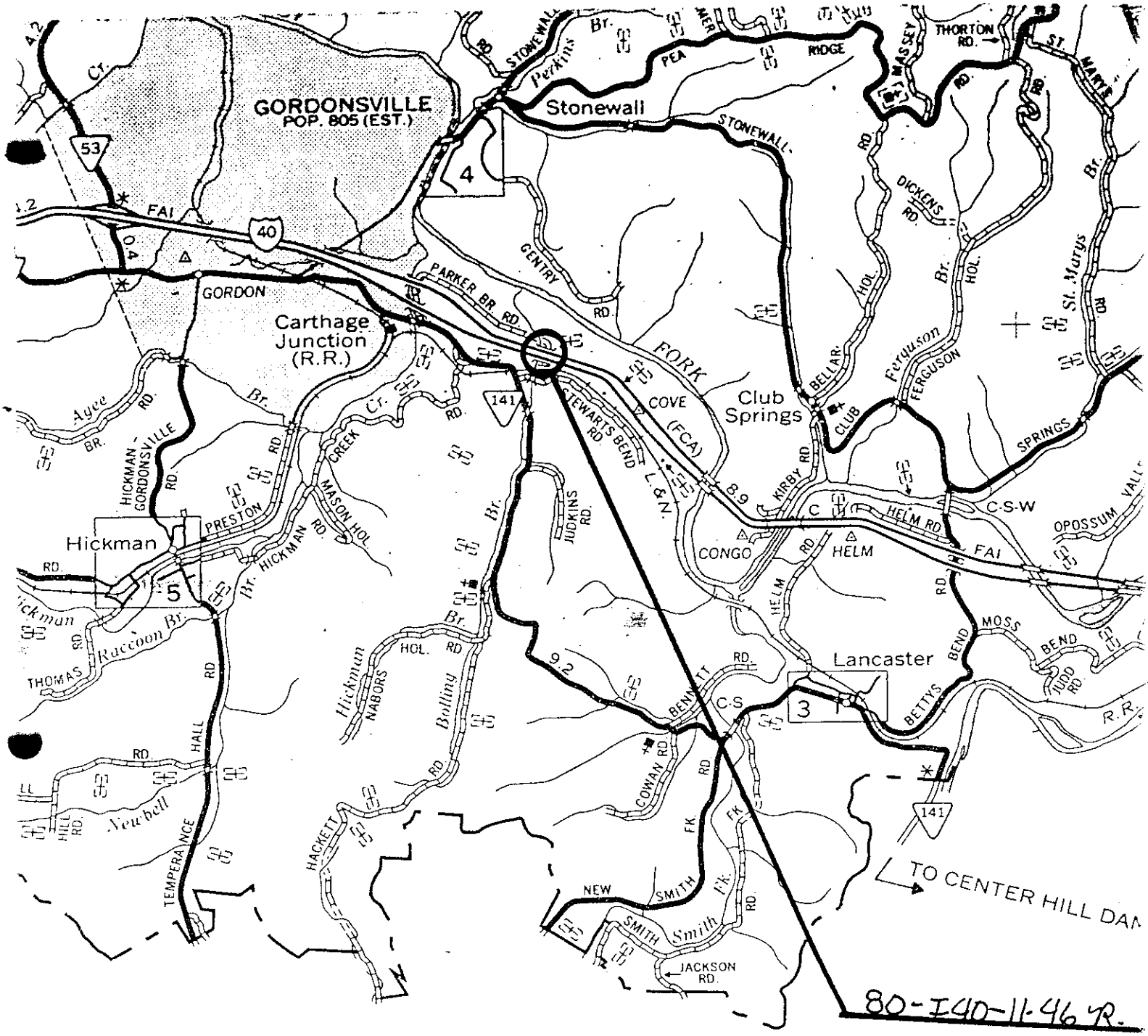

GORDONSVILLE
POP. 805 (EST.)
Stonewall
Carthage
Junction
(R.R.)
Club
Springs
Hickman
Lancaster
GORDON
FORK
COVE
(FCA)
CONGO
HELM
Raccoon Br.
Neubell
Bolling
Hickman
NABORS
COWAN RD.
NEW
SMITH
Smith
JACKSON
RD.
TO CENTER HILL DAM
80-I40-11.46 R.

COUNTY

BRIDGE MAINTENANCE RECOMMENDATIONS

Tennessee Department of Transportation

COUNTY: SMITH
LOCATION: 80-I0040-11.46-R
CO. SEQ.: 1 SPEC. CASE: 0

CROSSING: BOLLING BRANCH & PRIV. R
FED. BRIDGE NO.: 80I00400023
MAINT. DIST.: 80

REPAIR LIST NO.: 2
DATE ADDED: 08/09/1994
REVISED: 08/04/2003

FACILITY CARRIED:	I40	NUMBER OF MAIN SPANS:	2
HIGHWAY SYSTEM:	01-INTERSTATE RURAL	NUMBER OF APPROACH SPANS:	0
BRIDGE WIDTH (CURB TO CURB):	40 FT 0 IN	BRIDGE LENGTH (FT):	126
BRIDGE WIDTH (OUT TO OUT):	46 FT 7 IN	MAXIMUM SPAN LENGTH (FT):	62
APPROACH ROADWAY (W/SHOULDERS):	41 FT 11 IN	SKEW ANGLE (DEGREES):	74

MAINTAINED BY:	STATE HIGHWAY AGENCY
MAIN SPAN MATERIAL:	PRESTRESSED CONCRETE
MAIN SPAN DESIGN TYPE:	BOX BEAM OR GIRDERS - MULTIPLE
APPROACH SPAN MATERIAL:	OTHER OR NOT APPLICABLE
APPROACH SPAN DESIGN TYPE:	OTHER OR NOT APPLICABLE

INSPECTION DATE:	04/23/2003	GENERAL CONDITION:	FAIR
EVALUATION DATE:	08/04/2003	STRUCTURALLY DEFICIENT:	YES
PROPOSED REPLACEMENT:			
H TRUCK RATING @ INV.:	20 TONS	SUFFICIENCY RATING:	63.8

No.	RECOMMENDATIONS	REPAIR DATE	REPAIRED BY
1.	REPAIR CONCRETE GIRDER "B", "G", "H", "N", "O" IN SPAN NO. 1		
2.	REPAIR CONCRETE GIRDER "K", "L" IN SPAN NO. 2		
3.	REPAIR EMBANKMENT SETTLEMENT AT ABUTMENTS 1 & 2		

COMMENTS:

Bridge Maintenance Recommendations

Bridge Location No.: 80 - I0040 - 11.46 R
Co. Route Log Mile

Crossing: BOLLING BRANCH & PRIV. R*

Bridge Rating: FAIR

Inspection Cycle: 16

Inspection Date: 4/23/2003

Bridge Number: 80I00400023
County: Smith
Region: 03
District: 32
Maint.Resp.: 01
Spec.Case: 0
Co.Seq: 01

Comments: REPAIR GIRDERS 'I' & 'L' IN SPAN #1, GIRDERS 'C', 'N', AND ' 'O' IN SPAN #2.

Maintenance Recommendations:

Maintenance Completed By / Date

096	**REPAIR _____ GIRDER 'B'__IN SPAN NO.0001**
096	**REPAIR _____ GIRDER 'H'__IN SPAN NO.0001**
096	**REPAIR _____ GIRDER 'G'__IN SPAN 0001___**
096	**REPAIR _____ GIRDER 'O'__IN SPAN NO.0001**
096	**REPAIR _____ GIRDER 'K'__IN SPAN NO.0002**
096	**REPAIR _____ GIRDER 'N'__IN SPAN NO.0001**
096	**REPAIR _____ GIRDER 'L'__IN SPAN NO.0002**

COMPLETION NOTIFICATION: RETURN WITHIN 6 MONTHS OF INSPECTION DATE.

INITIAL AND DATE RECOMMENDATIONS WHEN COMPLETED.

MAINTENANCE ACTIVITIES ARE COMPLETED (DATE) _____ BY_____

MAINTENANCE ACTIVITIES ARE PARTIALLY COMPLETED (DATE) _____ BY_____

MAINTENANCE ACTIVITIES ARE INCOMPLETE, SCHEDULED FOR (DATE) _____

EXPLANATIONS AND COMMENTS:

CONTACT:

MR. RAY MCCLELLAND
D.O.T. BRIDGE INSPECTION
6601 CENTENNIAL BLVD.
NASHVILLE, TN 37243

MR. DON GREER
D.O.T. BRIDGE INSPECTION
6601 CENTENNIAL BLVD.
NASHVILLE, TN 37243

Bridge Maintenance Recommendations

Bridge Location No.: 80 - I0040 - 11.46 R
Co. Route Log Mile

Crossing: BOLLING BRANCH & PRIV. R*

Bridge Rating: FAIR

Inspection Cycle: 15

Inspection Date: 6/11/01

Bridge Number: 80I00400023
County: Smith
Region: 03
District: 32
Maint.Resp.: 01
Spec.Case: 0
Co.Seq: 01

Comments: REPAIR GIRDERS'G','H' & 'N' IN SPAN #1, GIRDERS 'L', 'N', AND ' 'O' IN SPAN #2.

Maintenance Recommendations:

Maintenance Completed By / Date

096	**REPAIR _____ GIRDER 'B'__IN SPAN NO.0001**
096	**REPAIR _____ GIRDER 'H'__IN SPAN NO.0001**
096	**REPAIR _____ GIRDER 'G'__IN SPAN 0001___**
096	**REPAIR _____ GIRDER 'O'__IN SPAN NO.0001**
096	**REPAIR _____ GIRDER 'K'__IN SPAN NO.0002**
096	**REPAIR _____ GIRDER 'N'__IN SPAN NO.0001**
096	**REPAIR _____ GIRDER 'L'__IN SPAN NO.0002**

COMPLETION NOTIFICATION: RETURN WITHIN 6 MONTHS OF INSPECTION DATE.

INITIAL AND DATE RECOMMENDATIONS WHEN COMPLETED.

MAINTENANCE ACTIVITIES ARE COMPLETED (DATE) _____ BY_____

MAINTENANCE ACTIVITIES ARE PARTIALLY COMPLETED (DATE) _____ BY_____

MAINTENANCE ACTIVITIES ARE INCOMPLETE, SCHEDULED FOR (DATE) _____

EXPLANATIONS AND COMMENTS:

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NASHVILLE, TN 37243

MR. DON GREER
D.O.T. BRIDGE INSPECTION
6601 CENTENNIAL BLVD.
NASHVILLE, TN 37243

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

Bridge Condition Coding Form

Revised 06/15/2000

County:	80
Route:	I0040
Special Case:	0
County Sequence:	01
Log Mile:	11.46

Bridge Number: (Includes Item 5A): 80I004000231

Feature Intersected: BOLLING BRANCH & PRIV. R

CODE ONLY THOSE VALUES WHICH HAVE CHANGED

ITEM #	DESCRIPTION	VALUE
90	INSPECTION DATE	06/11/2001 4/23/03
10	MINIMUM V.C. OVER DECK (ROADWAY + SHOULDERS)	99 FT. 99 IN. ____ FT. ____ IN.
520	MINIMUM V.C. OVER DECK (EXCLUDES SHOULDERS)	99 FT. 99 IN. ____ FT. ____ IN.
36	TRAFFIC SAFETY FEATURES Br. Rail / Trans. / Appr. Rail / Appr. Rail Ends	1 / 1 / 1 / 1 ___ / ___ / ___ / ___
41	STRC OPEN/CLOSED/POSTED A K P	A ___
58	DECK	~~8~~ 7
59	SUPERSTRUCTURE	4 ___
60	SUBSTRUCTURE	6 ___
61	CHANL/CHANL PROTECTION	8 ___
62	CULVERT AND RETAIN WALL	N ___
71	WATERWAY ADEQUACY	6 ___
72	APPROACH RDWY ALIGNMENT (USE VALUES OF 3, 6, OR 8)	8 ___
521	OVERALL CONDITION (Circle One) GOOD (FAIR) POOR CRITICAL	

Martin Daniel — TEAM LEADER SIGNATURE

4/23/03 — REVIEW DATE

CONDITION CODING GUIDELINES
(Values for Coding Items 58, 59, 60 and 62)

- N NOT APPLICABLE
- 9 EXCELLENT CONDITION
- 8 VERY GOOD CONDITION - NO PROBLEMS NOTED.
- 7 GOOD CONDITION - SOME MINOR PROBLEMS.
- 6 SATISFACTORY CONDITION - MINOR DETERIORATION OF STRUCTURAL ELEMENTS.
- 5 FAIR CONDITION - ALL PRIMARY STRUCTURAL ELEMENTS ARE SOUND BUT MAY HAVE MINOR SECTION LOSS, CRACKING, SPALLING OR SCOUR.
- 4 POOR CONDITION - ADVANCED SECTION LOSS, DETERIORATION, SPALLING OR SCOUR.
- 3 SERIOUS CONDITION - LOSS OF SECTION, DETERIORATION, SPALLING OR SCOUR HAVE SERIOURSLY AFFECTED PRIMARY STRUCTURAL COMPONENTS. LOCAL FAILURES ARE POSSIBLE. FATIGUE CRACKS IN STEEL OR SHEAR CRACKS IN CONCRETE MAY BE PRESENT.
- 2 CRITICAL CONDITION - ADVANCED DETERIORATION OF PRIMARY STRUCTURAL ELEMENTS. FATIGUE CRACKS IN STEEL OR SHEAR CRACKS IN CONCRETE MAY BE PRESENT OR SCOUR MAY HAVE REMOVED SUBSTRUCTURE SUPPORT. UNLESS CLOSELY MONITORED IT MAY BE NECESSARY TO CLOSE THE BRIDGE UNTIL CORRECTIVE ACTION IS TAKEN.
- 1 "IMMINENT" FAILURE CONDITION - MAJOR DETERIORATION OR SECTION LOSS PRESENT IN CRITICAL STRUCTURAL COMPONENTS OR OBVIOUS VERTICAL OR HORIZONTAL MOVEMENT AFFECTING STRUCTURAL STABILITY. BRIDGE IS CLOSED TO TRAFFIC BUT CORRECTIVE ACTION MAY PUT BACK IN LIGHT SERVICE.
- 0 FAILED CONDITION - OUT OF SERVICE AND BEYOND CORRECTIVE ACTION.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

Bridge Condition Coding Form

Revised 06/15/2000

County:	80
Route:	I0040
Special Case:	0
County Sequence:	01
Log Mile:	11.46

Bridge Number: (Includes Item 5A) 80I004000231

Feature Intersected: BOLLING BRANCH & PRIV. R

CODE ONLY THOSE VALUES WHICH HAVE CHANGED

ITEM #	DESCRIPTION	VALUE
90	INSPECTION DATE	06/11/1999 6/11/01
10	MINIMUM V.C. OVER DECK (ROADWAY + SHOULDERS)	99 FT. 99 IN. ____ FT. ____ IN.
520	MINIMUM V.C. OVER DECK (EXCLUDES SHOULDERS)	99 FT. 99 IN. ____ FT. ____ IN.
36	TRAFFIC SAFETY FEATURES	
	Br. Rail / Trans. / Appr. Rail / Appr. Rail Ends	1 / 1 / 1 / 1
41	STRC OPEN/CLOSED/POSTED (A K P)	A
58	DECK	8
59	SUPERSTRUCTURE	4
60	SUBSTRUCTURE	6
61	CHANL/CHANL PROTECTION	8
62	CULVERT AND RETAIN WALL	N
71	WATERWAY ADEQUACY	6
72	APPROACH RDWY ALIGNMENT (USE VALUES OF 3, 6, OR 8)	8
521	OVERALL CONDITION (Circle One)	GOOD (FAIR) POOR CRITICAL

Martin Daniel — TEAM LEADER SIGNATURE

6/11/01 — REVIEW DATE

CONDITION CODING GUIDELINES
(Values for Coding Items 58, 59, 60 and 62)

- N NOT APPLICABLE
- 9 EXCELLENT CONDITION
- 8 VERY GOOD CONDITION - NO PROBLEMS NOTED.
- 7 GOOD CONDITION - SOME MINOR PROBLEMS.
- 6 SATISFACTORY CONDITION - MINOR DETERIORATION OF STRUCTURAL ELEMENTS.
- 5 FAIR CONDITION - ALL PRIMARY STRUCTURAL ELEMENTS ARE SOUND BUT MAY HAVE MINOR SECTION LOSS, CRACKING, SPALLING OR SCOUR.
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- 0 FAILED CONDITION - OUT OF SERVICE AND BEYOND CORRECTIVE ACTION.

Bridge Condition Coding Form

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

County:	80
Route:	I0040
Special Case:	0
County Sequence:	1
Log Mile:	11.46

Bridge Number: (Includes Item 5A) 80I004000231

Feature Intersected: BOLLING BRANCH & PRIV. R

CODE ONLY THOSE NUMBERS WHICH HAVE CHANGED

ITEM #	DESCRIPTION	VALUE
90	INSPECTION DATE	5/1/97 6/11/99
10	MINIMUM V.C. OVER DECK (ROADWAY + SHOULDERS)	99 FT. 99 IN. ____ FT. ____ IN.
520	MINIMUM V.C. OVER DECK (EXCLUDES SHOULDERS)	99 FT. 99 IN. ____ FT. ____ IN.
54	MINIMUM VERTICAL UNDERCLEARANCE (EXCLUDES SHOULDERS) Circle One: H R N	[H] 16 FT. 11 IN. 17 FT. 00 IN.
36	TRAFFIC SAFETY FEATURES	

Br. Rail	Trans.	Appr. Rail	Appr. Rail Ends
1	1	1	1
__	__	__	__

ITEM #	DESCRIPTION	VALUE
41	STRC OPEN/CLOSED/POSTED (A K P)	A
58	DECK	8
59	SUPERSTRUCTURE	4
60	SUBSTRUCTURE	6
61	CHANL/CHANL PROTECTION	7 8
62	CULVERT AND RETAIN WALL	N
72	APPROACH RDWY ALIGNMENT (USE VALUES OF 3, 6, OR 8)	8

OVERALL CONDITION (Circle One)

GOOD (FAIR) POOR CRITICAL

Wilbert Wayne Hunter — SIGNATURE

6/11/99 — DATE

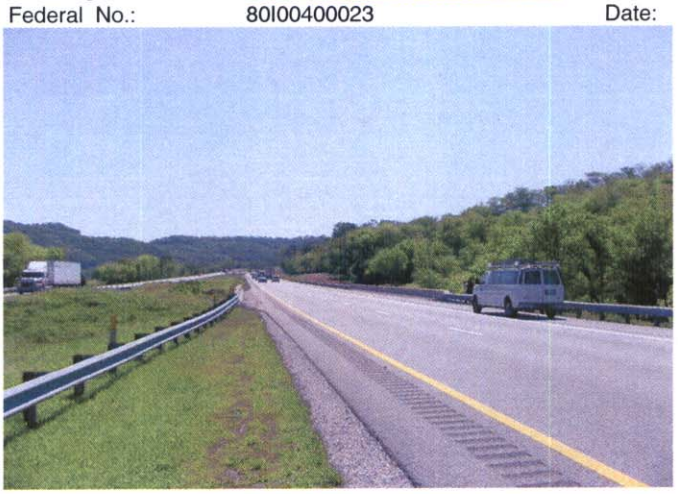
COMMENTS

RATINGS FOR CODING ITEMS 58, 59, 60 AND 62

- N NOT APPLICABLE
- 9 EXCELLENT CONDITION
- 8 VERY GOOD CONDITION - NO PROBLEMS NOTED.
- 7 GOOD CONDITION - SOME MINOR PROBLEMS.
- 6 SATISFACTORY CONDITION - MINOR DETERIORATION OF STRUCTURAL ELEMENTS.
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- 0 FAILED CONDITION - OUT OF SERVICE AND BEYOND CORRECTIVE ACTION.

Bridge No.: 80 — I0040 — 1146
Crossing:: BOLLING BRANCH & PRIV. R*
Federal No.: 80I00400023 Date: April 23, 2003

PIC1



VIEW ACROSS DECK FROM A-APPR

Bridge No.: 80 — I0040 — 1146
Crossing:: BOLLING BRANCH & PRIV. R*
Federal Nc 80I00400023 Date: April 23, 2003

PIC2



BRIDGE NO. AT ABUTMENT # 1

PIC3



SPALL 2 GIRDER G & H W/EXP CABLE SPAN-1 TYP

Bridge No.: 80 — I0040 — 1146
Crossing:: BOLLING BRANCH & PRIV. R*
Federal No.: 80I00400023 Date: April 23, 2003

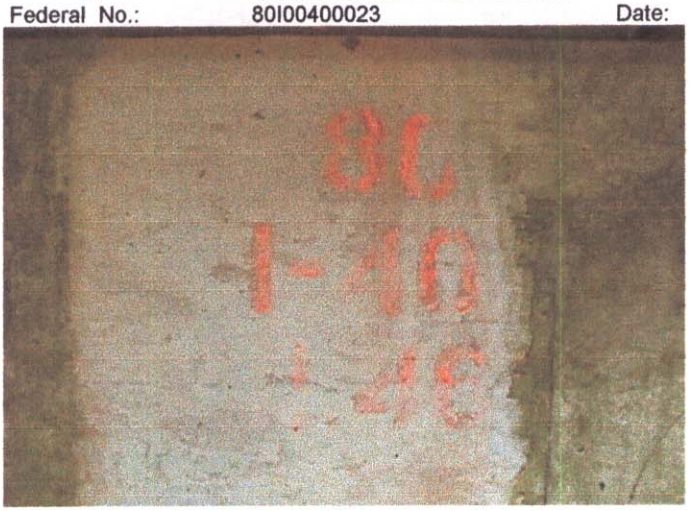
PIC4



INLET-ELEV

Bridge No.: 80 — I0040 — 1146
Crossing:: BOLLING BRANCH & PRIV. R*
Federal No.: 80I00400023 Date: June 11, 2001

PIC1



VIEW ACROSS DECK

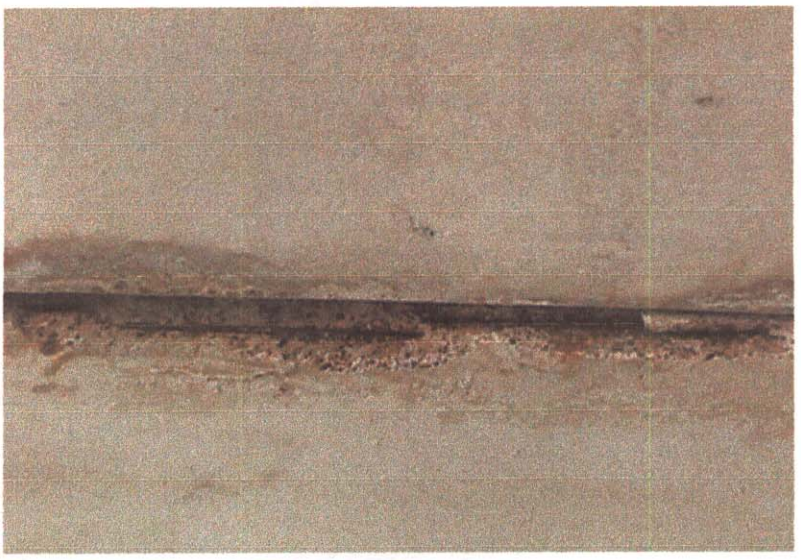
Bridge No.: 80 — I0040 — 1146
Crossing:: BOLLING BRANCH & PRIV. R*
Federal No 80I00400023 Date: June 11, 2001

PIC2



SPALL W/EXP. REBAR BEAM G&H SPAN-1

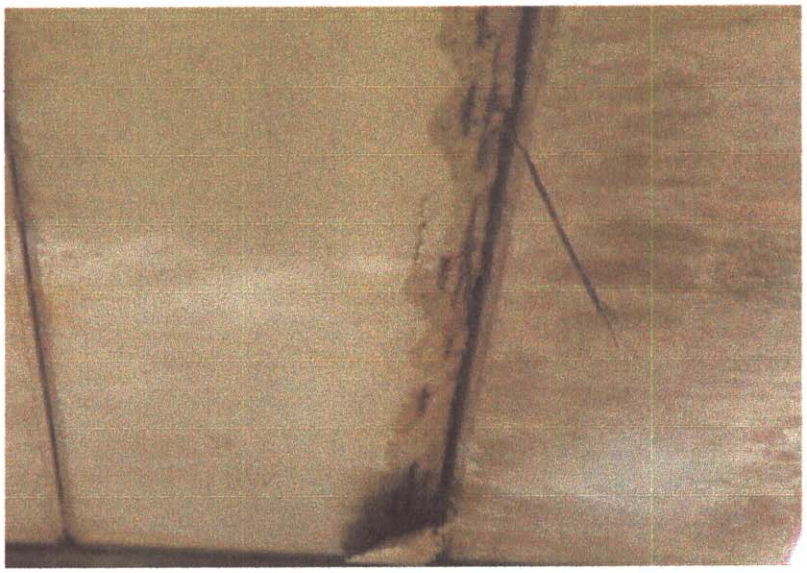
PIC3



SPALLW/EXP. REBAR BEAM I SPAN-1

Bridge No.: 80 — I0040 — 1146
Crossing:: BOLLING BRANCH & PRIV. R*
Federal No.: 80I00400023 Date: June 11, 2001

PIC4



SPALL W/EXP. REBAR BEAM N SPAN-1

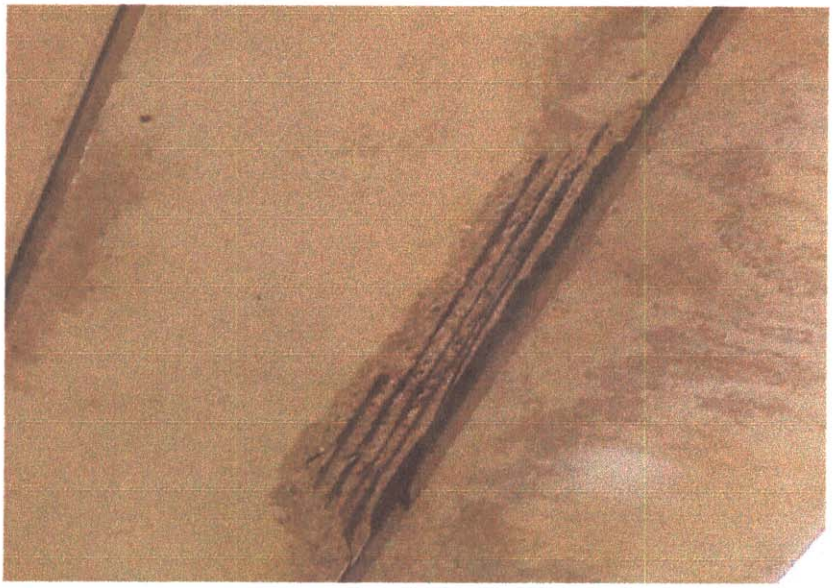
PIC5



RIGHT SIDE VIEW

Bridge No.: 80 — I0040 — 1146
Crossing:: BOLLING BRANCH & PRIV. R*
Federal No.: 80I00400023 Date: June 11, 2001

PIC6



SPALL W/EXP. REBAR BEAM N SPAN-2

PIC7



SPALL W/EXP. REBAR BEAM K&L SPAN-2

Bridge No.: 80 — I0040 — 1146
Crossing:: BOLLING BRANCH & PRIV. R*
Federal No.: 80I00400023 Date: June 11, 2001

PIC8



VIEW ACROSS DECK

Bridge No.: 80 — I0040 — 1146
Crossing:: BOLLING BRANCH & PRIV. R*
Federal No.: 80I00400023 Date: June 11, 1999

PIC10



DOWNSTREAM

PIC11



BRIDGE NO. AT ABUTMENT # 1

Bridge No.: 80 — I0040 — 1146
Crossing:: BOLLING BRANCH & PRIV. R*
Federal No.: 80I00400023 Date: June 11, 1999

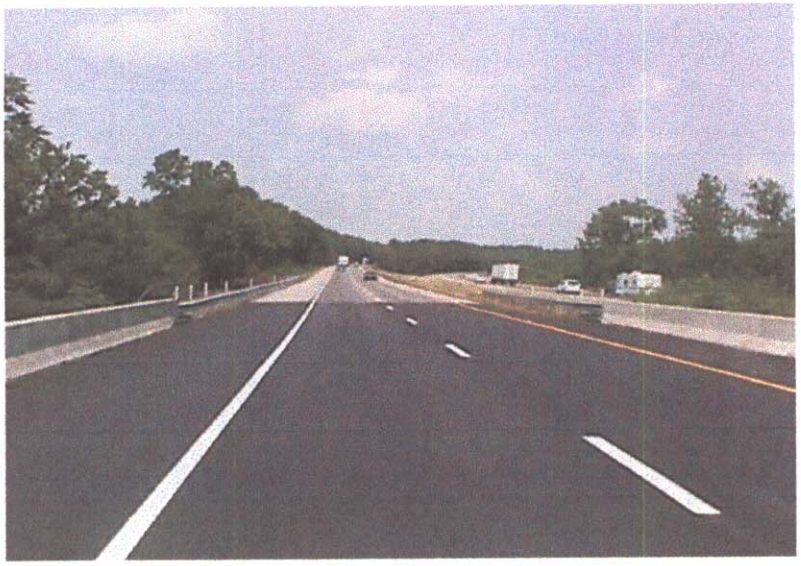
PIC1



ACROSS TOP OF DECK

Bridge No.: 80 — I0040 — 1146
Crossing:: BOLLING BRANCH & PRIV. R*
Federal No 80I00400023 Date: June 11, 1999

PIC2



APPROACH #1

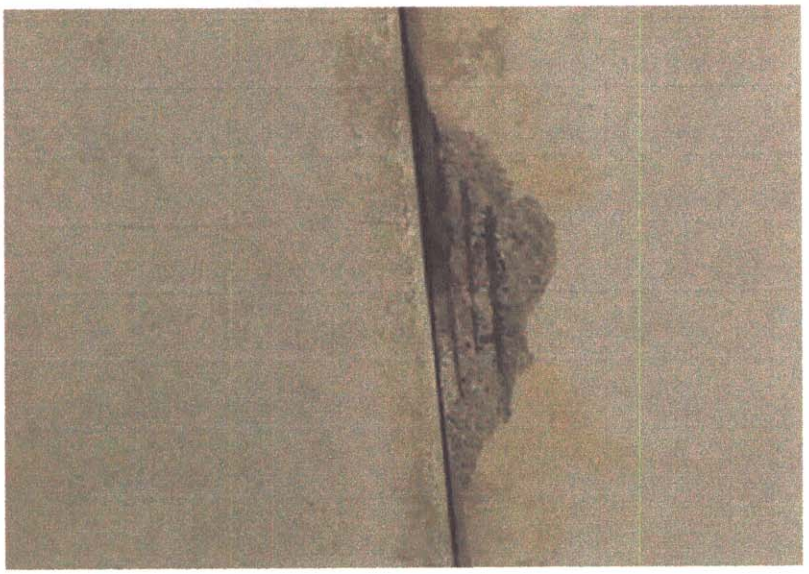
PIC3



APPROACH #2

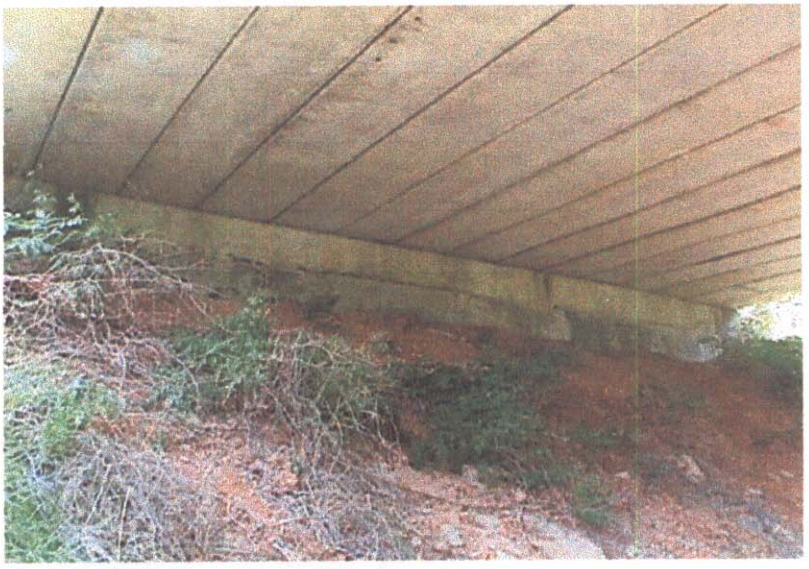
Bridge No.: 80 — I0040 — 1146
Crossing:: BOLLING BRANCH & PRIV. R*
Federal No.: 80I00400023 Date: June 11, 1999

PIC4



TYPICAL SPAN #2 BREAKOUT WITH EXPOSED CABLE

PIC5



ABUTMENT TYPICAL

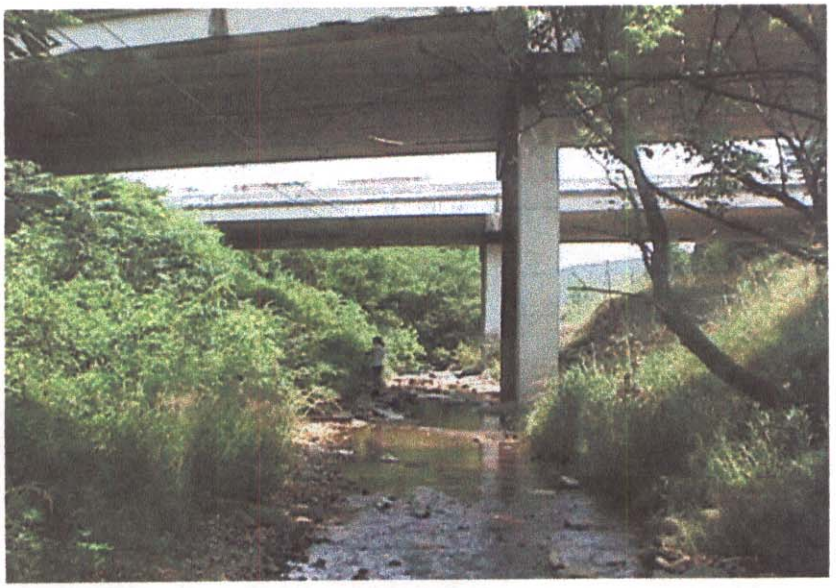
Bridge No.: 80 — I0040 — 1146
Crossing:: BOLLING BRANCH & PRIV. R*
Federal No.: 80I00400023 Date: June 11, 1999

PIC6



PIER TYPICAL

PIC7



ELEVATION INLET

Bridge No.: 80 — I0040 — 1146
Crossing:: BOLLING BRANCH & PRIV. R*
Federal No.: 80I00400023 Date: June 11, 1999

PIC8



BOTTOM OF DECK

PIC9



UPSTREAM

Bridge No.: 80 — I0040 — 1146
Crossing:: BOLLING BRANCH & PRIV. R*
Federal No.: 80I00400023 Date: June 11, 1999

PIC12



TYPICAL SPAN #1 BREAKOUT WITH EXPOSED CABLE BEAM 'G' AND 'H'

PIC13



TYPICAL SPAN #1 BREAKOUT WITH EXPOSED CABLE BEAM 'G' AND 'H'

ROUTINE BRIDGE INSPECTION REPORT

Page No.___

Form BIR 3.0C
(Rev. 9-22-98)
DT-1537

Field Report No. 16 Date 4-23-03
Previous Report No. 15 Date 6/11/2001
Plans: yes

Bridge No. 80I00400023 (Eleven Digit No.)
Bridge Location No. 80 - I0040 - 11.46 R (Co. - Route - Log Mile)

I 40 (Road Name) over BOLLING BRANCH & PRIV. R* (Crossing)
Indepth Insp. Req'd: no
(If yes itemize limits under comment

Structure Type HBB
FRACTURE CRITICAL: no

FEATURE CHANGES:

Wearing Surface ___ Type ___ Depth ___ (in.)
Bridge Rail ___ Describe changes:
Approach Rail ___

CLEARANCE CHANGES: (If yes make changes below)

Vertical Clearance over deck		(ft.-in.)
Vertical Under Clearance		(ft.-in.)
Horizontal Under Clearance		(*.* ft.)
Deck Width Curb/Curb		(*.* ft.)
Deck Width Rail/Rail		(*.* ft.)
Sidewalk Width	Rt.	Lt.

INSPECTORS

Daniel
Crutcher
Waller
Thompson

Condition: **FAIR** (If change describe in comments)

		Comments
Approaches	G	
Deck Condition (Item 58)	F	2" dp scale on overhangs
Superstructure (Item 59)	P	
a. Beams	P	'G', 'H', & 'N' have spalls with broken cables
b. Bearings	G	
c. Diaphragms	—	
Substructure (Item 60)	G	
a. Caps/Bridge Seats	G	
b. Columns/Piles	G	random map cracking
c. Footings	G	
d. Wing W./Breast W.	G	
Scour/Erosion	F	2' x 1' high settlement @ Abut. #1 & 2
Channel (Item 61)	G	

UNDERWATER INSPECTION

To Be Performed By: n/a
Date Underwater Insp. —
BRIDGE is: Open

Weight Limit Posted no

Gross.....	___	Tons
2 Axle.....	___	Tons
3 or more Axles..	___	Tons

COMMENTS:

Supervising Bridge Inspector: Martin Daniel

BRIDGE RATING: **FAIR**

SUMMARY
80-I40-11.46 RT
4/23/2003

I40/Bowling Branch
2 Span/B.B.

This bridge was inspected and found to be in **fair** condition. The approach alignment and embankment are good. Approach pavement is good. The approach guardrail and bridge rail are standard type and good. There are no paddleboards.

The wearing surface is good and the drains are paved over. There are no expansion joints. Bearing devices are good. The beams were rated poor on beams "G", "H" and "N" span #1 with breakouts up to 3" deep with some loss on the cables and some of these cables dangling and broken. Beams are rated fair with breakouts in 'B', 'I', 'L' and 'O' in span #1 and in span #2 'C', 'K', 'L', 'N', and 'O'. Alignment of these members is good.

The abutments are good, but did have a 18" x 12" high void under abutment #1. Wings, plumb, and bearing are good. Bents are also good. There is no problem with debris build-up or scour at this time.

Martin Daniel

ROUTINE BRIDGE INSPECTION REPORT

Page No.___

Form BIR 3.0C
(Rev. 9-22-98)
DT-1537

Field Report No. 14 Date 6/11/99
Previous Report No. 15 Date 6-11-01
Plans: yes

Bridge No. 80I00400023 (Eleven Digit No.)
Bridge Location No. 80 - I0040 - 11.46 R (Co. - Route - Log Mile)

I40 (Road Name) over BOLLING BRANCH & PRIV. R* (Crossing)
Indepth Insp. Req'd: no (If yes itemize limits under comment)

Structure Type HBB
FRACTURE CRITICAL: no

FEATURE CHANGES:

Wearing Surface ___ Type ___ Depth ___ (in.)
Bridge Rail ___ Describe changes:
Approach Rail ___

CLEARANCE CHANGES: (If yes make changes below)

Vertical Clearance over deck		(ft.-in.)
Vertical Under Clearance		(ft.-in.)
Horizontal Under Clearance		(*.* ft.)
Deck Width Curb/Curb		(*.* ft.)
Deck Width Rail/Rail		(*.* ft.)
Sidewalk Width	Rt.	Lt.

INSPECTORS

Daniel
Crutcher
Waller
Thompson

Condition: **FAIR** (If change describe in comments)

		Comments
Approaches	G	
Deck Condition (Item 58)	N/V	side by side box beams and AC overlay on top
Superstructure (Item 59)	P	numerous spalls in Beams
a. Beams	Poor	Beams "G", "H", & "N" have spalls w/ broken cables up to 3" dp
b. Bearings	G	
c. Diaphragms	N/A	
Substructure (Item 60)	G	
a. Caps/Bridge Seats	G	5" dp B.C. Abut. # 1 Rt side
b. Columns/Piles	G	
c. Footings	G	
d. Wing W./Breast W.	G	
Scour/Erosion	G	
Channel (Item 61)	G	

UNDERWATER INSPECTION
To Be Performed By: n/a
Date Underwater Insp. —
BRIDGE is: open

Weight Limit Posted no
Gross..... ___ Tons
2 Axle..... ___ Tons
3 or more Axles.. ___ Tons

COMMENTS:

Supervising Bridge Inspector: Martin Daniel

BRIDGE RATING: **FAIR**

SUMMARY
80-I40-11.46 RT
6-11-01

I40/Bowling Branch
2 Span/B.B.

This bridge was inspected and found to be in **fair** condition. The approach alignment and embankment are good. Approach pavement is good. The approach guardrail and bridge rail are standard type and good. There are no paddleboards.

The wearing surface is good and the drains are paved over. There are no expansion joints. Bearing devices are good. The beams were rated poor on beams " G" , " H" and " N" span #1 with breakouts up to 3" deep with some loss on the cables and some of these cables dangling and broken. Beams are rated fair with breakouts in 'B', 'I', 'L' and 'O' in span #1 and in span #2 'C', 'K', 'L', 'N', and 'O'. Alignment of these members is good.

The abutments are good, but did have a 5" deep breakout in the right side of #1. Wings, plumb, and bearing are good. Bents are also good. There is no problem with debris build-up or scour at this time.

Martin Daniel

BRIDGE INSPECTION REPORT

FORM BIR 3.0
Rev. 09/24/98
DT-0069

FIELD REPORT NO. 14 DATE 6-11-99
REVIOUS REPORT NO. 13 DATE 5-6-97
PLANS ---- YES [X] NO [ ]

BRIDGE NO. 80I00400023 (ELEVEN DIGIT NO.)
BRIDGE LOC. NO. 80 - I40 - 11.46 Rt. (CO. ROUTE LOG MILE)

I40 (ROAD NAME) OVER Boiling Branch (FEATURE INTERSECTED) — (STRUCTURE NAME (IF NAMED))

YEAR CONSTRUCTED 1962 (ESTIMATED OR ACTUAL) [ ] [X] COUNTY Smith MAINTENANCE DISTRICT NO. 32

YEAR WIDENED _____ (ESTIMATED OR ACTUAL) [ ] [ ]
YEAR REHABILITATED new deck 1991 (ESTIMATED OR ACTUAL) [ ] [X]

FEATURES

WEARING SURFACE-- CONCRETE [ ] TIMBER [ ] ASPHALT [X] (DEPTH= 2")
FLARED WIDTH ---------- YES [ ] NO [X]
NAVIGATIONAL CONTROL-- YES [ ] NO [X]
MEDIAN WIDTH -------- OPEN [X] NONE [ ] CLOSED [ ]

BRIDGE SKEW 74° LT [ ] RT [X]

STRUCTURE TYPE B.B. (Main Span) NO. SPANS 2 (Main Span)
STRUCTURE TYPE — (Approach Spans) NO. SPANS — (Approach Spans)
MAXIMUM SPAN LENGTH 63.2' TOTAL LENGTH 126.5'

INSPECTORS

1. Hunter
2. Urello
3. Daniel
4. Crutcher
5. Waller
6. _____
7. _____
8. _____
9. _____

WIDTHS

DECK OUT-TO-OUT 43'
ROADWAY CURB/CURB 41'
SIDEWALK — RT — LT
*APPROACH ROADWAY 24'
APPR. SHLD. 10' RT 4' LT
*DOES NOT INCLUDE SHOULDER

CLEARANCES

MIN. VERTICAL OVER DECK —
MIN. VERTICAL UNDER CL 17'
MIN. LATERAL UNDER CL 4' RT
— LT

(<25')
NBIS BRIDGE LENGTH 125' (ft) (in)

UNDERWATER INSPECTION

INSPECTION PERFORMED BY:
DOT FIELD TEAM [ ] DATE _____
CONTRACT DIVERS [ ] DATE _____
NONE REQUIRED [X]

FRACTURE CRITICAL DETAILS: YES [ ] NO [X]
IF YES, INCLUDE BIR 3.9

CHANGE IN STRUCTURAL CONDITION YES [ ] NO [X]
MAJOR REPAIRS MADE YES [ ] NO [X]

COMMENTS: —

Gilbert Wayne Hunter
SUPERVISING BRIDGE INSPECTOR

BRIDGE RATING [ ] [X] [ ] [ ]
GOOD FAIR POOR CRITICAL

FORM BIR 3.1
Rev. 09/24/98
DT-0080

BRIDGE LOC. NO. 80 - I40 - 11.46 Rt
CO. ROUTE L.M.

DATE: 6-11-99

PERFORMANCE EVALUATION

Time of day inspected 11:15 Weather conditions SUNNY 85°

Vehicles observed Tractor trailer & passenger type

LIVE LOAD BEHAVIOR	YES	NO	COMMENTS
Substructure			
Horiz. & Vert. Defl.	[ ]	[X]	
Vibration	[ ]	[X]	
Superstructure			
Horiz. & Vert. Defl.	[ ]	[X]	
Vibration	[ ]	[X]	

APPROACH					
Alignment	(G)	F	P	C	
Slab	G	F	P	C	NA
Joints	G	F	P	C	NV
Pavement	(G)	F	P	C	New A.C. overlay
Embankment	(G)	F	P	C	
Drains	G	F	P	C	NV

TRAFFIC SAFETY FEATURES

					STANDARD	SUB-STANDARD	
Bridgerailing	(G)	F	P	C	[X]	[ ]	
Transitions	(G)	F	P	C	[X]	[ ]	
Guardrail	(G)	F	P	C	[X]	[ ]	
Guardrail Terminal	(G)	F	P	C	[X]	[ ]	

SIGNING

	YES	NO	NEEDED	
Paddleboard	[ ]	[X]	[ ]	WEIGHT LIMIT POSTED YES [ ] NO [X]
Vertical Clearance (< 14')	[ ]	[ ]	[ ]	
Narrow [ ] One Lane Bridge [ ]	[ ]	[X]	[ ]	GROSS _____ TONS 2 AXLE _____ TONS 3 OR MORE AXLES _____ TONS

Other Signs or Plaques _____

Comments Regarding Any Problems With Signing _____

Other Recommendations _____

FORM BIR 3.2
Rev. 09/24/98
DT-0081

BRIDGE LOC. NO. 80 - I40 - 11.46 Rt (CO. - ROUTE - L.M.) DATE: 6-11-99

DECK

					COMMENTS
WEARING SURFACE	(G)	F	P	C	New A.C. overlay
DECK - STRUCTURAL CONDITION	G	F	P	C	NV
CURBS	G	F	P	C	NA
MEDIAN	G	F	P	C	NA
SIDEWALKS	G	F	P	C	NA
PARAPET	(G)	F	P	C	
RAILING	G	F	P	C	NA
PAINT	G	F	P	C	NA
DRAINS	(G)	F	P	C	
LIGHTING STD'S	G	F	P	C	NA
UTILITIES	G	F	P	C	NA
JOINT LEAKAGE	G	F	P	C	NA
EXPANSION JOINTS	G	F	P	C	NA

SUPERSTRUCTURE

					COMMENTS
BEARING DEVICES	G	F	P	C	NV Breakouts w/ Exp. cable
GIRDERS OR BEAMS	G	(F)	P	C	SPAN #1 BGH-I-L-N-0 / SPAN #2 C-K-L-N-0 Breakouts w/ Exp. cable
FLOOR BEAMS	G	F	P	C	
STRINGERS	G	F	P	C	
DIAPHRAGMS	G	F	P	C	NA
BRACING	G	F	P	C	NA
TRUSSES - GENERAL	G	F	P	C	
- PORTALS	G	F	P	C	
- BRACING	G	F	P	C	
PAINT	G	F	P	C	NA
ALIGNMENT OF MEMBERS	(G)	F	P	C	

TEXTURE COAT

CONDITION RATING	G	F	(P)	C
OVERALL APPEARANCE	G	F	(P)	C
STAINING	G	F	(P)	C
SCALING	(G)	F	P	C
FADING	(G)	F	P	C

NEEDS SPOT PAINTING? YES [ ] NO [ ]
NEEDS REPAINTING? YES [X] NO [ ]

COMMENTS: Many stains on cap

RECOMMENDATIONS

FORM BIR 3.3
Rev. 09/24/98
DT-0082

BRIDGE LOC. NO. 80 - I40 - 11.46 Rt. (CO. - ROUTE - L.M.)

DATE: 6-11-99

SUBSTRUCTURE

ABUTMENTS					COMMENTS
CAPS	(G)	F	P	C	
BREASTWALL	G	F	P	C	NA
WINGS	(G)	F	P	C	
BACKWALL	G	F	P	C	NA
PLUMB	(G)	F	P	C	
FOOTING	G	F	P	C	NV
PILES	G	F	P	C	NV
EMBANKMENT	G	(F)	P	C	Slight erosion
BEARING SURFACE	(G)	F	P	C	
BEARINGS	G	F	P	C	NV
SLOPE PAVING	G	F	P	C	NA

PIERS					
CAPS	G	F	P	C	
COLUMNS	G	F	P	C	
PLUMB	G	F	P	C	
FOOTINGS	G	F	P	C	
PILES	G	F	P	C	
BEARING SURFACE	G	F	P	C	
BEARINGS	G	F	P	C	

BENTS					
CAPS	(G)	F	P	C	
COLUMNS	(G)	F	P	C	
PLUMB	(G)	F	P	C	
FOOTINGS	(G)	F	P	C	
PILES	G	F	P	C	NA
BEARING SURFACE	(G)	F	P	C	
BEARINGS	G	F	P	C	NV

SCOUR CONDITION NONE [X]

RECOMMENDATIONS:

FORM BIR 3.8
Rev. 3-1-97
DT-1508

BRIDGE LOC. NO. 80 - I40 - 11.46 ft (_____) DATE: 6-11-99
CO. ROUTE L.M. (LOG km)

STREAM CHANNEL DATA AND CONDITIONS

STREAM CROSSING: Rolling Branch

I. 1. Type of bed material? Bedrock & Gravel
2. Has the channel shifted? YES [ ] NO [X] NOT APPARENT [ ]
3. Condition of rip-rap? G F P C Est. % failed ____ N/A [X]
4. Overall condition of channel? (G) F P C
5. Item 61 - Code values 0 thru 9 according to the recording and coding guide currently in effect: 8
6. Underwater diver inspection recommended? YES [ ] NO [X]
If yes, why? _____

II. Channel and bank stability conditions: (check if applicable)
1. Steep bank - Failures upstream [ ] downstream [ ] conditions
2. Moderate bank erosion [ ]
3. Bank Vegetation (a) low growth [X] (b) large timber [ ] (c) dead trees [ ] (d) clear banks [ ]
4. Sediment or gravel accumulation: YES [X] NO [ ] UNKNOWN [ ]
5. Channel altered or straightened: YES [ ] NO [X] UNKNOWN [ ]
6. Stable conditions: (a) live growth [X] (b) bedrock [X] (c) boulders [X] (d) flat slopes [ ] (<=2:1)

III. Waterway adequacy and debris characteristics: (check if applicable)
1. Bridge deck elevations:
(a) level with approach roadway . . . . . [X]
(b) higher than approach roadway. . . . . [ ]
(c) roadway approach >=0.6 m above natural ground line. . [X]
2. Abutment encroaches into channel . . . . . [ ]
3. Large scour (blowhole) under bridge. . . . . [ ]
4. Indications that flood waters overtop bridge:
NO [X] YES [ ] OCCASIONALLY [ ] FREQUENTLY [ ] UNKNOWN [ ]
5. Debris characteristics:
(a) debris present YES [ ] NO [X]
(b) debris likely to accumulate: YES [ ] NO [X]
(c) dead trees upstream: [ ] or downstream: [ ]

IV. Comments: _____

* *

SPECIAL INSPECTION DATA - FOR REASONS OTHER THAN FC OR SCOUR

I. Does this bridge need a special inspection? YES [ ] NO [X]
II. Reason for special inspection: _____

NOTE: UNLESS OTHERWISE NOTED, MEASUREMENTS ARE TO BE TAKEN TO TWO (2) DECIMAL PLACES IN METERS.

SUMMARY
80-I40-11.46 RT
6-15-99

I40/Bowling Branch
2 Span/B.B.

This bridge was inspected and found to be in fair condition. The approach alignment and embankment are good. Approach pavement is fair with patches and settlement at "B" end. The approach guardrail and bridge rail are standard type and good. There are no paddleboards.

The wearing surface, parapet, and drains are good. There are no expansion joints. Bearing devices are good. The beams were rated poor on beams "G", "H" and "N" span #1 with breakouts up to 3" deep with some loss on the cables and some of these cables dangling and broken. Beams are rated fair with breakouts in 'B', 'I', 'L' and 'O' in span #1 and in span #2 'C', 'K', 'L', 'N', and 'O'. Alignment of these members is good.

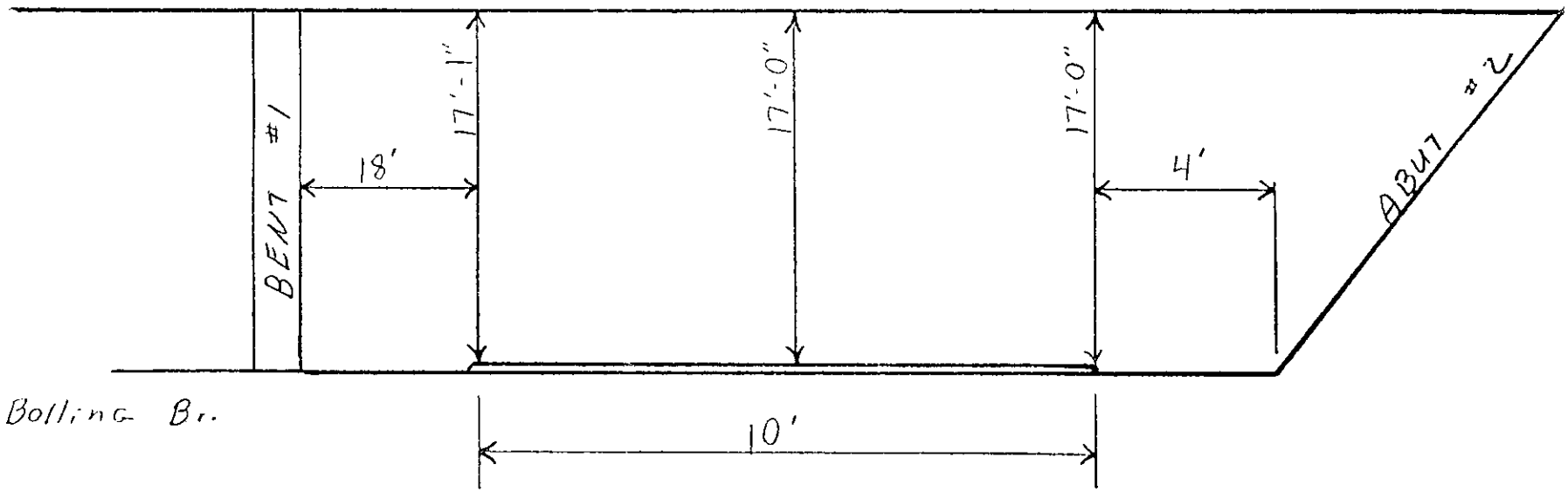
The abutments are good, but did have a 5" deep breakout in the right side of #1. Wings, plumb, and bearing are good. Bents are also good. There is no problem with debris build-up or scour at this time.

Gilbert Hunter

6-11-99

Clearance Sketch

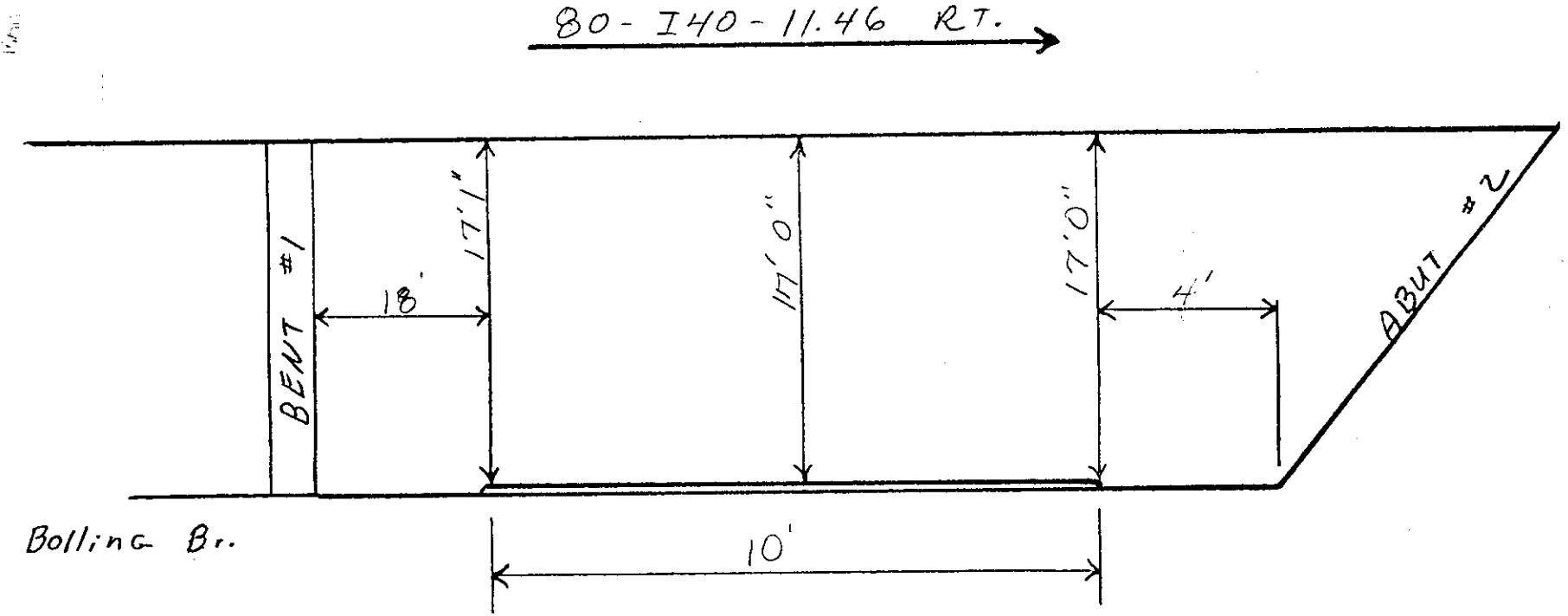
80 - I40 - 11.46 RT. →



Bolling Br.

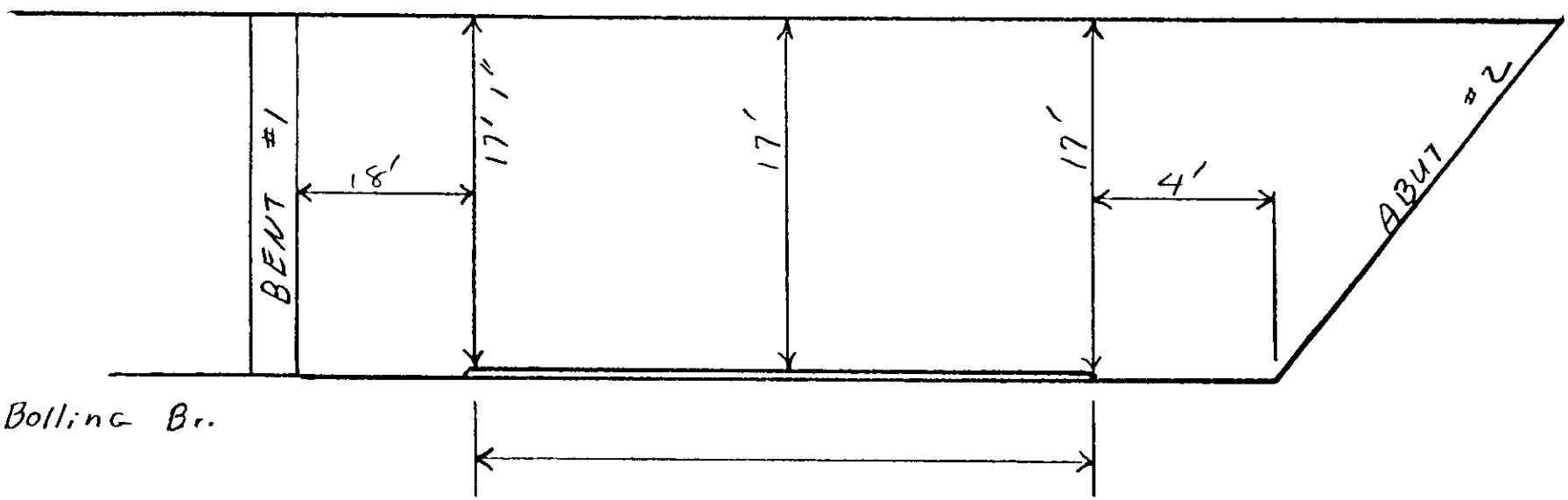
Private Rd.

1992



~~Bolling~~ Private Road

80-I40-11.46 RT.



Bolling Br.

80-

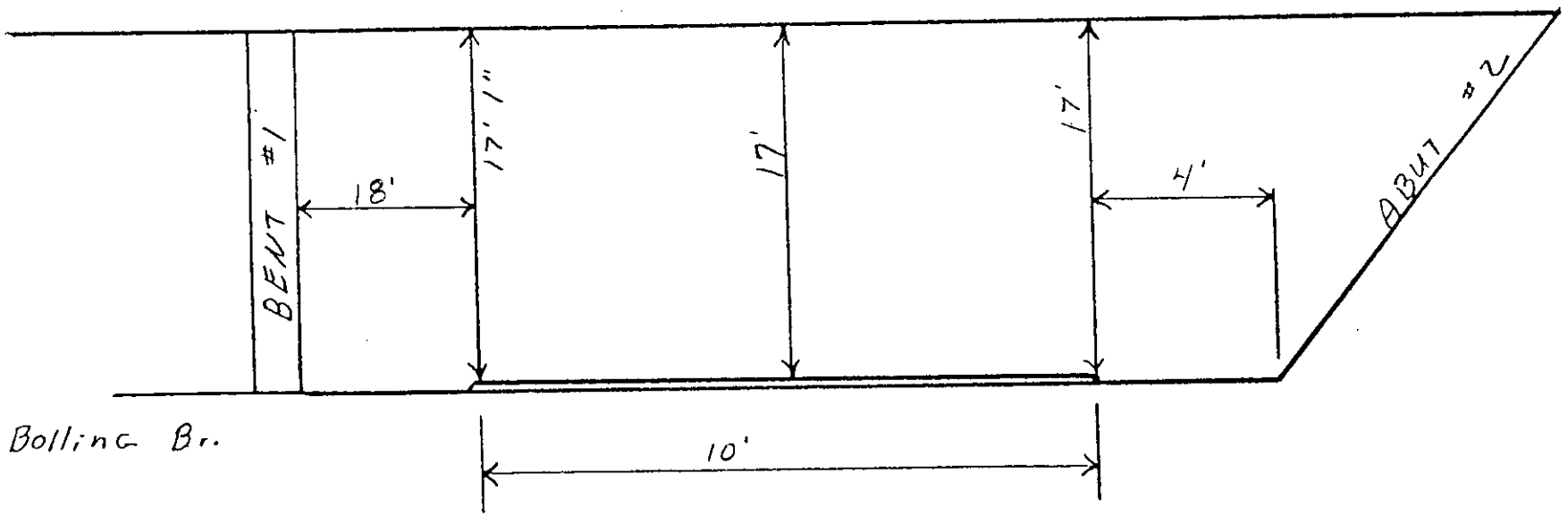
~~Parker Br. Rd.~~

PRIVATE Rd.

FEB 5 1990

12

80 - I40 - 11.46 RT. →



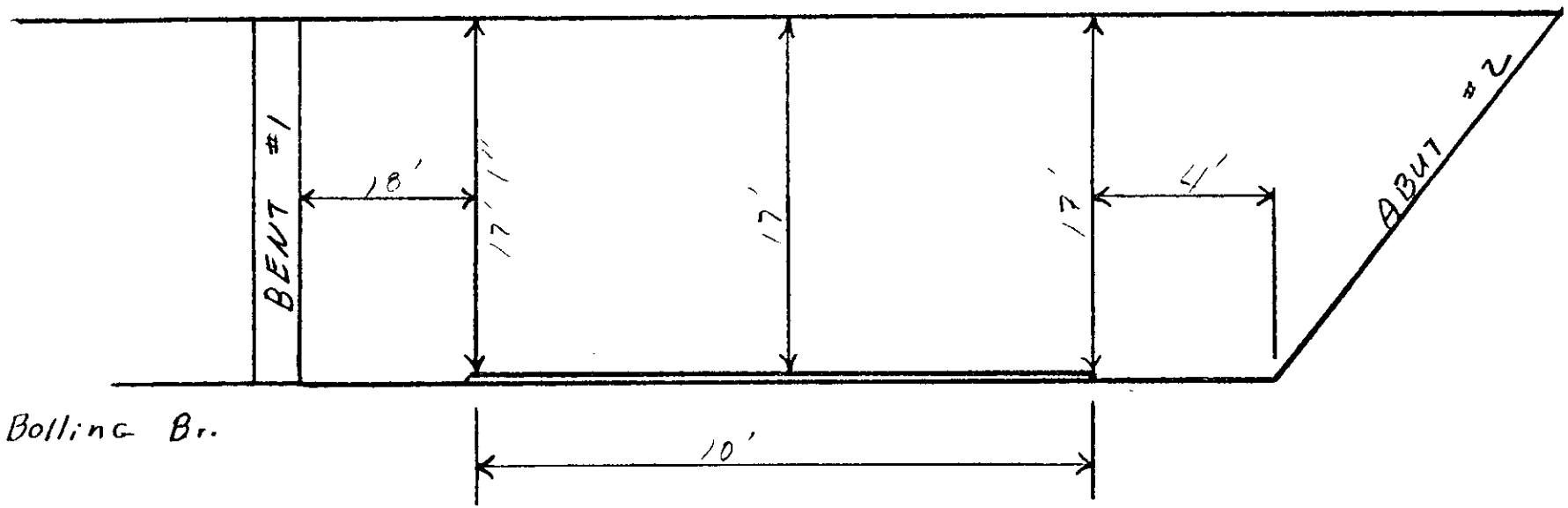
Bolling Br.

80 -

~~Parker Br. Rd.~~
Private Rd.

JAN 29 1988

80-I40-11.46 RT. →



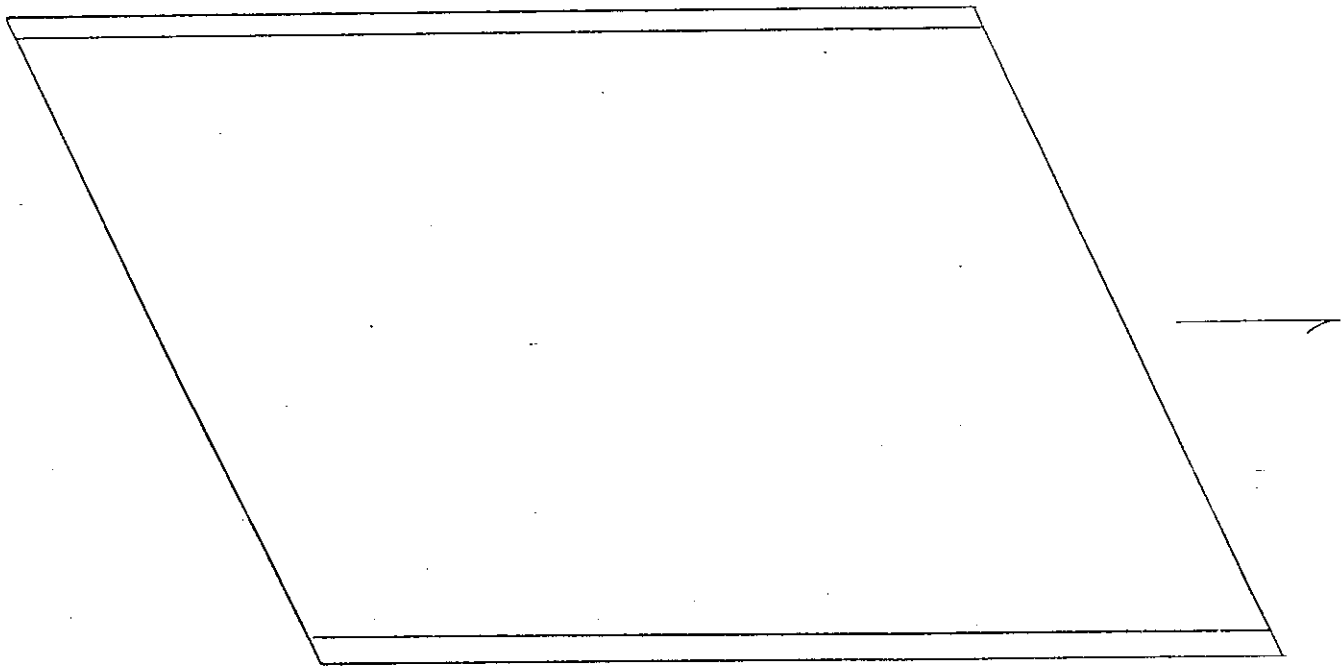
80-

~~Parker Br. Rd.~~

PRIVATE RD

JUL 21 1986

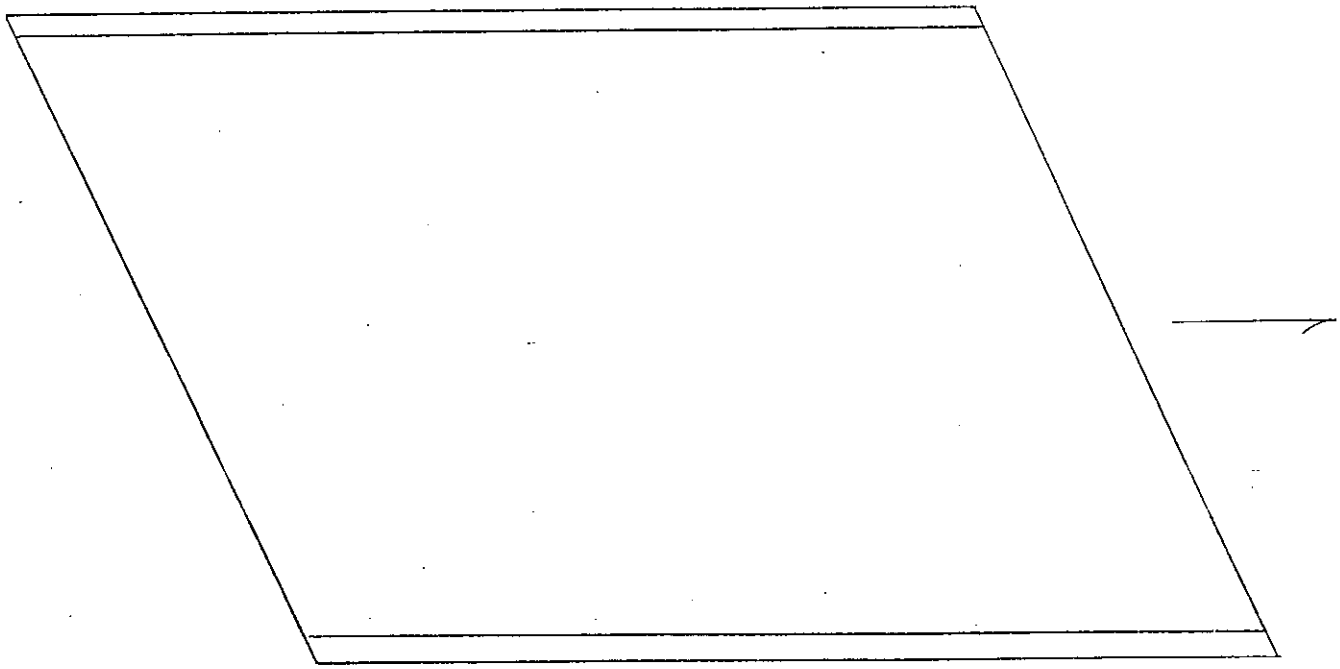
6-11-77
D



Top Slab # 1 Br. #80-540-11.46 RT.

Deck	NV	AC OVERLAY
Parapet	G	
Drains	G	
Joints	NV	PAVED OVER

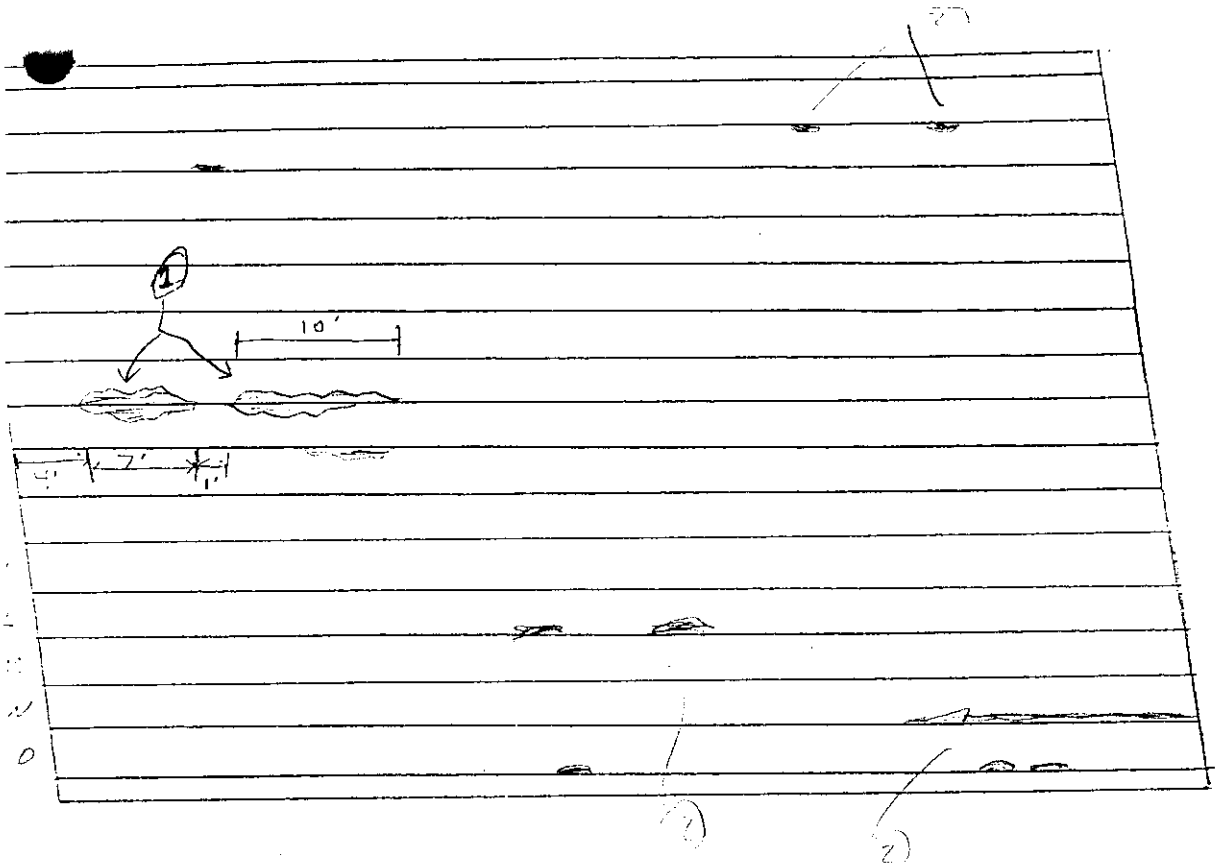
6-11-71



Top Slab #2 Br. #80-I40-11.46 RT.

Deck	NV	AC OVERLAY
Parapet	G	
Drains	G	
Joints	NV	PAVED OVER

6-11-19 PM



Slab = 1 Br. = 80-I40-11.46 Rt

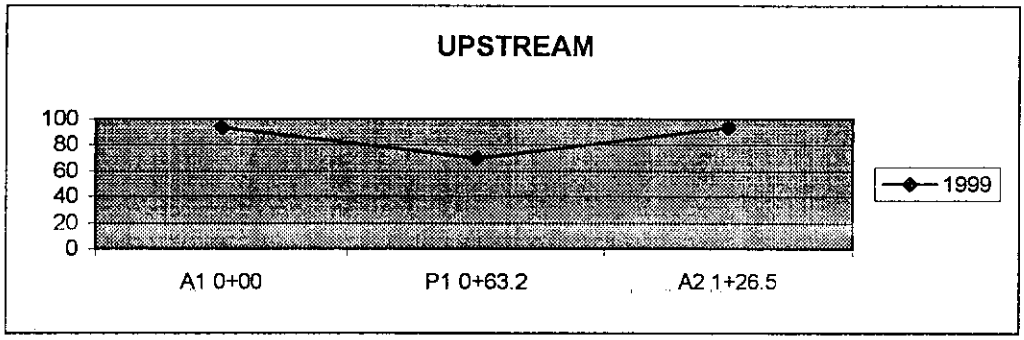
Good	
Fair	(2) Breakouts w/ breaker & expan rods
Good	
G	
G	
G	
Fair	(1) Breakouts w/ breaker cables up to 3" dp x 10' long
Fair	
Fair	
Good	
G	
Fair	
Good	
Fair	
Fair	

80-I40-11.46 Rt. 6/11/99

ASSIMED ELEV.-- 100 Ft.-- TOP OF HEADWALL

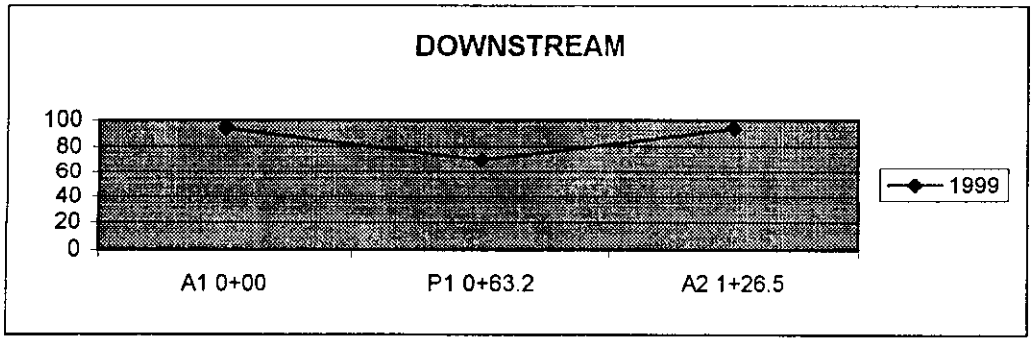
STATION ELEV.

	1999
A1 0+00	93.5
P1 0+63.2	69.7
A2 1+26.5	93.8

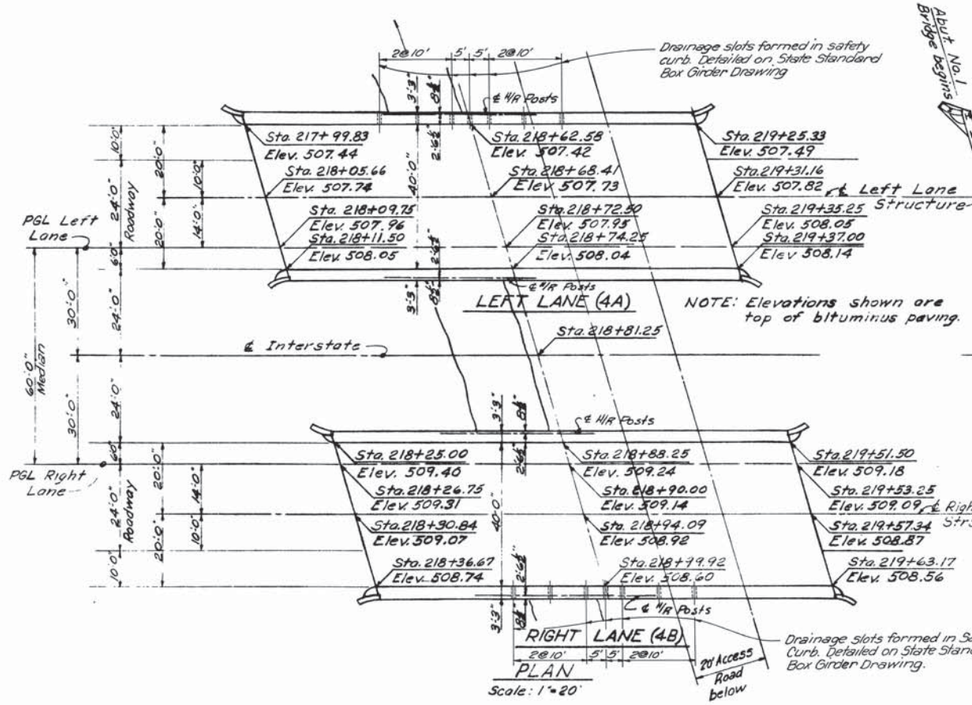


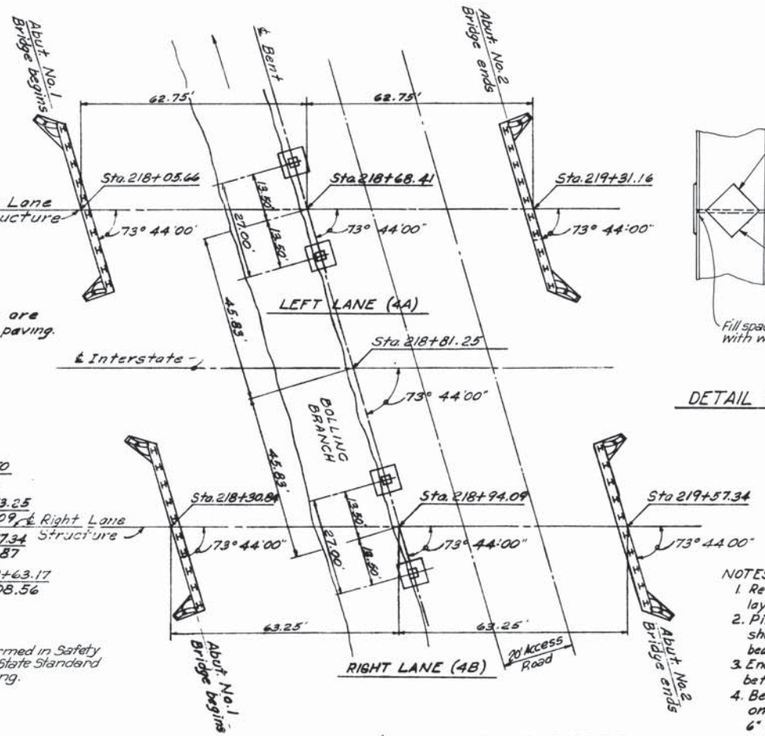
STATION ELEV.

	1999
A1 0+00	94.2
P1 0+63.2	69.8
A2 1+26.5	93.8

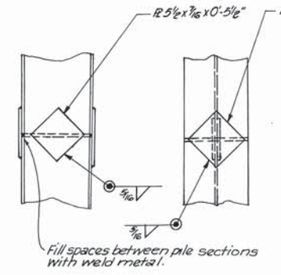


FED ROAD DIST No		FEDERAL AID PROJECT No.	FISCAL YEAR	SHEET No	TOTAL SHEETS
3	TENN	I-40-5(10)259	1960	40	276 ~~365~~





FOUNDATION PLAN ℄ LAYOUT OF BRIDGE
Scale: 1"=20'

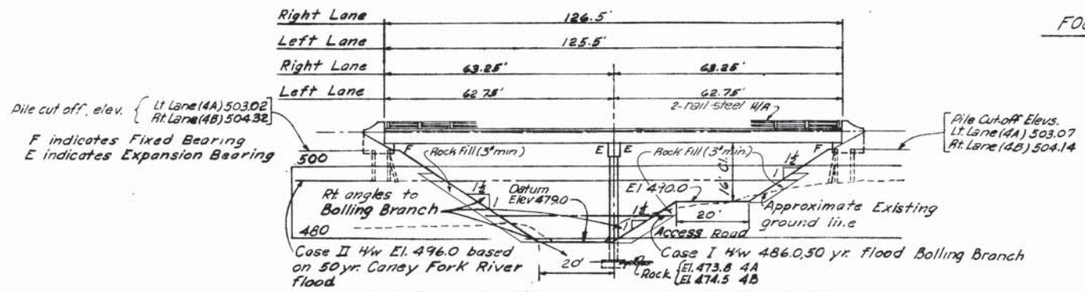


DETAIL OF PILE SPLICE

GENERAL NOTES:

GENERAL SPECIFICATIONS: Standard Road and Bridge Specifications of the Tennessee Department of Highways and Public Works.
DESIGN SPECIFICATIONS: Standard Specifications for Highway Bridges AASHO 1957 and tentative AASHO Specifications covering prestressed concrete design and construction.
DESIGN LOADING: H20-S16-44 and for alternate loading as per Sec. 4c of PPM 20-4.
CONCRETE: All concrete shall be class "A" and shall be air entrained.
REINFORCING STEEL: See Specifications.
FORMS AND FINISH: See Specifications.
HANDRAILS: Standard 2-rail steel hand-railing, Tennessee Highway Department Standard.
PILES: Piles shall be 10BP42 where required and shown.
PRECAST PRESTRESSED CONCRETE GIRDERS: See special provisions.
BEARING PADS: See special provisions.

NOTES:
1. Refer to Abutment detail drawings for layout of piles.
2. Piles for Abutments shall be 10BP42 and shall be driven to rock or to a minimum bearing of 30 tons each.
3. End fills shall be in place and compacted before driving piles for Abutments
4. Bent footings are assumed to bear on rock and shall set a minimum of 6" into rock.



ELEVATION - LEFT LANE AND RIGHT LANE (4A & 4B)
Scale: 1"=20'

ESTIMATED QUANTITIES

ITEM NO.	17-2	174	135-4	135-12	702	137-3	17-3	154-1C	154-1B	17-5
ITEMS	EXCAVATION		CONC.	REINF.	STEEL HANDRAIL 2-RAIL	10BP42	EXCAV.	36" X 33" BOX GIRDERS		ROCK DRILLING
BRIDGE #4B	CU. YDS.		CLASS A	STEEL		PILES	CU.YDS.			
RIGHT LANE	DRY	ROCK	CU YDS.	LBS.	LIN. FT.	LIN. FT.	WET	62'-9" LG.	63'-3" LG.	LIN. FT.
SUPERSTRUCTURE			28.3	1040	253					
GIRDERS									30	
ABUTMENT #1			20.8	2636		445				
ABUTMENT #2			20.7	2629		355				
BENT	15	3	42.0	12526			17			
TOTALS	15	3	111.8	18,831	253	800	17		30	12

BRIDGE #4A										
LEFT LANE										
SUPERSTRUCTURE			28.0	1025	251					
GIRDERS								30		
ABUTMENT #1			20.6	2629		420				
ABUTMENT #2			20.7	2634		363				
BENT	28	2	41.7	12,283			20			
TOTALS	28	2	111.0	18,571	251	783	20	30		12

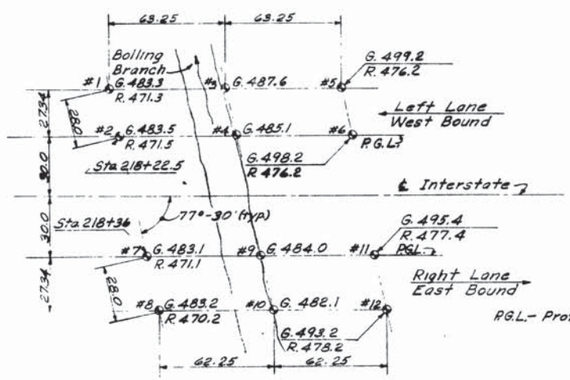
Note: All joint material shall be included in the unit price bid for Class "A" concrete, unless provided for in the Special Provisions for box girders.

LIST OF DRAWINGS — DWG. No.

Layout of Bridges ——— G-15-30
Abutments Nos. 1 & 2 Right Lane, Nos. 1 & 2 Left Lane ——— G-15-31
Bents, Right Lane and Left Lane ——— G-15-32
Layout of Box Girders ——— G-15-33
Layout of Safety Curbs ——— G-15-34
Reinforcing Steel Schedule ——— G-15-35
Steel Handrail ——— G-10-99
Precast Prestressed Box Girders ——— F-10-84 and F-10-85

NOTE After Bent Foundations are uncovered, holes six (6) feet deep shall be drilled into rock at points designated by the Engineer.

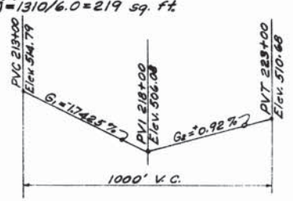
SMITH COUNTY
2-40' Roadways with Safety Curbs



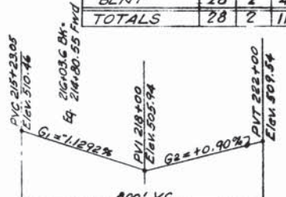
SOUNDING LAYOUT
N.T.S.

P.G.L.- Profile Grade Line

DESIGN DATA:
Case II-Based on backwater curves for 50 yr. flood Caney Fork River.
Case I-50 yr. flood Bolling Branch.
Drainage Area = 2200 Acres.
Flow based on Potter Charts, Q-50 yr. = 1310 c.f.s.
Design Velocity, V = 6.0 f.p.s.
Req'd Area, A = 1310/6.0 = 219 sq. ft.



RIGHT LANE (4B)



LEFT LANE (4A)

VERTICAL CURVE DATA

Scale as Noted

MID-SOUTH ENGINEERING CO., INC.
820 BROADWAY, N. E. KNOXVILLE, TENNESSEE

BRIDGES 4A & 4B OVER BOLLING BRANCH
LT LANE (4A) STA 218+09.75
RT. LANE (4B) STA 218+26.75

LAYOUT OF BRIDGES

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS
NASHVILLE

DR. R. G.	DATE	G-15-30
CHK'D R. A. H.		
APP'D W. R.	8-11-59	

Rev. 6-20-60

Contr. No. - 80 001 3152 44

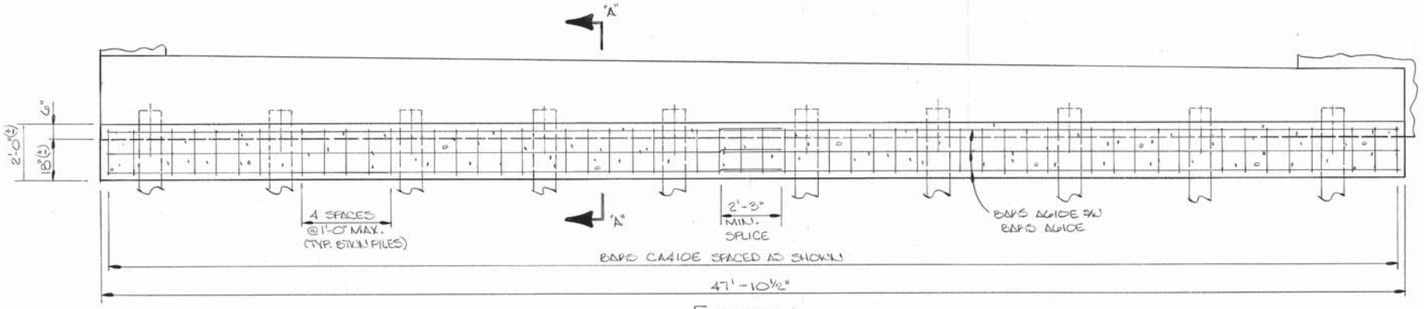
PROJECT NO.	YEAR	SHEET NO.
IR-40-5(91)257	1990	

REVISIONS

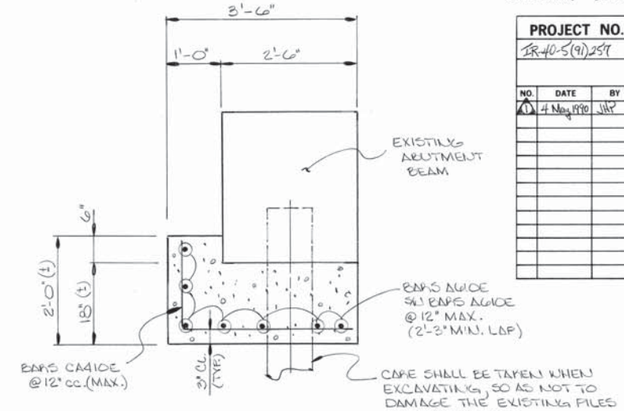
NO.	DATE	BY	BRIEF DESCRIPTION
1	4 May 1990	WLP	Added to Plans

NOTE: COST OF ALL CLASS "A" F'c = 3,000 P.S.I. CONCRETE, EXCAVATING, FORMING, LABOR, AND ANY MISCELLANEOUS MATERIALS NECESSARY TO COMPLETE THE REPAIRS, FOR LIMITS AS SHOWN, TO BE INCLUDED UNDER ITEM NO. 604-10.55, CONCRETE (FOUNDATION REPAIRS), CY. ALL WORK MUST MEET WITH THE FULL SATISFACTION OF THE ENGINEER.

NOTE: COST OF ALL EPOXY COATED REINFORCING STEEL FOR THE FOUNDATION REPAIRS AT ABUTMENT NO. 2, TO BE INCLUDED UNDER ITEM NO. 604-10.18, REINFORCING STEEL (REPAIRS), LBS.



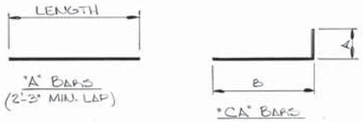
ELEVATION
(SHOWING CONCRETE - FOUNDATION REPAIRS TO ABUTMENT - 2 EAST BOUND LANE)
(LOOKING FORWARD ON SURVEY)



SECTION A-A
(FOUNDATION REPAIR DETAILS AT ABUT. 2)

"BILL OF STEEL FOR FOUNDATION REPAIRS"

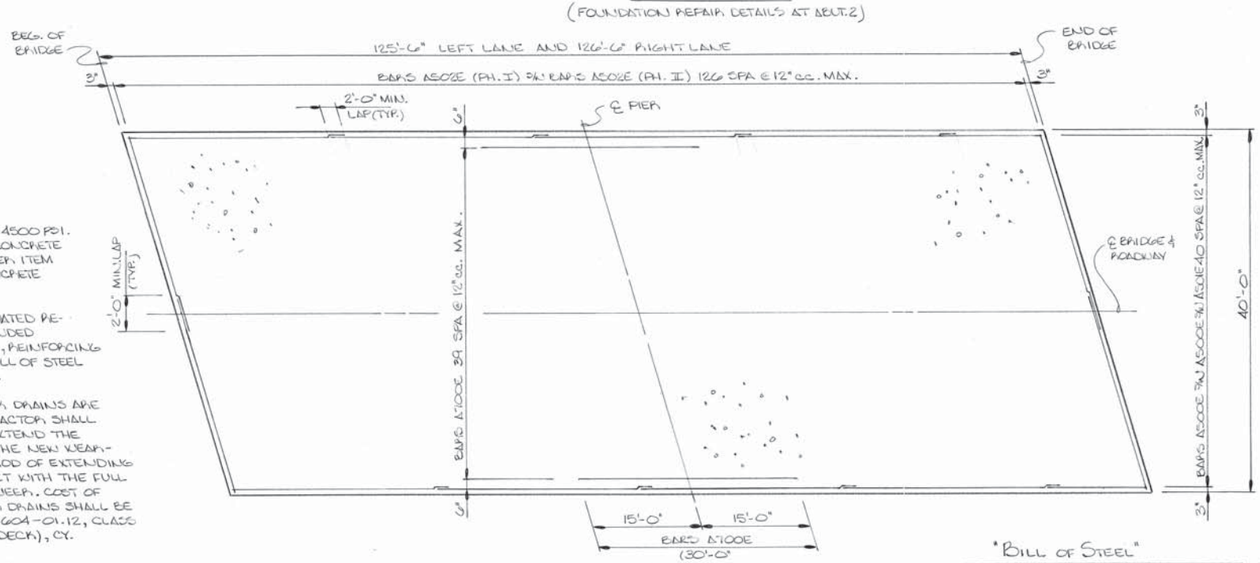
BAR	SIZE	NO. REQ'D	BENDS A	BENDS B	LENGTH
A6108	6	14			24'-11"
CA410E	4	50	1'-6"	3'-0"	4'-6"



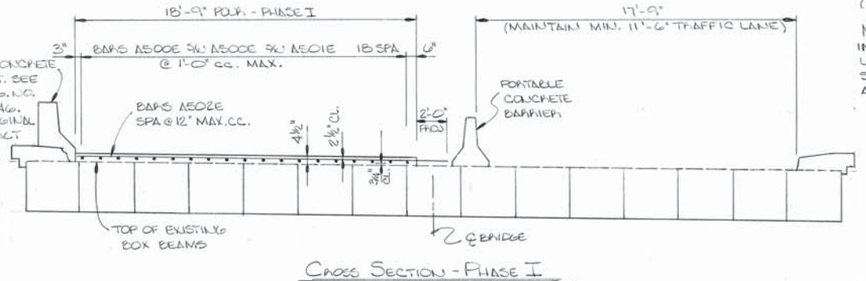
NOTE: COST OF CLASS "A" F'c = 4500 P.S.I. CONCRETE FOR THE NEW 4½" CONCRETE SLAB SHALL BE PAID FOR UNDER ITEM NO. 604-01.12, CLASS "A" CONCRETE (BRIDGE DECKS), CY.

NOTE: COST OF ALL EPOXY COATED REINFORCING STEEL TO BE INCLUDED UNDER ITEM NO. 604-10.18, REINFORCING STEEL (REPAIRS), LBS. SEE BILL OF STEEL AND BAR BENDS THIS SHEET.

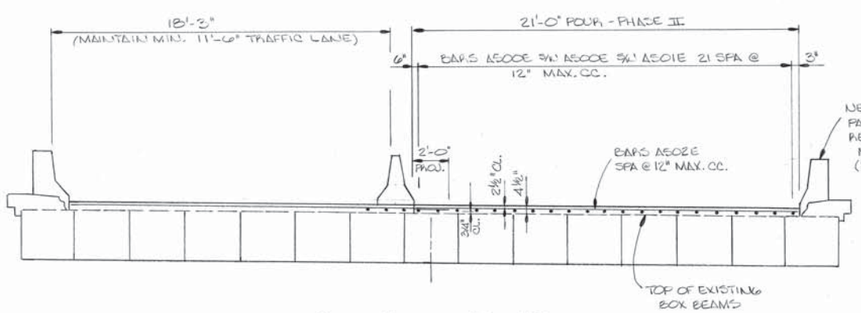
NOTE: WHEN BRIDGE DECK DRAINS ARE ENCOUNTED, THE CONTRACTOR SHALL MAKE PROVISIONS TO EXTEND THE DRAINS TO THE TOP OF THE NEW WEARING SURFACE. THE METHOD OF EXTENDING THE DRAINS SHALL MEET WITH THE FULL APPROVAL OF THE ENGINEER. COST OF EXTENDING BRIDGE DECK DRAINS SHALL BE INCLUDED IN ITEM NO. 604-01.12, CLASS "A" CONCRETE (BRIDGE DECK), CY.



SLAB PLAN



CROSS SECTION - PHASE I
SHOWING COMPLETED SLAB DETAILS



CROSS SECTION - PHASE II
SHOWING COMPLETED SLAB DETAILS

"GENERAL NOTES"

SPECIFICATIONS: STANDARD ROAD AND BRIDGE SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION. (MARCH 1981 EDITION)
DESIGN SPECIFICATIONS: AASHTO 1989 EDITION WITH ADDENDA.
REINFORCING STEEL: TO BE ASTM - A615, GRADE 60. STANDARD CRSI HOOK DETAILS APPLY UNLESS OTHERWISE NOTED ON BILL OF STEEL. SPACING DIMENSIONS ARE CENTER TO CENTER UNLESS OTHERWISE NOTED ON DETAIL DRAWINGS. UNLESS OTHERWISE SPECIFIED BY THE ENGINEER, REINFORCEMENT SHALL BE PLACED WITHIN A TOLERANCE OF ½"(±). THE SUFFIX "E", FOR BARS SO MARKED DENOTES EPOXY COATED REINFORCEMENT. SEE SPECIAL PROVISION 907 A.
BRIDGE DECK CONCRETE: CLASS "A" CONCRETE F'c = 4500 PSI. FOR BRIDGE DECKS SHALL BE IN ACCORDANCE WITH SPECIAL PROVISION NO. 604C. NO TRAFFIC OR OTHER LOADING SHALL BE ALLOWED ON THE BRIDGE DECK UNTIL THE TEST SPECIMENS HAVE ATTAINED A COMPRESSIVE STRENGTH OF 4500 PSI. AND TEN (10) DAYS HAVE ELAPSED FROM THE DATE WHEN REMOVAL OF FORMS IS PERMITTED.
BRIDGE DECK SURFACE FINISH: SHALL BE IN ACCORDANCE WITH NOTE (C), SHEET 2, OF SPECIAL PROVISION NO. 604.
CONCRETE CURING NOTE: ALL CONCRETE IN REPAIR AREAS SHALL BE CURED ACCORDING TO SPECIAL PROVISION NO. 604.

"BILL OF STEEL"

BAR	SIZE	NO. REQ'D	LENGTH
A5308	5	164	30'-0"
A5310	5	41	14'-2"
A5312	5	254	20'-10"
A6108	7	40	30'-0"

"E" DENOTES: EPOXY COATED REINFORCING

LENGTH
"A" BARS

"ESTIMATED QUANTITIES"

ITEM NO.	604-01.12	604-10.18	604-10.55
ITEM	CLASS "A" CONCRETE (BRIDGE DECK) CY.	REINF. STEEL (REPAIRS) LBS.	CONCRETE (FOUNDATION REPAIRS) CY.
SUPERSTR. LEFT LANE	70	13,709	———
SUPERSTR. RIGHT LANE	70	13,709	———
ABUT. NO. 2 EAST BL.	———	674	10
TOTALS	140	28,092	10

NOTE: REMOVAL OF ASPHALT OVERLAY AND SAND BLASTING TOP OF EXISTING BOX BEAMS TO BE INCLUDED IN PRICE OF ITEMS BID ON.

LIST OF SPECIAL PROVISION

	No.	Last Rev.
CONCRETE STRUCTURES	604	11-06-87
STRUCTURAL CONCRETE	604C	08-01-89
EPOXY COATED REINFORCING STEEL	907A	03-25-85

LIST OF REFERENCE DWG'S
LAYOUT DWG. NO. G-15-30 THRU G-15-35

NOTE: THE CONTRACTOR MAY ADJUST THE CONSTRUCTION TRAFFIC PHASES AND REINFORCING STEEL AS SHOWN THESE DETAILS. ANY ALTERATIONS IN THE TRAFFIC PHASES MUST MEET WITH THE FULL APPROVAL OF THE ENGINEER.

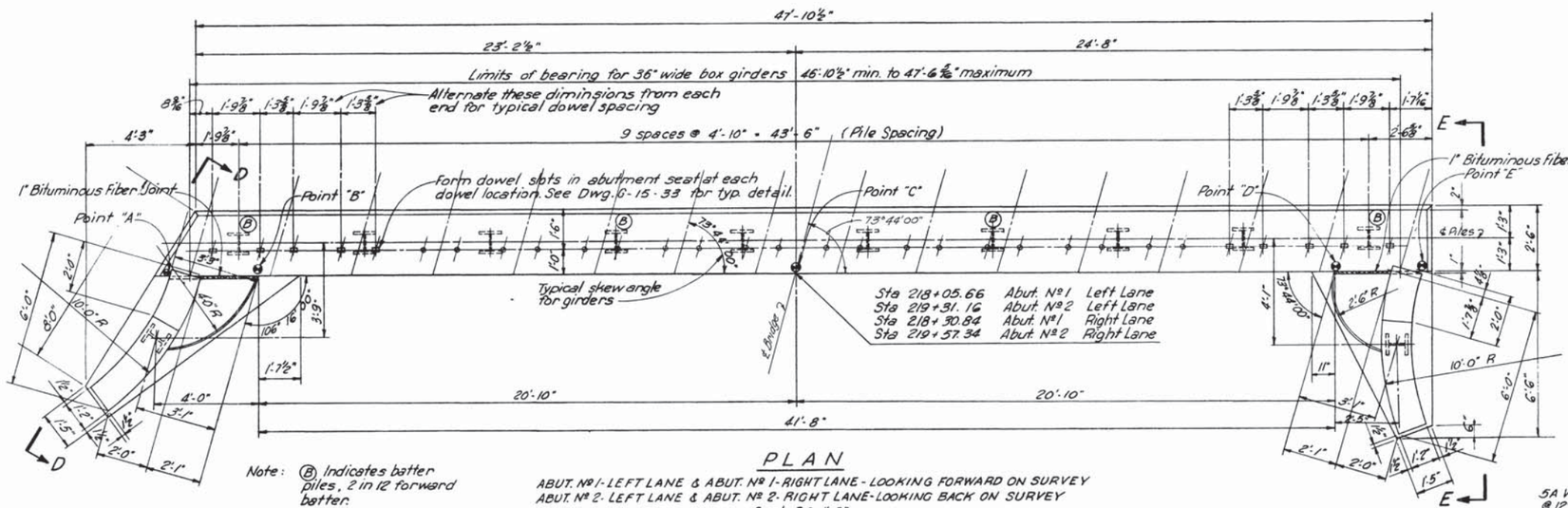
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS
BRIDGE REPAIRS
INTERSTATE 40 OVER
BOLLING BRANCH
BRIDGE No. 80-I40-11.46
SMITH COUNTY
1990

DESIGNED BY L. MIRES DATE
DRAWN BY K. PHILLIPS DATE 5-90
SUPERVISED BY GENTRY & FIELDS DATE 5-90
CHECKED BY DATE

CORRECT Edward P. Wassey Jr.
ENGINEER OF STRUCTURES
APPROVED
DIRECTOR OF HIGHWAYS

6-15-30A

FED. ROAD DIST No.		FEDERAL AID PROJECT No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
3	TENN	I-40-5(10)259	1960	66	276 308



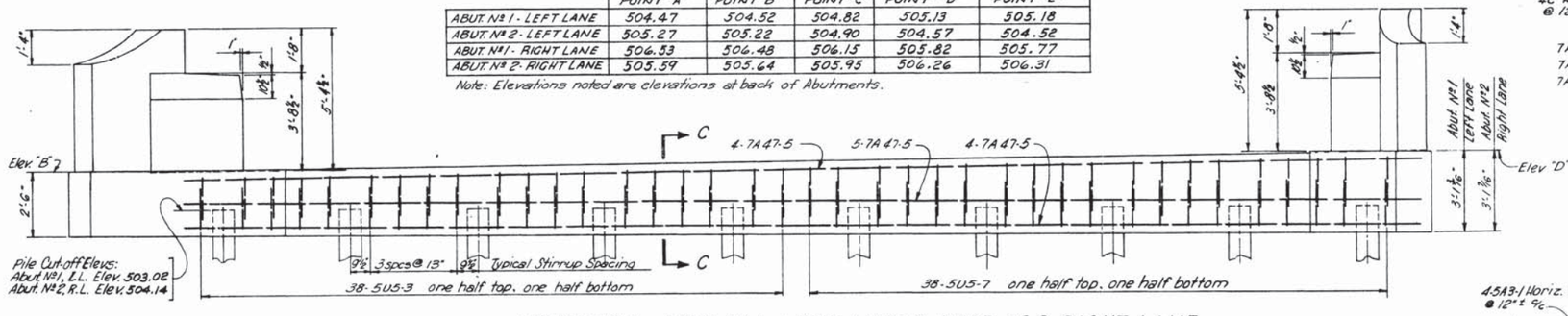
PLAN

ABUT. N°1 - LEFT LANE & ABUT. N° 1 - RIGHT LANE - LOOKING FORWARD ON SURVEY
ABUT. N° 2 - LEFT LANE & ABUT. N° 2 - RIGHT LANE - LOOKING BACK ON SURVEY
Scale ⅜" = 1'-0"

SCHEDULE ELEVATIONS

	POINT "A"	POINT "B"	POINT "C"	POINT "D"	POINT "E"
ABUT. N°1 - LEFT LANE	504.47	504.52	504.82	505.13	505.18
ABUT. N°2 - LEFT LANE	505.27	505.22	504.90	504.57	504.52
ABUT. N°1 - RIGHT LANE	506.53	506.48	506.15	505.82	505.77
ABUT. N°2 - RIGHT LANE	505.59	505.64	505.95	506.26	506.31

Note: Elevations noted are elevations at back of Abutments.

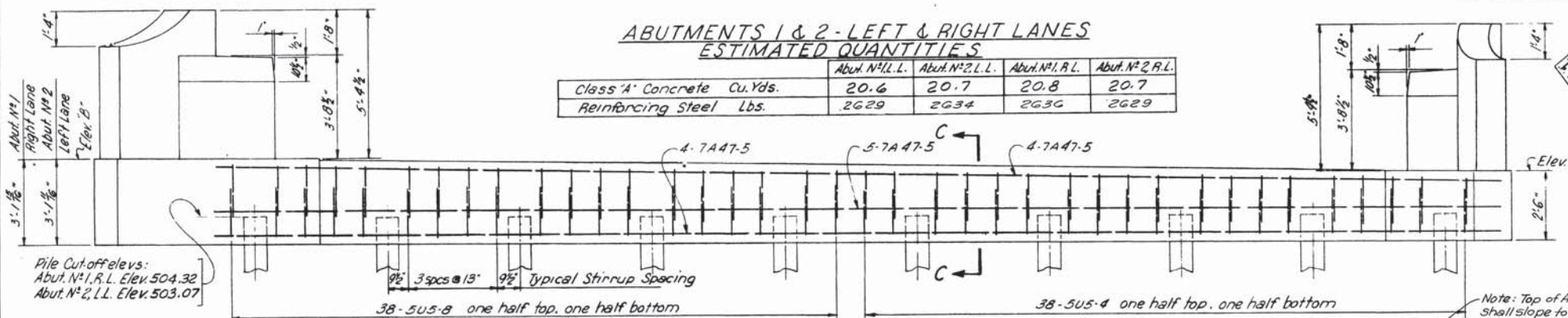


ELEVATION - ABUT. N° 1, LEFT LANE & ABUT. N° 2, RIGHT LANE

ABUT. N°1 - LEFT LANE - LOOKING FORWARD ON SURVEY
ABUT. N°2 - RIGHT LANE - LOOKING BACK ON SURVEY
Scale ⅜" = 1'-0"

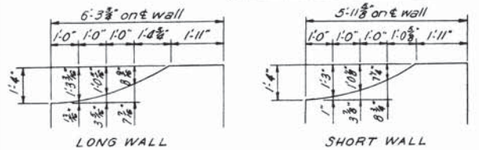
ABUTMENTS 1 & 2 - LEFT & RIGHT LANES ESTIMATED QUANTITIES

	Abut. N°1 L.L.	Abut. N°2 L.L.	Abut. N°1 R.L.	Abut. N°2 R.L.
Class "A" Concrete Cu. Yds.	20.6	20.7	20.8	20.7
Reinforcing Steel Lbs.	2629	2634	2636	2629

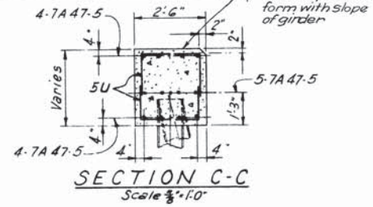


ELEVATION - ABUT. N° 1, RIGHT LANE & ABUT. N° 2, LEFT LANE

ABUT. N°1, RIGHT LANE - LOOKING FORWARD ON SURVEY
ABUT. N°2, LEFT LANE - LOOKING BACK ON SURVEY
Scale ⅜" = 1'-0"

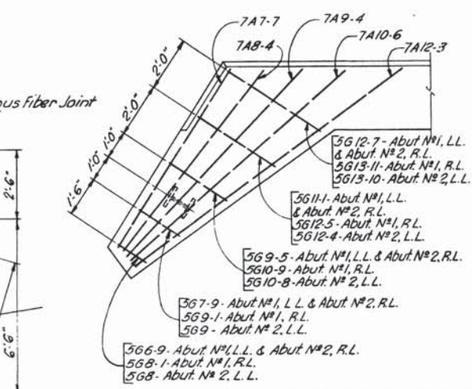


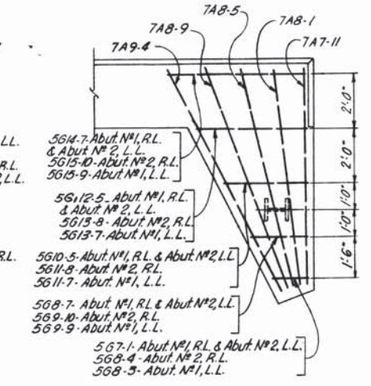
TOP WING WALLS DEVELOPED



SECTION C-C

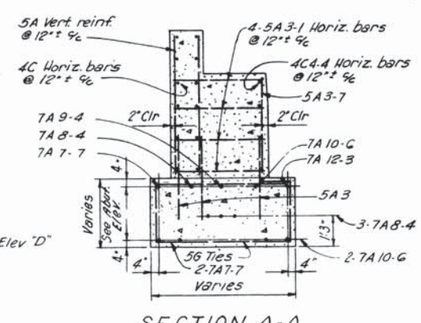
Scale ⅜" = 1'-0"





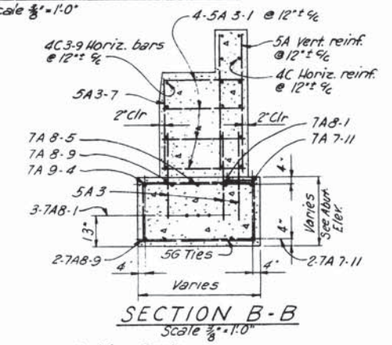
PLANS - WINGWALL FOUNDATIONS

Scale ⅜" = 1'-0"



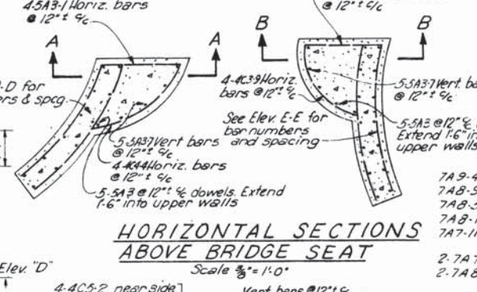
SECTION A-A

Scale ⅜" = 1'-0"



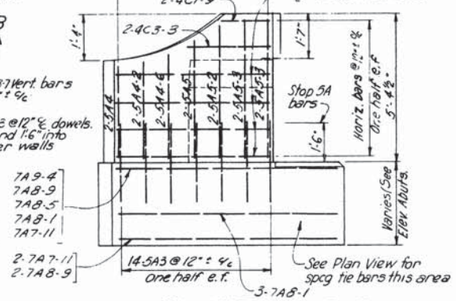
SECTION B-B

Scale ⅜" = 1'-0"



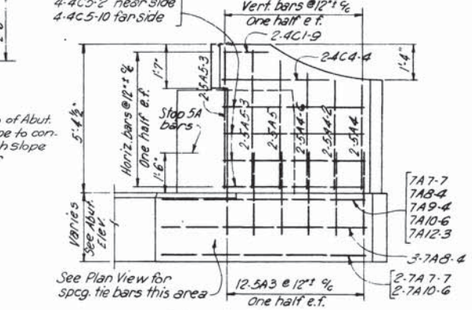
HORIZONTAL SECTIONS ABOVE BRIDGE SEAT

Scale ⅜" = 1'-0"



ELEVATION E-E

Scale ⅜" = 1'-0"



ELEVATION D-D

Scale ⅜" = 1'-0"

Note: All exposed edges to have ¾"x¾" chamfer, unless otherwise noted.

Scale as noted

MID-SOUTH ENGINEERING CO., INC.
820 BROADWAY, N. E. KNOXVILLE, TENNESSEE

BRIDGES 4A & 4B OVER BOLLING BRANCH

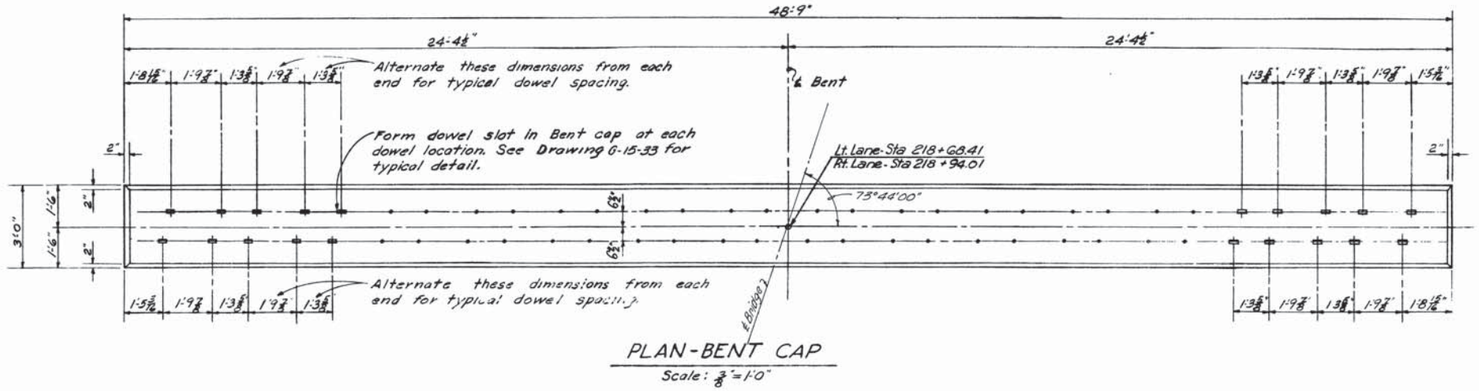
ABUTMENTS
N°S. 1 & 2 RIGHT LANE
N°S. 1 & 2 LEFT LANE

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS
NASHVILLE

		DATE	
DR.	R.W.P.		G-15-31
CHK'D.	R.A.H.		
APP'D.	W.R.	8-11-59	

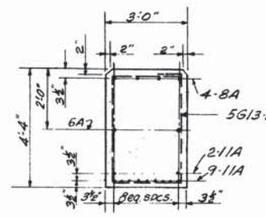
Rev. G-29-60

FED ROAD DIST No.	STATE	FEDERAL AID PROJECT No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
3	TENN	I-40-5(10)259	1960	67	216

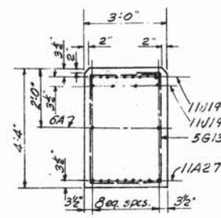


PLAN-BENT CAP

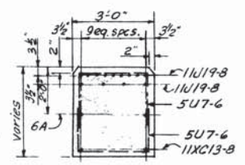
Scale: ⅜"=1'-0"



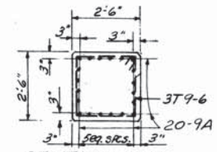
SECTION-A-A



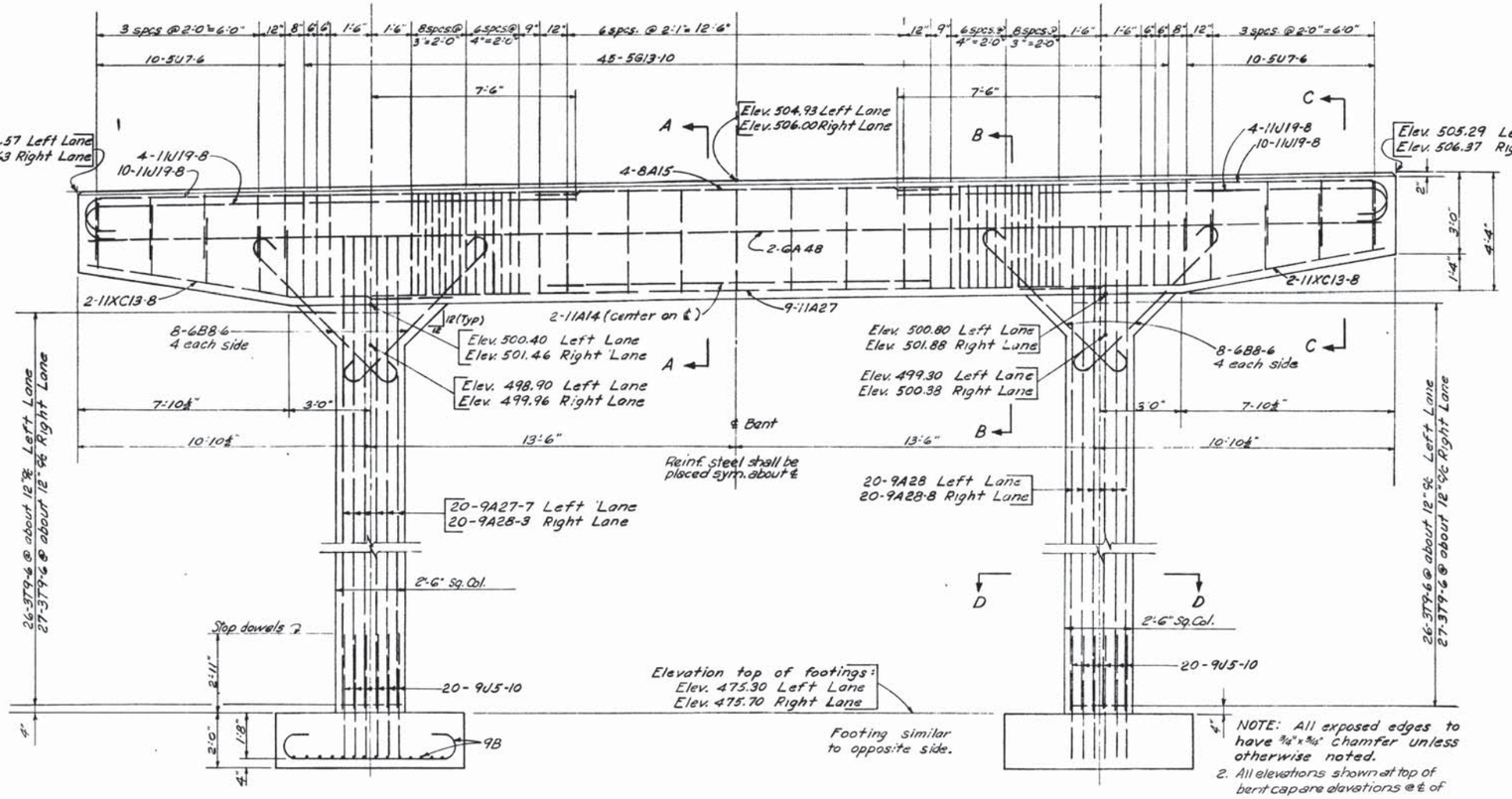
SECTION-B-B



SECTION-C-C



SECTION-D-D



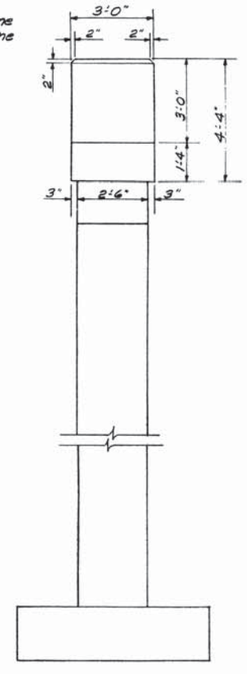
BENT ELEVATION

Scale: ⅜"=1'-0"

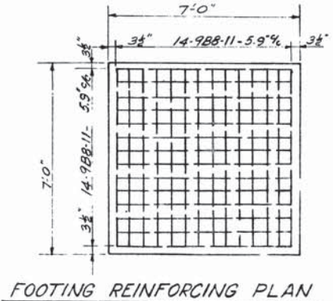
BENT FOR LEFT LANE LOOKING FORWARD ON SURVEY
BENT FOR RIGHT LANE LOOKING BACK ON SURVEY

NOTE: All exposed edges to have ¾"x¾" chamfer unless otherwise noted.

2. All elevations shown at top of bent cap are elevations @ ℄ of bent cap.
3. Top of bent cap shall slope to conform with slope of girders.



END ELEVATION



FOOTING REINFORCING PLAN

ESTIMATED QUANTITIES

	Rt. Lane	Lt. Lane
Class "A" Concrete Cu. Yds.	42.0	41.7
Reinforcing Steel Lbs.	12,526	12,283

Scale: ⅜"=1'-0"

MID-SOUTH ENGINEERING CO., INC.
820 BROADWAY, N. E. KNOXVILLE, TENNESSEE

BRIDGES 4A ℄ 4B OVER BOLLING BRANCH

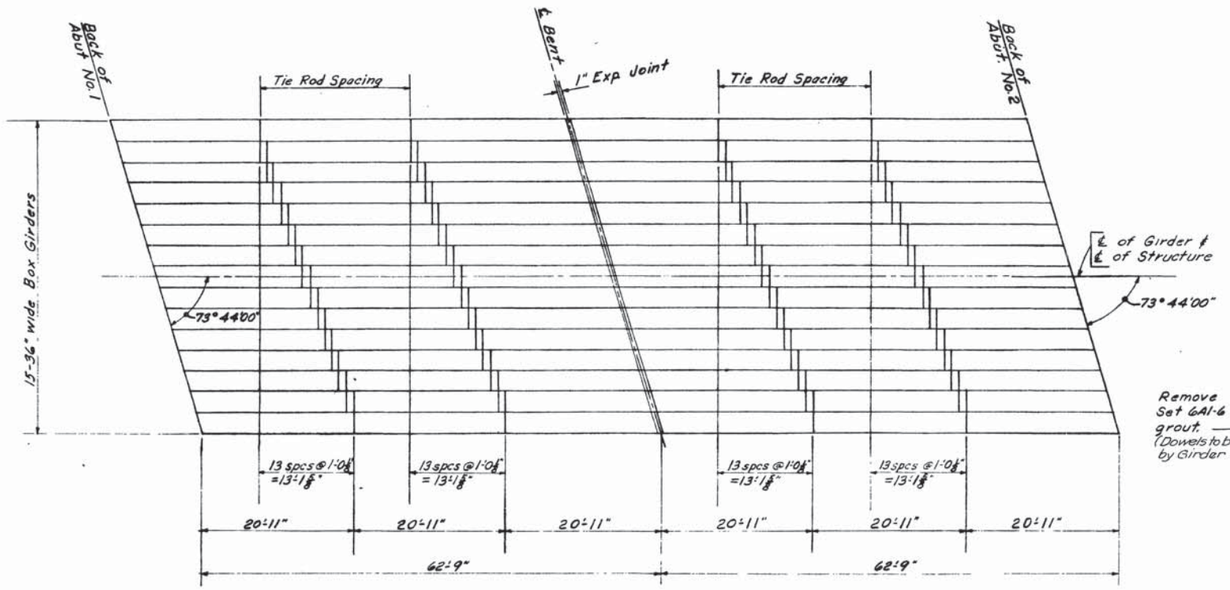
BENTS
RIGHT AND LEFT LANE

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
AND PUBLIC WORKS
NASHVILLE

	DATE	
DR. R. G.		G-15-32
CHK'D. R.A.H.		
APP'D. W.R.	8-11-59	

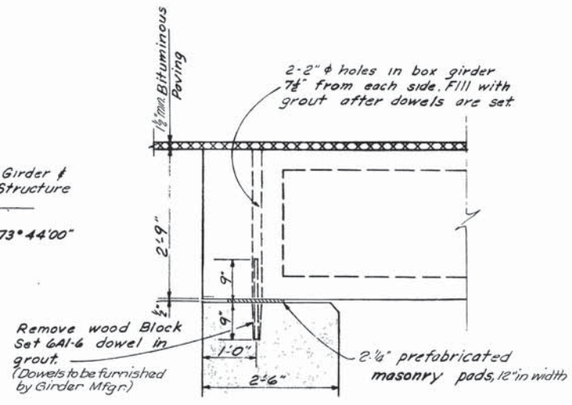
Revised 6-29-60

FED. ROAD DIST. No.		FEDERAL AID PROJECT No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
3	TENN	I-40-5(10)259	1960	68	276



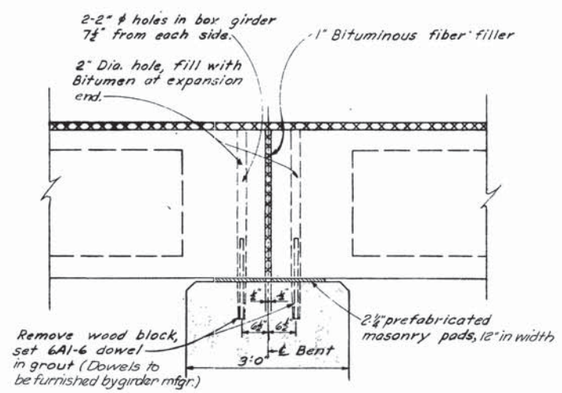
PLAN - PRESTRESSED BOX GIRDERS (LEFT LANE 4A)

Scale: 1"=10'-0"



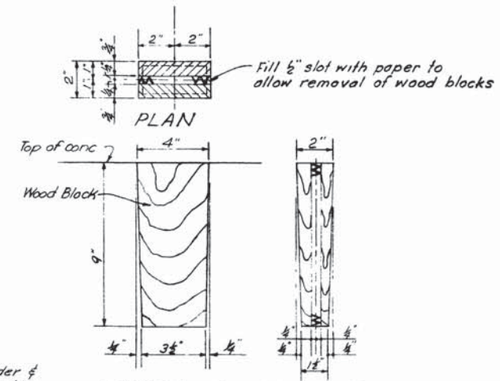
SECTION AT ABUTMENT

Scale: ¾"=1'-0"



SECTION AT BENT

Scale: ¾"=1'-0"



TYPICAL DOWEL SLOT IN BENT CAPS ∤ ABUTMENTS

Scale: 3"=1'-0"

PLAN AT ABUTMENT ENDS PLAN AT BENT ENDS

END DETAILS - BOX GIRDERS

Scale: ½"=1'-0"

NOTES:

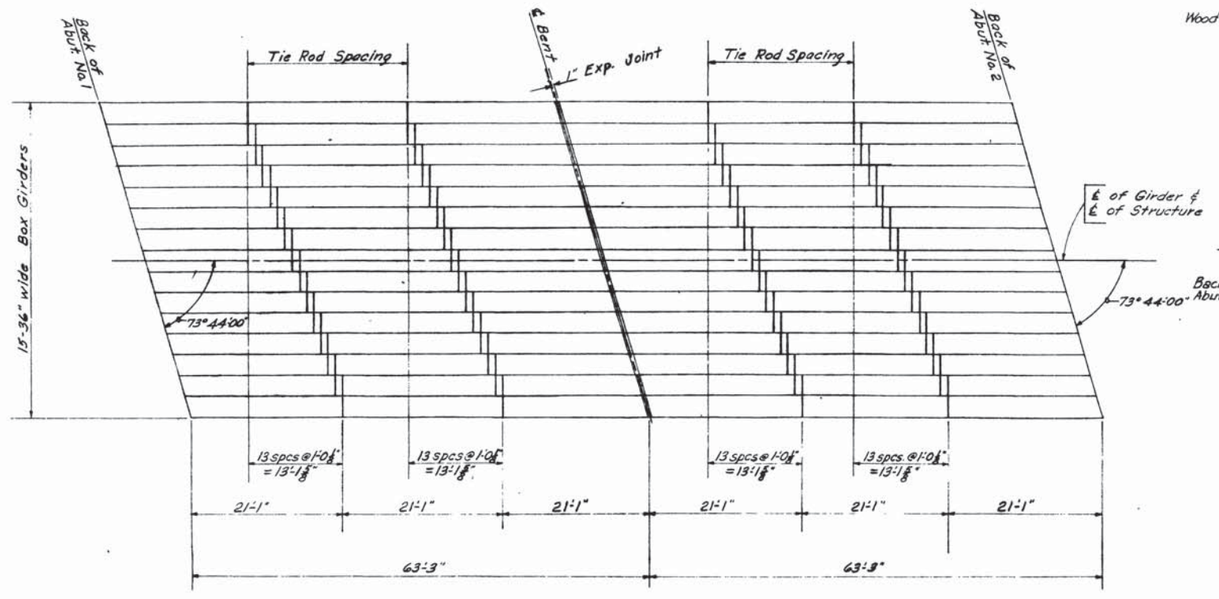
1. All prestressed concrete box girders shall be the Standard Section adopted by the Tennessee Department of Highways and Public Works shown Drwg. F-10-84
2. The size girder for this structure shall be 36" wide x 33" deep.
3. The pattern for placing prestressing steel shall be as shown on standard drwg. F-10-84 Spaced from the bottom, the number of strands required for the varying span lengths shall be as shown in schedule this drawing.
4. The supplier of the precast box girders shall furnish an erection plan with each girder piece marked for the proper position in each span.

ESTIMATED QUANTITIES
PRECAST PRESTRESSED BOX GIRDERS

5000 psi Concrete	Cu. Yds.	628
Hi-Tensile Reinforcing Steel	Lb.	35,265
Reinforcing Steel	Lbs.	49,830

SCHEDULE FOR PRESTRESSING STEEL

	No. ⅜" STRANDS PER GIRDER	DISTANCE FROM BOT. GIRDER TO C.G. STEEL	(E) ECCENTRICITY AT ℄ SPAN
LEFT LANE	33	3.03"	13.74
RIGHT LANE	33	3.03"	13.74



PLAN - PRESTRESSED BOX GIRDERS (RIGHT LANE 4B)

Scale: 1"=10'-0"

Scale: As Noted

MID-SOUTH ENGINEERING CO., INC.
820 BROADWAY, N. E. KNOXVILLE, TENNESSEE

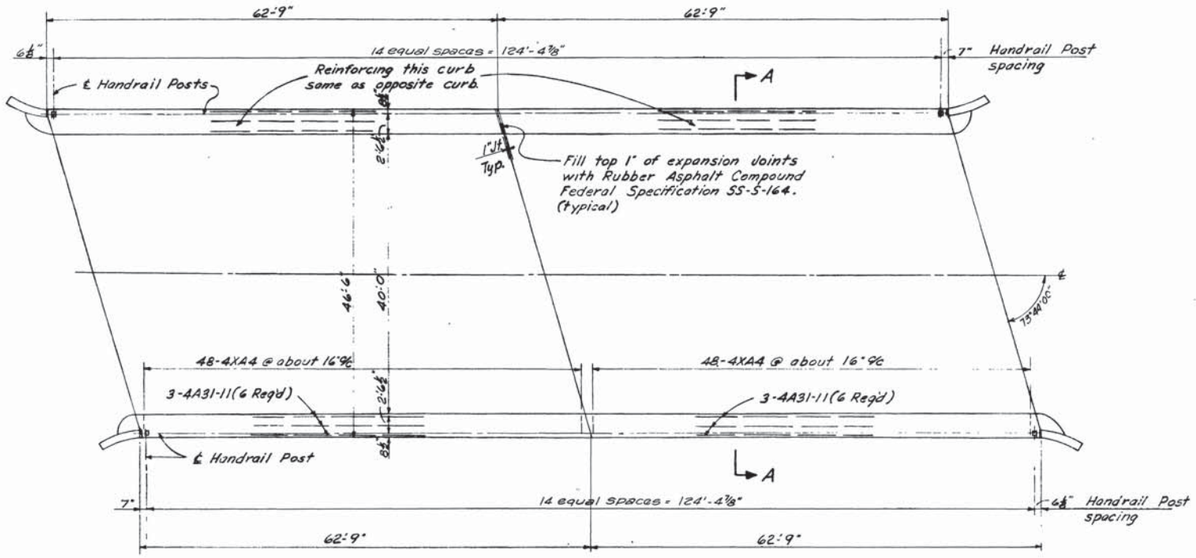
BRIDGES 4A ∤ 4B OVER BOLLING BRANCH

LAYOUT OF BOX GIRDERS

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS
NASHVILLE

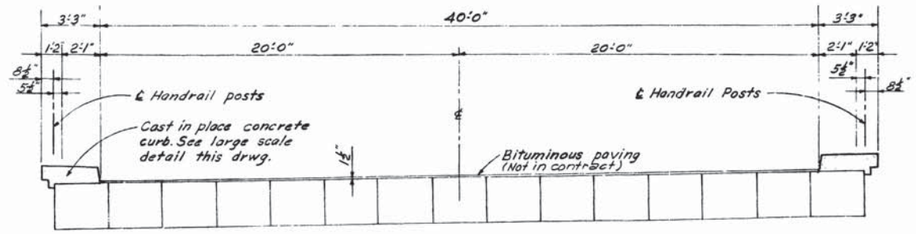
DR. R.G.	DATE	G-15-33
CHK'D R.A.H.		
APP'D W.R.	8-11-59	

FED. ROAD DIST. No.		FEDERAL AID PROJECT No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
3	TENN	I-40-5(10)259	1960	69	276 388

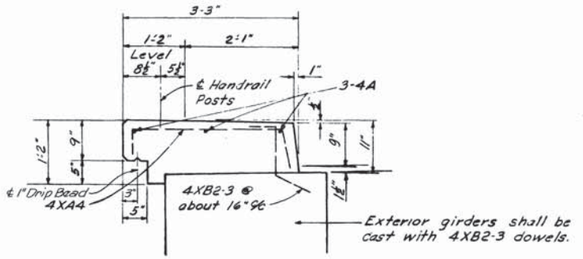


PLAN - LEFT LANE (#4A)
Scale: 1"=10'-0"

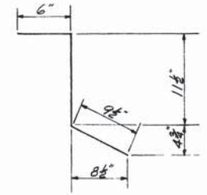
Note:
Handrail shall conform with horizontal and vertical alignment of bridges



SECTION A-A
Scale: ¼"=1'-0"

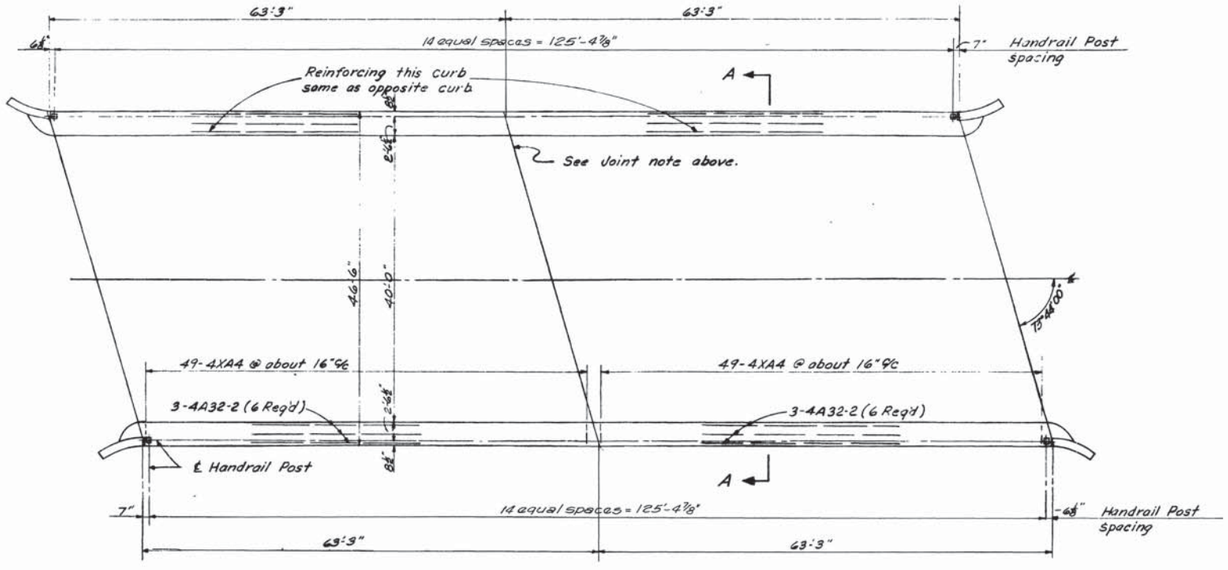


DETAIL - CAST IN PLACE CONCRETE CURB
Scale: ¾"=1'-0"



NOTE: These bars shall be supplied by the girder supplier.

DETAIL - 4XB2-3 BAR
388 REQ'D



PLAN - RIGHT LANE (#4B)
Scale: 1"=10'-0"

SAFETY CURB
ESTIMATED QUANTITIES

		Rt. Lane	Lt. Lane
Class "A" Concrete	Cu. Yds.	28.3	28.0
Reinforcing Steel	Lbs.	1040	1025

Scale: As Noted

MID-SOUTH ENGINEERING CO., INC.
820 BROADWAY, N. E. KNOXVILLE, TENNESSEE

BRIDGES 4A & 4B OVER BOLLING BRANCH

LAYOUT OF SAFETY CURBS

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS
NASHVILLE

DR. R.G.
CHK'D. R.A.H.
APP'D. W.R.
DATE 8-11-59

G-15-34

ITEM: | PROJECT: | PAGE ____ OF ____

LOCATION	BAR MARK	NO. REQD	BENDING DIMENSIONS - FEET & INCHES a	b	c	e	f	g	h	o	r	WEIGHT
ABUTMENTS Nos. 1 & 2 RIGHT LANE AND ABUTMENTS Nos. 1 & 2 LEFT LANE (One Quarter each Abut. except as noted)												
	7A47-5	52										5040
	7A12-3	4										100
	7A10-6	12										258
	7A9-4	8										153
	7A8-9	12										215
	7A8-5	4										69
	7A8-4	16										272
	7A8-1	16										264
	7A7-11	12										194
	7A7-7	12										186
	5A5-3	32										175
	5A5-2	8										43
	5A5	16										83
	5A4-6	16										75
	5A4-2	16										70
	5A4	16										67
	5A3-7	40										149
	5A3-1	32										103
	5A3	144										451
Abut. No.2, R.L.	5G15-10	1	5-0	2-7½								17
Abut. No.1, L.L.	5G15-9	1	5-0	2-7								16
Abut. No.1, R.L.	5G14-7	1	5-0	2-0								15
Abut. No.2, L.L.	5G14-7	1	5-0	2-0								15
Abut. No.1, R.L.	5G13-11	1	4-0	2-8								15
Abut. No.2, L.L.	5G13-10	1	4-0	2-7½								14
Abut. No.2, R.L.	5G13-8	1	3-11	2-7½								14
Abut. No.1, L.L.	5G13-7	1	3-11	2-7								14
Abut. No.1, L.L.	5G12-7	1	4-0	2-0								13
Abut. No.2, R.L.	5G12-7	1	4-0	2-0								13
Abut. No.1, R.L.	5G12-5	1	3-3	2-8								13
Abut. No.1, R.L.	5G12-5	1	3-11	2-0								13
Abut. No.2, L.L.	5G12-5	1	3-11	2-0								13
Abut. No.2, L.L.	5G12-4	1	3-3	2-7½								13
Abut. No.2, R.L.	5G11-8	1	2-11	2-7½								12
Abut. No.1, L.L.	5G11-7	1	2-11	2-7								12
Abut. No.1, L.L.	5G11-1	1	3-3	2-0								12
Abut. No.2, R.L.	5G11-1	1	3-3	2-0								12
Abut. No.1, R.L.	5G10-9	1	2-5	2-8								11
Abut. No.2, L.L.	5G10-8	1	2-5	2-7½								11
Abut. No.1, R.L.	5G10-5	1	2-11	2-0								11
Abut. No.2, L.L.	5G10-5	1	2-11	2-0								11
Abut. No.2, R.L.	5G9-10	1	2-0	2-7½								10
Abut. No.1, L.L.	5G9-9	1	2-0	2-7								10
Abut. No.1, L.L.	5G9-5	1	2-5	2-0								10
Abut. No.2, R.L.	5G9-5	1	2-5	2-0								10
Abut. No.1, R.L.	5G9-1	1	1-7	2-8								9
Abut. No.2, L.L.	5G9	1	1-7	2-7½								9
Abut. No.1, R.L.	5G8-7	1	2-0	2-0								9
Abut. No.2, L.L.	5G8-7	1	2-0	2-0								9
Abut. No.2, R.L.	5G8-4	1	1-3	2-7½								9
Abut. No.1, L.L.	5G8-3	1	1-3	2-7								9
Abut. No.1, R.L.	5G8-1	1	1-1	2-8								8
Abut. No.2, L.L.	5G8	1	1-1	2-7½								8
Abut. No.1, L.L.	5G7-9	1	1-7	2-0								8
Abut. No.2, R.L.	5G7-9	1	1-7	2-0								8
Abut. No.1, R.L.	5G7-1	1	1-3	2-0								7
Abut. No.2, L.L.	5G7-1	1	1-3	2-0								7
Abut. No.1, L.L.	5G6-9	1	1-1	2-0								7
Abut. No.2, R.L.	5G6-9	1	1-1	2-0								7
Abut. No.1, R.L.	5U5-8	38	2-0	1-10								225
Abut. No.2, L.L.	5U5-8	38	2-0	1-10								225
Abut. No.1, L.L.	5U5-7	38	2-0	1-9½								221
Abut. No.2, R.L.	5U5-7	38	2-0	1-9½								221
			(Contd next column)									

ITEM: | PROJECT: | PAGE ____ OF ____

LOCATION	BAR MARK	NO. REQD	BENDING DIMENSIONS - FEET & INCHES a	b	c	e	f	g	h	o	r	WEIGHT
ABUTMENTS Nos. 1 & 2 RIGHT LANE AND ABUTMENTS Nos. 1 & 2 LEFT LANE (CONTD) (One Quarter each Abut. except as noted)												
Abut. No.1, R.L.	5U5-4	38	2-0	1-8								211
Abut. No.2, L.L.	5U5-4	38	2-0	1-8								211
Abut. No.1, L.L.	5U5-3	38	2-0	1-7½								208
Abut. No.2, R.L.	5U5-3	38	2-0	1-7½								208
	4C5-11	16									9-10	63
	4C5-10	16									9-10	62
	4C5-8	16									9-0	61
	4C5-2	16									9-0	55
	4C4-4	4									9-10	12
	4C4-4	4									9-0	12
	4C4-4	16									3-10	46
	4C3-9	16									2-4	40
	4C3-3	4									9-10	9
	4C3-3	4									9-0	9
	4C1-9	8									9-10	9
	4C1-9	8									9-0	9
			Total Abutment No.1 Right Lane									2636
			Total Abutment No.2 Right Lane									2629
			Total Abutment No.1 Left Lane									2629
			Total Abutment No.2 Left Lane									2634
			TOTAL-4 ABUTMENTS									10,528
RIGHT LANE BENT & LEFT LANE BENT (one half each bent except as noted)												
	11A27	18										2582
	11A14	4										298
	11J19-8	56									18-1	5852
	11XC13-8	8	(See bar bending details)									581
Rt. Lane Bent	9A28-8	20										1960
Rt. Lane Bent	9A28-3	20										1921
Lt. Lane Bent	9A28	20										1904
Lt. Lane Bent	9A27-7	20										1875
	9B8-11	112									6-5	3397
	9U5-10	80									4-7	1586
	8A15	8										320
	6A48	4										288
	6B8-6	32									7-2	409
	5G13-10	90	2-7⅜	3-11⅜								1298
	5U7-6	40	2-7⅜	2-5⅛								313
Rt. Lane Bent	3T9-6	54	2-2	2-2								193
Lt. Lane Bent	3T9-6	32	2-2	2-2								186
			Total-Right Lane Bent									12,526
			Total-Left Lane Bent									12,283
			TOTAL									24,809

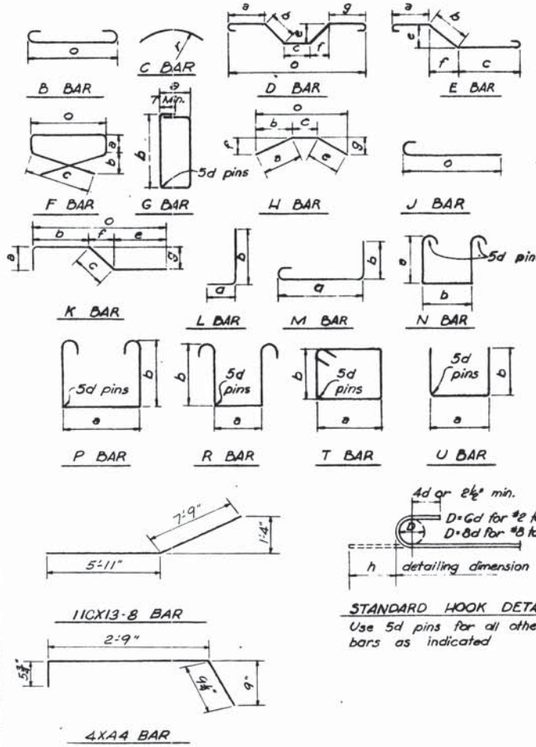
ITEM: | PROJECT: | PAGE ____ OF ____

LOCATION	BAR MARK	NO. REQD	BENDING DIMENSIONS - FEET & INCHES a	b	c	e	f	g	h	o	r	WEIGHT
SAFETY CURB-RIGHT LANE												
	4A32-2	24										516
	4XA4	196	(See bar bending details)									524
											TOTAL	1040
SAFETY CURB-LEFT LANE												
	4A31-11	24										512
	4XA4	192										513
											TOTAL	1025

ITEM: BENDING DIAGRAMS

FED. ROAD DIST.	STATE	FEDERAL AID PROJECT No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
3	TENN	I-40-5(10)259	1960	70	~~208~~ 276

Bending diagrams shown with symbols for variable dimensions are standard types of bars. Some types shown may not be billed in the attached lists. All bars "Mark A" are straight.



Use 5d pins for all other bars as indicated

Notes:
1. The figures to the left of the letter, or letters, represents the bar size number -- 4 = ½"; 5 = ⅝"; 6 = ¾" etc.
2. The letter represents the type of bar - A, H, J, etc. Special type bars are designated by letters "XA", etc. Bars of same type and same length, but different bends are marked La, Lb, Ka, Kb, etc.
3. The figures to the right of the letter, or letters, represent the length in feet and inches, 10-3, 12-6, etc. Thus a bar, Mark GE21-3, represents a No. 6 bar, type E, 21'-3" long. For bar lengths in even feet, the dash and zero (- and 0) are omitted.
4. Dimensions are out-out.

MID-SOUTH ENGINEERING CO., INC.
820 BROADWAY, N.E. KNOXVILLE, TENNESSEE

BRIDGES 4A & 4B OVER BOLLING BRANCH

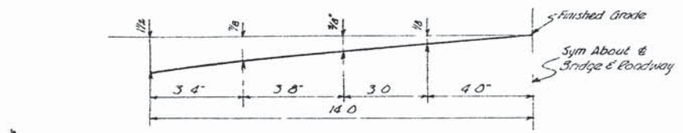
REINFORCING STEEL SCHEDULE

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS
NASHVILLE

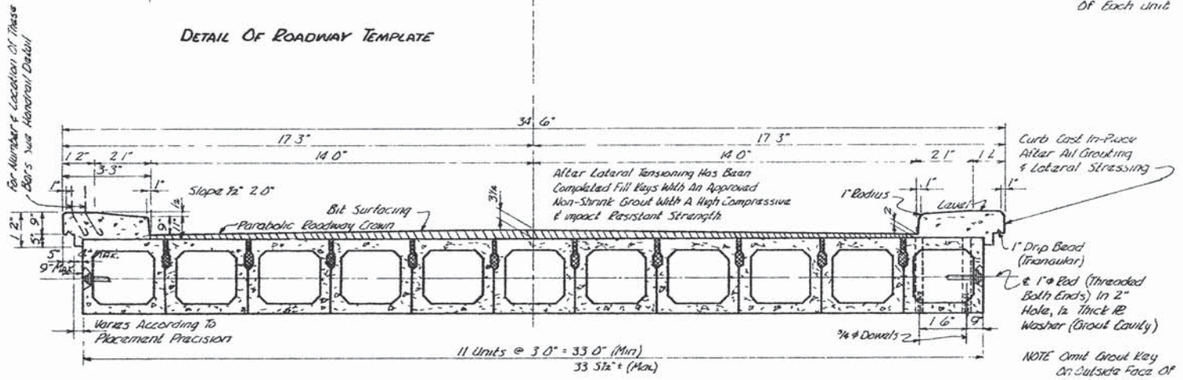
DR. R.G.	DATE
CHK'D R.A.H.	
APP'D N.R.	8-11-59

G-15-35

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	TENN.		19		



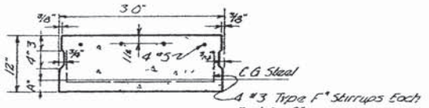
DETAIL OF ROADWAY TEMPLATE



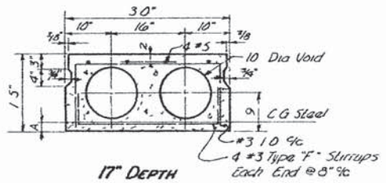
SECTION NEAR MIDSPAN

SECTION NEAR BEARINGS

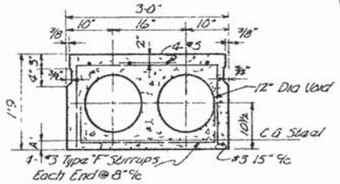
NOTE Omit Grout Key On Outside Face Of Exterior Units



12" DEPTH



17" DEPTH

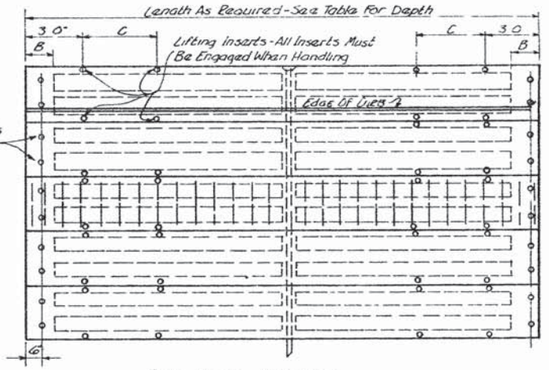


21" DEPTH

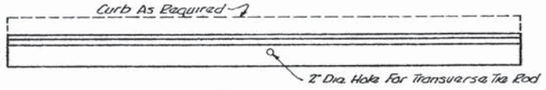
CLEAR SPAN FEET	A INCHES	B INCHES		PRESTRESSED STEEL AREA	No. 3/8" STIRRUPS	WEIGHT BASIC MEMBER	SUGGESTED BEARING
14	225	OMIT		0.96	12	2,050	12"
16	216	"		1.20	12	2,250	
18	244	"		1.52	19	3,200	
20	264	"		1.76	22	3,700	
22	294	"		2.08	26	4,600	

CLEAR SPAN FEET	A INCHES	B INCHES		PRESTRESSED STEEL AREA	No. 3/8" STIRRUPS	WEIGHT BASIC MEMBER	SUGGESTED BEARING
24	222	18		1.36	17	3,450	12"
26	220			1.60	20	4,100	
28	225			1.76	22	4,350	
30	230			2.00	25	5,150	
32	262			2.16	27	6,300	
34	275					7,250	

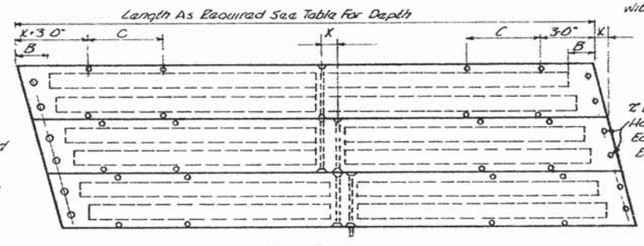
CLEAR SPAN FEET	A INCHES	B INCHES		PRESTRESSED STEEL AREA	No. 3/8" STIRRUPS	WEIGHT BASIC MEMBER	SUGGESTED BEARING
36	230	18		1.76	22	22,450	12"
38	231			1.92	24	23,350	
40	264			2.16	27	24,350	
42	320			2.48	31	25,5?0	



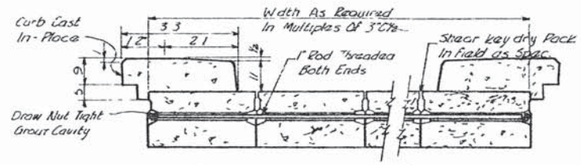
PART PLAN - 90° SKEW
(Clear Span Under 44')



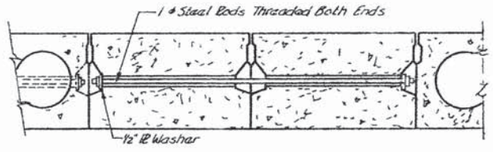
ELEVATION



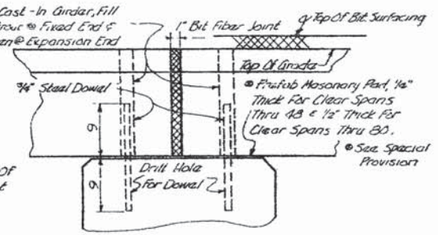
PART PLAN - SKEW AS REQUIRED



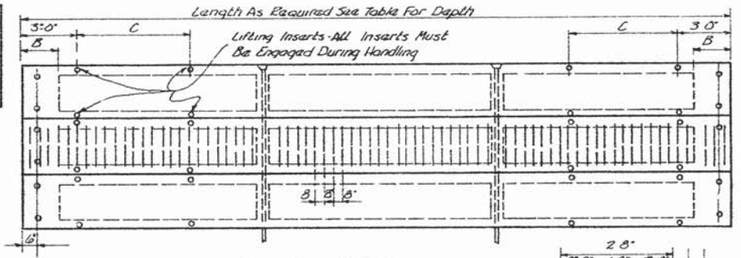
SECTION AT TRANSVERSE TIE
90° SKEW



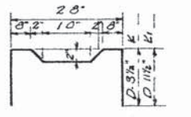
SECTION AT TRANSVERSE TIE
SKEW AS REQUIRED

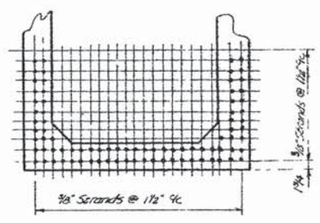


ELEVATION AT ABUTMENT - PIER OR BENT

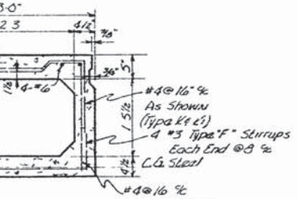


PART PLAN - 90° SKEW
(Clear Span Over 44')



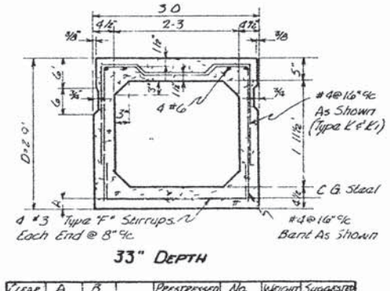


TYPICAL PATTERN FOR PRESTRESSING STEEL



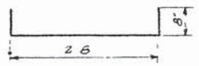
27" DEPTH

CLEAR SPAN FEET	A INCHES	B INCHES		PRESTRESSED STEEL AREA	No. 3/8" STIRRUPS	WEIGHT BASIC MEMBER	SUGGESTED BEARING
44	230	18		1.76	22	27100	12"
46	226			1.84	23	28,300	
48	227			2.00	25	29,300	
50	235			2.24	28	30,500	
52	263			2.40	30	31,600	
54	293			2.56	32	32,800	
56	323			2.80	35	33,900	

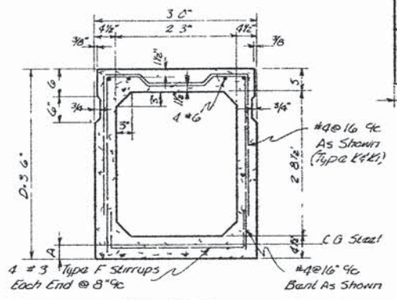


33" DEPTH

CLEAR SPAN FEET	A INCHES	B INCHES		PRESTRESSED STEEL AREA	No. 3/8" STIRRUPS	WEIGHT BASIC MEMBER	SUGGESTED BEARING
58	247	18		2.32	29	39900	12"
60	263			2.48	31	41,800	
62	303			2.64	33	42,600	
64	338			2.80	36	43900	
66	363			3.04	38	45,900	
68	390			3.28	41	46,500	



#3 TYPE "F" STIRRUP



42" DEPTH

CLEAR SPAN FEET	A INCHES	B INCHES		PRESTRESSED STEEL AREA	No. 3/8" STIRRUPS	WEIGHT BASIC MEMBER	SUGGESTED BEARING
70	312	18		2.72	34	51,300	18" 12" Min
72	323			2.88	36	52,960	
74	369			3.04	38	54,620	
76	407			3.20	40	56,280	
78	434			3.36	42	57,940	
80	462			3.52	44	59,600	

GENERAL NOTES.

SPECIFICATIONS Standard Road & Bridge Specifications Of The Tennessee Department Of Highways
LOADING H20-S16-44
CONCRETE (Cast in Place) To Be Class "A"
PRECAST, PRETENSIONED CONCRETE See Specifications
REINFORCING STEEL See Specifications.
FORMS & FINISH See Specifications.
HANDLING PRE-TENSIONED DECK-UNIT See Specifications.
LATERAL TENSIONING Prior To Grouting Longitudinal, Keys Of In Place Deck Units, The Nuts Of The Transverse Rods Shall Be Given Two Full Turns From Hand Tight Position, To Develope A Stress Of 30,000 PSI, In Rods
PRETENSIONING STEEL: An Initial Force Of 14,000 Lbs. Shall Be Applied To Each Strand In All Beams.
The Design Is Based On Federal Bureau Criteria & Special Provision.

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS
NASHVILLE

STANDARD

PRESTRESSED CONCRETE BRIDGE

PRETENSIONED
CLEAR SPANS 14'-0" TO 80'-0"
28'-0" ROADWAY WITH SAFETY CURBS
1957

CORRECT: Fred Groves
APPROVED: Cecil Long

F-10-84

WITH STD. DWGS. F-10-85 F-10-86

DESIGNED BY _____ DATE _____
DRAWN BY A. BURKS DATE 6-26-57
RETRACED BY B. BAUMAN DATE 8-30-60
CHECKED BY _____ DATE _____

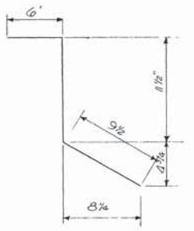
Revised 7/24/61 - Min. siding dowel bars #4 @ 6" added
Revised 4-17-58 (Size of keys & spacing of 3/8" Dowels Changed)
Revised 12-17-57 Spec. added for Fabricators)
Revised 9-30-57 (Drip bead location changed)
Revised 9-11-57 - (Note 4" Stirrups & Dowel holes added)
Revised 8-22-57 - (Add 1 1/2 sq. hole added)

FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
3	TENN		19		

Quantities For Cast Curb
Both Sides

Clear Span	Concrete Cu Yds	Reinf Steel Lbs	No Of Bars D1	No Of Bars C2	No Of Bars C1
14	36	2[illegible]6	24	22	12
16	40	255	28	26	12
18	45	265	30	28	2
20	49	294	34	32	12
22	54	324	36	34	16
24	58	354	40	38	12
26	63	382	42	40	12
28	67	412	46	44	12
30	71	441	48	46	12
32	76	470	52	50	12
34	80	500	54	52	12
36	85	526	58	56	12
38	89	584	60	58	12
40	94	582	62	60	12
42	98	617	66	64	12
44	103	647	68	66	12
46	107	676	72	70	12
48	112	706	74	72	12
50	116	736	78	76	12
52	121	764	80	78	12
54	125	794	84	82	12
56	130	823	86	84	12
58	134	853	90	88	24
60	138	882	92	90	24
62	143	911	96	94	24
64	147	941	98	96	24
66	152	970	102	100	24
68	156	1000	106	104	24
70	163	1028	110	108	24
72	167	1058	112	110	24
74	172	1088	116	114	24
76	176	1117	118	116	24
78	181	1147	122	120	24
80	185	1176	124	122	24

NOTE Above Quantities Apply To All Skews
In For Skewed Bridge Less Than 90° Curb Bars To Be Flared At Each End Of Span
NOTE Bars D1 To Be Included In Unit Price Bid For Girders

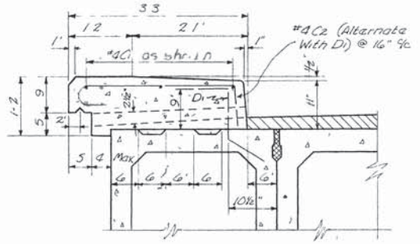


Bars D1 (To Be ½"ø)
Total Length = 23



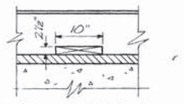
Bars C2
Total Length = 4

NOTE Length Of Longitudinal Bars C1 To Be Total Span Length Minus 6 Also Lap Bars C1 10' When Splice Is Required



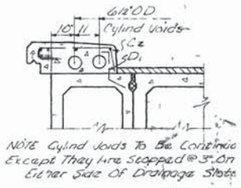
Typical Section For Curb And Exterior Box

NOTE Curb To Be Cast In Place Provisions May Be Made In The Fascia Of Ext Units For Approved Inserts To Facilitate Forming Of Curbs



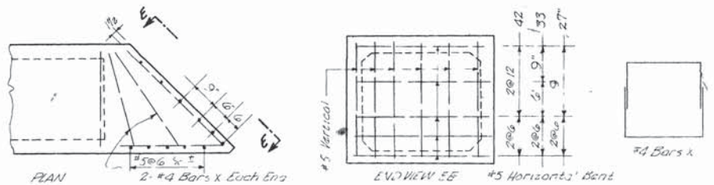
Locate Drain Slots @ Center Of Every Other Railing Panel

Drainage Slot Detail

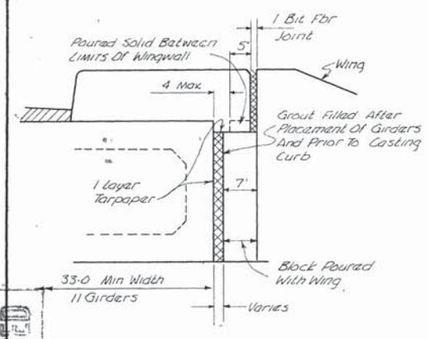


NOTE Cylind Joints To Be Continuous Except They Are Stepped @ 3" On Either Side Of Drainage Slots

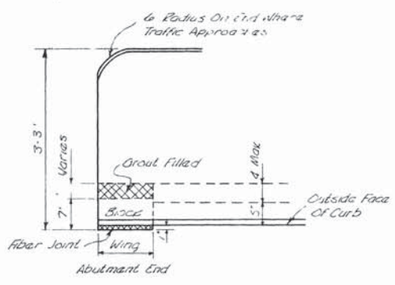
Alternate Curb

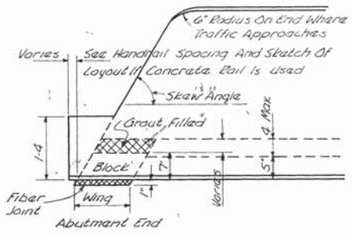


Sketch Showing Additional Reinforcement To Be Placed In Acute Corners Of Prestressed Box Beam



Sketch Showing Curb Detail At Abutment End





MICROFILMED

Revised: 6-15-60 Vert. Ht. Acute Corner
Revised: 4-17-58 Bar D1 Deducted From Reinf Steel Quantities
Revised: 3-30-57 Exp Detail Section Changed

DESIGNED BY A. BURKE DATE 6-28-57
DRAWN BY B. BRUMAN & Q. PIERCE DATE 8-30-60
TRACED BY DATE
CHECKED BY DATE

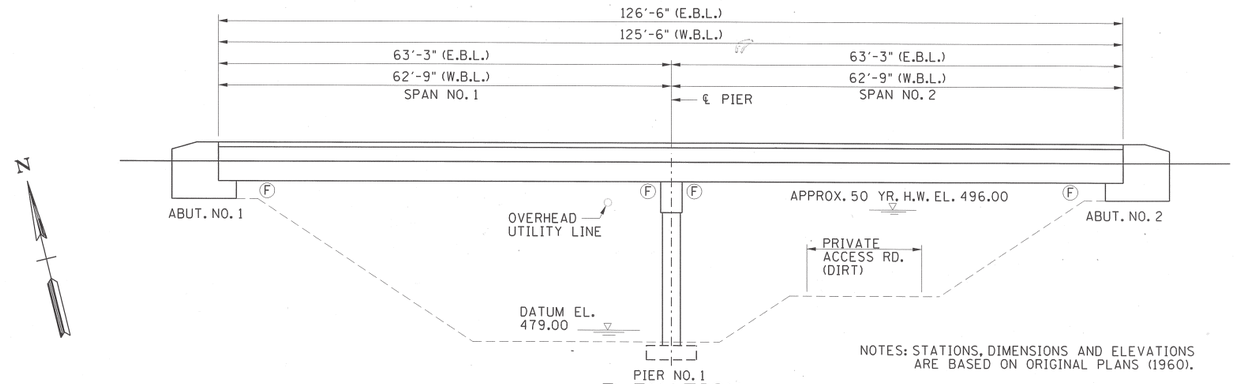
STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS
NASHVILLE
STANDARD

PRESTRESSED CONCRETE BRIDGE
PRETENSIONED

CLEAR SPANS 14'-0" - 80'-0"
28'-0" ROADWAY - WITH SAFET CURBS
1957

CORRECT: Fred Burns, Bridge Engineer
APPROVED: [illegible], Deputy Highway Commissioner

F-10-85
With Std. Dwg. F-10-86 & F-10-86A

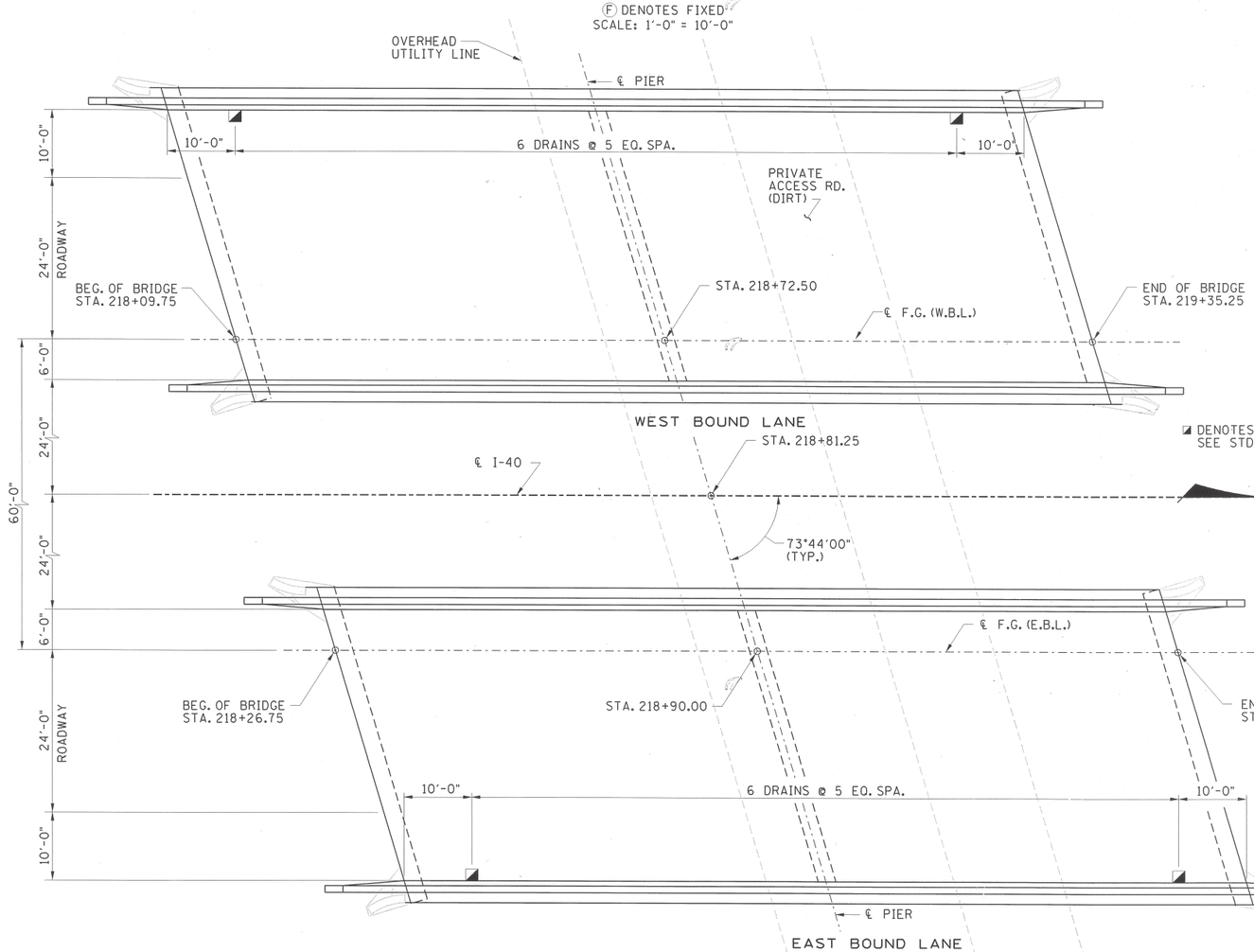


NOTES: STATIONS, DIMENSIONS AND ELEVATIONS ARE BASED ON ORIGINAL PLANS (1960).

ELEVATION

Ⓕ DENOTES FIXED

SCALE: 1'-0" = 10'-0"



DENOTES DECK DRAIN SEE STD. DWG. STD-1-2

PLAN

SCALE: 1'-0" = 10'-0"

LIST OF STANDARD DRAWINGS

DRAWING NO.	LAST REV. DATE	DRAWING
STD-1-1	7-31-00	BRIDGE RAILING CONCRETE PARAPET
STD-1-2	1-05-01	STEEL SLIDER PLATE ASSEMBLIES FOR CONCRETE PARAPET AND BRIDGE DECK DRAIN DETAILS
STD-9-1	12-19-94	REINFORCING BAR SUPPORT DETAILS FOR CONCRETE SLABS
SBR-2-125	11-05-01	DETAILS SHOWING REPLACEMENT OF EXISTING BRIDGERAIL SYSTEM WITH NEW JERSEY SHAPE CONCRETE PARAPET AND NEW 10'-2" ENDPOST
SBR-2-126	1-4-96	DETAILS SHOWING REPLACEMENT OF EXISTING BRIDGERAIL SYSTEM WITH NEW JERSEY SHAPE CONCRETE PARAPET AND NEW 10'-2" ENDPOST

PROJECT NO.	YEAR	SHEET NO.
80001-4179-04	2005	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	7/8/2005	JAK	REVISED DATES

⚠ LIST OF BRIDGE DRAWINGS

DWG. NO.	LAST REV. DATE	DRAWING
BR-73-17	---	LAYOUT OF BRIDGE TO BE REPAIRED (BR. NO. 80-10040-11.46 E.B.L. ℄ W.B.L.)
BR-73-18	7/8/2005	ESTIMATED BRIDGE QUANTITIES (BR. NO. 80-140-11.46)
BR-73-19	---	BRIDGE GENERAL NOTES
BR-73-20	---	PHASING
BR-73-21	---	TYPICAL CROSS SECTION
BR-73-22	7/8/2005	SUPERSTRUCTURE DETAILS
BR-73-23	---	BEAM REPAIR DETAILS
BR-73-24	---	BEAM REPAIR DETAILS
BR-73-25	---	BEAM REPAIR DETAILS
BR-73-26	---	BEAM REPAIR DETAILS
BR-73-27	---	BEAM REPAIR DETAILS
BR-73-28	---	BEAM REPAIR DETAILS
BR-73-29	---	TYPICAL REPAIR DETAILS

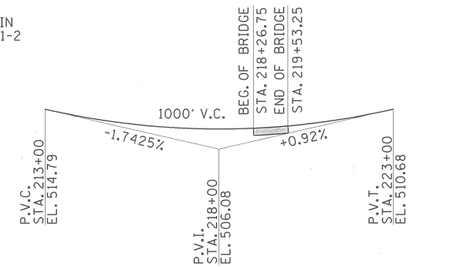
SCOPE OF WORK

1. BRIDGE TO BE REPAIRED BY PHASED CONSTRUCTION.
2. REMOVE EXISTING PARAPET, CURB AND ASPHALT OVERLAY.
3. PERFORM FULL DEPTH DECK REPAIR.
4. EXTEND EXISTING CONCRETE OVERLAY AND ADD JERSEY FACE RAIL.
4. COMPLETE REPAIRS TO PRE-CAST BEAMS.
5. COMPLETE CONCRETE REPAIRS TO SUBSTRUCTURE.
6. ADD ASPHALT DECK SEAL
7. APPLY TEXTURE FINISH COAT.

LIST OF SPECIAL PROVISIONS

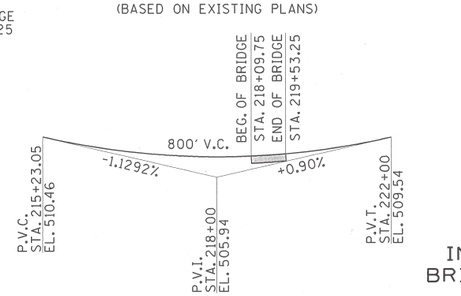
NO.	LAST REV. DATE	REGARDING
105A	**	APPROVAL OF SHOP DRAWINGS

** DENOTES: CURRENT REVISION DATE AS PER CONTRACT DOCUMENTS.



EAST BOUND LANE GRADE SKETCH

(BASED ON EXISTING PLANS)



WEST BOUND LANE GRADE SKETCH

(BASED ON EXISTING PLANS)

TED A. KNIAZEWYCZ
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
NO. 020151
STATE OF TENNESSEE
7/8/05

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

LAYOUT OF BRIDGE TO BE REPAIRED

INTERSTATE 40 OVER BOLLING BRANCH
BRIDGE NO. 80-10040-11.46 (E.B.L. ℄ W.B.L.)
SMITH COUNTY
2005

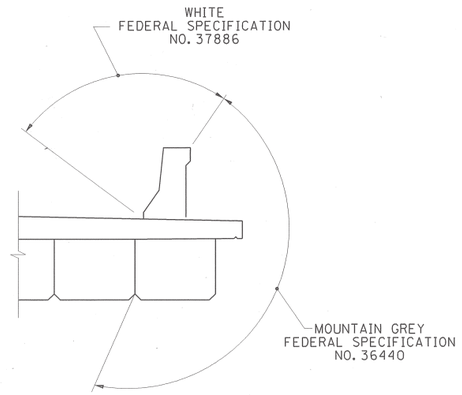
BR-73-17

DESIGNED BY	GSP	DATE	02/05
DRAWN BY	GARY YOUNG	DATE	04/05
SUPERVISED BY	TED A. KNIAZEWYCZ	DATE	02/05
CHECKED BY	TED A. KNIAZEWYCZ	DATE	02/05

GS&P GRESHAM SMITH AND PARTNERS

ESTIMATED QUANTITIES

	ITEM NO.	DESCRIPTION	UNIT	TOTAL	E.B.L. & W.B.L. SUPERSTRUCTURE	E.B.L. BENT 1	E.B.L. ABUT. 1	E.B.L. ABUT. 2	W.B.L. BENT 1	W.B.L. ABUT. 1	W.B.L. ABUT. 2
(1)	202-04.01	REMOVAL OF STRUCTURES (BR. NO. 80-10040-11.46 - R.L.&L.L.)	L.S.	1							
(4)	604-03.01	CLASS "A" CONCRETE (BRIDGES)	C.Y.	54	54						
(2)	604-04.02	APPLIED TEXTURE FINISH (EXISTING STRUCTURES)	S.Y.	1206	1026	58	16	16	58	16	16
(4)(3)	604-10.05	CONCRETE	S.F.	175	153	5	4	2	3	5	3
	604-10.14	REMOVAL EXISTING WEARING SURFACE	LS	1							
	604-10.18	REINFORCING STEEL (REPAIRS)	LB.	11,674	11,674						
(6)	604-10.30	BRIDGE DECK REPAIRS (FULL DEPTH OF SLAB)	S.Y.	150	150						
(3)(4)	604-10.54	CONCRETE REPAIRS	S.F.	130	18	102	2	2	2	2	2
(7)(4)	604-10.58	EPOXY INJECTION (INJECTION)	GAL.	77							
(7)(4)	604-10.62	EPOXY INJECTION REPAIR (COMPLETE AND IN PLACE)	L.F.	768							
	604-10.69	PRESTRESSING STRAND SPLICE	EACH	54							
	617-01	BRIDGE DECK SEALANT	S.Y.	1,156							
⚠(5)	620-03	CONCRETE PARAPET (STD-1-1)	L.F.	586							



PROJECT NO.	YEAR	SHEET NO.
80001-4179-04	2005	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	7/1/2005	JAC	QUANTITY REVISED

FOOTNOTES:

(1) THE COST OF REMOVING THE EXISTING CURB, BRIDGE RAIL, PORTIONS OF THE 4½" CONCRETE OVERLAY, AND OTHER MISCELLANEOUS AREAS WITHIN THE BRIDGE LIMITS SHALL BE INCLUDED IN THE PRICE BID FOR ITEM NO. 202-04.01.

(2) FOR NOTES AND LIMITS OF TEXTURE COATING SEE DETAIL THIS SHEET.

(3) INCLUDES ALL LABOR AND MATERIALS REQUIRED TO COMPLETE REPAIRS TO EXISTING BENTS AND ABUTMENTS. SEE DRAWING BR-73-29 FOR DETAILS. ALSO INCLUDES ALL LABOR AND MATERIALS TO MAKE REPAIRS TO THE EXISTING PRE-STRESSED BEAMS AS SHOWN ON SHEETS BR-73-23 THROUGH 28.

(4) THIS ITEM SHALL BE BID WITH THE CONTINGENCY THAT IT MAY BE INCREASED, DECREASED OR ELIMINATED AS DIRECTED BY THE ENGINEER.

(5) INCLUDES COST OF 12 DECK DRAINS AND 8 NEW 10'-2" ENDPOSTS. SEE DRAWING NO. BR-73-17 FOR LOCATION OF DRAINS AND DRAWING NO. BR-73-22 FOR THE MODIFIED DRAIN DETAIL; SEE STD-1-1, SBR-2-125 AND 126 AND BR-73-29 FOR DETAILS OF BRIDGERAIL.

(6) INCLUDES THE COST OF HIGH EARLY STRENGTH CONCRETE FOR FULL DEPTH CONCRETE REPAIR. SEE SHEET BR-73-29 FOR NOTES AND DETAILS.

(7) FOR ADDITIONAL NOTES AND DETAILS SEE DRAWING NO. BR-73-28.

DETAIL SHOWING LIMITS OF TEXTURE FINISH

NOTE: IN ADDITION TO PORTIONS SHOWN IN THE TEXTURE FINISH SKETCH, THE FOLLOWING EXPOSED CONCRETE IS TO RECEIVE AN APPLIED TEXTURE FINISH: ABUTMENT BEAM AND WINGS AND ENTIRE BENT TO GROUNDLINE.

NOTE: BEFORE APPLYING ANY TEXTURE FINISH, ALL SURFACES SHALL BE COMPLETELY CLEANED OF ALL DEBRIS AND FOREIGN MATERIALS.

NOTE: THE CONTRACTOR SHALL USE CONTAINMENT SCREENS OR OTHER MEASURES AS NECESSARY TO PREVENT ANY TEXTURE COATING FROM ENTERING THE ENVIRONMENT. CONTAINMENT MEASURES SHALL BE APPROVED BY THE ENGINEER AND COST SHALL BE INCLUDED IN ITEMS BID ON.

NOTE: CONCRETE FINISHING SHALL BE IN ACCORDANCE WITH SECTION 604.22 OF THE TENNESSEE STANDARD SPECIFICATION. A CLASS I FINISH FOLLOWED BY AN APPLIED TEXTURE FINISH SHALL BE USED IN LIEU OF A CLASS II FINISH. THE COLOR OF THE FINISH SHALL BE SIMILAR TO MOUNTAIN GRAY, FEDERAL SPECIFICATION NO. 36440, FEDERAL COLOR STANDARD NO. 595A, EXCEPT THAT THE INSIDE FACE AND TOP OF THE PARAPET SHALL BE WHITE, FEDERAL SPECIFICATION NO. 37886. A COLOR SAMPLE SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. NO TEXTURE FINISH SHALL BE APPLIED PRIOR TO COMPLETION OF PAVING AND HAUL OPERATIONS AT THE BRIDGE SITE. THE APPLIED TEXTURE FINISH SHALL BE MEASURED AND PAID FOR UNDER ITEM 604-04.02.

TED A. KNIAZEWYCZ
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
ENVIRONMENT
STATE OF TENNESSEE
5/16/05

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

ESTIMATED BRIDGE QUANTITIES

INTERSTATE 40 OVER BOLLING BRANCH
BRIDGE NO. 80-10040-11.46 (E.B.L. & W.B.L.)
SMITH COUNTY
2005

BR-73-18

DESIGNED BY GSP DATE 02/05
DRAWN BY GARY YOUNG DATE 04/05
SUPERVISED BY TED A. KNIAZEWYCZ DATE 02/05
CHECKED BY TED A. KNIAZEWYCZ DATE 02/05

GRESHAM SMITH AND PARTNERS

GENERAL NOTES

SPECIFICATIONS: STANDARD ROAD AND BRIDGE SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION. (MARCH 1, 1995 EDITION)

DESIGN SPECIFICATIONS: AASHTO 2002 EDITION WITH ADDENDA.

LOADING: HS20-44

REINFORCING STEEL: SHALL BE ASTM A615 GRADE 60 UNLESS NOTED OTHERWISE. SEE SECTION 604 AND 907 OF THE STANDARD SPECIFICATIONS.

NO PNEUMATIC CONCRETE ALLOWED.

CONCRETE: TO BE CLASS "A" CONCRETE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

BRIDGE DECK CONCRETE: SHALL BE HIGH EARLY STRENGTH CONCRETE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND AS NOTED ON THIS SHEET.

BRIDGE DECK SURFACE FINISH: SHALL BE IN ACCORDANCE WITH METHOD (C) IN SUBSECTION 604.23 OF THE STANDARD SPECIFICATIONS.

CONCRETE STRENGTH AND CURE TIME NOTES

THE NEW BRIDGE DECKS SHALL OBTAIN A COMPRESSIVE STRENGTH OF 3,500 PSI AND A TIME OF TEN (10) DAYS MUST EXPIRE AFTER CONCRETE PLACEMENT BEFORE LOADING TAKES PLACE ON THE NEW CONCRETE DECKS. LOADING IS DEFINED AS ANY CONSTRUCTION VEHICLE AS WELL AS ANY GENERAL TRAFFIC.

THE NEW CONCRETE FOR THE PARAPET AND PAVEMENT AT BRIDGE ENDS SHALL OBTAIN A COMPRESSIVE STRENGTH OF 3,000 PSI AND A TIME OF THREE (3) DAYS MUST EXPIRE AFTER CONCRETE PLACEMENT BEFORE TRAFFIC IS ALLOWED ADJACENT TO OR ON THESE STRUCTURAL ELEMENTS.

HIGH EARLY STRENGTH CONCRETE FOR FULL DEPTH REPAIR AREAS: SHALL BE HIGH EARLY STRENGTH CONCRETE WITH A COMPRESSIVE STRENGTH OF 3,000 PSI AT 18 HOURS. THE CONTRACTOR SHALL PROVIDE PROOF PRIOR TO BEGINNING WORK THAT THE PROPOSED CONCRETE MIX SHALL OBTAIN REQUIRED PROPERTIES. PROOF SHALL BE PROVIDED BY AN INDEPENDENT TESTING COMPANY AND SUBMITTED TO THE MATERIALS AND TEST DIVISION OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION FOR APPROVAL. NO LOAD SHALL BE PERMITTED ON ANY OF THE REPAIR AREAS UNTIL TEST SPECIMENS ATTAIN A COMPRESSIVE STRENGTH OF 3,000 PSI MINIMUM AND THE CONCRETE HAS BEEN IN PLACE A MINIMUM OF 48 HOURS.

CONCRETE CURING: ALL CONCRETE IN REPAIR AREAS SHALL BE CURED ACCORDING TO THE STANDARD SPECIFICATIONS.

DEMOLITION: THE CONTRACTOR SHALL TAKE SPECIAL CARE TO PROTECT ANY PARTS OF THE STRUCTURE THAT ARE NOT TO BE REMOVED SPECIFICALLY. THE CONTRACTOR IS NOT ALLOWED TO USE A HYDRAULIC RAM MOUNTED ON A BACKHOE (COMMONLY CALLED A HOE-RAM) OR OTHER SIMILARLY HEAVY EQUIPMENT FOR CONCRETE REMOVAL. PNEUMATIC HAMMERS MAY BE USED TO REMOVE UNSOUND CONCRETE. FOR FULL DEPTH CONCRETE SLAB REMOVAL EXCEPT OVER BEAMS, THE MAXIMUM HAMMER SIZE IS 90 POUND CLASS. FOR PARTIAL DEPTH OF CONCRETE SLAB REMOVAL AND ANY WORK OVER BEAMS, THE MAXIMUM HAMMER SIZE IS 60 POUND CLASS. SAWING OR CUTTING OF THE CONCRETE IS ACCEPTABLE SO LONG AS ANY SPECIFIED PROJECTION OF THE EXISTING REINFORCING STEEL IS MAINTAINED. ALL DEVICES PROPOSED FOR CONCRETE DEMOLITION SHALL MEET THE APPROVAL OF THE ENGINEER.

QUICK-SET PATCHING MATERIALS: QUICK-SET PATCHING MATERIALS SHALL BE A POLYMER MODIFIED CEMENTITIOUS PATCHING MATERIAL. SEE TDOT PRODUCT LIST 13, SUB-LIST F, FOR ACCEPTABLE PATCHING MATERIALS.

BRIDGE RAIL SYSTEM: BUILD BRIDGE RAILINGS ACCORDING TO STANDARD DRAWING STD-1-1.

ANY AREA THAT IS DISTURBED OUTSIDE LIMITS OF CONSTRUCTION DURING THE LIFE OF THIS PROJECT SHALL BE REPAIRED BY THE CONTRACTOR AT HIS EXPENSE.

THE CONTRACTOR SHALL PROVIDE 100% CONVENTIONAL FALL PROTECTION FOR WORKERS INSTALLING DECKING ABOVE 15 FEET.

UTILITY NOTES

THE LOCATION OF UTILITIES SHOWN WITHIN THE PLANS ARE APPROXIMATE ONLY. EXACT LOCATIONS SHALL BE DETERMINED IN THE FIELD BY CONTACTING THE UTILITY COMPANIES INVOLVED.

SOME UTILITIES CAN BE LOCATED BY CALLING THE TENNESSEE ONE CALL SYSTEM, INC. AT 1-800-351-1111.

UNLESS OTHERWISE NOTED, ALL UTILITY ADJUSTMENTS WILL BE PERFORMED BY THE UTILITY OF ITS REPRESENTATIVE. THE CONTRACTOR AND THE UTILITY OWNERS WILL BE REQUIRED TO COOPERATE WITH EACH OTHER IN ORDER TO EXPEDITE THE WORK REQUIRED BY THIS CONTRACT.

THE CONTRACTOR WILL PROVIDE ALL NECESSARY PROTECTIVE MEASURES TO SAFEGUARD EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION OF THIS PROJECT. IN THE EVENT THAT SPECIAL EQUIPMENT IS REQUIRED TO WORK OVER AND AROUND THE UTILITIES, THE CONTRACTOR WILL BE REQUIRED TO FURNISH SUCH EQUIPMENT. THE COST OF PROTECTING THE UTILITIES FROM DAMAGE AND FURNISHING SPECIAL EQUIPMENT WILL BE INCLUDED IN THE PRICE BID FOR OTHER ITEMS OF CONSTRUCTION.

PRIOR TO SUBMITTING HIS BID, THE CONTRACTOR WILL BE SOLELY RESPONSIBLE FOR CONTACTING ALL AFFECTED UTILITIES IN ORDER TO DETERMINE THE EXTENT TO WHICH UTILITY RELOCATIONS AND/OR ADJUSTMENTS WILL HAVE UPON THE SCHEDULE OF THE WORK FOR THE PROJECT. WHILE SOME WORK MAY BE REQUIRED "AROUND" UTILITY FACILITIES THAT REMAIN IN PLACE, OTHER UTILITY FACILITIES MAY NEED TO BE ADJUSTED CONCURRENTLY WITH THE CONTRACTOR'S OPERATIONS. ADVANCE CLEAR CUTTING MAY BE REQUIRED BY THE ENGINEER AT ANY LOCATION WHERE CLEARING IS CALLED FOR IN THE SPECIFICATIONS AND CLEAR CUTTING IS NECESSARY FOR A UTILITY RELOCATION. ANY ADDITIONAL COST WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE CLEARING ITEM SPECIFIED IN THE PLANS.

THE CONTRACTOR SHALL NOTIFY EACH INDIVIDUAL UTILITY OWNER OF HIS PLAN OF OPERATION IN THE AREA OF THE UTILITIES. PRIOR TO COMMENCING WORK, THE CONTRACTOR SHALL CONTACT THE UTILITY OWNERS AND REQUEST THEM TO PROPERLY LOCATE THEIR RESPECTIVE UTILITY ON THE GROUND. THIS NOTIFICATION SHALL BE GIVEN AT LEAST THREE (3) BUSINESS DAYS PRIOR TO COMMENCEMENT OF OPERATIONS AROUND THE UTILITY.

PROJECT NO.	YEAR	SHEET NO.
80001-4179-04	2005	2A

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION

SPECIAL NOTES

SHOP DRAWINGS: SHALL BE SUBMITTED ACCORDING TO SPECIAL PROVISION NO. 105A. SHOP DRAWINGS SHALL BE SUBMITTED TO THE BRIDGE REPAIR OFFICE OF THE DIVISION OF STRUCTURES.

SPECIAL NOTE FOR UTILITIES: IT IS INTENDED THAT THE COST OF MATERIALS AND LABOR NECESSARY FOR THE COMPLETE INSTALLATION OF UTILITIES SHOULD BE BORNE BY OTHERS AND SHALL NOT BE PAID FOR AS PART OF THIS CONTRACT. THE CONTRACTOR SHALL COOPERATE WITH OTHERS IN THE INSTALLATION OF UTILITIES WITH NO ADDITIONAL COMPENSATION ALLOWED THE CONTRACTOR.

DAMAGE TO EXISTING STRUCTURES TO BE LEFT IN PLACE SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE.

FORMS AND FALSEWORK: ALL CONCRETE FORM WORK, FALSE WORK, AND TEMPORARY SUPPORTS SHALL BE REMOVED AFTER REPAIRS ARE COMPLETED. COST OF FORMS, FALSEWORK, AND TEMPORARY SUPPORT REMOVAL SHALL BE INCLUDED IN ITEMS BID ON. THIS WORK SHALL BE COMPLETED BEFORE FINAL PAYMENT IS APPROVED.

SPECIAL ENVIRONMENTAL NOTE TO CONTRACTOR: CONTRACTOR SHALL USE EXTREME CARE AND TAKE ANY MEASURE NECESSARY TO ENSURE THAT NO DEBRIS IS DROPPED INTO THE STREAM. THIS SHALL BE ACCOMPLISHED BY THE USE OF BASKETS, NETTING, WRAPPING, WORK PLATFORM, OR OTHER SIMILARLY EFFECTIVE MEANS. ANY DEBRIS WHICH IS ALLOWED TO DROP ON THE BANKS BELOW THE BRIDGE SHALL NOT BE ALLOWED TO ENTER THE STREAM AND SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR. COST OF REMOVING AND DISPOSING OF DEBRIS SHALL BE INCLUDED IN ITEMS BID ON.

ANY CONSTRUCTION WITHIN THE STREAM CHANNEL AREA SHALL BE SEPARATED FROM FLOWING WATER, AND ACCOMPLISHED DURING LOW FLOW CONDITIONS. THIS SHALL BE ACCOMPLISHED BY THE USE OF FLUMES, DIVERSION CHANNEL WITH SAND BAG BERM, DIVERSION PIPE, OR IN SOME CASES COFFERDAMS.

INTERSTATE 40

1. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE SHIELDING MATERIALS TO PROTECT MOTORIST FROM DEBRIS AND/OR OTHER MATERIALS THAT MAY BE A HAZARD OR PRODUCE HAZARDOUS CONDITIONS TO THE PUBLIC. COST TO BE INCLUDED UNDER ITEM NO. 604-10.05.
2. THE CONTRACTOR SHALL NOT BE ALLOWED TO INTERRUPT TRAFFIC FLOW AND SHALL MAINTAIN ALL LANES OF TRAFFIC IN EACH DIRECTION ON THE FOLLOWING DAYS:
   A) OFFICIAL STATE HOLIDAYS
   B) FRIDAYS AFTERNOON UNTIL TUESDAY MORNING, IF A STATE HOLIDAY OCCURS OR IS OBSERVED ON MONDAY.
   C) THURSDAY AFTERNOON UNTIL MONDAY MORNING, IF A STATE HOLIDAY OCCURS OR IS OBSERVED ON FRIDAY.
3. NO LANES WILL BE CLOSED DURING WEEKENDS (FRIDAY 6 AM TO MONDAY 6 AM). TDOT WILL APPROVE ALL LANE CLOSURES, AND TDOT RESERVES THE RIGHT TO CHANGE ANY LANE CLOSURE AT ANY TIME.
4. ALL LANE CLOSURES MUST BE APPROVED BY T.D.O.T.

REQUIREMENTS AND RESTRICTIONS FOR PHASE CONSTRUCTION

1. SEE ROADWAY TRAFFIC CONTROL SHEETS FOR OTHER RESTRICTIONS.
2. SEE SPECIAL PROVISION 108B FOR TRAFFIC CONTROL RESTRICTIONS, PROJECT COMPLETION REQUIREMENTS AND INCENTIVES/DISINCENTIVES.
3. THE LOCATION OF THE LONGITUDINAL CONSTRUCTION JOINT SHALL NOT BE CHANGED.

TED A. KNIAZEWYCZ — REGISTERED ENGINEER — AGRICULTURE — COMMERCE — NO. 022975 — STATE OF TENNESSEE — 9/19/05

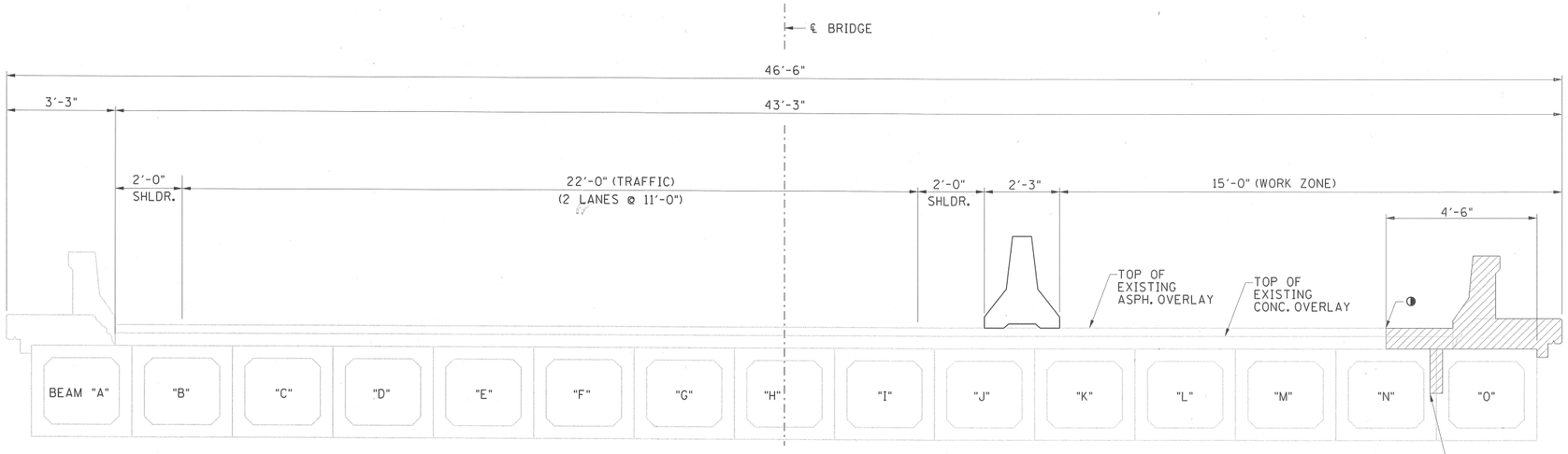
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

BRIDGE GENERAL NOTES
INTERSTATE 40
OVER CANEY FORK RIVER
BRIDGE NO. 80-10040-12.93 (E.B.L.)
BRIDGE NO. 80-10040-12.91 (W.B.L.)
INTERSTATE 40 OVER BOLLING BRANCH
BRIDGE NO. 80-10040-11.46 (E.B.L. & W.B.L.)
SMITH COUNTY
2005

BR-73-19

DESIGNED BY	GSP	DATE	02/05
DRAWN BY	GSP	DATE	04/05
SUPERVISED BY	TED A. KNIAZEWYCZ	DATE	02/05
CHECKED BY	TED A. KNIAZEWYCZ	DATE	02/05

GS&P — GRESHAM SMITH AND PARTNERS



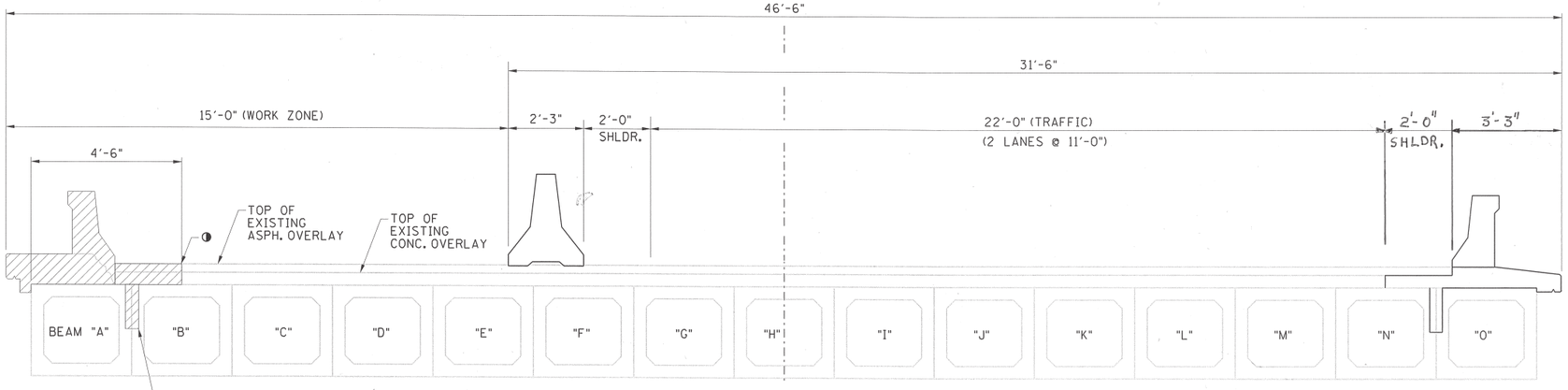
PHASE I CONSTRUCTION

(LOOKING FORWARD ON SURVEY - W.B.L.)
(LOOKING BACK ON SURVEY - E.B.L.)

DENOTES AREAS OF REMOVAL

◑ DENOTES EXISTING ASPHALT TO BE SAW CUT FULL DEPTH. CONTRACTOR SHALL TAKE CARE NOT TO CUT ANY REINFORCEMENT IN THE CONCRETE OVERLAY.

ANY DETERIORATED CONCRETE REMOVED FROM BEAMS "N" OR "O" SHALL BE REPOURED WITH THE CONCRETE OVERLAY EXTENSION. REMOVAL OF CONCRETE IS TO BE PAID FOR UNDER ITEM NO. 202-04.01. CONCRETE IS TO BE PAID FOR UNDER ITEM NO. 604-03.01.



PHASE II CONSTRUCTION

(LOOKING FORWARD ON SURVEY - W.B.L.)
(LOOKING BACK ON SURVEY - E.B.L.)

DENOTES AREAS OF REMOVAL

◑ DENOTES EXISTING ASPHALT TO BE SAW CUT FULL DEPTH. CONTRACTOR SHALL TAKE CARE NOT TO CUT ANY REINFORCEMENT IN THE CONCRETE OVERLAY.

ANY DETERIORATED CONCRETE REMOVED FROM BEAMS "A" OR "B" SHALL BE REPOURED WITH THE CONCRETE OVERLAY EXTENSION. REMOVAL OF CONCRETE IS TO BE PAID FOR UNDER ITEM NO. 202-04.01. CONCRETE IS TO BE PAID FOR UNDER ITEM NO. 604-03.01.

PROJECT NO.	YEAR	SHEET NO.
80001-4179-04	2005	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION

PHASE I

1. MAINTAIN TWO LANES OF TRAFFIC (11'-0" MINIMUM PER LANE).
2. REMOVE EXISTING CURB, RAIL AND ASPHALT TO LIMITS SHOWN.
3. REMOVE EXISTING 4½" CONCRETE OVERLAY TO LIMITS SHOWN AND PERFORM FULL DEPTH DECK REPAIR
4. REMOVE DETERIORATED CONCRETE ON BEAMS "N" AND "O", IF NECESSARY, UP TO ½ THE WIDTH OF THE WEB WALL FOR EACH BEAM.
5. POUR CONCRETE OVERLAY EXTENSION AND BRIDGE RAIL.

PHASE II

1. MAINTAIN TWO LANES OF TRAFFIC (11'-0" MINIMUM PER LANE).
2. REMOVE EXISTING CURB, RAIL AND ASPHALT OVERLAY TO LIMITS SHOWN.
3. REMOVE EXISTING 4½" CONCRETE OVERLAY TO LIMITS SHOWN AND PERFORM FULL DEPTH DECK REPAIR
4. POUR CONCRETE OVERLAY EXTENSION AND BRIDGE RAIL.
5. REMOVE DETERIORATED CONCRETE ON BEAMS "A" AND "B", IF NECESSARY, UP TO ½ THE WIDTH OF THE WEB WALL FOR EACH BEAM.

PHASE III

1. MAINTAIN ONE LANE OF TRAFFIC.
2. REMOVE EXISTING ASPHALT OVERLAY.
3. COMPLETE ANY NEEDED PARTIAL DEPTH BRIDGE DECK REPAIRS.
4. PLACE NEW 3" ASPHALT OVERLAY WITH MEMBRANE DECK SEAL. THE PAVING CONSTRUCTION JOINT SHALL BE AT ℄ OF EXISTING STRIPING BETWEEN LANES.
5. USE ONE LANE CLOSURE DETAILS WITH CHANNELIZING DRUMS.

DESIGNED BY	GSP	DATE	02/05
DRAWN BY	GARY YOUNG	DATE	04/05
SUPERVISED BY	TED A. KNIAZEWYCZ	DATE	02/05
CHECKED BY	TED A. KNIAZEWYCZ	DATE	02/05

GRESHAM SMITH AND PARTNERS

TED A. KNIAZEWYCZ — REGISTERED ENGINEER — XVI — AGRICULTURE COMMERCE — NO. 020757 — STATE OF TENNESSEE

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

PHASING

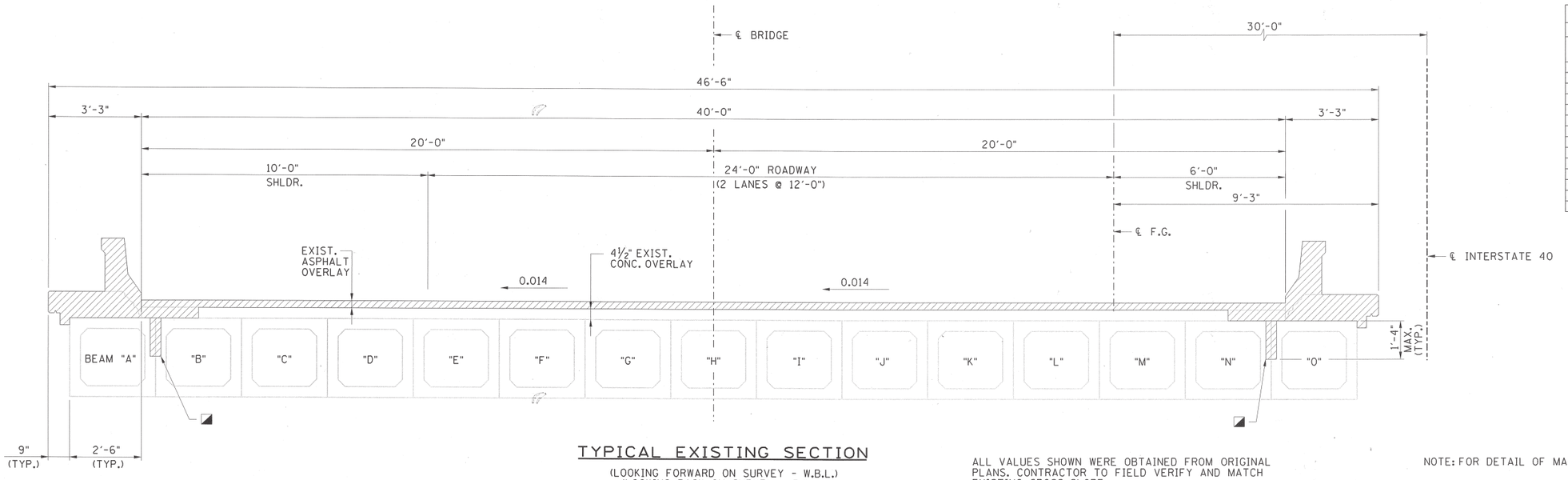
INTERSTATE 40 OVER BOLLING BRANCH
BRIDGE NO. 80-I0040-11.46 (E.B.L. ℄W.B.L.)
SMITH COUNTY
2005

BR-73-20

PROJECT NO.	YEAR	SHEET NO.
80001-4179-04	2005	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION



TYPICAL EXISTING SECTION

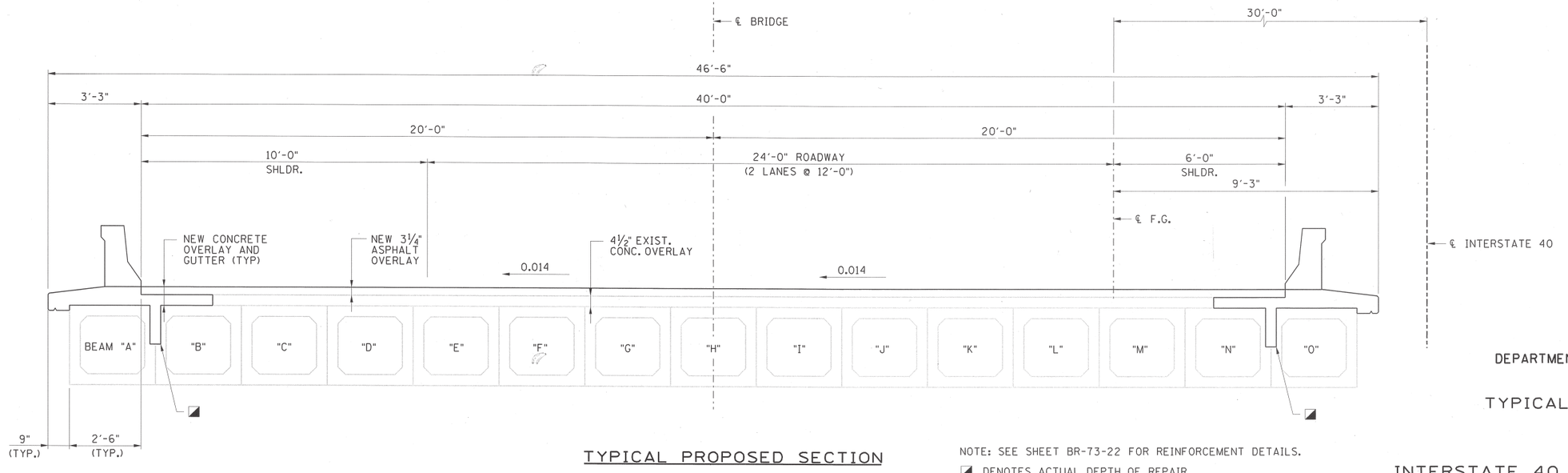
(LOOKING FORWARD ON SURVEY - W.B.L.)
(LOOKING BACK ON SURVEY - E.B.L.)

DENOTES AREAS OF REMOVAL

DENOTES ACTUAL DEPTH OF REPAIR MAY VARY. THE ENGINEER SHALL DESIGNATE AREAS OF REPAIR, IF ANY.

ALL VALUES SHOWN WERE OBTAINED FROM ORIGINAL PLANS. CONTRACTOR TO FIELD VERIFY AND MATCH EXISTING CROSS-SLOPE.

NOTE: FOR DETAIL OF MASTIC SEE SHEET 2C.



TYPICAL PROPOSED SECTION

(LOOKING FORWARD ON SURVEY - W.B.L.)
(LOOKING BACK ON SURVEY - E.B.L.)

NOTE: SEE SHEET BR-73-22 FOR REINFORCEMENT DETAILS.

DENOTES ACTUAL DEPTH OF REPAIR MAY VARY. THE ENGINEER SHALL DESIGNATE AREAS OF REPAIR, IF ANY.

TED A. KNIAZEWYCZ — REGISTERED ENGINEER — XVI — AGRICULTURE — COMMERCE — NO. 020131 — STATE OF TENNESSEE
5/13/05

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

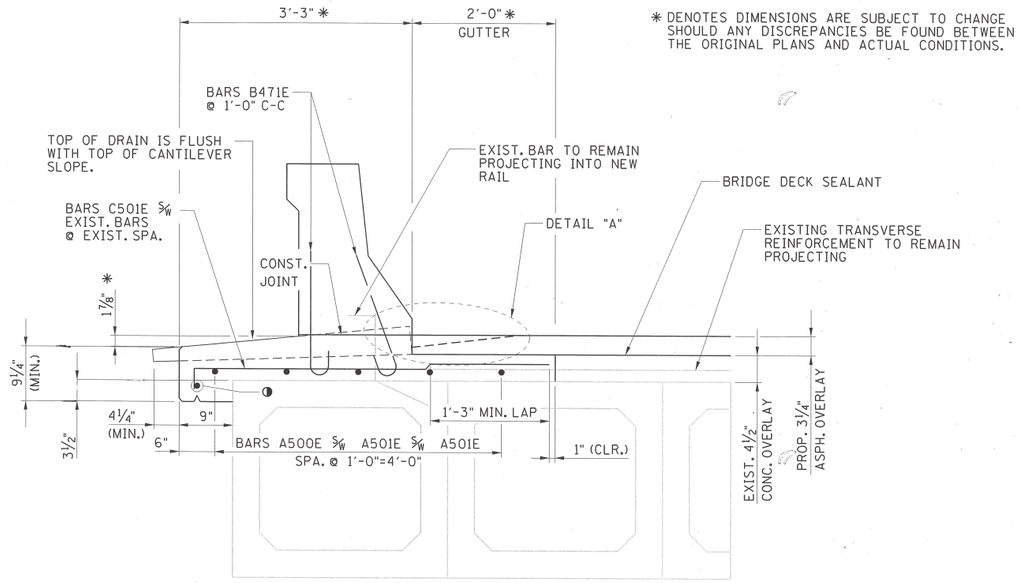
TYPICAL CROSS SECTION

INTERSTATE 40 OVER BOLLING BRANCH
BRIDGE NO. 80-10040-11.46 (E.B.L. & W.B.L.)
SMITH COUNTY
2005

DESIGNED BY	GSP	DATE	02/05
DRAWN BY	GSP	DATE	04/05
SUPERVISED BY	TED A. KNIAZEWYCZ	DATE	02/05
CHECKED BY	TED A. KNIAZEWYCZ	DATE	02/05

GRESHAM SMITH AND PARTNERS

BR-73-21

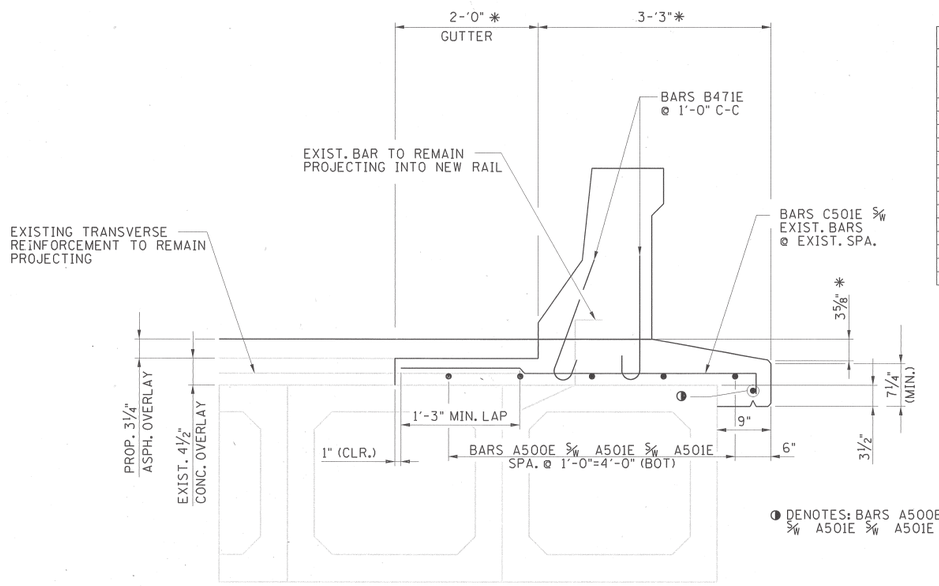


* DENOTES DIMENSIONS ARE SUBJECT TO CHANGE SHOULD ANY DISCREPANCIES BE FOUND BETWEEN THE ORIGINAL PLANS AND ACTUAL CONDITIONS.

◑ DENOTES BARS A500E 5/8" BARS A501E 5/8" BARS A501E

⚠ PART SECTION

(LOOKING FORWARD ON SURVEY-W.B.L.)
(LOOKING BACK ON SURVEY-E.B.L.)



◑ DENOTES: BARS A500E 5/8" A501E 5/8" A501E

PART SECTION

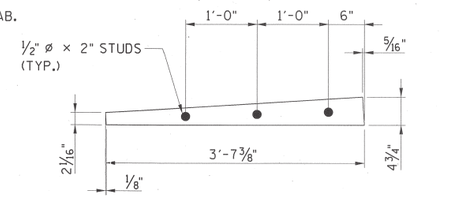
(LOOKING FORWARD ON SURVEY-W.B.L.)
(LOOKING BACK ON SURVEY-E.B.L.)

PROJECT NO.	YEAR	SHEET NO.
80001-4179-04	2005	

REVISIONS

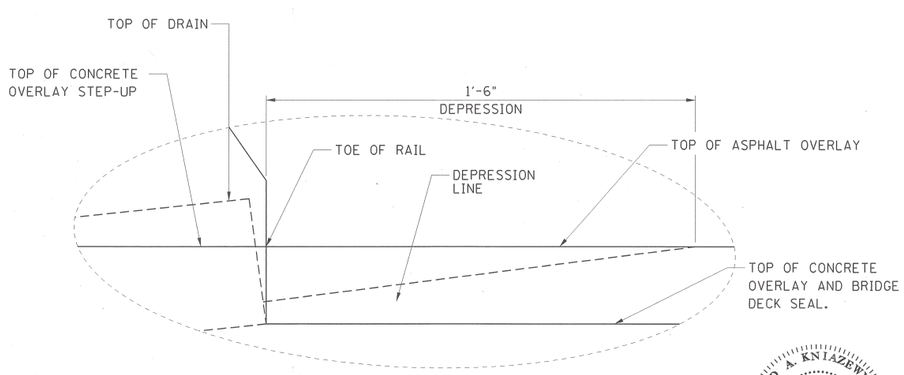
NO.	DATE	BY	BRIEF DESCRIPTION
1	7/8/2005	TAC	DIMENSION REMOVED

1. THE NEW CONCRETE PARAPET SHALL BE PER STANDARD STD-1-1.
2. THE CONTRACTOR SHALL USE DRAIN TYPE "ALTERNATE A" SHOWN ON STD-1-2 WITH MODIFIED DRAIN DIMENSIONS (SEE DRAIN DETAIL THIS SHEET). SEE SHEET BR-73-17 FOR DRAIN LOCATIONS.
3. EXISTING BARS PROJECTING FROM THE EXTERIOR BOX BEAM SHALL REMAIN (AND BE BENT IF NECESSARY) PROJECTING INTO THE NEW CONCRETE PARAPET.
4. A CONTINUOUS ¾" DRIP EDGE SHALL BE LOCATED ON THE BOTTOM SIDE OF THE OVERHANG AT 3" O.C. FROM THE OUTSIDE EDGE OF SLAB.
5. THE REINFORCING STEEL FOR THE NEW CONCRETE OVERLAY MUST MAINTAIN 2½" CLEAR SPACING FROM THE TOP OF SLAB, 1" CLR. FROM THE BOTTOM OF THE DRAINS AND 1" CLEAR SPACING FROM THE BOTTOM OF SLAB.
6. WHEN POURING SLAB, PROVISIONS SHALL BE MADE FOR SETTING THE REINFORCING STEEL FOR PARAPET. THE PARAPET SHALL NOT BE POURED UNTIL THE SLAB IS POURED AND CURED.
7. THE CONCRETE OVERLAY EXTENSION SHALL MAINTAIN THE EXISTING CROSS-SLOPE ON THE BRIDGE.
8. MINIMUM SPLICE LENGTH FOR #5 BARS IS 2'-0".
9. THE BRIDGE DECK SEAL SHALL BE TURNED UP THE SIDE OF THE NEW PARAPET AND SECURED WITH MASTIC. FOR DETAILS SEE ROADWAY SHEET 2C.



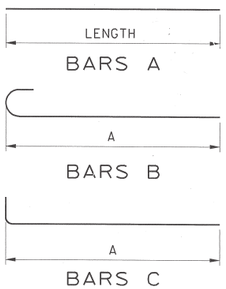
DECK DRAIN ELEVATION DETAIL

(12 REQUIRED)



DETAIL A

BILL OF STEEL								
BAR	LOCATION	SIZE	NO. REQ'D	BENDING DIMENSIONS A	B	C	D	LENGTH
B471E	SLAB	4	1016	2'-8"				3'-2"
A500E	SLAB	5	36					60'-0"
A501E	SLAB	5	72					35'-0"
C501E	SLAB	5	828	5'-0"				5'-4"



REINFORCING STEEL CODE

TYPE	SIZE	SERIES
A	5	06

NOTE: DIMENSIONS SHOWN ON THIS SHEET ARE OUTSIDE TO OUTSIDE OF BAR. STANDARD C.R.S.I. HOOK DETAILS SHALL APPLY, EXCEPT AS NOTED.
NOTE: THE SUFFIX E FOR BARS SO MARKED DENOTES EPOXY COATED REINFORCEMENT.

ESTIMATED QUANTITIES

604-03.01 CLASS "A" CONCRETE (BRIDGE DECK) C.Y.	604-10.18 REINFORCING STEEL (REPAIRS) LB.
54	11,674



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

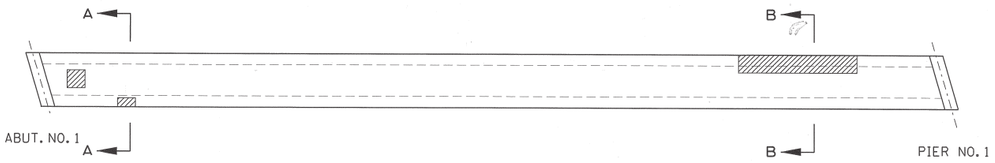
SUPERSTRUCTURE DETAILS

INTERSTATE 40 OVER BOLLING BRANCH
BRIDGE NO. 80-10040-11.46 (E.B.L. & W.B.L.)
SMITH COUNTY
2005

DESIGNED BY	GSP	DATE	02/05
DRAWN BY	GSP	DATE	04/05
SUPERVISED BY	TED A. KNIAZEWYCZ	DATE	02/05
CHECKED BY	TED A. KNIAZEWYCZ	DATE	02/05

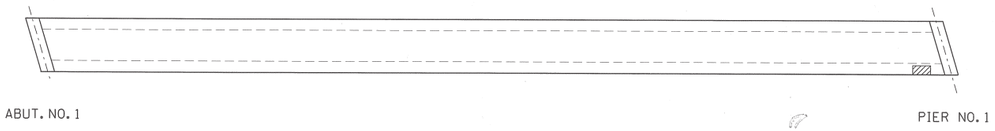
GS&P GRESHAM SMITH AND PARTNERS

BR-73-22



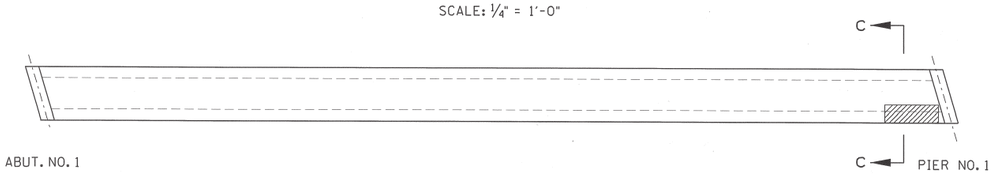
PLAN - BEAM B, SPAN 1

SCALE: 1/4" = 1'-0"



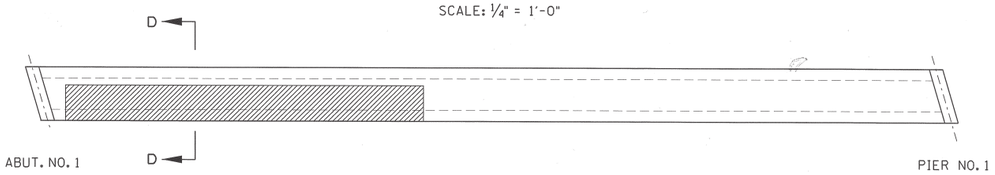
PLAN - BEAM D, SPAN 1

SCALE: 1/4" = 1'-0"



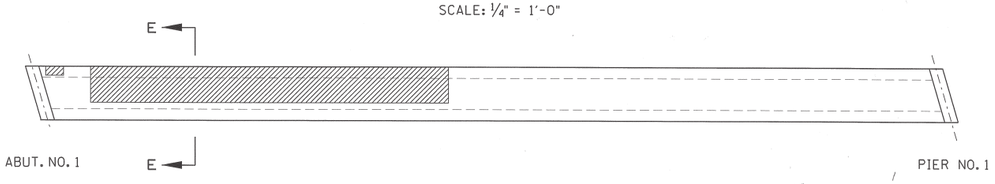
PLAN - BEAM F, SPAN 1

SCALE: 1/4" = 1'-0"



PLAN - BEAM G, SPAN 1

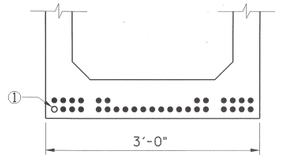
SCALE: 1/4" = 1'-0"



PLAN - BEAM H, SPAN 1

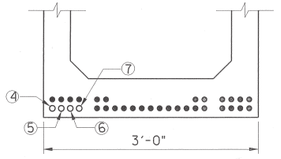
SCALE: 1/4" = 1'-0"

NOTE: ALL BEAM REPAIR AREAS SHOWN ARE LOCATED ON THE BOTTOM OF THE BEAM.



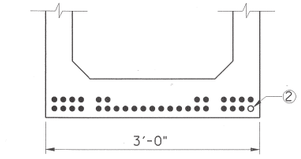
SECTION A-A

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



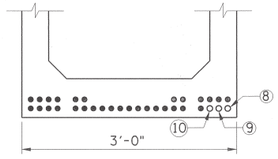
SECTION D-D

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



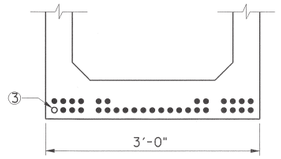
SECTION B-B

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



SECTION E-E

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



SECTION C-C

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"

TABLE ⚠

STRAND	L (ft.)	L_s (ft.)
1	12	8
2	5	1
3	8	4
4	28	24
5	28	24
6	28	24
7	28	24
8	28	24
9	28	24
10	28	24

⚠ LENGTHS SHOWN SHALL BE VERIFIED IN FIELD.

PROJECT NO.	YEAR	SHEET NO.
80001-4179-04	2005	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION

NOTE:

FOR TYPICAL SECTION SHOWING TYPICAL BEAM REPAIR, GENERAL NOTES FOR REPAIRING DAMAGED PRESTRESSED BEAMS, AND SINGLE STRAND SPLICE DETAIL, SEE SHEET BR-73-28.

THE ESTIMATED QUANTITIES REQUIRED FOR THIS PROJECT INCLUDE 45 SPLICE ASSEMBLIES, 220 L.F. OF 3/8" DIAMETER STRANDS AND 140 S.F. OF CONCRETE. THESE QUANTITIES ARE APPROXIMATE ONLY.

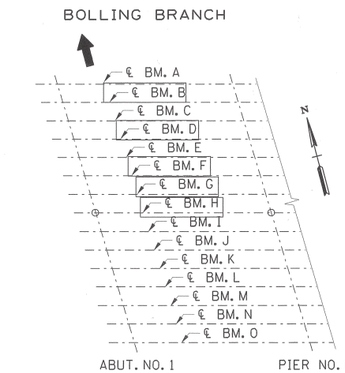
SPECIAL NOTE TO CONTRACTOR: PRESTRESSED CONCRETE BOX BEAM REPAIRS SHOWN ON THIS SHEET ARE APPROXIMATE AREAS AND LENGTHS ONLY, AND MAY BE INCREASED OR DECREASED AS DIRECTED BY THE ENGINEER. ADDITIONAL BEAMS WITHIN THE BRIDGE MAY BE DESIGNATED TO RECEIVE SIMILAR TYPE REPAIRS. THE ENGINEER FROM THE OFFICE OF INSPECTION AND REPAIR SHALL DESIGNATE ALL AREAS OF PRESTRESSED BEAM REPAIR. ANY ADDITIONAL AREAS SHALL BE PAID FOR AT THE UNIT PRICE BID FOR ITEMS 604-10.05 AND 604-10.54, (CONCRETE REPAIRS, S.F.)

LEGEND:

- ● DENOTES EXISTING STRANDS.
- ○ DENOTES COMPROMISED STRAND TO BE SPLICED AND RETENSIONED.
- ▨ DENOTES CONCRETE TO BE REMOVED AS REQUIRED.

ESTIMATED QUANTITIES - RIGHT LANES

ITEM	DESCRIPTION	UNIT	SPAN 1	SPAN 2	TOTAL
604-10.05	CONCRETE	S.F.	70	64	134
604-10.54	CONCRETE REPAIRS	S.F.	6	Ø	6



FRAMING PLAN

SPAN 1



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

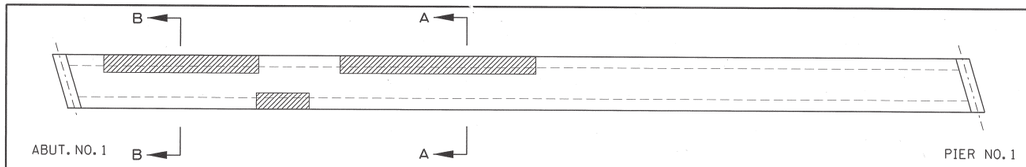
BEAM REPAIR DETAILS
(EAST BOUND LANES)

INTERSTATE 40 OVER BOLLING BRANCH
BRIDGE NO. 80-10040-11.46 (E.B.L. ℄W.B.L.)
SMITH COUNTY
2005

DESIGNED BY GSP DATE 02/05
DRAWN BY GARY YOUNG DATE 04/05
SUPERVISED BY TED A. KNIAZEWYCZ DATE 02/05
CHECKED BY TED A. KNIAZEWYCZ DATE 02/05

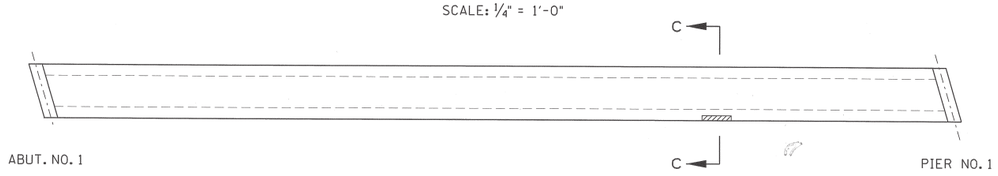
GRESHAM SMITH AND PARTNERS

BR-73-23



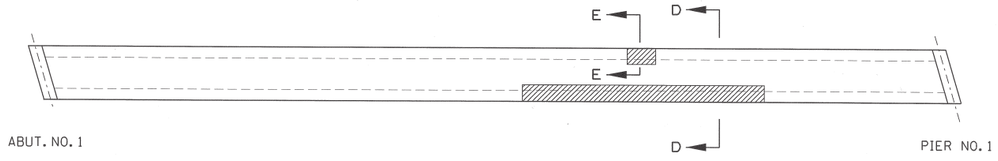
PLAN - BEAM I, SPAN 1

SCALE: 1/4" = 1'-0"



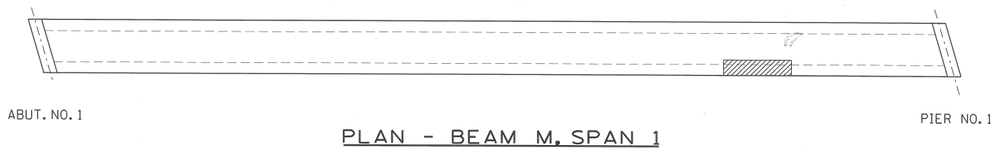
PLAN - BEAM K, SPAN 1

SCALE: 1/4" = 1'-0"



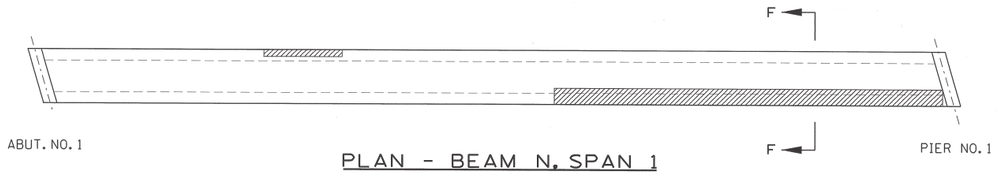
PLAN - BEAM L, SPAN 1

SCALE: 1/4" = 1'-0"



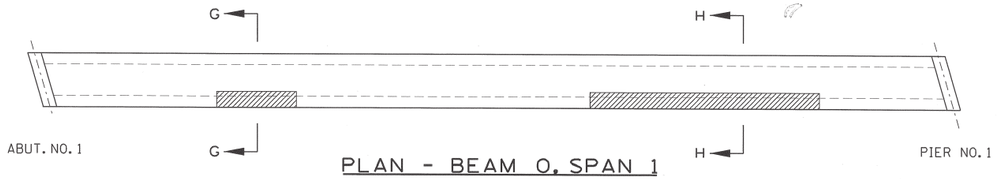
PLAN - BEAM M, SPAN 1

SCALE: 1/4" = 1'-0"



PLAN - BEAM N, SPAN 1

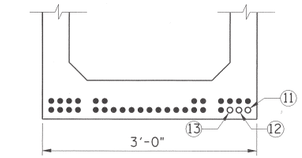
SCALE: 1/4" = 1'-0"



PLAN - BEAM O, SPAN 1

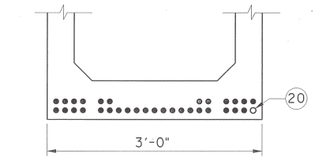
SCALE: 1/4" = 1'-0"

NOTE: ALL BEAM REPAIR AREAS SHOWN ARE LOCATED ON THE BOTTOM OF THE BEAM.



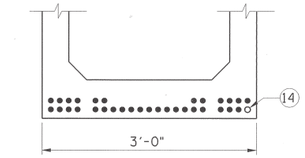
SECTION A-A

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



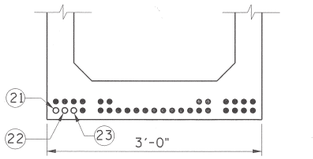
SECTION E-E

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



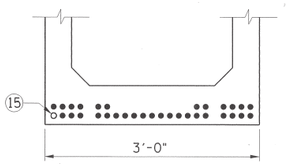
SECTION B-B

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



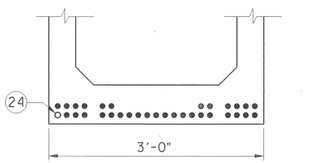
SECTION F-F

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



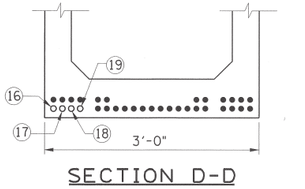
SECTION C-C

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



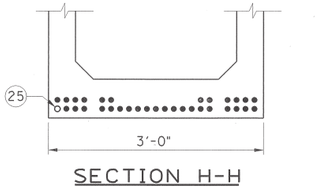
SECTION G-G

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



SECTION D-D

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"

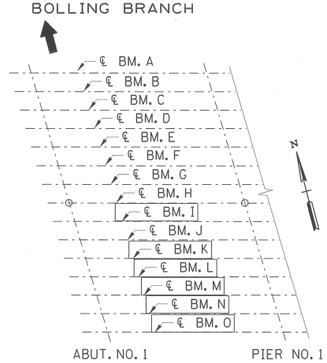


SECTION H-H

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"

LEGEND:

- ● DENOTES EXISTING STRANDS.
- ○ DENOTES COMPROMISED STRAND TO BE SPLICED AND RE-TENSIONED.
- ▨ DENOTES CONCRETE TO BE REMOVED AS REQUIRED.



FRAMING PLAN

SPAN 1

TABLE ⚠

STRAND	L (ft.)	Ls(ft.)
11	14	10
12	14	10
13	14	10
14	11	7
15	5	1
16	14	10
17	14	10
18	14	10
19	14	10
20	5	1
21	28	24
22	28	24
23	28	24
24	17	13
25	9	5

⚠ LENGTHS SHOWN SHALL BE VERIFIED IN FIELD.

NOTE:

SEE SHEET BR-73-23 FOR NOTES AND ESTIMATED QUANTITIES.

PROJECT NO.	YEAR	SHEET NO.
80001-4179-04	2005	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION

TED A. KNIAZEWYCZ — REGISTERED ENGINEER — NO. 022751 — STATE OF TENNESSEE
5/13/05

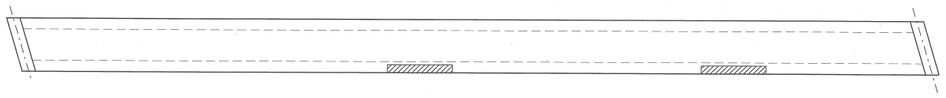
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

BEAM REPAIR DETAILS
(EAST BOUND LANES)

INTERSTATE 40 OVER BOLLING BRANCH
BRIDGE NO. 80-10040-11.46 (E.B.L. & W.B.L.)
SMITH COUNTY
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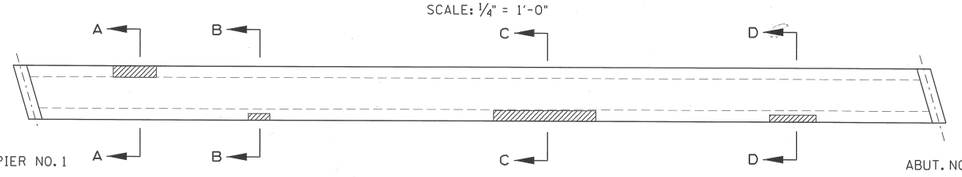
GS&P GRESHAM SMITH AND PARTNERS



PIER NO. 1 ABUT. NO. 2

PLAN - BEAM A, SPAN 2

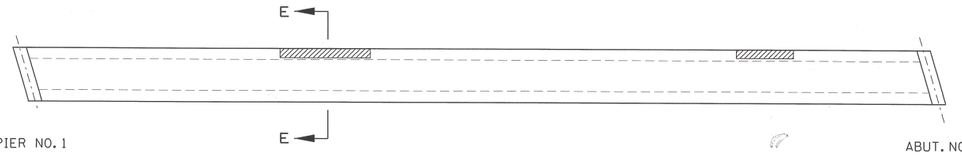
SCALE: 1/4" = 1'-0"



PIER NO. 1 ABUT. NO. 2

PLAN - BEAM C, SPAN 2

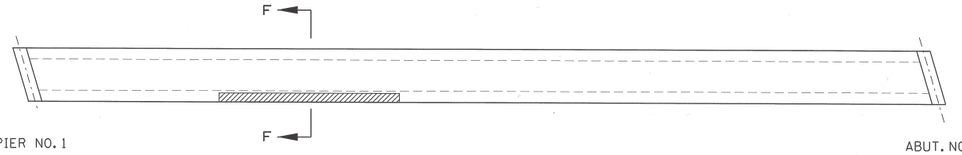
SCALE: 1/4" = 1'-0"



PIER NO. 1 ABUT. NO. 2

PLAN - BEAM D, SPAN 2

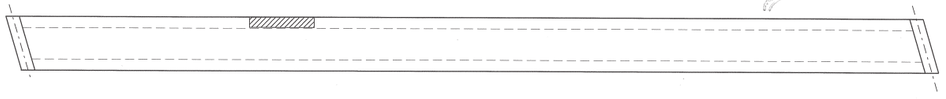
SCALE: 1/4" = 1'-0"



PIER NO. 1 ABUT. NO. 2

PLAN - BEAM G, SPAN 2

SCALE: 1/4" = 1'-0"

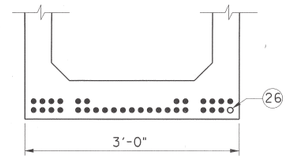


PIER NO. 1 ABUT. NO. 2

PLAN - BEAM H, SPAN 2

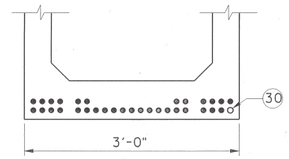
SCALE: 1/4" = 1'-0"

NOTE: ALL BEAM REPAIR AREAS SHOWN ARE LOCATED ON THE BOTTOM OF THE BEAM.



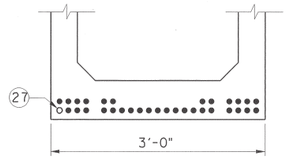
SECTION A-A

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



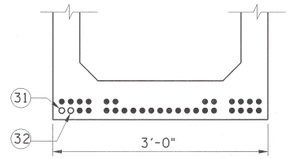
SECTION E-E

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



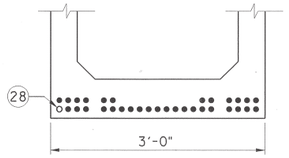
SECTION B-B

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



SECTION F-F

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



SECTION C-C

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"

SECTION D-D

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"

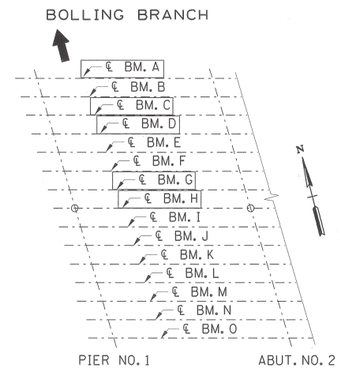
TABLE ⚠

STRAND	L (ft.)	Ls (ft.)
26	6	2
27	10	6
28	5	1
29	6	2
30	8	4
31	11	7
32	11	7

⚠ LENGTHS SHOWN SHALL BE VERIFIED IN FIELD.

LEGEND:

- ● DENOTES EXISTING STRANDS.
- ○ DENOTES COMPROMISED STRAND TO BE SPLICED AND RE-TENSIONED.
- ▨ DENOTES CONCRETE TO BE REMOVED AS REQUIRED.



FRAMING PLAN

SPAN 2

NOTE:

SEE SHEET BR-73-23 FOR NOTES AND ESTIMATED QUANTITIES.

PROJECT NO.	YEAR	SHEET NO.
80001-4179-04	2005	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

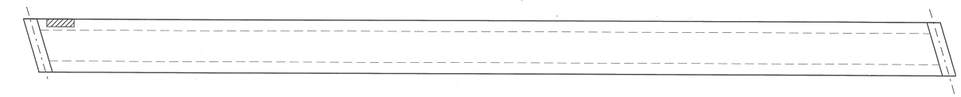
BEAM REPAIR DETAILS (EAST BOUND LANES)

INTERSTATE 40 OVER BOLLING BRANCH
BRIDGE NO. 80-10040-11.46 (E.B.L. & W.B.L.)
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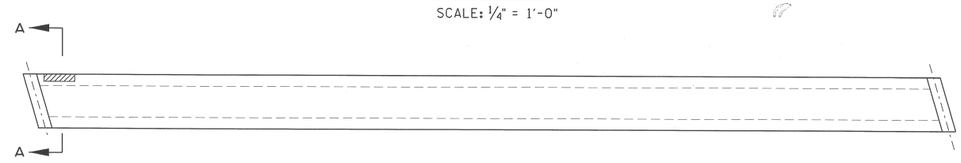
GRESHAM SMITH AND PARTNERS

BR-73-25



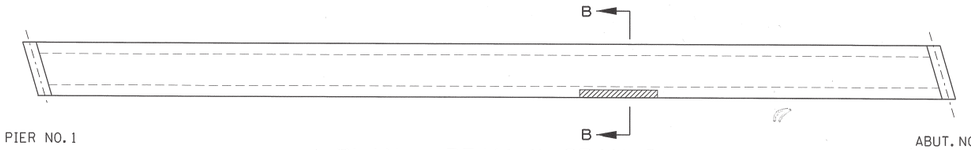
PLAN - BEAM I, SPAN 2

SCALE: 1/4" = 1'-0"



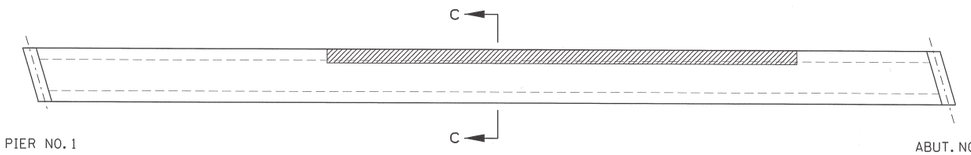
PLAN - BEAM J, SPAN 2

SCALE: 1/4" = 1'-0"



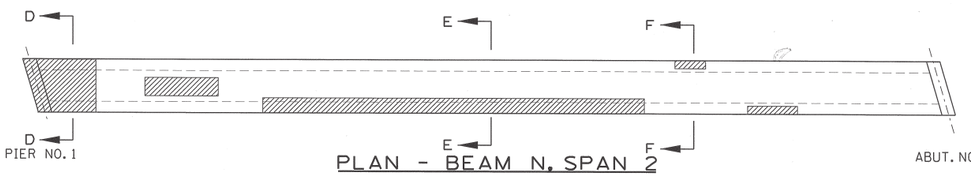
PLAN - BEAM K, SPAN 2

SCALE: 1/4" = 1'-0"



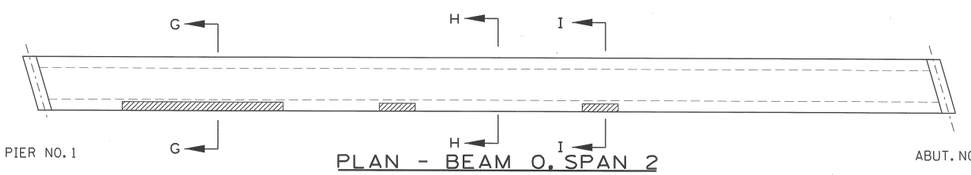
PLAN - BEAM L, SPAN 2

SCALE: 1/4" = 1'-0"



PLAN - BEAM N, SPAN 2

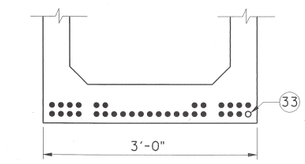
SCALE: 1/4" = 1'-0"



PLAN - BEAM O, SPAN 2

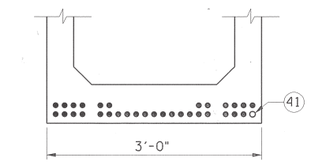
SCALE: 1/4" = 1'-0"

NOTE: ALL BEAM REPAIR AREAS SHOWN ARE LOCATED ON THE BOTTOM OF THE BEAM.



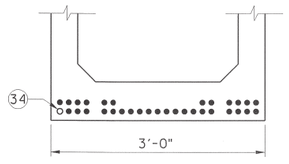
SECTION A-A

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



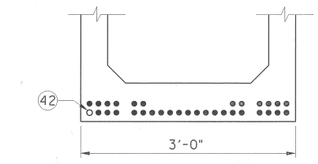
SECTION F-F

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



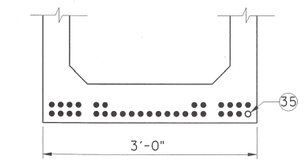
SECTION B-B

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



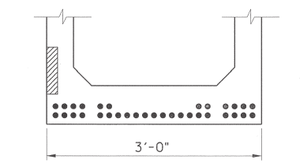
SECTION G-G

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



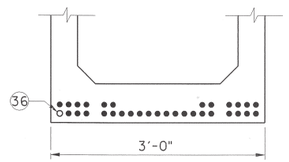
SECTION C-C

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



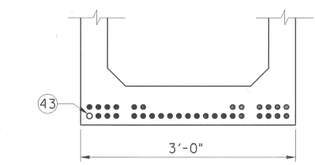
SECTION H-H

(SHOWING REPAIR ON SIDE OF BEAM)
SCALE: 1" = 1'-0"



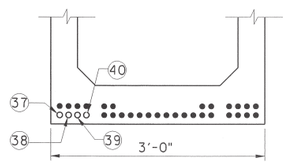
SECTION D-D

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



SECTION I-I

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"

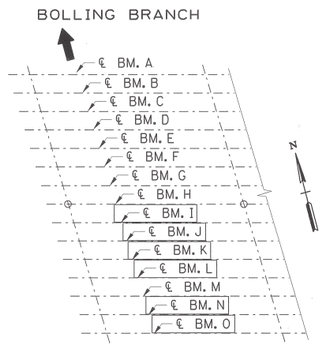


SECTION E-E

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"

LEGEND:

- ● DENOTES EXISTING STRANDS.
- ○ DENOTES COMPROMISED STRAND TO BE SPLICED AND RE-TENSIONED.
- ▨ DENOTES CONCRETE TO BE REMOVED AS REQUIRED.



FRAMING PLAN

SPAN 2

TABLE ⚠

STRAND	L (ft.)	Ls (ft.)
33	5	1
34	9	5
35	28	24
36	5	1
37	22	18
38	22	18
39	22	18
40	22	18
41	9	5
42	5	1
43	12	8

⚠ LENGTHS SHOWN SHALL BE VERIFIED IN FIELD.

PROJECT NO.	YEAR	SHEET NO.
80001-4179-04	2005	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION

NOTE:

SEE SHEET BR-73-23 FOR NOTES AND ESTIMATED QUANTITIES.



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

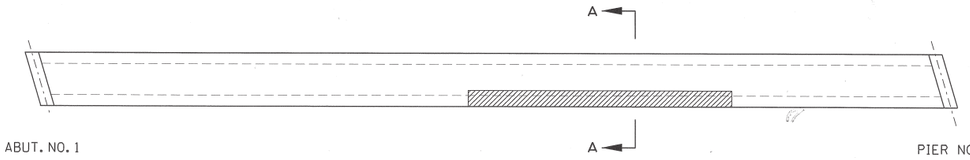
BEAM REPAIR DETAILS
(EAST BOUND LANES)

INTERSTATE 40 OVER BOLLING BRANCH
BRIDGE NO. 80-I0040-11.46 (E.B.L. ℄ W.B.L.)
SMITH COUNTY
2005

DESIGNED BY	GSP	DATE	02/05
DRAWN BY	GARY YOUNG	DATE	04/05
SUPERVISED BY	TED A. KNIAZEWYCZ	DATE	02/05
CHECKED BY	TED A. KNIAZEWYCZ	DATE	02/05

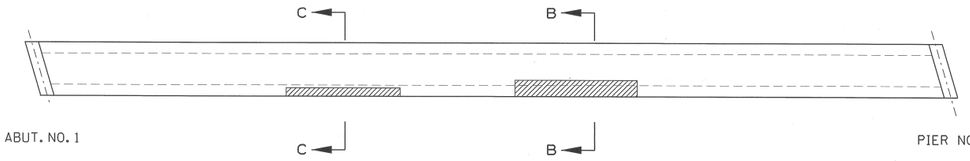
GRESHAM SMITH AND PARTNERS

BR-73-26



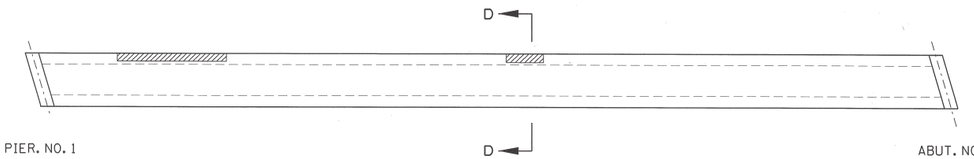
PLAN - BEAM B, SPAN 1

SCALE: 1/4" = 1'-0"



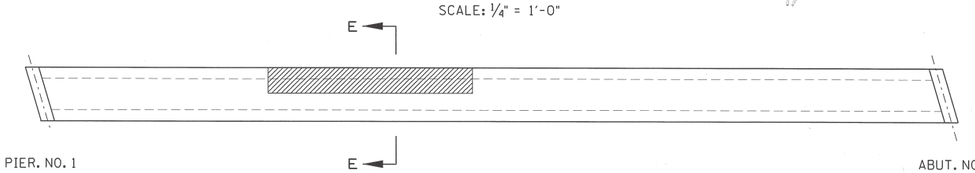
PLAN - BEAM D, SPAN 1

SCALE: 1/4" = 1'-0"



PLAN - BEAM M, SPAN 2

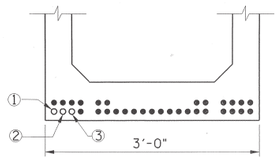
SCALE: 1/4" = 1'-0"



PLAN - BEAM O, SPAN 2

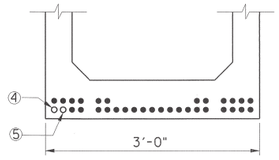
SCALE: 1/4" = 1'-0"

NOTE: ALL BEAM REPAIR AREAS SHOWN ARE LOCATED ON THE BOTTOM OF THE BEAM.



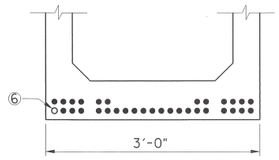
SECTION A-A

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



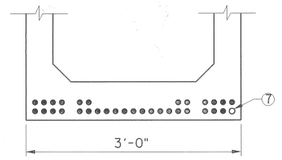
SECTION B-B

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



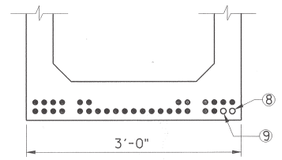
SECTION C-C

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



SECTION D-D

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



SECTION E-E

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"

LEGEND:

- ● DENOTES EXISTING STRANDS.
- ○ DENOTES STRAND TO BE SPLICED AND RE-TENSIONED.
- ▨ DENOTES CONCRETE TO BE REMOVED AS REQUIRED.

TABLE △

STRAND	L (ft.)	Ls(ft.)
1	16	12
2	16	12
3	16	12
4	9	5
5	9	5
6	9	5
7	5	1
8	11	7
9	11	7

△ LENGTHS SHOWN SHALL BE VERIFIED IN FIELD.

PROJECT NO.	YEAR	SHEET NO.
80001-4179-04	2005	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION

NOTE:

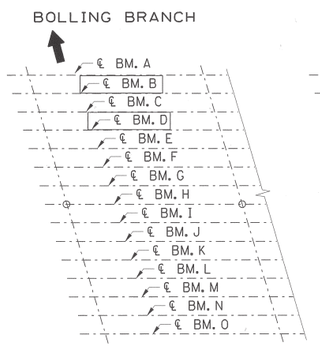
FOR TYPICAL SECTION SHOWING TYPICAL BEAM REPAIR, GENERAL NOTES FOR REPAIRING DAMAGED PRESTRESSED BEAMS, AND SINGLE STRAND SPLICE DETAIL, SEE SHEET BR-73-28.

THE ESTIMATED QUANTITIES REQUIRED FOR THIS PROJECT INCLUDE 9 SPLICE ASSEMBLIES, 105 L.F. OF 3/8" DIAMETER STRANDS AND 20 S.F. OF CONCRETE. THESE QUANTITIES ARE APPROXIMATE ONLY.

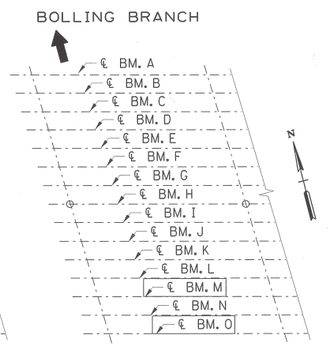
SPECIAL NOTE TO CONTRACTOR: PRESTRESSED CONCRETE BOX BEAM REPAIRS SHOWN ON THIS SHEET ARE APPROXIMATE AREAS AND LENGTHS ONLY, AND MAY BE INCREASED OR DECREASED AS DIRECTED BY THE ENGINEER. ADDITIONAL BEAMS WITHIN THE BRIDGE MAY BE DESIGNATED TO RECEIVE SIMILAR TYPE REPAIRS. THE ENGINEER FROM THE OFFICE OF INSPECTION AND REPAIR SHALL DESIGNATE ALL AREAS OF PRESTRESSED BEAM REPAIR. ANY ADDITIONAL AREAS SHALL BE PAID FOR AT THE UNIT PRICE BID FOR ITEMS 604-10.05 AND 604-10.54, (CONCRETE REPAIRS, S.F.)

ESTIMATED QUANTITIES - LEFT LANES

ITEM	DESCRIPTION	UNIT	SPAN 1	SPAN 2	TOTAL
604-10.05	CONCRETE	S.F.	19	1	19
604-10.54	CONCRETE REPAIRS	S.F.	Ø	11	12



FRAMING PLAN
SPAN 1



FRAMING PLAN
SPAN 2



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

BEAM REPAIR DETAILS
(WEST BOUND LANES)

INTERSTATE 40 OVER BOLLING BRANCH
BRIDGE NO. 80-10040-11.46 (E.B.L. & W.B.L.)
SMITH COUNTY
2005

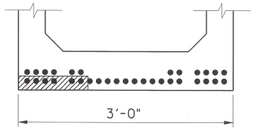
BR-73-27

DESIGNED BY	GSP	DATE	02/05
DRAWN BY	GSP	DATE	04/05
SUPERVISED BY	TED A. KNIAZEWYCZ	DATE	02/05
CHECKED BY	TED A. KNIAZEWYCZ	DATE	02/05

GRESHAM SMITH AND PARTNERS

GENERAL NOTES FOR REPAIRING DAMAGED PRESTRESSED BEAMS

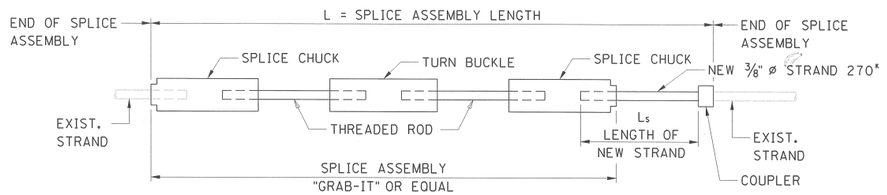
1. SAW CUT CONCRETE ½" TO OBTAIN SQUARE AREAS AND REMOVE PORTIONS OF THE PRESTRESSED BEAM AS SHOWN ON THESE PLANS TO INSURE THAT SOUND CONCRETE IS REACHED IN ALL AREAS.
2. ASSEMBLE SPLICE, LOCATING SPLICE SLEEVES AND STRAND GRIPS TO ALLOW SEATING OF THE STRAND GRIPS AND SUFFICIENT THREAD LENGTHS IN THE SPLICE SLEEVES.
3. STRAND SPLICE ASSEMBLIES SHALL BE INSTALLED AND TORQUED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND DETAILS ON THIS SHEET. THE STRAND SPLICE ASSEMBLY SHALL BE A "GRAB-IT" CABLE SPLICE OR EQUIVALENT. "GRAB-IT" CAN BE OBTAINED FROM PRESTRESSED SUPPLY, INC. AT 1-800-328-8036. TORQUE LUBRICATED SPLICE SLEEVES TO APPROXIMATELY 14,200 POUNDS. THE STRAND GRIPS MUST BE PREVENTED FROM ROTATING DURING TORQUING. SEE SINGLE SPLICE STRAND DETAIL ON THIS SHEET. SEE SECTION FOR LOCATION OF STRANDS TO BE REPAIRED.
4. FORM AND POUR REPAIR AREA TO ORIGINAL BEAM LINES USING F'C = 5000 PSI CONCRETE. AGGREGATE USED SHALL BE SIZE NO. 6 MAXIMUM. THE FORMS MAY BE STRIPPED ONLY AFTER CONCRETE HAS OBTAINED A COMPRESSIVE STRENGTH OF NOT LESS THAN 2500 PSI.
5. ASTM GRADE 270K, ⅜" DIAMETER 7-WIRE STRESS RELIEVED STRANDS ARE TO BE USED FOR SPLICING EXISTING STRANDS. CONTRACTOR SHALL VERIFY THE SIZE OF THE EXISTING STRANDS PRIOR TO ORDERING. THE SIZE OF THE NEW STRANDS SHALL MATCH THE STRANDS BEING SPLICED.
6. APPROVAL OF MATERIALS: NO FABRICATION SHALL BE STARTED UNTIL THE MATERIALS INVOLVED HAVE BEEN APPROVED BY THE TENNESSEE DEPARTMENT OF TRANSPORTATION, DIVISION OF MATERIALS AND TESTS.



TYPICAL SECTION

(SHOWING TYPICAL BEAM REPAIR)

NOTE: FOR REPAIR LOCATIONS, SEE SHEETS BR-73-23 THRU BR-73-28



SINGLE STRAND SPLICE DETAIL

THE COST OF SPLICE ASSEMBLIES, INCLUDING TURN BUCKLES, SPLICE CHUCKS, COUPLER, NEW STRANDS AND INSTALLATION SHALL BE INCLUDED UNDER ITEM 604-10.69, PRESTRESSED STRAND SPLICE (EACH).

NOTES FOR EPOXY INJECTION

UNLESS OTHERWISE NOTED, THE INTENT OF THIS SPECIFICATION IS FOR DESIGNATED CRACKS TO BE INJECTED THEIR FULL LENGTH AND DEPTH.

DESIGNATED CRACKS SHALL BE INJECTED WITH AN APPROVED EPOXY RESIN ADHESIVE FILLING ALL VOIDS FOR THE CRACK DEPTH OR THICKNESS OF THE MEMBER. THE EPOXY RESIN ADHESIVE SHALL BE ON THE CURRENT QUALIFIED PRODUCTS LIST MAINTAINED BY THE DIVISION OF MATERIALS AND TEST. ALL CRACKS SHALL BE INJECTED USING AN ADHESIVE SUITABLE FOR THE FIELD CONDITIONS (CRACK WIDTH, TEMPERATURE, HUMIDITY, ETC.) RECOMMENDED BY THE ADHESIVE MANUFACTURER AS SHOWN ON MATERIAL DATA SHEETS. FOLLOWING INJECTION, ALL INJECTION PORTS AND CAPPING MATERIAL SHALL BE REMOVED FROM EXPOSED SURFACES LEAVING THE SURFACE SMOOTH AND FLUSH WITH THE SURROUNDING CONCRETE SURFACES.

THE CONTRACTOR SHALL HAVE SUFFICIENT EXPERIENCE AND TRAINING TO PERFORM THE EPOXY INJECTION IN ACCORDANCE WITH THESE PLANS. PRIOR TO PERFORMING ANY WORK, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER A WRITTEN PROCEDURE FOR PERFORMING THE EPOXY INJECTION. THE PROCEDURE SHALL DESCRIBE IN DETAIL HOW THE WORK WILL BE PERFORMED. THE PROCEDURE SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING INFORMATION.

1) DESCRIPTION OF EQUIPMENT.
   THE INJECTION EQUIPMENT SHALL BE OF THE TYPE THAT MIXES ADHESIVE COMPONENTS AT THE INJECTION HEAD.

   THE INJECTION EQUIPMENT SHALL BE CAPABLE OF DISCHARGING MIXED ADHESIVE AT ANY PRESSURE UP TO 300 PSI. THE INJECTION EQUIPMENT SHALL BE EQUIPPED WITH GAUGES WHICH CAN MEASURE THE INJECTION PRESSURE AND VOLUME.
2) EQUIPMENT CALIBRATION PROCEDURES AND SCHEDULE.
3) MATERIALS TO BE USED (INCLUDING MANUFACTURER DATA SHEETS)
   CAPPING MATERIAL.

   EPOXY ADHESIVE (TYPE TO BE APPROPRIATE FOR CRACK SIZES TO BE INJECTED).
4) PORT SPACING
   PORT SPACING SHALL NOT BE LESS THAN THE THICKNESS OF THE CONCRETE IN THAT LOCATION.
5) INJECTION SEQUENCE
   INJECTION SHALL PROCEED FROM LOWER END OF CRACK ALONG ADJACENT PARTS.

   SKIPPING OF PORTS DURING INJECTION SHALL NOT BE ALLOWED.

THE CONTRACTOR SHALL HAVE THE MANUFACTURER'S INSTRUCTIONS FOR PROPORTIONING AND MIXING AVAILABLE AT THE JOB SITE AT ALL TIMES AND SHALL ENSURE THAT THE EQUIPMENT IS SUPPLYING THE MIXED ADHESIVE IN THE CORRECT PROPORTIONS.

TO ENSURE PROPER MIXING AND PROPORTIONING, SAMPLES SHALL BE TAKEN FROM THE INJECTOR HEAD. SAMPLES SHALL BE TAKEN AT THE START OF EACH WORKDAY AND EACH TIME THE ADHESIVE RESERVOIRS ARE REFILLED. THE SAMPLES SHALL BE IN A TEST CUP. THE SAMPLE SHALL BE MONITORED TO ENSURE THAT THE CURE TIME IS IN COMPLIANCE WITH THE MANUFACTURER'S DATA SHEETS. IF THE SAMPLES DO NOT CURE IN THE SPECIFIED TIME THEN THE EQUIPMENT USED TO PRODUCE THE SAMPLE SHALL NOT BE USED UNTIL THE PROBLEM IS CORRECTED.

CORE SAMPLES SHALL BE TAKEN AS VERIFICATION OF THE QUALITY OF WORK. THE CONTRACTOR SHALL TAKE ONE (1) ONE (1) INCH DIAMETER (FULL DEPTH OF CONCRETE AT LOCATION CORED) CORE SAMPLE STARTING WITH THE FIRST REPAIR LOCATION THEN EVERY 3RD REPAIR LOCATION AFTERWARDS. WORK SHALL NOT PROCEED UNTIL THE CORE SAMPLE IS TAKEN AND ACCEPTED. ALL CORE SAMPLES AND HOLES SHALL BE INDEXED FOR FUTURE REFERENCE. THE ENGINEER SHALL DESIGNATE ALL LOCATIONS TO BE CORED. IF ANY CORES SHOW UNACCEPTABLE RESULTS, ALL WORK SHALL BE STOPPED UNTIL THE CONTRACTOR SUBMITS A PROPOSAL FOR CORRECTING UNACCEPTABLE WORK.

THE INITIAL CORE WILL ALSO SERVE TO QUALIFY THE FOREMAN FOR THIS WORK. IF AT ANY TIME A NEW FOREMAN IS USED, HE SHALL BE QUALIFIED WITH A CORE SAMPLE.

THE CONTRACTOR, AT HIS EXPENSE, SHALL REPAIR ALL CORE HOLES WITH AN APPROVED CEMENTITIOUS PATCHING MATERIAL.

CORE SAMPLES SHALL BE VISUALLY INSPECTED TO CONFIRM THAT CRACKS ARE COMPLETELY FILLED WITH ADHESIVE. ANY CORE HAVING LESS THAN 95% OF THE CRACK FILLED WITH ADHESIVE SHALL BE CONSIDERED UNACCEPTABLE AND BE REJECTED.

CORE SAMPLES SHALL BE TESTED FOR BOND STRENGTH. SAMPLES MAY BE FRACTURED BY HAMMER BLOW TO CRACK AREA OR THROWN AT A HARD SURFACE. IF ADHESIVE FAILURE OCCURS BEFORE CONCRETE FAILURE, THE CORE SHALL BE CONSIDERED UNACCEPTABLE AND REJECTED.

PAYMENT FOR EPOXY INJECTION CRACK REPAIR SHALL BE MADE UNDER ITEM NUMBERS
604-10.62, EPOXY INJECTION REPAIR (COMPLETE AND IN PLACE), LF AND
604-10.58, EPOXY INJECTION (INJECTION), GAL

PRICE BID FOR ITEM NUMBER 604-10.62, EPOXY INJECTION REPAIR (COMPLETE AND IN PLACE), LF, SHALL INCLUDE COST OF ALL LABOR AND MATERIALS (EXCEPT ADHESIVE) FOR GRINDING FOR SURFACE PREPARATION, CRACK PREPARATION, CAPPING, INJECTION OF ADHESIVE, ALL SAMPLING AND TESTING, REMOVAL OF CAPPING MATERIAL AND PORTS, AND OTHER INCIDENTALS. CRACKS SHALL BE MEASURED FOR PAYMENT ALONG THE LENGTH OF THE VISIBLE SURFACE CRACK.

PRICE BID FOR ITEM NUMBER 604-10.58, EPOXY INJECTION (INJECTION), GAL, SHALL INCLUDE COST FOR ADHESIVE MATERIAL INJECTED ONLY.

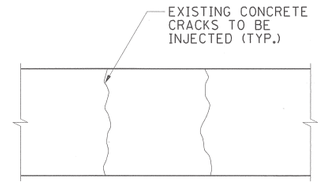
NO PAYMENT SHALL BE MADE FOR REWORK DEEMED NECESSARY BY FAILURE OF ADHESIVE SAMPLES OR CORE SAMPLES.

ALL WORK INCLUDING SAMPLING AND TESTING SHALL BE IN THE PRESENCE OF THE ENGINEER OR HIS REPRESENTATIVE OR CONTRACT INSPECTORS. ANY WORK DONE WITHOUT INSPECTORS PRESENT SHALL NOT BE PAID FOR. THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH WEEKLY SCHEDULES OF WORK TO BE PERFORMED. SCHEDULES SHALL BE SUBMITTED AT LEAST THREE (3) DAYS IN ADVANCE OF WORK TO BE DONE. THE ENGINEER SHALL BE NOTIFIED OF ANY CHANGE IN THE SCHEDULE A MINIMUM OF TWENTY-FOUR (24) HOURS IN ADVANCE OF CHANGE.

PROJECT NO.	YEAR	SHEET NO.
80001-4179-04	2005	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION



PLAN

(SHOWING TYPICAL CRACKS ON BOTTOM OF BEAM)

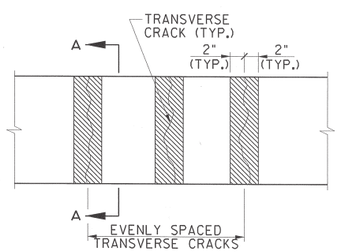
TED A. KNIAZEWYCZ
REGISTERED ENGINEER
No. 020757
STATE OF TENNESSEE
5/10/05

NOTE

SEE SHEET BR-73-29 FOR SPALLED CONCRETE REPAIR.

NOTES FOR CONCRETE REPAIR AT STIRRUPS

IN AREAS WHERE TRANSVERSE CRACKS IN BOTTOM OF BEAM ARE EVENLY SPACED AT APPROXIMATELY 16" THE POTENTIAL FOR CORROSION OF THE STIRRUP STEEL EXISTS. IN THESE AREAS, THE CONCRETE SHALL BE REMOVED AS SHOWN. SAID AREAS SHALL BE REPAIRED UNDER ITEM 604-10.05 CONCRETE, S.F.

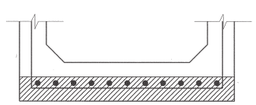


PLAN

(SHOWING CRACKS ON BOTTOM OF BEAM)

LEGEND

INDICATES CONCRETE REMOVAL AREA



SECTION A-A

DESIGNED BY	GSP	DATE	02/05
DRAWN BY	GSP	DATE	04/05
SUPERVISED BY	TED A. KNIAZEWYCZ	DATE	02/05
CHECKED BY	TED A. KNIAZEWYCZ	DATE	02/05

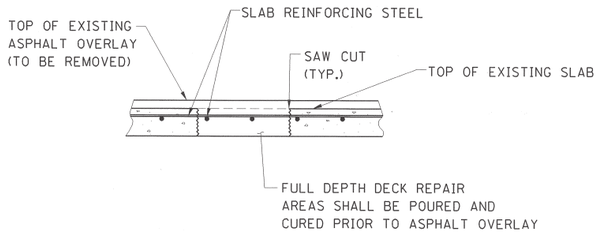
GRESHAM SMITH AND PARTNERS

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

BEAM REPAIR DETAILS

INTERSTATE 40 OVER BOLLING BRANCH
BRIDGE NO. 80-I0040-11.46 (E.B.L. & W.B.L.)
SMITH COUNTY
2005

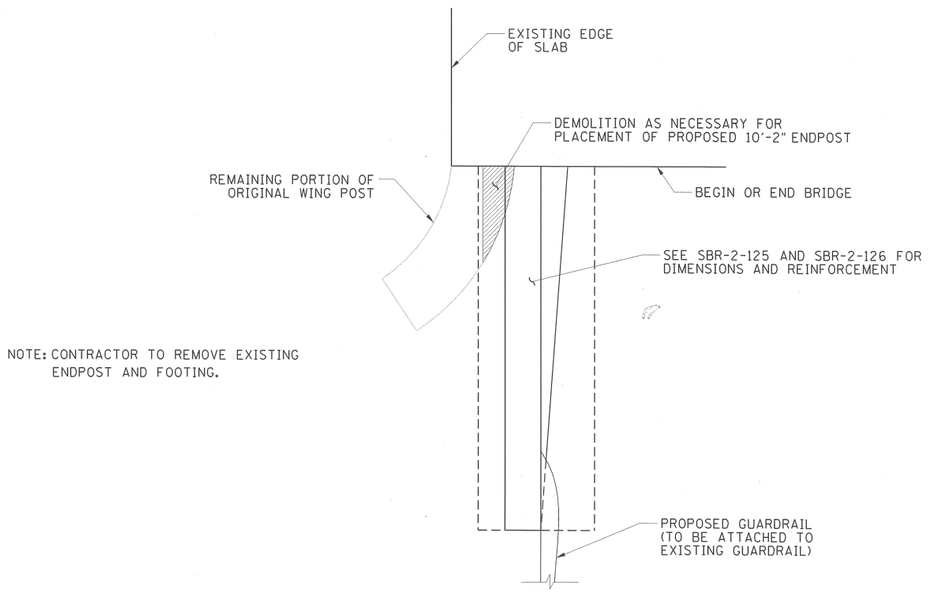
BR-73-28



BRIDGE DECK REPAIR DETAIL
(SHOWING FULL DEPTH REPAIR)

NOTES

1. AREAS OF FULL DEPTH REPAIR TO BE MARKED BY THE ENGINEER AFTER THE EXISTING ASPHALT OVERLAY IS REMOVED.
2. CONCRETE FOR FULL DEPTH REPAIRS SHALL BE HIGH EARLY STRENGTH (18 HOUR). FOR HIGH EARLY STRENGTH CONCRETE NOTES, SEE DRAWING BR-73-19.



TYPICAL PLAN VIEW FOR 10'-2" ENDPOST

DESIGNED BY	GSP	DATE	02/05
DRAWN BY	GSP	DATE	04/05
SUPERVISED BY	TED A. KNIAZEWYCZ	DATE	02/05
CHECKED BY	TED A. KNIAZEWYCZ	DATE	02/05

GRESHAM SMITH AND PARTNERS

CONCRETE REPAIRS SCHEDULE
(SUBSTRUCTURE)

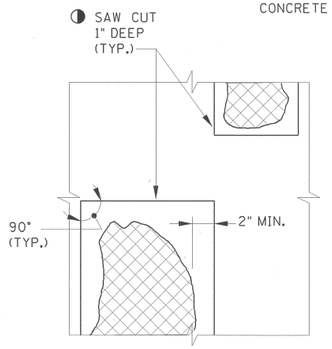
LOCATION OF REPAIR	ITEM NO. 604-10.05 CONCRETE (SF)	ITEM NO. 604-10.54 CONCRETE (SF)
BENT NO. 1 (RL)	5	102
BENT NO. 1 (LL)	3	2
ABUTMENT NO. 1 (RL)	4	2
ABUTMENT NO. 1 (LL)	5	2
ABUTMENT NO. 2 (RL)	2	2
ABUTMENT NO. 2 (LL)	3	2
TOTAL	22	112

NOTE: SEE DRAWING NO.'S BR-73-23 AND BR-72-27 FOR CONCRETE REPAIR QUANTITIES TO SUPERSTRUCTURE.

PROJECT NO.	YEAR	SHEET NO.
80001-4179-04	2005	

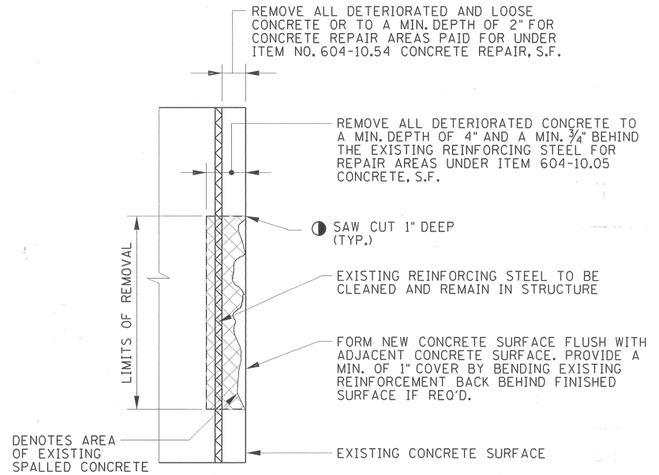
REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION



◑ SAW CUT EXISTING CONCRETE 1" DEEP SO AS TO OBTAIN A RECTANGULAR AREA, ALL EXISTING REINFORCING SHALL BE CAREFULLY PRESERVED AND BLAST CLEANED.

DENOTES: AREA OF EXISTING SPALLED CONCRETE



SPALLED CONCRETE REPAIR DETAIL

NOTES:

COST OF SAW CUTTING, EXISTING CONCRETE REMOVAL, COMPLETELY CLEANING OF EXISTING REINFORCING STEEL, HIGH EARLY STRENGTH CONCRETE, LABOR AND ANY MISCELLANEOUS MATERIALS NECESSARY TO COMPLETE THE REPAIRS AS SHOWN IN THESE DETAILS TO BE INCLUDED UNDER ITEM NO. 604-10.05, CONCRETE, S.F.

EXTREME CARE SHALL BE TAKEN WHEN REMOVING THE EXISTING SPALLED CONCRETE SO AS NOT TO DAMAGE THE EXISTING REINFORCING STEEL. ALL EXPOSED REINFORCING STEEL SHALL BE COMPLETELY CLEANED TO REMOVED ALL RUST. ALL EXISTING REINFORCEMENT SHALL REMAIN IN PLACE. ALL WORK MUST MEET WITH FULL APPROVAL OF THE ENGINEER.

THE ENGINEER SHALL HAVE THE OPTION OF DESIGNATING A SPALL AREA TO BE REPAIRED UNDER ITEM NO. 604-10.05 OR 604-10.54. PATCHING MATERIAL FOR ITEM NO. 604-10.05 SHALL BE HIGH EARLY STRENGTH CONCRETE. PATCHING MATERIAL FOR ITEM NO. 604-10.54 SHALL BE A POLYMER MODIFIED CEMENTIOUS STRUCTURAL PATCHING MATERIAL. SEE QUALIFIED PRODUCTS LIST 13, SUBLIST (F).

THE ENGINEER SHALL DESIGNATE ALL SPALLED CONCRETE REPAIR AREAS IN THE FIELD. QUANTITIES GIVEN ARE APPROXIMATE. IT ME NO. 604-10.05 AND 604-10.54 SHALL BE BID WITH THE CONTINGENCY THAT IT MAY BE INCREASED, DECREASED, OR ELIMINATED BY THE ENGINEER.

POWER DRIVEN HAND TOOLS USED FOR REMOVAL OF UNSOUND CONCRETE ARE SUBJECT TO THE FOLLOWING RESTRICTIONS:

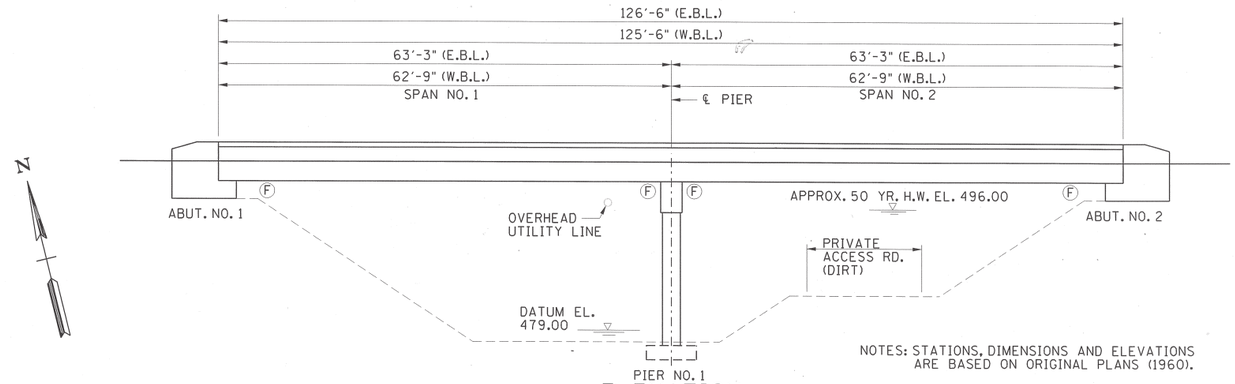
1. PNEUMATIC HAMMERS HEAVIER THAN 35 LB. CLASS SHALL NOT BE USED.
2. CHIPPING HAMMERS OF THE 15 LB. CLASS SHALL NOT BE USED TO REMOVE CONCRETE FROM BEHIND REINFORCING STEEL



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

TYPICAL REPAIR DETAILS

INTERSTATE 40 OVER BOLLING BRANCH
BRIDGE NO. 80-10040-11.46 (E.B.L. & W.B.L.)
SMITH COUNTY
2005

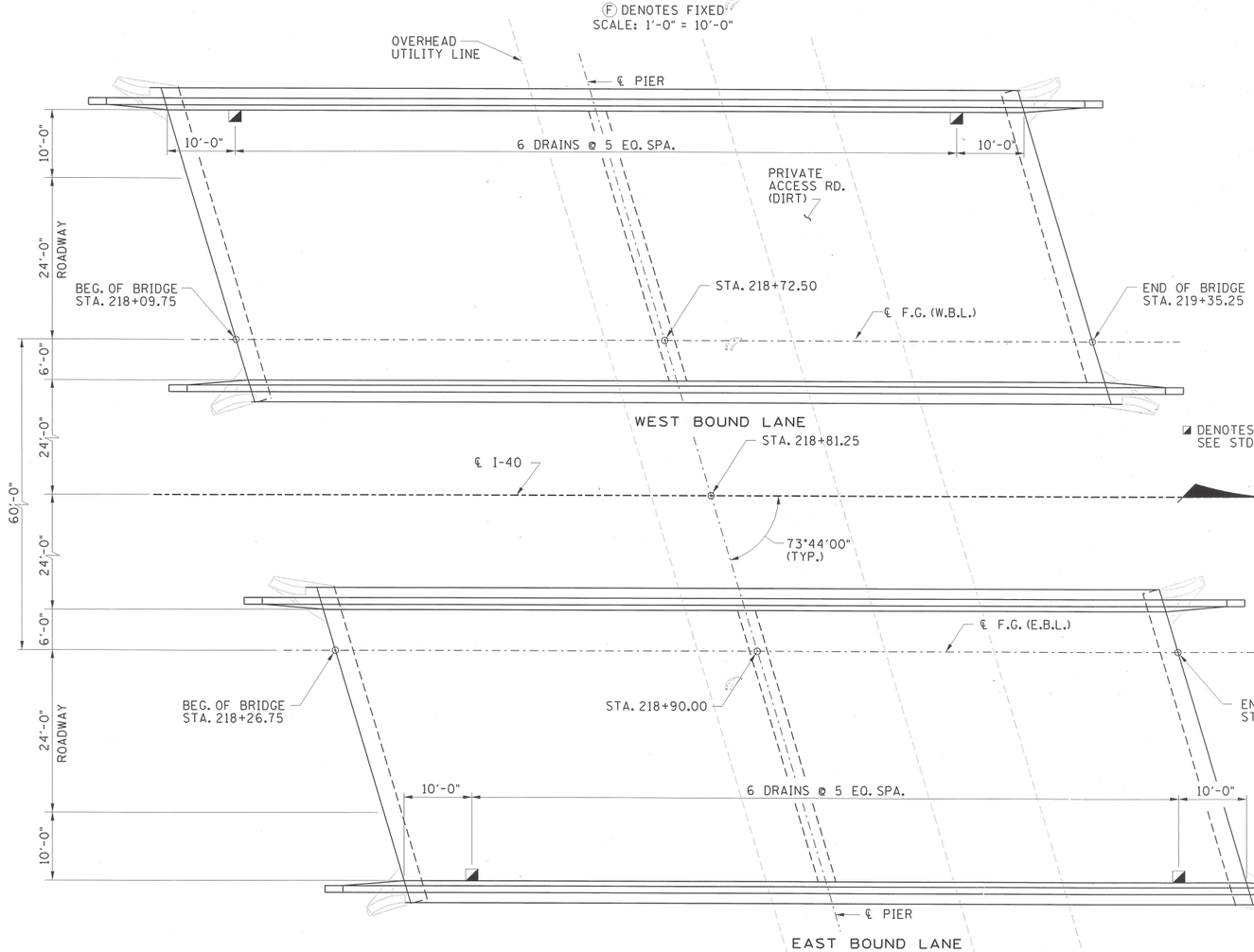


NOTES: STATIONS, DIMENSIONS AND ELEVATIONS ARE BASED ON ORIGINAL PLANS (1960).

ELEVATION

Ⓕ DENOTES FIXED

SCALE: 1'-0" = 10'-0"



DENOTES DECK DRAIN SEE STD. DWG. STD-1-2

PLAN

SCALE: 1'-0" = 10'-0"

LIST OF STANDARD DRAWINGS

DRAWING NO.	LAST REV. DATE	DRAWING
STD-1-1	7-31-00	BRIDGE RAILING CONCRETE PARAPET
STD-1-2	1-05-01	STEEL SLIDER PLATE ASSEMBLIES FOR CONCRETE PARAPET AND BRIDGE DECK DRAIN DETAILS
STD-9-1	12-19-94	REINFORCING BAR SUPPORT DETAILS FOR CONCRETE SLABS
SBR-2-125	11-05-01	DETAILS SHOWING REPLACEMENT OF EXISTING BRIDGERAIL SYSTEM WITH NEW JERSEY SHAPE CONCRETE PARAPET AND NEW 10'-2" ENDPOST
SBR-2-126	1-4-96	DETAILS SHOWING REPLACEMENT OF EXISTING BRIDGERAIL SYSTEM WITH NEW JERSEY SHAPE CONCRETE PARAPET AND NEW 10'-2" ENDPOST

PROJECT NO.	YEAR	SHEET NO.
80001-4179-04	2005	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	7/8/2005	JAK	REVISED DATES

⚠ LIST OF BRIDGE DRAWINGS

DWG. NO.	LAST REV. DATE	DRAWING
BR-73-17	---	LAYOUT OF BRIDGE TO BE REPAIRED (BR. NO. 80-10040-11.46 E.B.L. ℄ W.B.L.)
BR-73-18	7/8/2005	ESTIMATED BRIDGE QUANTITIES (BR. NO. 80-140-11.46)
BR-73-19	---	BRIDGE GENERAL NOTES
BR-73-20	---	PHASING
BR-73-21	---	TYPICAL CROSS SECTION
BR-73-22	7/8/2005	SUPERSTRUCTURE DETAILS
BR-73-23	---	BEAM REPAIR DETAILS
BR-73-24	---	BEAM REPAIR DETAILS
BR-73-25	---	BEAM REPAIR DETAILS
BR-73-26	---	BEAM REPAIR DETAILS
BR-73-27	---	BEAM REPAIR DETAILS
BR-73-28	---	BEAM REPAIR DETAILS
BR-73-29	---	TYPICAL REPAIR DETAILS

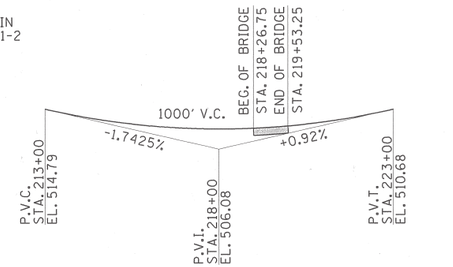
SCOPE OF WORK

1. BRIDGE TO BE REPAIRED BY PHASED CONSTRUCTION.
2. REMOVE EXISTING PARAPET, CURB AND ASPHALT OVERLAY.
3. PERFORM FULL DEPTH DECK REPAIR.
4. EXTEND EXISTING CONCRETE OVERLAY AND ADD JERSEY FACE RAIL.
4. COMPLETE REPAIRS TO PRE-CAST BEAMS.
5. COMPLETE CONCRETE REPAIRS TO SUBSTRUCTURE.
6. ADD ASPHALT DECK SEAL
7. APPLY TEXTURE FINISH COAT.

LIST OF SPECIAL PROVISIONS

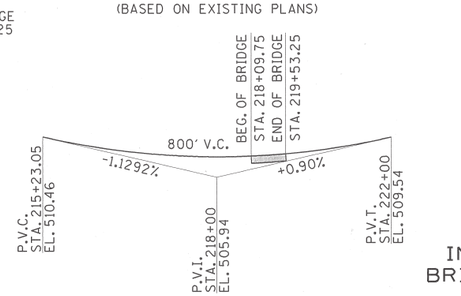
NO.	LAST REV. DATE	REGARDING
105A	**	APPROVAL OF SHOP DRAWINGS

** DENOTES: CURRENT REVISION DATE AS PER CONTRACT DOCUMENTS.



EAST BOUND LANE GRADE SKETCH

(BASED ON EXISTING PLANS)



WEST BOUND LANE GRADE SKETCH

(BASED ON EXISTING PLANS)

TED A. KNIAZEWYCZ
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
NO. 020151
STATE OF TENNESSEE
7/8/05

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

LAYOUT OF BRIDGE TO BE REPAIRED

INTERSTATE 40 OVER BOLLING BRANCH
BRIDGE NO. 80-10040-11.46 (E.B.L. ℄ W.B.L.)
SMITH COUNTY
2005

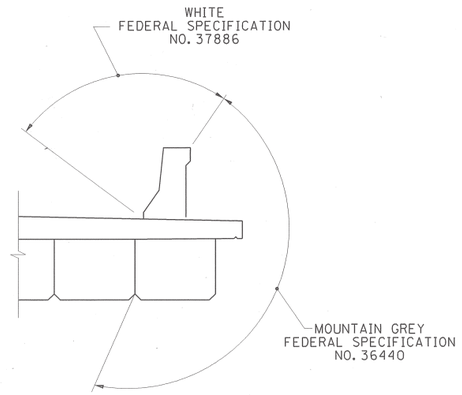
BR-73-17

DESIGNED BY	GSP	DATE	02/05
DRAWN BY	GARY YOUNG	DATE	04/05
SUPERVISED BY	TED A. KNIAZEWYCZ	DATE	02/05
CHECKED BY	TED A. KNIAZEWYCZ	DATE	02/05

GS&P GRESHAM SMITH AND PARTNERS

ESTIMATED QUANTITIES

	ITEM NO.	DESCRIPTION	UNIT	TOTAL	E.B.L. & W.B.L. SUPERSTRUCTURE	E.B.L. BENT 1	E.B.L. ABUT. 1	E.B.L. ABUT. 2	W.B.L. BENT 1	W.B.L. ABUT. 1	W.B.L. ABUT. 2
(1)	202-04.01	REMOVAL OF STRUCTURES (BR. NO. 80-10040-11.46 - R.L.&L.L.)	L.S.	1							
(4)	604-03.01	CLASS "A" CONCRETE (BRIDGES)	C.Y.	54	54						
(2)	604-04.02	APPLIED TEXTURE FINISH (EXISTING STRUCTURES)	S.Y.	1206	1026	58	16	16	58	16	16
(4)(3)	604-10.05	CONCRETE	S.F.	175	153	5	4	2	3	5	3
	604-10.14	REMOVAL EXISTING WEARING SURFACE	LS	1							
	604-10.18	REINFORCING STEEL (REPAIRS)	LB.	11,674	11,674						
(6)	604-10.30	BRIDGE DECK REPAIRS (FULL DEPTH OF SLAB)	S.Y.	150	150						
(3)(4)	604-10.54	CONCRETE REPAIRS	S.F.	130	18	102	2	2	2	2	2
(7)(4)	604-10.58	EPOXY INJECTION (INJECTION)	GAL.	77							
(7)(4)	604-10.62	EPOXY INJECTION REPAIR (COMPLETE AND IN PLACE)	L.F.	768							
	604-10.69	PRESTRESSING STRAND SPLICE	EACH	54							
	617-01	BRIDGE DECK SEALANT	S.Y.	1,156							
⚠(5)	620-03	CONCRETE PARAPET (STD-1-1)	L.F.	586							



PROJECT NO.	YEAR	SHEET NO.
80001-4179-04	2005	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	7/1/2005	JAC	QUANTITY REVISED

FOOTNOTES:

(1) THE COST OF REMOVING THE EXISTING CURB, BRIDGE RAIL, PORTIONS OF THE 4½" CONCRETE OVERLAY, AND OTHER MISCELLANEOUS AREAS WITHIN THE BRIDGE LIMITS SHALL BE INCLUDED IN THE PRICE BID FOR ITEM NO. 202-04.01.

(2) FOR NOTES AND LIMITS OF TEXTURE COATING SEE DETAIL THIS SHEET.

(3) INCLUDES ALL LABOR AND MATERIALS REQUIRED TO COMPLETE REPAIRS TO EXISTING BENTS AND ABUTMENTS. SEE DRAWING BR-73-29 FOR DETAILS. ALSO INCLUDES ALL LABOR AND MATERIALS TO MAKE REPAIRS TO THE EXISTING PRE-STRESSED BEAMS AS SHOWN ON SHEETS BR-73-23 THROUGH 28.

(4) THIS ITEM SHALL BE BID WITH THE CONTINGENCY THAT IT MAY BE INCREASED, DECREASED OR ELIMINATED AS DIRECTED BY THE ENGINEER.

(5) INCLUDES COST OF 12 DECK DRAINS AND 8 NEW 10'-2" ENDPOSTS. SEE DRAWING NO. BR-73-17 FOR LOCATION OF DRAINS AND DRAWING NO. BR-73-22 FOR THE MODIFIED DRAIN DETAIL; SEE STD-1-1, SBR-2-125 AND 126 AND BR-73-29 FOR DETAILS OF BRIDGERAIL.

(6) INCLUDES THE COST OF HIGH EARLY STRENGTH CONCRETE FOR FULL DEPTH CONCRETE REPAIR. SEE SHEET BR-73-29 FOR NOTES AND DETAILS.

(7) FOR ADDITIONAL NOTES AND DETAILS SEE DRAWING NO. BR-73-28.

DETAIL SHOWING LIMITS OF TEXTURE FINISH

NOTE: IN ADDITION TO PORTIONS SHOWN IN THE TEXTURE FINISH SKETCH, THE FOLLOWING EXPOSED CONCRETE IS TO RECEIVE AN APPLIED TEXTURE FINISH: ABUTMENT BEAM AND WINGS AND ENTIRE BENT TO GROUNDLINE.

NOTE: BEFORE APPLYING ANY TEXTURE FINISH, ALL SURFACES SHALL BE COMPLETELY CLEANED OF ALL DEBRIS AND FOREIGN MATERIALS.

NOTE: THE CONTRACTOR SHALL USE CONTAINMENT SCREENS OR OTHER MEASURES AS NECESSARY TO PREVENT ANY TEXTURE COATING FROM ENTERING THE ENVIRONMENT. CONTAINMENT MEASURES SHALL BE APPROVED BY THE ENGINEER AND COST SHALL BE INCLUDED IN ITEMS BID ON.

NOTE: CONCRETE FINISHING SHALL BE IN ACCORDANCE WITH SECTION 604.22 OF THE TENNESSEE STANDARD SPECIFICATION. A CLASS I FINISH FOLLOWED BY AN APPLIED TEXTURE FINISH SHALL BE USED IN LIEU OF A CLASS II FINISH. THE COLOR OF THE FINISH SHALL BE SIMILAR TO MOUNTAIN GRAY, FEDERAL SPECIFICATION NO. 36440, FEDERAL COLOR STANDARD NO. 595A, EXCEPT THAT THE INSIDE FACE AND TOP OF THE PARAPET SHALL BE WHITE, FEDERAL SPECIFICATION NO. 37886. A COLOR SAMPLE SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. NO TEXTURE FINISH SHALL BE APPLIED PRIOR TO COMPLETION OF PAVING AND HAUL OPERATIONS AT THE BRIDGE SITE. THE APPLIED TEXTURE FINISH SHALL BE MEASURED AND PAID FOR UNDER ITEM 604-04.02.

TED A. KNIAZEWYCZ
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
ENVIRONMENT
STATE OF TENNESSEE
5/16/05

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

ESTIMATED BRIDGE QUANTITIES

INTERSTATE 40 OVER BOLLING BRANCH
BRIDGE NO. 80-10040-11.46 (E.B.L. & W.B.L.)
SMITH COUNTY
2005

BR-73-18

DESIGNED BY GSP DATE 02/05
DRAWN BY GARY YOUNG DATE 04/05
SUPERVISED BY TED A. KNIAZEWYCZ DATE 02/05
CHECKED BY TED A. KNIAZEWYCZ DATE 02/05

GRESHAM SMITH AND PARTNERS

GENERAL NOTES

SPECIFICATIONS: STANDARD ROAD AND BRIDGE SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION. (MARCH 1, 1995 EDITION)

DESIGN SPECIFICATIONS: AASHTO 2002 EDITION WITH ADDENDA.

LOADING: HS20-44

REINFORCING STEEL: SHALL BE ASTM A615 GRADE 60 UNLESS NOTED OTHERWISE. SEE SECTION 604 AND 907 OF THE STANDARD SPECIFICATIONS.

NO PNEUMATIC CONCRETE ALLOWED.

CONCRETE: TO BE CLASS "A" CONCRETE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

BRIDGE DECK CONCRETE: SHALL BE HIGH EARLY STRENGTH CONCRETE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND AS NOTED ON THIS SHEET.

BRIDGE DECK SURFACE FINISH: SHALL BE IN ACCORDANCE WITH METHOD (C) IN SUBSECTION 604.23 OF THE STANDARD SPECIFICATIONS.

CONCRETE STRENGTH AND CURE TIME NOTES

THE NEW BRIDGE DECKS SHALL OBTAIN A COMPRESSIVE STRENGTH OF 3,500 PSI AND A TIME OF TEN (10) DAYS MUST EXPIRE AFTER CONCRETE PLACEMENT BEFORE LOADING TAKES PLACE ON THE NEW CONCRETE DECKS. LOADING IS DEFINED AS ANY CONSTRUCTION VEHICLE AS WELL AS ANY GENERAL TRAFFIC.

THE NEW CONCRETE FOR THE PARAPET AND PAVEMENT AT BRIDGE ENDS SHALL OBTAIN A COMPRESSIVE STRENGTH OF 3,000 PSI AND A TIME OF THREE (3) DAYS MUST EXPIRE AFTER CONCRETE PLACEMENT BEFORE TRAFFIC IS ALLOWED ADJACENT TO OR ON THESE STRUCTURAL ELEMENTS.

HIGH EARLY STRENGTH CONCRETE FOR FULL DEPTH REPAIR AREAS: SHALL BE HIGH EARLY STRENGTH CONCRETE WITH A COMPRESSIVE STRENGTH OF 3,000 PSI AT 18 HOURS. THE CONTRACTOR SHALL PROVIDE PROOF PRIOR TO BEGINNING WORK THAT THE PROPOSED CONCRETE MIX SHALL OBTAIN REQUIRED PROPERTIES. PROOF SHALL BE PROVIDED BY AN INDEPENDENT TESTING COMPANY AND SUBMITTED TO THE MATERIALS AND TEST DIVISION OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION FOR APPROVAL. NO LOAD SHALL BE PERMITTED ON ANY OF THE REPAIR AREAS UNTIL TEST SPECIMENS ATTAIN A COMPRESSIVE STRENGTH OF 3,000 PSI MINIMUM AND THE CONCRETE HAS BEEN IN PLACE A MINIMUM OF 48 HOURS.

CONCRETE CURING: ALL CONCRETE IN REPAIR AREAS SHALL BE CURED ACCORDING TO THE STANDARD SPECIFICATIONS.

DEMOLITION: THE CONTRACTOR SHALL TAKE SPECIAL CARE TO PROTECT ANY PARTS OF THE STRUCTURE THAT ARE NOT TO BE REMOVED SPECIFICALLY. THE CONTRACTOR IS NOT ALLOWED TO USE A HYDRAULIC RAM MOUNTED ON A BACKHOE (COMMONLY CALLED A HOE-RAM) OR OTHER SIMILARLY HEAVY EQUIPMENT FOR CONCRETE REMOVAL. PNEUMATIC HAMMERS MAY BE USED TO REMOVE UNSOUND CONCRETE. FOR FULL DEPTH CONCRETE SLAB REMOVAL EXCEPT OVER BEAMS, THE MAXIMUM HAMMER SIZE IS 90 POUND CLASS. FOR PARTIAL DEPTH OF CONCRETE SLAB REMOVAL AND ANY WORK OVER BEAMS, THE MAXIMUM HAMMER SIZE IS 60 POUND CLASS. SAWING OR CUTTING OF THE CONCRETE IS ACCEPTABLE SO LONG AS ANY SPECIFIED PROJECTION OF THE EXISTING REINFORCING STEEL IS MAINTAINED. ALL DEVICES PROPOSED FOR CONCRETE DEMOLITION SHALL MEET THE APPROVAL OF THE ENGINEER.

QUICK-SET PATCHING MATERIALS: QUICK-SET PATCHING MATERIALS SHALL BE A POLYMER MODIFIED CEMENTITIOUS PATCHING MATERIAL. SEE TDOT PRODUCT LIST 13, SUB-LIST F, FOR ACCEPTABLE PATCHING MATERIALS.

BRIDGE RAIL SYSTEM: BUILD BRIDGE RAILINGS ACCORDING TO STANDARD DRAWING STD-1-1.

ANY AREA THAT IS DISTURBED OUTSIDE LIMITS OF CONSTRUCTION DURING THE LIFE OF THIS PROJECT SHALL BE REPAIRED BY THE CONTRACTOR AT HIS EXPENSE.

THE CONTRACTOR SHALL PROVIDE 100% CONVENTIONAL FALL PROTECTION FOR WORKERS INSTALLING DECKING ABOVE 15 FEET.

UTILITY NOTES

THE LOCATION OF UTILITIES SHOWN WITHIN THE PLANS ARE APPROXIMATE ONLY. EXACT LOCATIONS SHALL BE DETERMINED IN THE FIELD BY CONTACTING THE UTILITY COMPANIES INVOLVED.

SOME UTILITIES CAN BE LOCATED BY CALLING THE TENNESSEE ONE CALL SYSTEM, INC. AT 1-800-351-1111.

UNLESS OTHERWISE NOTED, ALL UTILITY ADJUSTMENTS WILL BE PERFORMED BY THE UTILITY OF ITS REPRESENTATIVE. THE CONTRACTOR AND THE UTILITY OWNERS WILL BE REQUIRED TO COOPERATE WITH EACH OTHER IN ORDER TO EXPEDITE THE WORK REQUIRED BY THIS CONTRACT.

THE CONTRACTOR WILL PROVIDE ALL NECESSARY PROTECTIVE MEASURES TO SAFEGUARD EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION OF THIS PROJECT. IN THE EVENT THAT SPECIAL EQUIPMENT IS REQUIRED TO WORK OVER AND AROUND THE UTILITIES, THE CONTRACTOR WILL BE REQUIRED TO FURNISH SUCH EQUIPMENT. THE COST OF PROTECTING THE UTILITIES FROM DAMAGE AND FURNISHING SPECIAL EQUIPMENT WILL BE INCLUDED IN THE PRICE BID FOR OTHER ITEMS OF CONSTRUCTION.

PRIOR TO SUBMITTING HIS BID, THE CONTRACTOR WILL BE SOLELY RESPONSIBLE FOR CONTACTING ALL AFFECTED UTILITIES IN ORDER TO DETERMINE THE EXTENT TO WHICH UTILITY RELOCATIONS AND/OR ADJUSTMENTS WILL HAVE UPON THE SCHEDULE OF THE WORK FOR THE PROJECT. WHILE SOME WORK MAY BE REQUIRED "AROUND" UTILITY FACILITIES THAT REMAIN IN PLACE, OTHER UTILITY FACILITIES MAY NEED TO BE ADJUSTED CONCURRENTLY WITH THE CONTRACTOR'S OPERATIONS. ADVANCE CLEAR CUTTING MAY BE REQUIRED BY THE ENGINEER AT ANY LOCATION WHERE CLEARING IS CALLED FOR IN THE SPECIFICATIONS AND CLEAR CUTTING IS NECESSARY FOR A UTILITY RELOCATION. ANY ADDITIONAL COST WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE CLEARING ITEM SPECIFIED IN THE PLANS.

THE CONTRACTOR SHALL NOTIFY EACH INDIVIDUAL UTILITY OWNER OF HIS PLAN OF OPERATION IN THE AREA OF THE UTILITIES. PRIOR TO COMMENCING WORK, THE CONTRACTOR SHALL CONTACT THE UTILITY OWNERS AND REQUEST THEM TO PROPERLY LOCATE THEIR RESPECTIVE UTILITY ON THE GROUND. THIS NOTIFICATION SHALL BE GIVEN AT LEAST THREE (3) BUSINESS DAYS PRIOR TO COMMENCEMENT OF OPERATIONS AROUND THE UTILITY.

PROJECT NO.	YEAR	SHEET NO.
80001-4179-04	2005	2A

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION

SPECIAL NOTES

SHOP DRAWINGS: SHALL BE SUBMITTED ACCORDING TO SPECIAL PROVISION NO. 105A. SHOP DRAWINGS SHALL BE SUBMITTED TO THE BRIDGE REPAIR OFFICE OF THE DIVISION OF STRUCTURES.

SPECIAL NOTE FOR UTILITIES: IT IS INTENDED THAT THE COST OF MATERIALS AND LABOR NECESSARY FOR THE COMPLETE INSTALLATION OF UTILITIES SHOULD BE BORNE BY OTHERS AND SHALL NOT BE PAID FOR AS PART OF THIS CONTRACT. THE CONTRACTOR SHALL COOPERATE WITH OTHERS IN THE INSTALLATION OF UTILITIES WITH NO ADDITIONAL COMPENSATION ALLOWED THE CONTRACTOR.

DAMAGE TO EXISTING STRUCTURES TO BE LEFT IN PLACE SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE.

FORMS AND FALSEWORK: ALL CONCRETE FORM WORK, FALSE WORK, AND TEMPORARY SUPPORTS SHALL BE REMOVED AFTER REPAIRS ARE COMPLETED. COST OF FORMS, FALSEWORK, AND TEMPORARY SUPPORT REMOVAL SHALL BE INCLUDED IN ITEMS BID ON. THIS WORK SHALL BE COMPLETED BEFORE FINAL PAYMENT IS APPROVED.

SPECIAL ENVIRONMENTAL NOTE TO CONTRACTOR: CONTRACTOR SHALL USE EXTREME CARE AND TAKE ANY MEASURE NECESSARY TO ENSURE THAT NO DEBRIS IS DROPPED INTO THE STREAM. THIS SHALL BE ACCOMPLISHED BY THE USE OF BASKETS, NETTING, WRAPPING, WORK PLATFORM, OR OTHER SIMILARLY EFFECTIVE MEANS. ANY DEBRIS WHICH IS ALLOWED TO DROP ON THE BANKS BELOW THE BRIDGE SHALL NOT BE ALLOWED TO ENTER THE STREAM AND SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR. COST OF REMOVING AND DISPOSING OF DEBRIS SHALL BE INCLUDED IN ITEMS BID ON.

ANY CONSTRUCTION WITHIN THE STREAM CHANNEL AREA SHALL BE SEPARATED FROM FLOWING WATER, AND ACCOMPLISHED DURING LOW FLOW CONDITIONS. THIS SHALL BE ACCOMPLISHED BY THE USE OF FLUMES, DIVERSION CHANNEL WITH SAND BAG BERM, DIVERSION PIPE, OR IN SOME CASES COFFERDAMS.

INTERSTATE 40

1. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE SHIELDING MATERIALS TO PROTECT MOTORIST FROM DEBRIS AND/OR OTHER MATERIALS THAT MAY BE A HAZARD OR PRODUCE HAZARDOUS CONDITIONS TO THE PUBLIC. COST TO BE INCLUDED UNDER ITEM NO. 604-10.05.
2. THE CONTRACTOR SHALL NOT BE ALLOWED TO INTERRUPT TRAFFIC FLOW AND SHALL MAINTAIN ALL LANES OF TRAFFIC IN EACH DIRECTION ON THE FOLLOWING DAYS:
   A) OFFICIAL STATE HOLIDAYS
   B) FRIDAYS AFTERNOON UNTIL TUESDAY MORNING, IF A STATE HOLIDAY OCCURS OR IS OBSERVED ON MONDAY.
   C) THURSDAY AFTERNOON UNTIL MONDAY MORNING, IF A STATE HOLIDAY OCCURS OR IS OBSERVED ON FRIDAY.
3. NO LANES WILL BE CLOSED DURING WEEKENDS (FRIDAY 6 AM TO MONDAY 6 AM). TDOT WILL APPROVE ALL LANE CLOSURES, AND TDOT RESERVES THE RIGHT TO CHANGE ANY LANE CLOSURE AT ANY TIME.
4. ALL LANE CLOSURES MUST BE APPROVED BY T.D.O.T.

REQUIREMENTS AND RESTRICTIONS FOR PHASE CONSTRUCTION

1. SEE ROADWAY TRAFFIC CONTROL SHEETS FOR OTHER RESTRICTIONS.
2. SEE SPECIAL PROVISION 108B FOR TRAFFIC CONTROL RESTRICTIONS, PROJECT COMPLETION REQUIREMENTS AND INCENTIVES/DISINCENTIVES.
3. THE LOCATION OF THE LONGITUDINAL CONSTRUCTION JOINT SHALL NOT BE CHANGED.

TED A. KNIAZEWYCZ — REGISTERED ENGINEER — AGRICULTURE — COMMERCE — NO. 022975 — STATE OF TENNESSEE — 9/19/05

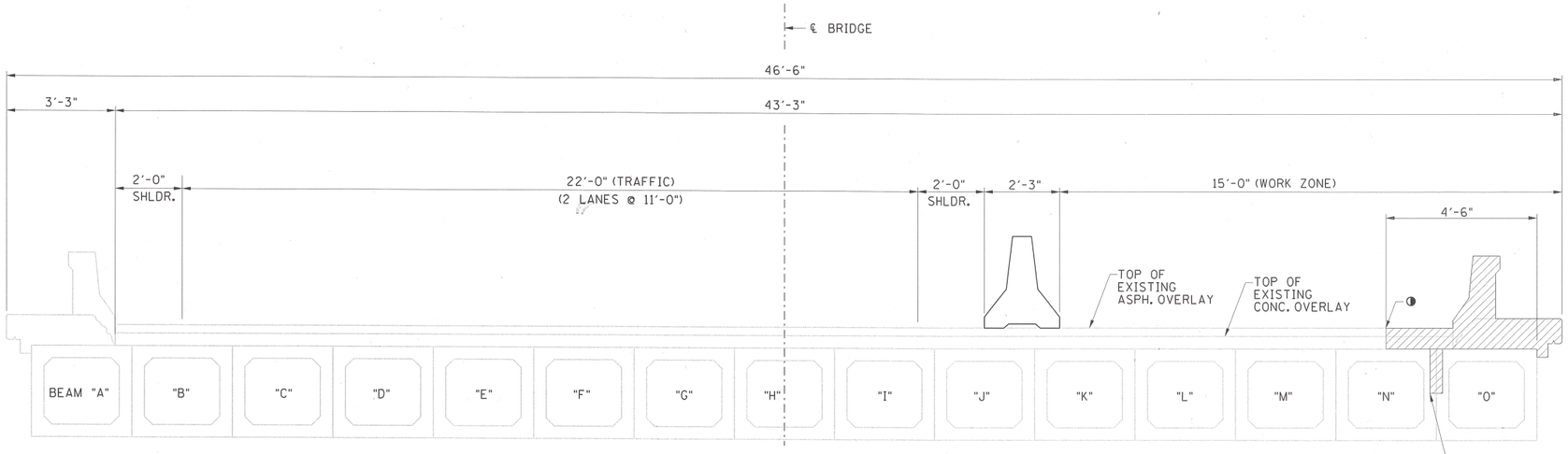
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

BRIDGE GENERAL NOTES
INTERSTATE 40
OVER CANEY FORK RIVER
BRIDGE NO. 80-10040-12.93 (E.B.L.)
BRIDGE NO. 80-10040-12.91 (W.B.L.)
INTERSTATE 40 OVER BOLLING BRANCH
BRIDGE NO. 80-10040-11.46 (E.B.L. & W.B.L.)
SMITH COUNTY
2005

BR-73-19

DESIGNED BY	GSP	DATE	02/05
DRAWN BY	GSP	DATE	04/05
SUPERVISED BY	TED A. KNIAZEWYCZ	DATE	02/05
CHECKED BY	TED A. KNIAZEWYCZ	DATE	02/05

GS&P — GRESHAM SMITH AND PARTNERS



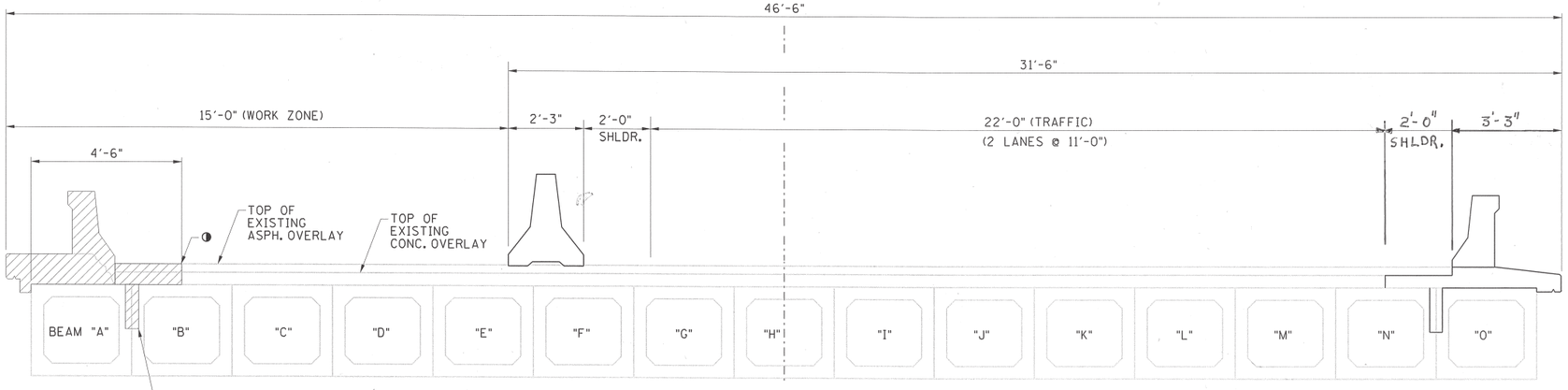
PHASE I CONSTRUCTION

(LOOKING FORWARD ON SURVEY - W.B.L.)
(LOOKING BACK ON SURVEY - E.B.L.)

DENOTES AREAS OF REMOVAL

◑ DENOTES EXISTING ASPHALT TO BE SAW CUT FULL DEPTH. CONTRACTOR SHALL TAKE CARE NOT TO CUT ANY REINFORCEMENT IN THE CONCRETE OVERLAY.

ANY DETERIORATED CONCRETE REMOVED FROM BEAMS "N" OR "O" SHALL BE REPOURED WITH THE CONCRETE OVERLAY EXTENSION. REMOVAL OF CONCRETE IS TO BE PAID FOR UNDER ITEM NO. 202-04.01. CONCRETE IS TO BE PAID FOR UNDER ITEM NO. 604-03.01.



PHASE II CONSTRUCTION

(LOOKING FORWARD ON SURVEY - W.B.L.)
(LOOKING BACK ON SURVEY - E.B.L.)

DENOTES AREAS OF REMOVAL

◑ DENOTES EXISTING ASPHALT TO BE SAW CUT FULL DEPTH. CONTRACTOR SHALL TAKE CARE NOT TO CUT ANY REINFORCEMENT IN THE CONCRETE OVERLAY.

ANY DETERIORATED CONCRETE REMOVED FROM BEAMS "A" OR "B" SHALL BE REPOURED WITH THE CONCRETE OVERLAY EXTENSION. REMOVAL OF CONCRETE IS TO BE PAID FOR UNDER ITEM NO. 202-04.01. CONCRETE IS TO BE PAID FOR UNDER ITEM NO. 604-03.01.

PROJECT NO.	YEAR	SHEET NO.
80001-4179-04	2005	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION

PHASE I

1. MAINTAIN TWO LANES OF TRAFFIC (11'-0" MINIMUM PER LANE).
2. REMOVE EXISTING CURB, RAIL AND ASPHALT TO LIMITS SHOWN.
3. REMOVE EXISTING 4½" CONCRETE OVERLAY TO LIMITS SHOWN AND PERFORM FULL DEPTH DECK REPAIR
4. REMOVE DETERIORATED CONCRETE ON BEAMS "N" AND "O", IF NECESSARY, UP TO ½ THE WIDTH OF THE WEB WALL FOR EACH BEAM.
5. POUR CONCRETE OVERLAY EXTENSION AND BRIDGE RAIL.

PHASE II

1. MAINTAIN TWO LANES OF TRAFFIC (11'-0" MINIMUM PER LANE).
2. REMOVE EXISTING CURB, RAIL AND ASPHALT OVERLAY TO LIMITS SHOWN.
3. REMOVE EXISTING 4½" CONCRETE OVERLAY TO LIMITS SHOWN AND PERFORM FULL DEPTH DECK REPAIR
4. POUR CONCRETE OVERLAY EXTENSION AND BRIDGE RAIL.
5. REMOVE DETERIORATED CONCRETE ON BEAMS "A" AND "B", IF NECESSARY, UP TO ½ THE WIDTH OF THE WEB WALL FOR EACH BEAM.

PHASE III

1. MAINTAIN ONE LANE OF TRAFFIC.
2. REMOVE EXISTING ASPHALT OVERLAY.
3. COMPLETE ANY NEEDED PARTIAL DEPTH BRIDGE DECK REPAIRS.
4. PLACE NEW 3" ASPHALT OVERLAY WITH MEMBRANE DECK SEAL. THE PAVING CONSTRUCTION JOINT SHALL BE AT ℄ OF EXISTING STRIPING BETWEEN LANES.
5. USE ONE LANE CLOSURE DETAILS WITH CHANNELIZING DRUMS.

DESIGNED BY	GSP	DATE	02/05
DRAWN BY	GARY YOUNG	DATE	04/05
SUPERVISED BY	TED A. KNIAZEWYCZ	DATE	02/05
CHECKED BY	TED A. KNIAZEWYCZ	DATE	02/05

GRESHAM SMITH AND PARTNERS

TED A. KNIAZEWYCZ — REGISTERED ENGINEER — XVI — AGRICULTURE COMMERCE — NO. 020757 — STATE OF TENNESSEE

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

PHASING

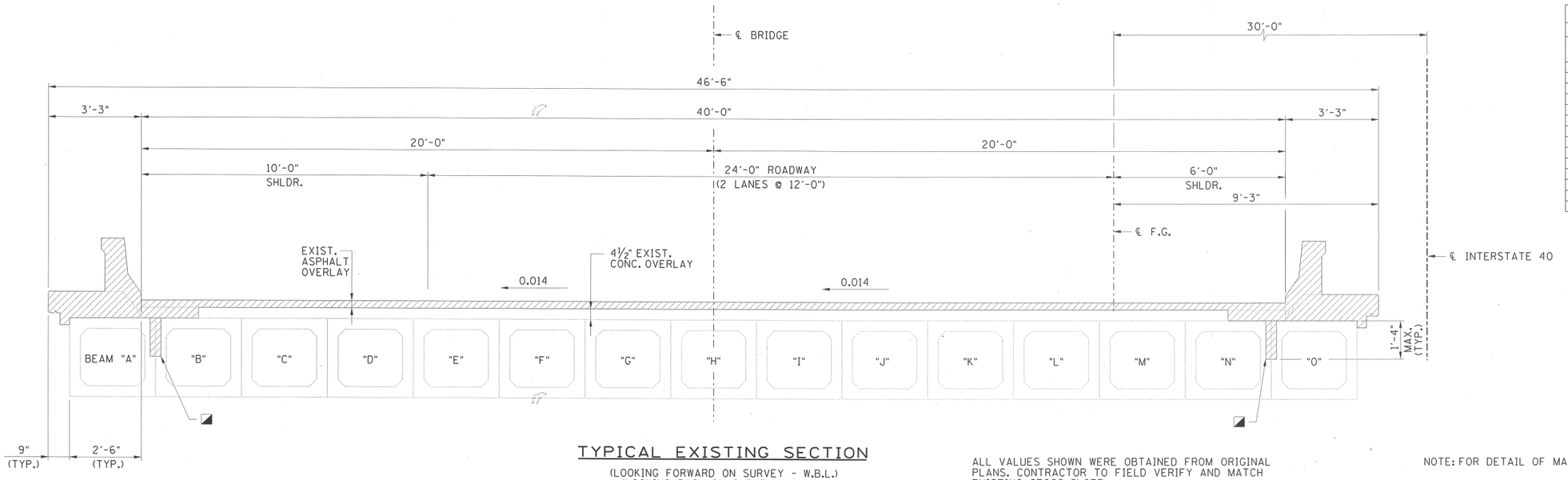
INTERSTATE 40 OVER BOLLING BRANCH
BRIDGE NO. 80-I0040-11.46 (E.B.L. ℄W.B.L.)
SMITH COUNTY
2005

BR-73-20

PROJECT NO.	YEAR	SHEET NO.
80001-4179-04	2005	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION



TYPICAL EXISTING SECTION

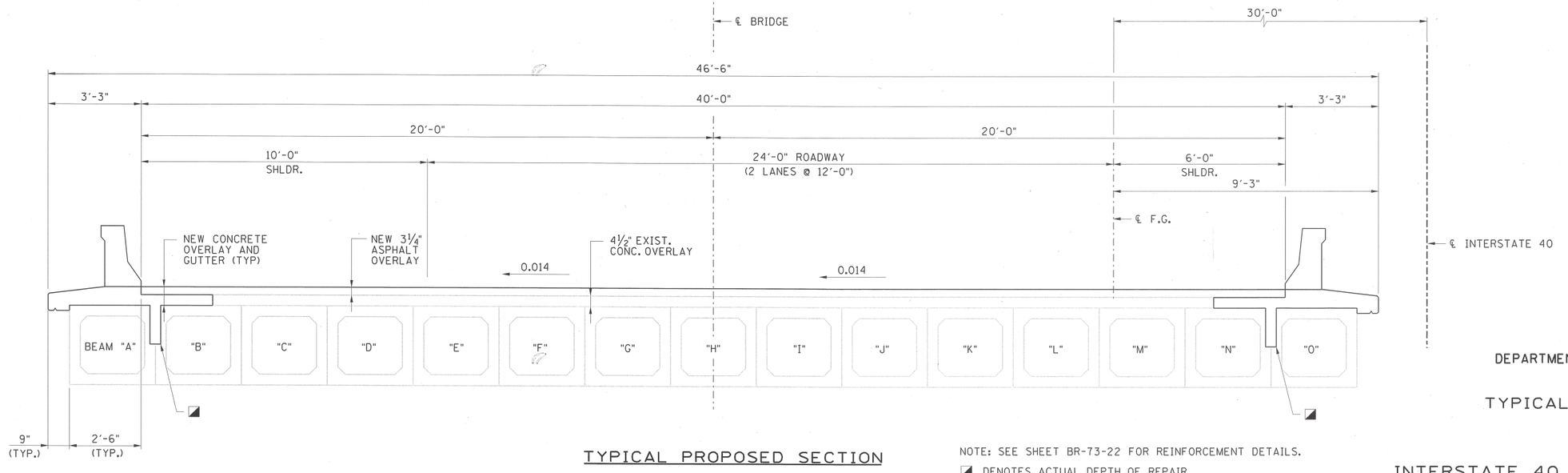
(LOOKING FORWARD ON SURVEY - W.B.L.)
(LOOKING BACK ON SURVEY - E.B.L.)

DENOTES AREAS OF REMOVAL

DENOTES ACTUAL DEPTH OF REPAIR MAY VARY. THE ENGINEER SHALL DESIGNATE AREAS OF REPAIR, IF ANY.

ALL VALUES SHOWN WERE OBTAINED FROM ORIGINAL PLANS. CONTRACTOR TO FIELD VERIFY AND MATCH EXISTING CROSS-SLOPE.

NOTE: FOR DETAIL OF MASTIC SEE SHEET 2C.



TYPICAL PROPOSED SECTION

(LOOKING FORWARD ON SURVEY - W.B.L.)
(LOOKING BACK ON SURVEY - E.B.L.)

NOTE: SEE SHEET BR-73-22 FOR REINFORCEMENT DETAILS.

DENOTES ACTUAL DEPTH OF REPAIR MAY VARY. THE ENGINEER SHALL DESIGNATE AREAS OF REPAIR, IF ANY.

TED A. KNIAZEWYCZ — REGISTERED ENGINEER — XVI — AGRICULTURE — COMMERCE — NO. 020131 — STATE OF TENNESSEE
5/13/05

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

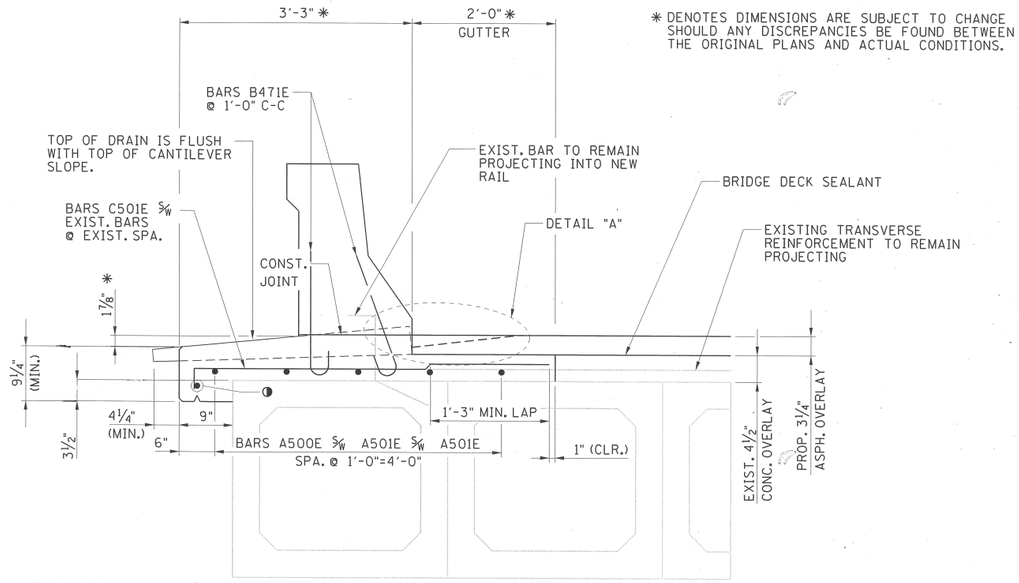
TYPICAL CROSS SECTION

INTERSTATE 40 OVER BOLLING BRANCH
BRIDGE NO. 80-10040-11.46 (E.B.L. & W.B.L.)
SMITH COUNTY
2005

DESIGNED BY	GSP	DATE	02/05
DRAWN BY	GSP	DATE	04/05
SUPERVISED BY	TED A. KNIAZEWYCZ	DATE	02/05
CHECKED BY	TED A. KNIAZEWYCZ	DATE	02/05

GRESHAM SMITH AND PARTNERS

BR-73-21

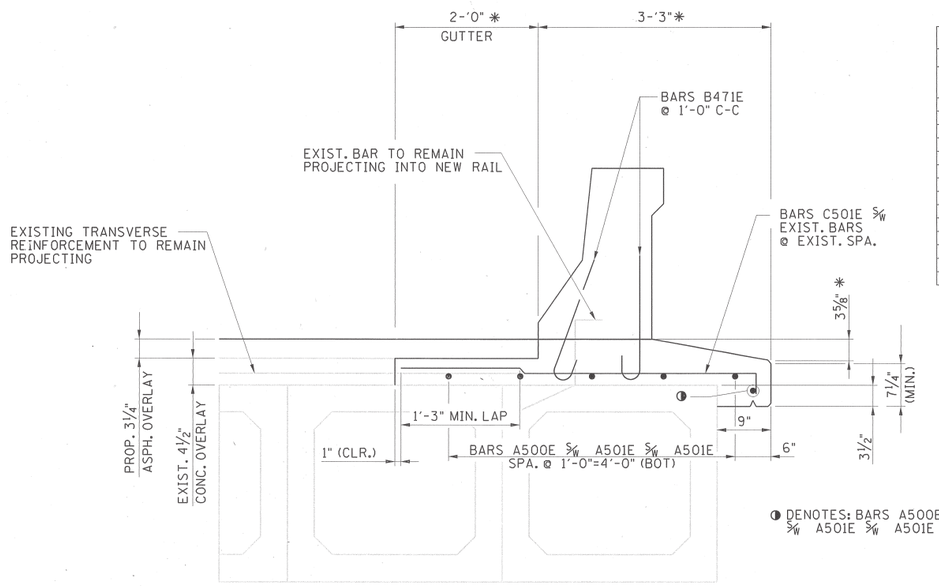


* DENOTES DIMENSIONS ARE SUBJECT TO CHANGE SHOULD ANY DISCREPANCIES BE FOUND BETWEEN THE ORIGINAL PLANS AND ACTUAL CONDITIONS.

◑ DENOTES BARS A500E 5/8" BARS A501E 5/8" BARS A501E

⚠ PART SECTION

(LOOKING FORWARD ON SURVEY-W.B.L.)
(LOOKING BACK ON SURVEY-E.B.L.)



◑ DENOTES: BARS A500E 5/8" A501E 5/8" A501E

PART SECTION

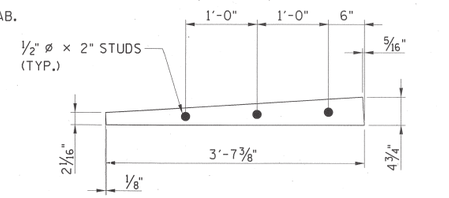
(LOOKING FORWARD ON SURVEY-W.B.L.)
(LOOKING BACK ON SURVEY-E.B.L.)

PROJECT NO.	YEAR	SHEET NO.
80001-4179-04	2005	

REVISIONS

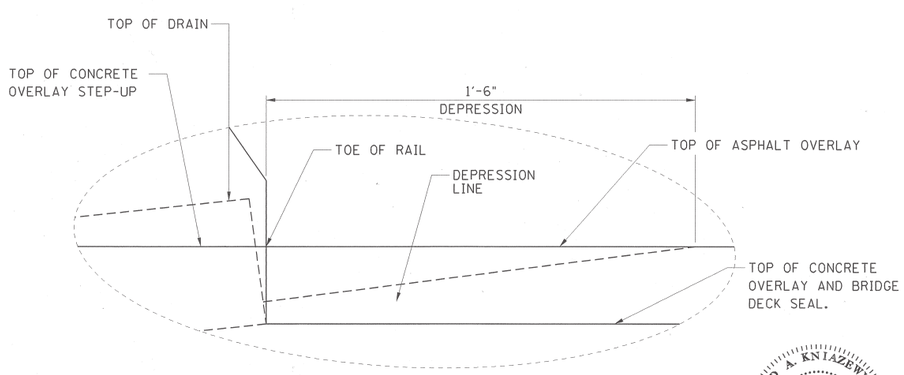
NO.	DATE	BY	BRIEF DESCRIPTION
1	7/8/2005	TAC	DIMENSION REMOVED

1. THE NEW CONCRETE PARAPET SHALL BE PER STANDARD STD-1-1.
2. THE CONTRACTOR SHALL USE DRAIN TYPE "ALTERNATE A" SHOWN ON STD-1-2 WITH MODIFIED DRAIN DIMENSIONS (SEE DRAIN DETAIL THIS SHEET). SEE SHEET BR-73-17 FOR DRAIN LOCATIONS.
3. EXISTING BARS PROJECTING FROM THE EXTERIOR BOX BEAM SHALL REMAIN (AND BE BENT IF NECESSARY) PROJECTING INTO THE NEW CONCRETE PARAPET.
4. A CONTINUOUS ¾" DRIP EDGE SHALL BE LOCATED ON THE BOTTOM SIDE OF THE OVERHANG AT 3" O.C. FROM THE OUTSIDE EDGE OF SLAB.
5. THE REINFORCING STEEL FOR THE NEW CONCRETE OVERLAY MUST MAINTAIN 2½" CLEAR SPACING FROM THE TOP OF SLAB, 1" CLR. FROM THE BOTTOM OF THE DRAINS AND 1" CLEAR SPACING FROM THE BOTTOM OF SLAB.
6. WHEN POURING SLAB, PROVISIONS SHALL BE MADE FOR SETTING THE REINFORCING STEEL FOR PARAPET. THE PARAPET SHALL NOT BE POURED UNTIL THE SLAB IS POURED AND CURED.
7. THE CONCRETE OVERLAY EXTENSION SHALL MAINTAIN THE EXISTING CROSS-SLOPE ON THE BRIDGE.
8. MINIMUM SPLICE LENGTH FOR #5 BARS IS 2'-0".
9. THE BRIDGE DECK SEAL SHALL BE TURNED UP THE SIDE OF THE NEW PARAPET AND SECURED WITH MASTIC. FOR DETAILS SEE ROADWAY SHEET 2C.



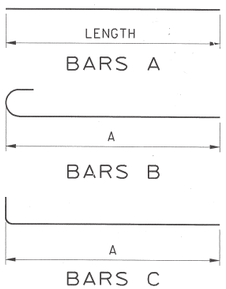
DECK DRAIN ELEVATION DETAIL

(12 REQUIRED)



DETAIL A

BILL OF STEEL								
BAR	LOCATION	SIZE	NO. REQ'D	BENDING DIMENSIONS A	B	C	D	LENGTH
B471E	SLAB	4	1016	2'-8"				3'-2"
A500E	SLAB	5	36					60'-0"
A501E	SLAB	5	72					35'-0"
C501E	SLAB	5	828	5'-0"				5'-4"



REINFORCING STEEL CODE

TYPE	SIZE	SERIES
A	5	06

NOTE: DIMENSIONS SHOWN ON THIS SHEET ARE OUTSIDE TO OUTSIDE OF BAR. STANDARD C.R.S.I. HOOK DETAILS SHALL APPLY, EXCEPT AS NOTED.
NOTE: THE SUFFIX E FOR BARS SO MARKED DENOTES EPOXY COATED REINFORCEMENT.

ESTIMATED QUANTITIES

604-03.01 CLASS "A" CONCRETE (BRIDGE DECK) C.Y.	604-10.18 REINFORCING STEEL (REPAIRS) LB.
54	11,674



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

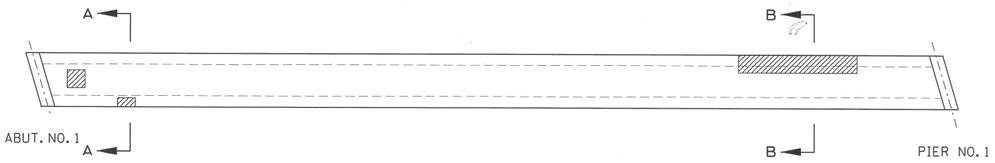
SUPERSTRUCTURE DETAILS

INTERSTATE 40 OVER BOLLING BRANCH
BRIDGE NO. 80-10040-11.46 (E.B.L. & W.B.L.)
SMITH COUNTY
2005

DESIGNED BY	GSP	DATE	02/05
DRAWN BY	GSP	DATE	04/05
SUPERVISED BY	TED A. KNIAZEWYCZ	DATE	02/05
CHECKED BY	TED A. KNIAZEWYCZ	DATE	02/05

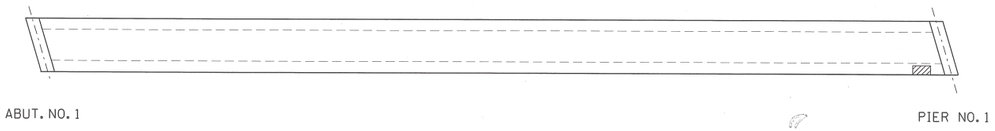
GS&P GRESHAM SMITH AND PARTNERS

BR-73-22



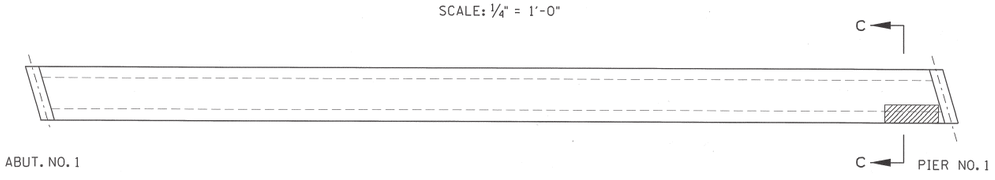
PLAN - BEAM B, SPAN 1

SCALE: 1/4" = 1'-0"



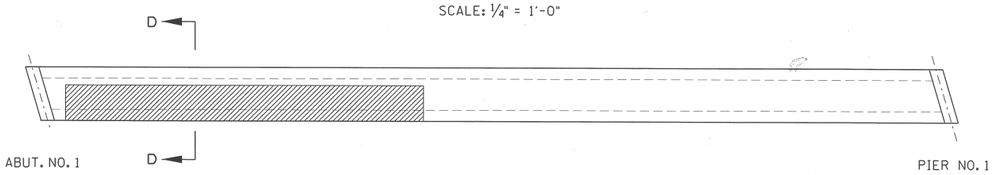
PLAN - BEAM D, SPAN 1

SCALE: 1/4" = 1'-0"



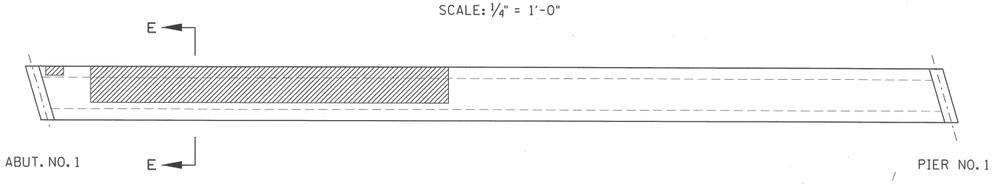
PLAN - BEAM F, SPAN 1

SCALE: 1/4" = 1'-0"



PLAN - BEAM G, SPAN 1

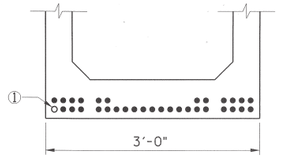
SCALE: 1/4" = 1'-0"



PLAN - BEAM H, SPAN 1

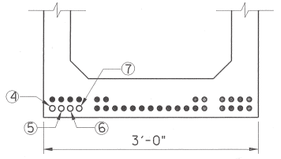
SCALE: 1/4" = 1'-0"

NOTE: ALL BEAM REPAIR AREAS SHOWN ARE LOCATED ON THE BOTTOM OF THE BEAM.



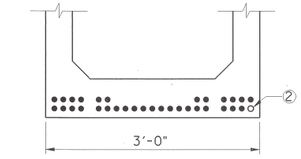
SECTION A-A

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



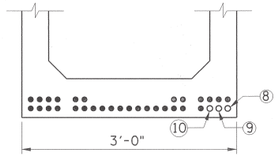
SECTION D-D

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



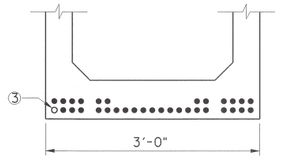
SECTION B-B

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



SECTION E-E

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



SECTION C-C

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"

TABLE ⚠

STRAND	L (ft.)	L_s (ft.)
1	12	8
2	5	1
3	8	4
4	28	24
5	28	24
6	28	24
7	28	24
8	28	24
9	28	24
10	28	24

⚠ LENGTHS SHOWN SHALL BE VERIFIED IN FIELD.

PROJECT NO.	YEAR	SHEET NO.
80001-4179-04	2005	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION

NOTE:

FOR TYPICAL SECTION SHOWING TYPICAL BEAM REPAIR, GENERAL NOTES FOR REPAIRING DAMAGED PRESTRESSED BEAMS, AND SINGLE STRAND SPLICE DETAIL, SEE SHEET BR-73-28.

THE ESTIMATED QUANTITIES REQUIRED FOR THIS PROJECT INCLUDE 45 SPLICE ASSEMBLIES, 220 L.F. OF 3/8" DIAMETER STRANDS AND 140 S.F. OF CONCRETE. THESE QUANTITIES ARE APPROXIMATE ONLY.

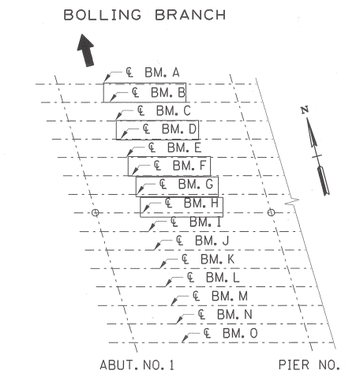
SPECIAL NOTE TO CONTRACTOR: PRESTRESSED CONCRETE BOX BEAM REPAIRS SHOWN ON THIS SHEET ARE APPROXIMATE AREAS AND LENGTHS ONLY, AND MAY BE INCREASED OR DECREASED AS DIRECTED BY THE ENGINEER. ADDITIONAL BEAMS WITHIN THE BRIDGE MAY BE DESIGNATED TO RECEIVE SIMILAR TYPE REPAIRS. THE ENGINEER FROM THE OFFICE OF INSPECTION AND REPAIR SHALL DESIGNATE ALL AREAS OF PRESTRESSED BEAM REPAIR. ANY ADDITIONAL AREAS SHALL BE PAID FOR AT THE UNIT PRICE BID FOR ITEMS 604-10.05 AND 604-10.54, (CONCRETE REPAIRS, S.F.)

LEGEND:

- ● DENOTES EXISTING STRANDS.
- ○ DENOTES COMPROMISED STRAND TO BE SPLICED AND RETENSIONED.
- ▨ DENOTES CONCRETE TO BE REMOVED AS REQUIRED.

ESTIMATED QUANTITIES - RIGHT LANES

ITEM	DESCRIPTION	UNIT	SPAN 1	SPAN 2	TOTAL
604-10.05	CONCRETE	S.F.	70	64	134
604-10.54	CONCRETE REPAIRS	S.F.	6	Ø	6



FRAMING PLAN

SPAN 1



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

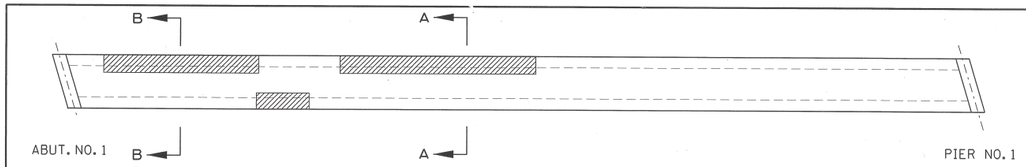
BEAM REPAIR DETAILS
(EAST BOUND LANES)

INTERSTATE 40 OVER BOLLING BRANCH
BRIDGE NO. 80-10040-11.46 (E.B.L. ℄W.B.L.)
SMITH COUNTY
2005

DESIGNED BY GSP DATE 02/05
DRAWN BY GARY YOUNG DATE 04/05
SUPERVISED BY TED A. KNIAZEWYCZ DATE 02/05
CHECKED BY TED A. KNIAZEWYCZ DATE 02/05

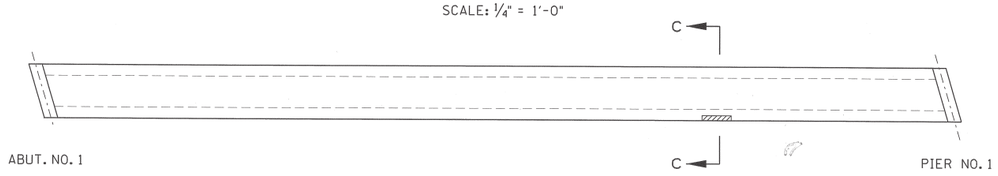
GRESHAM SMITH AND PARTNERS

BR-73-23



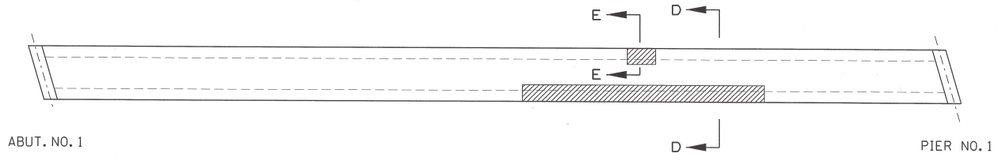
PLAN - BEAM I, SPAN 1

SCALE: 1/4" = 1'-0"



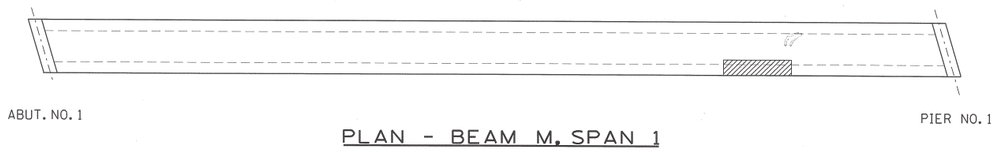
PLAN - BEAM K, SPAN 1

SCALE: 1/4" = 1'-0"



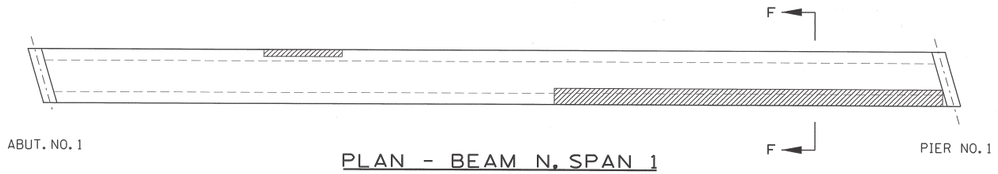
PLAN - BEAM L, SPAN 1

SCALE: 1/4" = 1'-0"



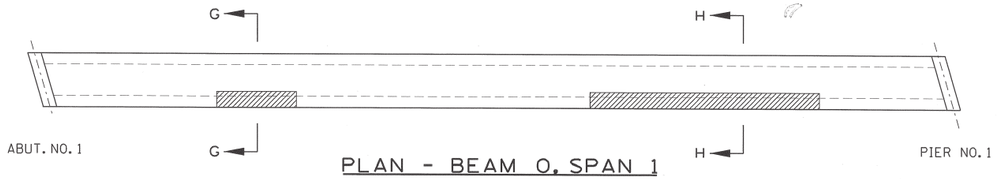
PLAN - BEAM M, SPAN 1

SCALE: 1/4" = 1'-0"



PLAN - BEAM N, SPAN 1

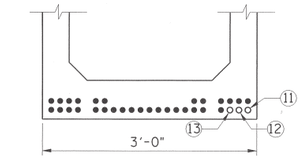
SCALE: 1/4" = 1'-0"



PLAN - BEAM O, SPAN 1

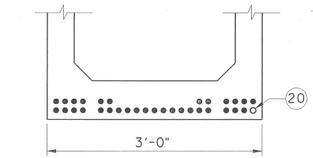
SCALE: 1/4" = 1'-0"

NOTE: ALL BEAM REPAIR AREAS SHOWN ARE LOCATED ON THE BOTTOM OF THE BEAM.



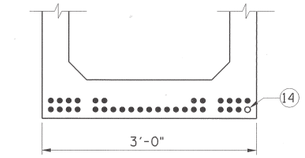
SECTION A-A

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



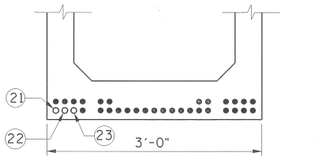
SECTION E-E

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



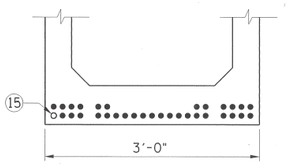
SECTION B-B

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



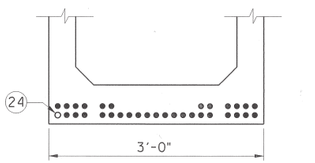
SECTION F-F

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



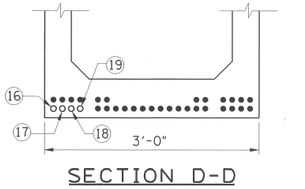
SECTION C-C

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



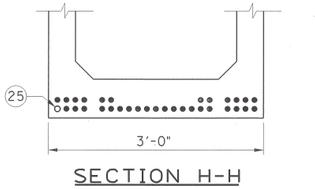
SECTION G-G

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



SECTION D-D

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"

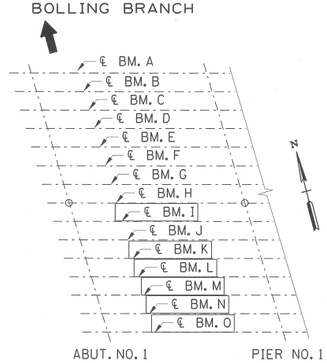


SECTION H-H

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"

LEGEND:

- ● DENOTES EXISTING STRANDS.
- ○ DENOTES COMPROMISED STRAND TO BE SPLICED AND RE-TENSIONED.
- ▨ DENOTES CONCRETE TO BE REMOVED AS REQUIRED.



FRAMING PLAN

SPAN 1

TABLE ⚠

STRAND	L (ft.)	Ls(ft.)
11	14	10
12	14	10
13	14	10
14	11	7
15	5	1
16	14	10
17	14	10
18	14	10
19	14	10
20	5	1
21	28	24
22	28	24
23	28	24
24	17	13
25	9	5

⚠ LENGTHS SHOWN SHALL BE VERIFIED IN FIELD.

NOTE:

SEE SHEET BR-73-23 FOR NOTES AND ESTIMATED QUANTITIES.

PROJECT NO.	YEAR	SHEET NO.
80001-4179-04	2005	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION

TED A. KNIAZEWYCZ — REGISTERED ENGINEER — NO. 022751 — STATE OF TENNESSEE
5/13/05

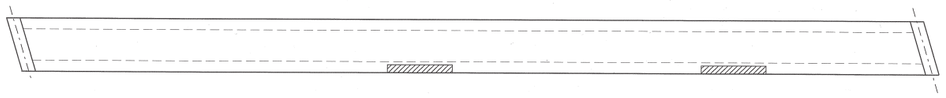
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

BEAM REPAIR DETAILS
(EAST BOUND LANES)

INTERSTATE 40 OVER BOLLING BRANCH
BRIDGE NO. 80-10040-11.46 (E.B.L. & W.B.L.)
SMITH COUNTY
2005

DESIGNED BY GSP — DATE 02/05
DRAWN BY GARY YOUNG — DATE 04/05
SUPERVISED BY TED A. KNIAZEWYCZ — DATE 02/05
CHECKED BY TED A. KNIAZEWYCZ — DATE 02/05

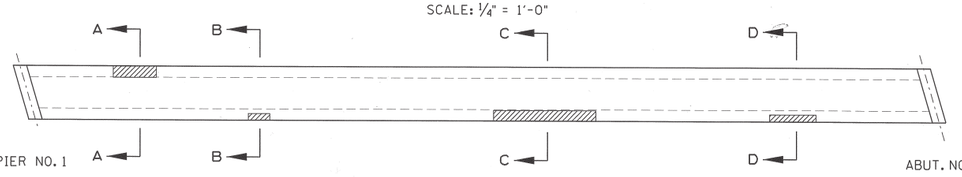
GS&P GRESHAM SMITH AND PARTNERS



PIER NO. 1 ABUT. NO. 2

PLAN - BEAM A, SPAN 2

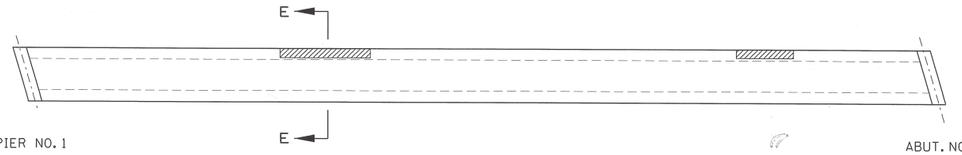
SCALE: 1/4" = 1'-0"



PIER NO. 1 ABUT. NO. 2

PLAN - BEAM C, SPAN 2

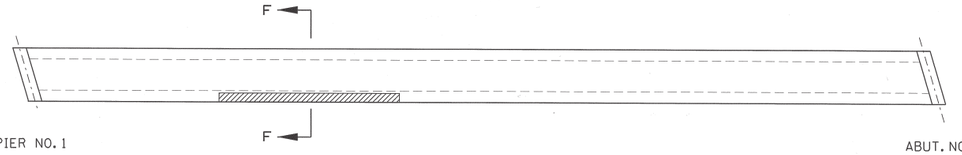
SCALE: 1/4" = 1'-0"



PIER NO. 1 ABUT. NO. 2

PLAN - BEAM D, SPAN 2

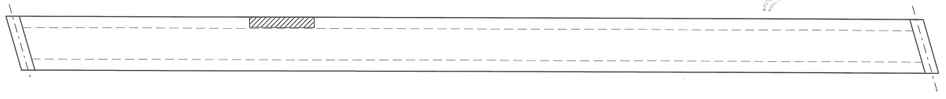
SCALE: 1/4" = 1'-0"



PIER NO. 1 ABUT. NO. 2

PLAN - BEAM G, SPAN 2

SCALE: 1/4" = 1'-0"

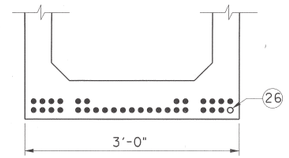


PIER NO. 1 ABUT. NO. 2

PLAN - BEAM H, SPAN 2

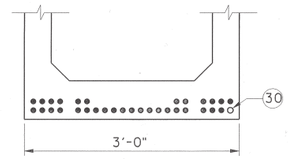
SCALE: 1/4" = 1'-0"

NOTE: ALL BEAM REPAIR AREAS SHOWN ARE LOCATED ON THE BOTTOM OF THE BEAM.



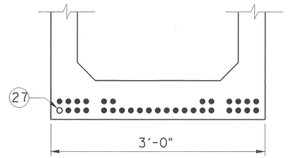
SECTION A-A

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



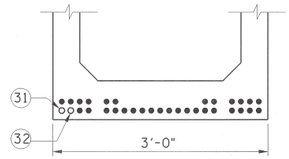
SECTION E-E

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



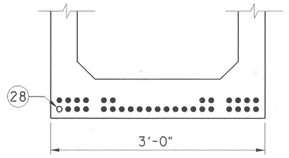
SECTION B-B

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



SECTION F-F

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



SECTION C-C

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"

SECTION D-D

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"

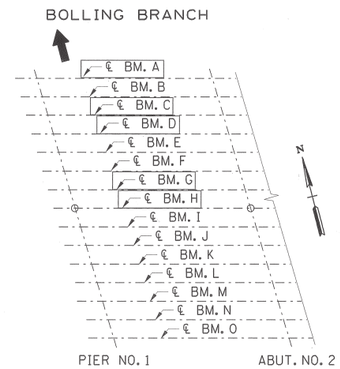
TABLE ⚠

STRAND	L (ft.)	Ls (ft.)
26	6	2
27	10	6
28	5	1
29	6	2
30	8	4
31	11	7
32	11	7

⚠ LENGTHS SHOWN SHALL BE VERIFIED IN FIELD.

LEGEND:

- ● DENOTES EXISTING STRANDS.
- ○ DENOTES COMPROMISED STRAND TO BE SPLICED AND RE-TENSIONED.
- ▨ DENOTES CONCRETE TO BE REMOVED AS REQUIRED.



FRAMING PLAN

SPAN 2

NOTE:

SEE SHEET BR-73-23 FOR NOTES AND ESTIMATED QUANTITIES.

PROJECT NO.	YEAR	SHEET NO.
80001-4179-04	2005	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

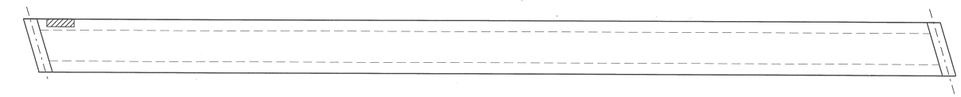
BEAM REPAIR DETAILS (EAST BOUND LANES)

INTERSTATE 40 OVER BOLLING BRANCH
BRIDGE NO. 80-10040-11.46 (E.B.L. & W.B.L.)
SMITH COUNTY
2005

DESIGNED BY	GSP	DATE	02/05
DRAWN BY	GARY YOUNG	DATE	04/05
SUPERVISED BY	TED A. KNIAZEWYCZ	DATE	02/05
CHECKED BY	TED A. KNIAZEWYCZ	DATE	02/05

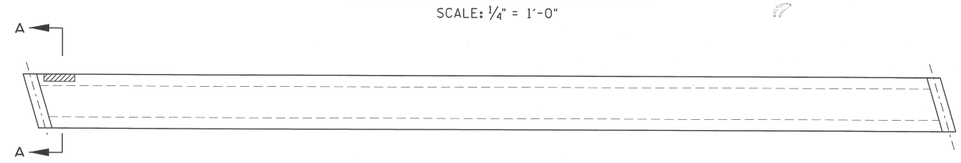
GRESHAM SMITH AND PARTNERS

BR-73-25



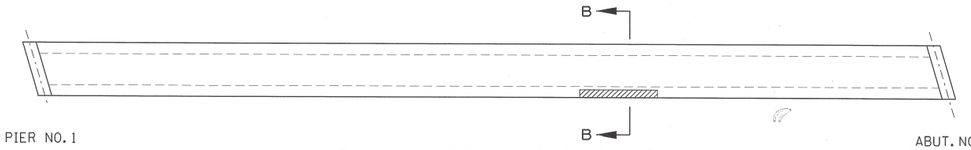
PLAN - BEAM I, SPAN 2

SCALE: 1/4" = 1'-0"



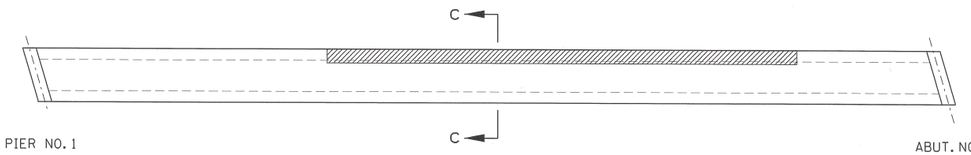
PLAN - BEAM J, SPAN 2

SCALE: 1/4" = 1'-0"



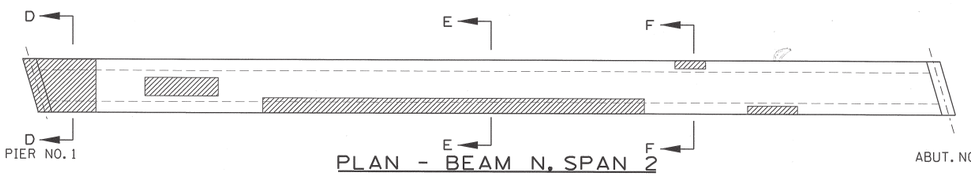
PLAN - BEAM K, SPAN 2

SCALE: 1/4" = 1'-0"



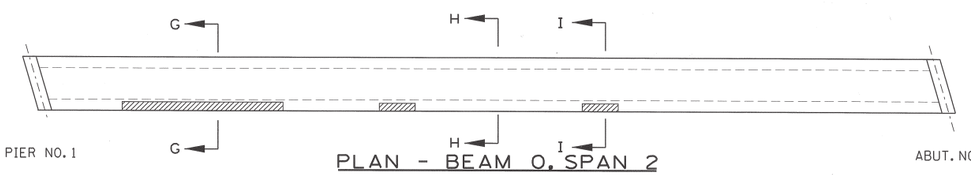
PLAN - BEAM L, SPAN 2

SCALE: 1/4" = 1'-0"



PLAN - BEAM N, SPAN 2

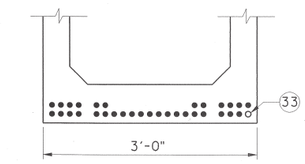
SCALE: 1/4" = 1'-0"



PLAN - BEAM O, SPAN 2

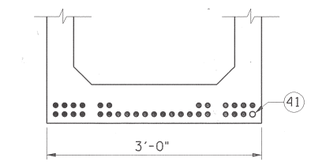
SCALE: 1/4" = 1'-0"

NOTE: ALL BEAM REPAIR AREAS SHOWN ARE LOCATED ON THE BOTTOM OF THE BEAM.



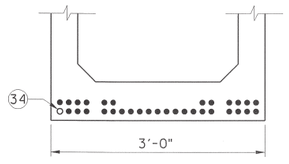
SECTION A-A

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



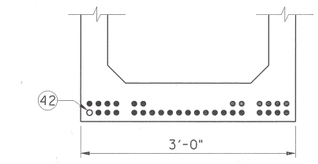
SECTION F-F

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



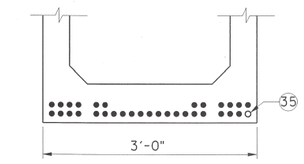
SECTION B-B

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



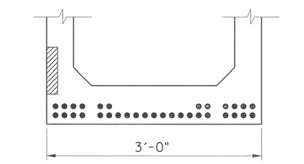
SECTION G-G

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



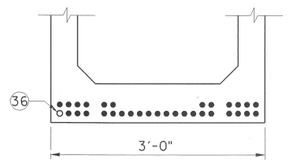
SECTION C-C

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



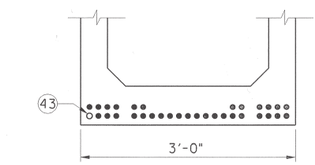
SECTION H-H

(SHOWING REPAIR ON SIDE OF BEAM)
SCALE: 1" = 1'-0"



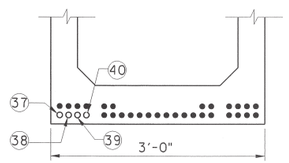
SECTION D-D

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



SECTION I-I

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"

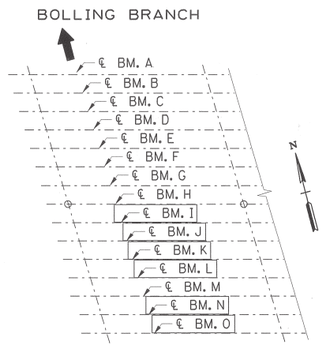


SECTION E-E

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"

LEGEND:

- ● DENOTES EXISTING STRANDS.
- ○ DENOTES COMPROMISED STRAND TO BE SPLICED AND RE-TENSIONED.
- ▨ DENOTES CONCRETE TO BE REMOVED AS REQUIRED.



FRAMING PLAN

SPAN 2

TABLE ⚠

STRAND	L (ft.)	Ls (ft.)
33	5	1
34	9	5
35	28	24
36	5	1
37	22	18
38	22	18
39	22	18
40	22	18
41	9	5
42	5	1
43	12	8

⚠ LENGTHS SHOWN SHALL BE VERIFIED IN FIELD.

PROJECT NO.	YEAR	SHEET NO.
80001-4179-04	2005	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION

NOTE:

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STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

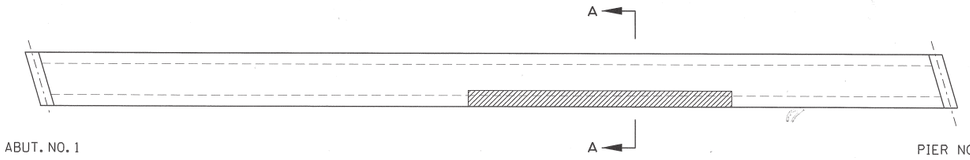
BEAM REPAIR DETAILS
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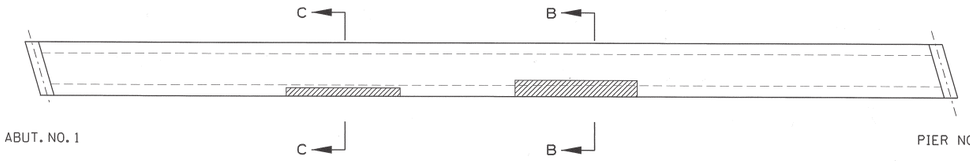
GRESHAM SMITH AND PARTNERS

BR-73-26



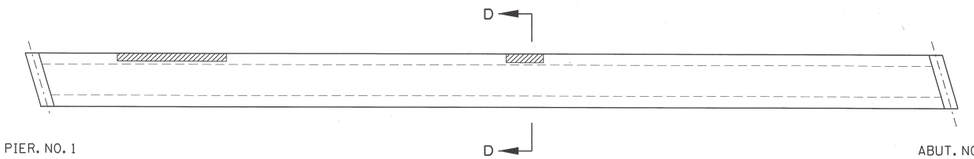
PLAN - BEAM B, SPAN 1

SCALE: 1/4" = 1'-0"



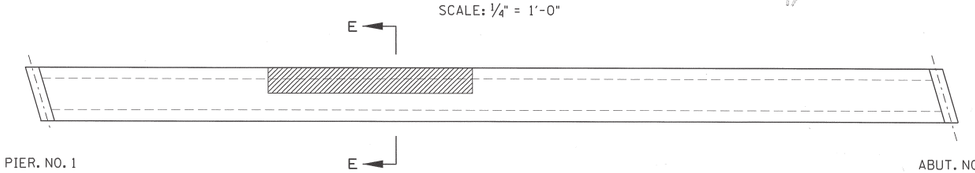
PLAN - BEAM D, SPAN 1

SCALE: 1/4" = 1'-0"



PLAN - BEAM M, SPAN 2

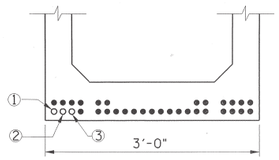
SCALE: 1/4" = 1'-0"



PLAN - BEAM O, SPAN 2

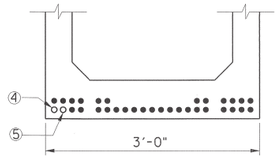
SCALE: 1/4" = 1'-0"

NOTE: ALL BEAM REPAIR AREAS SHOWN ARE LOCATED ON THE BOTTOM OF THE BEAM.



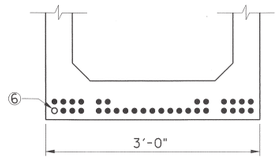
SECTION A-A

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



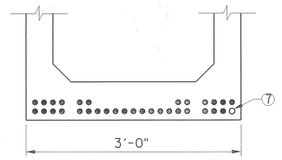
SECTION B-B

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



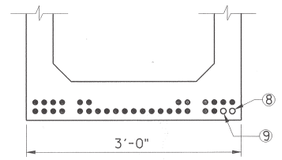
SECTION C-C

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



SECTION D-D

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"



SECTION E-E

(SHOWING STRANDS TO BE REPAIRED)
SCALE: 1" = 1'-0"

LEGEND:

- ● DENOTES EXISTING STRANDS.
- ○ DENOTES STRAND TO BE SPLICED AND RE-TENSIONED.
- ▨ DENOTES CONCRETE TO BE REMOVED AS REQUIRED.

TABLE △

STRAND	L (ft.)	Ls(ft.)
1	16	12
2	16	12
3	16	12
4	9	5
5	9	5
6	9	5
7	5	1
8	11	7
9	11	7

△ LENGTHS SHOWN SHALL BE VERIFIED IN FIELD.

PROJECT NO.	YEAR	SHEET NO.
80001-4179-04	2005	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION

NOTE:

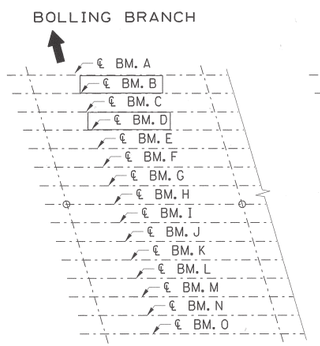
FOR TYPICAL SECTION SHOWING TYPICAL BEAM REPAIR, GENERAL NOTES FOR REPAIRING DAMAGED PRESTRESSED BEAMS, AND SINGLE STRAND SPLICE DETAIL, SEE SHEET BR-73-28.

THE ESTIMATED QUANTITIES REQUIRED FOR THIS PROJECT INCLUDE 9 SPLICE ASSEMBLIES, 105 L.F. OF 3/8" DIAMETER STRANDS AND 20 S.F. OF CONCRETE. THESE QUANTITIES ARE APPROXIMATE ONLY.

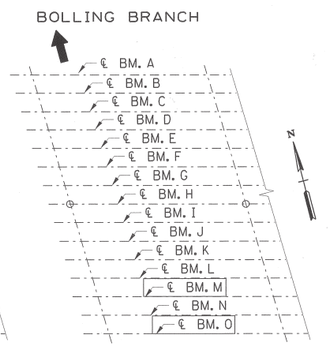
SPECIAL NOTE TO CONTRACTOR: PRESTRESSED CONCRETE BOX BEAM REPAIRS SHOWN ON THIS SHEET ARE APPROXIMATE AREAS AND LENGTHS ONLY, AND MAY BE INCREASED OR DECREASED AS DIRECTED BY THE ENGINEER. ADDITIONAL BEAMS WITHIN THE BRIDGE MAY BE DESIGNATED TO RECEIVE SIMILAR TYPE REPAIRS. THE ENGINEER FROM THE OFFICE OF INSPECTION AND REPAIR SHALL DESIGNATE ALL AREAS OF PRESTRESSED BEAM REPAIR. ANY ADDITIONAL AREAS SHALL BE PAID FOR AT THE UNIT PRICE BID FOR ITEMS 604-10.05 AND 604-10.54, (CONCRETE REPAIRS, S.F.)

ESTIMATED QUANTITIES - LEFT LANES

ITEM	DESCRIPTION	UNIT	SPAN 1	SPAN 2	TOTAL
604-10.05	CONCRETE	S.F.	19	1	19
604-10.54	CONCRETE REPAIRS	S.F.	Ø	11	12



FRAMING PLAN
SPAN 1



FRAMING PLAN
SPAN 2



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

BEAM REPAIR DETAILS
(WEST BOUND LANES)

INTERSTATE 40 OVER BOLLING BRANCH
BRIDGE NO. 80-10040-11.46 (E.B.L. & W.B.L.)
SMITH COUNTY
2005

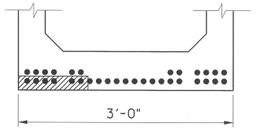
BR-73-27

DESIGNED BY	GSP	DATE	02/05
DRAWN BY	GSP	DATE	04/05
SUPERVISED BY	TED A. KNIAZEWYCZ	DATE	02/05
CHECKED BY	TED A. KNIAZEWYCZ	DATE	02/05

GRESHAM SMITH AND PARTNERS

GENERAL NOTES FOR REPAIRING DAMAGED PRESTRESSED BEAMS

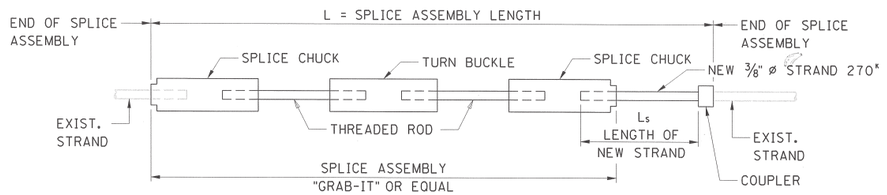
1. SAW CUT CONCRETE ½" TO OBTAIN SQUARE AREAS AND REMOVE PORTIONS OF THE PRESTRESSED BEAM AS SHOWN ON THESE PLANS TO INSURE THAT SOUND CONCRETE IS REACHED IN ALL AREAS.
2. ASSEMBLE SPLICE, LOCATING SPLICE SLEEVES AND STRAND GRIPS TO ALLOW SEATING OF THE STRAND GRIPS AND SUFFICIENT THREAD LENGTHS IN THE SPLICE SLEEVES.
3. STRAND SPLICE ASSEMBLIES SHALL BE INSTALLED AND TORQUED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND DETAILS ON THIS SHEET. THE STRAND SPLICE ASSEMBLY SHALL BE A "GRAB-IT" CABLE SPLICE OR EQUIVALENT. "GRAB-IT" CAN BE OBTAINED FROM PRESTRESSED SUPPLY, INC. AT 1-800-328-8036. TORQUE LUBRICATED SPLICE SLEEVES TO APPROXIMATELY 14,200 POUNDS. THE STRAND GRIPS MUST BE PREVENTED FROM ROTATING DURING TORQUING. SEE SINGLE SPLICE STRAND DETAIL ON THIS SHEET. SEE SECTION FOR LOCATION OF STRANDS TO BE REPAIRED.
4. FORM AND POUR REPAIR AREA TO ORIGINAL BEAM LINES USING F'C = 5000 PSI CONCRETE. AGGREGATE USED SHALL BE SIZE NO. 6 MAXIMUM. THE FORMS MAY BE STRIPPED ONLY AFTER CONCRETE HAS OBTAINED A COMPRESSIVE STRENGTH OF NOT LESS THAN 2500 PSI.
5. ASTM GRADE 270K, ⅜" DIAMETER 7-WIRE STRESS RELIEVED STRANDS ARE TO BE USED FOR SPLICING EXISTING STRANDS. CONTRACTOR SHALL VERIFY THE SIZE OF THE EXISTING STRANDS PRIOR TO ORDERING. THE SIZE OF THE NEW STRANDS SHALL MATCH THE STRANDS BEING SPLICED.
6. APPROVAL OF MATERIALS: NO FABRICATION SHALL BE STARTED UNTIL THE MATERIALS INVOLVED HAVE BEEN APPROVED BY THE TENNESSEE DEPARTMENT OF TRANSPORTATION, DIVISION OF MATERIALS AND TESTS.



TYPICAL SECTION

(SHOWING TYPICAL BEAM REPAIR)

NOTE: FOR REPAIR LOCATIONS, SEE SHEETS BR-73-23 THRU BR-73-28



SINGLE STRAND SPLICE DETAIL

THE COST OF SPLICE ASSEMBLIES, INCLUDING TURN BUCKLES, SPLICE CHUCKS, COUPLER, NEW STRANDS AND INSTALLATION SHALL BE INCLUDED UNDER ITEM 604-10.69, PRESTRESSED STRAND SPLICE (EACH).

NOTES FOR EPOXY INJECTION

UNLESS OTHERWISE NOTED, THE INTENT OF THIS SPECIFICATION IS FOR DESIGNATED CRACKS TO BE INJECTED THEIR FULL LENGTH AND DEPTH.

DESIGNATED CRACKS SHALL BE INJECTED WITH AN APPROVED EPOXY RESIN ADHESIVE FILLING ALL VOIDS FOR THE CRACK DEPTH OR THICKNESS OF THE MEMBER. THE EPOXY RESIN ADHESIVE SHALL BE ON THE CURRENT QUALIFIED PRODUCTS LIST MAINTAINED BY THE DIVISION OF MATERIALS AND TEST. ALL CRACKS SHALL BE INJECTED USING AN ADHESIVE SUITABLE FOR THE FIELD CONDITIONS (CRACK WIDTH, TEMPERATURE, HUMIDITY, ETC.) RECOMMENDED BY THE ADHESIVE MANUFACTURER AS SHOWN ON MATERIAL DATA SHEETS. FOLLOWING INJECTION, ALL INJECTION PORTS AND CAPPING MATERIAL SHALL BE REMOVED FROM EXPOSED SURFACES LEAVING THE SURFACE SMOOTH AND FLUSH WITH THE SURROUNDING CONCRETE SURFACES.

THE CONTRACTOR SHALL HAVE SUFFICIENT EXPERIENCE AND TRAINING TO PERFORM THE EPOXY INJECTION IN ACCORDANCE WITH THESE PLANS. PRIOR TO PERFORMING ANY WORK, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER A WRITTEN PROCEDURE FOR PERFORMING THE EPOXY INJECTION. THE PROCEDURE SHALL DESCRIBE IN DETAIL HOW THE WORK WILL BE PERFORMED. THE PROCEDURE SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING INFORMATION.

1) DESCRIPTION OF EQUIPMENT.
   THE INJECTION EQUIPMENT SHALL BE OF THE TYPE THAT MIXES ADHESIVE COMPONENTS AT THE INJECTION HEAD.

   THE INJECTION EQUIPMENT SHALL BE CAPABLE OF DISCHARGING MIXED ADHESIVE AT ANY PRESSURE UP TO 300 PSI. THE INJECTION EQUIPMENT SHALL BE EQUIPPED WITH GAUGES WHICH CAN MEASURE THE INJECTION PRESSURE AND VOLUME.
2) EQUIPMENT CALIBRATION PROCEDURES AND SCHEDULE.
3) MATERIALS TO BE USED (INCLUDING MANUFACTURER DATA SHEETS)
   CAPPING MATERIAL.

   EPOXY ADHESIVE (TYPE TO BE APPROPRIATE FOR CRACK SIZES TO BE INJECTED).
4) PORT SPACING
   PORT SPACING SHALL NOT BE LESS THAN THE THICKNESS OF THE CONCRETE IN THAT LOCATION.
5) INJECTION SEQUENCE
   INJECTION SHALL PROCEED FROM LOWER END OF CRACK ALONG ADJACENT PARTS.

   SKIPPING OF PORTS DURING INJECTION SHALL NOT BE ALLOWED.

THE CONTRACTOR SHALL HAVE THE MANUFACTURER'S INSTRUCTIONS FOR PROPORTIONING AND MIXING AVAILABLE AT THE JOB SITE AT ALL TIMES AND SHALL ENSURE THAT THE EQUIPMENT IS SUPPLYING THE MIXED ADHESIVE IN THE CORRECT PROPORTIONS.

TO ENSURE PROPER MIXING AND PROPORTIONING, SAMPLES SHALL BE TAKEN FROM THE INJECTOR HEAD. SAMPLES SHALL BE TAKEN AT THE START OF EACH WORKDAY AND EACH TIME THE ADHESIVE RESERVOIRS ARE REFILLED. THE SAMPLES SHALL BE IN A TEST CUP. THE SAMPLE SHALL BE MONITORED TO ENSURE THAT THE CURE TIME IS IN COMPLIANCE WITH THE MANUFACTURER'S DATA SHEETS. IF THE SAMPLES DO NOT CURE IN THE SPECIFIED TIME THEN THE EQUIPMENT USED TO PRODUCE THE SAMPLE SHALL NOT BE USED UNTIL THE PROBLEM IS CORRECTED.

CORE SAMPLES SHALL BE TAKEN AS VERIFICATION OF THE QUALITY OF WORK. THE CONTRACTOR SHALL TAKE ONE (1) ONE (1) INCH DIAMETER (FULL DEPTH OF CONCRETE AT LOCATION CORED) CORE SAMPLE STARTING WITH THE FIRST REPAIR LOCATION THEN EVERY 3RD REPAIR LOCATION AFTERWARDS. WORK SHALL NOT PROCEED UNTIL THE CORE SAMPLE IS TAKEN AND ACCEPTED. ALL CORE SAMPLES AND HOLES SHALL BE INDEXED FOR FUTURE REFERENCE. THE ENGINEER SHALL DESIGNATE ALL LOCATIONS TO BE CORED. IF ANY CORES SHOW UNACCEPTABLE RESULTS, ALL WORK SHALL BE STOPPED UNTIL THE CONTRACTOR SUBMITS A PROPOSAL FOR CORRECTING UNACCEPTABLE WORK.

THE INITIAL CORE WILL ALSO SERVE TO QUALIFY THE FOREMAN FOR THIS WORK. IF AT ANY TIME A NEW FOREMAN IS USED, HE SHALL BE QUALIFIED WITH A CORE SAMPLE.

THE CONTRACTOR, AT HIS EXPENSE, SHALL REPAIR ALL CORE HOLES WITH AN APPROVED CEMENTITIOUS PATCHING MATERIAL.

CORE SAMPLES SHALL BE VISUALLY INSPECTED TO CONFIRM THAT CRACKS ARE COMPLETELY FILLED WITH ADHESIVE. ANY CORE HAVING LESS THAN 95% OF THE CRACK FILLED WITH ADHESIVE SHALL BE CONSIDERED UNACCEPTABLE AND BE REJECTED.

CORE SAMPLES SHALL BE TESTED FOR BOND STRENGTH. SAMPLES MAY BE FRACTURED BY HAMMER BLOW TO CRACK AREA OR THROWN AT A HARD SURFACE. IF ADHESIVE FAILURE OCCURS BEFORE CONCRETE FAILURE, THE CORE SHALL BE CONSIDERED UNACCEPTABLE AND REJECTED.

PAYMENT FOR EPOXY INJECTION CRACK REPAIR SHALL BE MADE UNDER ITEM NUMBERS
604-10.62, EPOXY INJECTION REPAIR (COMPLETE AND IN PLACE), LF AND
604-10.58, EPOXY INJECTION (INJECTION), GAL

PRICE BID FOR ITEM NUMBER 604-10.62, EPOXY INJECTION REPAIR (COMPLETE AND IN PLACE), LF, SHALL INCLUDE COST OF ALL LABOR AND MATERIALS (EXCEPT ADHESIVE) FOR GRINDING FOR SURFACE PREPARATION, CRACK PREPARATION, CAPPING, INJECTION OF ADHESIVE, ALL SAMPLING AND TESTING, REMOVAL OF CAPPING MATERIAL AND PORTS, AND OTHER INCIDENTALS. CRACKS SHALL BE MEASURED FOR PAYMENT ALONG THE LENGTH OF THE VISIBLE SURFACE CRACK.

PRICE BID FOR ITEM NUMBER 604-10.58, EPOXY INJECTION (INJECTION), GAL, SHALL INCLUDE COST FOR ADHESIVE MATERIAL INJECTED ONLY.

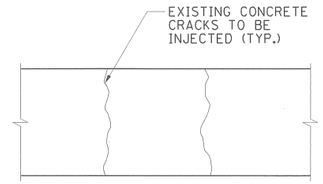
NO PAYMENT SHALL BE MADE FOR REWORK DEEMED NECESSARY BY FAILURE OF ADHESIVE SAMPLES OR CORE SAMPLES.

ALL WORK INCLUDING SAMPLING AND TESTING SHALL BE IN THE PRESENCE OF THE ENGINEER OR HIS REPRESENTATIVE OR CONTRACT INSPECTORS. ANY WORK DONE WITHOUT INSPECTORS PRESENT SHALL NOT BE PAID FOR. THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH WEEKLY SCHEDULES OF WORK TO BE PERFORMED. SCHEDULES SHALL BE SUBMITTED AT LEAST THREE (3) DAYS IN ADVANCE OF WORK TO BE DONE. THE ENGINEER SHALL BE NOTIFIED OF ANY CHANGE IN THE SCHEDULE A MINIMUM OF TWENTY-FOUR (24) HOURS IN ADVANCE OF CHANGE.

PROJECT NO.	YEAR	SHEET NO.
80001-4179-04	2005	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION



PLAN

(SHOWING TYPICAL CRACKS ON BOTTOM OF BEAM)

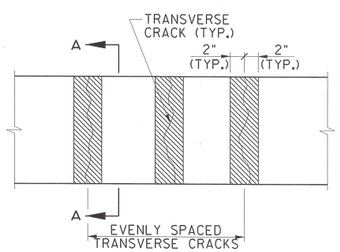
TED A. KNIAZEWYCZ
REGISTERED ENGINEER
No. 020757
STATE OF TENNESSEE
5/10/05

NOTE

SEE SHEET BR-73-29 FOR SPALLED CONCRETE REPAIR.

NOTES FOR CONCRETE REPAIR AT STIRRUPS

IN AREAS WHERE TRANSVERSE CRACKS IN BOTTOM OF BEAM ARE EVENLY SPACED AT APPROXIMATELY 16" THE POTENTIAL FOR CORROSION OF THE STIRRUP STEEL EXISTS. IN THESE AREAS, THE CONCRETE SHALL BE REMOVED AS SHOWN. SAID AREAS SHALL BE REPAIRED UNDER ITEM 604-10.05 CONCRETE, S.F.

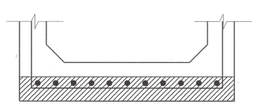


PLAN

(SHOWING CRACKS ON BOTTOM OF BEAM)

LEGEND

INDICATES CONCRETE REMOVAL AREA



SECTION A-A

DESIGNED BY	GSP	DATE	02/05
DRAWN BY	GSP	DATE	04/05
SUPERVISED BY	TED A. KNIAZEWYCZ	DATE	02/05
CHECKED BY	TED A. KNIAZEWYCZ	DATE	02/05

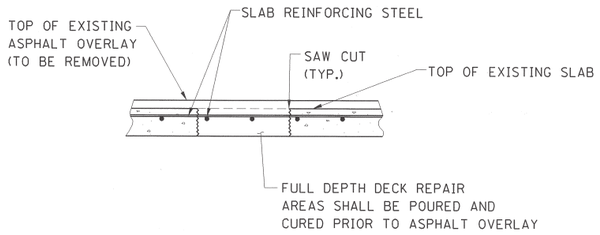
GRESHAM SMITH AND PARTNERS

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

BEAM REPAIR DETAILS

INTERSTATE 40 OVER BOLLING BRANCH
BRIDGE NO. 80-I0040-11.46 (E.B.L. & W.B.L.)
SMITH COUNTY
2005

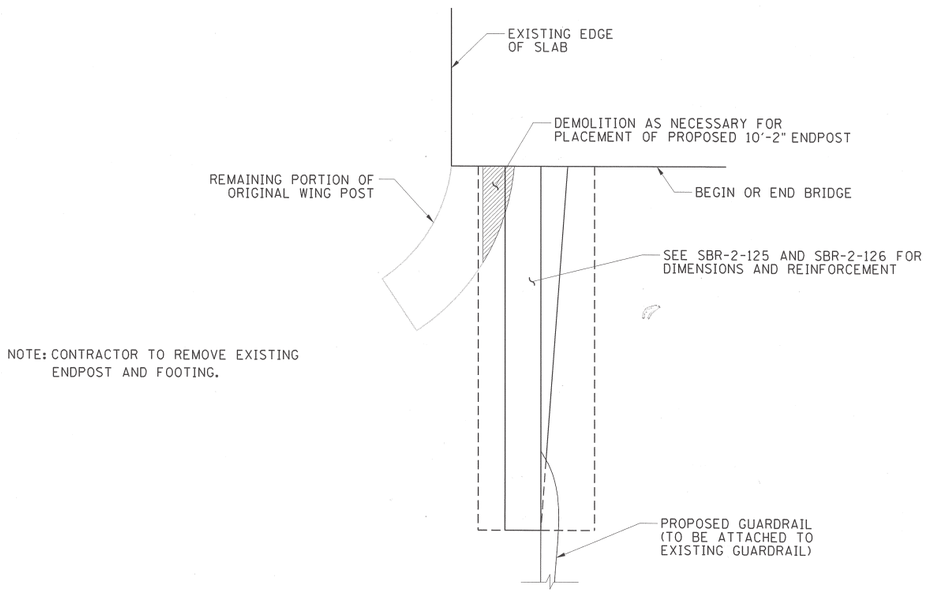
BR-73-28



BRIDGE DECK REPAIR DETAIL
(SHOWING FULL DEPTH REPAIR)

NOTES

1. AREAS OF FULL DEPTH REPAIR TO BE MARKED BY THE ENGINEER AFTER THE EXISTING ASPHALT OVERLAY IS REMOVED.
2. CONCRETE FOR FULL DEPTH REPAIRS SHALL BE HIGH EARLY STRENGTH (18 HOUR). FOR HIGH EARLY STRENGTH CONCRETE NOTES, SEE DRAWING BR-73-19.



TYPICAL PLAN VIEW FOR 10'-2" ENDPOST

DESIGNED BY	GSP	DATE	02/05
DRAWN BY	GSP	DATE	04/05
SUPERVISED BY	TED A. KNIAZEWYCZ	DATE	02/05
CHECKED BY	TED A. KNIAZEWYCZ	DATE	02/05

GRESHAM SMITH AND PARTNERS

CONCRETE REPAIRS SCHEDULE
(SUBSTRUCTURE)

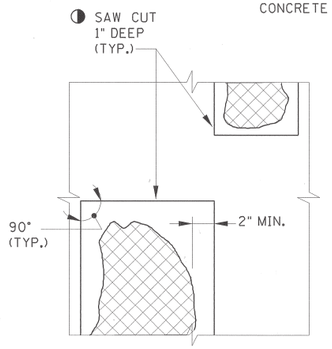
LOCATION OF REPAIR	ITEM NO. 604-10.05 CONCRETE (SF)	ITEM NO. 604-10.54 CONCRETE (SF)
BENT NO. 1 (RL)	5	102
BENT NO. 1 (LL)	3	2
ABUTMENT NO. 1 (RL)	4	2
ABUTMENT NO. 1 (LL)	5	2
ABUTMENT NO. 2 (RL)	2	2
ABUTMENT NO. 2 (LL)	3	2
TOTAL	22	112

NOTE: SEE DRAWING NO.'S BR-73-23 AND BR-72-27 FOR CONCRETE REPAIR QUANTITIES TO SUPERSTRUCTURE.

PROJECT NO.	YEAR	SHEET NO.
80001-4179-04	2005	

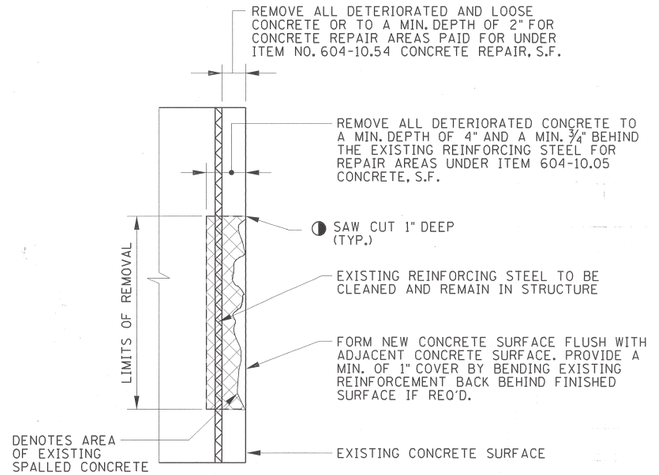
REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION



◑ SAW CUT EXISTING CONCRETE 1" DEEP SO AS TO OBTAIN A RECTANGULAR AREA, ALL EXISTING REINFORCING SHALL BE CAREFULLY PRESERVED AND BLAST CLEANED.

DENOTES: AREA OF EXISTING SPALLED CONCRETE



SPALLED CONCRETE REPAIR DETAIL

NOTES:

COST OF SAW CUTTING, EXISTING CONCRETE REMOVAL, COMPLETELY CLEANING OF EXISTING REINFORCING STEEL, HIGH EARLY STRENGTH CONCRETE, LABOR AND ANY MISCELLANEOUS MATERIALS NECESSARY TO COMPLETE THE REPAIRS AS SHOWN IN THESE DETAILS TO BE INCLUDED UNDER ITEM NO. 604-10.05, CONCRETE, S.F.

EXTREME CARE SHALL BE TAKEN WHEN REMOVING THE EXISTING SPALLED CONCRETE SO AS NOT TO DAMAGE THE EXISTING REINFORCING STEEL. ALL EXPOSED REINFORCING STEEL SHALL BE COMPLETELY CLEANED TO REMOVED ALL RUST. ALL EXISTING REINFORCEMENT SHALL REMAIN IN PLACE. ALL WORK MUST MEET WITH FULL APPROVAL OF THE ENGINEER.

THE ENGINEER SHALL HAVE THE OPTION OF DESIGNATING A SPALL AREA TO BE REPAIRED UNDER ITEM NO. 604-10.05 OR 604-10.54. PATCHING MATERIAL FOR ITEM NO. 604-10.05 SHALL BE HIGH EARLY STRENGTH CONCRETE. PATCHING MATERIAL FOR ITEM NO. 604-10.54 SHALL BE A POLYMER MODIFIED CEMENTIOUS STRUCTURAL PATCHING MATERIAL. SEE QUALIFIED PRODUCTS LIST 13, SUBLIST (F).

THE ENGINEER SHALL DESIGNATE ALL SPALLED CONCRETE REPAIR AREAS IN THE FIELD. QUANTITIES GIVEN ARE APPROXIMATE. IT ME NO. 604-10.05 AND 604-10.54 SHALL BE BID WITH THE CONTINGENCY THAT IT MAY BE INCREASED, DECREASED, OR ELIMINATED BY THE ENGINEER.

POWER DRIVEN HAND TOOLS USED FOR REMOVAL OF UNSOUND CONCRETE ARE SUBJECT TO THE FOLLOWING RESTRICTIONS:

1. PNEUMATIC HAMMERS HEAVIER THAN 35 LB. CLASS SHALL NOT BE USED.
2. CHIPPING HAMMERS OF THE 15 LB. CLASS SHALL NOT BE USED TO REMOVE CONCRETE FROM BEHIND REINFORCING STEEL

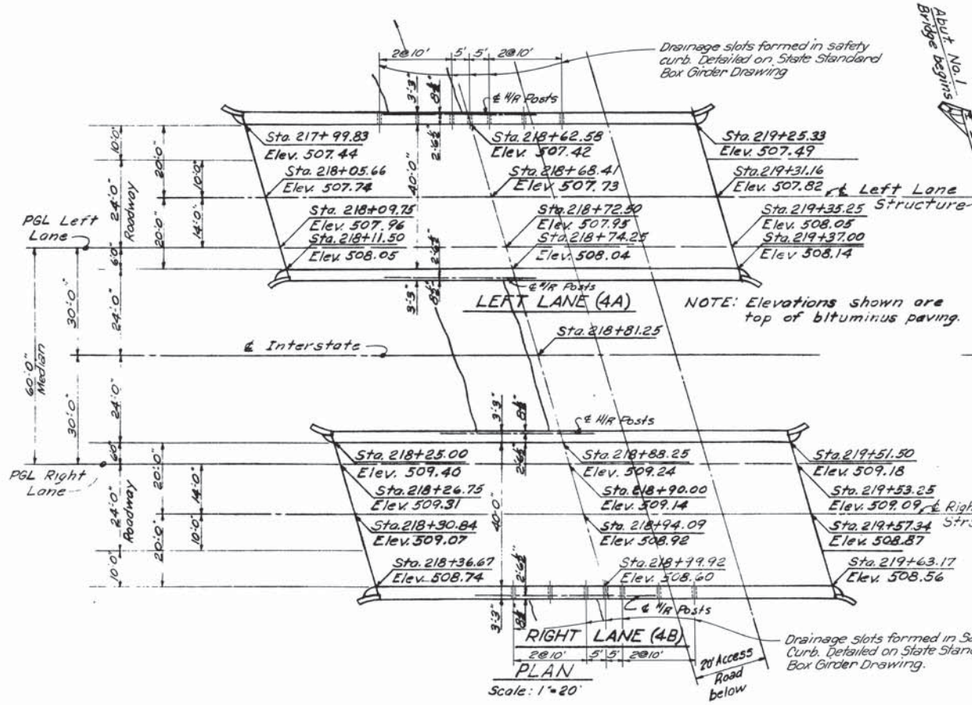


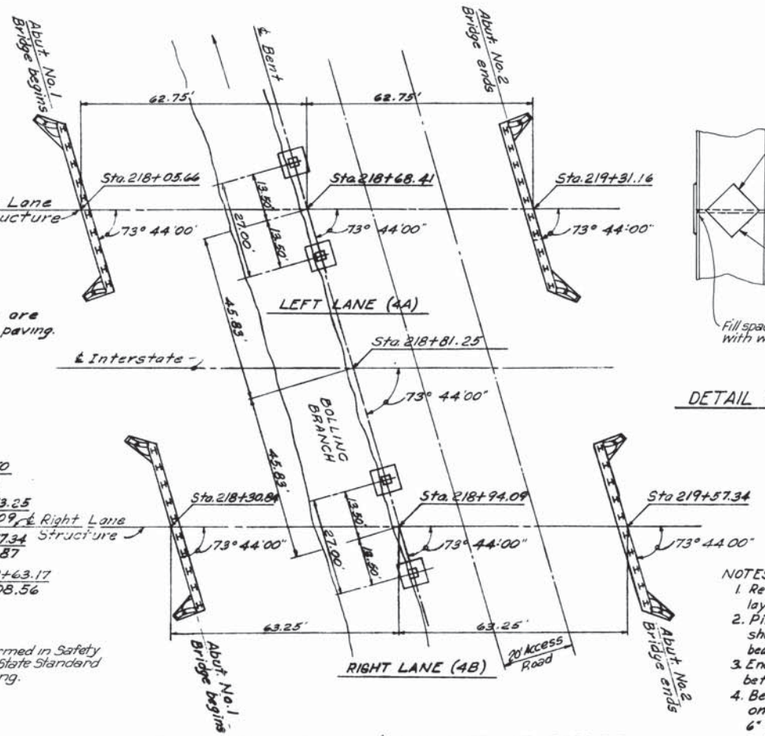
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

TYPICAL REPAIR DETAILS

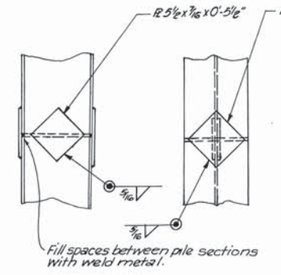
INTERSTATE 40 OVER BOLLING BRANCH
BRIDGE NO. 80-10040-11.46 (E.B.L. & W.B.L.)
SMITH COUNTY
2005

FED ROAD DIST No		FEDERAL AID PROJECT No.	FISCAL YEAR	SHEET No	TOTAL SHEETS
3	TENN	I-40-5(10)259	1960	40	276 ~~365~~





FOUNDATION PLAN ℄ LAYOUT OF BRIDGE
Scale: 1"=20'

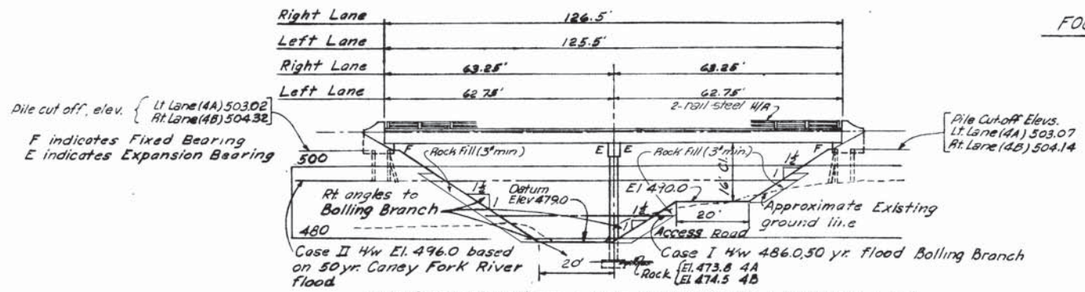


DETAIL OF PILE SPLICE

GENERAL NOTES:

GENERAL SPECIFICATIONS: Standard Road and Bridge Specifications of the Tennessee Department of Highways and Public Works.
DESIGN SPECIFICATIONS: Standard Specifications for Highway Bridges AASHO 1957 and tentative AASHO Specifications covering prestressed concrete design and construction.
DESIGN LOADING: H20-S16-44 and for alternate loading as per Sec. 4c of PPM 20-4.
CONCRETE: All concrete shall be class "A" and shall be air entrained.
REINFORCING STEEL: See Specifications.
FORMS AND FINISH: See Specifications.
HANDRAILS: Standard 2-rail steel hand-railing, Tennessee Highway Department Standard.
PILES: Piles shall be 10BP42 where required and shown.
PRECAST PRESTRESSED CONCRETE GIRDERS: See special provisions.
BEARING PADS: See special provisions.

NOTES:
1. Refer to Abutment detail drawings for layout of piles.
2. Piles for Abutments shall be 10BP42 and shall be driven to rock or to a minimum bearing of 30 tons each.
3. End fills shall be in place and compacted before driving piles for Abutments
4. Bent footings are assumed to bear on rock and shall set a minimum of 6" into rock.



ELEVATION - LEFT LANE AND RIGHT LANE (4A & 4B)
Scale: 1"=20'

ESTIMATED QUANTITIES

ITEM NO.	17-2	174	135-4	135-12	702	137-3	17-3	154-1C	154-1B	17-5
ITEMS	EXCAVATION		CONC.	REINF.	STEEL HANDRAIL 2-RAIL	10BP42	EXCAV.	36" X 33" BOX GIRDERS		ROCK DRILLING
BRIDGE #4B	CU. YDS.		CLASS A	STEEL		PILES	CU.YDS.			
RIGHT LANE	DRY	ROCK	CU YDS.	LBS.	LIN. FT.	LIN. FT.	WET	62'-9" LG.	63'-3" LG.	LIN. FT.
SUPERSTRUCTURE			28.3	1040	253					
GIRDERS									30	
ABUTMENT #1			20.8	2636		445				
ABUTMENT #2			20.7	2629		355				
BENT	15	3	42.0	12526			17			
TOTALS	15	3	111.8	18,831	253	800	17		30	12

BRIDGE #4A										
LEFT LANE										
SUPERSTRUCTURE			28.0	1025	251					
GIRDERS								30		
ABUTMENT #1			20.6	2629		420				
ABUTMENT #2			20.7	2634		363				
BENT	28	2	41.7	12,283			20			
TOTALS	28	2	111.0	18,571	251	783	20	30		12

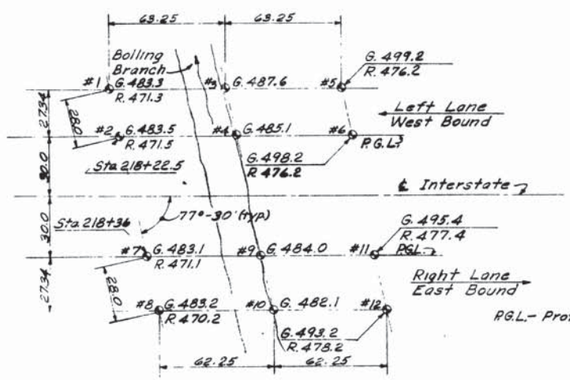
Note: All joint material shall be included in the unit price bid for Class "A" concrete, unless provided for in the Special Provisions for box girders.

LIST OF DRAWINGS — DWG. No.

Layout of Bridges ——— G-15-30
Abutments Nos. 1 & 2 Right Lane, Nos. 1 & 2 Left Lane ——— G-15-31
Bents, Right Lane and Left Lane ——— G-15-32
Layout of Box Girders ——— G-15-33
Layout of Safety Curbs ——— G-15-34
Reinforcing Steel Schedule ——— G-15-35
Steel Handrail ——— G-10-99
Precast Prestressed Box Girders ——— F-10-84 and F-10-85

NOTE After Bent Foundations are uncovered, holes six (6) feet deep shall be drilled into rock at points designated by the Engineer.

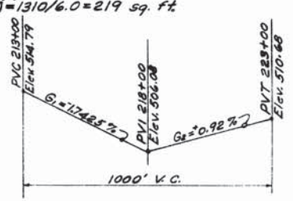
SMITH COUNTY
2-40' Roadways with Safety Curbs



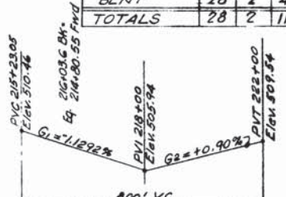
SOUNDING LAYOUT
N.T.S.

P.G.L.- Profile Grade Line

DESIGN DATA:
Case II-Based on backwater curves for 50 yr. flood Caney Fork River.
Case I-50 yr. flood Bolling Branch.
Drainage Area = 2200 Acres.
Flow based on Potter Charts, Q-50 yr. = 1310 c.f.s.
Design Velocity, V = 6.0 f.p.s.
Req'd Area, A = 1310/6.0 = 219 sq. ft.



RIGHT LANE (4B)



LEFT LANE (4A)

VERTICAL CURVE DATA

Scale as Noted

MID-SOUTH ENGINEERING CO., INC.
820 BROADWAY, N. E. KNOXVILLE, TENNESSEE

BRIDGES 4A & 4B OVER BOLLING BRANCH
LT LANE (4A) STA 218+09.75
RT. LANE (4B) STA 218+26.75

LAYOUT OF BRIDGES

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS
NASHVILLE

DR. R. G.	DATE	G-15-30
CHK'D R. A. H.		
APP'D W. R.	8-11-59	

Rev. 6-20-60

Contr. No. - 80 001 3152 44

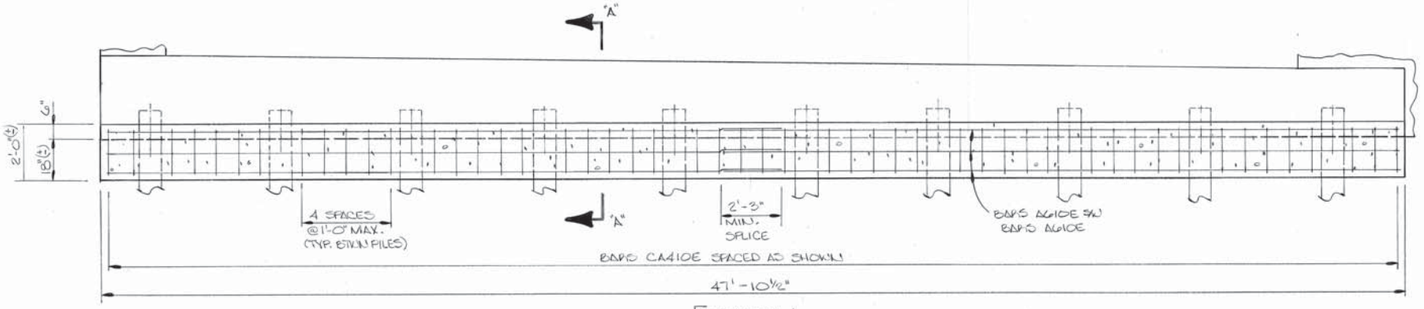
PROJECT NO.	YEAR	SHEET NO.
IR-40-5(91)257	1990	

REVISIONS

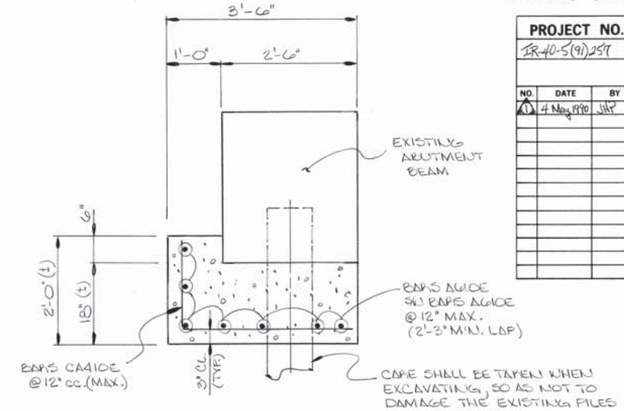
NO.	DATE	BY	BRIEF DESCRIPTION
1	4 May 1990	WLP	Added to Plans

NOTE: COST OF ALL CLASS "A" F'c = 3,000 P.S.I. CONCRETE, EXCAVATING, FORMING, LABOR, AND ANY MISCELLANEOUS MATERIALS NECESSARY TO COMPLETE THE REPAIRS, FOR LIMITS AS SHOWN, TO BE INCLUDED UNDER ITEM NO. 604-10.55, CONCRETE (FOUNDATION REPAIRS), CY. ALL WORK MUST MEET WITH THE FULL SATISFACTION OF THE ENGINEER.

NOTE: COST OF ALL EPOXY COATED REINFORCING STEEL FOR THE FOUNDATION REPAIRS AT ABUTMENT NO. 2, TO BE INCLUDED UNDER ITEM NO. 604-10.18, REINFORCING STEEL (REPAIRS), LBS.



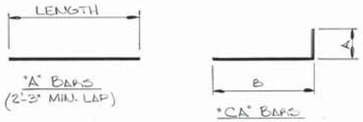
ELEVATION
(SHOWING CONCRETE - FOUNDATION REPAIRS TO ABUTMENT - 2 EAST BOUND LANE)
(LOOKING FORWARD ON SURVEY)



SECTION A-A
(FOUNDATION REPAIR DETAILS AT ABUT. 2)

"BILL OF STEEL FOR FOUNDATION REPAIRS"

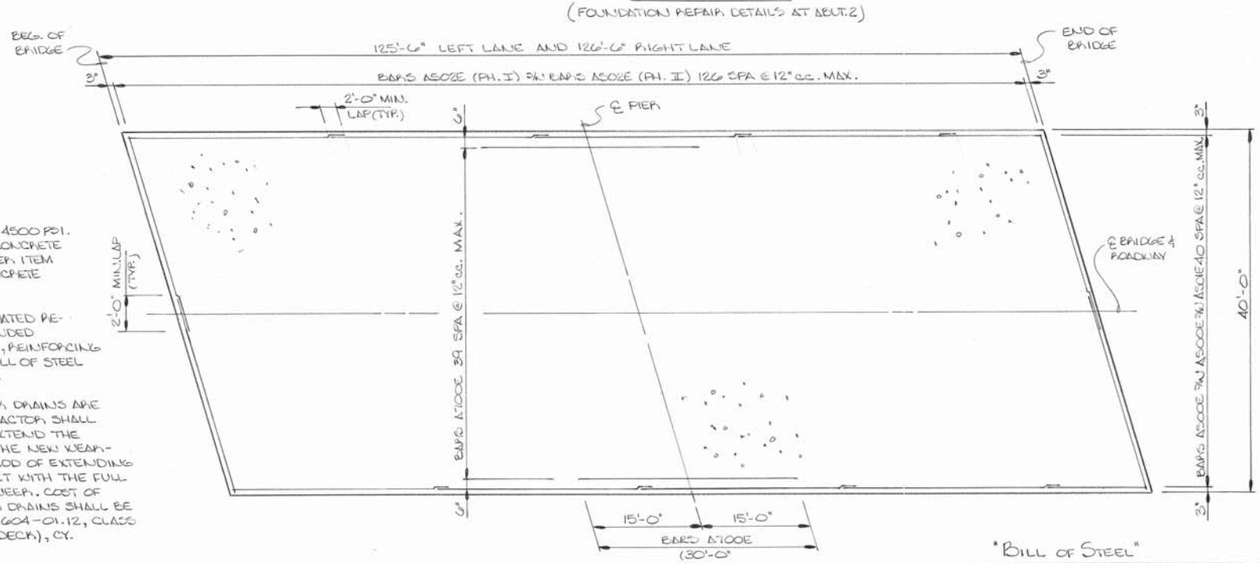
BAR	SIZE	NO. REQ'D	BENDS A	BENDS B	LENGTH
A6108	6	14			24'-11"
CA410E	4	50	1'-6"	3'-0"	4'-6"



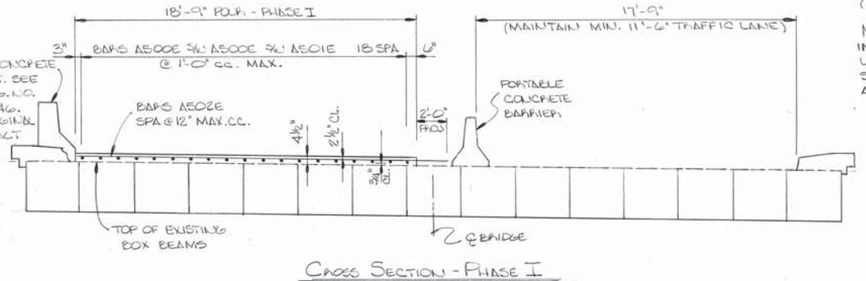
NOTE: COST OF CLASS "A" F'c = 4500 P.S.I. CONCRETE FOR THE NEW 4½" CONCRETE SLAB SHALL BE PAID FOR UNDER ITEM NO. 604-01.12, CLASS "A" CONCRETE (BRIDGE DECKS), CY.

NOTE: COST OF ALL EPOXY COATED REINFORCING STEEL TO BE INCLUDED UNDER ITEM NO. 604-10.18, REINFORCING STEEL (REPAIRS), LBS. SEE BILL OF STEEL AND BAR BENDS THIS SHEET.

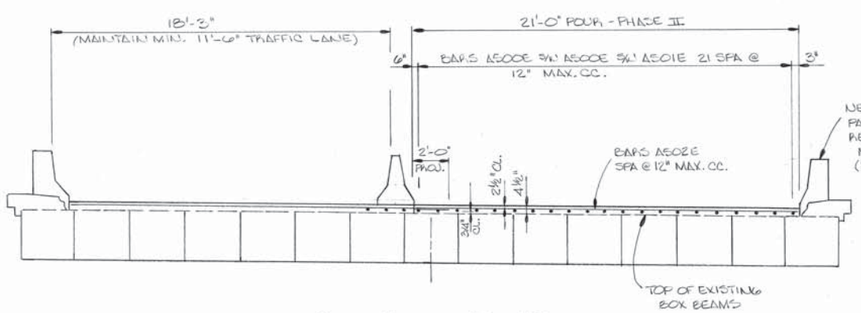
NOTE: WHEN BRIDGE DECK DRAINS ARE ENCOUNTED, THE CONTRACTOR SHALL MAKE PROVISIONS TO EXTEND THE DRAINS TO THE TOP OF THE NEW WEARING SURFACE. THE METHOD OF EXTENDING THE DRAINS SHALL MEET WITH THE FULL APPROVAL OF THE ENGINEER. COST OF EXTENDING BRIDGE DECK DRAINS SHALL BE INCLUDED IN ITEM NO. 604-01.12, CLASS "A" CONCRETE (BRIDGE DECK), CY.



SLAB PLAN



CROSS SECTION - PHASE I
SHOWING COMPLETED SLAB DETAILS



CROSS SECTION - PHASE II
SHOWING COMPLETED SLAB DETAILS

"GENERAL NOTES"

SPECIFICATIONS: STANDARD ROAD AND BRIDGE SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION. (MARCH 1981 EDITION)
DESIGN SPECIFICATIONS: AASHTO 1989 EDITION WITH ADDENDA.
REINFORCING STEEL: TO BE ASTM - A615, GRADE 60. STANDARD CRSI HOOK DETAILS APPLY UNLESS OTHERWISE NOTED ON BILL OF STEEL. SPACING DIMENSIONS ARE CENTER TO CENTER UNLESS OTHERWISE NOTED ON DETAIL DRAWINGS. UNLESS OTHERWISE SPECIFIED BY THE ENGINEER, REINFORCEMENT SHALL BE PLACED WITHIN A TOLERANCE OF ½"(±). THE SUFFIX "E", FOR BARS SO MARKED DENOTES EPOXY COATED REINFORCEMENT. SEE SPECIAL PROVISION 907 A.
BRIDGE DECK CONCRETE: CLASS "A" CONCRETE F'c = 4500 PSI. FOR BRIDGE DECKS SHALL BE IN ACCORDANCE WITH SPECIAL PROVISION NO. 604C. NO TRAFFIC OR OTHER LOADING SHALL BE ALLOWED ON THE BRIDGE DECK UNTIL THE TEST SPECIMENS HAVE ATTAINED A COMPRESSIVE STRENGTH OF 4500 PSI. AND TEN (10) DAYS HAVE ELAPSED FROM THE DATE WHEN REMOVAL OF FORMS IS PERMITTED.
BRIDGE DECK SURFACE FINISH: SHALL BE IN ACCORDANCE WITH NOTE (C), SHEET 2, OF SPECIAL PROVISION NO. 604.
CONCRETE CURING NOTE: ALL CONCRETE IN REPAIR AREAS SHALL BE CURED ACCORDING TO SPECIAL PROVISION NO. 604.

"BILL OF STEEL"

BAR	SIZE	NO. REQ'D	LENGTH
A5308	5	164	30'-0"
A5310	5	41	14'-2"
A5312	5	254	20'-10"
A6108	7	40	30'-0"

"E" DENOTES: EPOXY COATED REINFORCING

LENGTH
"A" BARS

"ESTIMATED QUANTITIES"

ITEM NO.	604-01.12	604-10.18	604-10.55
ITEM	CLASS "A" CONCRETE (BRIDGE DECK) CY.	REINF. STEEL (REPAIRS) LBS.	CONCRETE (FOUNDATION REPAIRS) CY.
SUPERSTR. LEFT LANE	70	13,709	———
SUPERSTR. RIGHT LANE	70	13,709	———
ABUT. NO. 2 EAST BL.	———	674	10
TOTALS	140	28,092	10

NOTE: REMOVAL OF ASPHALT OVERLAY AND SAND BLASTING TOP OF EXISTING BOX BEAMS TO BE INCLUDED IN PRICE OF ITEMS BID ON.

LIST OF SPECIAL PROVISION

	No.	Last Rev.
CONCRETE STRUCTURES	604	11-06-87
STRUCTURAL CONCRETE	604C	08-01-89
EPOXY COATED REINFORCING STEEL	907A	03-25-85

LIST OF REFERENCE DWG'S
LAYOUT DWG. NO. G-15-30 THRU G-15-35

NOTE: THE CONTRACTOR MAY ADJUST THE CONSTRUCTION TRAFFIC PHASES AND REINFORCING STEEL AS SHOWN THESE DETAILS. ANY ALTERATIONS IN THE TRAFFIC PHASES MUST MEET WITH THE FULL APPROVAL OF THE ENGINEER.

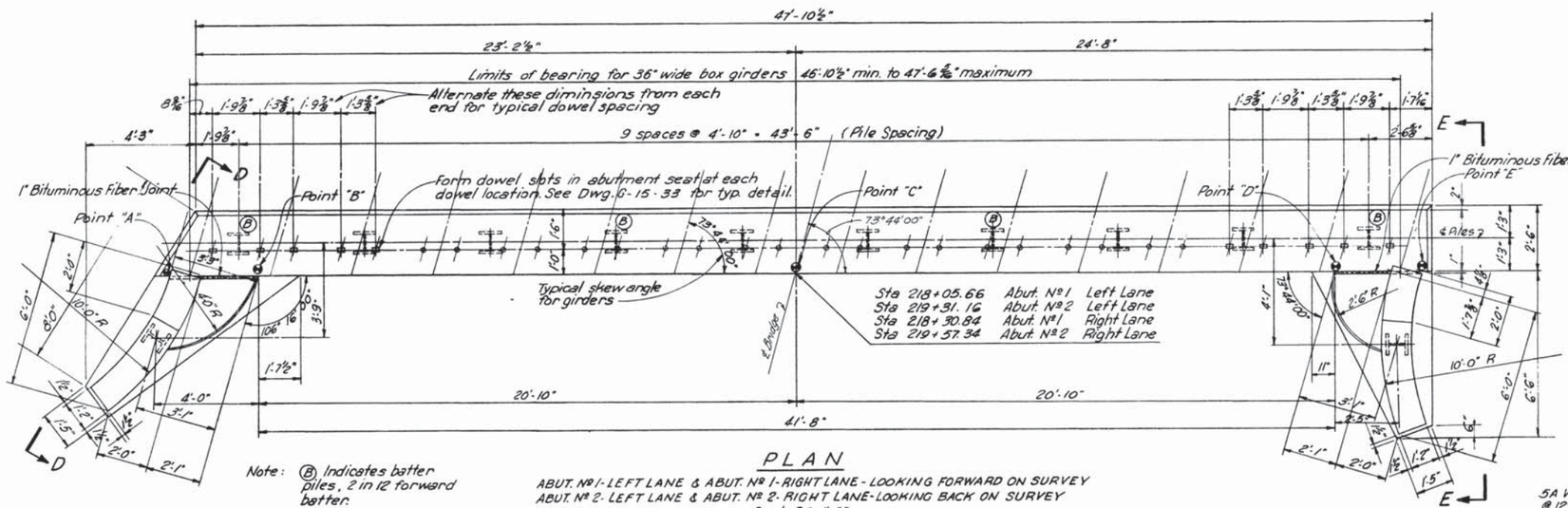
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS
BRIDGE REPAIRS
INTERSTATE 40 OVER
BOLLING BRANCH
BRIDGE No. 80-I40-11.46
SMITH COUNTY
1990

DESIGNED BY L. MIRES DATE
DRAWN BY K. PHILLIPS DATE 5-90
SUPERVISED BY GENTRY & FIELDS DATE 5-90
CHECKED BY DATE

CORRECT Edward P. Wassey Jr.
ENGINEER OF STRUCTURES
APPROVED
DIRECTOR OF HIGHWAYS

6-15-30A

FED. ROAD DIST No.		FEDERAL AID PROJECT No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
3	TENN	I-40-5(10)259	1960	66	276 308



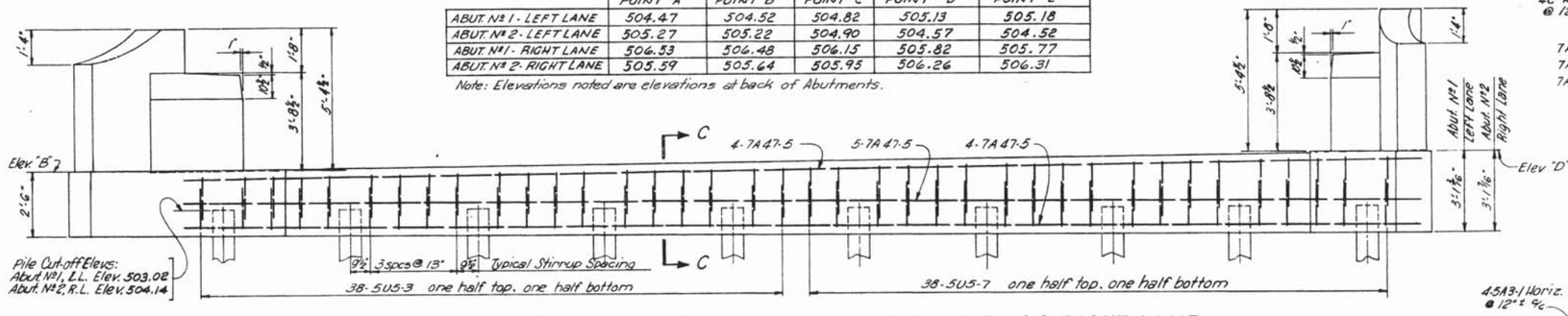
PLAN

ABUT. N°1 - LEFT LANE & ABUT. N° 1 - RIGHT LANE - LOOKING FORWARD ON SURVEY
ABUT. N° 2 - LEFT LANE & ABUT. N° 2 - RIGHT LANE - LOOKING BACK ON SURVEY
Scale ⅜" = 1'-0"

SCHEDULE ELEVATIONS

	POINT "A"	POINT "B"	POINT "C"	POINT "D"	POINT "E"
ABUT. N°1 - LEFT LANE	504.47	504.52	504.82	505.13	505.18
ABUT. N°2 - LEFT LANE	505.27	505.22	504.90	504.57	504.52
ABUT. N°1 - RIGHT LANE	506.53	506.48	506.15	505.82	505.77
ABUT. N°2 - RIGHT LANE	505.59	505.64	505.95	506.26	506.31

Note: Elevations noted are elevations at back of Abutments.

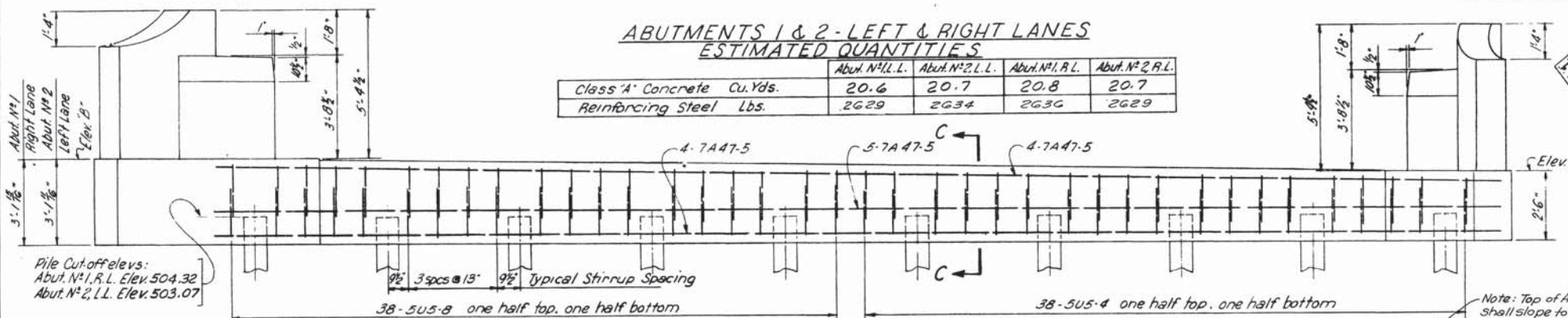


ELEVATION - ABUT. N° 1, LEFT LANE & ABUT. N° 2, RIGHT LANE

ABUT. N°1 - LEFT LANE - LOOKING FORWARD ON SURVEY
ABUT. N°2 - RIGHT LANE - LOOKING BACK ON SURVEY
Scale ⅜" = 1'-0"

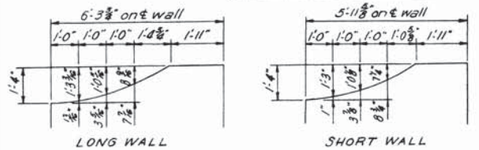
ABUTMENTS 1 & 2 - LEFT & RIGHT LANES ESTIMATED QUANTITIES

	Abut. N°1 L.L.	Abut. N°2 L.L.	Abut. N°1 R.L.	Abut. N°2 R.L.
Class "A" Concrete Cu. Yds.	20.6	20.7	20.8	20.7
Reinforcing Steel Lbs.	2629	2634	2636	2629

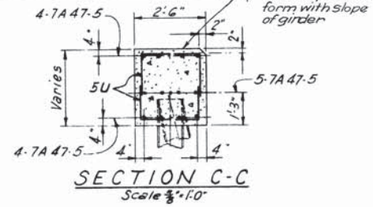


ELEVATION - ABUT. N° 1, RIGHT LANE & ABUT. N° 2, LEFT LANE

ABUT. N°1, RIGHT LANE - LOOKING FORWARD ON SURVEY
ABUT. N°2, LEFT LANE - LOOKING BACK ON SURVEY
Scale ⅜" = 1'-0"

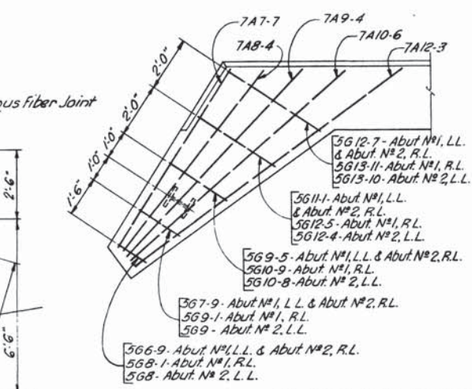


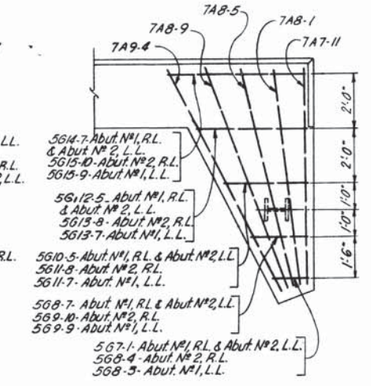
TOP WING WALLS DEVELOPED



SECTION C-C

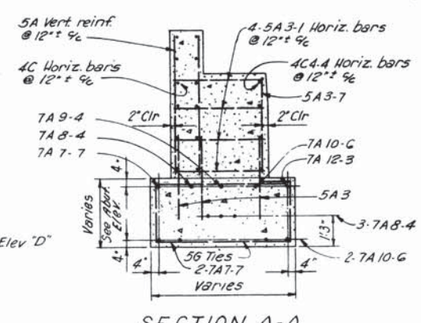
Scale ⅜" = 1'-0"





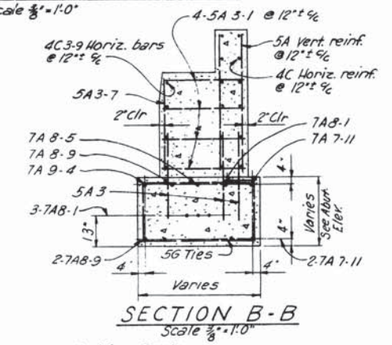
PLANS - WINGWALL FOUNDATIONS

Scale ⅜" = 1'-0"



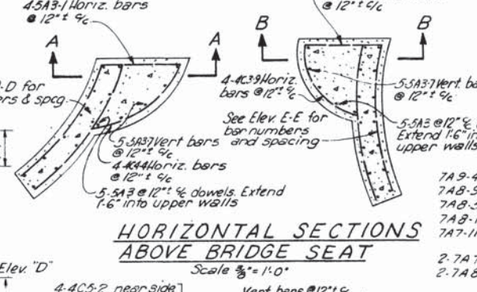
SECTION A-A

Scale ⅜" = 1'-0"



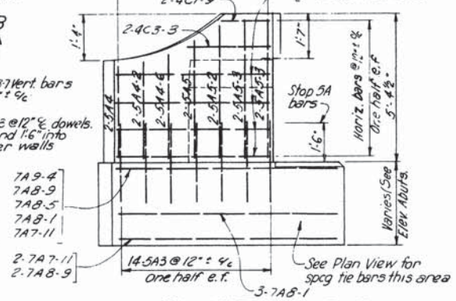
SECTION B-B

Scale ⅜" = 1'-0"



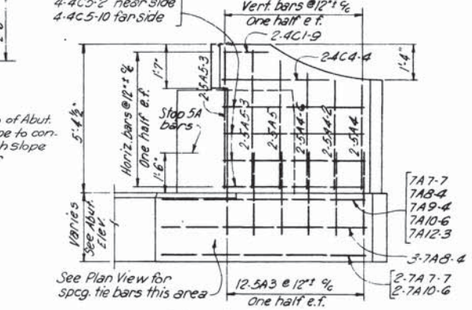
HORIZONTAL SECTIONS ABOVE BRIDGE SEAT

Scale ⅜" = 1'-0"



ELEVATION E-E

Scale ⅜" = 1'-0"



ELEVATION D-D

Scale ⅜" = 1'-0"

Note: All exposed edges to have ¾"x¾" chamfer, unless otherwise noted.

Scale as noted

MID-SOUTH ENGINEERING CO., INC.
820 BROADWAY, N. E. KNOXVILLE, TENNESSEE

BRIDGES 4A & 4B OVER BOLLING BRANCH

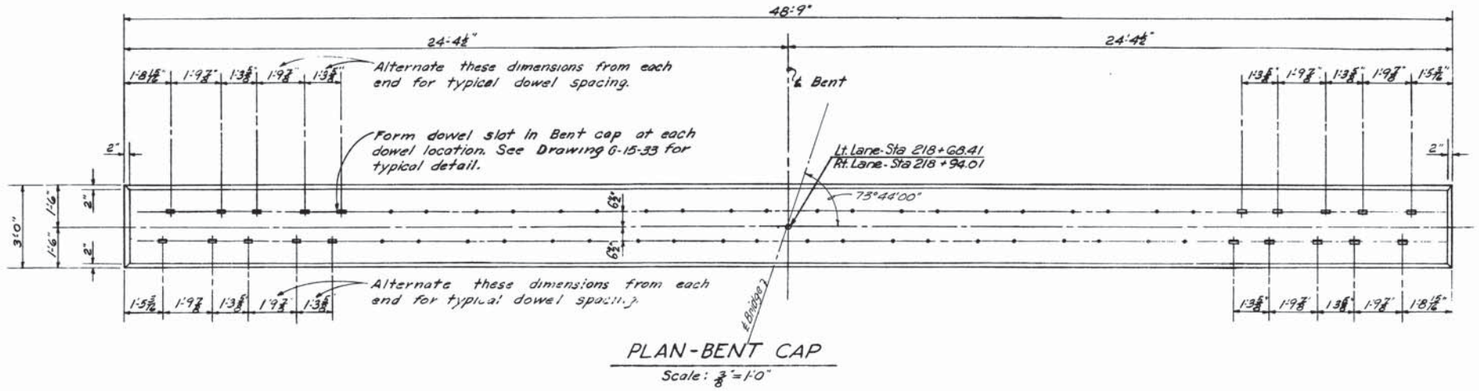
ABUTMENTS
N°S. 1 & 2 RIGHT LANE
N°S. 1 & 2 LEFT LANE

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS
NASHVILLE

		DATE	
DR.	R.W.P.		G-15-31
CHK'D.	R.A.H.		
APP'D.	W.R.	8-11-59	

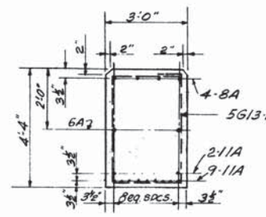
Rev. G-29-60

FED ROAD DIST No.	STATE	FEDERAL AID PROJECT No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
3	TENN	I-40-5(10)259	1960	67	216

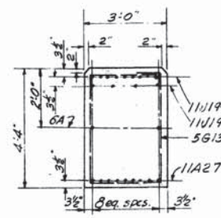


PLAN-BENT CAP

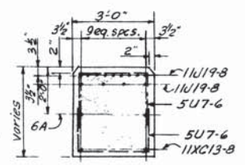
Scale: ⅜"=1'-0"



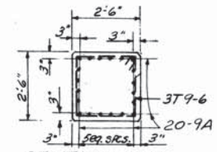
SECTION-A-A



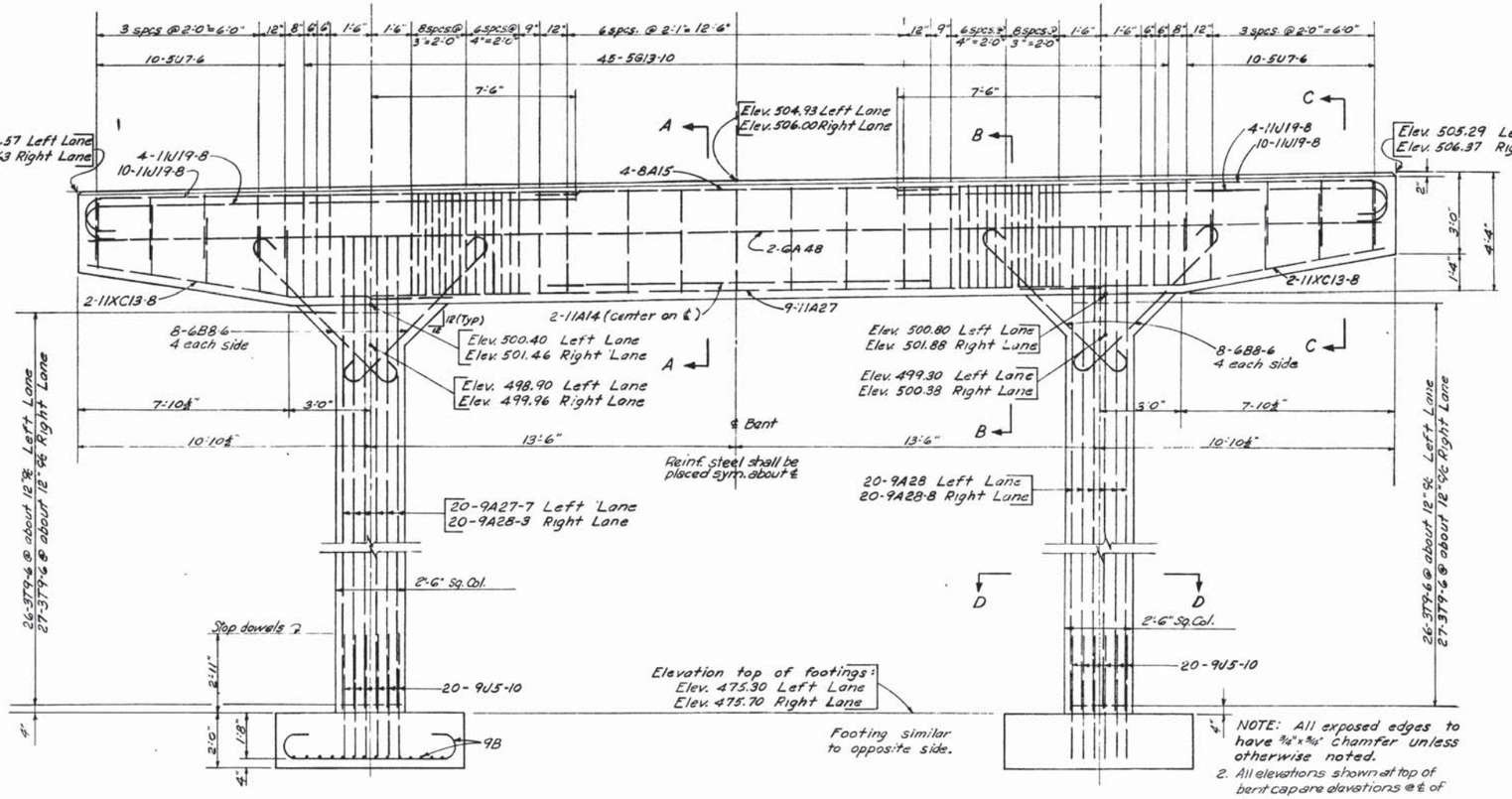
SECTION-B-B



SECTION-C-C



SECTION-D-D



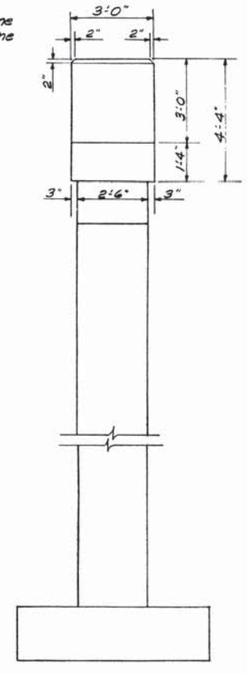
BENT ELEVATION

Scale: ⅜"=1'-0"

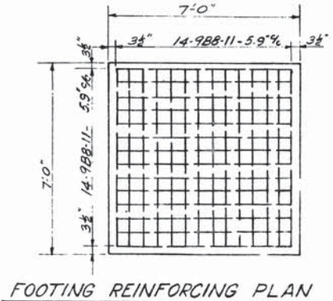
BENT FOR LEFT LANE LOOKING FORWARD ON SURVEY
BENT FOR RIGHT LANE LOOKING BACK ON SURVEY

NOTE: All exposed edges to have ¾"x¾" chamfer unless otherwise noted.

2. All elevations shown at top of bent cap are elevations @ ℄ of bent cap.
3. Top of bent cap shall slope to conform with slope of girders.



END ELEVATION



FOOTING REINFORCING PLAN

ESTIMATED QUANTITIES

	Rt. Lane	Lt. Lane
Class "A" Concrete Cu. Yds.	42.0	41.7
Reinforcing Steel Lbs.	12,526	12,283

Scale: ⅜"=1'-0"

MID-SOUTH ENGINEERING CO., INC.
820 BROADWAY, N. E. KNOXVILLE, TENNESSEE

BRIDGES 4A ℄ 4B OVER BOLLING BRANCH

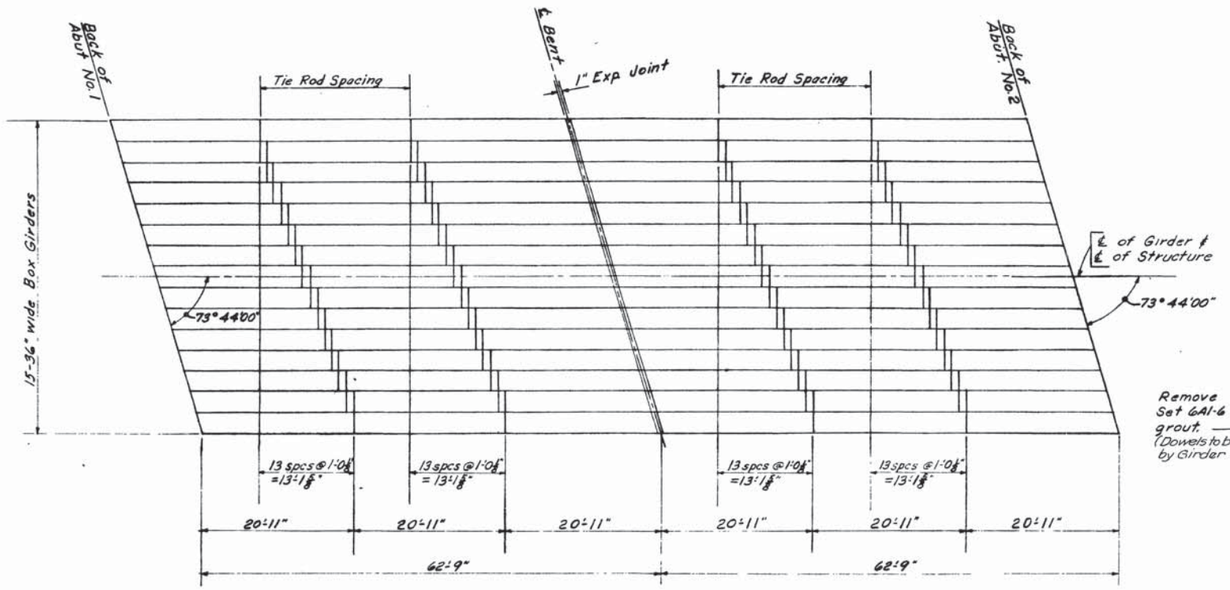
BENTS
RIGHT AND LEFT LANE

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
AND PUBLIC WORKS
NASHVILLE

	DATE	
DR. R. G.		G-15-32
CHK'D. R.A.H.		
APP'D. W.R.	8-11-59	

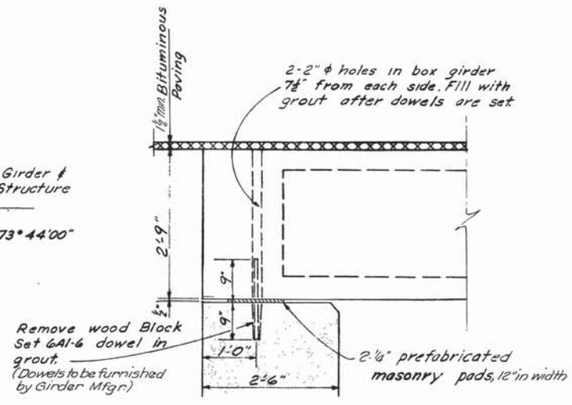
Revised 6-29-60

FED. ROAD DIST. No.		FEDERAL AID PROJECT No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
3	TENN	I-40-5(10)259	1960	68	276



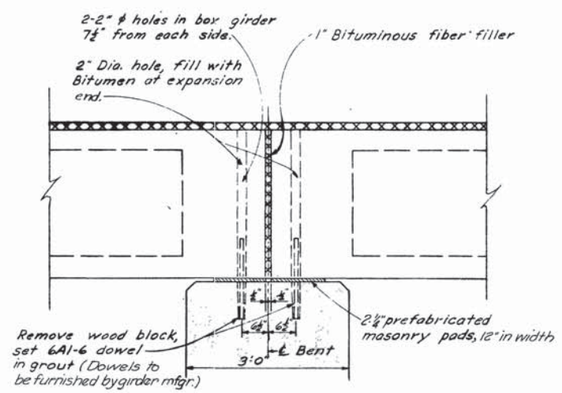
PLAN - PRESTRESSED BOX GIRDERS (LEFT LANE 4A)

Scale: 1"=10'-0"



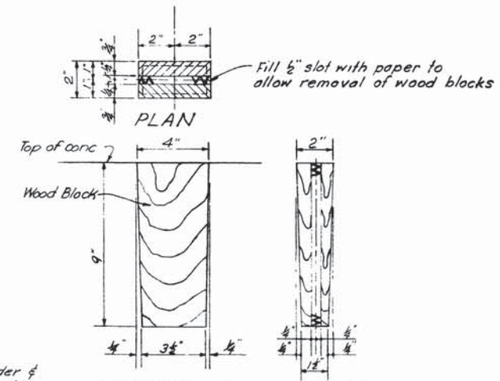
SECTION AT ABUTMENT

Scale: ¾"=1'-0"



SECTION AT BENT

Scale: ¾"=1'-0"



TYPICAL DOWEL SLOT IN BENT CAPS ∤ ABUTMENTS

Scale: 3"=1'-0"

PLAN AT ABUTMENT ENDS PLAN AT BENT ENDS

END DETAILS - BOX GIRDERS

Scale: ½"=1'-0"

NOTES:

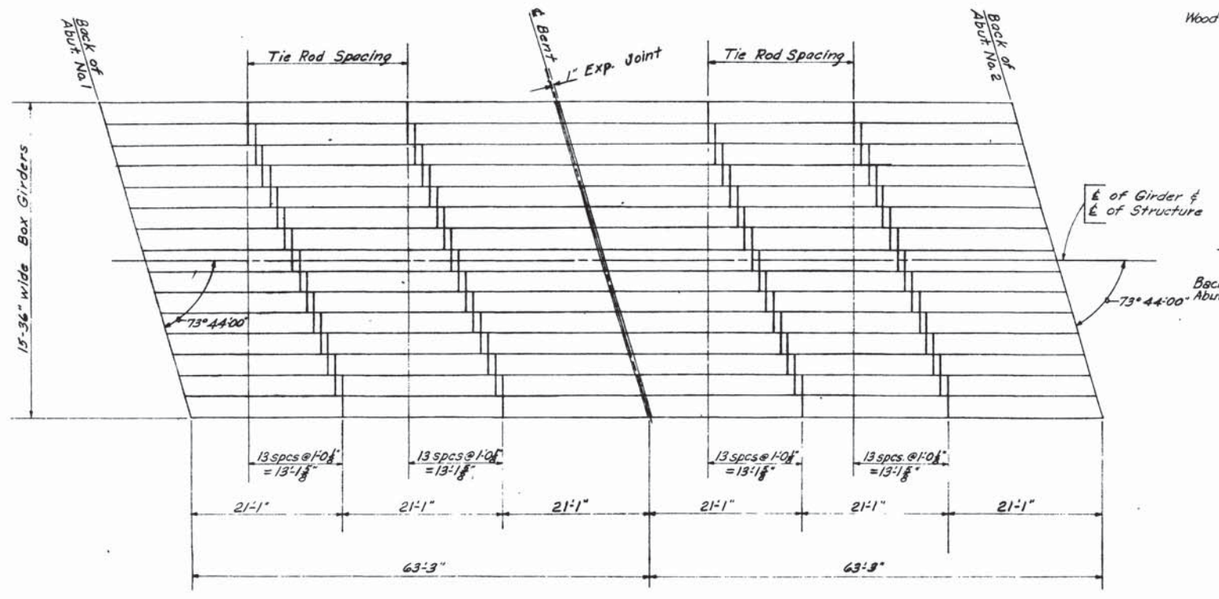
1. All prestressed concrete box girders shall be the Standard Section adopted by the Tennessee Department of Highways and Public Works shown Drwg. F-10-84
2. The size girder for this structure shall be 36" wide x 33" deep.
3. The pattern for placing prestressing steel shall be as shown on standard drwg. F-10-84 Spaced from the bottom, the number of strands required for the varying span lengths shall be as shown in schedule this drawing.
4. The supplier of the precast box girders shall furnish an erection plan with each girder piece marked for the proper position in each span.

ESTIMATED QUANTITIES
PRECAST PRESTRESSED BOX GIRDERS

5000 psi Concrete	Cu. Yds.	628
Hi-Tensile Reinforcing Steel	Lb.	35,265
Reinforcing Steel	Lbs.	49,830

SCHEDULE FOR PRESTRESSING STEEL

	No. ⅜" STRANDS PER GIRDER	DISTANCE FROM BOT. GIRDER TO C.G. STEEL	(E) ECCENTRICITY AT ℄ SPAN
LEFT LANE	33	3.03"	13.74
RIGHT LANE	33	3.03"	13.74



PLAN - PRESTRESSED BOX GIRDERS (RIGHT LANE 4B)

Scale: 1"=10'-0"

Scale: As Noted

MID-SOUTH ENGINEERING CO., INC.
820 BROADWAY, N. E. KNOXVILLE, TENNESSEE

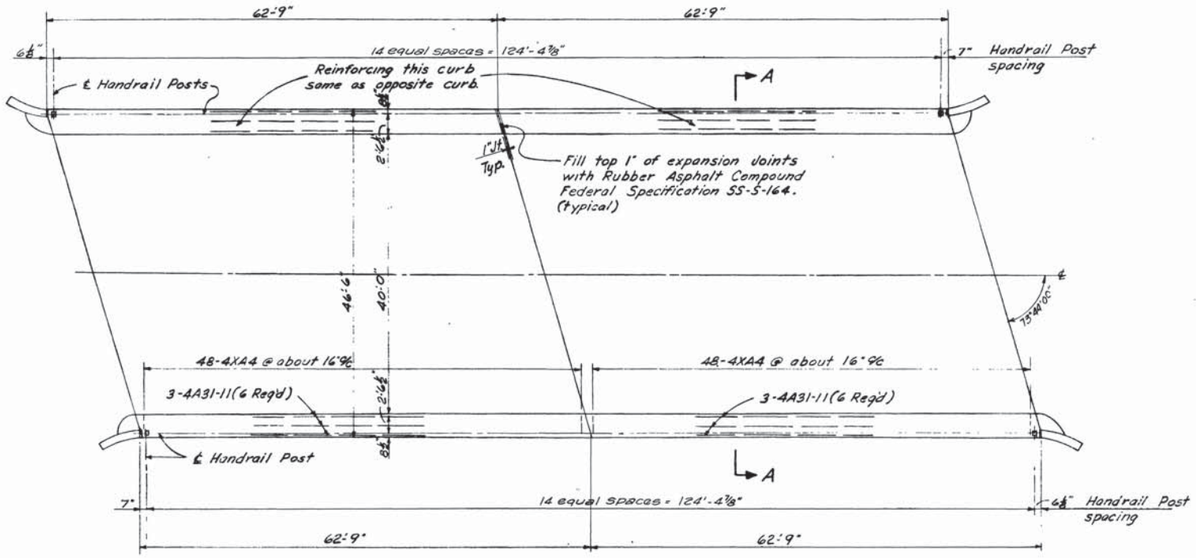
BRIDGES 4A ∤ 4B OVER BOLLING BRANCH

LAYOUT OF BOX GIRDERS

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS
NASHVILLE

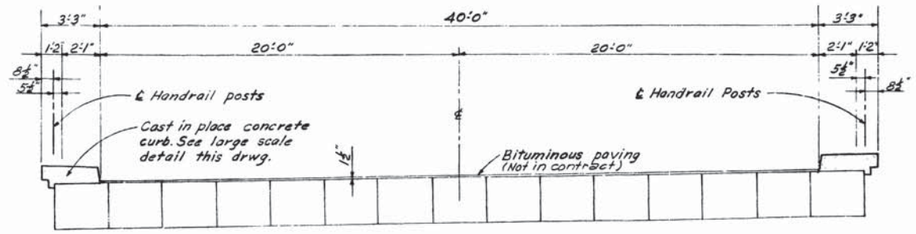
DR. R.G.	DATE	G-15-33
CHK'D R.A.H.		
APP'D W.R.	8-11-59	

FED. ROAD DIST. No.		FEDERAL AID PROJECT No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
3	TENN	I-40-5(10)259	1960	69	276 388

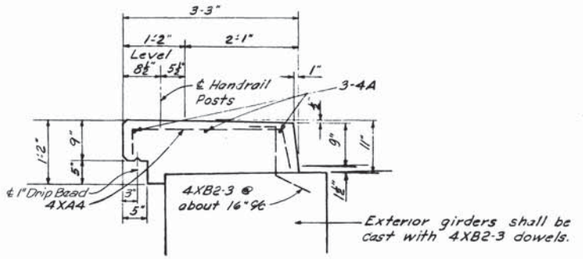


PLAN - LEFT LANE (#4A)
Scale: 1"=10'-0"

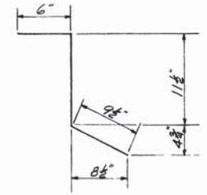
Note:
Handrail shall conform with horizontal and vertical alignment of bridges



SECTION A-A
Scale: ¼"=1'-0"

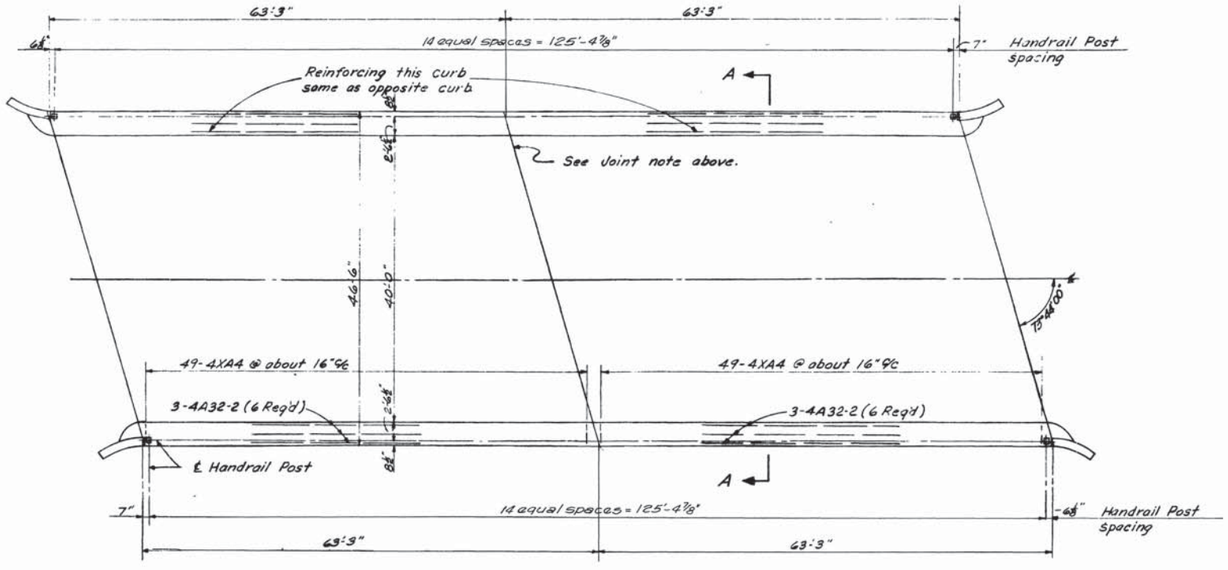


DETAIL - CAST IN PLACE CONCRETE CURB
Scale: ¾"=1'-0"



NOTE: These bars shall be supplied by the girder supplier.

DETAIL - 4XB2-3 BAR
388 REQ'D



PLAN - RIGHT LANE (#4B)
Scale: 1"=10'-0"

SAFETY CURB
ESTIMATED QUANTITIES

		Rt. Lane	Lt. Lane
Class "A" Concrete	Cu. Yds.	28.3	28.0
Reinforcing Steel	Lbs.	1040	1025

Scale: As Noted

MID-SOUTH ENGINEERING CO., INC.
820 BROADWAY, N. E. KNOXVILLE, TENNESSEE

BRIDGES 4A & 4B OVER BOLLING BRANCH

LAYOUT OF SAFETY CURBS

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS
NASHVILLE

DR. R.G.
CHK'D. R.A.H.
APP'D. W.R.
DATE 8-11-59

G-15-34

ITEM: | PROJECT: | PAGE ____ OF ____

LOCATION	BAR MARK	NO. REQD	BENDING DIMENSIONS - FEET & INCHES a	b	c	e	f	g	h	o	r	WEIGHT
ABUTMENTS Nos. 1 & 2 RIGHT LANE AND ABUTMENTS Nos. 1 & 2 LEFT LANE (One Quarter each Abut. except as noted)												
	7A47-5	52										5040
	7A12-3	4										100
	7A10-6	12										258
	7A9-4	8										153
	7A8-9	12										215
	7A8-5	4										69
	7A8-4	16										272
	7A8-1	16										264
	7A7-11	12										194
	7A7-7	12										186
	5A5-3	32										175
	5A5-2	8										43
	5A5	16										83
	5A4-6	16										75
	5A4-2	16										70
	5A4	16										67
	5A3-7	40										149
	5A3-1	32										103
	5A3	144										451
Abut. No.2, R.L.	5G15-10	1	5-0	2-7½								17
Abut. No.1, L.L.	5G15-9	1	5-0	2-7								16
Abut. No.1, R.L.	5G14-7	1	5-0	2-0								15
Abut. No.2, L.L.	5G14-7	1	5-0	2-0								15
Abut. No.1, R.L.	5G13-11	1	4-0	2-8								15
Abut. No.2, L.L.	5G13-10	1	4-0	2-7½								14
Abut. No.2, R.L.	5G13-8	1	3-11	2-7½								14
Abut. No.1, L.L.	5G13-7	1	3-11	2-7								14
Abut. No.1, L.L.	5G12-7	1	4-0	2-0								13
Abut. No.2, R.L.	5G12-7	1	4-0	2-0								13
Abut. No.1, R.L.	5G12-5	1	3-3	2-8								13
Abut. No.1, R.L.	5G12-5	1	3-11	2-0								13
Abut. No.2, L.L.	5G12-5	1	3-11	2-0								13
Abut. No.2, L.L.	5G12-4	1	3-3	2-7½								13
Abut. No.2, R.L.	5G11-8	1	2-11	2-7½								12
Abut. No.1, L.L.	5G11-7	1	2-11	2-7								12
Abut. No.1, L.L.	5G11-1	1	3-3	2-0								12
Abut. No.2, R.L.	5G11-1	1	3-3	2-0								12
Abut. No.1, R.L.	5G10-9	1	2-5	2-8								11
Abut. No.2, L.L.	5G10-8	1	2-5	2-7½								11
Abut. No.1, R.L.	5G10-5	1	2-11	2-0								11
Abut. No.2, L.L.	5G10-5	1	2-11	2-0								11
Abut. No.2, R.L.	5G9-10	1	2-0	2-7½								10
Abut. No.1, L.L.	5G9-9	1	2-0	2-7								10
Abut. No.1, L.L.	5G9-5	1	2-5	2-0								10
Abut. No.2, R.L.	5G9-5	1	2-5	2-0								10
Abut. No.1, R.L.	5G9-1	1	1-7	2-8								9
Abut. No.2, L.L.	5G9	1	1-7	2-7½								9
Abut. No.1, R.L.	5G8-7	1	2-0	2-0								9
Abut. No.2, L.L.	5G8-7	1	2-0	2-0								9
Abut. No.2, R.L.	5G8-4	1	1-3	2-7½								9
Abut. No.1, L.L.	5G8-3	1	1-3	2-7								9
Abut. No.1, R.L.	5G8-1	1	1-1	2-8								8
Abut. No.2, L.L.	5G8	1	1-1	2-7½								8
Abut. No.1, L.L.	5G7-9	1	1-7	2-0								8
Abut. No.2, R.L.	5G7-9	1	1-7	2-0								8
Abut. No.1, R.L.	5G7-1	1	1-3	2-0								7
Abut. No.2, L.L.	5G7-1	1	1-3	2-0								7
Abut. No.1, L.L.	5G6-9	1	1-1	2-0								7
Abut. No.2, R.L.	5G6-9	1	1-1	2-0								7
Abut. No.1, R.L.	5U5-8	38	2-0	1-10								225
Abut. No.2, L.L.	5U5-8	38	2-0	1-10								225
Abut. No.1, L.L.	5U5-7	38	2-0	1-9½								221
Abut. No.2, R.L.	5U5-7	38	2-0	1-9½								221
			(Contd next column)									

ITEM: | PROJECT: | PAGE ____ OF ____

LOCATION	BAR MARK	NO. REQD	BENDING DIMENSIONS - FEET & INCHES a	b	c	e	f	g	h	o	r	WEIGHT
ABUTMENTS Nos. 1 & 2 RIGHT LANE AND ABUTMENTS Nos. 1 & 2 LEFT LANE (CONTD) (One Quarter each Abut. except as noted)												
Abut. No.1, R.L.	5U5-4	38	2-0	1-8								211
Abut. No.2, L.L.	5U5-4	38	2-0	1-8								211
Abut. No.1, L.L.	5U5-3	38	2-0	1-7½								208
Abut. No.2, R.L.	5U5-3	38	2-0	1-7½								208
	4C5-11	16									9-10	63
	4C5-10	16									9-10	62
	4C5-8	16									9-0	61
	4C5-2	16									9-0	55
	4C4-4	4									9-10	12
	4C4-4	4									9-0	12
	4C4-4	16									3-10	46
	4C3-9	16									2-4	40
	4C3-3	4									9-10	9
	4C3-3	4									9-0	9
	4C1-9	8									9-10	9
	4C1-9	8									9-0	9
			Total Abutment No.1 Right Lane									2636
			Total Abutment No.2 Right Lane									2629
			Total Abutment No.1 Left Lane									2629
			Total Abutment No.2 Left Lane									2634
			TOTAL-4 ABUTMENTS									10,528
RIGHT LANE BENT & LEFT LANE BENT (one half each bent except as noted)												
	11A27	18										2582
	11A14	4										298
	11J19-8	56									18-1	5852
	11XC13-8	8	(See bar bending details)									581
Rt. Lane Bent	9A28-8	20										1960
Rt. Lane Bent	9A28-3	20										1921
Lt. Lane Bent	9A28	20										1904
Lt. Lane Bent	9A27-7	20										1875
	9B8-11	112									6-5	3397
	9U5-10	80									4-7	1586
	8A15	8										320
	6A48	4										288
	6B8-6	32									7-2	409
	5G13-10	90	2-7⅜	3-11⅜								1298
	5U7-6	40	2-7⅜	2-5⅛								313
Rt. Lane Bent	3T9-6	54	2-2	2-2								193
Lt. Lane Bent	3T9-6	32	2-2	2-2								186
			Total-Right Lane Bent									12,526
			Total-Left Lane Bent									12,283
			TOTAL									24,809

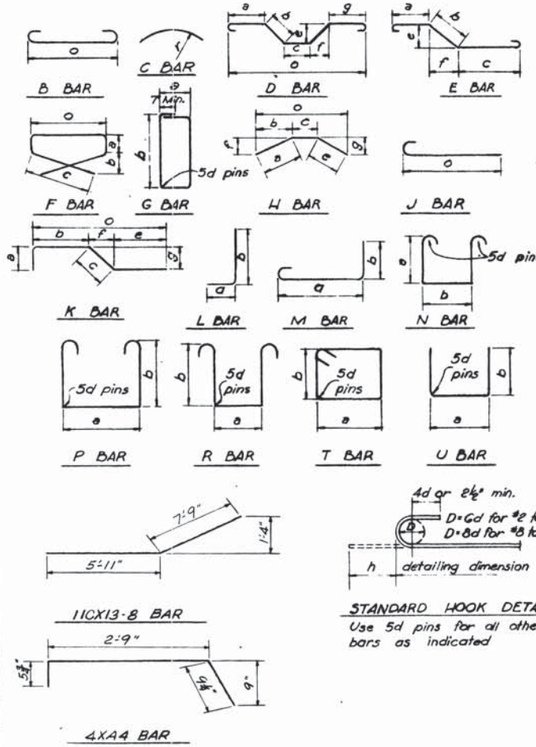
ITEM: | PROJECT: | PAGE ____ OF ____

LOCATION	BAR MARK	NO. REQD	BENDING DIMENSIONS - FEET & INCHES a	b	c	e	f	g	h	o	r	WEIGHT
SAFETY CURB-RIGHT LANE												
	4A32-2	24										516
	4XA4	196	(See bar bending details)									524
											TOTAL	1040
SAFETY CURB-LEFT LANE												
	4A31-11	24										512
	4XA4	192										513
											TOTAL	1025

ITEM: BENDING DIAGRAMS

FED. ROAD DIST.	STATE	FEDERAL AID PROJECT No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
3	TENN	I-40-5(10)259	1960	70	~~208~~ 276

Bending diagrams shown with symbols for variable dimensions are standard types of bars. Some types shown may not be billed in the attached lists. All bars "Mark A" are straight.



Use 5d pins for all other bars as indicated

Notes:
1. The figures to the left of the letter, or letters, represents the bar size number -- 4 = ½"; 5 = ⅝"; 6 = ¾" etc.
2. The letter represents the type of bar - A, H, J, etc. Special type bars are designated by letters "XA", etc. Bars of same type and same length, but different bends are marked La, Lb, Ka, Kb, etc.
3. The figures to the right of the letter, or letters, represent the length in feet and inches, 10-3, 12-6, etc. Thus a bar, Mark GE21-3, represents a No. 6 bar, type E, 21'-3" long. For bar lengths in even feet, the dash and zero (- and 0) are omitted.
4. Dimensions are out-out.

MID-SOUTH ENGINEERING CO., INC.
820 BROADWAY, N.E. KNOXVILLE, TENNESSEE

BRIDGES 4A & 4B OVER BOLLING BRANCH

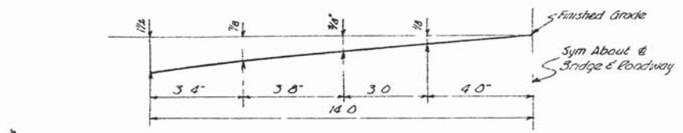
REINFORCING STEEL SCHEDULE

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS
NASHVILLE

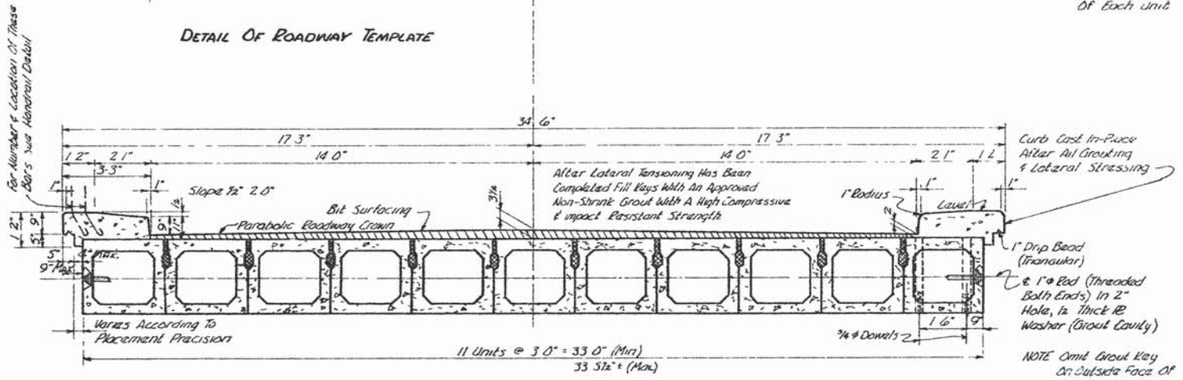
DR. R.G.	DATE
CHK'D R.A.H.	
APP'D N.R.	8-11-59

G-15-35

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	TENN.		19		



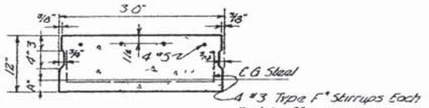
DETAIL OF ROADWAY TEMPLATE



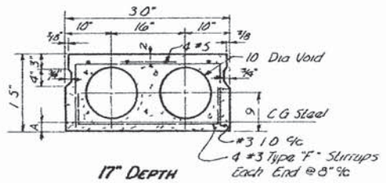
SECTION NEAR MIDSPAN

SECTION NEAR BEARINGS

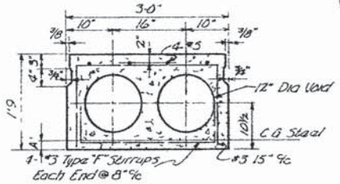
NOTE Omit Grout Key On Outside Face Of Exterior Units



12" DEPTH



17" DEPTH

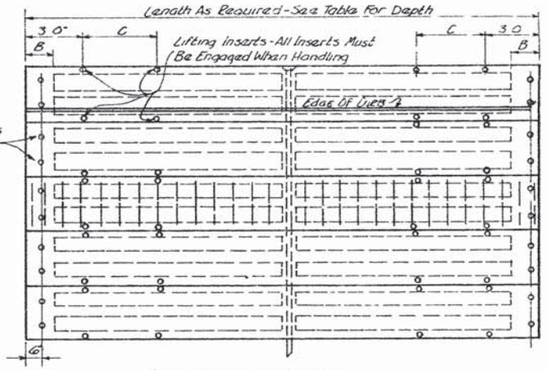


21" DEPTH

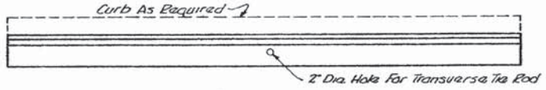
CLEAR SPAN FEET	A INCHES	B INCHES		PRESTRESSED STEEL AREA	No. 3/8" STIRRUPS	WEIGHT BASIC MEMBER	SUGGESTED BEARING
14	225	OMIT		0.96	12	2,050	12"
16	216	"		1.20	12	2,250	
18	244	"		1.52	19	3,200	
20	264	"		1.76	22	3,700	
22	294	"		2.08	26	4,600	

CLEAR SPAN FEET	A INCHES	B INCHES		PRESTRESSED STEEL AREA	No. 3/8" STIRRUPS	WEIGHT BASIC MEMBER	SUGGESTED BEARING
24	222	18		1.36	17	3,450	12"
26	220			1.60	20	4,100	
28	225			1.76	22	4,350	
30	230			2.00	25	5,150	
32	262			2.16	27	6,300	
34	275					7,250	

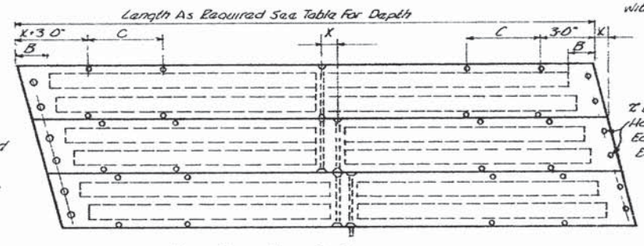
CLEAR SPAN FEET	A INCHES	B INCHES		PRESTRESSED STEEL AREA	No. 3/8" STIRRUPS	WEIGHT BASIC MEMBER	SUGGESTED BEARING
36	230	18		1.76	22	22,450	12"
38	231			1.92	24	23,350	
40	264			2.16	27	24,350	
42	320			2.48	31	25,5?0	



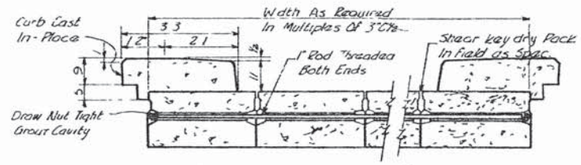
PART PLAN - 90° SKEW
(Clear Span Under 44')



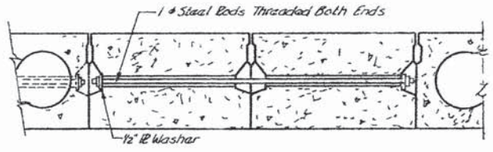
ELEVATION



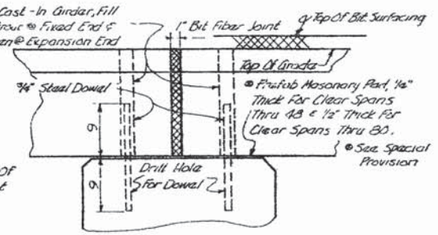
PART PLAN - SKEW AS REQUIRED



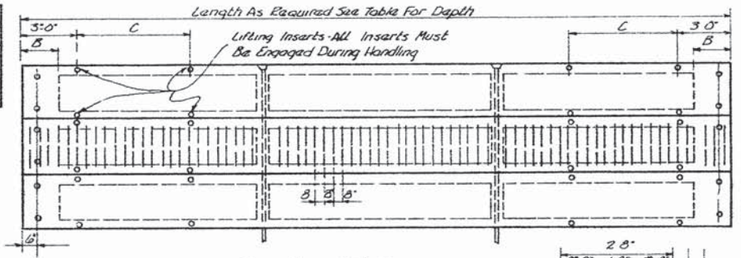
SECTION AT TRANSVERSE TIE
90° SKEW



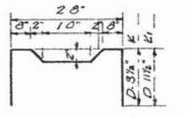
SECTION AT TRANSVERSE TIE
SKEW AS REQUIRED

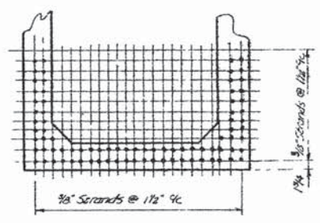


ELEVATION AT ABUTMENT - PIER OR BENT

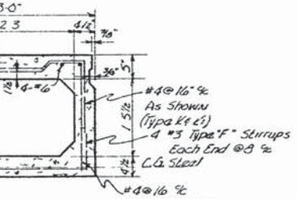


PART PLAN - 90° SKEW
(Clear Span Over 44')



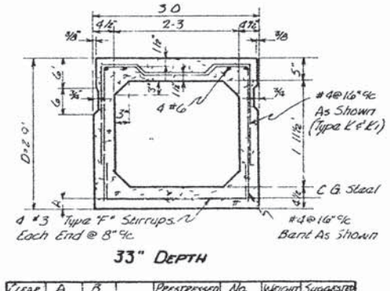


TYPICAL PATTERN FOR PRESTRESSING STEEL



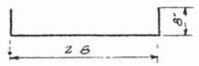
27" DEPTH

CLEAR SPAN FEET	A INCHES	B INCHES		PRESTRESSED STEEL AREA	No. 3/8" STIRRUPS	WEIGHT BASIC MEMBER	SUGGESTED BEARING
44	230	18		1.76	22	27100	12"
46	226			1.84	23	28,300	
48	227			2.00	25	29,300	
50	235			2.24	28	30,500	
52	263			2.40	30	31,600	
54	293			2.56	32	32,800	
56	323			2.80	35	33,900	

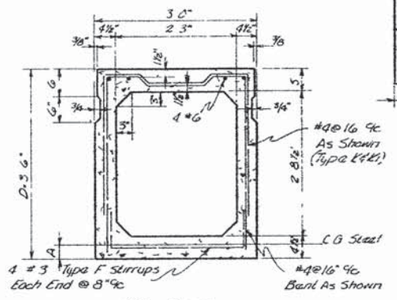


33" DEPTH

CLEAR SPAN FEET	A INCHES	B INCHES		PRESTRESSED STEEL AREA	No. 3/8" STIRRUPS	WEIGHT BASIC MEMBER	SUGGESTED BEARING
58	247	18		2.32	29	39900	12"
60	263			2.48	31	41,800	
62	303			2.64	33	42,600	
64	338			2.80	36	43900	
66	363			3.04	38	45,900	
68	390			3.28	41	46,500	



#3 TYPE "F" STIRRUP



42" DEPTH

CLEAR SPAN FEET	A INCHES	B INCHES		PRESTRESSED STEEL AREA	No. 3/8" STIRRUPS	WEIGHT BASIC MEMBER	SUGGESTED BEARING
70	312	18		2.72	34	51,300	18" 12" Min
72	323			2.88	36	52,960	
74	369			3.04	38	54,620	
76	407			3.20	40	56,280	
78	434			3.36	42	57,940	
80	462			3.52	44	59,600	

GENERAL NOTES.

SPECIFICATIONS Standard Road & Bridge Specifications Of The Tennessee Department Of Highways
LOADING H20-S16-44
CONCRETE (Cast in Place) To Be Class "A"
PRECAST, PRETENSIONED CONCRETE See Specifications
REINFORCING STEEL See Specifications.
FORMS & FINISH See Specifications.
HANDLING PRE-TENSIONED DECK-UNIT See Specifications.
LATERAL TENSIONING Prior To Grouting Longitudinal, Keys Of In Place Deck Units, The Nuts Of The Transverse Rods Shall Be Given Two Full Turns From Hand Tight Position, To Develope A Stress Of 30,000 PSI, In Rods
PRETENSIONING STEEL: An Initial Force Of 14,000 Lbs. Shall Be Applied To Each Strand In All Beams.
The Design Is Based On Federal Bureau Criteria & Special Provision.

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS
NASHVILLE

STANDARD

PRESTRESSED CONCRETE BRIDGE

PRETENSIONED
CLEAR SPANS 14'-0" TO 80'-0"
28'-0" ROADWAY WITH SAFETY CURBS
1957

CORRECT: Fred Groves
APPROVED: Cecil Long

F-10-84

WITH STD. DWGS. F-10-85 F-10-86

DESIGNED BY _____ DATE _____
DRAWN BY A. BURKS DATE 6-26-57
RETRACED BY B. BAUMAN DATE 8-30-60
CHECKED BY _____ DATE _____

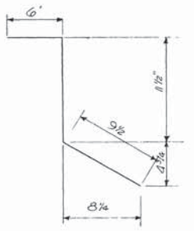
Revised 7/24/61 - Min. siding dowel bars #4 @ 6" added
Revised 4-17-58 (Size of keys & spacing of 3/8" Dowels Changed)
Revised 12-17-57 Spec. added for Fabricators)
Revised 9-30-57 (Drip bead location changed)
Revised 9-11-57 - (Note 4" Stirrups & Dowel holes added)
Revised 8-22-57 - (Add 1 1/2 sq. hole added)

FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
3	TENN		19		

Quantities For Cast Curb
Both Sides

Clear Span	Concrete Cu Yds	Reinf Steel Lbs	No Of Bars D1	No Of Bars C2	No Of Bars C1
14	36	2[illegible]6	24	22	12
16	40	255	28	26	12
18	45	265	30	28	2
20	49	294	34	32	12
22	54	324	36	34	16
24	58	354	40	38	12
26	63	382	42	40	12
28	67	412	46	44	12
30	71	441	48	46	12
32	76	470	52	50	12
34	80	500	54	52	12
36	85	526	58	56	12
38	89	584	60	58	12
40	94	582	62	60	12
42	98	617	66	64	12
44	103	647	68	66	12
46	107	676	72	70	12
48	112	706	74	72	12
50	116	736	78	76	12
52	121	764	80	78	12
54	125	794	84	82	12
56	130	823	86	84	12
58	134	853	90	88	24
60	138	882	92	90	24
62	143	911	96	94	24
64	147	941	98	96	24
66	152	970	102	100	24
68	156	1000	106	104	24
70	163	1028	110	108	24
72	167	1058	112	110	24
74	172	1088	116	114	24
76	176	1117	118	116	24
78	181	1147	122	120	24
80	185	1176	124	122	24

NOTE Above Quantities Apply To All Skews
In For Skewed Bridge Less Than 90° Curb Bars To Be Flared At Each End Of Span
NOTE Bars D1 To Be Included In Unit Price Bid For Girders

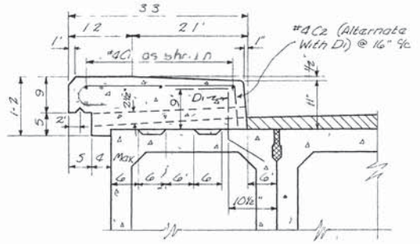


Bars D1 (To Be ½"ø)
Total Length = 23



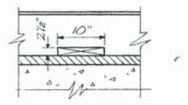
Bars C2
Total Length = 4

NOTE Length Of Longitudinal Bars C1 To Be Total Span Length Minus 6 Also Lap Bars C1 10" When Splice Is Required



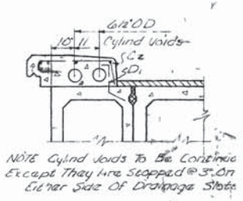
Typical Section For Curb And Exterior Box

NOTE Curb To Be Cast In Place Provisions May Be Made In The Fascia Of Ext Units For Approved Inserts To Facilitate Forming Of Curbs



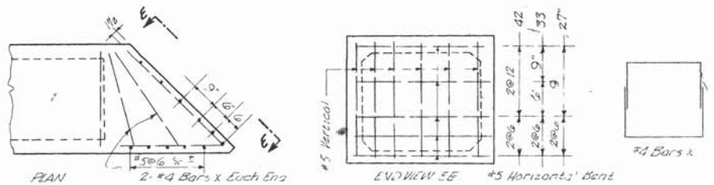
Locate Drain Slots @ Center Of Every Other Railing Panel

Drainage Slot Detail

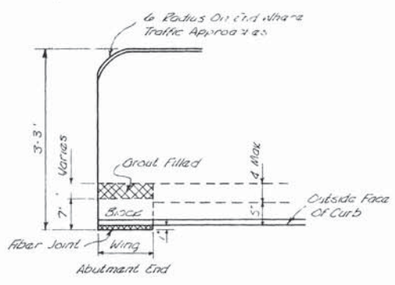


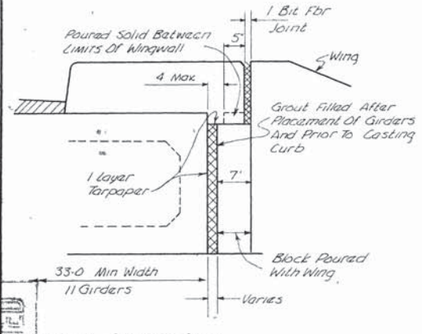
NOTE Cylind Joints To Be Continuous Except They Are Stepped @ 3" On Either Side Of Drainage Slots

Alternate Curb

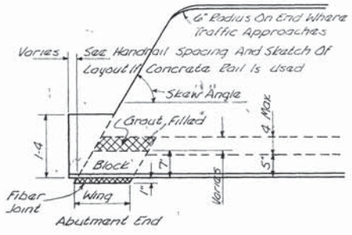


Sketch Showing Additional Reinforcement To Be Placed In Acute Corners Of Prestressed Box Beam





Sketch Showing Curb Detail At Abutment End



MICROFILMED

Revised: 6-15-60 Vert Ht Acute Corner
Revised: 4-17-58 Bar D1 Deducted From Reinf Steel Quantities
Revised: 3-30-57 Drip Detail Section Changed

DESIGNED BY		DATE
DRAWN BY	A. BURKE	DATE 6-28-57
TRACED BY	B. BRUMLEY & Q. PIERCE	DATE 8-30-60
CHECKED BY		DATE

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS
NASHVILLE

STANDARD

PRESTRESSED CONCRETE BRIDGE

PRETENSIONED

CLEAR SPANS 14'-0" - 80'-0"
28'-0" ROADWAY - WITH SAFET CURBS
1957

CORRECT: Fred Jones
BRIDGE ENGINEER

APPROVED: [signature]
CHIEF HIGHWAY ENGINEER

F-10-85

With Std. Dwg. F-10-86 & F-10-86A