

FAS RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 205	05-09126-00-BR 05-17134-00-BR	HENRY	11	1
F.H.W.A. REG.		ILLINOIS	PROJECT BROS-073(53)	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
PLANS FOR
PROPOSED LOCAL AGENCY IMPROVEMENT
FEDERAL AID BRRP PROJECT
HENRY COUNTY

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- Sheet No. 9 Type S-1 Railing
- Sheet No. 10 Name Plate
- Sheet No. 11 Pile Details

SECTION 05-09126-00-BR/05-17134-00-BR
PROJECT BROS-073(53) JOB C-92-001-07
CORNWALL/MUNSON TOWNSHIP TR 205
CONTRACT 85394

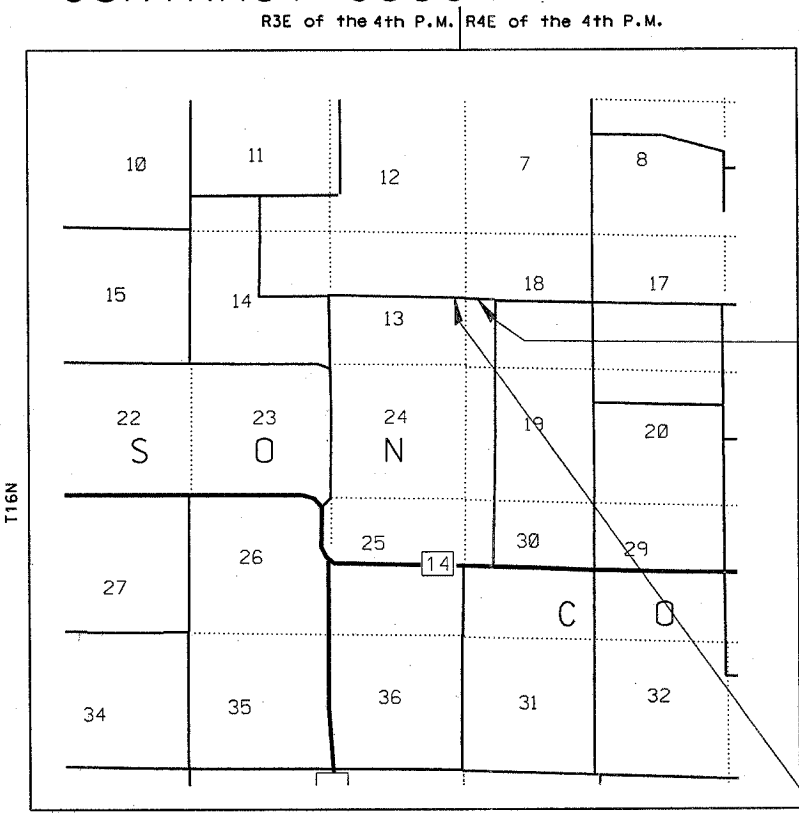
STANDARDS

702001-06 280001-02
BLR 21-6

CONSTRUCTION TYPE CODE X080-2A
SCHEDULE OF QUANTITIES

CODE QUANTITY UNIT DESCRIPTION

20100110	121	Units	Tree removal (6-15 Units)
20100210	151	Units	Tree Removal (over 15 Units)
20200100	340	Cu Yd	Earth Excavation
20300100	548	Cu Yd	Channel Excavation
20400800	819	Cu Yd	Furnished Excav
25000330	0.51	Acre	Seeding Cl 6
25000400	46	Pound	Nitrogen Fert Nutr
25000500	46	Pound	Phosphorus Fert Nutr
25000600	46	Pound	Potassium Fert Nutr
25100120	1.0	Ton	Mulch Method 2
28000300	4	Each	Temp Ditch Checks
28100707	334	Sq Yd	Stone Dump Rip CL A4
35101400	586	Ton	Agg Base Cse B
50100100	1	Each	Rem Exist Struct
50200100	123	Cu Yd	Structure Excavation
50300225	97.8	Cu Yd	Conc Struct
50400405	2874	Sq Ft	P P Conc Dk Bm 21 Dp
50800105	6800	Pound	Reinforcement Bars
50900205	240	Foot	Steel Railing Ty S1
51201400	968	Foot	Fur Steel Piles HP 10x42
51202700	968	Foot	Driving Steel Piles
51203400	2	Each	Test Pile Steel HP 10x42
51204315	2.1	Cu Yd	Concrete Encasement
51204600	20	Each	Metal Shoes
51500100	1	Each	Name Plates
542D0220	30	Foot	P Cul Cl D 1 15
67100100	1	L Sum	Mobilization



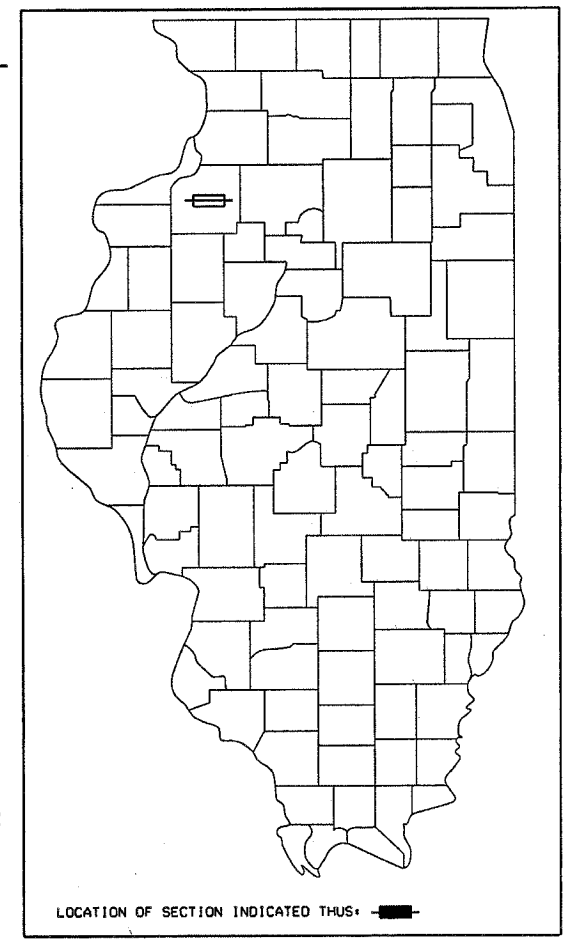
LOCATION MAP

NET LENGTH OF SECTION = 761 FEET = 0.14 MILES

Section 05-09126-00-BR/05-017134-00-BR
Ends at Station 207+61.

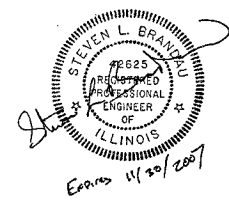
Section includes a three span bridge
(40', 40', 40') with precast prestressed
concrete deck beams (21" deep) on pile
bent concrete abutments. Also included
are aggregate surface approach roadways.

SECTION 05-09126-00-BR/05-17134-00-BR
Begins at Station 200+00.



THESE PLANS WERE PREPARED BY ME OR
BY THE FULL TIME MEMBERS OF MY STAFF.

Steven L. Brandau
STEVEN L. BRANDAU
P.E. 42625



STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

APPROVED 7/14/06 Steven L. Brandau COUNTY ENGINEER

PASSED August 25 2006 [Signature] DISTRICT ENGINEER OF LOCAL ROADS & STREETS

Releasing for Bid August 25 2006 [Signature] DISTRICT ENGINEER
Based on Limited Review

CALL J.U.L.I.E.
BEFORE YOU DIG
800-892-0123

Design Speed: 30 mph
RURAL LOCAL ROAD (ADT 0-250)

FAS RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 205	05-09126-00-BR 05-17134-00-BR	HENRY	11	2
F.H.W.A. REG.	ILLINOIS	PROJECT BR05-073(53)		

BM #1 - X in Corner of Existing Wingwall
Sta. 204+14, 3.2' Right
Elev. 200.24
To Be Relocated Prior to Construction
To Distance from Proposed Alignment
To ROW

Seeding Quantities
Seeding, Class 6 0.51 acre
Nitrogen Fert. Nutr. 46 lbs
Phosphorous Fert. Nutr. 46 lbs
Potassium Fet. Nutr. 46 lbs
Mulch Method 2 1 tons

Existing structure: A single span truss bridge 80' long skewed 0 degrees on wood pile bent abutments.

Proposed Structure: A three-span precast prestressed concrete deck beam bridge 120' long (40-40-40) skewed 0 degrees.

CURVE #1
P.I. STA= 201+62.53
I= 1° 20' 47"
D= 1" 20' 47"
R= 4255.72
T= 50'
L= 100'
E= 0.29'
P.C. STA= 201+12.53
P.T. STA= 202+12.53

Aggregate Base Course - Type B STA. 200+00 to 207+60 586 TON
Pipe Culvert, 15", Class D, Type 1 FEL 204+40 30 Ft

Tree Removal (6 to 15 Units Dia.)

Sta. 203+78	34' Lt.	13 Units
Sta. 203+80	26' Lt.	7 Units
Sta. 203+85	32' Lt.	8 Units
Sta. 203+86	32' Lt.	8 Units
Sta. 203+87	29' Lt.	10 Units
Sta. 203+88	18' Lt.	12 Units
Sta. 203+98	17' Lt.	9 Units
Sta. 204+01	17' Lt.	8 Units
Sta. 204+08	11' Lt.	9 Units
Sta. 204+18	35' Rt.	8 Units
Sta. 204+30	45' Rt.	7 Units
Sta. 204+42	37' Rt.	8 Units
Sta. 205+05	19' Lt.	14 Units

TOTAL 121 Units

Tree Removal (over 15 Units Dia.)

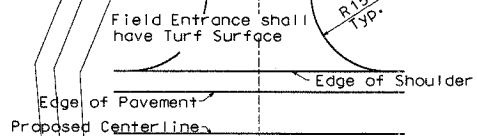
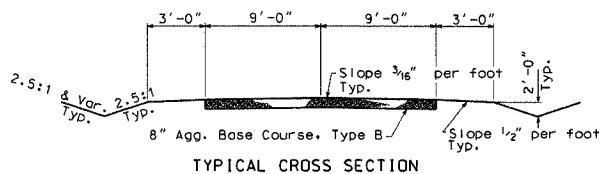
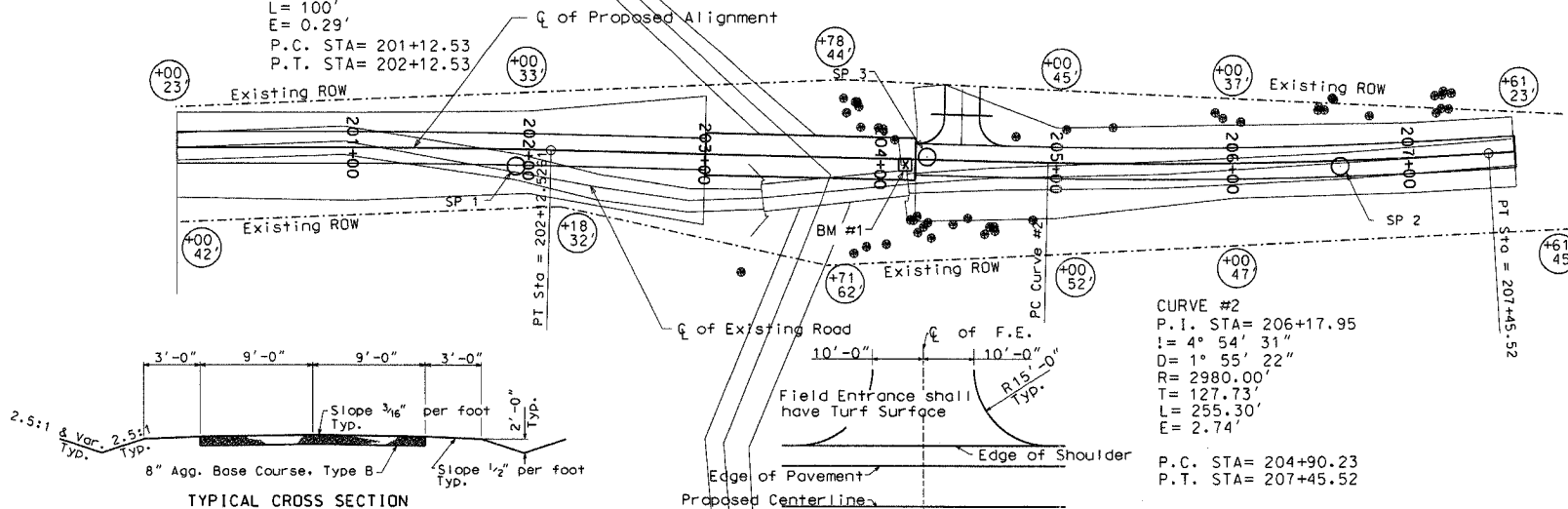
Sta. 204+19	35' Rt.	17 Units
Sta. 204+21	33' Rt.	23 Units
Sta. 204+22	42' Rt.	28 Units
Sta. 204+25	39' Rt.	24 Units
Sta. 204+28	36' Rt.	20 Units
Sta. 204+50	33' Rt.	18 Units
Sta. 204+77	14' Lt.	21 Units

TOTAL 151 Units

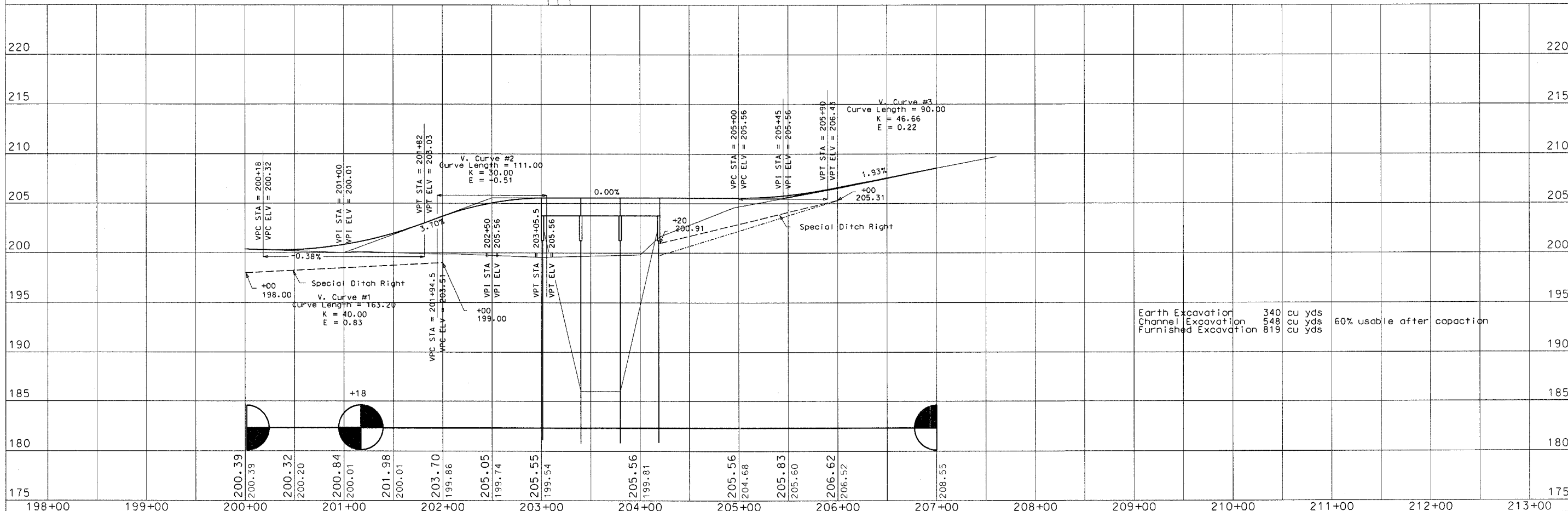
COORDINATES NORTHING EASTING

SP 1	10000.00	10000.00
SP 2	10000.00	10468.33
SP 3	10005.51	10233.53
POT 1	10010.44	9907.31
P1 1	10010.35	9969.84
P1 2	9999.39	10425.14
POT 2	10008.19	10567.76

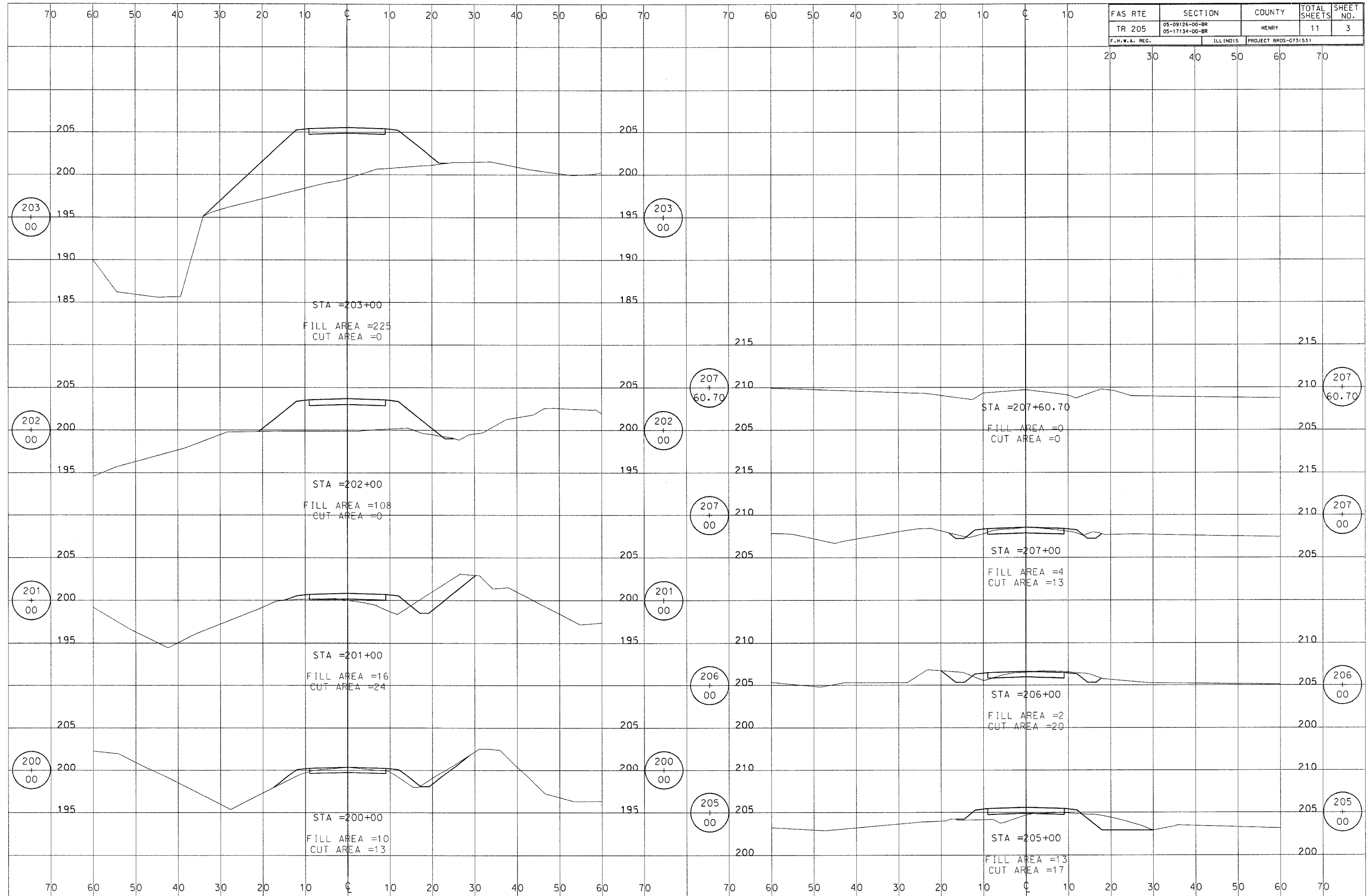
POT #1 @ Sta. 200+00 (BOP)
PI #1 @ Sta. 201+62.53
PI #2 @ Sta. 206+17.95
POT #2 @ Sta. 207+60.7 (EOP)
CALL J.U.L.I.E.
BEFORE YOU DIG
1-800-892-0123



SCALES:
1" = 50' HOR
1" = 5' VER



Earth Excavation 340 cu yds
Channel Excavation 548 cu yds
Furnished Excavation 819 cu yds
60% usable after compaction



- B.M. 1 60p Nail in Power Pole
Sta. 106+96, 13' Lt.
Elev. 201.50
- B.M. 2 60p Nail in Power Pole
Sta. 109+79, 53' Rt.
Elev. = 202.16

Existing Structure is a single span 80' through truss bridge on closed concrete abutments.

Any salvageable material shall become the property of the Henry County Highway Department

PILE DATA - (2 ABUTS)

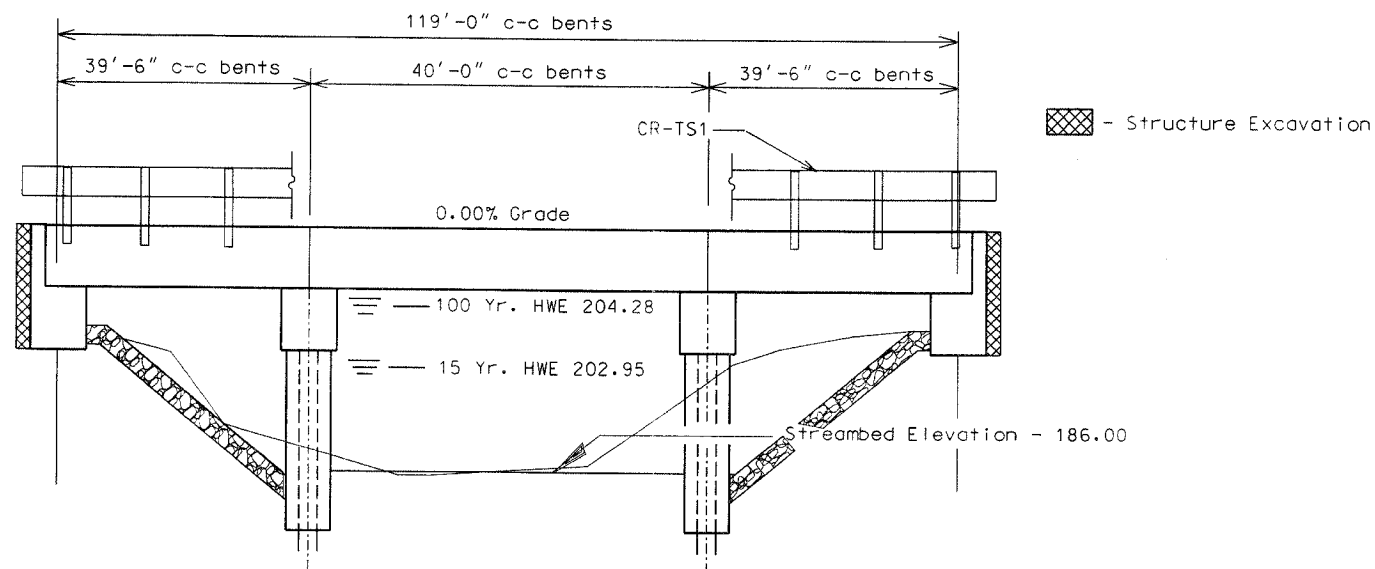
Type Steel H Pile
Capacity 31 Ton
Est. Length 46 Feet
Number Req. 8 (Includes 1 Test Pile Located in Bent # 1)

PILE DATA - (WEST PIER)

Type Steel H Pile
Capacity 34 Ton
Est. Length 46 Feet
Number Req. 7

PILE DATA - (EAST PIER)

Type Steel H Pile
Capacity 34 Ton
Est. Length 54 Feet
Number Req. 7 (Includes 1 Test Pile)



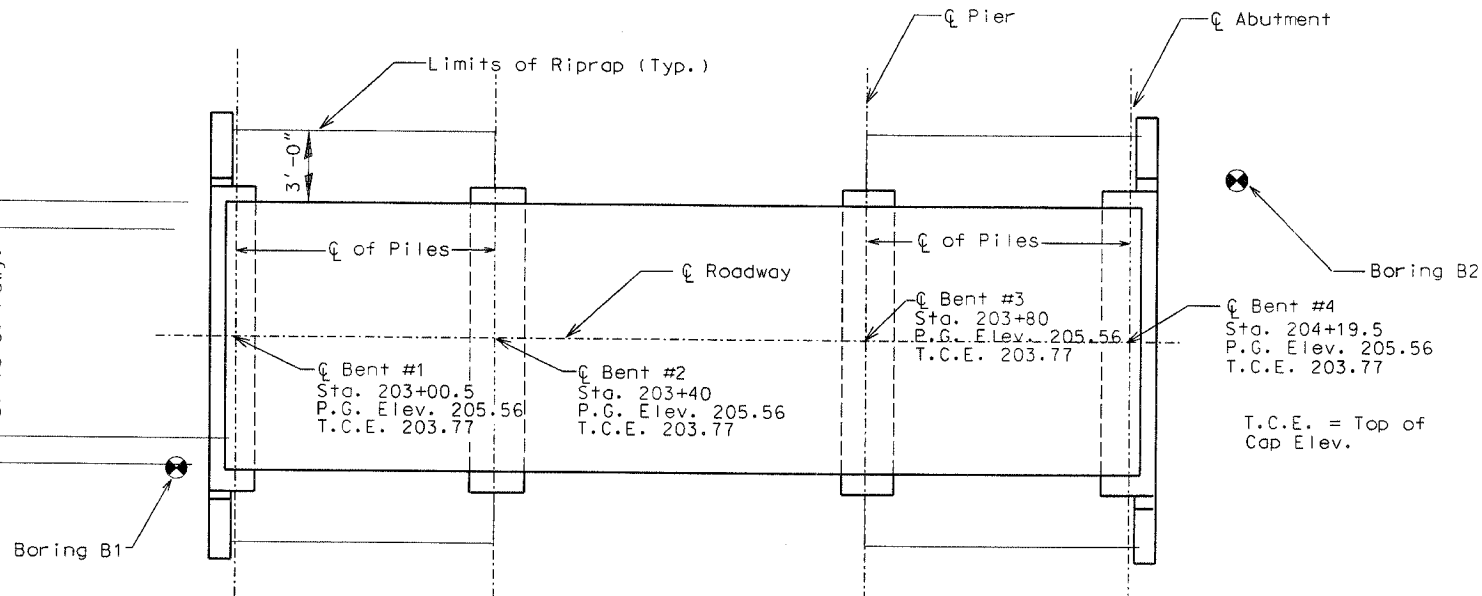
FAS RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 205	05-09126-00-BR 05-17134-00-BR	HENRY	11	4
F.H.W.A. REG.		ILLINOIS	PROJECT BROS-0731531	

GENERAL NOTES

1. The Contractor shall drive 2 test pile @ Bent #1 and Bent #3, 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.
4. The abutments shall not be backfilled until the deck beams are in place and dowel pins have been grouted and cured.
5. Reinforcement bars shall conform to AASHTO M-31, M-322, Grade 60.
6. Underwater Structure Excavation protection shall be applied to bent #2 and bent #3.

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Removal of Existing Structure	Each			1
Stone Dumped Riprap, Class C4	Sq. Yd		334	334
Channel Excavation	Cu. Yd		548	548
P.P. Conc. Deck Beam 21"	Sq. Ft	2874		2874
Furnishing Steel Piles HP10x42	Foot		968	968
Driving Steel Piles	Foot		968	968
Test Piles Steel HP 10x42	Each		2	2
Concrete Structures	Cu. Yd		97.8	97.8
Reinforcement Bars	Pound		6800	6800
Structure Excavation	Cu. Yd		123	123
Name Plate	Each		1	1
Steel Railing, Type S-1	Foot	240		240
Metal Shoes	Each		20	20
Concrete Encasements	Cu. Yd		2.1	2.1



STATION 203+60 Br. Dot Creek
BUILT 2006
SEC. 05-09126-00-BR/05-17134-00-BR
CORNWALL/MUNSON ROAD DISTRICT
HENRY COUNTY
LOADING HS20-44
STR. NO. 037-3359

NAME PLATE
See Std. CN

I certify that to the best of my knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on the plans. The design is an economical one for this style of structure and complies with the requirements of the current AASHTO Standard Specifications for highway bridges.



Keith E. Brandau Date 6/2/06
Illinois Structural No. 4905
License Expires 11/30/2006

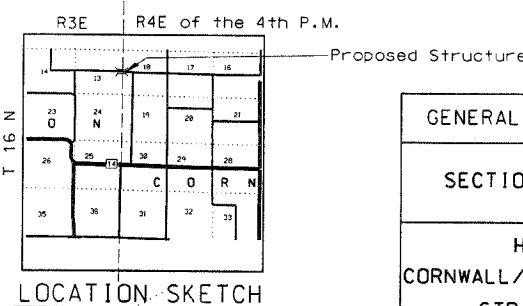
WATERWAY INFORMATION

Drainage Area = 49 Sq. Miles Low Grade Elev. 200.29 @ Sta. 200+34

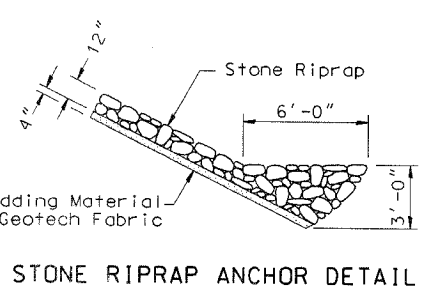
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Natural H.W.E.		Head - Ft.		Headwater El.	
			Exist.	Prop.	Exist.	Prop.	Exist.	Prop.	Exist.	Prop.
Design	15	4762	620	1135	201.47		0.86	0.37	202.33	201.84
Base	100	7495	620	1202	203.73		0.10	0.09	203.83	203.82

DESIGN SPECIFICATIONS

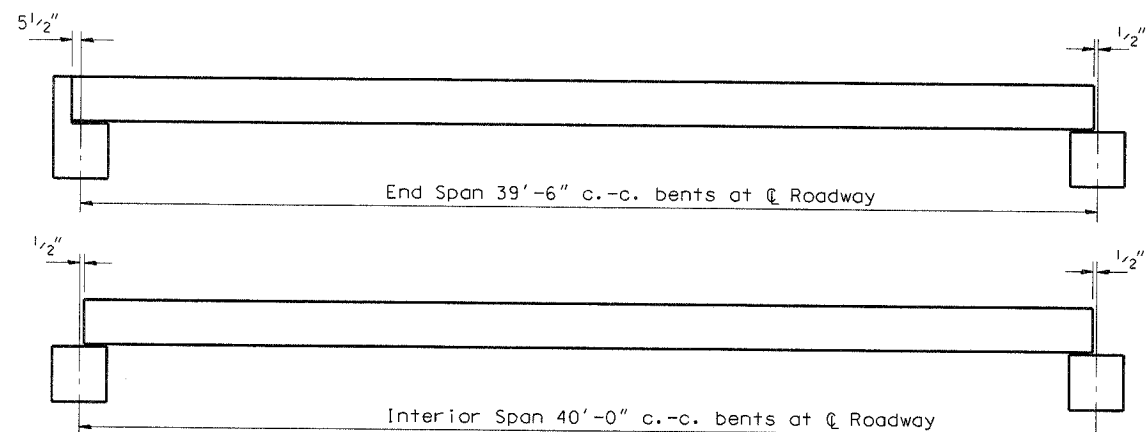
2002 AASHTO, w/ Applicable Interims
HS20-44 Loading Load Factor Design



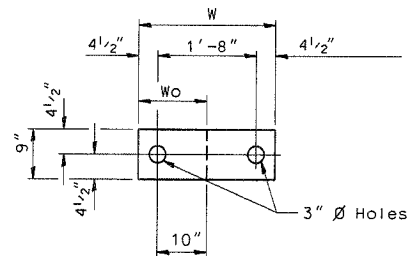
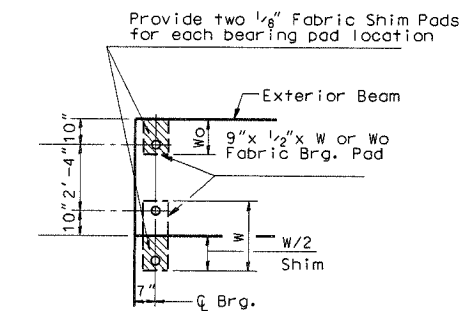
GENERAL PLAN & ELEVATION
TR 205
SECTION 05-09126-00-BR
05-17134-00-BR
HENRY COUNTY
CORNWALL/MUNSON ROAD DISTRICT
STR. NO. 037-3359



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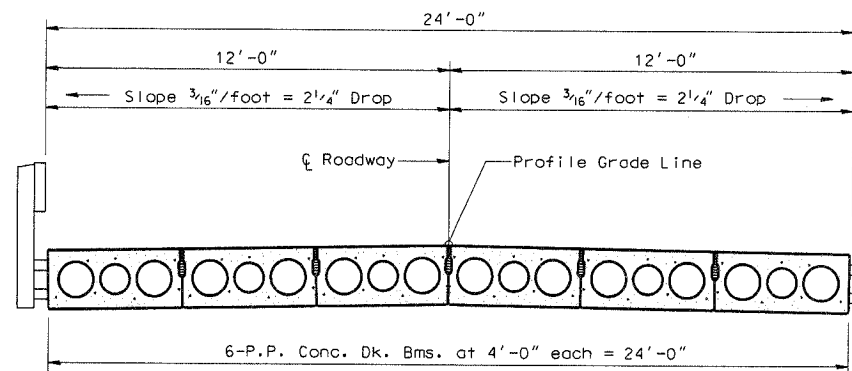


TYPICAL ELEVATIONS

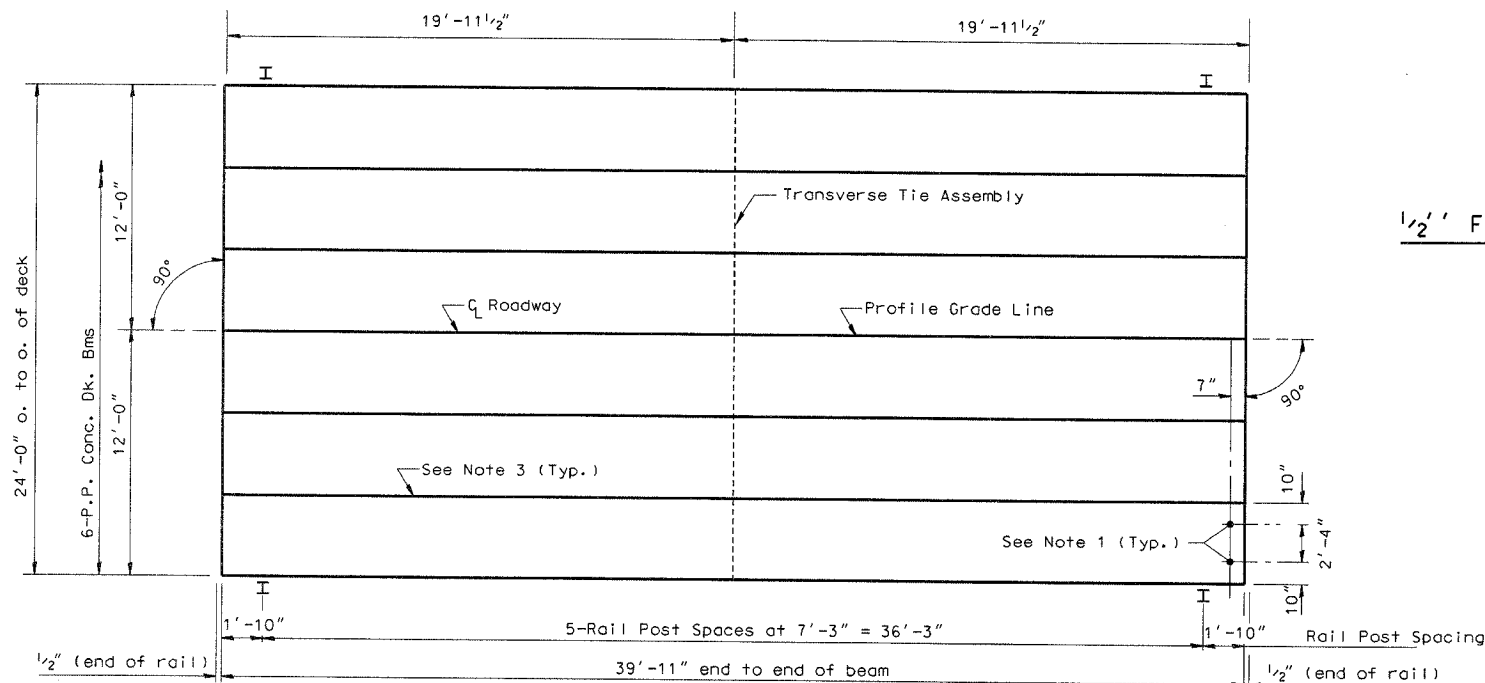


Beam	W	W_o
48"	2'-5"	1'-2 1/2"

$\frac{1}{2}$ " FABRIC BRG. PAD DETAILS



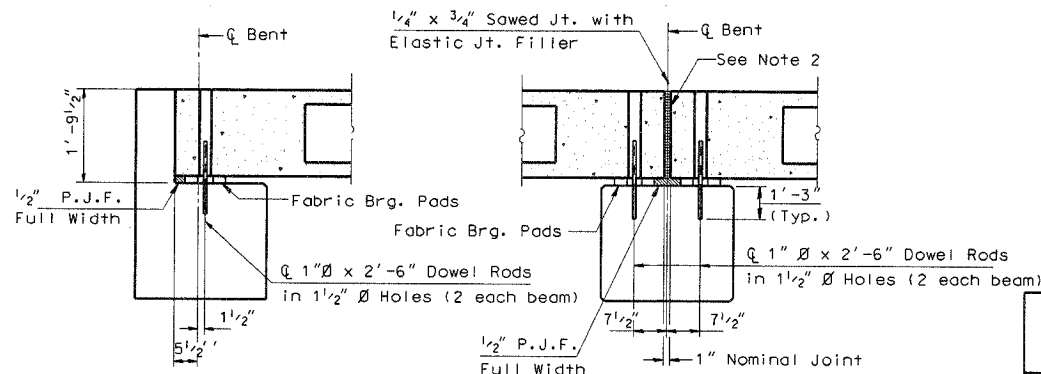
CROSS SECTION



PLAN

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 \bar{C} Pier shall be filled with non-shrink grout.
- Longitudinal keys shall be grouted.
- The 1" $\bar{\varnothing}$ 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 \bar{C} Beams)

SECTION AT PIERS

(Along \bar{C} Beams)

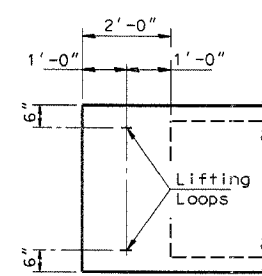
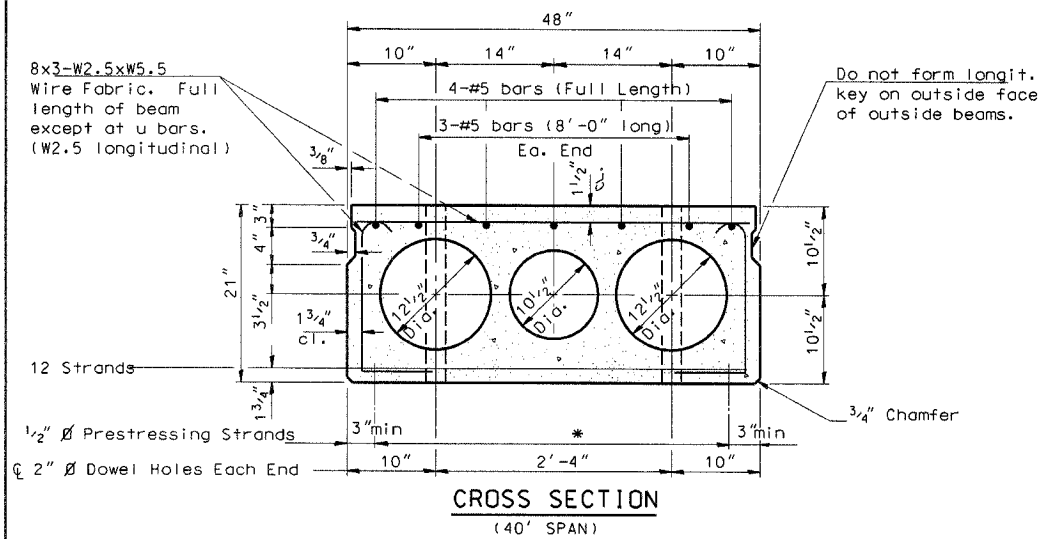
QUANTITIES FOR ONE SPAN

P.P. Conc. Dk. Bm. 21" Dp.	958 Sq. Ft.
Steel Railing	80 Ft.

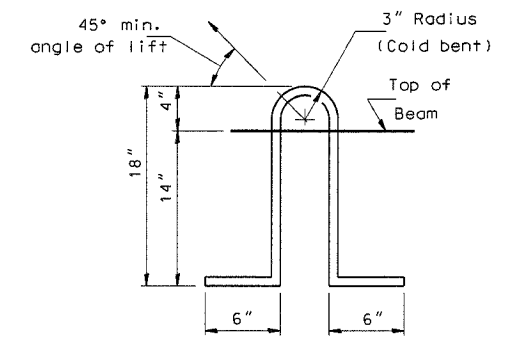
P.P.C. DECK BEAM SUPERSTRUCTURE

24' RDWY.	21" BMS.	40' SPAN	0° SKEW
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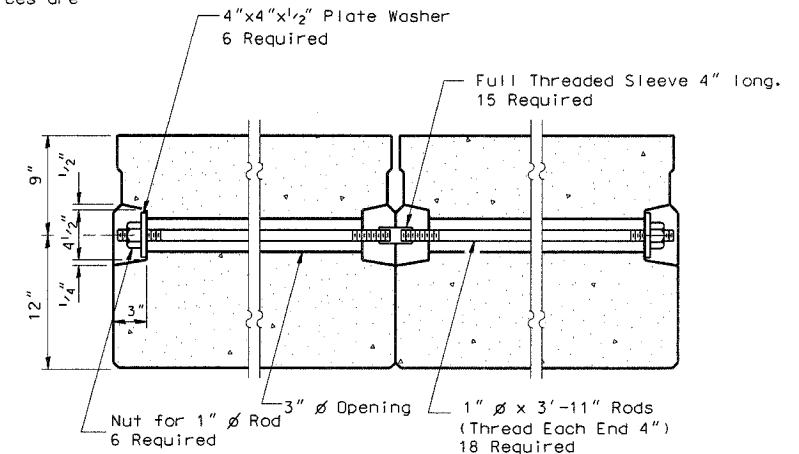
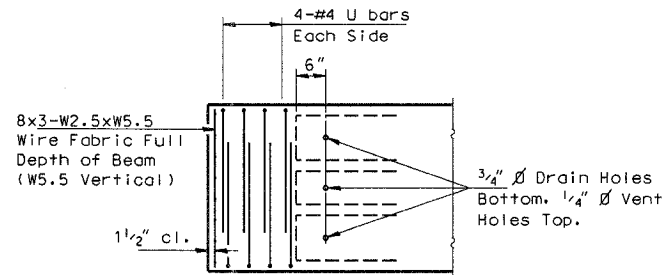
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F.H.W.A. REG.		ILLINOIS	PROJECT BROS-073(53)	



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



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



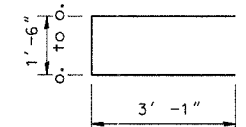
*** TRANSVERSE STRAND PLACEMENT GUIDELINES**

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

MIN. BAR LAP

#5 bars = 1'-8"



DESIGN STRESSES

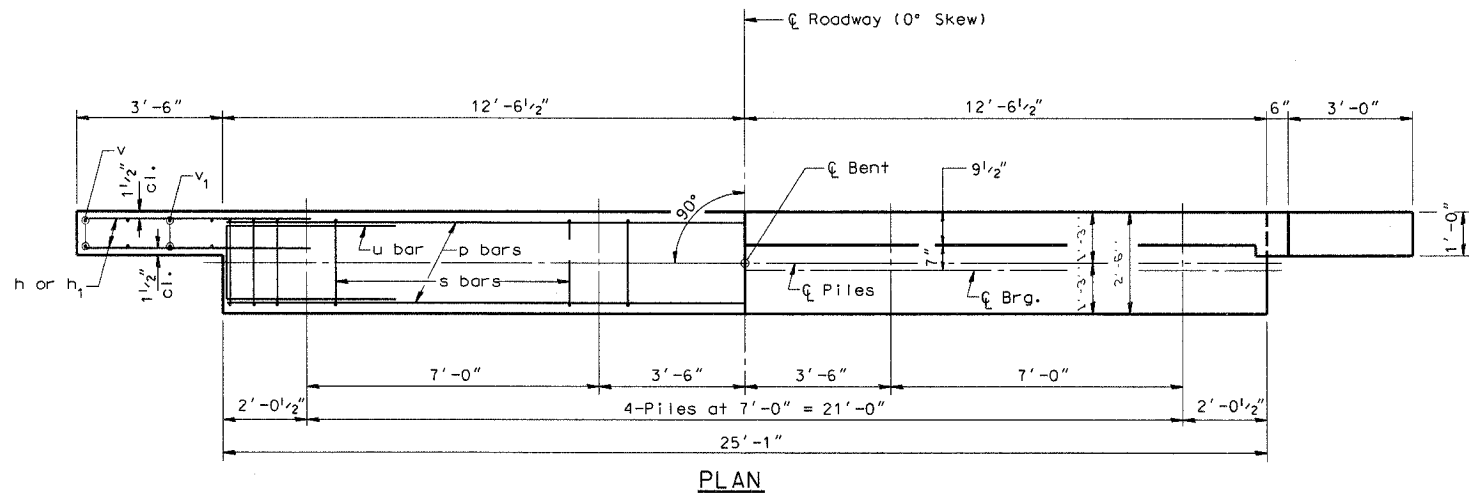
- $f'_c = 5,000$ p.s.i.
- $f'_{ci} = 4,000$ p.s.i.
- $f'_s = 270,000$ p.s.i. (1/2" ϕ Strand)
- $f_s = 189,000$ p.s.i. (1/2" ϕ Strand)
- $f_t = 60,000$ p.s.i.

NOTES

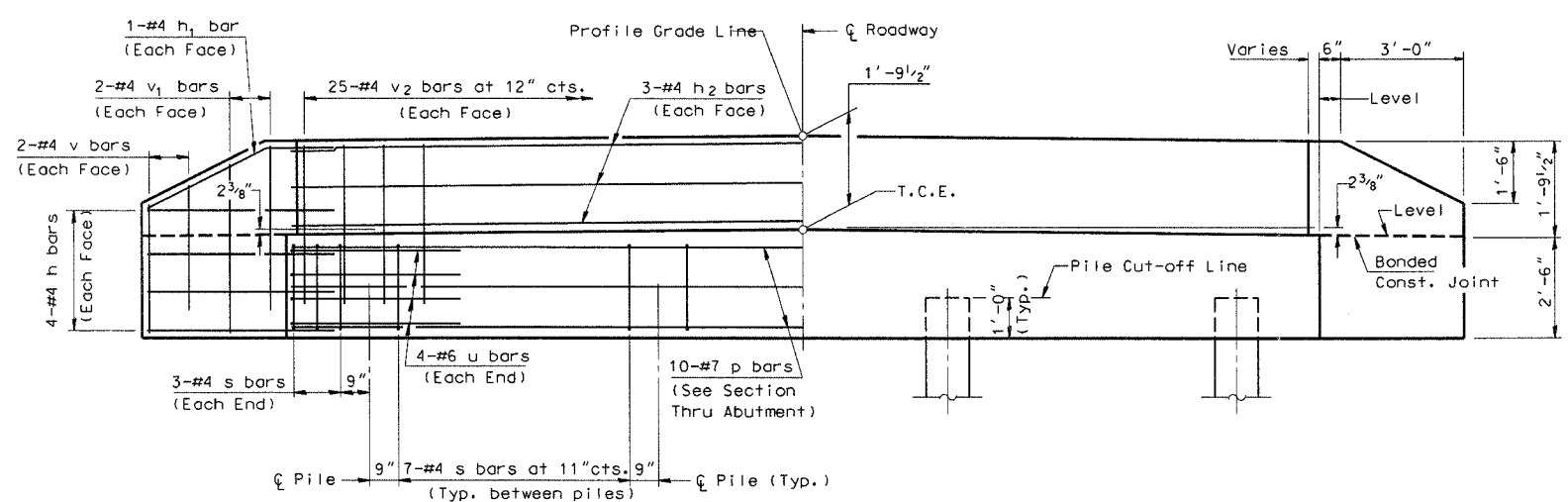
1. Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270, stressed to 30,900 pounds
2. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 square inches.
3. Reinforcement bars shall conform to AASHTO M-31 or M-322, Grade 60.
4. On 0°, 5° and 10° skews, alternate approved transverse tie rods of increased segmental length are acceptable.
5. Rail Post anchor devices shall be cast into outside beam as elsewhere specified.
6. When 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".
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.

P.P.C. DECK BEAM DETAILS	
24' ROADWAY	21" x 48" BEAMS

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PLAN



ELEVATION

NOTES

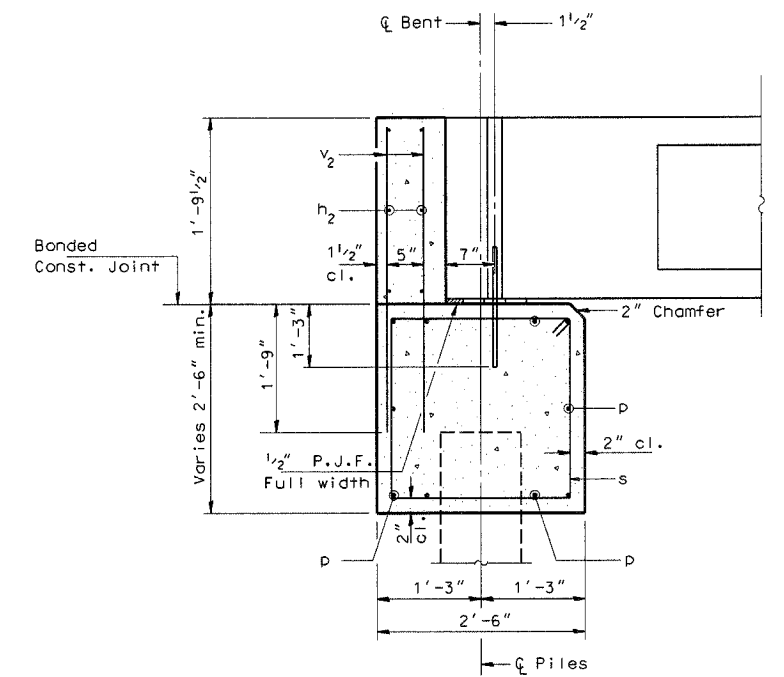
- The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.
- Reinforcement bars shall conform to A.A.S.H.T.O. M-31 or M-322, GRADE 60
- Space reinforcement in cap to miss anchor bolts.

MAXIMUM PILE LOADS

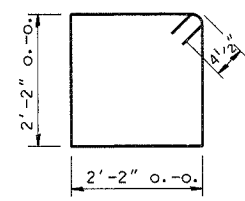
SPAN	TONS
40'	32

DESIGN STRESSES

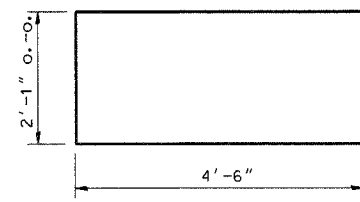
f'c = 3,500 psi
fy = 60,000 psi



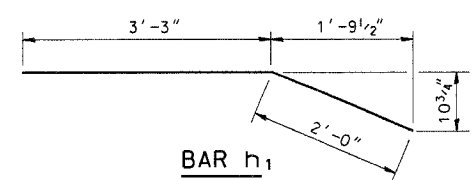
SECTION THRU ABUTMENT
(At Right Angles)



BAR s



BAR u



BAR h1

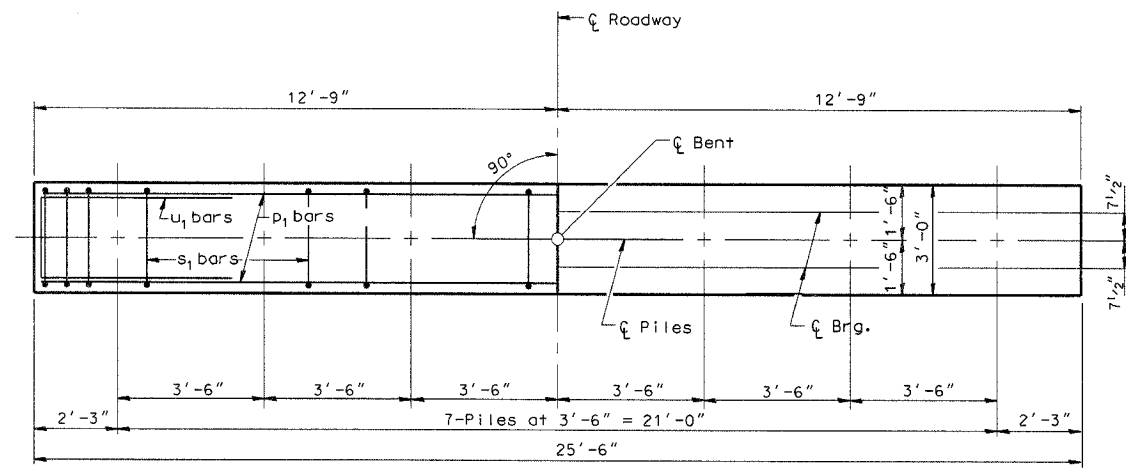
BILL OF MATERIAL FOR ONE ABUTMENT

Bar	No.	Size	Length	Shape
h	16	#4	5'-0"	—
h1	4	#4	5'-3"	—
h2	6	#4	24'-9"	—
p	10	#6	24'-9"	—
s	27	#4	9'-5"	□
u	8	#6	11'-1"	—
v	8	#4	2'-8"	—
v1	8	#4	3'-8"	—
v2	50	#4	3'-5"	—
Concrete Structures			8.4	Cu. Yds.
Reinforcement Bars			990	Lbs.

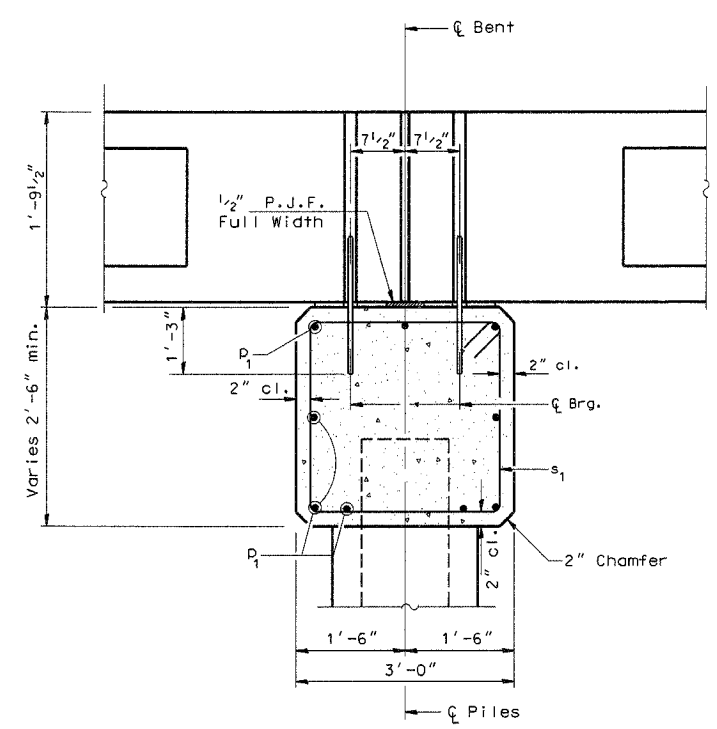
P.P.C. DECK BEAMS
PILE BENT ABUTMENT

24' RDWY. | 21" BMS.

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TR 205	05-09126-00-BR 05-17134-00-BR	HENRY	11	8
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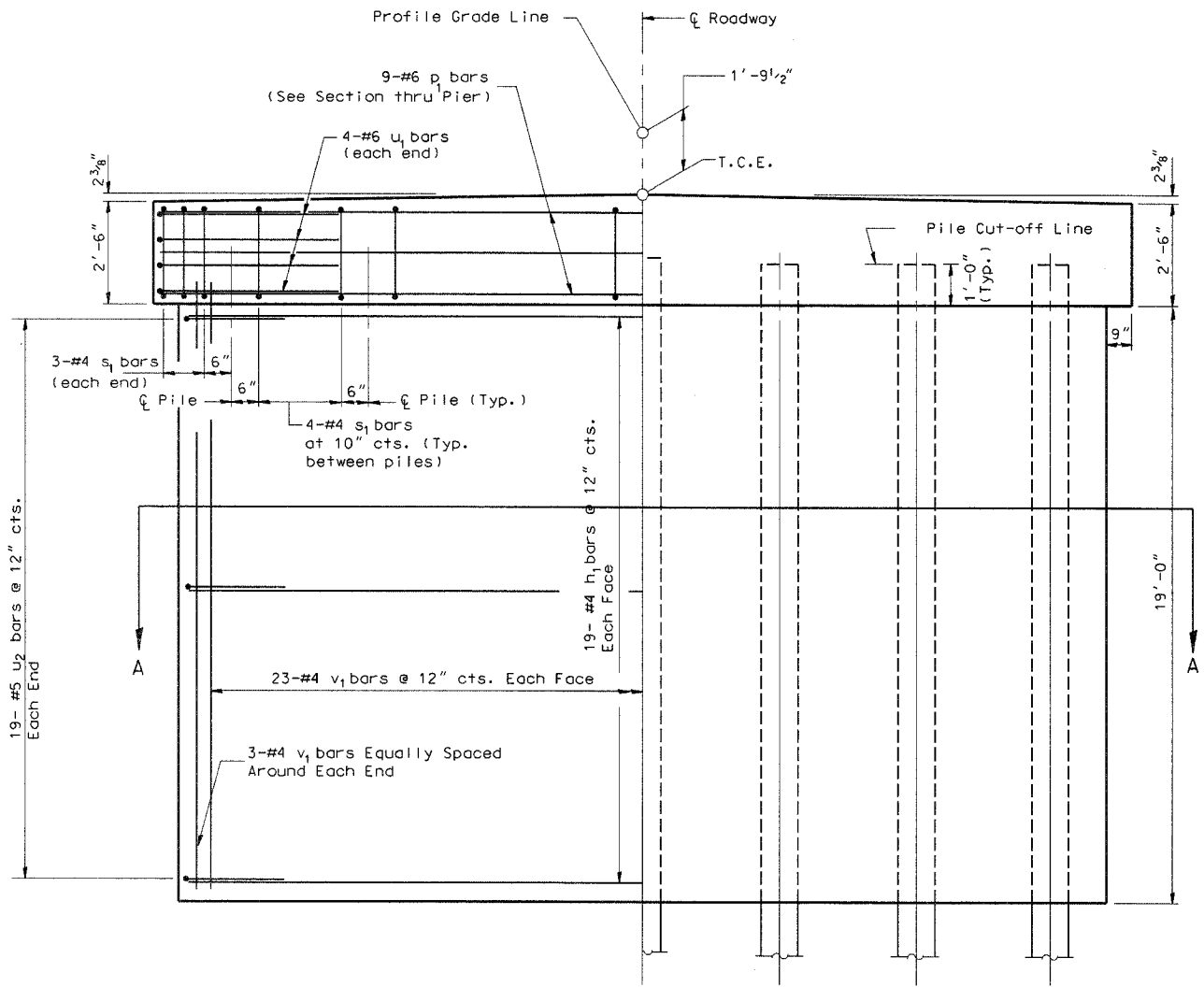
PLAN



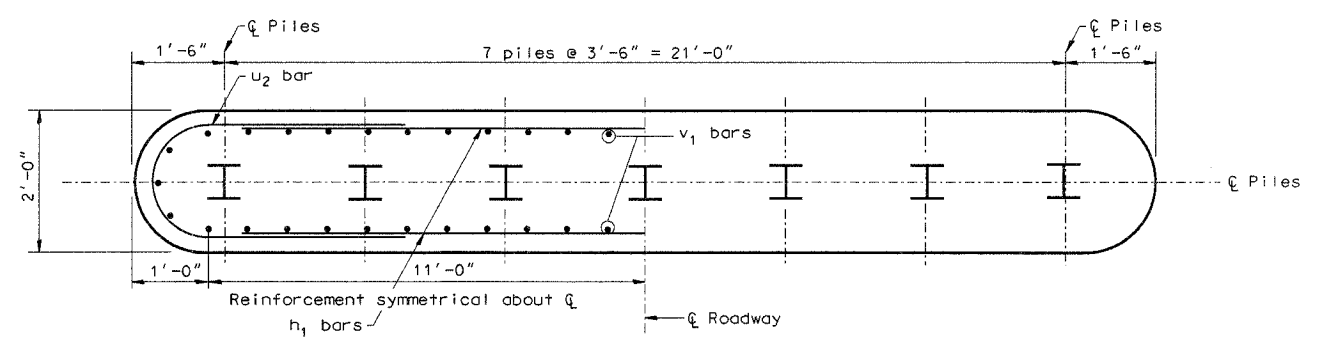
SECTION THRU PIER
(At Right Angles)

BILL OF MATERIAL
FOR ONE PIER

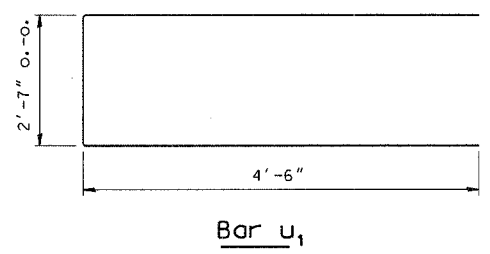
Bar	No.	Size	Length	Shape
h ₁	38	#4	22'-0"	—
P ₁	9	#6	25'-2"	—
S ₁	30	#4	10'-5"	□
V ₁	52	#4	20'-0"	—
U ₁	8	#6	11'-7"	—
U ₂	38	#5	11'-9"	—
Concrete Structures			40.5 Cu. Yds.	
Reinforcement Bars			2410 Lbs.	



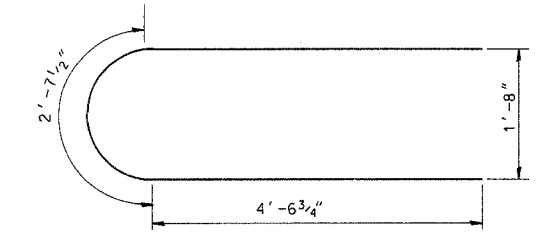
ELEVATION



SECTION A-A



Bar u₁



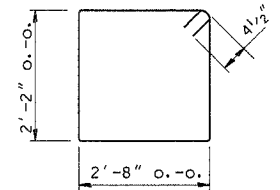
Bar u₂

MAXIMUM PILE LOADS

SPAN	TONS
40'	34

DESIGN STRESSES

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



Bar s₁

NOTE

Reinforcement bars shall conform to A.A.S.H.T.O. M-31 or M-322, Grade 60.

P.P.C. DECK BEAMS PILE BENT PIER		
24' RDWY.	21" BMS.	

FAS RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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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.

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-395. GALVANIZED RAIL SHALL NOT BE PAINTED.

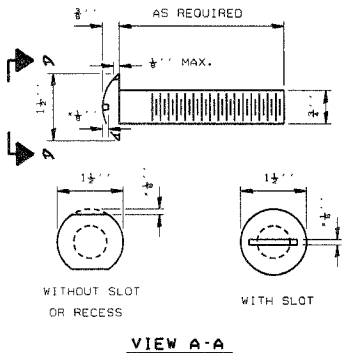
FOR MULTI-SPAN BRIDGES, SUFFICIENT 1/2" X 6" X 1'-2" GALVANIZED STEEL SHIMS SHALL BE PROVIDED TO ALIGN RAIL BETWEEN ADJACENT SPANS. COST INCIDENTAL TO STEEL RAILING, TYPE S-1.

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

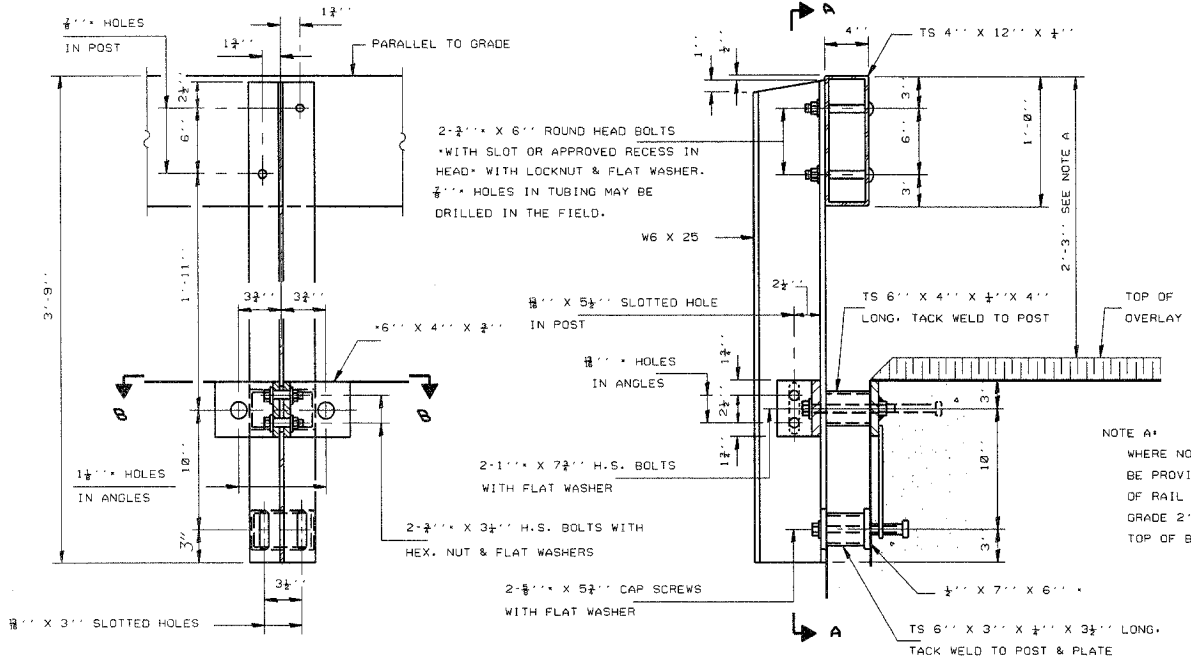
THE 1/2" X 7" X 6" PLATES THAT COME IN CONTACT WITH CONCRETE SHALL RECEIVE TWO COATS OF ASPHALT PAINT CONFORMING TO SECTION 760.07 TYPE II OR PLACE 1/2" FABRIC BEARING PADS BETWEEN THE PLATES AND CONCRETE.

THE 3/4" HIGH STRENGTH BOLTS USED TO CONNECT THE 6" X 4" X 3/4" ANGLES TO THE POST SHALL BE TIGHTENED IN ACCORDANCE WITH ARTICLE 505.04 *F* *3* OF THE STANDARD SPECIFICATIONS. THE 1" HIGH STRENGTH BOLTS CONNECTING THE ANGLES TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/2 TURN. THE 3/4" CAP SCREWS IN BOTTOM OF POSTS SHALL BE TIGHTENED TO A SNUG FIT ONLY.

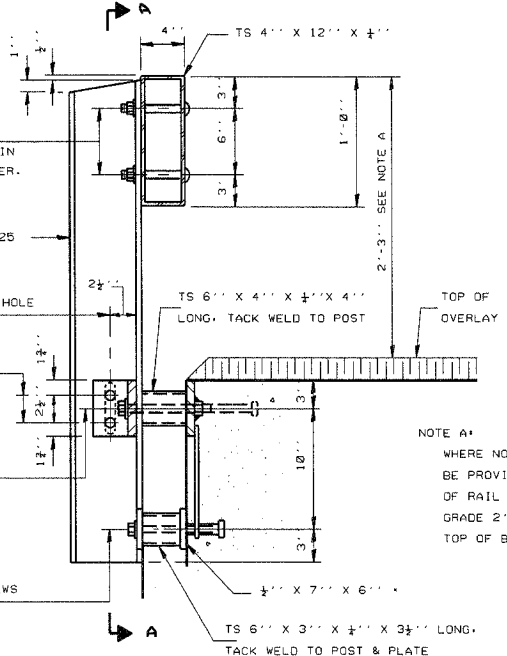
THE MAXIMUM ALLOWABLE RAIL POST SPACING SHALL BE 10'-6". THE RAIL POST SPACING SHOWN ELSEWHERE IN THE PLANS IS BASED ON THE ALLOWABLE SPACING FOR ANOTHER TYPE OF RAIL. WHEN THIS TYPE OF RAIL IS USED, THE NUMBER OF POSTS MAY BE DECREASED AND THE POST SPACING INCREASED TO PROVIDE EQUAL POST SPACES OF 10'-6" OR LESS.



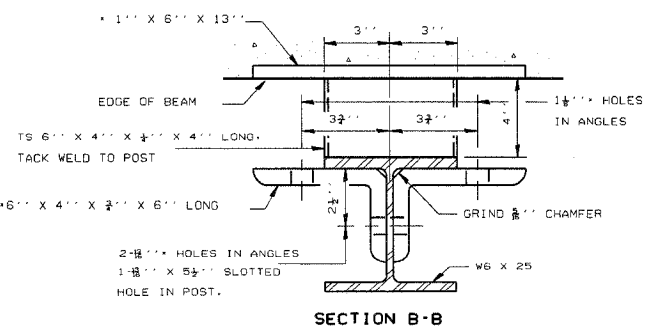
VIEW A-A
ROUND HEAD BOLT



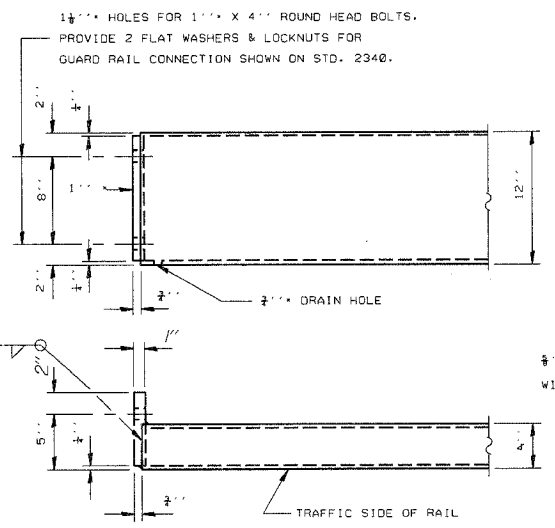
SECTION A-A



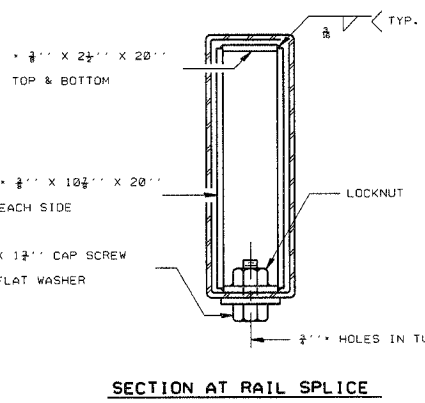
SECTION AT RAIL POST



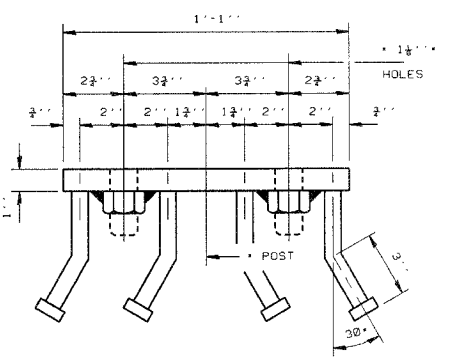
SECTION B-B



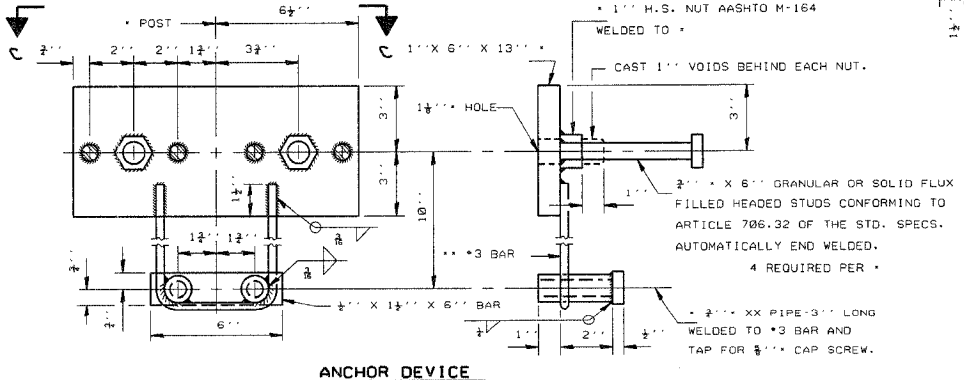
END OF RAIL DETAILS



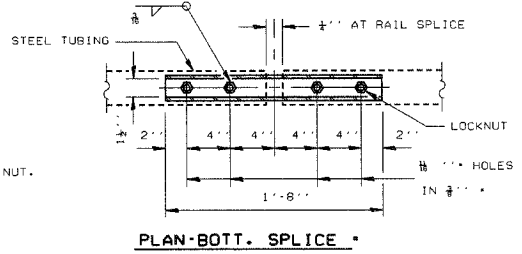
SECTION AT RAIL SPLICE



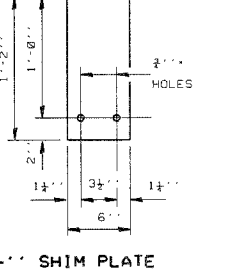
VIEW C-C



ANCHOR DEVICE



PLAN-BOTT. SPLICE



1/2" SHIM PLATE

Illinois Department of Transportation

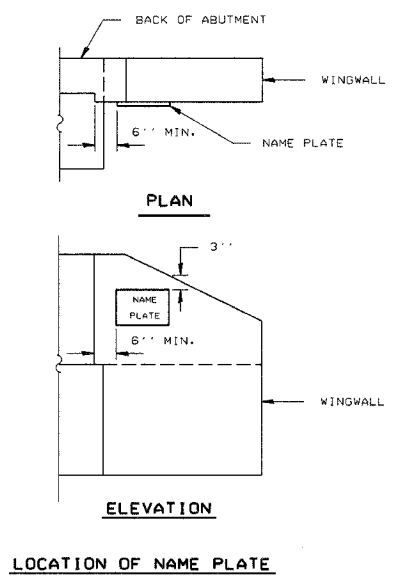
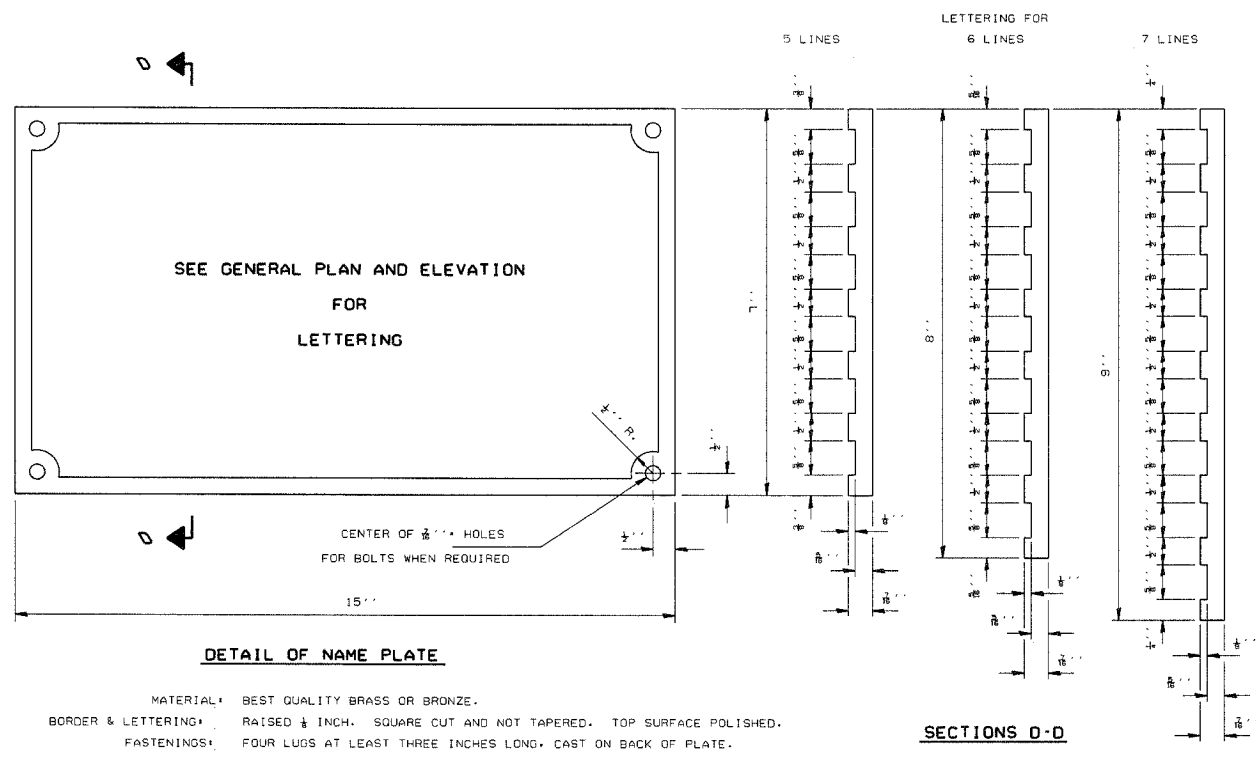
PASSED November 1, 1995
Greg J. Kasper
Engineer of Bridge Design

APPROVED November 1, 1995
Ralph E. Anderson
Engineer of Bridges and Structures

184-1 02/85

STEEL RAILING, TYPE S-1
STANDARD CR-TS1

FAS RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 205	05-09126-00-BR 05-13134-00-BR	HENRY	11	10
F.H.W.A. REG.		ILLINOIS	PROJECT BROS-073(53)	



Illinois Department of Transportation

PASSED November 1, 1995
Gregory D. Kasper
 Engineer of Bridge Design

APPROVED November 1, 1995
Ralph E. Anderson
 Engineer of Bridges and Structures

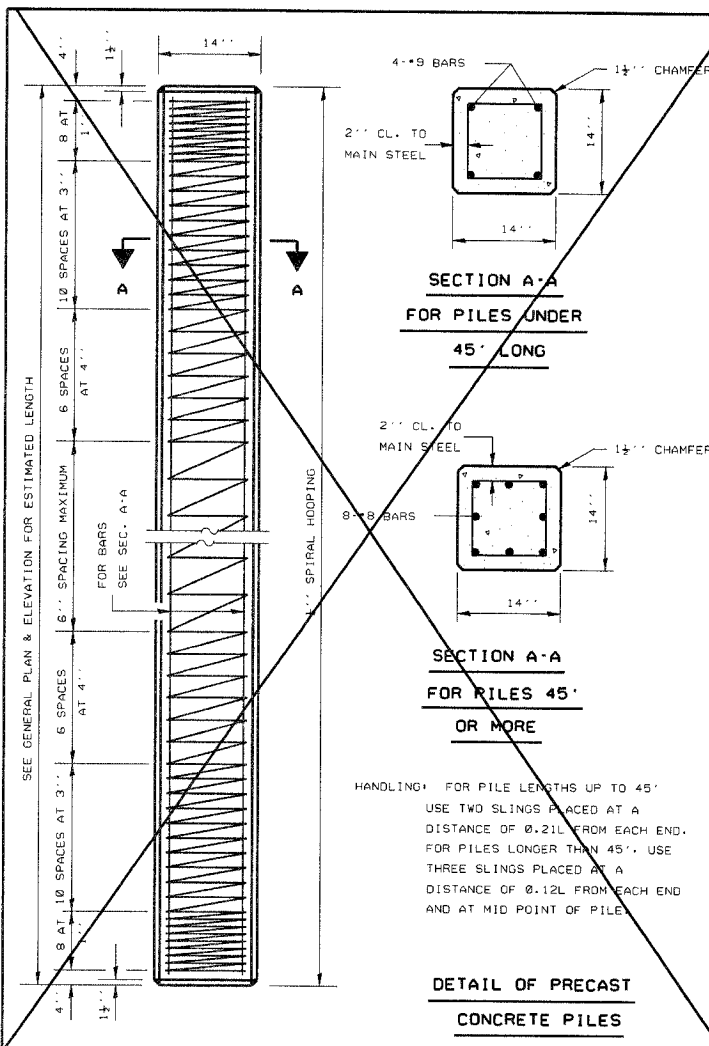
ISSUED 7-1-95

NAME PLATE
STANDARD CN

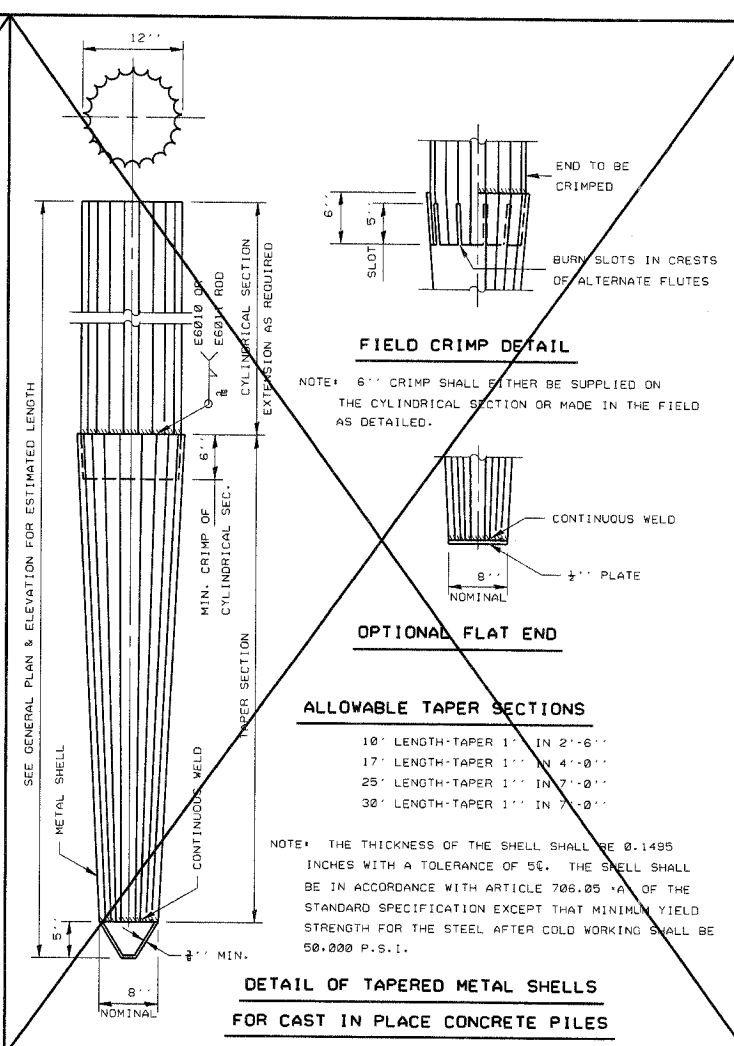
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TR 205	05-09128-00-BR	HENRY	11	11
F.W.A. REG.		ILLINOIS	PROJECT BR05-0731531	

REINFORCEMENT CAGE SHALL BE OMITTED WHEN CLASS S1 CONCRETE ENCASEMENT IS PROVIDED.

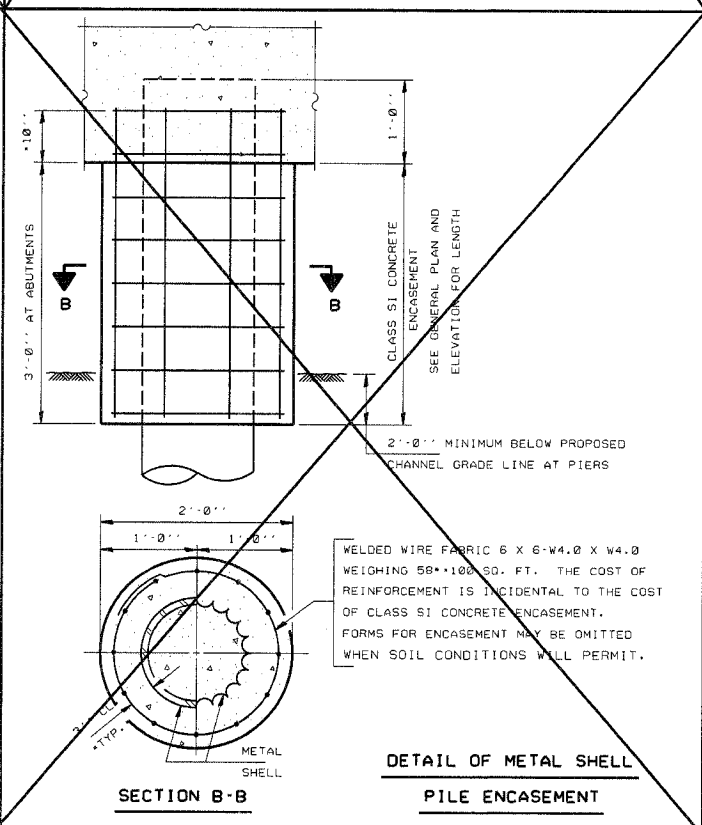
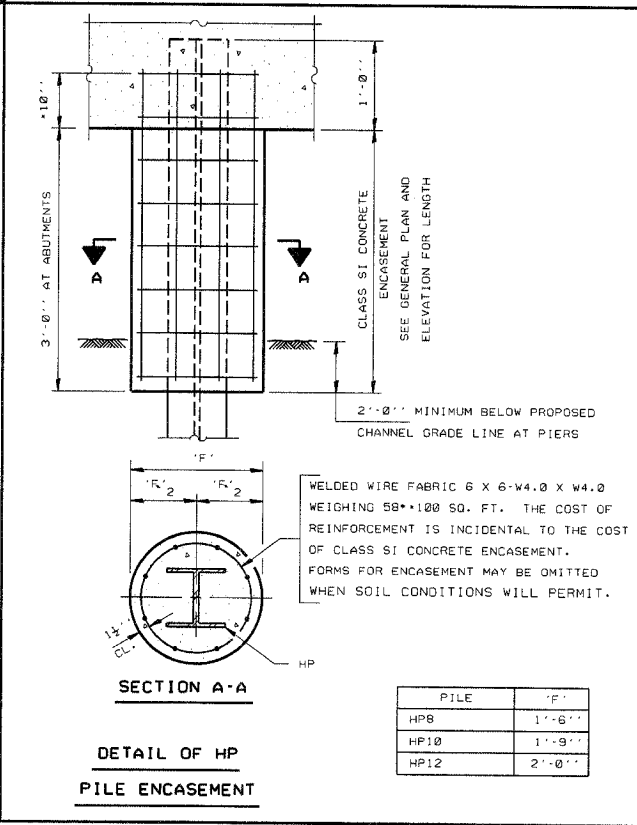
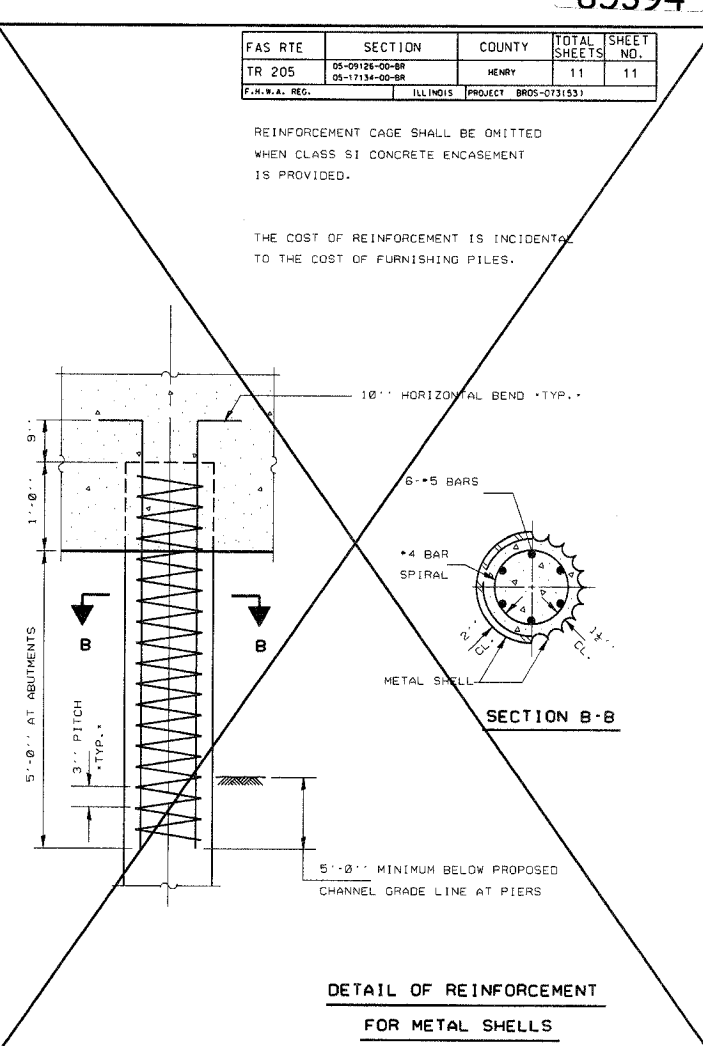
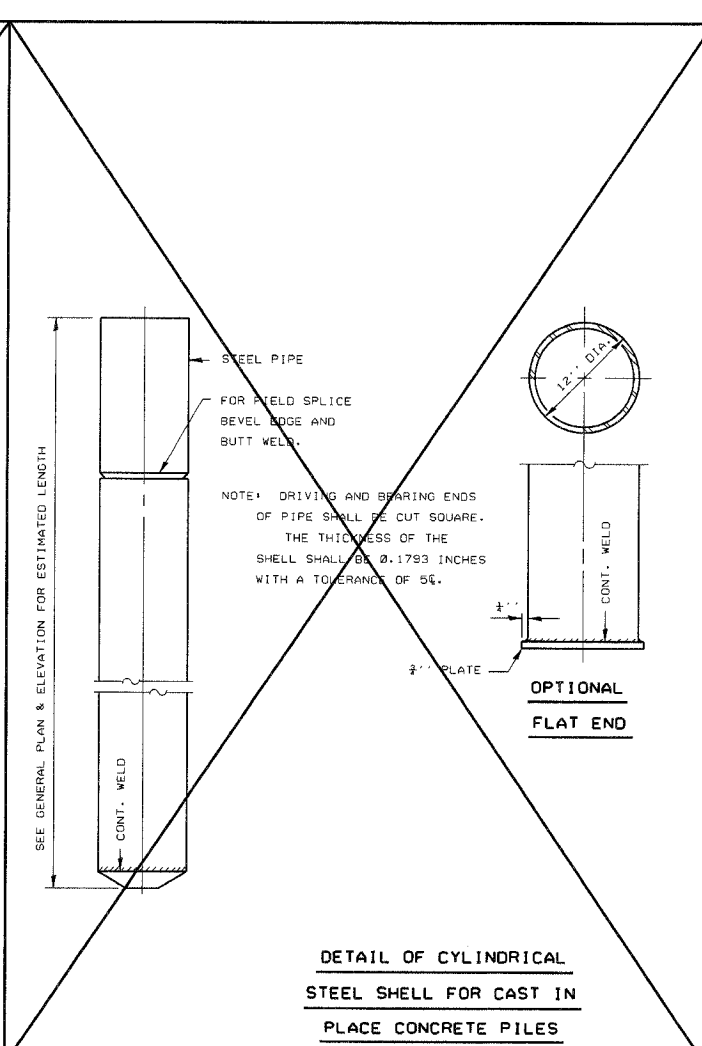
THE COST OF REINFORCEMENT IS INCIDENTAL TO THE COST OF FURNISHING PILES.



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 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.



QUANTITIES-LIN. FT. OF ENCASEMENT

STEEL PILES

PILE SIZE	ITEM	QUANTITY
HP8	CLASS S1 CONCRETE ENCASEMENT	0.063 C.Y.
HP10	CLASS S1 CONCRETE ENCASEMENT	0.086 C.Y.
HP12	CLASS S1 CONCRETE ENCASEMENT	0.112 C.Y.

METAL SHELL PILES

PILE SIZE	ITEM	QUANTITY
12" DIA.	CLASS S1 CONCRETE ENCASEMENT	0.087 C.Y.

PILE DETAILS
STANDARD CX-1