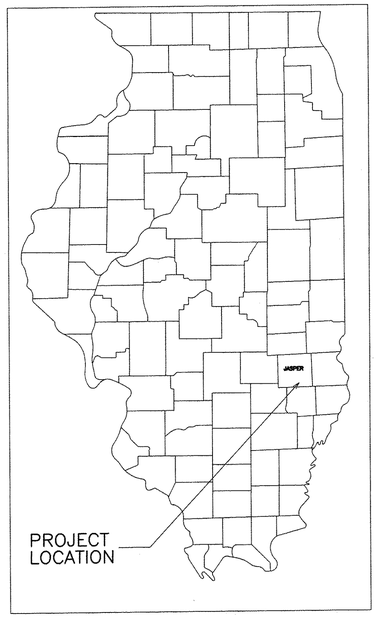
1-17-14 LETTING ITEM 131

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R 319	07-02123-00-BR	JASPER	16	1
CONTRACT NO. 95723		ILLINOIS		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PLANS FOR PROPOSED
SURFACE TRANSPORTATION PROGRAM – BRIDGE

SECTION 07-02123-00-BR JASPER COUNTY
PROJECT BROS-079(148)
JOB NO. C-97-060-12
FOX ROAD DISTRICT
T.R. 319

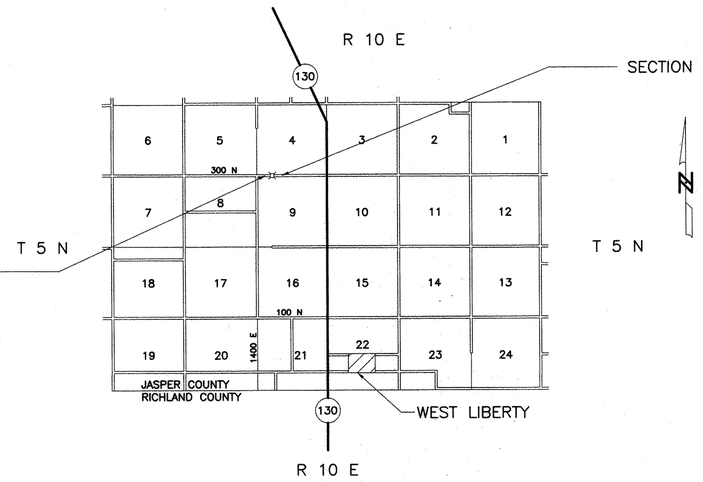


INDEX OF SHEETS

PLAN 0 50' 100'
PROFILE HOR. 0 50' 100'
PROFILE VERT. 0 5' 10'
CROSS SECTIONS
HOR. 0 10' 20'
VERT. 0 10' 20'

Joint Utility Locating Information for Excavators

JULIE 1-800-892-0123



SECTION 07-02123-00-BR BEGINS STA. 3+50.00

THREE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE
80'-1 1/2" BK.- BK. ABUTMENTS
STEEL PILE / SPILLTHROUGH ABUTMENTS
STEEL PILE / CONCRETE PIERS
28' DECK
15° SKEW RT. FORWARD
EXISTING STRUCTURE NO. 040-3127
PROPOSED STRUCTURE NO. 040-3268

NET LENGTH SECTION 07-02123-00-BR = 650.00 Ft. = 0.123 Mi.

FUNCTIONAL CLASSIFICATION – LOCAL ROAD
ADT = 175
DESIGN SPEED = 30 MPH

MICHAEL R. BRIDGES
LICENSED PROFESSIONAL ENGINEER OF ILLINOIS
10-29-2013
LIC EXP. 11-30-13

CHARLESTON ENGINEERING, INC.
CONSULTING ENGINEERS
105 NORTH KITCHELL
P.O. BOX 397
OLNEY, ILLINOIS 62450
(618) 392-0736
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

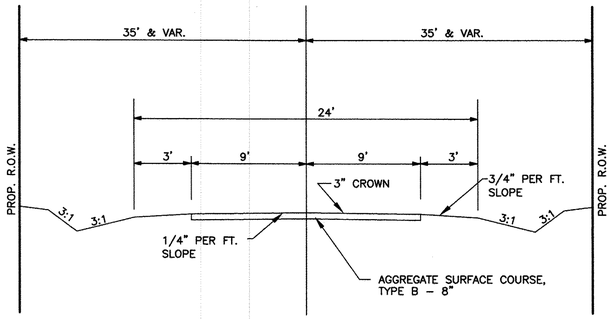
APPROVED 10-25 2013
Richard A. Patterson
COUNTY ENGINEER

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PASSED 11-5 2013
Maureen Kastl
DISTRICT SEVEN ENGINEER OF
LOCAL ROADS AND STREETS

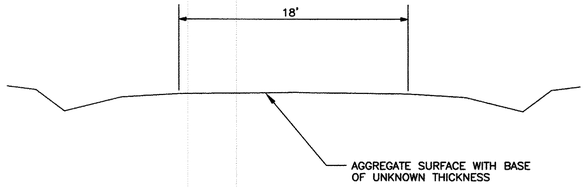
Releasing For Bid Based on Limited Review 11-5 2013
Rodney L. Grisshelm
DEPUTY DIRECTOR OF HIGHWAYS
REGION FOUR ENGINEER

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 319	07-02123-00-BR	JASPER	16	2
CONTRACT NO. 95723		ILLINOIS		



TYPICAL SECTION

PROPOSED



TYPICAL SECTION

EXISTING

DESIGN DATA

LOCAL ROAD
ADT = 175

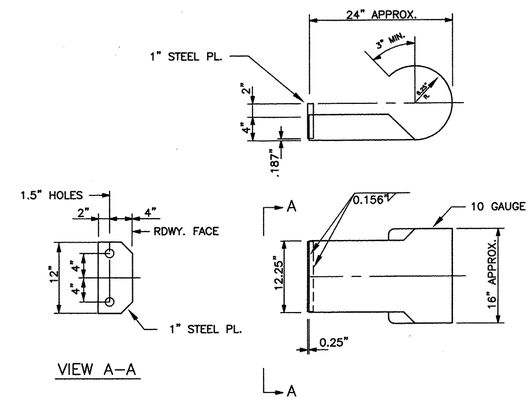
GENERAL NOTES

1. SEEDING: THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE APPLICABLE PORTIONS OF SECTION 250 OF THE STANDARD SPECIFICATIONS AND SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR SEEDING CLASS 2 (SPECIAL).
   A. SPRING SEEDING SHALL EXTEND FROM JANUARY 1 TO JUNE 30
      FALL SEEDING SHALL EXTEND FROM JULY 1 TO DECEMBER 31
   B. FERTILIZER NUTRIENTS SHALL BE APPLIED AT THE RATE OF 100 LB/ACRE
   C. MULCHING SHALL BE DONE IN ACCORDANCE WITH ARTICLE 251 OF THE STANDARD SPECIFICATIONS AND SHALL BE DONE BY METHOD 2, PROCEDURE 1 AT THE RATE OF 2 TONS PER ACRE.
2. NO PAYMENT FOR OVERHAUL WILL BE MADE ON THIS SECTION.

SUMMARY OF QUANTITIES

CODE NO.	ITEM	UNIT	QUANTITY
Δ LR631020	TRAFFIC BARRIER TERMINAL, TYPE 1	EACH	2
X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.70
20200100	EARTH EXCAVATION	CU YD	70
20300100	CHANNEL EXCAVATION	CU YD	285
20400800	FURNISHED EXCAVATION	CU YD	2670
28000305	TEMPORARY DITCH CHECKS	FOOT	22
28100807	STONE DUMPED RIPRAP, CLASS A4	TON	190
35101400	AGGREGATE BASE COURSE, TYPE B	TON	70
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	500
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50300225	CONCRETE STRUCTURES	CU YD	104.2
50300280	CONCRETE ENCASEMENT	CU YD	3.6
50400305	PRECAST PRESTRESSED CONCRETE DECK BEAMS (17" DEPTH)	SQ FT	2182
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	9240
Δ 50900205	STEEL RAILING, TYPE S1	FOOT	160
51201400	FURNISHING STEEL PILES HP 10X42	FOOT	450
51202305	DRIVING PILES	FOOT	450
51203400	TEST PILE STEEL HP 10X42	EACH	2
51204650	PILE SHOES	EACH	18
51500100	NAME PLATES	EACH	1
542A0241	PIPE CULVERTS, CLASS A, TYPE 1 36"	FOOT	28
54213681	PRECAST REINFORCED CONCRETE FLARED END SECTIONS 36"	EACH	2
Δ 63100075	TRAFFIC BARRIER TERMINAL, TYPE 5A	EACH	2
67100100	MOBILIZATION	L. SUM	1

Δ SPECIALTY ITEMS



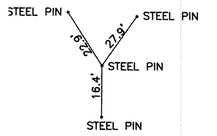
CURLED END SECTION DETAILS

2 REQUIRED - COST INCLUDED IN "STEEL RAILING, TYPE S-1"

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 319	07-02123-00-BR	JASPER	16	3
CONTRACT NO. 95723		ILLINOIS		

SCALES:
1" = 50' HOR
1" = 5' VER

ES P.O.T. STA. 3+00.00



SECTION 07-02123-00-BR BEGINS STA. 3+50.00

CIRCULAR
D = 02°41'52"
Da = 01°20'09"
Dc = 01°20'09"
T = 101.00
R = 4289.12
L = 201.96
C = 201.94
E = 1.19
M = 1.19
PI Sta = 5+00.00

CIRCULAR
D = 01°22'39"
Da = 00°40'55"
Dc = 00°40'55"
T = 101.00
R = 8402.44
L = 201.99
C = 201.99
E = 0.61
M = 0.61
PI Sta = 7+99.96

PC Sta = 3+99.00
PT Sta = 4+00.96
PC Sta = 6+98.96
PT Sta = 9+00.95

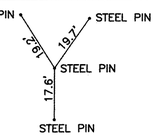
PROPOSED GUARDRAIL
PROPOSED GUARDRAIL
FOX
RIVER

EXIST. R.O.W.
EXIST. R.O.W.
PROP. R.O.W.
30'
30'
30'
30'

2+00 3+00 4+00 5+00 6+00 7+00 8+00 9+00 10+00 11+00

SECTION 07-02123-00-BR ENDS STA. 10+00.00

TIES P.O.T. STA. 10+00.00



+50 30' RT.
+00 35' RT.
+50 30' RT.
+00 35' RT.

CONTRACTOR TO FILL LOW AREA
QUANTITY INCLUDED IN THOSE SHOWN

LT. STA. 4+45
A.R. PIPE CULVERT 28' x 36"ø
TY.-1, CL. A
U.S.F.L. 466.2
D.S.F.L. 466.0
2 EA. P.R.C.F.E.S. 36"

STA. 6+44.00 PROPOSED STRUCTURE NO. 040-3268
THREE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE
80'-1 1/2" BK.- BK. ABUTMENTS
STEEL H PILE / SPILLTHROUGH ABUTMENTS
STEEL H PILE PIERS
28' DECK
15° RT. FORWARD SKEW

DONALD J. & MARLENE F. OCHS

STA. 6+50.00 EXISTING STRUCTURE NO. 040-3127
SINGLE SPAN CONCRETE BEAM BRIDGE
36' BK.- BK. ABUTMENTS
CLOSED CONCRETE ABUTMENTS
20' CONCRETE DECK
EXISTING STRUCTURE TO BE REMOVED

B.M. RT. STA. 5+70
SPIKE IN P.P.
ELEV. 468.98

TEMP. DITCH CHECKS (TYP.)

℄ SURVEY & CONSTRUCTION T.R. 319

POWER LINE
NORRIS ELECTRIC CO-OP
NEWTON, ILLINOIS
PH. 618-783-8765

TRANSITION EXISTING ROADWAY TO PROPOSED ROADWAY
STA. 3+00 TO 3+50 AND STA. 10+00 TO 10+50
QUANTITIES FOR THE ABOVE ARE INCLUDED IN THOSE LISTED

EARTHWORK	CU. YD.
CHANNEL EXCAVATION	285*
EARTH EXCAVATION	70
EMBANKMENT	2830
FURNISHED EXCAVATION	2670

*IT IS ESTIMATED THAT 50% OF THE CHANNEL EXCAVATION WILL BE SUITABLE FOR USE IN THE EMBANKMENT. UNSUITABLE MATERIAL SHALL BE DISPOSED OF BY THE CONTRACTOR.

SEEDING CLASS 2 (SPECIAL)	ACRE
STA. 3+50 TO 10+00	0.70

TRAFFIC BARRIER TERMINAL, TYPE 1	EACH
RT. STA. 5+70 TO 5+95	1
LT. STA. 6+93 TO 7+18	1
	TOTAL 2 EACH

TRAFFIC BARRIER TERMINAL, TYPE 5A	EACH
RT. STA. 5+95 TO 6+08	1
LT. STA. 6+80 TO 6+93	1
	TOTAL 2 EACH

VPI STA = 4+50.00
VPI EL = 470.55
CURVE LEN = 100.00

VPI STA = 5+50.00
VPI EL = 472.75
CURVE LEN = 100.00

VPI STA = 7+50.00
VPI EL = 472.75
CURVE LEN = 100.00

VPI STA = 8+75.00
VPI EL = 471.10
CURVE LEN = 150.00

VPC STA = 4+00.00
VPC EL = 470.50
VPT STA = 5+00.00
VPT EL = 471.65
VPT STA = 6+00.00
VPT EL = 472.75
VPC STA = 7+00.00
VPC EL = 472.75
VPC STA = 8+00.00
VPC EL = 472.09
VPT STA = 9+50.00
VPT EL = 473.00

EXISTING PROFILE
PROPOSED ℄ SURFACE
0.10%
2.20%
0.00%
-1.32%
2.53%
S.D. LT. -0.67%
100 YR. H.W.E. 471.3
15 YR. H.W.E. 470.0
S.B. ELEV. 457.9

471.1 470.5 470.3 470.3 470.5 470.50 470.6 470.81 470.6 471.65 470.2 472.48 469.9 472.75 457.9 472.75 469.4 472.75 469.4 472.58 469.6 472.09 470.3 471.75 471.5 472.05 473.0 473.00 474.9 477.6 480.6

2+00 3+00 4+00 5+00 6+00 7+00 8+00 9+00 10+00 11+00

AGG. SURF CSE TY. B	TON
STA. 3+50 TO 10+50	500

TEMPORARY DITCH CHECKS	FOOT
STA. 3+50 TO 10+00	22

PIPE CULVERTS, CLASS A, TYPE 1 36"	FOOT
STA. 4+45	28

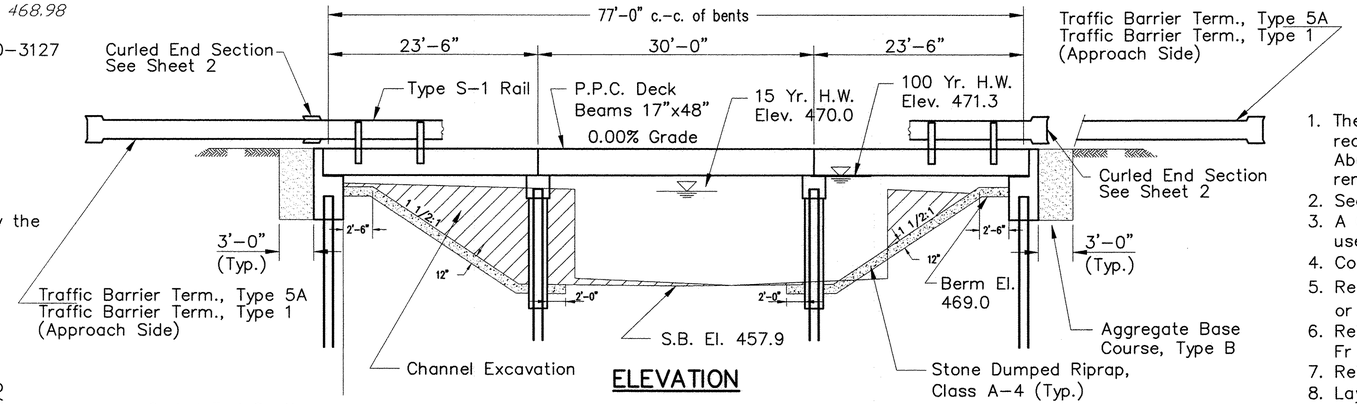
PREC. REINF. CONC. FLARED END SECT. 36"	EACH
LT. & RT. STA. 4+45	2

TRAVERSABLE PIPE GRATE	EACH
LT. & RT. STA. 4+45	2

B.M.–Rt. Sta. 5+70, spike in power pole, *Elev. 468.98*

Existing Structure – Existing structure No. 040–3127 consists of a single span concrete deck on steel I–beams bearing on closed concrete abutments. The bk. to bk. of abutments length is 38' and the out–to–out roadway width is 16'. The existing structure shall be completely removed. Road closure shall be used during construction.

Salvage – Any material deemed salvageable by the Engineer shall be stockpiled on the R.O.W. and shall become the property of Fox Road District. The Contractor shall dispose of all remaining material.

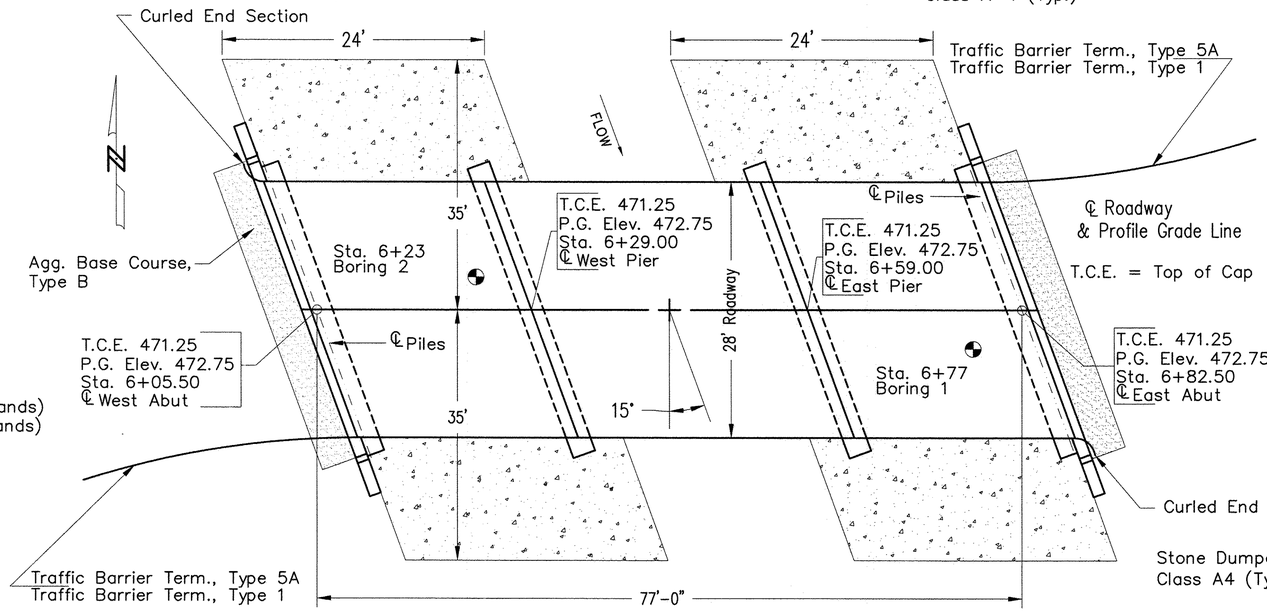


ELEVATION

0.00 % Grade

STA 6+05.50	STA 6+29.00	STA 6+59.00	STA 6+82.50
ELEV 472.75	ELEV 472.75	ELEV 472.75	ELEV 472.75

PROFILE GRADE
(along ℄ roadway)



PLAN

Skew Angle = 15° Forward Right

DESIGN STRESSES

FIELD UNITS

f'c = 3,500 psi
Fy = 60,000 psi (reinforcement)

PRECAST PRESTRESSED UNITS

f'c = 6,000 psi
f'ci = 5,000 psi
F's = 270,000 psi ($\frac{1}{2}$" low relax. strands)
Fsi = 201,960 psi ($\frac{1}{2}$" low relax. strands)

DESIGN SPECIFICATIONS

AASHTO LRFD Bridge Design Specifications – 5th ed.

SEISMIC DATA

Seismic Performance Zone (SPZ) = 2
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.163g
Design Spectral Acceleration at 0.2 sec. (S_{DS}) = 0.417g
Soil Site Class = C

PILE DATA (2–ABUTS.)

Type	Steel Piles HP 10 X 42
Nominal Required Bearing	301 kips
Factored Resistance Available	184 kips
Estimated Pile Length	25 Ft.
Number of Production Piles	9
Number of Test Piles	1 at West Abut.

PILE DATA (2–PIERS)

Type	Steel Piles HP 10 X 42
Nominal Required Bearing	301 kips
Factored Resistance Available	184 kips
Estimated Pile Length	25 Ft.
Number of Production Piles	9
Number of Test Piles	1 at East Pier.

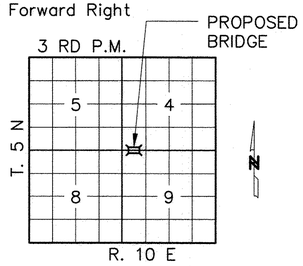
LOADING HL–93

Allow 50#/sq. ft. for future wearing surface.

STATION 6+44.00
FOX RIVER
SEC. 07–02123–00–BR BUILT 201_
FOX ROAD DISTRICT
JASPER COUNTY
LOADING HL–93
STR. NO. 040–3268

LETTERING FOR NAME PLATE

Locate Name Plate at S.W. Corner of Bridge (See Std. 515001)



LOCATION SKETCH

WATERWAY INFORMATION

Drainage Area = 13.3 SQ MI Low Grade Elev = 470.3 @ Sta. 3+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	15	2414	380	610	470.0	0.4	0.1	470.4	470.1
Base	100	3870	380	700	471.3	0.9	0.2	472.2	471.5

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 319	07-02123-00-BR	JASPER	16	4
CONTRACT NO. 95723		ILLINOIS		

GENERAL NOTES

1. The Contractor shall drive the test pile to 110% of the nominal required bearing specified in production locations at the East Abutment as approved by the Engineer before ordering the remainder of piles. Test piles shall be equipped with metal shoe.
2. See Sheet 13 for boring logs.
3. A Corrosion inhibitor, as covered in the Special Provisions, shall be used in the concrete for precast prestressed concrete deck beams.
4. Concrete sealer shall be applied to exterior face of each fascia beam.
5. Reinforcement bars shall conform to the requirements of AASHTO M31 or M322 Grade 60.
6. Reinforcement bars shall conform to the requirements of ASTM A 706 Fr 60 (IL Modified). See Special Provisions.
7. Reinforcement bars designated (E) shall be epoxy coated.
8. Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.

TOTAL BILL OF MATERIAL

Item	Unit	Super	Sub. Piers	Sub. Abuts.	Total
Removal of Existing Structures	Each	–	–	–	1
Concrete Structures	Cu. Yd.	–	77.8	26.4	104.2
Precast Prestressed Concrete Deck Beams (17" Depth)	Sq. Ft.	2182	–	–	2182
Steel Railing, Type S–1	Foot	160	–	–	160
Reinforcement Bars, Epoxy Coated	Pound	–	5920	3320	9240
Furnishing Steel Piles HP 10 X 42	Foot	–	225	225	450
Driving Piles	Foot	–	225	225	450
Test Pile Steel HP 10 X 42	Each	–	1	1	2
Name Plates	Each	–	–	1	1
Aggregate Base Course, Type B	Tons	–	–	70	70
Stone Dumped Riprap, Class A4	Tons	–	–	190	190
Channel Excavation	Cu. Yd.	–	–	285	285
Pile Shoes	Each	–	9	9	18
Concrete Encasement	Cu. Yd.	–	–	3.6	3.6

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

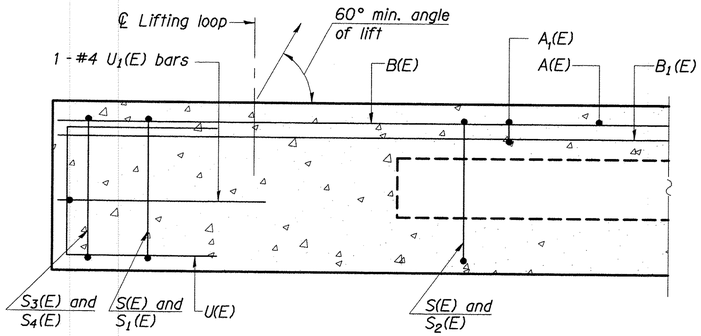
STATE OF ILLINOIS
NABI R. FAKRODDIN
2377
ST. CHARLES
LICENSED STRUCTURAL ENGINEER
LIC. EXP. 11-30-2014
10-11-2013

INDEX OF SHEETS

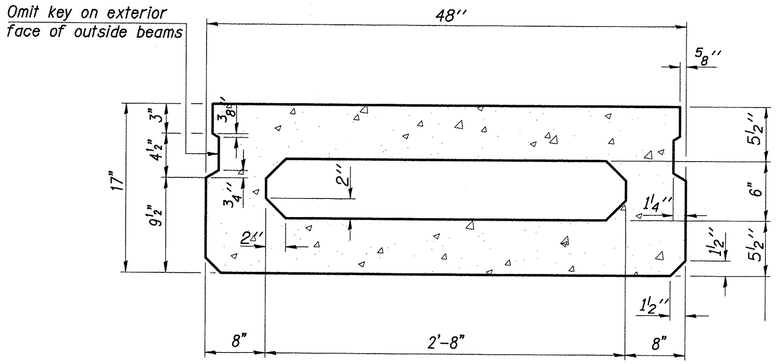
CHARLESTON ENGINEERING, INC.
CONSULTING ENGINEERS
105 NORTH KITCHELL
P.O. BOX 397
OLNEY, ILLINOIS 62450
(618) 392-0736
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

GENERAL PLAN & ELEVATION
STRUCTURE NO. 040-3268
T.R. 319
OVER FOX RIVER
SECTION 07-02123-00-BR
JASPER COUNTY
STATION 6+44.00

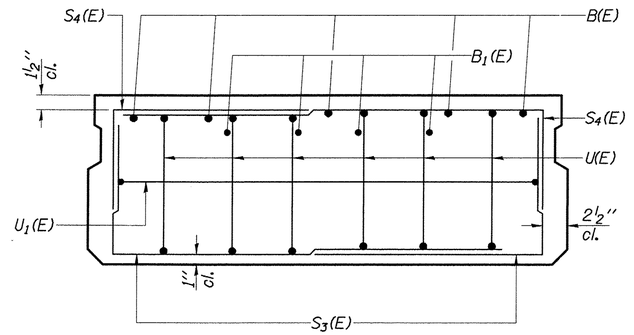
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 319	07-02132-00-BR	JASPER	16	5
CONTRACT NO. 95723		ILLINOIS		



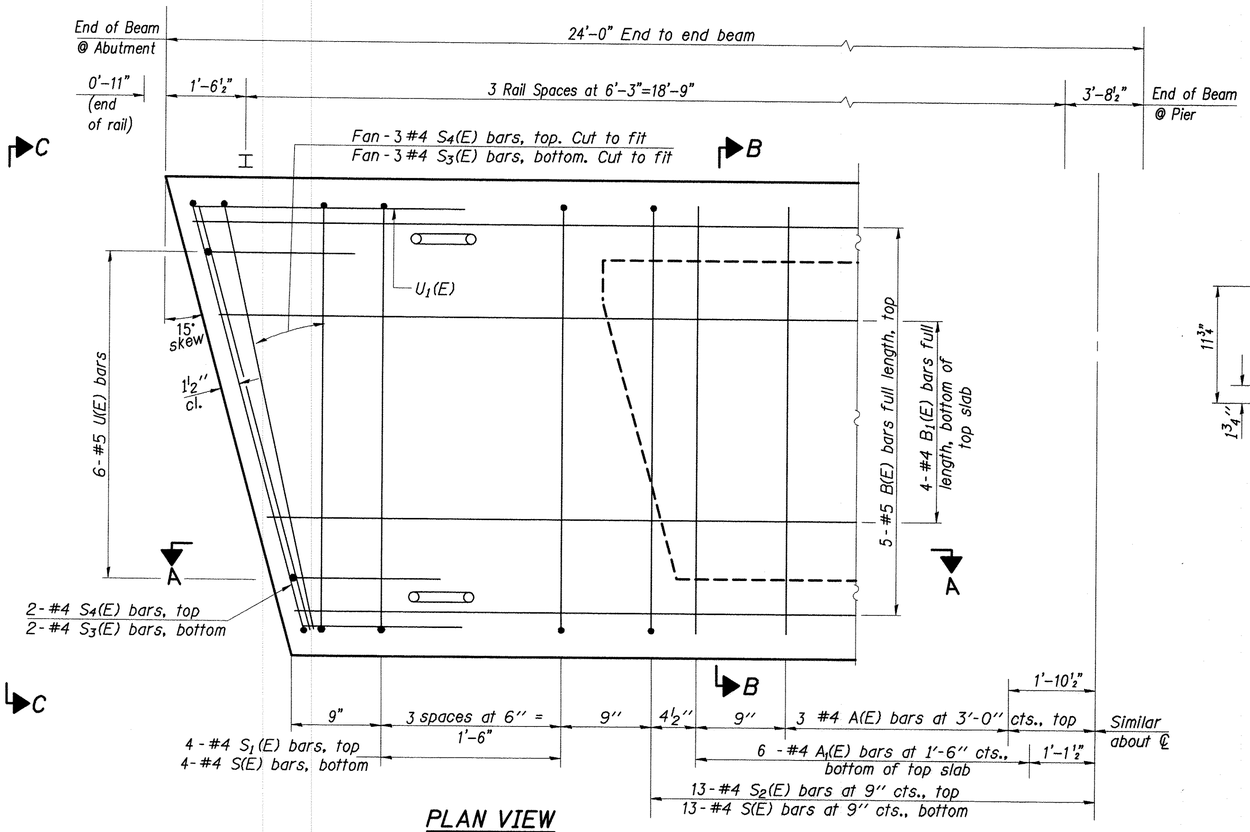
SECTION A-A



SECTION B-B
(Showing dimensions)



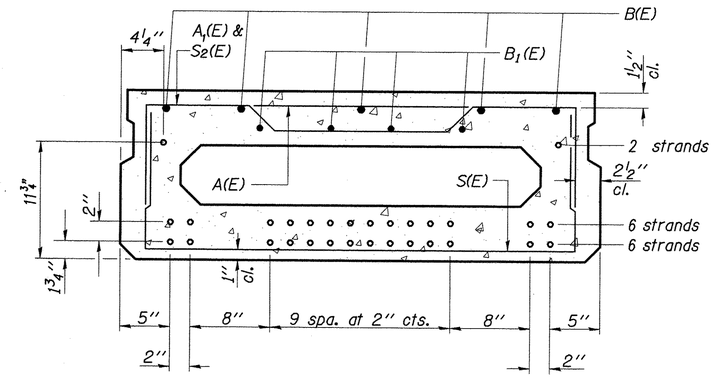
VIEW C-C



PLAN VIEW

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.

Bars indicated thus 5 X 2-#5 etc. indicates 5 lines of bars with 2 lengths per line.



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

Notes: 1. 14 Total Strands
2. Place the number of strands specified in each row symmetrically about the centerline of beam in the permissible strand locations shown.

MINIMUM BAR LAP
#4 bar = 2'-0"
#5 bar = 2'-6"

BAR LIST
ONE BEAM ONLY
(For information only)

Bar	No.	Size	Length	Shape
A(E)	6	#4	3'-7"	—
A_1(E)	12	#4	3'-10"	~
B(E)	5	#5	23'-9"	—
B_1(E)	4	#4	23'-9"	—
S(E)	34	#4	6'-9"	⊔
S_1(E)	8	#4	5'-3"	⊓
S_2(E)	26	#4	5'-6"	⊓
S_3(E)	10	#4	5'-1"	⌊
S_4(E)	10	#4	4'-8"	⌊
U(E)	12	#5	3'-8"	⊏
U_1(E)	2	#4	7'-0"	⊏

Note: See sheet 6 of 16 for additional details and Bill of Material.

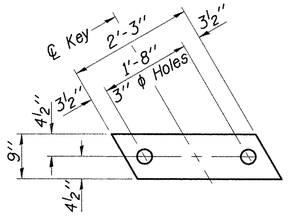
CHARLESTON ENGINEERING, INC.
CONSULTING ENGINEERS
105 NORTH KITCHELL
P.O. BOX 397
OLNEY, ILLINOIS 62450
(618) 392-0736
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

SUPERSTRUCTURE
SPANS 1 & 3

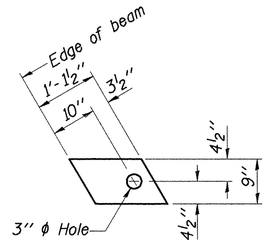
STRUCTURE NO. 040-3268
T.R. 319
OVER FOX RIVER

SECTION 07-02123-00-BR
JASPER COUNTY
STATION 6+44.00

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 319	07-02123-00-BR	JASPER	16	6
CONTRACT NO. 95723		ILLINOIS		



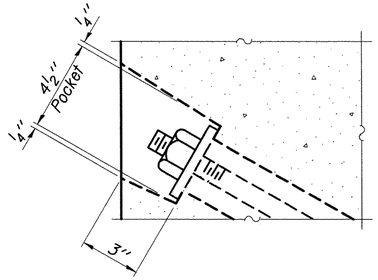
FABRIC BEARING PAD
(Interior)



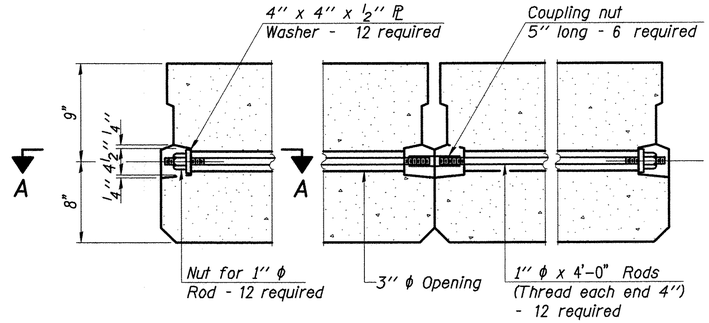
FABRIC BEARING PAD
(Exterior)

FIXED

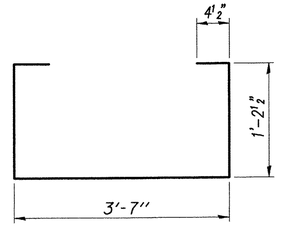
Notes:
All bearing pads shall be 1" thick.
Omit holes when using expansion bearings.
Expansion bearing pad shall be bonded to the substructure.



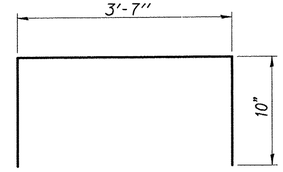
SECTION A-A



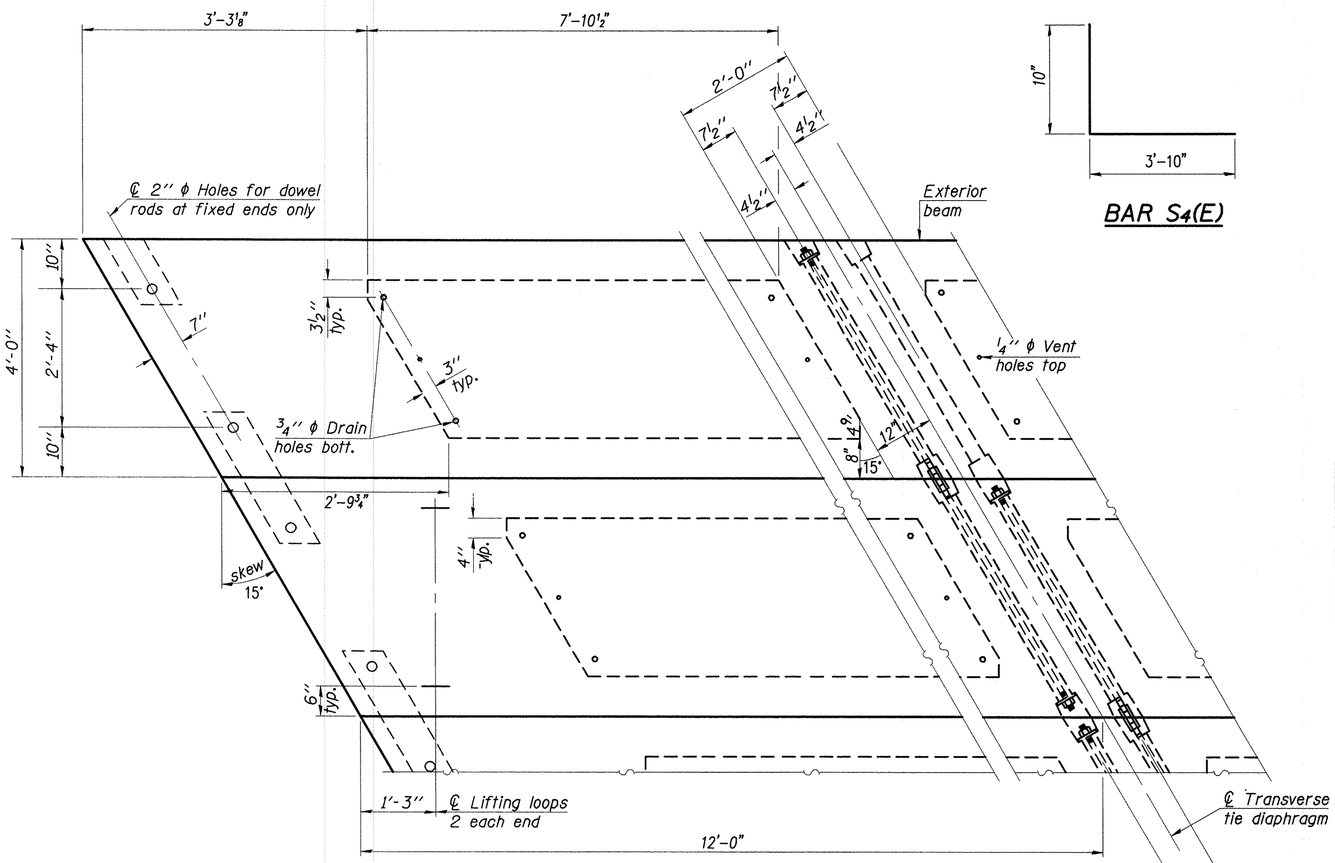
TYPICAL TRANSVERSE TIE ASSEMBLY



BAR S(E)



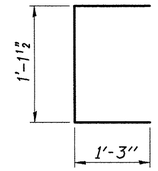
BAR S_1(E)



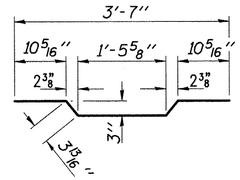
PLAN VIEW

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

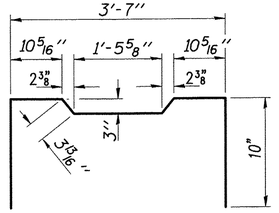
BAR S_4(E)



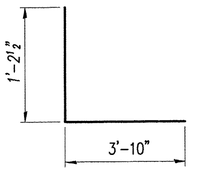
BAR U(E)



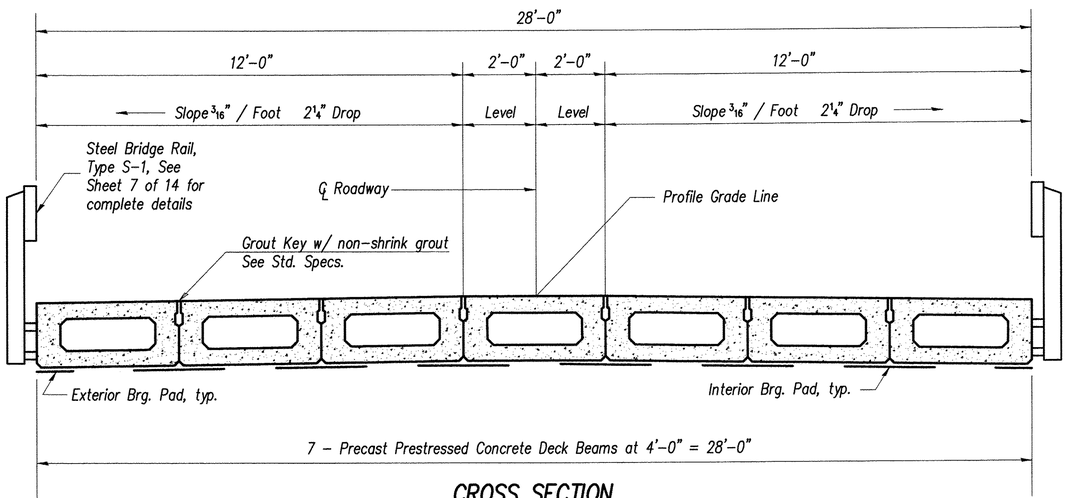
BAR A_1(E)



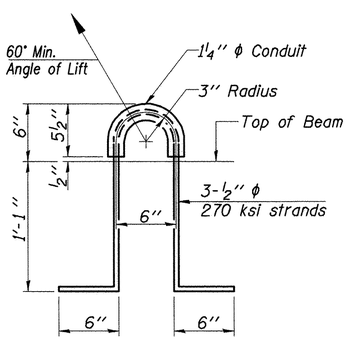
BAR S_2(E)



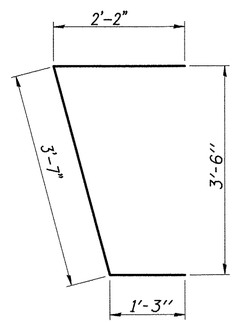
BAR S_3(E)



CROSS SECTION



LIFTING LOOP DETAIL



BAR U_1(E)

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (17" depth)	Sq. Ft.	1344

CHARLESTON ENGINEERING, INC.
CONSULTING ENGINEERS
105 NORTH KITCHELL
P.O. BOX 397
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(618) 392-0736
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

SUPERSTRUCTURE DETAILS
SPANS 1 & 3

STRUCTURE NO. 040-3268
T.R. 319
OVER FOX RIVER

SECTION 07-02123-00-BR
JASPER COUNTY
STATION 6+44.00

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.

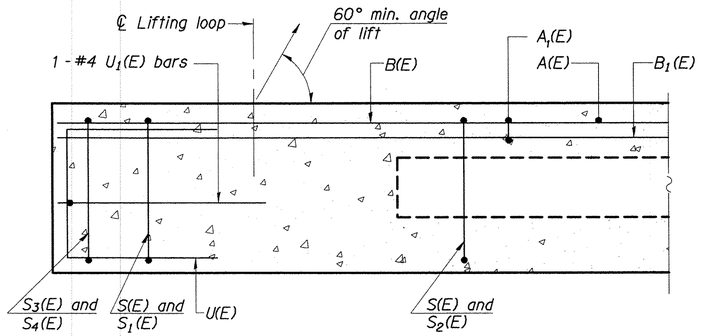
A minimum 2½" ϕ lifting pin shall be used to engage the lifting loops during handling.

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.

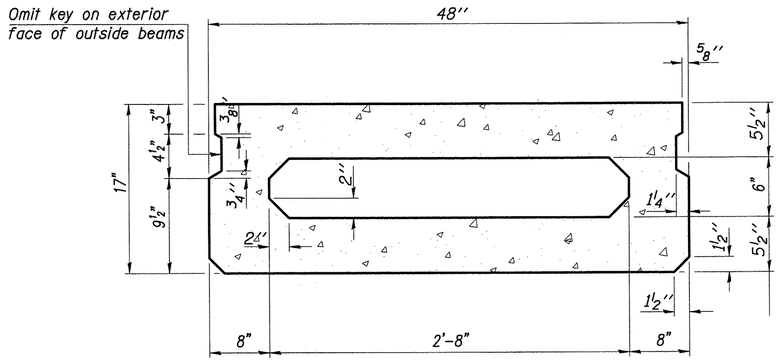
Compressive strength of prestressed concrete, f'c, shall be 6000 psi.

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

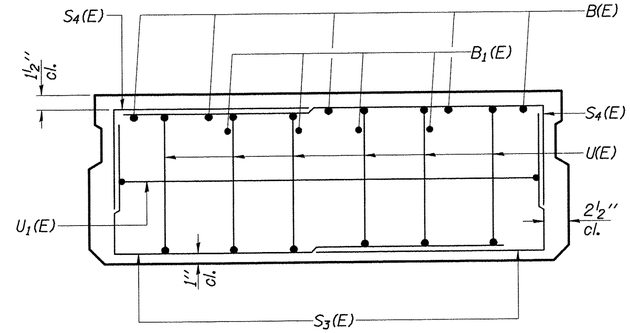
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 319	07-02132-00-BR	JASPER	16	7
CONTRACT NO. 95723		ILLINOIS		



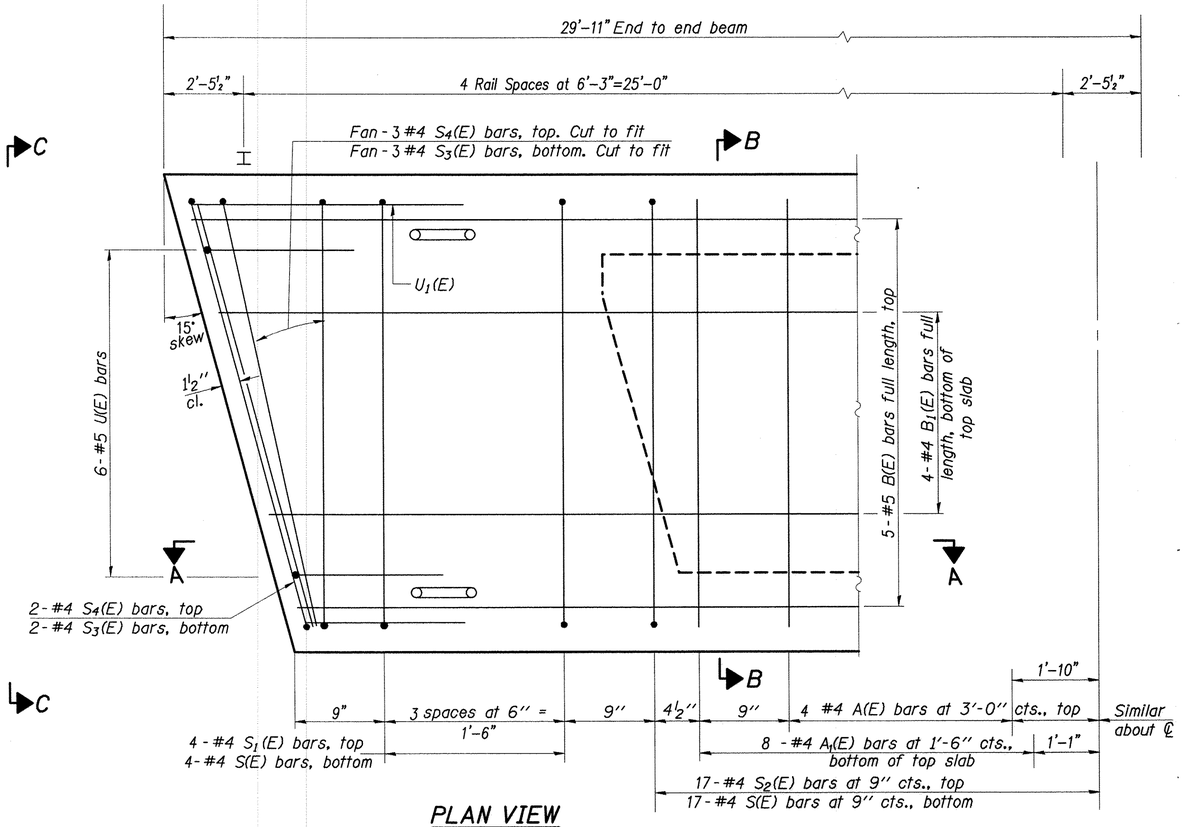
SECTION A-A



SECTION B-B
(Showing dimensions)



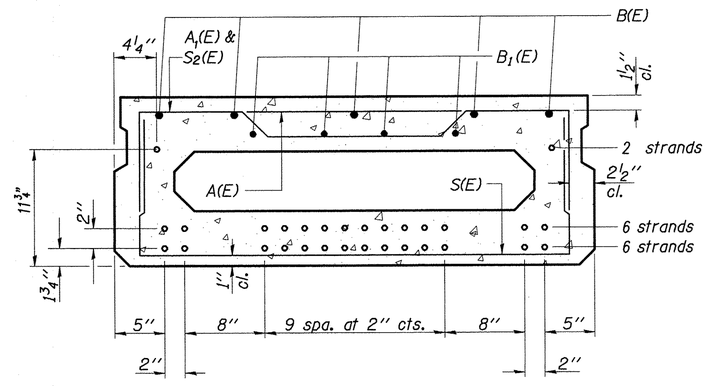
VIEW C-C



PLAN VIEW

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.

Bars indicated thus 5 X 2-#5 etc. indicates 5 lines of bars with 2 lengths per line.



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

Notes: 1. 14 Total Strands
2. Place the number of strands specified in each row symmetrically about the centerline of beam in the permissible strand locations shown.

MINIMUM BAR LAP
#4 bar = 2'-0"
#5 bar = 2'-6"

BAR LIST
ONE BEAM ONLY
(For information only)

Bar	No.	Size	Length	Shape
A(E)	8	#4	3'-7"	—
A_1(E)	16	#4	3'-10"	~
B(E)	5	#5	29'-8"	—
B_1(E)	4	#4	29'-8"	—
S(E)	34	#4	6'-9"	⊏
S_1(E)	8	#4	5'-3"	⊐
S_2(E)	42	#4	5'-6"	⊐
S_3(E)	10	#4	5'-1"	⌊
S_4(E)	10	#4	4'-8"	⌊
U(E)	12	#5	3'-8"	⊏
U_1(E)	2	#4	7'-0"	⊏

Note: See sheet 8 of 16 for additional details and Bill of Material.

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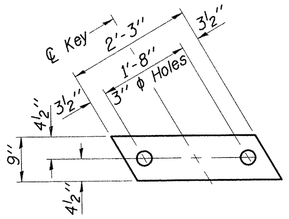
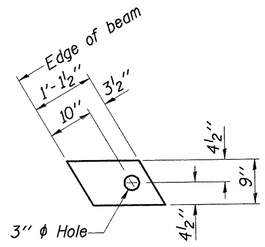
SUPERSTRUCTURE SPAN 2

STRUCTURE NO. 040-3268
T.R. 319
OVER FOX RIVER
SECTION 07-02123-00-BR
JASPER COUNTY
STATION 6+44.00

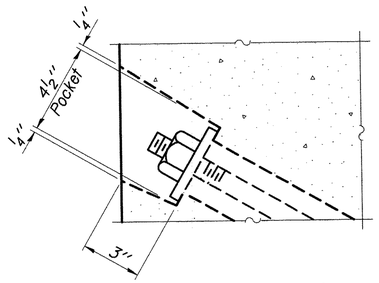
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 319	07-02123-00-BR	JASPER	16	8
CONTRACT NO. 95723		ILLINOIS		



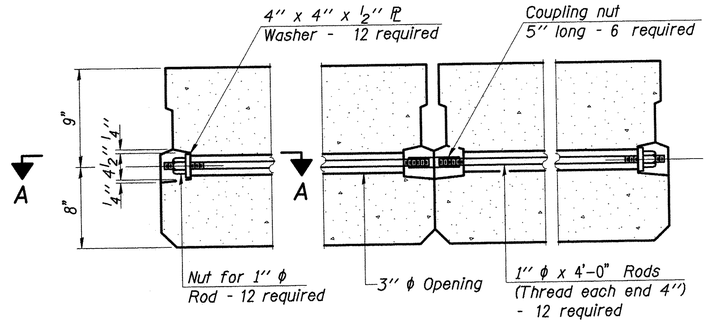
FABRIC BEARING PAD
(Interior)



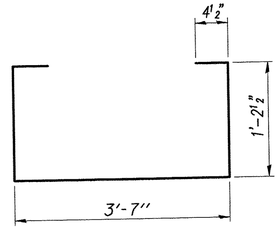
FABRIC BEARING PAD
(Exterior)



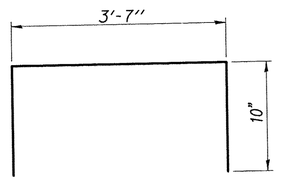
SECTION A-A



TYPICAL TRANSVERSE TIE ASSEMBLY



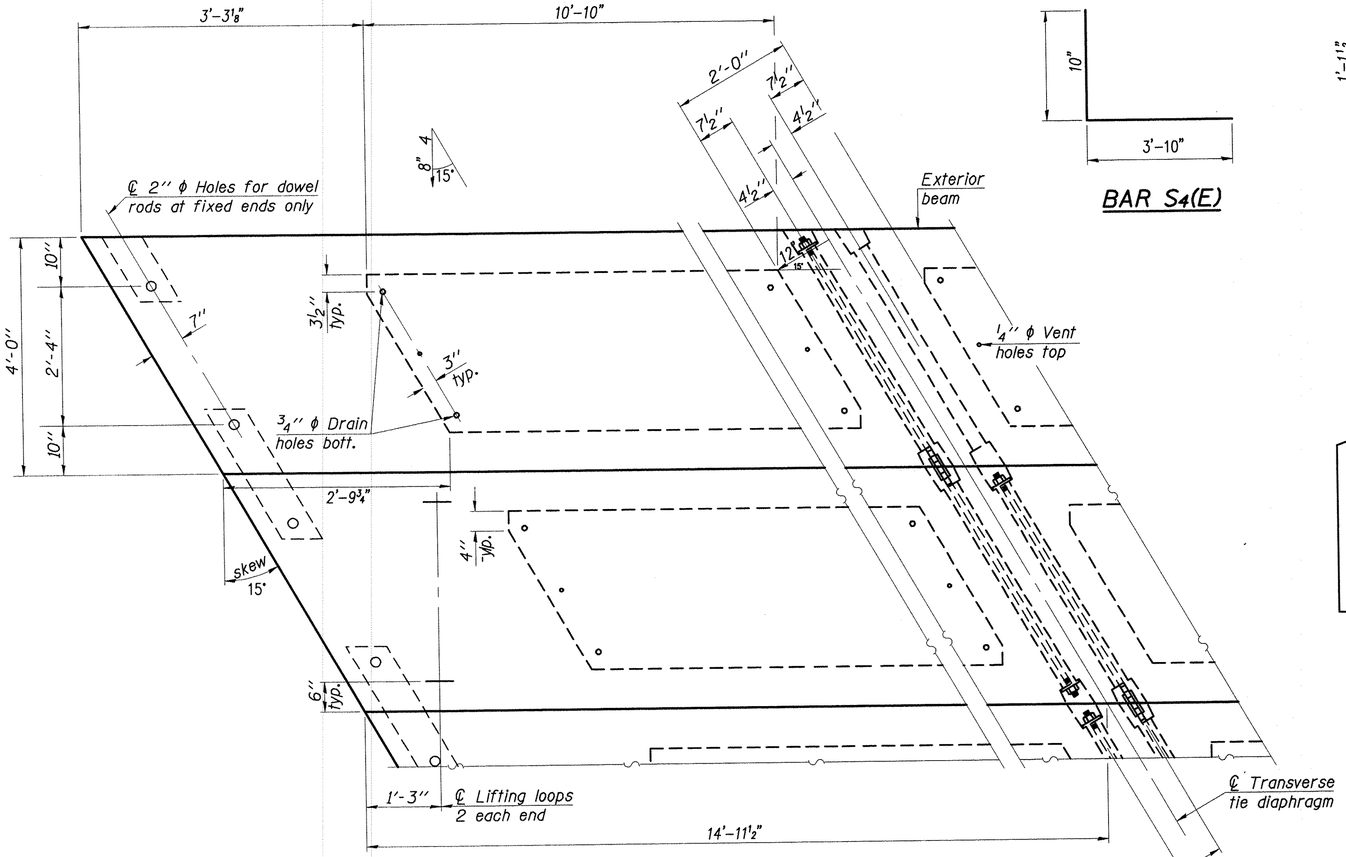
BAR S(E)



BAR S_1(E)

FIXED

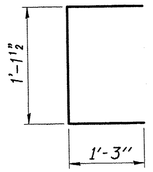
Notes:
All bearing pads shall be 1" thick.
Omit holes when using expansion bearings.
Expansion bearing pad shall be bonded to the substructure.



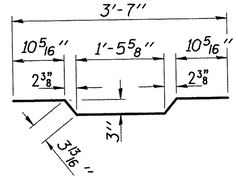
PLAN VIEW

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

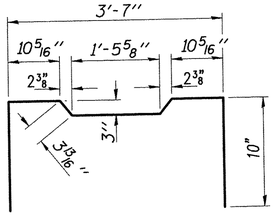
BAR S_4(E)



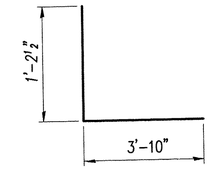
BAR U(E)



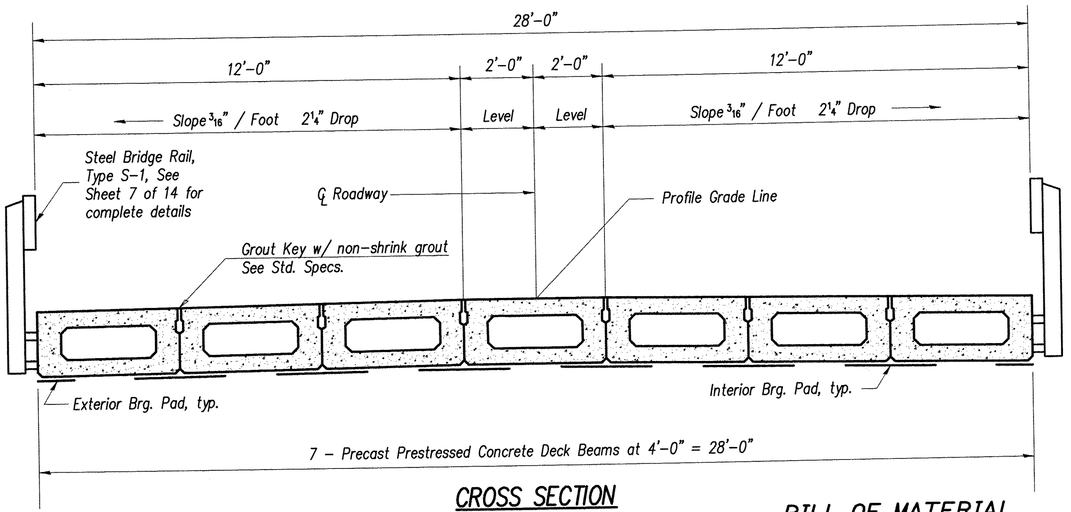
BAR A_1(E)



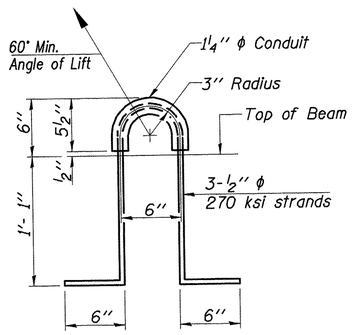
BAR S_2(E)



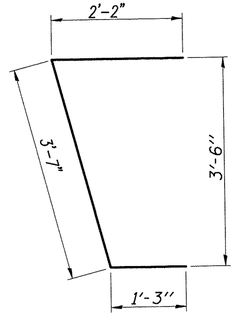
BAR S_3(E)



CROSS SECTION



LIFTING LOOP DETAIL



BAR U_1(E)

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (17" depth)	Sq. Ft.	838

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.

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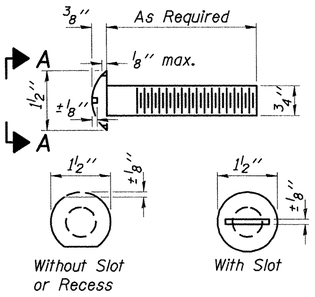
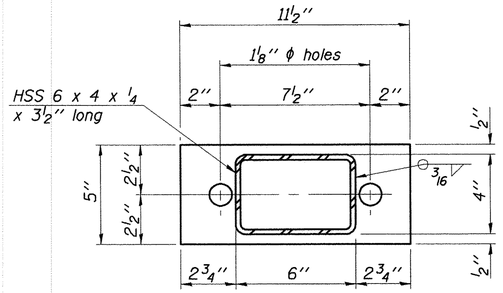
SUPERSTRUCTURE DETAILS
SPAN 2

STRUCTURE NO. 040-3268
T.R. 319
OVER FOX RIVER
SECTION 07-02123-00-BR
JASPER COUNTY
STATION 6+44.00

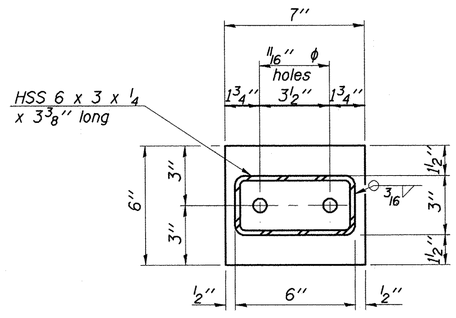
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 319	07-02123-00-BR	JASPER	16	9
CONTRACT NO. 95723		ILLINOIS		



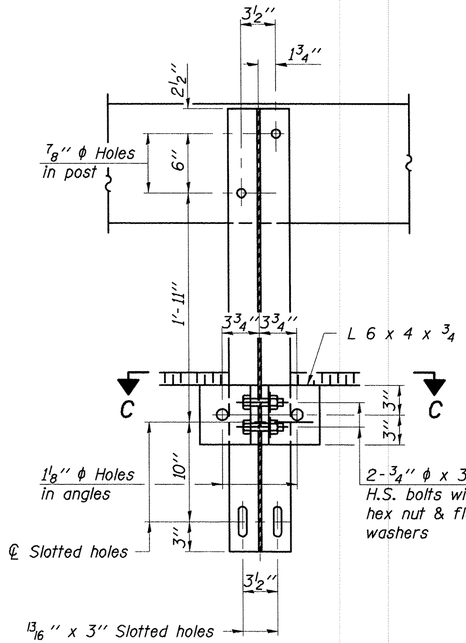
VIEW A-A ROUND HEAD BOLT



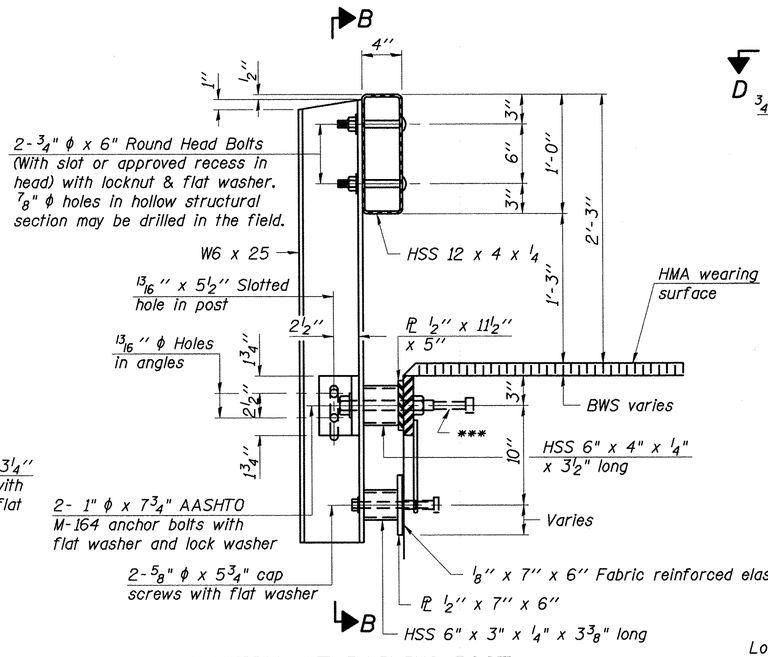
℄ 1/2" x 11 1/2" x 5"



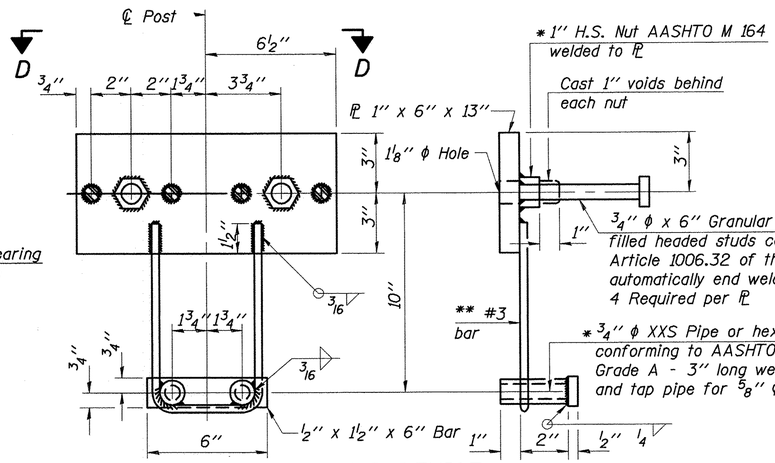
℄ 1/2" x 7" x 6"



SECTION B-B



SECTION AT RAILING POST



ANCHOR DEVICE

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

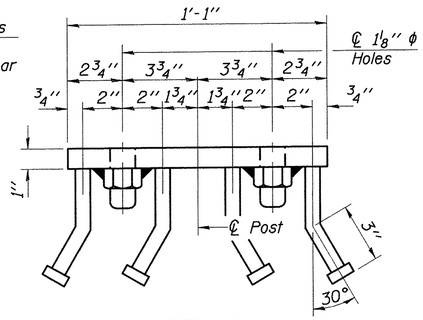
Notes:

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 S-1.

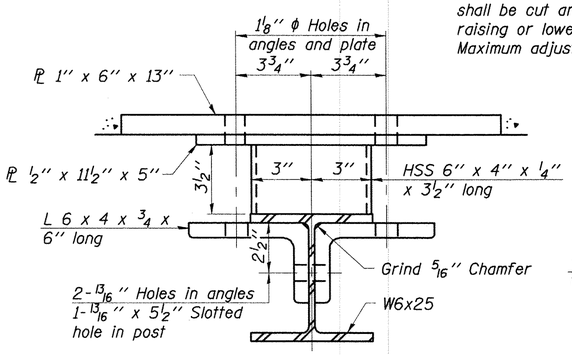
All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.

*** 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.

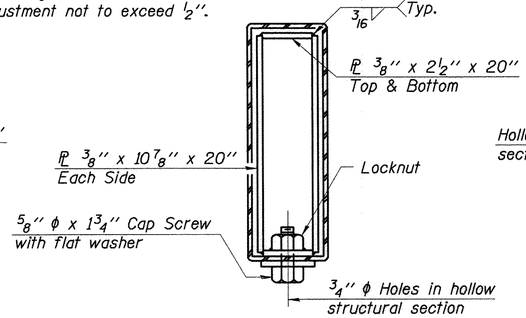


VIEW D-D

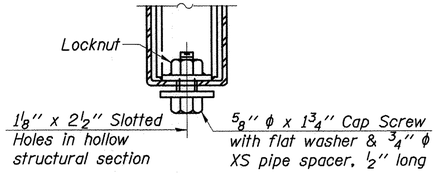
** Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 1/2".



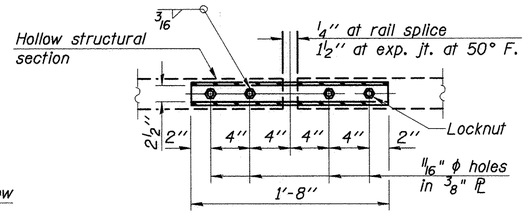
SECTION C-C



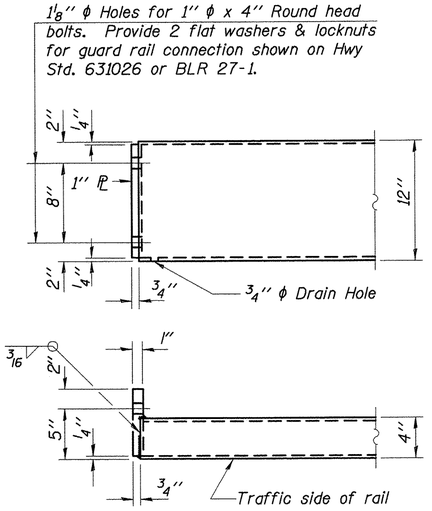
SECTIONS AT RAIL SPLICE



RAIL SPLICE CONNECTION AT EXPANSION JT.



PLAN-BOTT. SPLICE ℄ TYPICAL



END OF RAIL DETAILS

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	160

CHARLESTON ENGINEERING, INC.
CONSULTING ENGINEERS
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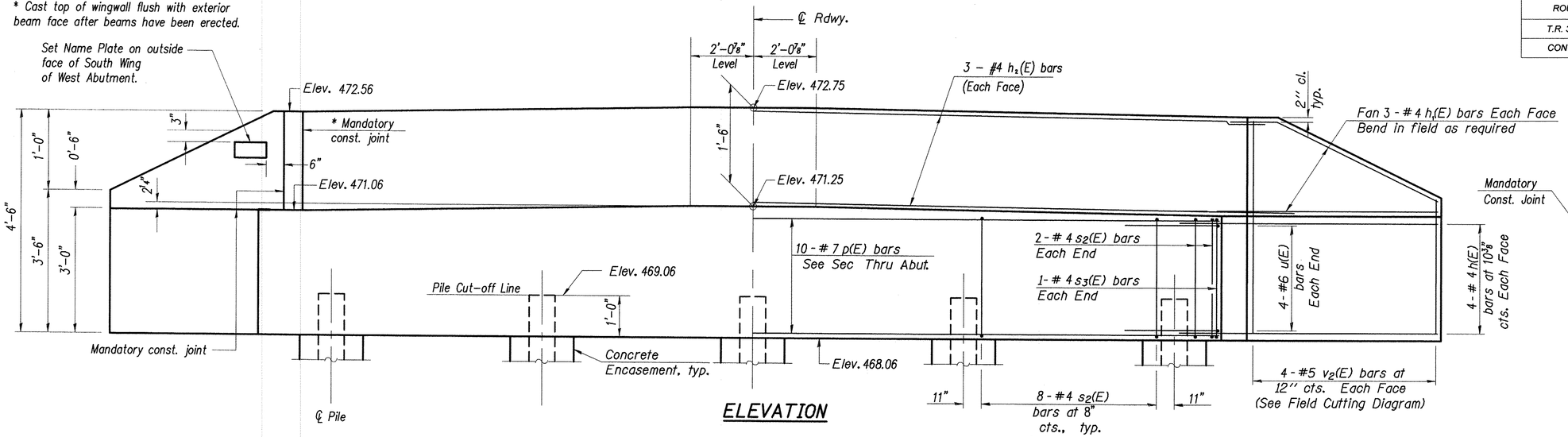
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

STEEL RAILING, TYPE S-1

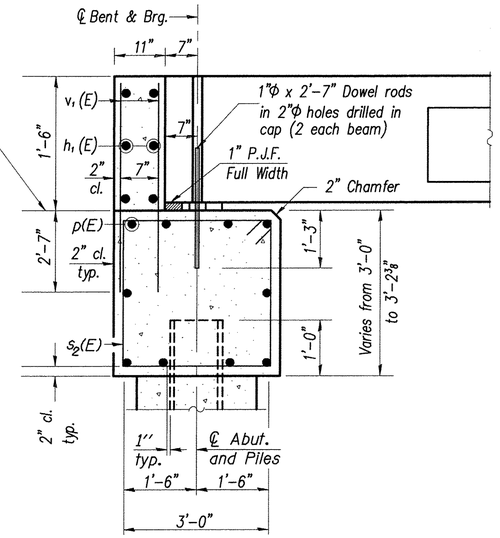
STEEL RAILING, TYPE S-1
STRUCTURE NO. 040-3268
T.R. 319
OVER FOX RIVER
SECTION 07-02123-00-BR
JASPER COUNTY
STATION 6+44.00

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 319	07-02123-00-BR	JASPER	16	10
CONTRACT NO. 95723		ILLINOIS		

* Cast top of wingwall flush with exterior beam face after beams have been erected.

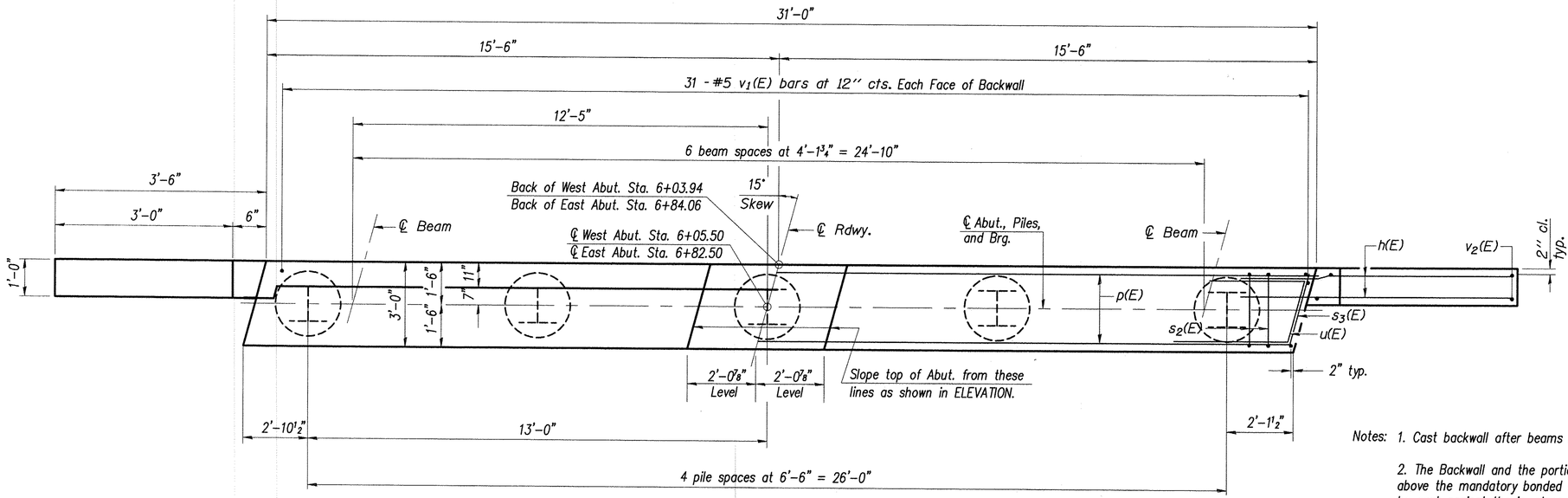


ELEVATION



SECTION A-A

(At Right Angles)



PLAN

BILL OF MATERIAL - 2 ABUTS.

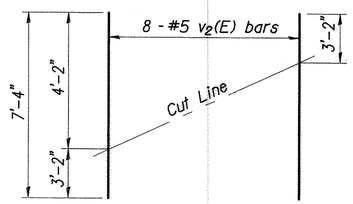
Bar	No.	Size	Length	Shape
h(E)	32	#4	5'-0"	——
h₁(E)	24	#4	5'-3"	——
h₂(E)	12	#4	30'-8"	——
p(E)	20	#7	30'-8"	——
s₂(E)	72	#4	11'-5"	⌐
s₃(E)	4	#4	11'-6"	⌐
u(E)	16	#6	11'-9"	⌐¬
v₁(E)	124	#5	4'-11"	——
v₂(E)	16	#5	7'-4"	——
Concrete Structures		Cu. Yd.	26.4	
Reinforcement Bars, Epoxy Coated		Pound	3320	
Furnishing Steel Piles HP 10 X 42		Foot	225	
Driving Piles		Foot	225	
Test Pile Steel HP 10X42		Each	1	
Pile Shoes		Each	9	
Concrete Encasement		Cu. Yd.	3.6	

For details of piles and encasement see sheet 12 of 16

Notes:
1. Cast backwall after beams have been erected.
2. The Backwall and the portion of the Wingwalls above the mandatory bonded construction joint shall be cast against the in-place beam.
3. Extend "h" bars into abutment cap.

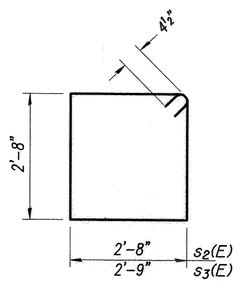
PILE DATA

Type: HP 10 X 42
Nominal Required Bearing: 335 kips
Factored Resistance Available: 184 kips
Est. Length: 25 Feet
No. Production Piles: 9
No. of Test Piles: 1 in West Abutment

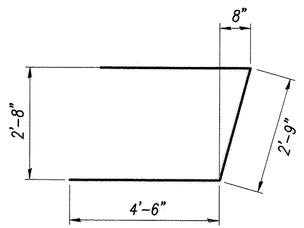


FIELD CUTTING DIAGRAM

Order v₂(E) full length. Cut as shown and use remainder of bars in opposite face.



BARS s₂(E) & s₃(E)



BAR u(E)

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CONSULTING ENGINEERS
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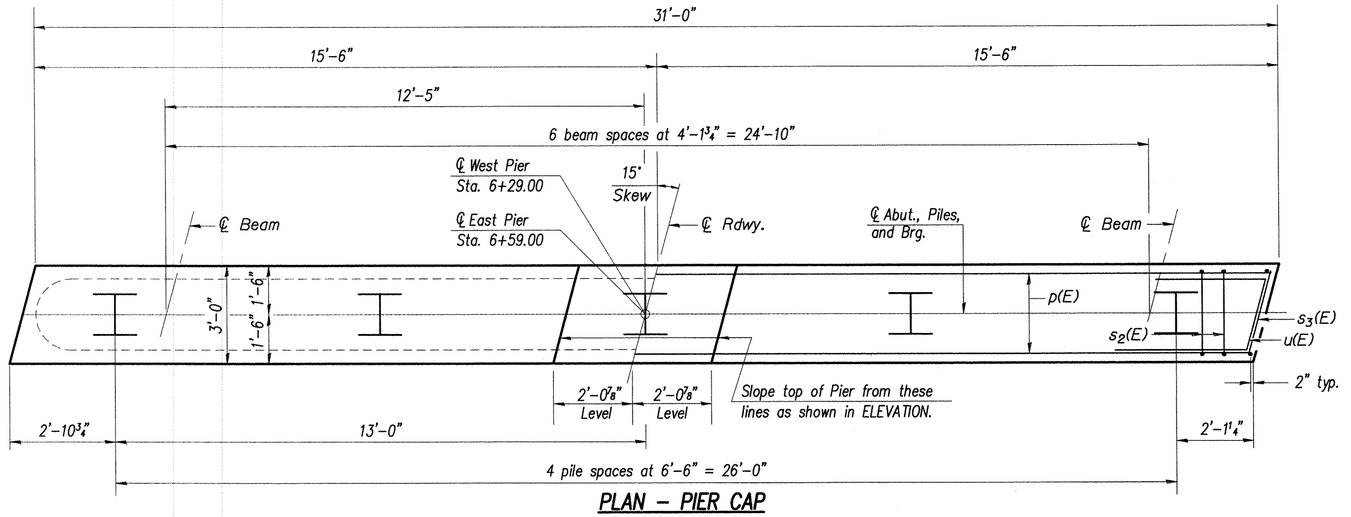
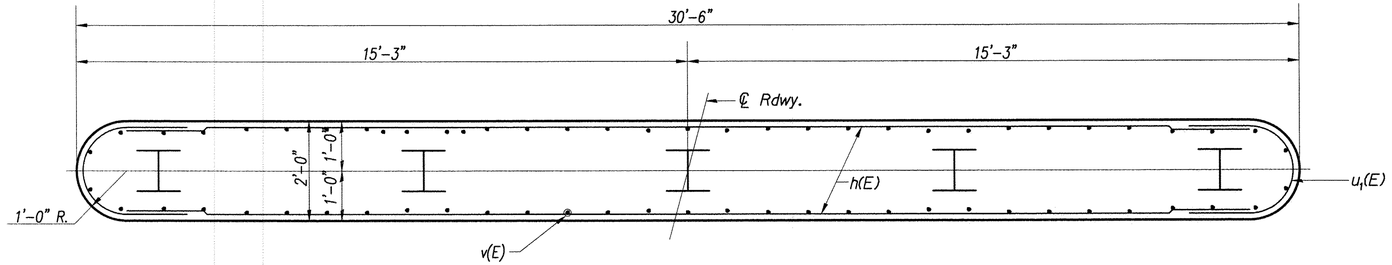
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

ABUTMENT DETAILS
STRUCTURE NO. 040-3268
T.R. 319
OVER FOX RIVER
SECTION 07-02123-00-BR
JASPER COUNTY
STATION 6+44.00

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 319	07-02123-00-BR	JASPER	16	11
CONTRACT NO. 95723		ILLINOIS		

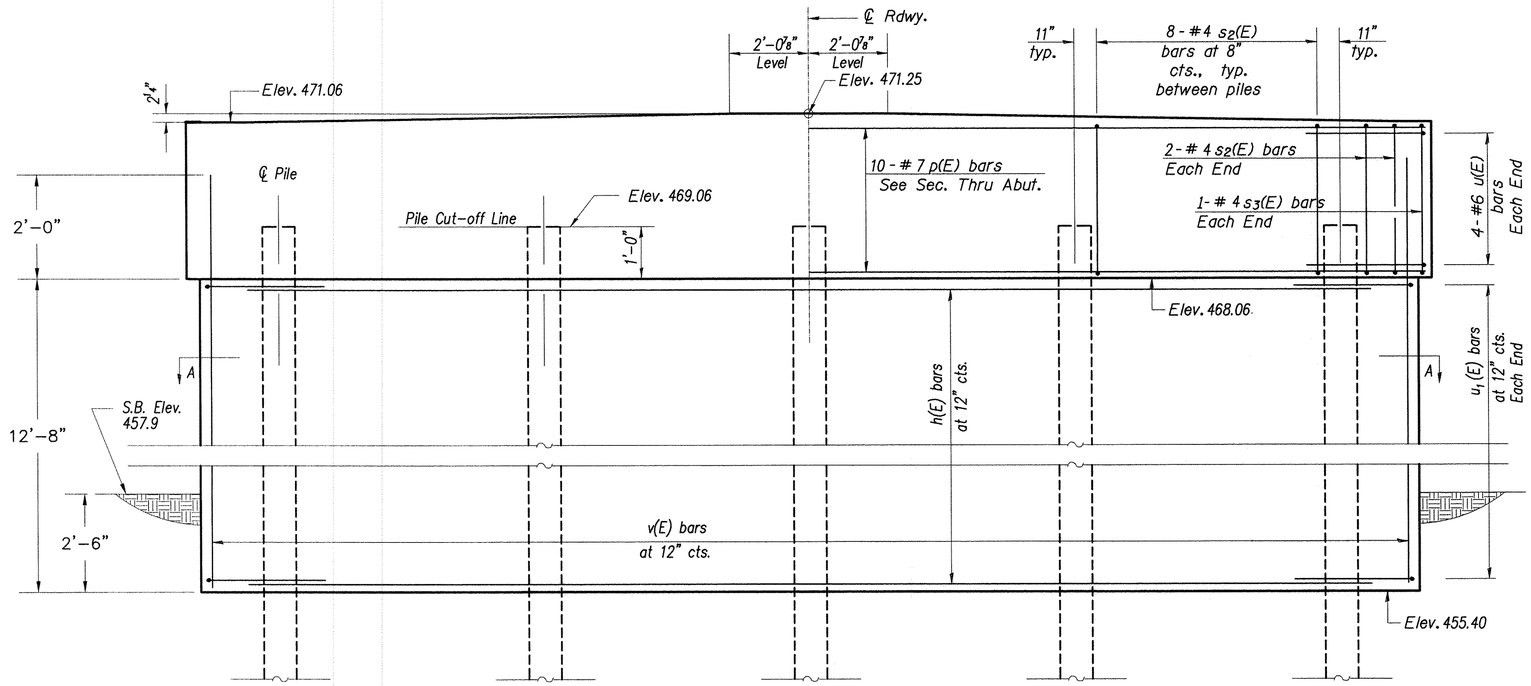


PLAN – PIER CAP

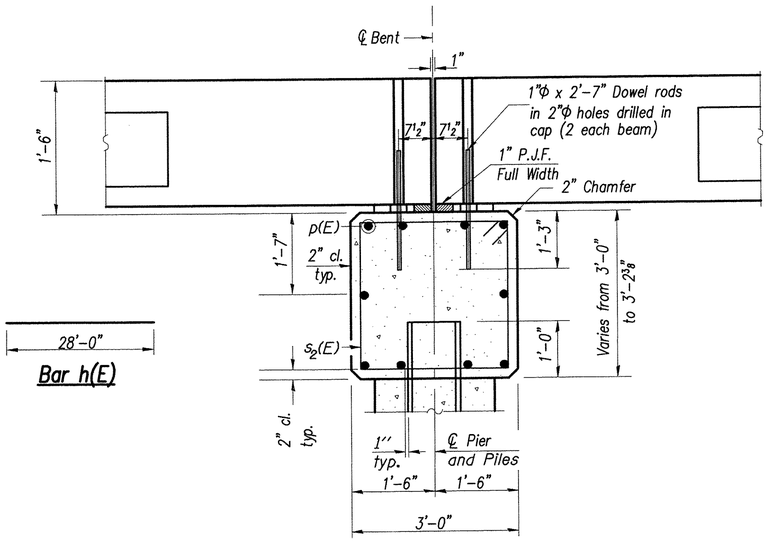


PLAN – CURTAIN WALL

SEC. A–A



ELEVATION

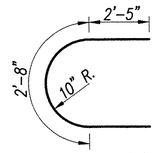


SECTION A-A

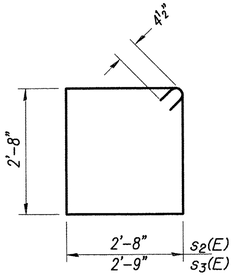
(At Right Angles)

28'-0"

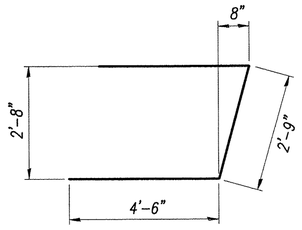
Bar h(E)



Bar u1(E)



BARS s2(E) & s3(E)



BAR u(E)

PILE DATA

Type: HP 10 X 42
Nominal Required Bearing: 335 kips
Factored Resistance Available: 184 kips
Est. Length: 25 Feet
No. Production Piles: 9
No. of Test Piles: 1 in East Pier

BILL OF MATERIAL – 2 PIERS

Bar	No.	Size	Length	Shape
h(E)	52	#5	28'-0"	——
p(E)	20	#7	30'-8"	——
s2(E)	72	#4	11'-5"	⌐
s3(E)	4	#4	11'-7"	⌐
u(E)	16	#6	11'-9"	⌐
u1(E)	52	#5	7'-6"	⊂
v (E)	124	#5	14'-6"	——
Concrete Structures		Cu. Yd.	77.8	
Reinforcement Bars, Epoxy Coated		Pound	5920	
Furnishing Steel Piles HP 10 X 42		Foot	225	
Driving Piles		Foot	225	
Test Pile Steel HP 10X42		Each	1	
Pile Shoes		Each	9	
Underwater Struct. Excav. Protection – Location 1		Each	1	
Underwater Struct. Excav. Protection – Location 2		Each	1	

For details of piles see sheet 12 of 16

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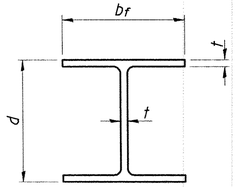
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

PIERS

STRUCTURE NO. 040-3268
T.R. 319
OVER FOX RIVER

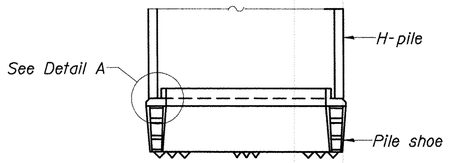
SECTION 07-02133-00-BR
JASPER COUNTY
STATION 6+44.00

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 319	07-02123-00-BR	JASPER	16	12
CONTRACT NO. 95723		ILLINOIS		

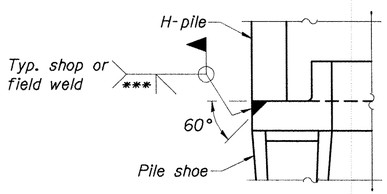


STEEL PILE TABLE

Designation	Depth d	Flange width b_f	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	13/16"	30"
x102	14"	14 3/4"	11/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	11/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"
x53	11 3/4"	12"	7/16"	24"
HP 10x57	10"	10 1/4"	9/16"	24"
HP 10x42	**9 3/4"**	**10 1/8"**	**7/16"**	**24"**
HP 8x36	8"	8 1/8"	7/16"	18"

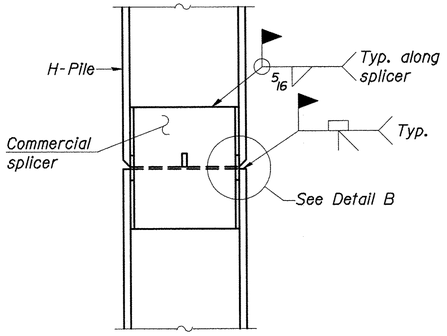


ELEVATION



DETAIL A

H-PILE SHOE ATTACHMENT



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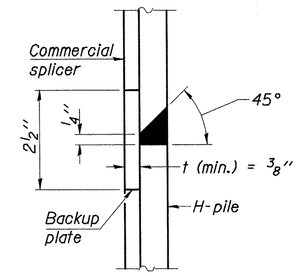
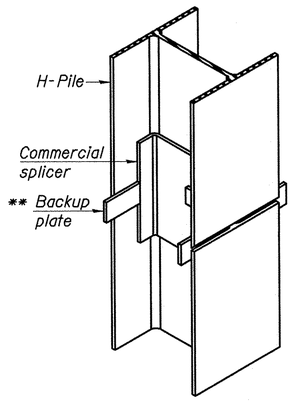
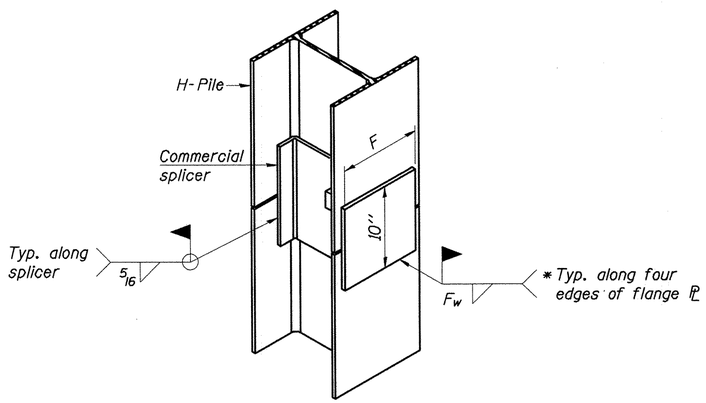


DETAIL "B"



ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE



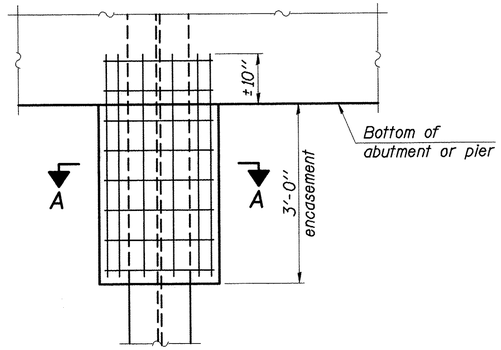
ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE ALTERNATE

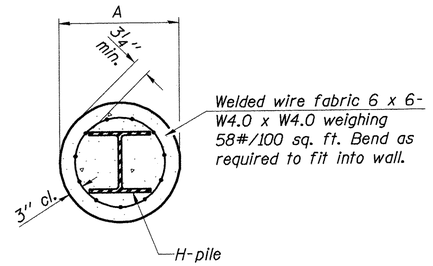
* Interrupt welds 1/4" from end of web and/or each flange.

** Remove portions of backup plates that extend outside the flanges.

*** Weld size per pile shoe manufacturer (5/16" min.).



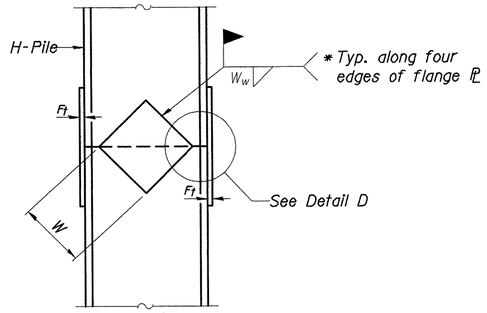
ELEVATION



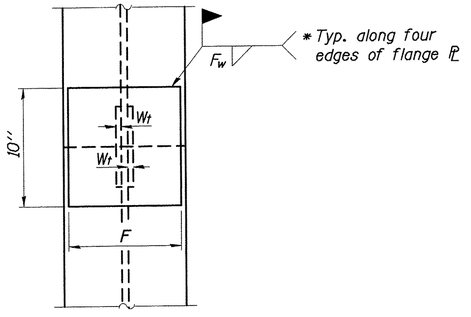
Note:
Forms for encasement may be omitted when soil conditions permit.

SECTION A-A

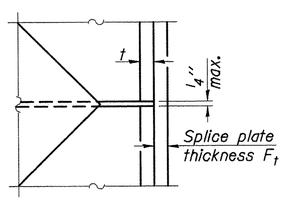
PILE ENCASEMENT



ELEVATION



END VIEW



DETAIL D

Designation	F	F_t	F_w	W	W_t	W_w
HP 14x117	12 1/2"	1"	7/8"	7 3/4"	5/8"	1/2"
x102	12 1/2"	7/8"	3/4"	7 3/4"	5/8"	1/2"
x89	12 1/2"	3/4"	11/16"	7 3/4"	5/8"	1/2"
x73	12 1/2"	5/8"	9/16"	7 3/4"	5/8"	1/2"
HP 12x84	10"	7/8"	11/16"	6 1/2"	5/8"	1/2"
x74	10"	7/8"	11/16"	6 1/2"	5/8"	1/2"
x63	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
x53	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
HP 10x57	8"	3/4"	9/16"	5 1/4"	1/2"	3/8"
HP 10x42	**8"**	**5/8"**	**9/16"**	**5 1/4"**	**1/2"**	**3/8"**
HP 8x36	7"	5/8"	7/16"	4 1/4"	1/2"	3/8"

WELDED PLATE FIELD SPLICE

Note:
The steel H-piles shall be according to AASHTO M270 Grade 50.

CHARLESTON ENGINEERING, INC.
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ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

PILE DETAILS
STRUCTURE NO. 040-3268
T.R. 319
OVER FOX RIVER
SECTION 07-02123-00-BR
JASPER COUNTY
STATION 6+44.00

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 319	07-02123-00-BR	JASPER	16	13
CONTRACT NO. 95723		ILLINOIS		

HOLCOMB FOUNDATION ENGINEERING INC.
P.O. Box 88 618-529-5262
Carbondale, Il. 62903 618-457-8991 fax

Bridge Foundation Boring Log

Project: H-13036 Bridge TR-319 over Fox River Date: 3-1-13
Section: 07-02123-00-BR Station
Structure: SN 040-3127 Bored by: J. Carter
County: Jasper Checked By: T. Holcomb

Boring No: 1
Station:
Offset:

Surface Water Elev.
Ground Water Elev. During Drilling 460.7
Upon Completion plugged

Elevation	N	Qu tsf	w %
Ground Surface 469.2 0			
4" A-3 Surface/8" Crushed Stone			
Gray Silty to Sandy CLAY (A-6)	6	1.4S	16
-5	6	0.4B	31
463.2			
Gray Mottled Brown Sandy CLAY (A-6)	2	0.2B	17
-10	5	--	20
	8	1.0S	21
455.7			
Gray Weathered SHALE	60/6"	--	15
-15 453.2			
Gray SHALE	60/5"	5.1S	12
-20	33	--	16
	100/5"	4.9S	12
shale (continued)			
-25	100/1"	--	12
442.7	100/3"	--	13
End of Boring @ -26.5'			
-30			
-35			
-40			

N = Standard Penetration Test Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with a 140 lbs. hammer falling 30"
Qu-Unconfined Compressive Strength in tons/sq.ft. w-Water Content-percentage of oven dry weight-%
B = Bulge Failure S = Shear Failure E = Estimated Value P = Penetrometer

HOLCOMB FOUNDATION ENGINEERING INC.
P.O. Box 88 618-529-5262
Carbondale, Il. 62903 618-457-8991 fax

Bridge Foundation Boring Log

Project: H-13036 Bridge TR-319 over Fox River Date: 3-1-13
Section: 07-02123-00-BR Station
Structure: SN 040-3127 Bored by: J. Carter
County: Jasper Checked By: T. Holcomb

Boring No: 2
Station:
Offset:

Surface Water Elev.
Ground Water Elev. During Drilling 461.0
Upon Completion 462.5

Elevation	N	Qu tsf	w %
Ground Surface 469.5 0			
2" A-3 Surface/8" Crushed Stone			
Gray Mottled Brown Sandy CLAY (A-6)	6	2.0S	20
-5	4	0.4S	21
463.5			
Brown Mottled Gray Sandy CLAY (A-6)	4	1.1S	23
-10	5	--	20
	10	0.5S	19
456.0			
Gray-Brown Weathered SHALE	34	2.3S	13
-15 453.5			
Gray SHALE	99	4.5S	12
-20	48	--	13
	100/5"	--	9
shale (continued)			
-25	100/1"	5.8S	8
443.0	100/3"	2.9S	8
End of Boring @ -26.5'			
-30			
-35			
-40			

N = Standard Penetration Test Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with a 140 lbs. hammer falling 30"
Qu-Unconfined Compressive Strength in tons/sq.ft. w-Water Content-percentage of oven dry weight-%
B = Bulge Failure S = Shear Failure E = Estimated Value P = Penetrometer

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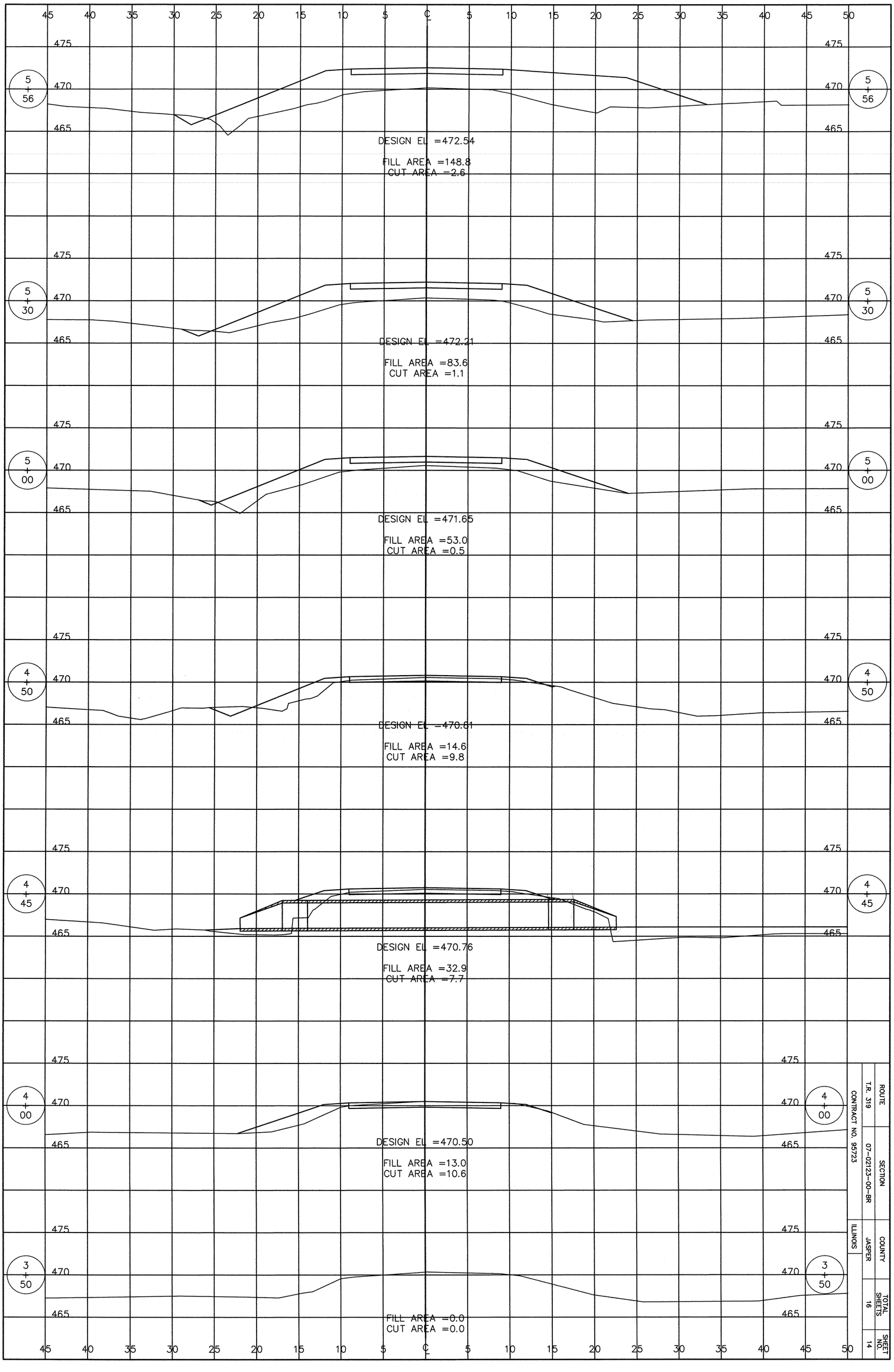
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

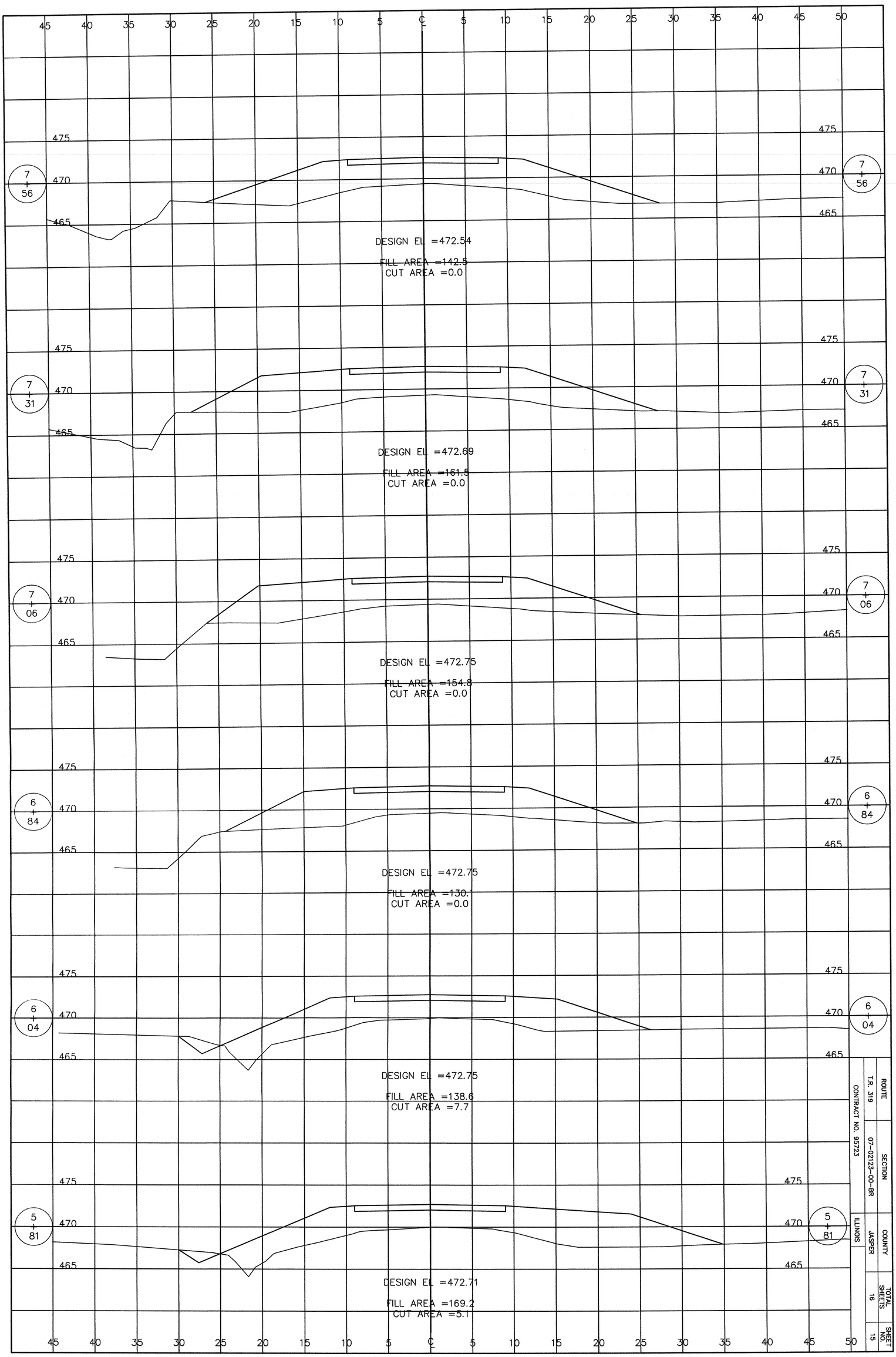
BORING LOGS
STRUCTURE NO. 040-3268
T.R. 319
OVER FOX RIVER
SECTION 07-02123-00-BR
JASPER COUNTY
STATION 6+44.00



ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 319	07-02123-00-BR	JASPER	16	14

CONTRACT NO. 95723

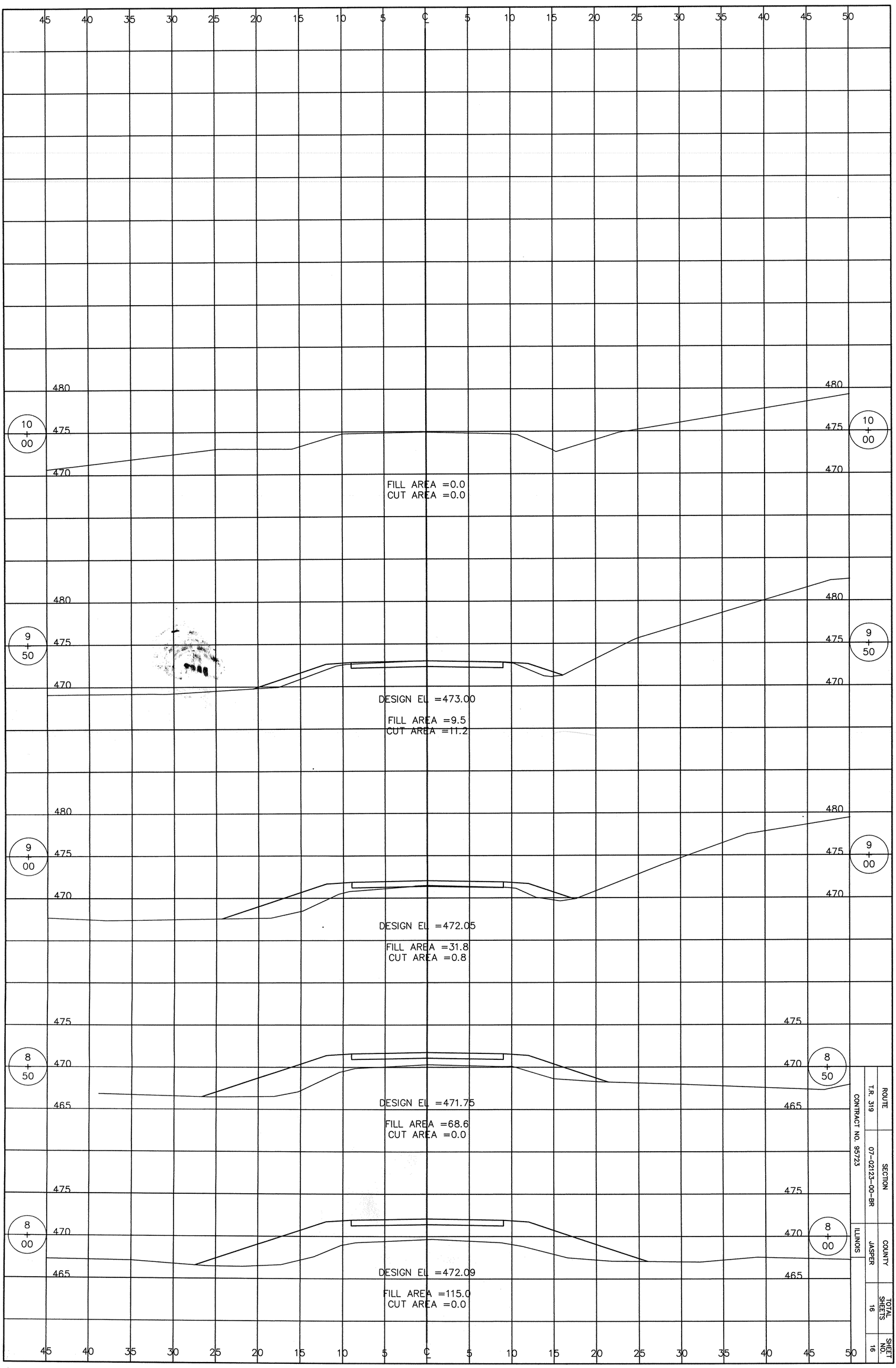
ILLINOIS



ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 319	07-02123-00-BR	JASPER	16	15

CONTRACT NO. 95723

ILLINOIS



ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 319	07-02123-00-BR	JASPER	16	16
CONTRACT NO. 95723		ILLINOIS		