

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
**PLANS FOR PROPOSED
SURFACE TRANSPORTATION PROGRAM**
BELL PLAIN ROAD DISTRICT
SECTION 14-01119-00-BR
PROJECT NO. BROS-123(027)
C-94-045-14
MARSHALL COUNTY
T.R. 87A

CONTRACT NO. 89659
Total Sheets 16

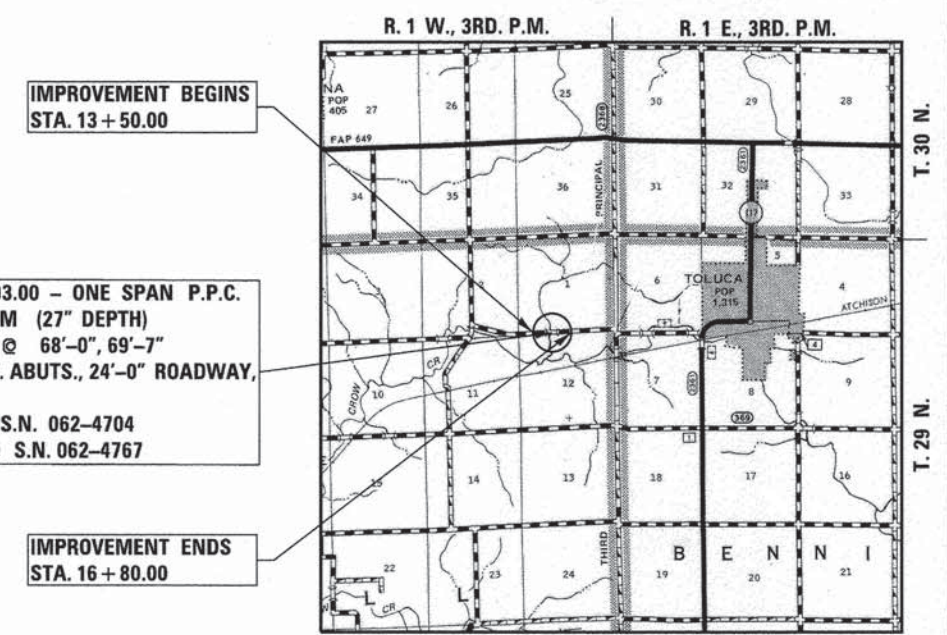


SHEET NO.	TITLE
1.	COVER SHEET
2.	SUMMARY OF QUANTITIES, GENERAL NOTES & TYPICAL SECTIONS
3.	PLAN AND PROFILE SHEET
4.-14.	BRIDGE PLANS
15.-16.	STATION CROSS SECTIONS

STANDARDS

000001-06	STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
280001-07	TEMPORARY EROSION CONTROL SYSTEMS
515001-03	NAME PLATE FOR BRIDGES
635006-03	REFLECTOR AND TERMINAL MARKER PLACEMENT
701901-04	TRAFFIC CONTROL DEVICES
720011-01	METAL POSTS FOR SIGNS, MARKERS AND DELINEATORS
728001-01	TELESCOPING STEEL SIGN SUPPORT
729001-01	APPLICATIONS OF TYPES A & B METAL POSTS (FOR SIGNS AND MARKERS)
BLR 21-9	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

SCALES



LOCATION PLAN

GROSS LENGTH OF SECTION = 330.00 FEET = 0.063 MILES
NET LENGTH OF SECTION = 330.00 FEET = 0.063 MILES

FEHR GRAHAM
ENGINEERING & ENVIRONMENTAL
ILLINOIS IOWA WISCONSIN



Cary J. Cartwright 12-3-14
ILLINOIS PROFESSIONAL NO. 43408
EXPIRES 11-30-15

CLASSIFICATION: LOCAL ROADS (NON-URBAN)
DESIGN VOLUME: 0-250 ADT
CURRENT ADT: 103 (2015)
DESIGN SPEED: 30 M.P.H.
3R DESIGN GUIDELINES

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

PASSED	<u>12-11</u>	20 <u>14</u>
	<i>James P. [Signature]</i> ROAD DISTRICT COMMISSIONER	
APPROVED	<u>Dec. 11</u>	20 <u>14</u>
	<i>Paul S. [Signature]</i> COUNTY ENGINEER	
PASSED	<u>Dec. 16</u>	20 <u>14</u>
	<i>[Signature]</i> DISTRICT FOUR ENGINEER OF LOCAL ROADS & STREETS	
RELEASED FOR BID BASED ON LIMITED REVIEW	<u>Dec 16</u>	20 <u>14</u>
	<i>[Signature]</i> DEPUTY DIRECTOR OF HIGHWAYS, REGION THREE ENGINEER	
	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	

SUMMARY OF QUANTITIES

CODE NO.	ITEM	UNIT	TOTAL QUANTITY
20200100	EARTH EXCAVATION	CU YD	72
20300100	CHANNEL EXCAVATION	CU YD	496
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	20
28000400	PERIMETER EROSION BARRIER	FOOT	728
• 28100207	STONE RIPRAP, CLASS A4	TON	122
• 28100807	STONE DUMPED RIPRAP, CLASS A4	TON	81
28200200	FILTER FABRIC	SQ YD	264
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	261
• 50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50300225	CONCRETE STRUCTURES	CU YD	23.4
50300280	CONCRETE ENCASEMENT	CU YD	3.5
• 50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SO FT	1632
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	3040
Δ 50900205	STEEL RAILING, TYPE S1	FOOT	136
51201400	FURNISHING STEEL PILES HP10x42	FOOT	360
51202305	DRIVING PILES	FOOT	360
51203400	TEST PILE STEEL HP10x42	EACH	1
51500100	NAME PLATES	EACH	1
67100100	MOBILIZATION	LSUM	1
• 70101830	TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 21	LSUM	1
Δ 78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
• X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.2
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.

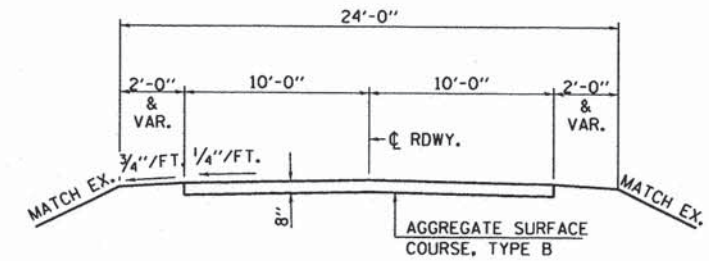
SEEDING, CLASS 2 (SPECIAL) = 0.2 ACRE

APPLICATION RATES USED IN QUANTITY CALCULATIONS

AGGREGATE SURFACE COURSE.....2.05 TON/CU. YD.
 STONE RIPRAP.....1.65 TON/CU. YD.

ROADWAY SCHEDULES

LOCATION	AGGREGATE SURFACE COURSE, TYPE B
	TON
STA. 13+50.00 TO STA. 14+58.21	108
STA. 15+27.79 TO STA. 16+80.00	153
TOTAL	261

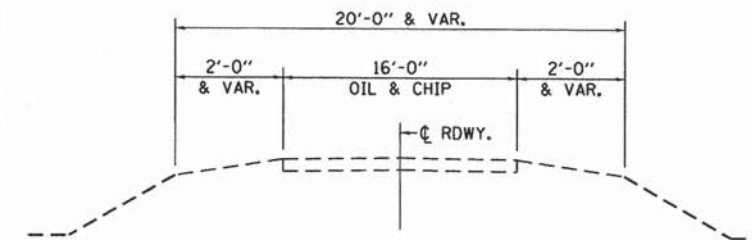


SUGGESTED FILL SECTION
 CONSTRUCT AS SHOWN BY
 STATION CROSS SECTIONS

TYPICAL PROPOSED CROSS SECTION

STA. 14+00 TO STA. 14+58.21 AND
 STA. 15+27.79 TO STA. 16+30

TRANSITION FROM EXISTING ROADWAY TO PROPOSED ROADWAY
 TO BE CONSTRUCTED FROM STA. 13+50 TO STA. 14+00 AND
 FROM STA. 16+30 TO STA. 16+80.



EXISTING TYPICAL CROSS SECTION

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ILLINOIS DESIGN FIRM NO. 184-003525

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ILLINOIS
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 WISCONSIN

AGENCY:
 MARSHALL COUNTY
 BELL PLAIN ROAD DISTRICT

PROJECT:
 SECTION 14-01119-00-BR
 T.R. 87A OVER TRIBUTARY TO
 NORTH BRANCH OF CROW CREEK

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

REVISIONS		
REV. NO.	DESCRIPTION	DATE

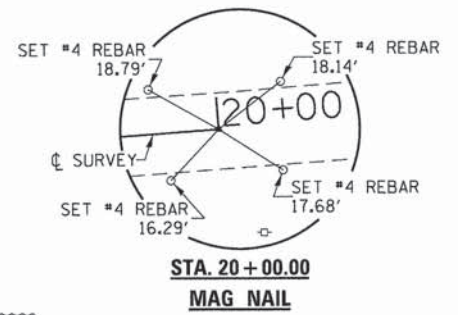
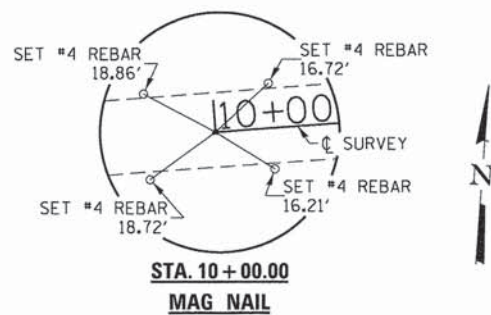
DRAWING:
 SUMMARY OF QUANTITIES, GENERAL NOTES
 AND TYPICAL CROSS SECTIONS

FILES
 CONTRACT #: 89659

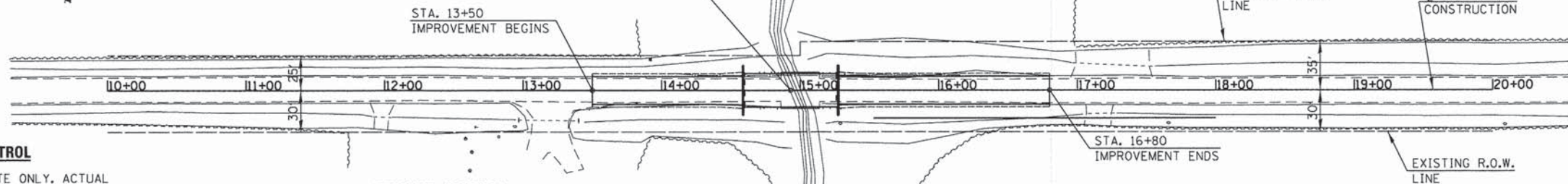
JOB NUMBER:
 14-565

SHEET NUMBER
 2 of 16

KENNETH D. SHANKLIN
PART OF SECTION 1, T. 29 N., R. 1 W., 3RD P.M.



PROPOSED STRUCTURE NO. 062-4767
STA. 14+93 - ONE SPAN P.P.C.
DECK BEAM (27" DEPTH)
1 SPAN @ 68'-0", 69'-7" BK. TO
BK. ABUTS.; 24'-0" ROADWAY;
0° SKEW



TEMPORARY EROSION CONTROL

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

TEMPORARY EROSION CONTROL SEEDINGS = 20 POUND
PERIMETER EROSION BARRIER = 728 FOOT

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 = 496 CU YD

EROSION CONTROL

LOCATION	TEMPORARY EROSION CONTROL SEEDING	PERIMETER EROSION BARRIER
	POUND	FOOT
LT. STA. 13+50 TO LT. STA. 14+86	3	148
RT. STA. 13+50 TO RT. STA. 15+00	4	177
LT. STA. 14+94 TO LT. STA. 16+80	7	215
RT. STA. 15+13 TO RT. STA. 16+80	6	188
TOTAL	20	728

KENNETH E. & SANDRA K. CLINE
PART OF SECTION 12, T. 29 N., R. 1 W., 3RD P.M.

KENNETH D. SHANKLIN
PART OF SECTION 12, T. 29 N., R. 1 W., 3RD P.M.

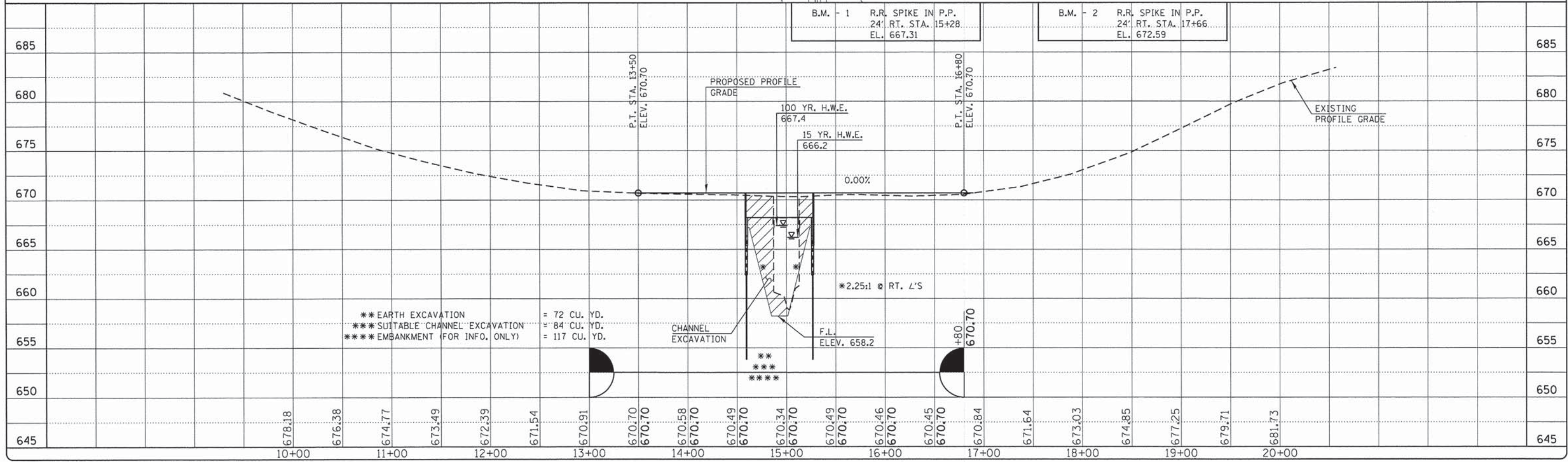
UTILITIES

COMED/JOLIET
DESIGN STAGE LOCATE LINE
630-576-7094

FRONTIER COMMUNICATIONS
KALIN HINSHAW
815-895-1515

EXISTING STRUCTURE NO. 062-4704

STA. 15+00 - SINGLE SPAN
PRECAST CONCRETE CHANNEL
BEAM BRIDGE ON CLOSED TIMBER
ABUTMENTS, 28'-0" BK.-BK.
ABUTS., 26'-3" O.-O., NO SKEW



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AGENCY:
MARSHALL COUNTY
BELL PLAIN ROAD DISTRICT

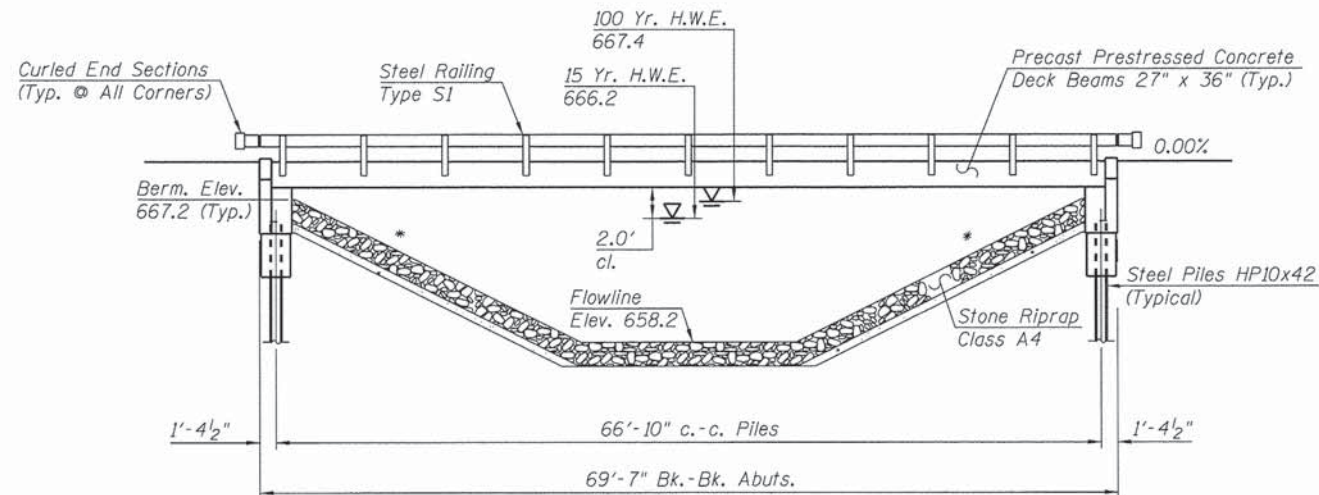
PROJECT:
SECTION 14-01119-00-BR
T.R. 87A OVER TRIBUTARY TO
NORTH BRANCH OF CROW CREEK

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

REV. NO.	DESCRIPTION	DATE

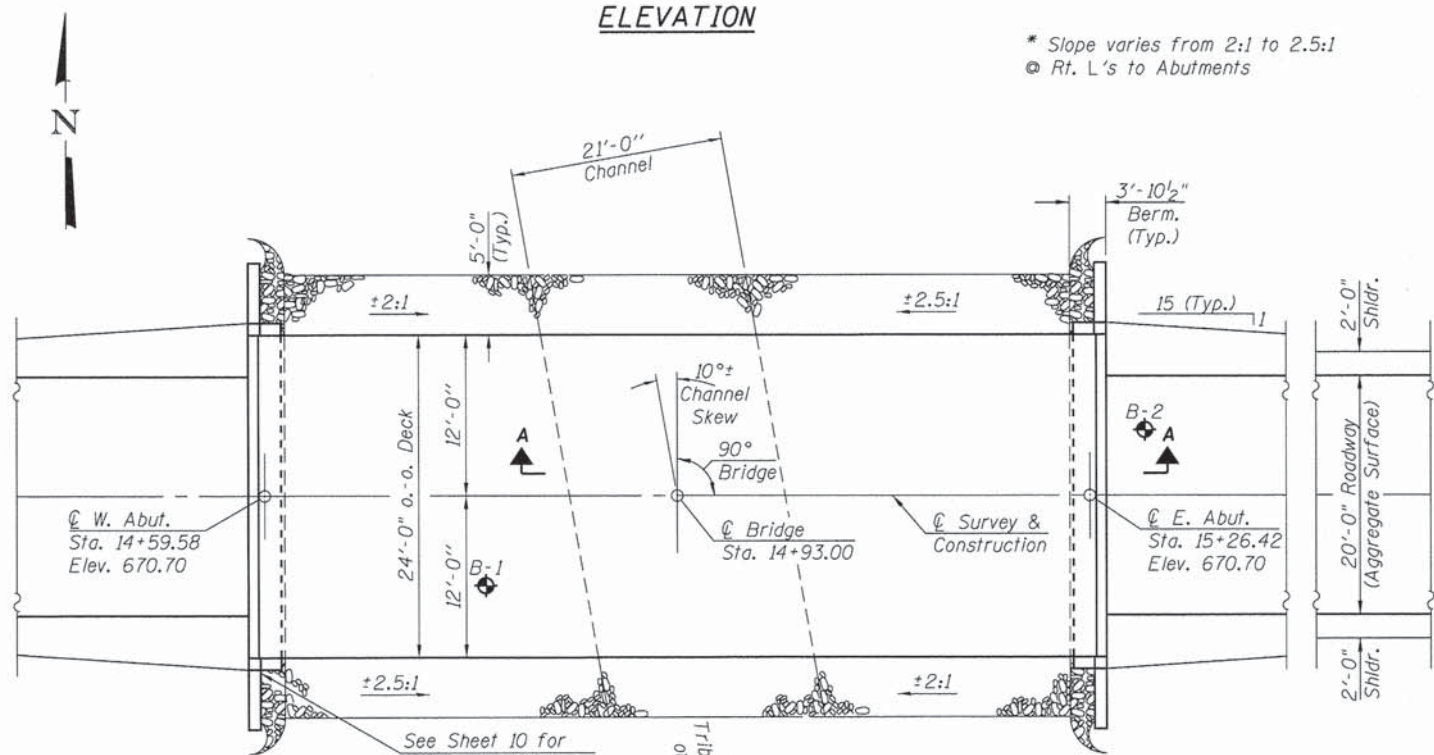
DRAWING:
PLAN & PROFILE

JOB NUMBER:
14-565
SHEET NUMBER:
3 of 16



ELEVATION

* Slope varies from 2:1 to 2.5:1
 @ Rt. L's to Abutments



PLAN

SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
 Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.075 g
 Design Spectral Acceleration at 0.2 sec. (S_{D5}) = 0.126 g
 Soil Site Class = C

WATERWAY INFORMATION

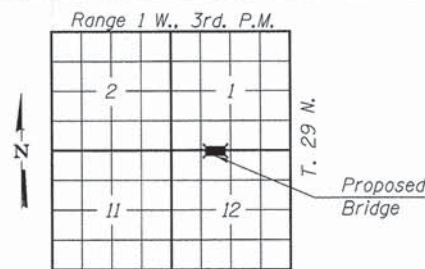
Drainage Area	5.24 Sq. Mi.
Existing Opening (15 Yr.)	154 Sq. Ft.
Required Opening (15 Yr.)	310 Sq. Ft.
Proposed Opening (15 Yr.)	310 Sq. Ft.
Design Discharge (15 Yr.)	759 C.F.S.
Created Head (15 Yr.)	0.0 Ft.
100 Year Discharge	1,280 C.F.S.
100 Yr. Created Head	0.3 Ft.

DESIGN STRESSES

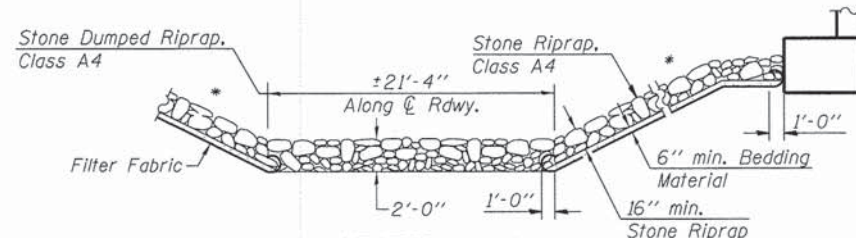
f'_c = 6,000 p.s.i. (Prestressed Beams)
 f_{br} = 5,000 p.s.i. (Prestressed Beams)
 f'_s = 270,000 p.s.i. (Prestressed Strands)
 f_{sl} = 201,960 p.s.i. (Prestressed Strands)
 f'_c = 3,500 p.s.i. (Concrete -- Field Units)
 f_y = 60,000 p.s.i. (Reinf. Bars)
 LOADING HL-93
 Design Specifications: 2014 AASHTO LRFD
 50#/Sq. Ft. included in dead load for future wearing surface.

DESIGN SCOUR ELEVATION TABLE

Design Scour Elev. (Ft.)	W. Abut.	E. Abut.
	665.3	665.3



LOCATION SKETCH



SECTION A-A RIPRAP PLACEMENT

Note: Excavation and aggregate bedding will not be paid for as separate items and shall be considered as included in Stone Riprap, Class A4.



PROFILE GRADE

GENERAL NOTES

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

The Contractor shall drive one steel HP10x42 test pile in a permanent location at the East 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.

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" or "Concrete Encasement."

BUILT 20__ BY
 BELL PLAIN ROAD DISTRICT
 MARSHALL COUNTY
 SEC. 14-01119-00-BR
 STR. NO. 062-4767
 LOADING HL-93

LETTERING FOR NAME PLATE

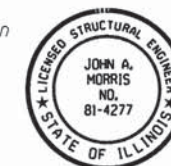
See Std. 515001

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq. Ft.	1632		1632
Concrete Structures	Cu. Yd.		23.4	23.4
Reinforcement Bars, Epoxy Coated	Pound		3040	3040
Steel Railing, Type S1	Foot	136		136
Name Plates	Each		1	1
Furnishing Steel Piles HP10x42	Foot		360	360
Driving Piles	Foot		360	360
Test Pile Steel HP10x42	Each		1	1
Stone Riprap, Class A4	Ton		122	122
Filter Fabric	Sq. Yd.		264	264
Concrete Encasement	Cu. Yd.		3.5	3.5
Stone Dumped Riprap, Class A4	Ton		81	81
Terminal Marker - Direct Applied	Each			4

"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 12/3/14
 ILLINOIS STRUCTURAL NO. 4277 (Expires 11/30/16)



GENERAL PLAN & ELEVATION

T.R. 87A
 SECTION 14-01119-00-BR
 MARSHALL COUNTY
 STATION 14+93.00
 S.N. 062-4767

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ENGINEERING & ENVIRONMENTAL

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

REVISIONS		
REV. NO.	DESCRIPTION	DATE

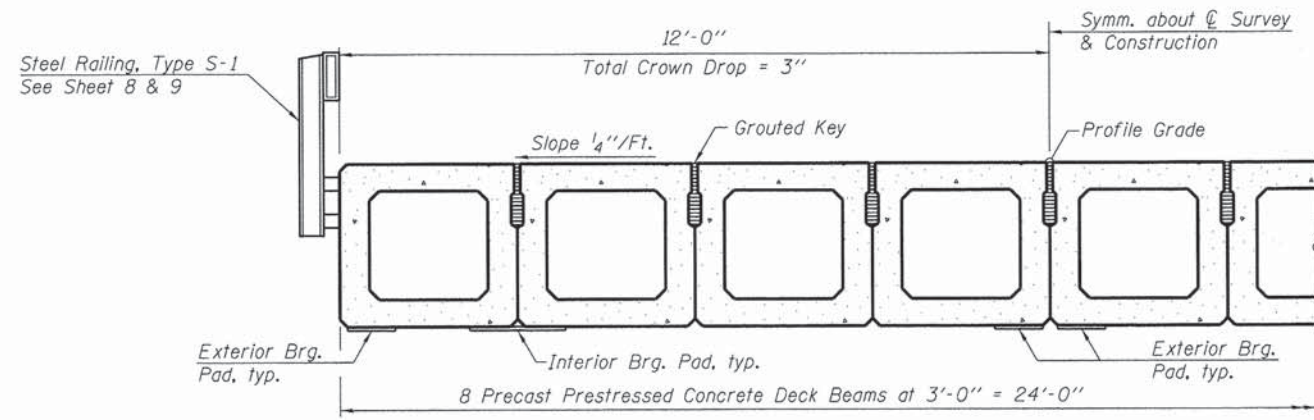
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 GENERAL PLAN & ELEVATION

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 CONTRACT #: 89659

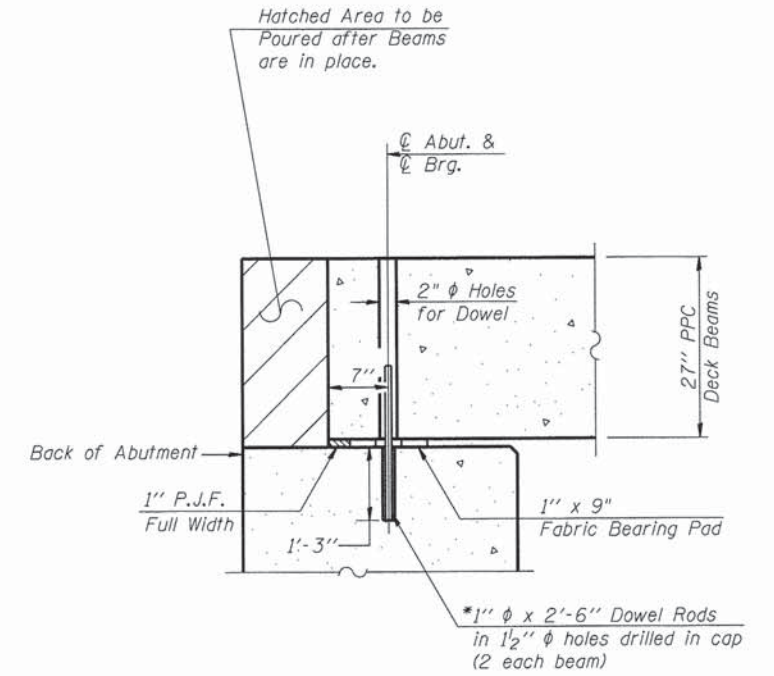
JOB NUMBER:
 14-565

SHEET NUMBER
 4 of 16

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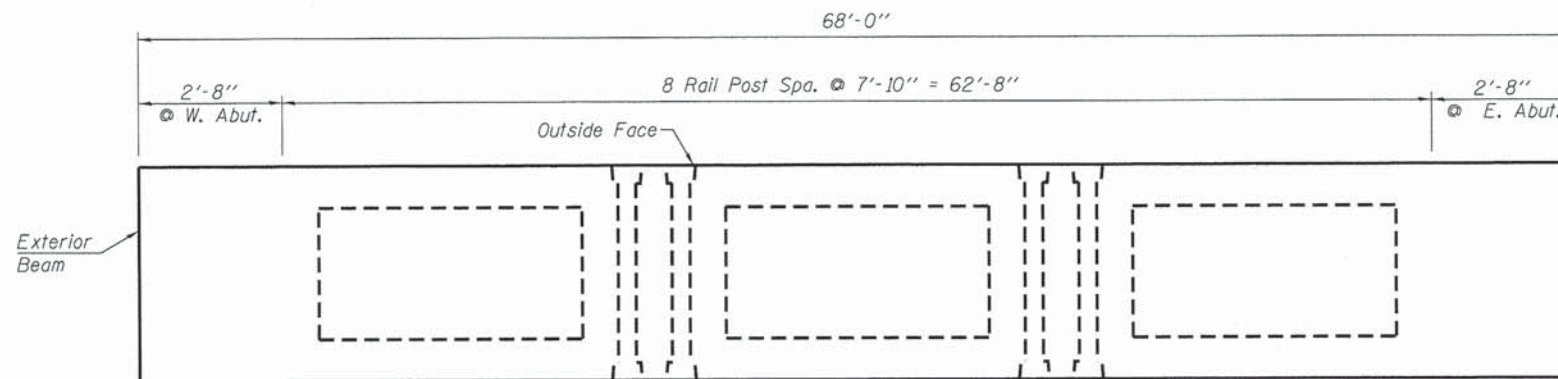


HALF CROSS SECTION



SEC. THRU ABUT.
(@ Rt. L's)

* Note: After beams are in place, 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

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ILLINOIS DESIGN FIRM NO. 184-003525

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DESIGNED: J. A. M.
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A. R. K.

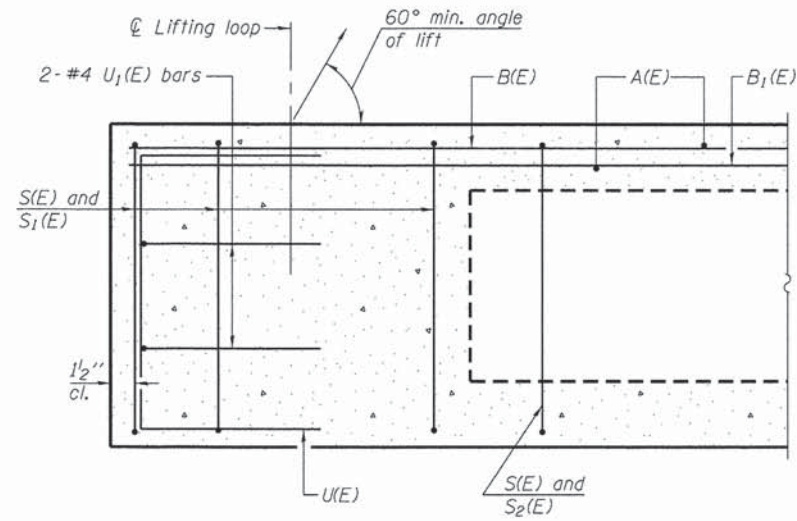
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REV. NO.	DESCRIPTION	DATE

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SUPERSTRUCTURE

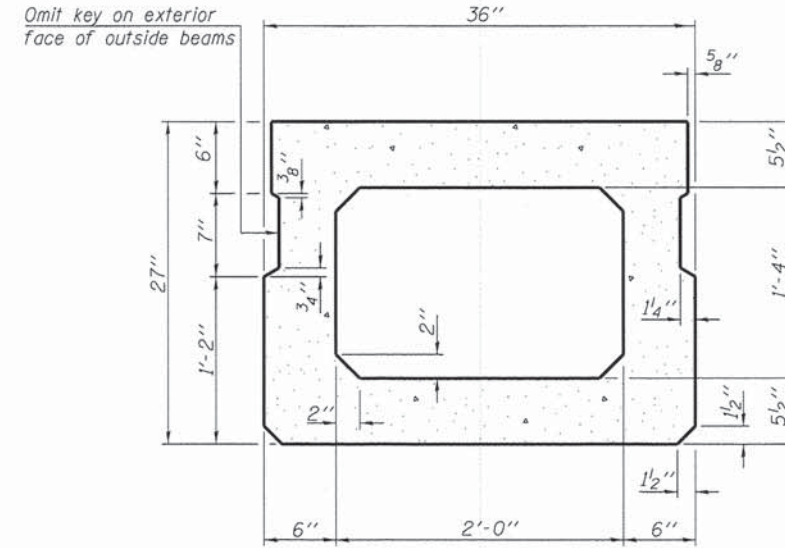
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CONTRACT #: 89659

JOB NUMBER:
14-565

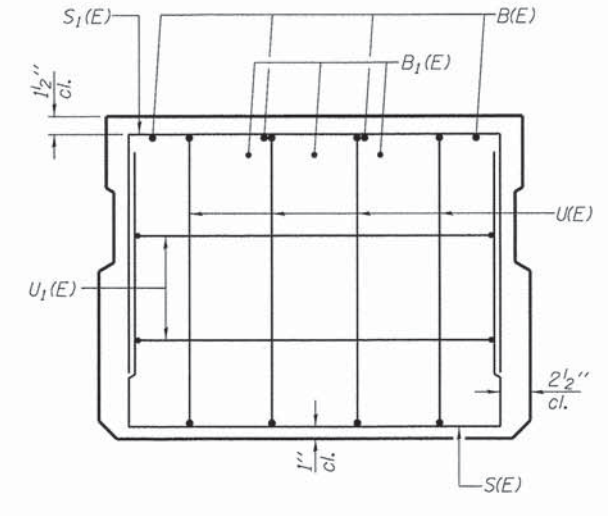
SHEET NUMBER
5 of 16



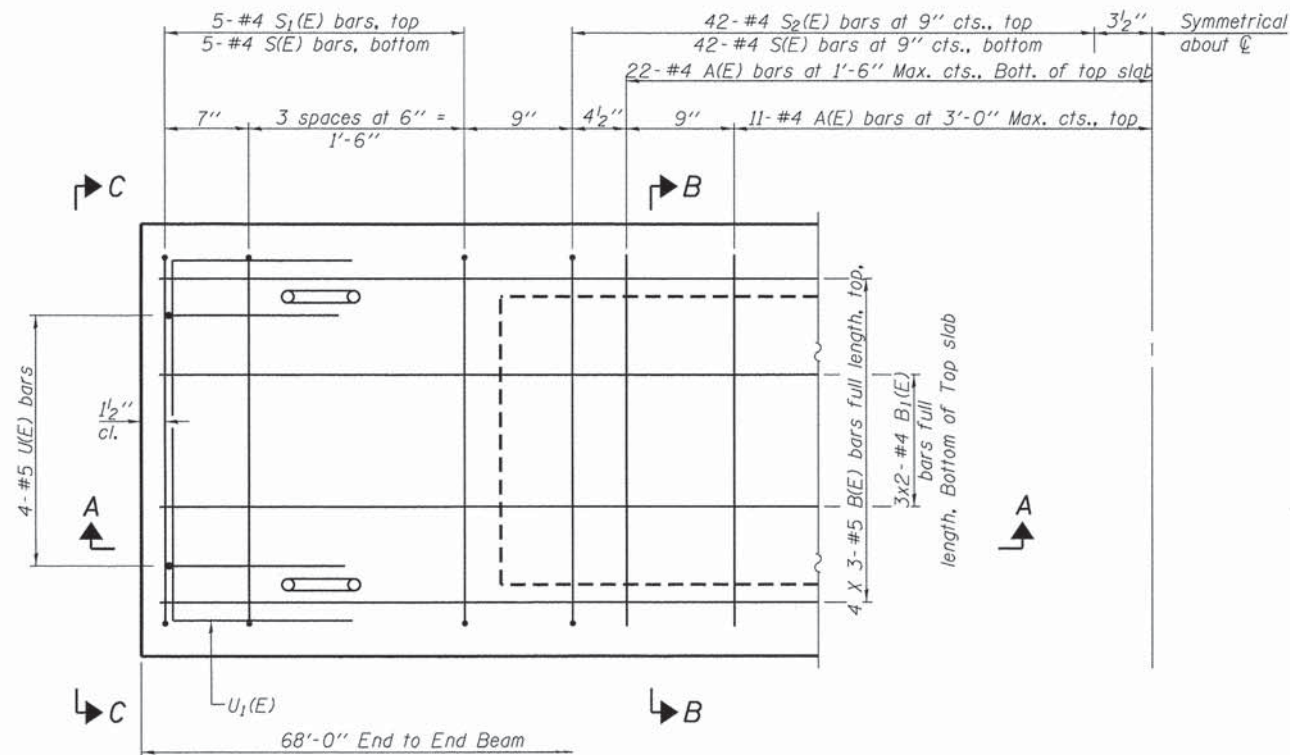
SECTION A-A



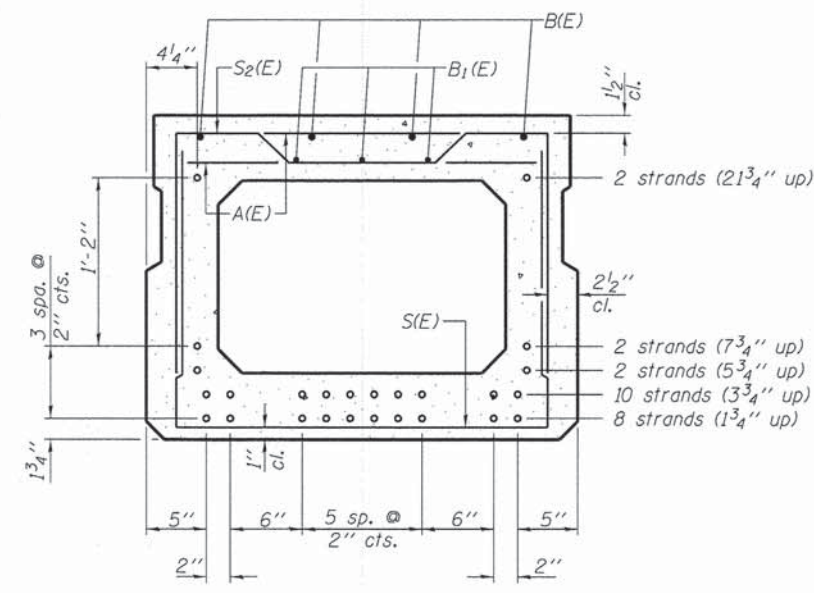
SECTION B-B
(Showing dimensions)



VIEW C-C



PLAN VIEW



Use 24-1/2" ϕ strands at the locations shown.

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.

BAR LIST
ONE BEAM ONLY
(For information only)

Bar	No.	Size	Length	Shape
A(E)	64	#4	2'-7"	—
B(E)	12	#5	24'-4"	—
B1(E)	6	#4	35'-0"	—
S(E)	94	#4	6'-5"	U
S1(E)	10	#4	6'-3"	U
S2(E)	84	#4	6'-6"	U
U(E)	8	#5	4'-6"	C
U1(E)	4	#4	5'-0"	U

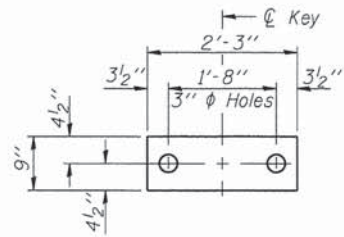
Note: See sheet 7 for additional details and Bill of Material.
Reinforcement bars designated (E) shall be epoxy coated.

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.

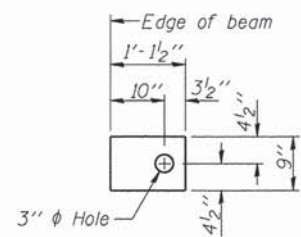
Bars indicated thus, 3x2-#4 bars etc., indicates 3 lines of bars with 2 lengths per line.

MINIMUM BAR LAP

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



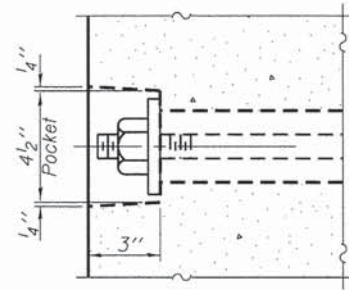
FABRIC BEARING PAD
(Interior)
(12 Required)



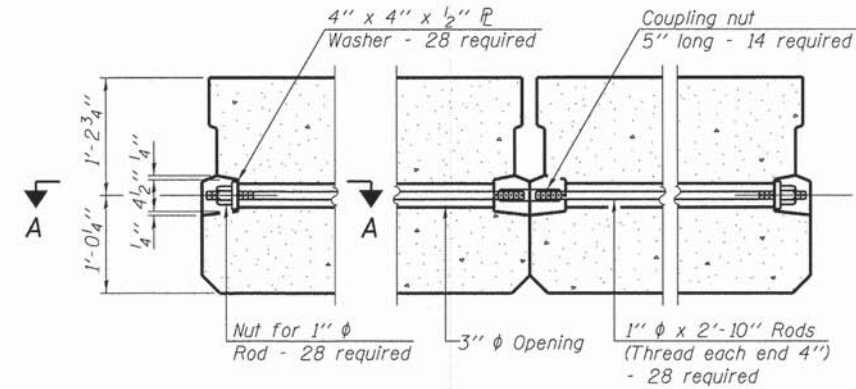
FABRIC BEARING PAD
(Exterior)
(8 Required)

Notes:
All bearing pads shall be 1" thick.

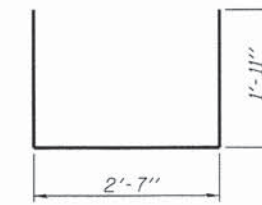
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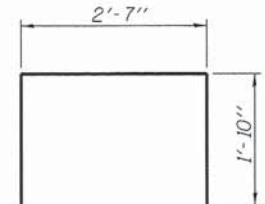
SECTION A-A



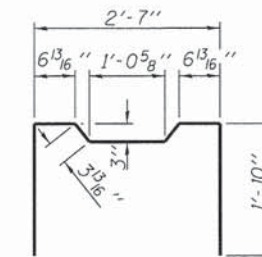
TYPICAL TRANSVERSE TIE ASSEMBLY



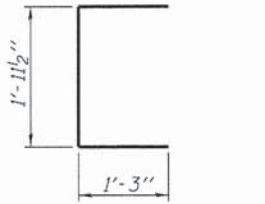
BAR S(E)



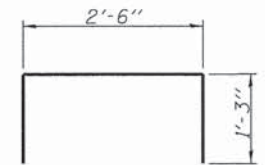
BAR S1(E)



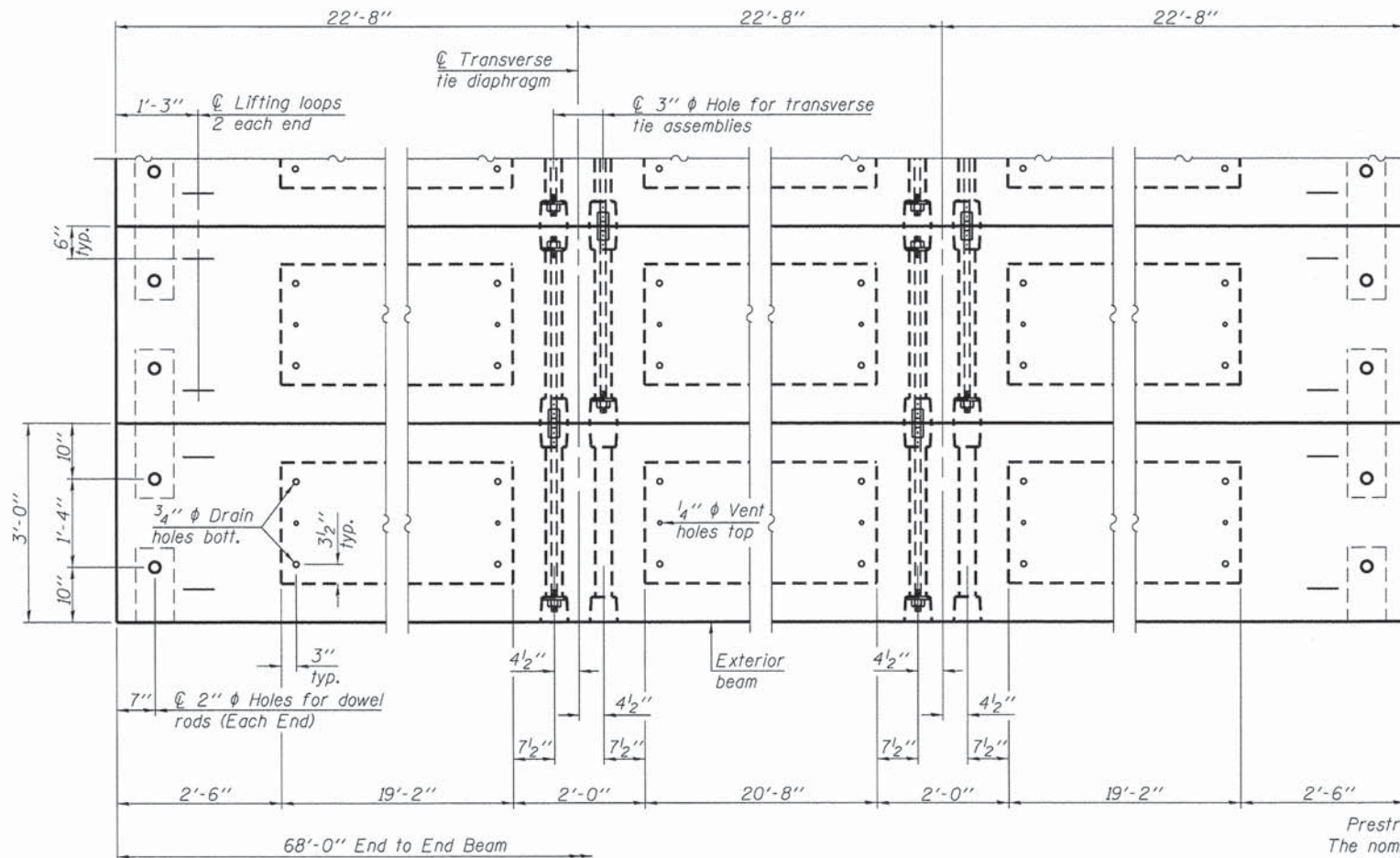
BAR S2(E)



BAR U(E)



BAR U1(E)

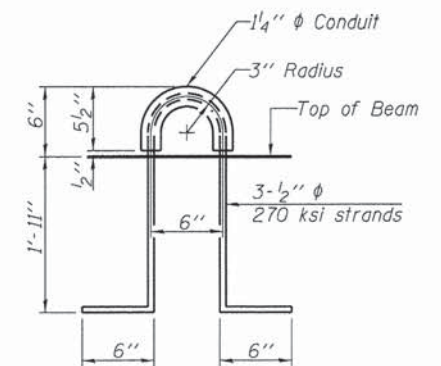


PLAN VIEW

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

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" 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. (40 Required - Included in the cost of P.P.C. Deck Beams of the depth shown in the plans.)
- 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.

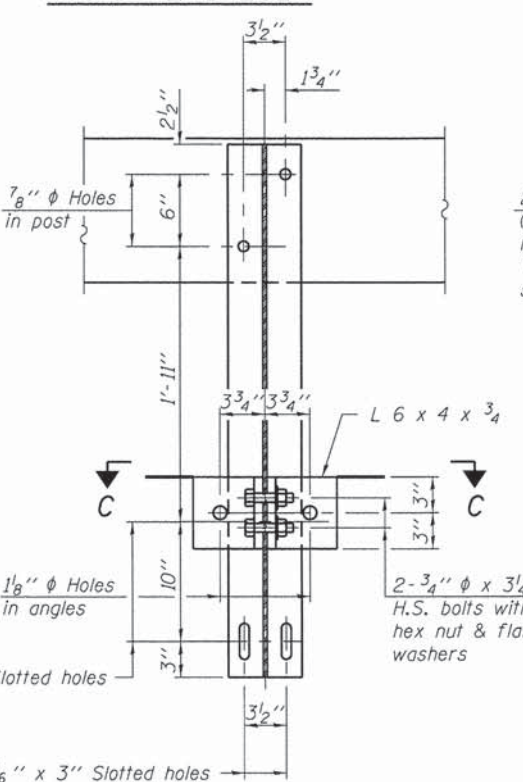
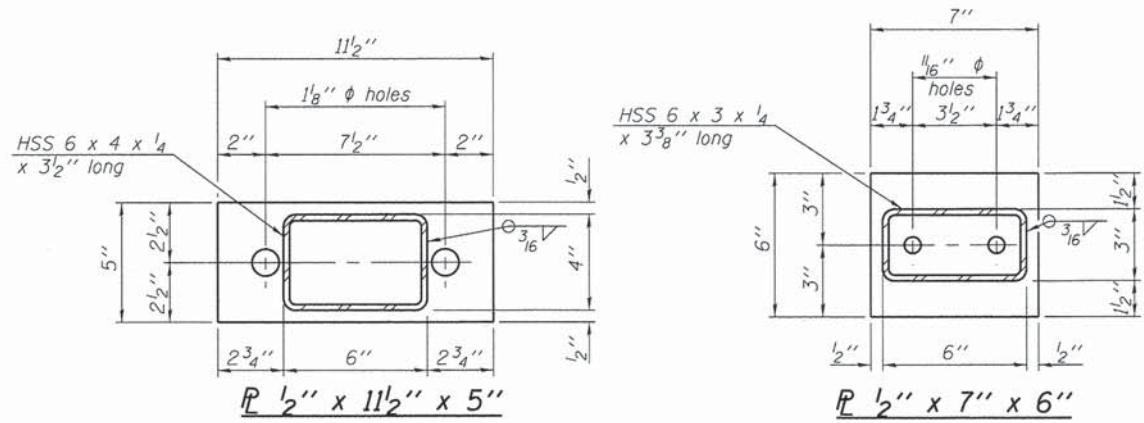
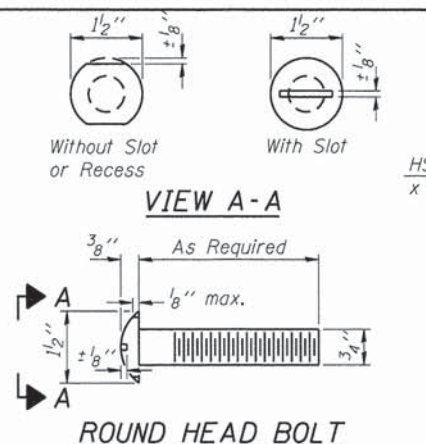


LIFTING LOOP DETAIL

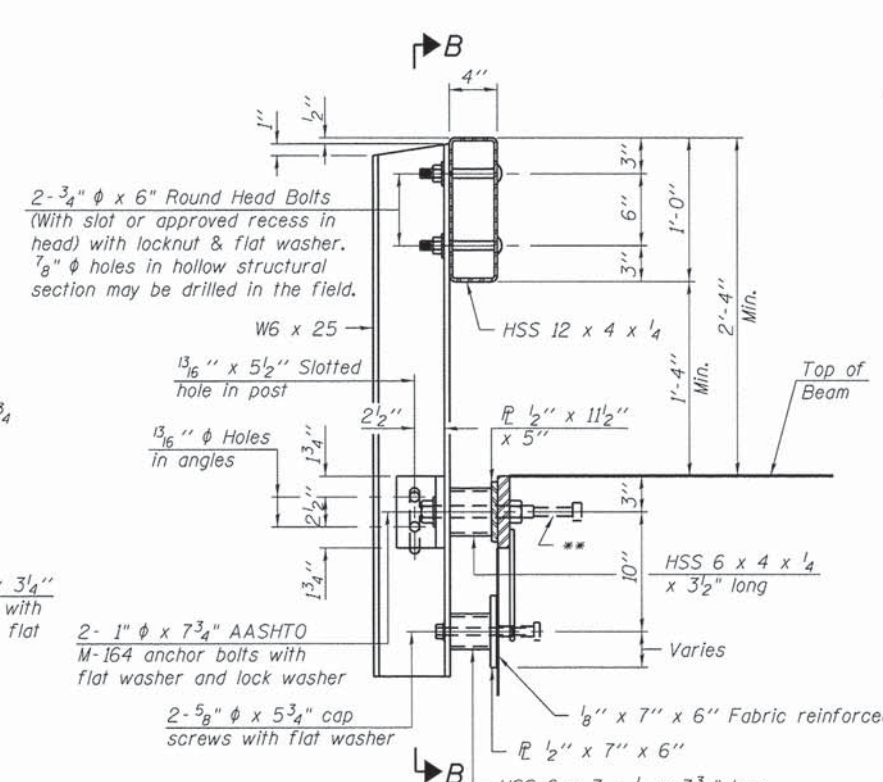
BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (27" depth)	Sq. Ft.	1,632
Estimated Total Weight (One Beam) = 46,120 Pounds		

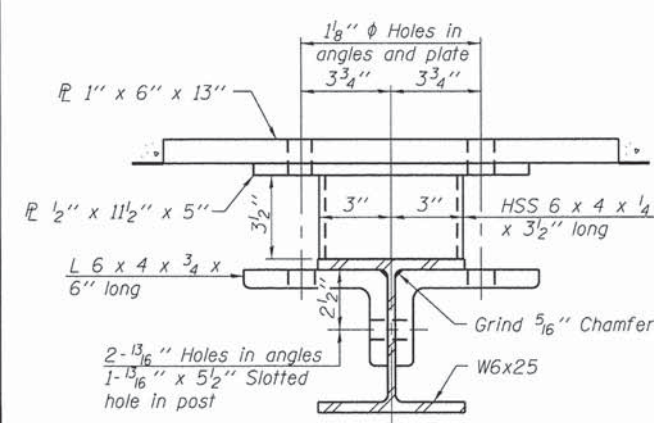
REVISIONS		
REV. NO.	DESCRIPTION	DATE



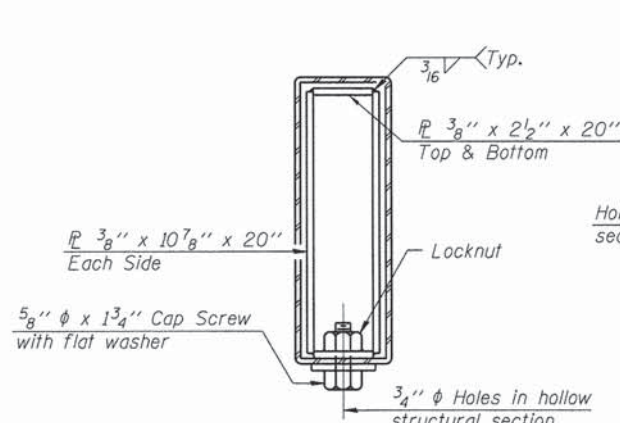
SECTION B-B



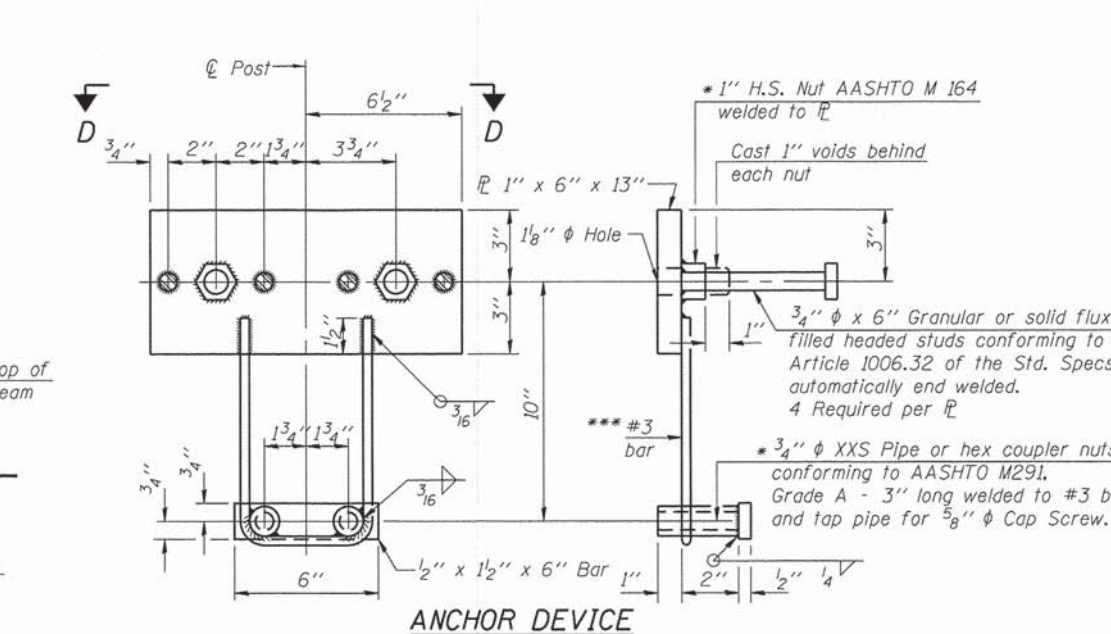
SECTION AT RAILING POST



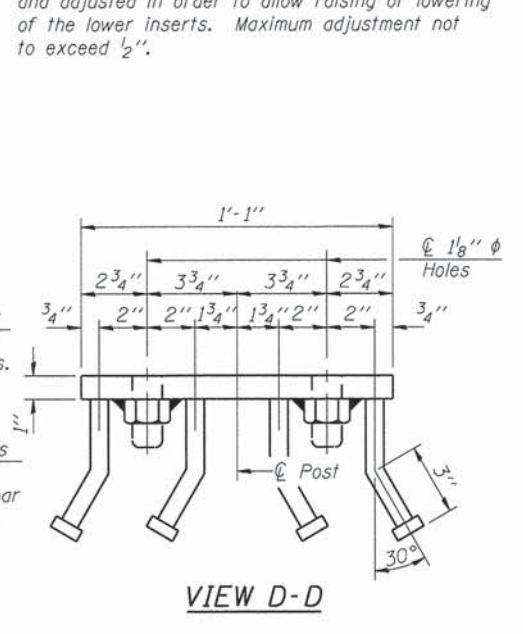
SECTION C-C



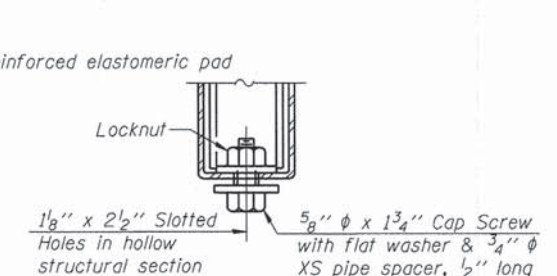
SECTIONS AT RAIL SPLICE



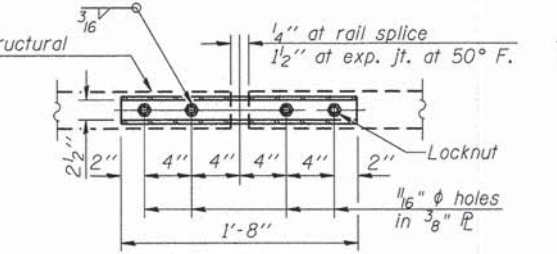
ANCHOR DEVICE



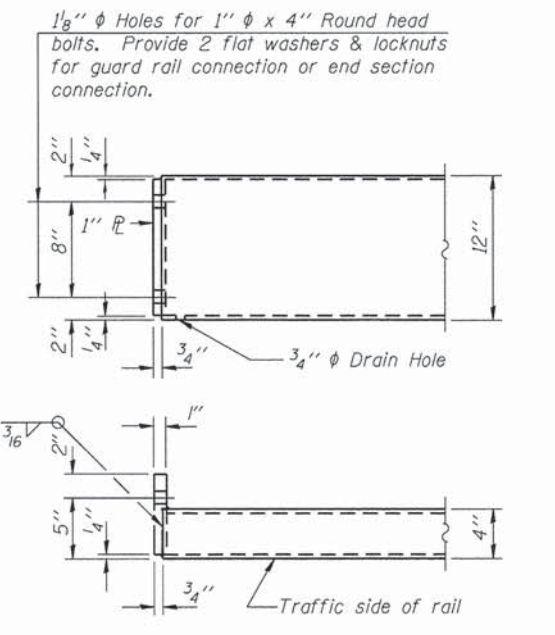
VIEW D-D



RAIL SPLICE CONNECTION AT EXPANSION JT.



PLAN-BOTT. SPLICE TYPICAL



END OF RAIL DETAILS

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 inch.

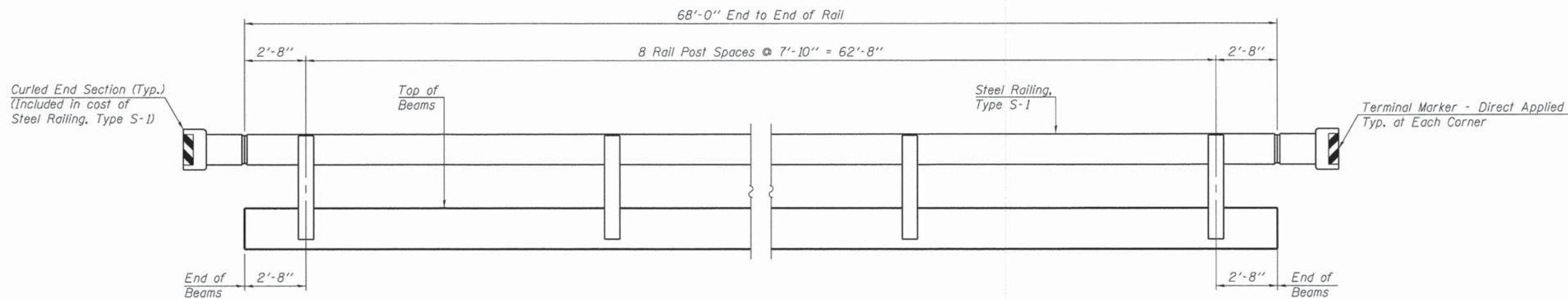
BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	136

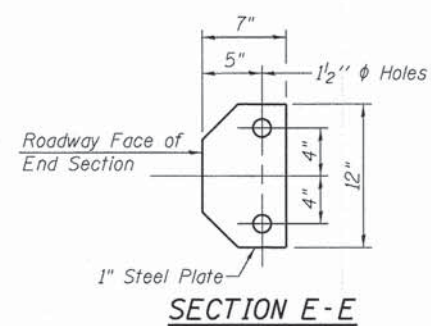
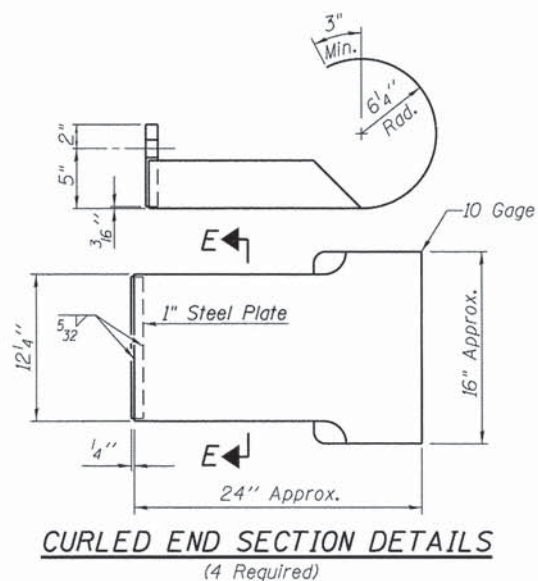
Work this Sheet with Sheet 9.

REVISIONS

REV. NO.	DESCRIPTION	DATE



ELEVATION



FEHR GRAHAM

ENGINEERING & ENVIRONMENTAL

ILLINOIS DESIGN FIRM NO. 184-003525

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ILLINOIS
IOWA
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AGENCY:
MARSHALL COUNTY
BELL PLAIN ROAD DISTRICT

PROJECT:
SECTION 14-01119-00-BR
T.R. 87A OVER TRIBUTARY TO
NORTH BRANCH OF CROW CREEK

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

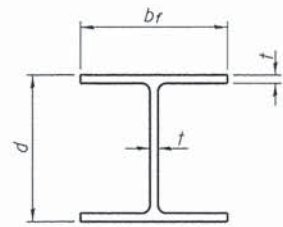
REVISIONS		
REV. NO.	DESCRIPTION	DATE

DRAWING:
STEEL RAILING, TYPE S-1

14-565_RAIL.dgn
CONTRACT #: 89659

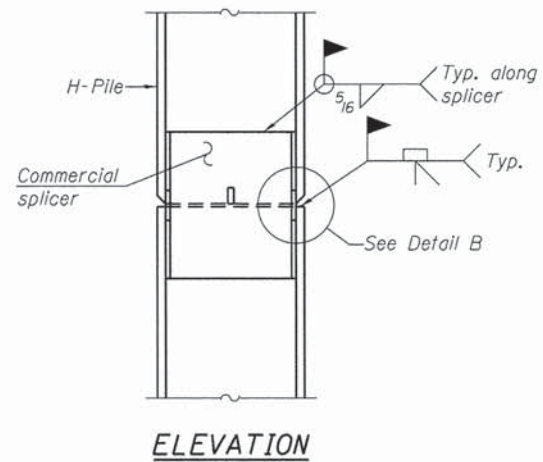
JOB NUMBER:
14-565

SHEET NUMBER
9 of 16

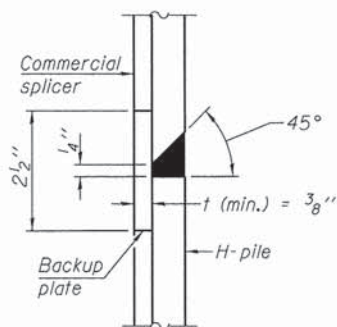


STEEL PILE TABLE

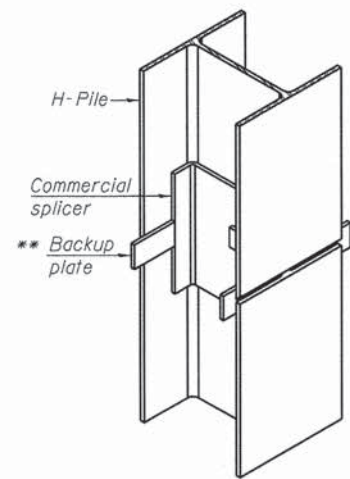
Designation	Depth <i>d</i>	Flange width <i>br</i>	Web and Flange thickness <i>t</i>
HP 14x117	14 ¹ / ₄ "	14 ⁷ / ₈ "	1 ³ / ₁₆ "
x102	14"	14 ³ / ₄ "	1 ¹ / ₁₆ "
x89	13 ⁷ / ₈ "	14 ³ / ₄ "	5 ⁵ / ₈ "
x73	13 ⁵ / ₈ "	14 ⁵ / ₈ "	1 ¹ / ₂ "
HP 12x84	12 ¹ / ₄ "	12 ¹ / ₄ "	1 ¹ / ₁₆ "
x74	12 ¹ / ₈ "	12 ¹ / ₄ "	5 ⁵ / ₈ "
x63	12"	12 ¹ / ₈ "	1 ¹ / ₂ "
x53	11 ³ / ₄ "	12"	7 ⁷ / ₁₆ "
HP 10x57	10"	10 ¹ / ₄ "	9 ⁹ / ₁₆ "
x42	9 ³ / ₄ "	10 ¹ / ₈ "	7 ⁷ / ₁₆ "
HP 8x36	8"	8 ¹ / ₈ "	7 ⁷ / ₁₆ "



ELEVATION

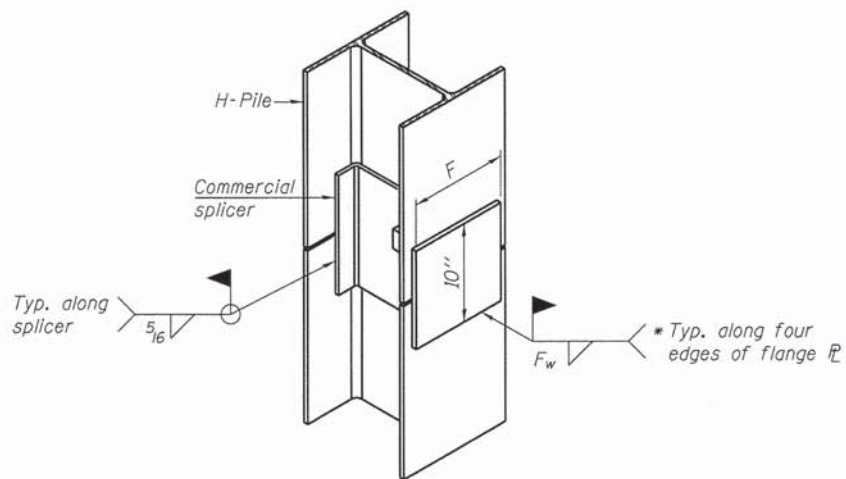


DETAIL "B"



ISOMETRIC VIEW

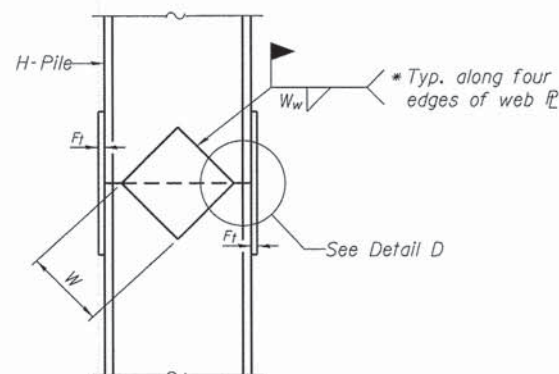
WELDED COMMERCIAL SPLICE



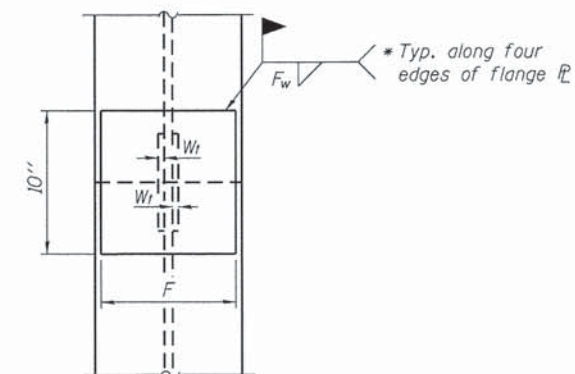
ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE ALTERNATE

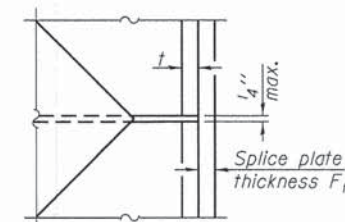
- * Interrupt welds 1/4" from end of web and/or each flange.
- ** Remove portions of backup plates that extend outside the flanges.



ELEVATION



END VIEW

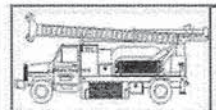


DETAIL D

WELDED PLATE FIELD SPLICE

Designation	F	F _t	F _w	W	W _t	W _w
HP 14x117	12 ¹ / ₂ "	1"	7 ⁷ / ₈ "	7 ³ / ₄ "	5 ⁵ / ₈ "	1 ¹ / ₂ "
x102	12 ¹ / ₂ "	7 ⁷ / ₈ "	3 ³ / ₄ "	7 ³ / ₄ "	5 ⁵ / ₈ "	1 ¹ / ₂ "
x89	12 ¹ / ₂ "	3 ³ / ₄ "	1 ¹ / ₁₆ "	7 ³ / ₄ "	5 ⁵ / ₈ "	1 ¹ / ₂ "
x73	12 ¹ / ₂ "	5 ⁵ / ₈ "	9 ⁹ / ₁₆ "	7 ³ / ₄ "	5 ⁵ / ₈ "	1 ¹ / ₂ "
HP 12x84	10"	7 ⁷ / ₈ "	1 ¹ / ₁₆ "	6 ¹ / ₂ "	5 ⁵ / ₈ "	1 ¹ / ₂ "
x74	10"	7 ⁷ / ₈ "	1 ¹ / ₁₆ "	6 ¹ / ₂ "	5 ⁵ / ₈ "	1 ¹ / ₂ "
x63	10"	5 ⁵ / ₈ "	1 ¹ / ₂ "	6 ¹ / ₂ "	1 ¹ / ₂ "	3 ³ / ₈ "
x53	10"	5 ⁵ / ₈ "	1 ¹ / ₂ "	6 ¹ / ₂ "	1 ¹ / ₂ "	3 ³ / ₈ "
HP 10x57	8"	3 ³ / ₄ "	9 ⁹ / ₁₆ "	5 ¹ / ₄ "	1 ¹ / ₂ "	3 ³ / ₈ "
x42	8"	5 ⁵ / ₈ "	9 ⁹ / ₁₆ "	5 ¹ / ₄ "	1 ¹ / ₂ "	3 ³ / ₈ "
HP 8x36	7"	5 ⁵ / ₈ "	7 ⁷ / ₁₆ "	4 ¹ / ₄ "	1 ¹ / ₂ "	3 ³ / ₈ "

Note:
The steel H-piles shall be according to
AASHTO M270 Grade 50.



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

BORING LOG

Sheet 1 of 3

Phone: 815-223-6696
Fax: 815-223-6659
e-mail: mts37@comcast.net

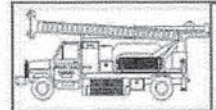
Client: Fehr Graham - Engineering & Environmental
Project Name: Section No.: 14-01119-00-BR
Project Site: T.R. 87A over Tributary To N. Branch of Crow Creek
Marshall County, IL.

Boring No. B-1
Surface Elev. 99.92
Auger Depth 61.00 Rotary Depth NA
Start Date 07/19/14 Finish Date 07/19/14

Location: West Abutment: Station 14+77 7' RT
23' West of Center and 7' S. of Centerline of Roadway

(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 (%)		
99.92										Randy Safranski Diedrich D-120	
98.92	Tar & Chip over Aggregate		1								
97.92	Black/Brown Silty Clay Fill Medium Stiff		2								
96.92			3	1	SS	1.0	7	B	15		
95.92			4								
94.92			5								
93.92	Brown Silty Sandy Clay Medium Stiff		6	2	SS	0.8	5	B	16		
92.92			7								
91.92			8	3	SS	0.6	5	B	18		
90.92			9								
89.92	Gray Very Sandy Clay Loose		10	4	SS	---	5	---	20		
88.92			11								
87.92			12								
86.92	Gray Gravely Clay Stiff		13	5	SS	2.0	11	B	14		
85.92			14								
84.92			15								
83.92			16	6	SS	---	14	---	17		
82.92			17								
81.92	Gray Silty Clay Medium Stiff to Stiff		18	7	SS	1.2	7	B	18		
80.92			19								
79.92			20	8	SS	1.2	6	B	18		

Groundwater Data: Static water level after auger removal 11' depth.
Comments: Assumed center of existing Bridge Deck to be elevation 100.0.



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

BORING LOG

Sheet 2 of 3

Phone: 815-223-6696
Fax: 815-223-6659
e-mail: mts37@comcast.net

Client: Fehr Graham - Engineering & Environmental
Project Name: Section No.: 14-01119-00-BR
Project Site: T.R. 87A over Tributary To N. Branch of Crow Creek
Marshall County, IL.

Boring No. B-1
Surface Elev. 99.92
Auger Depth 61.00 Rotary Depth NA
Start Date 07/19/14 Finish Date 07/19/14

Location: West Abutment: Station 14+77 7' RT
23' West of Center and 7' S. of Centerline of Roadway

(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 (%)		
78.92										Randy Safranski Diedrich D-120	
77.92	Gray Silty Clay Medium Stiff to Stiff		22								
76.92			23	9	SS	1.0	7	B	18		
75.92	Green/Gray Silty Clay Medium Stiff to Stiff		24								
74.92			25	10	SS	0.8	9	B	23		
73.92			26								
72.92			27								
71.92			28								
70.92	Brown/Gray Silty Clay Till with Sand Seams Very Stiff		29								
69.92			30	11	SS	2.7	19	B	14		
68.92			31								
67.92			32								
66.92			33								
65.92			34								
64.92	Gray Coarse Gravel Dense		35	12	SS	---	33	---	8		
63.92			36								
62.92			37								
61.92			38								
60.92	Gray Sandy Loam Till Hard		39								
59.92			40								
58.92			41	13	SS	4.8	70 6"	S	9		

Groundwater Data: Static water level after auger removal 11' depth.
Comments: Assumed center of existing Bridge Deck to be elevation 100.0.

Boring Log Elev. 100.00 = Project Survey Elev. 670.34

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

ILLINOIS
IOWA
WISCONSIN

AGENCY:
MARSHALL COUNTY
BELL PLAIN ROAD DISTRICT

PROJECT:
SECTION 14-01119-00-BR
T.R. 87A OVER TRIBUTARY TO
NORTH BRANCH OF CROW CREEK

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

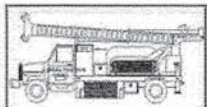
REVISIONS		
REV. NO.	DESCRIPTION	DATE

DRAWING:
BORING LOG #1

14-565_BORINGS.dgn
CONTRACT #: 89659

JOB NUMBER:
14-565

SHEET NUMBER
12 of 16



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

BORING LOG
Sheet 3 of 3
Phone: 815-223-6696
Fax: 815-223-6659
e-mail: mts37@comcast.net

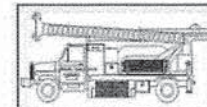
Client: Fehr Graham - Engineering & Environmental
Project Name: Section No.: 14-01119-00-BR
Project Site: T.R. 87A over Tributary To N. Branch of Crow Creek
Marshall County, IL.

Boring No. B-1
Surface Elev. 99.92
Auger Depth 61.00 Rotary Depth NA
Start Date 07/19/14 Finish Date 07/19/14

Location: West Abutment: Station 14+77 7 RT
23' West of Center and 7' S. of Centerline of Roadway

(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 (%)	Dry Density (PCF)		
57.92											Randy Safranski Diedrich D-120	
56.92			43									
55.92			44									
54.92			45	14	SS	4.0	55 6"	S	11			
53.92			46									
52.92			47									
51.92			48									
50.92			49									
49.92	Gray Sandy Loam Till Hard		50	15	SS	4.2	65 6"	S	10			
48.92			51									
47.92			52									
46.92			53									
45.92			54									
44.92			55	16	SS	4.6	70 6"	S	9			
43.92			56									
42.92			57									
41.92			58									
40.92			59									
39.92			60									
38.92			61	17	SS	---	70 6"	---	8			
37.92			62									

Groundwater Data: Static water level after auger removal 11' depth.
Comments: Assumed center of existing Bridge Deck to be elevation 100.0.



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

BORING LOG
Sheet 1 of 3
Phone: 815-223-6696
Fax: 815-223-6659
e-mail: mts37@comcast.net

Client: Fehr Graham - Engineering & Environmental
Project Name: Section No.: 14-01119-00-BR
Project Site: T.R. 87A over Tributary To N. Branch of Crow Creek
Marshall County, IL.

Boring No. B-2
Surface Elev. 100.08
Auger Depth 61.00 Rotary Depth NA
Start Date 07/19/14 Finish Date 07/19/14

Location: East Abutment: Station 15+32 5' LT
32' East of Center and 5' N. of Centerline of Roadway

(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 (%)	Dry Density (PCF)		
100.08											Randy Safranski Diedrich D-120	
99.08	Tar & Chip over Aggregate		1									
98.08			2									
97.08	Brown Silty Clay Fill Medium Stiff		3	1	SS	1.2	7	B	16			
96.08			4									
95.08			5	2	SS	1.1	7	B	15			
94.08			6									
93.08			7									
92.08			8	3	SS	1.0	6	B	16			
91.08	Brown Sandy Clay Medium Stiff		9									
90.08			10	4	SS	0.8	5	B	17			
89.08			11									
88.08			12									
87.08			13	5	SS	0.8	5	B	18			
86.08			14									
85.08			15									
84.08	Gray Silty Clay Stiff		16	6	SS	1.2	13	B	15			
83.08			17									
82.08			18	7	SS	---	15	---	8			
81.08	Gray Sand & Gravel		19									
80.08			20									
	Gray Silty Clay Medium Stiff			8	SS	1.0	5	B	17			

Groundwater Data: Static water level after auger removal 11' depth.
Comments: Assumed center of existing Bridge Deck to be elevation 100.0.

Boring Log Elev. 100.00 = Project Survey Elev. 670.34

FEHR GRAHAM

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ILLINOIS DESIGN FIRM NO. 084-003525

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AGENCY:
MARSHALL COUNTY
BELL PLAIN ROAD DISTRICT

PROJECT:
SECTION 14-01119-00-BR
T.R. 87A OVER TRIBUTARY TO
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DESIGNED: J. A. M.
CHECKED: A. R. K.
DRAWN: A. D. S.
CHECKED: J. A. M.
A. R. K.

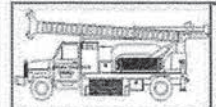
REVISIONS		
REV. NO.	DESCRIPTION	DATE

DRAWING:
BORING LOG #1 & #2

14-565_BORINGS.dgn
CONTRACT #: 89659

JOB NUMBER:
14-565

SHEET NUMBER
13 of 16



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

BORING LOG

Sheet 2 of 3

Phone: 815-223-6696
Fax: 815-223-6659
e-mail: mts37@comcast.net

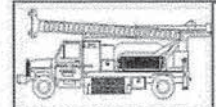
Client: Fehr Graham - Engineering & Environmental
Project Name: Section No.: 14-01119-00-BR
Project Site: T.R. 87A over Tributary To N. Branch of Crow Creek
Marshall County, IL.

Boring No. B-2
Surface Elev. 100.08
Auger Depth 61.00 Rotary Depth NA
Start Date 07/19/14 Finish Date 07/19/14

Location: East Abutment: Station 15+32 5' LT
32' East of Center and 5' N. of Centerline of Roadway

(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		
79.08													
78.08			22										
77.08	Gray Silty Clay Medium Stiff to Stiff		23	9	SS	1.0	7	B	18				
76.08			24										
75.08			25										
74.08			26	10	SS	1.0	8	B	17				
73.08	Gray Coarse Gravel		27										
72.08			28										
71.08	Brown Gravelly Loam Till Very Stiff		29										
70.08			30	11	SS	2.9	22	B/S	14				
69.08			31										
68.08	Gray Sandy Loam Till Hard		32										
67.08			33										
66.08			34										
65.08			35										
64.08			36	12	SS	4.0	53	S	11				
63.08			37										
62.08			38										
61.08			39										
60.08		40	13	SS	4.8	70 6"	S	9					
59.08		41											

Groundwater Data: Static water level after auger removal 11' depth.
Comments: Assumed center of existing Bridge Deck to be elevation 100.0.



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

BORING LOG

Sheet 3 of 3

Phone: 815-223-6696
Fax: 815-223-6659
e-mail: mts37@comcast.net

Client: Fehr Graham - Engineering & Environmental
Project Name: Section No.: 14-01119-00-BR
Project Site: T.R. 87A over Tributary To N. Branch of Crow Creek
Marshall County, IL.

Boring No. B-2
Surface Elev. 100.08
Auger Depth 61.00 Rotary Depth NA
Start Date 07/19/14 Finish Date 07/19/14

Location: East Abutment: Station 15+32 5' LT
32' East of Center and 5' N. of Centerline of Roadway

(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		
58.08													
57.08			43										
56.08			44										
55.08			45										
54.08			46	14	SS	---	70 6"	---	8				
53.08			47										
52.08	Gray Sandy Loam Till Hard		48										
51.08			49										
50.08			50	15	SS	4.6	60 6"	S	9				
49.08		51											
48.08		52											
47.08		53											
46.08		54											
45.08		55											
44.08		56	16	SS	---	70 6"	---	8					
43.08		57											
42.08		58											
41.08		59											
40.08		60											
39.08		61	17	SS	---	75 6"	---	---					
38.08		62											

Groundwater Data: Static water level after auger removal 11' depth.
Comments: Assumed center of existing Bridge Deck to be elevation 100.0.

Boring Log Elev. 100.00 = Project Survey Elev. 670.34

FEHR GRAHAM

ENGINEERING & ENVIRONMENTAL

ILLINOIS DESIGN FIRM NO. 184-003525
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ILLINOIS
IOWA
WISCONSIN

AGENCY:
MARSHALL COUNTY
BELL PLAIN ROAD DISTRICT

PROJECT:
SECTION 14-01119-00-BR
T.R. 87A OVER TRIBUTARY TO
NORTH BRANCH OF CROW CREEK

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

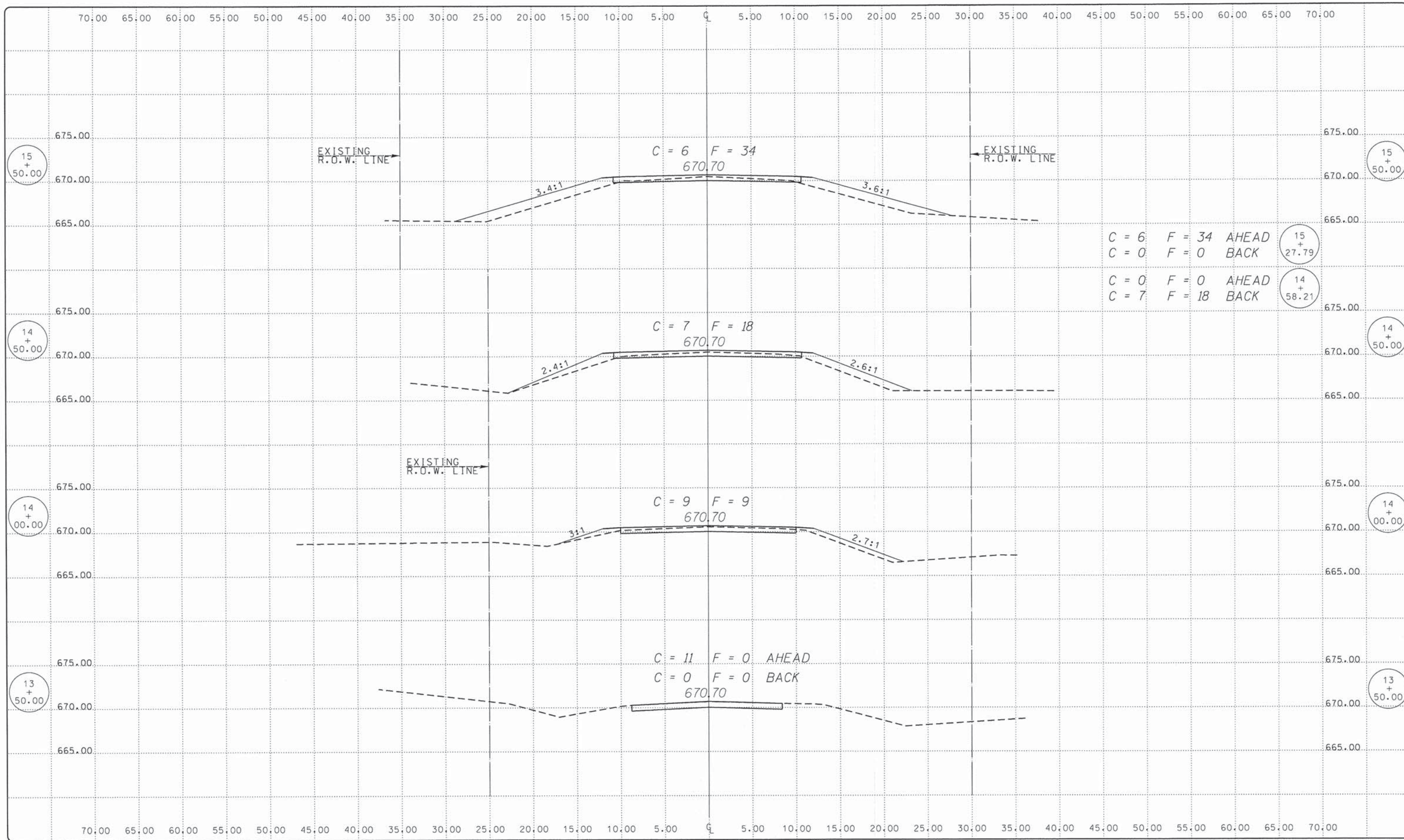
REVISIONS		
REV. NO.	DESCRIPTION	DATE

DRAWING:
BORING LOG #2

14-565_BORINGS.dgn
CONTRACT #: 89659

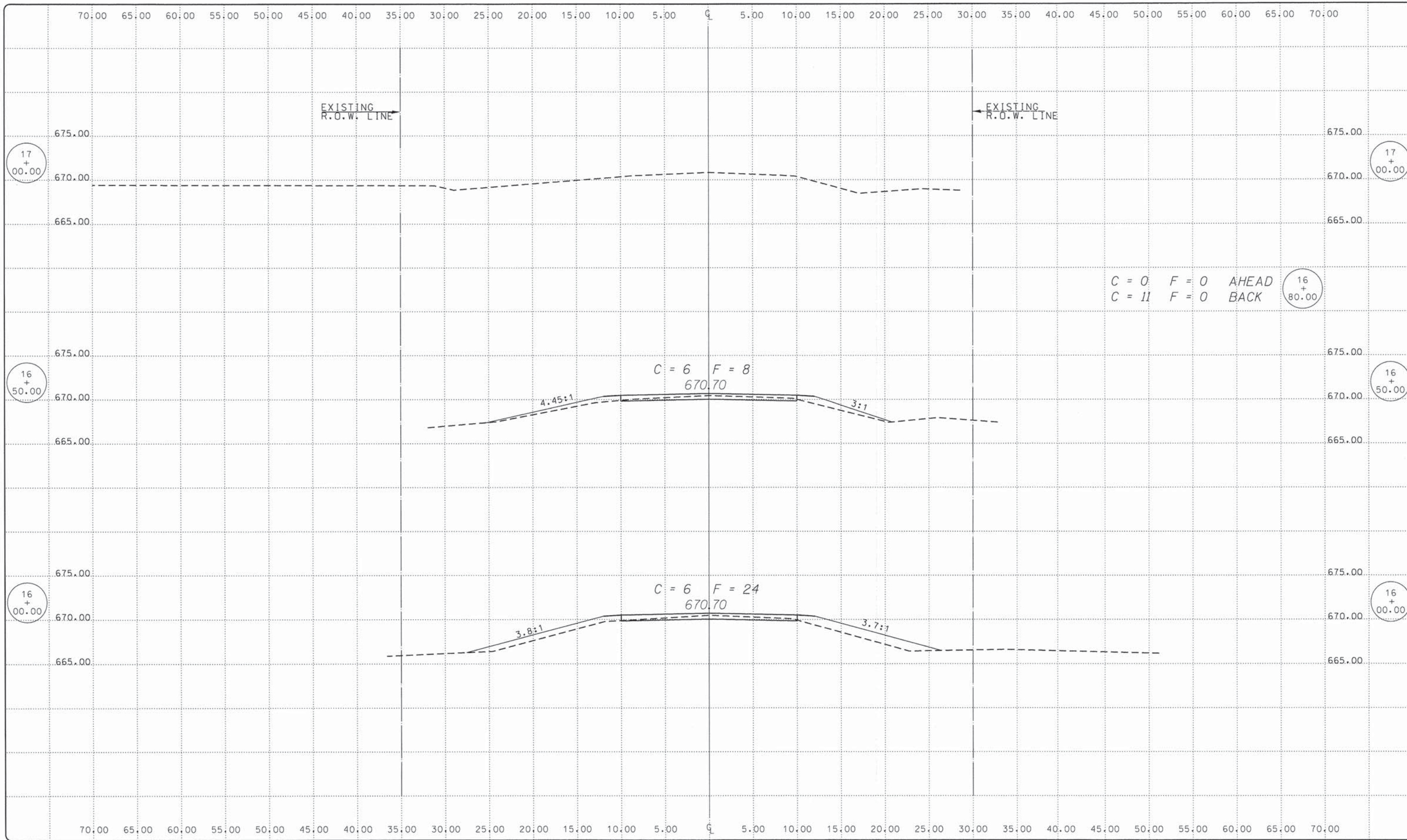
JOB NUMBER:
14-565

SHEET NUMBER
14 of 16



C = 6 F = 34 AHEAD
 C = 0 F = 0 BACK
 C = 0 F = 0 AHEAD
 C = 7 F = 18 BACK

REVISIONS		
REV. NO.	DESCRIPTION	DATE



REVISIONS		
REV. NO.	DESCRIPTION	DATE