

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANS FOR PROPOSED
SURFACE TRANSPORTATION PROGRAM – BRIDGE
WHITEFIELD – WHEATLAND ROAD DISTRICTS
SECTION 05-12116-00-BR AND SECTION 08-24110-00-BR
MARSHALL – BUREAU COUNTIES
PROJECT NO. BROS-0123(023)
T.R. 3 OVER SCHOLES CREEK
JOB NO. C-94-081-06

CONTRACT NO. 89399



CLASSIFICATION: LOCAL ROAD RURAL
DESIGN VOLUME: UNDER 250 ADT
CURRENT ADT: 80 ADT (2014)
DESIGN SPEED: 30 MPH
3R DESIGN GUIDELINES

TOLL FREE JOINT UTILITY LOCATING
 INFORMATION FOR EXCAVATORS (J.U.L.I.E.)
 TELEPHONE NUMBER 1-800-892-0123

PASSED	1-29 2015 <i>Alan P. Madala</i> ROAD DISTRICT COMMISSIONER	2015
APPROVED	Jan. 28, 2015 <i>Paul S.</i> COUNTY ENGINEER	2015
PASSED	Feb. 2nd 2015 <i>Paul S.</i> DISTRICT FOUR ENGINEER OF LOCAL ROADS & STREETS	2015
RELEASED FOR BID BASED ON LIMITED REVIEW	February 2, 2015 <i>Paul S.</i> DEPUTY DIRECTOR OF HIGHWAYS, REGION THREE ENGINEER	2015

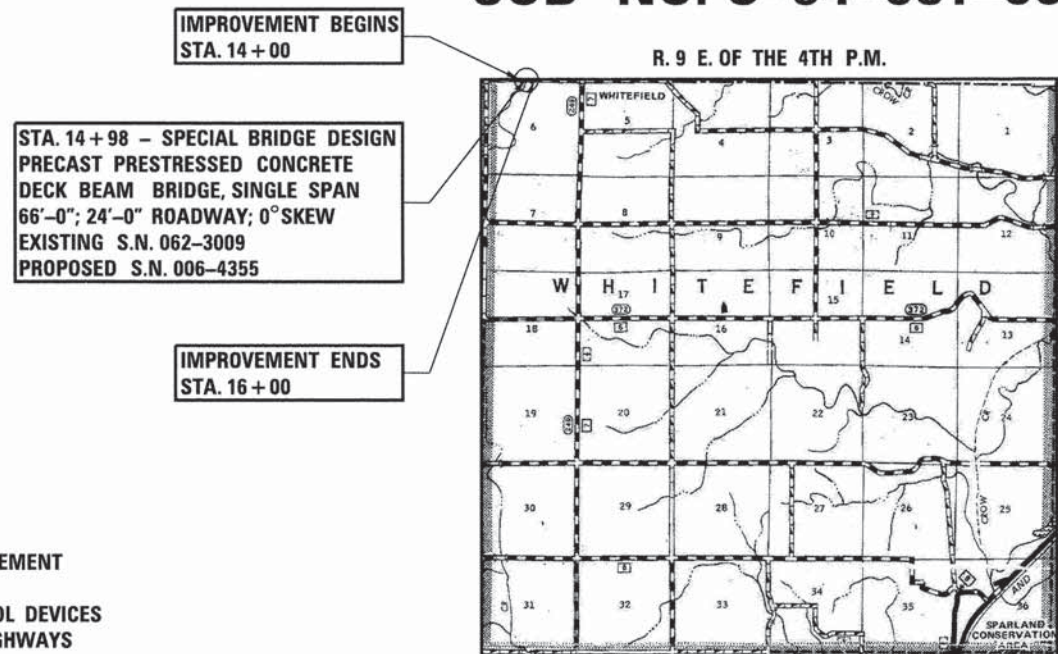
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET NO.	TITLE
1.	COVER SHEET
2.	SUMMARY OF QUANTITIES, GENERAL NOTES & TYPICAL SECTIONS
3.	PLAN AND PROFILE SHEET
4.-15.	BRIDGE PLANS
16.-17.	STATION CROSS SECTIONS

STANDARDS

280001-07	TEMPORARY EROSION CONTROL SYSTEMS
515001-03	NAME PLATE FOR BRIDGES
635006-03	REFLECTOR AND TERMINAL MARKER PLACEMENT
701901-04	TRAFFIC CONTROL DEVICES
BLR 21-9	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

SCALES



LOCATION PLAN

GROSS LENGTH OF SECTION = 200 FEET = 0.038 MILES
 NET LENGTH OF SECTION = 200 FEET = 0.038 MILES



FEHR GRAHAM
 ENGINEERING & ENVIRONMENTAL
 ILLINOIS IOWA WISCONSIN

ILLINOIS PROFESSIONAL DESIGN FIRM NUMBER: 184003525



Gary J. Cartwright 1-20-15
 ILLINOIS PROFESSIONAL NO. 43408
 EXPIRES 11-30-15

SUMMARY OF QUANTITIES

CODE NO.	ITEM	UNIT	QUANTITY
20200100	EARTH EXCAVATION	CU YD	8
20300100	CHANNEL EXCAVATION	CU YD	217
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	20
28000400	PERIMETER EROSION BARRIER	FOOT	475
28100209	STONE RIPRAP, CLASS A5	TON	428
28100809	STONE DUMPED RIPRAP, CLASS A5	TON	270
28200200	FILTER FABRIC	SQ YD	425
35100100	AGGREGATE BASE COURSE, TYPE A	TON	168
40600275	BITUMINOUS MATERIALS (PRIME COAT)	POUND	728
40602978	HOT-MIX ASPHALT BINDER COURSE, IL-9.5, N50	TON	25
40603310	HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N50	TON	25
44000100	PAVEMENT REMOVAL	SQ YD	338
48102100	AGGREGATE WEDGE SHOULDER, TYPE B	TON	4
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50300225	CONCRETE STRUCTURES	CU YD	23.4
50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ FT	1,584
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	3,040
50900205	STEEL RAILING, TYPE S1	FOOT	132
51200957	FURNISHING METAL SHELL PILES 12" X 0.250"	FOOT	315
51202305	DRIVING PILES	FOOT	315
51203200	TEST PILE METAL SHELLS	EACH	1
51500100	NAME PLATES	EACH	1
67100100	MOBILIZATION	L SUM	1
70101830	TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 21	L SUM	1
X2070302	POROUS GRANULAR EMBANKMENT, SPECIAL	TON	77
Z0013798	CONSTRUCTION LAYOUT	L SUM	1

*SEE SPECIAL PROVISIONS
 Δ SPECIALTY ITEMS

GENERAL NOTES

WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED BEFORE SUCH MONUMENTS ARE REMOVED. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL PROPERTY MARKS AND MONUMENTS UNTIL THE OWNER, AND AUTHORIZED SURVEYOR OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION.

THE AREA TO BE SEEDDED SHALL CONSIST OF ALL DISTURBED EARTH SURFACES WITHIN THE RIGHT OF WAY, AS DIRECTED BY THE ENGINEER.

COST OF SEEDING INCLUDED IN "REMOVAL OF EXISTING STRUCTURES"

APPLICATION RATES USED IN QUANTITY CALCULATIONS

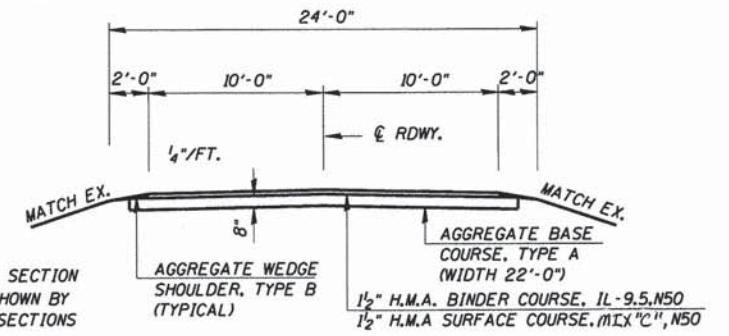
BITUMINOUS MATERIALS (PRIME COAT) ON AGGREGATE	0.25 LB./SQ. FT.
BITUMINOUS MATERIALS (PRIME COAT) ON HMA	0.025 LB./SQ. FT.
AGGREGATE BASE COURSE	2.05 TON/CU. YD.
STONE RIPRAP	1.65 TON/CU. YD.
AGGREGATE WEDGE SHOULDER, TYPE B	2.05 TON/CU. YD.
HOT-MIX ASPHALT (BINDER AND SURFACE COURSE)	112 LB./SQ. YD./IN.

HOT-MIX ASPHALT MIXTURE REQUIREMENTS

MIXTURE USE(S):	1 1/2" SURFACE COURSE	1 1/2" BINDER
RAP % (MAX):	10%	10%
AC/PG:	PG 64-22	PG 64-22
DESIGN AIR VOIDS:	4.0% @ N = 50	4.0% @ N = 50
MIXTURE COMPOSITION: (GRADATION MIXTURE)	IL 9.5	IL 9.5
FRICTION AGGREGATE	MIX C	N/A
QUALITY MANAGEMENT PROGRAM	OC 0A	OC 0A

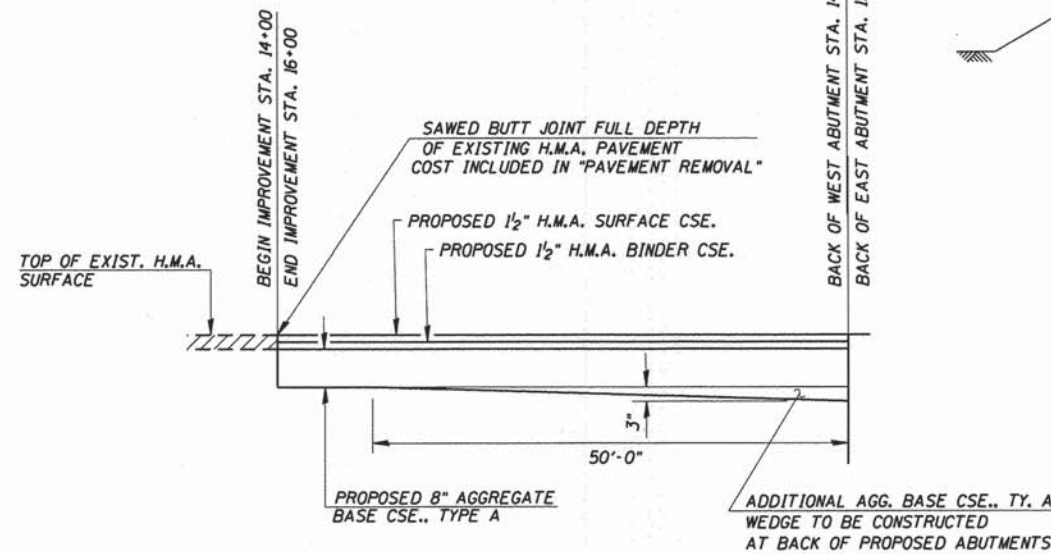
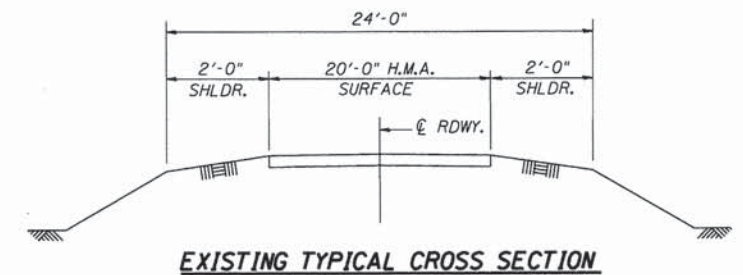
MATERIAL SHALL BE COMPACTED TO 93.0-97.4 PERCENT OF THE MAXIMUM THEORETICAL DENSITY, EXCEPT THAT WHEN PLACED AS FIRST LIFT ON AN UNIMPROVED SUBGRADE THE MINIMUM PERCENT COMPACTION SHALL BE 92.0 PERCENT. THE MAXIMUM THEORETICAL DENSITY SHALL BE DETERMINED FROM THE MOVING AVERAGE AS SPECIFIED IN THE OC/OA SPECIFICATION.

BINDER AND SURFACE COURSE MAY BE PLACED IN ONE 3 INCH LIFT.



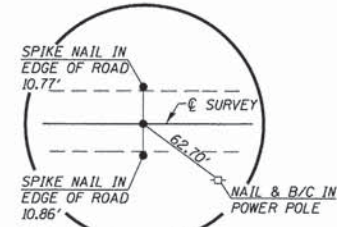
TYPICAL PROPOSED CROSS SECTION

STA. 14+00 TO STA. 14+64.21
 STA. 15+31.79 TO STA. 16+00



ROADWAY SCHEDULE

LOCATION	AGG. BASE COURSE, TYPE A	BITUMINOUS MATERIALS (PRIME COAT)	H.M.A. BINDER COURSE IL-9.5, N50	H.M.A. SURFACE COURSE MIX "C" N50	AGGREGATE WEDGE SHOULDER TYPE, B
	TON	POUND	TON	TON	TON
STA. 14+00 TO STA. 14+64.21	82	353	12	12	2
STA. 15+31.79 TO STA. 16+00	86	375	13	13	2
TOTAL	168	728	25	25	4



P.O.T. STA. 10+00.00
PK NAIL (FLUSH)

SW. 1/4, SEC. 31, T. 14 N., R. 9 E., 4TH P.M.
WHEATLAND ROAD DISTRICT, BUREAU COUNTY

LOREN REED AND SHARON COVERT AS TRUSTEES OF THE TRUST CREATED UNDER ARTICLE FIFTH OF THE LAST WILL AND TESTAMENT OF KENNETH P. REED

EROSION CONTROL

LOCATION	TEMPORARY EROSION CONTROL SEEDING	PERIMETER EROSION BARRIER
	POUND	FOOT
STA. 14+00 TO STA. 14+64.21	10	235
STA. 15+31.79 TO STA. 16+00	10	240
TOTAL	20	475

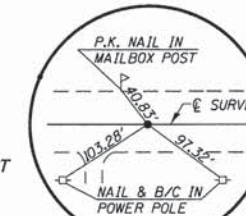
SE. 1/4, SEC. 31, T. 14 N., R. 9 E., 4TH P.M.
WHEATLAND ROAD DISTRICT, BUREAU COUNTY

ARDIS D. GREEK

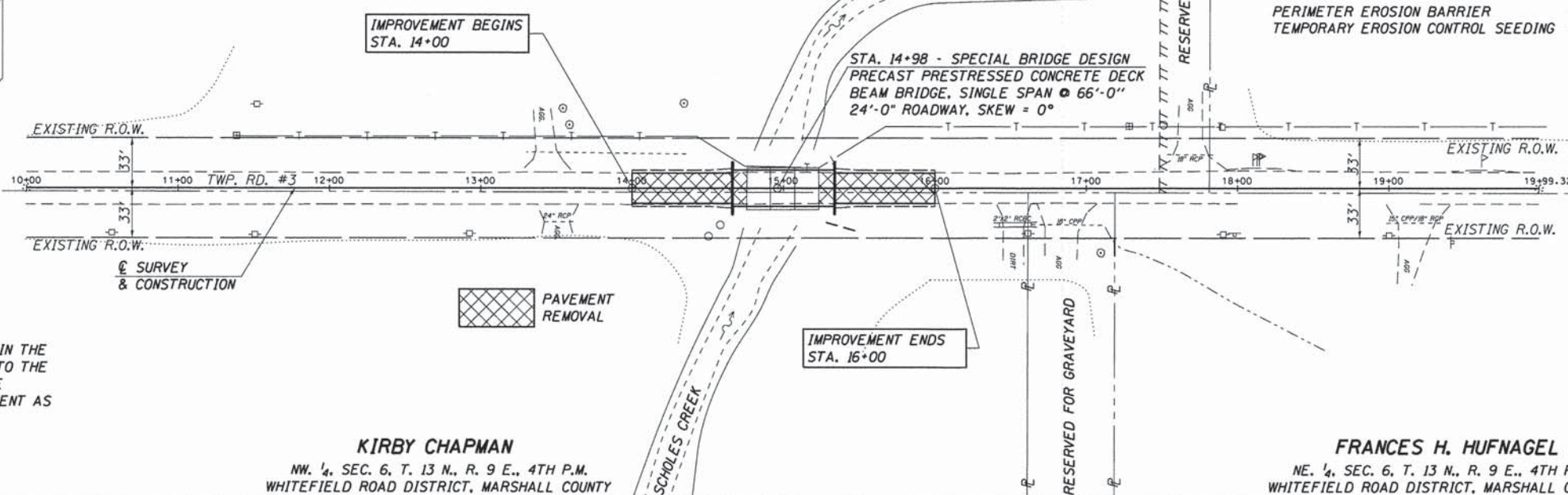
TEMPORARY EROSION CONTROL

THE FOLLOWING QUANTITIES ARE ESTIMATES ONLY. ACTUAL QUANTITIES FOR EROSION CONTROL WILL BE DETERMINED BY THE ENGINEER IN THE FIELD AND THERE WILL BE NO ADJUSTMENT IN ANY UNIT PRICE DUE TO A CHANGE IN PLAN QUANTITY.

PERIMETER EROSION BARRIER = 475 FOOT
TEMPORARY EROSION CONTROL SEEDING = 20 POUND



P.O.T. STA. 19+99.32
PK NAIL (FLUSH)



CHANNEL EXCAVATION

THE CHANNEL SHALL BE EXCAVATED AS SHOWN WITHIN THE LIMITS OF THE PROPOSED STRUCTURE THEN TAPER TO THE EXISTING CHANNEL AT THE R.O.W. LINES. SUITABLE EXCAVATED MATERIAL TO BE USED IN THE EMBANKMENT AS DIRECTED BY THE ENGINEER.

CHANNEL EXCAVATION = 217 CU. YD.

KIRBY CHAPMAN
NW. 1/4, SEC. 6, T. 13 N., R. 9 E., 4TH P.M.
WHITEFIELD ROAD DISTRICT, MARSHALL COUNTY

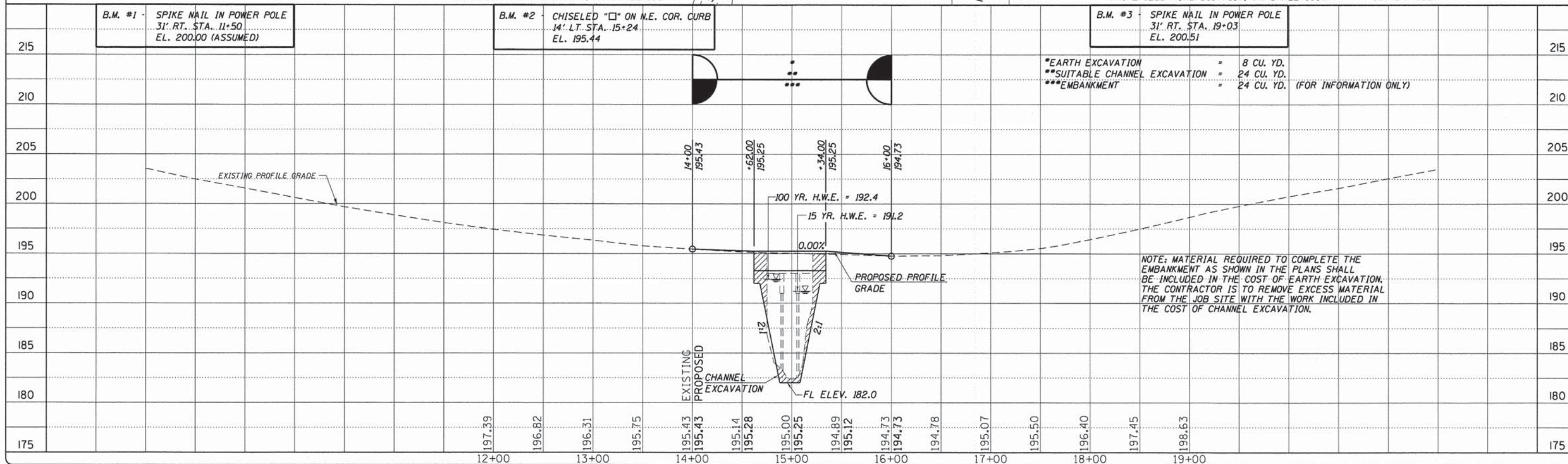
FRANCES H. HUFNAGEL
NE. 1/4, SEC. 6, T. 13 N., R. 9 E., 4TH P.M.
WHITEFIELD ROAD DISTRICT, MARSHALL COUNTY

BUREAU COUNTY
MARSHALL COUNTY
EXISTING STRUCTURE NO. 062-3009
3-SPAN PRECAST CONCRETE CHANNEL BEAM BRIDGE ON CLOSE TIMBER ABUTMENTS & TIMBER PILE BENT PIERS. REMOVE REMNANT OF CONCRETE WING WALL.
BK.-10-BK. = 50'-0"
0.-10-0. = 30'-0"
0° SKEW
REMOVAL OF EXISTING STRUCTURES = 1 EACH

UTILITIES

FRONTIER COMMUNICATIONS
DARRELL SENIOR
309-827-1253

AMERENCILCO - (NORTH)
KENT KOWALSKIE
309-677-5324



*EARTH EXCAVATION = 8 CU. YD.
**SUITABLE CHANNEL EXCAVATION = 24 CU. YD.
***EMBANKMENT = 24 CU. YD. (FOR INFORMATION ONLY)

NOTE: MATERIAL REQUIRED TO COMPLETE THE EMBANKMENT AS SHOWN IN THE PLANS SHALL BE INCLUDED IN THE COST OF EARTH EXCAVATION. THE CONTRACTOR IS TO REMOVE EXCESS MATERIAL FROM THE JOB SITE WITH THE WORK INCLUDED IN THE COST OF CHANNEL EXCAVATION.

FEHR GRAHAM
ENGINEERING & ENVIRONMENTAL
ILLINOIS DESIGN FIRM NO. 184-003525

ILLINOIS
IOWA
WISCONSIN

AGENCY:
MARSHALL - BUREAU COUNTIES
WHITEFIELD - WHEATLAND ROAD DISTRICTS

PROJECT:
SECTION 05-12116-00-BR &
08-24110-00-BR
T.R. 3 OVER SCHOLLES CREEK

DESIGNED: G. J. C.
CHECKED: R. D. F.
DRAWN: A. D. S.
CHECKED: R. D. F.

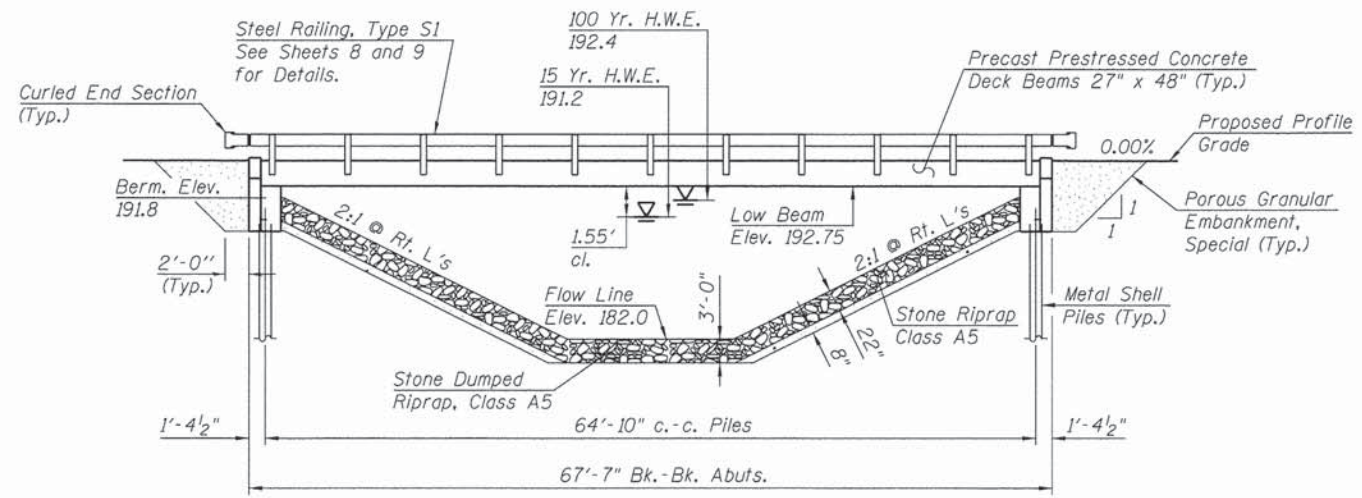
REVISIONS		
REV. NO.	DESCRIPTION	DATE

DRAWING:
PLAN & PROFILE

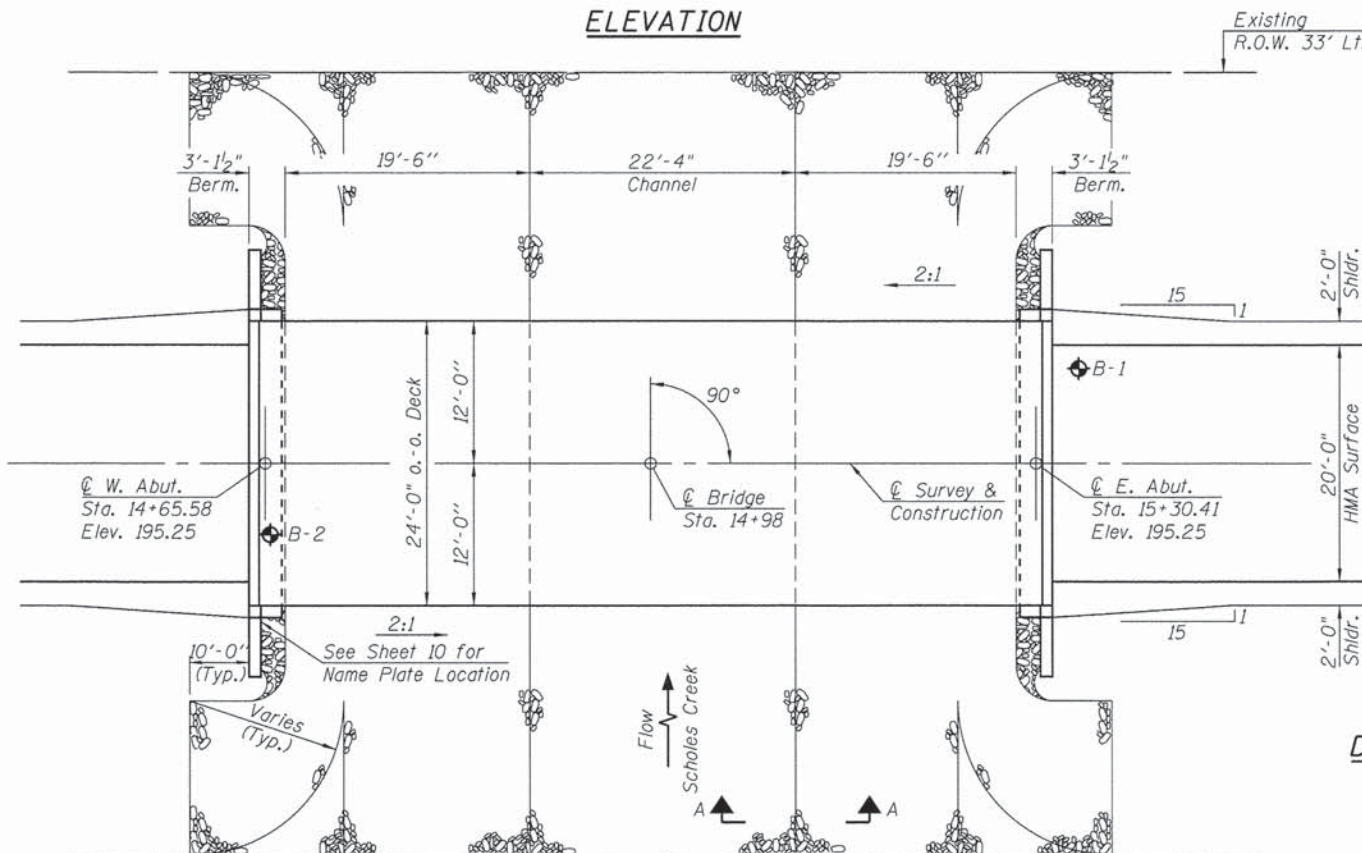
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CONTRACT #: 89399

JOB NUMBER:
46827W

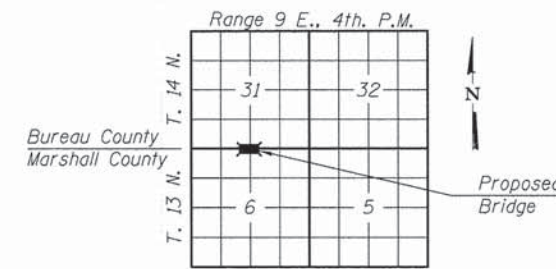
SHEET NUMBER
3 of 17



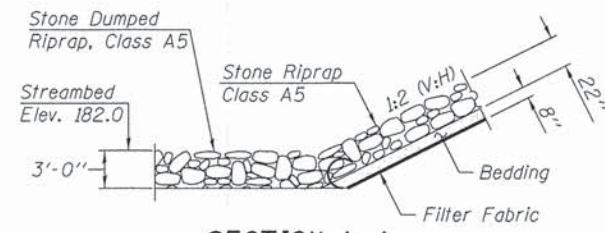
ELEVATION



PLAN



LOCATION PLAN



SECTION A-A

GENERAL NOTES

See sheets 12 thru 15 for Boring data.

Reinforcement bars shall conform to the requirements of ASTM A706 Grade 60.

The Contractor shall drive one metal shell test pile in a permanent location at the west abutment as directed by the Engineer, before ordering the remainder of piles.

Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.

See Special Provisions for material to be used as backfill at each abutment.

Reinforcement bars designated (E) shall be epoxy coated.

Structure Excavation will not be measured for payment but shall be included in the unit price bid for "Concrete Structures".

**SCHOLLES CREEK
BUILT 201_ BY
WHITEFIELD/WHEATLAND DISTRICT
MARSHALL/BUREAU COUNTIES
SEC. 05-12116-00-BR
SEC. 08-24110-00-BR
STR. NO. 006-4355 LOADING HL-93**

LETTERING FOR NAME PLATE
See Std. 515001

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq. Ft.	1,584		1,584
Concrete Structures	Cu. Yd.		23.4	23.4
Reinforcement Bars, Epoxy Coated	Pound		3,040	3,040
Steel Railing, Type S1	Foot	132		132
Name Plates	Each		1	1
Furnishing Metal Shell Piles 12" x 0.250"	Foot		315	315
Driving Piles	Foot		315	315
Test Pile Metal Shells	Each		1	1
Stone Riprap, Class A5	Ton		428	428
Filter Fabric	Sq. Yd.		425	425
Porous Granular Embankment, Special	Ton		77	77
Stone Dumped Riprap, Class A5	Ton		270	270

DESIGN SCOUR ELEVATION TABLE

Design Scour Elevations (ft.)	W. Abut.	E. Abut.
	189.8	189.8

DESIGN STRESSES

$f_c = 6,000$ p.s.i. (Prestressed Beams)
 $f_{ct} = 5,000$ p.s.i. (Prestressed Beams)
 $f_s = 270,000$ p.s.i. (Prestressed Strands)
 $f_{st} = 201,960$ p.s.i. (Prestressed Strands)
 $f_c = 3,500$ p.s.i. (Concrete -- Field Units)
 $f_y = 60,000$ p.s.i. (Reinf. Bars)

DESIGN SPECIFICATIONS

2014 AASHTO LRFD Bridge Design Specifications, 7th Edition

LOADING HL-93

Allow 50#/sq. ft. for future wearing surface.

"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 the style of structure and complies with requirements of the specified 'AASHTO LRFD Bridge Design Specifications'."

John A. Morris
ILLINOIS STRUCTURAL NO. 4277 (Expires 11/30/16)



**GENERAL PLAN & ELEVATION
WHITEFIELD - WHEATLAND ROAD DISTRICTS
SECTION 05-12116-00-BR & 08-24110-00-BR
MARSHALL - BUREAU COUNTIES
STATION 14+98**

SEISMIC DATA
 Seismic Performance Zone (SPZ) = 1
 Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.072
 Design Spectral Acceleration at 0.2 sec. (S_{D5}) = 0.120
 Soil Site Class = C

WATERWAY INFORMATION

Drainage Area 7.58 Sq. Mi.
 Existing Opening (15 Yr.) 313 Sq. Ft.
 Required Opening (15 Yr.) 375 Sq. Ft.
 Proposed Opening (15 Yr.) 375 Sq. Ft.
 Design Discharge (15 Yr.) 1317 C.F.S.
 Created Head (15 Yr.) 0.1 Ft.
 100 Year Discharge 2091 C.F.S.
 100 Yr. Created Head 0.3 Ft.



ENGINEERING & ENVIRONMENTAL
ILLINOIS DESIGN FIRM NO. 184-003525

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WHITEFIELD - WHEATLAND
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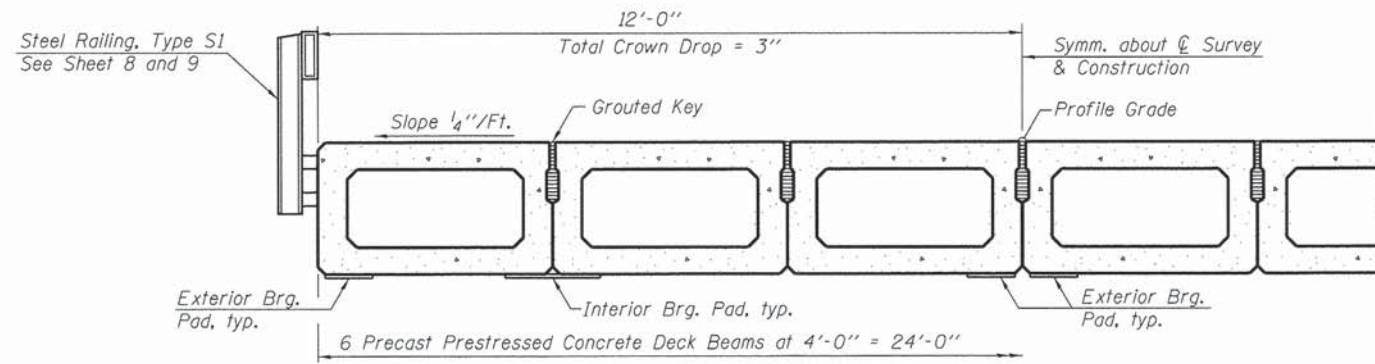
REVISIONS		
NO.	DESCRIPTION	DATE

DRAWING: GENERAL PLAN & ELEVATION

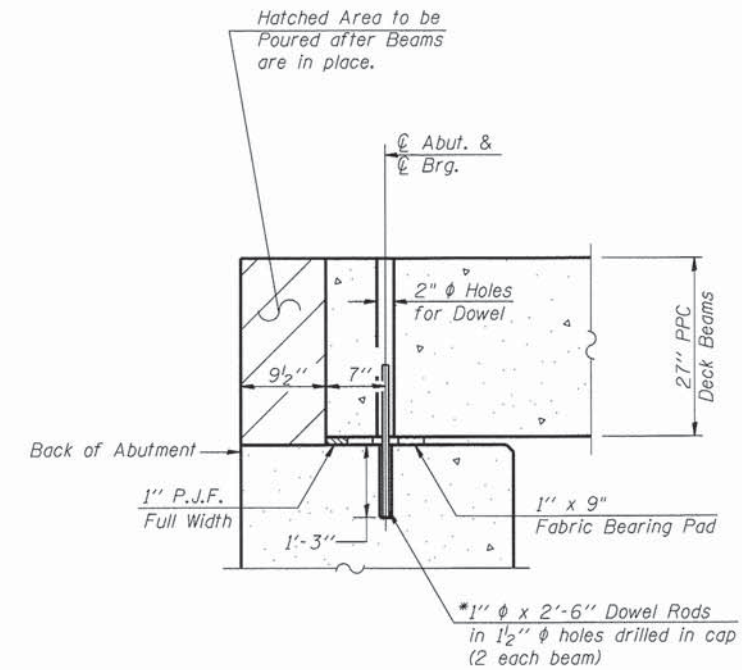
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CONTRACT #: 89399

JOB NUMBER:
46827W

SHEET NUMBER
4 of 17



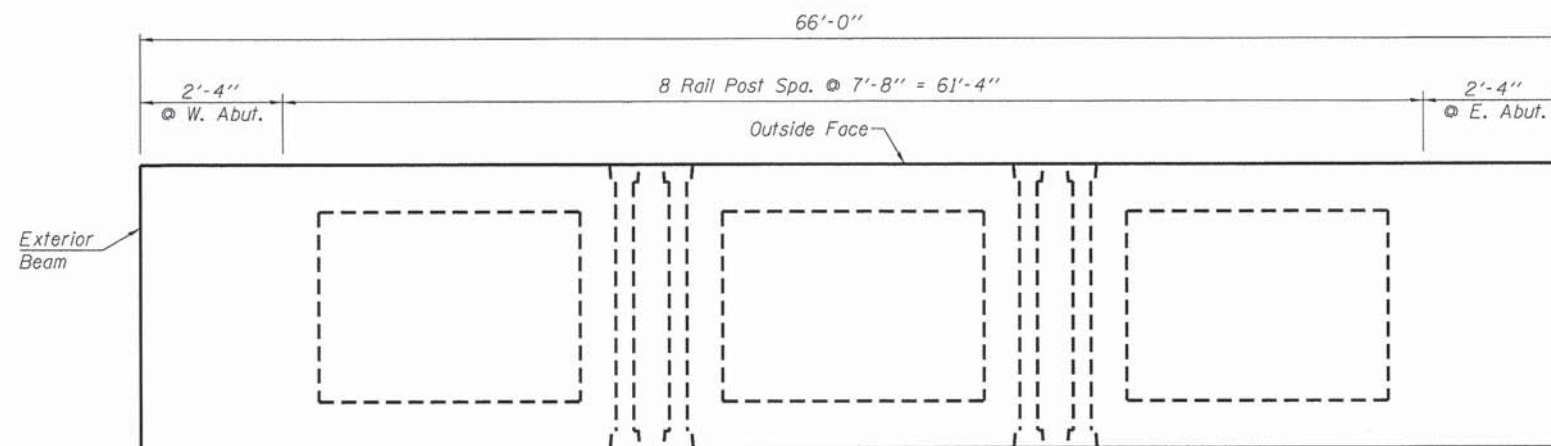
HALF CROSS SECTION



SEC. THRU ABUT.

(@ Rt. L's)

* Note: After beams are in place, 1 1/2" holes shall be drilled into the Substructure, and the dowel rods grouted in place and allowed to cure (Min. 24 Hrs.) prior to grouting shear key.



RAIL POST SPACING PLAN

FEHR GRAHAM

ENGINEERING & ENVIRONMENTAL

ILLINOIS DESIGN FIRM NO. 184-003525

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REVISIONS		
NO.	DESCRIPTION	DATE

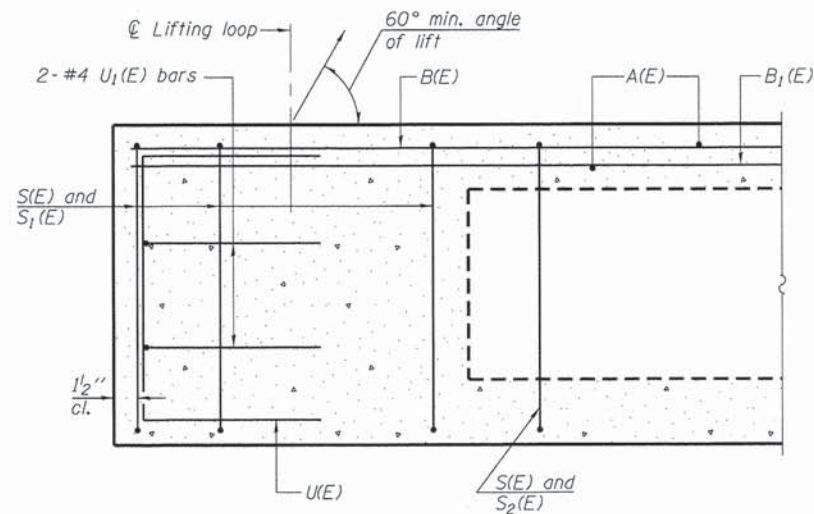
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SUPERSTRUCTURE

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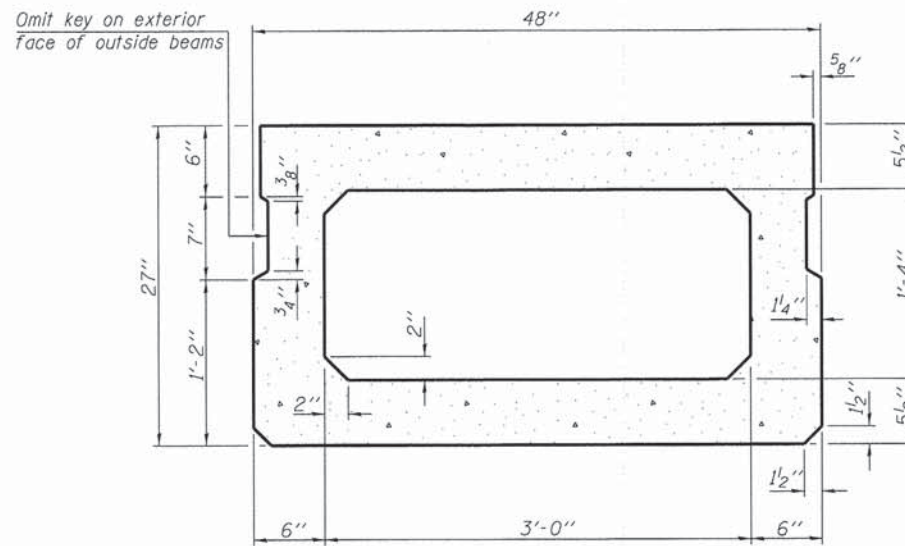
CONTRACT #: 89399

JOB NUMBER:
46827W

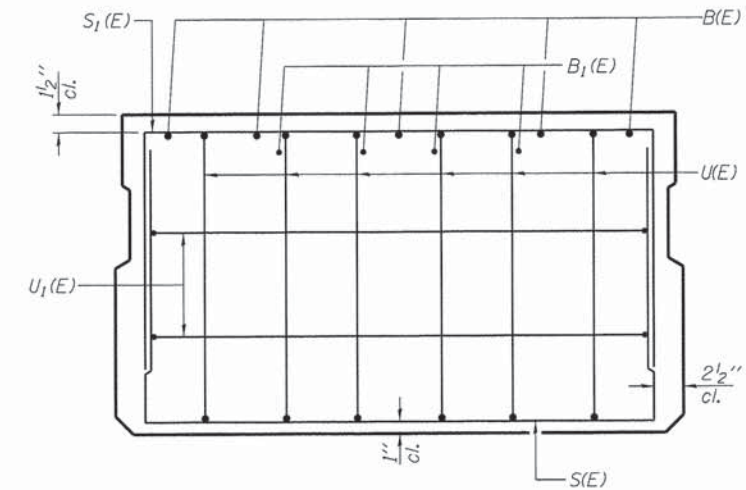
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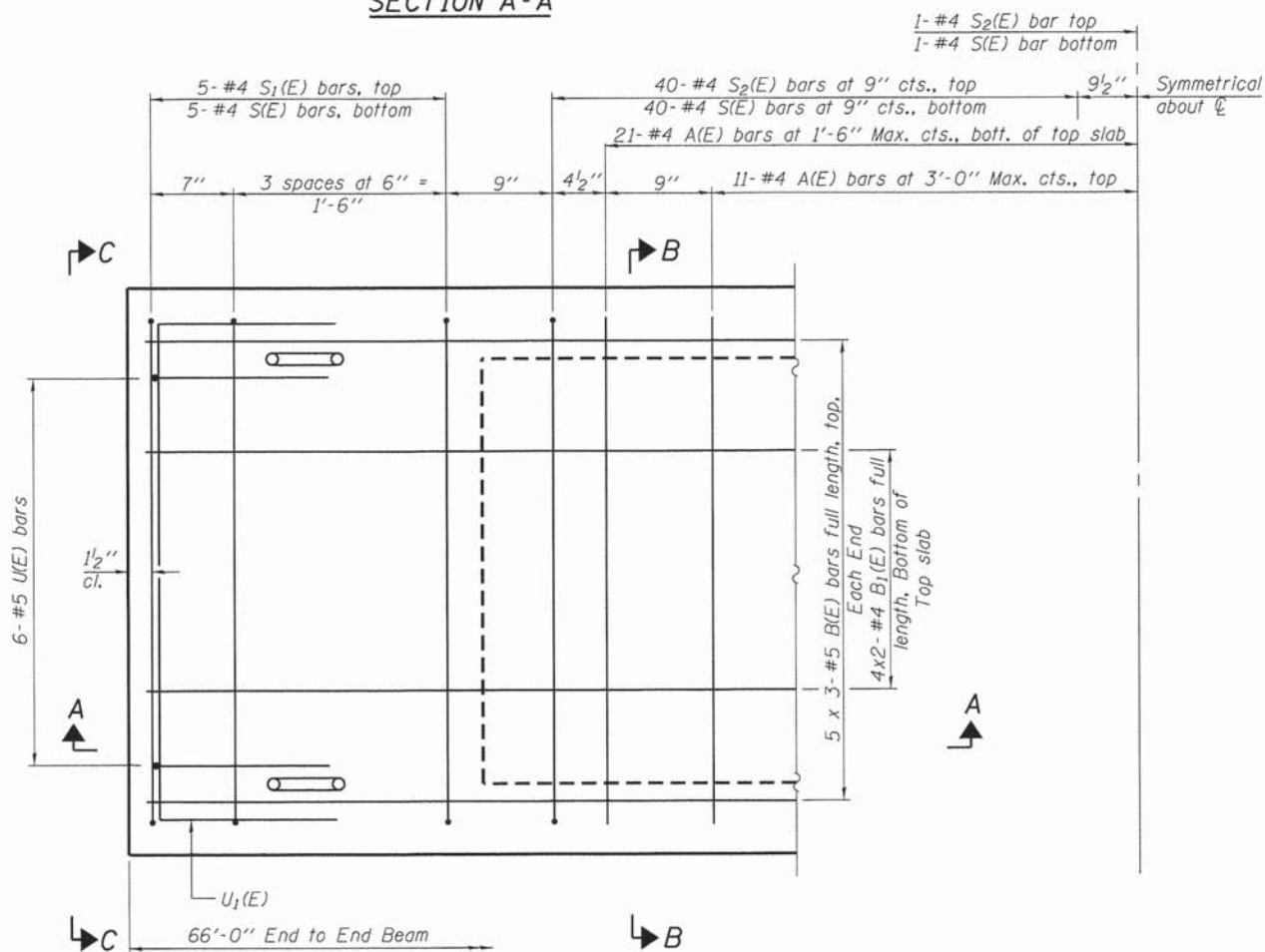
SECTION A-A



SECTION B-B
(Showing dimensions)



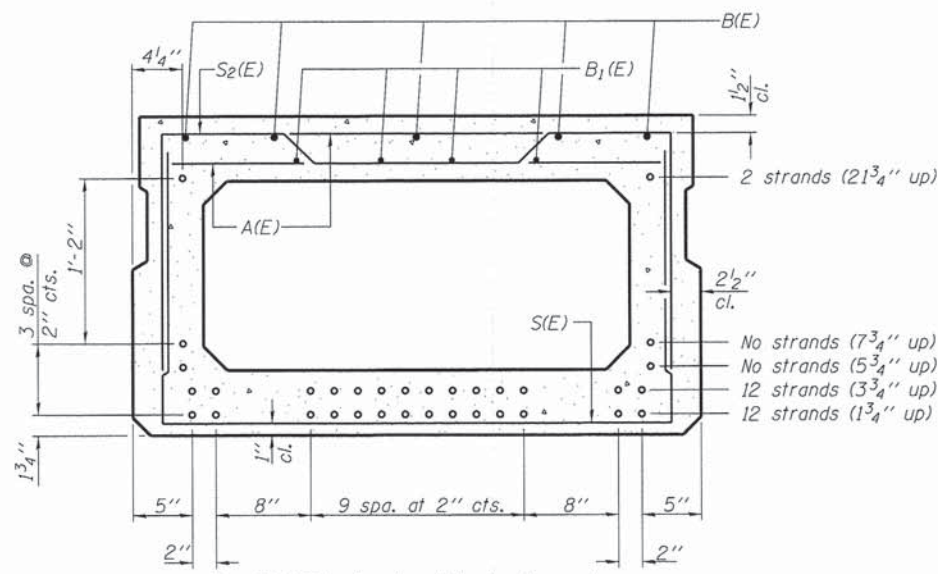
VIEW C-C



PLAN VIEW

Notes: Spacing of S(E) and S2(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.

Bars indicated thus, 4x2-#4 bars etc., indicates 4 lines of bars of bars with 2 lengths per line.



SECTION B-B

(Showing reinforcement and permissible strand locations)

Note: Place the number of strands specified in each row symmetrically about the centerline of beam in the permissible strand locations shown.

Use 26-1/2" φ strands at the locations shown.

BAR LIST
ONE BEAM ONLY

(For information only)

Bar	No.	Size	Length	Shape
A(E)	62	#4	3'-7"	—
B(E)	15	#5	23'-8"	—
B1(E)	8	#4	34'-0"	—
S(E)	91	#4	7'-5"	U
S1(E)	10	#4	6'-11"	U
S2(E)	81	#4	7'-2"	U
U(E)	12	#5	4'-6"	C
U1(E)	4	#4	6'-0"	U

Note: See sheet 7 for additional details and Bill of Material. Reinforcement bars designated (E) shall be epoxy coated.

MINIMUM BAR LAP

#4 bar = 2'-0"
#5 bar = 2'-6"

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ENGINEERING & ENVIRONMENTAL

ILLINOIS DESIGN FIRM NO. 184-003525

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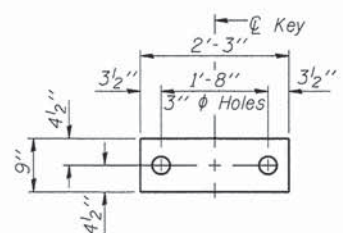
REVISIONS		
NO.	DESCRIPTION	DATE

DRAWING:
27' X 48' PPC DECK BEAM

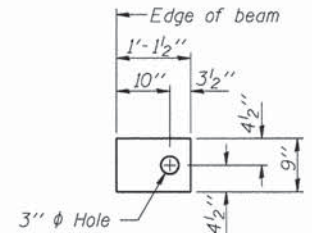
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CONTRACT #: 89399

JOB NUMBER:
46827W

SHEET NUMBER
6 of 17



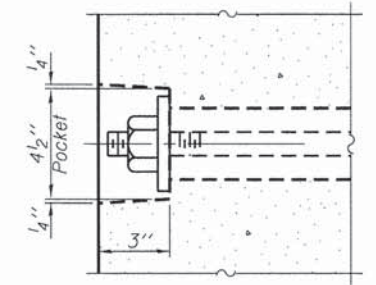
FABRIC BEARING PAD
(Interior)
(8 Required)



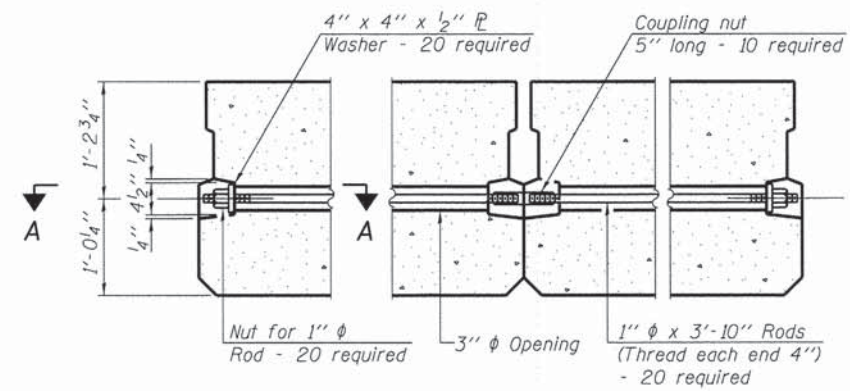
FABRIC BEARING PAD
(Exterior)
(8 Required)

FIXED

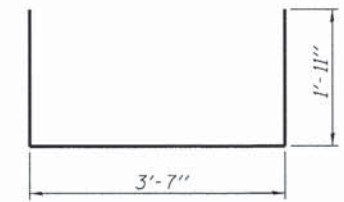
Notes:
All bearing pads shall be 1" thick.



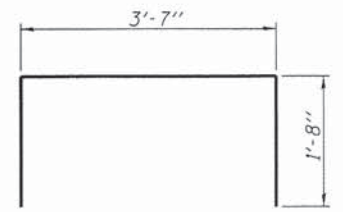
SECTION A-A



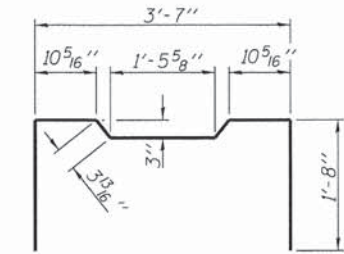
TYPICAL TRANSVERSE TIE ASSEMBLY



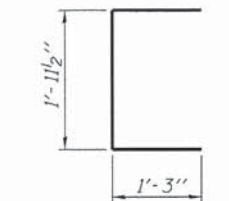
BAR S(E)



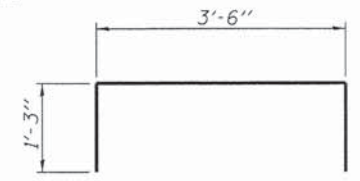
BAR S1(E)



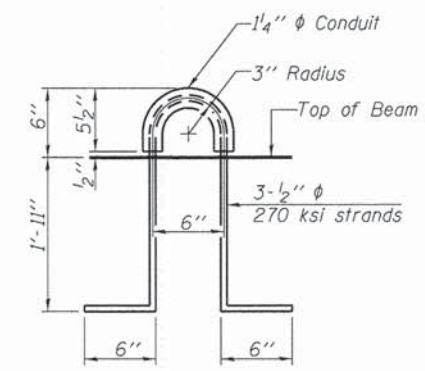
BAR S2(E)



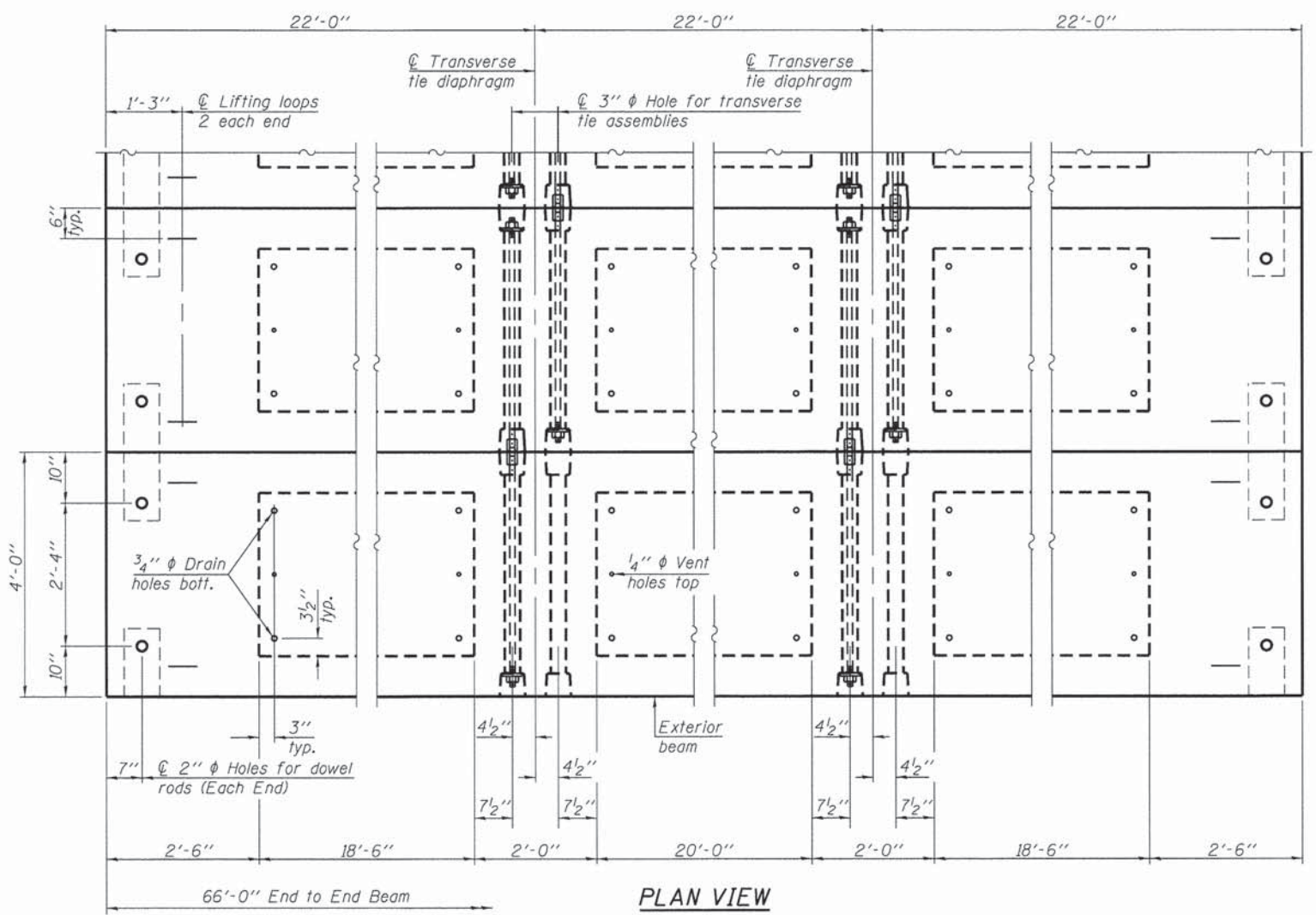
BAR U(E)



BAR U1(E)



LIFTING LOOP DETAIL



PLAN VIEW

Note: Connect beams in pairs with the transverse tie configuration shown.

BILL OF MATERIAL

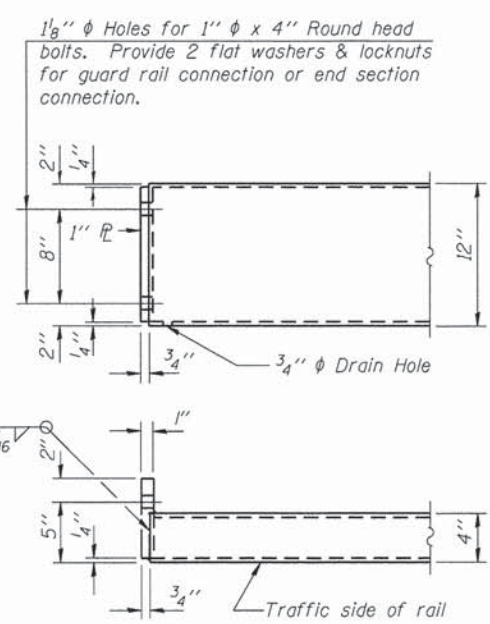
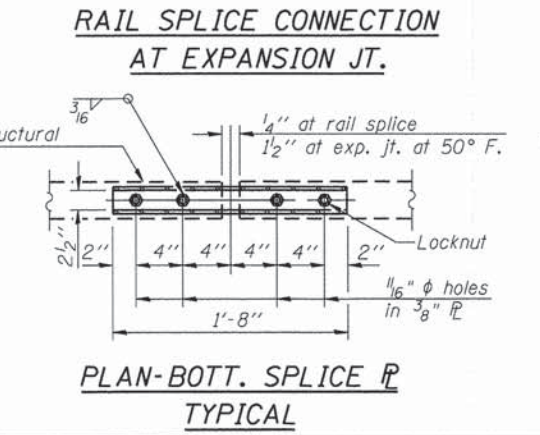
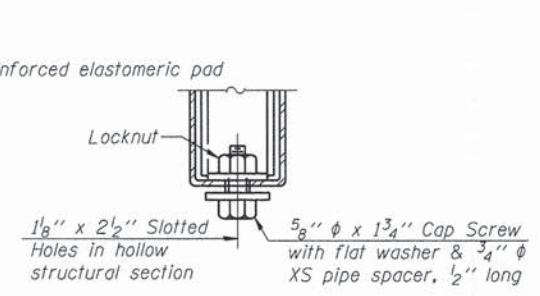
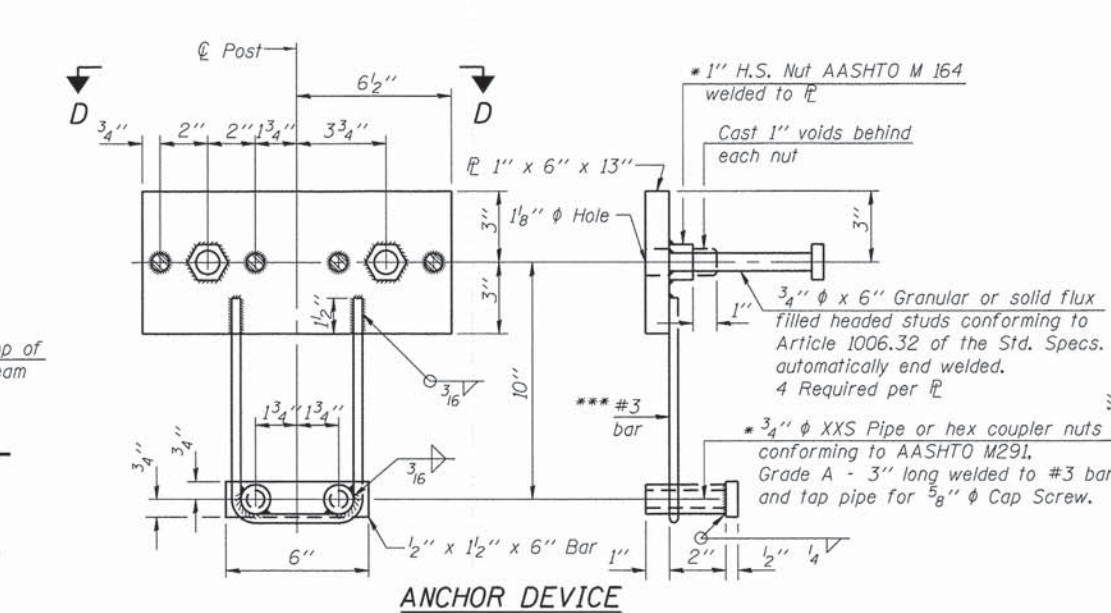
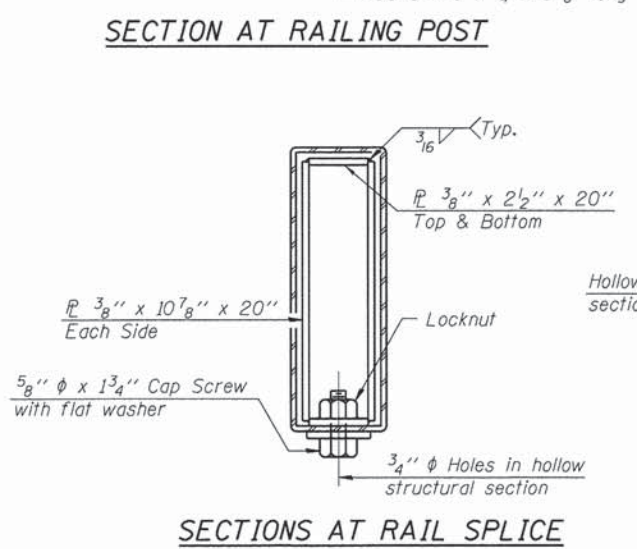
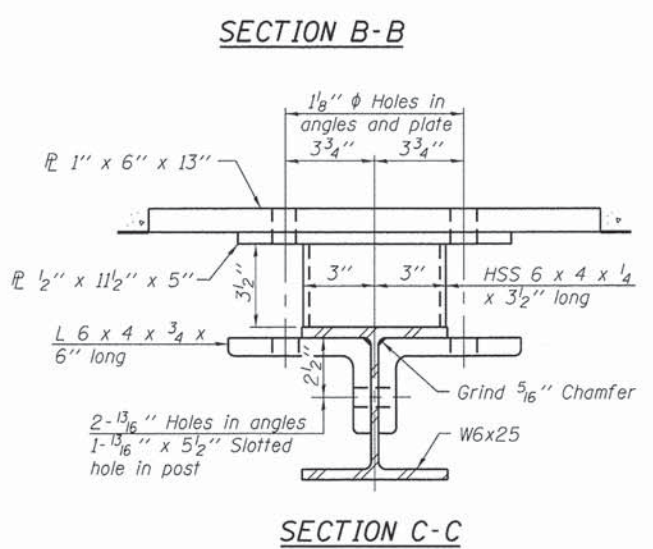
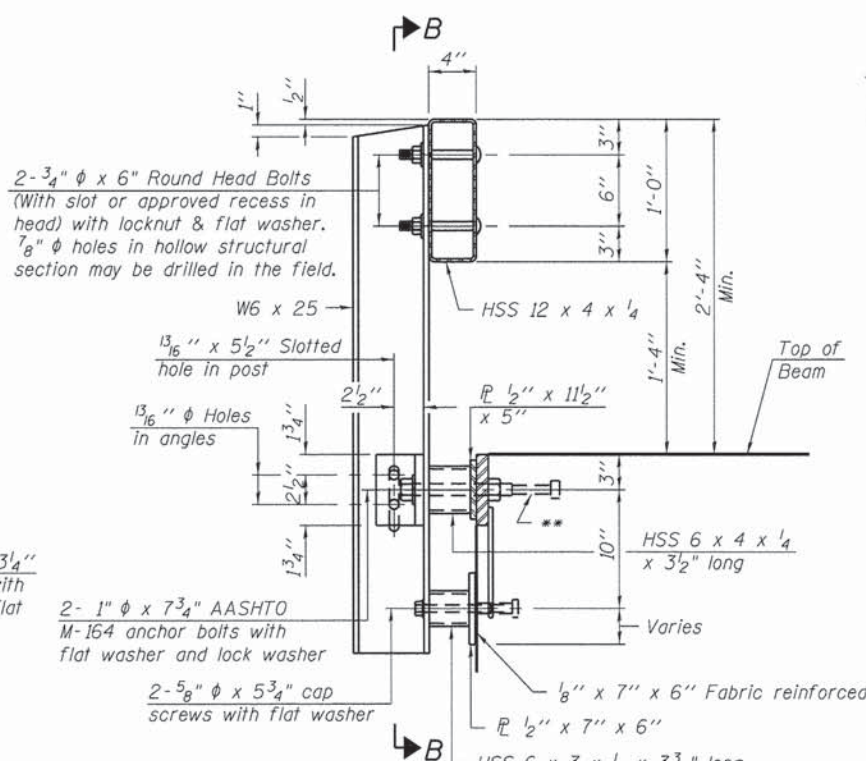
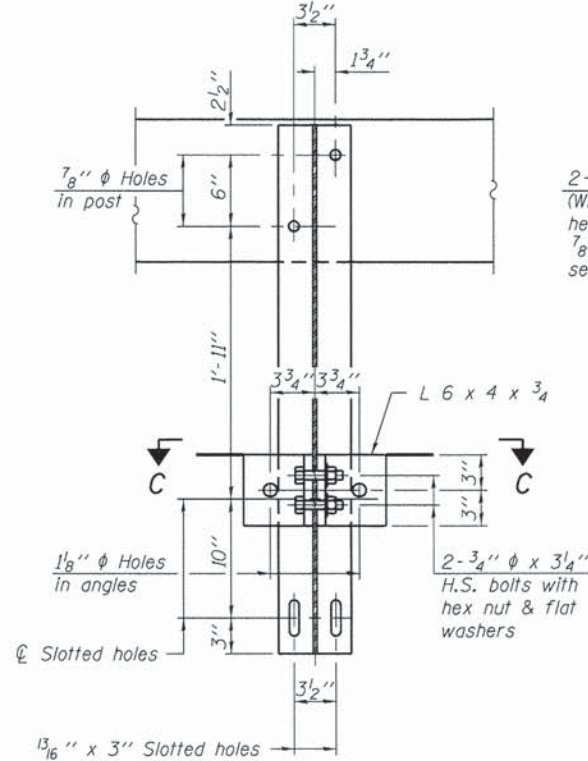
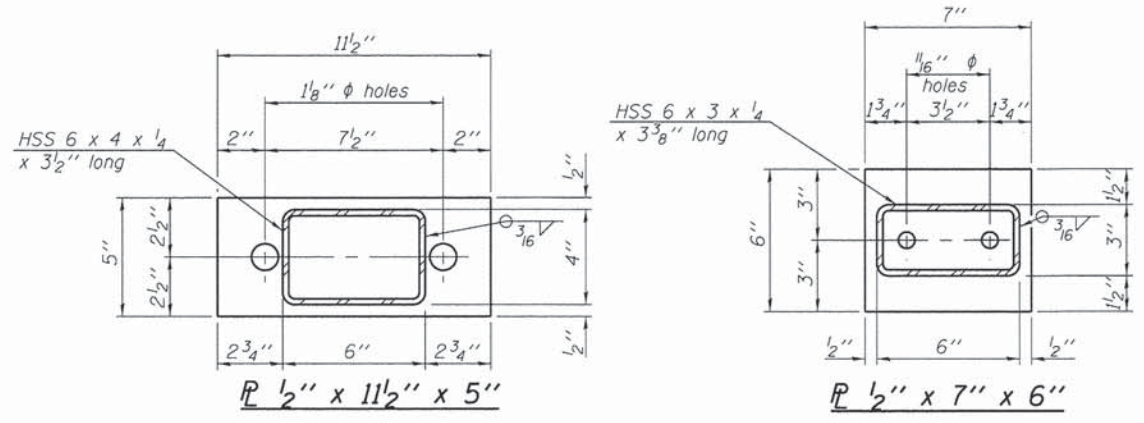
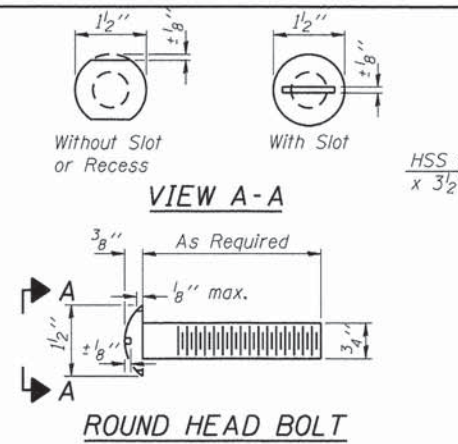
Precast Prestressed Conc. Deck Bms. (27" depth)	Sq. Ft.	1584
-------------------------------------------------	---------	------

Estimated Total Weight (One Beam) = 56,250 Pounds

NOTES

- Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in.
- The 1" diameter rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place.
- Reinforcement bars shall conform to ASTM A 706, Grade 60.
- Two 1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location. (32 Required)
- A minimum 2 1/2" diameter lifting pin shall be used to engage the lifting loops during handling.
- Corrosion Inhibitor, per Article 1020.05(b)(10) and 1021.07 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.
- Compressive strength of prestressed concrete, f'c, shall be 6000 psi.
- Compressive strength of prestressed concrete at release, f'ci, shall be 5000 psi.
- Rail post inserts, specified elsewhere, shall be cast into the exterior face of the outside beams.
- See Special Provisions for review and distribution of shop drawings.

REVISIONS		
NO.	DESCRIPTION	DATE



Notes:
All field drilled holes shall be coated with an approved zinc rich paint before erection.
All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.
* Threaded areas of nuts or pipes used for anchor devices shall be plugged or blocked off during casting of beam.
** The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.
*** 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".

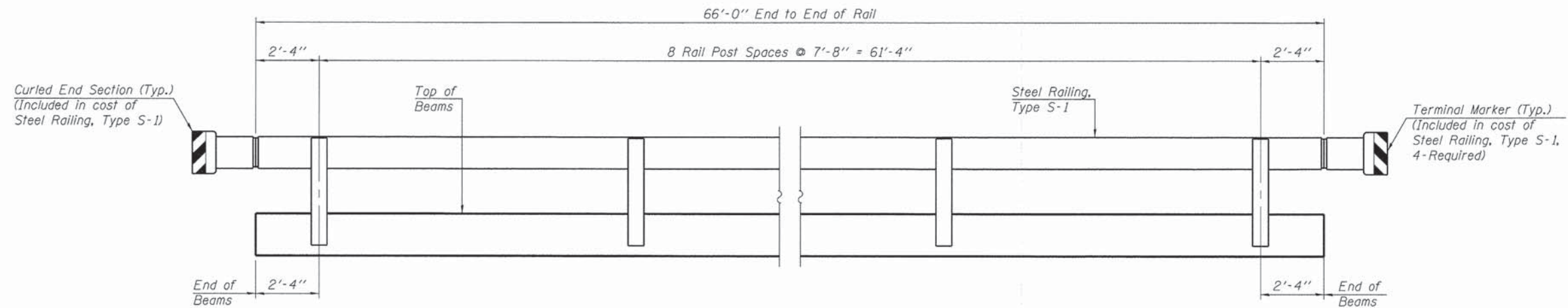
BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	132

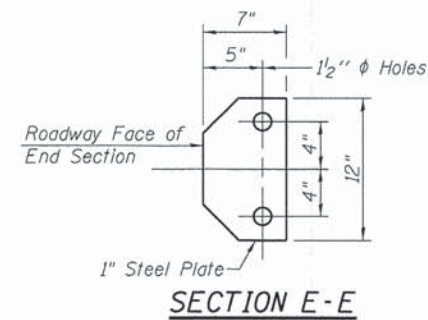
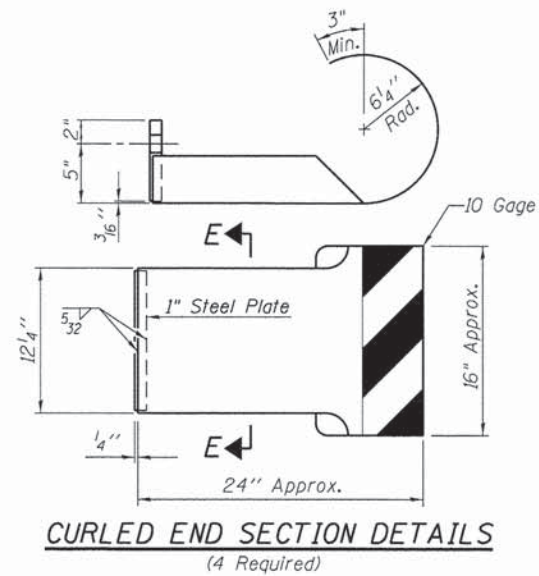
See sheet 9 for Rail Post Spacing and Curled End Section Details.

REVISIONS

NO.	DESCRIPTION	DATE



ELEVATION



SECTION E-E

See sheet 8 for Steel Railing Details.

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AGENCY:
MARSHALL - BUREAU COUNTIES
WHITEFIELD - WHEATLAND
ROAD DISTRICTS

PROJECT:
SECTION 05-12116-00-BR &
08-24110-00-BR
T.R. 3 OVER SCHOLLES CREEK

DESIGNED: J. A. M.
CHECKED: A. R. K.
DRAWN: A. D. S.
CHECKED: A. R. K.
J. A. M.

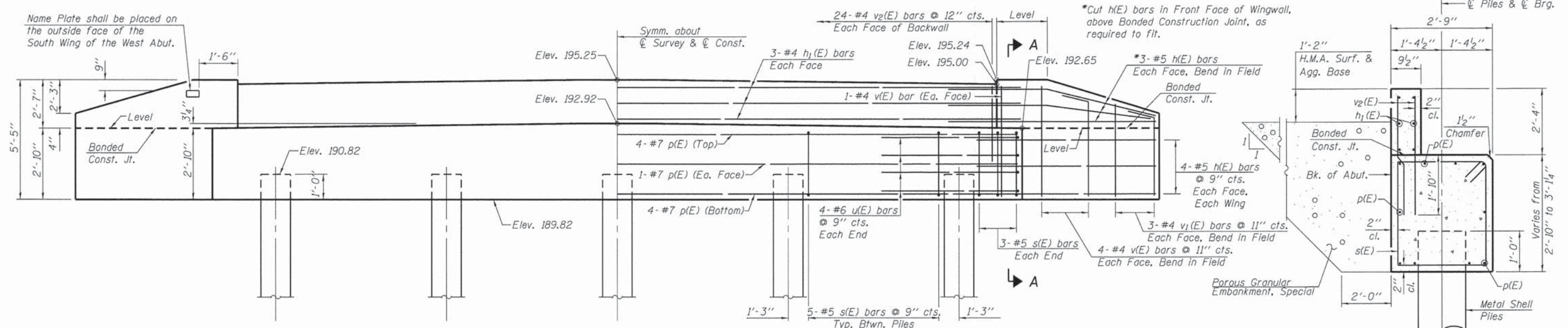
REVISIONS		
NO.	DESCRIPTION	DATE

DRAWING:
STEEL RAILING, TYPE S-1

48827W_RAIL.dgn
CONTRACT #: 89399

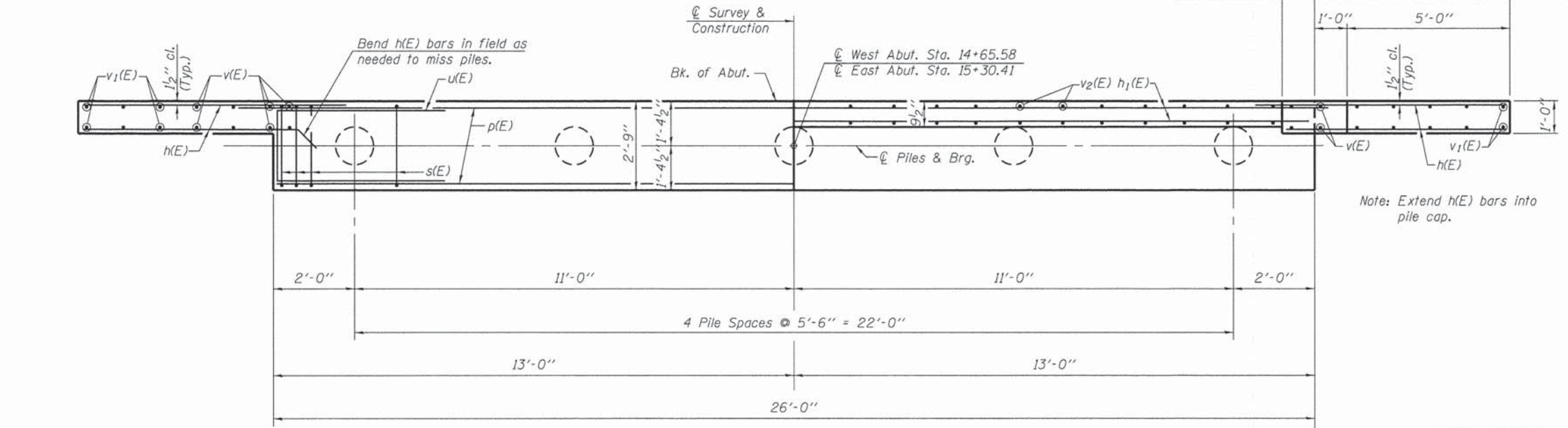
JOB NUMBER:
46827W

SHEET NUMBER
9 of 17



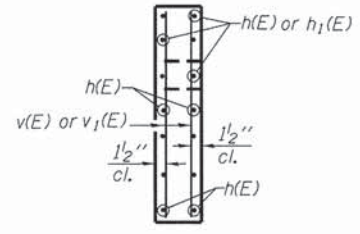
ELEVATION

Note: After beams are in place and dowel rods grouted, the backwall and the portions of the wingwalls above the Bonded Construction Joint shall be poured.



PLAN

SECTION THRU ABUT.



SECTION A-A

**2 ABUTMENTS
BILL OF MATERIAL**

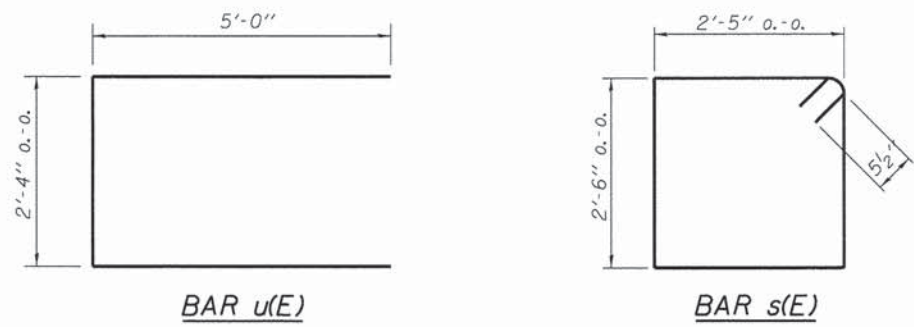
Bar	No.	Size	Length	Shape
h(E)	56	#5	7'-6"	—
h1(E)	12	#4	27'-0"	—
p(E)	20	#7	25'-8"	—
s(E)	52	#5	10'-9"	□
u(E)	16	#6	12'-4"	▭
v(E)	40	#4	5'-2"	—
v1(E)	24	#4	3'-10"	—
v2(E)	96	#4	4'-0"	—
Concrete Structures		Cu. Yd.	23.4	
Reinforcement Bars, Epoxy Coated		Pound	3040	
Name Plates		Each	1	
Furnishing Metal Shell Piles 12" x 0.250"		Foot	315	
Driving Piles		Foot	315	
Test Pile Metal Shells		Each	1	

PILE DATA

Type & Size.....Metal Shell 12" x 0.250"
 No. Req'd. (2 Abuts.).....*10
 Nominal Required Bearing.....300 kips
 Factored Resistance Available.....165 kips
 Estimated Length.....35 ft.

*Includes 1 Test Pile to be driven in a permanent location at the West abutment.

The test piles shall be driven to 110 percent of the Nominal Required Bearing indicated above.

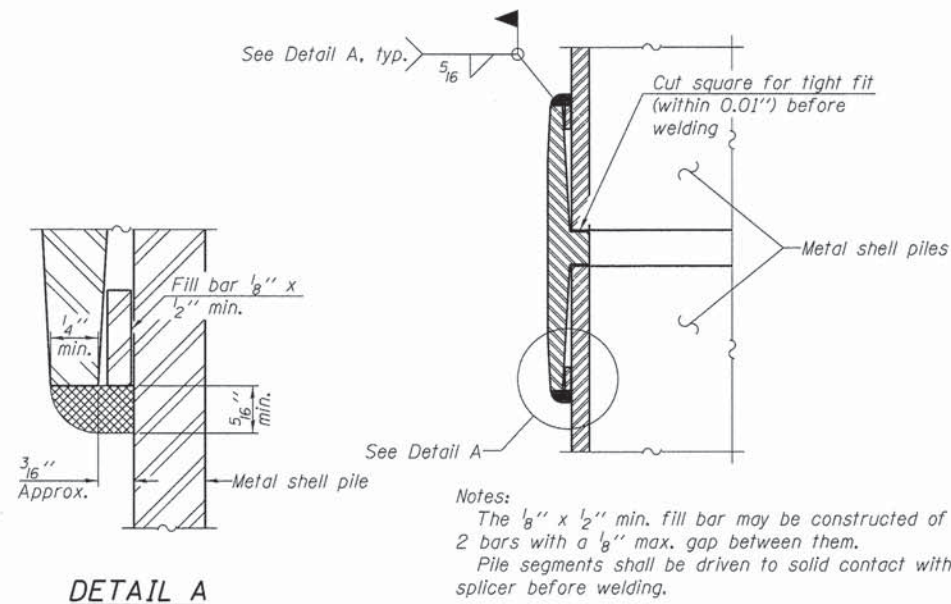


REVISIONS		
NO.	DESCRIPTION	DATE

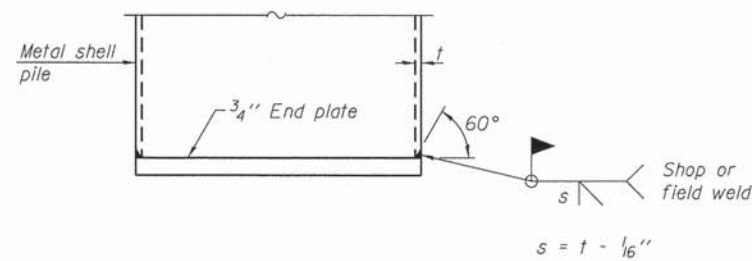


METAL SHELL PILE TABLE

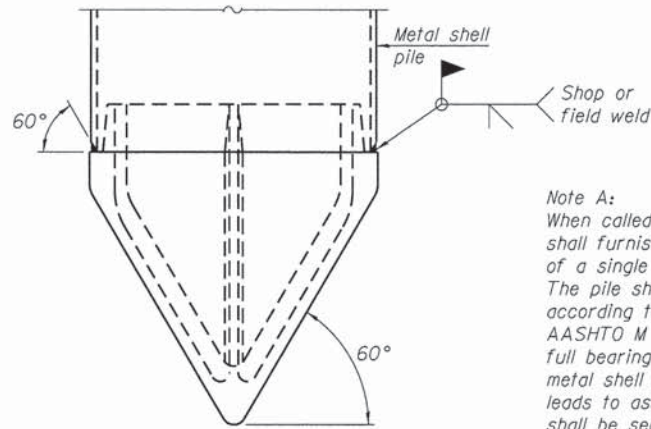
Designation and outside diameter	Wall thickness t	Weight per foot (Lbs./ft.)	Inside volume (yd. ³ /ft.)
PP12	0.179"	22.60	0.0274
PP12	0.250"	31.37	0.0267
PP14	0.250"	36.71	0.0368
PP14	0.312"	45.61	0.0361



WELDED COMMERCIAL SPLICE



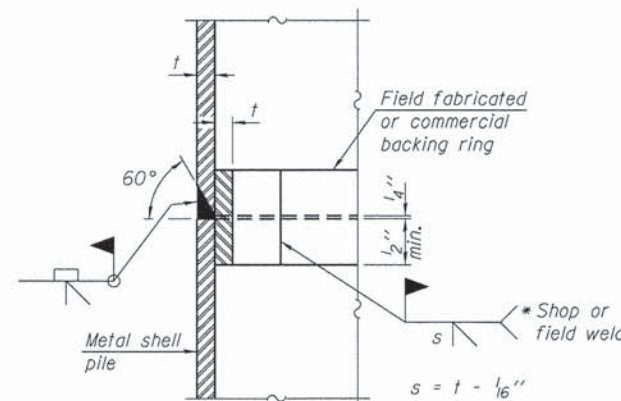
END PLATE ATTACHMENT



Note A:
When called for on the plans, the Contractor shall furnish metal shell pile shoes consisting of a single piece conical pile point as shown. The pile shoes shall be cast in one piece steel according to either ASTM A 148 Grade 90-60 or AASHTO M 103 Grade 65-35 and shall provide full bearing over the full circumference of the metal shell pile. The pile shoe shall have tapered leads to assure proper alignment and fitting and shall be secured to the pile with a circumferential weld.

METAL SHELL PILE SHOE ATTACHMENT

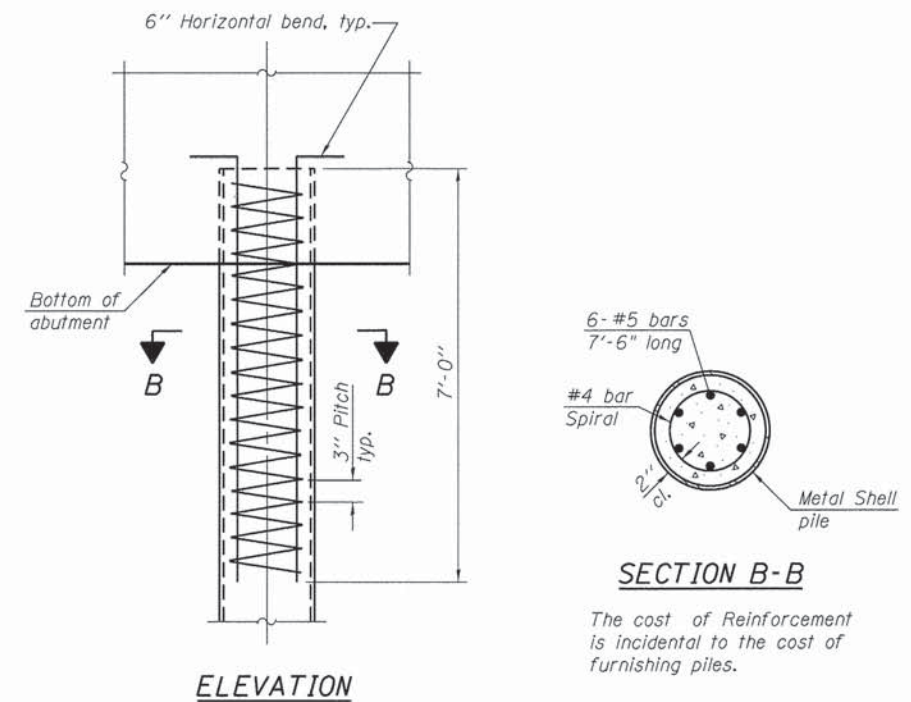
(See Note A)



COMPLETE PENETRATION WELD SPLICE

* Field fabricated backing ring may be made from pile shell by removing segment to allow reducing circumference and vertically rejoin with partial joint penetration weld.

Note:
The metal shell piles shall be according to ASTM A 252 Grade 3.

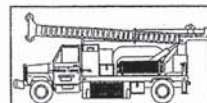


ELEVATION

METAL SHELL REINFORCEMENT AT ABUTMENTS

SECTION B-B

The cost of Reinforcement is incidental to the cost of furnishing piles.



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BORING LOG

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Sheet 1 of 4

Client: Fehr-Graham & Associates, LLC
Project Name: Section 05-12116-00-BR Whitefield Road District
Project Site: Marshal County, Illinois

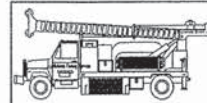
Boring No. B-1
Surface Elev. 194.82
Auger Depth 76' Rotary Depth NA
Start Date 05/13/08 Finish Date 05/13/08

Location: 8' Lt. Station 15+34

(DEPTH) ELEV.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES						DRILLED BY	REMARKS
				Sample No.	Sample Type	Qu (TSF)	N Value (Blows)	Bulge / Shear	Moisture (%)		
194.82										Randy Safranski Diedrich D-120	
193.82			1								
192.82			2								
191.82	Stiff Black And Brown Clay To Sandy Clay (Fill)		3	1	SS	1.4	7	S	14		
190.82			4								
189.82			5	2	SS	1.7	10	S	12		
188.82			6								
187.82			7								
186.82			8	3	SS	1.4	8	B	19		
185.82	Stiff Black Silty Clay		9								
184.82			10	4	SS	1.2	8	B	22		
183.82			11								
182.82			12								
181.82	Very Stiff Brownish Gray Till		13	5	SS	3.0	16	B	16		
180.82			14								
179.82			15	6	SS	3.3	21	B	14		
178.82			16								
177.82			17								
176.82			18	7	SS	3.0	20	B	14		
175.82	Hard Brownish Gray To Gray Till		19								
174.82			20	8	SS	4.2	25	B	13		

Groundwater Data: Static water level after auger removal - elevation 185.0.

Comments:



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Peru, IL 61354

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Sheet 2 of 4

Client: Fehr-Graham & Associates, LLC
Project Name: Section 05-12116-00-BR Whitefield Road District
Project Site: Marshal County, Illinois

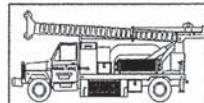
Boring No. B-1
Surface Elev. 194.82
Auger Depth 76' Rotary Depth NA
Start Date 05/13/08 Finish Date 05/13/08

Location: 8' Lt. Station 15+34

(DEPTH) ELEV.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES						DRILLED BY	REMARKS
				Sample No.	Sample Type	Qu (TSF)	N Value (Blows)	Bulge / Shear	Moisture (%)		
173.82										Randy Safranski Diedrich D-120	
172.82	Hard Gray Clay		22								
171.82			23	9	SS	4.4	27	B	13		
170.82	Very Stiff Gray Clay Till		24								
169.82			25	10	SS	3.6	24	B	13		
168.82			26								
167.82			27								
166.82			28	11	SS	3.4	22	B	15		
165.82	Hard Gray Clay Till		29								
164.82			30	12	SS	4.6	28	B	13		
163.82			31								
162.82			32								
161.82			33	13	SS	4.2	26	B	13		
160.82			34								
159.82			35								
158.82			36	14	SS	4.1	26	B	13		
157.82			37								
156.82			38								
155.82			39								
154.82			40								
153.82			41	15	SS	4.5	25	B	12		

Groundwater Data: Static water level after auger removal - elevation 185.0.

Comments:



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Peru, IL 61354

BORING LOG

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Sheet 3 of 4

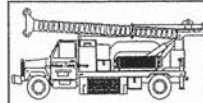
Client: Fehr-Graham & Associates, LLC
Project Name: Section 05-12116-00-BR Whitefield Road District
Project Site: Marshal County, Illinois

Boring No. B-1
Surface Elev. 194.82
Auger Depth 76' Rotary Depth NA
Start Date 05/13/08 Finish Date 05/13/08

Location: 8' Lt. Station 15+34

(DEPTH) ELEV.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES						DRILLED BY	
				Sample No.	Sample Type	Qu (TSF)	N Value (Blows)	Bulge / Shear	Moisture (%)	Dry Density (PCF)	REMARKS
152.82											Randy Safranski Diedrich D-120
151.82			43								
150.82			44								
149.82			45								
148.82			46	16	SS	3.6	22	B	15		
147.82			47								
146.82			48								
145.82			49								
144.82			50								
143.82			51	17	SS	3.4	20	B	15		
142.82	Very Stiff Gray Clay Till		52								
141.82			53								
140.82			54								
139.82			55								
138.82			56	18	SS	3.5	20	B	15		
137.82			57								
136.82			58								
135.82			59								
134.82			60								
133.82			61	19	SS	3.5	18	B	16		
132.82			62								

Groundwater Data: Static water level after auger removal - elevation 185.0.
Comments:



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Sheet 4 of 4

Client: Fehr-Graham & Associates, LLC
Project Name: Section 05-12116-00-BR Whitefield Road District
Project Site: Marshal County, Illinois

Boring No. B-1
Surface Elev. 194.82
Auger Depth 76' Rotary Depth NA
Start Date 05/13/08 Finish Date 05/13/08

Location: 8' Lt. Station 15+34

(DEPTH) ELEV.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES						DRILLED BY	
				Sample No.	Sample Type	Qu (TSF)	N Value (Blows)	Bulge / Shear	Moisture (%)	Dry Density (PCF)	REMARKS
131.82											Randy Safranski Diedrich D-120
130.82			64								
129.82	Very Stiff Gray Clay		65	20	SS	3.2	20	B	15		
128.82			66								
127.82			67								
126.82			68								
125.82			69								
124.82	Hard Gray Clay Till		70	21	SS	4.0	26	B	13		
123.82			71								
122.82			72								
121.82	Very Stiff Gray Clay Till		73								
120.82			74								
119.82			75								
118.82			76	22	SS	3.7	23	B	14		
117.82	Bottom of Boring		77								
116.82			78								
115.82			79								
114.82			80								
113.82			81								
112.82			82								
111.82			83								

Groundwater Data: Static water level after auger removal - elevation 185.0.
Comments:

FEHR GRAHAM
ENGINEERING & ENVIRONMENTAL

ILLINOIS
IOWA
WISCONSIN

AGENCY:
MARSHALL - BUREAU COUNTIES
WHITEFIELD - WHEATLAND
ROAD DISTRICTS

PROJECT:
SECTION 05-12116-00-BR &
08-24110-00-BR
T.R. 3 OVER SCHOLLES CREEK

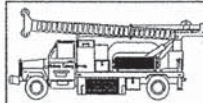
DESIGNED: J.A.M.
CHECKED: A.R.K.
DRAWN: A.D.S.
CHECKED: A.R.K.
J.A.M.

REVISIONS		
NO.	DESCRIPTION	DATE

DRAWING:
BORING LOG #1

JOB NUMBER:
46827W

SHEET NUMBER
13 of 17



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3705 Progress Blvd.
Peru, IL 61354

BORING LOG

Sheet 1 of 4

Phone: 815-223-6696
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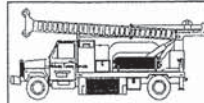
Client: Fehr-Graham & Associates, LLC
Project Name: Section 05-12116-00-BR Whitefield Road District
Project Site: Marshal County, Illinois

Boring No. B-2
Surface Elev. 194.86
Auger Depth 76' Rotary Depth NA
Start Date 05/13/08 Finish Date 05/13/08

Location: 6' Rt. Station 14+66

(DEPTH) ELEV.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES						DRILLED BY			
				Sample No.	Sample Type	Qu (TSF)	N Value (Blows)	Bulge / Shear	Moisture (%)	Dry Density (PCF)	REMARKS		
194.86													
193.86	Medium Brown Sand - Gravel (Fill)		1										
192.86			2										
191.86			3	1	SS	---	15	---	10				
190.86	Stiff Brown And Black Silty Clay (Fill)		4										
189.86			5	2	SS	1.6	12	S	14				
188.86			6										
187.86			7										
186.86	Very Stiff Brownish Gray Clay Till		8	3	SS	1.0	6	B	22				
185.86			9										
184.86	Hard Brownish Gray To Gray Clay Till		10	4	SS	1.5	9	B	20				
183.86			11										
182.86			12										
181.86			13	5	SS	2.7	14	B	16				
180.86			14										
179.86			15	6	SS	5.1	27	S	12				
178.86			16										
177.86			17										
176.86			18	7	SS	4.4	25	B	13				
175.86			19										
174.86			20	8	SS	4.5	26	B	13				

Groundwater Data: Static water level after auger removal - elevation 185.0.
Comments:



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Peru, IL 61354

BORING LOG

Sheet 2 of 4

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Client: Fehr-Graham & Associates, LLC
Project Name: Section 05-12116-00-BR Whitefield Road District
Project Site: Marshal County, Illinois

Boring No. B-2
Surface Elev. 194.86
Auger Depth 76' Rotary Depth NA
Start Date 05/13/08 Finish Date 05/13/08

Location: 6' Rt. Station 14+66

(DEPTH) ELEV.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES						DRILLED BY		
				Sample No.	Sample Type	Qu (TSF)	N Value (Blows)	Bulge / Shear	Moisture (%)	Dry Density (PCF)	REMARKS	
173.86												
172.86	Very Stiff Gray Clay Till		22									
171.86			23	9	SS	3.5	23	B	14			
170.86	Medium Gray Fine Sand		24									
169.86			25	10	SS	3.2	22	B	14			
168.86	Very Stiff Gray Clay Till		26									
167.86			27									
166.86			28	11	SS	3.5	22	B	15			
165.86	Hard Gray Clay Till		29									
164.86			30	12	SS	3.8	24	B	13			
163.86	Hard Gray Clay Till		31									
162.86			32									
161.86			33	13	SS	3.0	21	B	14			
160.86			34									
159.86			35									
158.86			36	14	SS	3.6	24	B	13			
157.86			37									
156.86			38									
155.86			39									
154.86			40									
153.86			41	15	SS	4.7	27	S	12			

Groundwater Data: Static water level after auger removal - elevation 185.0.
Comments:

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ILLINOIS
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WISCONSIN

AGENCY: MARSHALL - BUREAU COUNTIES
WHITEFIELD - WHEATLAND
ROAD DISTRICTS

PROJECT: SECTION 05-12116-00-BR &
08-24110-00-BR
T.R. 3 OVER SCHOLLES CREEK

DESIGNED: J.A.M.
CHECKED: A.R.K.
DRAWN: A.D.S.
CHECKED: A.R.K.
J.A.M.

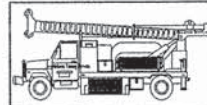
REVISIONS		
NO.	DESCRIPTION	DATE

DRAWING: BORING LOG #2

48827W_BORINGS.dgn
CONTRACT #: 89399

JOB NUMBER:
46827W

SHEET NUMBER
14 of 17



Midwest Testing Services, Inc.
3705 Progress Blvd.
Peru, IL 61354

BORING LOG

Phone: 815-223-6696
Fax: 815-223-6659
e-mail: midwest.07@insightbb.com

Sheet 3 of 4

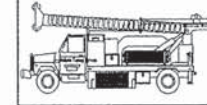
Client: Fehr-Graham & Associates, LLC
Project Name: Section 05-12116-00-BR Whitefield Road District
Project Site: Marshal County, Illinois

Boring No. B-2
Surface Elev. 194.86
Auger Depth 76' Rotary Depth NA
Start Date 05/13/08 Finish Date 05/13/08

Location: 6' Rt. Station 14+66

(DEPTH) ELEV.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES					DRILLED BY	
				Sample No.	Sample Type	Qu (TSF)	N Value (Blows)	Bulge / Shear	Moisture (%)	Dry Density (PCF)
152.86										Randy Safranski Diedrich D-120
151.86			43							
150.86			44							
149.86			45	16	SS	3.8	23	B	14	
148.86			46							
147.86			47							
146.86			48							
145.86			49							
144.86			50	17	SS	3.2	19	B	15	
143.86	Very Stiff Gray Clay Till		51							
142.86			52							
141.86			53							
140.86			54							
139.86			55	18	SS	3.0	18	B	14	
138.86			56							
137.86			57							
136.86			58							
135.86			59							
134.86			60	19	SS	3.4	21	B	14	
133.86			61							
132.86			62							

Groundwater Data: Static water level after auger removal - elevation 185.0.
Comments:



Midwest Testing Services, Inc.
3705 Progress Blvd.
Peru, IL 61354

BORING LOG

Phone: 815-223-6696
Fax: 815-223-6659
e-mail: midwest.07@insightbb.com

Sheet 4 of 4

Client: Fehr-Graham & Associates, LLC
Project Name: Section 05-12116-00-BR Whitefield Road District
Project Site: Marshal County, Illinois

Boring No. B-2
Surface Elev. 194.86
Auger Depth 76' Rotary Depth NA
Start Date 05/13/08 Finish Date 05/13/08

Location: 6' Rt. Station 14+66

(DEPTH) ELEV.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES					DRILLED BY	
				Sample No.	Sample Type	Qu (TSF)	N Value (Blows)	Bulge / Shear	Moisture (%)	Dry Density (PCF)
131.86										Randy Safranski Diedrich D-120
130.86			64							
129.86			65	20	SS	3.4	21	B	15	
128.86			66							
127.86			67							
126.86			68							
125.86	Very Stiff Gray Clay Till		69							
124.86			70	21	SS	3.4	23	B	14	
123.86			71							
122.86			72							
121.86			73							
120.86			74							
119.86			75							
118.86			76	22	SS	3.0	20	B	14	
117.86	Bottom of Boring		77							
116.86			78							
115.86			79							
114.86			80							
113.86			81							
112.86			82							
111.86			83							

Groundwater Data: Static water level after auger removal - elevation 185.0.
Comments:

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AGENCY:
MARSHALL - BUREAU COUNTIES
WHITEFIELD - WHEATLAND
ROAD DISTRICTS

PROJECT:
SECTION 05-12116-00-BR &
08-24110-00-BR
T.R. 3 OVER SCHOLLES CREEK

DESIGNED: J. A. M.
CHECKED: A. R. K.
DRAWN: A. D. S.
CHECKED: A. R. K.
J. A. M.

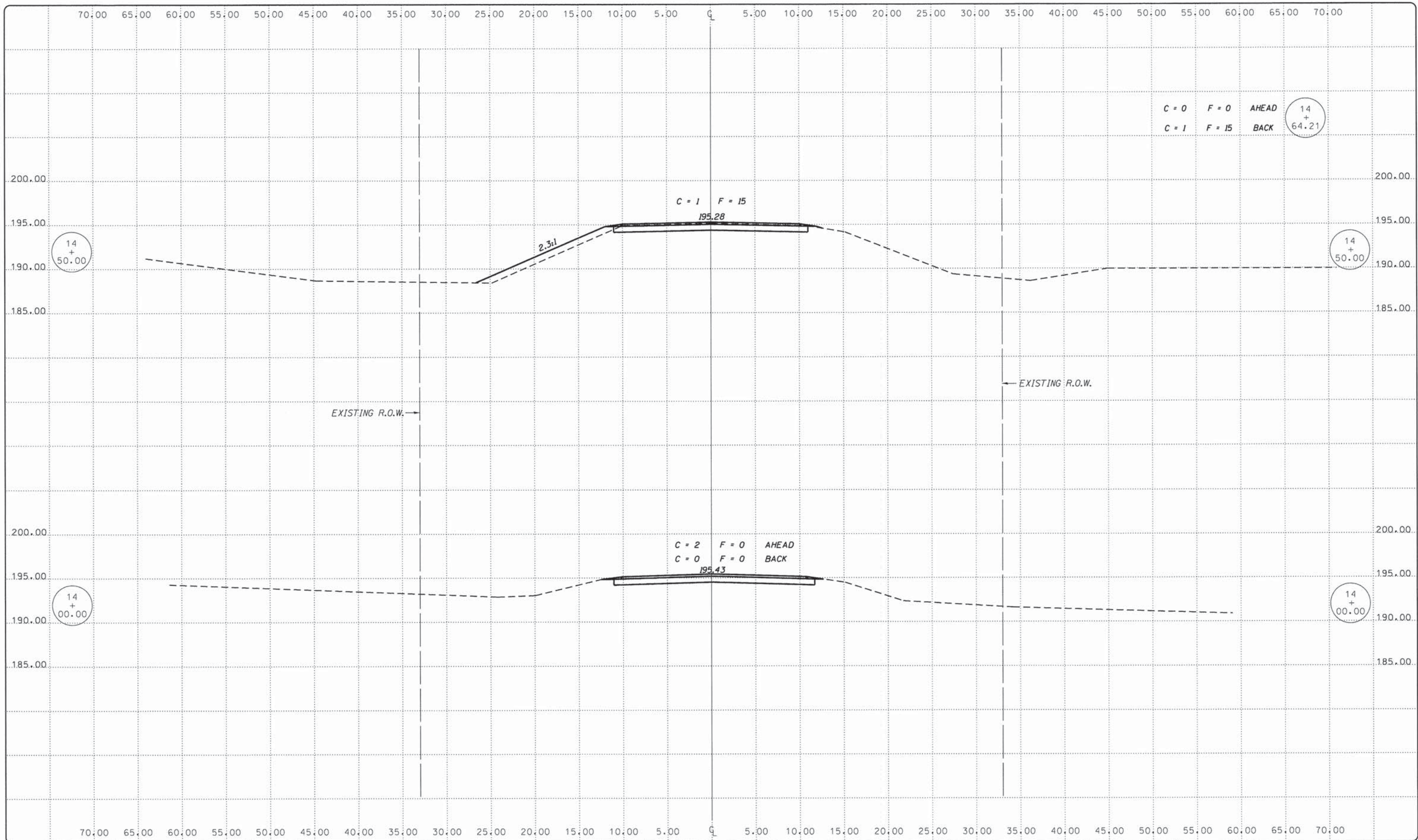
REVISIONS		
NO.	DESCRIPTION	DATE

DRAWING:
BORING LOG #2

48827W_BORINGS.dgn
CONTRACT #: 89399

JOB NUMBER:
46827W

SHEET NUMBER
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AGENCY:
MARSHALL - BUREAU COUNTIES
WHITEFIELD - WHEATLAND ROAD
DISTRICTS

PROJECT:
SECTION 05-12116-00-BR &
08-24110-00-BR
T.R. 3 OVER SCHOLLES CREEK

DESIGNED: G. J. C.
CHECKED: R. D. F.
DRAWN: A. D. S.
CHECKED: R. D. F.

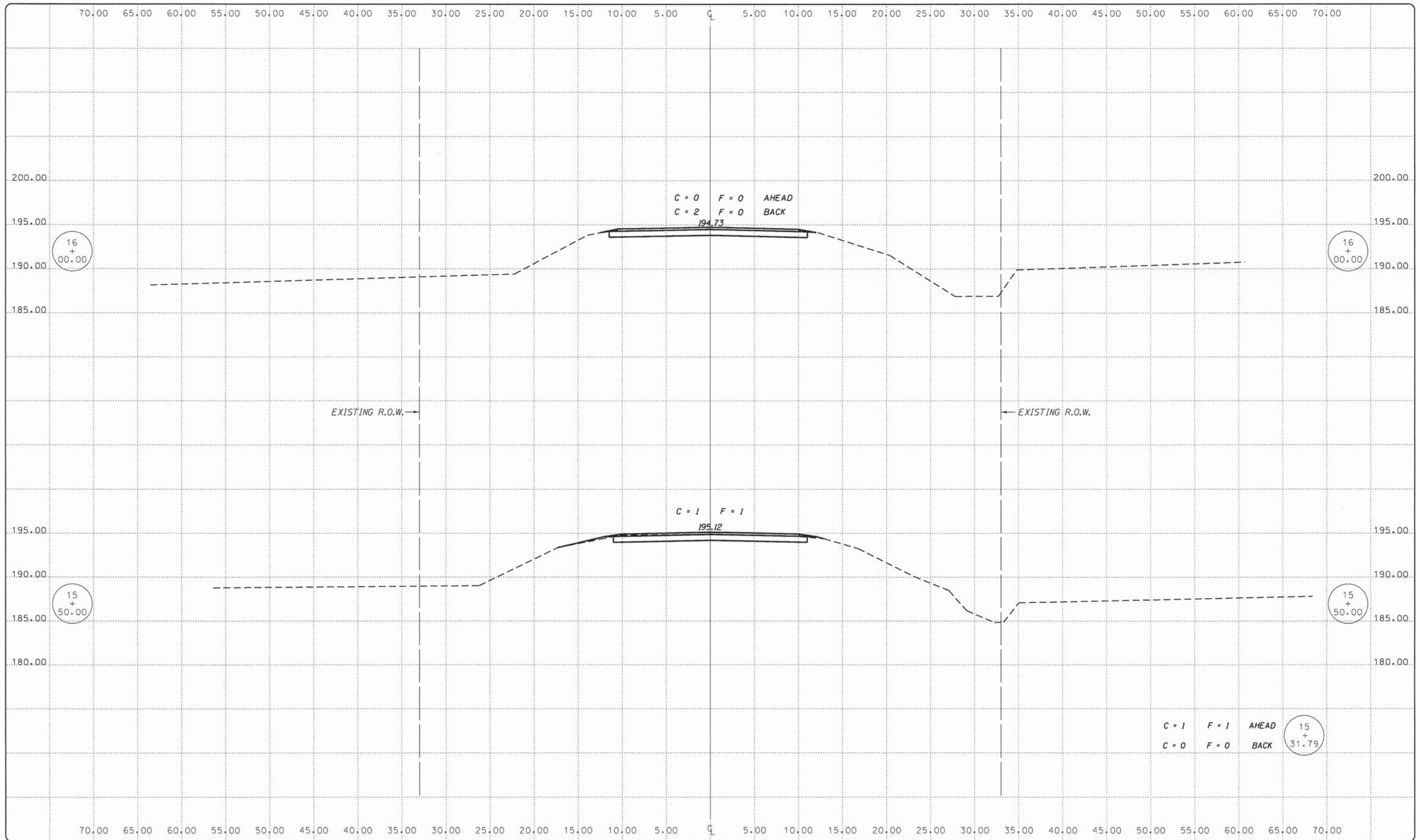
REVISIONS		
REV. NO.	DESCRIPTION	DATE

DRAWING:
STATION CROSS SECTIONS
STA. 14+00 TO 14+61.83

46827W_PR-RDWAY.dgn
CONTRACT #: 89399

JOB NUMBER:
46827W

SHEET NUMBER
16 of 17



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ENGINEERING & ENVIRONMENTAL
ILLINOIS DESIGN FIRM NO. 184-003525

ILLINOIS
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AGENCY:
MARSHALL - BUREAU COUNTIES
WHITEFIELD - WHEATLAND ROAD
DISTRICTS

PROJECT:
SECTION 05-12116-00-BR &
08-24110-00-BR
T.R. 3 OVER SCHOLDES CREEK

DESIGNED: G. J. C.
CHECKED: R. D. F.
DRAWN: A. D. S.
CHECKED: R. D. F.

REVISIONS		
REV. NO.	DESCRIPTION	DATE

DRAWING:
STATION CROSS SECTIONS
STA. 15+34.17 TO 16+00

46827W_PR-RDWY.dgn
CONTRACT #: 89399

JOB NUMBER:
46827W

SHEET NUMBER
17 of 17