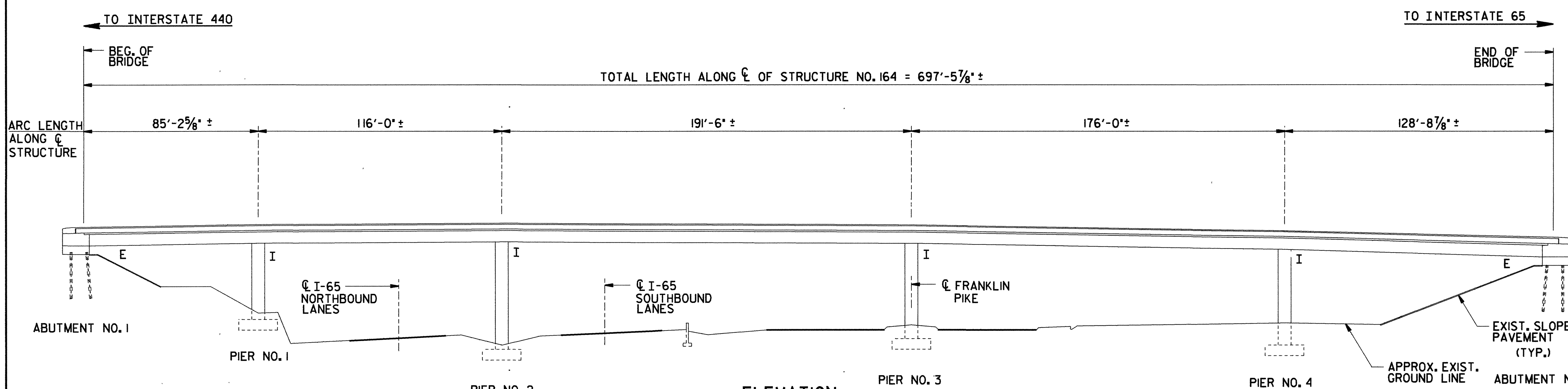
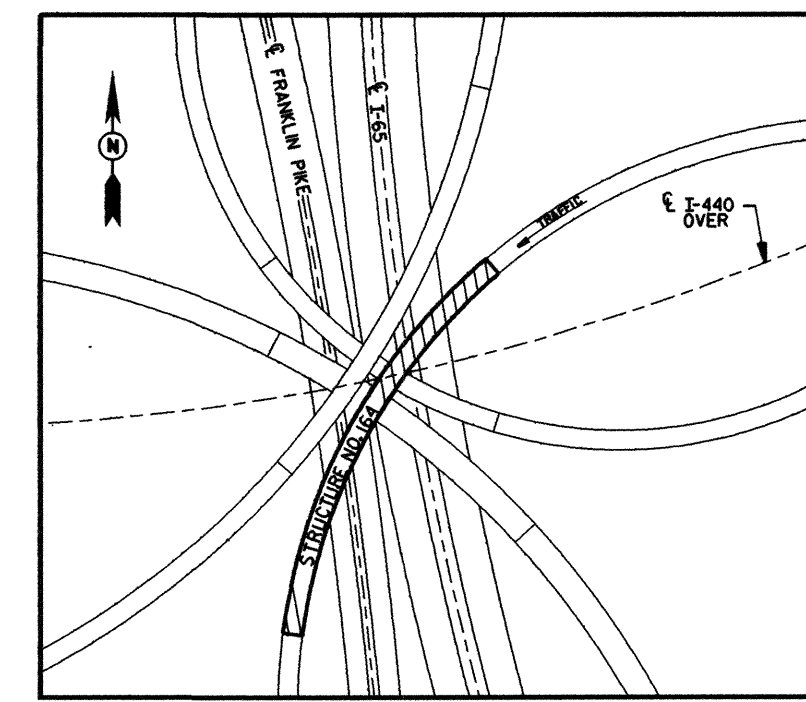


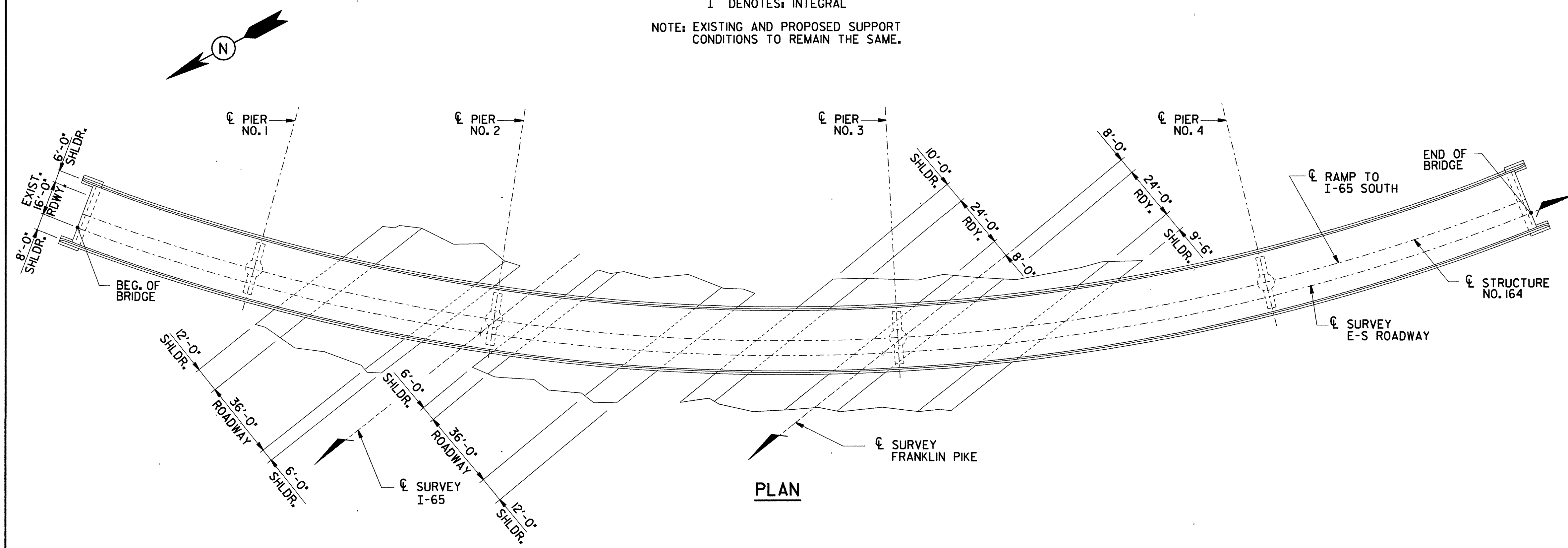
PROJECT NO.	YEAR	SHEET NO.	
19947-4110-04	1998		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	6/2/98	L.M.	FILLER PL AND STIFFENER TAB DIM. CHANGES



ELEVATION

E DENOTES: EXPANSION
I DENOTES: INTEGRAL

NOTE: EXISTING AND PROPOSED SUPPORT CONDITIONS TO REMAIN THE SAME.



PLAN

LIST OF DRAWINGS

DWG. NO.	LAST REV. DATE	DRAWING
BR-33-73	6-2-98	LAYOUT OF BRIDGE TO BE REPAIRED
BR-33-67	6-2-98	GENERAL NOTES AND ESTIMATED BRIDGE QUANTITIES
BR-33-74		SUPERSTRUCTURE
BR-33-75		FRAMING PLAN
BR-33-84		STRUCTURAL STEEL DETAILS
BR-33-85	6-2-98	STRUCTURAL STEEL DETAILS
BR-33-86		STRIP SEAL EXPANSION JOINT DETAILS
BR-33-87		MISCELLANEOUS DETAILS

LIST OF STANDARD DRAWINGS

DWG. NO.	LAST REV. DATE	DRAWING
SBR-2-115	1-04-96	GENERAL NOTES AND DETAILS FOR EXPANSION JOINT REPLACEMENT CONSTRUCTION TYPES 'A' THROUGH 'J' - 1991
SBR-2-116	1-04-96	GENERAL DETAILS FOR STRIP SEAL EXPANSION JOINT REPLACEMENT CONSTRUCTION DETAILS TYPES 'A' THROUGH 'J' - 1991
SBR-2-117	5-30-96	STRIP SEAL EXPANSION JOINTS REPLACEMENT CONSTRUCTION DETAILS TYPE 'A' AND TYPE 'B' - 1991

*** LIST OF REFERENCE DRAWINGS**

DWG. NO.	DRAWING
M-15-80 THRU M-15-88	EXISTING BRIDGE PLANS
M-15-114, M-15-115, M-15-117, M-15-118	

LIST OF SPECIAL PROVISIONS

NO.	LAST REV. DATE	REGARDING
105A	**	APPROVAL OF SHOP DRAWINGS
602	**	STEEL STRUCTURES
604CR	**	REPAIR OF BRIDGE DECK CRACKS
604S	**	STRIP SEAL EXPANSION DEVICE

* DENOTES: THESE DRAWINGS ARE TO BE PRINTED WITH PLANS.
** DENOTES: CURRENT REVISION DATE, AS PER CONTRACT DOCUMENTS.

GENERAL SCOPE OF WORK

1. PROVIDE REQUIRED TRAFFIC CONTROL TO MAINTAIN ONE LANE OF TRAFFIC ON THE EXISTING BRIDGE.
2. REMOVE PAINT FROM THE CORNERS OF ALL CROSS FRAMES AND DIAPHRAGMS EXCEPT THE CORNERS WHERE LATERAL BRACING IS CONNECTED FOR A TOTAL OF TWO HUNDRED FORTY-SIX (246) LOCATIONS. PERFORM DYE PENETRANT TEST TO DETERMINE EXISTENCE AND EXTENT OF CRACKING IN WELDS AND/OR GIRDER WEBS.
3. REPAIR FILLET WELD CRACKS AT APPROXIMATELY TEN (10) CORNER LOCATIONS. SEE NOTES AND DETAILS ON DWG. NO. BR-33-84.
4. INSTALL STIFFENER TABS OR FILLER PLATE AT ALL CORNERS OF CROSS FRAMES EXCEPT CORNERS WHERE LATERAL BRACING IS CONNECTED FOR A TOTAL OF ONE HUNDRED EIGHTY-SIX (186) LOCATIONS. SEE NOTES AND DETAILS ON DWG. NOS. BR-33-84 AND BR-33-85.
5. REPAINT ALL LOCATIONS WHERE EXISTING PAINT WAS REMOVED OR NEW STEEL WAS INSTALLED. SEE NOTES ON DWG. NO. BR-33-87 REGARDING SURFACE PREPARATION AND PAINTING.
6. RECONSTRUCT CONCRETE SLAB IN AREAS OF PARTIAL DEPTH DECK REPAIR WITHIN LIMITS DESIGNATED BY THE ENGINEER AS SHOWN IN DETAIL ON DWG. NO. BR-33-87.
7. REMOVE PORTIONS OF THE EXISTING SLAB AT ABUTMENT NOS. 1 AND 2 WITHIN LIMITS SHOWN AND RECONSTRUCT SLAB ENDS WITH NEW STRIP SEAL EXPANSION JOINT. SEE DETAILS AND NOTES ON DWG. NO. BR-33-86.

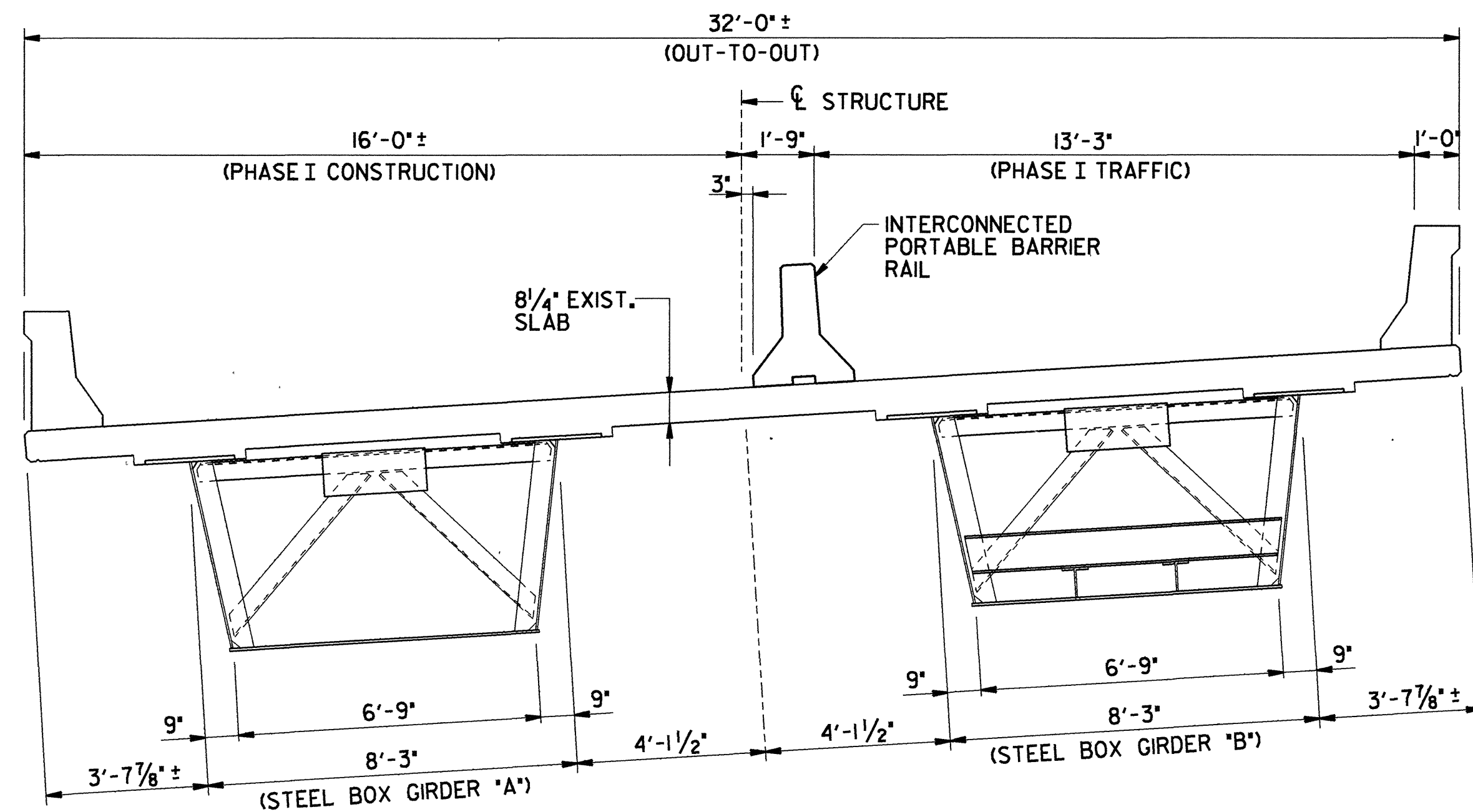
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

LAYOUT OF BRIDGE TO BE REPAIRED
(STRUCTURE NO. 164)
I-440/I-65 DIRECTIONAL INTERCHANGE
BRIDGE NO. 19-I440-4.87
DAVIDSON COUNTY
1998

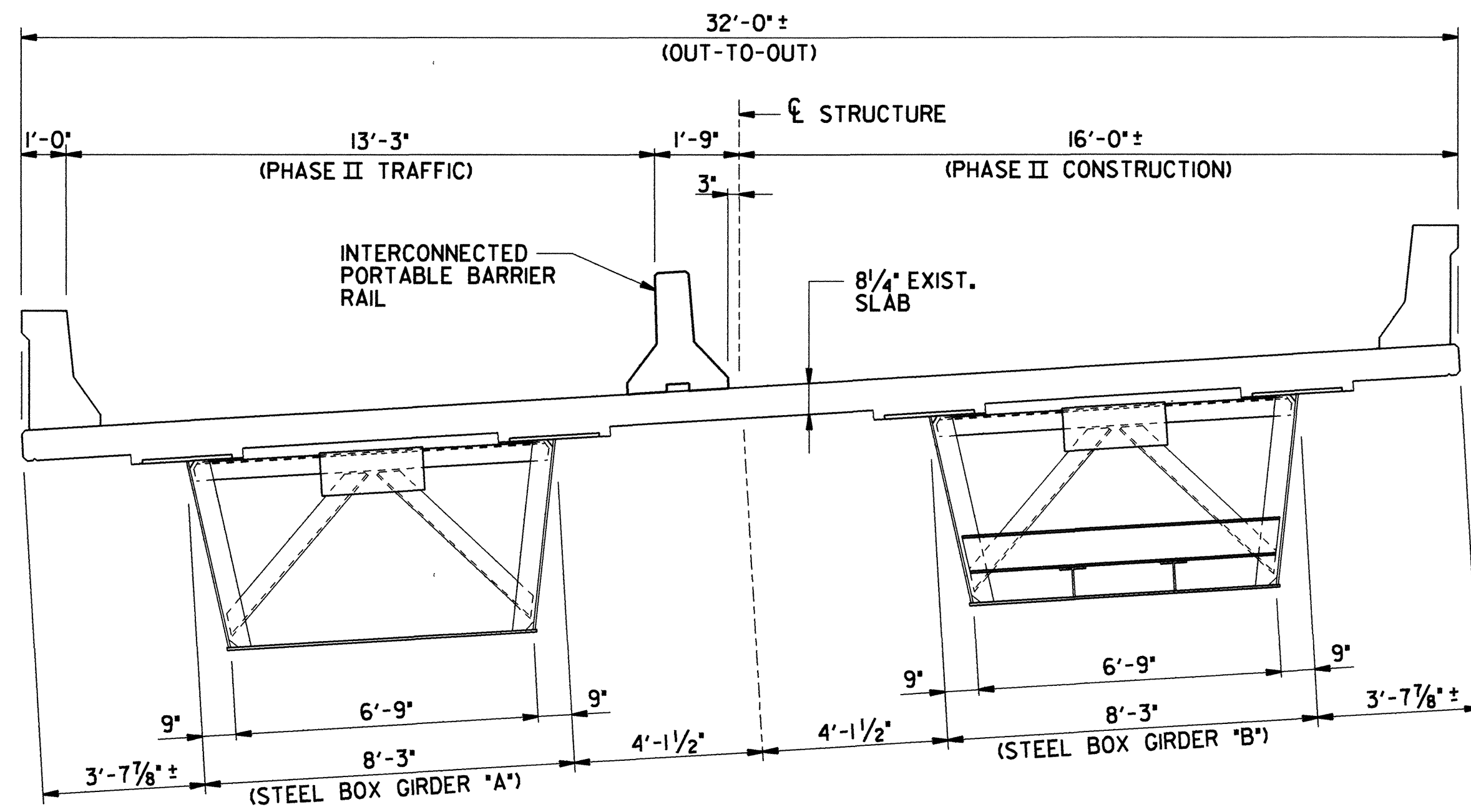


DESIGNED BY L. MILLER DATE 4/98
DRAWN BY L. PARKINS DATE 4/98
SUPERVISED BY PETRONE DATE 4/98
CHECKED BY WILSON, PETRONE DATE 4/98

PROJECT NO.	YEAR	SHEET NO.	
19947-4110-04	1998		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION

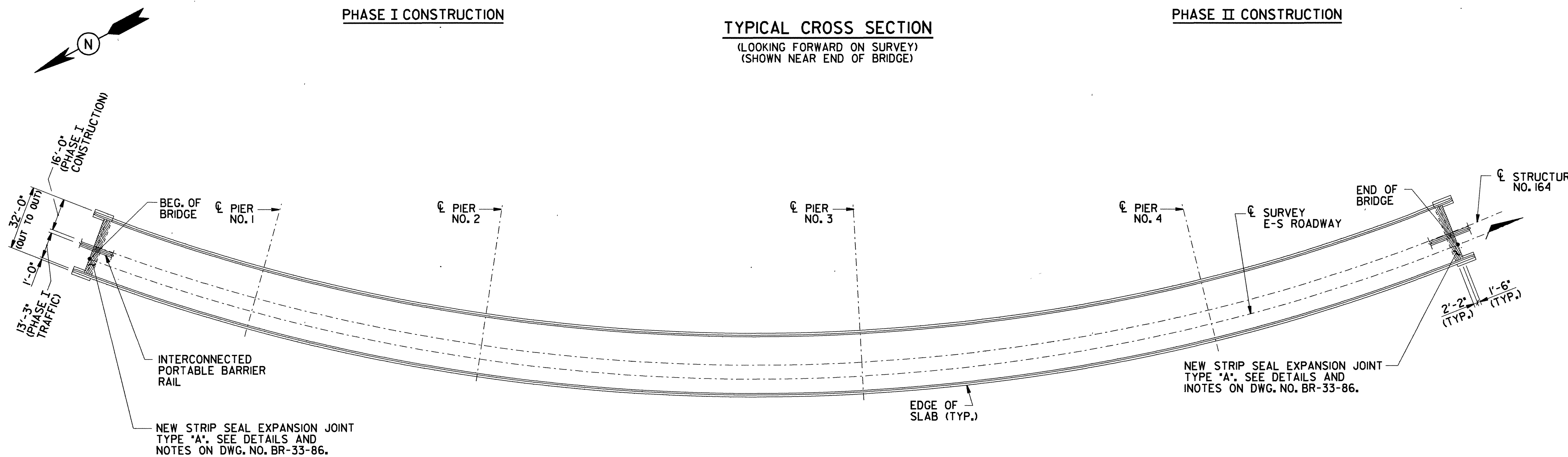


PHASE I CONSTRUCTION



PHASE II CONSTRUCTION

TYPICAL CROSS SECTION
(LOOKING FORWARD ON SURVEY)
(SHOWN NEAR END OF BRIDGE)



SLAB PLAN
(SHOWING LIMITS OF DEMOLITION)

- DENOTES CONCRETE SLAB AND ABUTMENT BACKWALL DEMOLITION.
- NOTE: REFER TO DWG. NO. BR-33-86 FOR DETAILS AND NOTES RELATING TO CONCRETE REMOVAL AND RECONSTRUCTION ADJACENT TO NEW EXPANSION JOINTS AT ABUTMENT NOS. 1 AND 2.
- NOTE: PROVISIONS SHALL BE MADE DURING CONCRETE SLAB AND BACKWALL REMOVAL TO PROTECT THE EXISTING REINFORCEMENT FROM DAMAGE. THE EXISTING REINFORCING STEEL SHALL BE COMPLETELY CLEANED, REALIGNED AND INCORPORATED INTO THE NEW EXPANSION JOINT CONSTRUCTION.
- NOTE: THE COST OF REMOVING AND DISPOSING OF THE EXISTING CONCRETE SLAB WITHIN THE LIMITS SHOWN IS TO BE INCLUDED IN ITEM NO. 604-10.32, EXPANSION JOINT REPAIRS (TYPE "A"), L.F.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

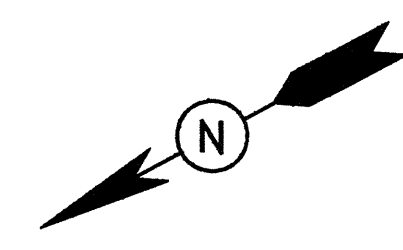
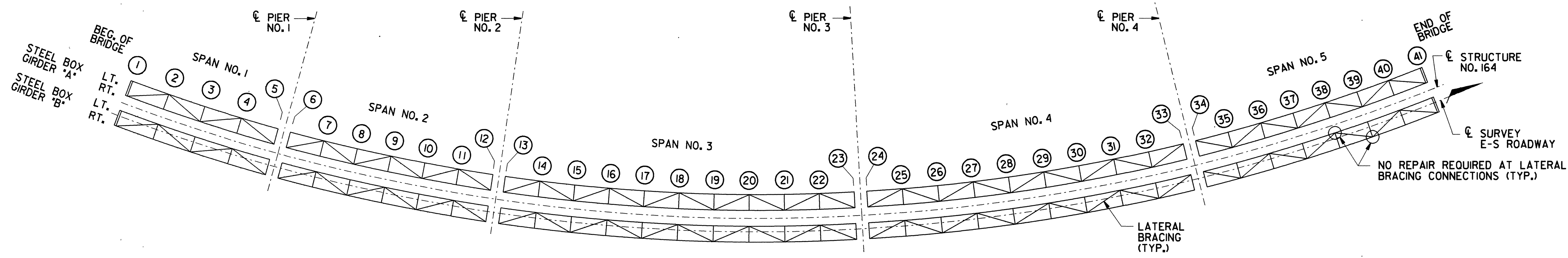


SUPERSTRUCTURE
(STRUCTURE NO. 164)
I-440/I-65 DIRECTIONAL INTERCHANGE
BRIDGE NO. 19-I440-4.87
DAVIDSON COUNTY
1998

DESIGNED BY L. MILLER DATE 4/98
DRAWN BY L. PARKINS DATE 4/98
SUPERVISED BY PETRONE DATE 4/98
CHECKED BY WILSON, PETRONE DATE 4/98

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PROJECT NO.	YEAR	SHEET NO.	
19947-4110-04	1998		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION

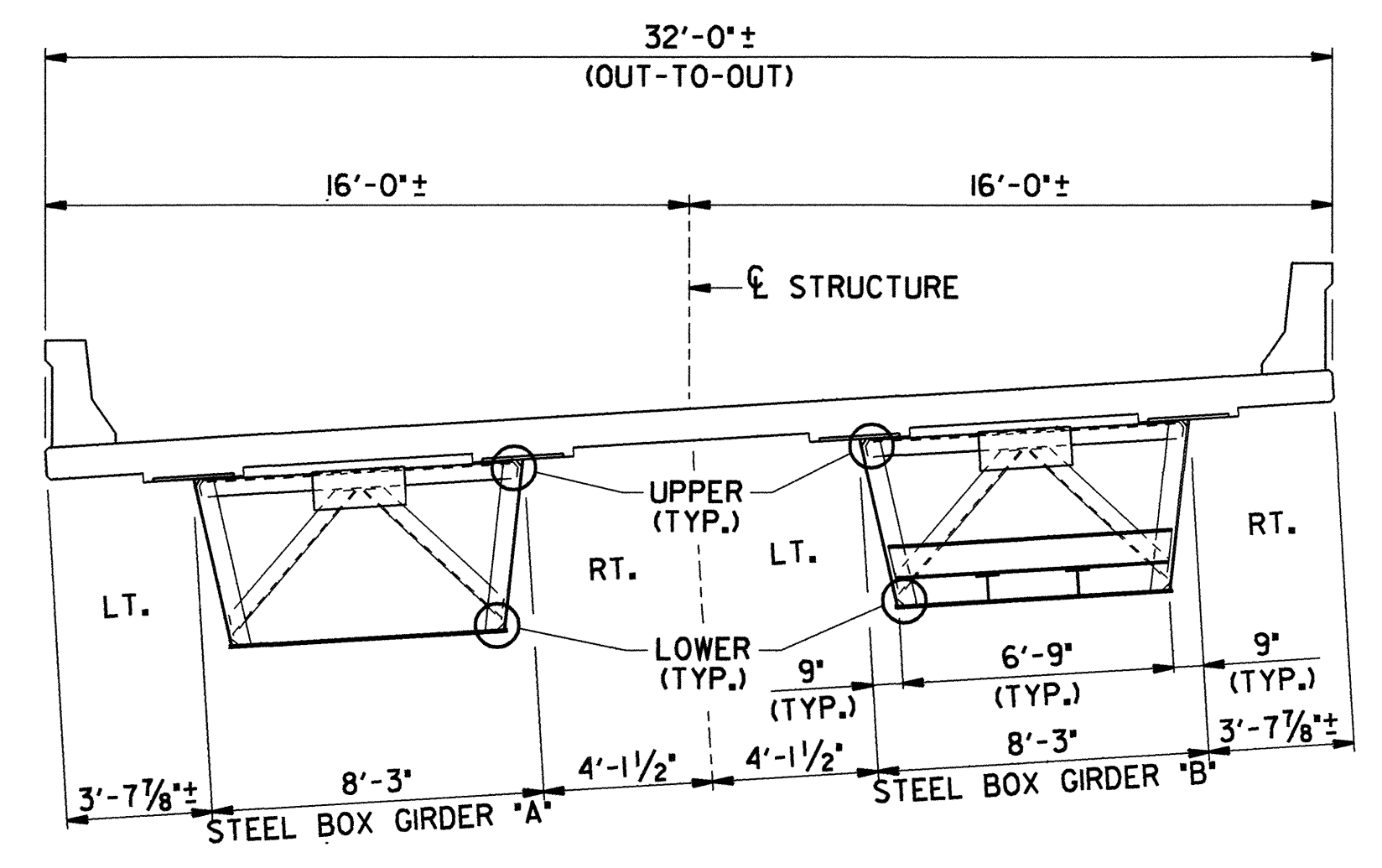


FRAMING PLAN
 ① THRU ④① DENOTES: CROSS FRAME AND DIAPHRAGM LOCATIONS.

**TABLE SHOWING LOCATION OF KNOWN CRACKS
 AT CROSS FRAME CORNER LOCATIONS**

CROSS FRAME LOCATION	STEEL BOX GIRDER "A"				STEEL BOX GIRDER "B"				CROSS FRAME LOCATION	STEEL BOX GIRDER "A"				STEEL BOX GIRDER "B"			
	LEFT		RIGHT		LEFT		RIGHT			LEFT		RIGHT		LEFT		RIGHT	
	UPPER	LOWER	UPPER	LOWER	UPPER	LOWER	UPPER	LOWER		UPPER	LOWER	UPPER	LOWER	UPPER	LOWER	UPPER	LOWER
①									②②						*		
②									②③								
③									②④								
④									②⑤								
⑤									②⑥								
⑥									②⑦								
⑦									②⑧								
⑧									②⑨								
⑨									③①		*						
⑩								*	③②								
⑪									③③								
⑫									③④								
⑬									③⑤								*
⑭									③⑥								
⑮									③⑦								*
⑯		*						*	③⑧								*
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⑱								*	④①								
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⑳									④③								
㉑									④④								
㉒									④⑤								

* DENOTES: LOCATION OF TEN (10) KNOWN STRUCTURAL CRACKS IN WELDS AT CROSS FRAME CORNER LOCATIONS. WHEN DYE PENETRANT TESTING IS PERFORMED, ADDITIONAL CRACK LOCATIONS MAY BE ENCOUNTERED. IF ADDITIONAL CRACKS ARE ENCOUNTERED, COST OF REPAIRING THESE AREAS SHALL BE PAID FOR UNDER ITEM NO. 602-10.22, STRUCTURAL STEEL WELD REPAIR, EACH.



**TYPICAL CROSS SECTION
 (LOOKING WEST)**

STATE OF TENNESSEE
 DEPARTMENT OF TRANSPORTATION
 BUREAU OF HIGHWAYS

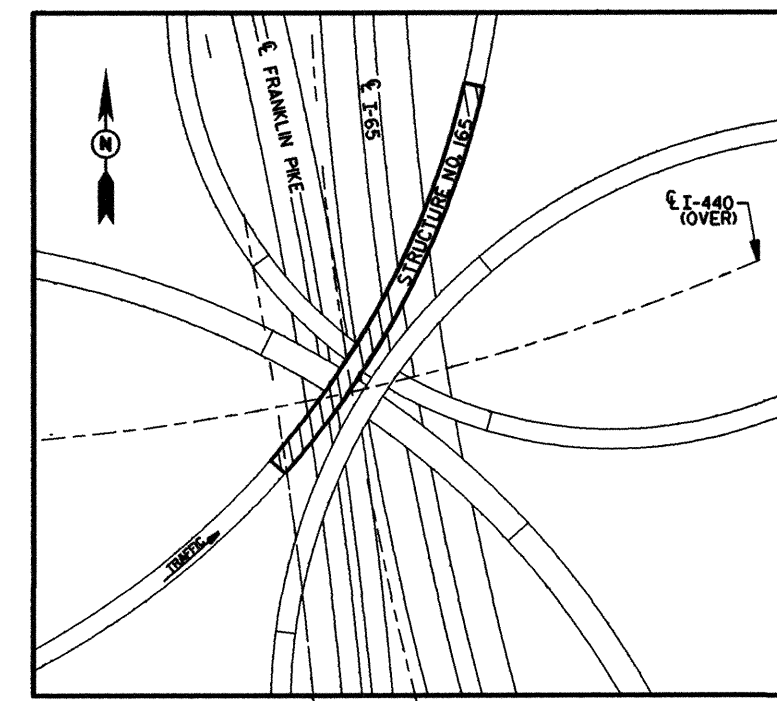


**FRAMING PLAN
 (STRUCTURE NO. 164)
 I-440/I-65 DIRECTIONAL INTERCHANGE
 BRIDGE NO. 19-I440-4.87
 DAVIDSON COUNTY
 1998**

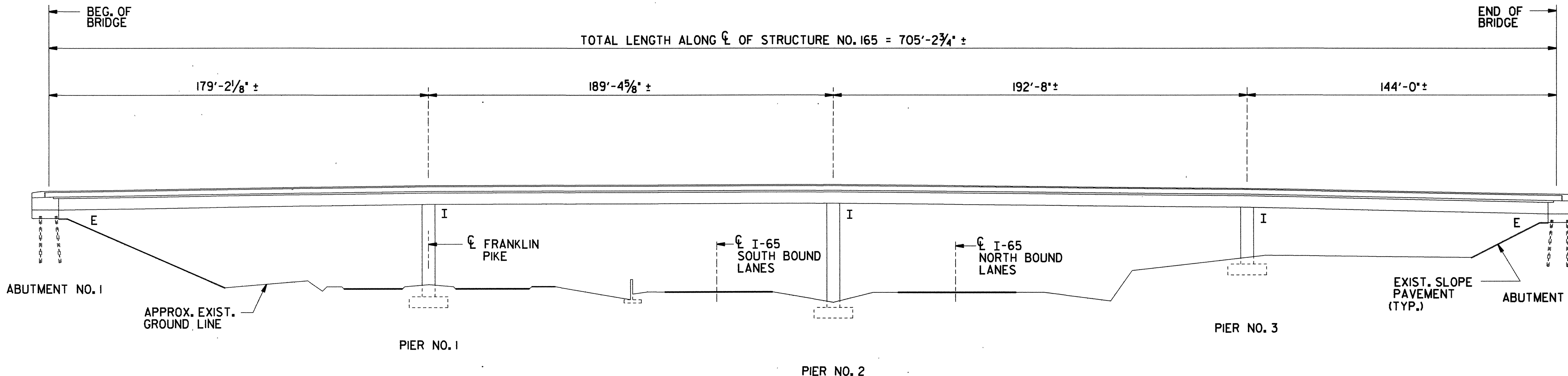
DESIGNED BY L. MILLER DATE 4/98
 DRAWN BY L. PARKINS DATE 4/98
 SUPERVISED BY PETRONE DATE 4/98
 CHECKED BY WILSON, PETRONE DATE 4/98

TO INTERSTATE 440

TO INTERSTATE 65



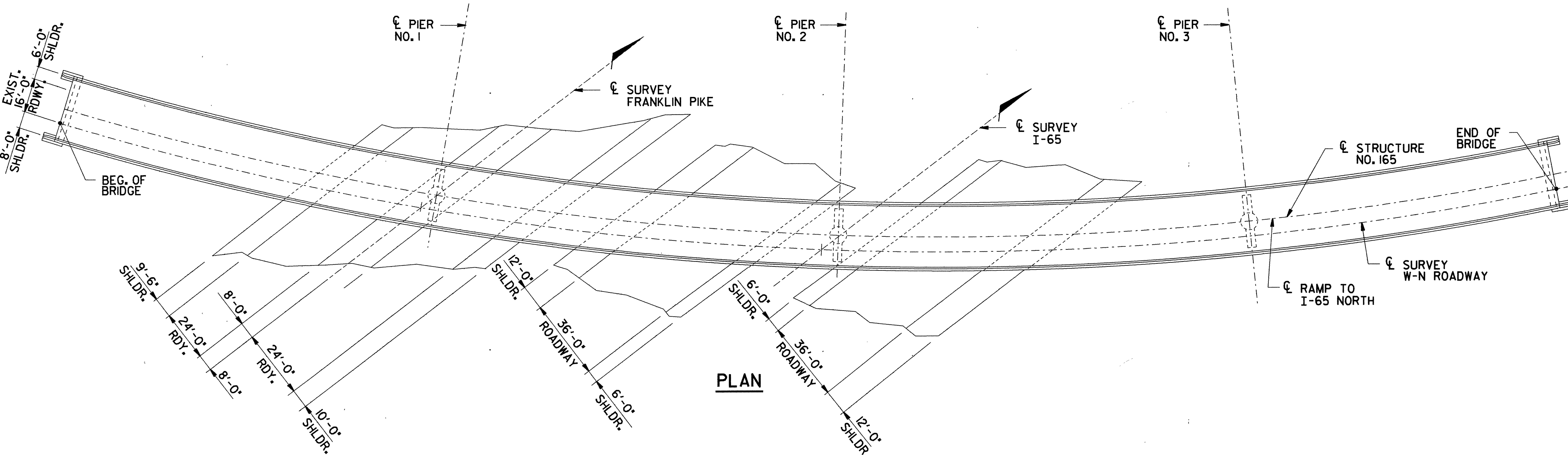
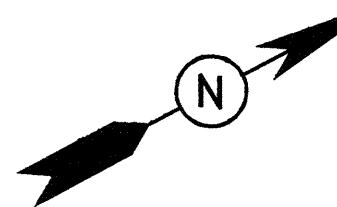
PROJECT NO.	YEAR	SHEET NO.	
19947-4110-04	1998		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	6/2/98	L.M.	FILLER TAB AND STIFFENER TAB DIM. CHANGES



ELEVATION

E DENOTES: EXPANSION
I DENOTES: INTEGRAL

NOTE: EXISTING AND PROPOSED SUPPORT CONDITIONS TO REMAIN THE SAME.



PLAN

GENERAL SCOPE OF WORK

1. PROVIDE REQUIRED TRAFFIC CONTROL TO MAINTAIN ONE LANE OF TRAFFIC ON THE EXISTING BRIDGE.
2. REMOVE PAINT FROM THE CORNERS OF ALL CROSS FRAMES AND DIAPHRAGMS EXCEPT THE CORNERS WHERE LATERAL BRACING IS CONNECTED FOR A TOTAL OF TWO HUNDRED FORTY-SIX (246) LOCATIONS. PERFORM DYE PENETRANT TEST TO DETERMINE EXISTENCE AND EXTENT OF CRACKING IN WELDS AND/OR GIRDER WEBS.
3. REPAIR FILLET WELD CRACKS AT APPROXIMATELY FOUR (4) CORNER LOCATIONS. SEE NOTES AND DETAILS ON DWG. NO. BR-33-84.
4. INSTALL STIFFENER TABS OR FILLER PLATE AT ALL CORNERS OF CROSS FRAMES EXCEPT CORNERS WHERE LATERAL BRACING IS CONNECTED FOR A TOTAL OF ONE HUNDRED NINETY-EIGHT (198) LOCATIONS. SEE NOTES AND DETAILS ON DWG. NOS. BR-33-84 AND BR-33-85.
5. REPAIR ALL LOCATIONS WHERE EXISTING PAINT WAS REMOVED OR NEW STEEL WAS INSTALLED. SEE NOTES ON DWG. NO. BR-33-87 REGARDING SURFACE PREPARATION AND PAINTING.
6. REMOVE PORTIONS OF THE EXISTING SLAB AT ABUTMENT NOS. 1 AND 2 WITHIN LIMITS SHOWN AND RECONSTRUCT SLAB ENDS WITH NEW STRIP SEAL EXPANSION JOINT. SEE DETAILS AND NOTES ON DWG. NO. BR-33-86.
7. REMOVE AND RECONSTRUCT APRON SPILLWAY AT LOCATION SHOWN ON DWG. NO. BR-33-77.
8. REMOVE EXISTING GUARDRAIL AND INSTALL NEW METAL GUARDRAIL ATTACHMENT AT BOTH SIDES BEGINNING OF BRIDGE. FOR DETAILS, SEE SHEET NO. 2A, STANDARD DWG. NOS. SBR-2-131, SBR-2-132 AND STANDARD S-GR-SERIES DRAWINGS.

LIST OF DRAWINGS

DWG. NO.	LAST REV. DATE	DRAWING
BR-33-76	6-2-98	LAYOUT OF BRIDGE TO BE REPAIRED
BR-33-67	6-2-98	GENERAL NOTES AND ESTIMATED BRIDGE QUANTITIES
BR-33-77		SUPERSTRUCTURE
BR-33-78		FRAMING PLAN
BR-33-84		STRUCTURAL STEEL DETAILS
BR-33-85	6-2-98	STRUCTURAL STEEL DETAILS
BR-33-86		STRIP SEAL EXPANSION JOINT DETAILS
BR-33-87		MISCELLANEOUS DETAILS
BR-33-83		REPAIR DETAILS

LIST OF STANDARD DRAWINGS

DWG. NO.	LAST REV. DATE	DRAWING
SBR-2-115	1-04-96	GENERAL NOTES AND DETAILS FOR EXPANSION JOINT REPLACEMENT CONSTRUCTION TYPES 'A' THROUGH 'J' - 1991
SBR-2-116	1-04-96	GENERAL DETAILS FOR STRIP SEAL EXPANSION JOINT REPLACEMENT CONSTRUCTION DETAILS TYPES 'A' THROUGH 'J' - 1991
SBR-2-117	5-30-96	STRIP SEAL EXPANSION JOINTS REPLACEMENT CONSTRUCTION DETAILS TYPE 'A' AND TYPE 'B' - 1991
SBR-2-131	1-04-96	DETAILS SHOWING GUARDRAIL ATTACHMENT AT BRIDGE ENDS TO EXISTING CONCRETE SLOPE FACE ENDPOST - 1989
SBR-2-132	1-04-96	DETAILS SHOWING GUARDRAIL ATTACHMENT AT BRIDGE ENDS TO EXISTING CONCRETE SLOPE FACE ENDPOST - 1989
S-GR-SERIES	VARIES	STANDARD GUARDRAIL DETAILS

LIST OF REFERENCE DRAWINGS

DWG. NO.	DRAWING
M-15-89 THRU M-15-97	EXISTING BRIDGE PLANS
M-15-114, M-15-115, M-15-117	
M-15-118 AND D-CB-9	

LIST OF SPECIAL PROVISIONS

NO.	LAST REV. DATE	REGARDING
105A	**	APPROVAL OF SHOP DRAWINGS
602	**	STEEL STRUCTURES
604CR	**	REPAIR OF BRIDGE DECK CRACKS
604S	**	STRIP SEAL EXPANSION DEVICE

* DENOTES: THESE DRAWINGS ARE TO BE PRINTED WITH PLANS.
** DENOTES: CURRENT REVISION DATE, AS PER CONTRACT DOCUMENTS.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

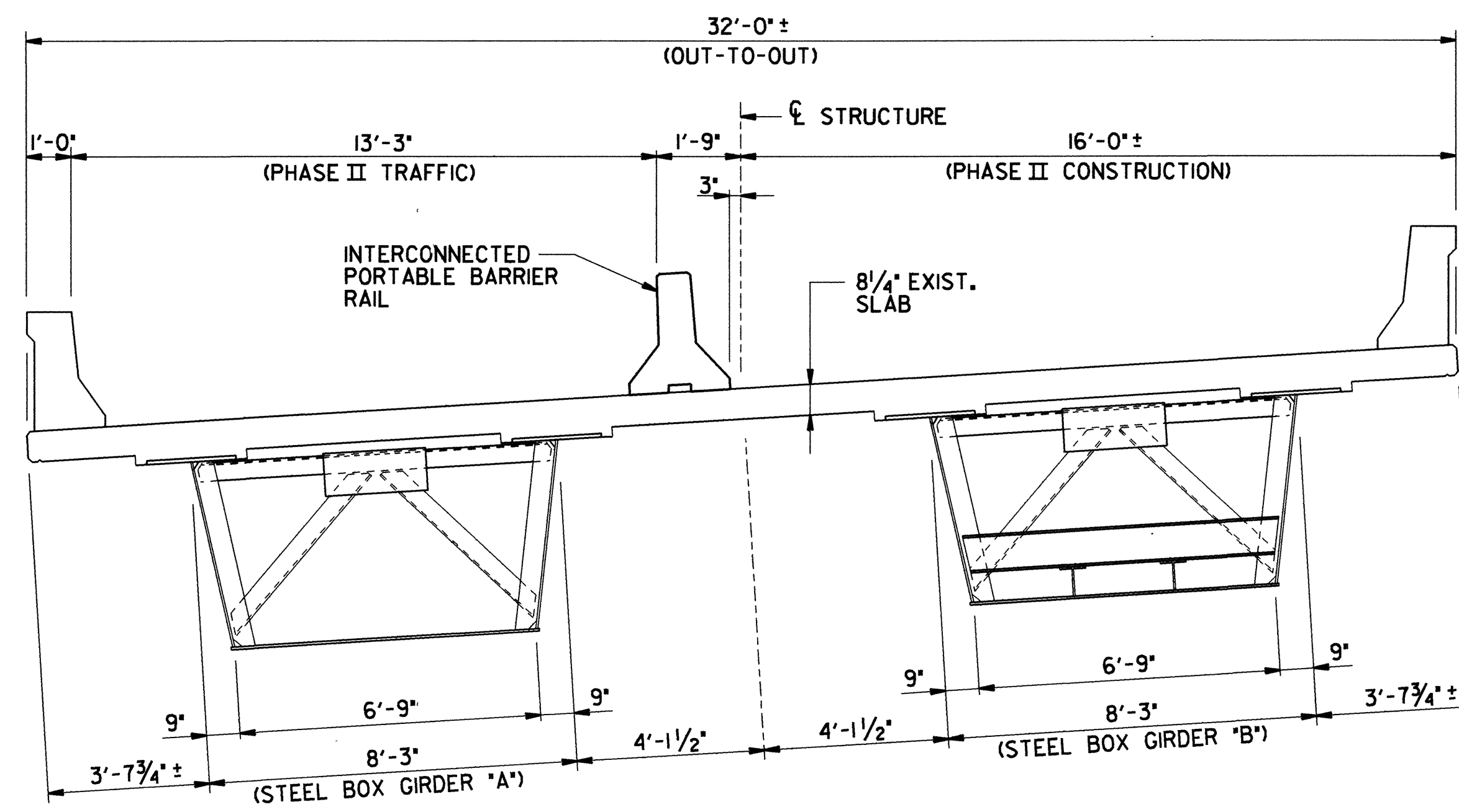
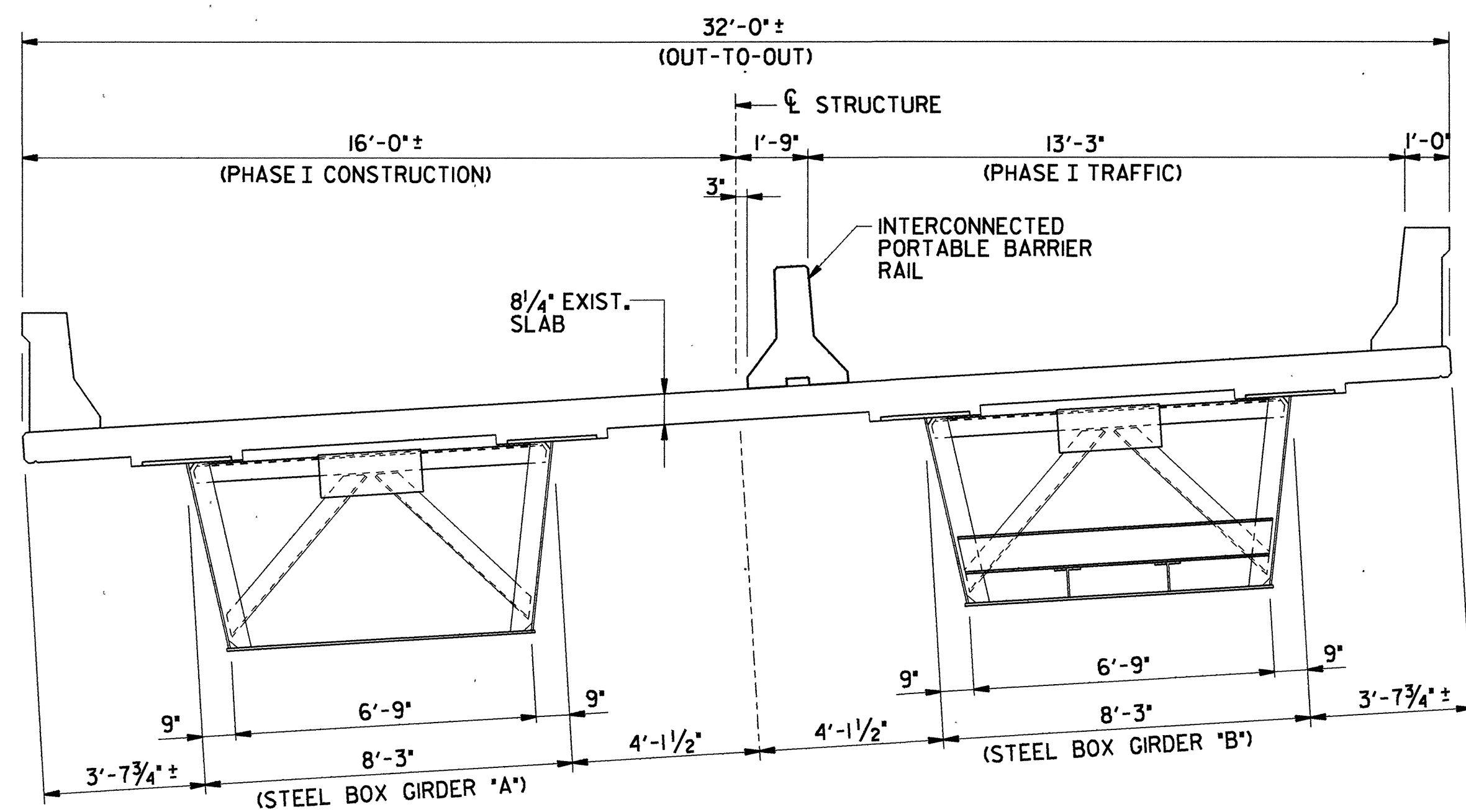
LAYOUT OF BRIDGE TO BE REPAIRED
(STRUCTURE NO. 165)
I-440/I-65 DIRECTIONAL INTERCHANGE
BRIDGE NO. 19-I440-4,85
DAVIDSON COUNTY
1998



DESIGNED BY L. MILLER DATE 4/98
DRAWN BY L. PARKINS DATE 4/98
SUPERVISED BY PETRONE DATE 4/98
CHECKED BY WILSON, PETRONE DATE 4/98

PROJECT NO.	YEAR	SHEET NO.
19947-4110-04	1998	

REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION

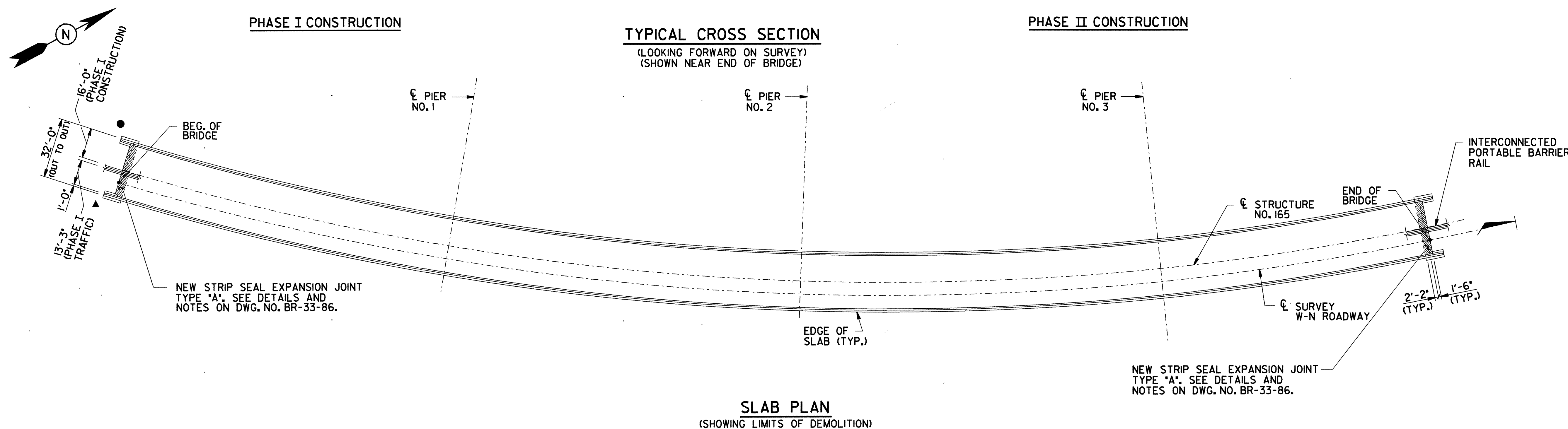


PHASE I CONSTRUCTION

TYPICAL CROSS SECTION

(LOOKING FORWARD ON SURVEY)
(SHOWN NEAR END OF BRIDGE)

PHASE II CONSTRUCTION



SLAB PLAN

(SHOWING LIMITS OF DEMOLITION)

▨ DENOTES: CONCRETE SLAB AND ABUTMENT BACKWALL DEMOLITION.

NOTE: REFER TO DWG. NO. BR-33-86 FOR DETAILS AND NOTES RELATING TO CONCRETE REMOVAL AND RECONSTRUCTION ADJACENT TO NEW EXPANSION JOINTS AT ABUTMENT NOS. 1 AND 2.

NOTE: PROVISIONS SHALL BE MADE DURING CONCRETE SLAB AND BACKWALL REMOVAL TO PROTECT THE EXISTING REINFORCEMENT FROM DAMAGE. THE EXISTING REINFORCING STEEL SHALL BE COMPLETELY CLEANED, REALIGNED AND INCORPORATED INTO THE NEW EXPANSION JOINT CONSTRUCTION.

NOTE: THE COST OF REMOVING AND DISPOSING OF THE EXISTING CONCRETE SLAB WITHIN THE LIMITS SHOWN IS TO BE INCLUDED IN ITEM NO. 604-10.32, EXPANSION JOINT REPAIRS (TYPE 'A'), L.F.

▲ DENOTES: NEW METAL GUARDRAIL ATTACHMENT. SEE DETAIL ON SHEET NO. 2A.

● DENOTES: NEW METAL GUARDRAIL ATTACHMENT AND APRON SPILLWAY MODIFICATION. SEE DETAIL 'B' ON DWG. NO. BR-33-83.

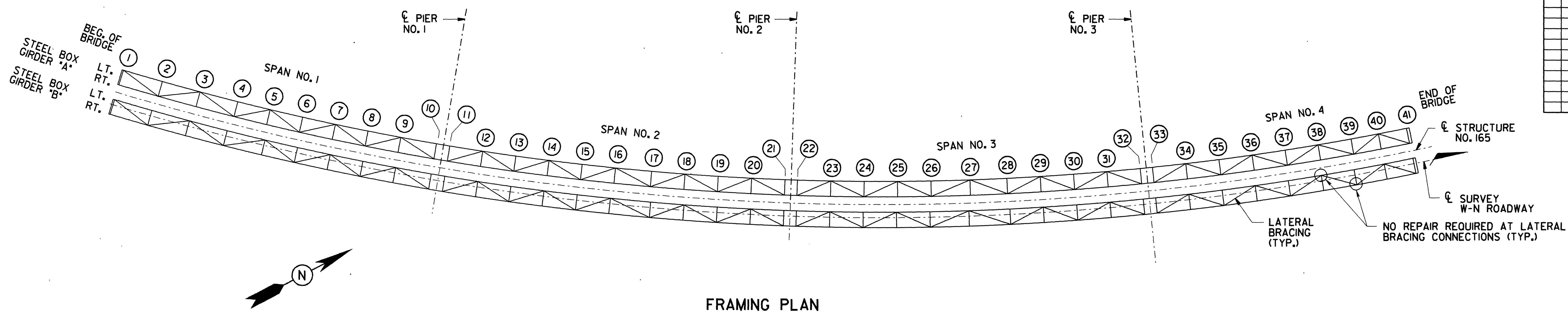
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

SUPERSTRUCTURE
(STRUCTURE NO. 165)
I-440/I-65 DIRECTIONAL INTERCHANGE
BRIDGE NO. 19-I440-4.85
DAVIDSON COUNTY
1998



DESIGNED BY L. MILLER DATE 4/98
DRAWN BY L. PARKINS DATE 4/98
SUPERVISED BY PETRONE DATE 4/98
CHECKED BY WILSON, PETRONE DATE 4/98

PROJECT NO.	YEAR	SHEET NO.	
19947-4110-04	1998		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION

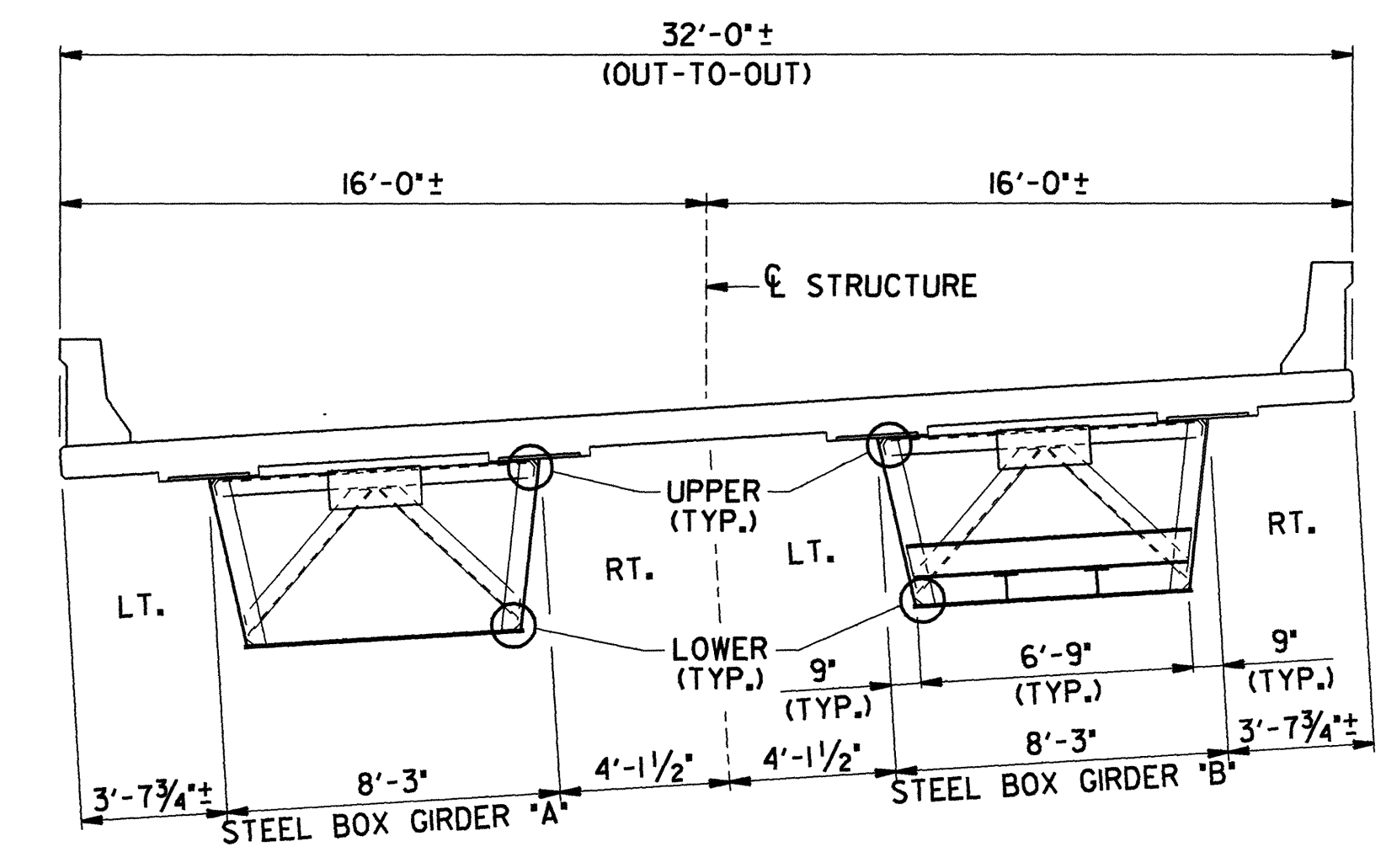


FRAMING PLAN
 (1) THRU (41) DENOTES: CROSS FRAME AND DIAPHRAGM LOCATIONS.

**TABLE SHOWING LOCATION OF KNOWN CRACKS
 AT CROSS FRAME CORNER LOCATIONS**

CROSS FRAME LOCATION	STEEL BOX GIRDER 'A'				STEEL BOX GIRDER 'B'				CROSS FRAME LOCATION	STEEL BOX GIRDER 'A'				STEEL BOX GIRDER 'B'			
	LEFT		RIGHT		LEFT		RIGHT			LEFT		RIGHT		LEFT		RIGHT	
	UPPER	LOWER	UPPER	LOWER	UPPER	LOWER	UPPER	LOWER		UPPER	LOWER	UPPER	LOWER	UPPER	LOWER	UPPER	LOWER
(1)									(22)								
(2)									(23)								
(3)		*							(24)								
(4)							*		(25)								
(5)		*							(26)							*	
(6)									(27)								
(7)									(28)								
(8)									(29)								
(9)									(30)								
(10)									(31)								
(11)									(32)								
(12)									(33)								
(13)									(34)								
(14)									(35)								
(15)									(36)								
(16)									(37)								
(17)									(38)								
(18)									(39)								
(19)									(40)								
(20)									(41)								
(21)																	

* DENOTES: LOCATION OF FOUR (4) KNOWN STRUCTURAL CRACKS IN WELDS AT CROSS FRAME CORNER LOCATIONS. WHEN DYE PENETRANT TESTING IS PERFORMED, ADDITIONAL CRACK LOCATIONS MAY BE ENCOUNTERED. IF ADDITIONAL CRACKS ARE ENCOUNTERED, COST OF REPAIRING THESE AREAS SHALL BE PAID FOR UNDER ITEM NO. 602-10.22, STRUCTURAL STEEL WELD REPAIR, EACH.



HALF SECTION NEAR MID-SPAN HALF SECTION NEAR SUPPORT
TYPICAL CROSS SECTION
 (LOOKING NORTH)

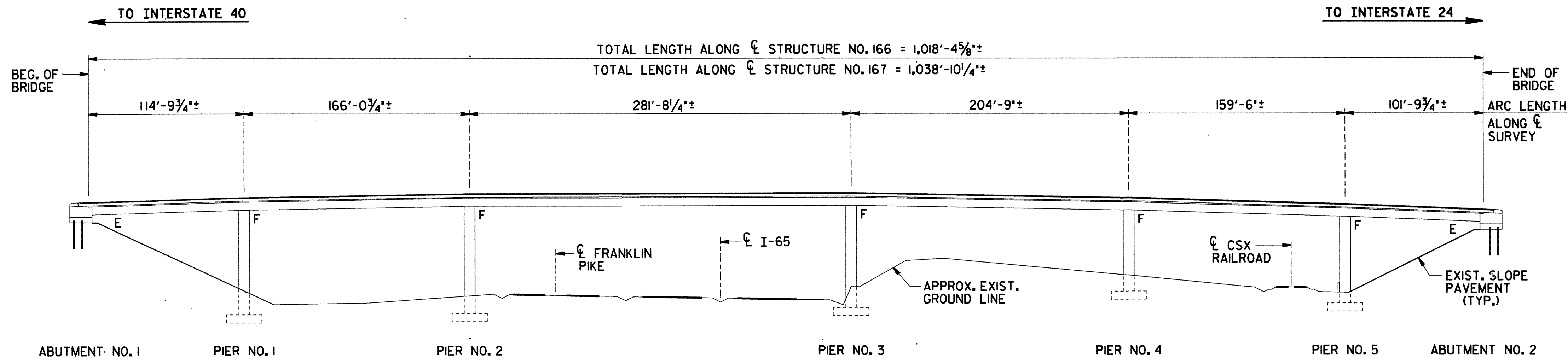
STATE OF TENNESSEE
 DEPARTMENT OF TRANSPORTATION
 BUREAU OF HIGHWAYS



FRAMING PLAN
 (STRUCTURE NO. 165)
 I-440/I-65 DIRECTIONAL INTERCHANGE
 BRIDGE NO. 19-I440-4.85
 DAVIDSON COUNTY
 1998

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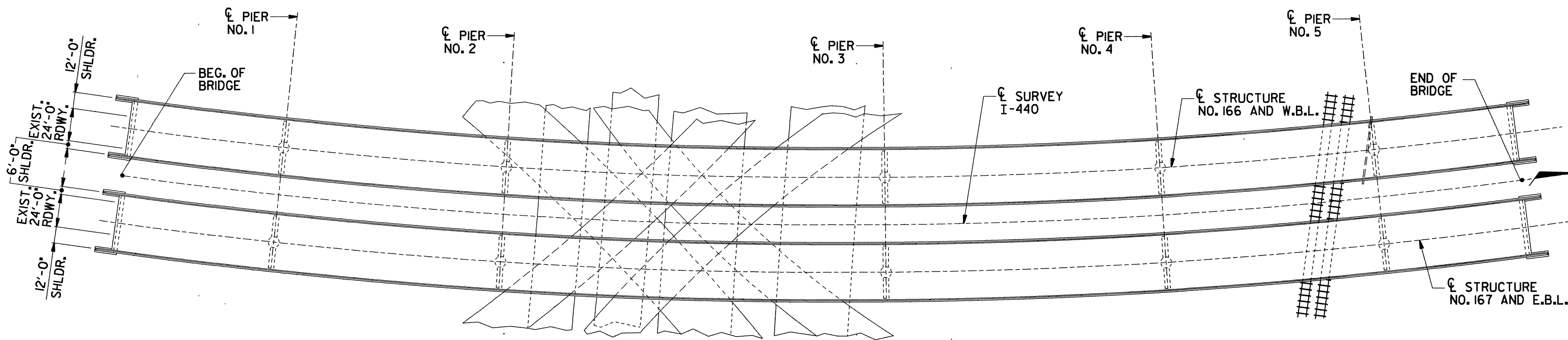
DESIGNED BY L. MILLER DATE 4/98
 DRAWN BY L. PARKINS DATE 4/98
 SUPERVISED BY PETRONE DATE 4/98
 CHECKED BY WILSON, PETRONE DATE 4/98



ELEVATION

E DENOTES: EXPANSION
F DENOTES: FIXED

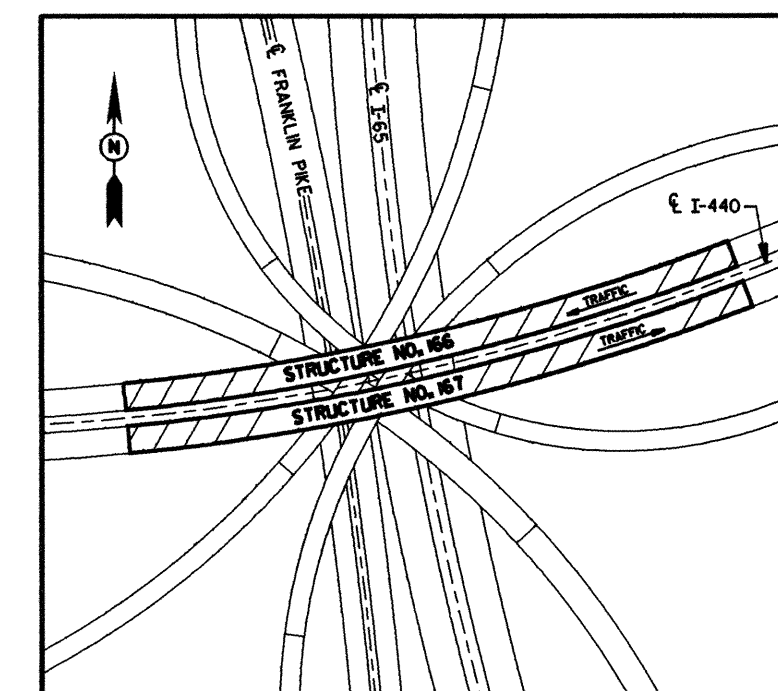
NOTE: EXISTING AND PROPOSED SUPPORT CONDITIONS TO REMAIN THE SAME.



PLAN

GENERAL SCOPE OF WORK

1. PROVIDE REQUIRED TRAFFIC CONTROL TO MAINTAIN TWO LANES OF TRAFFIC IN EACH DIRECTION ON THE EXISTING BRIDGE.
2. REMOVE PAINT FROM THE CORNERS OF ALL CROSS FRAMES AND DIAPHRAGMS FOR A TOTAL OF NINE HUNDRED SIXTY (960) LOCATIONS. PERFORM DYE PENETRANT TEST TO DETERMINE EXISTENCE AND EXTENT OF CRACKING IN WELDS AND/OR GIRDER WEBS.
3. REPAIR FILLET WELD CRACKS AT APPROXIMATELY NINETY-FIVE (95) CORNER LOCATIONS. ALSO REPAIR CRACKS IN STEEL BOX GIRDER WEBS AT APPROXIMATELY FIVE (5) CORNER LOCATIONS. SEE NOTES AND DETAILS ON DWG. NO. BR-33-84.
4. INSTALL STIFFENER TABS OR FILLER PLATE AT ALL CORNERS OF CROSS FRAMES FOR A TOTAL OF SEVEN HUNDRED SIXTY-EIGHT (768) LOCATIONS. SEE NOTES AND DETAILS ON DWG. NOS. BR-33-84 AND BR-33-85.
5. REPAINT ALL LOCATIONS WHERE EXISTING PAINT WAS REMOVED OR NEW STEEL WAS INSTALLED. SEE NOTES ON DWG. NO. BR-33-87 REGARDING SURFACE PREPARATION AND PAINTING.
6. RECONSTRUCT CONCRETE SLAB IN AREAS OF PARTIAL DEPTH DECK REPAIR WITHIN LIMITS DESIGNATED BY THE ENGINEER AS SHOWN IN DETAIL ON DWG. NO. BR-33-87.
7. REMOVE PORTIONS OF THE EXISTING SLAB AT ABUTMENT NOS. 1 AND 2 WITHIN LIMITS SHOWN AND RECONSTRUCT SLAB ENDS WITH NEW MODULAR TYPE EXPANSION JOINT. SEE DETAILS AND NOTES ON DWG. NO. BR-33-82.
8. REMOVE AND RECONSTRUCT APRON SPILLWAY AT LOCATIONS SHOWN ON DWG. NO. BR-33-80.
9. REMOVE EXISTING GUARDRAIL AND INSTALL NEW METAL GUARDRAIL ATTACHMENT AS INDICATED ON DWG. NO. BR-33-80. FOR DETAILS, SEE SHEET NO. 2A, STANDARD DWG. NOS. SBR-2-131, SBR-2-132 AND STANDARD S-GR-SERIES DRAWINGS.
10. REPAIR SLOPE PAVING AND PLACE RIP-RAP AT EACH ABUTMENT WITHIN THE LIMITS SHOWN IN DETAILS ON DWG. NO. BR-33-83.



KEY MAP

PROJECT NO.	YEAR	SHEET NO.	
19947-410-04	1998		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	6/2/98	L.M.	FILLER PL AND STIFFENER TAB DIM. CHANGES

LIST OF DRAWINGS

DWG. NO.	LAST REV. DATE	DRAWING
BR-33-79	6-2-98	LAYOUT OF BRIDGE TO BE REPAIRED
BR-33-67	6-2-98	GENERAL NOTES AND ESTIMATED BRIDGE QUANTITIES
BR-33-80		SUPERSTRUCTURE
BR-33-81		FRAMING PLAN
BR-33-84		STRUCTURAL STEEL DETAILS
BR-33-85	6-2-98	STRUCTURAL STEEL DETAILS
BR-33-82		MODULAR EXPANSION JOINT DETAILS
BR-33-87		MISCELLANEOUS DETAILS
BR-33-83		REPAIR DETAILS

LIST OF STANDARD DRAWINGS

DWG. NO.	LAST REV. DATE	DRAWING
STD-1-2	9-11-95	STEEL SLIDER PLATE ASSEMBLIES FOR CONCRETE PARAPET AND BRIDGE DECK DRAIN DETAILS - 1993
SBR-2-116	1-04-96	GENERAL DETAILS FOR STRIP SEAL EXPANSION JOINT REPLACEMENT CONSTRUCTION DETAILS TYPES 'A' THROUGH 'J' - 1991
SBR-2-131	1-04-96	DETAILS SHOWING GUARDRAIL ATTACHMENT AT BRIDGE ENDS TO EXISTING CONCRETE SLOPE FACE ENDPOST - 1989
SBR-2-132	1-04-96	DETAILS SHOWING GUARDRAIL ATTACHMENT AT BRIDGE ENDS TO EXISTING CONCRETE SLOPE FACE ENDPOST - 1989
S-GR-SERIES	VARIES	STANDARD GUARDRAIL DETAILS

*** LIST OF REFERENCE DRAWINGS**

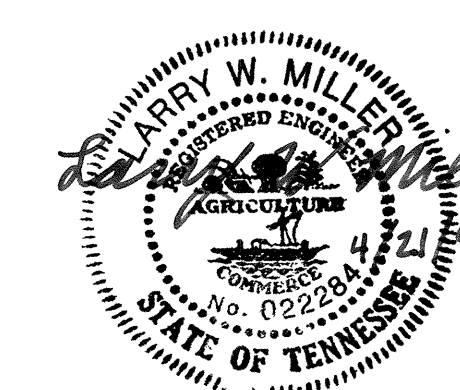
DWG. NO.	DRAWING
M-15-98 THRU M-15-113	EXISTING BRIDGE PLANS
M-15-115, M-15-116, M-15-118 AND D-CB-9	

LIST OF SPECIAL PROVISIONS

NO.	LAST REV. DATE	REGARDING
105A	**	APPROVAL OF SHOP DRAWINGS
602	**	STEEL STRUCTURES
604CR	**	REPAIR OF BRIDGE DECK CRACKS
604M	**	MODULAR ROADWAY EXPANSION DEVICES

* DENOTES: THESE DRAWINGS ARE TO BE PRINTED WITH PLANS.
** DENOTES: CURRENT REVISION DATE, AS PER CONTRACT DOCUMENTS.

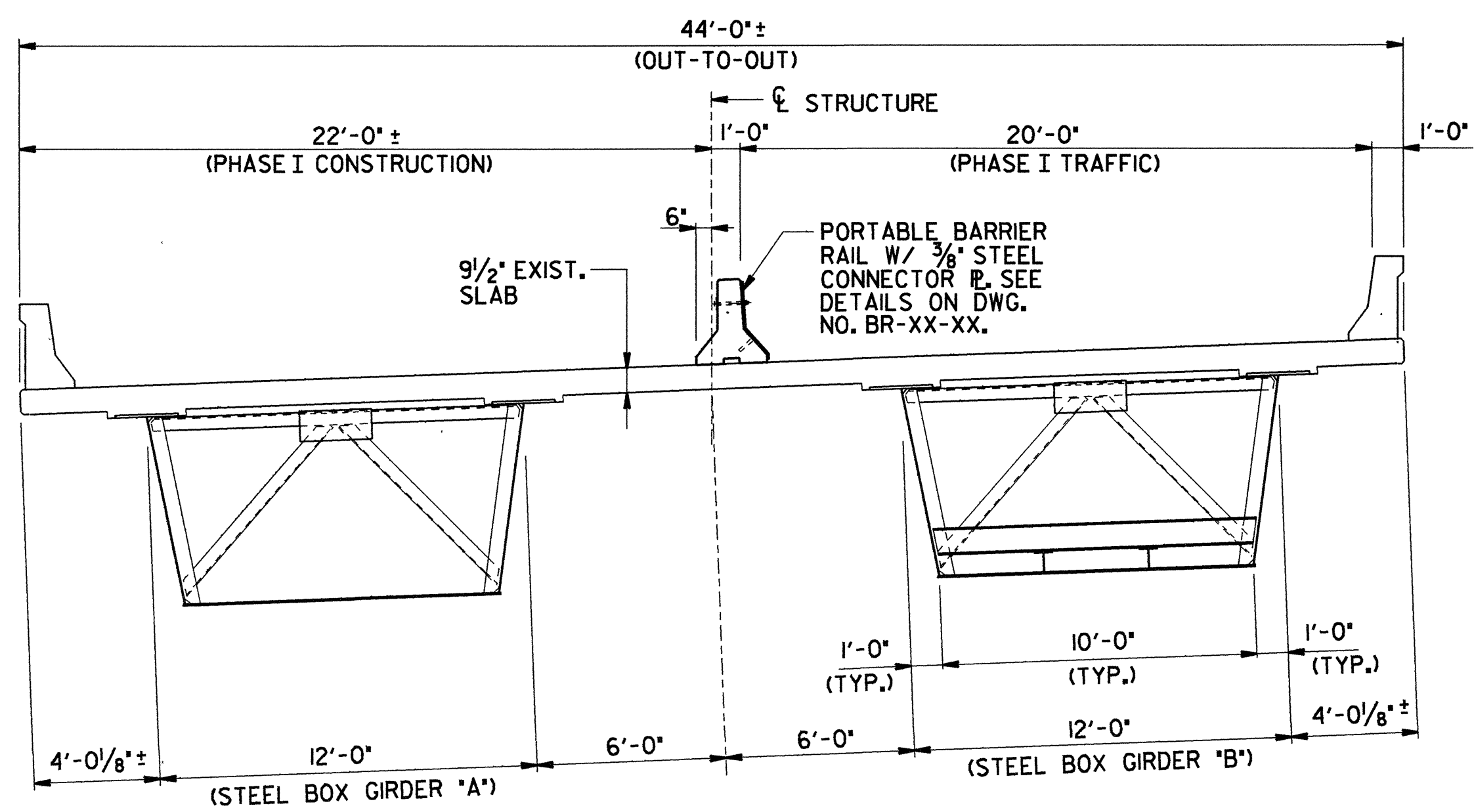
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS



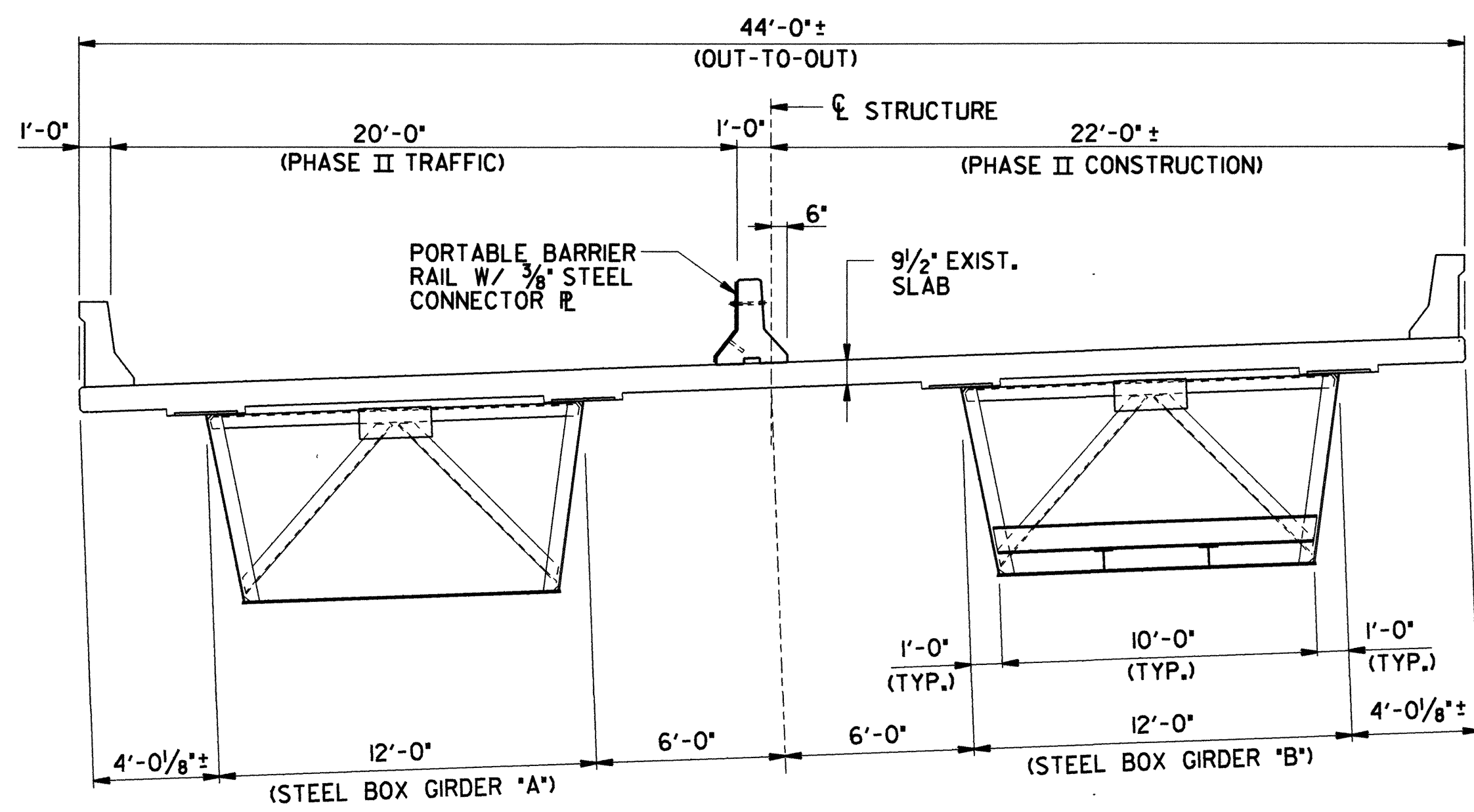
LAYOUT OF BRIDGES TO BE REPAIRED
(STRUCTURE NOS. 166 AND 167)
I-440/I-65 DIRECTIONAL INTERCHANGE
BRIDGE NO. 19-I440-4.82
DAVIDSON COUNTY
1998

DESIGNED BY: L. MILLER DATE: 4/98
DRAWN BY: L. PARKINS DATE: 4/98
SUPERVISED BY: PETRONE DATE: 4/98
CHECKED BY: WILSON, PETRONE DATE: 4/98

PROJECT NO.	YEAR	SHEET NO.	
19947-410-04	1998		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION



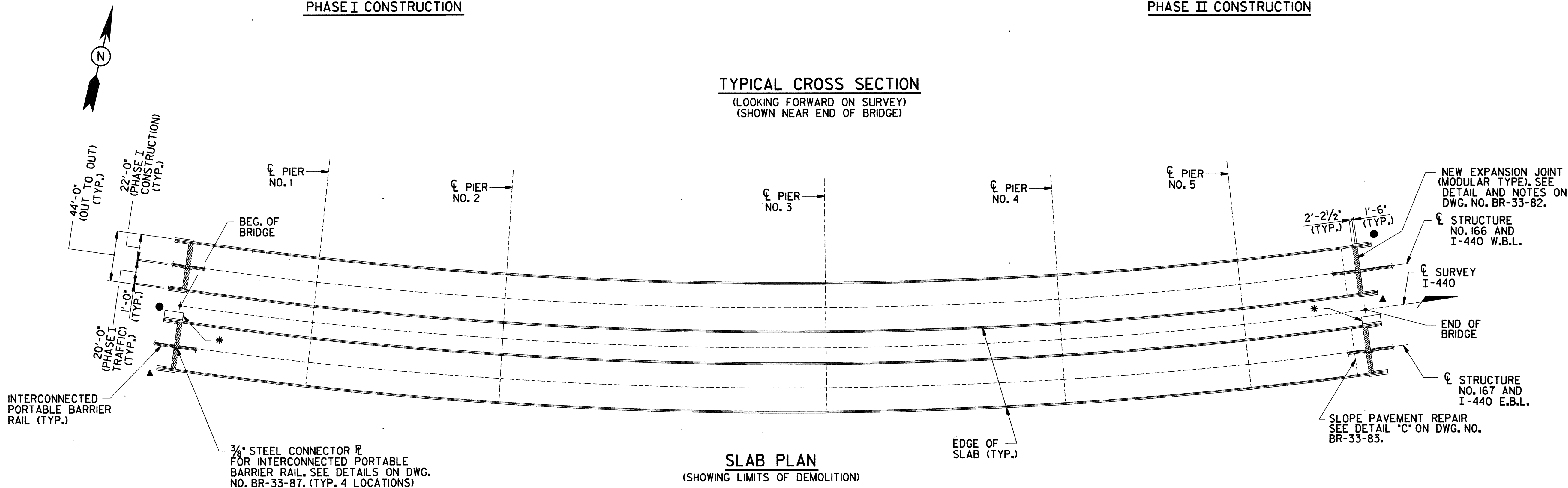
PHASE I CONSTRUCTION



PHASE II CONSTRUCTION

TYPICAL CROSS SECTION

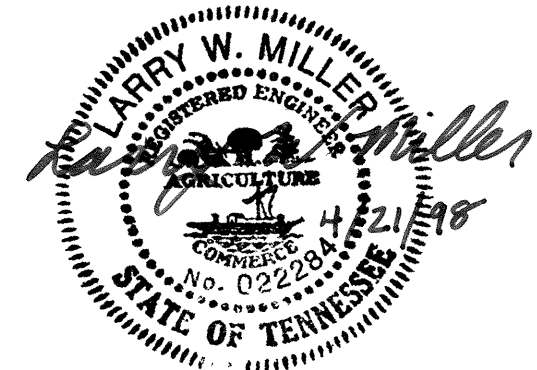
(LOOKING FORWARD ON SURVEY)
(SHOWN NEAR END OF BRIDGE)



- DENOTES: CONCRETE SLAB AND ABUTMENT BACKWALL DEMOLITION.
- NOTE: REFER TO DWG. NO. BR-33-82 FOR DETAILS AND NOTES RELATING TO CONCRETE REMOVAL AND RECONSTRUCTION ADJACENT TO NEW EXPANSION JOINTS AT ABUTMENT NOS. 1 AND 2.
- NOTE: PROVISIONS SHALL BE MADE DURING CONCRETE SLAB AND BACKWALL REMOVAL TO PROTECT THE EXISTING REINFORCEMENT FROM DAMAGE. THE EXISTING REINFORCING STEEL SHALL BE COMPLETELY CLEANED, REALIGNED AND INCORPORATED INTO THE NEW EXPANSION JOINT CONSTRUCTION.
- NOTE: THE COST OF REMOVING AND DISPOSING OF THE EXISTING CONCRETE SLAB WITHIN THE LIMITS SHOWN IS TO BE INCLUDED IN ITEM NO. 604-10.60, EXPANSION JOINT REPAIRS (MODULAR TYPE), L.F.
- ▲ DENOTES: NEW METAL GUARDRAIL ATTACHMENT. SEE DETAIL ON SHEET NO. 2A.
- DENOTES: NEW METAL GUARDRAIL ATTACHMENT AND APRON SPILLWAY MODIFICATION. SEE DETAIL "B" ON DWG. NO. BR-33-83.
- * DENOTES: RIP-RAP BLANKET. SEE DETAIL "A" ON DWG. NO. BR-33-83.

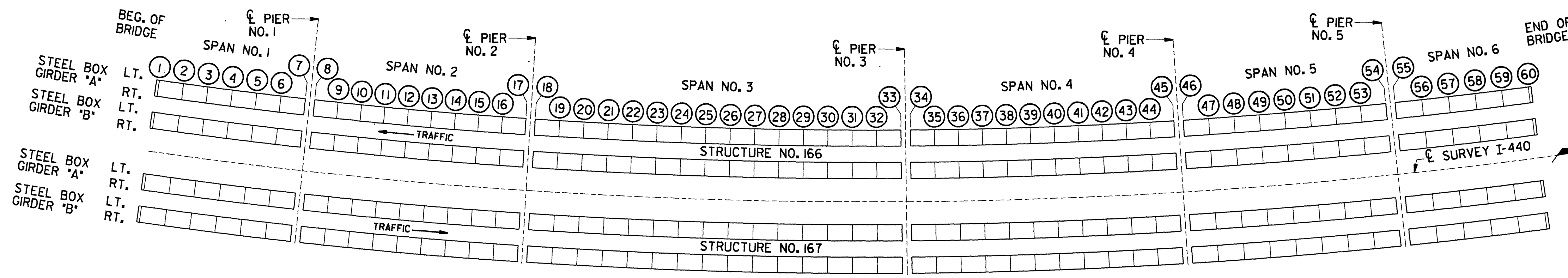
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

SUPERSTRUCTURE
(STRUCTURE NOS. 166 AND 167)
I-440/I-65 DIRECTIONAL INTERCHANGE
BRIDGE NO. 19-I440-4.82
DAVIDSON COUNTY
1998

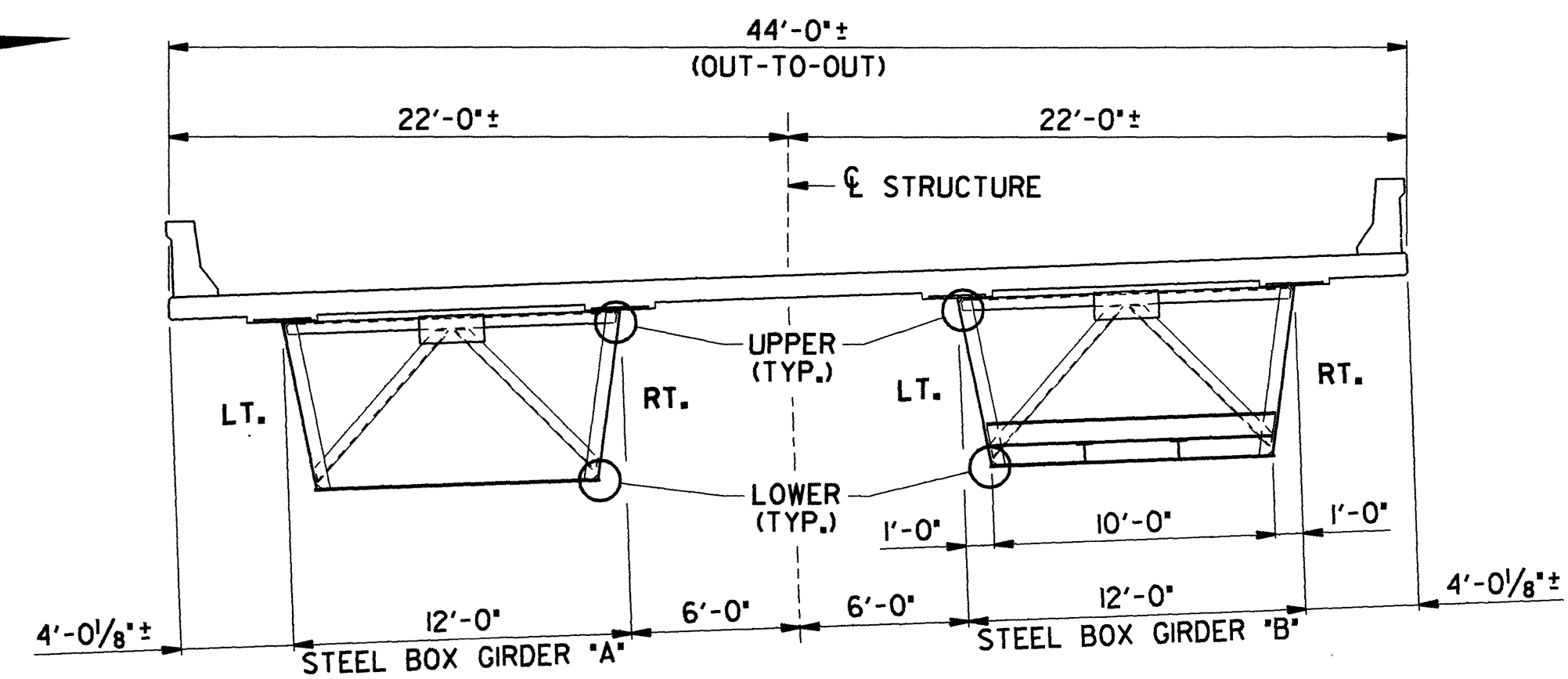


DESIGNED BY L. MILLER DATE 4/98
DRAWN BY L. PARKINS DATE 4/98
SUPERVISED BY PETRONE DATE 4/98
CHECKED BY WILSON, PETRONE DATE 4/98

PROJECT NO.	YEAR	SHEET NO.	
19947-4110-04	1998		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	1-6-99	TG	Added Additional Weld Crack Locations



FRAMING PLAN
 ① THRU ⑥0 DENOTES: CROSS FRAME AND DIAPHRAGM LOCATIONS.



HALF SECTION NEAR MID-SPAN HALF SECTION NEAR SUPPORT
TYPICAL CROSS SECTION
 (LOOKING EAST)

TABLES SHOWING LOCATION OF KNOWN CRACKS AT CROSS FRAME OR DIAPHRAGM CORNER LOCATIONS

STRUCTURE NO. 166					STRUCTURE NO. 166 (cont'd.)					STRUCTURE NO. 167					STRUCTURE NO. 167 (cont'd.)				
CROSS FRAME LOCATION	STEEL BOX GIRDER 'A'		STEEL BOX GIRDER 'B'		CROSS FRAME LOCATION	STEEL BOX GIRDER 'A'		STEEL BOX GIRDER 'B'		CROSS FRAME LOCATION	STEEL BOX GIRDER 'A'		STEEL BOX GIRDER 'B'		CROSS FRAME LOCATION	STEEL BOX GIRDER 'A'		STEEL BOX GIRDER 'B'	
	LEFT UPPER	RIGHT LOWER	LEFT UPPER	RIGHT LOWER		LEFT UPPER	RIGHT LOWER	LEFT UPPER	RIGHT LOWER		LEFT UPPER	RIGHT LOWER	LEFT UPPER	RIGHT LOWER		LEFT UPPER	RIGHT LOWER	LEFT UPPER	RIGHT LOWER
①					③1				+	①					③1				+
②					③2	+			+	②	+				③2				+
③		+			③3			+		③		*			③3				*
④			+		③4			+		④	+	*			③4				*
⑤					③5				+	⑤					③5	*		+	
⑥					③6		+	*	+	⑥					③6	+	+	+	+
⑦				*	③7				+	⑦					③7	+	+	+	+
⑧				*	③8				+	⑧					③8	+	+	+	+
⑨	+				③9		+		+	⑨					③9	+	+	+	+
⑩					④0		+	+		⑩	+		+		④0	+	+	*	+
⑪					④1				+	⑪	+		+		④1	+	+	+	+
⑫					④2		+		+	⑫	+		*	+	④2	+	+	*	+
⑬					④3			*	+	⑬					④3	+	+	+	+
⑭					④4		+		*	⑭					④4	+	+	+	+
⑮					④5					⑮					④5			+	
⑯					④6					⑯			*	*	④6	+	+	+	+
⑰				+	④7			*	+	⑰					④7	+	+	+	+
⑱				+	④8			*	+	⑱			Δ		④8	*	+	*	+
⑲					④9		+			⑲					④9	+	+	*	+
⑳					⑤0		*		+	⑳			*	*	⑤0	+	+	*	+
㉑		*			⑤1		*	*	+	㉑					⑤1	+	+	*	+
㉒					⑤2			+	+	㉒		+			⑤2	+	+	*	+
㉓		+			⑤3				+	㉓	+		*	+	⑤3	*	+	+	+
㉔		+	+		⑤4				+	㉔		Δ	Δ		⑤4	+	+	+	+
㉕		+	+		⑤5					㉕		*	*		⑤5	+	+	+	+
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㉗		*	+		⑤7				+	㉗		*	*		⑤7	+	+	+	*
㉘		*			⑤8	+			+	㉘		*	Δ	+	⑤8	+	+	*	*
㉙				*	⑤9	+			+	㉙		*			⑤9	+	+	*	*
⑶0				+	⑶0				+	⑶0		*			⑶0	+	+	*	*

+ Denotes: Additional Weld Crack Locations Found By Dye Penetrant Test

Δ DENOTES: LOCATION OF FIVE (5) KNOWN STRUCTURAL CRACKS IN BOX GIRDER WEB AT CROSS FRAME CORNER LOCATIONS.

* DENOTES: LOCATION OF NINETY-FIVE (95) KNOWN STRUCTURAL CRACKS IN WELDS AT CROSS FRAME OR DIAPHRAGM CORNER LOCATIONS. WHEN DYE PENETRANT TESTING IS PERFORMED, ADDITIONAL CRACK LOCATIONS MAY BE ENCOUNTERED. IF ADDITIONAL CRACKS ARE ENCOUNTERED, COST OF REPAIRING THESE AREAS SHALL BE PAID FOR UNDER ITEM NO. 602-10.22, STRUCTURAL STEEL WELD REPAIR, EACH.



STATE OF TENNESSEE
 DEPARTMENT OF TRANSPORTATION
 BUREAU OF HIGHWAYS

FRAMING PLAN
 (STRUCTURE NOS. 166 AND 167)
 I-440/I-65 DIRECTIONAL INTERCHANGE
 BRIDGE NO. 19-I440-4.82
 DAVIDSON COUNTY
 1998

DESIGNED BY: L. MILLER DATE: 4/98
 DRAWN BY: L. PARKINS DATE: 4/98
 SUPERVISED BY: PETRONE DATE: 4/98
 CHECKED BY: WILSON, PETRONE DATE: 4/98

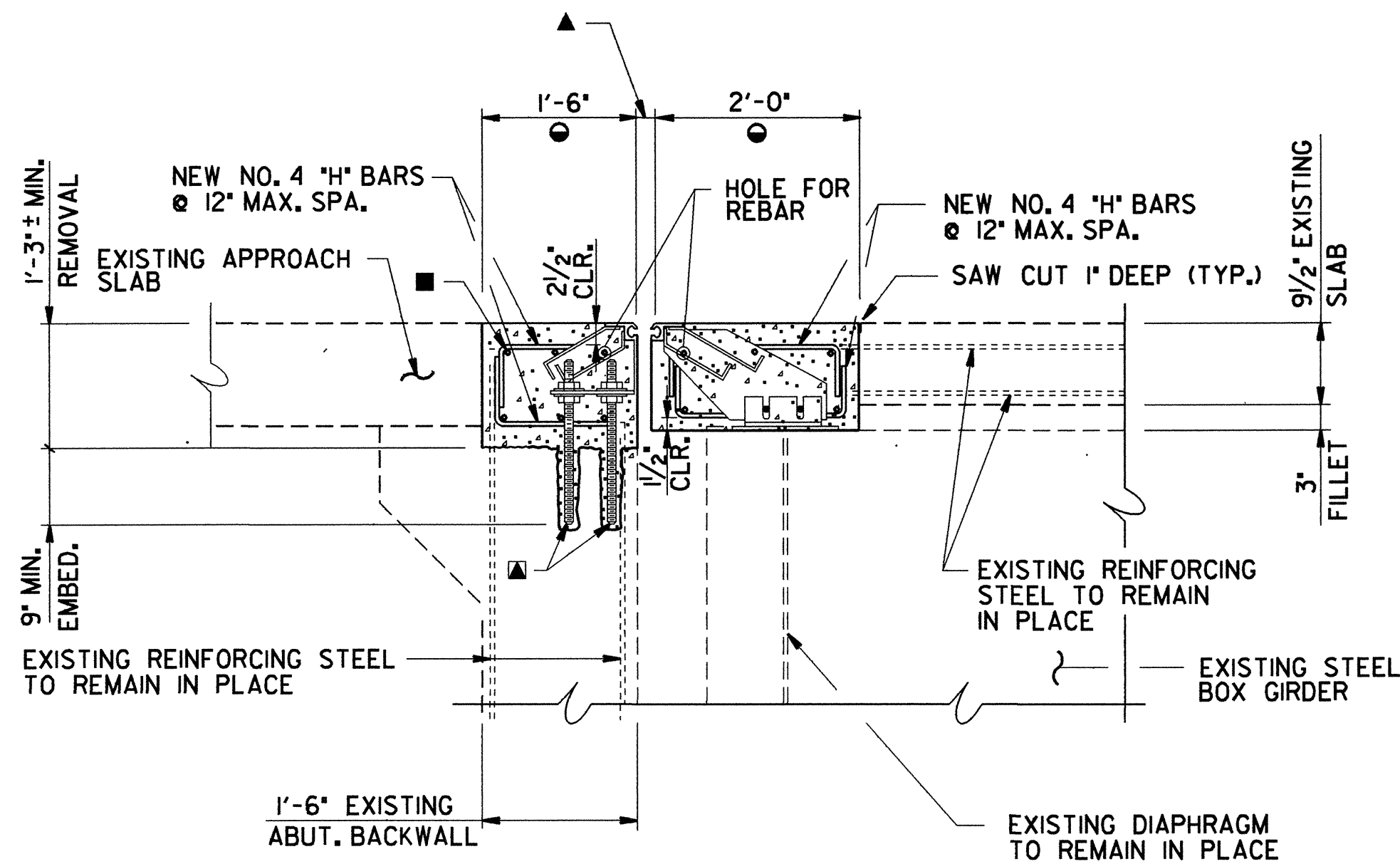
NOTES:

- THE MODULAR EXPANSION JOINT SYSTEM DETAILS ARE INCOMPLETE AS SHOWN THIS SHEET. DUE TO DIFFERENT MANUFACTURER'S MODULAR EXPANSION JOINT SYSTEMS, THE DETAILS SHOWN THIS SHEET MAY NEED TO BE ALTERED. THE ANCHORAGE AND SUPPORT SYSTEM SHALL BE AS PER SPECIAL PROVISION NO. 604M.
- EXPANSION JOINT REPLACEMENT SHALL BE CONSTRUCTED IN PHASES AS SHOWN ON DWG. NO. BR-33-80. THE STEEL PORTIONS OF THE EXPANSION DEVICE SHALL BE FABRICATED IN SECTIONS IN ORDER TO MAINTAIN TWO (2) TRAFFIC LANES AT ALL TIMES. THE SECTIONS ARE TO BE CONNECTED WITH A FULL PENETRATION BUTT WELD. THE ELASTOMERIC SEAL SHALL BE ONE PIECE FOR FULL LENGTH OF EXPANSION JOINT.
- EXPANSION JOINT OPENING SHALL BE SET ACCORDING TO TEMPERATURE CHART SHOWN ON APPROVED EXPANSION JOINT SHOP DRAWINGS.
- CONTRACTOR SHALL PLACE THE NEW MODULAR JOINT WITH TEMPORARY SELF-ALIGNING GUIDE MEMBERS. SEE SPECIAL PROVISION NO. 604M. THE PROFILE OF THE CONCRETE POURS AND NEW JOINT SYSTEM SHALL CONFORM TO ROADWAY CROSS SLOPE, SKEW, AND GRADE.
- PROVISIONS SHALL BE MADE DURING SLAB REMOVAL TO PROTECT THE EXISTING LONGITUDINAL AND VERTICAL REINFORCING STEEL FROM DAMAGE. THIS STEEL SHALL BE COMPLETELY CLEANED, REALIGNED, AND INCORPORATED INTO THE NEW CONSTRUCTION.
- TRAFFIC SHALL NOT BE PERMITTED ON ANY OF THE REPAIRED AREAS UNTIL TEST SPECIMENS ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AND THE CONCRETE HAS BEEN IN PLACE A MINIMUM OF TEN (10) DAYS.
- COST OF FURNISHING AND INSTALLING THE MODULAR EXPANSION JOINTS, COMPLETE AND IN-PLACE, INCLUDING ALL EPOXY-COATED REINFORCING STEEL, NEW SLIDER PLATE ASSEMBLIES FOR PARAPET, LABOR, EQUIPMENT, AND OTHER INCIDENTALS NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH PLANS, SPECIFICATIONS AND SPECIAL PROVISIONS SHALL BE INCLUDED IN BID ITEM NO. 604-10.60, EXPANSION JOINT REPAIRS (MODULAR TYPE), L.F.
- ALL TRANSVERSE REINFORCING STEEL SHALL BE SPLICED WITH MECHANICAL THREADED COUPLERS. COST OF MECHANICAL COUPLERS SHALL BE INCLUDED UNDER ITEM NO. 604-10.60. SEE DETAIL "A" ON THIS DRAWING.
- MODULAR EXPANSION JOINT RETAINERS SHALL EXTEND TWO INCHES (2") BEYOND THE EDGE OF THE CONCRETE DECK. (SEE STD-1-2 FOR DETAILS.)
- CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND MEASUREMENTS IN ORDER TO FABRICATE THE EXPANSION DEVICES. SHOP DRAWINGS SHALL BE SUBMITTED TO THE BRIDGE REPAIR OFFICE OF THE DIVISION OF STRUCTURES FOR APPROVAL BEFORE ANY FABRICATION IS BEGUN.
- ALL CONCRETE POURS SHALL BE WELL CONSOLIDATED BEHIND AND AROUND THE EXPANSION JOINT STEEL RETAINER.
- THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS SHOWING MODULAR EXPANSION JOINT SYSTEM DETAILS INCLUDING ANCHORAGE AND SUPPORT SYSTEM AND NEW REINFORCING STEEL DETAILS FOR APPROVAL BEFORE ANY FABRICATION IS BEGUN.
- COST OF ANY MODIFICATIONS NECESSARY TO PROPERLY INSTALL THE EXPANSION JOINTS SHALL BE INCLUDED IN ITEMS BID ON.

SPECIAL NOTE:

CONTRACTOR SHALL INSTALL NEW STEEL SLIDER PLATE ASSEMBLIES IN CONCRETE PARAPETS AS PER STANDARD DRAWING STD-1-2. THE CONTRACTOR SHALL MEASURE ACTUAL DIMENSIONS IF REQUIRED. TWO (2) PARAPET SLIDER PLATE ASSEMBLIES REQUIRED PER JOINT REPLACEMENT LOCATION.

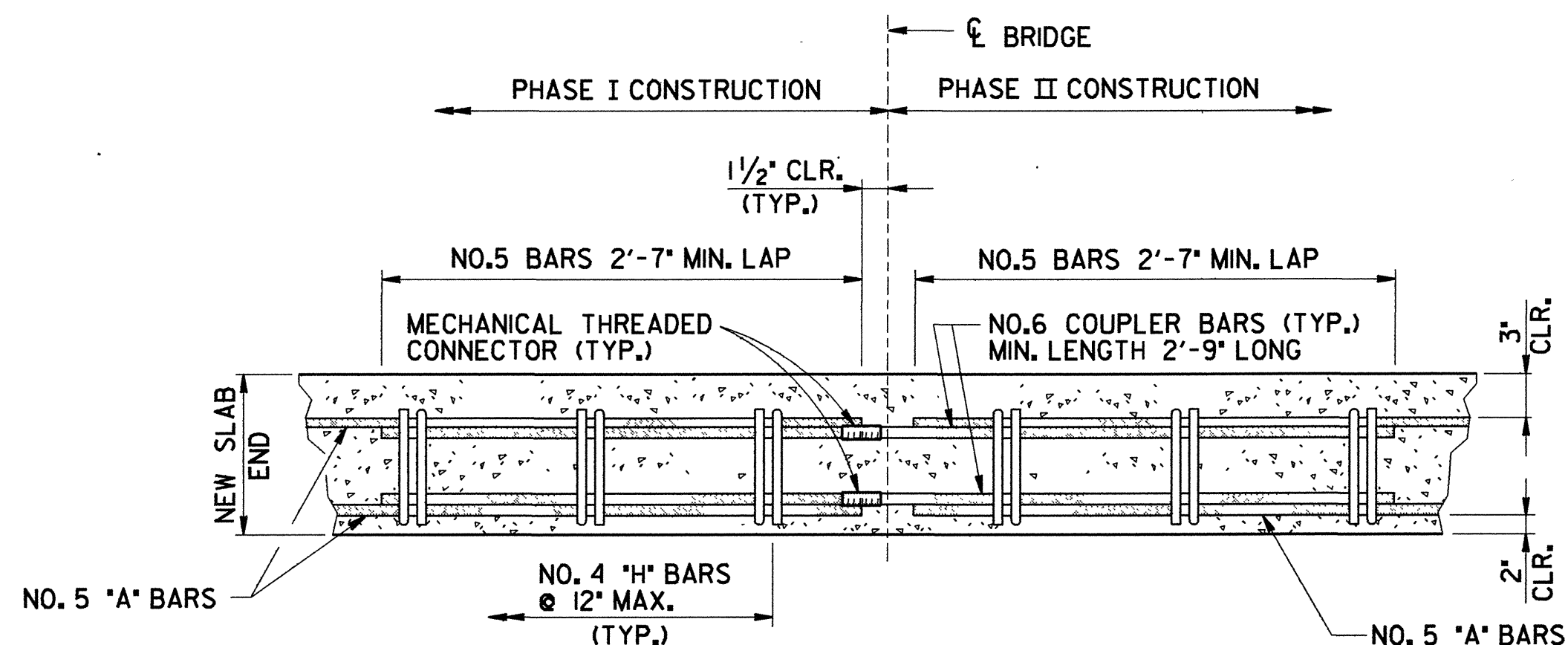
SHOP DRAWINGS SHALL BE SUBMITTED TO THE BRIDGE REPAIR OFFICE OF THE DIVISION OF STRUCTURES FOR APPROVAL.



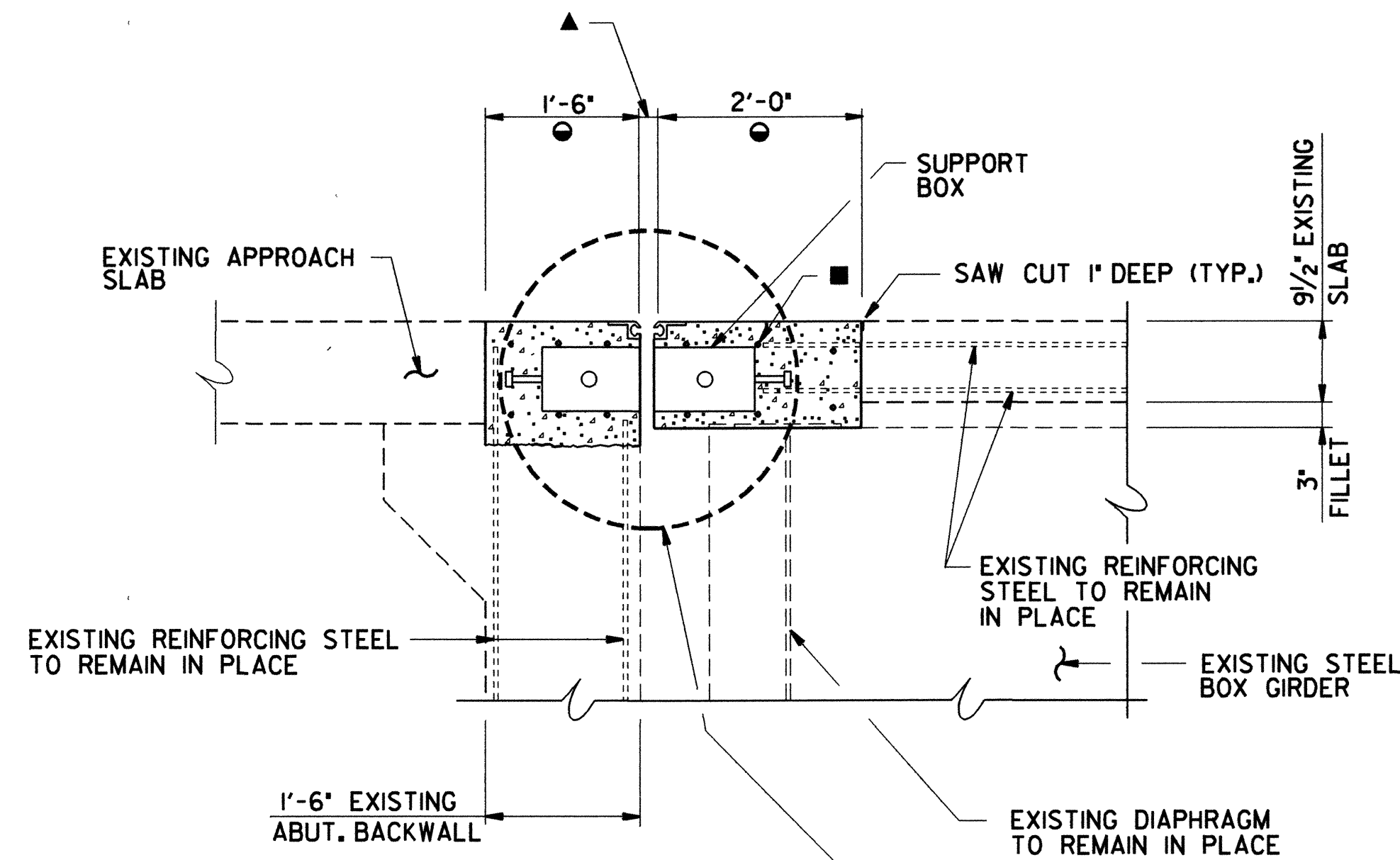
NOTE: APPLY HIGH MOLECULAR WEIGHT METHACRYLATE (HMWM) CRACK SEAL IN THE PERIMETER OF CONCRETE JOINT HEADER. SEALER SHALL BE APPLIED AFTER ALL CONCRETE HAS BEEN IN PLACE A MINIMUM OF TEN DAYS.

TYPICAL SECTION "A-A"

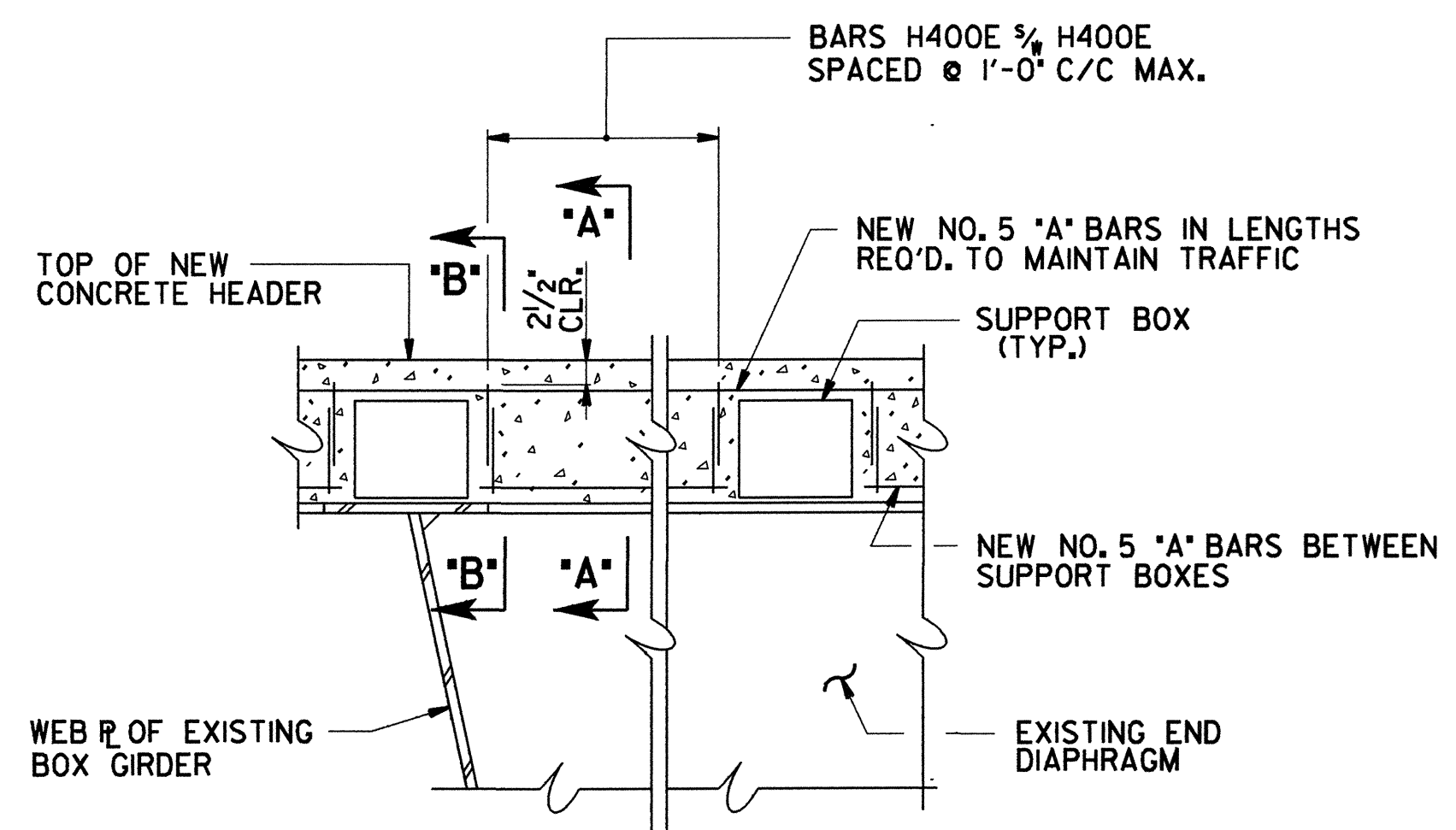
- DENOTES: LIMITS OF EXISTING CONCRETE REMOVAL AND RECONSTRUCTION. THE CONTRACTOR OR FABRICATOR TO SUPPLY SHOP DRAWINGS SHOWING REINFORCING PATTERN IN BLOCKOUTS. REINFORCING TO BE EPOXY COATED. REINFORCING PATTERN TO SUPPLY #5 TRANSVERSE BARS AND #4 TIES AT 12" SPACING.
- ▲ DENOTES: MID TEMPERATURE SETTING @ 60°F (ACTUAL SETTING AS PER TEMPERATURE CHART ON EXPANSION JOINT SHOP DRAWINGS). TOTAL JOINT MOVEMENT REQUIRED = 5" (ITEM NO. 604-10.60).
- DENOTES: NEW NO.5 *A* BARS, SPLICE AT CONSTRUCTION JOINT W/MECH. THREADED CONNECTORS (TYP.). SEE DETAIL "A" THIS DRAWING.
- ▣ DENOTES: EXPANSION JOINT LEVELING ASSEMBLIES- TWO (2) 1/8" Ø THREADED RODS, ASTM A36, (2 HEX NUTS AND 2 - 3/2"x3/2"x 1/4" SQUARE WASHERS PER BOLT) LOCATED AT 10'-0" C/C MAX. DRILL AND EPOXY GROUT THREADED RODS 9" INTO EXISTING ABUTMENT BACKWALL. FOR ADDITIONAL DETAILS, SEE STD. DWG. NO. SBR-2-116.



NOTE: THE COST OF MECHANICAL THREADED CONNECTORS WITH NO. 6 COUPLER BARS SHALL BE INCLUDED IN THE PRICE BID FOR ITEM NO. 604-10.60, EXPANSION JOINT REPAIRS (MODULAR TYPE), L.F.



TYPICAL SECTION "B-B"



PARTIAL CROSS SECTION OF SLAB

PROJECT NO.	YEAR	SHEET NO.	
19947-4110-04	1998		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION

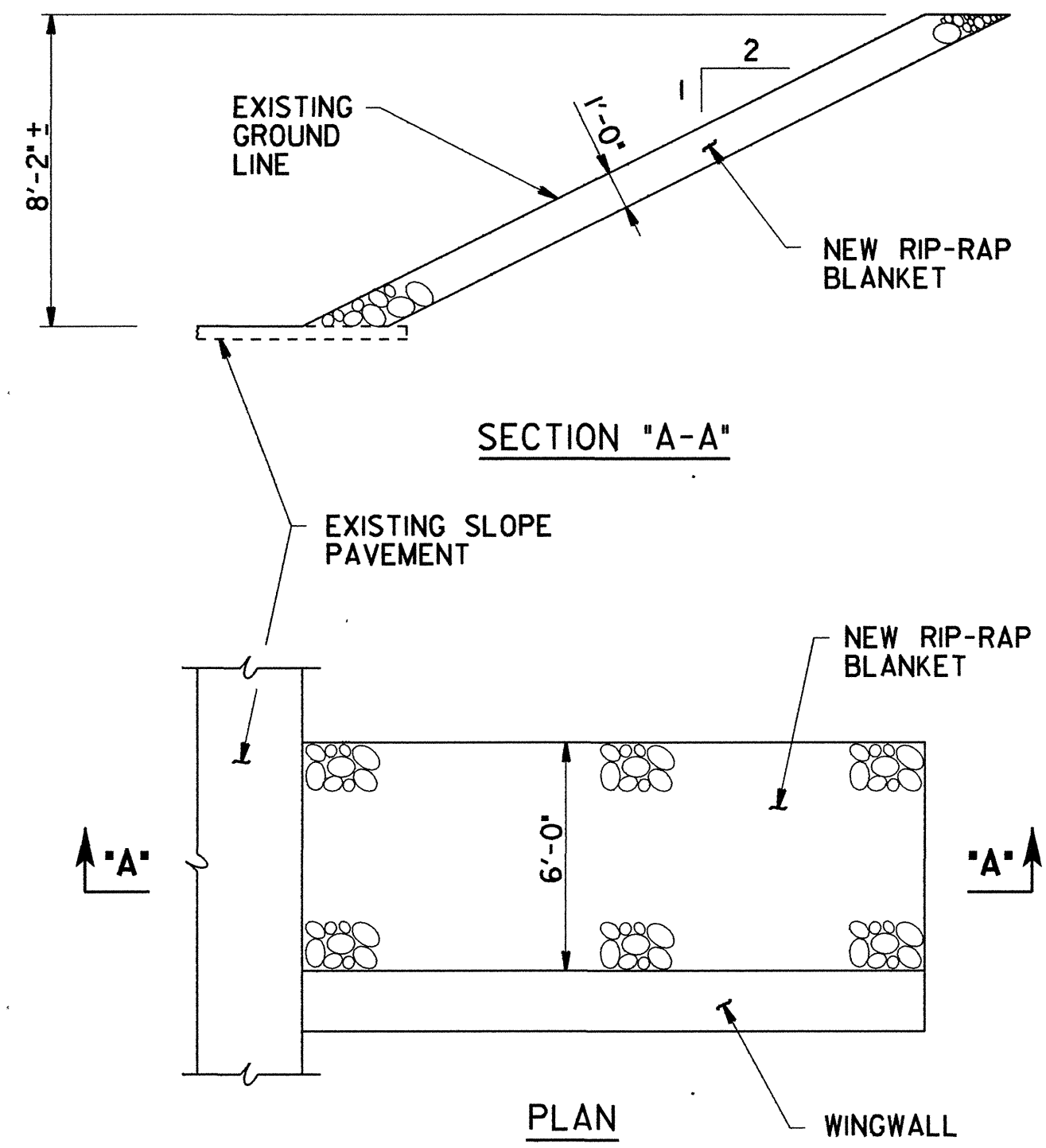
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

MODULAR EXPANSION JOINT DETAILS
(STRUCTURE NOS. 166 AND 167)
I-440/I-65 DIRECTIONAL INTERCHANGE
BRIDGE NO. 19-I440-4.82
DAVIDSON COUNTY
1998

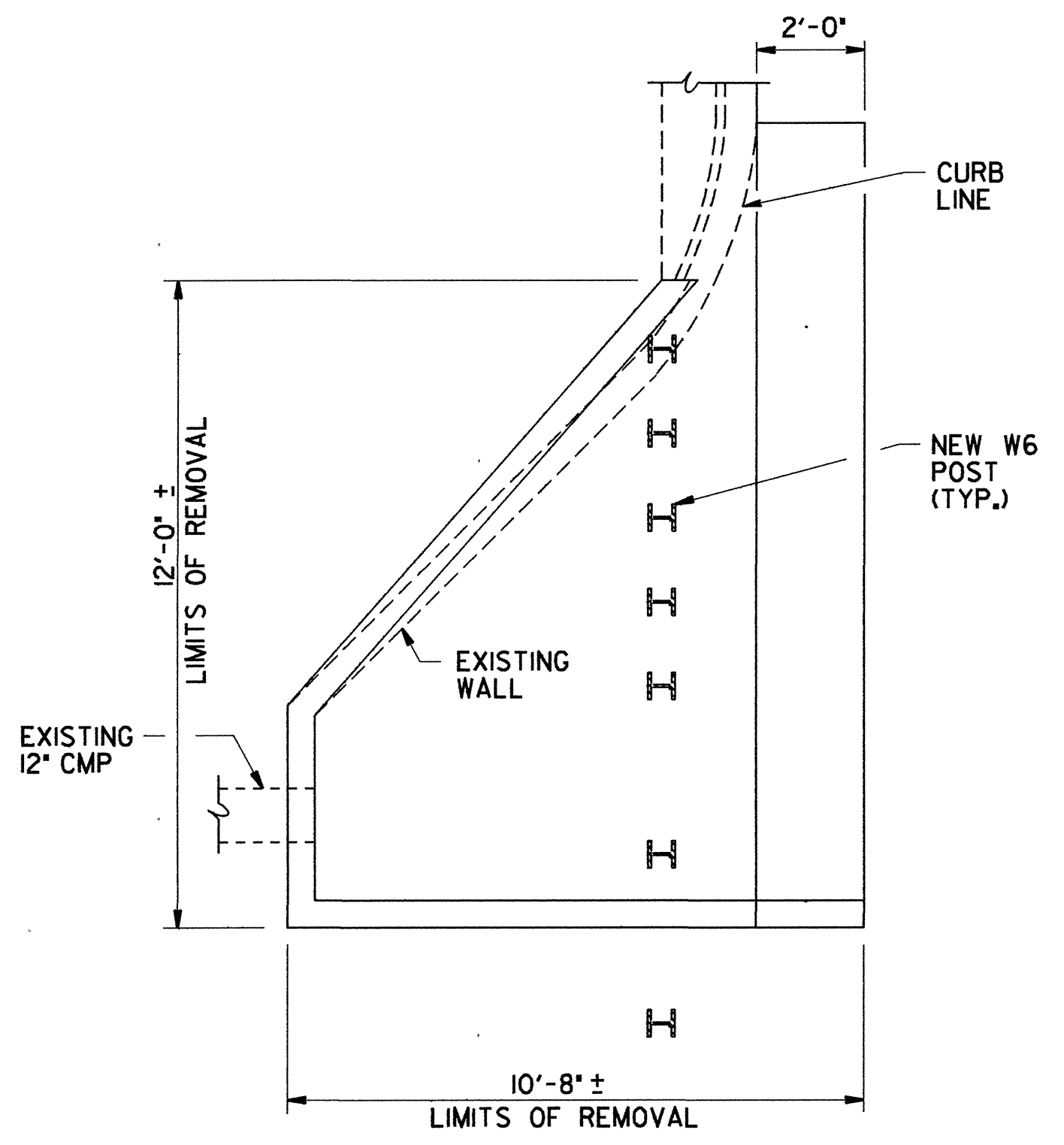


DESIGNED BY L. MILLER DATE 4/98
DRAWN BY L. PARKINS DATE 4/98
SUPERVISED BY PETRONE DATE 4/98
CHECKED BY WILSON, PETRONE DATE 4/98

PROJECT NO.	YEAR	SHEET NO.	
19947-4110-04	1998		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION



NOTE: RIP-RAP SHALL BE HAND PLACED RUBBLE-STONE (PLAIN). ALL LABOR, MATERIAL AND EXCAVATION SHALL BE PAID FOR UNDER ITEM NO. 709-07, RUBBLE STONE RIP-RAP (PLAIN), C.Y.



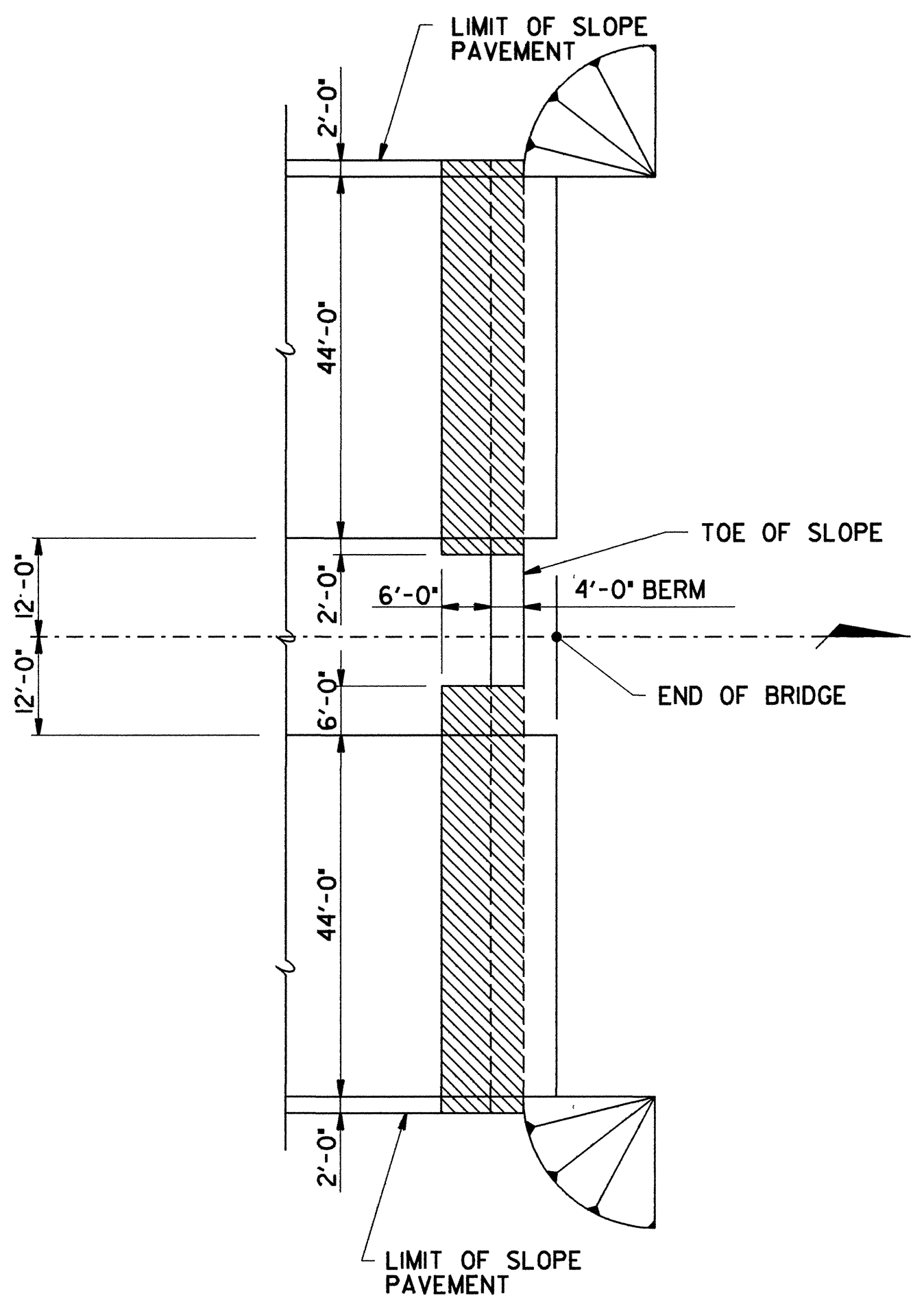
DETAIL 'B': MODIFICATION OF APRON SPILLWAY

NOTE: AT STR. 166, WORK SHALL INCLUDE HAND PLACEMENT OF 2.0 C.Y. OF RUBBLE STONE RIP-RAP (PLAIN) TO REPAIR EROSION DAMAGE ADJACENT TO THE BRIDGE END DRAIN. COST OF MATERIAL AND LABOR FOR RIP-RAP SHALL BE PAID FOR UNDER ITEM NO. 709-07, RUBBLE STONE RIP-RAP (PLAIN), C.Y.

NOTE: ALL COSTS TO REMOVE AND RECONSTRUCT THE BRIDGE END DRAIN WITHIN THE LIMITS SHOWN SHALL BE PAID FOR UNDER ITEM NO. 604-10.02, CONCRETE REPAIRS, C.Y.

NOTE: SEE REFERENCE DWG. NO. D-CB-9, FOR ADDITIONAL INFORMATION NOT SHOWN IN DETAIL 'B'.

DESIGNED BY L. MILLER DATE 4/98
 DRAWN BY L. PARKINS DATE 4/98
 SUPERVISED BY PETRONE DATE 4/98
 CHECKED BY WILSON, PETRONE DATE 4/98



DETAIL 'C': SLOPE PAVEMENT REPAIR

/// DENOTES: AREAS OF SLOPE PAVING HAVING VOIDS BENEATH AND/OR SIGNIFICANT CRACKING. THESE AREAS SHALL BE REMOVED AND REPLACED ACCORDING TO THE NOTE BELOW. REMOVAL SHALL BE TERMINATED AT EXISTING CONTRACTION JOINTS. SURFACE OF THE NEW PAVEMENT SHALL BE STRAIGHT AND FLUSH WITH ADJACENT EXISTING PAVEMENT. SLOPE PAVEMENT REPAIR SHALL BE PAID FOR UNDER ITEM NO. 604-10.29, CONCRETE SLOPE PAVING REPAIRS, S.Y.

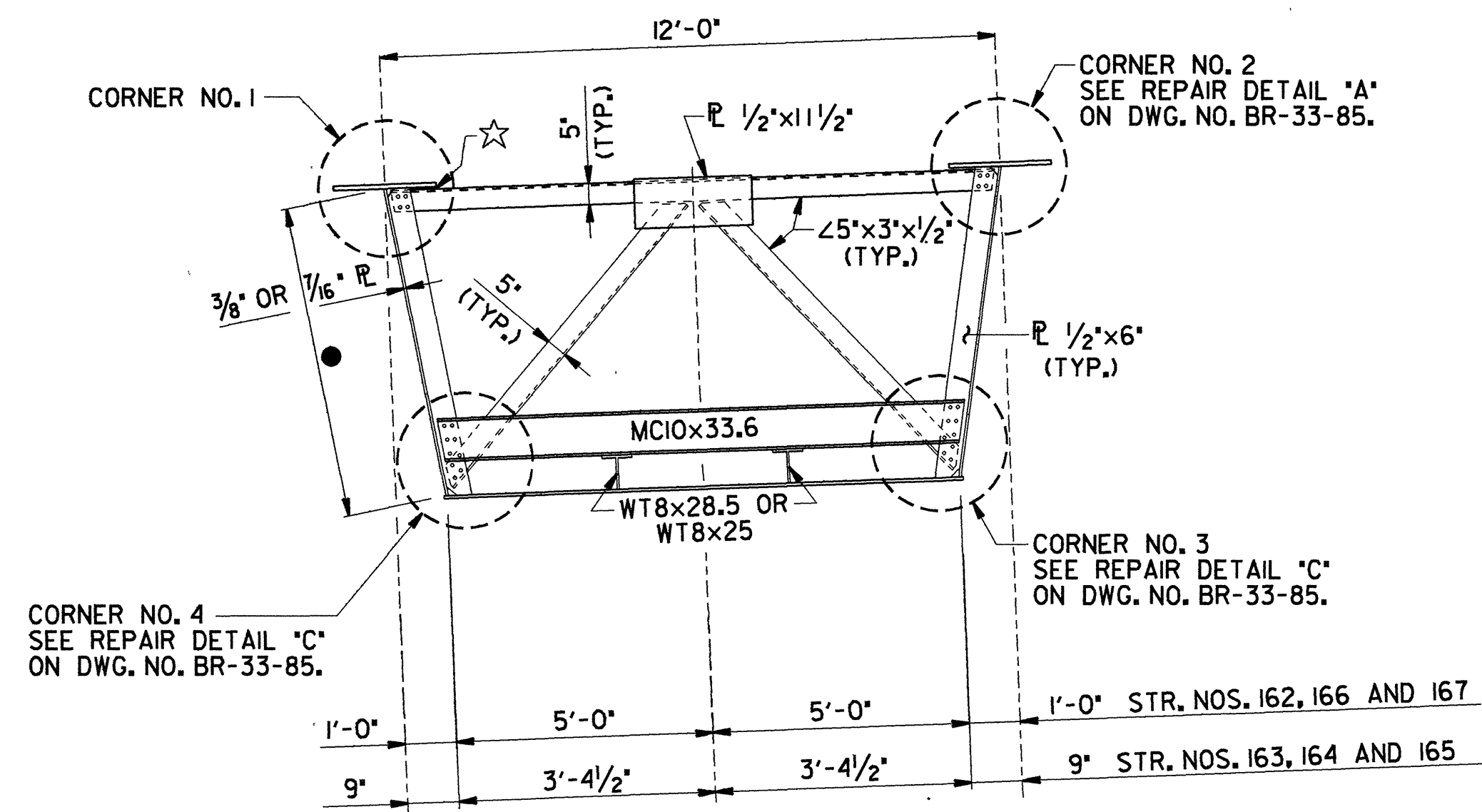
NOTE: REPLACE DAMAGED SLOPE PAVEMENT WITH 4" THICK CEMENT CONCRETE SLAB REINFORCED WITH NO.4 GAGE WIRE FABRIC @ 6" CENTERS AND 58 lb. PER 100 S.F. THE WIRE FABRIC REINFORCEMENT SHALL BE PLACED AT ONE-HALF THE DEPTH OF THE SLAB AND EXTEND TO WITHIN 3" OF ITS EDGE WITH A 12" LAP REQUIRED ON ALL SHEETS. THE COST OF THE WIRE FABRIC REINFORCEMENT TO BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 604-10.29, CONCRETE SLOPE PAVING REPAIRS, S.Y. ONE-HALF INCH PREMOULDED EXPANSION JOINTS WITHOUT LOAD TRANSFERS SHALL BE FORMED ABOUT ALL STRUCTURES AND FEATURES PROJECTING THROUGH, IN OR AGAINST THE SLAB. THE SLAB SHALL BE GROOVED PARALLEL WITH AND AT RIGHT ANGLES TO THE UNDER ROADWAY CENTER LINE AT 6' CENTERS. DEPTH OF GROOVE TO BE NOT LESS THAN 1".

STATE OF TENNESSEE
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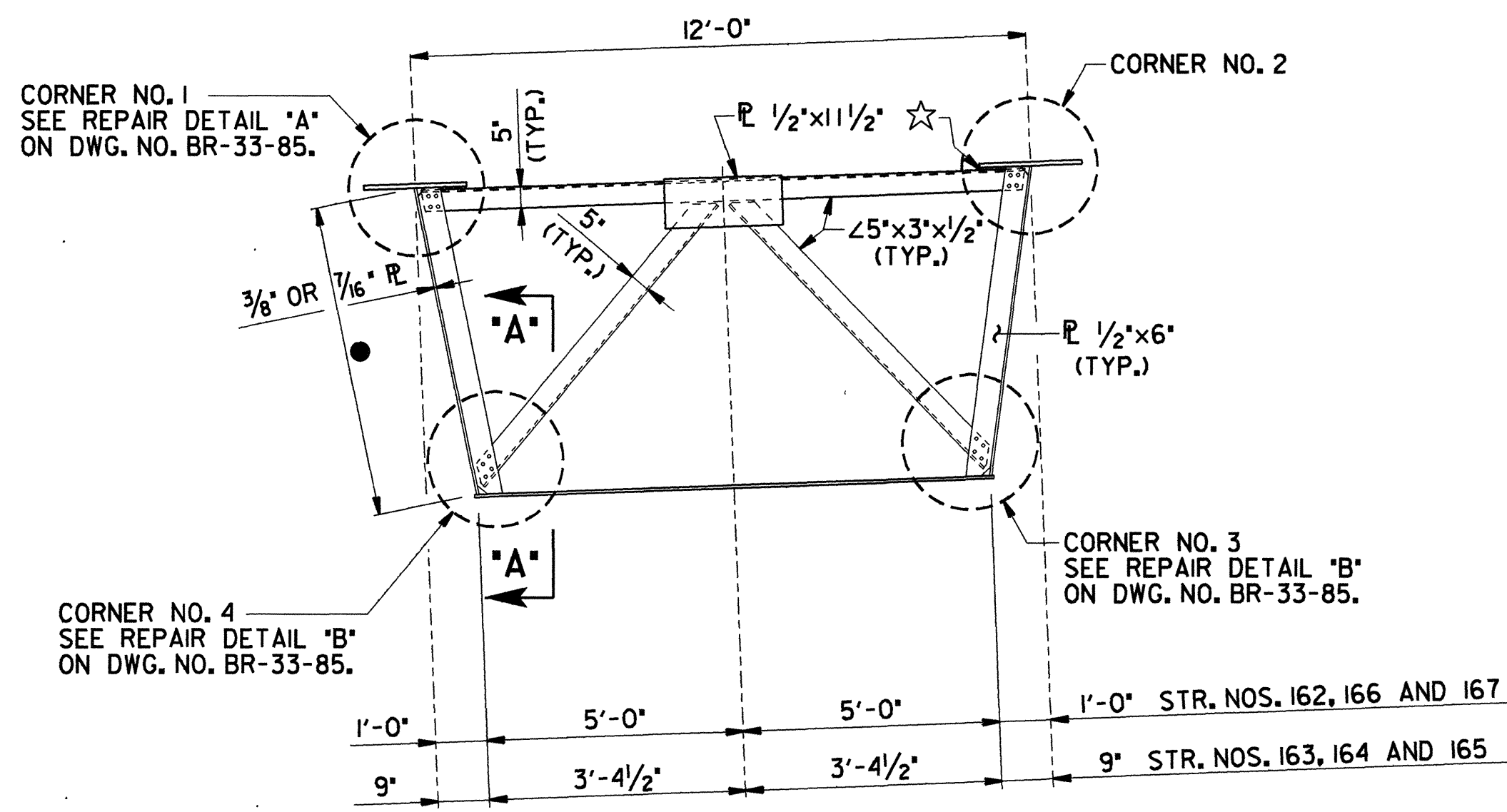


REPAIR DETAILS
 (STRUCTURE NOS. 166 AND 167)
 I-440/I-65 DIRECTIONAL INTERCHANGE
 BRIDGE NO. 19-I440-4.82
 DAVIDSON COUNTY
 1998

PROJECT NO.	YEAR	SHEET NO.	
19947-4110-04	1998		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION



TYPICAL CROSS FRAME SECTION NEAR SUPPORT
(LOOKING FORWARD ON SURVEY)



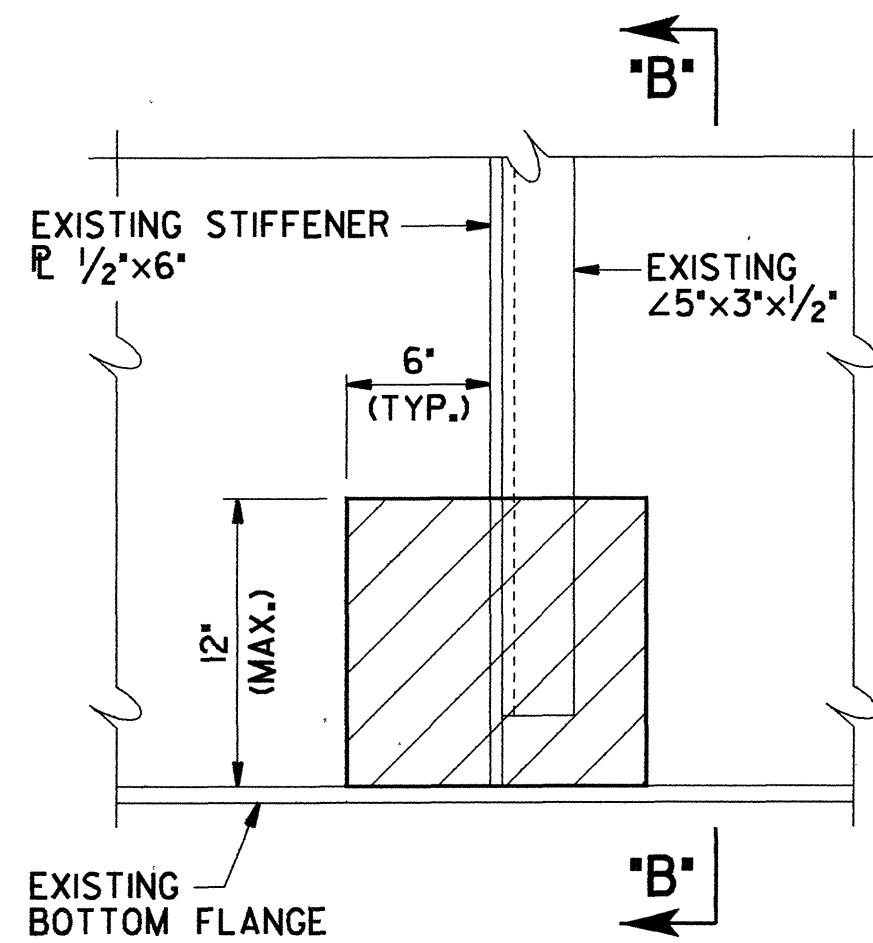
TYPICAL CROSS FRAME SECTION NEAR MID-SPAN
(LOOKING FORWARD ON SURVEY)

- ☆ DENOTES: LOCATION OF EXISTING CONNECTOR PLATE FOR EXISTING LATERAL BRACING IN STRUCTURE NOS. 162, 163, 164 AND 165. NO REPAIR WILL BE REQUIRED AT THESE LOCATIONS. THE REMAINING THREE (3) CORNERS AT EACH CROSS FRAME WILL REQUIRE REPAIR WITH NEW STIFFENER TABS OR FILLER PLATE. SEE DETAILS ON DWG. NO. BR-33-85.
- DENOTES: 4'-4" STRUCTURE NO. 162 AND NO. 163
5'-0" STRUCTURE NO. 164
5'-0 1/2" STRUCTURE NO. 165
6'-1" STRUCTURE NO. 166 AND NO. 167

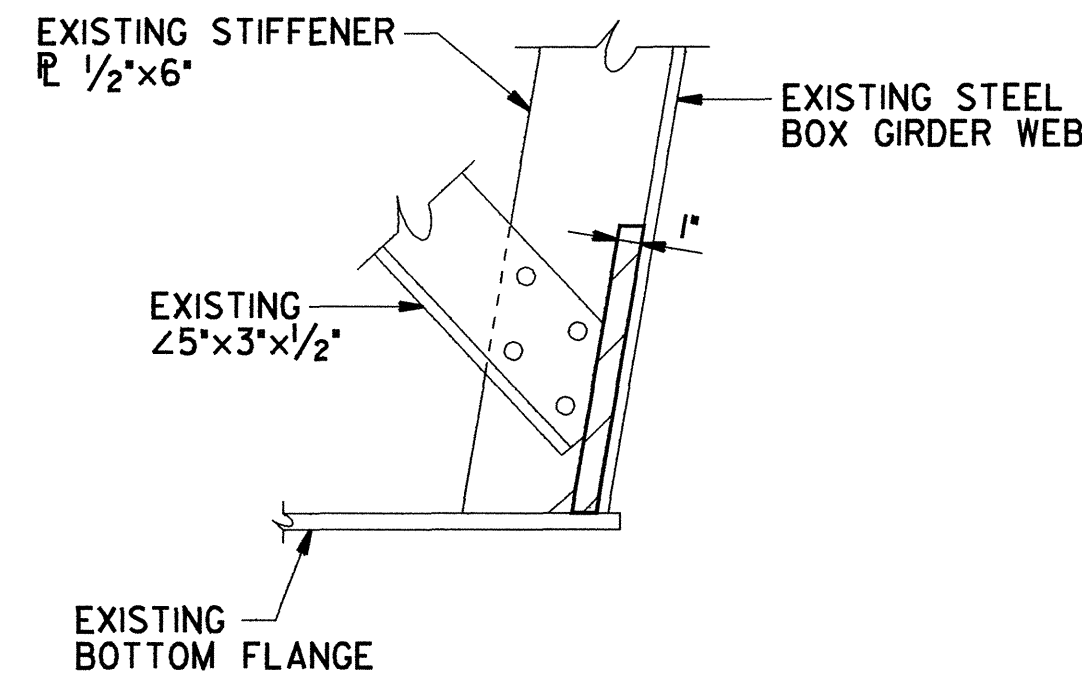
- NOTE: AFTER THE EXTENT OF THE CRACKS IS DETERMINED BY DYE PENETRANT TESTING THE EXISTING CRACKS SHALL BE REPAIRED BY EITHER METHOD NO. ONE (1) OR METHOD NO. TWO (2) AS CALLED FOR BELOW.
- METHOD NO. 1: WHEN THE CRACKS ARE IN THE FILLET WELD THAT CONNECTS THE GIRDER WEB TO THE STIFFENER PLATES, THE EXISTING WELD IS TO BE REMOVED IN THE AREA OF THE CRACK, AND A NEW FILLET WELD MADE CONNECTING THE STIFFENER PLATE TO THE WEB.
- METHOD NO. 2: WHEN THE CRACKS EXTEND INTO THE WEB METAL, THE CRACKS ARE TO BE REPAIRED USING FULL PENETRATION WELDS. FULL PENETRATION WELDS TO BE GROUND FLUSH. APPROXIMATELY FIVE (5) LOCATIONS HAVE CRACKS WHICH APPEAR TO EXTEND INTO THE WEB METAL. ALL FULL PENETRATION WELDS SHALL BE 100% U.T. TESTED. U.T. TESTING OF FULL PENETRATION WELDS SHALL BE INCLUDED UNDER ITEM NO. 602-10.22, EACH.

NOTE: ALL WELDS SHALL BE IN ACCORDANCE WITH ANSI-AASHTO-AWS D1.5-96 BRIDGE WELDING CODE AND SPECIAL PROVISION NO. 602. PREPARATION OF CRACKS FOR WELDING AND ALL CRACK REPAIR WELDING SHALL BE PAID FOR UNDER ITEM NO. 602-10.22, EACH.

NOTE: REMOVAL OF PAINT BY GRINDING SHALL NOT BE ALLOWED IN AREAS WHERE DYE PENETRANT TEST IS TO BE PERFORMED. REMOVAL OF PAINT AND DYE PENETRANT TESTING SHALL BE PAID FOR UNDER ITEM NO. 602-10.33, L.S.



SECTION 'A-A'

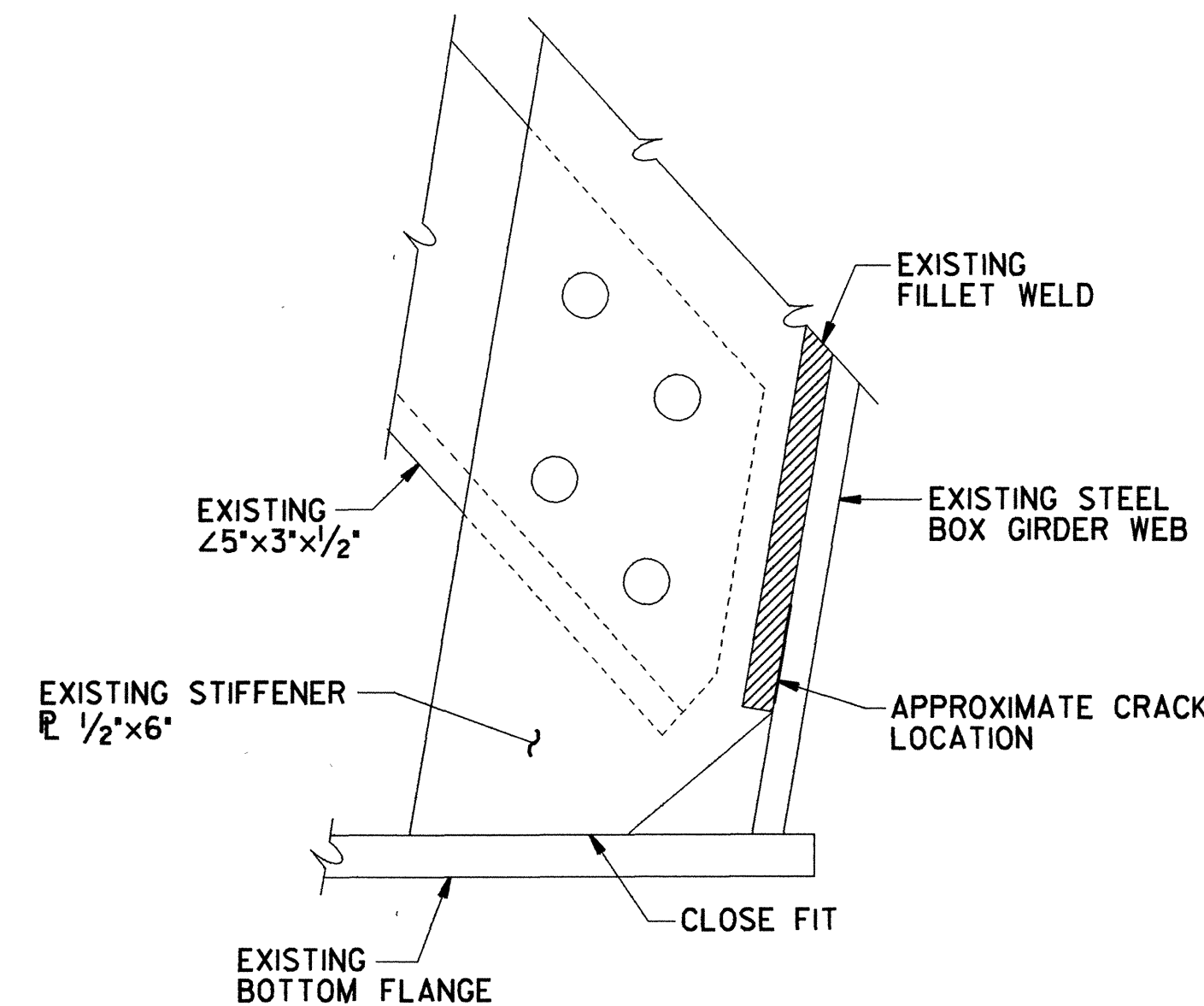


SECTION 'B-B'

DETAILS SHOWING LIMITS OF DYE PENETRANT TESTING

▨ DENOTES: LIMITS OF DYE PENETRANT TESTING.

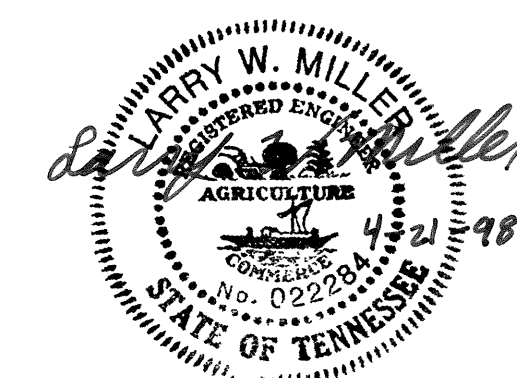
NOTE: DETAILS SHOWN ARE FOR BOTTOM CORNERS, TOP CORNERS ARE SIMILAR.



DETAIL SHOWING TYPICAL CRACK AT CROSS FRAME LOCATION

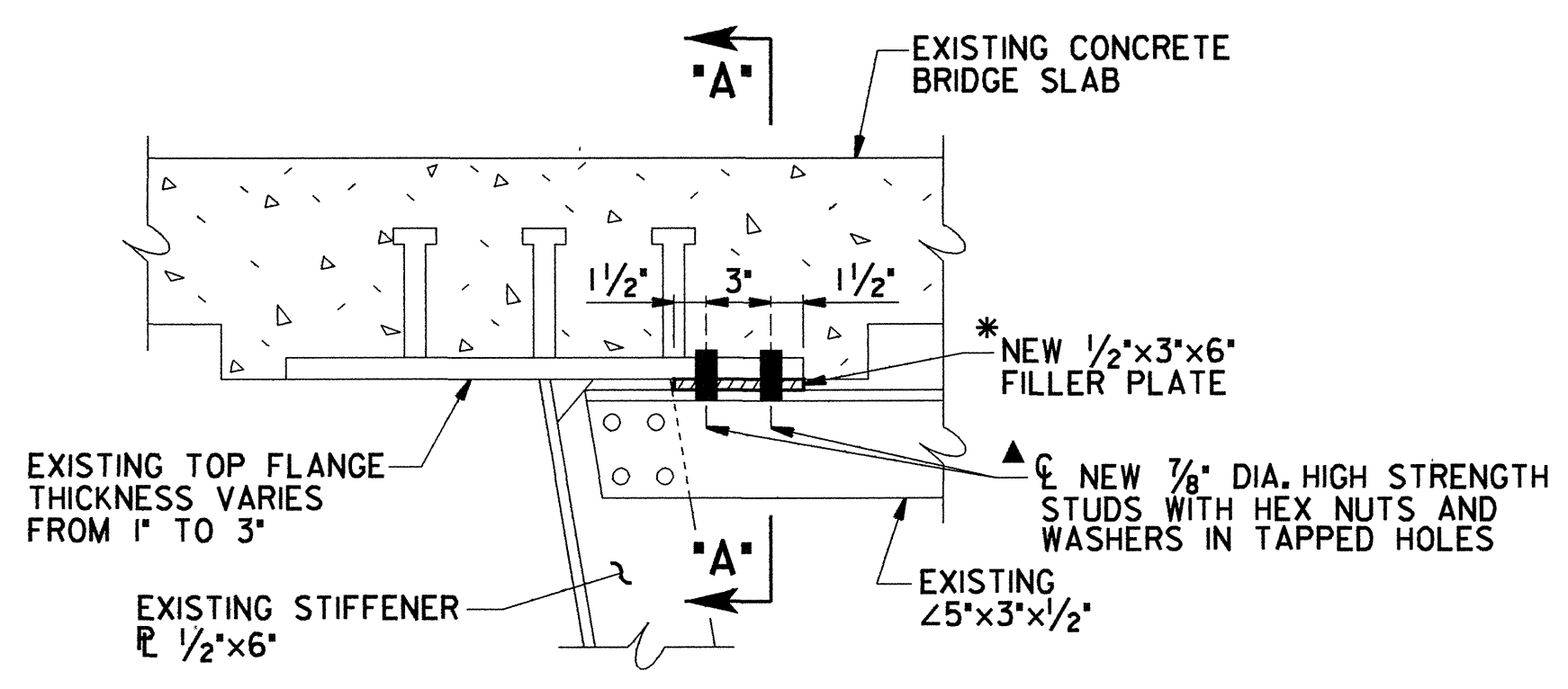
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

STRUCTURAL STEEL DETAILS
I-440/I-65 DIRECTIONAL INTERCHANGE
STRUCTURE NO. 162 (BR. NO. 19-I65-5.97)
STRUCTURE NO. 163 (BR. NO. 19-I65-5.98)
STRUCTURE NO. 164 (BR. NO. 19-I440-4.87)
STRUCTURE NO. 165 (BR. NO. 19-I440-4.85)
STRUCTURE NOS. 166 AND 167
(BRIDGE NO. 19-I440-4.82)
DAVIDSON COUNTY
1998



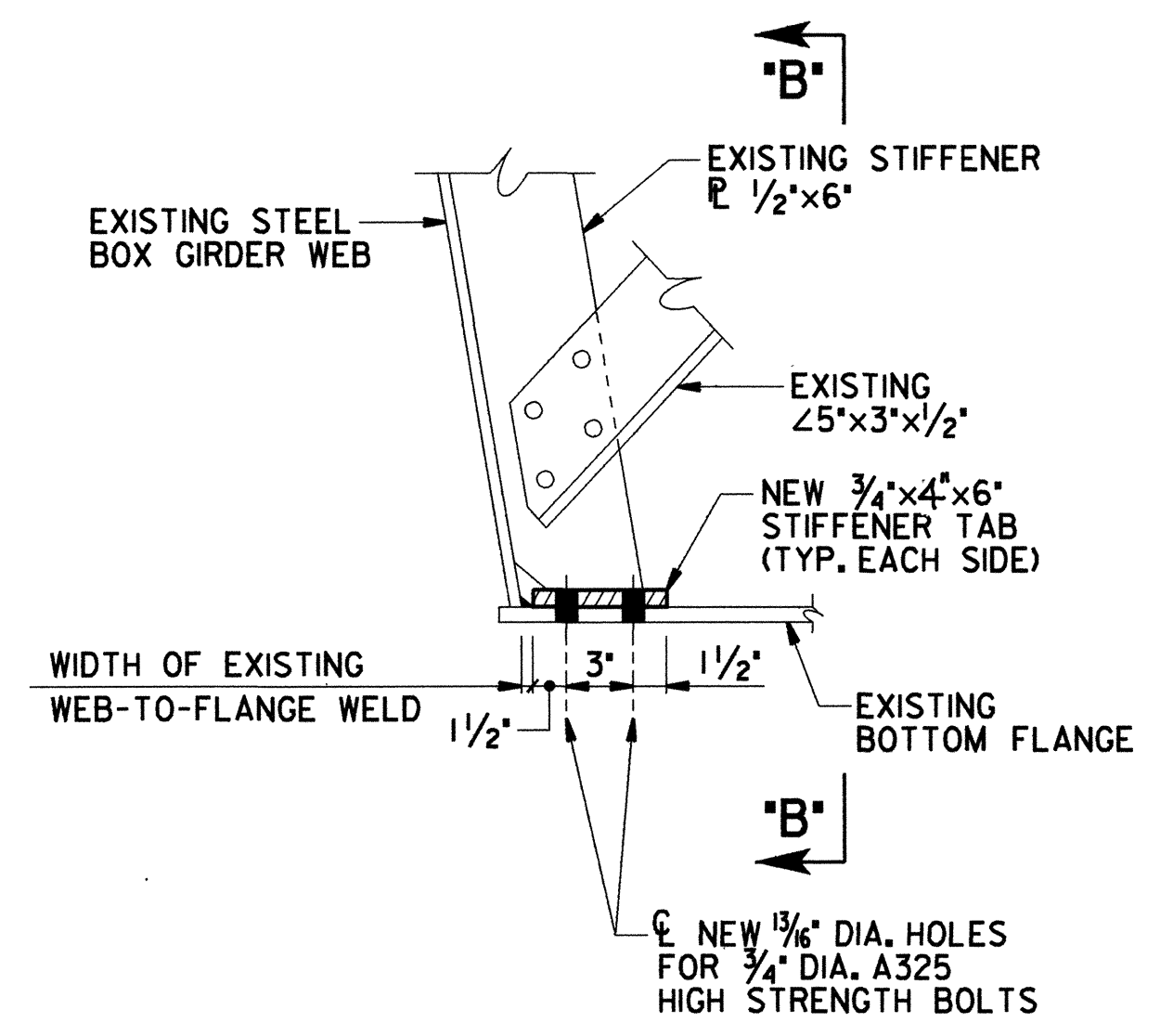
DESIGNED BY L. MILLER DATE 4/98
DRAWN BY L. PARKINS DATE 4/98
SUPERVISED BY PETRONE DATE 4/98
CHECKED BY WILSON, PETRONE DATE 4/98

PROJECT NO.	YEAR	SHEET NO.	
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1	6/2/98	L.M.	FILLER PLATE AND STIFFENER TAB DIM. CHANGES

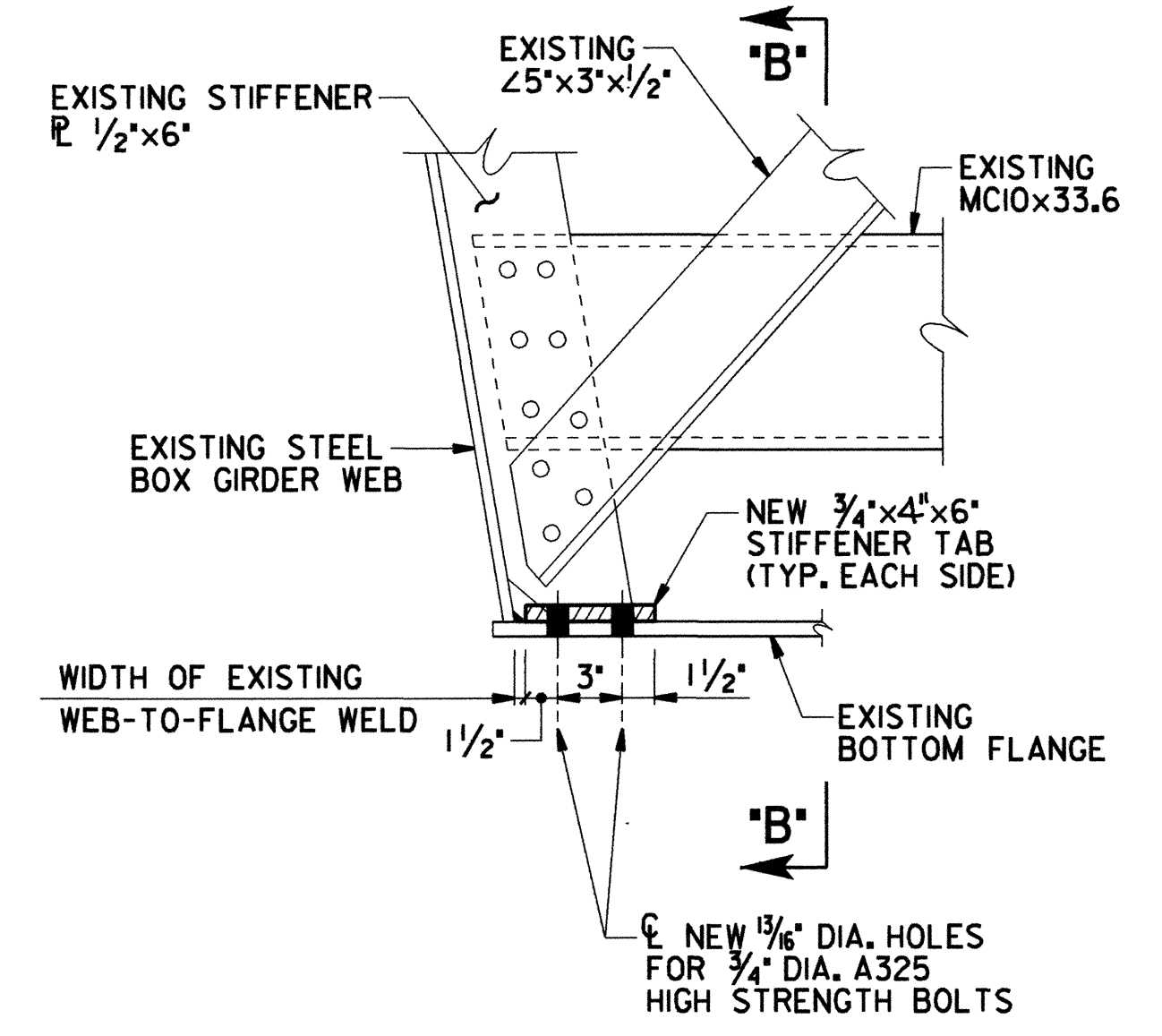


DETAIL 'A': FILLER PLATE

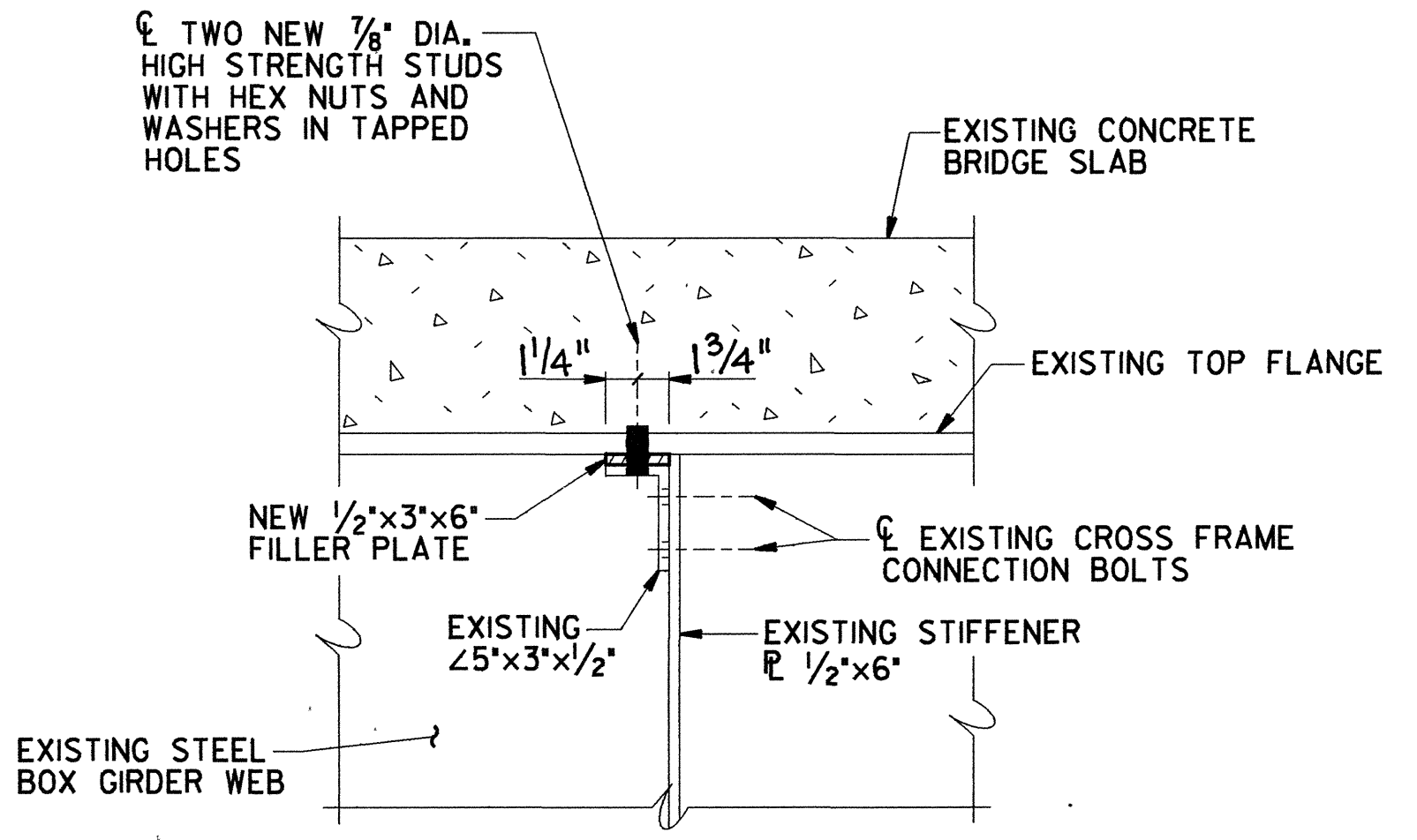
- * DENOTES: NEW FILLER PLATE THICKNESS SHALL BE FIELD VERIFIED TO ENSURE TIGHT FIT.
- ▲ DENOTES: ALL HOLES INTO THE EXISTING STEEL BOX GIRDER FLANGES SHALL BE FIELD DRILLED (NO FLAME CUTTING FOR HOLES). DRILLED HOLES SHALL EXTEND INTO EXISTING CONCRETE SLAB TO ENSURE THREADING OF THE FULL THICKNESS OF THE TOP FLANGE.



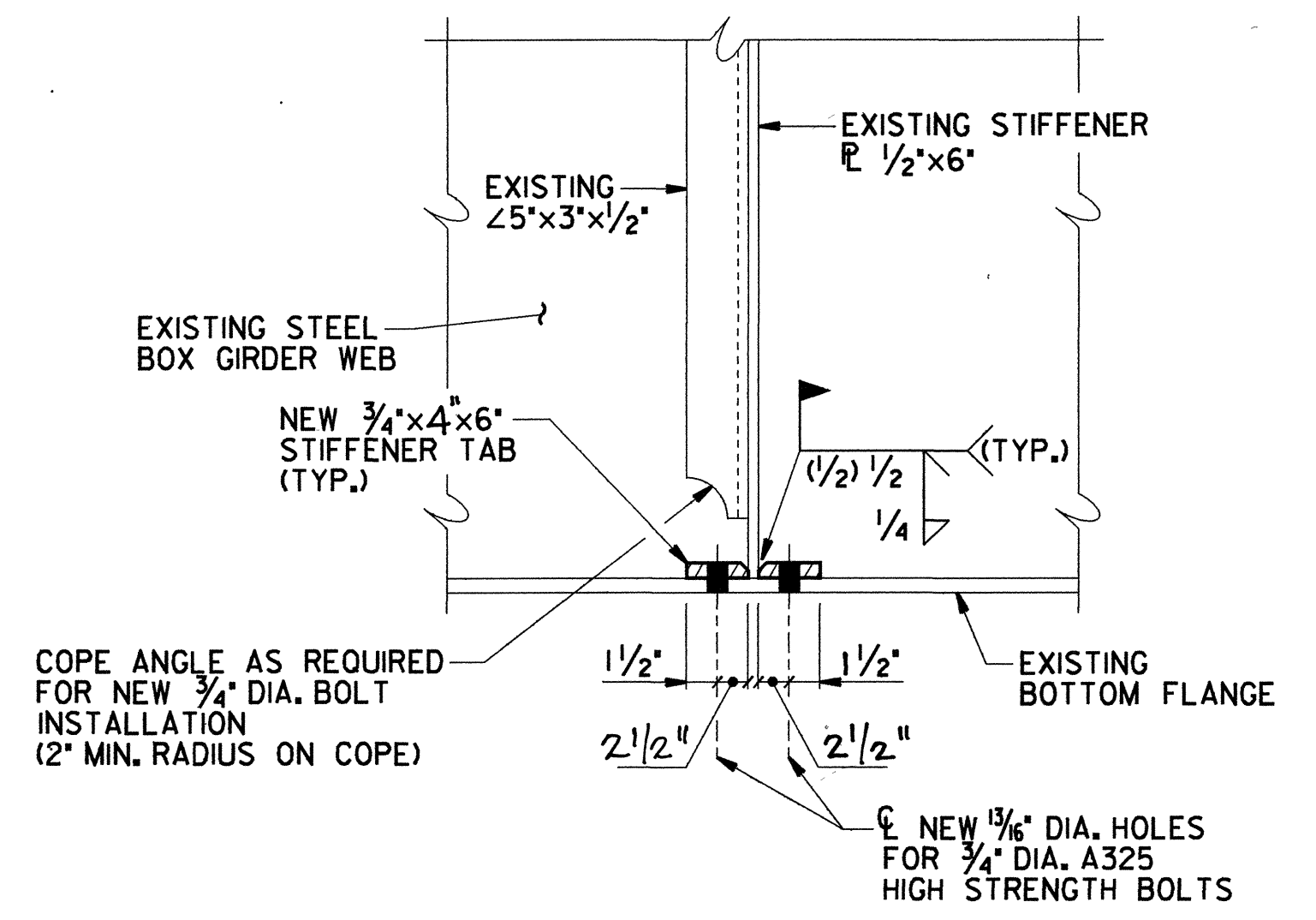
DETAIL 'B': STIFFENER TAB



DETAIL 'C': STIFFENER TAB



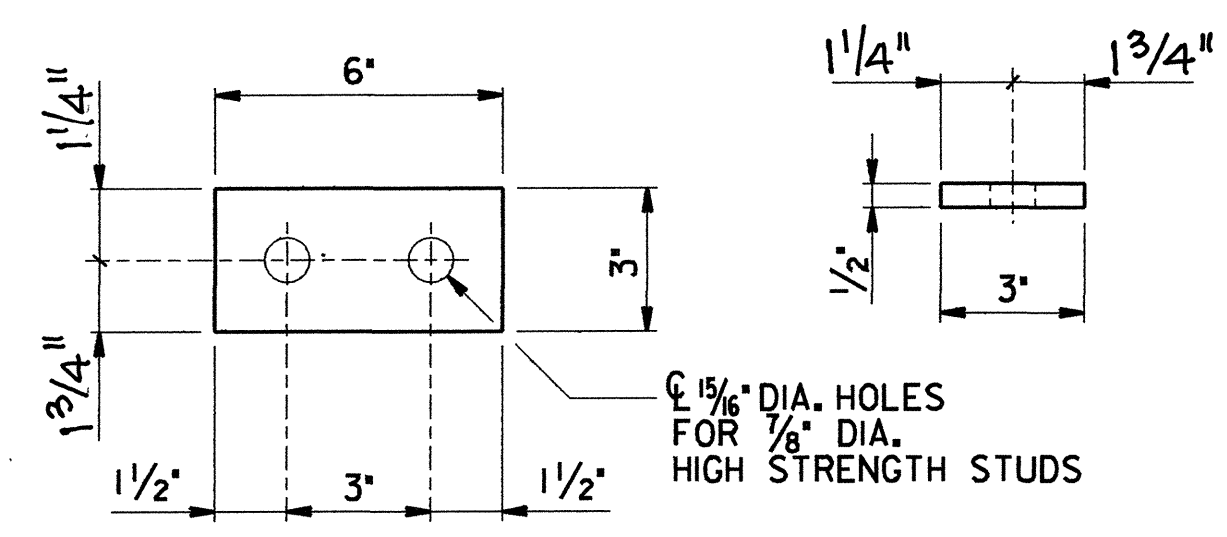
SECTION 'A-A'



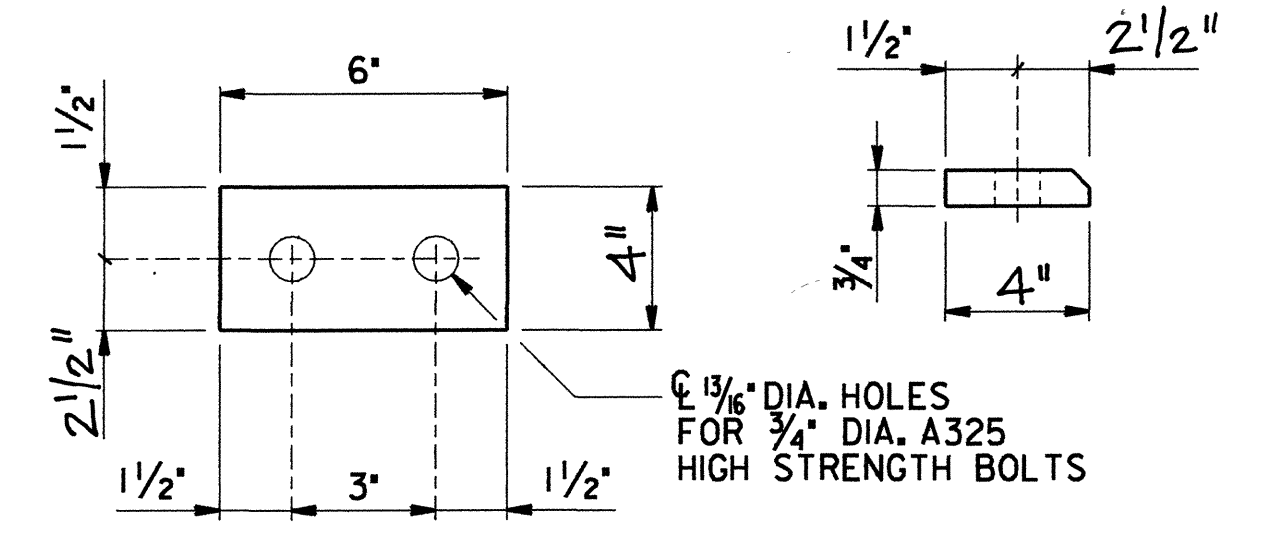
SECTION 'B-B'

NOTES:

- COST OF INSTALLING NEW STIFFENER TABS AND FILLER PLATES, BOLTS, WELDING, FIELD DRILLING, LABOR AND ALL MISCELLANEOUS MATERIALS NECESSARY TO COMPLETE THE REPAIRS AS SHOWN SHALL BE PAID FOR UNDER ITEM NO. 602-10.32, STRUCTURAL STEEL (REPAIRS), LBS.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS ON ALL STRUCTURAL STEEL REPAIRS. SHOP DRAWINGS SHALL BE SUBMITTED FOR APPROVAL TO THE BRIDGE REPAIR OFFICE OF THE DIVISION OF STRUCTURES.
- STIFFENER TABS SHALL BE FASTENED TO THE EXISTING BOTTOM FLANGE BEFORE BEING WELDED TO THE EXISTING STIFFENER.
- ALL DIMENSIONS FOR STRUCTURAL STEEL REPAIRS SHALL BE FIELD VERIFIED BY CONTRACTOR BEFORE ANY STEEL FABRICATION IS BEGUN.
- ALL HOLES INTO THE EXISTING STEEL BOX GIRDER FLANGES SHALL BE FIELD DRILLED (NO FLAME CUTTING FOR HOLES).
- ALL BOLTS TO BE 3/4 DIA. A325 HIGH STRENGTH BOLTS. THE HOLES SHALL BE 13/16 DIA. DRILLED HOLES.
- IF IT IS NECESSARY TO REMOVE BOLTS FROM EXISTING CROSS FRAME CONNECTIONS IN ORDER TO INSTALL NEW FASTENERS, ONLY TWO BOLTS SHALL BE REMOVED FROM A CONNECTION AT ANYTIME. EXISTING BOLTS WHICH ARE REMOVED SHALL BE REPLACED WITH NEW A325 BOLTS OF THE SAME DIAMETER AS THOSE WHICH ARE REMOVED.



1/2" THICK FILLER PLATE DETAILS
(602 REQ'D.)



3/4" THICK STIFFENER TAB DETAILS
(1,640 REQ'D.)



STATE OF TENNESSEE
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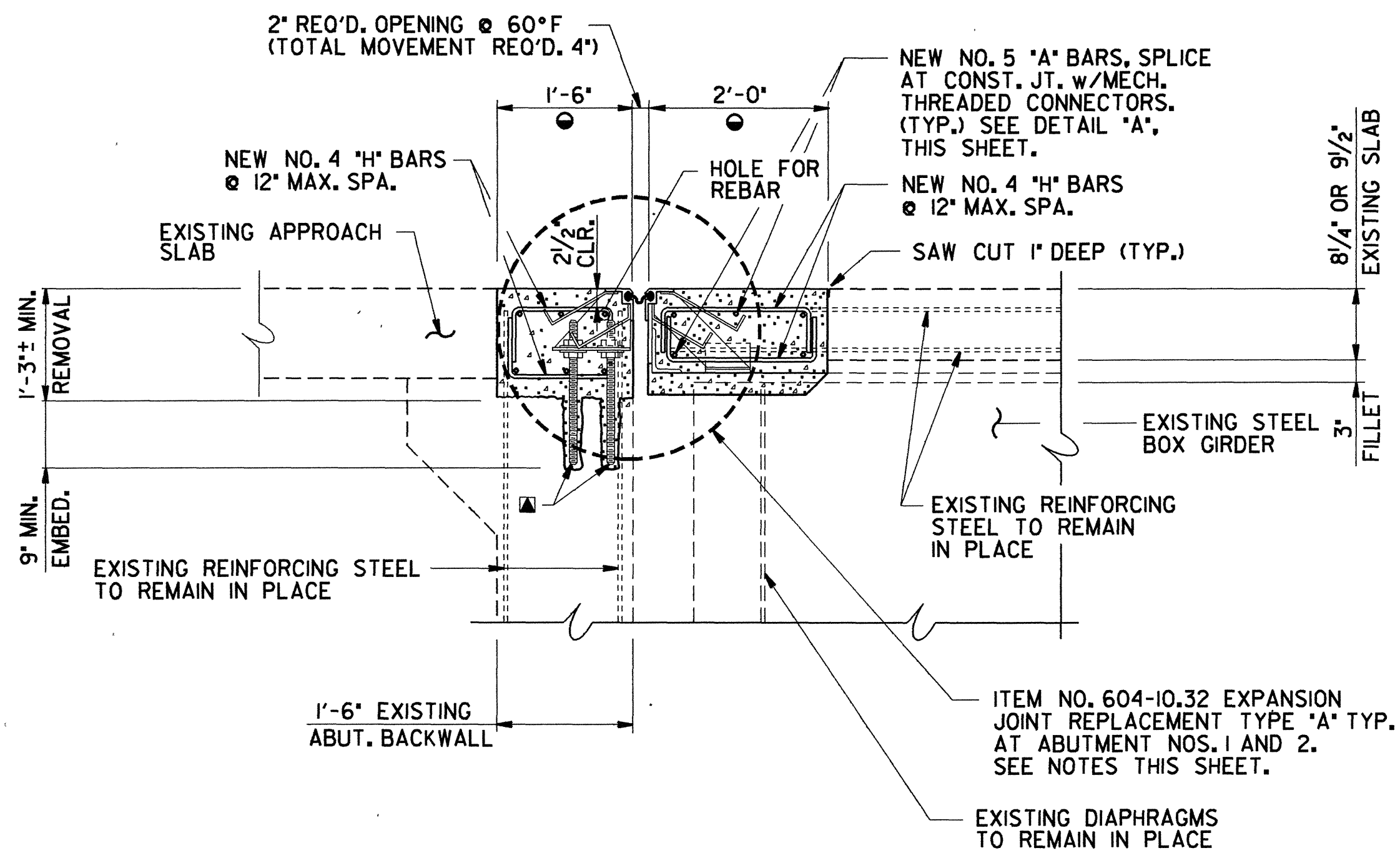
STRUCTURAL STEEL DETAILS
I-440/I-65 DIRECTIONAL INTERCHANGE
STRUCTURE NO. 162 (BR. NO. 19-I65-5.97)
STRUCTURE NO. 163 (BR. NO. 19-I65-5.98)
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STRUCTURE NOS. 166 AND 167
(BRIDGE NO. 19-I440-4.82)
DAVIDSON COUNTY
1998

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DESIGNED BY L. MILLER DATE 4/98
DRAWN BY L. PARKINS DATE 4/98
SUPERVISED BY PETRONE DATE 4/98
CHECKED BY WILSON, PETRONE DATE 4/98

PROJECT NO.	YEAR	SHEET NO.
19947-4110-04	1998	

REVISIONS			
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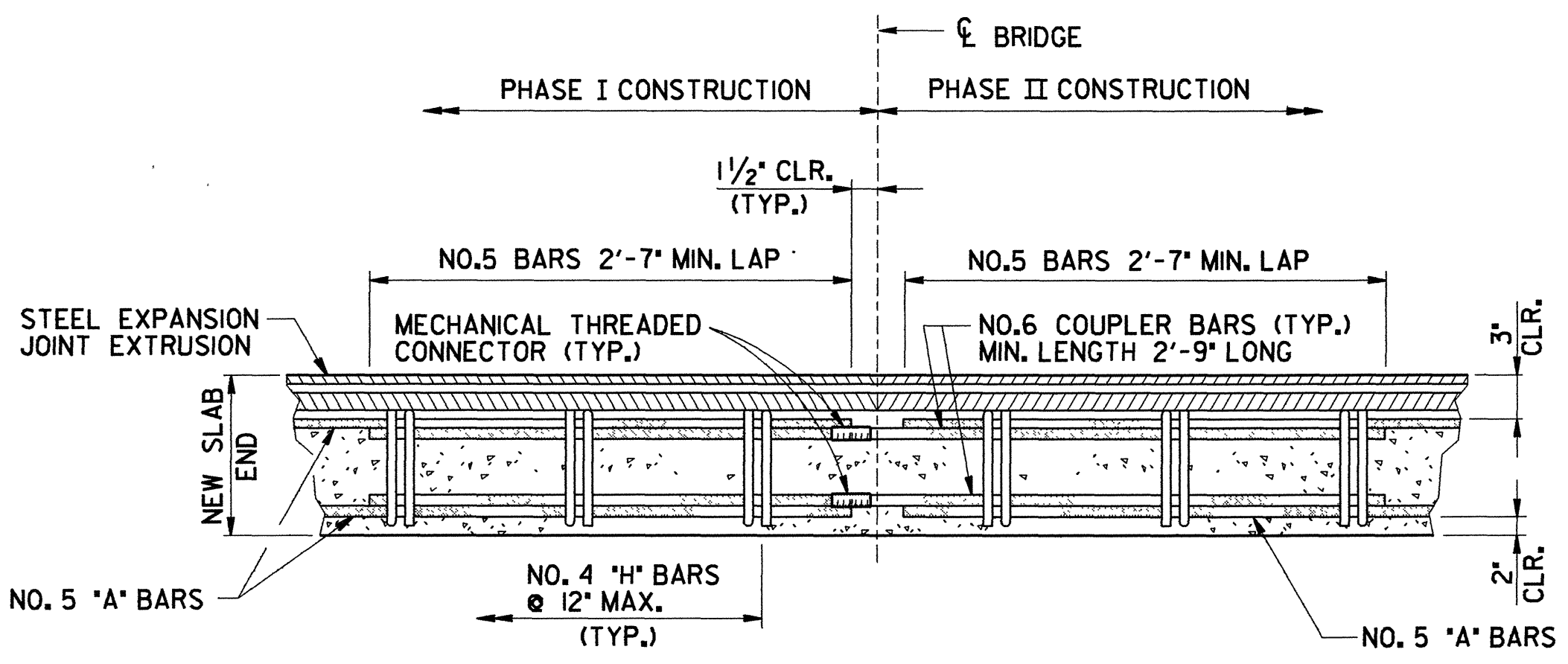


TYPICAL SECTION AT ABUTMENT NOS. 1 AND 2
(TOTAL NO. REQ'D. = 8)

NOTE: APPLY HIGH MOLECULAR WEIGHT METHACRYLATE (HMWM) CRACK SEAL IN THE PERIMETER OF CONCRETE JOINT HEADER. SEALER SHALL BE APPLIED AFTER ALL CONCRETE HAS BEEN IN PLACE A MINIMUM OF TEN DAYS.

- DENOTES: LIMITS OF EXISTING CONCRETE REMOVAL AND RECONSTRUCTION.
- ◻ DENOTES: EXPANSION JOINT LEVELING ASSEMBLIES- TWO (2) 1/8" Ø THREADED RODS, ASTM A36, (2 HEX NUTS AND 2 - 3/2"x3/2"x 1/4" SQUARE WASHERS PER BOLT) LOCATED AT 10'-0" C/C MAX. DRILL AND EPOXY GROUT THREADED RODS 9" INTO EXISTING ABUTMENT BACKWALL. FOR ADDITIONAL DETAILS, SEE STD. DWG. NO. SBR-2-116.

- NOTES:**
- EXPANSION JOINT REPLACEMENT DETAIL SHOWN THIS SHEET IS FOR GENERAL INFORMATION ONLY. FOR COMPLETE DETAILS AND NOTES, SEE STD. DWG. NOS. SBR-2-115, SBR-2-116 AND SBR-2-117. ALSO SEE SPECIAL PROVISION 604S.
 - EXPANSION JOINT REPLACEMENT SHALL BE CONSTRUCTED IN PHASES AS SHOWN ON DWG. NOS. BR-33-68, 71, 74 AND 77. THE STEEL PORTIONS OF THE EXPANSION DEVICE SHALL BE FABRICATED IN SECTIONS IN ORDER TO MAINTAIN ONE (1) TRAFFIC LANE AT ALL TIMES. THE SECTIONS ARE TO BE CONNECTED WITH A FULL PENETRATION BUTT WELD. THE ELASTOMERIC SEAL SHALL BE ONE PIECE FOR FULL LENGTH OF EXPANSION JOINT INCLUDING PARAPET FACE PROJECTIONS.
 - EXPANSION JOINT OPENING SHALL BE SET ACCORDING TO TEMPERATURE CHART SHOWN ON APPROVED EXPANSION JOINT SHOP DRAWINGS.
 - PROVISIONS SHALL BE MADE BY THE CONTRACTOR TO ENSURE THE VERTICAL ALIGNMENT OF THE NEW STEEL EXTRUSION AND CONCRETE HEADER SURFACES CONFORM TO THE EXISTING ROADWAY PROFILE.
 - PROVISIONS SHALL BE MADE DURING SLAB REMOVAL TO PROTECT THE EXISTING LONGITUDINAL AND VERTICAL REINFORCING STEEL FROM DAMAGE. THE EXISTING REINFORCING STEEL SHALL BE COMPLETELY CLEANED, REALIGNED AND INCORPORATED INTO THE NEW CONSTRUCTION.
 - THE COST OF REMOVING PORTIONS OF THE EXISTING SLAB, PARAPET AND BACKWALL WITHIN THE LIMITS SHOWN, SAW CUTTING, COMPLETELY CLEANING EXISTING REINFORCING STEEL, HIGH EARLY STRENGTH CONCRETE, EPOXY COATED REINFORCING STEEL, FORMING AND ALL MISCELLANEOUS MATERIAL NECESSARY FOR CONSTRUCTING THE NEW SECTIONS AS SHOWN SHALL BE INCLUDED IN PRICE BID FOR ITEM NO. 604-10.32, EXPANSION JOINT REPAIRS (TYPE 'A'), L.F.
 - TRAFFIC SHALL NOT BE PERMITTED ON ANY OF THE REPAIRED AREAS UNTIL TEST SPECIMENS ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AND THE CONCRETE HAS BEEN IN PLACE A MINIMUM OF TEN (10) DAYS.



DETAIL 'A'

NOTE: THE COST OF MECHANICAL THREADED CONNECTORS WITH NO. 6 COUPLER BARS SHALL BE INCLUDED IN THE PRICE BID FOR ITEM NO. 604-10.32, EXPANSION JOINT REPAIRS (TYPE 'A'), L.F.

STATE OF TENNESSEE
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BUREAU OF HIGHWAYS

STRIP SEAL EXPANSION JOINT DETAILS
I-440/I-65 DIRECTIONAL INTERCHANGE
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STRUCTURE NO. 163 (BR. NO. 19-I65-5.98)
STRUCTURE NO. 164 (BR. NO. 19-I 440-4.87)
STRUCTURE NO. 165 (BR. NO. 19-I 440-4.85)

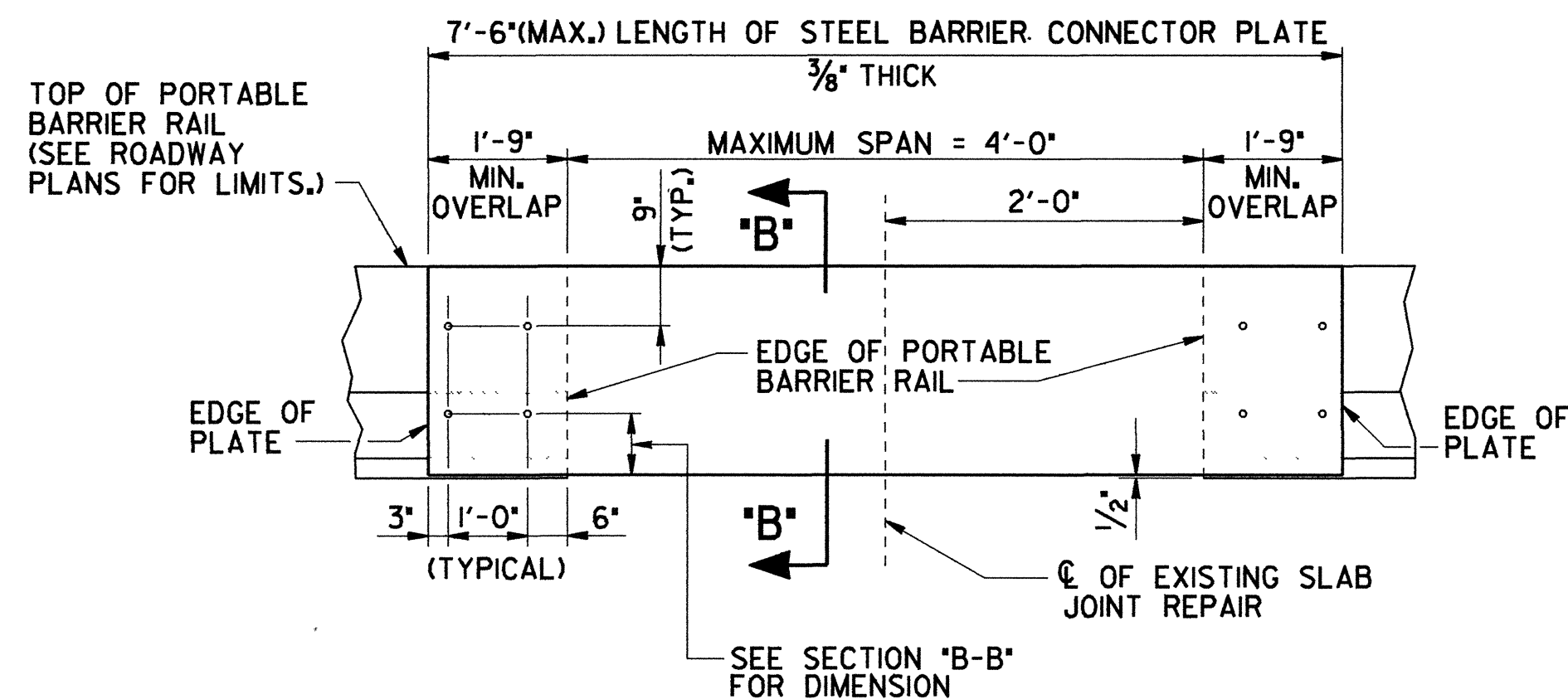
DAVIDSON COUNTY
1998



DESIGNED BY L. MILLER DATE 4/98
DRAWN BY L. PARKINS DATE 4/98
SUPERVISED BY PETRONE DATE 4/98
CHECKED BY WILSON, PETRONE DATE 4/98

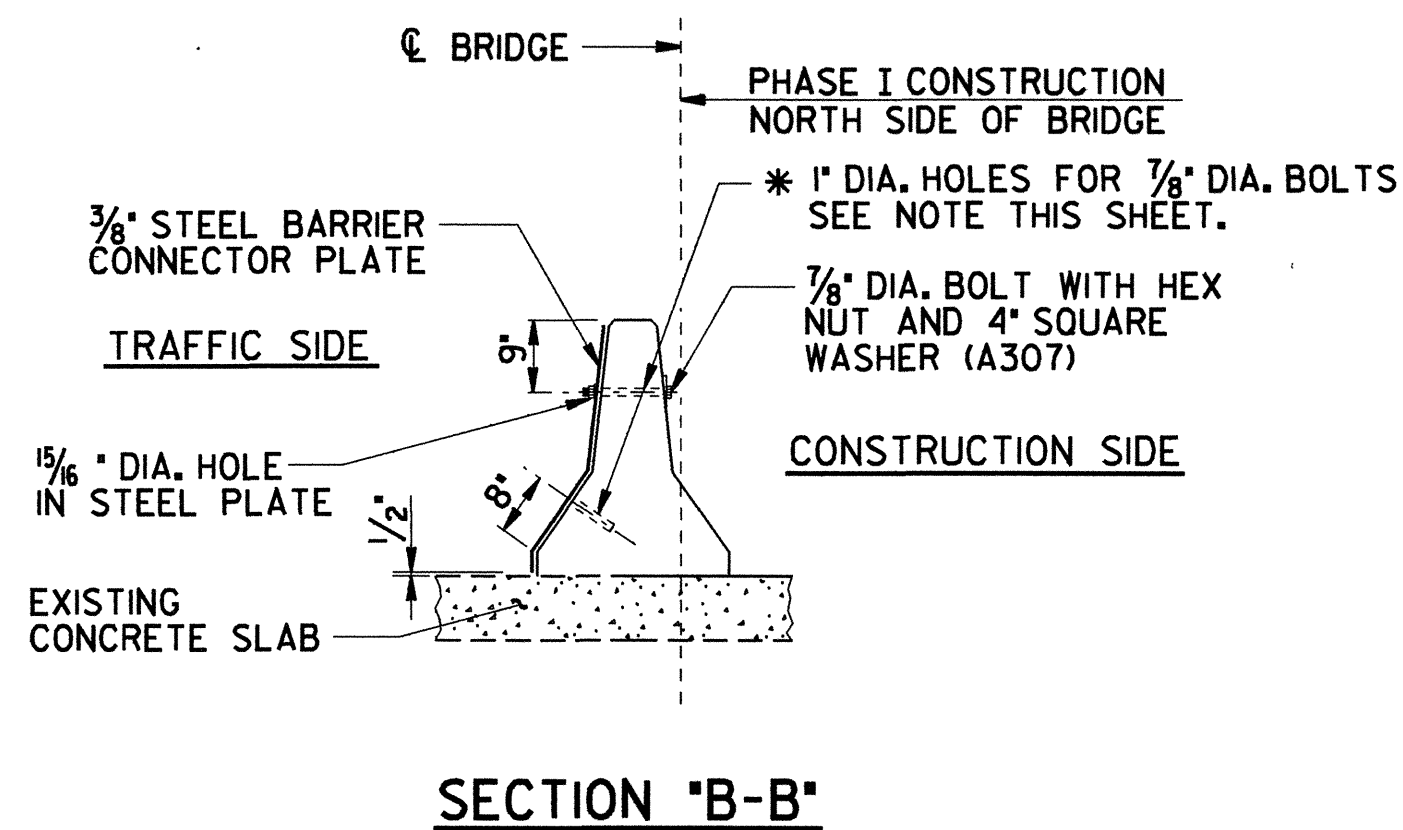
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PROJECT NO.	YEAR	SHEET NO.	
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ELEVATION SHOWING PORTABLE STEEL BARRIER CONNECTOR PLATE

NOTE: COST OF THE 3/8" THICK STEEL CONNECTOR PLATE, ALL BOLTS WITH HEX NUTS AND WASHERS, MASONRY ANCHORS, DRILLING, LABOR, AND ALL MISCELLANEOUS MATERIALS NECESSARY FOR THE INSTALLATION OF THE STEEL BARRIER CONNECTOR PLATE TO BE INCLUDED IN ITEM NO. 604-10.90, MISCELLANEOUS BRIDGE ITEMS, L.S. CONTRACTORS BID FOR THIS ITEM SHALL BE FOR FOUR (4) PLATES WITH A TOTAL WEIGHT OF 1,300 LBS.

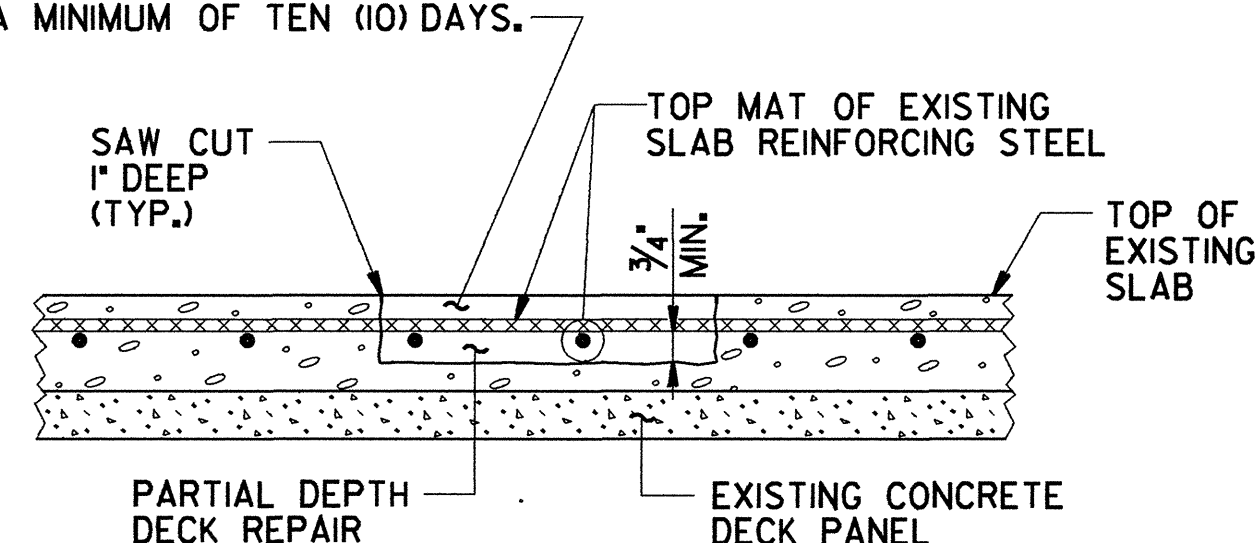


SECTION "B-B"

* DENOTES: 1" DIA. HOLES FOR THE 7/8" DIA. MASONRY ANCHORS AND 1" DIA. HOLES FOR 3/4" DIA. BOLTS SHALL BE DRILLED WITH A HIGH SPEED DRILL. THE DRILL BIT SHALL BE CAPABLE OF DRILLING THROUGH EXISTING REINFORCING BARS AND CONCRETE.

NOTE: CONTRACTOR SHALL INSTALL A 3/8" THICK STEEL CONNECTOR PLATE TO THE PORTABLE CONCRETE BARRIERS IN AREAS WHERE THE SLAB JOINT IS TO BE REPAIRED IN PHASE I AND PHASE II CONSTRUCTION. DETAILS SHOWN ARE FOR PHASE I CONSTRUCTION. THE CONNECTOR PLATE SHALL BE USED ON THE OPPOSITE SIDE DURING PHASE II CONSTRUCTION. 1" DIA. HOLES MAY BE REUSED FOR PHASE II CONSTRUCTION WITH NEW HOLES FOR BOTTOM MASONRY ANCHORS.

CONCRETE FOR DECK REPAIR SHALL BE HIGH EARLY STRENGTH CONCRETE, f'c = 3,500 PSI @ 28 DAY STRENGTH. TRAFFIC WILL NOT BE PERMITTED ON ANY OF THE REPAIRED AREAS UNTIL TEST SPECIMENS ATTAIN A COMPRESSIVE STRENGTH OF 3,000 PSI MINIMUM AND THE CONCRETE HAS BEEN IN PLACE A MINIMUM OF TEN (10) DAYS.



DETAIL SHOWING PARTIAL DEPTH DECK REPAIR

NOTE: REMOVE CONCRETE IN ALL DELAMINATED AREAS TO A DEPTH OF 3/4" BELOW THE TOP BAR OF THE TOP MAT OF REINFORCING STEEL. ALL REINFORCING STEEL IN AREAS OF DECK REPAIR SHALL BE COMPLETELY CLEANED. AREAS OF CONCRETE REMOVAL SHALL BE DESIGNATED BY PERSONNEL FROM THE BRIDGE REPAIR OFFICE. INSPECTIONS TO DETERMINE AREAS OF DECK REPAIR SHALL BE SCHEDULED WITH THE BRIDGE REPAIR OFFICE AT LEAST THREE (3) DAYS IN ADVANCE. DECK REPAIR WILL BE PAID FOR UNDER ITEM NO. 604-10.50, BRIDGE DECK REPAIR (PARTIAL DEPTH OF SLAB), POWER DRIVEN HAND TOOLS USED FOR REMOVAL OF UNSOUND CONCRETE IN MAKING PARTIAL DEPTH REPAIRS ARE SUBJECT TO THE FOLLOWING RESTRICTIONS:
 1) PNEUMATIC HAMMERS HEAVIER THAN NOMINAL 60 POUND CLASS SHALL NOT BE USED.
 2) CHIPPING HAMMERS OF THE 15 POUND CLASS SHALL BE USED TO REMOVE CONCRETE FROM BENEATH ANY REINFORCING STEEL.

NOTE: ITEM NO. 604-10.50 SHALL BE BID WITH THE CONTINGENCY THAT THIS ITEM MAY BE INCREASED, DECREASED OR ELIMINATED AS DIRECTED BY THE ENGINEER.

NOTE: CONTRACTOR MAY AT HIS OPTION REMOVE UNSOUND CONCRETE BY HYDRODEMOLITION IN LIEU OF CONVENTIONAL REMOVAL METHODS.

NOTE: AFTER CONCRETE IN PATCHED AREAS HAS CURED A MINIMUM OF 5 DAYS, PERIMETER OF ALL DECK REPAIR AREAS SHALL BE SEALED WITH A HIGH MOLECULAR WEIGHT METHACRYLATE (HMW) SEALER IN ACCORDANCE WITH SPECIAL PROVISION 604CR. SEALING SHALL BE PAID FOR UNDER ITEM NOS. 617-02 AND 617-05.

SURFACE PREPARATION AND PAINTING NOTES

STEEL SURFACE PREPARATION NOTE

THE CONTRACTOR HAS THE OPTION OF BLASTCLEANING OR POWER TOOL CLEANING THE SURFACE AREAS WHERE THE EXISTING CROSS FRAME WILL BE REPAIRED AND THE WEBS OF THE STEEL BOX GIRDERS WHERE EXISTING CRACK AREAS ARE TO BE WELDED. BLASTCLEANING SHALL BE IN ACCORDANCE WITH THE TENNESSEE STANDARD SPECIFICATIONS, SECTION 603.05b. NO GRINDING OF THE REPAIR AREAS TO REMOVE THE EXISTING PAINT WILL BE ALLOWED. ALL STEEL SURFACE PREPARATION SHALL MEET WITH THE FULL APPROVAL OF THE ENGINEER BEFORE PAINTING. IF THE CONTRACTOR ELECTS TO BLASTCLEAN, HE SHALL BE RESPONSIBLE FOR REMOVING ALL BLASTING MEDIUM FROM INSIDE THE STEEL BOX GIRDERS.

PAINTING SYSTEM

PAINT SHALL BE SYSTEM B IN ACCORDANCE WITH SUB SECTION 603.06. COLOR OF THE URETHANE FINISH COAT SHALL COMPLY WITH FEDERAL STANDARD NO. 595a, 33481 GOLD. SEE SECTIONS 603 AND 910 OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION. THE FINISH COAT WILL NOT BE REQUIRED ON INTERIOR REPAIR AREAS.

ALL PRODUCTS USED IN THIS COATING SYSTEM, INCLUDING THINNERS, MUST BE SUPPLIED BY THE SAME MANUFACTURER.

APPLICATION

THE COATING APPLICATOR SHALL FOLLOW THE MANUFACTURER'S PRINTED INSTRUCTIONS AND STANDARD SPECIFICATIONS AND SHALL HAVE THESE INSTRUCTIONS ON SITE DURING THE COURSE OF THE WORK.

PROTECTION OF PROPERTY

EXTREME CARE SHALL BE TAKEN WHEN PAINTING THIS STRUCTURE TO PROTECT THE GENERAL PUBLIC AND THE SURROUNDING ENVIRONMENT.

CONTAINMENT OF EXISTING PAINT SYSTEM

ACCORDING TO OUR RECORDS THE EXISTING PAINT SYSTEM CONTAINS AN INORGANIC ZINC PRIMER AND VINYL TOP COAT. THE CONTRACTOR SHALL CONTAIN AND DISPOSE OF ALL PAINT REMOVAL WASTE IN ACCORDANCE WITH SECTION 603.13.

NOTE: COST OF ALL SURFACE PREPARATION AND PAINTING AS CALLED FOR IN NOTES ABOVE SHALL BE INCLUDED IN ITEM NO. 602-10.33, STRUCTURAL STEEL TEST FOR CRACKS, L.S..

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

MISCELLANEOUS DETAILS

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