6-15-07 Letting, Item 261

INDEX OF SHEETS

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

000001-04	STANDARD SYMBOLS, ABBREVIATIONS & PATTERNS
280001-03	TEMPORARY EROSION CONTROL SYSTEMS
702001-06	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
20100500	TREE REMOVAL, ACRE	ACRES	0.30
20200100	EARTH EXCAVATION	CU YD	225.00
20300100	CHANNEL EXCAVATION	CU YD	437.00
20400800	FURNISHED EXCAVATION	CU YD	921.00
25001000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.40
28000300	TEMPORARY DITCH CHECKS	EACH	6.00
28001000	AGGREGATE (EROSION CONTROL)	TON	19.00
28100807	STONE DUMPED RIPRAP, CLASS A4	TON	225.00
*28102600	STONE RIPRAP DITCH	TON	6.00
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	381.00
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1.00
50300225	CONCRETE STRUCTURES	CU YD	19.20
50300280	CONCRETE ENCASEMENT	CU YD	2.60
50400605	PRECAST PRESTRESSED CONCRETE DECK BEAMS (33" DEPTH)	SQ FT	1680.00
50800105	REINFORCEMENT BARS	POUND	2340.00
50900205	STEEL RAILING, TYPE S1	FOOT	140.00
51201400	FURNISHING STEEL PILES HP10X42	FOOT	261.00
51202305	DRIVING PILES	FOOT	261.00
51203400	TEST PILE STEEL HP10X42	EACH	1.00
51204650	PILE SHOES	EACH	10.00
51500100	NAME PLATES	EACH	1.00
54200223	PIPE CULVERTS, CLASS D, TYPE 1 18"	FOOT	52.00
*67100100	MOBILIZATION	L SUM	1.00

DESIGN DESIGNATION:
DESIGN SPEED: 30 MPH
HIGHWAY CLASS - LOCAL ROAD
EXISTING STRUCTURE NO.: 033-3090
PROPOSED STRUCTURE NO.: 033-3304
CURRENT A.D.T. = 150
CONTRACT NO. 99288

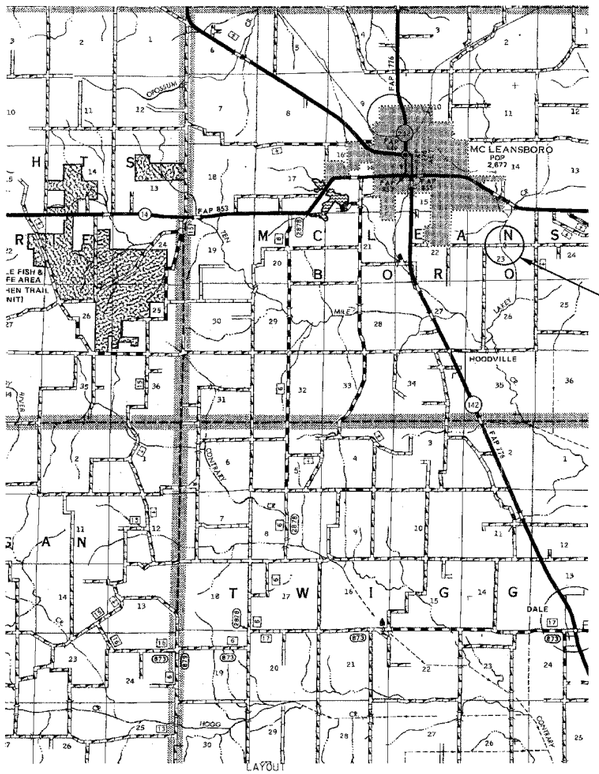
J.U.L.I.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
1-800-892-0123

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

T.R. 239A HAMILTON COUNTY SECTION 04-08125-00-BR

PROJECT NO. BROS-065(38) JOB NO. C-99-535-06

CONTRACT # 99288 LAKEY CREEK



APPROXIMATE SCALE 1 INCH = 1 MILE

0 1 2 3
MILES

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

SECTION 04-08125-00-BR
BEGINS STATION 2+00

STATION 5+00, STRUCTURE NO. 033-3304
A 70' LONG SINGLE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE (33" DEPTH), 24' ROADWAY, 0.00% GRADE, 0° SKEW.

SECTION 04-08125-00-BR
ENDS STATION 8+50

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

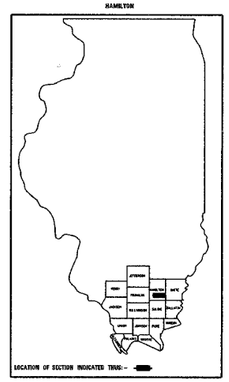
APPROVED 3-29-07
COUNTY ENGINEER

PASSED 4/11/07
ENGINEER OF LOCAL ROADS AND STREETS

RELEASING FOR BID BASED ON LIMITED REVIEW 4/11/07
MARY C. LAMIE, P.E.
DEPUTY DIRECTOR OF HIGHWAY
REGION FIVE ENGINEER

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
239A	04-08125-00BR	HAMILTON	12	1
FED. ROAD DIST. NO. 9	ILLINOIS	FED. AID PROJECT		
PROJECT# BROS-065(38)		CONTRACT# 99288		
JOB # C-99-535-06		LAKEY CREEK		

LEC JOB # H061018HM



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'

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62863
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SUITE1
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47670
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FAX:
(812)-385-2812

LAMIE ENGINEERING CO.

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

AARON M. MEFFORD
56284
REGISTERED PROFESSIONAL ENGINEER
OF ILLINOIS

AARON M. MEFFORD
NAME
SIGNATURE
3-27-07
DATE
11-30-07
EXPIRES

McLEANSBORO TOWNSHIP
OVER LAKEY CREEK
HAMILTON COUNTY, ILLINOIS

SHEET TITLE:
TITLE SHEET

SCALE:	VARIES
BY:	AMM
DATE:	30907
REV:	

1 OF 12 SHEETS

SHEET NO. 1

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
239A	04-08125-00-BR	HAMILTON	12	2
FED. ROAD DIST. NO. 9	ILLINOIS	LAKEY CREEK		
PROJECT # BROS-0650(38)		CONTRACT # 99288		

LEC JOB # HOGL018HM

GENERAL NOTES:

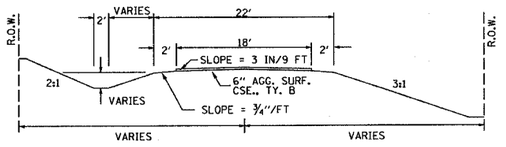
THIS SECTION SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PLANS, SPECIAL PROVISIONS AND "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", ADOPTED JANUARY 1, 2007.

THE WORK INVOLVED ON THIS SECTION CONSISTS OF THE REMOVAL OF THE EXISTING STRUCTURE, THE CONSTRUCTION OF A 70 FOOT LONG SINGLE SPAN PRECAST, PRESTRESSED CONCRETE DECK BEAM BRIDGE, EARTH APPROACHES, AGGREGATE SURFACE COURSE AND OTHER MISCELLANEOUS ITEMS NECESSARY TO COMPLETE THIS SECTION.

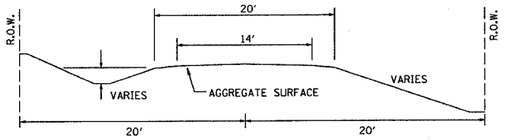
ALL ELEVATIONS ARE BASED ON U.S.G.S. MEAN SEA LEVEL DATUM.

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

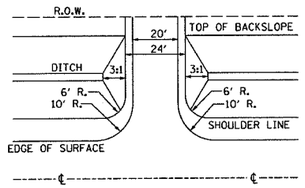
TYPICAL CROSS SECTION PROPOSED



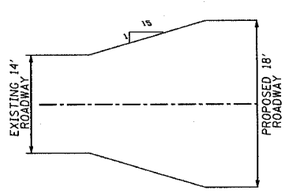
TYPICAL CROSS SECTION EXISTING



STA 4+46 FIELD ENTRANCE DETAIL



TAPER DETAIL



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

REND LAKE CONSERVATORY DISTRICT
1-618-439-4321

NOTE: CONSTRUCT SPECIAL DITCH

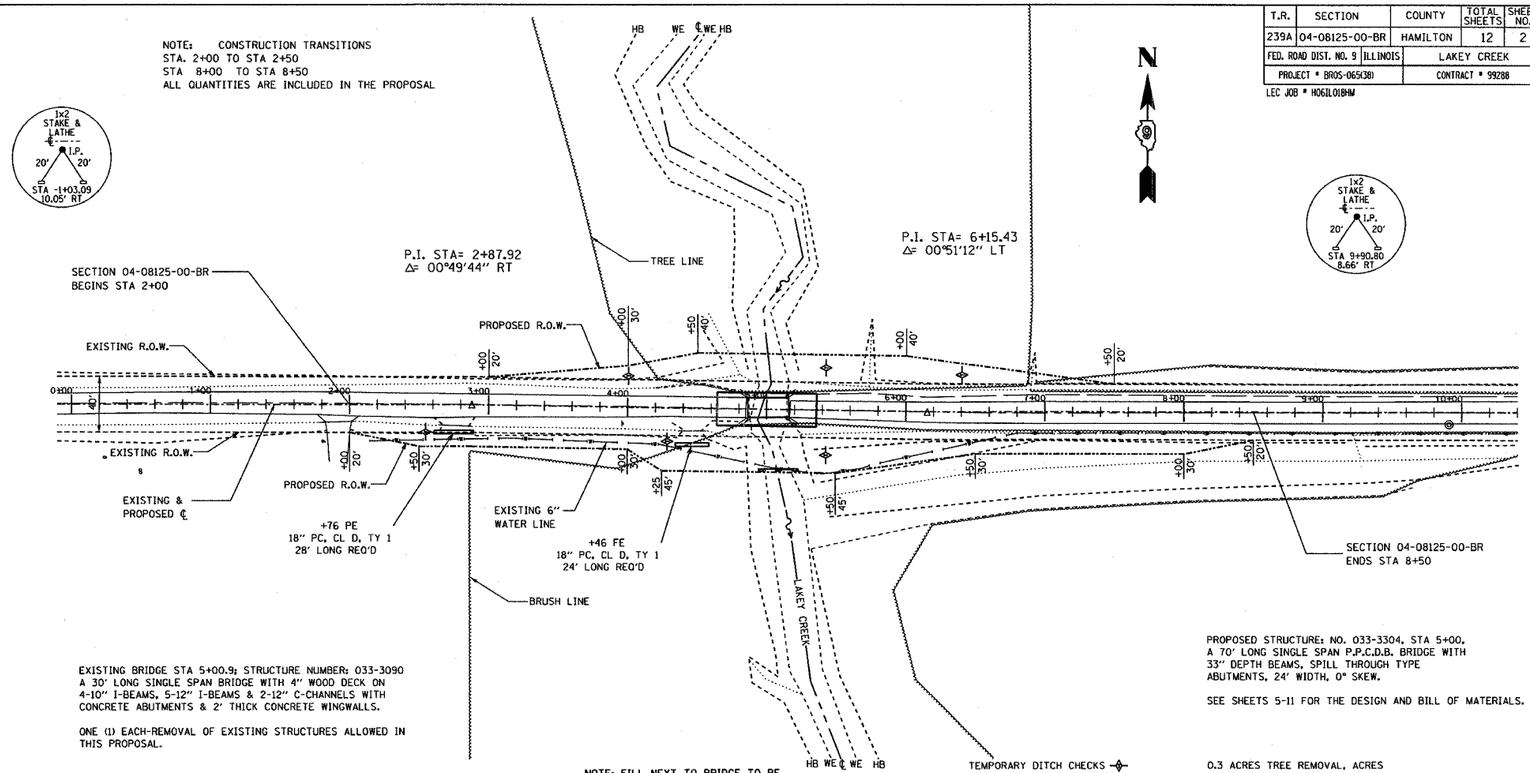
STA 2+50 TO STA 4+69 LT
STA 2+08 TO STA 4+69 RT
STA 5+27 TO STA 7+50 LT
STA 5+29 TO STA 6+50 RT

NOTE: CONSTRUCT STONE RIPRAP DITCH

STA 4+58 TO STA 4+69 RT (0.48 TON/LIN FT)
6 TON STONE RIPRAP DITCH ALLOWED IN PROPOSAL.

SEE SHEET NO. 12 FOR STONE RIPRAP DITCH DETAIL.

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



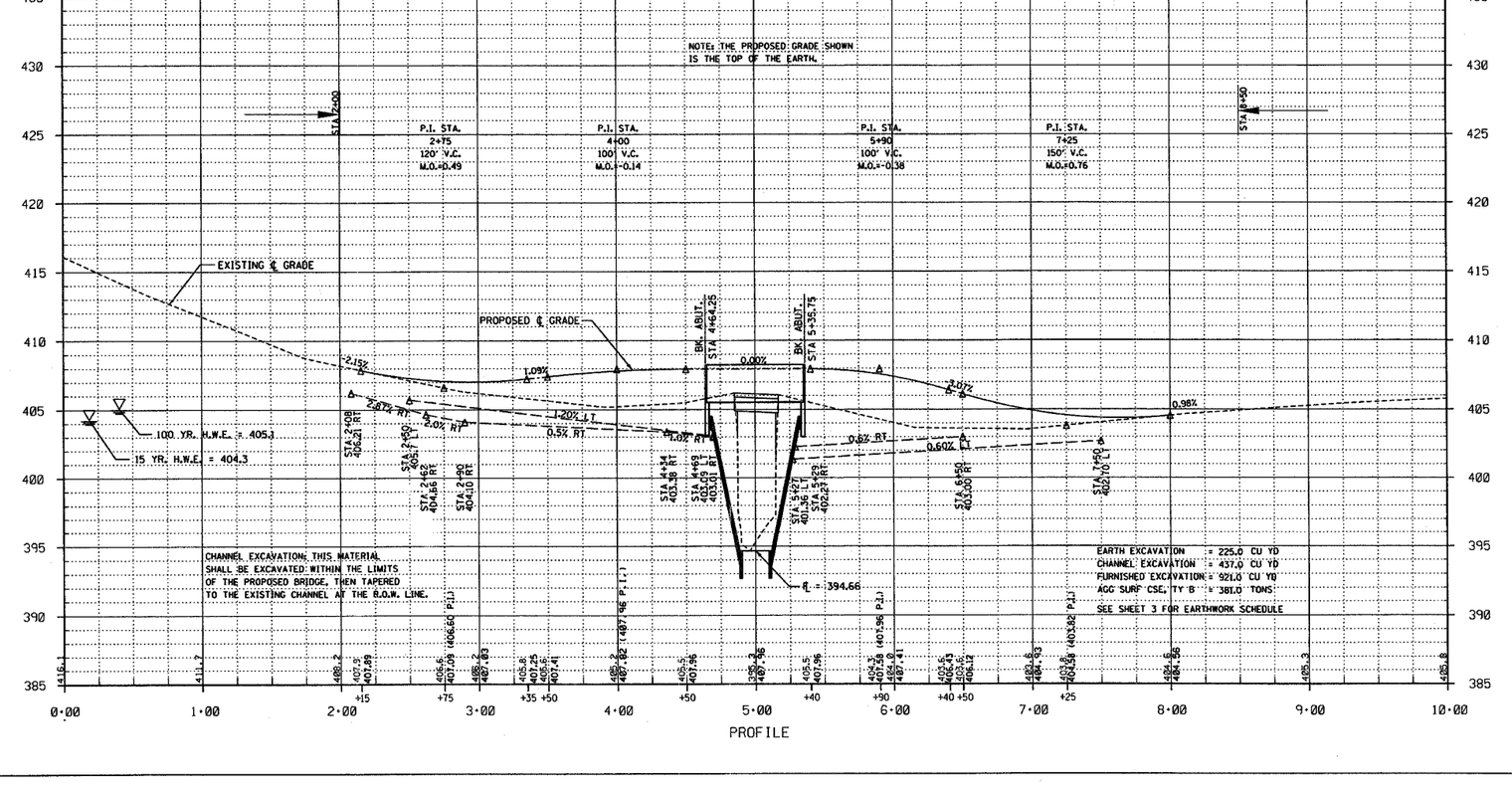
EXISTING BRIDGE STA 5+00.9; STRUCTURE NUMBER: 033-3090
A 30' LONG SINGLE SPAN BRIDGE WITH 4" WOOD DECK ON 4-10" I-BEAMS, 5-12" I-BEAMS & 2-12" C-CHANNELS WITH CONCRETE ABUTMENTS & 2' THICK CONCRETE WINGWALLS.

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

PROPOSED STRUCTURE: NO. 033-3304, STA 5+00,
A 70' LONG SINGLE SPAN P.P.C.D.B. BRIDGE WITH 33" DEPTH BEAMS, SPILL THROUGH TYPE ABUTMENTS, 24' WIDTH, 0° SKEW.

SEE SHEETS 5-11 FOR THE DESIGN AND BILL OF MATERIALS.

NOTE: FILL NEXT TO BRIDGE TO BE AGGREGATE SURFACE COURSE



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LAMC ENGINEERING CO.

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

AARON M. MEFFORD
56284
REGISTERED PROFESSIONAL ENGINEER
OF
ILLINOIS

AARON M. MEFFORD
NAME
SIGNATURE
3-28-07
DATE
11-30-07
EXPIRES

McLEANSBORO TOWNSHIP
OVER LAKEY CREEK
HAMILTON COUNTY, ILLINOIS

SHEET TITLE:
PLAN & PROFILE

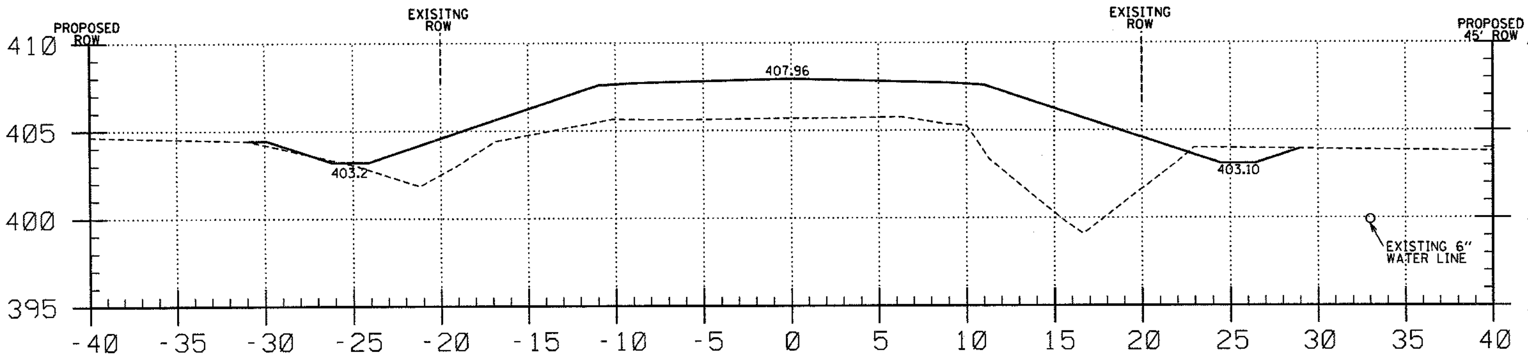
SCALE:	VARIES
BY:	AMM
DATE:	30907
REV:	

2 OF 12 SHEETS

SHEET NO. 2

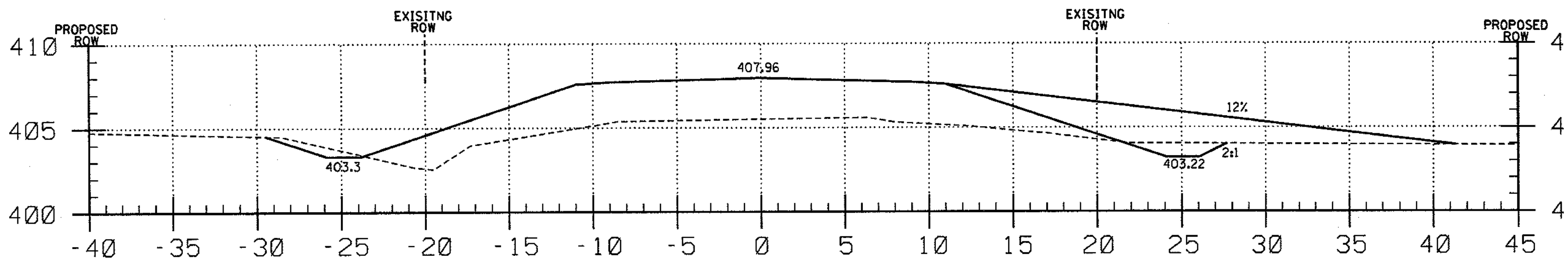
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
239A	04-08125-00-BR	HAMILTON	12	3
FED. ROAD DIST. NO. 9	ILLINOIS	LAKEY CREEK		
PROJECT # BROS-065(38)		CONTRACT # 99288		

LEC JOB # H06IL018HM



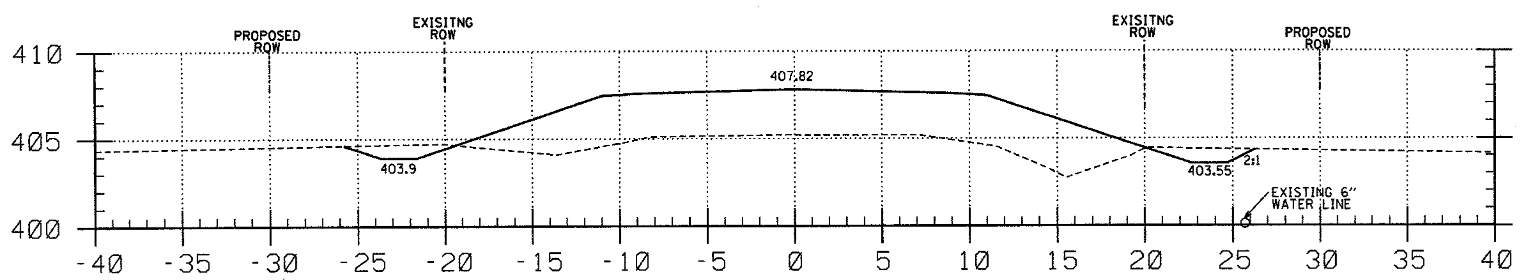
4+60

C = 4.0
F = 121.0



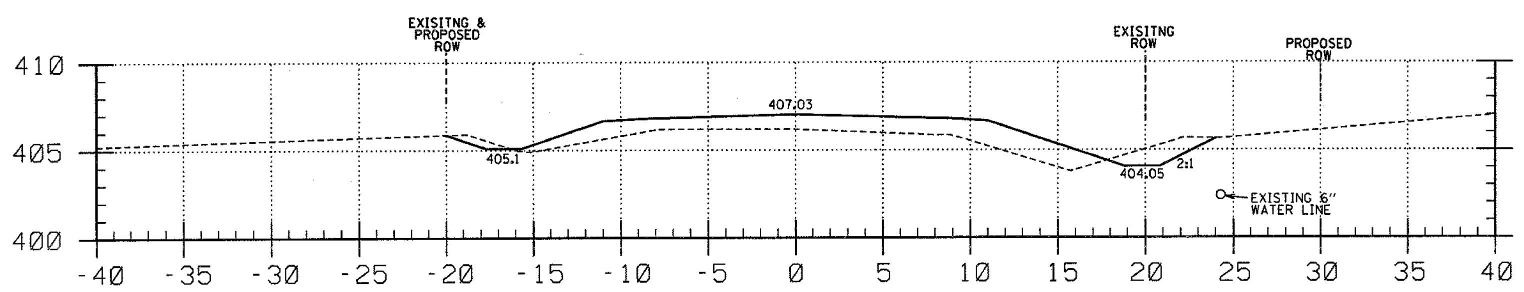
4+50

C = 4.2
F = 86.5



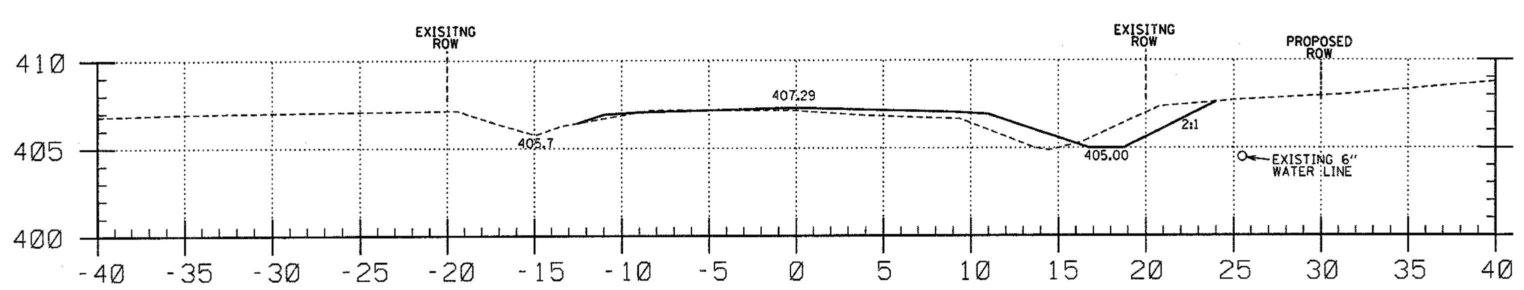
4+00

C = 6.7
F = 91.6



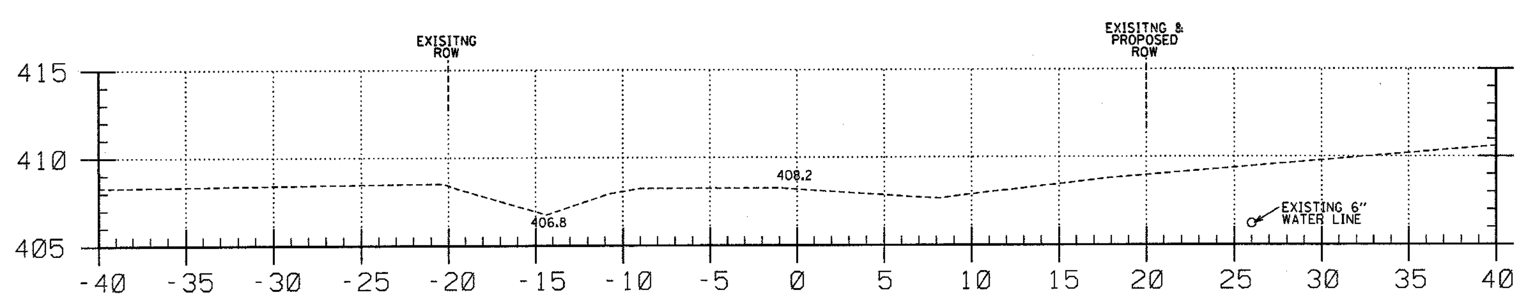
3+00

C = 5.5
F = 30.0

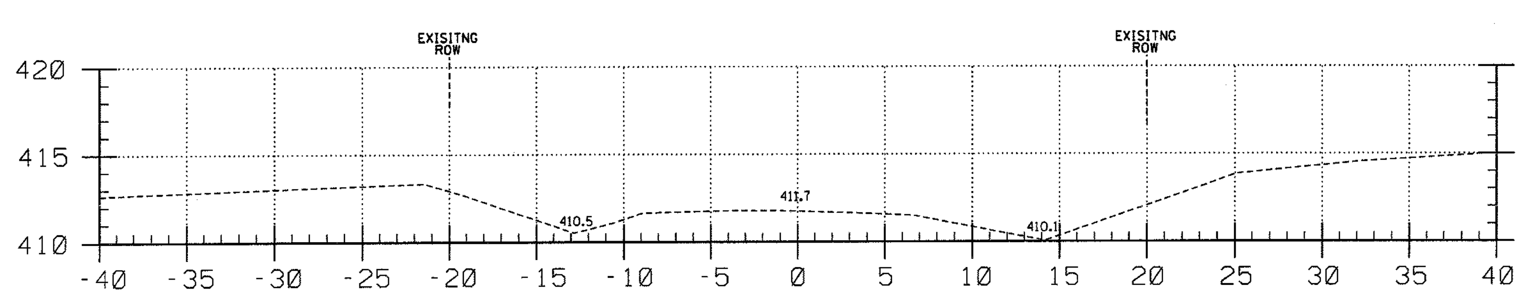


2+50

C = 7.1
F = 8.7



2+00



1+00

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+64.2	54.5	0.0	0.0	40.9	473.2	-432.3
STA 4+64.2 TO 5+35.7	0.0	437.0	218.5	163.9	0.0	+163.9
STA 5+35.7 TO 10+00	170.0	0.0	0.0	127.5	732.8	-605.3.
2 PRIVATE ENTRANCES	0.0	0.0	0.0	0.0	47.3	-47.3
TOTAL	224.5	437.0	218.5	332.3	1253.3	-921.0

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AARON M. MEFFORD 56284 REGISTERED PROFESSIONAL ENGINEER OF ILLINOIS

AARON M. MEFFORD
NAME
SIGNATURE
3-28-07
DATE
11-30-07
EXPIRES

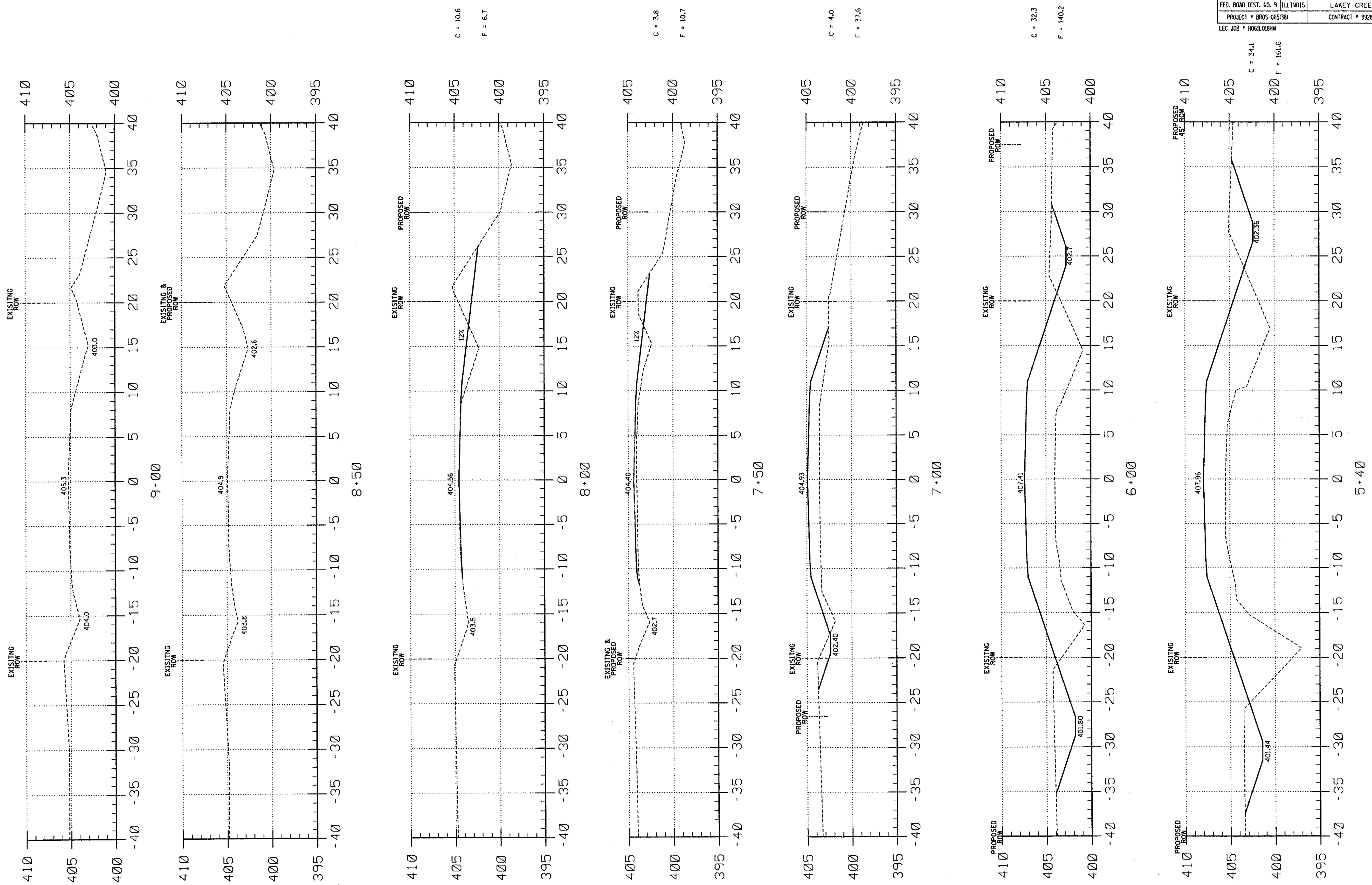
McLEANSBORO TOWNSHIP OVER LAKEY CREEK HAMILTON COUNTY, ILLINOIS

SHEET TITLE: CROSS-SECTIONS

SCALE: 1" = 5'
BY: AMM
DATE: 30907
REV:

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
239A	04-08125-00-BR	HAMILTON	12	4
FED. ROAD DIST. NO. 9	ILLINOIS	LAKEY CREEK		
PROJECT # BROS-065(38)		CONTRACT # 99288		

LEC JOB # H06IL018HM



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184-000867
(62-032435)(35-002769)

AARON M. MEFFORD 56284 REGISTERED PROFESSIONAL ENGINEER OF ILLINOIS

AARON M. MEFFORD
NAME
SIGNATURE
3-28-07
DATE
11-30-07
EXPIRES

McLEANSBORO TOWNSHIP
OVER LAKEY CREEK
HAMILTON COUNTY, ILLINOIS

SHEET TITLE:

CROSS-SECTIONS

SCALE:	1" = 5'
BY:	AMM
DATE:	30907
REV:	

4 OF 12 SHEETS

SHEET NO.
4

F.A.S.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
239A	04-08125-00-BR	HAMILTON	12	5
FED. ROAD DIST. NO. 9	ILLINOIS	LAKEY CREEK		
PROJECT # BROS-065(38)		CONTRACT NO. 99288		

LEC JOB # H06IL018HM

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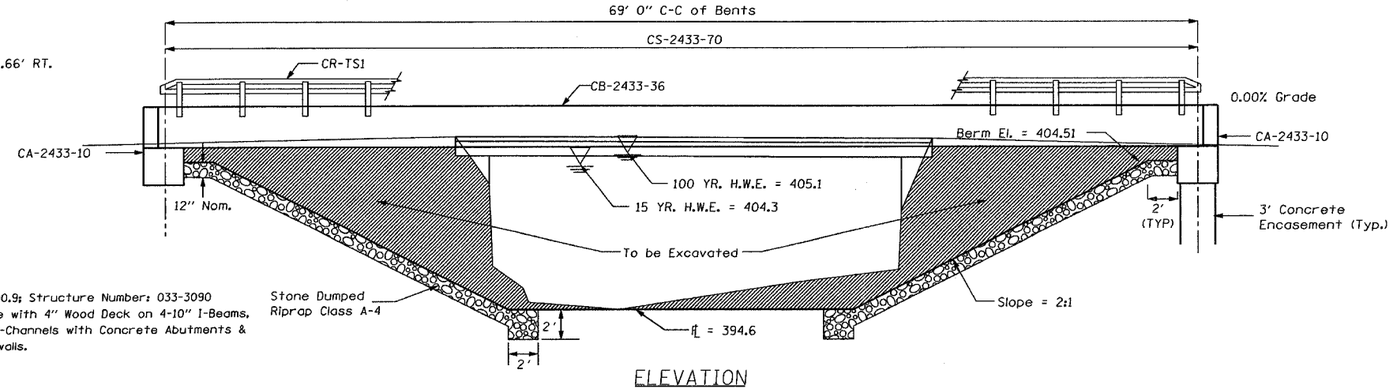
LAMAC ENGINEERING CO.

PROFESSIONAL
LAND SURVEYING
FIRM:
048-000082
PROFESSIONAL
ENGINEERING
CORPORATION:
184-000887

AARON M. MEFFORD
056284
REGISTERED
PROFESSIONAL
ENGINEER
OF
ILLINOIS

AARON M. MEFFORD
NAME
SIGNATURE
3-28-07
DATE
11-30-07
EXPIRES

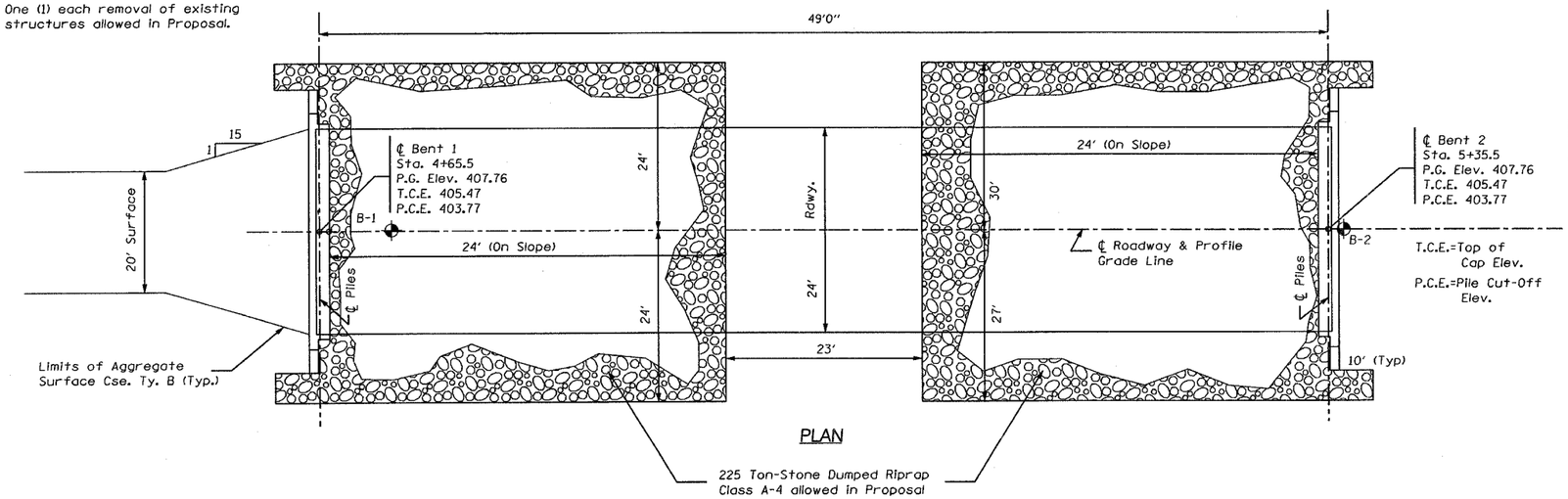
B.M.:- I.P. ±9+90.80, 8.66' RT.
Elev. = 404.86



ELEVATION

Existing Bridge Sta 5+00.9; Structure Number: 033-3090
A 30' Single Span Bridge with 4" Wood Deck on 4-10" I-Beams, 5-12" I-Beams & 2-12" C-Channels with Concrete Abutments & 2' Thick Concrete Wingwalls.

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



PLAN

GENERAL NOTES

1. The Contractor shall drive one test pile, as specified, in a permanent location as directed by the Engineer before ordering the remaining piles.
2. See Special Provisions for boring logs.
3. ~~A Corrosion Inhibitor, as covered in the Special Provisions, shall be used in the concrete for Precast Prestressed Concrete Deck Beams.~~
4. ~~The Bit. Conc. Surf. Cse. Superpave and the Waterproofing Membrane System shown in these Plans shall not be provided.~~
5. The Steel H-Piles shall be according to AASHTO M270 Grade 50.

Item	Unit	Super	Sub. Piers	Sub. Abuts.	Total
Removal of Existing Structures	L Sum				1
~~Bit. Conc. Surf. Cse. Superpave~~	~~Tons~~				
~~Waterproofing Membrane System~~	~~Sq.Yds.~~				
Concrete Structures	Cu.Yds.			19.2	19.2
P.P. Conc. Dk. Bm. 33" Dp.	Sq.Ft.	1680			1680
Steel Railing, Type S1	Lin.Ft.	140			140
Reinforcement Bars	Lbs.			2340	2340
Furnishing Steel Piles HP10X42	Lin.Ft.			261	261
Driving Piles	Lin.Ft.			261	261
Test Pile Steel HP10X42	Each			1	1
Name Plates	Each			1	1
Concrete Encasement	Cu.Yds.			2.6	2.6
Pile Shoes	Each			10	10

NOTE: See sheet two (2) of these plans for the Schedules of Traffic Barriers and Curled End Sections required on this Section.

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

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

ARTICLE/SECTION NO. REFERENCE TABLE

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

PILE DATA (2-ABUTS.)

Type:	Steel Piles HP10X42
Nominal Required Bearing:	330 Kips
Allowable Resistance Available:	80 Kips
Estimated Length:	29 Feet/Pile
Number Required:	10 (Includes 1 Test Pile)

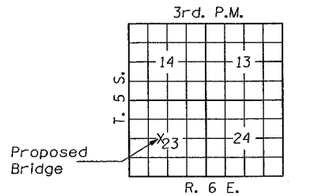
DESIGN SPECIFICATIONS

2002 AASHTO
HS 20-44 Loading, Load Factor Design

STATION 5+00
LAKEY CREEK
SEC. 04-08125-00-BR BUILT 20
PROJECT NO. BROS-065(38)
HAMILTON COUNTY
LOADING HS 20-44
STR. NO. 033-3304

LETTERING FOR NAME PLATE

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



LOCATION SKETCH

INDEX OF SHEETS

WATERWAY INFORMATION

Drainage Area = 5.1 Sq. Mi. Low Grade Elev. = 404.56 At Sta. 8+00

Flood	Freq. Yr.	Q C.F.S.	Opening Sq.Ft. Exist.	Opening Sq.Ft. Prop.	Natural H.W.E.	Head-Ft. Exist.	Head-Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
Design	15	1665	237	421	404.3	0.50	0.13	404.80	404.43
Base	100	2623	246	461	405.1	2.51	0.66	407.61	405.76
Overtopping									
Max. Calc.	500	3395							

GENERAL PLAN & ELEVATION

TOWNSHIP ROUTE 239A
OVER LAKEY CREEK
SECTION 04-08125-00-BR
HAMILTON COUNTY
STATION 5+00

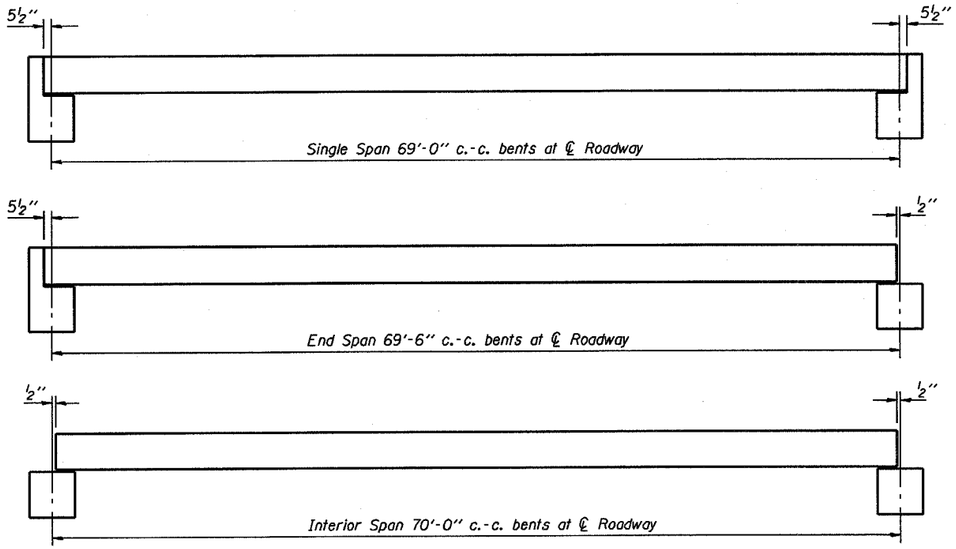
McLEANSBORO TOWNSHIP
OVER LAKEY CREEK
HAMILTON COUNTY, ILLINOIS

SHEET TITLE:
GENERAL PLAN AND ELEVATION

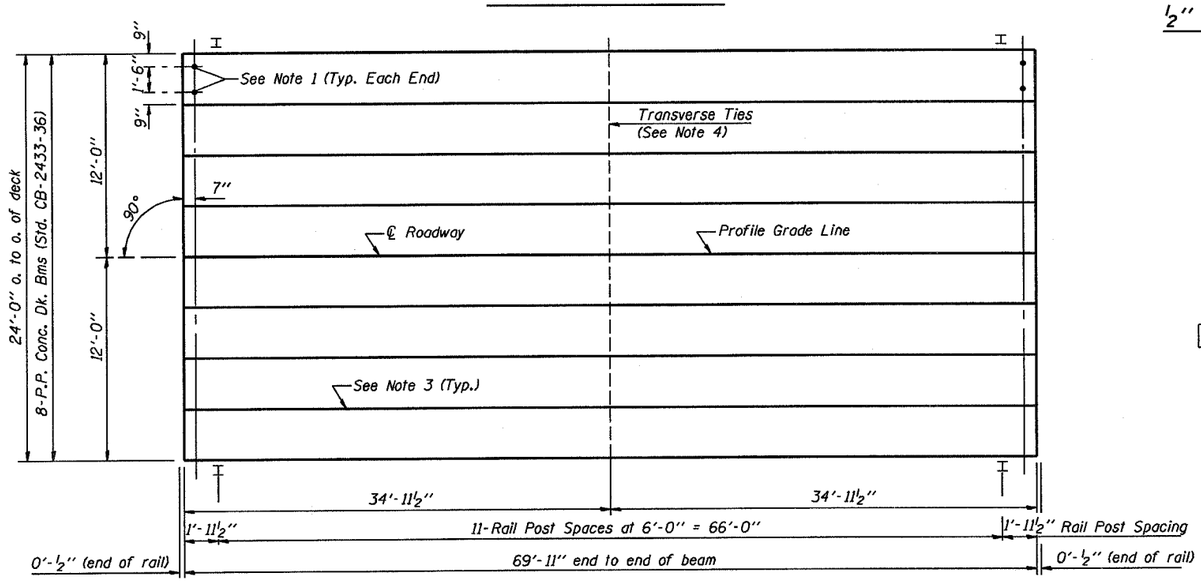
SCALE:	NONE
BY:	A.M.M.
DATE:	30907
REV:	

5 OF 12 SHEETS

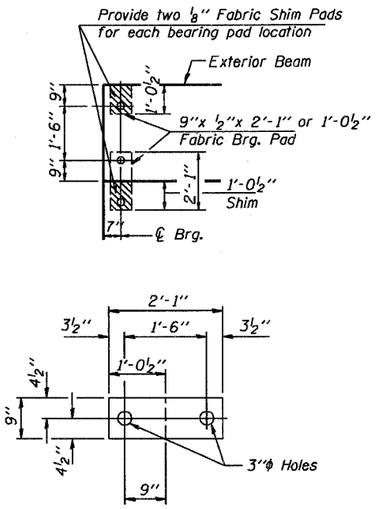
SHEET NO. 5

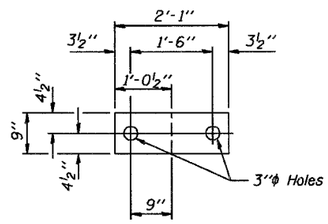


TYPICAL ELEVATIONS

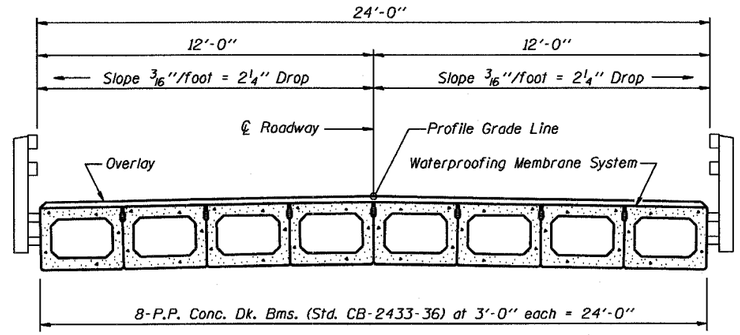


PLAN

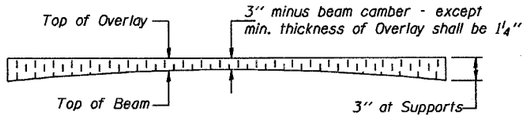




½" FABRIC BRG. PAD DETAILS



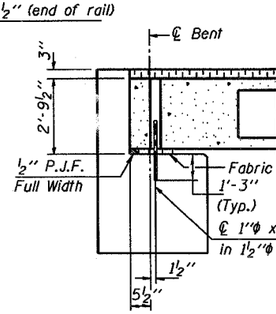
CROSS SECTION



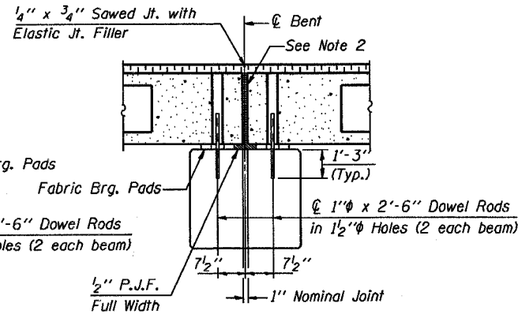
PROFILE OF OVERLAY

NOTES

1. After beams have been erected, holes shall be drilled into substructure and anchor dowels placed. Dowel holes shall be filled with non-shrink grout to top of beam and allowed to cure min. 24 hrs. prior to grouting the shear keys.
2. Nominal 1" joint at ℄ Pier shall be filled with non-shrink grout.
3. Longitudinal keys shall be grouted.
4. The 1"ϕ 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.



SECTION AT ABUTS.
(Along ℄ Beams)



SECTION AT PIERS
(Along ℄ Beams)

QUANTITIES FOR ONE SPAN

P.P. Conc. Dk. Bm. 33" Dp.	1680 Sq. Ft.
Steel Railing	140 Ft.
~~Waterproofing Membrane System~~	~~186.7 Sq. Yds.~~
~~Portland Cement Mortar Fairing Course~~	~~490 Ft.~~

Note: Quantity of overlay for one span = 21.3 Tons

Illinois Department of Transportation

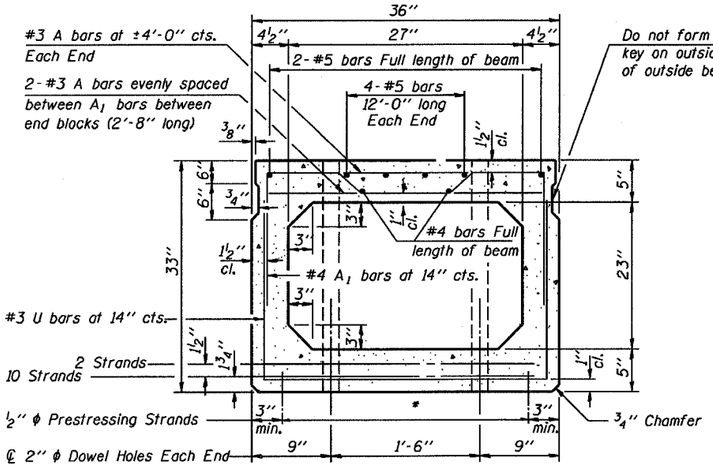
PASSED APRIL 4, 2005
Thomas J. Domagalski
Engineer of Bridge Design
APPROVED APRIL 4, 2005
Ralph E. Anderson
Engineer of Bridges and Structures

ISSUED 4-4-2005

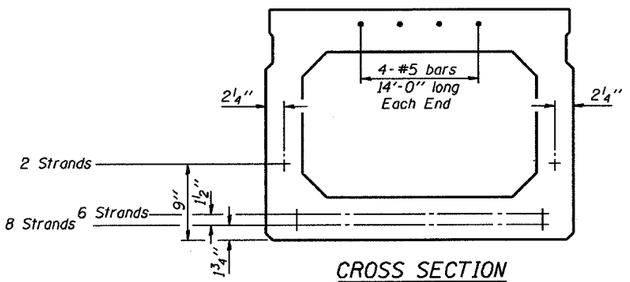
P.P.C. DECK BEAM SUPERSTRUCTURE

24' RDWY.	33" BMS.	70' SPAN	0° SKEW

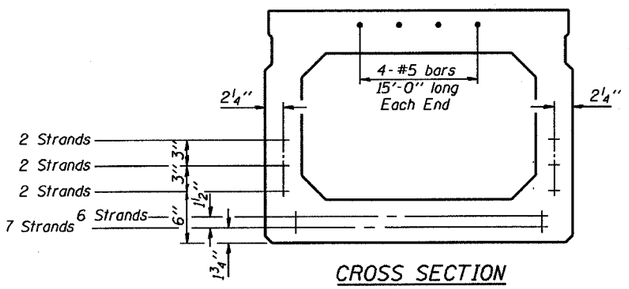
STANDARD CS-2433-70



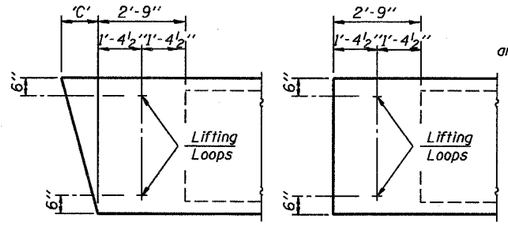
CROSS SECTION
(60' SPAN)



CROSS SECTION
(70' SPAN)

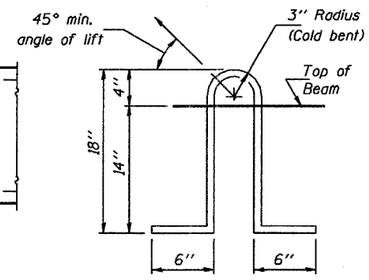


CROSS SECTION
(75' SPAN)



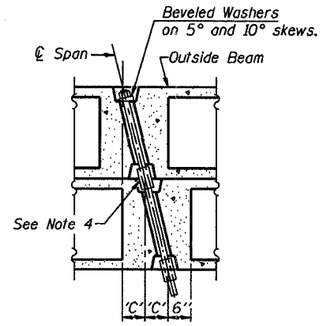
END BLOCK DETAILS

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.

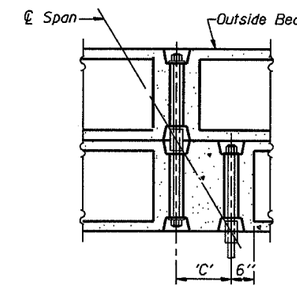


LIFTING LOOP DETAIL

Lifting loops shall be 3, ½"ϕ-270 ksi strands, as shown. Alternate approved lifting devices are also acceptable.



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



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

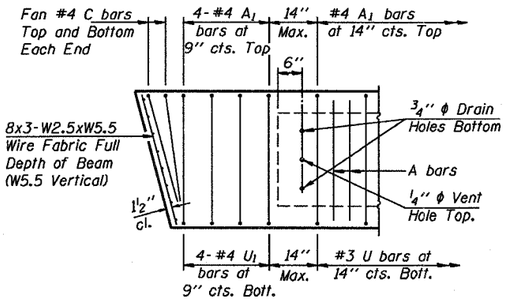
DIMENSION 'C'

Skew Angle 'D'	0°	5°	10°	15°	20°	25°	30°
Dimension 'C' (Inches)	0	3⅛	6⅜	9⅝	13⅛	16¾	20¾

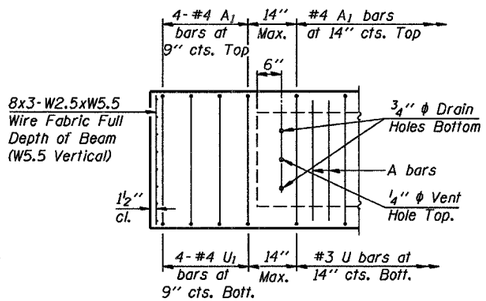
* TRANSVERSE STRAND PLACEMENT GUIDELINES

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 ½".
4. The minimum clearance from strand to void shall be 1½".

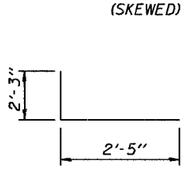
Vertical placement of strands shall not be adjusted to satisfy the above guidelines.



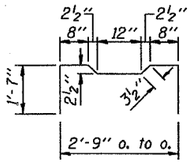
END REINFORCEMENT
(SKEWED)



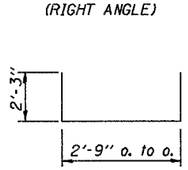
END REINFORCEMENT
(RIGHT ANGLE)



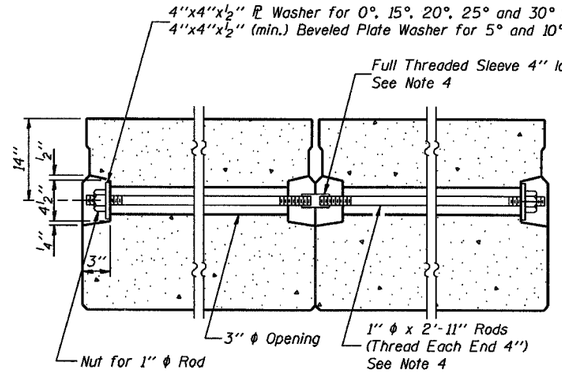
BAR C**



BAR A1



BARS U & U1



SECTION ALONG TRANSVERSE TIE ASSEMBLY

NOTES

1. Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270.
2. The nominal diameter shall be ½" and the nominal cross-sectional area shall be 0.153 square inches.
3. Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-322, Grade 60.
4. On 0°, 5° and 10° skews, alternate appoved 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 ¼".
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.

DESIGN STRESSES

f'_c = 5,000 p.s.i.
f'_{ci} = 4,000 p.s.i.
f'_s = 270.000 p.s.i. (½" ϕ Strand)
f_{si} = 201.960 p.s.i. (½" ϕ Strand)
f_y = 60,000 p.s.i.

MIN. BAR LAP

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

Illinois Department of Transportation

PASSED APRIL 4, 2005
Thomas P. Domagalski
Engineer of Bridge Design
APPROVED APRIL 4, 2005
Ralph E. Anderson
Engineer of Bridges and Structures

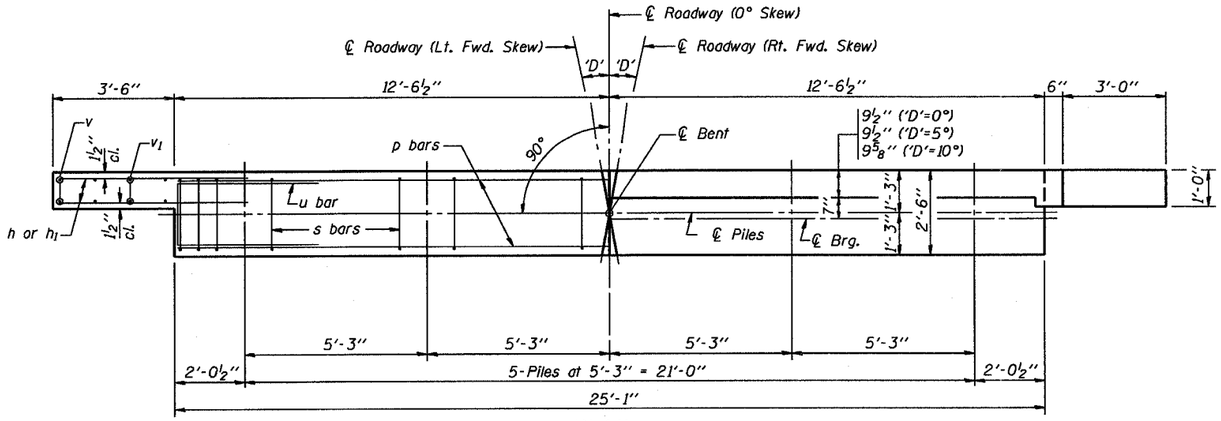
ISSUED 4-4-2005

NOTE:
The std. reinf. and dimensions shown on the 60' span cross section is typical for all spans, except as shown.

**NOTE:
The following number of C bars shall be used:

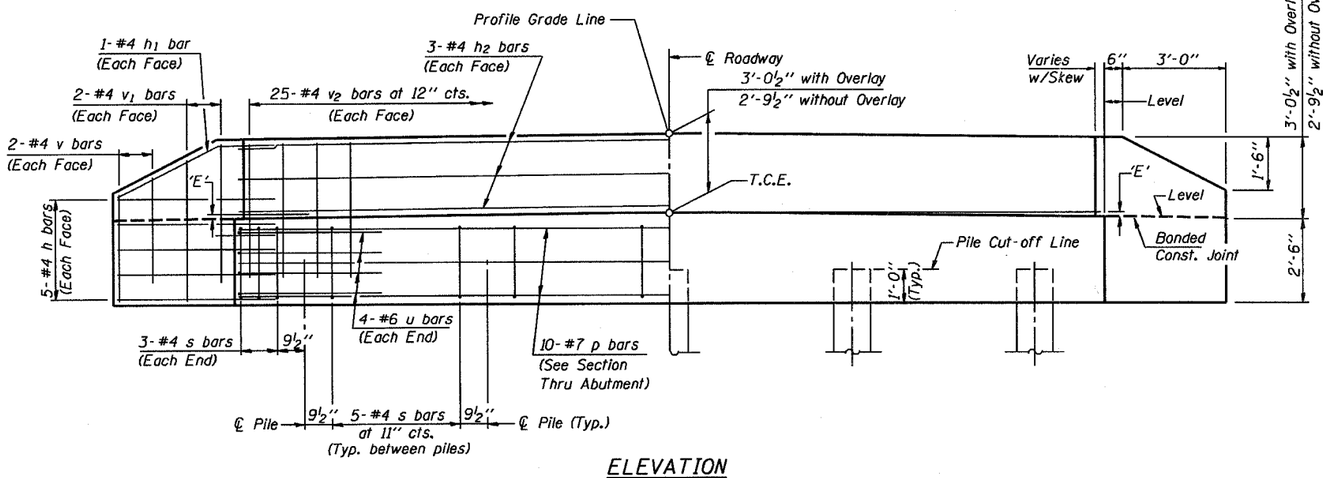
Skew	No.
5° and 10°	1
15° and 20°	2
25° and 30°	3

P.P.C. DECK BEAM DETAILS	
24' ROADWAY	33" x 36" BEAMS
STANDARD CB-2433-36	

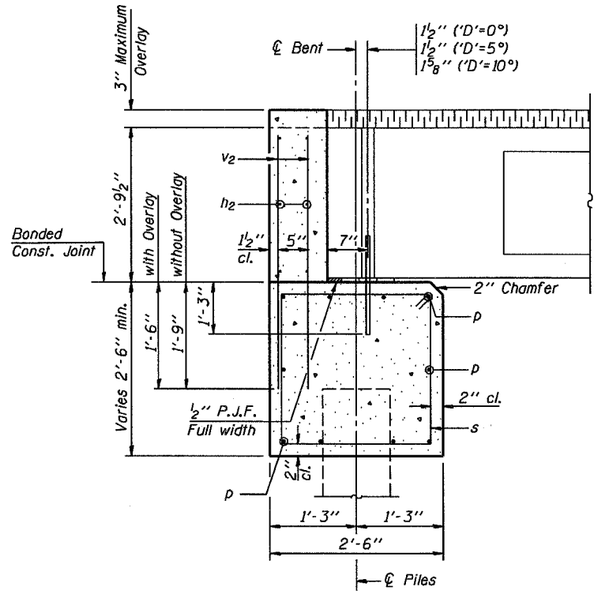


PLAN

('D'=Designated Skew Angle)



ELEVATION



SECTION THRU ABUTMENT

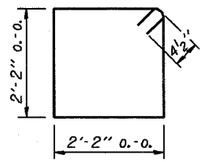
(At Right Angles)

DIMENSION 'E'

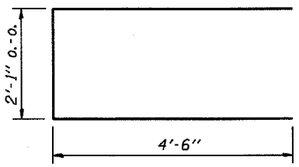
GRADE	'D'=0°		'D'=5°		'D'=10°	
	UPGRADE END	DOWNGRADE END	UPGRADE END	DOWNGRADE END	UPGRADE END	DOWNGRADE END
0%	2 3/8"	2 3/8"	2 3/8"	2 3/8"	2 3/8"	2 3/8"
Over 0% to 1%	2 3/8"	2 3/8"	2 1/4"	2 3/8"	2 1/8"	2 1/2"
Over 1% to 2%	2 3/8"	2 3/8"	2 1/8"	2 1/2"	1 7/8"	2 3/4"
Over 2% to 3%	2 3/8"	2 3/8"	2"	2 5/8"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

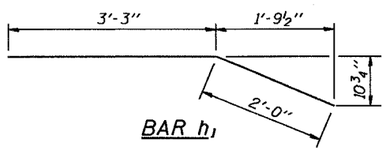
1. The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.
2. Reinforcement bars shall conform to the requirements of A.A.S.H.T.O. M-31 or M-322, Grade 60.
3. Space reinforcement in cap to miss anchor bolts.



BAR s



BAR u



BAR h1

BILL OF MATERIAL FOR ONE ABUTMENT

Bar	No.	Size	Length	Shape
h	20	#4	5'-0"	
h1	4	#4	5'-3"	
h2	6	#4	24'-9"	
p	10	#7	24'-9"	
s	26	#4	9'-5"	
u	8	#6	11'-1"	
v	8	#4	3'-8"	
v1	8	#4	4'-8"	
v2	50	#4	4'-5"	
Concrete Structures			9.6 Cu. Yds.	
Reinforcement Bars			1170 Lb.	

MAXIMUM PILE LOADS

SPAN	TONS
60'	36
70'	40
75'	41

DESIGN STRESSES

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

Illinois Department of Transportation

PASSED APRIL 4, 2005
Thomas J. Domagalski
Engineer of Bridge Design
APPROVED APRIL 4, 2005
Ralph E. Anderson
Engineer of Bridges and Structures

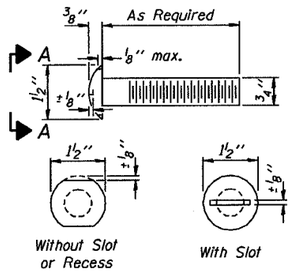
ISSUED 4-4-2005

P.P.C. DECK BEAMS PILE BENT ABUTMENT

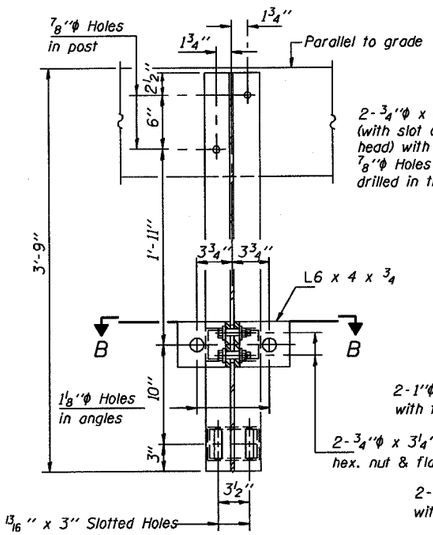
24' RDWY. | 33" BMS. | 'D'=0°, 5° OR 10°

STANDARD CA-2433-10

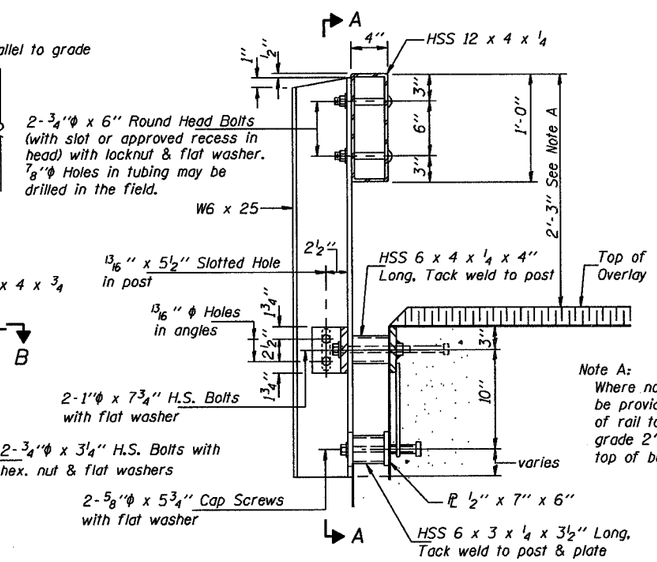
CONTRACT #99288



VIEW A-A
ROUND HEAD BOLT

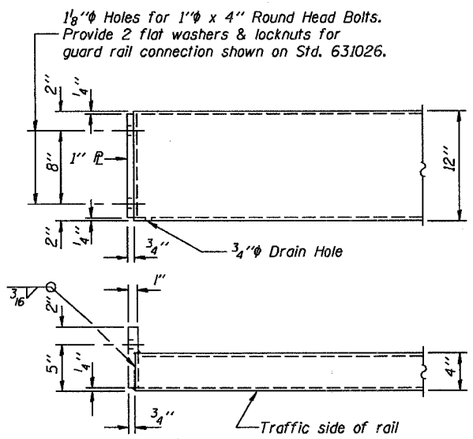


SECTION A-A



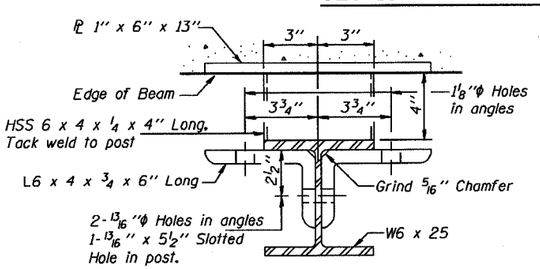
SECTION AT RAIL POST

Note A:
Where no overlay is to be provided, adjust top of rail to lay parallel to grade 2'-5" max. above top of beam.

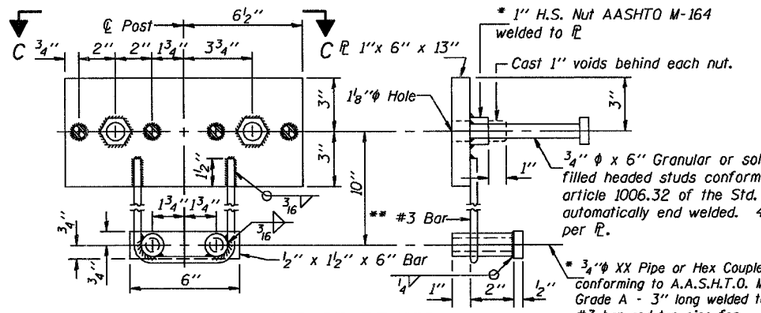


END OF RAIL DETAILS

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



SECTION B-B



ANCHOR DEVICE

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.

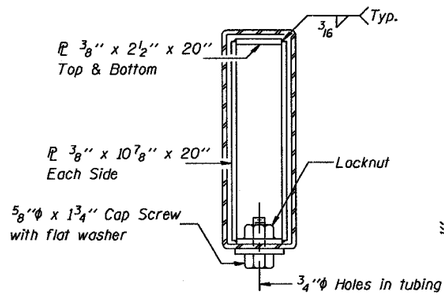
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with STEEL RAILING, TYPE S-1.

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.

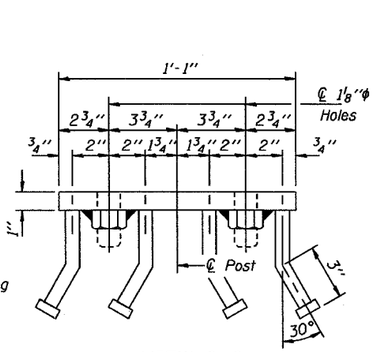
The 3/4"ϕ high strength bolts used to connect the 6 x 4 x 3/4 angles to the post shall be tightened according to Article 505.04 (f)(2) of the Standard Specifications. The 1"ϕ high strength bolts connecting the angles to the concrete shall be tightened to a snug fit and given an additional 1/8 turn. The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

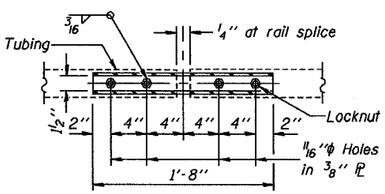


SECTION AT RAIL SPLICE

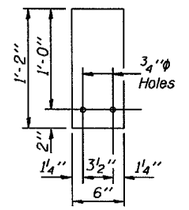
* Threaded areas shall be plugged or blocked off during casting of beam.



VIEW C-C



PLAN-BOTT. SPLICE PL
TYPICAL



1/4" SHIM PLATE

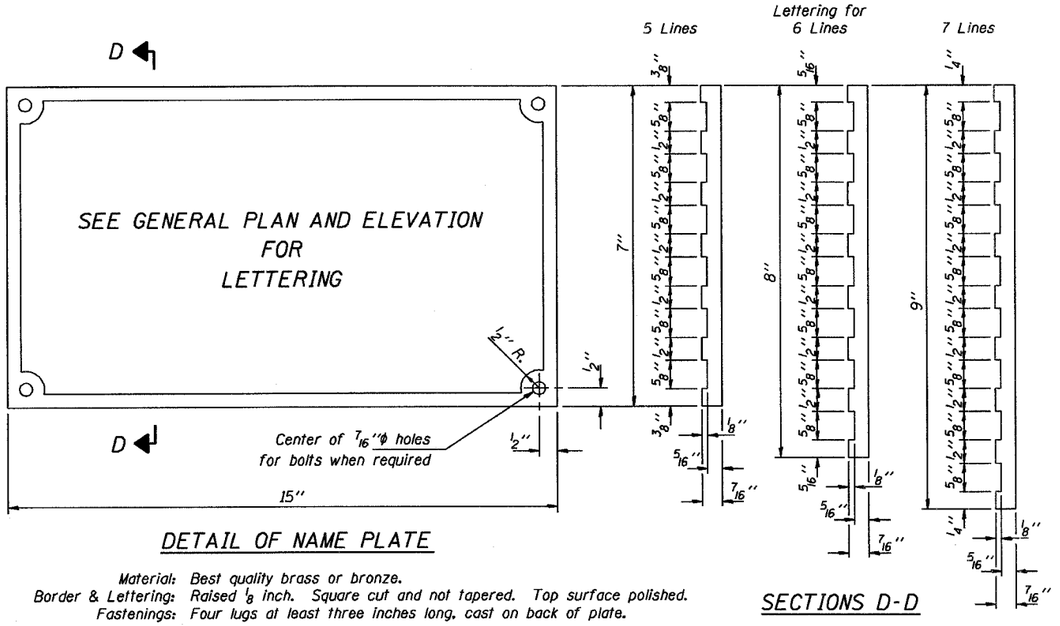
Illinois Department of Transportation

PASSED APRIL 4, 2005
Thomas J. Domagalski
Engineer of Bridge Design
APPROVED APRIL 4, 2005
Ralph E. Anderson
Engineer of Bridges and Structures

ISSUED 03/05
1981-1-1

STEEL RAILING, TYPE S-1

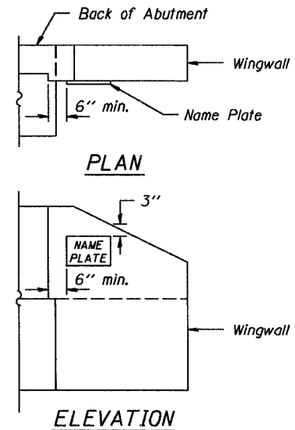
STANDARD CR-TS1



DETAIL OF NAME PLATE

SECTIONS D-D

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



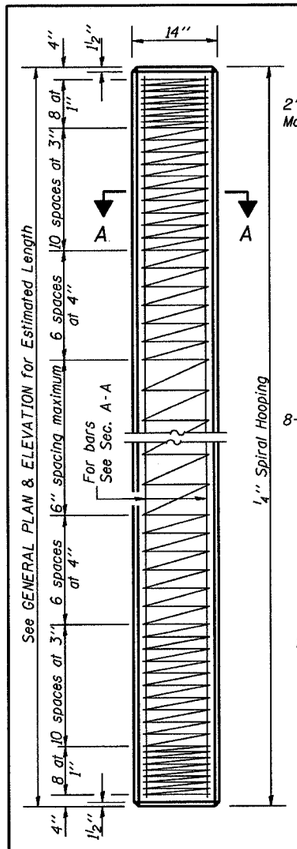
LOCATION OF NAME PLATE

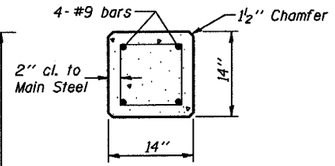
Illinois Department of Transportation

PASSED APRIL 4, 2005
Thomas J. Domagalski
Engineer of Bridge Design
APPROVED APRIL 4, 2005
Ralph E. Anderson
Engineer of Bridges and Structures

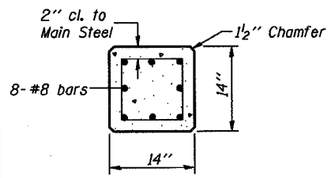
ISSUED 7-1-1995

NAME PLATE
STANDARD CN





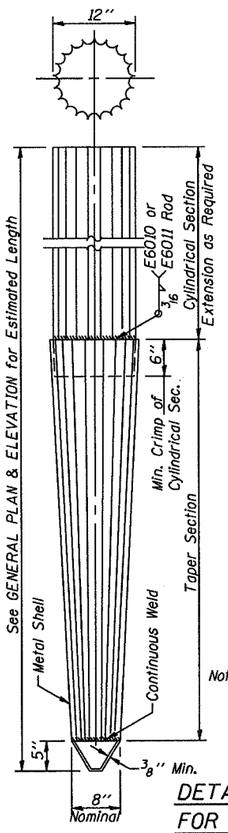
SECTION A-A
FOR PILES UNDER
45' LONG

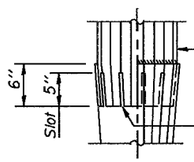


SECTION A-A
FOR PILES 45'
OR MORE

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.

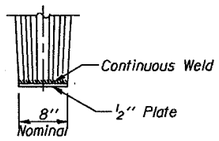
DETAIL OF PRECAST
CONCRETE PILES





FIELD CRIMP DETAIL

Note: 6" Crimp shall either be supplied on the cylindrical section or made in the field as detailed.



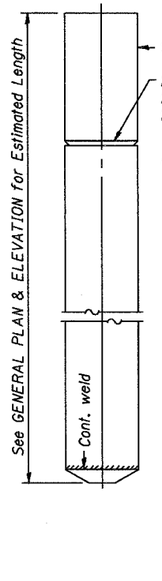
OPTIONAL FLAT END

ALLOWABLE TAPER SECTIONS

10' Length-Taper 1" in 2'-6"
17' Length-Taper 1" in 4'-0"
25' Length-Taper 1" in 7'-0"
30' Length-Taper 1" in 7'-0"

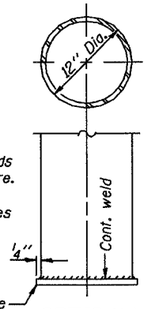
Note: The thickness of the shell shall be 0.1495 inches with a tolerance of 5%. The shell shall be according to Article 1006.05 (a) of the Standard Specification except that minimum yield strength for the steel after cold working shall be 50,000 p.s.i.

DETAIL OF TAPERED METAL SHELLS
FOR CAST IN PLACE CONCRETE PILES



For field splice bevel edge and butt weld.

Note: Driving and bearing ends of pipe shall be cut square. The thickness of the shell shall be 0.1793 inches with a tolerance of 5%.

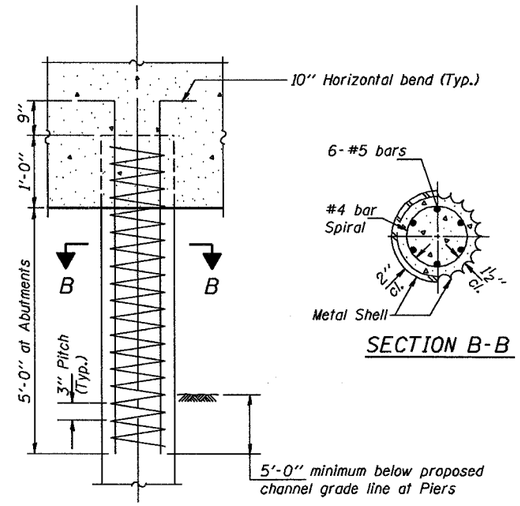


OPTIONAL
FLAT END

DETAIL OF CYLINDRICAL
STEEL SHELL FOR CAST IN
PLACE CONCRETE PILES

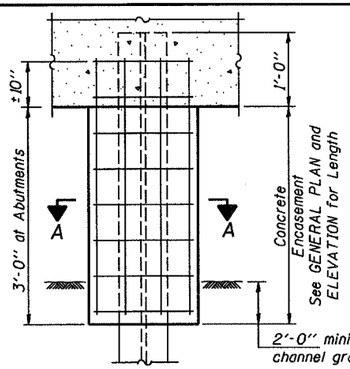
Reinforcement cage shall be omitted when Concrete Encasement is provided.

The cost of Reinforcement is included with the Cost of Furnishing Piles.



SECTION B-B

DETAIL OF REINFORCEMENT
FOR METAL SHELLS

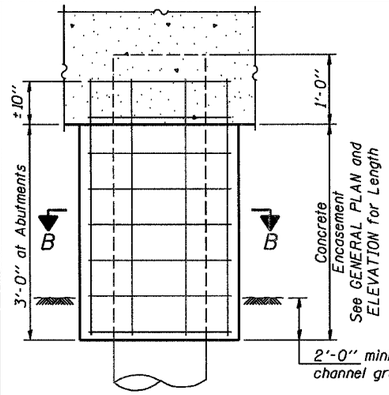


Welded wire fabric 6 x 6-W4.0 x W4.0 weighing 58#/100 sq. ft. The cost of Reinforcement is included with the cost of Concrete Encasement. Forms for Encasement may be omitted when soil conditions will permit.

SECTION A-A

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

DETAIL OF HP
PILE ENCASEMENT



Welded wire fabric 6 x 6-W4.0 x W4.0 weighing 58#/100 sq. ft. The cost of Reinforcement is included with the cost of Concrete Encasement. Forms for Encasement may be omitted when soil conditions will permit.

SECTION B-B

DETAIL OF METAL SHELL
PILE ENCASEMENT

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 J. Domagalski
Engineer of Bridge Design
APPROVED FEBRUARY 1, 2000
Ralph E. Anderson
Engineer of Bridges and Structures

ISSUED 1-1998

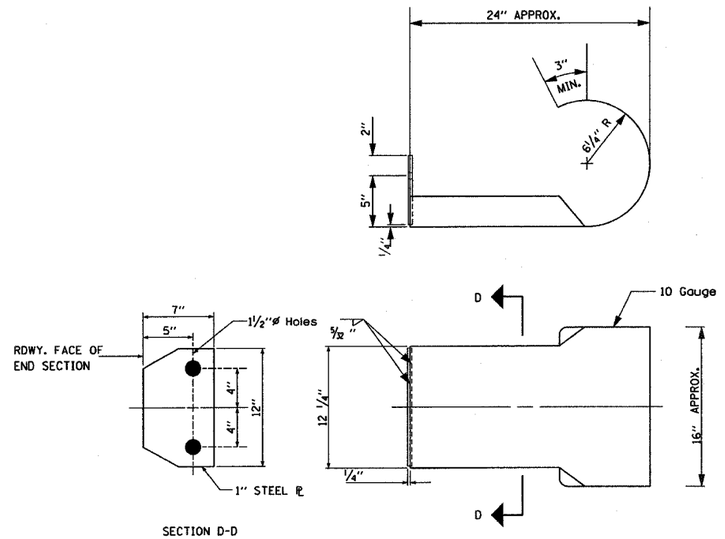
PILE DETAILS

STANDARD CX-1

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
239A	04-08125-00-BR	HAMILTON	12	12
FED. ROAD DIST. NO. 9		ILLINOIS	LAKEY CREEK	

LEC JOB #H061L018HM

CURLED END SECTION DETAIL



SECTION D-D

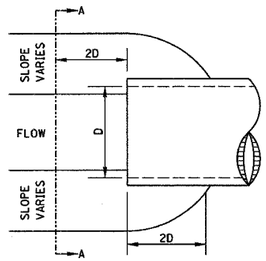
ALL OTHER STEEL SHAPES AND PLATES SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION M-183 EXCEPT POSTS AND ANGLES SHALL CONFORM TO A.A.S.H.T.O. M-223, GRADE 50.

BOLTS, CAP SCREWS, AND NUTS SHALL CONFORM TO THE REQUIREMENT OF A.S.T.M. DESIGNATION A-307 EXCEPT FOR HIGH STRENGTH BOLTS, NUTS, AND WASHERS NOTED WHICH SHALL CONFORM TO A.A.S.H.T.O. DESIGNATION M-164.

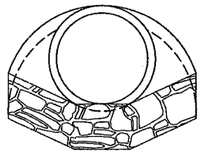
ALL BOLTS, NUTS, CAP SCREWS, WASHERS, AND LOCK WASHERS SHALL BE GALVINIZED IN ACCORDANCE WITH A.A.S.H.T.O. DESIGNATION M-232.

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

STONE RIPRAP DITCH DESIGN

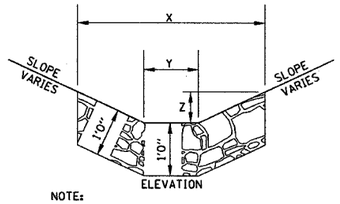


Plan



Section A-A

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



ELEVATION

NOTE:

BOTTOM OF DITCH		SLOPE			
		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
		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
		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