or concrete wearing surface with 2-⅝" ϕ Expansion Anchors or cast in place inserts spaced between the top layer of reinforcement at approximate ℄ of each barrier panel.

Cost of anchorage is included with Temporary Concrete Barrier.

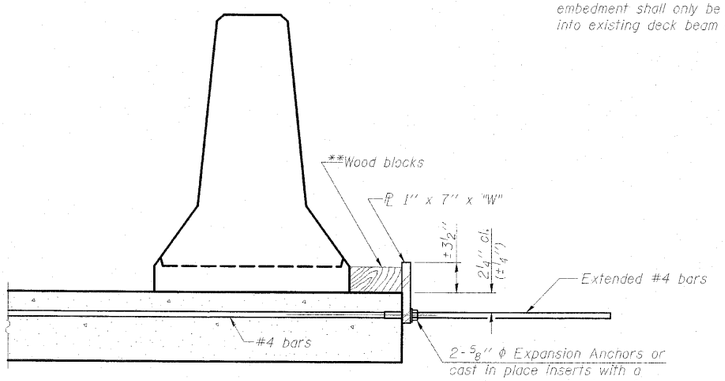
The 1" x 7" x "W" plate shall not be removed until stage II construction forms and all reinforcement bars are in place and the concrete is ready to be placed.

*** Dimension shown is minimum required embedment into concrete. If hot-mix asphalt wearing surface is present, minimum embedment shall be in addition to wearing surface depth.

**** If existing deck beam is to remain in place after stage construction, embedment shall only be into wearing surface and not into existing deck beam concrete.



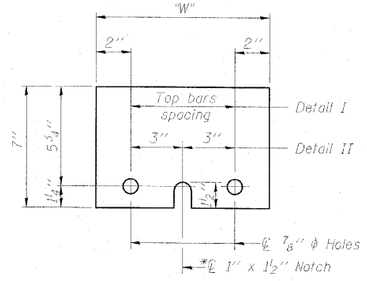
DETAIL I



DETAIL II

** Wood blocks may be omitted when required to provide minimum stage traffic lane width. When the wood blocks are omitted, the concrete barrier shall be in direct contact with the steel retainer plate.

"W" = Top bars spacing + 4"



STEEL RETAINER ℄ 1" x 7" x 10"

* Required only with Detail II

TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION STRUCTURE NO. 077-0016

ESCA CONSULTANTS, INC.		
DESIGNED BY:	MTD	01/10
DRAWN BY:	RJT	01/10
CHECKED BY:	MTD	01/10
APPROVED BY:	RDP	05/10

R-27

11-1-09

SHEET NO. 19	F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
20 SHEETS	2936	14BR-1	PULASKI	68	34
			CONTRACT NO. 78071		
	FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT			

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRIDGE FOUNDATION BORING LOG

BRIDGE STRUCTURE CARRYING F.A.S. 2936 (U.S. 51) OVER CACHE RIVER — Date: MAY 15, 1980

Route: F.A.S. 2936 (U.S. 51) — Bored By: JOHN R. HAYDEN

STA. BR. #077-0016 230+00 — Checked By: GARY L. PULLEY

County: PULASKI

Boring No. 1-S

Station 229+75

Offset 52' LT (EAST) CENTERLINE

Ground Surface Elev. 327.5

Surface Water El. NONE

Groundwater El. at Completion —

After — Hours —

Description	Elevation / Depth	N	Qu (t/s.f.)	w (%)
Ground Surface Elev. 327.5	0			
SOFT TO MEDIUM VERY MOIST BROWN SILT LOAM TO SILTY CLAY LOAM A-4 — 325.0				
SOFT VERY MOIST BROWN SILT LOAM A-4		2	0.5B	31
322.5	5			
VERY SOFT VERY MOIST GREY SILT LOAM A-4		2	0.1B	34
320.0				
SOFT VERY MOIST GREY SILT LOAM		2	0.3B	38
317.5	10			
SOFT VERY MOIST GREY SILT LOAM		2	0.5B	39
315.0				
SOFT VERY MOIST GREY SILTY CLAY LOAM TO SILT LOAM A-4		2	0.4B	47
312.5	15			
SOFT VERY MOIST GREY SILTY CLAY LOAM TO SILT LOAM		2	0.2B	27
310.0				
MEDIUM VERY MOIST GREY ROTTEN VEGETATION WITH SILTY CLAY LOAM BINDER & 1" SAND SEAM		3	0.6S	76
307.5	20			
VERY LOOSE VERY MOIST GREY FINE GRAINED SAND WITH SEAMS OF ROTTEN VEGETATION WITH CLAY LOAM BINDER		3		
305.0				
LOOSE WET GREY FINE GRAINED SAND		8	-	-
302.5	25			
MEDIUM WET GREY FINE GRAINED SAND		16	-	-
300.0				
MEDIUM WET GREY COARSE GRAINED SAND		14	-	-
	30			
		17	[illegible]	-
	35			
		20	[illegible]	[illegible]
	40			
		16	-	-
SEE NEXT SHEET	45			

Standard Penetration Test — Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with 140# hammer falling 30".

Qu — Unconfined Compressive Strength — t/sf

w — Water Content — percentage of oven dry weight — %

Type failure: B — Bulge Failure; S — Shear Failure; E — Estimated Value; P — Penetrometer

BRIDGE FOUNDATION BORING LOG

STRUCTURE CARRYING F.A.S. 2936 (U.S. 51) OVER CACHE RIVER, BR. #077-0016, PULASKI COUNTY, BORING NO. 1-S

Description	Elevation / Depth	N	Qu (t/s.f.)	w (%)
SEE PREVIOUS SHEET	45			
		18	-	-
	50			
		13	-	-
	55			
		29	[illegible]	[illegible]
	60			
		19	[illegible]	[illegible]
	65			
261.0		25	-	-
BOTTOM OF HOLE = 66.5'.				
DURING DRILLING OPERATIONS IT APPEARED THAT FREE WATER WAS ENCOUNTERED AT 5.0'.				
DURING DRILLING OPERATIONS WASH OUT PROCEDURES USED FROM 24.0' TO 65.0'.	70			

STRUCTURE LOCATION:

NE 1/4, NW 1/4, SECTION 26, T14S, R1W, 3RD P.M., PULASKI COUNTY, ILLINOIS.

(Elevation scale: 75, 80, 85, 90, 95)

SOIL BORING LOG
STRUCTURE NO. 077-0016

ESCA CONSULTANTS, INC.

DESIGNED BY:	MTD	01/10
DRAWN BY:	RJT	01/10
CHECKED BY:	MTD	01/10
APPROVED BY:	RDP	05/10

SHEET NO. 20 / 20 SHEETS	F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	2936	14BR-1	PULASKI	68	35
	CONTRACT NO. 78071				
	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

M.: Chiseled "□" in center of island, 21' left of Station 824+18, Elev. 335.81

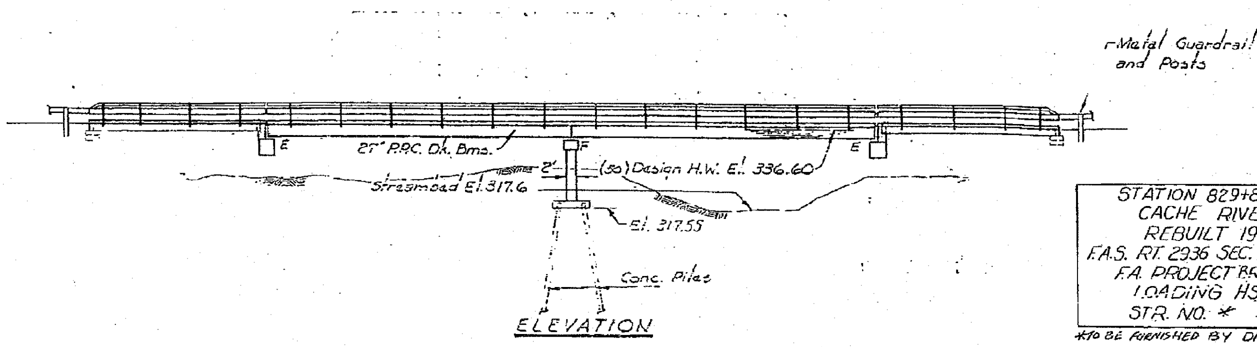
Existing Structure: #077-0016 Built as SB Rte. 2 Sec. 15 B-C in 1920. The existing 123'-0" Bk. to Bk. Single span Penn Truss is to be utilized as a temporary bridge on the detour, which shall be moved 45' west and 35' south. The existing waterway is 20'-0" Out to Out. The contractor shall construct a new widened P.P.C. Deck Bms. superstructure, a pier with cofferdam and a new abutment caps. The contractor shall remove the temporary bridge after construction is complete.

No Salvage.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.S. 2936	15BC-BR	Pulaski	25	11
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

SHEET NO. 1
10 SHEETS

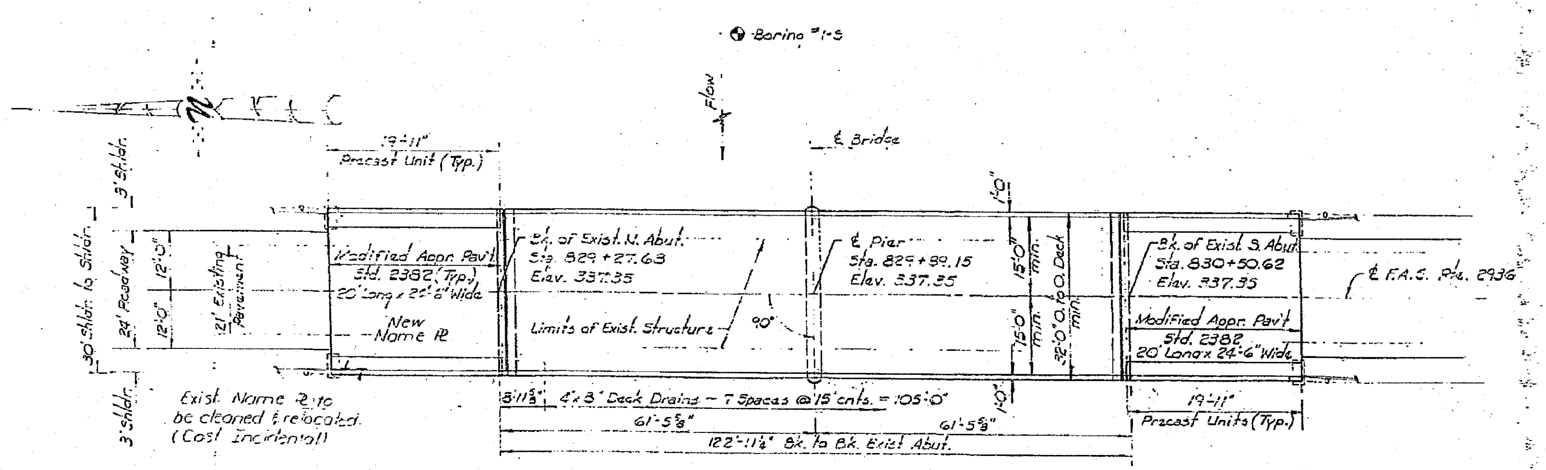


ELEVATION

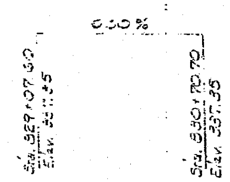
STATION 829+89.15
CACHE RIVER
REBUILT 19
F.A.S. RT. 2936 SEC. 15BC-BR
F.A. PROJECT BR-S-2936(105)
LOADING HS20
STR. NO. *

*TO BE FURNISHED BY DIST.

NAME PLATE
(See Std. 2113)



PLAN



PROFILE GRADE
(@ ℄ Roadway)

WATERWAY INFORMATION

Drainage Area 165 sq. mi. Low Grade Elev. 334.8 (exist.) 335.1 (prop.) @ Sta. 838+00

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Nat. H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
Design	50	3560	1212	1109	336.6	0.23	0.25	336.83	336.85
Base	100	3340	1212	1109	336.9	0.19	0.22	337.09	337.12
Overtopping	5	2720	1050	1109	335.0	0.0	0.0	335.0	335.0
Max. Calc.	500								

Freq. Yr.	Overflow Structure Discharge	Overflow Structure Prop. Opening	Over the road flow Discharge	Over the road flow Area below Headwater El.
50	1040	275	5090	2450
100	1030	275	5270	2735
5	737	275	0	0

The approach roadway is designed for an overtopping flood of 5yr. frequency.

DESIGN STRESSES

FIELD UNITS

f'_c = 3,500 psi
f_y = 60,000 psi (Reinf.)

PRECAST UNITS

f'_c = 4,500 psi
f_c = 1,800 psi f_s = 20,000 psi

PRECAST PRESTRESSED UNITS

f'_c = 5,000 psi
f'_{ci} = 4,000 psi
f'_s = 270,000 psi (½" ϕ Strands)
f'_{si} = 189,000 psi (½" ϕ Strands)

Allow 25#/□' for future wearing surface.

Design Specification: 1977 AASHTO; 1978, 1979, 1980 and 1981 Interim Specifications.

LOADING HS 20-44

GENERAL NOTES

See Proposal for Boring Data.

All structural steel shall be shop-painted with two coats of basic lead silica chromate paint.

Expansion guards which are not cast in the precast unit shall be fabricated and erected in accordance with Article 503.07 (c) of the Standard Specifications and are included in quantity of structural steel.

The contractor shall drive one concrete test pile in a permanent location at the Pier as directed by the Engineer before ordering the remainder of piles.

Plan dimensions and details relative to existing structure have been taken from existing plans and are subject to nominal construction variations. It shall be the Contractor's responsibility to verify such dimensions and details in the field and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in the scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.

The top surface of the beams shall be finished in accordance with Article 505.06 of the Standard Specifications except that the surface shall not be roughened by brooming. The finished surface shall be free of depressions or high spots with sharp corners, and the top edge of keys shall be rounded or chamferred a minimum of ¼".

Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-53, Grade 60.

Limits of Waterproofing Membrane System and Class I shall be from toe to toe of curbs and end to end of deck beams.

Protective Coat shall not be applied to surfaces to which Waterproofing Membrane System is applied.

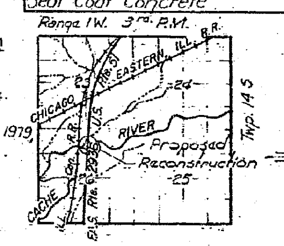
A Calcium Nitrite Corrosion Inhibitor, as covered in the Special Provisions, shall be used in the concrete for precast prestressed concrete deck beams.

Shoulder transition to wingwall shall be shaped with broken concrete. Cost incidental.

TOTAL BILL OF MATERIAL

Item	Unit	Super	Sub	Total
Removal of Existing Superstructures	Each	1		1
* Temporary Bridge Complete (Truss Relocation)	Each			1
Bituminous Concrete Surface Course, Class I	Tons	42		42
Concrete Removal	Cu. Yd.		20	20
Protective Coat	Sq. Yd.	53		53
Class X-Concrete	Cu. Yd.	18.0	80.6	98.6
Precast Concrete Bridge Slab	Sq. Ft.	299		299
Precast Prestressed Concrete Deck Beams (21" Depth)	Sq. Ft.	3817		3817
Structural Steel	Pound	4240		4240
Reinforcement Bars	Pound	200	6900	7100
Reinforcement Bars (Epoxy Coated)	Pound	490		490
Concrete Piles	Lin. Ft.	-	615	615
Test Pile Concrete	Each		1	1
Name Plates	Each	1		1
Preformed Joint Seal 2½"	Lin. Ft.	65		65
Portland Cement Mortar Fairing Course	Lin. Ft.	835		835
Waterproofing Membrane System	Sq. Yd.	402		402
Steel Railing, Type F-1	Lin. Ft.	322		322
Epoxy Crack Sealing	Lin. Ft.		25	25
Cofferdam Excavation	Cu. Yd.		213	213
Cofferdams	Each		1	1
Seal Coat Concrete	Cu. Yd.		57	57

Range 1W. 3rd P.M.



LOCATION SKETCH

*Alternate "A"
For Alternate "B": Temporary Bridge Complete 1 Each
See Special Provisions.

GENERAL PLAN
F.A.S. Rte. 2936 Over CACHE RIVER
F.A.S. Rte. 2936 (U.S. 51) Section 15BC-BR
PULASKI COUNTY
Sta. 829+89.15

DESIGNED	
CHECKED	
DRAWN	D. Daly
CHECKED	

May 19 1982
EXAMINED James J. Rayburn
ENGINEER OF BRIDGE DESIGN
PASSED
ENGINEER OF BRIDGES AND STRUCTURES
APPROVED
DIRECTOR OF HIGHWAYS

Revised: 8-2-82 R.D.

FILE NAME = D978071-sht-rom01.dgn	USER NAME = HAS	DESIGNED - DAJ	REVISED -
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	PLOT DATE = 5/17/2010 12:56:57 PM	DATE - 05/10	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXISTING STRUCTURE PLANS

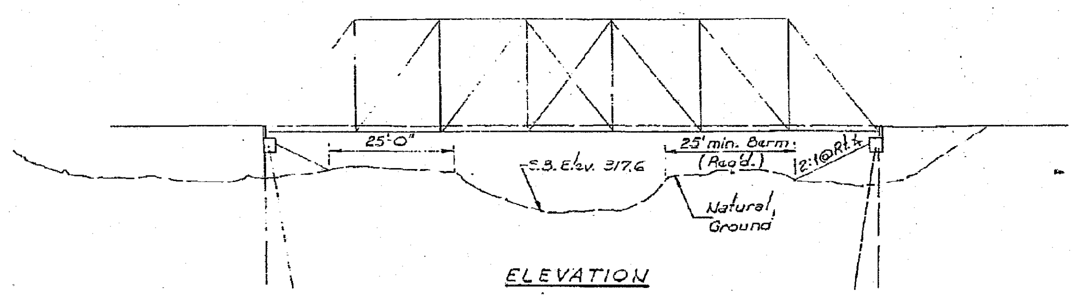
SCALE: SHEET NO. 1 OF 10 SHEETS STA. TO STA.

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	14BR-1	PULASKI	68	36
		CONTRACT NO. 78071		
FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT AID			

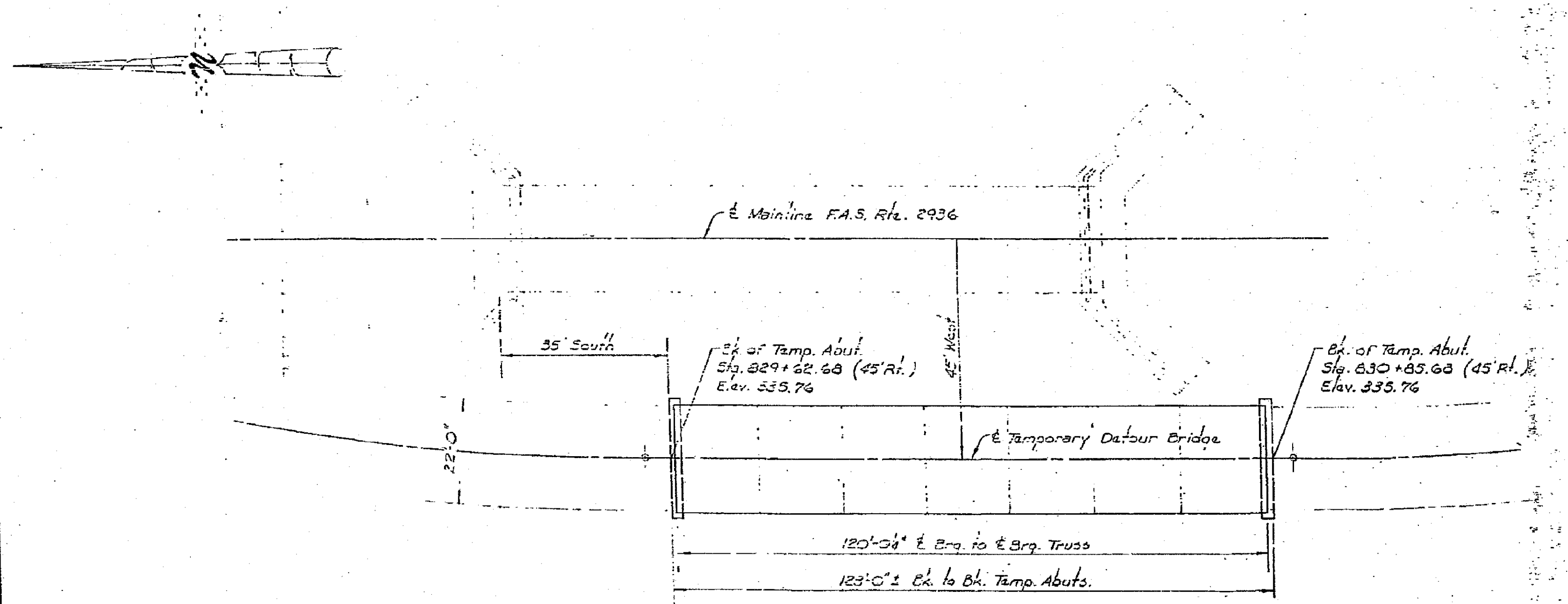
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.S. 2936	15BC-BR	PULASKI	20	12
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

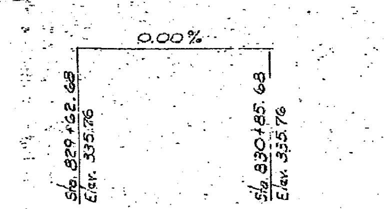
SHEET NO. 2
10 SHEETS



ELEVATION



PLAN



PROFILE GRADE TEMP. STRUCTURE

ALTERNATE "A"
TEMPORARY STRUCTURE
F.A.S. Rte. 2936 Over CACHE RIVER
F.A.S. Rte. 2936 (U.S. 51) Section 15BC-BR
PULASKI COUNTY
Sta. 829+89.15

DESIGNED
CHECKED
DRAWN R.D.
CHECKED RB

May 19, 1982
EXAMINED James J. Rayburn
ENGINEER OF BRIDGE DESIGN
PASSED
ENGINEER OF BRIDGES AND STRUCTURES
APPROVED
DIRECTOR OF HIGHWAYS

FILE NAME = D970071-sht-rem02.dgn	USER NAME = HAS	DESIGNED - DAJ	REVISED -
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXISTING STRUCTURE PLANS

SCALE: | SHEET NO. 2 OF 10 SHEETS | STA. | TO STA.

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	14BR-1	PULASKI	68	37

CONTRACT NO. 78071

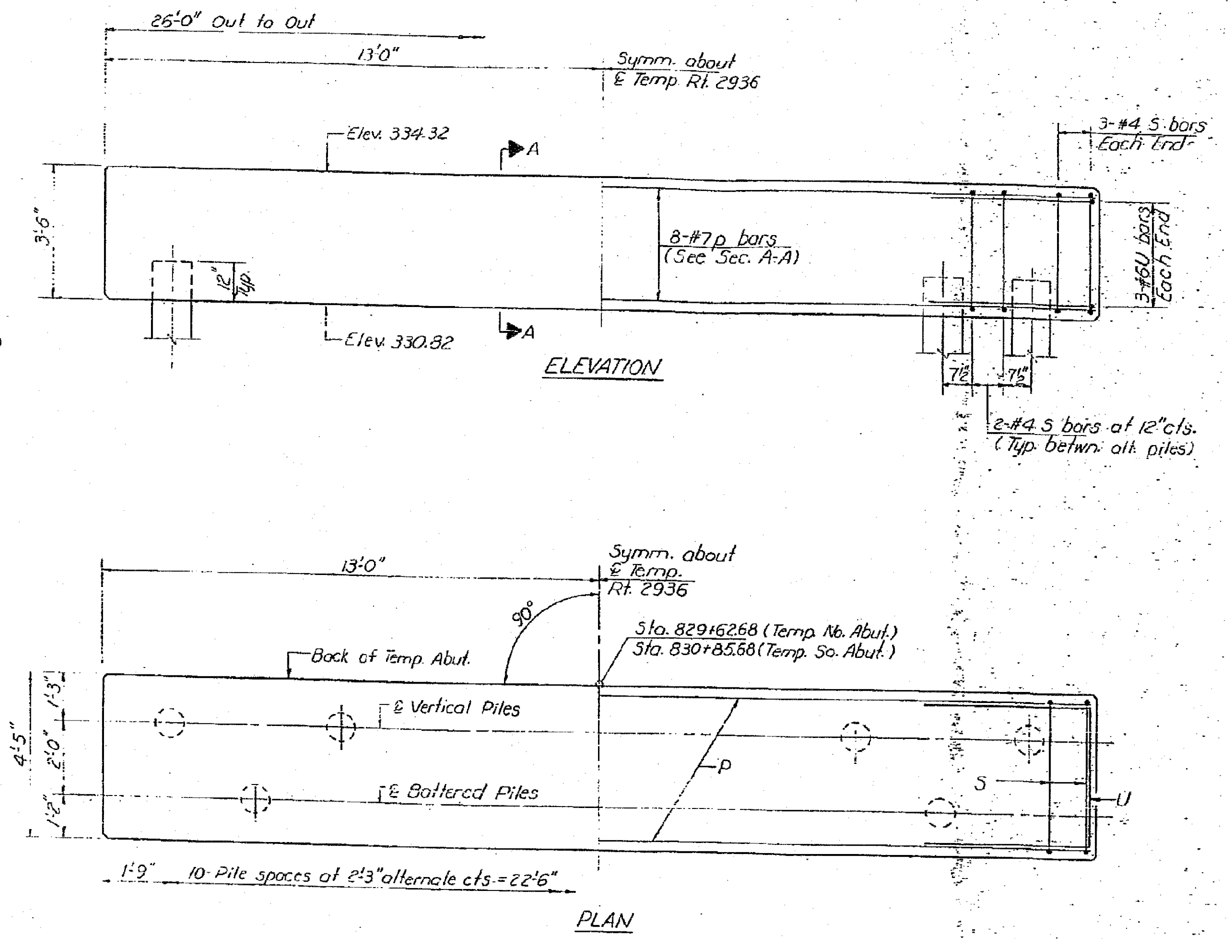
FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT AID

ESCA CONSULTANTS, INC.
CIVIL & STRUCTURAL ENGINEERS
URBANA, ILLINOIS

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

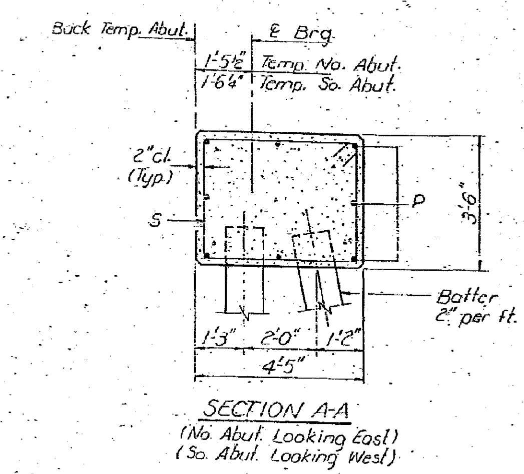
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.S. 2936	15BC-BR	PULASKI	20	13

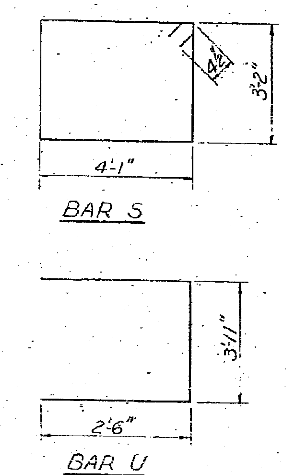
SHEET NO. 3
10 SHEETS



PILE DATA (For Information Only)

Type: Creosoted
Capacity: 24 Tons
Est. Length: 46'
No. Required: 11





BAR LIST
ONE ABUTMENT

Bar	No.	Size	Length	Shape
P	8	#7	25'9"	—
S	26	#4	15'-3"	▢
U	6	#6	8'11"	⊐

Note:
Cost of temporary abutments shall be incidental to Temporary Bridge Complete (Truss Relocation)

DESIGNED	[illegible]
CHECKED	[illegible]
DRAWN	R. Sohl
CHECKED	[illegible] RB

May 19 1982
EXAMINED [signature]
ENGINEER OF BRIDGE DESIGN
[signature]
ENGINEER OF BRIDGES AND STRUCTURES
APPROVED
DIRECTOR OF HIGHWAYS

ALTERNATE "A"
TEMPORARY ABUTMENTS
F.A.S. RT. 2936 SEC. 15BC-BR
PULASKI COUNTY
STA. 829+89.15

FILE NAME =	USER NAME = HAS	DESIGNED - DAJ	REVISED -
		DRAWN - RJT/HAS	REVISED -
	PLOT SCALE =	CHECKED - MTD	REVISED -
	PLOT DATE = 5/17/2010	DATE - 05/10	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

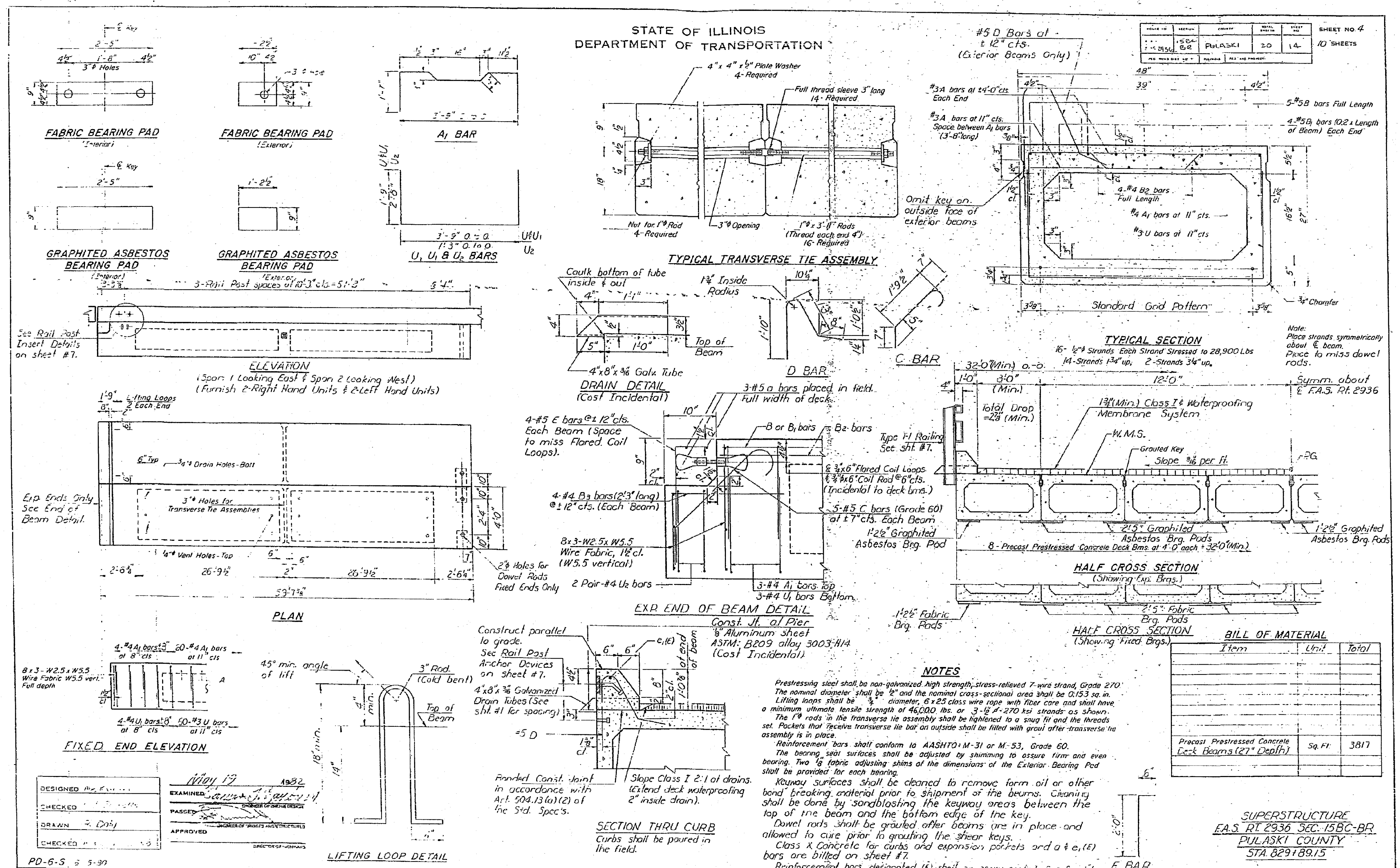
EXISTING STRUCTURE PLANS

SCALE: SHEET NO. 3 OF 10 SHEETS STA. TO STA.

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	14BR-1	PULASKI	68	38

CONTRACT NO. 78071

FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT AID


STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
SHEET NO. 4
10 SHEETS
PULASKI
FABRIC BEARING PAD (Interior)
FABRIC BEARING PAD (Exterior)
A1 BAR
U, U1 & U2 BARS
GRAPHITED ASBESTOS BEARING PAD (Interior)
GRAPHITED ASBESTOS BEARING PAD (Exterior)
TYPICAL TRANSVERSE TIE ASSEMBLY
D BAR
C BAR
TYPICAL SECTION
16 - 1/2"ø Strands Each Strand Stressed to 28,900 Lbs
Standard Grid Pattern
ELEVATION
(Span 1 Looking East & Span 2 Looking West)
(Furnish 2-Right Hand Units & 2-Left Hand Units)
DRAIN DETAIL (Cost Incidental)
PLAN
EXP. END OF BEAM DETAIL
HALF CROSS SECTION (Showing Exp. Brgs.)
HALF CROSS SECTION (Showing Fixed Brgs.)
8 - Precast Prestressed Concrete Deck Bms. at 4'-0" each = 32'-0" (Min.)
FIXED END ELEVATION
LIFTING LOOP DETAIL
SECTION THRU CURB
Curbs shall be poured in the field.
E BAR
BILL OF MATERIAL
Item | Unit | Total
Precast Prestressed Concrete Deck Beams (27" Depth) | Sq. Ft. | 3817
NOTES
Prestressing steel shall be non-galvanized high strength, stress-relieved 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 3/4" diameter, 6 x 25 class wire rope with fiber core and shall have a minimum ultimate tensile strength of 46,000 lbs. or 3-1/2" ø-270 ksi strands as shown.
The 1"ø 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 AASHTO M-31 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 the top of the beam and the bottom edge of the key.
Dowel rods shall be grouted after beams are in place and allowed to cure prior to grouting the shear keys.
Class X Concrete for curbs and expansion pockets and a & e1(E) bars are billed on sheet #7.
Reinforcement bars designated (E) shall be epoxy coated. See Special Provisions.
SUPERSTRUCTURE
F.A.S. RT. 2936 SEC. 15BC-BR
PULASKI COUNTY
STA. 829+89.15
PD-6-S

FILE NAME =	USER NAME = HAS	DESIGNED - DAJ	REVISED -
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

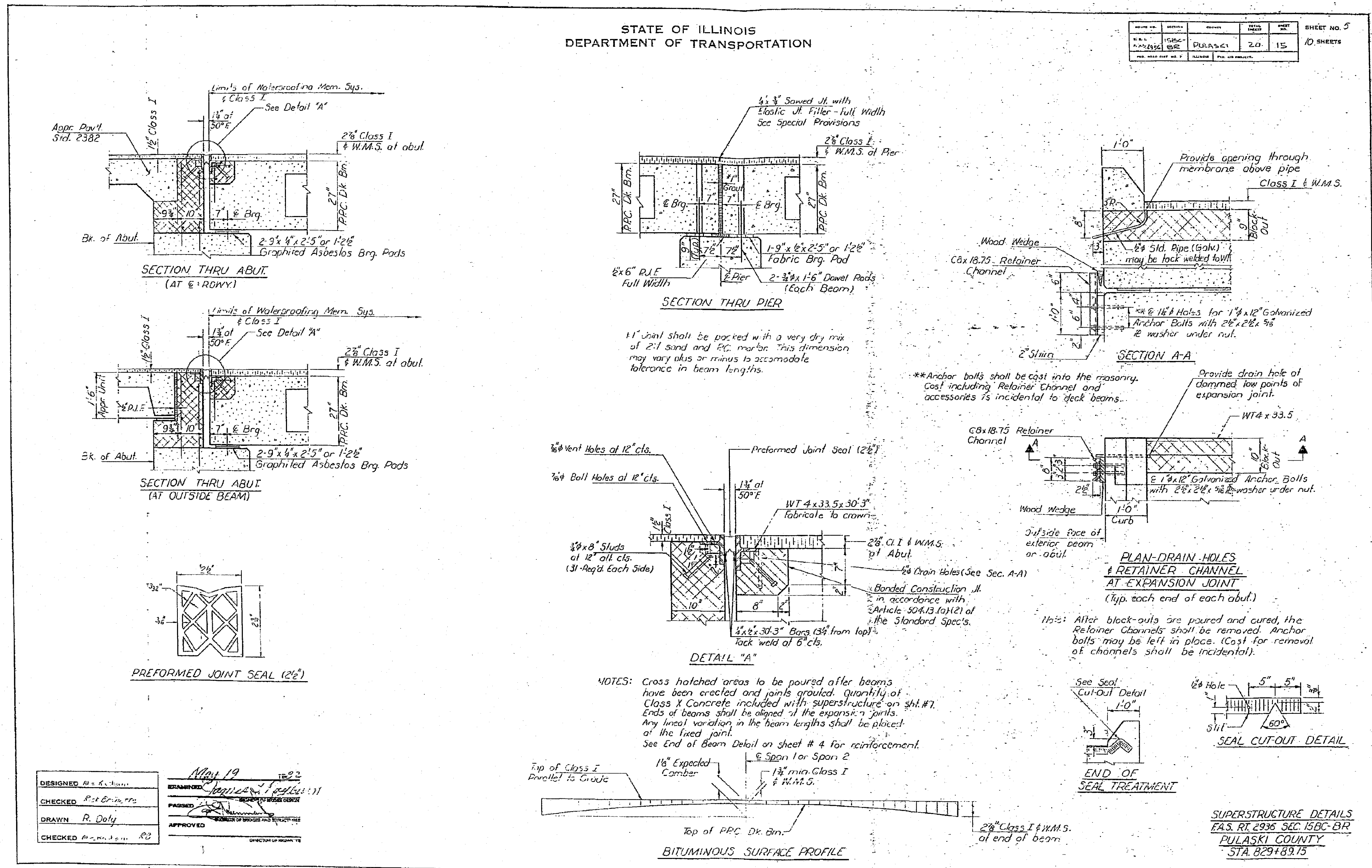
EXISTING STRUCTURE PLANS

SCALE: | SHEET NO. 4 OF 10 SHEETS | STA. | TO STA.

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	14BR-1	PULASKI	68	39

CONTRACT NO. 78071

FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT AID


STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
SHEET NO. 5
10 SHEETS
PULASKI
20
15
SECTION THRU ABUT.
(AT ℄ RDWY.)
SECTION THRU ABUT.
(AT OUTSIDE BEAM)
SECTION THRU PIER
SECTION A-A
PLAN-DRAIN HOLES
& RETAINER CHANNEL
AT EXPANSION JOINT
(Typ. each end of each abut.)
PREFORMED JOINT SEAL (2½")
DETAIL "A"
END OF SEAL TREATMENT
SEAL CUT-OUT DETAIL
BITUMINOUS SURFACE PROFILE
Graphited Asbestos Brg. Pads
Fabric Brg. Pad
Preformed Joint Seal (2½")
WT 4 x 33.5 x 30'-3" Fabricate to crown
**Anchor bolts shall be cast into the masonry. Cost including Retainer Channel and accessories is incidental to deck beams.
Note: After block-outs are poured and cured, the Retainer Channels shall be removed. Anchor bolts may be left in place. (Cost for removal of channels shall be incidental).
NOTES: Cross hatched areas to be poured after beams have been erected and joints grouted. Quantity of Class X Concrete included with superstructure on sht. #7. Ends of beams shall be aligned at the expansion joints. Any lineal variation in the beam lengths shall be placed at the fixed joint. See End of Beam Detail on sheet # 4 for reinforcement.
SUPERSTRUCTURE DETAILS
F.A.S. RT. 2936 SEC. 15BC-BR
PULASKI COUNTY
STA. 829+89.15
DESIGNED
CHECKED
DRAWN R. Doty
CHECKED
EXAMINED
PASSED
APPROVED

FILE NAME = 0978071-sht-rem05.dgn	USER NAME = HAS	DESIGNED - DAJ	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	EXISTING STRUCTURE PLANS	F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		DRAWN - RJT/HAS	REVISED -			2936	14BR-1	PULASKI	68	40
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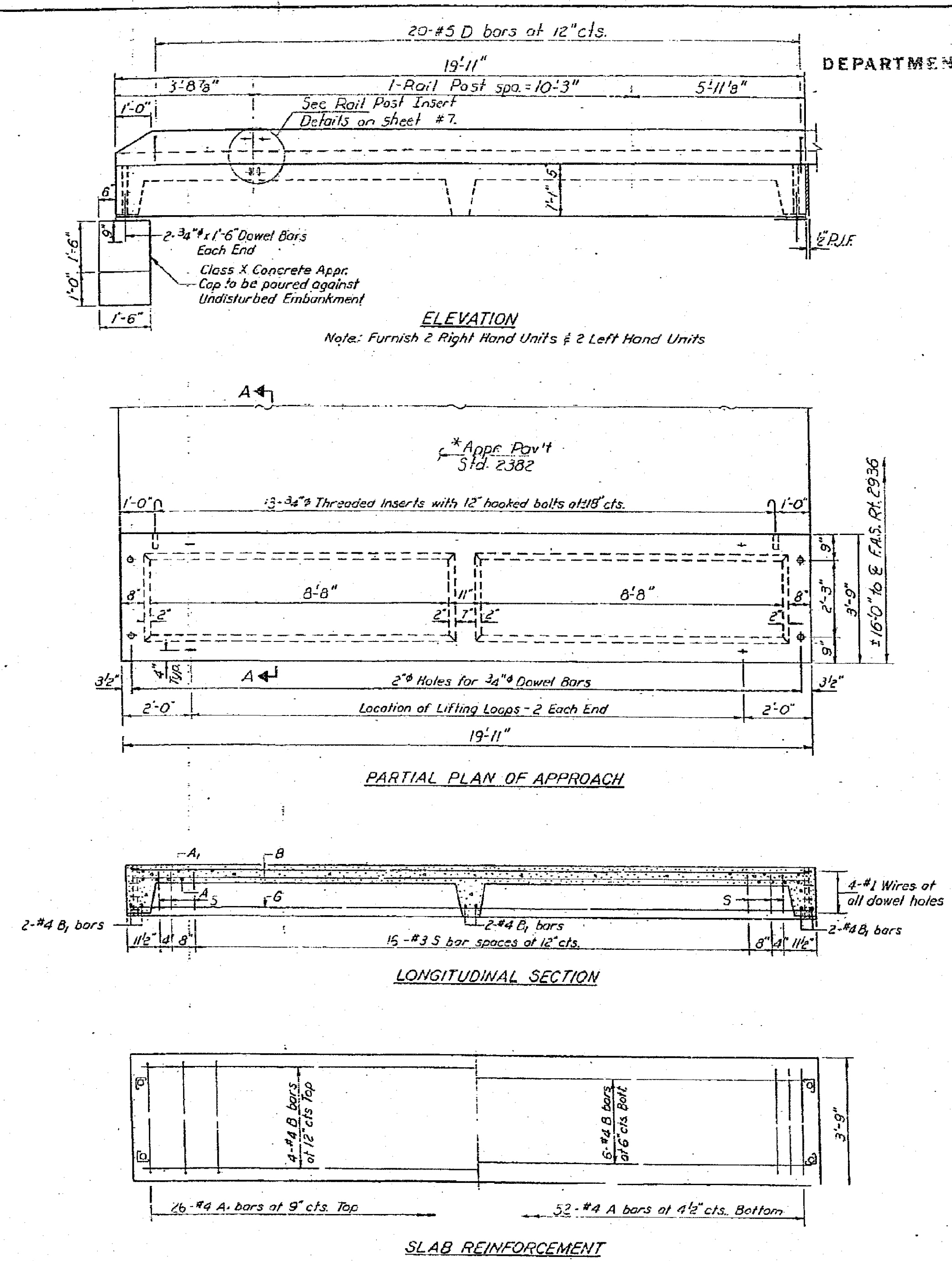
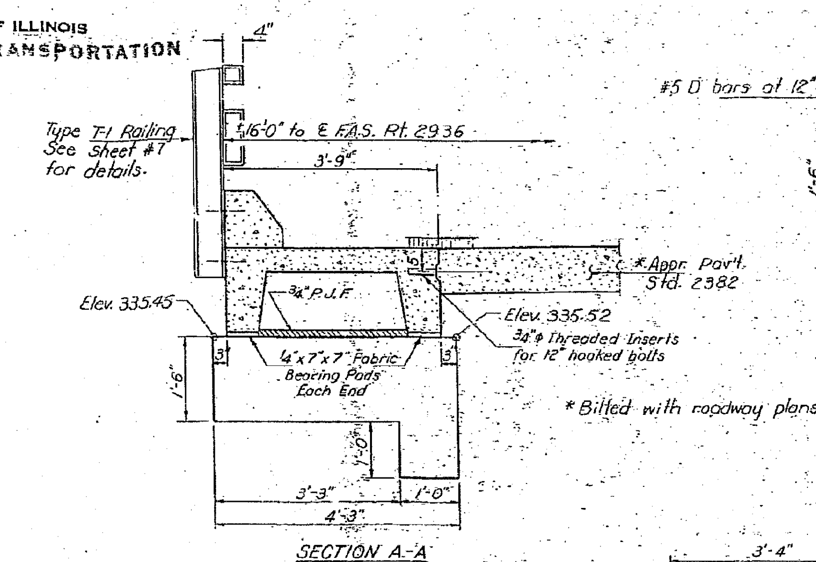
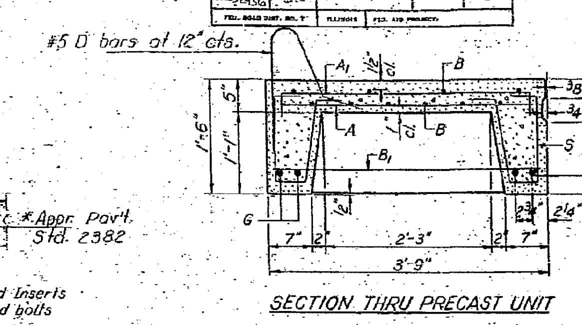
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

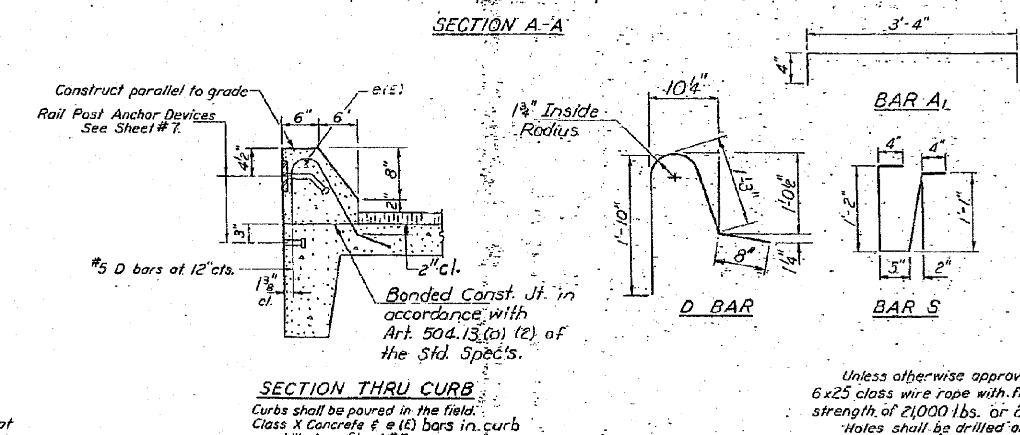
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.S. 2936	15BC-BR	PULASKI	20	16

SHEET No. 6
10 SHEETS









BAR LIST - ONE UNIT

Reinforcement to be cast into slab

Bar	No.	Size	Length	Shape
A	52	#4	3'-3"	——
A1	26	#4	4'-0"	⌐¬
B	10	#4	19'-6"	——
B1	6	#4	3'-6"	——
D	20	#5	3'-9"	⌐\
G	4	#10	19'-6"	——
S	42	#3	3'-4"	⌐

NOTES

Unless otherwise approved by the Engineer, lifting loops shall be 1/2"φ, 6x25 class wire rope with fiber core and shall have a minimum ultimate strength of 21,000 lbs. or 2-1/2"φ 270 ksi strands as shown on sht. #4.

Holes shall be drilled and anchor dowels grouted in place.

Cost of reinforcement and accessories cast into the slab unit, bearing pads, furnishing, drilling for, placing and grouting anchor dowels and 3/4"φ hooked bolts is included in Unit bid price for "Precast Concrete Bridge Slab."

The Precast Concrete Bridge Slab shall be erected and aligned with the exterior face of the exterior Deck Beam after Deck Beams are in final position.

Reinforcement bars designated (E) shall be epoxy coated. See Special Provisions.

BILL OF MATERIAL

Item	Unit	Quantity
Precast Concrete Bridge Slab	Sq. Ft.	299
Class X Concrete	Cu. Yd.	1.6

DESIGNED	
CHECKED	
DRAWN	R. Doty
CHECKED	

May 19 1982
EXAMINED
ENGINEER OF BRIDGE DESIGN
PASSED
ENGINEER OF BRIDGES AND STRUCTURES
APPROVED
DIRECTOR OF HIGHWAYS

APPROACH DETAILS
F.A.S. RT. 2936 SEC. 15BC-BR
PULASKI COUNTY
STA. 829+89.15

W-AP-1 20' Precast Appr Unit (Rt. L)

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXISTING STRUCTURE PLANS

SCALE: | SHEET NO. 6 OF 10 SHEETS | STA. | TO STA.

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	14BR-1	PULASKI	68	41

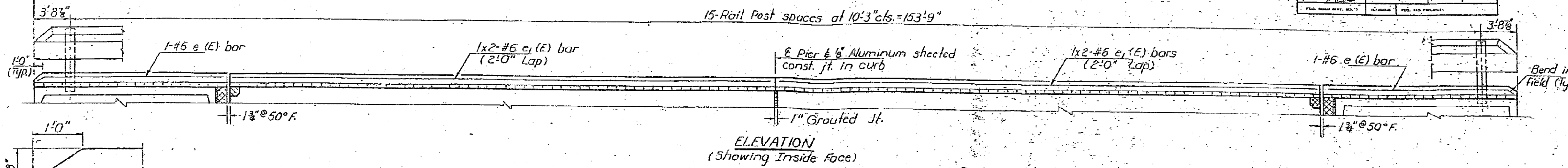
CONTRACT NO. 78071

FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT AID

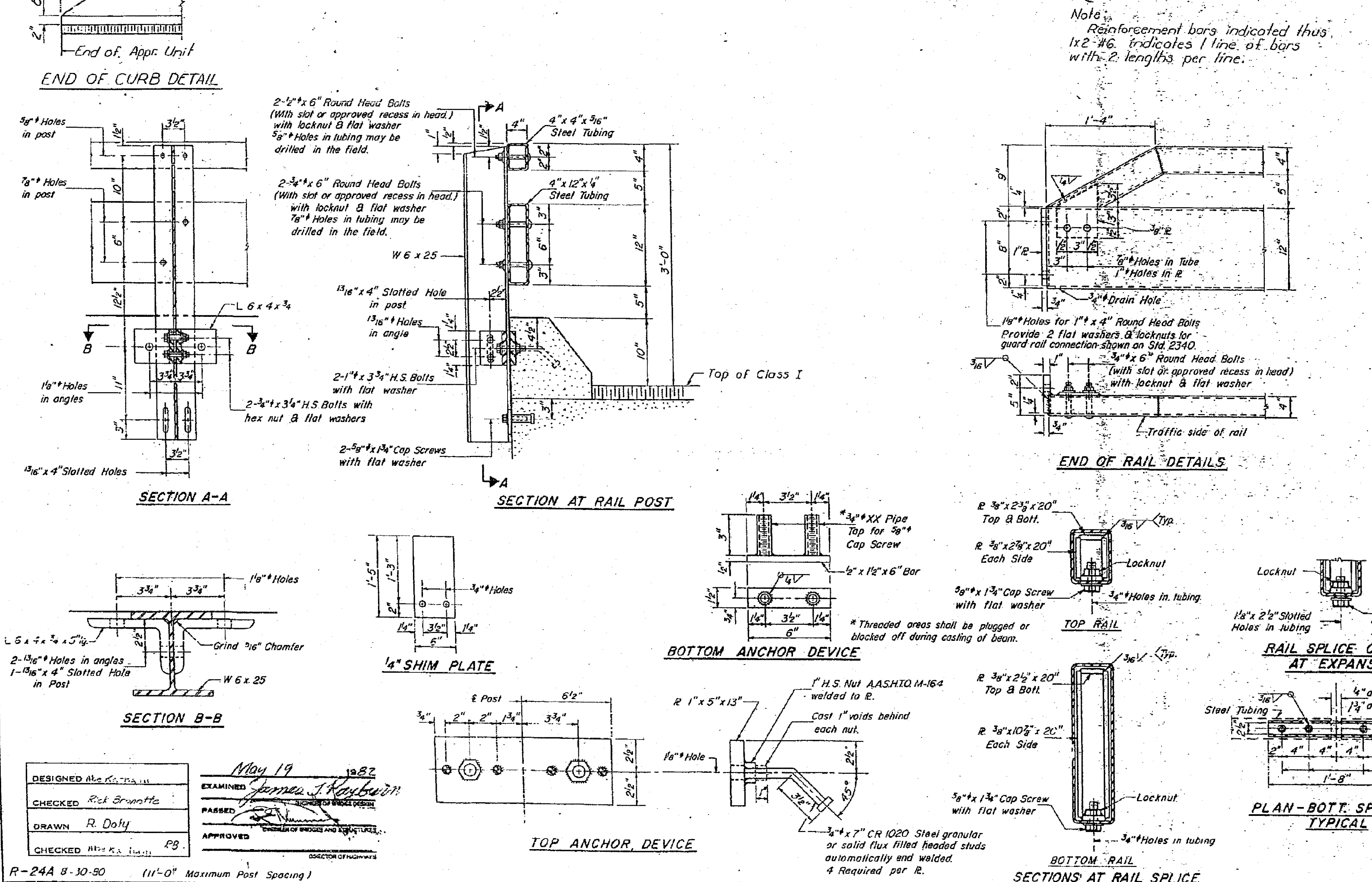
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	15BC-BR	PULASKI	20	17

SHEET NO. 7
10 SHEETS



Note:
Reinforcement bars indicated thus 1x2-#6 indicates 1 line of bars with 2 lengths per line.



NOTES

Hollow structural steel tubing shall conform to the requirements of A.S.T.M. designation A-500 Grade B Structural Steel Tubing.

All other steel-shapes and plates shall conform to the requirements of A.A.S.H.T.O. M-183 except posts and angles shall conform to A.A.S.H.T.O. M-223, 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 bolts, nuts, cap screws, washers and lock washers shall be galvanized in accordance with A.A.S.H.T.O. M-232.

All posts, railing, rail splices, anchor devices and angles 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.

Railing shall be in accordance with Section 508 of the Standard Specifications, except as noted, and shall be paid for at the contract unit price per lineal foot for STEEL RAILING, TYPE T-1.

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 714.08 Type B or place ⅛" fabric bearing pad between the post and concrete.

The ¾"ϕ high strength bolts used to connect the 6 x 4 x ¾ angles to the post shall be tightened in accordance with Article 507.04(g)(3) 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 ⅛ turn. The ⅝"ϕ cap screws in bottom of posts shall be tightened to a snug fit only.

For multi-span bridges, sufficient ¼" x 6" x 1'-5" galvanized steel shims shall be provided to align rail between adjacent spans. Cost incidental to Steel Railing.

CURB & RAIL BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a	6	#5	32'-0"	——
e (E)	4	#6	20'-6"	——
e1 (E)	8	#6	30'-9"	——
Reinforcement Bars			Pound	200
Reinforcement Bars (Epoxy Coated)			Pound	490
Class X Concrete			Cu. Yds.	18.0
Steel Railing, Type T-1			Lin. Ft.	322

Reinforcement bars designated (E) shall be epoxy coated. See Special Provisions.

TYPE T-1 STEEL RAILING
F.A.S. RT. 2936 SEC. 15BC-BR
PULASKI COUNTY
STA. 829+89.15

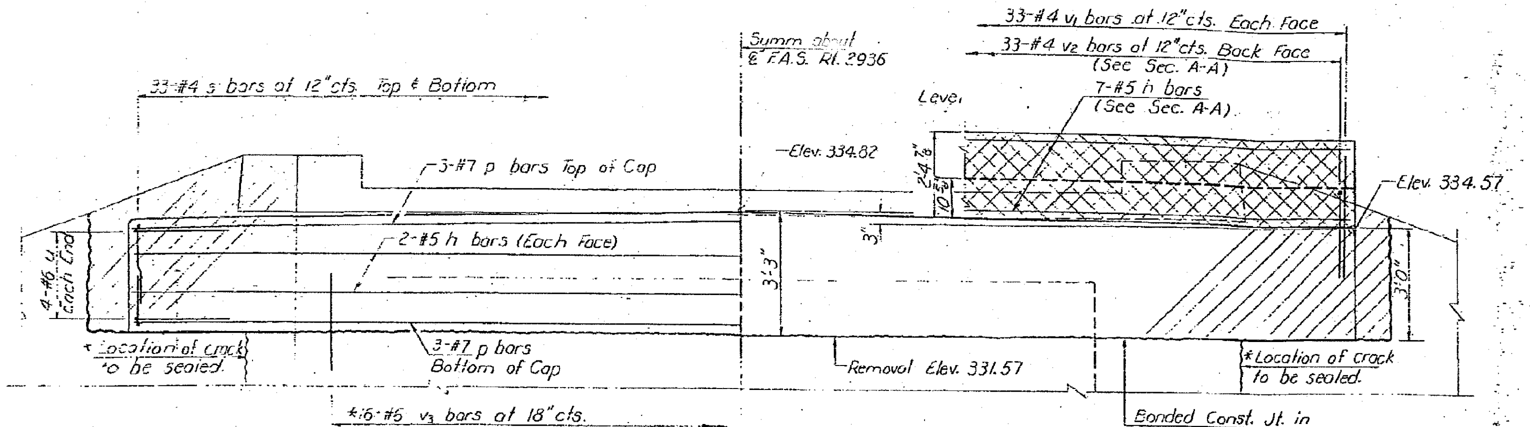
DESIGNED Abe Kozman
CHECKED Rick Brunette
DRAWN R. Doty
CHECKED Abe Ko...
EXAMINED May 19 1982 James J. Rayburn
PASSED
APPROVED

R-24A 8-30-80 (11'-0" Maximum Post Spacing)

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

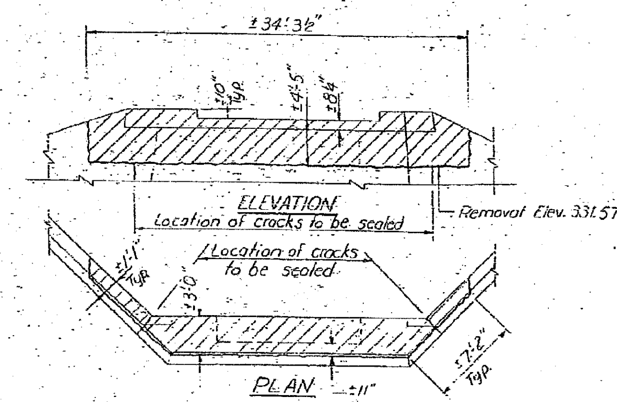
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.S. 2936	15BC-BR	PULASKI	20	15
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

SHEET NO. 8
10 SHEETS



ELEVATION
(No. Abut.-Looking No.)
(So. Abut.-Looking So.)

* Drill 1"⌀ x 1'-0" hole. Epoxy grout bars. See Special Provisions for epoxy grout.



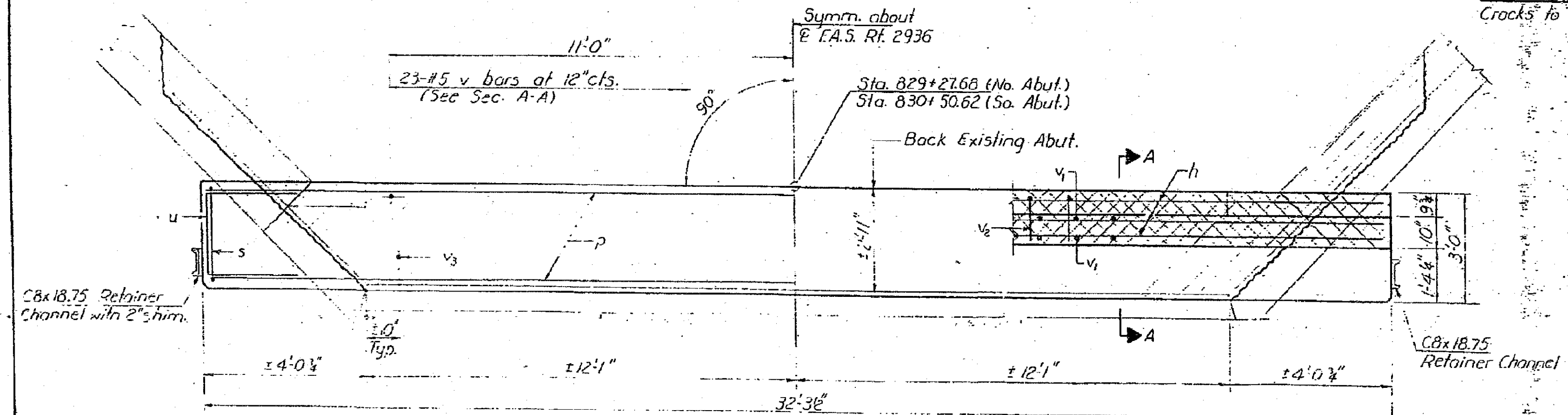
PLAN

CONCRETE REMOVAL DETAILS

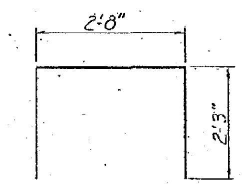
***CRACK INFORMATION**

Location		Length
North Abut.	N.E. Wing	7'-0"
	N.W. Wing	7'-0"
South Abut.	S.E. Wing	5'-0"
	S.W. Wing	5'-6"

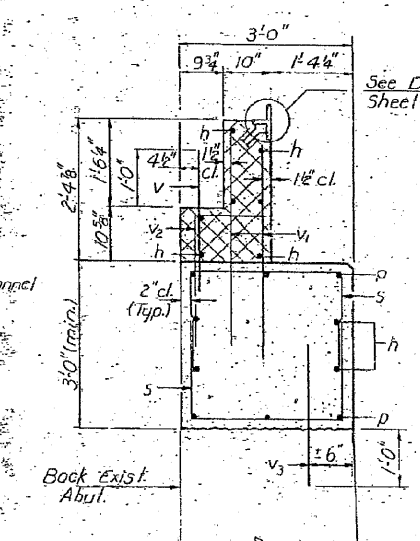
Crocks to be sealed with Epoxy Crack Sealing.



PLAN



BAR s



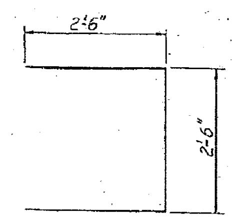
SECTION A-A

ONE ABUTMENT BILL OF MATERIAL

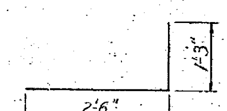
Bar	No.	Size	Length	Shape
h	11	#5	32'-0"	───
p	6	#7	32'-0"	───
s	66	#4	7'-2"	⊓
u	8	#6	7'-6"	⊐
v	23	#5	2'-6"	───
v1	66	#4	4'-0"	───
v2	33	#4	3'-9"	⌟
v3	16	#6	2'-6"	───
Concrete Removal			Cu. Yd.	10
Class X Concrete			Cu. Yd.	11.2
Reinforcement Bars			Pound	1540
** Epoxy Crack Sealing			Lin. Ft.	25

** Total Epoxy Crack Sealing for two abuts.

NOTES:
Hatched area indicates Concrete Removal. Reinforcement extending into removed area shall be cleaned and incorporated into the new construction.
Cross hatched area to be poured after beams are in place.
Quantity of Class X Concrete included with superstructure on sht. #7.
All edges shall have standard ¾" chamfers except as noted.
For details of Retainer Channel see sheet #5.



BAR u



BAR v2

DESIGNED	[illegible]
CHECKED	[illegible]
DRAWN	P. Daly
CHECKED	[illegible] RB

May 19, 1982
EXAMINED — ENGINEER OF BRIDGE DESIGN
PASSED — ENGINEER OF BRIDGES AND STRUCTURES
APPROVED — DIRECTOR OF HIGHWAYS

NORTH AND SOUTH ABUTMENTS
F.A.S. RT. 2936 SEC. 15BC-BR
PULASKI COUNTY
STA. 829+89.15

ESCA CONSULTANTS, INC. CIVIL & STRUCTURAL ENGINEERS URBANA, ILLINOIS

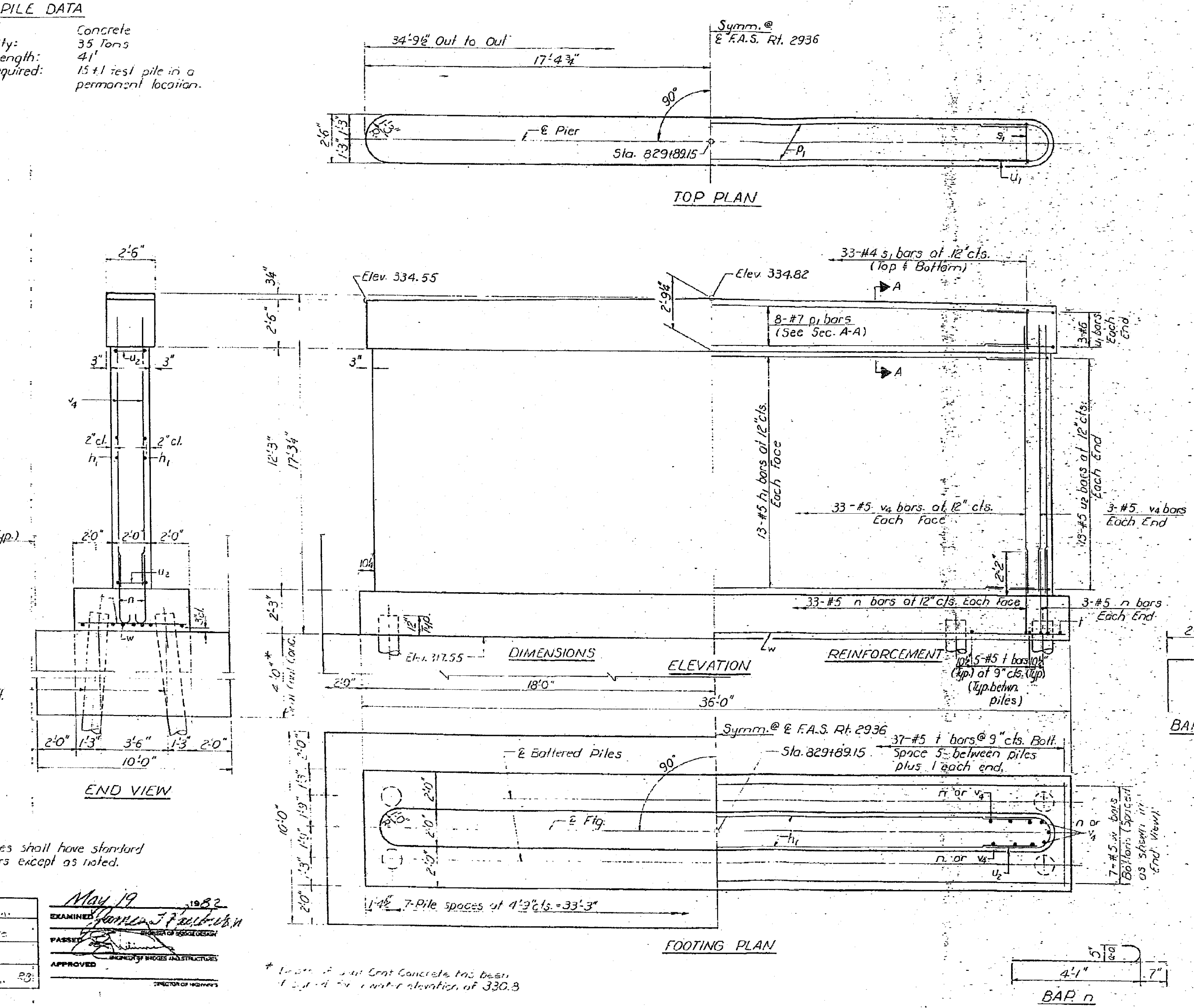
FILE NAME = U:\78071-sht-ren08.dgn	USER NAME = HAS	DESIGNED - DAJ	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	EXISTING STRUCTURE PLANS	F.A.S. RTE. 2936	SECTION 14BR-1	COUNTY PULASKI	TOTAL SHEETS 68	SHEET NO. 43
	PLOT SCALE = 0.0833 ' / IN.	DRAWN - RJT/HAS	REVISED -		SCALE: SHEET NO. 8 OF 10 SHEETS STA. TO STA.	CONTRACT NO. 78071				
	PLOT DATE = 5/18/2010 6:06:44 AM	CHECKED - MTD	REVISED -			FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT AID			
		DATE - 05/10	REVISED -							

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.S. 2936	15BC-BR	PULASKI	20	19

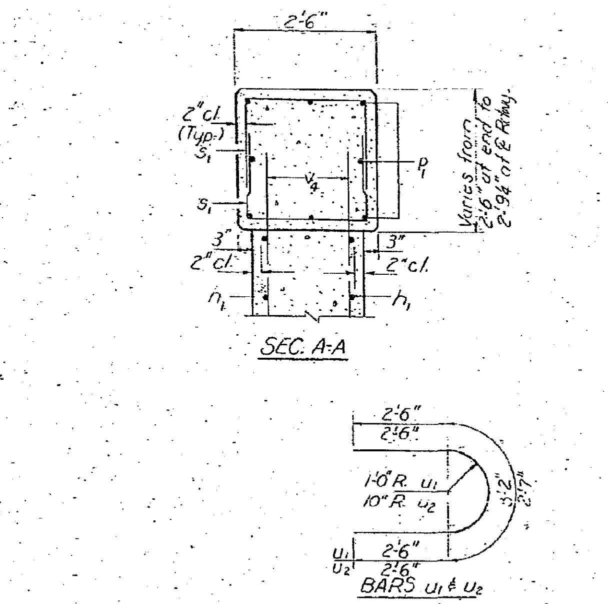
PILE DATA

Type: Concrete
Capacity: 35 Tons
Est. Length: 41'
No. Required: 15 + 1 test pile in a permanent location.



Note:
All edges shall have standard ¾" chamfers except as noted.

* ... Seal Coat Concrete has been ... for a ... elevation of 330.8



BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h_1	26	#5	32'-3"	straight
p_1	8	#7	32'-3"	straight
s_1	66	#4	6'-2"	⊓
t	37	#5	5'-9"	straight
u_1	6	#6	8'-2"	U
u_2	26	#5	7'-7"	U
v_4	72	#5	13'-9"	straight
h	72	#5	4'-8"	hook
w	7	#5	35'-9"	straight
Class X Concrete			Cu. Yd.	56.6
Reinforcement Bars			Pound	3820
Concrete Piles			Lin. Ft.	615
Test Pile Concrete			Each	1
Cofferdam			Each	1
Seal Coat Concrete			Cu. Yd.	57

BAR n
4'-1"

PIER
F.A.S. RT. 2936 SEC. 15BC-BR
PULASKI COUNTY
STA. 829+89.15

DESIGNED ...
CHECKED ...
DRAWN ...
CHECKED ...
EXAMINED May 19 1982
PASSED
APPROVED

FILE NAME	USER NAME	DESIGNED - DAJ	REVISED
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		DATE - 05/10	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

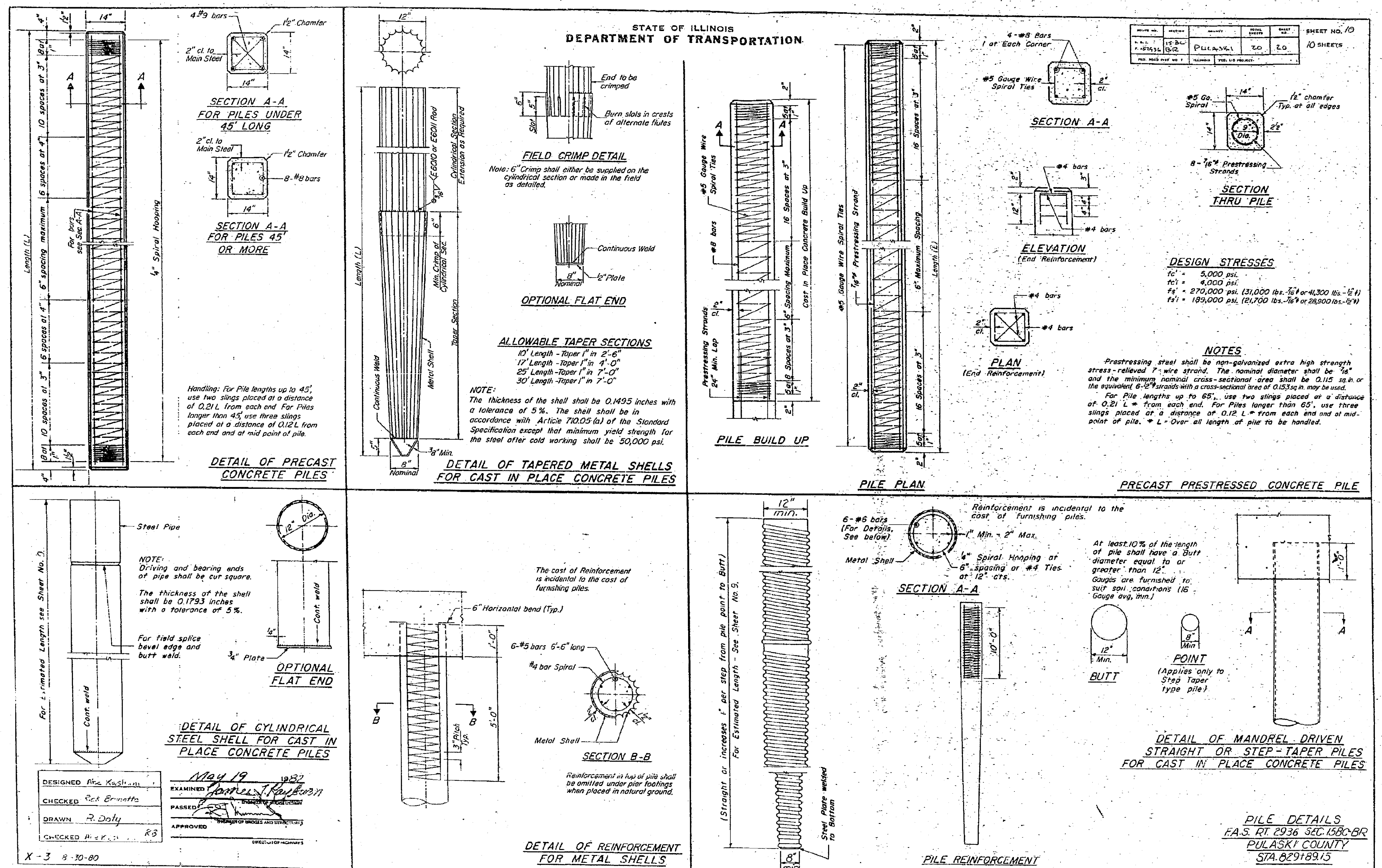
EXISTING STRUCTURE PLANS

SCALE: SHEET NO. 9 OF 10 SHEETS STA. TO STA.

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	14BR-1	PULASKI	68	44

CONTRACT NO. 78071

FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT AID


STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
SHEET NO. 10
10 SHEETS
PULASKI 20 20
SECTION A-A FOR PILES UNDER 45' LONG
SECTION A-A FOR PILES 45' OR MORE
4-#9 bars
1/2" Chamfer
2" cl. to Main Steel
8-#8 bars
Length (L)
4" Spiral Hooping
Handling: For Pile lengths up to 45', use two slings placed at a distance of 0.21L from each end. For Piles longer than 45', use three slings placed at a distance of 0.12L from each end and at mid point of pile.
DETAIL OF PRECAST CONCRETE PILES
FIELD CRIMP DETAIL
End to be crimped
Burn slots in crests of alternate flutes
Note: 6" Crimp shall either be supplied on the cylindrical section or made in the field as detailed.
Continuous Weld
1/2" Plate
OPTIONAL FLAT END
ALLOWABLE TAPER SECTIONS
10' Length - Taper 1" in 2'-6"
17' Length - Taper 1" in 4'-0"
25' Length - Taper 1" in 7'-0"
30' Length - Taper 1" in 7'-0"
NOTE:
The thickness of the shell shall be 0.1495 inches with a tolerance of 5%. The shell shall be in accordance with Article 710.05 (a) of the Standard Specification except that minimum yield strength for the steel after cold working shall be 50,000 psi.
DETAIL OF TAPERED METAL SHELLS FOR CAST IN PLACE CONCRETE PILES
PILE BUILD UP
Cast in Place Concrete Build Up
#5 Gauge Wire Spiral Ties
#8 bars
Prestressing Strands 24" Min. Lap
PILE PLAN
16 Spaces at 3"
6" Maximum Spacing
7/16" Prestressing Strand
4-#8 Bars 1 at Each Corner
#5 Gauge Wire Spiral Ties
SECTION A-A
ELEVATION (End Reinforcement)
#4 bars
PLAN (End Reinforcement)
#5 Ga. Spiral
1/2" chamfer Typ. at all edges
8-7/16" Prestressing Strands
SECTION THRU PILE
DESIGN STRESSES
f'c = 5,000 psi.
f'ci = 4,000 psi.
f's = 270,000 psi. (31,000 lbs.-7/16" or 41,300 lbs.-1/2")
fsi = 189,000 psi. (21,700 lbs.-7/16" or 28,900 lbs.-1/2")
NOTES
Prestressing steel shall be non-galvanized extra high strength stress-relieved 7-wire strand. The nominal diameter shall be 7/16" and the minimum nominal cross-sectional area shall be 0.115 sq.in. or the equivalent (6-1/2" strands with a cross-sectional area of 0.153 sq.in. may be used.
For Pile lengths up to 65', use two slings placed at a distance of 0.21 L* from each end. For Piles longer than 65', use three slings placed at a distance of 0.12 L* from each end and at mid-point of pile. * L = Over all length of pile to be handled.
PRECAST PRESTRESSED CONCRETE PILE
Steel Pipe
NOTE:
Driving and bearing ends of pipe shall be cut square.
The thickness of the shell shall be 0.1793 inches with a tolerance of 5%.
For field splice bevel edge and butt weld.
3/4" Plate
Cont. weld
12" Dia.
OPTIONAL FLAT END
DETAIL OF CYLINDRICAL STEEL SHELL FOR CAST IN PLACE CONCRETE PILES
The cost of Reinforcement is incidental to the cost of furnishing piles.
6" Horizontal bend (Typ.)
6-#5 bars 6'-6" long
#4 bar Spiral
Metal Shell
SECTION B-B
Reinforcement in top of pile shall be omitted under pier footings when placed in natural ground.
DETAIL OF REINFORCEMENT FOR METAL SHELLS
(Straight or increases 1" per step from pile point to Butt)
For Estimated Length - See Sheet No. 9
6-#6 bars (For Details, See below)
Metal Shell
Reinforcement is incidental to the cost of furnishing piles.
1" Min. - 2" Max.
1/4" Spiral Hooping or 6" spacing or #4 Ties at 12" cts.
SECTION A-A
Steel Plate welded to Bottom
PILE REINFORCEMENT
At least 10% of the length of pile shall have a Butt diameter equal to or greater than 12". Gauges are furnished to suit soil conditions (16 Gauge avg. min.)
BUTT
POINT (Applies only to Step Taper type pile)
DETAIL OF MANDREL DRIVEN STRAIGHT OR STEP-TAPER PILES FOR CAST IN PLACE CONCRETE PILES
PILE DETAILS
F.A.S. RT. 2936 SEC. 15BC-BR
PULASKI COUNTY
STA. 829+89.15
DESIGNED
CHECKED
DRAWN R. Daly
CHECKED
May 19 1982
EXAMINED
PASSED
APPROVED
ENGINEER OF BRIDGES AND STRUCTURES
DIRECTOR OF HIGHWAYS
X-3 8-30-80

FILE NAME = D97807l-sht-rem10.dgn	USER NAME = HAS	DESIGNED - DAJ	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	EXISTING STRUCTURE PLANS	F.A.S. RTE. 2936	SECTION 14BR-1	COUNTY PULASKI	TOTAL SHEETS 68	SHEET NO. 45
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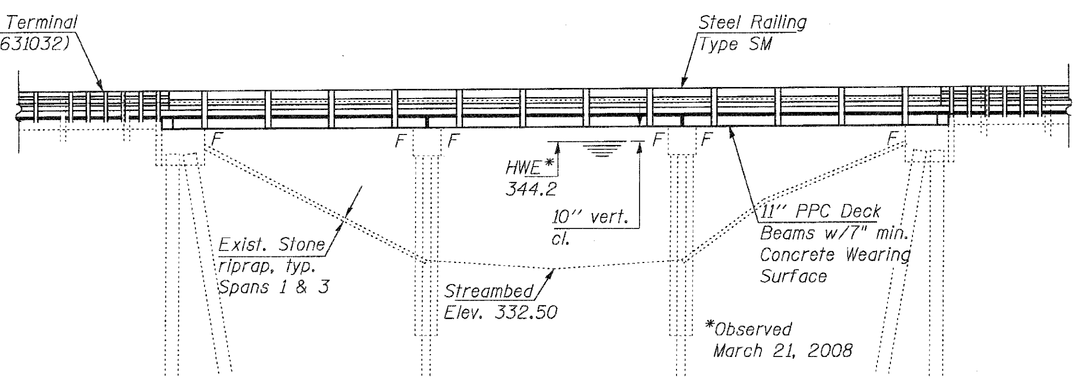
	PLOT DATE = 5/17/2010 1:02:49 PM	CHECKED - MTD	REVISED -		SCALE: SHEET NO. 10 OF 10 SHEETS STA. TO STA.			CONTRACT NO. 78071		
		DATE - 05/10	REVISED -			FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT AID			

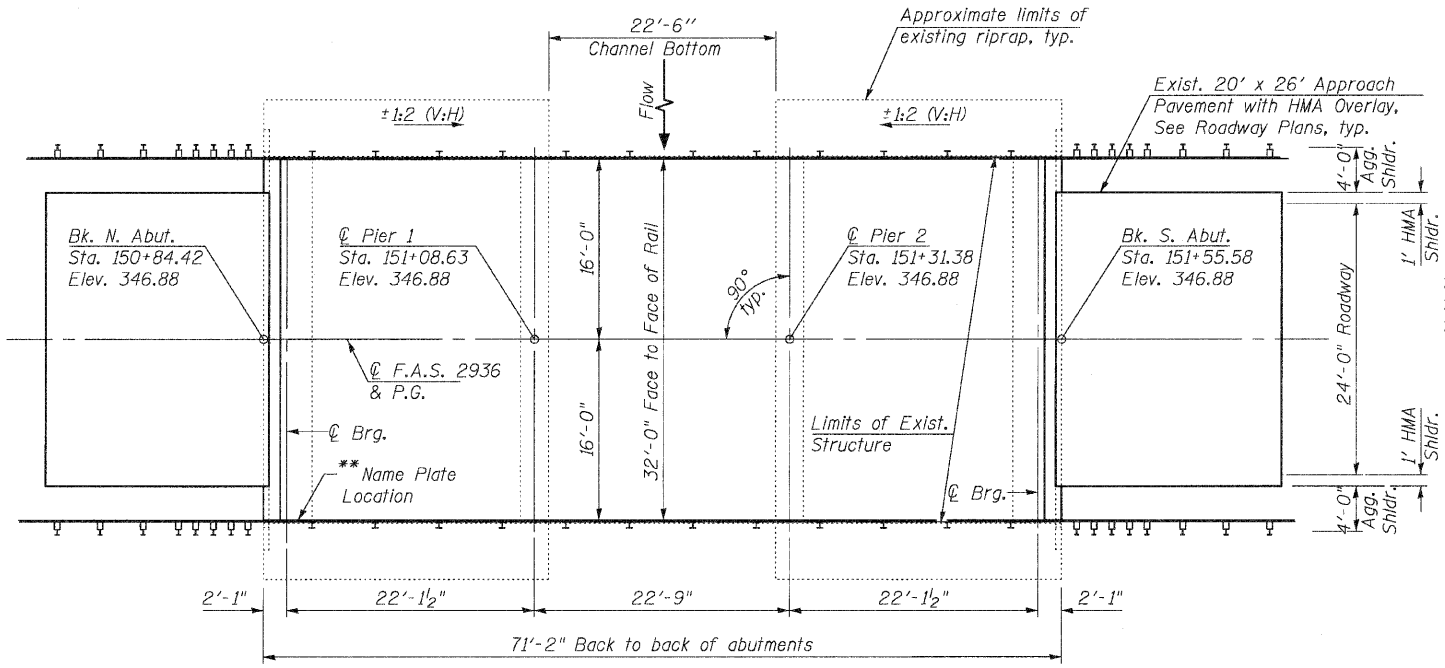
Bench Mark: BM 77352-Railroad spike in power pole; 34'± left Sta. 156+11; Elev. 343.16 (NAVD 88)

Existing Structure: SN 077-0035 was built as part of FAS Rt. 2936 Section 16A-B in 1979. The structure is a three simple span (22'-1½", 22'-9", 22'-1½") 11" PPC Deck Beam bridge supported by stub abutments and pile bent piers. The existing structure is 71'-2" back to back of abutments and has a clear width between rails of 32'-0". The bridge will be closed to traffic during reconstruction of the superstructure.

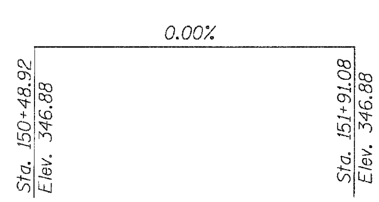
No Salvage



ELEVATION



PLAN



PROFILE GRADE

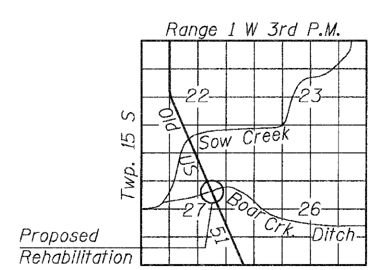
Along ℄ Roadway

STATION 151+20.00
RE-BUILT 20__ BY
STATE OF ILLINOIS
F.A.S. RT. 2936 SEC. 16BR-1
LOADING HL-93
STRUCTURE NO. 077-0035

NAME PLATE

See Std. 515001

** Existing Name Plate shall be cleaned and relocated next to new Name Plate. Cost included with Name Plates.



LOCATION SKETCH

INDEX OF SHEETS

1 General Plan and Elevation
2 Superstructure
3 Superstructure Details
4 11" x 48" PPC Deck Beam
5 Steel Railing, Type SM with Concrete Wearing Surface
6 Abutment Concrete Removal
7 Abutment Details
8 Dowel Rod Location Detail
9 Abutment Repair Details
10 Pier Repair Details

LOADING HL-93 (NEW CONST.)
LOADING HS20-44 (EXIST. CONST.)

No allowance for future wearing surface

DESIGN SPECIFICATIONS

NEW CONSTRUCTION

2007 AASHTO LRFD Bridge Design Specifications with 2008 & 2009 Interims

EXISTING CONSTRUCTION

2002 AASHTO Bridge Design Specifications

1995 FHWA Seismic Retrofitting Manual for Highway Bridges

DESIGN STRESSES

NEW CONSTRUCTION

FIELD UNITS

f'c = 3,500 psi
f'c = 5,000 psi (CWS only)
fy = 60,000 psi (Reinforcement)

PRECAST PRESTRESSED UNITS

f'c = 6,000 psi
f'ci = 5,000 psi
fpu = 270,000 psi (½"ϕ low lax strands)
fpbt = 201,960 psi (½"ϕ low lax strands)

EXISTING CONSTRUCTION

FIELD UNITS

f'c = 3,500 psi
fy = 60,000 psi (Reinforcement)

SEISMIC DATA

LFD SEISMIC DATA-EXISTING CONSTRUCTION

Seismic Performance Category (SPC) = B
Horizontal Bedrock Acceleration Coefficient (A) = 0.175 g
Site Coefficient (S) = 1.5

LRFD SEISMIC DATA-NEW CONSTRUCTION

Seismic Performance Zone (SPZ) = 4
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.814 g
Design Spectral Acceleration at 0.2 sec. (S_{DS}) = 1.915 g
Soil Site Class = D

GENERAL NOTES

Reinforcement bars designated (E) shall be epoxy coated.

Concrete Removal and Structural Repair of Concrete shall occur prior to placement of the new deck beams.

Plan dimensions and details relative to existing plans are subject to nominal construction variations. The Contractor shall field verify existing dimensions and details affecting new construction and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in scope of the work, however, the Contractor will be paid for the quantity actually furnished based on the unit price bid for the work.

The Contractor is advised that the existing PPC Deck Beams are in a deteriorated condition with reduced load carrying capacity. It is the Contractor's responsibility to account for the condition of the beams when developing construction procedures for removal and replacement of the superstructure.

No drilling shall be permitted into the proposed precast deck beams.

If the Contractor's procedures for existing beam removal or placement of new beams involves placement of heavy equipment on the existing or new deck beams, a detailed procedure shall be submitted to the Engineer for approval. The procedure shall include calculations, sealed by an Illinois Licensed Structural Engineer, verifying the structural adequacy of the beams for the proposed loads. Cost included with Precast Prestressed Concrete Deck Beams (11" Depth).

Any damage done to the bridge during beam removal shall be repaired by the Contractor. Cost to be included with Removal of Existing Superstructures.

Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60. See Special Provisions.

No in-stream work will be allowed on this project.

The minimum thickness of concrete overlay shall be 7" and varies as required to adjust for the new profile grade and beam camber.

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Removal of Existing Superstructures No. 2	Each	1		1
Concrete Removal	Cu. Yd.	3.5		3.5
Concrete Superstructure	Cu. Yd.	4.2		4.2
Concrete Wearing Surface, 7"	Sq. Yd.	242		242
Protective Coat	Sq. Yd.	242		242
Bridge Deck Grooving	Sq. Yd.	242		242
Reinforcement Bars, Epoxy Coated	Lb.	3550		3550
Name Plates	Each	1		1
Precast Prestressed Concrete Deck Beams (11" Depth)	Sq. Ft.	2177		2177
Steel Railing, Type SM	Ft.	137		137
Epoxy Crack Injection	Ft.		3	3
Structural Repair of Concrete (Depth Equal to or Less Than 5 inches)	Sq. Ft.		19	19
Structure Excavation	Cu. Yd.		3	3

LICENSED STRUCTURAL ENGINEER
MARY COOMBE BLOXDORF
4859
SPRINGFIELD
STATE OF ILLINOIS

Illinois Structure No. 4859
Expires: 11/30/10
Date: 4/30/10

APPROVED
FOR STRUCTURAL ADEQUACY ONLY
ENGINEER OF BRIDGES AND STRUCTURES

GENERAL PLAN & ELEVATION
OLD U.S. 51 OVER BOAR CREEK DITCH
F.A.S. ROUTE 2936 SECTION 16BR-1
PULASKI COUNTY
STATION 151+20.00
STRUCTURE NO. 077-0035

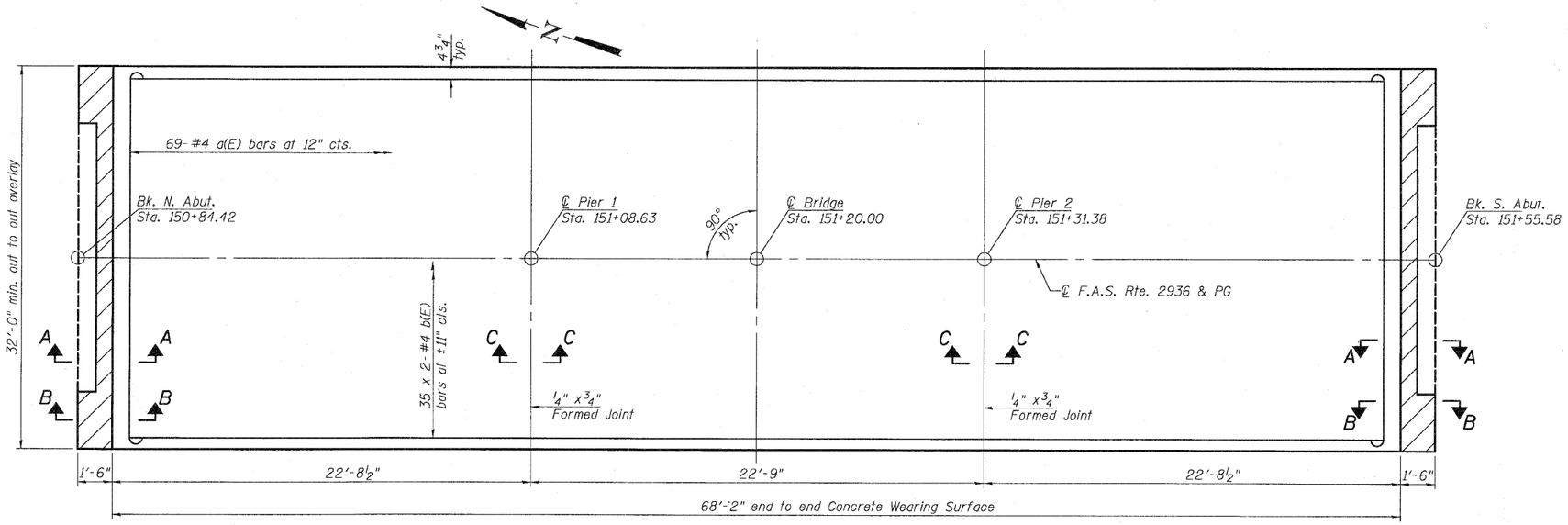
Coombe-Bloxdorf P.C.
-CIVIL ENGINEERS-
-STRUCTURAL ENGINEERS-
-LAND SURVEYORS-
Design Firm License No. 184-002703

PROJECT NO. 07056-5
SCALE
DATE 4/27/10
DESIGN BY CME
DRAWN BY TFG/CFC
CHECKED BY CME/MCB

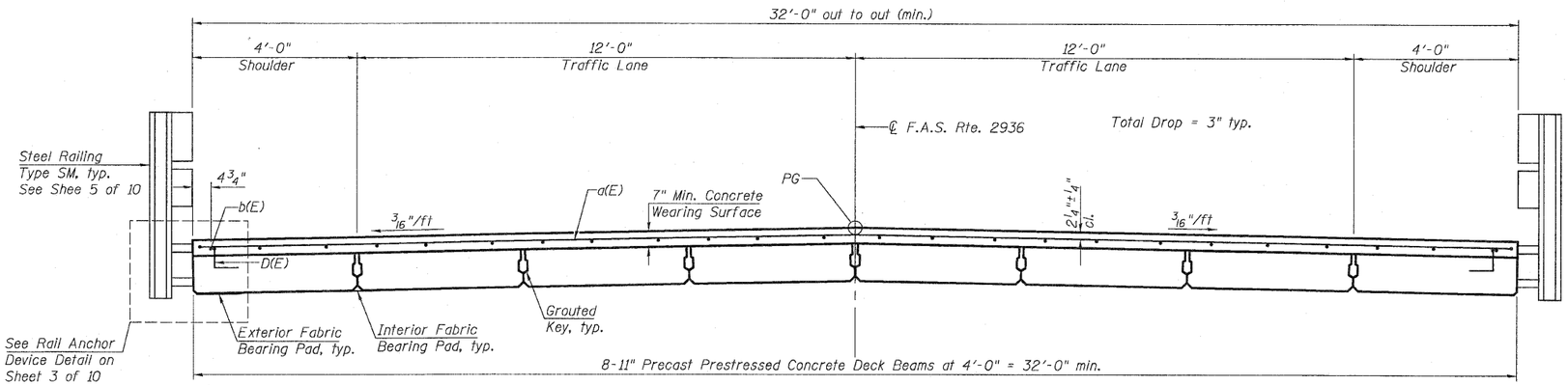
SHEET NO. 1
10 SHEETS

F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	16BR-1	PULASKI	68	46
		CONTRACT NO. 78071		
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

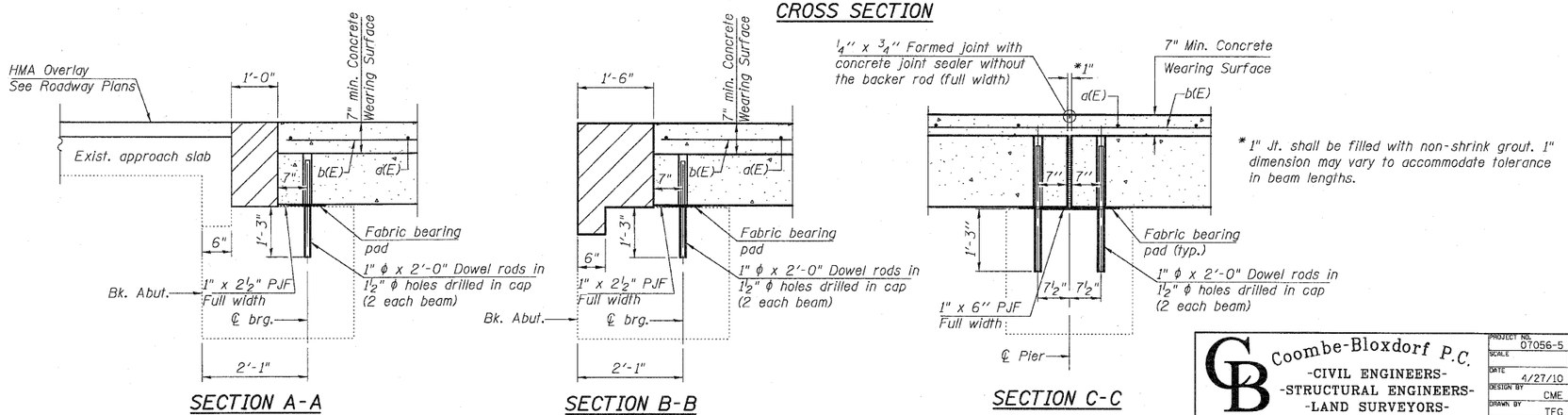
PLOT SCALE = ...'/ IN.
USER NAME = ...



CONCRETE WEARING SURFACE PLAN



CROSS SECTION



*1" Jt. shall be filled with non-shrink grout. 1" dimension may vary to accommodate tolerance in beam lengths.

NOTES

For details of hatched area see Sheet 7 of 10.

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.

The 7" wearing surface shall be poured after the beams are erected and the joints have been grouted.

Bars indicated thus 35 x 2-#4 indicates 35 lines of bars with 2 lengths per line.

See Sheet 3 of 10 for post spacing and anchor device details.

See Sheet 3 of 10 for bar details, wearing surface profile and Bill of Material.

See Sheet 4 of 10 for fabric bearing pad dimensions.

See Sheet 8 of 10 for dowel rod location details.

MIN. BAR LAP

#4 bars = 2'-1"

SUPERSTRUCTURE
STRUCTURAL NO. 077-0035

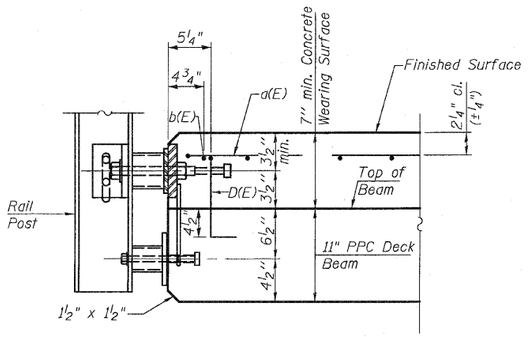
Coombe-Bloxdorf P.C.
-CIVIL ENGINEERS-
-STRUCTURAL ENGINEERS-
-LAND SURVEYORS-
Design Firm License No. 184-002703

PROJECT NO.	07056-5
SCALE	
DATE	4/27/10
DESIGN BY	CME
DRAWN BY	TFG
CHECKED BY	CME/MCB

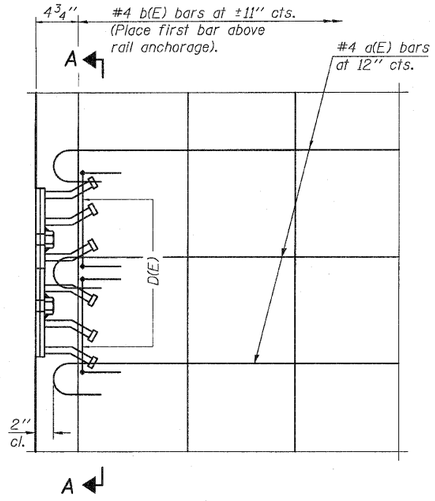
SHEET NO. 2

10 SHEETS

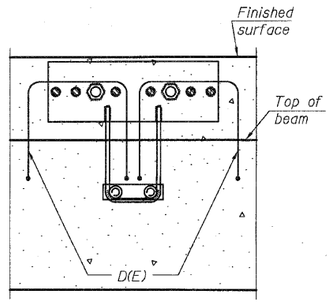
F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	16BR-1	PULASKI	68	47
		CONTRACT NO. 78071		
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		



RAIL ANCHOR DEVICE DETAIL



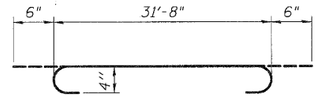
PARTIAL PLAN
At Rail Anchor Device



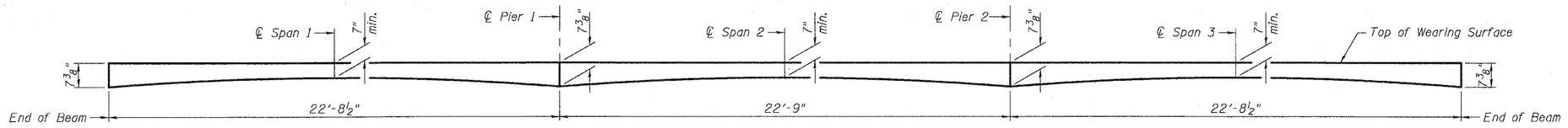
SECTION A-A

SUPERSTRUCTURE BILL OF MATERIAL

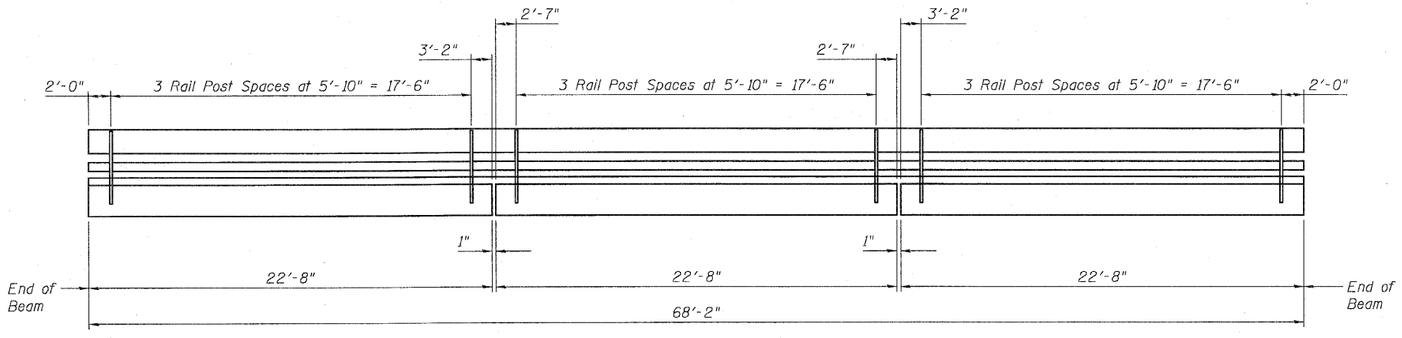
Bar	No.	Size	Length	Shape
d(E)	69	#4	32'-8"	
b(E)	70	#4	35'-0"	
Concrete Wearing Surface, 7"			Sq. Yds.	242
Reinforcement Bars, Epoxy Coated			Lbs.	3140



BAR d(E)



REINFORCED CONCRETE WEARING SURFACE PROFILE



RAILING ELEVATION
See Sheet 5 of 10 for railing details

NOTES

Formwork necessary for the wearing surface may be secured utilizing the bottom rail anchorage inserts and/or additional inserts cast into the beam.
See Sheet 4 of 10 for bar D(E) detail.

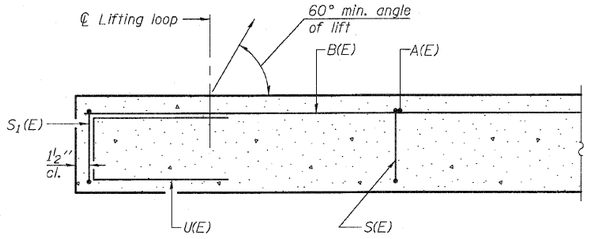
SUPERSTRUCTURE DETAILS
STRUCTURE NO. 077-0035

Coombe-Bloxdorf P.C.
-CIVIL ENGINEERS-
-STRUCTURAL ENGINEERS-
-LAND SURVEYORS-
Design Firm License No. 184-002703

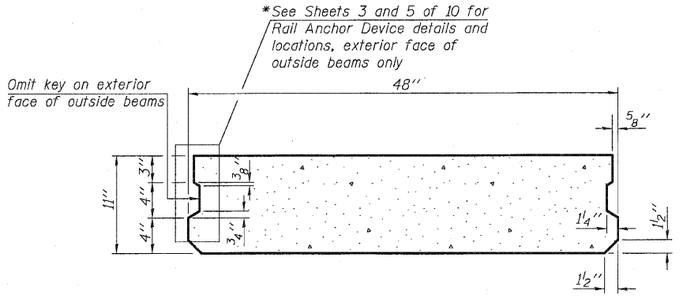
PROJECT NO. 07056-5
SCALE
DATE 4/27/10
DESIGN BY CME
DRAWN BY CFC
CHECKED BY CME/MCB

SHEET NO. 3
10 SHEETS

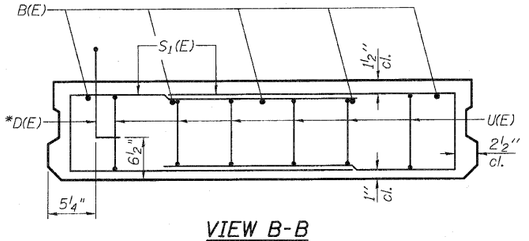
F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	16BR-1	PULASKI	68	48
		CONTRACT NO. 78071		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



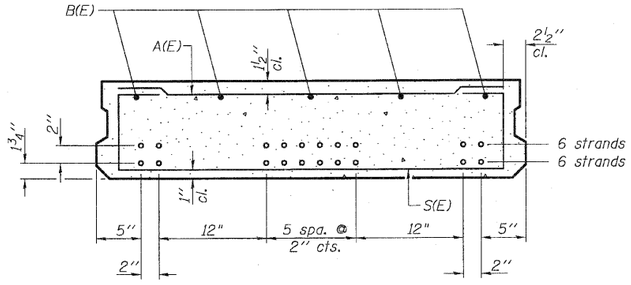
SECTION C-C



SECTION A-A
(Showing dimensions)

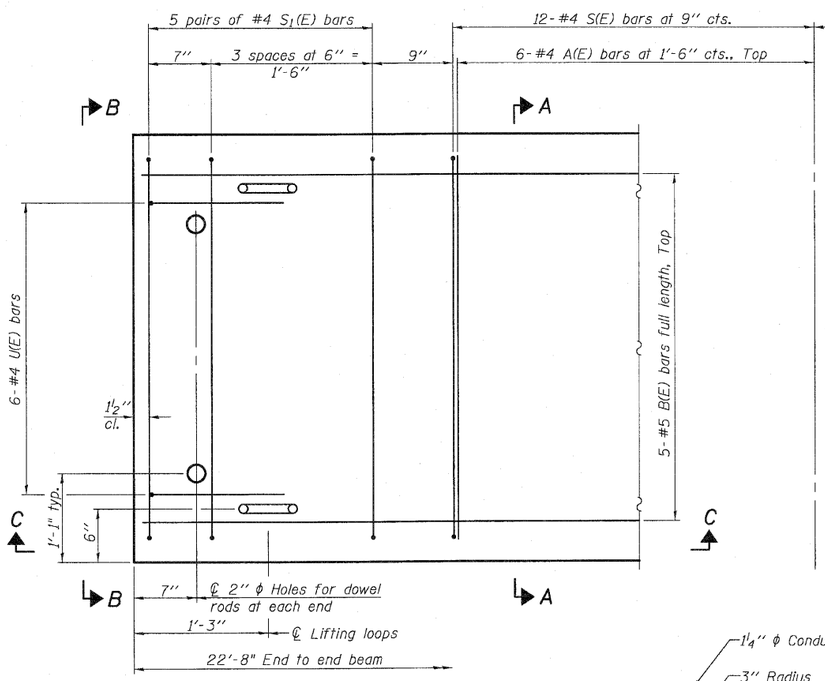


VIEW B-B

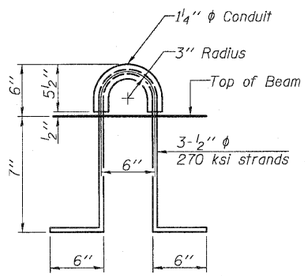


SECTION A-A
(Showing reinforcement and permissible strand locations)

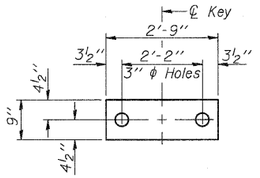
Note: Place the number of strands specified in each row symmetrically about the centerline of beam in the permissible strand locations shown.



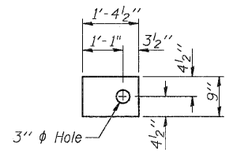
PLAN VIEW



LIFTING LOOP DETAIL



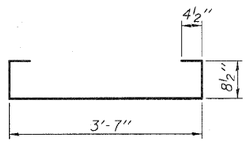
FABRIC BEARING PAD
(Interior)



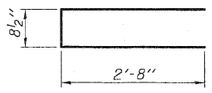
FABRIC BEARING PAD
(Exterior)

FIXED

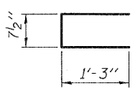
All bearing pads shall be 1" thick



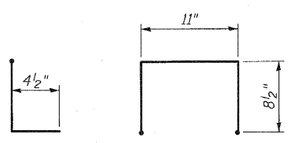
BAR S(E)



BAR S1(E)



BAR U(E)



BAR D(E)

BAR LIST
ONE BEAM ONLY
(For information only)

Bar	No.	Size	Length	Shape
A(E)	12	#4	3'-7"	—
B(E)	5	#5	22'-5"	—
D(E)	48	#4	3'-1"	⊔
S(E)	23	#4	5'-9"	⊏
S1(E)	20	#4	6'-1"	⊏
U(E)	12	#4	3'-2"	⊏

NOTES

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be ½" and the nominal cross-sectional area shall be 0.153 sq. in.

Reinforcement bars shall conform to ASTM A 706, Grade 60. (See Special Provisions).

Two ⅛" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.

A minimum 2½" ϕ lifting pin shall be used to engage the lifting loops during handling.

Corrosion Inhibitor, per Article 1020.05(b)(12) and 1021.06 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.

Compressive strength of prestressed concrete, f'c, shall be 6000 psi.

Compressive strength of prestressed concrete at release, f'ci, shall be 5000 psi.

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (11" depth)	Sq. Ft.	2177

11" X 48" PPC DECK BEAM
STRUCTURE NO. 077-0035

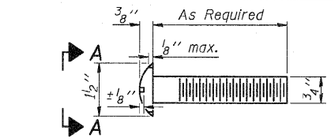
Coombe-Bloxdorf P.C.
-CIVIL ENGINEERS-
-STRUCTURAL ENGINEERS-
-LAND SURVEYORS-
Design Firm License No. 184-002703

PROJECT NO.	07056-5
SCALE	
DATE	4/27/10
DESIGN BY	CME
DRAWN BY	TFG
CHECKED BY	CME/MCB

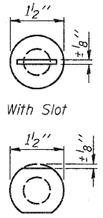
SHEET NO. 4

10 SHEETS

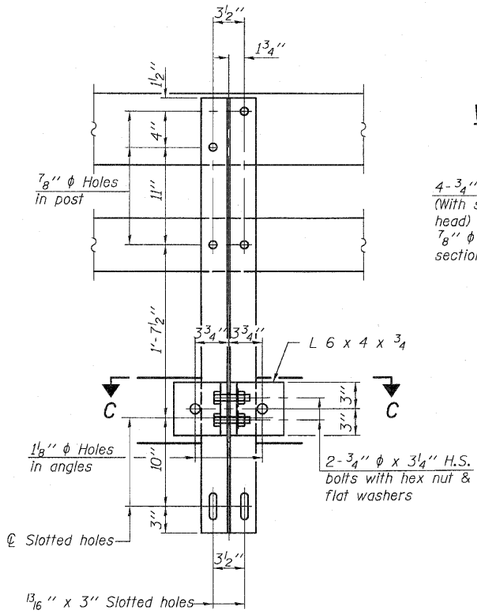
F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	16BR-1	PULASKI	68	49
		CONTRACT NO. 78071		
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		



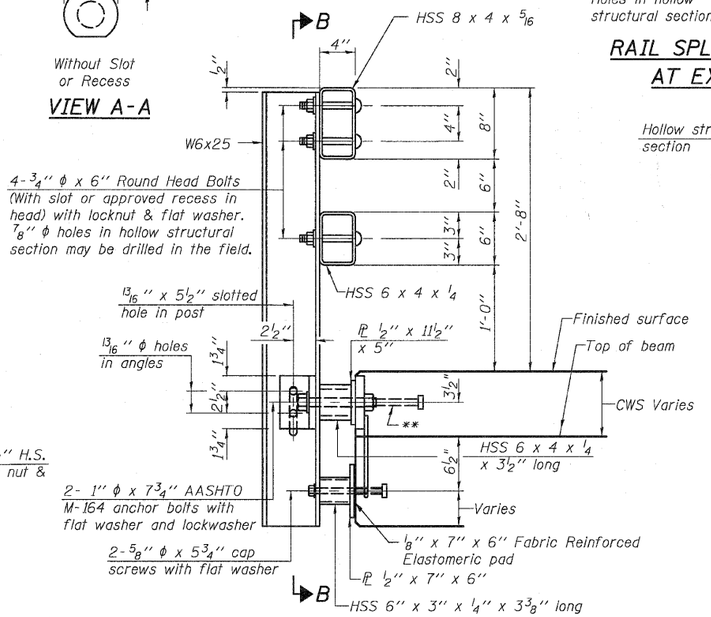
DETAIL OF 3/4" ϕ ROUND HEAD BOLT



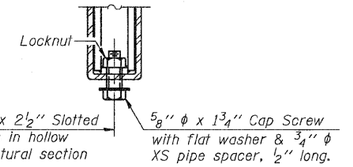
VIEW A-A



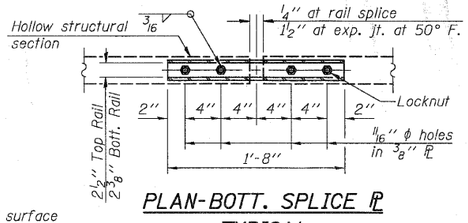
SECTION B-B



SECTION AT RAIL POST

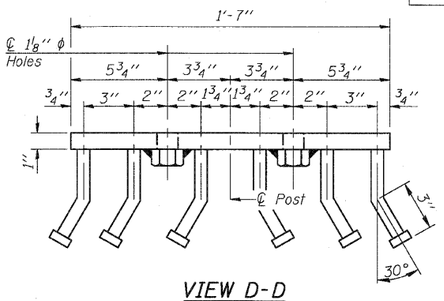


RAIL SPLICE CONNECTION AT EXPANSION JT.

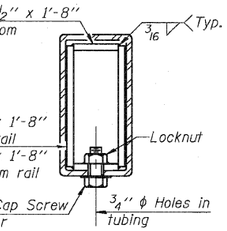


PLAN-BOTT. SPLICE PL TYPICAL

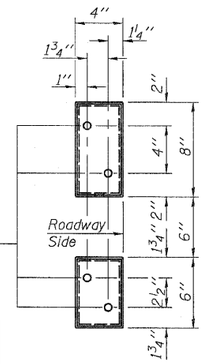
℄ 5/8" reduced base welded studs. Provide 4 - 5/8" washers and self-locking nuts or nuts and jam nuts for guardrail connection shown on Std. 631032



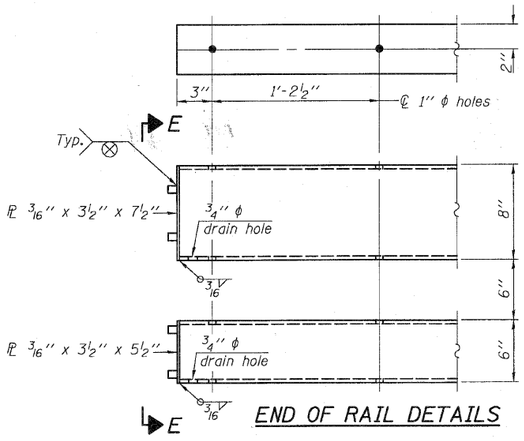
VIEW D-D



SECTION AT RAIL SPLICE



VIEW E-E



END OF RAIL DETAILS

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

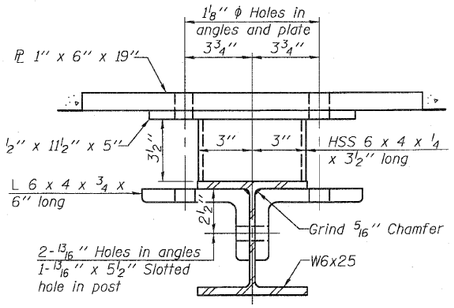
Notes:

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

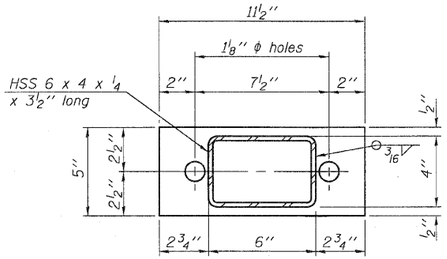
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type SM.

Steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.

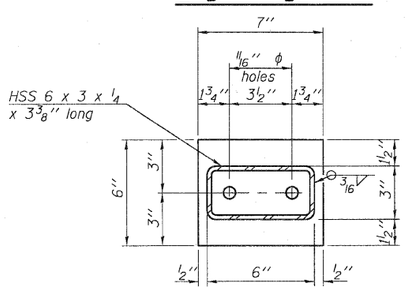
** The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.



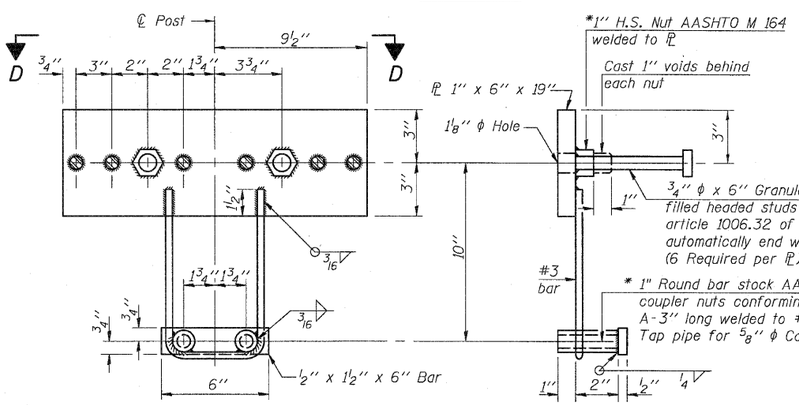
SECTION C-C



PL 1/2" x 11 1/2" x 5"



PL 1/2" x 7" x 6"



ANCHOR DEVICE

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type SM	Foot	137

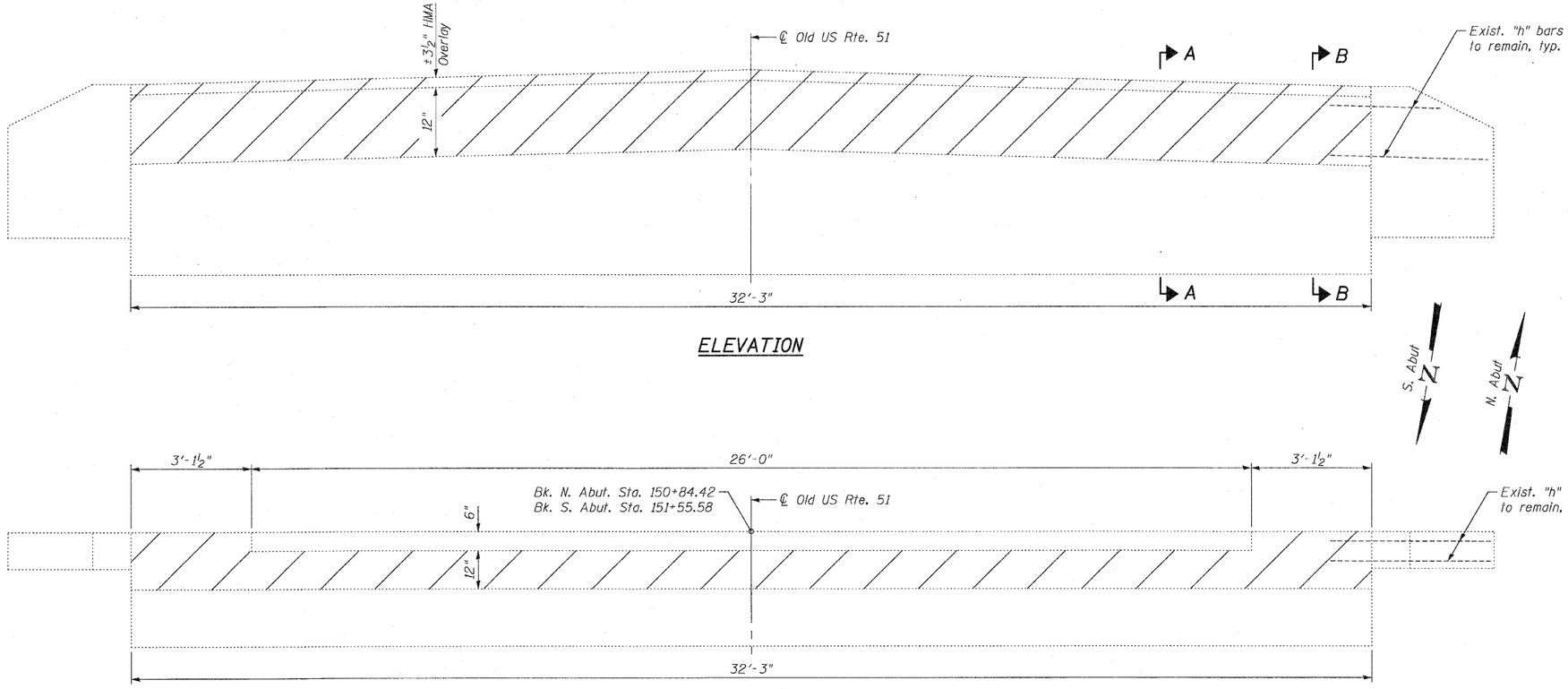
STEEL RAILING, TYPE SM WITH CONCRETE WEARING SURFACE STRUCTURE NO. 077-0035

Coombe-Bloxdorf P.C.
-CIVIL ENGINEERS-
-STRUCTURAL ENGINEERS-
-LAND SURVEYORS-
Design Firm License No. 184-002703

PROJECT NO. 07056-5
SCALE
DATE 4/27/10
DESIGN BY CME
DRAWN BY CFC
CHECKED BY CME/MCB

SHEET NO. 5
10 SHEETS

F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	16BR-1	PULASKI	68	50
		CONTRACT NO. 78071		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

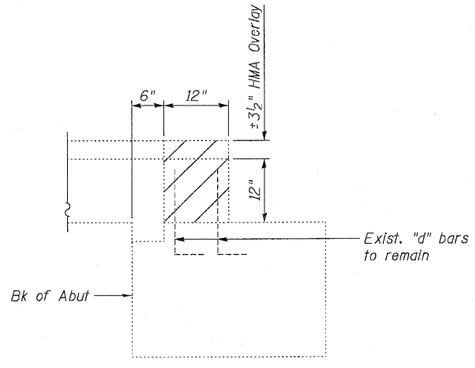


ELEVATION

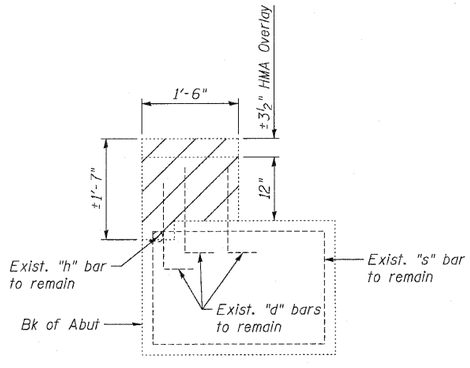
BILL OF MATERIAL
TWO ABUTMENTS

ITEM	UNIT	TOTAL
Concrete Removal	Cu. Yd.	3.5

PLAN



SECTION A-A



SECTION B-B

Notes:
Hatched area indicates Concrete Removal.
Existing reinforcement bars to remain shall be cleaned and incorporated into the new construction. Any such bars damaged during concrete removal shall be replaced with bar splicer or anchorage system approved by the Engineer. Cost included with Concrete Removal.

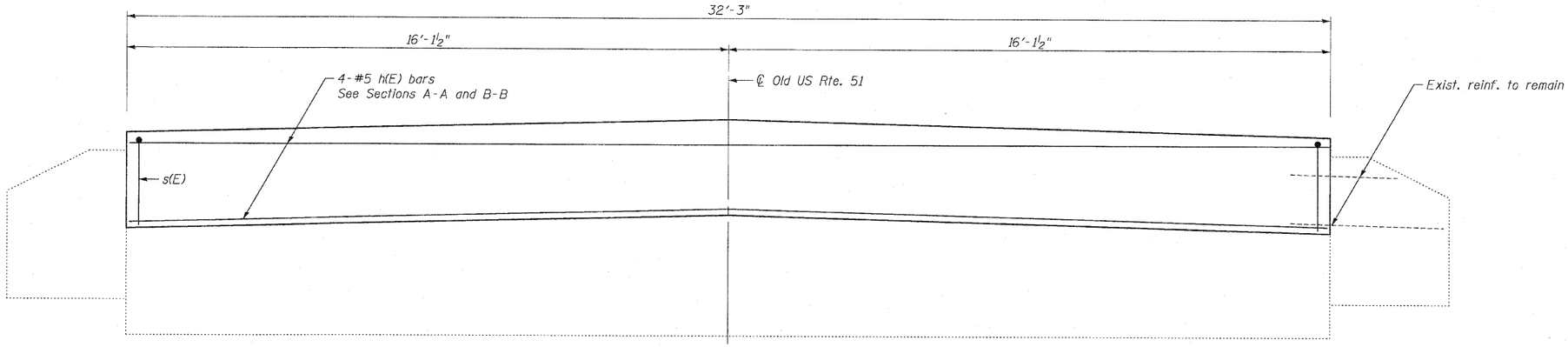
ABUTMENT CONCRETE REMOVAL
STRUCTURE NO. 077-0035

Coombe-Bloxdorf P.C.
-CIVIL ENGINEERS-
-STRUCTURAL ENGINEERS-
-LAND SURVEYORS-
Design Firm License No. 184-002703

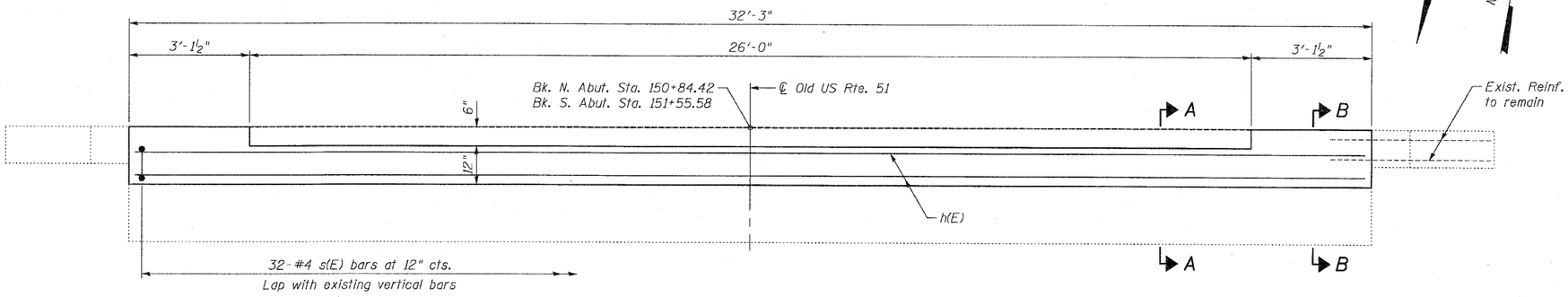
PROJECT NO. 07056-5
SCALE
DATE 4/27/10
DESIGN BY CME
DRAWN BY CFC
CHECKED BY CME/MCB

SHEET NO. 6
10 SHEETS

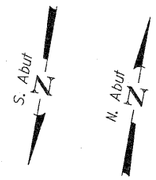
F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	16BR-1	PULASKI	68	51
		CONTRACT NO. 78071		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



ELEVATION



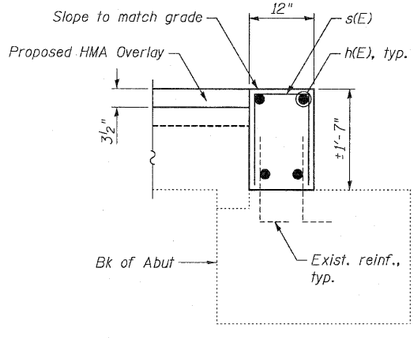
PLAN



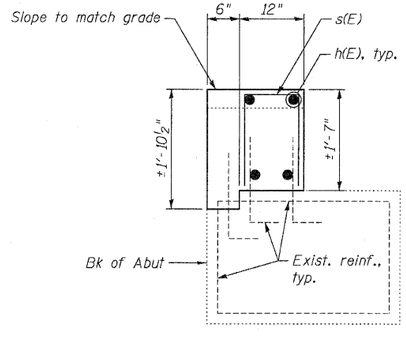
BILL OF MATERIAL
TWO ABUTMENTS

Bar	No.	Size	Length	Shape
h(E)	8	#5	32'-0"	——
s(E)	64	#4	3'-3"	⊓
Conc. Superstructure			Cu. Yd.	4.2
Reinforcement Bars, Epoxy Coated			Pound	410

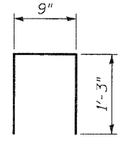
Concrete Superstructure shall be poured after beams are in place.



SECTION A-A



SECTION B-B



BAR s(E)

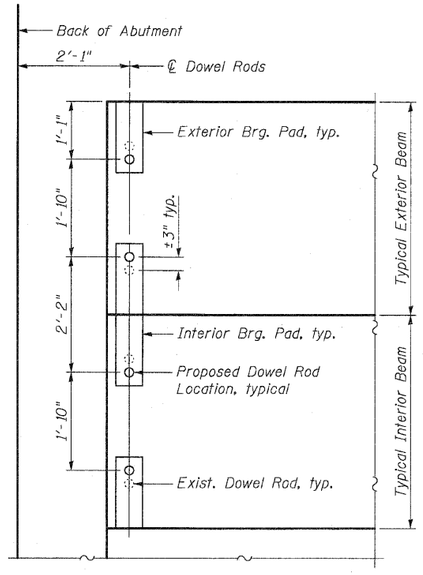
ABUTMENT DETAILS
STRUCTURE NO. 077-0035

Coombe-Bloxdorf P.C.
-CIVIL ENGINEERS-
-STRUCTURAL ENGINEERS-
-LAND SURVEYORS-
Design Firm License No. 184-002703

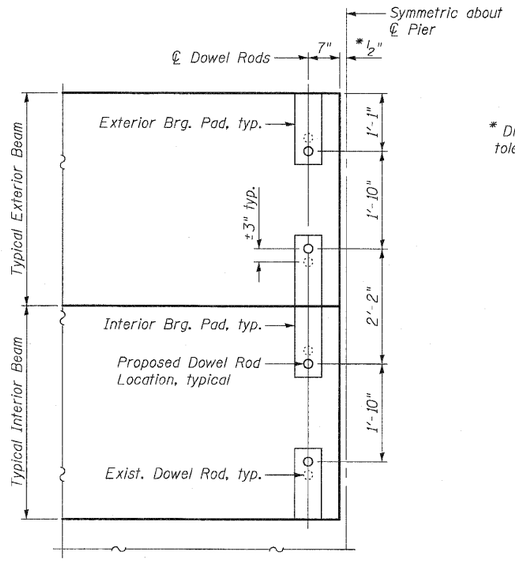
PROJECT NO. 07056-5
SCALE
DATE 4/27/10
DESIGN BY CME
DRAWN BY CFC
CHECKED BY CME/MCB

SHEET NO. 7
10 SHEETS

F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	16BR-1	PULASKI	68	52
		CONTRACT NO. 78071		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



AT ABUTMENTS



AT PIERS

* Dimension may vary to accommodate tolerances in beam length.

DOWEL ROD LOCATION DETAIL

Notes:
Burn existing Dowel Rods Flush with top of abutment or pier cap.
Grind existing dowel rods smooth and seal with epoxy.
Cost is included with Removal of Existing Superstructures.
See Sheet 4 of 10 for Bearing Pad Details.

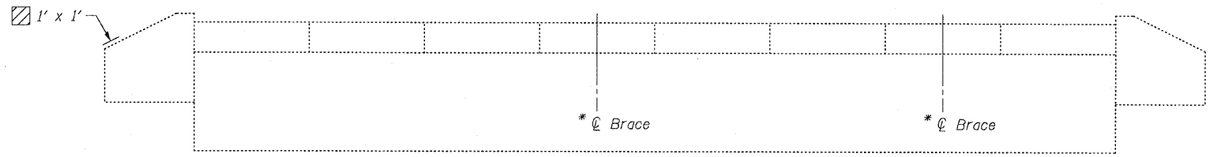
DOWEL ROD LOCATION DETAIL
STRUCTURE NO. 077-0035

Coombe-Bloxdorf P.C.
-CIVIL ENGINEERS-
-STRUCTURAL ENGINEERS-
-LAND SURVEYORS-
Design Firm License No. 184-002703

PROJECT NO.	07056-5
SCALE	
DATE	4/27/10
DESIGN BY	CME
DRAWN BY	CFC
CHECKED BY	CME/MCB

SHEET NO. 8
1Ø SHEETS

F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	16BR-1	PULASKI	68	53
		CONTRACT NO. 78071		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



NORTH ABUTMENT ELEVATION
(Looking North)

* Additional Concrete Repair may be required at brace connection locations as directed by the Engineer. Cost included with Removal of Existing Superstructures.

LEGEND

Denotes Structural Repair of Concrete (Depth Less Than or Equal to 5")

BILL OF MATERIAL
TWO ABUTMENTS

ITEM	UNIT	TOTAL
Structural Repair of Concrete (Depth Equal to or Less Than 5 In.)	Sq. Ft.	1

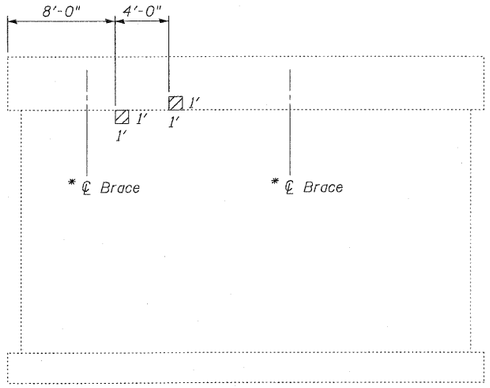
ABUTMENT REPAIR DETAILS
STRUCTURE NO. 077-0035

Coombe-Bloxdorf P.C.
-CIVIL ENGINEERS-
-STRUCTURAL ENGINEERS-
-LAND SURVEYORS-
Design Firm License No. 184-002703

PROJECT NO. 07056-5
SCALE
DATE 4/27/10
DESIGN BY CME
DRAWN BY CFC
CHECKED BY CME/MCB

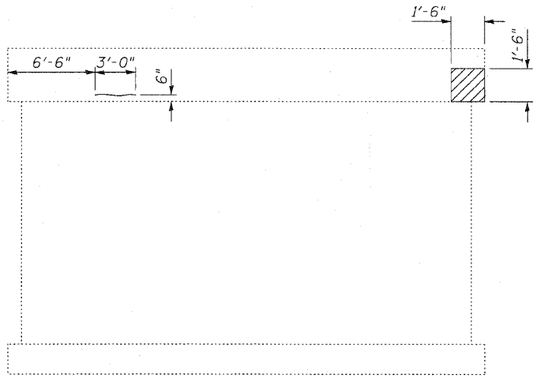
SHEET NO. 9
10 SHEETS

F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	16BR-1	PULASKI	68	54
		CONTRACT NO. 78071		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

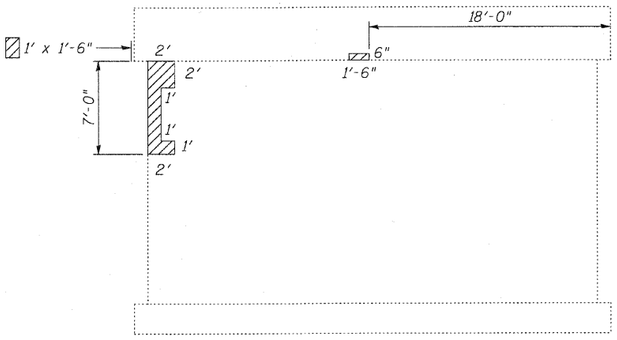


NORTH FACE - PIER 1
Looking South

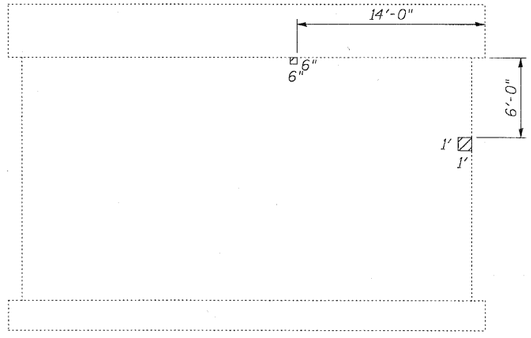
* Additional Concrete Repair may be required at brace connection locations as directed by the Engineer. Cost included with Removal of Existing Superstructures.



NORTH FACE - PIER 2
Looking South



SOUTH FACE - PIER 1
Looking North



SOUTH FACE - PIER 2
Looking North

LEGEND

Denotes Structural Repair of Concrete (Depth Less Than or Equal to 5")

Denotes Epoxy Crack Injection

BILL OF MATERIAL
TWO PIERS

ITEM	UNIT	TOTAL
Structural Repair of Concrete (Depth Equal to or Less Than 5 In.)	Sq. Ft.	18
Epoxy Crack Injection	Ft.	3

PIER REPAIR DETAILS
STRUCTURE NO. 077-0035

Coombe-Bloxdorf P.C.
-CIVIL ENGINEERS-
-STRUCTURAL ENGINEERS-
-LAND SURVEYORS-
Design Firm License No. 184-002703

PROJECT NO. 07056-5
SCALE
DATE 4/27/10
DESIGN BY CME
DRAWN BY CFC
CHECKED BY CME/MCB

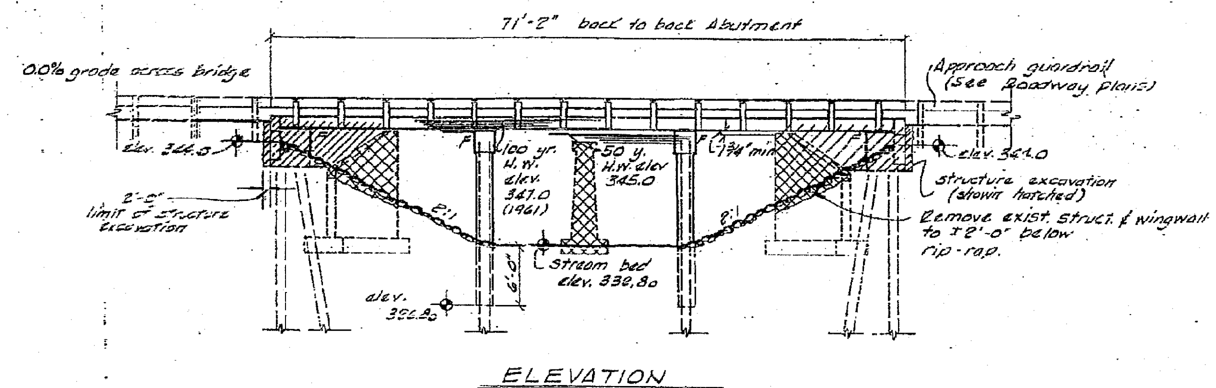
SHEET NO. 10

10 SHEETS

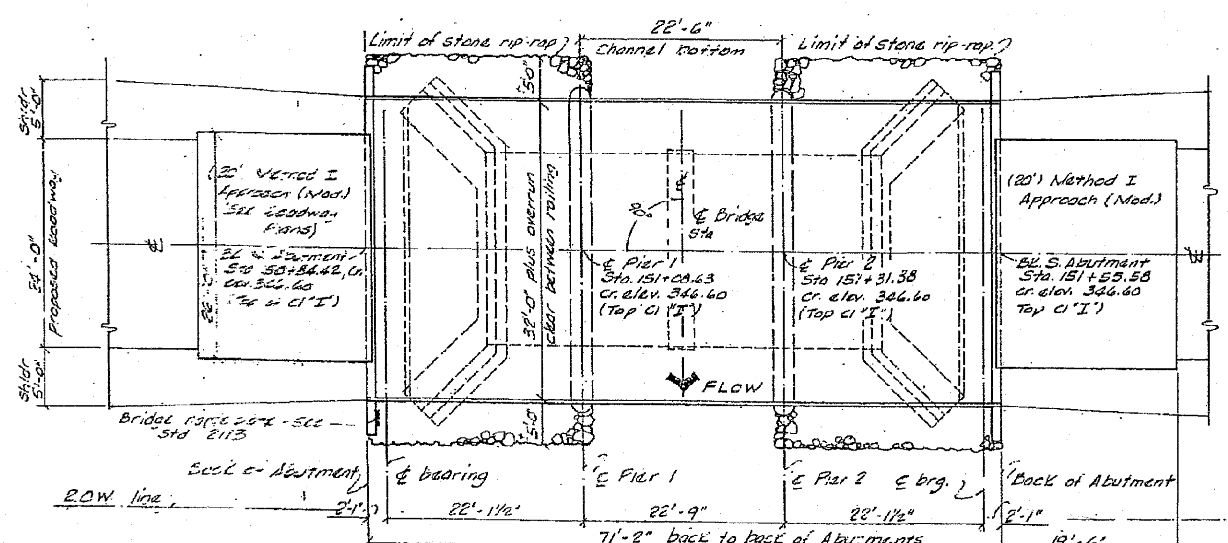
F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	16BR-1	PULASKI	68	55
		CONTRACT NO. 78071		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

B.M. = R.R. spike in P.P. 30' left sta 140+72 - elev. = 343.13

Existing structure, built in 1921 as a 2-span R.C. slab on closed R.C. Abutments and R.C. Pier. ±22.2' Superstructure width, ± 44 long. Superstructure and portions of substructure to be removed in stages as indicated on plans. Traffic (one-way) to be maintained by stage construction.



ELEVATION



PLAN

GENERAL NOTES:

1. The top surface of the beams shall be finished in accordance with Art. 505.06 of the Standard Specifications, except that the surface shall not be roughened by brooming. The surface shall be free from depressions or high spots with sharp corners.
2. For WATERPROOFING MEMBRANE SYSTEM, see Special Provisions.
3. For boring data, see Bidding Proposal.
4. Reinforcement bars shall conform to AASHTO M-31 or M-53, Grade 60.
5. It shall be the responsibility of the Contractor to verify all dimensions and conditions existing in the field prior to construction and ordering materials.
6. The item "REMOVAL OF EXISTING SUPERSTRUCTURE" shall be in accord. with Art. 501.05 of the Standard Specifications. Concrete removal of the required portions of the Substructure shall be in accord with Art. 501.03 of the Std. Specifications.
8. For item "PORTLAND CEMENT MORTAR FAIRING COURSE" see special provisions.
9. Item "STONE RIP-RAP" shall be in accordance with Section 601 of the Standard Specifications and shall extend ±5'-0" beyond each side of the bridge and to the back of the abutments.
10. The cost of pavement removal, Method "I" Approaches, including Class "I" surfacing on approaches are included for payment in Roadway Plans.
11. The Contractor shall drive one test pile each in a permanent location, at the North Abutment and at Pier 1 as directed by the Engineer before ordering the remainder of the piles. See Art. 513 of the Standard Specifications.
12. Item "Structure Excavation" shall be in accordance w/ Section 502 of the Standard Specifications. For this project, the excavation required between the existing abutments, and the new abutments shall be included in this item.

TOTAL BILL OF MATERIAL

Item	Unit	Quantity: Super.	Abuts.	Piers	Total
Precast Prestressed Concrete Deck Beam (11")	sq. ft.	2176			2176
Bituminous Concrete Surf. Course-Mixture "D" Cl "I"	Tons	28			28
Waterproofing Membrane System	sq. yd.	257			257
Steel Railing - Type "S"	lin. ft.	138			138
Portland Cement Mortar Fairing Course	lin. ft.	476			476
Removal of Existing Superstructure	each	1			1
Concrete Removal	cu. yd.		25.0	30.8	55.8
Stone Rip-rap	sq. yd.				198
Class "X" Concrete	cu. yd.		34.6	78.9	113.5
Reinforcement Bars	lbs.		2490	4760	7250
Furnishing Concrete Piles	lin. ft.		390	559	949
Driving Concrete Piles	lin. ft.		390	559	949
Test Pile - Concrete	each		1	1	2
Name Plates	each	1			1
Structure Excavation	cu. yd.				159.8
Temporary Bridge Rail	lin. ft.				109

Rte. 2936 | Section 16-A-B | County Pulaski | Total Shts. 19 | Sheet No. 8
Sta. 151+20
Bridge Sheet No. 1 of 7 Sheets

STRUCTURE NO.
BOAR CREEK - STA. 151+20
REBUILT 19 BY
STATE OF ILLINOIS
FAS RTE 2936 — SEC. 16A-B
FA PROJ. BR-S-2936 (101)
LOADING HS 20

LETTERING FOR NAME PLATE
See Standard 2113
Note: Bridge No. to be furnished by District
Locate name plate on south face of north wingwall

WATERWAY INFORMATION

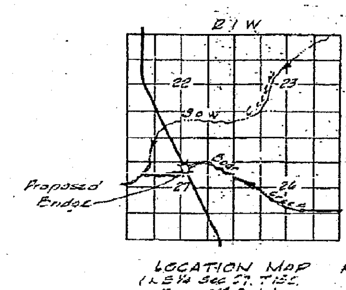
Drainage area: (5.37 sq mi.)	3,437 Acres
Character - 75% cultivated, 15% pasture, 10% timber	
Design discharge (50 yr. frequency)	1900 c.f.s.
Existing opening (elev. 50 yr. H.W.)	407 sq. ft.
Required opening (elev. 50 yr. H.W.)	500 sq. ft.
Proposed opening (elev. 50 yr. H.W.)	503 sq. ft.
100 yr. discharge	2175 c.f.s.
Created head for design flood	0.0 ft.*
Created head for 50 yr. flood	0.0 ft.*

* Hydraulic heads are controlled by R.R. bridge downstream

DESIGN STRESSES

	Field Units	Prestressed Units
fc	1400 psi	
f'c	3500 psi	5000 psi
f'ci		4000 psi
fs	24000 psi	
f's		270,000 psi
fsi		189 000 psi
n	9	

Design specifications - AASHTO 1977 & 1978 Interim. 25 lbs/sq ft allowance made for future resurfacing.
Loading HS 20-44



LOCATION MAP
(Sec. 34 Sec. 27, T15S, R1W, 3rd P.M.)

APPROVED
FOR STRUCTURAL ADEQUACY ONLY
Engineer of Bridge & Traffic Structures

GENERAL PLAN & ELEVATION

PROJECT
FAS Rte 2936 (C.O. 51) over Boar Creek
SECTION 16 A-B
Pulaski County, Illinois
Station 151+20

05-08-004 | November 1978

MOSS, JOHNSON, SANDOVAL & ASSOC. LTD.

ESCA CONSULTANTS, INC.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

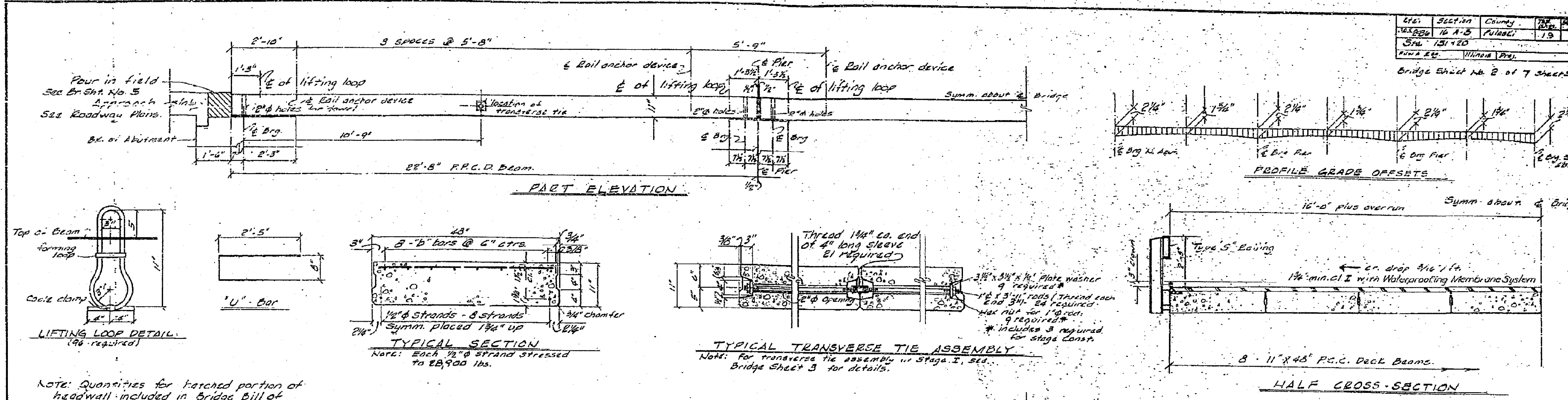
EXISTING STRUCTURE PLANS

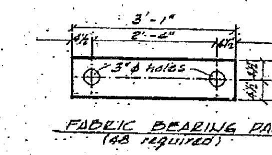
SCALE: | SHEET NO. 1 OF 7 SHEETS | STA. | TO STA.

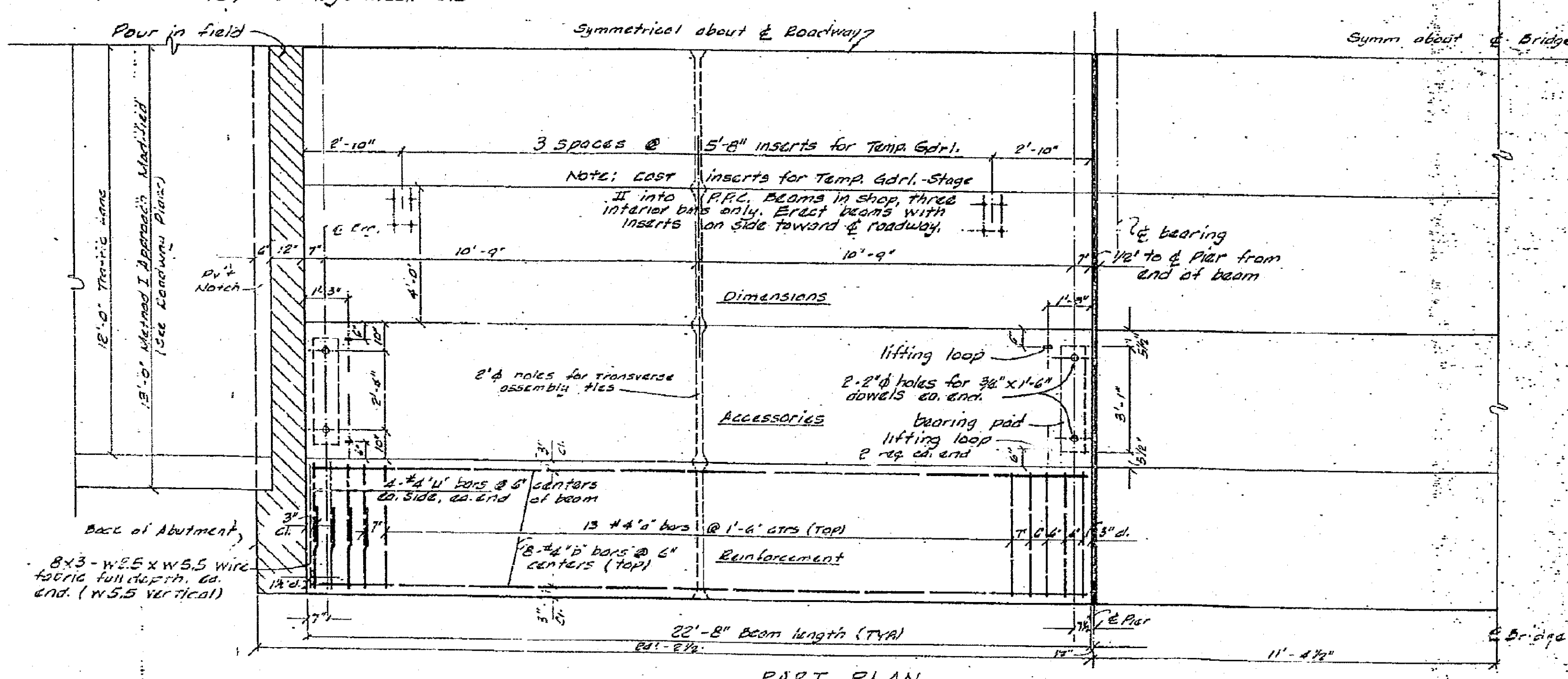
F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	16BR-1	PULASKI	68	56

CONTRACT NO. 78071

FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT AID





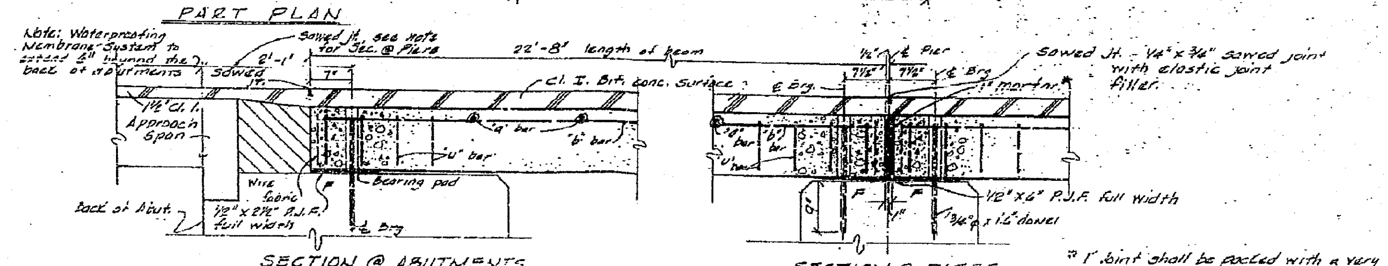


GENERAL NOTES:

1. Prestressed steel shall be non-galvanized 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.
2. Lifting loops shall be ½" diameter, 6x25 class wire rope with fiber core, and shall have a minimum ultimate tensile strength of 21,000 pounds.
3. The hex nuts in the transverse tie assembly shall be tightened to a tight fit and the threads set. Pockets that receive the transverse tie bar on the outside shall be filled with grout after the transverse tie assembly is in place.
4. Longitudinal shear keys shall be packed with a very dry mix of 2:1 sand and Portland Cement Mortar.
5. After beams have been erected in each construction stage, holes for the dowel anchors shall be drilled in the substructure, and the dowel anchors shall be grouted in place. Cost of furnishing dowels, drilling holes, and grouting dowels, is included in the Contract unit price for "PRECAST PRESTRESSED CONCRETE DECK BEAMS".
6. Reinforcement bars shall conform to AASHTO M-31 or M-53, Grade 60.
7. Cost of reinforcement and accessories cast into the beam, of bearing pads, and grouting longitudinal shear keys, is included in the Contract unit price for "PRECAST PRESTRESSED CONCRETE DECK BEAMS".
8. For placement of transverse tie rods during Stage I, See Bridge Sheet 3.

SUPERSTRUCTURE BILL OF MATERIALS		
Precast Prestressed Concrete Deck Beams (11")	Sq. ft.	2176
Bituminous Concrete Surface Course, Mixture D, Cl. I	Tons	28
Waterproofing Membrane System	Sq. yd.	257
Steel Railing - Type "S"	lin. ft.	138
Removal of Existing Superstructure	each	1
Portland Cement Fairing Course	lin. ft.	476

BAR LIST - ONE P.C.C. BEAM				
Bar	No.	Size	Length	Shape
"a"	13	#4	3'-9"	straight
"b"	8	#4	22'-3"	straight
"U"	16	#4	5'-6"	U



* 1" Joint shall be packed with a very dry mix of 2:1 sand and P.C. mortar. 1" dimension may vary plus or minus to accomodate tolerance in beam length.

MOSS, JOHNSON, SANDOVAL & ASSOC. LTD.

SUPERSTRUCTURE DETAILS

PROJECT
FAS Rte. 2936 (US 51) over Bear Creek
SECTION 16 A-B

Pulaski County, Illinois
Station 151+20

08-02-004 | November, 1978

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

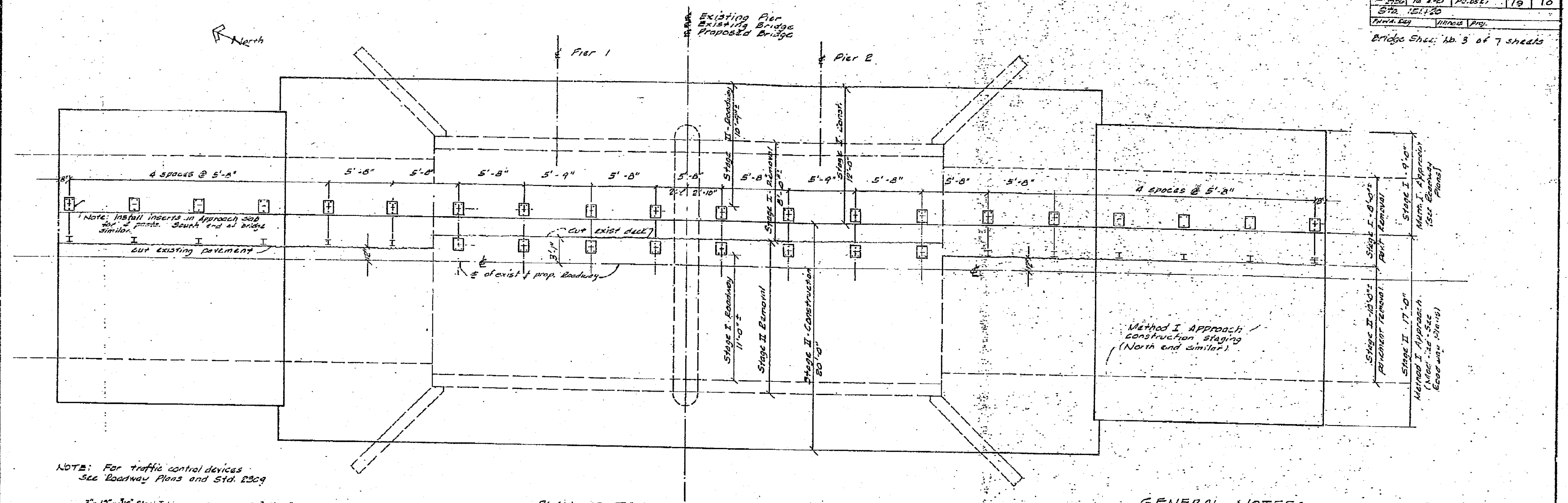
EXISTING STRUCTURE PLANS

SCALE: SHEET NO. 2 OF 7 SHEETS STA. TO STA.

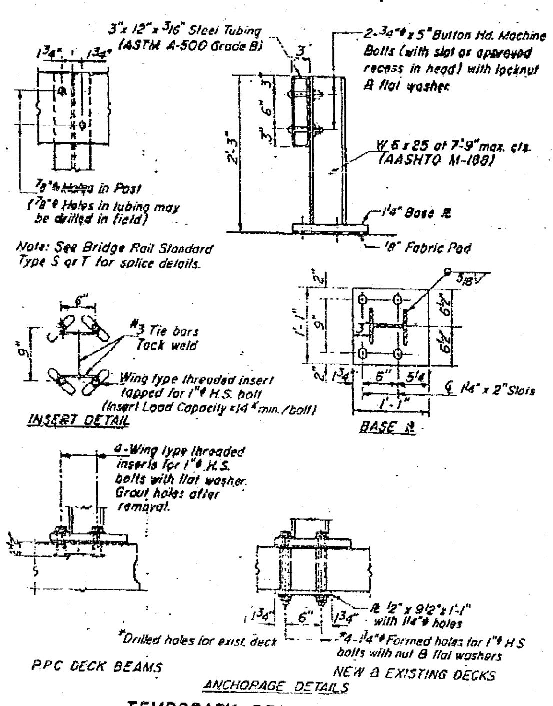
F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	16BR-1	PULASKI	68	57

CONTRACT NO. 78071

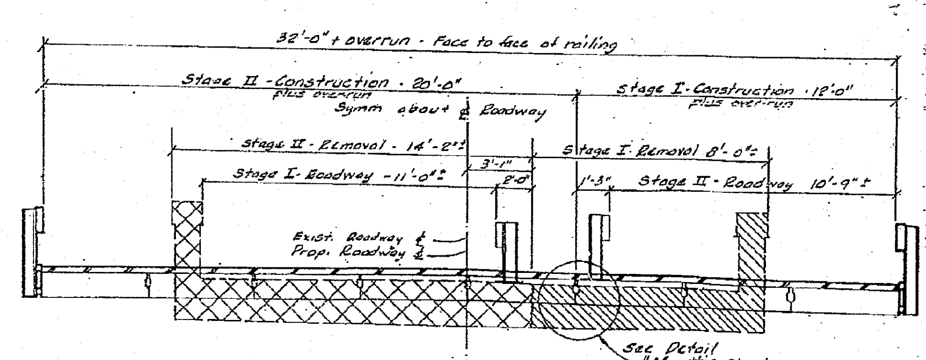
FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT AID



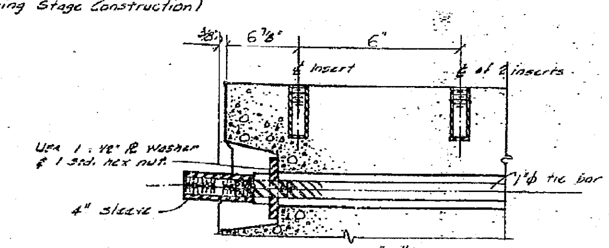
PLAN OF TEMPORARY BRIDGE RAIL POSITIONING AND CONSTRUCTION STAGING



TEMPORARY BRIDGE RAIL DETAILS
(See Special Provisions)



CROSS - SECTION
(looking North, showing Stage Construction)



DETAIL "A"
Transverse tie assembly in Stage I on inside beam.

MOSS, JOHNSON, SANDOVAL & ASSOC. LTD.

GENERAL NOTES:

1. Existing structure to be removed utilizing Stage Construction & Temporary Bridge Rail. One-lane traffic shall be maintained during construction. See Special Provisions.
2. Waterproofing & Bit. Conc. Cl "I" Surfacing for Stage I shall be deferred until after Stage II Const. has been completed, at which time traffic will be directed to facilitate Waterproofing and Surfacing of Structure.
3. Protective coating shall not be applied to surfaces receiving Waterproofing Membrane System.
4. Threaded inserts for 3/4" ϕ bolts shall be installed in the Stage I Construction of the Method I Approach located as shown above. All inserts shall be grouted after removal of temporary Bridge Rail.
5. Item "Temporary Bridge Rail" shall be measured for payment in lineal feet between end posts. Standard end sections shall be utilized, and will be included in the unit price bid for "Temporary Bridge Rail". See Special Provisions.

CONSTRUCTION STAGING DETAILS

PROJECT
FAS Rte 2936 (U.S. 51) over Boar Creek
SECTION 16 A-B

Pulaski County, Illinois
Station 151+20

03-05-004 | November 1978

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

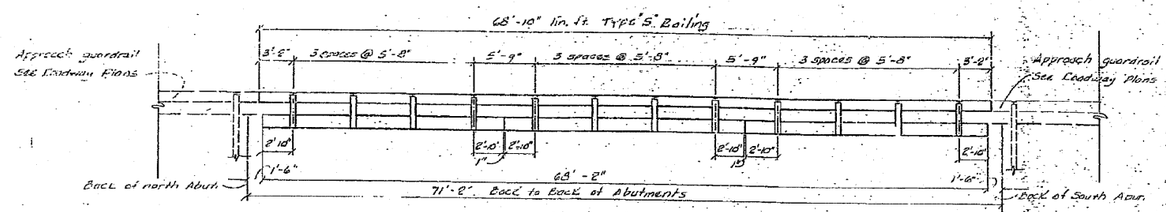
EXISTING STRUCTURE PLANS

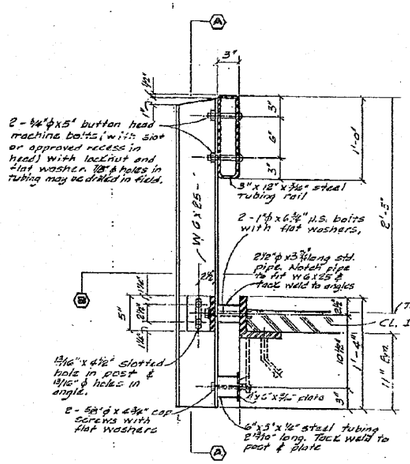
SCALE: | SHEET NO. 3 OF 7 SHEETS | STA. | TO STA.

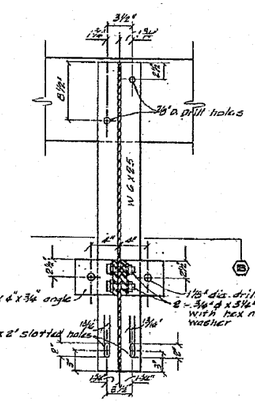
F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	16BR-1	PULASKI	68	58

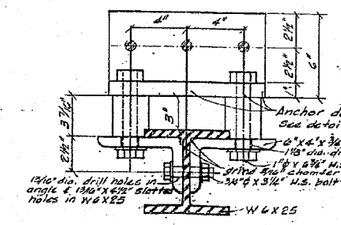
CONTRACT NO. 78071

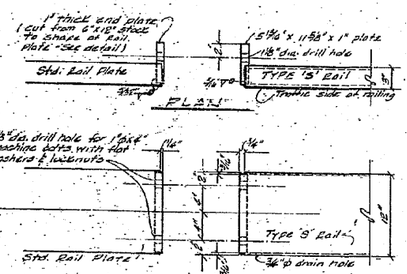
FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT AID











ESCA CONSULTANTS, INC.
CIVIL & STRUCTURAL ENGINEERS
URBANA, ILLINOIS

Rte.	Section	County	Tot. Shts.	Sheet No.
FAS 2936	16-A-B	Pulaski	19	11
Sta. 151+20				
FHWA Reg.	Illinois	Proj.		

Bridge Sheet No. 4 of 7 Sheets

ELEVATION - WEST RAILING
Note: East railing similar.

SECTION @ RAIL POST

SECTION A-A

SECTION B-B

PLAN

Detail of End Plate Welded to Rail Plate

ELEVATION
CONNECTION DETAILS - TYPE "S" RAIL TO APPROACH GUARDRAIL

RAILING NOTES

1. Hollow structural steel tubing shall conform to the requirements of ASTM designation A-500 Grade B, or A-501 Structural Steel Tubing. All other steel shapes and plates shall conform to the requirements of AASHTO designation M-183, except posts shall conform to AASHTO M-183.
2. Bolts, nuts, and cap screws shall conform to the requirements of ASTM designation A-307, except for high-strength bolts, nuts and washers noted, which shall conform to AASHTO M-164.
3. All bolts, nuts, cap screws, washers and lock washers shall be galvanized in accordance with AASHTO M-232.
4. 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 railing shall not be painted.
5. Railing shall be in accordance with Section 508 of the Standard Specifications, except as noted, and shall be paid for at the contract unit price per lineal foot for Steel Railing, TYPE "S".
6. All field drilled holes shall be coated with an approved zinc rich paint before erection.
7. The 3/4"φ high strength bolts used to connect the 6" x 4" x 3/4" angles to the posts shall be tightened in accordance with Article 507.04 (g)(3) 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 1/8 turn.
8. For multi-span bridges, sufficient ¼" x 6" x 1'-5" gal. steel shims shall be provided to align rail between adj. spans. Cost incidental to STEEL RAILING - TYPE "S."

SECTION @ RAIL SPLICE

REAR VIEW

SIDE VIEW

ANCHOR DEVICE DETAIL

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

¼" SHIM PLATE

PLAN - BOTTOM SPLICE PLATE

MOSS, JOHNSON, SANDOVAL & ASSOC. LTD.

RAILING DETAILS - TYPE "S"

PROJECT
FAS Rte. 2936 (U.S. 51) over Bear Creek
SECTION 16 A-B

Pulaski County, Illinois
Station 151+20

08-02-004 | November, 1976

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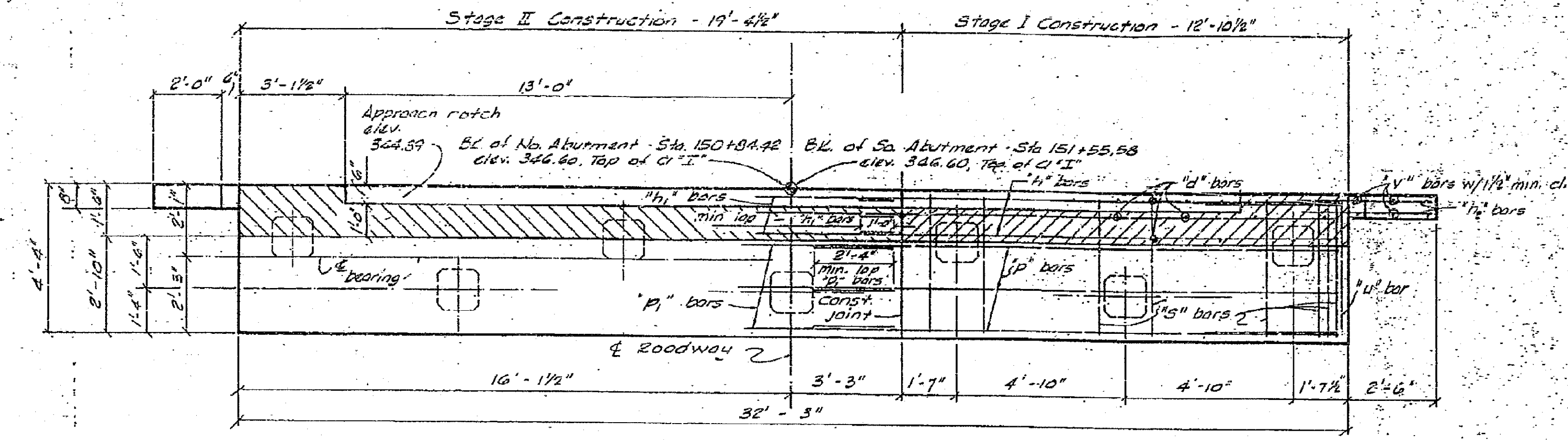
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXISTING STRUCTURE PLANS

SCALE: | SHEET NO. 4 OF 7 SHEETS | STA. | TO STA.

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	16BR-1	PULASKI	68	59
		CONTRACT NO. 78071		
FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT AID			

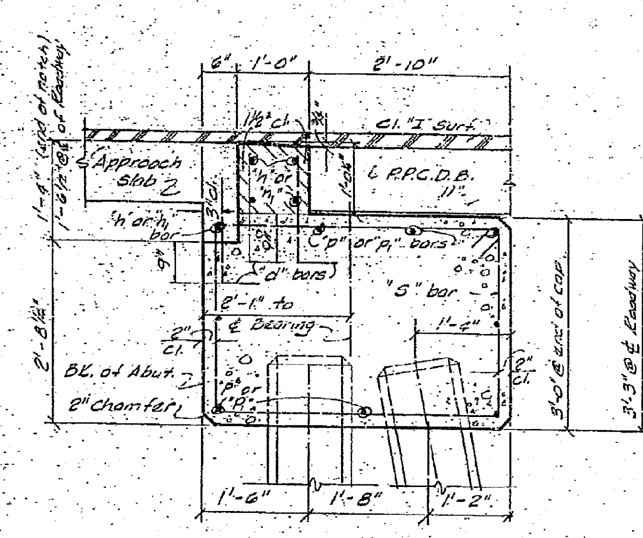
Bridge Sheet 5 of 7 Sheets



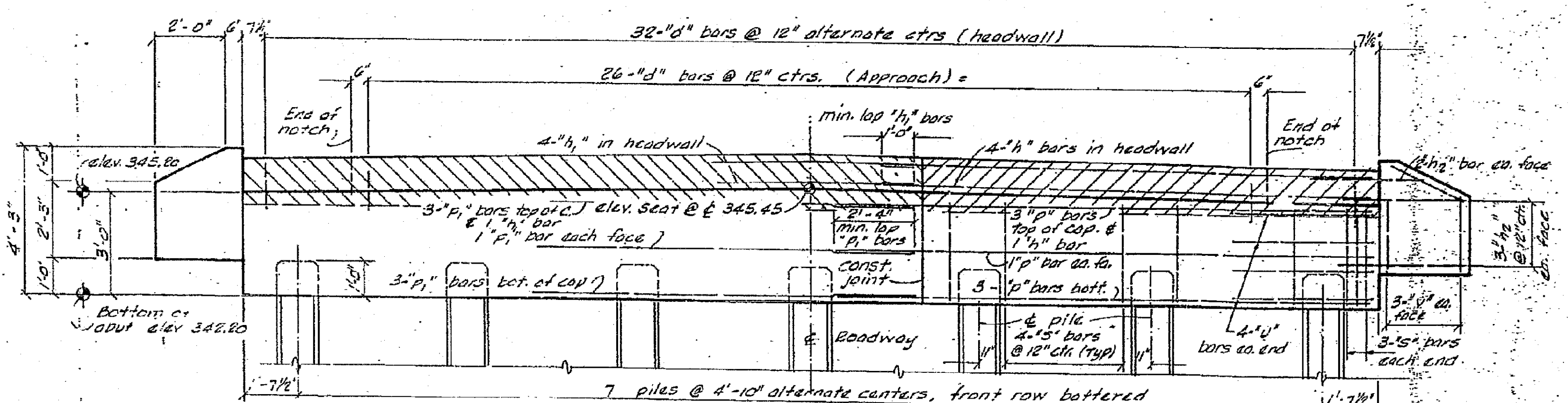
Note: Hatched areas are poured in field after deck beams are in place.

ABUTMENT PLAN

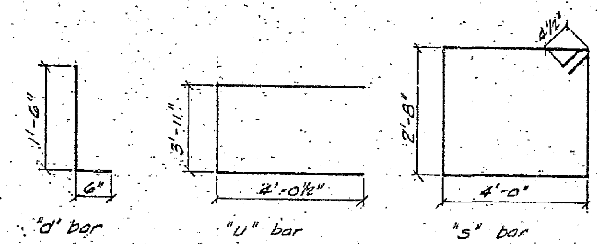
(North abutment illustrated. South abutment similar but with construction joint also on east side of ℄ of Roadway)



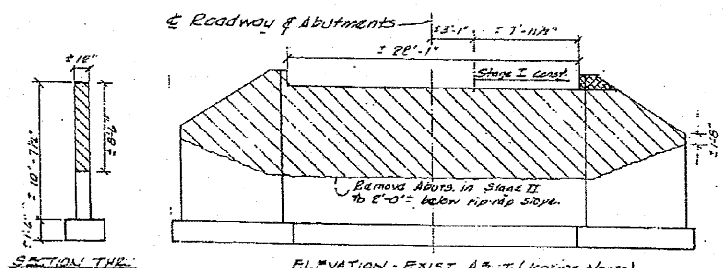
SECTION @ ABUTMENTS



ABUTMENT ELEVATION



BILL OF MATERIAL - ABUTMENTS		
ITEM	UNIT	QUANTITY
Concrete Removal	cu.yd.	23.0
Class "X" Concrete	cu.yd.	34.6
Reinforcement Bars	lbs.	2490
Furnishing Concrete Piles	lin.ft.	390
Driving Concrete Piles	lin.ft.	390
Test Pile - Concrete	each	1



SECTION THR. EX. ABUT.

ELEVATION - EXIST. ABUT. (looking North)

Note: Cross-hatched portion of abuts. to be removed during Stage I const. Hatched portion of exist. abuts. to be removed during Stage II constr.

PILE DATA

Two Abutments
TYPE: Concrete
No. REQ'D: 14
CAPACITY: 25 Tons
Estimated length: 30'

Note: No. of piles required includes one test pile in permanent location at North Abutment.

BAR LIST - TWO ABUTMENTS				
BAR	NO.	SIZE	LENGTH	SHAPE
d	116	#4	2'-0"	
h	10	#4	13'-9"	
h_1	10	#4	19'-3"	
h_2	40	#4	3'-6"	
p	16	#7	15'-3"	
p_1	16	#7	19'-3"	
s	60	#4	14'-1"	
U	16	#6	12'-0"	
v	24	#4	2'-3"	

F.A.S.	Section	County	Sheet No.	Total Sheets
2936	16 A-B	Pulaski	19	12

Sta. 151+20

ABUTMENT DETAILS

PROJECT
FAS Rte. 2936 (U.S.51) over Boar Creek
SECTION 16 A-B
Pulaski County, Illinois
Station 151+20

08-02.004 | November 1978

MOSS, JOHNSON, SANDOVAL & ASSOC. LTD.

ESCA CONSULTANTS, INC.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXISTING STRUCTURE PLANS

SCALE: | SHEET NO. 5 OF 7 SHEETS | STA. | TO STA.

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	16BR-1	PULASKI	68	60

CONTRACT NO. 78071

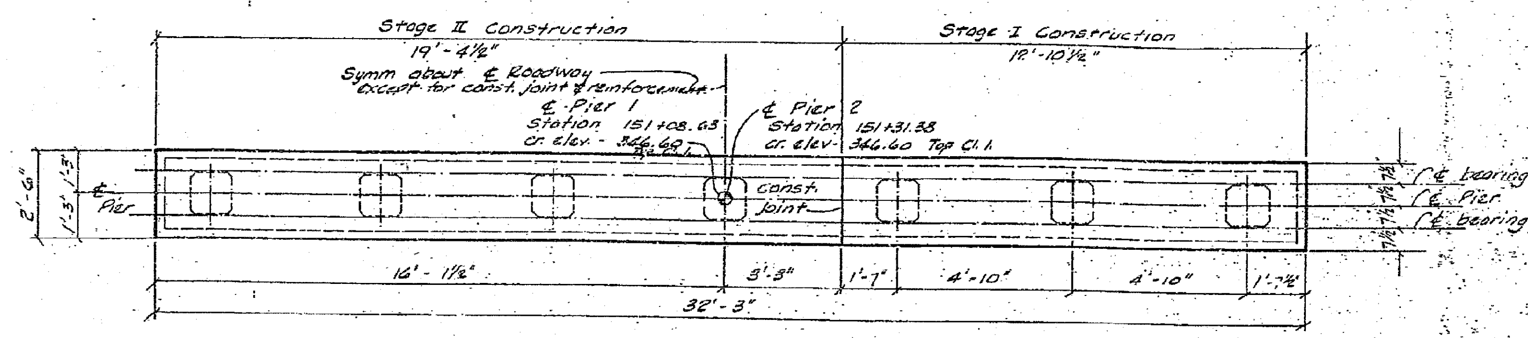
FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT AID

Rte.	Section	County	Tot. Shts.	Sht. No.
FAS Rte 2936	16 A-B	Pulaski	19	13

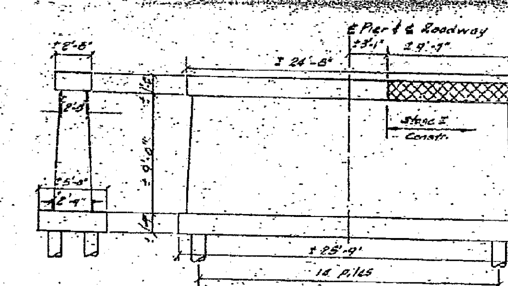
Sta. 151+20

Fund. Req. | Illinois Proj.

Bridge Sheet 6 of 7 Sheets



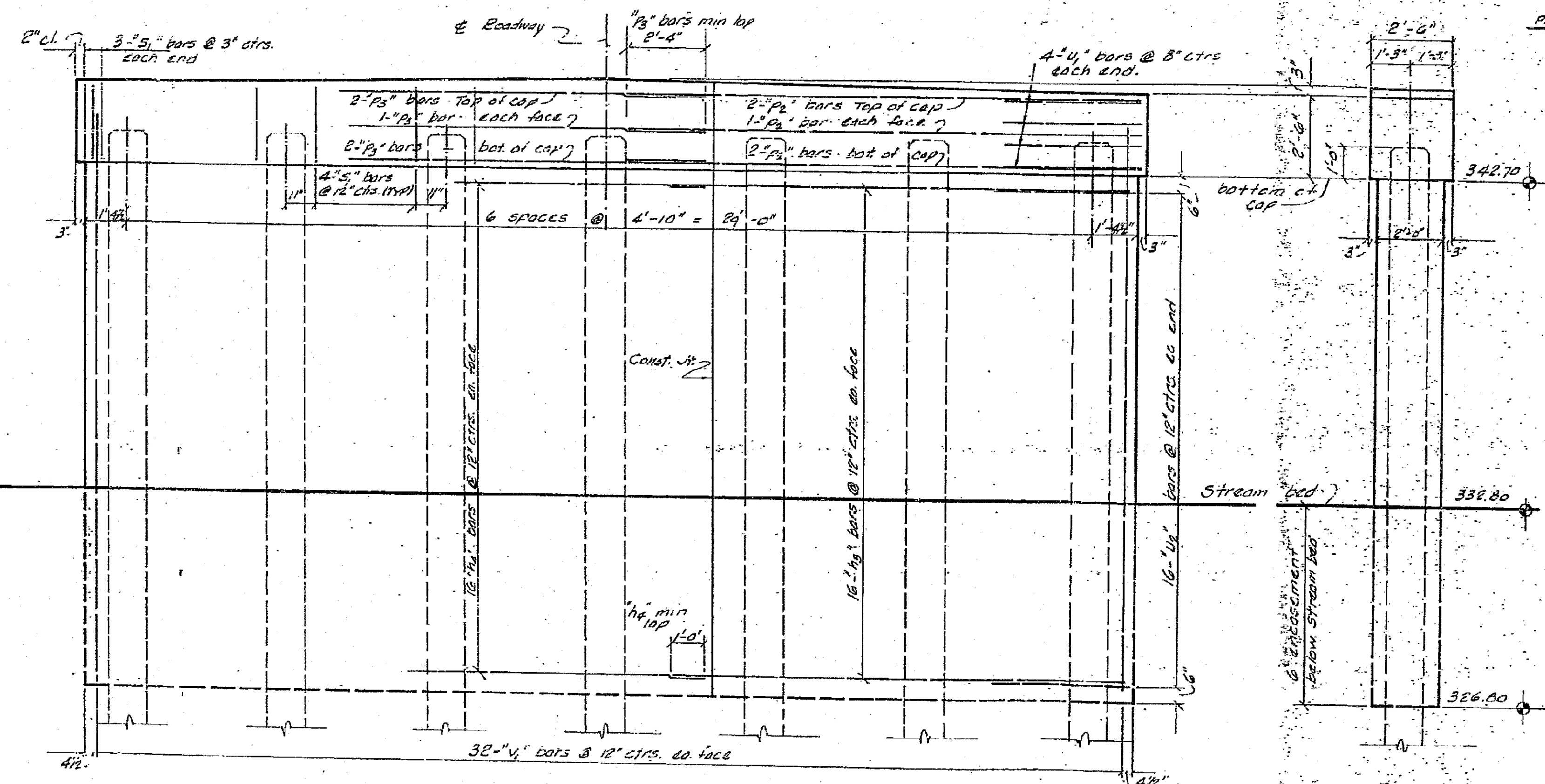
PIER PLAN



PIER END ELEV.

ELEVATION - EXIST. PIER (looking North)

Note: Remove cross-hatched portion of exist. pier cap during Stage I constr. Remainder of pier, including footing and upper 3'-0" of exist. timber pile to be removed during Stage II constr.



PIER ELEVATION

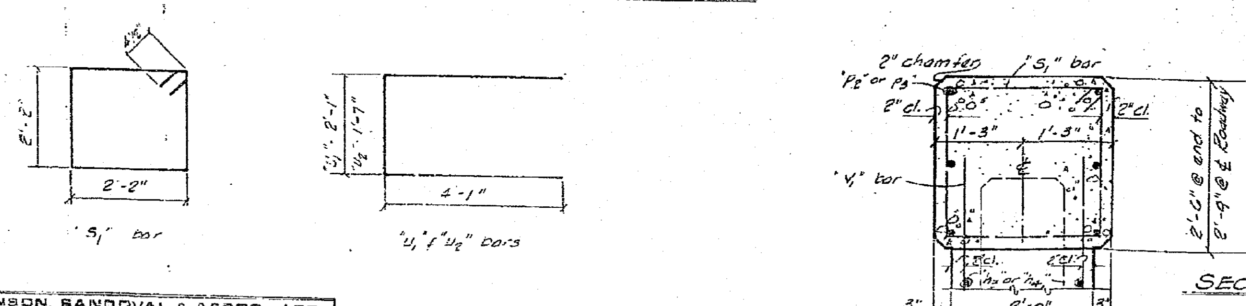
PIER END ELEVATION

BAR LIST - TWO PIERS				
BAR	NO.	SIZE	LENGTH	SHAPE
h_3	64	#4	13'-9"	
h_4	64	#4	19'-3"	
P_2	12	#7	15'-3"	
P_3	12	#7	19'-3"	
S_1	60	#4	9'-5"	
U_1	16	#6	9'-9"	
U_2	64	#4	10'-3"	
V_1	128	#4	17'-0"	

BILL OF MATERIAL - PIERS		
ITEM	UNIT	QUANTITY
Substructure Concrete Removal.	cu. yd.	30.8
Class "X" Concrete	cu. yd.	78.9
Reinforcement Bars	lbs.	6750.0
Furnishing Concrete Piles	lin. ft.	559
Driving Concrete Piles	lin. ft.	559
Test Pile - Concrete	each	1

PILE DATA
TWO PIERS
TYPE: Concrete
No. Reqd: 14
Capacity: 31 tons
Estimated Length: 43'

NOTE No of piles required includes one test pile in permanent location at Pier 2



SECTION @ PIERS

PIER DETAILS

PROJECT
FAS Rte 2936 (U.S. 51) over Bear Creek
SECTION 16 A-B

Pulaski County, Illinois
Station 151+20

08-09-004 | November 1978

MOSS, JOHNSON, SANDOVAL & ASSOC. LTD.

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		DATE - 05/10	REVISED -	

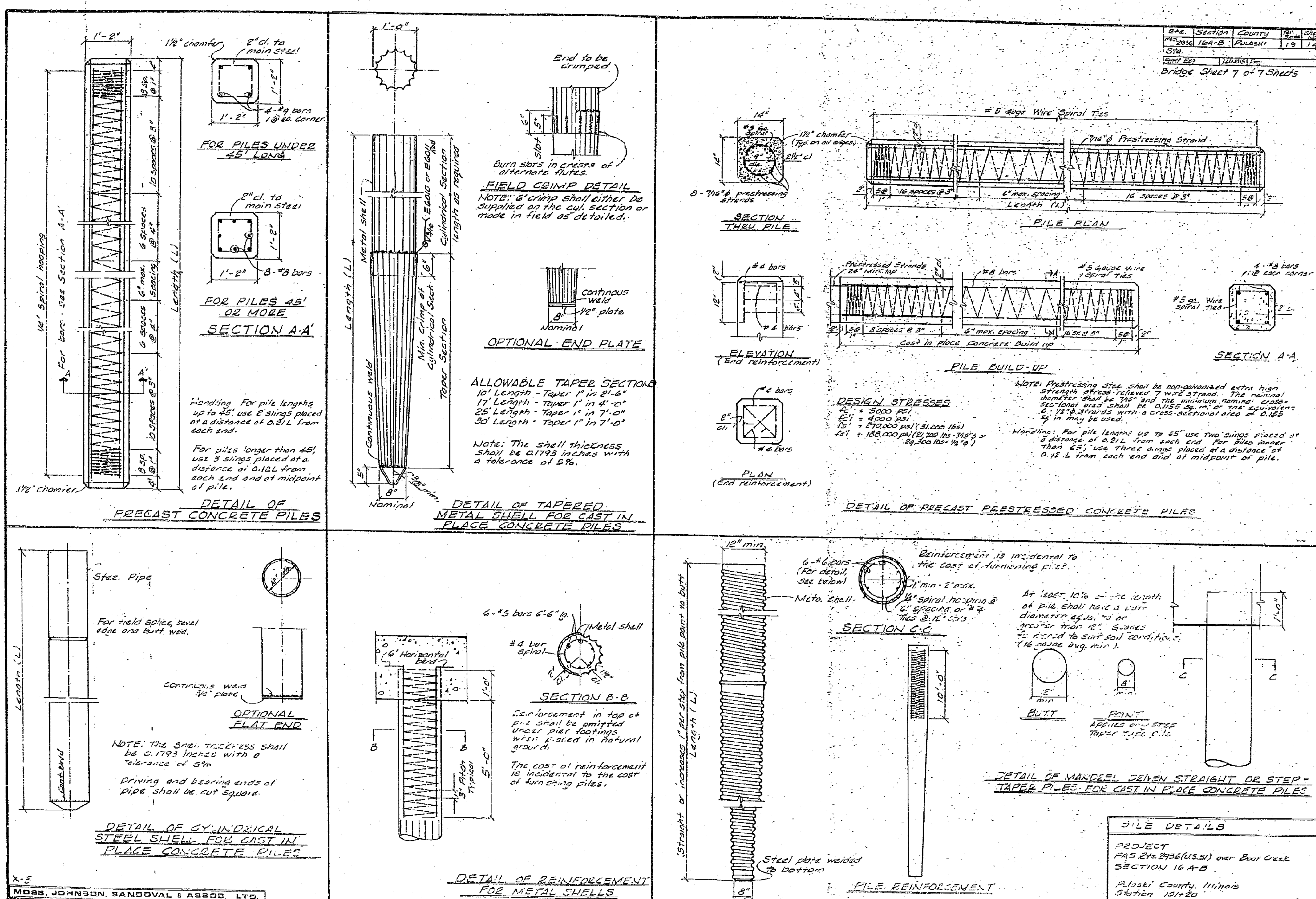
EXISTING STRUCTURE PLANS

SCALE: | SHEET NO. 6 OF 7 SHEETS | STA. | TO STA.

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	16BR-1	PULASKI	68	61

CONTRACT NO. 78071

FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT AID


Rte. | Section | County | Total sheets | Sheet No.
FAS 2936 | 16A-B | PULASKI | 19 | 14
Bridge Sheet 7 of 7 Sheets
FOR PILES UNDER 45' LONG
FOR PILES 45' OR MORE
SECTION A-A'
Handling: For pile lengths up to 45' use 2 slings placed at a distance of 0.21L from each end.
For piles longer than 45' use 3 slings placed at a distance of 0.12L from each end and at midpoint of pile.
DETAIL OF PRECAST CONCRETE PILES
FIELD CRIMP DETAIL
NOTE: 6' crimp shall either be supplied on the cyl. section or made in field as detailed.
OPTIONAL END PLATE
ALLOWABLE TAPER SECTIONS
10' Length - Taper 1" in 2'-6"
17' Length - Taper 1" in 4'-0"
25' Length - Taper 1" in 7'-0"
30' Length - Taper 1" in 7'-0"
Note: The shell thickness shall be 0.1793 inches with a tolerance of 5%.
DETAIL OF TAPERED METAL SHELL FOR CAST IN PLACE CONCRETE PILES
SECTION THRU PILE
PILE PLAN
ELEVATION (End reinforcement)
PLAN (End reinforcement)
PILE BUILD-UP
SECTION A-A
DESIGN STRESSES
f'c = 5000 psi
f'ci = 4000 psi
f's = 270,000 psi (31,000 lbs)
fsi = 188,000 psi (21,700 lbs - 7/16"φ or 24,300 lbs - 1/2"φ)
Note: Prestressing steel shall be non-galvanized extra high strength stress-relieved 7 wire strand. The nominal diameter shall be 7/16" and the minimum nominal cross-sectional area shall be 0.1155 sq. in. or the equivalent 6 - 1/2"φ strands with a cross-sectional area of 0.153 sq. in. may be used.
Handling: For pile lengths up to 65' use two slings placed at a distance of 0.21L from each end. For piles longer than 65', use three slings placed at a distance of 0.12L from each end and at midpoint of pile.
DETAIL OF PRECAST PRESTRESSED CONCRETE PILES
NOTE: The shell thickness shall be 0.1793 inches with a tolerance of 5%.
Driving and bearing ends of pipe shall be cut square.
OPTIONAL FLAT END
DETAIL OF CYLINDRICAL STEEL SHELL FOR CAST IN PLACE CONCRETE PILES
SECTION B-B
Reinforcement in top of pile shall be omitted under pier footings when placed in natural ground.
The cost of reinforcement is incidental to the cost of furnishing piles.
DETAIL OF REINFORCEMENT FOR METAL SHELLS
Reinforcement is incidental to the cost of furnishing piles.
SECTION C-C
PILE REINFORCEMENT
At least 10% of the length of pile shall have a butt diameter equal to or greater than 12". Grades to suit soil conditions (16 gage avg. min.).
BUTT
POINT
DETAIL OF MANDREL DRIVEN STRAIGHT OR STEP-TAPER PILES FOR CAST IN PLACE CONCRETE PILES
PILE DETAILS
PROJECT
FAS Rte 2936 (U.S. 51) over Boar Creek
SECTION 16 A-B
Pulaski County, Illinois
Station 151+20
X-5
MOSS, JOHNSON, SANDOVAL & ASSOC. LTD.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

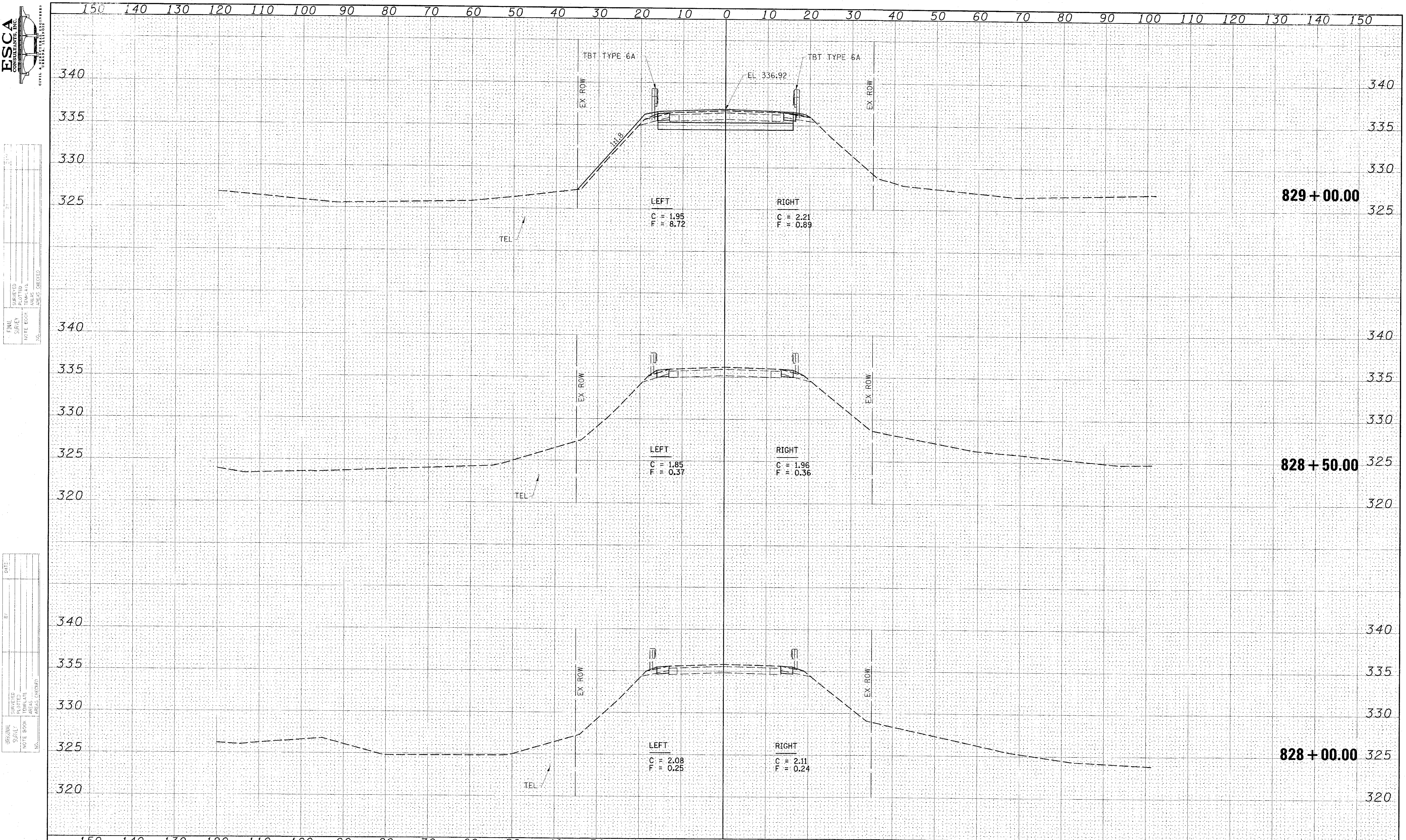
EXISTING STRUCTURE PLANS

SCALE: | SHEET NO. 7 OF 7 SHEETS | STA. | TO STA.

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	16BR-1	PULASKI	68	62

CONTRACT NO. 78071

FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT AID



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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAS 2936 (OLD US 51) CROSS SECTIONS

SCALE: AS SHOWN | SHEET NO. 1 OF 3 SHEETS | STA. 828+00.00 TO STA. 829+00.00

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	14BR-1	PULASKI	68	63
		CONTRACT NO. 78071		

FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT

ESCA CONSULTANTS, INC.
CIVIL & STRUCTURAL ENGINEERS
SPRINGFIELD, ILLINOIS

ORIGINAL SURVEY	FINAL SURVEY	NO.	NOTE BOOK	PLOTTED	SURVEYED	BY	DATE

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

340 335 330 325 320 315

STEEL BRIDGE RAIL, TYPE SM
STONE DUMPED RIPRAP, CLASS A3
EX ROW
EL 337.19
1:2
LEFT
C = 4.75
F = 2.13
RIGHT
C = 0.82
F = 4.78
TEL

830 + 60.00

STEEL BRIDGE RAIL, TYPE SM
EX ROW
EL 337.23

830 + 00.00

STEEL BRIDGE RAIL, TYPE SM
EX ROW
EL 337.23

829 + 50.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAS 2936 (OLD US 51) CROSS SECTIONS

SCALE: AS SHOWN | SHEET NO. 2 OF 3 SHEETS | STA. 829+50.00 TO STA. 830+60.00

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	14BR-1	PULASKI	68	64
		CONTRACT NO. 78071		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

ESCA CONSULTANTS, INC.
CIVIL & STRUCTURAL ENGINEERS
URBANA, ILLINOIS

FINAL SURVEY	BY	DATE
SURVEYED		
PLOTTED		
MUTE BKDN		
AREAS		
AREAS CHECKED		
NO.		

ORIGINAL SURVEY	BY	DATE
SURVEYED		
PLOTTED		
MUTE BKDN		
AREAS		
AREAS CHECKED		
NO.		

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

340 335 330 325

EX ROW

EX ROW

TEL

832 + 00.00

PR TBT TY 1 (SPL) TANGENT

EX ROW

EX ROW

LEFT
C = 1.92
F = 0.20

RIGHT
C = 2.43
F = 0.00

TEL

831 + 50.00

PR TBT TY 6A

PR TBT TY 6A

EL 336.86

EX ROW

EX ROW

1:2

LEFT
C = 1.84
F = 5.25

RIGHT
C = 2.78
F = 0.00

TEL

831 + 00.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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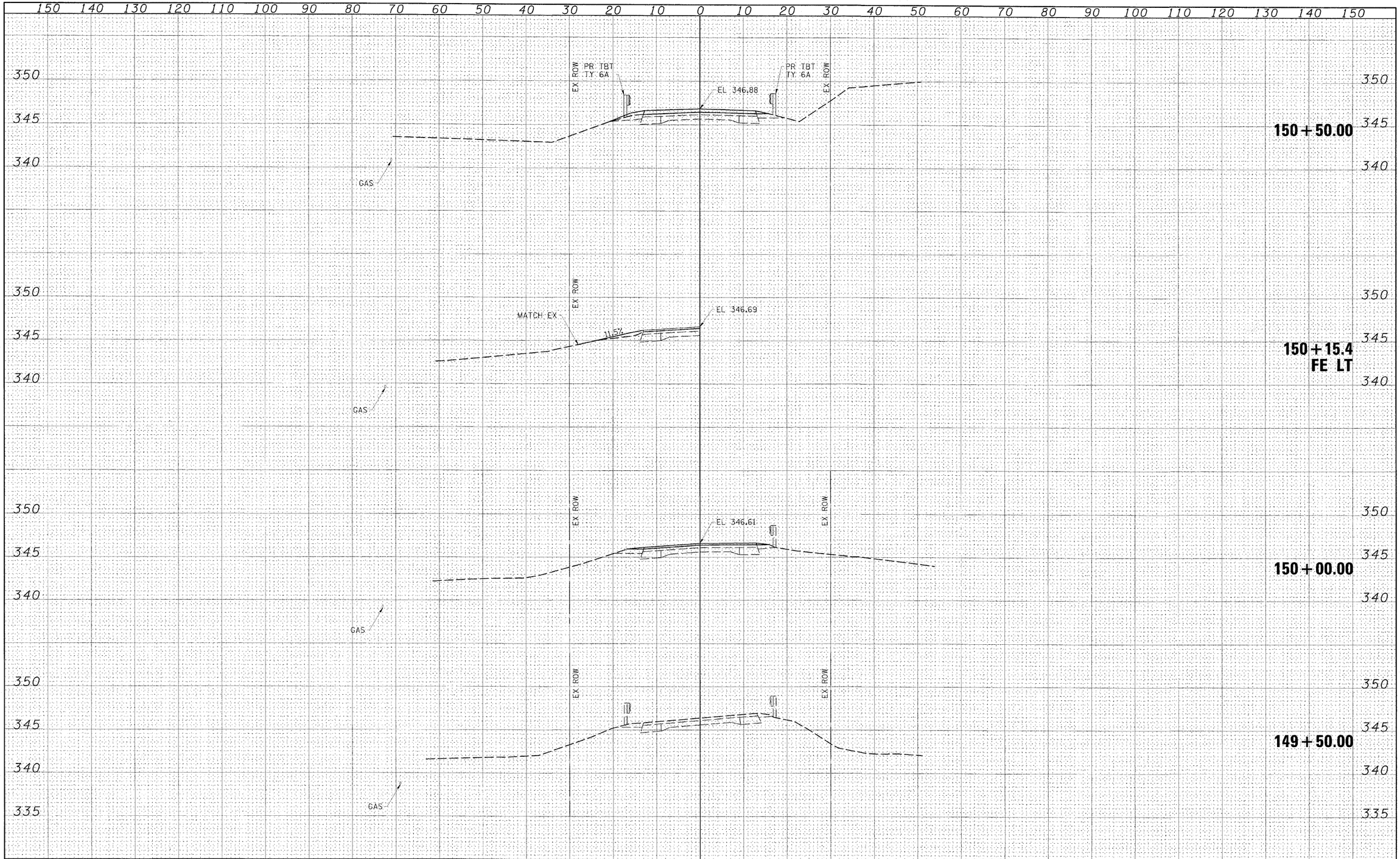
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAS 2936 (OLD US 51) CROSS SECTIONS

SCALE: AS SHOWN | SHEET NO. 3 OF 3 SHEETS | STA. 831+00.00 TO STA. 832+00.00

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	14BR-1	PULASKI	68	65
		CONTRACT NO. 78071		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

ESCA CONSULTANTS, INC.
CIVIL & STRUCTURAL ENGINEERS
BENSENVILLE, ILLINOIS



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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAS 2936 (OLD US 51) CROSS SECTIONS

SCALE: AS SHOWN | SHEET NO. 1 OF 3 SHEETS | STA. 149+50.00 TO STA. 150+50.00

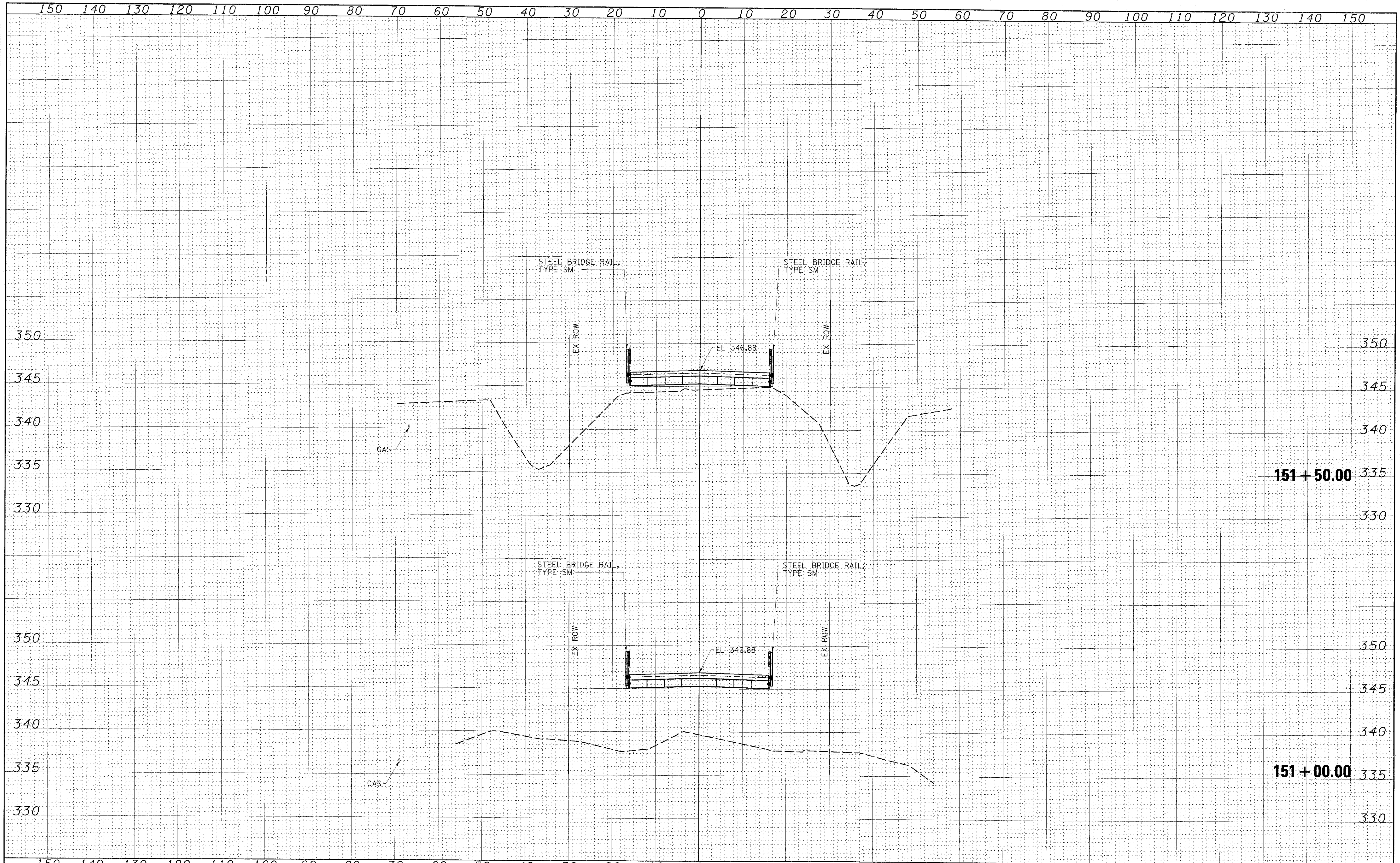
F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	16BR-1	PULASKI	68	66

CONTRACT NO. 78071

FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT

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

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



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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAS 2936 (OLD US 51) CROSS SECTIONS

SCALE: AS SHOWN | SHEET NO. 2 OF 3 SHEETS | STA. 151+00.00 TO STA. 151+50.00

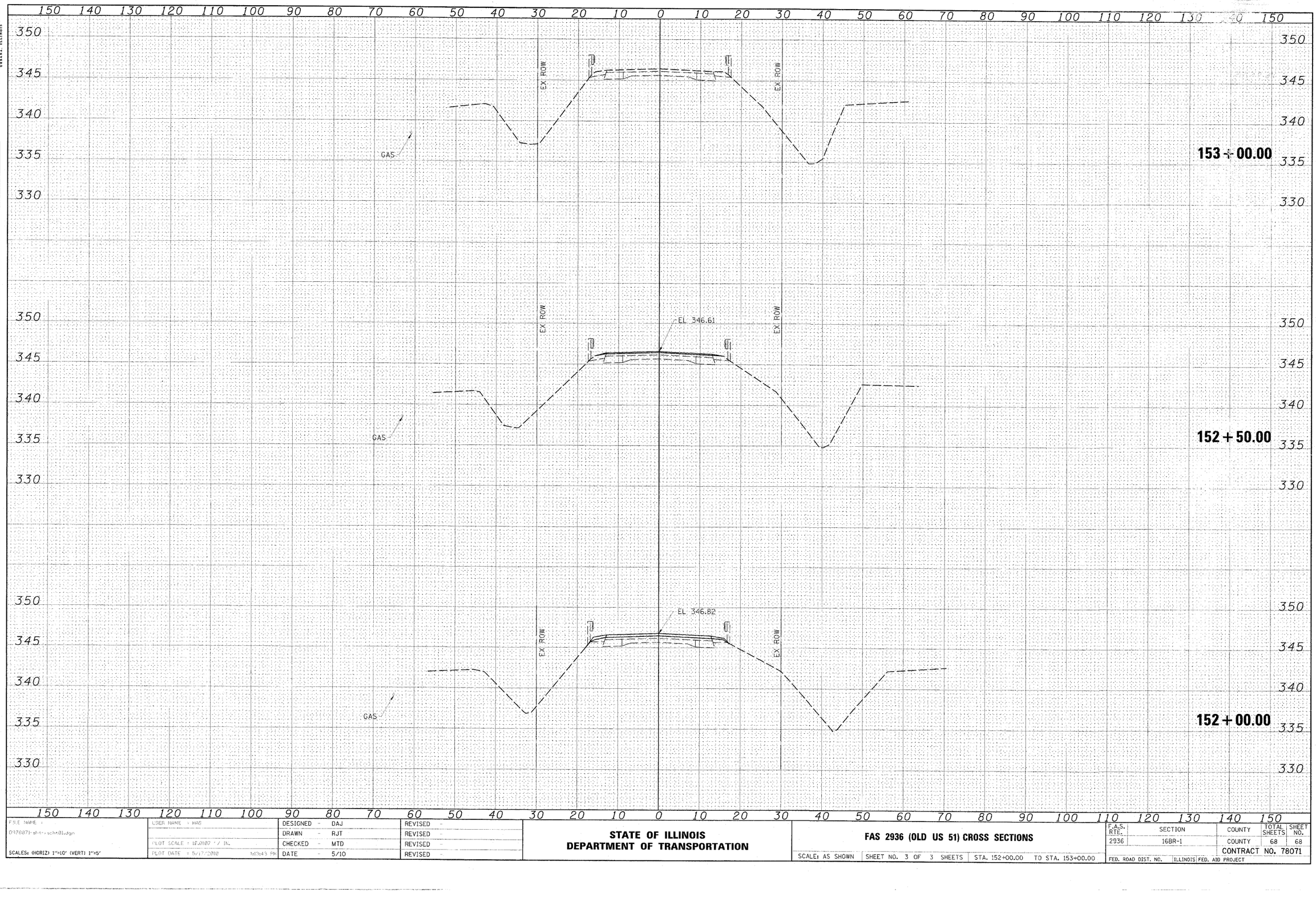
F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	16BR-1	PULASKI	68	67

CONTRACT NO. 78071

FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT

ESCA CONSULTANTS, INC.
CIVIL & STRUCTURAL ENGINEERS
URBANA, ILLINOIS

FINAL PLANS	SURVEYED	BY	DATE
ORIGINAL PLANS	PLOTTED		
NOTE BOOK	LEVELS		
	AREAS CHECKED		



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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAS 2936 (OLD US 51) CROSS SECTIONS

SCALE: AS SHOWN | SHEET NO. 3 OF 3 SHEETS | STA. 152+00.00 TO STA. 153+00.00

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2936	16BR-1	COUNTY	68	68
		CONTRACT NO. 78071		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		