

# INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET & SUMMARY OF QUANTITIES
2	PLAN & PROFILE, TYPICAL SECTIONS & GENERAL NOTES
3-4	ROADWAY CROSS SECTIONS
5-6	TRIBUTARY CROSS SECTIONS
7-14	BRIDGE DESIGN
15	CURLED END SECTIONS DETAIL & STONE RIPRAP DITCH DESIGN

# STANDARDS

000001-05	STANDARD SYMBOLS, ABBREVIATIONS & PATTERNS (6 SHEETS)
280001-04	TEMPORARY EROSION CONTROL SYSTEMS (2 SHEETS)
701901	TRAFFIC CONTROL DEVICES
B.L.R. 21-7	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS
B.L.R. 22-5	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS (TWO-LANE TWO-WAY RURAL TRAFFIC) (ROAD CLOSED TO THRU TRAFFIC)

# SUMMARY OF QUANTITIES

QUANTITY	UNIT	ITEM	CODE NO.
269.00	CU YD	EARTH EXCAVATION	20200100
761.00	CU YD	CHANNEL EXCAVATION	20300100
0.20	ACRE	SEEDING, CLASS 2 (SPECIAL)	25001000
2.00	EACH	TEMPORARY DITCH CHECKS	28000300
12.00	TON	AGGREGATE (EROSION CONTROL)	28001000
1200.00	TON	STONE DUMPED RIPRAP, CLASS A4	28100807
8.00	TON	STONE RIPRAP DITCH	28102600
310.00	TON	AGGREGATE SURFACE COURSE, TYPE B	40200800
1.00	EACH	REMOVAL OF EXISTING STRUCTURES	50100100
20.20	CU YD	CONCRETE STRUCTURES	50300225
2.10	CU YD	CONCRETE ENCASEMENT	50300280
960.00	SQ FT	PRECAST PRESTRESSED CONCRETE DECK BEAMS (21" DEPTH)	50400405
2560.00	POUND	REINFORCEMENT BARS	50800105
80.00	FOOT	STEEL RAILING, TYPE S1	50900205
364.00	FOOT	FURNISHING STEEL PILES HP10X42	51201400
364.00	FOOT	DRIVING PILES	51202305
1.00	EACH	TEST PILE STEEL HP10X42	51203400
1.00	EACH	NAME PLATES	51500100
40.00	FOOT	PIPE CULVERTS, CLASS C, TYPE 1 18"	54200223
1.00	L SUM	MOBILIZATION	67100100

DESIGN DESIGNATION:  
 DESIGN SPEED: 30 MPH  
 HIGHWAY CLASS - LOCAL ROAD  
 EXISTING STRUCTURE NO.: 093-3065  
 PROPOSED STRUCTURE NO.: 093-3131  
 CURRENT A.D.T. = 25  
 CONTRACT NO. 95554

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

# STATE OF ILLINOIS

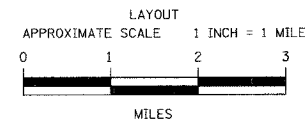
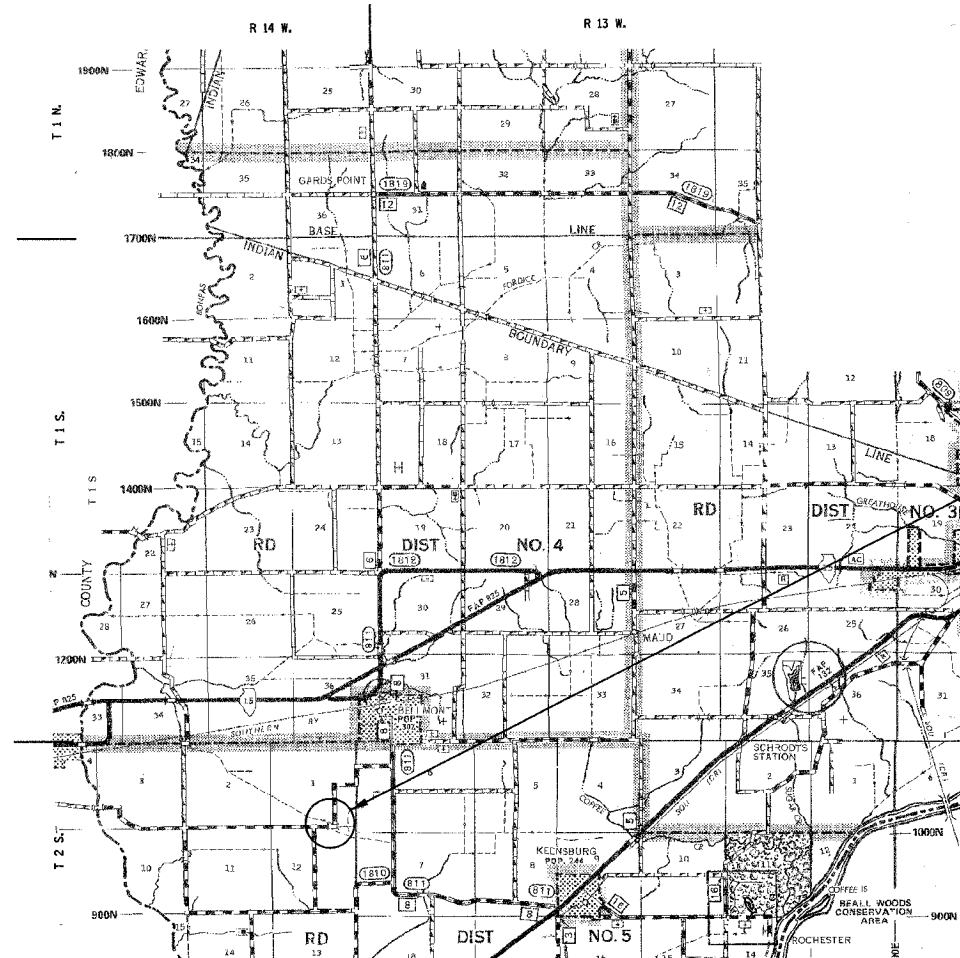
## DEPARTMENT OF TRANSPORTATION

# PLANS FOR PROPOSED FEDERAL AID - H.B.P. PROJECT

T.R. 151 WABASH COUNTY SECTION 06-05120-00-BR

PROJECT NO. BROS-185(21) JOB NO. C-97-070-08

CONTRACT #95554 BONPAS CREEK TRIBUTARY



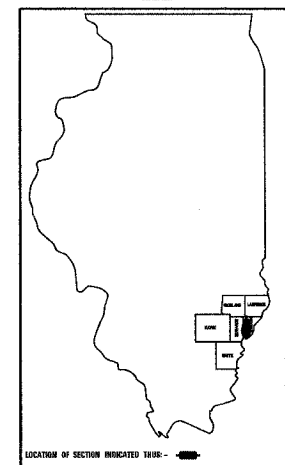
GROSS LENGTH	500.00 FT	0.095 MILES
OMISSIONS	0.00 FT	0.000 MILES
NET LENGTH	500.00 FT	0.095 MILES

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
151	06-05120-00-BR	WABASH	15	1

FED. ROAD DIST. NO. 7 ILLINOIS  
 PROJECT # BROS-185(21)  
 LEAD JOB # H061014WB

FED. AID PROJECT  
 CONTRACT # 95554  
 BONPAS CREEK TRIBUTARY

323 W. 3RD ST.  
 P.O. BOX 160  
 MT. CARMEL, IL 62863  
 PHONE: (618)-262-8651  
 FAX: (618)-263-3327



405 W. STATE ST.  
 SUITE 1  
 PRINCETON, IN 47670  
 PHONE: (317)-386-7611  
 FAX: (317)-385-2812

PROFESSIONAL DESIGN FIRM  
 LAND SURVEY & PROFESSIONAL ENGINEERING CORPORATION  
 184-000887  
 (62-032435)(35-002769)



AARON M. MEFFORD  
 NAME  
 SIGNATURE  
 DATE: 11-30-09  
 EXPIRES

PLAN	1" = 50'	0 50' 100'
PROFILE	1" = 50'	0 50' 100'
PROFILE VERT.	1" = 5'	0 5' 10'
CROSS SECTION	1" = 5'	0 5' 10'

SECTION 06-05120-00-BR  
 BEGINS STATION 2+50

STATION 5+00, STRUCTURE NO. 093-3131  
 A 40' LONG SINGLE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE (21" DEPTH), 24' ROADWAY, 0.00% GRADE, 30° RT FORWARD SKEW.

SECTION 06-05120-00-BR  
 ENDS STATION 7+50

APPROVED MARCH 24<sup>TH</sup> 20 08  
[Signature]  
 COUNTY ENGINEER

PASSED 3/31 20 08  
[Signature]  
 DISTRICT SEVEN ENGINEER OF LOCAL ROADS & STREETS

Releasing For Bid Based on Limited Review 3/31 20 08  
[Signature]  
 DEPUTY DIRECTOR OF HIGHWAYS,  
 REGION FOUR ENGINEER

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

BONPAS CREEK TRIBUTARY  
 TOWNSHIP ROUTE 151  
 WABASH COUNTY, ILLINOIS

SHEET TITLE:  
 TITLE SHEET

SCALE: VARS

BY: AMM  
 DATE: 3/30/08  
 REV:

1 OF 15 SHEETS

SHEET NO.  
 1

**GENERAL NOTES:**

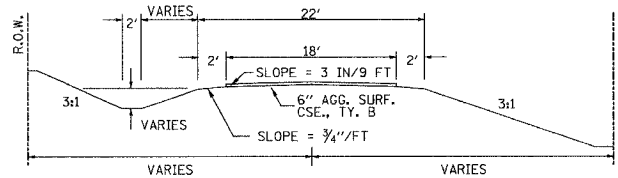
THIS SECTION SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PLANS, SPECIAL PROVISIONS AND "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", ADOPTED JANUARY 1, 2007.

THE WORK INVOLVED ON THIS SECTION CONSISTS OF THE REMOVAL OF THE EXISTING STRUCTURE, THE CONSTRUCTION OF A 40 FOOT LONG SINGLE SPAN PRECAST, PRESTRESSED CONCRETE DECK BEAM BRIDGE, EARTH APPROACHES, AGGREGATE SURFACE COURSE AND OTHER MISCELLANEOUS ITEMS NECESSARY TO COMPLETE THIS SECTION.

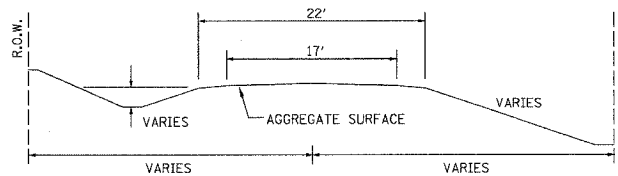
ALL ELEVATIONS ARE BASED ON U.S.C.S. MEAN SEA LEVEL DATUM.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT ALL THE UTILITIES, AFFECTING THE PROJECT, PRIOR TO CONSTRUCTION.

**TYPICAL CROSS SECTION PROPOSED**



**TYPICAL CROSS SECTION EXISTING**



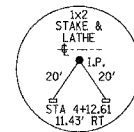
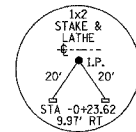
**UTILITIES:**  
J.U.L.I.E. 1-800-892-0123

NOTE: CONSTRUCT SPECIAL DITCH

STA 2+50 TO STA 4+10 LT  
STA 5+12 TO STA 7+50 RT

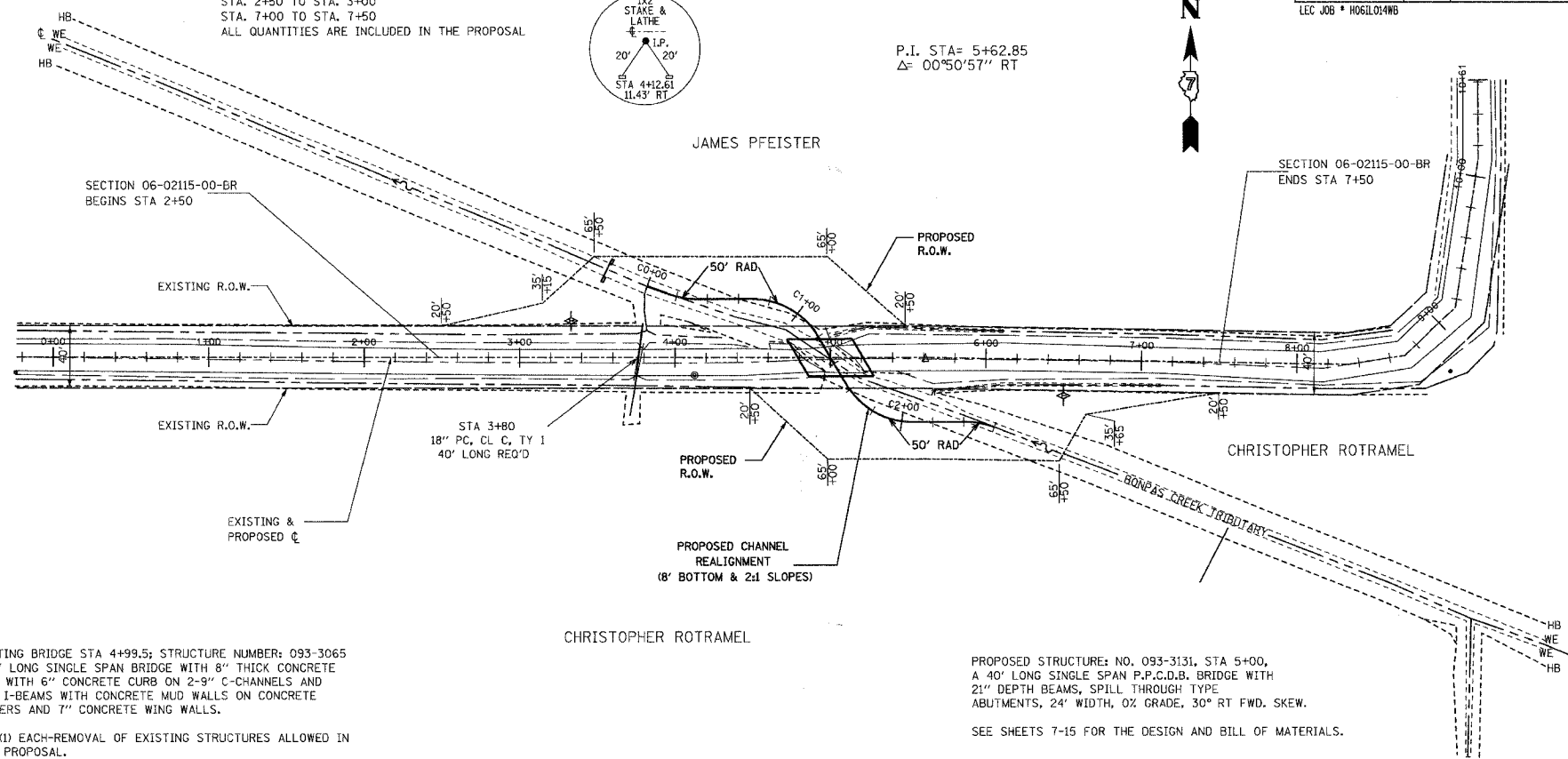
NOTE: CONSTRUCT STONE RIPRAP DITCH

STA 3+76 RT OFFSET 18' TO 20' (0.62 TON/LIN FT)  
STA 3+80 LT OFFSET 21.4' TO 31.4' (0.62 TON/LIN FT)  
8 TON STONE RIPRAP DITCH ALLOWED IN PROPOSAL.



NOTE: CONSTRUCTION TRANSITIONS  
STA. 2+50 TO STA. 3+00  
STA. 7+00 TO STA. 7+50  
ALL QUANTITIES ARE INCLUDED IN THE PROPOSAL

P.I. STA= 5+62.85  
Δ= 00°50'57" RT

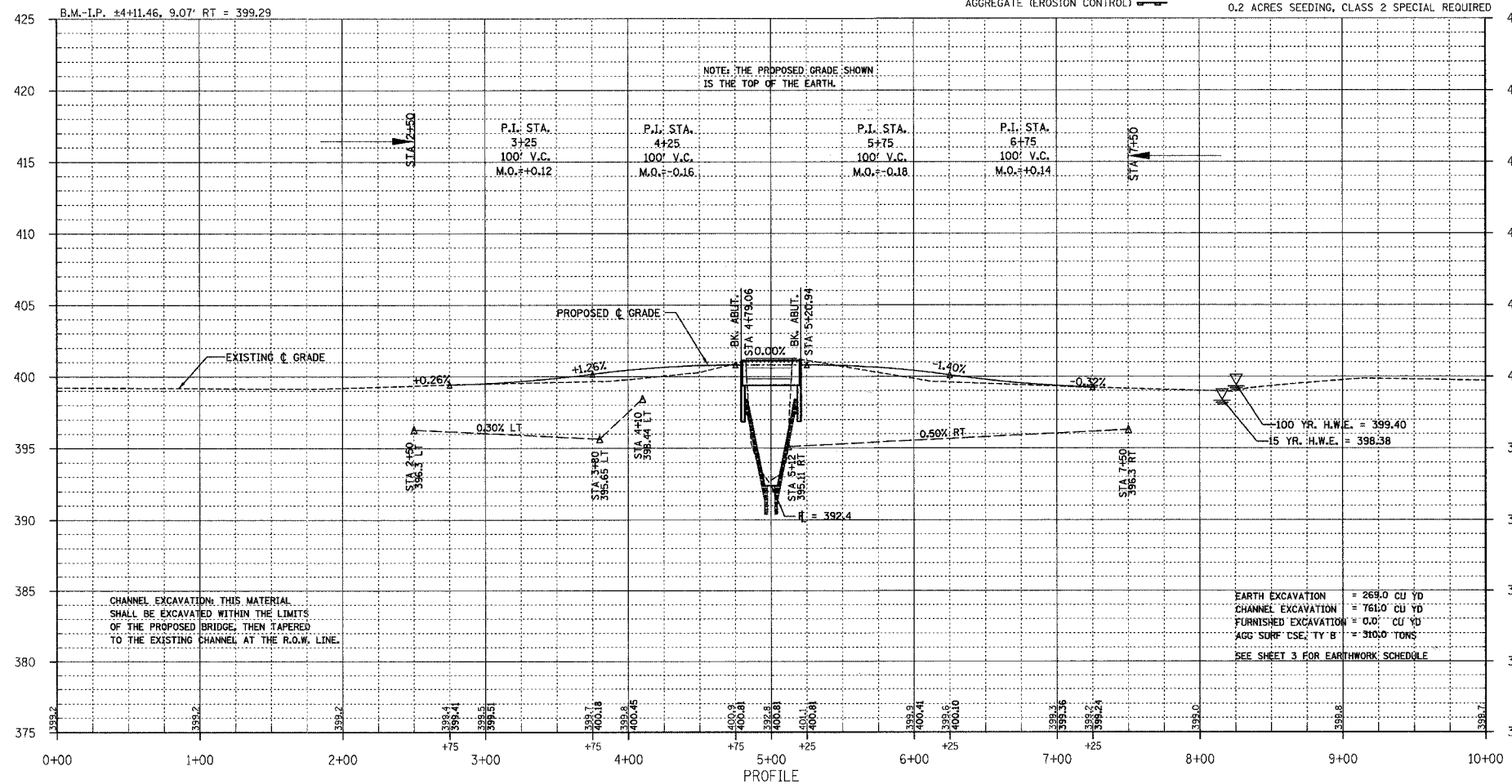


EXISTING BRIDGE STA 4+99.5; STRUCTURE NUMBER: 093-3065  
A 27' LONG SINGLE SPAN BRIDGE WITH 8" THICK CONCRETE DECK WITH 6" CONCRETE CURB ON 2-9" C-CHANNELS AND 8-8" I-BEAMS WITH CONCRETE MUD WALLS ON CONCRETE FOOTERS AND 7" CONCRETE WING WALLS.

ONE (1) EACH REMOVAL OF EXISTING STRUCTURES ALLOWED IN THIS PROPOSAL.

PROPOSED STRUCTURE: NO. 093-3131, STA 5+00,  
A 40' LONG SINGLE SPAN P.P.C.D.B. BRIDGE WITH  
21" DEPTH BEAMS, SPILL THROUGH TYPE  
ABUTMENTS, 24" WIDTH, 0% GRADE, 30° RT FWD. SKEW.

SEE SHEETS 7-15 FOR THE DESIGN AND BILL OF MATERIALS.



CHANNEL EXCAVATION: THIS MATERIAL SHALL BE EXCAVATED WITHIN THE LIMITS OF THE PROPOSED BRIDGE, THEN TAPERED TO THE EXISTING CHANNEL AT THE R.O.W. LINE.

EARTH EXCAVATION = 268.0 CU YD  
CHANNEL EXCAVATION = 761.0 CU YD  
FURNISHED EXCAVATION = 0.0 CU YD  
AGG SURF CSE TY B = 310.0 TONS  
SEE SHEET 3 FOR EARTHWORK SCHEDULE

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
151	06-05120-00-BR	WABASH	15	2

323 W 3RD ST.  
P.O. BOX 100  
MT. CARMEL, IL  
62863

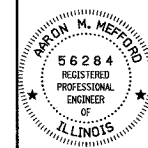
PHONE: (618)-262-8651  
FAX: (618)-263-3327

405 W. STATE ST.  
SUITE 1  
PRINCETON, IN  
47670

PHONE: (612)-386-7611  
FAX: (612)-385-2812



PROFESSIONAL DESIGN FIRM  
LAND SURVEY & PROFESSIONAL ENGINEERING CORPORATION  
184-00087  
(62-032435)(35-002769)



AARON M. MEFFORD  
NAME

SIGNATURE

DATE

11-30-09 EXPIRES

BONPAS CREEK TRIBUTARY  
TOWNSHIP ROUTE 151  
WABASH COUNTY, ILLINOIS

SHEET TITLE:

PLAN & PROFILE

SCALE: VPIES

BY: AMM

DATE: 3/08

REV:

2 OF 15 SHEETS

SHEET NO.

2

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
151	06-05120-00-BR	WABASH	15	3
FED. ROAD DIST. NO. 7		ILLINOIS	BONPAS CREEK TRIBUTARY	
PROJECT # BROS-18512D		CONTRACT # 95554		

323 W. 3RD ST.  
P.O. BOX 160  
MT. CARMEL, IL  
62863  
PHONE:  
(618)-262-8651  
FAX:  
(618)-263-3327

405 W. STATE ST  
SUITE 1  
PRINCETON, IN  
47670  
PHONE:  
(812)-386-7611  
FAX:  
(812)-385-2812



PROFESSIONAL DESIGN FIRM  
LAND SURVEY &  
PROFESSIONAL ENGINEERING CORPORATION  
184-000687  
(62-032435)(35-002769)



AARON M. MEFFORD  
NAME  
SIGNATURE  
3-21-08  
DATE  
11-30-09  
EXPIRES

BONPAS CREEK TRIBUTARY  
TOWNSHIP ROUTE 151  
WABASH COUNTY, ILLINOIS

SHEET TITLE:

CROSS-SECTIONS

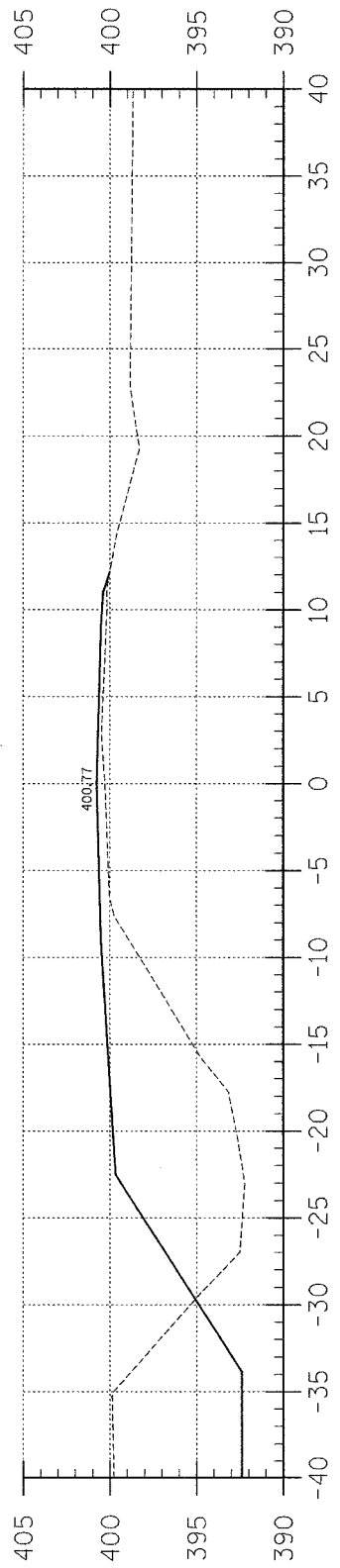
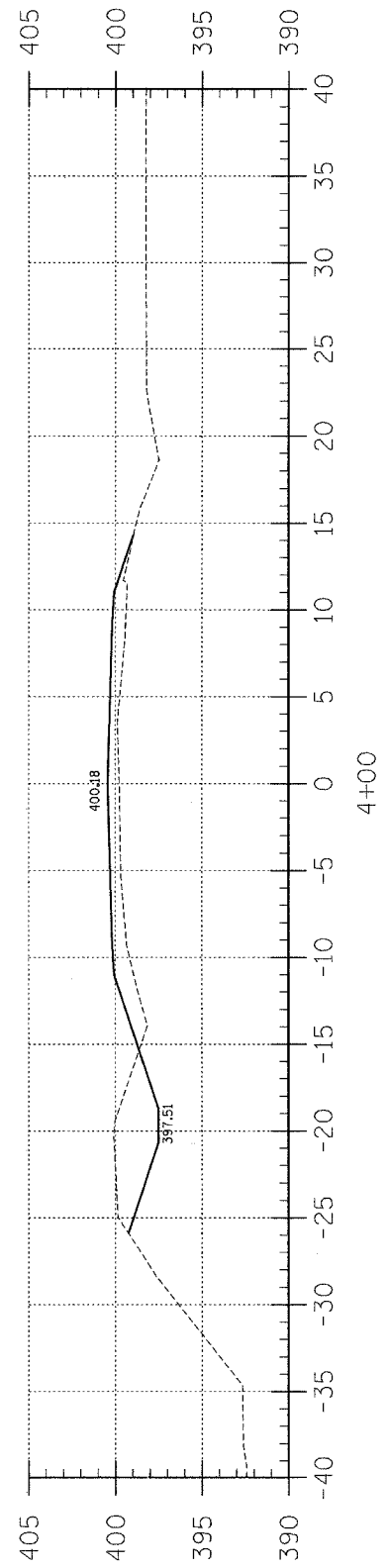
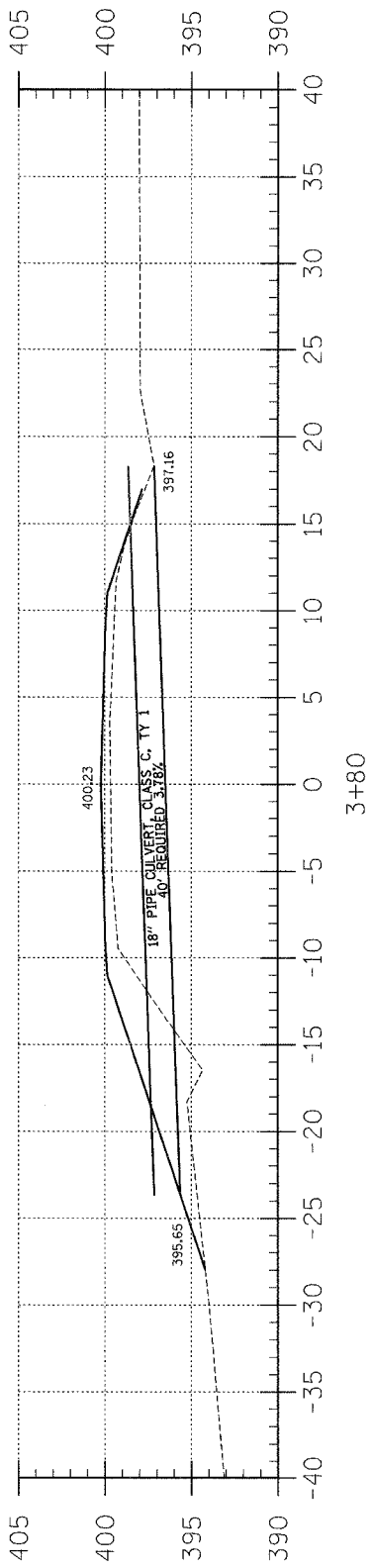
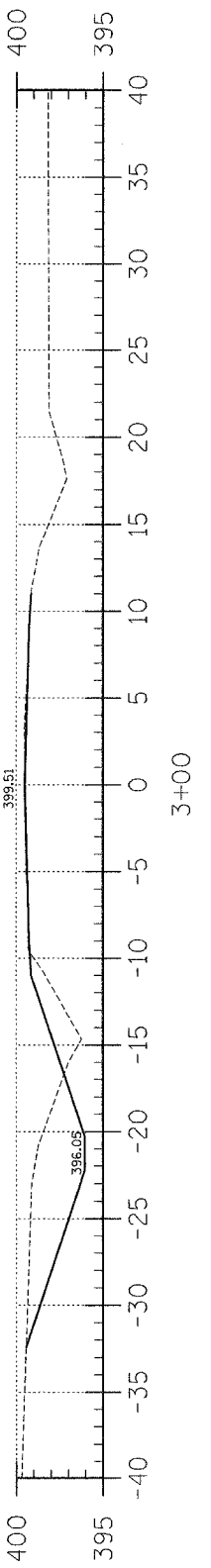
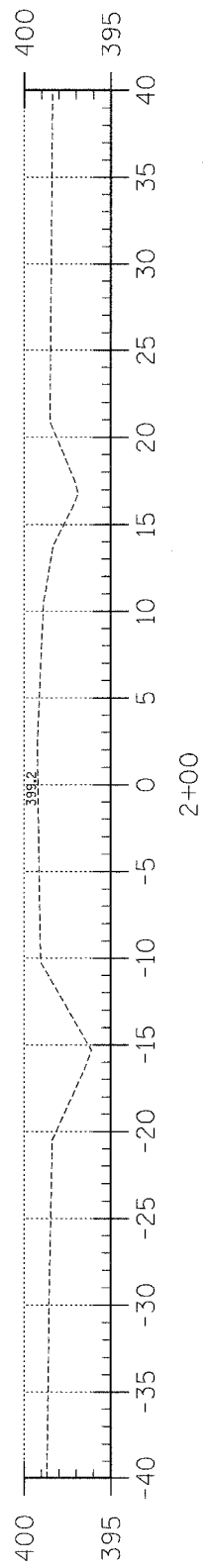
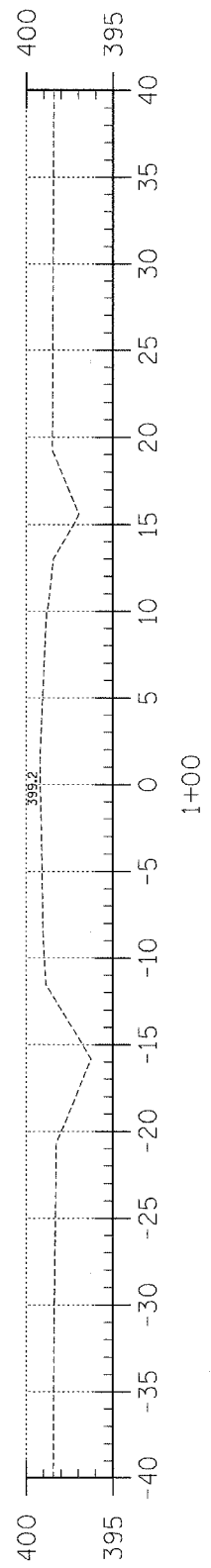
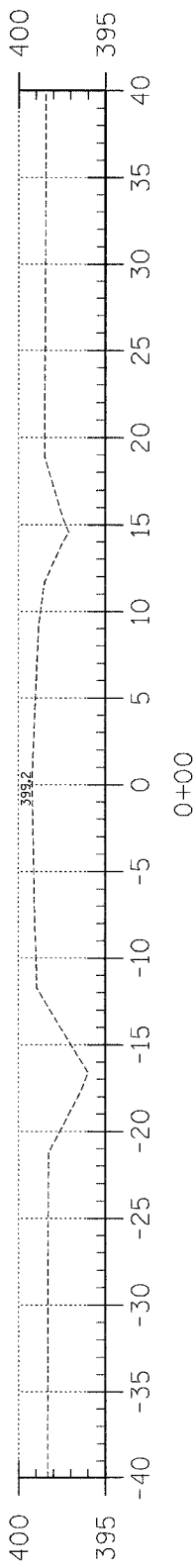
SCALE: 1" = 5'  
BY: AMM  
DATE: 3/08  
REV: MLG

3 OF 15 SHEETS

SHEET NO. 3

LOCATION	EARTH EXCAVATION	CHANNEL EXCAVATION	ESTIMATED UNSUITABLE MATERIAL	SUITABLE MATERIAL ADJUSTED FOR SHRINKAGE	EMBANKMENT	EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-)
	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD
STA 0+00 TO 4+79	148.0	0.0	0.0	111.0	213.5	-102.5
CHANNEL RELOCATION	0.0	761.4	380.7	285.5	0.0	285.5
STA 5+21 TO 10+00	120.8	0.0	0.0	90.6	172.0	-81.4
TOTAL	268.8	761.4	380.7	487.1	385.5	+101.6

EARTHWORK SCHEDULE



T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
151	06-05120-00-BR	WABASH	15	4
FED. ROAD DIST. NO. 7 ILLINOIS		BONPAS CREEK TRIBUTARY		
PROJECT * BR05-189(2)		CONTRACT * 9554		
LEC JOB * H06104WB		PHONE: (618)-262-8651 FAX: (618)-263-3327		

405 W. STATE ST.  
SUITE 1  
PRINCETON, IN 47670  
PHONE: (812)-386-7611  
FAX: (812)-385-2812



PROFESSIONAL DESIGN FIRM  
LAND SURVEY & PROFESSIONAL ENGINEERING CORPORATION  
184-000887  
(62-032435)(35-002769)



AARON M. MEFFORD  
NAME  
*Aaron Mefford*  
SIGNATURE  
3-21-07  
DATE  
11-30-09  
EXPIRES

BONPAS CREEK TRIBUTARY  
TOWNSHIP ROUTE 151  
WABASH COUNTY, ILLINOIS

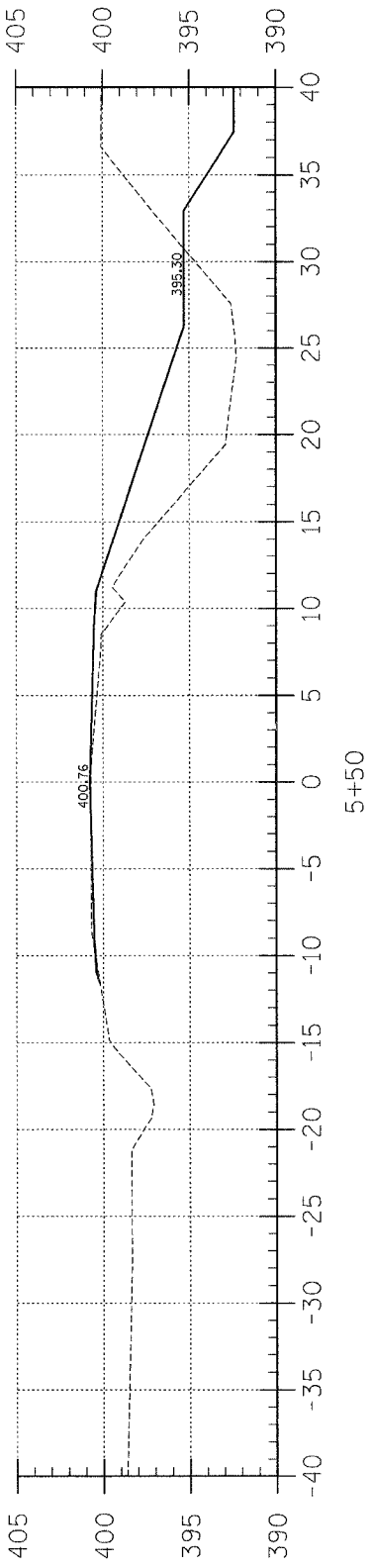
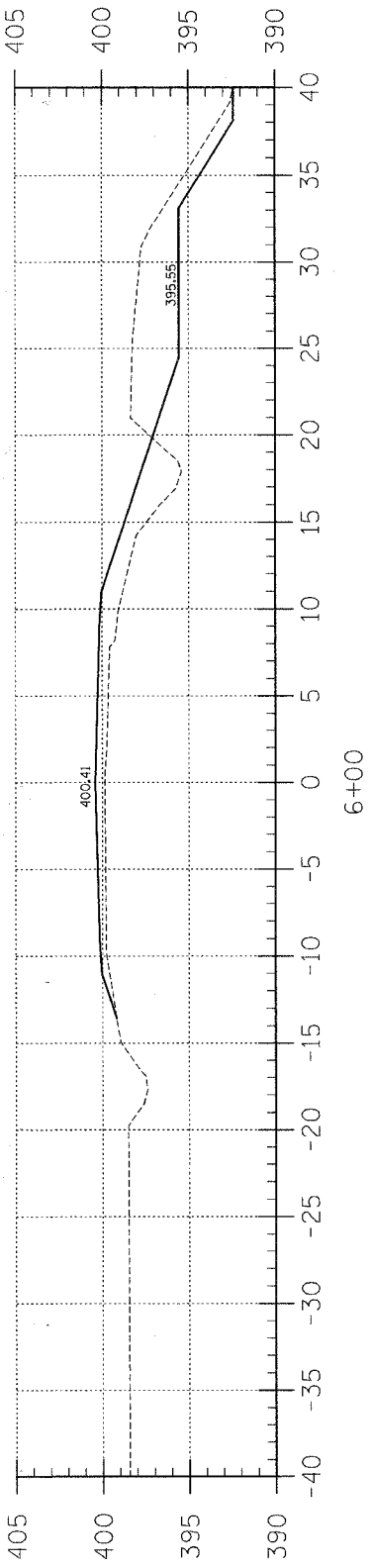
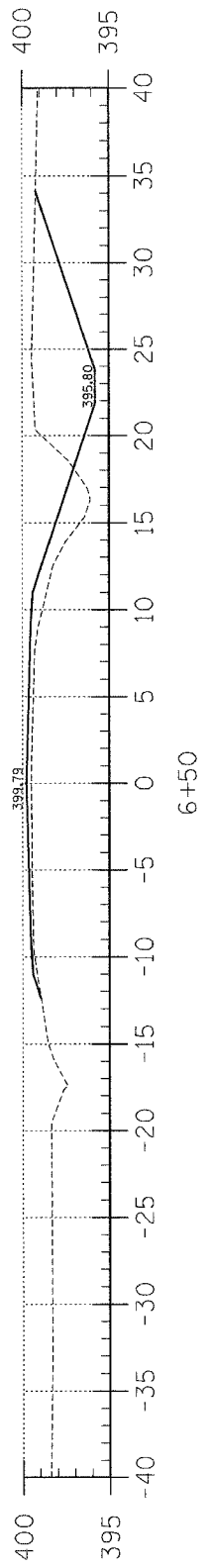
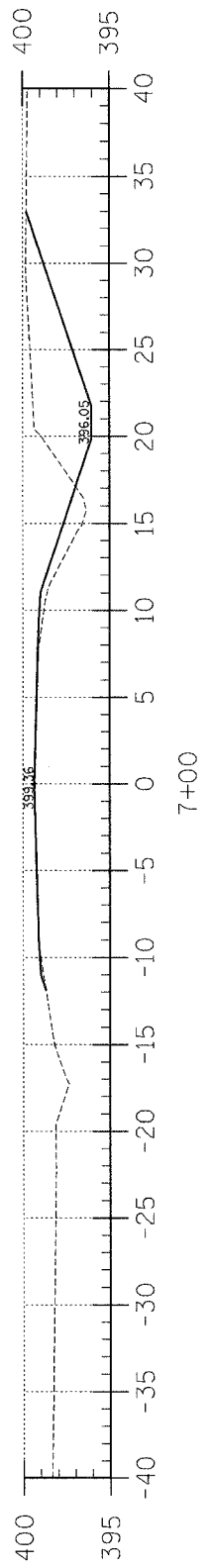
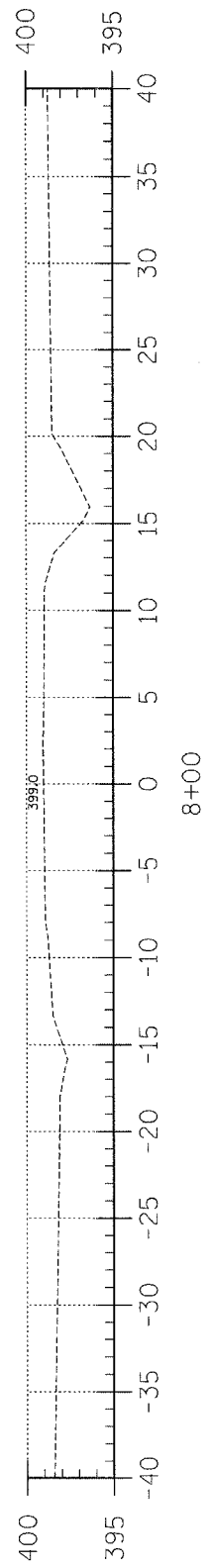
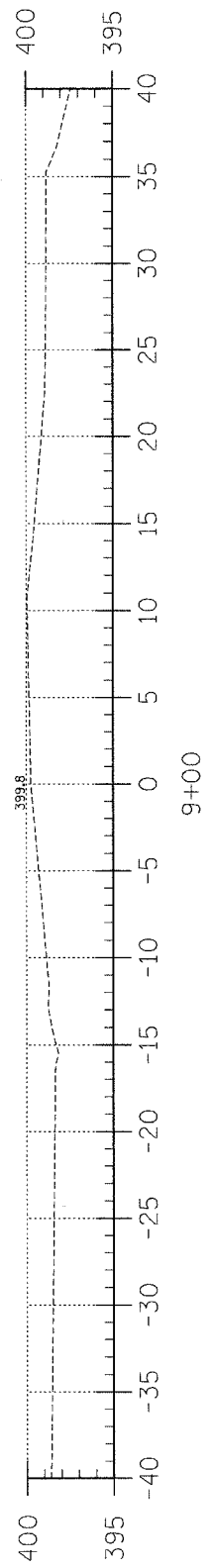
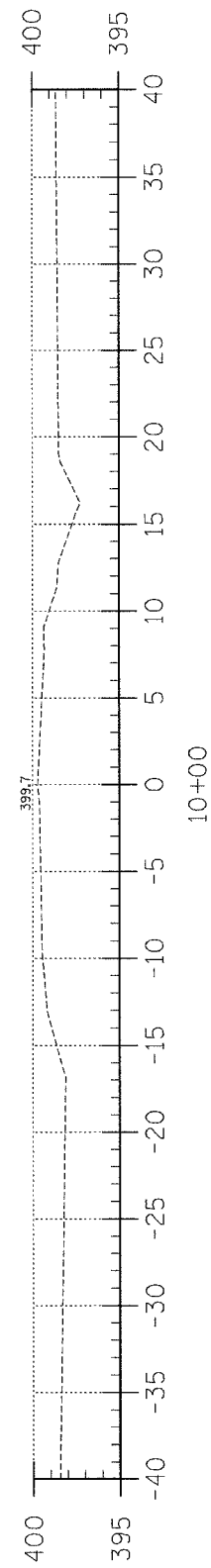
SHEET TITLE:

CROSS-SECTIONS

SCALE: 1" = 5'  
BY: AMM  
DATE: 3/08  
REV: MLG

4 OF 15 SHEETS

SHEET NO. 4



T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
151	06-05120-00-BR	WABASH	15	5
FED. ROAD DIST. NO. 7		ILLINOIS	BONPAS CREEK TRIBUTARY	
PROJECT • BR05-185(2)		CONTRACT • 95554		
LEC JOB # HQ61014WB				

323 W. 3RD ST.  
P.O. BOX 160  
MT. CARMEL, IL  
62963

PHONE:  
(618)-262-8651  
FAX:  
(618)-263-3327

405 W. STATE ST  
SUITE 1  
PRINCETON, IN  
47670

PHONE:  
(812)-386-7611  
FAX:  
(812)-385-2812



PROFESSIONAL DESIGN FIRM  
LAND SURVEY &  
PROFESSIONAL  
ENGINEERING  
CORPORATION

184-000887  
(62-032436)(35-002769)



AARON M. MEFFORD  
NAME  
*Aaron Mefford*  
SIGNATURE  
3-21-08  
DATE  
11-30-09  
EXPIRES

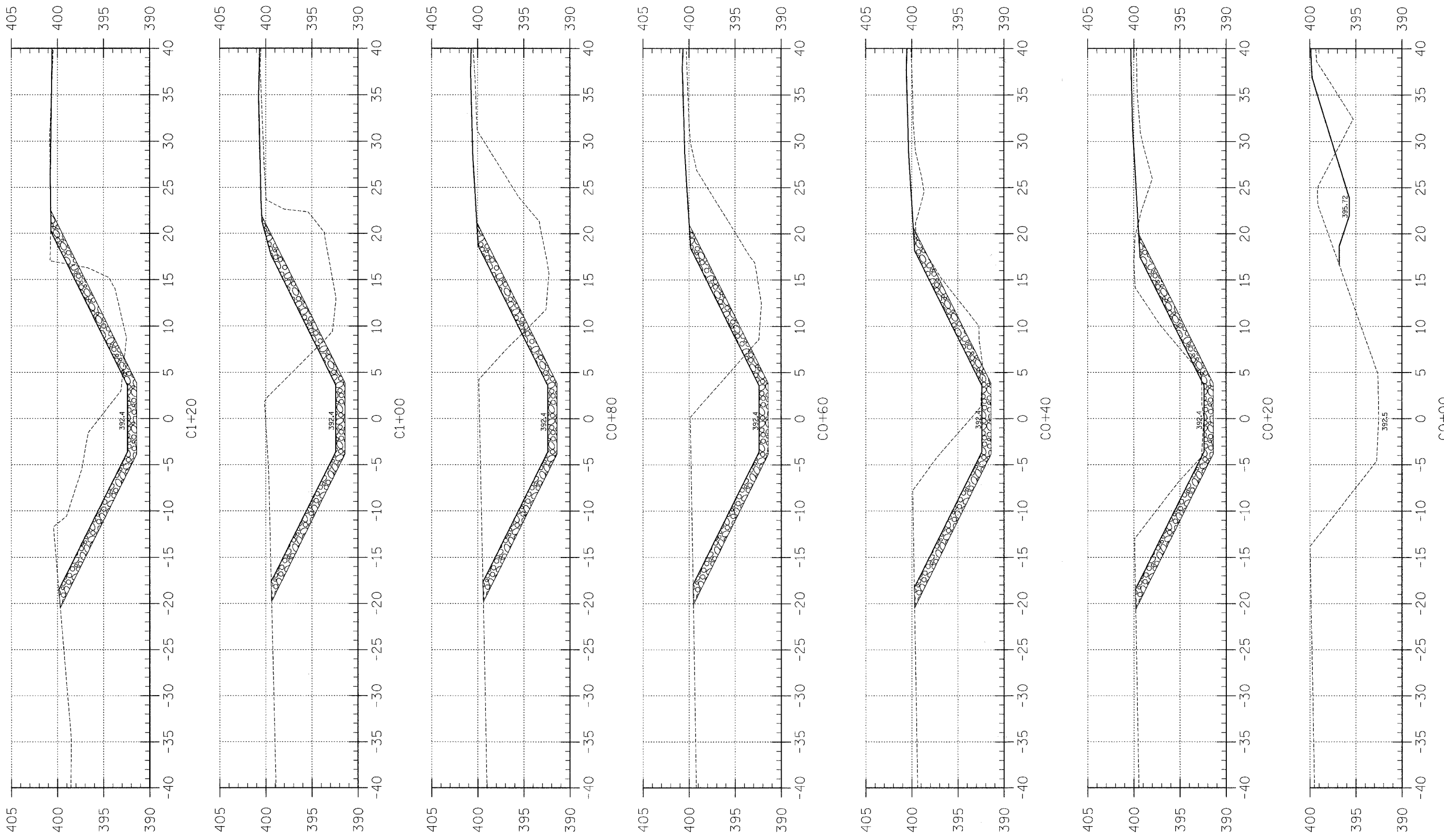
BONPAS CREEK TRIBUTARY  
TOWNSHIP ROUTE 151  
WABASH COUNTY, ILLINOIS

SHEET TITLE:  
TRIBUTARY  
CROSS-SECTIONS

SCALE:	1" = 5'
BY:	AMM
DATE:	3/8/08
REV:	MLG

5 OF 15  
SHEETS

SHEET NO.  
5



T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
151	06-05120-00-BR	WABASH	15	6
FED. ROAD DIST. NO. 7 ILLINOIS		BONPAS CREEK TRIBUTARY		
PROJECT * BROS-185(2)		CONTRACT * 95554		
LEC JOB * HDG1014WB				

PHONE: (618)-262-8651  
FAX: (618)-263-3327

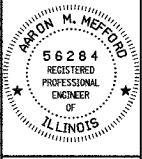
405 W. STATE ST.  
SLITERS  
PRINCETON, IN  
47670

PHONE: (812)-386-7611  
FAX: (812)-385-2812



PROFESSIONAL DESIGN FIRM  
LAND SURVEY & PROFESSIONAL ENGINEERING CORPORATION

184-000887  
(62-032435)(35-002769)



AARON M. MEFFORD  
NAME  
*Aaron Mefford*  
SIGNATURE  
3-21-08  
DATE  
11-30-09  
EXPIRES

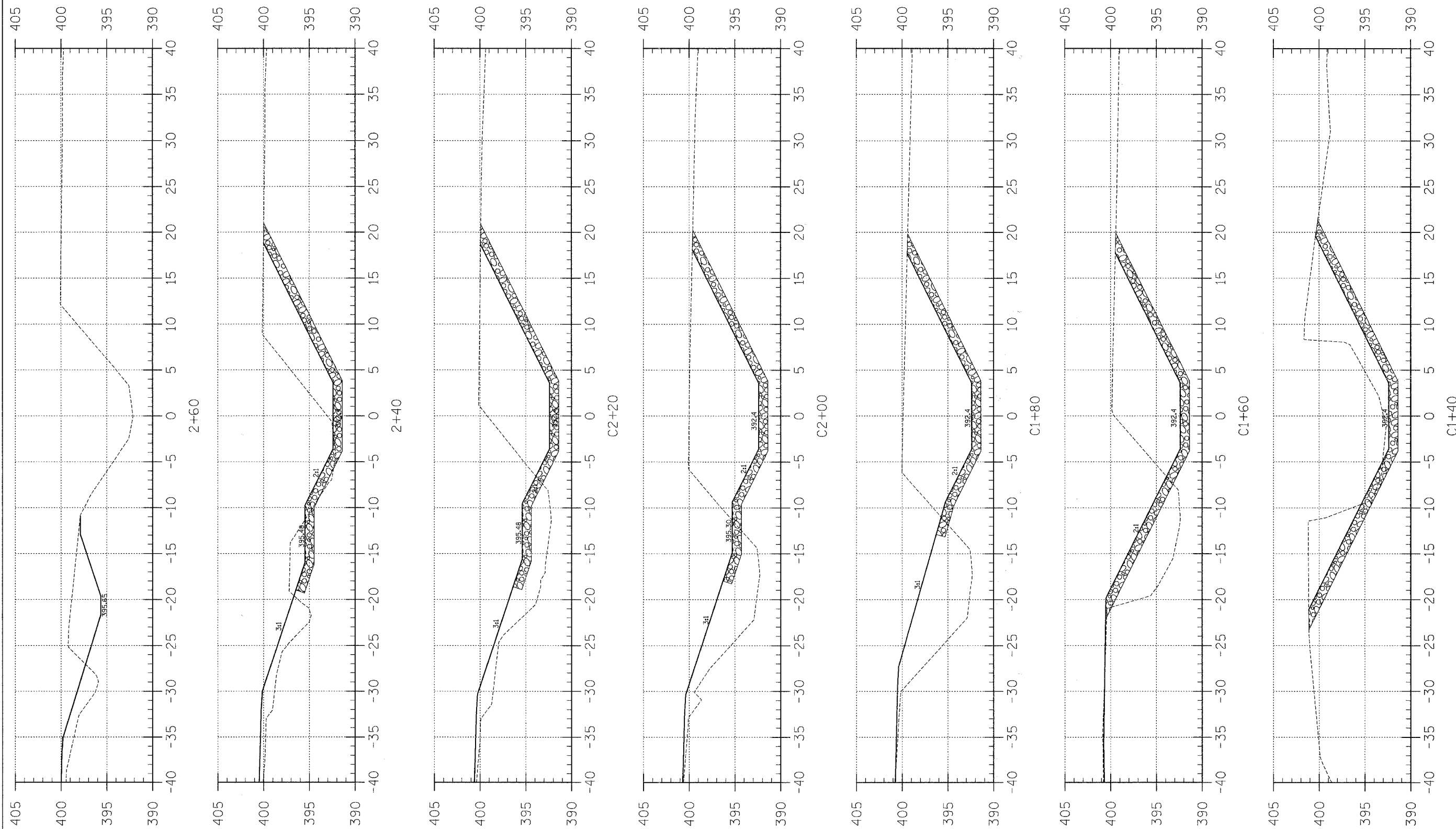
BONPAS CREEK TRIBUTARY  
TOWNSHIP ROUTE 151  
WABASH COUNTY, ILLINOIS

SHEET TITLE:  
TRIBUTARY CROSS-SECTIONS

SCALE:	1" = 5'
BY:	AMM
DATE:	10/20/06
REV:	MLG

6 OF 15 SHEETS

SHEET NO.  
6



TR	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
151	06-05120-00-BR	WABASH	15	7
FED. ROAD DIST. NO. 7 ILLINOIS		BONPAS CREEK TRIBUTARY		
PROJECT # BR05-185(21)		CONTRACT NO. 95554		
LEC JOB # H06L014#6				

323 W. 3RD ST.  
P.O. BOX 160  
MT. CARMEL, IL  
62863  
PHONE: (618)-262-8651  
FAX: (618)-263-3327

405 W. STATE ST  
SUITE 1  
PRINCETON, IN  
47670  
PHONE: (812)-386-7611  
FAX: (812)-386-2812

PROFESSIONAL  
LAND SURVEYING  
FIRM  
048-00082  
PROFESSIONAL  
ENGINEERING  
CORPORATION  
164-000887

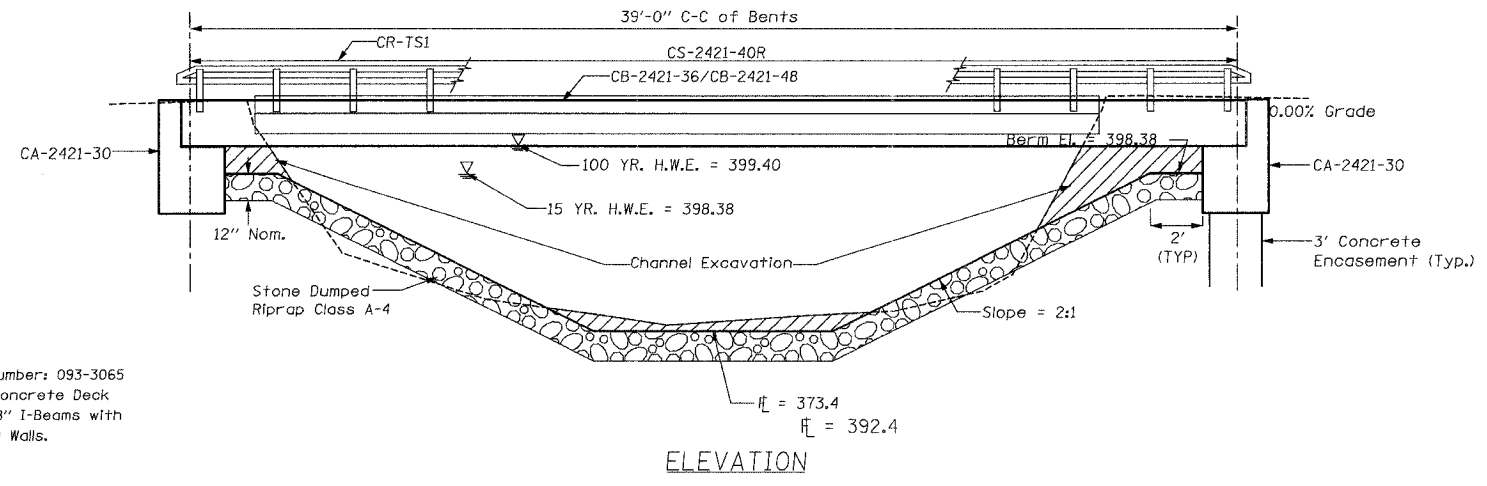
AARON M. MEFFORD  
REGISTERED  
PROFESSIONAL  
ENGINEER  
OF  
ILLINOIS

AARON M. MEFFORD  
NAME  
Signature  
SIGNATURE  
3-21-08  
DATE  
11-30-09  
EXPIRES

BONPAS CREEK TRIBUTARY  
TOWNSHIP ROUTE 151  
WABASH COUNTY, ILLINOIS

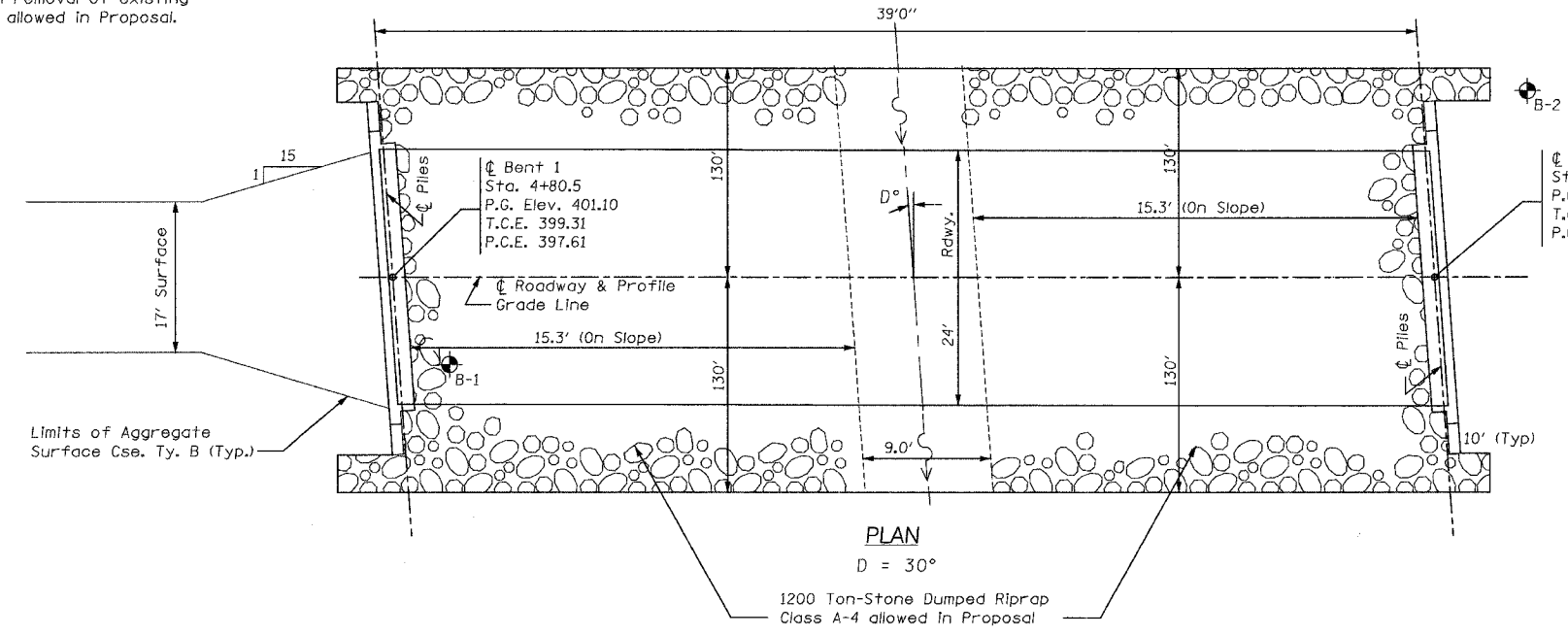
SHEET TITLE:  
GENERAL PLAN  
AND ELEVATION  
SCALE: NONE  
BY: A.M.M.  
DATE: 08/08  
REV:  
7 OF 15  
SHEETS  
SHEET NO.  
7

B.M. I.P. ±4+11.46, 9.07' RT.  
Elev. = 399.29



Existing Bridge Sta 4+99.5; Structure Number: 093-3065  
A 27' Single Span Bridge with 8" Thick Concrete Deck  
with 6" Curb on 2-9" C-Channels and 8-8" I-Beams with  
Concrete Footers and 7" Concrete Wing Walls.

One (1) each removal of existing  
structures allowed in Proposal.



GENERAL NOTES

- The Contractor shall drive one test pile, as specified, in a permanent location as directed by the Engineer before ordering the remaining piles.
- See Special Provisions for boring logs.
- A Corrosion Inhibitor, as covered in the Special Provisions, shall be used in the concrete for Precast Prestressed Concrete Deck Beams.
- The Hot-Mix Asphalt Surf. Cse. and the Waterproofing Membrane System shown in these Plans shall not be provided.

Item	Unit	Super	Sub. Piers	Abuts.	Total
Removal of Existing Structures	L Sum				1
Ht. Conc. Surf. Cse. Superpave	Tons				
Waterproofing Membrane System	Sq.Yds.				
Concrete Structures	Cu.Yds.			20.2	20.2
P.P. Conc. Dk. Bm. 21" Dp.	Sq.Ft.	960			960
Steel Railing, Type S1	Lin.Ft.	80			80
Reinforcement Bars	Lbs.			2560	2560
Furnishing Steel Piles HP10X42	Lin.Ft.			364	364
Driving Piles	Lin.Ft.			364	364
Test Pile Steel HP10X42	Each			1	1
Name Plates	Each			1	1
Concrete Encasement	Cu.Yds.			2.1	2.1

NOTE: Four (4) Curled End Sections required. Item to be included in the Steel Railing, see detail sheet 15.

NOTE: All items deemed fit for use on other County projects shall become the property of the County. These items shall be stored along the R.O.W. at no additional cost to the project.

NOTE: The Article or Section Numbers Referencing the Standard Specifications for Road and Bridge Construction as shown on the Standard Bridge Plan Sheets included with the contract plans should be interpreted as referring to the current edition of the Standard Specification (Adopted January 1, 2007) as shown in the "Article/Section No. Reference Table."

ARTICLE/SECTION NO. REFERENCE TABLE

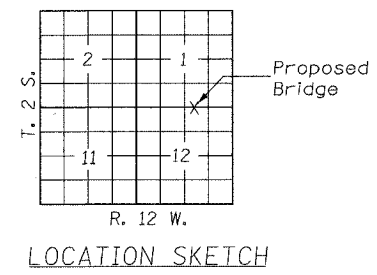
Previous No.	Current No.
504.06	504.06
505.04	505.04
1006.05	1006.05
1006.32	1006.32
1060.07	1060.07
STD 631026	STD 631026

EAST ABUT. PILE DATA  
Type: Steel Piles HP10X42  
Nominal Required Bearing: 335 Kips  
Allowable Resistance Available: 112 Kips  
Estimated Length: 52 Feet/Pile  
Number Required: 4

WEST ABUT. PILE DATA  
Type: Steel Piles HP10X42  
Nominal Required Bearing: 335 Kips  
Allowable Resistance Available: 112 Kips  
Estimated Length: 52 Feet/Pile  
Number Required: 3  
Test Pile: 1

STATION 5+00  
BONPAS CREEK TRIBUTARY  
SEC. 06-05120-00-BR BUILT 20  
PROJECT NO. BR05-185(21)  
WABASH COUNTY  
LOADING HS 20-44  
STR. NO. 093-3131

LETTERING FOR NAME PLATE  
Locate Name Plate at the Southwest Corner of the Bridge (See Sd. CN)



INDEX OF SHEETS

- General Plan & Elevation
- Standard CS-2421-40R
- Standard CB-2421-36
- Standard CB-2421-48
- Standard CA-2421-30
- Standard CR-TS1
- Standard CN
- Standard CX-1

WATERWAY INFORMATION

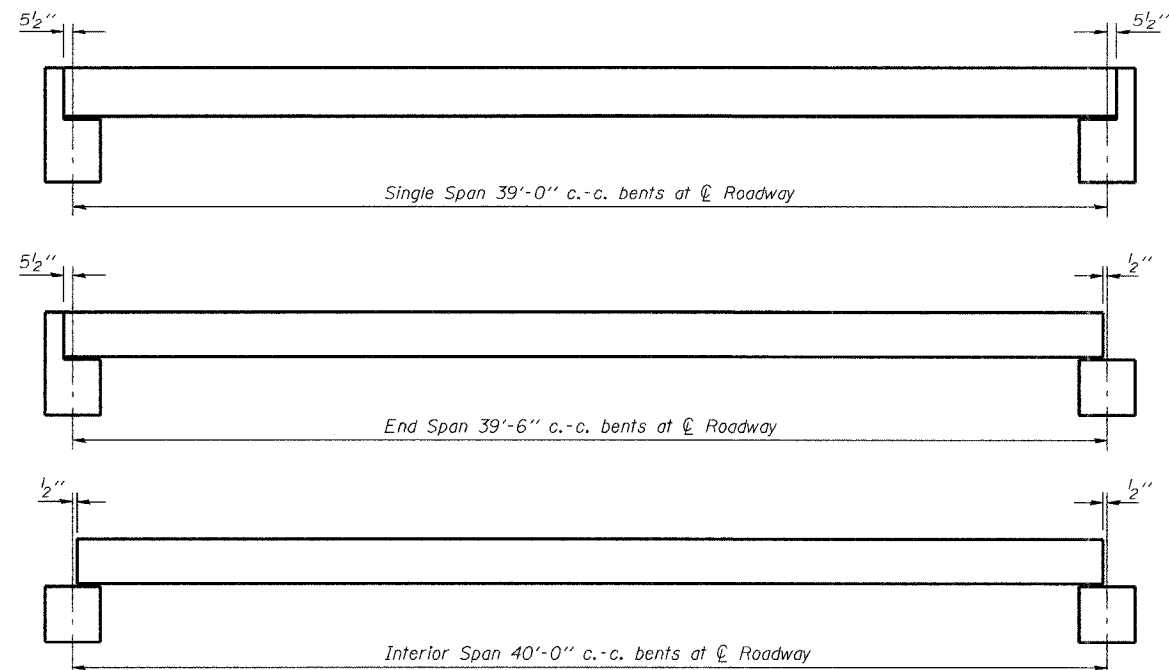
Drainage Area = 1.2 Sq. Mi. Low Grade Elev. = 399.24 At Sta. 7+25

Flood	Freq. Yr.	Q C.F.S.	Opening Sq.Ft.		Natural H.W.E.	Head-Ft.		Headwater El.
			Exist.	Prop.		Exist.	Prop.	
Design	15	231	53.7	108.6	398.38		0.03	398.41
Base	100	357	66.5	140.6	399.4		0.21	399.61
Max. Calc.	500	457						

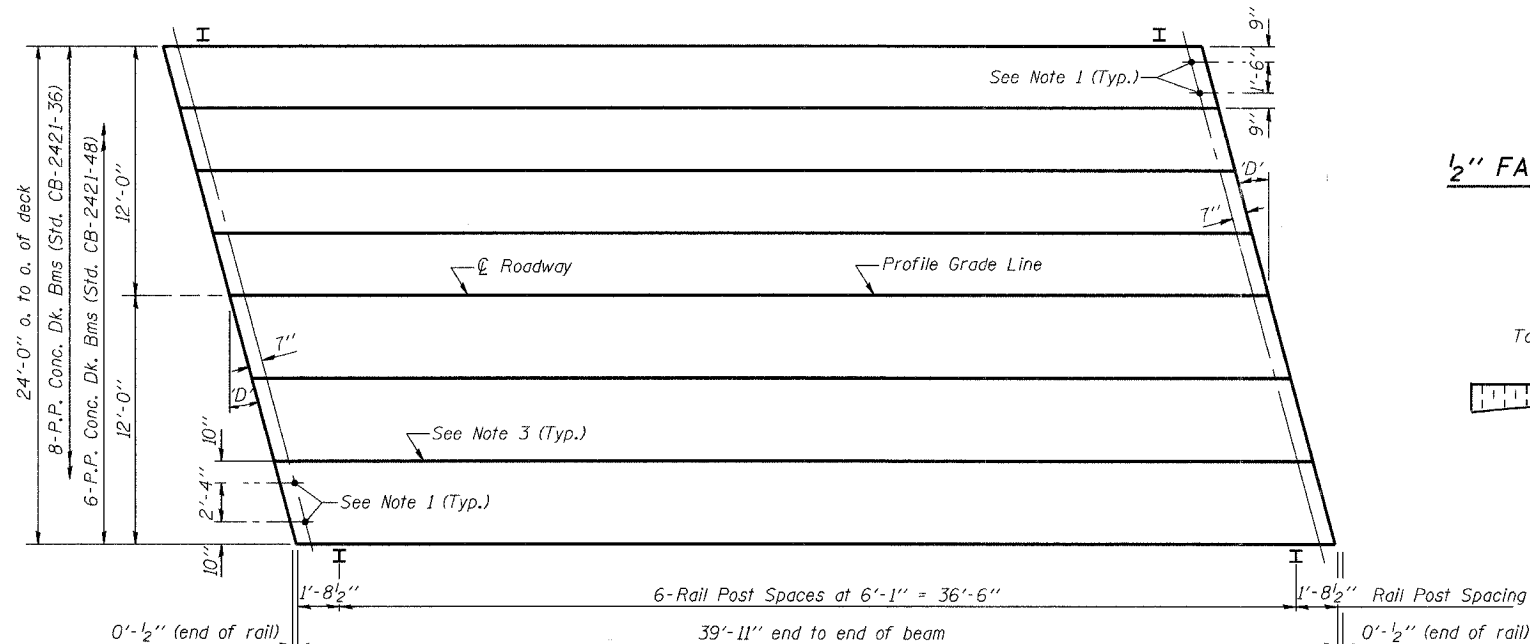
DESIGN SPECIFICATIONS

2002 AASHTO  
HS 20-44 Loading, Load Factor Design

GENERAL PLAN & ELEVATION  
TOWNSHIP ROUTE 151  
OVER BONPAS CREEK TRIBUTARY  
SECTION 06-05120-00-BR  
WABASH COUNTY  
STATION 5+00



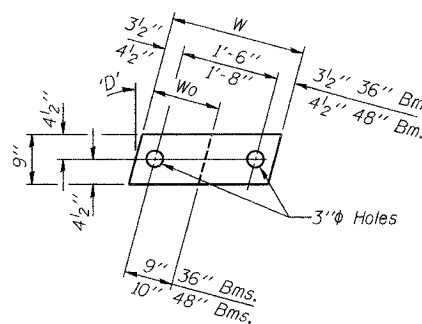
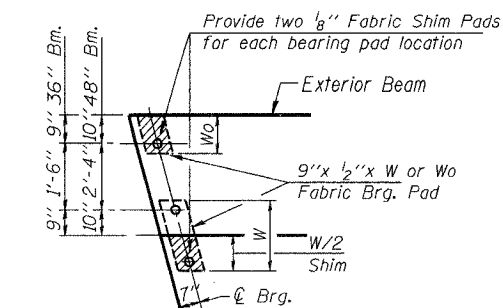
TYPICAL ELEVATIONS



PLAN  
('D' = Designated Skew Angle)

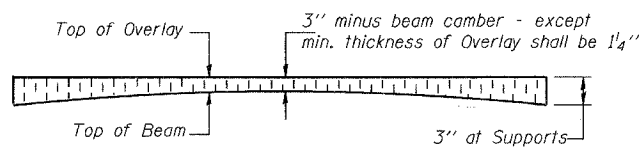
NOTES

1. 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.
2. Nominal 1" joint at Center Pier shall be filled with non-shrink grout.
3. Longitudinal keys shall be grouted.

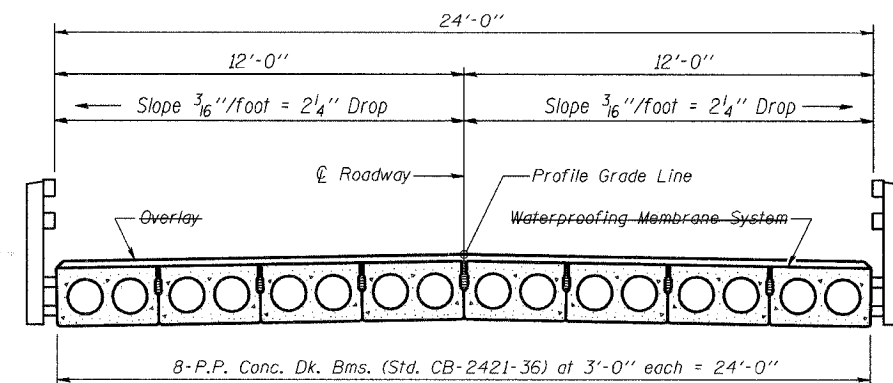


Beam	W	Wo
36"	2'-1"	1'-0 1/2"
48"	2'-5"	1'-2 1/2"

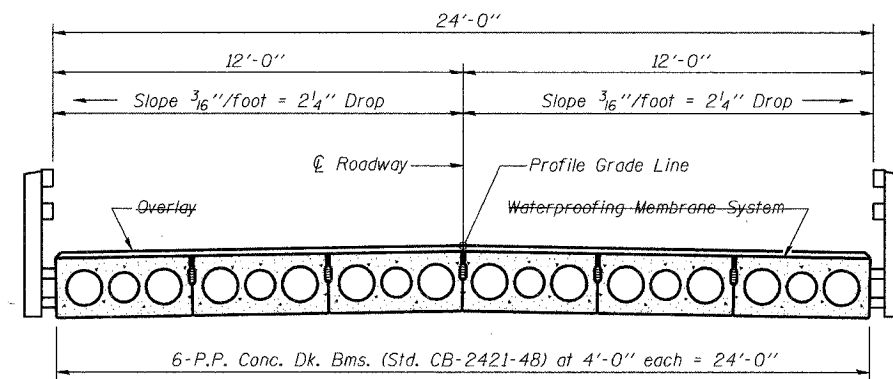
1/2" FABRIC BRG. PAD DETAILS



PROFILE OF OVERLAY



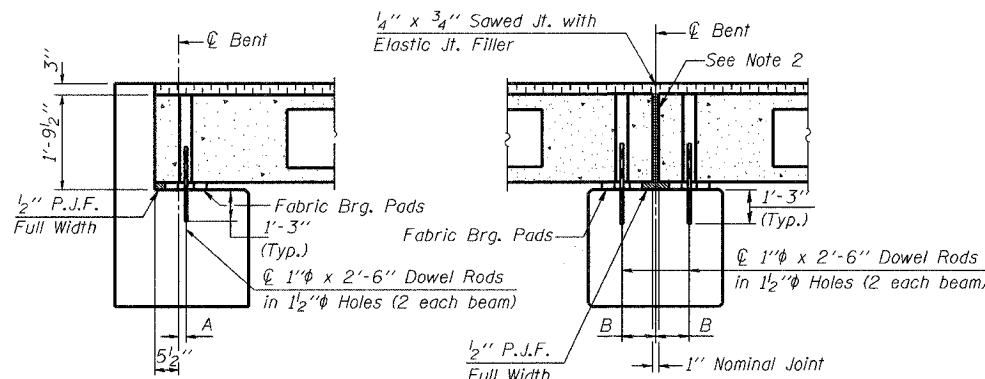
CROSS SECTION



CROSS SECTION

DIMENSIONS 'A' AND 'B'

'D'	5°	10°	15°	20°	25°	30°
A	1 1/2"	1 5/8"	1 3/4"	1 7/8"	2 1/4"	2 5/8"
B	7 1/2"	7 5/8"	7 3/4"	8"	8 1/4"	8 5/8"



SECTION AT ABUTS.  
(Along Centerline Beams)

SECTION AT PIERS  
(Along Centerline Beams)

QUANTITIES FOR ONE SPAN

P.P. Conc. Dk. Bm. 21" Dp.	960 Sq. Ft.
Steel Railing	80 Ft.
Waterproofing Membrane System	106.7 Sq. Yds.
Portland Cement Mortar	280 Ft. 36"
Fairing Course	200 Ft. 48"

Note: Quantity of overlay for one span = 15.3 Tons

P.P.C. DECK BEAM  
SUPERSTRUCTURE

24' RDWY.	21" BMS.	40' SPAN	RIGHT
STANDARD CS-2421-40R			

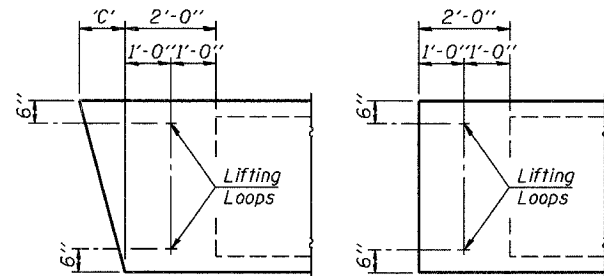
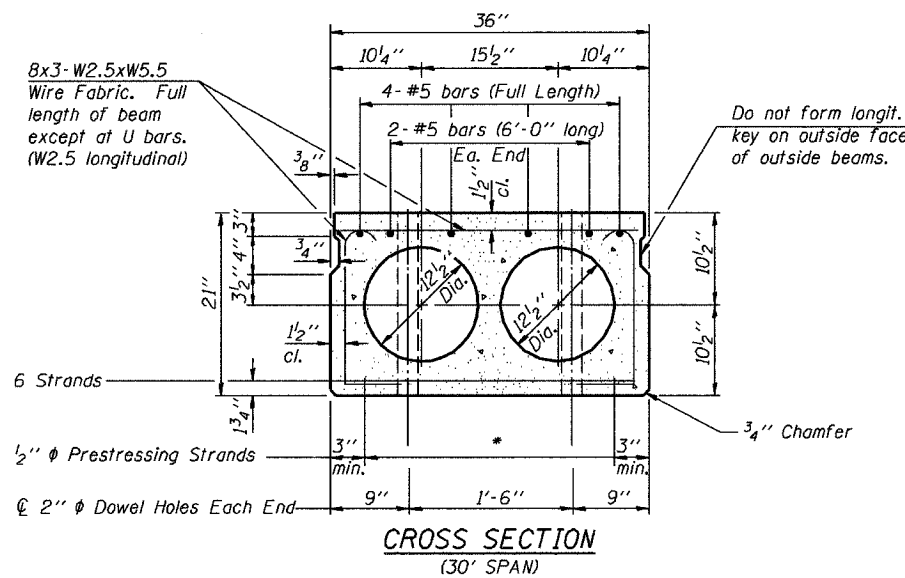
Illinois Department of Transportation

PASSED APRIL 4, 2005  
Thomas J. Demagala  
Engineer of Bridge Design

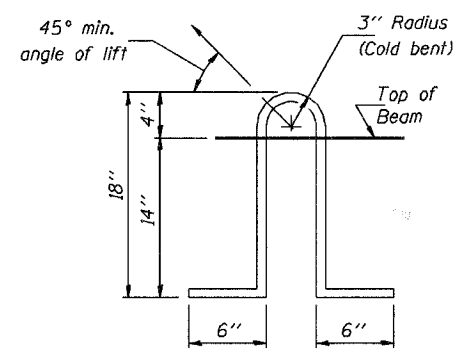
APPROVED APRIL 4, 2005  
Ralph E. Beckman  
Engineer of Bridges and Structures

ISSUED 1-1-98

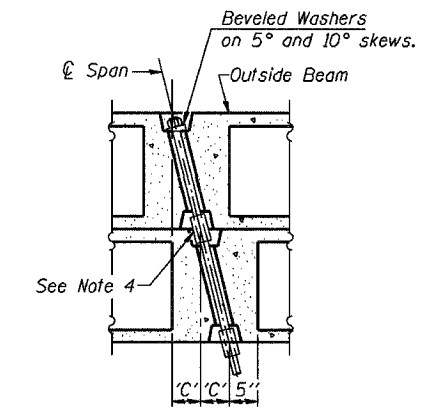




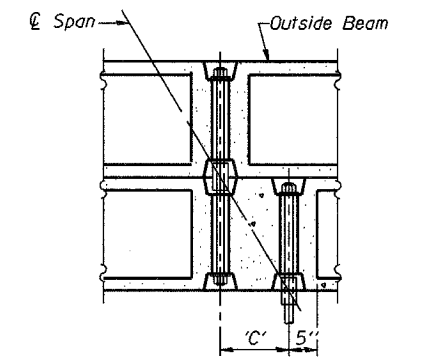
**END BLOCK DETAILS**  
Each beam shall have four Lifting Loops, two at each end of beam cast in locations shown above. Loops shall be burned off after beams have been erected.



**LIFTING LOOP DETAIL**  
Lifting loops shall be 2. 1/2"φ-270 ksi strands, as shown. Alternate approved lifting devices are also acceptable.



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



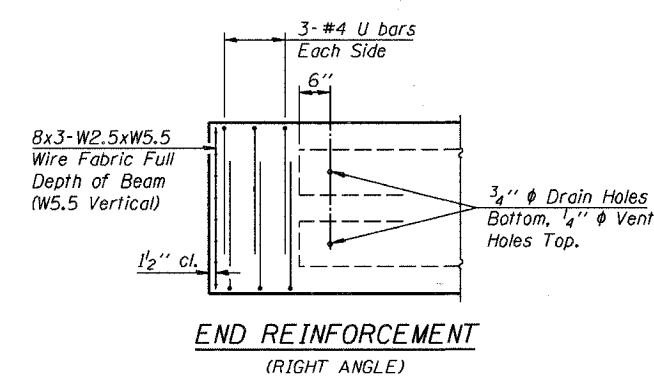
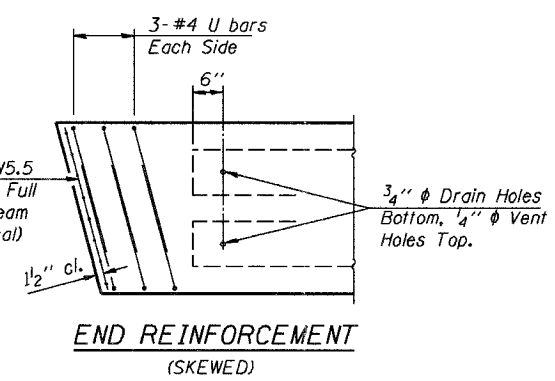
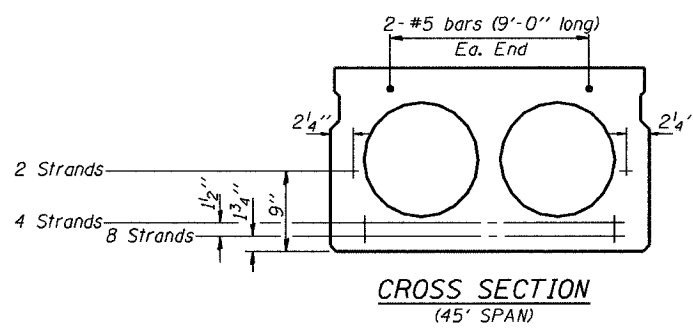
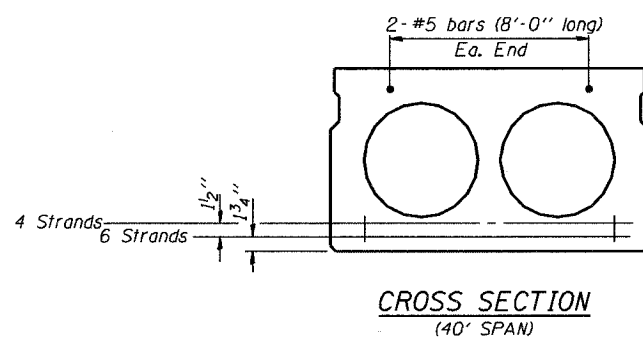
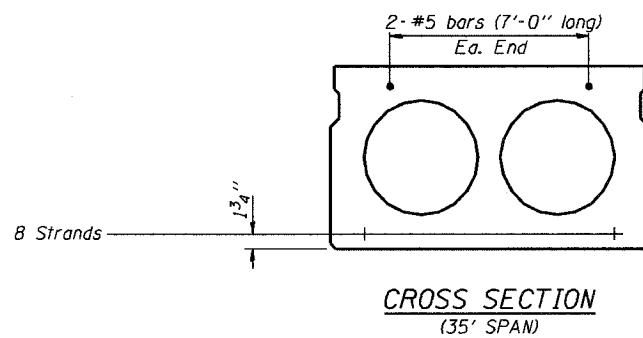
**PARTIAL PLAN TRANSVERSE TIE ASSEMBLY**  
(D=15°, 20°, 25° and 30°)

**DIMENSION 'C'**

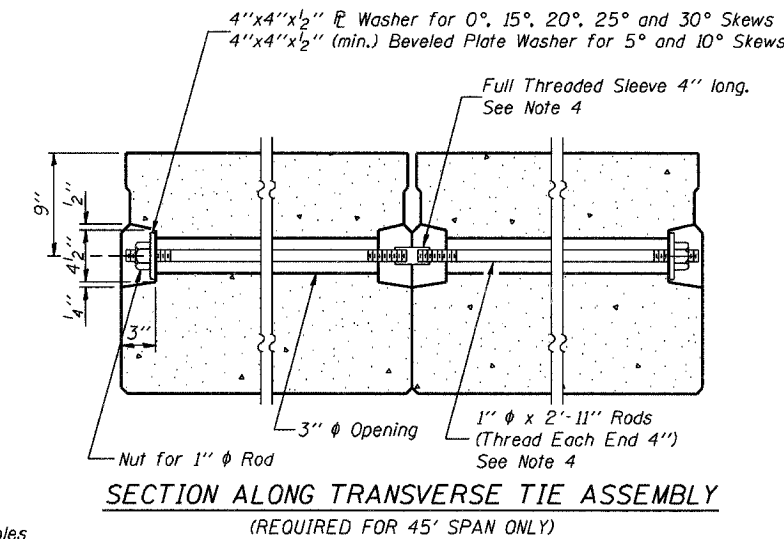
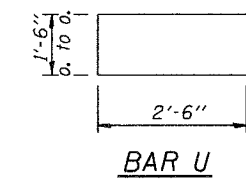
Skew Angle 'D'	0°	5°	10°	15°	20°	25°	30°
Dimension 'C' (Inches)	0	3 1/8	6 3/8	9 5/8	13 3/8	16 3/4	20 3/4

**\* TRANSVERSE STRAND PLACEMENT GUIDELINES**

1. Place strands symmetrically about centerline of beam.
  2. The minimum distance from center to center of strands in all directions shall be 2".
  3. The minimum clearance from strand to dowel hole shall be 1/2".
  4. The minimum clearance from strand to void shall be 1 1/2".
- Vertical placement of strands shall not be adjusted to satisfy the above guidelines.



**MIN. BAR LAP**  
#5 bars = 1'-8"



**NOTES**

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

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

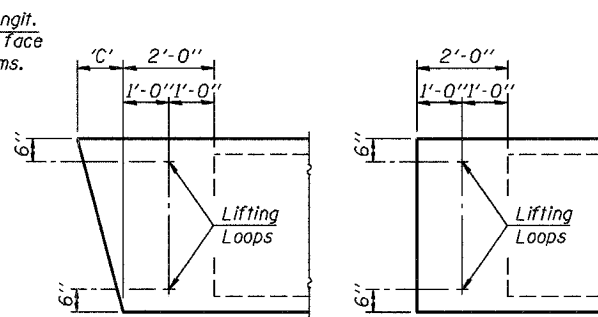
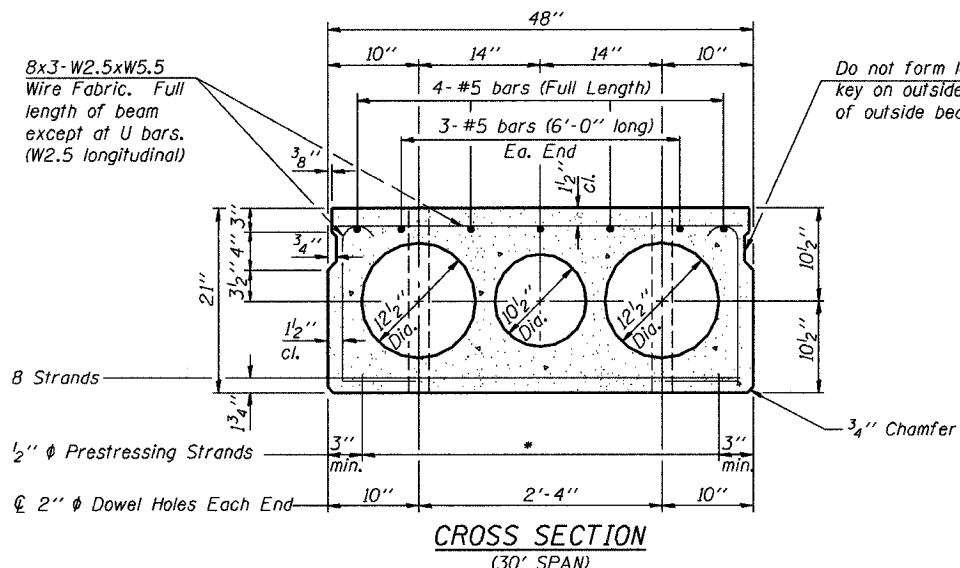
**NOTE**  
The std. reinf. and dimensions shown on the 30' span cross section is typical for all spans, except as shown.

**DESIGN STRESSES**

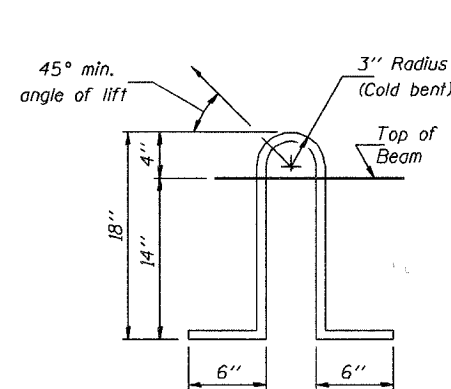
- $f'_c = 5,000$  p.s.i.
- $f'_{ci} = 4,000$  p.s.i.
- $f'_s = 270,000$  p.s.i. (1/2" φ Strand)
- $f_{st} = 201,960$  p.s.i. (1/2" φ Strand)
- $f_y = 60,000$  p.s.i.

**P.P.C. DECK BEAM DETAILS**

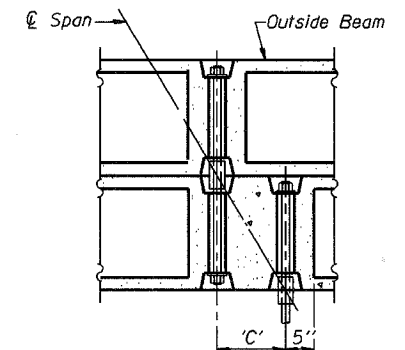
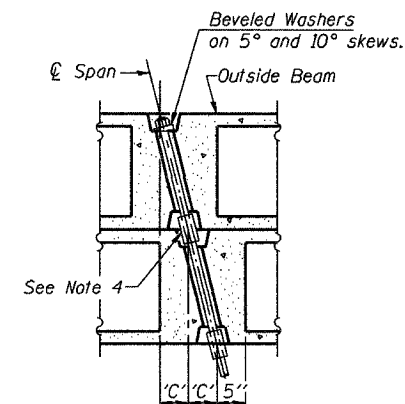
24' ROADWAY	21" x 36" BEAMS
STANDARD CB-2421-36	



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

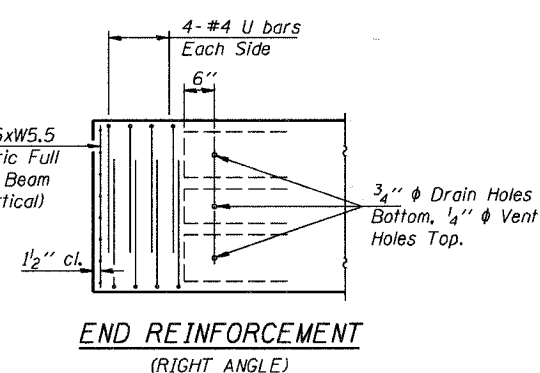
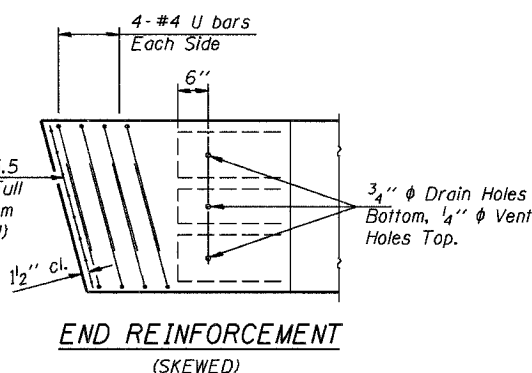
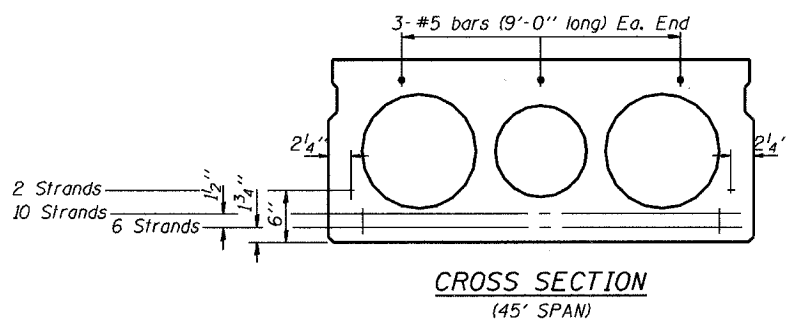
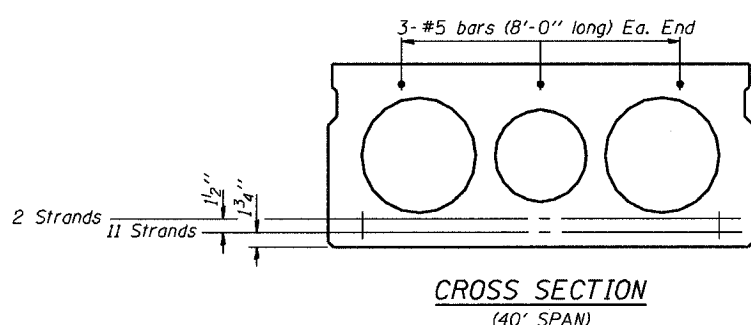
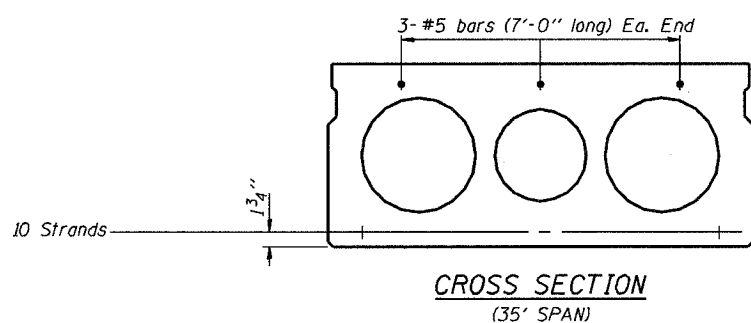


Lifting loops shall be 2. 1/2"  $\phi$  270 ksi strands, as shown. Alternate approved lifting devices are also acceptable.



DIMENSION 'C'

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



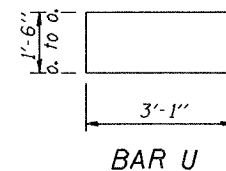
\* TRANSVERSE STRAND PLACEMENT GUIDELINES

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

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

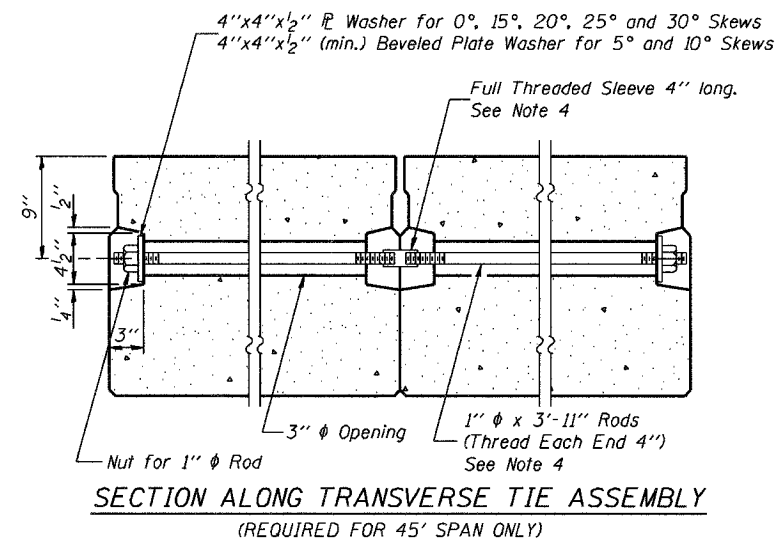
MIN. BAR LAP

#5 bars = 1'-8"



DESIGN STRESSES

- $f'_c = 5,000$  p.s.i.
- $f'_ti = 4,000$  p.s.i.
- $f'_s = 270,000$  p.s.i. (1/2"  $\phi$  Strand)
- $f_{si} = 201,960$  p.s.i. (1/2"  $\phi$  Strand)
- $f_y = 60,000$  p.s.i.



NOTES

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

Illinois Department of Transportation

PASSED APRIL 4, 2005

Thomas J. Romagallo  
Engineer of Bridge Design

APPROVED APRIL 4, 2005

Ralph E. Carlson  
Engineer of Bridges and Structures

NOTE

The std. reinf. and dimensions shown on the 30' span cross section is typical for all spans, except as shown.

P.P.C. DECK BEAM DETAILS

24' ROADWAY	21" x 48" BEAMS
STANDARD CB-2421-48	



NOTES

Hollow structural steel tubing shall conform to the requirements of ASTM designation A500 Grade B Structural Steel Tubing and shall meet the longitudinal CVN requirements of 15 ft.-lbs. at 0° F.

All other steel shapes and plates shall conform to the requirements of AASHTO M 270 Grade 36 except posts and angles shall conform to AASHTO M 270 Grade 50.

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

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

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

Railing shall be according to Section 509 of the Standard Specifications, except as noted, and will be paid for at the contract unit price per foot for STEEL RAILING, TYPE S-1.

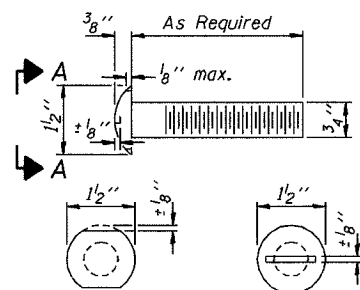
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with STEEL RAILING, TYPE S-1.

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

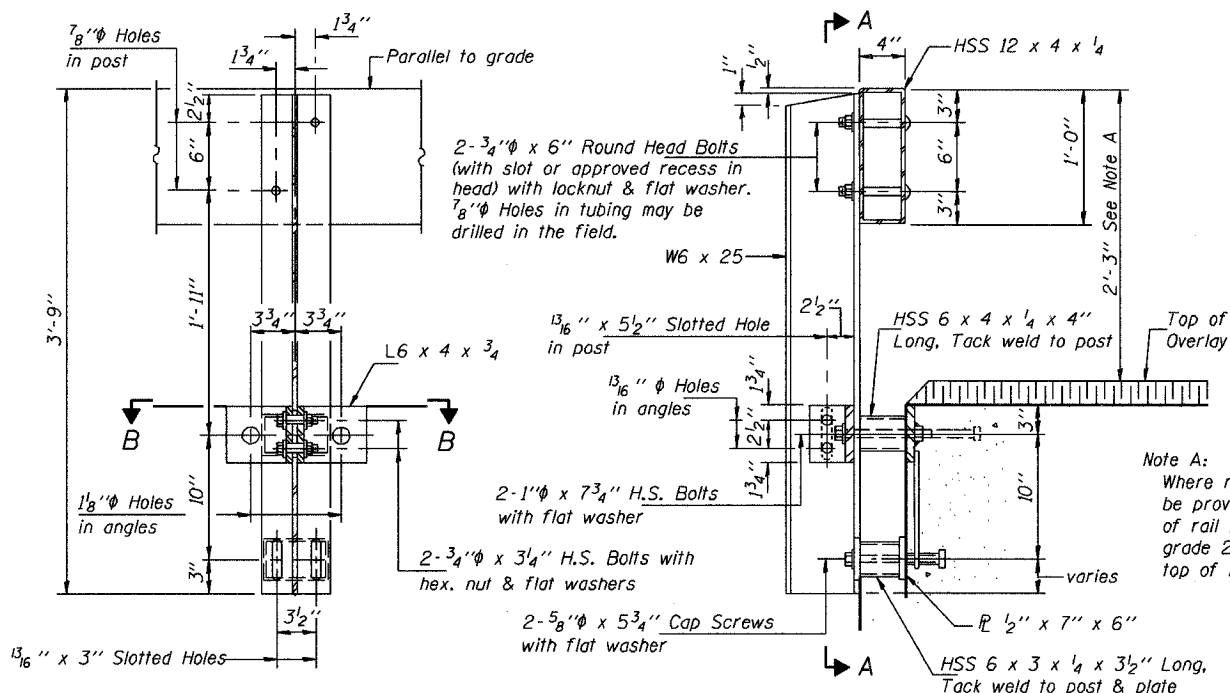
The 1/2" x 7" x 6" plates that come in contact with concrete shall either receive two coats of asphalt paint conforming to Section 1060.07 Type II, or 1/2" fabric bearing pads shall be placed between the plates and concrete.

The 3/4" high strength bolts used to connect the 6 x 4 x 3/4 angles to the post shall be tightened according to Article 505.04 (f)(2) of the Standard Specifications. The 1" high strength bolts connecting the angles to the concrete shall be tightened to a snug fit and given an additional 1/8 turn. The 5/8" cap screws in bottom of posts shall be tightened to a snug fit only.

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

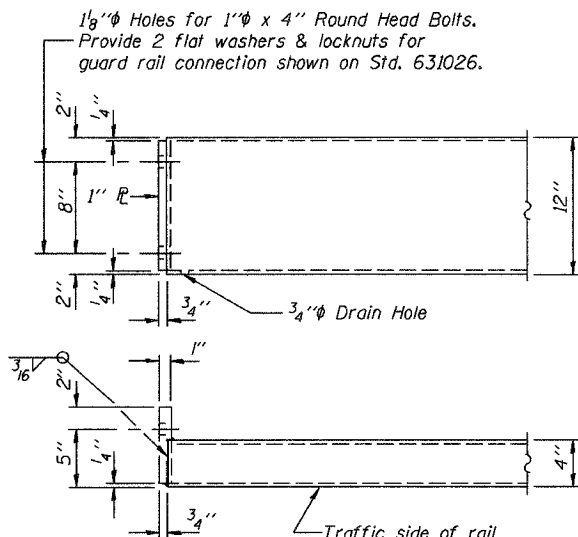


VIEW A-A  
ROUND HEAD BOLT

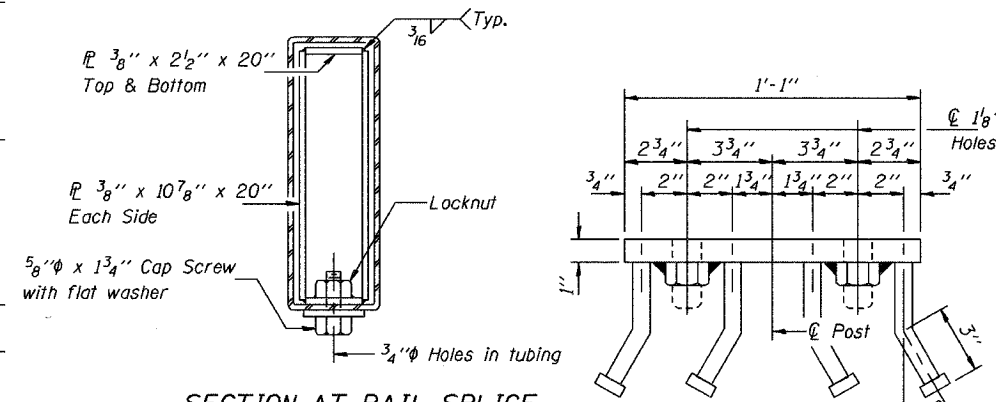


SECTION A-A

SECTION AT RAIL POST

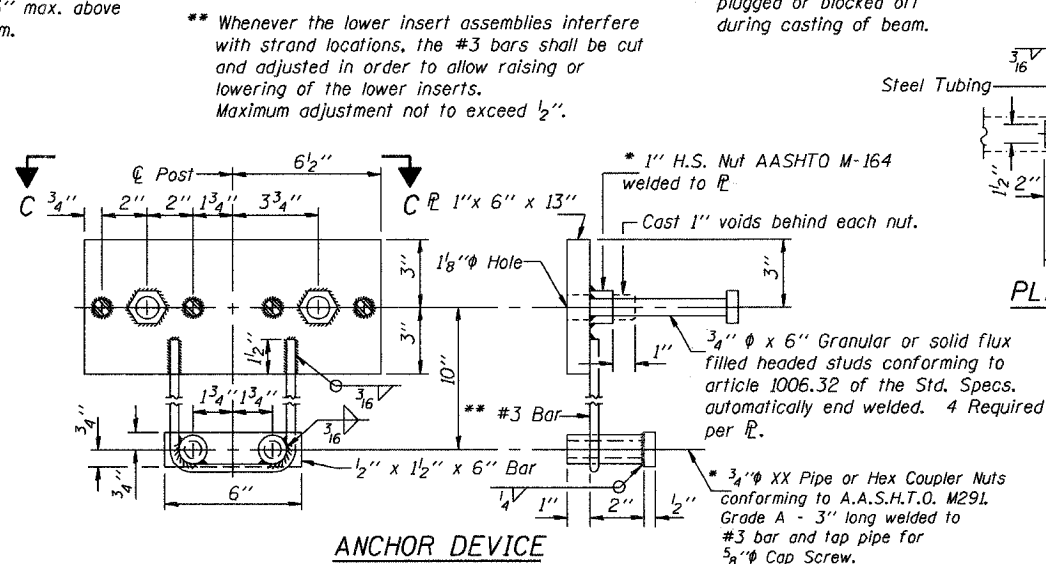


END OF RAIL DETAILS



SECTION AT RAIL SPLICE

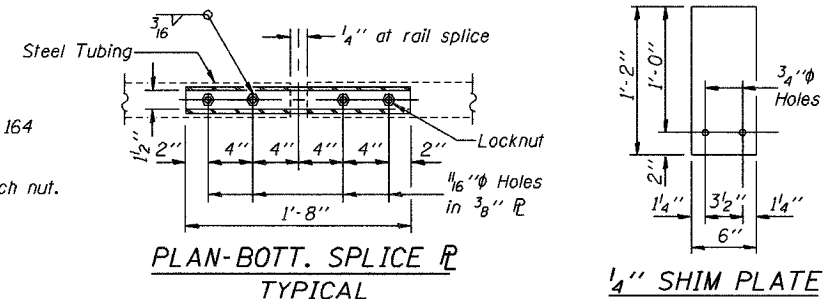
VIEW C-C



ANCHOR DEVICE

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

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

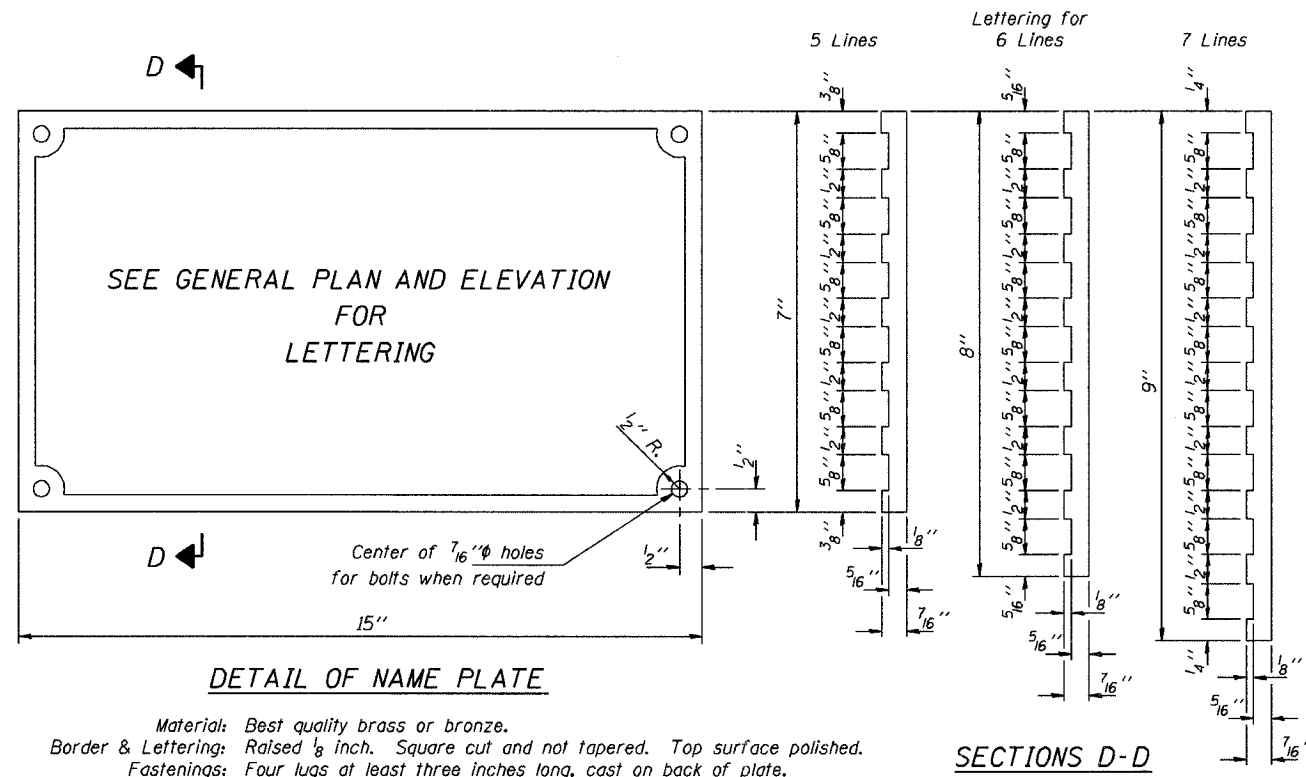


PLAN-BOTT. SPLICE TYPICAL

1/4" SHIM PLATE

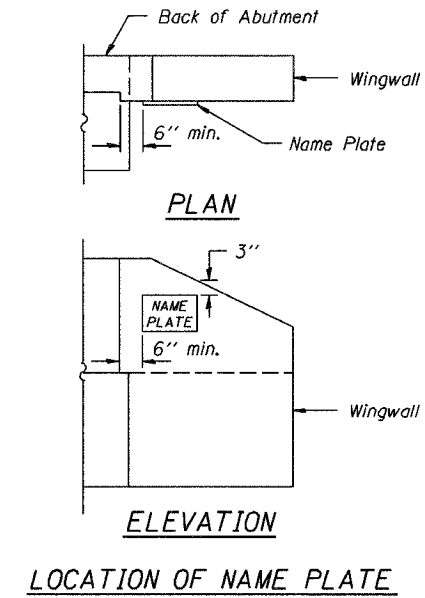
Illinois Department of Transportation  
 PASSED APRIL 4, 2005  
 Thomas S. Romagnolo  
 Engineer of Bridge Design  
 APPROVED APRIL 4, 2005  
 Ralph E. Anderson  
 Engineer of Bridges and Structures

STEEL RAILING, TYPE S-1  
 STANDARD CR-TS1



**DETAIL OF NAME PLATE**

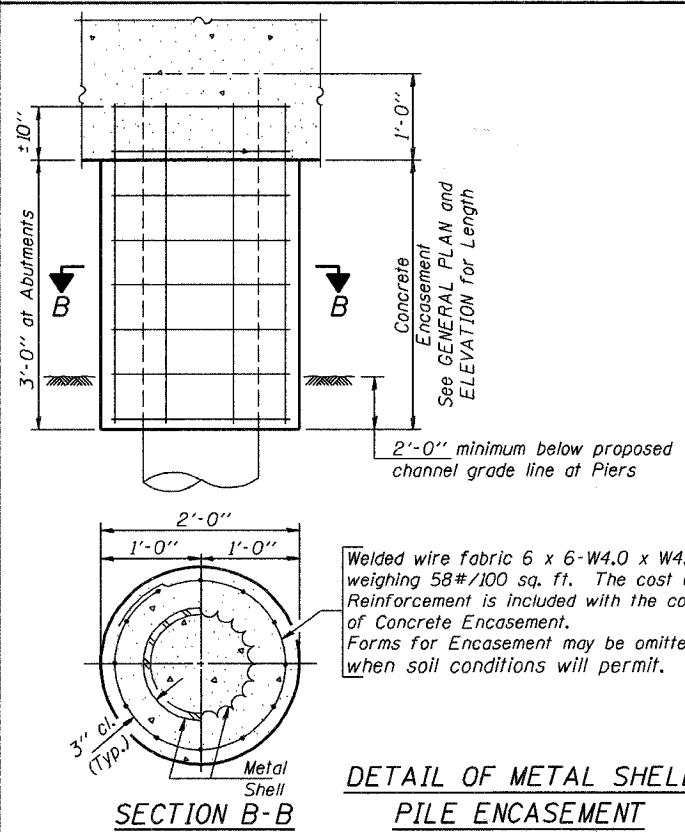
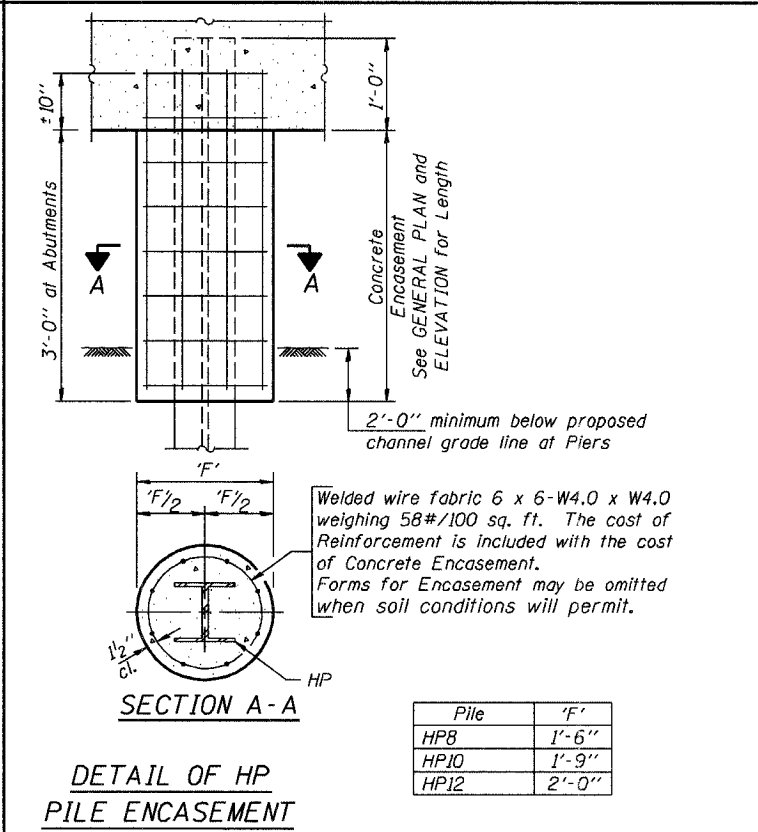
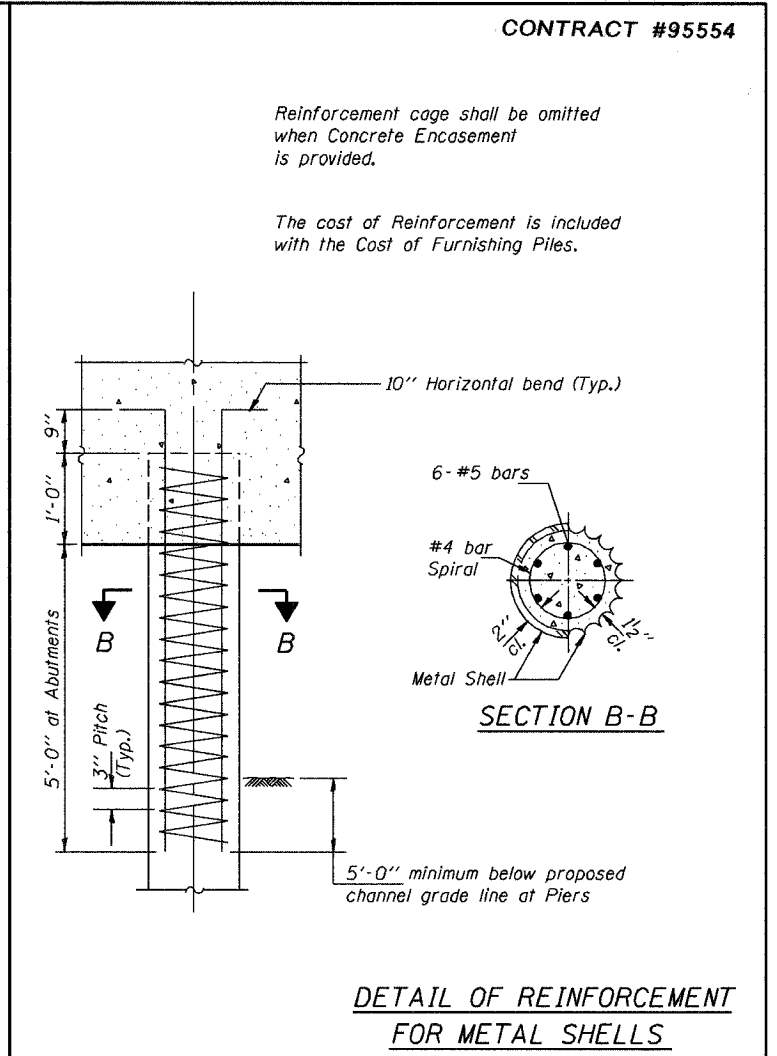
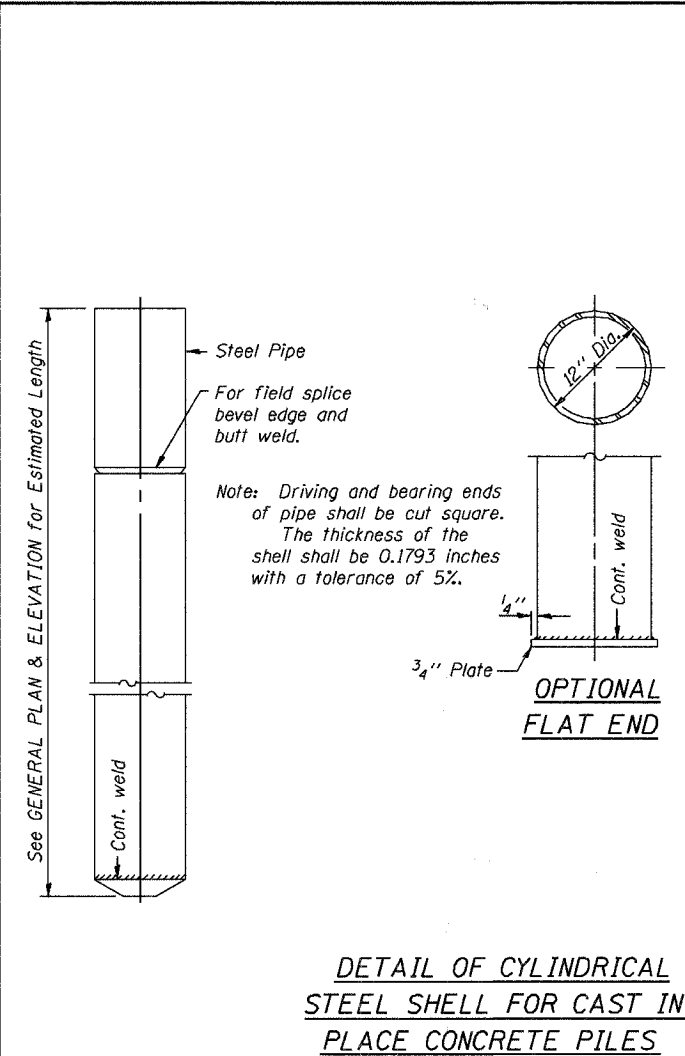
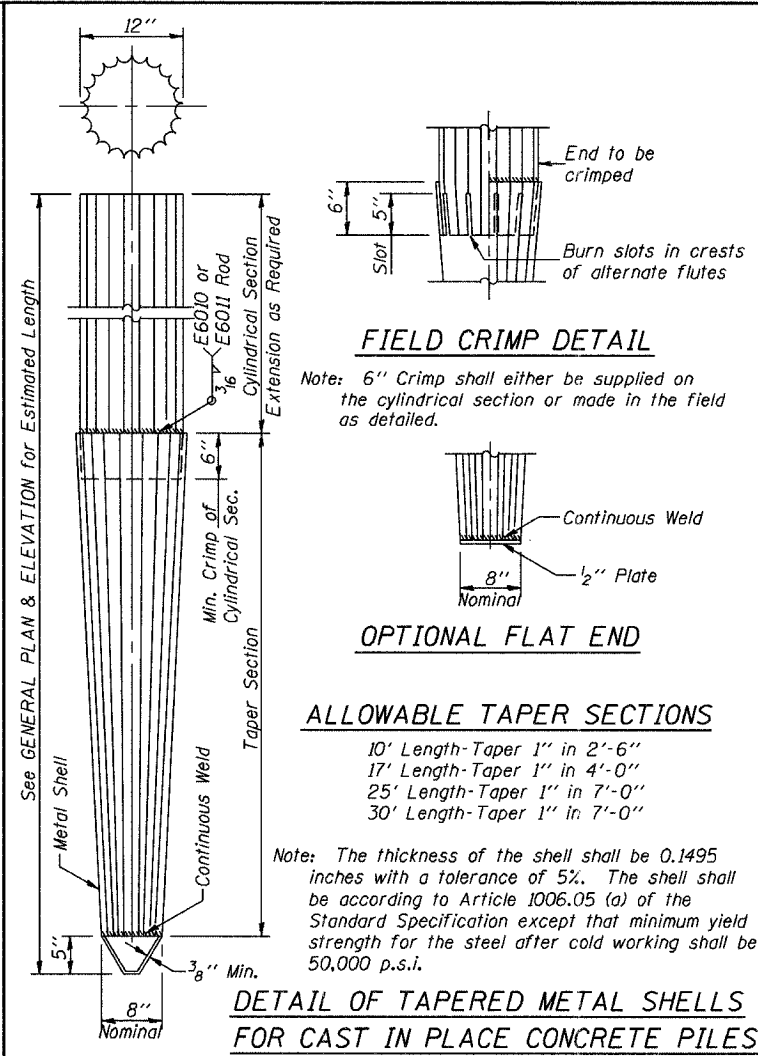
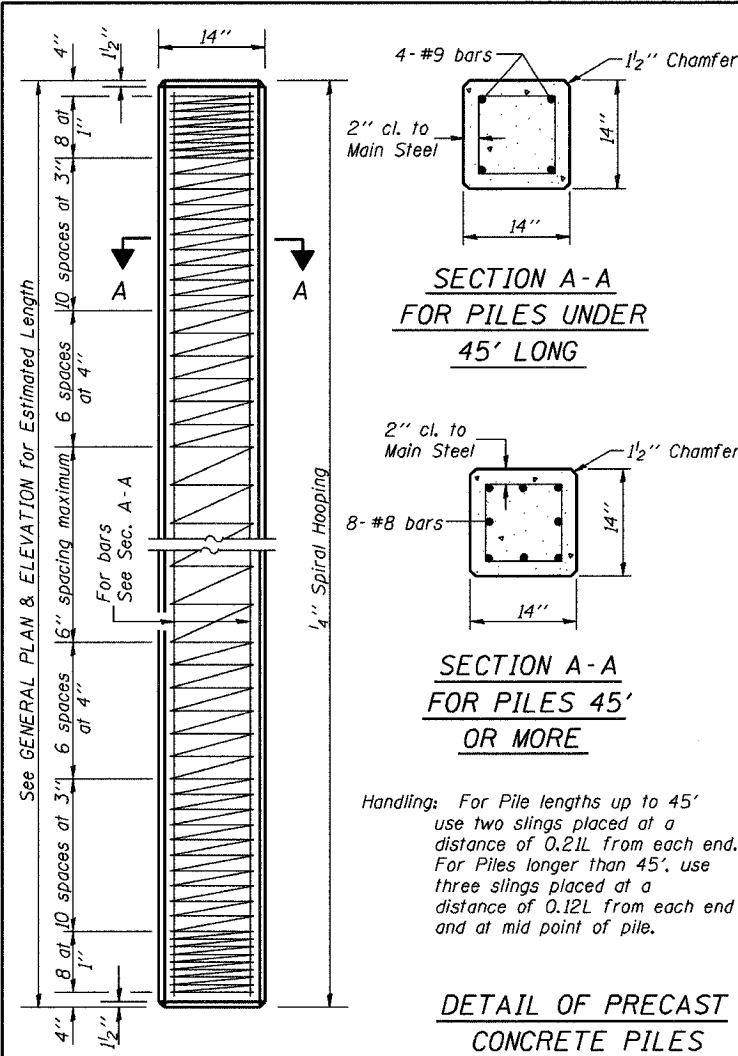
Material: Best quality brass or bronze.  
 Border & Lettering: Raised  $\frac{1}{8}$  inch. Square cut and not tapered. Top surface polished.  
 Fastenings: Four lugs at least three inches long, cast on back of plate.



**LOCATION OF NAME PLATE**

Illinois Department of Transportation	
PASSED APRIL 4, 2005 <i>Thomas J. Romagosa</i> Engineer of Bridge Design	ISSUED 7-1-99 5687-1
APPROVED APRIL 4, 2005 <i>Ralph E. Anderson</i> Engineer of Bridges and Structures	

NAME PLATE
STANDARD CN



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

Pile Size	Item	Quantity
HP8	Concrete Encasement	0.063 C.Y.
HP10	Concrete Encasement	0.086 C.Y.
HP12	Concrete Encasement	0.112 C.Y.

**(METAL SHELL PILES)**

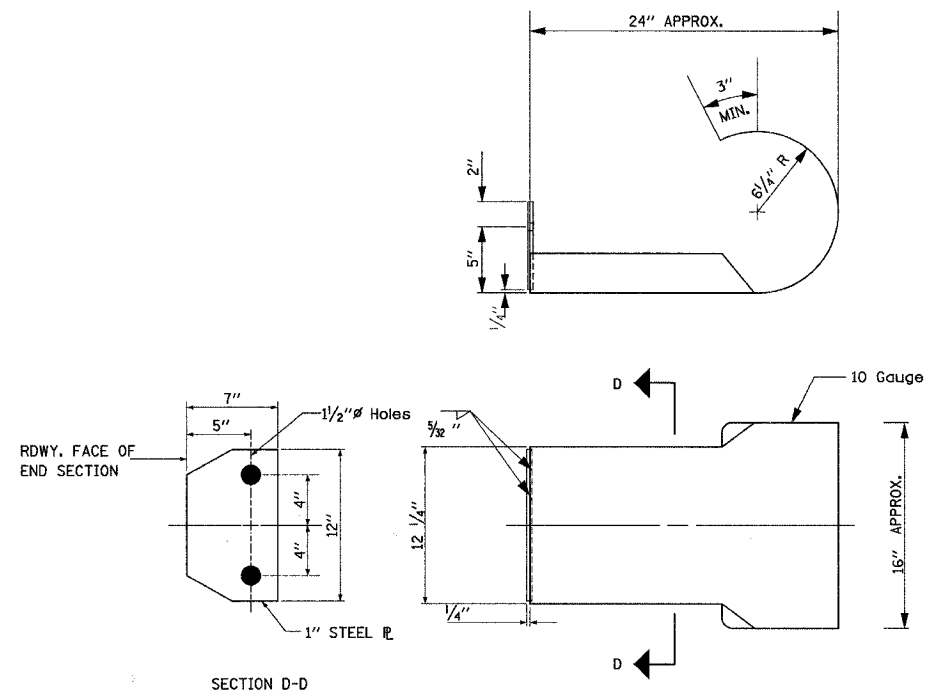
Pile Size	Item	Quantity
12" Dia.	Concrete Encasement	0.087 C.Y.

**PILE DETAILS**

**STANDARD CX-1**

Illinois Department of Transportation  
 PASSED FEBRUARY 1, 2000  
 Thomas J. Demagala  
 Engineer of Bridge Design  
 APPROVED FEBRUARY 1, 2000  
 Ralph E. Anderson  
 Engineer of Bridges and Structures

CURLED END SECTION DETAIL



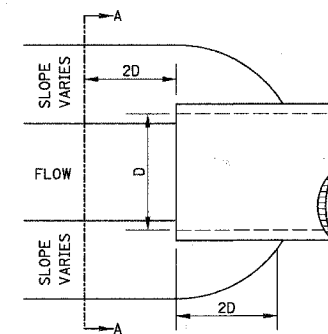
ALL OTHER STEEL SHAPES AND PLATES SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION M-183 EXCEPT POSTS AND ANGLES SHALL CONFORM TO A.A.S.H.T.O. M-223, GRADE 50.

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. DESIGNATION M-164.

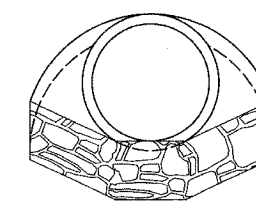
ALL BOLTS, NUTS, CAP SCREWS, WASHERS, AND LOCK WASHERS SHALL BE GALVINIZED IN ACCORDANCE WITH A.A.S.H.T.O. DESIGNATION M-232.

ALL FIELD DRILLED HOLES SHALL BE COATED WITH AN APPROVED ZINC RICH PAINT BEFORE ERRECTION.

STONE RIPRAP DITCH DESIGN

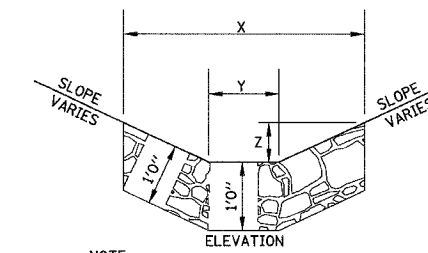


Plan



Section A-A

NOTE: FOR PLACEMENT, QUALITY GRADATION AND OTHER MISCELLANEOUS REQUIREMENTS FOR STONE RIPRAP DITCH-SEE SPECIAL PROVISIONS.



ELEVATION

NOTE:

BOTTOM OF DITCH	SLOPE			TON/LIN. FT
	1 1/2:1	2:1	3:1	
2 FT	X= 5 FT	6 FT	8 FT	
	Y= 2 FT	2 FT	2 FT	
	Z= 1 FT	1 FT	1 FT	
	0.40	0.48	0.62	

BOTTOM OF DITCH	SLOPE			TON/LIN. FT
	1 1/2:1	2:1	3:1	
3 FT	X= 6 FT	7 FT	9 FT	
	Y= 3 FT	3 FT	3 FT	
	Z= 1 FT	1 FT	1 FT	
	0.48	0.56	0.70	

BOTTOM OF DITCH	SLOPE			TON/LIN. FT
	1 1/2:1	2:1	3:1	
4 FT	X= 7 FT	8 FT	10 FT	
	Y= 4 FT	4 FT	4 FT	
	Z= 1 FT	1 FT	1 FT	
	0.56	0.64	0.78	