

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET & SUMMARY OF QUANTITIES
2	PLAN & PROFILE, TYPICAL SECTIONS & GENERAL NOTES
3-4	ROADWAY CROSS SECTIONS
5-12	BRIDGE DESIGN
13	CURLED END SECTIONS & STONE RIPRAP DITCH DESIGN

THE FOLLOWING STANDARDS ARE A PART OF THESE PLANS AND ARE INCLUDED IN THE PROPOSAL:

000001-05	STANDARD SYMBOLS, ABBREVIATIONS & PATTERNS
280001-04	TEMPORARY EROSION CONTROL SYSTEMS
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)
B.L.R. 23-2	TRAFFIC BARRIER TERMINAL TYPE 1
B.L.R. 27	TRAFFIC BARRIER TERMINAL TYPE 5A

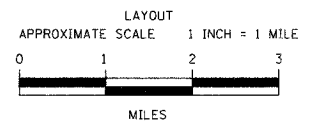
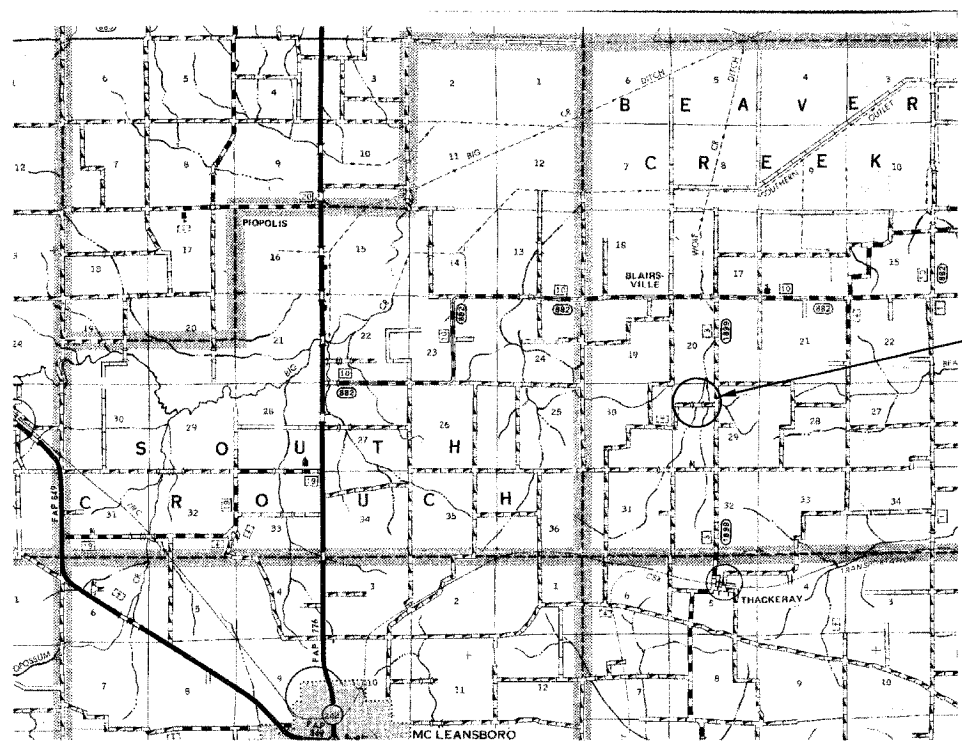
SUMMARY OF QUANTITIES

CODE NO.	ITEM	UNIT	QUANTITY
20200100	EARTH EXCAVATION	CU YD	144.00
20300100	CHANNEL EXCAVATION	CU YD	176.00
20400800	FURNISHED EXCAVATION	CU YD	74.00
25001000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.30
28000300	TEMPORARY DITCH CHECKS	EACH	4.00
28001000	AGGREGATE (EROSION CONTROL)	TON	13.00
28100807	STONE DUMPED RIPRAP, CLASS A4	TON	250.00
28102600	STONE RIPRAP DITCH	TON	62.00
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	417.00
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1.00
50300225	CONCRETE STRUCTURES	CU YD	18.20
50300260	CONCRETE ENCASEMENT	CU YD	2.10
50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ FT	1440.00
50800105	REINFORCEMENT BARS	POUND	2300.00
50900205	STEEL RAILING, TYPE S1	FOOT	120.00
51201400	FURNISHING STEEL PILES HP10X42	FOOT	176.00
51202305	DRIVING PILES	FOOT	176.00
51500100	NAME PLATES	EACH	1.00
54200220	PIPE CULVERTS, CLASS D TYPE 1 15"	FOOT	40.00
* 63100075	TRAFFIC BARRIER TERMINAL, TYPE 5A	EACH	1.00
67100100	MOBILIZATION	L SUM	1.00
* LR631020	TRAFFIC BARRIER TERMINAL, TYPE 1	EACH	1.00

* SPECIALTY ITEMS

DESIGN DESIGNATION:
 DESIGN SPEED: 30 MPH
 HIGHWAY CLASS - LOCAL ROAD
 EXISTING STRUCTURE NO.: 033-3050
 PROPOSED STRUCTURE NO.: 033-3306
 CURRENT A.D.T. = 100
 CONTRACT NO. 99317

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



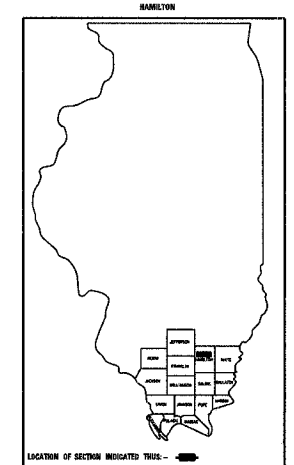
GROSS LENGTH	650.00 FT	0.123 MILES
OMISSIONS	0.00 FT	0.000 MILES
NET LENGTH	650.00 FT	0.123 MILES

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

**T.R. 131 HAMILTON COUNTY SECTION 05-01114-00-BR
 PROJECT NO. BROS-191(55) JOB NO. C-99-534-06
 CONTRACT # 99317 WOLF CREEK**

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
131	05-01114-00-BR	HAMILTON	13	1

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
 184-00087
 (82-032435)(35-002769)



AARON M. MEFFORD
 NAME
 SIGNATURE
 12-3-07
 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 05-01114-00-BR
 BEGINS STATION 1+50

STATION 5+00, STRUCTURE NO. 033-3306
 A 60' LONG SINGLE SPAN PRECAST
 PRESTRESSED CONCRETE DECK BEAM
 BRIDGE (27" DEPTH, 24' ROADWAY,
 3.00% GRADE, 0° SKEW.

SECTION 05-01114-00-BR
 ENDS STATION 8+00

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

APPROVED 11/29/2007

 COUNTY ENGINEER

PASSED Jan. 25, 2008

 ENGINEER OF LOCAL ROADS AND STREETS

RELEASING FOR BID
 BASED ON LIMITED
 REVIEW Jan 25, 2008

 MARY C. LAMIE, P.E.
 DEPUTY DIRECTOR OF HIGHWAYS
 REGION FIVE ENGINEER

BEAVER CREEK TOWNSHIP
 OVER WOLF CREEK
 HAMILTON COUNTY, ILLINOIS

SHEET TITLE:
 TITLE SHEET

SCALE	VARIES
BY:	AMM
DATE:	1957
REV:	

1 OF 13
 SHEETS
 SHEET NO.
 1

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
131	05-01114-00-BR	HAMILTON	13	2
FED. ROAD DIST. NO. 9		ILLINOIS	WOLF CREEK	
PROJECT # BR05-19155		CONTRACT # 99317		
LEC JOB # H0610200M				

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

56284 REGISTERED PROFESSIONAL ENGINEER ILLINOIS

AARON M. MEFFORD
NAME
SIGNATURE
12-3-07
DATE
11-30-09 EXPIRES

BEAVER CREEK TOWNSHIP
OVER WOLF CREEK
HAMILTON COUNTY, ILLINOIS

SHEET TITLE:
PLAN & PROFILE
SCALE: VRIES
BY: AMM
DATE: 11/30/07
REV:
2 OF 13 SHEETS
SHEET NO. 2

GENERAL NOTES:

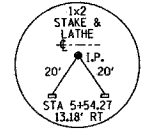
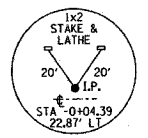
THIS SECTION SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PLANS, SPECIAL PROVISIONS AND "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", ADOPTED JANUARY 1, 2007.

THE WORK INVOLVED ON THIS SECTION CONSISTS OF THE REMOVAL OF THE EXISTING STRUCTURE, THE CONSTRUCTION OF A 60 FOOT LONG SINGLE SPAN PRECAST, PRESTRESSED CONCRETE DECK BEAM BRIDGE, EARTH APPROACHES, AGGREGATE SURFACE COURSE AND OTHER MISCELLANEOUS ITEMS NECESSARY TO COMPLETE THIS SECTION.

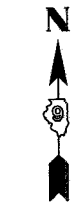
ALL ELEVATIONS ARE BASED ON U.S.G.S. MEAN SEA LEVEL DATUM.

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

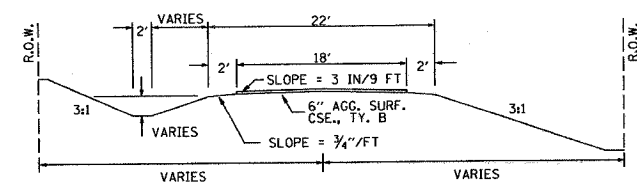
NOTE: CONSTRUCTION TRANSITIONS
STA. 1+50 TO STA 2+00
STA 7+50 TO STA 8+00
ALL QUANTITIES ARE INCLUDED IN THE PROPOSAL



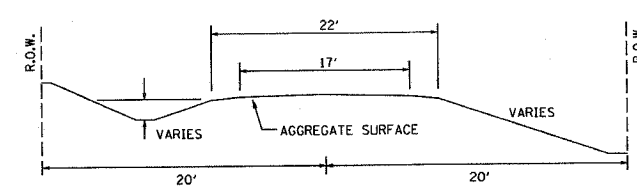
CURVE #1
P.I. STA= 3+18.58
Δ= LT. 5°43'28"
D= 154.35'
R= 3000'
T= 149.99'
L= 299.73'
E= 3.75'
e= NONE
T.R.= NONE
S.E. RUN= NONE
P.C. STA= 1+68.59
P.T. STA= 4+68.32



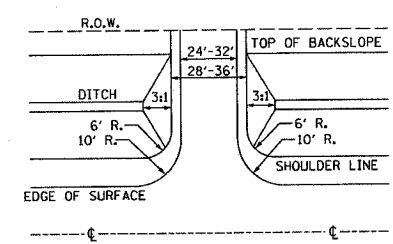
TYPICAL CROSS SECTION PROPOSED



TYPICAL CROSS SECTION EXISTING



FIELD ENTRANCE DETAIL



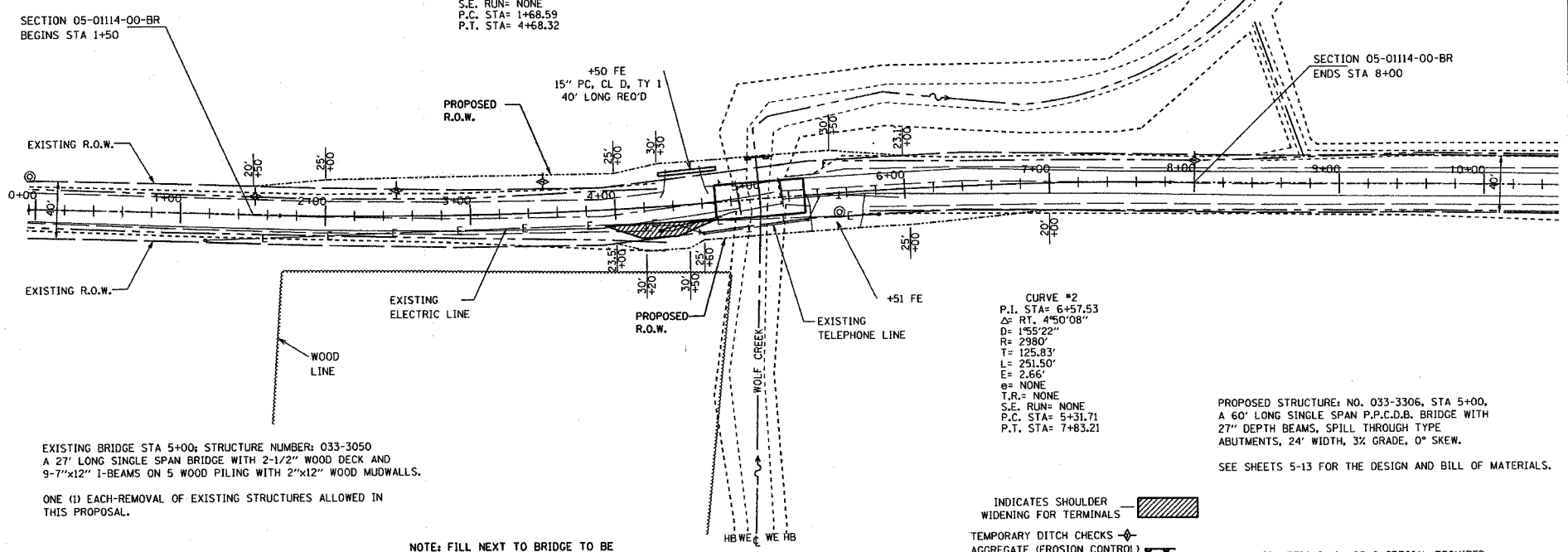
NOTE: CONSTRUCT SPECIAL DITCH

STA 1+50 TO STA 4+00 LT
STA 4+00 TO STA 4+70 RT
STA 5+72 TO STA 6+50 LT
STA 7+00 TO STA 8+00 RT

NOTE: CONSTRUCT STONE RIPRAP DITCH

STA 4+00 TO STA 4+30 LT (0.62 TON/LIN FT)
STA 4+00 TO STA 4+70 RT (0.62 TON/LIN FT)
62 TON STONE RIPRAP DITCH ALLOWED IN PROPOSAL.
SEE SHEET NO. 13 FOR STONE RIPRAP DITCH DETAIL.

UTILITIES:
J.U.L.L.E. 1-800-892-0123
WAYNE-WHITE COUNTY
ELECTRIC
618-842-2196
HAMILTON COUNTY TELEPHONE
618-736-2214

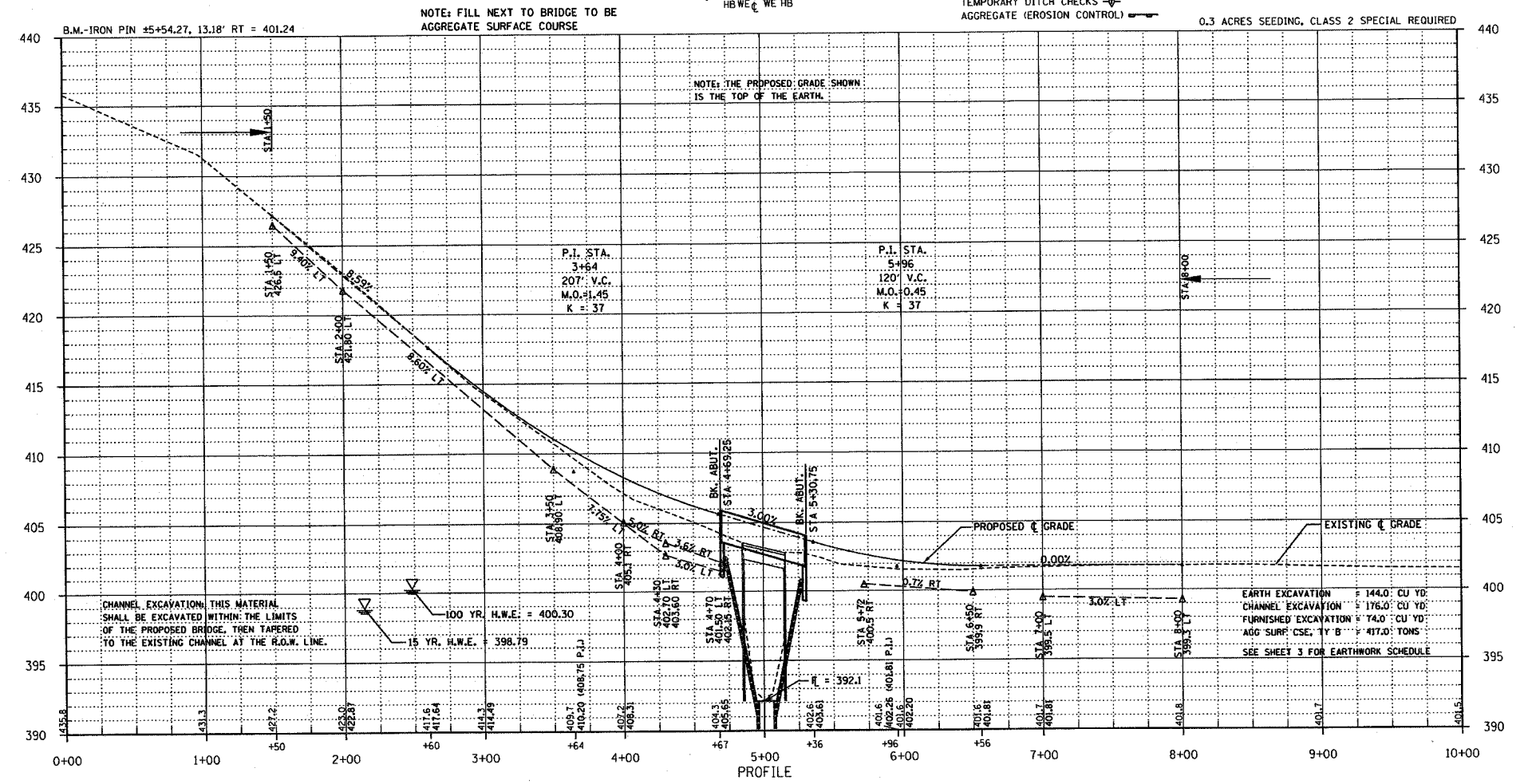


EXISTING BRIDGE STA 5+00; STRUCTURE NUMBER: 033-3050
A 27' LONG SINGLE SPAN BRIDGE WITH 2-1/2" WOOD DECK AND 9-7"x12" I-BEAMS ON 5 WOOD PILING WITH 2"x12" WOOD MUDWALLS.

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

INDICATES SHOULDER WIDENING FOR TERMINALS
TEMPORARY DITCH CHECKS
AGGREGATE (EROSION CONTROL)

PROPOSED STRUCTURE: NO. 033-3306, STA 5+00,
A 60' LONG SINGLE SPAN P.P.C.D.B. BRIDGE WITH 27" DEPTH BEAMS, SPILL THROUGH TYPE ABUTMENTS, 24' WIDTH, 3% GRADE, 0" SKEW.
SEE SHEETS 5-13 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 = 144.0 CU YD
CHANNEL EXCAVATION = 176.0 CU YD
FURNISHED EXCAVATION = 74.0 CU YD
AGG SURF CSE, TY B = 417.0 TONS
SEE SHEET 3 FOR EARTHWORK SCHEDULE

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
131	05-01114-00-BR	HAMILTON	13	3
FED. ROAD DIST. NO. 9		ILLINOIS	WOLF CREEK	
PROJECT # BROS-191(55)		CONTRACT # 99317		
LEC JOB # H06L0200M				

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PROFESSIONAL DESIGN FIRM
LAND SURVEY &
PROFESSIONAL
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CORPORATION
184-00087
(62-032436)(65-002769)

AARON M. MEFFORD
NAME
SIGNATURE
12-3-07
DATE
11-30-06
EXPIRES

BEAVER CREEK TOWNSHIP
OVER WOLF CREEK
HAMILTON COUNTY, ILLINOIS

SHEET TITLE:
CROSS-SECTIONS
SCALE: 1" = 5'
BY: AMM
DATE: 10/6/07
REV: MLG
3 OF 13 SHEETS
SHEET NO. 3

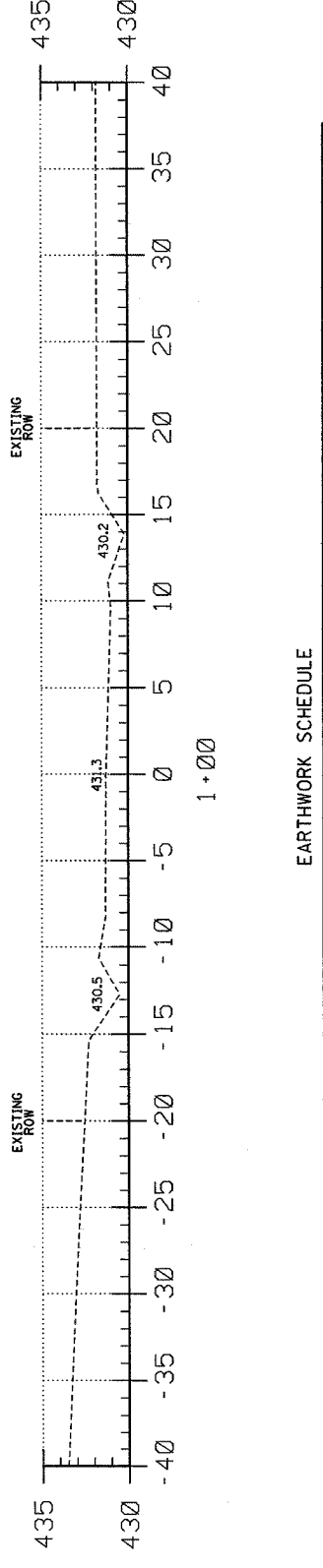
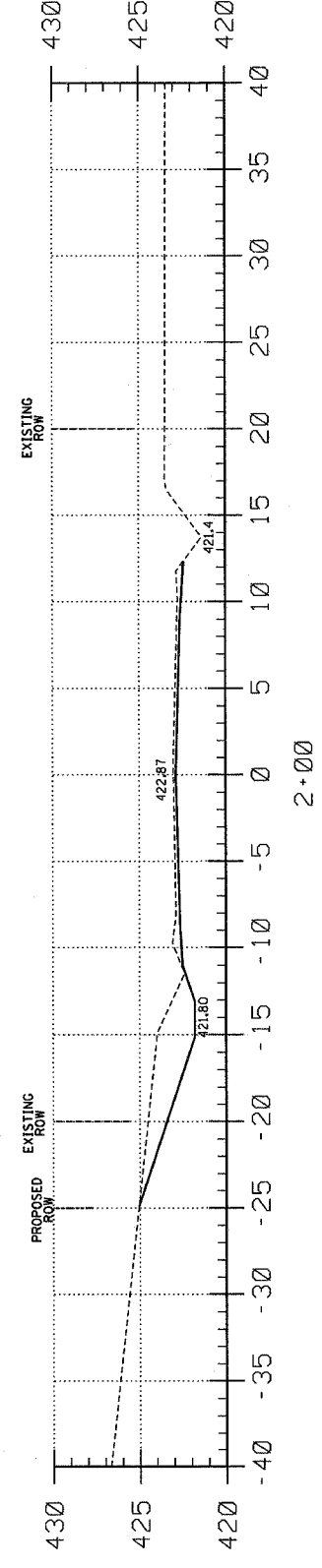
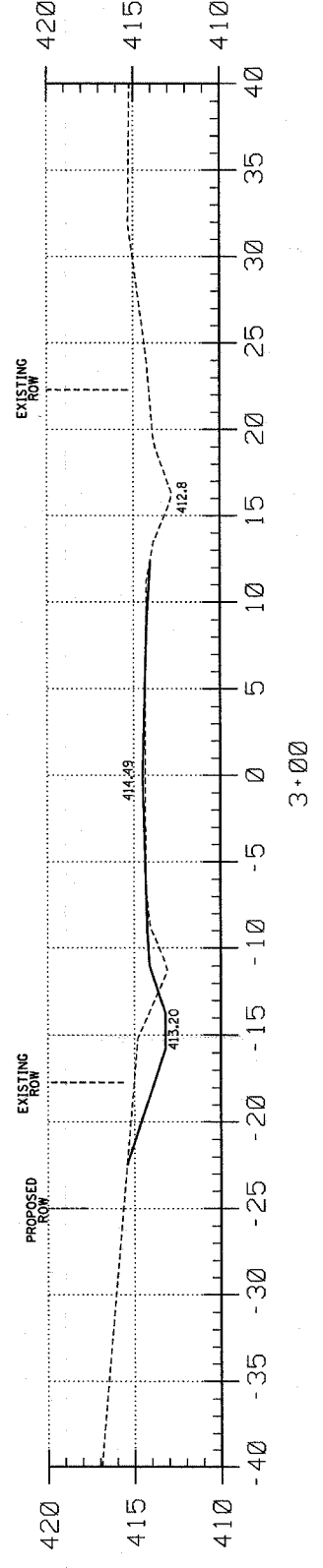
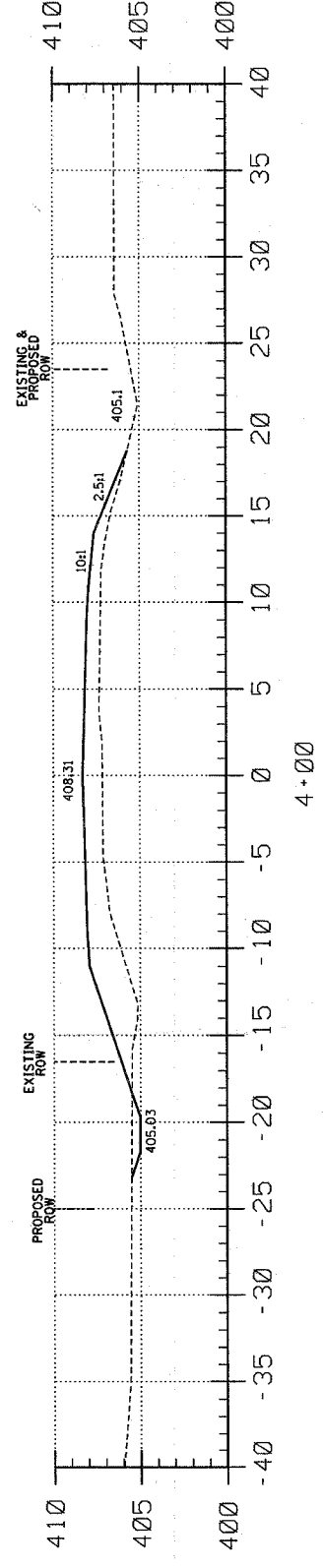
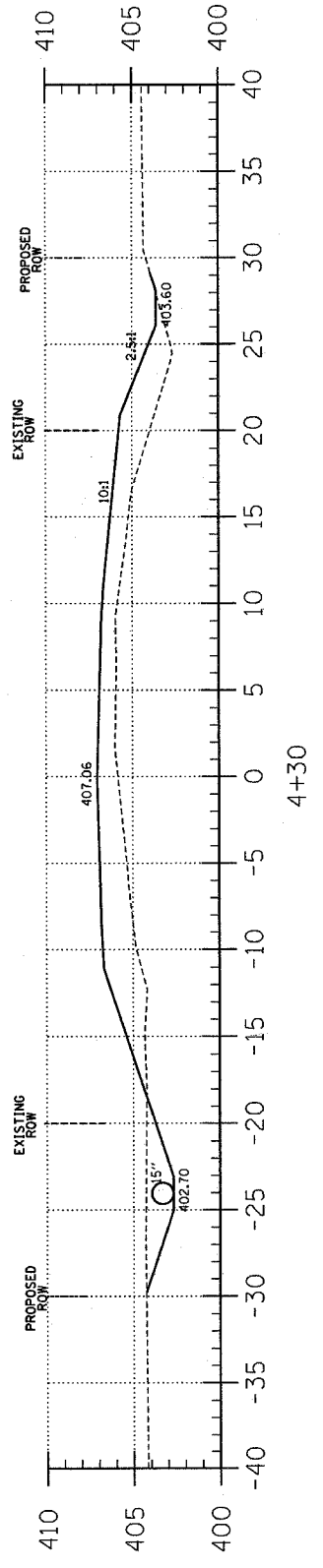
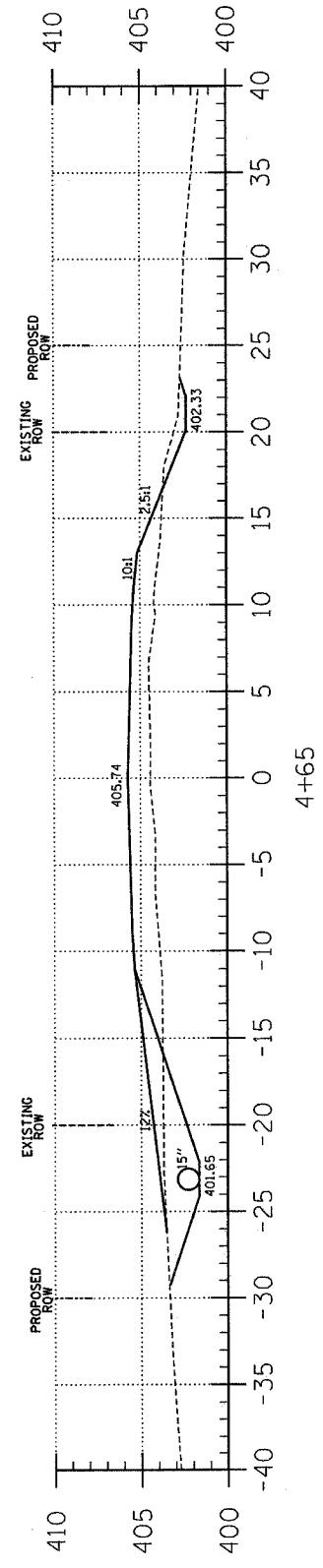
C = 15.6
F = 37.7

C = 10.6
F = 56.0

C = 1.6
F = 37.2

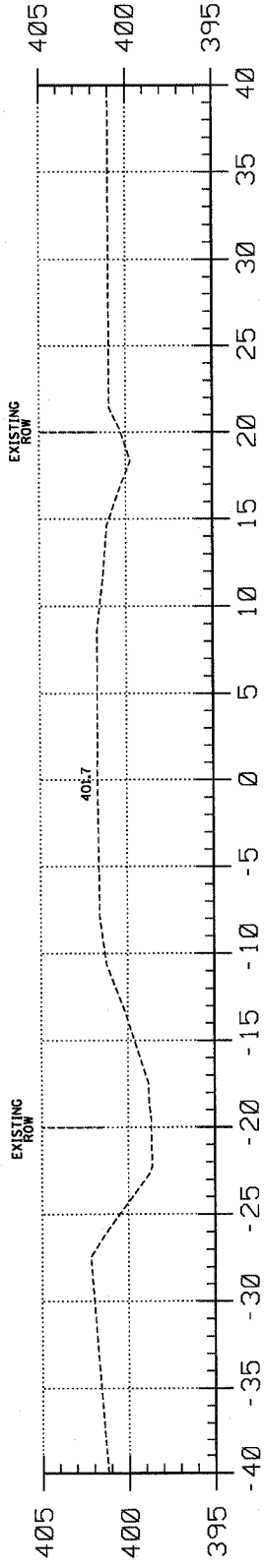
C = 9.2
F = 3.3

C = 20.3
F = 0.0

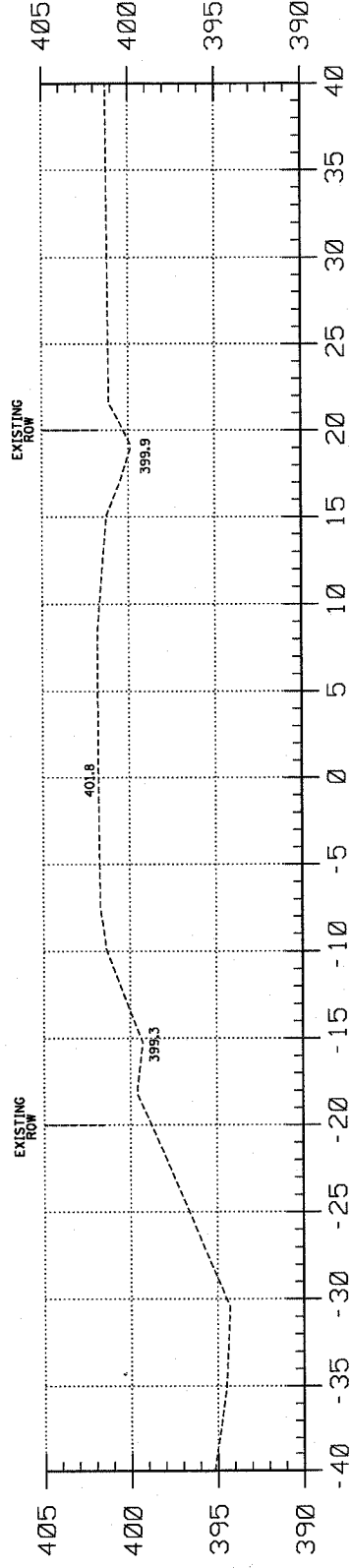


EARTHWORK SCHEDULE

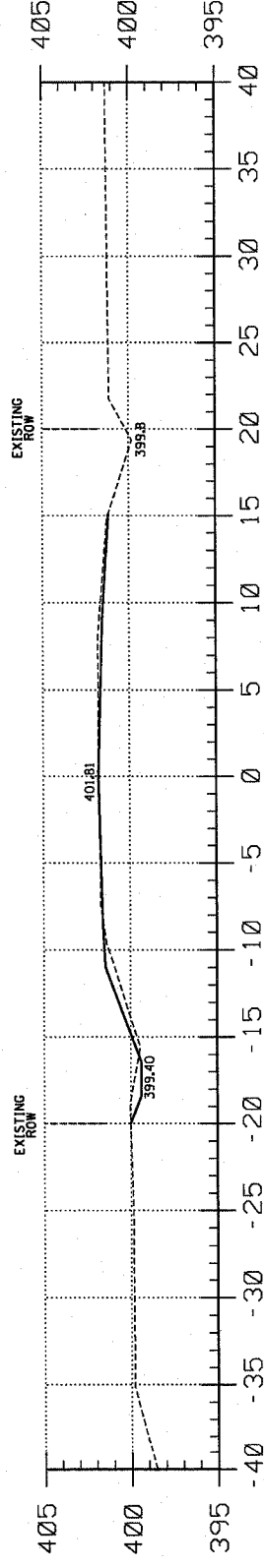
LOCATION	EARTH EXCAVATION		CHANNEL EXCAVATION		ESTIMATED UNSUITABLE MATERIAL		SUITABLE MATERIAL ADJUSTED FOR SHRINKAGE		EMBANKMENT		EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-)	
	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD
STA 0+00 TO 4+69.2	130.4	0.0	0.0	0.0	0.0	97.8	167.5	0.0	0.0	0.0	66.1	-69.7
STA 4+69.2 TO 5+30.7	0.0	176.2	0.0	0.0	88.1	66.1	0.0	63.1	0.0	63.1	-53.3	0.0
STA 5+30.7 TO 10+00	13.1	0.0	0.0	0.0	0.0	9.8	17.2	0.0	17.2	17.2	-17.2	0.0
FIELD ENTRANCE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	143.5	176.2	0.0	0.0	88.1	173.7	247.8	0.0	0.0	0.0	-74.1	0.0



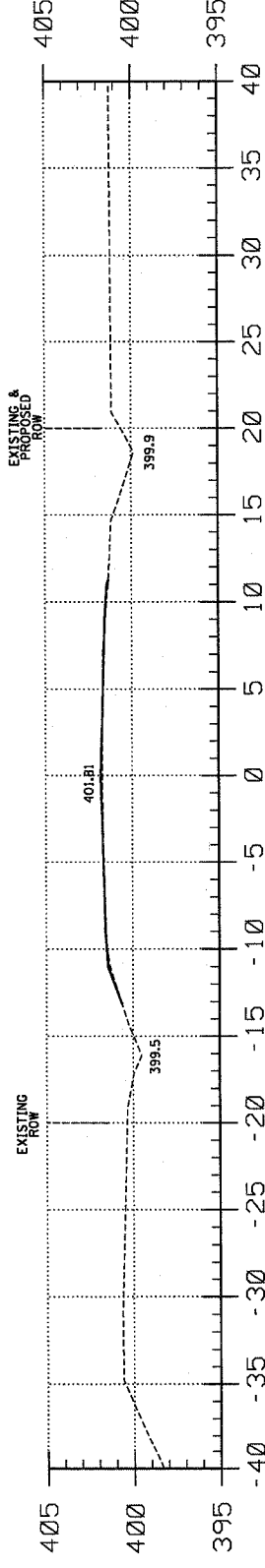
9+00



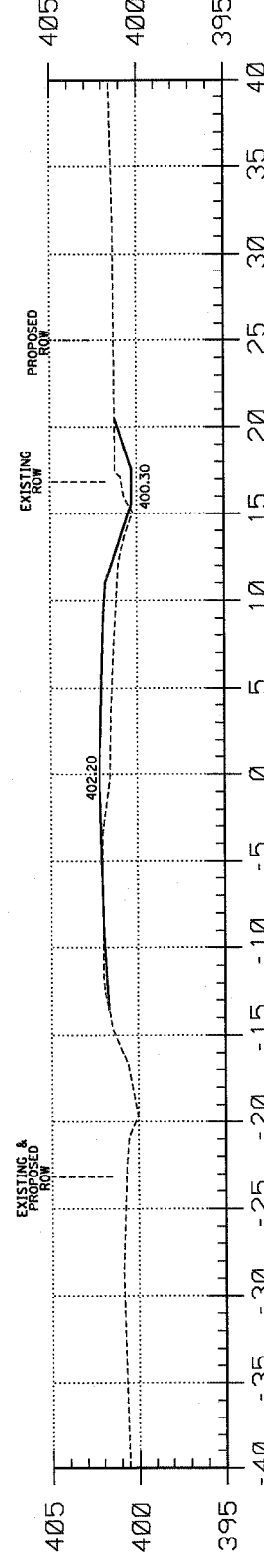
8+00



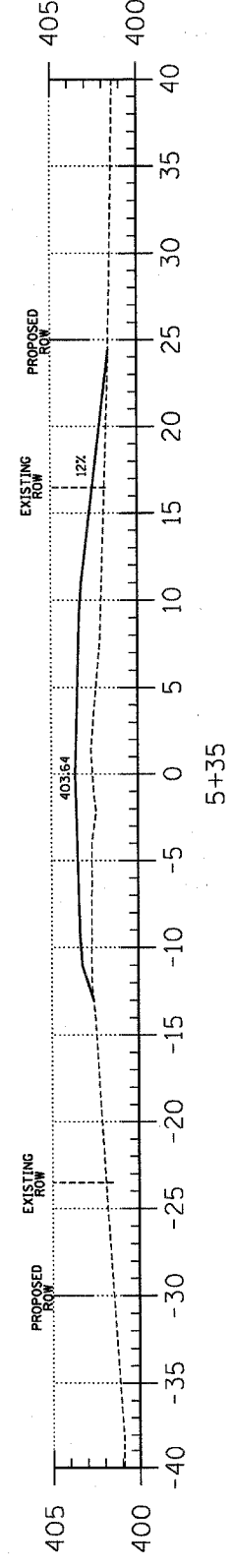
7+50



7+00



6+00



5+35

C = 3.4
F = 2.4

C = 0.3
F = 0.7

C = 3.1
F = 9.7

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
131	05-01114-00-BR	HAMILTON	13	4
FED. ROAD DIST. NO. 9 ILLINOIS		WOLF CREEK		
PROJECT# BROS-191(55)		CONTRACT# 99317		
LEC JOB # H0610200M				

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



AARON M. MEFFORD
NAME
Aaron Mefford
SIGNATURE
12-3-07
DATE
11-30-09
EXPIRES

BEAVER CREEK TOWNSHIP
OVER WOLF CREEK
HAMILTON COUNTY, ILLINOIS

SHEET TITLE:
CROSS-SECTIONS

SCALE:	1" = 5'
BY:	AMM
DATE:	12/07
REV:	MLG

4 OF 13 SHEETS
SHEET NO. 4

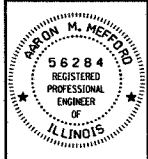
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
537	05-01114-00-BR	HAMILTON	13	5
FED. ROAD DIST. NO. 9 ILLINOIS		WOLF CREEK		
PROJECT * BROS-191(55)		CONTRACT * 99317		
LEC JOB * H061020HW				

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LAND SURVEYING
FIRM
048-00082
PROFESSIONAL
ENGINEERING
CORPORATION
184-00087



AARON M. MEFFORD
NAME
SIGNATURE
12-3-07
DATE
11-30-09
EXPIRES

BEAVER CREEK TOWNSHIP
OVER WOLF CREEK
HAMILTON COUNTY, ILLINOIS

SHEET TITLE:

GENERAL PLAN
AND ELEVATION

SCALE: NONE

BY: A.M.M.

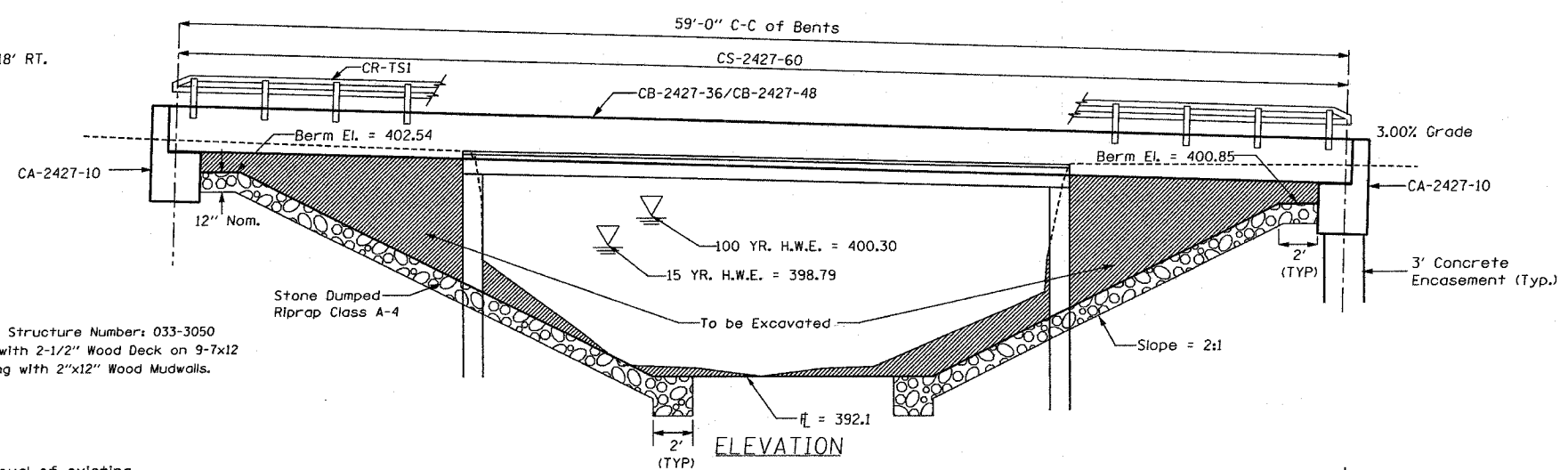
DATE: 11/07

REV:

5 OF 13
SHEETS

SHEET NO.
5

B.M. I.P. ±5+54.27, 13.18' RT.
Elev. = 401.24

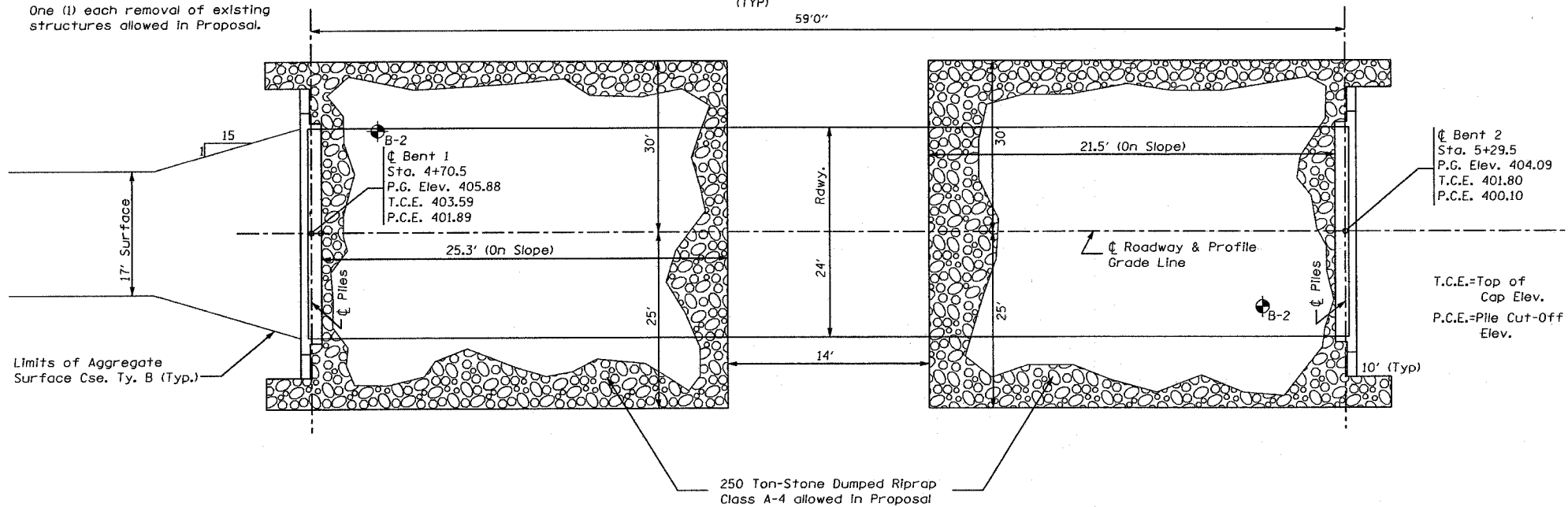


Existing Bridge Sta 5+00; Structure Number: 033-3050
A 27' Single Span Bridge with 2-1/2" Wood Deck on 9-7x12
I-Beams on 5 Wooden Piling with 2"x12" Wood Mudwalls.

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 Bit, Conc. Surf. Cse. Superpave and the Waterproofing Membrane System shown in these Plans shall not be provided.
- The Steel H-Piles shall be according to AASHTO M270 Grade 50.
- All HP piles shall be oriented with the strong axis along the centerline of the abutment.

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



Item	Unit	Super	Sub. Piers	Abuts.	Total
Removal of Existing Structures	L Sum				1
Bit. Conc. Surf. Cse. Superpave	Tons				
Waterproofing Membrane System	Sq.Yds.				
Concrete Structures	Cu.Yds.			18.2	18.2
P.P. Conc. Dk. Bm. 27" Dp.	Sq.Ft.	1440			1440
Steel Railing, Type S1	Lin.Ft.	120			120
Reinforcement Bars	Lbs.			2300	2300
Furnishing Steel Piles HP10X42	Lin.Ft.			176	176
Driving Piles	Lin.Ft.			176	176
Name Plates	Each			1	1
Concrete Encasement	Cu.Yds.			2.1	2.1

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

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.

WEST ABUT. PILE DATA

Type: Steel Piles HP10X42
Nominal Required Bearing: 335 Kips
Allowable Resistance Available: 86 Kips
Estimated Length: 22 Feet/Pile
Number Required: 4

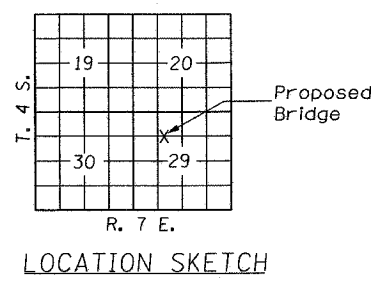
EAST ABUT. PILE DATA

Type: Steel Piles HP10X42
Nominal Required Bearing: 335 Kips
Allowable Resistance Available: 86 Kips
Estimated Length: 22 Feet/Pile
Number Required: 4

STATION 5+00
WOLF CREEK
SEC. 05-01114-00-BR BUILT 20
PROJECT NO. BROS-191(55)
HAMILTON COUNTY
LOADING HS 20-44
STR. NO. 033-3306

LETTERING FOR NAME PLATE

Locate Name Plate at the Southwest Corner of the Bridge (See Sd. CN)



WATERWAY INFORMATION

Drainage Area = 2.1 Sq. Mi. Low Grade Elev. = 401.81 At Sta. 7+00									
Flood	Freq. Yr.	C.F.S.	Opening Sq.Ft.		Natural H.W.E.	Head-Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	15	786	142	184	398.79	0.05			398.84
Base	100	1229	185	249	400.30	0.14	0.08	400.44	400.38
Max. Calc.	500	1583							

DESIGN SPECIFICATIONS

2002 AASHTO
HS 20-44 Loading, Load Factor Design

ARTICLE/SECTION NO. REFERENCE TABLE

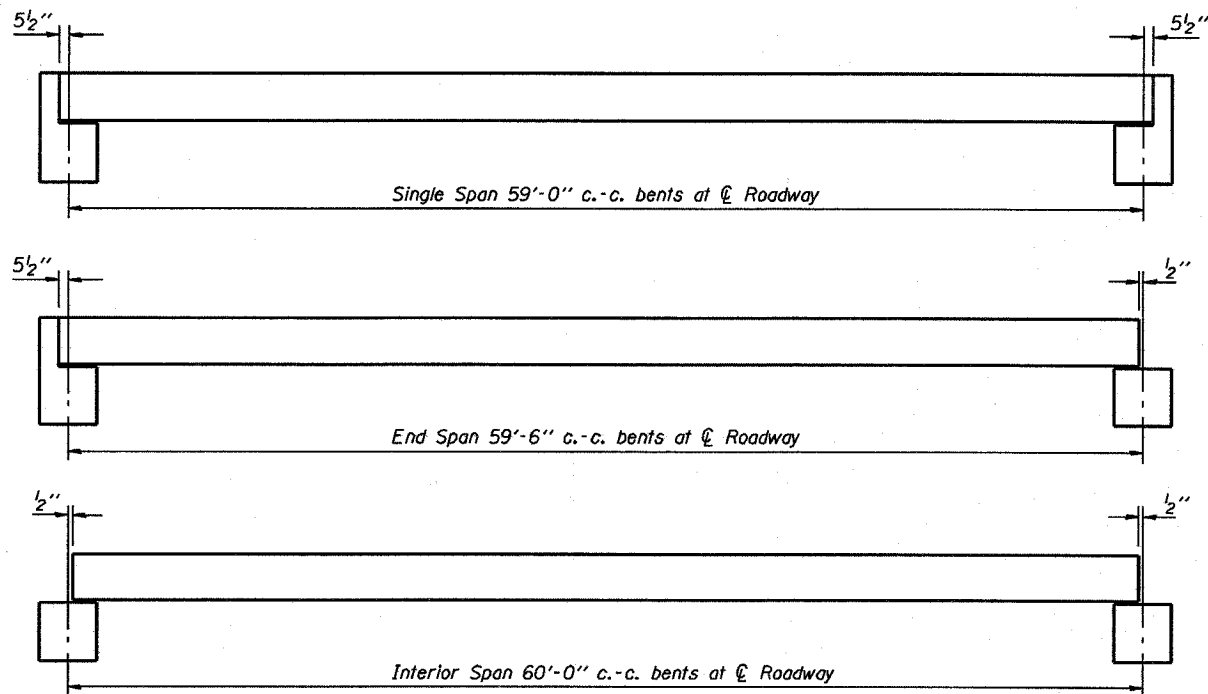
Previous No.	Current No.
504.06	504.06
505.04	505.04
1006.05	1006.05
1006.32	1006.32
1060.07	1060.07
STD 631026	STD 631026

GENERAL PLAN & ELEVATION

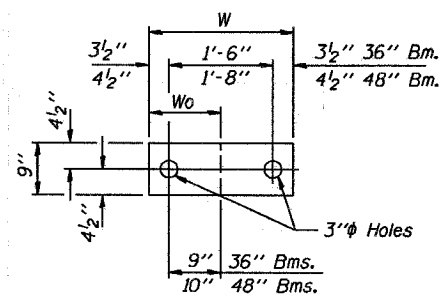
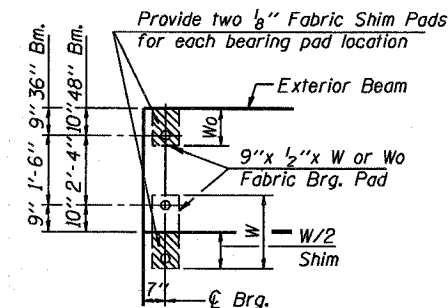
TOWNSHIP ROUTE 131
OVER WOLF CREEK

SECTION 05-01114-00-BR
HAMILTON COUNTY

STATION 5+00

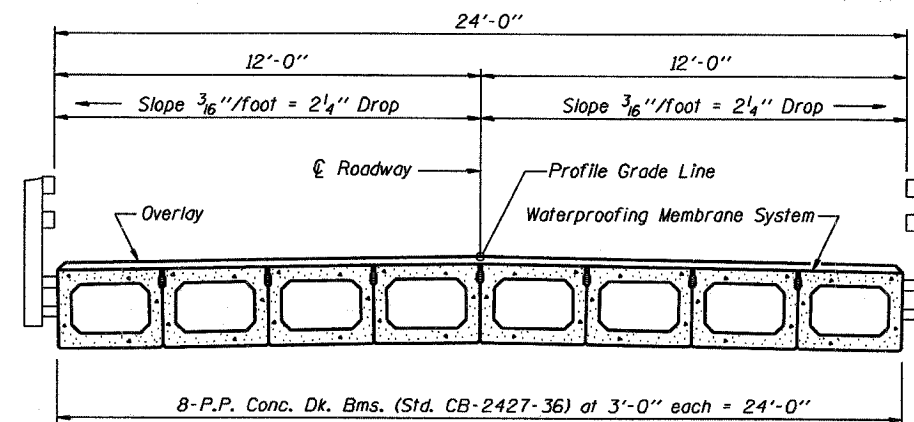


TYPICAL ELEVATIONS

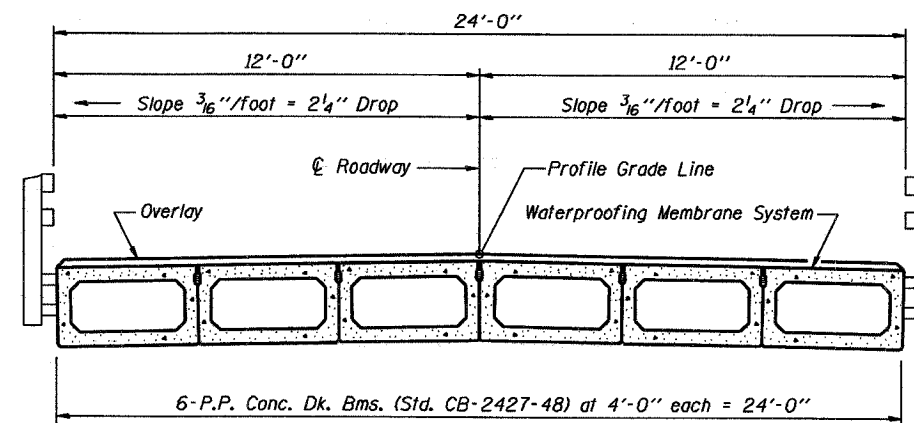


Beam	W	Wo
36"	2'-1"	1'-0 1/2"
48"	2'-5"	1'-2 1/2"

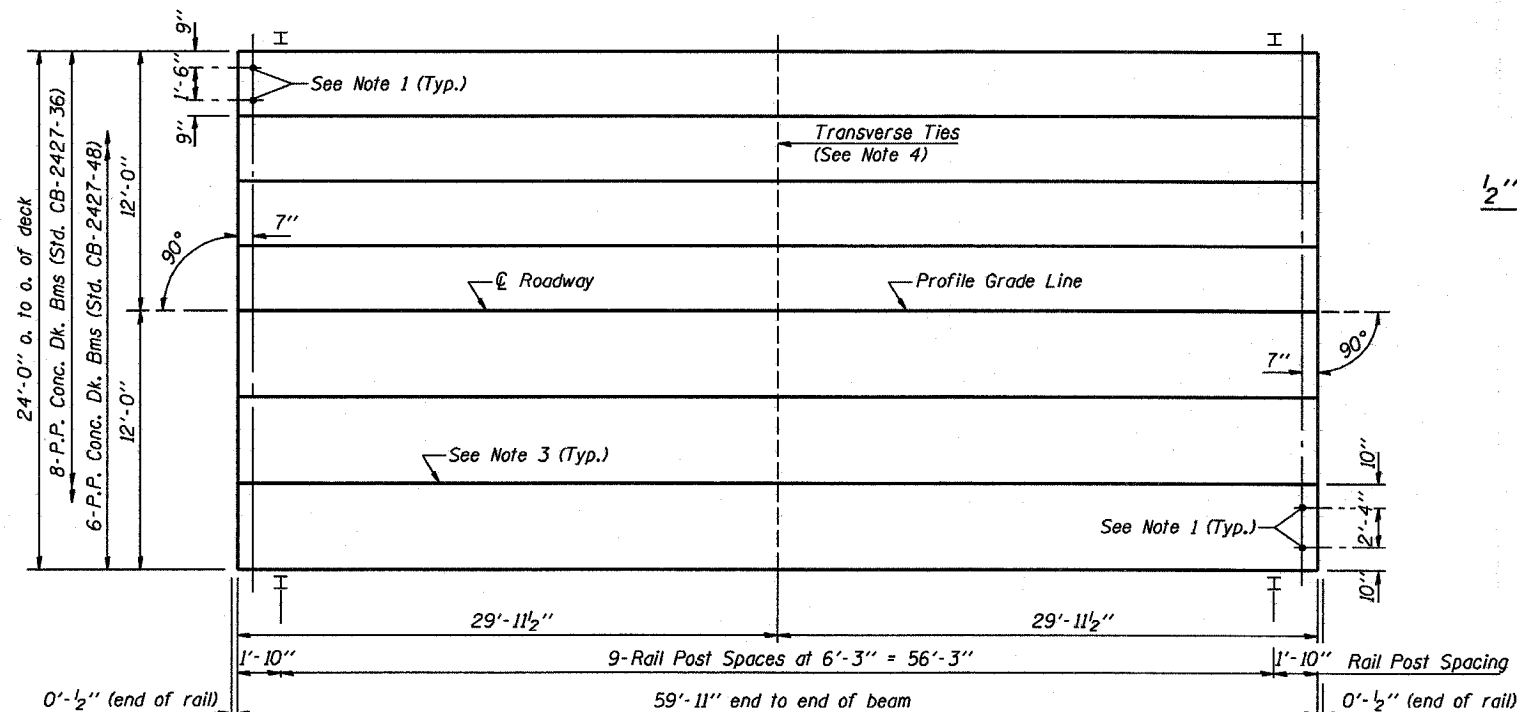
1/2" FABRIC BRG. PAD DETAILS



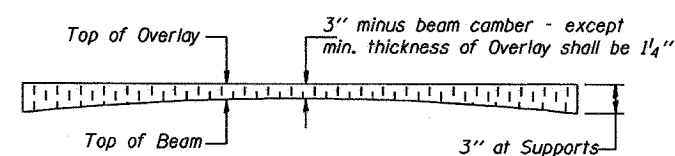
CROSS SECTION



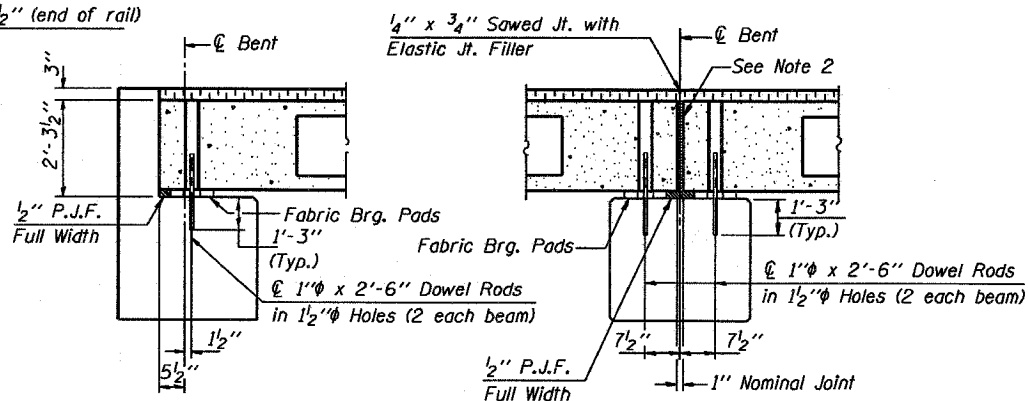
CROSS SECTION



PLAN



PROFILE OF OVERLAY



SECTION AT ABUTS.
(Along centerline of Beams)

SECTION AT PIERS
(Along centerline of Beams)

- 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 of Pier shall be filled with non-shrink grout.
 - Longitudinal keys shall be grouted.
 - The 1" diameter rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets that receive transverse tie bar outside shall be filled with grout after transverse tie assembly is in place.

QUANTITIES FOR ONE SPAN

P.P. Conc. Dk. Bm. 27" Dp.	1440 Sq. Ft.
Steel Railing	120 Ft.
Waterproofing Membrane System	160.0 Sq. Yds.
Portland Cement Mortar	420 Ft. 36"
Fairing Course	300 Ft. 48"

Note: Quantity of overlay for one span = 18.0 Tons

**P.P.C. DECK BEAM
SUPERSTRUCTURE**

24' RDWY. 27" BMS. 60' SPAN 0° SKEW

STANDARD CS-2427-60

Illinois Department of Transportation

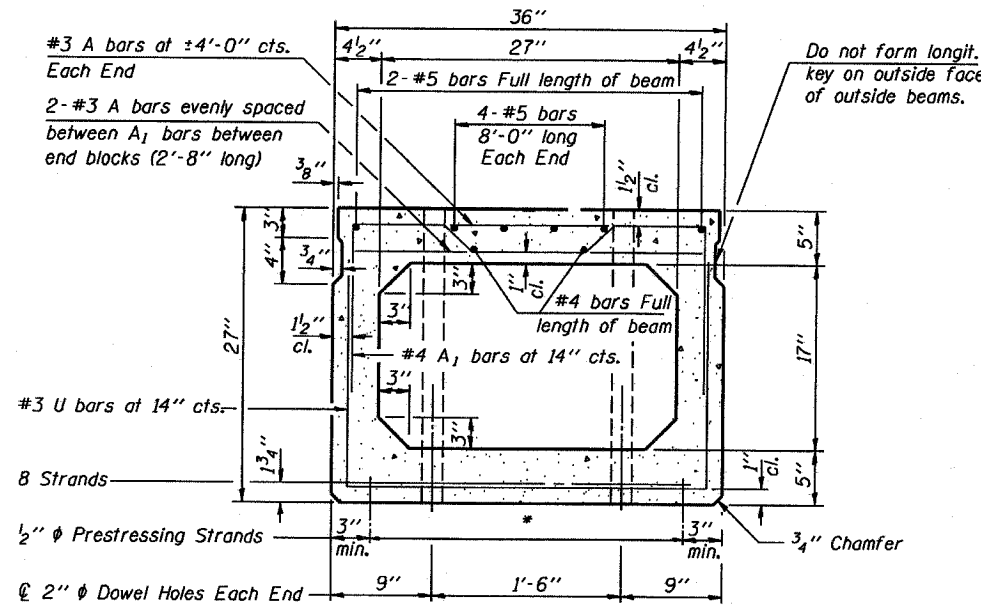
PASSED APRIL 4, 2005

Theresa S. Donaganelli
Engineer of Bridge Design

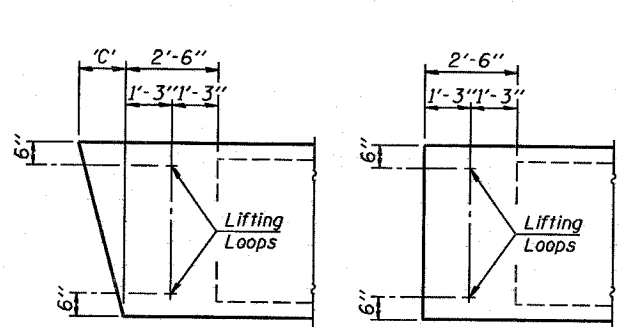
APPROVED APRIL 4, 2005

Ralph E. Anderson
Engineer of Bridges and Structures

ISSUED 7-1-88

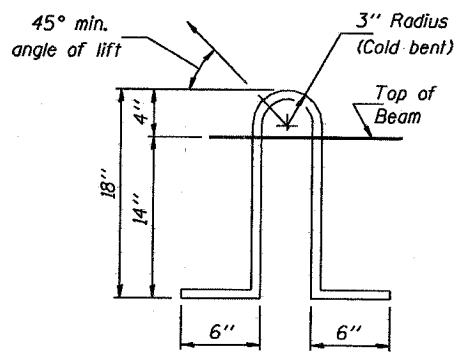


CROSS SECTION
(40' SPAN)



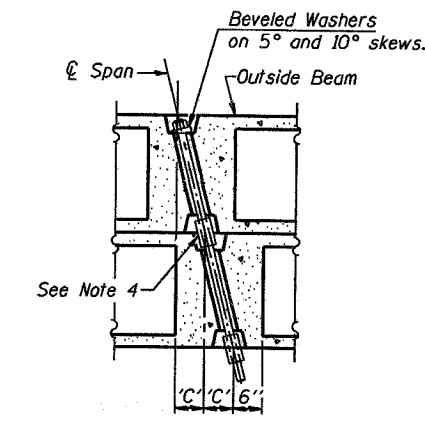
END BLOCK DETAILS

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.

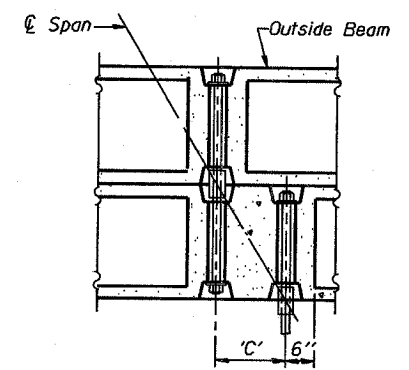


LIFTING LOOP DETAIL

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



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



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

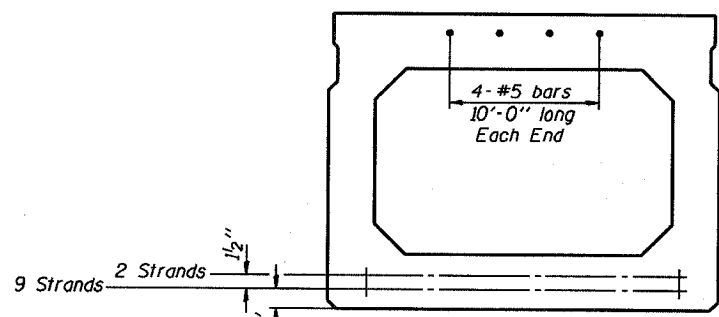
DIMENSION 'C'

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

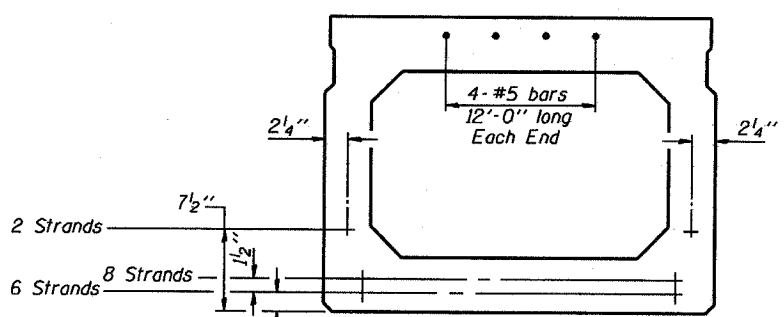
*** TRANSVERSE STRAND PLACEMENT GUIDELINES**

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 1/2".

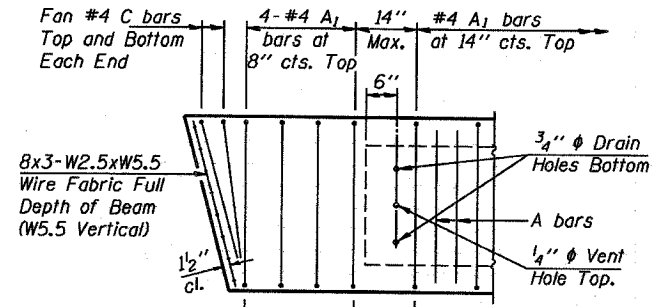
Vertical placement of strands shall not be adjusted to satisfy the above guidelines.



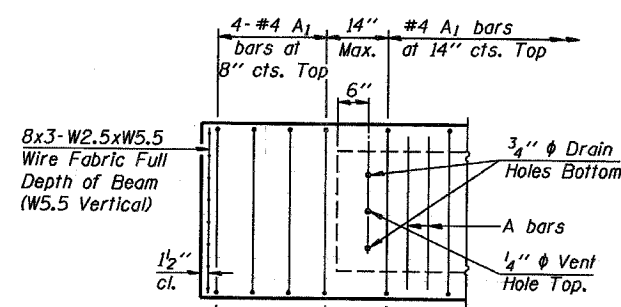
CROSS SECTION
(50' SPAN)



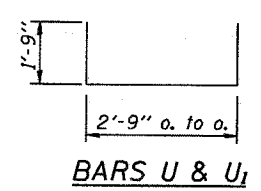
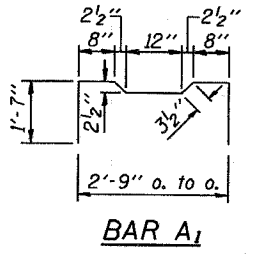
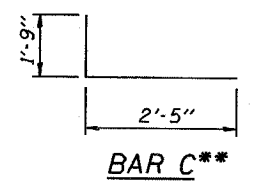
CROSS SECTION
(60' SPAN)



END REINFORCEMENT
(SKEWED)



END REINFORCEMENT
(RIGHT ANGLE)



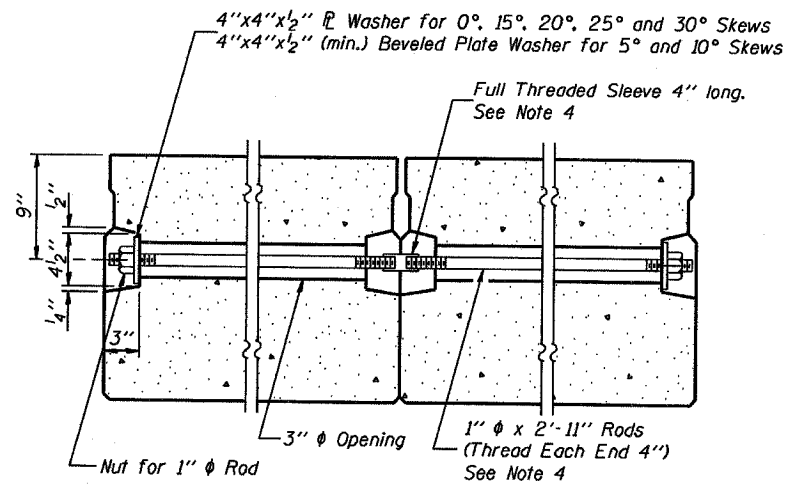
DESIGN STRESSES

****NOTE:**
The following number of C bars shall be used:
Skew No.
5° and 10° — 1
15° and 20° — 2
25° and 30° — 3

$f'_c = 5,000$ 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.

MIN. BAR LAP

#4 bars = 1'-4"
#5 bars = 1'-8"



SECTION ALONG TRANSVERSE TIE ASSEMBLY
(REQUIRED FOR 50' & 60' SPANS ONLY)

NOTES

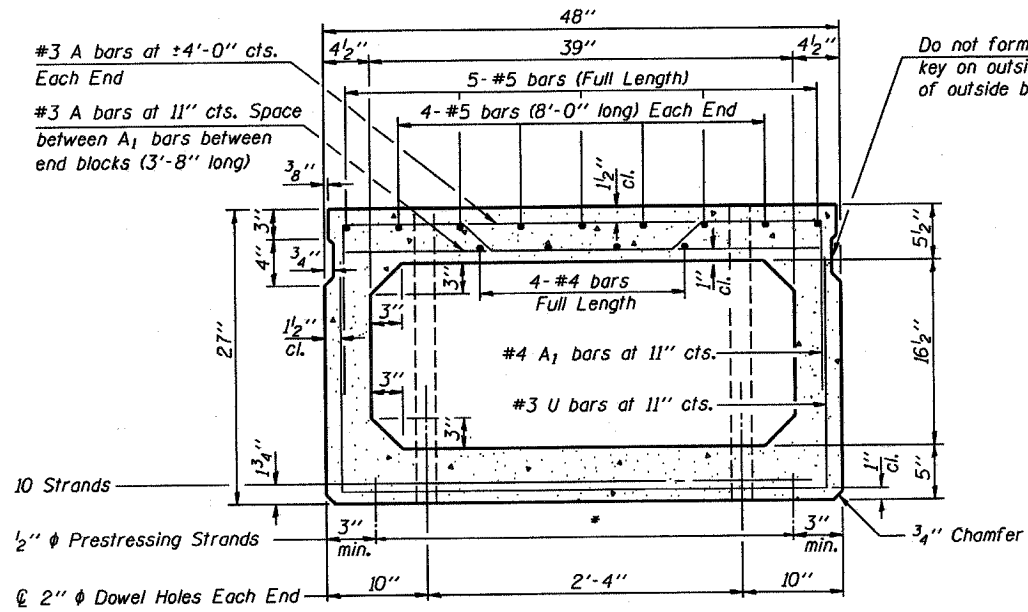
1. Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270.
2. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 square inches.
3. Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-322, Grade 60.
4. On 0°, 5° and 10° skew angles, 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
Thames J. Danna
Engineer of Bridge Design
APPROVED APRIL 4, 2005
Ralph E. Anderson
Engineer of Bridges and Structures

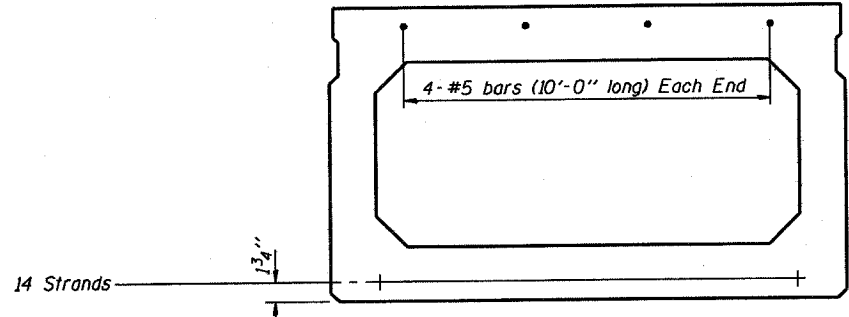
NOTE:
The std. reinf. and dimensions shown on the 40' span cross section is typical for all spans, except as shown.

P.P.C. DECK BEAM DETAILS

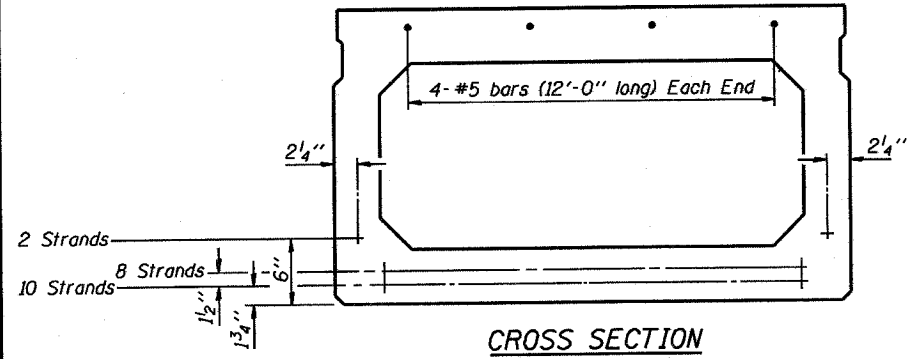
24' ROADWAY	27" x 36" BEAMS
STANDARD CB-2427-36	



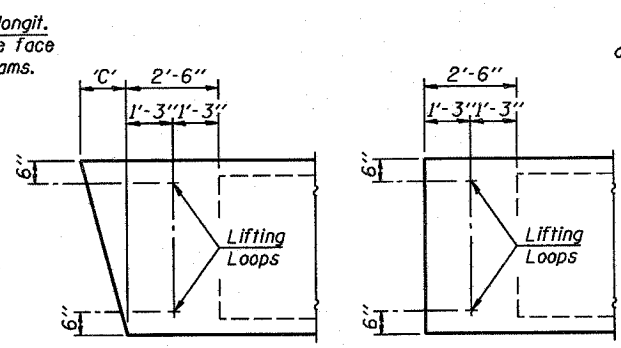
CROSS SECTION
(40' SPAN)



CROSS SECTION
(50' SPAN)

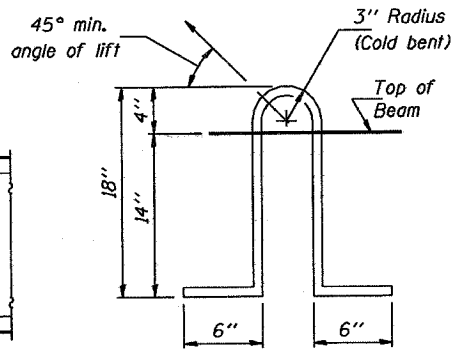


CROSS SECTION
(60' SPAN)



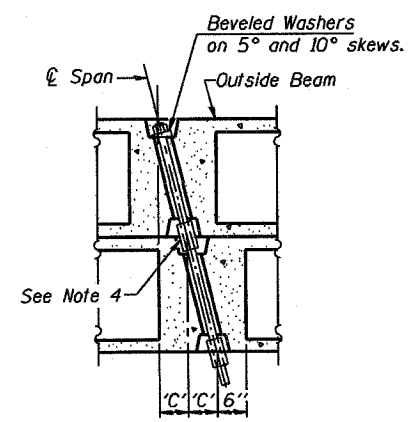
END BLOCK DETAILS

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.

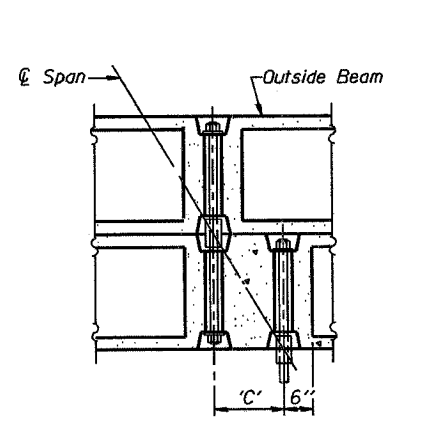


LIFTING LOOP DETAIL

Lifting loops shall be 3/2 inch diameter 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°)

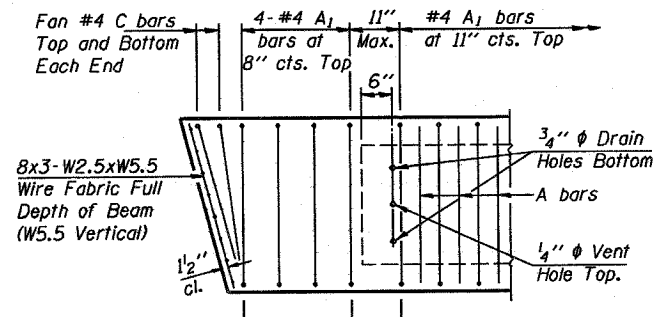
DIMENSION 'C'

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

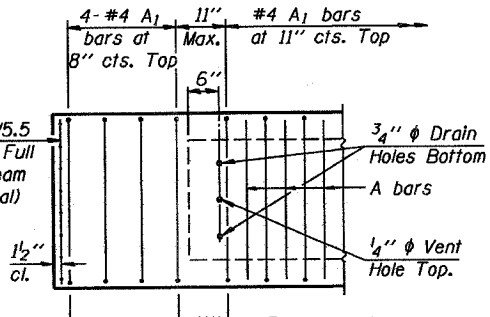
*** TRANSVERSE STRAND PLACEMENT GUIDELINES**

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".

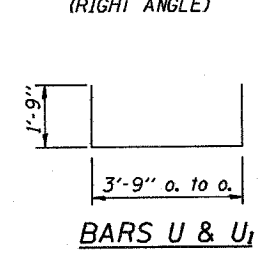
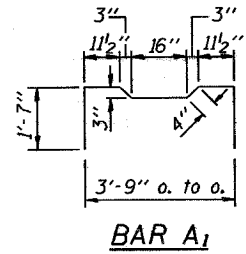
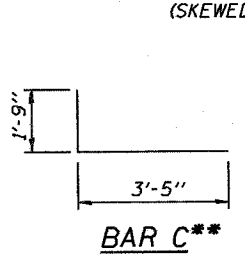
Vertical placement of strands shall not be adjusted to satisfy the above guidelines.



END REINFORCEMENT
(SKEWED)



END REINFORCEMENT
(RIGHT ANGLE)

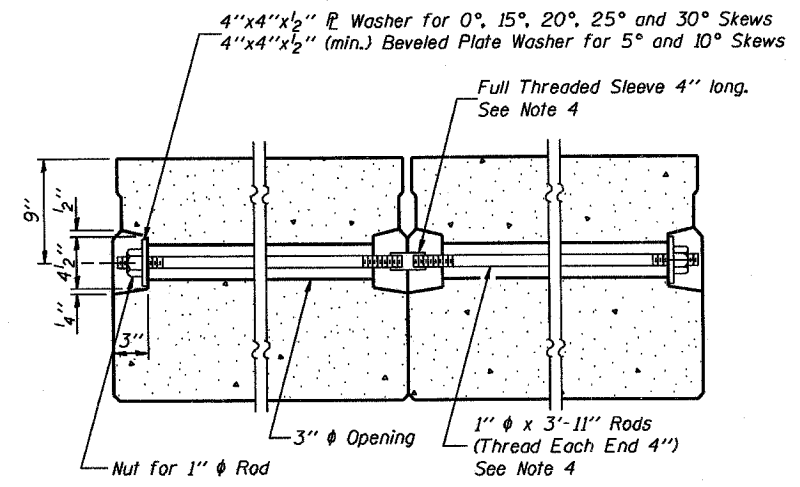


DESIGN STRESSES

- $f'_c = 5,000$ p.s.i.
- $f'_t = 4,000$ p.s.i.
- $f'_s = 270,000$ p.s.i. (1/2 inch diameter Strand)
- $f_{sl} = 201,960$ p.s.i. (1/2 inch diameter Strand)
- $f_y = 60,000$ p.s.i.

MIN. BAR LAP

- #4 bars = 1'-4"
- #5 bars = 1'-8"



SECTION ALONG TRANSVERSE TIE ASSEMBLY
(REQUIRED FOR 50' & 60' SPANS ONLY)

NOTES

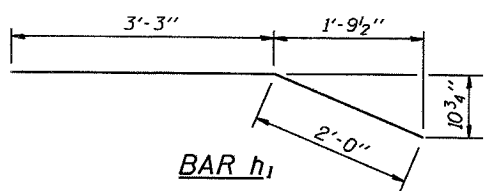
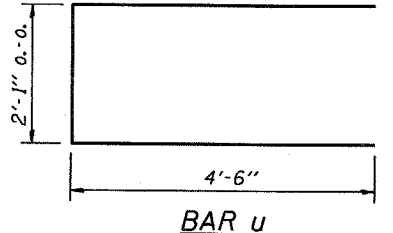
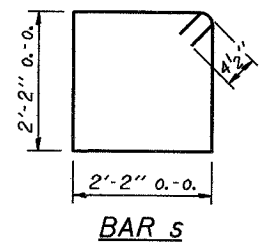
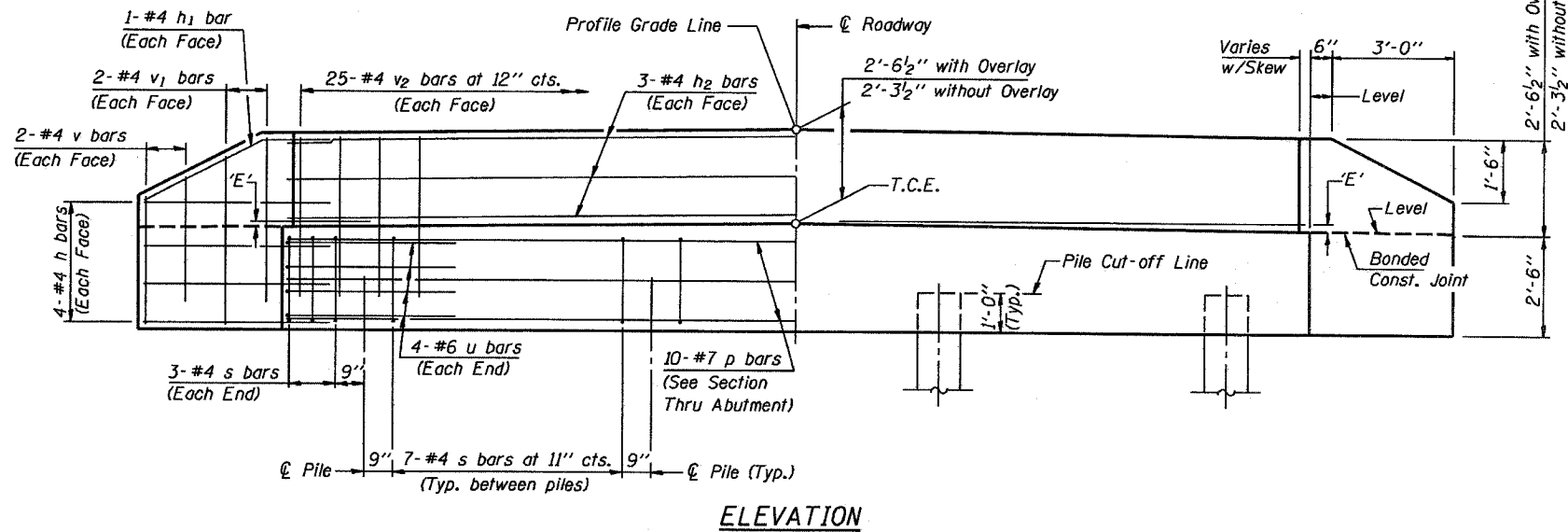
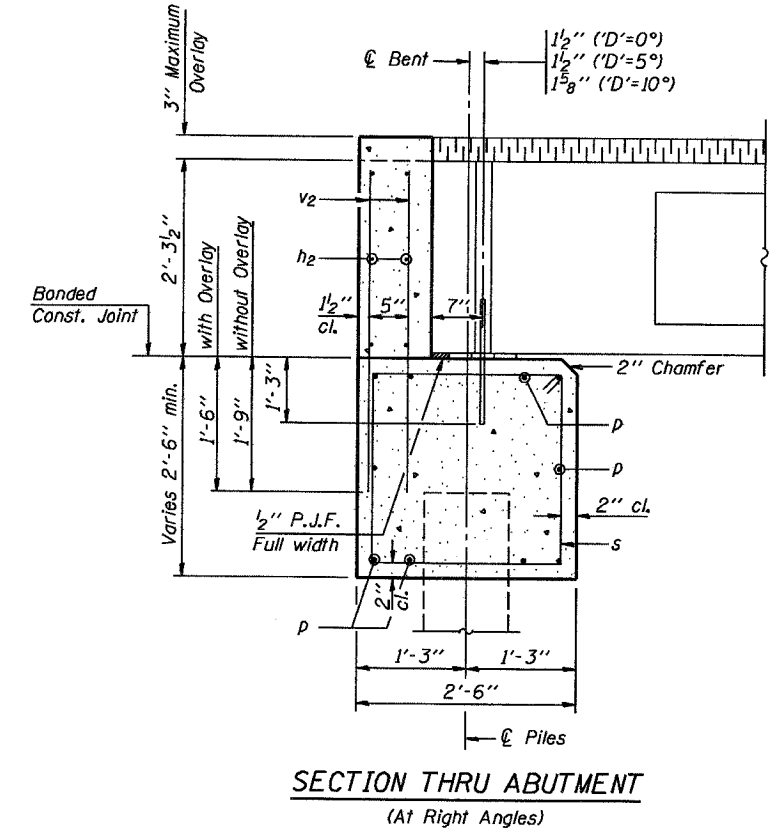
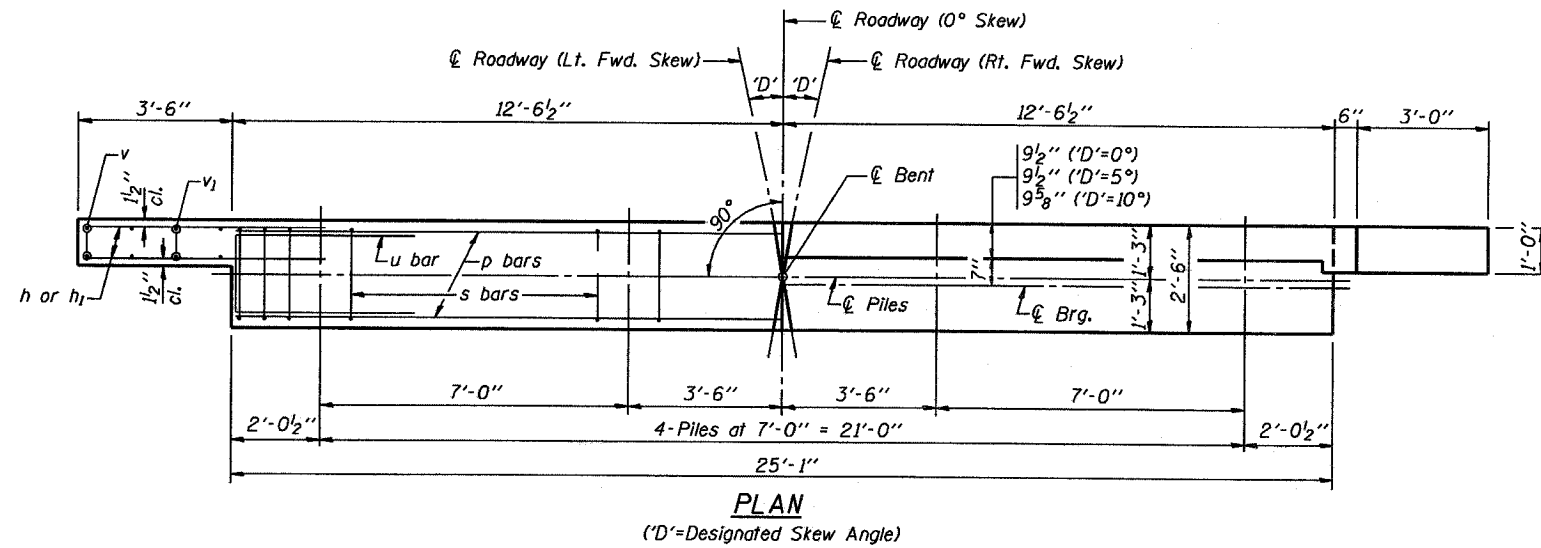
1. Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270.
2. The nominal diameter shall be 1/2 inch and the nominal cross-sectional area shall be 0.153 square inches.
3. Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-322, Grade 60.
4. On 0°, 5° and 10° skew angles, 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 inch.
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
Approved by: *Thomas J. Damagala*
Engineer of Bridge Design
APPROVED APRIL 4, 2005
Approved by: *Ralph E. Anderson*
Engineer of Bridges and Structures

NOTE
The std. reinf. and dimensions shown on the 40' span cross section is typical for all spans, except as shown.

****NOTE:**
The following number of C bars shall be used:
Skew No.
5° and 10° — 1
15° and 20° — 2
25° and 30° — 3

P.P.C. DECK BEAM DETAILS
24' ROADWAY | 27" x 48" BEAMS
STANDARD CB-2427-48



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	3'-2"	—
v1	8	#4	4'-2"	—
v2	50	#4	3'-11"	—
Concrete Structures			9.1 Cu. Yds.	
Reinforcement Bars			1150 Lb.	

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
40'	34
50'	38
60'	43

DESIGN STRESSES

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

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

P.P.C. DECK BEAMS
PILE BENT ABUTMENT
24' RDWY. | 27" BMS. 'D'=0°, 5° OR 10°
STANDARD CA-2427-10

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.

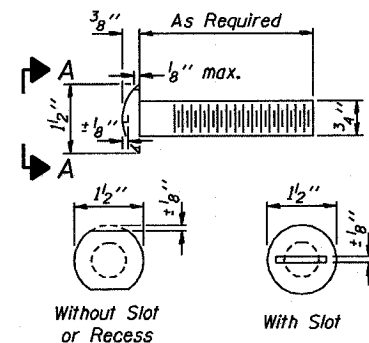
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with STEEL RAILING, TYPE S-1.

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

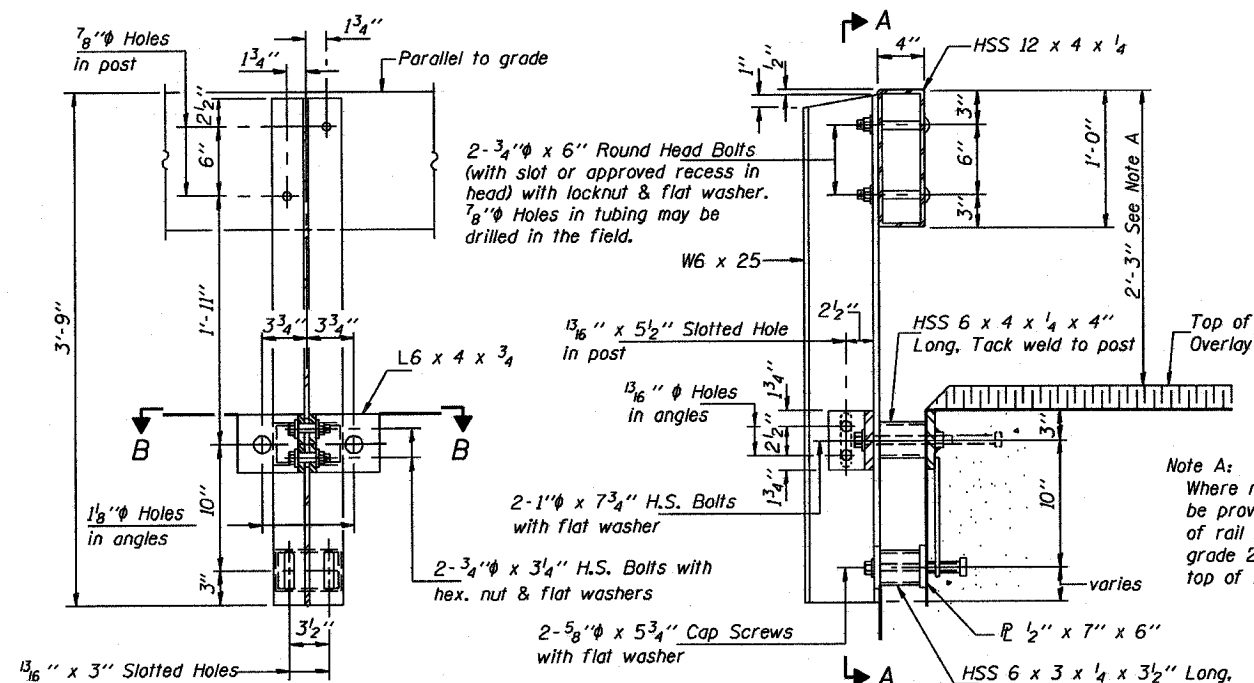
The 1/2" x 7" x 6" plates that come in contact with concrete shall either receive two coats of asphalt paint conforming to Section 1060.07 Type II, or 1/2" fabric bearing pads shall be placed between the plates and concrete.

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 (FX2) 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.

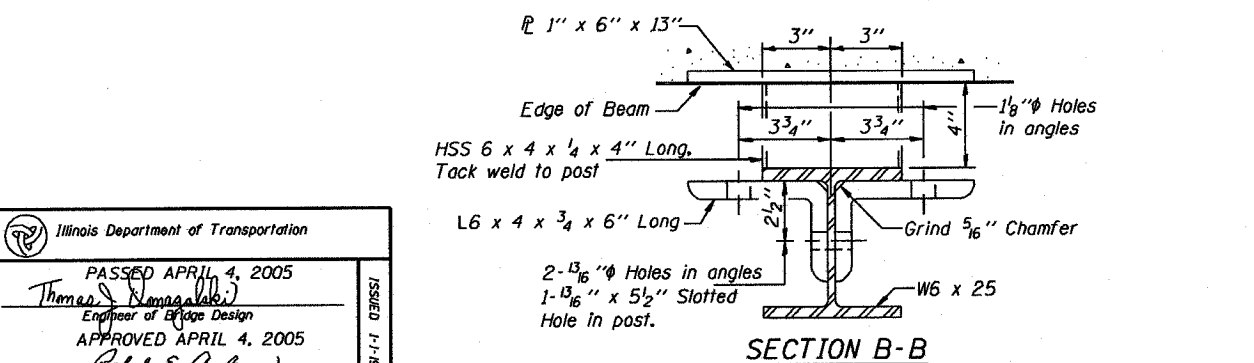
The maximum allowable rail post spacing shall be 10'-6". The rail post spacing shown elsewhere in the plans is based on the allowable spacing for another type of rail. When this type of rail is used, the number of posts may be decreased and the post spacing increased to provide equal post spaces of 10'-6"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



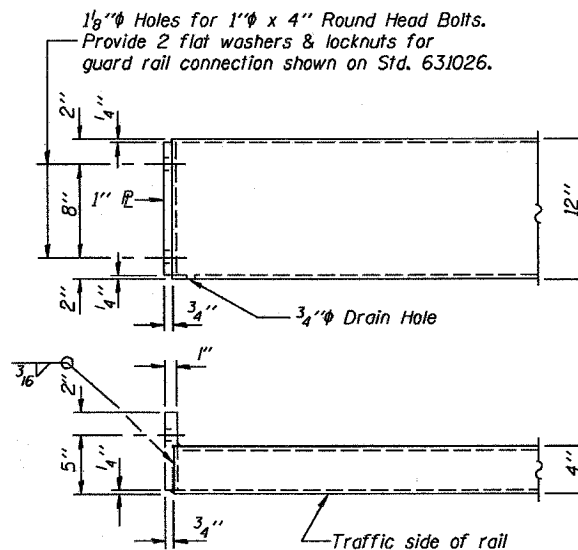
**VIEW A-A
ROUND HEAD BOLT**



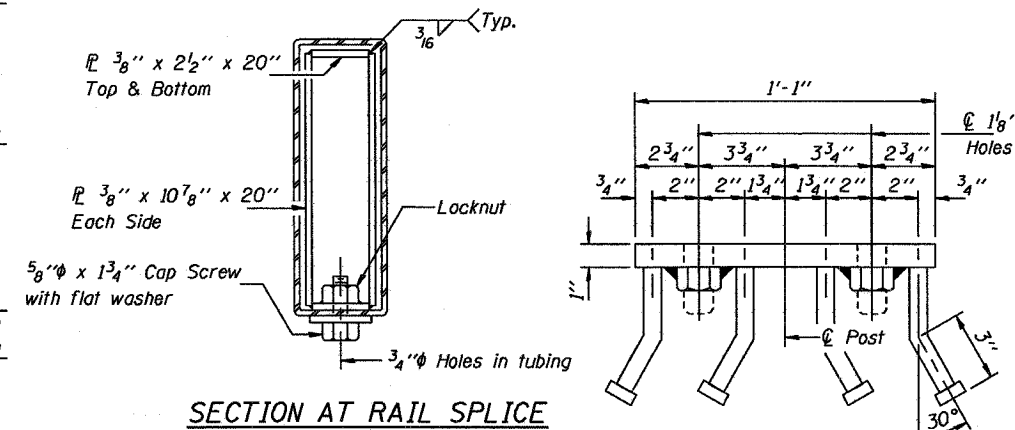
SECTION A-A



SECTION B-B

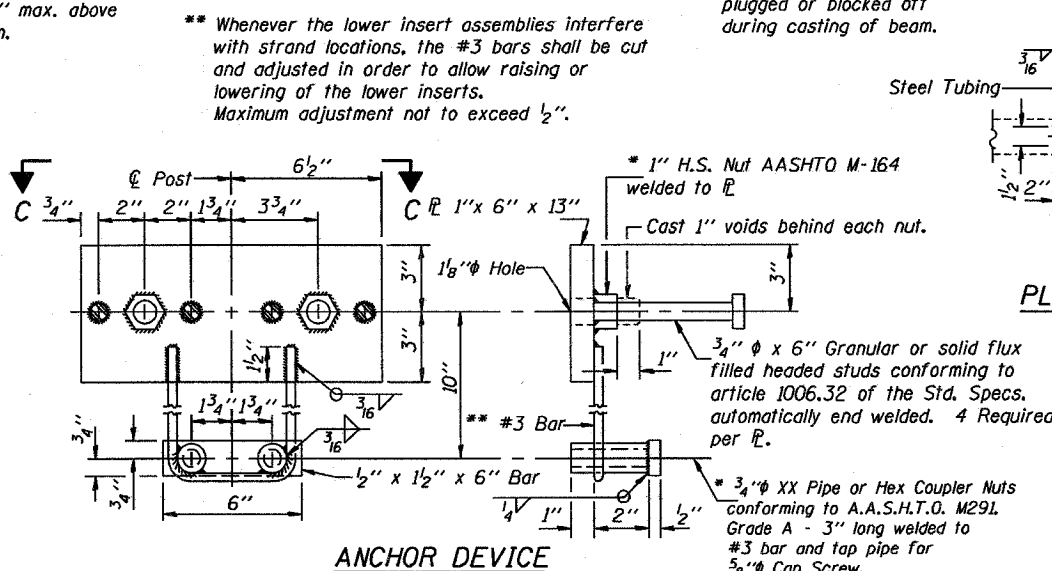


END OF RAIL DETAILS

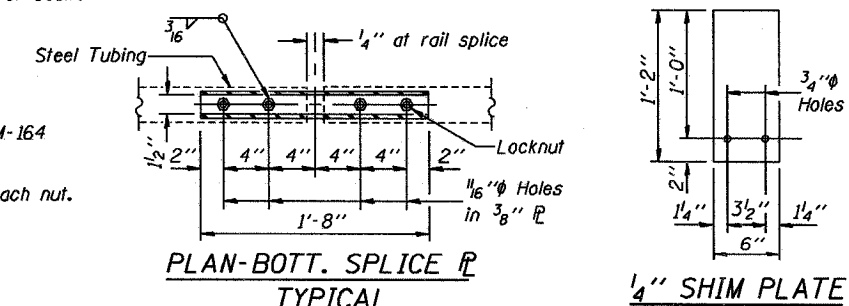


SECTION AT RAIL SPLICE

VIEW C-C



ANCHOR DEVICE

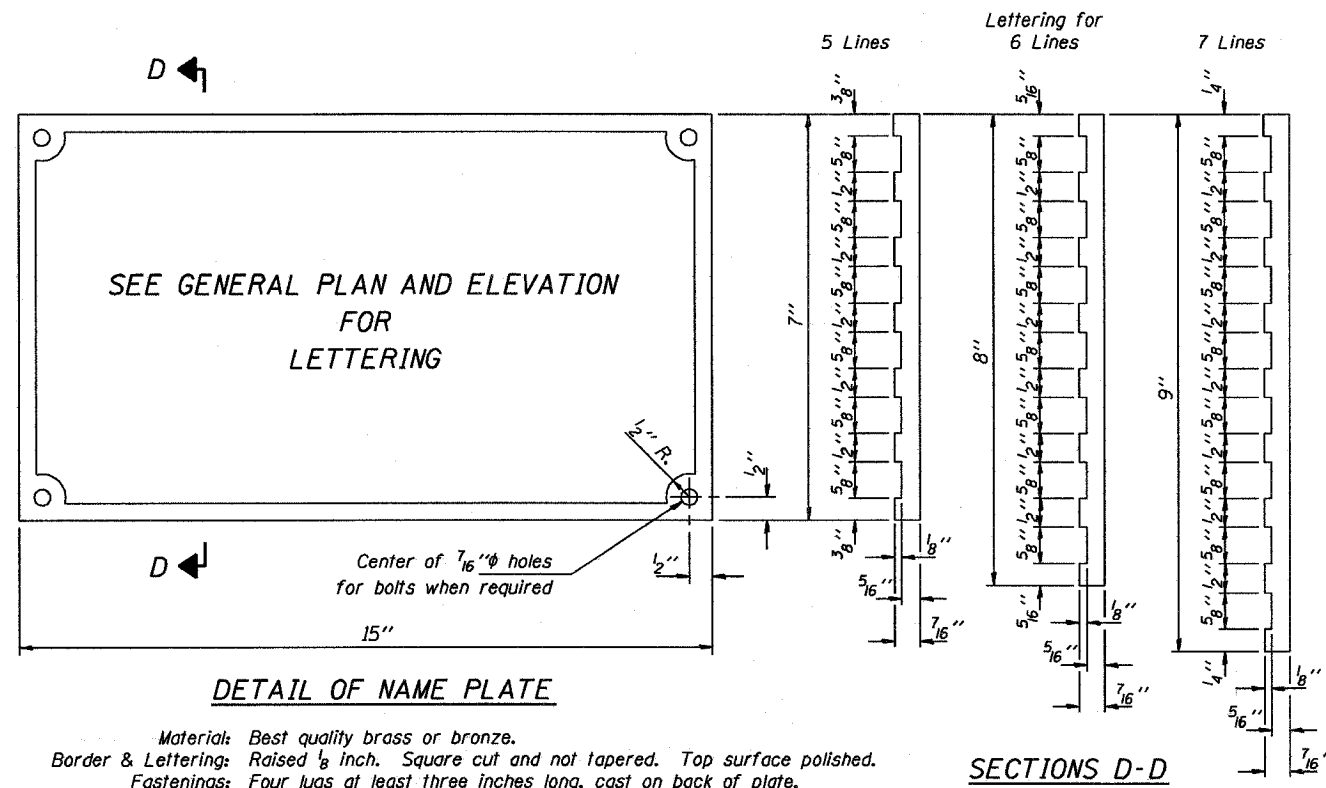


PLAN-BOTT. SPLICE & TYPICAL

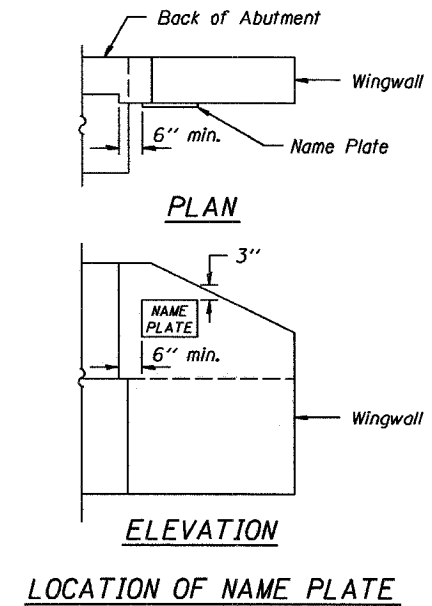
1/4" SHIM PLATE

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

STEEL RAILING, TYPE S-1
STANDARD CR-TS1

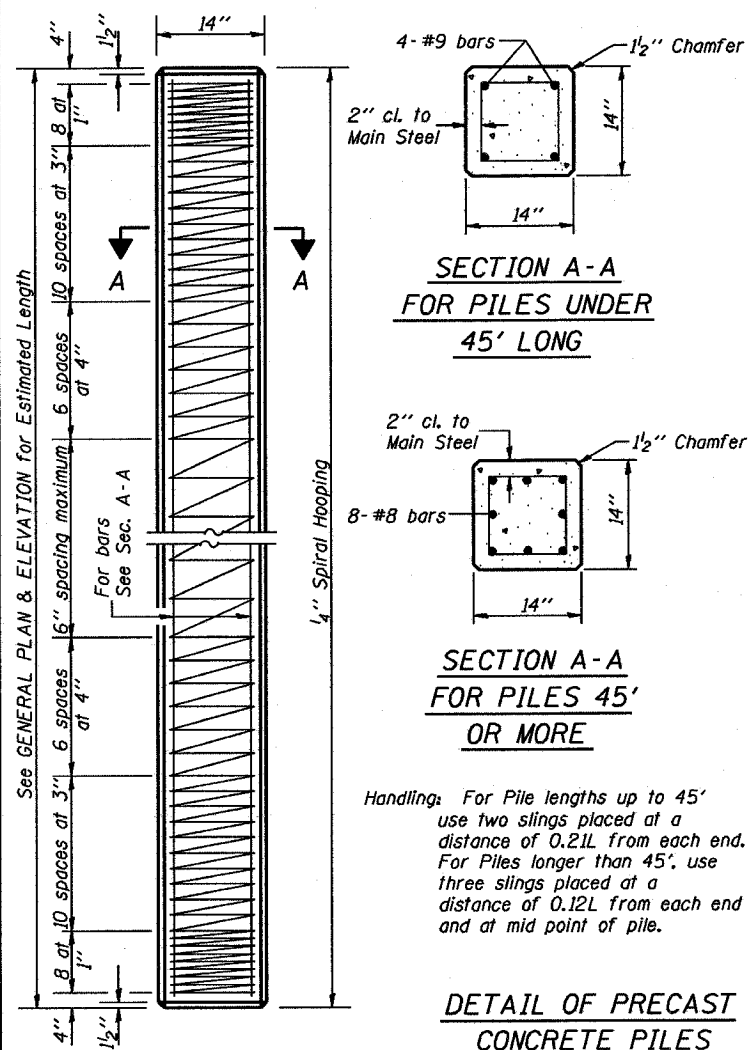


Material: Best quality brass or bronze.
 Border & Lettering: Raised $\frac{1}{8}$ inch. Square cut and not tapered. Top surface polished.
 Fastenings: Four lugs at least three inches long, cast on back of plate.

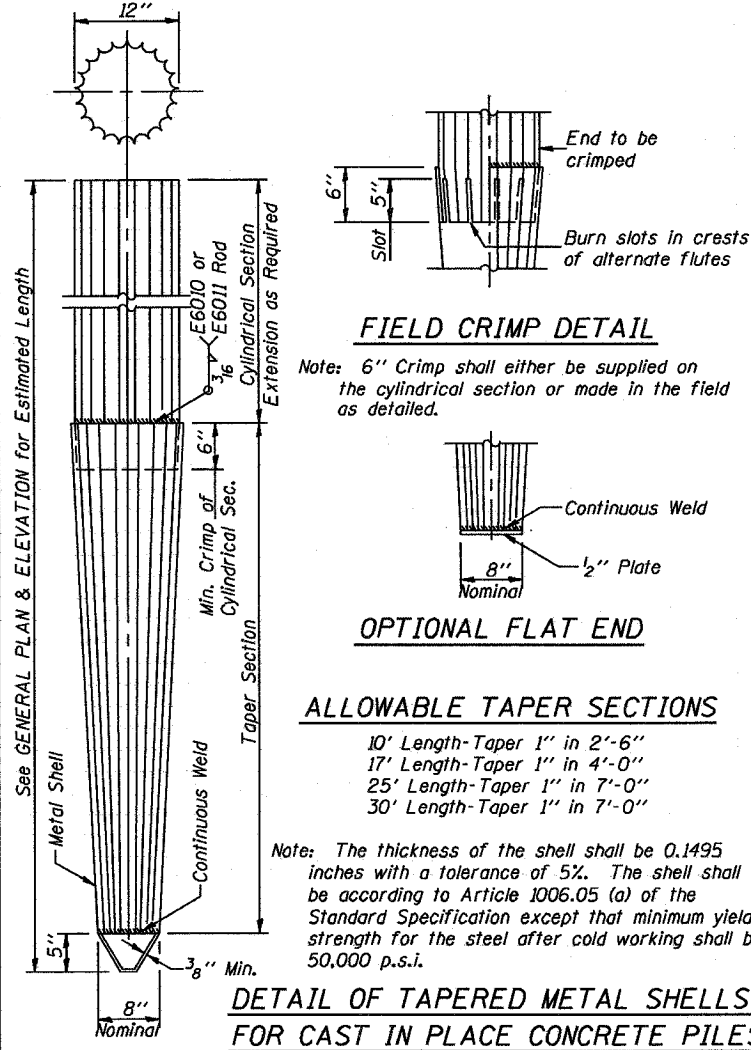


Illinois Department of Transportation	
PASSED APRIL 4, 2005 <i>Thomas S. Komagalaki</i> Engineer of Bridge Design	ISSUED 566-1-03/05
APPROVED APRIL 4, 2005 <i>Ralph E. Anderson</i> Engineer of Bridges and Structures	

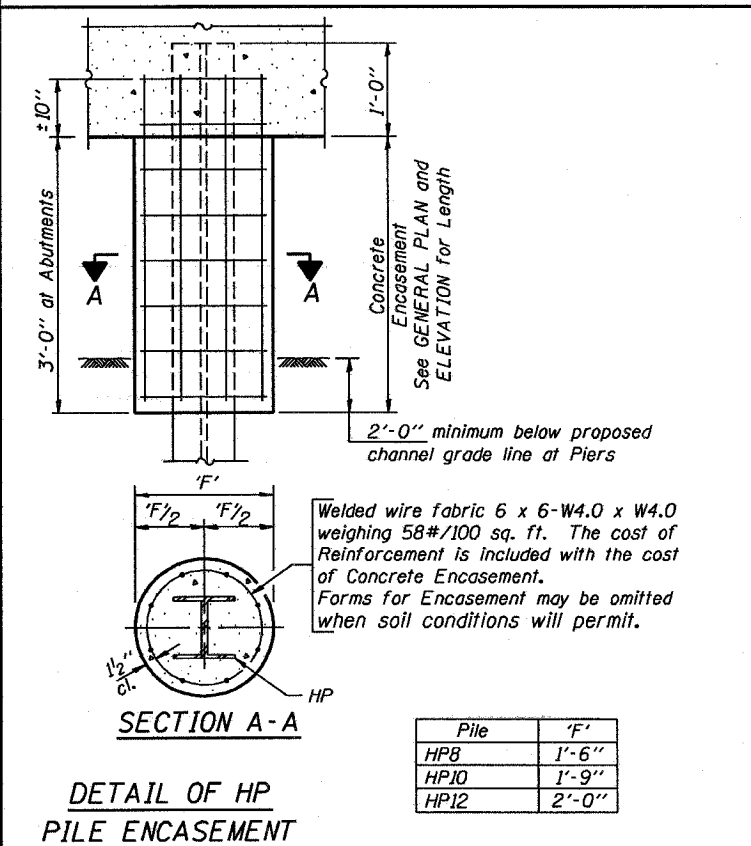
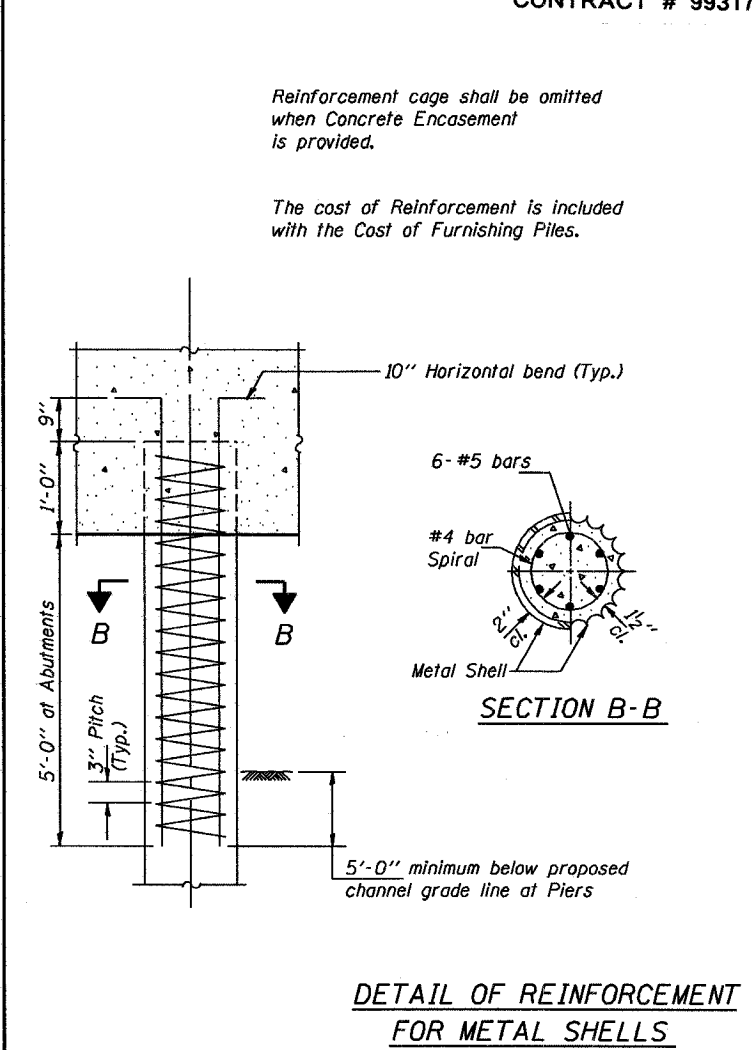
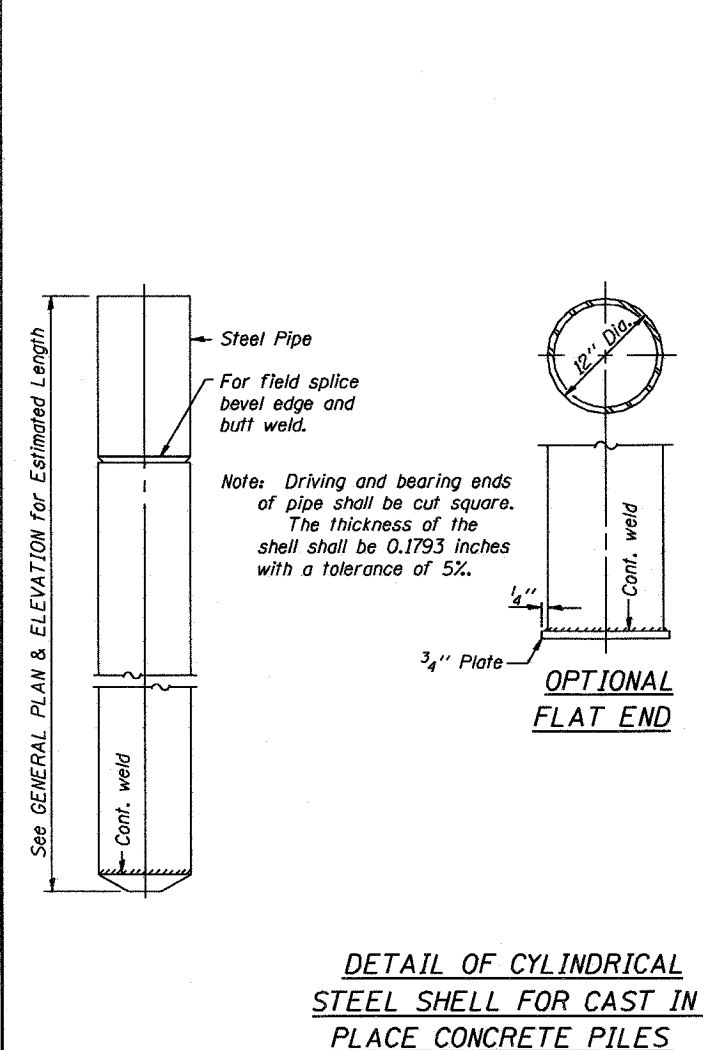
NAME PLATE
STANDARD CN



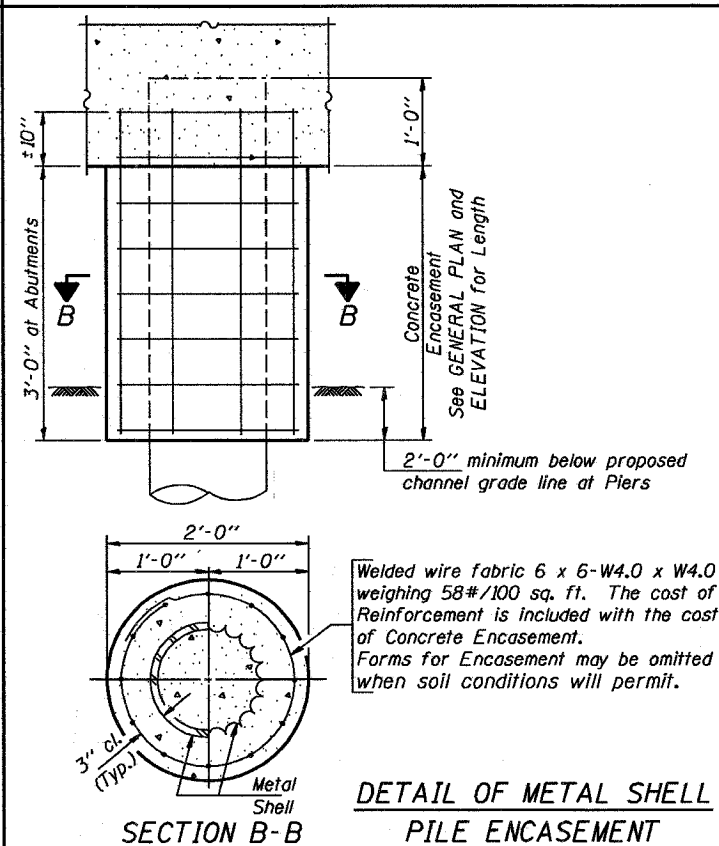
Handling: For Pile lengths up to 45' use two slings placed at a distance of 0.21L from each end. For Piles longer than 45'; use three slings placed at a distance of 0.12L from each end and at mid point of pile.



Note: The thickness of the shell shall be 0.1495 inches with a tolerance of 5%. The shell shall be according to Article 1006.05 (a) of the Standard Specification except that minimum yield strength for the steel after cold working shall be 50,000 p.s.i.



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.

Illinois Department of Transportation

PASSED FEBRUARY 1, 2000

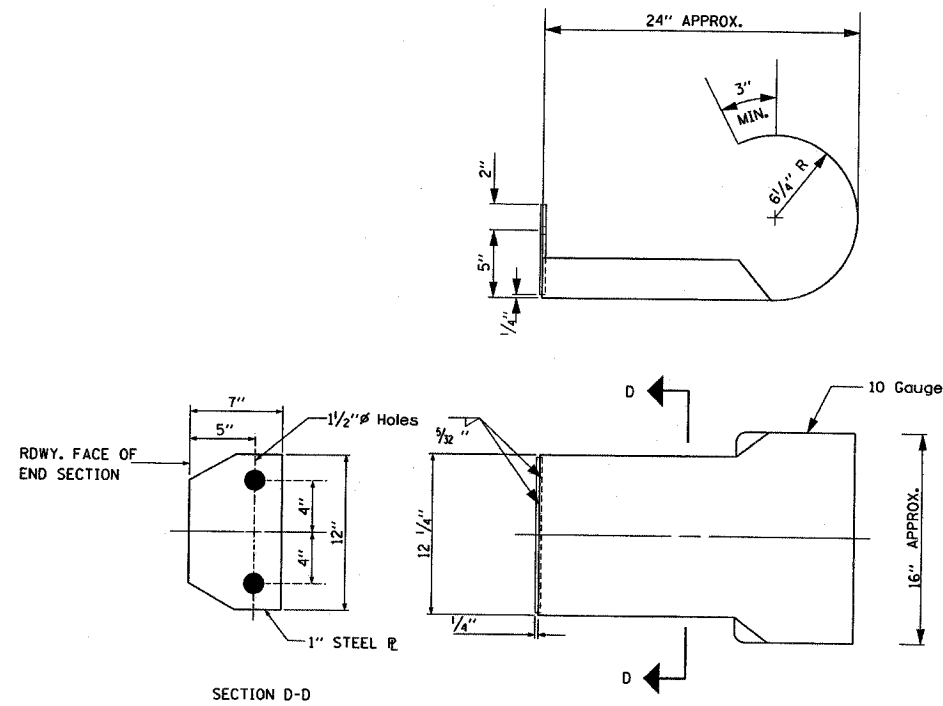
Thomas N. Namaszaki
Engineer of Bridge Design

APPROVED FEBRUARY 1, 2000

Ralph E. Anderson
Engineer of Bridges and Structures

PILE DETAILS
STANDARD CX-1

CURLED END SECTION DETAIL



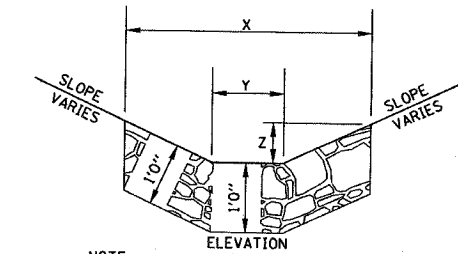
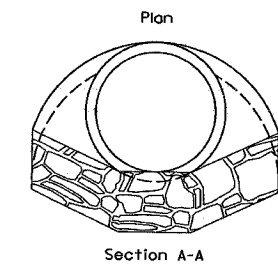
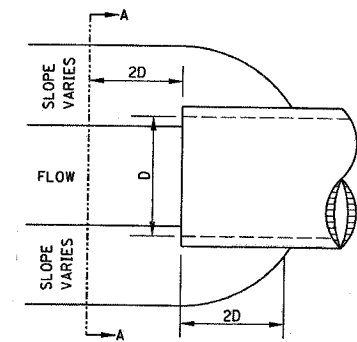
ALL OTHER STEEL SHAPES AND PLATES SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION M-183 EXCEPT POSTS AND ANGLES SHALL CONFORM TO A.A.S.H.T.O. M-223, GRADE 50.

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



NOTE:

BOTTOM OF DITCH	SLOPE			
	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	TON/LIN. FT

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

BOTTOM OF DITCH	SLOPE			
	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	TON/LIN. FT

BOTTOM OF DITCH	SLOPE			
	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	TON/LIN. FT