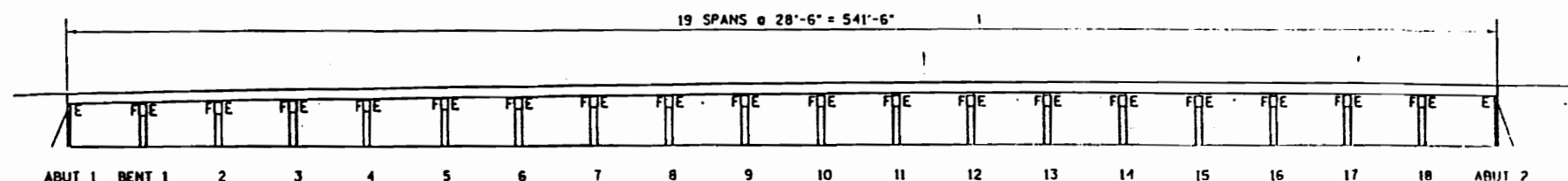
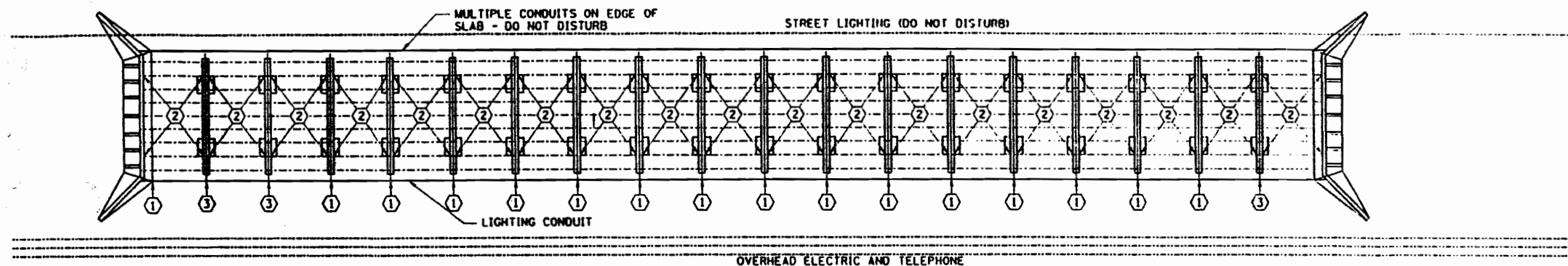


PROJECT NO.	YEAR	SHEET NO.	
23211-4218-04	1999		
REVISIONS			
NO.	DATE	BY	DESCRIPTION



**LEGEND**  
 F: FIXED  
 E: EXPANSION

**ELEVATION**



**PLAN**

**SCOPE OF WORK**

PROVIDE WIRE ROPE LONGITUDINAL SEISMIC RESTRAINTS AT BENTS 3 THROUGH 17 AND ABUTMENTS 1 AND 2. FOR NOTES AND DETAILS, SEE DWG. NO. BR-37-93.  
 PROVIDE LATERAL STRUCTURAL STEEL SEISMIC RESTRAINTS AT ALL BENTS AND ABUTMENTS, FOR NOTES AND DETAILS, SEE DWG. NO. BR-37-92.

**LIST OF REFERENCE DRAWINGS**

DWG. NO.	LAST REV. DATE	DRAWING
BR-4-44		BENT NO. 2 REPAIR DETAILS
BR-4-45		BENT NO. 2 REPAIR DETAILS
BR-4-46		STRUCTURAL STEEL BEAM SUPPORT DETAILS
A-14-33		CONCRETE BRIDGE
A-14-34		CONCRETE ABUTMENT
A-14-81		CONCRETE PILE BENT
A-13-48		DETAILS OF BRIDGE
A-13-49		DETAILS OF BRIDGE
A-13-51		BENTS 1-14
A-13-52		BENTS 15 & 16
A-13-53		PIERS 1 & 2
A-13-54		ABUTMENT NO. 2
A-13-55		ABUTMENT NO. 2

**LIST OF DRAWINGS**

DWG. NO.	LAST REV. DATE	DRAWING
BR-37-86		LAYOUT OF BRIDGE TO BE REPAIRED
BR-37-87		LAYOUT OF BRIDGE TO BE REPAIRED
BR-37-88		ESTIMATED QUANTITIES AND GENERAL NOTES
BR-37-89		BRIDGE REPAIR DETAILS
BR-37-90		BRIDGE REPAIR DETAILS
BR-37-91		BRIDGE REPAIR DETAILS
BR-37-92		BRIDGE REPAIR DETAILS
BR-37-93		BRIDGE REPAIR DETAILS
BR-37-94		BRIDGE REPAIR DETAILS
BR-37-95		BRIDGE REPAIR DETAILS
BR-37-96		BRIDGE REPAIR DETAILS

Ⓞ ALL REFERENCE DRAWINGS TO BE PRINTED WITH THE PLANS

**LIST OF SPECIAL PROVISIONS**

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

\*\* DENOTES CURRENT REVISION DATE AS PER CONTRACT DOCUMENTS

**REPAIR LEGEND**

- ① SEVEN LONGITUDINAL SEISMIC RESTRAINTS, BEAM TO BEAM AT BENTS; BEAM TO CAP AT ABUTMENTS (119 TOTAL)
- ② TRANSVERSE SEISMIC RESTRAINT (176 TOTAL)
- ③ EXISTING STRUCTURAL STEEL SADDLES. SEISMIC RESTRAINTS NOT REQUIRED AT THIS BENT.

STATE OF TENNESSEE  
 DEPARTMENT OF TRANSPORTATION

LAYOUT OF BRIDGE  
 TO BE REPAIRED

STATE ROUTE 211 OVER  
 OVERFLOW OF NORTH FORK FORKED DEER RIVER  
 BRIDGE NO. 23-SR211-1.31

DYER COUNTY  
 1999

BR-37-86

BR-37-86



4-12-99

DESIGNED BY: A. KHAIRI DATE: FEB. 1999  
 DRAWN BY: K. KYZER DATE: FEB. 1999  
 SUPERVISED BY: T. JOHNSON DATE: FEB. 1999  
 CHECKED BY: T. JOHNSON DATE: FEB. 1999  
 T.N. D.O.T. ENGINEERING SUPERVISOR: M. LAWSON



ITEM	DESCRIPTION	UNIT	1.31	1.71	TOTAL
403-01	BITUMINOUS MATERIAL FOR TACK COAT (TC)	TON	-	1	1
411-01.01	MINERAL AGGREGATE (ACS) GRADING D	TON	-	182	182
411-01.02	ASPHALT CEMENT (ACS) GRADING D	TON	-	12	12
415-01.02	COLD PLANING BITUMINOUS PAVEMENT	S.Y.	-	2913	2913
415-02.02	SALVAGE VALUE OF COLD PLANINGS	S.Y.	-	2913	2913
602-10.01	STRUCTURAL STEEL REPAIRS	L.S.	-	1	1
602-10.11	BEARING DEVICE	EACH	-	30	30
602-10.39	STRUCTURAL STEEL BRIDGE (REPAIRS)	EACH	76	66	142
603-02.20	SPOT PAINTING OF EXISTING STEEL STRUCTURES	S.F.	-	2500	2500
604-03.60	BRIDGE JOINT SEISMIC MODIFICATION	EACH	119	146	265
604-10.26	BRACING	EACH	-	20	20
604-10.42	CONCRETE REPAIRS	C.F.	-	170	170
712-01	TRAFFIC CONTROL	L.S.	.33	.67	1
712-02.02	INTERCONNECTED PORTABLE BARRIER RAIL	L.F.	-	380	380
712-04.01	FLEXIBLE DRUMS (CHANNELIZING)	EACH	23	62	85
712-04.10	TEMPORARY FLEXIBLE TUBULAR DELINEATOR	EACH	-	82	82
712-05.01	WARNING LIGHTS (TYPE A)	EACH	-	6	6
712-05.03	WARNING LIGHTS (TYPE C)	EACH	-	34	34
712-06	SIGNS (CONSTRUCTION)	S.F.	51	191	242
712-06.01	VERTICAL PANELS	S.F.	-	28	28
712-06.03	ARROW BOARD (TYPE C)	EACH	1	2	3
712-09.01	REMOVABLE PAVEMENT MARKING LINE	L.F.	-	4635	4635
716-05.01	PAINTED PAVEMENT MARKING (4' LINE)	L.M.	-	1	1
717-01	MOBILIZATION	L.S.	0.5	0.5	1

- INCLUDES ALL COST ASSOCIATED WITH REMOVING EXISTING PINS, RIVETS, AND WEB PLATES AT HINGED JOINTS AND REPLACEMENT WITH NEW WEB AND FLANGE SPLICE PLATES, HIGH STRENGTH BOLTS AND PAINTING OF NEW STEEL AT BRIDGE NO. 23-SR211-1.71. FOR NOTES AND DETAILS, SEE DWG. NOS. BR-37-90 AND BR-37-91. FOR LOCATIONS, SEE DWG. NO. BR-37-87. THIS ITEM ALSO INCLUDES ALL COSTS ASSOCIATED WITH REPLACING AND PAINTING SELECTED COMPONENTS OF END DIAPHRAGMS AT PIER NO. 16. FOR NOTES AND DETAILS, SEE DWG. NO. BR-37-89.
- INCLUDES COST OF ALL LABOR AND MATERIALS NECESSARY TO INSTALL THIRTY (30) NEW ELASTOMERIC BEARING DEVICES AT BENTS 15 & 16 AND AT PIER NO. 1 OF BRIDGE NO. 23-SR211-1.71. THIS INCLUDES THE COST OF DRILLING, EPOXY GROUT, ANCHOR BOLTS, JACKING, TEMPORARY SUPPORTS, REMOVING EXISTING BEARING DEVICES, STEEL PLATES, AND BEARING PAWS. FOR LOCATIONS, NOTES, AND DETAILS, SEE DWG. NOS. BR-37-95 AND BR-37-96.
- IT INCLUDES ALL LABOR AND MATERIALS TO PROVIDE STRUCTURAL STEEL LATERAL SEISMIC RESTRAINTS INCLUDING BENT PLATES, ANGLES, ANCHOR BOLTS, WELDING, AND GALVANIZING. FOR NOTES AND DETAILS, SEE DWG. NO. BR-37-92. FOR LOCATIONS, SEE DWG. NOS. BR-37-86 & BR-37-87.
- INCLUDES ALL COSTS TO CLEAN AND SPOT PAINT DESIGNATED AREAS OF EXISTING STRUCTURAL STEEL AS INDICATED ON DWG. NO. BR-37-91 OR ANY OTHER AREAS AS DESIGNATED BY ENGINEER AT BRIDGE NO. 23-SR211-1.71. THE QUANTITY MAY BE INCREASED, DECREASED, OR ELIMINATED BY ENGINEER. SEE PAINTING NOTE THIS SHEET.
- INCLUDES COST OF ALL LABOR AND MATERIALS NECESSARY TO PROVIDE CORROSION RESISTANT WIRE ROPES, INCLUDING ANCHOR BOLTS, BENT PLATES, ANGLES, GALVANIZED ROPE THIMBLES. FOR LOCATIONS SEE DWG. NOS. BR-37-86 AND BR-37-87. FOR NOTES AND DETAILS, SEE DWG. NOS. BR-37-94 AND BR-37-95.
- INCLUDES ALL COSTS TO TEMPORARILY SUPPORT THE BEAM SO AS TO REMOVE THE EXISTING PINS AND PLATES AND REPLACE WITH BOLTED SPLICE PLATES. FOR NOTES AND DETAILS, SEE DWG. BR-37-91.
- INCLUDES ALL COSTS TO PLACE NEW CONCRETE RISERS AT BRIDGE NO. 23-SR211-1.71, INCLUDING ALL DRILLING FOR REBAR DOWELS, NEW HIGH EARLY STRENGTH CONCRETE, REINFORCING STEEL, AND ALL MISCELLANEOUS WORK AND MATERIALS. FOR NOTES AND DETAILS, SEE DWG. NO. BR-37-96.
- INCLUDES ALL COSTS FOR FURNISHING AND INSTALLING SEVEN (7) VP-IL AND SEVEN (7) VP-IR VERTICAL PANELS. FOR NOTES AND DETAILS, SEE DWG. NO. T-PBR-2.

### GENERAL NOTES CONCERNING NEW BEARINGS

- A TOTAL OF 10 BEARINGS, WITH AN OVERALL HEIGHT, INCLUDING STEEL PLATES, OF 4 1/4" SHALL BE REQUIRED ON THE STEEL SPANS ON BRIDGE NO. 23-SR211-1.71. THESE NEW BEARINGS WILL BE LOCATED ON PIER NO. 1. NEW CONCRETE RISERS SHALL ALSO BE CONSTRUCTED AT THESE LOCATIONS.
- A TOTAL OF 20 BEARINGS, WITH AN OVERALL HEIGHT, INCLUDING STEEL PLATES, OF 4 1/4" SHALL BE REQUIRED ON THE STEEL SPANS ON BRIDGE NO. 23-SR211-1.71. THESE NEW BEARINGS WILL BE LOCATED ON BENTS 15 AND 16. NEW CONCRETE RISERS SHALL ALSO BE CONSTRUCTED AT THESE LOCATIONS.
- FOR DETAILS AND NOTES CONCERNING NEW BEARING PLACEMENT, SEE DWG. NOS. BR-37-95 AND BR-37-96.

### SURFACE PREPARATION AND SPOT PAINTING OF EXISTING STEEL

CLEANING OF EXISTING STEEL SHALL BE DONE IN ACCORDANCE WITH SECTION 603.13-REPAINTING OF EXISTING STEEL STRUCTURE, TENNESSEE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.

CLEANING OF STEEL MAY BE DONE WITH A VACUUM-SHROUDED DEVICE CAPABLE OF CONTAINING ALL WASTE MATERIAL ELIMINATING THE TOTAL CONTAINMENT REQUIREMENT.

PAINTING SHALL BE IN ACCORDANCE WITH SECTION 603.06, SCHEDULE OF PAINTING, SYSTEM B, OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS. COLOR OF TOP COAT SHALL COMPLY WITH FEDERAL STANDARD NO. 595a, 24110 BRIGHT GREEN. SEE SECTION 603 AND 910 OF THE STANDARD SPECIFICATIONS.

COST OF CLEANING AND PAINTING THE EXISTING STEEL SHALL BE INCLUDED IN THE PRICE OF BID FOR ITEM NO. 603-02.20, SPOT PAINTING OF EXISTING STEEL STRUCTURES, S.F.

DESIGNED BY: A. J. KHAIRI DATE: FEB. 1999  
 DRAWN BY: R. NYKER DATE: FEB. 1999  
 SUPERVISED BY: T. JOHNSON DATE: FEB. 1999  
 CHECKED BY: T. JOHNSON DATE: FEB. 1999

TN D.O.T. ENGINEERING SUPERVISOR: M. LAWREN

### GENERAL NOTES

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

DESIGN SPECIFICATIONS: AASHTO 1992 EDITION WITH ADDENDA.

STRUCTURAL STEEL: SHALL CONFORM TO AASHTO M270 GRADE 36 (ASTM A709 GRADE 36).

REINFORCING STEEL: SEE THE STANDARD SPECIFICATIONS.

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

ANCHOR RODS: SHALL BE HIGH TENSILE STRENGTH BOLTS (ASTM-A325).

U-BOLTS: SHALL BE ASTM A-36.

WELDING: SHALL BE IN ACCORDANCE WITH ANSI/AASHTO/AWS D1.55-88 BRIDGE WELDING CODE AND THE STANDARD SPECIFICATIONS.

HIGH EARLY STRENGTH CONCRETE: THE MIX TO MEET THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS CLASS "A", EXCEPT THE CEMENT CONTENT SHALL BE A MINIMUM OF 714 LBS. THE WATER-TO-CEMENT RATIO SHALL BE A MAXIMUM OF 0.40, NO FLY ASH REPLACEMENT WILL BE PERMITTED AND THE MINIMUM 28 DAY COMPRESSIVE STRENGTH SHALL BE 3,500 P.S.I. TRAFFIC SHALL NOT BE PERMITTED ON ANY OF THE REPAIR AREAS UNTIL TEST SPECIMENS ATTAIN A COMPRESSIVE STRENGTH OF 3000 P.S.I. MINIMUM AND THE CONCRETE HAS BEEN IN PLACE A MINIMUM OF TEN (10) DAYS.

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

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 FOR THE PAY ITEMS.

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

GROUT: GROUT SHALL BE A PORTLAND CEMENT TYPE IN ACCORDANCE WITH STANDARD SPECIFICATION 918.21-GROUT.

REQUIREMENTS FOR WIRE ROPE: ALL WIRE ROPE SHALL MEET ASTM A603, 3/4" DIA.- CLASS A ZINC COATING, MINIMUM BREAKING STRENGTH 26 TONS. 1/2" DIA.- CLASS A ZINC COATING, MINIMUM BREAKING STRENGTH 57.8 TONS.

WIRE ROPE CLIPS: CLIPS SHALL CUMULATIVELY DEVELOP 125% OF YIELD STRENGTH OF WIRE ROPE AND BE VERIFIED BY T.D.O.T. MATERIALS AND TESTS DIVISION. A MINIMUM OF FOUR (4) CLIPS MUST BE USED AT EACH CONNECTION END OF 3/4" WIRE ROPE, AND SIX (6) CLIPS AT EACH END OF 1/2" WIRE ROPE.

### GALVANIZING OF NEW STEEL

ALL NEW STRUCTURAL STEEL FOR SEISMIC RESTRAINTS TO BE GALVANIZED TO ASTM A123 STANDARDS.

NOTE: ROADSIDE BANKS/SLOPES USED BY THE CONTRACTOR FOR WORK ACCESS, PARKING, AND ANY OTHER OPERATIONS THAT ARE DISTURBED BY HIS OPERATIONS SHALL BE REPAIRED BY REGRADING, RESEEDING, MULCHING OR WHATEVER OTHER MEANS ARE NECESSARY TO RESTORE THE BANKS/SLOPES TO THE ORIGINAL CONDITION. ALL RESTORATION WORK SHALL MEET THE FULL SATISFACTION OF THE ENGINEER. COST OF ALL RESTORATION WORK SHALL BE INCLUDED IN ITEMS BID ON.

NOTE: ALL STRUCTURAL STEEL FOR SEISMIC RESTRAINTS, INCLUDING LATERAL RESTRAINTS, EXCEPT FOR CORROSION RESISTANT WIRE ROPE AND THIMBLES, SHALL BE FABRICATED BY AN AISC SIMPLE STEEL BRIDGES CATEGORY CERTIFIED SHOP.

### PAINTING OF NEW STEEL

PAINTING SHALL BE DONE IN ACCORDANCE WITH 603.06, SCHEDULE OF PAINTING, SYSTEM A, OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS. COLOR OF TOP COAT SHALL COMPLY WITH FEDERAL STANDARD NO. 595a, 24110 BRIGHT GREEN. SEE SECTIONS 603 AND 910 OF THE STANDARD SPECIFICATIONS.

COST OF PAINTING NEW STEEL SHALL BE INCLUDED IN ITEM NO. 602-10.01, STRUCTURAL STEEL REPAIRS.

### CONST. WORK ZONE TRAFFIC CONTROL

ADVANCED WARNING SIGNS SHALL NOT BE DISPLAYED MORE THAN FORTY-EIGHT (48) HOURS BEFORE PHYSICAL CONSTRUCTION BEGINS. SIGNS MAY BE ERRECTED UP TO ONE WEEK BEFORE NEEDED, IF THE SIGN FACE IS FULLY COVERED.

IF THE CONTRACTOR MOVES OFF THE PROJECT, HE SHALL COVER OR REMOVE ALL UNNEEDED SIGNS AS DIRECTED BY THE ENGINEER. COSTS OF REMOVAL, COVERING, AND REINSTALLING SIGNS SHALL NOT BE MEASURED AND PAID FOR SEPARATELY, BUT ALL COSTS SHALL BE INCLUDED IN THE ORIGINAL UNIT PRICE BID FOR ITEM NO. 712-01, TRAFFIC CONTROL, LUMP SUM.

A LONG TERM BUT SPORADIC USE WARNING SIGN, SUCH AS FLAGGER SIGNS MAY REMAIN IN PLACE WHEN NOT REQUIRED PROVIDED THE SIGN FACE IS FULLY COVERED.

TRAFFIC CONTROL DEVICES SHALL NOT BE DISPLAYED OR ERRECTED UNLESS RELATED CONDITIONS ARE PRESENT NECESSITATING WARNING.

USE OF BARRICADES, PORTABLE BARRIER RAILS, VERTICAL PANELS, AND DRUMS SHALL BE LIMITED TO THE IMMEDIATE AREAS OF CONSTRUCTION WHERE A HAZARD IS PRESENT. THESE DEVICES SHALL NOT BE STORED ALONG THE ROADWAY WITHIN THIRTY (30) FEET OF THE EDGE OF THE TRAVELED WAY BEFORE OR AFTER USE UNLESS PROTECTED BY GUARDRAIL, BRIDGE RAIL, AND/OR BARRIERS INSTALLED FOR OTHER PURPOSES. THESE DEVICES SHALL BE REMOVED FROM THE CONSTRUCTION WORK ZONE WHEN THE ENGINEER DETERMINES THEY ARE NO LONGER NEEDED, WHERE THERE IS INSUFFICIENT RIGHT-OF-WAY TO PROVIDE FOR THIS THIRTY (30) FEET SETBACK, THE ENGINEER SHALL APPROVE ALTERNATE LOCATIONS.

THE CONTRACTOR WILL NOT BE PERMITTED TO PARK ANY VEHICLES OR CONSTRUCTION EQUIPMENT DURING PERIODS OF INACTIVITY, WITHIN THIRTY (30) FEET OF THE EDGE OF PAVEMENT WHEN THE LANE IS OPEN TO TRAFFIC UNLESS PROTECTED BY GUARDRAIL, BRIDGE RAIL, AND/OR BARRIERS INSTALLED FOR OTHER PURPOSES. PRIVATELY OWNED VEHICLES SHALL NOT BE ALLOWED TO BE PARKED WITHIN THIRTY (30) FEET OF AN OPEN TRAFFIC LANE AT ANY TIME UNLESS PROTECTED AS DESCRIBED ABOVE, WHERE THERE IS INSUFFICIENT RIGHT-OF-WAY TO PROVIDE FOR THIS THIRTY (30) FEET SETBACK, THE ENGINEER SHALL APPROVE ALTERNATE LOCATIONS.

GUARDRAIL: CONTRACTOR SHALL NOT REMOVE ANY SECTIONS OF EXISTING GUARDRAIL TO REWORK SHOULDERS OR FLATTEN SLOPES UNTIL THE ENGINEER CONCURS IN THE NECESSITY OF REMOVAL DUE TO CONSTRUCTION REQUIREMENTS AND THE APPROPRIATE WARNING DEVICES ARE INSTALLED. THE PROPOSED GUARDRAIL, INCLUDING ANY ANCHOR SYSTEM, SHALL BE INSTALLED QUICKLY TO MINIMIZE TRAFFIC EXPOSURE TO ANY HAZARD. NO PAYMENT WILL BE MADE FOR A SECTION OF PROPOSED GUARDRAIL, INCLUDING ANCHORS, UNTIL IT IS COMPLETELY IN PLACE.

IF ANY APPROACH END OF A SECTION OF GUARDRAIL OR BRIDGE RAIL MUST TEMPORARILY BE LEFT INCOMPLETE AND EXPOSED TO TRAFFIC, THE CONTRACTOR SHALL USE TWO (2) TEMPORARY BARRICADES OR DRUMS WITH TYPE A LIGHTS AND ROUNDED END ELEMENTS AS MINIMUM MEASURES TO PROTECT TRAFFIC FROM THE HAZARD OF EXPOSED END. ALL COST OF FURNISHING AND INSTALLING AT TEMPORARY ROUNDED END ELEMENT SHALL BE INCLUDED IN THE COST OF THE PROPOSED GUARDRAIL.

ALL DETOUR AND CONSTRUCTION SIGNING SHALL BE IN STRICT ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

ALL DETOURS SHALL BE PAVED, STRIPED, SIGNED AND THE CHANNELIZING DEVICES ARE TO BE IN-PLACE BEFORE BEING OPENED TO TRAFFIC.

### UTILITY NOTES

THE LOCATION OF UTILITIES SHALL BE FIELD LOCATED BY THE CONTRACTOR, AND BY CONTACTING THE UTILITY COMPANIES INVOLVED.

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

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

THE CONTRACTOR WILL BE SOLELY RESPONSIBLE FOR CONTACTING ALL AFFECTED UTILITIES PRIOR TO SUBMITTING HIS BID. IN ORDER TO DETERMINE THE EXTENT TO WHICH UTILITY RELOCATIONS AND/OR ADJUSTMENTS WILL HAVE UPON THE SCHEDULE OF THE WORK FOR THE PROJECT, SOME UTILITY FACILITIES MAY NEED TO BE ADJUSTED CONCURRENTLY WITH THE CONTRACTOR'S OPERATIONS, WHILE SOME WORK MAY BE REQUIRED "AROUND" UTILITY FACILITIES THAT WILL REMAIN IN PLACE. IT IS UNDERSTOOD AND AGREED THAT THE CONTRACTOR WILL RECEIVE NO ADDITIONAL COMPENSATION FOR ANY DELAYS OR INCONVENIENCE CAUSED BY THE UTILITY ADJUSTMENTS.

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

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

ESTIMATED QUANTITIES AND  
GENERAL NOTES

STATE ROUTE 211 OVER  
OVERFLOW OF NORTH FORK  
FORKED DEER RIVER AND  
NORTH FORK FORKED DEER RIVER  
BRIDGE NO. 23-SR211-1.31  
BRIDGE NO. 23-SR211-1.71  
DYER COUNTY  
1999

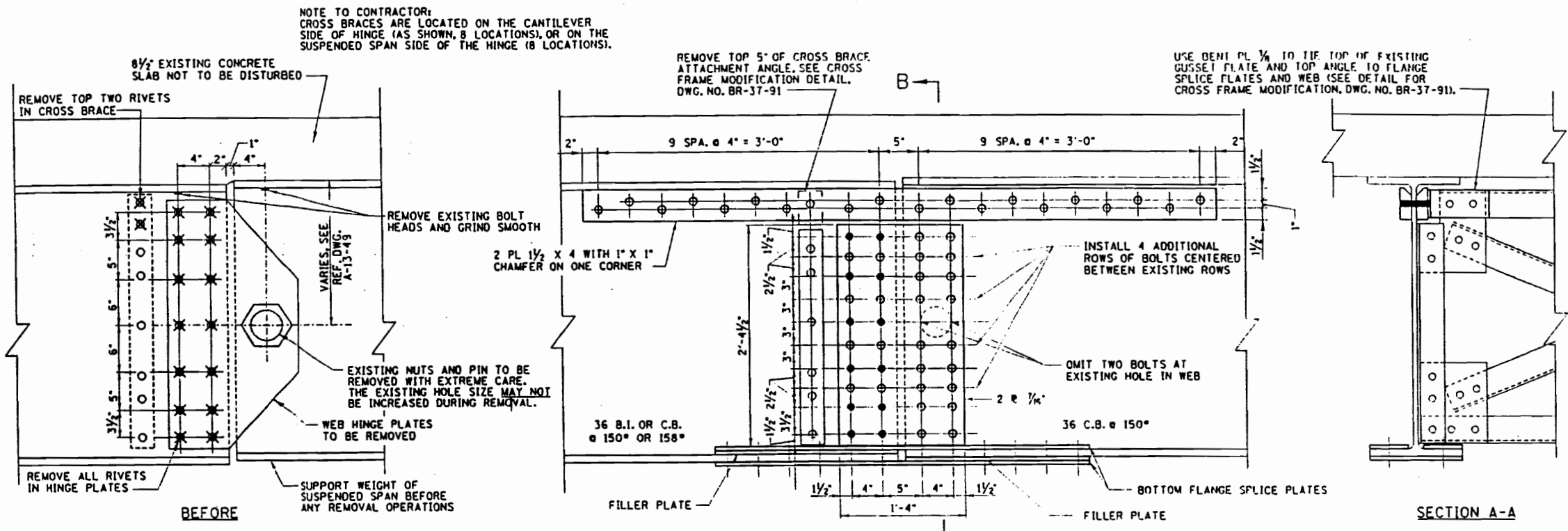


BR-37-88

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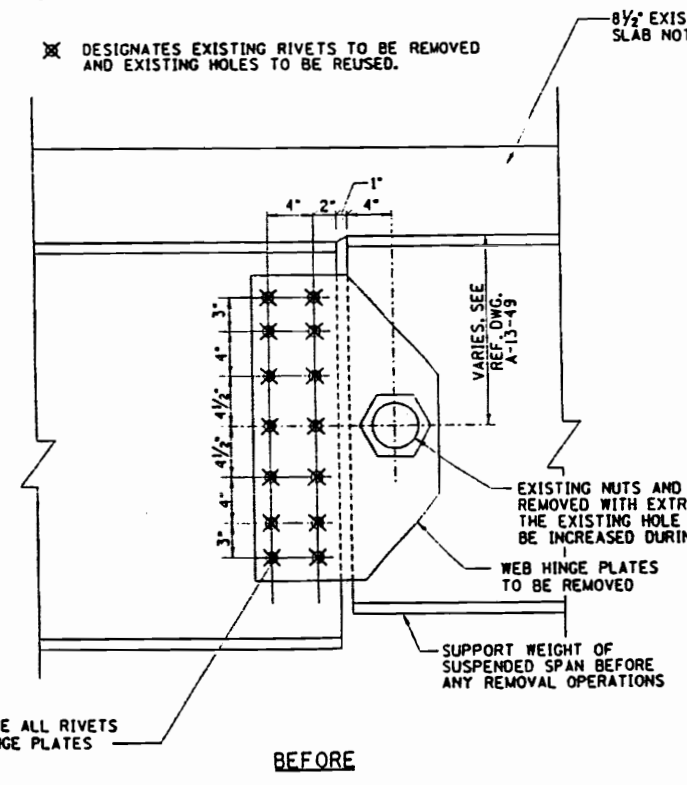
PROJECT NO.	YEAR	SHEET NO.	
23211-4218-04	1999		
REVISIONS			
NO.	DATE	BY	DESCRIPTION



SECTION A-A

NOTE:  
CONTRACTOR SHALL NOT BURN RIVETS OUT. ALL SURROUNDING STEEL AROUND EXISTING RIVETS SHALL NOT BE DAMAGED DURING RIVET REMOVAL.

✕ DESIGNATES EXISTING RIVETS TO BE REMOVED AND EXISTING HOLES TO BE REUSED.



SECTION B-B

TYPICAL BOLTED SPLICE CONNECTIONS

NOTES FOR BOLTED SPLICE CONNECTIONS:  
ALL BOLTS ARE TO BE 3/8" DIA. A325 BOLTS. NEW HOLES SHALL BE 5/8" DIA.  
ALL FILLER PLATE THICKNESSES ARE TO BE FIELD DETERMINED.  
WEB SPLICE PLATES ARE SHOWN WITH EXISTING HOLES AS DIMENSIONED ON ORIGINAL DRAWINGS. THE CONTRACTOR SHALL VERIFY THE EXISTING (AS CONSTRUCTED) DIMENSIONS AND REQUIRED SPLICE PLATE SIZE PRIOR TO FABRICATION.

1.71

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

BRIDGE REPAIR DETAILS

STATE ROUTE 211 OVER  
OVERFLOW OF NORTH FORK  
FORKED DEER RIVER AND  
NORTH FORK FORKED DEER RIVER  
BRIDGE NO. 23-SR211-1.31  
BRIDGE NO. 23-SR211-1.71  
DYER COUNTY  
1999



DESIGNED BY: A. KHAIKI DATE: FEB. 1999  
DRAWN BY: M. MYZER DATE: FEB. 1999  
SUPERVISED BY: T. JOHNSON DATE: FEB. 1999  
CHECKED BY: T. JOHNSON DATE: FEB. 1999

TN D.O.T. ENGINEERING SUPERVISOR: M. LAWSON

BR-37-90

4-12-99

K:\1997\972909\01-01.DWG 1/27/99



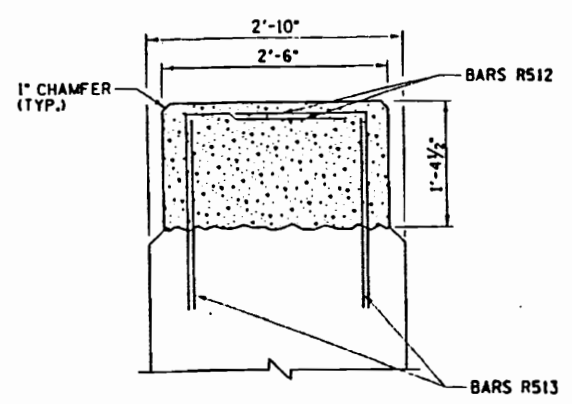




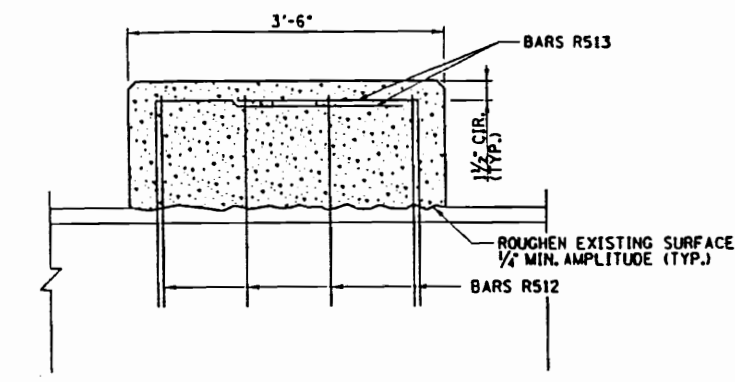




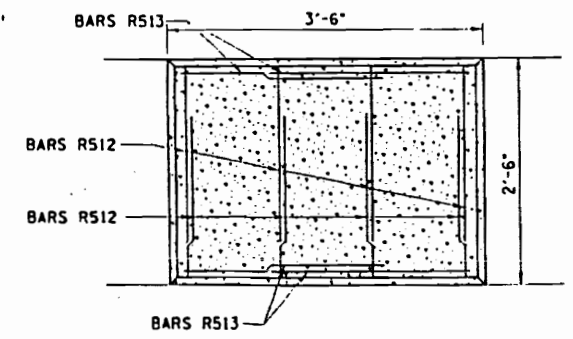
PROJECT NO.	YEAR	SHEET NO.	
23211-4218-04	1999		
REVISIONS			
NO.	DATE	BY	DESCRIPTION



END ELEVATION (PIER I)  
SCALE: 1"=1'-0"



FRONT ELEVATION (PIER I)  
SCALE: 1"=1'-0"



PLAN (PIER I)  
(NEW CONCRETE PEDESTAL TEN (10) REQ'D)  
SCALE: 1"=1'-0"

BAR	SIZE	NO. REQ.	BENDING DIMENSIONS		LENGTH
			A	B	
R512	5	8	1'-8"	2'-3"	3'-11"
R513	5	4	2'-2"	2'-2"	4'-4"

NOTE: "NO. REQ." IS FOR ONE PEDESTAL. TEN (10) PEDESTALS ARE REQUIRED.

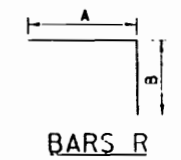
- NOTES:**
- THE CONTRACTOR SHALL JACK THE EXISTING STRUCTURE AT PIER I AND AT BENTS 15 & 16 OF BRIDGE NO. 23-SR211-1.71. RAISE THE STRUCTURE ONLY THE MINIMUM AMOUNT NEEDED TO ENABLE THE INSTALLATION OF THE NEW CONCRETE RISERS AND ELASTOMERIC BEARING DEVICES. TEMPORARY SUPPORTS SHALL BE PROVIDED TO SUPPORT LOADS. WHEN INSTALLING THE NEW BEARINGS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE ORIGINAL TOP OF SLAB ELEVATIONS. RE-JACKING AND THE USE OF SHIMS TO MAINTAIN ORIGINAL GRADE LINES SHALL BE DONE BY THE CONTRACTOR IF NECESSARY AND SHALL BE DONE AT NO ADDITIONAL COST TO THE STATE. COST OF JACKING AND TEMPORARY SUPPORT WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN ITEM NO. 602-10.11 BEARING DEVICE, EACH.
  - JACKING AND TEMPORARY SUPPORT FOR PLACEMENT OF NEW CONCRETE RISERS AND BEARINGS SHALL BE DONE UNDER DEAD LOAD ONLY.
  - CONTRACTOR SHALL SUBMIT A COMPLETE SET OF SHOP DRAWINGS TO THE HEADQUARTERS OF BRIDGE INSPECTION AND REPAIR OFFICE FOR APPROVAL BEFORE ANY FABRICATION IS BEGUN.
  - STEEL PLATES SHALL BE VULCANIZED TO THE ELASTOMERIC BEARING DEVICES. ANCHOR BOLTS, NUTS AND WASHERS SHALL BE ASTM A36 STEEL GALVANIZED TO CONFORM TO ASTM A153. PLATES SHALL BE ASTM A16. ELASTOMERIC BEARING PADS SHALL CONFORM TO SECTION 908.12 OF THE STANDARD SPECIFICATIONS.
  - HOLES FOR ANCHOR BOLTS SHALL BE DRILLED WITH A HIGH SPEED DRILL. THE DRILL BIT SHALL BE CAPABLE OF DRILLING THROUGH REINFORCING BARS AND CONCRETE. THE DRILLED HOLES SHALL BE CLEANED, FILLED WITH EPOXY GROUT, AND THE BOLTS DRIVEN TO THEIR SEATS. A LIST OF APPROVED EPOXY GROUTS MAY BE OBTAINED FROM THE TENNESSEE DEPARTMENT OF TRANSPORTATION, DIVISION OF MATERIALS AND TEST.
  - AFTER THE NEW ELASTOMERIC BEARING DEVICES HAVE BEEN ASSEMBLED, ALL EXPOSED STEEL SURFACES SHALL BE PAINTED IN THE SHOP. PAINT SYSTEM SHALL BE SYSTEM "A" - INORGANIC ZINC PAINT SYSTEM, EXCEPT A URETHANE FINISH COAT SHALL BE USED IN LIEU OF VINYL FINISH COAT. COLOR OF THE URETHANE FINISH COAT SHALL COMPLY WITH FED. STD. NO. 595a, 24110 BRIGHT GREEN. SEE SECTIONS 603 AND 910 OF THE STD. SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION. AN INTERMEDIATE TIE COAT SHALL BE USED. COST OF PAINTING TO BE INCLUDED IN ITEMS BID ON.
  - COST OF DRILLING, EPOXY GROUT, NON-SHRINK GROUT, ANCHOR BOLTS, JACKING, TEMPORARY SUPPORTS, REMOVING EXISTING BEARINGS, NEW ELASTOMERIC BEARING DEVICES, AND ANY MISCELLANEOUS MATERIALS OR LABOR NECESSARY FOR INSTALLATION OF ELASTOMERIC BEARING DEVICES SHALL BE PAID FOR UNDER ITEM NO. 602-10.11.
  - CONTRACTOR SHALL CLEAN TOP OF CAP AND BACKWALL TO REMOVE ALL FOREIGN MATERIAL BY SANDBLASTING, WATER BLASTING OR OTHER MEANS. THE CONTRACTOR SHALL APPLY LIQUID CONCRETE SEALER TO TOP AND FACE OF BACKWALL OF CAP INCLUDING THE NEW CONCRETE PEDESTALS AT BENTS 15 & 16 BRIDGES. SEALER SHALL BE ON THE TENNESSEE DIVISION OF MATERIALS AND TESTS APPROVED LIST. APPLY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. COST OF LIQUID SEALER TO BE INCLUDED IN ITEMS BID ON.
  - PRIOR TO FABRICATION, THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS TO INSURE THAT THE BEARING DEVICES AND NEW PEDESTALS WILL FIT EXISTING CONDITIONS.
  - THE STATE ENGINEER SHALL MEASURE AND RECORD EXISTING BEARING HEIGHT TO ENSURE THAT THE HEIGHT REMAINS THE SAME AFTER NEW RISERS AND BEARINGS ARE PLACED.

**NOTES:**  
R-BARS SHALL BE DRILLED AND EPOXY GROUTED 1'-3" MINIMUM INTO THE EXISTING PIER. SEE GENERAL NOTES FOR PROCEDURE, DWG. NO. BR-37-88.  
COST OF ALL REINFORCING STEEL SHALL BE INCLUDED IN ITEM NO. 604-10.42, CONCRETE REPAIRS, C.F.  
COST OF FORMING AND HIGH EARLY STRENGTH CONCRETE FOR PEDESTALS AND REINFORCING STEEL, LABOR AND ALL MISCELLANEOUS MATERIALS NECESSARY TO BUILD THE NEW CONCRETE PEDESTALS SHALL BE INCLUDED IN ITEM NO. 604-10.42, CONCRETE REPAIRS, C.F.

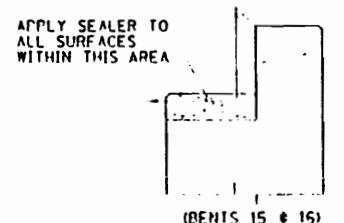
LOADS PER BEAM (PIER I)      DEAD LOAD = 89 KIPS  
LOADS PER BEAM (BENTS 15 & 16)      DEAD LOAD = 28 KIPS

BAR	SIZE	NO. REQ.	BENDING DIMENSIONS		LENGTH
			A	B	
R510	5	8	1'-1"	1'-5"	2'-6"
R511	5	4	2'-1"	1'-4"	3'-5"

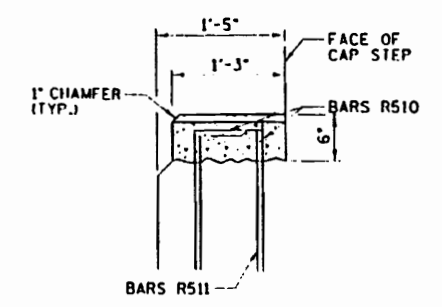
NOTE: "NO. REQ." IS FOR ONE PEDESTAL. TWENTY (20) PEDESTALS ARE REQUIRED.



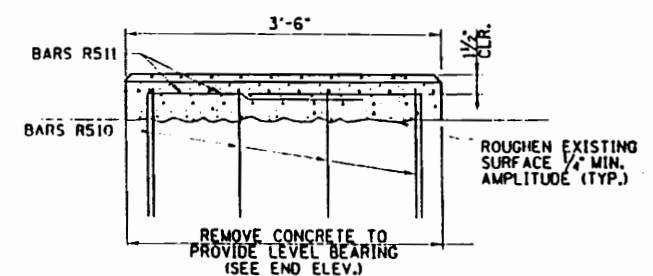
BARS R



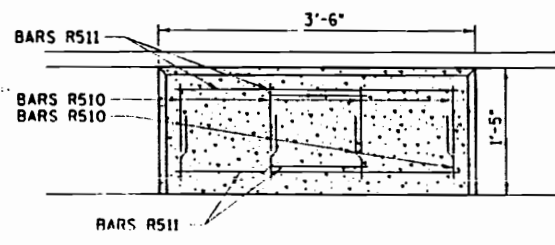
SEALER DETAIL  
N.T.S.



END ELEVATION (BENTS 15 & 16)  
(NEW CONCRETE PEDESTAL)  
SCALE: 1"=1'-0"



FRONT ELEVATION (BENTS 15 & 16)  
(NEW CONCRETE PEDESTAL)  
SCALE: 1"=1'-0"



PLAN (BENTS 15 & 16)  
(NEW CONCRETE PEDESTAL TWENTY (20) REQ'D)  
SCALE: 1"=1'-0"

NOTE: TOP OF PEDESTALS TO SLOPE PARALLEL TO BOTTOM OF BEAM (TYP.).

1.71

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

BRIDGE REPAIR DETAILS

STATE ROUTE 211 OVER  
NORTH FORK FORKED DEER RIVER  
BRIDGE NO. 23-SR211-1.71

DYER COUNTY  
1999



07-13.004 1/27/99

DESIGNED BY: A.W. KHAIRI      DATE: FEB. 1999  
DRAWN BY: S. KYZER      DATE: FEB. 1999  
SUPERVISED BY: T. JOHNSON      DATE: FEB. 1999  
CHECKED BY: T. JOHNSON      DATE: FEB. 1999

TN D.O.T. ENGINEERING SUPERVISOR M. LAWREN

BR-37-96

4-12-99



Table with columns: ITEM NO., DESCRIPTION, UNIT, QUANTITY, and PRICE. Includes items like structural steel beam supports, concrete repairs, expansion joint repairs, and bridge deck sealant.

- 1 INCLUDES THE COST OF SEVEN (7) STRUCTURAL STEEL BEAM SUPPORTS AT BENT NO. 2, BRIDGE NO. 1 ONLY. SEE DWG. NO. BR-4-46 FOR NOTES AND DETAILS.
- 2 INCLUDES THE COST OF ALL STRUCTURAL STEEL USED IN THE BENT CAP ENCASUREMENT AT BENT NO. 2; THE RETAINER PLATES USED IN THE DIAPHRAGM REPAIR AT BENT NO. 2; AND SIXTY-SIX (66) EXISTING DECK DRAIN EXTENSIONS. SEE NOTES AND DETAILS ON DWG. NO'S. BR-4-44, BR-4-45, AND BR-4-41.

- 5 INCLUDES THE COST OF EPOXY COATED REINFORCING STEEL. SEE BILLS OF MATERIAL ON DWG. NO'S. BR-4-42, BR-4-44, BR-4-45, BR-4-46, BR-4-48, BR-4-49, BR-4-50, BR-4-51, BR-4-53, AND BR-4-54.
- 9 INCLUDES THE COST OF JACKING AND SUPPORTING SPAN NO. 2 WHILE MAKING REPAIRS AT BENTS NO. 2 AS SHOWN IN DETAILS ON DWG. NO'S. BR-4-44, BR-4-45, AND BR-4-49. SEE SPECIAL NOTE THIS SHEET PERTAINING TO TEMPORARY JACKING AND SUPPORTING.

- 17 INCLUDES COST OF DRILLING HOLES AND PLACING 5 C.Y. OF CONCRETE UNDER THE NORTH APPROACH SLAB, BRIDGE NO. 2.
- 18 ITEM FOR INSTALLATION OF TYPE II TERMINALS, AS REQUIRED.
- 19 ITEM FOR REBUILDING SHOULDERS, AS REQUIRED.
- 20 EXISTING ASPHALT DEPTH TO BE REMOVED: BRIDGE NO. 23-211-1.31, 3.5" BRIDGE NO. 23-211-1.71, 2.5"

DESIGNED BY: MIKE LAWSON DATE: 2-91  
DRAWN BY: DATE: 2-91  
SUPERVISED BY: DATE: 2-91  
CHECKED BY: DATE: 2-91

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

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

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

THE CONTRACTOR WILL BE SOLELY RESPONSIBLE FOR CONTACTING ALL AFFECTED UTILITIES PRIOR TO SUBMITTING HIS BID. IN ORDER TO DETERMINE THE EXTENT TO WHICH UTILITY RELOCATIONS AND/OR ADJUSTMENTS WILL HAVE UPON THE SCHEDULE OF THE WORK FOR THE PROJECT, SOME UTILITY FACILITIES MAY NEED TO BE ADJUSTED CONCURRENTLY WITH THE CONTRACTOR'S OPERATIONS. ANY SUCH WORK MAY BE APPROVED THROUGH UTILITY REPRESENTATIVES THAT WILL REMAIN IN PLACE TO BE UNDERTAKEN AND AGREED THAT THE CONTRACTOR WILL RECEIVE AN ADDITIONAL COMPENSATION FOR ANY DELAYS OR INTERFERENCE CAUSED BY THE UTILITY ADJUSTMENTS.

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

SPECIAL NOTE CONCERNING ALL JACKING AND TEMPORARY SUPPORTS AT BENT NO. 2 (SPINNER NO. 1)

JACKING AND TEMPORARY SUPPORTS SHALL BE PROVIDED AT BENT NO. 2. TEMPORARY SUPPORTS SHALL BE CAPABLE OF SUPPORTING FULL DEAD LOADS AND LIVE LOADS. THE CONTRACTOR SHALL TAKE EXTREME CARE WHEN JACKING THE CONCRETE SPANS SO AS NOT TO EXCEED ALLOWABLE STRESS IN THE STRUCTURE. IF ANY DAMAGE OCCURS TO THE EXISTING STRUCTURE DURING JACKING OPERATIONS, IT SHALL BE THE FULL RESPONSIBILITY OF THE CONTRACTOR TO REPAIR THE EXISTING BEAMS TO THE FULL ORIGINAL STRENGTH. THE CONTRACTOR SHALL SUBMIT DETAILED JACKING DRAWINGS AND DESIGN CALCULATIONS TO THE ENGINEER FOR REVIEW PRIOR TO THE START OF JACKING AND TEMPORARY SUPPORT SYSTEM. THESE CALCULATIONS SHALL INCLUDE THE STATE OF TENNESSEE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SPECIFICATION OF THE JACKING AND SUPPORT SYSTEM. THE TEMPORARY SUPPORT DRAWINGS SHALL INCLUDE STEEL DIMENSIONS AND MATERIAL SPECIFICATIONS FOR ALL JOISTS USED. THESE CALCULATIONS AND DRAWINGS SHALL BE PREPARED AND SIGNED BY AN ENGINEER REGISTERED IN THE STATE OF TENNESSEE. ALL CALCULATIONS AND DRAWINGS SHALL BE REVIEWED BEFORE ANY JACKING AND TEMPORARY SUPPORT WORK IS STARTED. COST OF JACKING AND TEMPORARY SUPPORTS FOR SUPPORTING THE SPANS AT BENT NO. 2 SHALL BE PAID FOR UNDER ITEM NO. 604-10.24, JACKING CONCRETE SPAN, LUMP SUM.

NOTE: THE CONCRETE BEAMS AT BENT NO. 2 SHALL BE JACKED TO THEIR ORIGINAL ELEVATION AND SUPPORTED BEFORE ANY OTHER REPAIRS TAKE PLACE AT THIS LOCATION.

PROJECT NO. 23211-4805-04 1991 2  
REVISIONS table with columns: NO., DATE, BY, REVISION DESCRIPTION.

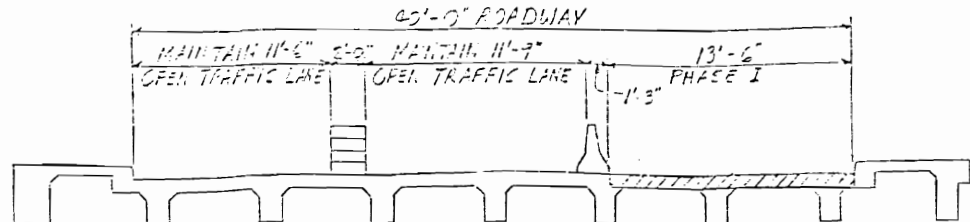
GENERAL NOTES

- 1. 8-14-91 MGL Added item no. 2
- 2. 8-19-91 MGL Revised est. qty
- 3. 11-28-91 MGL ADDED NEW DRILLED HOLES PLACING OF CONCRETE.
- 1. STANDARD SPECIFICATIONS: Standard Road and Bridge Specifications of the Tennessee Department of Transportation. (March 1991 edition).
- 2. DESIGN SPECIFICATIONS: AASHTO 1993 Edition with addenda.
- 3. STRUCTURAL STEEL: Shall conform to AASHTO M270 GRADE 56 (A1M A105 GRADE 56) unless otherwise noted.
- 4. REINFORCING STEEL: To be ASTM A616 Grade 60. Standard CM1 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 607A.
- 5. SHOP DRAWINGS: Shall be submitted according to Special Provision No. 105A. Except shop drawings shall be submitted to the Headquarters Bridge Inspection and Repair Office in lieu of the Division of Structures.
- 6. BOLTS: Shall be high tensile strength bolts (ASTM-A325), unless otherwise noted. Spacing shall be as shown on plans. See AASHTO specifications ARTICLE 10.17, SECTION 11. Existing contact surfaces shall be cleaned to WFO-10 specifications prior to attachment of new members.
- 7. CONCRETE: To be high early strength concrete, 4,000 p.s.i. ± 2% dry strength. Specific shall not be permitted on any of the repaired areas until test specimens attain a compressive strength of 3,500 p.s.i. minimum and the concrete has been in place a minimum of ten (10) days.
- 8. BRIDGE DECK REPAIRS: To be in accordance with note (C), sheet 2, of Special Provision 604.
- 9. CONCRETE CURING: All concrete in repair areas shall be cured according to Special Provision 614.
- 10. WELDING: See Special Provision No. 601.
- 11. 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 for pay items.
- 12. ECP ADDITIONAL GENERAL NOTES: Applicable to strip seal expansion joints. see drawing no. M-105-76. Also see Special Provision No. 614 regarding strip seal expansion joints.

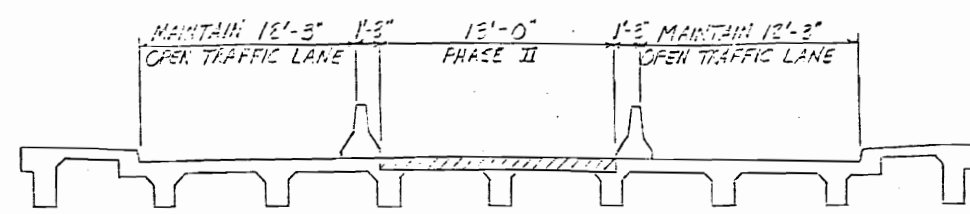
CLEANING AND PAINTING (NEW STRUCTURAL STEEL ONLY): All new structural steel shall be cleaned and painted. Cleaning shall be in accordance with the Tennessee Standard Specifications, Section 603.05(b). Paint shall be system "B" - Inorganic Zinc - Paint System, except a urethane finish coat shall be used in lieu of vinyl finish coat. Color of the urethane finish coat shall comply with Federal Standard No. 595a, 24110 Bright Green. See Sections 603 and 910 of the Standard Specifications for Road and Bridge Construction of the Tennessee Department of Transportation. An intermediate tie coat shall be used, see Special Provision No. 603A regarding painting. Urethane finish coat shall be used in lieu of vinyl finish coat.

NOTE: ALL NEW STRUCTURAL STEEL SHALL BE SHOP PRIMED BEFORE DELIVERY TO THE JOB SITE.  
SURFACE PREPARATION AND PAINTING (EXISTING STEEL ONLY): SEE NOTES ON DRAWING NO. BR-4-41.

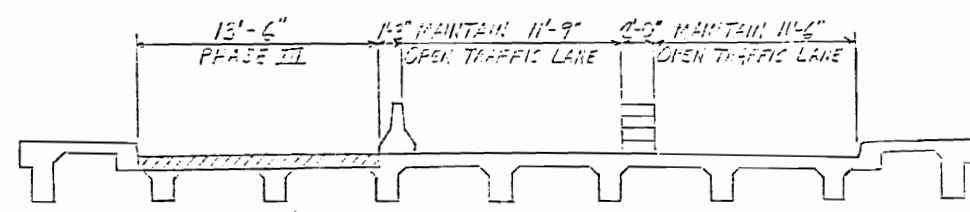
STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAYS  
Estimated Quantities & General No.  
BRIDGE NO. 1: S.P. 211 OVER OVERFLOW OF NORTH FORK FORKED DEER RIVER  
BRIDGE NO. 23-SR211-1.31  
BRIDGE NO. 2: STATE ROUTE 211 OVER NORTH FORK FORKED DEER RIVER  
BRIDGE NO. 23-SR211-1.71  
DUER COUNTY 1991  
CORRECT  
APPROVED  
DEPUTY COMMISSIONER



PHASE I CONSTRUCTION



PHASE II CONSTRUCTION



PHASE III CONSTRUCTION

**PREPARE, PREPARATION AND PAINTING**

- Applicable to all Existing Structural Steel for Bridge No. 1 (23-SR211-1.71)
- 1) Any oil or grease shall be removed by means of solvent cleaning in accordance with SD11-SD11. Solvents shall be safe and biodegradable. All tanks, loose coatings and other contaminants shall be removed with a high pressure water wash. High pressure water wash is defined as water pressure from 2,000 to 4,000 p.s.i. at 1 to 10 g.p.m. water volume.
  - 2) A hand or power tool cleaning, in accordance with Tennessee Standard Specification, Sec Section 901.03(a), shall be applied to all areas throughout the bridge that have visible rust or exposed steel. The engineer shall designate all areas that are to receive the hand or power tool cleaning. All hand or power tool cleaning shall be done to the complete satisfaction of the engineer. All exposed structural steel within these areas shall be spot primed immediately after cleaning.

**PAINTING SYSTEM**  
(To be Applied Over all Structural Steel)

The painting system shall be a high performance, two coat system consisting of universal primer and a high build aliphatic polyurethane finish coat. The finish coat shall comply with Tennessee Special Provision no. 6037, and shall comply with and adhere to the cured universal primer when applied directly over the universal primer in accordance with the manufacturer's current printed instructions. Color of the urethane finish coat shall comply with Federal Standard No. 595B, 24110 Bright Green. See Sections 603 and 610 of the Standard Specifications for Road and Bridge Construction of the Tennessee Department of Transportation.

**COATING SYSTEM DESCRIPTION**  
(To be Applied Over all Structural Steel)

- The coating specified here-in shall be applied in order to meet the following requirements:
- 1) Surface Preparation: (See notes above.)
    - a) Primer: Universal at 2 mils minimum dry film thickness.
    - b) Finish: Two component high build aliphatic polyurethane at 3 mils minimum dry film thickness.
  - 2) Application:
    - a) The Universal Primers shall be: Prima Coat 107 Zinc metal primer; Tamco 50-9000 Poly-ure-prim; Carboline Fast Bond 400 primer; or Sevco Bar-Co P-50.

For acceptable brands of polyurethane paints see the Tennessee Department of Transportation's Qualified Products list for Paints. The high build aliphatic polyurethane shall be in accordance with Special Provision no. 6037.

    - b) All products used in this coating system, including thinners, must be supplied by the same manufacturer.
    - c) The universal primers shall not be epoxy.

**APPLICATION**

The coating applicator shall follow the manufacturer's printed instructions, and shall have these instructions on site during the course of the work.

**CONTAINMENT**

The existing paint system contains red lead paint which has been designated as a hazardous material. The contractor is responsible for containment, handling, and disposal of the red lead paint, removed as indicated in the plans, in accordance with all Federal, State, and local laws. This material is to be prevented from entering the environment. Plans, etc. regarding the above are to be submitted to the engineer for review and approval. All costs to be included in items bid on.

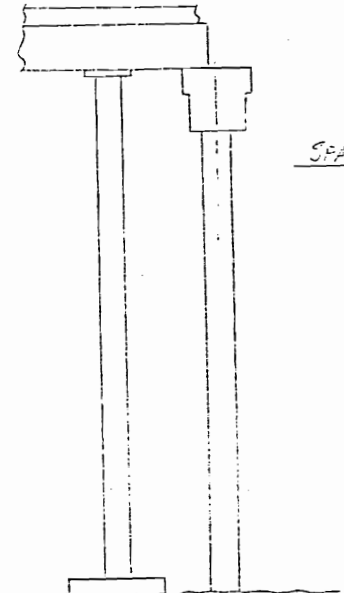
PROJECT NO.	YEAR	SHEET NO.	
23-211-001-02	1991		
REVISIONS			
NO.	DATE	BY	BRIF DESCRIPTION

NOTE: TRAFFIC PHASE CONSTRUCTION DETAILS ARE TYPICAL FOR BOTH BRIDGES NO. 1 AND NO. 2.

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

NOTE: ALL NEW TRANSVERSE REINFORCING STEEL SHALL SPLICE WITH MECHANICAL THREADED CONNECTORS. SEE DETAIL "A" ON DRAWING NO. BR-4-4B.

SPAN NO. 2



SPAN NO. 3

**END ELEVATION-BENT NO. 2**

NOTE: THE SUPPORT SYSTEM SHOWN IN THIS ELEVATION IS FOR GENERAL DETAILS ONLY. THE CONTRACTOR MAY ELECT TO USE A DIFFERENT MEANS OF SUPPORT. SEE SPECIAL NOTE ON DRAWING NO. BR-4-40 FOR REQUIREMENTS CONCERNING THE JACKING AND SUPPORT SYSTEM USED. THE CONTRACTOR MAY UTILIZE THE EXISTING TEMPORARY SUPPORT SYSTEM AT BENT NO. 2, PROVIDED THE DIMENSIONS OF THE MEMBERS ARE NOT ALTERED IN ANY MANNER. IF ANY DAMAGE OCCURS TO THE EXISTING MEMBERS THE CONTRACTOR SHALL REPLACE THAT MEMBER AT NO ADDITIONAL COST TO THE TENNESSEE DEPARTMENT OF TRANSPORTATION.

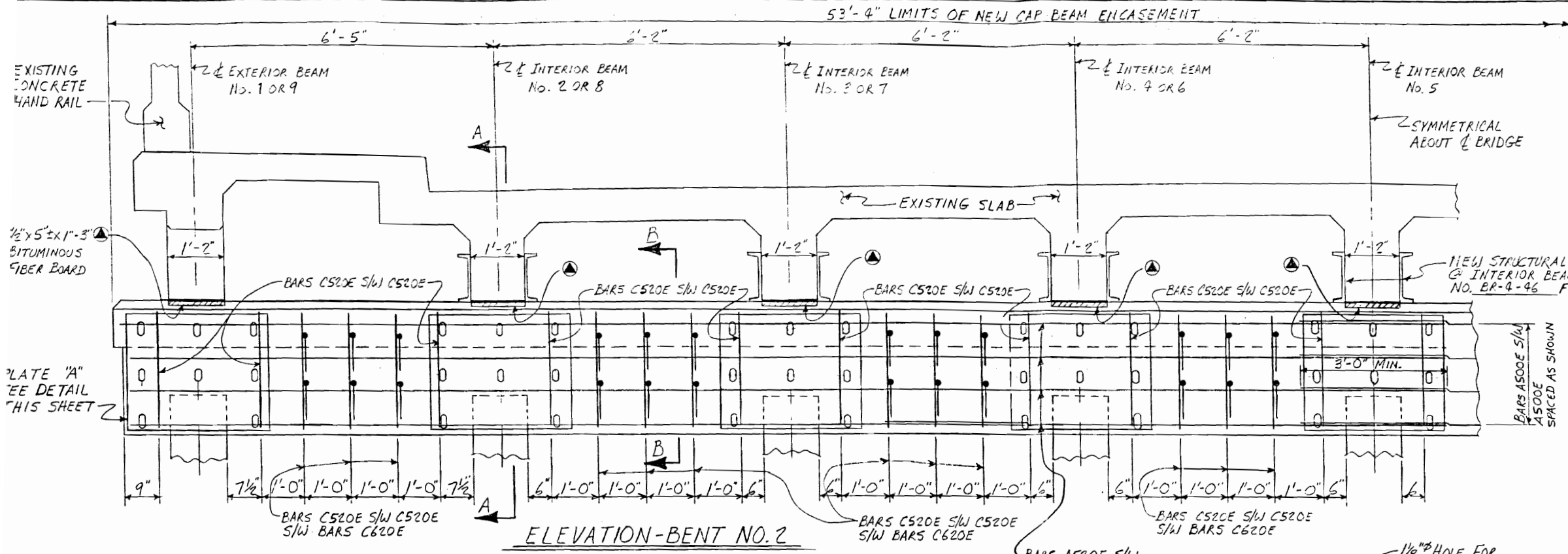
NOTE: THE EXISTING TEMPORARY SHORING AT BENT NO. 2 (BRIDGE NO. 23-SR211-1.31) WHEN REMOVED SHALL BE STOCK PILED AT THE JOB SITE AND PICKED UP BY STATE MAINTENANCE FORCES. ALL WORK MUST MEET WITH THE FULL APPROVAL OF THE ENGINEER.

DESIGNED BY M. L. WILSON DATE 6-91  
 DRAWN BY R. T. FRY DATE 6-91  
 SUPERVISED BY R. T. FRY DATE 6-91  
 CHECKED BY M. L. WILSON DATE 6-91

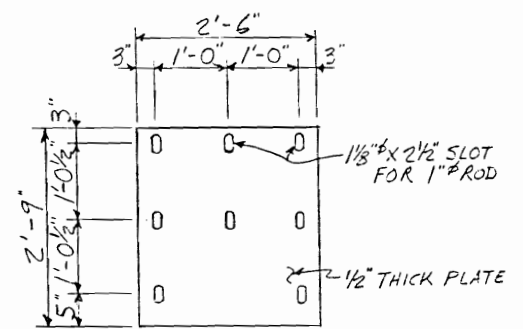
STATE OF TENNESSEE  
 DEPARTMENT OF TRANSPORTATION  
 BUREAU OF HIGHWAYS  
 BRIDGE REPAIR DETAILS  
 BRIDGE NO. 1: S.R. 211 OVER OVERFLOW OF NORTH FORK FORKED DEER RIVER  
 BRIDGE NO. 23-SR211-1.31  
 BRIDGE NO. 2: S.R. 211 OVER NORTH FORK FORKED DEER RIVER  
 BRIDGE NO. 23-SR211-1.71  
 DYER COUNTY  
 1991  
 CORRECT Lawrence E. Hinkle  
 C.E. MANAGER - INSPECTION & REPAIR  
 APPROVED Thomas E. Evans  
 DEPUTY COMMISSIONER  
 BR-4-4  
 BR-4-41



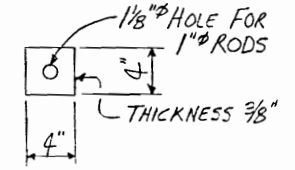
PROJECT NO.	YEAR	SHEET NO.	
23211-4305-04	1991		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION



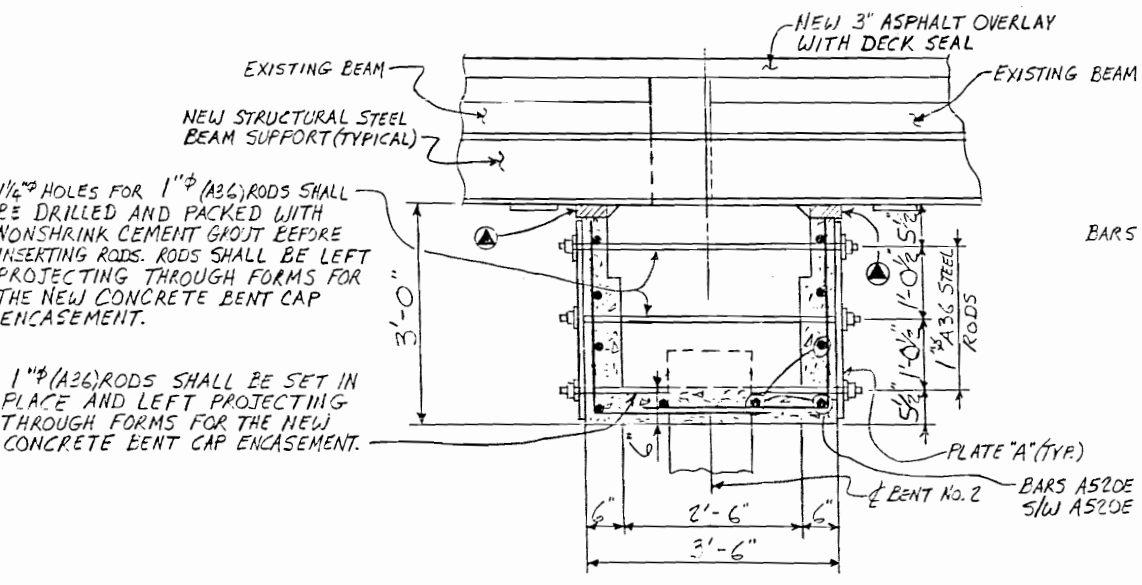
ELEVATION-BENT NO. 2



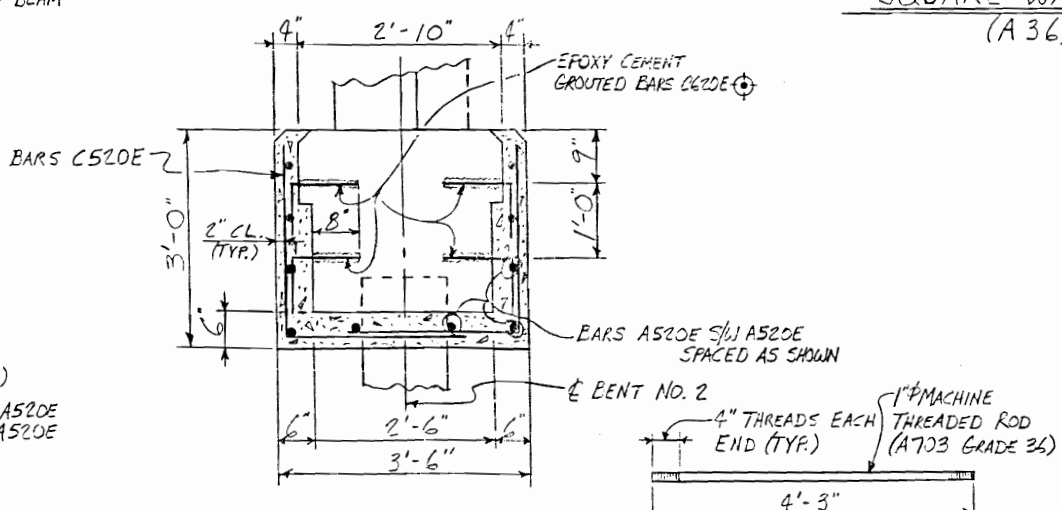
ENCASEMENT PLATE "A" DETAIL  
(18 PLATES REQUIRED)



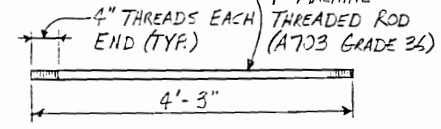
SQUARE WASHER DETAIL  
(A 36)



SECTION A-A



SECTION B-B  
(SHOWING REINFORCING STEEL)

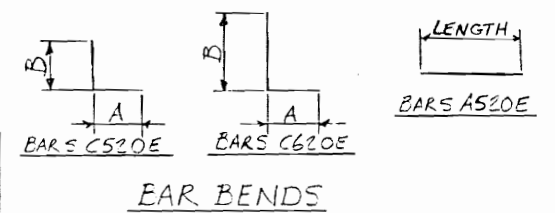


THREADED ROD DETAIL  
(72 Req. AT BENT NO. 2)

BILL OF STEEL  
ONE (1) LOCATION ONLY

BAR SIZE	NO.	DIM. "A"	DIM. "E"	LENGTH
A520E	5	20	-	28'-3"
C520E	5	84	2'-6"	5'-2"
C620E	6	96	1'-0"	2'-0"

"E" DENOTES: EPOXY COATED REINFORCING STEEL.



EAR BENDS

NOTE: COST OF NEW HIGH EARLY STRENGTH (16,000 P.S.I. @ 28 DAY STRENGTH) CONCRETE SHALL BE PAID FOR UNDER ITEM NO. 604-10.02, CONCRETE REPAIRS, C.V.

NOTE: COST OF DRILLING, GROUT, FIBER BOARD, FORMING, LABOR AND ANY MISCELLANEOUS MATERIALS NECESSARY TO COMPLETE ALL REPAIRS SHOWN IN DETAILS THIS SHEET SHALL BE INCLUDED IN ITEMS BID ON.

NOTE: COST OF ALL REINFORCING STEEL SHALL BE PAID FOR UNDER ITEM NO. 604-10.18, REINFORCING STEEL (REPAIRS), LBS.

NOTE: COST OF NEW STRUCTURAL STEEL PLATES, THREADED RODS, NUTS AND WASHERS SHALL BE PAID FOR UNDER ITEM NO. 602-10.32, STRUCTURAL STEEL (REPAIRS), LBS.

GRouted BARS IN DRILLED HOLES: HOLES FOR GROUTED BARS C620E SHALL BE DRILLED WITH HIGH SPEED DRILL. THE DRILL BIT SHALL BE CAPABLE OF DRILLING THROUGH REINFORCING BARS AND CONCRETE. THE HORIZONTALLY DRILLED HOLES SHALL BE DRILLED 1/2" IN DIAMETER LARGER THAN THE BAR, CLEANED, PACKED WITH A NON-SHRINK CEMENT GROUT AND THE BAR DRIVEN TO ITS SEAT. A LIST OF APPROVED GROUTS MAY BE OBTAINED FROM THE TENNESSEE DEPARTMENT OF TRANSPORTATION, DIVISION OF MATERIALS AND TESTS.

NOTE: 8" DEEP 1/4" HOLES FOR GROUTED BARS C620E.

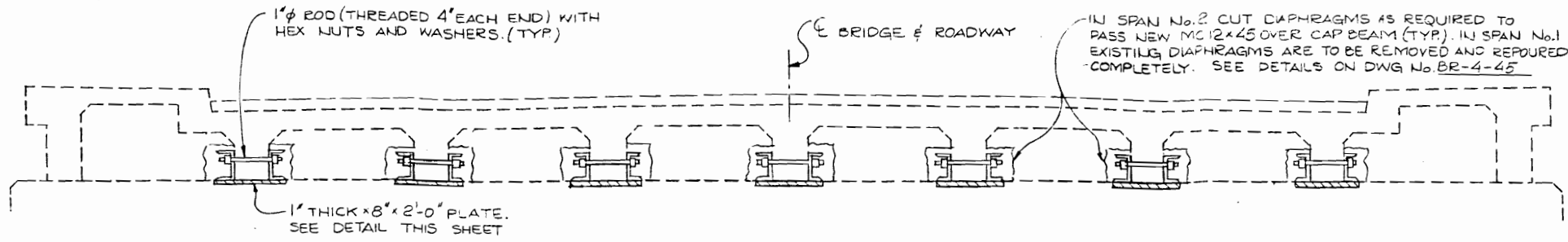
DESIGNED BY	M. L. LAMSON	DATE	4-91
DRAWN BY	E. L. GIBBS	DATE	3-91
SUPERVISED BY	SENTRY	DATE	3-91
CHECKED BY	SENTRY	DATE	4-91

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAYS  
BENT NO. 2 REPAIR DETAILS  
BRIDGE NO. 1 S.R. 211 OVER OVERFLOW  
OF NORTH FORK FORKED DEER RIVER  
BRIDGE NO. 23-SR211-1.31  
DYER COUNTY  
1991  
CORRECT *Larry E. Hinds*  
G.E. MANAGER - INSPECTION & REPAIR  
APPROVED *Larry E. Hinds*  
DEPUTY COMMISSIONER

BR-4



PROJECT NO.	YEAR	SHEET NO.	
23211-4305-04	1991		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION

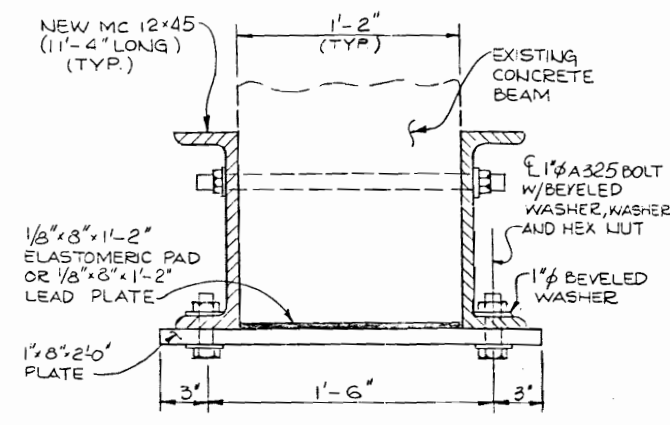


**TYPICAL CROSS SECTION SHOWING STRUCTURAL STEEL BEAM SUPPORTS**

AT BENT No. 2 ONLY. TOTAL SEVEN (7) REQ'D  
BRIDGE No. 1 (BR. No. 23 - SR 211 - 1.31)

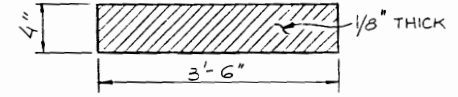
**NOTE:** THE CONTRACTOR SHALL REPOUR THE AREAS WHERE THE EXISTING CONCRETE DIAPHRAGM IS REMOVED, TO ACCOMMODATE THE NEW STRUCTURAL STEEL BEAM SUPPORTS. THESE AREAS SHALL BE REPOURED WITH HIGH EARLY STRENGTH CONCRETE,  $f'c = 4,500$  P.S.I., BACK TO ORIGINAL LINES.

**NOTE "A":** THE CONTRACTOR SHALL DRILL  $1\frac{1}{4}$ "  $\phi$  HOLES THROUGH THE EXISTING CONCRETE BEAM TO ACCOMMODATE  $1\phi$  THREADED ROD. HOLES SHALL BE DRILLED WITH A HIGH SPEED DRILL. THE DRILL BIT SHALL BE CAPABLE OF DRILLING THROUGH EXISTING CONCRETE AND REINFORCING STEEL. AFTER DRILLING, FILL THE HOLES WITH APPROVED NON-SHRINK CEMENT GROUT JUST PRIOR TO PLACING RODS.  $1\frac{1}{8}$ "  $\phi$  HOLES FOR THE  $1\phi$  RODS SHALL NOT BE DRILLED IN THE MC 12x45 CHANNELS UNTIL THE  $1\frac{1}{4}$ "  $\phi$  HOLES HAVE BEEN DRILLED IN THE EXISTING CONCRETE BEAMS. THE CONTRACTOR SHALL TIGHTEN NUTS TO A SNUG FIT AND BUFF THE THREADS.

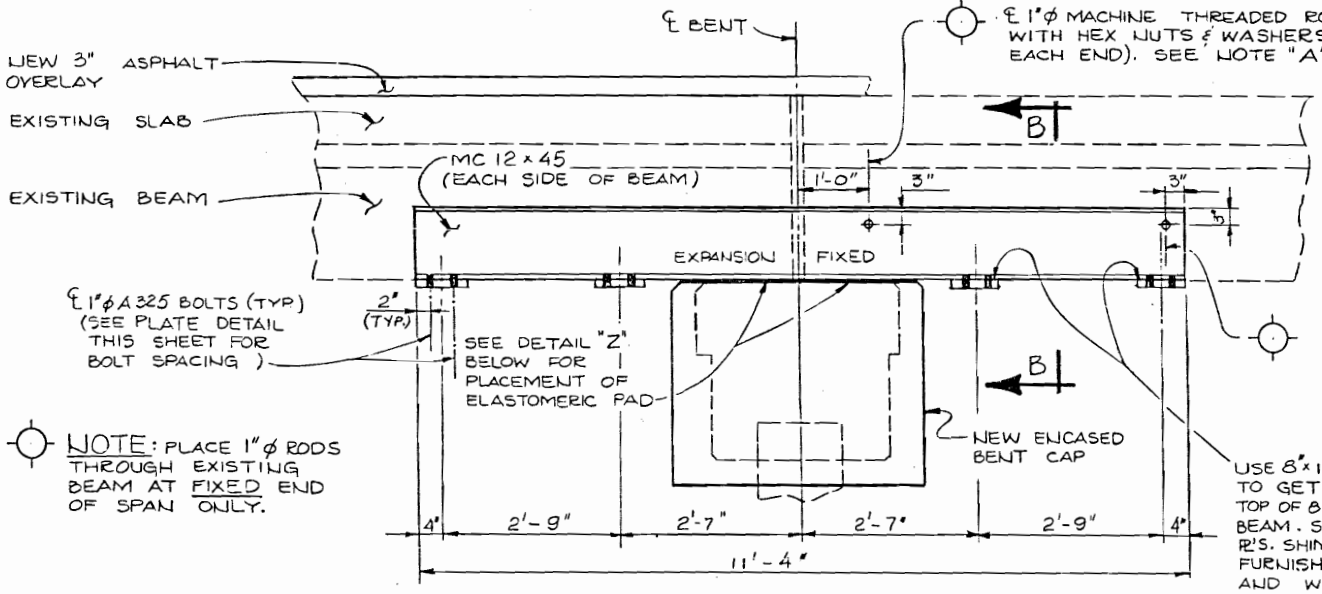


**SECTION B-B**

(SHOWING NEW MC 12x45, NEW ELASTOMERIC PAD, AND NEW  $1\frac{1}{8}$ "x $8$ "x $2\frac{1}{2}$ " R.)

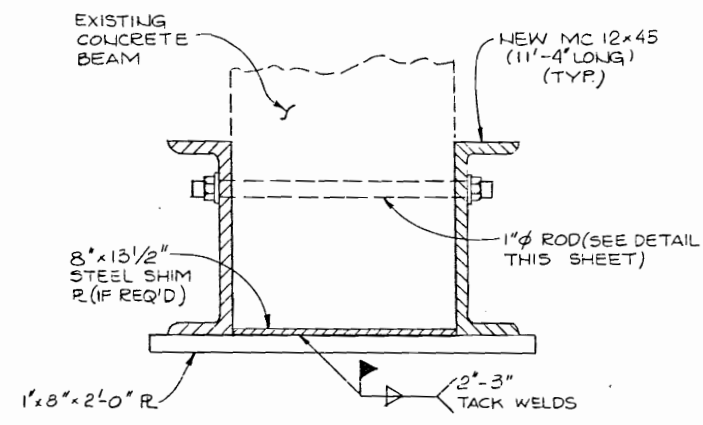


**ELASTOMERIC PAD DETAIL**



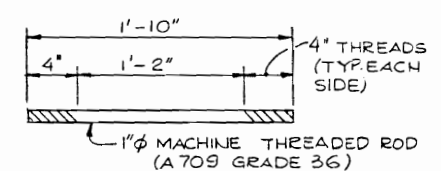
**PARTIAL ELEVATION**

SHOWING STRUCTURAL STEEL BEAM SUPPORTS AT BENT No. 2 ONLY. TOTAL SEVEN (7) REQ'D.



**SECTION B-B**

SHOWING NEW MC 12x45, NEW STEEL SHIM R, AND NEW  $1\frac{1}{8}$ "x $8$ "x $2\frac{1}{2}$ " R.



**THREADED ROD DETAIL**

**PAINTING THE NEW WORK:** PAINT SHALL BE SYSTEM "B" - INORGANIC ZINC-PAINT SYSTEM, EXCEPT A URETHANE FINISH COAT SHALL BE USED IN LIEU OF VINYL FINISH COAT. COLOR OF THE URETHANE FINISH COAT SHALL COMPLY WITH FEDERAL STANDARD No. 595a, 24110 BRIGHT GREEN. SEE SECTIONS 603 AND 910 OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION. SEE SPECIAL PROVISION No. 603A REGARDING PAINTING.

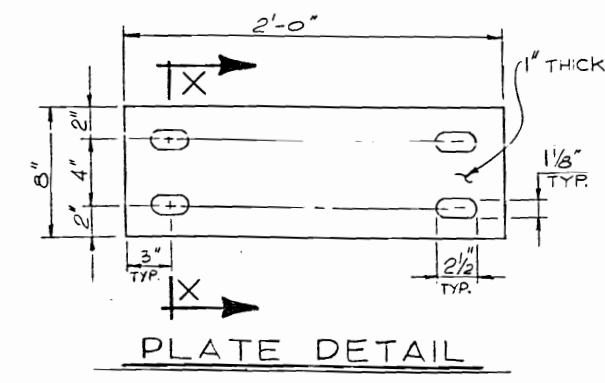
**NOTE:** A LIST OF APPROVED GROUTS MAY BE OBTAINED FROM THE TENNESSEE DEPARTMENT OF TRANSPORTATION, DIVISION OF MATERIALS AND TESTS.

**NOTE:** THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE HEADQUARTERS BRIDGE INSPECTION AND REPAIR OFFICE FOR APPROVAL PRIOR TO ANY SHOP FABRICATION.

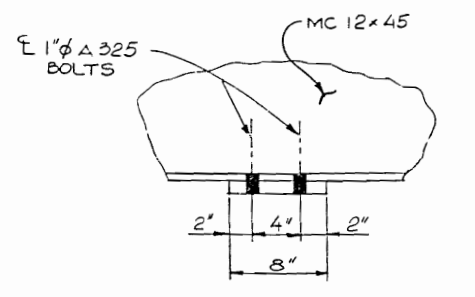
**STRUCTURAL STEEL:** SHALL CONFORM TO AASHTO M 270 GRADE 36 (ASTM A 709 GRADE 36)

**NOTE:** COST OF ALL STRUCTURAL STEEL, RODS AND BOLTS WITH HEX NUTS AND WASHERS, REPOURING PORTIONS OF THE CONCRETE DIAPHRAGMS, PAINTING AND ELASTOMERIC BEARING PADS SHALL BE PAID FOR UNDER ITEM No. 602-10.25, STRUCTURAL STEEL BEAM SUPPORTS, EACH.

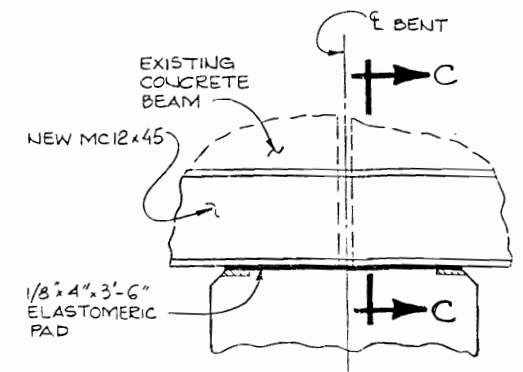
**NOTE:** COST OF REMOVING AND REPOURING PORTIONS OF CONCRETE DIAPHRAGMS, CONCRETE GROUTS, BITUMINOUS FIBER BOARD, LABOR AND ANY MISCELLANEOUS MATERIALS NECESSARY FOR THE COMPLETE INSTALLATION OF THE STRUCTURAL STEEL BEAM SUPPORTS SHALL BE INCLUDED IN ITEMS BID ON.



**PLATE DETAIL**

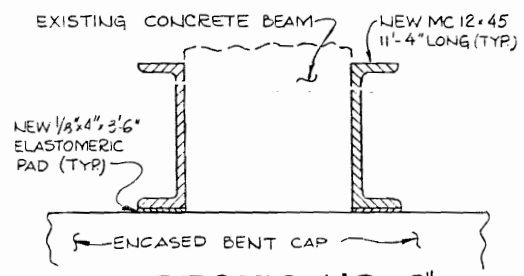


**SECTION "X-X"**



**DETAIL "Z"**

SHOWING PLACEMENT OF ELASTOMERIC PADS AT ALL STRUCTURAL STEEL BEAM SUPPORT LOCATIONS (7 REQ'D)



**SECTION "C-C"**

SHOWING PLACEMENT OF ELASTOMERIC PADS AT ALL STRUCTURAL STEEL BEAM SUPPORT LOCATIONS (2 REQ'D PER LOCATION)

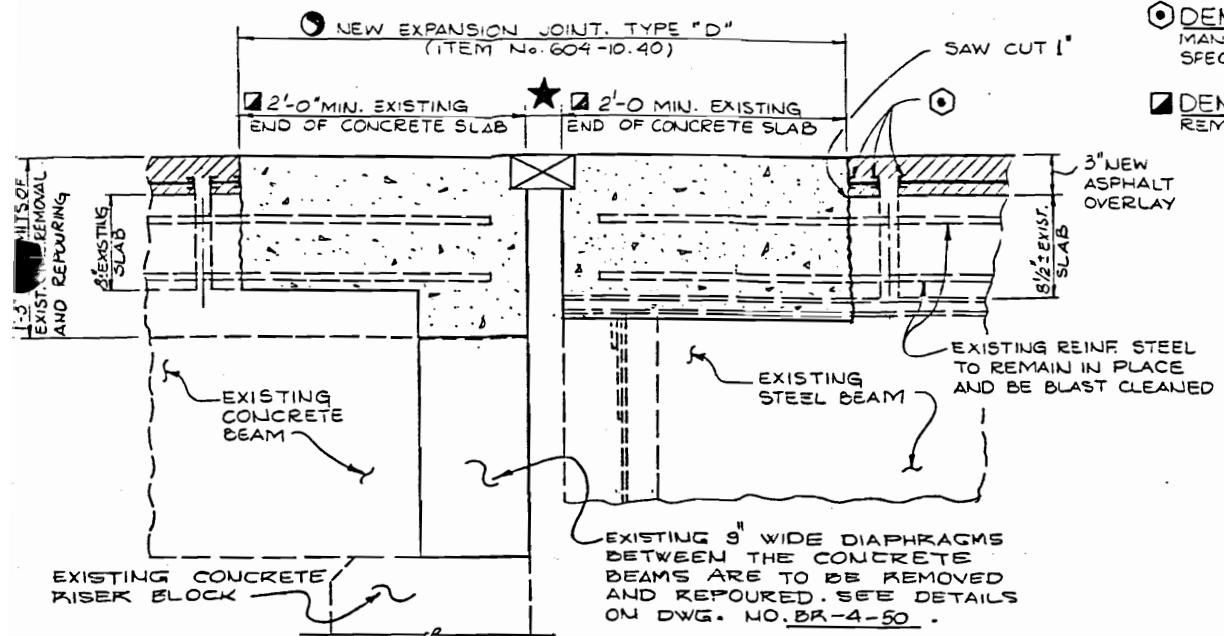
STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAYS  
STRUCTURAL STEEL BEAM SUPPORT DETAIL  
BRIDGE No. 1: SR. 211 OVER OVERFLOW OF  
NORTH FORK FORKED DEER RIVER  
BRIDGE No. 23-SR 211 - 1.31  
DYER COUNTY  
1991

DESIGNED BY MIKE LAWSON DATE 4-91  
DRAWN BY L. LIBARSKY DATE 2-91  
SUPERVISED BY G. GENTRY DATE 2-91  
CHECKED BY H. SEAVES DATE 2-91

CORRECT *Lawrence & Woods*  
G.E. MANAGER - INSPECTION & REPAIR  
APPROVED *Lawrence & Woods*  
DEPUTY COMMISSIONER

BR-44  
BR-4

PROJECT NO.	YEAR	SHEET NO.	
22211-4305-04	1991		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION



○ DENOTES: MASTIC AS RECOMMENDED BY MANUFACTURER OF MEMBRANE. SEE STANDARD SPECIFICATIONS, ARTICLE 906.04.

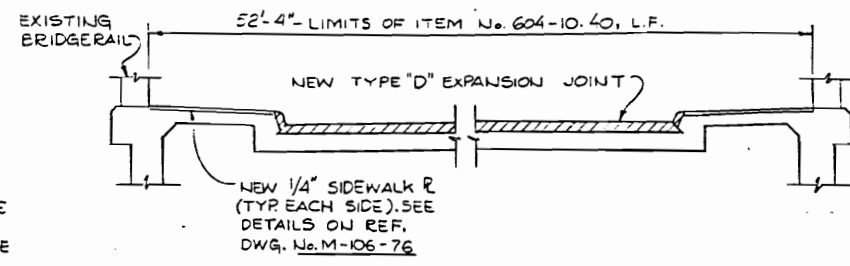
■ DENOTES: LIMITS OF EXISTING CONCRETE REMOVAL AND REPOURING

○ DENOTES: SEE EXPANSION JOINT REPLACEMENT DETAILS TYPE "D", ON REFERENCE DWG. NO'S. M-106-76, M-106-77, AND M-106-78. ALSO SEE SPECIAL PROVISION No. 604.5.

★ DENOTES: SET ALL NEW EXPANSION JOINT REPLACEMENTS 2" (TWO INCHES) AT MID TEMPERATURE OF 60°F WITH TOTAL MOVEMENT REQUIRED OF 4" (FOUR INCHES). (ACTUAL SETTING AS PER TEMPERATURE CHART ON EXPANSION JOINT SHOP DRAWINGS).

NOTE: COST OF REMOVING CONCRETE FOR THE LIMITS SHOWN, REPOURING WITH HIGH EARLY STRENGTH  $f'c = 4,500$  P.S.I. @ 28 DAY STRENGTH CONCRETE, EPOXY COATED REINFORCING STEEL, AND EXPANSION JOINT ASSEMBLIES SHALL BE PAID FOR UNDER ITEM No. 604-10.40, EXPANSION JOINT REPAIR, L.F.

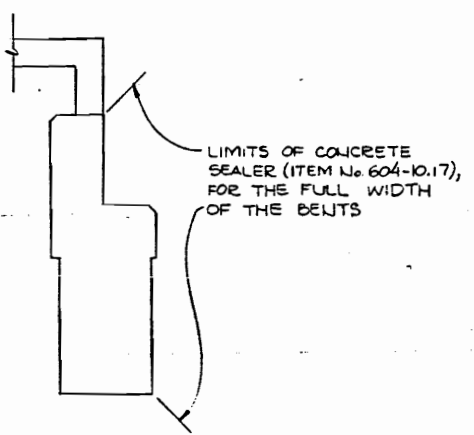
NOTE: COST OF ALL INCIDENTALS SUCH AS WELDING, BLAST CLEANING, SAW CUTTING, DRILLING, ETC., AND ANY MISCELLANEOUS MATERIALS NECESSARY TO COMPLETE THE INSTALLATION OF THE NEW EXPANSION JOINTS AT BENT NO'S 15 AND 16, SHALL BE INCLUDED UNDER ITEMS BID ON.



CROSS-SECTION  
SHOWING LIMITS OF NEW TYPE "D" EXPANSION JOINT

**EXPANSION JOINT REPLACEMENT DETAIL TYPE "D"**

ITEM NO. 604-10.40 (TYPICAL AT BENT NO'S 15 AND 16)  
BRIDGE No. 2 (23-SR 211-171)



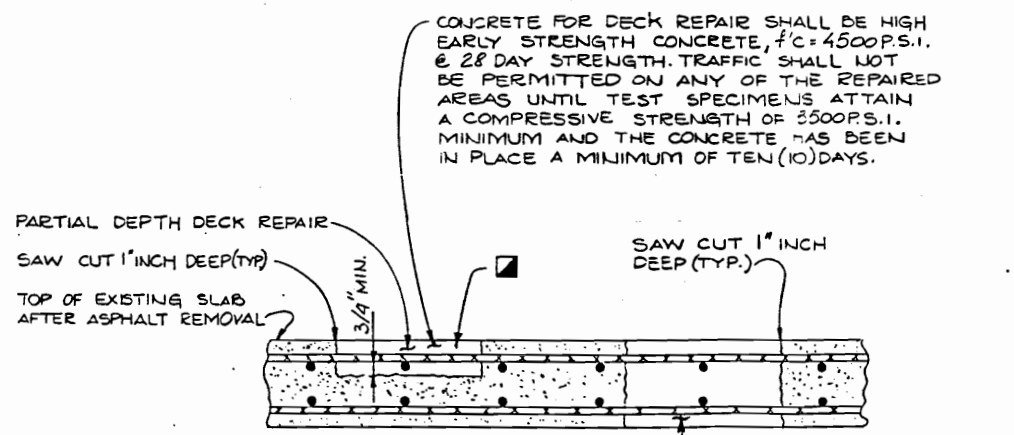
**DETAIL SHOWING LIMITS OF NON-PENETRATING CONCRETE SEALER**

(TYPICAL AT BENT NO'S 15 AND 16)  
BRIDGE No. 2 ONLY.

**CONCRETE SEALER:** BEFORE APPLYING ANY CONCRETE SEALER, ALL SURFACES TO BE SEALED SHALL BE BLAST CLEANED OF ALL DEBRIS AND FOREIGN MATERIALS. THE SURFACE CONDITIONS OF THE CONCRETE TO BE SEALED SHALL MEET THE REQUIREMENTS OF THE SEALANT MANUFACTURER. THE THICKNESS OF THE CONCRETE SEAL SHALL BE AS RECOMMENDED BY THE SEALANT MANUFACTURER. ALL WORK MUST MEET WITH THE FULL SATISFACTION OF THE ENGINEER.

THE ACCEPTABLE BRANDS OF CONCRETE SEALER SHALL BE APPROVED BY THE TENNESSEE DEPARTMENT OF TRANSPORTATION, DIVISION OF MATERIALS AND TEST. THE COLOR OF THE SEALER SHALL BE CLEAR OR SIMILAR TO THE COLOR OF THE EXISTING CONCRETE SURFACES TO BE SEALED.

THE COST OF THE CONCRETE SEALER, COMPLETE AND IN PLACE, SHALL BE PAID FOR UNDER ITEM No. 604-10.17, NON-PENETRATING CONCRETE SEAL, S.Y.



■ COARSE AGGREGATE FOR THE CONCRETE USED IN PARTIAL DEPTH SLAB REPAIRS SHALL BE SIZE 67 STONE

**DETAIL SHOWING FULL AND PARTIAL DEPTH DECK REPAIR**

(TYPICAL BRIDGES No. 1 AND No. 2)

REMOVE CONCRETE IN ALL DELAMINATED AREAS TO A DEPTH 3/4" BELOW THE TOP BAR OF THE TOP MAT OF REINFORCING STEEL. ALL REINFORCING STEEL IN AREAS OF DECK REPAIR SHALL BE BLAST CLEANED. AREA OF CONCRETE REMOVAL SHALL BE DESIGNATED BY PERSONNEL FROM THE HEADQUARTERS BRIDGE INSPECTION AND REPAIR OFFICE. DECK REPAIR WILL BE PAID FOR UNDER ITEM No. 604-10.50, BRIDGE DECK REPAIR (PARTIAL DEPTH OF SLAB), S.Y. IF DETEIORATED CONCRETE IS ENCOUNTERED WHICH APPEARS TO RUN FULL DEPTH IN THE SLAB, THE ENGINEER MAY DESIGNATE THESE AREAS TO BE REPAIRED UNDER ITEM No. 604-10.50, BRIDGE REPAIR (FULL DEPTH OF SLAB), S.Y. POWER DRIVEN HAND TOOLS USED FOR REMOVAL UNSOUND CONCRETE IN MAKING PARTIAL DEPTH REPAIRS ARE SUBJECT TO THE FOLLOWING RESTRICTIONS: 1) PNEUMATIC HAMMERS HEAVIER THAN NOMINAL 35 POUND CLASS SHALL NOT BE USED; 2) CHIPPING HAMMERS OF THE 15 POUND CLASS SHALL BE USED TO REMOVE CONCRETE FROM BENEATH ANY REINFORCING STEEL.

NOTE: ITEM No. 604-10.30 AND 604-10.50 SHALL BE BID WITH THE CONTINGENCY THAT THESE ITEMS MAY BE INCREASED, DECREASED OR ELIMINATED AS DIRECTED BY THE ENGINEER

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAYS

**BRIDGE REPAIR DETAILS**  
BRIDGE No. 1: SR 211 OVER OVERFLOW OF NORTH FORK FORKED DEER RIVER  
BRIDGE No. 23-SR 211-1.31  
BRIDGE No. 2: SR 211 OVER NORTH FORK FORKED DEER RIVER  
BRIDGE No. 23-SR 211-1.71  
DYER COUNTY

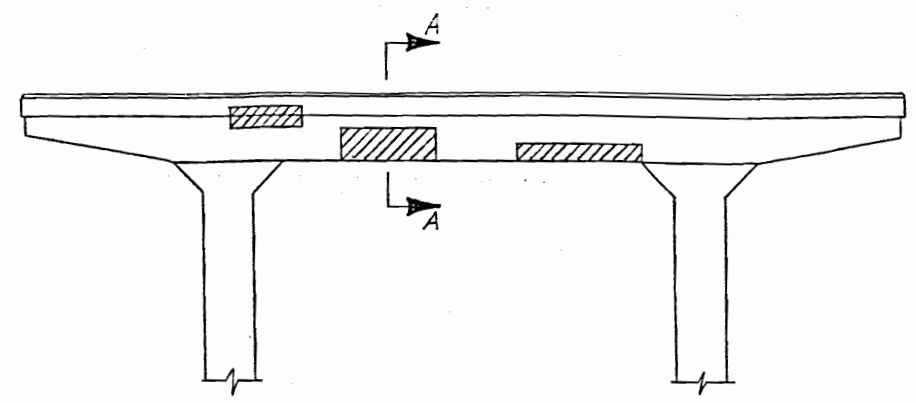
1991  
CORRECT *Larry E. Hendricks*  
C.E. MANAGER - INSPECTION & REPAIR  
APPROVED *Larry E. Hendricks*  
DEPUTY COMMISSIONER

DESIGNED BY MIKE LAWSON DATE 04-91  
DRAWN BY LUDMILA LUBANSKY DATE 02-91  
SUPERVISED BY GENTRY DATE 04-91  
CHECKED BY W. GRAVES DATE 02-91

57-4-4

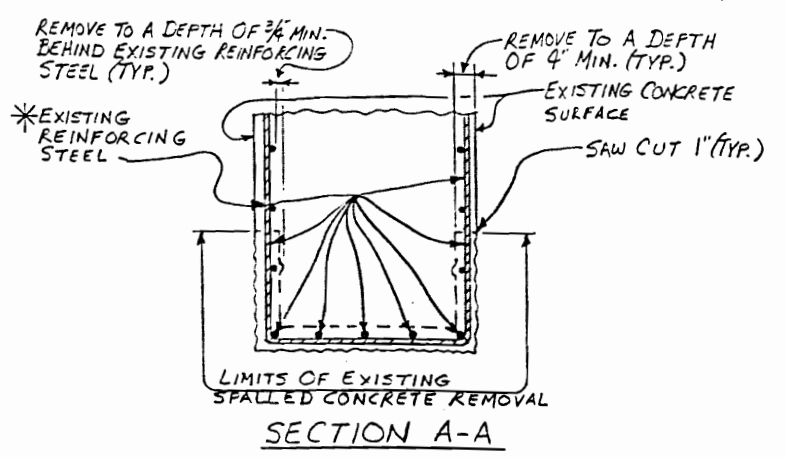


PROJECT NO.	YEAR	SHEET NO.	
23211-4305-04	1991		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION

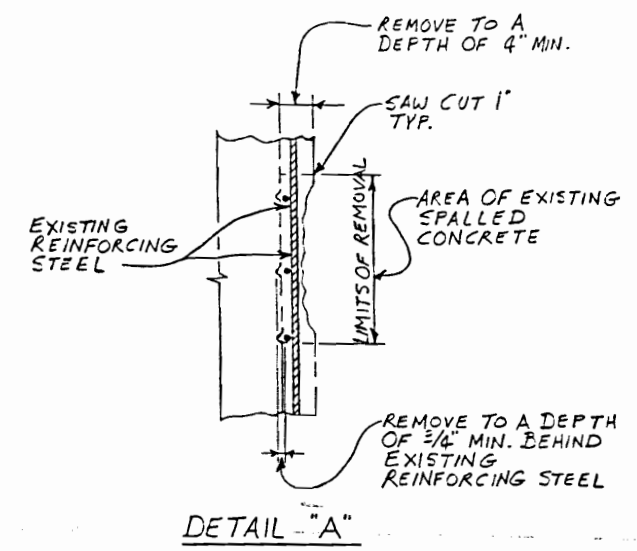


**ELEVATION OF BENTS**

(SHOWING SPALLED CONCRETE REPAIRS FOR BRIDGE NO. 23-SR211-1.71)



**SECTION A-A**



**DETAIL "A"**

TABLE SHOWING LOCATION AND APPROXIMATE QUANTITIES OF CONCRETE REPAIR BRIDGE NO. 23-SR211-1.71

LOCATION	SQ. FT. AREA
BENT No. 1	25
BENT No. 2	-
BENT No. 3	12
BENT No. 4	8
BENT No. 5	25
BENT No. 6	10
BENT No. 7	12
BENT No. 8	25
BENT No. 9	55
BENT No. 10	25
BENT No. 11	25
BENT No. 12	25
BENT No. 13	25
BENT No. 14	15
BENT No. 15	25

NOTE: THE ENGINEER HAS THE OPTION OF DESIGNATING ADDITIONAL AREAS OF BENT REPAIR ON BOTH BRIDGES.

NOTE: COST OF SAW CUTTING EXISTING SPALLED CONCRETE, BLAST CLEANING EXISTING REINFORCING STEEL, FORMING, LABOR AND ANY MISCELLANEOUS MATERIALS NECESSARY TO COMPLETE THE REPAIRS AS SHOWN IN THESE DETAILS SHALL BE INCLUDED IN ITEMS BID ON.

NOTE: ITEM NO. 604-10.54 SHALL BE BID WITH THE CONTINGENCY THAT THIS ITEM MAY BE INCREASED OR DECREASED AS DIRECTED BY THE ENGINEER.

**CONCRETE REPAIR DETAILS TYPICAL AT BENTS**

BRIDGE NO. 2 (23-SR211-1.71)  
FOURTEEN (14) LOCATIONS

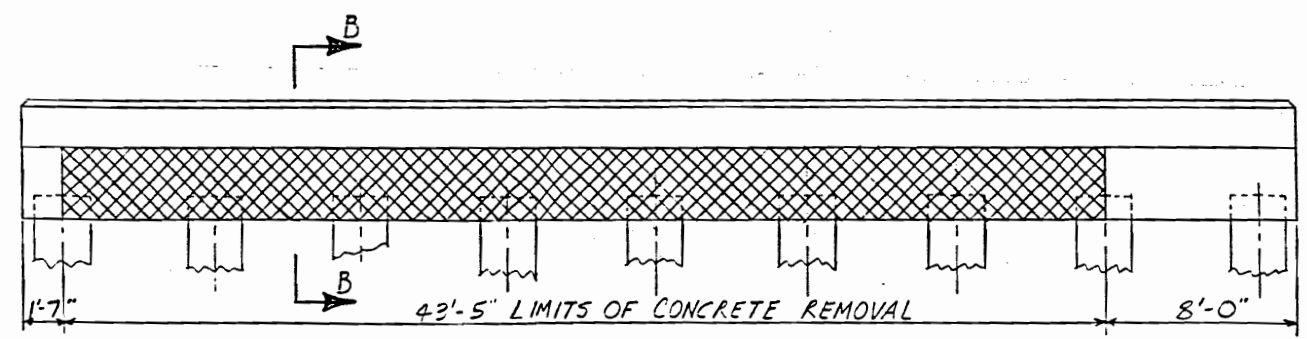
NOTES: SPALLED CONCRETE TO BE REMOVED AND REPOURED AS SHOWN THESE DETAILS. THE ENGINEER SHALL BE RESPONSIBLE FOR FIELD DESIGNATING ALL AREAS OF EXISTING SPALLED CONCRETE TO BE REMOVED.

NOTES: EXTREME CARE SHALL BE TAKEN WHEN REMOVING THE EXISTING SPALLED CONCRETE SO AS NOT TO DAMAGE THE EXISTING REINFORCING STEEL. ALL EXPOSED EXISTING REINFORCING STEEL SHALL RECEIVE A COMPLETE BLAST CLEANING TO REMOVE ALL RUST. ALL EXISTING REINFORCING STEEL SHALL REMAIN IN PLACE. ALL WORK MUST MEET WITH FULL APPROVAL OF THE ENGINEER.

NOTE: ALL AREAS OF REPAIR SHALL BE POURED BACK TO ORIGINAL LINES.

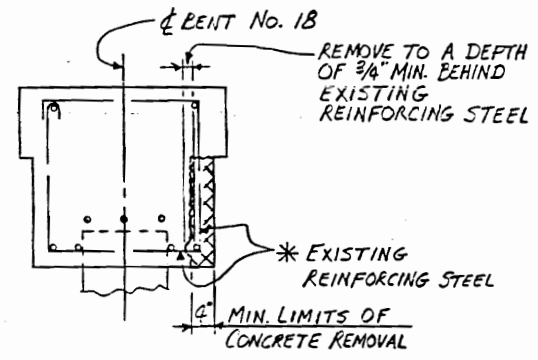
CONCRETE: SEE NOTE ON DWG. NO. BR-4-40.

NOTE: COARSE AGGREGATE FOR THE CONCRETE USED IN REPAIRS AS SHOWN. THESE DETAILS SHALL BE SIZE 67 STONE.



**ELEVATION OF BENT NO. 18**

BRIDGE NO. 1 (23-SR211-1.31) LOCKING NORTH  
ONE (1) LOCATION ONLY



**SECTION B-B**

NOTES: SPALLED CONCRETE TO BE REMOVED AND REPOURED AS SHOWN THIS SHEET.

SPECIAL NOTE TO CONTRACTOR: THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPORTING THE SUPERSTRUCTURE WHILE PERFORMING REPAIRS TO THE BENT CAP. COST OF THE SUPPORT SYSTEM SHALL BE INCLUDED IN ITEM 604-10.54 CONCRETE REPAIRS, S.F.

NOTE: COST OF CONCRETE REMOVAL AND NEW HIGH EARLY STRENGTH CONCRETE SHALL BE PAID FOR UNDER ITEM NO. 604-10.54, CONCRETE REPAIRS, S.F.

NOTE: COST OF SAW CUTTING EXISTING SPALLED CONCRETE, BLAST CLEANING EXISTING REINFORCING STEEL, FORMING, LABOR AND ANY MISCELLANEOUS MATERIALS NECESSARY TO COMPLETE THE REPAIRS AS SHOWN IN THESE DETAILS SHALL BE INCLUDED IN ITEMS BID ON.

NOTE: ALL AREAS OF REPAIR SHALL BE POURED BACK TO ORIGINAL LINES.

CONCRETE: SEE NOTE ON DWG. NO. BR-4-40.

NOTE: COARSE AGGREGATE FOR THE CONCRETE USED IN REPAIRS AS SHOWN THESE DETAILS SHALL BE SIZE 67 STONE.

NOTES: EXTREME CARE SHALL BE TAKEN WHEN REMOVING THE EXISTING SPALLED CONCRETE SO AS NOT TO DAMAGE THE EXISTING REINFORCING STEEL. ALL EXPOSED EXISTING REINFORCING STEEL SHALL RECEIVE A COMPLETE BLAST CLEANING TO REMOVE ALL RUST. ALL EXISTING REINFORCING STEEL SHALL REMAIN IN PLACE. ALL WORK MUST MEET WITH FULL APPROVAL OF THE ENGINEER.

**CONCRETE REPAIR DETAILS AT BENT NO. 18**

BRIDGE NO. 1 (23-SR211-1.31)  
ONE (1) LOCATION ONLY

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAYS  
BRIDGE REPAIR DETAILS  
BRIDGE NO. 1: S.R. 211 OVER OVERFLOW OF NORTH FORK FORKED DEER RIVER  
BRIDGE NO. 23-SR211-1.31  
BRIDGE NO. 2: S.R. 211 OVER NORTH FORK FORKED DEER RIVER  
BRIDGE NO. 23-SR211-1.71  
DYER COUNTY  
1991

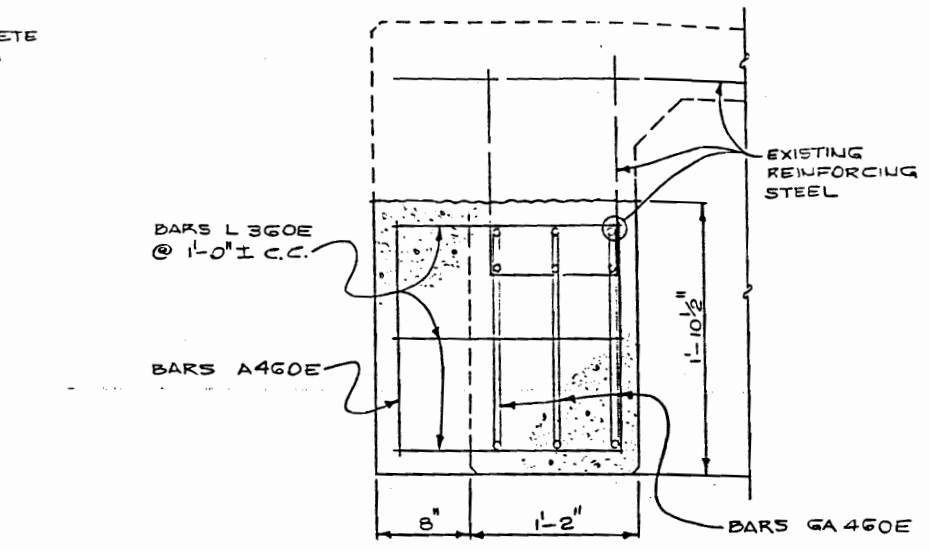
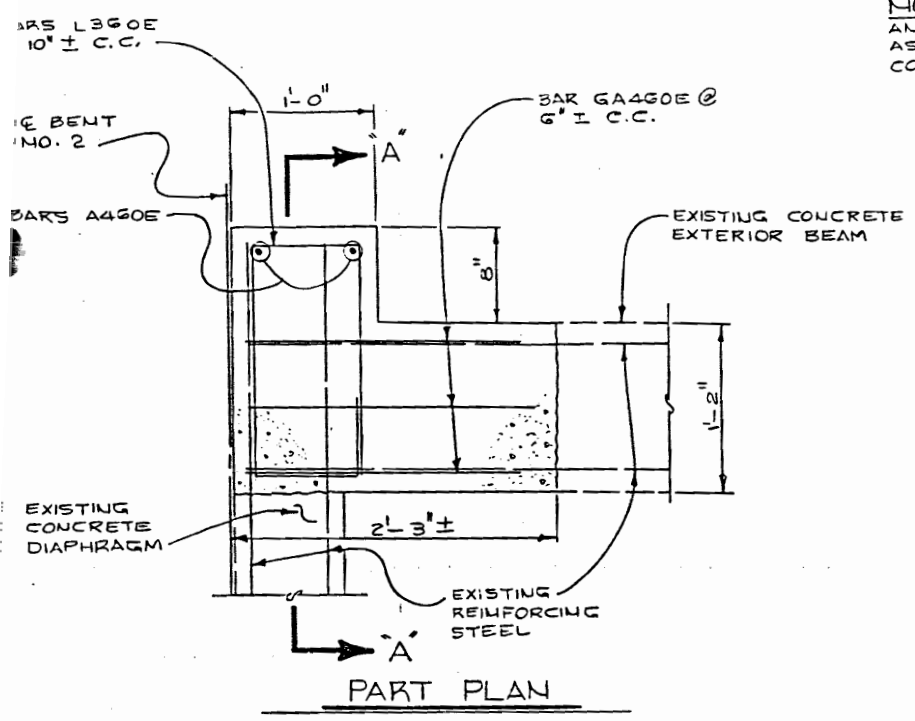
CORRECT *Larry E. Hinkle*  
C.E. MANAGER - INSPECTION & REPAIR  
APPROVED *Felix G. Evans*  
DEPUTY COMMISSIONER

DESIGNED BY M. LAWSON DATE 2-91  
DRAWN BY C. TITZEL DATE 2-91  
SUPERVISED BY Z. HENTY DATE 2-91  
CHECKED BY GRAYES DATE 2-91

BR-4-

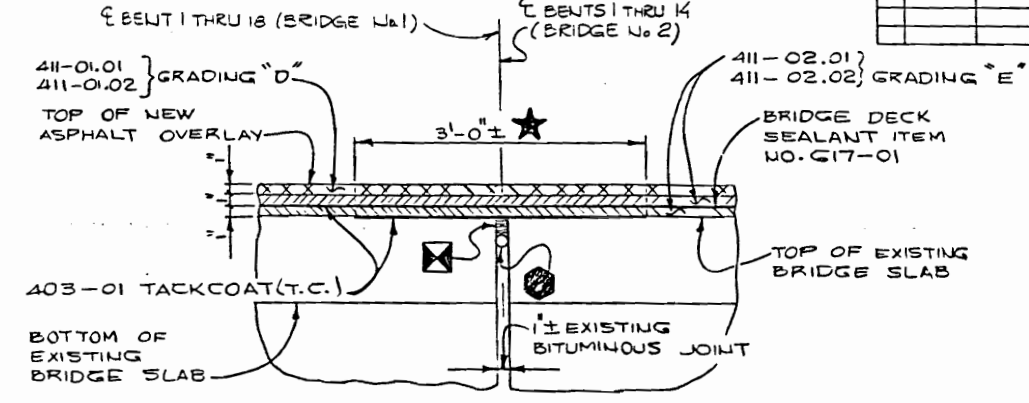
PROJECT NO.	YEAR	SHEET NO.	
23211-4305-04	1991		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION

NOTE: COST OF REMOVING EXISTING DETERIORATED CONCRETE, AND REPOURING WITH NEW HIGH EARLY STRENGTH CONCRETE AS SHOWN SHALL BE PAID FOR UNDER ITEM NO. 604-10.09, CONCRETE, C.Y.



TOP 2" OF ALL EXISTING BITUMINOUS JOINTS IN THE BRIDGE SLAB TO BE CLEANED AND RESEALED WITH NEW JOINT SEALER. JOINT SEALER SHALL BE A COLD POUR ONE (1) COMPONENT JOINT SEALER AS APPROVED BY THE DIVISION OF MATERIALS AND TESTS. COST OF JOINT CLEANING AND SEALING TO BE INCLUDED UNDER ITEM NO. 617-01 (BRIDGE DECK SEALANT). THE SEALER SHALL EXTEND UP AND ACROSS THE SIDEWALK AREA TO THE OUTER EDGE OF THE BRIDGE SLAB.

NOTE: THE MOVEMENT GAP SHALL BE CAULKED WITH A BACKER ROD OF SUITABLE DIAMETER. THE ROD SHALL BE PLACED AT A DEPTH TO ENSURE THE CORRECT WIDTH/DEPTH RATIO OF THE EXISTING BRIDGE JOINT SYSTEM. BACKER ROD AND CAULK SHALL BE AS PER JOINT MANUFACTURER.

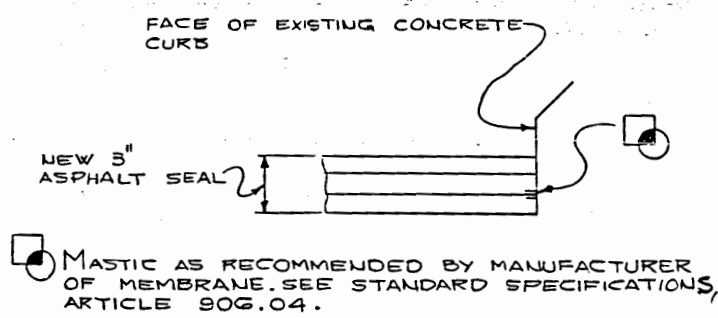
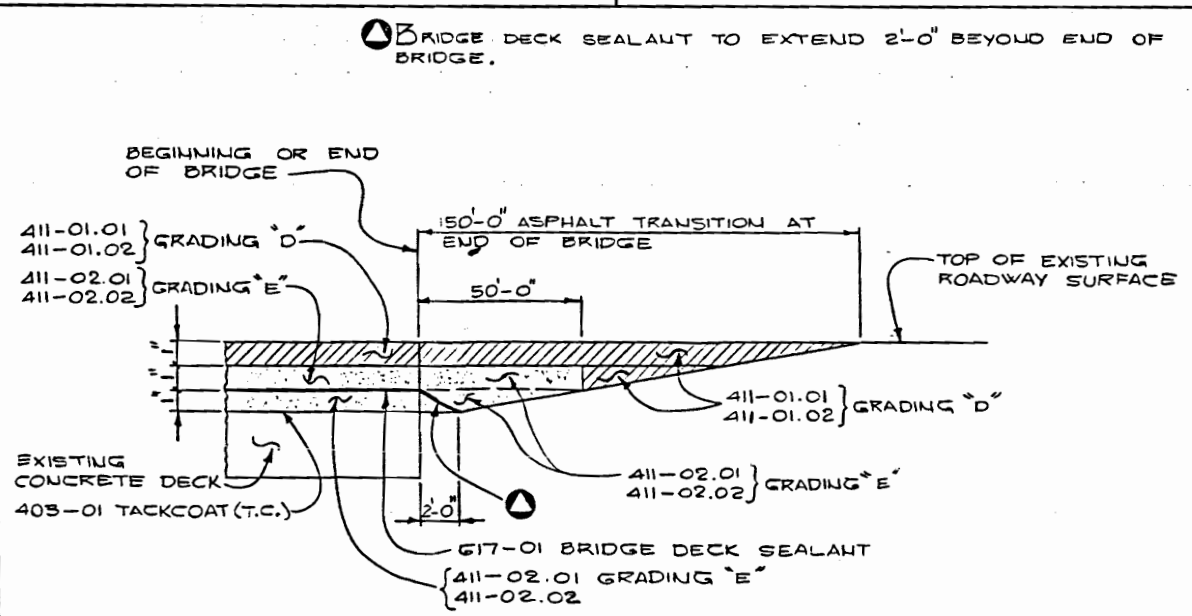
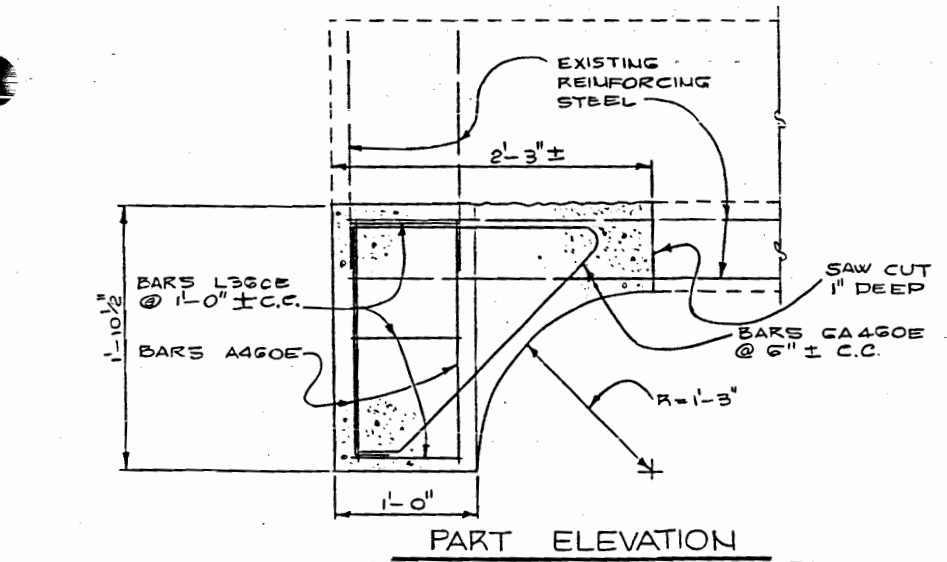


SECTION TAKEN THRU EXISTING BRIDGE SLAB JOINT  
TYPICAL AT BRIDGES NO. 1 AND NO. 2  
THIRTY-TWO (32) TOTAL LOCATIONS.

NOTE: WHEN REMOVING EXISTING DETERIORATED CONCRETE, CARE SHALL BE TAKEN SO AS NOT TO DAMAGE ANY OF THE EXISTING REINFORCING STEEL IN THE BEAM. ALL EXISTING REINFORCING STEEL SHALL BE BLAST CLEANED, REMAIN IN PLACE, AND TO BE INCORPORATED IN WITH NEW EPOXY COATED REINFORCEMENT. COST OF ALL NEW REINFORCING STEEL FOR THESE DETAILS TO BE INCLUDED IN REINFORCING STEEL (REPAIRS), ITEM NO. 604-10.18, LBS.

NOTE: NEW CONCRETE TO BE POURED BACK TO ORIGINAL LINES.

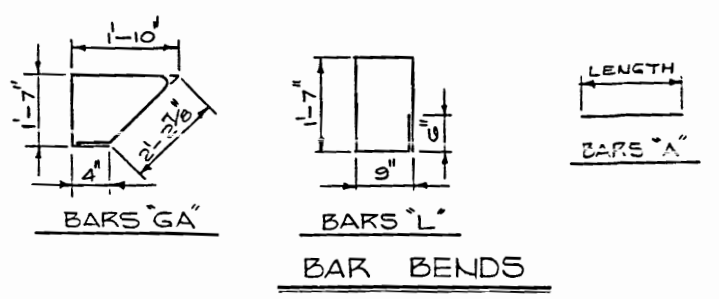
NOTE: COST OF BLAST CLEANING EXISTING REINFORCING STEEL FORMING, LABOR AND ANY MISCELLANEOUS MATERIALS NECESSARY TO REPAIR BEAM HAUNCHES SHALL BE INCLUDED IN ITEMS BID OUT.



BILL OF STEEL

BARS	SIZE	NO. REQ'D	LENGTH
GA460E	4	6	7'-5"
L360E	3	6	5'-2"
A460E	4	4	1'-7"

NOTE: "E" DENOTES EPOXY COATED REINFORCING STEEL.



EXTERIOR BEAM HAUNCH REPAIR DETAILS

DESIGNED BY MIKE LAWSON DATE 3-91  
 DRAWN BY AMIR SHARIFI DATE 3-91  
 SUPERVISED BY K. GENTRY DATE 4-91  
 CHECKED BY W. GEAVES DATE 4-91

BENT No. 2, 2(TWO) LOCATIONS  
 BRIDGE No. 1 (23-SR 211-1.31) ONLY

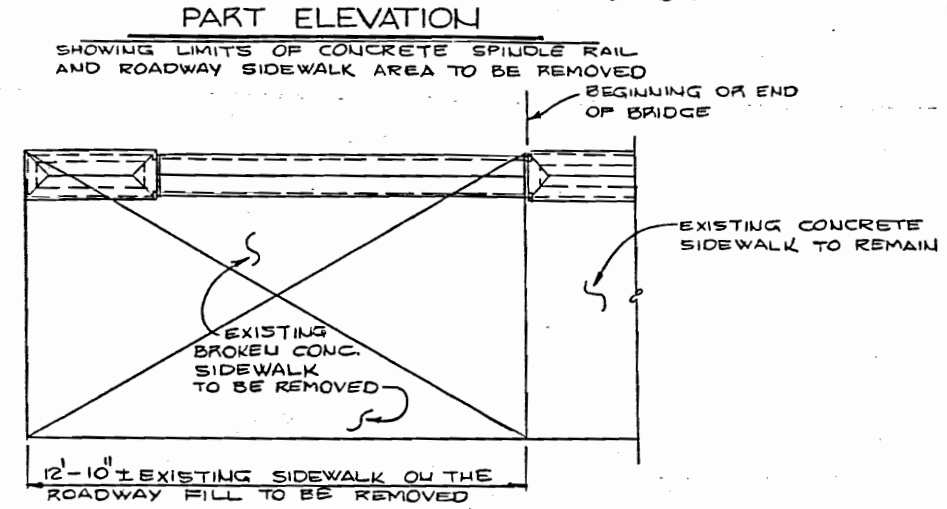
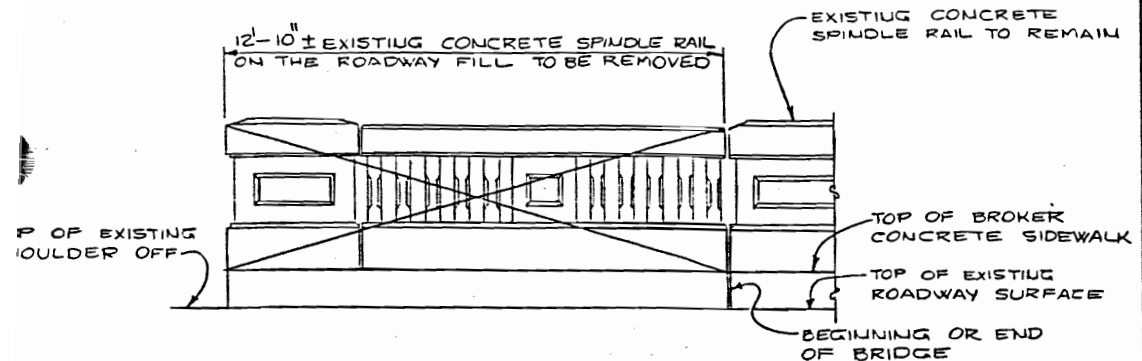
STATE OF TENNESSEE  
 DEPARTMENT OF TRANSPORTATION  
 BUREAU OF HIGHWAYS  
 BRIDGE REPAIR DETAILS  
 BRIDGE NO. 1: S.R. 211 OVER OVERFLOW (NORTH FORK FORKED DEER RIVER  
 BRIDGE NO. 23-SR 211-1.31)  
 BRIDGE NO. 2: S.R. 211 OVER NORTH FORK FORKED DEER RIVER  
 BRIDGE NO. 23-SR 211-1.71  
 DYER COUNTY  
 1991

CORRECT *Larry E. Hinds*  
 C.E. MANAGER - INSPECTION & REPAIR

APPROVED *Timothy B. Bowers*  
 DEPUTY COMMISSIONER

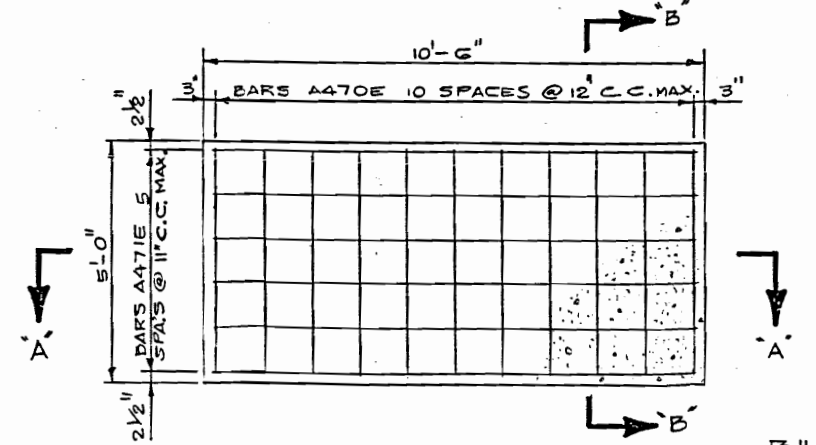
BR-4-5  
 27-4-5

NOTE: COST OF REMOVING EXISTING CONCRETE SPINDLE RAIL AND SIDEWALK FOR LIMITS AS SHOWN THESE DETAILS SHALL BE PAID FOR UNDER ITEM NO. 604-10.02, CONCRETE REPAIRS, C.Y.



DETAILS SHOWING REMOVAL OF EXISTING CONCRETE RAIL AND SIDEWALK AT ENDS OF BRIDGE

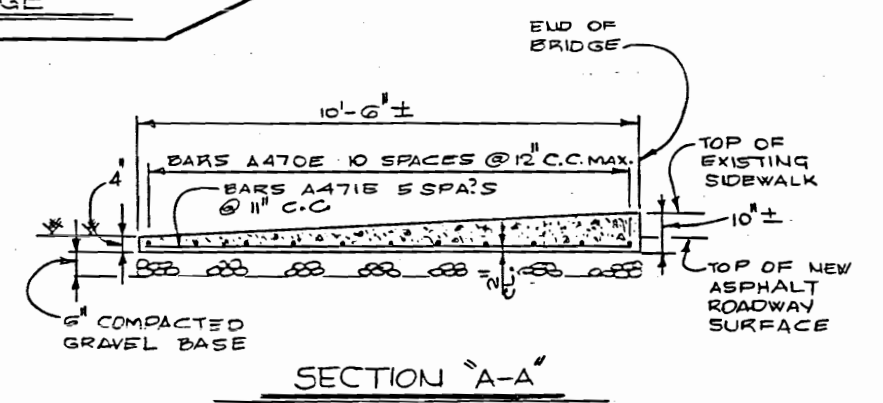
NOTE: COST OF FORMING, LABOR AND ANY MISCELLANEOUS MATERIALS NECESSARY TO COMPLETE CONCRETE RAMP AS SHOWN THESE DETAILS SHALL BE INCLUDED IN ITEMS BID ON.



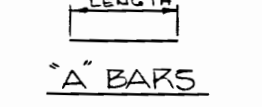
PLAN SIDEWALK APPROACH RAMP

NOTE: COST OF NEW HIGH EARLY STRENGTH FC 4500 P.S.I. CONCRETE AND COMPACTED GRAVEL BASE SHALL BE PAID FOR UNDER ITEM NO. 604-10.02, CONCRETE REPAIRS, C.Y.

DESIGNED BY MIKE LAWSON DATE 4-91  
 DRAWN BY AMIR SHARIFI DATE 4-91  
 SUPERVISED BY R. GENTRY DATE 4-91  
 CHECKED BY W. MCILTURFF DATE 4-91



SECTION A-A



SECTION B-B

BILL OF STEEL

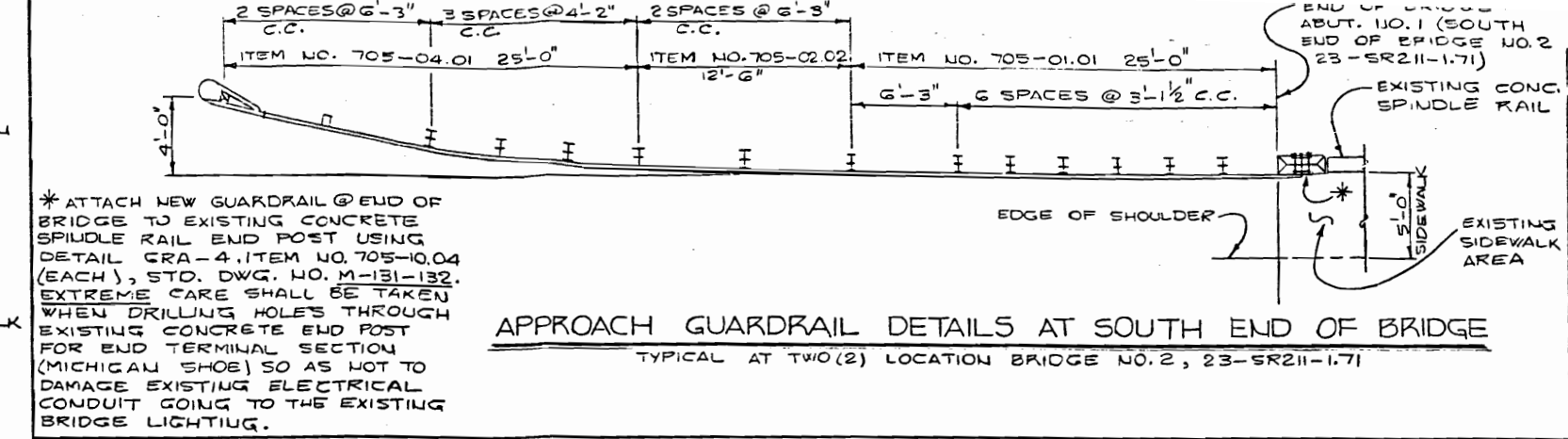
BAR	SIZE	NO.	LENGTH
A470E	4	44	4'-8"
A471E	4	24	10'-2"

E DENOTES: EPOXY COATED REINFORCING STEEL.

NOTE: COST OF REINFORCING STEEL SHALL BE PAID FOR UNDER ITEM NO. 604-10.18, REINFORCING STEEL LBS.

APPROACH RAMP AND APPROACH GUARDRAIL DETAILS AT ENDS OF BRIDGE

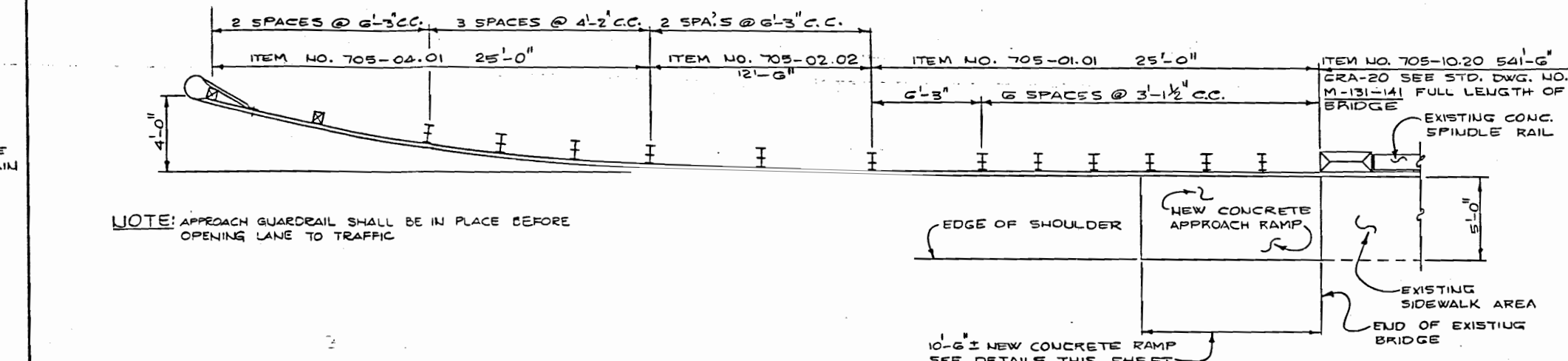
TYPICAL AT FOUR (4) LOCATIONS BRIDGE NO. 1, 23-SR211-1.31



APPROACH GUARDRAIL DETAILS AT SOUTH END OF BRIDGE

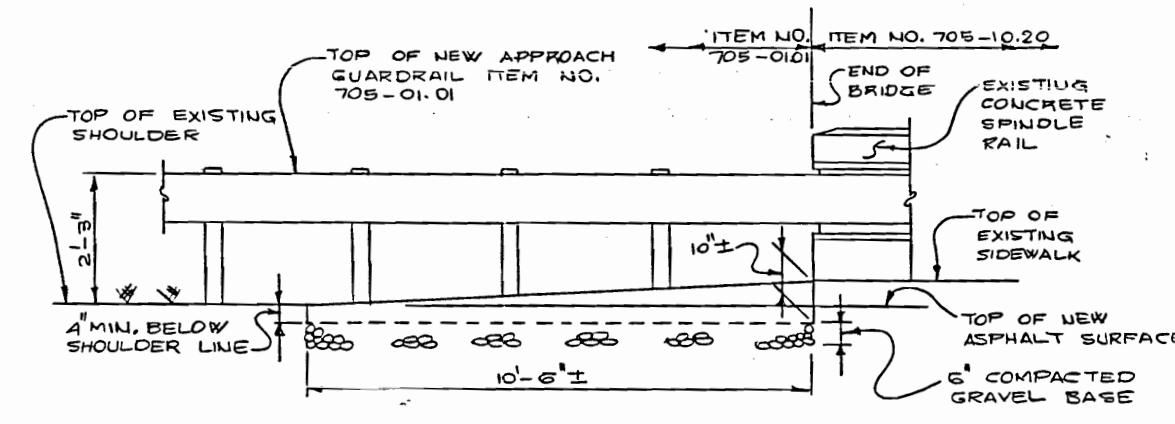
TYPICAL AT TWO (2) LOCATION BRIDGE NO. 2, 23-SR211-1.71

PROJECT NO.		YEAR		SHEET NO.	
23211-4305-04		1991			
REVISIONS					
NO.	DATE	BY	BRIEF DESCRIPTION		



DETAIL OF GUARDRAIL HOOK UP

TYPICAL AT BRIDGE ENDS (4 LOCATIONS) BRIDGE NO. 1 (23-SR211-1.31)



ELEVATION AT BRIDGE END

SHOWING NEW RAMP TO BE PLACED AT EACH CORNER OF THE EXISTING BRIDGE (TOTAL FOUR (4) LOCATIONS) BRIDGE NO. 1 (23-SR211-1.31)

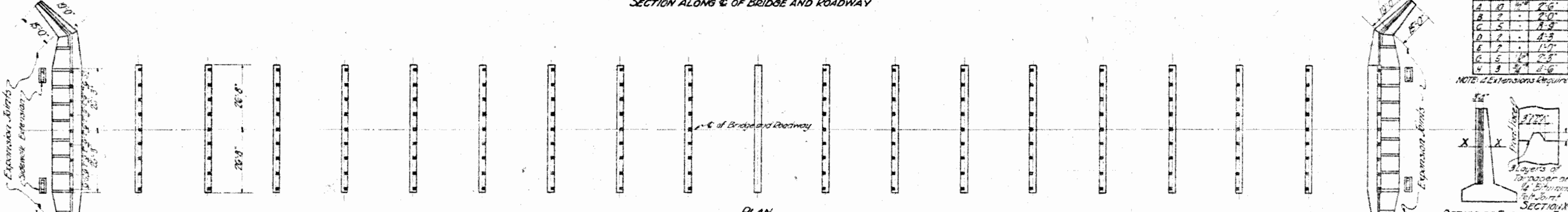
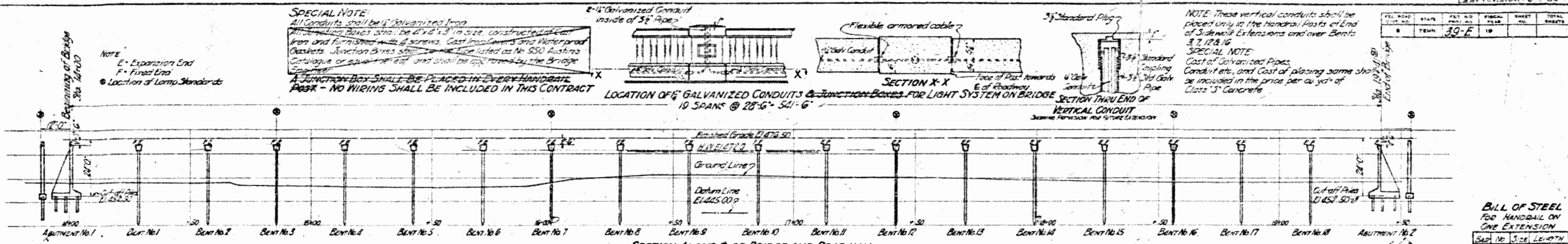
STATE OF TENNESSEE  
 DEPARTMENT OF TRANSPORTATION  
 BUREAU OF HIGHWAYS  
 BRIDGE REPAIR DETAILS  
 BRIDGE NO. 1: S.R. 211 OVER OVERFLOW OF NORTH FORK FORKED DEER RIVER  
 BRIDGE NO. 23-SR 211-1.31  
 BRIDGE NO. 2: S.R. 211 OVER NORTH FORK FORKED DEER RIVER  
 BRIDGE NO. 23-SR211-1.71  
 DYER COUNTY  
 1991

CORRECT *Ray E. Hardy*  
 C.E. MANAGER - INSPECTION & REPAIR  
 APPROVED *James E. Hardy*  
 DEPUTY COMMISSIONER

**SPECIAL NOTE:**  
All Conduits shall be 4" Galvanized Iron  
All Junction Boxes shall be 4'x4'x3" in size, constructed of cast iron and furnished with 4 screws. Cast Insulators and Water-proof Gaskets. Junction Boxes shall be listed as No. 550 Bushings Catalogue or equivalent and shall be approved by the Bridge Engineer.  
A JUNCTION BOX SHALL BE PLACED IN EVERY HANDRAIL POST - NO WIRING SHALL BE INCLUDED IN THIS CONTRACT

**NOTE:** These vertical conduits shall be placed only in the handrail posts at End of Sidewalk Extensions and over Bents  
3.7.128.16  
**SPECIAL NOTE:** Cast of Galvanized Pipes, Conduit etc., and Cost of placing same shall be included in the price per cu yd. of Class "S" Concrete.

STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
TENN.	39-E	19		



**BILL OF STEEL FOR HANDRAIL ON ONE EXTENSION**

Bar No.	Size	LENGTH
A	10	2'-6"
B	7	2'-0"
C	5	8'-9"
D	2	4'-3"
E	2	1'-0"
G	5	1'-2 1/2"
H	3	2'-6"

NOTE: 4 Extensions Required

**BILL OF STEEL FOR ONE EXTENSION**

Bar No.	Size	LENGTH
A	6	12'-10"
B	3	11'-6"
C	2	5'-8"
D	1	5'-3"
E	12	5'-6"
F	8	2'-6"
G	4	4'-6"
H	2	4'-0"
J	12	2'-6"
K	5	6'-0"
L	4	1'-6"

NOTE: 4 SIDEWALK EXTENSIONS REQUIRED

**LIST OF DRAWINGS**

For Details of Handrail see this Sheet and Dwg. --- A-8-79  
 Sidewalk Extension 12'-0" L x 8'-9" W x 1'-2" H --- A-14-33  
 For Details of Girders 40'-0" Roadway, 2'-5" Sidewalk see Dwg. A-14-33  
 For Details of Abutments No. 1 & 2 - 4'-2" x 2'-0" see Dwg. --- A-14-34  
 For Pile Plan see this Sheet  
 For Details of Bents No. 1-18 see Dwg. --- A-14-31  
 For Details of Sidewalk Extension see this Sheet  
 For Details of Concrete Piles --- A-14-31

**GENERAL NOTES:**  
Specifications Standard Road and Bridge Specifications of the Tennessee Department of Highways and Public Works. Forms and Finish - See Specifications.  
Piles to be Precast.

**SPECIAL NOTE:**  
All parts of the Structure coming into contact with the roadway fill, or the back fill shall be sealed in accordance with Specifications.  
This seal coat shall also be applied to the bridge seats of the abutments and to the sides of the wingwalls adjacent to the girders and to the bridge seats at the bents.

STATE OF TENNESSEE  
DEPARTMENT OF HIGHWAYS  
AND PUBLIC WORKS  
NASHVILLE

**LAYOUT OF BRIDGE**  
STA 14-00  
PRECAST CONCRETE PILE BENT TYPE  
DYER CO.  
1932

23-3-5.74

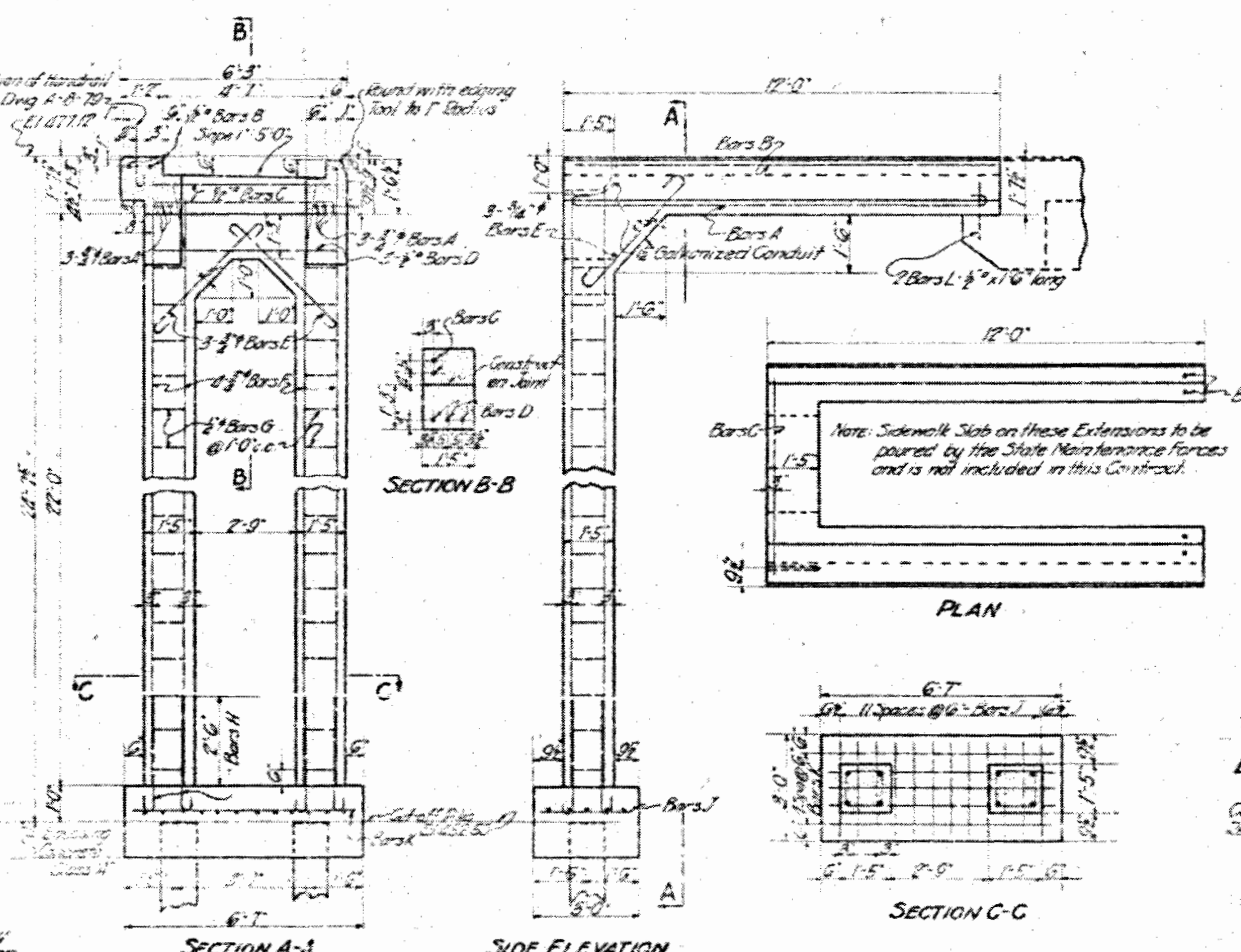
**ESTIMATED QUANTITIES**

ITEM	CONCRETE	STEEL	CONCRETE PILE
SUBSTRUCTURE	76.2	1178.6	207603
1 SIDEWALK EXTENSION	3.6	26.8	3130
ABUTMENT NO. 1	430	714.8	16200
BENT NO. 1	-	12.7	751
BENT NO. 2	-	12.7	751
BENT NO. 3	-	12.7	751
BENT NO. 4	-	12.7	751
BENT NO. 5	-	12.7	751
BENT NO. 6	-	12.7	751
BENT NO. 7	-	12.7	751
BENT NO. 8	-	12.7	751
BENT NO. 9	-	12.7	751
BENT NO. 10	-	12.7	751
BENT NO. 11	-	12.7	751
BENT NO. 12	-	12.7	751
BENT NO. 13	-	12.7	751
BENT NO. 14	-	12.7	751
BENT NO. 15	-	12.7	751
BENT NO. 16	-	12.7	751
BENT NO. 17	-	12.7	751
BENT NO. 18	-	12.7	751
ABUTMENT NO. 2	437	724.8	16200
TOTAL	1082	798	208366

**LIST OF PILES**

LOCATION	LENGTH	TOTAL
Abutment 1	20'-0"	160
Bent 1	20'-0"	160
Bent 2	20'-0"	160
Bent 3	20'-0"	160
Bent 4	20'-0"	160
Bent 5	20'-0"	160
Bent 6	20'-0"	160
Bent 7	20'-0"	160
Bent 8	20'-0"	160
Bent 9	20'-0"	160
Bent 10	20'-0"	160
Bent 11	20'-0"	160
Bent 12	20'-0"	160
Bent 13	20'-0"	160
Bent 14	20'-0"	160
Bent 15	20'-0"	160
Bent 16	20'-0"	160
Bent 17	20'-0"	160
Bent 18	20'-0"	160
Abutment 2	20'-0"	160
TOTAL		2761

**SPECIAL NOTE:**  
Before order is placed above piles shall be driven in these test piles and they may be driven in 7 days after proper curing.  
The firming & handling of these piles shall conform to the Operating Rules & Regulations of the Tennessee Department of Highways and Public Works.

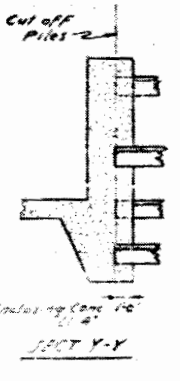
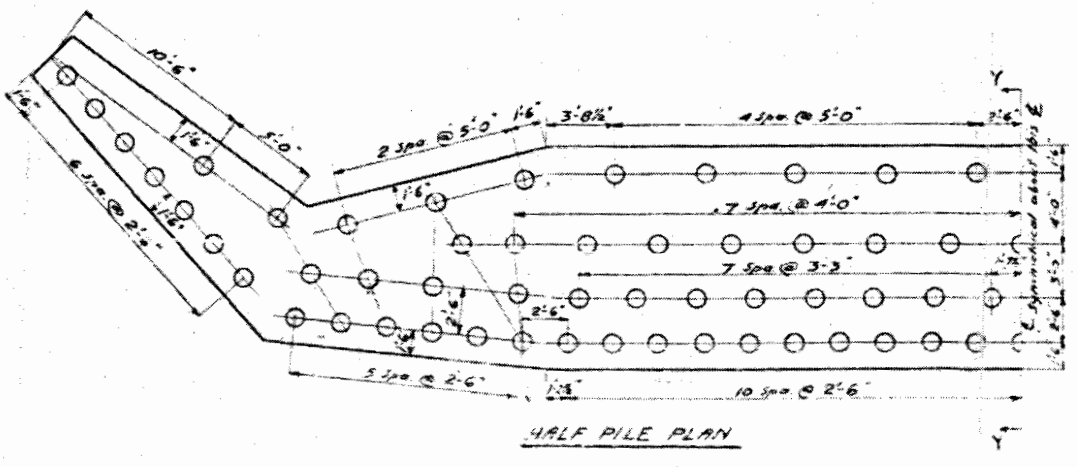
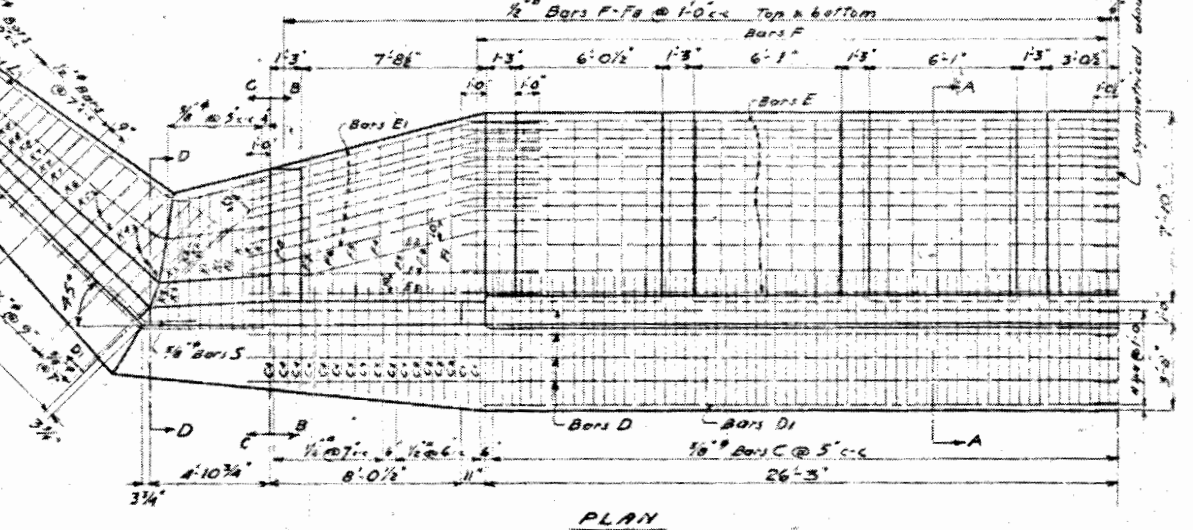
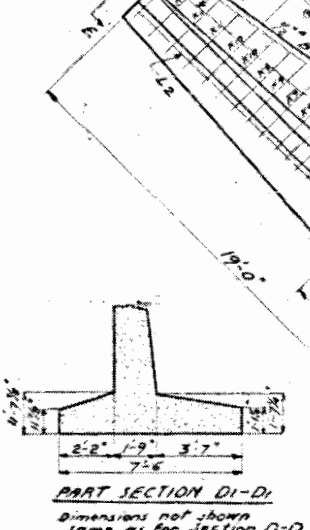
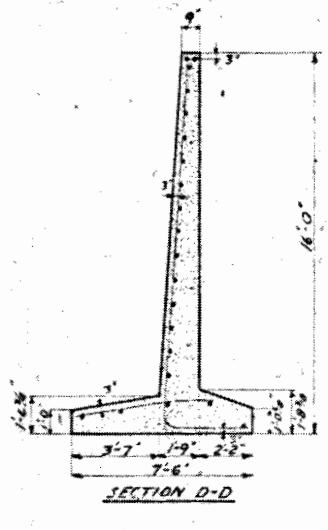
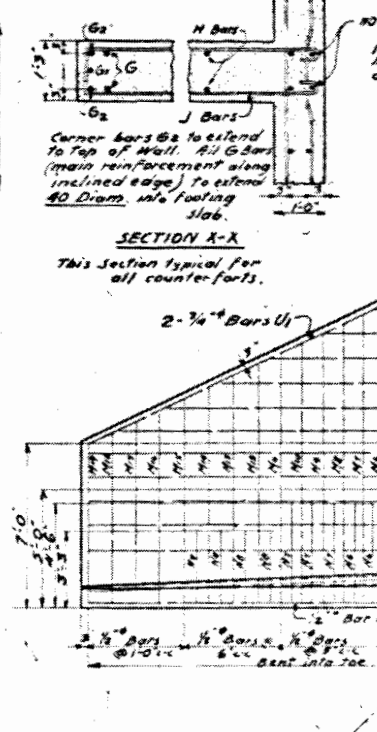
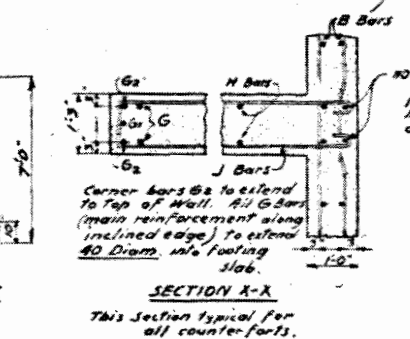
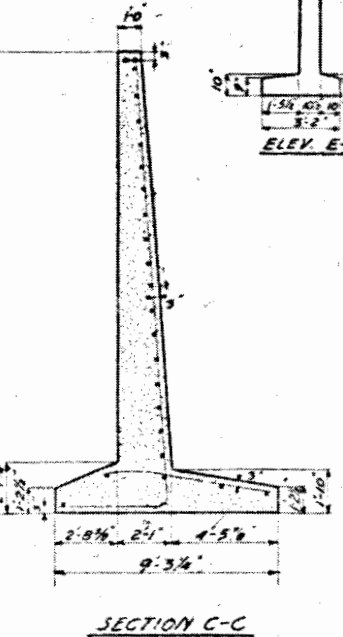
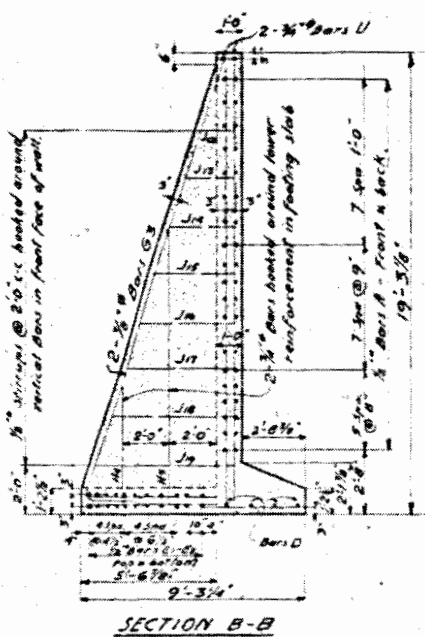
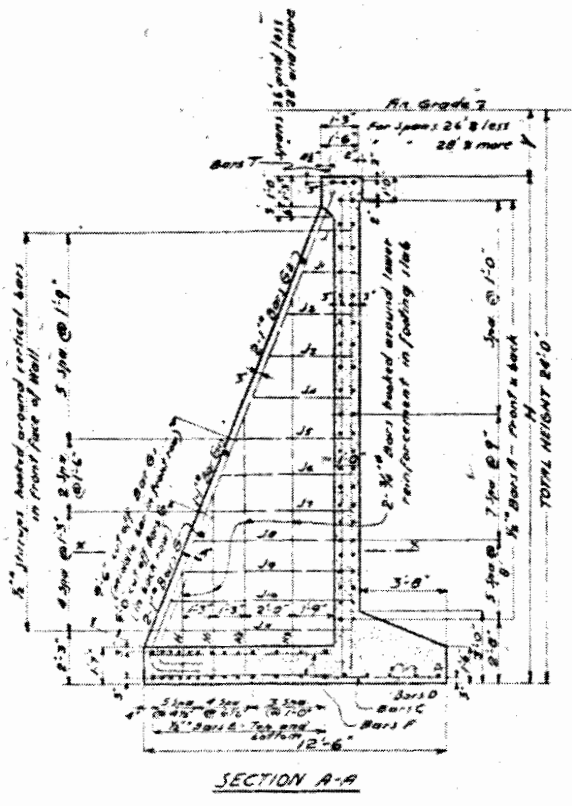


**ESTIMATED QUANTITIES FOR ONE EXTENSION**

CONCRETE CLASS "A"	6.71	CU YDS
CONCRETE CLASS "A"	6.71	CU YDS
REINFORCING STEEL	2.07	TONS

423-007





**BILL OF STEEL**  
CONSTANT FOR ALL V-H

Bar	No.	Size	Length	Bar	No.	Size	Length	Bar	No.	Size	Length
A	20	1/2"	37'-8"	J	8	1/2"	7'-3"	M	2	1/2"	10'-9"
A1	2	3/8"	35'-9"	J1	8	3/8"	8'-8"	M1	2	3/8"	10'-0"
A2	2	3/8"	34'-3"	J2	8	3/8"	10'-1"	M2	2	3/8"	9'-3"
A3	4	1/4"	4'-0"	J3	8	1/4"	11'-3"	M3	2	1/4"	8'-9"
A4	4	1/4"	2'-6"	J4	8	1/4"	12'-9"	M4	2	1/4"	8'-3"
A5	6	3/8"	27'-6"	J5	8	3/8"	13'-11"	M5	2	3/8"	7'-6"
B1	4	1/2"	24'-0"	J6	8	1/2"	15'-0"	N	4	3/8"	10'-3"
B2	4	1/2"	23'-6"	J7	8	1/2"	16'-0"	N1	4	3/8"	10'-0"
B3	4	1/2"	22'-9"	J8	8	1/2"	17'-0"	N2	4	3/8"	9'-0"
B4	4	1/2"	22'-3"	J9	8	1/2"	18'-0"	N3	4	3/8"	8'-9"
B5	4	1/2"	21'-6"	J10	8	1/2"	19'-0"	N4	4	3/8"	7'-6"
B6	4	1/2"	20'-9"	J11	8	1/2"	20'-0"	N5	4	3/8"	7'-3"
B7	4	1/2"	20'-0"	J12	8	1/2"	21'-0"	N6	4	3/8"	6'-6"
B8	8	1/2"	19'-0"	J13	8	1/2"	22'-0"	N7	6	3/8"	6'-3"
C	125	3/8"	5'-6"	J14	2	1/2"	11'-1"	N8	6	3/8"	4'-9"
C1	4	1/2"	5'-0"	J15	2	1/2"	12'-4"	N9	2	1/2"	4'-6"
C2	8	1/2"	4'-9"	J16	2	1/2"	13'-7"	O	2	1/2"	25'-9"
C3	10	1/2"	4'-6"	K	6	5/8"	6'-3"	P	2	1/2"	10'-9"
C4	12	1/2"	4'-3"	K1	6	5/8"	6'-0"	P1	2	1/2"	10'-3"
D	8	1/2"	37'-3"	K2	4	5/8"	5'-9"	P2	2	1/2"	9'-9"
D1	2	1/2"	27'-3"	K3	6	5/8"	5'-6"	P3	2	1/2"	9'-0"
E	52	1/2"	28'-3"	K4	8	5/8"	5'-3"	P4	2	1/2"	8'-0"
E1	36	1/2"	12'-6"	K5	6	5/8"	5'-0"	P5	2	1/2"	9'-9"
E2	4	1/2"	10'-3"	K6	2	5/8"	4'-9"	P6	2	1/2"	9'-0"
E3	8	1/2"	12'-3"	K7	8	5/8"	4'-3"	P7	2	1/2"	8'-0"
F	108	3/8"	7'-6"	K8	8	5/8"	4'-0"	P8	2	1/2"	9'-6"
F1	4	1/2"	7'-3"	K9	8	5/8"	3'-9"	P9	2	1/2"	9'-0"
F2	4	1/2"	7'-0"	K10	4	5/8"	3'-6"	P10	2	1/2"	8'-6"
F3	4	1/2"	6'-9"	K11	4	5/8"	3'-3"	P11	2	1/2"	8'-0"
F4	4	1/2"	6'-6"	K12	2	5/8"	3'-0"	P12	2	1/2"	8'-0"
F5	4	1/2"	6'-3"	K13	2	5/8"	2'-9"	R	2	1/2"	2'-0"
F6	4	1/2"	6'-0"	L	2	1/2"	20'-0"	R1	2	1/2"	3'-6"
F7	4	1/2"	5'-9"	L1	2	1/2"	21'-6"	R2	2	1/2"	5'-9"
F8	4	1/2"	5'-6"	L2	2	1/2"	23'-3"	R3	2	1/2"	7'-2"
G	16	1/2"	9'-4"	M	4	3/4"	13'-3"	R4	2	1/2"	11'-9"
G1	8	1/2"	12'-10"	M1	4	3/4"	13'-0"	R5	2	1/2"	13'-9"
G2	8	1/2"	12'-10"	M2	4	3/4"	11'-9"	R6	2	1/2"	15'-9"
H	16	3/4"	5'-0"	M3	4	3/4"	11'-6"	R7	2	1/2"	17'-9"
H1	16	3/4"	8'-3"	M4	4	3/4"	9'-6"	R8	2	1/2"	20'-0"
H2	16	3/4"	11'-6"	M5	2	3/4"	14'-6"	R9	2	1/2"	22'-0"
H3	16	3/4"	16'-6"	M6	2	3/4"	14'-0"	S	26	1/2"	4'-3"
H4	4	1/2"	6'-0"	M7	2	3/4"	13'-6"	S1	4	3/4"	17'-0"
H5	4	1/2"	12'-3"	M8	2	3/4"	13'-0"	S2	4	3/4"	23'-6"
J	8	1/2"	4'-5"	M9	2	3/4"	12'-6"	T	4	3/4"	11'-9"
J1	8	1/2"	5'-10"	M10	2	3/4"	11'-3"	U	4	3/4"	23'-6"
J2	8	1/2"	5'-10"	M11	2	3/4"	11'-3"	U1	4	3/4"	23'-6"
J3	8	1/2"	5'-10"	M12	2	3/4"	11'-3"	U2	4	3/4"	23'-6"
J4	8	1/2"	5'-10"	M13	2	3/4"	11'-3"	U3	4	3/4"	23'-6"

**VALUES OF V x H**  
AND ESTIMATED QUANTITIES

V	H	Concrete cu yds.	Reinf. Steel Lbs.
2'-0"	22'-0"	178.6	16365
2'-2"	21'-10"	178.1	16343
2'-3"	21'-9"	177.8	16236
2'-4"	21'-8"	177.5	16214
2'-5"	21'-7"	177.2	16200
2'-6"	21'-6"	177.0	16200
2'-7"	21'-5"	178.1	16200
2'-9"	21'-3"	177.5	16164
2'-10"	21'-2"	177.2	16142
2'-11"	21'-1"	176.9	16129
3'-1"	20'-11"	176.3	16107
3'-2"	20'-10"	175.0	16093
3'-3"	20'-9"	175.8	16093

NOTE: For a Fixed End on Abutment add 18 - 3/4" Bars T - 2'-0" = 55 Lbs.  
NOTE: When piles are used add 38.6 cu yds. of C1 A' Conc. for encasing. Length of piles is noted on Layout Sheet for each bridge.

Special Note: When pouring bridge seat for spans of 26' and less provision shall be made for setting bolts for bearing plates. Location of these plates is shown on Layout Sheet for each bridge.

\* Tile Drains @ 5'-0" c-c to be placed in Abutment and Wingwalls at lowest point practical for good drainage.

**ADDITIONAL BILL OF STEEL**

V	H	Bars A3	Bars B	Bars G2						
No.	Size	Length	No.	Size	Length	No.	Size	Length		
2'-0"	22'-0"	4	1/2"	32'-9"	102	1/2"	21'-6"	16	1"	24'-9"
2'-2"	21'-10"	4	1/2"	32'-9"	102	1/2"	21'-3"	16	1"	24'-9"
2'-3"	21'-9"	4	1/2"	32'-9"	102	1/2"	21'-3"	16	1"	24'-9"
2'-4"	21'-8"	4	1/2"	32'-9"	102	1/2"	21'-0"	16	1"	24'-6"
2'-5"	21'-7"	4	1/2"	32'-9"	102	1/2"	21'-0"	16	1"	24'-6"
2'-6"	21'-6"	4	1/2"	32'-9"	102	1/2"	21'-0"	16	1"	24'-6"
2'-7"	21'-5"	4	1/2"	32'-9"	102	1/2"	21'-0"	16	1"	24'-6"
2'-9"	21'-3"	4	1/2"	32'-9"	102	1/2"	20'-9"	16	1"	24'-0"
2'-10"	21'-2"	4	1/2"	32'-9"	102	1/2"	20'-6"	16	1"	24'-0"
2'-11"	21'-1"	4	1/2"	32'-9"	102	1/2"	20'-6"	16	1"	23'-9"
3'-1"	20'-11"	4	1/2"	32'-9"	102	1/2"	20'-5"	16	1"	23'-9"
3'-2"	20'-10"	4	1/2"	32'-9"	102	1/2"	20'-5"	16	1"	23'-6"
3'-3"	20'-9"	4	1/2"	32'-9"	102	1/2"	20'-3"	16	1"	23'-6"

**GENERAL NOTES:**  
Specifications: Stand. Road & Bridge Specifications of the Tennessee Dep. of Highways & Public Works.  
Concrete: Shall be C1 A'.  
Reinf. Steel: See Specifications.  
Forms & Finish: See Specifications.  
Rock Foundation: See Specifications.

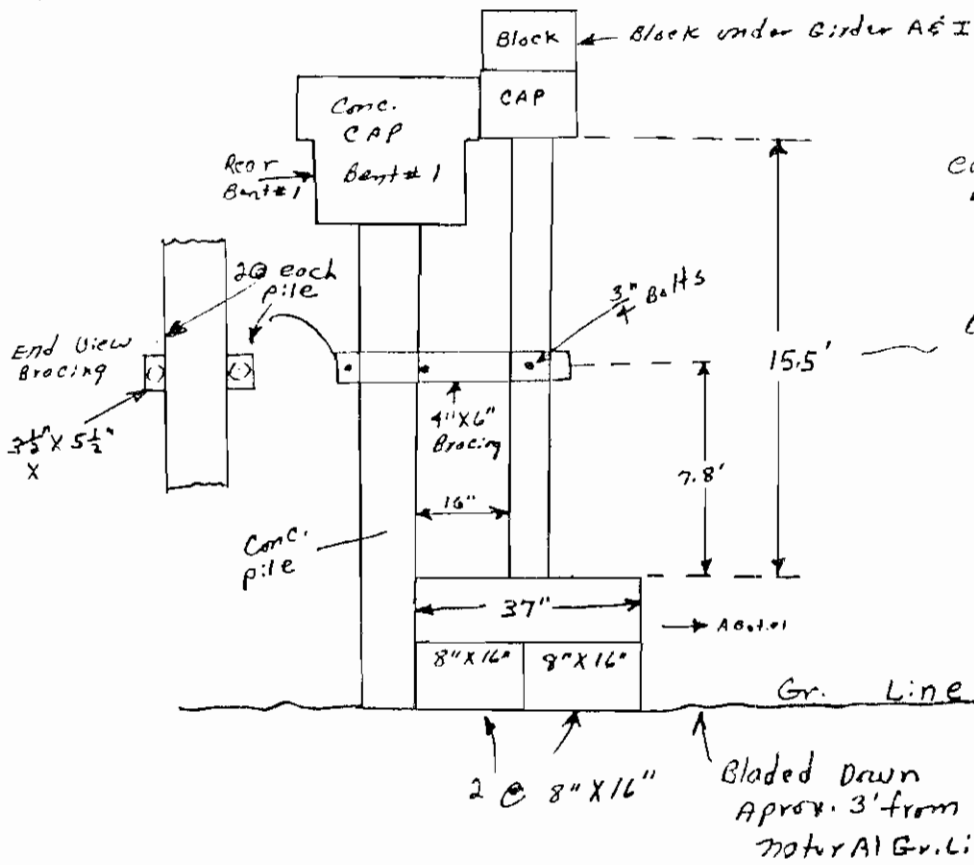
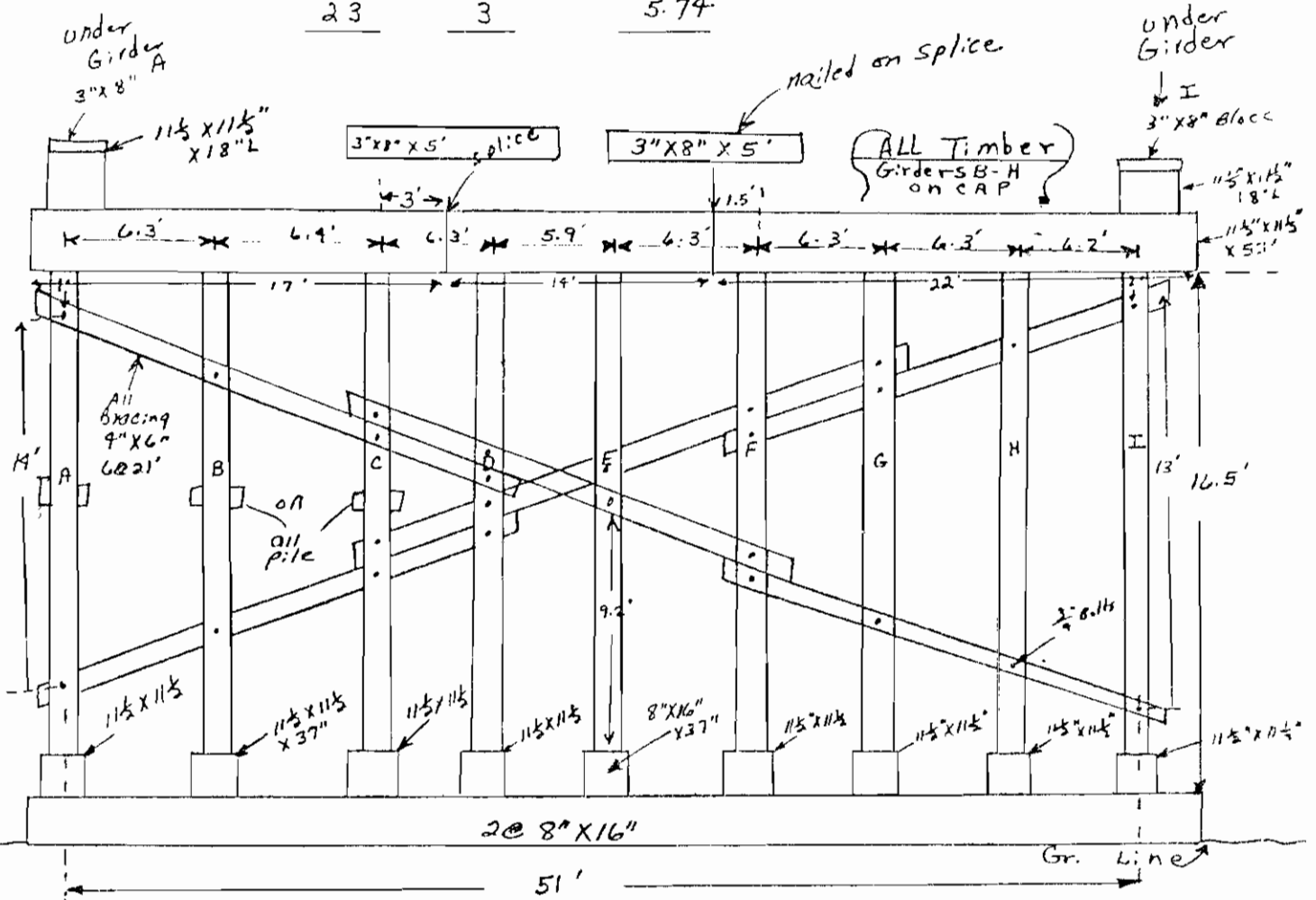
STATE OF TENNESSEE  
DEPARTMENT OF HIGHWAYS  
AND PUBLIC WORKS  
NASHVILLE  
STANDARD  
**CONCRETE ABUTMENT**  
COUNTERFORT TYPE  
TOTAL HEIGHT 24'-0" SKEW 50'  
ROADWAY 40'-0" 2'-5'-0" SIDEWALKS



SEP 29 1981

9-29-81  
Brene Crew

23      3      5.74



each pile directly under each girder

Bracing on all 9 Conc. piling (all Treated Tmb) . all piling min. 10"

Bracing 4" x 6" Bolts 3/4"

Field drawing not to scale

SEP 29 1981

9-29-81  
Beene Crew

23      3      5.74

