

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROPOSED
HIGHWAY PLANS

FAP ROUTE 865 (IL 152)
SECTION 16B-2
STRUCTURE REPLACEMENT
OVER PANTHER CREEK
PERRY COUNTY

C-99-050-08
PROJECT: ACBRF-0865(006)

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
865	16B-2	PERRY	47	1

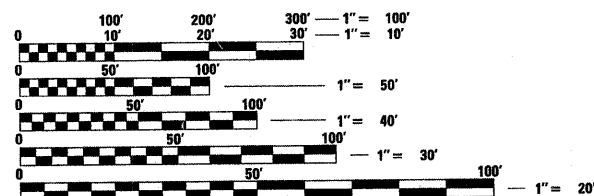
* - 3
44

FOR INDEX OF SHEETS, SEE SHEET NO. 2
FOR SUMMARY OF QUANTITIES, SEE SHEETS NO. 3 AND 4

TRAFFIC DATA

2008 ADT = 2480
10.6% TRUCKS
POSTED SPEED 55 MPH

ROAD DISTRICT #06-2

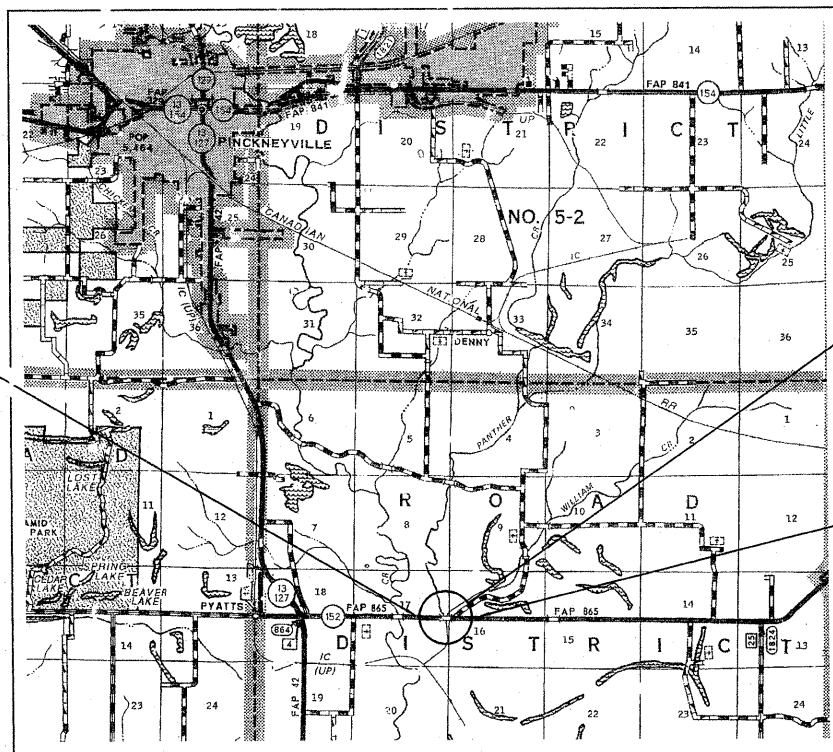


FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
1-800-892-0123
OR 811

PROJECT ENGINEER T. WAYNE HALSTEAD
PROJECT MANAGER DAVID SPENCER PICHE

CONTRACT NO. 78064



PROPOSED PROJECT ENDS
STA 879+13.00

PROPOSED BRIDGE OVER PANTHER CREEK
STRUCTURE NO. 073-0037
3 SPAN STEEL W27 BRIDGE;
158'-0" BK TO BK ABUTMENTS; 25° SKEW
@ STRUCTURE STA 875+28.00
EXISTING SN 073-0024

PROPOSED PROJECT BEGINS
STA 873+49.00

ROADWAY LENGTH = 406 FT
BRIDGE LENGTH = 158 FT
GROSS LENGTH = 564 FT
NET LENGTH = 564 FT

D-99-031-08



LOCATION OF SECTION INDICATED THIS: - [black rectangle] -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED June 23 20 09

Mary C. Lamic
DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER

October 2, 20 09

Charles J. Ingersoll
ENGINEER OF DESIGN AND ENVIRONMENT

October 2, 20 09

Christine M. Reed
DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

PRINTED BY THE AUTHORITY
OF THE STATE OF ILLINOIS

Rev. 10-20-09

GENERAL NOTES

THE THICKNESS OF THE HOT MIX ASPHALT MIXTURE 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 HOT MIX ASPHALT MIXTURE IS PLACED.

FACTORS USED FOR QUANTITY CALCULATIONS ARE AS FOLLOWS:

ALL HOT MIX ASPHALT:	2.016 TONS/CU. YD.
HOT MIX ASPHALT MATERIALS ON PAVEMENT:	0.09 GAL./SQ. YD.
AGGREGATE (PRIME COAT):	0.0015 TONS/SQ. YD.
ALL AGGREGATE:	2.05 TONS/CU. YD.
RIPRAP	1.50 TONS/CU YD

PLAN DIMENSIONS AND DETAILS RELATIVE TO THE 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 A CAUSE FOR ADDITIONAL COMPENSATION FOR A CHANGE IN THE SCOPE OF THE WORK. THE CONTRACTOR, HOWEVER, WILL BE PAID FOR THE ACTUAL QUANTITY FURNISHED AT THE UNIT PRICE BID FOR THE WORK. CONSTRUCTION PLANS ARE AVAILABLE FOR REVIEW AT THE DISTRICT 9 OFFICE.

IN ADDITION TO THE REQUIREMENTS OF ARTICLE 107.16 THE CONTRACTOR SHALL PROTECT THE SURFACE OF ALL BRIDGE DECK AND BRIDGE APPROACH PAVEMENTS IN A MANNER SATISFACTORY TO THE ENGINEER BEFORE ANY EQUIPMENT IS ALLOWED TO CROSS THE STRUCTURE. PROTECTION SHALL BE PROVIDED FOR ALL EQUIPMENT AS DEFINED IN ARTICLE 101.17 REGARDLESS IF TRACK MOUNTED OR WHEELED.

AT ALL LOCATIONS WHERE HOT MIX ASPHALT OR CONCRETE PAVEMENT JOINS AN EXISTING HOT MIX ASPHALT OR CONCRETE PAVEMENT, A SAWED JOINT SHALL BE CONSTRUCTED. THE COST OF THIS JOINT SHALL BE INCLUDED IN THE TYPE OF PAVEMENT BEING CONSTRUCTED.

QUANTITIES SHOWN IN THE PLANS FOR BRIDGE DECK GROOVING AND PROTECTIVE COAT INCLUDE THE BRIDGE, THE BRIDGE APPROACH PAVEMENTS, AND THE BRIDGE APPROACH PAVEMENT CONNECTORS (PCC).

PROTECTIVE COAT SHALL BE APPLIED TO THE BRIDGE, THE BRIDGE APPROACH PAVEMENTS, AND THE BRIDGE APPROACH PAVEMENT CONNECTORS (PCC) IN ACCORDANCE WITH ARTICLE 503.19 OF THE STANDARD SPECIFICATIONS. THE PROTECTIVE COAT SHALL BE APPLIED REGARDLESS OF THE CURING METHOD USED. THE RATE OF APPLICATION FOR EACH COAT ON SAW CUT GROOVED AREAS SHALL BE 25 SQUARE YARDS PER GALLON OF MIXTURE.

REMOVAL OF EXISTING 13" THICK BRIDGE APPROACH PAVEMENTS ARE INCLUDED IN THE QUANTITY FOR PAVEMENT REMOVAL - 116 SQ YD.

TREES SHALL BE PRESERVED THROUGHOUT THIS SECTION AS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER. GENERALLY, TREES OUTSIDE THE CONSTRUCTION LIMITS, AND WHICH DO NOT INTERFERE WITH CONSTRUCTION, SHALL NOT BE DISTURBED.

IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO REMOVE ANY DEBRIS OR DIRT CAUSED BY CONSTRUCTION ACTIVITY THAT COVERS THE NEW RIPRAP AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE LEFT IN PLACE UNTIL REMOVAL IS REQUIRED TO CONSTRUCT FINAL GRADE LINES.

THE QUANTITY OF SHORT TERM PAVEMENT MARKING SHOWN IN THE PLANS IS BASED ON ONE APPLICATION EACH FOR THE BINDER COURSE AND THE SURFACE COURSE.

THE QUANTITY OF TEMPORARY PAVEMENT MARKING SHOWN IN THE PLANS IS BASED ON ONE APPLICATION FOR THE SURFACE COURSE.

PRIOR TO PLACEMENT OF THE FINAL PAVEMENT MARKINGS THE RESIDENT ENGINEER SHOULD CONTACT THE BUREAU OF OPERATIONS AND ARRANGE FOR INSPECTION AND APPROVAL OF THE PAVEMENT MARKING LAYOUT.

COST OF REMOVING HOT MIX ASPHALT BASE COURSE WIDENING, 10" USED FOR STAGE I TRAFFIC IS INCLUDED IN "PAVED SHOULDER REMOVAL-SQ YD."

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.

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.

THE BARRIER WALL AND GUARDRAIL REFLECTORS AS SHOWN ON STANDARD 701321 SHALL BE INSTALLED PRIOR TO OPENING TO TRAFFIC.

ANY TIME THE CONCRETE BARRIER IS NOT IN THE PROPER POSITION, FLAGGERS SHALL BE IN PLACE TO CONTROL TRAFFIC. THE TEMPORARY TRAFFIC SIGNALS SHALL BE SET TO FLASH ALL RED.

TRIM EDGES OF EXISTING HOT MIX ASPHALT SURFACE FLUSH WITH EXISTING PAVEMENT PRIOR TO CONSTRUCTING NEW BASE COURSE WIDENING.

THE HOT MIX ASPHALT BASE COURSE WIDENING, 10" CONSTRUCTED IN PRE-STAGE 1 MAY BE INCORPORATED INTO THE FINAL HOT MIX ASPHALT SHOULDERS, 8" DURING STAGE II CONSTRUCTION IF APPROVED BY THE ENGINEER. SUCH CHANGE WILL NOT BE A CAUSE FOR ADDITIONAL COMPENSATION, BUT THE CONTRACTOR WILL BE PAID FOR THE ACTUAL QUANTITY FURNISHED AT THE UNIT PRICE BID FOR THE WORK.

COMMITMENTS: NONE AS OF JUNE 26, 2009, REFER TO COMMITMENT FILE FOR ANY COMMITMENTS AFTER THIS DATE.

HIGHWAY STANDARDS

000001-05	STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
280001-04	TEMPORARY EROSION CONTROL SYSTEMS
420001-07	PAVEMENT JOINTS
420401-07	BRIDGE APPROACH PAVEMENT
421001-02	REINFORCEMENT FOR CONTINUOUSLY REINFORCED PCC PAVEMENT
482006-03	HOT-MIX ASPHALT SHOULDER ADJACENT TO RIGID PAVEMENT
515001-03	NAME PLATE FOR BRIDGES
630001-08	STEEL PLATE BEAM GUARDRAIL
630201-06	PCC/BITUMINOUS STABILIZATION AT STEEL PLATE BEAM GUARDRAIL
630301-05	SHOULDER WIDENING FOR TYPE 1 (SPECIAL) GUARDRAIL TERMINALS
631031-07	TRAFFIC BARRIER TERMINAL, TYPE 6
635006-03	REFLECTOR AND TERMINAL MARKER PLACEMENT
635011-02	REFLECTOR MARKER & MOUNTING DETAILS
701006-03	OFF-ROAD OPERATIONS, 2L 2W, 4.5 m (15') TO 600 mm (24") AWAY, FOR SPEEDS ≥ 45 MPH
701201-03	LANE CLOSURE, 2L 2W, DAY ONLY, ON-ROAD TO 600 mm (24") OFF-ROAD, FOR SPEEDS ≥ 45 MPH
701301-03	LANE CLOSURE, 2L 2W, SHORT TIME OPERATIONS, FOR SPEEDS ≥ 45 MPH
701321-10	LANE CLOSURE, 2L, 2W, BRIDGE REPAIR WITH BARRIER
701326-03	LANE CLOSURE, 2L, 2W, PAVEMENT WIDENING, FOR SPEEDS ≥ 45 MPH
701901-01	TRAFFIC CONTROL DEVICES
704001-05	TEMPORARY CONCRETE BARRIER
780001-02	TYPICAL PAVEMENT MARKINGS
BLR21-8	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL ROADS

601101-01

INDEX OF SHEETS

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2	GENERAL NOTES; HIGHWAY STANDARDS; INDEX OF SHEETS
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5	TYPICAL SECTION; MIXTURE REQUIREMENTS
6-7	SCHEDULES OF QUANTITIES
8	PLAN & PROFILE SHEET
9	ROW SHEET
10	STAGE CONSTRUCTION PLAN
11	DETOUR SIGNING AND ROAD CLOSURE
12	HOT-MIX ASPHALT SHOULDER AND GUARDRAIL PLAN
13	EROSION CONTROL PLAN
14	DETAILS- BUTT JOINT, SEEDING & MULCHING STEP CONSTRUCTION ON EXISTING FILL
15-16	DETAILS- BRIDGE APPROACH PAVEMENT
17-22	CROSS SECTIONS
*23-47	STRUCTURE PLANS

* 35-37 NOT USED

Rev 10-20-09

Rev

Prepared By:	<i>Dani Hillman</i> DISTRICT STUDIES & PLANS ENGINEER
Examined By:	<i>James Travis Emer</i> DISTRICT LAND ACQUISITION ENGINEER
Examined By:	<i>Conni Nelson</i> DISTRICT PROGRAM DEVELOPMENT ENGINEER
Examined By:	<i>Scott Wiley</i> DISTRICT OPERATIONS ENGINEER
Examined By:	<i>Jim Swathlow</i> DISTRICT CONSTRUCTION ENGINEER
Examined By:	<i>[Signature]</i> DISTRICT MATERIALS ENGINEER
Examined By:	<i>Jim Swathlow</i> DISTRICT PROJECT IMPLEMENTATION ENGINEER
Examined By:	<i>[Signature]</i> ASSISTANT REGIONAL ENGINEER
Approved By:	<i>Mary C. Ramis</i> DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER
DATE	June 22 2009

FILE NAME =	USER NAME = halsteadtw	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	GENERAL NOTES, HIGHWAY STANDARDS AND INDEX OF SHEETS	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
c:\pw_work\PWIDOT\HALSTEADTW\dms49780	978064_sht_misc.dgn	DRAWN -	REVISED -			865	16B-2	PERRY	47	2	
	PLOT SCALE = 50,0000' / IN.	CHECKED -	REVISED -			SCALE: SHEET NO. OF SHEETS STA. TO STA.					
	PLOT DATE = 6/8/2009	DATE -	REVISED -			ILLINOIS FED. AID PROJECT CONTRACT NO. 78064					

Bench Mark: Square cut in top of asphalt located at S.W. corner of Structure 073-0024 Elev. 399.036.

Existing Structure: S.N. 073-0024 built 1927 as SBI-Route 152, Section 104 A, B, C at Station 875+10.0 as a 3 span reinforced concrete T-beam bridge, 160'-4 1/2" Bk.-to-Bk. abutments supported on untreated timber piles. Superstructure replacement and widening to 33'-0" out to out in 1980 at Station 875+13.10 with Simple Span PPC deck beams and bituminous wearing surface. Existing bridge to be removed and replaced. Traffic maintained utilizing stage construction.

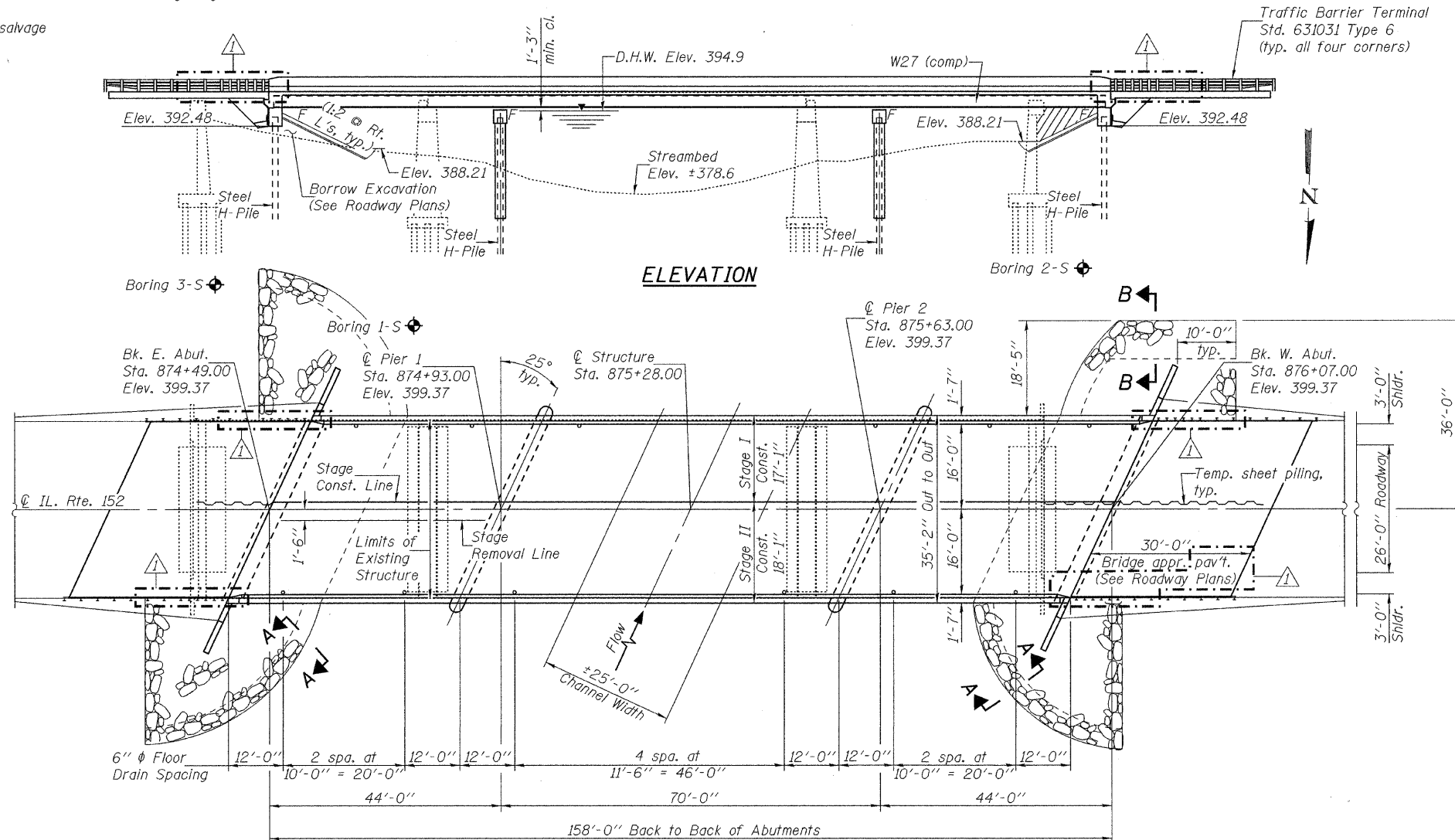
No salvage

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

Note:
Hatched area indicates channel excavation.
(See Roadway Plans)

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- 1 General Plan & Elevation
- 2 General Data
- 3 Stage Construction & Temporary Sheet Piling Details
- 4 Temporary Concrete Barrier for Stage Construction
- 5-7 Top of Slab Elevations
- 8 Top of East Approach Slab Elevation
- 9 Top of West Approach Slab Elevation
- 10 Superstructure
- 11 Superstructure Details
- 12 Diaphragm Details
- 13-15 (Intentionally Left Blank)
- 16 Structural Steel
- 17 Bearing & Structural Steel Details
- 18 East Abutment
- 19 West Abutment
- 20 Piers
- 21 Bar Splicer Assembly Details
- 22 Steel HP Pile Details
- 23-25 Soil Boring Logs



STATION 875+28.00
BUILT 20 BY
STATE OF ILLINOIS
F.A.P. RTE. 865 SEC. 16B-2
LOADING HL-93
STRUCTURE NO. 073-0037

NAME PLATE
See Std. 515001

LOADING HL-93
Allow 50#/sq. ft. for future wearing surface.
DESIGN SPECIFICATIONS
2007 AASHTO LRFD Bridge Design Specifications
with 2008 Interims

DESIGN STRESSES
FIELD UNITS

f'c = 3,500 psi
fy = 60,000 psi (Reinforcement)
fy = 50,000 psi (M270 Grade 50)
fy = 36,000 psi (M270 Grade 36)

SEISMIC DATA

Seismic Performance Zone (SPZ) = 3
Design Spectral Acceleration at 1.0 sec. (SD1) = 0.319 g
Design Spectral Acceleration at 0.2 sec. (SDS) = 0.7429 g
Soil Site Classification = D

DESIGN SCOUR ELEVATION TABLE

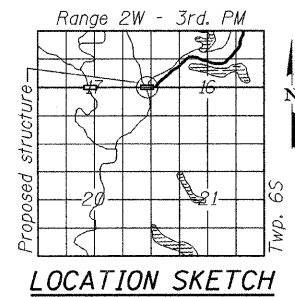
Design Scour Elevation (feet)	East Abut.	Pier 1	Pier 2	West Abut.
	392.48	367.56	367.56	392.48

WATERWAY INFORMATION

Drainage Area = 288.2 sq. mi. Prop. Low Grade Elev. 397.3 ft. @ Sta. 597+50

Freq. Yr.	Structure Number	Q (C.F.S.)		Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
		Exist.	Prop.	Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
10	073-0023	10,420	9,460	2,833	2,833	393.1	0.5	0.4	393.6	393.5
	073-0024	3,860	4,820	823	1,051					
	Total	14,280	14,280	3,656	3,884					
Design 50	073-0023	16,440	14,830	3,825	3,825	394.9	0.6	0.5	395.5	395.4
	073-0024	5,180	6,790	993	1,284					
	Total	21,620	21,620	4,818	5,109					
Base 100	073-0023	18,990	17,830	4,156	4,156	395.5	0.6	0.6	396.1	396.1
	073-0024	6,140	7,520	1,050	1,364					
	Total	24,690	24,690	5,206	5,520					
Max. Calc. 500	073-0023	27,200	24,710	4,928	4,928	397.0	1.2	1.4	398.2	398.4
	073-0024	5,610	8,100	1,142	1,568					
	Total	32,810	32,810	6,070	6,496					

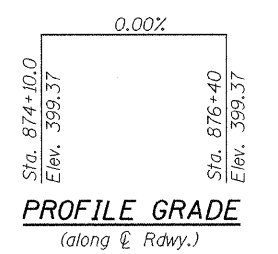
10 Year Velocity through Existing Bridge = 4.7 fps
10 Year Velocity through Prop. Bridge = 5.6 fps



LOCATION SKETCH

GENERAL PLAN & ELEVATION
IL. ROUTE 152 OVER PANTHER CREEK
F.A.P. ROUTE 865 - SECTION 16B-2
PERRY COUNTY
STATION 875+28.00
STRUCTURE NO. 073-0037

SHEET NO. 1	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	25 SHEETS	865	16B-2	PERRY	47
CONTRACT NO. 78064					
FED. ROAD DIST. NO. - ILLINOIS FED. AID PROJECT					



PROFILE GRADE
(along C Rdwy.)

DESIGNED <i>Stephen M. Ryan</i>	EXAMINED	ENGINEER OF BRIDGE DESIGN
CHECKED <i>Jay D. Edward</i>	PASSED	ENGINEER OF BRIDGES AND STRUCTURES
DRAWN <i>h.t. duong</i>		
CHECKED <i>SMR/SDE</i>		

EXPIRES 11-30-2010

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

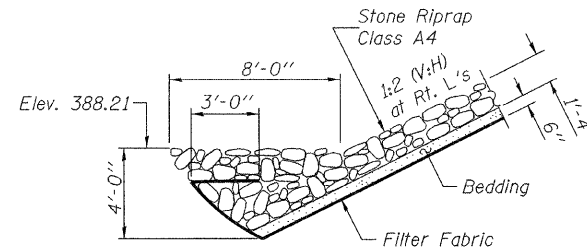
GENERAL NOTES

Fasteners shall be AASHTO M164 Type 1, mechanically galvanized bolts.
Bolts 7/8" φ, holes 15/16" φ, unless otherwise noted.
Calculated weight of Structural Steel = 102,820 lbs. (AASHTO M270 Grade 50)
= 12,180 lbs. (AASHTO M270 Grade 36)
No field welding is permitted except as specified in the contract documents.
Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60. See Special Provisions.

Reinforcement bars designated (E) shall be epoxy coated.
Bearing seat surfaces shall be constructed or adjusted to their designated elevations within a tolerance of 1/8 inch (0.01 ft.). Adjustment shall be made either by grinding the surface or by shimming the bearings.
The Inorganic Zinc Rich Primer / Acrylic / Acrylic Paint System shall be used for shop and field painting of new structural steel except where otherwise noted. The color of the final finish coat for all interior steel surfaces shall be gray, Munsell No. 5B 7/1. The color of the final finish coat for the exterior and bottom flange of the fascia beams shall be Interstate Green, Munsell No. 7.5G 4/8. See Special Provision for "Cleaning and Painting New Metal Structures".

Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.
The Contractor shall drive test piles to 110% of the nominal required bearing specified in production locations at substructures specified or approved by the Engineer before ordering the remainder of piles.
Slipforming of the parapets is not allowed.
The embankment configuration shown shall be the minimum that must be placed and compacted prior to construction of the abutments.
The Contractor shall submit Structural Assessment Report(s) as required for the Contractor's Means and Methods of Construction. See Special Provisions.
Current Ratings on File for Existing Structure

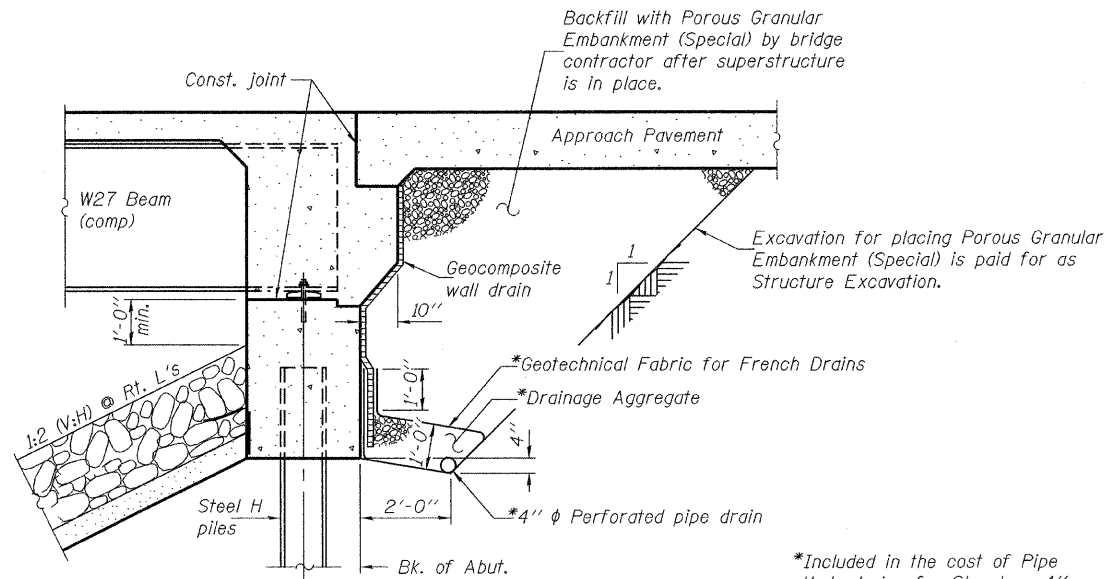
Inventory: HS 17.2
Operating: HS 29.9
Live Load Restriction: No
Inventory and Operating Ratings and Live Load Restrictions are provided for information only. Inventory and Operating Ratings are based on HS loading and configurations. The Ratings and Live Load Restrictions are not necessarily representative of capacities to support the Contractor's equipment.
The Contractor is advised that the existing structure contains members that are in a deteriorated condition with reduced load carrying capacity. It is the Contractor's responsibility to account for the condition of the existing structure when developing construction procedures for the complete or partial removal, or replacement of the structure. An Existing Structure Information Package is available upon request as noted in the special provisions.



SECTION A-A

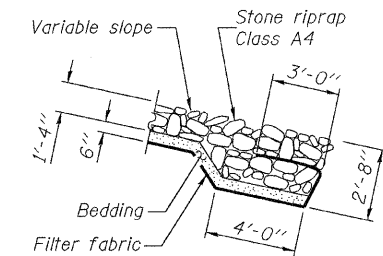
TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Porous Granular Embankment (Special)	Cu. Yd.		106	106
Stone Riprap, Class A4	Sq. Yd.		538	538
Filter Fabric	Sq. Yd.		538	538
Removal of Existing Structures	Each		1	1
Structure Excavation	Cu. Yd.		143	143
Floor Drains	Each	22		22
Concrete Structures	Cu. Yd.		140.4	140.4
Concrete Superstructure	Cu. Yd.	200.5		200.5
Bridge Deck Grooving	Sq. Yd.	527		527
Concrete Encasement	Cu. Yd.		12.2	12.2
Protective Coat	Sq. Yd.	702		702
Furnishing and Erecting Structural Steel	L. Sum	1		1
Stud Shear Connectors	Each	3078		3078
Reinforcement Bars, Epoxy Coated	Pound	47410	14990	62400
Bar Splicers	Each	543	88	631
Furnishing Steel Piles HP12x74	Foot		770	770
Driving Piles	Foot		1380	1380
Test Pile Steel HP12x74	Each		2	2
Furnishing Steel Piles HP14x73	Foot		610	610
Test Pile Steel HP14x73	Each		2	2
Temporary Sheet Piling	Sq. Ft.		575	575
Name Plates	Each	1		1
Anchor Bolts 1"	Each	48		48
Geocomposite Wall Drain	Sq. Yd.		63.2	63.2
Pipe Underdrains for Structures, 4"	Foot		156	156
Underwater Structure Excavation Protection, Location 1	Each		1	1
Underwater Structure Excavation Protection, Location 2	Each		1	1
Mechanical Splice	Each		72	72
Asbestos Bearing Pad Removal	Each		22	22



SECTION THRU INTEGRAL ABUTMENT

All drainage system components shall extend to 2'-0" from the end of each wingwall except an outlet pipe shall extend 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 B-B
S.W. Riprap quadrant only.

DESIGNED	Stephen M. Ryan
CHECKED	Jay D. Edwards
DRAWN	h.t. duong
CHECKED	SMR/JDE

EXAMINED	Thomas J. Domagala ENGINEER OF BRIDGE DESIGN
PASSED	Ralph E. Anderson ENGINEER OF BRIDGES AND STRUCTURES

Sep. 30, 2009

GENERAL DATA
STRUCTURE NO. 073-0037

SHEET NO. 2 25 SHEETS	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	865	16B-2	PERRY	47	24
CONTRACT NO. 78064					
FED. ROAD DIST. NO. _ ILLINOIS FED. AID PROJECT					

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOUTH CURB LINE

Location	Station	Offset	Theoretical Grade Elevations
East End E. Appr. Pav't.	87426.46	-16.00	399.10
	87436.46	-16.00	399.10
	87446.46	-16.00	399.10
West End E. Appr. Pav't.	87456.46	-16.00	399.10

SOUTH EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
East End E. Appr. Pav't.	87424.60	-12.00	399.18
	87434.60	-12.00	399.18
	87444.60	-12.00	399.18
West End E. Appr. Pav't.	87454.60	-12.00	399.18

STAGE CONSTRUCTION JOINT

Location	Station	Offset	Theoretical Grade Elevations
East End E. Appr. Pav't.	87419.23	-0.50	399.36
	87429.23	-0.50	399.36
	87439.23	-0.50	399.36
West End E. Appr. Pav't.	87449.23	-0.50	399.36

RDWAY & PROFILE GRADE

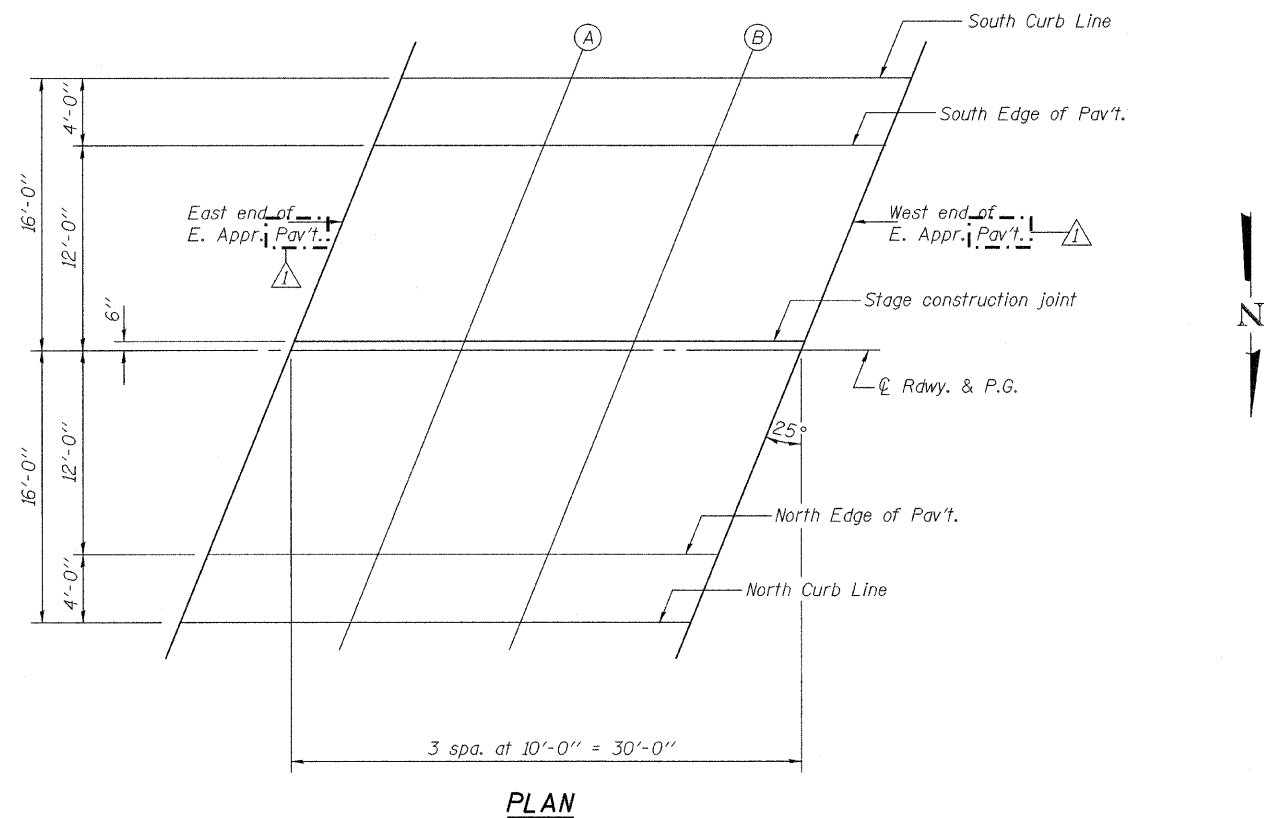
Location	Station	Offset	Theoretical Grade Elevations
East End E. Appr. Pav't.	87419.00	0.00	399.37
	87429.00	0.00	399.37
	87439.00	0.00	399.37
West End E. Appr. Pav't.	87449.00	0.00	399.37

NORTH EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
East End E. Appr. Pav't.	87413.40	12.00	399.18
	87423.40	12.00	399.18
	87433.40	12.00	399.18
West End E. Appr. Pav't.	87443.40	12.00	399.18

NORTH CURB LINE

Location	Station	Offset	Theoretical Grade Elevations
East End E. Appr. Pav't.	87411.54	16.00	399.10
	87421.54	16.00	399.10
	87431.54	16.00	399.10
West End E. Appr. Pav't.	87441.54	16.00	399.10



TOP OF EAST APPROACH PAVEMENT ELEVATIONS
STRUCTURE NO. 073-0037

DESIGNED	Stephen M. Ryan
CHECKED	Jay D. Edwards
DRAWN	h.t. duong
CHECKED	SMR/JDE

EXAMINED	Thomas J. Domagalick ENGINEER OF BRIDGE DESIGN
PASSED	Ralph E. Anderson ENGINEER OF BRIDGES AND STRUCTURES

Sep. 30, 2009

SHEET NO. 8	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	865	16B-2	PERRY	47	30
25 SHEETS	CONTRACT NO. 78064				
FED. ROAD DIST. NO. _ ILLINOIS FED. AID PROJECT					

Revised 10/14/2009, SMR

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOUTH CURB LINE

Location	Station	Offset	Theoretical Grade Elevations
East End W. Appr. Pav't.	87614.46	-16.00	399.10
	87624.46	-16.00	399.10
	87634.46	-16.00	399.10
West End W. Appr. Pav't.	87644.46	-16.00	399.10

SOUTH EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
East End W. Appr. Pav't.	87612.60	-12.00	399.18
	87622.60	-12.00	399.18
	87632.60	-12.00	399.18
West End W. Appr. Pav't.	87642.60	-12.00	399.18

STAGE CONSTRUCTION JOINT

Location	Station	Offset	Theoretical Grade Elevations
East End W. Appr. Pav't.	87607.23	-0.50	399.36
	87617.23	-0.50	399.36
	87627.23	-0.50	399.36
West End W. Appr. Pav't.	87637.23	-0.50	399.36

☉ ROADWAY & PROFILE GRADE

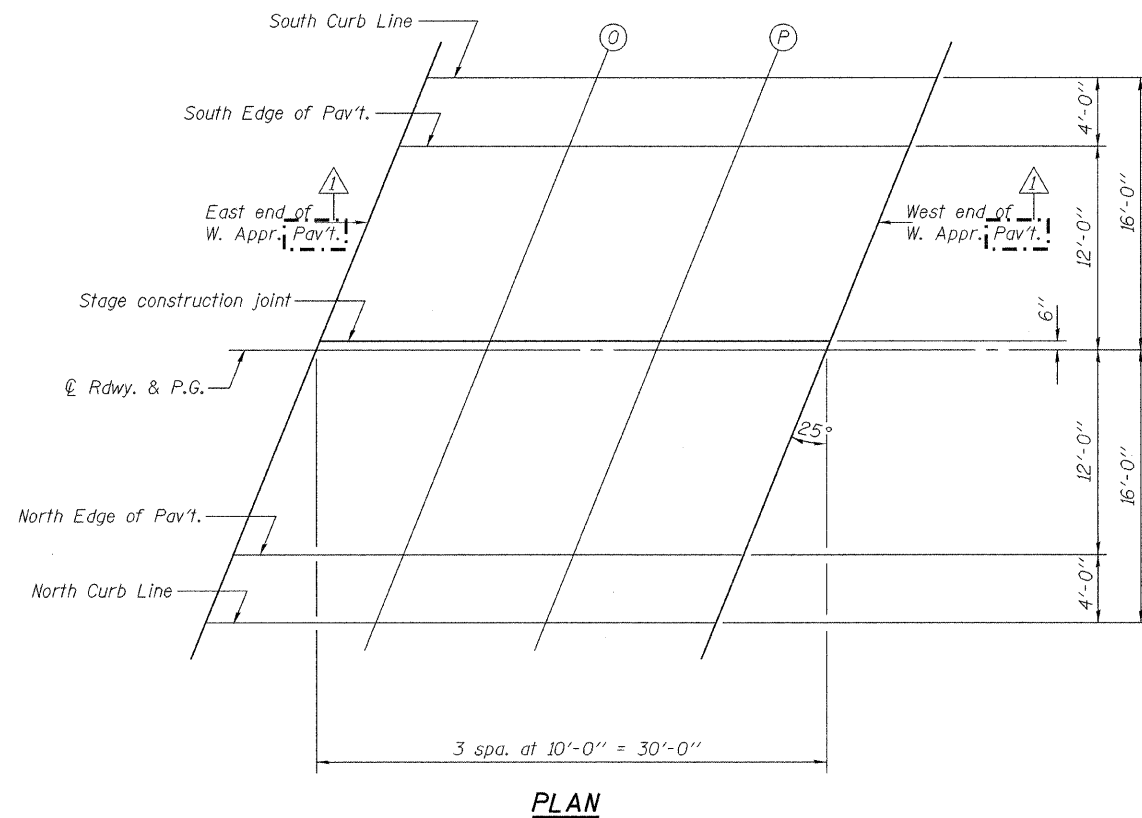
Location	Station	Offset	Theoretical Grade Elevations
East End W. Appr. Pav't.	87607.00	0.00	399.37
	87617.00	0.00	399.37
	87627.00	0.00	399.37
West End W. Appr. Pav't.	87637.00	0.00	399.37

NORTH EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
East End W. Appr. Pav't.	87601.40	12.00	399.18
	87611.40	12.00	399.18
	87621.40	12.00	399.18
West End W. Appr. Pav't.	87631.40	12.00	399.18

NORTH CURB LINE

Location	Station	Offset	Theoretical Grade Elevations
East End W. Appr. Pav't.	87599.54	16.00	399.10
	87609.54	16.00	399.10
	87619.54	16.00	399.10
West End W. Appr. Pav't.	87629.54	16.00	399.10



TOP OF WEST APPROACH PAVEMENT ELEVATIONS
STRUCTURE NO. 073-0037

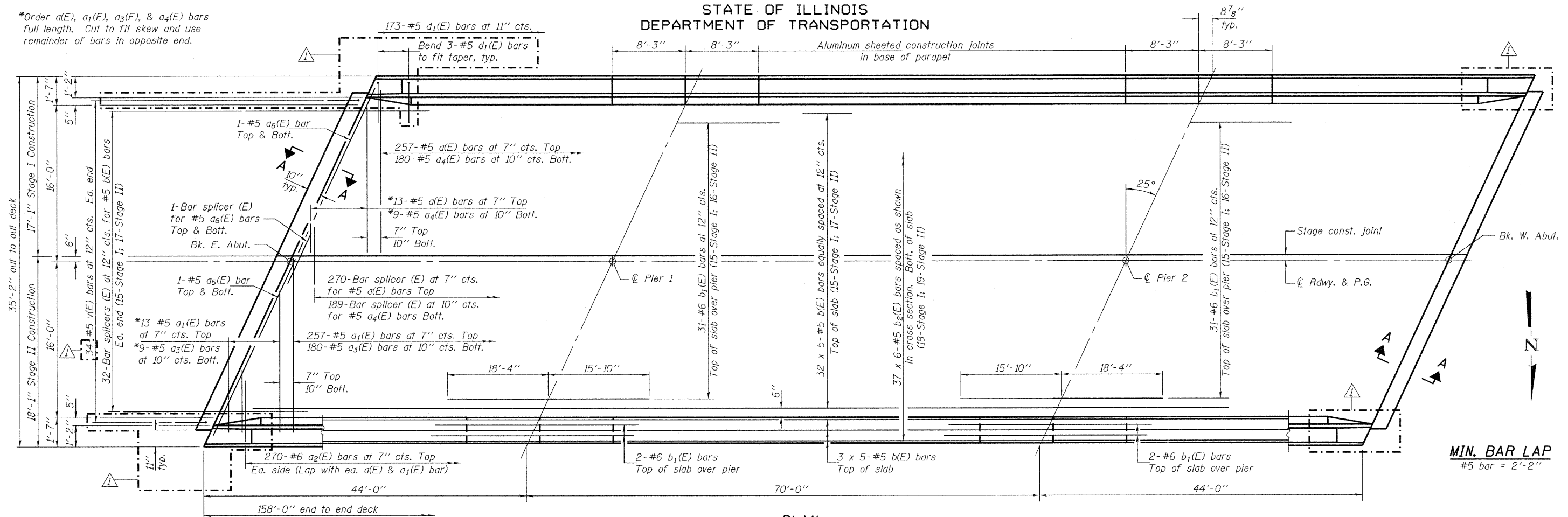
DESIGNED	Stephen M. Ryan
CHECKED	Jay D. Edwards
DRAWN	h.t. duong
CHECKED	SMR/JDE

EXAMINED	Thomas J. Domagalick ENGINEER OF BRIDGE DESIGN
PASSED	Ralph E. Anderson ENGINEER OF BRIDGES AND STRUCTURES

SHEET NO. 9 25 SHEETS	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	865	16B-2	PERRY	47	31
CONTRACT NO. 78064					
FED. ROAD DIST. NO. _ ILLINOIS FED. AID PROJECT					

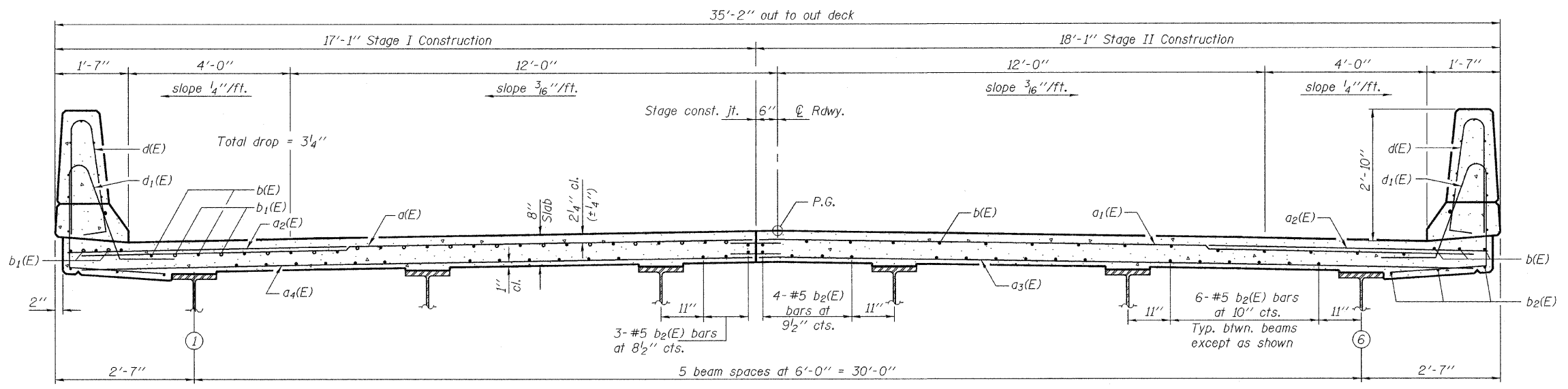
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

*Order a(E), a₁(E), a₃(E), & a₄(E) bars full length. Cut to fit skew and use remainder of bars in opposite end.



PLAN

Notes: See sheet 11 of 25 for superstructure details and Bill of Material.
Bars indicated thus 20 x 5-#5 etc. indicates 20 lines of bars with 5 lengths per line.
See sheet 11 of 25 for parapet reinforcement.
See sheet 12 of 25 for Section A-A.



CROSS SECTION
(Looking West)

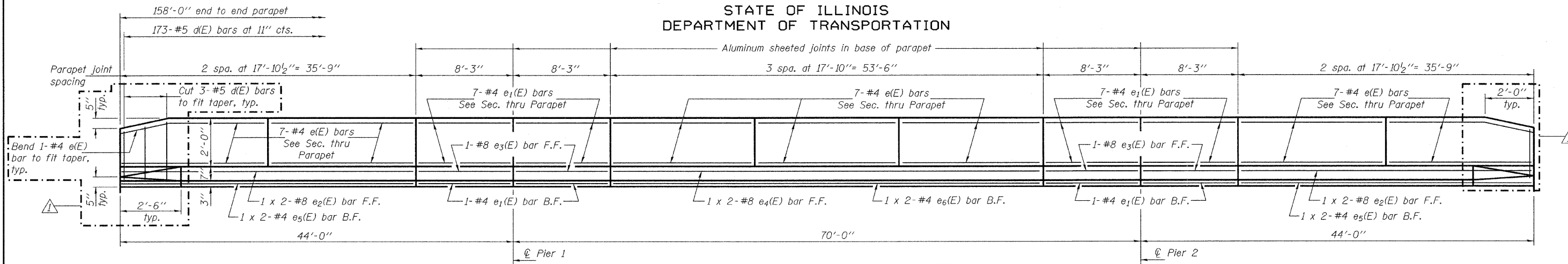
DESIGNED	Stephen M. Ryan
CHECKED	Jay D. Edwards
DRAWN	h.t. duong
CHECKED	SMR/JDE

Sep. 30, 2009
EXAMINED *Thomas J. Demagala*
PASSED *Ralph E. Anderson*
ENGINEER OF BRIDGES AND STRUCTURES

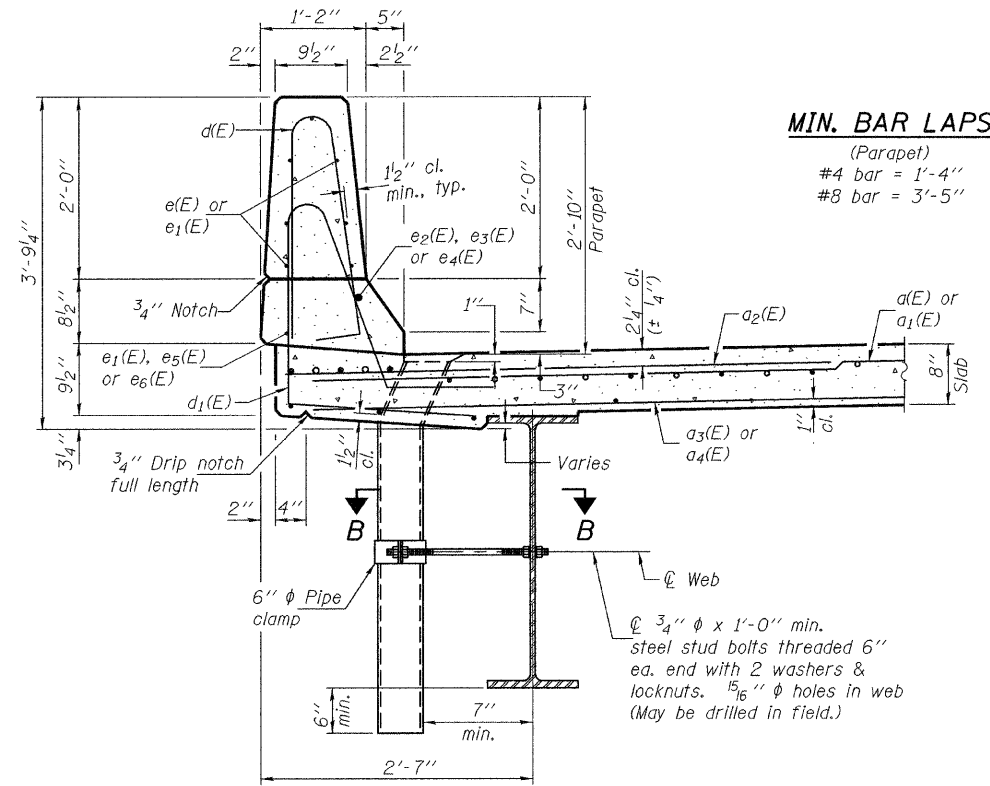
SUPERSTRUCTURE
STRUCTURE NO. 073-0037

SHEET NO. 10 25 SHEETS	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	865	16B-2	PERRY	47	32
CONTRACT NO. 78064					
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT					

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



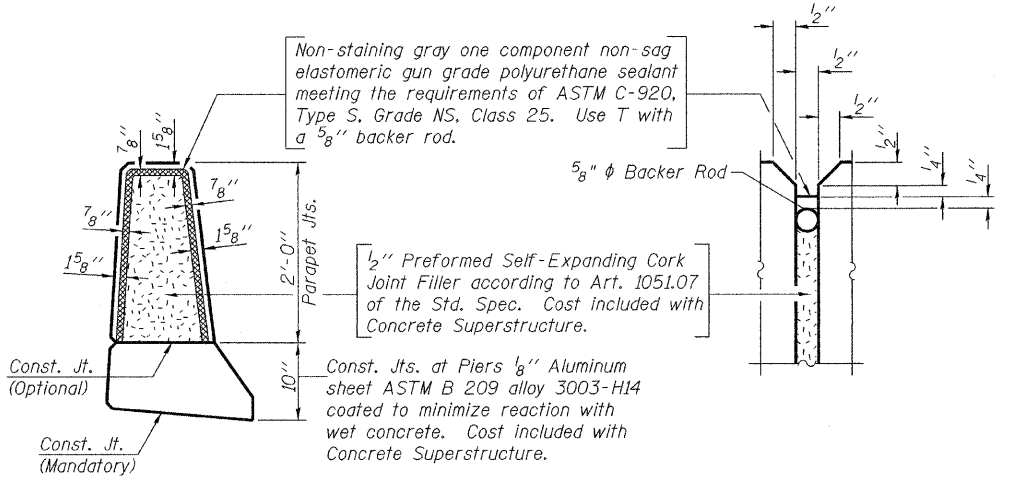
INSIDE ELEVATION OF PARAPET



SECTION THRU PARAPET

MIN. BAR LAPS

(Parapet)
#4 bar = 1'-4"
#8 bar = 3'-5"



PARAPET JOINT DETAILS

Notes:
The exterior surfaces of the floor drains shall be painted with the finish coat as specified in the special provisions for Cleaning and Painting New Metal Structures. The exterior surfaces of the drains shall be cleaned according to Society of Protective Coatings Spec. SSPC-SP1 prior to painting.
Fiberglass pipe shall conform to ASTM D 2996, with short-time rupture strength hoop tensile stress of 30,000 p.s.i. minimum.

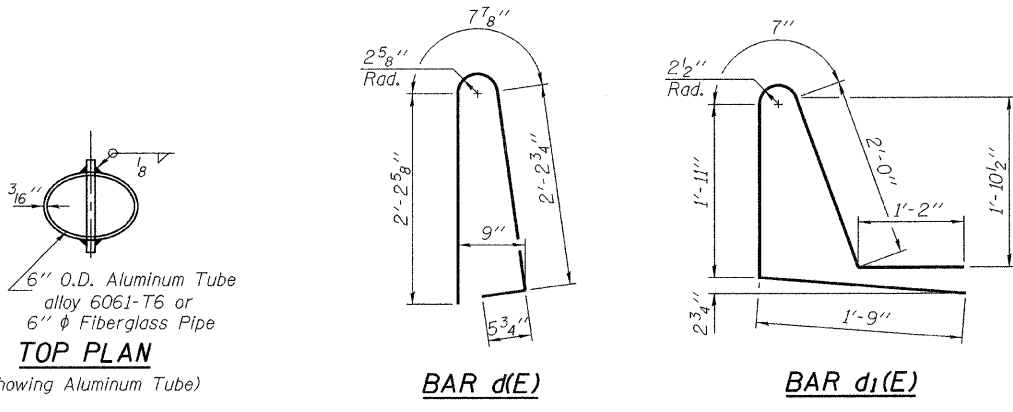
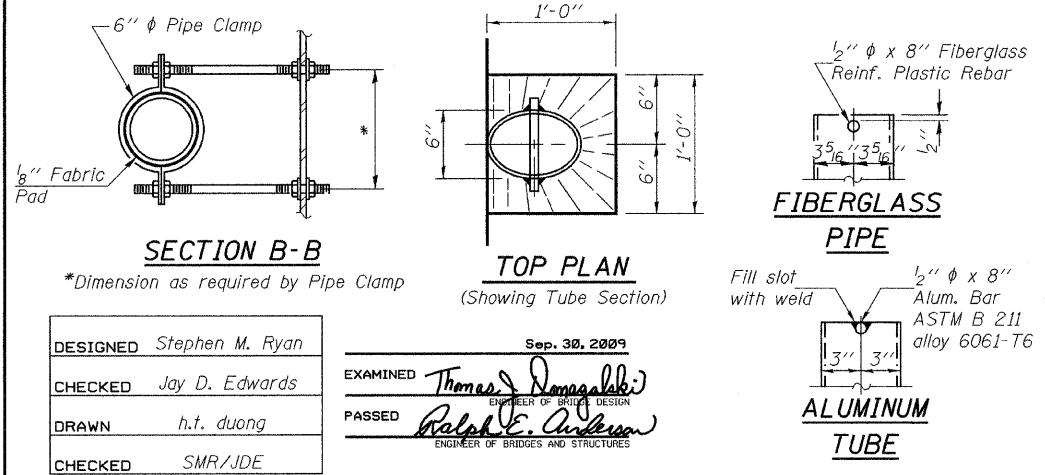
SUPERSTRUCTURE
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
d(E)	270	#5	16'-7"	
a1(E)	270	#5	17'-7"	
a2(E)	540	#6	6'-0"	
a3(E)	189	#5	17'-1"	
a4(E)	189	#5	16'-1"	
a5(E)	4	#5	19'-4"	
a6(E)	4	#5	18'-4"	
b(E)	190	#5	33'-4"	
b1(E)	70	#6	34'-2"	
b2(E)	222	#5	28'-2"	
d(E)	346	#5	5'-7"	
d1(E)	346	#5	7'-5"	
e(E)	98	#4	17'-6"	
e1(E)	64	#4	7'-11"	
e2(E)	8	#8	19'-5"	
e3(E)	8	#8	7'-11"	
e4(E)	4	#8	28'-4"	
e5(E)	8	#4	18'-5"	
e6(E)	8	#4	27'-3"	
m(E)	4	#6	17'-7"	
m1(E)	4	#6	18'-8"	
m2(E)	6	#6	18'-7"	
m3(E)	6	#6	19'-8"	
m4(E)	12	#6	7'-11"	
m5(E)	12	#6	8'-3"	
m6(E)	4	#6	2'-6"	
m7(E)	10	#6	6'-3"	
s(E)	82	#5	5'-5"	
s1(E)	92	#4	8'-10"	
v(E)	168	#5	3'-4"	
Reinforcement Bars, Epoxy Coated		Pound	47410	
Concrete Superstructure		Cu. Yds.	200.5	

Bars Indicated thus 1 x 2-#8 etc. indicates 1 line of bars with 2 lengths per line.

SUPERSTRUCTURE DETAILS
STRUCTURE NO. 073-0037

SHEET NO. 11 25 SHEETS	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	865	16B-2	PERRY	47	33
CONTRACT NO. 78064					
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT					



DESIGNED Stephen M. Ryan
CHECKED Jay D. Edwards
DRAWN h.t. duong
CHECKED SMR/JDE

EXAMINED Thomas J. Domagala
PASSED Ralph E. Anderson

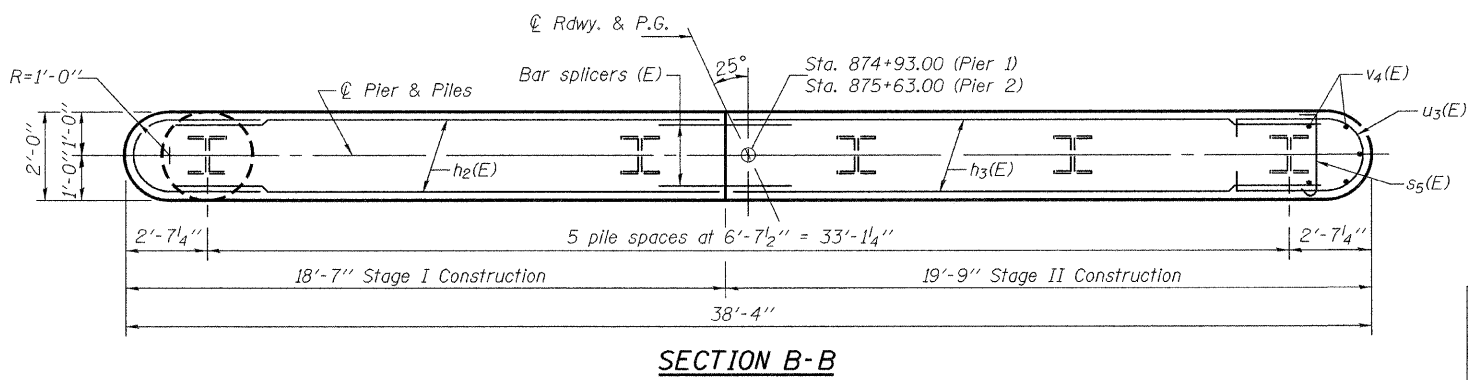
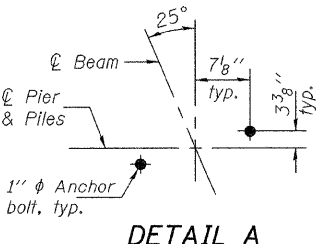
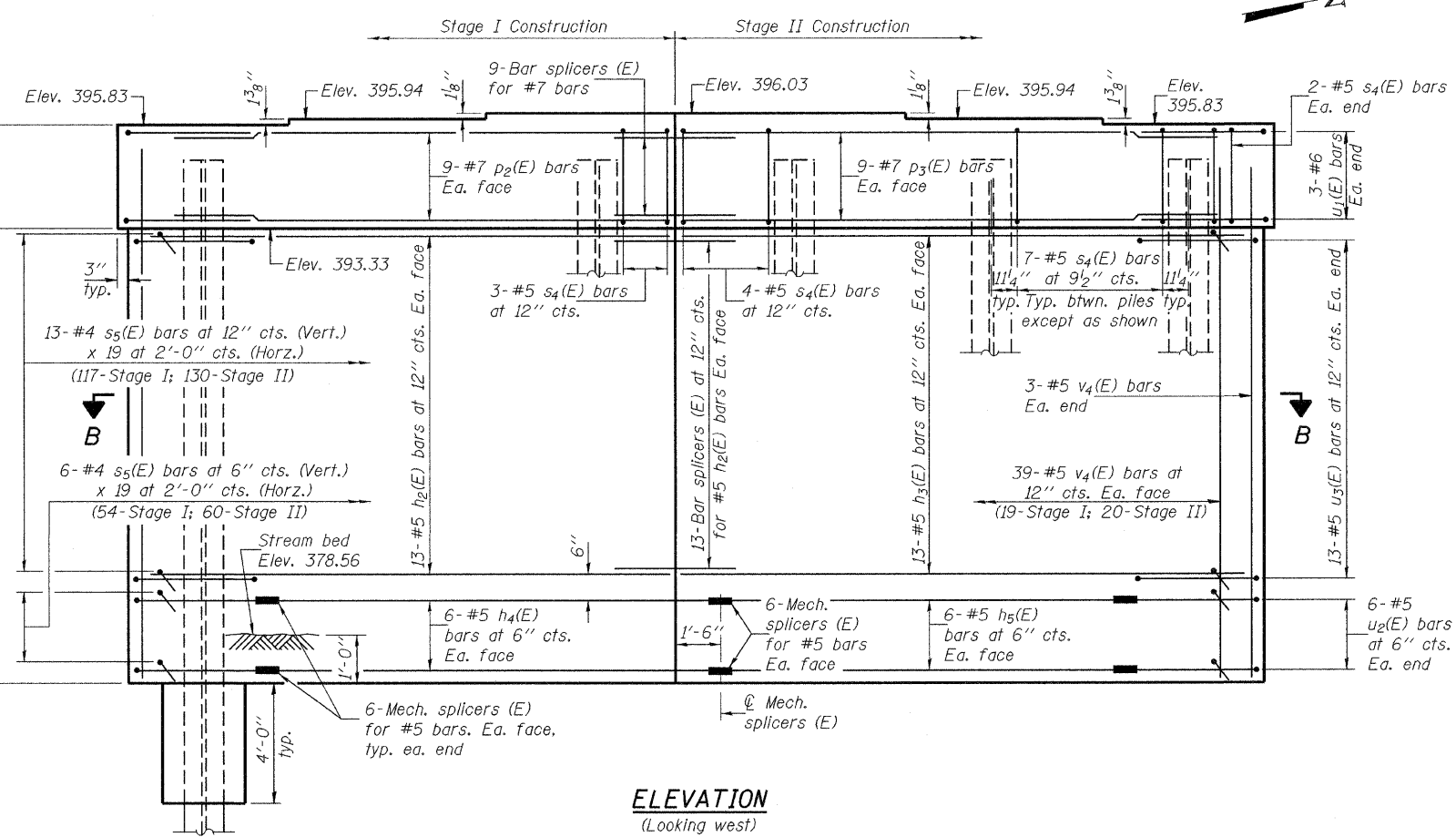
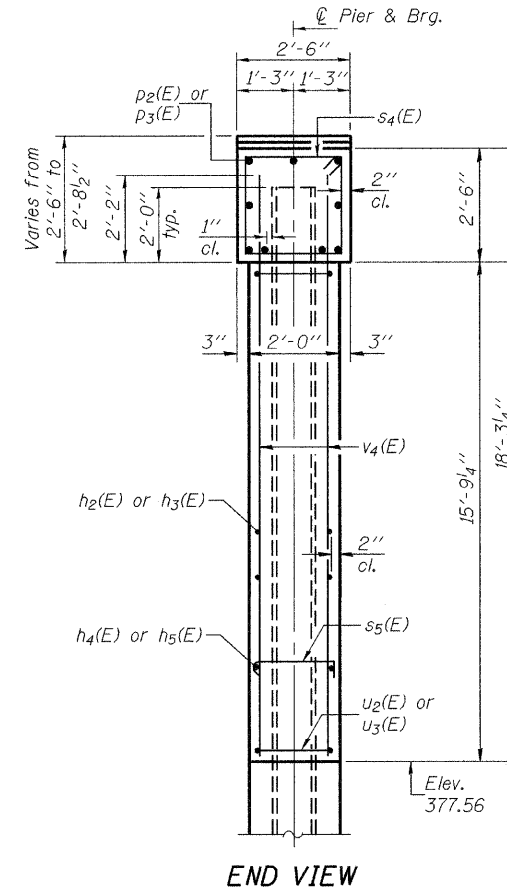
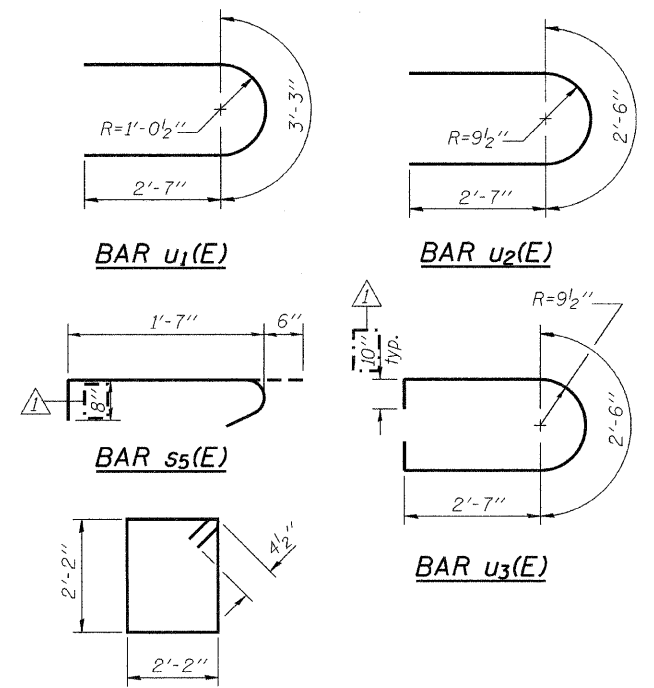
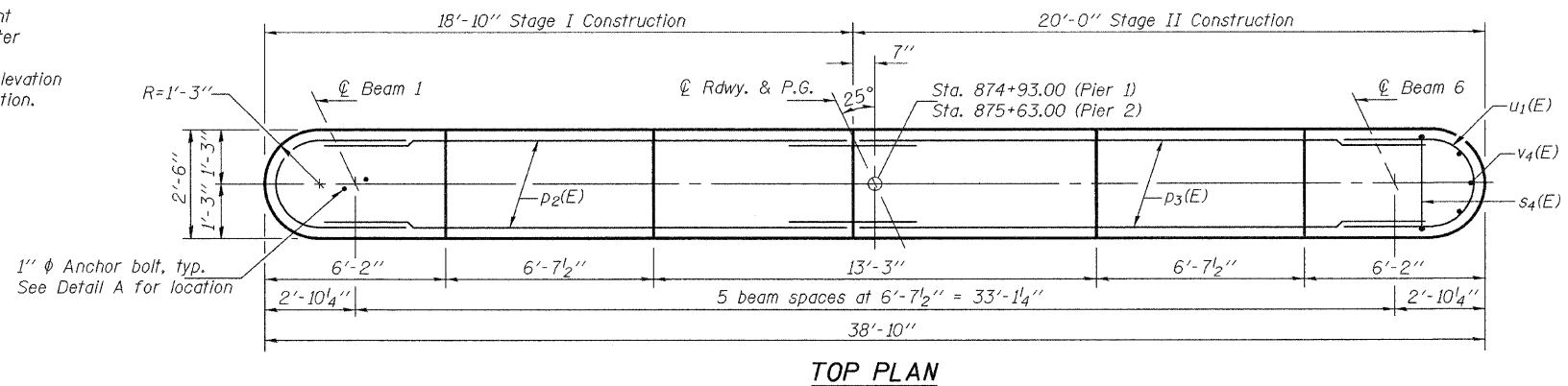
SEP. 30, 2009

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

Notes:
Space reinforcement in cap to miss anchor bolts.
Pour steps monolithically with cap.
For details of piles, see sheet 22 of 25.
If a portion of the pier wall or concrete encasement is under water, reinforcement may be placed underwater into forms. Concrete shall be tremied according to Article 503.08 of the Standard Specifications to an elevation of 1'-0" above the water line at the time of construction.

PILE DATA

Type: Steel HP12x74
Nominal Required Bearing: 589 Kips
Factored Resistance Available: 294 Kips
Est. Length: 77'
No. Production Piles: 10
No. Test Piles: 2



**TWO PIERS
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h2(E)	52	#5	17'-5"	—
h3(E)	52	#5	18'-7"	—
h4(E)	24	#5	16'-6"	—
h5(E)	24	#5	14'-8"	—
p2(E)	18	#7	17'-5"	—
p3(E)	18	#7	18'-7"	—
s4(E)	78	#5	9'-5"	□
s5(E)	722	#4	2'-1 1/4"	J
u1(E)	12	#6	8'-5"	U
u2(E)	24	#5	7'-8"	U
u3(E)	52	#5	9'-4"	U
v4(E)	168	#5	17'-9"	—
Structure Excavation		Cu. Yd.	94.0	
Concrete Structures		Cu. Yd.	107.0	
Reinforcement Bars, Epoxy Coated		Pound	10190	
Furnishing Steel Piles HP12x74		Foot	770	
Driving Piles		Foot	770	
Test Pile Steel HP12x74		Each	2	
Anchor Bolts, 1"		Each	24	
Concrete Encasement		Cu. Yd.	5.6	
Mechanical Splice		Each	72	
Underwater Structure Excavation Protection, Location 1		Each	1	
Underwater Structure Excavation Protection, Location 2		Each	1	

**PIERS 1 & 2
STRUCTURE NO. 073-0037**

DESIGNED	Stephen M. Ryan
CHECKED	Jay D. Edwards
DRAWN	h.t. duong
CHECKED	SMR/JDE

EXAMINED	Thomas J. Demagala
PASSED	Ralph E. Anderson

SHEET NO. 20 25 SHEETS	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	865	16B-2	PERRY	47	42
CONTRACT NO. 78064					
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT					

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

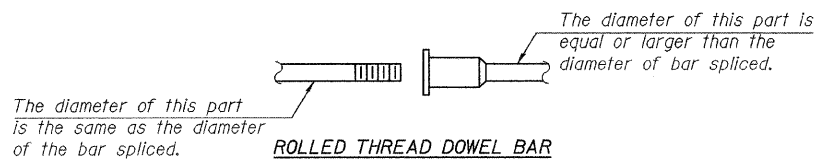
NOTES

Bar splicer assemblies shall be of an approved type and shall develop in tension at least 125 percent of the yield strength of the lapped reinforcement bars.
Splicer rods shall be of minimum 60 ksi yield strength, threaded or coiled full length.
All reinforcement bars shall be lapped and tied to the splicer rods or dowel bars.
Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars.
Other systems of similar design may be submitted to the Engineer for approval. Approval shall be based on certified test results from an approved testing laboratory that the proposed bar splicer assembly satisfies the following requirements:

- ① Minimum Capacity = $1.25 \times f_y \times A_t$
(Tension in kips)
- ② Minimum *Pull-out Strength = $0.66 \times f_y \times A_t$
(Tension in kips)

Where f_y = Yield strength of lapped reinforcement bars in ksi.
 A_t = Tensile stress area of lapped reinforcement bars.
* = 28 day concrete

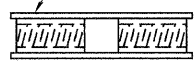
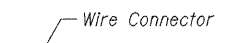
Bar Size to be Spliced	Splicer Rod or Dowel Bar Length	Strength Requirements	
		Min. Capacity kips - tension	Min. Pull-Out Strength kips - tension
#4	1'-8"	14.7	7.9
#5	2'-2"	23.0	12.3
#6	2'-7"	33.1	17.4
#7	3'-5"	45.1	23.8
#8	4'-6"	58.9	31.3
#9	5'-9"	75.0	39.6
#10	7'-3"	95.0	50.3
#11	9'-0"	117.4	61.8



ROLLED THREAD DOWEL BAR



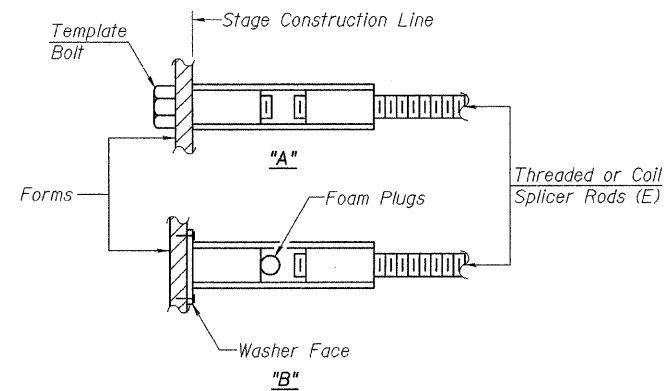
** ONE PIECE



WELDED SECTIONS

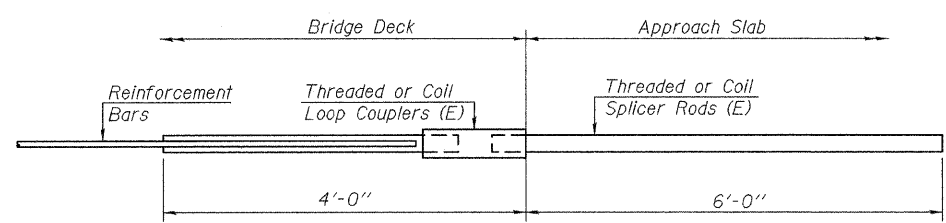
BAR SPLICER ASSEMBLY ALTERNATIVES

**Heavy Hex Nuts conforming to ASTM A 563, Grade C, D or DH may be used.



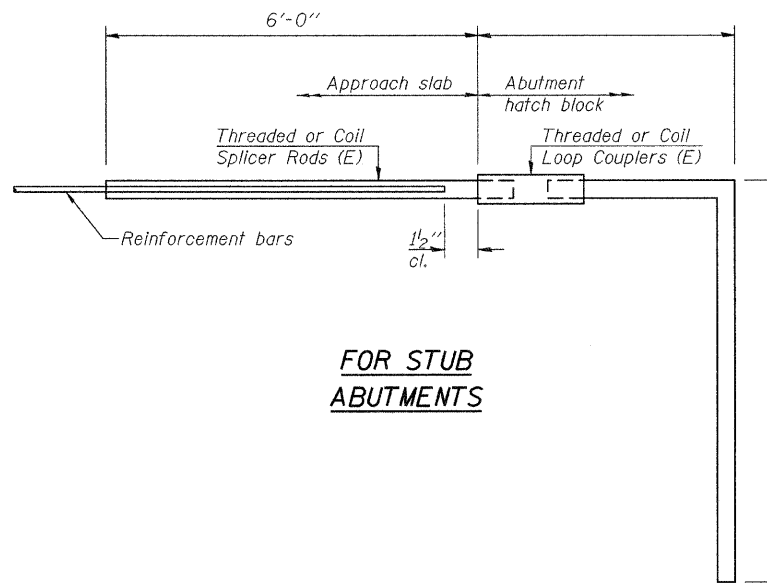
INSTALLATION AND SETTING METHODS

"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.



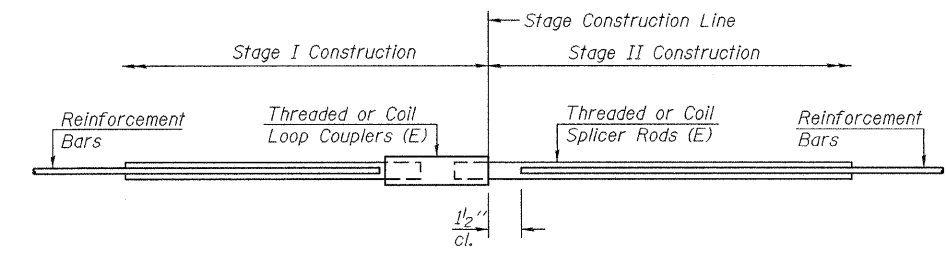
FOR INTEGRAL OR SEMI-INTEGRAL ABUTMENTS

Bar Splicer for #5 bar	
Min. Capacity =	23.0 kips - tension
Min. Pull-out Strength =	12.3 kips - tension
No. Required =	64



FOR STUB ABUTMENTS

Bar Splicer for #5 bar	
Min. Capacity =	23.0 kips - tension
Min. Pull-out Strength =	12.3 kips - tension
No. Required =	



STANDARD

Bar Size	No. Assemblies Required	Location
#5	463	Deck
#6	16	Diaphragm
#7	18	Abutments
#7	18	Piers
#5	52	Piers Sub.

BAR SPLICER ASSEMBLY DETAILS
STRUCTURE NO. 073-0037

DESIGNED	Stephen M. Ryan
CHECKED	Jay D. Edwards
DRAWN	h.t. duong
CHECKED	SMR/JDE

EXAMINED	Thomas J. Domagalick ENGINEER OF BRIDGE DESIGN
PASSED	Ralph E. Anderson ENGINEER OF BRIDGES AND STRUCTURES

BSD-1 10-1-08

SHEET NO. 21 25 SHEETS	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	865	16B-2	PERRY	47	43
CONTRACT NO. 78064					
FED. ROAD DIST. NO. - ILLINOIS FED. AID PROJECT					