

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
229	01-06128-00-BR	HAMILTON	14	1
FED. ROAD DIST. NO. 9 ILLINOIS FED. AID PROJECT				
PROJECT# BROS-065(37)			CONTRACT# 99251	
JOB NO. C-99-529-06			SULLIVAN BRANCH	
LEC JOB # HD41.01HW				

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
Signature
DATE
11-30-07
EXPIRES

TOWNSHIP ROUTE 229
SULLIVAN BRANCH
HAMILTON COUNTY, ILLINOIS

SHEET TITLE:

TITLE SHEET

SCALE: VARIES

BY: AMM

DATE: 3/20/06

REV:

1 OF 14 SHEETS

SHEET NO.

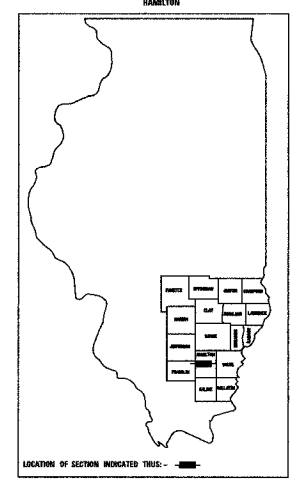
1

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION PLANS FOR PROPOSED FEDERAL AID - H.B.P. PROJECT

T.R. 229 HAMILTON COUNTY SECTION 01-06128-00-BR

PROJECT NO. BROS-065(37) JOB NO. C-99-529-06

CONTRACT # 99251 SULLIVAN BRANCH



INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET & SUMMARY OF QUANTITIES
2	PLAN & PROFILE, TYPICAL SECTIONS & GENERAL NOTES
3-4	ROADWAY CROSS SECTIONS
5-13	BRIDGE DESIGN
14	CURLED END SECTIONS

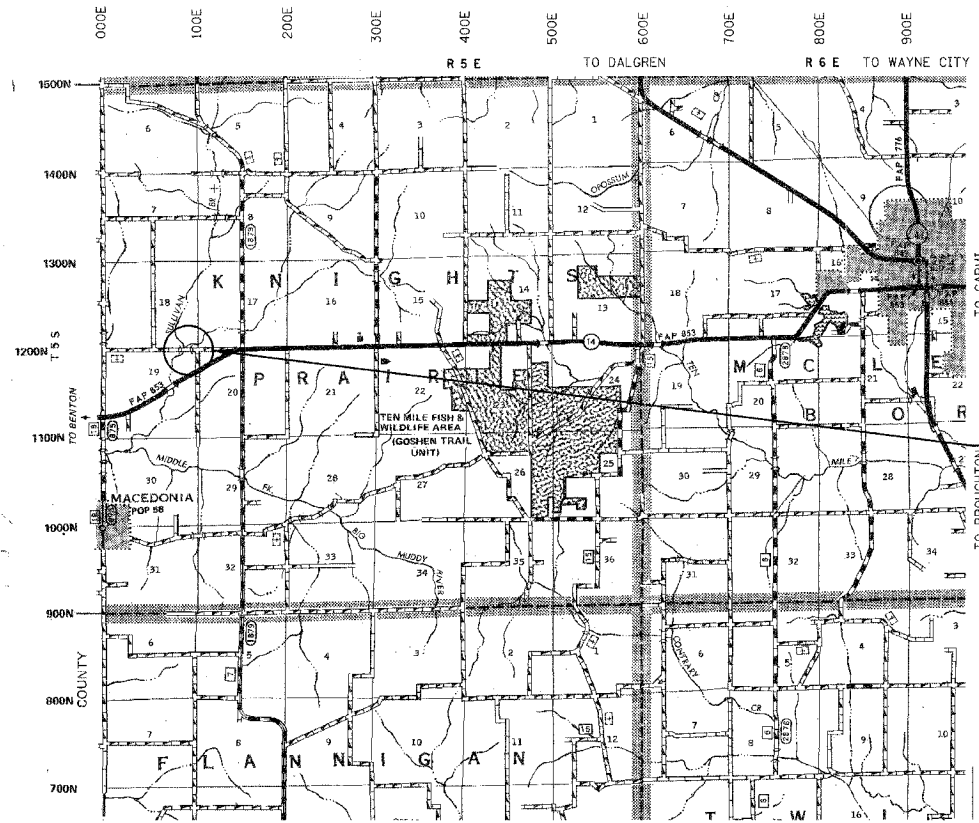
THE FOLLOWING STANDARDS ARE A PART OF THESE PLANS AND ARE INCLUDED AFTER SHEET NO. 14

000001-04	STANDARD SYMBOLS, ABBREVIATIONS & PATTERNS
280001-02	TEMPORARY EROSION CONTROL SYSTEMS
702001-04	TRAFFIC CONTROL DEVICES
B.L.R. 21-6	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS
B.L.R. 22-4	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

CODE NO.	ITEM	UNIT	QUANTITY
20100110	TREE REMOVAL (6 TO 15 UNITS DIAMETER)	UNIT	194.00
20100210	TREE REMOVAL (OVER 15 UNITS DIAMETER)	UNIT	36.00
20200100	EARTH EXCAVATION	CU YD	72.00
20300100	CHANNEL EXCAVATION	CU YD	205.00
20400800	FURNISHED EXCAVATION	CU YD	287.00
*25001000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.20
28000300	TEMPORARY DITCH CHECKS	EACH	3.00
28001000	AGGREGATE (EROSION CONTROL)	TON	18.00
28100807	STONE DUMPED RIPRAP, CLASS A4	TON	493.00
*28102600	STONE RIPRAP DITCH	TON	5.00
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	325.00
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1.00
50300225	CONCRETE STRUCTURES	CU YD	30.80
50400305	PRECAST PRESTRESSED CONCRETE DECK BEAMS (17" DEPTH)	SO FT	1800.00
50500505	STUD SHEAR CONNECTORS	EACH	32.00
50800105	REINFORCEMENT BARS	POUND	4080.00
50900205	STEEL RAILING, TYPE S1	FOOT	150.00
51201400	FURNISHING STEEL PILES HP10X42	FOOT	528.00
51202700	DRIVING STEEL PILES	FOOT	528.00
51204315	CONCRETE ENCASEMENT	CU YD	8.30
51500100	NAME PLATES	EACH	1.00
67100100	MOBILIZATION	L SUM	1.00

X080-2A

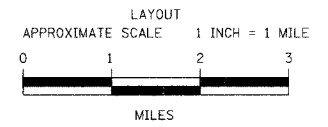


SECTION 01-06128-00-BR BEGINS STATION 1+60

STATION 5+00, STRUCTURE NO. 033-3299
A 75' TRIPLE SPAN (3 @ 25') PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE (17" DEPTH), 24' ROADWAY, 0.00% GRADE, 10° SKEW.

SECTION 01-06128-00-BR ENDS STATION 8+41

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



	FEET	MILES
GROSS LENGTH	681.00 FT	0.13 MILES
OMISSIONS	0.00 FT	0.00 MILES
NET LENGTH	681.00 FT	0.13 MILES

DESIGN SPEED: 30 MPH
HIGHWAY CLASS - LOCAL ROAD
EXISTING STRUCTURE NO.: 033-3084
PROPOSED STRUCTURE NO.: 033-3299
CURRENT A.D.T. = 25

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

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUBMITTED May 16, 2006
Kenneth Phillips
COUNTY ENGINEER

PASSED May 22, 2006
Dennis W. Hill
ENGINEER OF LOCAL ROADS AND STREETS

APPROVED May 25, 2006
Mary C. Lame
MARY C. LAME, P.E.
DEPUTY DIRECTOR OF HIGHWAYS
REGION FIVE ENGINEER

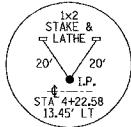
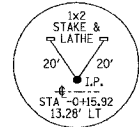
GENERAL NOTES:

THIS SECTION SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PLANS, SPECIAL PROVISIONS AND "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", ADOPTED JANUARY 1, 2002.

THE WORK INVOLVED ON THIS SECTION CONSISTS OF THE REMOVAL OF THE EXISTING STRUCTURE, THE CONSTRUCTION OF A 75 FOOT LONG TRIPLE SPAN (25', 25', 25') 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.G.S. MEAN SEA LEVEL DATUM.

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

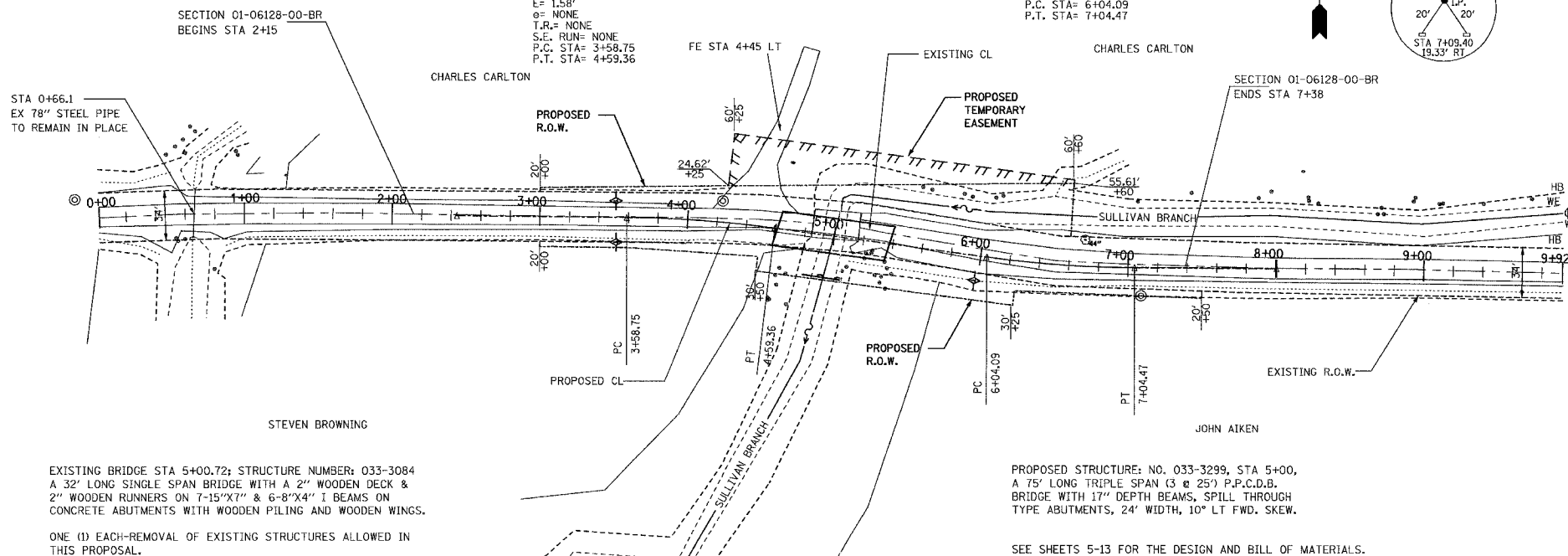


NOTE: CONSTRUCTION TRANSITION STA. 1 + 55 TO STA 2 + 15

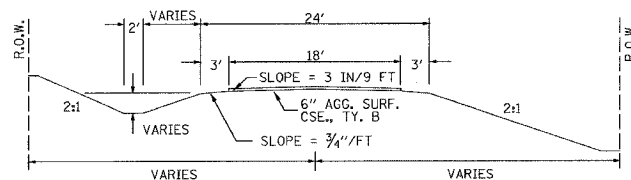
ALL QUANTITIES ARE INCLUDED IN THE PROPOSAL

CURVE #1
P.I. STA= 4+09.12
ΔP LT. 7'28"11"
D= 7'09'43"
R= 800'
T= 50.37'
L= 100.61'
E= 1.58'
O= NONE
T.R.= NONE
S.E. RUN= NONE
P.C. STA= 3+58.75
P.T. STA= 4+59.36

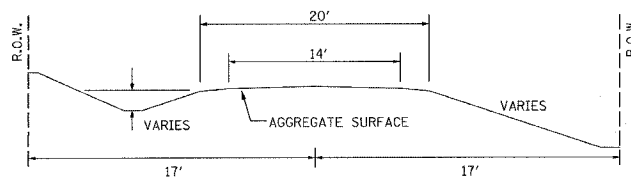
CURVE #2
P.I. STA= 6+54.35
ΔP LT. 7'28"11"
D= 7'26'28"
R= 770'
T= 50.26'
L= 100.39'
E= 1.64'
O= NONE
T.R.= NONE
S.E. RUN= NONE
P.C. STA= 6+04.09
P.T. STA= 7+04.47



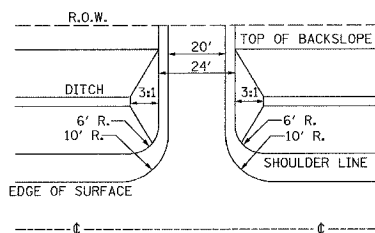
TYPICAL CROSS SECTION PROPOSED



TYPICAL CROSS SECTION EXISTING



FIELD ENTRANCE DETAIL



NOTE: PLACE AGGREGATE SURFACE COURSE, TYPE B ON FIELD ENTRANCE

NOTE: CONSTRUCT SPECIAL DITCH

STA 2+50 TO STA 4+00 LT
STA 2+50 TO STA 4+00 RT
STA 5+40.39 TO STA 7+00 RT

NOTE: CONSTRUCT STONE RIPRAP DITCH

STA 5+40 TO STA 5+50 RT (0.48 TON/LIN FT)
5 TON STONE RIPRAP DITCH ALLOWED IN PROPOSAL.

SEE SHEET NO. 14 FOR STONE RIPRAP DITCH DETAIL.

NOTE: PLACE STONE DUMPED RIPRAP CLASS A4

STA 4+63 TO STA 6+35 NORTH BANK
STA 5+45 TO STA 6+60 SOUTH BANK
250 TON STONE DUMPED RIPRAP CLASS A4 ALLOWED IN PROPOSAL FOR DITCH AREA

SEE SHEET NO. 14 FOR TYPICAL DITCH CROSS SECTION

UTILITIES:
J.U.L.I.E. 1-800-892-0123
WAYNE-WHITE COUNTY
ELECTRIC
618-842-2196

EXISTING BRIDGE STA 5+00.72; STRUCTURE NUMBER: 033-3084
A 32' LONG SINGLE SPAN BRIDGE WITH A 2" WOODEN DECK & 2" WOODEN RUNNERS ON 7-15"x7" & 6-8"x4" I BEAMS ON CONCRETE ABUTMENTS WITH WOODEN PILING AND WOODEN WINGS.

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

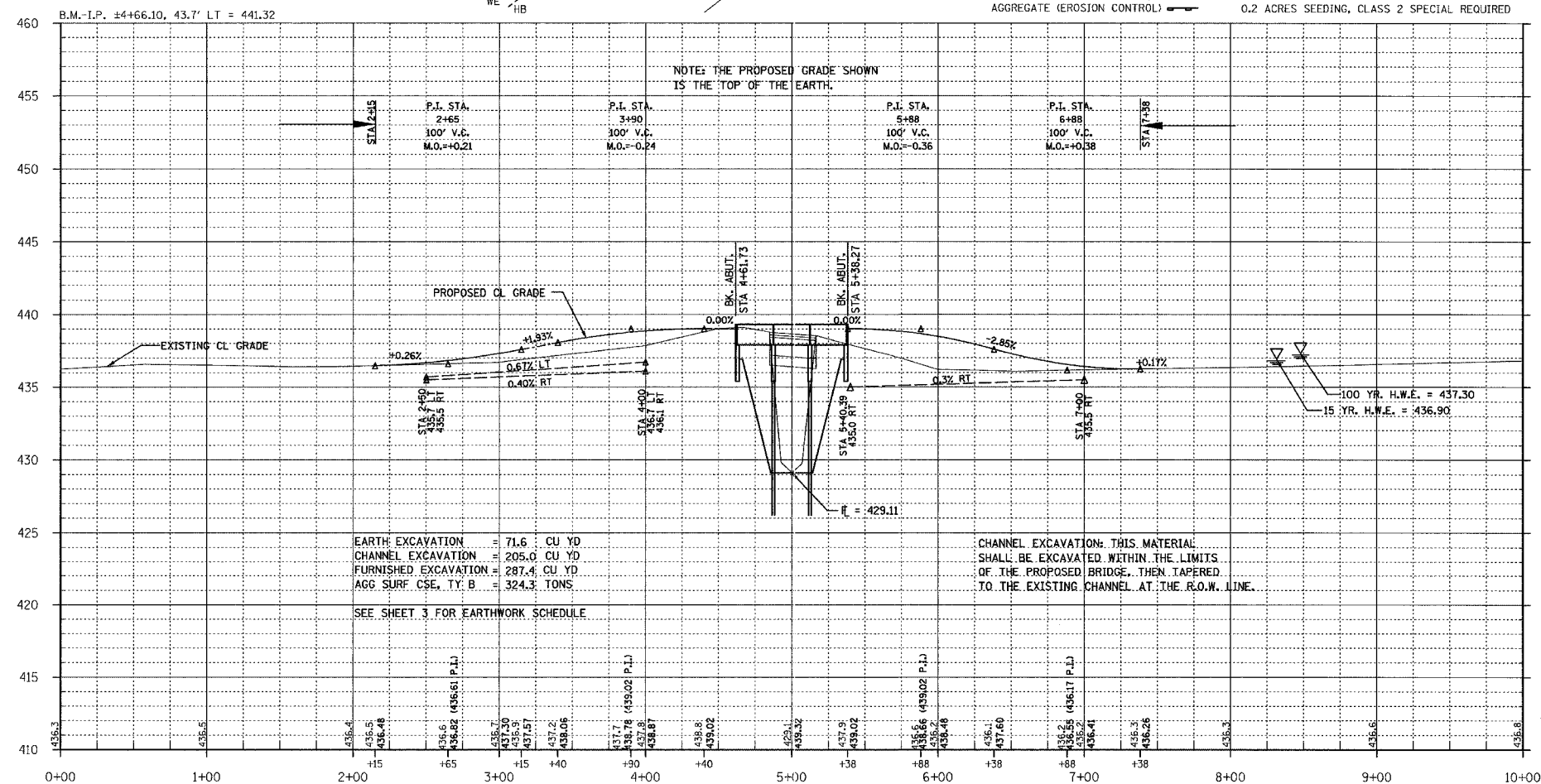
NOTE: FILL NEXT TO BRIDGE TO BE AGGREGATE SURFACE COURSE

PROPOSED STRUCTURE: NO. 033-3299, STA 5+00,
A 75' LONG TRIPLE SPAN (3 @ 25') P.P.C.D.B. BRIDGE WITH 17" DEPTH BEAMS, SPILL THROUGH TYPE ABUTMENTS, 24' WIDTH, 10' LT FWD. SKEW.

SEE SHEETS 5-13 FOR THE DESIGN AND BILL OF MATERIALS.

TEMPORARY DITCH CHECKS -
AGGREGATE (EROSION CONTROL) -

194 UNITS-TREE REMOVAL (6 TO 15 UNITS DIAMETER)
36 UNITS-TREE REMOVAL (OVER 15 UNITS DIAMETER)
0.2 ACRES SEEDING, CLASS 2 SPECIAL REQUIRED



EARTH EXCAVATION = 71.6 CU YD
CHANNEL EXCAVATION = 205.0 CU YD
FURNISHED EXCAVATION = 287.4 CU YD
AGG SURF CSE, TY B = 324.3 TONS

SEE SHEET 3 FOR EARTHWORK SCHEDULE

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.

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
229	01-06128-00-BR	HAMILTON	14	2
FED. ROAD DIST. NO. 9 ILLINOIS		FED. AID PROJECT		
PROJECT# BROS-065(37)		CONTRACT# 99251		
JOB NO. C-99-529-06		SULLIVAN BRANCH		
LEC JOB # H04101HM				

323 W. 3RD ST.
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LAND SURVEY & PROFESSIONAL ENGINEERING CORPORATION
184-000887
(62-032435)(35-002769)



AARON M. MEFFORD
NAME
Signature
05-16-06
DATE
11-30-07
EXPIRES

TOWNSHIP ROUTE 229
OVER SULLIVAN BRANCH
HAMILTON COUNTY, ILLINOIS

SHEET TITLE:

PLAN & PROFILE

SCALE: VARIES
BY: AMM
DATE: 5/06
REV:

2 OF 14 SHEETS

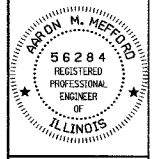
SHEET NO. 2

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
229	01-06128-00-BR	HAMILTON	14	3
FED. ROAD DIST. NO. 9 ILLINOIS		FED. AID PROJECT		323 W. 3RD ST. P.O. BOX 160 MT. CARMEL, IL 62863
PROJECT# BROS-065(37)		CONTRACT# 99251		PHONE: (618)-262-8651
JOB NO. C-99-529-06		SULLIVAN BRANCH		FAX: (618)-263-3327
LEC JOB # H04101HM				

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CORPORATION
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AARON M. MEFFORD
NAME
Aaron Mefford
SIGNATURE
05-16-06
DATE
11-30-07
EXPIRES

TOWNSHIP ROUTE 229
OVER SULLIVAN BRANCH
HAMILTON COUNTY, ILLINOIS

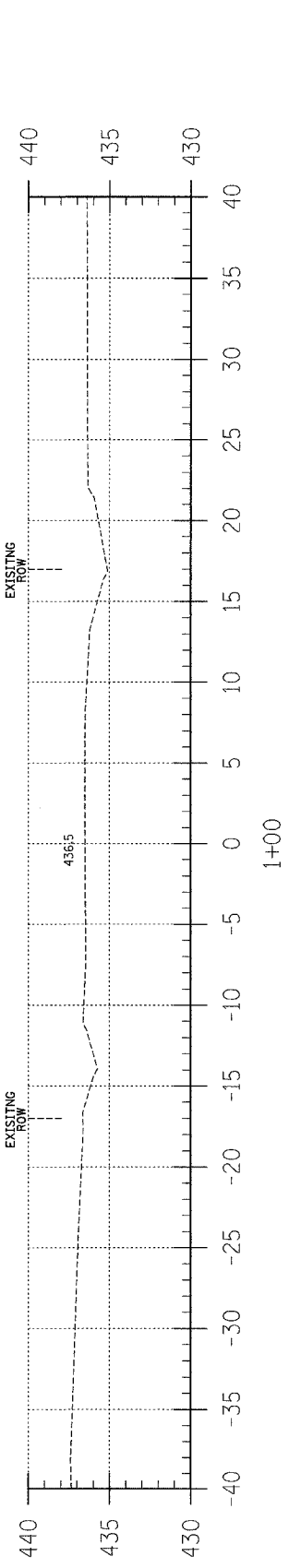
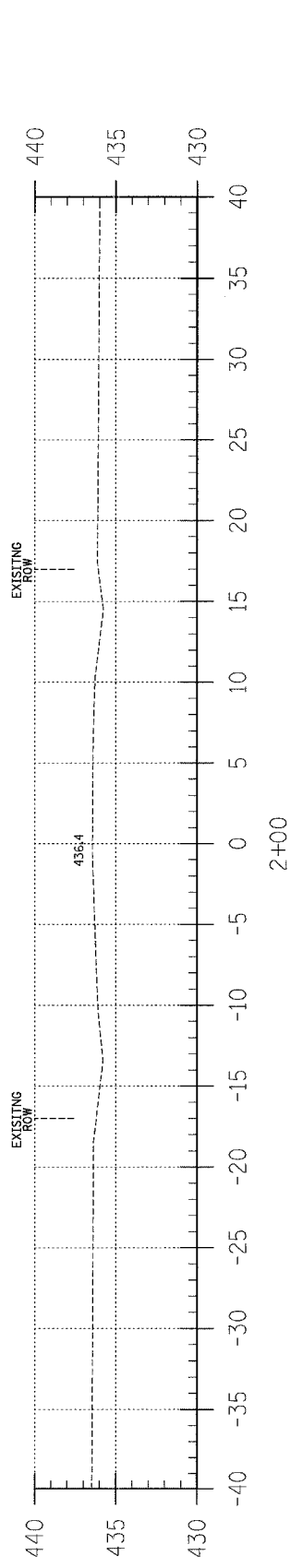
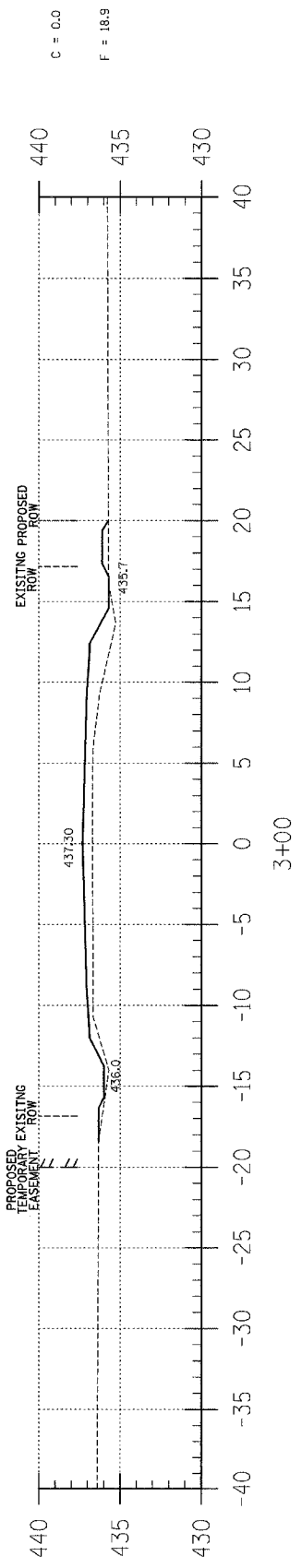
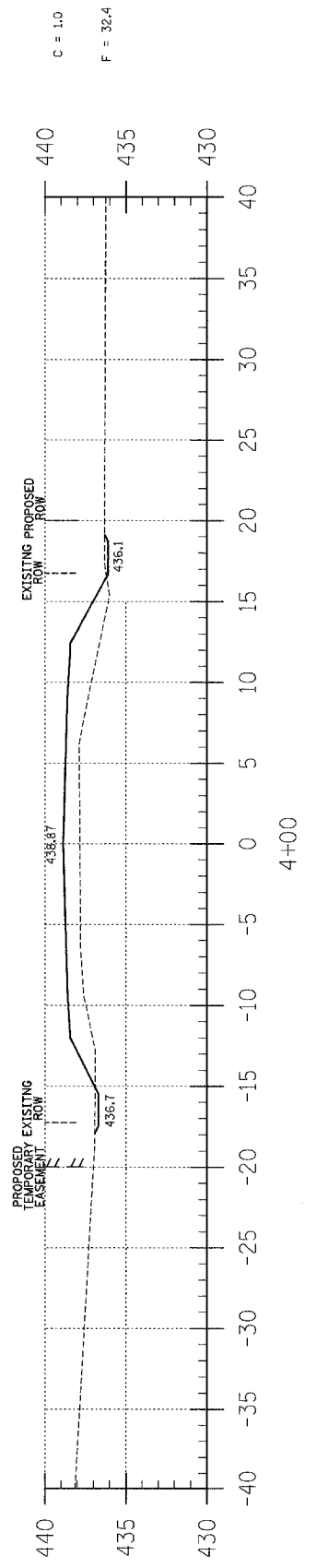
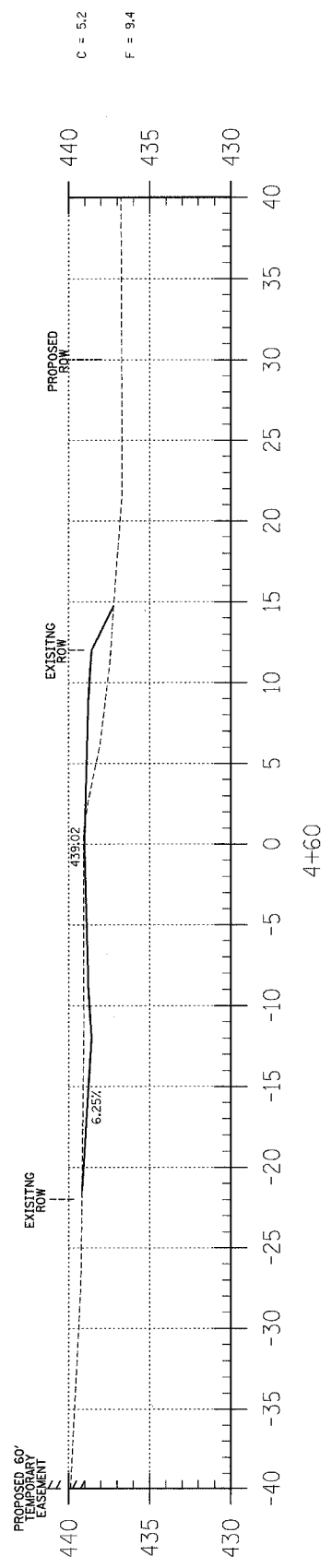
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CROSS-SECTIONS

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BY: AMM
DATE: 9/4/06
REV: MLG

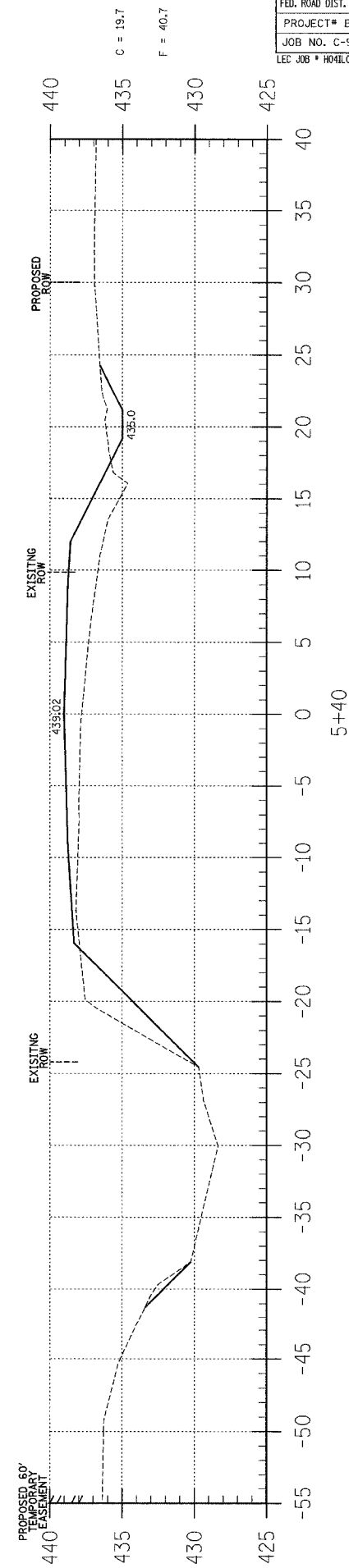
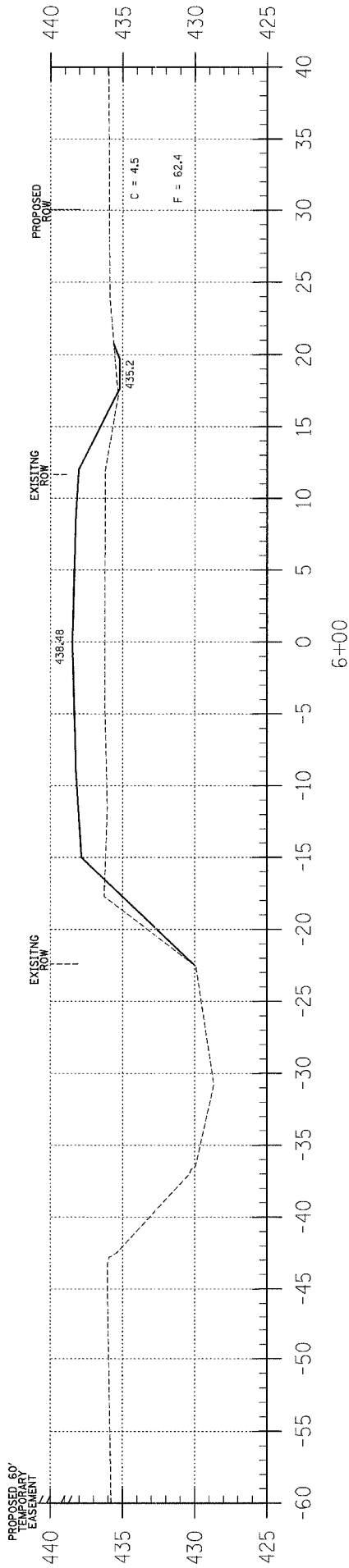
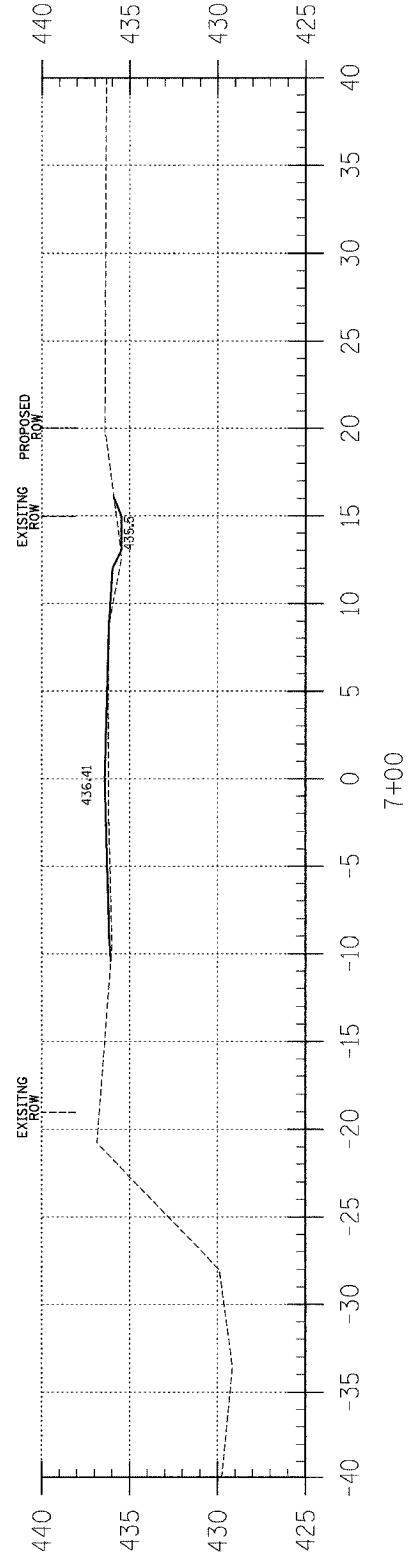
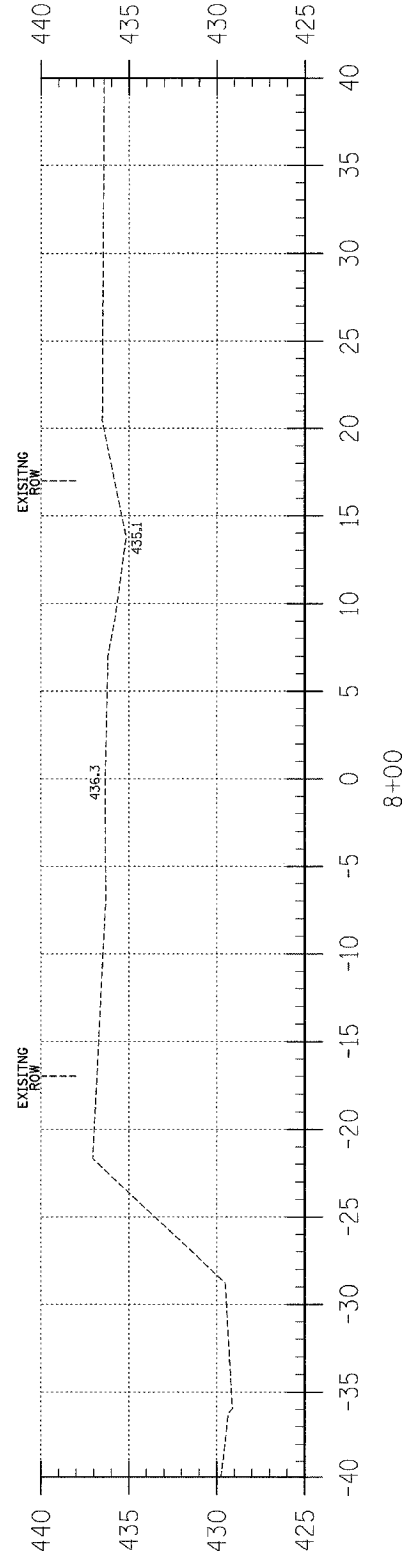
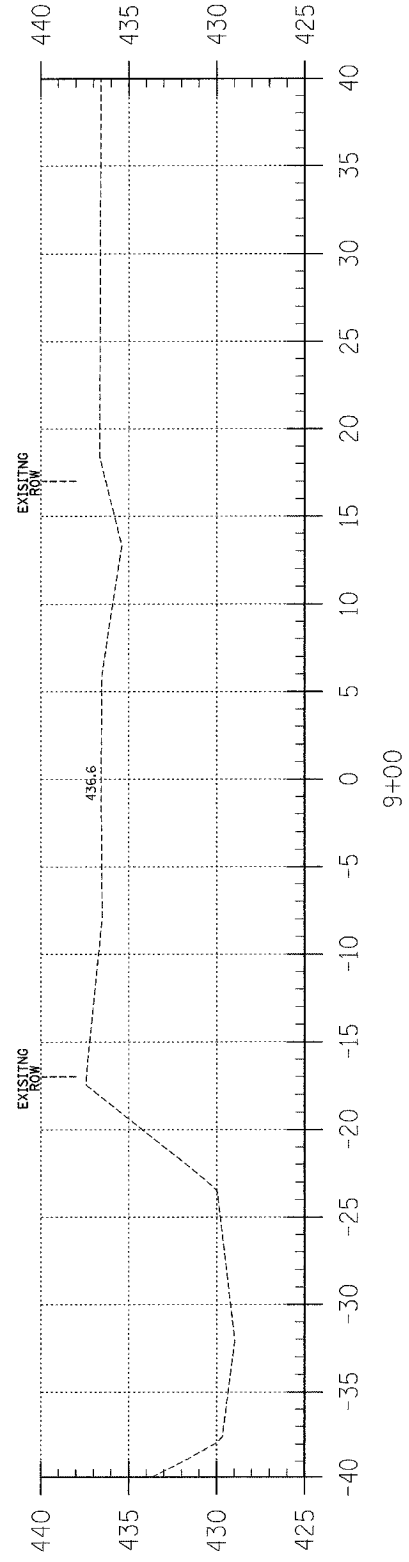
3 OF 14
SHEETS

SHEET NO.
3



EARTHWORK SCHEDULE

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+61.7	8.7	0.0	0.0	6.5	176.5	-170.0
STA. 4+61.7 TO 5+38.3	0.0	205.0	102.5	76.8	0.0	76.8
STA. 5+38.3 TO 10+00	9.5	0.0	0.0	7.1	241.6	-234.5
STA. 5+35 TO 6+60 CREEK SIDE SLOPES	53.4	0.0	0.0	40.0	0.0	40.0
TOTAL	71.6	205.0	102.5	130.4	418.1	-287.4



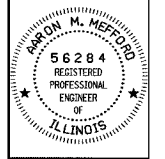
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
229	01-06128-00-BR	HAMILTON	14	4
FED. ROAD DIST. NO. 9 ILLINOIS		FED. AID PROJECT		
PROJECT # BROS-06S(37)		CONTRACT # 99251		
JOB NO. C-99-529-06		SULLIVAN BRANCH		
LEC JOB # H04101HM				

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AARON M. MEFFORD
NAME
Aaron Mefford
SIGNATURE
05-16-06
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EXPIRES

TOWNSHIP ROUTE 229
OVER SULLIVAN BRANCH
HAMILTON COUNTY, ILLINOIS

SHEET TITLE:

CROSS-SECTIONS

SCALE: 1" = 5'
BY: AMM
DATE: 5/16/06
REV: MLG

4 OF 14 SHEETS

SHEET NO. 4

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
229	01-06128-00-BR	HAMILTON	14	5
ILLINOIS FED. ROAD DIST. NO. 9		PROJECT	BROS-065(37)	
L.E.C. JOB # H041010M		SULLIVAN BRANCH		

323 W. 3RD ST.
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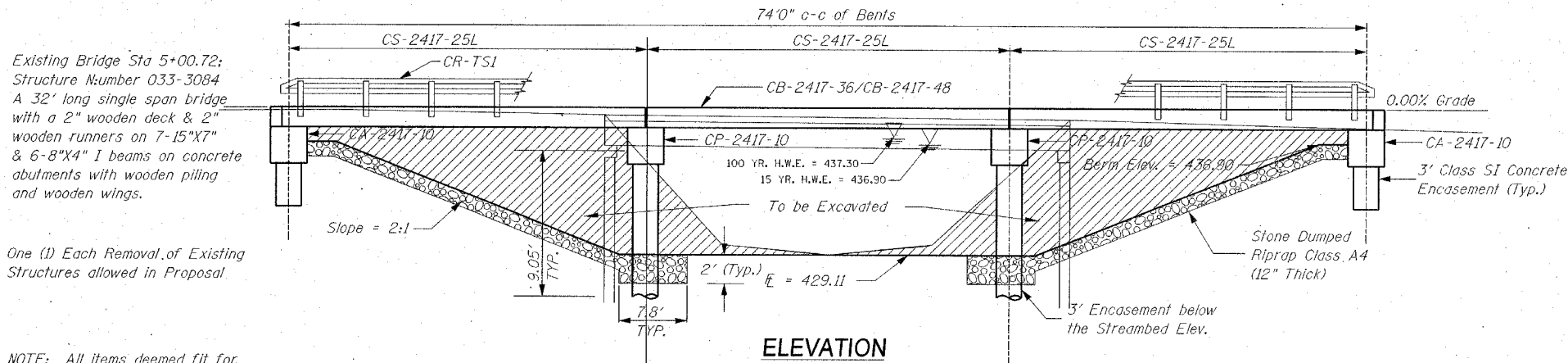
PROFESSIONAL LAND SURVEYING FIRM
048-00082
PROFESSIONAL ENGINEERING CORPORATION
184-00087



AARON M. MEFFORD
NAME
SIGNATURE
DATE
11-30-07
EXPIRES

TOWNSHIP ROUTE 229
SULLIVAN BRANCH
HAMILTON COUNTY, ILLINOIS

B.M.- I.P. +4+23.09, 12.67' LT = 438.22



Existing Bridge Sta 5+00.72; Structure Number 033-3084 A 32' long single span bridge with a 2" wooden deck & 2" wooden runners on 7-15"x7" & 6-8"x4" I beams on concrete abutments with wooden piling and wooden wings.

One (1) Each Removal of Existing Structures allowed in Proposal

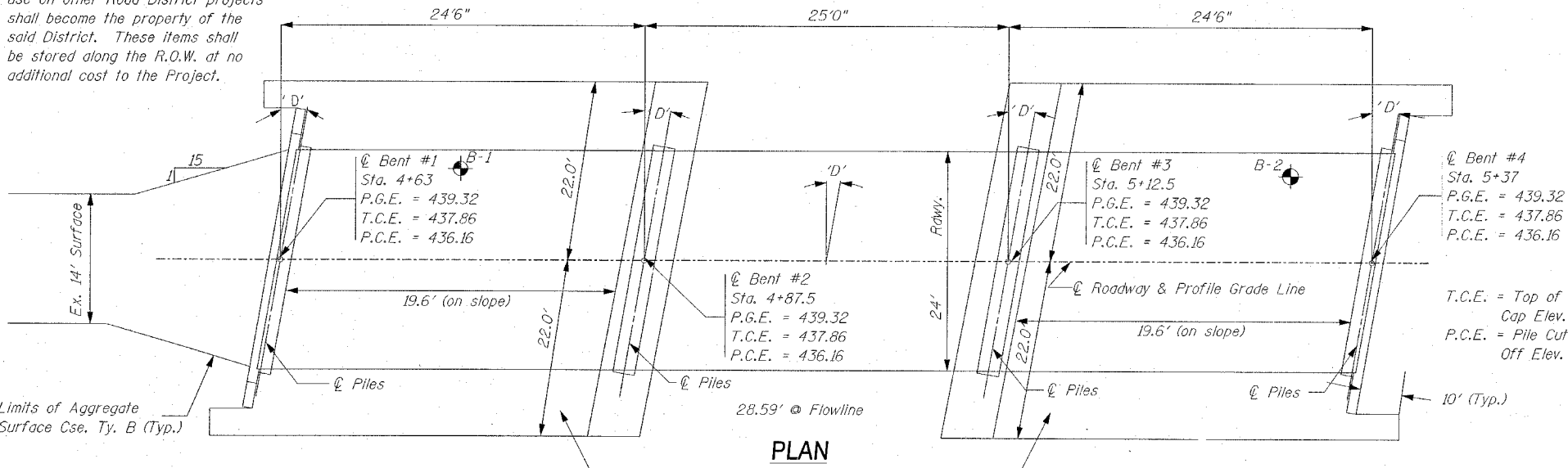
NOTE: All items deemed fit for use on other Road District projects shall become the property of the said District. These items shall be stored along the R.O.W. at no additional cost to the Project.

GENERAL NOTES

- Class SI Concrete shall be used throughout except in the deck beams.
- The Contractor shall drive 1 test pile, as specified, in permanent locations as directed by the Engineer before ordering the remaining piles.
- See Special Provisions for boring logs.
- A Calcium Nitrite Corrosion Inhibitor, as covered in the Special Provisions, shall be used in the concrete for Precast Prestressed Concrete Deck Beams.
- The Bit. Conc. Surf. Cse., Class I and the waterproofing membrane system shown in these plans shall not be provided.
- 2-3/4" φ shear studs will be required per pile which will be encased within the concrete cap.
- The HP piles shall be oriented with the strong axis bending in the longitudinal direction

Item	Super	Sub. Piers	Abuts.	Total
Removal of Existing Structures	Each			1
Bit. Conc. Surf. Cse. Class I	Ton			
Waterproofing Membrane System	Cu.Yd.			
Concrete Structures	Cu.Yd.	14.8	16.6	30.80
P.P. Conc. Dk. Bm. 17" Dp.	Sq.Ft.	1800		1800
Steel Railing, Type SI	Foot	150		150
Reinforcement Bars	Pound	1860	2220	4080
Furnishing Steel Piles HP12X53	Foot	264	264	528
Driving Steel Piles	Foot	264	264	528
Test Pile Steel HP12X53	Each	1	1	2
Name Plates	Each	1	1	2
Concrete Encasement	Cu.Yd.	6.2	2.1	8.3
Shear Studs	Each	16	16	32

NOTE: Four (4) Each Curled End Sections required. Item to be incidental to the Steel Railing.



Limits of Aggregate Surface Cse. Ty. B (Typ.)

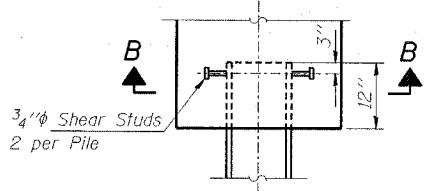
243 Ton Stone Dumped Riprap Class A4 allowed in Proposal

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, 2002) 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
706.05	1006.05
706.32	1006.32
760.07	1060.07
STD 2340	STD 631026

PILE DATA (2-PIERS)

Type: Steel Piles HP10X42
Capacity: Drive to Refusal
Estimated Length: 33 Feet/Pile
Number Required: 8

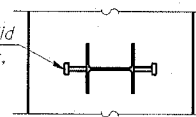


PILE DETAIL
Typ. Each Pile

PILE DATA (2-ABUTS)

Type: Steel Piles HP10X42
Capacity: Drive to Refusal
Estimated Length: 33 Feet/Pile
Number Required: 8

2-3/4" φ Granular or solid flux filled headed studs, automatically end welded to flange. (Typ. each pile)

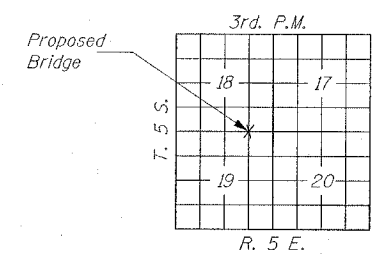


SECTION B-B

STATION 5+00
SULLIVAN BRANCH
SEC. 01-06128-00-BR BUILT 20
PROJECT BROS-065(37)
HAMILTON COUNTY
LOADING HS 20-44
STR. NO. 033-3299

LETTERING FOR NAME PLATE

Locate Name Plate at the Southwest corner of the Bridge (See Std. CN)



LOCATION SKETCH

INDEX OF SHEETS

- General Plan & Elevation
- Standard CS-2417-25L
- Standard CB-2417-36
- Standard CB-2417-48
- Standard CA-2417-10
- Standard CP-2417-10
- Standard CR-TS1
- Standard CN
- Standard CX-1

WATERWAY INFORMATION

Drainage Area = 5.1 sq.mi. Low Grade Elev. = 436.32 at Sta. X+XX

Flood	Freq. Yr.	Opening Sq Ft		Natural H.W.E.	Head-Ft		Headwater EL.		
		Exist.	Prop.		Exist.	Prop.	Exist.	Prop.	
Design	15	1240	*143	**369	436.90	2.51	0.43	439.41	437.33
Base	100	1910	**143	**397	437.30	7.03	0.92	444.33	438.22
Overtopping									
Max. Calc.	500	2440							

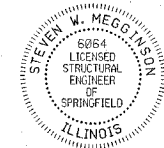
* Area Over Road = 336 Sq Ft
** Area Over Road = 641 Sq Ft
*** Area Over Road = 216 Sq Ft
**** Area Over Road = 451 Sq Ft

DESIGN SPECIFICATIONS

2002 AASHTO
HS 20-44 Loading. Load Factor Design.

SEISMIC DATA

Seismic Performance Category (SPC) = B
Bedrock Acceleration Coefficient (A) = 0.10g
Site Coefficient (S) = 1.0



Steven W. Mefford 1-6-06
ILLINOIS STRUCTURAL NO. 6064
Complies with 2002 AASHTO Specifications for Seismic Design of Bridges.
Expires 11-30-06

GENERAL PLAN AND ELEVATION

TOWNSHIP ROUTE 229
OVER SULLIVAN BRANCH
SECTION 01-06128-00-BR
HAMILTON COUNTY
STATION 5+00

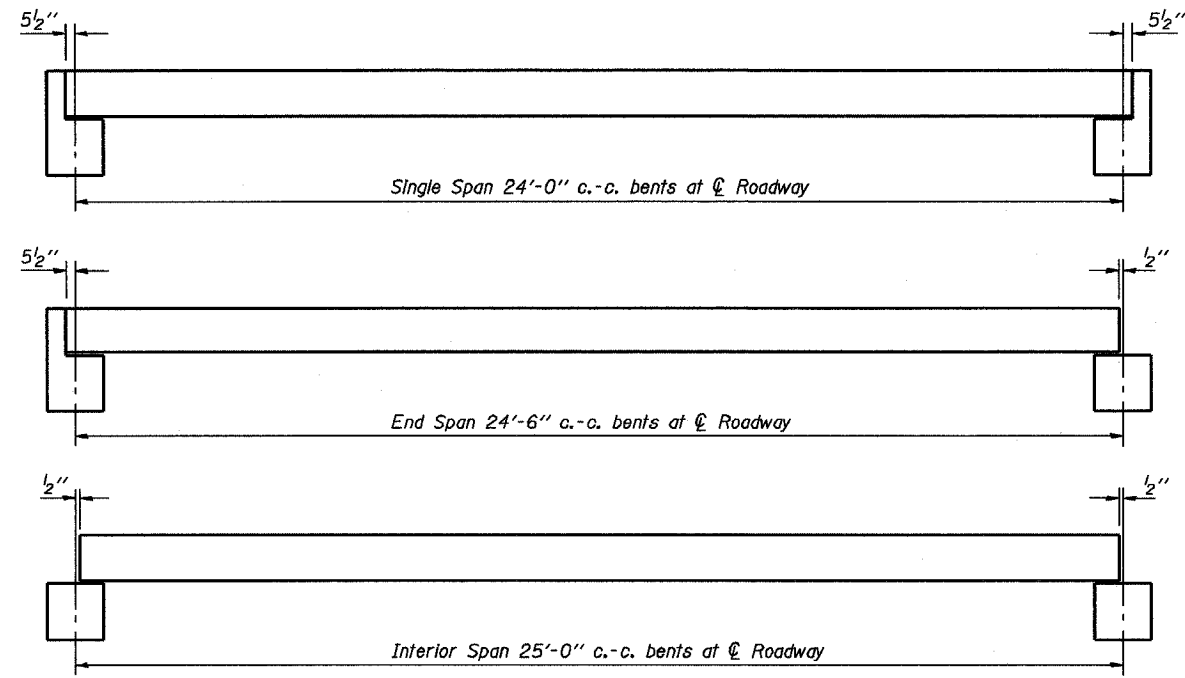
SHEET TITLE:

GENERAL PLAN AND ELEVATION

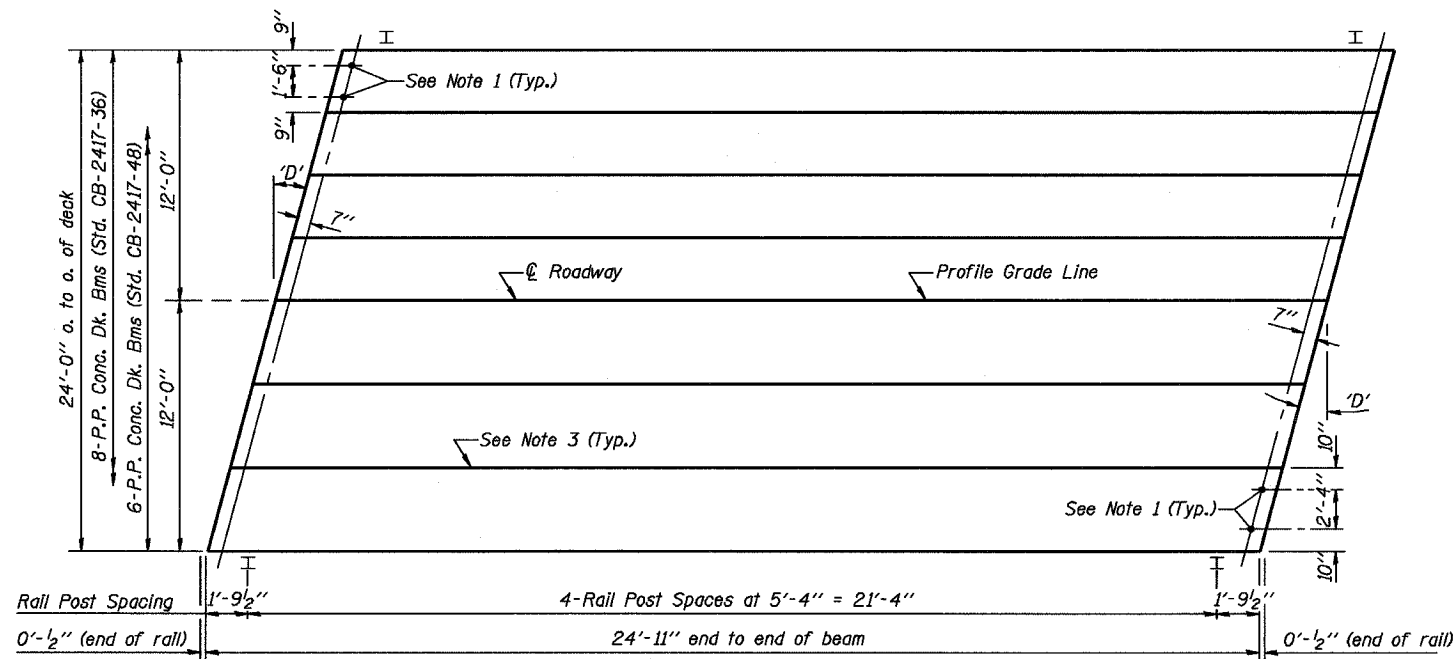
SCALE: NONE
BY: AMM
DATE: 12/01/05
REV:

5 OF 14 SHEETS

SHEET NO. 5



TYPICAL ELEVATIONS

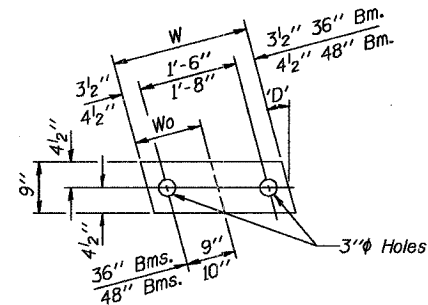
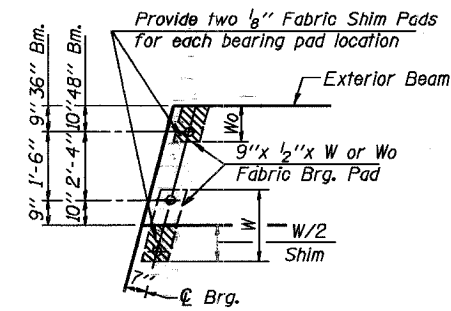


PLAN

('D' = Designated Skew Angle)

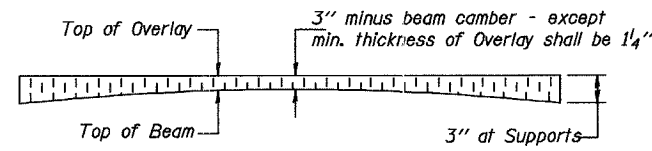
NOTES

- 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.
- Nominal 1" joint at centerline pier shall be filled with non-shrink grout.
- Longitudinal keys shall be grouted.

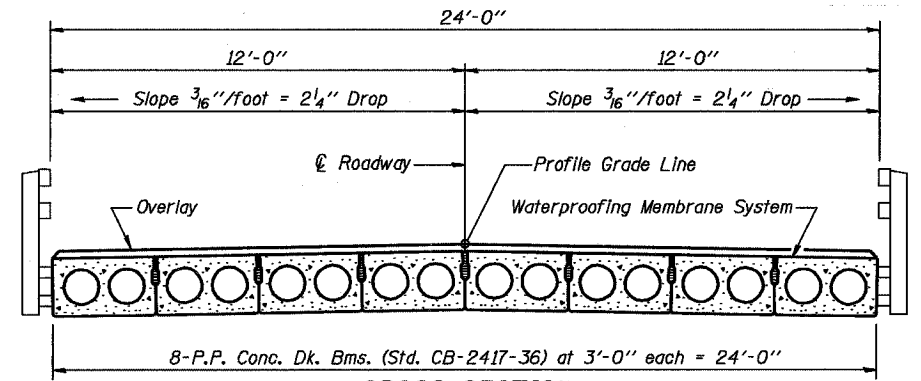


Beam	W	Wo
36"	2'-1"	1'-0 1/2"
48"	2'-5"	1'-2 1/2"

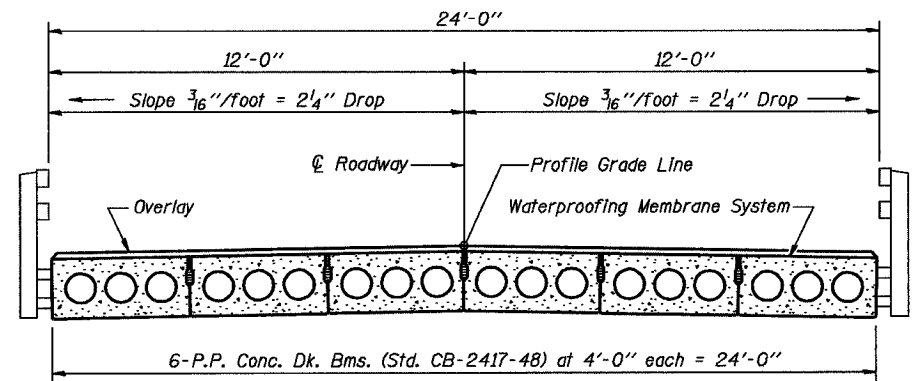
1/2" FABRIC BRG. PAD DETAILS



PROFILE OF OVERLAY



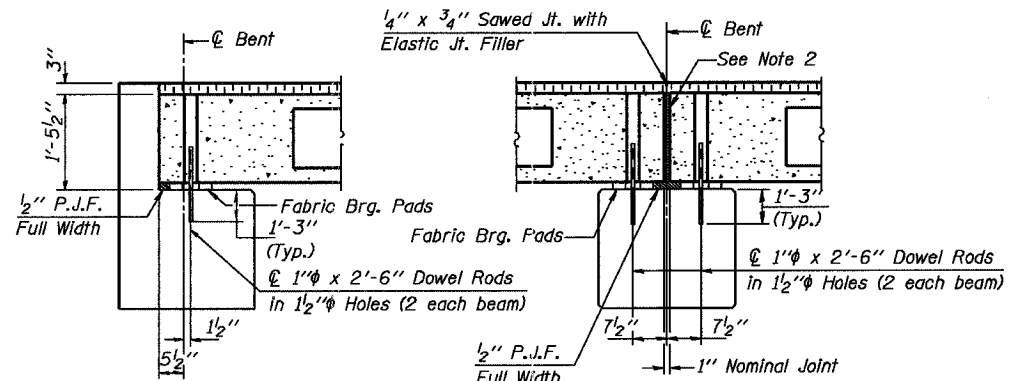
CROSS SECTION



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	7/2"	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

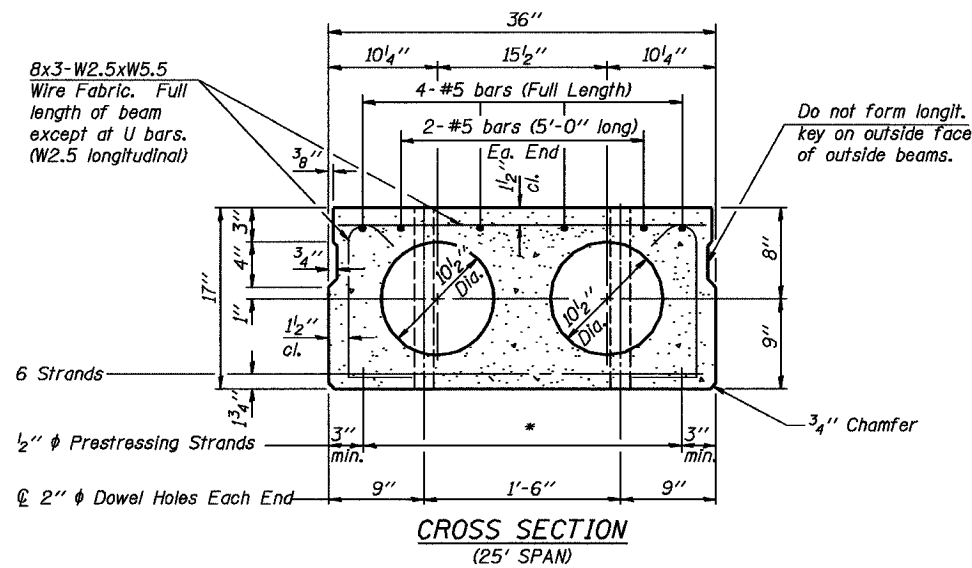
P.P. Conc. Dk. Bm. 17" Dp.	600 Sq. Ft.
Steel Railing	50 Ft.
Waterproofing Membrane System	66.7 Sq. Yds.
Portland Cement Mortar	175 Ft. 36"
Fairing Course	125 Ft. 48"

Note: Quantity of overlay for one span = 10.5 Tons

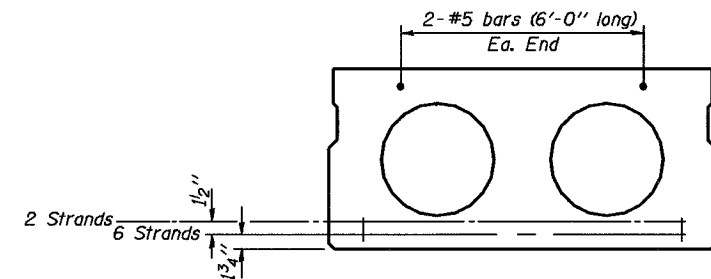
P.P.C. DECK BEAM
SUPERSTRUCTURE

24' RDWY.	17" BMS.	25' SPAN	LEFT
STANDARD CS-2417-25L			

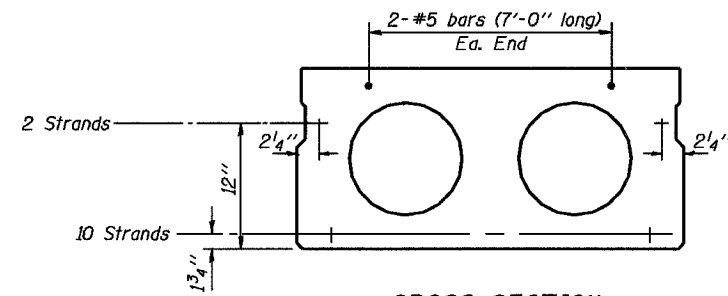
Illinois Department of Transportation
 PASSED APRIL 4, 2005
 Thomas S. Namasawala
 Engineer of Bridge Design
 APPROVED APRIL 4, 2005
 Ralph E. Anderson
 Engineer of Bridges and Structures



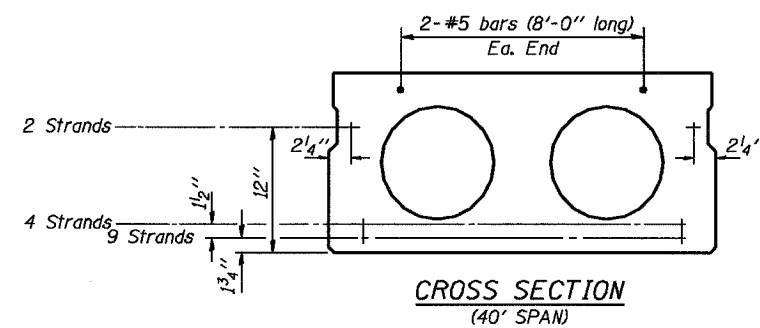
CROSS SECTION
(25' SPAN)



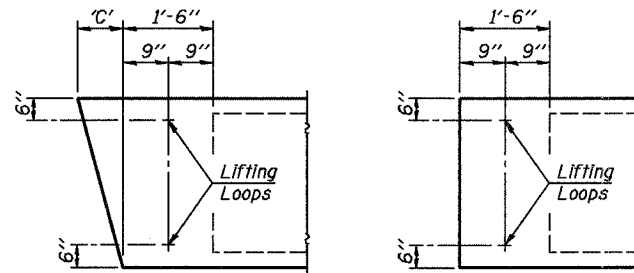
CROSS SECTION
(30' SPAN)



CROSS SECTION
(35' SPAN)

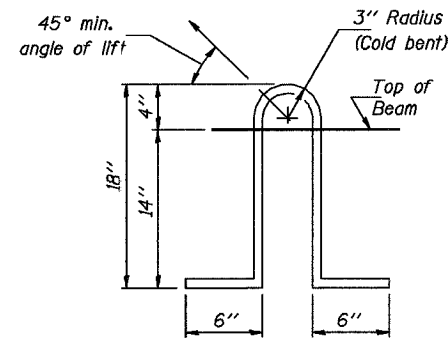


CROSS SECTION
(40' SPAN)



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" diameter-270 ksi strands, as shown. Alternate approved lifting devices are also acceptable.

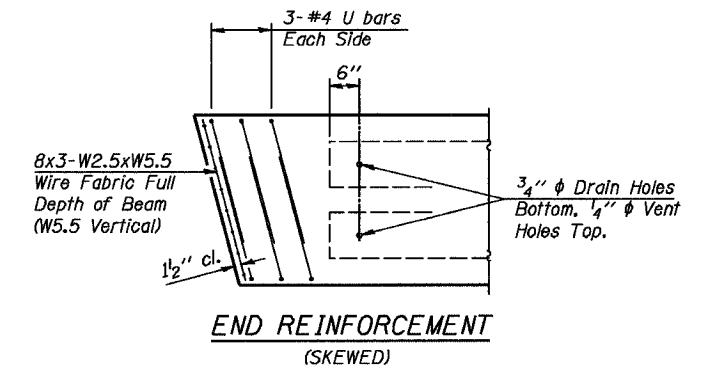
DIMENSION 'C'

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

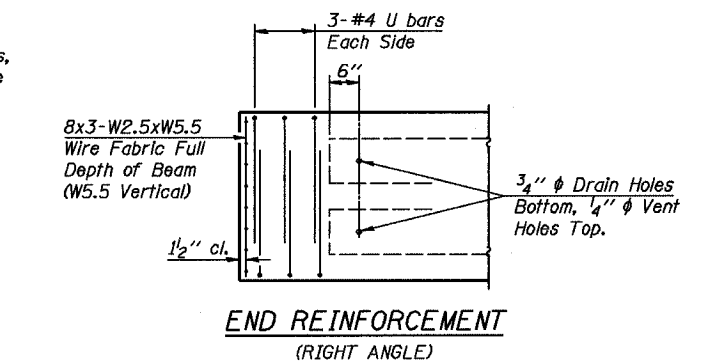
*** TRANSVERSE STRAND PLACEMENT GUIDELINES**

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".

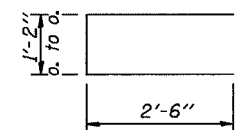
Vertical placement of strands shall not be adjusted to satisfy the above guidelines.



END REINFORCEMENT
(SKEWED)



END REINFORCEMENT
(RIGHT ANGLE)



BAR U

MIN. BAR LAP

#5 bars = 1'-8"

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" diameter Strand)
- $f_{si} = 201,960$ p.s.i. (1/2" diameter Strand)
- $f_y = 60,000$ p.s.i.

NOTES

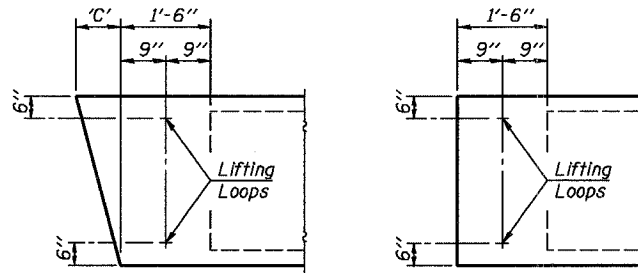
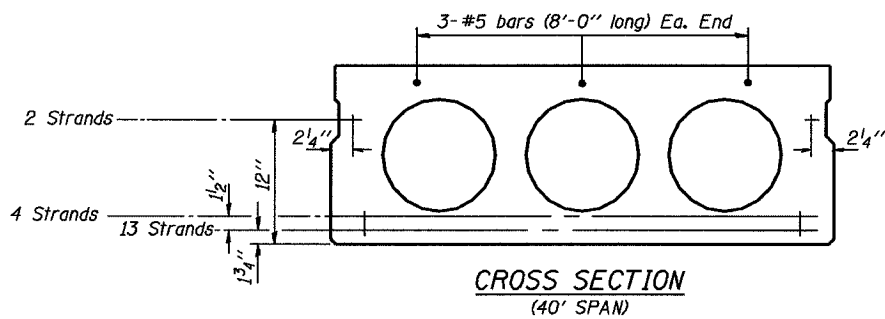
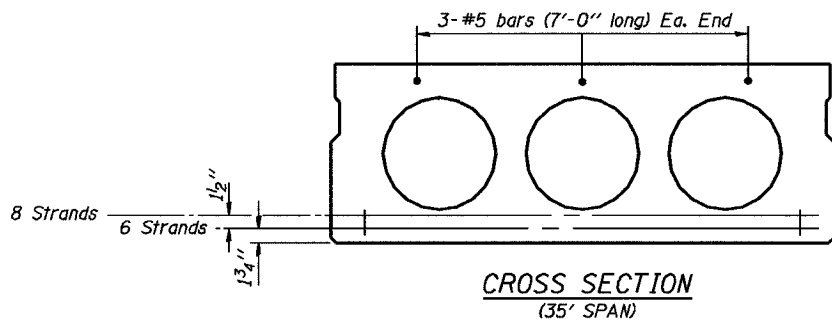
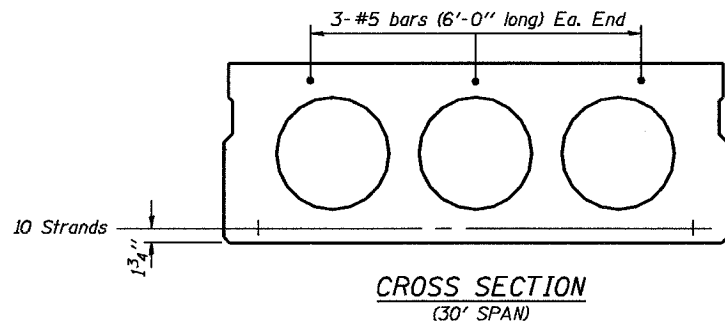
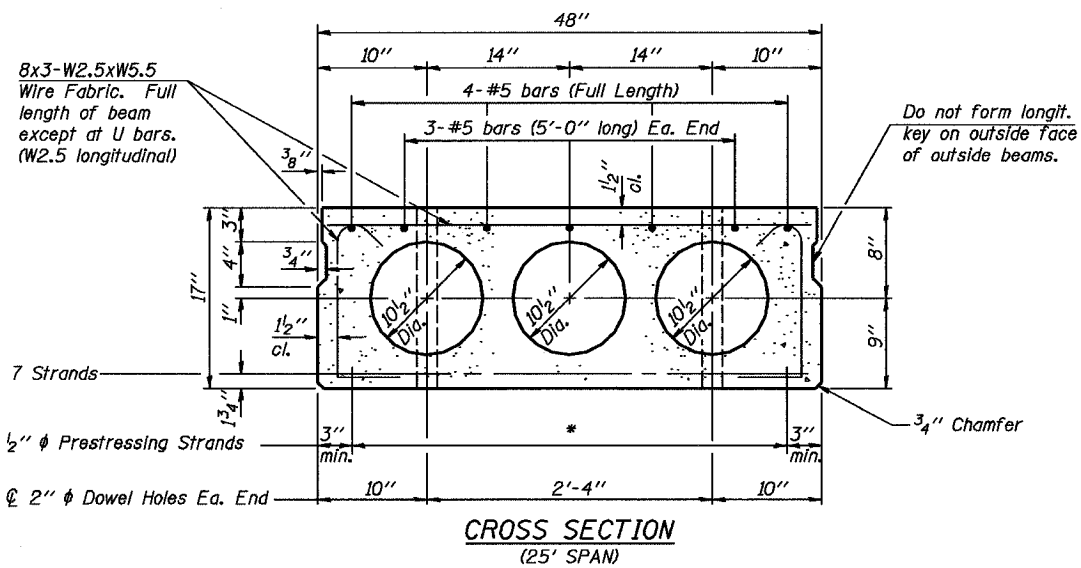
1. Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270.
2. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 square inches.
3. Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-322, Grade 60.
4. Rail Post anchor devices shall be cast into outside beam as elsewhere specified.
5. 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".
6. 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.

NOTE

The std. reinf. and dimensions shown on the 25' span cross section is typical for all spans, except as shown.

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

P.P.C. DECK BEAM DETAILS
 24' ROADWAY | 17" x 36" BEAMS
 STANDARD CB-2417-36



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.

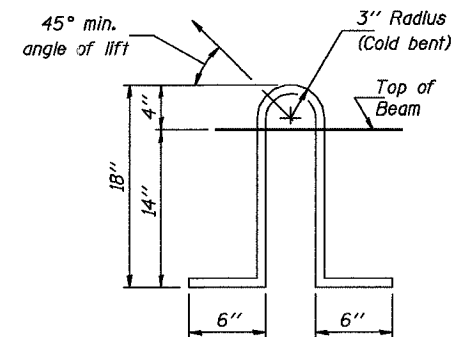
DIMENSION 'C'

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 3/4	27 3/4

*** TRANSVERSE STRAND PLACEMENT GUIDELINES**

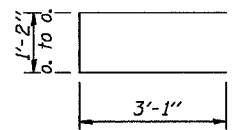
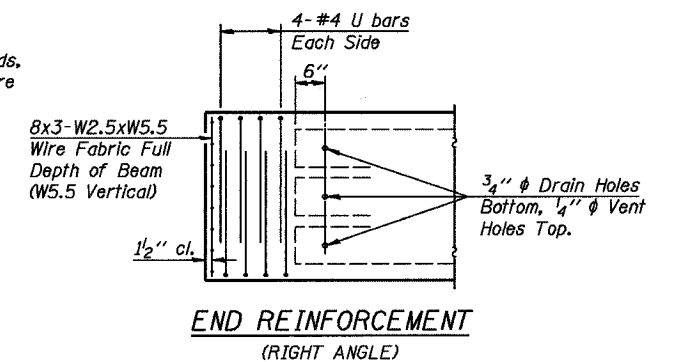
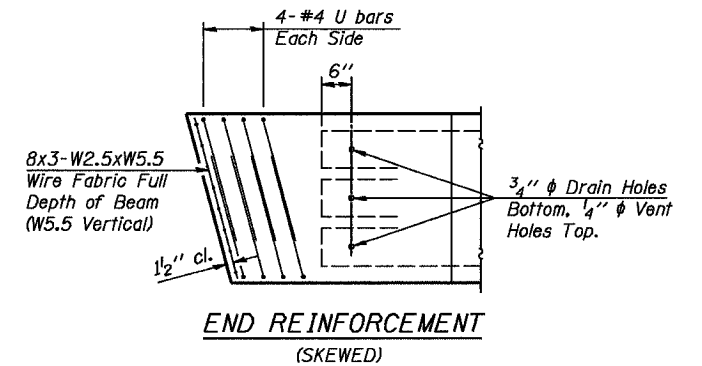
1. Place strands symmetrically about centerline of beam.
2. The minimum distance from center to center of strands in all directions shall be 2".
3. The minimum clearance from strand to dowel hole shall be 1/2".
4. The minimum clearance from strand to void shall be 1 1/2".

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



LIFTING LOOP DETAIL

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



MIN. BAR LAP

#5 bars = 1'-8"

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)
- $f_{bl} = 201,960$ p.s.i. (1/2" ϕ 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. Rail Post anchor devices shall be cast into outside beam as elsewhere specified.
5. 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".
6. 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.

NOTE

The std. reinf. and dimensions shown on the 25' span cross section is typical for all spans, except as shown.

Illinois Department of Transportation

PASSED APRIL 4, 2005

Theresa S. Romagnolo
Engineer of Bridge Design

APPROVED APRIL 4, 2005

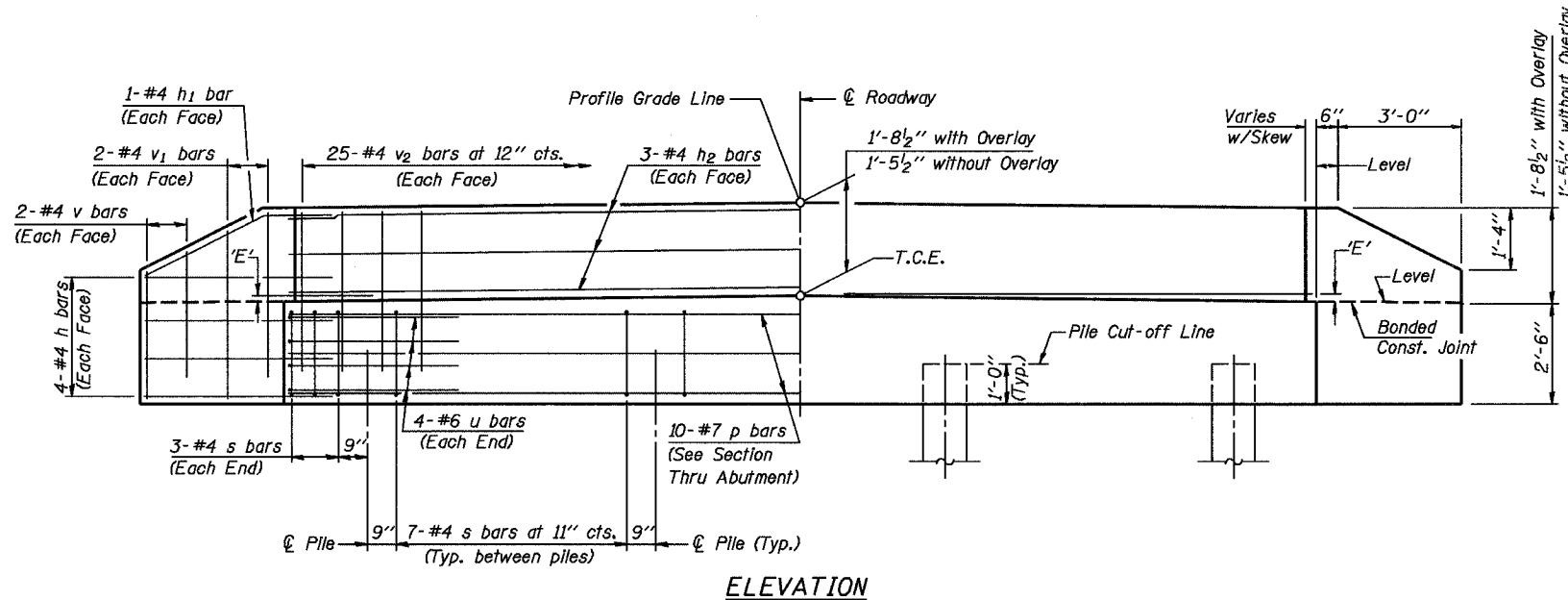
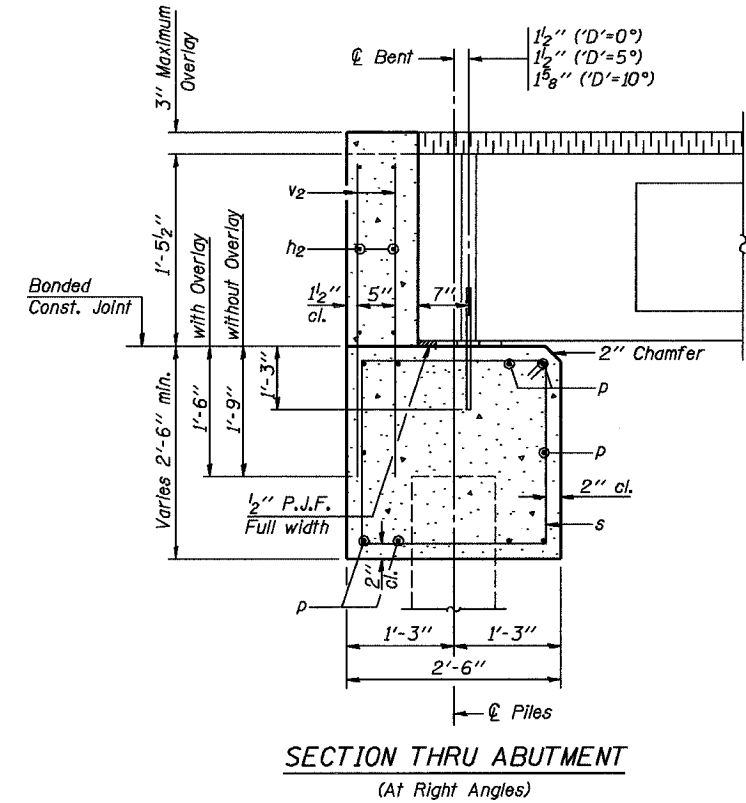
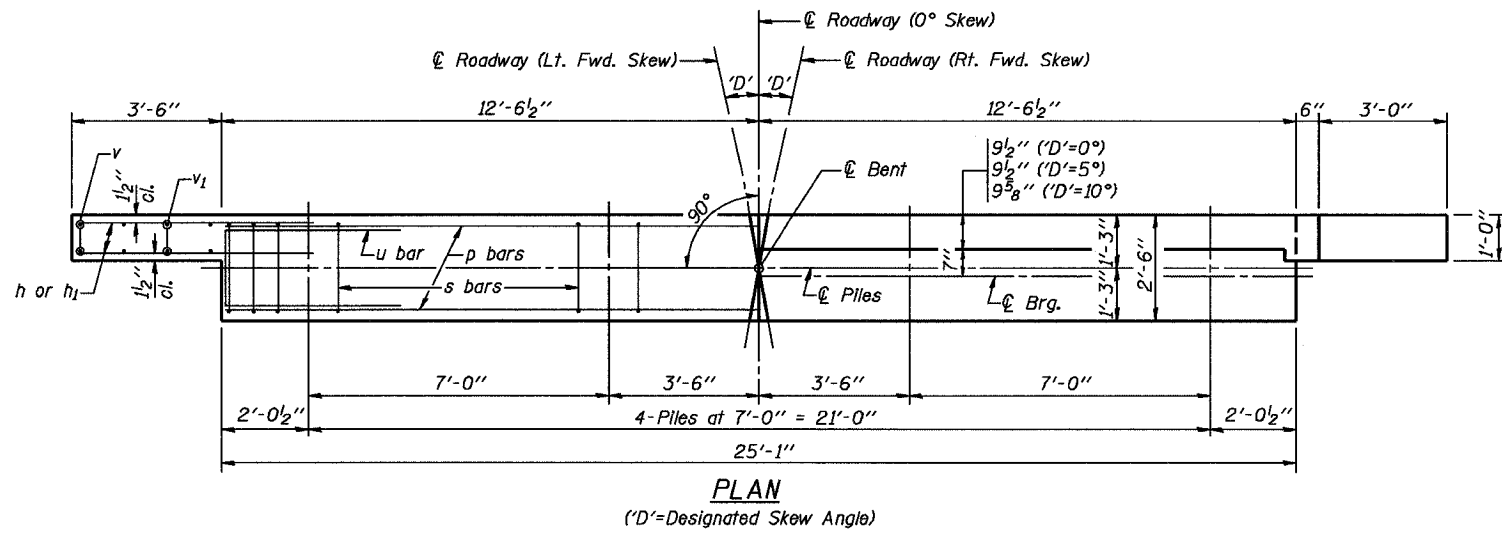
Ralph E. Anderson
Engineer of Bridges and Structures

188-1-1 (REVISED)

P.P.C. DECK BEAM DETAILS

24' ROADWAY | 17" x 48" BEAMS

STANDARD CB-2417-48



ELEVATION
DIMENSION 'E'

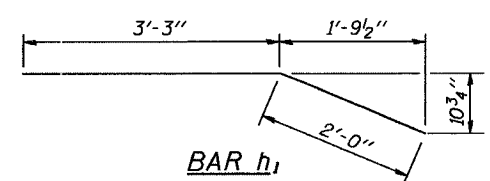
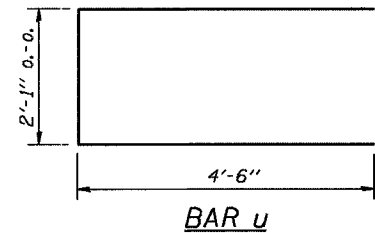
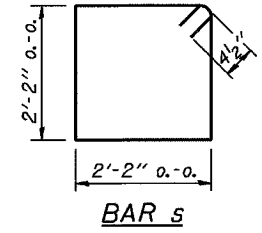
GRADE	'D'=0°		'D'=5°		'D'=10°	
	UPGRADE END	DOWNGRADE END	UPGRADE END	DOWNGRADE END	UPGRADE END	DOWNGRADE END
0%	2 3/8"	2 3/8"	2 3/8"	2 3/8"	2 3/8"	2 3/8"
Over 0% to 1%	2 3/8"	2 3/8"	2 1/4"	2 3/8"	2 1/8"	2 1/2"
Over 1% to 2%	2 3/8"	2 3/8"	2 1/8"	2 1/2"	1 7/8"	2 3/4"
Over 2% to 3%	2 3/8"	2 3/8"	2"	2 5/8"	1 5/8"	3"
Over 3% to 4%	2 3/8"	2 3/8"	1 7/8"	2 3/4"	1 3/8"	3 1/4"

- NOTES**
- The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.
 - Reinforcement bars shall conform to the requirements of A.A.S.H.T.O. M-31 or M-322, Grade 60.
 - Space reinforcement in cap to miss anchor bolts.

MAXIMUM PILE LOADS

SPAN	TONS
25'	25
30'	26
35'	28
40'	30

DESIGN STRESSES
f'c = 3,500 psi
fy = 60,000 psi



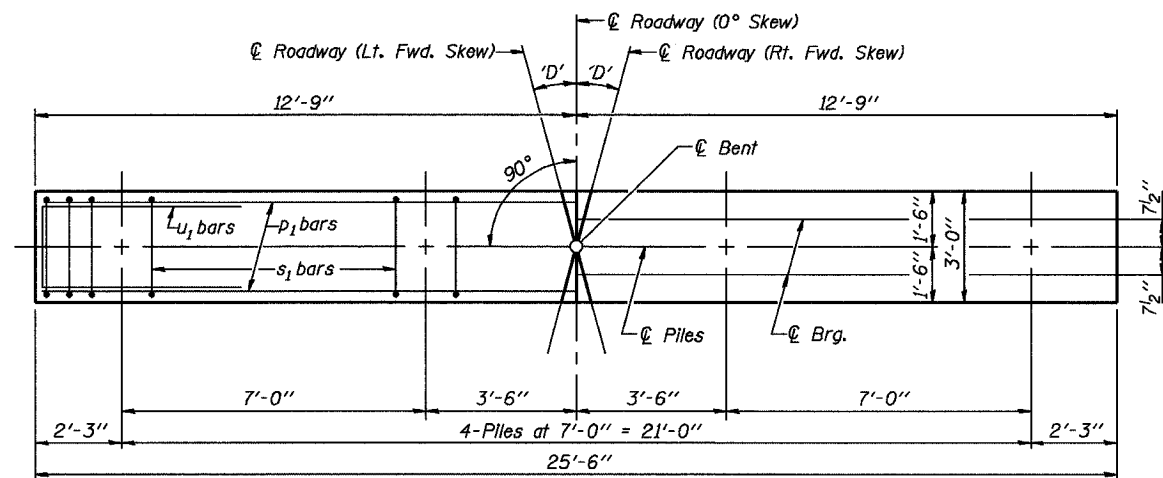
BILL OF MATERIAL FOR ONE ABUTMENT

Bar	No.	Size	Length	Shape
h	16	#4	5'-0"	—
h1	4	#4	5'-3"	—
h2	6	#4	24'-9"	—
p	10	#7	24'-9"	—
s	27	#4	9'-5"	□
u	8	#6	11'-1"	□
v	8	#4	2'-6"	—
v1	8	#4	3'-5"	—
v2	50	#4	3'-1"	—
Concrete Structures			8.3 Cu. Yds.	
Reinforcement Bars			1110 Lb.	

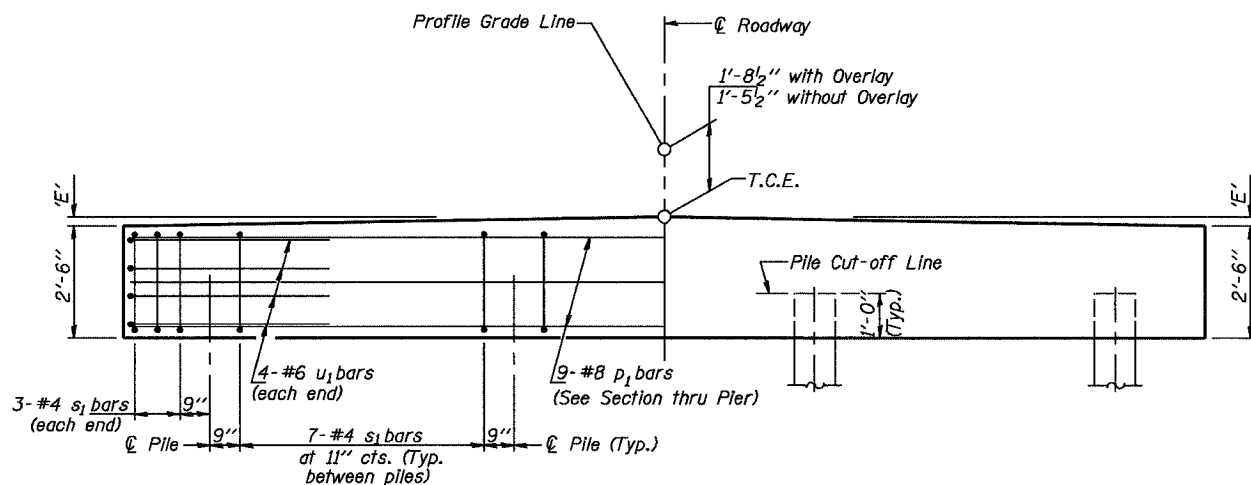
**P.P.C. DECK BEAMS
PILE BENT ABUTMENT**

24' RDWY.	17" BMS.	'D'=0°, 5° OR 10°
STANDARD CA-2417-10		

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



PLAN
(*'D'* = Designated Skew Angle)



ELEVATION

DIMENSION 'E'

GRADE	<i>'D'</i> =0°		<i>'D'</i> =5°		<i>'D'</i> =10°	
	UPGRADE END	DOWNGRADE END	UPGRADE END	DOWNGRADE END	UPGRADE END	DOWNGRADE END
0%	2 ³ / ₈ "	2 ³ / ₈ "	2 ³ / ₈ "	2 ³ / ₈ "	2 ³ / ₈ "	2 ³ / ₈ "
Over 0% to 1%	2 ³ / ₈ "	2 ³ / ₈ "	2 ¹ / ₄ "	2 ³ / ₈ "	2 ³ / ₈ "	2 ¹ / ₂ "
Over 1% to 2%	2 ³ / ₈ "	2 ³ / ₈ "	2 ¹ / ₈ "	2 ¹ / ₂ "	1 ⁷ / ₈ "	2 ³ / ₄ "
Over 2% to 3%	2 ³ / ₈ "	2 ³ / ₈ "	2"	2 ⁵ / ₈ "	1 ⁵ / ₈ "	3"
Over 3% to 4%	2 ³ / ₈ "	2 ³ / ₈ "	1 ⁷ / ₈ "	2 ³ / ₄ "	1 ³ / ₈ "	3 ¹ / ₄ "

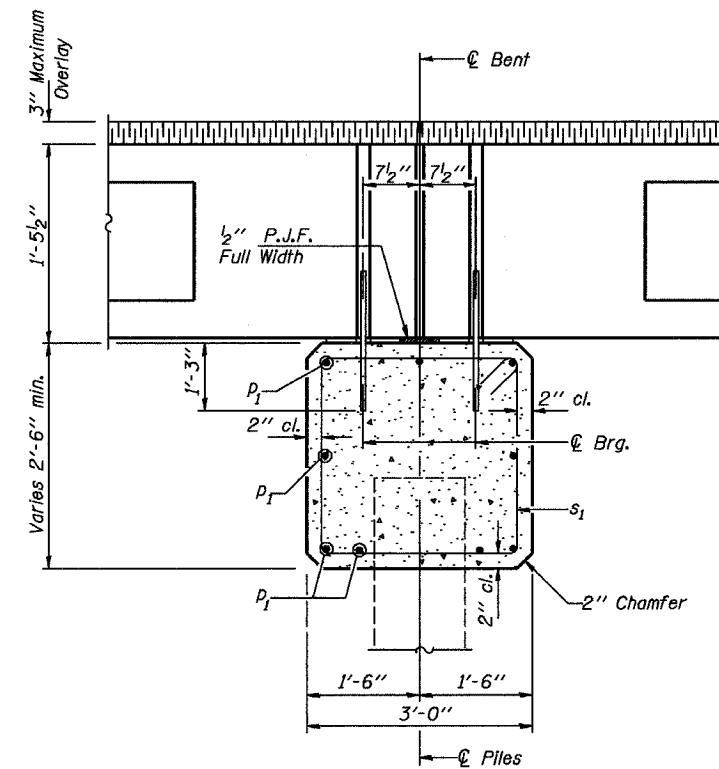
MAXIMUM PILE LOADS

SPAN	TONS
25'	34
30'	38
35'	42
40'	45

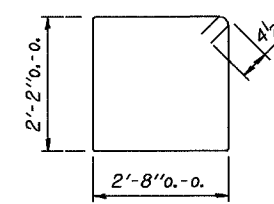
Longer of Either Span Supported by Pier.

DESIGN STRESSES

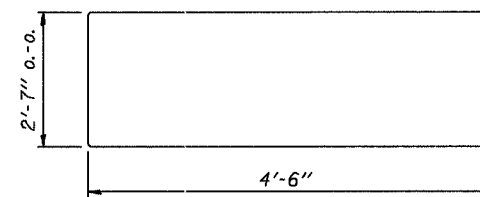
f'_c = 3,500 psi
*f*_y = 60,000 psi



SECTION THRU PIER
(At Right Angles)



BAR s₁



BAR u₁

BILL OF MATERIAL FOR ONE PIER

Bar	No.	Size	Length	Shape
<i>p</i> ₁	9	#8	25'-2"	—
<i>s</i> ₁	27	#4	10'-5"	□
<i>u</i> ₁	8	#6	11'-7"	▭
Concrete Structures			7.4	Cu. Yds.
Reinforcement Bars			930	Lb.

Illinois Department of Transportation
 PASSED APRIL 4, 2005
 Thane S. Nemaqalaki
 Engineer of Bridge Design
 APPROVED APRIL 4, 2005
 Ralph E. Anderson
 Engineer of Bridges and Structures
 1986-1-1 CBR/SEI

P.P.C. DECK BEAMS PILE BENT PIER		
24' RDWY.	17" BMS.	<i>'D'</i> =0°, 5° OR 10°
STANDARD CP-2417-10		

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.

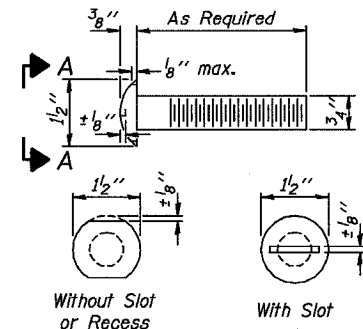
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with STEEL RAILING, TYPE S-1.

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

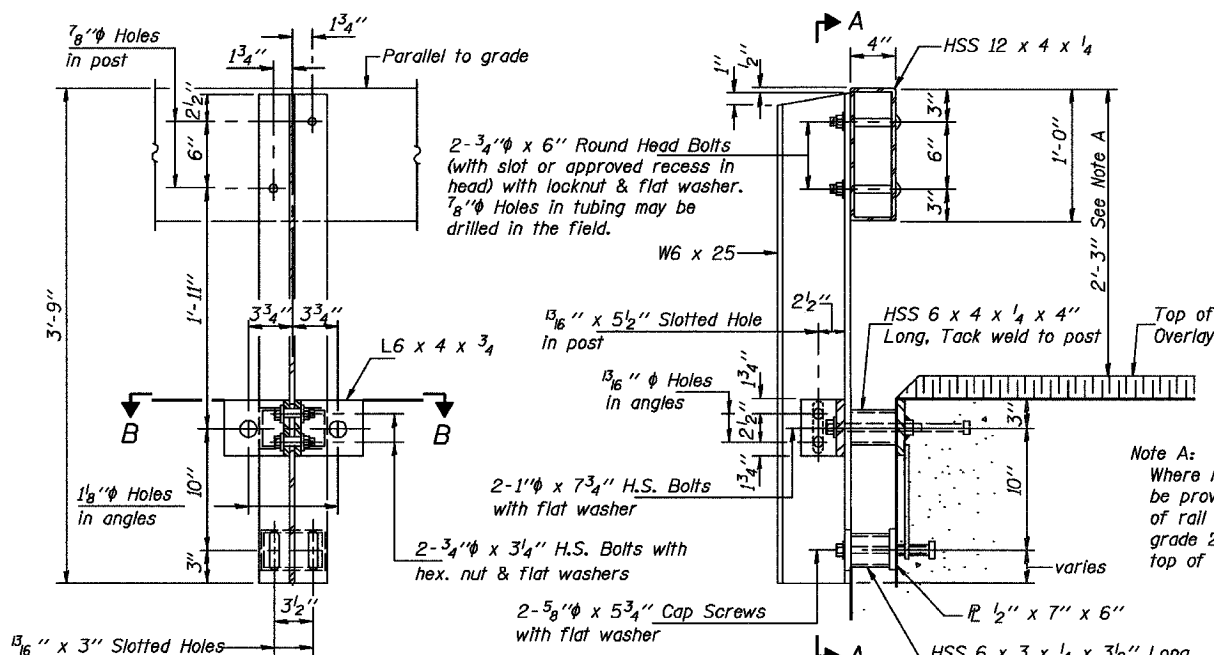
The 1/2" x 7" x 6" plates that come in contact with concrete shall either receive two coats of asphalt paint conforming to Section 1060.07 Type II, or 1/8" fabric bearing pads shall be placed between the plates and concrete.

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 1/2 turn. The 5/8" cap screws in bottom of posts shall be tightened to a snug fit only.

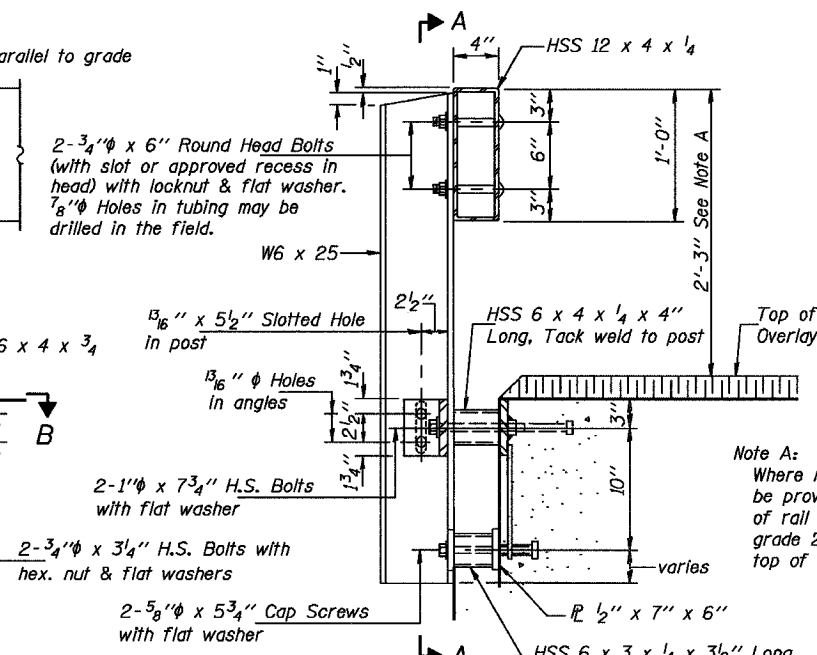
The maximum allowable rail post spacing shall be 10'-6". The rail post spacing shown elsewhere in the plans is based on the allowable spacing for another type of rail. When this type of rail is used, the number of posts may be decreased and the post spacing increased to provide equal post spaces of 10'-6"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



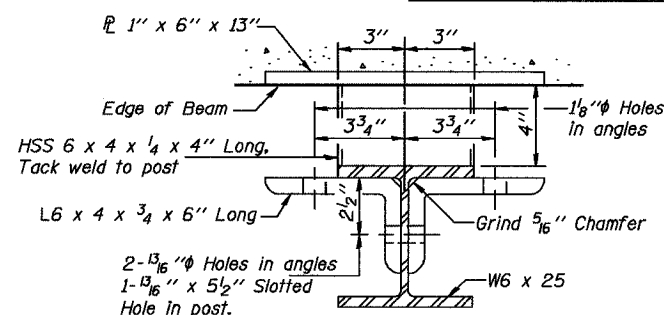
**VIEW A-A
ROUND HEAD BOLT**



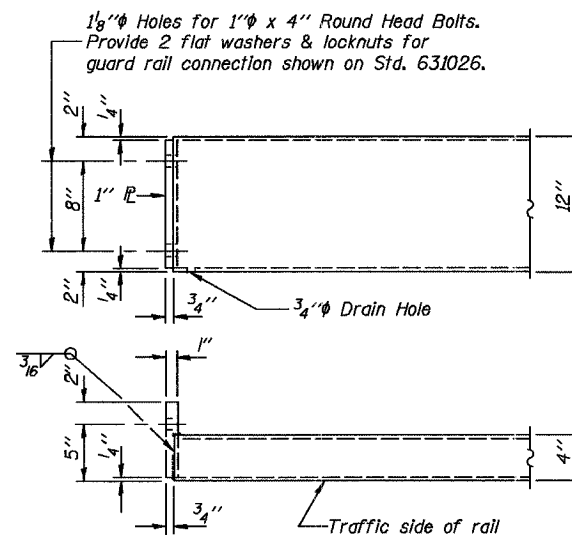
SECTION A-A



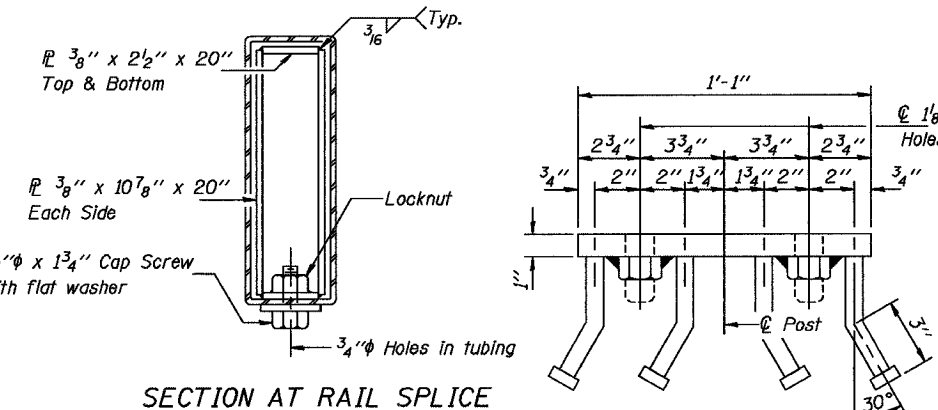
SECTION AT RAIL POST



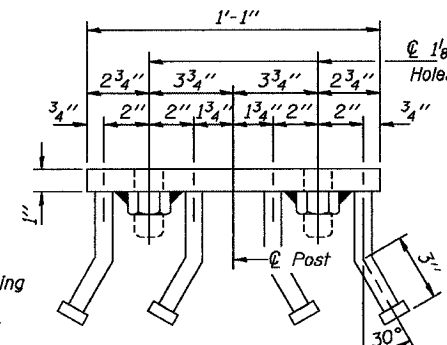
SECTION B-B



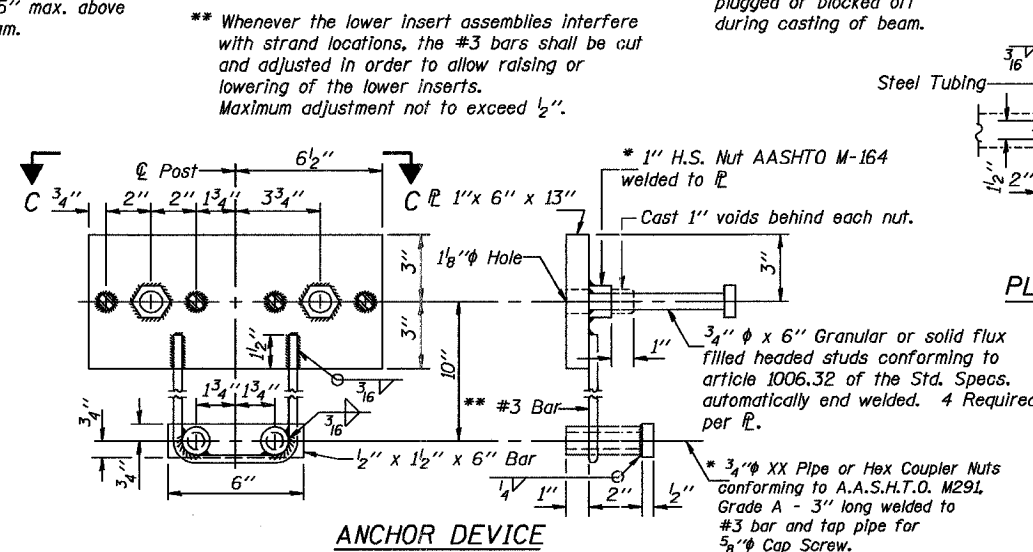
END OF RAIL DETAILS



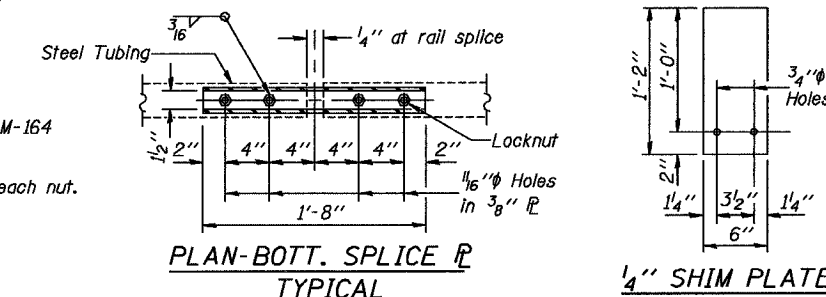
SECTION AT RAIL SPLICE



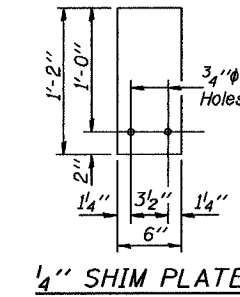
VIEW C-C



ANCHOR DEVICE



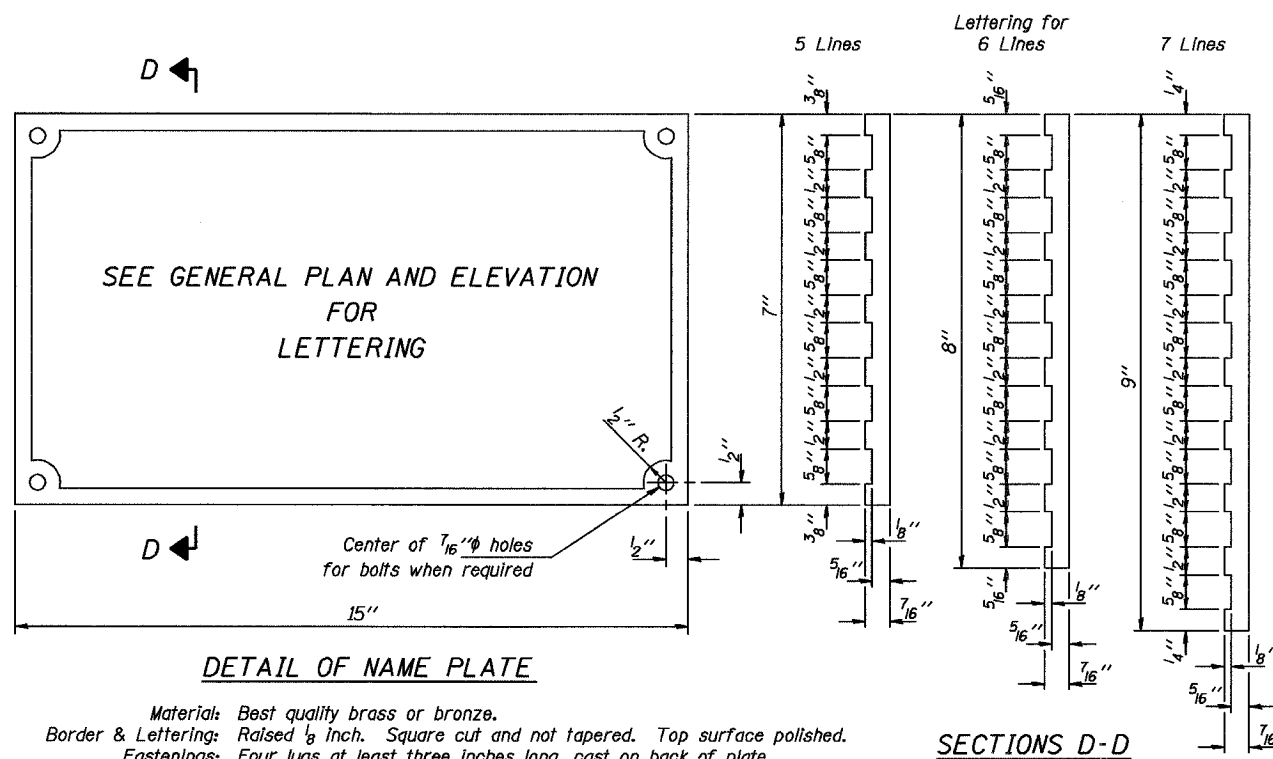
PLAN-BOTT. SPLICE & TYPICAL



1/4 INCH SHIM PLATE

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

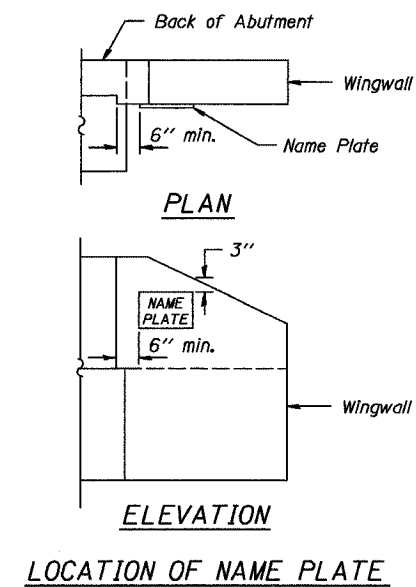
**STEEL RAILING, TYPE S-1
STANDARD CR-TS1**



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.

SECTIONS D-D



LOCATION OF NAME PLATE

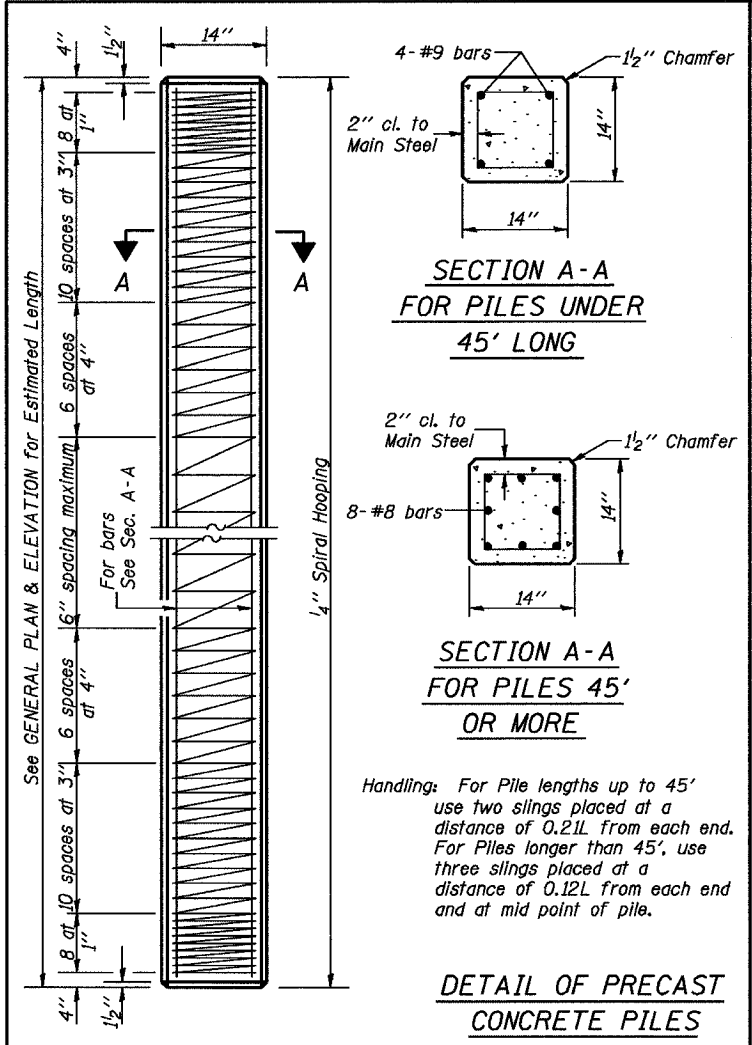
Illinois Department of Transportation

PASSED APRIL 4, 2005
Thomas S. Ranganathan
Engineer of Bridge Design

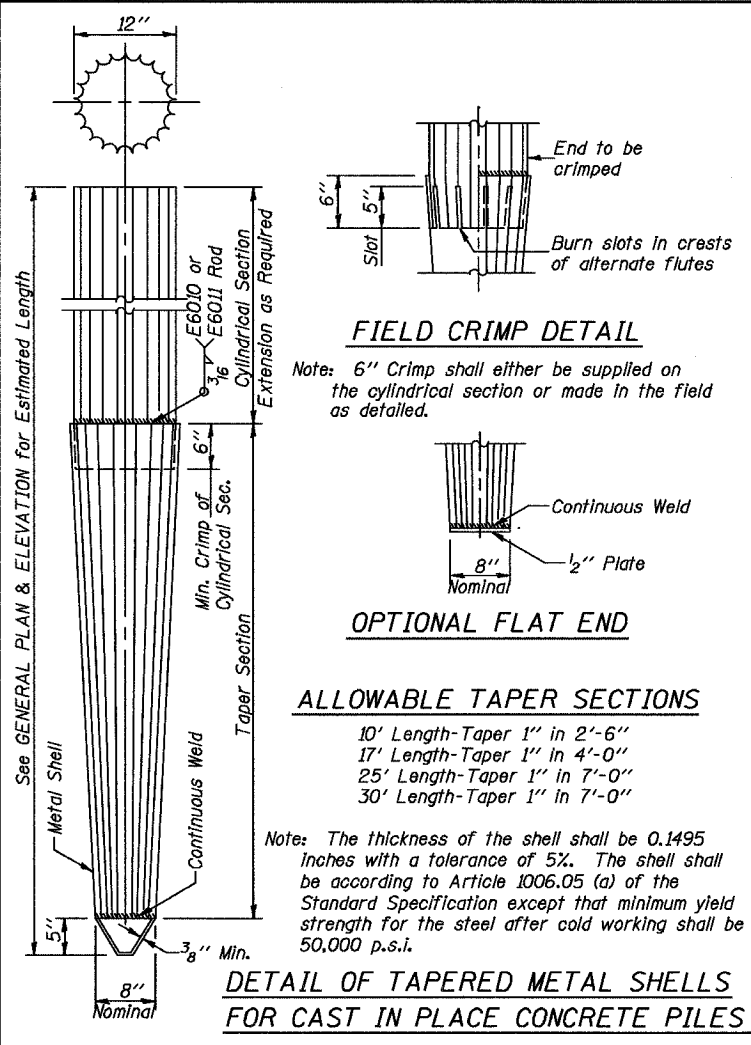
APPROVED APRIL 4, 2005
Ralph E. DeBruin
Engineer of Bridges and Structures

ISSUED 7-1-9956

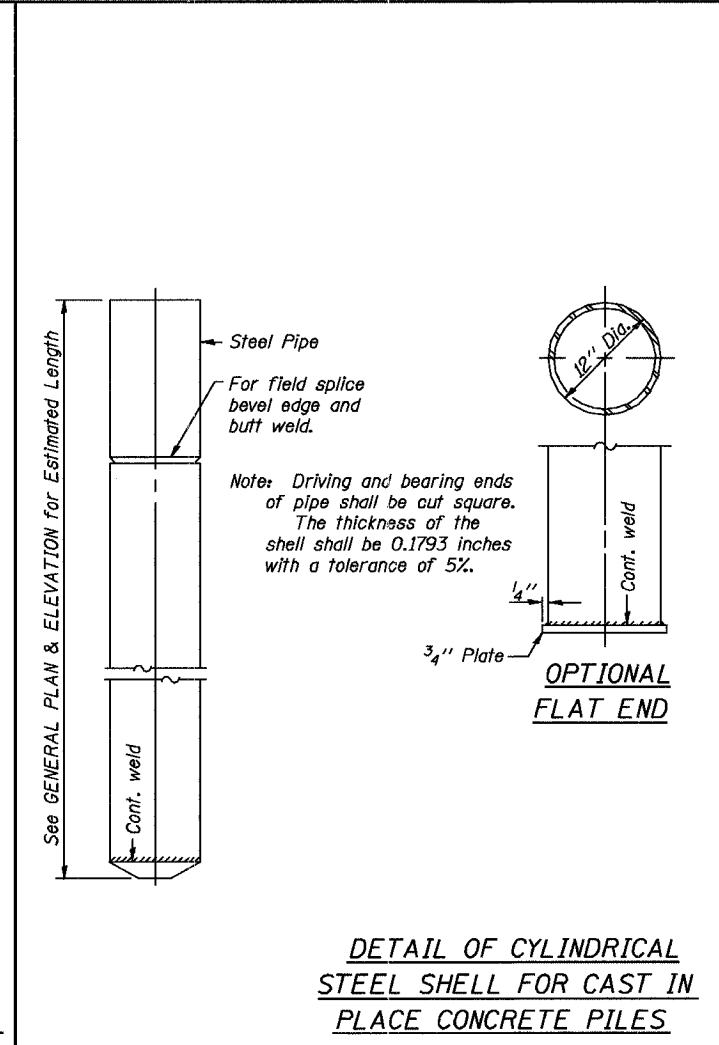
NAME PLATE
STANDARD CN



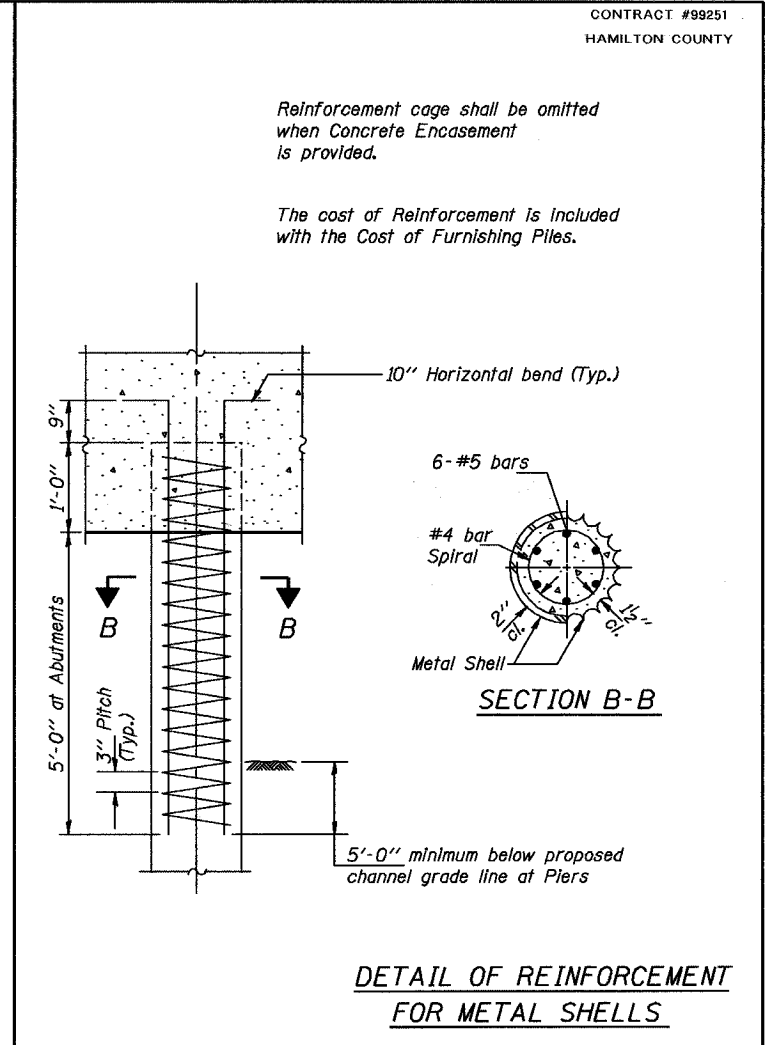
DETAIL OF PRECAST CONCRETE PILES



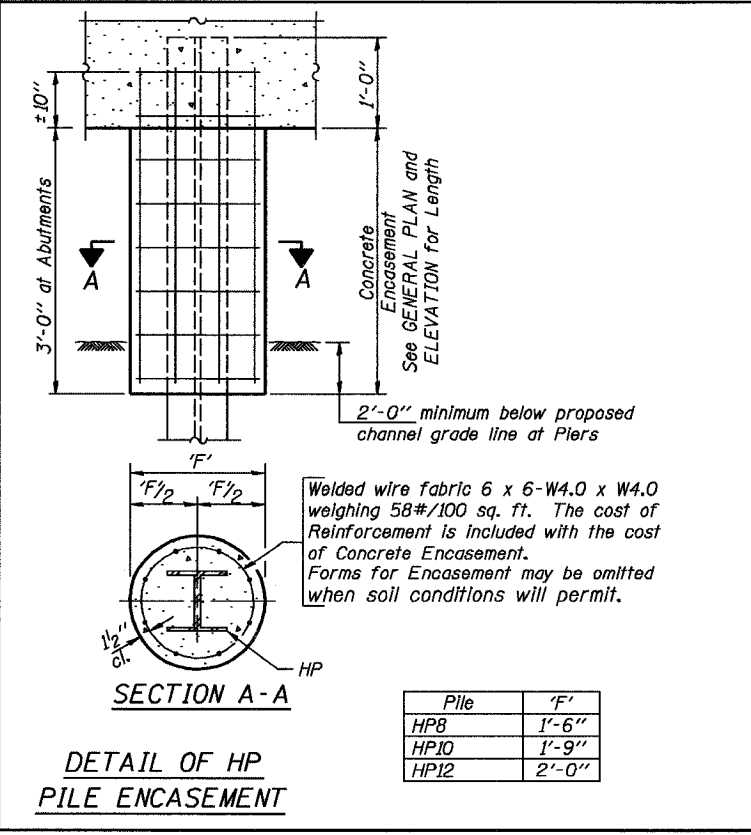
DETAIL OF TAPERED METAL SHELLS FOR CAST IN PLACE CONCRETE PILES



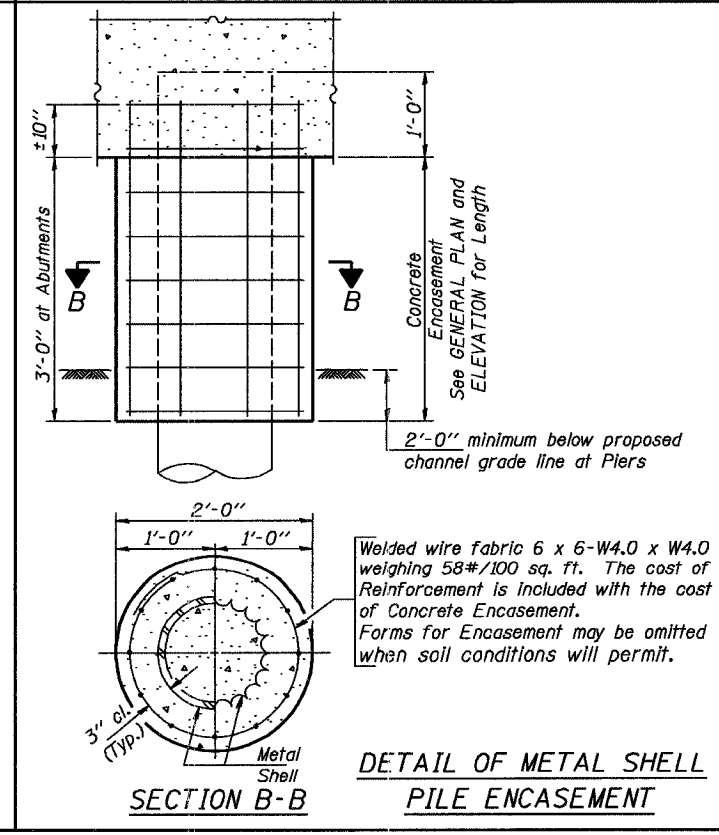
DETAIL OF CYLINDRICAL STEEL SHELL FOR CAST IN PLACE CONCRETE PILES



DETAIL OF REINFORCEMENT FOR METAL SHELLS



Pile	'F'
HP8	1'-6"
HP10	1'-9"
HP12	2'-0"



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. Nemeschansky
Engineer of Bridge Design

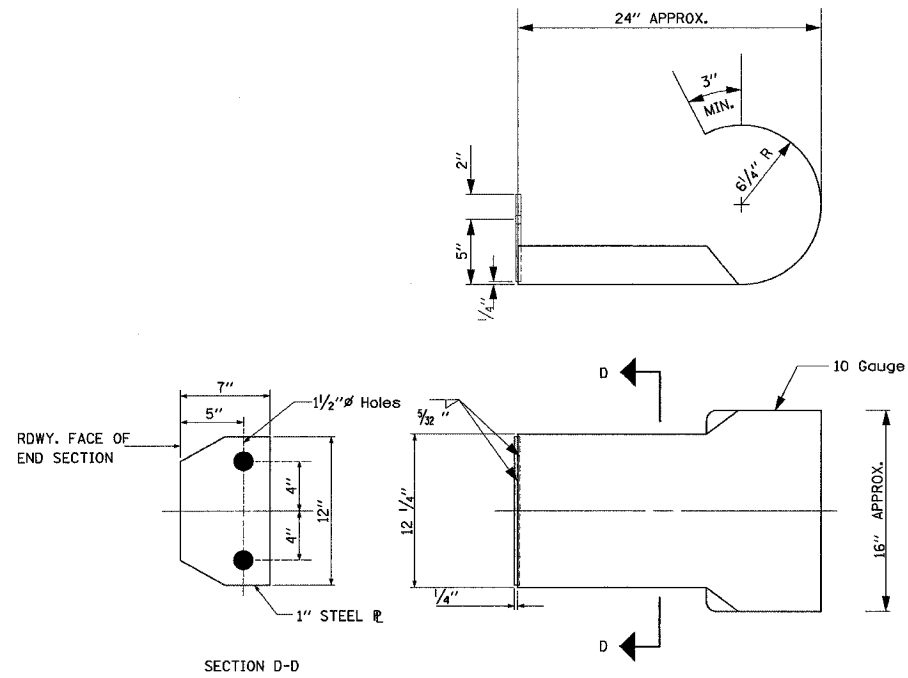
APPROVED FEBRUARY 1, 2000

Ralph E. Anderson
Engineer of Bridges and Structures

188-H-10155

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
229	01-06128-00-BR	HAMILTON	14	14
FED. ROAD DIST. NO. 9 ILLINOIS		FED. AID PROJECT		
PROJECT# BROS-065(37)		CONTRACT# 99251		
JOB NO. C-99-529-06		SULLIVAN BRANCH		
LEC JOB # H041011HW				

CURLED END SECTION DETAIL



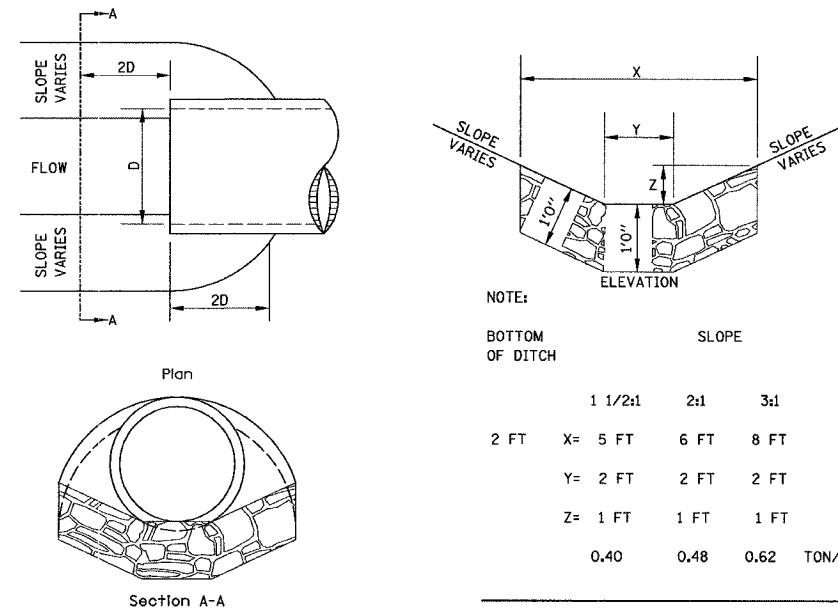
ALL OTHER STEEL SHAPES AND PLATES SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION M-183 EXCEPT POSTS AND ANGLES SHALL CONFORM TO A.A.S.H.T.O. M-223, GRADE 50.

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 GALVANIZED 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



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

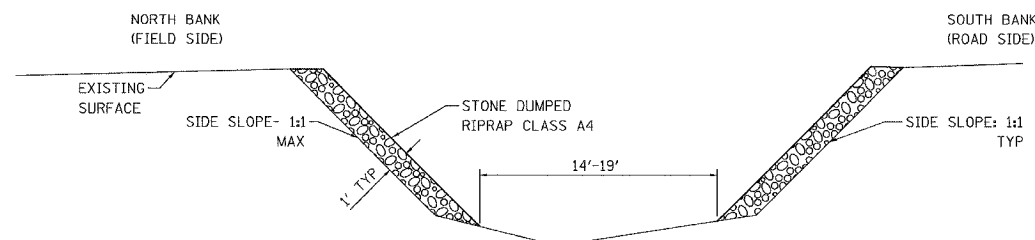
NOTE:

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	

3 FT	SLOPE			TON/LIN. FT
	1 1/2:1	2:1	3:1	
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	

4 FT	SLOPE			TON/LIN. FT
	1 1/2:1	2:1	3:1	
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	

TYPICAL DITCH CROSS SECTION



NOTE: PLACE STONE DUMPED RIPRAP CLASS A4

STA 4+63 TO STA 6+35 NORTH BANK
STA 5+45 TO STA 6+60 SOUTH BANK