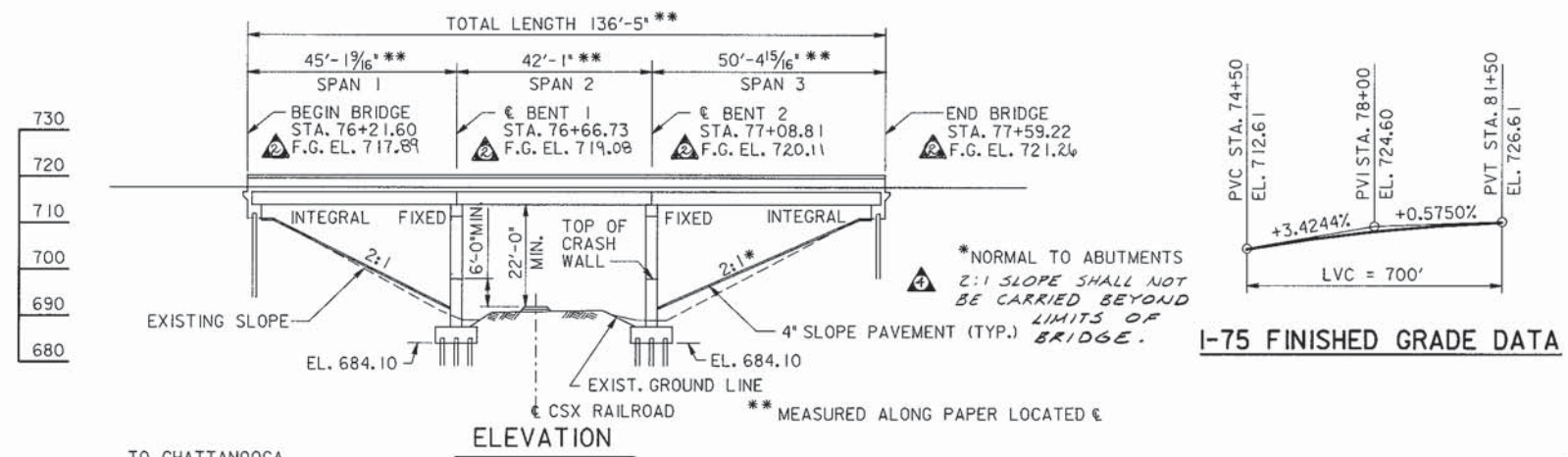
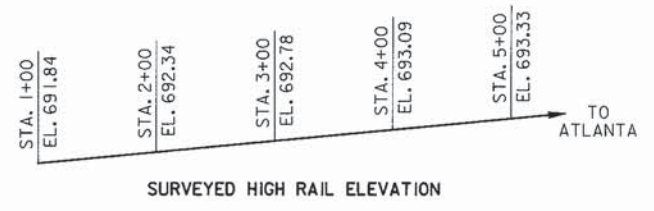


REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	11 JAN 1991	JHP	LATEST REVISION DATE
2	4 FEB 1991	JHP	General
3	22 APR 1991	JHP	LATEST REVISION DATE
4	13 JUNE 91	JHP	GENERAL



I-75 FINISHED GRADE DATA



**GRADE DATA
CSX RAILROAD**

SPECIAL PROVISION NUMBER	DATE LATEST REVISION	LIST OF SPECIAL PROVISIONS
105A	07-21-87	APPROVAL OF SHOP DRAWINGS
604	05-14-90	CONCRETE STRUCTURES
604C	08-01-89	STRUCTURAL CONCRETE
604P	05-08-89	PRECAST PRESTRESSED DECK PANELS
907A	03-25-85	EPOXY COATED REINFORCING STEEL
604R	05-14-90	RIDEABILITY OF BRIDGE DECKS AND ROADWAY APPROACHES
615	12-11-89	PRECAST PRESTRESSED CONCRETE BRIDGE MEMBERS

LIST OF DRAWINGS

DRAWING NO.	REVISION DATE	DESCRIPTION
M-248-101	6-13-91	LAYOUT
M-248-102	6-13-91	GENERAL NOTES
M-248-103	6-13-91	ESTIMATED QUANTITIES
M-248-104	1-11-91	PRECAST PARAPET
M-248-105	6-13-91	STAGING PLAN
M-248-106	4-22-91	REPAIR DETAILS
M-248-107	2-04-91	SUPERSTRUCTURE
M-248-108		SUPERSTRUCTURE DETAILS
M-248-109		PRESTRESSED BOX BEAM DETAILS - SPAN 1
M-248-110		PRESTRESSED BOX BEAM DETAILS - SPAN 2
M-248-111		PRESTRESSED BOX BEAM DETAILS - SPAN 3
M-248-112		ABUTMENT 1
M-248-113	4-22-91	ABUTMENT 1 DETAILS
M-248-114		ABUTMENT 2
M-248-115	4-22-91	ABUTMENT 2 DETAILS
M-248-116		BENT 1
M-248-117		BENT 2
M-248-118	6-13-91	CRASHWALL DETAILS
M-248-119	6-13-91	BILL OF STEEL

STANDARD DRAWINGS

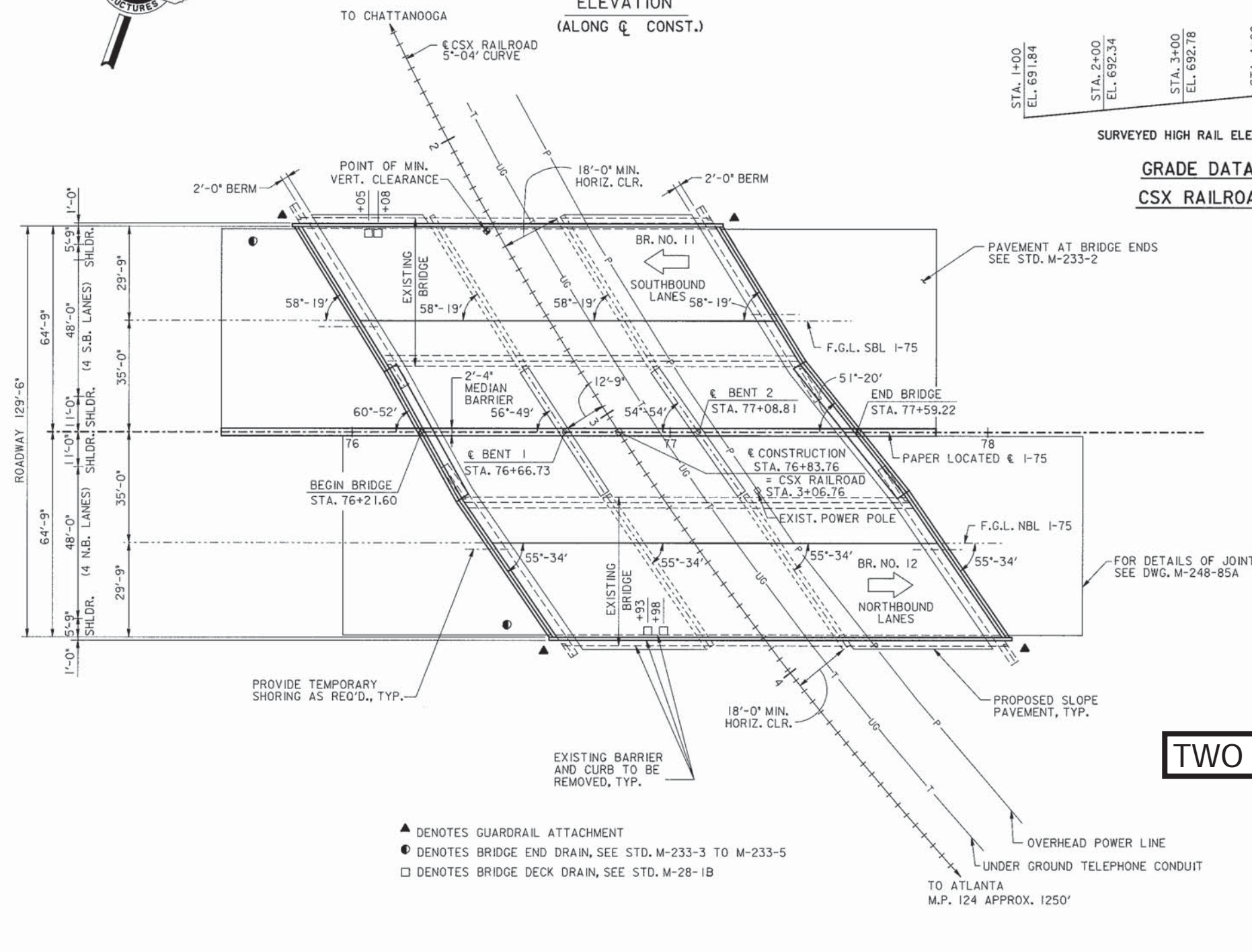
STD. REINF. BAR SUPPORT	K-80-14	08-27-76
BRIDGE END DRAIN DETAILS	M-233-3 TO 5	08-22-90
REINF. CONCRETE PAVEMENT AT BRIDGE ENDS	M-233-2	08-22-90
BRIDGE RAILING CONCRETE PARAPET	M-233-1	08-22-90
STD. PRECAST PRESTRESSED BRIDGE DECK PANELS	M-164-24, 25 & 25A	12-18-89
SLOPE PROTECTION	RD-SA-1	04-29-88
CONCRETE MEDIAN BARRIER AND PARAPET DRAINS	M-28-1A & 1B	12-06-90
SEISMIC DETAILS	M-246-70	12-12-90
MISC. ABUTMENT AND DRAINAGE DETAILS	K-85-150	06-25-87
STD. PILE DETAILS	M-174-150 & 150A	11-27-90
BRIDGE RAILING AND PARAPET	M-28-1	11-1-88

REFERENCE DRAWINGS

EXISTING BRIDGE PLANS	H-7-121 THRU 124 AND F-10-84 & 85
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• DENOTES: THESE STANDARDS TO BE PRINTED WITH PLANS

DESIGN SPEED = 60 MPH
2011 ADT = 129,000 VPD
129'-6" ROADWAY WITH M-233-1 BRIDGE RAIL

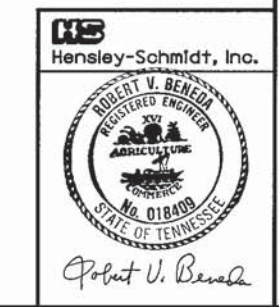


TWO BRIDGES COMBINED INTO ONE

- ▲ DENOTES GUARDRAIL ATTACHMENT
- DENOTES BRIDGE END DRAIN, SEE STD. M-233-3 TO M-233-5
- DENOTES BRIDGE DECK DRAIN, SEE STD. M-28-1B

PLAN

DESIGNED BY	S. L. POWELL	DATE	12-90
DRAWN BY	S. J. MATHEWS	DATE	12-90
SUPERVISED BY	R. V. BENEDA	DATE	12-90
CHECKED BY	R. V. BENEDA	DATE	12-90



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

BRIDGE NO. 11 & 12

BRIDGE LAYOUT

BRIDGE ID NO 33100750023 (BR-12)
33100750024 (BR-11)

I-75 WIDENING OVER
CSX RAILROAD
STATION 76+21.60
HAMILTON COUNTY
1991

CONSTRUCTION NO.	PROJECT NO.	YEAR	SHEET NO.
33005-3148-44	IR-75-1(90)2	1991	

REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	11 JUN 1991	JAR	MECHANICAL BAR COUPLER NOTE REVISED
4	15 JUNE 91	JHP	GENERAL

GENERAL NOTES

SPECIFICATIONS: STANDARD ROAD AND BRIDGE SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION. (MARCH 1981 EDITION)

LOADING: HS20-44 WITH ALTERNATE MILITARY.

DESIGN SPECIFICATIONS: AASHTO 1989 EDITION WITH ADDENDA.

CONCRETE: TO BE CLASS "A" F'C = 3000 PSI UNLESS OTHERWISE NOTED.

CLASS "A" CONCRETE FOR BRIDGE DECKS SHALL BE IN ACCORDANCE WITH SECTION 604 OF THE STANDARD SPECIFICATIONS EXCEPT AS MODIFIED BY SPECIAL PROVISION 604-C.

BRIDGE DECK SURFACE FINISH: TO BE IN ACCORDANCE WITH NOTE C, SHEET 2, OF SPECIAL PROVISION 604.

BRIDGE DECK FORMS: BRIDGE DECK FORMS FOR CONCRETE DECKS SHALL BE CONSTRUCTED USING EITHER REMOVABLE FORMS OR PERMANENT FORMS. PERMANENT FORMS MAY BE EITHER REMAIN-IN-PLACE STEEL OR PRECAST, PRESTRESSED CONCRETE PANELS. IN EITHER CASE, FORMS SHALL BE ATTACHED BY MEANS OTHER THAN WELDING TO SUPPORT MEMBERS. THE CONTRACTOR SHALL TAKE STEPS TO ASSURE THE STABILITY OF THE EXTERIOR GIRDER AGAINST TWISTING OR OVERTURNING DURING SLAB POURING OPERATIONS. WHEN THE WIDTH OF THE OVERHANG EXCEEDS THE DEPTH OF THE EXTERIOR GIRDER, DETAILS AND DESIGN CALCULATIONS FOR THE CANTILEVER SUPPORT SYSTEM SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

IF THE USE OF PERMANENT DECK FORMS REQUIRES ADDITIONAL SLAB THICKNESS, THE CONTRACTOR WILL BE REQUIRED TO REDESIGN THE GIRDERS WHEN THE SLAB THICKNESS IS INCREASED MORE THAN 1 1/2" INCHES. ALL CHANGES TO THE GIRDERS SHALL BE AT THE CONTRACTOR'S EXPENSE.

IF PRECAST PRESTRESSED DECK PANELS ARE USED, THE CONTRACTOR SHALL PROVIDE SUPPLEMENTAL REINFORCING, ADDITIONAL REINFORCING TIES, AND TEMPORARY OR PERMANENT ERECTION DIAPHRAGMS AS REQUIRED BY SPECIAL PROVISION 604P AND STANDARD DRAWING M-164-25A. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSURE THAT THE PRECAST PANELS WILL FIT BETWEEN THE ERECTED GIRDERS SUCH THAT THE PANEL OVERHANG LIMITS GIVEN ON STANDARD DRAWINGS M-164-24 AND 25 ARE MAINTAINED. PANELS WHICH DO NOT FIT MUST BE REPLACED AT THE CONTRACTOR'S EXPENSE.

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 AND COVER DIMENSIONS ARE CLEAR DISTANCE UNLESS OTHERWISE NOTED. PLACING TOLERANCES ARE + 1/2" FOR SPACING AND -1/8" OR +3/8" FOR COVER. THE SUFFIX E, FOR BARS SO MARKED, DENOTES EPOXY COATED REINFORCEMENT. SEE SPECIAL PROVISION 907A.

SPECIAL NOTE FOR RAILROAD CROSSING: THE CONTRACTOR SHALL CONDUCT HIS WORK SO AS TO PROTECT THE RAILROAD TRACKS AND PROPERTIES FROM ANY DAMAGE. THE WORK SHALL BE DONE IN ACCORDANCE WITH REGULATIONS STIPULATED BY CSX RAILROAD SO AS TO MAINTAIN CLEARANCE AND NOT INTERRUPT TRAFFIC.

PILES: TO BE HP 10 X 42 DRIVEN TO REFUSAL ON ROCK OR A MINIMUM BEARING OF 55 TONS FOR THE BENTS AND ABUTMENTS.

BRIDGE RAIL SYSTEM: BUILD PRECAST PARAPETS ACCORDING TO DRAWING M-248-104. PRECAST PARAPETS SHALL CONFORM TO STANDARD M-233-1 (EXCEPT AS MODIFIED).

CONSTRUCT REINFORCED CONCRETE MEDIAN BARRIER ACCORDING TO DRAWING M-28-1A. MEDIAN BARRIER SHALL BE GIVEN AN APPLIED TEXTURE FINISH. THE COLOR OF THE FINISH SHALL BE SIMILAR TO WHITE, FEDERAL SPECIFICATION NO. 37886. THE COST OF THE FINISH AND REINFORCING STEEL DETAILED SHALL BE INCLUDED IN THE LINEAR FOOT PRICE BID FOR THE MEDIAN RAIL.

GROUTED BARS IN DRILLED HOLES: HORIZONTALLY DRILLED HOLES SHALL BE DRILLED 1/2" IN DIAMETER LARGER THAN THE BAR. THE HOLE SHALL BE CLEANED, PACKED WITH NON-SHRINK GROUT AND THE BAR DRIVEN TO ITS SEAT. VERTICALLY DRILLED HOLES SHALL BE DRILLED 1/4" IN DIAMETER LARGER THAN THE BAR. THE HOLE SHALL BE CLEANED, PACKED WITH EPOXY GROUT AND THE BAR DRIVEN TO ITS SEAT. ALL GROUTING MATERIAL SHALL BE APPROVED BY T.D.O.T. MATERIALS AND TESTS.

SHOP DRAWINGS: SEE SPECIAL PROVISION NO. 105A.

NON-PAY ITEMS: ONLY ITEMS SHOWN ON THE PROPOSAL AS PAY ITEMS WILL BE PAID FOR. COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND INCIDENTALS FOR THE ENTIRE CONTRACT SHALL BE INCLUDED IN THE PRICE BID FOR PAY ITEMS.

REQUIREMENTS AND RESTRICTIONS FOR PHASE CONSTRUCTION :

1. THE STAGE CONSTRUCTION SEQUENCE MAY PROHIBIT THE EXTRACTION OF SOME SHEET PILING.
2. THE LOCATION OF LONGITUDINAL CONSTRUCTION JOINTS SHALL NOT BE CHANGED.
3. NO SHEET PILES OR BEARING PILES MAY BE DRIVEN FROM THE EXISTING OR PROPOSED STRUCTURE.
4. TWO 12'-0" TRAFFIC LANES WITH 2'-0" SHOULDERS SHALL BE MAINTAINED AT ALL TIMES, UNLESS SHOWN OTHERWISE.

FINISHING CONCRETE SURFACES: CONCRETE FINISHING SHALL BE IN ACCORDANCE WITH SECTION 604.22 OF THE TENNESSEE STANDARD SPECIFICATION. AN APPLIED TEXTURE FINISH SHALL BE USED IN LIEU OF A CLASS II FINISH. THE COLOR OF THE FINISH FOR ALL SURFACES EXCEPT MEDIAN BARRIER AND FACE AND TOP OF PARAPETS SHALL BE SIMILAR TO MOUNTAIN GRAY, FEDERAL SPECIFICATION NO. 36440, FEDERAL COLOR STANDARD NO. 595A. THE COLOR FOR THE MEDIAN BARRIER AND FACE AND TOP OF THE PARAPETS AND SHALL BE SIMILAR TO WHITE, FEDERAL SPECIFICATION NO. 37886. COLOR SAMPLES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. NO TEXTURE FINISH SHALL BE APPLIED PRIOR TO COMPLETION OF PAVING AND HAULING OPERATIONS AT THE BRIDGE SITE. PAYMENT FOR THE APPLIED TEXTURE FINISH SHALL BE UNDER ITEM 604-04.01 AND 604-04.02.

NOTE: THE CONTRACTOR SHALL CHECK THE LOCATION OF ALL EXISTING SUBSTRUCTURES AND VERIFY SPAN LENGTHS BEFORE FABRICATING GIRDERS. IN ADDITION, BEFORE BEGINNING STAGE 1, THE CONTRACTOR SHALL CHECK AND VERIFY THAT OVERLAY THICKNESS ON THE EXISTING STRUCTURE WILL BE WITHIN PLAN LIMITS. IF OVERLAY THICKNESS WILL NOT BE WITHIN PLAN LIMITS, THE CONTRACTOR SHALL MAKE THE ELEVATION ADJUSTMENTS NECESSARY TO THE STAGE 1 PORTION OF THE STRUCTURE TO ENSURE THAT OVERLAY THICKNESS WILL COMPLY WITH THE PLANS.

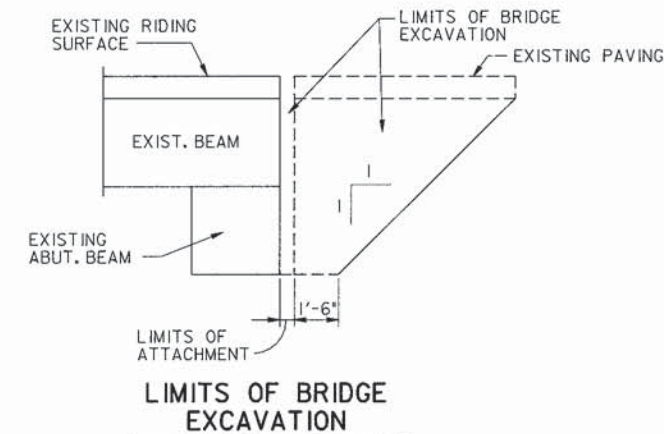
NOTE: THE FILLS AT THE ENDS OF THE BRIDGE SHALL BE IN PLACE AND THOROUGHLY COMPACTED BEFORE ANY ABUTMENT PILES ARE DRIVEN. NOTE: THE 2:1 SLOPE SHALL NOT BE CARRIED BEYOND LIMITS OF BRIDGE.

NOTE: THE CONTRACTOR SHALL ACCEPT FULL RESPONSIBILITY OF MAINTAINING THE STRUCTURAL INTEGRITY OF THE EXISTING BRIDGE DURING CONSTRUCTION. ANY DAMAGE TO STRUCTURAL MEMBERS TO BE LEFT IN PLACE SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER AND PAID FOR AT THE CONTRACTOR'S EXPENSE.

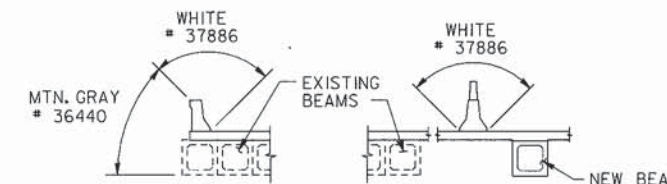
NOTE: THE COST OF TEMPORARY SHORING NECESSARY FOR STAGED CONSTRUCTION SHALL BE INCLUDED IN THE OVERALL BID SUBMITTED.

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

MECHANICAL BAR COUPLERS MUST BE APPROVED BY THE DIVISION OF MATERIALS AND TESTS. DOWEL BAR COUPLER AND DOWEL-IN SHALL BE DEFORMED, GRADE 60. WHEN EPOXY COATING IS REQUIRED, THE EXPOSED THREADS SHALL BE REPAIRED AFTER SPLICING ACCORDING TO SPECIAL PROVISION 907A. ~~THE SPLICING BAR AND THE ROOT DIMENSION OF THE SIZE BAR DESIGNATED TO BE SPLICED.~~ THE COST OF FURNISHING THE BAR COUPLER AND DOWELS (EPOXY COATED WHEN REQUIRED) INCLUDING ALL LABOR AND MATERIALS NECESSARY FOR COMPLETE INSTALLATION SHALL BE INCLUDED IN THE PRICE BID, PER POUND, OF ITEM 604-03.02 AND ITEM 604-02.03. NOTE, THE SPLICING BAR AND THE ROOT DIMENSION AT THE THREAD SHALL BE NO LESS THAN THE NOMINAL DIAMETER OF THE SIZE BAR DESIGNATED TO BE SPLICED.



* SUBSTRUCTURE SHALL BE MOUNTAIN GRAY # 36440



APPLIED TEXTURE FINISH

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

BRIDGE NO. 11 & 12

GENERAL NOTES

I-75 WIDENING OVER
CSX RAILROAD
STATION 76+21.60
HAMILTON COUNTY
1991

M-248-102

DESIGNED BY	R. V. BENEDA	DATE	12-90
DRAWN BY	S. J. MATHEWS	DATE	12-90
SUPERVISED BY	R. V. BENEDA	DATE	12-90
CHECKED BY	S. L. POWELL	DATE	12-90

Q524150 - 111BR11GNC1.DGN SV=NOTES DATE: 12-29-90 PRF=BR11GNC1

REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	11 JAN. 1991	JHP	GENERAL
2	4 FEB. 1991	JHP	GENERAL
3	13 JUNE 91	JHP	GENERAL

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	TOTAL	SUPERSTRUCTURE	ABUT. NO. 1	BENT NO. 1	BENT NO. 2	ABUT. NO. 2
⑦ ④	202-04.02 REMOVAL OF STRUCTURES (I-75 OVER CSX R.R. STA. 76 + 21)	L.S.	1					
②	204-02.01 DRY EXCAVATION (BRIDGES)	C.Y.	640		179	134	139	188
	303-01.02 GRANULAR BACKFILL (BRIDGES)	TON	62					
⑩	407-02.04 COLD PLANING OF BITUMINOUS PAVEMENT	TON	379	379				
	604-01.12 CLASS 'A' CONCRETE (BRIDGE DECK)	C.Y.	697	697				
	604-02.03 EPOXY COATED REINFORCING STEEL	LB.	113,437	111,941	697			799
	604-03.01 CLASS 'A' CONCRETE (BRIDGES)	C.Y.	455	0	25	205	207	18
	604-03.02 STEEL BAR REINFORCEMENT (BRIDGES)	LB.	51,433	5,956	2,944	19,452	19,568	3,513
①	604-03.04 PAVEMENT AT BRIDGE ENDS	S.Y.	1,298					
	604-04.01 APPLIED TEXTURE FINISH (NEW STRUCTURES)	S.Y.	610					
	604-04.02 APPLIED TEXTURE FINISH (EXISTING STRUCTURES)	S.Y.	425					
⑫	604-10.54 CONCRETE REPAIRS	S.F.	23					
⑫	604-10.55 CONCRETE (FOUNDATION REPAIRS)	C.Y.	9					
⑫	604-10.63 CONCRETE REPAIRS (CRACKS)	L.F.	110					
⑬	604-11.00 EXPANSION DEVICE (1 3/4" MOVEMENT)	L.F.	256					
	606-02.03 STEEL PILES (10 INCH)	L.F.	1,739		310	542	542	345
③	615-02.03 PRESTRESSED BOX BEAM (21"x36")	L.F.	203					
③	615-02.04 PRESTRESSED BOX BEAM (27"x36")	L.F.	457					
⑥ ⑧ ④ ⑪	620-03.01 PRECAST CONCRETE PARAPET	L.F.	276					
⑨	709-04 REINFORCED CONCRETE SLOPE PAVEMENT	C.Y.	171					
⑤	710-09.01 6" PERF. PIPE WITH VERTICAL DRAIN SYSTEM	L.F.	318		156			162
	710-09.02 6" PIPE UNDERDRAIN	L.F.	40		20			20
⑧	711-02.04 REINFORCED CONCRETE MEDIAN BARRIER (51")	L.F.	227					
	407-02.07 SAWRAGE VALVE OF COLD PLANING	TON	379	379				

- ① NOTE: SQUARE YARD FOR PAVEMENT AT BRIDGE ENDS SHALL BE MEASURED AS ROAD SURFACE AREA AND SHALL INCLUDE ALL CONCRETE, REINFORCING STEEL, PILES, JOINT MATERIAL, NOTCH FOR ROADWAY DRAIN, SURFACE FINISH AS PER SP604 AND ANY OTHER INCIDENTALS NECESSARY FOR COMPLETE INSTALLATION.
- ② NOTE: EXCAVATION BASED ON EXISTING GROUND.
- ③ NOTE: COST OF ELASTOMERIC PADS, RUBBER BONDING CEMENT, AND ANCHOR BOLT ASSEMBLIES TO BE INCLUDED IN THE COST OF PRESTRESSED BEAM.
- ④ NOTE: COST OF BRIDGE RAIL ENDPOST IS TO BE INCLUDED IN THE COST OF THE BRIDGE RAIL SYSTEM.
- ⑤ NOTE: COST OF POLYETHYLENE SHEETING AND ALL MISCELLANEOUS ITEMS NECESSARY FOR INSTALLATION TO BE INCLUDED IN COST OF PERFORATED PIPE.
- ⑥ NOTE: THE COST OF 8 INSERT ASSEMBLIES AND 32 - 7/8" DIA. X 4" HEX HEAD BOLTS, (A325), TO BE INCLUDED IN ITEM 620-03.01. SEE DWG. M-248-104.

- ⑦ NOTE: THE COST OF REMOVING THE EXTERIOR PORTION OF THE EXISTING SLAB, PORTIONS OF THE EXISTING ABUTMENT, AND THE BRIDGERAIL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 202-04.02.
- ⑧ ALL REINFORCING STEEL IN THE MEDIAN BARRIER AND PRECAST PARAPET SHALL BE EPOXY COATED. COST TO BE INCLUDED IN THE PRICE BID FOR ITEMS 620-03.01 AND 711-02.04.
- ⑨ NOTE: PAVE SLOPES AND EXPOSED EARTH UNDER BRIDGES WITH 4" THICK CEMENT CONCRETE SLAB REINFORCED WITH NO. 4 GAGE WIRE FABRIC ON 6" CENTERS AND 58 LBS PER 100 S.F. THE WIRE FABRIC REINFORCEMENT SHALL BE PLACED AT ONE-HALF 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 709-04, REINFORCED CONCRETE SLOPE PAVEMENT. ONE-HALF INCH PREMOLDED 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 CENTERLINE A 6' CENTERS. DEPTH OF GROOVE TO BE NOT LESS THAN 1". SEE STD DWG. RD-SA-1 FOR LIMITS OF SLOPE PROTECTION.
- ⑩ NOTE: THE COST OF REMOVING EXISTING ASPHALT OVERLAY SHALL BE PAID FOR IN ITEM 407-02.04, COLD PLANING OF BITUMINOUS PAVEMENT. CARE SHALL BE TAKEN BY CONTRACTOR WHEN REMOVING ASPHALT SO AS NOT TO DAMAGE EXISTING BEAMS TO REMAIN IN PLACE. TOP OF BEAMS SHALL BE SANDBLASTED CLEAN PRIOR TO PLACEMENT OF CONCRETE DECK SLAB. COST OF SANDBLASTING (1201 S.Y.) TO BE INCLUDED IN ITEM 407-02.04
- ⑪ NOTE: THE COST OF 4 BRIDGE PARAPET DRAINS TO BE INCLUDED IN ITEM 620-03.01.
- ⑫ NOTE: SEE DWGS M-248-106 AND M-248-123
- ⑬ NOTE: FOR JOINT DETAILS AND NOTES SEE DWG M-248-85A.
- ⑭ NOTE: REMOVAL OF CONCRETE CURBS AND CONCRETE BRIDGE RAILING: CONCRETE CURBS AND CONCRETE BRIDGE RAILING SHALL BE REMOVED BY USE OF JACK HAMMERS TO THE FULL SATISFACTION OF THE ENGINEER. RAM HOES AND HEAD ACHE BALLS WILL NOT BE ALLOWED. ALTERNATE METHODS MAY BE USED, SUBJECT TO APPROVAL BY THE ENGINEER.

SV=NOTES
 PRF=BR I IECC I
 DATE: 1-2-91
 OS24L50, 11 JBR I IECC I, DGN

DESIGNED BY	R. V. BENEDA	DATE	12-90
DRAWN BY	S. J. MATHEWS	DATE	12-90
SUPERVISED BY	S. L. POWELL	DATE	12-90
CHECKED BY	R. V. BENEDA	DATE	12-90

STATE OF TENNESSEE

DEPARTMENT OF TRANSPORTATION

BUREAU OF HIGHWAYS

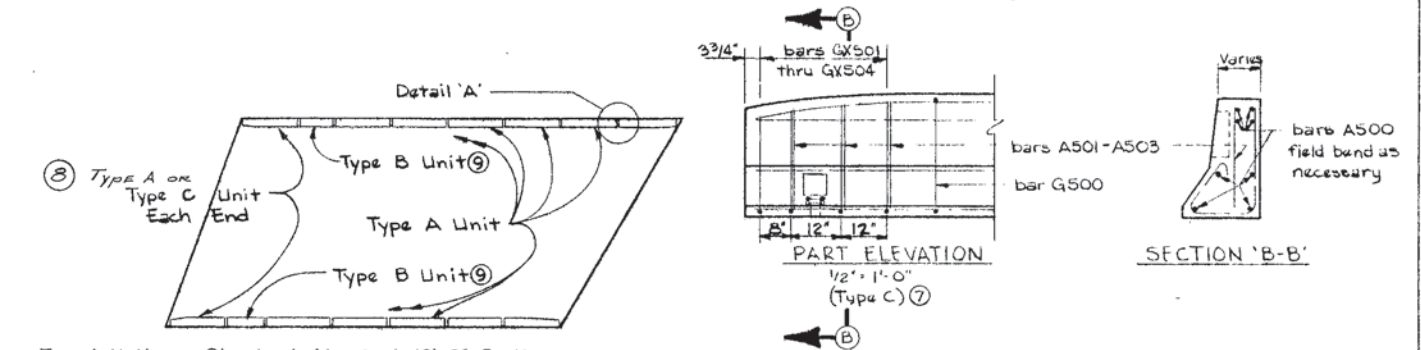
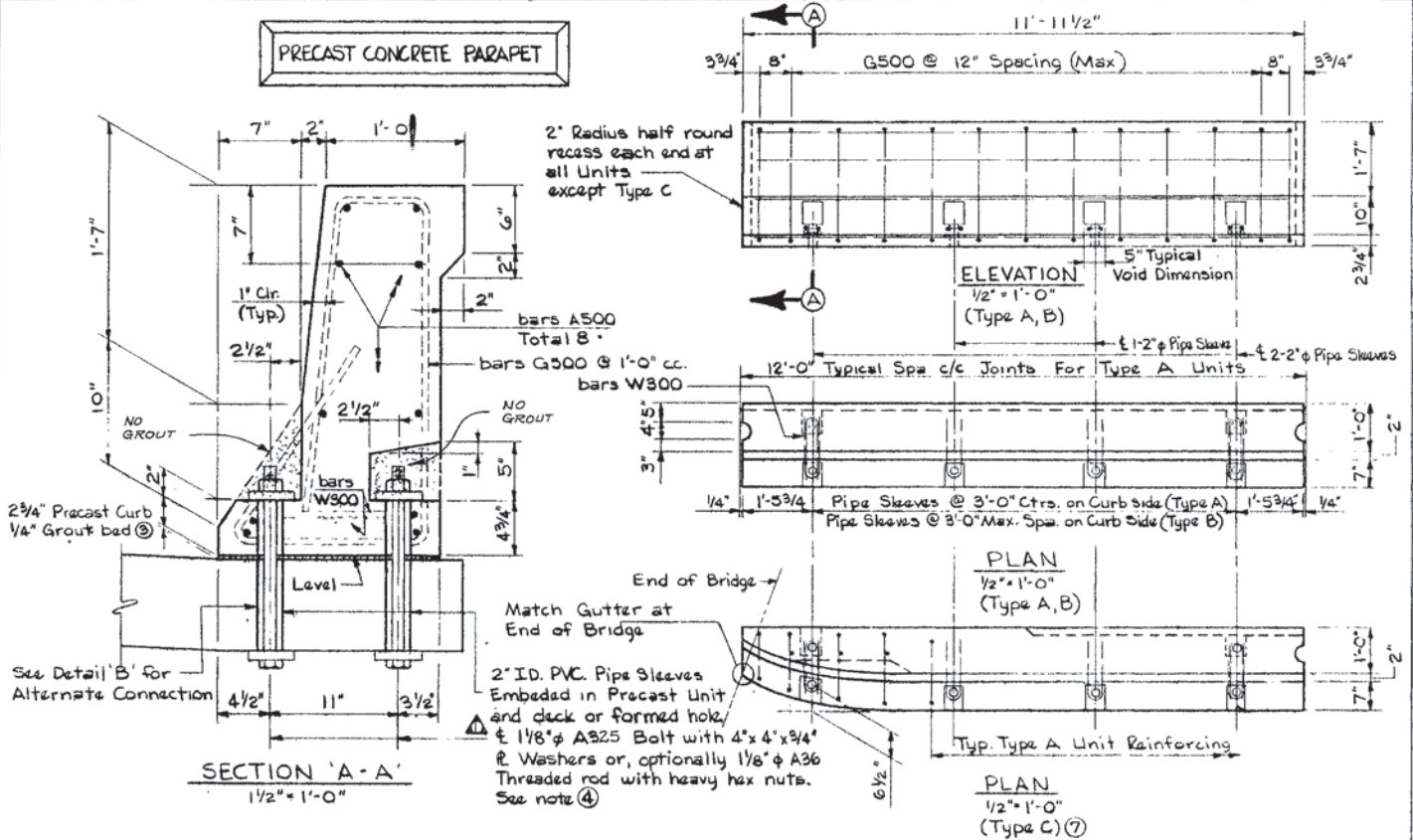
BRIDGE NO. 11 & 12

ESTIMATED QUANTITIES

I-75 WIDENING OVER
 CSX RAILROAD
 STATION 76+21.60
 HAMILTON COUNTY
 1991

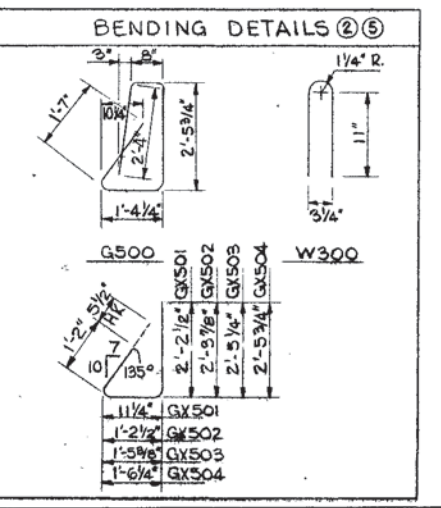
CONSTRUCTION NO.	PROJECT NO.	YEAR	SHEET NO.
33005-3148-44	IR-75-1(90)2	1991	

REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	11/26/91	JWP	Sendal



Type A Unit is a Standard Nominal 12'-0" Section
 Type B Unit is a Custom Unit, Length set as necessary for Overall Bridge Edge Length. A Type B Unit shall not be less than 6'-0" nor more than 12'-0". More than one Type B Unit may be required.
 Type C Unit is a Standard Nominal 12'-0" End Section. Geometry shall conform to that shown for Standard Bridge Railing Drawing M-28-1

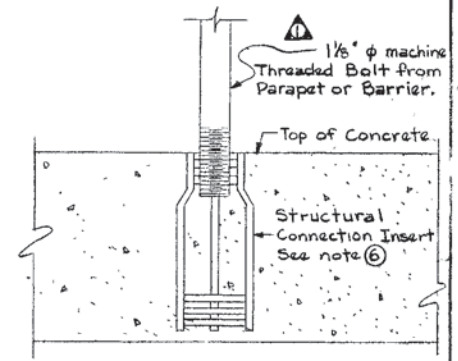
GENERAL LAYOUT OF PRECAST PARAPET UNITS



DESIGNED BY	S. L. POWELL	DATE	12-90
DRAWN BY	S. J. MATHEWS	DATE	12-90
SUPERVISED BY	R. V. BENEDA	DATE	12-90
CHECKED BY	R. V. BENEDA	DATE	12-90

GENERAL NOTES - Precast Parapet

- Concrete for all precast units to be Class 'A', f'c = 3000 psi.
- Reinforcing steel shall be ASTM A615 Grade 60. Standard CRSI bending details for stirrups and ties shall apply unless otherwise noted. Spacing dimensions shown are center to center.
- All grout shall be non-shrink and have a minimum final strength of 3000 psi.
- If threaded rod option is chosen, all visible bar extensions shall be 1/2 inch past nut. All parts of bolting assembly, including nuts & washers shall be galvanized after fabrication. Bolts shall be tightened to 100 ft.-lbs. torque.
- All reinforcing shall be epoxy coated.
- Structural connection inserts shall have a certified working load tension capacity of 16,000 lbs.. Inserts shall have a machine threaded ferrule properly sized to mate with the connecting galvanized bolt and shall be stainless steel.
- Concrete dimensions for Type C Standard Parapet End Section shall match dimensioning shown by Standard Drawing M-28-1, including blockout for rail attachment. Guardrail connection inserts shall be supplied.
- UTILIZE TYPE A FOR BRIDGES 7 & 8 AND TYPE C FOR BRIDGES 11 & 12.
- The Contractor shall coordinate location of pipe sleeves or deck inserts with the precast manufacturer for location and spacing of Type B Unit bolt pattern.
- The price bid per linear foot for Item 620-03.01 (Precast Concrete Parapet) shall include all items of materials, equipment and labor necessary for the fabrication and installation of the rail system complete, in-place and accepted.
- MR-7 & 8 WINGWALL PARAPET SHALL BE CAST-IN-PLACE WITH A WINGPOST AND GUARDRAIL ATTACHMENT INSERT AS SHOWN ON M-233-1. THE TYPE A AND B PRECAST PARAPET UNITS EXTEND TO THE END OF THE BRIDGE ONLY.
- MR-11 & 12 DOES NOT HAVE A NEW WINGWALL. THE TYPE C UNITS AT THE ENDS OF THE BRIDGE SHALL CONFORM TO STD M-28-1 AND INCLUDE THE GUARDRAIL ATTACHMENT INSERTS.



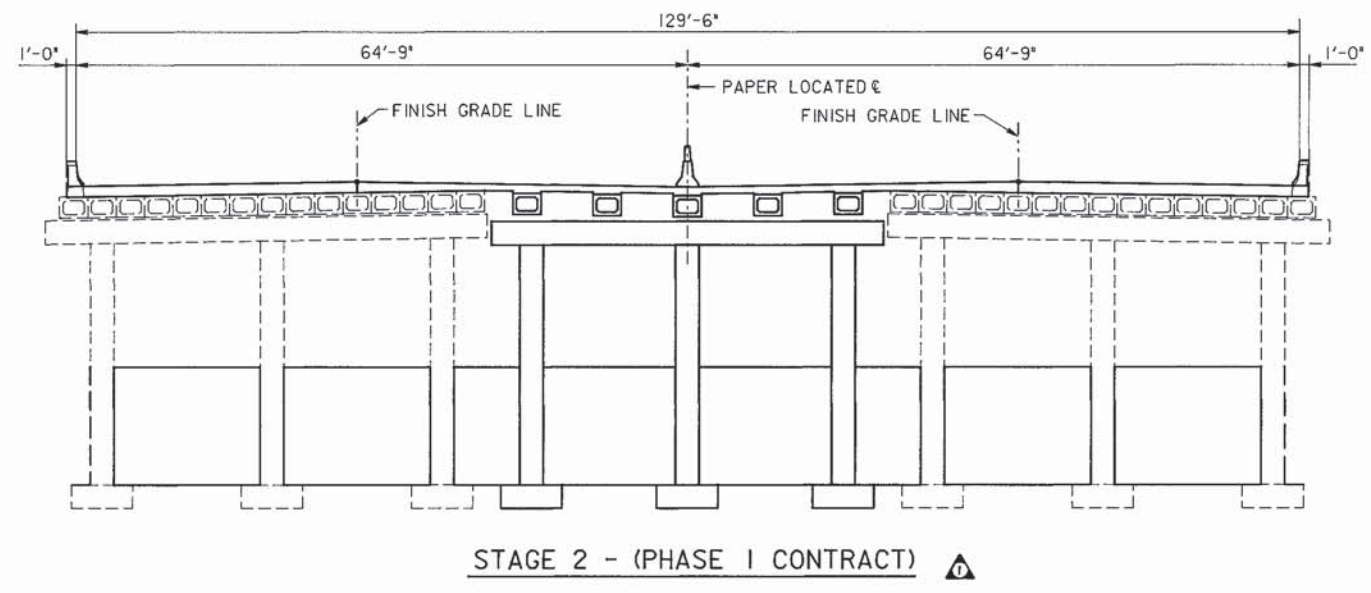
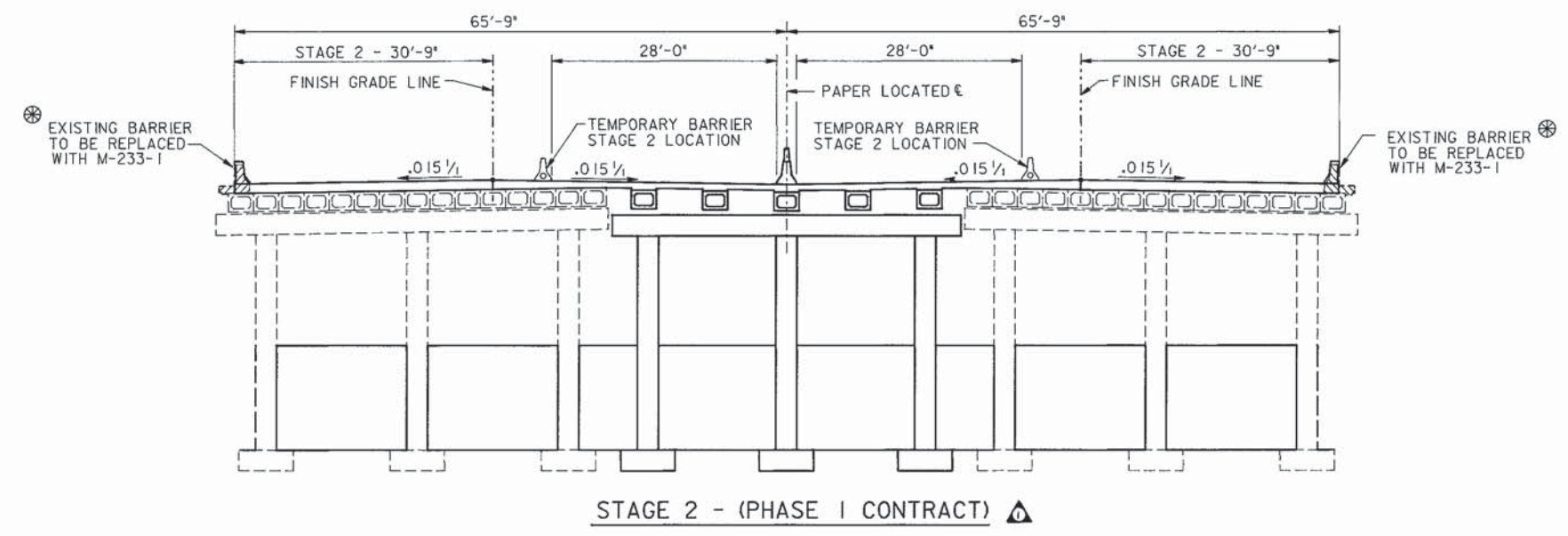
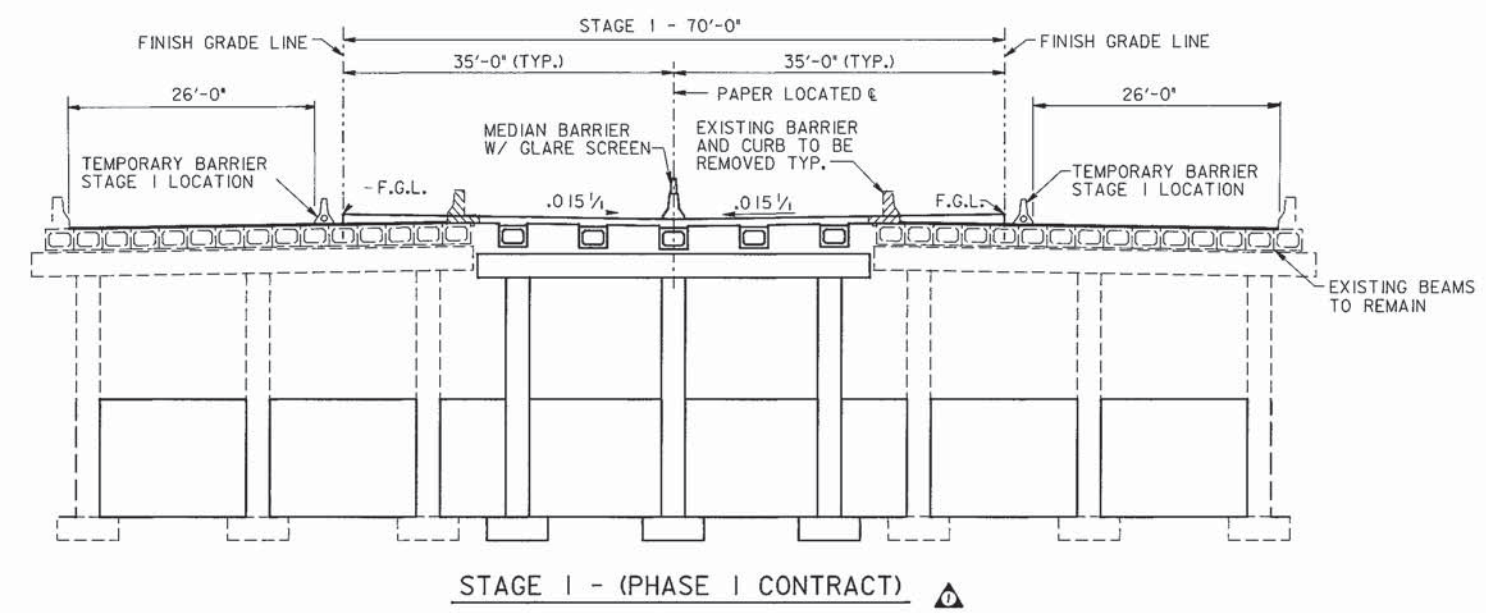
DETAIL 'B'
 (For Use Only Where Bolt-Thru Attachment Cannot be Achieved)

STATE OF TENNESSEE
 DEPARTMENT OF TRANSPORTATION
 BUREAU OF HIGHWAYS

BRIDGE No. 11 AND 12

PRECAST PARAPET DETAILS
 I-75 WIDENING OVER CSX R/R
 STATION 76 + 21.6
 HAMILTON COUNTY
 1991

REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	15 JUNE 91	JHP	2" G" PROJ. OF CRASHWALL OUT



⊗ NEW M-233-1 BARRIER TO BE BOLTED TEMPORARILY TO DECK AND REUSED AS PERMANENT BARRIER DURING ULTIMATE PHASE NOT SHOWN HERE.

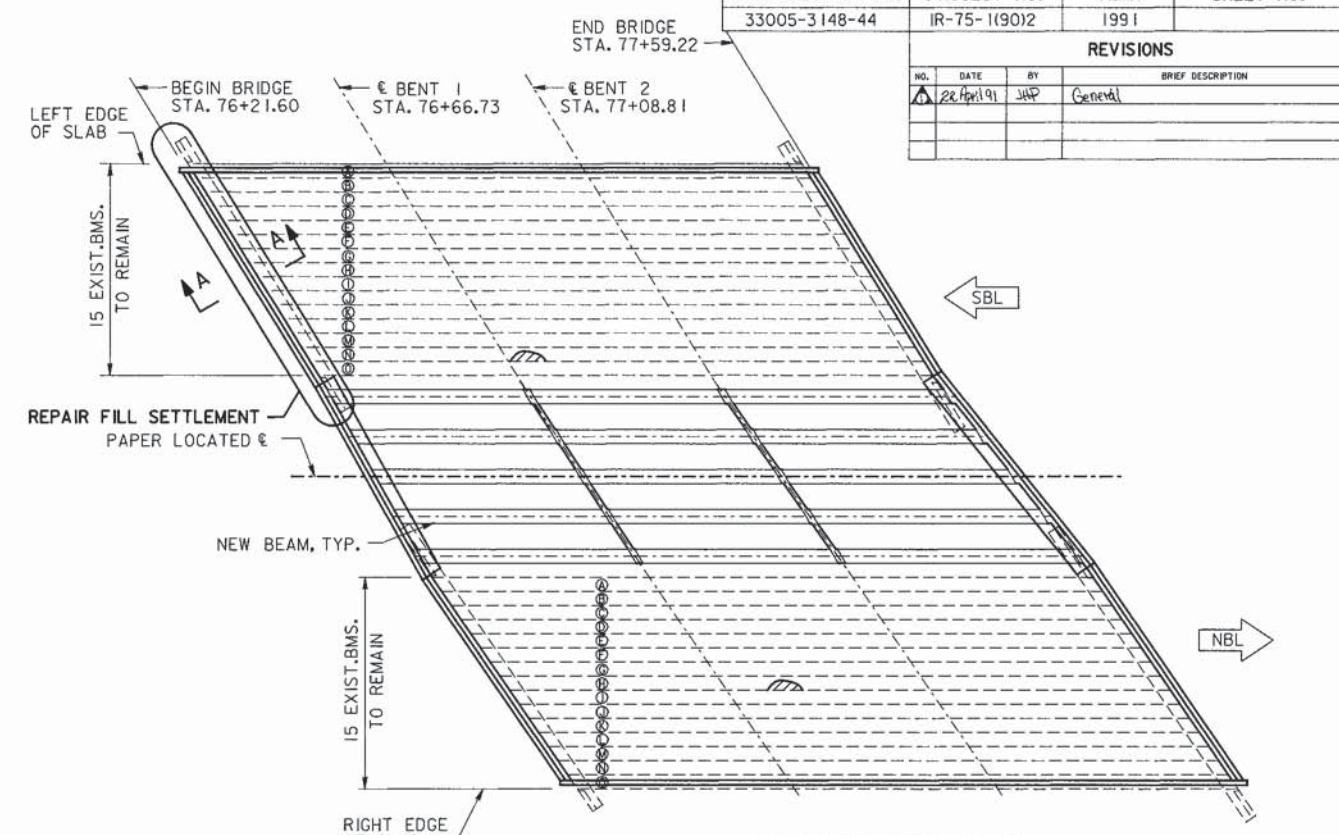
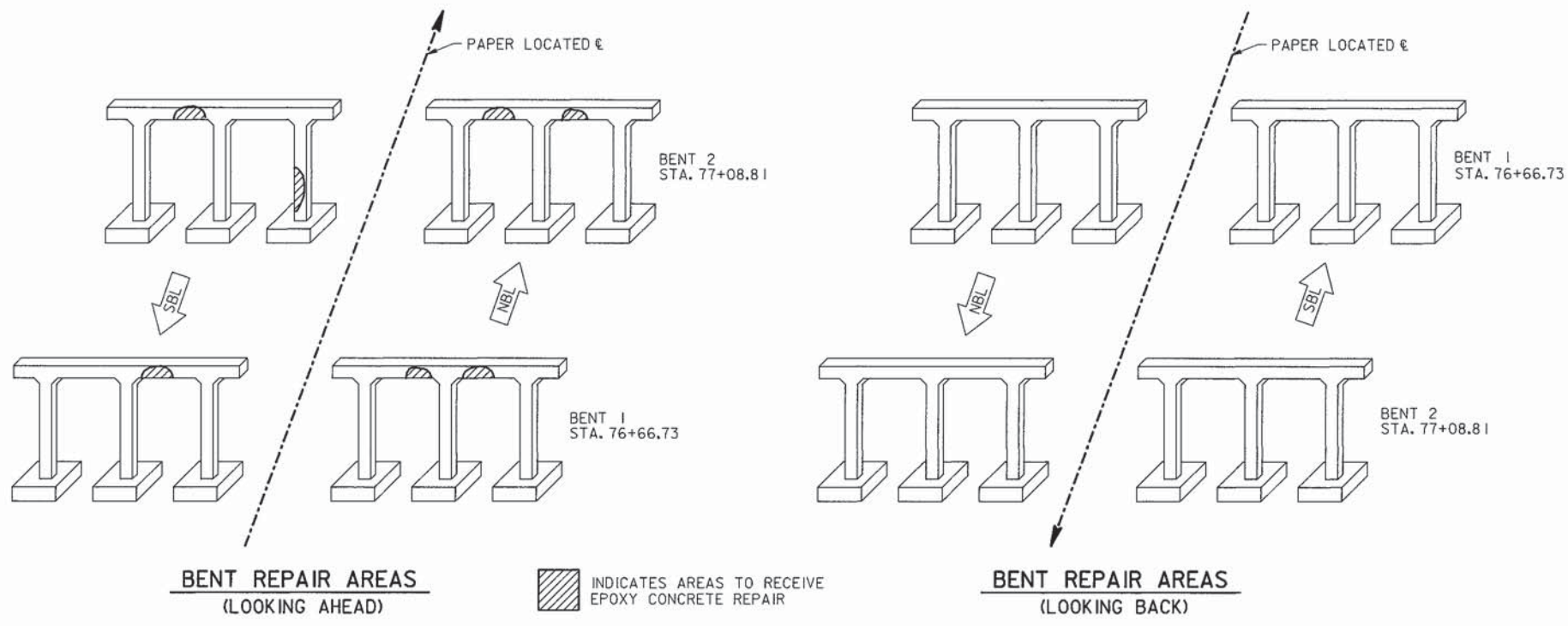
STATE OF TENNESSEE
 DEPARTMENT OF TRANSPORTATION
 BUREAU OF HIGHWAYS
 BRIDGE NO. 11 & 12

STAGING PLAN

I-75 WIDENING OVER
 CSX RAILROAD
 STATION 76+21.60
 HAMILTON COUNTY
 1991

DESIGNED BY	S. L. POWELL	DATE	12-90
DRAWN BY	S. J. MATHEWS	DATE	12-90
SUPERVISED BY	R. V. BENEDA	DATE	12-90
CHECKED BY	R. V. BENEDA	DATE	12-90

OS2450, I11BR11STGC1.DGN DATE: 12-27-90 SV=STAGE PRF=BR11STGC1 DATE: 12-27-90

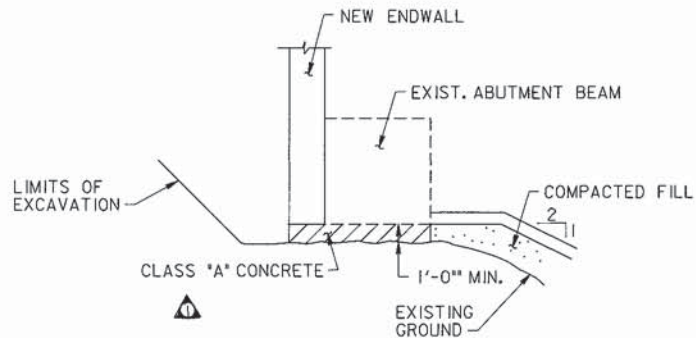


NOTES FOR PLACING NEW EPOXY CONCRETE

1. SURFACE AREAS WHICH ARE SPALLED, DELAMINATED OR CRACKED (PARTICULARLY WHERE CORROSION STAINING IS EVIDENT) SHALL HAVE UNSOUND CONCRETE REMOVED TO EXPOSE THE STRAND OR REINFORCEMENT AND SHALL BE REPAIRED TO THE ORIGINAL SURFACE FINISH LINES USING NEW EPOXY CONCRETE. SHADED AREAS ON BEAM LAYOUT AND BENT REPAIR SKETCH GIVE APPROXIMATE LOCATIONS AND EXTENT OF AREAS TO BE REPAIRED.
2. FOR BEAMS, CAUTION SHALL BE USED TO INSURE ONLY MINIMAL CONCRETE REMOVAL SUFFICIENT TO EXPOSE STRAND OR REBAR AND PERMIT BLAST CLEANING AND PLACEMENT OF CONCRETE PATCH MATERIAL. CONSTRUCTION OR TRAFFIC LOADS SHALL NOT ACT ON THE BEAM DURING THE PATCHING OPERATION. SEE EXISTING PLANS FOR BEAM DETAILS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE STRUCTURE AND THE INTEGRITY OF THE BEAMS DURING THE PATCHING OPERATIONS.
3. FOR BENTS, AREAS TO BE REPAIRED SHALL BE SUFFICIENTLY LARGER THAN THE SPALLED OR CRACKED AREAS SO THAT THE NEW CONCRETE PATCH EXTENDS INTO SOUND CONCRETE ON ALL EDGES. WHERE CRACKING WITH CORROSION STAINING EXISTS, CONCRETE SHALL BE REMOVED TO A DISTANCE OF 3/4" BENEATH THE CORRODED REINFORCING AND THE REINFORCING SHALL BE BLAST CLEANED BEFORE PLACING EPOXY CONCRETE. CRACKS SHALL BE "TRACED" TO THEIR END BY CHIPPING AND EXPOSURE UNTIL SOUND, UNRUSTED REINFORCING IS FOUND. SMALL OR HAIRLINE CRACKING, WHERE STAINING IS NOT PRESENT, NEED NOT BE REPAIRED AT THE DISCRETION OF THE ENGINEER. CONSTRUCTION AND TRAFFIC LOADS SHALL NOT ACT ON ANY SUBSTRUCTURE UNIT WHILE IT IS UNDER REPAIR. ONLY ONE FACE, EITHER FORWARD FACE OR BACK FACE OR BOTTOM OF CAP BEAM SHALL BE REPAIRED IN ITS ENTIRETY AT ONE TIME, UNLESS THE CONTRACTOR TAKES NECESSARY MEASURES TO PROVIDE SUPPORT OR SHORING FOR THE BENT STRUCTURE. ONE ADJACENT COLUMN FACE MAY ALSO BE REPAIRED DURING THE PROCEDURE, SO THAT NEVER MORE THAN TWO ADJACENT FACES HAVE EXPOSED REINFORCING DURING UNSHORED RECONSTRUCTION.
4. THE CONTRACTOR IS ADVISED THAT REMOVAL OF CONCRETE BELOW EXISTING REINFORCING WILL REDUCE THE CAPACITY OF THE BEAM OR BENT BEING REPAIRED. NECESSARY SHORING WILL BE AT THE EXPENSE OF THE CONTRACTOR, AND THE SAFETY OF THE STRUCTURE WILL BE THE RESPONSIBILITY OF THE CONTRACTOR DURING THE REPAIR OPERATIONS.
5. THE COST OF SAW CUTTING AND REMOVING UNSOUND CONCRETE, CLEANING REBAR AND STRAND, PLACING EPOXY CONCRETE, INSTALLING AND REMOVING SHORING, AND ALL LABOR AND MATERIALS NECESSARY FOR COMPLETING THE WORK SHALL BE PAID FOR UNDER ITEM NO. 604-10.54, CONCRETE REPAIRS, SQ. FT.
6. THE CONTRACTOR MAY OBTAIN A LIST OF ACCEPTABLE BRANDS OF EPOXY CONCRETE FROM THE TENNESSEE DEPARTMENT OF TRANSPORTATION, DIVISION OF MATERIALS AND TESTS.
7. SEE DWG NO. M-248-123 FOR ADDITIONAL DETAILS.

REPAIR LIST

- EXISTING BEAM REPAIRS PATCH REBAR POP-OUTS ON THE FOLLOWING BEAMS:
 BEAM H SPAN 2 NBL
 BEAM N SPAN 2 SBL
- EXISTING BENT REPAIRS PATCH REBAR POP-OUTS ON THE FOLLOWING BENTS:
 BENT 1 & 2 NBL
 BENT 1 & 2 SBL



REPAIR OF SETTLEMENT AT SBL ABUTMENT 1

THE FILL UNDER SBL ABUTMENT 1 THAT HAS SETTLED AND EXPOSED THE ABUTMENT PILING SHALL BE REPAIRED BY PLACING CLASS 'A' CONCRETE (F'C = 3000 PSI) IN THE VOID BENEATH THE ABUTMENT BEAM. PRIOR TO PLACING CONCRETE THE VOID SHALL BE CLEARED OF ALL DELETERIOUS MATERIAL AND THE GROUNDLINE DRESSED AND SMOOTHED TO PROVIDE A MINIMUM OF 1'-0" OF CONCRETE IN THE AREA TO BE REPAIRED. THE CONTRACTOR'S PROPOSED METHOD FOR PLACING THE CONCRETE SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. SLOPE PAVEMENT SHALL EXTEND TO THE ORIGINAL ABUTMENT LINE AS IF NO SETTLEMENT HAD OCCURED. FINAL FINISH LINES SHALL BE NEAT AND TO THE SATISFACTION OF THE ENGINEER. ALL MATERIALS AND LABOR REQUIRED TO PERFORM THE OPERATION SHALL BE INCLUDED IN ITEM NUMBER 604-10.55, CONCRETE (FOUNDATION REPAIRS) C. Y.

STATE OF TENNESSEE
 DEPARTMENT OF TRANSPORTATION
 BUREAU OF HIGHWAYS

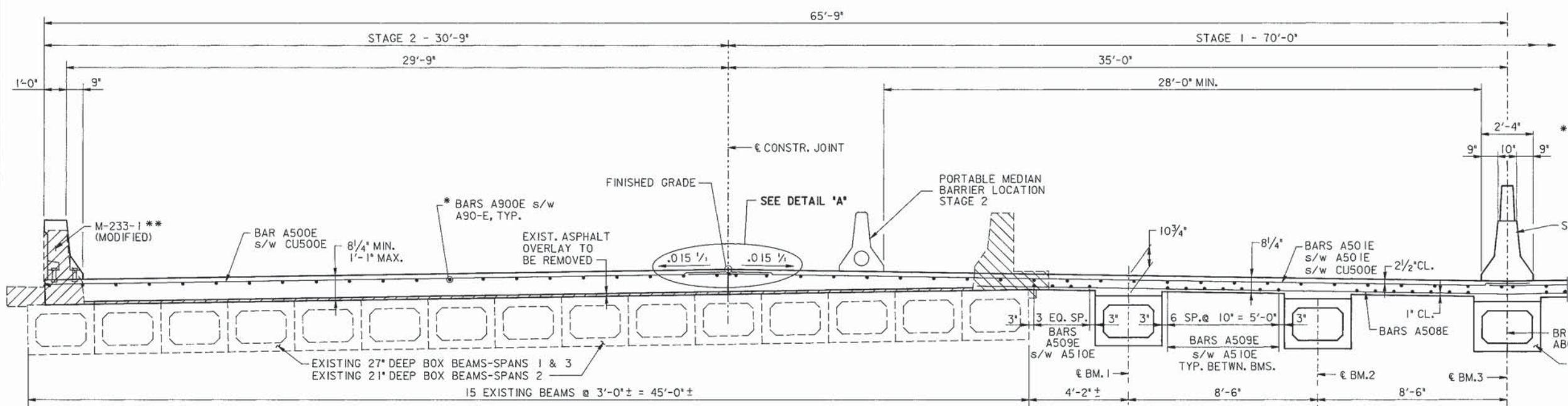
BRIDGE NO. 11 & 12

REPAIR DETAILS

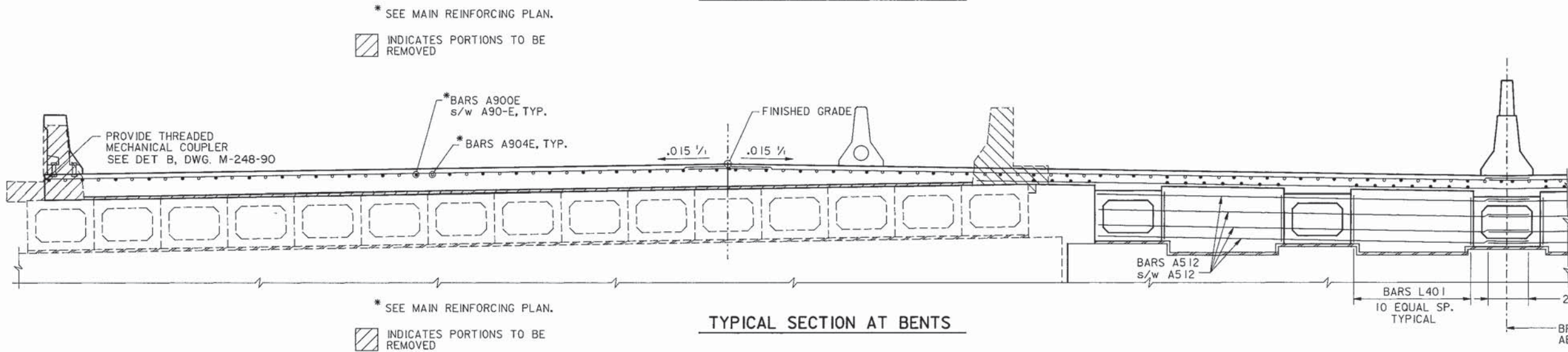
I-75 WIDENING OVER
 CSX RAILROAD
 STATION 76+21.60
 HAMILTON COUNTY
 1991

DESIGNED BY R. V. BENEDA DATE 12-90
 DRAWN BY S. J. MATHEWS DATE 12-90
 SUPERVISED BY R. V. BENEDA DATE 12-90
 CHECKED BY S. L. POWELL DATE 12-90

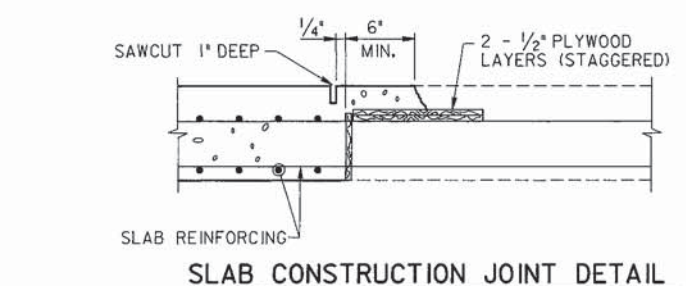
CONSTRUCTION NO. 33005-3148-44	PROJECT NO. IR-75-1(90)2	YEAR 1991	SHEET NO.
REVISIONS			
NO.	DATE	BY	DESCRIPTION
1	4 Feb 1991	JWP	Quantities



TYPICAL SECTION AT MIDSPAN



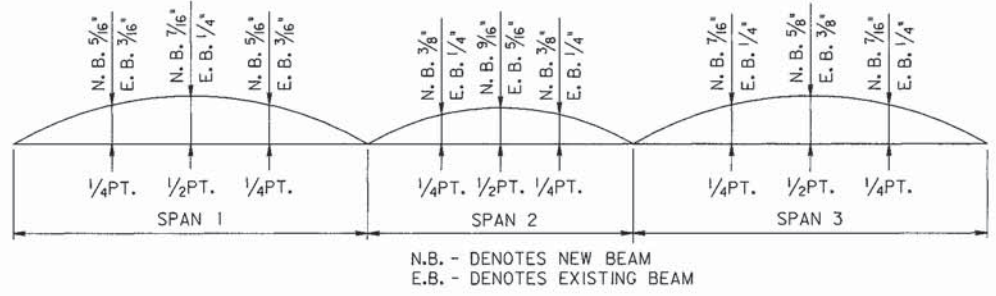
TYPICAL SECTION AT BENTS



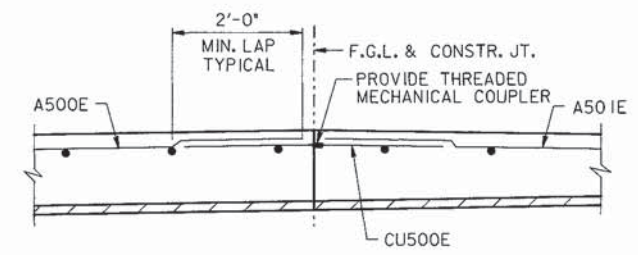
SLAB CONSTRUCTION JOINT DETAIL

NOTE:
SLAB CONSTRUCTION JOINTS MAY BE LOCATED AT THE CONTRACTOR'S OPTION EXCEPT NO JOINT MAY BE LOCATED CLOSER THAN 1/5 SPAN LENGTH FROM AN INTERIOR SUPPORT. THE CONTRACTOR SHALL MAKE ADEQUATE PROVISIONS DURING PLACEMENT OF SLAB TO PREVENT THE EXTERIOR BEAM FROM TWISTING. NO EQUIPMENT SHALL BE PERMITTED ON THE BRIDGE UNTIL ALL POURS ARE MADE AND THE CONCRETE IS PROPERLY CURED. ALL SLAB CONSTRUCTION JOINTS SHALL BE IN ACCORDANCE WITH THE DETAIL SHOWN ABOVE.

NOTES:
THIS CURVE IS FOR DEAD LOAD SLAB AND ALL DEAD LOADS THAT ARE APPLIED AFTER SLAB IS IN PLACE AND SHOULD BE CORRECTED TO COMPENSATE FOR THE EFFECTS OF VERTICAL CURVE.
THIS CURVE INCLUDES DEFLECTION OF EXISTING BRIDGE UNDER LOADS OF NEW DECK OVERLAY AND RAILS. CONTRACTOR SHALL USE THIS INFORMATION TO MAKE THE NECESSARY SCREED ADJUSTMENT.



DEAD LOAD CORRECTION CURVE
NEW BEAMS OR EXISTING BEAMS



DETAIL 'A'

NOTE:
BARS CU500E TO BE DAYTON SUPERIOR, RICHMOND SCREW ANCHOR, OR APPROVED EQUAL. EPOXY-COATED DOWEL BAR SPLICER AND DOWEL IN DEFORMED GRADE 60 TO BE USED. THE EXPOSED THREADS, AFTER SPLICING, TO BE REPAIRED ACCORDING TO SPECIAL PROVISION 907A. THE SPLICING BAR AND THE ROOT DIMENSION AT THE THREAD SHALL BE NO LESS THAN NOMINAL DIAMETER OF A NO. 5 BAR.
COST OF FURNISHING THE EPOXY-COATED BAR SPLICES AND DOWELS, INCLUDING ALL LABOR AND MATERIALS NECESSARY FOR COMPLETE INSTALLATION SHALL BE INCLUDED IN THE PRICE BID PER POUND ITEM NO. 604-02.03.

** DELINEATORS WITH YELLOW REFLECTORS AS DETAILED ON STD. S-MB-1 SHALL BE PLACED ON THE MEDIAN BARRIER AT 40'-0" MAXIMUM SPACING. DELINEATORS WITH WHITE REFLECTORS AS DETAILED ON STD. S-MB-1 SHALL BE PLACED ON PARAPET AT 12'-6" MAXIMUM SPACING. COST OF MATERIALS AND INSTALLATION SHALL BE INCLUDED IN THE UNIT PRICE BIDS FOR MEDIAN BARRIER AND PARAPET.

BRIDGE SYMMETRICAL ABOUT PAPER LOCATED €
NEW 27" DEEP BOX BEAMS-SPANS 1 & 3
NEW 21" DEEP BOX BEAMS-SPANS 2

NOTES

- 1) WHEN POURING SLAB, PROVISIONS SHALL BE MADE FOR SETTING REINFORCING STEEL FOR PARAPET AND MEDIAN BARRIER RAIL. THE PARAPET AND MEDIAN BARRIER RAIL SHALL NOT BE PLACED UNTIL THE ENTIRE DECK SLAB IS POURED AND CURED. SEE ALSO STANDARD DRAWINGS M-233-1 AND M-28-1A.
- 2) ENDWALLS AND SUPPORT DIAPHRAGMS SHALL BE POURED CONCURRENTLY WITH THE DECK SLAB AND INCLUDED IN THE QUANTITY FOR ITEM 604-01.12.
- 3) SEE REPAIR DETAILS FOR LIST AND LOCATION OF EXISTING BEAMS TO BE REPAIRED.

ESTIMATED QUANTITIES Δ

CLASS 'A' CONCRETE (BRIDGE DECK) C.Y.	EPOXY-COATED REINFORCING STEEL LB.	CLASS 'A' CONCRETE (BRIDGES) C.Y.	STEEL BAR REINFORCEMENT LB.
697	111,941	0	5,699

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

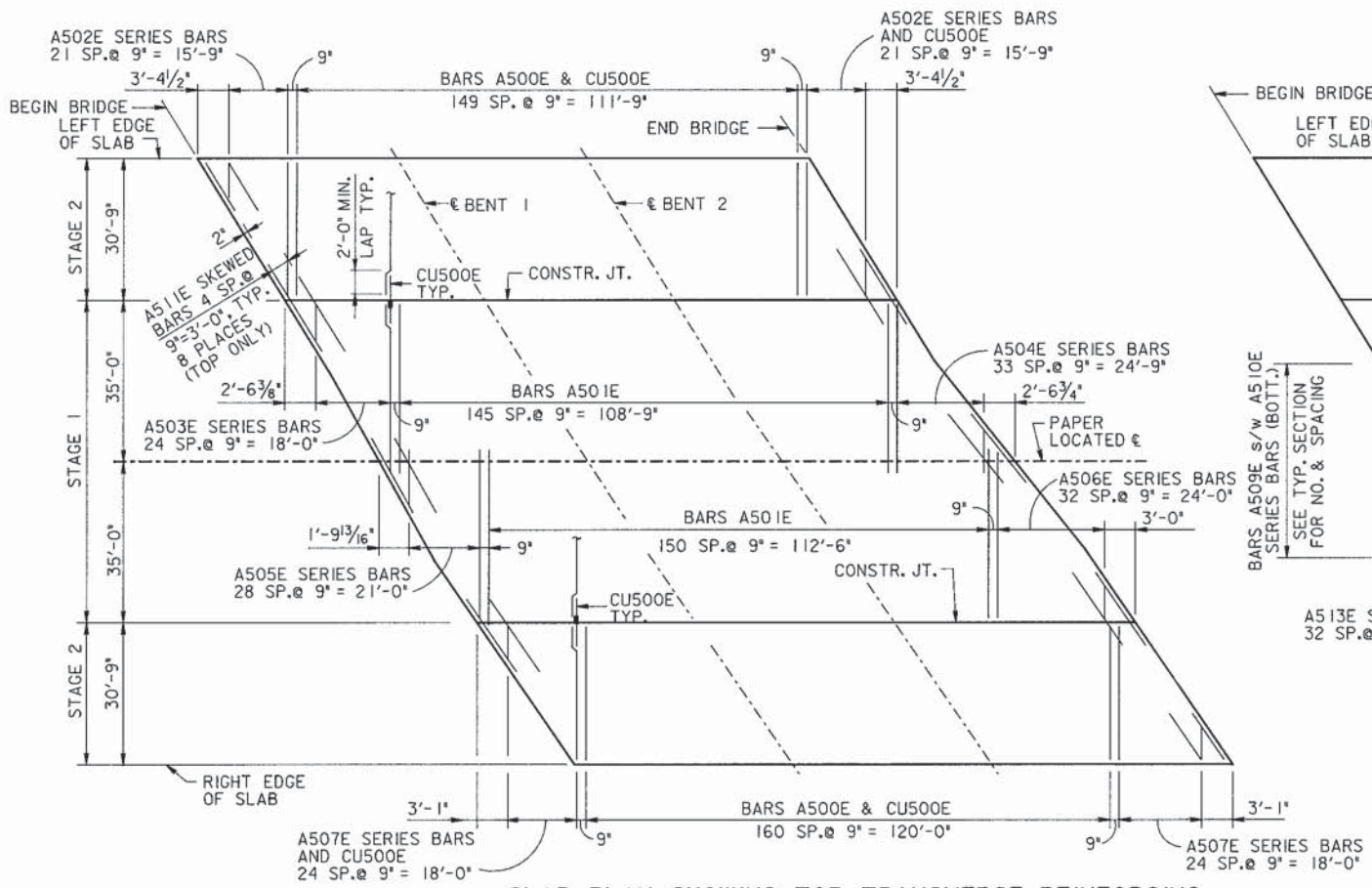
BRIDGE NO. 11 & 12

SUPERSTRUCTURE

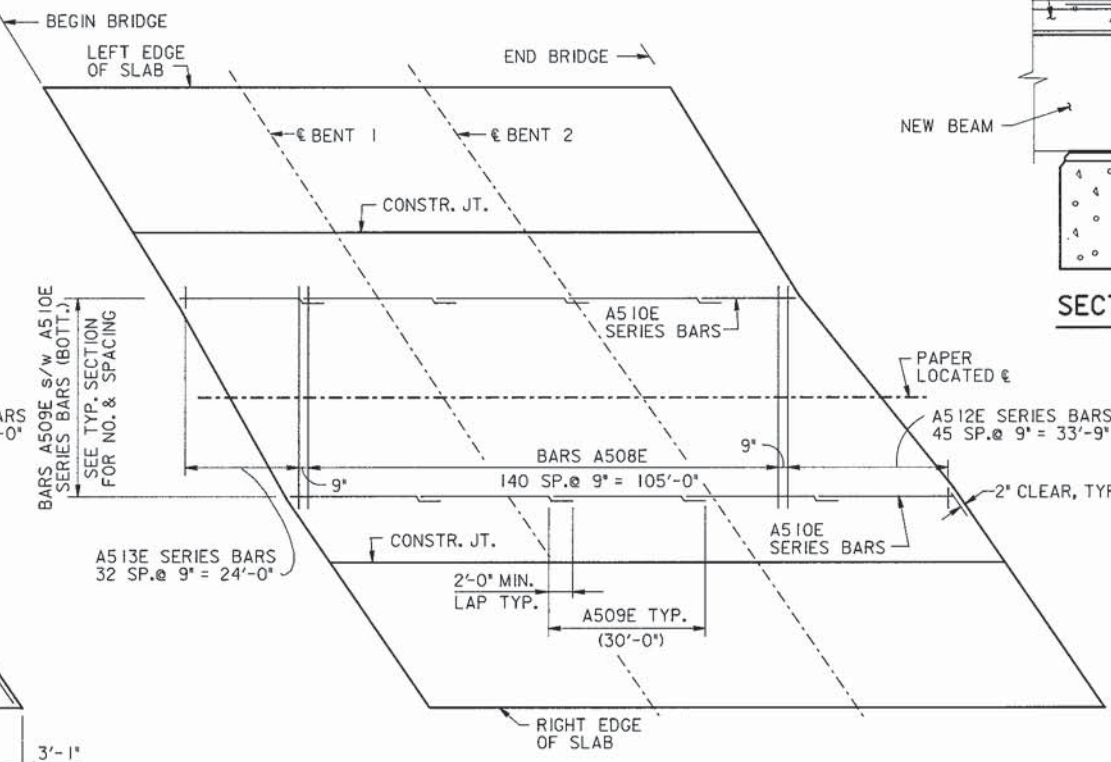
I-75 WIDENING OVER
CSX RAILROAD
STATION 76+21.60
HAMILTON COUNTY
1991

DESIGNED BY S. L. POWELL	DATE 12-90
DRAWN BY S. J. MATHEWS	DATE 12-90
SUPERVISED BY R. V. BENEDA	DATE 12-90
CHECKED BY R. V. BENEDA	DATE 12-90

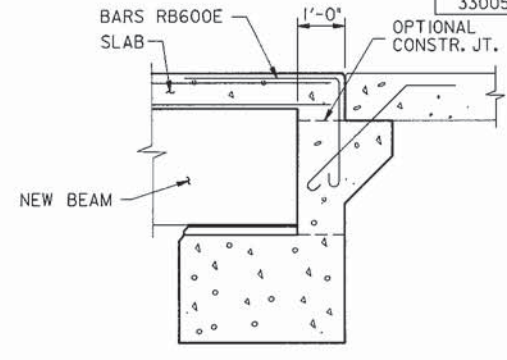
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION



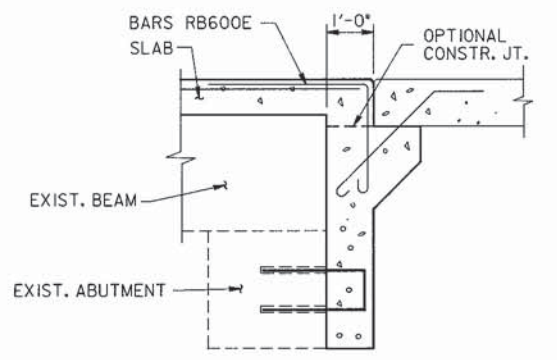
SLAB PLAN SHOWING TOP TRANSVERSE REINFORCING



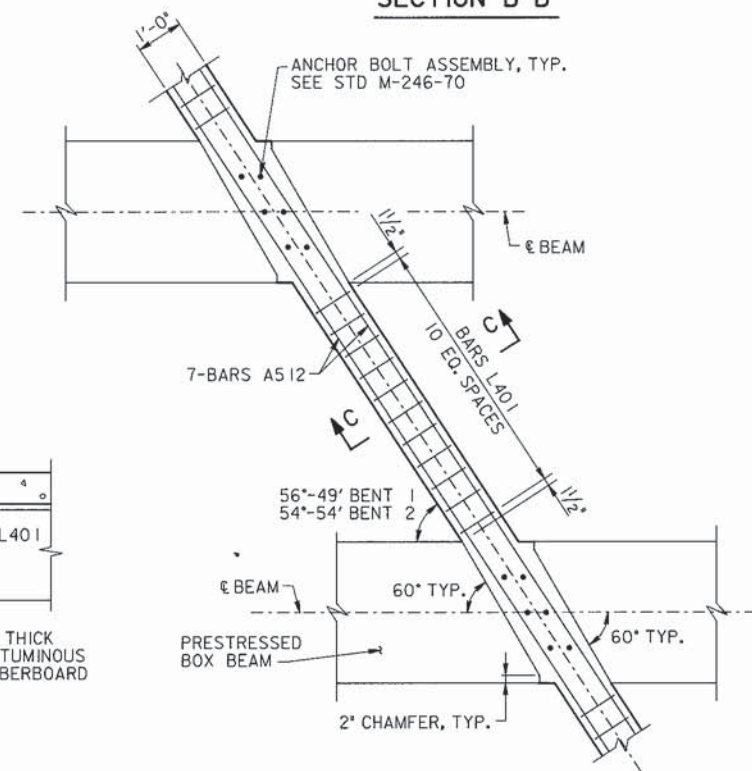
SLAB PLAN SHOWING BOTTOM REINFORCING



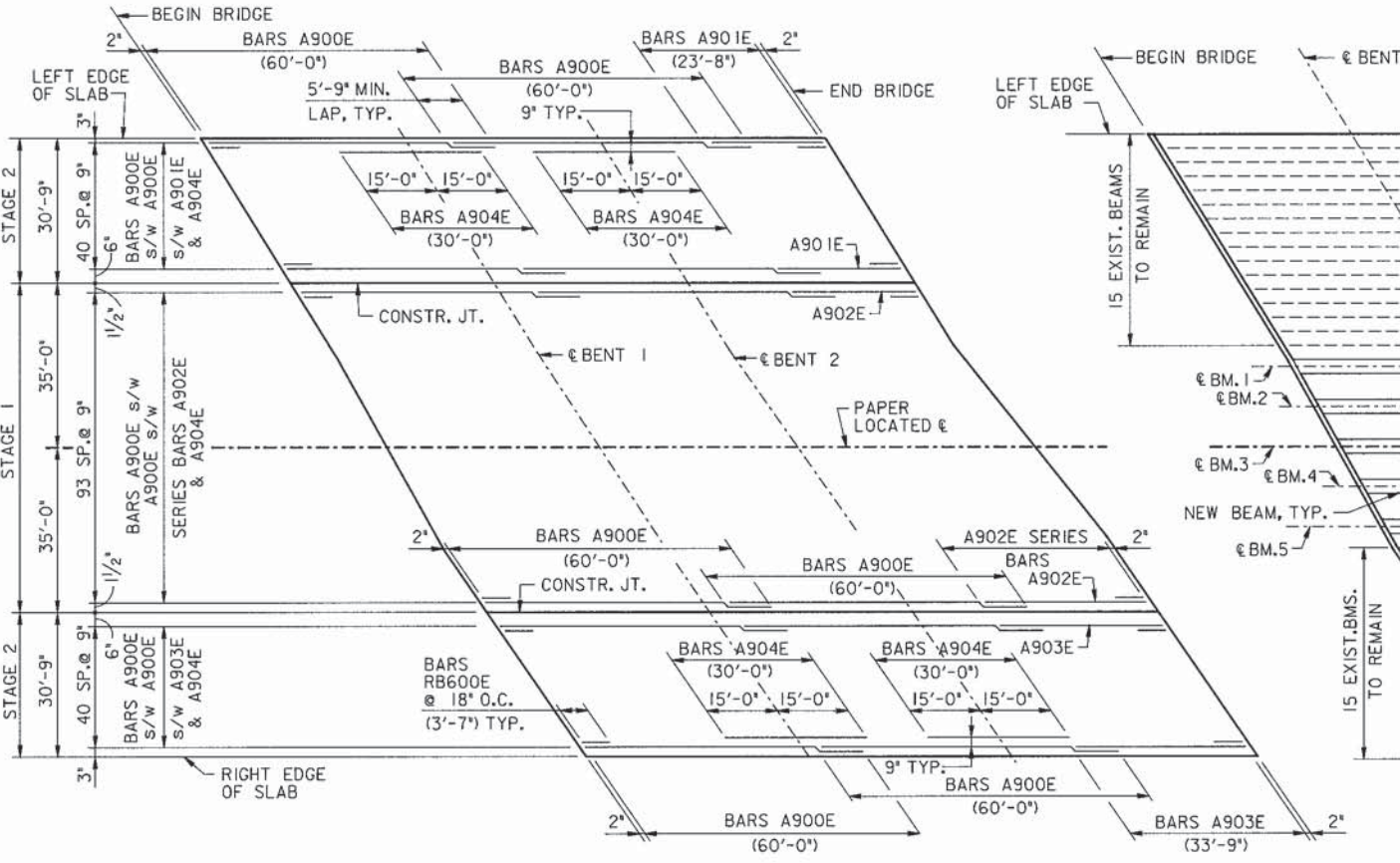
SECTION A-A



SECTION B-B

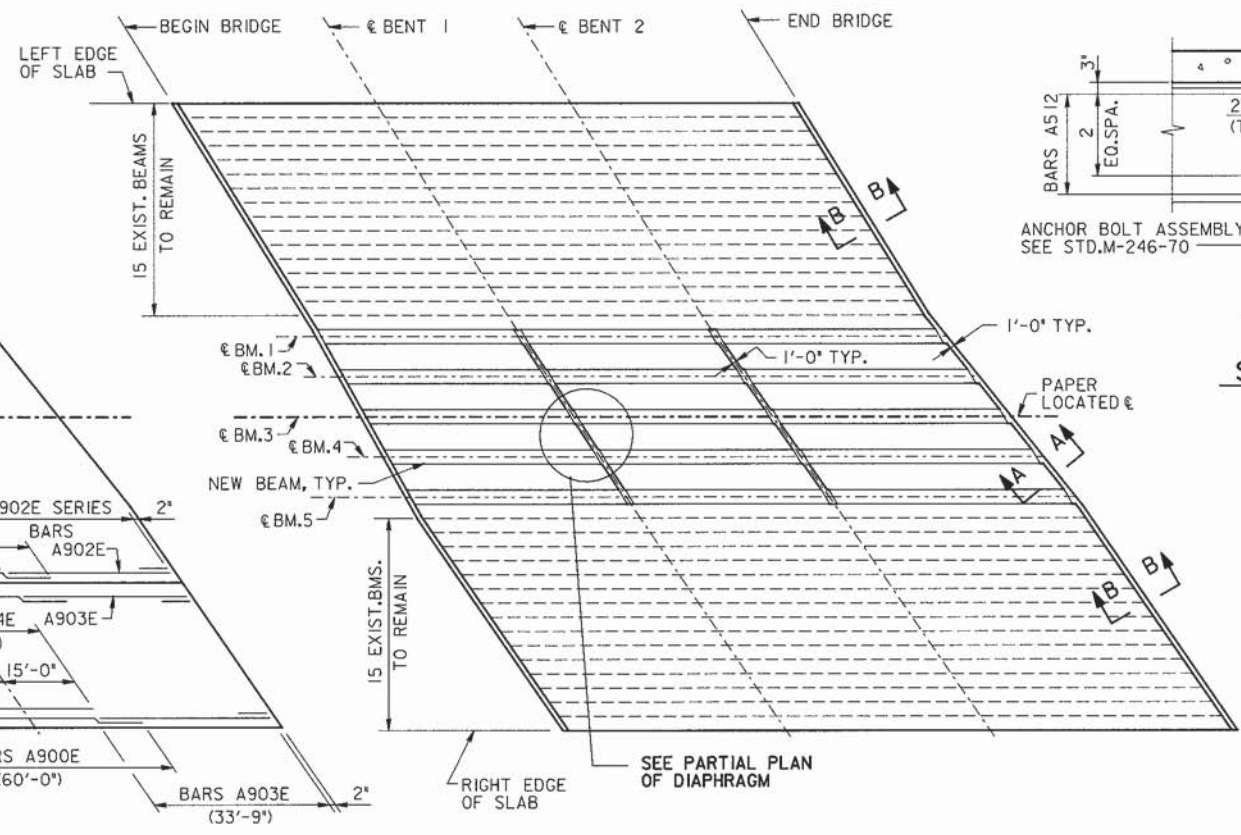


PARTIAL PLAN OF DIAPHRAGM

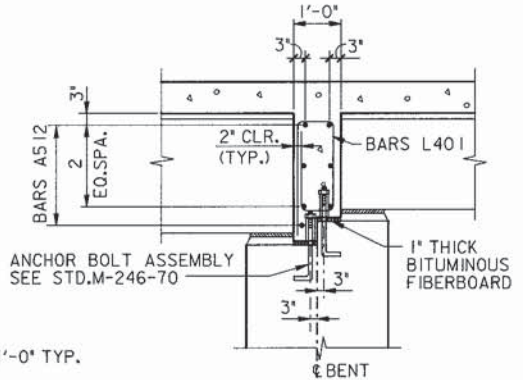


MAIN REINFORCING PLAN

NOTE: ALL REINFORCING SHOWN IN TOP OF SLAB



BEAM AND DIAPHRAGM LAYOUT



SECTION C-C

DESIGNED BY	R. V. BENEDA	DATE	12-90
DRAWN BY	S. J. MATHEWS	DATE	12-90
SUPERVISED BY	R. V. BENEDA	DATE	12-90
CHECKED BY	S. L. POWELL	DATE	12-90

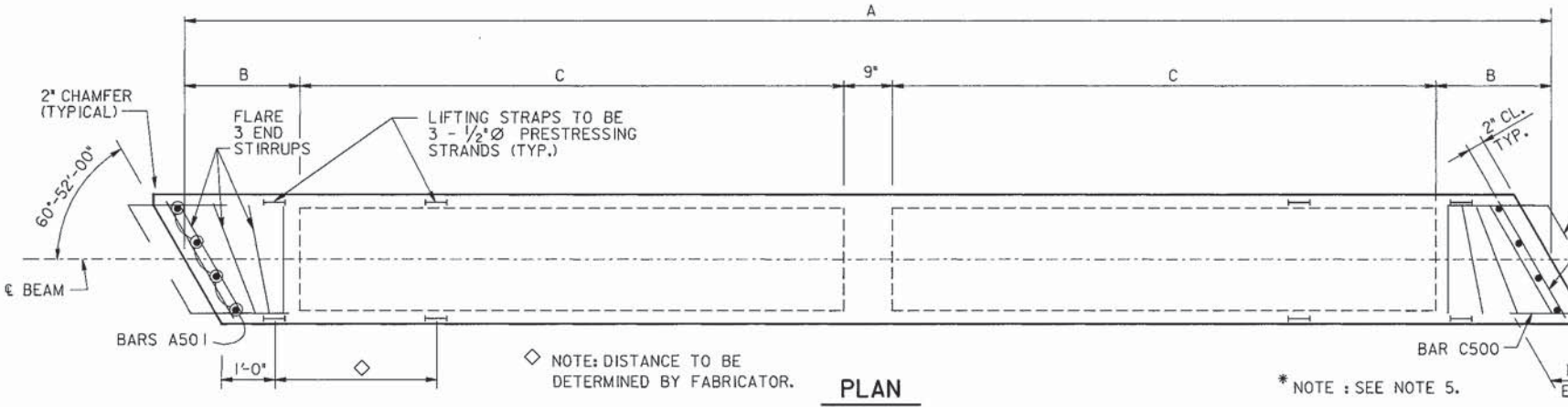
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

BRIDGE NO. 11 & 12

SUPERSTRUCTURE DETAILS

I-75 WIDENING OVER
CSX RAILROAD
STATION 76+21.60
HAMILTON COUNTY
1991

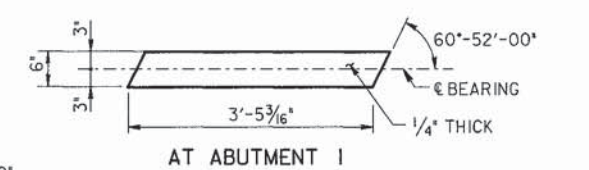
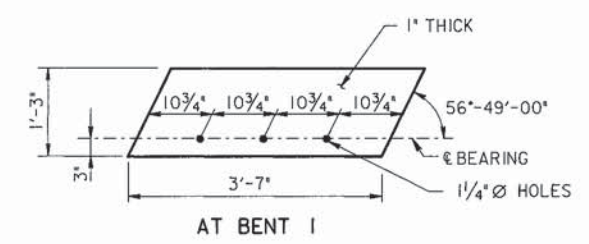
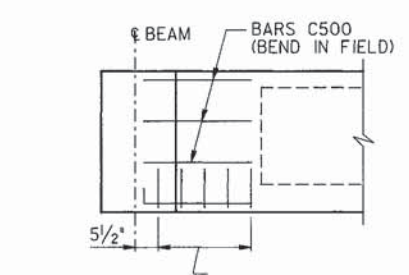
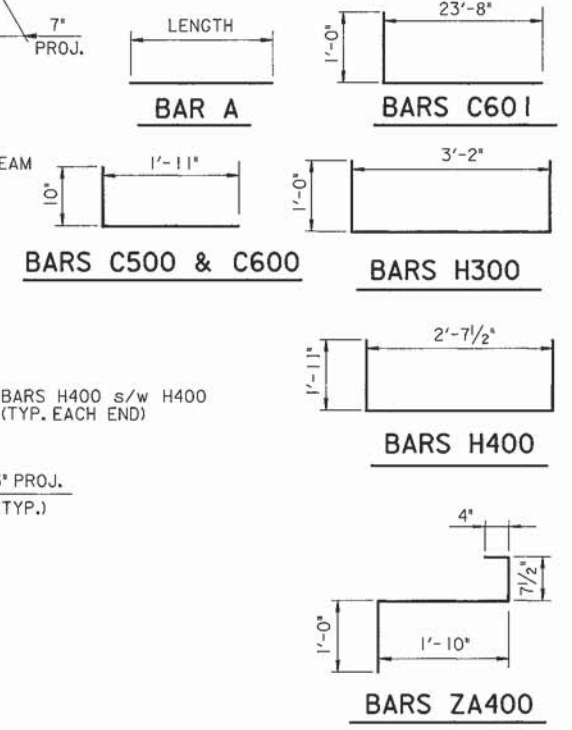
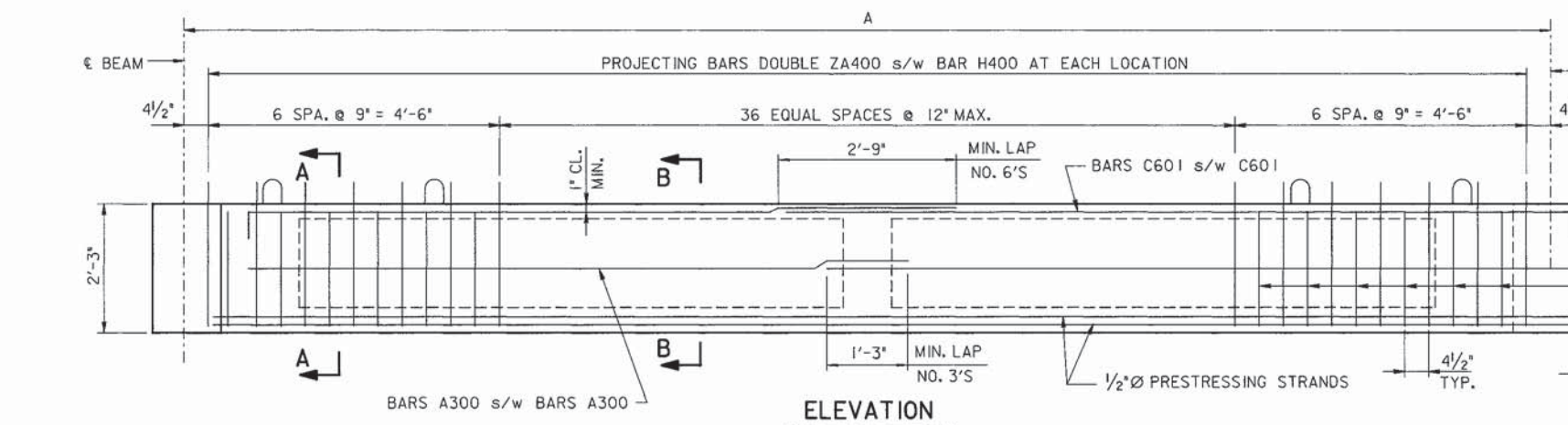
CONSTRUCTION NO.	PROJECT NO.	YEAR	SHEET NO.
33005-3148-44	IR-75-1(90)2	1991	
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION



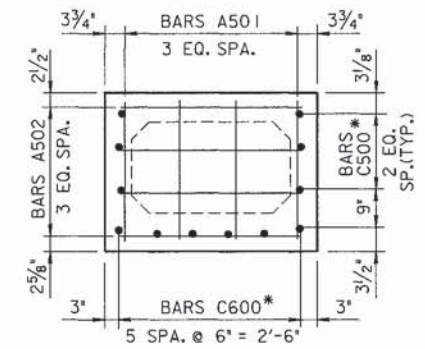
BAR	SIZE	NO. REQ'D	LENGTH
A300	3	4	22'-11"
A501	5	8	1'-11"
A502	5	8	3'-2"
C500	5	12	2'-9"
C600	6	12	2'-9"
C601	6	8	24'-8"
H300	3	10	5'-2"
H400	4	73	6'-6"
ZA400	4	98	3'-10"

NOTES

1. THE TOP OF ALL BEAMS ARE TO BE ROUGH FLOATED. AT APPROXIMATELY THE TIME OF INITIAL SET THE TOP OF THE BEAMS SHALL ALSO BE SCRUBBED TRANSVERSELY WITH A COARSE WIRE BRUSH TO REMOVE ALL LAITANCE AND PRODUCE A ROUGH SURFACE. WHERE PRECAST SLAB PANELS ARE TO BE USED AND SET ON BITUMINOUS FIBERBOARD, THE OUTER TWO INCHES OF THE TOP FLANGE MAY BE TROWELED.
2. ALL PRESTRESSING STRANDS TO BE 1/2" DIA. ASTM A416-86 GRADE 270K, 7 WIRE UNCOATED LOW RELAXATION PRESTRESSING STRANDS. PRESTRESSING STRANDS SHALL NOT BE GREATER THAN NOMINAL 1/2" DIAMETER.
3. MILD STEEL REINFORCING SHALL BE ASTM A615 GRADE 60.
4. AN INITIAL FORCE OF 31,003 LBS. SHALL BE APPLIED TO EACH STRAND IN ALL BEAMS.
5. AFTER THE BEAM IS REMOVED FROM THE PRESTRESSING BED, BARS C600 AND C500 SHALL BE BENT A SUFFICIENT AMOUNT TO MERGE THE 'C' BARS OF ADJOINING BEAM TO MESH WHEN IN THE ERECTED POSITION.
6. THE PRESTRESSING STRANDS SHALL BE LEFT PROJECTING 3'+ FROM THE ENDS OF THE BEAMS. THERE SHALL NOT BE ANY PROTECTIVE COATING PLACED ON THE ENDS OF THE BEAMS OR ON THE PROJECTING STRANDS.
7. THE CONCRETE FOR THIS CONSTRUCTION SHALL ATTAIN A COMPRESSIVE STRENGTH OF AT LEAST 5,000 PSI AT THE AGE OF 28 DAYS AND STRESS TRANSFER SHALL NOT BE MADE TO THE BEAM UNTIL THE TEST SPECIMENS INDICATE THAT THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF AT LEAST 4,500 PSI. SEE GENERAL NOTES FOR CONCRETE FINISHING NOTE.
8. 1" DIA. WEEP HOLES SHALL BE PROVIDED AT THE LOW POINT OF EACH CELL. VENT HOLES SHALL BE PROVIDED IN THE TOP OF EACH CELL DURING FABRICATION TO RELIEVE GAS PRESSURES THAT OCCUR DURING CURING. THE VENT HOLES SHALL BE PLUGGED AFTER CURING IS COMPLETED.
9. THE SEQUENCE FOR TRANSFER OF STRESS OR THE CUTTING STRANDS SHALL BE IN ACCORDANCE WITH ARTICLE 615.14 OF THE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" AND SHALL BE SHOWN ON THE APPROVED SHOP DRAWINGS. AT NO TIME SHALL MORE THAN 1/6TH OF THE TOTAL PRESTRESSING FORCE BE ECCENTRIC ABOUT THE CENTERLINE OF THE BEAM.

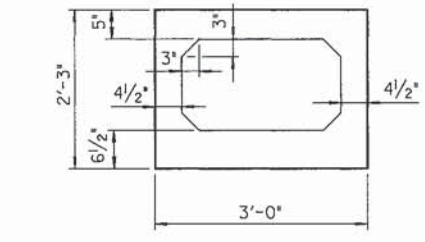


ELASTOMERIC BEARING PAD DETAIL

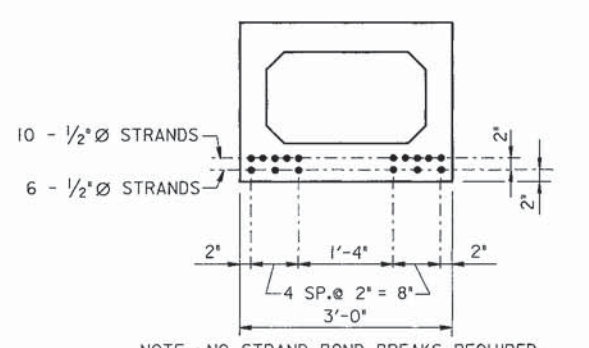


END ELEVATION (SHOWING REINFORCEMENT)
* NOTE : SEE NOTE 5.

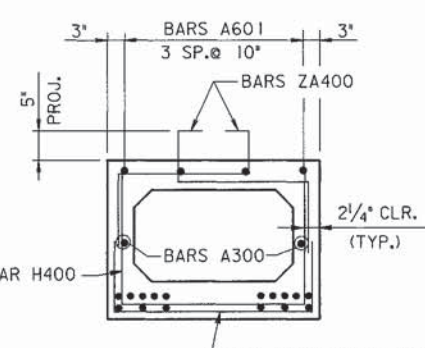
SPAN	BEAM	A	B	C
I	1	41'-7 1/2"	2'-4 3/8"	18'-0 7/8"
I	2	42'-5 7/8"	2'-4 3/8"	18'-5 13/16"
I	3	43'-3 3/4"	2'-4 3/8"	18'-10 3/4"
I	4	44'-1 1/8"	2'-4 3/8"	19'-3 11/16"
I	5	44'-11"	2'-4 3/8"	19'-8 5/8"



SECTION 'A-A' (SHOWING PROPERTIES)



SECTION 'A-A' (SHOWING PRESTRESSING STRANDS)
NOTE : NO STRAND BOND BREAKS REQUIRED.



SECTION 'B-B' (SHOWING STIRRUPS)

SPAN	BEAM	PRESTRESSING STRANDS (LOW RELAXATION) LBS.	CLASS 'A' CONCRETE C.Y.	REINFORCING STEEL LBS.
I	1	350	6.68	1,045
I	2	357	6.80	1,045
I	3	364	6.92	1,045
I	4	371	7.04	1,045
I	5	378	7.16	1,045

NOTE: COST OF ELASTOMERIC PADS, ANCHOR BOLT ASSEMBLIES AND RUBBER BONDING CEMENT TO BE INCLUDED IN THE COST OF PRESTRESSED BEAM.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

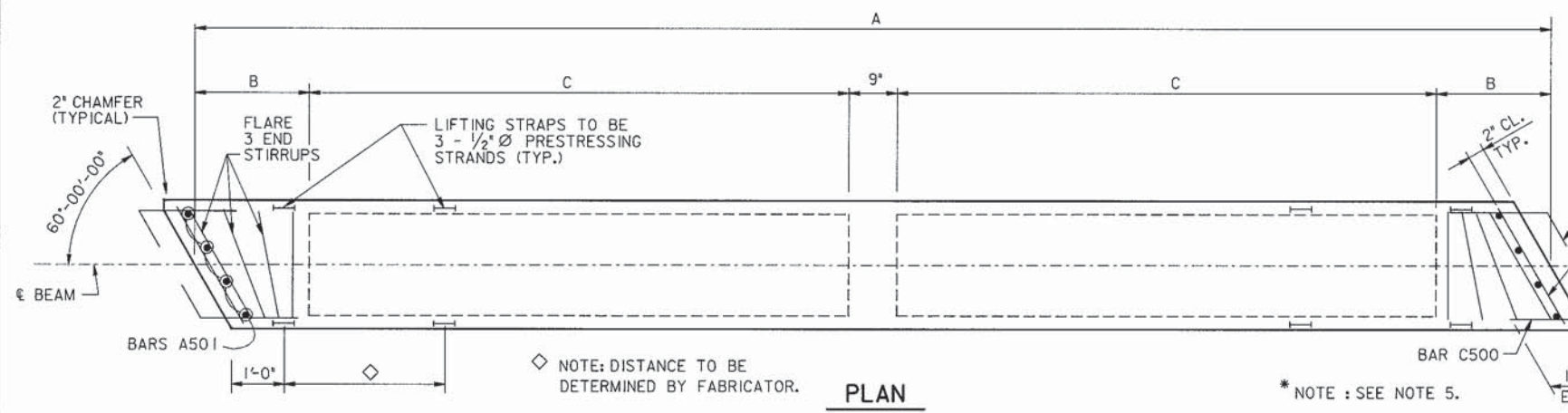
BRIDGE NO. 11 & 12

PRESTRESSED BOX BEAM DETAILS
SPAN I
I-75 WIDENING OVER
CSX RAILROAD
STATION 76+21.60
HAMILTON COUNTY
1991

DATE: 12-29-90
SV=BEAM
OS2150, 11 JIB 1 IBM I.C. I.DGN D\

DESIGNED BY	R. V. BENEDA	DATE	10-90
DRAWN BY	S. J. MATHEWS	DATE	10-90
SUPERVISED BY	R. V. BENEDA	DATE	10-90
CHECKED BY	S. L. POWELL	DATE	10-90

CONSTRUCTION NO.	PROJECT NO.	YEAR	SHEET NO.
33005-3148-44	IR-75-1(90)2	1991	
REVISIONS			
NO.	DATE	BY	REVISION DESCRIPTION



BILL OF STEEL PER BEAM			
BAR	SIZE	NO. REQ'D	LENGTH
A300	3	4	25'-3"
A501	5	8	1'-11"
A502	5	8	3'-2"
C500	5	12	2'-9"
C600	6	12	2'-9"
C601	6	8	26'-0"
H300	3	10	5'-2"
H400	4	77	6'-6"
ZA400	4	106	3'-10"

NOTES

- THE TOP OF ALL BEAMS ARE TO BE ROUGH FLOATED. AT APPROXIMATELY THE TIME OF INITIAL SET THE TOP OF THE BEAMS SHALL ALSO BE SCRUBBED TRANSVERSELY WITH A COARSE WIRE BRUSH TO REMOVE ALL LAITANCE AND PRODUCE A ROUGH SURFACE. WHERE PRECAST SLAB PANELS ARE TO BE USED AND SET ON BITUMINOUS FIBERBOARD, THE OUTER TWO INCHES OF THE TOP FLANGE MAY BE TROWELED.
- ALL PRESTRESSING STRANDS TO BE 1/2" DIA. ASTM A416-86 GRADE 270K, 7 WIRE UNCOATED LOW RELAXATION PRESTRESSING STRANDS. PRESTRESSING STRANDS SHALL NOT BE GREATER THAN NOMINAL 1/2" DIAMETER.
- MILD STEEL REINFORCING SHALL BE ASTM A615 GRADE 60.
- AN INITIAL FORCE OF 31,003 LBS. SHALL BE APPLIED TO EACH STRAND IN ALL BEAMS.
- AFTER THE BEAM IS REMOVED FROM THE PRESTRESSING BED, BARS C600 AND C500 SHALL BE BENT A SUFFICIENT AMOUNT TO PERMIT THE "C" BARS OF ADJOINING BEAM TO MESH WHEN IN THE ERECTED POSITION.
- THE PRESTRESSING STRANDS SHALL BE LEFT PROJECTING 3"+ FROM THE ENDS OF THE BEAMS. THERE SHALL NOT BE ANY PROTECTIVE COATING PLACED ON THE ENDS OF THE BEAMS OR ON THE PROJECTING STRANDS.
- THE CONCRETE FOR THIS CONSTRUCTION SHALL ATTAIN A COMPRESSIVE STRENGTH OF AT LEAST 5,000 PSI AT THE AGE OF 28 DAYS AND STRESS TRANSFER SHALL NOT BE MADE TO THE BEAM UNTIL THE TEST SPECIMENS INDICATE THAT THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF AT LEAST 4,500 PSI. SEE GENERAL NOTES FOR CONCRETE FINISHING NOTE.
- 1" DIA. WEEP HOLES SHALL BE PROVIDED AT THE LOW POINT OF EACH CELL. VENT HOLES SHALL BE PROVIDED IN THE TOP OF EACH CELL DURING FABRICATION TO RELIEVE GAS PRESSURES THAT OCCUR DURING CURING. THE VENT HOLES SHALL BE PLUGGED AFTER CURING IS COMPLETED.
- THE SEQUENCE FOR TRANSFER OF STRESS OR THE CUTTING STRANDS SHALL BE IN ACCORDANCE WITH ARTICLE 615.14 OF THE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" AND SHALL BE SHOWN ON THE APPROVED SHOP DRAWINGS. AT NO TIME SHALL MORE THAN 1/6TH OF THE TOTAL PRESTRESSING FORCE BE ECCENTRIC ABOUT THE CENTERLINE OF THE BEAM.

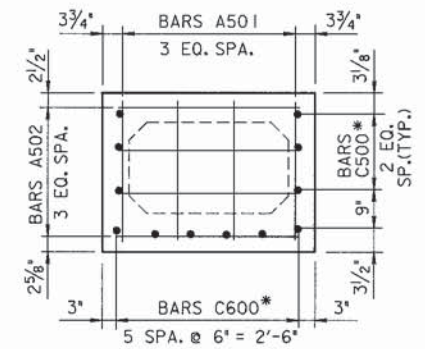
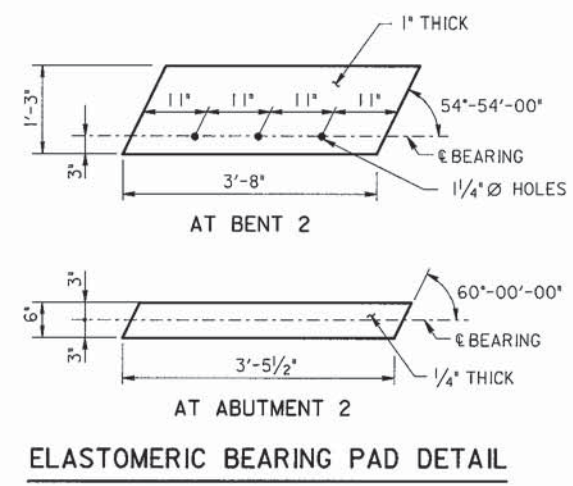
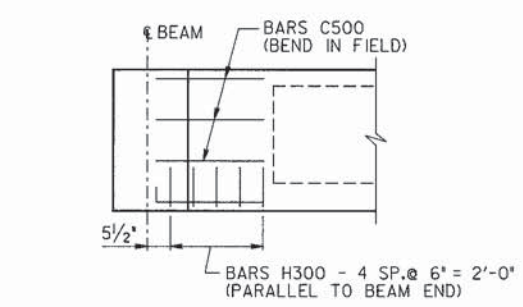
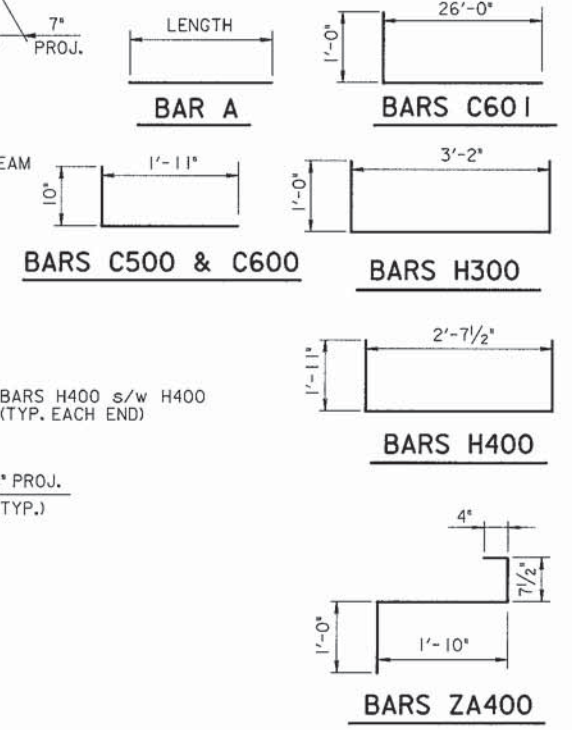
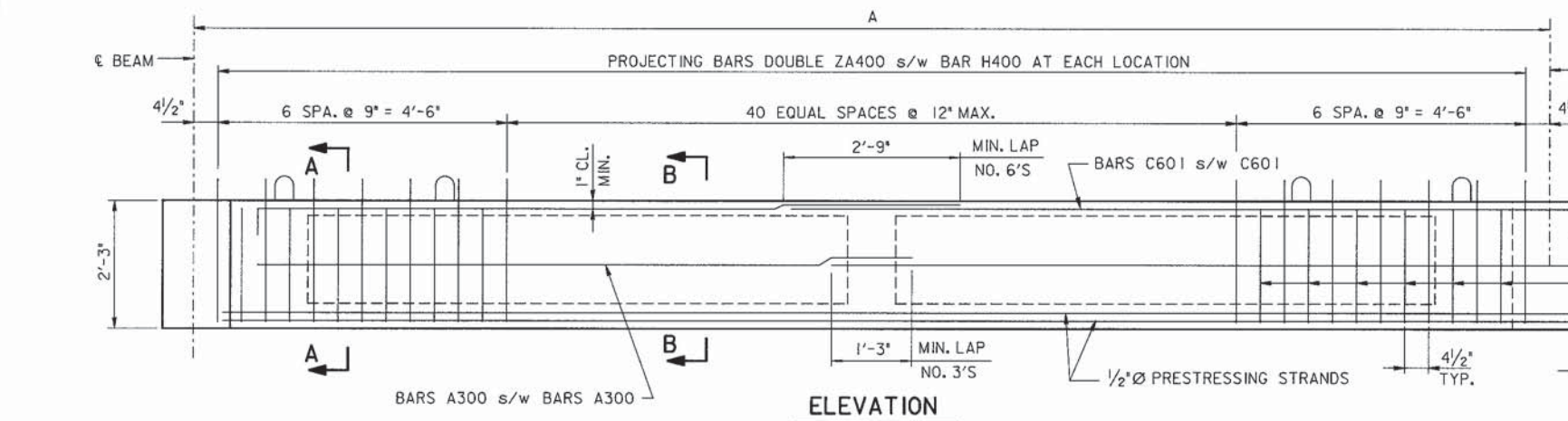
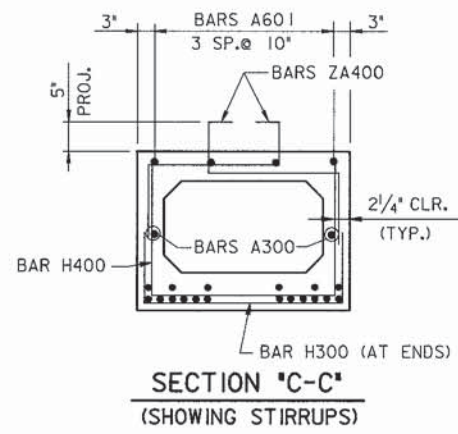
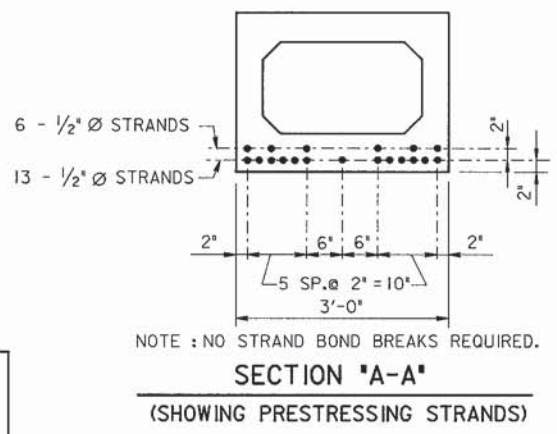
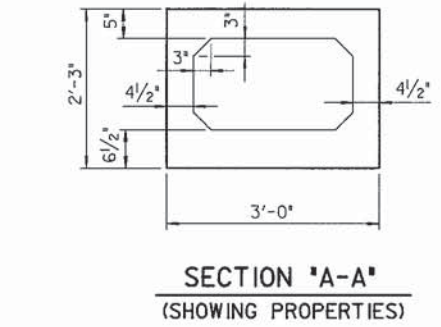


TABLE OF LETTERED DIMENSIONS				
SPAN	BEAM	A	B	C
3	1	46'-4 1/8"	2'-4 3/8"	20'-5 3/16"
3	2	47'-2"	2'-4 3/8"	20'-10 1/8"
3	3	48'-0"	2'-4 3/8"	21'-3 1/8"
3	4	48'-9 7/8"	2'-4 3/8"	21'-8 1/16"
3	5	49'-7 3/4"	2'-4 3/8"	22'-1"



ESTIMATED QUANTITIES - PER BEAM				
SPAN	BEAM	PRESTRESSING STRANDS (LOW RELAXATION) LBS.	CLASS "A" CONCRETE C.Y.	REINFORCING STEEL LBS.
1	1	463	7.38	1,102
1	2	471	7.49	1,102
1	3	479	7.61	1,102
1	4	487	7.73	1,102
1	5	495	7.85	1,102

NOTE: COST OF ELASTOMERIC PADS, ANCHOR BOLT ASSEMBLIES AND RUBBER BONDING CEMENT TO BE INCLUDED IN THE COST OF PRESTRESSED BEAM.

DESIGNED BY R. V. BENEDA DATE 12-90
 DRAWN BY S. J. MATHEWS DATE 12-90
 SUPERVISED BY R. V. BENEDA DATE 12-90
 CHECKED BY S. L. POWELL DATE 12-90

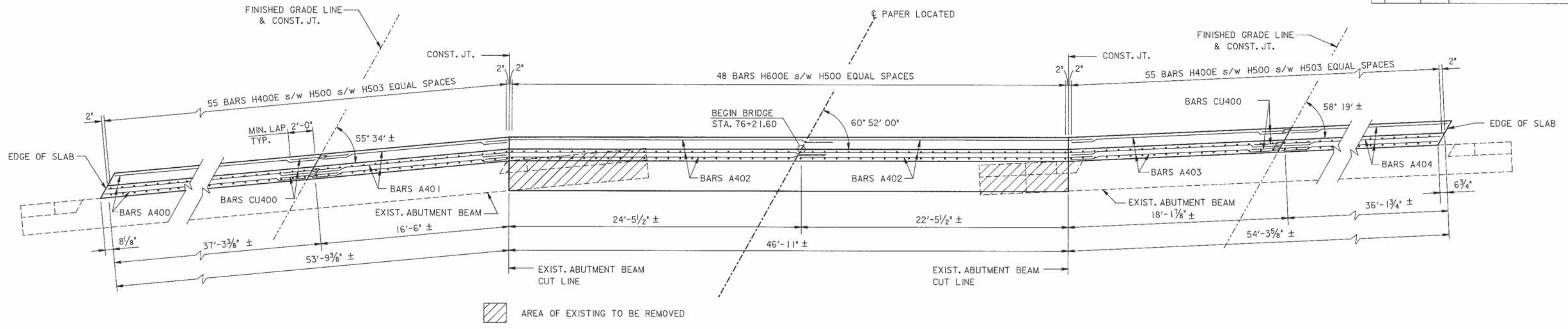
STATE OF TENNESSEE
 DEPARTMENT OF TRANSPORTATION
 BUREAU OF HIGHWAYS

BRIDGE NO. 11 & 12

PRESTRESSED BOX BEAM DETAILS
 SPAN 3

I-75 WIDENING OVER
 CSX RAILROAD
 STATION 76+21.60
 HAMILTON COUNTY
 1991

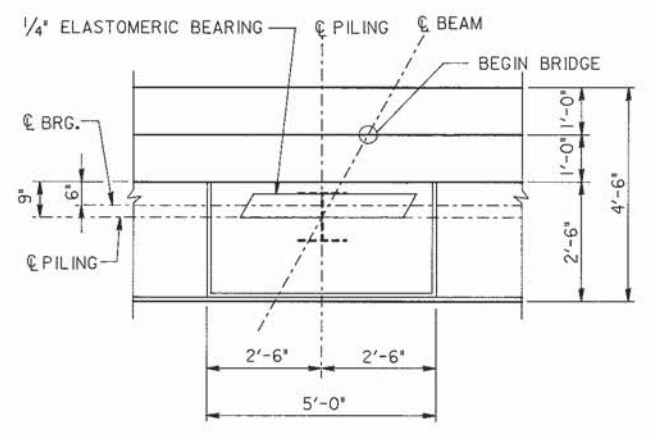
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	27 April 91	JWP	General



SECTION A-A
(LOOKING BACK)

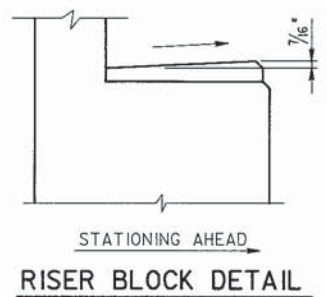
NOTE: BARS CU400E AND CU400 TO BE DAYTON SUPERIOR, RICHMOND SCREW ANCHOR, OR APPROVED EQUAL. DOWEL BART SPLICER AND DOWEL-IN SHALL BE DEFORMED GRADE 60. THE EXPOSED THREADS, AFTER SPLICING TO BE REPAIRED ACCORDING TO SPECIAL PROVISION 907A. THE SPLICING BAR AND THE ROOT DIMENSION AT THE THREAD SHALL BE NO LESS THAN NOMINAL DIAMETER OF A NO. 4 BAR.

COST OF FURNISHING THE BAR SPLICES (EPOXY-COATED IF REQUIRED), INCLUDING ALL LABOR AND MATERIALS NECESSARY FOR COMPLETE INSTALLATION, SHALL BE INCLUDED IN THE PRICE BID FOR ITEM NO. 604-02.03 AND 604-03.02.

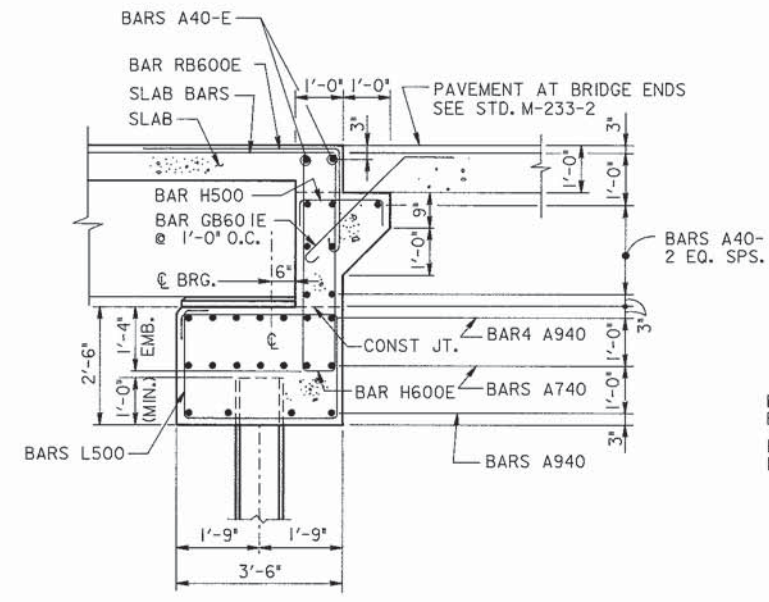


DETAIL D

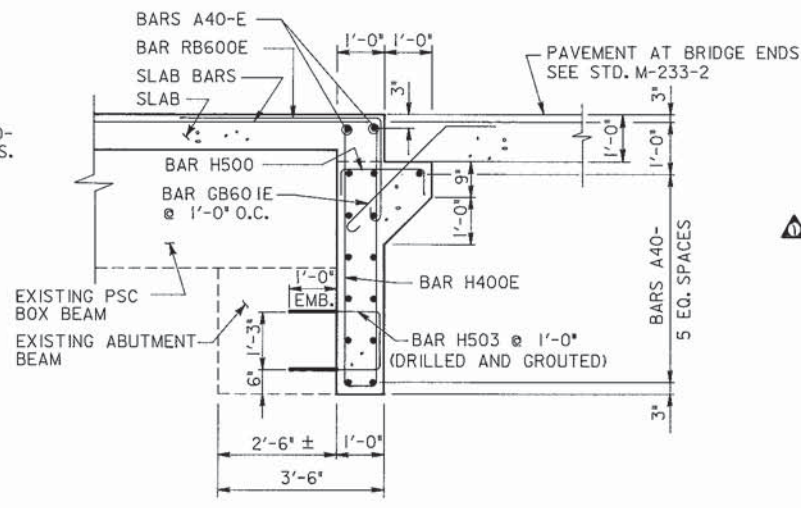
- NOTES
1. RISER BLOCKS TO BE POURED MONOLITHICALLY WITH ABUTMENT BEAM.
 2. THE ENDWALL SHALL NOT BE POURED UNTIL BEAMS ARE IN PLACE. THE TOP 1'-0" OF THE ENDWALL SHALL BE POURED CONCURRENTLY WITH THE END OF SLAB.
 3. RISER BLOCK BEARING PAD SURFACES TO CONFORM TO BOTTOM OF BEAM GRADE.
 4. COST OF BRIDGE RAIL AND POST IS TO BE INCLUDED IN THE COST OF BRIDGE RAIL SYSTEM.
 5. ELASTOMERIC PADS SHALL BE IN PLACE A MINIMUM OF ONE DAY BEFORE SETTING BEAMS. PLACE RUBBER BONDING CEMENT IN SUCH A WAY THAT VISIBLE CONCRETE SURFACES WILL NOT BE STAINED.
 6. QUANTITIES ARE FOR ABUTMENT BEAM ONLY. ENDWALL ARE INCLUDED IN SUPERSTRUCTURE QUANTITIES.
 7. ALL PILES SHALL BE HP 10X42.



RISER BLOCK DETAIL



SECTION B-B



SECTION C-C

NOTE: COST OF DRILLING AND GROUTING FOR BARS H503 TO BE INCLUDED IN ITEM NO. 604-03.01.

DESIGNED BY	R.V. BENEDA	DATE	11-90
DRAWN BY	M.K. DAFTARIAN	DATE	11-90
SUPERVISED BY		DATE	
CHECKED BY		DATE	

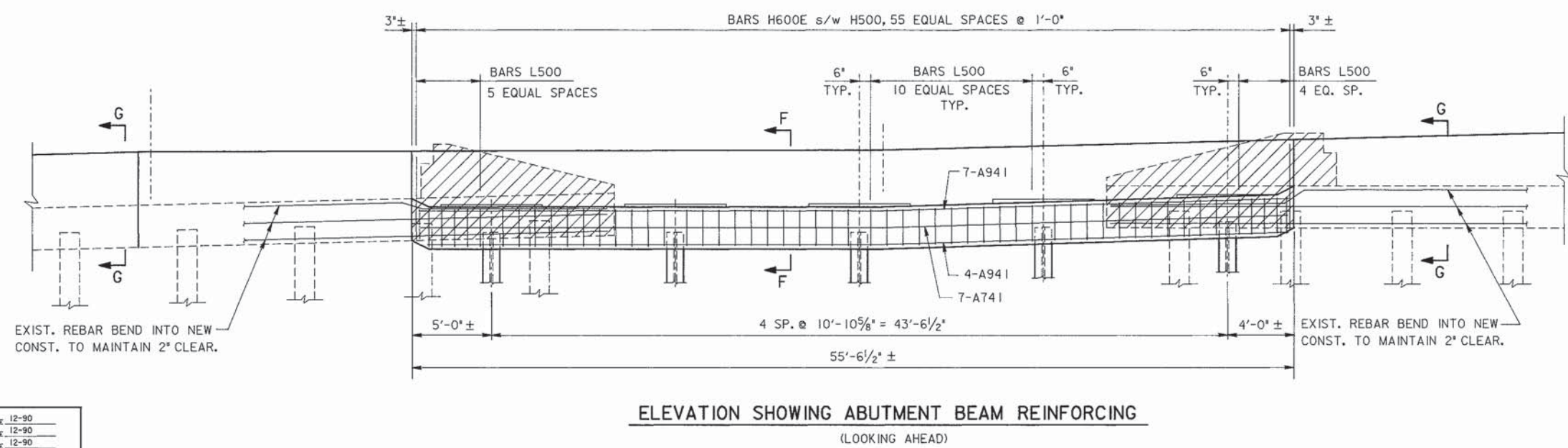
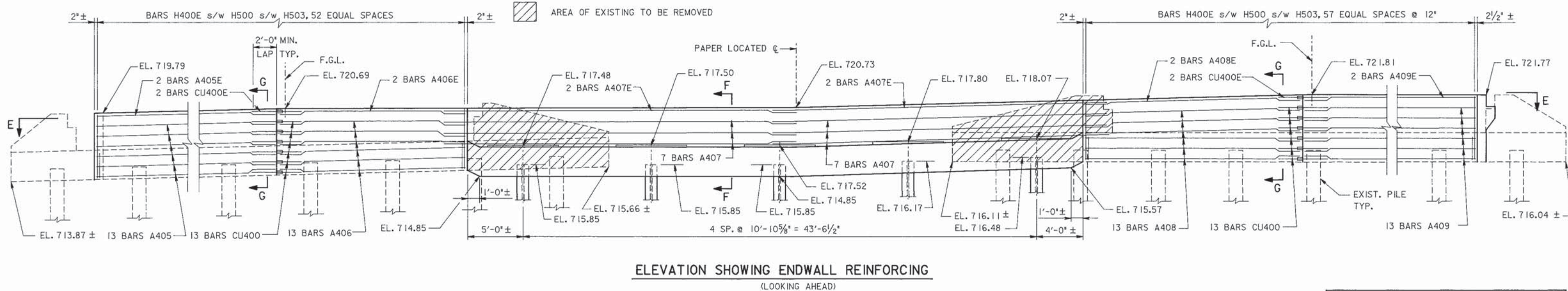
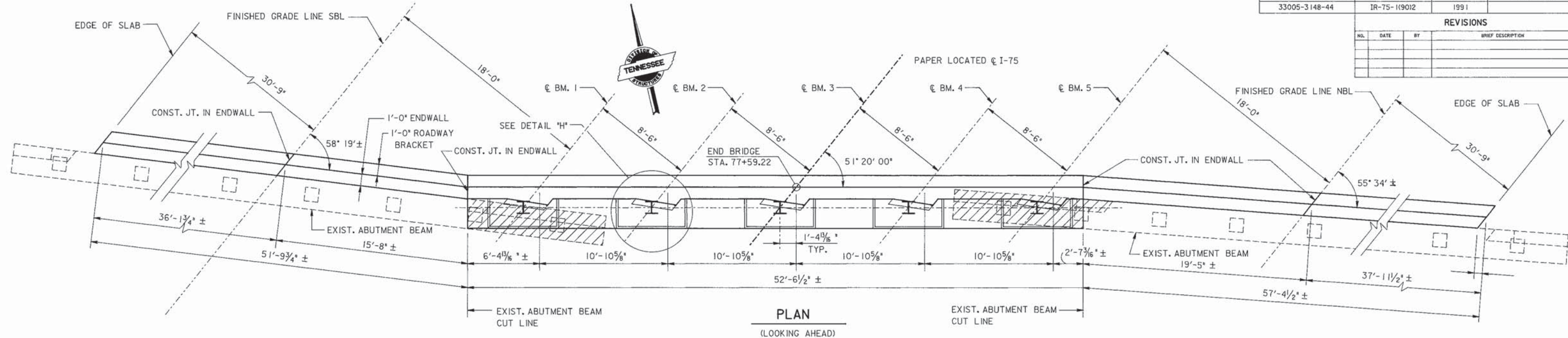
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

BRIDGE NO. 11 & 12

ABUTMENT I DETAILS

I-75 WIDENING OVER
CSX RAILROAD
STATION 76+21.60
HAMILTON COUNTY
1991

CONSTRUCTION NO. 33005-3148-44	PROJECT NO. IR-75-1(90)2	YEAR 1991	SHEET NO.
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION



ESTIMATED QUANTITIES		
CLASS "A" CONCRETE	EPOXY-COATED REINFORCING STEEL LB.	STEEL BAR REINFORCEMENT LB.
C.Y.	LB.	LB.
18	799	3,513

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

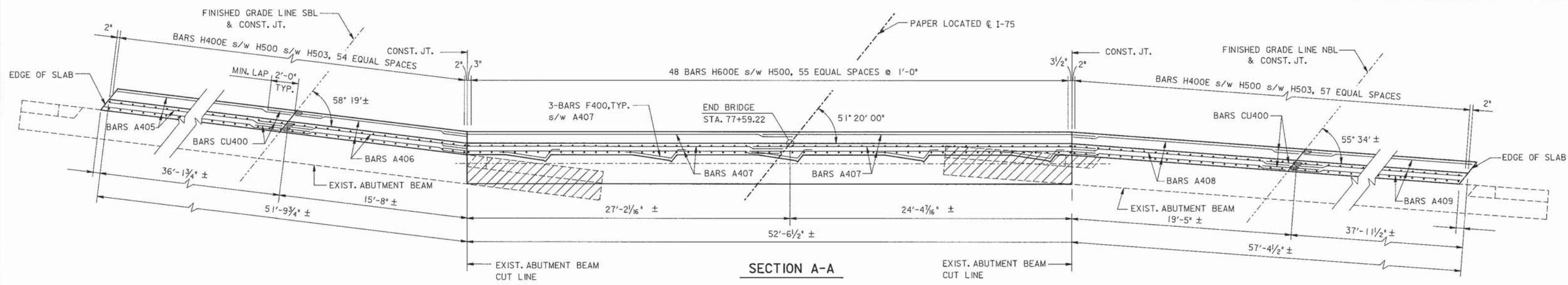
BRIDGE NO. 11 & 12

ABUTMENT 2

I-75 WIDENING OVER
CSX RAILROAD
STATION 76+21.60
HAMILTON COUNTY
1991

DESIGNED BY R.V. BENEDA	DATE 12-90
DRAWN BY M.K. DAFTARIAN	DATE 12-90
SUPERVISED BY R.V. BENEDA	DATE 12-90
CHECKED BY S.L. POWELL	DATE 12-90

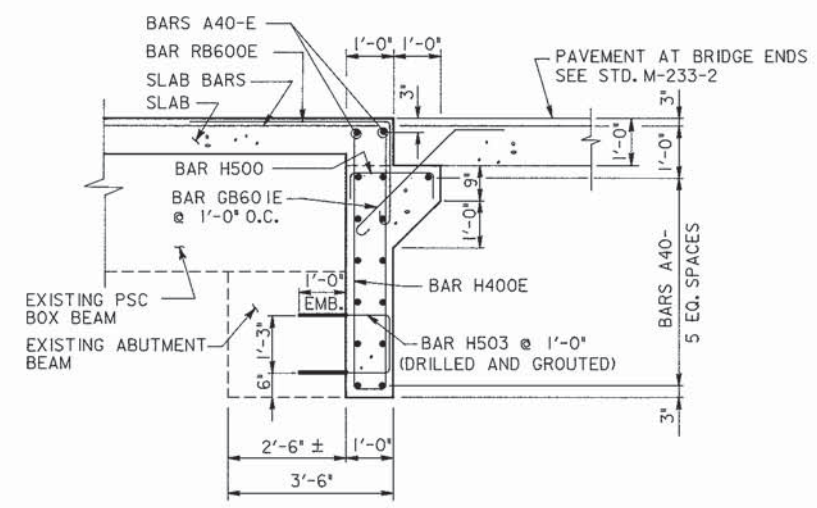
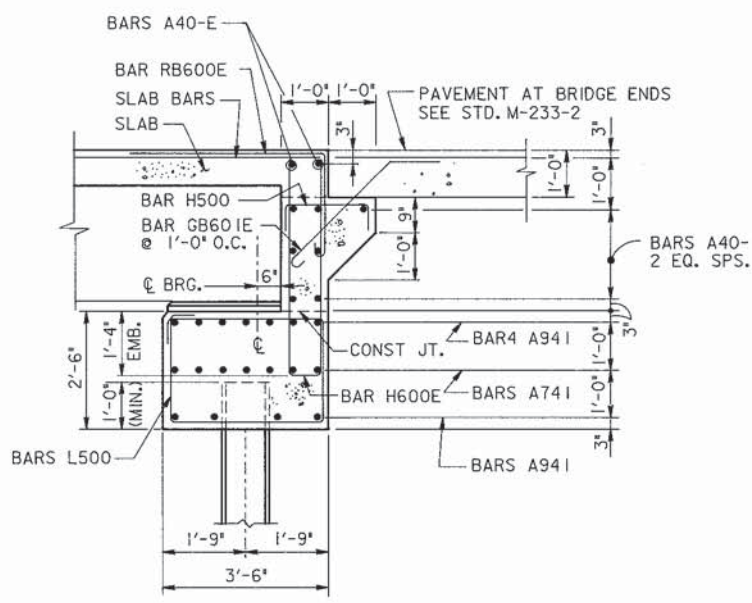
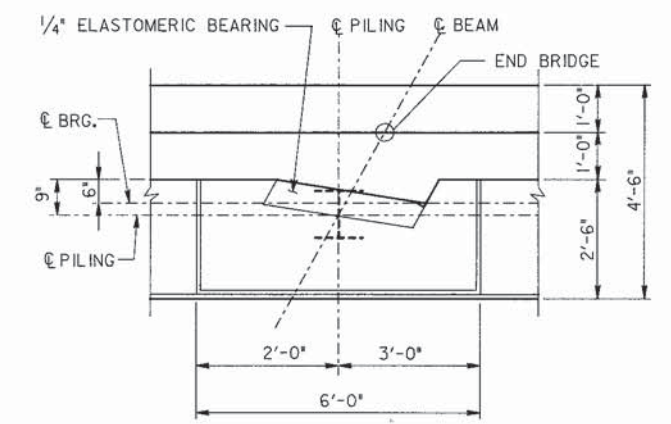
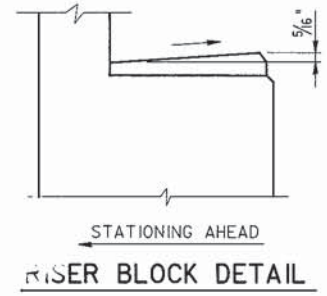
CONSTRUCTION NO.	PROJECT NO.	YEAR	SHEET NO.
33005-3148-44	IR-75-1(90)2	1991	
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	22 April 1991	JWP	General



AREA OF EXISTING TO BE REMOVED

NOTE: BARS CU400E AND CU400 TO BE DAYTON SUPERIOR, RICHMOND SCREW ANCHOR, OR APPROVED EQUAL. DOWEL BART SPICER ADN DOWEL-IN SHALL BE DEFORMED GRADE 60. THE EXPOSED THREADS, AFTER SPLICING TO BE REPAIRED ACCORDING TO SPECIAL PROVISION 907A. THE SPLICING BAR AND THE ROOT DIMENSION AT THE THREAD SHALL BE NO LESS THAN NOMINAL DIAMETER OF A NO. 4 BAR.

COST OF FURNISHING THE BAR SPLICES (EPOXY-COATED IF REQUIRED), INCLUDING ALL LABOR AND MATERIALS NECESSARY FOR COMPLETE INSTALLATION, SHALL BE INCLUDED IN THE PRICE BID FOR ITEM NO. 604-02.03 ADN 604-03.02.



NOTE: COST OF DRILLING AND GROUTING FOR BARS H503 TO BE INCLUDED IN ITEM NO. 604-03.01.

NOTES

1. RISER BLOCKS TO BE POURED MONOLITHICALLY WITH ABUTMENT BEAM.
2. THE ENDWALL SHALL NOT BE POURED UNTIL BEAMS ARE IN PLACE. THE TOP 1'-0" OF THE ENDWALL SHALL BE POURED CONCURRENTLY WITH THE END OF SLAB.
3. RISER BLOCK BEARING PAD SURFACES TO CONFORM TO BOTTOM OF BEAM GRADE.
4. COST OF BRIDGE RAIL AND POST IS TO BE INCLUDED IN THE COST OF BRIDGE RAIL SYSTEM.
5. ELASTOMERIC PADS SHALL BE IN PLACE A MINIMUM OF ONE DAY BEFORE SETTING BEAMS. PLACE RUBBER BONDING CEMENT IN SUCH A WAY THAT VISIBLE CONCRETE SURFACES WILL NOT BE STAINED.
6. QUANTITIES ARE FOR ABUTMENT BEAM ONLY. ENDWALL ARE INCLUDED IN SUPERSTRUCTURE QUANTITIES.
7. ALL PILES SHALL BE HP 10X42.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

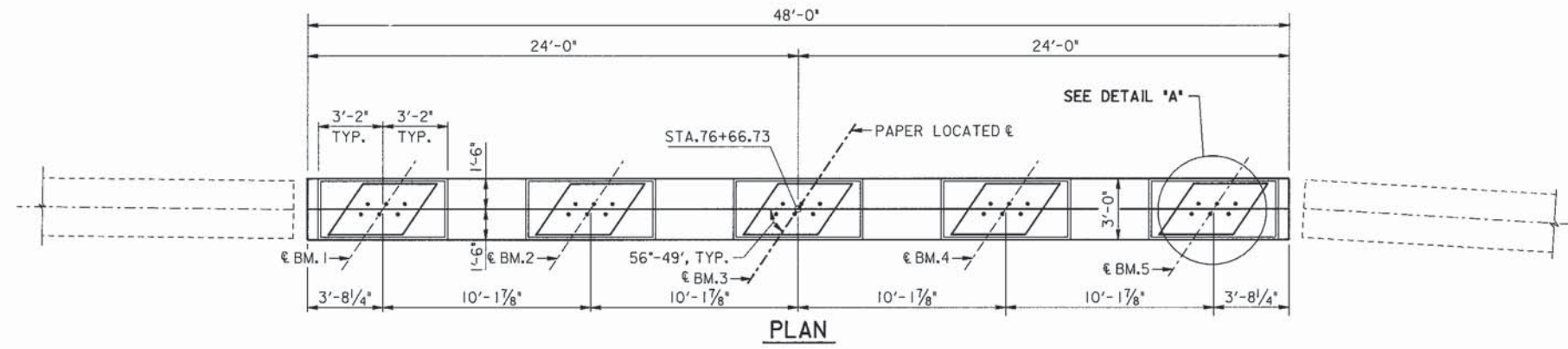
BRIDGE NO. 11 & 12

ABUTMENT 2 DETAILS

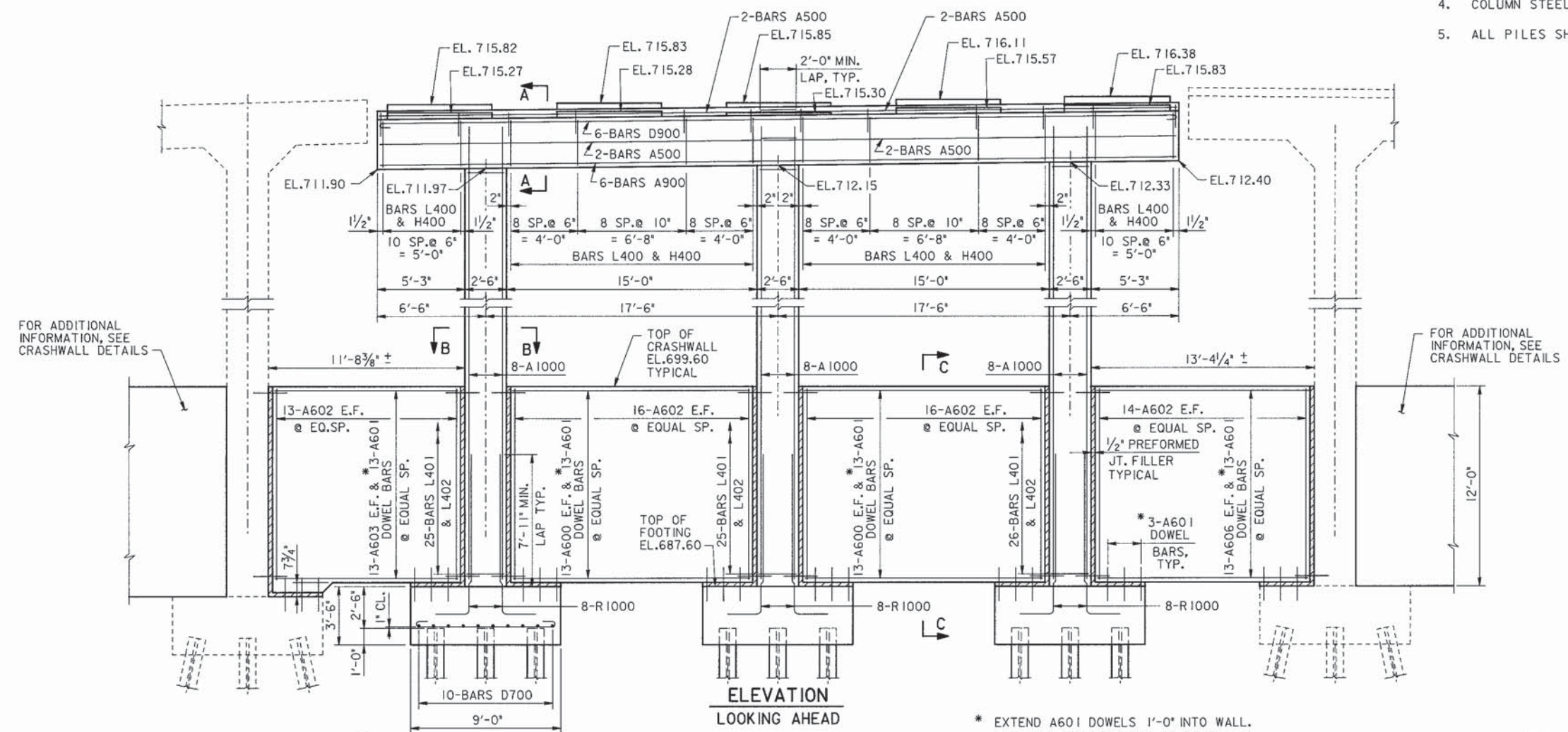
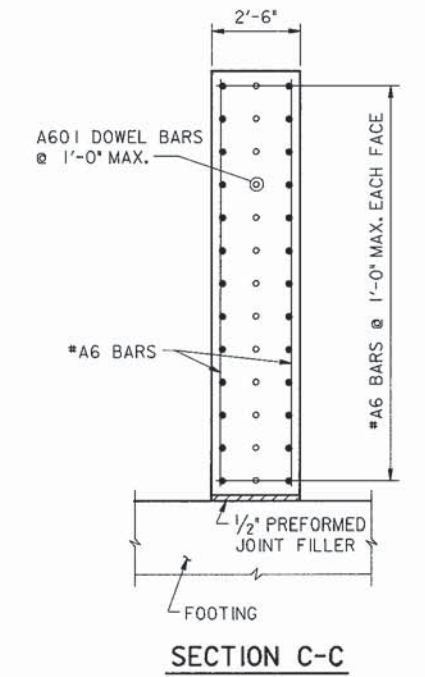
I-75 WIDENING OVER
CSX RAILROAD
STATION 76+21.60
HAMILTON COUNTY
1991

DESIGNED BY	R.V. BENEDA	DATE	12-90
DRAWN BY	M.K. DAFARIAN	DATE	12-90
SUPERVISED BY	R.V. BENEDA	DATE	12-90
CHECKED BY	S.L. POWELL	DATE	12-90

REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	13 JUN 91	JHP	QUANTITIES REVISED



- BENT NOTES**
1. WHEN POURING CAP BEAM, PROVISIONS SHALL BE MADE FOR SETTING ANCHOR ASSEMBLIES. ANCHOR ASSEMBLY BAR PROJECTION 11". SEE STANDARD M-246-70.
 2. RISER BLOCK BEARING PAD SURFACES TO CONFORM TO BOTTOM OF BEAM GRADES.
 3. RISER BLOCKS TO BE POURED MONOLITHICALLY WITH CAP BEAM.
 4. COLUMN STEEL TO EXTEND 2'-0" INTO CAP BEAM.
 5. ALL PILES SHALL BE HP 10X42.

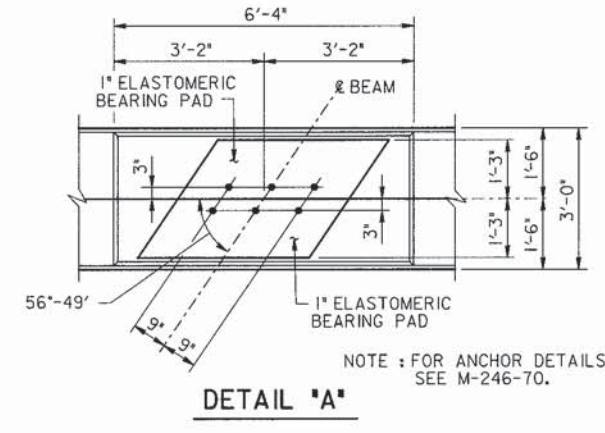
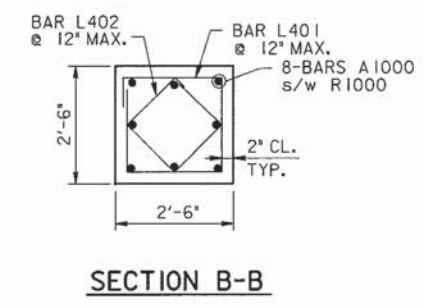
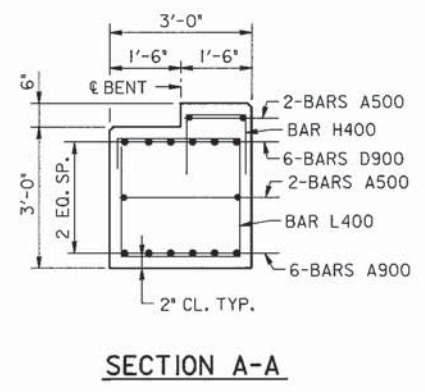
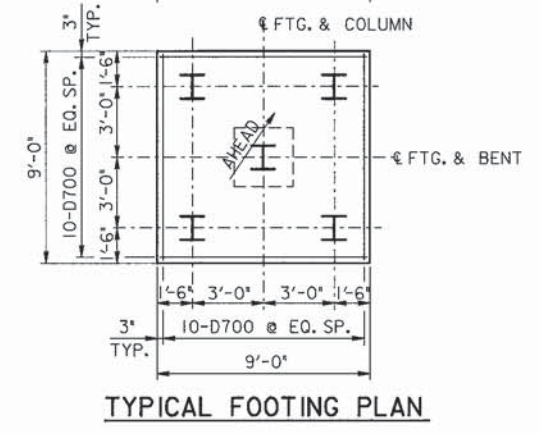
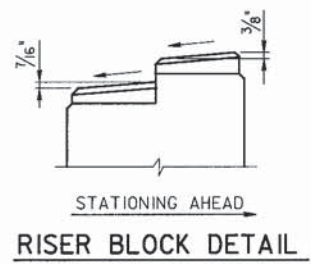


FOR ADDITIONAL INFORMATION, SEE CRASHWALL DETAILS

FOR ADDITIONAL INFORMATION, SEE CRASHWALL DETAILS

* EXTEND A601 DOWELS 1'-0" INTO WALL. COAT OR WRAP PORTION OF DOWELS IN WALL TO PREVENT BOND.

ESTIMATED QUANTITIES		
ITEM	CLASS 'A' CONCRETE C.Y.	STEEL BAR REINFORCEMENT LB.
BENT 1	205	19,452



NOTE: FOR ANCHOR DETAILS SEE M-246-70.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

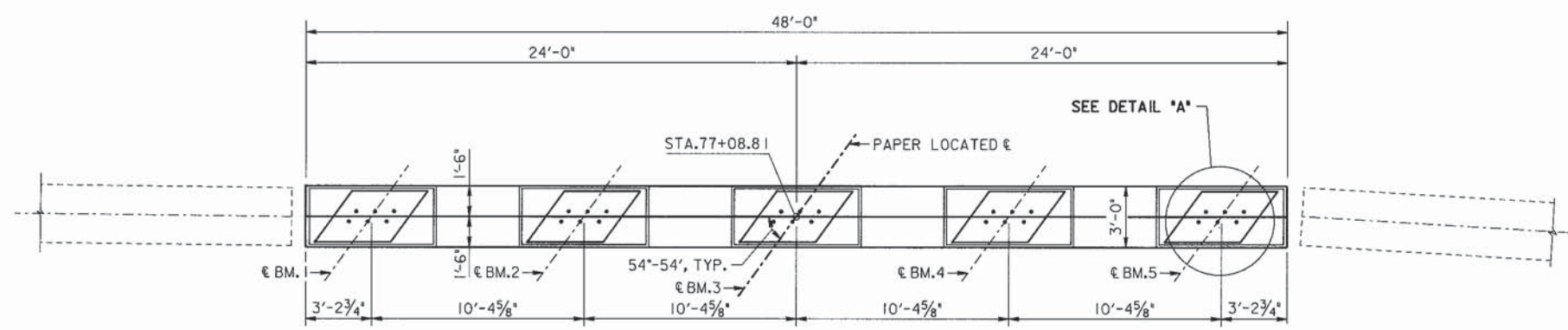
BRIDGE NO. 11 & 12

BENT 1

I-75 WIDENING OVER
CSX RAILROAD
STATION 76+21.60
HAMILTON COUNTY
1991

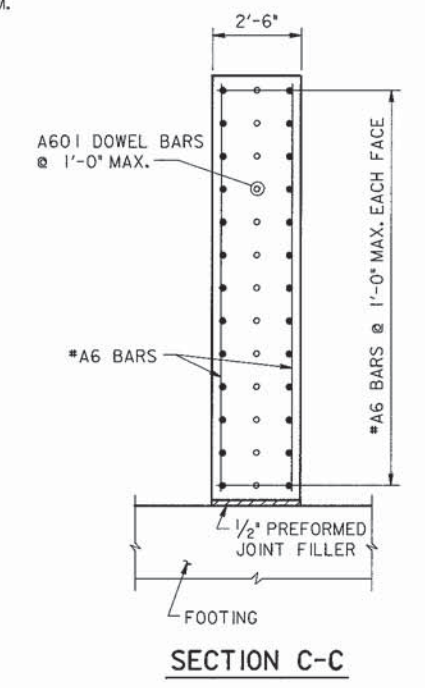
DESIGNED BY R. V. BENEDA DATE 12-90
DRAWN BY S. J. MATHEWS DATE 12-90
SUPERVISED BY R. V. BENEDA DATE 12-90
CHECKED BY S. L. POWELL DATE 12-90

REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	13 JUNE 91	JHP	QUANTITIES REVISED

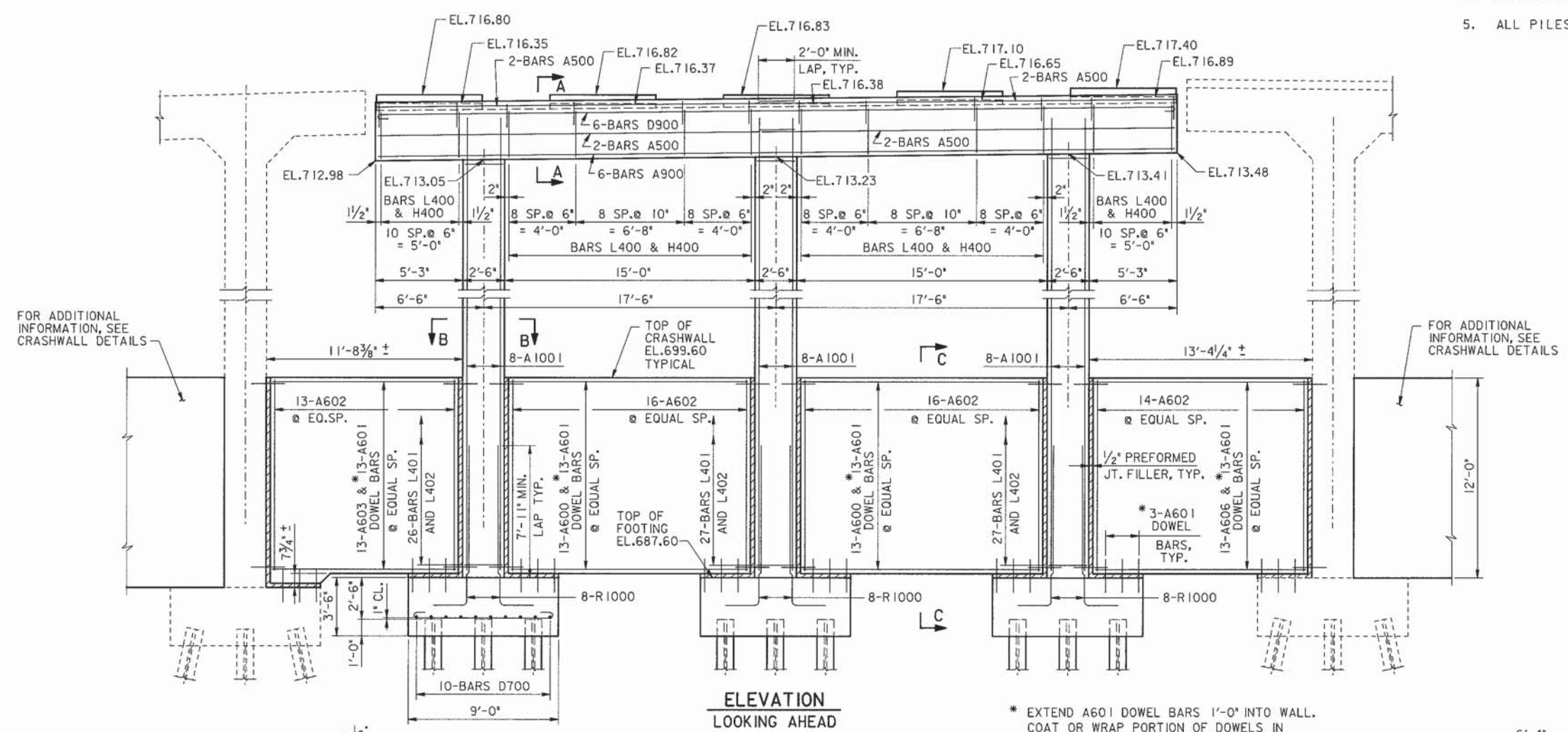


PLAN

- BENT NOTES**
1. WHEN POURING CAP BEAM, PROVISIONS SHALL BE MADE FOR SETTING ANCHOR ASSEMBLIES. ANCHOR ASSEMBLY BAR PROJECTION 11". SEE STANDARD M-246-70.
 2. RISER BLOCK BEARING PAD SURFACES TO CONFORM TO BOTTOM OF BEAM GRADES.
 3. RISER BLOCKS TO BE POURED MONOLITHICALLY WITH CAP BEAM.
 4. COLUMN STEEL TO EXTEND 2'-0" INTO CAP BEAM.
 5. ALL PILES SHALL BE HP 10X42.



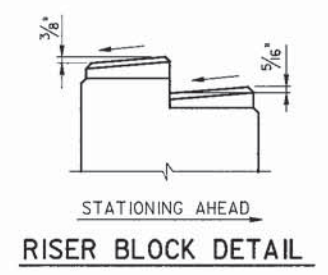
SECTION C-C



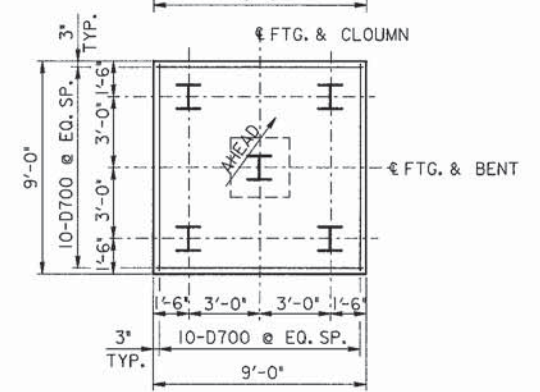
**ELEVATION
LOOKING AHEAD**

* EXTEND A601 DOWEL BARS 1'-0" INTO WALL. COAT OR WRAP PORTION OF DOWELS IN WALL TO PREVENT BOND.

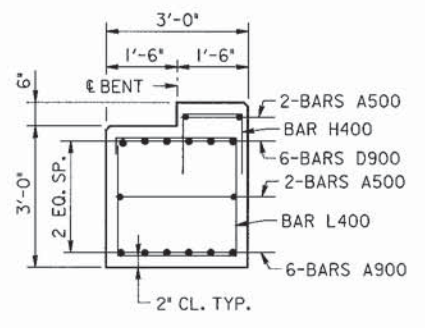
ESTIMATED QUANTITIES		
ITEM	CLASS "A" CONCRETE C.Y.	STEEL BAR REINFORCEMENT LB.
BENT 2	207	19,568



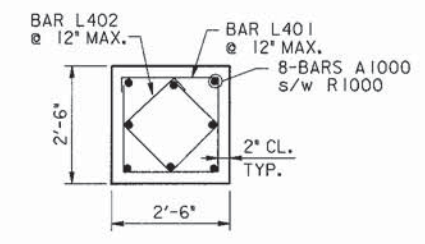
RISER BLOCK DETAIL



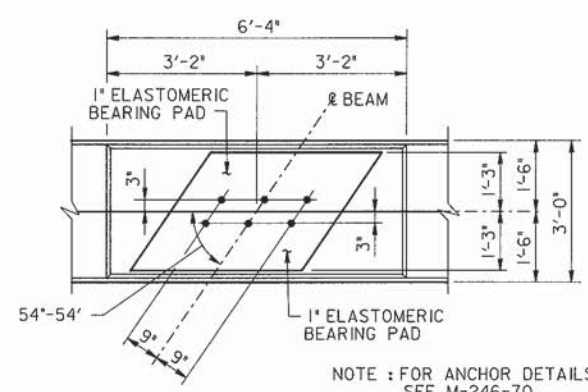
TYPICAL FOOTING PLAN



SECTION A-A



SECTION B-B



DETAIL 'A'

NOTE: FOR ANCHOR DETAILS SEE M-246-70.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

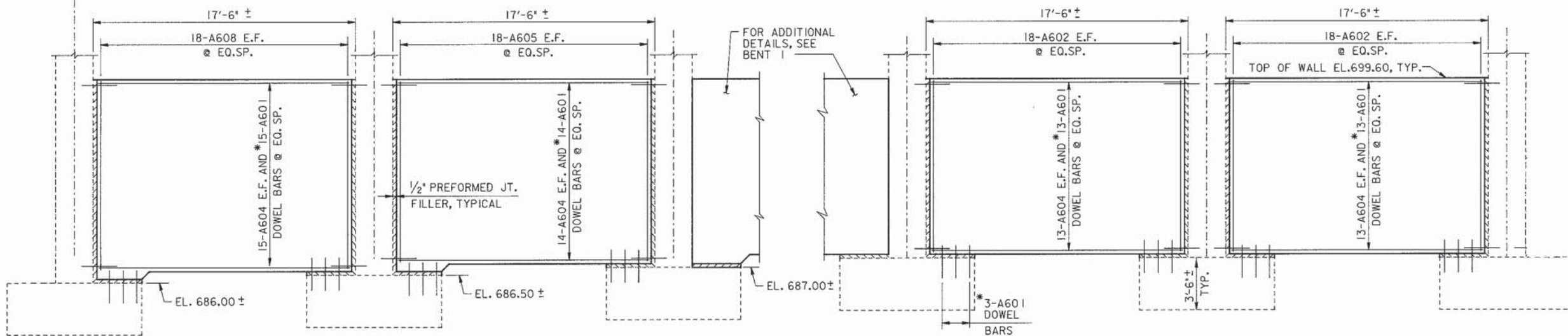
BRIDGE NO. 11 & 12

BENT 2

I-75 WIDENING OVER
CSX RAILROAD
STATION 76+21.60
HAMILTON COUNTY
1991

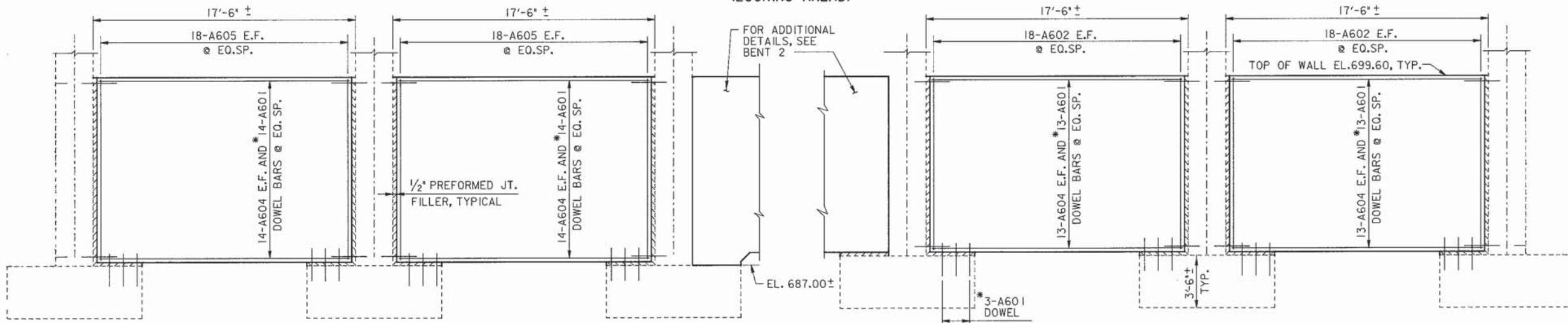
CONSTRUCTION NO.	PROJECT NO.	YEAR	SHEET NO.
33005-3148-44	IR-75-1(90)2	1991	

REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	13 JUNE 91	JHP	2'-6" PROJ. CRASHWALL REMOVED



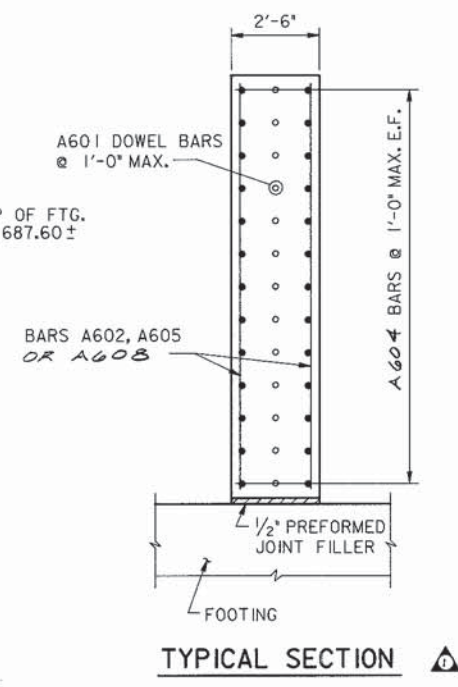
CRASHWALL ELEVATION - BENT 1

(LOOKING AHEAD)



CRASHWALL ELEVATION - BENT 2

(LOOKING AHEAD)



TYPICAL SECTION

* DRILL AND GROUT A601 DOWELS INTO EXISTING FOOTINGS AND COLUMNS. COAT OR WRAP PORTION OF DOWELS EXTENDING INTO WALL TO PREVENT BOND. COST OF DRILLING TO BE INCLUDED UNDER ITEM NO 604-03.01

OS2:LSO .1117B IICWC I.DGN
 SV=CRASH
 PRF=B IICWC I
 DATE: 1-2-91

DESIGNED BY	R. V. BENEDA	DATE	12-90
DRAWN BY	S. J. MATHERS	DATE	12-90
SUPERVISED BY	R. V. BENEDA	DATE	12-90
CHECKED BY	S. L. POWELL	DATE	12-90

STATE OF TENNESSEE
 DEPARTMENT OF TRANSPORTATION
 BUREAU OF HIGHWAYS
BRIDGE NO. 11 & 12

CRASHWALL DETAILS

 I-75 WIDENING OVER
 CSX RAILROAD
 STATION 76+21.60
 HAMILTON COUNTY
 1991

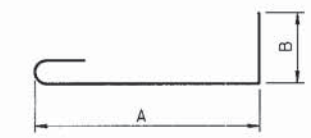
M-248-118

REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	13 JUNE 91	JHP	CRASHWALL MODIFIED

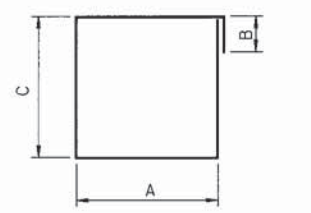
SUPERSTRUCTURE - EPOXY								
BAR	LOCATION	SIZE	NO. REQ'D.	A	B	C	D	LENGTH
A400E	ENDWALL	4	2					37'-0"
A401E	ENDWALL	4	2					16'-2"
A402E	ENDWALL	4	4					26'-6"
A403E	ENDWALL	4	2					17'-10"
A404E	ENDWALL	4	2					35'-10"
A405E	ENDWALL	4	2					35'-9"
A406E	ENDWALL	4	2					15'-4"
A407E	ENDWALL	4	4					29'-6"
A408E	ENDWALL	4	2					19'-1"
A409E	ENDWALL	4	2					36'-8"
A500E	TOP SLAB	5	311					30'-5"
A501E	TOP SLAB	5	297					35'-10"
A502E	TOP SLAB	5	2					385'-0"
LENGTH VARIES FROM 30'-3" TO 4'-9" IN INCREMENTS OF 1'-2 9/16" (22 BARS)								
A503E	TOP SLAB	5	1					491'-8"
LENGTH VARIES FROM 35'-8" TO 3'-8" IN INCREMENTS OF 1'-4" (25 BARS)								
A504E	TOP SLAB	5	1					674'-4"
LENGTH VARIES FROM 35'-10" TO 3'-10" IN INCREMENTS OF 11 5/8" (34 BARS)								
A505E	TOP SLAB	5	1					577'-7"
LENGTH VARIES FROM 35'-10" TO 4'-0" IN INCREMENTS OF 1'-1 5/8" (29 BARS)								
A506E	TOP SLAB	5	1					654'-6"
LENGTH VARIES FROM 35'-10" TO 3'-10" IN INCREMENTS OF 1'-0" (33 BARS)								
A507E	TOP SLAB	5	2					428'-2"
LENGTH VARIES FROM 30'-3" TO 4'-0" IN INCREMENTS OF 1'-1 1/8" (25 BARS)								
A508E	BOTTOM SLAB	5	141					47'-0"
A509E	BOTTOM SLAB	5	144					30'-0"
A510E	BOTTOM SLAB	5	1					907'-7"
LENGTH VARIES FROM 30'-3" TO 20'-2" IN INCREMENTS OF 3 7/16" (36 BARS)								
A511E	TOP SLAB	5	40					10'-0"
A512E	BOTTOM SLAB	5	1					1140'-4"
LENGTH VARIES FROM 46'-0" TO 3'-7" IN INCREMENTS OF 11 5/16" (46 BARS)								
A513E	BOTTOM SLAB	5	1					819'-6"
LENGTH VARIES FROM 46'-2" TO 3'-6" IN INCREMENTS OF 1'-4" (33 BARS)								
A900E	TOP SLAB	9	178					60'-0"
A901E	TOP SLAB	9	21					23'-8"
A902E	TOP SLAB	9	1					1374'-9"
LENGTH VARIES FROM 33'-9" TO 24'-9" IN INCREMENTS OF 2 3/8" (47 BARS)								
A903E	TOP SLAB	9	21					33'-9"
A904E	TOP SLAB	9	174					30'-0"
CB601E	ENDWALL	6	325	2'-9"	2'-2"	3'-1"		6'-7"
CU400E	ENDWALL	4	8					6'-0"
CU500E	TOP SLAB	5	358					6'-0"
H400E	ENDWALL	4	221	0'-8"	5'-0"			10'-8"
RB600E	ENDWALL	6	180	3'-7"	2'-5"			6'-0"

SUPERSTRUCTURE - NON EPOXY								
BAR	LOCATION	SIZE	NO. REQ'D.	A	B	C	D	LENGTH
A400	ENDWALL	4	13					37'-0"
A401	ENDWALL	4	13					16'-2"
A402	ENDWALL	4	14					26'-6"
A403	ENDWALL	4	13					17'-10"
A404	ENDWALL	4	13					35'-10"
A405	ENDWALL	4	13					35'-9"
A406	ENDWALL	4	13					15'-4"
A407	ENDWALL	4	14					29'-6"
A408	ENDWALL	4	13					19'-1"
A409	ENDWALL	4	13					36'-8"
A512	DIAPHRAGM	5	28					23'-6"
CU400	ENDWALL	4	52					6'-0"
F400	ENDWALL	4	15	4'-6"	0'-3"	1'-0"	1'-0"	6'-7"
H500	ENDWALL	5	324	1'-8"	0'-6"			2'-8"
H503	ENDWALL	5	221	1'-3"	1'-9"			4'-9"
L401	DIAPHRAGM	4	88	0'-7"	2'-0"	1'-6"		6'-2"
BENT 1								
A500	CAP	5	8					24'-10"
A600	CRASHWALL	6	52					14'-7"
A601	CRASHWALL	6	262					2'-0"
A602	CRASHWALL	6	190					11'-8"
A603	CRASHWALL	6	26					11'-4"
A604	CRASHWALL	6	110					17'-1"
A605	CRASHWALL	6	36					12'-3"
A606	CRASHWALL	6	26					12'-11"
A608	CRASHWALL	6	36					12'-9"
A900	CAP	9	6					47'-8"
A1000	COLUMN	10	24					26'-6"
D700	FOOTING	7	60	8'-6"				10'-2"
D900	CAP	9	6	47'-8"				50'-2"
H400	CAP	4	72	1'-2"	1'-5"			4'-0"
L400	CAP	4	72	2'-8"	1'-0"	2'-8"		11'-8"
L401	COLUMN	4	76	2'-2"	1'-0"	2'-2"		9'-8"
L402	COLUMN	4	76	1'-6 1/2"	1'-0"	1'-6 1/2"		7'-2"
R1000	FOOTING	10	24	10'-6"	1'-10"			12'-4"
BENT 2								
A500	CAP	5	8					24'-10"
A600	CRASHWALL	6	52					14'-7"
A601	CRASHWALL	6	260					2'-0"
A602	CRASHWALL	6	190					11'-8"
A603	CRASHWALL	6	26					11'-4"
A604	CRASHWALL	6	108					17'-1"
A605	CRASHWALL	6	72					12'-3"
A606	CRASHWALL	6	26					12'-11"
A900	CAP	9	6					47'-8"
A1001	COLUMN	10	24					28'-0"
D700	FOOTING	7	60	8'-6"				10'-2"

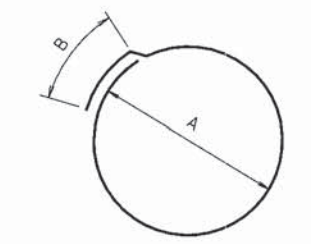
BENT 2 CONTINUED								
BAR	LOCATION	SIZE	NO. REQ'D.	A	B	C	D	LENGTH
D900	CAP	9	6	47'-8"				50'-2"
H400	CAP	4	72	1'-2"	1'-5"			4'-0"
L400	CAP	4	72	2'-8"	1'-0"	2'-8"		11'-8"
L401	COLUMN	4	80	2'-2"	1'-0"	2'-2"		9'-8"
L402	COLUMN	4	80	1'-6 1/2"	1'-0"	1'-6 1/2"		7'-2"
R1000	FOOTING	10	24	10'-6"	1'-10"			12'-4"
ABUTMENT 1 - EPOXY								
H600E	ABUTMENT BEAM	6	48	0'-8"	4'-6"			9'-8"
ABUTMENT 1 - NON EPOXY								
A740	ABUTMENT BEAM	7	7					46'-7"
A940	ABUTMENT BEAM	9	11					46'-7"
L500	ABUTMENT BEAM	5	44	3'-2"	1'-0"	2'-2"		11'-8"
ABUTMENT 2 - EPOXY								
H600E	ABUTMENT BEAM	6	55	0'-8"	4'-6"			9'-8"
ABUTMENT 2 - NON EPOXY								
A741	ABUTMENT BEAM	7	7					55'-0"
A941	ABUTMENT BEAM	9	11					55'-0"
L500	ABUTMENT BEAM	5	55	3'-2"	1'-0"	2'-2"		11'-8"



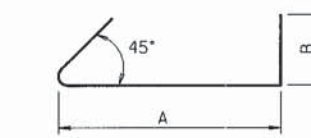
BARS YA



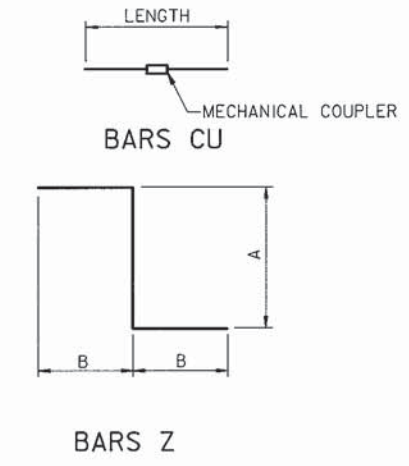
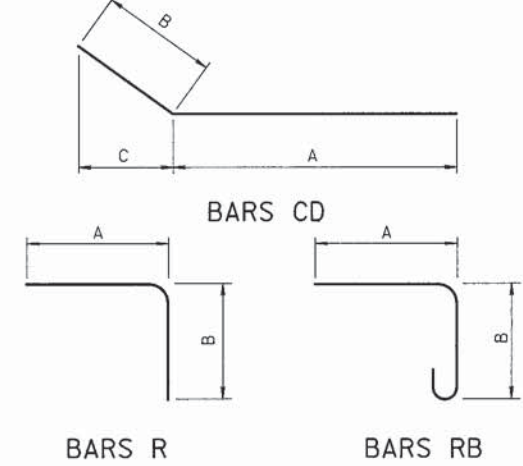
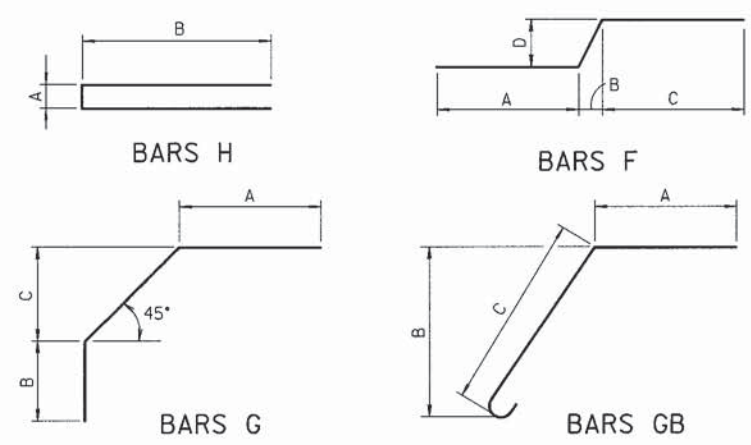
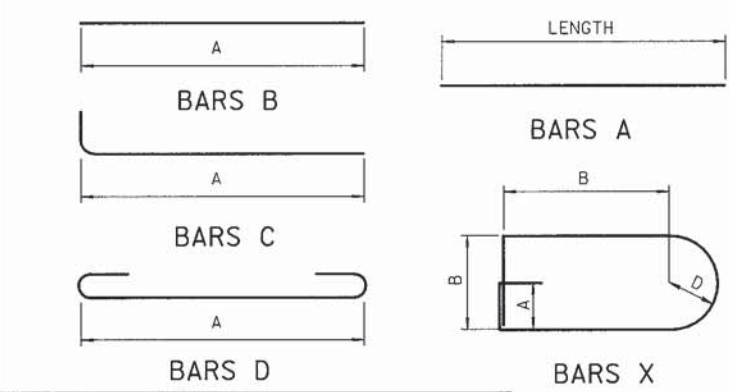
BARS L



BARS T



BARS YB



DESIGNED BY R.V. BENEDA DATE 12-90
 DRAWN BY S.J. MATHEWS DATE 12-90
 SUPERVISED BY R.V. BENEDA DATE 12-90
 CHECKED BY S.L. POWELL DATE 12-90

STATE OF TENNESSEE
 DEPARTMENT OF TRANSPORTATION
 BUREAU OF HIGHWAYS
 BRIDGE NO. 11 & 12
 BILL OF STEEL
 I-75 WIDENING OVER
 CSX RAILROAD
 STATION 76+21.60
 HAMILTON COUNTY
 1991

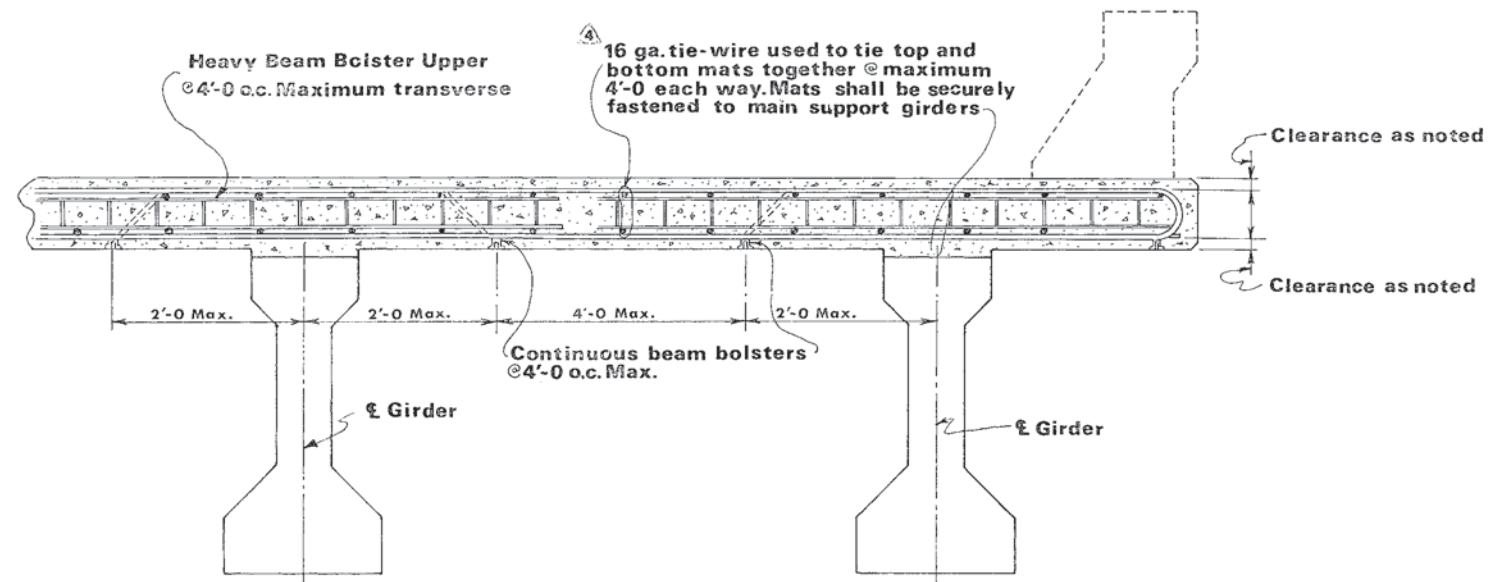
PROJECT NO.	YEAR	SHEET NO.	
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	10-13-59		Reinf. bar clearance
2	6-16-70		Gen. Revisions
3	9-12-74		Note 3 changed
4	1-14-75		Revised Note
5	8-27-76		Revised Note #10 & added TABLE A & B, added note 13.

TABLE A

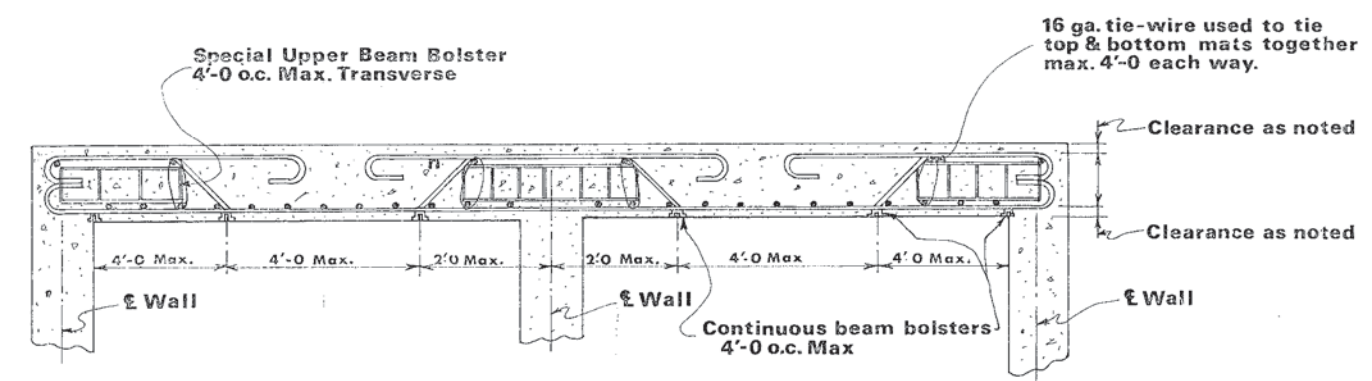
Bar Size	Approx dia. outside deformations (inches)
#3	7/16
#4	9/16
#5	11/16
#6	7/8
#7	1

TABLE B

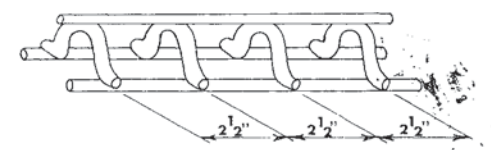
Bar Size	Approx dia. outside deformations (inches)
8	1 1/8
9	1 1/4
10	1 7/16
11	1 5/8
14	1 7/8
13	2 1/2



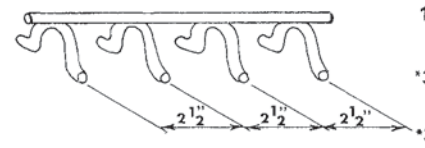
TYPICAL DETAILS FOR GIRDER TYPE BRIDGES



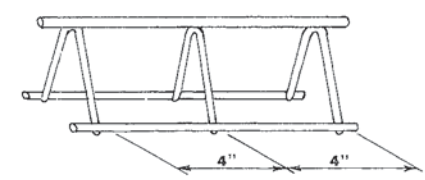
TYPICAL DETAILS FOR BOX TYPE STRUCTURES



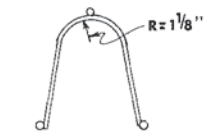
HEAVY BEAM BOLSTER UPPER (HBBU)



BEAM BOLSTER (BB)



SPECIAL UPPER BEAM BOLSTER



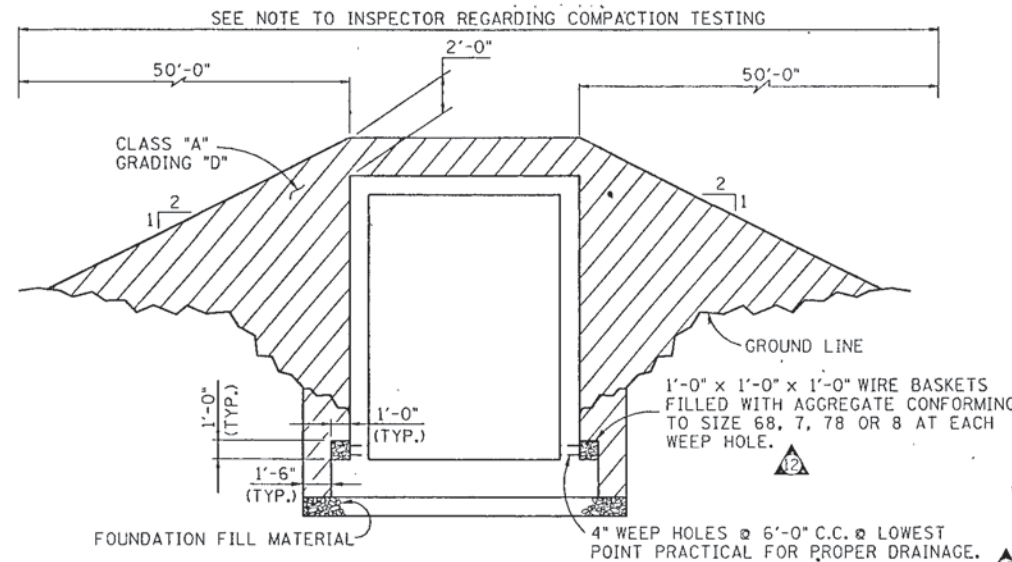
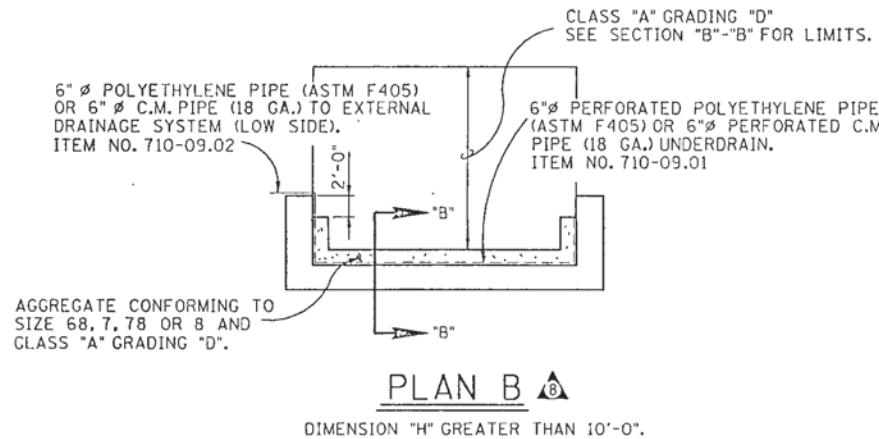
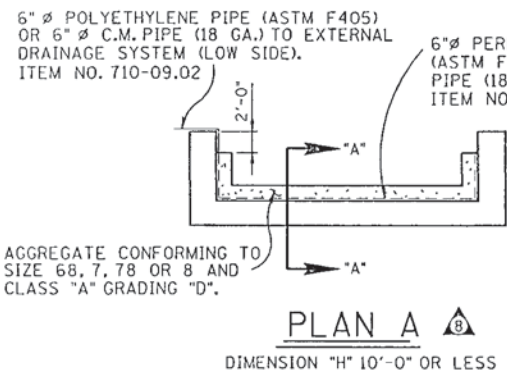
END VIEW

1. Reinforcement in Bridge slabs and top slabs of boxes shall be securely spaced from the forms by metal spacers as indicated this sheet. Other type spacers will not be permitted.
2. All beam bolsters (BB) & heavy beam bolster upper (HBBU) and Special Upper Beam bolster shall be made according to C.R.S.I. Specifications.
3. Beam bolster (BB) legs in contact with forms and to be at exposed surface of concrete, shall be either "plastic protected" or "stainless steel protected"
4. Reinforcing bars shall be securely fastened together at each intersection using a minimum 16 ga. tie wire, except where spacing is less than one foot in each direction, alternate intersections shall be fastened.
5. Reinforcing bar supports shall be furnished to minus 1/16" or plus 1/8" of specified bar.
6. The top and bottom reinforcing mats shall be tied together at maximum of 4'-0 o.c. each way.
7. When any type shear connector protrudes from the top flange of the beam, the reinforcing steel shall be tied to these connectors at maximum 2'-0 o.c. along the beam.
8. Reinforcing steel shall not be used to support concrete buggies, material carts, or bundles of re-bars.
9. Cost of all bar supports and tie wire shall be included in bid price for reinforcing steel.
10. A reinforcing bar may be substituted when a heavy Beam Bolster Upper of a 1" or less height is required. See Table A above.
11. A special Upper Beam Bolster (as detailed this sheet) may be substituted for heavy Beam Bolster Uppers required in heights of 5 1/4" or greater.
12. Steel in top & bottom of slabs of Reinforced Concrete Hollow Box Girders will be supported in accordance with this drawing.
- 13a. Plastic protected legs shall be dipped and baked onto the upturned legs per the latest C.R.S.I. specifications.
- 13b. Stainless protected legs shall be made from stainless steel with a minimum chromium content of 16% (similar to AISI TYPE 430). Per the latest C.R.S.I. specifications.
13. Use table A and/or B for bar sizes to determine beam bolster size to use.

DESIGNED BY _____ DATE _____
 DRAWN BY G.P. Mullican DATE 8-29-73
 SUPERVISED BY _____ DATE _____
 CHECKED BY _____ DATE _____

CORRECT [Signature]
 ENGINEER OF STRUCTURES
 APPROVED [Signature]
 DIRECTOR OF HIGHWAYS

STATE OF TENNESSEE
 DEPARTMENT OF TRANSPORTATION
 BUREAU OF HIGHWAYS
**STANDARD REINFORCING BAR
 SUPPORT DETAILS
 FOR
 CONCRETE SLABS**



PROJECT NO.	YEAR	SHEET NO.	
	1971		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	2-24-71	R.G.	
2	3-18-71	E.R.G.	ADDED NOTE NO.3
3	10-8-71	R.M.D.	EXCAVATION SECTION "B"- "B" CLARIFIED
4	10-10-72	R.M.D.	
5	11-27-72	R.M.D.	
6	9-9-72	C.L.L.	CHANGE NOTE
7	1-9-75	R.M.D.	NOTE CHANGED
8	7-17-86	R.M.D.	ADDED POLYETHYLENE PIPE
9	2-9-87	D.W.F.	GENERAL REVISIONS
10	6-25-87	R.M.D.	REV. PAY LIMIT BOX CULVERT, REMOVED INSERT & ADDED ITEM NO. FOR CLASS "A" GRADING "D"
11	1-7-91	R.M.D.	REV. ITEM NO. 710-09.02 TO 710-09.01 AND REV. ITEM NO. 303-01.01 TO 303-01.02
12	2-8-91	R.M.D.	REV. NOTE 2 TO INCLUDE RETAINING WALLS AND REV. ITEM NO. 710-09.02 TO 710-09.01
13	6-24-91	M.A.H.	ADDED SECTION SHOWING GEOCOMPOSITE DRAINAGE SYSTEM AND NOTE NO.4
14	9-1-91	M.A.H.	CHANGED DWG. NO. FROM K-85-150
15	9-18-91	M.A.H.	REMOVED WATERPROOFING
16	5-11-92	M.A.H.	DELETED ALTERNATE "B" AND NOTES

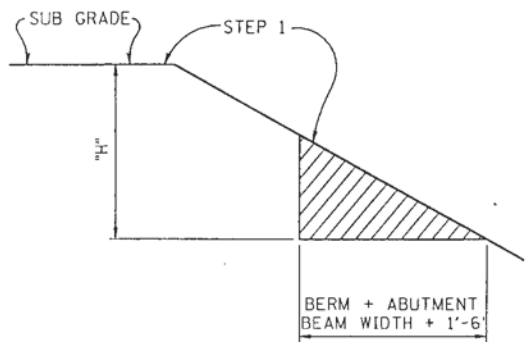
NOTES

- BACKFILLING: UNLESS OTHERWISE SPECIFIED OR DIRECTED, THE CONTRACTOR SHALL BACKFILL BEHIND ABUTMENTS, RETAINING WALLS OF BOX TYPE BRIDGES AND CULVERTS AS SOON AS THE FOLLOWING CONDITIONS ARE MET:
 - CONCRETE SURFACES AGAINST WHICH BACKFILL WILL BE PLACED HAVE BEEN GIVEN A CLASS 1 FINISH AS SPECIFIED IN SUBSECTION 604.22.
 - REPRESENTATIVE SPECIMENS OF THE CONCRETE IN THE STRUCTURE, SECTION OR UNIT, CURED BY THE METHODS AND IN THE MANNER THAT THE CONCRETE WHICH THE TEST SPECIMENS REPRESENT IS CURED, ATTAIN A COMPRESSIVE STRENGTH OF 3,000 POUNDS PER SQUARE INCH.
 - THE CONCRETE SHALL HAVE BEEN PLACED A MINIMUM OF 7 DAYS, NOT COUNTING THE DAYS OF TWENTY-FOUR HOURS EACH IN WHICH THE TEMPERATURE FALLS BELOW FORTY DEGREES FAHRENHEIT, OR 21 CALENDAR DAYS WHICHEVER OCCURS FIRST.
- THE PLACEMENT OF BACKFILL AND EMBANKMENT SHALL BE IN ACCORDANCE WITH SUBSECTION 204.11 AND SUBSECTION 205.04, RESPECTIVELY, AND AS SPECIFIED ON THE PLANS.
- CLASS "A" GRADING "D" MATERIAL SHALL BE PAID FOR UNDER ITEM NO. 303-01.02, GRANULAR BACKFILL (BRIDGES) OR ITEM 303-01.03 THRU 303-01.08, GRANULAR BACKFILL (RETAINING WALLS).
- IN LIEU OF THE CLASS "A" GRADING "D" MATERIAL SHOWN, CLASS "B" GRADING "C" OR "D" MAY BE USED.
- LOCATE PIPE AT LOWEST POINT PRACTICAL FOR PROPER DRAINAGE WITH SLOPE PARALLEL TO ABUTMENT BEAM OR RETAINING WALL (1/8" PER FOOT MINIMUM). INSTALL PIPE AND 1'-0" OF COVER AS SOON AS POSSIBLE AFTER FORMING WALL.

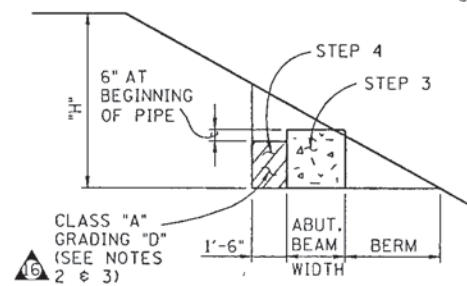
MINOR REVISION - FHWA APPROVAL NOT REQUIRED

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
MISCELLANEOUS ABUTMENT AND DRAINAGE DETAILS
1971

CORRECT *Edward P. Wasserman*
ENGINEER OF STRUCTURES



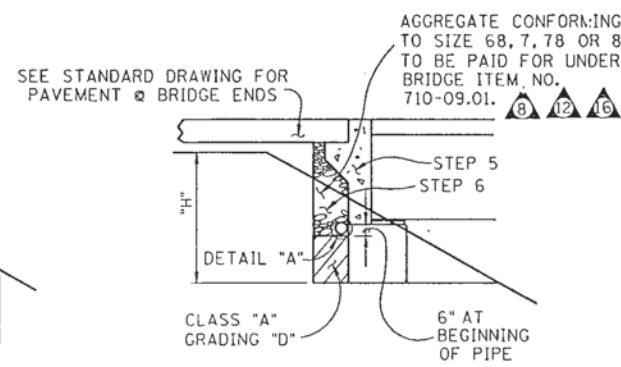
- STEP 1: PLACE AND COMPACT END FILL.
- STEP 2: EXCAVATE SHADED AREA AS SHOWN, SHALL BE PAID AS DRY EXCAVATION (BRIDGE) OR UNCLASSIFIED EXCAVATION (BRIDGE).



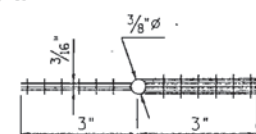
- STEP 3: POUR ABUTMENT BEAM.
- STEP 4: PLACE BACKFILL MATERIAL BEHIND ABUTMENT BEAM. SEE NOTE 1.

SECTION "A"- "A"

NOTE: THE CONSTRUCTION SEQUENCE SHOWN ABOVE IS APPLICABLE WHERE DIMENSION "H" IS LESS THAN OR EQUAL TO 10'-0".

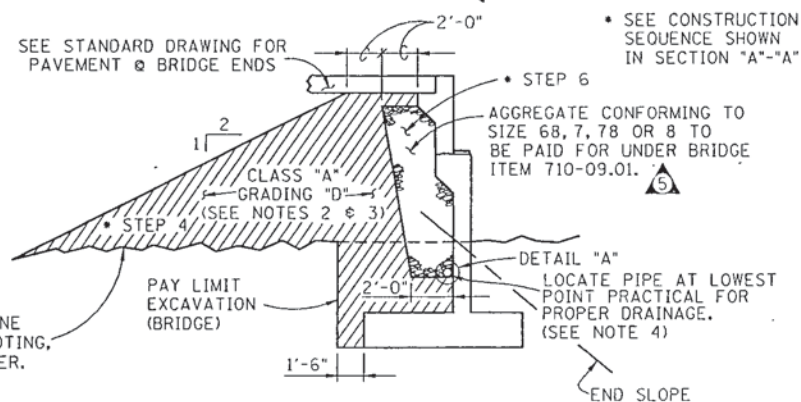


- STEP 5: POUR ENDWALL.
- STEP 6: PLACE BACKFILL MATERIAL BEHIND ENDWALL. SEE NOTE 1.



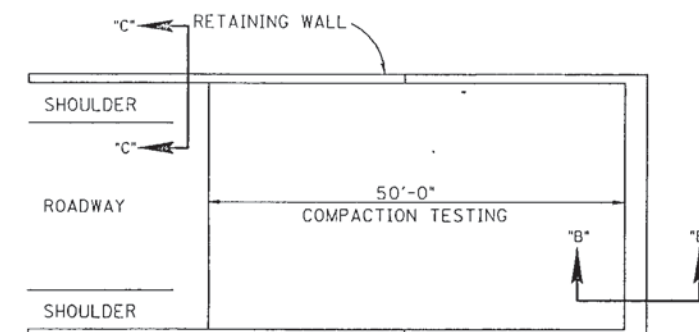
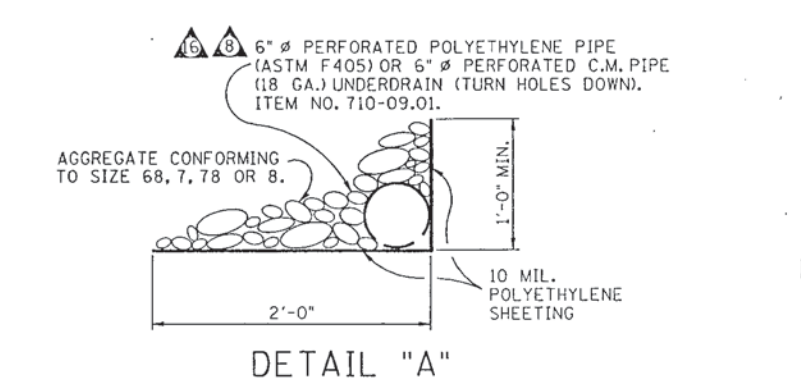
WATERSTOP DETAIL

(FOR LOCATION SEE DESIGN DRAWING)



SECTION "B"- "B" Δ Δ Δ Δ Δ Δ

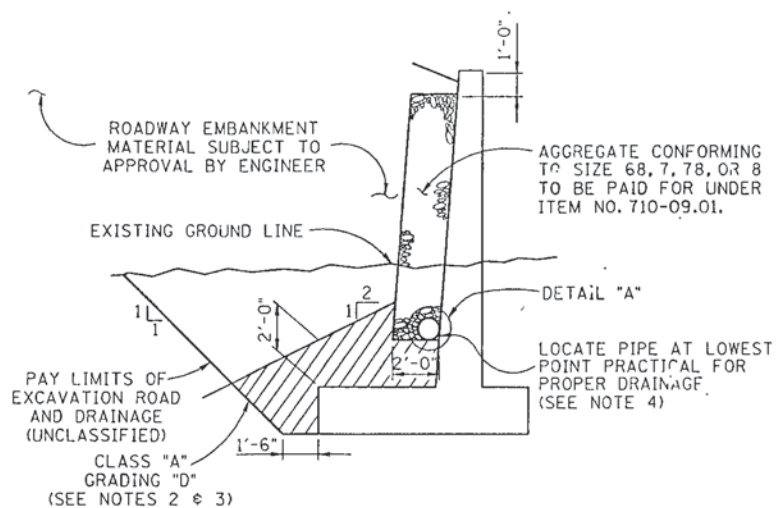
(TYPICAL FOR COUNTERFORT OR CANTILEVER CLOSED ABUTMENTS GREATER THAN 10' IN HEIGHT)



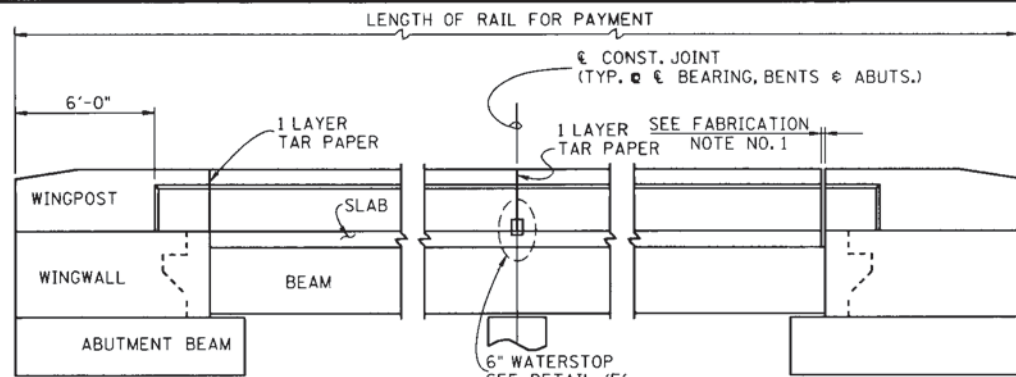
PLAN OF APPROACH ROADWAY AND ABUTMENT

NOTE TO INSPECTOR: SEE MATERIALS AND TESTS SAMPLING AND TESTING SCHEDULE FOR FREQUENCY OF COMPACTION TESTING OF EMBANKMENT AND BACKFILL MATERIAL. ALSO NOTE 1.

RETAINING WALL SECTION "C"- "C"

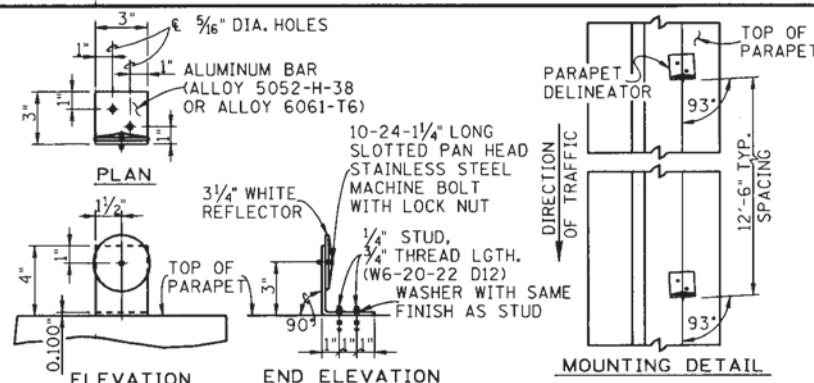


DESIGNED BY R. DISHNER DATE _____
DRAWN BY KEITH DOUGLAS DATE 1-91
SUPERVISED BY DATE _____
CHECKED BY R. DISHNER DATE 1-91



EXTERIOR ELEVATION OF PARAPET ③ ④

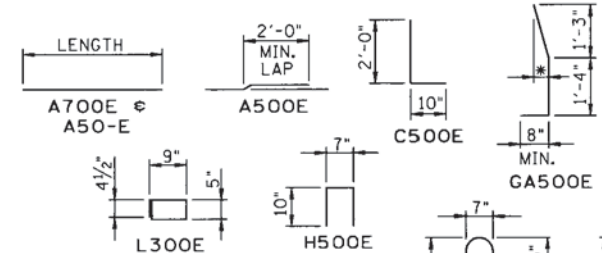
NOTE: USE WINGPOST 'A' FOR W-BEAM GUARDRAIL CONNECTION AND USE WINGPOST 'B' FOR THRIE-BEAM GUARDRAIL CONNECTION.



PARAPET DELINEATOR ⑤

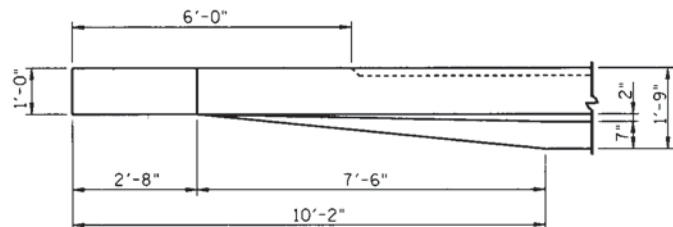
REINFORCING NOTES:

1. BAR DIMENSIONS ARE OUT TO OUT. FIRST DIGIT OF THE NUMBER INDICATES SIZE.
2. THESE BARS SHALL BE FULL LENGTH OF PARAPET EXCEPT THAT NO BAR WILL PASS THROUGH OPEN JOINTS.
3. BASED ON NO OVERLAY ON THE BRIDGE. TO BE INCREASED AS REQUIRED FOR ASPHALT OVERLAY.



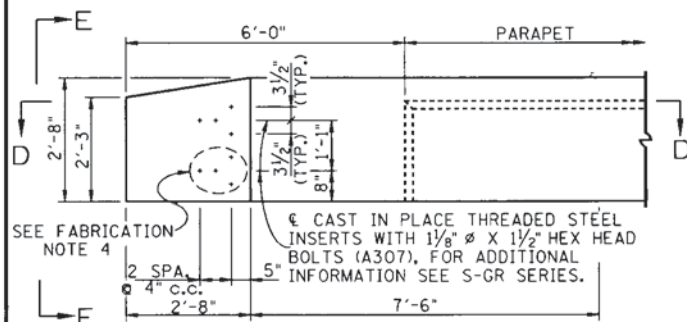
PROJECT NO.	YEAR	SHEET NO.	
	1987		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	9-07-87	RMD	REVISED WINGPOST AND RAIL
2	2-08-88	RMD	REVISED ENDPOST AND WATERSTOP
3	5-18-88	RMD	GENERAL REVISIONS
4	11-01-88	RMD	GENERAL REVISIONS
5	6-24-91	RMD	ADDED DELINEATOR DETAILS & NOTES & EDITORIAL CORRECTIONS.

* DENOTES: DIMENSION VARIES, 8 1/2" MAX.
 ** DENOTES: DIMENSION VARIES, 11" MAX.



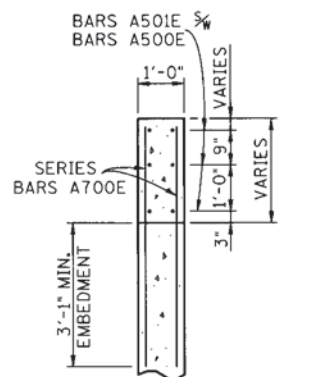
PLAN OF WINGPOST ③ ④ ⑤

(USED FOR W-BEAM TO WINGPOST CONNECTION)

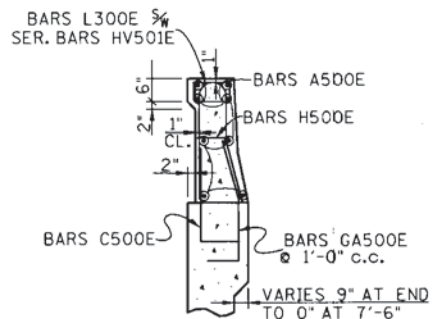


ELEVATION OF WINGPOST

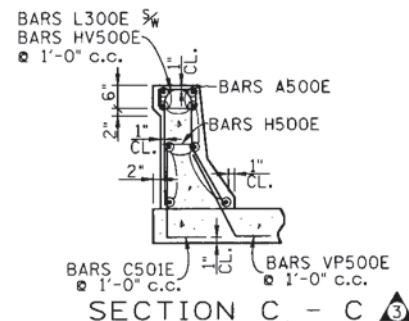
(SHOWING WINGPOST FOR W-BEAM CONNECTION)



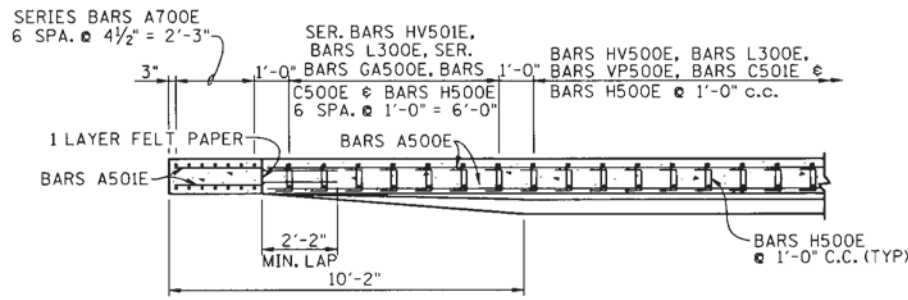
SECTION A - A



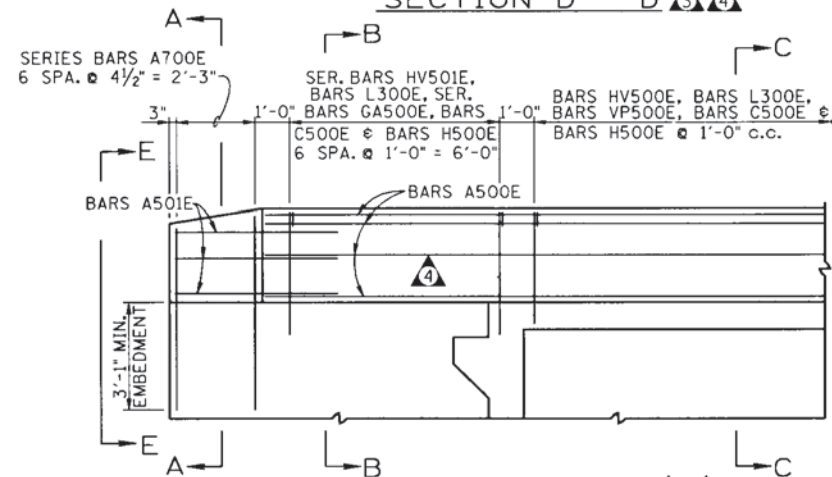
SECTION B - B ③



SECTION C - C ③

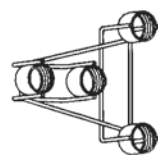


SECTION D - D ③ ④

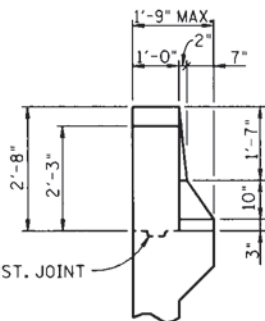


ELEVATION ③ ④

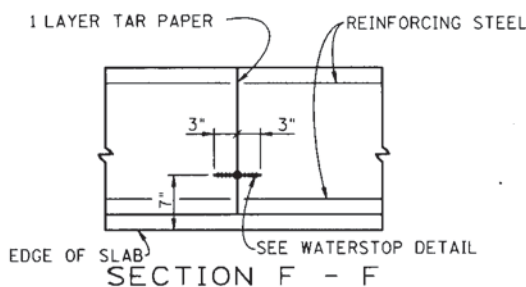
SHOWING REINFORCEMENT OF WINGPOST 'A' (ELEVATION OF WINGPOST 'B' SIMILAR)



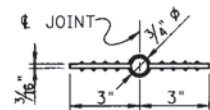
INSERT ASSEMBLY



END ELEVATION E - E

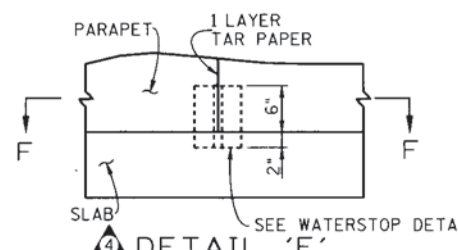


SECTION F - F



WATERSTOP DETAIL

DIMENSIONS SHOWN ARE FOR A 1" JOINT. ADJUST BULB DIMENSIONS FOR A LARGER JOINT. SEE TN. STD. SPEC. 918.11.



DETAIL 'E'

(TYP. AT & BEARING @ BENTS & ABUTMENTS)
 NOTE: CONTRACTOR MAY POUR THE PARAPET WITHOUT FELT PAPER AND SAW A 1 1/2" DEEP GROOVE ON ALL EXPOSED SIDES OF PARAPET IN ACCORDANCE WITH STANDARD SPECIFICATION SECTIONS FOR TRANSVERSE CONTRACTION JOINTS.

GENERAL NOTES:

- DESIGN: AASHTO SPECIFICATIONS CURRENT EDITION WITH ADDENDA.
 SPECIFICATIONS: STANDARD ROAD AND BRIDGE SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION. (CURRENT EDITION).
 CONCRETE: TO BE CLASS 'A' f'c = 3,000 psi. SEE SPECIAL PROVISION REGARDING SECTION 604 - CONCRETE STRUCTURES.
 REINFORCING STEEL: TO BE ASTM A615 GRADE 60. SPACING DIMENSIONS ARE CENTER TO CENTER UNLESS OTHERWISE NOTED. THE SUFFIX 'E' FOR BARS SO MARKED, DENOTES EPOXY COATED REINFORCEMENT. SEE SPECIAL PROVISION 907A.

- ⑤ PARAPET DELINEATOR REFLECTOR SHALL CONFORM TO THE REQUIREMENTS OUTLINED IN SECTION 916.08 OF THE STANDARD SPECIFICATIONS FOR TYPE I OR TYPE II DELINEATORS.
- ⑤ PARAPET DELINEATORS WILL NOT BE REQUIRED IN AREAS WHERE ROADWAY IS LIGHTED.
- ⑤ THE COST OF FURNISHING AND INSTALLING PARAPET DELINEATORS, INCLUDING ALL MATERIALS, LABOR AND INCIDENTALS NECESSARY TO COMPLETE THE INSTALLATION, SHALL BE INCLUDED IN BID PRICE FOR PARAPET.

FABRICATION NOTES:

1. OPEN JOINTS OR FILLED JOINTS WILL BE ALLOWED IN PARAPET ONLY WHEN SHOWN ON PROJECT DRAWINGS. JOINTS SHALL CONFORM TO THE JOINT DETAILS ON THIS SHEET OR AS OTHERWISE SHOWN ON PROJECT DRAWINGS OR APPROVED SHOP DRAWINGS.
2. PARAPET CONCRETE SHALL NOT BE CAST PRIOR TO REMOVAL OF ALL SUPERSTRUCTURE RELATED FALSEWORK.
3. ALIGNMENT AND PROFILE OF PARAPET SHALL CONFORM TO ROADWAY PROFILE AND GEOMETRY.
4. AT THE TRAILING END OF THE BRIDGE ON A DIVIDED HIGHWAY, WHEN GUARDRAIL IS REQUIRED, ONLY THE UPPER INSERT ASSEMBLY IS REQUIRED. REFER TO STANDARD S-GR SERIES.

WINGPOST QUANTITIES

(PER WING, BASED ON 10'-2" WINGPOST)

CLASS 'A' CONCRETE C.Y.	REINFORCING STEEL LB.
1.028	352

PARAPET QUANTITIES

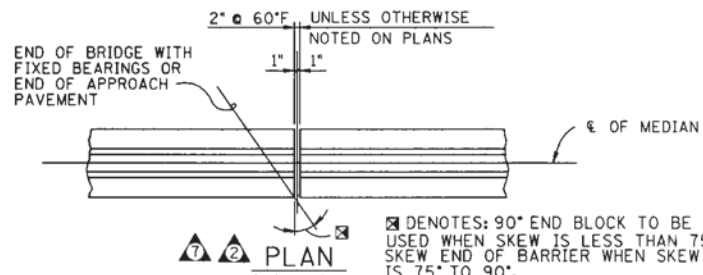
(PER LINEAR FOOT)

CLASS 'A' CONCRETE C.Y.	REINFORCING STEEL LB.
.1119	23

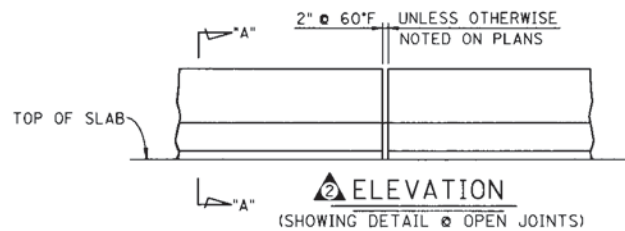
STATE OF TENNESSEE
 DEPARTMENT OF TRANSPORTATION

BRIDGE RAILING CONCRETE PARAPET 1987

CORRECT *Edward P. Wasserman*
 ENGINEER OF STRUCTURES

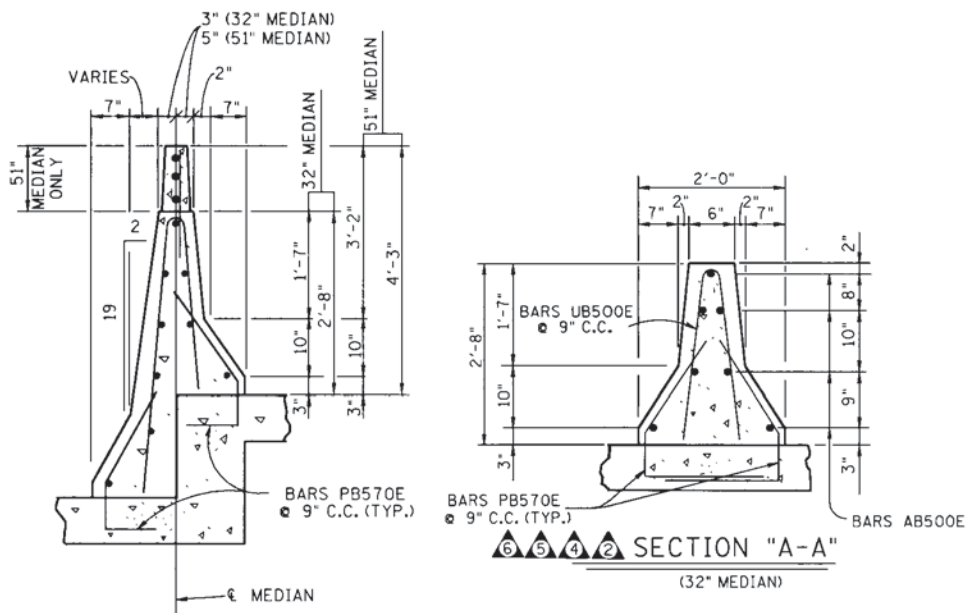


PLAN



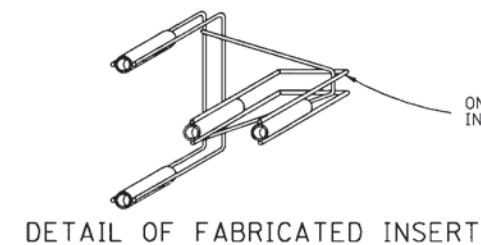
ELEVATION

(SHOWING DETAIL OF OPEN JOINTS)



SECTION "A-A"

(TYP. FOR OFF-SET BRIDGES)

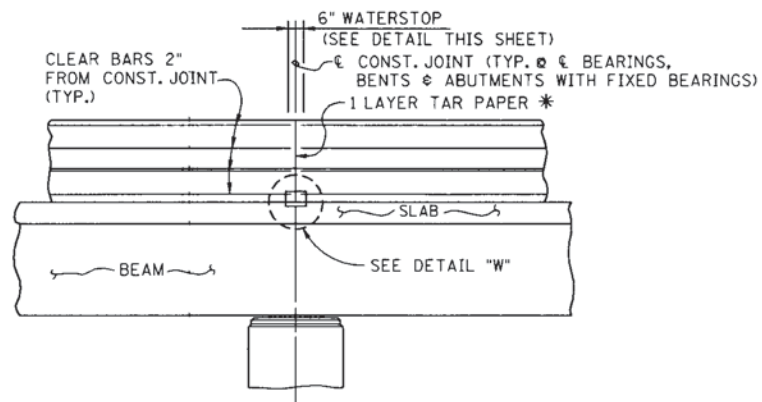


DETAIL OF FABRICATED INSERT

NOTE: ONE PIECE FABRICATED INSERT ASSEMBLY WITH 4 - 7/8" X 1 1/2" (A307), HEX HEAD BOLTS AND WASHERS. INSERTS TO BE CLOSED END AND BOLTED TO FORMS DURING CONCRETE POURING AND CURING PROCESS IN ORDER TO KEEP THE THREADS CLEAN AND CLEAR OF DEBRIS AND TO INSURE PROPER ALIGNMENT. SEE STD. DWG. S-GR SERIES FOR ADDITIONAL INFORMATION.

PLAN (SHOWING GUARDRAIL ATTACHMENT)

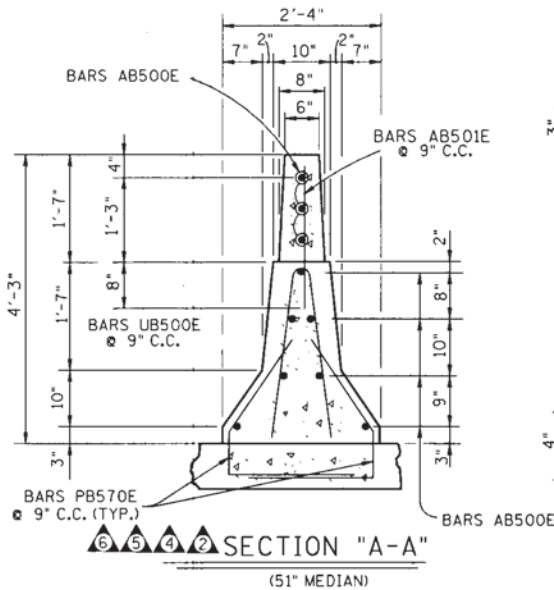
NOTE: FOR ADDITIONAL DIMENSIONS AND DETAILS OF TRANSITION FROM CONCRETE MEDIAN BARRIER TO METAL MEDIAN DIVIDER GUARDRAIL, SEE STANDARD DRAWING S-MB-1.



TYPICAL ELEVATION @ SUPPORT

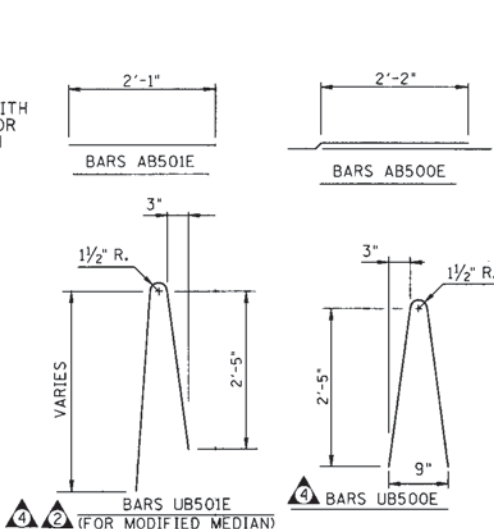
(SHOWING DETAILS OF FIXED OR INTEGRAL SUPPORTS)

* NOTE: CONTRACTOR MAY POUR THE PARAPET WITHOUT TAR PAPER AND SAW A 1 1/2" DEEP GROOVE ON ALL EXPOSED SIDES OF THE MEDIAN IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION FOR TRANSVERSE CONTRACTION JOINTS.

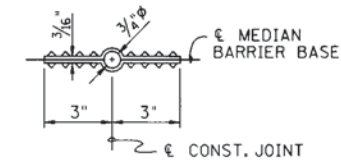


SECTION "A-A"

(51' MEDIAN)

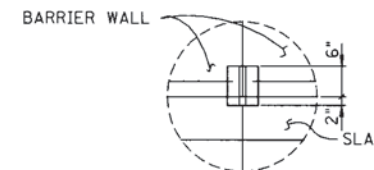


PLAN (FOR MODIFIED MEDIAN)

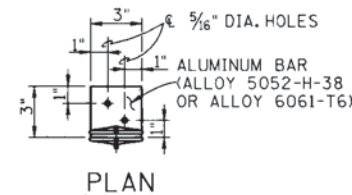


WATERSTOP DETAIL

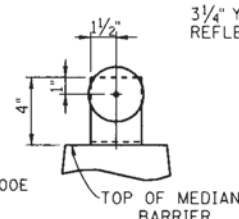
DIMENSIONS SHOWN ARE FOR A 1" JOINT. ADJUST BULB DIMENSION FOR A LARGER JOINT. ALSO SEE DESIGN DRAWINGS AND SHOP DRAWINGS OF ROADWAY EXPANSION DEVICES.



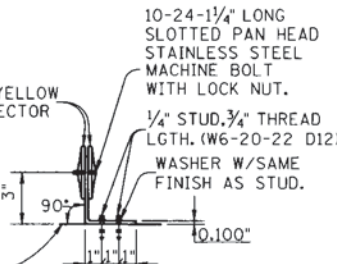
DETAIL "W"



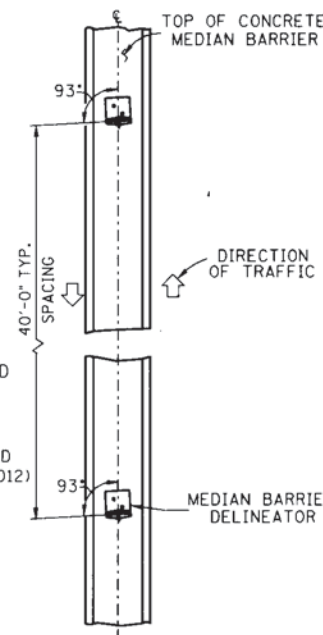
PLAN



ELEVATION



END ELEVATION



MOUNTING DETAIL

MEDIAN BARRIER DELINEATOR

ESTIMATED QUANTITIES-PER FOOT			
ITEM	CLASS "A" CONCRETE (BRIDGES) C.Y.	EPOXY COATED REINFORCING STEEL LB.	TEXTURE COATED FINISHING (NEW STRUCTURES) S.Y.
32" MEDIAN	0.101	15	.6910
51" MEDIAN	0.168	21	1.062

NOTE: QUANTITIES GIVEN FOR STANDARD SECTION AND NOT FOR SECTION MODIFIED FOR OFF-SET BRIDGES.

NOTE: THE COST OF EPOXY COATED REINFORCING STEEL, CLASS "A" CONCRETE, TEXTURE COATED FINISHING AND DELINEATORS FOR THE MEDIAN BARRIER TO BE INCLUDED IN THE PRICE BID ITEM NO. 711-02.03 (32" MEDIAN) OR 711-02.04 (51" MEDIAN).

PROJECT NO.	YEAR	SHEET NO.	
	1990		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	7-1-86	R.M.D.	NOTES
2	10-17-85	J.W.F.	ITEM NO. & BAR UB501E @ 60' & TITLES
3	9-8-87	J.W.F.	ITEM NO.
4	8-1-89	R.M.D.	51" MEDIAN, EST. QUANT., STEEL, & NOTES
5	2-1-90	M.A.H.	DEPRESSION CHANGE FROM 3 SIDES TO 1 SIDE. ADDED SECTION B-B, 32" & 51" EST. QUANT., NOTES
6	12-6-90	R.M.D.	GENERAL REVISIONS AND MOVED PARAPET DRAIN DETAILS TO M-28-1B AND ADDED DELINEATOR DETAILS.
7	2-8-91	M.A.H.	CHANGED NOTES
8	6-24-91	M.A.H.	COLOR OF DELINEATOR REFLECTOR

GENERAL NOTES

SPECIFICATIONS : STANDARD ROAD AND BRIDGE SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION (CURRENT EDITION).

DESIGN : AASHTO SPECIFICATIONS CURRENT 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 AND COVER DIMENSIONS ARE CLEAR DISTANCE UNLESS OTHERWISE NOTED. PLACING TOLERANCES ARE ± 1/2" FOR SPACING AND - 1/8" OR + 3/8" FOR COVER. THE SUFFIX, FOR BARS SO MARKED, DENOTES EPOXY COATED REINFORCEMENT. SEE SPECIAL PROVISION 907A.

CONCRETE : TO BE CLASS "A" f'c = 3,000 P.S.I. SEE SPECIAL PROVISION REGARDING SECTION 604 - CONCRETE STRUCTURES.

NOTE : PRECAST BRIDGE DECK PANELS WILL NOT BE PERMITTED IN BAYS SUPPORTING MEDIAN BARRIER RAILS.

WATERSTOPS : SEE TENNESSEE STANDARD SPECIFICATION SECTION 918.11.

FABRICATION :

- OPEN JOINTS WILL BE ALLOWED IN THE MEDIAN BARRIER ONLY WHEN SHOWN ON PROJECT DRAWINGS. JOINTS SHALL CONFORM TO THE JOINT DETAIL ON THIS SHEET OR AS OTHERWISE SHOWN IN PROJECT DRAWING.
- MEDIAN BARRIER CONCRETE SHALL NOT BE CAST PRIOR TO REMOVAL OF ALL SUPERSTRUCTURE RELATED FALSEWORK.
- ALIGNMENT AND PROFILE MEDIAN BARRIER SHALL CONFORM TO ROADWAY PROFILE AND GEOMETRY.

BARS PB570E : THESE BARS ARE SUPERSTRUCTURE REINFORCING AND ARE SHOWN ON THIS SHEET FOR CLARITY ONLY.

NOTE : MEDIAN BARRIER DELINEATOR REFLECTOR SHALL CONFORM TO THE REQUIREMENTS OUTLINED IN SECTION 916.08 OF THE STANDARD SPECIFICATIONS FOR TYPE I OR II DELINEATOR.

NOTE : MEDIAN BARRIER DELINEATORS WILL NOT BE REQUIRED IN AREAS WHERE ROADWAY IS LIGHTED.

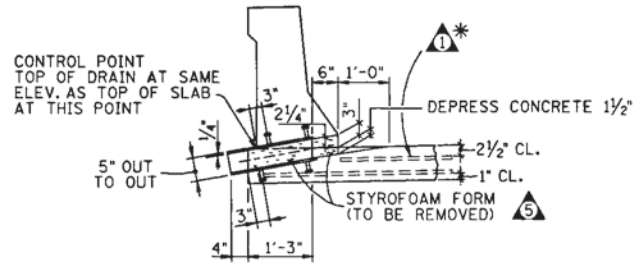
NOTE : THE COST OF FURNISHING AND INSTALLING MEDIAN BARRIER DELINEATORS, INCLUDING ALL MATERIALS, LABOR AND INCIDENTALS NECESSARY TO COMPLETE THE INSTALLATION, SHALL BE INCLUDED IN BID PRICE FOR CONCRETE MEDIAN BARRIER.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
STANDARD
CONCRETE MEDIAN BARRIER
(BRIDGES)
1990

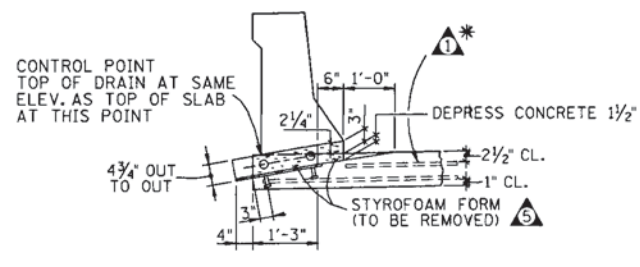
CORRECT *Edward P. Wasserman*
ENGINEER OF STRUCTURES

DESIGNED BY R.M. DISHNER DATE
DRAWN BY GEORGE KORNKOSKI DATE 5-90
SUPERVISED BY BILBREY & DISHNER DATE 5-90
CHECKED BY DATE

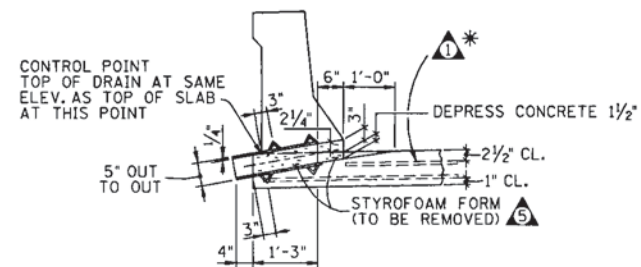
PROJECT NO.	YEAR	SHEET NO.	
	1990		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	7-1-86	R.M.D.	NOTES
2	10-17-86	J.W.F.	ITEM NO. # BAR UBSOIE # # 60' # TITLES
3	9-8-87	J.W.F.	ITEM NO.
4	8-1-89	R.M.D.	51' MEDIAN, EST. QUANT., STEEL, # NOTES
5	2-1-90	M.A.H.	DEPRESSION CHANGE FROM 3 SIDES TO 1 SIDE ADDED SECTION B-B, 32" # 51' EST. QUANT., NOTES
6	12-6-90	R.M.D.	NEW DRAWING # ADDED ALTERNATE "B"
7	2-8-91	M.A.H.	CHANGED NOTE (EXCEPT ALT. "C")
8	5-1-91	R.M.D.	REVISED NOTE



TYPICAL SECTION ALONG ϵ METAL DRAIN
(ALTERNATE "A" ϵ "B")



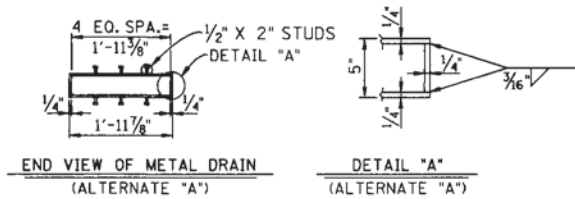
TYPICAL SECTION ALONG ϵ METAL DRAIN
(ALTERNATE "C")



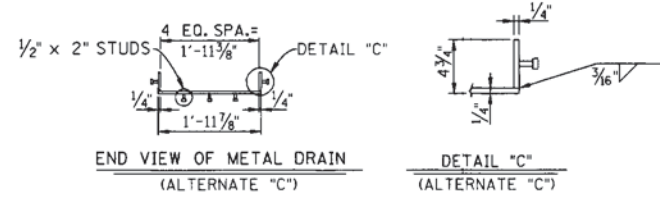
TYPICAL SECTION ALONG ϵ PVC DRAIN
(ALTERNATE "D")

GENERAL NOTES

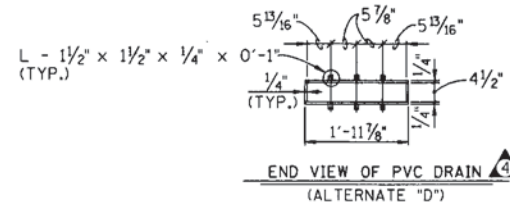
- ⑧ FOR ALTERNATE "A", "B" OR "C": THE METAL DRAINS SHALL BE FABRICATED FROM A 36 STEEL PLATE. ALL WELDING, INCLUDING STUDS, SHALL BE COMPLETED PRIOR TO METAL DRAINS BEING ZINC COATED TO A THICKNESS OF 2.3 OZ./FT.² BY EITHER HOP DIP GALVANIZING (ASTM A-123) OR OTHER METALIZING PROCESS APPROVED BY MATERIALS AND TEST DIVISION.
- ④ THE CONTRACTOR MAY USE A WHITE OR GREY PVC MATERIAL FOR THE METAL PORTION OF THE DRAIN. THE ALTERNATE MATERIAL SHALL HAVE ENOUGH STRENGTH TO MAINTAIN ITS SHAPE FOR THE 4" OVERHANG. SHEAR CONNECTORS SHALL BE ATTACHED TO PREVENT SEPARATION OF THE MATERIAL FROM THE CONCRETE. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
- ④ THE CONTRACTOR MAY USE EITHER ALTERNATE "A", "B", "C" OR "D".
- ① THE COST OF DECK DRAINS TO BE INCLUDED IN COST OF LIN. FT. PARAPET.
- ④ TOP OF DRAIN UNIT TO BE SUPPORTED INTERNALLY AT MID-SPAN BY CONTRACTOR PRIOR TO AND DURING POURING OF PARAPET CONCRETE. SUPPORT MATERIAL TO BE REMOVED AFTER PARAPET CONCRETE HAS SET.



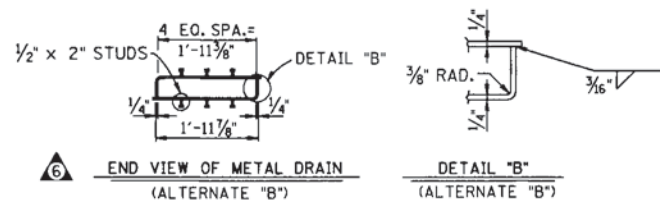
END VIEW OF METAL DRAIN (ALTERNATE "A")
DETAIL "A" (ALTERNATE "A")



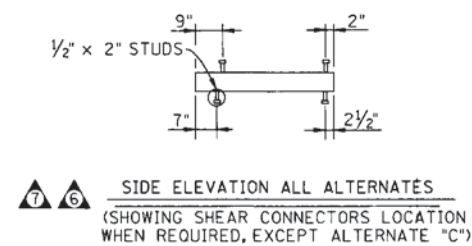
END VIEW OF METAL DRAIN (ALTERNATE "C")
DETAIL "C" (ALTERNATE "C")



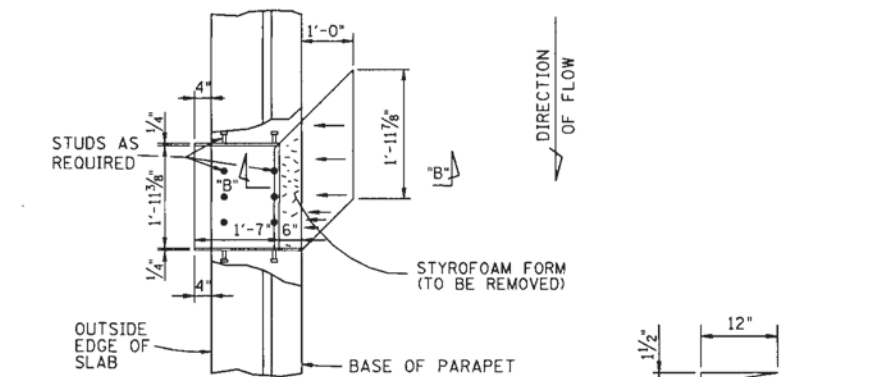
END VIEW OF PVC DRAIN (ALTERNATE "D")



END VIEW OF METAL DRAIN (ALTERNATE "B")
DETAIL "B" (ALTERNATE "B")



SIDE ELEVATION ALL ALTERNATES
(SHOWING SHEAR CONNECTORS LOCATION WHEN REQUIRED, EXCEPT ALTERNATE "C")



PLAN OF PARAPET DRAIN AND ROADWAY DEPRESSION
(ALTERNATE "A", "B", "C", OR "D")
SECTION "B"- "B"

① * DENOTES BARS IN CONFLICT WITH DECK DRAIN TO BE CUT-IN FIELD. EPOXY BARS TO BE REPAINTED ACCORDING TO ASTM D-3963 & SPECIAL PROVISION NO. 907A.

DESIGNED BY R.M. DISHNER
DRAWN BY GEORGE KORNIKOSKI
SUPERVISED BY BILBREY & DISHNER
CHECKED BY _____

DATE 5-90
DATE 5-90
DATE _____

CORRECT *Edward P. Wasserman*
ENGINEER OF STRUCTURES

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

STANDARD
PARAPET DRAINS
1990

GENERAL NOTES

- 1. CONSTRUCTION SPECIFICATIONS: STANDARD ROAD AND BRIDGE SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF HIGHWAYS (CURRENT EDITION) AND SPECIAL PROVISION 604P.
2. PORTIONS OF THE CONCRETE DECK FOR BRIDGES AND CULVERTS MAY BE CONSTRUCTED OF PRECAST PRESTRESSED BRIDGE DECK PANELS PROVIDED THEY ARE FABRICATED AND USED IN ACCORDANCE WITH THIS DRAWING, STANDARD SPEC. ART. 604.05, AASHTO ART. 4.33.16., AND SPECIAL PROVISION 604P.
3. DESIGN SPECIFICATIONS: AASHTO 1983 EDITION WITH ADDENDA.
4. CONCRETE: 28-DAY COMPRESSION STRENGTH OF 5000 P.S.I. AND A MINIMUM RELEASE STRENGTH OF 4000 P.S.I.
5. REINFORCING STEEL (FOR PANELS): ASTM A-615, GRADE 40 OR 60 (SEE NOTE 19).

DESIGN CRITERIA

Table with 4 columns: STRAND SIZE, INITIAL TENSION (LBS.), GRADE 250K, GRADE 270K, MINIMUM PANEL THICKNESS. Rows for 3/8" phi, 1/2" phi, and 5/8" phi.

*WHERE LOW RELAXATION STRANDS ARE USED, THE MAXIMUM ALLOWABLE TENSION SHALL BE THAT FOR STRESS-RELIEVED STRANDS.

- 7. THE DESIGN CHARTS ON THIS SHEET ARE APPLICABLE FOR BRIDGE DECKS WITH GIRDER SPACINGS WITHIN THE RANGE SHOWN. ALTERNATE DESIGNS FOR BRIDGE DECK SLABS AND FOR TOP SLABS OF BOX AND SLAB CULVERTS MAY BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEERING DIRECTOR OF STRUCTURES FOR APPROVAL.
8. PANELS SHALL BE DESIGNED TO SUPPORT THE DEAD LOAD OF PANEL, REINFORCEMENT, PLASTIC CONCRETE AND A 100 LBS. PER SQUARE FOOT CONSTRUCTION LOAD.
9. THE NON-COMPOSITE AND COMPOSITE DESIGN SPANS OF THE PRECAST PANEL SHALL BE AS DEFINED BY THE "DESIGN SPAN CONDITIONS" ON DWG. NO. M-164-25.
10. THE MAXIMUM INCREASE IN SLAB THICKNESS DUE TO THE USE OF PRECAST PANELS SHALL BE 1 1/2 INCHES.

TABLE OF DESIGN CRITERIA

Table with 6 columns: LOADING STAGES, APPLIED LOADS, STRAND LOSSES, ALLOW. COMP., ALLOW. TENSION, SECTION, PANEL DESIGN SPAN. Rows for AT RELEASE, INTER-MEDIATE, and FINAL stages.

FINAL PRESTRESSING FORCE IN KIPS PER FOOT OF WIDTH

Table with 7 columns: PANEL THICKNESS, TOTAL SLAB THICKNESS, and MAXIMUM CLEAR SPAN 'S' (10 K/FT. to 50 K/FT.). Rows for 3.5, 4.0, and 4.5 inch panel thicknesses.

* DENOTES MAXIMUM CLEAR SPAN CONTROLLED BY SLAB DEPTH
* DENOTES MAXIMUM CLEAR SPAN CONTROLLED BY 100 PSF CONSTRUCTION LOAD.

VALUES IN TABLE ABOVE ARE FOR CONCRETE STRUCTURES. FOR STEEL STRUCTURES REDUCE THE MAXIMUM CLEAR SPAN SHOWN BY 8/6. (B = FLANGE WIDTH).

DESIGNED BY MARK HOLLORAN DATE 10-85
DRAWN BY YICKIE HYDE AND M. DYE DATE 10-85
SUPERVISED BY R. L. H. AND D. W. F. DATE 10-85
CHECKED BY E. P. WASSERMAN DATE 10-85

STRAND SPACING / PRESTRESS FORCE TABLE

Table with 7 columns: STRAND SPACING (IN.), KIPS PER FOOT OF PANEL WIDTH (3/8" phi 250K, 3/8" phi 270K, 1/2" phi 250K, 1/2" phi 270K, 5/8" phi 250K, 5/8" phi 270K). Rows for strand spacings from 3 to 12 inches.

EXAMPLE: GIVEN: 8" SLAB, CLEAR SPAN S = 7'-6", 3/2" PANEL THICKNESS. INTERPOLATING FROM TABLE ON LOWER LEFT, THE REQUIRED PRESTRESSING FORCE IS 28.2 KIPS. FROM TABLE ABOVE, SELECT 1/2" phi 250K STRANDS AT 6" CENTERS TO PROVIDE 28.3 KIPS PRESTRESSING FORCE.

DESIGN CHART FOR DECK PANEL BEARING MATERIAL

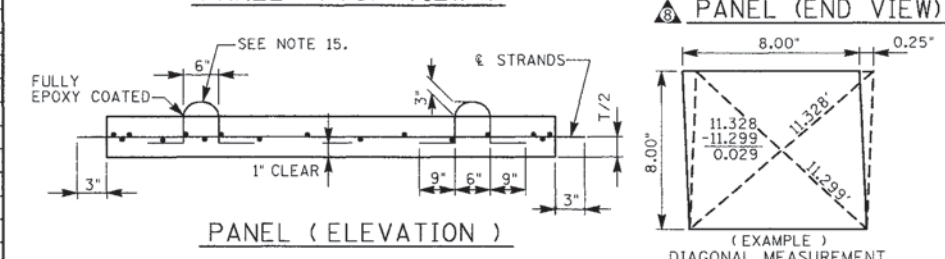
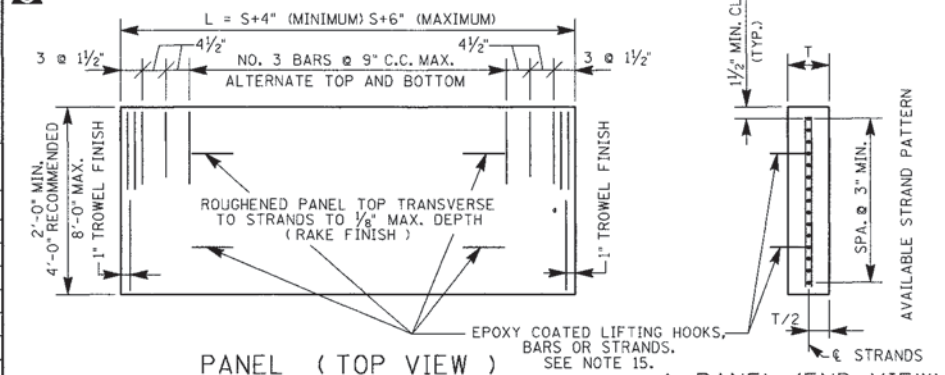
Table with 5 columns: VALUES OF (T x S), MINIMUM WIDTH, SUPPORTING MATERIAL, MINIMUM THICKNESS, MAXIMUM THICKNESS. Rows for different span and thickness ranges.

WHERE: T = TOTAL SLAB THICKNESS (INCHES)
S = NON-COMPOSITE DESIGN SPAN (FEET)
EXAMPLE: FOR T = 10" AND S = 13 FEET, (T x S) = 130

NOTE: FOR SPAN LENGTHS GREATER THAN 24 FEET, THE BEARING MATERIAL SHOULD BE DESIGNED IN ACCORDANCE WITH STRUCTURAL MEMORANDUM NO. 44.

MANUFACTURE

- 11. REINFORCEMENT AND STRANDS IN THE PANEL SHALL HAVE A MINIMUM OF ONE (1) INCH CONCRETE COVER ON THE BOTTOM SIDE OF THE PANEL.
12. THE TOP OF PANELS SHALL HAVE A ROUGHENED SURFACE WITH APPROXIMATELY ONE-EIGHTH (1/8) INCH DEEP DEPRESSIONS AT 1" CENTERS RUNNING TRANSVERSE TO THE STRANDS.
13. MATING SURFACES OF THE PRECAST PANELS SHALL NOT DEVIATE FROM A STRAIGHT LINE BY MORE THAN 1/4 INCH IN TEN (10) FEET.



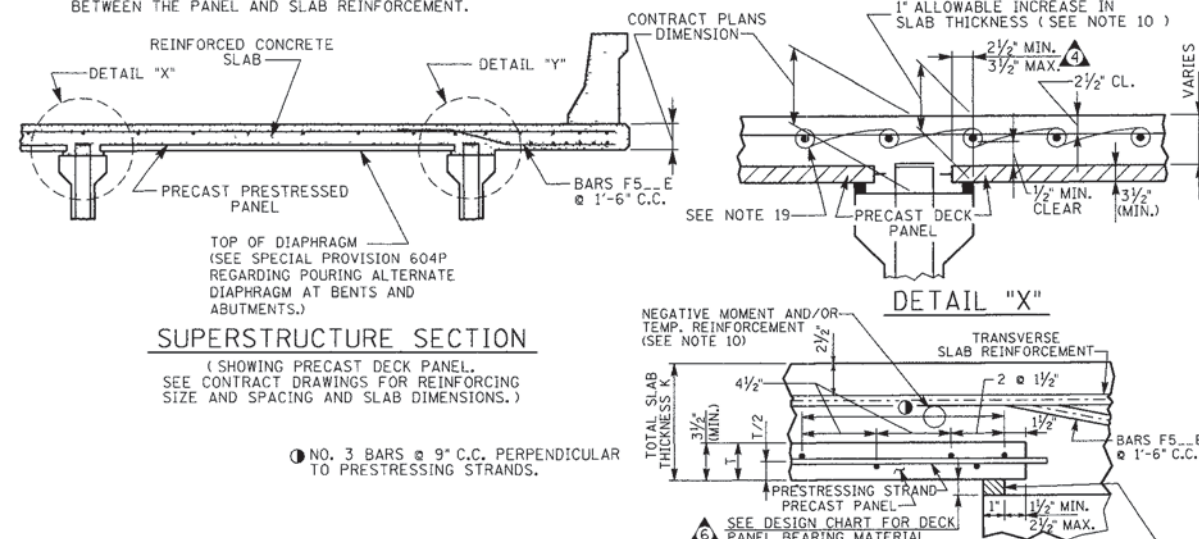
*NOTE: STRANDS SHALL BE LOCATED AT THE MIDPOINT OF THE PRECAST BRIDGE DECK PANELS WITH A MAXIMUM TOLERANCE OF +1/8 INCH ABOVE THE CENTROID TO 1/4 INCH BELOW THE CENTROID.

HANDLING AND SETTING

- 15. THE SIZE AND ADEQUACY OF THE EPOXY COATED LIFTING STRAPS AND PRECAST PANEL SUPPORT BRACKETS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
16. PANELS SHALL BE TEMPORARILY SUPPORTED ON 1" WIDE STRIPS OF BITUMINOUS FIBER OR ELASTOMERIC MATERIAL.
17. BITUMINOUS FIBER MATERIAL SHALL BE PREFORMED EXPANSION JOINT FILLER OF NON EXTRUDING AND RESILIENT BITUMINOUS TYPES CONFORMING TO ASTM M-213 OR AASHTO D1751.
18. ELASTOMERIC MATERIAL SHALL BE 50 DUROMETER ELASTOMERIC CONFORMING TO AASHTO M 251 AND SECTION 25 OF THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.

REINFORCING IN CAST-IN-PLACE PORTION OF THE SLAB

- 19. IF PANELS ARE USED, THE BOTTOM MATS OF TRANSVERSE AND LONGITUDINAL SLAB REINFORCEMENT MAY BE OMITTED BETWEEN EXTERIOR BEAMS.
20. CONCRETE SHALL BE PLACED IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS, PARTICULAR EMPHASIS SHOULD BE GIVEN TO PROPER VIBRATION OF THE CONCRETE TO AVOID HONEYCOMBS AND VOIDS.



POURING OF DECK CONCRETE

- 20. CONCRETE SHALL BE PLACED IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS, PARTICULAR EMPHASIS SHOULD BE GIVEN TO PROPER VIBRATION OF THE CONCRETE TO AVOID HONEYCOMBS AND VOIDS, ESPECIALLY AT CONSTRUCTION JOINTS, EXPANSION JOINTS, AND ENDS OF PANELS.

MINIMUM BRIDGE DECK THICKNESS REQUIRED FOR BAR CLEARANCE

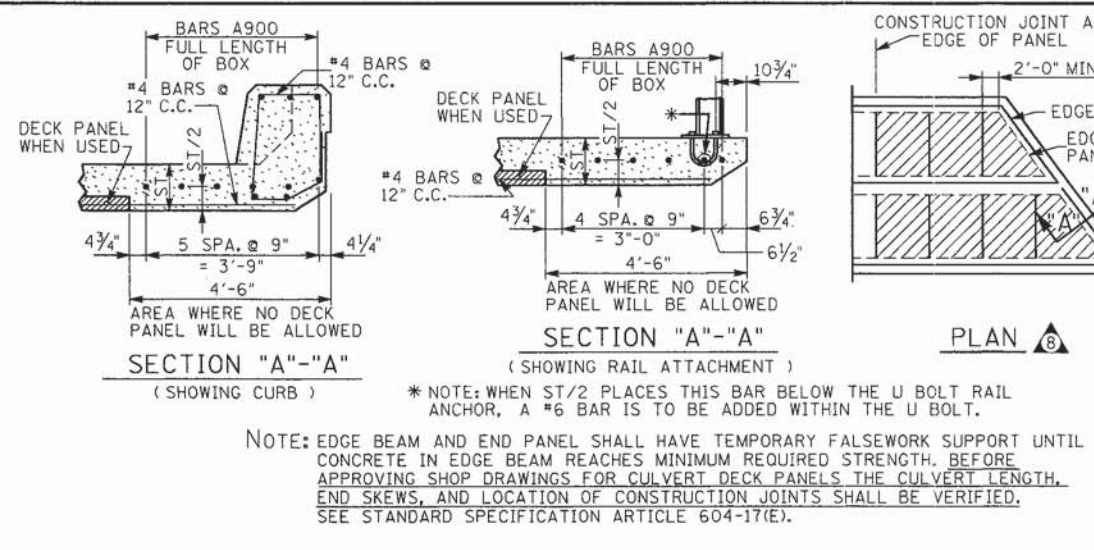
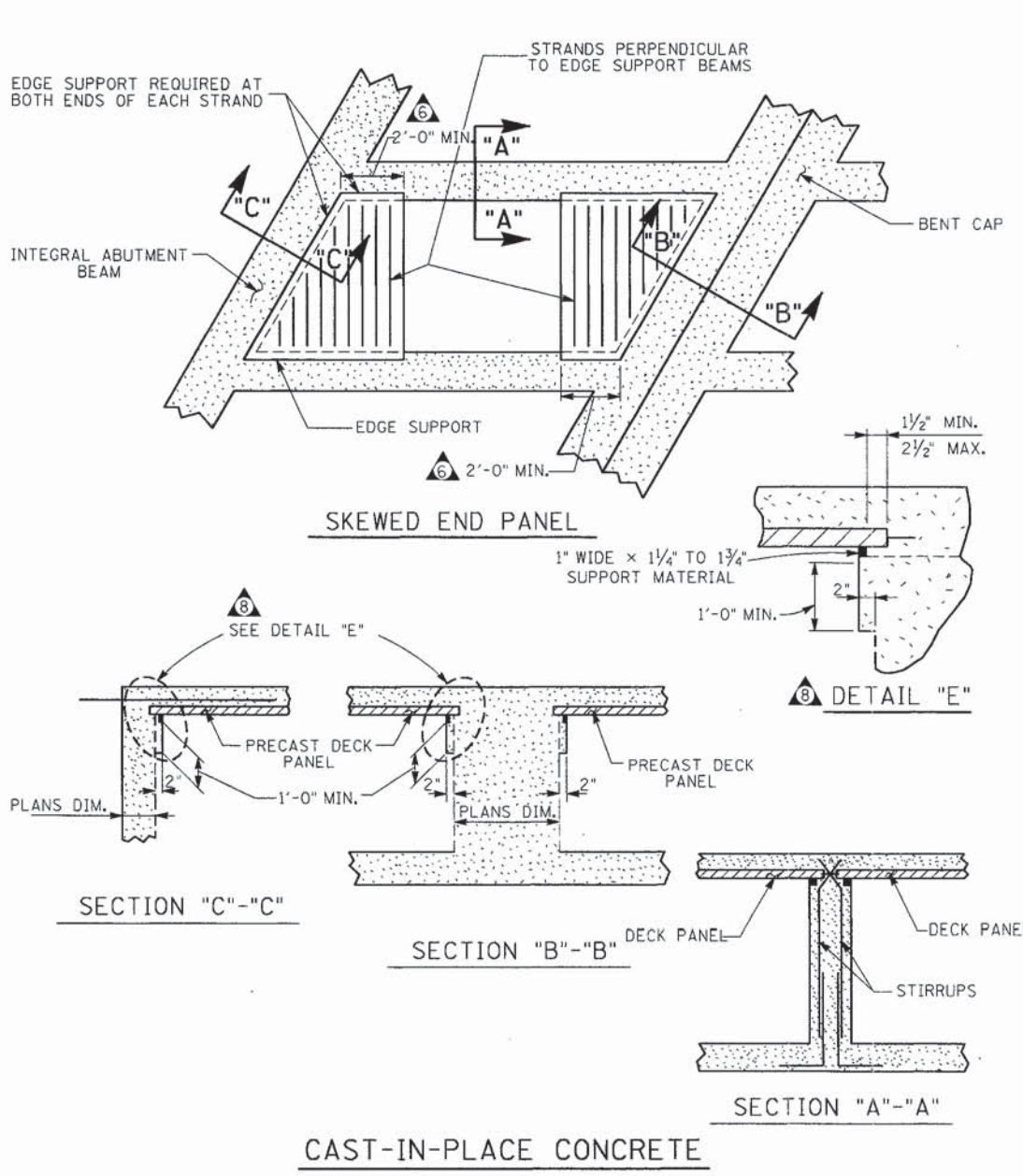
Table with 2 columns: TRANSVERSE BAR, LARGEST LONGITUDINAL BAR. Rows for 5, 6, 7, 8, 9, 10, 11 inch transverse bars.

PAYMENT

- 22. PAYMENT WILL BE BASED ON PLANS DIMENSIONS AND DETAILS FOR THE REGULAR REINFORCED CONCRETE SLAB.
23. ANY INCREASE IN QUANTITIES OF CONCRETE, MILD REINFORCING, PRESTRESSING STRAND OR OTHER ITEMS OF LABOR AND EQUIPMENT DUE TO THE USE OF PRESTRESSED BRIDGE DECK PANELS, SHALL BE AT THE CONTRACTOR'S EXPENSE.

STATE OF TENNESSEE DEPARTMENT OF TRANSPORTATION
TENNESSEE STANDARD PRECAST PRESTRESSED BRIDGE DECK PANELS DESIGN CRITERIA 1986

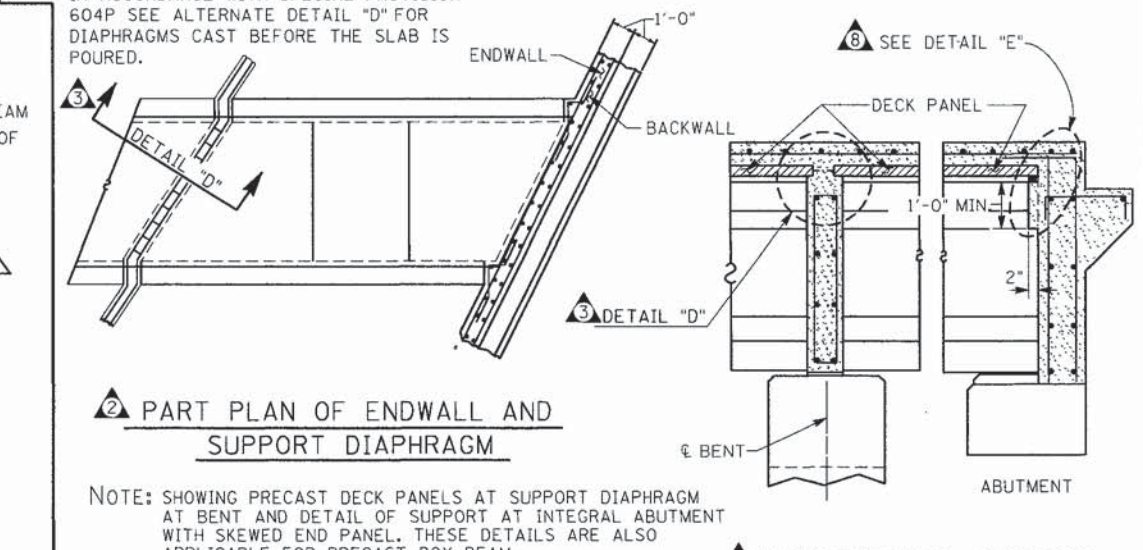
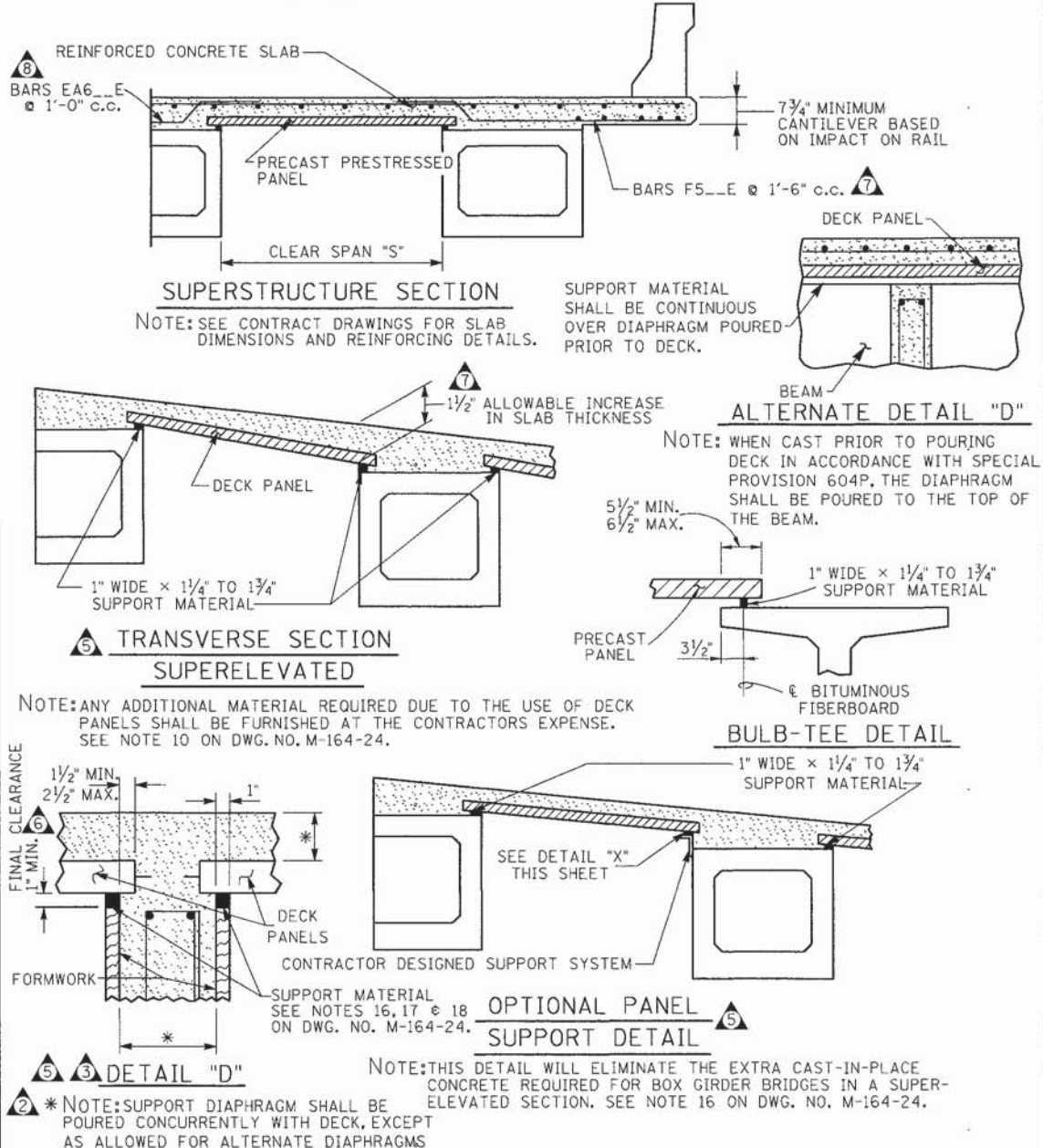
CORRECT [Signature] ENGINEER OF STRUCTURES
APPROVED [Signature] DIRECTOR OF HIGHWAYS



BOX CULVERT DETAILS

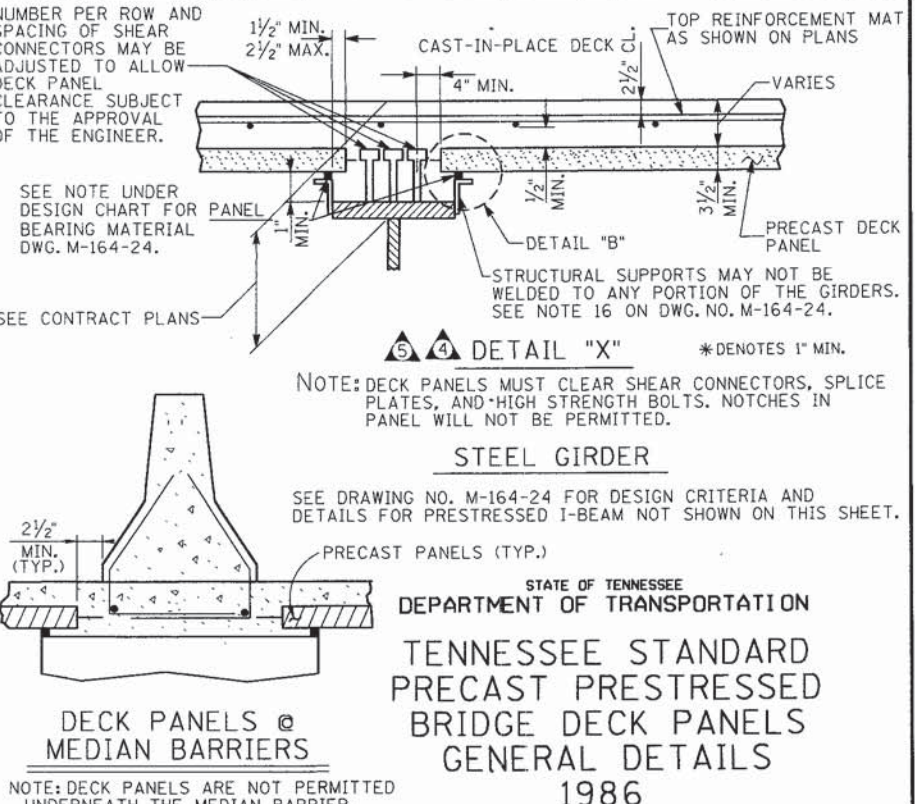
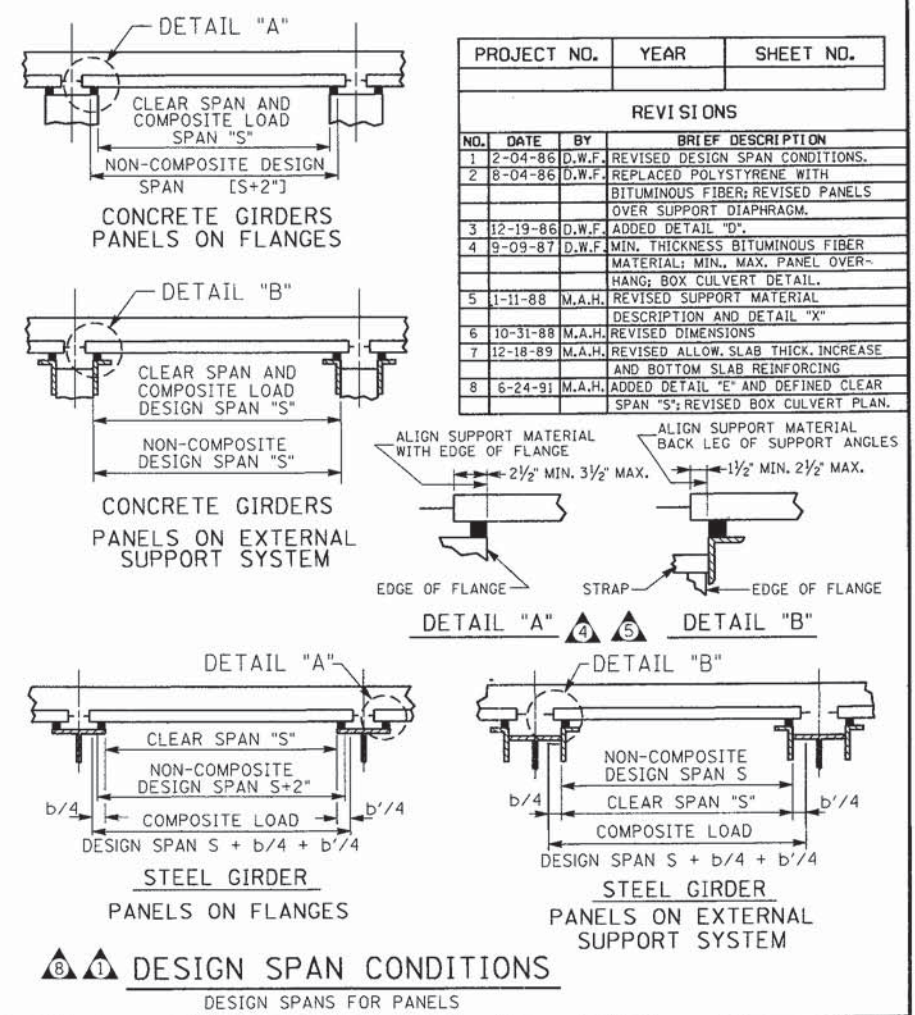
DESIGNED BY MARK HOLLORAN
 DRAWN BY VICKIE HYDE AND M. DYE
 SUPERVISED BY R. L. H. AND D. W. F.
 CHECKED BY E. P. WASSERMAN

DATE 10-85
 DATE 10-85
 DATE 10-85
 DATE 10-85



PRECAST CONCRETE BEAM

NOTE: SHOWING PRECAST DECK PANELS AT SUPPORT DIAPHRAGM AT BENT AND DETAIL OF SUPPORT AT INTEGRAL ABUTMENT WITH SKEWED END PANEL. THESE DETAILS ARE ALSO APPLICABLE FOR PRECAST BOX BEAM.

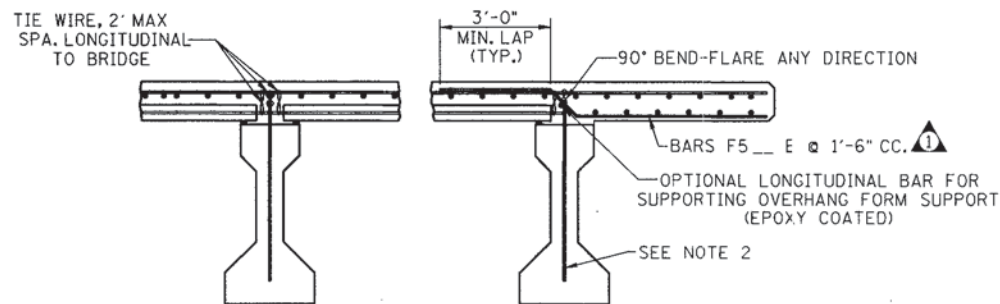


STATE OF TENNESSEE
 DEPARTMENT OF TRANSPORTATION
 TENNESSEE STANDARD PRECAST PRESTRESSED BRIDGE DECK PANELS GENERAL DETAILS 1986

CORRECT *William L. Lovell*
 ENGINEER OF STRUCTURES
 APPROVED *Louis Evans*
 DIRECTOR OF HIGHWAYS

SHEET 2 OF 3
 M-164-25

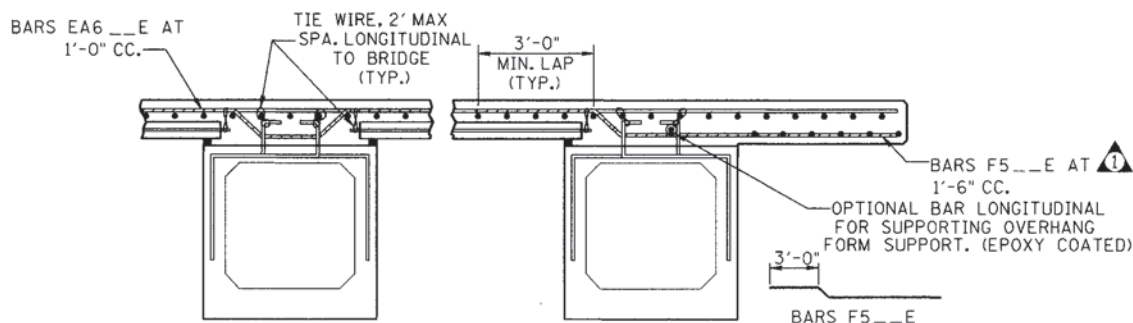
PROJECT NO.	YEAR	SHEET NO.	
	1989		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	12-18-89	M.A.H.	REVISED SIZE OF BAR
2	6-24-91	M.A.H.	REVISED SUPPORT TIE ROD NOTE



NOTES:

- 1 - SEE SPECIAL PROVISION 604P REGARDING REQUIREMENTS FOR TYING REINFORCING STEEL AND PROJECTING STRANDS OF DECK PANELS.
- 2 - ONE ROW OF PROJECTING REINFORCING MAY BE SUBSTITUTED BY THE CONTRACTOR TO ACCOMMODATE DECK PANELS IF EQUIVALENT AREA OF REINFORCING PER FOOT OF BEAM IS PROVIDED AND IF SHOWN ON "APPROVED" SHOP DRAWINGS FOR PRESTRESSED BEAMS AND BRIDGE DECK PANELS.

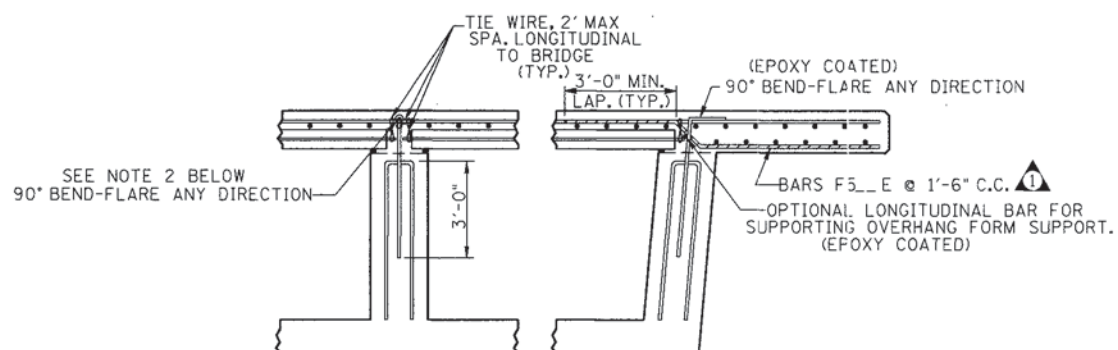
DETAIL A
PRESTRESSED I-BEAM WITH BRIDGE DECK PANELS



NOTES:

- 1 - SEE SPECIAL PROVISION 604P REGARDING REQUIREMENTS FOR TYING REINFORCING STEEL AND PROJECTING OF DECK PANELS.

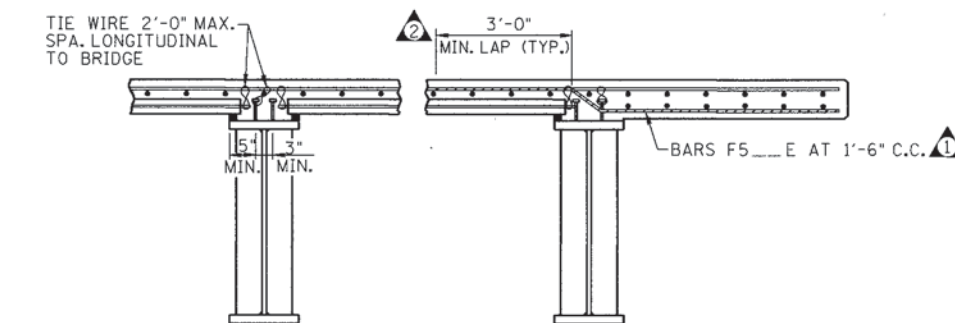
DETAIL B
PRESTRESSED BOX BEAM WITH BRIDGE DECK PANELS



NOTES:

- 1 - SEE SPECIAL PROVISION 604P REGARDING REQUIREMENTS FOR TYING REINFORCING STEEL AND PROJECTING STRANDS OF DECK PANELS
- 2 - ONE ROW OF PROJECTING REINFORCING MAY BE SUBSTITUTED BY THE CONTRACTOR TO ACCOMMODATE DECK PANELS IF EQUIVALENT AREA OF REINFORCING PER FOOT OF BEAM IS PROVIDED AND IF SHOWN ON "APPROVED" SHOP DRAWINGS FOR PRESTRESSED BEAMS AND BRIDGE DECK PANELS.

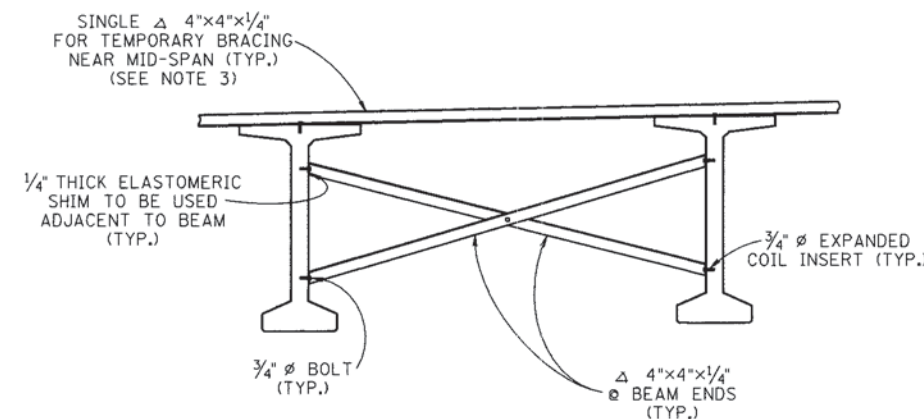
DETAIL C
CAST IN PLACE REINFORCED CONCRETE WITH BRIDGE DECK PANELS



NOTES:

- 1 - SEE SPECIAL PROVISION 604P REGARDING REQUIREMENTS FOR TYING REINFORCING STEEL, PROJECTING STRANDS AND STUD SHEAR CONNECTORS.
- 2 - STUD SHEAR CONNECTORS MAY BE RESPACED AS SHOWN ON "APPROVED" STRUCTURAL STEEL SHOP DRAWINGS TO ACCOMMODATE BRIDGE DECK PANELS. THE NUMBER OF STUDS PER ROW MAY BE REDUCED PROVIDED THE TOTAL NUMBER OF STUDS AS SHOWN ON THE CONTRACT PLANS ARE FURNISHED.
- 3 - OVERHANG SUPPORTS MAY BE FIELD WELDED TO STUD SHEAR CONNECTORS AT A POINT A MINIMUM OF TWO INCHES ABOVE THE TOP OF GIRDER.

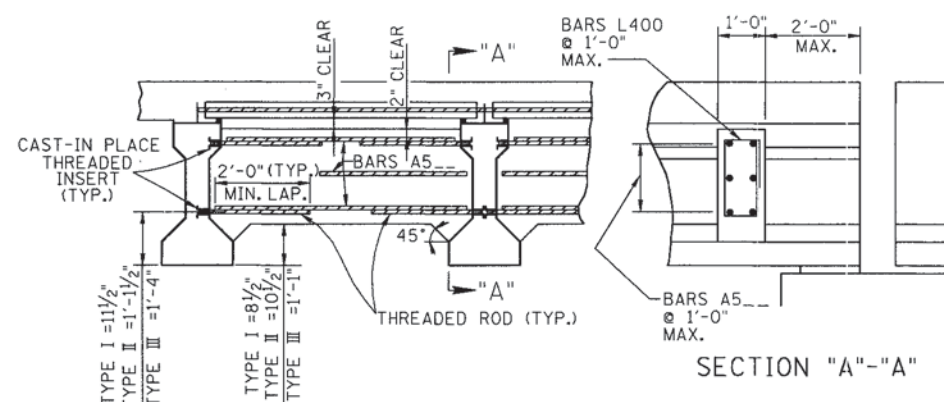
DETAIL D
STEEL GIRDERS WITH BRIDGE DECK PANELS



NOTES:

- 1 - TEMPORARY ERECTION DIAPHRAGMS ARE REQUIRED AT THE ENDS OF PRESTRESSED BULB-TEE GIRDERS WHERE THE END DIAPHRAGMS ARE TO BE POURED CONCURRENTLY WITH THE BRIDGE DECK.
- 2 - DETAILS OF THE TEMPORARY ERECTION DIAPHRAGM SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
- 3 - AFTER THE PERMANENT INTERMEDIATE DIAPHRAGMS (IN ALL BAYS) ARE POURED AND CURED, THE SINGLE ANGLE MAY BE REMOVED TO ALLOW PLACEMENT OF DECK PANELS.

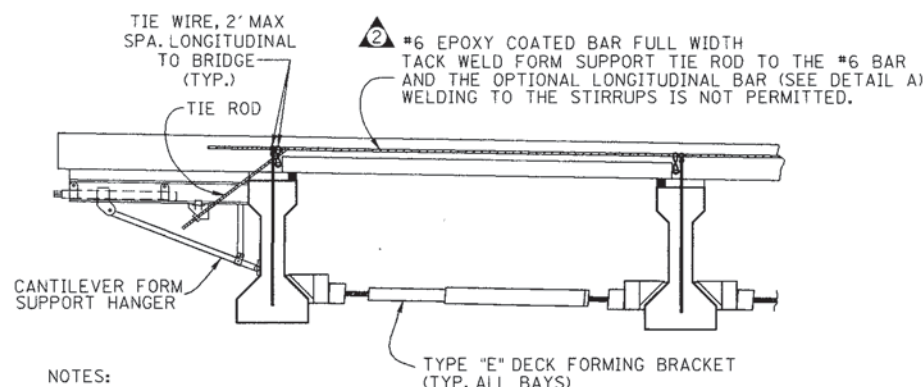
DETAIL G
TEMPORARY ERECTION DIAPHRAGM



NOTES:

- 1 - PRESTRESSED I-BEAMS ARE SHOWN. USE SIMILAR DETAILS FOR PRESTRESSED BOX BEAMS.
- 2 - AS AN ERECTION AID, THIS CAST IN PLACE INTERMEDIATE DIAPHRAGM MAY BE USED IN LIEU OF THE TEMPORARY ERECTION DIAPHRAGM SHOWN ON DETAIL F.

DETAIL E
CAST IN PLACE INTERMEDIATE DIAPHRAGM FOR PRESTRESSED I-BEAM



NOTES:

- 1 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPORTING THE EXTERIOR GIRDERS DURING CONSTRUCTION TO PREVENT ROTATION OR OVERTURNING. ADDITIONAL TEMPORARY ERECTION DIAPHRAGMS SHOULD BE PROVIDED AS NECESSARY FOR PRESTRESSED CONCRETE OR STEEL GIRDERS TO PREVENT ROTATION
- 2 - THIS TEMPORARY ERECTION DIAPHRAGM MUST BE USED AT ENDS OF GIRDERS WHERE END DIAPHRAGMS ARE TO BE POURED CONCURRENTLY WITH THE BRIDGE DECK.
- 3 - SEE NOTE 2 ON DETAIL E

DETAIL F
TEMPORARY ERECTION DIAPHRAGM

VOID

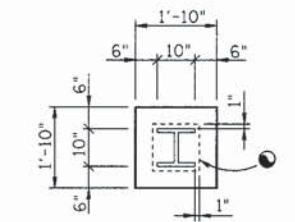
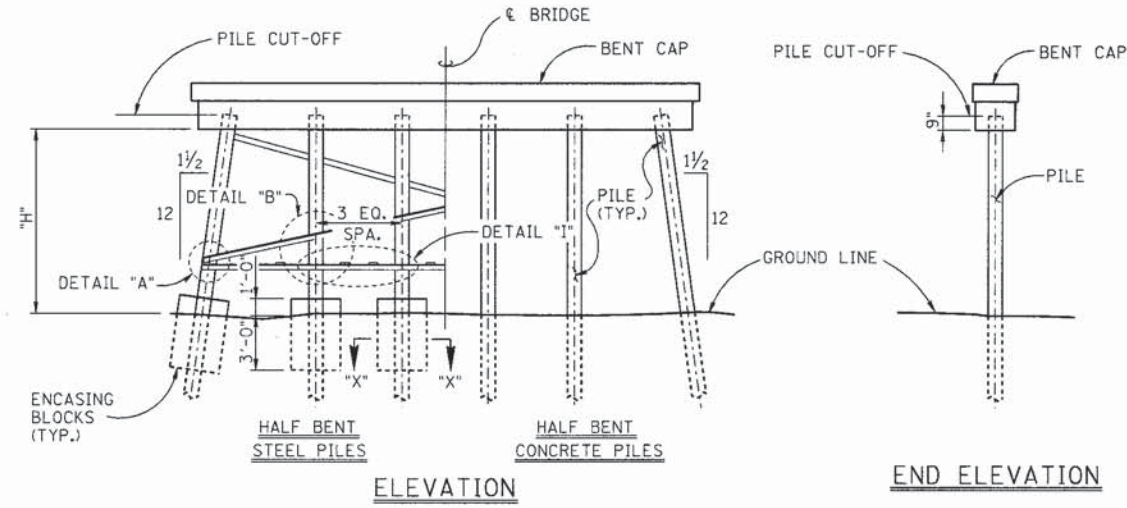
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

TENNESSEE STANDARD
PRECAST PRESTRESSED
BRIDGE DECK PANELS
CONSTRUCTION DETAILS
1989

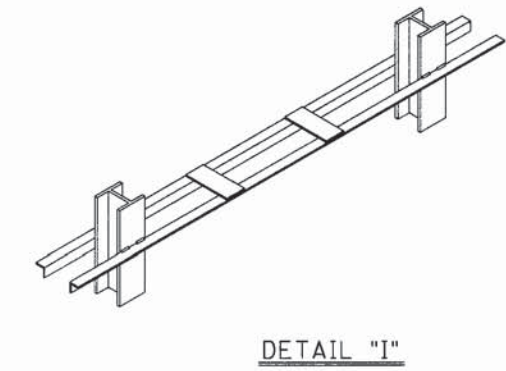
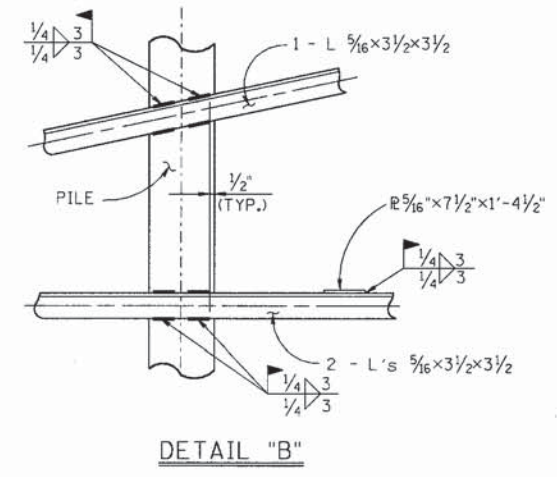
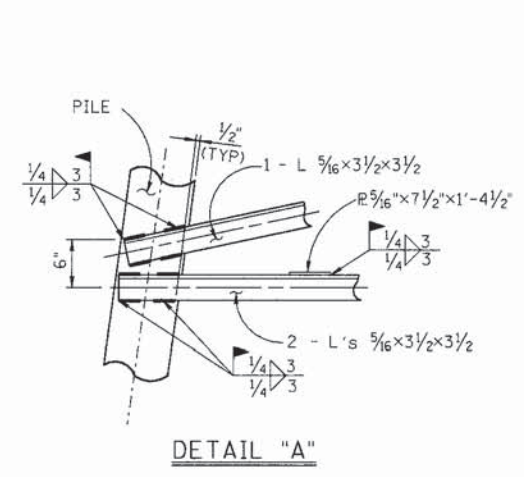
DESIGNED BY DON FORTNER DATE 3-16-89
DRAWN BY CHARLES W. ROSS JR. DATE 3-16-89
SUPERVISED BY D. HARBISON DATE 3-16-89
CHECKED BY FORTNER, HARBISON, MOLLORAN DATE 3-16-89

CORRECT *Edward P. Wasserman*
ENGINEER OF STRUCTURES
APPROVED *Roy G. Evans*
DIRECTOR OF HIGHWAYS

PROJECT NO.	YEAR	SHEET NO.	
	1990		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	11-27-90	MAH	DETAILS FROM DWG. M-174-150, NEW DRAWING



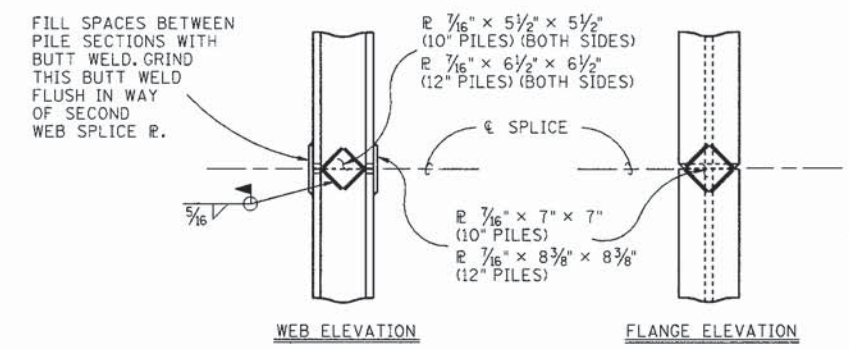
NOTE: WRAP PILE WITH AMERICAN WELDED FABRIC 2" x 2" NO.10 WIRE. COST OF WIRE FABRIC TO BE INCLUDED IN UNIT PRICE BID FOR CLASS "A" CONCRETE.



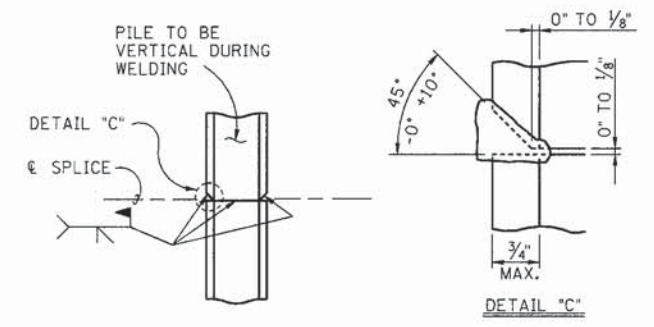
PILE BENT DETAILS

NOTE: WHEN SUBSTITUTION OF STEEL FOR PRECAST CONCRETE PILES OR PRECAST CONCRETE PILES FOR STEEL PILES IS PERMITTED, THE DETAILS WILL BE AS SHOWN (SEE "PILE BENT DETAILS"). THE SUBSTITUTION DOES NOT PERMIT CHANGING THE NUMBER OF PILES IN EITHER CASE. SHOULD THE CONTRACTOR, WHEN PERMITTED, ELECT TO SUBSTITUTE STEEL PILES FOR CONCRETE PILES, THE COST OF ENCASING BLOCKS AT GROUND LINES AND BRACING IF REQUIRED, SHALL BE INCLUDED IN THE PRICE BID PER LIN. FT. OF PILES.

NOTE: WHEN "H" FOR STEEL PILE IS 10'-0" OR GREATER, BRACING IS REQUIRED.



ALTERNATE "A"



ALTERNATE "B"

STEEL PILE SPLICE DETAILS

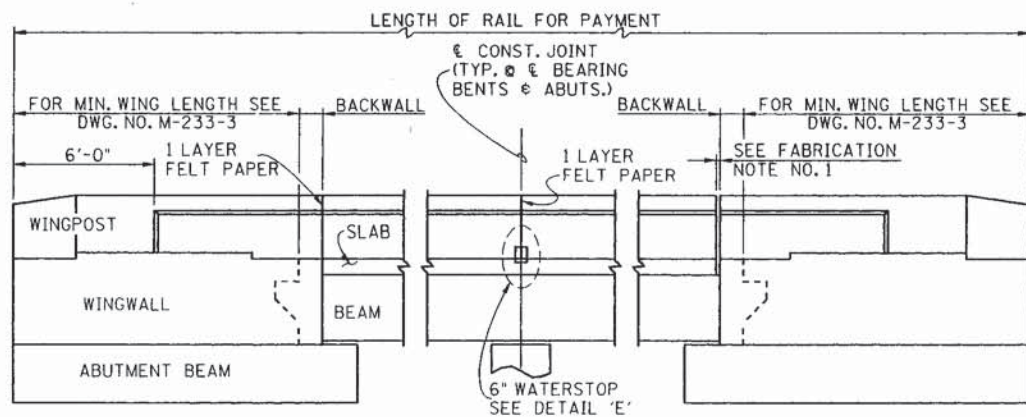
NOTE: THE CONTRACTOR MAY USE ALTERNATE "A" OR ALTERNATE "B".

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

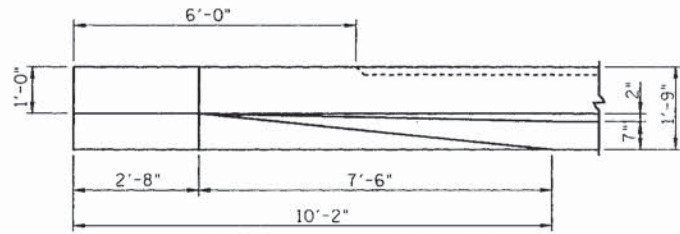
STANDARD
PILE
DETAILS
1990

DESIGNED BY M. HOLLORAN
DRAWN BY KEITH DOUGLAS
SUPERVISED BY K.L.F., KDF, & MAH
CHECKED BY
DATE 11-90
DATE 11-90
DATE

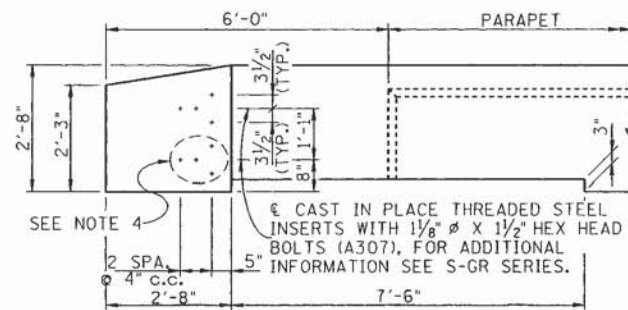
CORRECT Edward P. Wasserman
ENGINEER OF STRUCTURES



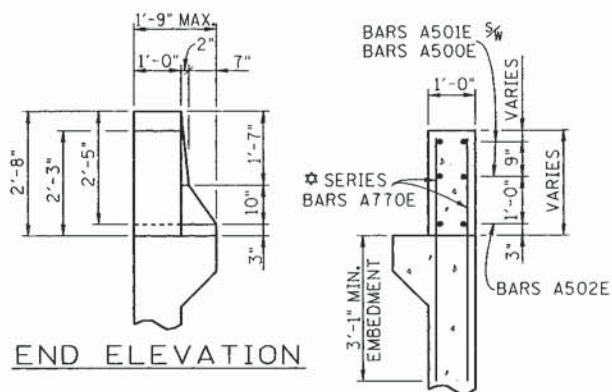
EXTERIOR ELEVATION OF PARAPET



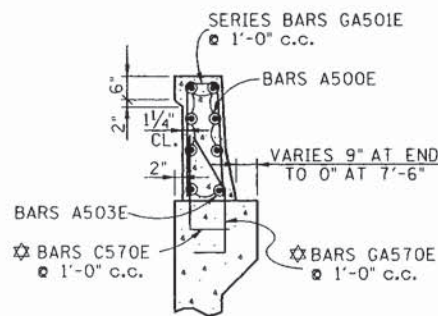
PLAN OF WINGPOST



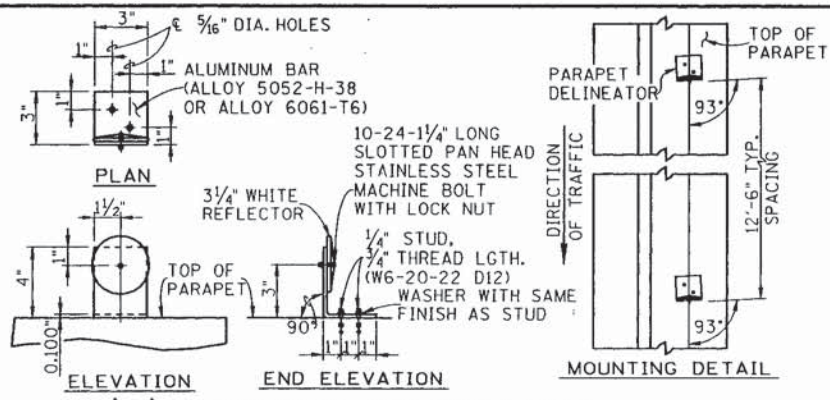
ELEVATION



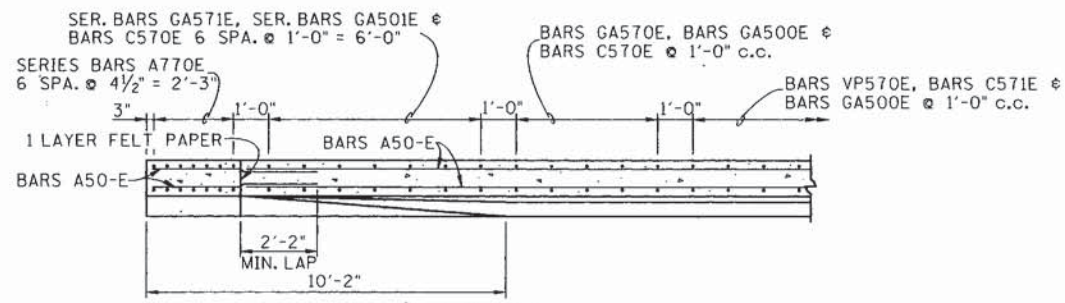
SECTION A - A



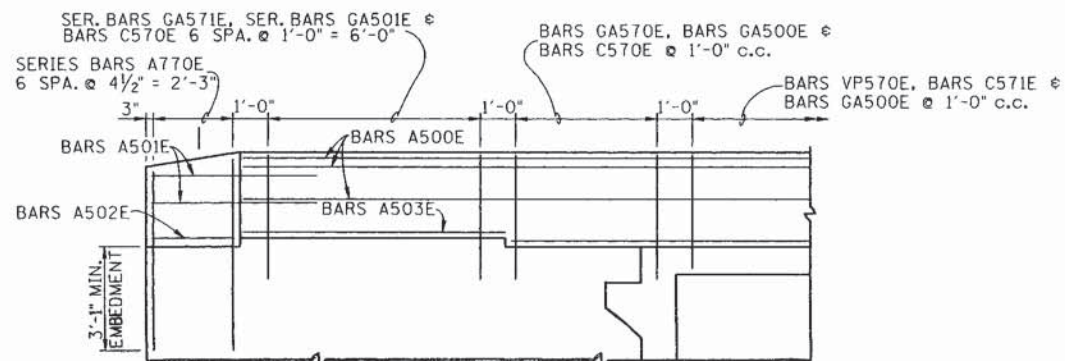
SECTION B - B



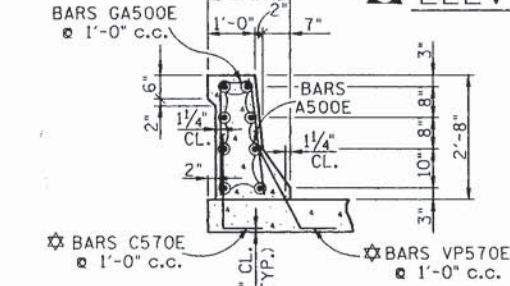
PARAPET DELINEATOR



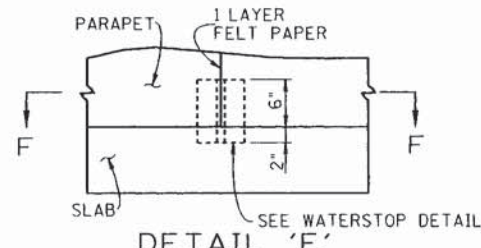
PLAN



ELEVATION

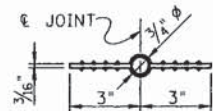


SECTION C - C

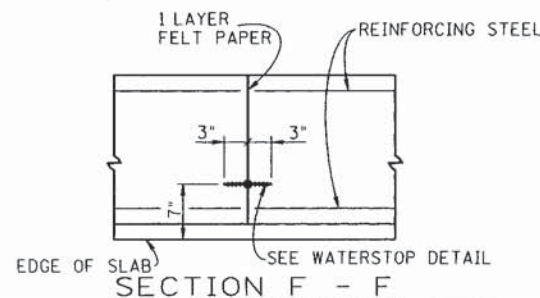


DETAIL 'E'

(TYP. AT ϵ BEARING ϵ BENTS ϵ ABUTMENTS)
NOTE: CONTRACTOR MAY POUR THE PARAPET WITHOUT FELT PAPER AND SAW A 1 1/2" DEEP GROOVE ON ALL EXPOSED SIDES OF PARAPET.



WATERSTOP DETAIL
DIMENSIONS SHOWN ARE FOR A 1" JOINT. ADJUST BULB DIMENSIONS FOR A LARGER JOINT. ALSO SEE DESIGN DRAWINGS AND SHOP DRAWINGS OF ROADWAY EXPANSION DEVICES.

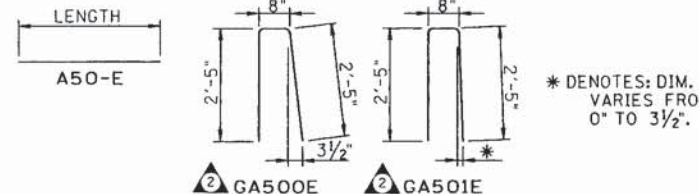


SECTION F - F

REINFORCING NOTES:

1. BAR DIMENSIONS ARE OUT TO OUT. FIRST DIGIT OF THE NUMBER INDICATES SIZE.
 2. THESE BARS SHALL BE FULL LENGTH OF PARAPET EXCEPT THAT NO BAR WILL PASS THROUGH OPEN JOINTS.
 3. BASED ON NO OVERLAY ON THE BRIDGE. TO BE INCREASED AS REQUIRED FOR ASPHALT OVERLAY.
- \star DENOTES: BARS A770E, BARS C570E, BARS GA570E AND BARS GA571E TO BE INCLUDED IN EPOXY COATED REINFORCING QUANTITIES AND BILL OF STEEL FOR WINGWALLS.
BARS C571E AND VP570E TO BE INCLUDED IN EPOXY COATED QUANTITIES AND BILL OF STEEL FOR SUPERSTRUCTURE.
NOTE: BARS LISTED IN ABOVE NOTES ARE NOT INCLUDED IN WINGPOST QUANTITIES OR PARAPET QUANTITIES SHOWN ON THIS SHEET.
NOTE: FOR SUPERSTRUCTURE DEPTHS LESS THAN 3'-1", BARS A700E WITH 3'-1" MIN. EMBEDMENT WILL REQUIRE EMBEDMENT INTO ABUTMENT BEAM. THEREFORE BARS A770E TO BE INCLUDED IN EPOXY COATED REINFORCING QUANTITIES AND BILL OF STEEL FOR ABUTMENT.

PROJECT NO.	YEAR	SHEET NO.	
	1990		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	8-22-90	CMH	ADDED MODIFIED WINGPOST FOR THRIE BEAM, ADDED DELINEATOR DETAILS ϵ NOTES ϵ MODIFIED BAR SCHEDULE
2	6-24-91	CMH	CHANGE PARAPET REINFORCING, REINFORCING QUANTITIES AND NOTE, REFLECTOR ON DELINEATOR



GENERAL NOTES:

- DESIGN: AASHTO SPECIFICATIONS CURRENT EDITION WITH ADDENDA.
SPECIFICATIONS; STANDARD ROAD AND BRIDGE SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION. (CURRENT EDITION).
CONCRETE; TO BE CLASS 'A' f'c = 3,000 psi. SEE SPECIAL PROVISION REGARDING SECTION 604 - CONCRETE STRUCTURES.
REINFORCING STEEL; TO BE ASTM A615 GRADE 60. SPACING DIMENSIONS ARE CENTER TO CENTER OTHERWISE NOTED. THE SUFFIX 'E', FOR BARS SO MARKED, DENOTES EPOXY COATED REINFORCEMENT. SEE SPECIAL PROVISION 907A.
WATERSTOPS: SEE TENNESSEE STANDARD SPECIFICATION SECTION 918.11.
PARAPET DELINEATOR REFLECTOR SHALL CONFORM TO THE REQUIREMENTS OUTLINED IN SECTION 916.08 OF THE STANDARD SPECIFICATIONS FOR TYPE I OR TYPE II DELINEATORS.
PARAPET DELINEATORS WILL NOT BE REQUIRED IN AREAS WHERE ROADWAY IS LIGHTED.
THE COST OF FURNISHING AND INSTALLING PARAPET DELINEATORS, INCLUDING ALL MATERIALS, LABOR AND INCIDENTALS NECESSARY TO COMPLETE THE INSTALLATION, SHALL BE INCLUDED IN BID PRICE FOR PARAPET.

FABRICATION NOTES:

1. OPEN JOINTS OR FILLED JOINTS WILL BE ALLOWED IN PARAPET ONLY WHEN SHOWN ON PROJECT DRAWINGS. JOINTS SHALL CONFORM TO THE JOINT DETAILS ON THIS SHEET OR AS OTHERWISE SHOWN ON PROJECT DRAWINGS.
2. PARAPET CONCRETE SHALL NOT BE CAST PRIOR TO REMOVAL OF ALL SUPERSTRUCTURE RELATED FALSEWORK.
3. ALIGNMENT AND PROFILE OF PARAPET SHALL CONFORM TO ROADWAY PROFILE AND GEOMETRY.
4. AT THE TRAILING END OF THE BRIDGE ON A DIVIDED HIGHWAY, WHEN GUARDRAIL IS REQUIRED, ONLY THE UPPER INSERT ASSEMBLY IS REQUIRED. REFER TO STANDARD S-GR SERIES.

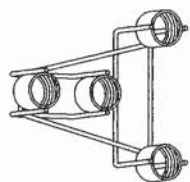
WINGPOST QUANTITIES (PER WING, BASED ON 10'-2" WINGPOST)		PARAPET QUANTITIES (PER LINEAR FOOT)	
CLASS 'A' CONCRETE C.Y.	REINFORCING STEEL LB.	CLASS 'A' CONCRETE C.Y.	REINFORCING STEEL LB.
.94	126	.1119	14

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

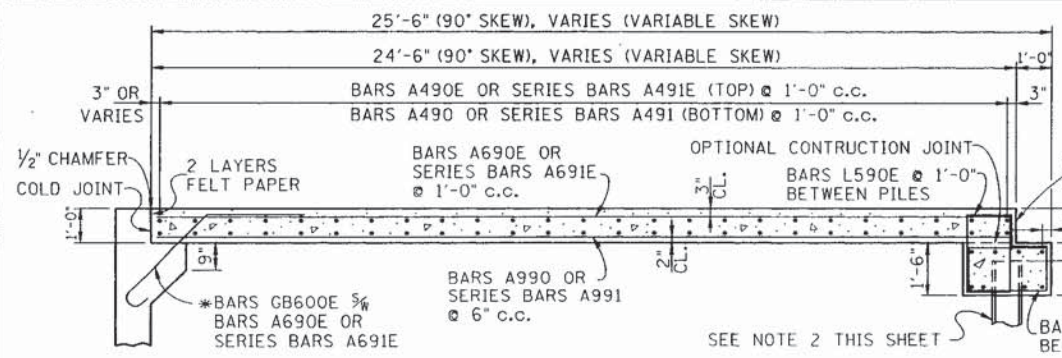
BRIDGE RAILING
CONCRETE PARAPET
1990

DESIGNED BY C.M. HILES
DRAWN BY KIM FRANKENFIELD
SUPERVISED BY C.M. HILES
CHECKED BY
DATE 8-90
DATE 8-90
DATE

INSERT ASSEMBLY

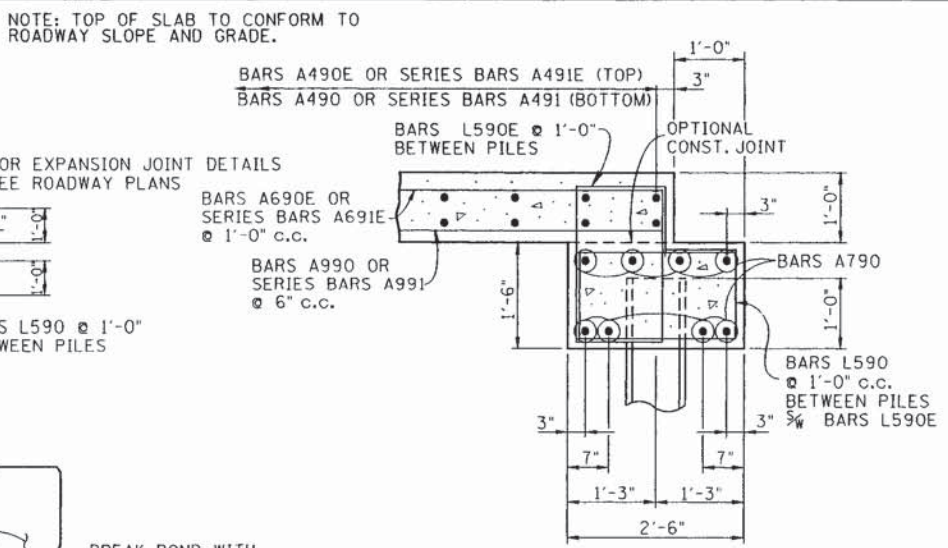


CORRECT *Edward P. Wasserman*
ENGINEER OF STRUCTURES



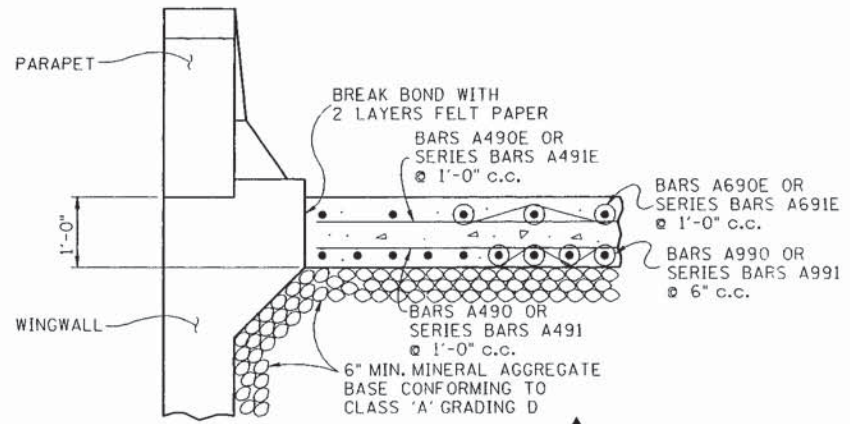
SECTION A - A

*DENOTES BARS GB600E TO BE INCLUDED IN BILL OF STEEL FOR ABUTMENT ENDWALL.



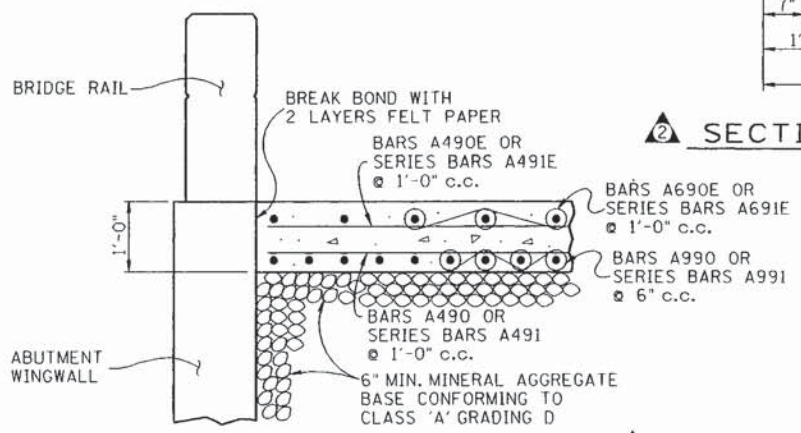
SECTION D - D

▲ DENOTES THESE NUMBERS VARY DEPENDING UPON ROADWAY WIDTH.



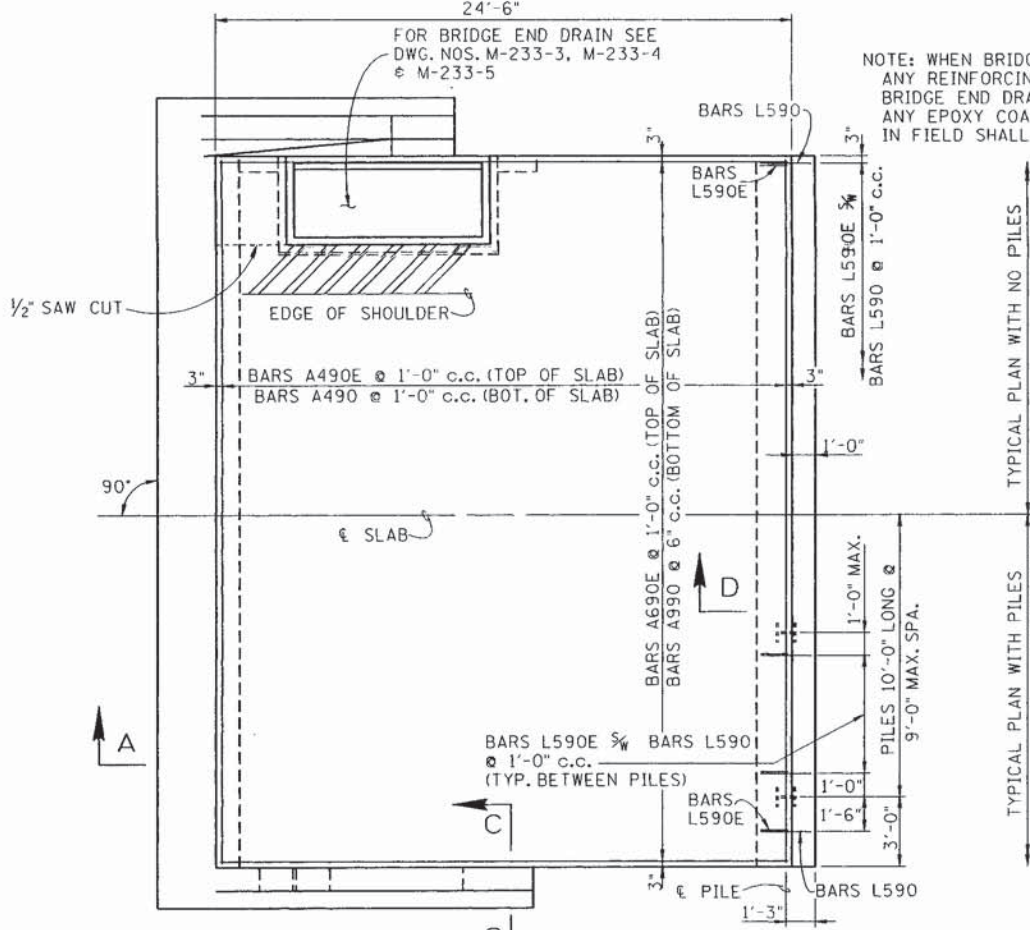
SECTION B - B

NOTE: SLAB TO BE POURED DIRECTLY ON MINERAL AGGREGATE BASE STONE.

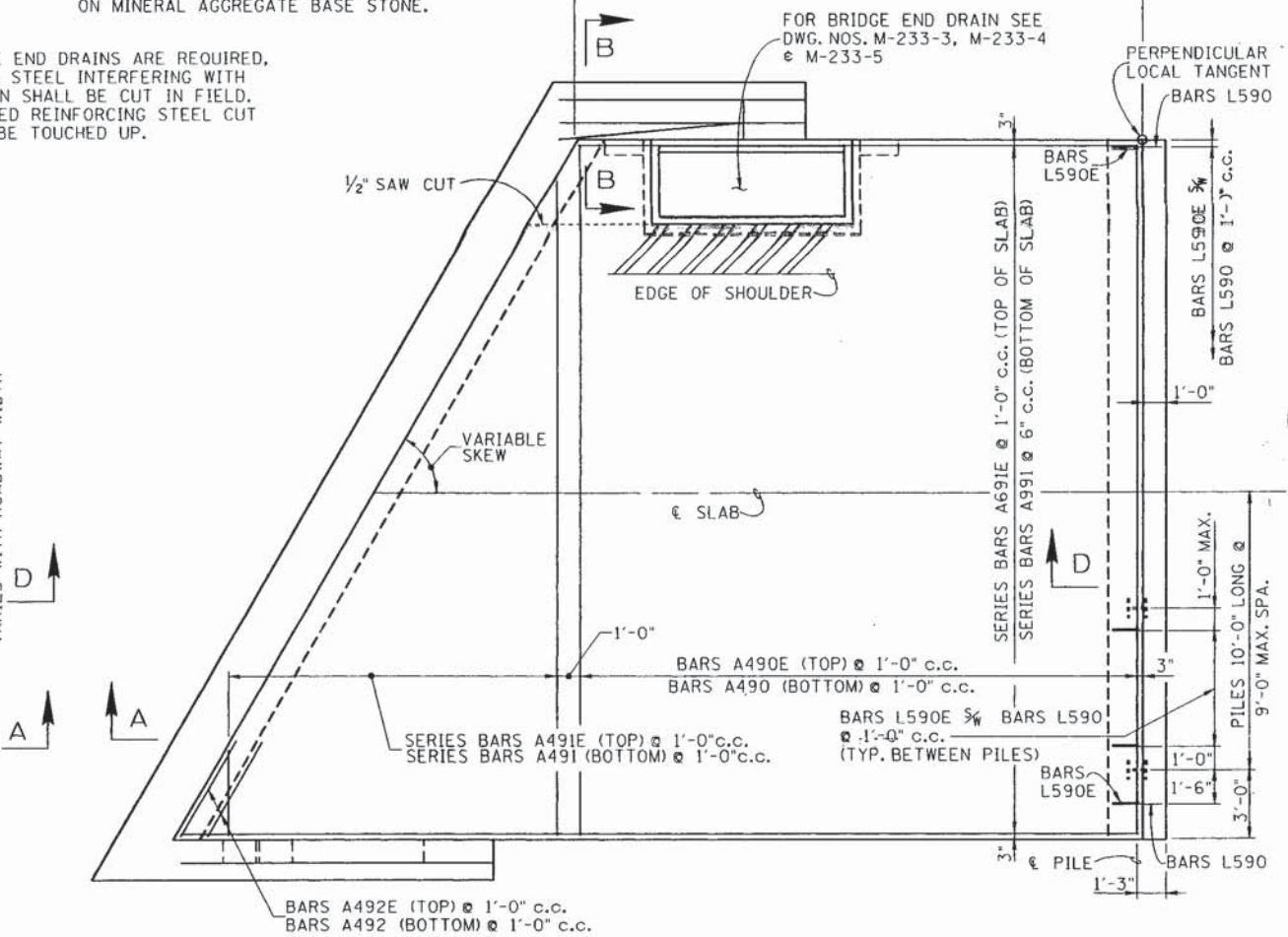


SECTION C - C

NOTE: SLAB TO BE POURED DIRECTLY ON MINERAL AGGREGATE BASE STONE.



PLAN (90° SKEW)

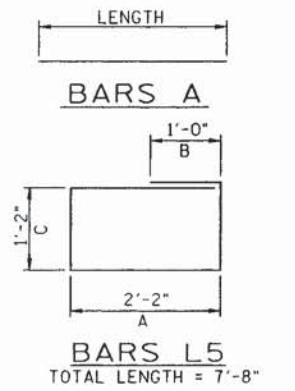


PLAN (VARIABLE SKEW)

BARS	LOCATION	SIZE	NO. REQ'D	BENDING DIMENSIONS				LENGTH
				A	B	C	D	
A490E	SLAB, 90° SKEW, VARIABLE SKEW	4	25					▲
SERIES A491E	SLAB, VARIABLE SKEW	4	1	LENGTH VARIES FROM TO IN INC. OF (BARS)				
A492E	SLAB, VARIABLE SKEW	4	▲					7'-0"
A690E	SLAB, 90° SKEW	6	▲					24'-2"
SERIES A691E	SLAB, VARIABLE SKEW	6	1	LENGTH VARIES FROM TO IN INC. OF (BARS)				
L590E	SLAB/FOOTING 90° & VARIABLE SKEW	5	▲	2'-2"	1'-0"	1'-2"		7'-8"
A490	SLAB, 90° SKEW, VARIABLE SKEW	4	25					▲
SERIES A491	SLAB, VARIABLE SKEW	4	1	LENGTH VARIES FROM TO IN INC. OF (BARS)				
A492	SLAB, VARIABLE SKEW	4	▲					7'-0"
A990	SLAB, 90° SKEW	5	▲					24'-2"
SERIES A991	SLAB, VARIABLE SKEW	9	1	LENGTH VARIES FROM TO IN INC. OF (BARS)				
A790	FOOTING 90° & VARIABLE SKEW	7	8					▲
L590	FOOTING 90° & VARIABLE SKEW	5	▲	2'-2"	1'-0"	1'-2"		7'-8"

PROJECT NO.	YEAR	SHEET NO.
	1990	

REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	8-22-90	CMH	BAR DESIGNATION, REMOVED STATION, ADDED PERPENDICULAR TO LOCAL TANGENT
2	6-24-91	CMH	CHANGED BATTERED PILES TO VERTICAL AND ADDED SAW CUT.



NOTES

- QUANTITIES FOR CLASS "A" CONCRETE, REGULAR AND EPOXY COATED REINFORCING STEEL, PILES, GRATE AND MISCELLANEOUS MATERIALS FOR BRIDGE END DRAIN, WHEN REQUIRED, ARE TO BE INCLUDED IN PAVEMENT AT BRIDGE ENDS. S.Y. FOR BAR BENDING DIMENSIONS SEE THIS SHEET AND BILL OF STEEL FOR BRIDGE END DRAIN ON DWG. NO. M-233-5.
- PILES TO BE HP10x42 OR CONCRETE PILES AS SHOWN IN OTHER BRIDGE ITEMS. PILES SHALL HAVE A MAXIMUM LENGTH OF 10'-0" REGARDLESS OF BEARING AND SHALL BE SPACED AT 9'-0" MAXIMUM. PILES TO BE OMITTED IF SECTION "D-D" IS (1) SUPPORTED ON ROCK, (2) SUPPORTED ON ROCK FILL OR (3) THE ABUTMENT IS INTEGRAL WITH THE SUPERSTRUCTURE.
- COST OF MINERAL AGGREGATE BASE QUANTITY TO BE PAID AS ITEM 303.01.02 MINERAL AGGREGATE CLASS "A" GRADING D.
- IN LIEU OF THE CLASS A GRADING D MATERIAL SHOWN, CLASS B GRADING C OR D MAY BE USED.

GENERAL NOTES

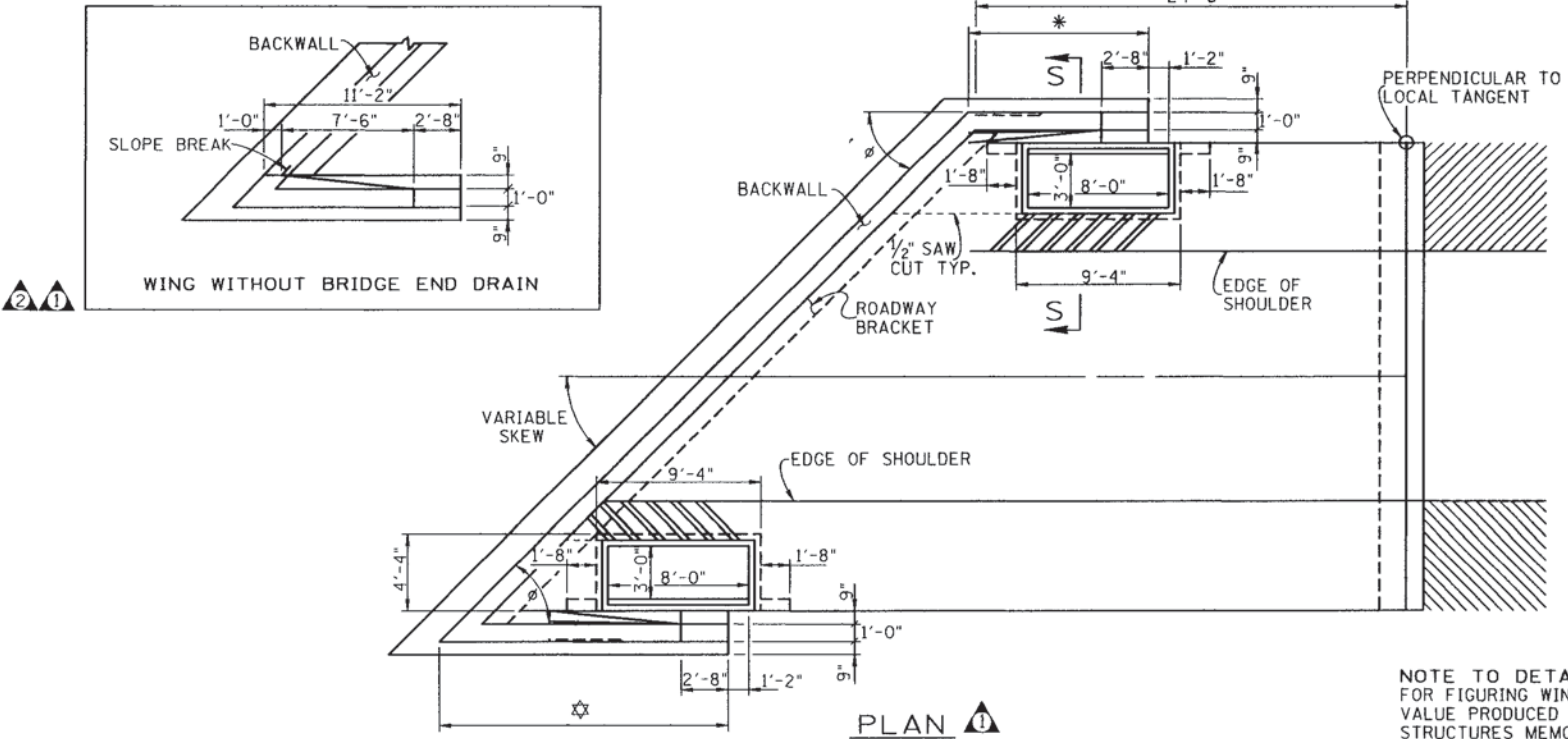
CONCRETE: TO BE CLASS "A" (f'c = 3,000 psi)
 REINFORCING STEEL: TO BE ASTM A615 GRADE 60. SPACING DIMENSIONS ARE CENTER TO CENTER UNLESS OTHERWISE NOTED. THE SUFFIX "E" FOR BARS SO MARKED, DENOTES EPOXY COATED REINFORCEMENT. SEE SPECIAL PROVISION 907A.
 SPECIFICATIONS: STANDARD SPECIFICATIONS OF TENNESSEE DEPARTMENT OF TRANSPORTATION. (CURRENT EDITION)
 NOTE: THE APPROACH SLAB SHALL NOT BE POURED UNTIL THE ADJACENT END SPAN DECK SLAB IS IN PLACE AND ACCEPTED BY THE ENGINEER.
 NOTE: THE APPROACH SLAB CONTROL ELEVATIONS SHALL BE ADJUSTED, (IF REQUIRED), SO AS TO MATCH THE INPLACE DECK SLAB IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS.

STATE OF TENNESSEE
 DEPARTMENT OF TRANSPORTATION
 REINFORCED CONCRETE
 PAVEMENT AT BRIDGE ENDS
 1990

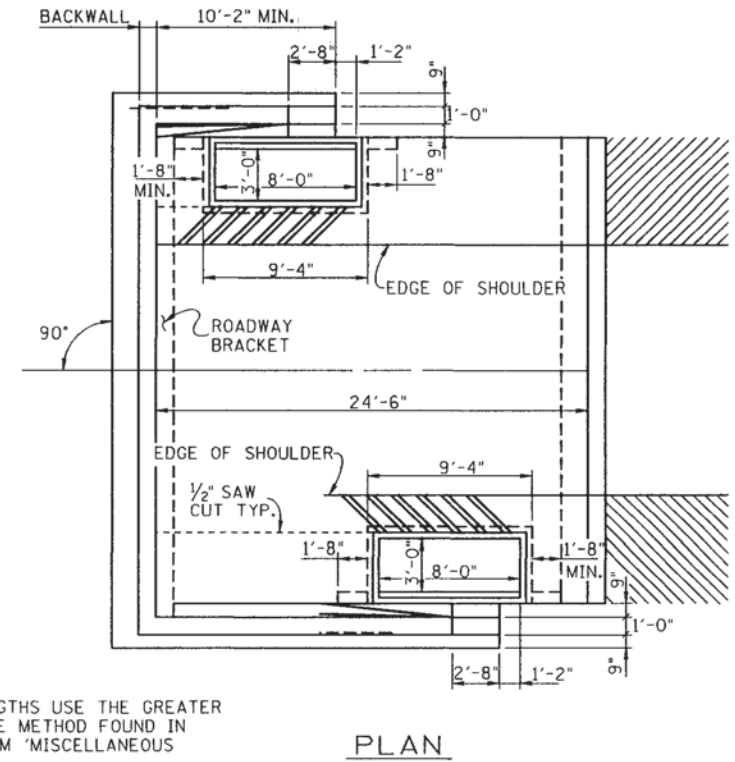
DESIGNED BY: C.M. HILES
 DRAWN BY: _____
 SUPERVISED BY: _____
 CHECKED BY: _____
 DATE: 7-89

CORRECT: Edward P. Wasserman
 ENGINEER OF STRUCTURES

[BACKWALL + ROADWAY BRACKET / SIN θ] - [1'-9" / TAN θ] + 9'-2" = *



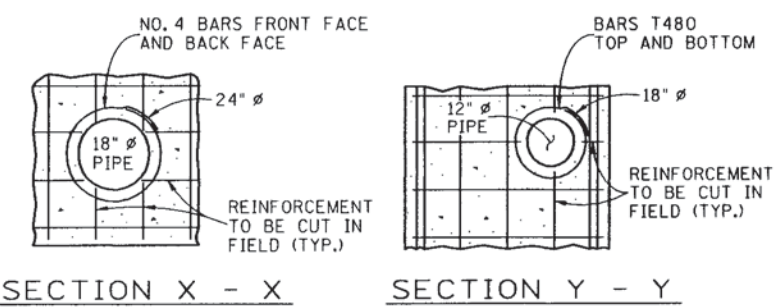
LESS THAN 66 DEGREES
 $[6'-1" / \text{TAN } \theta] + 7'-6" + [(\text{ROADWAY BRACKET} + \text{BACKWALL}) / \text{SIN } \theta] = \star$
 EQUAL TO OR GREATER THAN 66 DEGREES
 $9'-2" + [(\text{ROADWAY BRACKET} + \text{BACKWALL}) / \text{SIN } \theta] + [2'-5" / \text{TAN } \theta] = \star$



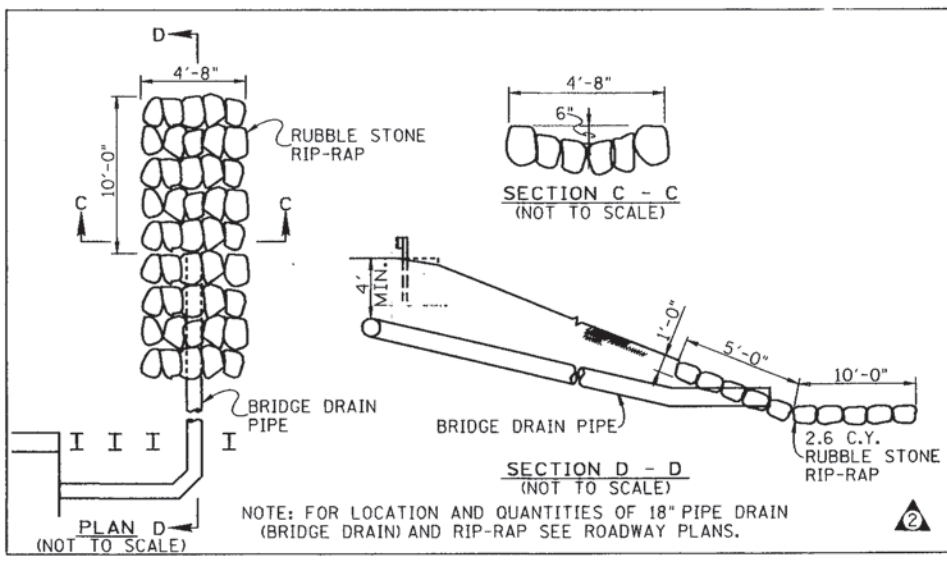
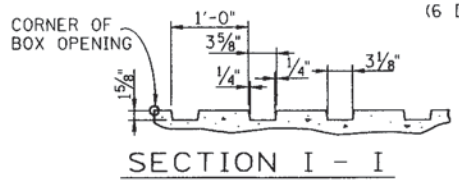
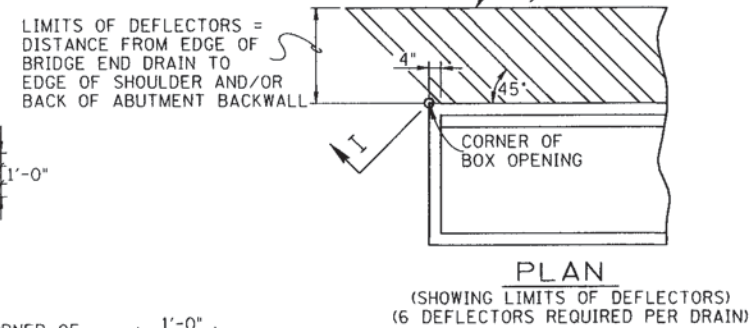
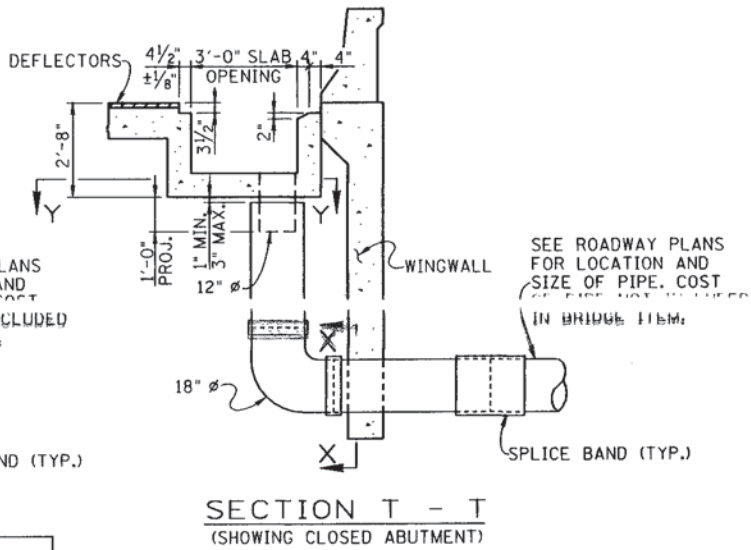
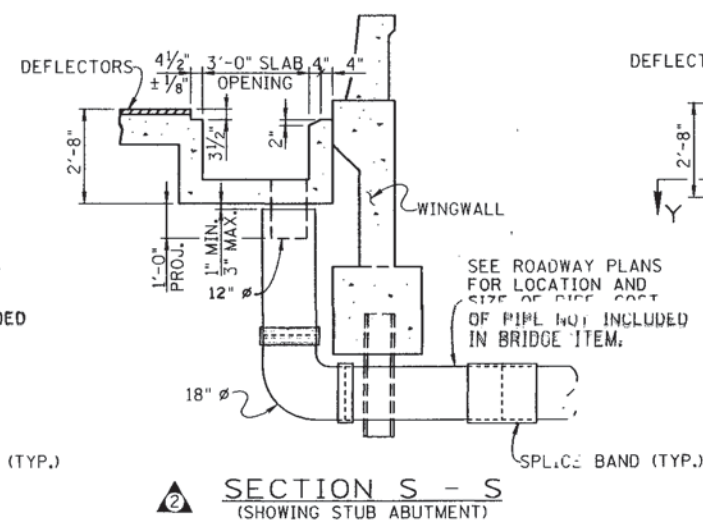
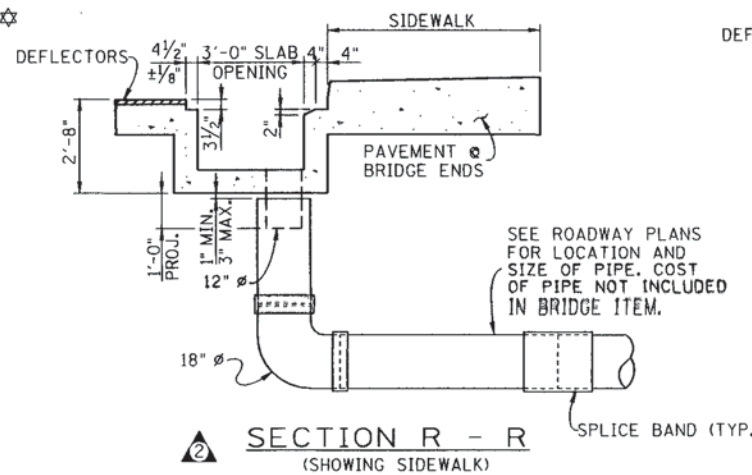
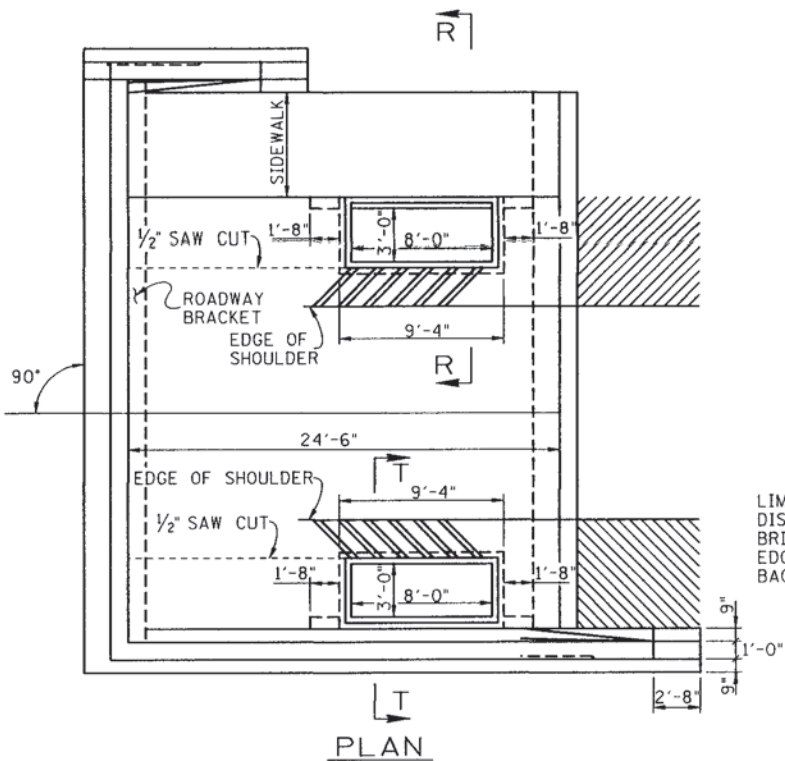
NOTE TO DETAILER:
 FOR FIGURING WING LENGTHS USE THE GREATER VALUE PRODUCED BY THE METHOD FOUND IN STRUCTURES MEMORANDUM 'MISCELLANEOUS ABUTMENT DETAILS'.

NOTE: WINGWALLS PER ABUTMENT SHOULD BE THE SAME LENGTH.

PROJECT NO.	YEAR	SHEET NO.	
	1990		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	8-22-90	CMH	REMOVED STATION, ADDED PERPENDICULAR TO LOCAL TANGENT & DETAILS FOR WINGS WITHOUT BRIDGE END DRAINS
2	6-24-91	CMH	ADDED SPLICE BAND & DETAILS SHOWING 18" DRAIN PIPE.



NOTE: LOCATE 12" ϕ PIPE AT LOW END OF DRAIN BOX.



STATE OF TENNESSEE
 DEPARTMENT OF TRANSPORTATION
 BRIDGE END DRAIN DETAILS
 1990

DESIGNED BY C.M. HILES
 DRAWN BY KIM FRANKENFIELD
 SUPERVISED BY C.M. HILES
 CHECKED BY _____

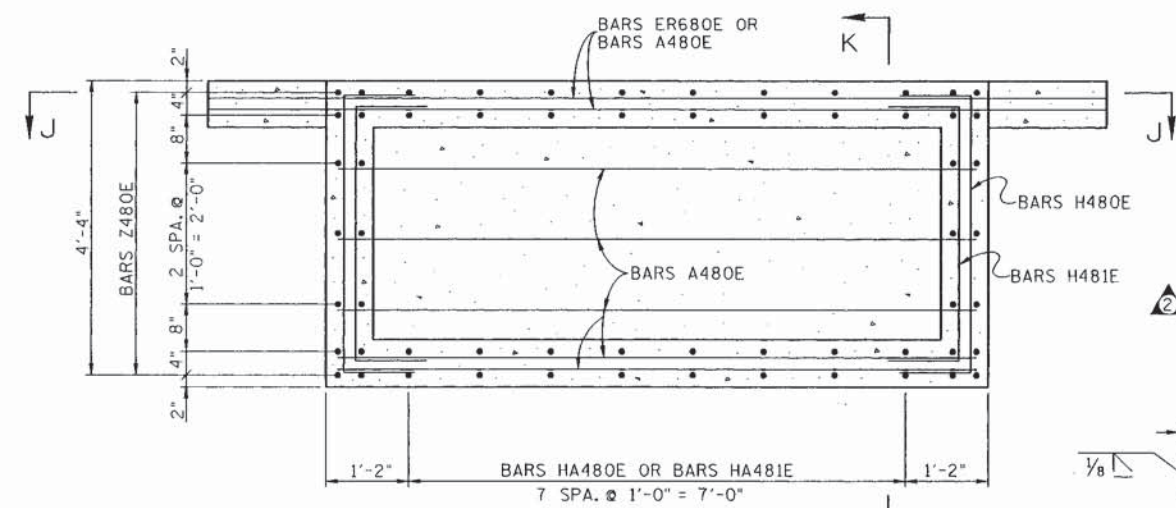
DATE _____
 DATE 12-89
 DATE 12-89
 DATE _____

CORRECT *Edward P. Wasserman*
 ENGINEER OF STRUCTURES

NOTE: AFTER ALL FABRICATION IS COMPLETE, THE GRATE ASSEMBLY SHALL BE ZINC COATED AS SPECIFIED BY ASTM A-123 SPECIFICATIONS FOR HOT-DIP GALVANIZED COATINGS. COATING THICKNESS SHALL BE AS SPECIFIED IN TABLE FOR MATERIAL 1/4" AND OVER . (2.3 oz/FT²).

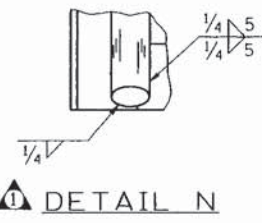
PROJECT NO.	YEAR	SHEET NO.
	1990	

REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	8-22-90	CMH	REVISED CRIMP END OF PIPE TO CAP END OF PIPE
2	6-24-91	CMH	ADDED SECTION # CHANGED ANGLE TO PLATES

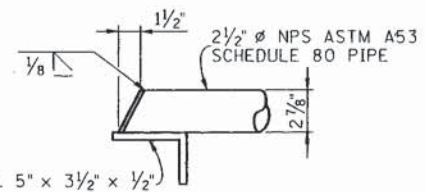


SECTION L - L

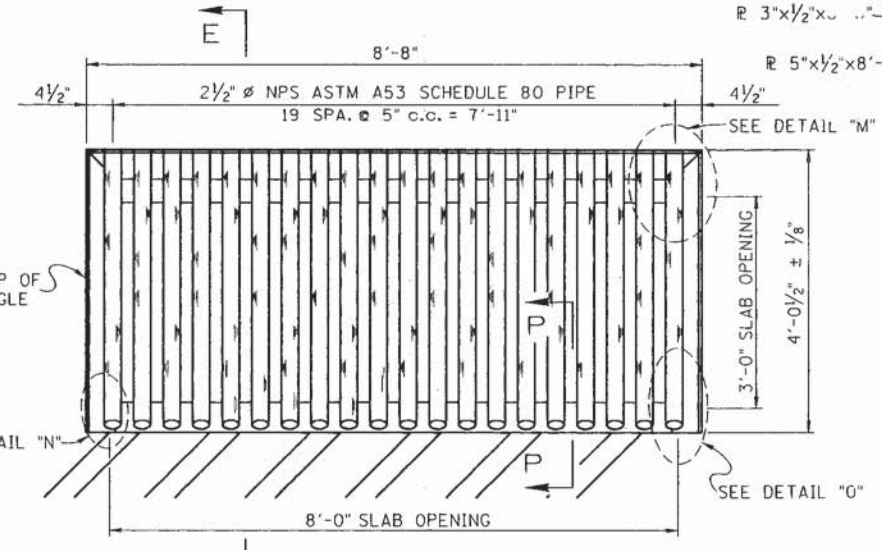
N.S. DENOTES NEAR SIDE
F.S. DENOTES FAR SIDE



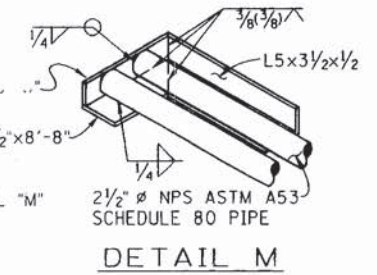
DETAIL N



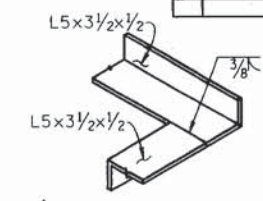
SECTION P - P



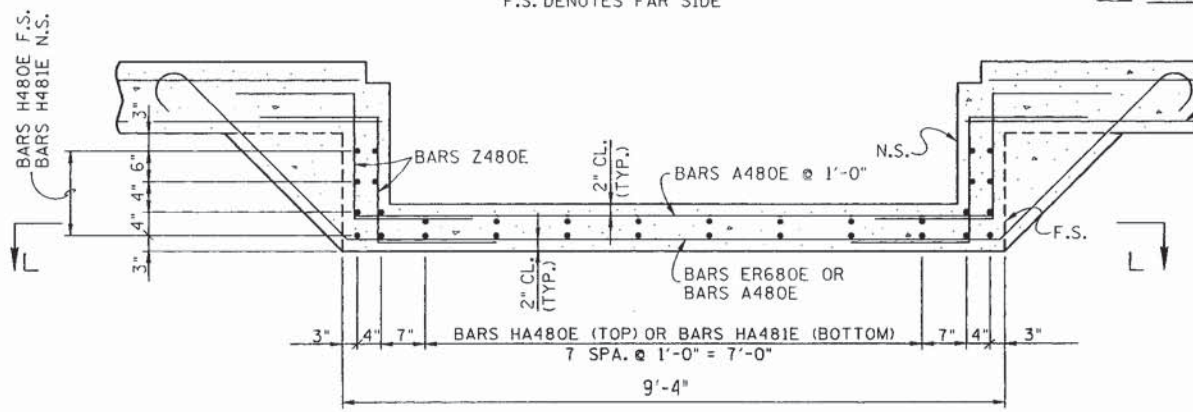
GRATE INLET AT BRIDGE ENDS



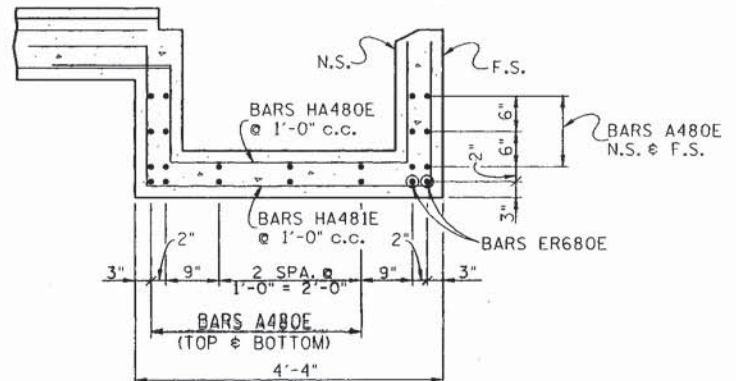
DETAIL M



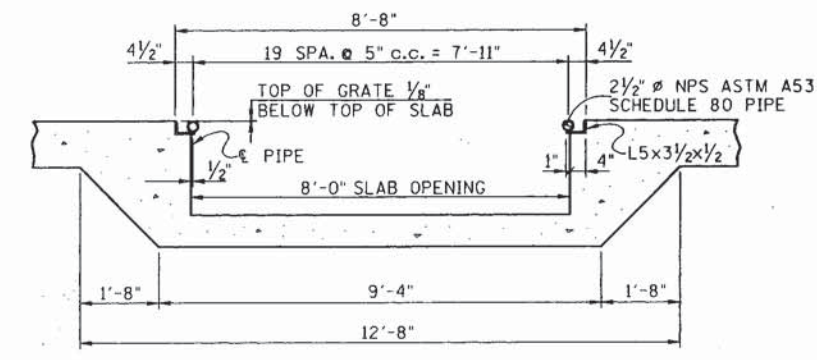
DETAIL O
2 1/2" NPS ASTM A53 SCHEDULE 80 PIPE NOT SHOWN



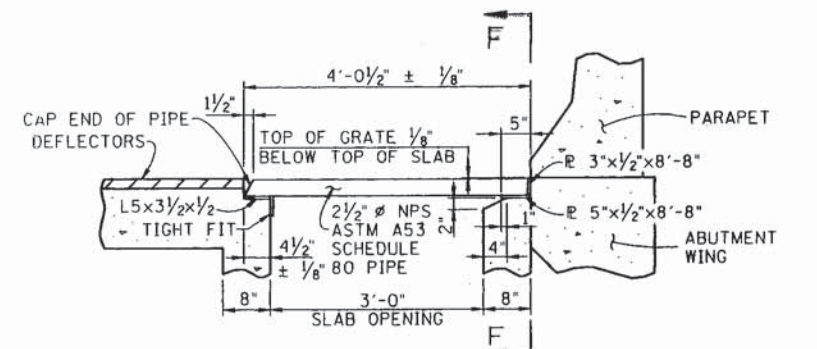
SECTION J - J



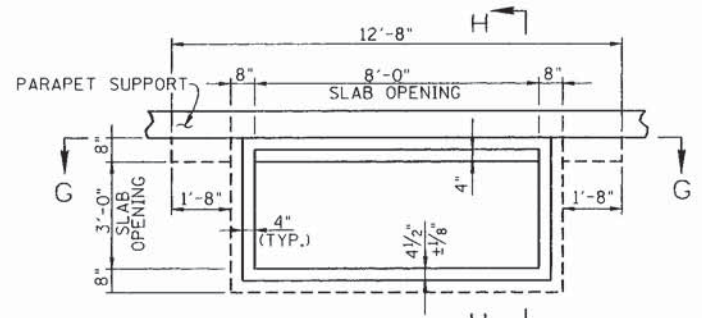
SECTION K - K



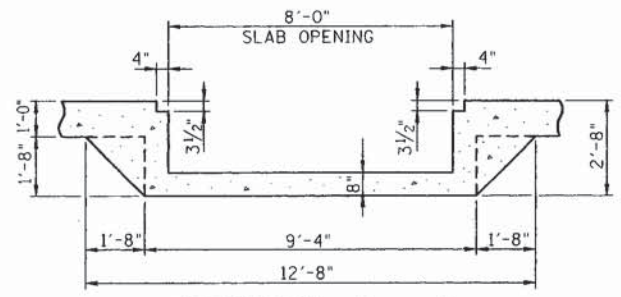
SECTION F - F



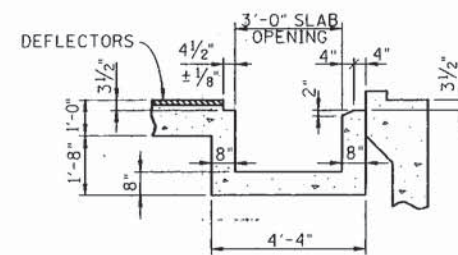
SECTION E - E



PLAN
(SHOWING BRIDGE END DRAIN PROPERTIES)
(GRATE NOT SHOWN THIS VIEW)



SECTION G - G



SECTION H - H

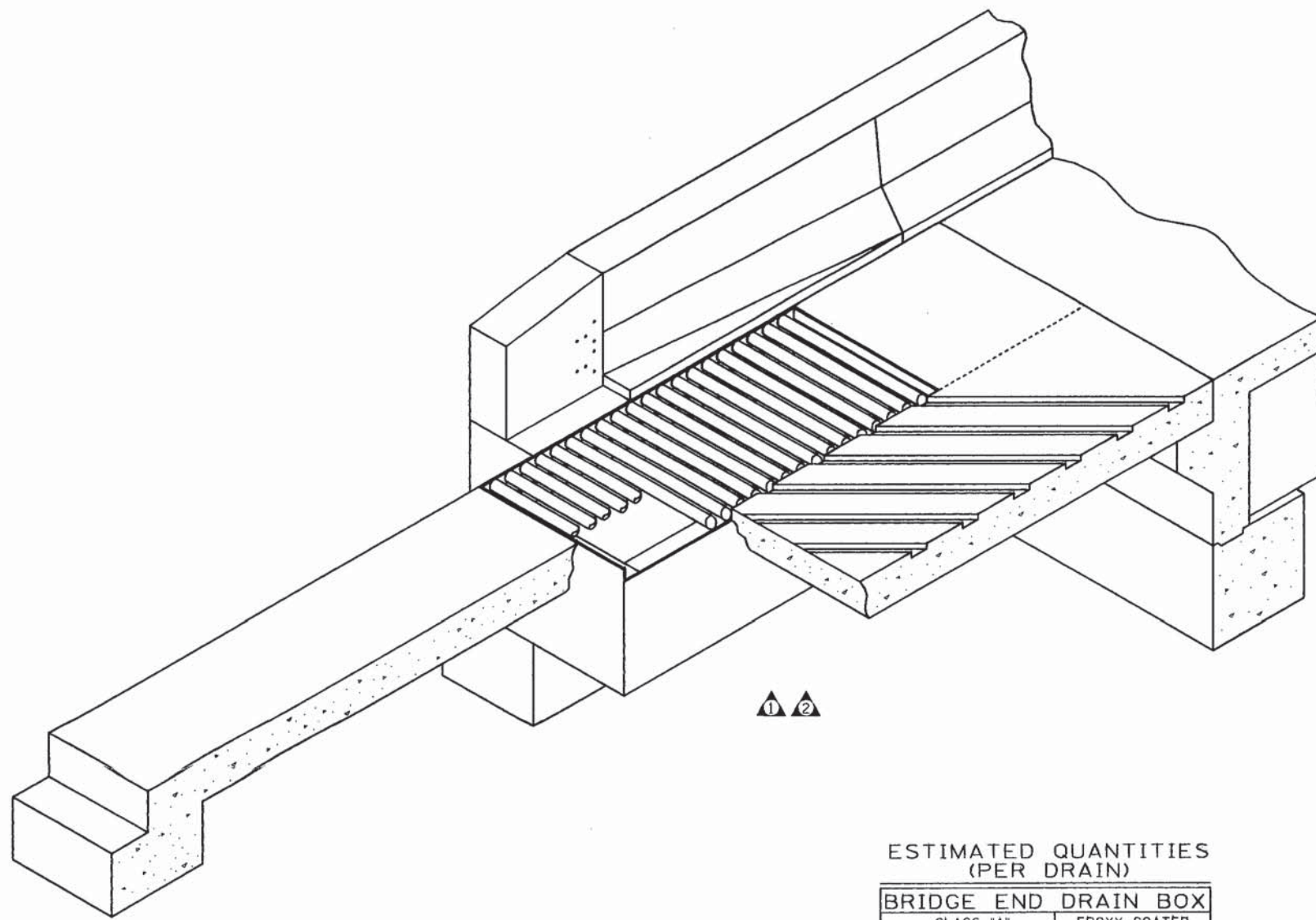
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BRIDGE END DRAIN DETAILS
1990

DESIGNED BY C.M. HILES
DRAWN BY KIM FRANKENFIELD
SUPERVISED BY C.M. HILES
CHECKED BY _____

DATE _____
DATE _____
DATE _____
DATE _____

CORRECT Edward P. Wasserman
ENGINEER OF STRUCTURES

PROJECT NO.	YEAR	SHEET NO.	
	1990		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	8-22-90	CMH	CAP END OF PIPE
2	6-24-91	CMH	ADDED SAW CUT



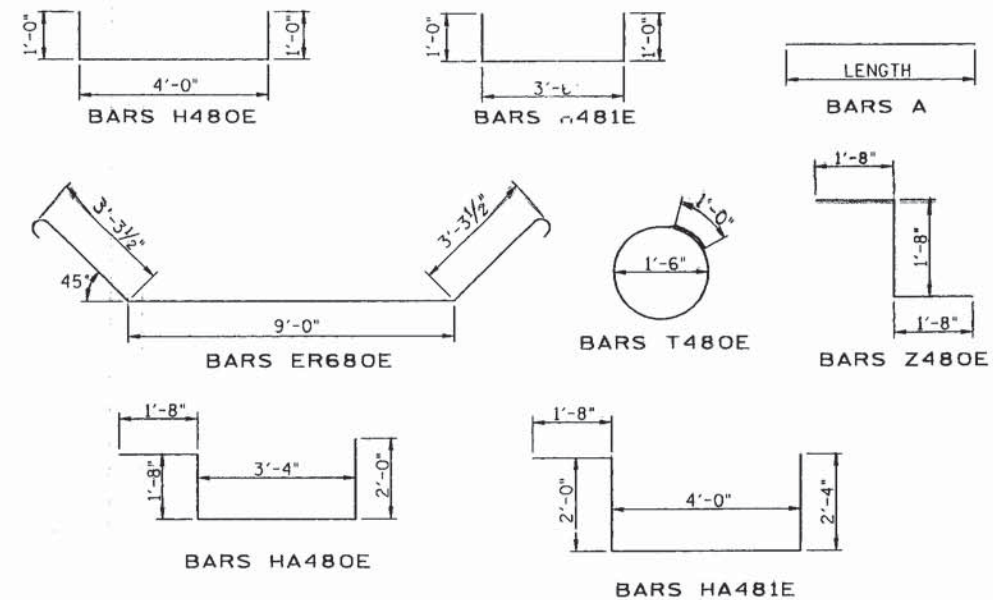
BAR	LOCATION	SIZE	NO. REQ'D	LENGTH
A480E	DRAIN	4	1	9'-0"
ER680E	DRAIN	6	2	16'-11"
HA480E	DRAIN	4	8	8'-8"
HA481E	DRAIN	4	8	10'-0"
H480E	DRAIN	4	8	6'-0"
H481E	DRAIN	4	8	5'-6"
T480E	DRAIN	4	2	5'-9"
Z480E	DRAIN	4	26	5'-0"

① ②

ESTIMATED QUANTITIES
(PER DRAIN)

CLASS "A" CONCRETE C.Y.	EPOXY COATED REINFORCING STEEL LB.
1.7	434

NOTE: THE COST OF THE GRATE AND 1.7 C.Y. OF CLASS "A" CONCRETE, 434 LB. OF EPOXY COATED REINFORCING STEEL FOR THE BRIDGE END DRAIN BOX AND ALL MISCELLANEOUS MATERIALS FOR INSTALLATION TO BE INCLUDED IN PAVEMENT AT BRIDGE ENDS, S.Y.

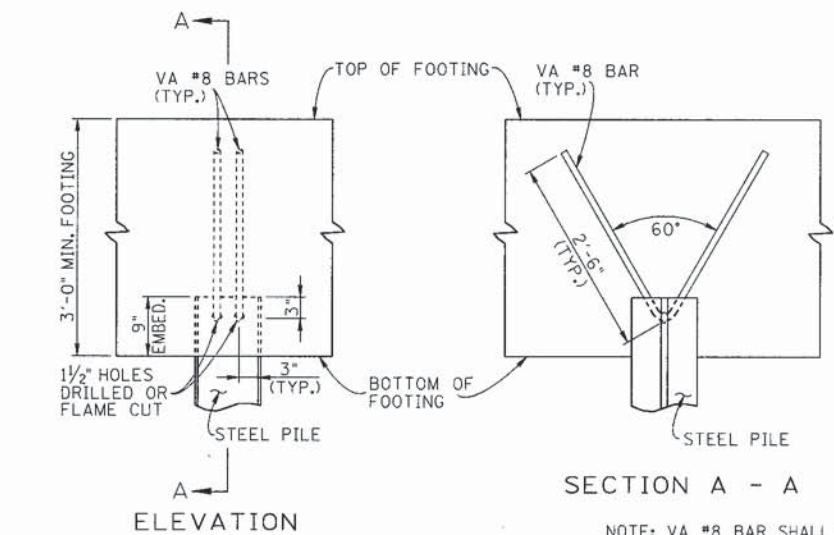


STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

BRIDGE END DRAIN DETAILS
1990

DESIGNED BY C.M. HILES DATE _____
DRAWN BY SIM FRANKENFIELD DATE _____
SUPERVISED BY C.M. HILES DATE _____
CHECKED BY _____ DATE _____

CORRECT *Edward P. Wasserman*
ENGINEER OF STRUCTURES



STEEL PILES IN STUB ABUTMENTS AND RETAINING WALLS: IN 2'-6" DEEP STUB ABUTMENTS OR RETAINING WALL FOOTINGS LESS THAN 3'-0", THE VA #8 BARS MAY BE TILTED FROM VERTICAL SUCH THAT THE BARS WILL BE FULLY ENCASED.

NOTE: APPLIES TO ALL STEEL PILE SIZES.

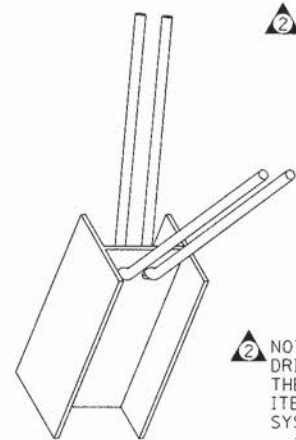
SECTION A - A

NOTE: VA #8 BAR SHALL BE SECURED IN THE VERTICAL POSITION TO PREVENT MOVEMENT DURING THE POURING OF THE FOOTING CONCRETE.

NOTE: THE COST OF DRILLING OR FLAME CUTTING THE HOLES IN THE TOP OF THE PILE TO BE INCLUDED IN THE COST OF THE PILE.

NOTE: VA #8 BAR WILL BE SHOWN IN THE BILL OF STEEL ON THE CONTRACT DRAWINGS AND PAID FOR UNDER ITEM 604-03.02.

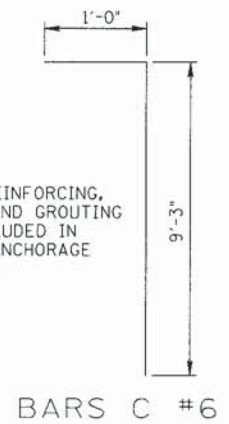
STEEL PILE DETAILS



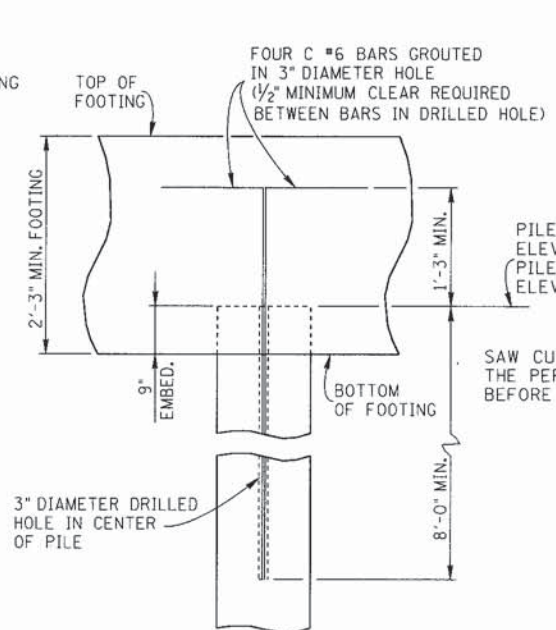
ISOMETRIC

2 GROUDED BARS IN DRILLED HOLES: VERTICAL DRILLED HOLES SHALL BE CLEANED, PACKED WITH CEMENTITIOUS NON-SHRINK GROUT AND C BARS TURNED TO ITS SEAT. ALL GROUTING MATERIAL SHALL BE APPROVED BY TENNESSEE DEPARTMENT OF TRANSPORTATION MATERIALS AND TESTS.

2 NOTE: THE COST OF REINFORCING, DRILLING, PREPARING AND GROUTING THE HOLES TO BE INCLUDED IN ITEM 606-12.01, PILE ANCHORAGE SYSTEM (SEISMIC) (EA.).



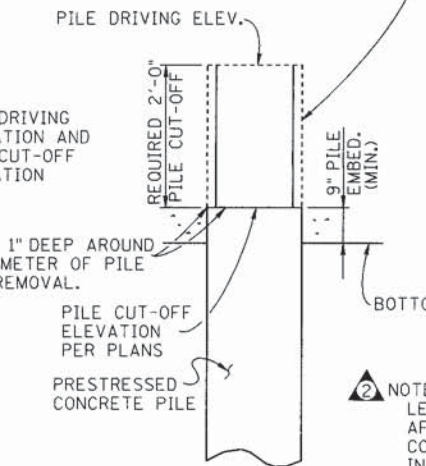
BARS C #6



CONCRETE PILE DETAIL

2 NOTE: MEASUREMENT AND PAYMENT SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION EXCEPT THE COST OF PREPARATION OF THE TOP OF THE PILE FOR SEISMIC REQUIREMENTS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 606-12.01, PILE ANCHORAGE SYSTEM (SEISMIC) (EA.). THE CONTRACTOR SHALL BE PAID FOR PILING BASED ON THE FINAL LENGTH OF PILING IN PLACE BELOW THE PILE CUT-OFF ELEVATION. MEASUREMENT AND PAYMENT FOR PILE CUT-OFFS SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT IT SHALL BE APPLICABLE ONLY FOR THE PORTION OF PILE ABOVE THE PILE DRIVING ELEVATION AND SHALL EXCLUDE THE REQUIRED 2'-0" OF PILE CUT-OFF FOR EXPOSING STRANDS.

TOP 2'-0" OF PILE TO BE REMOVED AND EXPOSE ALL PRESTRESSING STRANDS. THE EXPOSED PRESTRESSING STRANDS SHALL BE CLEANED OF ALL FOREIGN MATERIAL AND INCORPORATED INTO FOOTING.



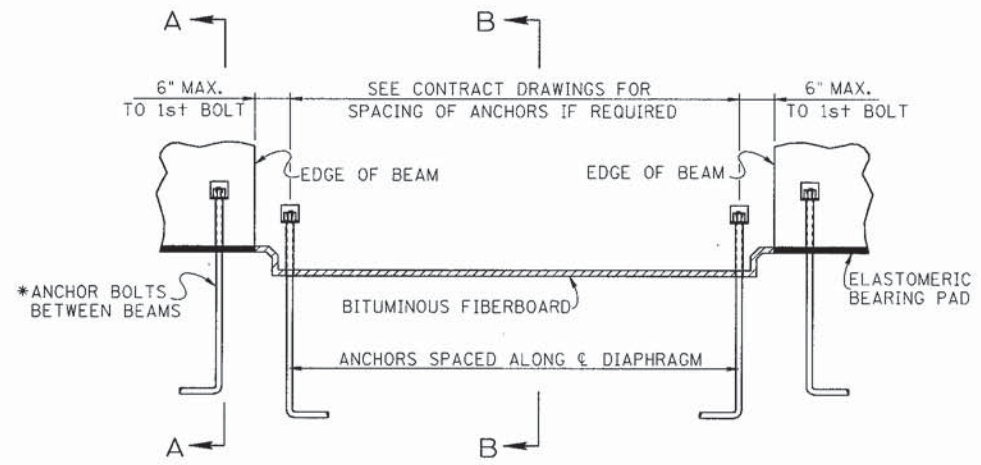
ALTERNATE DETAIL FOR PRESTRESSED CONCRETE PILE

PROJECT NO.	YEAR	SHEET NO.
	1990	

REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	12-12-90	MAH	ADDED PRESTRESSED CONC. PILE DETAIL
2	6-24-91	MAH	CHANGED TWO C#9 TO FOUR C#6 BARS
			GENERAL REVISIONS

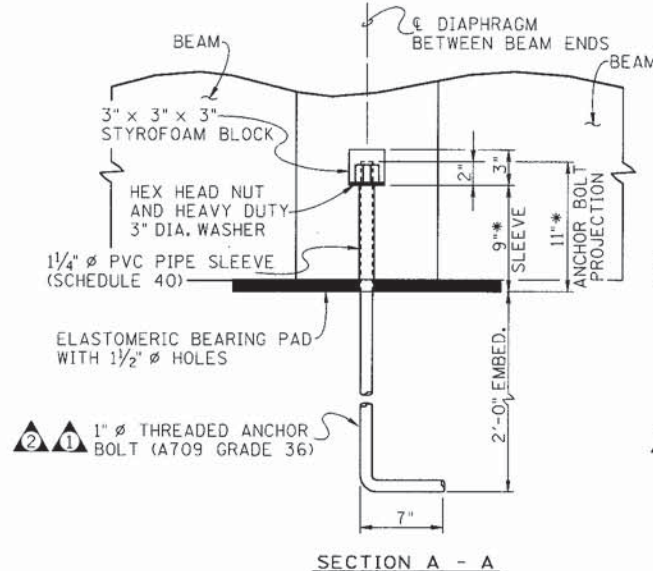
2 NOTE: IF FOR ANY REASON THERE IS NOT AT LEAST 2'-0" OF PILE ABOVE THE P.C.O. ELEVATION AFTER DRIVING TO THE REQUIRED BEARING, THE CONNECTION DETAIL OF FOUR C #6 BARS GROUDED IN TOP OF PILE MUST BE USED. SEE CONCRETE PILE DETAIL, THIS DRAWING.

2 PILE ATTACHMENT IS REQUIRED FOR SPC B, C AND D. ALSO, NO SPLICING OF CONCRETE PILES IS ALLOWED IN SPC B, C, AND D.



SPECIAL NOTE FOR ANCHOR BOLTS AT BENTS: ANCHOR BOLTS SHALL BE THREADED 1" DIAMETER GRADE 50 BOLTS. THE ANCHOR BOLT PROJECTION SHALL HAVE A 1/4" DIAMETER PVC SLEEVE (SCHEDULE 40) CAPPED BY A HEX HEAD NUT AND A HEAVY-DUTY 3" DIAMETER WASHER. THE NUT AND WASHER SHALL BE TORQUED SNUG AGAINST THE PVC PIPE WITH THE THREADS OF THE ANCHOR BOLT BURRED. THE PROJECTING ANCHOR BOLT, NUT AND WASHER SHALL BE PAINTED WITH EPOXY PAINT. THE TOP OF THE ANCHOR BOLT SHALL BE COVERED WITH A 3" x 3" x 3" STYROFOAM BLOCK GLUED SECURELY TO THE TOP OF THE ASSEMBLY. AS AN OPTION, THE TOP OF THE ASSEMBLY CAN BE COVERED WITH FOAM RUBBER WHICH MUST BE WRAPPED WITH A FLEXIBLE MEMBRANE CONFINING THE FOAM RUBBER TO THE TOP OF THE ASSEMBLY DURING CONCRETE PLACEMENT.

NOTE: WHEN THE NUT IS TIGHTENED AGAINST THE TOP OF THE PVC PIPE SLEEVE, THE BOTTOM OF THE SLEEVE SHALL BEAR UNIFORMLY WITH THE TOP OF THE BENT CAP OR RISER BLOCK.



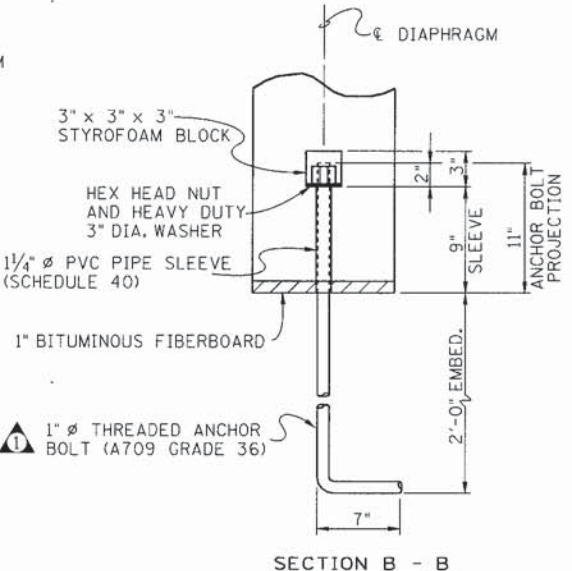
2 1" THREADED ANCHOR BOLT (A709 GRADE 36)

SECTION A - A

*NOTE: BETWEEN BEAMS USE 8" TOTAL ANCHOR BOLT PROJECTION WITH 6" OF PVC SLEEVE WHEN USING "TYPE I PRESTRESSED I-BEAMS".

NOTE: FOR REQUIRED NUMBER AND LOCATION OF ANCHOR BOLTS BETWEEN THE PRECAST PRESTRESSED BEAMS, SEE PRESTRESSED BEAM DETAIL DRAWINGS IN THE CONTRACT PLANS.

2 NOTE: COST OF ELASTOMERIC PADS AND RUBBER BONDING CEMENT TO BE INCLUDED IN THE COST OF PRESTRESSED BEAM. ALL ANCHOR BOLTS, HEX HEAD NUTS, WASHERS, SCHEDULE 40 PVC PIPE AND STYROFOAM BLOCK AND LABOR NECESSARY FOR INSTALLATION OF THE ANCHOR BOLT ASSEMBLY TO BE INCLUDED IN THE COST OF CLASS 'A' CONCRETE.

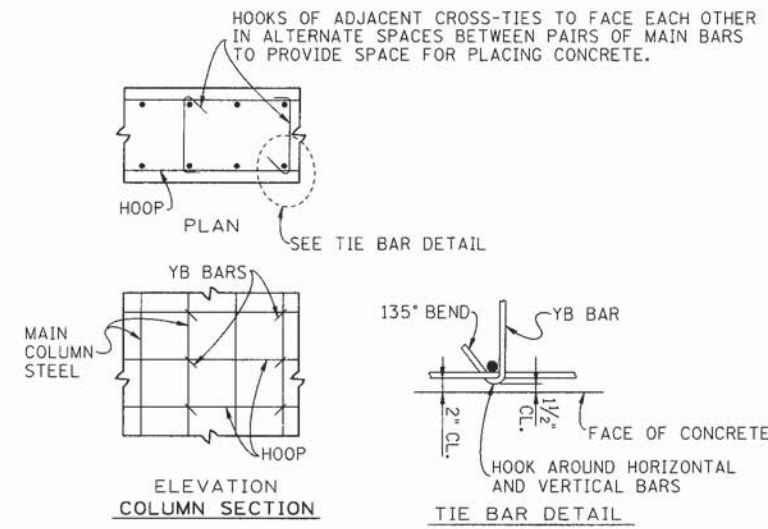


1 1" THREADED ANCHOR BOLT (A709 GRADE 36)

SECTION B - B

DESIGN SPECIFICATIONS: AASHTO "GUIDE SPECIFICATIONS FOR SEISMIC DESIGN OF HIGHWAY BRIDGES" CURRENT EDITION WITH ADDENDA.

SEISMIC PERFORMANCE CATEGORY (SPC)	ACCELERATION COEFFICIENT (A)
A	A ≤ 0.09
B	0.09 < A ≤ .19
C	0.19 < A ≤ .29
D	.29 < A



SUPPLEMENTARY TIES FOR COLUMN STEEL: SUPPLEMENTARY TIES (YB BARS) MUST ENGAGE HOOP (OUTSIDE HORIZONTAL BAR) AND BE TIED SECURELY TO LONGITUDINAL REINFORCEMENT.

SUPPLEMENTARY TIES FOR COLUMNS REQUIRED FOR SPC A, B, C AND D

LATERAL RESISTANCE AND HOLDDOWN FOR SEISMIC LOADS

REQUIRED FOR SPC A, B, C AND D

DESIGNED BY HENRY PATE	DATE 10-90
DRAWN BY KIM FRANKENFELD	DATE 10-90
SUPERVISED BY HOLLORAN & PRINCE	DATE 10-90
CHECKED BY	DATE

CORRECT Edward P. Wasserman
ENGINEER OF STRUCTURES

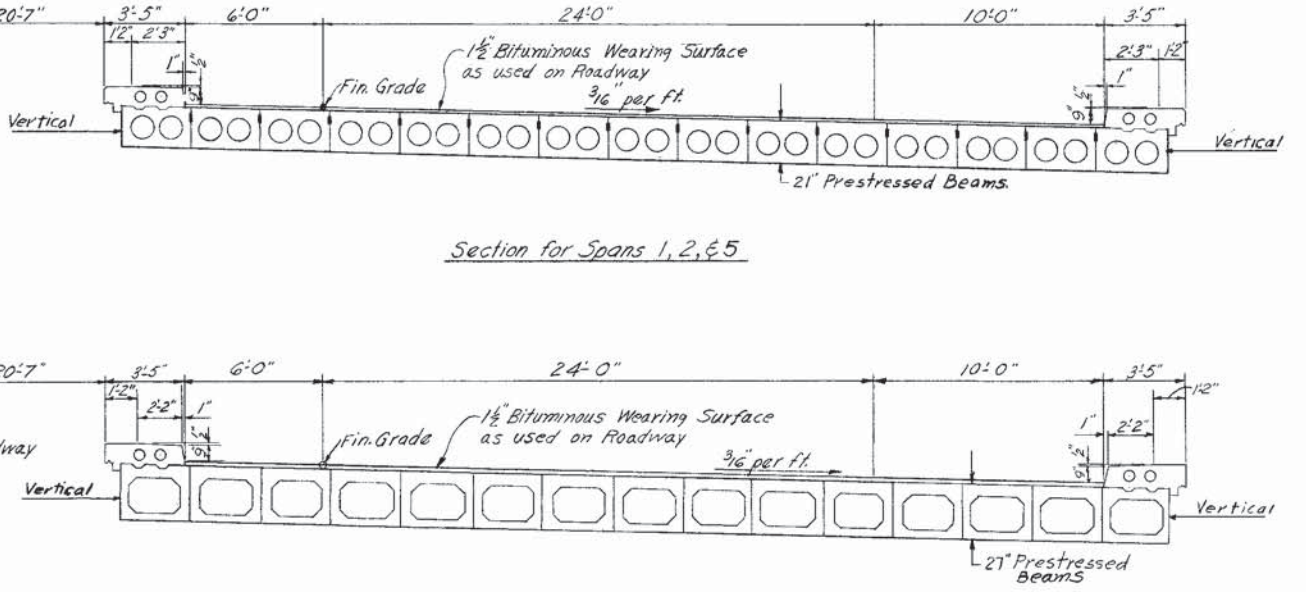
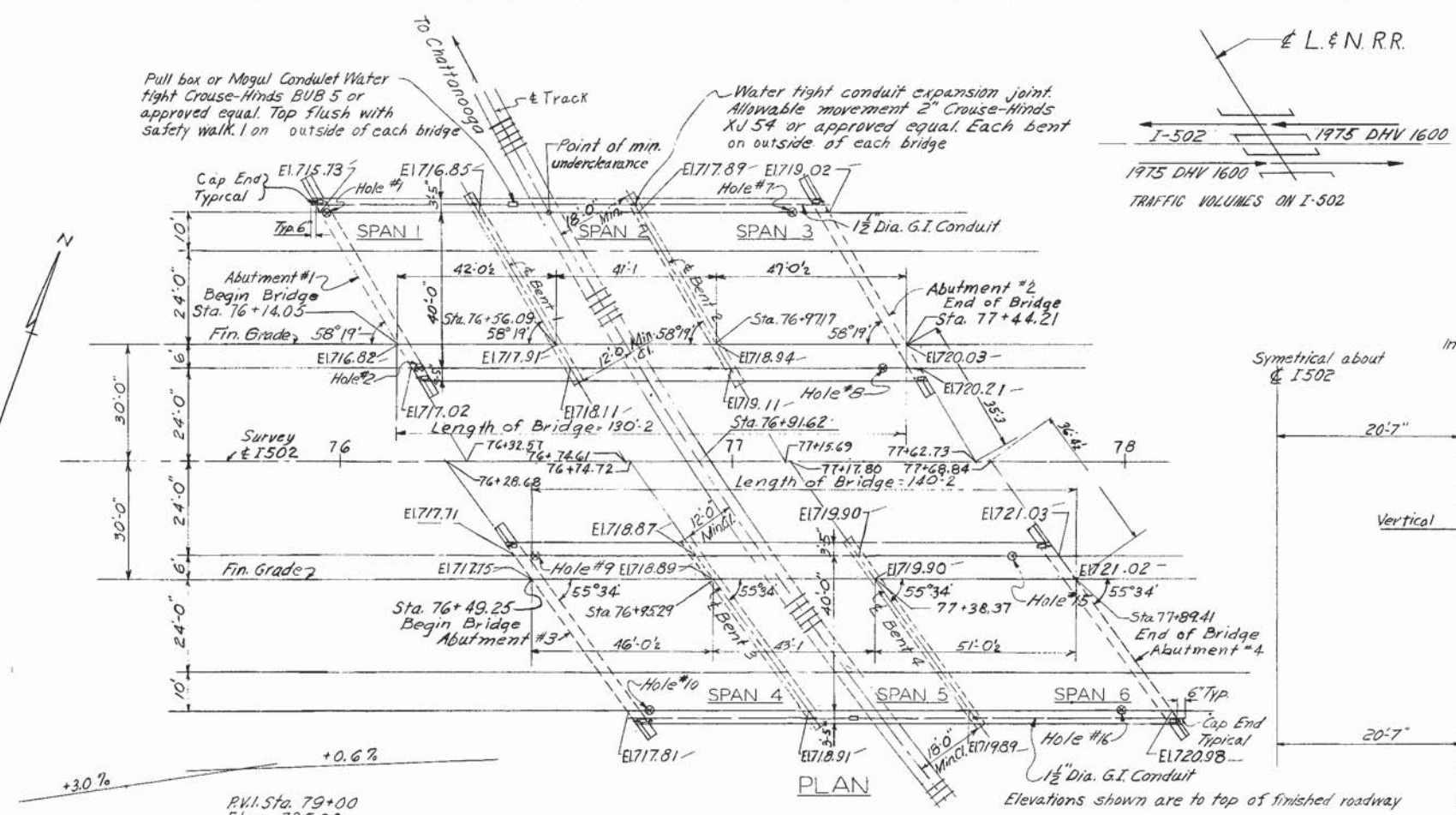
FED. ROAD REG. NO.	T E N N.	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3		I-75-1(10)2	1960	42	244

LIST OF DRAWINGS	
TITLE	NO.
GENERAL PLAN	H-7-121
DECK PLAN AND DETAILS	H-7-122
ABUTMENTS	H-7-123
BENTS	H-7-124
STEEL HANDRAIL (STD. 2 RAILTYPE)	G-10-99
STD. PILE DETAILS	H-5-100

BORINGS									
Hole	Station	Offset	Ground El.	Rock El.	Hole	Station	Offset	Ground El.	Rock El.
1	75+96	6' L.	700.0	651.0	9	76+50	2' R.	710.9	650.9
2	76+20	2' L.	707.6	653.6	10	76+57	7' R.	720.4	650.4
7	77+15	6' L.	709.3	647.3	15	77+71	2' R.	716.4	652.4
8	77+38	2' L.	711.2	647.2	16	78+05	6' R.	717.5	647.5

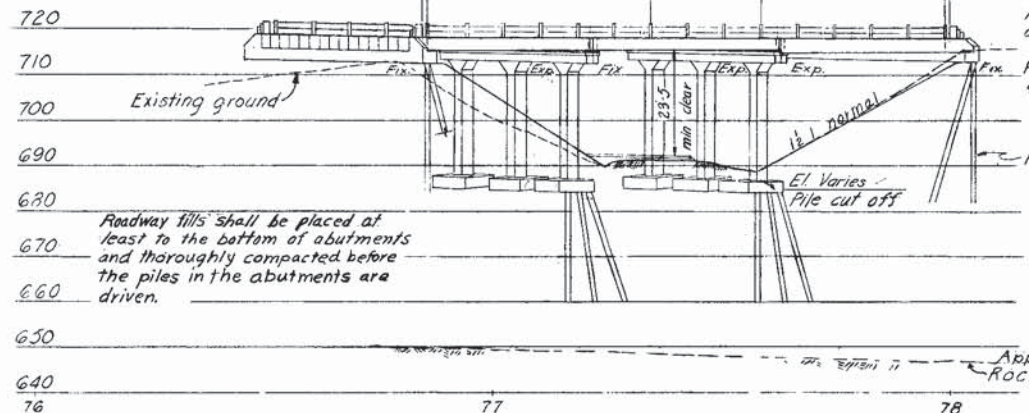
Boring locations are referenced to I-502

Notes: If it becomes necessary to use size 2 piles the contractor will be allowed an increase in his size one bid price of 25%. Before any precast concrete piles are ordered a precast concrete test pile 40' long shall be driven for each abutment at location shown. From the results obtained, Piles shall be ordered of such length to obtain a minimum design bearing of 30 tons per pile Abut. 1, 29 tons per pile Abut. 2, 28 tons per pile Abut. 4. In the abutments the Contractor may use cast-in-place piles. For Mandrel driven shells for cast-in-place piles, a steel cage as shown on pile standard H-5-100 shall be used. For pile details see standard drawing H-5-100

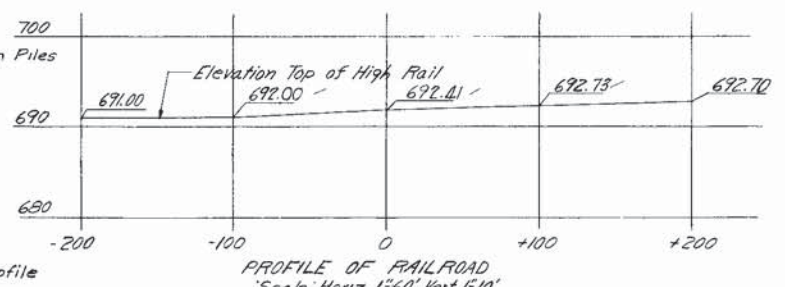


I-502 VERTICAL CURVE DATA

1.0' 6 Spa @ 9:3" = 55:9'	7 Spa @ 9:6" = 66:6'	1.0' North Bridge (both sides)
1.5' 9 Spa @ 9:3" = 83:7 1/2'	5 Spa @ 9:6" = 47:6'	1.0' South Bridge (both sides)



For Railing details see Tennessee Department of Highways and Public Works Standard Drawing G-10-99. All railing posts shall be vertical. Railing spacing shown is on the E of the anchor bolts.



QUANTITIES IN PRESTRESSED BEAMS
Concrete 580 cy
Strands 29,017 lbs.
Reinf. Steel 48,724 lbs.

TABLE OF ESTIMATED QUANTITIES																	
Item No	Unit	Item	Abut 1	Abut 2	Abut 3	Abut 4	Bent 1	Bent 2	Bent 3	Bent 4	Span 1	Span 2	Span 3	Span 4	Span 5	Span 6	Total
17-2	C.Y.	Dry Excavation * (Bridges)					88	208	163	192							651
135-4	C.Y.	Class A Concrete	17	18	18	19	64	66	67	67	10	10	11	11	10	12	400
135-12	lbs.	Steel Bar Reinforcement	2343	2446	2504	2592	10,517	10,685	10,845	11,003	477	384	516	510	390	543	55835
137-3	L.F.	Steel Piles 10 BPA2															2160
139-3	L.F.	Precast Concrete Piling Size 1															1080
154-8A	Ea.	21" deep x 41'-0" Uniform Section										15					15
154-8B	Ea.	21" deep x 42'0" "										15					15
154-8C	Ea.	21" deep x 43'-0" "											15				15
154-8D	Ea.	27" deep x 46'-0" "												15			15
154-8E	Ea.	27" deep x 47'-0" "													15		15
154-8F	Ea.	27" deep x 51'-0" "														15	15
7-02	L.F.	Steel Handrail (2 Rail)									78	82	88	86	86	96	516
6-02	Lump Sum	Lighting Accessories (See Notes)															1
139-1	L.F.	Precast Concrete Test Piling															160

GENERAL NOTES

The contractor for the prestressed members must submit details of members and obtain approval from the engineer before proceeding with manufacture of members.

Specifications: A. A. S. H. O. 1957 "Standard Specifications for Highway Bridges," and tentative revisions thereto, except as modified by Bureau of Public Roads' Policy on Interstate System and "Criteria for Prestressed Concrete Bridges, 1954," and the Standard Specifications for Road and Bridge Construction of the Tennessee Department of Highways and Public Works.

Loading: H20-516-44 and RPM 20-4.

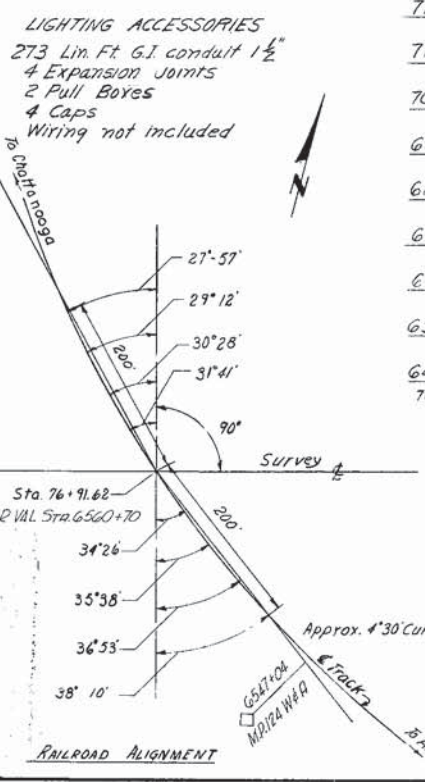
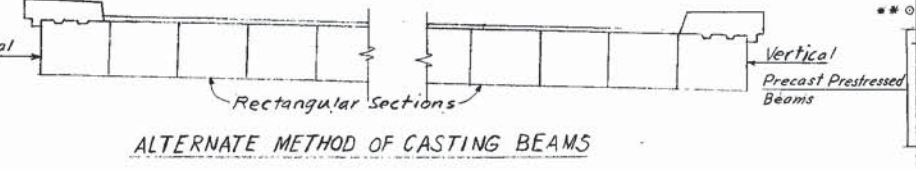
All poured in place concrete shall be Class "A"

For masonry pads and prestressed beams, see special provisions. The 1 1/2" Bituminous wearing surface is included in Bridge Quantities on Roadway Plans.

Lighting accessories installation shall include all lighting accessories shown on plan complete in place except wiring; special provisions for roadway lighting shall apply. Wiring to be installed under roadway lighting item.

Cost of joint material to be included in Class A concrete unless otherwise provided for in the Special Provisions.

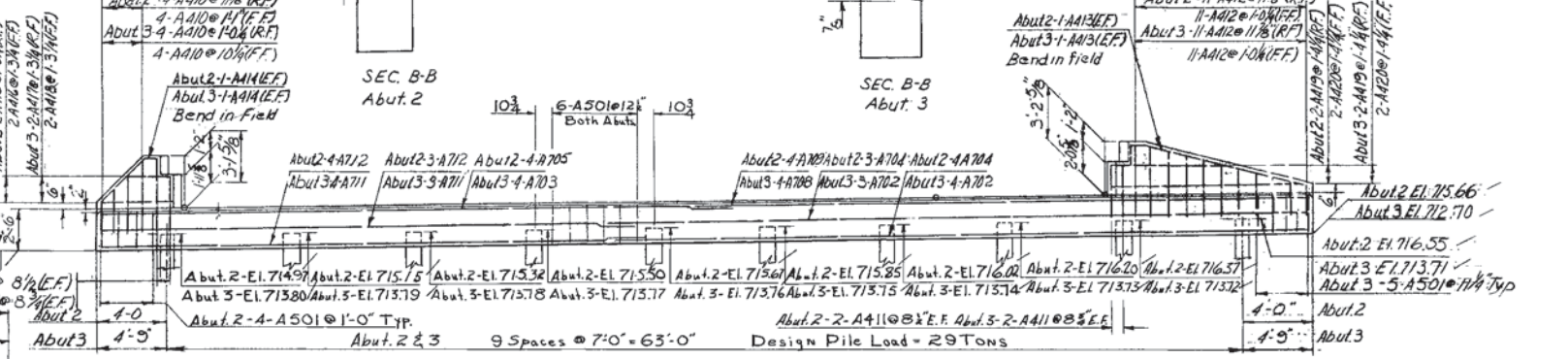
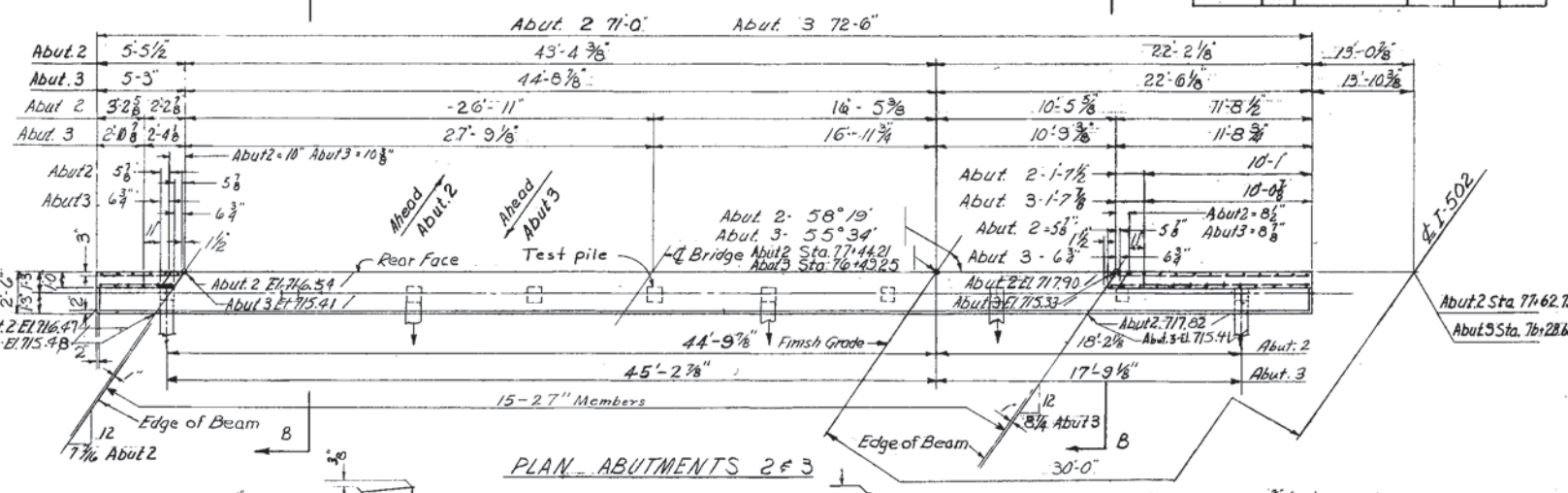
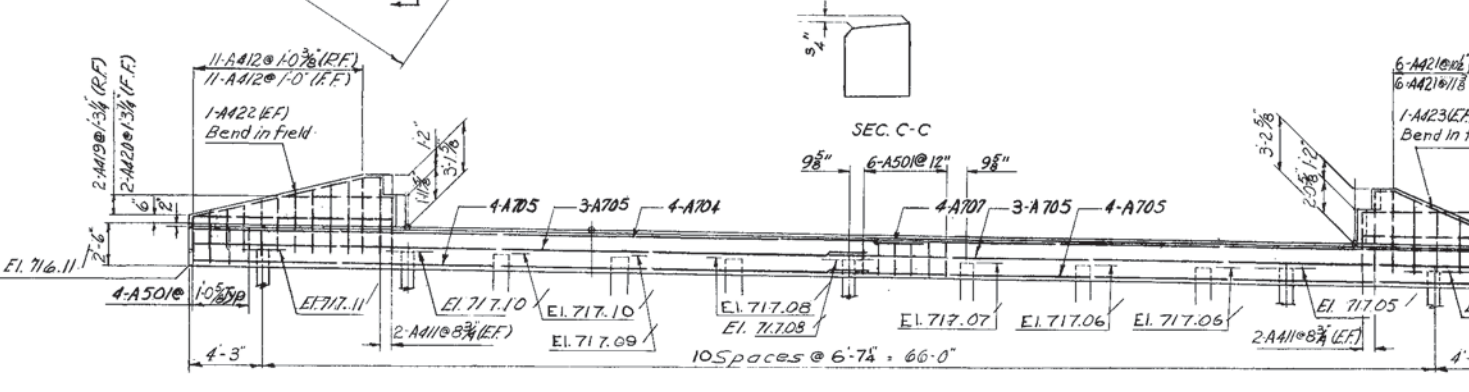
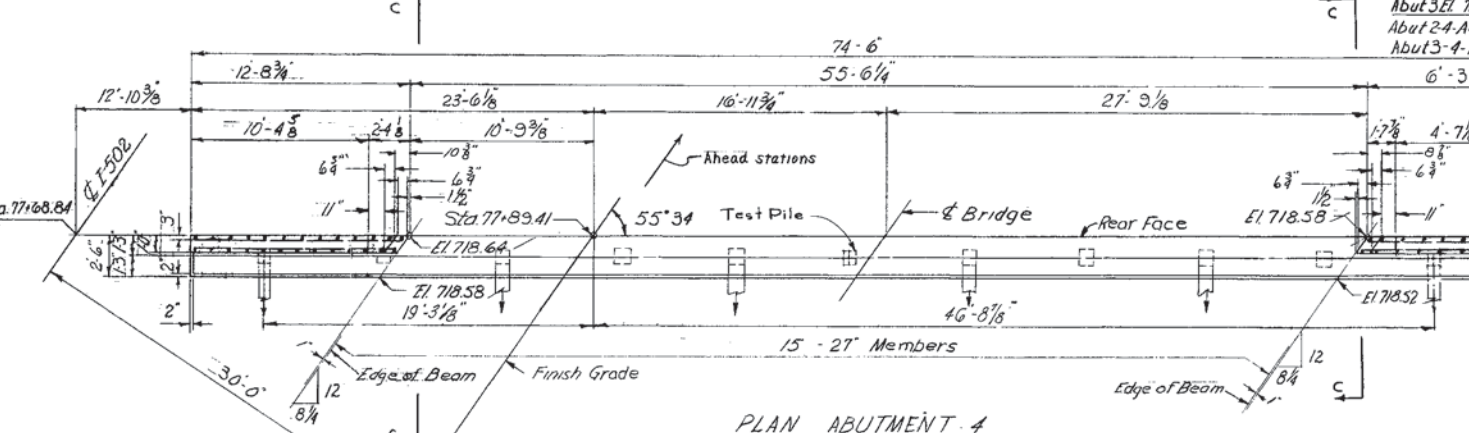
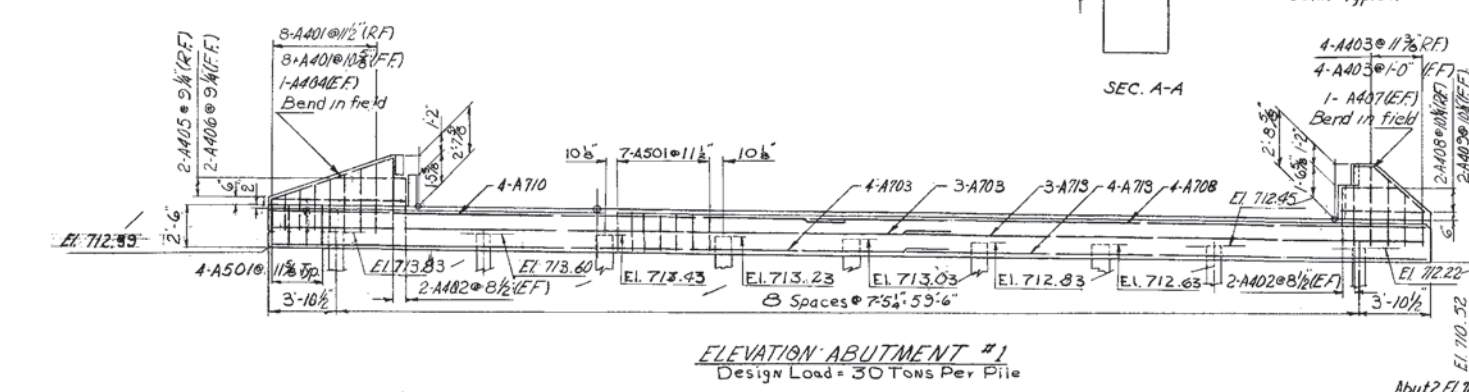
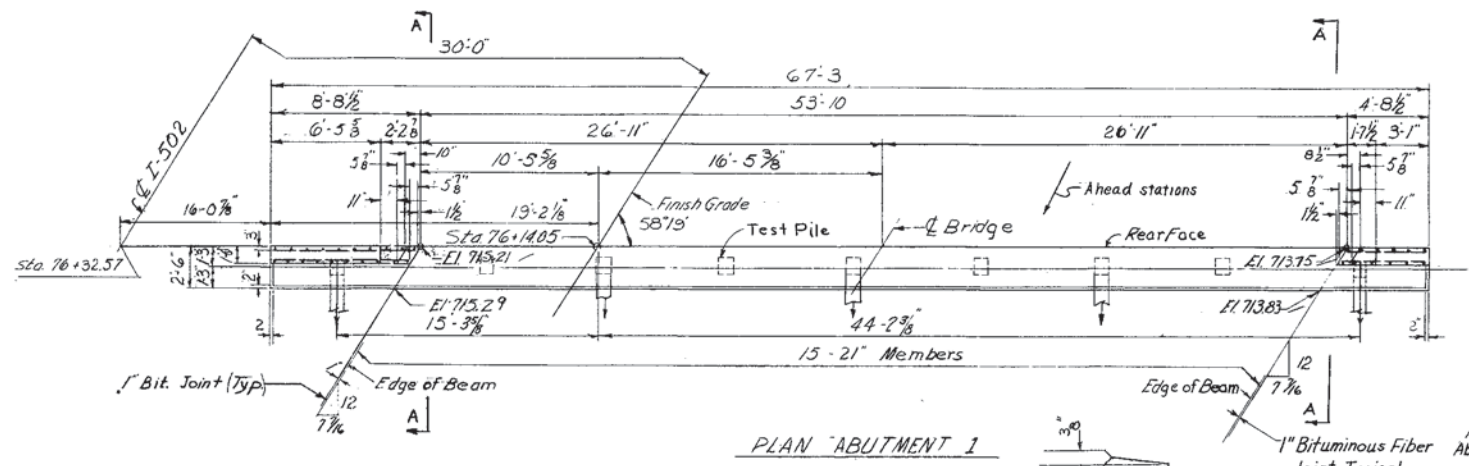
Steel bar reinforcement shall be intermediate grade or hard grade.



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FOR
STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
AND PUBLIC WORKS
NASHVILLE

GENERAL PLAN
FOR
STRUCTURE OVER L & N. R.R.
INTERSTATE ROUTE 502 STA. 76 + 91.62
HAMILTON COUNTY

H-7-121

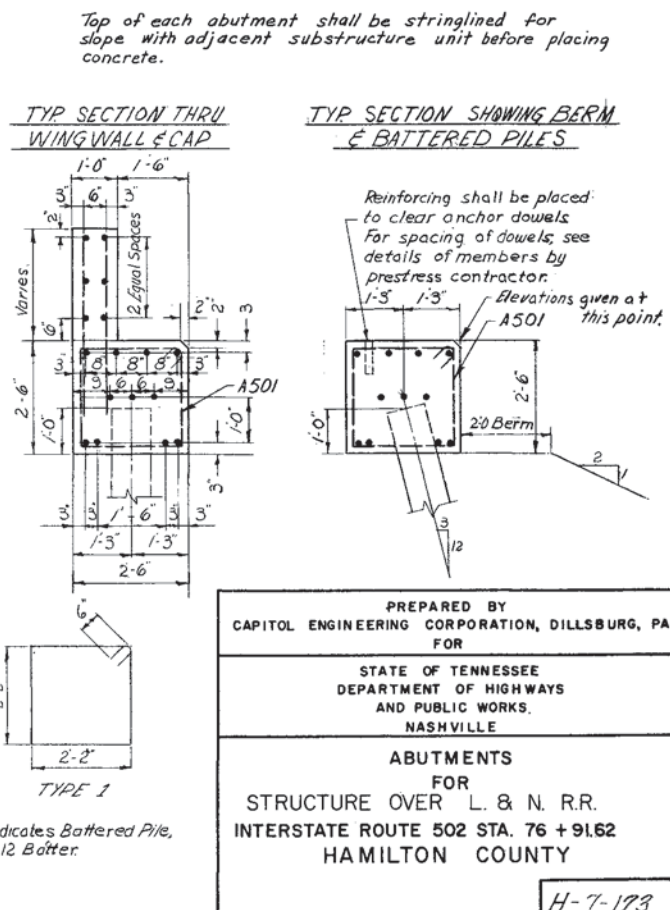


ABUTMENT BAR LIST

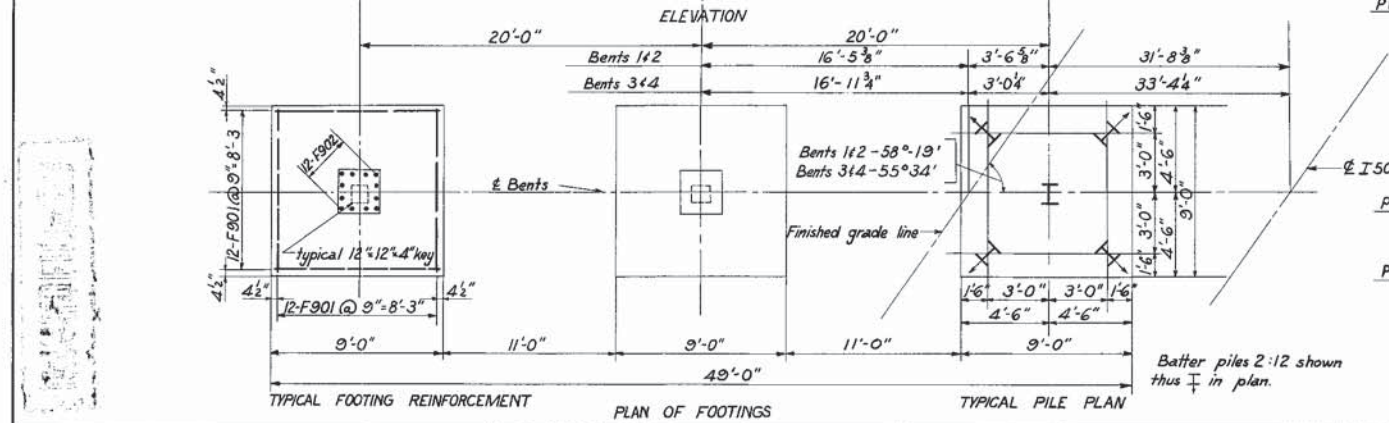
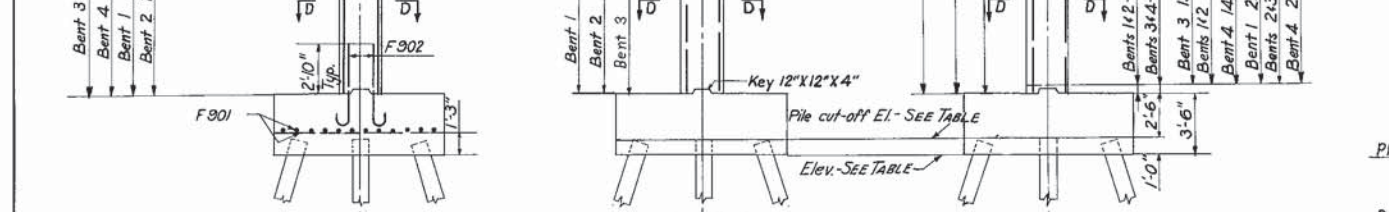
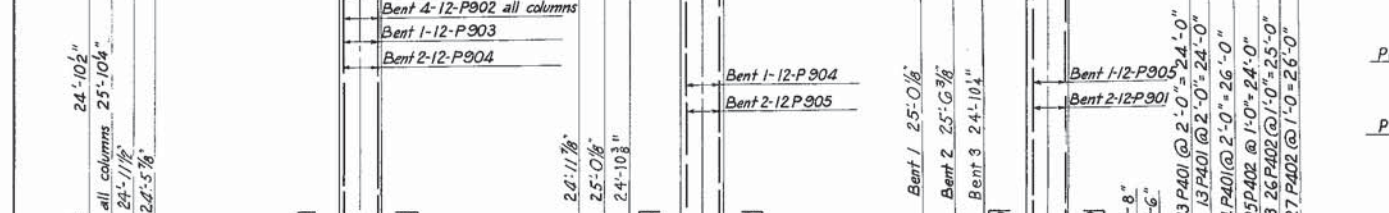
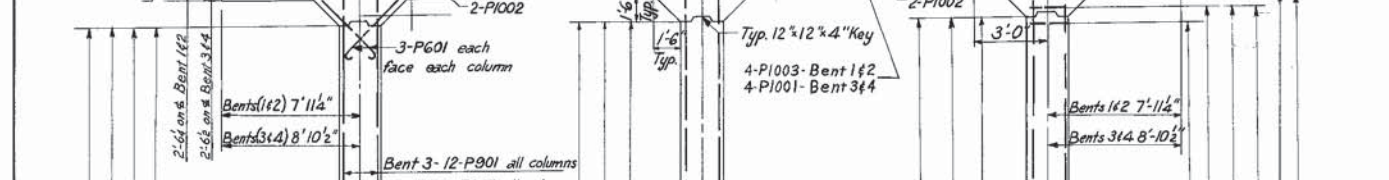
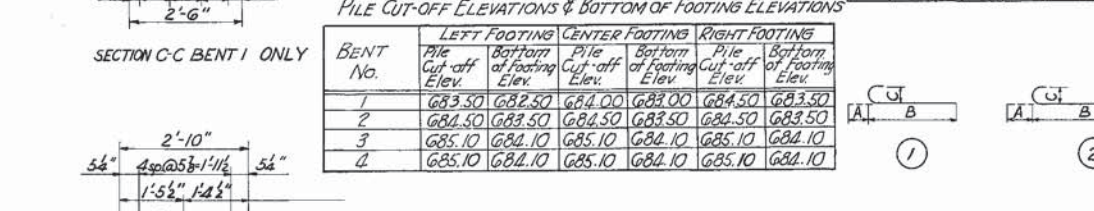
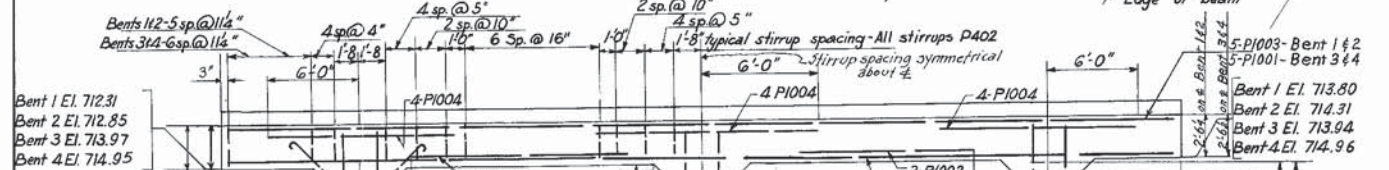
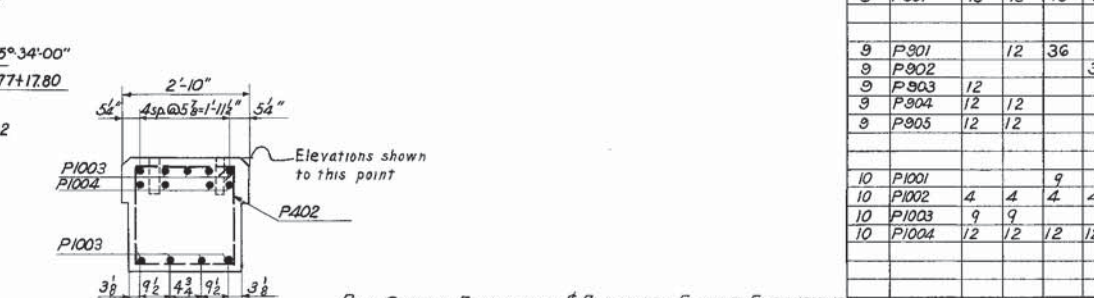
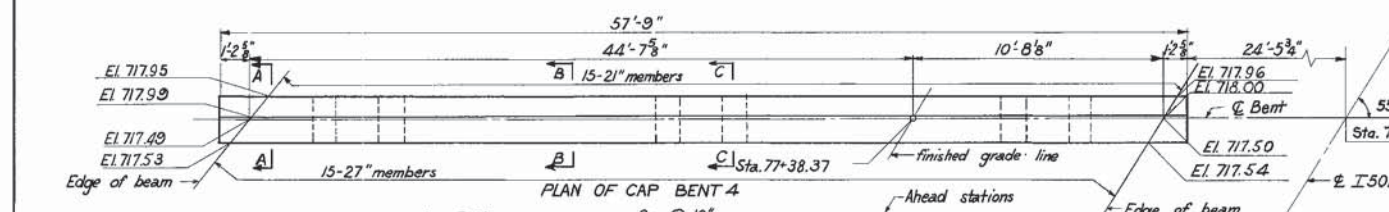
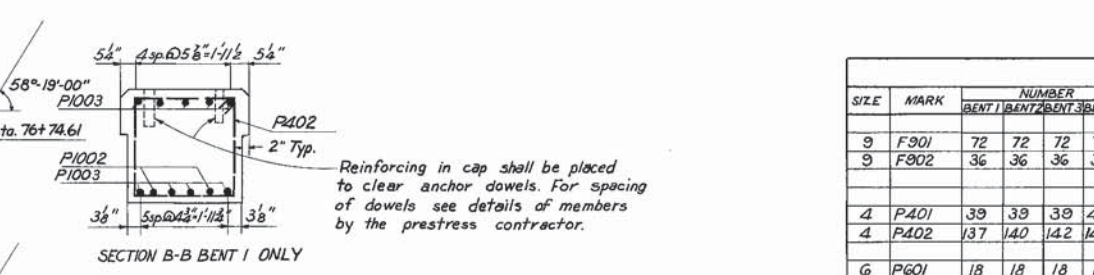
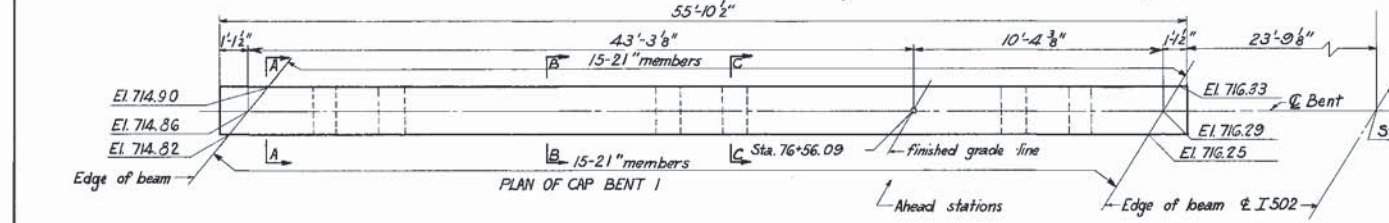
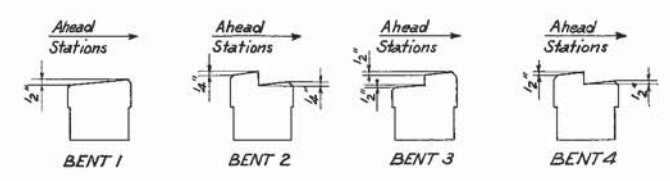
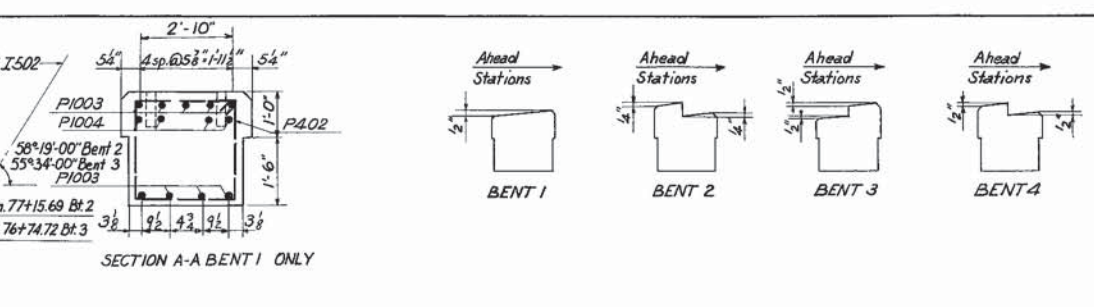
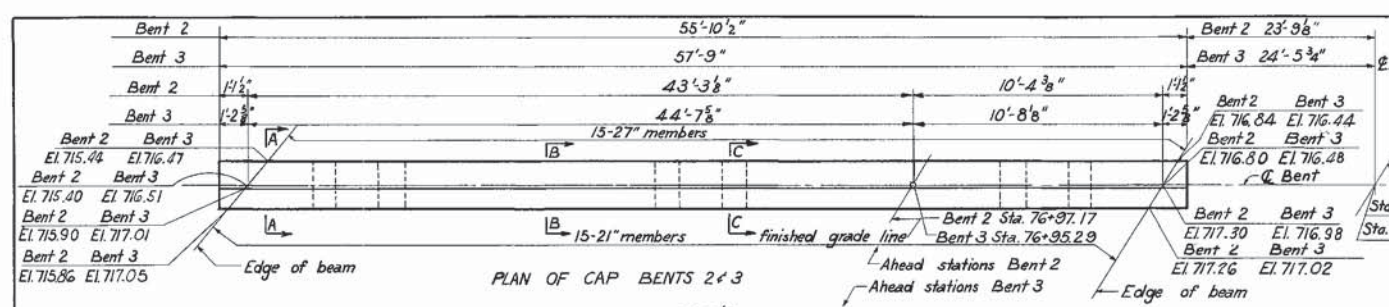
Mark	Size	Type	Abutment				Total	Length	Varies	No. of	Weight		
			1	2	3	4							
A401	4	Str	16	33			16	2'-0" to 4'-1"	3 1/2	2	33		
A402	8	Str	19				19	2'-11" to 4'-1"	1-2	4	19		
A403	8	Str	17				17	2'-1" to 4'-7"	8	2	17		
A404	2	Str	10				10	7'-4" to 7'-8"	1	1	10		
A405	2	Str	9				9	5'-7" to 7'-10"	2-3	1	9		
A406	2	Str	8				8	5'-3" to 7'-6"	2-3	1	8		
A407	2	Str	6				6	4'-7" to 1'-10"	3	1	6		
A408	2	Str	5				5	3'-0" to 4'-1"	1-4	1	5		
A409	2	Str	6				6	3'-4" to 4'-8"	1-4	1	6		
A410	8	Str	19	19			38	2'-2" to 4'-8"	10	4	38		
A411	23	Str	23	23	8		54	3'-6" to 4'-8"	1-2	12	69		
A412	22	Str	50	22	50	22	152	2'-1" to 4'-7"	3	6	150		
A413	2	Str	16	2	16		34	11'-7" to 11'-9"	8	2	32		
A414	2	Str	7	2	7		14	4'-8" to 5'-4"	8	2	14		
A415	2	Str	6				6	3'-5" to 5'-7"	1-8	1	6		
A416	2	Str	5				5	2'-10" to 4'-5"	1-7	1	5		
A417	2	Str	2		5		7	3'-4" to 4'-10"	1-6	1	7		
A418	2	Str	2		6		8	2'-9" to 4'-2"	1-5	1	8		
A419	2	Str	12	2	12	2	28	6'-4" to 11'-4"	5-0	3	36		
A420	2	Str	10	2	10	2	22	7'-0" to 11'-10"	4-10	3	30		
A421	2	Str	12		12		24	2'-2" to 4'-8"	6	2	28		
A422	2	Str	16		16		32	11'-6" to 11'-9"	3	1	16		
A423	2	Str	3		3		6	6'-0" to 6'-6"	6	1	6		
A424	2	Str	6		6		12	3'-6" to 6'-0"	2-6	1	6		
A425	2	Str	7		7		14	3'-11" to 6'-5"	2-6	1	7		
A501	5	1	64	656	62	635	64	656	68	697	258	3'-8"	2644
A702	7	Str			7	605		7	41'-5"		7	605	
A703	7	Str		7	563	4	322		38'-10"		11	885	
A704	7	Str		7	524	4	339		41'-0"		11	933	
A705	7	Str		7	375	4	1107		38'-0"		18	1476	
A707	4	Str			298	4	294		35'-6"		8	294	
A708	4	Str			298	4	298		36'-0"		8	298	
A709	4	Str			290	4	290		35'-0"		8	290	
A710	4	Str			274	4	274		33'-7"		8	274	
A711	7	Str			475	7	475		32'-9"		7	475	
A712	7	Str			464	7	464		32'-0"		7	464	
A713	7	Str			439	7	439		30'-4"		7	439	
Totals													9,885

ABUTMENT QUANTITIES

Item No.	Unit	Item	Abut 1	Abut 2	Abut 3	Abut 4	Total
135-4	C.Y.	Class "A" Concrete	17	18	18	19	72
135-12	Lbs.	Steel Bar Reinforcement	2343	2446	2504	2592	9,885

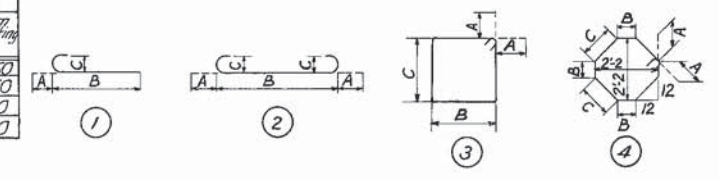


Revised 6-21-60 As per letter of 5-23-60 and Conference of 6-7-60
 Revised 1-3-61 Finished Grade Raised
 Revised 1-6-61
 Revised 9-23-59 in accordance with letter of 11-25-58.
 DATE 1-3-61
 DATE 1-6-61
 DATE 9-23-59
 DATE 11-25-58
 H.F.B.
 H-7-123



PILE MARK	NUMBER				TYPE	LENGTH	DIMENSIONS			WEIGHT						
	BENT 1	BENT 2	BENT 3	BENT 4			A	B	C	BENT 1	BENT 2	BENT 3	BENT 4	TOTAL		
9 F901	72	72	72	72	288	str.	8'-6"					2105	2105	2105	2105	8420
9 F902	36	36	36	36	144	1	6'-3"	1'-3"	5'-0"	11'-4"		774	774	774	774	3096
4 P401	39	39	39	42	159	4	7'-10"	5"	8'-2"	10'-4"		208	208	208	224	848
4 P402	137	140	142	145	567	3	9'-6"	5"	2'-2"	2'-2"		885	904	917	936	3642
6 P601	18	18	18	18	72	2	9'-4"	8"	8'-0"	6"		255	255	255	255	1020
9 P901		12	36		48	str.	28'-0"					1156	3468			4624
9 P902				36	36	str.	29'-0"								3591	3591
9 P903		12			12	str.	26'-4"					1087				1087
9 P904		12			24	str.	26'-10"					1108	1108			2216
9 P905		12			24	str.	27'-5"					1132	1132			2264
10 P1001			9	9	18	str.	57'-5"					244	244	2248	2248	4496
10 P1002		4	4	4	16	str.	14'-0"					244	244	244	244	976
10 P1003		9	9		18	str.	55'-6"					2173	2173			4346
10 P1004		12	12	12	48	str.	12'-0"					626	626	626	626	2504
TOTALS											10,597	10,685	10,845	11,003	43,130	

BENT No.	LEFT FOOTING		CENTER FOOTING		RIGHT FOOTING	
	Pile Cut-off Elev.	Bottom of footing Elev.	Pile Cut-off Elev.	Bottom of footing Elev.	Pile Cut-off Elev.	Bottom of footing Elev.
1	683.30	682.30	684.00	683.00	684.50	683.50
2	684.50	683.50	684.50	683.50	684.50	683.50
3	685.10	684.10	685.10	684.10	685.10	684.10
4	685.10	684.10	685.10	684.10	685.10	684.10



NOTES

Reinforcing steel shall have 3" cover in the footings and 2" cover elsewhere unless otherwise noted.

Piles are 10BP42 steel, point bearing on rock or driven to a minimum design bearing of 32 tons per pile. For pile details see Tennessee Department of Highways and Public Works standard drawing H-5-100

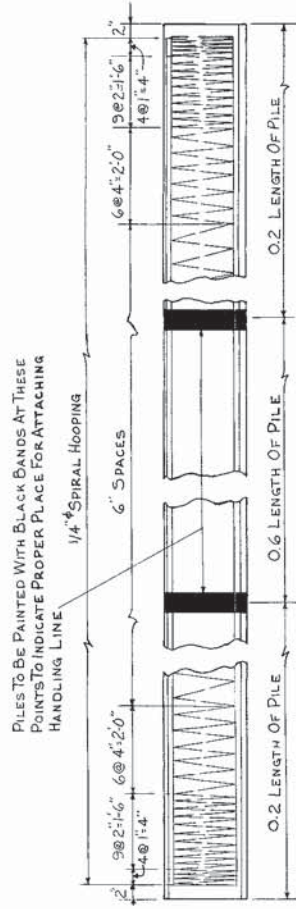
Chamfer on top edges of the caps to be 2"

Before placing concrete, the top of each bent shall be stringlined for slope with adjacent substructure unit.

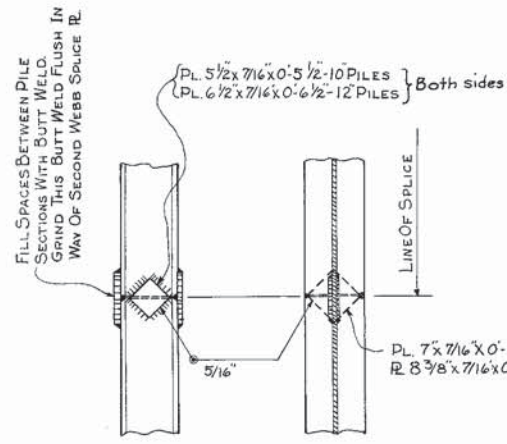
QUANTITIES							
ITEM	AMOUNT	ITEM	BENT 1	BENT 2	BENT 3	BENT 4	TOTAL
135-4	C.Y.	Class "A" Concrete	64	66	67	67	264
135-12	LBS	Steel Bar Reinforcement	10,597	10,685	10,845	11,003	43,130

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DEPARTMENT OF HIGHWAYS
AND PUBLIC WORKS
NASHVILLE

BENTS 1, 2, 3, & 4
FOR
STRUCTURE OVER L. & N. R.R.
INTERSTATE ROUTE 502 STA. 76 + 91.62
HAMILTON COUNTY

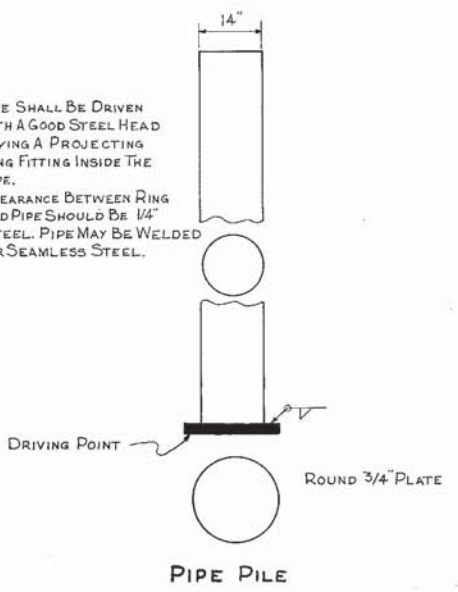


STEEL PILES

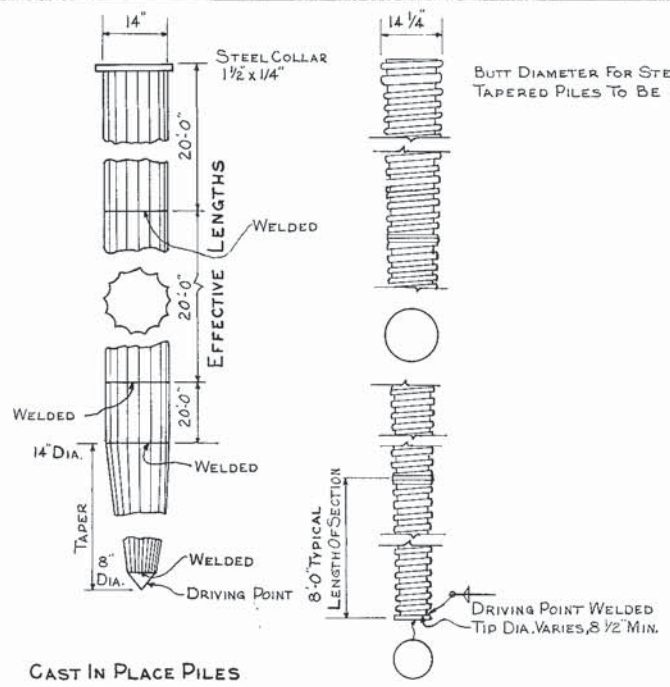


DETAIL OF PILE SPLICE

PILE SHALL BE DRIVEN WITH A GOOD STEEL HEAD HAVING A PROJECTING RING FITTING INSIDE THE PIPE. CLEARANCE BETWEEN RING AND PIPE SHOULD BE 1/4" STEEL. PIPE MAY BE WELDED OR SEAMLESS STEEL.



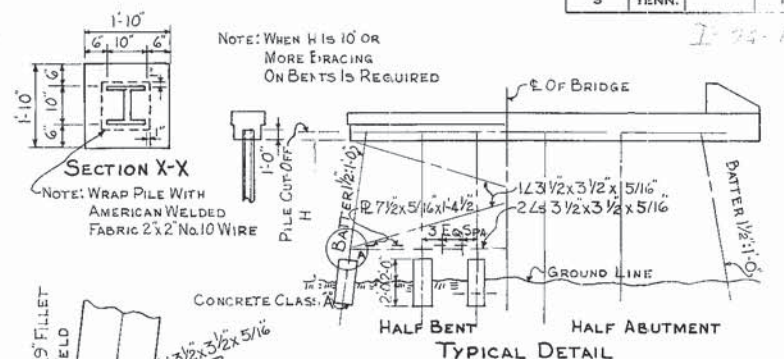
PIPE PILE



CAST IN PLACE PILES

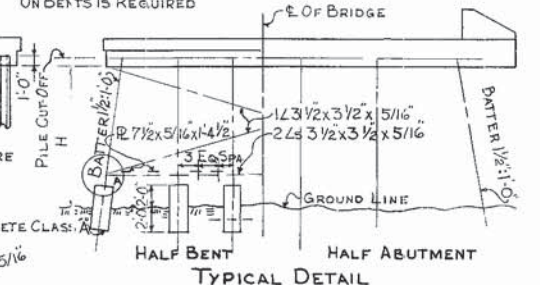
STEP TAPER PILE

NOTE: CONCRETE IN CAST IN PLACE PILES TO BE CLASS "A"

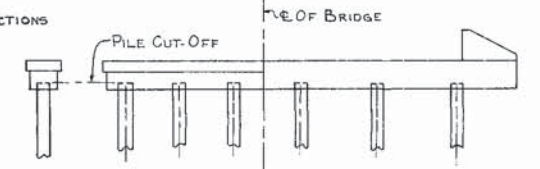


SECTION X-X

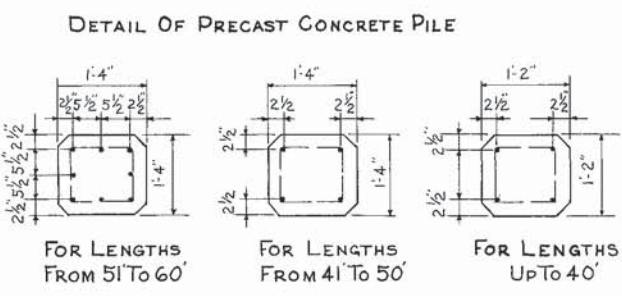
DETAIL AT "A"



TYPICAL DETAIL



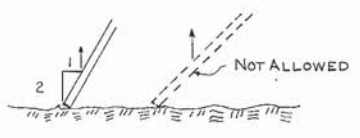
TYPICAL DETAIL



DETAIL OF PRECAST CONCRETE PILE

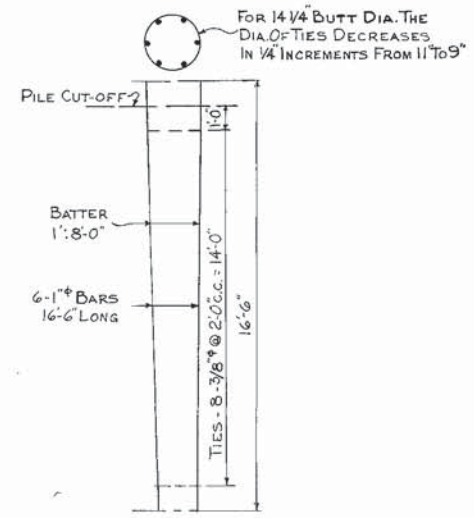
LENGTH OF PILE	LONGIT. REINF.	WT. OF STEEL PER FT.	WT. OF PILE PER FT.
UP TO 35'	4-7/8" BARS	9.6 LBS.	205.3 LBS.
36 TO 40'	4-1" "	12.2 "	205.3 "
41 TO 45'	4-1" "	15.1 "	265.3 "
46 TO 50'	4-1 1/8" "	18.8 "	265.3 "
51 TO 55'	8-1" "	28.9 "	265.3 "
56 TO 60'	8-1 1/8" "	36.2 "	265.3 "

NOTE: IN HANDLING THE PILES, THEY SHALL BE SUPPORTED AT THE POINTS INDICATED. PILES TO BE PICKED UP BY PULLING ON BOTH LINES UNIFORMLY. END OF PILE NOT TO TOUCH GROUND UNLESS PILES INCLINED 1:2 OR STEEPER.



GENERAL NOTES:

SPECIFICATIONS: STANDARD ROAD & BRIDGE SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF HIGHWAYS.
 CHOICE OF PILES: ON EACH LAYOUT SHEET THE TYPE OF PILES - AND ANY ALTERNATE TYPES IF PERMITTED - WILL BE SPECIFIED. REINFORCEMENT TO BE ADDED IN THE MANDREL DRIVEN PILE ONLY WHEN CALLED FOR ON THE LAYOUT SHEET.
 CAST IN PLACE: PILE SHELLS SHALL HAVE A MINIMUM THICKNESS AS FOLLOWS:
 1. PILES DRIVEN WITHOUT MANDREL - 7 GAGE
 2. PILES DRIVEN WITH MANDREL SHALL BE OF SUFFICIENT STRENGTH & THICKNESS TO HOLD ITS ORIGINAL FORM & SHOW NO SIGN OF DISTORTION AFTER THE CORE HAS BEEN WITHDRAWN.
 STEEL PIPE SHALL BE WELDED OR SEAMLESS STEEL CONFORMING TO ASTM DESIGNATION A-252-55, GRADE 2 WELDED AND SEAMLESS STEEL PIPE PILES.
 THE CONTRACTOR SHALL MAINTAIN ON THE JOB AT ALL TIME PRIOR TO AND DURING THE FILLING OF THE SHELLS, A LIGHT SUITABLE FOR THEIR INSPECTION. IMPROPER DRIVEN, BROKEN OR OTHERWISE DEFECTIVE SHELLS SHALL BE REMOVED & REPLACED OR OTHERWISE CORRECTED TO THE SATISFACTION OF THE ENGINEER BY REMOVAL AND REPLACEMENT OR THE DRIVING OF AN ADDITIONAL PILE AT NO EXTRA COST.
 PILE POINTS: ALL CAST IN PLACE PILES SHALL BE EQUIPPED WITH A STEEL DRIVING POINT. DRIVING POINTS SHALL BE MILL WELDED TO THE PILE SHELL. DRIVING POINTS MAY BE EITHER STRUCTURAL STEEL, FORGED STEEL OR CAST STEEL. STEEL PILES SHALL HAVE A SQUARE CUT END ONLY. NO DRIVING POINT IS REQUIRED UNLESS SHOWN ON THE BRIDGE PLANS.
 SPLICES: SPLICE DETAILS FOR CAST-IN-PLACE PILES SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS, SUBJECT TO THE APPROVAL OF THE ENGINEER. SPLICE DETAILS FOR STEEL PILES SHALL BE IN ACCORDANCE WITH THE DETAILS SHOWN ON THIS SHEET.
 DRIVING FORMULA: PILES SHALL BE DRIVEN TO A MINIMUM CAPACITY AS SPECIFIED ON THE LAYOUT SHEET AS DETERMINED BY THE DRIVING FORMULAS STIPULATED IN THE SPECIFICATIONS.
 MILL TEST REPORTS: NOTARIZED MILL TEST REPORTS WILL BE REQUIRED FOR ALL STEEL PILES AND CAST-IN-PLACE PILE SHELLS.



STEEL CAGE FOR MANDREL DRIVEN PILES 14 1/4 BUTT DIA.

NOTE: STEEL CAGE TO BE USED ONLY WHERE SPECIFIED ON LAYOUT SHEET FOR BRIDGE

STATE OF TENNESSEE
 DEPARTMENT OF HIGHWAYS
 AND PUBLIC WORKS
 NASHVILLE
**STANDARD PILE
 DETAILS**