GEORGIA DEPARTMENT OF TRANSPORTATION

GDOT Project No: NH000-0073-03(242)

PI No: 714130

JBT Project No. 255717

Bridge No. 33
I-75 REVERSIBLE OVER FREY RD

November, 2009

COBB COUNTY

DESIGN CALCULATIONS

Note 1: Georgia Department of Transportation (GDOT) terminated Contract Number TOURDPPI60072 for its convenience prior to the completion of all work under that contract and directed that the work with respect to these calculations be discontinued.

(a) These calculations were not completed at the time of GDOT's direction and the information contained herein is not complete and/or has not been fully verified or checked. These calculations are a work-in-progress and are presented only as such.

(b) Any user is cautioned that the use of these calculations and any related information or calculations, without access to pertinent factors and without proper regard for their purpose, could lead to erroneous conclusions.

(c) If any such calculations or any information contained herein is used in future work efforts or any follow on design work activity, a complete confirmation of the information contained herein should be performed prior to any such use.

(d) GTP has no responsibility for the use of this information not under its direct control.

Prepared for Georgia Transportation Partners
Atlanta, Georgia

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Purpose of Calculation

Bridge design calculations for Bridge #33 were made for costing purposes.

1. Specifications and References

AASHTO 17th Edition, 2002
GDOT Bridge Design Manual, 2008

2. Computer

Computer Type Used: PC
Operating System: Windows XP, Pentium 4, 2GB RAM (min.)

3. Computer Programs (Standard Computer Program)

Excel, Microsoft Office 2003 – JBT Calculation Spreadsheets
BRLLCA, 2008 – Live Load Case Program, by GDOT
BRPIER, 2008 – Pier Design and Analysis, by GDOT
BRSPAN, 2008 – Simple Beam Design and Analysis, by GDOT

CALCULATION COVER SHEET

PROJECT	JOB NO.	CALC NO.	SHEET
I-75 / I-575 NORTHWEST CORRIDOR	NH000-0073-03(242)	BR#33	1
SUBJECT	DISCIPLINE		
Slab Design	STRUCTURAL		

CALCULATION STATUS DESIGNATION	PRELIMINARY	CONFIRMED	SUPSEDED	VOIDED	INCOMPLETE
	☐	☐	☐	☐	X

COMPUTER PROGRAM/TYPE	SCP	MAINFRAME	PC	PROGRAM	VERSION/RELEASE NO.
	(X) YES ( ) NO	( )	(X)	Excel	2003

Note 1: Georgia Department of Transportation (GDOT) terminated Contract Number TOURDPPI60072 for its convenience prior the completion of all work under that contract and directed that the work with respect to these calculations be discontinued.
(a) These calculations were not completed at the time of GDOT's direction and the information contained herein is not complete and/or has not been fully verified or checked. These calculations are a work-in-progress and are presented only as such.
(b) Any user is cautioned that the use of these calculations and any related information or calculations, without access to factors and without proper regard for their purpose, could lead to erroneous conclusions.
(c) If any such calculations or any information contained herein is used in future work efforts or any follow on design work activity, a complete confirmation of the information contained herein should be performed prior to any such use.
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Slab Design calculations are included for spans 1, 2, and 3.

NO.	REASON FOR REVISION	TOTAL NO. OF SHEETS	LAST SHEET NO.	BY	CHECKED	APPROVED/ ACCEPTED	DATE
A	As per GDOT's termination for convenience direction	13	13	JCR			11/30/09

RECORD OF REVISIONS

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0073-03(242)
CALC NO. BR#33

SUBJECT: Slab Design
BY: JCR DATE: 11/30/2009

SHEET NO.
SHEET REV.

Sufficient sample calculations representative of the scope and conditions in the design calculation were performed and the results compared to demonstrate the computer program adequacy.

BRIDGE: **I-75 over Frey Road**
COUNTY: **COBB**
P.I. NO: **713640**
PROJECT: **NH000-0575-01(028)**

J.B. TRIMBLE, INC.

JBT

SPAN 1

JOB NO: **31-6036**
DESIGNED BY: **SHG**
DATE: **10/14/2009**

PRELIMINARY INFORMATION

INTERMEDIATE SLAB THICKNESS =	**8.000**	IN	
OVERHANG SLAB THICKNESS =	**8.000**	IN	
GIRDER SPACING =	**7.167**	FT	
NUMBER OF GIRDERS =	**4**		
OVERHANG WIDTH =	**3.083**	FT	
TOP FLANGE WIDTH =	**12.000**	IN	
CONCRETE STRENGTH, f'c =	**3500**	PSI	
STEEL STRENGTH, fy =	**50000**	PSI	
PARAPET HEIGHT =	**2.667**	FT	
PARAPET WIDTH =	**1.625**	FT	
PARAPET AREA =	**2.700**	SF	
C.G. FROM OUTSIDE =	**0.667**	FT	
TOP BAR CLEARANCE =	**2.750**	IN	
BOTTOM BAR CLEARANCE =	**1.000**	IN	
GROOVED DEPTH =	**0.250**	IN	
DESIGN SPEED =	**50.00**	MPH	(IF CENTRIFUGAL CONSIDERED)
RADIUS =	**5890.00**	FT	(IF CENTRIFUGAL CONSIDERED)
WHEEL LOAD =	**16.00**	KIPS	**HS20**
IMPACT FACTOR =	**1.30**		
ADDITIONAL LOAD =	**30.00**	PSF	
RAILING LOAD =	**10.00**	KIP	AT TOP OF PARAPET

BAR DETAILS		
SIZE	AREA	WEIGHT
Not Needed	0	0
No. 3	0.11	0.376
No. 4	0.20	0.668
No. 5	0.31	1.043
No. 6	0.44	1.502
No. 7	0.60	2.044
No. 8	0.79	2.670
No. 9	1.00	3.400
No. 10	1.27	4.300
No. 11	1.56	5.310
No. 14	2.25	7.650
No. 18	4.00	13.600

INTERMEDIATE SLAB DESIGN

BEAM TYPE: **STEEL** (TB, STEEL, PSC, BULB-T)

EFFECTIVE SPAN LENGTH = 6.667 FT *AASHTO 3.24.1.2*

DEAD LOAD

SLAB D.L. =	0.100	KIP/FT/LF
ADDITIONAL D.L. =	0.030	KIP/FT/LF
TOTAL D.L.=	0.130	KIP / FT / LF

DEAD LOAD MOMENT = 1.3 * (WT DL) * (SPAN)^2 / 10 = 0.751 KIP-FT / LF

LIVE LOAD

WHEEL LOAD = 16.00 KIPS

CONT. FACTOR = 0.80
IMPACT = 1.30

LIVE LOAD MOMENT = 2.17 * ((S + 2)/32) * P(LL + I) * 0.8 = 9.780 KIP-FT / LF *AASHTO 3.24.3.1*

CENTRIFUGAL LOAD *AASHTO 3.10.1*

C = 6.68 * S^2/ R = 0.028 FRACTION OF LIVE LOAD

CENTRIFUGAL FORCE MOMENT = 1.3 * ((S + 2)/32) * P (LL+ I) * 0.8 * C = 0.166 KIP-FT / LF *AASHTO TABLE 3.22.1A*

TOTAL DESIGN MOMENT (Ø Mu) = 10.697 KIP-FT / LF = 128.37 K-IN / LF

FLEXURE STRENGTH *AASHTO 8.16.3.2*

Ø Mn > Mu Ø = 0.90

Ø Mn = Ø * [As * fy * (d - a/2)] where a = As * fy / [0.85 * f'c * b]

a = 1.681 As

d_{top} = 4.938 IN USE **5 BAR** As = 0.31 IN^2 /LF

d_{bot} = 6.438 IN USE **5 BAR** As = 0.31 IN^2 /LF

TOP STEEL

266.625 As - 45.38 As^2 = 128.37 K-IN / LF

TOP BAR = NO. 5 SPACED AT 6.375 IN As = 0.58 IN^2 /LF

Ø Mn = 140.13 K-IN / LF ≥ Ø Mu = 128.37 K-IN / LF OK

BOTTOM STEEL

347.625 As - 45.38 As^2 = 128.37 K-IN / LF

BOT BAR = NO. 5 SPACED AT 6.375 IN As = 0.58 IN^2 /LF

Ø Mn = 187.40 K-IN / LF ≥ Ø Mu = 128.37 K-IN / LF OK

BRIDGE: I-75 over Frey Road
COUNTY: COBB
P.I. NO: 713640
PROJECT: NH000-0575-01(028)

J.B. TRIMBLE, INC.

JOB NO: 31-6036
DESIGNED BY: SHG
DATE: 10/14/2009

SPAN 1

OVERHANG SLAB DESIGN

EFFECTIVE SPAN LENGTH = 2.583 FT *AASHTO 3.24.5.1*

DEAD LOAD

SLAB D.L. =	0.100	KIP/FT/LF
ADDITIONAL D.L. =	0.030	KIP/FT/LF
PARAPET D.L.=	0.405	KIP/FT/LF

DL MOMENT @ FLANGE:

SLAB MOM =	0.334	KIP-FT/LF
ADD'L MOM =	0.014	KIP-FT/LF
PARAPET MOM =	0.776	KIP-FT/LF
TOTAL MOM =	1.124	KIP-FT/LF

DL MOMENT @ EDGE OF BARRIER:

SLAB MOM =	0.132	KIP-FT/LF
ADD'L MOM =	0.000	KIP-FT/LF
PARAPET MOM =	0.388	KIP-FT/LF
TOTAL MOM =	0.520	KIP-FT/LF

DEAD LOAD MOMENT @ FLANGE= 1.3 * TOTAL MOMENT = 1.461 KIP-FT / LF
D.L. MOMENT @ EDGE OF BARRIER= 1.3 * TOTAL MOMENT = 0.676 KIP-FT / LF

LIVE LOAD

WHEEL LOAD 16.00 KIPS

IMPACT =	1.30	
MOM ARM (X)=	0.46	FT
E = 0.8 * X + 3.75 =	4.12	FT

LIVE LOAD MOMENT = 2.17 * (P(LL + I) / E) * X = 5.025 KIP-FT / LF *AASHTO 3.24.5.1.1*

CENTRIFUGAL LOAD

C = 6.68 * S^2/ R = 0.028 FRACTION OF LIVE LOAD

CENTRIFUGAL FORCE MOMENT = 1.3 * (P(LL + I) / E) * X * C = 0.142 KIP-FT / LF

RAILING LOAD *AASHTO 3.24.5.2*

RAILING LOAD = 10.00 KIPS

RAILING LOAD @ FLANGE:

MOM ARM (H) =	3.111	FT
DISTANCE (X) =	1.92	FT
E = 0.8 * X + 5.00 =	6.53	FT

RAILING LOAD @ EDGE OF BARRIER:

MOM ARM (H) =	3.11	FT
DISTANCE (X) =	0.96	FT
E = 0.8 * X + 5.00 =	5.77	FT

RAIL MOM @ FLANGE= 2.17 * (P_{rail}/ E) * H = 10.333 KIP-FT / LF

RAIL MOM @ EDGE OF BARRIER= 2.17 * (P_{rail}/ E) * H = 11.707 KIP-FT / LF

SUMMARY OF MOMENTS:

DL + LL @ FLANGE = 6.628 KIP-FT / LF
DL + RAIL @ FLANGE = 11.794 KIP-FT / LF
DL + RAIL @ BARRIER = 12.383 KIP-FT / LF

TOTAL DESIGN MOMENT (Ø Mu) = 12.383 KIP-FT / LF = 148.60 K-IN / LF

FLEXURE STRENGTH

AASHTO 8.16.3.2

Ø Mn > Mu Ø = 0.90

Ø Mn = Ø * [As * fy * (d - a/2)] where a = As * fy / [0.85 * f'c * b]

a = 1.681 As

d_{top} = 4.938 IN USE **5 BAR** As = 0.31 IN^2 /LF

PROVIDE ADDITIONAL OVERHANG STEEL = **4 BAR** As = 0.20 IN^2 /LF

TOP STEEL

266.625 As - 45.38 As^2 = 148.60 K-IN / LF

TOP BAR = NO. 5 SPACED AT 6.375 IN As = 0.58 IN^2 /LF

Ø Mn = 149.13 K-IN / LF < Ø Mu = 148.60 K-IN / LF ADD. REINF. NEEDED!!

ADD'L BAR = NO. 4 SPACED AT 12.75 IN As = 0.19 IN^2 /LF

Mn = 178.74 K-IN / LF ≥ Mu = 148.60 K-IN / LF OK

BRIDGE: I-75 over Frey Road
COUNTY: COBB
P.I. NO: 713640
PROJECT: NH000-0575-01(028)

J.B. TRIMBLE, INC.

JBT

SPAN 2

JOB NO: 31-6036
DESIGNED BY: SHG
DATE: 10/14/2009

PRELIMINARY INFORMATION

INTERMEDIATE SLAB THICKNESS =	**8.000**	IN	
OVERHANG SLAB THICKNESS =	**8.000**	IN	
GIRDER SPACING =	**7.166**	FT	
NUMBER OF GIRDERS =	**4**		
OVERHANG WIDTH =	**3.083**	FT	
TOP FLANGE WIDTH =	**14.000**	IN	
CONCRETE STRENGTH, f'c =	**3500**	PSI	
STEEL STRENGTH, fy =	**60000**	PSI	
PARAPET HEIGHT =	**2.667**	FT	
PARAPET WIDTH =	**1.625**	FT	
PARAPET AREA =	**2.700**	SF	
C.G. FROM OUTSIDE =	**0.667**	FT	
TOP BAR CLEARANCE =	**2.750**	IN	
BOTTOM BAR CLEARANCE =	**1.000**	IN	
GROOVED DEPTH =	**0.250**	IN	
DESIGN SPEED =	**50.00**	MPH	(IF CENTRIFUGAL CONSIDERED)
RADIUS =	**5890.00**	FT	(IF CENTRIFUGAL CONSIDERED)
WHEEL LOAD =	**16.00**	KIPS	**HS20**
IMPACT FACTOR =	**1.30**		
ADDITIONAL LOAD =	**30.00**	PSF	
RAILING LOAD =	**10.00**	KIP	AT TOP OF PARAPET

BAR DETAILS		
SIZE	AREA	WEIGHT
Not Needed	0	0
No. 3	0.11	0.376
No. 4	0.20	0.668
No. 5	0.31	1.043
No. 6	0.44	1.502
No. 7	0.60	2.044
No. 8	0.79	2.670
No. 9	1.00	3.400
No. 10	1.27	4.300
No. 11	1.56	5.310
No. 14	2.25	7.650
No. 18	4.00	13.600

INTERMEDIATE SLAB DESIGN

BEAM TYPE: **STEEL** (TB, STEEL, PSC, BULB-T)

EFFECTIVE SPAN LENGTH = 6.583 FT *AASHTO 3.24.1.2*

DEAD LOAD

SLAB D.L. =	0.100	KIP/FT/LF
ADDITIONAL D.L. =	0.030	KIP/FT/LF
TOTAL D.L.=	0.130	KIP / FT / LF

DEAD LOAD MOMENT = 1.3 * (WT DL) * (SPAN)^2 / 10 = 0.732 KIP-FT / LF

LIVE LOAD

WHEEL LOAD = 16.00 KIPS

CONT. FACTOR = 0.80
IMPACT = 1.30

LIVE LOAD MOMENT = 2.17 * ((S + 2)/32) * P(LL + I) * 0.8 = 9.685 KIP-FT / LF *AASHTO 3.24.3.1*

CENTRIFUGAL LOAD *AASHTO 3.10.1*

C = 6.68 * S^2/ R = 0.028 FRACTION OF LIVE LOAD

CENTRIFUGAL FORCE MOMENT = 1.3 * ((S + 2)/32) * P (LL+ I) * 0.8 * C = 0.165 KIP-FT / LF *AASHTO TABLE 3.22.1A*

TOTAL DESIGN MOMENT (Ø Mu) = 10.582 KIP-FT / LF = 126.98 K-IN / LF

FLEXURE STRENGTH *AASHTO 8.16.3.2*

Ø Mn > Mu Ø = 0.90

Ø Mn = Ø * [As * fy * (d - a/2)] where a = As * fy / [0.85 * f'c * b]

a = 1.681 As

d_{top} = 4.938 IN USE **5 BAR** As = 0.31 IN^2 /LF

d_{bot} = 6.438 IN USE **5 BAR** As = 0.31 IN^2 /LF

TOP STEEL

206.625 As - 45.38 As^2 = 126.98 K-IN / LF

TOP BAR = NO. 5 SPACED AT 6.375 IN As = 0.58 IN^2 /LF

Ø Mn = 140.13 K-IN / LF ≥ Ø Mu = 126.98 K-IN / LF OK

BOTTOM STEEL

347.625 As - 45.38 As^2 = 126.98 K-IN / LF

BOT BAR = NO. 5 SPACED AT 6.375 IN As = 0.58 IN^2 /LF

Ø Mn = 187.40 K-IN / LF ≥ Ø Mu = 126.98 K-IN / LF OK

BRIDGE: I-75 over Frey Road
COUNTY: COBB
P.I. NO: 713640
PROJECT: NH000-0575-01(028)

J.B. TRIMBLE, INC.

JOB NO: 31-6036
DESIGNED BY: SHG
DATE: 10/14/2009

SPAN 2

OVERHANG SLAB DESIGN

EFFECTIVE SPAN LENGTH = 2.500 FT *AASHTO 3.24.5.1*

DEAD LOAD

SLAB D.L. =	0.100	KIP/FT/LF
ADDITIONAL D.L. =	0.030	KIP/FT/LF
PARAPET D.L.=	0.405	KIP/FT/LF

DL MOMENT @ FLANGE:

SLAB MOM =	0.312	KIP-FT/LF
ADD'L MOM =	0.011	KIP-FT/LF
PARAPET MOM =	0.742	KIP-FT/LF
TOTAL MOM =	1.066	KIP-FT/LF

DL MOMENT @ EDGE OF BARRIER:

SLAB MOM =	0.132	KIP-FT/LF
ADD'L MOM =	0.000	KIP-FT/LF
PARAPET MOM =	0.388	KIP-FT/LF
TOTAL MOM =	0.520	KIP-FT/LF

DEAD LOAD MOMENT @ FLANGE= 1.3 * TOTAL MOMENT = 1.386 KIP-FT / LF
D.L. MOMENT @ EDGE OF BARRIER= 1.3 * TOTAL MOMENT = 0.676 KIP-FT / LF

LIVE LOAD

WHEEL LOAD	16.00	KIPS
IMPACT =	1.30	
MOM ARM (X)=	0.46	FT
E = 0.8 * X + 3.75 =	4.12	FT

LIVE LOAD MOMENT = 2.17 * (P(LL + I) / E) * X = 5.022 KIP-FT / LF *AASHTO 3.24.5.1.1*

CENTRIFUGAL LOAD

C = 6.68 * S^2/ R = 0.026 FRACTION OF LIVE LOAD

CENTRIFUGAL FORCE MOMENT = 1.3 * (P(LL + I) / E) * X * C = 0.142 KIP-FT / LF

RAILING LOAD *AASHTO 3.24.5.2*

RAILING LOAD =	10.00	KIPS

RAILING LOAD @ FLANGE:

MOM ARM (H) =	3.111	FT
DISTANCE (X) =	1.83	FT
E = 0.8 * X + 5.00 =	6.47	FT

RAILING LOAD @ EDGE OF BARRIER:

MOM ARM (H) =	3.11	FT
DISTANCE (X) =	0.96	FT
E = 0.8 * X + 5.00 =	5.77	FT

RAIL MOM @ FLANGE= 2.17 * (P_{rail}/ E) * H = 10.440 KIP-FT / LF

RAIL MOM @ EDGE OF BARRIER= 2.17 * (P_{rail}/ E) * H = 11.707 KIP-FT / LF

SUMMARY OF MOMENTS:

DL + LL @ FLANGE = 6.550 KIP-FT / LF
DL + RAIL @ FLANGE = 11.826 KIP-FT / LF
DL + RAIL @ BARRIER = 12.383 KIP-FT / LF

TOTAL DESIGN MOMENT (Ø Mu) = 12.383 KIP-FT / LF = 148.60 K-IN / LF

FLEXURE STRENGTH

AASHTO 8.16.3.2

Ø Mn > Mu Ø = 0.90

Ø Mn = Ø * [As * fy * (d - a/2)] where a = As * fy / [0.85 * f'c * b]

a =	1.681	As				
d_{top} =	4.938	IN	USE **5 BAR**	As =	0.31	IN^2 /LF
			PROVIDE ADDITIONAL OVERHANG STEEL = **4 BAR**	As =	0.20	IN^2 /LF

TOP STEEL

266.625 As - 45.38 As^2 = 148.60 K-IN / LF

TOP BAR = NO.	5	SPACED AT	6.375	IN	As =	0.58	IN^2 /LF

Ø Mn =	140.13 K-IN / LF	<	Ø Mu =	148.60 K-IN / LF ADD. REINF. NEEDED!!

ADD'L BAR = NO.	4	SPACED AT	12.75	IN	As =	0.19	IN^2 /LF

Mn =	178.74 K-IN / LF	≥	Mu =	148.60 K-IN / LF OK

BRIDGE: I-75 over Frey Road
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DESIGNED BY: SHG
DATE: 10/14/2009

SPAN 3

PRELIMINARY INFORMATION

INTERMEDIATE SLAB THICKNESS =	7.875	IN	
OVERHANG SLAB THICKNESS =	7.875	IN	
GIRDER SPACING =	6.833	FT	
NUMBER OF GIRDERS =	4		
OVERHANG WIDTH =	3.333	FT	
TOP FLANGE WIDTH =	12.000	IN	
CONCRETE STRENGTH, f'c =	3500	PSI	
STEEL STRENGTH, fy =	60000	PSI	
PARAPET HEIGHT =	2.667	FT	
PARAPET WIDTH =	1.625	FT	
PARAPET AREA =	2.700	SF	
C.G. FROM OUTSIDE =	0.667	FT	
TOP BAR CLEARANCE =	2.750	IN	
BOTTOM BAR CLEARANCE =	1.000	IN	
GROOVED DEPTH =	0.250	IN	
DESIGN SPEED =	50.00	MPH	(IF CENTRIFUGAL CONSIDERED)
RADIUS =	5890.00	FT	(IF CENTRIFUGAL CONSIDERED)
WHEEL LOAD =	16.00	KIPS	HS20
IMPACT FACTOR =	1.30		
ADDITIONAL LOAD =	30.00	PSF	
RAILING LOAD =	10.00	KIP	AT TOP OF PARAPET

BAR DETAILS		
SIZE	AREA	WEIGHT
Not Needed	0	0
No. 3	0.11	0.376
No. 4	0.20	0.668
No. 5	0.31	1.043
No. 6	0.44	1.502
No. 7	0.60	2.044
No. 8	0.79	2.670
No. 9	1.00	3.400
No. 10	1.27	4.300
No. 11	1.56	5.310
No. 14	2.25	7.650
No. 18	4.00	13.600

INTERMEDIATE SLAB DESIGN

BEAM TYPE: **STEEL** (TB, STEEL, PSC, BULB-T)

EFFECTIVE SPAN LENGTH = 6.333 FT *AASHTO 3.24.1.2*

DEAD LOAD

SLAB D.L. =	0.098	KIP/FT/LF
ADDITIONAL D.L. =	0.030	KIP/FT/LF
TOTAL D.L.=	0.128	KIP / FT / LF

DEAD LOAD MOMENT = 1.3 * (WT DL) * (SPAN)^2 / 10 = 0.670 KIP-FT / LF

LIVE LOAD

WHEEL LOAD = 16.00 KIPS

CONT. FACTOR = 0.80
IMPACT = 1.30

LIVE LOAD MOMENT = 2.17 * ((S + 2)/32) * P(LL + I) * 0.8 = 9.403 KIP-FT / LF *AASHTO 3.24.3.1*

CENTRIFUGAL LOAD *AASHTO 3.10.1*

C = 6.68 * S^2/ R = 0.028 FRACTION OF LIVE LOAD

CENTRIFUGAL FORCE MOMENT = 1.3 * ((S + 2)/32) * P (LL+ I) * 0.8 * C = 0.160 KIP-FT / LF *AASHTO TABLE 3.22.1A*

TOTAL DESIGN MOMENT (Ø Mu) = 10.232 KIP-FT / LF = 122.79 K-IN / LF

FLEXURE STRENGTH *AASHTO 8.16.3.2*

Ø Mn > Mu Ø = 0.90

Ø Mn = Ø * [As * fy * (d - a/2)] where a = As * fy / [0.85 * f'c * b]

a =	1.681	As				
d_{top} =	4.813	IN	USE **5 BAR**	As =	0.31	IN^2 /LF
d_{bot} =	6.313	IN	USE **5 BAR**	As =	0.31	IN^2 /LF

TOP STEEL

259.875 As - 45.38 As^2 = 122.79 K-IN / LF

TOP BAR = NO. 5 SPACED AT 6.500 IN As = 0.57 IN^2 /LF

Ø Mn = 133.87 K-IN / LF ≥ Ø Mu = 122.79 K-IN / LF OK

BOTTOM STEEL

340.875 As - 45.38 As^2 = 122.79 K-IN / LF

BOT BAR = NO. 5 SPACED AT 6.500 IN As = 0.57 IN^2 /LF

Ø Mn = 180.22 K-IN / LF ≥ Ø Mu = 122.79 K-IN / LF OK

BRIDGE: I-75 over Frey Road
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J.B. TRIMBLE, INC.

JOB NO: 31-6036
DESIGNED BY: SHG
DATE: 10/14/2009

SPAN 3

OVERHANG SLAB DESIGN

EFFECTIVE SPAN LENGTH = 2.833 FT *AASHTO 3.24.5.1*

DEAD LOAD

SLAB D.L. =	0.098	KIP/FT/LF
ADDITIONAL D.L. =	0.030	KIP/FT/LF
PARAPET D.L.=	0.405	KIP/FT/LF

DL MOMENT @ FLANGE:

SLAB MOM =	0.395	KIP-FT/LF
ADD'L MOM =	0.022	KIP-FT/LF
PARAPET MOM =	0.877	KIP-FT/LF
TOTAL MOM =	1.294	KIP-FT/LF

DL MOMENT @ EDGE OF BARRIER:

SLAB MOM =	0.130	KIP-FT/LF
ADD'L MOM =	0.000	KIP-FT/LF
PARAPET MOM =	0.388	KIP-FT/LF
TOTAL MOM =	0.518	KIP-FT/LF

DEAD LOAD MOMENT @ FLANGE= 1.3 * TOTAL MOMENT = 1.683 KIP-FT / LF
D.L. MOMENT @ EDGE OF BARRIER= 1.3 * TOTAL MOMENT = 0.674 KIP-FT / LF

LIVE LOAD

WHEEL LOAD 16.00 KIPS

IMPACT =	1.30	
MOM ARM (X)=	0.71	FT
E = 0.8 * X + 3.75 =	4.32	FT

LIVE LOAD MOMENT = 2.17 * (P(LL + I) / E) * X = 7.403 KIP-FT / LF *AASHTO 3.24.5.1.1*

CENTRIFUGAL LOAD

C = 6.68 * S^2/ R = 0.028 FRACTION OF LIVE LOAD

CENTRIFUGAL FORCE MOMENT = 1.3 * (P(LL + I) / E) * X * C = 0.210 KIP-FT / LF

RAILING LOAD *AASHTO 3.24.5.2*

RAILING LOAD = 10.00 KIPS

RAILING LOAD @ FLANGE:

MOM ARM (H) =	3.104	FT
DISTANCE (X) =	2.17	FT
E = 0.8 * X + 5.00 =	6.73	FT

RAILING LOAD @ EDGE OF BARRIER:

MOM ARM (H) =	3.10	FT
DISTANCE (X) =	0.96	FT
E = 0.8 * X + 5.00 =	5.77	FT

RAIL MOM @ FLANGE= 2.17 * (P_{rail}/ E) * H = 10.004 KIP-FT / LF

RAIL MOM @ EDGE OF BARRIER= 2.17 * (P_{rail}/ E) * H = 11.681 KIP-FT / LF

SUMMARY OF MOMENTS:

DL + LL @ FLANGE = 9.296 KIP-FT / LF
DL + RAIL @ FLANGE = 11.687 KIP-FT / LF
DL + RAIL @ BARRIER = 12.355 KIP-FT / LF

TOTAL DESIGN MOMENT (Ø Mu) = 12.355 KIP-FT / LF = 148.25 K-IN / LF

FLEXURE STRENGTH

AASHTO 8.16.3.2

Ø Mn > Mu Ø = 0.90

Ø Mn = Ø * [As * fy * [d - a/2)] where a = As * fy / [0.85 * fc * b]

a =	1.681	As					
d_{top} =	4.813	IN	USE **5 BAR**	As =	0.31	IN^2 /LF
			PROVIDE ADDITIONAL OVERHANG STEEL = **4 BAR**	As =	0.20	IN^2 /LF

TOP STEEL

259.875 As - 45.38 As^2 = 148.25 K-IN / LF

TOP BAR = NO.	5	SPACED AT	6.500	IN	As =	0.57	IN^2 /LF

Ø Mn =	133.87 K-IN / LF	<	Ø Mu =	148.25 K-IN / LF ADD. REINF. NEEDED!!

ADD'L BAR = NO.	4	SPACED AT	13.00	IN	As =	0.18	IN^2 /LF

Mn =	170.71 K-IN / LF	≥	Mu =	148.25 K-IN / LF OK

SERVICE LOAD DESIGN OF BRIDGE SLAB

Georgia Department of Transportation 13-MAY-04
Office of Bridge and Structural Design 07:49:26
October 2003

WHEEL LOAD (Kips)	fc (ksi)	fs (ksi)	n	SLAB COVER (in)	FUTURE PAVING (kips/ft^2)	CONTINUITY FACTOR
16.00	1.400	24.000	9	2.750	0.030	0.8

EFFECTIVE SPAN LENGTH (ft-in)	SLAB THICKNESS MINIMUM (in)	SLAB THICKNESS ACTUAL (in)	SIZE AND SPACING OF MAIN REINFORCEMENT (in)	DISTRUBUTION REINFORCEMENT MIDDLE HALF	DISTRUBUTION REINFORCEMENT OUTER QUARTERS
3 - 6	6.8150	7.000	# 5 at 8.625	3 -# 4	2 -# 4
3 - 7	6.8463	7.000	# 5 at 8.375	3 -# 4	2 -# 4
3 - 8	6.8774	7.000	# 5 at 8.250	3 -# 4	2 -# 4
3 - 9	6.9083	7.000	# 5 at 8.125	3 -# 4	2 -# 4
3 - 10	6.9391	7.000	# 5 at 8.000	3 -# 4	2 -# 4
3 - 11	6.9698	7.000	# 5 at 7.875	4 -# 4	2 -# 4
4 - 0	7.0018	7.125	# 5 at 8.000	4 -# 4	2 -# 4
4 - 1	7.0323	7.125	# 5 at 7.875	4 -# 4	2 -# 4
4 - 2	7.0626	7.125	# 5 at 7.750	4 -# 4	2 -# 4
4 - 3	7.0927	7.125	# 5 at 7.625	4 -# 4	2 -# 4
4 - 4	7.1228	7.125	# 5 at 7.500	4 -# 4	2 -# 4
4 - 5	7.1544	7.250	# 5 at 7.625	4 -# 4	2 -# 4
4 - 6	7.1843	7.250	# 5 at 7.500	4 -# 4	2 -# 4
4 - 7	7.2140	7.250	# 5 at 7.500	4 -# 4	2 -# 4
4 - 8	7.2436	7.250	# 5 at 7.375	4 -# 4	2 -# 4
4 - 9	7.2751	7.375	# 5 at 7.500	4 -# 4	2 -# 4
4 - 10	7.3045	7.375	# 5 at 7.375	5 -# 4	4 -# 4
4 - 11	7.3338	7.375	# 5 at 7.250	5 -# 4	4 -# 4
5 - 0	7.3630	7.375	# 5 at 7.125	5 -# 4	4 -# 4
5 - 1	7.3943	7.500	# 5 at 7.250	5 -# 4	4 -# 4
5 - 2	7.4234	7.500	# 5 at 7.125	5 -# 4	4 -# 4
5 - 3	7.4524	7.500	# 5 at 7.000	5 -# 4	4 -# 4
5 - 4	7.4812	7.500	# 5 at 7.000	5 -# 4	4 -# 4
5 - 5	7.5124	7.625	# 5 at 7.000	5 -# 4	4 -# 4
5 - 6	7.5412	7.625	# 5 at 7.000	5 -# 4	4 -# 4
5 - 7	7.5698	7.625	# 5 at 6.875	6 -# 4	4 -# 4
5 - 8	7.5984	7.625	# 5 at 6.750	6 -# 4	4 -# 4
5 - 9	7.6295	7.750	# 5 at 6.875	6 -# 4	4 -# 4
5 - 10	7.6579	7.750	# 5 at 6.750	6 -# 4	4 -# 4
5 - 11	7.6863	7.750	# 5 at 6.750	6 -# 4	4 -# 4
6 - 0	7.7145	7.750	# 5 at 6.625	6 -# 4	4 -# 4
6 - 1	7.7427	7.750	# 5 at 6.500	6 -# 4	4 -# 4
6 - 2	7.7738	7.875	# 5 at 6.625	6 -# 4	4 -# 4
6 - 3	7.8019	7.875	# 5 at 6.500	6 -# 4	4 -# 4
6 - 4	7.8299	7.875	# 5 at 6.500	7 -# 4	4 -# 4
6 - 5	7.8578	7.875	# 5 at 6.375	7 -# 4	4 -# 4

Span 3
6'-10"
-1'-0"
+2"(12"/1')
6'-4"

SERVICE LOAD DESIGN OF BRIDGE SLAB

Georgia Department of Transportation 13-MAY-04
Office of Bridge and Structural Design 07:49:26
October 2003

WHEEL LOAD (Kips)	fc (ksi)	fs (ksi)	n	SLAB COVER (in)	FUTURE PAVING (kips/ft^2)	CONTINUITY FACTOR
16.00	1.400	24.000	9	2.750	0.030	0.8

EFFECTIVE SPAN LENGTH (ft-in)	SLAB THICKNESS MINIMUM (in)	SLAB THICKNESS ACTUAL (in)	SIZE AND SPACING OF MAIN REINFORCEMENT (in)	DISTRUBUTION REINFORCEMENT MIDDLE HALF	DISTRUBUTION REINFORCEMENT OUTER QUARTERS
6 - 6	7.8889	8.000	# 5 at 6.500	7 -# 4	4 -# 4
6 - 7	7.9167	8.000	# 5 at 6.375	7 -# 4	4 -# 4
6 - 8	7.9445	8.000	# 5 at 6.375	7 -# 4	4 -# 4
6 - 9	7.9722	8.000	# 5 at 6.250	7 -# 4	4 -# 4
6 - 10	7.9998	8.000	# 5 at 6.250	7 -# 4	4 -# 4
6 - 11	8.0309	8.125	# 5 at 6.250	7 -# 4	4 -# 4
7 - 0	8.0585	8.125	# 5 at 6.250	7 -# 4	4 -# 4
7 - 1	8.0860	8.125	# 5 at 6.125	8 -# 4	4 -# 4
7 - 2	8.1134	8.125	# 5 at 6.125	8 -# 4	4 -# 4
7 - 3	8.1446	8.250	# 5 at 6.125	8 -# 4	4 -# 4
7 - 4	8.1719	8.250	# 5 at 6.125	8 -# 4	4 -# 4
7 - 5	8.1992	8.250	# 5 at 6.000	8 -# 4	4 -# 4
7 - 6	8.2265	8.250	# 5 at 6.000	8 -# 4	4 -# 4
7 - 7	8.2577	8.375	# 5 at 6.000	8 -# 4	4 -# 4
7 - 8	8.2849	8.375	# 5 at 6.000	8 -# 4	4 -# 4
7 - 9	8.3121	8.375	# 5 at 5.875	9 -# 4	6 -# 4
7 - 10	8.3392	8.375	# 5 at 5.875	9 -# 4	6 -# 4
7 - 11	8.3662	8.375	# 5 at 5.750	9 -# 4	6 -# 4
8 - 0	8.3976	8.500	# 5 at 5.875	9 -# 4	6 -# 4
8 - 1	8.4246	8.500	# 5 at 5.750	9 -# 4	6 -# 4
8 - 2	8.4515	8.500	# 5 at 5.750	9 -# 4	6 -# 4
8 - 3	8.4784	8.500	# 5 at 5.625	9 -# 4	6 -# 4
8 - 4	8.5099	8.625	# 5 at 5.750	9 -# 4	6 -# 4
8 - 5	8.5367	8.625	# 5 at 5.625	10 -# 4	6 -# 4
8 - 6	8.5636	8.625	# 5 at 5.625	10 -# 4	6 -# 4
8 - 7	8.5903	8.625	# 5 at 5.500	10 -# 4	6 -# 4
8 - 8	8.6170	8.625	# 5 at 5.500	10 -# 4	6 -# 4
8 - 9	8.6487	8.750	# 5 at 5.625	10 -# 4	6 -# 4
8 - 10	8.6754	8.750	# 5 at 5.500	10 -# 4	6 -# 4
8 - 11	8.7020	8.750	# 5 at 5.500	11 -# 4	6 -# 4
9 - 0	8.7286	8.750	# 5 at 5.375	11 -# 4	6 -# 4
9 - 1	8.7605	8.875	# 5 at 5.500	11 -# 4	6 -# 4
9 - 2	8.7871	8.875	# 5 at 5.375	11 -# 4	6 -# 4
9 - 3	8.8136	8.875	# 5 at 5.375	11 -# 4	6 -# 4
9 - 4	8.8401	8.875	# 5 at 5.375	11 -# 4	6 -# 4
9 - 5	8.8665	8.875	# 5 at 5.250	12 -# 4	6 -# 4

Span 2 → 6 - 7
Span 3 → 6 - 8

SECTION IV – CONCRETE AND REINFORCING STEEL

BRIDGE DECK DESIGN No. 4.01

When designing bridge decks, the following criteria shall be applied:

For cast-in-place decks north of the fall line:

1. Specify Class AA concrete except for post-tensioned concrete boxes which shall have Class AA as a minimum, but may require a higher 28-day strength.
2. **Specify 2 ¾" (70 mm) cover to top bar reinforcement for bridge decks on interstate routes, state routes and routes with design year ADT equal to or greater than 2000.**
3. Specify 2 ½" (65 mm) cover to top bar reinforcement for bridge decks on all other routes.

For cast-in-place decks south of the fall line:

1. Specify Class AA concrete except for post-tensioned concrete boxes which shall have Class AA as a minimum, but may require a higher 28-day strength.
2. Specify 2 ¼" (60 mm) cover to top bar reinforcement for bridge decks on interstate routes, state routes and routes with design year ADT equal to or greater than 2000.
3. Specify 2" (50 mm) cover to top bar reinforcement for bridge decks on all other routes.

For bridge decks of precast concrete elements, specify 2" cover to top bar reinforcement statewide.

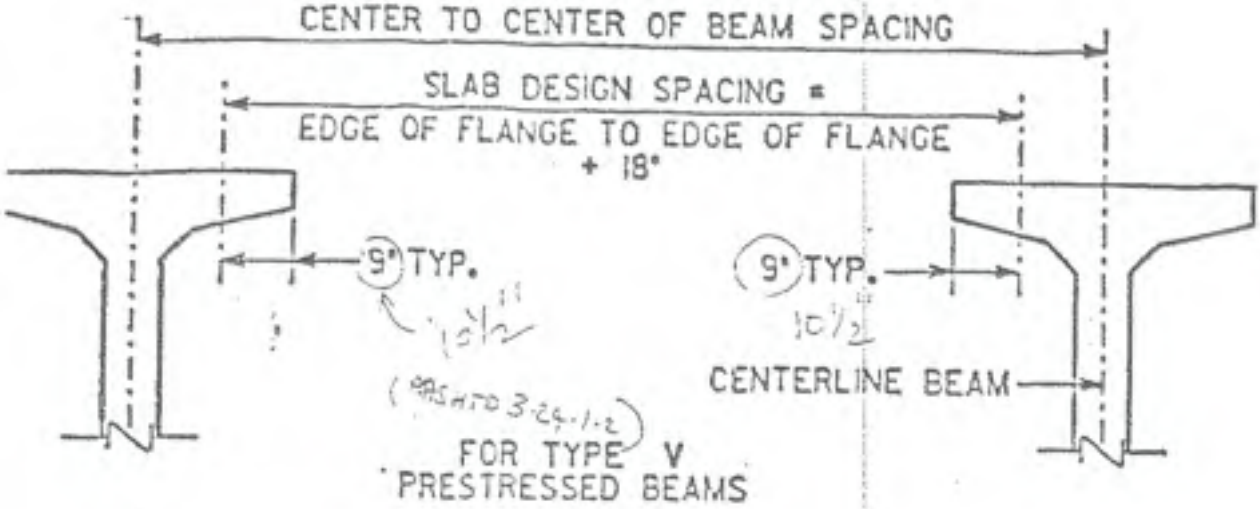
Note that ¼" of concrete thickness may be planed off of the top of cast-in-place decks on interstate routes, state routes and routes with design year ADT equal to or greater than 2000. Therefore, reduce slab thickness accordingly for strength calculations of composite slabs on steel or PSC beams and post-tensioned boxes.

Deck slabs shall be designed by the Service Load method with f_c = 1400 psi (10 MPa), as a rule.

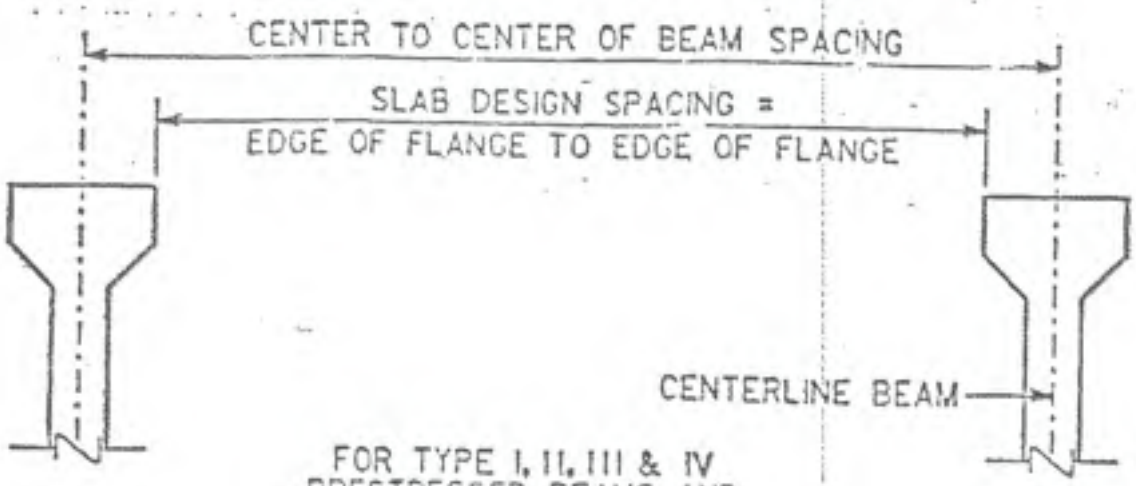
The minimum 28 day strength (f'_c) for the deck concrete shall be 3500 psi (25 MPa). Slabs shall be designed so that the main slab reinforcement is the same in the bottom of the slab as in the top. To achieve this, the effective depth shall be taken as the distance from the bottom of the slab to the centroid of the top main reinforcing steel for both positive and negative moment. Positive and negative moments shall be assumed to be equal and shall be calculated in accordance with the AASHTO Specifications.

See Fig. 4-01 for a location map of the fall line for Georgia.

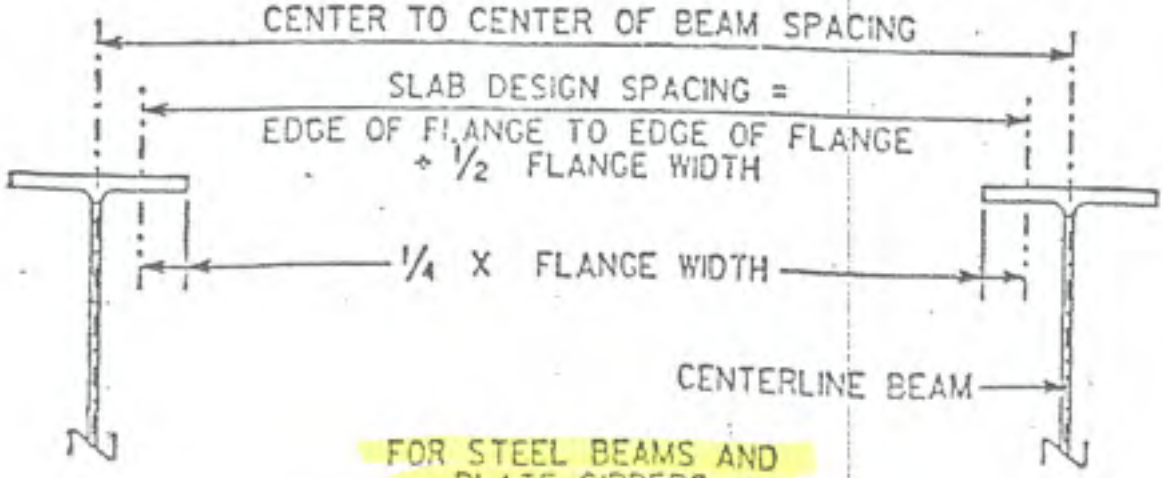
FALL LINE MAP
Figure 4-01



FOR TYPE V
PRESTRESSED BEAMS



FOR TYPE I, II, III & IV
PRESTRESSED BEAMS AND
CONCRETE T-BEAMS



FOR STEEL BEAMS AND
PLATE GIRDERS

FIG. NO. 1 (cont'd)

CALCULATION COVER SHEET

PROJECT	JOB NO.	CALC NO.	SHEET
I-75 / I-575 NORTHWEST CORRIDOR	NH000-0073-03(242)	BR#33	1
SUBJECT	DISCIPLINE		
Beam Design Input	STRUCTURAL		

CALCULATION STATUS DESIGNATION	PRELIMINARY	CONFIRMED	SUPSEDED	VOIDED	INCOMPLETE
	☐	☐	☐	☐	X

COMPUTER PROGRAM/TYPE	SCP	MAINFRAME	PC	PROGRAM	VERSION/RELEASE NO.
	(X) YES ( ) NO	( )	(X)	Excel	2003

Note 1: Georgia Department of Transportation (GDOT) terminated Contract Number TOURDPPI60072 for its convenience prior the completion of all work under that contract and directed that the work with respect to these calculations be discontinued.
(a) These calculations were not completed at the time of GDOT's direction and the information contained herein is not complete and/or has not been fully verified or checked. These calculations are a work-in-progress and are presented only as such.
(b) Any user is cautioned that the use of these calculations and any related information or calculations, without access to factors and without proper regard for their purpose, could lead to erroneous conclusions.
(c) If any such calculations or any information contained herein is used in future work efforts or any follow on design work activity, a complete confirmation of the information contained herein should be performed prior to any such use.
(d) GTP has no responsibility for the use of this information not under its direct control.

Beam Design Input calculations are included for spans 1, 2 and 3.

NO.	REASON FOR REVISION	TOTAL NO. OF SHEETS	LAST SHEET NO.	BY	CHECKED	APPROVED/ ACCEPTED	DATE
A	As per GDOT's termination for convenience direction	7	7	JCR			11/30/09

RECORD OF REVISIONS

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0073-03(242)
CALC NO. BR#33

SUBJECT: Beam Design Input - Span 1 SHEET NO.
BY: JCR DATE: 11/30/2009 SHEET REV.

Sufficient sample calculations representative of the scope and conditions in the design calculation were performed and the results compared to demonstrate the computer program adequacy.

BRIDGE: I-75 over Frey Road
COUNTY: COBB
P.I. NO: 713640
PROJECT: NH000-0575-01(028)

J.B. TRIMBLE, INC.

JOB NO: 31-6036
DESIGNED BY: SHG
DATE: 10/16/2009

SPAN 1

Beam Type: Plate Girder

'D' DIMENSION = 9.125 IN

MIN. COPING DEPTH = 0.375 IN

AASHTO 8.10.1.1 - Compression Flange Width

wBM FLANGE =	12.00	in.
b = Bm Spacing =	86.00	in. CONTROLS
b = ¼ Span Length =	288.00	in.
b = WBM FLANGE + 2[6 tSLAB] =	105.00	in.

BRIDGE GEOMETRY INPUT:

LARGER BEAM SPACING	7.167	FT
SMALLER BEAM SPACING	7.167	FT
SKEW ANGLE	33.00	DEGREES
SLAB:		
'D' DIMENSION	9.125	IN
DESIGN SLAB DEPTH	7.750	IN
COPING WIDTH	1.000	FT
COPING DEPTH	0.875	IN
SLAB & COPING WEIGHT	0.706	KIP/FT
SIP FORMWORK	0.098	KIP/FT
DECK OVERLAY		
AVERAGE THICKNESS	0.250	IN
DECK OVERLAY WEIGHT	0.022	KIP/FT
ROADWAY WIDTH	26.000	FT
FUTURE WEARING SURFACE	0.195	KIP/FT
UTILITIES		
GAS MAIN (not added to W_{DLC})	0.00	KIP/FT
TLPHONE CONDUITS (not added to W_{DL}	0.00	KIP/FT
WATER MAIN	0.00	KIP/FT
EDGE BEAM:		
DEPTH (from top of slab)	2.26	FT
WIDTH	1.000	FT
EDGE BM. WEIGHT	3.167	KIP
DIAPHRAGM:		
Plate (3/8" X 5" X 2'-8")	0.017	KIP
CHANNEL (MC 18" X 42.7")	0.043	KIP/FT
DIAPH. WEIGHT	0.339	KIP
END WALL: FIX		
DEPTH (from top of slab)	5.010	FT
WIDTH	0.667	FT
PAVING NOTCH WIDTH	0.667	FT
AVG. PAVING NOTCH DEPTH	0.833	FT
END WALL WEIGHT	6.843	KIP
PARAPET:		
SW., PAR., FENCE, & MEDIAN WEIGHT	1.900	KIP/FT
NUMBER OF BEAMS	4	
PARAPET WEIGHT	0.475	KIP/FT
SIDEWALK LIVE LOAD:		
SIDEWALK WIDTH	0	FT
SIDEWALK LOAD	0.060	KIP/FT^2
NUMBER OF BEAMS	4	
SIDEWALK LIVE LOAD PER BEAM	0.000	KIP/FT

DEAD LOAD CALCULATION:

			REACTION (K)	MOMENT (K-FT)
SPAN LENGTH	96.00	FT		
BEAM WEIGHT	0.205	KLF		
TOTAL DL	1.701	KIP/LF	81.656	1959.749
P-LOADS:				
TYPE	LOAD (K)	POSITION (FT)		
END WALL:	6.843	0.00	6.843	0.000
DIAPHRAGM:	0.339	10.5000	0.302	3.169
DIAPHRAGM:	0.339	35.500	0.214	7.581
DIAPHRAGM:	0.339	60.5000	0.125	7.581
DIAPHRAGM:	0.339	85.5000	0.037	3.169
EDGE BEAM:	3.167	96.00	0.000	0.000

	REACTION (K)	MOMENT (K-FT)
TOTAL DL :	89.1	1978.1

LIVE LOAD CALCULATION:

BEAM DISTRIBUTION

MOMENT	1.303	WHEEL	VERIFY !!!	
	0.652	AXLE		
SHEAR	1.605	WHEEL	VERIFY !!!	
	0.802	AXLE		
IMPACT FACTOR	1.224			
HS 20 LOADING: MIDSPAN	1448	K/F-FT		
MAX.	1452.1	K/F-FT		

HS 20 REACTION:

			R x DF x I	
TRUCK	65.00	K/F	57.85	K/F
LANE	56.72	K/F	50.12	K/F

	REACTION (K)	MOMENT (K-FT)
TOTAL LL+ I:	57.8	1156.8
MAX TOTAL LL+ I:		1160.1

	REACTION (K)	MOMENT (K-FT)
TOTAL D.L. + L.L. =	147.0	3134.9

DEFLECTIONS CALCULATION:

NO. LANES	2		
NO. BEAMS	4		
REDUCTION FACTOR	1.00	FACTOR	1.000

SIMPLE SPAN PROGRAM INPUT:

LENGTH =	96.00	FT
Moment Dist. Factor (DFM) =	1.303	
End Shear Dist. Factor (DFV) =	1.605	
LL Deflection Dist. Factor (DFD) =	1.000	
Non- Composite DL (W_{DLNC}) =	0.826	KLF
Composite DL (W_{DLC}) =	0.670	KLF W/ F.W.S.
Sidewalk LL (W_{walk}) =	0.000	KLF
Effective Concrete Width (W_E) =	86.000	IN
Concrete Slab Thickness (T_S) =	7.750	IN
Minimum Coping (Df) =	0.750	IN
P-LOADS:		
XP1	0.00	FT
P1	6.843	K
XP2	10.500	FT
P2	0.339	K
XP3	35.500	FT
P3	0.339	K
XP4	60.500	FT
P4	0.339	K
XP5	85.500	FT
P5	0.339	K
XP6	96.000	FT
P6	3.167	K

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0073-03(242)
CALC NO. BR#33

SUBJECT: Beam Design Input - Span 2 SHEET NO.
BY: JCR DATE: 11/30/2009 SHEET REV.

Sufficient sample calculations representative of the scope and conditions in the design calculation were performed and the results compared to demonstrate the computer program adequacy.

BRIDGE: I-75 over Frey Road
COUNTY: COBB
P.I. NO: 713640
PROJECT: NH000-0575-01(028)

J.B. TRIMBLE, INC.

JOB NO: 31-6036
DESIGNED BY: SHG
DATE: 10/16/2009

SPAN 2

Beam Type: Plate Girder

'D' DIMENSION = 9.125 IN

MIN. COPING DEPTH = 0.375 IN

AASHTO 8.10.1.1 - Compression Flange Width

wBM FLANGE =	12.00	in.
b = Bm Spacing =	**86.00**	**in. CONTROLS**
b = ¼ Span Length =	360.00	in.
b = WBM FLANGE + 2[8 tSLAB] =	106.00	in.

BRIDGE GEOMETRY INPUT:

LARGER BEAM SPACING	7.167	FT
SMALLER BEAM SPACING	7.167	FT
SKEW ANGLE	33.00	DEGREES
SLAB:		
'D' DIMENSION	9.125	IN
DESIGN SLAB DEPTH	7.750	IN
COPING WIDTH	1.000	FT
COPING DEPTH	0.875	IN
SLAB & COPING WEIGHT	**0.706**	KIP/FT
SIP FORMWORK	**0.099**	KIP/FT
DECK OVERLAY		
AVERAGE THICKNESS	0.250	IN
DECK OVERLAY WEIGHT	**0.022**	KIP/FT
ROADWAY WIDTH	26.000	FT
FUTURE WEARING SURFACE	**0.195**	KIP/FT
UTILITIES		
GAS MAIN (not added to W_{DLC})	**0.00**	KIP/FT
TLPHONE CONDUITS (not added to W_{DL}	**0.00**	KIP/FT
WATER MAIN	**0.00**	KIP/FT
EDGE BEAM:		
DEPTH (from top of slab)	2.25	FT
WIDTH	1.000	FT
EDGE BM. WEIGHT	**3.187**	KIP
DIAPHRAGM:		
Plate (3/8" X 5' X 2'-6")	0.017	KIP
CHANNEL (MC 18" X 42.7")	0.043	KIP/FT
DIAPH. WEIGHT	**0.339**	KIP
PARAPET:		
SW, PAR., FENCE, & MEDIAN WEIGHT	1.900	KIP/FT
NUMBER OF BEAMS	4	
PARAPET WEIGHT	**0.475**	KIP/FT
SIDEWALK LIVE LOAD:		
SIDEWALK WIDTH	0	FT
SIDEWALK LOAD	0.061	KIP/FT^2
NUMBER OF BEAMS	4	
SIDEWALK LIVE LOAD PER BEAM	0.000	KIP/FT

DEAD LOAD CALCULATION:

			REACTION (K)	MOMENT (K-FT)
SPAN LENGTH	120.00	FT		
BEAM WEIGHT	0.286	KLF		
TOTAL DL	1.782	KIP/LF	106.939	3208.157
P-LOADS:				
TYPE	LOAD (K)	POSITION (FT)		
EDGE BEAM:	3.187	0.00	3.187	0.000
DIAPHRAGM:	0.339	20.000	0.282	5.648
DIAPHRAGM:	0.339	40.000	0.226	9.037
DIAPHRAGM:	0.339	60.000	0.169	10.166
DIAPHRAGM:	0.339	80.000	0.113	9.037
DIAPHRAGM:	0.339	100.000	0.056	5.648
EDGE BEAM:	3.187	120.00	0.000	0.000

	REACTION (K)	MOMENT (K-FT)
TOTAL DL :	111.0	3247.7

LIVE LOAD CALCULATION:

BEAM DISTRIBUTION

MOMENT	1.303	WHEEL	VERIFY !!!	
	0.652	AXLE		
SHEAR	1.805	WHEEL	VERIFY !!!	
	0.902	AXLE		
IMPACT FACTOR	1.204			
HS 20 LOADING: MIDSPAN:	1880	K/F-FT		
MAX:	1883.0	K/F-FT		
HS 20 REACTION:			R x DF x I	
TRUCK	66.40	K/F	57.90	K/F
LANE	64.40	K/F	55.24	K/F

	REACTION (K)	MOMENT (K-FT)
TOTAL LL+ I:	57.9	1474.9
MAX TOTAL LL+ I:		1477.4

	REACTION (K)	MOMENT (K-FT)
TOTAL D.L. + L.L. =	168.9	4722.6

DEFLECTIONS CALCULATION:

NO. LANES	2		
NO. BEAMS	4		
REDUCTION FACTOR	1.00	FACTOR	1.000

SIMPLE SPAN PROGRAM INPUT:

LENGTH =	**120.00**	FT
Moment Dist. Factor (DFM) =	**1.303**	
End Shear Dist. Factor (DFV) =	**1.805**	
LL Deflection Dist. Factor (DFD) =	**1.000**	
Non- Composite DL (W_{DLNC}) =	**0.826**	KLF
Composite DL (W_{DLC}) =	**0.670**	KLF W/ F.W.S.
Sidewalk LL (W_{swk}) =	**0.000**	KLF
Effective Concrete Width (W_c) =	**86.00**	IN
Concrete Slab Thickness (T_c) =	**7.750**	IN
Minimum Coping (Df) =	**0.750**	IN

P-LOADS:

XP1	0.00	FT
P1	3.187	K
XP2	20.000	FT
P2	0.339	K
XP3	40.000	FT
P3	0.339	K
XP4	60.000	FT
P4	0.339	K
XP5	80.000	FT
P5	0.339	K
XP6	100.000	FT
P6	0.339	K
XP7	120.000	FT
P7	3.187	K

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0073-03(242)
CALC NO. BR#33

SUBJECT: Beam Design Input - Span 3 SHEET NO.
BY: JCR DATE: 11/30/2009 SHEET REV.

Sufficient sample calculations representative of the scope and conditions in the design calculation were performed and the results compared to demonstrate the computer program adequacy.

BRIDGE: **I-75 over Frey Road**
COUNTY: **COBB**
P.I. NO: **713640**
PROJECT: **NH000-0575-01(028)**

J.B. TRIMBLE, INC.

JOB NO: **31-6036**
DESIGNED BY: **SHG**
DATE: **10/16/2009**

SPAN 3

Beam Type: Plate Girder

'D' DIMENSION = 9.75 IN

MIN. COPING DEPTH = 0.375 IN

AASHTO 8.10.1.1 - Compression Flange Width

wBM FLANGE =	12.00	in.
b = Bm Spacing =	**82.00**	**in. CONTROLS**
b = ¼ Span Length =	319.50	in.
b = WBM FLANGE + 2[6 tSLAB] =	103.50	in.

BRIDGE GEOMETRY INPUT:

LARGER BEAM SPACING	6.833	FT
SMALLER BEAM SPACING	6.833	FT
SKEW ANGLE	31.75	DEGREES
SLAB:		
'D' DIMENSION	9.75	IN
DESIGN SLAB DEPTH	7.625	IN
COPING WIDTH	1.000	FT
COPING DEPTH	1.25	IN
SLAB & COPING WEIGHT	0.667	KIP/FT
SIP FORMWORK	0.093	KIP/FT
DECK OVERLAY		
AVERAGE THICKNESS	0.250	IN
DECK OVERLAY WEIGHT	0.021	KIP/FT
ROADWAY WIDTH	26.000	FT
FUTURE WEARING SURFACE	0.195	KIP/FT
UTILITIES		
GAS MAIN (not added to W_{DLC})	0.00	KIP/FT
TLPHONE CONDUITS (not added to W_{DL}	0.00	KIP/FT
WATER MAIN	0.00	KIP/FT
EDGE BEAM:		
DEPTH (from top of slab)	2.31	FT
WIDTH	1.000	FT
EDGE BM. WEIGHT	3.267	KIP
DIAPHRAGM:		
Plate (3/8" X 5" X 2'-8")	0.017	KIP
CHANNEL (MC 18" X 42.7")	0.043	KIP/FT
DIAPH. WEIGHT	0.325	KIP
END WALL: ntx		
DEPTH (from top of slab)	5.063	FT
WIDTH	0.667	FT
PAVING NOTCH WIDTH	0.667	FT
AVG. PAVING NOTCH DEPTH	0.833	FT
END WALL WEIGHT	6.834	KIP
PARAPET:		
SW, PARL, FENCE, & MEDIAN WEIGHT	1.900	KIP/FT
NUMBER OF BEAMS	4	
PARAPET WEIGHT	0.475	KIP/FT
SIDEWALK LIVE LOAD:		
SIDEWALK WIDTH	0	FT
SIDEWALK LOAD	0.064	KIP/FT^2
NUMBER OF BEAMS	4	
SIDEWALK LIVE LOAD PER BEAM	0.000	KIP/FT

DEAD LOAD CALCULATION:

			REACTION (K)	MOMENT (K-FT)
SPAN LENGTH	106.50	FT		
BEAM WEIGHT	0.236	KLF		
TOTAL DL	1.688	KIP/LF	89.865	2392.663
P-LOADS:				
TYPE	LOAD (K)	POSITION (FT)		
END WALL:	6.834	0.00	6.834	0.000
DIAPHRAGM:	0.325	13.25	0.284	3.766
DIAPHRAGM:	0.325	33.25	0.223	7.424
DIAPHRAGM:	0.325	53.25	0.162	8.643
DIAPHRAGM:	0.325	73.25	0.101	7.424
DIAPH. WEIGHT	0.325	93.25	0.040	3.766
EDGE BEAM:	3.267	106.50	0.000	0.000
		TOTAL DL :	97.5	3423.7

LIVE LOAD CALCULATION:

BEAM DISTRIBUTION

MOMENT	1.242	WHEEL	VERIFY !!!	
	0.621	AXLE		
SHEAR	1.537	WHEEL	VERIFY !!!	
	0.768	AXLE		

IMPACT FACTOR: 1.216

HS 20 LOADING:

MIDSPAN:	1637	K|F-FT		
MAX:	1640.7	K|F-FT		

HS 20 REACTION:

			R x DF x I:	
TRUCK	65.89	KIP	65.34	KIP
LANE	50.08	KIP	50.03	KIP

	REACTION (K)	MOMENT (K-FT)
TOTAL LL+ I:	85.3	1236.6
MAX TOTAL LL+ I:		1239.3

	REACTION (K)	MOMENT (K-FT)
TOTAL D.L. + L.L. =	182.9	3660.2

DEFLECTIONS CALCULATION:

NO. LANES	2		
NO. BEAMS	4		
REDUCTION FACTOR	1.00	FACTOR	1.000

SIMPLE SPAN PROGRAM INPUT:

LENGTH =	**106.50**	**FT**
Moment Dist. Factor (DFM) =	**1.242**	
End Shear Dist. Factor (DFV) =	**1.537**	
LL Deflection Dist. Factor (DFD) =	**1.000**	
Non- Composite DL (W_{DLNC}) =	**0.782**	**KLF**
Composite DL (W_{DLC}) =	**0.670**	**KLF W/ F.W.S.**
Sidewalk LL (W_{swL}) =	**0.000**	**KLF**
Effective Concrete Width (W_c) =	**82.000**	**IN**
Concrete Slab Thickness (T_s) =	**7.625**	**IN**
Minimum Coping (Df) =	**0.750**	**IN**

P-LOADS:

XP1	0.00	FT
P1	6.834	K
XP2	13.250	FT
P2	0.325	K
XP3	33.250	FT
P3	0.325	K
XP4	53.250	FT
P4	0.325	K
XP5	73.250	FT
P5	0.325	K
XP6	93.250	FT
P6	0.325	K
XP7	106.500	FT
P7	3.267	K

CALCULATION COVER SHEET

PROJECT	JOB NO.	CALC NO.	SHEET
I-75 / I-575 NORTHWEST CORRIDOR	NH000-0073-03(242)	BR#33	1
SUBJECT	DISCIPLINE		
Beam Design Output	STRUCTURAL		

CALCULATION STATUS DESIGNATION	PRELIMINARY	CONFIRMED	SUPSEDED	VOIDED	INCOMPLETE
	☐	☐	☐	☐	X

COMPUTER PROGRAM/TYPE	SCP	MAINFRAME	PC	PROGRAM	VERSION/RELEASE NO.
	(X) YES ( ) NO	( )	(X)	GDOT BRSPAN	06/26/2008

Note 1: Georgia Department of Transportation (GDOT) terminated Contract Number TOURDPPI60072 for its convenience the completion of all work under that contract and directed that the work with respect to these calculations be discontinued.
(a) These calculations were not completed at the time of GDOT's direction and the information contained herein is not and/or has not been fully verified or checked. These calculations are a work-in-progress and are presented only as such.
(b) Any user is cautioned that the use of these calculations and any related information or calculations, without access to factors and without proper regard for their purpose, could lead to erroneous conclusions.
(c) If any such calculations or any information contained herein is used in future work efforts or any follow on design work a complete confirmation of the information contained herein should be performed prior to any such use.
(d) GTP has no responsibility for the use of this information not under its direct control.

Beam design ouptput is included for spans 1, 2 and 3.

NO.	REASON FOR REVISION	TOTAL NO. OF SHEETS	LAST SHEET NO.	BY	CHECKED	APPROVED/ ACCEPTED	DATE
A	As per GDOT's termination for convenience direction	13	13	JCR			11/30/09

RECORD OF REVISIONS

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0073-03(242)
CALC NO. BR#33

SUBJECT: Beam Design Output - Span 1 SHEET NO.
BY: JCR DATE: 11/30/2009 SHEET REV.

Sufficient sample calculations representative of the scope and conditions in the design calculation were performed and the results compared to demonstrate the computer program adequacy.

16-OCT-09 GEORGIA DEPARTMENT OF TRANSPORTATION PROB. NO. S2NW
13:32:42 PRECONSTUCTION DIVISION - OFFICE OF BRIDGE & STRUCTURAL DESIGN

SIMPLE SPAN

REVISED: JUNE 26, 2008

I-75 OVER STEVE FREY RD - SPAN 1

SPAN DATA

BEAM	D/A	L.L.C.	T	L	M	LENGTH	D.F.M.	D.F.V.	D.F.D.	NPL
CG	1	HS20	0	0	0	96.000	1.303	1.605	1.000	6

WDLNC	WDLC	SWLL	E	W BM	FS	FC	WG	TYPE STEEL
0.826	0.670	0.000	29.00	0.000	27.00	1.400	0.490	572

CONCENTRATED LOADS

X1	P1	X2	P2	X3	P3	X4	P4
0.000	6.843	10.500	0.339	35.500	0.339	60.500	0.339
85.500	0.339	96.000	3.187	0.000	0.000	0.000	0.000

BEAM DATA

ROLLED BEAM	P	NP	SECTION PROPERTIES I	Y TOP	Y BOT	PLATE GIRDER WEB D	T	TOP FLANGE W	T	BOTTOM FLANGE W	T
OWF	0	0	0	0.0	0.000	0.000	48.00	0.6250	12.00	0.7500	12.00	1.3750
OWF	0											

COMPOSITE SLAB

WIDTH	THICKNESS	COPING	SHEAR CAPACITY	ULTIMATE STRENGTH	N=ES/EC
86.000	7.750	0.000	12.38 K/ROW	25.21 KIPS EACH	9

BOTTOM COVER X-BEGIN	THICKNESS	PLATE WIDTH	LENGTH	TOP COVER X-BEGIN	THICKNESS	PLATE WIDTH	LENGTH	CONSTANT W	T
23.00	2.0000	12.00	50.00	0.00	0.0000	0.00	0.00	0	0

PLATE GIRDER PROPERTIES

WEB DEPTH	THICK	TOP FLANGE WIDTH	THICK	BOTTOM FLANGE WIDTH	THICK	WEB AND FLANGES PROPERTIES AREA	Y-TOP	Y-BOTTOM	I
48.00	0.6250	12.00	0.7500	12.00	1.3750	55.500	28.137	21.988	20530.0

WEB AND COVER PLATES

BOTTOM X-BEGIN	COVER THICKNESS	PLATE WIDTH	LENGTH	TOP X-BEGIN	COVER THICKNESS	PLATE WIDTH	LENGTH
23.00	2.0000	12.00	50.00	0.00	0.7500	12.00	0.00

WEB WITH COVER PLATES PROPERTIES

AREA	Y-TOP	Y-BOTTOM	I
63.000	30.792	19.958	23816.1

COMPOSITE SECTION PROPERTIES

	WEB AND FLANGES					WEB AND PLATES				
N	YTC	YTS	YBS	I	Q SLAB	YTC	YTS	YBS	I	Q SLAB
9	17.59	9.84	40.29	53410.5	1015.6	19.81	12.06	38.69	65096.4	1180.1
27	26.03	18.28	31.84	38162.3		28.78	21.03	29.72	45254.1	

NUMBER OF SHEAR CONNECTORS NEEDED TO PROVIDE FOR ULTIMATE STRENGTH 186

NUMBER OF LONGITUDINAL STIFFENERS NEEDED 0

TRANSVERSE STIFFENERS NOT REQUIRED

SIMPLE SPAN OUTPUT DATA PROBLEM NUMBER S2NW

MOMENTS (K-FT.) AT SPAN 1/20 POINTS

SP	GIRDER	P-LOAD	NON-C.	TOT.NC	COMP.	SIDEWK	LIVE LOAD	RR-I
1	44.4	3.3	180.8	228.4	146.6	0.0	235.5 T	0.0
2	84.4	6.5	342.6	433.5	277.9	0.0	443.3 T	0.0
3	120.1	8.4	485.3	613.9	393.6	0.0	623.5 T	0.0
4	151.5	10.1	609.0	770.5	494.0	0.0	776.1 T	0.0
5	178.5	11.7	713.7	903.8	578.9	0.0	901.2 T	0.0
6	200.7	13.3	799.3	1013.3	648.3	0.0	998.6 T	0.0
7	218.0	14.9	865.9	1098.8	702.4	0.0	1072.8 T	0.0
8	230.3	15.6	913.5	1159.4	741.0	0.0	1128.4 T	0.0
9	237.7	15.6	942.0	1195.4	764.1	0.0	1156.4 T	0.0
10	240.2	15.6	951.6	1207.4	771.8	0.0	1156.8 T	0.0

STRESS (PSI) AT SPAN 1/20 POINTS

	MINIMUM STRESS		MAXIMUM STRESS			ALLOWABLE	R FACTOR	
SP	TOP-S	BOT-S	TOP-C	TOP-S	BOT-S	FS	TOP-S	BOT-S
1	4600	-4404	147	5120	-6535	27000	0.898	0.674
2	8727	-8353	278	9706	-12366	27000	0.899	0.676
3	12358	-11831	393	13737	-17474	27000	0.900	0.677
4	15512	-14849	490	17228	-21874	27000	0.900	0.679
5	17251	-13650	529	19254	-20078	27000	0.896	0.680
6	19337	-15299	588	21557	-22421	27000	0.897	0.682
7	20965	-16585	633	23350	-24236	27000	0.898	0.684
8	22120	-17498	667	24629	-25546	27000	0.898	0.685
9	22807	-18042	685	25378	-26290	27000	0.899	0.686
10	23036	-18223	687	25608	-26474	27000	0.900	0.688

SHEARS (KIPS) AT SPAN 1/20 POINTS S2NW

SP	GIRDER	P-LOAD	NON-C.	TOT.NC	COMP.	SIDEWK	LIVE LOAD	RR-I
0	9.7	7.5	39.6	56.9	32.2	0.0	57.9 T	0.0
1	8.8	0.7	35.7	45.2	28.9	0.0	49.3 T	0.0
2	7.9	0.7	31.7	40.3	25.7	0.0	46.6 T	0.0
3	7.0	0.3	27.8	35.1	22.5	0.0	43.9 T	0.0
4	6.1	0.3	23.8	30.2	19.3	0.0	41.1 T	0.0
5	5.1	0.3	19.8	25.3	16.1	0.0	38.4 T	0.0
6	4.1	0.3	15.9	20.3	12.9	0.0	35.6 T	0.0
7	3.1	0.3	11.9	15.3	9.6	0.0	32.8 T	0.0
8	2.1	0.0	7.9	10.0	6.4	0.0	30.0 T	0.0
9	1.0	0.0	4.0	5.0	3.2	0.0	27.2 T	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	24.4 T	0.0

	DEAD LOAD DEFLECTIONS (INCHES)					SHEAR	
SP	GIRDER	P-LOAD	NON-C.	TOT.NC	COMP.	RANGE(KIPS)	CON.SPAC(IN)
0	0.000	0.000	0.000	0.000	0.000	57.9	11.25
1	0.095	0.006	0.381	0.483	0.164	50.6	12.87
2	0.188	0.013	0.750	0.950	0.322	49.8	13.08
3	0.275	0.019	1.096	1.389	0.471	49.1	13.26
4	0.353	0.024	1.409	1.787	0.605	48.4	13.45
5	0.422	0.028	1.682	2.133	0.722	48.0	14.23
6	0.480	0.032	1.912	2.425	0.820	48.0	14.23
7	0.526	0.035	2.096	2.658	0.899	48.3	14.15
8	0.560	0.038	2.230	2.828	0.956	48.5	14.08
9	0.581	0.039	2.312	2.932	0.991	48.7	14.03
10	0.588	0.039	2.339	2.967	1.002	48.7	14.02

LIVE LOAD DEFLECTIONS (INCHES)

TRUCK	LANE	MILITARY	RAILROAD	SIDEWALK	L/ 800
0.724	0.601	0.506	0.000	0.000	1.440

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0073-03(242)
CALC NO. BR#33

SUBJECT: Beam Design Output - Span 2 SHEET NO.
BY: JCR DATE: 11/30/2009 SHEET REV.

Sufficient sample calculations representative of the scope and conditions in the design calculation were performed and the results compared to demonstrate the computer program adequacy.

16-OCT-09 GEORGIA DEPARTMENT OF TRANSPORTATION PROB. NO. S2NW
13:23:09 PRECONSTUCTION DIVISION - OFFICE OF BRIDGE & STRUCTURAL DESIGN

SIMPLE SPAN

REVISED: JUNE 26, 2008

I-75 OVER STEVE FREY RD - SPAN 2

SPAN DATA

BEAM	D/A	L.L.C.	T L M	LENGTH	D.F.M.	D.F.V.	D.F.D.	NPL
CG	1	MS20	0 0 0	120.000	1.303	1.605	1.000	7

WDLNC	WDLC	SWLL	E	W BM	FS	FC	WG	TYPE STEEL
0.826	0.670	0.000	29.00	0.000	27.00	1.400	0.490	572

CONCENTRATED LOADS

X1	P1	X2	P2	X3	P3	X4	P4
0.000	3.187	20.000	0.339	40.000	0.339	60.000	0.339
80.000	0.339	100.000	0.339	120.000	3.187	0.000	0.000

BEAM DATA

ROLLED BEAM	P	NP	SECTION PROPERTIES I	Y TOP	Y BOT	PLATE GIRDER WEB D	T	TOP FLANGE W	T	BOTTOM FLANGE W	T
OWF	0	0 0	0.0	0.000	0.000	48.00	0.6250	13.50	1.3750	18.50	1.3750
OWF	0										

COMPOSITE SLAB

WIDTH	THICKNESS	COPING	SHEAR CAPACITY	ULTIMATE STRENGTH	N=ES/EC
86.000	7.750	0.000	12.38 K/ROW	25.21 KIPS EACH	9

BOTTOM COVER X-BEGIN	THICKNESS	PLATE WIDTH	LENGTH	TOP COVER X-BEGIN	THICKNESS	PLATE WIDTH	LENGTH	CONSTANT W	T
30.00	2.0000	18.50	60.00	30.00	2.0000	13.50	60.00	0	0

PLATE GIRDER PROPERTIES

WEB DEPTH	THICK	TOP FLANGE WIDTH	THICK	BOTTOM FLANGE WIDTH	THICK	WEB AND FLANGES PROPERTIES AREA	Y-TOP	Y-BOTTOM	I
48.00	0.6250	13.50	1.3750	18.50	1.3750	74.000	27.669	23.081	32194.4

WEB AND COVER PLATES

BOTTOM COVER X-BEGIN	THICKNESS	PLATE WIDTH	LENGTH	TOP COVER X-BEGIN	THICKNESS	PLATE WIDTH	LENGTH
30.00	2.0000	18.50	60.00	30.00	2.0000	13.50	60.00

WEB WITH COVER PLATES PROPERTIES

AREA	Y-TOP	Y-BOTTOM	I
94.000	28.660	23.340	45116.4

COMPOSITE SECTION PROPERTIES

	WEB AND FLANGES					WEB AND PLATES				
N	YTC	YTS	YBS	I	Q SLAB	YTC	YTS	YBS	I	Q SLAB
9	19.95	11.58	39.17	70867.8	1190.7	22.07	14.32	37.68	89332.4	1347.7
27	28.00	19.62	31.13	51472.9		29.64	21.89	30.11	65934.6	

NUMBER OF SHEAR CONNECTORS NEEDED TO PROVIDE FOR ULTIMATE STRENGTH 186

NUMBER OF LONGITUDINAL STIFFENERS NEEDED 0

TRANSVERSE STIFFENERS NOT REQUIRED

SIMPLE SPAN OUTPUT DATA PROBLEM NUMBER S2NW

MOMENTS (K-FT.) AT SPAN 1/20 POINTS

SP	GIRDER	P-LOAD	NON-C.	TOT.NC	COMP.	SIDEWK	LIVE LOAD	RR-I
1	98.4	5.1	282.5	385.9	229.1	0.0	295.6 T	0.0
2	187.7	10.2	535.2	733.1	434.2	0.0	557.3 T	0.0
3	267.9	15.3	758.3	1041.4	615.1	0.0	785.1 T	0.0
4	339.1	19.0	951.6	1309.6	771.8	0.0	979.0 T	0.0
5	401.2	22.0	1115.1	1538.3	904.5	0.0	1139.0 T	0.0
6	453.0	25.1	1248.9	1727.0	1013.0	0.0	1265.2 T	0.0
7	493.3	27.5	1353.0	1873.8	1097.5	0.0	1361.8 T	0.0
8	522.1	28.5	1427.3	1977.9	1157.8	0.0	1433.4 T	0.0
9	539.4	29.5	1471.9	2040.8	1193.9	0.0	1471.0 T	0.0
10	545.1	30.5	1486.8	2062.4	1206.0	0.0	1474.8 T	0.0

STRESS (PSI) AT SPAN 1/20 POINTS

	MINIMUM STRESS		MAXIMUM STRESS			ALLOWABLE	R FACTOR	
SP	TOP-S	BOT-S	TOP-C	TOP-S	BOT-S	FS	TOP-S	BOT-S
1	5028	-4983	166	5607	-6943	27000	0.897	0.718
2	9546	-9457	314	10639	-13154	27000	0.897	0.719
3	13553	-13423	443	15093	-18630	27000	0.898	0.720
4	17036	-16868	554	18956	-23361	27000	0.899	0.722
5	15330	-14506	555	17521	-20271	27000	0.875	0.716
6	17201	-16272	619	19635	-22675	27000	0.876	0.718
7	18656	-17645	667	21276	-24538	27000	0.877	0.719
8	19690	-18622	703	22447	-25877	27000	0.877	0.720
9	20313	-19211	723	23144	-26656	27000	0.878	0.721
10	20526	-19411	726	23364	-26876	27000	0.879	0.722

SHEARS (KIPS) AT SPAN 1/20 POINTS S2NW

SP	GIRDER	P-LOAD	NON-C.	TOT.NC	COMP.	SIDEWK	LIVE LOAD	RR-I
0	17.2	4.0	49.6	70.7	40.2	0.0	57.9 T	0.0
1	15.6	0.8	44.6	61.1	36.2	0.0	49.5 T	0.0
2	14.1	0.8	39.6	54.6	32.2	0.0	46.8 T	0.0
3	12.6	0.8	34.7	48.2	28.1	0.0	44.2 T	0.0
4	11.1	0.5	29.7	41.4	24.1	0.0	41.5 T	0.0
5	9.6	0.5	24.8	34.9	20.1	0.0	38.9 T	0.0
6	7.7	0.5	19.8	28.0	16.1	0.0	36.2 T	0.0
7	5.8	0.2	14.9	20.8	12.1	0.0	33.5 T	0.0
8	3.8	0.2	9.9	13.9	8.0	0.0	30.7 T	0.0
9	1.9	0.2	5.0	7.0	4.0	0.0	27.9 T	0.0
10	0.0	0.2	0.0	0.2	0.0	0.0	25.2 T	0.0

	DEAD LOAD DEFLECTIONS (INCHES)					SHEAR	
SP	GIRDER	P-LOAD	NON-C.	TOT.NC	COMP.	RANGE(KIPS)	CON.SPAC(IN)
0	0.000	0.000	0.000	0.000	0.000	57.9	12.72
1	0.190	0.010	0.525	0.725	0.282	50.8	14.50
2	0.373	0.021	1.032	1.425	0.555	50.2	14.67
3	0.543	0.030	1.503	2.077	0.810	49.6	14.85
4	0.696	0.038	1.924	2.659	1.039	49.2	14.97
5	0.826	0.046	2.282	3.154	1.236	49.4	16.62
6	0.935	0.052	2.580	3.567	1.401	49.7	16.50
7	1.022	0.056	2.819	3.898	1.533	50.0	16.40
8	1.086	0.060	2.994	4.140	1.630	50.2	16.35
9	1.126	0.062	3.101	4.288	1.689	50.3	16.32
10	1.139	0.063	3.138	4.340	1.709	50.3	16.31

LIVE LOAD DEFLECTIONS (INCHES)

TRUCK	LANE	MILITARY	RAILROAD	SIDEWALK	L/ 800
1.037	0.992	0.713	0.000	0.000	1.800

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0073-03(242)
CALC NO. BR#33

SUBJECT: Beam Design Output - Span 3 SHEET NO.
BY: JCR DATE: 11/30/2009 SHEET REV.

Sufficient sample calculations representative of the scope and conditions in the design calculation were performed and the results compared to demonstrate the computer program adequacy.

16-OCT-09 GEORGIA DEPARTMENT OF TRANSPORTATION PROB. NO. S2NW
13:23:21 PRECONSTUCTION DIVISION - OFFICE OF BRIDGE & STRUCTURAL DESIGN

SIMPLE SPAN

REVISED: JUNE 26, 2008

I-75 OVER STEVE FREY RD - SPAN 3

SPAN DATA

BEAM	D/A	L.L.C.	T L M	LENGTH	D.F.M.	D.F.V.	D.F.D.	NPL
CG	1	HS20	0 0 0	106.500	1.242	1.537	1.000	7

WDLNC	WDLC	SWLL	E	W BM	FS	FC	WG	TYPE STEEL
0.782	0.670	0.000	29.00	0.000	27.00	1.400	0.490	572

CONCENTRATED LOADS

X1	P1	X2	P2	X3	P3	X4	P4
0.000	6.834	13.250	0.325	33.250	0.325	53.250	0.325
73.250	0.325	93.250	0.325	106.500	3.267	0.000	0.000

BEAM DATA

ROLLED			SECTION PROPERTIES			PLATE GIRDER WEB		TOP FLANGE		BOTTOM FLANGE	
BEAM	P	NP	I	Y TOP	Y BOT	D	T	W	T	W	T
OWF	0 0	0	0.0	0.000	0.000	48.00	0.6250	12.00	1.0000	14.00	1.3750
OWF	0										

COMPOSITE SLAB

WIDTH	THICKNESS	COPING	SHEAR CAPACITY	ULTIMATE STRENGTH	N=ES/EC
82.000	7.375	0.000	12.38 K/ROW	25.21 KIPS EACH	9

BOTTOM COVER PLATE				TOP COVER PLATE				CONSTANT	
X-BEGIN	THICKNESS	WIDTH	LENGTH	X-BEGIN	THICKNESS	WIDTH	LENGTH	W	T
25.75	2.0000	14.00	55.00	25.75	1.5000	12.00	55.00	0	0

PLATE GIRDER PROPERTIES

WEB		TOP FLANGE		BOTTOM FLANGE		WEB AND FLANGES PROPERTIES			
DEPTH	THICK	WIDTH	THICK	WIDTH	THICK	AREA	Y-TOP	Y-BOTTOM	I
48.00	0.6250	12.00	1.0000	14.00	1.3750	61.250	27.959	22.416	24163.1

WEB AND COVER PLATES

BOTTOM COVER PLATE				TOP COVER PLATE			
X-BEGIN	THICKNESS	WIDTH	LENGTH	X-BEGIN	THICKNESS	WIDTH	LENGTH
25.75	2.0000	14.00	55.00	25.75	1.5000	12.00	55.00

WEB WITH COVER PLATES PROPERTIES

AREA	Y-TOP	Y-BOTTOM	I
76.000	28.849	22.651	33446.6

COMPOSITE SECTION PROPERTIES

	WEB AND FLANGES					WEB AND PLATES				
N	YTC	YTS	YBS	I	Q SLAB	YTC	YTS	YBS	I	Q SLAB
9	19.02	11.14	39.23	57580.0	1030.0	20.96	13.58	37.92	71504.4	1160.3
27	27.23	19.35	31.02	41213.0		28.82	21.44	30.06	51861.6	

NUMBER OF SHEAR CONNECTORS NEEDED TO PROVIDE FOR ULTIMATE STRENGTH 168

NUMBER OF LONGITUDINAL STIFFENERS NEEDED 0

TRANSVERSE STIFFENERS NOT REQUIRED

SIMPLE SPAN OUTPUT DATA PROBLEM NUMBER S2NW

MOMENTS (K-FT.) AT SPAN 1/20 POINTS

SP	GIRDER	P-LOAD	NON-C.	TOT.NC	COMP.	SIDEWK	LIVE LOAD	RR-I
1	63.5	4.3	210.7	278.5	180.5	0.0	249.7 T	0.0
2	121.1	8.7	399.1	528.9	342.0	0.0	470.4 T	0.0
3	172.8	12.1	565.4	750.3	484.5	0.0	662.1 T	0.0
4	218.5	14.7	709.6	942.8	607.9	0.0	825.0 T	0.0
5	258.4	17.3	831.5	1107.2	712.4	0.0	958.8 T	0.0
6	291.3	19.9	931.3	1242.5	797.9	0.0	1063.7 T	0.0
7	317.0	21.2	1008.9	1347.1	864.4	0.0	1143.9 T	0.0
8	335.3	22.0	1064.4	1421.7	911.9	0.0	1203.6 T	0.0
9	346.3	22.9	1097.6	1466.9	940.4	0.0	1234.4 T	0.0
10	350.0	23.8	1108.7	1482.5	949.9	0.0	1236.1 T	0.0

STRESS (PSI) AT SPAN 1/20 POINTS

	MINIMUM STRESS		MAXIMUM STRESS			ALLOWABLE	R FACTOR	
SP	TOP-S	BOT-S	TOP-C	TOP-S	BOT-S	FS	TOP-S	BOT-S
1	4883	-4730	162	5463	-6771	27000	0.894	0.699
2	9270	-8976	307	10362	-12822	27000	0.895	0.700
3	13147	-12728	433	14684	-18142	27000	0.895	0.702
4	16516	-15987	541	18431	-22732	27000	0.896	0.703
5	14994	-13952	550	17179	-20054	27000	0.873	0.696
6	16819	-15647	612	19244	-22416	27000	0.874	0.698
7	18231	-16959	660	20839	-24239	27000	0.875	0.700
8	19239	-17896	695	21983	-25555	27000	0.875	0.700
9	19848	-18461	714	22661	-26316	27000	0.876	0.702
10	20057	-18654	717	22874	-26520	27000	0.877	0.703

SHEARS (KIPS) AT SPAN 1/20 POINTS S2NW

SP	GIRDER	P-LOAD	NON-C.	TOT.NC	COMP.	SIDEWK	LIVE LOAD	RR-I
0	12.5	7.6	41.6	61.8	35.7	0.0	55.3 T	0.0
1	11.4	0.8	37.5	49.7	32.1	0.0	47.1 T	0.0
2	10.3	0.8	33.3	44.4	28.5	0.0	44.5 T	0.0
3	9.1	0.5	29.1	38.8	25.0	0.0	42.0 T	0.0
4	8.0	0.5	25.0	33.5	21.4	0.0	39.4 T	0.0
5	6.9	0.5	20.8	28.2	17.8	0.0	36.8 T	0.0
6	5.5	0.5	16.7	22.7	14.3	0.0	34.2 T	0.0
7	4.1	0.2	12.5	16.8	10.7	0.0	31.6 T	0.0
8	2.8	0.2	8.3	11.2	7.1	0.0	29.0 T	0.0
9	1.4	0.2	4.2	5.7	3.6	0.0	26.3 T	0.0
10	0.0	0.2	0.0	0.2	0.0	0.0	23.6 T	0.0

	DEAD LOAD DEFLECTIONS (INCHES)					SHEAR	
SP	GIRDER	P-LOAD	NON-C.	TOT.NC	COMP.	RANGE(KIPS)	CON.SPAC(IN)
0	0.000	0.000	0.000	0.000	0.000	55.3	12.50
1	0.129	0.009	0.413	0.550	0.221	48.4	14.31
2	0.253	0.017	0.811	1.081	0.434	47.7	14.51
3	0.368	0.025	1.182	1.575	0.634	47.1	14.70
4	0.472	0.032	1.513	2.017	0.813	46.4	14.90
5	0.561	0.038	1.795	2.393	0.968	46.4	16.45
6	0.634	0.043	2.030	2.707	1.098	46.6	16.38
7	0.694	0.047	2.218	2.958	1.201	46.9	16.28
8	0.737	0.049	2.355	3.141	1.277	47.1	16.20
9	0.763	0.051	2.438	3.252	1.323	47.2	16.17
10	0.772	0.052	2.466	3.290	1.339	47.2	16.16

LIVE LOAD DEFLECTIONS (INCHES)

TRUCK	LANE	MILITARY	RAILROAD	SIDEWALK	L/ 800
0.902	0.798	0.625	0.000	0.000	1.597

CALCULATION COVER SHEET

PROJECT	JOB NO.	CALC NO.	SHEET
I-75 / I-575 NORTHWEST CORRIDOR	NH000-0073-03(242)	BR#33	1
SUBJECT	DISCIPLINE		
Shear Stud Spacing Calculations	STRUCTURAL		

CALCULATION STATUS DESIGNATION	PRELIMINARY	CONFIRMED	SUPSEDED	VOIDED	INCOMPLETE
	☐	☐	☐	☐	X

COMPUTER PROGRAM/TYPE	SCP	MAINFRAME	PC	PROGRAM	VERSION/RELEASE NO.
	(X) YES ( ) NO	( )	(X)	Excel	2003

Note 1: Georgia Department of Transportation (GDOT) terminated Contract Number TOURDPPI60072 for its convenience prior the completion of all work under that contract and directed that the work with respect to these calculations be discontinued.
(a) These calculations were not completed at the time of GDOT's direction and the information contained herein is not complete and/or has not been fully verified or checked. These calculations are a work-in-progress and are presented only as such.
(b) Any user is cautioned that the use of these calculations and any related information or calculations, without access to factors and without proper regard for their purpose, could lead to erroneous conclusions.
(c) If any such calculations or any information contained herein is used in future work efforts or any follow on design work activity, a complete confirmation of the information contained herein should be performed prior to any such use.
(d) GTP has no responsibility for the use of this information not under its direct control.

Design calculations for steel beam shear stud spacings are included for spans 1, 2, and 3.

NO.	REASON FOR REVISION	TOTAL NO. OF SHEETS	LAST SHEET NO.	BY	CHECKED	APPROVED/ ACCEPTED	DATE
A	As per GDOT's termination for convenience direction	10	10	JCR			11/30/09

RECORD OF REVISIONS

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0073-03(242)
CALC NO. BR#33

SUBJECT: Shear Stud Spacing Calculations - Span 1 SHEET NO.
BY: JCR DATE: 11/30/2009 SHEET REV.

Sufficient sample calculations representative of the scope and conditions in the design calculation were performed and the results compared to demonstrate the computer program adequacy.

BRIDGE: **I-75 over Frey Road**
COUNTY: **COBB**
P.I. NO: **713640**
PROJECT: **NH000-0575-01(028)**

J.B. TRIMBLE, INC.

J.B. TRIMBLE, INC.
JOB NO: **31-6036**
DESIGNED BY: **SHG**
DATE: **10/14/2009**

STUD SHEAR CONNECTORS

Beam Type Plate Girder ▼ Top Flange Width = 12" Stud ∅ = 0.75 " No. of Studs = 4

ADT (2001) = 1,000
ADT (2021) = 80,000
% TRUCKS = 4.4%
DIRECTIONAL = 100%

ADT (2031) = 119,500 in one direction

ADTT = 5,258 > 2500
USE 2,000,000 CYCLES

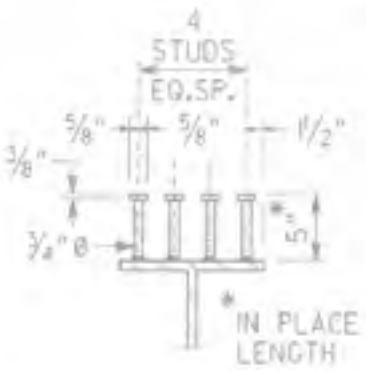
$Z_r = \alpha d^2$ (kips / studs)			
$\alpha \setminus d$ (in)	**0.5**	**0.75**	**1**
13000	3.25	7.31	13.00
10600	2.65	5.96	10.60
7850	1.96	4.42	7.85
5500	1.38	3.09	5.50

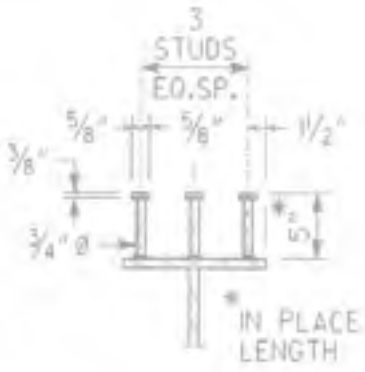
$Z_r = \alpha d^2$ (kips / row)			
Number of Studs : 3			
$\alpha \setminus d$ (in)	**0.5**	**0.75**	**1**
13000	9.75	21.94	39.00
10600	7.95	17.89	31.80
7850	5.89	13.25	23.55
5500	4.13	9.28	16.50

$Z_r = \alpha d^2$ (kips / row)			
Number of Studs : 4			
$\alpha \setminus d$	**0.5**	**0.75**	**1**
13000	13.00	29.25	52.00
10600	10.60	23.85	42.40
7850	7.85	17.66	31.40
5500	5.50	**12.38**	22.00

$E_c = 150^{1.5}\, 33\, (f'_c)^{1/2}$ (AASHTO 10.38.5.1.2)

$S_U = 0.4\, d^2\, (f'_c\, E_c)^{1/2}$			(AASHTO
d (in)	f'_c (psi)	E_c (psi)	S_U (kips)
0.5	3000	3320561	9.98
0.75	3000	3320561	22.46
1	3000	3320561	39.92
0.5	3500	3586616	11.20
0.75	**3500**	**3586616**	**25.21**
1	3500	3586616	44.82





AASHTO 10.38.2.4 The clear distance between the edge of a girder flange and the edge of the shear connector shall be not less than 1". Adjacent stud shear connectors shall not be closer than 4 diameters center to center.

GDOT calls for 3/4"∅ studs and 1 1/2" clear from edge of girder flange to CL of stud. Therefore, **4** studs are only allowed for beams with a minimum flange width of 12"+/-.

Shear Capacity (Z_r) = 12.38 K/Row

Ultimate Strength (S_U) = 25.21 kips

BRIDGE: **I-75 over Frey Road**
COUNTY: **COBB**
P.I. NO: **713640**
PROJECT: **NH000-0575-01(028)**

J.B. TRIMBLE, INC.

J.B. TRIMBLE, INC.
JOB NO: **31-6036**
DESIGNED BY: **SHG**
DATE: **10/14/2009**

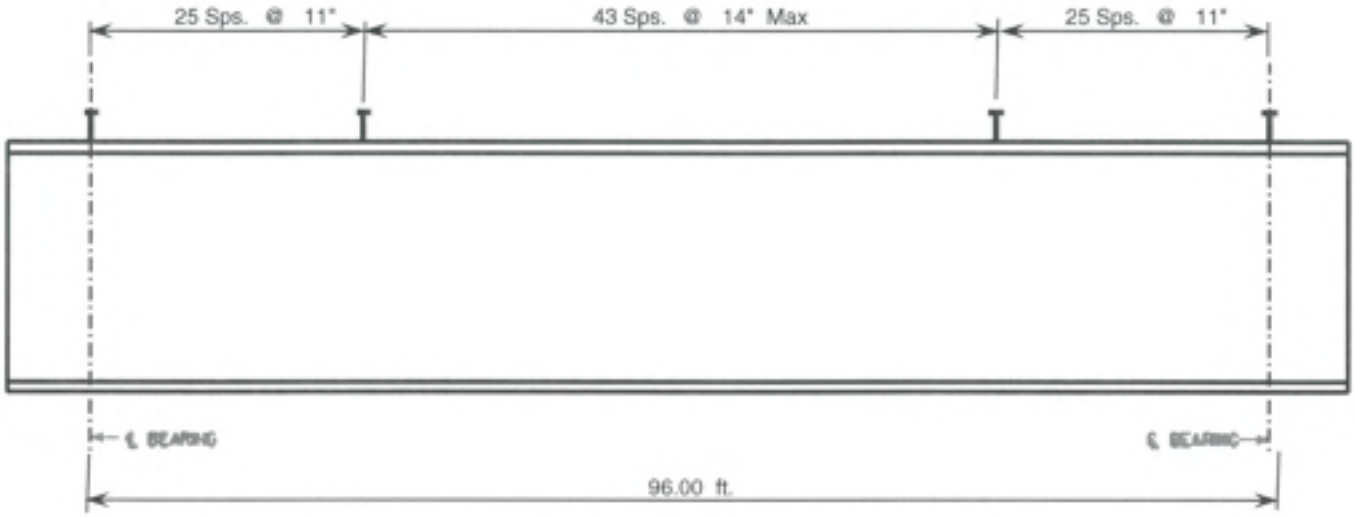
PTC 11/4/09

SHEAR STUD SPACING

Design Length = 96 ft.

Location (ft.)	s (in)
0.0	**11.25**
4.8	**12.87**
9.6	**13.08**
14.4	**13.26**
19.2	**13.45**
24.0	**14.23**
28.8	**14.23**
33.6	**14.15**
38.4	**14.08**
43.2	**14.03**
48.0	**14.02**

	Spacing 1	Spacing 2
Stud Spacing:	11 in.	14 in.



CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0073-03(242)
CALC NO. BR#33

SUBJECT: Shear Stud Spacing Calculations - Span 2 SHEET NO.
BY: JCR DATE: 11/30/2009 SHEET REV.

Sufficient sample calculations representative of the scope and conditions in the design calculation were performed and the results compared to demonstrate the computer program adequacy.

BRIDGE: **I-75 over Frey Road**
COUNTY: **COBB**
P.I. NO: **713640**
PROJECT: **NH000-0575-01(028)**

J.B. TRIMBLE, INC.

J.B. TRIMBLE, INC.
JOB NO: **31-6036**
DESIGNED BY: **SHG**
DATE: **10/14/2009**

STUD SHEAR CONNECTORS

Beam Type Plate Girder ▼ Top Flange Width = 13.5" Stud ∅ = 0.75 " No. of Studs = 4

ADT (2001) = 1,000
ADT (2021) = 80,000
% TRUCKS = 4.4%
DIRECTIONAL = 100%

ADT (2031) = 119,500 in one direction

ADTT = 5,258 > 2500
USE 2,000,000 CYCLES

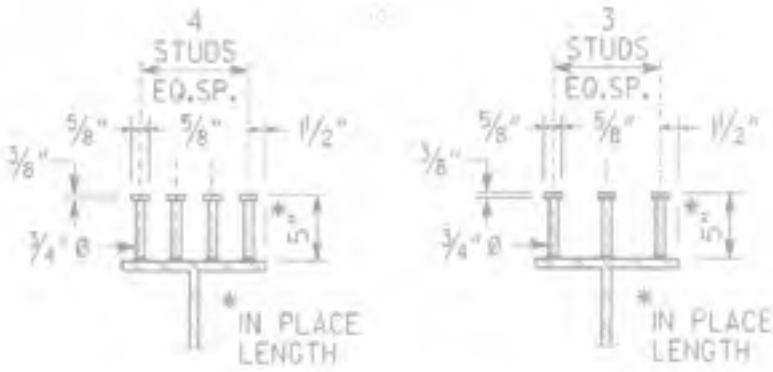
$Z_r = \alpha d^2$ (kips / studs)			
$\alpha \setminus d$ (in)	**0.5**	**0.75**	**1**
13000	3.25	7.31	13.00
10600	2.65	5.96	10.60
7850	1.96	4.42	7.85
5500	1.38	3.09	5.50

$Z_r = \alpha d^2$ (kips / row)			
Number of Studs : 3			
$\alpha \setminus d$ (in)	**0.5**	**0.75**	**1**
13000	9.75	21.94	39.00
10600	7.95	17.89	31.80
7850	5.89	13.25	23.55
5500	4.13	9.28	16.50

$Z_r = \alpha d^2$ (kips / row)			
Number of Studs : 4			
$\alpha \setminus d$	**0.5**	**0.75**	**1**
13000	13.00	29.25	52.00
10600	10.60	23.85	42.40
7850	7.85	17.66	31.40
5500	5.50	**12.38**	22.00

$E_c = 150^{1.5}\ 33\ (f'_c)^{1/2}$ (AASHTO 10.38.5.1.2)

$S_U = 0.4\ d^2\ (f'_c\ E_c)^{1/2}$			(AASHTO
d (in)	f'_c (psi)	E_c (psi)	S_U (kips)
0.5	3000	3320561	9.98
0.75	3000	3320561	22.46
1	3000	3320561	39.92
0.5	3500	3586616	11.20
0.75	**3500**	**3586616**	**25.21**
1	3500	3586616	44.82



AASHTO 10.38.2.4 The clear distance between the edge of a girder flange and the edge of the shear connector shall be not less than 1". Adjacent stud shear connectors shall not be closer than 4 diameters center to center.

GDOT calls for 3/4"∅ studs and 1 1/2" clear from edge of girder flange to CL of stud. Therefore, **4** studs are only allowed for beams with a minimum flange width of 12"+/-.

Shear Capacity (Z_r) = 12.38 K/Row

Ultimate Strength (S_U) = 25.21 kips

BRIDGE: **I-75 over Frey Road**
COUNTY: **COBB**
P.I. NO: **713640**
PROJECT: **NH000-0575-01(028)**

J.B. TRIMBLE, INC.

J.B. TRIMBLE, INC.
JOB NO: **31-6036**
DESIGNED BY: **SHG**
DATE: **10/14/2009**

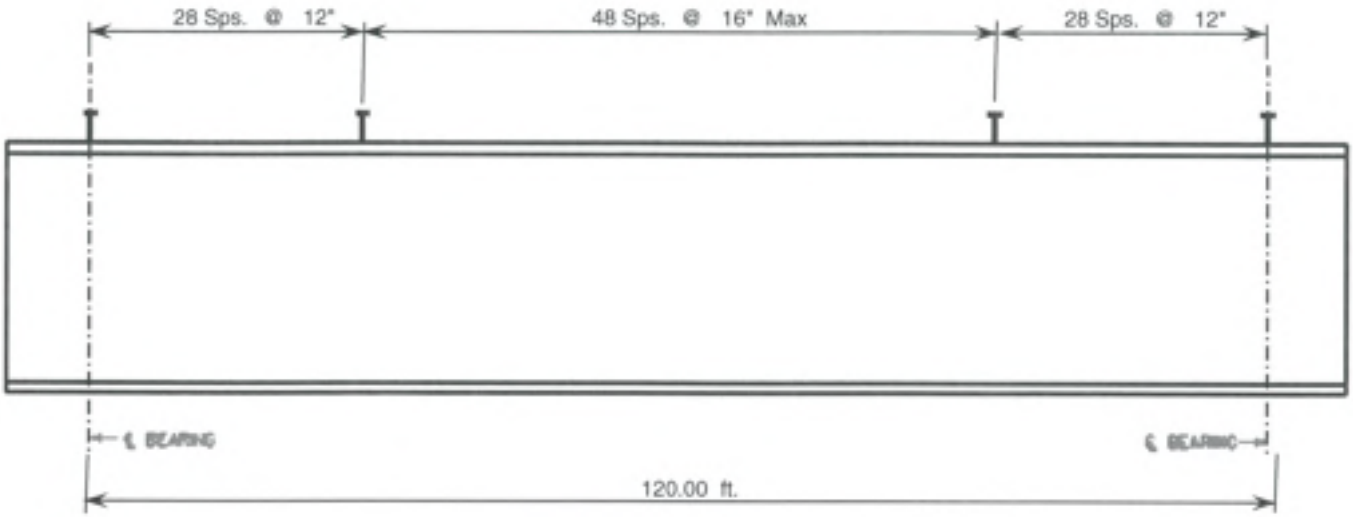
SHEAR STUD SPACING

PJC 11/4/09

Design Length = 120 ft.

Location (ft.)	s (in)
0.0	**12.72**
6.0	**14.50**
12.0	**14.67**
18.0	**14.85**
24.0	**14.97**
30.0	**16.62**
36.0	**16.50**
42.0	**16.40**
48.0	**16.35**
54.0	**16.32**
60.0	**16.31**

	Spacing 1	Spacing 2
Stud Spacing:	12 in.	16 in.



CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0073-03(242)
CALC NO. BR#33

SUBJECT: Shear Stud Spacing Calculations - Span 3 SHEET NO.
BY: JCR DATE: 11/30/2009 SHEET REV.

Sufficient sample calculations representative of the scope and conditions in the design calculation were performed and the results compared to demonstrate the computer program adequacy.

BRIDGE: **I-75 over Frey Road**
COUNTY: **COBB**
P.I. NO: **713640**
PROJECT: **NH000-0575-01(028)**

J.B. TRIMBLE, INC.

J.B. TRIMBLE, INC.
JOB NO: **31-6036**
DESIGNED BY: **SHG**
DATE: **10/14/2009**

STUD SHEAR CONNECTORS

Beam Type Plate Girder ▼ Top Flange Width = 12" Stud ∅ = 0.75 " No. of Studs = 4

ADT (2001) = 1,000
ADT (2021) = 80,000
% TRUCKS = 4.4%
DIRECTIONAL = 100%

ADT (2031) = 119,500 in one direction
ADTT = 5,258 > 2500
USE 2,000,000 CYCLES

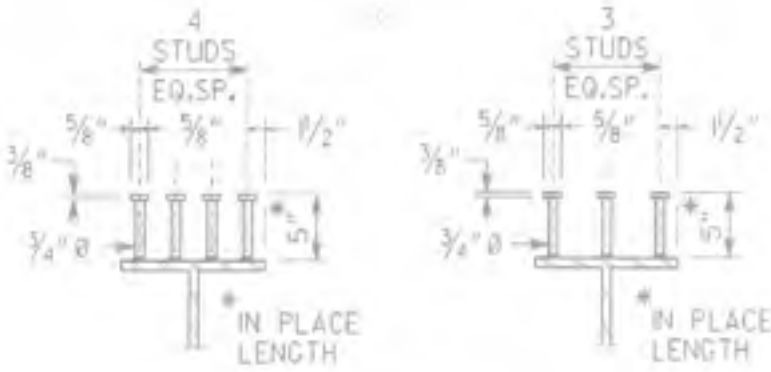
$Z_r = \alpha\ d^2$ (kips / studs)			
α \ d (in)	0.5	0.75	1
13000	3.25	7.31	13.00
10600	2.65	5.96	10.60
7850	1.96	4.42	7.85
5500	1.38	3.09	5.50

$Z_r = \alpha\ d^2$ (kips / row)			
Number of Studs : 3			
α \ d (in)	0.5	0.75	1
13000	9.75	21.94	39.00
10600	7.95	17.89	31.80
7850	5.89	13.25	23.55
5500	4.13	9.28	16.50

$Z_r = \alpha\ d^2$ (kips / row)			
Number of Studs : 4			
α \ d	0.5	0.75	1
13000	13.00	29.25	52.00
10600	10.60	23.85	42.40
7850	7.85	17.66	31.40
5500	5.50	**12.38**	22.00

$E_c = 150^{1.5}\ 33\ (f'_c)^{1/2}$ (AASHTO 10.38.5.1.2)

$S_U = 0.4\ d^2\ (f'_c\ E_c)^{1/2}$			(AASHTO
d (in)	f'_c (psi)	E_c (psi)	S_U (kips)
0.5	3000	3320561	9.98
0.75	3000	3320561	22.46
1	3000	3320561	39.92
0.5	3500	3586616	11.20
0.75	**3500**	**3586616**	**25.21**
1	3500	3586616	44.82



AASHTO 10.38.2.4 The clear distance between the edge of a girder flange and the edge of the shear connector shall be not less than 1". Adjacent stud shear connectors shall not be closer than 4 diameters center to center.

GDOT calls for 3/4"∅ studs and 1 1/2" clear from edge of girder flange to CL of stud. Therefore, **4** studs are only allowed for beams with a minimum flange width of 12"+/-.

Shear Capacity (Z_r) = 12.38 K/Row

Ultimate Strength (S_U) = 25.21 kips

BRIDGE: **I-75 over Frey Road**
COUNTY: **COBB**
P.I. NO: **713640**
PROJECT: **NH000-0575-01(028)**

J.B. TRIMBLE, INC.

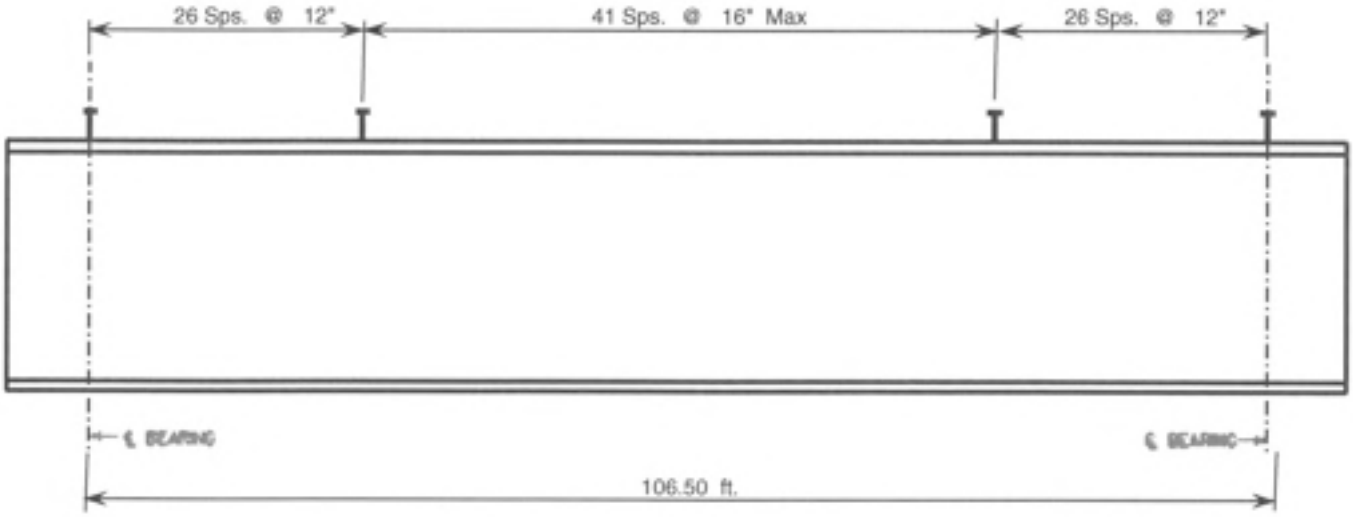
J.B. TRIMBLE, INC.
JOB NO: **31-6036**
DESIGNED BY: **SHG**
DATE: **10/14/2009**

SHEAR STUD SPACING

Design Length = 106.5 ft.

Location (ft.)	s (in)
0.0	**12.50**
5.3	**14.31**
10.7	**14.51**
16.0	**14.70**
21.3	**14.90**
26.6	**16.45**
32.0	**16.38**
37.3	**16.28**
42.6	**16.20**
47.9	**16.17**
53.3	**16.16**

	Spacing 1	Spacing 2
Stud Spacing:	12 in.	16 in.



CALCULATION COVER SHEET

PROJECT	JOB NO.	CALC NO.	SHEET
I-75 / I-575 NORTHWEST CORRIDOR	NH000-0073-03(242)	BR#33	1
SUBJECT	DISCIPLINE		
Bearing Design	STRUCTURAL		

CALCULATION STATUS DESIGNATION	PRELIMINARY	CONFIRMED	SUPSEDED	VOIDED	INCOMPLETE
	☐	☐	☐	☐	X

COMPUTER PROGRAM/TYPE	SCP	MAINFRAME	PC	PROGRAM	VERSION/RELEASE NO.
	(X) YES ( ) NO	( )	(X)	Excel	2003

Note 1: Georgia Department of Transportation (GDOT) terminated Contract Number TOURDPPI60072 for its convenience prior the completion of all work under that contract and directed that the work with respect to these calculations be discontinued.
(a) These calculations were not completed at the time of GDOT's direction and the information contained herein is not complete and/or has not been fully verified or checked. These calculations are a work-in-progress and are presented only as such.
(b) Any user is cautioned that the use of these calculations and any related information or calculations, without access to factors and without proper regard for their purpose, could lead to erroneous conclusions.
(c) If any such calculations or any information contained herein is used in future work efforts or any follow on design work activity, a complete confirmation of the information contained herein should be performed prior to any such use.
(d) GTP has no responsibility for the use of this information not under its direct control.

Bearing Design calculations are included for bearings at bents 1, 2, 3 and 4.

NO.	REASON FOR REVISION	TOTAL NO. OF SHEETS	LAST SHEET NO.	BY	CHECKED	APPROVED/ ACCEPTED	DATE
A	As per GDOT's termination for convenience direction	9	9	JCR			11/30/09

RECORD OF REVISIONS

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0073-03(242)
CALC NO. BR#33

SUBJECT: Bearing Design
BY: JCR DATE: 11/30/2009

SHEET NO.
SHEET REV.

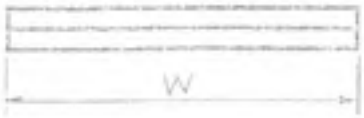
Sufficient sample calculations representative of the scope and conditions in the design calculation were performed and the results compared to demonstrate the computer program adequacy.

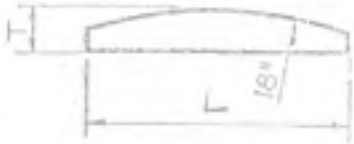
BRIDGE: **I-75 over Frey Road**
COUNTY: **COBB**
P.I. NO: **713640**
PROJECT: **NH000-0575-01(028)**

J.B. TRIMBLE, INC.

JOB NO: **31-6036**
DESIGNED BY: **SHG**
DATE: **10/31/2009**

SUGGESTED SHAPE AND SIZE OF SELF LUBRICATING BRONZE PLATES





SIZE AND MAXIMUM LOAD					
W	L	T	WITH SLOTS 2-3X1 3/16	WITH HOLES 2-1 3/16 ϕ	PLAIN
10	7	1			140
10	8	1 1/4			160
10	9	1 1/4			180
10 1/2	7	1			147
10 1/2	8	1 1/4			168
10 1/2	9	1 1/4			189
12	6	1	131	140	144
12	7	1	155	164	168
12	8	1 1/4	179	188	192
12	9	1 1/4			216

USE ONLY THOSE PLATES WHICH HAVE A MAXIMUM LOAD SHOWN

PURPOSE: To standardize plate sizes within the office so that plates may be stocked by suppliers, thus making them more economical.

DESIGN SPECIFICATION: Bronze plates shall conform to ASTM Designation B 22 Alloy 3 and supplemental specifications and shall have an allowable unit stress of 2000 psi in compression.

LIMITATIONS: Sliding plate type bearings shall not be used where the anticipated total movement (expansion plus contraction) exceeds 3 inches for assemblies without anchor bolts through the flanges and 2 inches for assemblies with anchor bolts through the flanges.

When the gradient of the girder at the bearing exceeds 4.0%, the top of the upper plate (sole plate) shall be beveled to match the girder gradient.

COEFFICIENT OF FRICTION: For design purposes a value of 0.10 shall be used.

NOTE: Where or as it is to be 2" less than width of seat.

BRIDGE: **I-75 over Frey Road**
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JOB NO: **31-6036**
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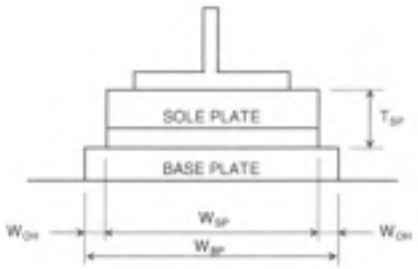

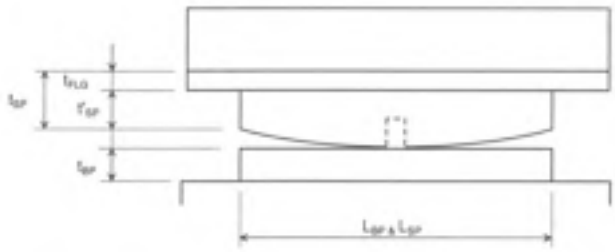

BENTS 1

FIXED BEARING CALCULATIONS

GENERAL INPUT:

Beam Type	Plate Girder			
R (Reaction) =	147.0 Kips			
Bottom Flange Thickness, t_{FLG} =	1.375 in			35 mm
W_{SP} =	12.00 in			305 mm
W_{BP} =	12.00 in			305 mm
L_{SP} =	11.75 in			298 mm
f'_c =	3500 psi			
$F_b = 0.3f'_c$ =	1.050 ksi	AASHTO Art. 8.15.2.1.3		

SOLE PLATE:

M=RL/8 $S=wt^2/6$ $f_t=M/S$

F_y =	36000 psi	AASHTO Table 10.2B			
$F_{yb} = .55F_y$ =	19.8 ksi	AASHTO 10.32.1A			
$t_{SP} = [3/4(RW_{SP})/(L_{SP}F_{YB})]^{½}$ =	2.38 in.				
$t'_{SP} = t_{SP} - t_{FLG}$ =	1.01				26 mm
Rad (Radius) =	18.00 in				
$= t'_{SP} + Rad - [Rad^2 - (½L_{SP})^2]^{½}$ =	2.00 in ----------> use =	2.00	in		51 mm

BASE (MASONRY) PLATE:

M=(R/W)(W/2)(W/4)=RW/8 $S_X=W_{SP}T_{BP}^2/6$ $f_t=M/S$

$L_{BP} = R/(W_{BP}Fb)$ =	11.67 in ----------> use =	11.75	in	298 mm
$t_{BP} = [3/4(RL_{BP})/(W_{BP}F_{YB})]^{½}$ =	2.33 in ----------> use =	2.50	in	64 mm

ALLOWABLE BEARING ON CONCRETE:

$f_b = R/(L_{BP} * W_{BP})$ = 1.042 ksi **fb < Fb --> OK**

BASE PLATE			SOLE PLATE			BEARING
WIDTH	LENGTH	HEIGHT	WIDTH	LENGTH	HEIGHT	DEPTH
12"	11.75"	2.5"	12"	11.75"	2"	4.5"

BRIDGE: **I-75 over Frey Road**
COUNTY: **COBB**
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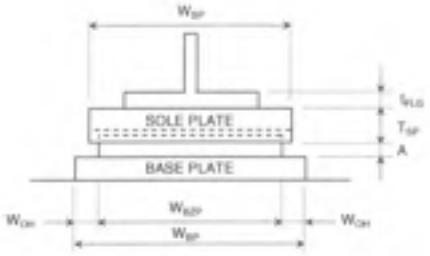
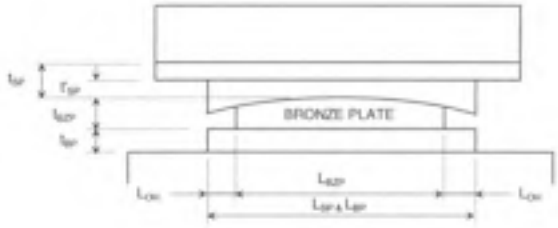
JOB NO: **31-6036**
DESIGNED BY: **SHG**
DATE: **10/31/2009**





EXPANSION BEARING CALCULATIONS

BENT 2 BK

GENERAL INPUT:

Beam Type	Plate Girder		
R (Reaction) =	147.0	Kips	
Bottom Flange Thick, t_{FLG} =	1.375	in	35 mm
W_{SP} =	12.00	in	305 mm
W_{BZP} =	12.00	in	305 mm
W_{BP} =	12.00	in	305 mm
L_{SP} =	9.00	in	229 mm
L_{BP} =	12.00	in	305 mm

ALLOWABLE BEARING ON CONCRETE:

f'_c =	3500	psi	
$F_b = 0.3f'_c$ =	1.050	ksi	
$f_b = R/(L_{BP} * W_{BP})$ =	1.021	ksi	**fb < Fb --> OK**

BRONZE PLATE WIDTH (W_{BZP}):

TYPE = SELF LUBRICATING ASTM B22 ALLOY 911

BEARING CAPACITY =	2000	psi			
L_{BZP} =	6.12	in ----------> use =	7.0	in	178 mm

BASE (MASONRY) PLATE:

Max of W_{OH} or L_{OH} =	2.50	in			
$M = wL^2/2 = f_b Max(W_{OH} \text{ or } L_{OH})^2/2$ =	3.19	K-in			
F_y =	36000	psi	AASHTO Table 10.2B		
$F_{yb} = .55F_y$ =	19.8	ksi	AASHTO 10.32.1A		
$t_{BP} = [6M/F_{yb}]^{½}$ =	0.98	in ----------> use =	1.00	in	25 mm

SOLE PLATE:

$t_{SP} = [3/4(RW_{SP})/(L_{SP}F_{YB})]^{½}$ =	2.72	in.			
$t'_{SP} = t_{SP} - t_{FLG}$ =	1.35	in ----------> use =	1.50	in	
Rad (Radius) =	18.00	in			
$T_{SP} = t'_{SP} + Rad - [Rad^2 - (½L_{BZP})^2]^{½}$ =	1.84	in ----------> use =	2.00	in	

BRONZE PLATE THICKNESS (t_{BZP}):

A =	0.50	in			
$t_{BZP} = (T_{SP} - t'_{SP}) + A$ =	1.00	in ----------> use =	1.00	in	25 mm

BASE PLATE			SOLE PLATE			BRONZE PLATE			BEARING
WIDTH	LENGTH	HEIGHT	WIDTH	LENGTH	HEIGHT	WIDTH	LENGTH	HEIGHT	DEPTH
12"	12"	1"	12"	9"	1.5"	12"	7"	1"	3.5"

BRIDGE: **I-75 over Frey Road**
COUNTY: **COBB**
P.I. NO: **713640**
PROJECT: **NH000-0575-01(028)**

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JOB NO: **31-6036**
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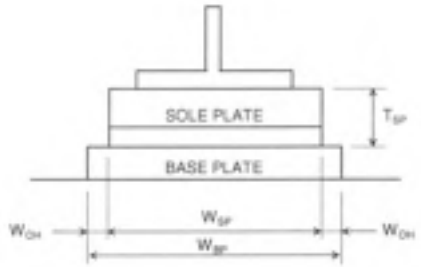
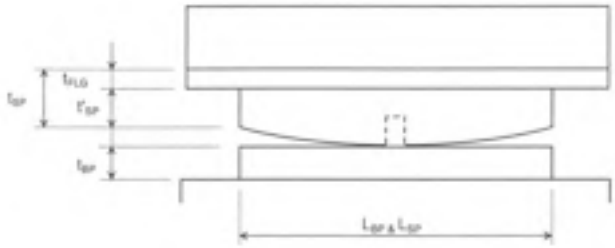




BENTS 2 AH

FIXED BEARING CALCULATIONS

GENERAL INPUT:

Beam Type	Plate Girder		
R (Reaction) =	168.9 Kips		
Bottom Flange Thickness, t_{FLG} =	1.375 in		35 mm
W_{SP} =	18.50 in		470 mm
W_{BP} =	18.50 in		470 mm
L_{SP} =	8.75 in		222 mm
f'_c =	3500 psi		
$F_b = 0.3f'_c$ =	1.050 ksi	AASHTO Art. 8.15.2.1.3	

SOLE PLATE:

M=RL/8 S=wt²/6 f_v=M/S

F_y =	36000 psi	AASHTO Table 10.2B			
$F_{yb} = .55F_y$ =	19.8 ksi	AASHTO 10.32.1A			
$t_{SP} = [3/4(RW_{SP})/(L_{SP}F_{YB})]^{½}$ =	3.68 in.				
$t'_{SP} = t_{SP} - t_{FLG}$ =	2.30				58 mm
Rad (Radius) =	18.00 in				
$= t'_{SP} + Rad - [Rad^2 - (½L_{SP})^2]^{½}$ =	2.84 in	----------> use =	3.00	in	76 mm

BASE (MASONRY) PLATE:

M=(R/W)(W/2)(W/4)=RW/8 $S_X=W_{SP}T_{BP}^2/6$ f_v=M/S

$L_{BP} = R/(W_{BP}Fb)$ =	8.69 in	----------> use =	8.75	in	222 mm
$t_{BP} = [3/4(RL_{BP})/(W_{BP}F_{YB})]^{½}$ =	1.74 in	----------> use =	1.75	in	44 mm

ALLOWABLE BEARING ON CONCRETE:

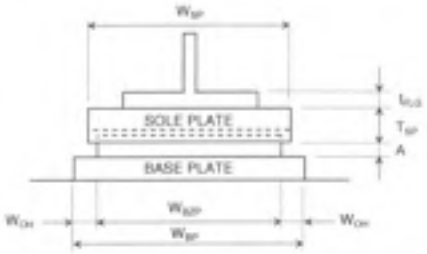
$f_b = R/(L_{BP} * W_{BP})$ = 1.043 ksi **fb < Fb --> OK**

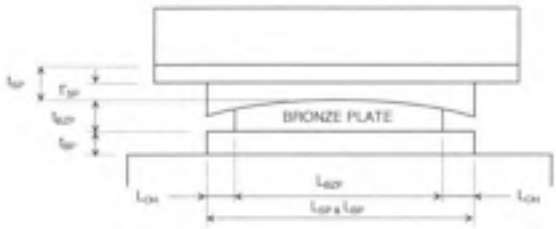
BASE PLATE			SOLE PLATE			BEARING
WIDTH	LENGTH	HEIGHT	WIDTH	LENGTH	HEIGHT	DEPTH
18.5"	8.75"	1.75"	18.5"	8.75"	3"	4.75"

BRIDGE: **I-75 over Frey Road**
COUNTY: **COBB**
P.I. NO: **713640**
PROJECT: **NH000-0575-01(028)**

J.B. TRIMBLE, INC.

JOB NO: **31-6036**
DESIGNED BY: **SHG**
DATE: **10/31/2009**





EXPANSION BEARING CALCULATIONS

BENT 3 BK

GENERAL INPUT:

Beam Type Plate Girder

R (Reaction) =	168.9	Kips	
Bottom Flange Thick, t_{FLG} =	1.375	in	35 mm
W_{SP} =	18.50	in	470 mm
W_{BZP} =	12.00	in	305 mm
W_{BP} =	18.50	in	470 mm
L_{SP} =	10.00	in	254 mm
L_{BP} =	10.00	in	254 mm

ALLOWABLE BEARING ON CONCRETE:

f'_c =	3500	psi	
$F_b = 0.3f'_c$ =	1.050	ksi	
$f_b = R/(L_{BP} * W_{BP})$ =	0.913	ksi	**fb < Fb --> OK**

BRONZE PLATE WIDTH (W_{BZP}):

TYPE = SELF LUBRICATING ASTM B22 ALLOY 911

BEARING CAPACITY =	2000	psi			
L_{BZP} =	7.04	in ----------> use =	8.0	in	203 mm

BASE (MASONRY) PLATE:

Max of W_{OH} or L_{OH} =	3.25	in			
$M = wL^2/2 = f_b\,Max(W_{OH}\text{ or }L_{OH})^2/2$ =	4.82	K-in			
F_y =	36000	psi	AASHTO Table 10.2B		
$F_{yb} = .55F_y$ =	19.8	ksi	AASHTO 10.32.1A		
$t_{BP} = [6M/F_{yb}]^{½}$ =	1.21	in ----------> use =	1.25	in	32 mm

SOLE PLATE:

$t_{SP} = [3/4(RW_{SP})/(L_{SP}F_{YB})]^{½}$ =	3.44	in.			
$t'_{SP} = t_{SP} - t_{FLG}$ =	2.07	in ----------> use =	2.25	in	
Rad (Radius) =	18.00	in			
$T_{SP} = t'_{SP} + Rad - [Rad^2 - (½L_{BZP})^2]^{½}$ =	2.70	in ----------> use =	2.75	in	

BRONZE PLATE THICKNESS (t_{BZP}):

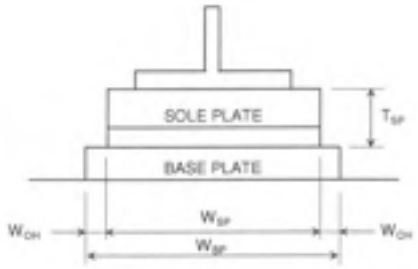
A =	0.75	in			
$t_{BZP} = (T_{SP} - t'_{SP}) + A$ =	1.25	in ----------> use =	1.25	in	32 mm

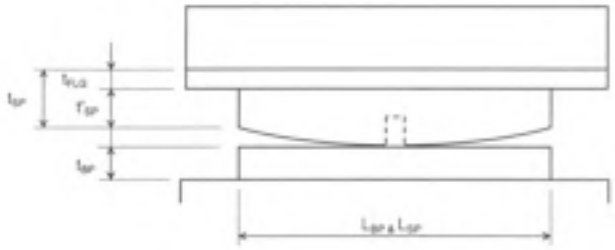
BASE PLATE			SOLE PLATE			BRONZE PLATE			BEARING
WIDTH	LENGTH	HEIGHT	WIDTH	LENGTH	HEIGHT	WIDTH	LENGTH	HEIGHT	DEPTH
18.5"	10"	1.25"	18.5"	10"	2.25"	12"	8"	1.25"	4.75"

BRIDGE: **I-75 over Frey Road**
COUNTY: **COBB**
P.I. NO: **713640**
PROJECT: **NH000-0575-01(028)**

J.B. TRIMBLE, INC.

JOB NO: **31-6036**
DESIGNED BY: **SHG**
DATE: **10/31/2009**





BENTS 3 AH

FIXED BEARING CALCULATIONS

GENERAL INPUT:

Beam Type	Plate Girder			
R (Reaction) =	152.9 Kips			
Bottom Flange Thickness, t_{FLG} =	1.375 in			35 mm
W_{SP} =	14.00 in			356 mm
W_{BP} =	14.00 in			356 mm
L_{SP} =	10.50 in			267 mm
f'_c =	3500 psi			
$F_b = 0.3f'_c$ =	1.050 ksi	AASHTO Art. 8.15.2.1.3		

SOLE PLATE:

M=RL/8 $S=wt^2/6$ $f_b=M/S$

F_y =	36000 psi	AASHTO Table 10.2B			
$F_{yb} = .55F_y$ =	19.8 ksi	AASHTO 10.32.1A			
$t_{SP} = [3/4(RW_{SP})/(L_{SP}F_{YB})]^{½}$ =	2.78 in.				
$t'_{SP} = t_{SP} - t_{FLG}$ =	1.40				36 mm
Rad (Radius) =	18.00 in				
$= t'_{SP} + Rad - [Rad^2 - (½L_{SP})^2]^{½}$ =	2.19 in ----------> use =	2.25	in		57 mm

BASE (MASONRY) PLATE:

M=(R/W)(W/2)(W/4)=RW/8 $S_y=W_{SP}T_{SP}^2/6$ $f_b=M/S$

$L_{BP} = R/(W_{BP}Fb)$ =	10.40 in ----------> use =	10.50	in		267 mm
$t_{BP} = [3/4(RL_{BP})/(W_{BP}F_{YB})]^{½}$ =	2.06 in ----------> use =	2.25	in		57 mm

ALLOWABLE BEARING ON CONCRETE:

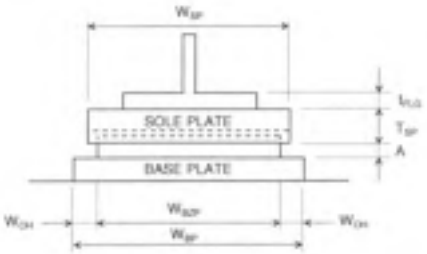
$f_b = R/(L_{BP} * W_{BP})$ = 1.040 ksi **fb < Fb --> OK**

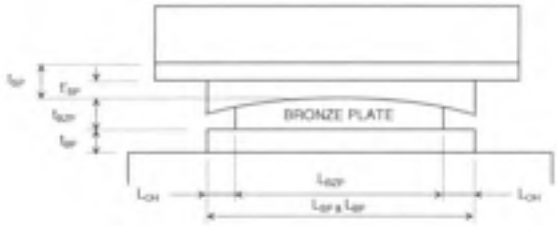
BASE PLATE			SOLE PLATE			BEARING
WIDTH	LENGTH	HEIGHT	WIDTH	LENGTH	HEIGHT	DEPTH
14"	10.5"	2.25"	14"	10.5"	2.25"	4.5"

BRIDGE: **I-75 over Frey Road**
COUNTY: **COBB**
P.I. NO: **713640**
PROJECT: **NH000-0575-01(028)**

J.B. TRIMBLE, INC.

JOB NO: **31-6036**
DESIGNED BY: **SHG**
DATE: **10/31/2009**





EXPANSION BEARING CALCULATIONS

BENT 4

GENERAL INPUT:

Beam Type	Plate Girder		
R (Reaction) =	152.9	Kips	
Bottom Flange Thick, t_{FLG} =	1.375	in	35 mm
W_{SP} =	14.00	in	356 mm
W_{BZP} =	12.00	in	305 mm
W_{BP} =	14.00	in	356 mm
L_{SP} =	9.00	in	229 mm
L_{BP} =	10.50	in	267 mm

ALLOWABLE BEARING ON CONCRETE:

f'_c =	3500	psi	
$F_b = 0.3f'_c$ =	1.050	ksi	
$f_b = R/(L_{BP} * W_{BP})$ =	1.040	ksi	**fb < Fb --> OK**

BRONZE PLATE WIDTH (W_{BZP}):

TYPE = SELF LUBRICATING ASTM B22 ALLOY 911

BEARING CAPACITY =	2000	psi			
L_{BZP} =	6.37	in ----------> use =	7.0	in	178 mm

BASE (MASONRY) PLATE:

Max of W_{OH} or L_{OH} =	1.75	in			
$M = wL^2/2 = f_b$ Max$(W_{OH}$ or $L_{OH})^2/2$ =	1.59	K-in			
F_y =	36000	psi	AASHTO Table 10.2B		
$F_{yb} = .55F_y$ =	19.8	ksi	AASHTO 10.32.1A		
$t_{BP} = [6M/F_{yb}]^{1/2}$ =	0.69	in ----------> use =	0.75	in	19 mm

SOLE PLATE:

$t_{SP} = [3/4(RW_{SP})/(L_{SP}F_{YB})]^{1/2}$ =	3.00	in.			
$t'_{SP} = t_{SP} - t_{FLG}$ =	1.63	in ----------> use =	1.75	in	
Rad (Radius) =	18.00	in			
$T_{SP} = t'_{SP} + Rad - [Rad^2 - (½L_{BZP})^2]^{1/2}$ =	2.09	in ----------> use =	2.25	in	

BRONZE PLATE THICKNESS (t_{BZP}):

A =	0.50	in			
$t_{BZP} = (T_{SP} - t'_{SP}) + A$ =	1.00	in ----------> use =	1.00	in	25 mm

BASE PLATE			SOLE PLATE			BRONZE PLATE			BEARING
WIDTH	LENGTH	HEIGHT	WIDTH	LENGTH	HEIGHT	WIDTH	LENGTH	HEIGHT	DEPTH
14"	10.5"	0.75"	14"	9"	1.75"	12"	7"	1"	3.5"

CALCULATION COVER SHEET

PROJECT	JOB NO.	CALC NO.	SHEET
I-75 / I-575 NORTHWEST CORRIDOR	NH000-0073-03(242)	BR#33	1
SUBJECT	DISCIPLINE		
Substructure Design Input	STRUCTURAL		

CALCULATION STATUS DESIGNATION	PRELIMINARY	CONFIRMED	SUPSEDED	VOIDED	INCOMPLETE
	☐	☐	☐	☐	X

COMPUTER PROGRAM/TYPE	SCP	MAINFRAME	PC	PROGRAM	VERSION/RELEASE NO.
	(X) YES ( ) NO	( )	(X)	Excel	2003

Note 1: Georgia Department of Transportation (GDOT) terminated Contract Number TOURDPPI60072 for its convenience prior the completion of all work under that contract and directed that the work with respect to these calculations be discontinued.
(a) These calculations were not completed at the time of GDOT's direction and the information contained herein is not complete and/or has not been fully verified or checked. These calculations are a work-in-progress and are presented only as such.
(b) Any user is cautioned that the use of these calculations and any related information or calculations, without access to factors and without proper regard for their purpose, could lead to erroneous conclusions.
(c) If any such calculations or any information contained herein is used in future work efforts or any follow on design work activity, a complete confirmation of the information contained herein should be performed prior to any such use.
(d) GTP has no responsibility for the use of this information not under its direct control.

Substructure Design Input calculations are included for bent 3.

NO.	REASON FOR REVISION	TOTAL NO. OF SHEETS	LAST SHEET NO.	BY	CHECKED	APPROVED/ ACCEPTED	DATE
A	As per GDOT's termination for convenience direction	5	5	JCR			11/30/09

RECORD OF REVISIONS

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0073-03(242)
CALC NO. BR#33

SUBJECT: Bent Design Input - Bent 3 SHEET NO.
BY: JCR DATE: 11/30/2009 SHEET REV.

Sufficient sample calculations representative of the scope and conditions in the design calculation were performed and the results compared to demonstrate the computer program adequacy.

BRIDGE: **I-75 over Frey Road**
COUNTY: **COBB**
P.I. NO: **713640**
PROJECT: **NH000-0575-01(028)**

J.B. TRIMBLE, INC.

JOB NO: **31-6036**
DESIGNED BY: **SHG**
DATE: **10/27/2009**

PIER DESIGN CALCULATIONS

BENT 3

GENERAL REQUIREMENTS:

Live Load cases:		See GDOT Program BRLLCA		
Skew Angle:		33.00	* FROM CL BRIDGE	Is Bent Fix "F" or Exp. "E"? E F = Fix, E = Exp
		57	* FROM CL BENT	
Concrete Strength:		3500	psi	
Rebar Strength:		60000	psi	
	Ec =	3587	ksi	AASHTO 8.7.1
	Es =	29000	ksi	AASHTO 8.7.2
Allowable Steel Stress:		24000	psi	AASHTO 8.15.2.2
	n = Ec/Es =	8		AASHTO 8.15.3.4
Cap Bar size:		11	#	
Stirup Size:		5	#	
Maximum bars / row in cap:		17	bars	
Column Steel Ratios:		1	% min.	
		8	% max.	
Edge of Column to main rebar:		3.135	in.	

Impact Factor

	Length (ft)	Impact
LEFT SPAN	123.00	1.202
RIGHT SPAN	115.00	1.208
	Avg. Impact =	1.20

Soil Weight 0.120 kcf

Columns:
TYPE S (S-SQUARE or RECTANGULAR, C-CIRCULAR, P-PILES)

Pile Spacing: 0.00 ft. MIN 0 ft. MAX
0.00 ft. EMBED 0 ft. EDGE

Pile Capacity:

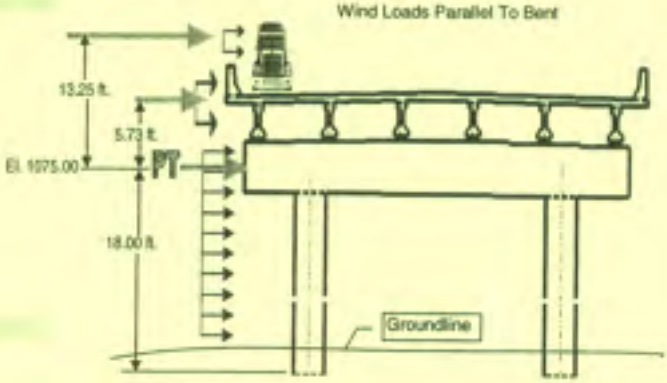
TYPE		14 X 73	STEEL HP	
ALLOWABLE LOAD		192	KIPS =	96 TONS
UPLIFT		0	KIPS =	

WIND ON SUPERSTRUCTURE

AASHTO 3.15.2.1.1

	Left Span	Rigtht Span	
Parapet Height =	32 in.	32 in.	
Beam Height =	48 in.	48 in.	
'D' or 'H' Dimension =	9.5 in.	9.5 in.	
Beam + Coping + Slab =	4.79 ft.	4.79 ft.	
Total Height =	7.46 ft.	7.46 ft.	
Span Lengths =	123.00 ft.	115.00 ft.	TOTAL
Wind Force Area =	458.7 ft^2	428.9 ft^2	888 ft^2
Height of Cap =	4.00 ft.	4.00 ft.	
Wind Force Arm =	5.73 ft.		

Wind Loads Parallel To Bent



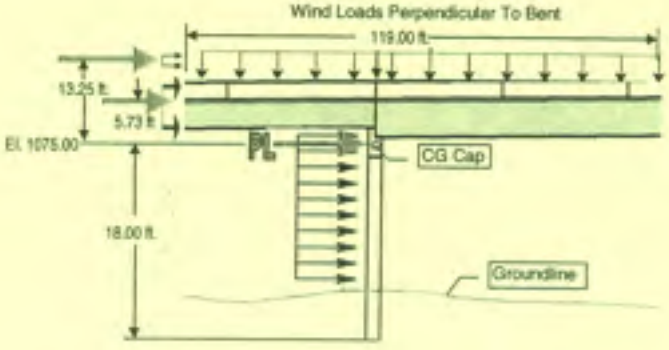
WIND ON SUBSTRUCTURE:

AASHTO 3.15.2.2

Wind Force =	0.040	ksf	PARA. & PERP.
Length of Cap =	42.00	ft.	
Width of Cap =	4.75	ft.	
CG of Cap ELEV =	1075.00		
Ground Line ELEV=	1058.00		
100 YR Scour ELEV =	0.00		
Depth to Point of Fixity =	2.00		
Pt. of Fixity ELEV =	1057.00		
Bot. Cap to Pt. of Fixity =	16.00	ft.	
Design Height of Column =	18.00	ft.	CG Cap to Pt. of Fixity
Exposed Height of Column =	14.00	ft.	
Width of Column =	3.50	ft.	
Depth of Column =	3.50	ft.	
No. of Columns =	2	columns	

	PARA.	PERP.	
M_{CAP} =	13.68	120.96	k-ft.
M_{COL} =	17.64	35.28	k-ft.
M_{TOTAL} =	31.32	156.24	k-ft.
	PT = 1.74	PL = 8.68	kips

Wind Loads Perpendicular To Bent



BRIDGE: **I-75 over Frey Road**
COUNTY: **COBB**
P.I. NO: **713640**
PROJECT: **NH000-0575-01(028)**

J.B. TRIMBLE, INC.

JOB NO: **31-6036**
DESIGNED BY: **SHG**
DATE: **10/27/2009**

PIER DESIGN CALCULATIONS

BENT 3

WIND ON LIVE LOAD — AASHTO 3.15.2.1.2

Length = 119.00 ft.
APT = APL = 12.79 ft. Use--> 13.25 ft.

TRACTION FORCE: For One lane — AASHTO 3.9

LF = 0.00 k

TEMPERATURE FORCE: — AASHTO 3.16

Friction Force due to Temperature:

Δ = Temp. Deflection = ALPHA x Length x Change in Temp.

T_{INST} = 30 ° T_{FALL} = 40 ° (Fahrenheit)
Material (C or S): C ALPHA = 0.000006 /° (Fahrenheit)

Force in Pad = Fs = [G x L x W x Deflection] / (Telas)

	LEFT	RIGHT	
Expansion Length =	0.00	115.00	ft
Δ =	0.000	0.331	in
G = Shear Modulus of Pad =	200	200	psi
L= Length of Pad =	10.50	10.50	in
W = Width of Pad =	12.00	12.00	in
Telas = Bearing Elastomer Depth =	4.250	4.250	in
Fs =	0.00	1.96	KIPS /pad
No. of Beams =	4	4	
Total Temperature Force =	0.00	7.86	kips @ top of seat
	0.00	8.73	kips @ center of cap
P_L =	0.00	4.75	kips
P_T =	0.00	7.32	kips

Difference = P_L = 4.75 kips AT CL CAP
P_T = 7.32 kips AT CL CAP

P_L = 5.38 kips AT CL CAP ---> Use Total Lateral Force
P_T = 8.29 kips AT CL CAP = P'L + Equiv. Lateral Force from M'L due to eccentricity

Expansion of Concrete Cap = **0.00018** in/in
Contraction of Concrete Cap = **0.00044** in/in which includes 0.0002 for creep

STREAM FORCE: — AASHTO 3.18.1

100 yr Flood ELEV. = 0 ft.
Point of Fixity = 18.00 ft.
Bottom of Stream ELEV = 1059.00 ft.
Pt. of Fixity ELEV = 1057.00
V_{AVG} = 0 FPS @ 100 yr. Flood
K = 1.4 for square ended piers
$P_{AVG} = K * (V_{AVG})^2$ = 0.00 psf AASHTO Eq. (3-4)
$P_{MAX} = 2 * P_{AVG}$ = 0.00 psf
Piers Aligned with streaam flow:
P_S = 0.000 kips
M = 0.00 k-ft.
$P_{CL\ CAP}$ = 0.000 k

BRIDGE: **I-75 over Frey Road**
COUNTY: **COBB**
P.I. NO: **713640**
PROJECT: **NH000-0575-01(028)**

J.B. TRIMBLE, INC.

JOB NO: **31-6036**
DESIGNED BY: **SHG**
DATE: **10/27/2009**

PIER DESIGN CALCULATIONS

BENT 3

DEAD LOAD

AASHTO 3.3

LENGTH = 42.00 feet
SKEW = 33.00 degrees

STEP HT = 0.000 ft
STEP WT = 2.292 ft

SPAN 2

BEAM	BEAM SPACING	DISTANCE BETWEEN	DISTANCE ALONG	R dl	Add'l DL	DL
1		1.492	1.492	111.0	0.00	111.0
2	7.083	13.005	14.497	111.0	0.00	111.0
3	7.083	13.005	27.503	111.0	0.00	111.0
4	7.083	13.005	40.508	111.0	0.0	111.0
		1.492	42.000			
TOTAL		42.000				443.9
					CL Brg to CL Bent =	1.083

SPAN 3

BEAM	BEAM SPACING	DISTANCE BETWEEN	DISTANCE ALONG	R dl	Add'l DL	DL
1		1.492	1.492	97.5	0.00	97.5
2	7.083	13.005	14.497	97.5	0.0	97.5
3	7.083	13.005	27.503	97.5	0.0	97.5
4	7.083	13.005	40.508	97.5	0.00	97.5
		1.492	42.000			
TOTAL		42.000				390.0
					CL Brg to CL Bent =	1.083
						833.9

COMBINED LOADS

COLUMN = 1.750 FT - checking ¼ points on column

	POINT	MEMBER		DISTANCE ALONG	R dl	Add'l DL	DL	CHECK POINT
7.50								
	G1	1	6.008	1.492	208.5	0.0	208.5	1
	EC	1	5.133	6.625				2
27.00								
	EC	2	0.875	8.375				3
	G2	2	6.122	14.497	208.5	0.0	208.5	4
	CHECK	2	6.503	21.000				5
	G5	2	6.503	27.503	208.5	0.0	208.5	6
	EC	2	6.122	33.625				7
7.50								
	EC	3	0.875	35.375				8
	G6	3	5.133	40.508	208.5	0.0	208.5	9
				1.492				
			42.000					

ADDITIONAL DL MOMENT DUE TO ECCENTRICITY:

M_{DL} = 58.32 KIP-FT

(EQUIV. LONG FORCE) $F_{EL} = M_{DL} / H_{DESIGN\ OF\ COLUMN}$ = 3.24 KIP

(TOTAL LONG FORCE) $F_L = F_{EL} + P_{L\ TEMP}$ = 8.62 KIP

LIVE LOADS

AASHTO 3.4

	LEFT	RIGHT			
Span Lengths =	123.00	115.00	ft.		
LIVE LOAD REACTION		67.38	KIPS	AXLE LOAD NO IMPACT	VERIFY !!!
		102.16	KIPS	LANE LOAD NO IMPACT	
AVERAGE IMPACT		1.20			
P-LOAD FOR BRILLCA INPUT		62	KIPS		

CENTRIFUGAL FORCE

AASHTO 3.10

LIVE LOAD REACTION = 67.38 KIPS AXLE LOAD NO IMPACT

Speed (S) = 70 mph
Curve Radius (R) = 5890 ft.
$C = 6.68\ S^2 / R$ = 5.56 %
Cent. Force @ 6ft above Ridwy = 3.74 kips

CALCULATION COVER SHEET

PROJECT	JOB NO.	CALC NO.	SHEET
I-75 / I-575 NORTHWEST CORRIDOR	NH000-0073-03(242)	BR#33	1
SUBJECT	DISCIPLINE		
Live Load Case Output	STRUCTURAL		

CALCULATION STATUS DESIGNATION	PRELIMINARY	CONFIRMED	SUPSEDED	VOIDED	INCOMPLETE
	☐	☐	☐	☐	X

COMPUTER PROGRAM/TYPE	SCP	MAINFRAME	PC	PROGRAM	VERSION/RELEASE NO.
	X YES ◯ NO	◯	X	GDOT BRLLCA	06/26/2008

Note 1: Georgia Department of Transportation (GDOT) terminated Contract Number TOURDPPI60072 for its convenience the completion of all work under that contract and directed that the work with respect to these calculations be discontinued.
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Live Load Case ouptput is included for bent 3.

NO.	REASON FOR REVISION	TOTAL NO. OF SHEETS	LAST SHEET NO.	BY	CHECKED	APPROVED/ ACCEPTED	DATE
A	As per GDOT's termination for convenience direction	3	3	JCR			11/30/09

RECORD OF REVISIONS

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0073-03(242)
CALC NO. BR#33

SUBJECT: Live Load Case Output - Bent 3 SHEET NO.
BY: JCR DATE: 11/30/2009 SHEET REV.

Sufficient sample calculations representative of the scope and conditions in the design calculation were performed and the results compared to demonstrate the computer program adequacy.

17-OCT-09
10:03:49

GEORGIA DEPARTMENT OF TRANSPORTATION
PRECONSTUCTION DIVISION - OFFICE OF BRIDGE & STRUCTURAL DESIGN
SUMMARY OF THE LIVE LOAD CASE PROGRAM
REVISED: JUNE 26, 2008

PROB. NO.

I-75 OVER STEVE FREY RD

BRIDGE WIDTH	X1	X2	CENTER LINE DISTANCE	# OF BEAMS	REACTION FORCE	MAXIMUM # OF TRUCKS	# OF COLUMNS	COLUMN WIDTH	SKEW ANGLE
27.625	2.625	0.000	13.813	5	62.000	2	0	0.000	0

D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	D20
2.916	7.000	7.000	7.000	3.500															

		NO. OF TRUCKS	BEAM 1	BEAM 2	BEAM 3	BEAM 4	BEAM 5	BEAM 6	BEAM 7	BEAM 8	BEAM 9	BEAM 10
LL CASE	1	1	73.435	50.565	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LL CASE	2	2	73.435	88.571	70.857	15.137	0.000	0.000	0.000	0.000	0.000	0.000
LL CASE	3	1	0.000	0.000	20.292	41.708	62.000	0.000	0.000	0.000	0.000	0.000
LL CASE	4	2	0.000	46.863	91.149	47.988	62.000	0.000	0.000	0.000	0.000	0.000
LL CASE	5	1	0.000	26.571	70.857	26.571	0.000	0.000	0.000	0.000	0.000	0.000
LL CASE	6	2	53.143	97.429	70.857	26.571	0.000	0.000	0.000	0.000	0.000	0.000
LL CASE	7	2	36.341	80.627	87.659	43.373	0.000	0.000	0.000	0.000	0.000	0.000
LL CASE	8	2	73.435	50.565	20.292	41.708	62.000	0.000	0.000	0.000	0.000	0.000

CALCULATION COVER SHEET

PROJECT	JOB NO.	CALC NO.	SHEET
I-75 / I-575 NORTHWEST CORRIDOR	NH000-0073-03(242)	BR#33	1
SUBJECT	DISCIPLINE		
Intermediate Bent Design Output	STRUCTURAL		

CALCULATION STATUS DESIGNATION	PRELIMINARY	CONFIRMED	SUPSEDED	VOIDED	INCOMPLETE
	☐	☐	☐	☐	X

COMPUTER PROGRAM/TYPE	SCP	MAINFRAME	PC	PROGRAM	VERSION/RELEASE NO.
	(X) YES ( ) NO	( )	(X)	GDOT BRPIER	06/26/2008

Note 1: Georgia Department of Transportation (GDOT) terminated Contract Number TOURDPPI60072 for its convenience the completion of all work under that contract and directed that the work with respect to these calculations be discontinued.
(a) These calculations were not completed at the time of GDOT's direction and the information contained herein is not and/or has not been fully verified or checked. These calculations are a work-in-progress and are presented only as such.
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Intermediate bent design ouptput is included for bent 3.

NO.	REASON FOR REVISION	TOTAL NO. OF SHEETS	LAST SHEET NO.	BY	CHECKED	APPROVED/ ACCEPTED	DATE
A	As per GDOT's termination for convenience direction	7	7	JCR			11/30/09

RECORD OF REVISIONS

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0073-03(242)
CALC NO. BR#33

SUBJECT: Bent Design Output - Bent 3 SHEET NO.
BY: JCR DATE: 11/30/2009 SHEET REV.

Sufficient sample calculations representative of the scope and conditions in the design calculation were performed and the results compared to demonstrate the computer program adequacy.

27-OCT-09
16:50:05

GEORGIA DEPARTMENT OF TRANSPORTATION
PRECONSTUCTION DIVISION - OFFICE OF BRIDGE & STRUCTURAL DESIGN
THE ANALYSIS AND DESIGN OF PIERS FOR BRIDGES - V 4.2.07 - AASHTO SPECS 1984 INTERIM
REVISED: JUNE 30, 2008
I-75 OVER STEVE FREY RD - BENT 3

PROB. NO.

DESIGN DATA

DESIGN OPTIONS	NO. CAN	NO. COL	NO. LLC	SKEW ANG D M S	F'C PSI	FC PSI	N	FY PSI	FS PSI	EC KSI	ES KSI	CONC. STRAIN	Z FACT	* CAP REINFORCING STEEL * MAIN SIZE	STR SIZ	MAX TOP	MAX BOT	* MIN SIZE	MIN NO.	* TOP CL.	MIN S.SP	CAP DEPTH INCR.	BOT CL.
D D D L	2	2	8	57-00-00	3500.	1400.	8.	60000.	24000.	3587.	29000.	0.0030	170.	11	5	10	11	6	4	2.00	4.00	3.00	2.00

COLUMN REINFORCING STEEL MIN.P	MAX.P	CL.SP.	CLEAR	R MODE	KL COEF	DC	OP	CM	BD1	BD2	IMPACT %	SOIL WT KCF	ALL.S.P. KSF	MIN PL	SP	MAX PL	SP	EDGE DIST	PILE DEPTH	REBAR CLEAR	ALL.PILE CAPACITY	ALL.PILE UPLIFT	I P
1.00	8.00	2.25	2.500	2	2.00	0.00	0.90	0.00	1.00	0.00	20.00	0.120	0.000	3.00	5.00	1.500	1.000	1.000	192.000	0.000	P

CAP DATA

CN	C	L	A	DE	BC	BE	DH	LH	XB1	XB2	XB3	XB4	XB5	XB6	XB7	XB8
11	C	7.500	0.000	4.000	4.750	0.000	0.000	0.000	6.008	5.133						
12	C	27.000	0.000	4.000	4.750		0.000	0.000	0.875	6.122	6.503	6.503	6.122			
13	C	7.500	0.000	4.000	4.750	0.000	0.000	0.000	0.875	5.133						

COLUMN DATA

CN	P	I	T	S	HT	A	DT	BT	DB	BB	DL	FLEX	ND	NB	SZ	ND	NB	SZ	ND	NB	SZ	ND	NB	SZ	SLOPE	EP	AP
21	0	C	T		18.000	0.000	3.500	3.500	0.000	0.000	2.000	0.000	2	4	11	0	0	0	99	99	11	0	0	0	0.000	0.000	0.000
22	0	C	T		18.000	0.000	3.500	3.500	0.000	0.000	2.000	0.000	2	4	11	0	0	0	99	99	11	0	0	0	0.000	0.000	0.000

FOOTING DATA

CN	S/P	B	D	T	DEL.B	DEL.D	DEL.T	R.B/D	R.D/B	S.HT.	NP	SYM.	BP	DP	SET.
31	P	6.000	6.000	3.500	0.500	0.500	0.500	0.000	0.000	0.000	4	1	0.000	0.000	0.000
32	P	6.000	6.000	3.500	0.500	0.500	0.500	0.000	0.000	0.000	4	1	0.000	0.000	0.000

GROUP II WIND

SUPERSTRUCTURE AREA* STD. TRANS.	LONG.	WIND	WIND ON SUPERSTRUCTURE INTENSITIES FT1	FL1	FT2	FL2	FT3	FL3	FT4	FL4	FT5	FL5	* WIND FORCE ARM APT	APL	* WIND ON PIER PT	PL
444.	444.	1	50	0	44	6	41	12	33	16	17	19	6.104	6.104	1.836	9.848

GROUP III WIND

. * WIND	WIND ON SUPERSTRUCTURE INTENSITIES FT1	FL1	FT2	FL2	FT3	FL3	FT4	FL4	FT5	FL5	* STD. WIND	WIND ON LIVE LOAD INTENSITIES FT1	FL1	FT2	FL2	FT3	FL3	FT4	FL4	FT5	FL5	* LENGTHS OF LL TRANS.	LONGI.	* WIND ON LL ARMS APT	APL
1	50	0	44	6	41	12	33	16	17	19	1	100	0	88	12	82	24	66	32	34	38	119.0	119.0	13.250	13.250

MISCELLANEOUS FORCES

CENTRI. FT	TRACTION FORCE AND ARMS FL	APT	APL	EXPANSION COEFFICIENT	SHRINKAGE COEFFICIENT	STREAM FLOW PT	PL
3.745	4.580	13.250	13.250	0.00018000	0.00044000	8.441	8.721

DEAD LOAD SUPERSTRUCTURE AND LIVE LOAD CASES

I.D.	NL	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12
D.L.	0	208.500	0.000	0.000	208.500	0.000	208.500	0.000	0.000	208.500			
LL 1	1	0.000	0.000	0.000	0.000	0.000	50.565	0.000	0.000	73.434			
LL 2	2	15.136	0.000	0.000	70.857	0.000	88.571	0.000	0.000	73.434			
LL 3	1	47.987	0.000	0.000	20.291	0.000	0.000	0.000	0.000	41.708			
LL 4	2	47.987	0.000	0.000	91.148	0.000	46.863	0.000	0.000	0.000			
LL 5	1	26.571	0.000	0.000	70.857	0.000	26.571	0.000	0.000	0.000			
LL 6	2	26.571	0.000	0.000	70.857	0.000	97.428	0.000	0.000	53.142			
LL 7	2	43.373	0.000	0.000	87.659	0.000	80.626	0.000	0.000	36.340			
LL 8	2	41.708	0.000	0.000	20.291	0.000	50.565	0.000	0.000	73.434			

① Wind Area calculated by using BM tool, getting the wind (i.e. ... the area of the bridge structure)
Wind on LL = Load × Tributary Area

② $FL = 1.5 * [(2 \times \frac{11.5}{2}) \times 1.42 \times 18^2] - 4.59^2$
(AASHTO 3.7)

MEMBER PROPERTIES

COLUMN PROPERTIES

CN	KT / KTM	COTB / COBT	COTBM / COBTM	TLR / TRL	TRC / TCR	TLC / TCL	DPC / DFL	KL / PDF	FKBR / FKUBR	PCBR / PCUBR	PCL / FLU	UFMT / UFMB	EITTB / EILTB	PSIT / PSIB	RGTB / RGL
	1436397.5	0.5000	0.6000	0.5363	1.0000	0.4637	0.4637	0.077193	9.1	243952.0	13511.0	119616.5	315405.6	0.5	12.4
	1436397.5	0.5000	0.8033	0.0000	1.0000	0.0000	0.0000	0.5000	18.5	58641.4	16.0	119616.5	315405.6	0.0	12.4
2	1436397.4	0.5000	0.6000	0.0000	0.4637	1.0000	0.4637	0.077193	9.1	243952.0	13511.0	119616.5	315405.6	0.5	12.4
	1436397.4	0.5000	0.8033	0.5363	0.0000	1.0000	0.5363	0.5000	18.5	58641.4	16.0	119616.5	315405.6	0.0	12.4

CAP PROPERTIES

CN	CO / K	KML / KMR	COMLR / COMRL	FMWT / UFSM	FMLP1 / FMRP1	FMLP2 / FMRP2	FMLP3 / FMRP3	FMLP4 / FMRP4	FMLP5 / FMRP5	FMLP6 / FMRP6	FMLP7 / FMRP7	FMLP8 / FMRP8
2	0.5000	1660113.9	0.2484	173.1375	0.8192	3.8404	3.3750	1.3434	0.0274			
	1938574.2	1660113.9	0.2484	107698.6	0.0274	1.3434	3.3750	3.8404	0.8192			

COLUMN MOMENTS(KIP-FEET), SHEARS(KIPS), REACTIONS(KIPS)

LOAD	COL	TRANSVERSE PC	MT	V	MB	RF	ML	MR	* MT	LONGITUDINAL V	MB	MF
UNIT F.AT CL.CAP	1	0.297	4.006	0.500	4.994	0.297	0.000	-4.006	1.000	0.500	9.000	9.000
	2	-0.297	4.006	0.500	4.994	-0.297	-4.006	0.000	1.000	0.500	9.000	9.000
EXPANSION OF CAP	1	0.000	117.163	17.838	203.916	0.000	0.000	-117.163	0.000	0.000	0.000	0.000
	2	0.000	-117.163	-17.838	-203.916	0.000	117.163	0.000	0.000	0.000	0.000	0.000
SHRINKAGE OF CAP	1	0.000	-286.399	-43.603	-498.461	0.000	0.000	286.399	0.000	0.000	0.000	0.000
	2	0.000	286.399	43.603	498.461	0.000	-286.399	0.000	0.000	0.000	0.000	0.000
DEAD LOAD TOTAL	1	476.850 506.250	-47.083	-3.924	-23.541	506.250	1332.824	-1285.741	0.000	0.000	0.000	0.000
	2	476.850 506.250	47.083	3.924	23.541	506.250	1285.741	-1332.824	0.000	0.000	0.000	0.000
STREAM FLOW	1	2.505	33.812	4.220	42.157	2.505	0.000	-33.812	8.721	4.360	78.489	78.489
	2	-2.505	33.812	4.220	42.157	-2.505	-33.812	0.000	8.721	4.360	78.489	78.489
VC, FORCE 1 IN	1	3.025	15.386	1.921	19.184	3.025	0.000	-15.386	-19.020	-1.247	-38.976	-38.976
	2	-3.025	15.386	1.921	19.184	-3.025	-15.386	0.000	-19.020	-1.247	-38.976	-38.976
CENT. FORCE 1 IN	1	1.606	8.170	1.020	10.187	1.606	0.000	-8.170	23.949	1.570	49.075	49.075
	2	-1.606	8.170	1.020	10.187	-1.606	-8.170	0.000	23.949	1.570	49.075	49.075
WIND ON SUBSTR.	1	0.545	7.354	0.918	9.170	0.545	0.000	-7.354	-9.848	-4.924	-88.632	-88.632
	2	-0.545	7.354	0.918	9.170	-0.545	-7.354	0.000	-9.848	-4.924	-88.632	-88.632
GROUP 2 WIND 1 1	1	6.866	55.787	6.963	69.556	6.866	0.000	-55.787	65.594	4.385	135.758	135.758
	2	-6.866	55.787	6.963	69.556	-6.866	-55.787	0.000	65.594	4.385	135.758	135.758
GROUP 2 WIND 1 2	1	6.866	55.787	6.963	69.556	6.866	0.000	-55.787	65.290	14.233	313.022	313.022
	2	-6.866	55.787	6.963	69.556	-6.866	-55.787	0.000	65.290	14.233	313.022	313.022
GROUP 2 WIND 2 1	1	7.275	58.925	7.355	73.468	7.275	0.000	-58.925	50.662	2.543	91.345	91.345
	2	-7.275	58.925	7.355	73.468	-7.275	-58.925	0.000	50.662	2.543	91.345	91.345
GROUP 2 WIND 2 2	1	4.939	41.026	5.121	51.151	4.939	0.000	-41.026	82.116	13.842	303.582	303.582
	2	-4.939	41.026	5.121	51.151	-4.939	-41.026	0.000	82.116	13.842	303.582	303.582
GROUP 2 WIND 3 1	1	8.064	64.968	8.110	81.003	8.064	0.000	-64.968	40.256	1.259	60.395	60.395
	2	-8.064	64.968	8.110	81.003	-8.064	-64.968	0.000	40.256	1.259	60.395	60.395
GROUP 2 WIND 3 2	1	3.392	29.170	3.641	36.370	3.392	0.000	-29.170	83.469	14.008	307.605	307.605
	2	-3.392	29.170	3.641	36.370	-3.392	-29.170	0.000	83.469	14.008	307.605	307.605
GROUP 2 WIND 4 1	1	7.831	63.185	7.887	78.780	7.831	0.000	-63.185	24.266	-0.714	12.835	12.835
	2	-7.831	63.185	7.887	78.780	-7.831	-63.185	0.000	24.266	-0.714	12.835	12.835
GROUP 2 WIND 4 2	1	1.602	15.454	1.929	19.269	1.602	0.000	-15.454	75.317	13.003	283.360	283.360
	2	-1.602	15.454	1.929	19.269	-1.602	-15.454	0.000	75.317	13.003	283.360	283.360
GROUP 2 WIND 5 1	1	6.393	52.162	6.511	65.036	6.393	0.000	-52.162	-2.815	-4.056	-67.713	-67.713
	2	-6.393	52.162	6.511	65.036	-6.393	-52.162	0.000	-2.815	-4.056	-67.713	-67.713
GROUP 2 WIND 5 2	1	-1.005	-4.519	-0.564	-5.634	-1.005	0.000	4.519	54.116	10.386	220.298	220.298
	2	1.005	-4.519	-0.564	-5.634	1.005	4.519	0.000	54.116	10.386	220.298	220.298
GP 3 WIND 1 1	1	7.163	42.698	5.330	53.236	7.163	0.000	-42.698	95.777	6.306	196.668	196.668
	2	-7.163	42.698	5.330	53.236	-7.163	-42.698	0.000	95.777	6.306	196.668	196.668
GROUP 3 WIND 1 2	1	7.163	42.698	5.330	53.236	7.163	0.000	-42.698	101.686	9.260	249.847	249.847
	2	-7.163	42.698	5.330	53.236	-7.163	-42.698	0.000	101.686	9.260	249.847	249.847

COLUMN MOMENTS(KIP-FEET), SHEARS(KIPS), REACTIONS(KIPS)

LOAD	COL	PC	TRANSVERSE MT	V	MB	RF	ML	MR	* MT	LONGITUDINAL V	MB	MF
GROUP 1 WIND 2 1	1	7.617	45.321	5.657	56.507	7.617	0.000	-45.321	76.235	4.765	152.479	152.479
	2	-7.617	45.321	5.657	56.507	-7.617	-45.321	0.000	76.235	4.765	152.479	152.479
GROUP 1 WIND 2 2	1	5.030	30.357	3.789	37.849	5.030	0.000	-30.357	97.532	8.933	240.454	240.454
	2	-5.030	30.357	3.789	37.849	-5.030	-30.357	0.000	97.532	8.933	240.454	240.454
GROUP 1 WIND 3 1	1	8.490	50.374	6.288	62.806	8.490	0.000	-50.374	62.617	3.692	121.685	121.685
	2	-8.490	50.374	6.288	62.806	-8.490	-50.374	0.000	62.617	3.692	121.685	121.685
GROUP 1 WIND 3 2	1	3.316	20.445	2.552	25.491	3.316	0.000	-20.445	99.302	9.072	244.457	244.457
	2	-3.316	20.445	2.552	25.491	-3.316	-20.445	0.000	99.302	9.072	244.457	244.457
GROUP 1 WIND 4 1	1	8.233	48.883	6.102	60.948	8.233	0.000	-48.883	41.691	2.042	74.365	74.365
	2	-8.233	48.883	6.102	60.948	-8.233	-48.883	0.000	41.691	2.042	74.365	74.365
GROUP 1 WIND 4 2	1	1.334	8.978	1.121	11.194	1.334	0.000	-8.978	86.635	8.231	220.335	220.335
	2	-1.334	8.978	1.121	11.194	-1.334	-8.978	0.000	86.635	8.231	220.335	220.335
GROUP 1 WIND 5 1	1	6.639	39.667	4.951	49.457	6.639	0.000	39.667	5.250	-0.752	-5.776	-5.776
	2	-6.639	39.667	4.951	49.457	-6.639	-39.667	0.000	5.250	-0.752	-5.776	-5.776
GROUP 1 WIND 5 2	1	-1.553	-7.720	-0.964	-9.625	-1.553	0.000	7.720	60.888	6.044	157.591	157.591
	2	1.553	-7.720	-0.964	-9.625	1.553	7.720	0.000	60.888	6.044	157.591	157.591
LIVE LOAD LL 1	1	-1.955	-36.149	-4.454	-44.021	-1.955	0.000	36.149	0.000	0.000	0.000	0.000
	2	125.954	70.744	4.454	9.426	125.954	370.447	-441.191	0.000	0.000	0.000	0.000
LIVE LOAD LL 2	1	78.856	104.646	7.320	27.111	78.856	90.937	-195.567	0.000	0.000	0.000	0.000
	2	169.142	-71.029	-7.320	-60.727	169.142	512.221	-441.191	0.000	0.000	0.000	0.000
LIVE LOAD LL 3	1	64.469	-128.732	-10.787	-65.432	64.469	288.306	-159.574	0.000	0.000	0.000	0.000
	2	45.517	130.154	10.787	64.010	45.517	120.428	-250.582	0.000	0.000	0.000	0.000
LIVE LOAD LL 4	1	137.614	117.712	10.623	73.499	137.614	288.306	-406.018	0.000	0.000	0.000	0.000
	2	48.384	-137.235	-10.623	-53.975	48.384	137.235	0.000	0.000	0.000	0.000	0.000
LIVE LOAD LL 5	1	91.664	100.394	8.591	54.239	91.664	159.639	-260.033	0.000	0.000	0.000	0.000
	2	32.335	-105.783	-8.591	-48.850	32.335	105.783	0.000	0.000	0.000	0.000	0.000
LIVE LOAD LL 6	1	98.781	122.547	9.785	53.587	98.781	159.639	-282.185	0.000	0.000	0.000	0.000
	2	149.217	-112.299	-9.785	-63.835	149.217	431.576	-319.277	0.000	0.000	0.000	0.000
LIVE LOAD LL 7	1	130.674	116.066	9.785	60.068	130.674	260.585	-378.651	0.000	0.000	0.000	0.000
	2	117.324	-118.779	-9.785	-57.355	117.324	337.110	-218.331	0.000	0.000	0.000	0.000
LIVE LOAD LL 8	1	63.253	-90.525	-8.070	-54.738	63.253	250.582	-160.057	0.000	0.000	0.000	0.000
	2	122.745	103.359	8.070	42.104	122.745	338.032	-441.191	0.000	0.000	0.000	0.000

CAP ANALYSIS AND DESIGN DATA

CAP MOMENTS AND SHEARS

POINT	D.L.TOT.	MOMENTS(KIP-FEET) G1 MAX.+	G1 MAX.-	G2 MAX.+	G2 MAX.-	G3 MAX.+	G3 MAX.-	** DL T.LT	DL T.RT	SHEARS(KIPS) G1 + LT	G1 + RT	G1 - LT	G1 - RT
P 1	-4.124	-4.124	-4.124	-4.124	-4.124	-4.124	-4.124	-5.528	-276.578	-5.528	-276.578	-5.528	-380.756
P 2	-1472.607	-1472.607	-2007.362	-1472.607	-1472.607	-1472.607	-1792.819	-295.596	-295.596	-295.596	-295.596	-399.775	-399.775
C 1L	-1732.671	-1732.671	-2358.583	-1732.671	-1732.671	-1732.671	-2107.469	-298.837		-298.837		-403.017	
C 1R	-1671.464	-1592.984	-2618.127	-1598.941	-1787.942	-1538.962	-2369.975		321.068		520.476		316.823
P 3	-1391.948	-1317.182	-2164.129	-1324.125	-1500.877	-1267.231	-1977.446	317.826	317.826	517.234	517.234	313.581	313.581
P 4	484.351	1027.681	362.003	519.265	428.243	860.513	359.361	295.144	24.094	494.552	31.860	290.899	8.600
P 5	562.691	1066.069	412.864	562.691	562.691	864.115	472.974	0.000	0.000	7.767	7.767	-15.494	-15.494
P 6	484.351	1038.234	280.755	540.459	449.416	879.433	321.257	-24.094	-295.144	-16.327	-295.144	-39.588	-503.723
P 7	-1391.948	-1391.948	-2322.171	-1283.019	-1459.770	-1355.692	-2047.620	-317.826	-317.826	-317.826	-317.826	-526.405	-526.405
C 2L	-1671.464	-1671.464	-2783.495	-1554.985	-1743.987	-1668.917	-2442.841	-321.068		-321.068		-529.647	
C 2R	-1732.671	-1732.671	-2690.498	-1732.671	-1732.671	-1732.671	-2306.220		298.837		458.263		298.837
P 8	-1472.607	-1472.607	-2290.937	-1472.607	-1472.607	-1472.607	-1962.625	295.596	295.596	455.021	455.021	295.596	295.596
	-4.124	-4.124	-4.124	-4.124	-4.124	-4.124	-4.124	276.578	5.528	436.003	5.528	276.578	5.528

CAP DESIGN DATA

PT.	M+ UNF. K-FT.	M- UNF. K-FT.	TOP REINFORCE. AS	NO.SIZE	BOT.REINFORCE. AS	NO.SIZE	LEFT STIRRUPS M.SP.	AV/IN	BAR&SPAC	RIGHT STIRRUPS M.SP.	AV/IN	BAR&SPAC	D IN.	FC PSI	PS %	FS/FF RATIO	FS/FZ RATIO
	-3.172	-3.172	1.76	4 # 11	1.76	4 # 11	0.00	0.000	#5@ 0.00	21.98	0.057	#5@10.80	48.00		0.07	0.000	0.007
P 2	-1132.775	-1379.092	10.33	7 # 11	1.76	4 # 11	22.50	0.062	#5@10.03	22.50	0.062	#5@10.03	48.00		0.43	0.484	1.129
C 1	-1249.592	-1741.912	13.62	9 # 11	1.76	4 # 11	22.50	0.063	#5@ 9.81	22.50	0.114	#5@ 5.42	48.00		0.57	0.691	1.030
P 3	-1036.291	-1445.226	11.17	8 # 11	1.76	4 # 11	22.50	0.113	#5@ 5.49	22.50	0.113	#5@ 5.49	48.00		0.47	0.617	0.995
P 4	622.845	308.108	1.76	4 # 11	5.18	4 # 11	22.50	0.103	#5@ 6.01	0.00	0.000	#5@ 0.00	48.00		0.20	0.763	1.057
P 5	664.704	363.826	1.76	4 # 11	5.38	4 # 11	0.00	0.000	#5@ 0.00	0.00	0.000	#5@ 0.00	48.00		0.21	0.764	1.128
P 6	637.398	278.798	1.76	4 # 11	5.24	4 # 11	0.00	0.000	#5@ 0.00	22.50	0.107	#5@ 5.79	48.00		0.20	0.849	1.082
P 7	-1070.729	-1499.206	12.02	8 # 11	1.76	4 # 11	22.50	0.117	#5@ 5.30	22.50	0.117	#5@ 5.30	48.00		0.50	0.658	1.032
C 2	-1285.741	-1797.962	14.53	10 # 11	1.76	4 # 11	22.50	0.118	#5@ 5.24	22.50	0.087	#5@ 7.10	48.00		0.61	0.624	0.927
P 8	-1132.775	-1509.711	11.85	8 # 11	1.76	4 # 11	22.50	0.086	#5@ 7.22	22.50	0.086	#5@ 7.22	48.00		0.50	0.598	1.040
P 9	-3.172	-3.172	1.76	4 # 11	1.76	4 # 11	21.98	0.082	#5@ 7.56	0.00	0.000	#5@ 0.00	48.00		0.07	0.000	0.007

NOTE: *** FS/FZ RATIO EXCEEDS 1.0! ***

COLUMN ANALYSIS AND DESIGN OUTPUT

CRITICAL COLUMN LOADS

CN	T B	GR	LLC	WC	R	E S	C F	S F	PF	MTF	MLF	PM	MTM	MLM	PU	MTU	MLU	PU/PM	B	D
1	T	4	LL 3	0.0		S	C	S	709.1	-546.3	42.5	709.1	546.3	268.9	2255.0	1737.9	855.3	3.181	42.00	42.00
1	B	5		1.2	R	S			624.2	-739.4	-391.3	624.2	739.4	418.1	1494.0	1775.5	1003.8	2.398	42.00	42.00
2	T	4	LL 8	0.0		S	C	S	772.0	632.8	73.6	772.0	632.8	294.9	2176.5	1784.4	831.5	2.819	42.00	42.00
2	B	5		1.2		S		S	621.1	792.1	489.4	621.1	792.1	522.7	1308.6	1669.0	1101.3	2.107	42.00	42.00

COLUMN DESIGN DATA

CN	T B	B FACE 1 NO.SIZE	B FACE 2 NO.SIZE	D FACE 3 NO.SIZE	D FACE 4 NO.SIZE	AS	PS	BD12	BD	SUMPU	SUMPC	DEL.T	DEL.L	CM	R	PMIC
1	T	4 # 11	4 # 11	2 # 11	2 # 11	18.72	1.061	1.00	0.078	1421.	76622.	1.000	1.083	0.400	2	0.70
1	B	4 # 11	4 # 11	2 # 11	2 # 11	18.72	1.061	1.00	0.080	1229.	74950.	1.000	1.068	0.400	2	0.70
2	T	4 # 11	4 # 11	2 # 11	2 # 11	18.72	1.061	1.00	0.067	1520.	76269.	1.000	1.091	0.400	2	0.70
2	B	4 # 11	4 # 11	2 # 11	2 # 11	18.72	1.061	1.00	0.074	1229.	74694.	1.000	1.068	0.400	2	0.70

POOTING 1 DESIGN LOADS

F	G	LLID	WC	ES	C	S	P	MT	VT	ML	VL	P4	P3	P2	P1	MTF	VBF	VPF	LOAD
	4	LL 8	0.0	S	C	S	564.678	-505.087	-47.992	176.640	7.501	62.407	14.099	174.351	222.659	18.401	0.000	-0.384	MAX.P1
1	4	LL 3	0.0	S	C	S	733.311	-681.440	-66.658	165.834	7.710	67.795	21.886	239.682	285.591	24.366	0.000	-0.499	MAX.MT
1	1	LL 4	0.0		C	S	914.523	183.657	22.256	229.632	9.752	190.244	127.443	189.718	252.518	20.330	0.000	-0.499	MAX.VT
1	1	LL 4	0.0		C	S	914.523	183.657	22.256	229.632	9.752	190.244	127.443	189.718	252.518	20.330	0.000	-0.499	MAX.VP
1	3	LL 4	1.2		C	S	816.086	149.638	16.481	655.769	25.033	234.110	57.114	106.476	283.473	23.992	0.000	-0.499	MAX.ML
1	1	LL 4	0.0		C	S	914.523	183.657	22.256	229.632	9.752	190.244	127.443	189.718	252.518	20.355	0.000	-0.499	MAX.VL
1	4	LL 8	0.0	S	C	S	564.678	-505.087	-47.992	176.640	7.501	62.407	14.099	174.351	222.659	18.401	0.000	-0.384	MAX.P3

POOTING 1 ANALYSIS/DESIGN RESULTS

FOOTING SIZE			* BAR REINFORCEMENT STEEL					* SECTION CAPACITIES				
B	D	T	P1/PA	AS	NO.SIZE	SPAC.	PLACEMENT	MT.	VB	VP	DS	FC
7.200	7.200	3.500	0.928	0.25	10 # 4	@ 8.625	TOP LONG	35.021	34.094	68.189	28.250	0.000
				0.25	10 # 4	@ 8.625	BOT.TRAN	35.646	34.698	69.396	28.750	0.000

NUMBER OF PILES = 5 BP = 2.100 DP = 2.100

POOTING 2 DESIGN LOADS

F	G	LLID	WC	ES	C	S	P	MT	VT	ML	VL	P4	P3	P2	P1	MTF	VBF	VPF	LOAD
2	4	LL 8	0.0	S	C	S	602.821	619.619	60.512	176.640	7.501	78.765	46.040	180.138	212.863	55.537	-0.244	13.342	MAX.P1
2	4	LL 8	0.0	S	C	S	783.667	805.505	78.666	229.632	9.752	102.394	59.851	234.180	276.722	72.197	-0.317	17.345	MAX.MT
2	4	LL 8	0.0	S	C	S	783.667	805.505	78.666	229.632	9.752	102.394	59.851	234.180	276.722	72.197	-0.317	17.345	MAX.VT
2	1	LL 1	0.0		C	S	880.653	115.704	19.971	165.834	7.710	188.266	157.166	187.102	218.202	56.702	-0.317	19.511	MAX.VP
		LL 2	3.2		C	S	837.483	29.367	3.633	648.763	24.788	234.972	116.340	123.127	241.760	67.183	-0.317	18.547	MAX.ML
2	4	LL 8	0.0	S	C	S	783.667	805.505	78.666	229.632	9.752	102.394	59.851	234.180	276.722	52.859	-0.317	17.345	MAX.VL
2	5		1.2	S		S	496.880	633.715	58.711	391.511	18.594	77.407	3.764	139.119	212.763	49.503	-0.244	10.976	MAX.P3

POOTING 2 ANALYSIS/DESIGN RESULTS

FOOTING SIZE			* BAR REINFORCEMENT STEEL					* SECTION CAPACITIES				
B	D	T	P1/PA	AS	NO.SIZE	SPAC.	PLACEMENT	MT.	VB	VP	DS	FC
9.200	9.200	3.500	0.887	0.64	20 # 5	@ 5.500	TOP LONG	83.385	33.868	67.736	28.062	0.000
				0.63	19 # 5	@ 5.750	BOT.TRAN	81.098	34.622	69.245	28.688	0.000

NUMBER OF PILES = 5 BP = 3.100 DP = 3.100

CALCULATION COVER SHEET

PROJECT	JOB NO.	CALC NO.	SHEET
I-75 / I-575 NORTHWEST CORRIDOR	NH000-0073-03(242)	BR#33	1
SUBJECT	DISCIPLINE		
References for Design	STRUCTURAL		

CALCULATION STATUS DESIGNATION	PRELIMINARY	CONFIRMED	SUPSEDED	VOIDED	INCOMPLETE
	☐	☐	☐	☐	X

COMPUTER PROGRAM/TYPE	SCP	MAINFRAME	PC	PROGRAM	VERSION/RELEASE NO.
	◯ YES ◯ NO	◯	◯	NONE	

Note 1: Georgia Department of Transportation (GDOT) terminated Contract Number TOURDPPI60072 for its convenience the completion of all work under that contract and directed that the work with respect to these calculations be discontinued.
(a) These calculations were not completed at the time of GDOT's direction and the information contained herein is not and/or has not been fully verified or checked. These calculations are a work-in-progress and are presented only as such.
(b) Any user is cautioned that the use of these calculations and any related information or calculations, without access to factors and without proper regard for their purpose, could lead to erroneous conclusions.
(c) If any such calculations or any information contained herein is used in future work efforts or any follow on design work a complete confirmation of the information contained herein should be performed prior to any such use.
(d) GTP has no responsibility for the use of this information not under its direct control.

Included Reference Information:

- Roadway information
- Bridge Survey Shots
- Existing Bridge Plans
- Existing Bridge Maintenance Reports

NO.	REASON FOR REVISION	TOTAL NO. OF SHEETS	LAST SHEET NO.	BY	CHECKED	APPROVED/ ACCEPTED	DATE
A	As per GDOT's termination for convenience direction	55	55	JCR			11/30/09

RECORD OF REVISIONS

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0073-03(242)
CALC NO. BR#33

SUBJECT: Roadway Information
BY: JCR DATE: 11/30/2009

SHEET NO.
SHEET REV.

I-75 ALIGN

Element: Linear

PI	( )	890+82.1065	1467607.2270	2172269.7940
PI	( )	905+54.2556	1469042.1850	2171940.9800
Tangential Direction:		N 12°54'22.5001" W		
Tangential Length:		1472.1491		

Element: Linear

PI	( )	905+54.2556	1469042.1850	2171940.9800
PC	( )	909+48.6002	1469426.3636	2171852.0166
Tangential Direction:		N 13°02'16.9626" W		
Tangential Length:		394.3446		

Element: Circular

BR#33

PC	( )	909+48.6002	1469426.3636	2171852.0166
PI	( )	921+84.8998	1470630.7919	2171573.1099
CC	( )		1468097.5914	2166113.8580
PCC	( )	933+85.8181	1471621.4280	2170833.4635
Radius:		5890.0000		
Delta:		23°42'30.1308" Left		
Degree of Curvature (Arc):		0°58'21.9492"		
Length:		2437.2179		
Tangent:		1236.2996		
Chord:		2419.8674		
Middle Ordinate:		125.6127		
External:		128.3500		
Tangent Direction:		N 13°02'16.9626" W		
Radial Direction:		N 76°57'43.0375" E		
Chord Direction:		N 24°53'32.0281" W		
Radial Direction:		N 53°15'12.9065" E		
Tangent Direction:		N 36°44'47.0936" W		

Element: Circular

PCC	( )	933+85.8181	1471621.4280	2170833.4635
PI	( )	958+23.3359	1473574.5896	2169375.1588
CC	( )		1462677.2247	2158854.1593
PT	( )	982+18.3313	1474963.3729	2167371.9679
Radius:		14950.0000		
Delta:		18°31'14.0737" Left		
Degree of Curvature (Arc):		0°22'59.6977"		
Length:		4832.5132		
Tangent:		2437.5178		
Chord:		4811.5016		
Middle Ordinate:		194.8361		
External:		197.4088		
Tangent Direction:		N 36°44'47.0936" W		
Radial Direction:		N 53°15'12.9065" E		
Chord Direction:		N 46°00'24.1304" W		
Radial Direction:		N 34°43'58.8330" E		
Tangent Direction:		N 55°16'01.1671" W		

PROJECT:	NW Corridor
COUNTY:	COBB
BRIDGE:	33
DESCRIPTION:	I-75 over Frey Rd

VERTICAL GRADE DATA FOR NEW ALIGNMENT, ADJUSTED FOR SURVEY DIFF.:

PVC =	923+39.81	PVI =	929+39.81	PVT =	935+39.81
PVI EL. =	1077.7500	PVI EL. =	1089.75	PVI EL. =	1094.2500
		VC Length (ft) =	1200		

ELEVATION COMPARISON, ADJUSTED FOR SURVEY DIFF.

BENT 1R LEFT SIDE		BENT 1R RIGHT SIDE	
Geomath Rdy EL. =	1086.022	Geomath Rdy EL. =	1088.969
Survey EL. =	1086.059	Survey EL. =	1088.944
DIFFERENCE =	-0.037	DIFFERENCE =	0.025

BENT 2R LEFT SIDE		BENT 2R RIGHT SIDE	
Geomath Rdy EL. =	1087.467	Geomath Rdy EL. =	1090.500
Survey EL. =	1087.413	Survey EL. =	1090.448
DIFFERENCE =	0.054	DIFFERENCE =	0.052

BENT 3R LEFT SIDE		BENT 3R RIGHT SIDE	
Geomath Rdy EL. =	1089.117	Geomath Rdy EL. =	1091.971
Survey EL. =	1089.062	Survey EL. =	1091.904
DIFFERENCE =	0.055	DIFFERENCE =	0.067

BENT 4R LEFT SIDE		BENT 4R RIGHT SIDE	
Geomath Rdy EL. =	1090.481	Geomath Rdy EL. =	1093.317
Survey EL. =	1090.567	Survey EL. =	1093.424
DIFFERENCE =	-0.086	DIFFERENCE =	-0.107

Mean EL. Difference =	0.003

FREY RD ALIGN

		Station	Northing	Easting
Element: Linear				
POB	( )	97+41.5134	1471037.5280	2171056.5920
POE	( )	103+04.8493	1471600.8130	2171064.1640
Tangential Direction:		N 0°46'12.5628" E		
Tangential Length:		563.3359		

Alignment Name: XR 1041+50 Hickory Grove
Alignment Description: Hickory Grove Road
Alignment Style: MAIN_P_SIDECL

		Station	Northing	Easting
Element: Linear				
POB	( )	91+22.3408	1478728.2692	2162057.1835
PC	( )	103+61.2410	1478859.6912	2163289.0933
Tangential Direction:		N 83°54'38.2814" E		
Tangential Length:		1238.9002		
Element: Circular				
PC	( )	103+61.2410	1478859.6912	2163289.0933
PI	( )	106+51.0094	1478890.4297	2163577.2267
CC	( )		1478282.9637	2163350.6195
PT	( )	108+98.7016	1478678.4923	2163774.8330
Radius:		580.0000		
Delta:		53°05'36.5529" Right		
Degree of Curvature (Arc):		9°52'42.8976"		
Length:		537.4606		
Tangent:		289.7684		
Chord:		518.4362		
Middle Ordinate:		61.1494		
External:		68.3562		
Tangent Direction:		N 83°54'38.2814" E		
Radial Direction:		S 6°05'21.7185" E		
Chord Direction:		S 69°32'33.4421" E		
Radial Direction:		S 47°00'14.8344" W		
Tangent Direction:		S 42°59'45.1657" E		
Element: Linear				
PT	( )	108+98.7016	1478678.4923	2163774.8330
POE	( )	109+99.9882	1478604.4110	2163843.9050
Tangential Direction:		S 42°59'45.1657" E		
Tangential Length:		101.2866		

J. B. Thomble, Inc.

PVC	61+60.0000	962.6296
PVI	63+10.0000	963.6800
PVT	64+60.0000	968.4783
Length:	300.0000	
Entrance Grade:	0.70%	
Exit Grade:	3.20%	
r = (g2 - g1) / L:	0.8328	
K = l / (g2 - g1):	120.0700	
Middle Ordinate:	0.9370	

Element: Linear

PVT	64+60.0000	968.4783
PVI	70+07.4400	985.9900
Tangent Grade:	3.20%	
Tangent Length:	547.4400	

Element: Linear

PVI	70+07.4400	985.9900
POE	571+58.3447	973.4185
Tangent Grade:	-0.03%	
Tangent Length:	50150.9047	

Horizontal Alignment: XR 930+00 Frey/Barrett Lakes
Horizontal Description: I-75 Frey/Barret Lakes Blvd
Horizontal Style: MAIN_P_SIDECL

Station	Elevation

Vertical Alignment: Point Profile
Vertical Description: Frey/Barrett Lakes Point Profile
Vertical Style: MAIN_P_SIDECL

J. B. Trimble, Inc.

Element: Linear

POB	97+41.5134	1063.9017
PVI	97+50.0000	1063.8355
Tangent Grade:	-0.78%	
Tangent Length:	8.4866	

Element: Linear

PVI	97+50.0000	1063.8355
PVI	98+00.0000	1063.4695
Tangent Grade:	-0.73%	
Tangent Length:	50.0000	

Element: Linear

PVI	98+00.0000	1063.4695
PVI	98+50.0000	1063.2343
Tangent Grade:	-0.47%	
Tangent Length:	50.0000	

Element: Linear

PVI	98+50.0000	1063.2343
PVI	99+00.0000	1063.0571

Tangent Grade:	-0.35%	
Tangent Length:	50.0000	

Element: Linear

PVI	99+00.0000	1063.0571
PVI	99+50.0000	1062.8992
Tangent Grade:	-0.32%	
Tangent Length:	50.0000	

Element: Linear

PVI	99+50.0000	1062.8992
PVI	100+00.0000	1062.7017
Tangent Grade:	-0.39%	
Tangent Length:	50.0000	

Element: Linear

PVI	100+00.0000	1062.7017
PVI	100+50.0000	1062.4749
Tangent Grade:	-0.45%	
Tangent Length:	50.0000	

Element: Linear

PVI	100+50.0000	1062.4749
PVI	101+00.0000	1062.2298
Tangent Grade:	-0.49%	
Tangent Length:	50.0000	

Element: Linear

PVI	101+00.0000	1062.2298
PVI	101+50.0000	1061.9666
Tangent Grade:	-0.53%	
Tangent Length:	50.0000	

Element: Linear

PVI	101+50.0000	1061.9666
PVI	102+00.0000	1061.7844
Tangent Grade:	-0.36%	
Tangent Length:	50.0000	

Element: Linear

PVI	102+00.0000	1061.7844
PVI	102+50.0000	1061.6161
Tangent Grade:	-0.34%	
Tangent Length:	50.0000	

Element: Linear

PVI	102+50.0000	1061.6161
PVI	103+00.0000	1061.3864
Tangent Grade:	-0.46%	
Tangent Length:	50.0000	

Element: Linear

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0073-03(242)
CALC NO. BR#33

SUBJECT: Bridge Survey Shots
BY: JCR DATE: 11/30/2009

SHEET NO.
SHEET REV.

I-75 over Frey Rd (Existing Right Bridge)

BENT 1 LEFT SIDE
SVXA45045 N 1471135.270200 E 2171145.979100 Z 1086.044 TBRDG
"ZEP"
SVXA45046 N 1471135.243800 E 2171145.910400 Z 1086.042 TBAS
"ZAS553"
SVXB53557 N 1471135.160500 E 2171146.430200 Z 1086.059 TBRDG
BENT 1 RIGHT SIDE
SVXA45049 N 1471234.526700 E 2171154.606400 Z 1088.944 TBRDG
"ZEP"
SVXA45050 N 1471234.770700 E 2171154.506000 Z 1088.950 TBRDG
"ZEP"
SVXB53545 N 1471235.366400 E 2171154.609600 Z 1089.048 TBRDG

BENT 2 LEFT SIDE
SVXA45042 N 1471220.064200 E 2171093.372800 Z 1087.413 TBRDG
"ZEJ549"
BENT 2 RIGHT SIDE
SVXA45053 N 1471329.249800 E 2171094.585800 Z 1090.448 TBRDG
"ZEJ548"

BENT 3 LEFT SIDE
SVXA45039 N 1471323.447600 E 2171026.741700 Z 1089.062 TBRDG
"ZEJ546"
BENT 3 RIGHT SIDE
SVXA45056 N 1471428.826000 E 2171027.789100 Z 1091.904 TBRDG
"ZEJ546"

BENT 4 LEFT SIDE
SVXA45035 N 1471416.659600 E 2170963.917200 Z 1090.413 TBAS
"ZAS552"
SVXA45036 N 1471416.566400 E 2170963.941000 Z 1090.384 TBRDG
"ZEP"
SVXB53616 N 1471416.601600 E 2170963.761800 Z 1090.567 TBRDG
BENT 4 RIGHT SIDE
SVXA45058 N 1471528.028300 E 2170958.499600 Z 1093.389 TBRDG
"ZEP"
SVXA45061 N 1471528.052300 E 2170958.412000 Z 1093.320 TBAS
"ZAS552"
SVXB53632 N 1471528.401800 E 2170958.286500 Z 1093.424 TBRDG

[redacted]

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0073-03(242)
CALC NO. BR#33

SUBJECT: Existing Bridge Plans
BY: JCR DATE: 11/30/2009

SHEET NO.
SHEET REV.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	GA	I-285-1(28)284 Contract 5	75	35	214

"A" = STA. 883+99.09 ℓ
= STA. 46+21.62 STEVE FREY ROAD

TO ATLANTA

TO CHATTANOOGA TENN

ℓ LT BRIDGE

ℓ RIGHT BRIDGE

PROFILE GRADE LINE

PROFILE GRADE LINE

ℓ I-75

ℓ STEVE FREY ROAD

POINT OF MIN. VERTICAL CLEARANCE

2'-0" DITCH

2'-0" DITCH

2'-0" TYP.

LIMIT OF SLOPE PAVING TYP

LIMIT OF SLOPE PAVING, TYP.

PVI STA. 870+00
ELEV. 1050.0
+2.0%
+0.75%

1200' V.C.

MAINLINE GRADE DATA

35°

BEGIN LT. BRIDGE STA. 888+35.5

BEGIN RT BRIDGE STA. 888+40

35°-15'

35°-15'-36"

"A"

END LT BRIDGE STA. 891+77.5

END RT BRIDGE STA. 891+71

31°-30'

31°-30'

LIMIT OF SLOPE PAVING, TYP.

300' V.C.

-1.2%

-0.4%

PVI STA. 43+50
ELEV. 1068.36

STEVE FREY ROAD GRADE DATA

MAINLINE CURVE DATA
Δ = 23°-35'-58" LT
D = 1°00'
T = 1195.13
L = 2356.47
SE = 0.03 FT/FT
t = 150'

TABLE OF LETTERED DIMENSIONS & ELEVATIONS		
DIMENSION \ BRIDGE	LEFT	RIGHT
A	91'-8 11/16"	105'-9 7/16"
B	124'-7 5/16"	121'-7 1/8"
C	109'-4 5/16"	118'-3 3/8"
ELEVATION \ BRIDGE	LEFT	RIGHT
1	1084.03	1081.36
2	1083.51	1086.85
3	1091.37	1090.41
4	1088.84	1091.79

ABOVE ELEVATIONS ARE ROAD & BRIDGE AT INTERSECTION OF ℓ BRIDGE AND ℓ B.F.P.R. OR ℓ BENT AND ARE FINISHED GRADE.

ABOVE DIMENSIONS ARE BETWEEN B.F.P.R. AND ℓ BENT OR ℓ BENT AND ℓ BENT ALONG ℓ BRIDGE.

ANGLES MEASURED TO TANGENT TO ℳ I-75.

PLAN

"A" "B" "C"

ELEV. 1 ELEV. 2 ELEV. 3 ELEV. 4

EXP FIX EXP FIX EXP

BENT 1 BENT 2 BENT 3 BENT 4

NORMAL TO DITCH

NORMAL TO DITCH

4" CONCRETE SLOPE PAVING, TYP.

PILES IN END BENTS NOT SHOWN

X-X RADIAL DIMENSIONS

ELEVATION LEFT BRIDGE
RIGHT BRIDGE SIMILAR

BRIDGE CONSISTS OF

3 - SIMPLE COMPOSITE PLATE GIRDER (147' MEAN) SPANS ------ SPECIAL DESIGN
2 - CONCRETE END BENTS ------ SPECIAL DESIGN
4 - CONCRETE INTERMEDIATE BENTS (SEE SHEET 15) ------ SPECIAL DESIGN
ALUMINUM HANDRAILING ------ GA. STD. NO. 3626(M10.)(10-29-74)
BAR BENDING DETAILS ------ GA. STD. NO. 3901
TYPICAL FILL DETAIL AT END OF BRIDGE ------ GA. STD. NO. 9037(9-1-73)
END POST AND END POST SUBMANIL ATTACHMENT DETAILS ------ GA. STD. NO. 9055(M10)
L = 6'-10", 8'-3", 6'-8"; M = 1'-5"; N = 3'-2"

GENERAL NOTES

SPECIFICATIONS - GEORGIA STANDARD DATED 1972.

CHAMFER - ALL EXPOSED EDGES SHALL CHAMFERED 3/4 INCH UNLESS OTHERWISE NOTED.

PROTECTIVE SURFACE TREATMENT - PER SECTION 500.13C WILL BE REQUIRED AT THIS SITE.

REINFORCEMENT - ALL REINFORCEMENT SHALL BE PLACED AND TIED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. WELDING OF REINFORCEMENT WILL NOT BE PERMITTED, EXCEPT AS SHOWN ON THE PLANS.

DRIVING DATA PILES - ONE REQUIRED AT EACH OF BENTS 1, 2, AND 4.

PLAN DRIVING OBJECTIVE - SEE SUBSTRUCTURE DETAILS.

SUMMARY OF QUANTITIES

AT	AR	
484	573	CU YD BR EXCAV, GR SEP
413	412	CU YD BR BKFILL
2,075	2,150	SQ YD CONC SLOPE PAV, 4 IN
LUMP	—	SUPERSTR CONC (CL AA) - BR NO 3 LT
—	LUMP	SUPERSTR CONC (CL AA) - BR NO 3 RT
637	674	CU YD CL A CONC
LUMP	—	STR STEEL - BR NO 3 LT
—	LUMP	STR STEEL - BR NO 3 RT
99,681	93,984	LB BAR REINF STEEL
LUMP	—	SUPERSTR REINF STEEL - BR NO 3 LT
—	LUMP	SUPERSTR REINF STEEL - BR NO 3 RT
446	481	LIN FT ALUM HANDRAIL, STD 3626
1,458	1,937	LIN FT PILING IN PLACE, STEEL H, 10 BP 42
1	1	EACH LOAD TEST, STEEL H, 10 BP 42 (IF REQD)

DESIGN DATA

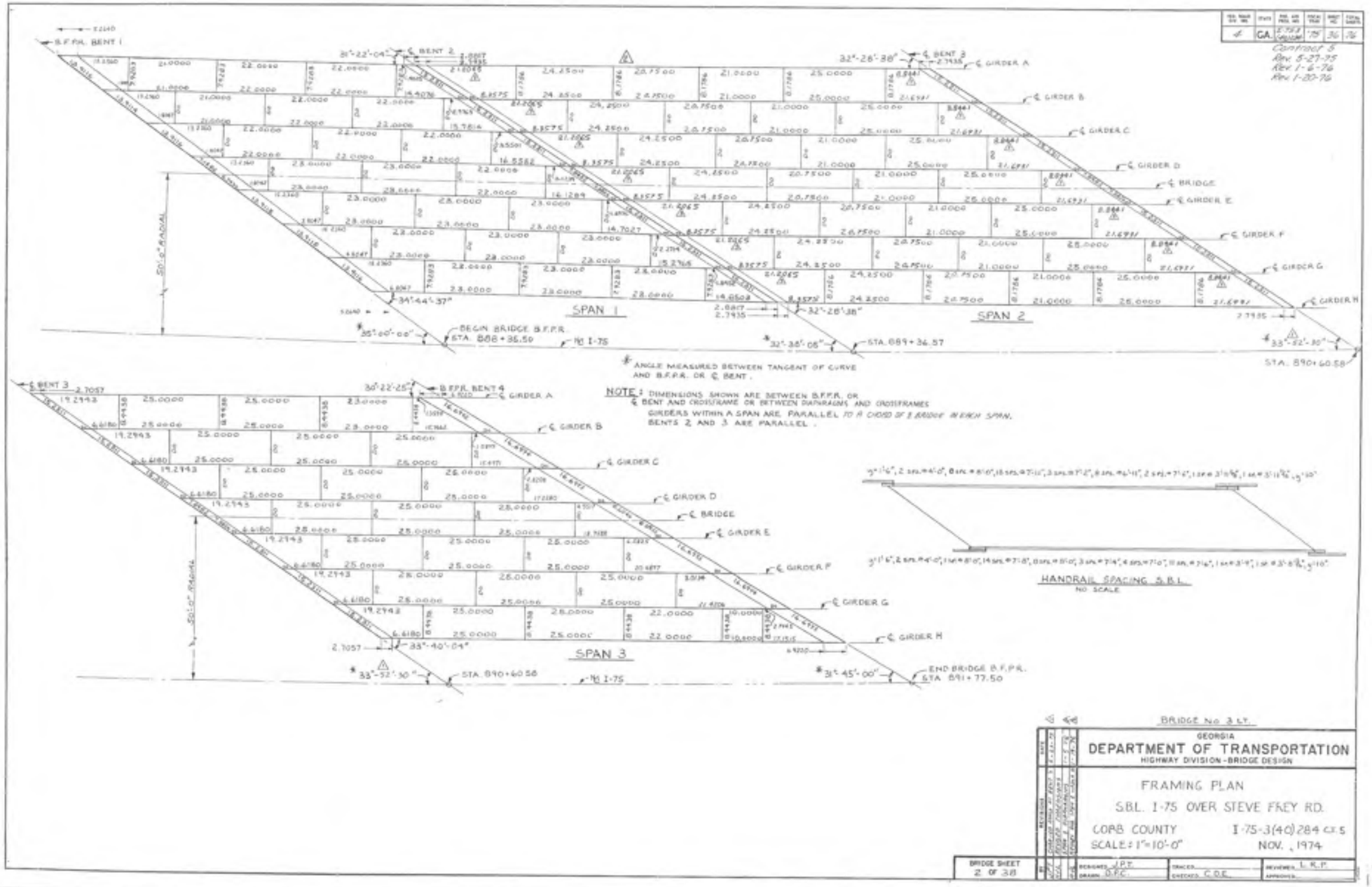
SPECIFICATIONS - A.A.S.H.O., 1973
TYPICAL H520-44 AND/OR MILITARY LOADING - IMPACT ALLOWED
FUTURE PAVING ALLOWANCE = 15 LBS. PER SQ. FT.
ALLOWABLE SOIL PRESSURE - SEE SUBSTRUCTURE DETAILS.

BRIDGE No 3LT & 3RT.

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

PLAN AND ELEVATION
I-75 OVER STEVE FREY ROAD
COBB COUNTY I-75-3(30)284 CTS
SCALE: 1"=20'-0" JULY, 1973

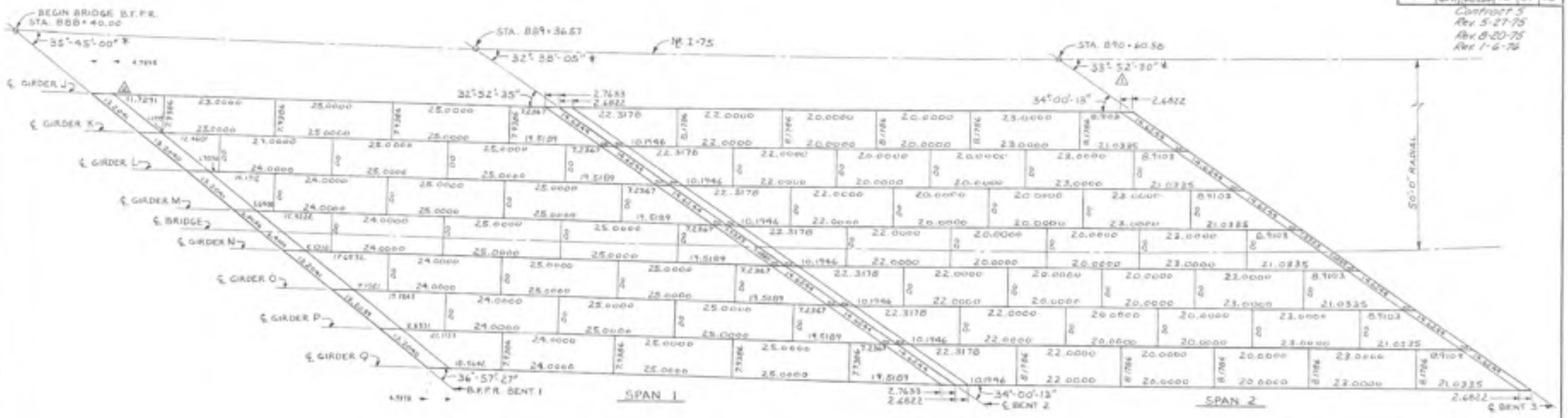
BRIDGE SHEET	DESIGNED F.E.H.	TRACED	REVIEWED L.R.P.
1 OF 38	DRAWN C.D.E.	CHECKED J.P.T.	APPROVED

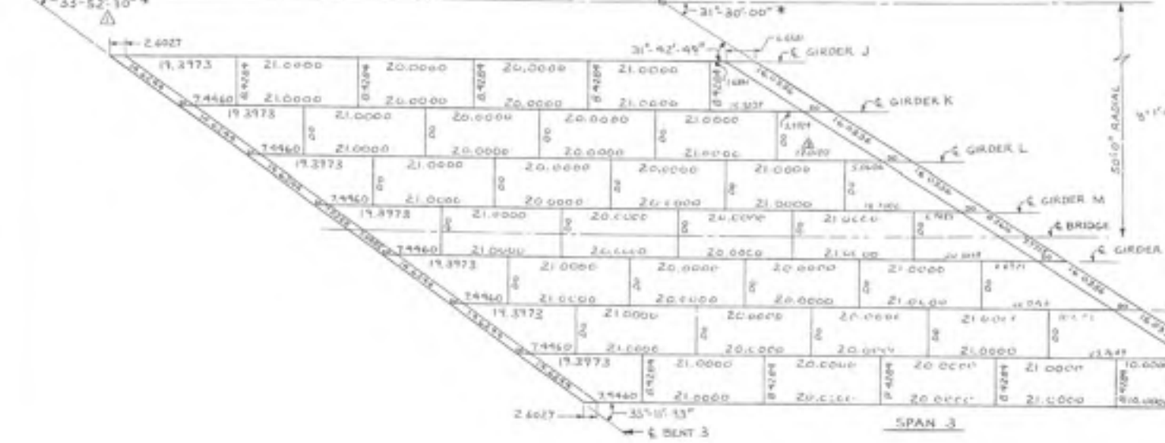


SPAN 1
SPAN 2
SPAN 3
BEGIN BRIDGE B.F.P.R.
STA. 888+35.50
STA. 889+36.57
STA. 890+60.58
END BRIDGE B.F.P.R.
STA. 891+77.50
* ANGLE MEASURED BETWEEN TANGENT OF CURVE AND B.F.P.R. OR ℄ BENT.
NOTE: DIMENSIONS SHOWN ARE BETWEEN B.F.P.R. OR ℄ BENT AND CROSSFRAME OR BETWEEN DIAPHRAGMS AND CROSSFRAMES
GIRDERS WITHIN A SPAN ARE PARALLEL TO A CHORD OF 3 BRIDGE IN EACH SPAN.
BENTS 2 AND 3 ARE PARALLEL.
HANDRAIL SPACING S.B.L.
NO SCALE
Contract 5
Rev. 5-27-75
Rev. 1-6-76
Rev. 1-20-76
BRIDGE No. 3 LT.
GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN
FRAMING PLAN
S.B.L. I-75 OVER STEVE FREY RD.
COBB COUNTY
I-75-3(40) 284 C.X.5
SCALE: 1"=10'-0"
NOV., 1974
BRIDGE SHEET 2 OF 38
DESIGNED J.P.T.
DRAWN D.P.C.
CHECKED C.D.E.
REVIEWED L.K.P.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TOTAL SHEETS	SHEET NO.	TOTAL SHEETS
4	GA	I-285-1 (40)284	175	37	76

Contract 5
Rev. 5-27-75
Rev. 8-20-75
Rev. 1-6-76





* ANGLE MEASURED BETWEEN TANGENT OF CURVE AND B.F.F.R. OR ℄ BENT.

NOTE: DIMENSIONS SHOWN ARE BETWEEN B.F.F.R. OR ℄ BENT AND CRUSFRAME OR BETWEEN DIAPHRAGM AND CRUSFRAMES.
GIRDERS WITHIN A SPAN ARE PARALLEL TO A CHORD OF A PARABOLA IN EACH SPAN.
BENTS 2 AND 3 ARE PARALLEL.

HANDRAIL SPACING N.B.L.
NO SCALE

BRIDGE No. 3 RT.

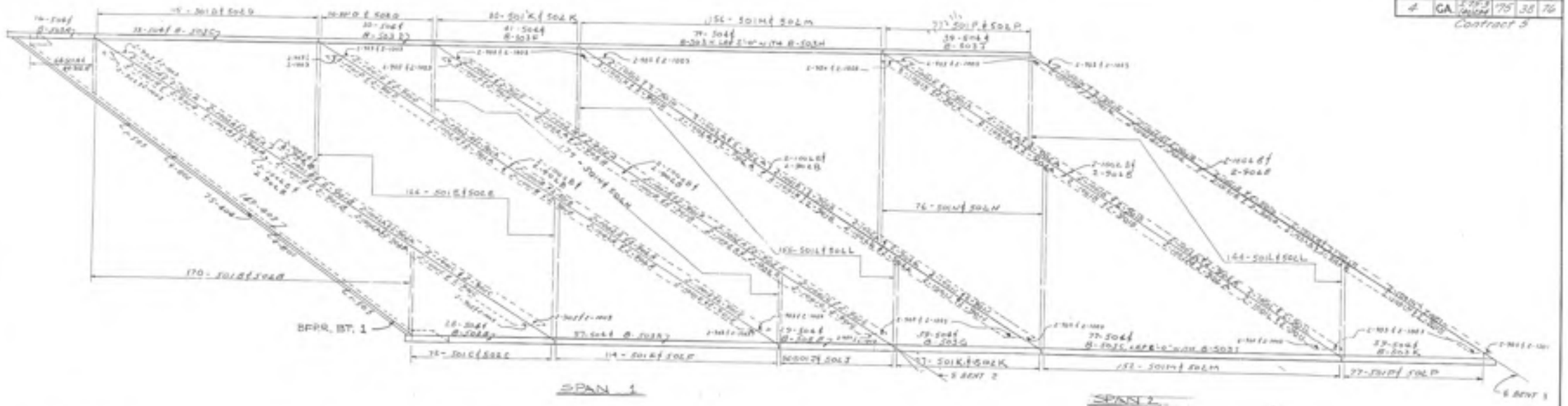
GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

FRAMING PLAN
N.B.L. I-75 OVER STEVE FREY RD.
COBB COUNTY I-75-3 (40) 284 C S
SCALE: 1"=10'-0" NOV., 1974

BRIDGE SHEET	DESIGNED J.E.T.	TRACED	REVIEWED T.P.P.
3 OF 38	DRAWN D.P.C.	CHECKED C.D.E.	APPROVED

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
4	GA	I-75-3(44)284	35	76

Contract 5



BRIDGE No. 3 LT.

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

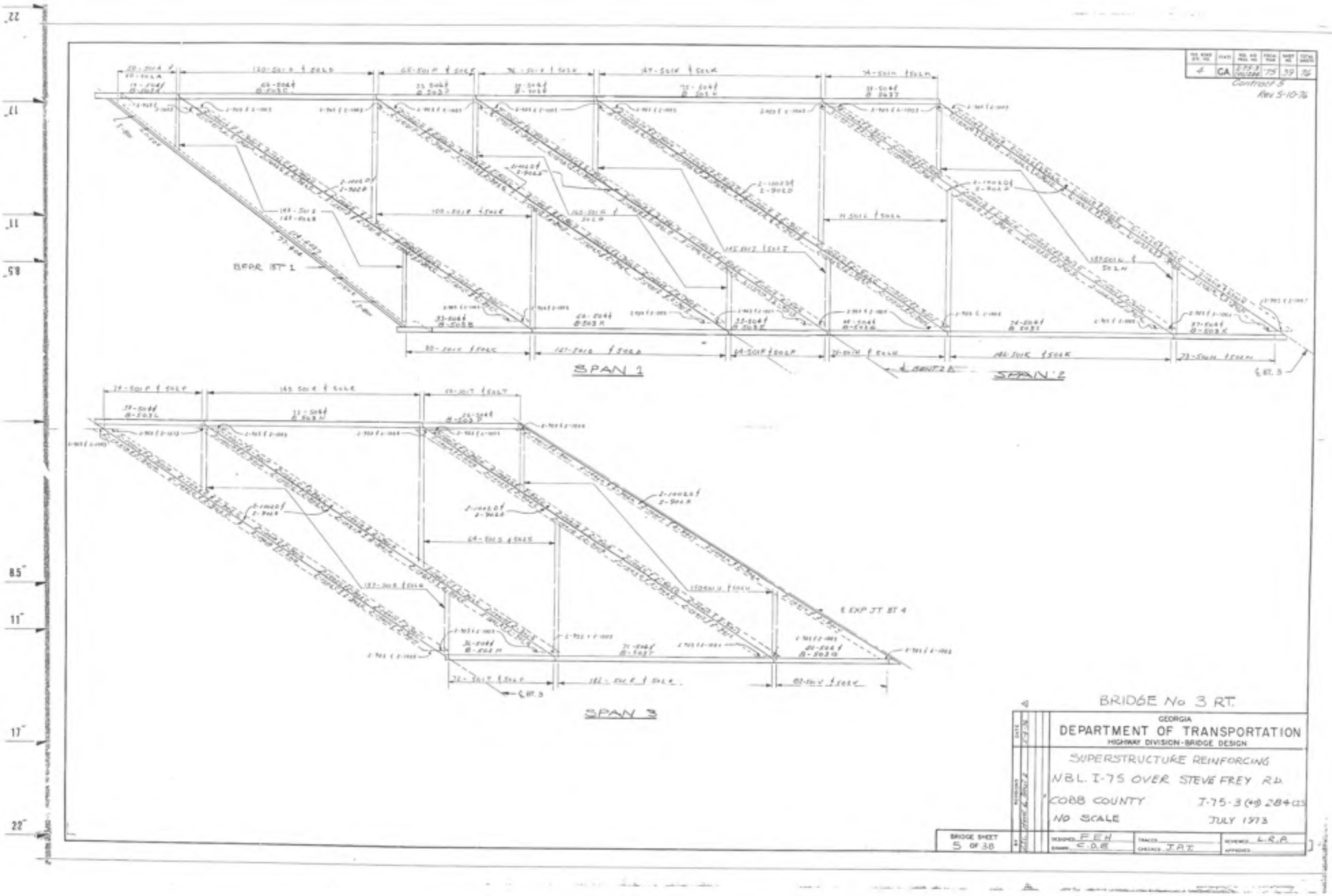
SUPERSTRUCTURE REINFORCING

S.B.L. I-75 OVER STEVE FREY R.D.

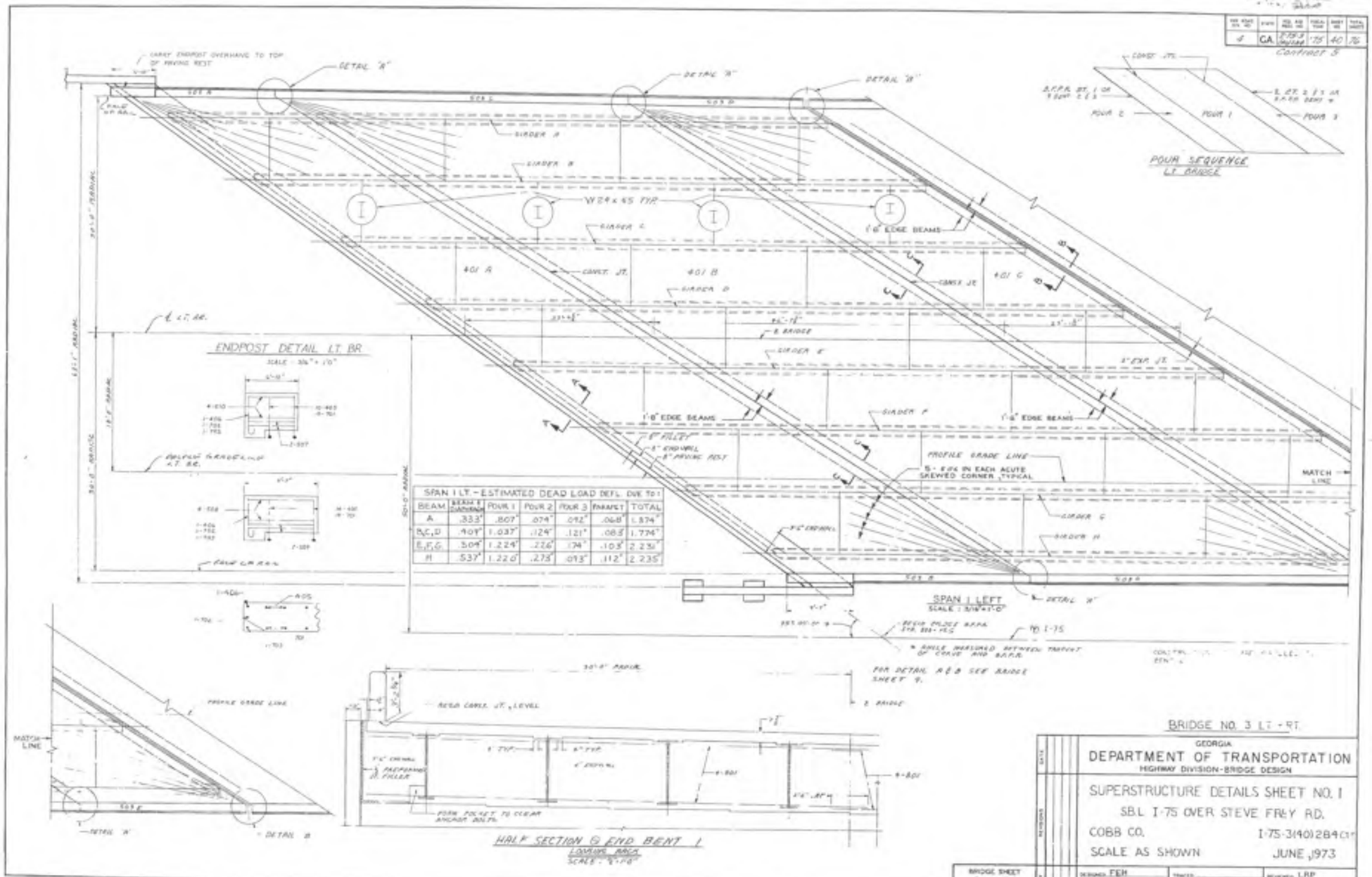
COBB COUNTY — I-75-3(44) 284 C.S.

NO SCALE — JULY 1973

BRIDGE SHEET	DESIGNED F.E.H.	TRACED	REVIEWED L.R.P.
4 OF 38	DRAWN C.D.E.	CHECKED J.P.T.	APPROVED



4
GA
I-75-3
75
39
76
Contract 5
Rev 5-10-76
BFPR BT 1
SPAN 1
SPAN 2
SPAN 3
℄ EXP JT BT 4
BRIDGE No 3 RT.
GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION-BRIDGE DESIGN
SUPERSTRUCTURE REINFORCING
NBL. I-75 OVER STEVE FREY RD.
COBB COUNTY
I-75-3 (49) 284 CS
NO SCALE
JULY 1973
BRIDGE SHEET
5 OF 38
DESIGNED F.E.H.
DRAWN C.D.E.
TRACED
CHECKED J.P.T.
REVIEWED L.R.P.
APPROVED



SPAN 1 LT. - ESTIMATED DEAD LOAD DEFL. DUE TO:						
BEAM	BEAM & DIAPHRAGM	POUR 1	POUR 2	POUR 3	PARAPET	TOTAL
A	.333"	.807"	.074"	.092"	.068"	1.374"
B,C,D	.409"	1.037"	.124"	.121"	.083"	1.774"
E,F,G	.504"	1.224"	.226"	.174"	.103"	2.231"
H	.537"	1.220"	.273"	.093"	.112"	2.235"

4	GA.	2-75-3	75	40	76

Contract 5

BRIDGE NO. 3 LT. - RT.

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION-BRIDGE DESIGN

SUPERSTRUCTURE DETAILS SHEET NO. 1
SBL I-75 OVER STEVE FREY RD.
COBB CO. I-75-3(40)284 CT
SCALE AS SHOWN JUNE, 1973

BRIDGE SHEET 8 OF 38

DESIGNED FEH | TRACED | REVIEWED LRP
DRAWN GPC | CHECKED CDE | APPROVED

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	GA	I-75-3 (40)284	75	91	76

Contract 3
Rev. 1-20-76
Rev. 5-10-76

DETAIL "B" DETAIL "A" DETAIL "A" DETAIL "B"

W 24 x 68 TYP

℄ GIRDER - A

℄ GIRDER - B

℄ GIRDER - C

℄ GIRDER - D

℄ GIRDER - E

℄ GIRDER - F

℄ GIRDER - G

℄ GIRDER - H

1'-6" EDGE BEAMS

℄ BENT 2

℄ BENT 3

℄ BRIDGE

℄ CONST. JT.

MATCH LINE

401 D

5" ESA JT.

5 - 5 GR IN EACH ACUTE SKEWED CORNER, TYPICAL

PROFILE GRADE LINE

DETAIL "A"

DETAIL "B"

SPAN 2 LEFT
SCALE 1 3/16" = 1'-0"

HALF SECTION @ CONST. JT.

NOTE: STRUCTURAL STEEL AT BENT 4 IS INCLUDED IN SPAN 3 STRUCTURAL STEEL QUANTITIES.

2-10GI SERIES
2-9GI SERIES
SLAB REINF. NOT SHOWN
1-10GE BARS
2-9GE BARS
#4 CL. 3 HOOPS, TYPICAL
#4 CUT SLOT IN CAP SURFACE WEB FOR 10GI & 9GI BARS.

SECTION C-C
SCALE: 3/4" = 1'-0"

SPAN 2 LT. - ESTIMATED DEAD LOAD DEFLECTION DUE TO:

BEAM	DEAD 1 GIRDER	FOUR 1	FOUR 2	FOUR 3	PARAPET	TOTAL
A	1.479"	2.845"	.487"	.352"	.297"	5.110"
INT.	1.479"	3.137"	.519"	.417"	.281"	5.835"
H	1.479"	2.600"	.444"	.356"	.295"	5.176"

TABLE OF QUANTITIES BR No 3 LT

ITEM / SPAN	1 LT.	2 LT.	3 LT.	TOTAL
CU. YDS. CLASS "AA" CONCRETE	282.50	276.49	244.55	758.89
LBS. STRUCTURAL STEEL	210,880	322,914	247,215	780,509
LBS. BAR REINF. STEEL Δ	~~49,004~~	~~86,167~~	~~75,868~~	~~210,039~~
	74,584	87,588	70,672	232,844

BRIDGE SHEET 7 OF 38

BRIDGE NO. 3 LT - 2T

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

SUPERSTRUCTURE DETAILS SHEET NO. 2

SBL I-75 OVER STEVE FREY RD.

COBB CO. I-75-3(40)284 CT 5

SCALE AS SHOWN JUNE, 1973

DESIGNED F.E.H.	TRACED	REVIEWED L.R.P.
DRAWN D.P.C.	CHECKED C.D.E.	APPROVED

Rev. 1-6-76
Rev 5-10-76

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TOTAL SHEETS	SHEET NO.	TOTAL SHEETS
4	GA.	I-75-3 (140) 284	775	42	76

Contract 5

DETAIL A

DETAIL B

SPAN 3 LT - EST. DEADLOAD DEFLECTION DUE TO

BEAM	SW (DIA.	FLOOR 1	FLOOR 2	FLOOR 3	PARAPET	TOTAL
A	.602"	1.052"	2.07"	.062"	.38"	2.064"
B, C, D	.731"	1.867"	.284"	.181"	.195"	3.233"
E, F, G	.892"	2.232"	.683"	.284"	.183"	3.944"
H	.948"	1.705"	.237"	.263"	2.15"	3.366"

1'-8" EDGE BEAMS
10" BACKWALL
2" EXPANSION JT.
8" PAVING REST
B.F.P.R. DT. 4
END BRIDGE B.F.P.R. @ STA. 87+93.68
401 H
401 G
401 F
B. BRIDGE
B. GIRDER A
B. GIRDER B
B. GIRDER C
B. GIRDER D
B. GIRDER E
B. GIRDER F
B. GIRDER G
B. GIRDER H
B. CONST. JT.
B. PROFILE GRADE LINE
W 24 x 68, TYP.
1'-8" EDGE BEAMS
B. BEAM 3
27'-3 1/8"
24'-0"
401.68'
503 N
503 P
503 Q
503 T
2-1001 SERIES
2-901 SERIES
4"
10"
8"
1'-8"
15" CL.
REQD CONST JOINT
1/2" CL. (TYP.)
1-5S5 @ 12"
2-1001 SERIES
2-901 SERIES
14-#6S, 7 PR. EBGE.
#5S @ 12"
REQD CONST JOINT
SECTION D-D
SCALE: 1" = 1'-0"
FOR DETAIL A, B SEE BRIDGE SHEET 7
FOR ANGLES SEE FRAMING PLAN.
1/2" R, TYP
SECTION E-E
No Scale
8" EDGE BEAM
2" EXPANSION JT.
10" BACKWALL
8" PAVING REST
B.F.P.R. DT. 4
1'-8" EDGE BEAM
B. CONST. JT.
DETAIL A
SPAN 3 LEFT
SCALE: 3/16" = 1'-0"
2-1001 SERIES
2-901 SERIES
2-1001 & 2-901 TYP.
2-1001 'B' SERIES
2-901 'A' SERIES
B. BRIDGE
W21 x 44 TYP
A-36 STEEL
LEVEL
HALF SECTION @ EXP. JT.
SCALE: 1" = 1'-0"
WELD ∠ TO ATTACHMENT PLT BEFORE ∠ IS PLACED
DETAIL B
DETAIL A
* CUT SLOTS IN GIRDER WEB FOR 1002 & 902 BARS.
NOTE: CONSTRUCTION JOINTS ARE PARALLEL TO BENT 3

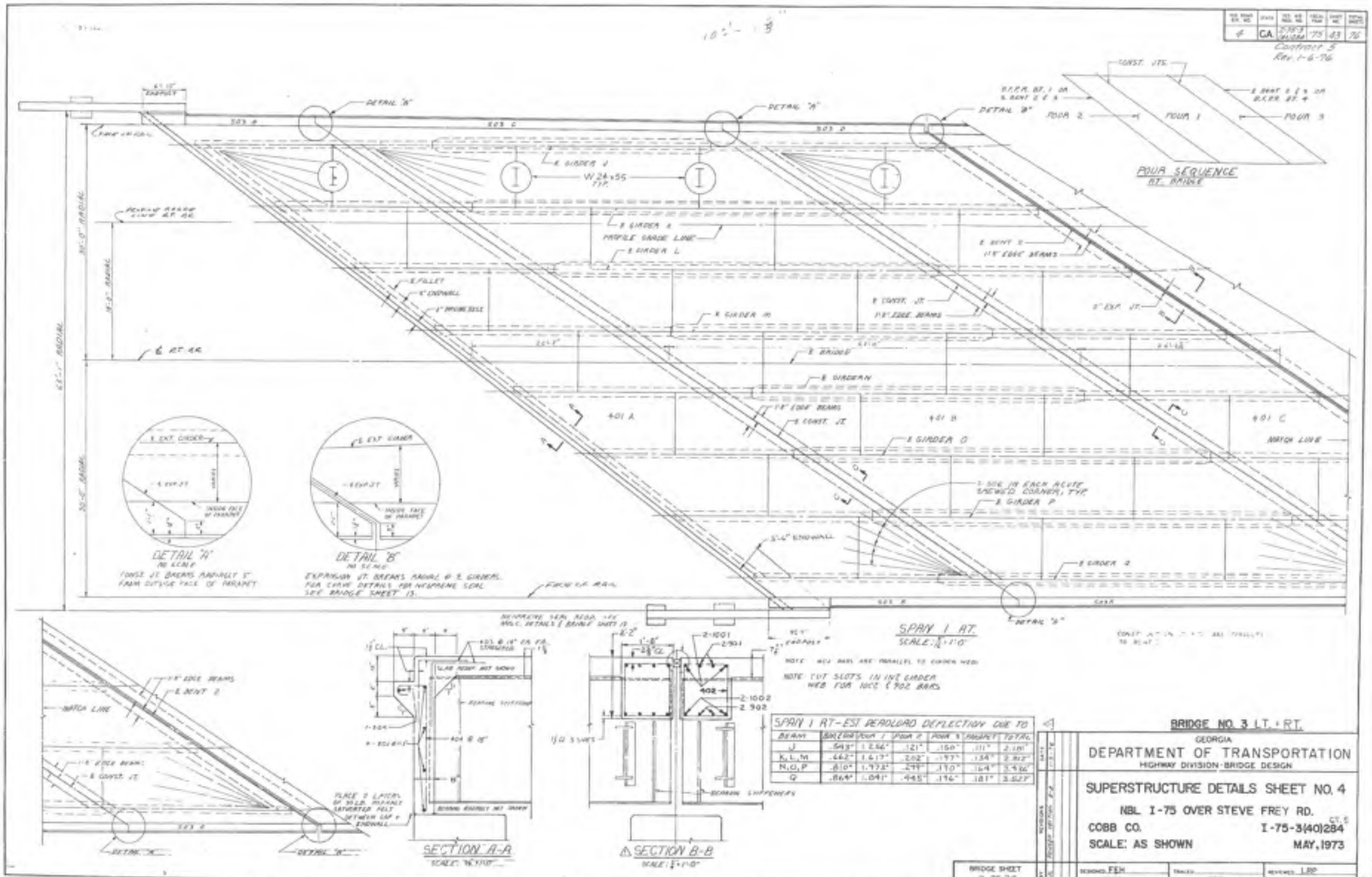
BRIDGE NO. 3 LT. - RT

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

SUPERSTRUCTURE DETAILS SHEET NO. 3
S.B.L. I-75 OVER STEVE FREY RD.
COBB CO. I-75-3(140)284 CT. 5
SCALE AS SHOWN JULY, 1973

DESIGNED FEH	TRACED	REVIEWED LRP
DRAWN DPC	CHECKED CDE	APPROVED

BRIDGE SHEET # OF 36



SPAN 1 AT-EST. DEADLOAD DEFLECTION DUE TO						
BEAM	BM & GIR	POUR 1	POUR 2	POUR 3	PARAPET	TOTAL
J	.543"	1.256"	.121"	.150"	.111"	2.181"
K, L, M	.662"	1.617"	.202"	.197"	.134"	2.812"
N, O, P	.810"	1.972"	.299"	.170"	.164"	3.466"
Q	.864"	1.841"	.445"	.196"	.181"	3.527"

BRIDGE NO. 3 LT. + RT.

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION-BRIDGE DESIGN

SUPERSTRUCTURE DETAILS SHEET NO. 4

NBL I-75 OVER STEVE FREY RD.

COBB CO. I-75-3(40)284

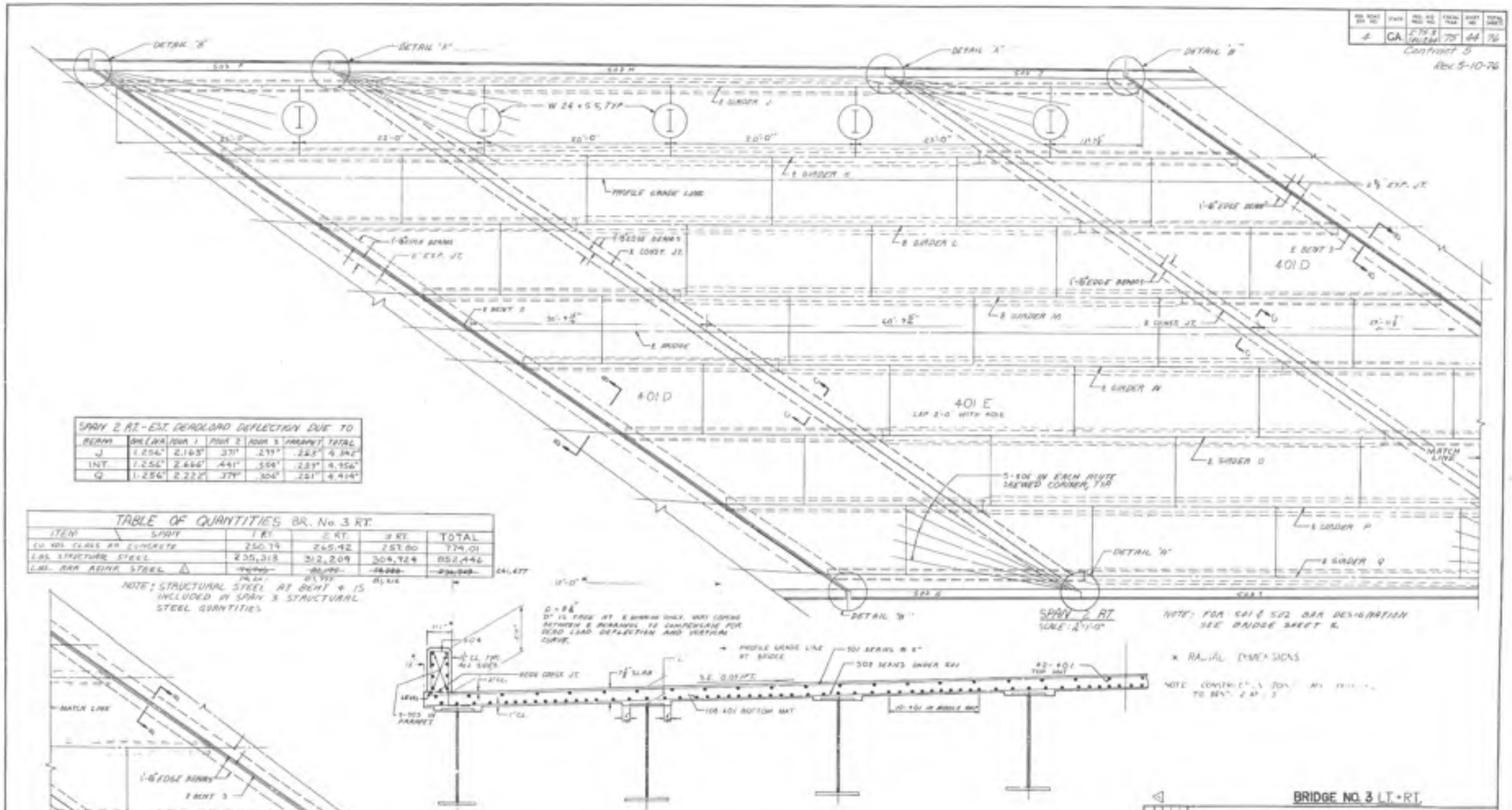
SCALE: AS SHOWN MAY, 1973

BRIDGE SHEET 9 OF 38

DESIGNED FEH | DRAWN KHM | TRACED | CHECKED CDE | REVIEWED LBP | APPROVED

FED. ROAD DIV. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	GA.	I-75-3 (40)284	75	44	74

Contract 5
Rev 5-10-76



SPAN 2 RT - EST. DEADLOAD DEFLECTION DUE TO

BEAM	SHELVES	FOR 1	FOR 2	FOR 3	PARAPET	TOTAL
J	1.256"	2.163"	.371"	.219"	.225"	4.342"
INT.	1.256"	2.666"	.441"	.359"	.233"	4.956"
Q	1.256"	2.222"	.379"	.304"	.231"	4.414"

TABLE OF QUANTITIES BR. No. 3 RT.

ITEM	SPAN 1 RT.	SPAN 2 RT.	SPAN 3 RT.	TOTAL
CU. YDS. CLASS AA CONCRETE	250.19	245.42	257.80	734.01
LBS. STRUCTURAL STEEL	235,318	312,209	304,924	852,446
LBS. BAR REINF. STEEL △	~~74,241~~ 74,241	~~81,999~~ 81,999	~~85,237~~ 85,237	~~241,477~~ 241,477

NOTE: STRUCTURAL STEEL AT BENT 4 IS INCLUDED IN SPAN 3 STRUCTURAL STEEL QUANTITIES

BRIDGE NO. 3 LT - RT.

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

SUPERSTRUCTURE DETAILS SHEET NO. 5

NBL I-75 OVER STEVE FREY RD.

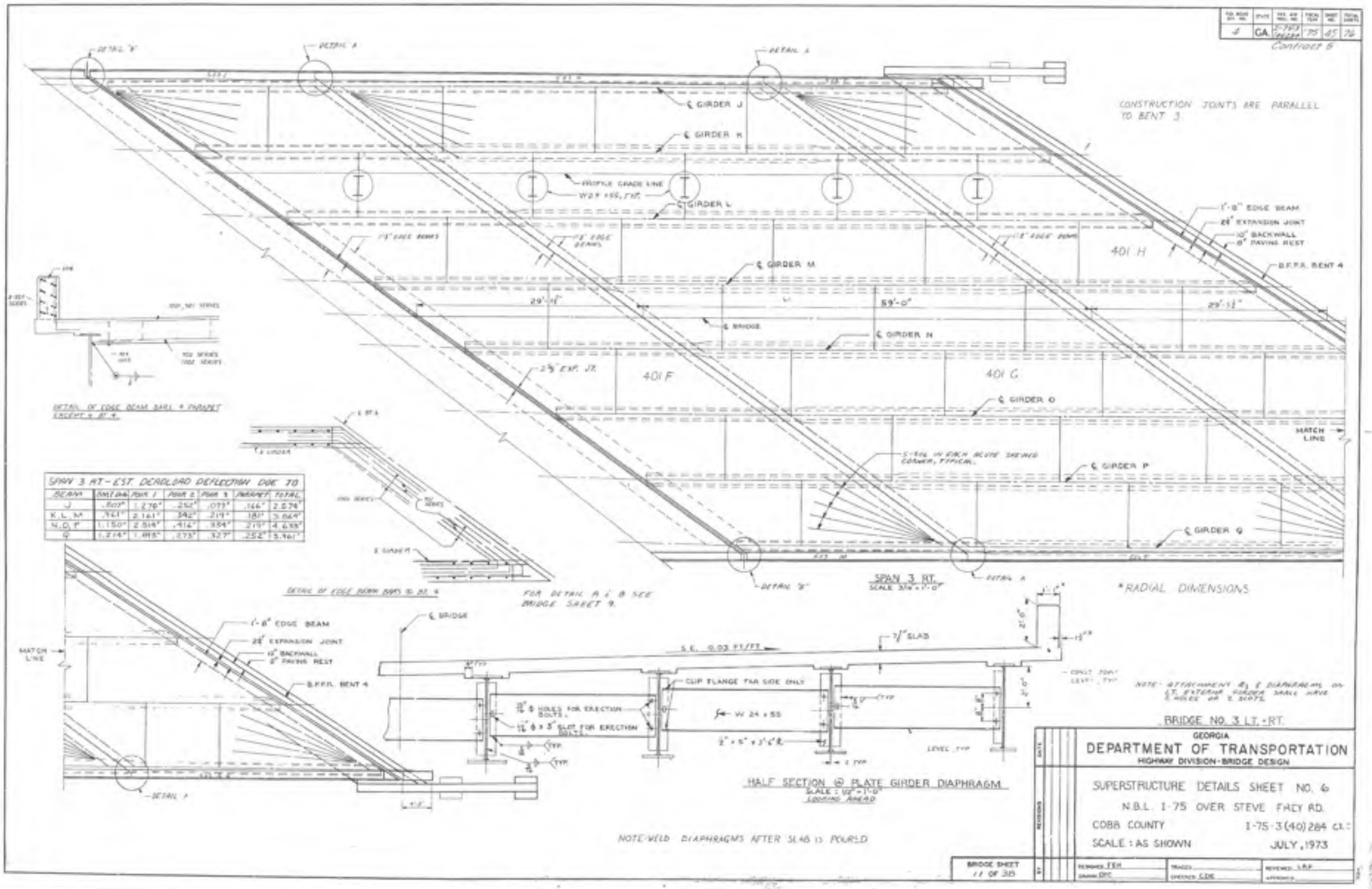
COBB CO. CT. NO. I-75-3(40)284

SCALE AS SHOWN MAY, 1973

REVISIONS	BY
ADD'L BENT 3 DETAIL	

DESIGNED FCH. DRAWN KHM. TRACED CHECKED C.D.E. REVIEWED LRP APPROVED

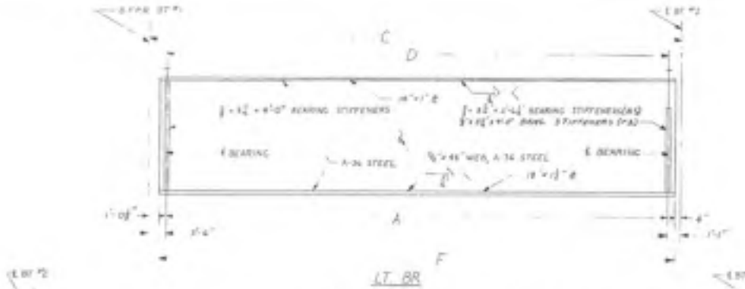
BRIDGE SHEET 19 OF 30

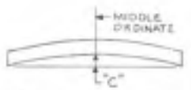


SPAN 3 RT.-EST. DEADLOAD DEFLECTION DUE TO						
BEAM	BM.& DIA.	POUR 1	POUR 2	POUR 3	PARAPET	TOTAL
J	.803"	1.270"	.252"	.077"	.166"	2.574"
K, L, M	.961"	2.161"	.342"	.219"	.181"	3.864"
N, O, P	1.150"	2.514"	.416"	.334"	.219"	4.633"
Q	1.214"	1.895"	.273"	.327"	.252"	3.961"

SHEET NO.	STATE	PROJECT NO.	TOTAL SHEETS	SHEET NO.	TOTAL SHEETS
4	GA.	I-75-3(40) 284	775	46	76

Contract 5
Rev. 1-6-76





CAMBER DIAGRAM

TABLE OF "C"

BR./SPAN		1	2	3
BR. No. 3 LT.	A	1½"	5⅜"	2⅛"
	B	1⅝"	6¼"	3⅛"
	C	1⅝"	6⅜"	3⅜"
	D	1⅝"	6⅜"	3⅜"
	E	2⅛"	6⅜"	4⅛"
	F	2⅛"	6⅜"	4⅛"
	G	2⅛"	6⅜"	4⅛"
	H	2⅛"	5⅜"	3⅜"
BR. No. 3 RT.	J	2⅛"	4⅜"	2⅛"
	K	3"	5⅛"	4⅛"
	L	3"	5⅛"	4⅛"
	M	3"	5⅛"	4⅛"
	N	3⅛"	5⅛"	4⅛"
	O	3⅛"	5⅛"	4⅛"
	P	3⅛"	5⅛"	4⅛"
	Q	3⅛"	4⅛"	4⅛"

NOTE: ABOVE CAMBER INCLUDES WEIGHT OF GIRDER, SLAB, COPING, PARAPET, AND HANDRAILING.

TABLE OF LETTERED DIMENSIONS

LT. BRIDGE SPAN	GIRDER	A	B	C	D	E	F
1	A	83'-2⅛"		17'-1½"	14'-3⅛"		86'-10⅝"
	B	84'-2⅛"		17'-1½"	14'-3⅛"		88'-0⅝"
	C	84'-2⅛"		17'-1½"	14'-3⅛"		88'-0⅝"
	D	84'-2⅛"		17'-1½"	14'-3⅛"		88'-0⅝"
	E	84'-2⅛"		17'-1½"	14'-3⅛"		88'-0⅝"
	F	84'-2⅛"		17'-1½"	14'-3⅛"		88'-0⅝"
	G	84'-2⅛"		17'-1½"	14'-3⅛"		88'-0⅝"
	H	84'-2⅛"		17'-1½"	14'-3⅛"		88'-0⅝"
2	A	124'-2⅛"	51'-10"	17'-1½"	14'-3⅛"	34'-10⅝"	125'-0⅝"
	B	124'-2⅛"	51'-10"	17'-1½"	14'-3⅛"	34'-10⅝"	125'-0⅝"
	C	124'-2⅛"	51'-10"	17'-1½"	14'-3⅛"	34'-10⅝"	125'-0⅝"
	D	124'-2⅛"	51'-10"	17'-1½"	14'-3⅛"	34'-10⅝"	125'-0⅝"
	E	124'-2⅛"	51'-10"	17'-1½"	14'-3⅛"	34'-10⅝"	125'-0⅝"
	F	124'-2⅛"	51'-10"	17'-1½"	14'-3⅛"	34'-10⅝"	125'-0⅝"
	G	124'-2⅛"	51'-10"	17'-1½"	14'-3⅛"	34'-10⅝"	125'-0⅝"
	H	124'-2⅛"	51'-10"	17'-1½"	14'-3⅛"	34'-10⅝"	125'-0⅝"
3	A	97'-2⅛"	47'-6"	17'-1½"	14'-3⅛"	25'-9⅛"	102'-1⅝"
	B	97'-2⅛"	47'-6"	17'-1½"	14'-3⅛"	25'-9⅛"	102'-1⅝"
	C	97'-2⅛"	47'-6"	17'-1½"	14'-3⅛"	25'-9⅛"	102'-1⅝"
	D	97'-2⅛"	47'-6"	17'-1½"	14'-3⅛"	25'-9⅛"	102'-1⅝"
	E	97'-2⅛"	47'-6"	17'-1½"	14'-3⅛"	25'-9⅛"	102'-1⅝"
	F	97'-2⅛"	47'-6"	17'-1½"	14'-3⅛"	25'-9⅛"	102'-1⅝"
	G	97'-2⅛"	47'-6"	17'-1½"	14'-3⅛"	25'-9⅛"	102'-1⅝"
	H	97'-2⅛"	47'-6"	17'-1½"	14'-3⅛"	25'-9⅛"	102'-1⅝"

RT. BRIDGE SPAN	GIRDER	A	B	C	D	E	F
1	J	83'-2⅛"	47'-6"	17'-1½"	14'-3⅛"	21'-3⅜"	91'-10⅝"
	K	84'-2⅛"	47'-6"	17'-1½"	14'-3⅛"	22'-4½"	93'-0⅝"
	L	85'-2⅛"	47'-6"	17'-1½"	14'-3⅛"	23'-6"	94'-0⅝"
	M	86'-5"	47'-6"	17'-1½"	14'-3⅛"	24'-7½"	95'-10⅝"
	N	87'-3½"	47'-6"	17'-1½"	14'-3⅛"	25'-9"	97'-0⅝"
	O	88'-3½"	47'-6"	17'-1½"	14'-3⅛"	26'-10½"	98'-0⅝"
	P	89'-3½"	47'-6"	17'-1½"	14'-3⅛"	28'-0"	99'-0⅝"
	Q	90'-3½"	47'-6"	17'-1½"	14'-3⅛"	29'-1½"	100'-0⅝"
2	J	124'-2⅛"	51'-10"	17'-1½"	14'-3⅛"	34'-10⅝"	125'-0⅝"
	K	124'-2⅛"	51'-10"	17'-1½"	14'-3⅛"	34'-10⅝"	125'-0⅝"
	L	124'-2⅛"	51'-10"	17'-1½"	14'-3⅛"	34'-10⅝"	125'-0⅝"
	M	124'-2⅛"	51'-10"	17'-1½"	14'-3⅛"	34'-10⅝"	125'-0⅝"
	N	124'-2⅛"	51'-10"	17'-1½"	14'-3⅛"	34'-10⅝"	125'-0⅝"
	O	124'-2⅛"	51'-10"	17'-1½"	14'-3⅛"	34'-10⅝"	125'-0⅝"
	P	124'-2⅛"	51'-10"	17'-1½"	14'-3⅛"	34'-10⅝"	125'-0⅝"
	Q	124'-2⅛"	51'-10"	17'-1½"	14'-3⅛"	34'-10⅝"	125'-0⅝"
3	J	97'-2⅛"	47'-6"	17'-1½"	14'-3⅛"	25'-9⅛"	102'-1⅝"
	K	97'-2⅛"	47'-6"	17'-1½"	14'-3⅛"	25'-9⅛"	102'-1⅝"
	L	97'-2⅛"	47'-6"	17'-1½"	14'-3⅛"	25'-9⅛"	102'-1⅝"
	M	97'-2⅛"	47'-6"	17'-1½"	14'-3⅛"	25'-9⅛"	102'-1⅝"
	N	97'-2⅛"	47'-6"	17'-1½"	14'-3⅛"	25'-9⅛"	102'-1⅝"
	O	97'-2⅛"	47'-6"	17'-1½"	14'-3⅛"	25'-9⅛"	102'-1⅝"
	P	97'-2⅛"	47'-6"	17'-1½"	14'-3⅛"	25'-9⅛"	102'-1⅝"
	Q	97'-2⅛"	47'-6"	17'-1½"	14'-3⅛"	25'-9⅛"	102'-1⅝"

NOTE: ALL GIRDER WEB AND BOTTOM FLANGE PLATE SHALL BE FRACTURE CRITICAL MEMBER COMPONENTS. ALL "G" TENSILE STRESS ZONE SHALL MEET THE CHARPY V-NOTCH TEST REQUIREMENTS AS SPECIFIED BY THE SPECIAL PROVISION FOLLOWING SECTION 80 OF THE "GENERAL SPECIFICATIONS".

NOTE: ALL GIRDER FIELD SPLICES SHALL BE HIGH STRENGTH BOLTED SLIP CRITICAL TYPE.

NOTE: FOR DETAILS AND TYPICAL DETAILS SEE MISC. DETAILS SHEET

NOTE: N = 3

NOTE: FOR DETAIL OF CONCEALMENT PLATES, SEE MISC. DETAILS SHEET

BR. NO. LT & RT

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

STRUCTURAL STEEL DETAILS
NBL & SBL OVER STEVE FREY RD
COBB COUNTY — I-75-3(40) 284 CT 5
NO SCALE — NOVEMBER, 1974

BRIDGE SHEET 12 OF 38

DESIGNED EFT	TRACED	REVIEWED
DRAWN EWT	CHECKED	APPROVED

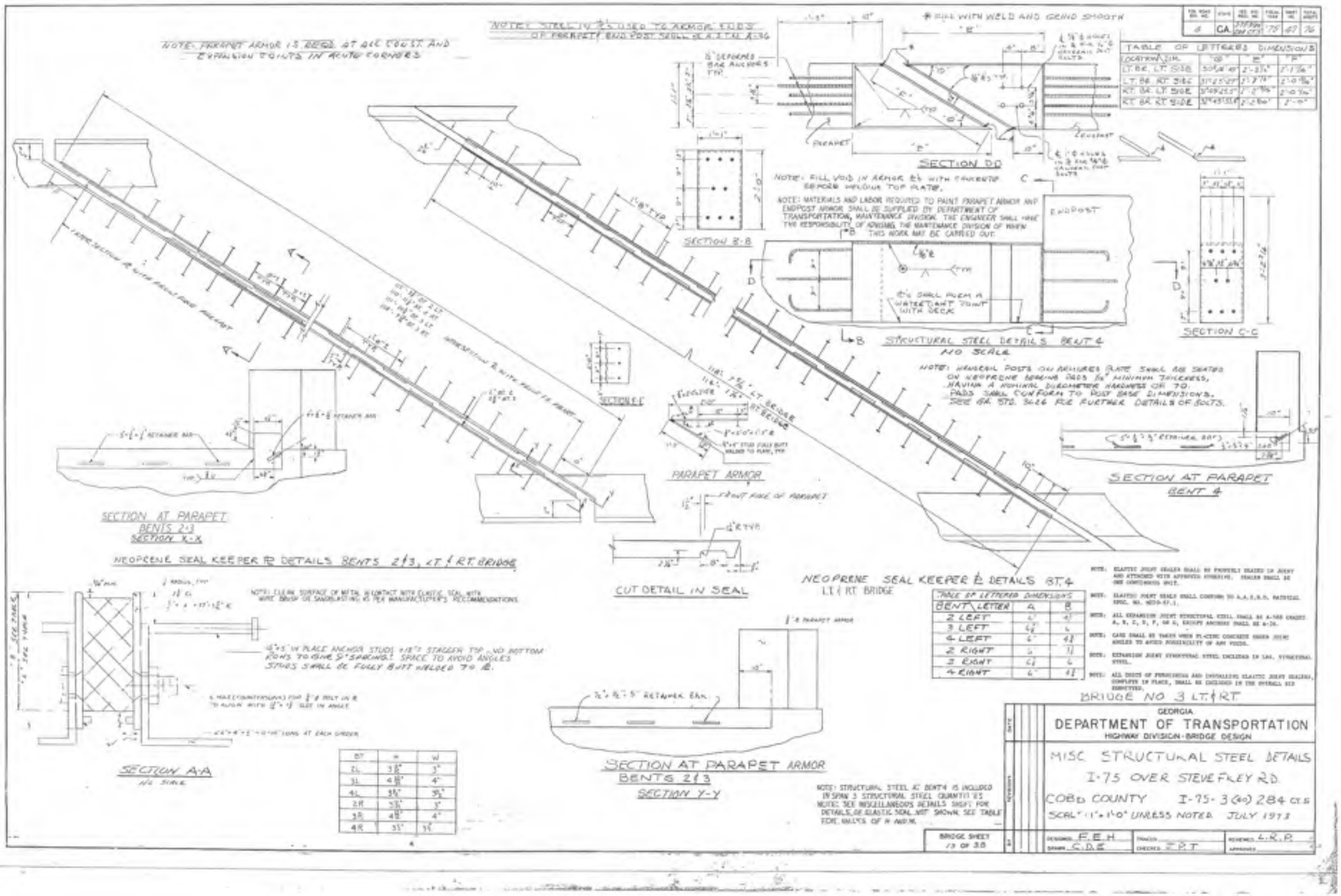


TABLE OF LETTERED DIMENSIONS			
LOCATION \ DIM.	"D"	"E"	"F"
LT. BR. LT. SIDE	50°48'49"	2'-3 1/2"	2'-1 7/16"
LT. BR. RT. SIDE	31°25'27"	2'-3 7/16"	2'-0 15/16"
RT. BR. LT. SIDE	31°49'25.5"	2'-2 15/16"	2'-0 7/16"
RT. BR. RT. SIDE	31°49'33.4"	2'-2 9/16"	2'-0"

TABLE OF LETTERED DIMENSIONS		
BENT \ LETTER	A	B
2 LEFT	6"	4 1/2"
3 LEFT	6 1/2"	6
4 LEFT	6"	4 1/2"
2 RIGHT	6"	7 1/2"
3 RIGHT	6 1/2"	6
4 RIGHT	6"	4 1/2"

BT	H	W
2L	3 1/2"	3"
3L	4 1/2"	4"
4L	3 1/2"	3 1/2"
2R	3 1/2"	3"
3R	4 1/2"	4"
4R	3 1/2"	3 1/2"

NOTE: STRUCTURAL STEEL AT BENT 4 IS INCLUDED IN SPAN 3 STRUCTURAL STEEL QUANTITIES
NOTE: SEE MISCELLANEOUS DETAILS SHEET FOR DETAILS OF ELASTIC SEAL NOT SHOWN. SEE TABLE FOR VALUES OF H AND W.

BRIDGE NO 3 LT. & RT.

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION-BRIDGE DESIGN

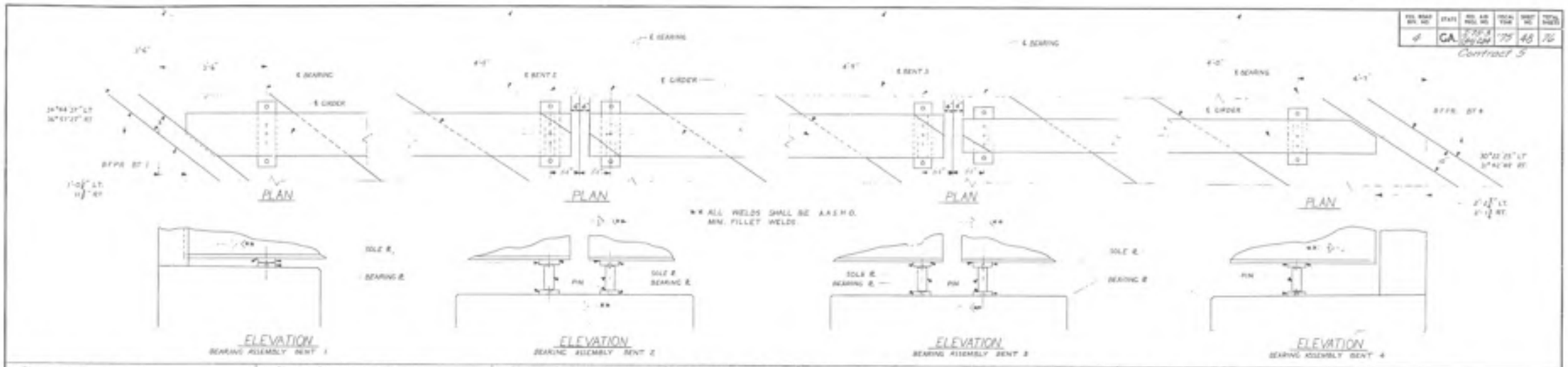
MISC. STRUCTURAL STEEL DETAILS
I-75 OVER STEVE FREY RD.
COBB COUNTY I-75-3 (40) 284 CT.S
SCALE: 1" = 1'-0" UNLESS NOTED JULY 1973

BRIDGE SHEET 13 OF 38

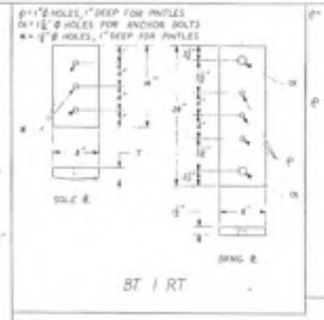
DESIGNED F.E.H. DRAWN C.D.E. TRACED CHECKED E.P.T. REVIEWED L.R.P. APPROVED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	TOTAL SHEETS	SHEET NO.	TOTAL SHEETS
4	GA.	I-75-3 (40) 284	175	46	76

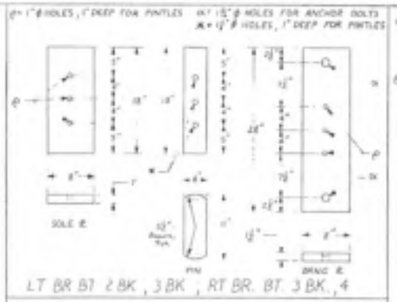
Contract 5



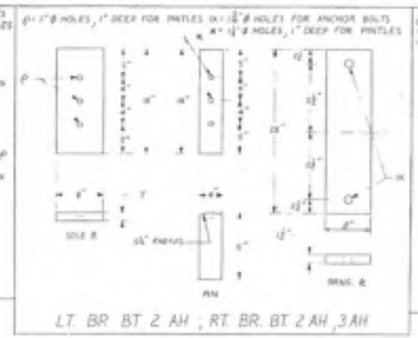
BT 1 LT



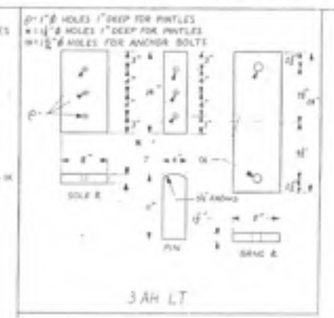
BT 1 RT



LT BR BT 2 BK , 3 BK , RT BR. BT. 3 BK , 4

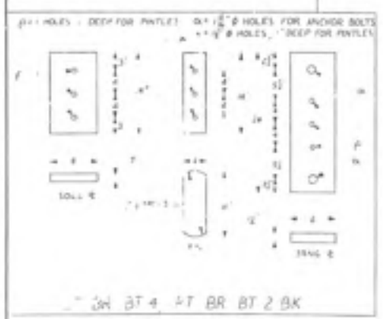


LT. BR BT 2 AH , RT. BR. BT 2 AH , 3 AH



3 AH LT

BEARING ASSEMBLIES
NO SCALE



3 AH BT 4 4T BR BT 2 BK

"T" DIMENSIONS

LT BR						
GIRDER \ BT	1	2 BK.	2 AHD	3 BK.	3 AHD	4
A	1½	2½"	7½	2"	2⅝"	1¾"
B	2"	2"	2⅛"	2½"	2⅝"	1¾"
C	2½	2"	2⅜	2¾"	2⅝"	1¾"
D	2"	2½"	2⅜"	2¾"	2⅝"	2½"
E	2½"	1⅝"	2⅜"	2⅝"	2⅝"	1⅝"
F	2½"	2"	2⅜"	2"	2⅝"	1¾"
G	1⅜	2"	2½"	2"	2⅝"	1⅝"
H	2⅜"	2½"	2⅜"	2¾"	2⅝"	2"

RT BR						
GIRDER \ BT	1	2 BK.	2 AHD	3 BK.	3 AHD	4
J	1½"	1⅜"	1¾"	2½"	2⅜	2⅜"
K	1½"	1⅜"	2¼"	2¾"	2⅜"	2"
L	1½"	1⅜"	2"	2⅜	2⅜	2½"
M	1⅜"	1½"	2"	2"	2⅜	2½"
N	1⅜"	1⅜"	2⅜"	2"	2⅜"	2⅜"
O	1⅜"	1⅜"	2"	2⅜"	2⅜"	2"
P	1⅜"	1⅜"	2⅜"	2"	2⅜"	2⅜"
Q	1⅜"	1⅜"	2⅜"	2"	2⅜"	2⅜"

NOTE ALL ANCHOR BOLTS SHALL BE ¾ Ø (ASTM A 325) HEX NUT AND 2 - 3 x 1½ R WASHER. ANCHOR BOLTS SHALL BE SET IN CONCRETE.

NOTE FOR PINTLE DETAILS SEE MISC. DETAILS SHEET.

NOTE RADIUS FOR ALL CURVED SOLE PLATES IS 8".

NOTE: ALL STEEL COMPONENTS OF BEARING ASSEMBLIES SHALL BE ASTM DESIGNATION A-36

BR NO 3 L" AND 3 RT

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

BEARING DETAILS

NBL-SBL OVER STEVE FREEMAN

COBB COUNTY — I-75-3(40) 284 CT. 5

NO SCALE — NOVEMBER 1974

BRIDGE SHEET 19 OF 35

DESIGNED ZPT. DRAWN TMT. TRACED CHECKED H.H. REVIEWED L.R.P. APPROVED

FED. ROAD DIV. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	GA.	I-75-3 (40) 284 Contract 5 Rev. 5-27-75	'75	69	76

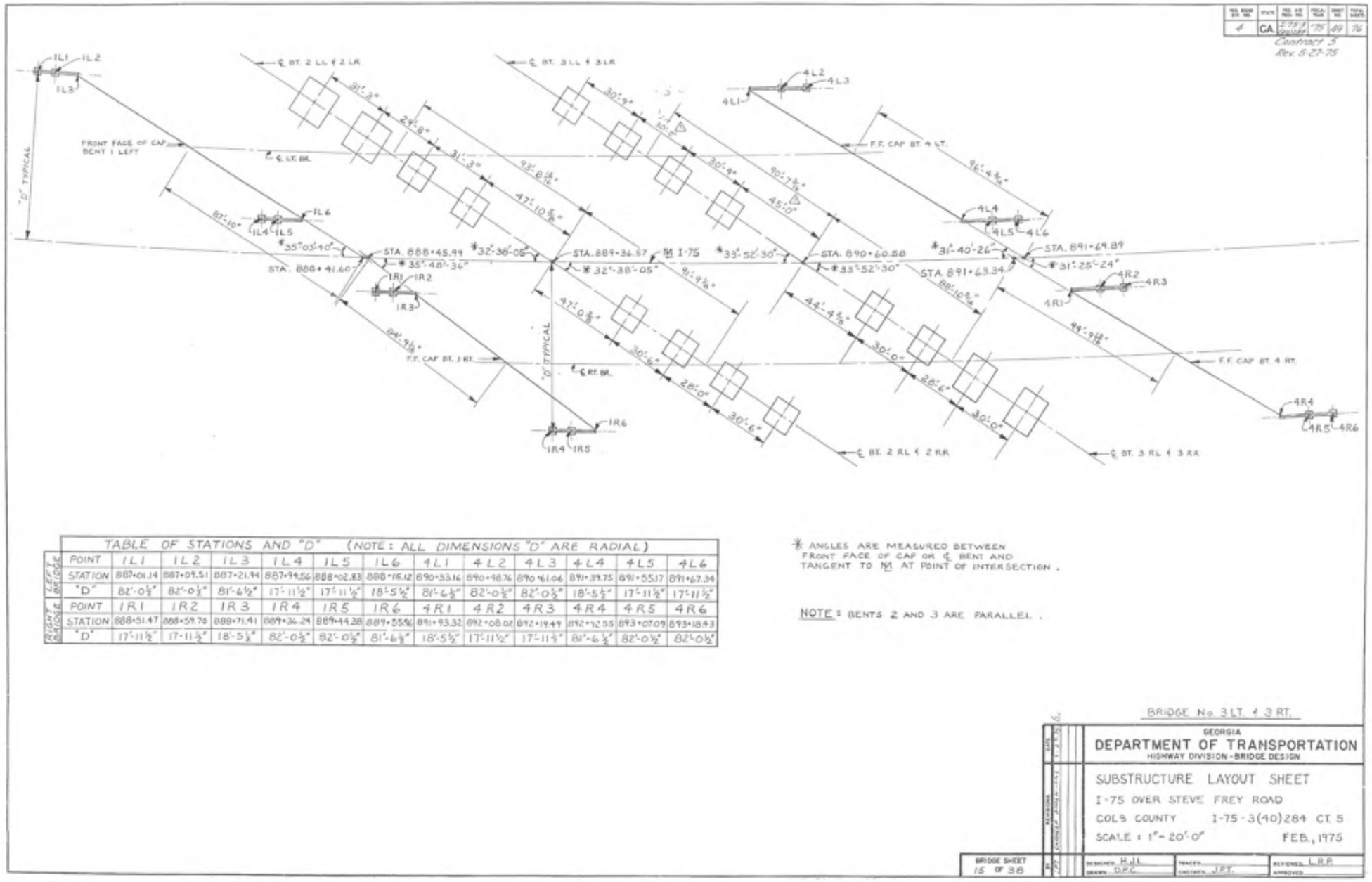


TABLE OF STATIONS AND "D" (NOTE: ALL DIMENSIONS "D" ARE RADIAL)

LEFT BRIDGE	POINT	1L1	1L2	1L3	1L4	1L5	1L6	4L1	4L2	4L3	4L4	4L5	4L6
	STATION	887+01.14	887+09.51	887+21.94	887+94.56	888+02.83	888+15.12	890+33.16	890+48.76	890+61.06	891+39.75	891+55.17	891+67.34
	"D"	82'-0½"	82'-0½"	81'-6½"	17'-11½"	17'-11½"	18'-5½"	81'-6½"	82'-0½"	82'-0½"	18'-5½"	17'-11½"	17'-11½"
RIGHT BRIDGE	POINT	1R1	1R2	1R3	1R4	1R5	1R6	4R1	4R2	4R3	4R4	4R5	4R6
	STATION	888+51.47	888+59.76	888+71.41	889+36.24	889+44.38	889+55.96	891+93.32	892+08.02	892+19.49	892+72.55	893+07.09	893+18.43
	"D"	17'-11½"	17'-11½"	18'-5½"	82'-0½"	82'-0½"	81'-6½"	18'-5½"	17'-11½"	17'-11½"	81'-6½"	82'-0½"	82'-0½"

* ANGLES ARE MEASURED BETWEEN FRONT FACE OF CAP OR ℄ BENT AND TANGENT TO M AT POINT OF INTERSECTION.

NOTE: BENTS 2 AND 3 ARE PARALLEL.

BRIDGE No. 3 LT. & 3 RT.

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

SUBSTRUCTURE LAYOUT SHEET

I-75 OVER STEVE FREY ROAD

COBB COUNTY I-75-3(40)284 CT. 5

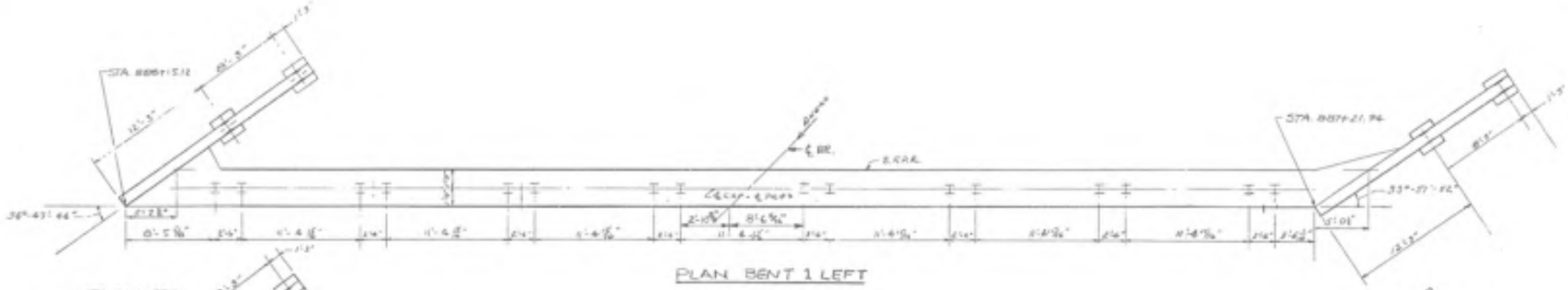
SCALE: 1"= 20'-0" FEB., 1975

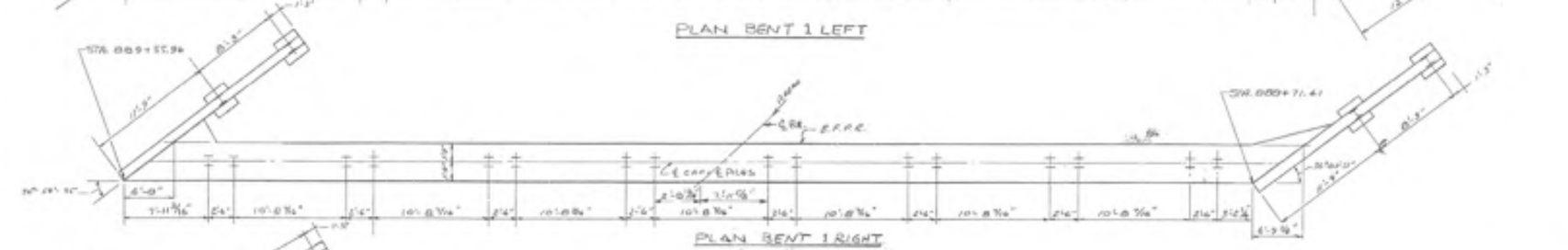
BRIDGE SHEET 15 OF 38

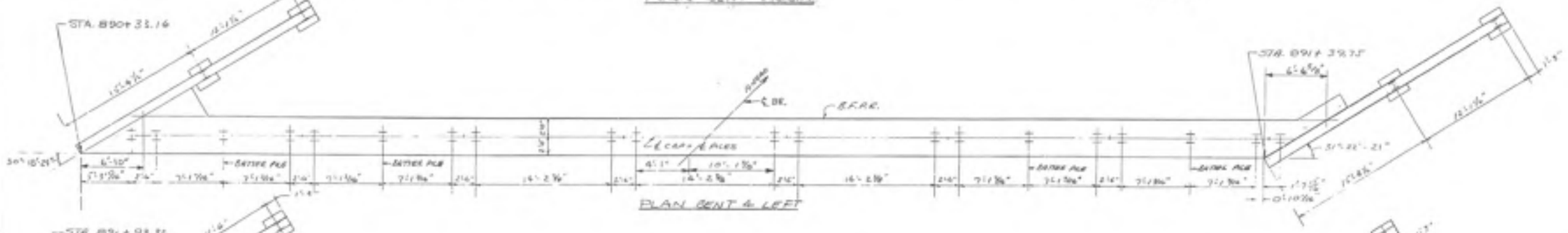
DESIGNED R.J.I. DRAWN D.P.C. TRACED CHECKED J.P.T. REVIEWED L.R.P. APPROVED

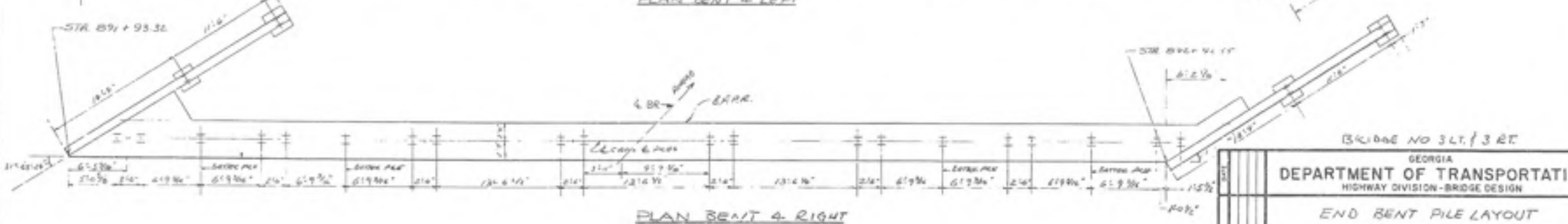
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	GA.	I-75-3(84)284	'78	50	76

Contract 5









BRIDGE NO 3 LT. & 3 RT.

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

END BENT PILE LAYOUT

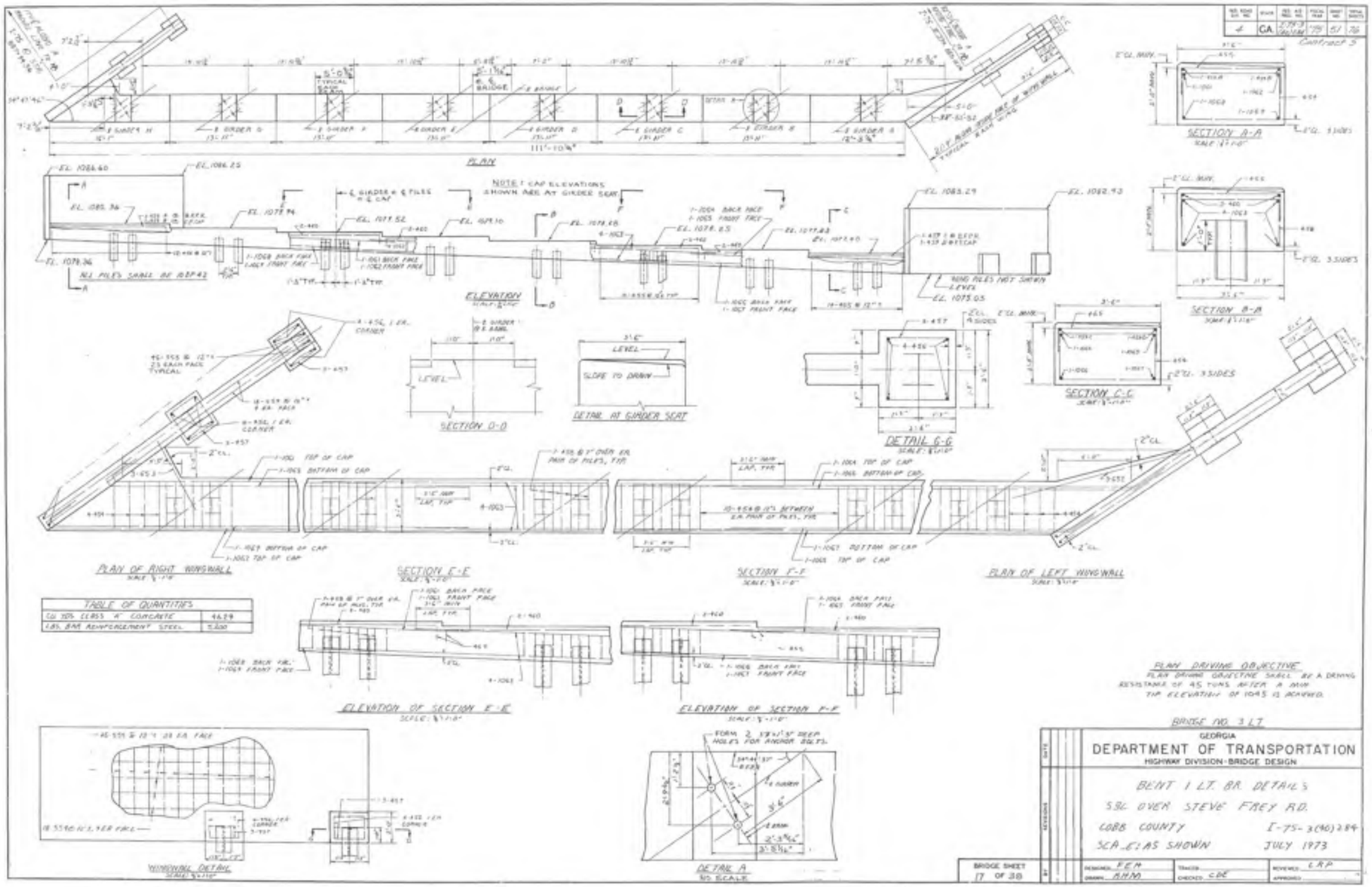
I-75 OVER STEVE FREY ROAD

COBB COUNTY I-75-3(84)284 CT. 5

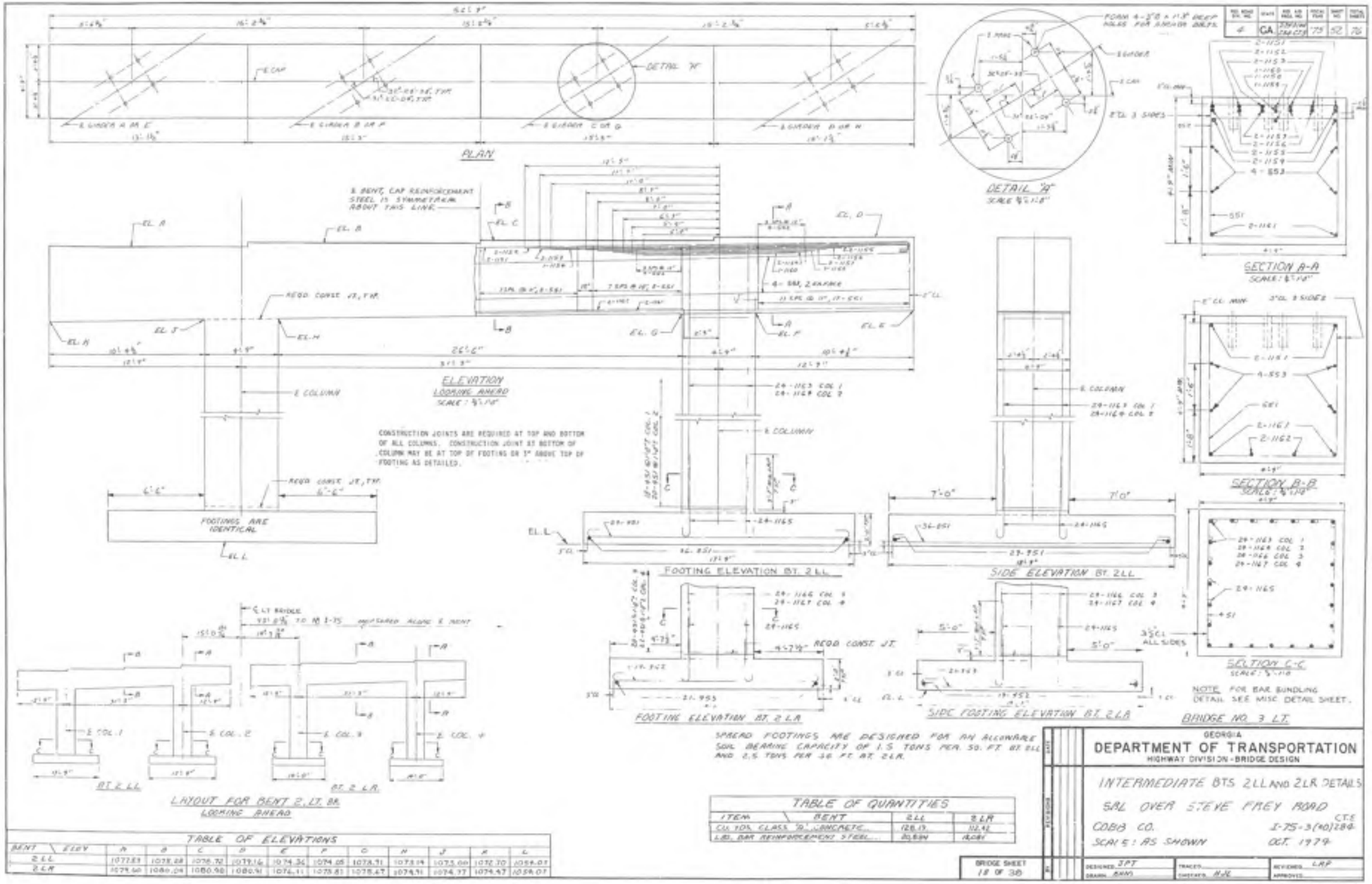
NO SCALE DECEMBER 1976

BRIDGE SHEET 16 OF 38

DESIGNED H.T.L. DRAWN C.D.B. TRACED CHECKED J.D.T. REVISED L.R.P. APPROVED


PLAN
ELEVATION
SECTION A-A
SECTION B-B
SECTION C-C
SECTION D-D
DETAIL AT GIRDER SEAT
DETAIL G-G
PLAN OF RIGHT WINGWALL
SECTION E-E
SECTION F-F
PLAN OF LEFT WINGWALL
ELEVATION OF SECTION E-E
ELEVATION OF SECTION F-F
WINGWALL DETAIL
DETAIL A
NO SCALE
NOTE: CAP ELEVATIONS SHOWN ARE AT GIRDER SEAT
TABLE OF QUANTITIES
CU. YDS. CLASS "A" CONCRETE 46.29
LBS. BAR REINFORCEMENT STEEL 5,200
PLAN DRIVING OBJECTIVE
PLAN DRIVING OBJECTIVE SHALL BE A DRIVING RESISTANCE OF 45 TONS AFTER A MIN. TIP ELEVATION OF 1045 IS ACHIEVED.
BRIDGE NO. 3 LT.
GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION-BRIDGE DESIGN
BENT 1 LT. BR. DETAILS
S.B.L. OVER STEVE FREY RD.
COBB COUNTY
I-75-3(40)284
SCALE: AS SHOWN
JULY 1973
BRIDGE SHEET 17 OF 38
DESIGNED FEH
DRAWN RHM
TRACED
CHECKED CDE
REVIEWED CRP
APPROVED

SEQ. ROAD SYS. NO.	STATE	SEQ. SUB AREA NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	GA	2009AM STATE	79	52	76



NOTE FOR BAR BUNDLING DETAIL SEE MISC DETAIL SHEET.

SPREAD FOOTINGS ARE DESIGNED FOR AN ALLOWABLE SOIL BEARING CAPACITY OF 1.5 TONS PER SQ. FT. AT ELL AND 2.5 TONS PER SQ. FT. AT 2LR.

TABLE OF ELEVATIONS

BENT \ ELEV	A	B	C	D	E	F	G	H	J	K	L
2 LL	1077.89	1078.28	1076.72	1079.16	1074.36	1074.05	1078.91	1078.19	1073.66	1072.70	1054.01
2 LR	1079.60	1080.04	1080.98	1080.91	1076.11	1078.81	1078.47	1078.91	1074.37	1074.47	1054.01

TABLE OF QUANTITIES

ITEM \ BENT	2 LL	2 LR
CU. YDS. CLASS "B" CONCRETE	128.13	112.41
LBS. BAR REINFORCEMENT STEEL	20,839	ALOAD

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

INTERMEDIATE BTS. 2LL AND 2LR DETAILS

SAL OVER STEVE FREY ROAD

COBB CO. C.T.S. I-75-3(40)284

SCALE: AS SHOWN OCT. 1979

BRIDGE SHEET 18 OF 38

DESIGNED SPT DRAWN BMM TRACED CHECKED HJE REVISED LRP APPROVED

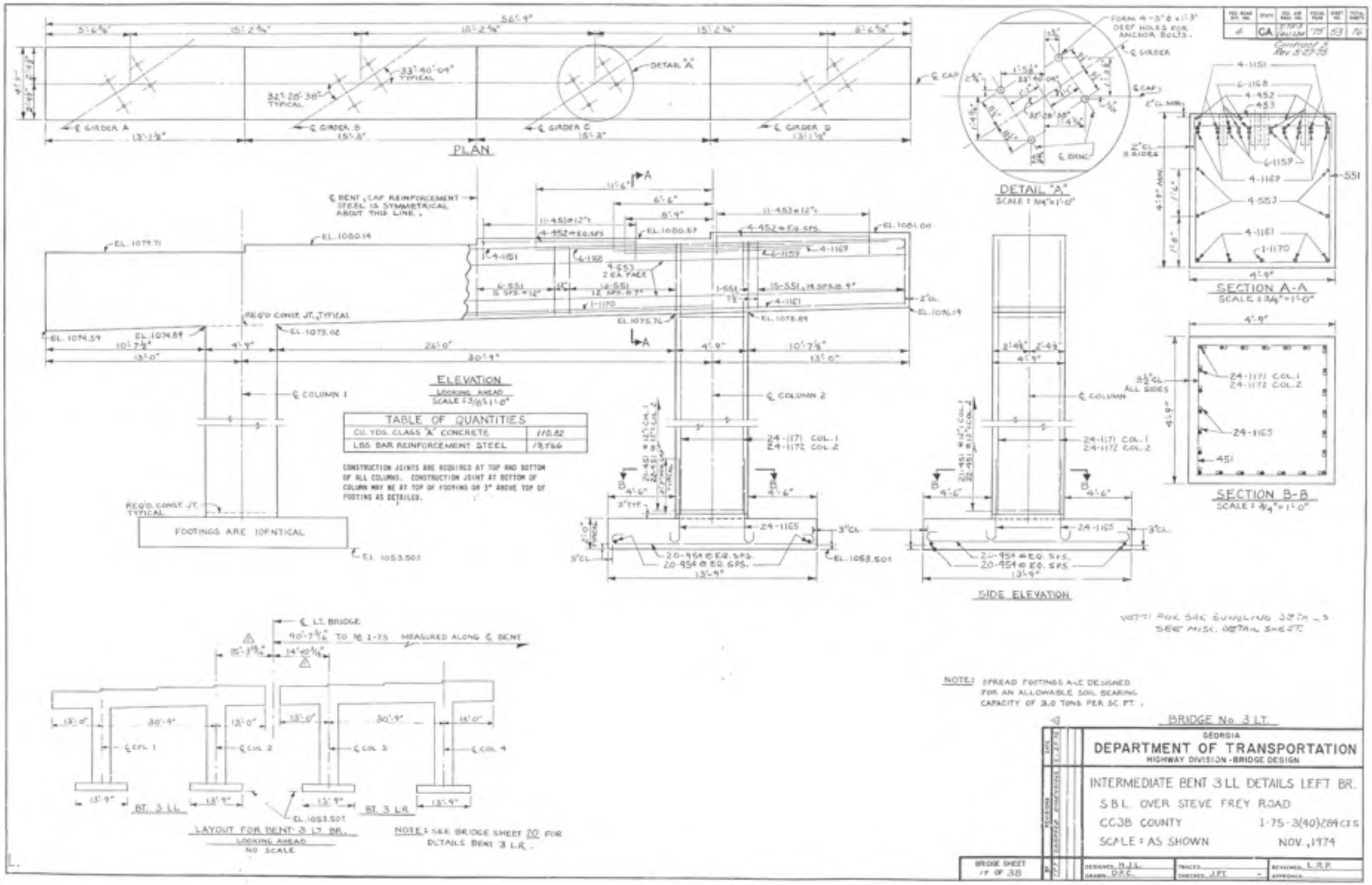


TABLE OF QUANTITIES	
CU. YDS. CLASS "A" CONCRETE	110.82
LBS. BAR REINFORCEMENT STEEL	19,566

CONSTRUCTION JOINTS ARE REQUIRED AT TOP AND BOTTOM OF ALL COLUMNS. CONSTRUCTION JOINT AT BOTTOM OF COLUMN MAY BE AT TOP OF FOOTING OR 3" ABOVE TOP OF FOOTING AS DETAILED.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	GA	3-75-3 (40) 284	75	53	76

Contract 5
Rev. 5-27-75

BRIDGE No. 3 LT.

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

INTERMEDIATE BENT 3 LL DETAILS LEFT BR.
S.B.L. OVER STEVE FREY ROAD
CC3B COUNTY 1-75-3(40)284 CTS
SCALE: AS SHOWN NOV., 1974

BRIDGE SHEET 17 OF 38

DESIGNED: H.J.L. DRAWN: D.P.C. TRACED: CHECKED: J.P.T. REVIEWED: L.R.P. APPROVED:

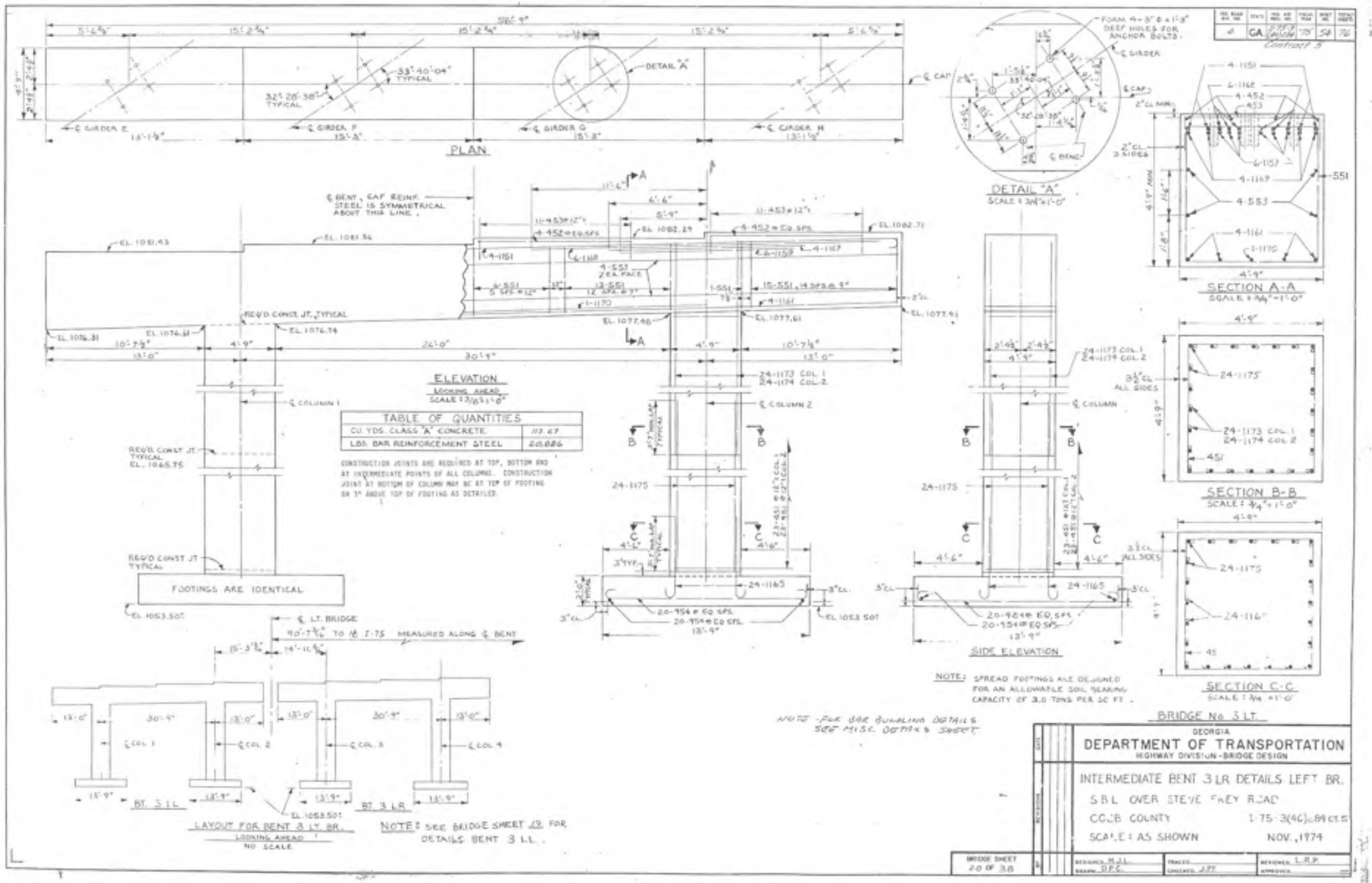


TABLE OF QUANTITIES	
CU. YDS. CLASS "A" CONCRETE	113.67
LBS. BAR REINFORCEMENT STEEL	20,886

CONSTRUCTION JOINTS ARE REQUIRED AT TOP, BOTTOM AND AT INTERMEDIATE POINTS OF ALL COLUMNS. CONSTRUCTION JOINT AT BOTTOM OF COLUMN MAY BE AT TOP OF FOOTING OR 3" ABOVE TOP OF FOOTING AS DETAILED.

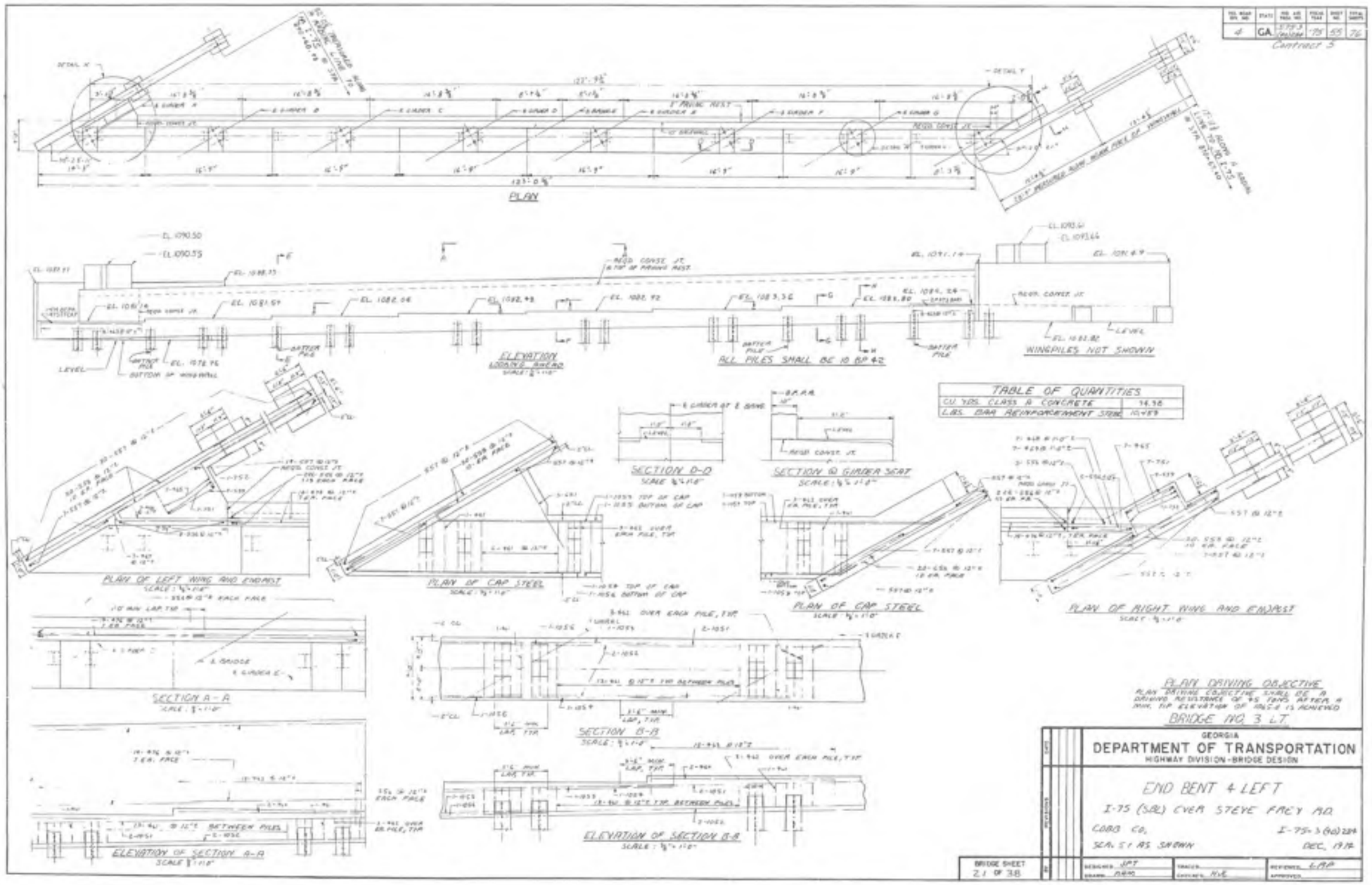


TABLE OF QUANTITIES	
CU. YDS. CLASS A CONCRETE	94.98
LBS. BAR REINFORCEMENT STEEL	10,459

PLAN DRIVING OBJECTIVE

PLAN DRIVING OBJECTIVE SHALL BE A DRIVING RESISTANCE OF 45 TONS AFTER A MIN. TIP ELEVATION OF 1065.0 IS ACHIEVED

BRIDGE NO. 3 LT.

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

END BENT 4 LEFT

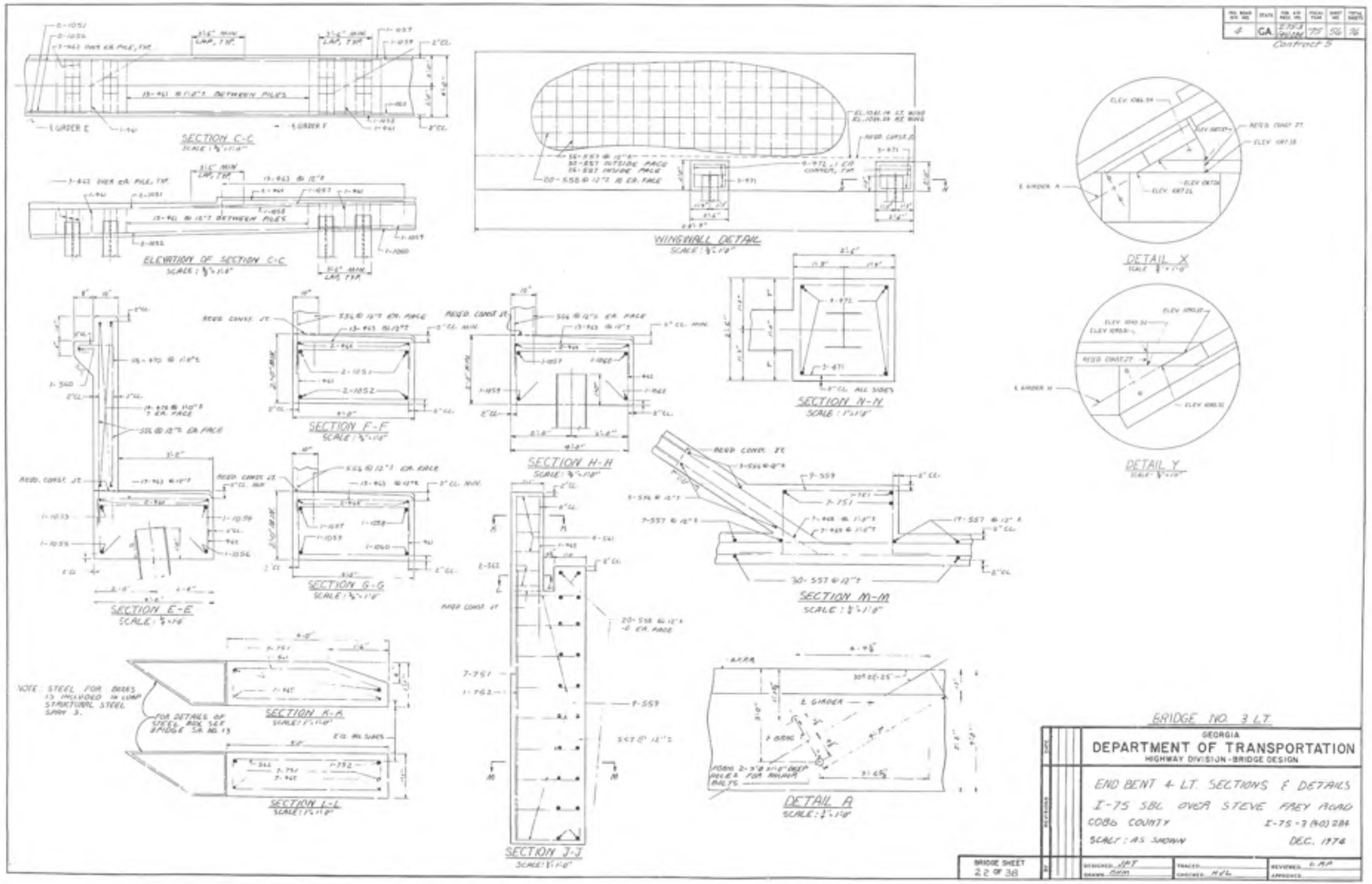
I-75 (SBL) OVER STEVE FREY RD.

COBB CO. I-75-3(40)284

SCALE: AS SHOWN DEC. 1974

BRIDGE SHEET 21 OF 38

DESIGNED JPT DRAWN RAM TRACED CHECKED HVC REVIEWED LAP APPROVED



SECTION C-C
ELEVATION OF SECTION C-C
WINGWALL DETAIL
DETAIL X
DETAIL Y
SECTION F-F
SECTION H-H
SECTION N-N
SECTION E-E
SECTION G-G
SECTION M-M
SECTION K-K
SECTION L-L
SECTION J-J
DETAIL A
NOTE: STEEL FOR BOXES IS INCLUDED IN LUMP STRUCTURAL STEEL SPAN 3.
FOR DETAILS OF STEEL BOX SEE BRIDGE SH. NO. 13
BRIDGE NO. 3 LT.
GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN
END BENT 4 LT. SECTIONS & DETAILS
I-75 SBL OVER STEVE FREY ROAD
COBB COUNTY
I-75-3 (40) 284
SCALE: AS SHOWN
DEC. 1974
BRIDGE SHEET 22 OF 38

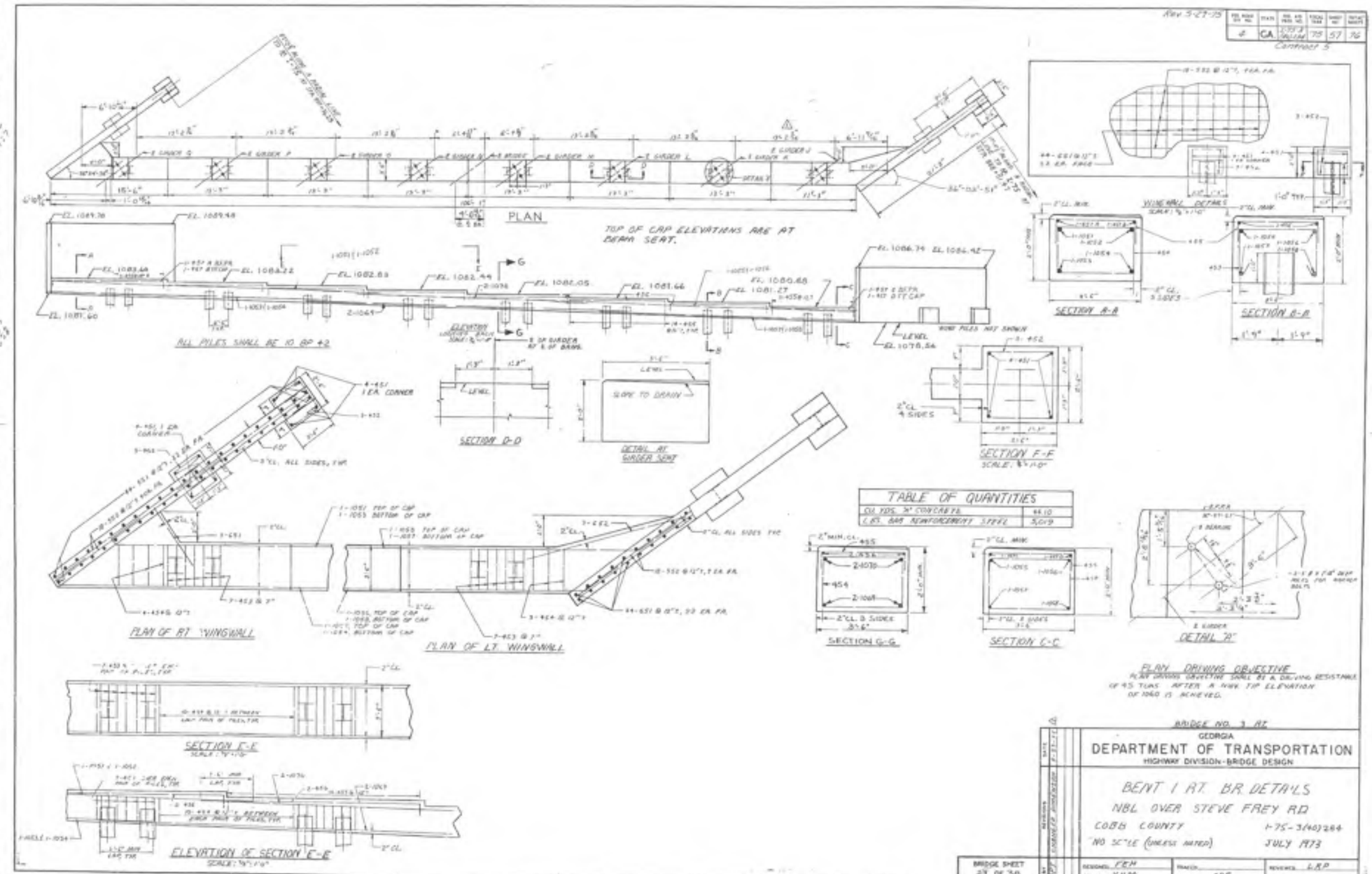


TABLE OF QUANTITIES	
CU. YDS. "A" CONCRETE	44.10
LBS. BAR REINFORCEMENT STEEL	5,019

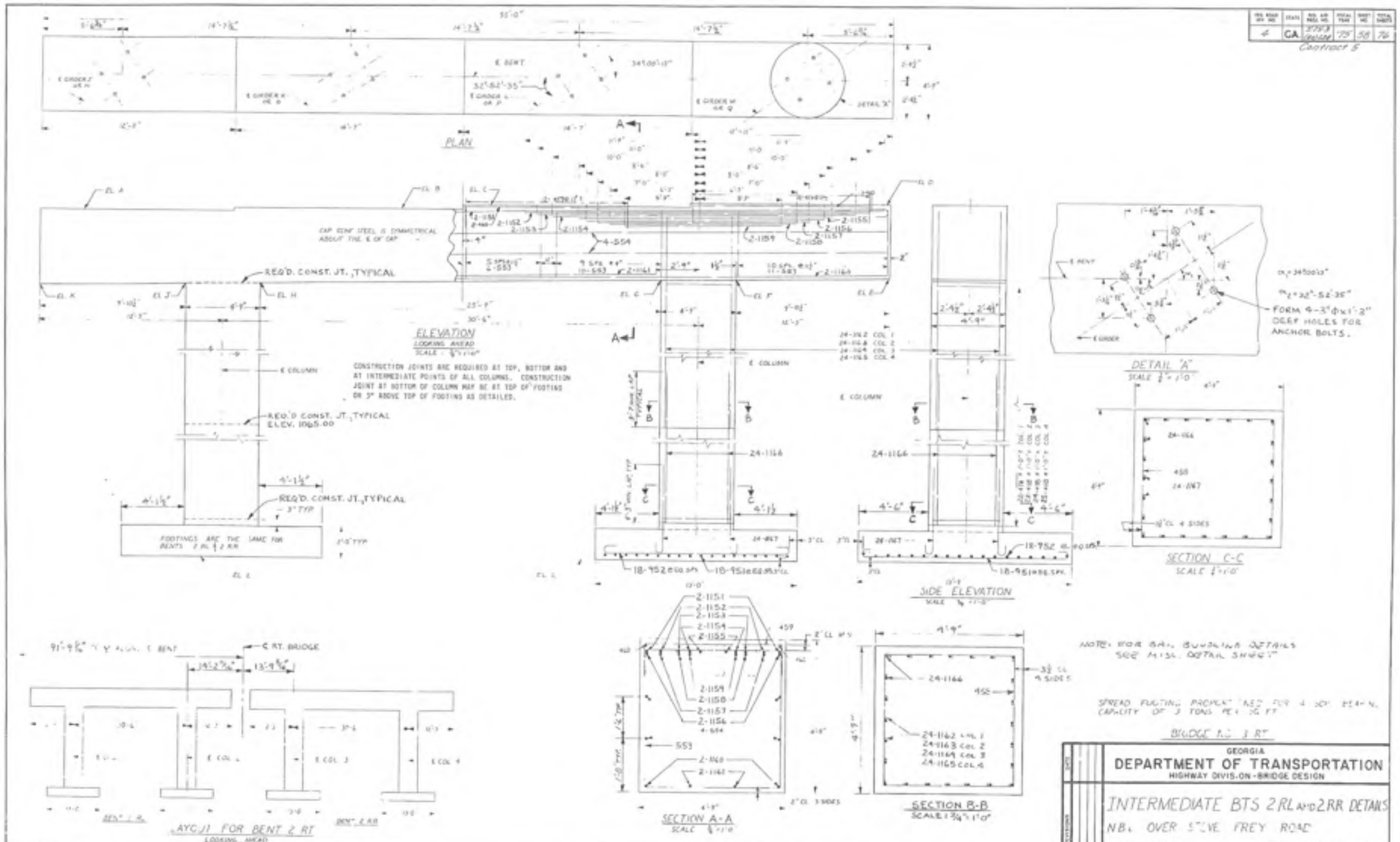
BRIDGE NO. 3 AT

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION-BRIDGE DESIGN

BENT 1 RT. BR. DETAILS
NBL OVER STEVE FREY RD
COBB COUNTY
NO SCALE (UNLESS NOTED)
I-75-3(40)284
JULY 1973

BRIDGE SHEET 23 OF 38

DESIGNED FEH
DRAWN HHM
TRACED
CHECKED CDE
REVIEWED LRP
APPROVED



4	GA	3-75-3 (90)284	75	58	76	Contract 5

TABLE OF ELEVATIONS

BENT \ ELEVATION	A	B	C	D	E	F	G	H	J	K	L
2 RL	1081.29	1081.70	1082.11	1082.52	1077.73	1077.45	1077.32	1076.58	1076.45	1076.17	1053.5±
2 RR	1082.92	1083.83	1083.73	1084.13	1079.34	1079.06	1078.93	1078.22	1078.08	1077.80	1053.5±

TABLE OF QUANTITIES

ITEM \ BENT	2 RL	2 RR
CU. YDS. CLASS 'A' CONCRETE	110.28	112.95
LBS. BAR REINFORCEMENT STEEL	19,132	19,538

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

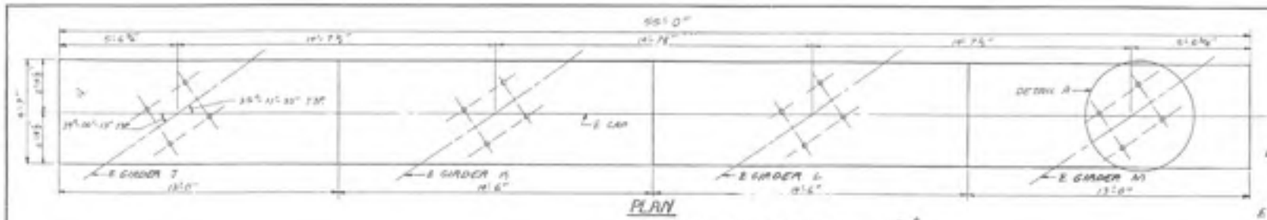
INTERMEDIATE BTS 2 RL AND 2 RR DETAILS
NB. OVER STEVE FREY ROAD
COBB COUNTY I-75-3(40) 284 C.T.S.
SCALE AS SHOWN NOV 1974

BRIDGE SHEET 24 OF 38

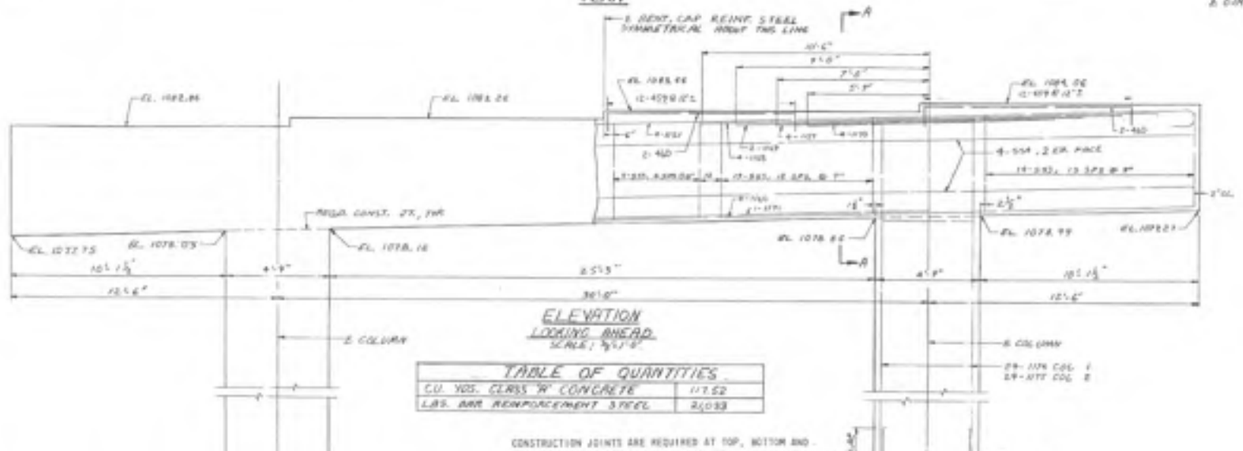
DESIGNED JFT | TRACED | REVIEWED L.R.F.
DRAWN FWJ | CHECKED C.D.E. | APPROVED

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	GA.	STP-3 (000)	775	59	76

Contract 3



PLAN

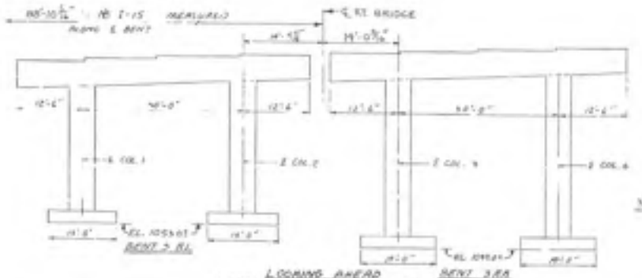


ELEVATION
LOOKING AHEAD
SCALE: 3/32"=1'-0"

TABLE OF QUANTITIES

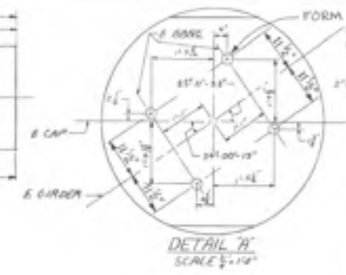
C.U. YDS. CLASS "A" CONCRETE	117.52
LBS. BAR REINFORCEMENT STEEL	21,033

CONSTRUCTION JOINTS ARE REQUIRED AT TOP, BOTTOM AND AT INTERMEDIATE POINTS OF ALL COLUMNS. CONSTRUCTION JOINT AT BOTTOM OF COLUMN MAY BE AT TOP OF FOOTING OR 3" ABOVE TOP OF FOOTING AS DETAILED.

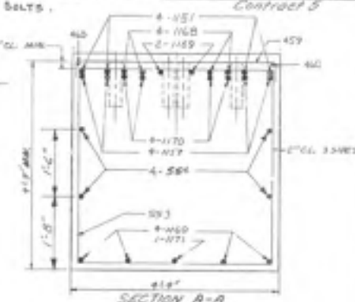


LOOKING AHEAD
LAYOUT FOR BENT 3 AT.

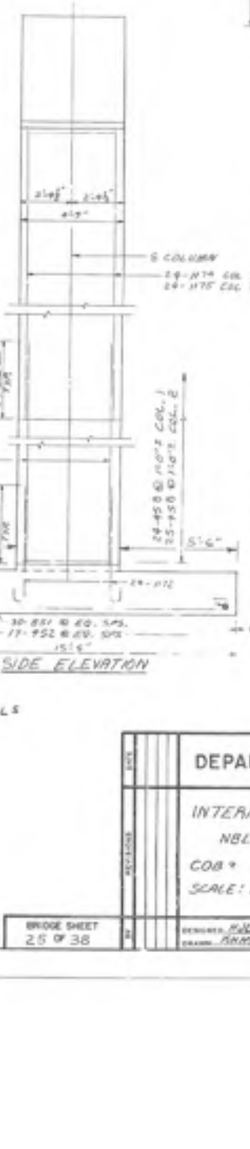
NOTE: SEE BRIDGE SHEET 26 FOR DETAILS BENT 3 RA.



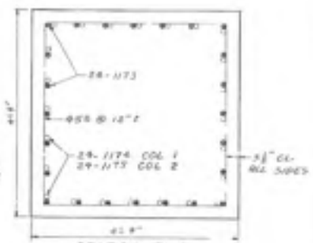
DETAIL "A"
SCALE 3/4"=1'0"



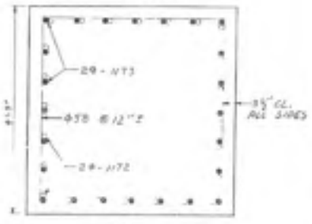
SECTION A-A
SCALE: 3/4"=1'0"



SIDE ELEVATION



SECTION B-B
SCALE: 3/4"=1'0"



SECTION C-C
SCALE: 3/4"=1'0"

SPREAD FOOTINGS ARE DESIGNED FOR AN ALLOWABLE SOIL BEARING CAPACITY OF 2.5 TONS PER SQ. FT.

NOTE: FOR BAR BUNDLING DETAILS SEE MISC. DETAIL SHEET.

BRIDGE NO. 3 AT.

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

INTERMEDIATE BENT 3 RL DETAILS AT BA

NBL OVER STEVE FREY ROAD

COBB CO. CTB
I-75-3(40)289

SCALE: AS SHOWN DEC. 1979

BRIDGE SHEET 25 OF 38

DESIGNED MJL
DRAWN RHM
TRACED
CHECKED JPT
REVISED LRP
APPROVED

P.I. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
-	GA.	I-75(3) 289	79	60	76

PLAN

ELEVATION
LOOKING AHEAD
SCALE: ½"=1'-0"

TABLE OF QUANTITIES	
CU. YDS. CLASS "A" CONCRETE	137.53
LBS. BAR REINFORCEMENT STEEL	25902

CONSTRUCTION JOINTS ARE REQUIRED AT TOP, BOTTOM AND AT INTERMEDIATE POINTS OF ALL COLUMNS. CONSTRUCTION JOINT AT BOTTOM OF COLUMN MAY BE AT TOP OF FOOTING OR 3" ABOVE TOP OF FOOTING AS DETAILED.

FOOTINGS ARE IDENTICAL

LOOKING AHEAD
LAYOUT FOR BENT 3 RT.

NOTE: SEE BRIDGE SHEET 25 FOR DETAILS BENT 3 RL.

DETAIL "A"
SCALE ½"=1'-0"

SECTION A-A
SCALE: ½"=1'-0"

SECTION C-C
SCALE ½"=1'-0"

SECTION C-B
SCALE: ½"=1'-0"

SIDE ELEVATION

SPREAD FOOTINGS ARE DESIGNED FOR AN ALLOWABLE SOIL BEARING CAPACITY OF 2 TONS PER SQ. FT.

NOTE: FOR BAR BUNDLING DETAILS SEE MISC. DETAIL SHEET.

BRIDGE NO. 3 RT

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

INTERMEDIATE BENT 3 RR DETAILS RT. BR.
NBL OVER STEVE FAEY ROAD
COE & CO. CTE I-75-3(40)289
SCALE: AS SHOWN DEC. 1979

BRIDGE SHEET 26 OF 38

DESIGNED HW DRAWN RMM TRACED CHECKED JPT REVISED LRP APPROVED

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	GA.	I-75-3 (40)284	'79	61	76

Contract 3

TABLE OF QUANTITIES	
CU. YDS. CLASS "B" CONCRETE	41.57
LBS. BAR REINFORCEMENT STEEL	5797

SECTION D-D
SCALE: 3/8"=1'-0"

SECTION @ GIRDER SEAT
SCALE: 3/4"=1'-0"

NOTE: SEE SECTION D-D BRIDGE SHEET 13.

PLAN

ELEVATION
LOOKING AHEAD
SCALE: 3/8"=1'-0"

WING PILES NOT SHOWN
ALL PILES SHALL BE 10 BP 42

PLAN OF LEFT WING AND ENDPOST
SCALE: 3/8"=1'-0"

PLAN OF CAP STEEL
SCALE: 3/8"=1'-0"

PLAN OF CAP STEEL
SCALE: 3/8"=1'-0"

PLAN OF RIGHT WING AND END POST
SCALE 3/8" 1'-0"

WINGWALL DETAIL
SCALE: 3/8"=1'-0"

SECTION H-H
SCALE: 3/8"=1'-0"

DETAIL "G"
SCALE 3/4"=1'-0"

BRIDGE NO. 3 RT.

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

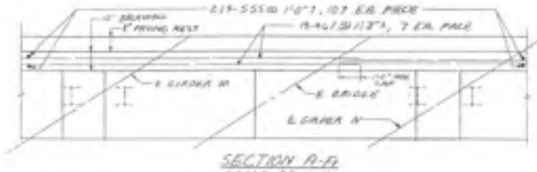
END BENT 4 RIGHT
I-75 (NBL) OVER STEVE FREY ROAD
COBB CO. I-75-3(40)284
SCALE: AS SHOWN DEC. 1979

DESIGNED JPT | TRACED | REVIEWED LAP
DRAWN RHM | CHECKED MJC | APPROVED

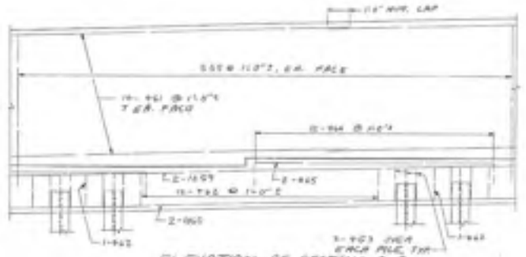
BRIDGE SHEET 27 OF 38

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	GA.	I-75-3 (46) 284	'75	62	76

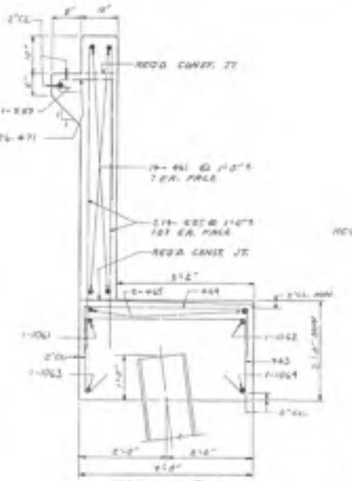
Contract 5



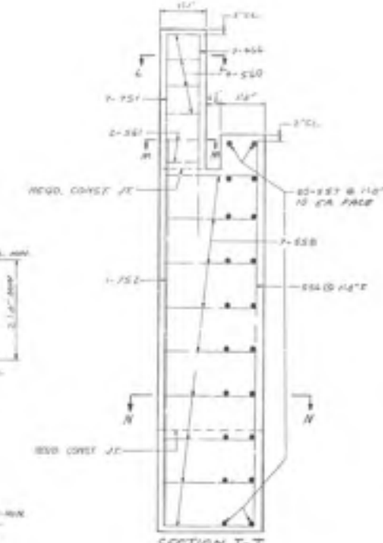
SECTION A-A
SCALE: 3/8" = 1'-0"



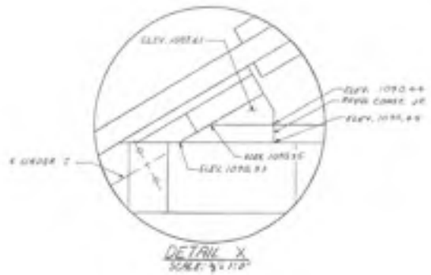
ELEVATION OF SECTION A-A
SCALE: 3/8" = 1'-0"



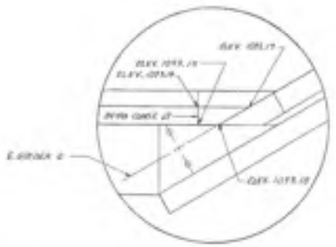
SECTION E-E
SCALE: 3/8" = 1'-0"



SECTION J-J
SCALE: 3/8" = 1'-0"

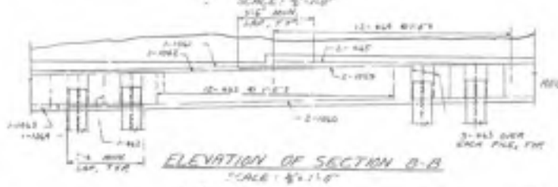


DETAIL X
SCALE: 3/4" = 1'-0"

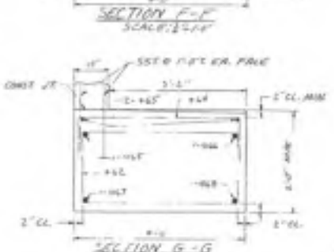


DETAIL Y
SCALE: 3/4" = 1'-0"

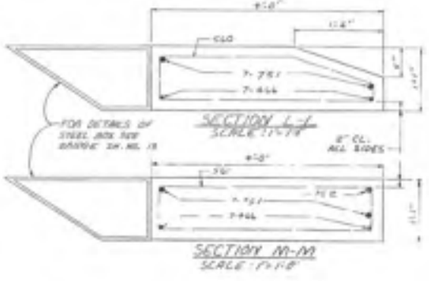
SECTION B-B
SCALE: 3/8" = 1'-0"



ELEVATION OF SECTION B-B
SCALE: 3/8" = 1'-0"

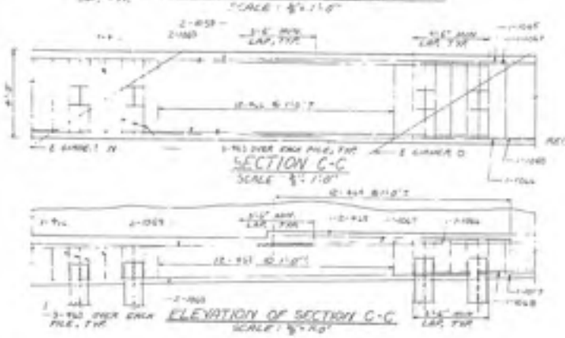


SECTION F-F
SCALE: 3/8" = 1'-0"

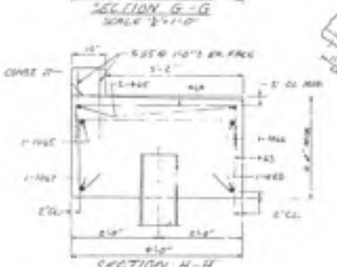


SECTION L-L
SCALE: 1"=1'-0"

SECTION M-M
SCALE: 1"=1'-0"



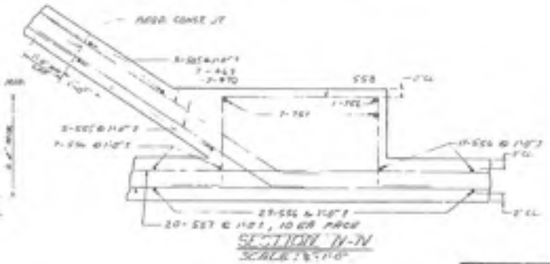
SECTION C-C
SCALE: 3/8" = 1'-0"



SECTION G-G
SCALE: 3/8" = 1'-0"

ELEVATION OF SECTION C-C
SCALE: 3/8" = 1'-0"

SECTION H-H
SCALE: 3/8" = 1'-0"



SECTION N-N
SCALE: 3/8" = 1'-0"

PLAN DRIVING OBJECTIVE

PLAN DRIVING OBJECTIVE SHALL BE A DRIVING RESISTANCE OF 45 TONS AFTER A MIN. TIP ELEVATION OF 1055.0 IS ACHIEVED.

BRIDGE NO. 3 RT.

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

END BENT 4 RT. SECTIONS AND DETAILS
I-75 (NBL) OVER STEVE FREY ROAD
COBB CO. I-75-3 (46) 284
SCALE: AS SHOWN DEC. 1974

BRIDGE SHEET	DESIGNED JPT	TRACED	REVIEWED LRP
28 OF 36	DRAWN MMM	CHECKED HVL	APPROVED

CO. Proj. no.	Area	FED. AID Proj. no.	STATE AID Proj. no.	Width Proj.	Sheet No.	Total Sheets
4	GA	F-019-4 (004) Contract 3		79	63	76

Rev 5-10-76

LOCATION	NO OF LOC.	MARK	LENGTH FT	LENGTH IN	NO. SAME MARK	TYPE	A	G	B FT	B IN	C FT	C IN	D FT	D IN	E FT	E IN	F FT	F IN	H FT	H IN	J FT	J IN	K FT	K IN	N	Q
SPAN 1 FOUR 2 LT 1																										
		401A	46	4	150	1																				
△		402	36	4	364	22	4	4	2	4	1	4 7/8														
		501C	VARY		115	3			2	0	VARIES															
		501E	28	2	126	1																				
		501F	VARY		114	3			2	0	VARIES															
		502C	VARY		115	1																				
		502E	28	2	126	1																				
		502F	VARY		114	1																				
		503C	47	0	8	1																				
		503E	46	0	8	1																				
		504	6	3	115	42			1	0	2	5 3/8	0	10	2	0	2	0								
		506	22	0	10	1																				
		901A	46	5	2	3			2	0	46	5														
		901B	33	3	4	1																				
		901C	46	9	2	3			2	0	46	9														
		901D	49	10	2	3			2	0	49	10														
		901E	46	0	2	3			2	0	46	0														
		902A	31	10	8	1																				
		902B	48	6	4	1																				
		903	3	6	8	1																				
		1001A	46	11	2	3			2	0	46	11														
		1001B	34	0	4	1																				
		1001C	47	2	2	3			2	0	47	2														
		1001D	46	2	2	3			2	0	46	2														
		1001E	46	5	2	3			2	0	46	5														
		1002A	32	3	4	1																				
		1002B	49	3	4	1																				
		1003	3	6	8	1																				
SPAN 1 FOUR 2 LT 1																										
		401A	VARY		150	1																				
△		402	36	4	364	22																				
		402	6	0	132	2	1		3	0	3	0														
		404	5	4	75	21	2		1	0 1/2	5	9														
		405	47	8	24	3			3	7 3/8	1	0														
		406	44	2	8	2			3	1 3/8																
		501A	VARY		44	3			2	0	VARIES															
		501B	VARY		170	1																				
		501C	VARY		72	1			2	0	VARIES															
		502A	VARY		44	1																				
		502B	VARY		170	1																				
		502C	VARY		72	1																				
		503A	47	8	8	1																				
		503B	21	5	4	1																				
		504	6	3	44	40																				
		505	56	11	2	1																				
		506	22	0	10	1																				
		601	25	1	2	25	4	4	0	9	6	6														
		602	20	8	4	50	4	4	0	3	3	4	7	11	8	5	8	4	8	4						
		604	21	0	2	25	4	4	0	9	4	5														
		510	29	2	4	90	4	4	0	4	1	4	5	2	6	5	8	4	9	6						

LOCATION	NO OF LOC.	MARK	LENGTH FT	LENGTH IN	NO. SAME MARK	TYPE	A	G	B FT	B IN	C FT	C IN	D FT	D IN	E FT	E IN	F FT	F IN	H FT	H IN	J FT	J IN	K FT	K IN	N	Q
		701	6	6	24	3			2	7 3/8	1	8														
		702	6	5	2	6	2		2	7 3/8																
		703	23	4	2	6	2		1	6 1/2																
		801	56	11	8	1																				
		901A	46	5	2	3																				
		901B	33	3	2	1																				
		901C	46	9	2	1																				
		902A	31	10	4	1																				
		902B	48	6	4	1																				
		903	3	6	4	1																				
SPAN 1 LT FOUR 2 1																										
		1001A	46	11	2	3																				
		1001B	34	0	2	1																				
		1001C	47	2	2	3																				
		1002A	32	3	4	1																				
		1002B	49	3	2	1																				
		1003	3	6	4	1																				
		400C	29	0	150	1																				
△		402	36	4	364	22																				
		501C	VARY		56	3			2	0	VARIES															
		501H	14	0	174	1																				
		501J	VARY		56	3			2	0	VARIES															
		502C	VARY		56	1																				
		502H	14	0	174	1																				
		502J	VARY		56	1																				
		503C	23	1	8	1																				
		503E	22	7	8	1																				
		504	6	3	54	40																				
		506	22	0	10	1																				
		901A	46	5	2	3																				
		901B	33	3	2	1																				
		901C	46	9	2	1																				
		901D	49	10	2	3																				
		901E	46	0	2	3																				
		901F	45	8	2	3			2	0	45	8														
		901G	45	5	2	3			2	0	45	5														
		902A	31	10	8	1																				
		902B	48	6	4	1																				
		903	3	6	8	1																				
		1001A	46	11	2	3																				
		1001B	34	0	4	1																				
		1001C	46	2	2	3																				
		1001E	46	5	2	3																				
		1001F	46	1	2	3			2	0	46	1														
		1001G	43	0	2	3			2	0	43	5														
		1002A	32	3	4	1																				
		1002B	49	3	4	1																				
		1003	3	6	8	1																				

BRIDGE SHEET 29 OF 36

BRIDGE N. 3 LT

STATE HIGHWAY DEPARTMENT OF GEORGIA
BRIDGE DIVISION

SIX REINFORCED CONCRETE SLABS I
I-75 OVER STATE ROUTE 9
COBB COUNT [illegible]
NO SCALE FEB., 1975

DESIGNED JFS | TRACED | REVIEWED L.R.P.
DETAILED | CHECKED H.J.L. | APPROVED

LOCATION	NO. OF LOC.	MARK	LENGTH FT.	LENGTH IN.	NO. BARS PIECES	TYPE	AG	B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	J FT.	J IN.	K FT.	K IN.	NO.
SPAN 2 LT FOUR @ 1		501K	VARY		328	3		2	0	VARIES														
		501L	40	1	76	1																		
		501P	VARY		308	1																		
		502A	43	3	76	1																		
		503H	33	8	16	3																		
		503J	33	2	16	1																		
		504	4	3	156	40																		
		506	22	8	10	1																		
		901B	33	11	4	1																		
		901H	44	5	2	3		2	0	42	6													
		901J	45	1	2	3		2	0	43	3													
		901K	45	8	2	3		2	0	43	9													
		901L	44	2	2	3		2	0	42	2													
		902A	31	10	8	1																		
		902B	48	6	4	1																		
		903	3	6	8	1																		
		1001B	44	0	4	1																		
		1001H	44	9	2	3		2	0	42	9													
		1001J	45	8	2	3		2	0	43	6													
		1001K	43	8	2	3		2	0	41	9													
		1001L	44	4	2	3		2	0	42	4													
		1002A	32	3	8	1																		
		1002B	48	3	4	1																		
		1003	3	6	8	1																		
SPAN 2 LT FOUR @ 1		401B	32	7	150	1																		
	△	402			364																			
		5019	VARY		157	3		2	0	VARIES														
		501L	32	9	155	1																		
		502K	VARY		157	1																		
		502L	28	9	155	1																		
		503F	32	3	8	1																		
		503J	31	5	8	1																		
		504	4	3	80	40																		
		506	22	8	10	1																		
		901B	33	3	4	1																		
		901H	43	8	2	3																		
		901J	45	7	2	3																		
		901K	44	9	2	3																		
		901L	45	1	2	3																		
		902A	31	10	8	1																		
		902B	48	4	4	1																		
		903	3	6	8	1																		
		1001B	44	0	4	1																		
		1001F	44	1	2	1																		
		1001G	45	3	2	1																		

LOCATION	NO. OF LOC.	MARK	LENGTH FT.	LENGTH IN.	NO. BARS PIECES	TYPE	AG	B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	J FT.	J IN.	K FT.	K IN.	NO.
		1001J	45	10	2	3																		
		1002A	32	3	8	1																		
		1002B	48	3	4	1																		
		1003	3	6	8	1																		
SPAN 2 LT FOUR @ 1																								
	△	401B	32	10	150	1																		
	△	402			364																			
		501L	28	9	144	1																		
		501P	VARY		154	3		2	0	VARIES														
		502L	28	9	144	1																		
		502M	VARY		154	1																		
	△	503J	30	11	8	1																		
	△	503M	30	1	8	1																		
		504	4	3	76	40																		
		506	22	8	10	1																		
		901B	33	3	4	1																		
		901H	43	5	2	3																		
		901L	44	2	2	3																		
		901P	43	4	2	3		2	0	41	4													
		902K	43	8	2	3		2	0	41	0													
		902A	31	10	8	1																		
		902B	48	4	4	1																		
		903	3	6	8	1																		
		1001B	44	0	4	1																		
		1001K	43	9	2	3																		
		1001L	44	6	2	3																		
		1001M	43	0	2	3		2	0	42	9													
		1001A	43	6	2	3		2	10	42	5													
		1002A	32	3	8	1																		
		1002B	49	2	4	1																		
		1003	3	6	8	1																		
SPAN 3 LT FOUR @ 1		401Q	34	2	150	1																		
	△	402			364																			
		501R	VARY		265	3		2	0	VARIES														
		501S	36	0	67	1																		
		501N	VARY		265	1																		
		502S	36	0	67	1																		
		503N	34	11	8	1																		
		503T	33	7	8	1																		
		504	6	3	133	40																		
		506	22	8	10	1																		
		901B	33	3	4	1																		
		901H	42	11	2	3		2	0	42	10													
		901K	43	3	2	3		2	0	43	3													
		901N	41	10	2	3		2	0	39	10													
		901L	42	4	2	3		2	0	40	4													
		902A	31	10	8	1																		

NO.	REVISIONS	DATE	BY
4			
3			
2			
1			

NO.	DATE	NO. OF SHEETS	SHEET NO.	TOTAL SHEET	SHEET No.	TOTAL SHEETS
6	GA.	2-1973 Supplement 5 Rev 1: 10-76 Rev 5: 10-76		75	64	76

STATE HIGHWAY DEPARTMENT OF GEORGIA
BRIDGE DIVISION

NO SCALE

FEB., 1975

DESIGNED J.F.F.
DRAWN
TRACED
CHECKED H.C.
REVIEWED J.C.T.
APPROVED

BRIDGE SHEET 30 OF 38

LOCATION	NO. MARK	LENGTH	NO.	SIZE	A	B	C	D	E	F	H	J	K	N	O
	1001B	34'- 0	4	1											
	1001F	43'- 6	2	3		2'- 0	41'- 0								
	1001G	43'- 6	2	3		2'- 0	41'- 6								
	1001R	43'- 2	2	3		2'- 0	40'- 2								
	1001S	42'- 4	2	3		2'- 0	40'- 4								
	1002A	32'- 1	8	3											
	1002B	44'- 1	4	1											
	1003	3'- 4	8	1											
SPAN 4 LT FOUR 2															
	401F	27'- 0	156	1											
△	402	51'-3	364	#20											
	501C	V44'9	135	3		2'- 0	VARIES								
	501H	11'-11	155	1											
	502C	V44'9	135	1											
	502H	11'-11	155	1											
	503L	21'- 6	6	1											
	503M	20'-11	6	1											
	504	6'- 3	69	48											
	506	22'- 0	10	3											
	901S	23'- 3	4	1											
	901M	43'- 4	2	3											
	901N	43'- 0	2	3											
	901R	42'-11	2	3											
	901S	43'- 5	2	3											
	902A	31'-10	8	3											
	902B	48'- 6	4	1											
	903	3'- 6	8	1											
	1001S	34'- 0	4	1											
	1001M	43'- 4	2	3											
	1001N	43'- 0	2	3											
	1001P	43'- 0	2	3											
	1001Q	43'- 6	2	3											
	1002A	32'- 1	8	3											
	1002B	48'- 5	4	1											
	1003	3'- 4	8	1											
SPAN 3 LT FOUR 3															
	401G	V44'9	154	1											
△	402	51'-3	364	#20											
	501F	V44'9	49	3		2'- 0	VARIES								
	501G	V44'9	167	1											
	502F	V44'9	77	3		2'- 0	VARIES								
	502T	V44'9	41	1											
	502U	V44'9	167	1											
	502V	V44'9	77	1											
	503P	17'- 4	8	1											
	503Q	29'- 9	8	1											
	504	6'- 3	62	48											
	506	22'- 0	10	1											

LOCATION	NO. MARK	LENGTH	NO.	SIZE	A	B	C	D	E	F	H	J	K	N	O
	901B	23'- 3	2	1											
	901R	43'-10	2	3											
	901T	36'- 2	2	1											
	901U	45'- 9	2	4		43'- 9	2'- 0								10
	901V	46'- 3	2	5		44'- 3	2'- 0								10
	902A	31'-10	4	1											
	902B	48'- 6	2	1											
	902C	34'-10	4	1											
	902D	42'-11	2	1											
	903	3'- 6	8	1											
	1001B	34'- 0	2	1											
	1001N	43'- 2	2	3											
	1001S	43'- 4	2	3											
	1001T	34'-11	2	1											
	1001U	46'- 1	2	4		44'- 1	2'- 0								10
	1001V	46'- 7	2	5		44'- 7	2'- 0								10
	1002A	32'- 1	4	1											
	1002B	49'- 3	2	1											
	1002C	35'- 2	4	1											
	1002D	53'- 6	2	1											
	1003	3'- 6	8	1											

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	STATE AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	GA.	I-75-3(40) 284 CT.5 Cobb Co.		'75	65	76

Contract 5

Rev. 5-10-76

BRIDGE No. 3 LT.

STATE HIGHWAY DEPARTMENT OF GEORGIA
BRIDGE DIVISION

BAR REINFORCEMENT SCHEDULE SH. No. 3

I-75 OVER STEVE FREY ROAD

COBB COUNTY I-75-3(40) 284 CT.5

NO SCALE FEB., 1975

BRIDGE SHEET 31 OF 38	DESIGNED J.F.T.	TRACED	REVIEWED L.E.P.
	DRAWN	CHECKED H.D.L.	APPROVED

LOCATION	NO. OF LOC.	MARK	LENGTH FT.	LENGTH IN.	NO. BARS REQ'D	TYPE	AG	B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	J FT.	J IN.	K FT.	K IN.	N	Θ
BENT 1 LT SIDE	1																								
		454	10	5	78	25	4	4	3	2		1	8												
		455	9	2	110	2			3	2		1	0	1	0										
		456	1	8	19	1																			
		457	9	5	12	25	4	4	2	2		2	2												
		458	7	3	94	30	5	5	3	2		1	8	1	0										
		459A	10	9	1	1																			
		459B	15	5	1	1																			
		459C	6	11	1	1																			
		459D	11	11	1	1																			
		460	13	9	12	1																			
		554	23	5	34	1																			
		555	VARY		92	1																			
		457	12	8	3	1																			
		893	9	6	3	1																			
		1061	43	11	3	4		41	3	0	8	2	3	0	0									8	35
		1062	48	11	3	4		46	3	0	8	2	0	0	0									8	55
		1063	43	3	3	1																			
		1064	35	7	3	4		33	7	2	0														34
		1065	30	4	3	4		28	4	2	0														29
		1066	42	8	3	4		40	8	2	0														41
		1067	37	4	3	4		35	4	2	0														36
		1068	74	11	3	6		34	3	0	8	2	5	0	8									6	55
		1069	42	11	3	6		39	3	0	8	2	0	0	0									6	55
BENT 2 LT	1																								
		451	17	5	38	25	4	4	4	2		4	2												
		551	18	8	55	25	4	4	6	5		6	5												
		552	6	5	16	2			4	5		1	0	1	0										
		553	56	5	8	1																			
		851	19	11	72	10	2	2	18	3															
		951	19	3	58	10	2	2	13	3															
		1151	58	9	2	10	2	2	56	5															
		1152	26	6	4	9	2		25	4															
		1153	25	6	4	9	2		24	4															
		1154	24	4	2	9	2		23	3															
		1155	17	6	4	1																			
		1156	24	8	4	1																			
		1157	16	8	4	1																			
		1158	12	6	2	1																			
		1159	13	4	4	1																			
		1163	18	6	2	1																			
		1164	54	6	2	1																			
		1162	28	5	2	1																			
		1160	28	6	24	1																			
		1161	21	4	21	1																			
		1148	8	8	18	6	2	6	7																

LOCATION	NO. OF LOC.	MARK	LENGTH FT.	LENGTH IN.	NO. BARS REQ'D	TYPE	AG	B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	J FT.	J IN.	K FT.	K IN.	N	Θ
BENT 2 LT	1																								
		451	17	5	42	25																			
		551	18	8	55	25																			
		552	6	5	16	2																			
		553	56	5	8	1																			
		952	15	6	68	10	2	2	13	6															
		953	16	3	42	10	2	2	14	3															
		1151	58	9	2	10																			
		1152	26	6	4	9																			
		1153	25	6	4	9																			
		1154	24	9	2	9																			
		1155	17	6	4	1																			
		1156	24	8	4	1																			
		1157	16	8	4	1																			
		1158	12	6	2	1																			
		1159	13	4	4	1																			
		1165	56	5	2	1																			
		1162	28	5	2	1																			
		1165	4	9	48	9																			
		1166	22	2	24	1																			
		1167	23	1	24	1																			
BENT 3 LT	1																								
		451	17	5	43	25																			
		452	10	0	16	1																			
		453	7	5	44	2		4	5	1	6	1	6												
		551	18	8	69	25																			
		553	56	5	8	1																			
		954	15	3	90	10	2	2	13	3															
		1151	58	9	4	10																			
		1158	11	6	12	1																			
		1165	4	9	48	9																			
		1168	23	11	12	1																			
		1169	23	6	8	1																			
		1170	30	8	1	1																			
		1171	23	10	24	1																			
		1172	23	8	24	1																			
BENT 3 RT	1																								
		451	17	5	44	25																			
		452	10	8	16	1																			
		453	7	5	44	2																			
		951	18	8	69	25																			
		953	56	5	8	1																			

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	STATE AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	GA.	I-75-3 (46) 284		75	60	76

Contract 5

BRIDGE No. 3 LT.

STATE HIGHWAY DEPARTMENT OF GEORGIA
BRIDGE DIVISION

BAR REINFORCEMENT SCHEDULE SH No. 4
I-75 OVER STEVE FREY ROAD
COBB COUNTY I-75-3(46) 284 CT 5
NO SCALE FEB., 1975

DESIGNED J.P.T. DRAWN CHECKED H.J.L. REVIEWED L.B.P. APPROVED

BRIDGE SHEET 32 OF 38

LOCATION	NO. OF LGS	MARK	LENGTH FT	LENGTH IN	NO. BARS REQ'D	Y	Y	AG	B FT	B IN	C FT	C IN	D FT	D IN	E FT	E IN	F FT	F IN	H FT	H IN	J FT	J IN	K FT	K IN	N-B
		954	15	3	88	10																			
		1151	58	9	4	10																			
		1159	11	4	32	1							V												
		1161	56	5	4	1																			
		1168	6	9	48	9																			
		1169	23	0	32	1																			
		1169	13	0	8	1																			
		1170	50	4	1	1																			
		1173	14	5	24	1																			
		1174	19	2	24	1																			
		1175	13	7	48	1																			
BENT 4 LT	1																								
		461	11	5	95	25	4	4	3	8	1	8													
		462	3	9	48	32	9	3	3	8	1	8	1	8											
		463	5	8	94	2			3	8	1	0	1	0											
		464	12	0	32	1																			
		465	3	0	14	1																			
		466	10	1	7	6			8	9	3	4	1	0											60
		467	13	3	7	6			9	7	3	8	1	0											60
		468	6	8	7	4			3	8	1	0													31
		469	5	10	7	4			3	10	1	0													31
		470	4	8	116	25	2		1	2	3	0													90
		471	9	5	22	25	4	4	2	2	2	2													
		472	1	8	16	1																			
		473	2	0	2	1																			
		474	2	3	3	1																			
		475	13	10	3	1																			
		476	56	6	28	1																			
		556	2	6	242	1																			
		557	4883		112	1																			
		558	28	5	40	1																			
		559	9	6	18	14			3	8	1	11	1	0	1	11	1	0							
		560	54	6	2	1																			
		561	9	6	8	50	4	4	3	8	1	4	2	4	0	5	0	4	0	5					
		562	9	10	4	25	4	4	3	8	0	4													
		451	6	6	3	1																			
		551	VARY		14	1																			
		552	VARY		2	1																			
		1051	33	0	2	1																			
		1052	53	4	2	1																			
		1053	45	4	1	4			42	8	0	8	2	0	0	0									40
		1054	52	2	1	4			49	4	0	8	2	0	0	0									40
		1055	37	0	1	4			34	4	0	8	2	0	0	0									40
		1056	53	10	1	4			49	2	0	8	2	0	0	0									40
		1057	33	2	1	4			30	2	2	0													31
		1058	46	3	1	4			43	1	2	0													31
		1059	46	10	1	4			43	10	2	0													31
		1060	38	3	1	4			34	4	2	0													31

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	STATE AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	GA.	STP-I (614)		'75	67	76

Contract 3

BRIDGE No. 3 LT.

STATE HIGHWAY DEPARTMENT OF GEORGIA
BRIDGE DIVISION

BAR REINFORCEMENT SCHEDULE SH. No. 5

I-75 OVER STEVE FREY ROAD

COBB COUNTY I-75-3(40) 284 GE 5

NO SCALE FEB., 1975

BRIDGE SHEET	DESIGNED J.P.T.	TRACED	REVIEWED L.R.P.
33 OF 38	DRAWN	CHECKED H.J.L.	APPROVED

LOCATION	NO. OF LOC.	MARK	LENGTH FT.	LENGTH IN.	NO. BARS REQ'D	TYPE	A	G	B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	J FT.	J IN.	K FT.	K IN.	N	O
SPAN 1 AT FOUR 1 1																										
		4018	52	9	132	1																				
	A	402	(54)		264	(22)			4 @ 2	5 1/2	1	9 7/16														
		9010	VARY		257	3			2	0	VARIES															
		9011	34	4	100	3																				
		9022	VARY		257	1																				
		9026	34	8	100	3																				
		903C	73	5	8	1																				
		9039	12	5	8	1																				
		904	61	3	130	40			1	0	2	5 3/4	0	12	2	0	0	0								
		936	22	2	10	1																				
		9214	44	8	2	1			2	0	42	8														
		9218	12	6	4	1																				
		921C	45	1	2	3			2	0	42	1														
		9220	43	11	2	3			2	0	42	11														
		9226	44	4	2	3			2	0	42	4														
		922C	30	8	8	1																				
		9230	46	8	4	1																				
		903	3	6	8	1																				
		10014	45	1	2	3			2	0	42	1														
		10018	32	5	4	1																				
		1001C	45	8	2	3			2	0	42	4														
		10020	44	4	2	3			2	0	42	4														
		10024	34	6	8	1																				
		10028	14	10	8	1																				
		1003	3	6	8	1																				
SPAN 1 AT FOUR 2 1																										
		9014	VARY		150	4																				
	A	402	(54)		182	(22)																				
		403	6	6	114	3			2	0	3	0														
		404	9	4	78	21	2		1	0	2	10														
		405	4	8	24	3			3	7	5/8	1	0													
		406	4	2	2	9	2		3	7	5/8															
		5018	VARY		58	3			2	0	VARIES															
		5019	VARY		154	1																				
		9015	VARY		88	3			2	0	VARIES															
		5024	VARY		56	1																				
		5029	VARY		148	1																				
		902C	VARY		86	1																				
		9038	14	10	8	1																				
		9038	25	4	8	1																				
		901	51	0	2	1																				
		906	22	6	12	1																				
		907	13	2	2	25	4	4	0	6	1	0														
		908	23	8	4	53	4	4	9	3	3	4	1	11	0	5	0	4	0	9						
		909	25	0	2	25	4	4	0	3	3	9														
		910	17	2	4	98	4	4	0	6	1	4	3	2	0	6	0	4	0	4						
		911	4	8	24	3			3	9	1/2	1	0													

LOCATION	NO. OF LOC.	MARK	LENGTH FT.	LENGTH IN.	NO. BARS REQ'D	TYPE	A	G	B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	J FT.	J IN.	K FT.	K IN.	N	O
		702	4	5	2	9	2		3	7	5/8															
		703	2	4	2	9	2		1	4	5/8															
		801	54	0	6	1																				
		9018	44	8	2	3																				
		9019	12	0	4	1																				
		901C	45	1	2	3																				
		902C	30	8	4	1																				
		9023	46	8	2	1																				
		903	3	6	4	1																				
		10018	45	1	2	3																				
		10018	32	5	4	1																				
		1001C	45	8	2	3																				
		1002C	31	2	4	1																				
		10025	41	5	2	1																				
		1303	3	6	4	1																				
SPAN 1 AT FOUR 2 1																										
		1014	35	10	158	1																				
	A	402	(54)		264	(22)																				
		5014	VARY		126	3			2	0	VARIES															
		5018	16	8	160	1																				
		902A	VARY		126	1																				
		9026	16	8	160	1																				
		9030	34	3	8	1																				
		9038	25	4	8	1																				
		904	6	3	44	43																				
		906	22	6	12	1																				
		9038	32	6	4	1																				
		9039	43	11	2	3																				
		9042	44	4	2	3																				
		9047	43	10	2	3			2	0	42	10														
		9052	43	8	2	3			2	0	42	8														
		902C	34	8	8	1																				
		9025	44	8	4	1																				
		903	8	6	8	1																				
		10018	32	5	4	1																				
		10030	44	4	2	3																				
		10038	44	5	2	3																				
		1004A	44	8	2	3			2	0	42	8														
		1004C	32	6	8	1																				
		10025	47	5	4	1																				
		1005	8	6	8	1																				
		901E	34	3	300	1																				
	A	402	(54)		264	(22)																				
		9014	VARY		204	3			2	0	VARIES															

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	STATE NO. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	GA.	I-75-3 (40) 284		'75	68	76

Contract 5

Rev. 5-10-76

BRIDGE No. 3 RT.

STATE HIGHWAY DEPARTMENT OF GEORGIA
BRIDGE DIVISION

BAR REINFORCEMENT SCHEDULE SH. No. 4

I-75 OVER STEVE FREY ROAD

COBB COUNTY I-75-3(40) 284 CT. 5

NO SCALE FEB., 1975

DESIGNED J.P.T. TRACED DETAILED CHECKED M.J.L. REVIEWED L.R.M. APPROVED

BRIDGE SHEET 34 OF 38

LOCATION	NO. OF LOC.	MARK	LENGTH FT.	LENGTH IN.	NO. BARS REQ'D	TYPE	A	G	B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	J FT.	J IN.	K FT.	K IN.	N	O
		501L	35	1	73	1																				
		502K	VARY		295	1																				
		502L	35	1	73	1																				
		503K	31	8	16	1																				
		503L	35	5	8	1																				
		504	6	3	149	40																				
		506	22	6	18	1																				
		9018	32	5	4	1																				
		9019	43	0	2	3			2	0	41	0														
		9021	43	8	2	3			2	0	41	8														
		9018	42	2	2	3			2	0	40	2														
		9035	42	10	2	3			2	0	40	10														
		9037	38	8	4	1																				
		9020	46	8	4	1																				
		903	3	4	8	1																				
		10018	32	5	4	1																				
		10019	43	4	2	3			2	0	43	4														
		10021	44	1	2	3			2	0	42	1														
		10018	42	8	2	3			2	0	40	8														
		10021	43	3	2	3			2	0	41	3														
		10020	24	0	8	1																				
		10020	42	3	4	1																				
		1003	3	6	8	1																				
SPAN 2 AT POUR 2	1																									
		601C	30	1	150	1																				
△		602	(5-4)		364	(2-5)																				
		501K	VARY		151	3			2	0	VARIES															
		501L	29	8	145	1																				
		503K	VARY		151	3																				
		503L	29	8	145	1																				
		5037	38	10	8	1																				
		5036	35	0	8	1																				
		504	6	3	77	40																				
		506	22	0	18	1																				
		9018	32	0	4	1																				
		9019	43	10	2	3																				
		9018	43	8	2	3																				
		9018	43	6	2	3																				
		901	43	8	2	3																				
		9035	42	10	2	3																				
		9037	46	8	4	1																				
		903	3	4	8	1																				
		10018	32	5	4	1																				
		10019	43	4	2	3			2	0	43	4														
		10021	44	1	2	3			2	0	42	1														
		10018	42	8	2	3			2	0	40	8														
		10020	24	0	8	1																				
		10020	42	3	4	1																				
		1003	3	6	8	1																				

LOCATION	NO. OF LOC.	MARK	LENGTH FT.	LENGTH IN.	NO. BARS REQ'D	TYPE	A	G	B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	J FT.	J IN.	K FT.	K IN.	N	O
SPAN 2 AT POUR 5	1																									
		601C	30	1	150	1																				
△		602	(5-4)		364	(2-5)																				
		501K	VARY		147	3			2	0	VARIES															
		501L	29	0	139	1																				
		502K	VARY		147	1																				
		502L	29	0	139	1																				
		503J	30	0	8	1																				
		503K	29	4	8	1																				
		504	6	3	75	40																				
		506	22	0	18	1																				
		9018	32	0	4	1																				
		9019	42	2	2	3																				
		9011	42	10	2	3																				
		901M	42	2	2	3			2	0	40	2														
		9035	42	0	2	3			2	0	40	0														
		9037	38	8	4	1																				
		9020	46	8	4	1																				
		903	3	4	8	1																				
		10018	32	5	4	1																				
		10019	42	4	2	3																				
		10021	43	3	2	3																				
		10019	42	2	2	3			2	0	40	4														
		10018	42	5	2	3			2	0	40	5														
		10020	21	0	8	1																				
		10020	42	3	4	1																				
		1003	3	6	8	1																				
		5015	43	2	44	1																				
		5028	VARY		287	1																				
		5025	43	2	88	1																				
		5036	39	3	8	1																				
		5037	38	1	8	1																				
		504	6	3	144	40																				
		506	22	6	18	1																				
		9018	32	0	4	1																				
		9019	43	4	2	3			2	0	39	4														
		9018	42	1	2	3			2	0	40	1														
		9018	40	3	2	3			2	0	38	3														
		9035	43	4	2	3			2	0	39	4														
		9037	38	8	4	1																				
		9020	46	8	4	1																				
		903	3	4	8	1																				
		10018	32	5	4	1																				
		10018	42	6	2	3			2	0	39	6														

TO PROJ. NO.	SHEET	FED. AID PROJ. NO.	STATE AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	GA	I-75-3 (40) 284 CONTRACT 5		'75	69	76

Rev 5-10-76

BRIDGE No. 3 RT.

STATE HIGHWAY DEPARTMENT OF GEORGIA
BRIDGE DIVISION

BAR REINFORCEMENT SCHEDULE Sht No. 7
I-75 OVER STEVE FREY ROAD
COBB COUNTY I-75-3(40) 284 CT.5
NO SCALE FEB., 1975

BRIDGE SHEET 35 OF 38

DESIGNED J.P.T. | TRACED | REVIEWED L.R.P.
CHECKED H.J.L. | APPROVED

LOCATION	NO. OF LOC.	MARK	LENGTH FT.	LENGTH IN.	NO. BARS WIDTH	TYPE	A FT.	A IN.	B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	N	O
		10018	42-	5	2	3			2-	0	42-	5												
		10018	41-	0	2	3			2-	0	39-	0												
		10015	43-	8	2	3			2-	0	39-	8												
		1002C	31-	0	8	1																		
		10020	47-	5	4	1																		
		1003	3-	6	8	1																		
SPAN 3 AT PIER 2: 1																								
		4010	29-	7	150	1																		
	△	402	(9-4)		364	(20)																		
		5014	VARY		146	3			2-	0	VARIES													
		5018	20-	6	137	1																		
		5019	VARY		146	1																		
		5026	20-	6	137	1																		
		5031	29-	10	8	1																		
		5034	29-	1	8	1																		
		504	6-	3	74	40																		
		506	22-	0	10	1																		
		5018	32-	9	4	1																		
		9018	42-	2	2	3																		
		9016	42-	8	2	3																		
		9016	43-	6	2	3																		
		9016	42-	1	2	3																		
		9021	30-	8	8	1																		
		9022	46-	8	2	5			42-	8	2-	0												
		9024	33-	5	4	1																		
		9026	39-11		2	1																		
		9025	30-	8	4	1																		
		902C	46-	8	2	1																		
		903	3-	6	8	1																		
		10018	32-	9	2	1																		
		10018	41-	0	2	3																		
		10015	43-	8	2	3																		
		10017	38-	6	2	1																		
		10020	45-	8	2	4			43-	8	2-	0												32
		10019	45-	3	2	5			43-	3	2-	0												33
		1002A	39-02		4	1																		
		10029	51-	8	2	1																		
		1002C	31-	0	4	1																		
		10020	47-	5	2	1																		
		1003	3-	6	8	1																		
SPAN 3 AT PIER 3: 1																								
		4010	VARY		150	1																		
	△	402	(9-4)		364	(42)																		
		5013	VARY		55	3			2-	0	VARIES													
		5015	VARY		157	1																		
		5019	VARY		82	3			2-	0	VARIES													
		5027	VARY		55	1																		
		502A	VARY		150	1																		
		502A	VARY		82	1																		
		5039	29-	5	8	1																		
		5030	30-10		8	1																		
		504	6-	3	44	40																		
		506	22-	0	10	1																		
		5016	32-	9	2	1																		
		9016	42-	2	2	3																		
		9015	42-	8	2	3																		
		9016	43-	6	2	3																		
		9016	42-	1	2	3																		
		9021	30-	8	8	1																		
		9022	46-	8	2	5			42-	8	2-	0												
		9024	33-	5	4	1																		
		9026	39-11		2	1																		
		9025	30-	8	4	1																		
		902C	46-	8	2	1																		
		903	3-	6	8	1																		
		10018	32-	9	2	1																		
		10018	41-	0	2	3																		
		10015	43-	8	2	3																		
		10017	38-	6	2	1																		
		10020	45-	8	2	4			43-	8	2-	0												32
		10019	45-	3	2	5			43-	3	2-	0												33
		1002A	39-02		4	1																		
		10029	51-	8	2	1																		
		1002C	31-	0	4	1																		
		10020	47-	5	2	1																		
		1003	3-	6	8	1																		
SPAN 3 AT PIER 4: 1																								
		4010	VARY		150	1																		
	△	402	(9-4)		364	(42)																		
		5013	VARY		55	3			2-	0	VARIES													
		5015	VARY		157	1																		
		5019	VARY		82	3			2-	0	VARIES													
		5027	VARY		55	1																		
		502A	VARY		150	1																		
		502A	VARY		82	1																		
		5039	29-	5	8	1																		
		5030	30-10		8	1																		
		504	6-	3	44	40																		
		506	22-	0	10	1																		
		5016	32-	9	2	1																		
		9016	42-	2	2	3																		
		9015	42-	8	2	3																		

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	STATE NO. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	GA	I-75-3 (40) 254 Ct. 5		75	70	76

Contract 5

Rev 5-10-76

BRIDGE No. 3 RT.

STATE HIGHWAY DEPARTMENT OF GEORGIA
BRIDGE DIVISION

BAR REINFORCEMENT SCHEDULE SH. No. 8

I-75 OVER STEVE FREY ROAD

COBB COUNTY I-75-3(40) 254 Ct. 5

NO SCALE FEB., 1975

BRIDGE SHEET	BY	REVISIONS	DATE
36 OF 38		ADDED LOCK SHT. REF.	2-76

DESIGNED J.P.T. TRACED
DRAWN CHECKED H.J.L. APPROVED

RECOMMD. I. R. P.

LOCATION	NO OF LOC	MARK	LENGTH FT.	LENGTH IN.	NO. BARS REQ'D	TYPE	AG	B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	J FT.	J IN.	K FT.	K IN.	NO
BENT 1 RT AH	1																							
		451	1	3	36	1																		
		452	4	5	12	25	4	4	2	2	2	2												
		453	3	3	96	32	5	5	3	2	1	8	1	8										
		454	10	5	17	25	4	4	9	2	1	8												
		455	3	2	104	7			3	2	1	8	1	0										
		456	13	0	12	1																		
		4574	10	4	1	1																		
		4576	14	0	1	1																		
		4575	15	4	1	1																		
		4555	10	9	1	1																		
		551	VARY		88	1																		
		552	20	11	36	1																		
		951	9	0	3	1																		
		452	12	0	3	1																		
		1051	42	9	1	4		39	1	0	8	2	0	0	8								0	58
		1052	46	5	1	4		43	9	0	8	2	0	0	8								0	58
		1053	35	2	1	4		32	5 1/2	0	8	2	0	0	8								0	58
		1054	40	4	1	4		37	7 1/2	0	8	2	0	0	8								0	58
		1055	47	2	1	4		43	2	2	0													36
		1056	42	4	1	4		40	4	2	0													36
		1057	40	7	1	4		36	6 1/2	2	0													36
		1058	35	5	1	4		32	8 1/2	2	0													36
		1059	46	5	2	5																		
		1076	30	0	2	1																		
BENT 2 RT AH	1																							
		458	17	5	45	25	4	4	3	2	4	2												
		459	7	5	48	2			4	5	1	4	1	4										
		460	11	0	8	1																		
		553	18	8	54	25	4	4	5		4	5												
		554	54	8	4	1																		
		851	13	3	36	10	2	2	13	1														
		552	15	6	36	10	2	2	12	6														
		1151	57	0	2	10	2	2	34	8														
		1152	23	6	4	1																		
		1153	22	0	4	1																		
		1154	20	0	4	1																		
		1155	17	0	4	1																		
		1156	16	8	4	1																		
		1157	34	0	4	1																		
		1158	12	6	4	1																		
		1159	10	4	4	1																		
		1160	54	8	2	1																		
		1161	25	0	2	1																		
		1164	26	6	24	1																		
		1165	27	4	24	1																		
		1166	25	10	48	1																		
		1167	7	5	48	6																		
BENT 3 RT AH	1																							
		458	17	5	45	25																		
		459	7	5	48	2																		
		460	11	0	8	1																		
		553	18	8	54	25																		
		554	54	8	4	1																		
		951	15	2	36	10																		
		952	14	6	36	10																		
		1151	57	0	2	10																		
		1152	23	6	4	1																		
		1153	22	0	4	1																		
		1154	20	0	4	1																		
		1155	17	0	4	1																		
		1156	16	0	4	1																		
		1157	34	0	4	1																		
		1158	12	6	4	1																		
		1159	10	4	4	1																		
		1160	54	8	2	1																		
		1161	25	0	2	1																		
		1164	26	6	24	1																		
		1165	27	4	24	1																		
		1166	25	10	48	1																		
		1167	7	5	48	6																		

SEQ. SHEET NO.	STATE	FED. AID PROJ. NO.	STATE AID PROJ. NO.	TOTAL YEAR	SHEET NO.	TOTAL SHEETS
4	GA.	F-75-3 Spalding Contract 3		75	71	76

BRIDGE NO. 3 RT.

STATE HIGHWAY DEPARTMENT OF GEORGIA
BRIDGE DIVISION

S.M. REINFORCEMENT SCHEDULE SH. No. 4
I-75 OVER STEVE FREY RD.
CCES COUNTY I-(C)-175(23)CCE
NO SCALE FEB., 1975

DESIGNED J.P.T.	TRACED	REVIEWED L.R.P.
DRAWN	CHECKED H.J.L.	APPROVED

BRIDGE SHEET 37 OF 38

FED. ROAD DIV. No.	STATE	FED. AID PROJ. No.	STATE AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
4	GA.	I-75-3 (40)284		'75	72	76

Contract 5

LOCATION	NO. OF LOC.	MARK	LENGTH FT.-IN.	NO. BARS REQ'D	TYPE	A	G	B	C	D	E	F	H	J	K	N	O
		553	18- 8	64	25												
		554	54- 9	4	1												
		993	21- 3	60	10	2	2	19- 3									
		994	15- 6	54	10	2	2	13- 6									
		1156	57- 0	4	10												
		1157	34- 0	8	1												
		1160	54- 8	4	1												
		1168	21- 0	8	1												
		1169	18- 0	4	1												
		1170	11- 6	8	1												
		1171	30- 0	5	1												
		1172	6- 9	48	9												
		1175	15- 4	48	1												
		1176	30- 1	24	1												
		1177	20-10	24	1												
BENT 4 RT	1																
		461	34- 0	28	1												
		462	11- 3	84	25	4	4	3- 8	1- 8								
		463	7- 9	60	32	5	5	3- 8	1- 8	1- 8							
		464	5- 8	68	2			3- 8	1- 0	1- 0							
		465	11- 0	12	1												
		466	5- 2	16	1												
		467	10- 6	7	4			8- 6	0- 4	1- 0	0- 0					0	58
		468	10- 6	7	4			5- 0	0- 4	1- 0	0- 8					0	58
		469	7- 0	7	4			4- 0	1- 0								33
		470	7- 8	7	4			4- 8	1- 0								33
		471	4- 8	76	21	2		1- 2	3- 0								90
		472	9- 5	12	25	4	4	2- 2	2- 2								
		473	3- 8	16	1												
		474	3-11	2	1												
		475	12- 0	1	1												
		476	3- 4	3	1												
		555	7- 0	232	1												
		556	[illegible]	104	1												
		557	23- 2	48	1												
		558	5- 6	18	16			3- 8	1-11	1- 3	1-11	1- 8					
		559	34- 0	2	1												
		560	5- 4	8	30	4	4	3- 8	1- 4	2- 4	0- 5	[illegible]	0- 8				
		561	9-10	4	25	4	4	3- 8	0- 3								
		481	11- 4	16	1												
		752	9- 3	2	1												
		1058	35- 6	2	1												
		1060	11- 6	2	1												
		1066	43-11	1	4			41- 3	2- 4	2- 0	0- 0					0	58
		1062	48- 5	1	4			47- 5	2- 4	2- 0	0- 0					0	58
		1063	35-11	1	4			33- 8	2- 4	2- 0	0- 0					0	58
		1064	43- 5	1	4			39- 8	2- 4	2- 3	0- 0					0	58
		1065	51- 0	1	4			47- 3	2- 0								
		1066	39- 0	1	4			49- 0	2- 0								33
		1067	43- 5	1	4			41- 3	2- 0								33
		1068	37- 0	1	4			35- 0	2- 0								33

BRIDGE No. 3 RT.

STATE HIGHWAY DEPARTMENT OF GEORGIA
BRIDGE DIVISION

BAR REINFORCEMENT SCHEDULE SH. No. 10
I-75 OVER STEVE FREY ROAD
COBB COUNTY I-75-3(40)284 CT.5
NO SCALE FEB., 1975

DESIGNED J.F.T. TRACED CHECKED H.J.L. REVIEWED L.R.P. APPROVED

BRIDGE SHEET 38 OF 38

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0073-03(242)
CALC NO. BR#33

SUBJECT: Bridge Maintenance Reports
BY: JCR DATE: 11/30/2009

SHEET NO.
SHEET REV.

BRIDGE INVENTORY DATA LISTING GEOF A DEPARTMENT OF TRANSPORTATION

Structure ID: 067-0085-0 **Cobb** SUFF. RATING 70.41

Location & Geography

*	Structure I.D.No:	067-0085-0	
	200 Bridge Information	06	
*	6A Feature Int:	CR 160 STEVE FREY ROAD	
*	6B Critical Bridge:	0	
*	7A Route Number Carried:	SR00401	
*	7B Facility Carried:	I-75 (NBL)	
*	9 Location:	2.4 MI NE OF KENNESAW	
	2 DOT District:	7	
	207 Year Photo:	2009	
*	91 Inspection Frequency:	24 Date: 03/19/2009	
	92A Fract Crit Insp Freq:	00 Date: 02/01/1901	
	92B Underwater Insp Freq:	00 Date: 02/01/1901	
	92C Other Spc. Insp Freq:	00 Date: 02/01/1901	
*	4 Place Code:	00000	
*	5 Inventory Route (O/U):	1	
	Type:	1	
	Designation:	1	
	Number:	00075	
	Direction:	0	
*	16 Latitude: 34-02.5890	MMS Prefix: SR	
*	17 Longitude: 84-34.8770	MMS Suffix: 00	MP: 271.97
	98 Border Bridge: 000	%Shared: 00	
	99 ID Number: 000000000000000		
*	100 STRAHNET: 1		
	12 Base Highway Network:	1	
	13A LRS Inventory Route:	671040100	
	13B Sub Inventory Route:	0	
*	101 Parallel Structure:	R	
*	102 Direction of Traffic:	1	
*	264 Road Inventory Mile Post:	014.34	
*	208 Inspection Area: 09	Initials: JMC	
	Engineer's Initial: sgm		

* Location I.D. No.: 067-00401D-271.97N

*	104 Highway System:	1	
*	26 Functional Classification:	11	
*	204 Federal Route Type:	1	No.: 00007
	105 Federal Lands Highway:	0	
*	110 Truck Route:	1	
	206 School Bus Route:	0	
	217 Benchmark Elevation:	0000.00	
	218 Datum:	0	
*	19 Bypass Length:	01	
*	20 Toll:	3	
*	21 Maintenance:	01	
*	22 Owner:	01	
*	31 Design Load:	6	
	37 Historical Significance:	5	
	205 Congressional District:	11	
	27 Year Constructed:	1976	
	106 Year Reconstructed:	0000	
	33 Bridge Median:	1	
	34 Skew:	60	
	35 Structure Flared:	0	
	38 Navigation Control:	N	
	213 Special Steel Design:	0	
	267 Type of Paint:	5	
*	42 Type of Service on:	1	
		1	
	214 Movable Bridge:	0	
	203 Type Bridge:	Z-O-M-O	
	259 Pile Encasement:	3	
*	43 Structure Type Main:	3 02	
	45 No. Spans Main:	003	
	44 Structure Type Appr:	0 00	
	46 No. Spans Appr:	0000	
	226 Bridge Curve Horz:	1	Vert: 0
	111 Pier Protection:	0	
	107 Deck Structure Type:	1	
	108 Wearing Surface Type:	1	
	Me	0	
	F	0	

Signs & Attachments

	225 Expansion Joint Type:	15	
	242 Deck Drains:	0	
	243 Parapet Location:	3	
	Height:		2.30
	Width:		1.60
	238 Curb:		0.00 0
	239 Handrail:	7 7	
*	240 Median Barrier Rail:	0	
	241 Bridge Median Height:		0.00
	Width:		0.00
*	230 Guardrail Loc Dir Rear:	3	
	Fwrd:	2	
	Oppo Dir Rear:	0	
	Fwrd:	0	
	244 Approach Slab:	3	
	224 Retaining Wall:	0	
	233 Posted Speed Limit:	65	
	236 Warning Sign:	0	
	234 Delineator:	1	
	235 Hazard Boards:	0	
	237 Utilities Gas:	00	
	W	00	
	Ele	22	
	Telephone:	00	
	Se	00	
	247 Lighting Street:	0	
	Naviagtion:	0	
	Aerial:	0	
*	248 County Continuity No.:	00	

Structure ID: 067-0085-0 Cobb SUFF. RATING 70.41

Programming Data

201 Project No.: I-75-3 (40) 284 CT.5
202 Plans Available: 4
249 Prop. Proj. No. 0000000000000000
250 Approval Status: 0000
251 P.I. No.: 0000000
252 Contract Date: 02/01/1901
260 Seismic No.: 00000
75 Type Work: 00 0
94 Bridge Imp. Cost: $ 0
95 Roadway Imp. Cost: $ 0
96 Total Imp Cost: $ 0
76 Imp. Length: 000000
97 Imp. Year: 0000
114 Future ADT: 206940 Year: 2027

Hydraulic Data

215 Waterway Data
Highwater Elev.: 0000.0 Year: 1900
Avg. Streambed Elev.: 0000.0 Freq.: 00
Drainage Area: 00000
Area Of Opening: 000000
113 Scour Critical: N
216 Water Depth: 00.0 Br. Height: 00.0
222 Slope Protection: 4
221 Spur Dikes Rear: 0 Fwrd: 0
219 Fender System: 0
220 Dolphin: 0
223 Culvert Cover: 000
Type: 0
No. Barrels: 0
Width: 0.00 Height: 0.00
Length: 0 Apron: 0
* 265 U/W Insp. Area: 0 Diver: ZZZ

* Location I.D. No.: 067-00401D-271.97N

Measurements

* 29 ADT: 137960 Year: 2007
109 % Trucks: 0
* 28 Lanes On: 03 Under: 04
210 No. Tracks On: 00 Under: 00
* 48 Max. Span Length: 0123
* 49 Structure Length: 321
51 Br. Rwdy. Width: 60.20
52 Deck Width: 63.20
* 47 Tot. Horz. Cl: 60.20
50 Curb/Sdewlk Width: 0.00/0.00
32 Approach Rdwy Width: 056
* 229 Shoulder Width:
Rear Lt: 10.00 Type: 2 Rt: 10.00
Fwrd Lt: 10.00 Type: 2 Rt: 10.00
Pavement Width:
Rear: 36.00 Type: 2
Fwrd: 36.00 Type: 2
Intersection Rear: 0 Fwrd: 0
36 Safety Features Br. Rail: 1
Transition: 1
App. G. Rail: 1
App. Rail End: 1
53 Minimum Cl.Over: 99 ' 99 "
Under: H 20 ' 02 "
* 228 Min. Vertical Cl
Act. Odm Dir: 99 ' 99 "
Oppo. Dir: 99 ' 99 "
Posted Odm. Dir: 00 ' 00 "
Oppo. Dir: 00 ' 00 "
55 Lateral Undercl. Rt: H 9.50
56 Lateral Undercl. Lt: 0.00
* 10 Max Min Vert Cl: 99 ' 99 " Dir: 0
39 Nav Vert Cl: 000 Horz: 0000
116 Nav Vert Cl Closed: 000
245 Deck Thickness Main: 7.50
Deck Thick Approach: 0.00
246 Overlay Thickness: 0.00
212 Year Last Painted: Sup: 1995 Sub: 0000

Ratings

65 Inventory Rating Method: 1
63 Inventory Rating Method: 1
66 Inventory Type: 2 Rating: 23
64 Operating Type: 2 Rating: 38
231 Calculated Loads
H-Modified: 21 0
HS-Modified: 30 0
Type 3: 33 0
Type 3s2: 38 0
Timber: 36 0
Piggyback: 39 0
261 H Inventory Rating: 32
262 H Operating Rating: 54
67 Structural Evaluation: 5
58 Deck Condition: 7
59 Superstructure Condition: 8
* 227 Collision Damage: 0
60A Substructure Condition: 7
60B Scour Condition: N
60C Underwater Condition: N
71 Waterway Adequacy: N
61 Channel Protection Cond: N
68 Deck Geometry: 9
69 UnderClr. Horz/Vert: 5
72 Appr. Alignment: 8
62 Culvert: N

Posting Data

70 Bridge Posting Required: 5
41 Struct Open, Posted, Cl: A
* 103 Temporary Structure: 0
232 Posted Loads H-Modified: 00
HS-Modified: 00
Type 3: 00
Type3s2: 00
Timber: 00
Piggyback: 00
253 Notification Date 02/01/1901
253 Fed Notify Date: 02/01/1901 0

GEORGIA DEPARTMENT OF TRANSPORTATION

Bridge Inspection Report

District: 7 **Inspection Date:** 3/19/2009 **Inspection Area:** 09

Bridge Inspector: Jerry Cooper **Over:** CR 160 STEVE FREY ROAD **Bridge Status:** 06

Location ID: 067-00401D-271.97N **County:** Cobb

Structure ID: 067-0085-0 **Road Name:** I-75 (NBL)

EVALUATION & DEFICIENCIES

SubStructure: **Year Painted:** 0000

Concrete Caps At Both Abutments.
Bents 2 And 3 Have Concrete Caps On 4 Concrete Columns.
Minor cracking in both abutment caps.
Bent #2 = H-32 Calculated 2004 by Central Office (Load Factor) Revised February 2009 SGM

SuperStructure: **Year Painted:** 1995

3 Span Steel Plate Girders (8 Beams Per Span) Beam Measurement (501/2" X 18").
Steel Rocker Bearings At Bents 2, 3 And Abutment 4.
Very minor corrosion on the bearings.
All bearings are functioning as designed.
Span #2 = H-43 Calculated 2004 by Central Office (Load Factor).

Deck:

7.5" Concrete Slab.
Metal-Stay-In-Place Deck Forms
Minor Transverse cracking in the deck surface throughout with some light scaling.
Metal headers filled with Evazote at all bents.
The Metal header is loose at bent 3.
Joints are leaking at the bents.
Deck: H-34 Calculated 2004 by Central Office (Load Factor).

General:

Built in 1976 Project #I-75-3 (40) 284 CT. 5.
Calculations for this structure were determined by the Central Office. - February, 2004. Revised February 2009 SGM
This structure is in Good Condition minor cracking and minor corrosion.
Hand tools and ladder used.

Condition Rating

Component	Material	Rating
Substructure	Concrete	7
Superstructure	Steel	8
Deck	Concrete	7

Temp Shored: **No**

Truck Type	Gross/H-Mod	HSMod	Tand	3-S-2	Log	Piggy
Calculated Posting	21	30	33	38	36	39
Posting Required	No	No	No	No	No	No
Existing Posting	00	00	00	00	00	00

Not a School Bus Route.

Structure Does Not Require Posting

GEORGIA DEPARTMENT OF TRANSPORTATION

Deficiency Report

District: 7 **Inspection Date:** 3/19/2009 **Inspection Area:** 09

Bridge Inspector: Jerry Cooper **Over:** CR 160 STEVE FREY ROAD

Location ID: 067-00401D-271.97N **County:** Cobb

Structure ID: 067-0085-0 **Asst. District Engineer:** Shun Pringle

EVALUATION & DEFICIENCIES

I-75 (NBL) Over CR 160 STEVE FREY ROAD-------2.4 MI NE OF KENNESAW

Item	Units	Work	P	Date Reported	Location	Date Completed	Complete
800	LIN. FT.	700	B	5/29/2001		12/14/2001	199.00
805	LIN. FT.	240	B	3/19/2009	See comments		***

Comments:

800: Clean and seal joints at all bents.

BRIDGE INVENTORY DATA LISTING GEOF A DEPARTMENT OF TRANSPORTATION

Structure ID: 067-0085-0 **Cobb** SUFF. RATING 70.41

Location & Geography

* Structure I.D.No: 067-0085-0
* 6A Feature Int: I-75 NBL
* 6B Critical Bridge: 0
* 7A Route Number Carried: CR00160
* 7B Facility Carried: STEVE FREY ROAD
* 9 Location: 2.4 MI NE OF KENNESAW
* 91 Inspection Frequency: 00 Date: 02/01/1901
* 4 Place Code: 00000
* 5 Inventory Route (O/U): 2
Type: 4
Designation: 1
Number: 00160
Direction: 0
* 16 Latitude: 34-02.5890 HMMS Prefix:
* 17 Longitud 84-34.8770 HMMS Suffix: MP:
* 100 STRAHNET: 0
12 Base Highway Network: 1
13A LRS Inventory Route: 672016000
13B Sub Inventory Route: 0
* 101 Parallel Structure: R
* 102 Direction of Traffic: 2
* 104 Highway System: 0
* 26 Functional Classification: 17
* 204 Federal Route Type: 0 No.:
105 Federal Lands Highway: 0
* 110 Truck Route: 0
* 19 Bypass Length: 02
* 20 Toll: 3
* 21 Maintenance: 01
* 22 Owner: 01
27 Year Constructed: 1976
* 42 Type of Service on: 1 Under: 1
* 43 Structure Type Main: 3 02
* 208 Inspection Area: 09 Initials: JMC
* Location I.D. No.: 067-00160X-000.77N
* XReference I.D. No 067-00401D-271.97N

Signs & Attachments

* 240 Median Barrier Rail: 0
* 230 Guardrail Loc Dir Rear: 6
Fwrd: 6
Oppo Dir Rear: 0
Fwrd: 0

Measurements

* 29 ADT: 002200 Year: 1998
* 28 Lanes On: 03 Under: 04
* 48 Max. Span Length: 0123
* 49 Structure Length: 321
* 47 Tot. Horz. Cl: 48.00
* 229 Shoulder Width:
Rear Lt: 2.00 Type: 1 Rt: 2.00
Fwrd Lt: 2.00 Type: 1 Rt: 2.00
Pavement Width:
Rear: 44.00 Type: 2
Fwrd: 44.00 Type: 2
Intersection Rear: 1 Fwrd: 0

* 228 Min. Vertical Cl
Act. Odm Dir: 20 ' 02 "
Oppo. Dir: 99 ' 99 "
Posted Odm. Dir: 00 ' 00 "
Oppo. Dir: 00 ' 00 "
* 10 Max Min Vert Cl: 20 ' 11 " Dir: 2

Ratings

* 227 Collision Damage: 0

Posting Data

* 103 Temporary Structure: 0
* 248 County Continuity No.: 00

Hydraulic Data

* 265 U/W Insp. Are 0 Diver: ZZZ

GEORGIA DEPARTMEN. JF TRANSPORTATION

Bridge Component Report

District: 7
Bridge Inspector: Jerry Cooper
Location ID: 067-00401D-271.97N
Structure ID: 067-0085-0

Inspection Date: 3/19/2009
Over: CR 160 STEVE FREY ROAD
County: Cobb
Road Name: I-75 (NBL)

Inspection Area: 09

SubStructure Data

Bent#	Type	Foundation	Col	#Cols	Piling	#Piles	Sway	CAP	Remarks
1	A	DP		0		0		C	Only cap exposed
2	B	SF	C	4		0		C	Good
3	B	SF	C	4		0		C	Good
4	A	DP		0		0		C	Only cap exposed

SuperStructure Data

Span#	Beam Type	Spacing	Length	#Beams	Remarks
1	Steel Beams	7.90	90.00	8	50.5" Plate Girder
2	Steel Beams	7.90	123.00	8	50.5" Plate Girder
3	Steel Beams	7.90	108.00	8	50.5" Plate Girder

Bearing Data

Span#	Rear Type Bearing	FWD Type Bearing	Remarks
1	02 - Fixed Plate	05 - Rocker	Good
2	04 - Fixed Pedestal	05 - Rocker	Good
3	04 - Fixed Pedestal	05 - Rocker	Good