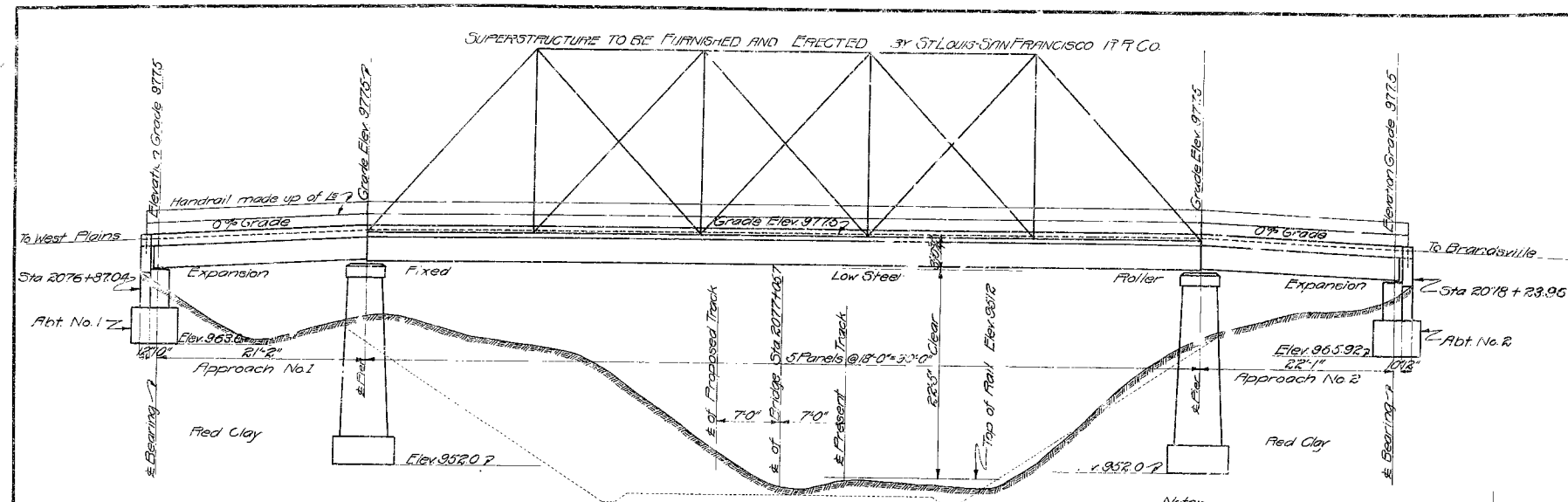
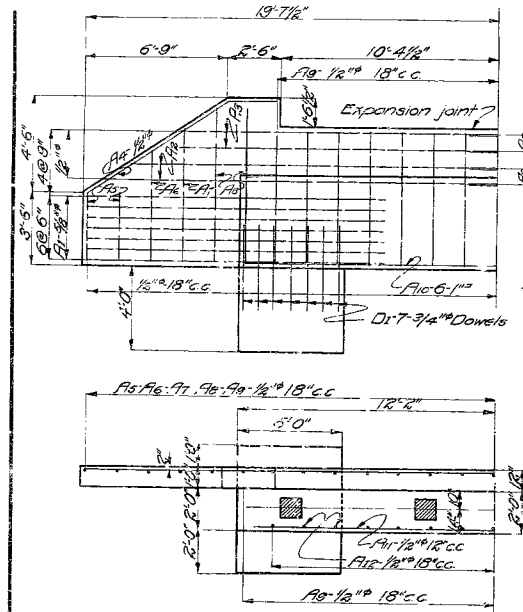


26



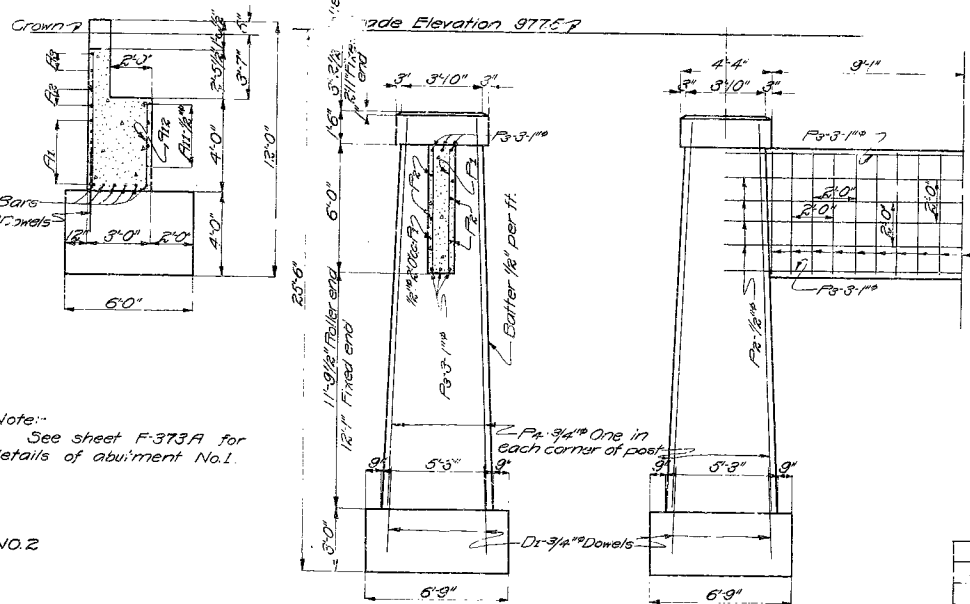
GENERAL ELEVATION

Note: Set masonry plates parallel to grade.

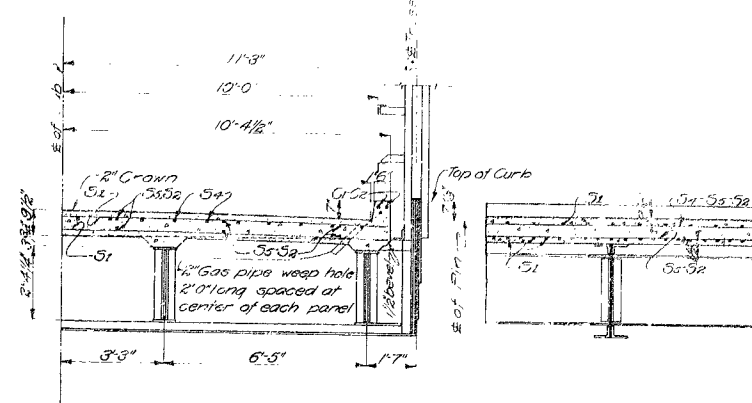


DETAILS OF ABUTMENT NO. 2

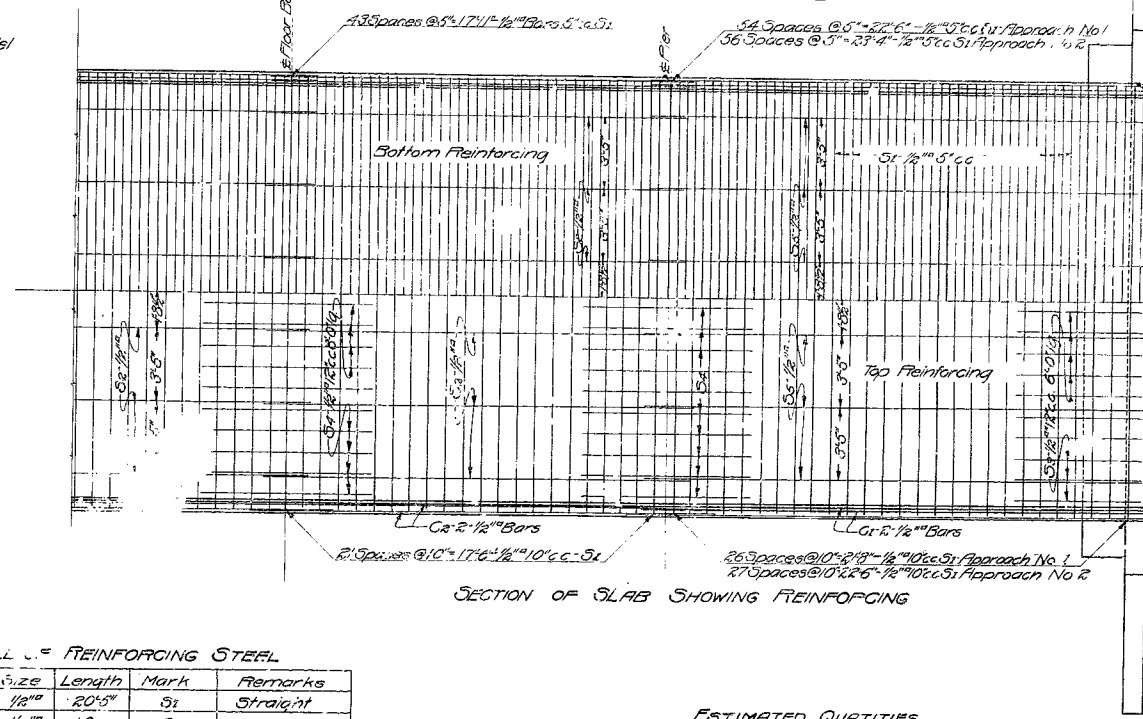
Note: See sheet F-373A for details of abutment No. 1.



DETAILS OF PIER



DETAILS OF FLOOR SLAB



SECTION OF SLAB SHOWING REINFORCING

| REINFORCING STEEL |      |        |      |                 |
|-------------------|------|--------|------|-----------------|
| No.               | Size | Length | Mark | Remarks         |
| 40                | 1/2" | 20'-5" | S1   | Straight        |
| 60                | 1/2" | 19'    | S2   | "               |
| 40                | 1/2" | 6'-0"  | S3   | "               |
| 120               | 1/2" | 8'-0"  | S4   | "               |
| 24                | 1/2" | 25'-0" | S5   | "               |
| 8                 | 1/2" | 25'-0" | C1   | "               |
| 20                | 1/2" | 19'-4" | C2   | "               |
| 32                | 1/2" | 5'-8"  | P1   | "               |
| 8                 | 1/2" | 22'-0" | P2   | "               |
| 12                | 1"   | 25'-0" | P3   | "               |
| 30                | 3/4" | 4'-0"  | D1   | "               |
| 14                | 3/8" | 14'-0" | A1   | "               |
| 4                 | 1/2" | 18'-6" | A2   | "               |
| 4                 | 1/2" | 16'-3" | A3   | "               |
| 2                 | 1/2" | 10'-8" | A4   | Remain in place |
| 4                 | 1/2" | 3'-4"  | A5   | Straight        |
| 2                 | 1/2" | 3'-4"  | A6   | "               |
| 2                 | 1/2" | 6'-4"  | A7   | "               |
| 4                 | 1/2" | 7'-4"  | A8   | "               |
| 15                | 3/4" | 6'-3"  | A9   | "               |
| 6                 | 1/2" | 24'-0" | A10  | "               |
| 4                 | 1/2" | 23'-0" | F-1  | "               |
| 15                | 3/4" | 19'-0" | F-2  | "               |
| 15                | 1/2" | 5'-8"  | A12  | "               |

| ESTIMATED QUANTITIES |              |                      |       |           |
|----------------------|--------------|----------------------|-------|-----------|
| Descr.               | Slab & Curb  | 14' Span Slab & Curb | Piers | Abutments |
| 12-3 Concrete        | 59.9 Cu. Yd. | 31.2 Cu. Yd.         |       |           |
| 12-4 Concrete        |              |                      | 89.9  | 61.8      |
| Rein Steel           | 7.10         | 37.10                | 16.50 | 23.60     |
|                      |              |                      |       | 155.30    |

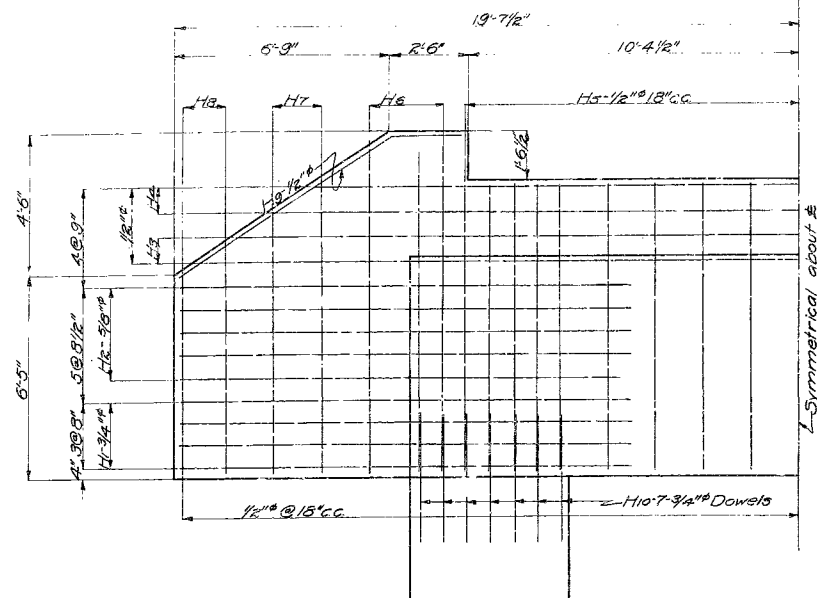
MISSOURI STATE HIGHWAY DEPARTMENT  
 BRIDGE OVER RAILROAD  
 STATE ROAD FROM SPRINGFIELD TO MEMPHIS  
 ABOUT 1 MILE NORTH OF BRANDSVILLE  
 PROJECT No. 51C STA. 2076+87.04  
 HOWELL COUNTY

Submitted by *Chas. D. Mann*  
 Approved by *Chas. D. Mann*  
 BRIDGE ENGINEER  
 STATE HIGHWAY ENGINEER

Drawn Mar., 1922 by S.I.W.  
 Ch'kd Mar., 1922 by B.C.B.

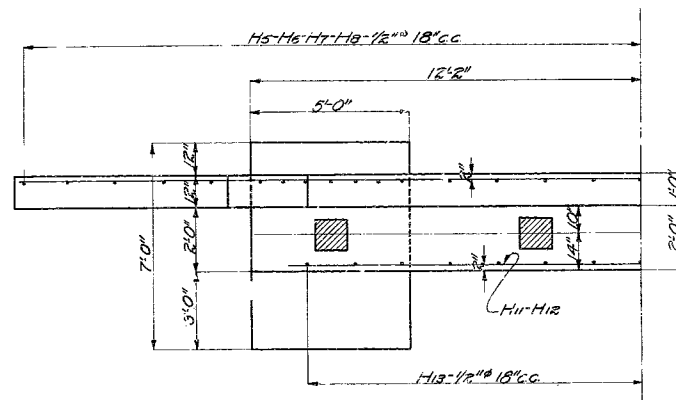
195

| STATE | FED. AID | FISCAL | SHEET | TOTAL  |
|-------|----------|--------|-------|--------|
| MO.   | 51C      | 10     | NO.   | SHEETS |



Note:-  
Total revised quantities shown on sheet F-373.  
Both bill of reinforcing shown on this sheet and that shown on sheet F-373 to be used.

HALF ELEVATION SHOWING FILL FACE REINFORCING



BILL OF REINFORCING STEEL

| No. | Size | Length | Mark | Remarks       |
|-----|------|--------|------|---------------|
| 8   | 3/4" | 14'-0" | H1   | Straight      |
| 10  | 3/8" | 14'-0" | H2   | "             |
| 4   | 1/2" | 18'-9" | H3   | "             |
| 4   | 1/2" | 18'-9" | H4   | "             |
| 10  | 1/2" | 9'-0"  | H5   | "             |
| 6   | 1/2" | 10'-6" | H6   | "             |
| 4   | 1/2" | 8'-2"  | H7   | "             |
| 4   | 1/2" | 8'-3"  | H8   | "             |
| 2   | 1/2" | 10'-0" | H9   | Bend in place |
| 14  | 3/4" | 6'-0"  | H10  | Straight      |
| 4   | 3/8" | 22'-0" | H11  | "             |
| 3   | 1/2" | 22'-0" | H12  | "             |
| 15  | 1/2" | 6'-6"  | H13  | "             |
| 5   | 1"   | 24'-0" | H14  | "             |

MISSOURI STATE HIGHWAY DEPARTMENT

BRIDGE OVER RAILROAD

STATE ROAD FROM SPRINGFIELD TO MEMPHIS

ABOUT 1 MILE NORTH OF BRANDSVILLE

PROJECT NO. 51C (R6) STA. 2076+87.04

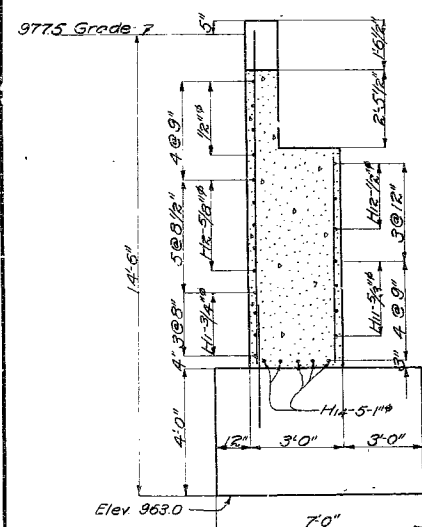
HOWELL COUNTY

SUBMITTED BY *Charles J. Mann* BRIDGE ENGINEER

APPROVED BY *B. H. Hopmeier* STATE HIGHWAY ENGINEER

Replaced By  
F-373R

F-373A



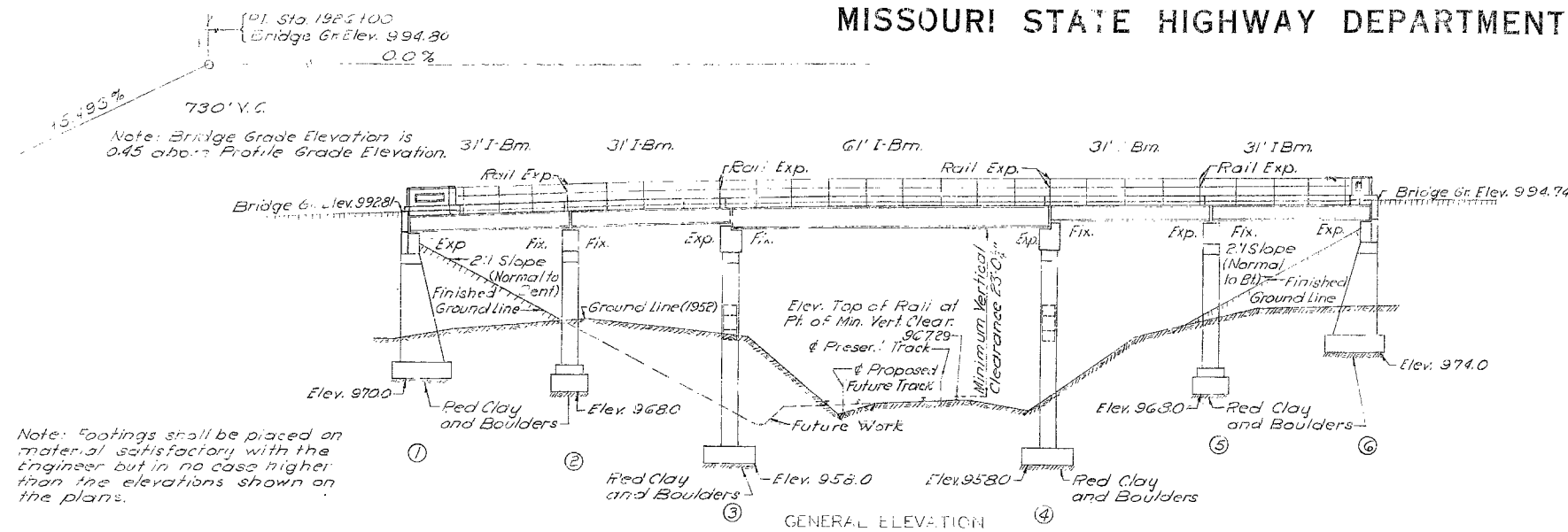
DETAILS OF ABUTMENT NO. 1

Drawn July 1922 by J.A.W.  
Checked July 1922 by G.C.G.

196

# MISSOURI STATE HIGHWAY DEPARTMENT

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| 5                   | MO.   | 1-1-1-1            | 19          |           |              |



GENERAL NOTES:

Design Specifications: A.A.S.H.O. 1953

Loading: H-20-44

Structural Steel Stress: 18,000 #/sq

Reinforcing Steel Stress: 18,000 #/sq

Class "B" Concrete Stress: 1,000 #/sq

All concrete shall be Class "B" (Air Entrained)

A rubbed surface finish will be required on all exposed surfaces of concrete end posts above top of curbs.

Rivets  $\frac{3}{4}$ " holes  $\frac{1}{2}$ " except where otherwise noted.

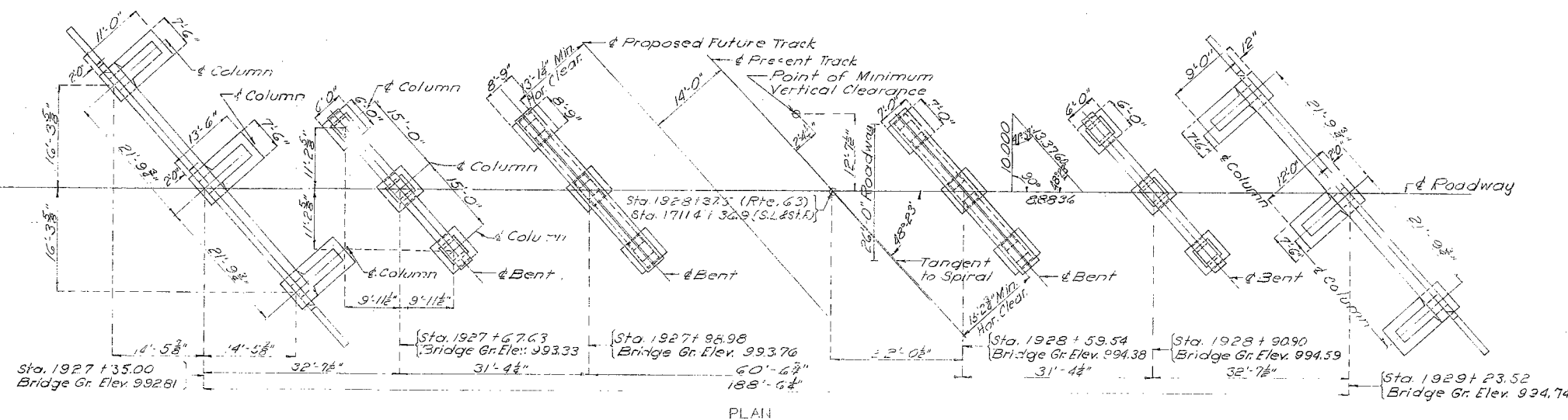
Field connections shall be riveted or if the Contractor desires he may use high tensile steel bolts with carburized washers in place of rivets except for connections noted in handrail details. See Special Provisions.

Paint: Shop, none; Field, contact surfaces of bolted field connections, except where high tensile steel bolts are used, one coat of red lead and surfaces inaccessible after erection three coats of red lead. All other exposed surfaces first coat red lead, second coat brown, third coat aluminum. Payment for cleaning and painting such surfaces will be included in price bid for items painted.

All beams over 55 feet in length shall be shipped by rail to the specified shipping point.

A minimum vertical clearance of 20'-0" from the top of rails and a minimum lateral clearance of 3'-6" from centerline of tracks shall be maintained over railroad tracks during construction.

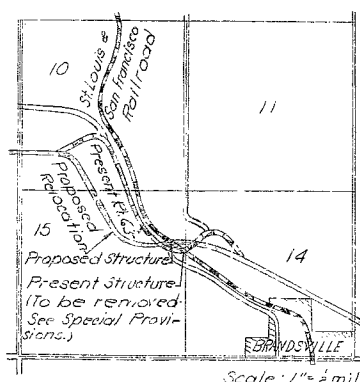
Where joint filler is specified on the plans it shall conform with the requirements for Gray Rubber Compound Joints as given in Section 38-19B(2) of the Standard Specifications.



| ESTIMATED QUANTITIES                     |         |           |         |
|--|---------|-----------|---------|
| Item                                     | Substr. | Superstr. | Total   |
| Class I Excavation for Structures Cu Yds | 170     |           | 170     |
| Class "B" Concrete Cu Yds                | 295.8   | 131.3     | 433.1   |
| Reinforcing Steel Lbs.                   | 30,180  | 55,710    | 65,890  |
| Fabricated Structural Steel Lbs.         |         | 125,600   | 125,600 |
| Gray Iron Alloy Castings Lbs.            |         | 2,550     | 2,550   |

Note: All excavation for bridge shall be paid for as Class I Excavation for Structures.

Concrete in end posts is included with superstructure concrete.



S.M. #137 - Elev. 993.40 Don N.W. Cor. of Abut. Sta. 1925+50

BRIDGE OVER ST. LOUIS - SAN FRANCISCO R.R.

STATE ROAD FROM WEST PLAIN CE TO KOSH-KONONG

ABOUT 1.0 MILE N.W. OF SPANDEVILLE

PROJECT NO. FG-5(1P) (RTE. 63) STA. 1927+35

HOWELL

COUNTY

SUBMITTED BY: J. A. Williams DATE 12/23/1954  
 APPROVED BY: R. M. Whitten DATE 12/23/1954

FINISHED

STD. C-110R3  
 F-373R

Sheet No. 1 of 9

SEE FINAL PLANS BROWN LINES

FINISHED

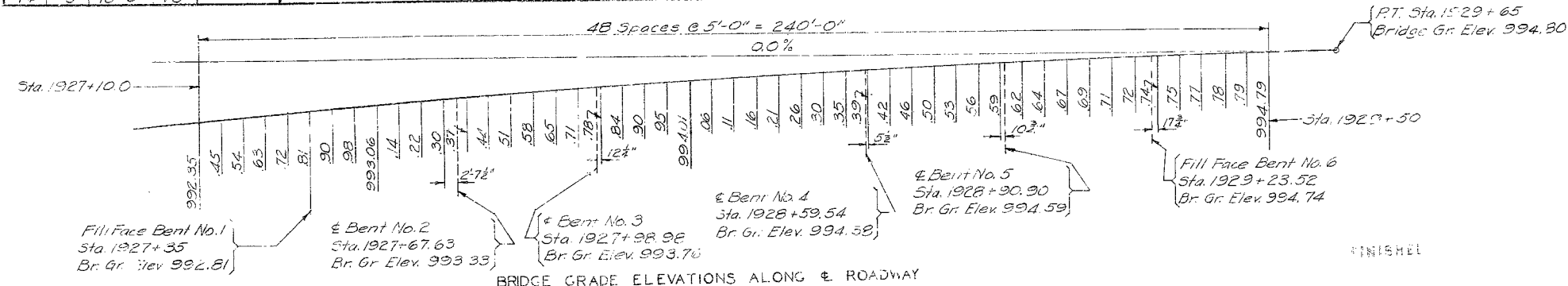
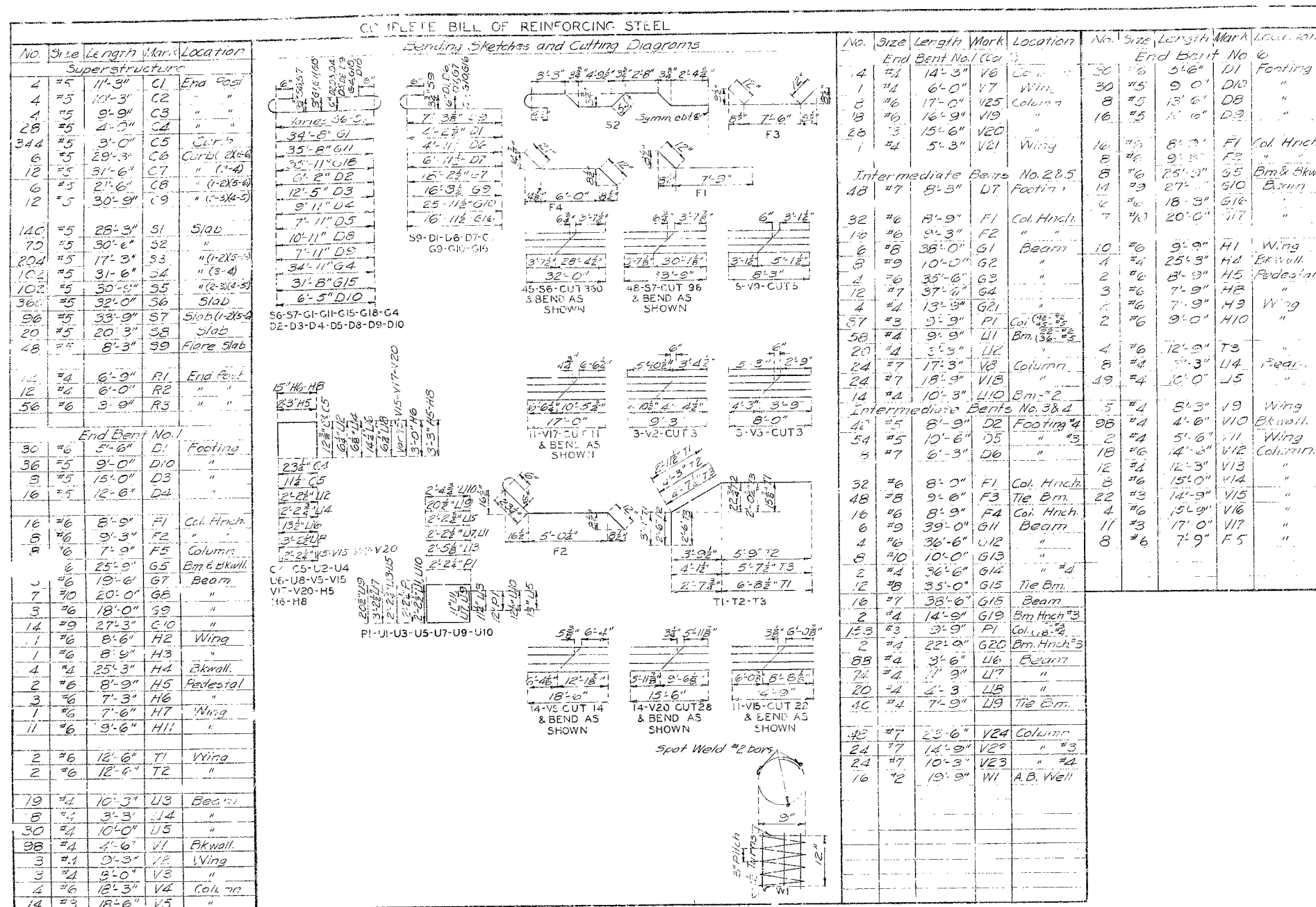
Drawn Nov. 1954 by J.D.M.  
 Checked Dec. 1954 by H.R.B.

Note: This drawing is not to scale. Follow dimensions.

132

# MISSOURI STATE HIGHWAY DEPARTMENT

| PROJECT NO. | SHEET NO. | DATE     | BY | CHECKED | APPROVED |
|-------------|-----------|----------|----|---------|----------|
| 5           | 10        | 12-15-54 | MO |         |          |



BRIDGE OVER ST. LOUIS-SAN FRANCISCO R.R.

STATE ROAD FROM WEST PLAINS S.E. TO KOSHONG

ABOUT 10 MILE N.W. OF BRANDSVILLE

PROJECT NO. FG-54(3) (RT 63) STA. 1927+35

HOWELL

COUNTY

FINISHED

FINISHED

F-373R

Drawn Dec. 1954 by C.H.M.  
Checked Dec. 1954 by H.J.K. & H.R.B.

Note: This drawing is not to scale. Follow dimensions.

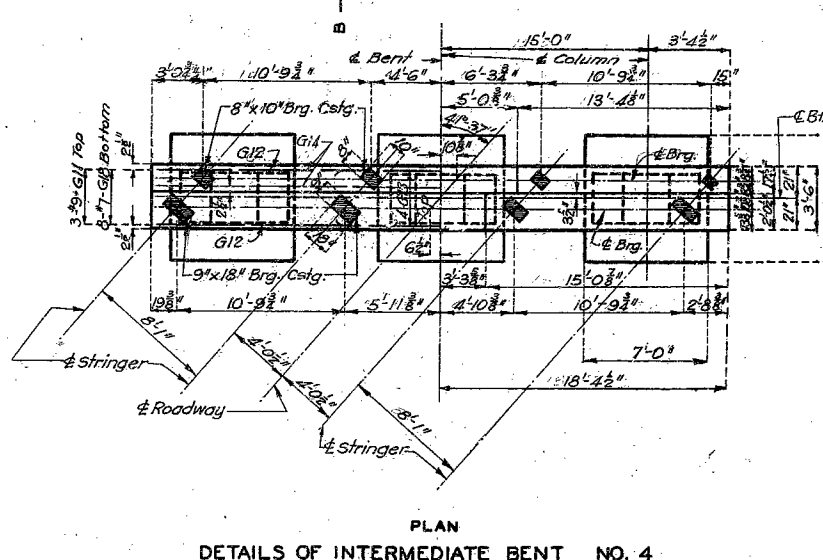
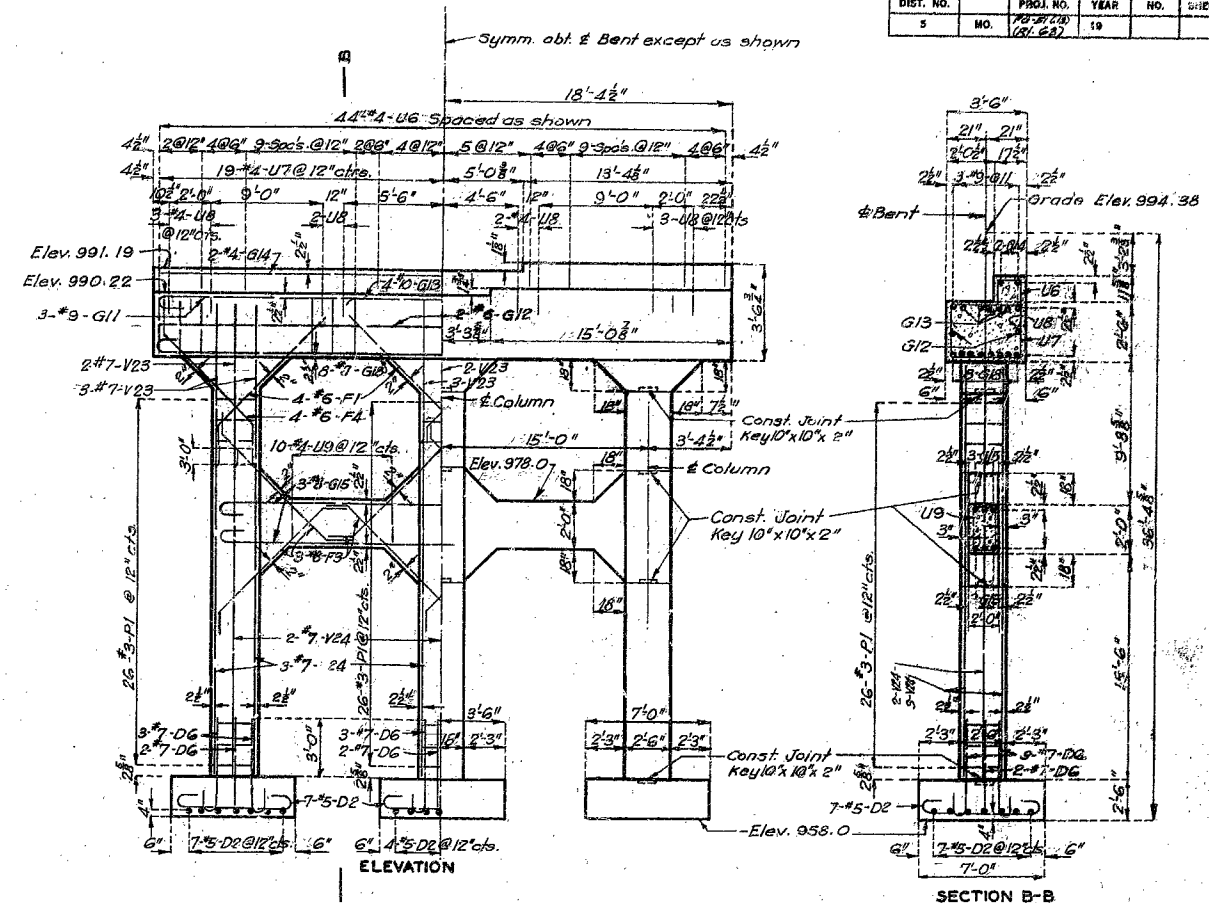
Sheet No. 2 of 3

NO CONSTRUCTION CHANGES



10

10



DETAILS OF INTERMEDIATE BENT NO. 4

STATE ROAD FROM WEST PLAINS S.E. TO KOSHKONONG  
ABOUT 1.0 MILE N.W. OF BRANDSVILLE  
PROJECT NO. FG-51(13) (RT.63) STA. 1927 +35

CONFIDENTIAL

COUNTY

FINISHED

**F-373**

Sheet No 4 of 9

FRANK

2 or 3 Col. Int. } All Loading

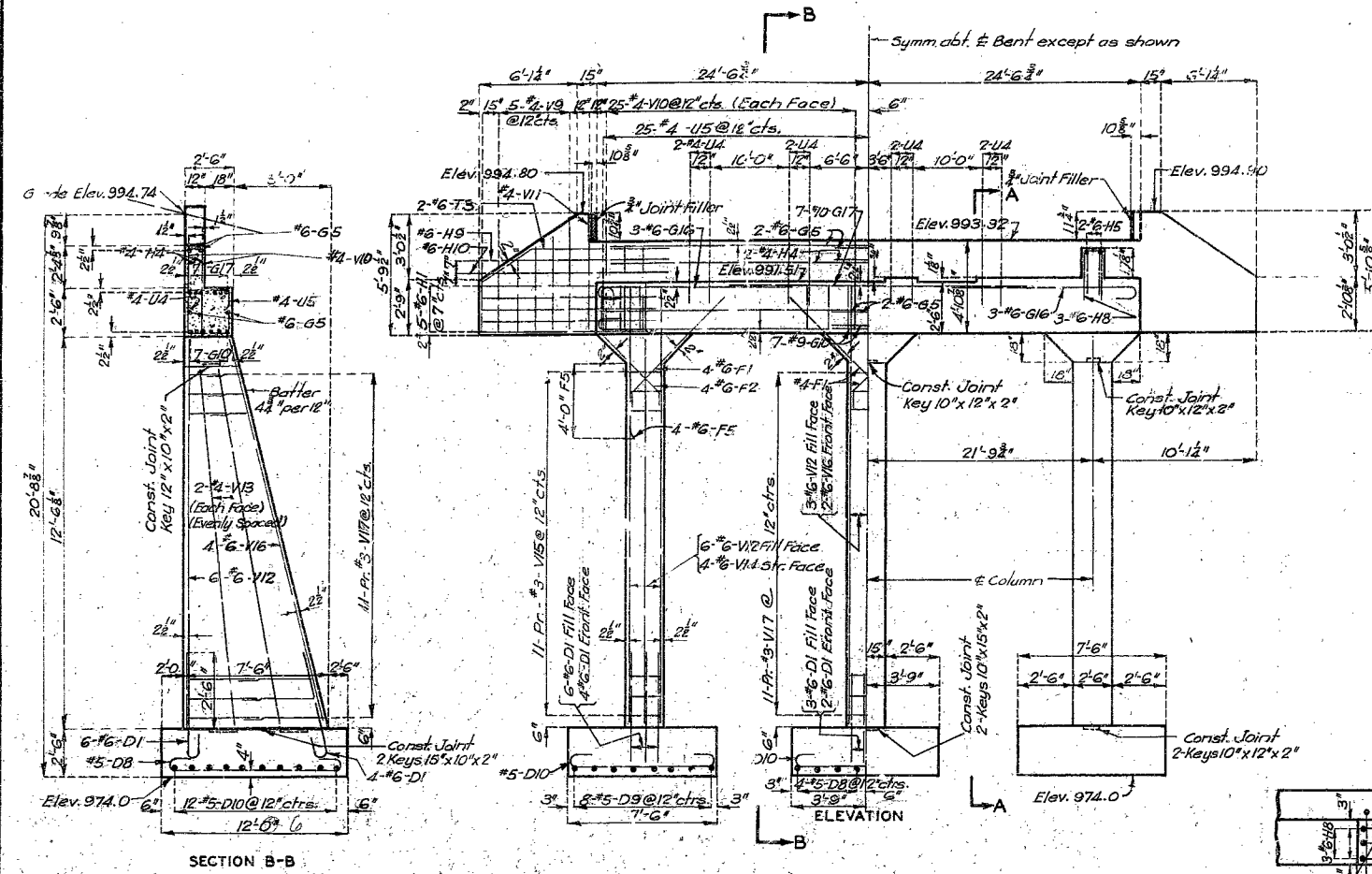
Note: This drawing is not to scale. Follow dimensions

53

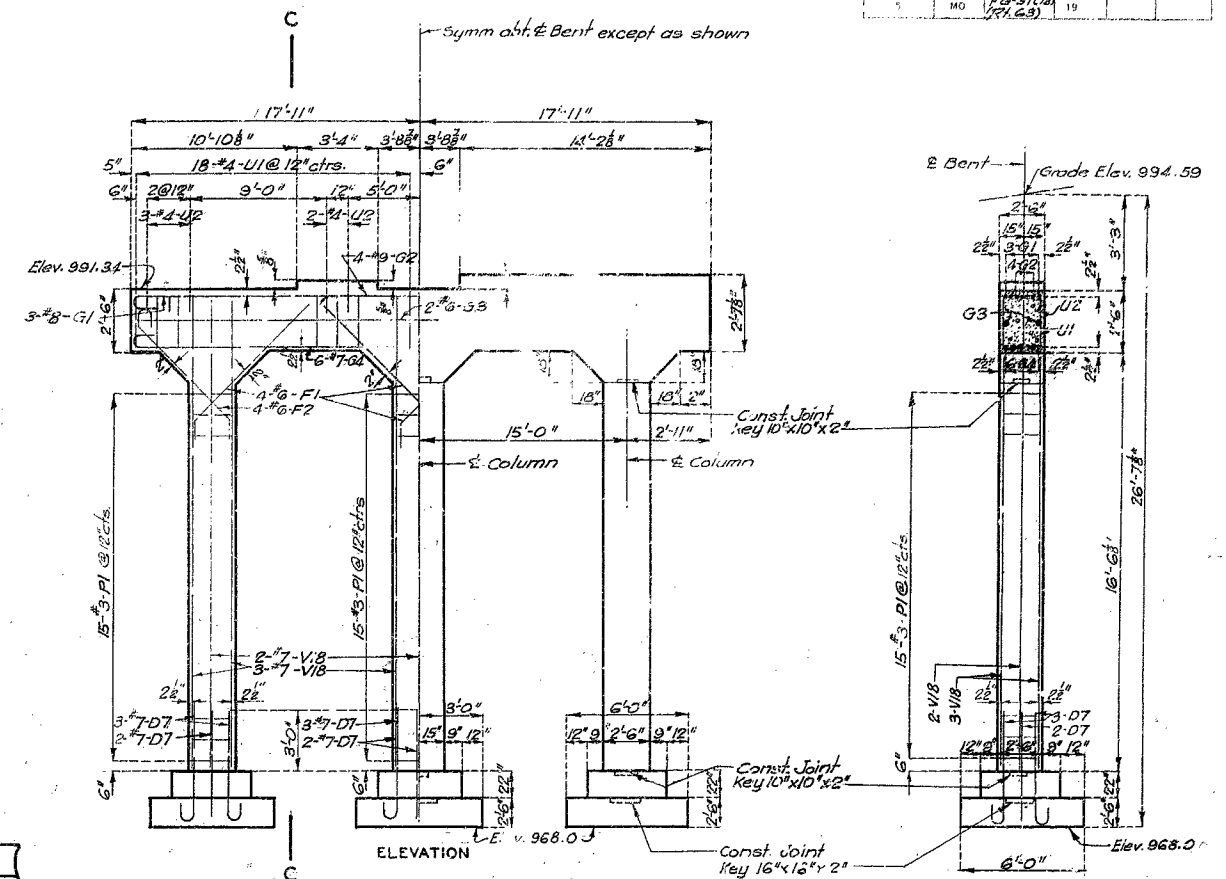


# MISSOURI STATE HIGHWAY DEPARTMENT

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO.  | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|---------------------|-------------|-----------|--------------|
| 5                   | MO    | 7-5-31(13) (RT. 63) | 19          |           |              |

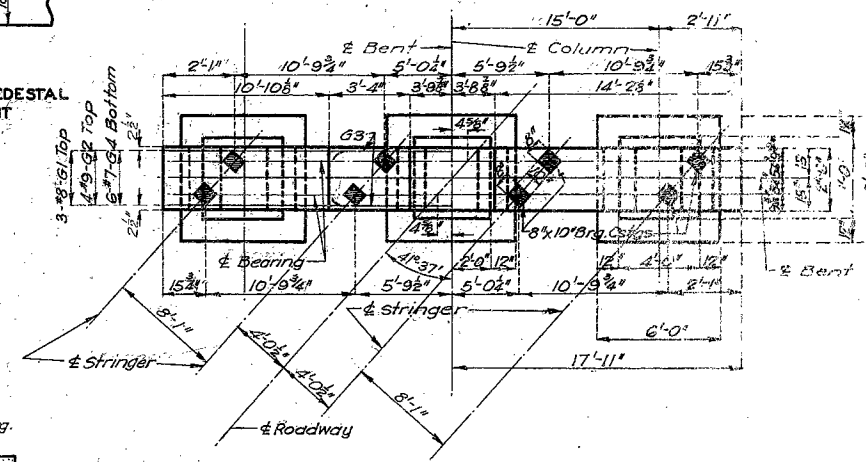


SECTION B-B



SECTION C-C

PLAN SHOWING PEDESTAL REINFORCEMENT



PLAN  
DETAILS OF INTERMEDIATE BENT NO. 5

BRIDGE OVER ST. LOUIS-SAN FRANCISCO R.R.

STATE ROAD FROM WEST PLAINS S.E. TO KOSHKONONG  
ABOUT 1.0 MILE N.W. OF BRANDSVILLE  
PROJECT NO. F6-51 (13) (RT. 63) STA. 1927 ±35

HOWELL COUNTY

FINISHED

F-373R

FINISHED

FINISHED

Sheet No. 5 of 9.

SEE FINAL PLANS BROWN LINES

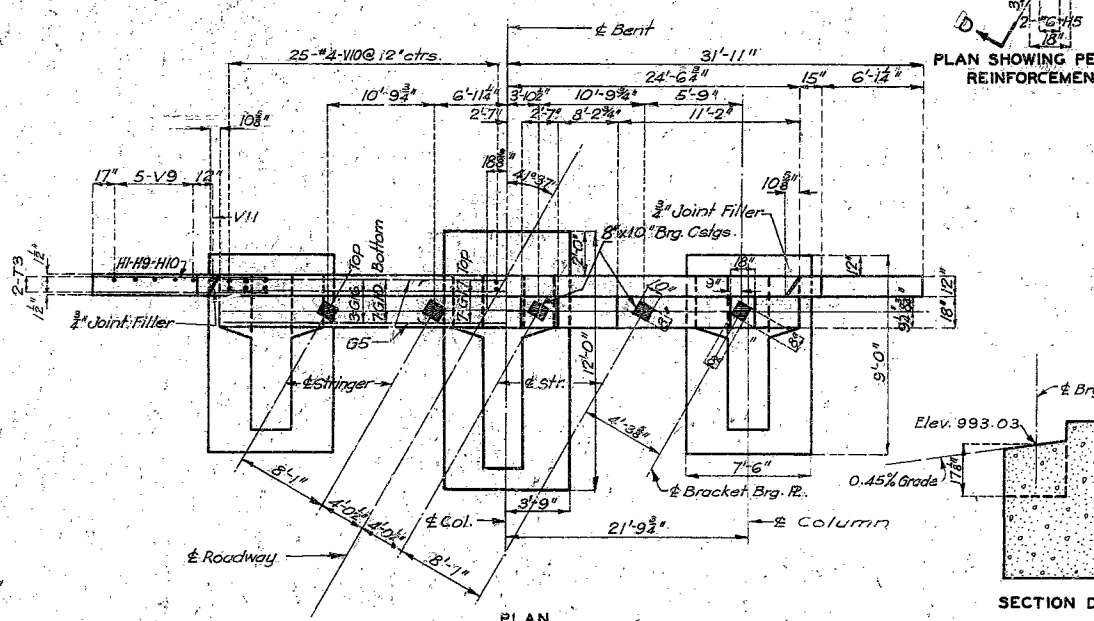
2 Col. End & 2 Col. Int.  
Square & Skewed

H15-H20

Assembled Dec. 1954 by C.H.M.-M.L. & J.F.  
Checked Dec. 1954 by H.J.K. & H.R.B.

Note: This drawing is not to scale. Follow dimensions.

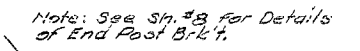
PLAN  
DETAILS OF END BENT NO. 6



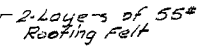
SECTION D-D

136

| FED. ROAD<br>DIST. NO. | STATE | FED AID<br>PROJ. NO.  | FISCAL<br>YEAR | SHEET<br>NO. | TOTAL<br>SHEETS |
|------------------------|-------|-----------------------|----------------|--------------|-----------------|
| 3                      | MO.   | PG-17 (15)<br>(R+ 63) | 19             |              |                 |



Note: Dimensions shown are measured parallel to grade along top of roadway slab.

[illegible]

Note: Holes for all 1 1/4" anchor bolts shall be formed in sub-structure by placing and setting with template 4" walls of depth shown.

Grout for anchor bolt wells shall contain Iron Oxide. (Embo or an approved equivalent)

BRIDGE OVER ST. LOUIS — SAN FRANCISCO R.R.

STATE ROAD FROM WEST PLAINS S.E. TO KOSHKONONG

**ABOUT 1.0 MILE N.W. OF GRANDVILLE.**

PROJECT NO. FG-51(13) (RT. 63) STA. 1927 + 35

HOWELL.

COUNTY

FINISHED

FINISHED

FINISHED

Sheet No. 6 of 9.

NO CONSTRUCTION CHANGES

F-373R

Drawn Dec. 1954 by H.R.B.  
Checked Dec. 1954 by D.B.

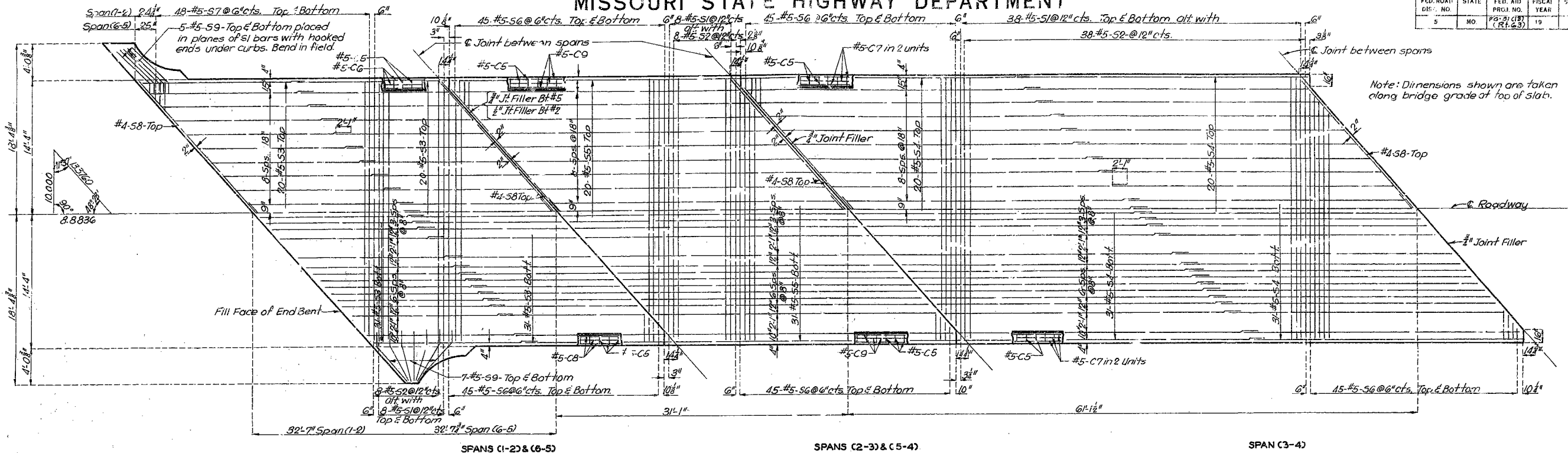
**Note:** This drawing is not to scale. Follow dimensions.

✓  
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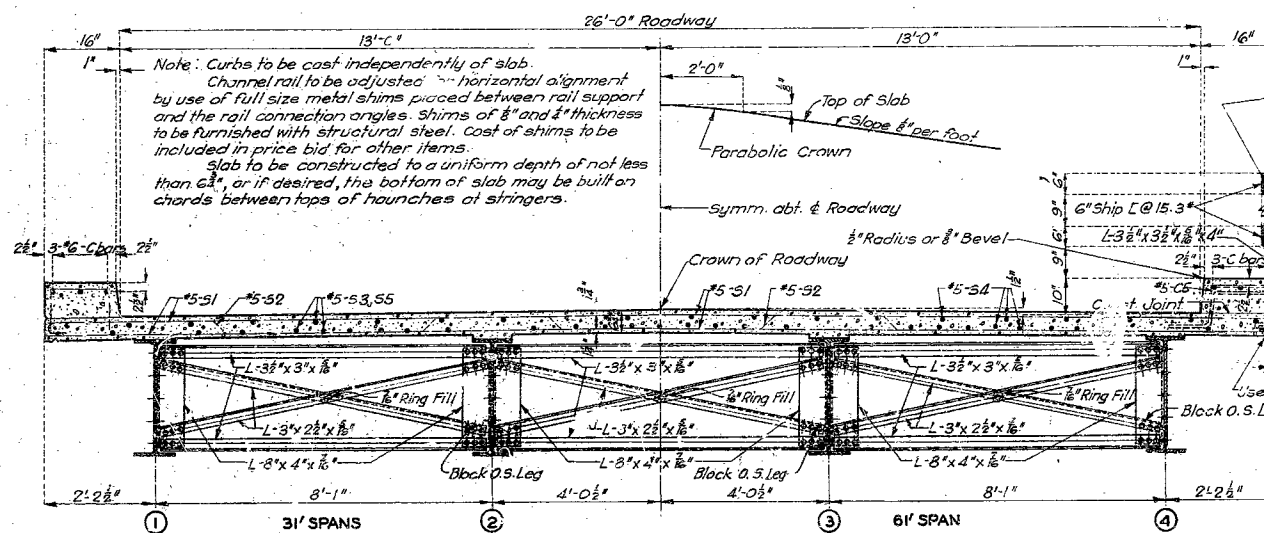
# MISSOURI STATE HIGHWAY DEPARTMENT

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO.  | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|---------------------|-------------|-----------|--------------|
| 5                   | MO    | FG-51 (13) (RT. 63) | 19          |           |              |

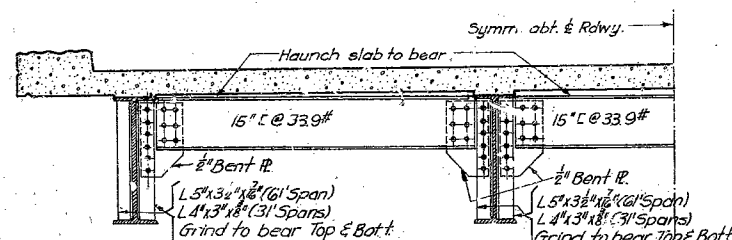


Note: Dimensions shown are taken along bridge grade at top of slab.

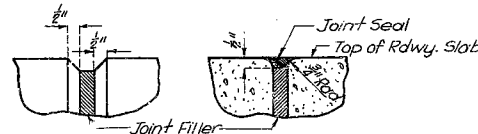
PLAN OF SLAB SHOWING REINFORCING STEEL



SECTIONS SHOWING INTERMEDIATE DIAPHRAGMS

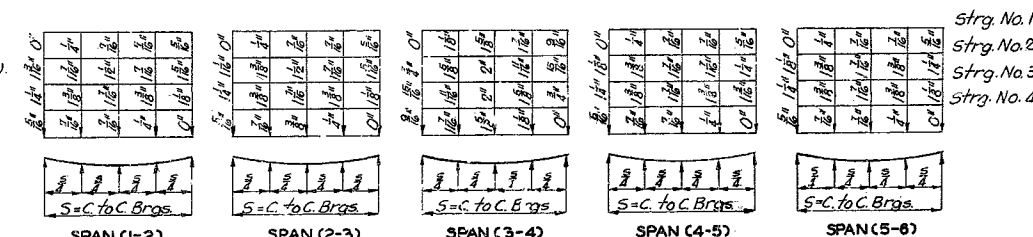


SECTION SHOWING END CHANNEL SEPARATORS



Note: Use bevel as shown for exposed faces of all filled joints except at top surface of roadway slab. Use edging to 1/4" radius at top surface of roadway slab each side of joint and fill flush with joint seal as shown.

DETAILS OF BEVEL FOR FILLED JOINTS



SLAB HAUNCHING DIAGRAMS

Note: Slab shall be built parallel to grade and to a minimum thickness of 6". Dead load deflection, vertical curve, crown, and difference in depth of stringers shall be taken care of by haunching to stringers by the amounts shown above. This additional concrete is included in estimated quantities.

## BRIDGE OVER ST. LOUIS-SAN FRANCISCO R.R.

STATE ROAD FROM WEST PLAINS S.E. TO KOSHKONONG  
ABOUT 1.0 MILE N.W. OF BRANDSVILLE  
PROJECT NO. FG-51 (13) (RT. 63) STA. 1927 +35

HOWELL COUNTY

FINISHED

F-373R

Assembled Dec. 1954 by D.B. & W.G.S.  
Checked Dec. 1954 by H.R.B.

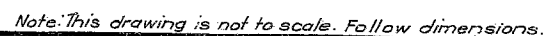
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 7 of 9

NO CONSTRUCTION CHANGES

13

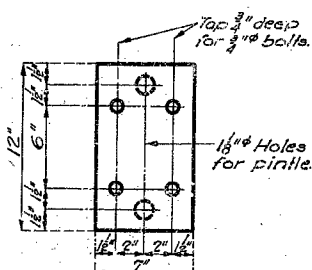
Traced Dec. 1954 By J. T. F.  
Checked Dec. 1954 By H. R. B. & D. B.



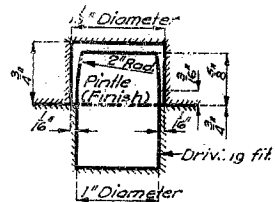
# MISSOURI STATE HIGHWAY DEPARTMENT

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
|                     | MO.   | RT. 63             | 19          |           |              |

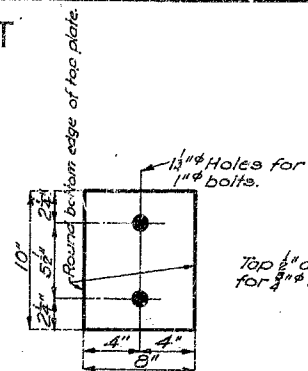
| THICKNESS OF FILL PLATES |          |           |  |
|--------------------------|----------|-----------|--|
| Span No. Bent No.        | Str. No. | Thickness |  |
| (1-2)                    | 1        | 2"        |  |
|                          | 2        | 2"        |  |
|                          | 3        | 2"        |  |
|                          | 4        | 2"        |  |
| (1-2)                    | 2        | 1"        |  |
|                          | 3        | 1"        |  |
|                          | 4        | 1"        |  |
|                          | 5        | 1"        |  |
| (2-3)                    | 2        | 1"        |  |
|                          | 3        | 1"        |  |
|                          | 4        | 1"        |  |
|                          | 5        | 1"        |  |
| (2-3)                    | 3        | 1"        |  |
|                          | 4        | 1"        |  |
|                          | 5        | 1"        |  |
|                          | 6        | 1"        |  |
| (3-4)                    | 3        | 1"        |  |
|                          | 4        | 1"        |  |
|                          | 5        | 1"        |  |
|                          | 6        | 1"        |  |
| (3-4)                    | 4        | 1"        |  |
|                          | 5        | 1"        |  |
|                          | 6        | 1"        |  |
|                          | 7        | 1"        |  |
| (4-5)                    | 4        | 1"        |  |
|                          | 5        | 1"        |  |
|                          | 6        | 1"        |  |
|                          | 7        | 1"        |  |
| (4-5)                    | 5        | 1"        |  |
|                          | 6        | 1"        |  |
|                          | 7        | 1"        |  |
|                          | 8        | 1"        |  |
| (5-6)                    | 5        | 1"        |  |
|                          | 6        | 1"        |  |
|                          | 7        | 1"        |  |
|                          | 8        | 1"        |  |



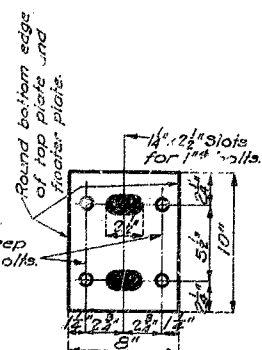
TOP PLATE - EXP.



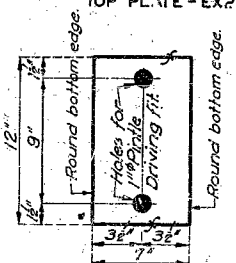
DETAIL OF PINTLE  
16 - Required



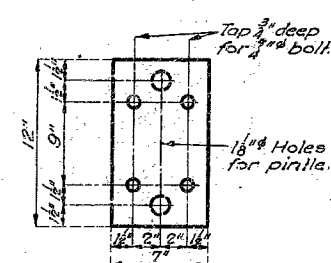
BOTTOM PLATES



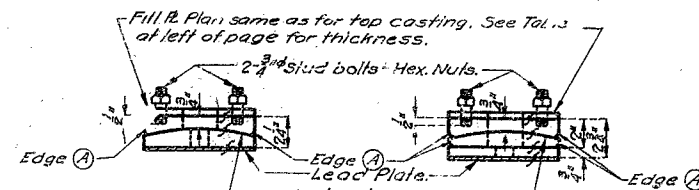
TOP PLATES



FLOATER PLATE - EXP.



TOP PLATE - FIX.



END ELEVATION - EXP.

END ELEVATION - EXP.

Required: 16 Sets

Each set consists of 5 plates each.

TYPE "C"

GENERAL NOTES:

Finish all surfaces marked X.

Material for Type "B" and Type "C" castings shall be either gray iron alloy or cast steel but payment will be made as Gray Iron Alloy.

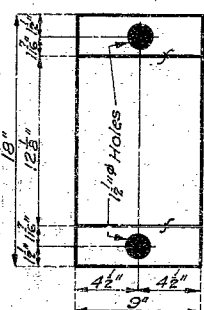
Anchor bolts for Type "B" shall be 1/2 inch swaged 3 bolts with Hex. nuts and shall extend 12" into concrete.

Anchor bolts for Type "C" castings shall be 1/2 inch swaged bolts, no heads or nuts and shall extend 10" into concrete. Top ends of anchor bolts shall be above the top of castings but not higher than 3" below the top surface of the bottom flange of beam.

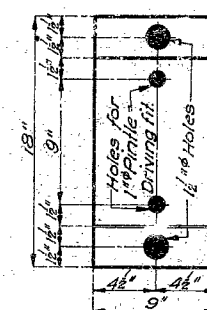
Lead plates under bearings shall be approximately 1/2 inch thickness and weigh 8" Sq. Ft. Cost of lead plates shall be included in price bid for other items.

Edge (A) to be rounded (1/2 inch radius).

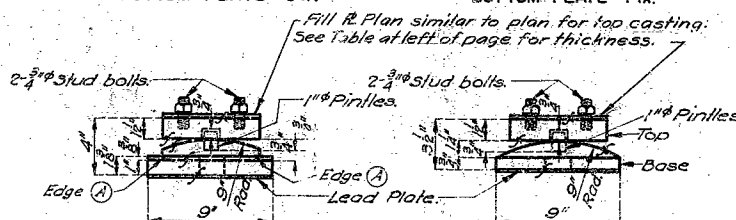
Note: Fill plates may be made part of top casting if desired, but payment will be made as Fabricated Structural Steel.



BOTTOM PLATE - EXP.



BOTTOM PLATE - FIX.



END ELEVATION - EXP.

END ELEVATION - FIX.

TYPE "B"

## DETAILS OF BEARING CASTINGS

Note: This drawing is not to scale. Follow dimensions.

FINISHED

Sheet No. 9 of 9

NO CONSTRUCTION CHANGES

BRIDGE OVER ST. LOUIS - SAN FRANCISCO R.R.

STATE ROAD FROM WEST PLAINS S.E. TO KOSHKONONG

ABOUT 1.0 MILE N.W. OF BRANDSVILLE

PROJECT NO. FG-51(13) (RT. 63) STA. 1927 +35

HOWELL

COUNTY

FINISHED

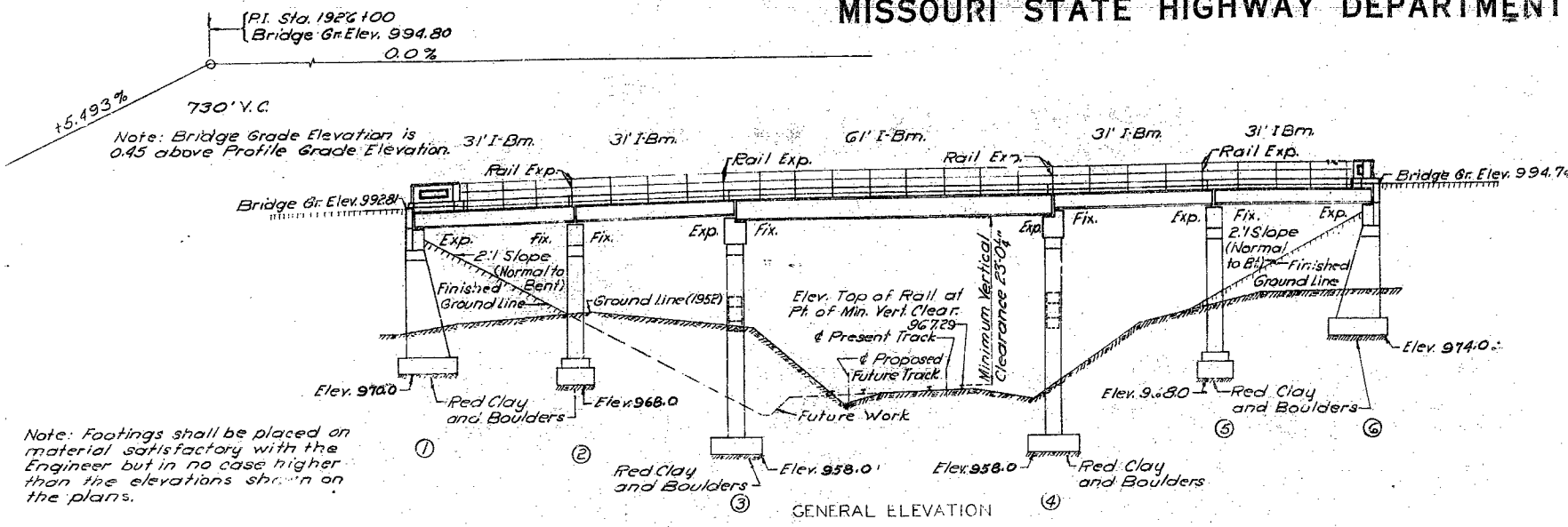
F-373R

Assembled Dec. 1954 by HRP:ETH:K  
Checked Dec. 1954 by DVB

# MISSOURI STATE HIGHWAY DEPARTMENT

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| 5                   | MO.   | 78-37(173)         | 19          |           |              |

## FINAL PLANS



GENERAL NOTES:

Design Specifications: A.A.S.H.O. 1953

Loading: H20-44

Structural Steel Stress: 18,000 #/sq"

Reinforcing Steel Stress: 18,000 #/sq"

Class "B" Concrete Stress: 1,000 #/sq"

All concrete shall be Class "B" (Air-Entrained)

A rubbed surface finish will be required on all exposed surfaces of concrete end posts above top of curbs.

Rivets 3/4" holes 1/2" except where otherwise noted.

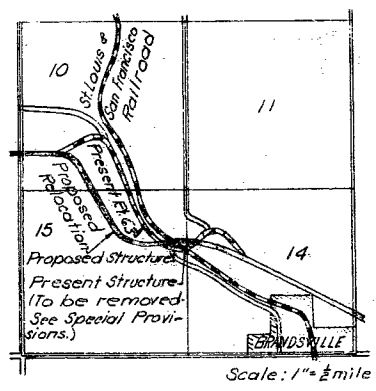
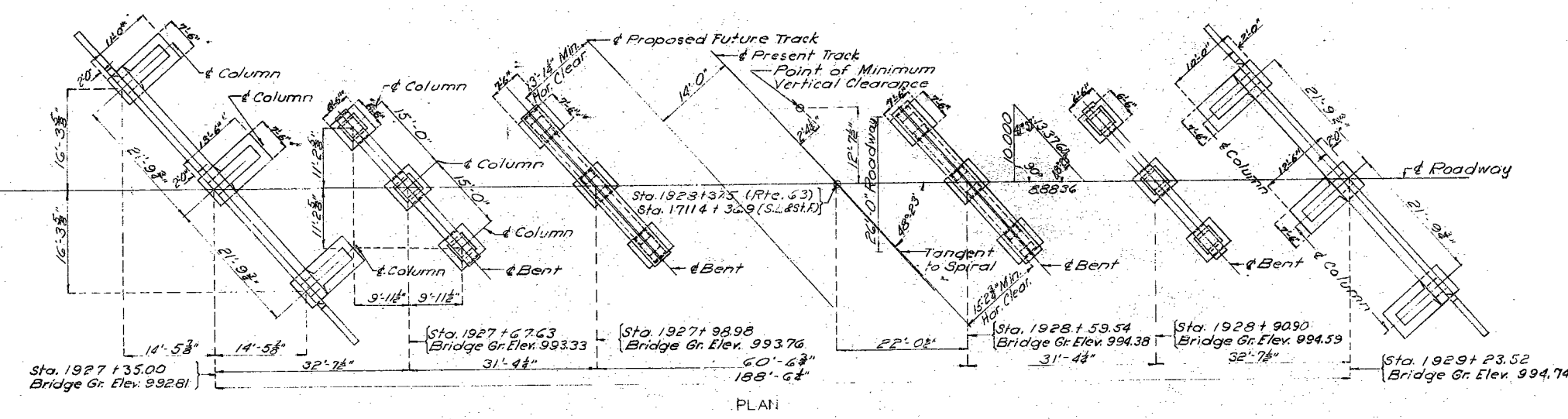
Field connections shall be riveted or if the Contractor desires he may use high tensile steel bolts with carburized washers in place of rivets except for connections noted in hand rail details. See Special Provisions.

Paint: Shop, name; field, contact surfaces of bolted field connections, except where high tensile steel bolts are used, one coat of red lead and surfaces inaccessible after erection three coats of red lead. All other exposed surfaces first coat red lead, second coat brown, third coat aluminum. Payment for cleaning and painting such surfaces will be included in price bid for items painted.

All beams over 55 feet in length shall be shipped by rail to the specified shipping point.

A minimum vertical clearance of 22'-0" from the top of rails and a minimum lateral clearance of 8'-6" from centerline of tracks shall be maintained over railroad tracks during construction.

Where joint filler is specified on the plans it shall conform with the requirements for Gray Rubber Corn-pound joints as given in Section 38-19B(2) of the Standard Specifications.



| FINAL QUANTITIES                          |         |           |         |
|---|---------|-----------|---------|
| Item                                      | Substr. | Superstr. | Total   |
| Class 1 Excavation for Structures Cu.Yds. | 743.0   |           | 743.0   |
| Class "B" Concrete Cu.Yds.                | 302.3   | 137.3     | 439.6   |
| Reinforcing Steel Lbs.                    | 30180   | 35710     | 65890   |
| Fabricated Structural Steel Lbs.          |         | 125,420   | 125,420 |
| Gray Iron Alloy Castings Lbs.             |         | 2550      | 2550    |

Note: All excavation for bridge shall be paid for as Class 1 Excavation for Structures.

Concrete in end posts is included with superstructure concrete.

B.M. #137 - Elev. 994.96 Don S.W. Cor. of Abut. #6

Rt. EAR Bridge Sta. 1927+35

BRIDGE OVER R. ST. LOUIS - SAN FRANCISCO R.R.

STATE ROAD FROM WEST PLAIN SE. TO KOSHKONONG

ABOUT 1.0 MILE N.W. OF BRANDSVILLE

PROJECT NO. FG-SI(13) (RTE. 63) STA. 1927+35

HOWELL COUNTY

SUBMITTED BY J.A. Linn DATE 12/23/1954

APPROVED BY R.M. Whitton DATE 12/23/1954

FINISHED

FINISHED

STD. CH10R3

F-373R

## FINAL PLANS

Drawn Nov. 1954 by J.D.M.

Checked Dec. 1954 by H.R.B.

Note: This drawing is not to scale. Follow dimensions.

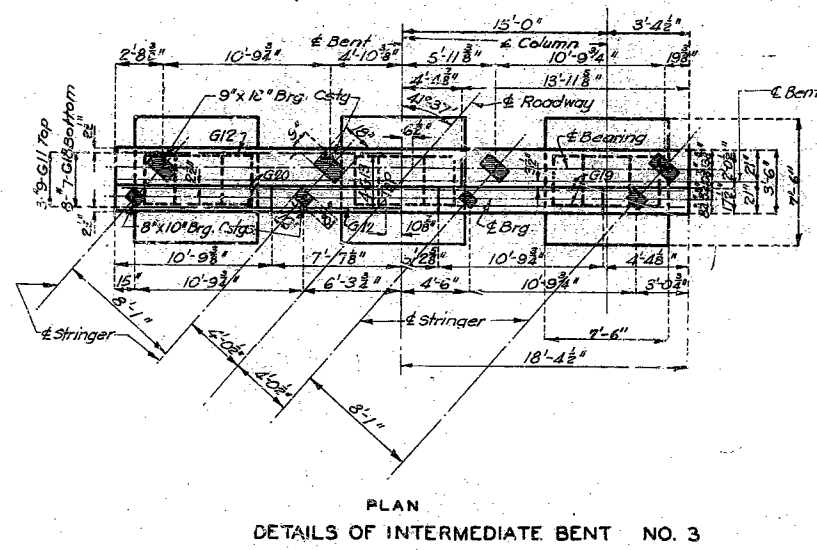
Sheet No. 1A of 4





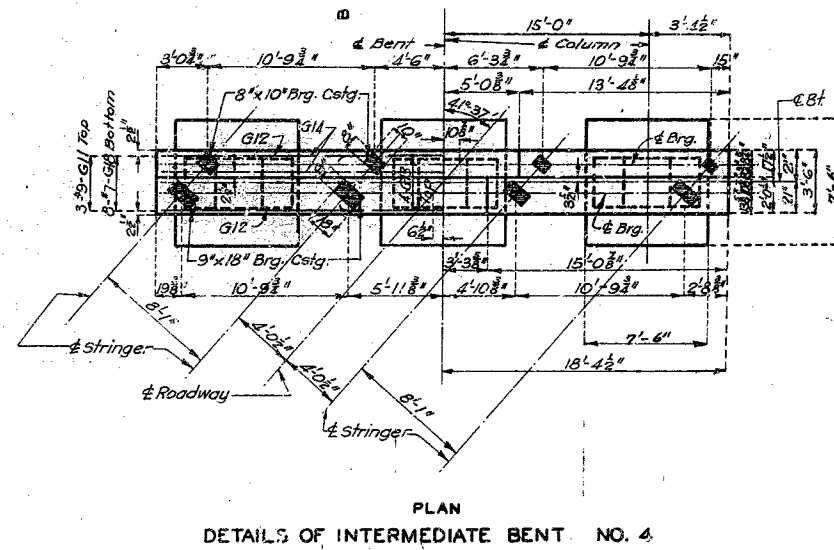
34

## FINAL PLANS



Assembled Dec. 1954 By C.H.M. & J.T.F.  
Checked Dec. 1954 By H.J.K.

Note: This drawing is not to scale. Follow dimensions.



DETAILS OF INTERMEDIATE BENT. NO. 4

STATE ROAD FROM WEST PLAINS S.E. TO KOSKONONG  
ABOUT 1.0 MILE N.W. OF BRANDSVILLE  
PROJECT NO. FG-51(13) (RT.63) STA. 1927+35

FINISHED

COMPLETED

**F-373R**

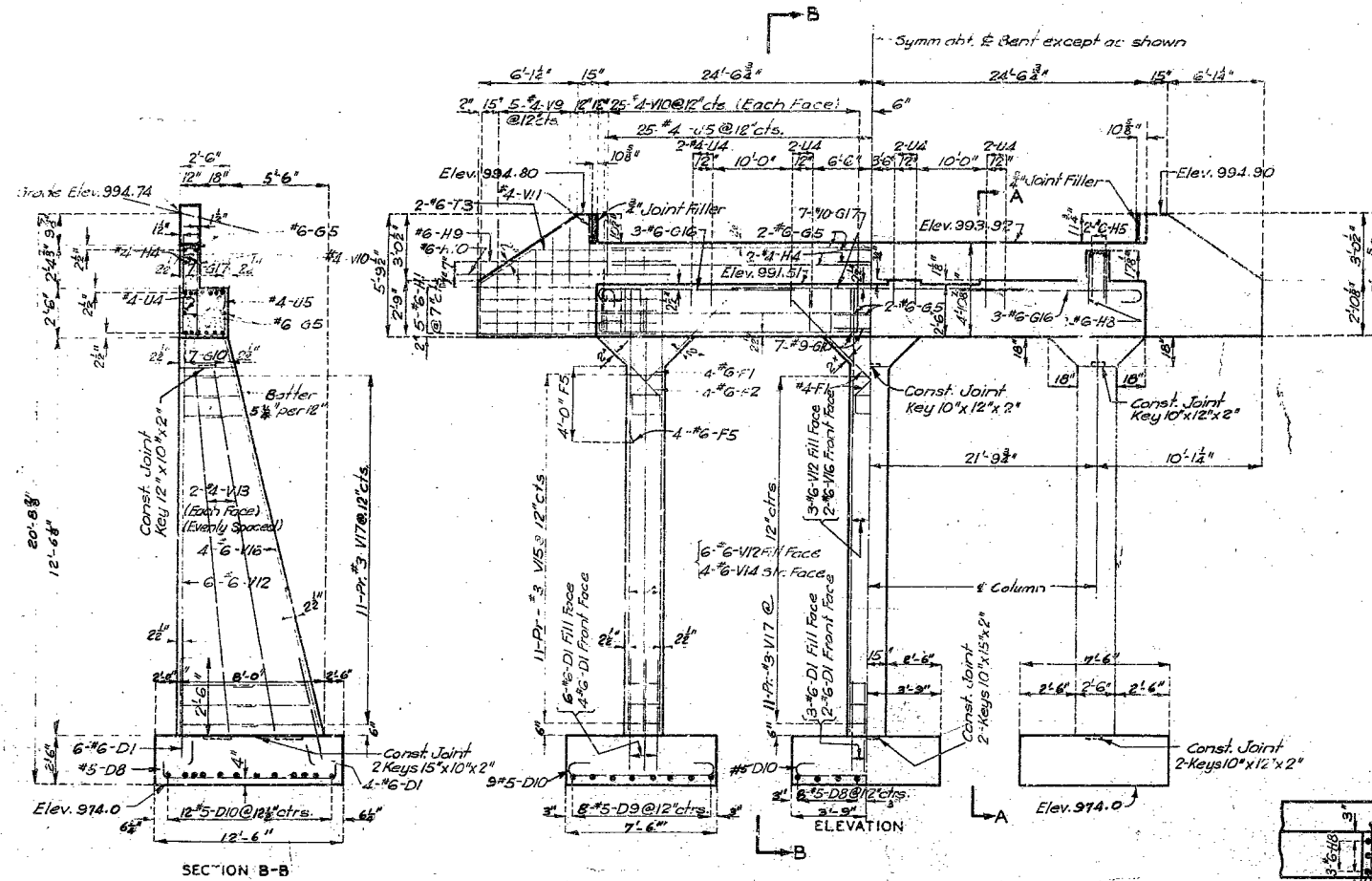
2 or 3 Col. Inf. } All Loadings  
 1 square of Skewed



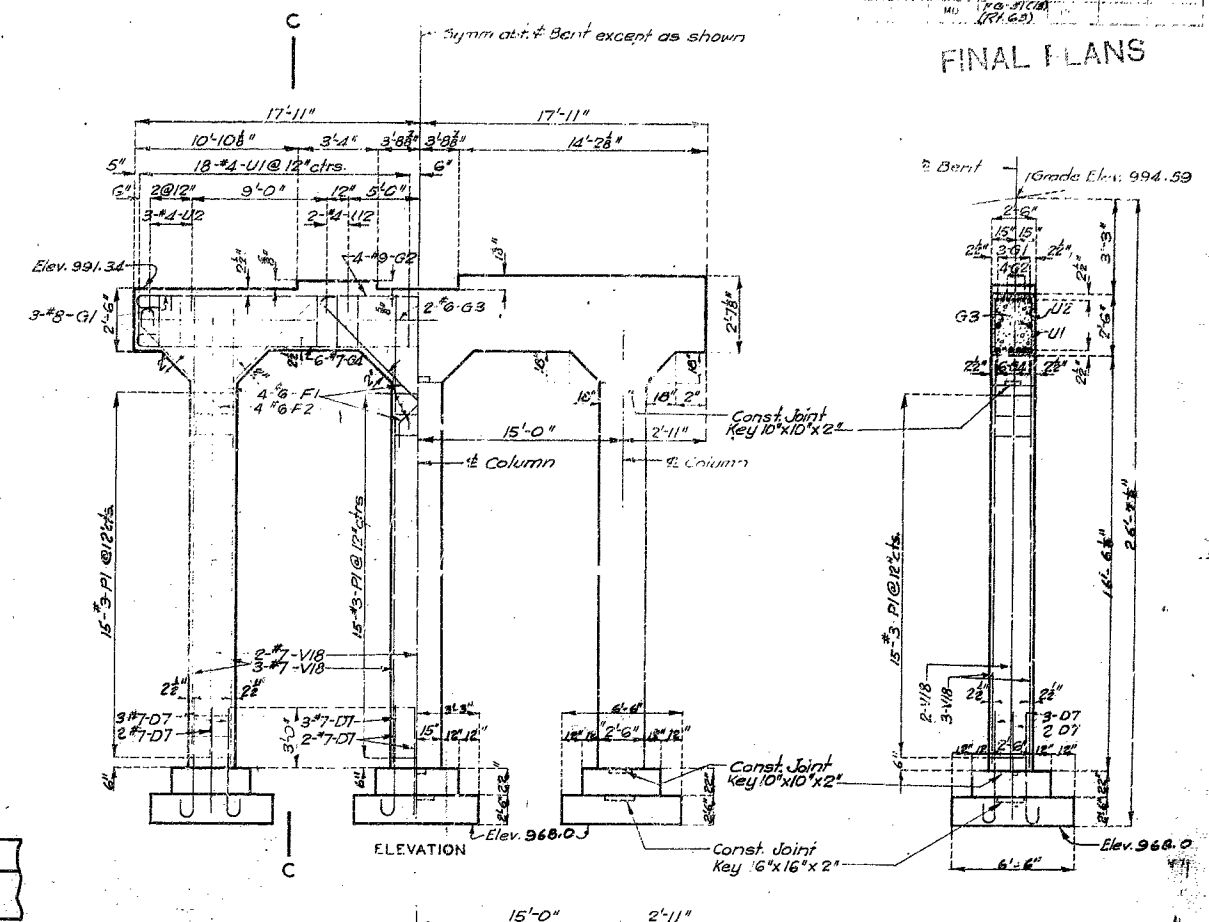
# MISSOURI STATE HIGHWAY DEPARTMENT

| PROJECT NO.     | DATE | BY   | CHKD. | APP'D. | SCALE  | SHEET NO. | TOTAL SHEETS |
|-----------------|------|------|-------|--------|--------|-----------|--------------|
| 10-51(13)(R.63) | 1927 | J.H. | J.H.  | J.H.   | 1"=20' | 1         | 1            |

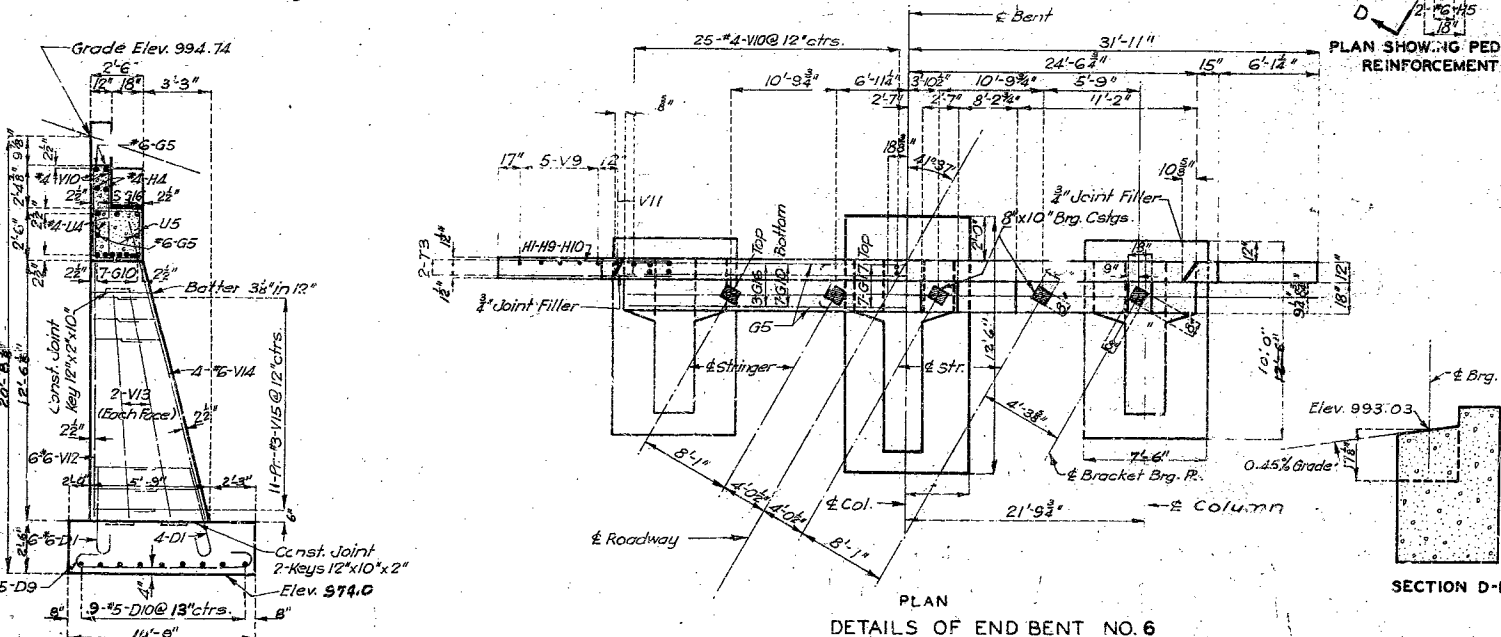
FINAL PLANS



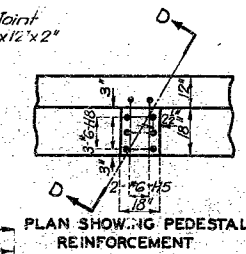
SECTION B-B



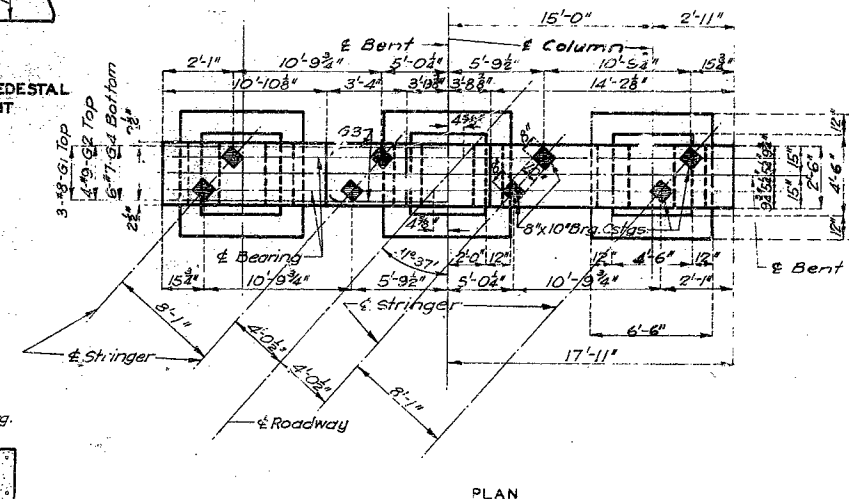
SECTION C-C



PLAN  
DETAILS OF END BENT NO. 6



SECTION D-D



PLAN  
DETAILS OF INTERMEDIATE BENT NO. 5

BRIDGE OVER ST. LOUIS-SAN FRANCISCO R.R.

STATE ROAD FROM WEST PLAINS S.E. TO KOSHONONG

ABOUT 1.0 MILE N.W. OF BRANDSVILLE

PROJECT NO. FG-51 (13)(R.63) STA. 1927+35

HOWELL

COUNTY

FINISHED

FINISHED

F-373R

FINAL PLANS

1/4\"/>

Assembled Dec. 1954 by C.H.M.-M.L. & J.F.  
Checked Dec. 1954 by H.J.K. & H.R.B.

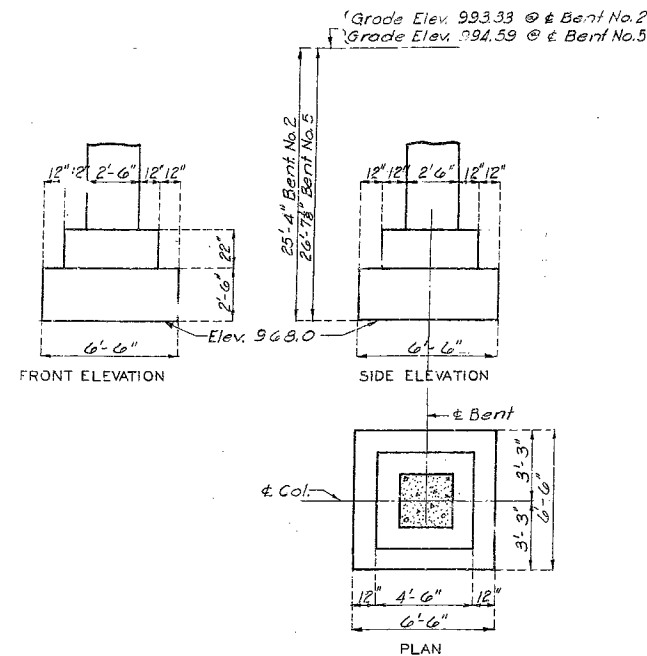
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FINISHED

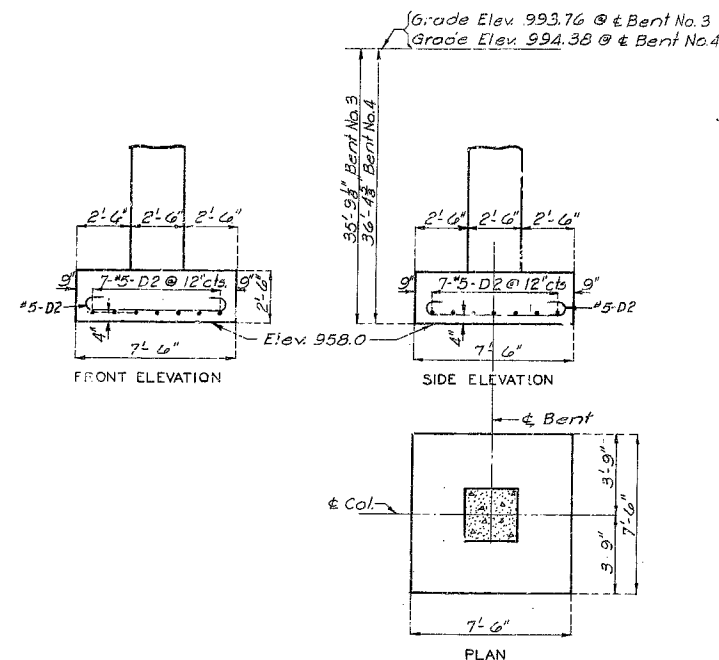
Sheet No. 5A of 4

# MISSOURI STATE HIGHWAY DEPARTMENT

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| 15                  | MO.   | FG-51(13) (RT. 63) | 19          |           |              |

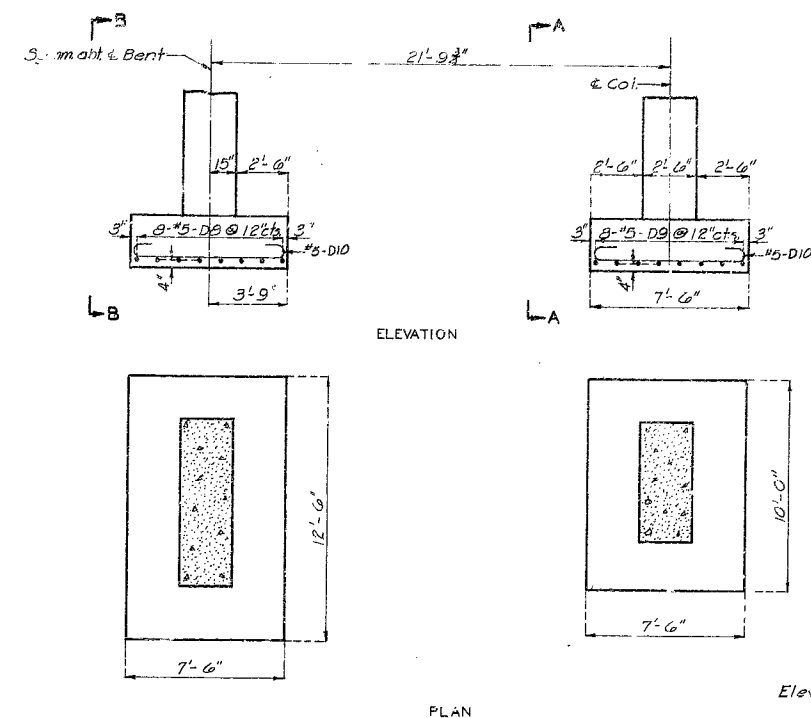


DETAILS OF FOOTING BENTS NO. 2 & 5

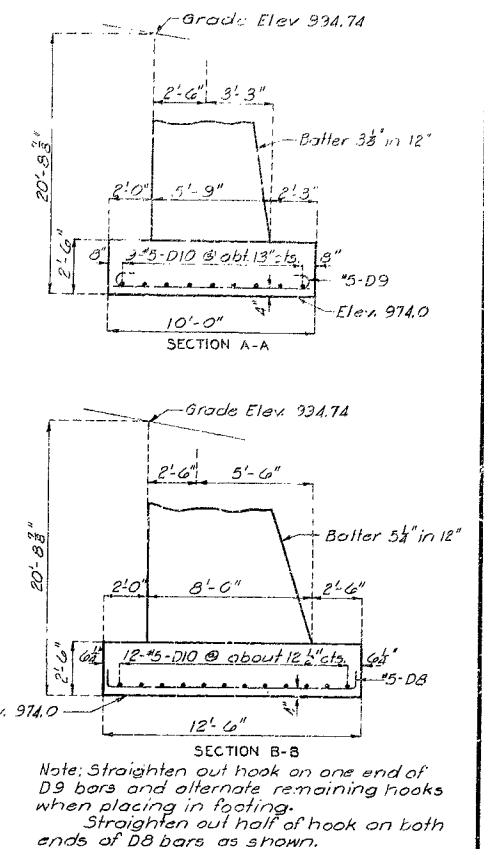


DETAILS OF FOOTING BENTS NO. 3 & 4

Note: Cut D5 bars to proper length, rebend and use as D2 bars at Bent No. 3.



DETAILS OF FOOTING BENT NO. 6



Note: Straighten out hook on one end of D9 bars and alternate remaining hooks when placing in footing.  
Straighten out half of hook on both ends of D8 bars as shown.

REVISION OF FOOTINGS FOR BENTS NO. 2, 3, 4, 5 & 6

BRIDGE OVER ST. LOUIS-SAN FRANCISCO R.R.

STATE ROAD FROM WEST PLAINS S.E. TO KOSHKONONG

ABOUT 1.0 MILE N.W. OF BRANDSVILLE

PROJECT NO. FG-51(13) (RT. 63) STA. 1927+35

HOWELL

COUNTY

FINISHED

FINISHED

F-373RA

Drawn May 1955 by W.M.C.  
Checked May 1955 by JEL.

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1 of 1

NO CONSTRUCTION CHANGES

145

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

|           |                          |           |
|-----------|--------------------------|-----------|
| STATE     | PROJ NO                  | SHEET NO. |
| MO        | F.A.F.-0112(001) Sec A&B | 89        |
| SEC / SUR | 14 & 15 TWP 23N          | RGE 7W    |

GENERAL NOTES :

Existing Work :  
Outline of old work is indicated by light dashed lines, heavy lines indicate new work.

Traffic Maintained :  
Maintain one lane of traffic over structure during construction.

Approaches :  
Roadway surfacing adjacent to bridge ends to match bridge overlay (See Roadway Plans).

Note: In order to maintain a minimum thickness of overlay as shown on plans it may be necessary to use additional quantities of overlay at various locations throughout the structure. No payment will be allowed for additional labor, materials or equipment for variations in thickness of overlay.

ESTIMATED QUANTITIES

| ITEM  | TOTAL |
|---|-------|
| Removal and storage of exist. Bridge Rail Lin.Ft. | 348   |
| Curb Removal for Thrie Beam Installation Lin.Ft.  | 377   |
| Asphalt Removal (Bridges) Sq.Ft.                  | 4902  |
| Asphalt Cement * Ton                              | 3.3   |
| Mineral Aggregate ** Ton                          | 66    |
| Polymer Modified Asphalt (Seal Coat) Gal.         | 210   |
| Cover Aggregate Ton                               | 9.0   |
| Modified Deck Repair Sq.Ft.                       | 50    |
| Bridge Guard Rail (Thrie Beam) Lin.Ft.            | 377   |

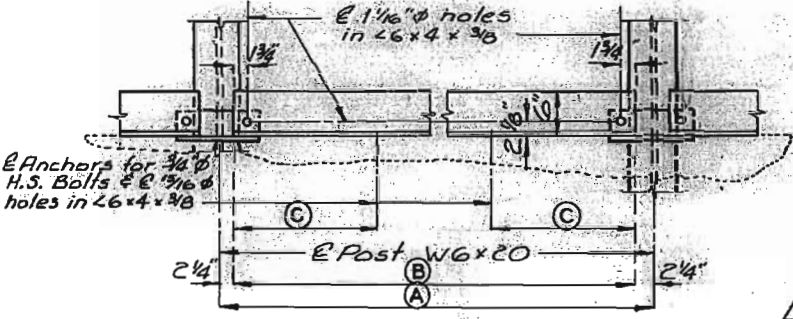
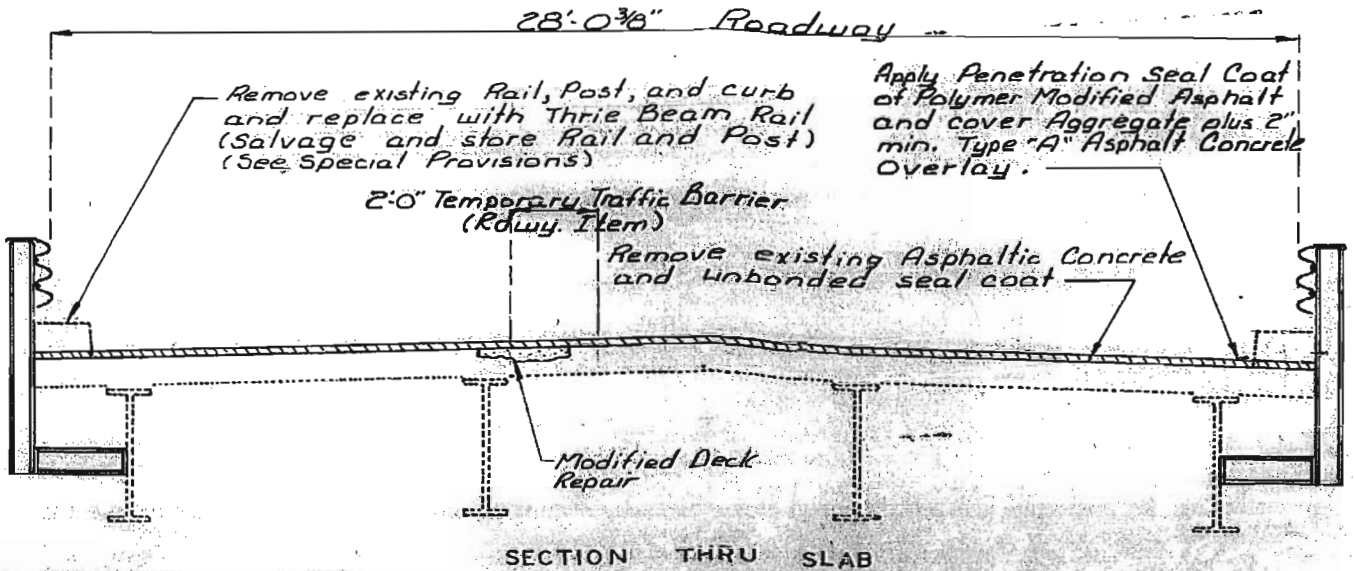
\* (Asphaltic Concrete) 60-70 or AC20 (Type A Mix)  
\*\* (Asphaltic Concrete) (Type A Mix)

Note: The Polymer Modified Asphalt shall be applied at a rate of 0.35 gallons per square yard (See Special Provisions).  
The Cover Aggregate shall be applied at a rate of 0.015 tons per square yard (See Special Provisions).

REPAIRS TO  
BRIDGE OVER BURLINGTON NORTHERN R.R.  
STATE ROAD FROM WEST PLAINS TO BRANDSVILLE  
ABOUT 1.0 MILE N.W. OF BRANDSVILLE  
PROJECT NO. F.A.F.-0112(001) Sec A&B STA. 1927+35.0

JOB NO. J9PD308 RTE. 63  
HOWELL COUNTY

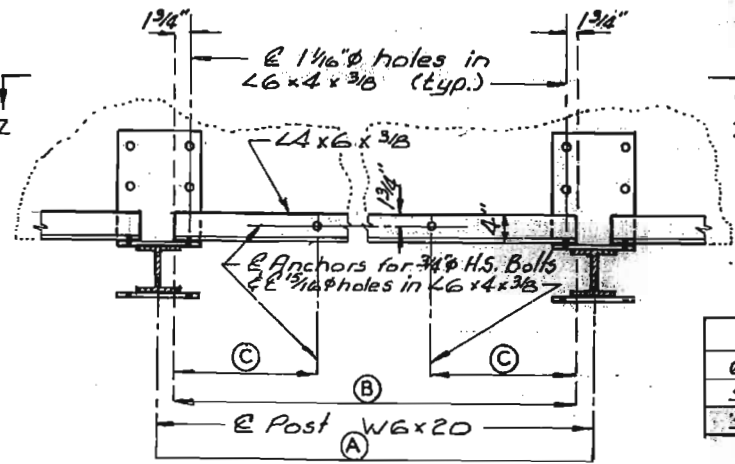
|             |
|-------------|
| STD.        |
| STD. 606.00 |
| F-373R1     |



SECTION Z-Z

Note: The contractor shall use one of the Resin Anchor Systems listed in the job Special Provisions. These Anchor Systems shall be installed according to the Manufacturers Specifications except as modified by the job Special Provisions.  
Cost of Anchor Systems Complete in Place shall be included in price bid for Guard Rail (Thrie Beam).

Δ \* See Sheet No. 2A for Details of Drainage Block at End Bents.  
See Sheet No. 2B for Details of additional Drainage Block over expansion joints at locations shown on sheet No. 2.

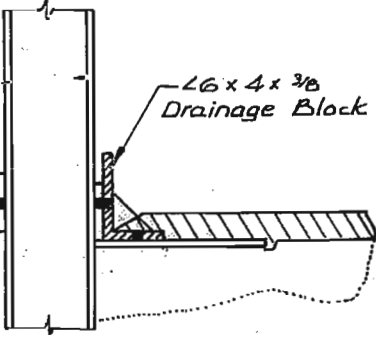


PART PLAN

DETAILS OF DRAINAGE BLOCK  
AT SPANS (1-2), (3-4) & (5-6)

| (A)   | (B)        | (C)     |
|-------|------------|---------|
| 6'-3" | 5'-10 1/2" | 23 1/2" |
| 5'-6" | 5'-1 1/2"  | 20 1/2" |
| 5'-3" | 4'-10 1/2" | 19 1/2" |

Note: Angles for drainage block shall be fabricated from A-36 steel and galvanized. All bolts shall be galvanized.  
Cost of furnishing and installing drainage block shall be included in contract unit price bid for Bridge Guard Rail.



PART SECTION G-G

Note: For location of Part Section G-G see sheet No. 2

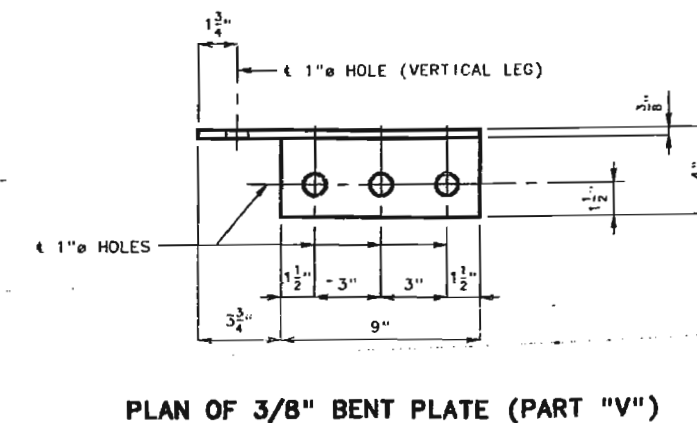
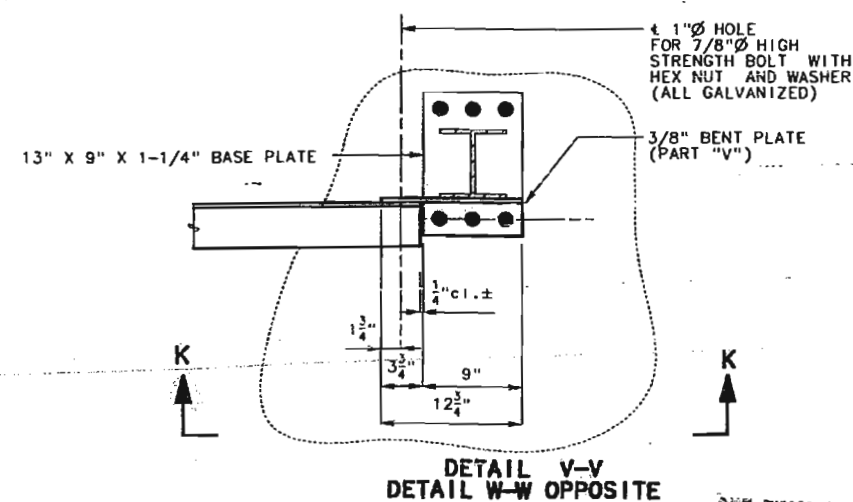
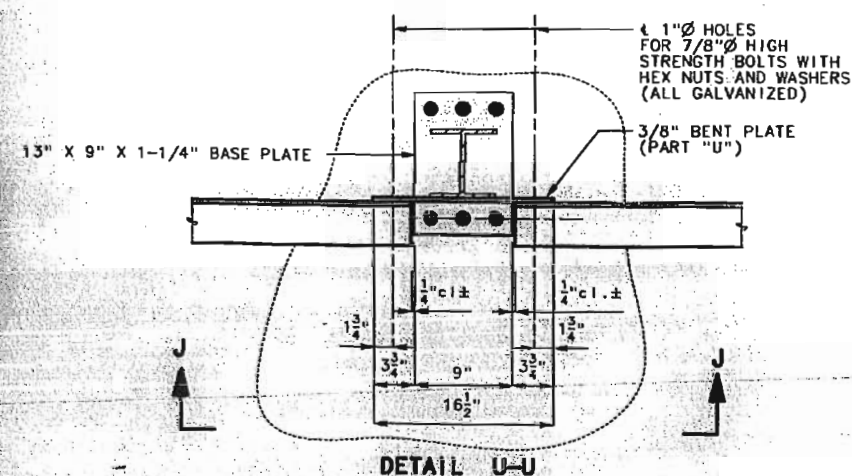
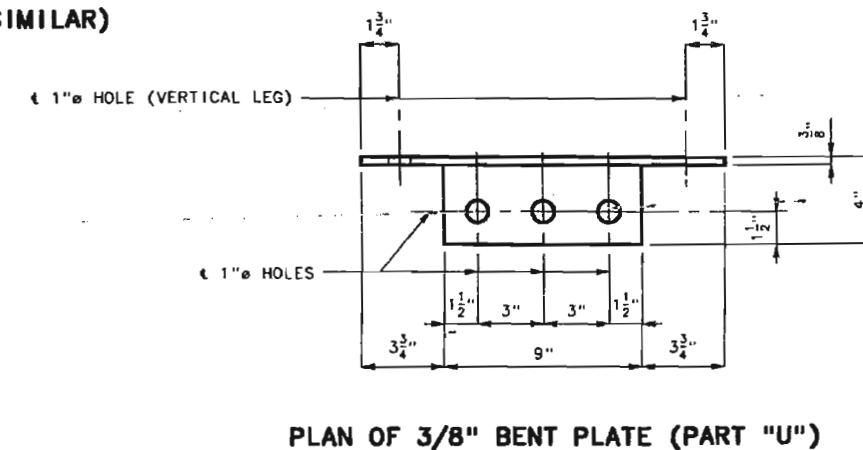
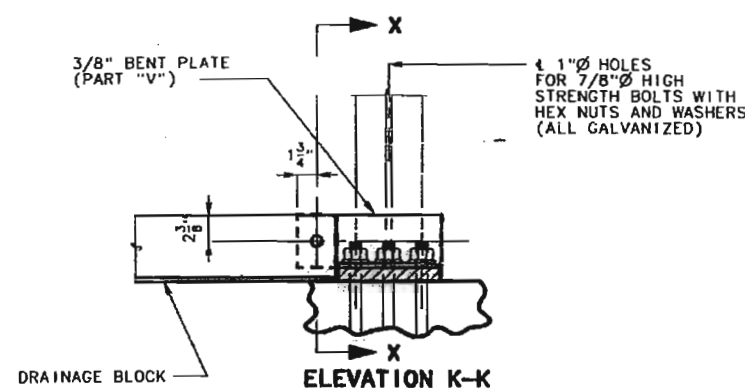
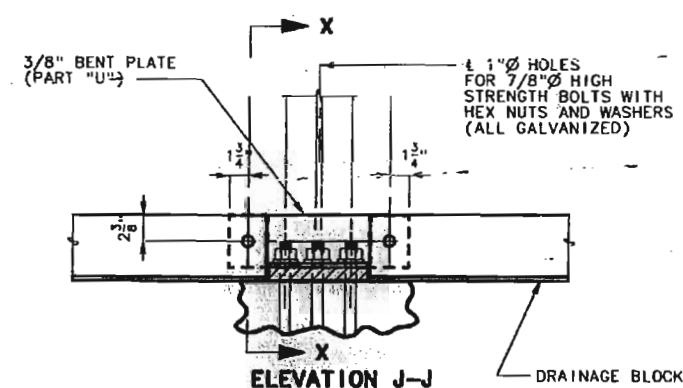
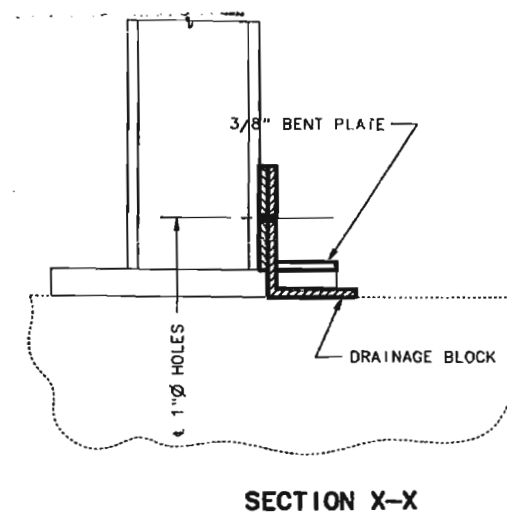
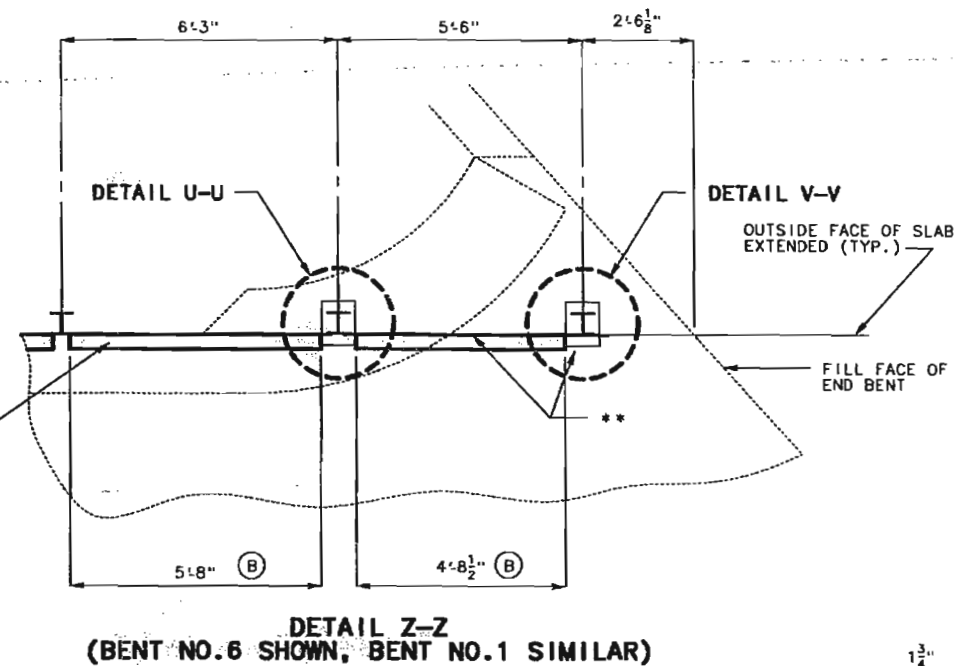
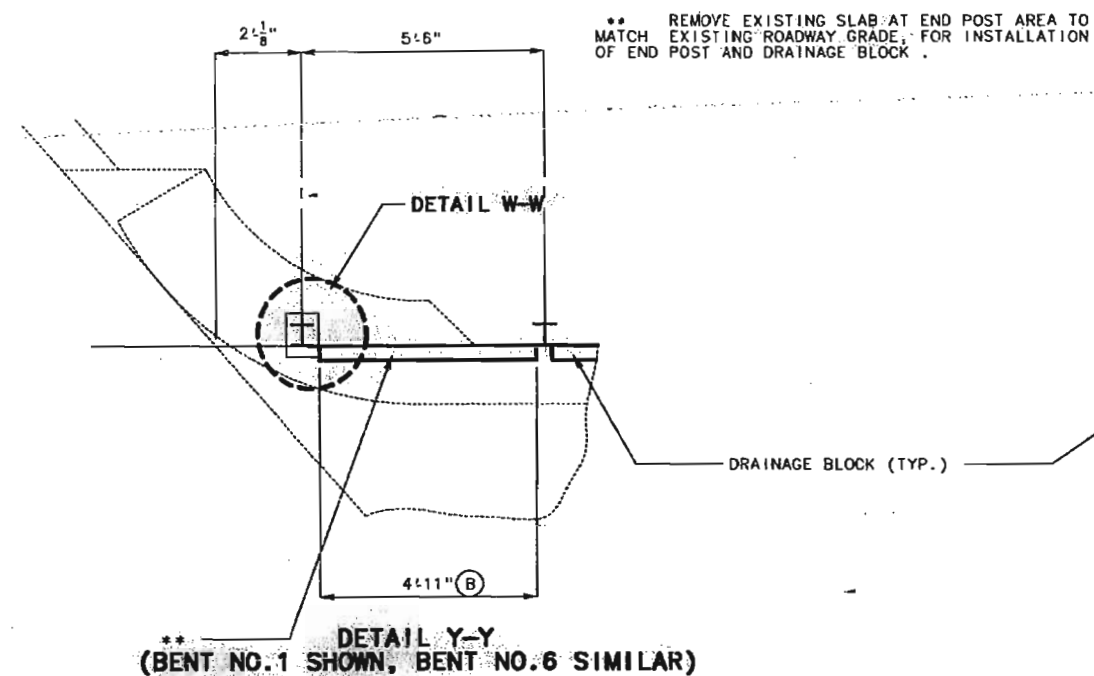
SEE FINAL PLANS  
Sheet No. 1 of 4. Δ Revised 5/24/93 DATE 2/10/93

DESIGNED Sept 1992  
DETAILED Oct. 1992  
CHECKED Oct 1992

Note: This drawing is not to scale. Follow dimensions.

103 311

|       |           |           |
|-------|-----------|-----------|
| STATE | PROJ. NO. | SHEET NO. |
| MO.   |           |           |



NOTE: REVISE LENGTH (B) OF DRAINAGE BLOCK AT END BENTS AND RELOCATE 1" Ø HOLES AS SHOWN.

3/3

DETAILED MAY 1993  
CHECKED MAY 1993

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SEE FINAL PLANS

SHEET NO. 2A OF 4

ADDED 5/24/93

HOWELL

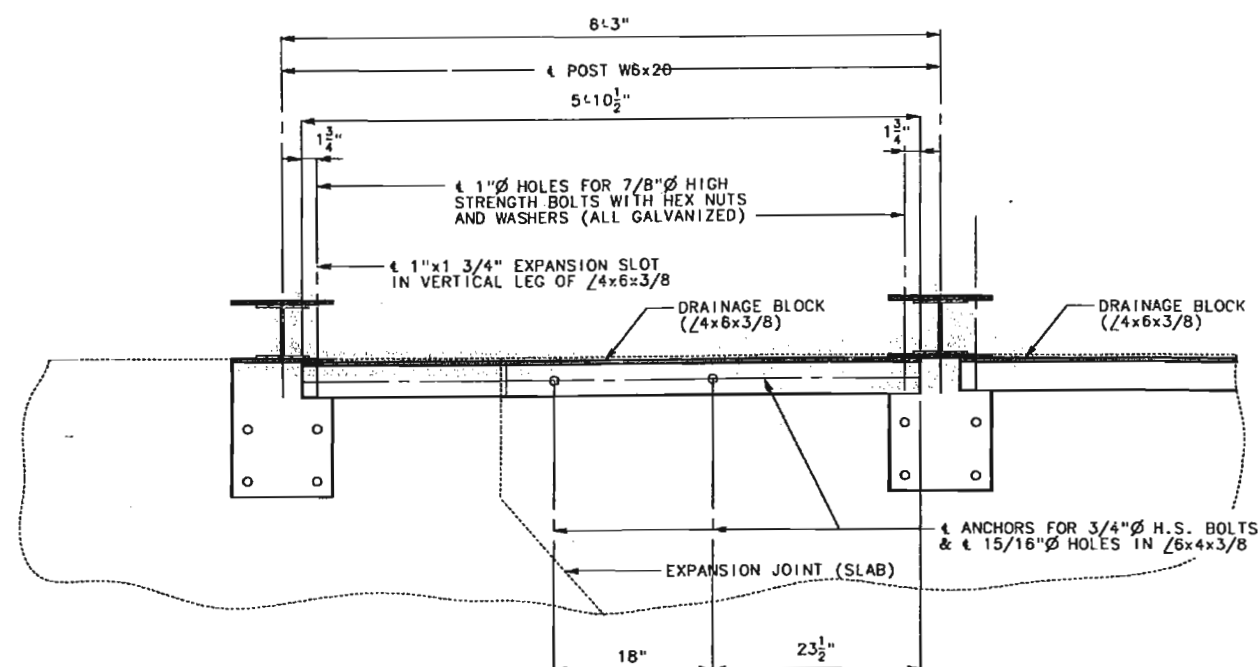
COUNTY

F-373R1



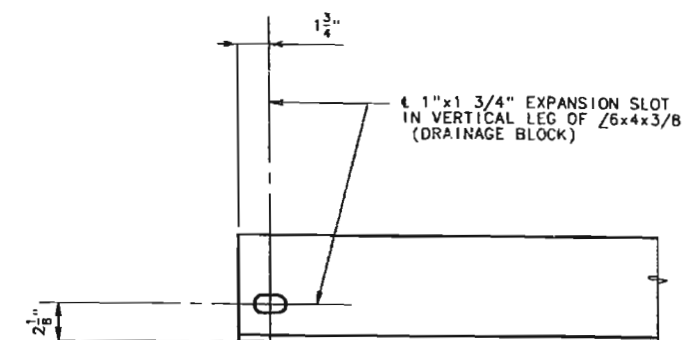


|       |           |           |
|-------|-----------|-----------|
| STATE | PROJ. NO. | SHEET NO. |
| MO.   |           |           |

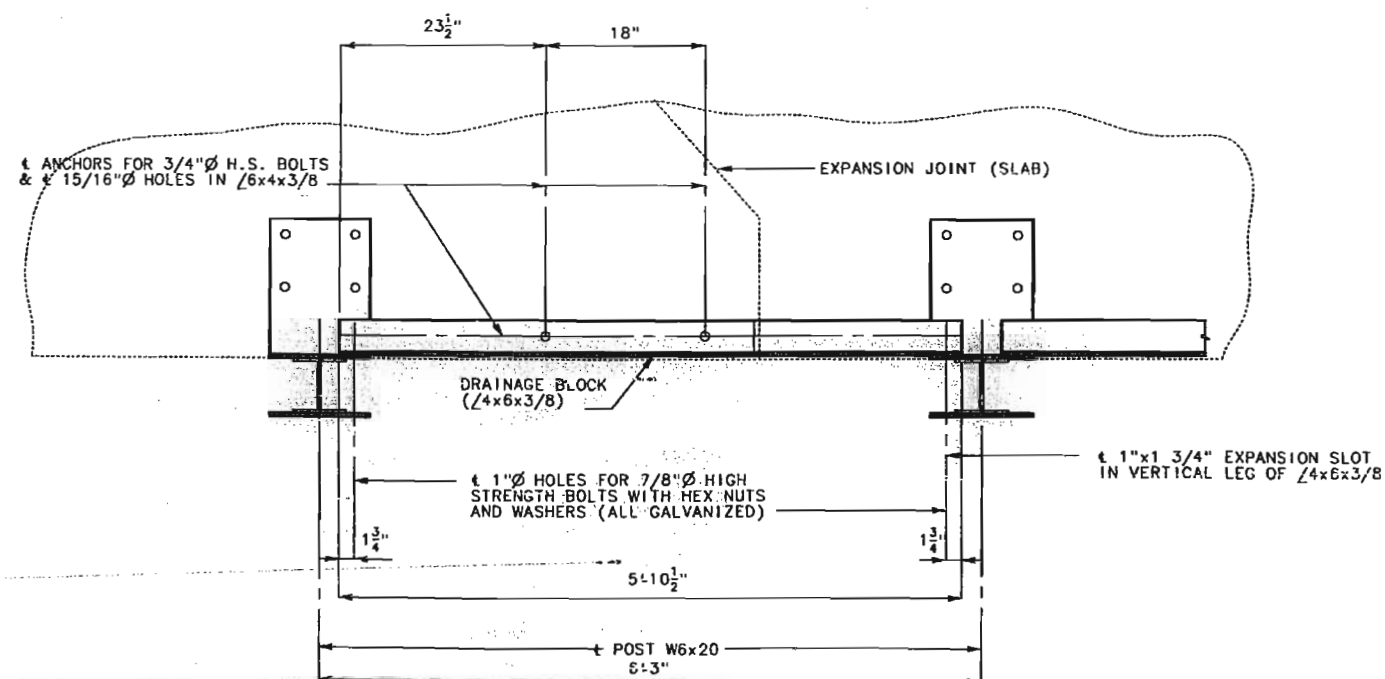


(EXPANSION END)  
SPAN (2-3) LEFT, SPAN (4-5) LEFT  
SPAN (3-4) LEFT, SPAN (5-6) LEFT

PLAN OF DRAINAGE BLOCK AT EXPANSION JOINTS



PART ELEVATION OF DRAINAGE BLOCK AT EXPANSION END  
(LEFT SHOWN - RIGHT SIMILAR)



(EXPANSION END)  
SPAN (2-3) RIGHT, SPAN (4-5) RIGHT  
SPAN (3-4) RIGHT, SPAN (5-6) RIGHT

PLAN OF DRAINAGE BLOCK AT EXPANSION JOINTS

NOTE: AT THE EXPANSION SLOTS IN DRAINAGE BLOCKS, TIGHTEN BOLTS, BACK OFF ONE-HALF TURN AND BURR THREADS.

DETAILED MAY 1993  
CHECKED MAY 1993

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SEE FINAL PLANS

SHEET NO. 2B OF 4  $\Delta$  ADDED 5/24/93

HOWELL COUNTY

F-373R1



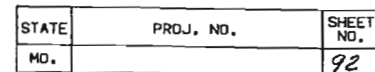


DETAILED OCT. 1992  
CHECKED OCT. 1992

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSTIONS.

SHEET NO. 3 OF 4 .

F-373R



**GENERAL NOTES:**

DESIGN AASHTO 1989 SPECIFICATIONS, AND INTERIM 1990.

PANEL LENGTHS OF CHANNEL MEMBERS SHALL BE ATTACHED CONTINUOUSLY TO A MINIMUM OF FOUR POSTS AND A MAXIMUM OF SIX POSTS (EXCEPT AT END BENTS).

ALL BOLTS, NUTS, WASHERS, PLATES AND ELASTOMERIC MATERIALS ARE  
CONSIDERED AS PARTS OF THE THRIE BEAM RAIL FOR PAYMENT.

ALL STEEL CONNECTING BOLTS AND FASTENERS FOR POSTS AND RAILING, AND ALL ANCHOR BOLTS, NUTS, WASHERS TOP PLATES AND BASE PLATES SHALL BE GALVANIZED AFTER FABRICATION. FOR PROTECTIVE COATING AND MATERIAL REQUIREMENT OF STEEL RAILING, SEE SECTION 1040 OF THE MISSOURI STANDARD SPECIFICATIONS.

RAIL POSTS SHALL BE SET PERPENDICULAR TO ROADWAY PROFILE GRADE AND VERTICAL CURVE CROSS SLOPE AND BE ALIGNED ADDITION TO SECTION 713 OF THE MISSOURI STANDARD SPECIFICATIONS. EXCEPT THAT THE RAIL POSTS SHALL BE ALIGNED BY THE USE OF SHIMS SO THAT IN THE FINAL ADJUSTMENT NO PART SHALL DEViate MORE THAN ONE INCH FROM TRUE HORIZONTAL ALIGNMENT. THE SHIMS SHALL BE 3" X 1-3/4" AND PLACED BETWEEN THE RAIL POSTS AND THE PLATE. THE WICKIDNESS OF THE SHIMS SHALL BE DETERMINED BY THE CONTRACTOR AND VERIFIED BY THE ENGINEER BEFORE ORDERING MATERIAL FOR THIS WORK.

AT THE EXPANSION SLOTS IN THE THREE BEAM RAILS AND CHANNELS,  
TIGHTEN BOLTS, BACK OFF ONE-HALF TURN AND BURR THREADS.

AT THE THRIE BEAM CONNECTION TO POSTS ON WINGS, TIGHTEN BOLTS,  
BACK OFF ONE-HALF TURN AND BURR THREADS.

MINIMUM LENGTH OF THREE BEAM SECTIONS IS EQUAL TO ONE POST SPACE.

USE 5/8 INCH BUTTON HEAD, OVAL SHOULDER BOLTS WITH HEX NUTS AT ALL SLOTS. (THICKNESS OF HEX NUTS = 3/8" MIN.)

THREE BEAM GUARD RAIL ON THE BRIDGE SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE.

POSTS, TOP PLATES, BASE PLATES, CHANNELS AND CHANNEL SPLICE PLATES SHALL BE FABRICATED FROM A-36 STEEL AND GALVANIZED.

WASHERS SHALL BE USED AT ALL POST BOLTS (BETWEEN THE BOLT HEAD AND BEAM). THEY SHALL BE RECTANGULAR IN SHAPE (3" X 1-3/4" X 3/16" MIN.) AND FLAT WITH A 1/16" X 1" SLOT, OR WHEN NECESSARY OF SUCH DESIGN AS TO FIT THE CONTOUR OF THE BEAM. (USE A 3" X 1-3/4" X 5/8" RECTANGULAR WASHER BETWEEN THE POST AND THE THREE BEAM RAIL.)

SPECIAL DRILLING OF THE THIRIE BEAM MAY BE REQUIRED AT THE SPLICES.  
(ALL DRILLING DETAILS ARE TO BE SHOWN ON THE SHOP DRAWINGS.)

FABRICATION OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH SECTION 712 OF THE MISSOURI STANDARD SPECIFICATIONS.

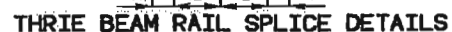
EXPANSION SPLICES IN THE THIRIE BEAM RAIL SHALL BE MADE AT EITHER THE FIRST OR SECOND POST ON EITHER SIDE OF THE JOINT AND ON STRUCTURE AT BRIDGE ENDS. WHEN THE SPLICE IS MADE AT THE SECOND POST, AN EXPANSION SLOT SHALL BE PROVIDED IN THE THIRIE BEAM RAIL FOR CONNECTION TO THE FIRST POST TO ALLOW FOR MOVEMENT.

CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN FIELD BEFORE ORDERING MATERIALS.

SHIM PLATES 6" X 6" X 1/16" MAY BE USED BETWEEN THE TOP OF THE POST AND THE CHANNEL MEMBER AS REQUIRED FOR VERTICAL ALIGNMENT.

SEE SLAB SHEET FOR RAIL POST SPACING.

SEE MISSOURI STANDARD PLANS DRAWING 606.00 FOR DETAILS NOT SHOWN.



DETAILED OCT. 1992  
CHECKED OCT. 1992

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SEE FINAL PLANS  
SHEET NO. 4 OF 4

HOWELL COUNTY

F-373R

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

FINAL PLANS

|         |                          |          |
|---------|--------------------------|----------|
| STATE   | PROJ NO                  | SHEET NO |
| MO      | E.A.F.-0112(001) Sec A&B | 89       |
| SEC/SUR | 14 & 15 TWP. 23N RGE 7W  |          |

GENERAL NOTES :

Existing Work :  
Outline of old work is indicated by light dashed lines, heavy lines indicate new work.

Traffic Maintained :  
Maintain one lane of traffic over structure during construction.

Approaches :  
Roadway surfacing adjacent to bridge ends to match bridge overlay (See Roadway Plans).

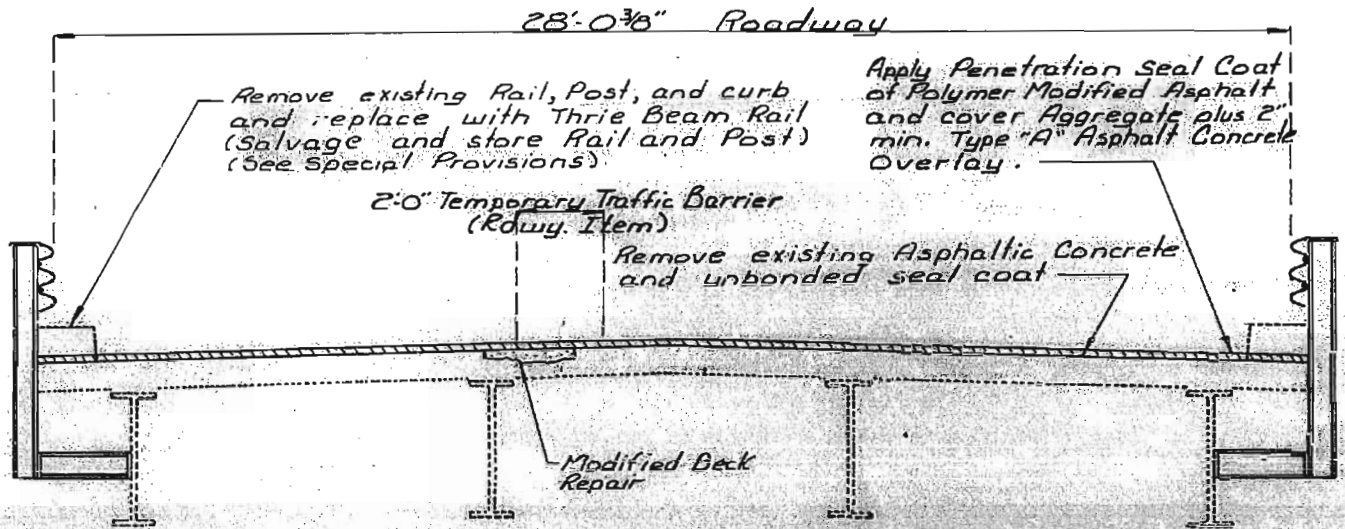
Note: In order to maintain a minimum thickness of overlay as shown on plans it may be necessary to use additional quantities of overlay at various locations throughout the structure. No payment will be allowed for additional labor, materials or equipment for variations in thickness of overlay.

| FINAL QUANTITIES                          |               |        |
|---|---------------|--------|
| ITEM                                      |               | TOTAL  |
| Removal and storage of exist. Bridge Rail | Lin.Ft.       | 348    |
| Curb Removal for Thrie Beam Installation  | Lin.Ft.       | 377    |
| Asphalt Removal (Bridges)                 | Sq.Ft.        | 4902   |
| Asphalt Cement (AC-20)                    | Ton           | 3.3    |
| Mineral Aggregate (Type A Mix)            | Ton           | 66     |
| Polymer Modified Asphalt (Seal Coat)      | Gal.          | 220    |
| Cover Aggregate                           | Ton           | 9.0    |
| Modified Deck Repair                      | Sq.Ft.        | 89     |
| Bridge Guard Rail (Thrie Beam)            | Lin.Ft.       | 377    |
| Bridge Modification                       | 500.00 Dollar | 331.00 |

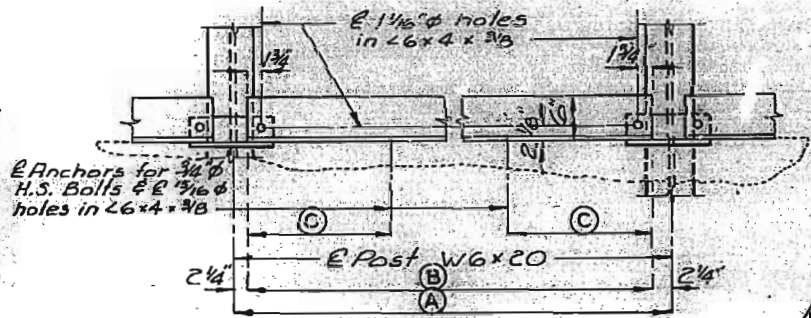
Note: The Polymer Modified Asphalt shall be applied at a rate of 0.35 gallons per square yard (See Special Provisions).

The Cover Aggregate shall be applied at a rate of 0.015 tons per square yard (See Special Provisions).

REPAIRS TO  
BRIDGE OVER BURLINGTON NORTHERN R.R.  
STATE ROAD FROM WEST PLAINS TO BRANDSVILLE  
ABOUT 1.0 MILE N.W. OF BRANDSVILLE  
PROJECT NO. E.A.F.-0112(001) Sec A&B STA. 1927+35.0  
JOB NO. J9P0308 RTE. 63  
HOWELL COUNTY  
STD. 606.00  
F-373R1



SECTION THRU SLAB



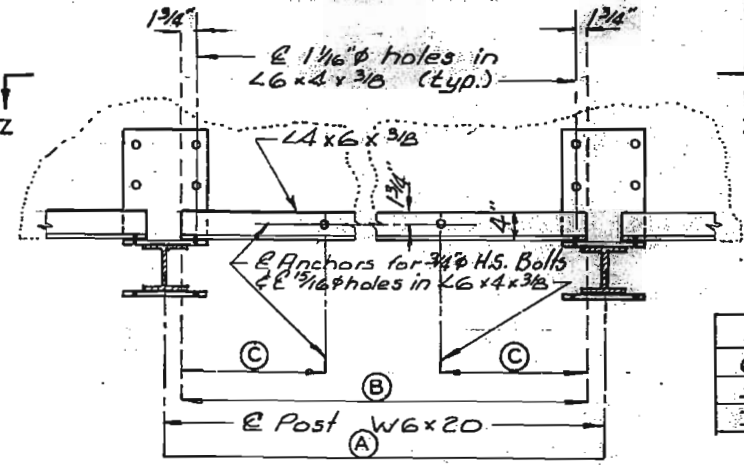
SECTION Z-Z

Note: The contractor shall use one of the Resin Anchor Systems listed in the job Special Provisions. These Anchor Systems shall be installed according to the Manufacturers Specifications except as modified by the job Special Provisions.

Cost of Anchor Systems Complete in Place shall be included in price bid for Guard Rail (Thrie Beam).

\* See sheet No. 2A for Details of Drainage Block at End Berths.

See sheet No. 2B for Details of additional Drainage Block over expansion joints at locations shown on sheet No. 2.

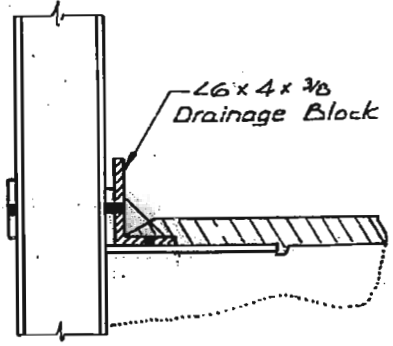


PART PLAN

Note: Angles for drainage block shall be fabricated from A-36 steel and galvanized. All bolts shall be galvanized.

Cost of furnishing and installing drainage block shall be included in contract unit price bid for Bridge Guard Rail.

| (A)   | (B)        | (C)     |
|-------|------------|---------|
| 6'-3" | 5'-10 1/2" | 23 1/2" |
| 5'-6" | 5'-1 1/2"  | 20 1/2" |
| 5'-3" | 4'-10 1/2" | 19 1/2" |



PART SECTION G-G

Note: For location of Part Section G-G see sheet No. 2

DETAILS OF DRAINAGE BLOCK  
AT SPANS (1-2), (3-4) & (5-6)

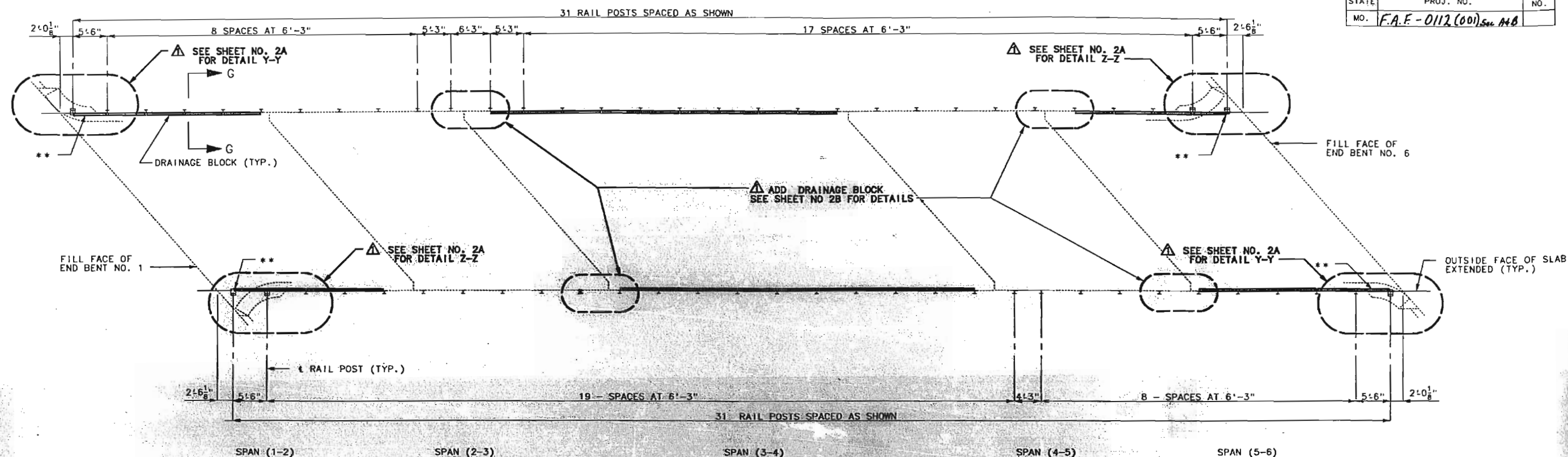
DESIGNED Sept 1992  
DETAILED Oct. 1992  
CHECKED Oct 1992

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1 of 4. Revised 5/24/93 DATE 2/10/93



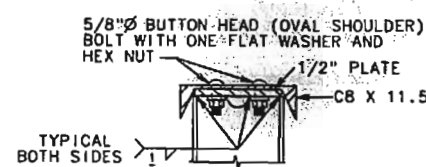
|       |                              |           |
|-------|------------------------------|-----------|
| STATE | PROJ. NO.                    | SHEET NO. |
| MO.   | F.A.F. - 0112 (001) Sec. 44B |           |



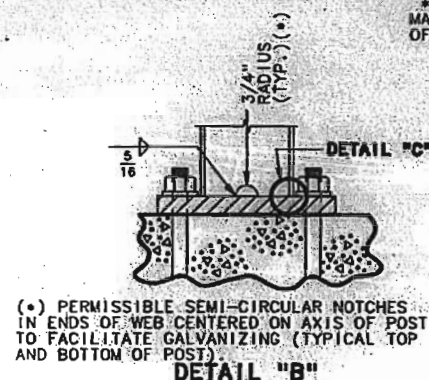
PLAN OF SLAB SHOWING RAIL POST SPACING

NOTE: FOR DETAILS OF DRAINAGE BLOCK SEE SHEET NO. 1.  
FOR DETAILS OF PART SECTION G-G SEE SHEET NO. 1.

\*\* REMOVE EXISTING SLAB AT END POST AREA TO MATCH EXISTING ROADWAY GRADE. FOR INSTALLATION OF END POST AND DRAINAGE BLOCK.



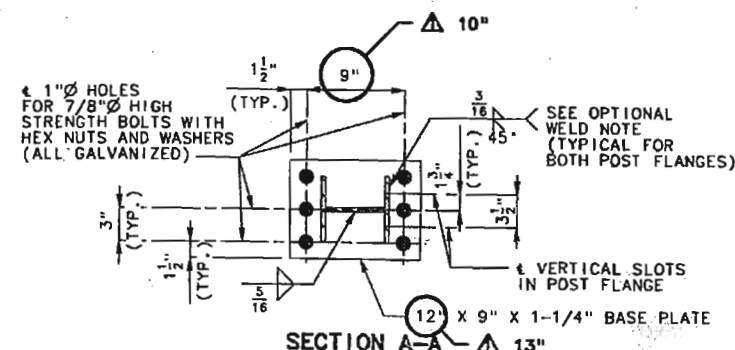
DETAIL "A"



DETAIL "B"

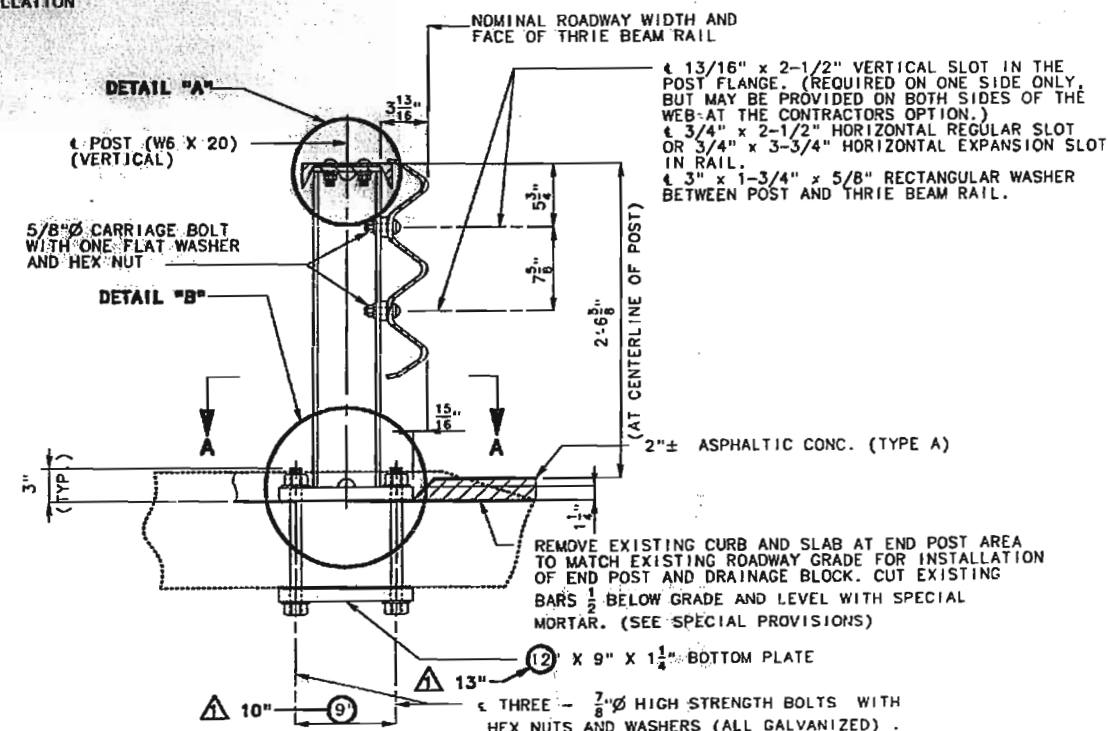


DETAIL "C"



SECTION A-A

NOTE: OPTIONAL WELDING OF THE POST TO THE BASE PLATE IS A 3/8" FILLET WELD ALL AROUND (INCLUDING THE EDGES OF THE POST FLANGES) IN LIEU OF THE WELD SHOWN.



PART SECTION AT RAIL POST (NEAR END BENTS)

DETAILED OCT. 1992  
CHECKED OCT. 1992

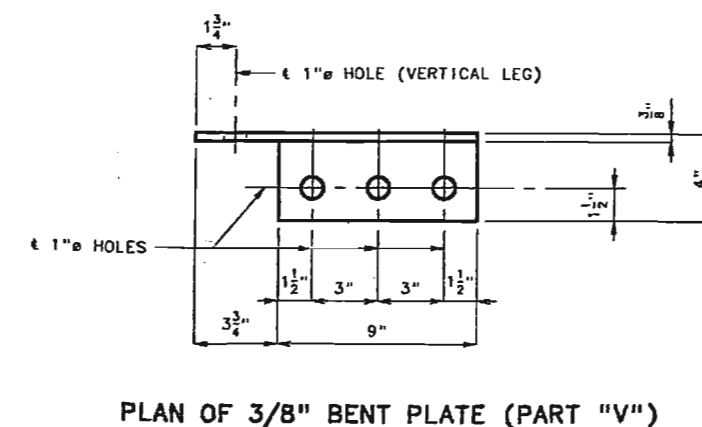
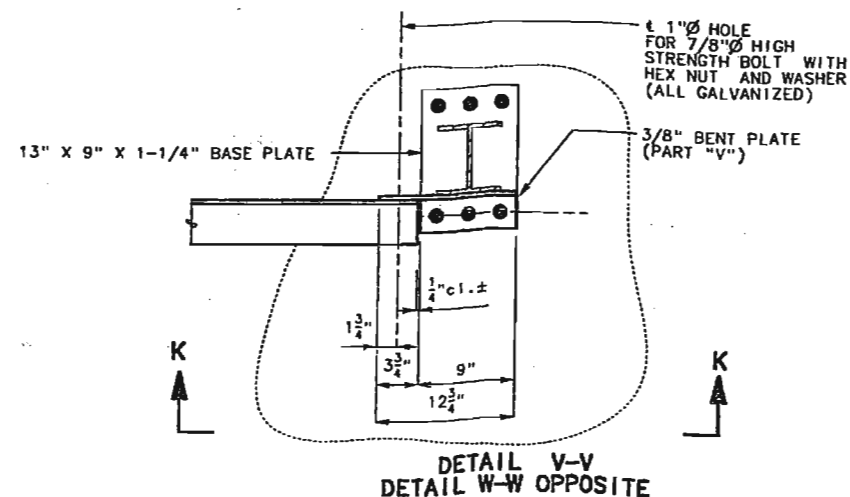
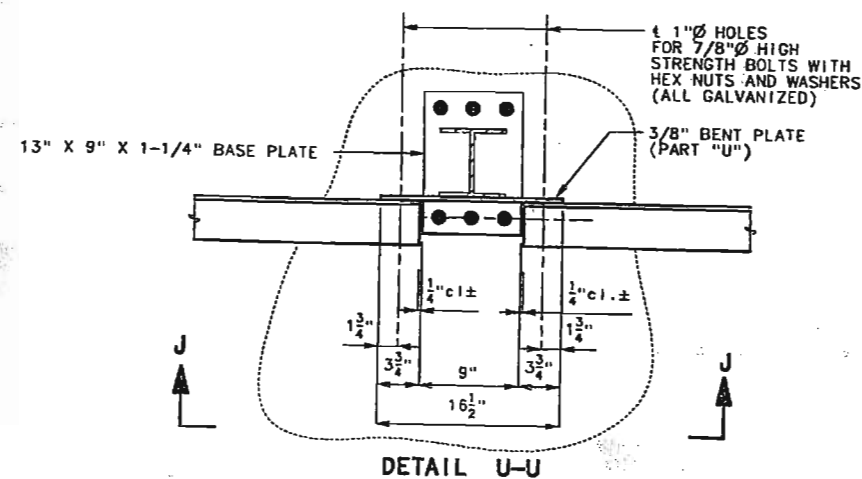
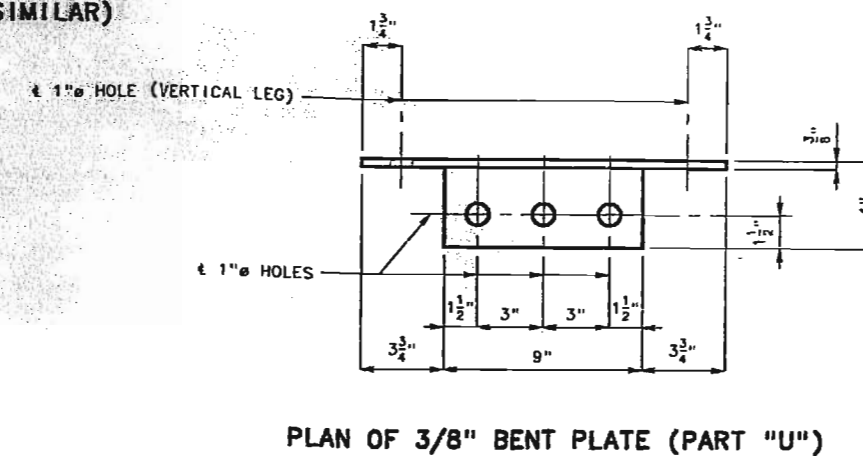
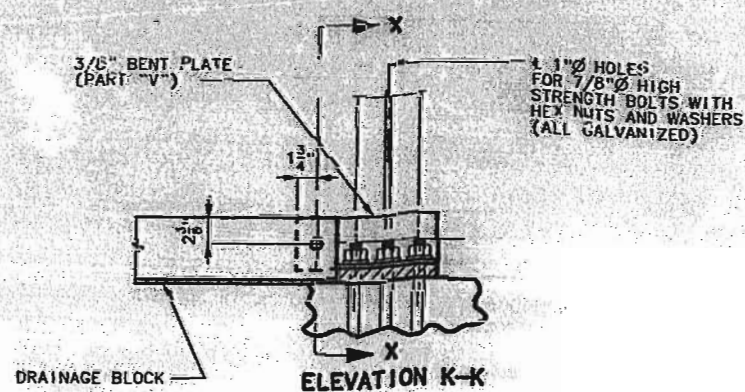
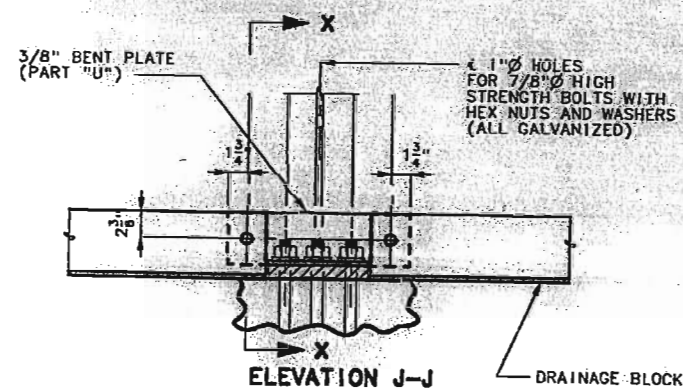
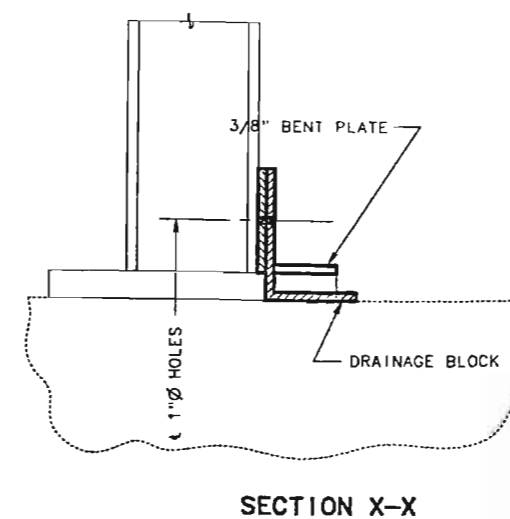
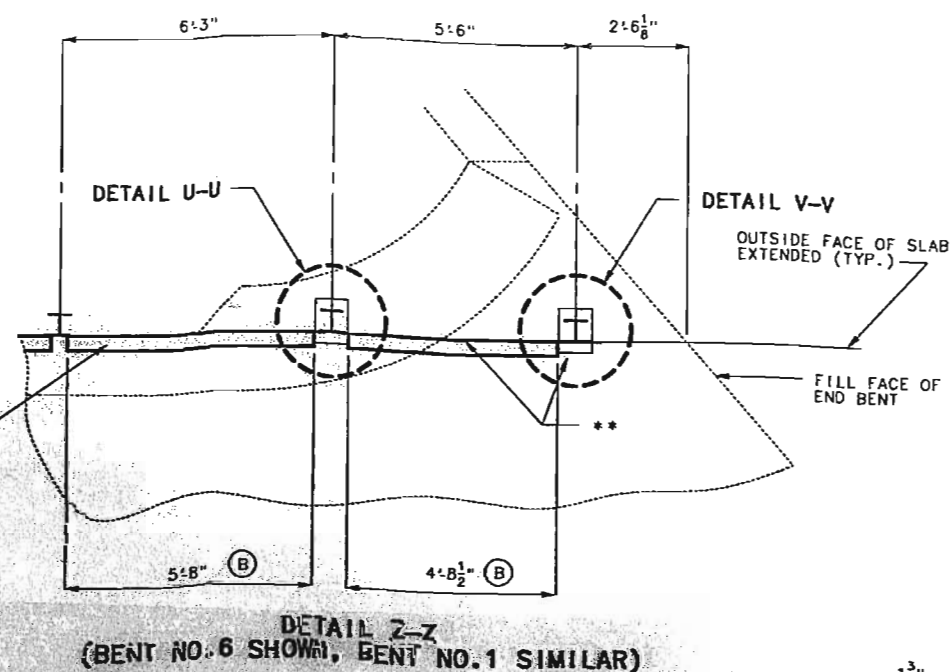
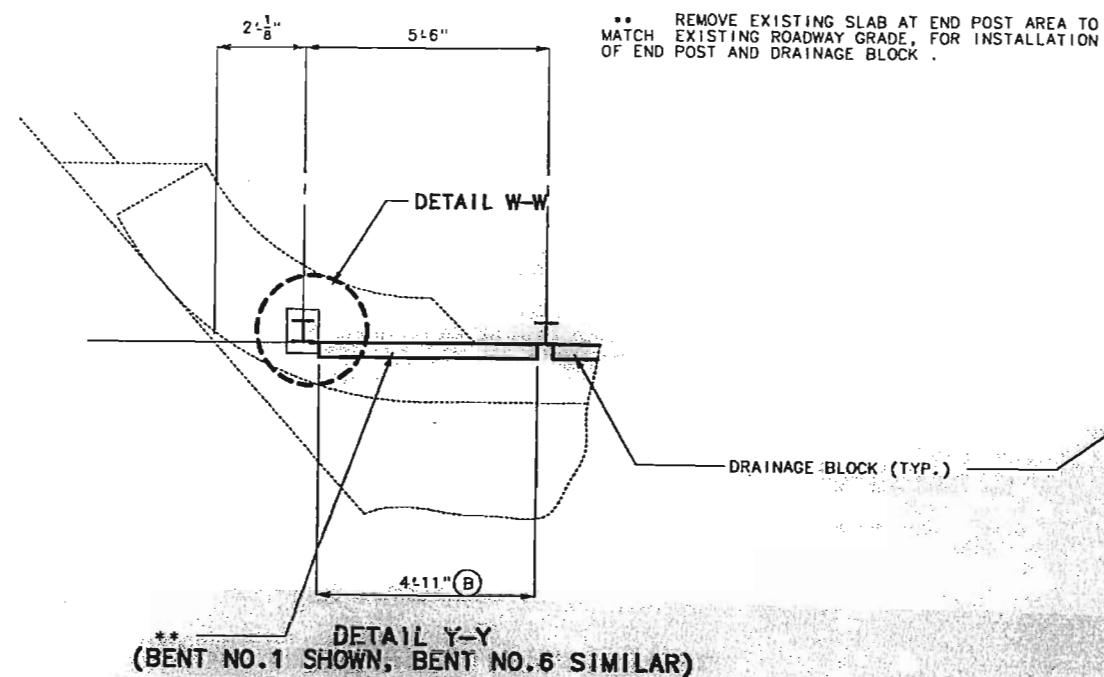
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 2 OF 4 REVISED 5/24/93

HOWELL COUNTY

F-373R1

|                         |           |           |
|-------------------------|-----------|-----------|
| STATE                   | PROJ. NO. | SHEET NO. |
| MO. F.A.F. - 0112 (001) | Sec. A+B  |           |



NOTE: REVISE LENGTH (B) OF DRAINAGE BLOCK AT END BENTS AND RELOCATE 1" Ø HOLES AS SHOWN.

3/19

DETAILED MAY 1993  
CHECKED MAY 1993

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 2A-PDF 4

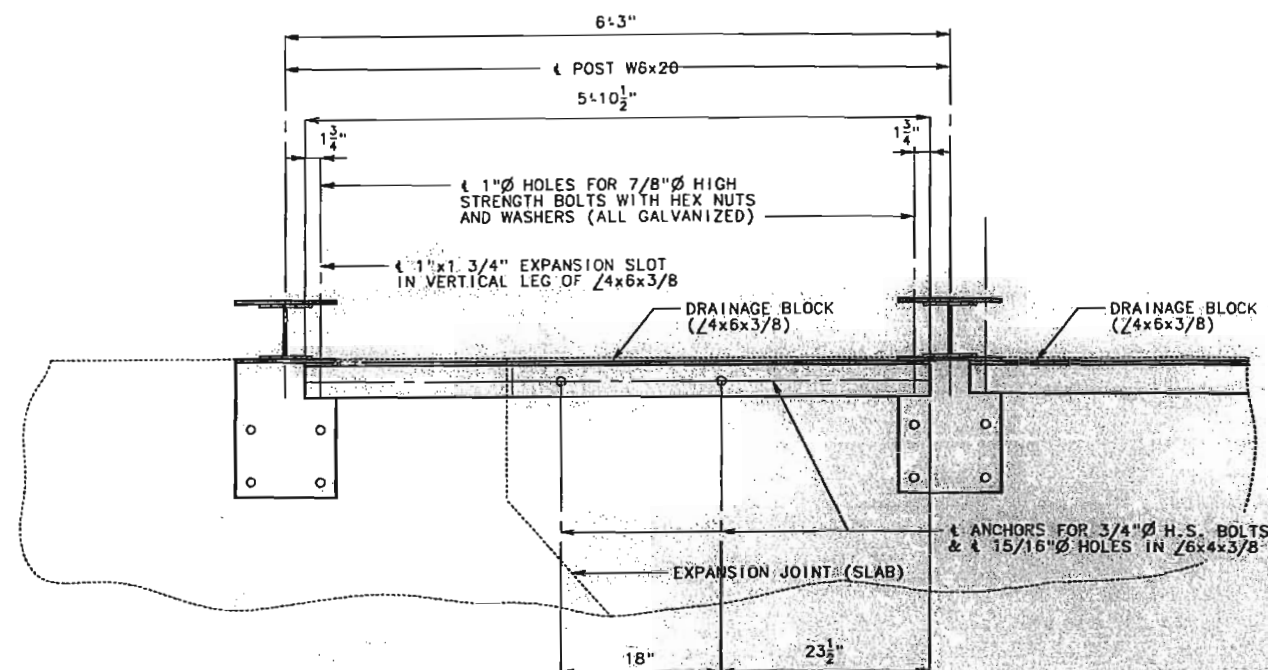
ADDED 5/24/93

HOWELL

COUNTY

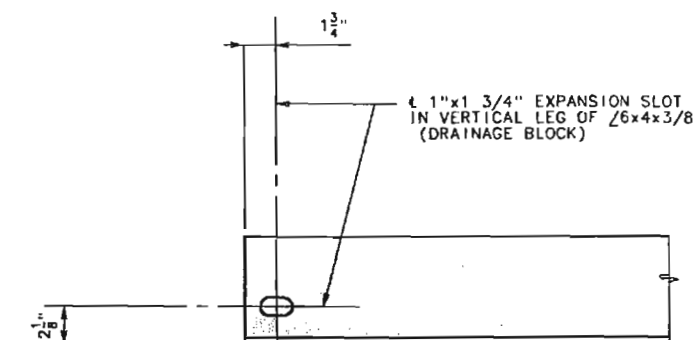
F-373R1

|                           |           |           |
|---------------------------|-----------|-----------|
| STATE                     | PROJ. NO. | SHEET NO. |
| MO. FAF-D112(00) Sec. A+B |           |           |

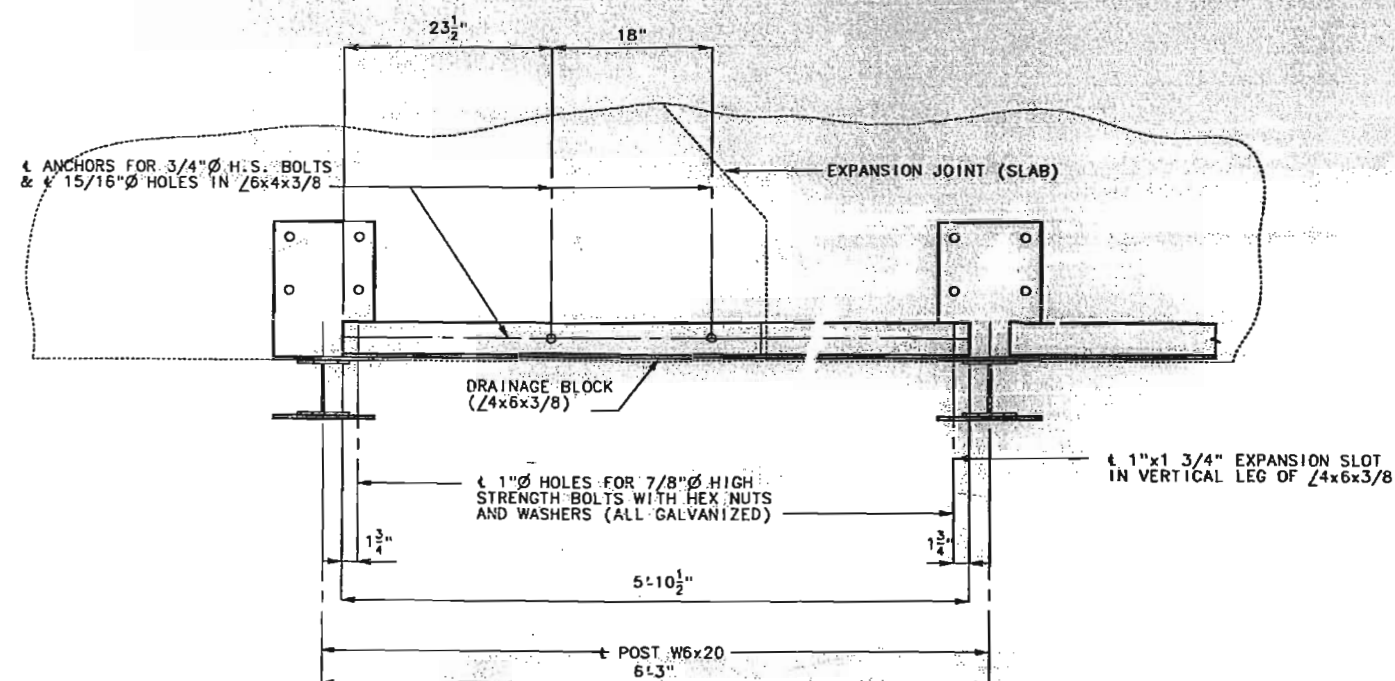


(EXPANSION END)  
SPAN (2-3) LEFT, SPAN (4-5) LEFT SPAN (3-4) LEFT, SPAN (5-6) LEFT

PLAN OF DRAINAGE BLOCK AT EXPANSION JOINTS



PART ELEVATION OF DRAINAGE BLOCK AT EXPANSION END  
(LEFT SHOWN - RIGHT SIMILAR)



SPAN (2-3) RIGHT, SPAN (4-5) RIGHT SPAN (3-4) RIGHT, SPAN (5-6) RIGHT

PLAN OF DRAINAGE BLOCK AT EXPANSION JOINTS

NOTE: AT THE EXPANSION SLOTS IN DRAINAGE BLOCKS, TIGHTEN BOLTS, BACK OFF ONE-HALF TURN AND BURR THREADS.

DETAILED MAY 1993  
CHECKED MAY 1993

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 28-10F 4 ADDED 5/24/93

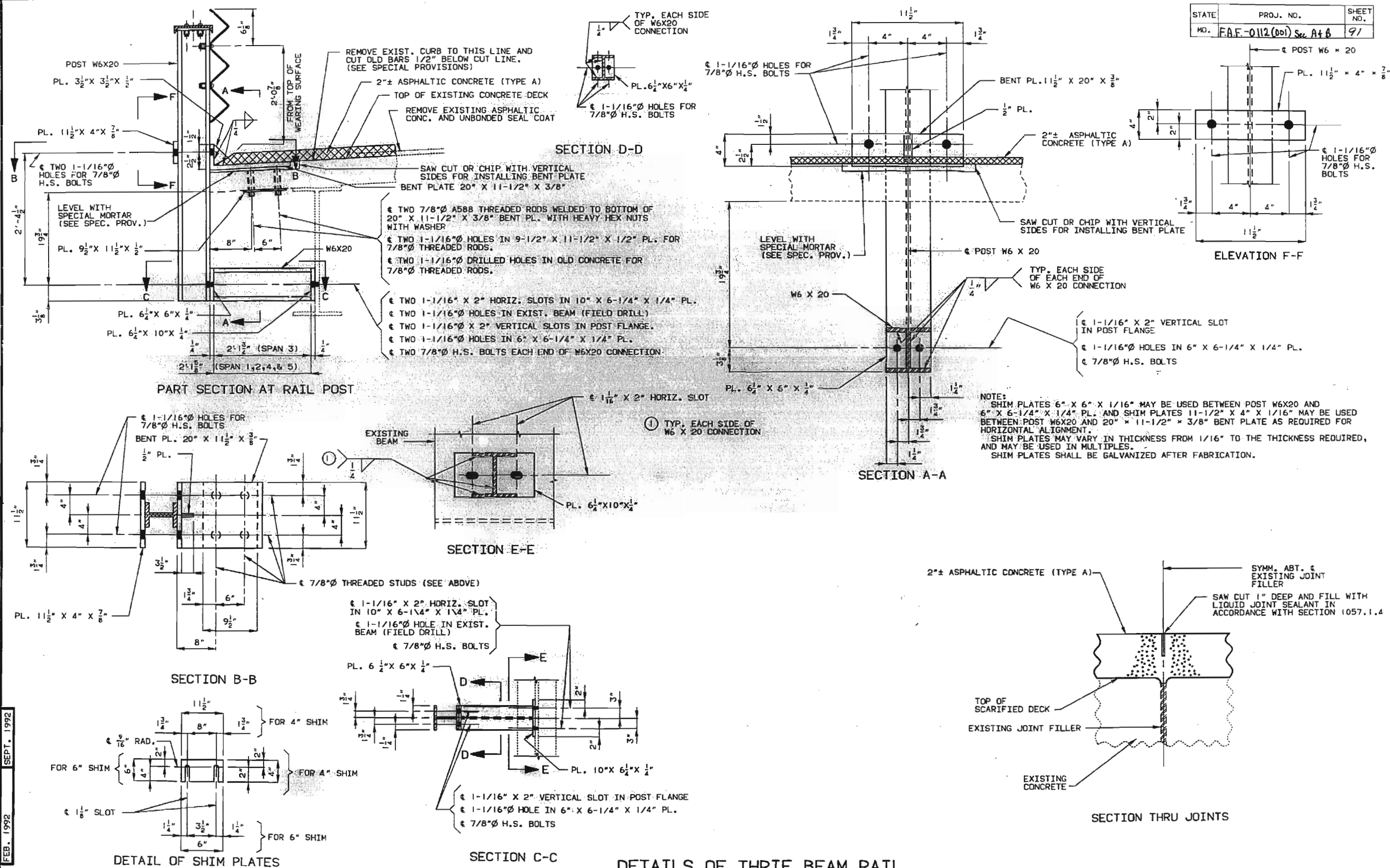
HOWELL COUNTY

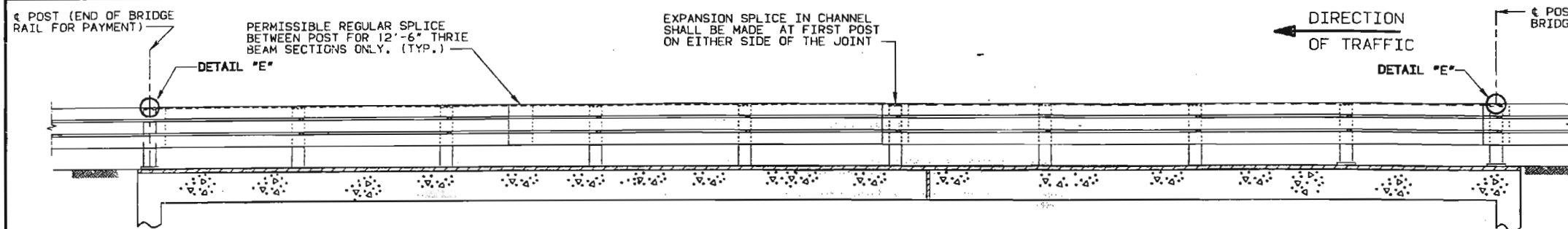
F-373R1



|                           |            |
|---------------------------|------------|
| WID/REP , W/R3.90,STL,1,A |            |
| THRIE BEAM TO STEEL       | REVISED    |
| FEB. 1992                 | SEPT. 1992 |

F-373R1





|       |                        |           |
|-------|------------------------|-----------|
| STATE | PROJ. NO.              | SHEET NO. |
| MO.   | FAF-DU2 (001) Sec. A+B | 92        |

**GENERAL NOTES:**

DESIGN AASHTO 1989 SPECIFICATIONS, AND INTERIM 1990.

PANEL LENGTHS OF CHANNEL MEMBERS SHALL BE ATTACHED CONTINUOUSLY TO A MINIMUM OF FOUR POSTS AND A MAXIMUM OF SIX POSTS (EXCEPT AT END BENTS).

ALL BOLTS, NUTS, WASHERS, PLATES AND ELASTOMERIC MATERIALS ARE CONSIDERED AS PARTS OF THE THRIE BEAM RAIL FOR PAYMENT.

ALL STEEL CONNECTING BOLTS AND FASTENERS FOR POSTS AND RAILING, AND ALL ANCHOR BOLTS, NUTS, WASHERS TOP PLATES AND BASE PLATES SHALL BE GALVANIZED AFTER FABRICATION. FOR PROTECTIVE COATING AND MATERIAL REQUIREMENT OF STEEL RAILING, SEE SECTION 1040 OF THE MISSOURI STANDARD SPECIFICATIONS.

RAIL POSTS SHALL BE SET PERPENDICULAR TO ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION, AND ALIGNED ACCORDING TO SECTION 713 OF THE MISSOURI STANDARD SPECIFICATIONS, EXCEPT THAT THE RAIL POSTS SHALL BE ALIGNED BY THE USE OF SHIMS SO THAT IN THE FINAL ADJUSTMENT NO PART SHALL DEViate MORE THAN ONE INCH FROM TRUE HORIZONTAL ALIGNMENT. THE SHIMS SHALL BE 3" X 1-3/4" AND PLACED BETWEEN THE POST AND THE THRIE BEAM RAIL. THE THICKNESS OF THE SHIMS SHALL BE DETERMINED BY THE CONTRACTOR AND VERIFIED BY THE ENGINEER BEFORE ORDERING MATERIAL FOR THIS WORK.

AT THE EXPANSION SLOTS IN THE THRIE BEAM RAILS AND CHANNELS, TIGHTEN BOLTS, BACK OFF ONE-HALF TURN AND BURR THREADS.

AT THE THRIE BEAM CONNECTION TO POSTS ON WINGS, TIGHTEN BOLTS, BACK OFF ONE-HALF TURN AND BURR THREADS.

MINIMUM LENGTH OF THRIE BEAM SECTIONS IS EQUAL TO ONE POST SPACE.

USE 5/8 INCH BUTT HEAD, OVAL SHOULDER BOLTS WITH HEX NUTS AT ALL SLOTS. (THICKNESS OF HEX NUTS = 3/8" MIN.)

THRIE BEAM GUARD RAIL ON THE BRIDGE SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE.

POSTS, TOP PLATES, BASE PLATES, CHANNELS AND CHANNEL SPLICE PLATES SHALL BE FABRICATED FROM A-36 STEEL AND GALVANIZED.

WASHERS SHALL BE USED AT ALL POST BOLTS (BETWEEN THE BOLT HEAD AND BEAM). THEY SHALL BE RECTANGULAR IN SHAPE (3" X 1-3/4" X 3/16" MIN.) AND FLAT WITH A 1/16" X 1" SLOT, OR WHEN NECESSARY OF SUCH DESIGN AS TO FIT THE CONTOUR OF THE BEAM. (USE A 3" X 1-3/4" X 5/8" RECTANGULAR WASHER BETWEEN THE POST AND THE THRIE BEAM RAIL.)

SPECIAL DRILLING OF THE THRIE BEAM MAY BE REQUIRED AT THE SPLICES. (ALL DRILLING DETAILS ARE TO BE SHOWN ON THE SHOP DRAWINGS.)

FABRICATION OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH SECTION 712 OF THE MISSOURI STANDARD SPECIFICATIONS.

EXPANSION SPLICES IN THE THRIE BEAM RAIL SHALL BE MADE AT EITHER THE FIRST OR SECOND POST ON EITHER SIDE OF THE JOINT AND ON STRUCTURE AT BRIDGE ENDS. WHEN THE SPLICE IS MADE AT THE SECOND POST, AN EXPANSION SLOT SHALL BE PROVIDED IN THE THRIE BEAM RAIL FOR CONNECTION TO THE FIRST POST TO ALLOW FOR MOVEMENT.

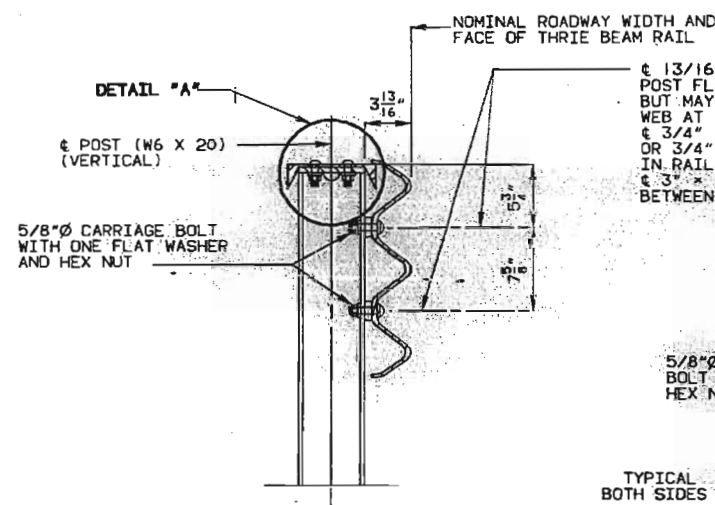
CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN FIELD BEFORE ORDERING MATERIALS.

SHIM PLATES 6" X 6" X 1/16" MAY BE USED BETWEEN THE TOP OF THE POST AND THE CHANNEL MEMBER AS REQUIRED FOR VERTICAL ALIGNMENT.

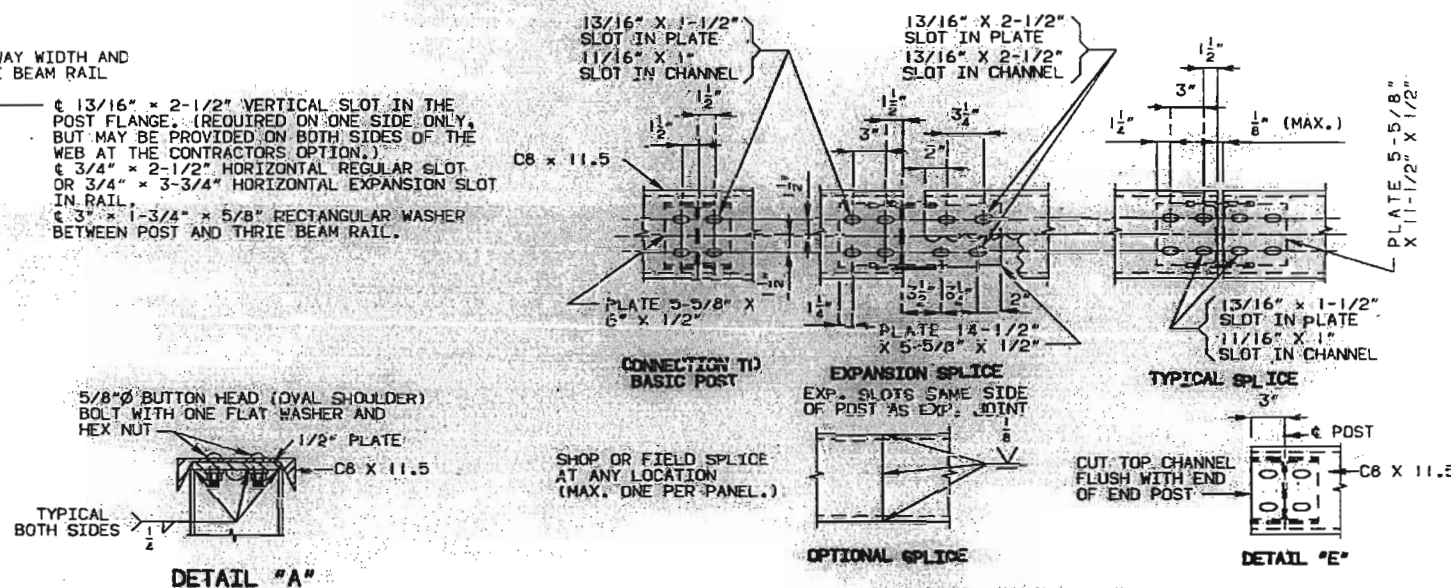
SEE SLAB SHEET FOR RAIL POST SPACING.

SEE MISSOURI STANDARD PLANS DRAWING 606.00 FOR DETAILS NOT SHOWN.

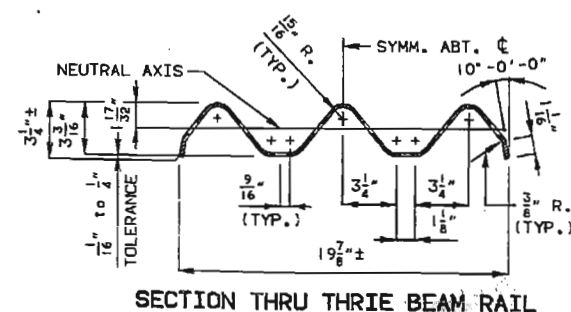
**SECTION THRU SLAB SHOWING THRIE BEAM RAIL**



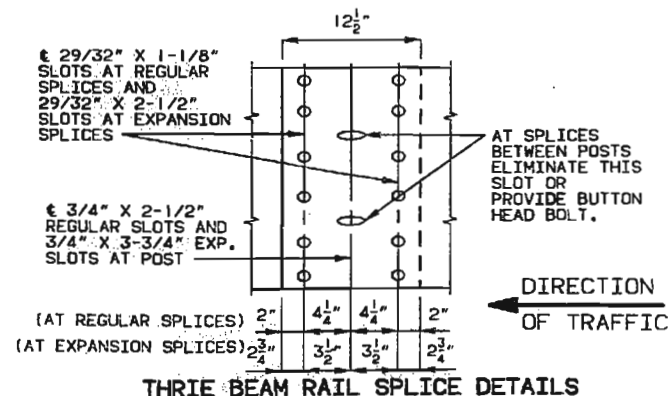
**PART SECTION AT RAIL POST**



**CHANNEL MEMBER DETAILS**



**SECTION THRU THRIE BEAM RAIL**



**THRIE BEAM RAIL SPLICE DETAILS**

DETAILED OCT. 1992  
CHECKED OCT. 1992

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 4 OF 4

HOWELL COUNTY

F-373R1

106 322

THRIE BM, OS 3.30.17, A

|               |                                    |            |
|---------------|------------------------------------|------------|
| STATE<br>MO   | JOB NO. J8P0308                    | SHEET<br>9 |
| DIST NO.<br>9 | PROJECT NO. DPR STP STPG-0112(001) | ROLL<br>6  |
|               | COUNTY HOWELL-OREGON               |            |

| ✓ | NO.     | DESCRIPTION   |
|---|---------|---|
| ✓ | 608.00C | PAVED APPROACHES  |
| ✓ | 608.10G | CONCRETE SIDEWALK & WHEELCHAIR RAMPS  |
|   | 608.20D | CONCRETE STEPS  |
| ✓ | 609.00G | CONCRETE CURB - CURB & GUTTER - GUTTER                                      |
|   | 609.15B | PAVED DITCHES   |
|   | 609.40D | DRAIN BASIN, SHOULDER PAVING & FILL SLOPE AT BRIDGE ENDS                    |
|   | 609.60B | DITCH LINER   |
| ✗ | 609.70C | ROCK LINING FOR CULVERT OUTLETS   |
|   | 610.20E | BRICK MANHOLES (ALSO INCLUDE 614.30)  |
|   | 611.60L | CONCRETE SLOPE PROTECTION   |
| ✓ | 612.10K | BARRICADES AND FLASHER SIGNS  |
|   | 613.00B | PAVEMENT REPAIR   |
| ✗ | 614.10R | CURB INLETS, GRATES & BEARING PLATES  |
|   | 614.30D | MANHOLE FRAMES & COVERS   |
|   | 615.00A | OFFICE FOR ENGINEER   |
| ✓ | 616.10M | TRAFFIC CONTROL DEVICES (3 SHEETS)(ALSO INCLUDE 903.01)                     |
| ✓ | 617.00X | CONCRETE TRAFFIC BARRIER (3 SHEETS)   |
|   | 702.01F | 16" CONCRETE PILES (APPROVED TYPES)(2 SHEETS)                               |
|   | 702.02B | CAST-IN-PLACE CONCRETE PILES (APPROVED TYPES)                               |
| ✓ | 703.21E | CONCRETE BOX CULVERTS, H20 LOADING (3 SHEETS)(FLARED WINGS)(INCL 706.35)    |
|   | 703.24E | CONCRETE BOX CULVERTS, SKEW DATA (703.30)(INCL 706.35)                      |
|   | 703.25E | CONCRETE BOX CULVERTS, SKEW DATA (703.21)(3 SHTS)(FLRD WINGS)(INCL 706.35)  |
| ✓ | 703.30F | CONCRETE BOX CULVERTS, 4' SPANS & LESS-ALL LOADING (INCL 706.35)            |
|   | 703.35B | CONCRETE BOX CULVERTS, CUTTING DETAILS (STRAIGHT WINGS)(INCL 706.35)        |
| ✓ | 703.36A | CONCRETE BOX CULVERTS, CUTTING DETAILS (FLARED WINGS)(INCL 706.35)          |
| ✓ | 703.50H | CONCRETE DOUBLE BOX STRUCTURE-SQUARE (INCL 706.35)                          |
|   | 703.51G | CONCRETE DOUBLE BOX STRUCTURE-SKEWED (INCL 706.35)                          |
|   | 703.52D | CONCRETE DOUBLE BOX STRUCTURE-CUT SECTIONS (INCL 706.35)                    |
| ✓ | 703.54E | DOUBLE BOX STRUCTURE REINFORCEMENT-H20 OR HS20 LOADING (8 SHEETS)           |
|   | 703.55E | CONCRETE DOUBLE BOX STRUCTURE (FLARED WINGS) SQUARE (INCL 706.35)           |
|   | 703.56E | CONCRETE DOUBLE BOX STRUCTURE (FLARED WINGS) SKEWED (INCL 706.35)           |
|   | 703.60C | CONCRETE BOX STRUCTURE-PIPE INLET   |
|   | 703.70D | CONCRETE TRIPLE BOX STRUCTURE-SQUARE (2 SHEETS)(INCL 706.35)                |
|   | 703.71D | CONCRETE TRIPLE BOX STRUCTURE-SKEWED (2 SHEETS)(INCL 706.35)                |
|   | 703.72D | CONCRETE TRIPLE BOX STRUCTURE-(FLARED WINGS)(SQUARE)(2 SHEETS)(INCL 706.35) |
|   | 703.73D | CONCRETE TRIPLE BOX STRUCTURE-(FLARED WINGS)(SKEWED)(2 SHEETS)(INCL 706.35) |
|   | 703.74D | CONCRETE TRIPLE BOX STRUCTURE-CUT SECTIONS (INCL 706.35)                    |
|   | 703.76B | CONCRETE TRIPLE BOX STRUCTURE REINFORCEMENT-H20 OR HS20 LOADING (5 SHEETS)  |
| ✓ | 706.30E | REINFORCING BAR SUPPORTS  |
| ✓ | 706.35E | BAR SUPPORTS FOR CONCRETE REINFORCEMENT                                     |
|   | 712.40E | STEEL DAMS FOR BRIDGES (6" CHANNEL)   |
|   | 725.31C | METAL CURTAIN WALL AND METAL INLETS   |
| ✓ | 726.30C | CULVERT INSTALLATION METHODS  |
|   | 731.00S | PRECAST MANHOLES (ALSO INCL 614.30)   |
|   | 731.10K | PRECAST DROP INLETS (4 SHTS)(ALSO INCL 614.30 & 614.10)                     |

| ✓ | NO.      | DESCRIPTION  |
|---|----------|--|
| ✓ | 732.00L  | FLARED END SECTION (2 SHEETS)  |
|   | 732.10   | SAFETY SLOPE END SECTIONS (2 SHEETS)   |
|   | 806.02A  | STAPLE PLACEMENT FOR PLASTIC NETTING   |
|   |          | <b>HIGHWAY LIGHTING</b>  |
|   | 901.00P  | POLES & APPURTENANCES-30' (3 SHEETS)   |
|   | 901.01U  | POLES & APPURTENANCES-45' (3 SHEETS)   |
|   | 901.05A  | CONTROL PANEL CABINET DETAILS (2 SHEETS)(SEE NOTE)                           |
|   | 901.12C  | POLE MOUNT CONT STA-SECONDARY SERV-480 V MULTI CIR (NOT METERED)             |
|   | 901.15E  | POLE MOUNT CONT STA-SEC SERV-120,240, & 480 V MULTI CIR                      |
|   | 901.16D  | POLE MOUNT CONT STA-SEC SERV-480 V MULTI CIR (METERED)                       |
|   | 901.18D  | POLE MOUNT CONT STA-SEC SERV-120/240 V MULTI CIR                             |
|   | 901.19D  | POLE MOUNT CONT STA-SEC SERV-240 V MULTI CIR (NOT METERED)                   |
|   | 901.20D  | POLE MOUNT CONT STA-SEC SERV-120/240 V MULTI CIR (SIG METERED)               |
|   | 901.22E  | POLE MOUNT CONT STA-SEC SERV-120/240 & 480 V MULTI CIR (BOTH METERED)        |
|   | 901.23E  | POLE MOUNT CONT STA-SEC SERV-240 V MULTI CIR (METERED)                       |
|   | 901.24D  | POLE MOUNT CONT STA-SEC SERV-240 V MULTI CIR (LIGHTS & SIGNALS-BOTH METERED) |
|   | 901.25D  | BASE MOUNT CONT STA-SEC SERV-120/240 V MULTI CIR                             |
|   |          | NOTE: ALSO INCLUDE 901.05 WITH 901.12 THROUGH 901.25 EXCEPT 901.12           |
|   |          | <b>TRAFFIC SIGNALS</b>   |
|   | 902.00F  | SIGNAL HEADS, LENSES AND MOUNTING  |
|   | 902.10J  | PULL BOXES, CONTROLLERS, COND LOCATION                                       |
|   | 902.15D  | POWER SUPPLY ASSEMBLY  |
|   | 902.21B  | TELEPHONE INTERCONNECT   |
|   | 902.30H  | CONCRETE BASES   |
|   | 902.40J  | TUBULAR STEEL POST   |
|   | 902.50F  | DETECTORS  |
|   | 902.60F  | SPAN WIRE DETAILS-STEEL POST   |
|   | 902.70D  | SPAN WIRE DETAILS-WOOD POLE  |
|   | 902.80A  | TRAFFIC SIGNAL SYMBOLS   |
|   |          | <b>HIGHWAY SIGNING</b>   |
|   | 903.01C  | ALPHABETS (2 SHEETS)   |
|   | 903.02Y  | HIGHWAY SIGNING (7 SHEETS)   |
|   | 903.03AP | SIGN MOUNTING DETAILS (5 SHEETS)   |
|   | 903.04D  | WEIGH STATION SIGNING  |
|   | 903.05C  | TUBULAR SPAN SUPPORT-ONE TUBE, TYPE S  |
|   | 903.06C  | TUBULAR SPAN SUPPORT-TWO TUBE, TYPE S  |
|   | 903.07C  | TUBULAR CANTILEVER SUPPORTS, TYPE C  |
|   | 903.08C  | TUBULAR BUTTERFLY SUPPORTS, TYPE B   |
|   | 903.09D  | LIGHTING SUPPORT BRACKET   |
|   | 903.10T  | SIGN TRUSSES-OVERHEAD ALUMINUM (8 SHEETS)(INCL 903.03)                       |
|   | 903.12N  | SIGN TRUSSES-BUTTERFLY & CANTILEVER-STEEL (7 SHEETS)(INCL 903.03)            |
|   | 903.60S  | SIGN TRUSSES-OVERHEAD STEEL (7 SHEETS)(INCL 903.03)                          |

**NOTES:**  
PLANS FOR THIS PROJECT WERE DEVELOPED USING DRAWINGS FROM THIS INDEX

\* REVISED OR NEW SINCE JAN. 1, 1992.



324

FINAL PLANS

|          |         |                           |          |    |
|----------|---------|---------------------------|----------|----|
| STATE    | JOB NO  | J9P0308                   | SHEET NO | 98 |
| MO       | PROJECT | NO DPR STP STPQ-0112(001) | ROUTE    | 63 |
| DISTRICT | COUNTY  | HOWELL-OREGON             |          |    |
| 9        |         |                           |          |    |

1529+22 RT.  
15" X 34" CR. A PIPE  
CL. 3 EXC. 8 CY  
ADD. CL. 3 EXC. 8 CY  
TOTAL CL. 3 EXC. 16 CY

1528+55 LT.  
15" X 36" CR. A PIPE  
CL. 3 EXC. 0 CY  
ADD. CL. 3 EXC. 28 CY  
TOTAL CL. 3 EXC. 28 CY

1528+25 RT.  
15" X 36" CR. A PIPE  
CL. 3 EXC. 19 CY  
ADD. CL. 3 EXC. 20 CY  
TOTAL CL. 3 EXC. 39 CY

1527+50 RT.  
SKEW: 40.00° L.A.  
15" X 34" CR. A PIPE  
CL. 3 EXC. 25 CY  
ADD. CL. 3 EXC. 2 CY  
TOTAL CL. 3 EXC. 27 CY

1527+05 LT.  
15" X 36" CR. A PIPE  
CL. 3 EXC. 21 CY  
ADD. CL. 3 EXC. 5 CY  
TOTAL CL. 3 EXC. 26 CY

1523+15 LT.  
15" X 36" CR. A PIPE  
CL. 3 EXC. 21 CY  
ADD. CL. 3 EXC. 7 CY  
TOTAL CL. 3 EXC. 28 CY

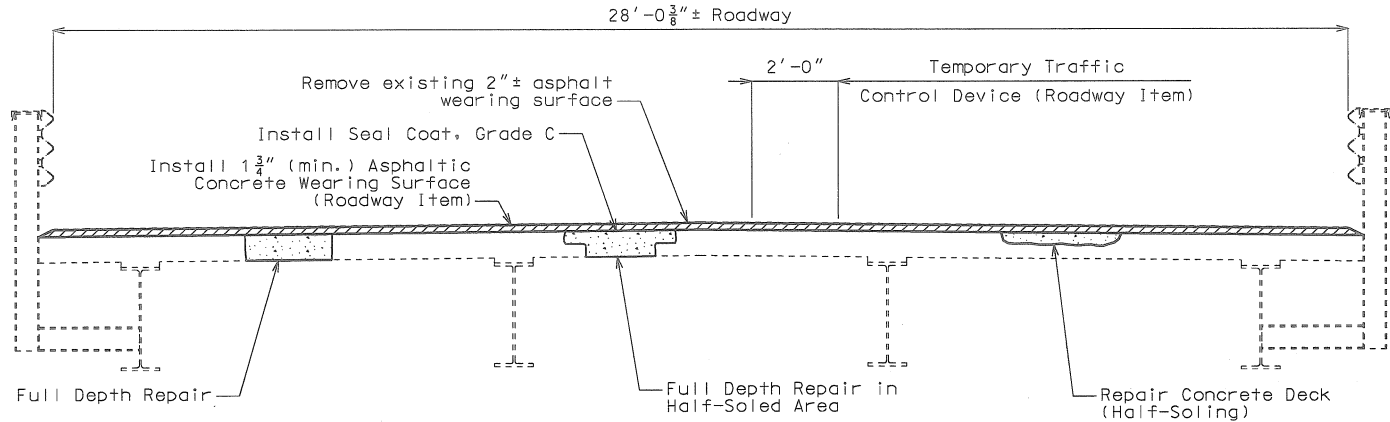
1519+97 RT.  
15" X 34" CR. A PIPE  
CL. 3 EXC. 16 CY  
ADD. CL. 3 EXC. 7 CY  
TOTAL CL. 3 EXC. 23 CY

1515+00 RT.  
15" X 36" CR. A PIPE  
CL. 3 EXC. 11 CY  
ADD. CL. 3 EXC. 4 CY  
TOTAL CL. 3 EXC. 15 CY

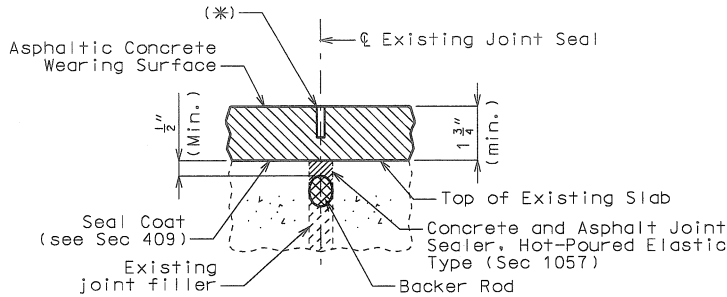
STA 1515+00 TO 1529+22

10' SCALE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION  
U.I.P. EXISTING (31', 31', 61', 31', 31') SIMPLE WIDE FLANGE BEAM SPANS



SECTION THRU SLAB



SECTION THRU JOINTS

General Notes:

Design Specifications:

2002 - AASHTO 17th Edition  
Bridge Deck Rating = 5

Traffic Control:

Maintain one lane of traffic on structure during construction.  
See roadway plans for traffic control.

Structural Steel Protective Coatings:

Protective Coating: Calcium Sulfonate System in accordance with Sec 1081.

Surface Preparation: Surface preparation of the existing steel shall be in accordance with Sec 1081 for "Overcoating of Structural Steel (Calcium Sulfonate System)". The cost of surface preparation will be considered completely covered by the contract unit price per sq. foot for "Surface Preparation for Overcoating Structural Steel".

Rust Penetrating Sealer: The rust penetrating sealer shall be applied to the surfaces of all bearings, overlapping steel plates, pin connections, pin and hanger connections and other locations where rust bleeding, pack rust and layered rust is occurring. The cost of the rust penetrating sealer will be considered completely covered by the contract lump sum price for "Calcium Sulfonate Rust Penetrating Sealer".

Prime Coat: The cost of the prime coat will be considered completely covered by the contract unit price per sq. foot for "Calcium Sulfonate Primer".

Topcoat: The color of the topcoat shall be Gray (Federal Standard #26373). The cost of the topcoat will be considered completely covered by the contract unit price per sq. foot for "Calcium Sulfonate Topcoat".

Miscellaneous:

Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

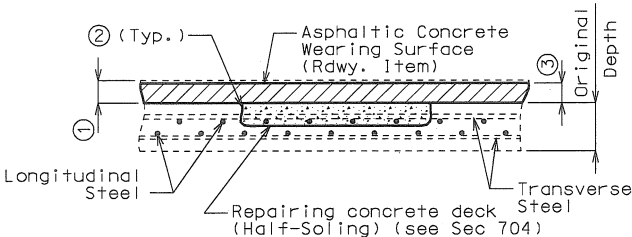
Contractor shall verify all dimensions in field before ordering new material.

Roadway surfacing adjacent to bridge ends to match bridge overlay (Roadway Item).

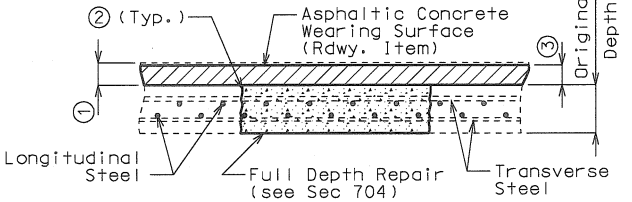
"Sec" refers to the sections in the standard and supplemental specifications unless specified otherwise.

The asphaltic concrete wearing surface and asphalt binder type shall be as required on the roadway pavement. The mixture shall be in accordance with Sec 703 and produced in accordance with Sec 404 (Roadway Item).

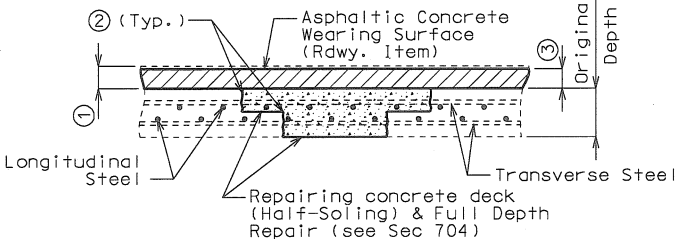
Concrete for repairing concrete deck may be a qualified mortar in accordance with Sec 704 instead of the Class B-2 or B-1 Concrete.



HALF-SOLED AREA



FULL DEPTH REPAIR



FULL DEPTH REPAIR IN HALF-SOLED AREA

- Remove existing wearing surface.
- One inch vertical side shall be established outside the deteriorated area. See Sec 704.
- 1-3/4" (min.) for Asphaltic Concrete Wearing Surface (Rdwy. Item).

(\*) Saw cut 1" deep and fill with concrete and asphalt joint sealer, hot-poured elastic type, in accordance with Sec 1057.

Note:

Joints shall be cleaned per the manufacturer's recommendations. Cost of concrete and asphalt joint sealer and backer rod will be considered completely covered by the contract unit price for other items included in the contract.

Estimated Quantities

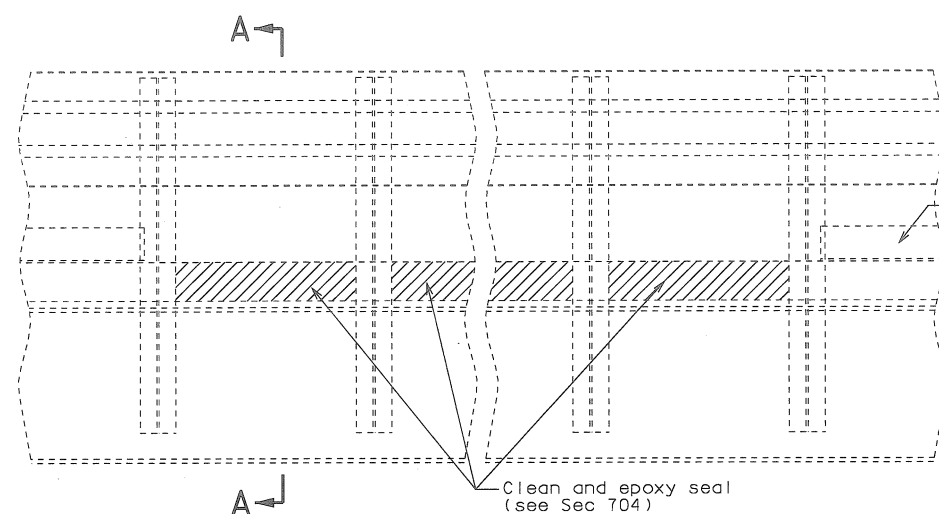
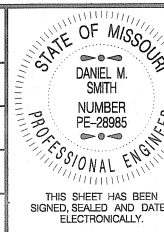
| Item   |          | Total |
|--|----------|-------|
| Removal of Asphalt Wearing Surface                   | sq. foot | 5404  |
| Seal Coat, Grade C                                   | sq. yard | 600   |
| Substructure Repair (Formed)                         | sq. foot | 1000  |
| Repairing Concrete Deck (Half-Soling)                | sq. foot | 1000  |
| Full Depth Repair                                    | sq. foot | 500   |
| Surface Preparation for Overcoating Structural Steel | sq. foot | 5600  |
| Calcium Sulfonate Rust Penetrating Sealer            | lump sum | 1     |
| Calcium Sulfonate Primer                             | sq. foot | 5600  |
| Calcium Sulfonate Topcoat                            | sq. foot | 5600  |
|  |          |       |
|  |          |       |
|  |          |       |
|  |          |       |

REPAIRS TO BRIDGE OVER BNSF RAILWAY

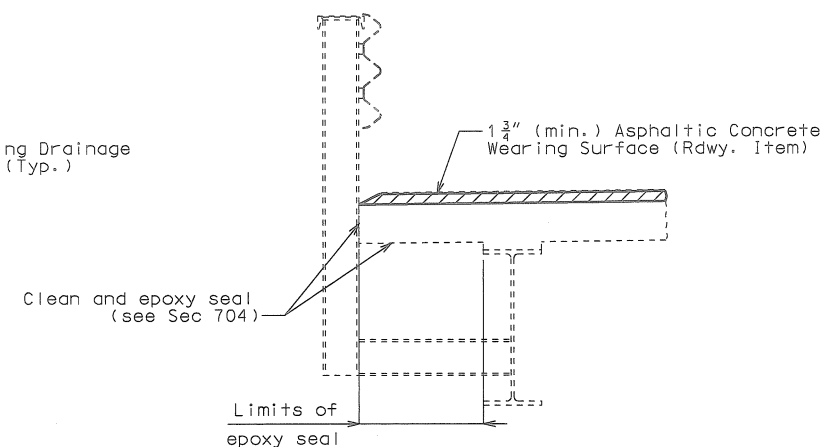
STATE ROAD FROM RTE. VV TO RTE. PP  
ABOUT 1.5 MILES NW OF RTE. VV  
PROJECT NO. STA. 1927+35.00± (MATCH EXIST.)  
JOB NO. J9P0566 RTE. 63



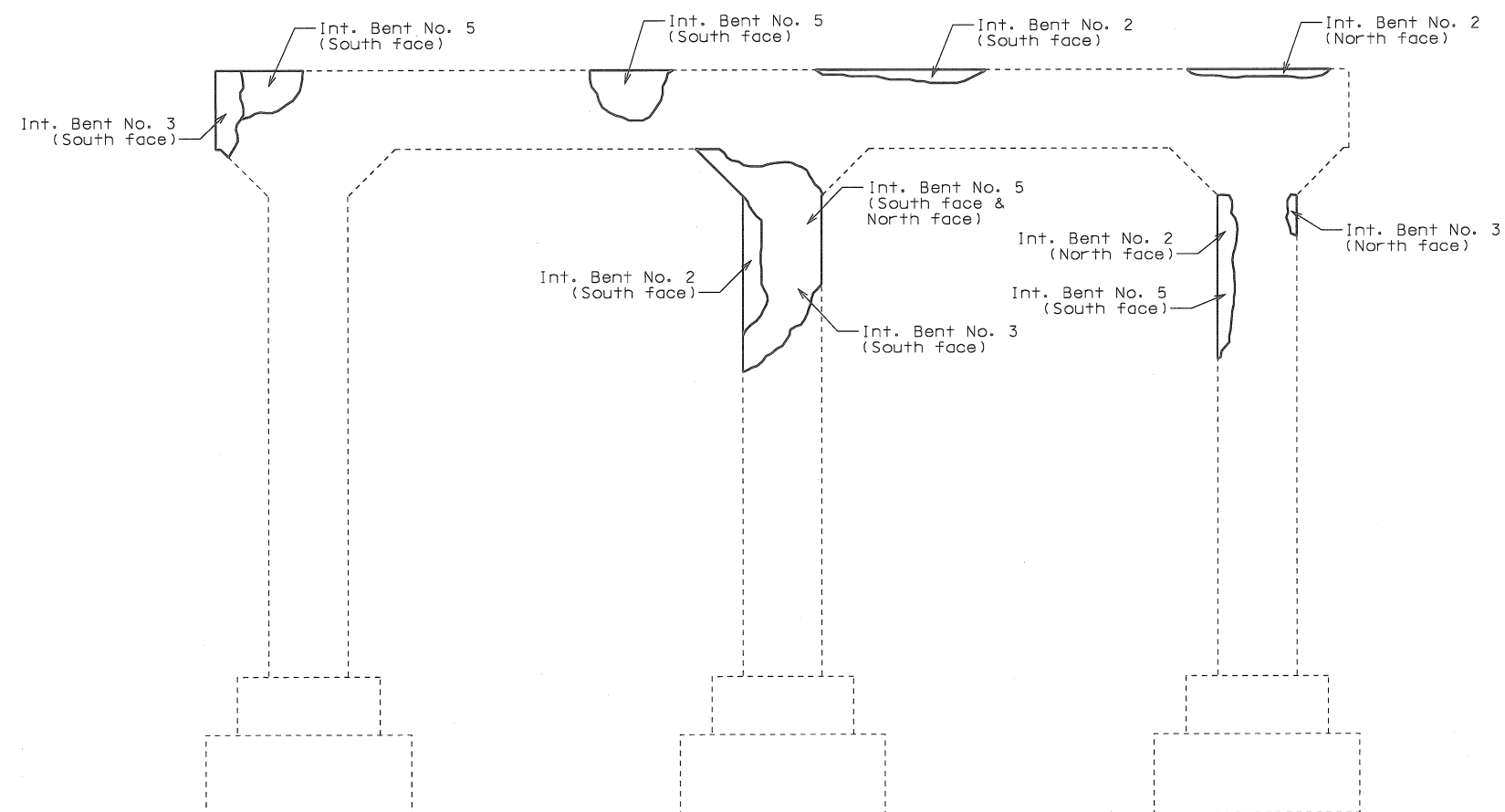
| ROUTE           | STATE | DISTRICT | SHEET NO. |
|-----------------|-------|----------|-----------|
| 63              | MO    | BR       | 2         |
| JOB NO. J9P0566 |       |          |           |
| CONTRACT ID.    |       |          |           |
| PROJECT NO.     |       |          |           |
| COUNTY HOWELL   |       |          |           |



TYPICAL ELEVATION SHOWING EPOXY SEAL  
BETWEEN EXISTING DRAINAGE BLOCKS



SECTION A-A



DETAIL SHOWING SUBSTRUCTURE REPAIR (FORMED)  
AT INTERMEDIATE BENTS (See Sec 704)