

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED
BRIDGE REPLACEMENT

CONTRACT 89466

ROUTE NO.	SECTION	COUNTY	TOWNSHIP	SHEET
FAS 1384	*	FULTON	21	1
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT	*07-00117-03-BR	

INDEX OF SHEETS

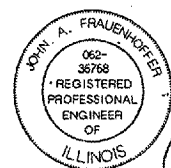
SHEET NO.	DESCRIPTION
1	COVER SHEET
2	SUMMARY OF QUANTITIES, GENERAL NOTES
3	SCHEDULE OF QUANTITIES AND TYPICAL CROSS SECTIONS
4	PLAN & PROFILE
5	TEMPORARY EROSION CONTROL PLAN
6	PAVEMENT MARKING PLAN
7-20	BRIDGE PLANS
21	STEEL PLATE BEAM GUARDRAIL, TYPE A

LIST OF STANDARD DRAWINGS

STANDARD NO.	DESCRIPTION
000001-05	STANDARD SYMBOLS, ABBREVIATIONS, AND PATTERNS
280001-04	TEMPORARY EROSION CONTROL SYSTEMS
420401-06	BRIDGE APPROACH PAVEMENT
515001-02	NAME PLATE FOR BRIDGES
630001-07	STEEL PLATE BEAM GUARDRAIL
630301-04	SHOULDER WIDENING FOR TYPE 1 SPECIAL GUARDRAIL TERMINALS
BLR27	TRAFFIC BARRIER TERMINAL TYPE 5A
701006-02	OFF ROAD OPERATIONS, 2L, 2W, 15' TO 24' FROM PAVEMENT EDGE
701301-02	LANE CLOSURE, 2L, 2W, SHORT TIME OPERATIONS
701901	TRAFFIC CONTROL DEVICES
780001-01	TYPICAL PAVEMENT MARKINGS
BLR 21-7	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION OF RURAL LOCAL HIGHWAYS
BLR 23-2	TRAFFIC BARRIER TERMINAL TYPE I

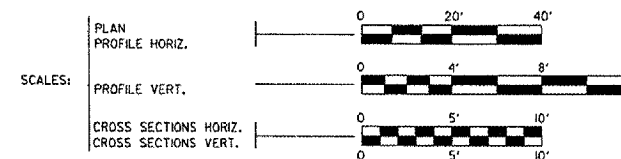
BLR26 STEEL PLATE BEAM GUARDRAIL
700 mm (27 1/2") HEIGHT

COMMITMENTS-NONE



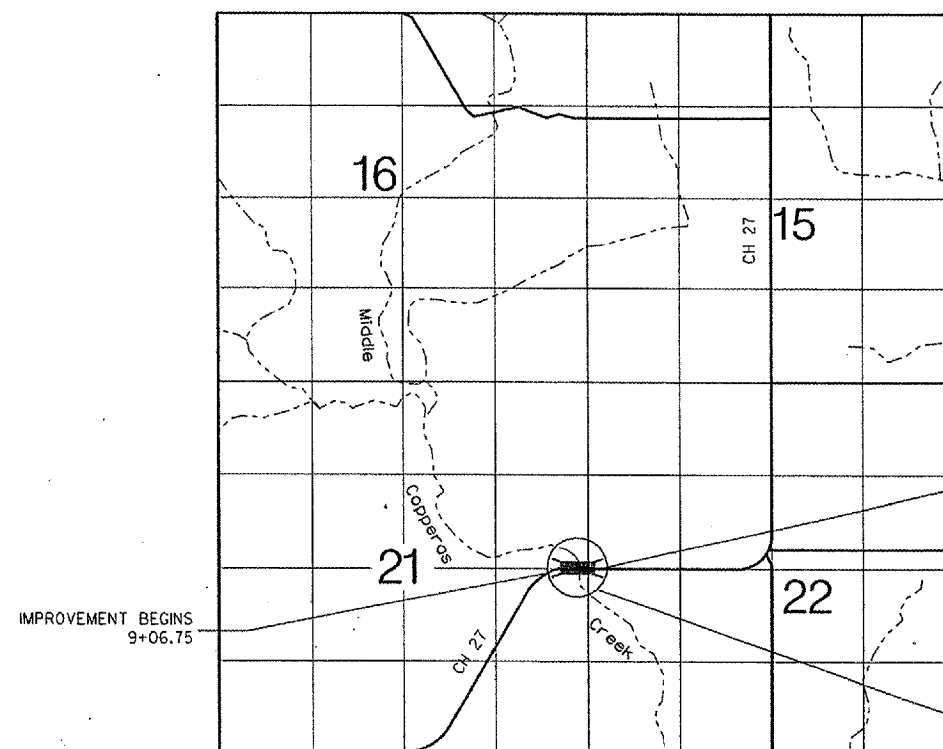
JOHN ANTON FRAUENHOFFER
Illinois Licensed Professional Engineer Number 36768
License Expires November 30, 2007

FOR JOINT UTILITY INFORMATION
CALL TOLL FREE 1-800-892-0123
CAT. #033488-00



FULTON COUNTY
SECTION 07-00117-03-BR
BRS 1384(111)
FAS 1384
COUNTY HIGHWAY 27
BRIDGE REPLACEMENT
AND REHABILITATION PROGRAM
C-94-045-07

R 5 E, 4th P.M.



LOCATION MAP

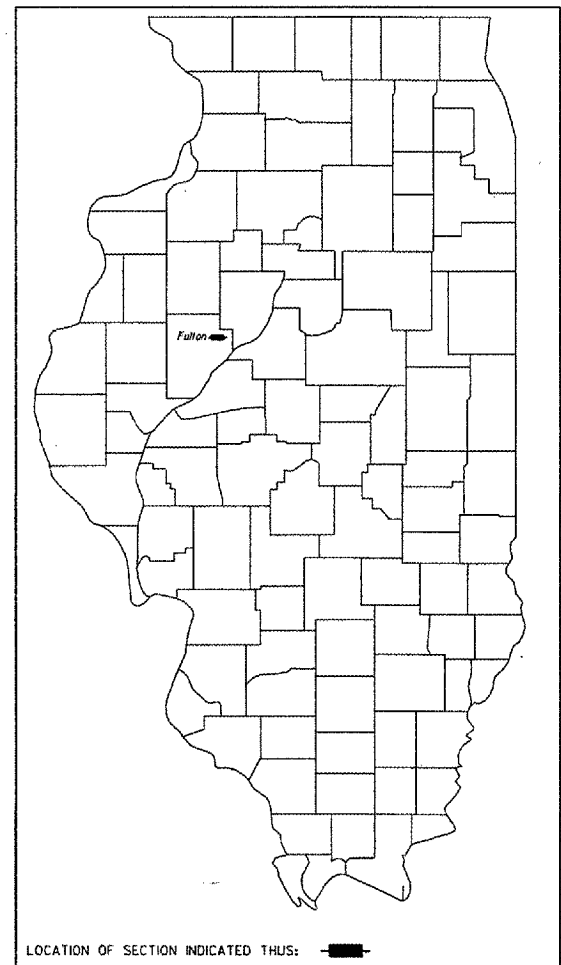
ADT = 1700 (CURRENT), < 2200 (DESIGN)
FUNCTIONAL CLASS = MAJOR COLLECTOR

NET LENGTH OF SECTION = 186.50 FEET = 0.035 MILES

IMPROVEMENT ENDS
10+93.25

IMPROVEMENT BEGINS
9+06.75

PROPOSED STRUCTURE REHABILITATION
STA. 10+00 FOUR-SPAN CONTINUOUS
STEEL GIRDER BRIDGE WITH CONCRETE
DECK 15.5' BK. TO BK ABUTMENTS,
NO SKEW, 28'-8" OUT TO OUT OF DECK.
STRUCTURE NO. 029-3001



APPROVED **12-19-07**
William Kuhn
WILLIAM KUHN, PE FULTON COUNTY ENGINEER

PASSED **1-5-08**
DD C R Q
DISTRICT FOUR ENGINEER OF
LOCAL ROADS & STREETS

Releasing For
Bid Based on
Limited Review **Jan 7**
2008
DEPUTY DIRECTOR OF HIGHWAYS,
REGION THREE ENGINEER

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FRAUENHOFFER

Frauenhoffer and Associates, P.C. Consulting Engineers
3002 Crossing Court Champaign, IL 61822 217-351-6268

ROUTE NO.	SECTION	COUNTY	SHEET NO.	SHEET NO.
	*	Fulton	21	2
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	

•07-00117-03-BR

SUMMARY OF QUANTITIES - SEC. 07-00117-03-BR

X031-2A

CODE	DESCRIPTION	UNIT	TOTAL QUANTITIES
20200100	Earth Excavation	Cu. Yd.	85
21101615	Top Soil Furnish & Place, 4"	Sq. Yd.	415
25000200	Seeding, Class 2	Acre	0.09
25000400	Nitrogen Fertilizer Nutrient	Pound	10
25000500	Phosphorus Fertilizer Nutrient	Pound	10
25000600	Potassium Fertilizer Nutrient	Pound	10
25100115	Mulch, Method 2	Acre	0.09
28000255	Temporary Erosion Control Seeding	Acre	0.09
28000400	Perimeter Erosion Barrier	Foot	251
31100300	Sub-base Granular Material, Type A 4"	Sq. Yd.	144
42001165	Bridge Approach Pavement	Sq. Yd.	160
42001430	Bridge Approach Pavement Connector (Flexible)	Sq. Yd.	32
44000100	Pavement Removal	Sq. Yd.	192
48101200	Aggregate Shoulders, Type B	Tons	16
50101600	Removal of Existing Superstructures	L. Sum	1
50102400	Concrete Removal	Cu. Yd.	4
50104000	Bridge Rail Removal	Foot	229
50200100	Structure Excavation	Cu. Yd.	12
50300225	Concrete Structures	Cu. Yd.	2.7
50300255	Concrete Superstructures	Cu. Yd.	83.4
50300260	Bridge Deck Grooving	Sq. Yd.	525
50300300	Protective Coat	Sq. Yd.	525
50500105	Furnishing & Erecting Structural Steel	L. Sum	1
50600300	Cleaning and Painting Steel Bridge	L. Sum	1
50800205	Reinforcement Bars, Epoxy Coated	Pound	27090
50800515	Bar Splicers	Each	56
50901050	Steel Rolling, Type SM	Foot	229
51500100	Name Plates	Each	1
59300100	Controlled Low-Strength Material, Mix 2	Cu. Yd.	12
Δ • 63000000	Steel Plate Beam Guardrail, Type A	Foot	983
Δ 63100075	Traffic Barrier Terminal, Type 5A	Each	4
Δ LR631020	Traffic Barrier Terminal, Type I	Each	6
63200310	Guardrail Removal	Foot	234
Δ • 63300725	Steel Plate Beam Guardrail (Short Radius)	Foot	24
67100100	Mobilization	L. Sum	1
• 70101800	Traffic Control and Protection (Special)	L. Sum	1
70300320	Pavement Marking Tape, Type I 4"	Foot	610

• SEE SPECIAL PROVISIONS

Δ SPECIALTY ITEMS

GENERAL NOTES

- Fasteners shall be AASHTO M164 Type I, mechanically galvanized Bolts. Bolts 1/8" dia. holes 15/16" dia., unless otherwise noted. Drill holes in existing steel with magnetic drills. Torch cutting holes is prohibited.
- Calculated weight of Structural Steel = 56,900 lbs.
- All new structural steel shall be AASHTO M 270 Grade 50.
- No field welding is permitted.
- Reinforcement bars shall conform to the requirements of ASTM A706 Gr 60 (IL Modified). See Special Provisions.
- Reinforcement bars designated (E) shall be epoxy coated.
- Plan dimensions and details relative to existing plans are subject to routine variations. The Contractor shall field verify existing dimension and details affecting new construction and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in scope of work, however, the Contractor will be paid for the quantity actually furnished based upon the unit price bid for the work.
- Bearing seat surfaces shall be constructed or adjusted to the designated elevation within a tolerance of 1/8 in. (0.01 ft.). Adjustment shall be made either by grinding the surface or by shimming the bearings.
- The existing structural steel coating contains lead. The Contractor shall take appropriate precautions to deal with the presence of lead on this project.
- The Organic Zinc Rich Primer / Epoxy / Urethane Paint System shall be used for painting of new structural steel except where otherwise noted. The entire system shall be shop applied, with the exception that masked off connection surfaces, field installed fasteners and damaged areas shall be touched up in the field. The color of the final finish coat for all interior steel surfaces shall be Gray, Munsell No. 5B 7/1. The color of the final finish coat for the exterior and bottom flanges of the fascia beams shall be Gray, Munsell No. 5B 7/1. See Special Provision for "Cleaning and Painting New Metal Structures".
- The Contractor shall obtain a construction permit from the Illinois Department of Natural Resources (IDNR), Office of Water Resources for any temporary construction activity placed in the water. This shall include the placement of material for run-arounds, causeways, etc. Any permit application by the Contractor shall refer to the IDNR permit number as shown in the contract plans.
- All diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted. Individual cross frames or diaphragms at supports may be temporarily disconnected to install bearing anchor rods.

GENERAL NOTES-CONTINUED

- The Contractor shall make allowance for the deflection of forms, shrinkage and settlement of falsework, in addition to allowance for dead load deflection.
- The structural steel plates of the Bearing Assembly shall conform to the requirements of AASHTO M 270 Grade 50.
- 1/8 in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.
- All embedded and separate bearing plates, side retainers, anchor bolts, nuts, washers and pintles shall be galvanized according to AASHTO M11 or M232 (as applicable).
- H.S. bolts in bearing assembly shall be galvanized according to AASHTO M298 Class 50.
- Portions of the guardrail near the bridge shall be adjusted to connect the end of the Type SM Bridge Railing.

UTILITIES

Call J.U.L.I.E. 1-800-892-0123
The Contractor shall coordinate the relocation of any utilities with the utility company where they conflict with the proposed improvements.

DSGN	K.J. Hoffmann
DR	K.J. Hoffmann
CHK	J.R. Wolf
APVD	J.A. Fraenhoffer

NO.	DATE	REVISION	BY	APVD
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Frauenhoffer and Associates, P.C. Consulting Engineers
3002 Crossing Court Champaign, IL 61822 217-351-6268

SUMMARY OF QUANTITIES

FAS 1384 (COUNTY HIGHWAY 27)
SECTION 07-00117-03-BR
FULTON COUNTY

SHEET	2
DWG NO.	7022-sum.dgn
DATE	OCT 2007
PROJ NO.	7022

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 1384	*	Fulton	21	3
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

•07-00117-03-BR

SCHEDULE OF QUANTITIES

EARTH EXCAVATION				
LOCATION				SQ. YD.
STA. 9+06.75	TO	STA. 9+42.25	24' wide	42.5
STA. 10+57.75	TO	STA. 10+93.25	24' wide	42.5
TOTAL				85

BRIDGE DECK GROOVING				
LOCATION				SQ. YD.
STA. 9+12.75	TO	STA. 9+42.75	24' wide	80
STA. 9+42.75	TO	STA. 10+57.25	28'-8" wide	365
STA. 10+57.25	TO	STA. 10+87.25	24' wide	80
TOTAL				525

SUB-BASE GRANULAR MATERIAL, TYPE A 4"		
LOCATION		SQ. YD.
STA. 9+15.75	TO STA. 9+42.75	72
STA. 10+57.25	TO STA. 10+84.25	72
TOTAL		144

PROTECTIVE COAT		
LOCATION		SQ. YD.
STA. 9+12.75	TO STA. 9+42.75	80
STA. 9+42.75	TO STA. 10+57.25	365
STA. 10+57.25	TO STA. 10+87.25	80
TOTAL		525

AGGREGATE SHOULDERS, TYPE B		
LOCATION		TONS
STA. 9+06.75	TO STA. 9+42.75	8
STA. 10+57.25	TO STA. 10+93.25	8
TOTAL		16

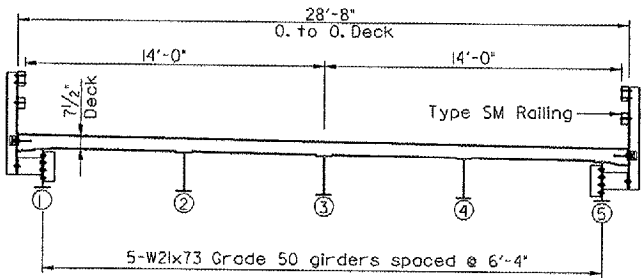
STEEL PLATE BEAM GUARDRAIL, TYPE A				
LOCATION				FOOT
STA. 6+67.75	TO	STA. 9+29.50	LEFT	262
STA. 6+67.75	TO	STA. 9+29.50	RIGHT	262
STA. 11+35.25	TO	STA. 13+32.25	LEFT	197
STA. 10+70.50	TO	STA. 13+32.25	RIGHT	262
TOTAL				983

PAVEMENT REMOVAL		
LOCATION		SQ. YD.
STA. 9+06.75	TO STA. 9+42.75	96
STA. 10+57.25	TO STA. 10+93.25	96
TOTAL		192

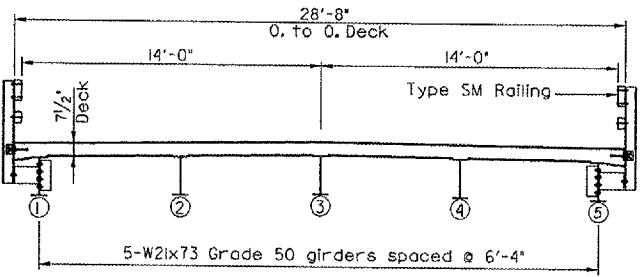
GUARDRAIL REMOVAL				
LOCATION				FOOT
STA. 9+20	TO	STA. 9+43	LEFT	23
STA. 9+02	TO	STA. 9+43	RIGHT	41
STA. 10+57	TO	STA. 10+75	LEFT	18
STA. 11+10	TO	STA. 11+95	LEFT	85
STA. 10+57	TO	STA. 11+24	RIGHT	67
TOTAL				234

TRAFFIC BARRIER TERMINAL, TYPE 5A				
LOCATION				EACH
STA. 9+29.50	TO	STA. 9+42.75	LEFT	1
STA. 9+29.50	TO	STA. 9+42.75	RIGHT	1
STA. 10+57.25	TO	STA. 10+70.50	LEFT	1
STA. 10+57.25	TO	STA. 10+70.50	RIGHT	1
TOTAL				4

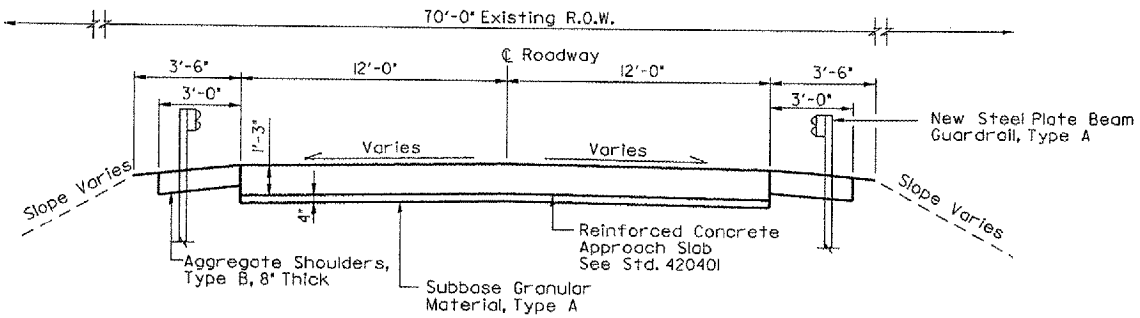
TRAFFIC BARRIER TERMINAL, TYPE I				
LOCATION				EACH
STA. 6+42.75	TO	STA. 6+67.75	LEFT	1
STA. 6+42.75	TO	STA. 6+67.75	RIGHT	1
STA. 10+85.50	TO	STA. 10+85.50	LEFT	1
STA. 11+10.25	TO	STA. 11+35.25	LEFT	1
STA. 13+32.25	TO	STA. 13+57.25	LEFT	1
STA. 13+32.25	TO	STA. 13+57.25	RIGHT	1
TOTAL				6



SUPERSTRUCTURE SECTION - SPANS 1 & 2
Looking upstation.



SUPERSTRUCTURE SECTION - SPANS 3 & 4
Looking upstation.



PROPOSED TRANSITION SECTION
Adjacent to the bridge

DSGN	K.J. Hoffmann
DR	K.J. Hoffmann
CHK	J.R. Wolf
APVD	J.A. Fraenhoffer

NO.	DATE	REVISION	BY	APVD
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FRAUENHOFER

Fraenhoffer and Associates, P.C. Consulting Engineers
3002 Crossing Court Champaign, IL 61822 217-351-6268

SCHEDULE OF QUANTITIES AND TYPICAL SECTIONS

FAS 1384 (COUNTY HIGHWAY 27)
SECTION 07-00117-03-BR
FULTON COUNTY

SHEET	3
DWG NO.	7022-sum.dgn
DATE	OCT 2007
PROJ NO.	7022

1. Placement of perimeter erosion control barrier prior to commencement of any work. See Standard 280001.

2. Removal of the existing concrete deck, rails, and superstructure.

3. Pavement removal.

4. *Earth excavation & structure excavation.*

5. Erection of the new beams.

6. *Abutment backwall retrofit.*

7. East abutment riprap repair.

8. Place reinforcing and cast the new concrete deck.

9. Install new granular sub-base.

10. Place reinforcing and cast approach slabs and connectors.

11. Regrade new shoulders with Aggregate Shoulders, Type B.

12. Removal and proper clean up of the temporary erosion controls.

13. Placement of the permanent erosion controls.

James Garnet Lingenfelter
Fawn Woods Farm
26998 E. Co. Hwy 27
Canton, IL 61520

SE $\frac{1}{4}$, Sect 21, T 7 N, R 5 E, 4th P.M.

— Proposed Rehabilitation, S.N. 029-3001
Sta. 10+00, No skew, One simple span and three
continuous spans with steel girders supporting
a concrete deck, 115.5' B/B Abuts., 28'-8" O/O deck.

Central Illinois Light Co.
c/o Ameren Services Co.
P.O. Box 66149-MC210
St. Louis, MO 63166-6149

James G. & Genevieve Lingenfelter
26998 E. Co. Hwy 27
Canton, IL 61520

UTILITIES

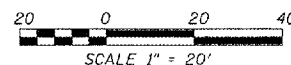
Call J.U.L.I.E. 1-800-892-0123

The Contractor shall coordinate the relocation of any utilities with the utility company where they conflict with the proposed improvements.

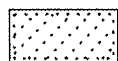
Eugene & Mary Freeman, etal
c/o Gordon R. & Susan K. Freeman
26762 E. Co. Hwy. 27
Canton, IL 61520

James G. & Genevieve Lingenfelter
26998 E. Co. Hwy 27
Canton, IL 61520

EXISTING STRUCTURE DESCRIPTION
S.N. 029-3001 has no skew and is 114'-8" long (B-B of abutments), 30.5' wide with five steel girders supporting a concrete deck and parapets. The superstructure rests on 2 pile supported abutments and 3 pile supported piers.

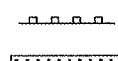


PERMANENT EROSION CONTROL

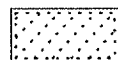


Seeding, Cl. 2 with Fertilizer and Mulch

TEMPORARY EROSION CONTROL



Perimeter Erosion Barrier



Temporary Erosion Control Seeding

PERIMETER EROSION BARRIER

<u>STA</u>	<u>OFFSET</u>	<u>TO</u>	<u>STA</u>	<u>OFFSET</u>	<u>LENGTH</u>
8+90	RT	-	9+45	RT	66.50'
9+05	LT	-	9+45	LT	51.50'
10+55	LT	-	10+84.5	LT	41.00'
10+55	RT	-	11+35	RT	91.50'
				TOTAL	250.50'

TEMPORARY EROSION CONTROL SEEDING

<u>STA</u>	<u>TO</u>	<u>STA</u>	<u>AREA</u>
8+90	-	9+45	0.02 acres
9+05	-	9+45	0.02 acres
10+55	-	10+84.5	0.01 acres
10+55	-	11+35	0.04 acres
<u>TOTAL</u>			<u>0.09 acres</u>

SEEDING, CLASS 2 WITH FERTILIZER AND MULCH

<u>STA</u>	<u>TO</u>	<u>STA</u>	<u>AREA</u>
8+90	-	9+45	0.02 acres
9+05	-	9+45	0.02 acres
10+55	-	10+84.5	0.01 acres
10+55	-	11+35	0.04 acres

TOTAL 0.09 acres

EROSION CONTROL		
Bill of Materials		
ITEM	UNIT	QTY
Seeding, Class 2	Acres	0.09
Temporary Erosion Control Seeding	Acres	0.09
Perimeter Erosion Barrier	Foot	251

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 1384	*	Fulton	21	6
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

9+00

+50

10+00

+50

11+00

9+06.75
Begin Pavement Marking

10+93.25
End Pavement Marking

Mark pavement lines for 12'-0" wide lanes, centerline,
and no passing zone westbound for
186.5' of roadway.

ITEM	UNIT	QTY
Pavement Marking Tape, Type 1 4"	Foot	610

DSGN	K.J. Hoffmann					
DR	K.J. Hoffmann					
CHK	J.R. Wolf					
APVD	J.A. Frauenhoffer	NO.	DATE	REVISION	BY	APV

Frauenhoffer and Associates, P.C. Consulting Engineers
3002 Crossing Court Champaign, IL 61822 217-351-6268

FAS 1384 (C.H. 27)
SECTION 07-00117-03-BR
FULTON COUNTY

SHEET	6
DWG NO.	7022-line.dgn
DATE	OCT 2007
PROJ NO.	7022

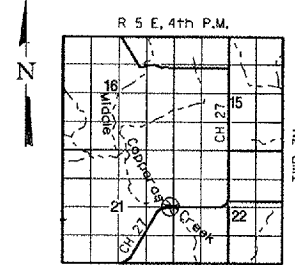
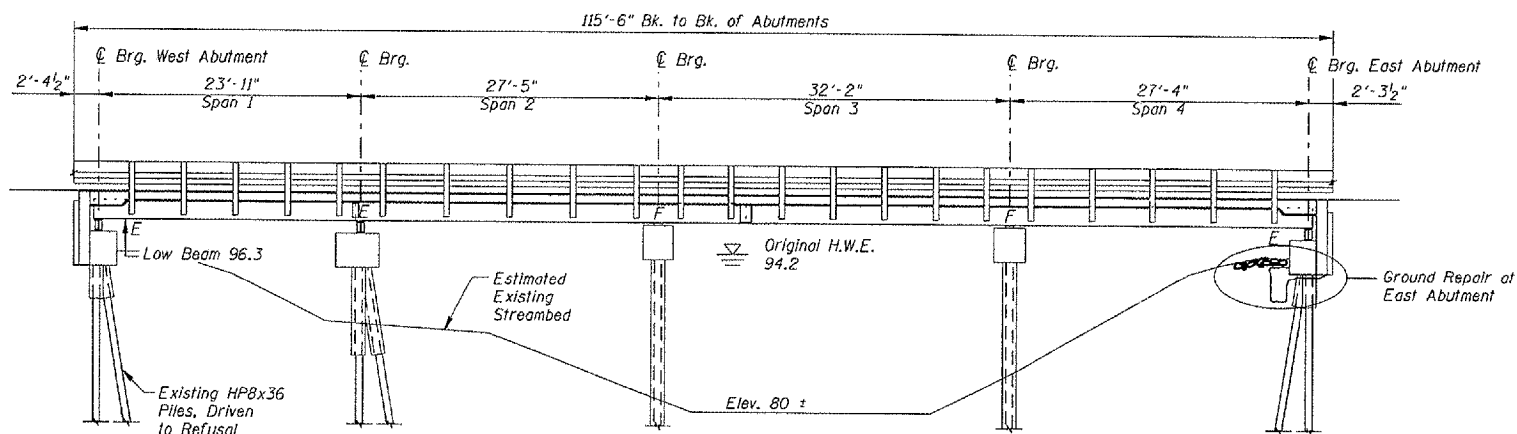
Existing Structure: Concrete decking supported on 5 steel beams resting on pile supported concrete abutments and bents. Four total spans of steel girders. 115'-6" Long and 30'-6" Wide O-O of deck.

BM #1 - X on Northeast wingwall near STA 10+67.25, 31' left, Elev. 100.00

CONTRACT 89466

ROUTE NO.	SECTION	COUNTY	SHEET NO.
FAS 1384	7	Fulton	21
FED. ROAD DIST. NO. 7	ILLINOIS	FED. ROAD PROJECT	

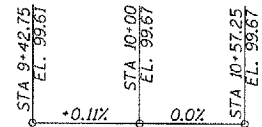
*07-00117-03-BR



LOCATION SKETCH

STRUCTURE NO. 029-3001
SEC. 07-00117-03-BR BUILT 200
ORION ROAD DISTRICT
FULTON COUNTY
LOADING HS-25-44

NAME PLATE
See Standard 515001



PROFILE GRADE

DESIGN SPECIFICATIONS
AASHTO 2002 and all applicable Interims

DESIGN LOADING
HS 25-44
25 P.S.F Future Wearing Surface

DESIGN STRESSES
 $f'_c = 3,500$ psi (Cast in Place Concrete)
 $f_y = 60,000$ psi (Reinforcing Steel)
 $f_y = 50,000$ psi (New Structural Steel)

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Removal of Existing Superstructures	L. Sum	1		1
Concrete Removal	Cu. Yd.	4		4
Bridge Rail Removal	Foot	229		229
Structure Excavation	Cu. Yd.	12		12
Concrete Structures	Cu. Yd.	2.7		2.7
Concrete Superstructures	Cu. Yd.	83.4		83.4
Bridge Deck Grooving	Sq. Yd.	525		525
Protective Coat	Sq. Yd.	525		525
Furnishing & Erecting Structural Steel	L. Sum	1		1
Reinforcement Bars, Epoxy Coated	Pound	26710	380	27090
Bar Splicers	Each	56		56
Steel Railing, Type SM	Foot	229		229
Name Plates	Each		1	1
Controlled Low-Strength Material, Mix 2	Cu. Yd.		12	12

GENERAL NOTES

- Structural steel shall be M270, Grade 50.
- Welds shall use an E70XX electrode.
- Plan dimensions and details relative to existing plans are subject to routine variations. The Contractor shall field verify existing dimension and details affecting new construction and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in scope of work, however, the Contractor will be paid for the quantity actually furnished based upon the unit price bid for the work.



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 the requirements of the current "AASHTO Standard Specifications for Highway Bridges."

JOHN A. FRAUENHOFER
Illinois Licensed Structural Engineer Number 4192
License Expires 11/30/08

DSGN	NO.	DATE	REVISION	BY	APVD
K.J. Hoffmann					
K.J. Hoffmann					
J. Wolf					
J.A. Frauenhoffer					

FRAUENHOFER

Frauenhoffer and Associates, P.C. Consulting Engineers
3002 Crossing Court Champaign, IL 61822 217-351-6268

GENERAL PLAN AND ELEVATION
FAS 1384 (COUNTY HIGHWAY 27)
SECTION 07-00117-03-BR
FULTON COUNTY

SHEET 7
DWG NO. 7022gpe.dgn
DATE OCT 2007
PROJ NO. 7022

30'-6"

2'-0" 13'-3" 13'-3" 2'-0"

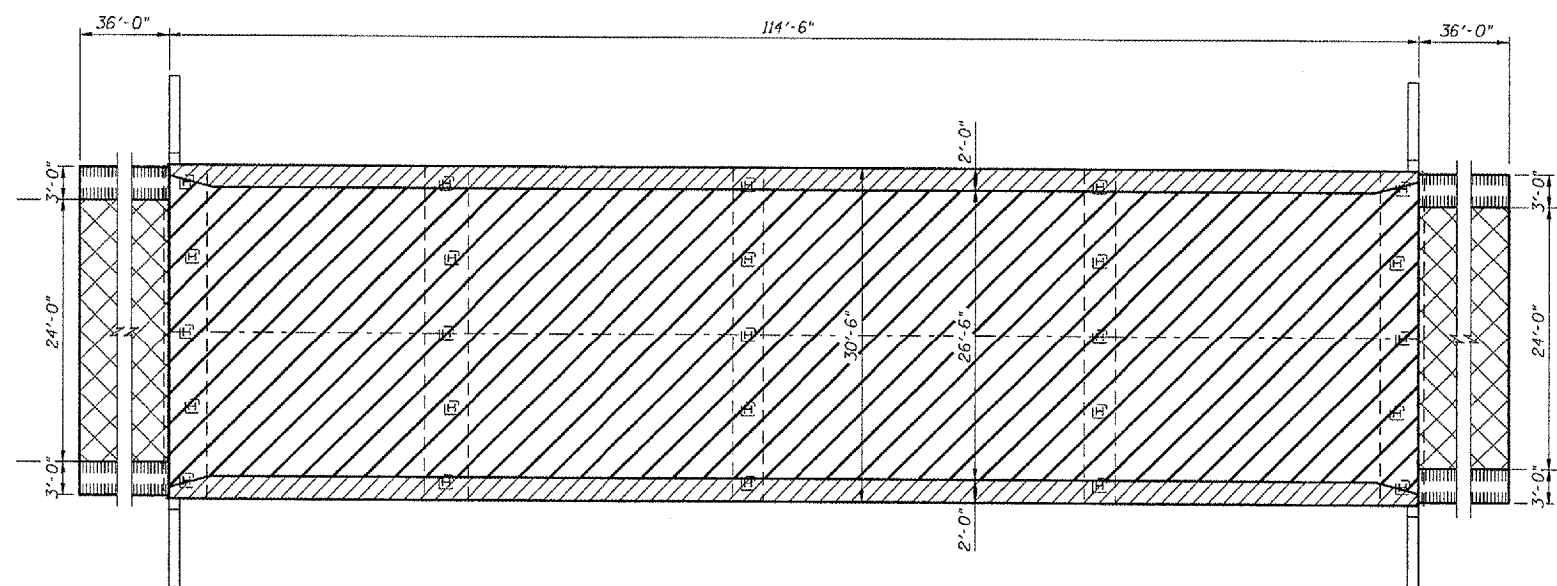
Note: No Shear Studs are present

Concrete & Steel Bridge Rail

1 2 3 4 5

5 - 21W59 spaced @ 6'-4"

Looking upstation.



30'-6"

2'-0" 13'-3" 13'-3" 2'-0"

Note: No Shear Studs are present

Concrete Bridge Rail

1 2 3 4 5

5 - 21W55 spaced @ 6'-4"

Looking upstation.

*Pavement Removal
with Earth Excavation*

Bridge Rail Removal

*Superstructure
Removal*

Earth Excavation

Earth Excavation

DSGN	K.J. Hoffmann							
DR	K.J. Hoffmann							
CHK	J. Wolf							
APVD	J.A. Frauenhoffer	NO.	DATE	REVISION		BY	APV	

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the cost of which shall be incidental to the cost of Removal of Existing Superstructures.

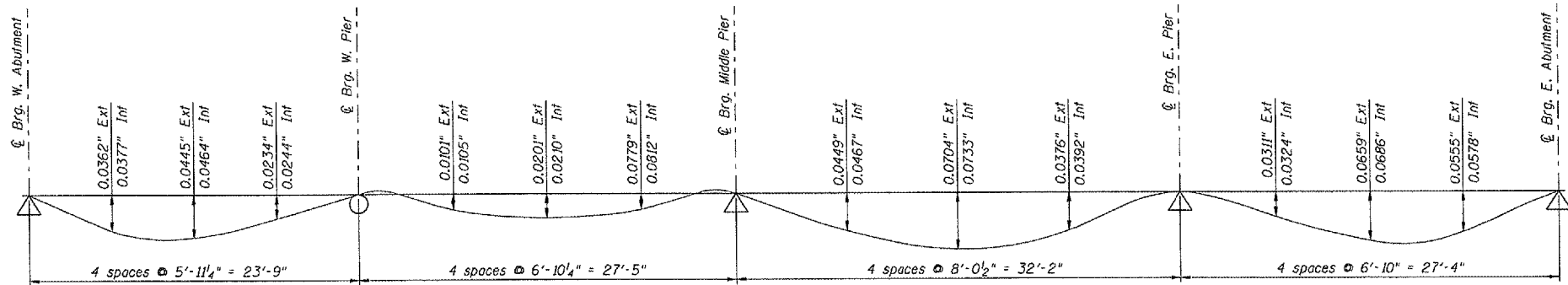
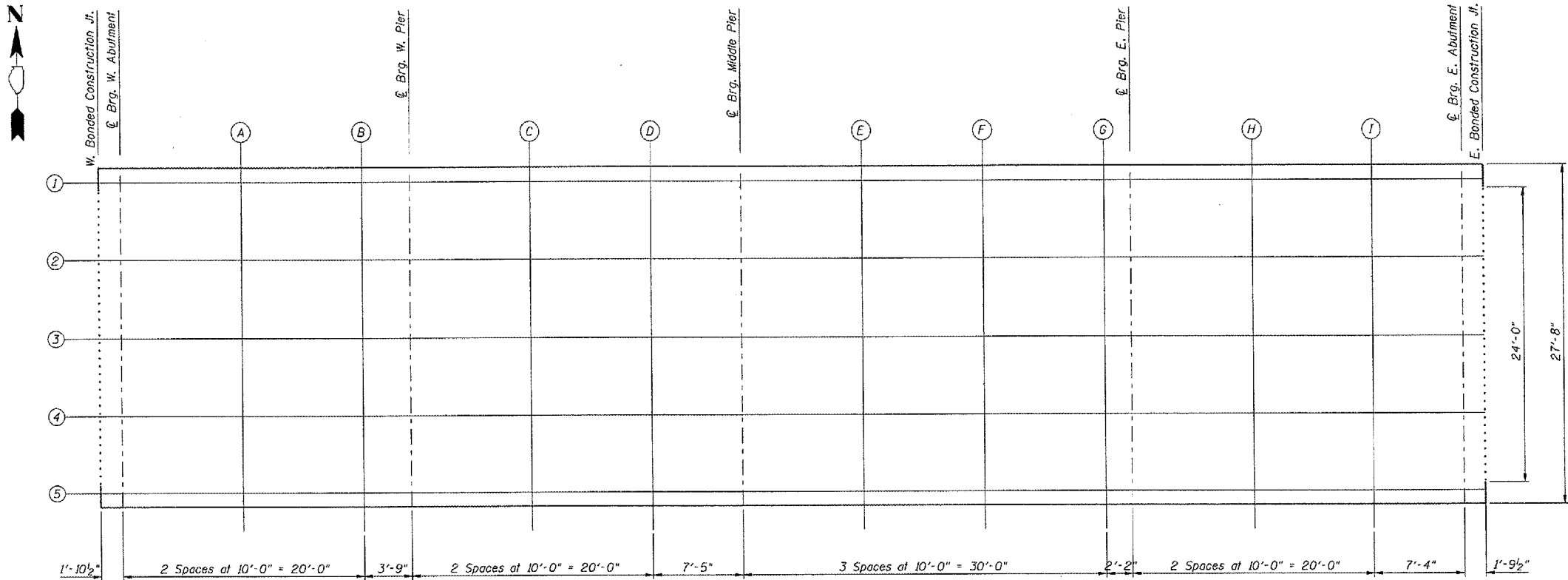
ITEM	UNIT	QTY.
Removal of Existing Superstructures	L. Sum.	1
Bridge Roli Removal	Foot	229

FAS 1384 (COUNTY HIGHWAY 27)
SECTION 07-00117-03-BR
FULTON COUNTY

DWG	7022-DEMO.dwg
NO.	
DATE	OCT 2007
PROJ	7022
NO.	

ROUTE NO.	ELECTION	COUNTY	SHEET NO.	SHEET
FAS 1384	*	Fulton	21	9
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	

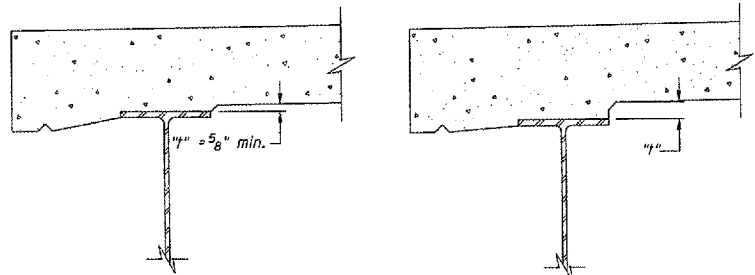
*07-00117-03-BR



DEAD LOAD DEFLECTION DIAGRAM FOR INTERIOR OR EXTERIOR GIRDERS

(Includes weight of concrete deck & all superimposed dead loads except the future wearing surface.)

Note: The above deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for Dead Load deflections as shown on sheets 10 and 11.



At Minimum Fillet

At Maximum Fillet

FILLET HEIGHTS

To determine "t". After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown on this sheet. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown on Sheets 8 and 9, minus slab thickness, equals the fillet heights "t" above top flange of beams.

DSGN	K.J. Hoffmann				
DR	K.J. Hoffmann				
CHK	J.R. Wolf				
APVD	J.A. Fraenhoffer	NO.	DATE	REVISION	BY

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TOP OF SLAB ELEVATIONS - SHEET 1 OF 3

FAS 1384 (C.H. 27) OVER M. BRANCH OF COPPERAS CREEK
SECTION 07-00117-03-BR
FULTON COUNTY

SHEET	9
DWG NO.	7022-10s1.dgn
DATE	Oct 2007
PROJ NO.	7022

CONTRACT 89466

ROUTE NO.	SECTION	COUNTY	SHEET NO.	PAGE NO.
FAS 1384	#	Fulton	21	10
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	

*07-00117-03-BR

N. Edge of Deck

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
W. Bonded Construction Jt.	9+42.75	13.833' LT	99.896	99.896
CL brg. W. Abutment	9+44.63	13.833' LT	99.897	99.897
Line A	9+54.63	13.833' LT	99.898	99.902
Line B	9+64.63	13.833' LT	99.898	99.899
CL Brg. W. Pier	9+68.54	13.833' LT	99.898	99.898
Line C	9+78.54	13.833' LT	99.852	99.853
Line D	9+88.54	13.833' LT	99.806	99.807
CL Brg. Middle Pier	9+95.96	13.833' LT	99.771	99.771
Line E	10+05.96	13.833' LT	99.701	99.706
Line F	10+15.96	13.833' LT	99.613	99.618
Line G	10+25.96	13.833' LT	99.525	99.525
CL Brg. E. Pier	10+28.13	13.833' LT	99.506	99.506
Line H	10+35.13	13.833' LT	99.506	99.510
Line I	10+48.13	13.833' LT	99.506	99.511
CL brg. E. Abutment	10+55.46	13.833' LT	99.506	99.506
E. Bonded Construction Jt.	10+57.25	13.833' LT	99.506	99.506

Girder 1

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
W. Bonded Construction Jt.	9+42.75	12.667' LT	99.872	99.872
CL brg. W. Abutment	9+44.63	12.667' LT	99.873	99.873
Line A	9+54.63	12.667' LT	99.875	99.879
Line B	9+64.63	12.667' LT	99.876	99.877
CL Brg. W. Pier	9+68.54	12.667' LT	99.876	99.876
Line C	9+78.54	12.667' LT	99.835	99.836
Line D	9+88.54	12.667' LT	99.794	99.795
CL Brg. Middle Pier	9+95.96	12.667' LT	99.762	99.762
Line E	10+05.96	12.667' LT	99.698	99.703
Line F	10+15.96	12.667' LT	99.618	99.623
Line G	10+25.96	12.667' LT	99.537	99.537
CL Brg. E. Pier	10+28.13	12.667' LT	99.520	99.520
Line H	10+35.13	12.667' LT	99.520	99.524
Line I	10+48.13	12.667' LT	99.520	99.525
CL brg. E. Abutment	10+55.46	12.667' LT	99.520	99.520
E. Bonded Construction Jt.	10+57.25	12.667' LT	99.520	99.520

Girder 2

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
W. Bonded Construction Jt.	9+42.75	6.333' LT	99.741	99.741
CL brg. W. Abutment	9+44.63	6.333' LT	99.743	99.743
Line A	9+54.63	6.333' LT	99.750	99.754
Line B	9+64.63	6.333' LT	99.755	99.756
CL Brg. W. Pier	9+68.54	6.333' LT	99.757	99.757
Line C	9+78.54	6.333' LT	99.742	99.744
Line D	9+88.54	6.333' LT	99.727	99.728
CL Brg. Middle Pier	9+95.96	6.333' LT	99.715	99.715
Line E	10+05.96	6.333' LT	99.685	99.690
Line F	10+15.96	6.333' LT	99.645	99.650
Line G	10+25.96	6.333' LT	99.605	99.605
CL Brg. E. Pier	10+28.13	6.333' LT	99.596	99.596
Line H	10+35.13	6.333' LT	99.596	99.600
Line I	10+48.13	6.333' LT	99.596	99.601
CL brg. E. Abutment	10+55.46	6.333' LT	99.596	99.596
E. Bonded Construction Jt.	10+57.25	6.333' LT	99.596	99.596

Girder 3 & P.G.L.

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
W. Bonded Construction Jt.	9+42.75	0.000'	99.611	99.611
CL brg. W. Abutment	9+44.63	0.000'	99.613	99.613
Line A	9+54.63	0.000'	99.624	99.628
Line B	9+64.63	0.000'	99.634	99.635
CL Brg. W. Pier	9+68.54	0.000'	99.638	99.638
Line C	9+78.54	0.000'	99.649	99.651
Line D	9+88.54	0.000'	99.660	99.661
CL Brg. Middle Pier	9+95.96	0.000'	99.667	99.667
Line E	10+05.96	0.000'	99.672	99.677
Line F	10+15.96	0.000'	99.672	99.677
Line G	10+25.96	0.000'	99.672	99.672
CL Brg. E. Pier	10+28.13	0.000'	99.672	99.672
Line H	10+35.13	0.000'	99.672	99.676
Line I	10+48.13	0.000'	99.672	99.677
CL brg. E. Abutment	10+55.46	0.000'	99.672	99.672
E. Bonded Construction Jt.	10+57.25	0.000'	99.672	99.672

Girder 4

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
W. Bonded Construction Jt.	9+42.75	6.333' RT	99.416	99.416
CL brg. W. Abutment	9+44.63	6.333' RT	99.419	99.419
Line A	9+54.63	6.333' RT	99.440	99.444
Line B	9+64.63	6.333' RT	99.463	99.464
CL Brg. W. Pier	9+68.54	6.333' RT	99.471	99.471
Line C	9+78.54	6.333' RT	99.495	99.497
Line D	9+88.54	6.333' RT	99.519	99.520
CL Brg. Middle Pier	9+95.96	6.333' RT	99.535	99.535
Line E	10+05.96	6.333' RT	99.549	99.554
Line F	10+15.96	6.333' RT	99.555	99.560
Line G	10+25.96	6.333' RT	99.562	99.562
CL Brg. E. Pier	10+28.13	6.333' RT	99.563	99.563
Line H	10+35.13	6.333' RT	99.568	99.572
Line I	10+48.13	6.333' RT	99.576	99.581
CL brg. E. Abutment	10+55.46	6.333' RT	99.581	99.581
E. Bonded Construction Jt.	10+57.25	6.333' RT	99.583	99.583

DSGN	K.J. Hoffmann						
DR	K.J. Hoffmann						
CHK	J.R. Wolf						
APVD	J.A. Fraenhoffer	NO.	DATE		REVISION	BY	APVD

FRAUENHOFER

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TOP OF SLAB ELEVATIONS - SHEET 2 OF 3

FAS 1384 (C.H. 27) OVER M. BRANCH OF COPPERAS CREEK
SECTION 07-00117-03-BR
FULTON COUNTY

SHEET 10

DWG NO. 7022-tos1.dgn

DATE Oct 2007

PROJ NO. 7022

Girder 5

<i>Location</i>	<i>Station</i>	<i>Offset</i>	<i>Theoretical Grade Elevations</i>	<i>Theoretical Grade Elevations Adjusted For Dead Load Deflection</i>
<i>W. Bonded Construction Jt.</i>	<i>9+42.75</i>	<i>12.667' RT</i>	<i>99.220</i>	<i>99.220</i>
<i>CL. brg. W. Abutment</i>	<i>9+44.63</i>	<i>12.667' RT</i>	<i>99.225</i>	<i>99.225</i>
<i>Line A</i>	<i>9+54.63</i>	<i>12.667' RT</i>	<i>99.256</i>	<i>99.260</i>
<i>Line B</i>	<i>9+64.63</i>	<i>12.667' RT</i>	<i>99.291</i>	<i>99.292</i>
<i>CL. Brg. W. Pier</i>	<i>9+68.54</i>	<i>12.667' RT</i>	<i>99.305</i>	<i>99.305</i>
<i>Line C</i>	<i>9+78.54</i>	<i>12.667' RT</i>	<i>99.341</i>	<i>99.342</i>
<i>Line D</i>	<i>9+88.54</i>	<i>12.667' RT</i>	<i>99.378</i>	<i>99.379</i>
<i>CL. Brg. Middle Pier</i>	<i>9+95.96</i>	<i>12.667' RT</i>	<i>99.403</i>	<i>99.403</i>
<i>Line E</i>	<i>10+05.96</i>	<i>12.667' RT</i>	<i>99.426</i>	<i>99.431</i>
<i>Line F</i>	<i>10+15.96</i>	<i>12.667' RT</i>	<i>99.439</i>	<i>99.444</i>
<i>Line G</i>	<i>10+25.96</i>	<i>12.667' RT</i>	<i>99.452</i>	<i>99.452</i>
<i>CL. Brg. E. Pier</i>	<i>10+28.13</i>	<i>12.667' RT</i>	<i>99.454</i>	<i>99.454</i>
<i>Line H</i>	<i>10+35.13</i>	<i>12.667' RT</i>	<i>99.463</i>	<i>99.467</i>
<i>Line I</i>	<i>10+48.13</i>	<i>12.667' RT</i>	<i>99.480</i>	<i>99.485</i>
<i>CL. brg. E. Abutment</i>	<i>10+55.46</i>	<i>12.667' RT</i>	<i>99.490</i>	<i>99.490</i>
<i>E. Bonded Construction Jt.</i>	<i>10+57.25</i>	<i>12.667' RT</i>	<i>99.493</i>	<i>99.493</i>

S. Edge of Deck

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
W. Bonded Construction Jt.	9+42.75	13.833' RT	99.184	99.184
CL brg. W. Abutment	9+44.63	13.833' RT	99.189	99.189
Line A	9+54.63	13.833' RT	99.222	99.226
Line B	9+64.63	13.833' RT	99.259	99.260
CL Brg. W. Pier	9+68.54	13.833' RT	99.274	99.274
Line C	9+78.54	13.833' RT	99.313	99.314
Line D	9+88.54	13.833' RT	99.352	99.353
CL Brg. Middle Pier	9+95.96	13.833' RT	99.379	99.379
Line E	10+05.96	13.833' RT	99.404	99.409
Line F	10+15.96	13.833' RT	99.417	99.422
Line G	10+25.96	13.833' RT	99.431	99.431
CL Brg. E. Pier	10+28.13	13.833' RT	99.434	99.434
Line H	10+35.13	13.833' RT	99.444	99.448
Line I	10+48.13	13.833' RT	99.462	99.467
CL brg. E. Abutment	10+55.46	13.833' RT	99.474	99.474
E. Bonded Construction Jt.	10+57.25	13.833' RT	99.477	99.477

DSGN	K.J. Hoffmann								
DR	K.J. Hoffmann								
CHK	J.R. Wolf								
APVD	J.A. Frauenhoffer	NO.	DATE			REVISION		BY	APV

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3002 Crossing Court Champaign, IL 61822 217-351-6268

FAS 1384 (C.H. 27) OVER M. BRANCH OF COPPERAS CREEK
SECTION 07-00117-03-BR
FULTON COUNTY

SHEET	11
DWG NO.	7022-tos1.dgn
DATE	Oct 2007
PROJ NO.	7022

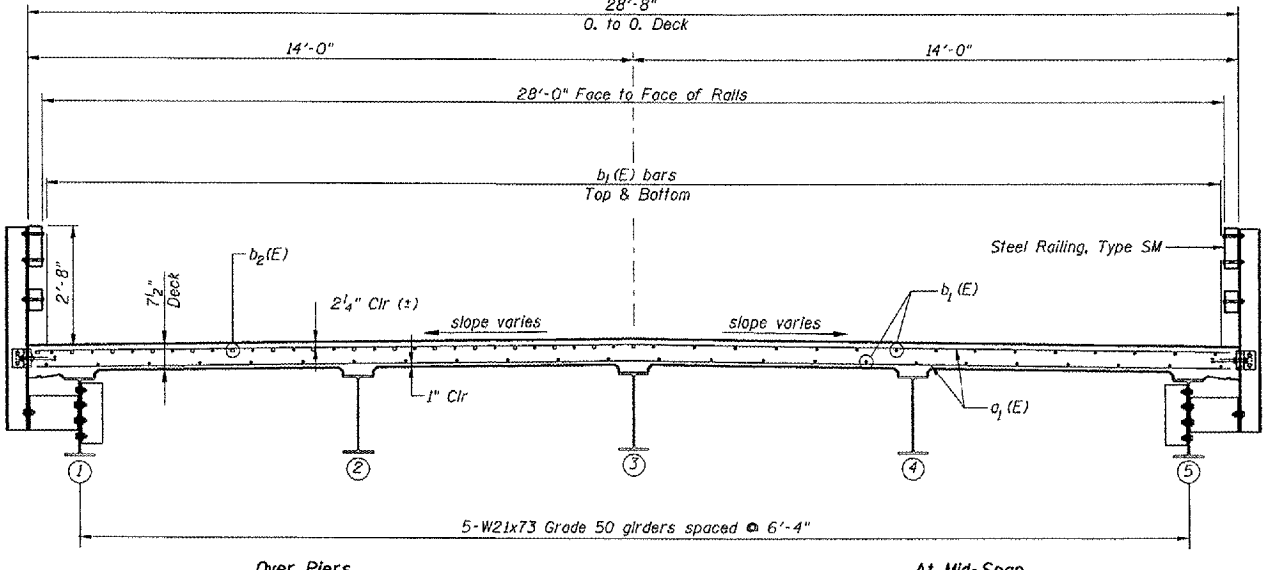
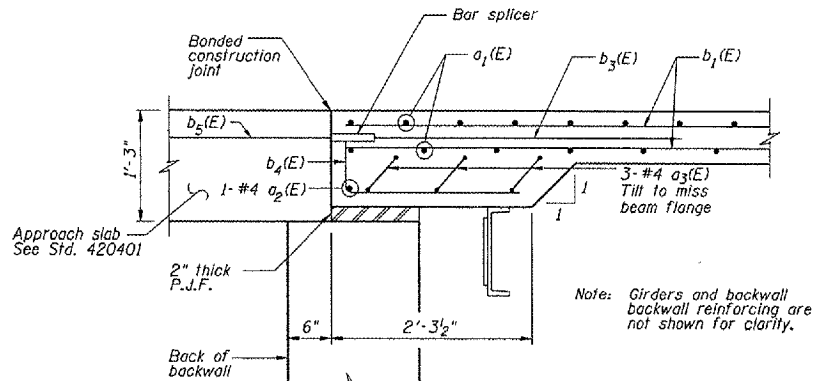
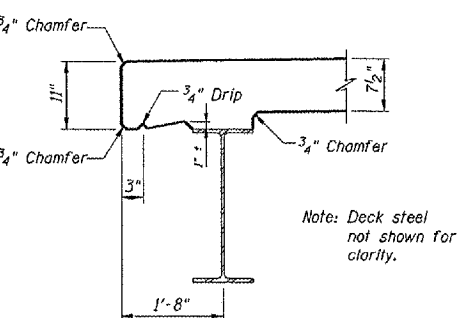
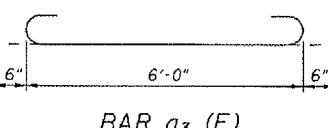
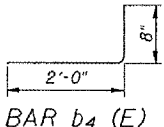
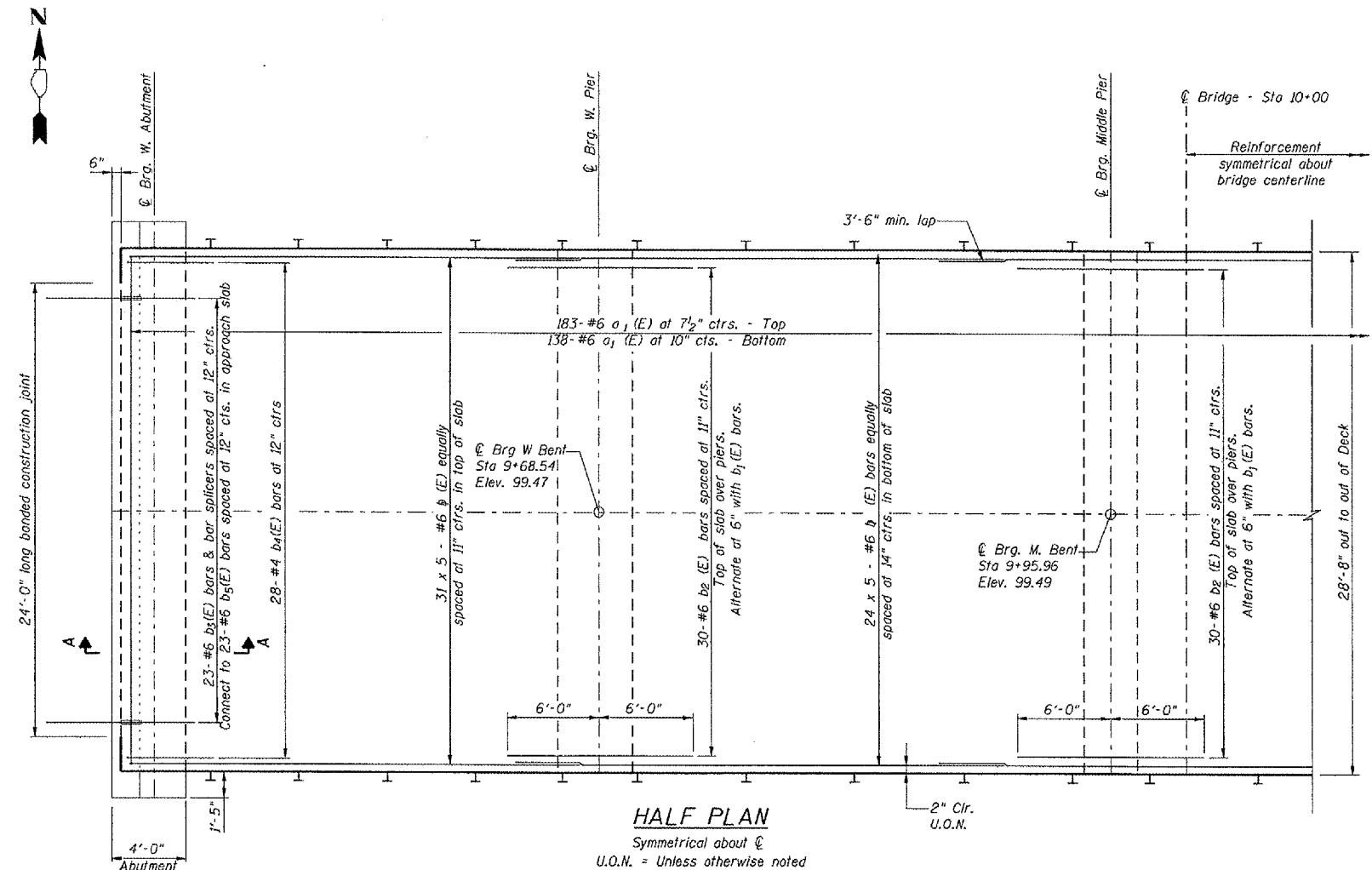
ROUTE NO.	SECTION	COUNTY	SHEET	TOTAL
FAS 1384	*	Fulton	21	13
FAS 1384 (C.H. 27) OVER M. BRANCH OF COPPERAS CREEK				
SECTION 07-00117-03-BR				

*07-00117-03-BR

BILL OF MATERIAL
SUPERSTRUCTURE

Bar	No.	Size	Length	Shape
a ₁ (E)	321	# 6	28'-2"	—
a ₂ (E)	2	# 4	28'-2"	—
a ₃ (E)	24	# 4	7'-0"	C
b ₁ (E)	275	# 6	25'-7"	—
b ₂ (E)	90	# 6	12'-0"	—
b ₃ (E)	46	# 6	4'-0"	—
b ₄ (E)	56	# 4	2'-8"	—
b ₅ (E)	46	# 6	6'-0"	—
Reinforcement Bars, Epoxy Coated			Lbs.	26,710
Concrete Superstructure			Cu. Yds.	83.4
Bar Splicers			Each	56

Notes : Reinforcement bars designated (E) shall be epoxy coated.
Bars indicated thus "24 x 5 - #6 etc..." indicates 24 lines of bars with 5 lengths per line.
See Sheet 20 for abutment reinforcement.



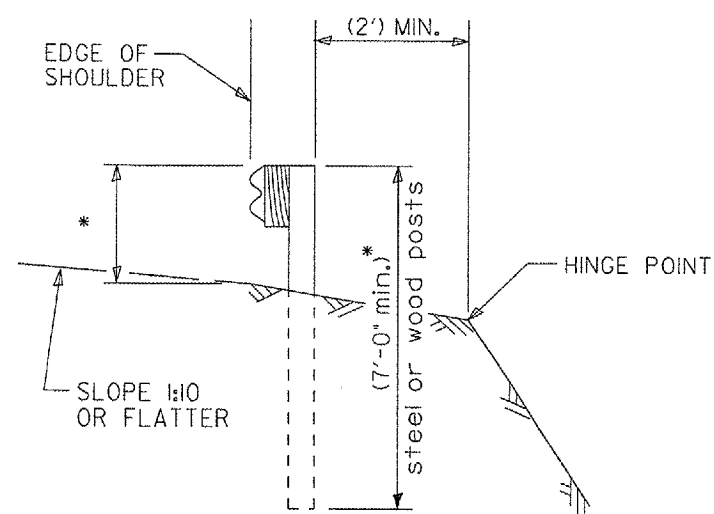
DSGN	K.J. Hoffmann				
DR	K.J. Hoffmann				
CHK	J.R. Wolf				
APVD	A. Fraunhofer	NO.	DATE	REVISION	BY

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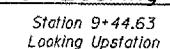
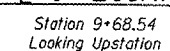
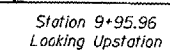
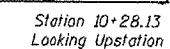
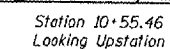
DECK REINFORCING
FAS 1384 (C.H. 27) OVER M. BRANCH OF COPPERAS CREEK
SECTION 07-00117-03-BR
FULTON COUNTY

Work Sheets 13 & 20 together.

SHEET	13
DWG NO.	7022-sup.dgn
DATE	OCT 2007
PROJ NO.	7022



* ADJUST HEIGHT OF POSTS TO TRANSITION UP TO MATCH THE END OF THE BRIDGE RAIL.



DSGN	K.J. Hoffmann								
DR	K.J. Hoffmann								
CHK	J.R. Wolf								
APVD	J.A. Frauenhoffer	NO.	DATE		REVISION			BY	APV

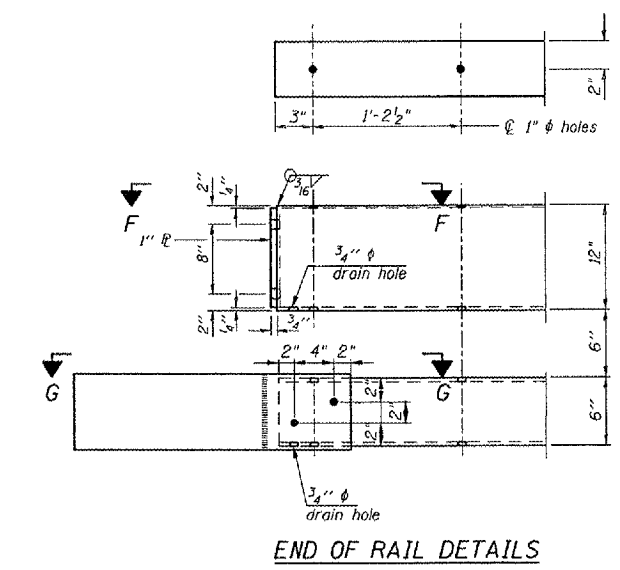
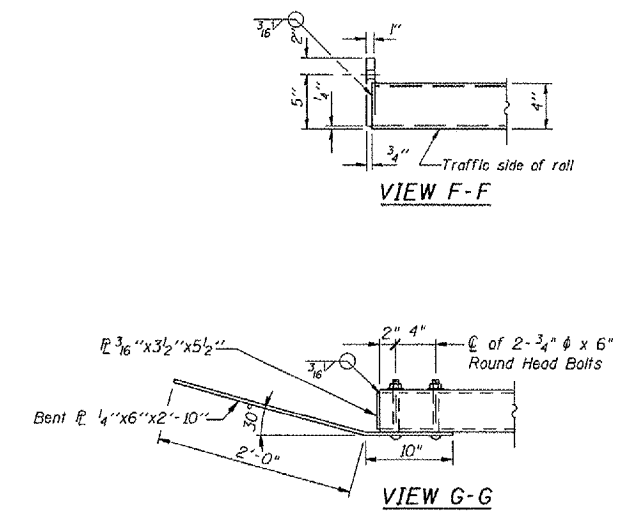
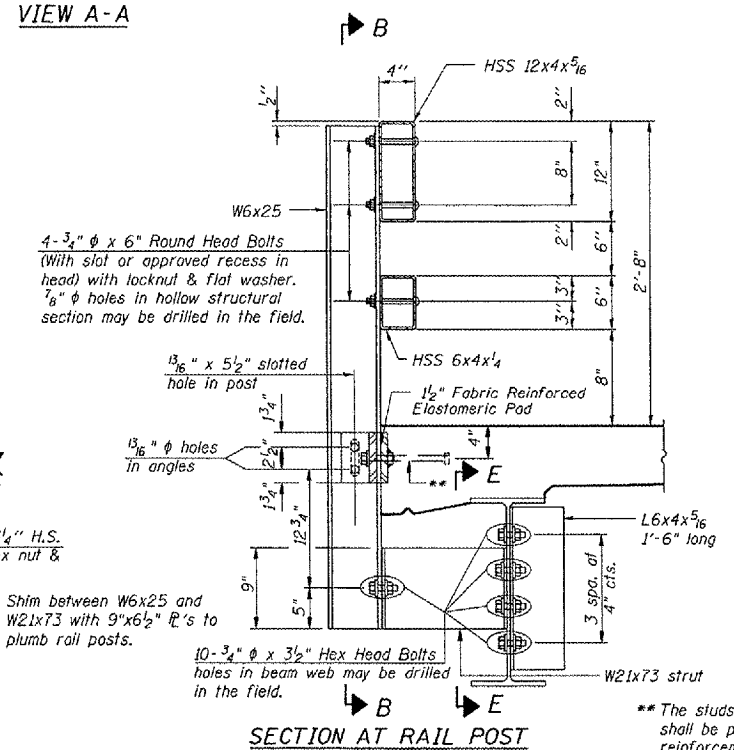
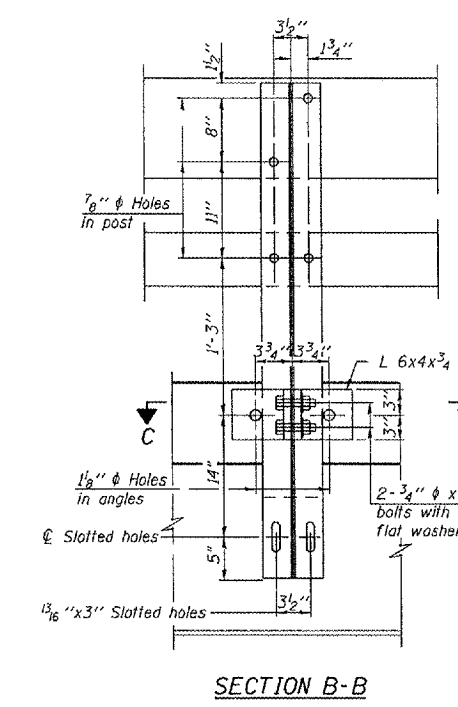
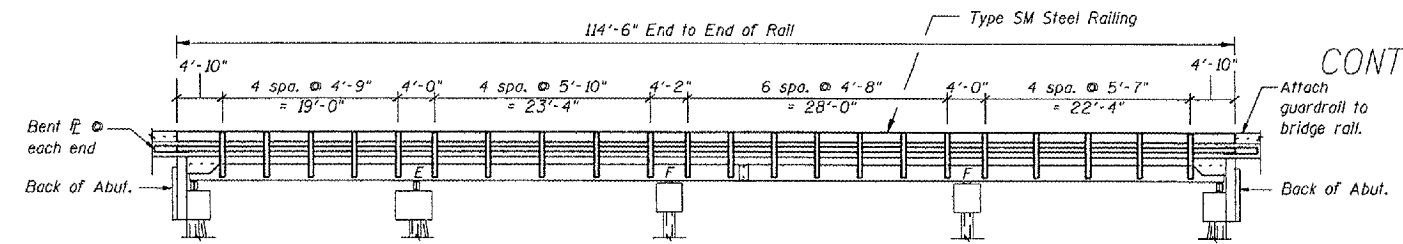
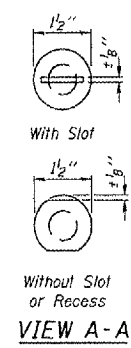
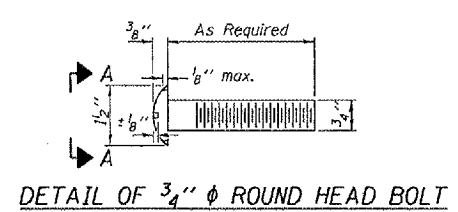
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3002 Crossing Court Champaign, IL 61822 217-351-6268

FAS 1384 (C.H. 27) OVER M. BRANCH OF COPPERAS CREEK
SECTION 07-00117-03-BR
FULTON COUNTY

	SHEET 14
K	DWG NO. 7022-sup.d
	DATE OCT 200
	PROJ NO. 7022

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 1384	*	Fulton	21	15
FED. ROAD DIST. NO. 7		ILLINOIS	FED. ROAD PROJECT-	

#07-00117-03-B



<u>BILL OF MATERIAL</u>		
<i>Item</i>	<i>Unit</i>	<i>Quantity</i>
Steel Railing Type SM	Foot	229

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 C/VN 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.

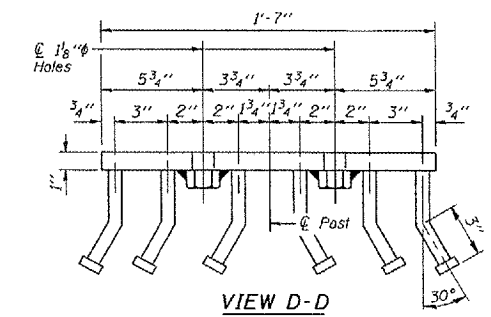
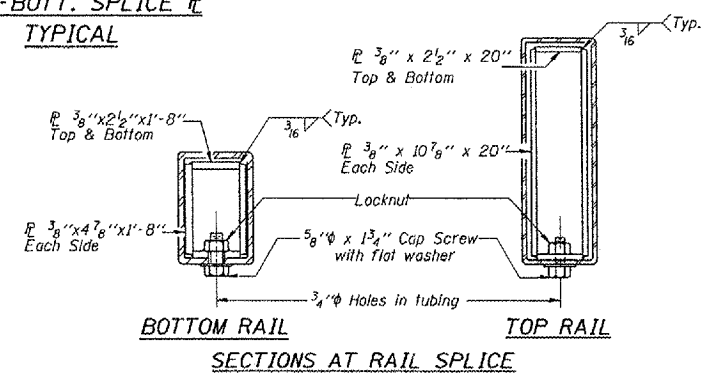
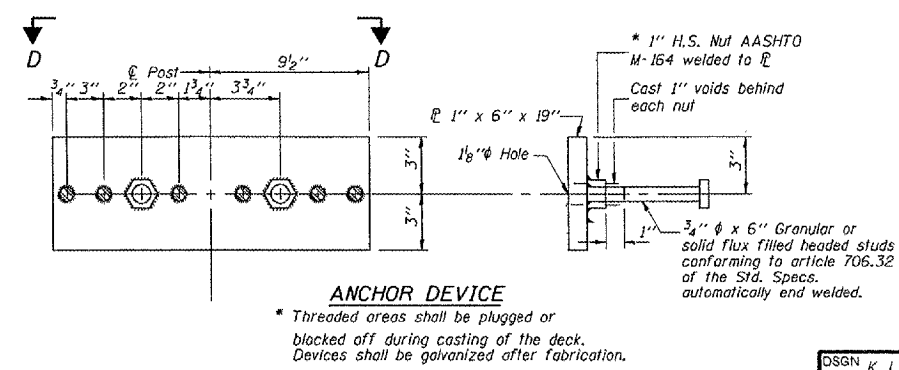
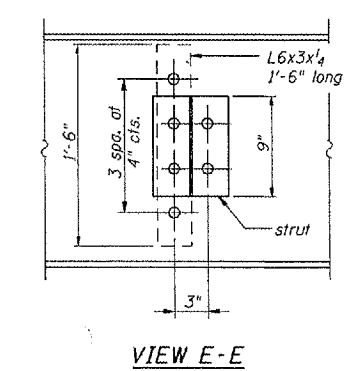
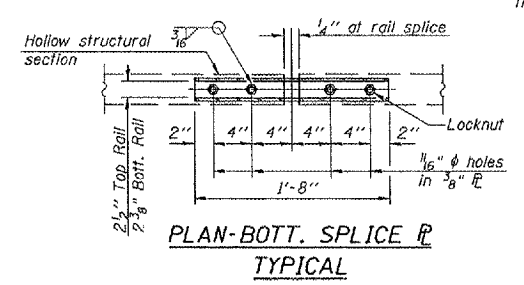
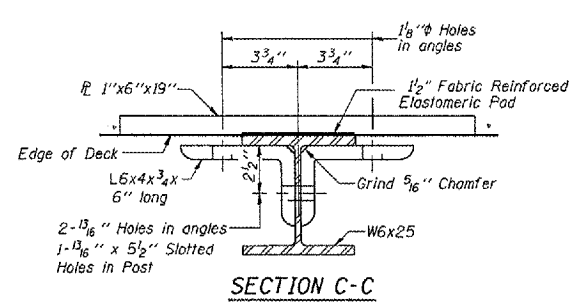
All posts, railing, rail splices, anchor devices and angles shall be galvanized after shop fabrication in accordance with AASHTO M-111 and ASTM A-385. Galvanized rail shall not be painted.

Railing shall be in accordance with Section 509 of the Standard Specifications, except as noted, and will be paid for at the contract unit price per foot for Steel Railing, Type SM.

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

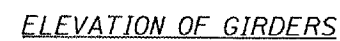
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type SM.

Steel rail elements shall be galvanized according to Article 1006.34 of the Standard Specifications.



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APVD	J.A.Frauenhoffer						
		NO.	DATE	REVISION	BY	APVD	

STEEL RAILING, TYPE SM		SHEET 15
FAS 1384 (C.H. 27)		DWG NO. 7022-sm,dgn
SECTION 07-00117-03-BR		DATE OCT 2007
FULTON COUNTY		PROJ NO. 7022

[illegible]

	W. Abut.	W. Pier	M. Pier	E. Pier	E. Abut.
R _ℓ (K)	9	25	26	30	9
R _t (K)	31	44	45	45	34
Imp. (K)	10	14	14	14	11
R (Total)	50	83	85	89	54

	0.4 Span 1	W. Pier	0.5 Span 2	M. Pier	0.5 Span 3	E. Pier	0.6 Span 4
Is (in g)	1600	1600	1600	1600	1600	1600	1600
Ss (in g)	151	151	151	151	151	151	151
Q (K/ft.)	0.865	0.865	0.865	0.865	0.865	0.865	0.865
M _Q (K)	39	-57	23	-64	41	-82	46
M _L (K)	128	-121	121	-121	151	-136	151
M (Imp) (K)	38.4	-36.3	36.3	-36.3	45.3	-40.8	45.3
S ₃ (M _L + J)	277	-262	262	-262	327	-295	327
M _o (K)	411	-415	371	-424	479	-491	485
fs @ non-comp (K.s.i.)	3.1	-4.5	1.8	-5.1	3.3	-6.5	3.7
fs S ₃ (L + J) (K.s.i.)	22.0	-20.8	20.8	-20.8	26.0	-23.4	26.0
fs (Overload) (K.s.i.)	25.1	-25.3	22.6	-25.9	29.3	-29.9	29.7
fs (Total) (K.s.i.)	32.6	-32.9	29.4	-33.7	38.0	-38.9	38.6
VR (K)	23	65	23	69	23	68	25

Is and Ss are the moment of inertia and section modulus of the steel section used in computing fs (Total & Overload).

VR is the maximum Live Load + Impact shear range in span.

The Plastic Moment Capacity (M_u) is computed according to AASHTO 10.48.1 & 10.50.1.1.

MP - Moment due to dead loads.

M_L - Moment due to live loads.

$M(\text{Imp})$ - Moment due to live load impact.

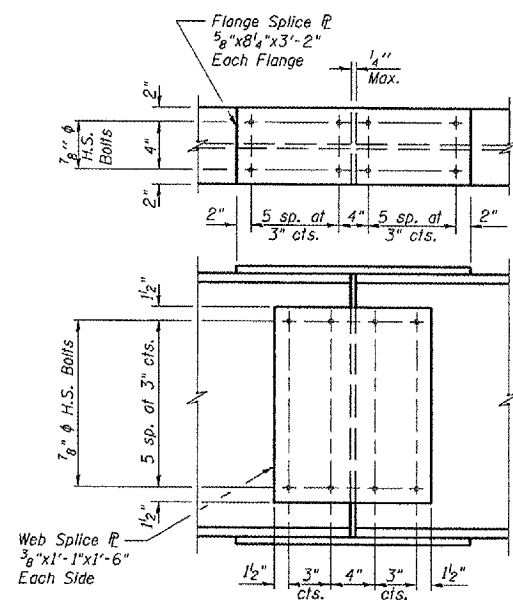
$$M_a \text{ (Applied Moment)} = 1.3[MD + 5(M_L + 1)]$$

f_s (Overload) is the sum of the stresses due

to $MD + 5(ML + 1)$.

 f_s (Total) is the sum of the stresses due

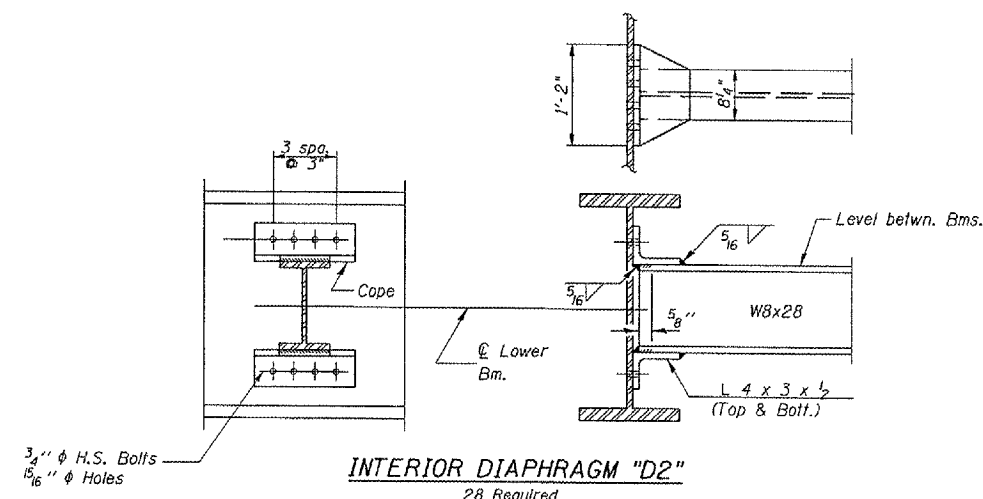
to $1.3[MD + 5(ML + D)]$.



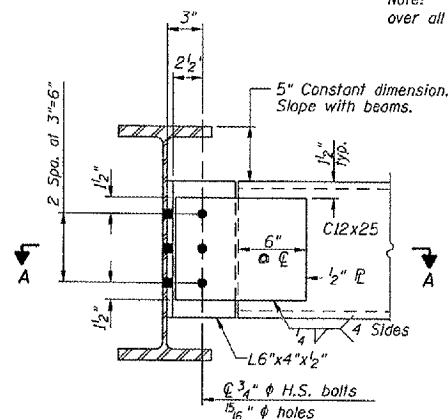
DETAIL OF SPLICE

TOP OF BEAM ELEVATIONS

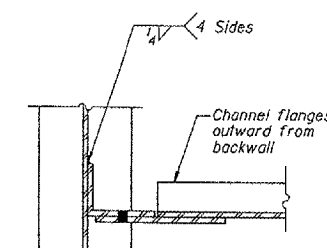
Location	STATION	Girder 1	Girder 2	Girder 3	Girder 4	Girder 5
☺ Bearing W. Abutment	9+44.63	99.197	99.066	98.936	98.742	98.548
0.25 L	9+50.60	99.197	99.069	98.942	98.753	98.564
0.5 L	9+56.58	99.197	99.073	98.948	98.766	98.585
0.75 L	9+62.56	99.199	99.077	98.955	98.781	98.607
☺ Bearing W. Pier	9+68.54	99.199	99.080	98.961	98.794	98.628
0.25 L	9+75.39	99.171	99.070	98.969	98.811	98.653
0.5 L	9+82.25	99.143	99.059	98.976	98.827	98.678
0.75 L	9+89.10	99.113	99.048	98.982	98.842	98.701
☺ Bearing M. Pier	9+95.96	99.085	99.038	98.990	98.858	98.726
0.25 L	10+04.00	99.036	99.015	98.994	98.870	98.746
0.5 L	10+12.04	98.971	98.983	98.994	98.875	98.756
0.75 L	10+20.09	98.908	98.951	98.995	98.881	98.767
☺ Bearing E. Pier	10+28.13	98.843	98.919	98.995	98.886	98.777
0.25 L	10+34.96	98.843	98.919	98.995	98.890	98.786
0.5 L	10+41.80	98.842	98.918	98.994	98.894	98.794
0.75 L	10+48.63	98.842	98.918	98.994	98.898	98.802
☺ Bearing E. Abutment	10+55.46	98.843	98.919	98.995	98.904	98.813



Note: Two hardened washers shall be required over all oversize holes for diaphragms.



END DIAPHRAGM "DI"
8 Required

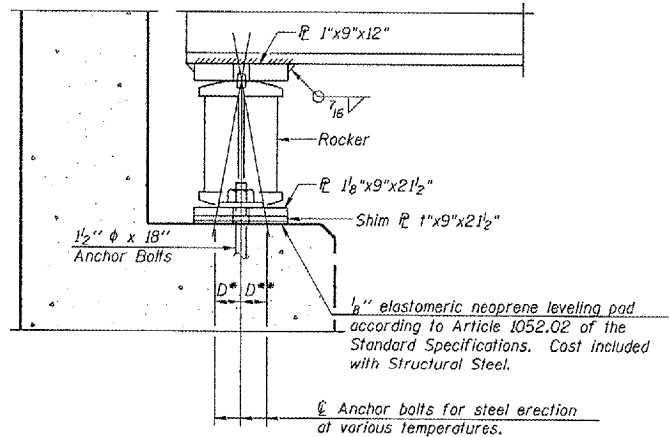


SECTION A-A

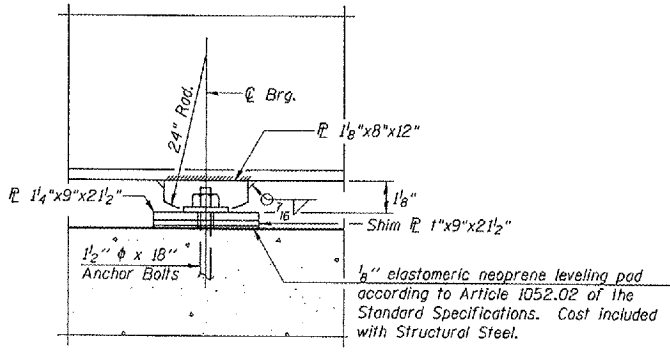
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ROUTE NO.	SECTION	COUNTY	SHEET NO.	SHEET TOTAL
FAS 1384	*	Fulton	21	18
FED. ROAD DIST. NO. 7				
ILLINOIS				
FED. AID PROJECT-				

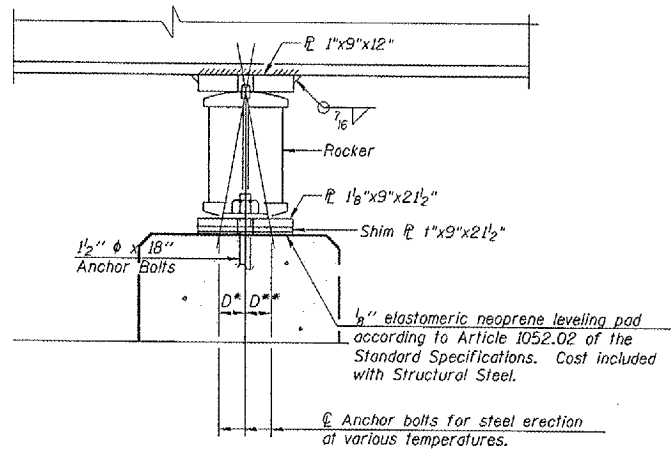
*07-00117-03-BR



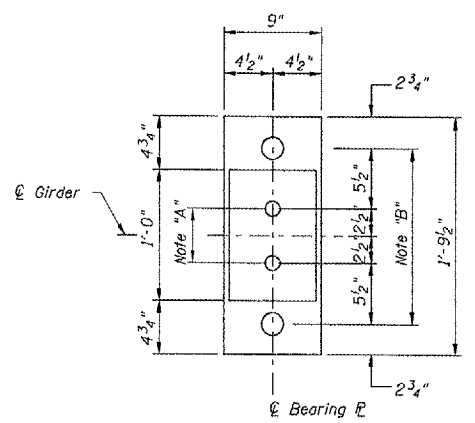
ELEVATION



ELEVATION

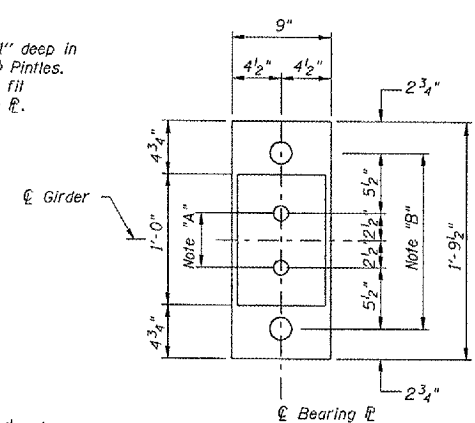


ELEVATION AT EXPANSION PIERS



PLAN AT ABUTMENT

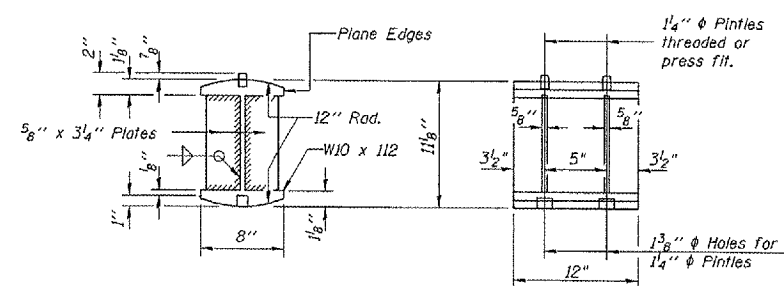
Note "A"
1 3/8" ϕ Holes-1" deep in top $\bar{E}$ for 1 1/4" ϕ Pintles. Thread or press fit pintles in bottom $\bar{E}$.



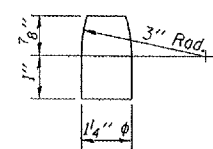
PLAN AT FIXED PIER

Note "B"
2" ϕ Holes for 1 1/2" ϕ Anchor Bolts-3" x 3" x 5/16" $\bar{E}$ washer under nut.

- NOTES FOR SETTING OF ANCHOR BOLTS AT EXPANSION BEARINGS
- a.) D* (Side of brg. away from fixed brg.)
D* = 1/8" per each 100' of expansion for every 15° fall below the normal temp. of 50° F.
- D** (Side of brg. toward fixed brg.)
D** = 1/8" per each 100' of expansion for every 15° rise above the normal temp. of 50° F.
- b.) After girders have been erected and dimensions D* & D** determined, holes shall be drilled and anchor bolts shall be installed as shown on Sheet 19.



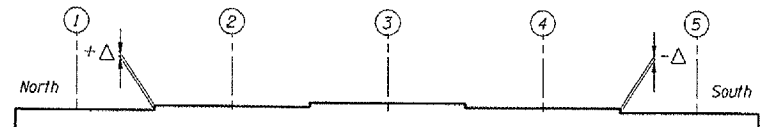
ROCKER



PINTLE

NOTE

t" represents the total shim plate thickness required for bearing height.
t" shall be determined by the Resident Engineer.
The cost of Shim Plates shall be incidental to the cost of Structural Steel.



CHANGE IN PEDESTAL HEIGHTS

	Δ_{1-2}	Δ_{2-3}	Δ_{3-4}	Δ_{4-5}
W. Abut.	-1 3/4"	-1"	-2 1/8"	-2 3/8"
W. Pier	0"	-1 1/8"	-1 1/2"	-1 7/8"
M. Pier	+1 3/8"	0"	-5/8"	-1 1/4"
E. Pier	+7/8"	0"	-9/16"	-3/4"
E. Abut.	+1"	0"	-1 3/16"	-9/16"

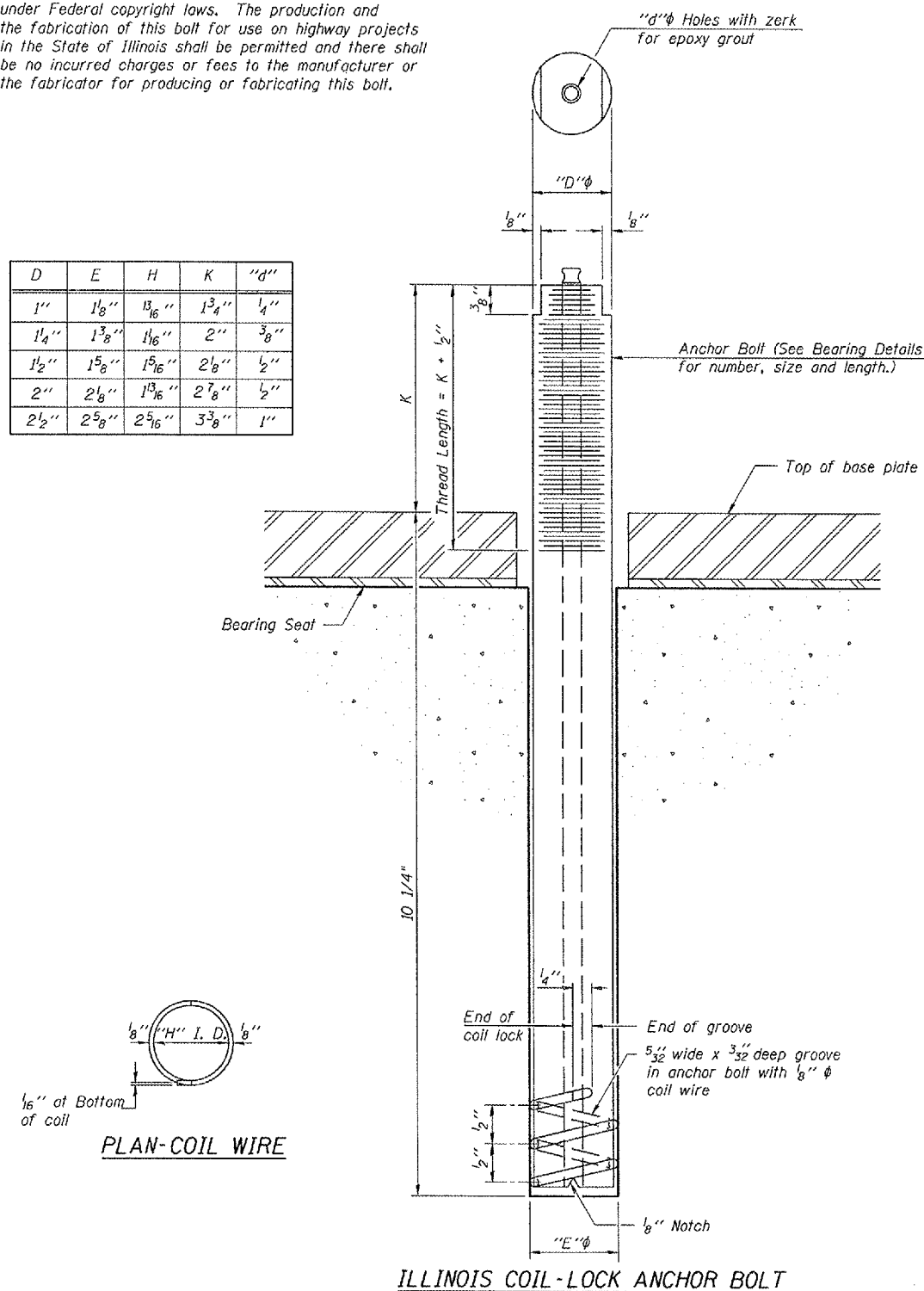
DSGN	K.J. Hoffmann				
DR	K.J. Hoffmann				
CHK	J.R. Wolf				
APVD	J.A. Frauenhoffer				
NO.	DATE	REVISION	BY	APVD	

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BEARING DETAILS
FAS 1384 (C.H. 27) OVER M. BRANCH OF COPPERAS CREEK
SECTION 07-00117-03-BR
FULTON COUNTY

SHEET	18
DWG. NO.	7022-STL.dgn
DATE	OCT 2007
PROJ. NO.	7022

D	E	H	K	"d"
1"	1 $\frac{1}{8}$ "	1 $\frac{3}{16}$ "	1 $\frac{3}{4}$ "	1 $\frac{1}{4}$ "
1 $\frac{1}{4}$ "	1 $\frac{3}{8}$ "	1 $\frac{1}{2}$ "	2"	1 $\frac{3}{8}$ "
1 $\frac{1}{2}$ "	1 $\frac{5}{8}$ "	1 $\frac{5}{16}$ "	2 $\frac{1}{8}$ "	1 $\frac{1}{2}$ "
2"	2 $\frac{1}{8}$ "	1 $\frac{3}{4}$ "	2 $\frac{7}{8}$ "	1 $\frac{1}{2}$ "
2 $\frac{1}{2}$ "	2 $\frac{5}{8}$ "	2 $\frac{1}{2}$ "	3 $\frac{3}{8}$ "	1"



The anchor bolt shall be fabricated from cold drawn or hot finished seamless carbon steel mechanical tubing conforming to ASTM A 519, Grade 1026, CW and supplied with hexagonal nuts and cut washers.

The coil wire shall be made of any suitable soft steel wire.

The finished anchor bolt shall be cleaned of rust and other foreign materials and wrapped or packaged to prevent contamination until they are installed.

The epoxy grout shall be a two-component, epoxy resin bonding system conforming to ASTM C 881, Type I, Grade 1 and of a Class suitable for the temperature at installation.

1. With the coil wire in place, the bolt shall be inserted into the hole and turned clockwise to a snug fit in the hole. Nut and washer shall be placed on the bolt. The nut shall be tensioned until the steel base plates are held securely to the concrete bearing seat.
2. Epoxy grout shall be pumped through the zerk fitting with a pressure gun. Pumping shall continue until the epoxy overflows the hole around the bolt shank. After pumping is discontinued, excess epoxy shall be immediately wiped off.

The Contractor may use, at his option, the capsule or the adhesive cartridge type anchor rods that have been previously tested and given a prior approval by the Department. The Contractor shall install these anchor rods in pre-drilled holes according to the manufacturer's recommendations and procedures.

The capsule or the adhesive cartridge type anchor rods shall be a two part system composed of:

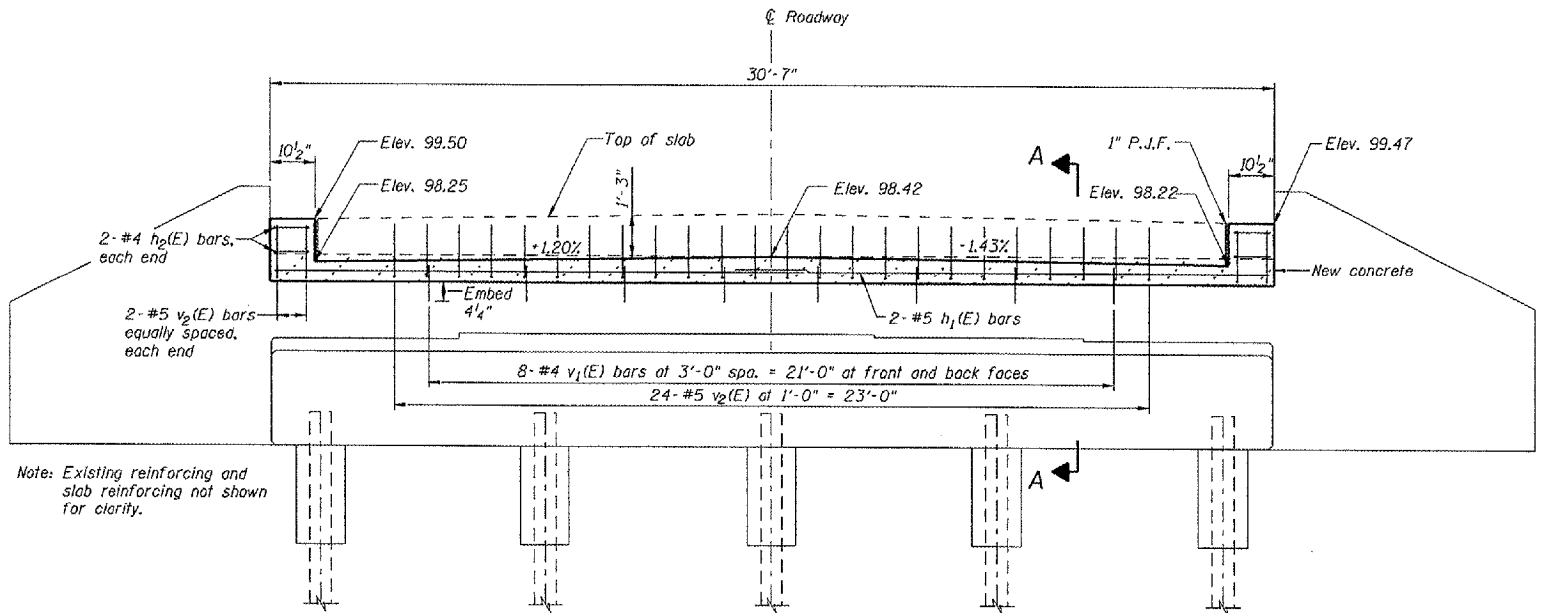
1. A threaded rod stud with nut and washer of the type specified.
2. A sealed glass capsule or a sealed glass adhesive cartridge containing premeasured amounts of the adhesive chemical.

Location	Type
Abuts.	A307
Piers	A307

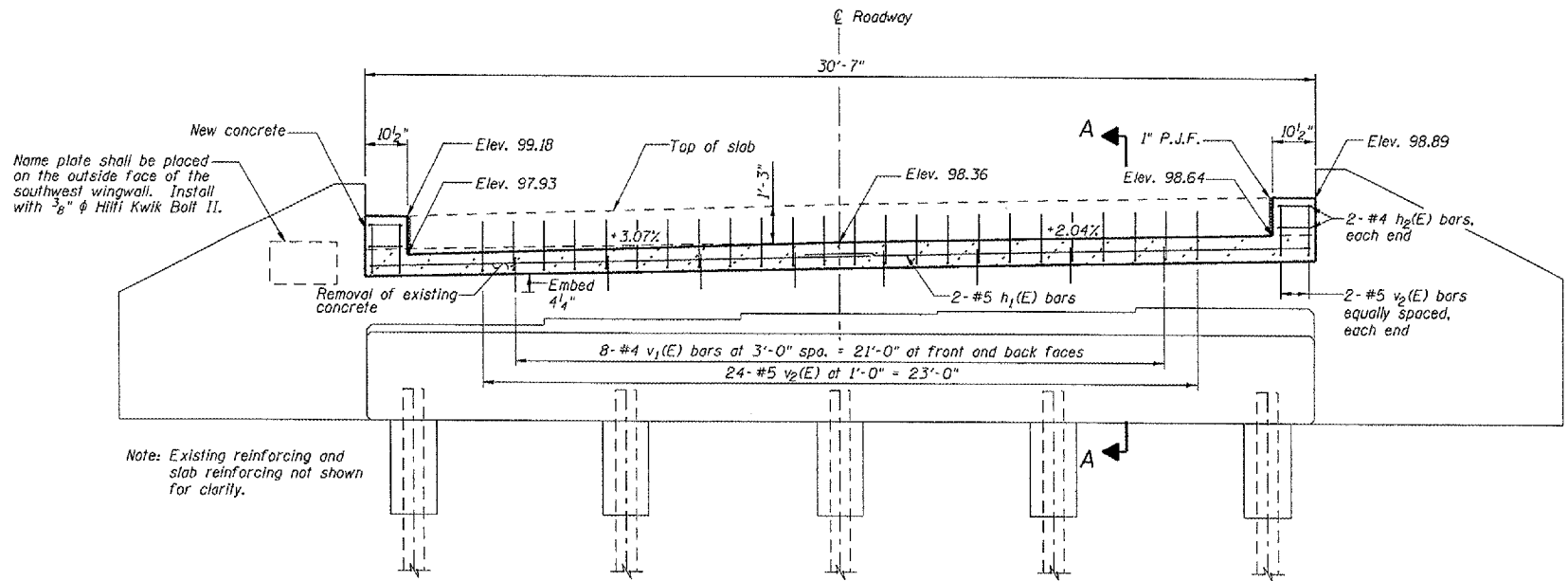
ASTM F 1554 Grade 105, ASTM A 449 and AASHTO M 314 Grade 105 anchor bolts may be substituted for the anchor bolts shown above.

ROUTE NO.	SECTION	COUNTY	SHEET NO.	SHEET TOTAL
FAS 1384	*	Fulton	21	20
FED. ROAD DIST. NO. 7				
ILLINOIS				
FED. AID PROJECT				

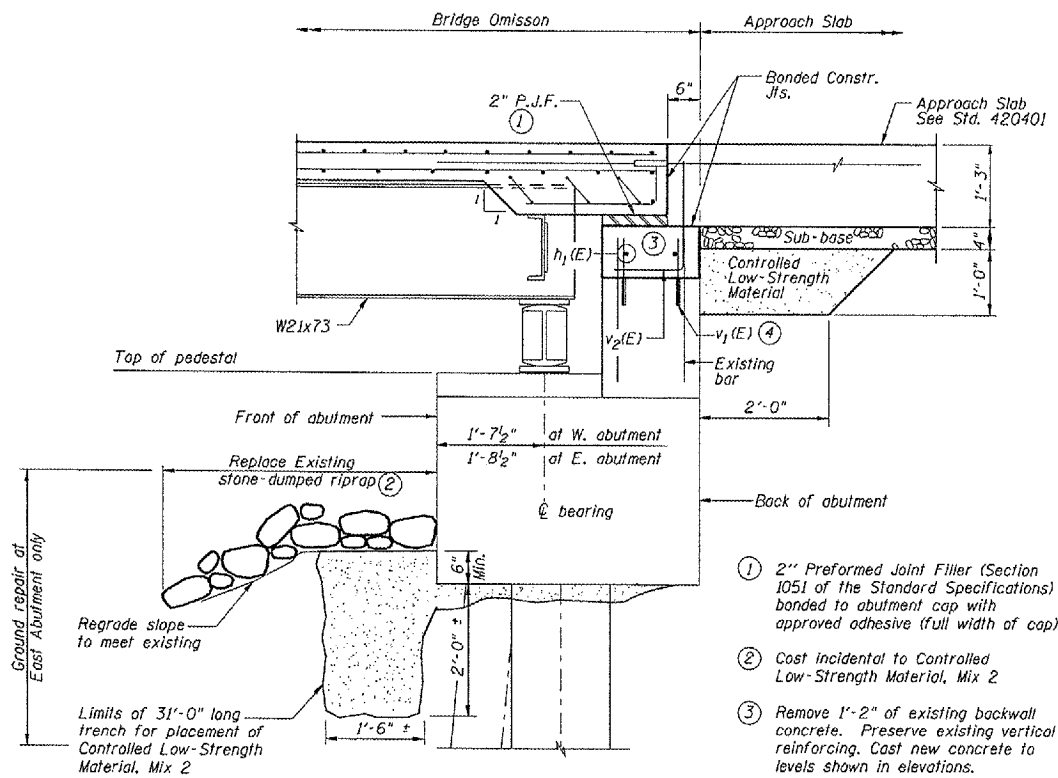
*07-00117-03-BR



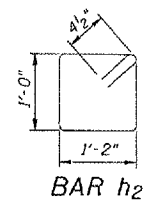
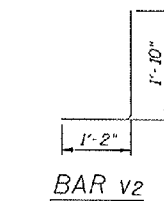
ELEVATION
Looking East at East Abutment



ELEVATION
Looking West at West Abutment



SECTION A-A



BILL OF MATERIAL - 2 ABUTS.

Bar	No.	Size	Length	Shape
h1	8	# 5	16'-6"	
h2	8	# 4	5'-1"	
v1	32	# 5	1'-2"	
v2	56	# 5	3'-0"	
Concrete Structures			Cu. Yds.	2.7
Reinforcing Bars, Epoxy Coated			Pounds	380
Structure Excavation			Cu. Yds.	12
Concrete Removal			Cu. Yds.	4
Controlled Low-Strength Material			Cu. Yds.	12

Work Sheets 13 & 20 together.

DSGN	K.J. Hoffmann				
DR	K.J. Hoffmann				
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APVD	J.A. Fraunhoffer				
NO.	DATE	REVISION	BY	APVD	

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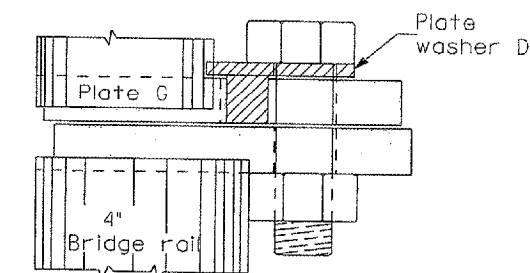
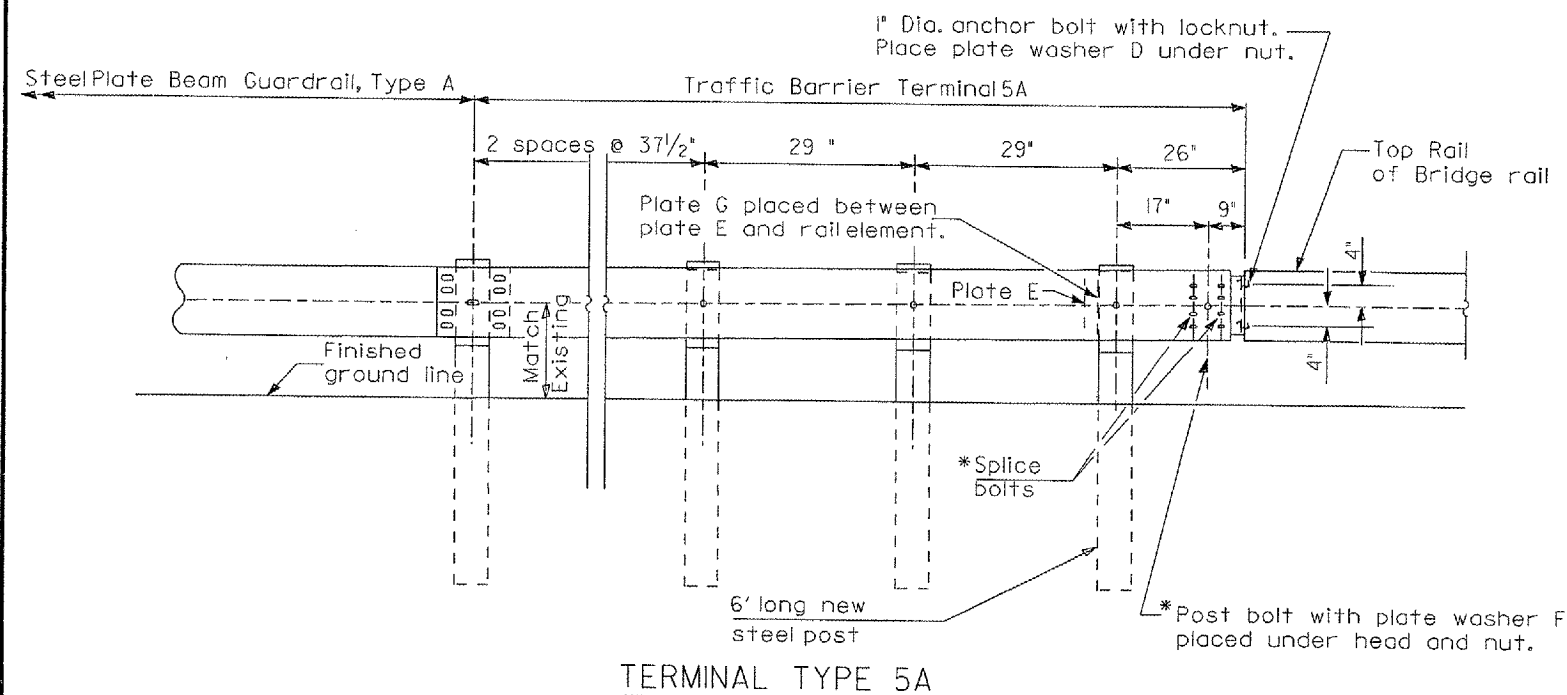
ABUTMENT CAP RETROFIT

FAS 1384 (C.H. 27) OVER M. BRANCH OF COPPERAS CREEK
SECTION 07-00117-03-BR
FULTON COUNTY

SHEET	20
DWG NO.	7022-eb1.dgn
DATE	OCT 2007
PROJ NO.	7022

CONTRACT 89466

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 1384	*	Fulton	21	21
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	
*07-00117-03-B				



PLACEMENT OF PLATE WASHER D
(PLAN)

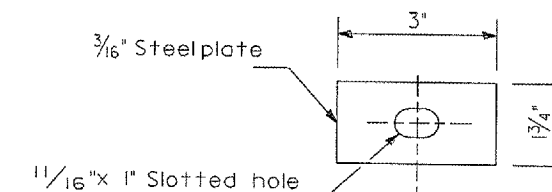
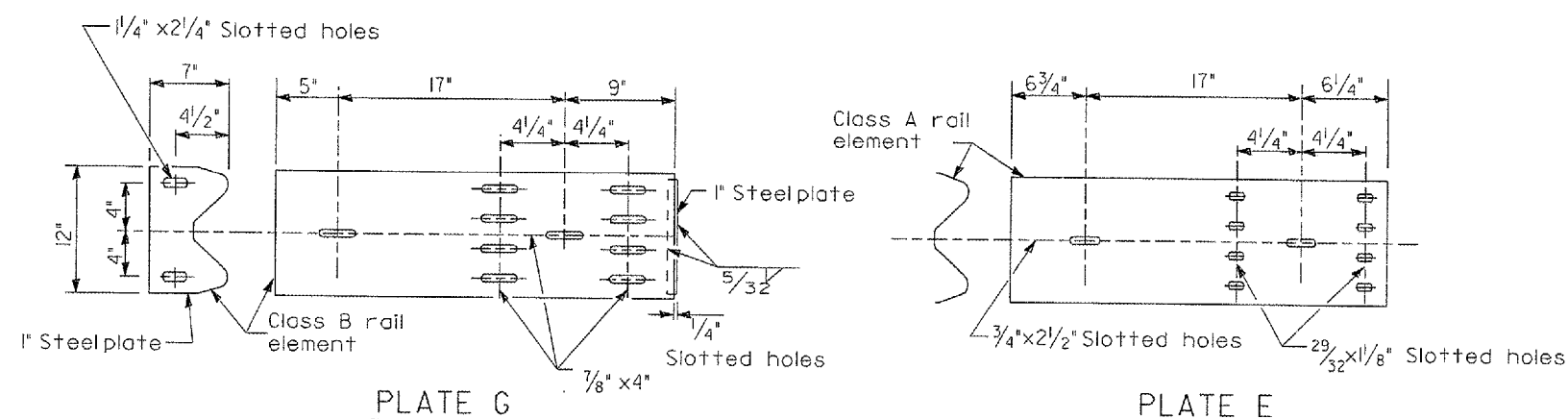
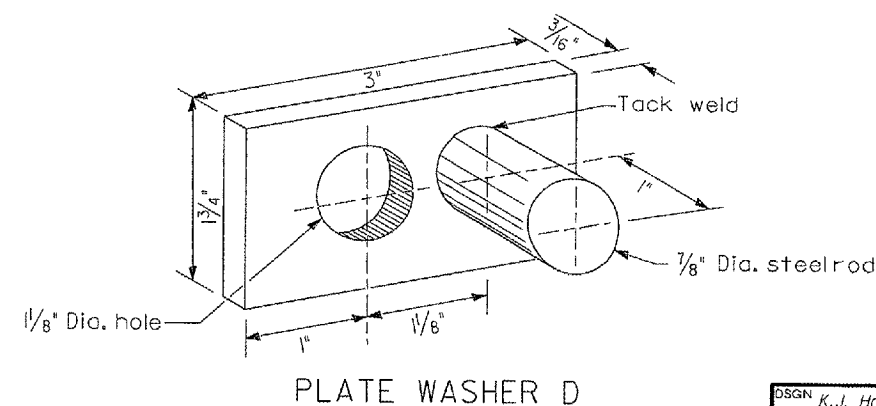


PLATE WASHER F

NOTE: Plate washer F shall be used on type A guardrail only where specified. Plate washer F shall be used at all other locations where rail element is bolted to a block-out unless otherwise noted.



BILL OF MATERIAL

ITEM	UNIT	QTY
Guardrail Removal	Foot	234
Steel Plate Beam Guardrail, Type A	Foot	983

GENERAL NOTES

Install plate washer D so that the 1" projection fills the remainder of the slotted holes in the 1" end plate on plate G after the 1" dia. bolts are in place.

* Bolts shall be provided with locknut or double nut and shall be tightened only to a point that will allow plate G to be free to move when an expansion joint exists below the connector.

DSGN K.J. Hoffmann					
DR K.J. Hoffmann					
CHK J.R. Wolf					
APVD J.A. Fraunhofer					
NO.	DATE	REVISION	BY	APVD	

FRAUENHOFER

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STEEL PLATE BEAM GUARDRAIL, TYPE A

FAS 1384 (C.H. 27)
SECTION 07-00117-03-BR
FULTON COUNTY

SHEET	21
DWG NO.	7022-GUA.dgn
DATE	OCT 2007
PROJ NO.	7022