6-17-05 Letting, Item 076

INDEX OF SHEETS

STANDARDS: (SEE PROPOSAL)
280001-02 – EROSION CONTROL
702001-05 – TRAFFIC
BLR 21-6 – TRAFFIC
BLR 22-4 – TRAFFIC

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PLANS FOR PROPOSED FEDERAL–AID B.R.R. PROGRAM

WAYNE COUNTY
SECTION 97–09110–00–BR
GROVER ROAD DISTRICT
STRUCTURE NO. 096–3432
PROJECT NO. BROS - 191(45)
JOB NO. C–97–024 - 04
TR 456

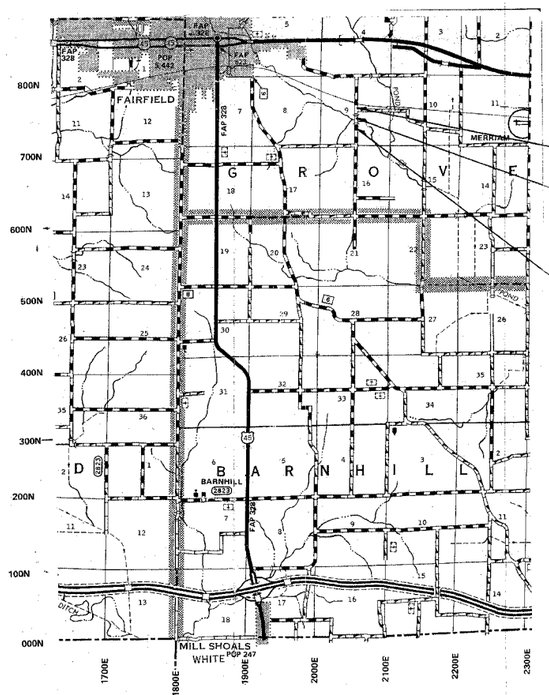
SCALES

PLAN	1 INCH = 50 FEET
PROFILE HORZ.	1 INCH = 50 FEET
PROFILE VERT.	1 INCH = 10 FEET
CROSS SECTION	1 INCH = 5 FEET

SUMMARY OF QUANTITIES

QTY	UNIT	ITEM	X080-2A CODE NO
809	CU YD	EARTH EXCAVATION	20200100
377	CU YD	CHANNEL EXCAVATION	20300100
536	CU YD	FURNISHED EXCAVATION	20400800
5	CU YD	TRENCH BACKFILL	20800150
0.9	ACRE	SEEDING, CLASS 2 (SPECIAL)	25001000
8	EACH	TEMPORARY DITCH CHECKS	28000300
80	FOOT	PERIMETER EROSION BARRIER	28000400
150	TON	STONE DUMPED RIPRAP, CLASS A4	28100807
78	TON	STONE RIPRAP DITCH	28102600
1134	TON	AGGREGATE BASE COURSE, TYPE B	35101400
42	TON	AGGREGATE SURFACE COURSE, TYPE B	40200800
1	EACH	REMOVAL OF EXISTING STRUCTURES	50100100
33.6	CU YD	CONCRETE STRUCTURES	50300225
2400	SQ FT	PRECAST PRESTRESSED CONCRETE DECK BEAMS (17" DEPTH)	50400305
3860	POUND	REINFORCEMENT BARS	50800105
200	FOOT	STEEL RAILING, TYPE S1	50900205
826	FOOT	FURNISHING STEEL PILES HP10X42	51201400
826	FOOT	DRIVING STEEL PILES	51202700
2	EACH	TEST PILE STEEL HP 10X42	51203400
7.3	CU YD	CONCRETE ENCASEMENT	51204315
1	EACH	NAME PLATES	51500100
76	FOOT	PIPE CULVERTS, CLASS D, TYPE 1 15"	542D0220
36	FOOT	PIPE CULVERTS, CLASS D, TYPE 1 24"	542D0229
1	L SUM	TRAFFIC CONTROL AND PROTECTION	70101700

FUNCTIONAL CLASS: LOCAL ROAD
ADT = 75



LOCATION MAP

APPROXIMATE SCALE: 1 INCH = 1 MILE
NET LENGTH = 1450 L.F. = 0.275 MILES

SECTION 97–09110–00–BR
ENDS STA. 14+00

STA. 5+00 – STANDARD BRIDGE DESIGN
PROPOSED PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE WITH PILE BENT SPILL–THRU ABUTMENTS PILE BENT PIERS. STRUCT # 096-3432
3 SPANS @ 30', 40', 30'. 24' RDWY. SKEW = 25° L.F.
EXIST. STRUCT # 096-3179

SECTION 97–09110–00–BR
BEGINS STA. 0–50

THE ACCEPTANCE OF THIS PROJECT IS BASED ON A MINIMUM DESIGN CRITERIA FOR A FEDERAL–AID BRRP TYPE IMPROVEMENT ON THE COUNTY HIGHWAY SYSTEM.

Maureen D Kastl
DISTRICT ENGINEER OF LOCAL ROADS & STREETS

APPROVED March 10, 2004
Arthur J. Volbach
LOCAL AGENCY REPRESENTATIVE

PASSED 4/4, 2005
Maureen D Kastl
DISTRICT ENGINEER OF LOCAL ROADS & STREETS

APPROVED 4/4, 2005
Christ M Reed Jr.
DEPUTY DIRECTOR OF HIGHWAYS
REGION FOUR ENGINEER

TOLL FREE JOINT UTILITY LOCATING INFORMATION FOR EXCAVATORS (J.U.L.I.E.)
TELEPHONE NO. 1–800–892–0123

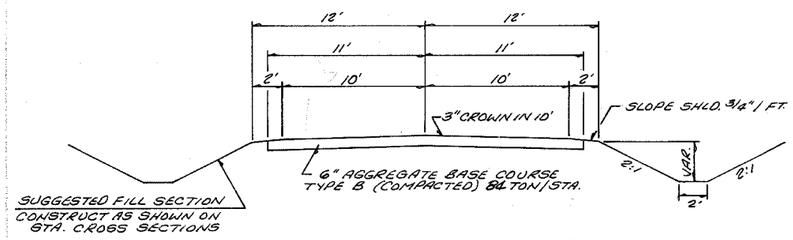
CONTRACT NO. 95388

PROFESSIONAL DESIGN FIRM #184–000832

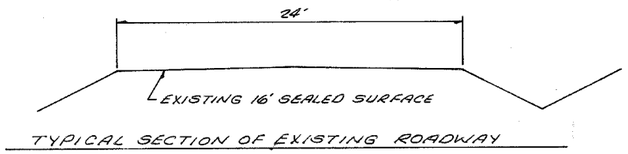
Michael Thompson 3-10-04
ILLINOIS REGISTERED PROFESSIONAL ENGINEER # 31350
LICENSE EXPIRES NOVEMBER 30, 2005

SECTION	97-09110-00-BR	TOTAL SHEETS	SHEET NO.
COUNTY	WAYNE	14	2
ROAD DIST.	GROVER		
STA. 0+00	TO STA. 10+00		

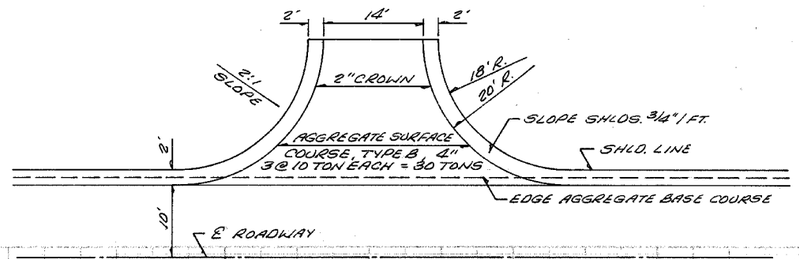
CONTRACT # 95388



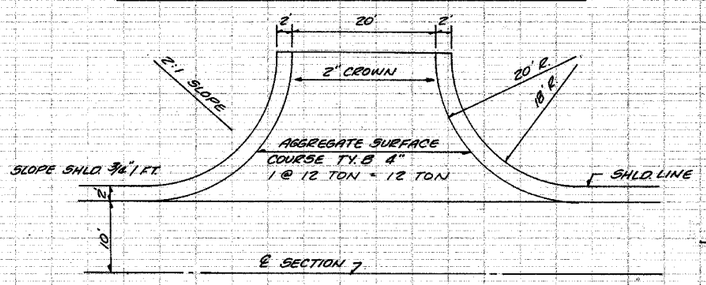
TYPICAL SECTION OF PROPOSED IMPROVEMENT



TYPICAL SECTION OF EXISTING ROADWAY



DETAIL OF FIELD ENTRANCES

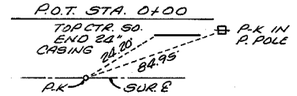


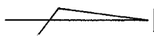
SIDEROAD DETAIL

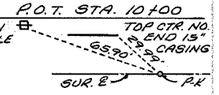
UTILITIES

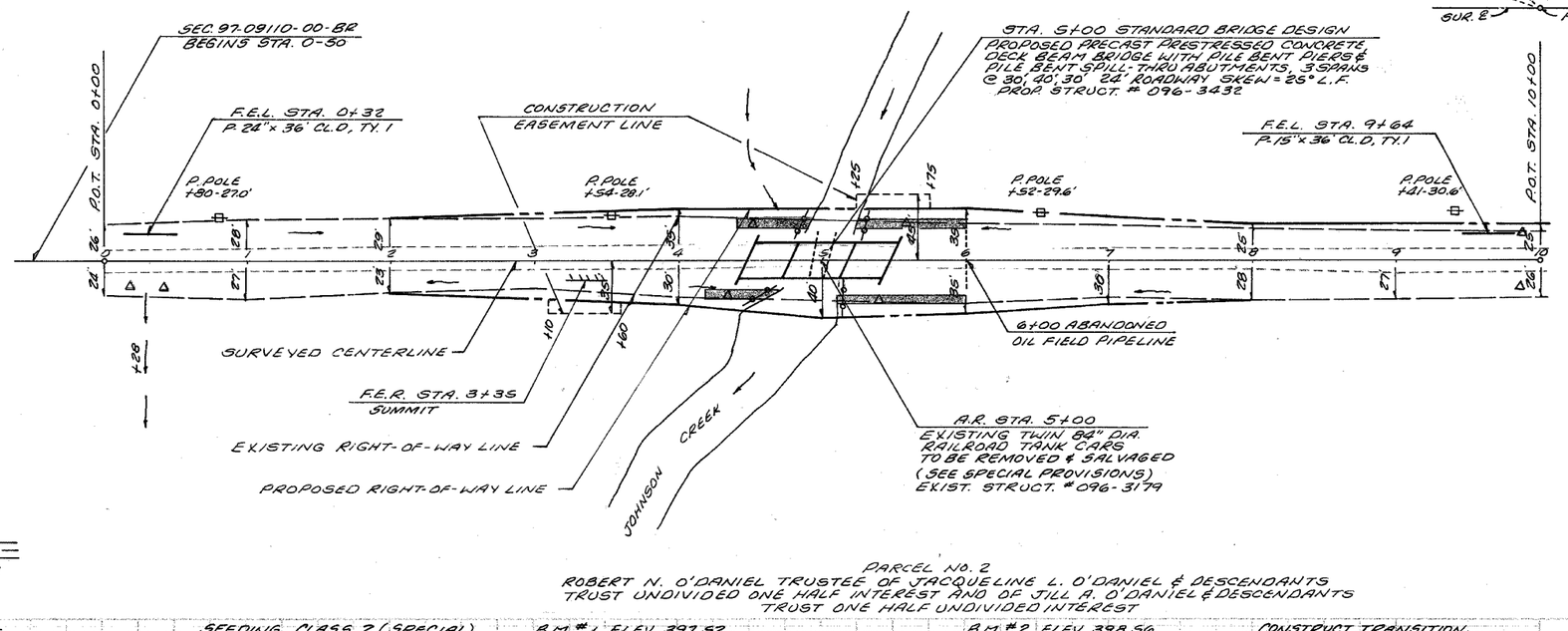
ELECTRIC: WAYNE-WHITE ELECTRIC
RT. 45
FAIRFIELD, IL 62837
PH. 618-842-2196

PARCEL NO. 1
ALLEN WILSON TRUSTEE OF ALLEN WILSON TRUST ONE HALF INTEREST
& JUNE WILSON TRUSTEE OF JUNE WILSON TRUST ONE HALF INTEREST









PARCEL NO. 2
ROBERT N. O'DANIEL TRUSTEE OF JACQUELINE L. O'DANIEL & DESCENDANTS TRUST UNDIVIDED ONE HALF INTEREST AND OF JILL A. O'DANIEL & DESCENDANTS TRUST ONE HALF UNDIVIDED INTEREST

SEEDING, CLASS 2 (SPECIAL)
STA. 0-50 TO STA. 14+00 = 0.9 ACRES

B.M. # 1 ELEV. 397.52
N & W IN POWER POLE
28' LT. STA. 3+54

B.M. # 2 ELEV. 398.56
N & W IN POWER POLE
30' LT. STA. 6+52

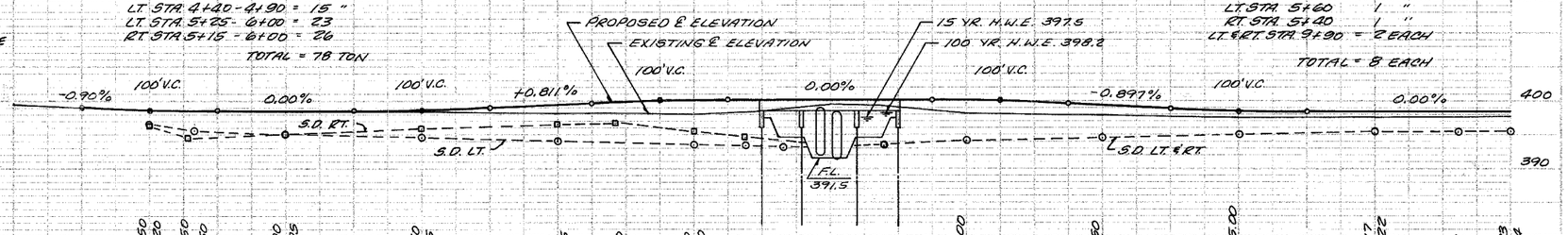
CONSTRUCT TRANSITION
FROM EXIST. ROWY. TO PROP. ROWY.
STA. 0-50 TO STA. 0+00
STA. 13+50 TO STA. 14+00
QUANTITIES INCLUDED IN THOSE LISTED

EARTHWORK SCHEDULE					
EARTH EXCAVATION	EARTH EXC. ADJ. 25%	CHANNEL EXCAVATION	CHANNEL EXC. ADJ. 25%	EMBANKMENT	FURNISHED EXCAVATION
809 CU. YD.	607 CU. YD.	377 CU. YD.	283 CU. YD.	1426 CU. YD.	536 CU. YD.

PERIMETER EROSION BARRIER
20 FEET @ EACH COR. OF BRIDGE
ON CHANNEL SLOPE = 80 FOOT

STONE RIPRAP DITCH
RT. STA. 4+20 - 4+65 = 14 TON
LT. STA. 4+40 - 4+90 = 15 "
LT. STA. 5+25 - 6+00 = 23
RT. STA. 5+15 - 6+00 = 26
TOTAL = 78 TON

△ TEMPORARY DITCH CHECKS
RT. STA. 0+20 = 1 EACH
RT. STA. 0+40 1 "
LT. STA. 4+50 1 "
RT. STA. 4+35 1 "
LT. STA. 5+60 1 "
RT. STA. 5+40 1 "
LT. & RT. STA. 9+90 = 2 EACH
TOTAL = 8 EACH

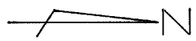


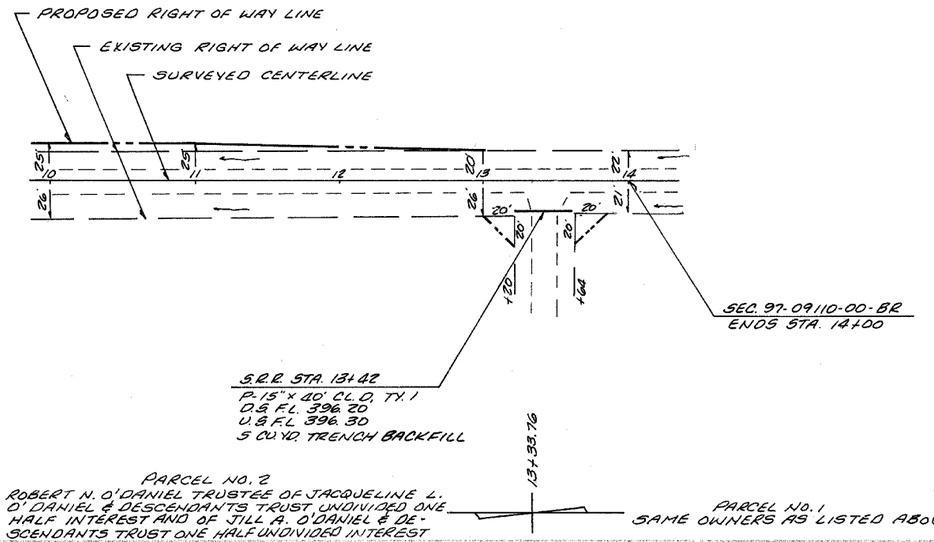
	P.C.	P.I.		P.T.	P.C.	P.I.		P.T.	P.C.	P.I.		P.T.	P.C.	P.I.		P.T.	P.C.	P.I.	P.T.	P.C.	P.I.	P.T.
	S.D. LT. 396.50 S.D. RT. 396.20		+28 S.D. RT. 394.50	+32 S.D. LT. 395.50	S.D. LT. 395.00 S.D. RT. 395.05				S.D. LT. 394.50 S.D. RT. 395.75				S.D. LT. 394.00 S.D. RT. 396.25				S.D. RT. 396.70		S.D. LT. 393.50 S.D. RT. 395.50		S.D. LT. 393.38 S.D. RT. 394.60		S.D. LT. 393.00		S.D. LT & RT. 393.50		S.D. LT & RT. 394.00		S.D. LT & RT. 394.50		S.D. LT & RT. 395.00		S.D. LT. 395.17 S.D. RT. 395.22		S.D. LT. 395.27	S.D. LT. 395.33 S.D. RT. 395.44
	(398.70)	(398.70)	(398.70)	(398.70)													(399.79)	(400.12)	(400.12)		(400.12)	(400.12)					(400.12)	(400.12)								
399.6	398.7	398.6	398.72	398.71	398.4	398.70	398.70	398.84	398.80	398.70	398.2	399.51	399.71	398.29	399.79	400.02	398.1	400.09	400.12	398.4	400.12	398.9	400.12	399.6	400.12	399.3	400.12	400.12	398.2	400.09	400.01	400.01	399.67	397.9	399.45	399.00	397.6	398.66	398.55	397.7	398.55	397.7	398.55	397.8	398.55
399.80	399.5																																											
0-100	0				1				2				3				4				5				6				7				8				9				10			
	+50		+28	+32	+50				+50				+50				+25	+35	+75		+25	+24	+66		+35		+75		+25		+75		+50				+50				+64			

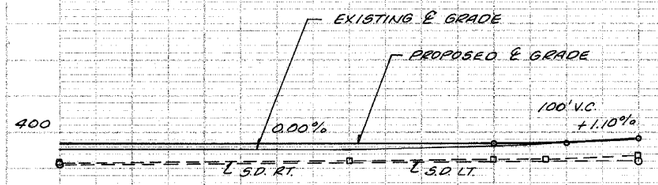
SECTION	97-09110-00-BR	TOTAL SHEETS	SHEET NO.
COUNTY	WAYNE	14	3
ROAD DIST.	GROVER		
STA. 10+00	TO STA. 14+00		

CONTRACT # 95388

PARCEL NO. 1
ALLEN WILSON TRUSTEE OF ALLEN WILSON TRUST ONE HALF INTEREST
& JUNE WILSON TRUSTEE OF JUNE WILSON TRUST ONE HALF INTEREST







	10	11	12	13	13+33.76	14
	S.D. LT. 395.38 S.D. RT. 395.44	S.D. LT. 395.50 S.D. RT. 395.66	S.D. LT. 395.67 S.D. RT. 395.88	S.D. LT. 395.83 P.C. S.D. RT. 396.10	S.D. RT. 396.25 (398.95)	P.T. EX. DT. LT. 396.0 EX. DT. RT. 396.7
	397.8 398.55	397.7 398.55	397.8 398.55	398.0 398.55	398.65 398.69 (398.55)	399.1 399.0

+42
-50

SECTION	97-09110-00-BR	TOTAL SHEETS	SHEET NO.
COUNTY	WAYNE	14	4
ROAD DIST.	GROVER		
STA. 0+00	TO STA. 8+00		

CONTRACT # 95388

400 3 + 35 F.E.R.
399.79
S.O. 396.70 SUMMIT

400 8
398.66
S.O. 395.00
S.O. 395.00
C = 8
F = 30

400 3
399.51
S.O. 394.00
S.O. 396.45
C = 24
F = 29

400 7
399.45
S.O. 394.50
S.O. 394.50
C = 20
F = 56

400 2
398.80
S.O. 394.50
S.O. 395.75
C = 34
F = 4

400 6
400.09
S.O. 394.00
S.O. 394.00
C = 39
F = 94

400 1
398.70
S.O. 395.00
S.O. 395.05
C = 39
F = 5

400 5 + 35
400.12
S.O. 393.50
S.O. 393.50
C = 32
F = 68

400 0 + 32 F.E.L.
398.71
S.O. 395.50

400 4 + 68 DITCH LT.
400.12
S.O. 393.00

400 0 + 28 DITCH RT.
398.72
S.O. 394.50

400 4 + 44
400.12
S.O. 393.38
S.O. 394.60
C = 22
F = 56

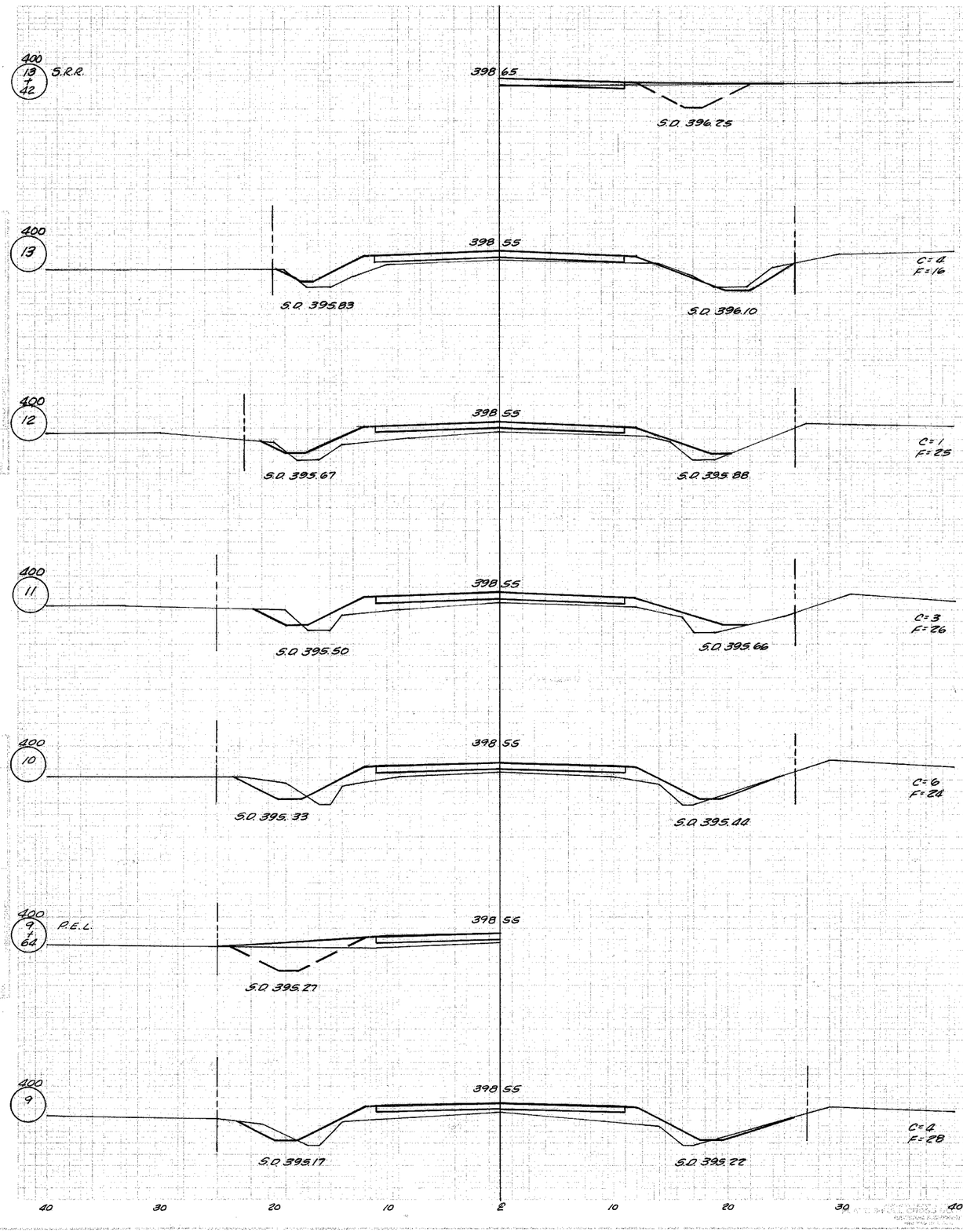
400 0
398.81
S.O. 396.50
S.O. 396.20
C = 16
F = 3

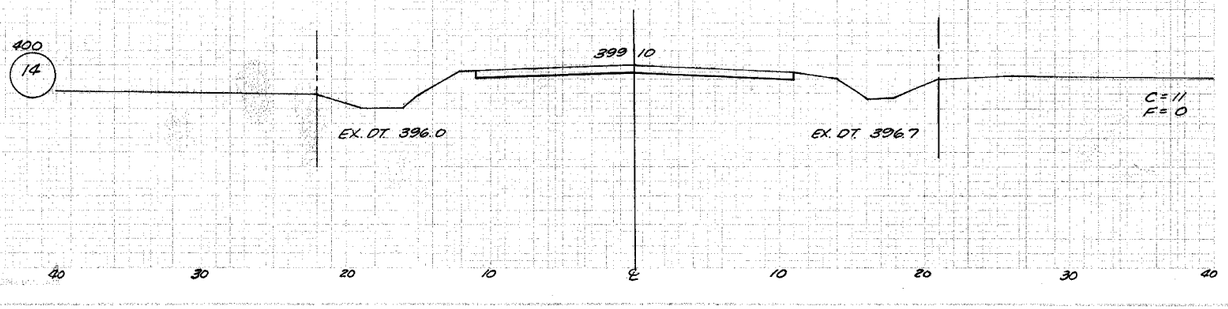
400 4
400.09
S.O. 393.50
S.O. 395.50
C = 27
F = 54

40 30 20 10 ℄ 10 20 30 40

SECTION	97-09110-00-BR	TOTAL SHEETS	SHEET NO.
COUNTY	WAYNE	12	5
ROAD DIST.	GROVER		
STA. 9+00	TO STA. 14+00		

CONTRACT # 95388





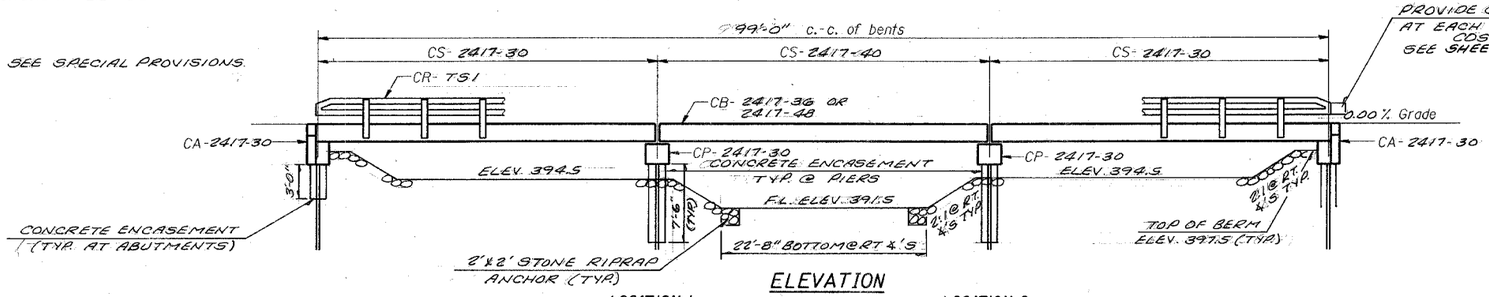
SECTION	97-09110-00-BR	TOTAL SHEETS	SHEET NO.
COUNTY	WAYNE	14	6
ROAD DIST.	GROVER		
STA.	TO STA.		

CONTRACT # 95386

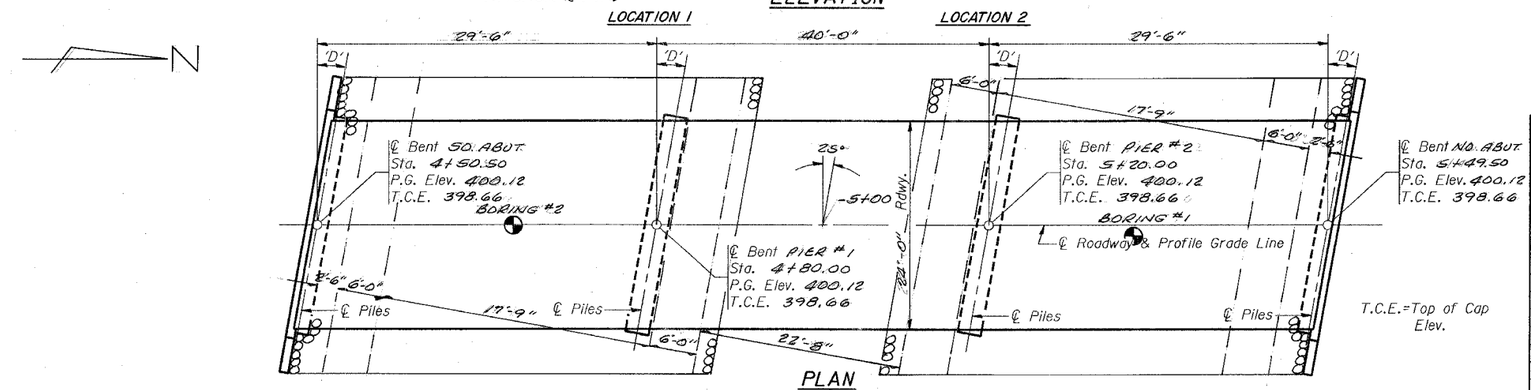
B.M.- SEE PLAN-PROFILE

Existing Structure- SEE PLAN-PROFILE

Salvage- SEE SPECIAL PROVISIONS.



ELEVATION



PLAN

Skew Angle 'D'= 25° Left Forward

T.C.E.=Top of Cap Elev.

STONE DUMPED RIPRAP CL A4 = 150 TONS 12" MIN. THICKNESS (SEE SPECIAL PROVISIONS)

GENERAL NOTES

1. The Contractor shall drive 2 test piles, 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 Calcium Nitrite Corrosion Inhibitor, as covered in the Special Provisions, shall be used in the concrete for precast prestressed concrete deck beams.~~

TOTAL BILL OF MATERIAL

Item	Unit	Super	Sub. Piers	Sub. Abuts.	Total
Removal of Existing Structures	Each				1
~~Bituminous Concrete Surface Course, Class 1~~	~~Ton~~				
~~Waterproofing Membrane System~~	~~Sq. Yd.~~				
Concrete Structures	Cu. Yd.		14.2	19.4	33.6
Precast Prestressed Concrete Deck Beams (17" Depth)	Sq. Ft.	2400			2400
~~Steel Bridge Rail, Type SM~~	~~Foot~~				
Steel Railing, Type S-1	Foot	200			200
Reinforcement Bars	Pound		1700	2160	3860
Furnishing Steel Piles HP10X42	Foot		413	413	826
Driving Steel Piles	Foot		413	413	826
Test Pile Steel HP10X42	Each		1	1	2
Name Plates	Each				1
~~Class S1~~ Concrete Encasement	Cu. Yd.		5.2	2.1	7.3
STONE DUMPED RIPRAP CL A2	TON				150

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, 1997) 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

I certify that to the best of my knowledge, information and belief, the special components designed for use with the standard bridge plans are structurally adequate for the design loading shown on the plans and comply with the requirements of the current "AASHTO Standard Specifications for Highway Bridges."

Fred J. Stone Jr. (10-30-03)

ILLINOIS STRUCTURAL NO. 2934

EXPIRES 11-30-04

LICENSED STRUCTURAL ENGINEER
FRED J. STONE, JR.
81-2934
SPRINGFIELD
STATE OF ILLINOIS

SEISMIC DATA

Seismic Performance Category (SPC) = B
Bedrock Acceleration Coefficient A = 0.093
Site Coefficient S = 1.0

PILE DATA (2-PIERS)

Type	Steel HP 10X42
Capacity	Drive to Refusal
Estimated Length	59 Feet
Number Required	8 (Includes 1 Test Pile located in Pier # 2)

PILE DATA (2-ABUTS.)

Type	Steel HP 10X42
Capacity	Drive to Refusal
Estimated Length	59 Feet
Number Required	8 (Includes 1 Test Pile located in So. Abut.)

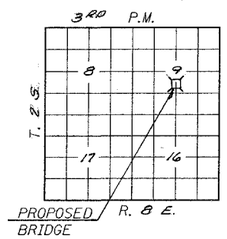
DESIGN SPECIFICATIONS

1996 AASHTO.
HS20-44 Loading. Load Factor Design.

STATION 51+00
JOHNSON CREEK
SEC. 97-09110-00-BR BUILT 2000
GROVER ROAD DIST.
WAYNE COUNTY
LOADING HS20
STR. NO. 096-3432

LETTERING FOR NAME PLATE

Locate Name Plate at SOUTHEAST Corner of Bridge (See Std. CN)



LOCATION SKETCH

WATERWAY INFORMATION

Drainage Area = 7.52 SQ. MI. Low Grade Elev. = 398.55 @ Sta. 8+50

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Nat. H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
Design	15	1691	32.30 Abut 0	35.30 Abut 0	397.5	1.3	0.9	398.8	398.4
Base	100	2731	32.30 Abut 0	35.30 Abut 0	398.2	1.0	0.8	399.2	399.0
Overtopping									
Max. Calc.	500								

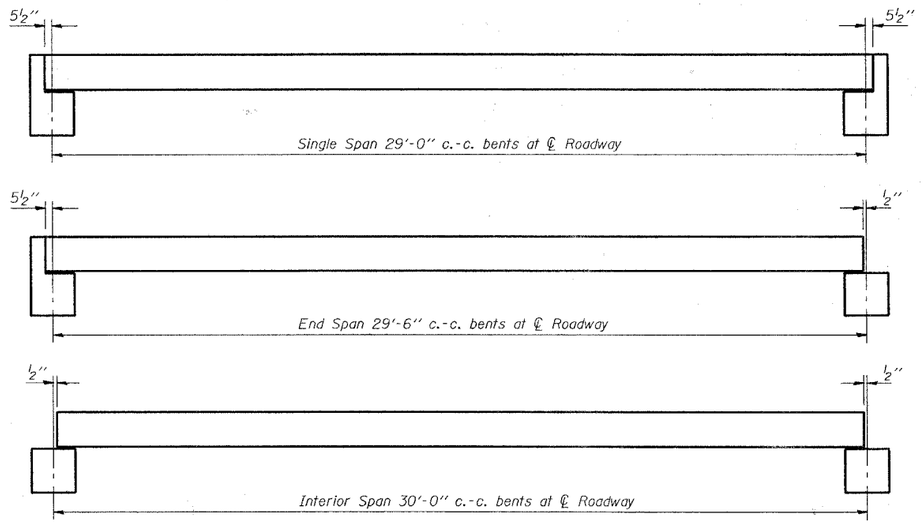
INDEX OF SHEETS

GENERAL PLAN & ELEVATION
T.R. ROUTE 456
OVER JOHNSON CREEK
SECTION 97-09110-00-BR
WAYNE COUNTY
STATION 51+00

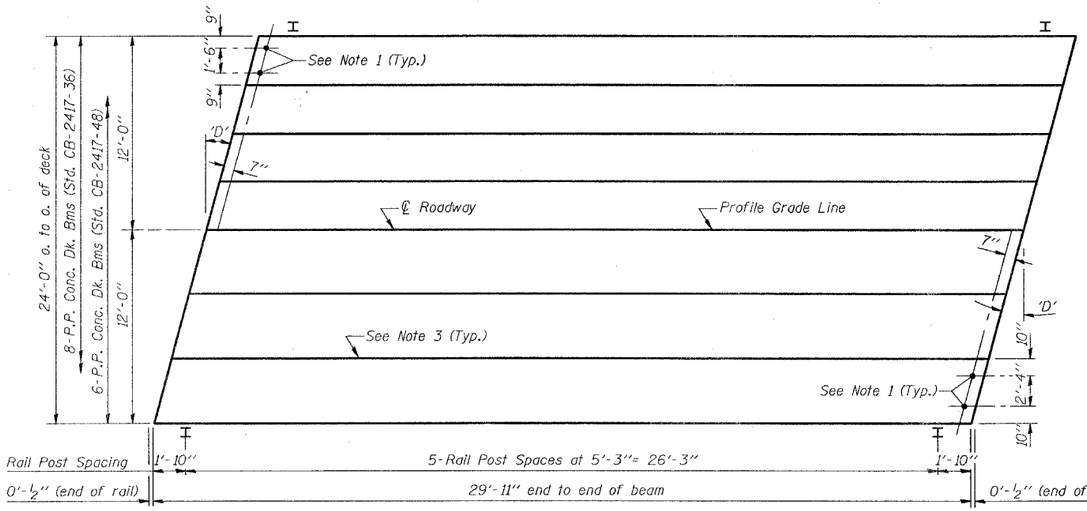
GP-3L (11-1-95)

SECTION	97-09110-00-BR	TOTAL SHEETS	SHEET NO.
COUNTY	WAYNE	14	7
ROAD DIST.	GROVER		
STA.	TO STA.		

CONTRACT # 95388

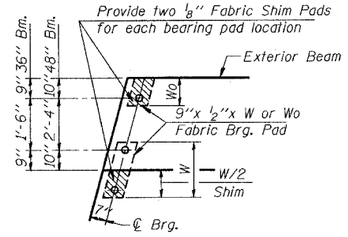


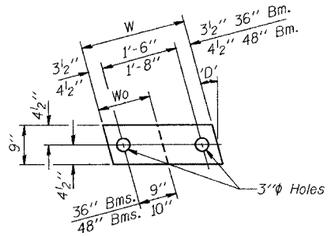
TYPICAL ELEVATIONS



PLAN

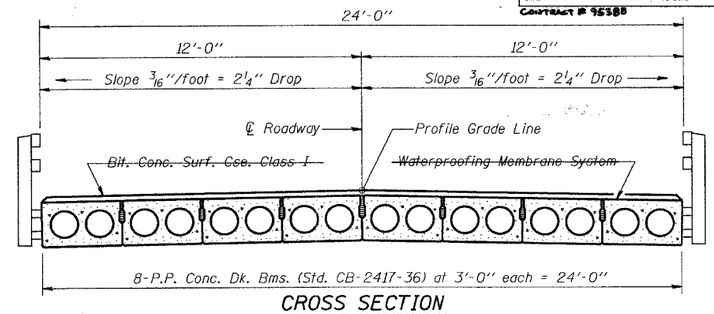
('D' = Designated Skew Angle)



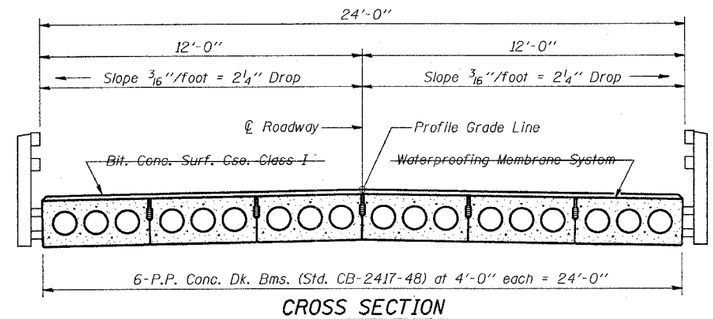


Beam	W	Wo
36"	2'-1"	1'-0½"
48"	2'-5"	1'-2½"

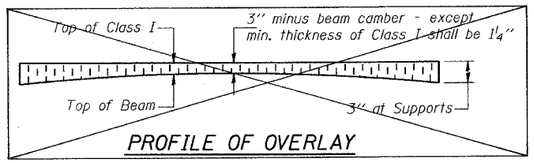
½" FABRIC BRG. PAD DETAILS



CROSS SECTION



CROSS SECTION



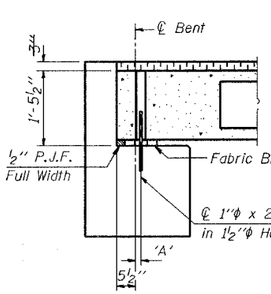
PROFILE OF OVERLAY

DIMENSIONS 'A' AND 'B'

'D'	5°	10°	15°	20°	25°	30°
A	1½"	1⅝"	1¾"	1⅞"	2⅛"	2⅜"
B	7½"	7⅝"	7¾"	8"	8¼"	8⅝"

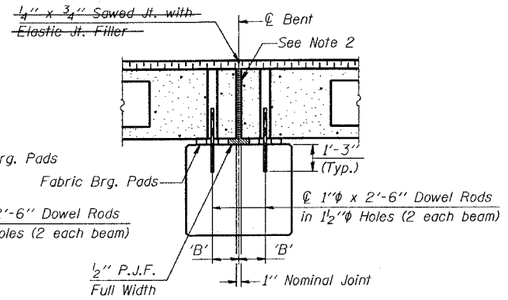
NOTES

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 WITH NON-SHRINK GROUT.



SECTION AT ABUTS.

(Along ℄ Beams)



SECTION AT PIERS

(Along ℄ Beams)

QUANTITIES FOR ONE SPAN

P.P. Conc. Dk. Bm. 17" Dp.	720 Sq. Ft.
Steel Railing	60 Ft.
~~Bit. Conc. Surf. Cse. Class I~~	~~12.0 Tons~~
~~Waterproofing Membrane System~~	~~80.0 Sq. Yds.~~

Illinois Department of Transportation

PASSED NOVEMBER 1, 1995
Engineer of Bridge Design

APPROVED NOVEMBER 1, 1995
Engineer of Bridges and Structures

ISSUED 11-1-95

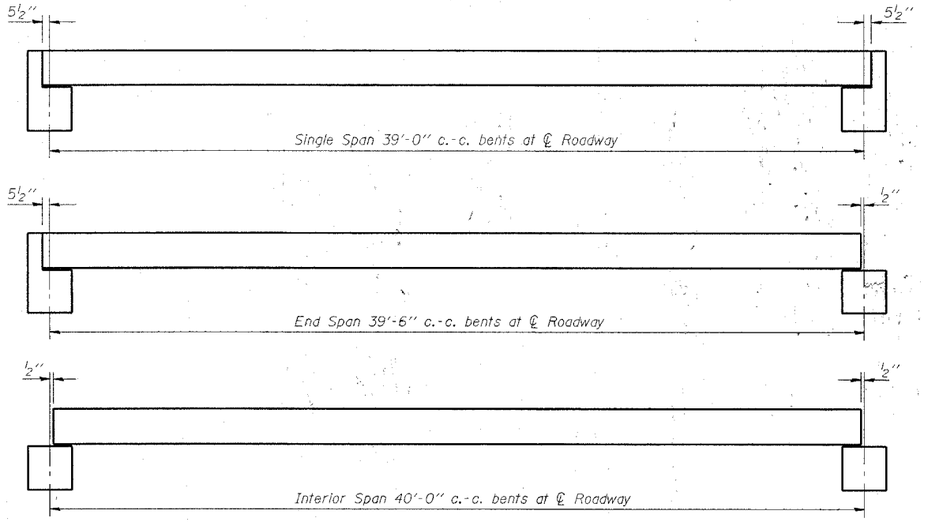
P.P.C. DECK BEAM SUPERSTRUCTURE

24' RDWY.	17" BMS.	30' SPAN	LEFT

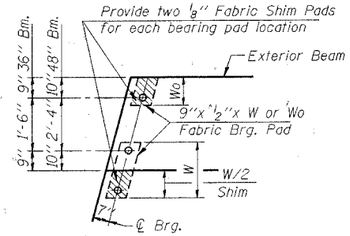
STANDARD CS-2417-30L

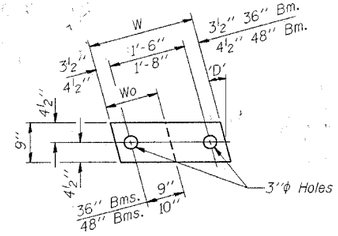
RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	97-09110-00-BR	WAYNE	14	8
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT NO.		

CONTRACT # 95388



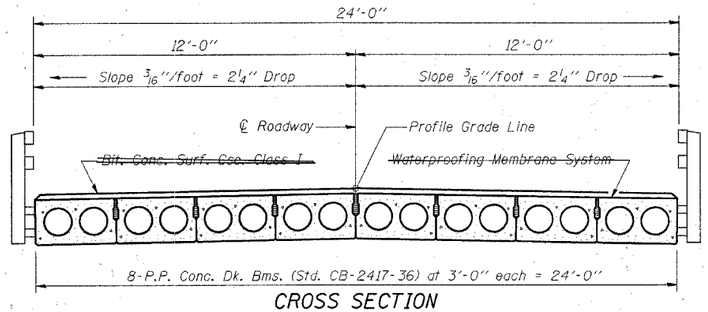
TYPICAL ELEVATIONS



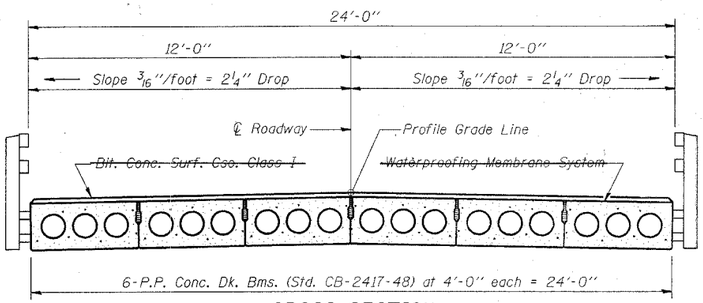


Beam	W	Wo
36"	2'-1"	1'-0½"
48"	2'-5"	1'-2½"

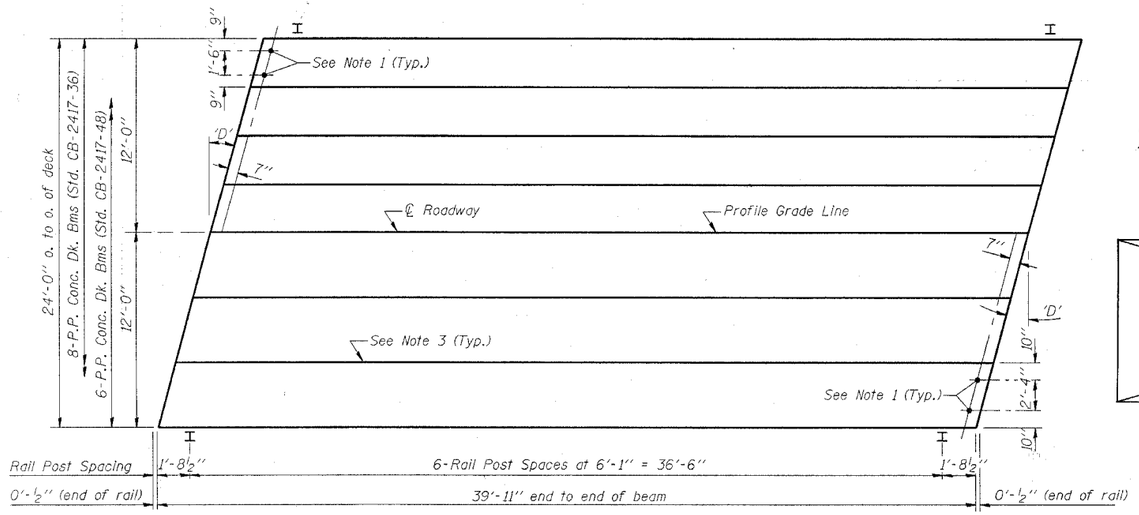
½" FABRIC BRG. PAD DETAILS



CROSS SECTION

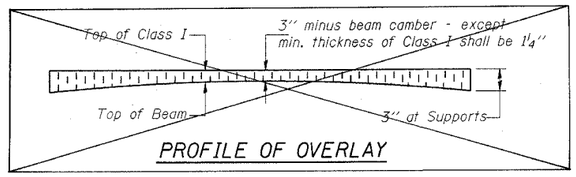


CROSS SECTION



PLAN

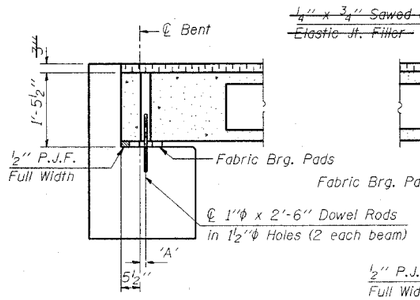
('D' = Designated Skew Angle)



PROFILE OF OVERLAY

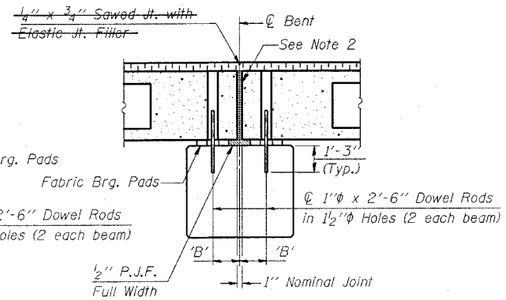
DIMENSIONS 'A' AND 'B'

'D'	5°	10°	15°	20°	25°	30°
A	1½"	1⅝"	1¾"	1⅞"	2¼"	2⅝"
B	7½"	7⅝"	7¾"	8"	8¼"	8⅝"



SECTION AT ABUTS.

(Along ℄ Beams)



SECTION AT PIERS

(Along ℄ Beams)

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 **with non-shrink grout.**

QUANTITIES FOR ONE SPAN

P.P. Conc. Dk. Bm. 17" Dp.	960 Sq. Ft.
Steel Railing	80 Ft.
~~Bit. Conc. Surf. Cse. Class I~~	~~13.0 Tons~~
~~Waterproofing Membrane System~~	~~106.7 Sq. Yds.~~

Illinois Department of Transportation

PASSED NOVEMBER 1, 1995
Engineer of Bridge Design

APPROVED NOVEMBER 1, 1995
Engineer of Bridges and Structures

ISSUED 1-1-81

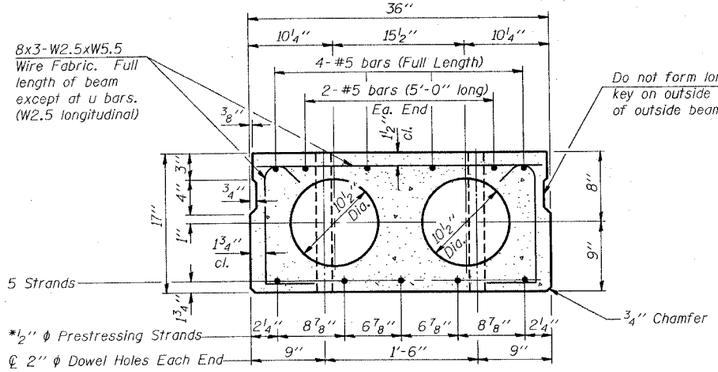
P.P.C. DECK BEAM SUPERSTRUCTURE

24' RDWY.	17" BMS.	40' SPAN	LEFT

STANDARD CS-2417-40L

SECTION	97-09110-00-BR	TOTAL SHEETS	SHEET NO.
COUNTY	WAYNE	12	9
ROAD DIST.	GROVER		
	TO STA.		

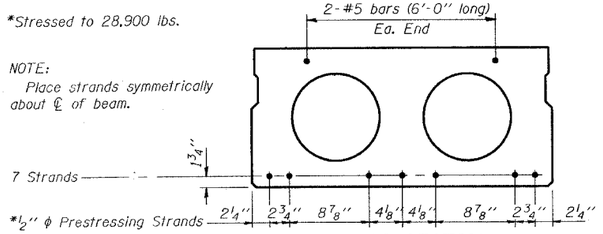
CONTRACT # 95388



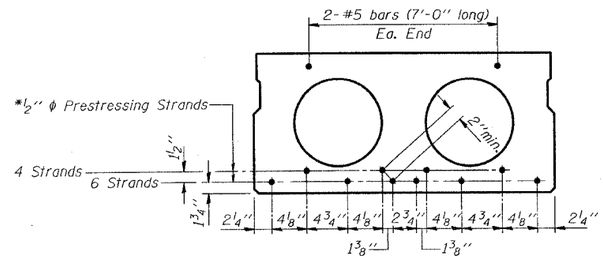
CROSS SECTION
(25' SPAN)

*Stressed to 28.900 lbs.

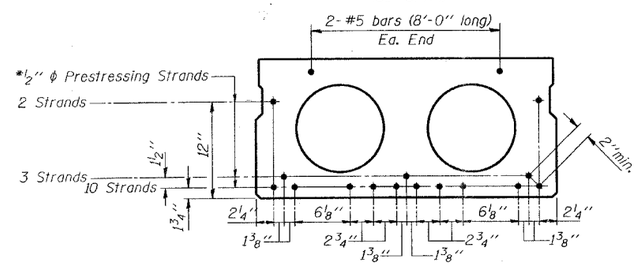
NOTE:
Place strands symmetrically about ℄ of beam.



CROSS SECTION
(30' SPAN)

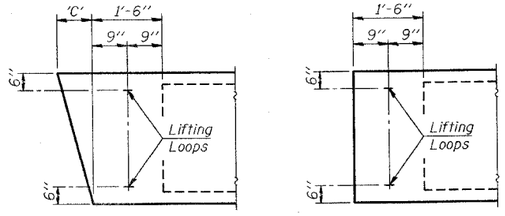


CROSS SECTION
(35' SPAN)



CROSS SECTION
(40' SPAN)

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

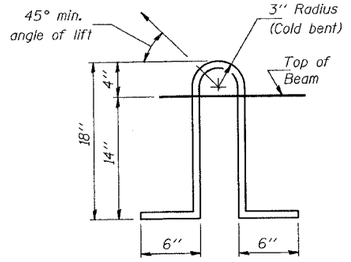


END BLOCK DETAILS

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.

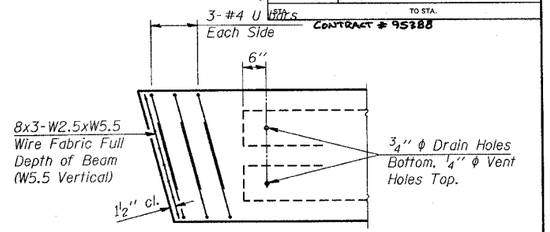
DIMENSION 'C'

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

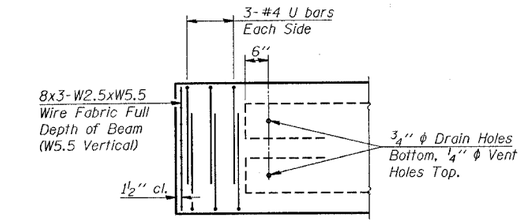


LIFTING LOOP DETAIL

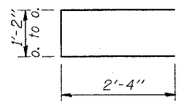
Lifting loops shall be 2. ½"ϕ-270 ksi strands. as shown. Alternate approved lifting devices are also acceptable.



END REINFORCEMENT
(SKEWED)



END REINFORCEMENT
(RIGHT ANGLE)



BAR U

NOTES

1. Prestressing steel shall be uncoated high strength, stress relieved 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 AASHTO M-31, M-42 or M-53, Grade 60.
4. Rail Post anchor devices shall be cast into outside beam as elsewhere specified.
5. When Waterproofing Membrane System is specified, the top surface of the beams shall be finished in accordance with Article 504.06 of the Standard Specifications except that the surface shall not be roughened by brooming. 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".
6. Low relaxation strands may be substituted for the stress relieved strands. The initial prestressing force applied to each strand shall be the same as for the stress relieved strands (28,900 lbs.).
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} = (See Required Release Strength Table)
f'_s = 270,000 p.s.i. (½" ϕ Strand)
f_{si} = 189,000 p.s.i. (½" ϕ Strand)
f_y = 60,000 p.s.i.

REQUIRED RELEASE STRENGTH

Span	f'_{ci} (psi)
25'	4,000
30'	4,000
35'	4,000
40'	4,000

Illinois Department of Transportation

PASSED NOVEMBER 1, 1995
Engineer of Bridge Design
APPROVED NOVEMBER 1, 1995
Engineer of Bridges and Structures

ISSUED 1-1-96

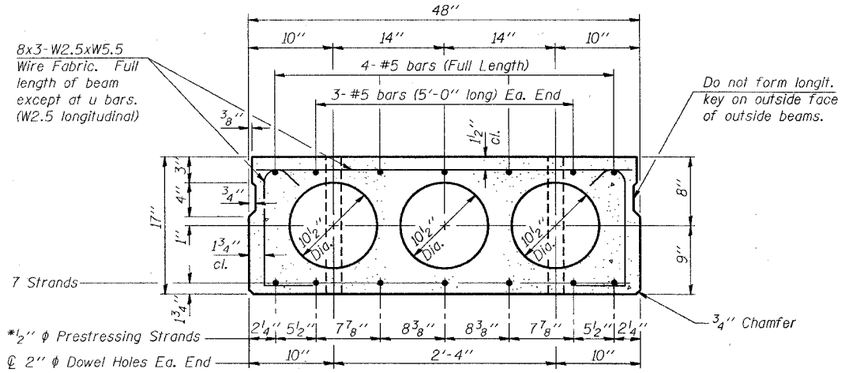
P.P.C. DECK BEAM DETAILS

24' ROADWAY | 17" x 36" BEAMS

STANDARD CB-2417-36

SECTION	97-09110-00-BR	TOTAL SHEETS	SHEET NO.
COUNTY	WAYNE	14	10
ROAD DIST.	GROVER		
	TO STA.		

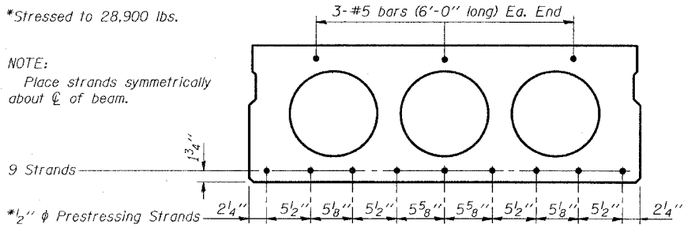
CONTRACT # 95388



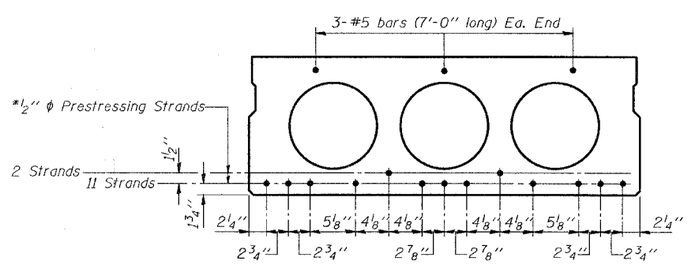
CROSS SECTION
(25' SPAN)

*Stressed to 28,900 lbs.

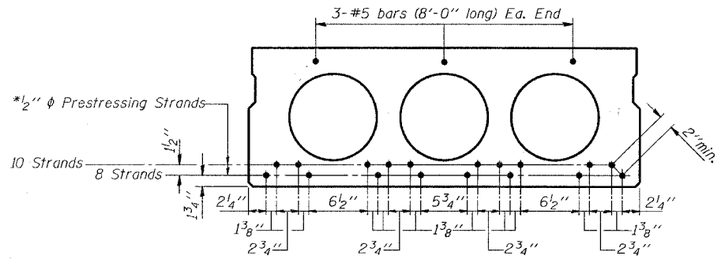
NOTE:
Place strands symmetrically about ℄ of beam.



CROSS SECTION
(30' SPAN)

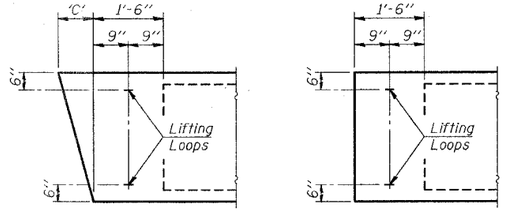


CROSS SECTION
(35' SPAN)



CROSS SECTION
(40' SPAN)

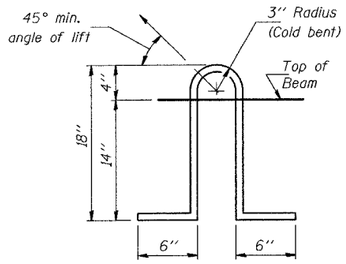
NOTE
The std. reinf. shown on the 25' span cross section is typical for all spans, except as shown.



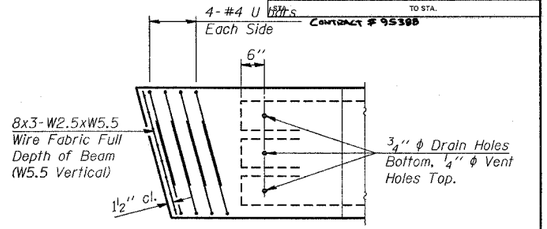
END BLOCK DETAILS
Each beam shall have four Lifting Loops, two at each end of beam cast in locations shown above. Loops shall be burned off after beams have been erected.

DIMENSION 'C'

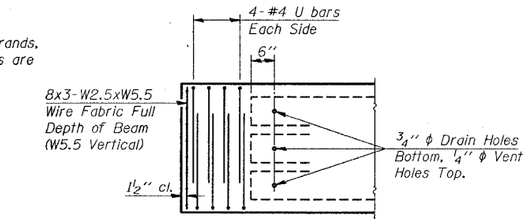
Skew Angle 'D'	0°	5°	10°	15°	20°	25°	30°
Dimension 'C' (Inches)	0	4 1/4	8 1/2	12 7/8	17 1/2	22 3/8	27 3/4



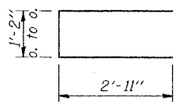
LIFTING LOOP DETAIL
Lifting loops shall be 2, 1/2"ϕ-270 ksi strands, as shown. Alternate approved lifting devices are also acceptable.



END REINFORCEMENT
(SKEWED)



END REINFORCEMENT
(RIGHT ANGLE)



BAR U

NOTES
1. Prestressing steel shall be uncoated high strength, stress relieved 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 AASHTO M-31, M-42 or M-53, Grade 60.
4. Rail Post anchor devices shall be cast into outside beam as elsewhere specified.
5. When Waterproofing Membrane System is specified, the top surface of the beams shall be finished in accordance with Article 504.06 of the Standard Specifications except that the surface shall not be roughened by brooming. 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. Low-relaxation strands may be substituted for the stress relieved strands. The initial prestressing force applied to each strand shall be the same as for the stress relieved strands (28,900 lbs.).
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} = (See Required Release Strength Table)
f_s = 270,000 p.s.i. (1/2" ϕ Strand)
f_{si} = 189,000 p.s.i. (1/2" ϕ Strand)
f_y = 60,000 p.s.i.

REQUIRED RELEASE STRENGTH

Span	f'_{ci} (psi)
25'	4,000
30'	4,000
35'	4,200
40'	4,700

Illinois Department of Transportation

PASSED NOVEMBER 1, 1995
Engineer of Bridge Design
APPROVED NOVEMBER 1, 1995
Engineer of Bridges and Structures

ISSUED 1-1-96

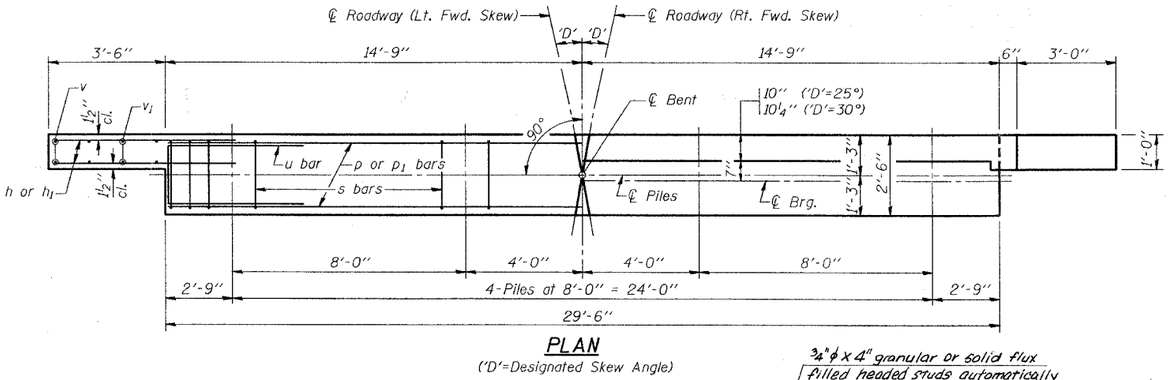
P.P.C. DECK BEAM DETAILS

24' ROADWAY	17" x 48" BEAMS

STANDARD CB-2417-48

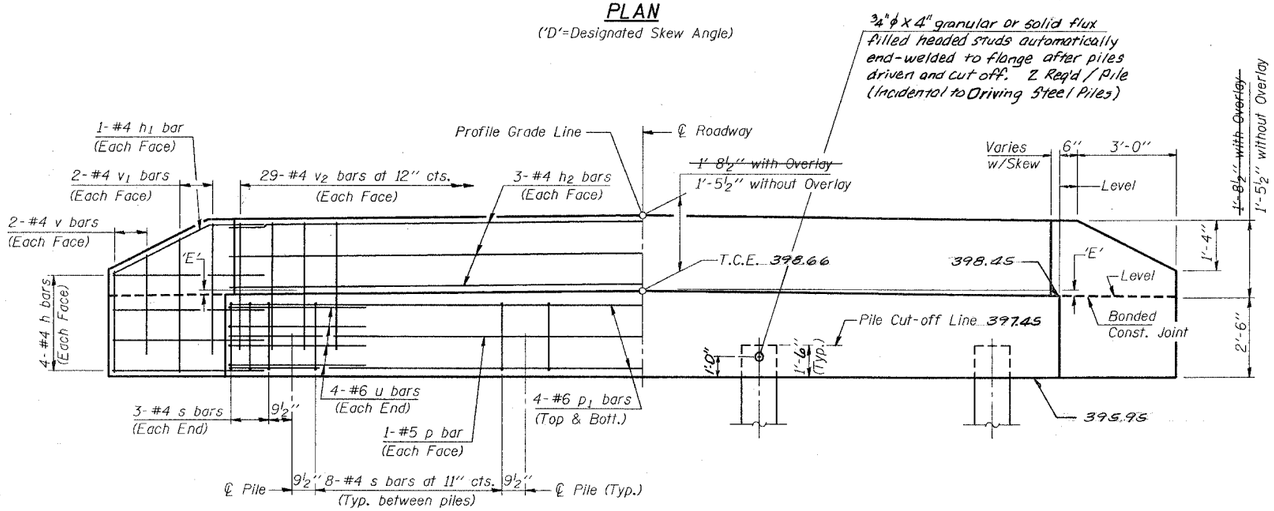
SECTION	97-09110-00-BR	TOTAL SHEETS	SHEET NO.
COUNTY	WAYNE	14	11
ROAD DIST.	GROVER		
STA.	TO STA.		

CONTRACT # 95308

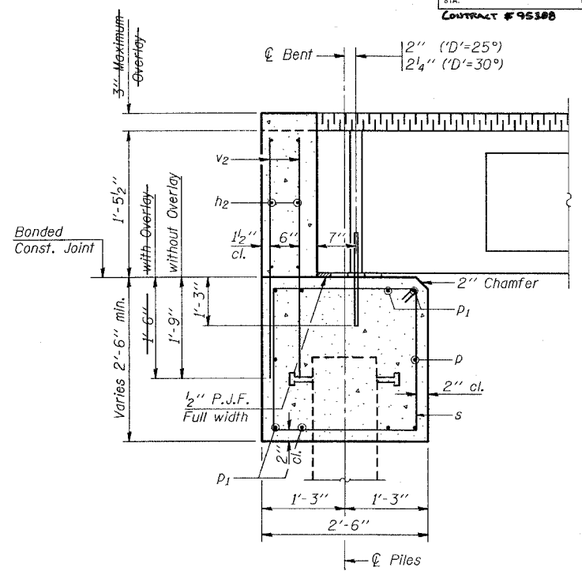


PLAN

('D'=Designated Skew Angle)



ELEVATION



SECTION THRU ABUTMENT

(At Right Angles)

DIMENSION 'E'

GRADE	'D'=25°		'D'=30°	
	UPGRADE END	DOWNGRADE END	UPGRADE END	DOWNGRADE END
0%	2½"	2½"	2 3/8"	2 3/8"
Over 0% to 1%	2⅛"	2 7/8"	2"	2 7/8"
Over 1% to 2%	1 3/8"	3 5/8"	1"	3 3/4"
Over 2% to 3%	5/8"	4 3/8"	⅛"	4 5/8"
Over 3% to 4%	0"	5⅛"	——	——

NOTES

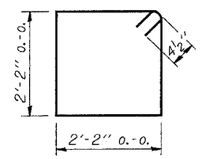
1. The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.
2. Reinforcement bars shall conform to A.A.S.H.T.O. M-31, M-42 or M-53, Grade 60.

MAXIMUM PILE LOADS

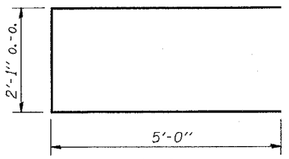
SPAN	TONS
25'	25
30'	26
35'	28
40'	30

DESIGN STRESSES

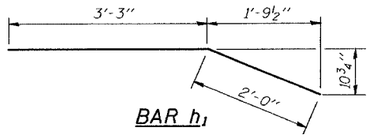
f'c = 3,500 psi
fy = 60,000 psi



BAR s



BAR u



BAR h1

BILL OF MATERIAL FOR ONE ABUTMENT

Bar	No.	Size	Length	Shape
h	16	#4	5'-0"	——
h1	4	#4	5'-3"	⟋
h2	6	#4	29'-2"	——
p	2	#5	29'-2"	——
p1	8	#6	29'-2"	——
s	30	#4	9'-5"	□
u	8	#6	12'-1"	⊏
v	8	#4	2'-6"	——
v1	8	#4	3'-5"	——
v2	58	#4	3'-1"	——
Concrete Structures			9.7 Cu. Yds.	
Reinforcement Bars			1080 Lbs.	

Illinois Department of Transportation

PASSED November 1, 1995
Engineer of Bridge Design

APPROVED November 1, 1995
Engineer of Bridges and Structures

ISSUED 1-1-81

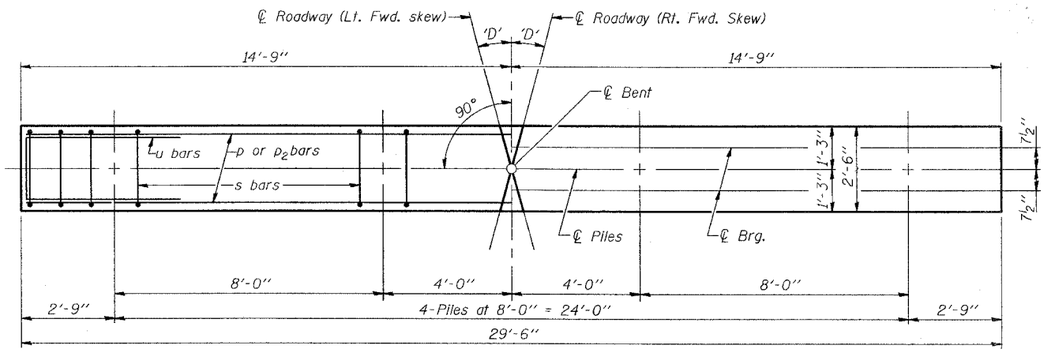
P.P.C. DECK BEAMS PILE BENT ABUTMENT

24' RDWY.	17" BMS.	'D'=25° OR 30°

STANDARD C.. 2417-30

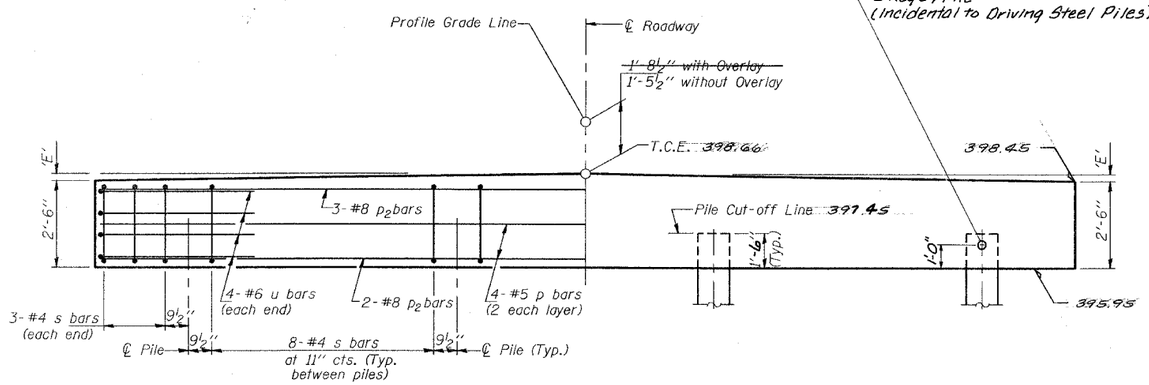
SECTION	97-09110-00-BR	TOTAL SHEETS	SHEET NO.
COUNTY	WAYNE	14	12
ROAD DIST.	GROVER		
STA.	TO STA.		

CONTRACT # 95388



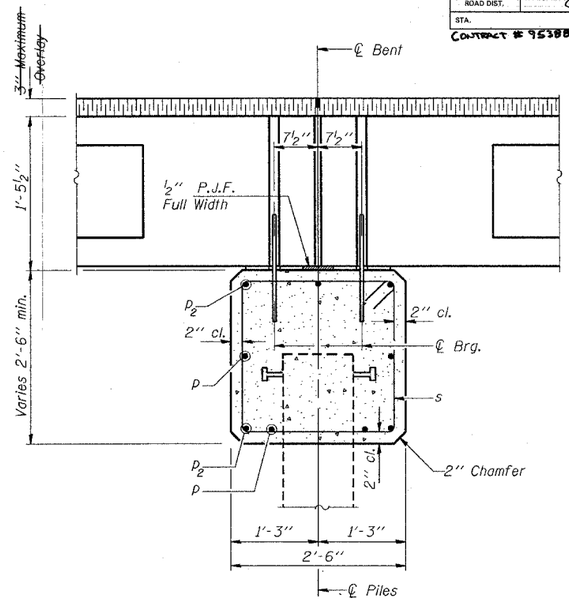
PLAN

('D'= Designated Skew Angle)



ELEVATION

¾"ϕ x 4" granular or solid flux filled headed studs automatically end-welded to flange after piles driven and cut off. 2 Req'd / Pile (Incidental to Driving Steel Piles)



SECTION THRU PIER

(At Right Angles)

DIMENSION 'E'

GRADE	'D'=25°		'D'=30°	
	UPGRADE END	DOWNGRADE END	UPGRADE END	DOWNGRADE END
0%	2½"	2½"	2 3/8"	2 3/8"
Over 0% to 1%	2 1/8"	2 7/8"	2"	2 7/8"
Over 1% to 2%	1 3/8"	3 5/8"	1"	3 3/4"
Over 2% to 3%	5/8"	4 3/8"	1/8"	4 5/8"
Over 3% to 4%	0"	5 1/8"	——	——

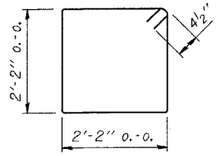
MAXIMUM PILE LOADS

SPAN	TONS
25'	33
30'	37
35'	41
40'	44

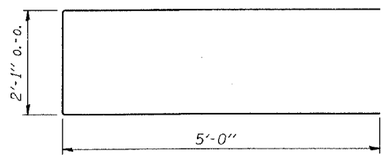
Longer of Either Span Supported by Pier.

DESIGN STRESSES

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



Bar s



Bar u

BILL OF MATERIAL FOR ONE PIER

Bar	No.	Size	Length	Shape
p	4	#5	29'-2"	——
p2	5	#8	29'-2"	——
s	30	#4	9'-5"	□
u	8	#6	12'-1"	⊓
Concrete Structures			7.1	Cu. Yds.
Reinforcement Bars			850	Lbs.

NOTE

Reinforcement bars shall conform to A.A.S.H.T.O. M-31, M-42 or M-53, Grade 60.

Illinois Department of Transportation

PASSED November 1, 1995
Engineer of Bridge Design
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Engineer of Bridges and Structures

ISSUED 11-1-95

P.P.C. DECK BEAMS PILE BENT PIER

24' RDWY.	17" BMS.	'D'=25° OR 30°

STANDARD CP-2417-30

SECTION	97-09110-00-BR	TOTAL SHEETS	SHEET NO.
COUNTY	WAYNE	14	13
ROAD DIST.	GROVER		
STA.	TO STA.		

NOTES

Hollow structural steel tubing shall conform to the requirements of ASTM designation A-500 Grade B Structural Steel Tubing and shall meet the longitudinal CVN requirements of 15 ft.-lbs. at 0° F. Contract # 95388

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 A-307 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 in accordance with AASHTO M-232.

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

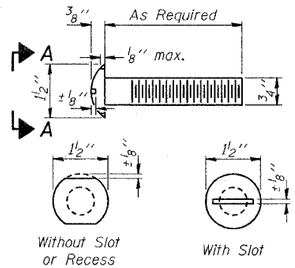
For multi-span bridges, sufficient $\frac{1}{4}$'' x 6'' x 1'-2'' galvanized steel shims shall be provided to align rail between adjacent spans. Cost incidental to Steel Railing, Type S-1.

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

The $\frac{1}{2}$'' x 7'' x 6'' plates that come in contact with concrete shall receive two coats of asphalt paint conforming to Section 760.07 Type II or place $\frac{1}{8}$'' fabric bearing pads between the plates and concrete.

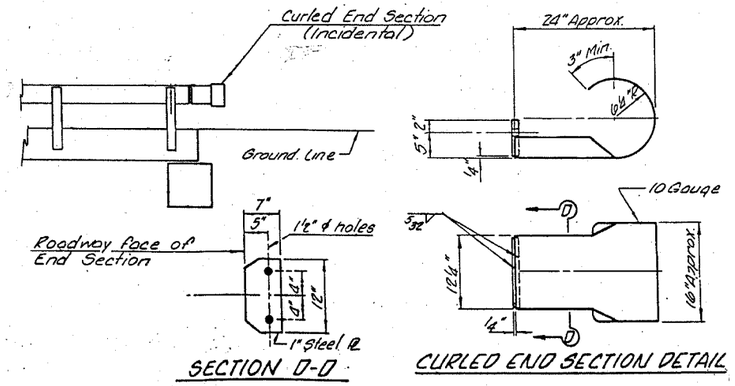
The $\frac{3}{4}$''ϕ high strength bolts used to connect the 6'' x 4'' x $\frac{3}{4}$'' angles to the post shall be tightened in accordance with Article 505.04 (f) (3) of the Standard Specifications. The 1''ϕ high strength bolts connecting the angles to the concrete shall be tightened to a snug fit and given an additional $\frac{1}{2}$ turn. The $\frac{5}{8}$''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.



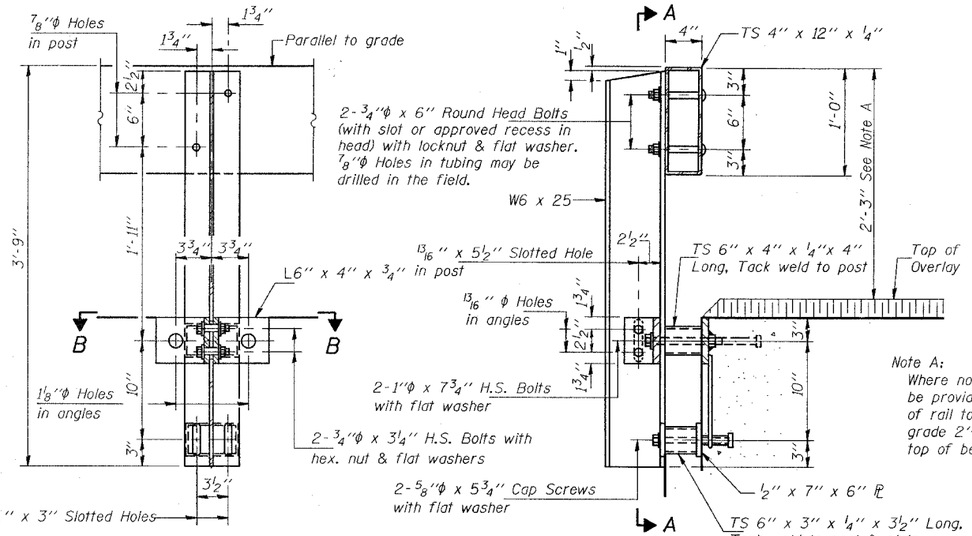
VIEW A-A

ROUND HEAD BOLT



SECTION D-D

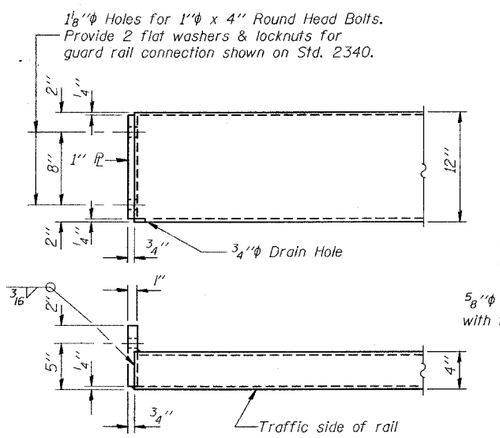
CURLED END SECTION DETAIL



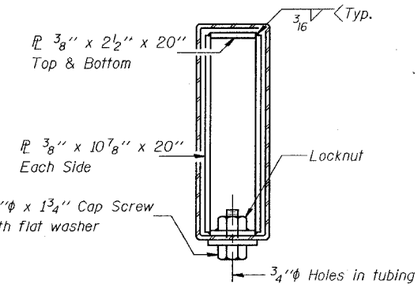
SECTION A-A

SECTION AT RAIL POST

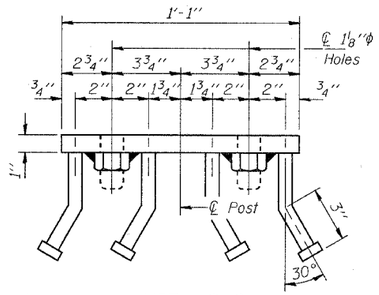
Note A:
Where no overlay is to be provided adjust top of rail to lay parallel to grade 2'-5" max. above top of beam.



END OF RAIL DETAILS



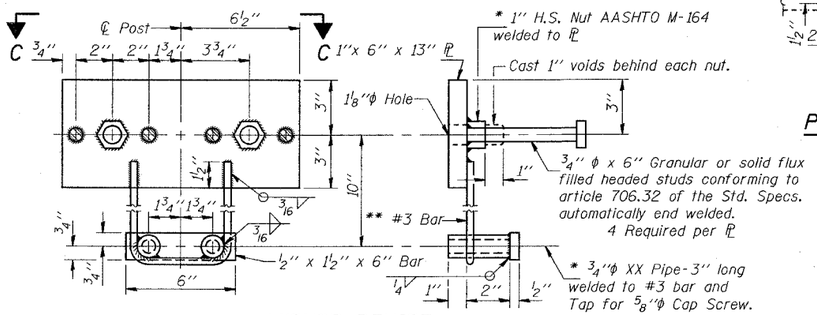
SECTION AT RAIL SPLICE



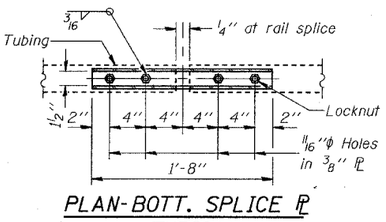
VIEW C-C

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

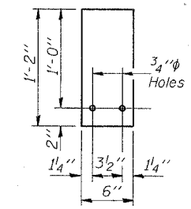
** Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed $\frac{1}{2}$''.



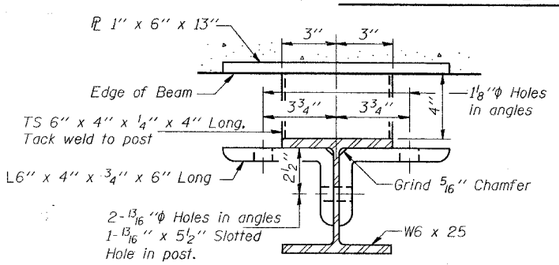
ANCHOR DEVICE



PLAN-BOTT. SPLICE Pl TYPICAL



¼'' SHIM PLATE



SECTION B-B

Illinois Department of Transportation

PASSED November 1, 1995
Engineer of Bridge Design

APPROVED November 1, 1995
Engineer of Bridges and Structures

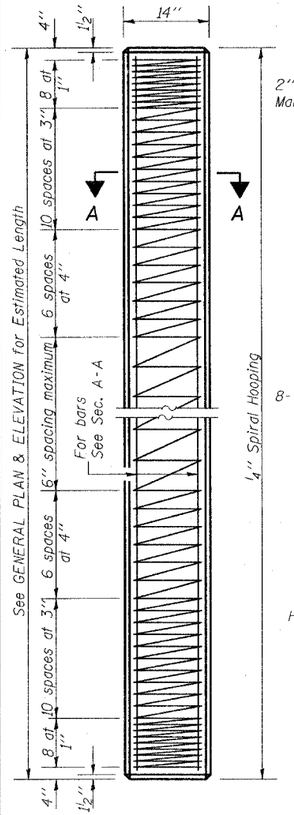
SSGSD I-18

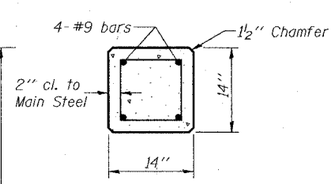
STEEL RAILING, TYPE S-1

STANDARD CR-TS1

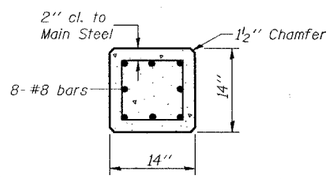
SECTION	97-0940-00-BR	TOTAL SHEETS	SHEET NO.
COUNTY	WAYNE	14	14
ROAD DIST.	GROVER		
STA.	TO STA.		

CONTRACT # 95385





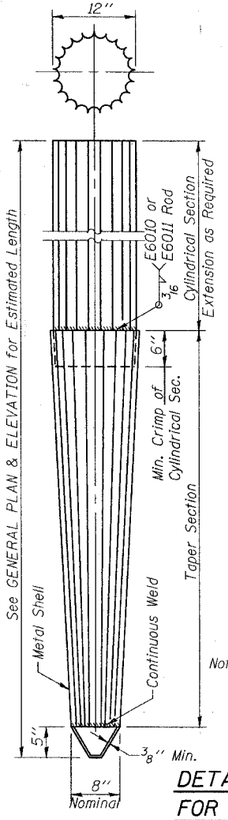
SECTION A-A FOR PILES UNDER 45' LONG

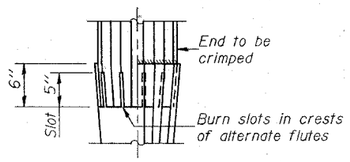


SECTION A-A FOR PILES 45' OR MORE

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.

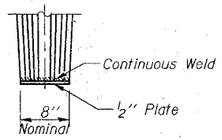
DETAIL OF PRECAST CONCRETE PILES





FIELD CRIMP DETAIL

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



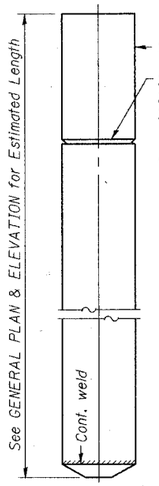
OPTIONAL FLAT END

ALLOWABLE TAPER SECTIONS

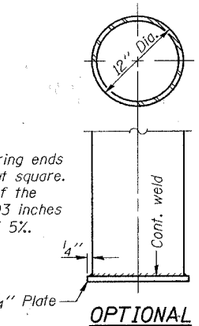
10' Length-Taper 1" in 2'-6"
17' Length-Taper 1" in 4'-0"
25' Length-Taper 1" in 7'-0"
30' Length-Taper 1" in 7'-0"

Note: The thickness of the shell shall be 0.1495 inches with a tolerance of 5%. The shell shall be in accordance with Article 706.05 (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



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%.

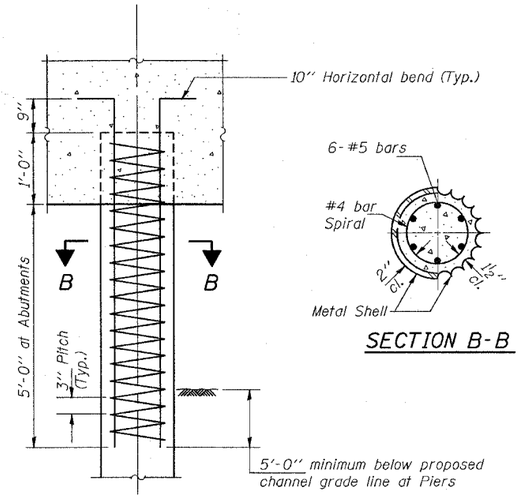


OPTIONAL FLAT END

DETAIL OF CYLINDRICAL STEEL SHELL FOR CAST IN PLACE CONCRETE PILES

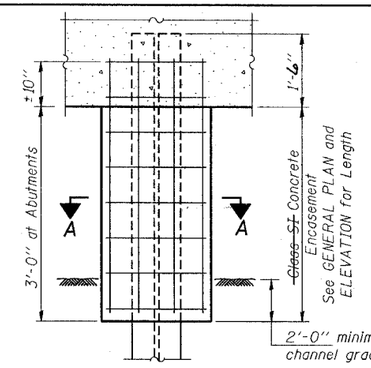
Reinforcement cage shall be omitted when ~~Class SI~~ Concrete Encasement is provided.

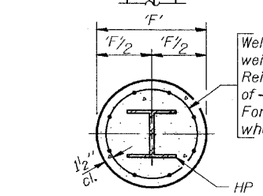
The cost of Reinforcement is incidental to the Cost of Furnishing Piles.



SECTION B-B

DETAIL OF REINFORCEMENT FOR METAL SHELLS



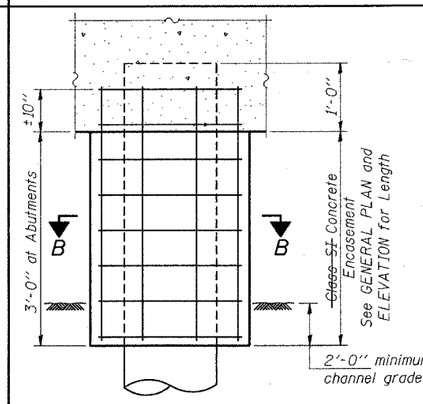


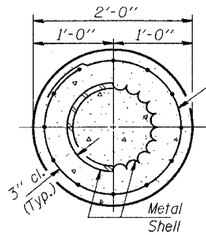
Welded wire fabric 6 x 6-W4.0 x W4.0 weighing 58#/100 sq. ft. The cost of Reinforcement is incidental to the cost of ~~Class SI~~ Concrete Encasement. Forms for Encasement may be omitted when soil conditions will permit.

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 incidental to the cost of ~~Class SI~~ Concrete Encasement. Forms for Encasement may be omitted when soil conditions will permit.

SECTION B-B

DETAIL OF METAL SHELL PILE ENCASEMENT

QUANTITIES/LIN. FT. OF ENCASEMENT

(STEEL PILES)

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

(METAL SHELL PILES)

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

Illinois Department of Transportation

PASSED November 1, 1995
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ISSUED 1-1-81

PILE DETAILS

STANDARD CX-1