VERMILION SEC 92 (11RS, 11BR, 11VB-BR, 11VB-1-BR) I & R ~~JUNE 27 1991~~ ~~# 307~~

092-0008 & 0009-000

| F.A.I. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| --- | --- | --- | --- | --- |
| 74 | * | VERMILION | 165 | 1 |

*92(11RS,11BR,11VB-BR,11VB-1-BR)

# STATE OF ILLINOIS
# DEPARTMENT OF TRANSPORTATION
## DIVISION OF HIGHWAYS

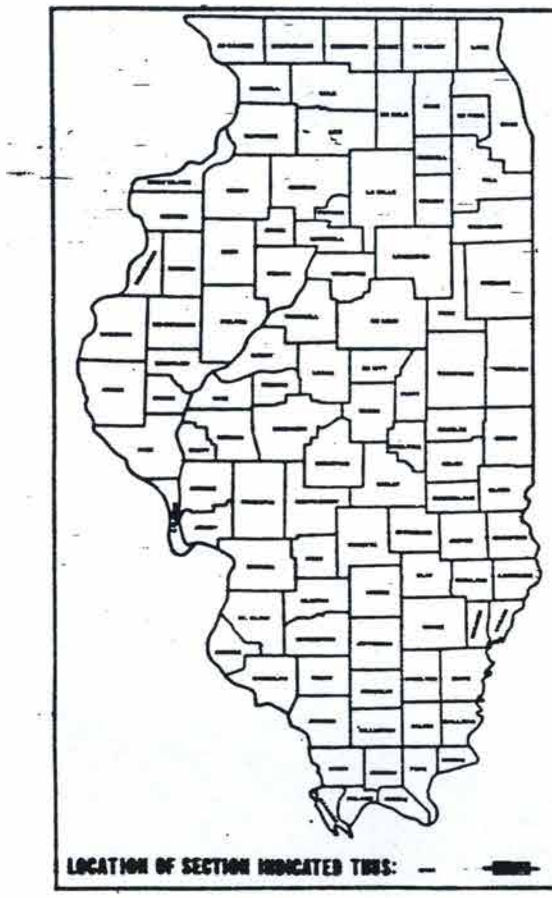
95%
7-16-94

# PLANS FOR PROPOSED
# FEDERAL AID INTERSTATE HIGHWAY

FOR INDEX OF SHEETS, SEE SHEET NO. 5
FOR SUMMARY OF QUANTITIES, SEE SHEET NO. 7-11 (INCL.)

SCALES: PLAN; PROFILE HOR.; PROFILE VERT.; CROSS-SECTIONS

D-95-026-89

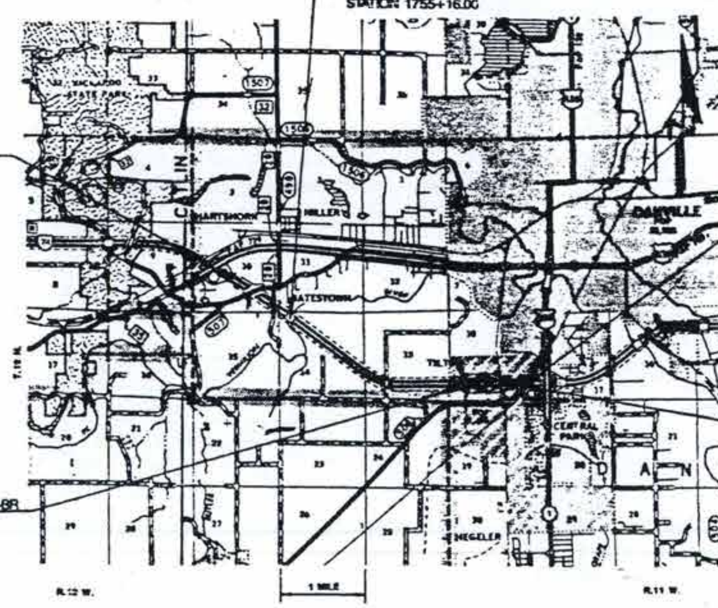



**F.A.I. ROUTE 74, SECTION 92(11RS,11BR,11VB-BR,11VB-1-BR)**

VERMILION COUNTY

C-95-067-90

INTERSTATE RESURFACING AND BRIDGE REHABILITATION




STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED April 25 1991
J. Benson, DISTRICT ENGINEER
EXAMINED 7 91 Gary D. Gould, ENGINEER OF PLANS AND SPECIFICATIONS
PASSED J. T. Williams, ENGINEER OF DESIGN
APPROVED 91 Ralph C. Wehner, DIRECTOR, DIVISION OF HIGHWAYS

PROJECT ENGINEER: PAUL KOEHLER

SQUAD LEADER: DON CRAUN

**DESIGN DESIGNATION**

1630 (13) INTERSTATE 6.13(COMP.-6)

CONTRACT NO. 90165

TOTAL & NET LENGTH OF SECTION 92(11RS,11BR,11VB-BR,11VB-1-BR) = 19,200.00FEET = 3.63 MILES

TOLL FREE J.U.L.I.E. TELEPHONE NO.
1-800-892-0123

DANVILLE TOWNSHIP

~~U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED
DIVISION ADMINISTRATOR DATE~~

MJF

VERMILION COUNTY SECTION* F.A.I. ROUTE 74
*92(11RS,11BR,11VB-BR,11VB-1-BR)

092-0008(EB) 920008 0009(WB) 920009

5-161

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | *** | Vermilion | 165 | 90 |
| STA. | | TO STA. | | |
| FED. ROAD DIST. NO. | ILLINOIS | PROJECT | | |
| | Dwg. No. 1 of 41 | | | |

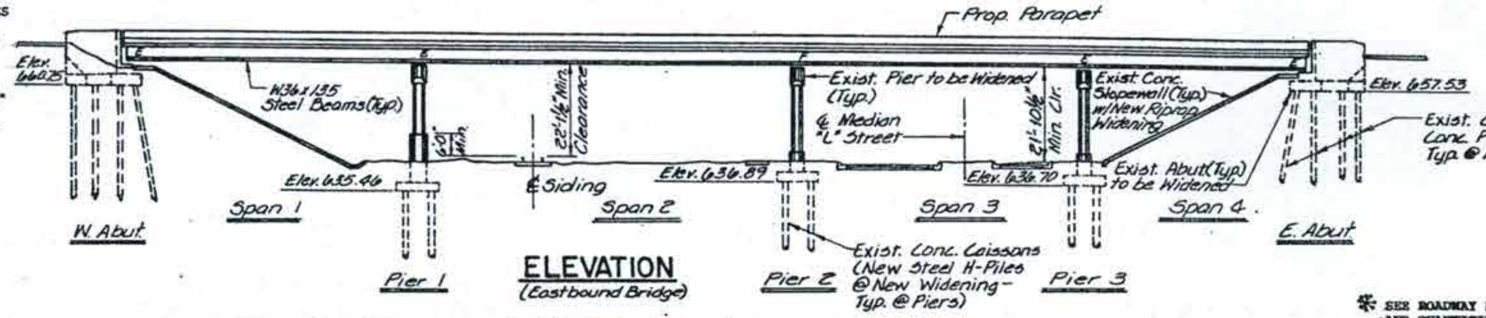
*** (92-11VB)BR

BENCH MARK: PERMANENT SURVEY MARKER, TYPE II
STATION 1873+58.65, TOP OF BRASS PLUG ELEV. 667.91

EXISTING STRUCTURE:
STRUCTURE NO.'S 092-0008 & 092-0009 WERE BUILT IN 1964 AS FAI 74, SECTION 92-11VB. REPAIRS PERFORMED IN 1977 INCLUDED DECK PATCHING, EXPANSION DEVICE RECONSTRUCTION, INSTALLATION OF WATERPROOFING MEMBRANE SYSTEM, AND BITUMINOUS OVERLAY. THE STRUCTURES ARE STEEL BEAM AND REINFORCED CONCRETE DECK SUPERSTRUCTURES SUPPORTED ON PILE BENT ABUTMENTS AND MULTIPLE COLUMN PIERS. THE DECK IS COMPOSITE WITH THE STEEL BEAMS IN POSITIVE MOMENT REGIONS FOR STRUCTURE NO. 092-0008 THROUGHOUT AND FOR STRUCTURE NO. 092-0009 IN SPANS 1 & 2 ONLY. OVERALL LENGTHS ARE 317'-6 3/8" (092-0008) & 277'-5" (092-0009). CLEAR ROADWAY WIDTHS ARE 30'-0" (092-0008) & 42'-0" (092-0009). TRAFFIC TO BE MAINTAINED UTILIZING STAGE CONSTRUCTION. HANDRAIL TO BE SALVAGED; BRIDGE CONTRACTOR TO STOCKPILE ON STATE ROW FOR REMOVAL BY DISTRICT MAINTENANCE FORCES.

## LEGEND

F = Fixed Bearing
E = Exp. Bearing
PGL = Profile Grade Line




## ELEVATION
(Eastbound Bridge)

*  SEE ROADWAY PLANS FOR DETAILS AND QUANTITIES.

| |
|---|
| STATION 1877+01.73 |
| BUILT 199_ BY |
| STATE OF ILLINOIS |
| FAI RTE. 74 SECTION (92-11VB)BR |
| LOADING HS20 & ALT. |
| STR. NO. 092-0009 |

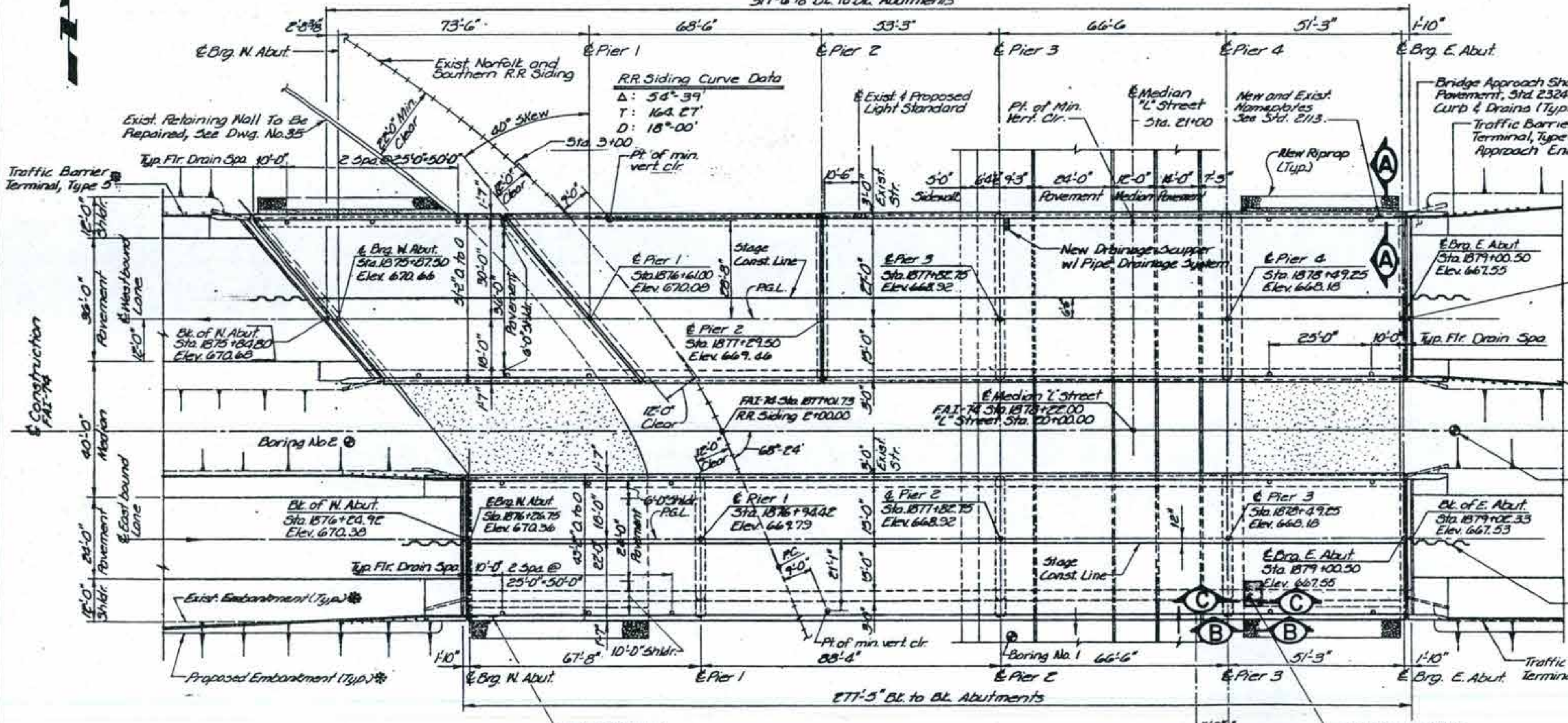
**WESTBOUND**

| |
|---|
| STATION 1877+01.73 |
| BUILT 199_ BY |
| STATE OF ILLINOIS |
| FAI RTE. 74 SECTION (92-11VB)BR |
| LOADING HS20 & ALT. |
| STR. NO. 092-0008 |

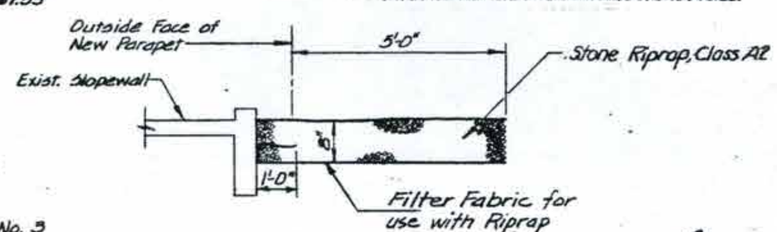
**EASTBOUND**

## NEW NAME PLATES (1 EA. REQ'D)
(SEE STD. 2113)

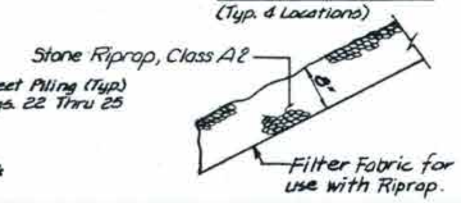
Note
Salvage Existing Name Plates & Mount Adjacent to New Name Plates on New Parapet as shown on Std. 2113. The cost of Salvaging & Incorporating Exist. Name Plates into New Work is Incidental to Name Plates.



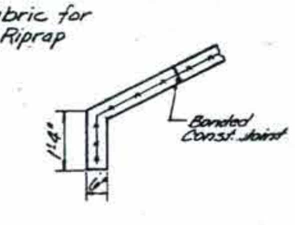

## PLAN




## SECTION A-A
(Typ. 4 Locations)




## SECTION B-B
(Similar @ 4 Locations)

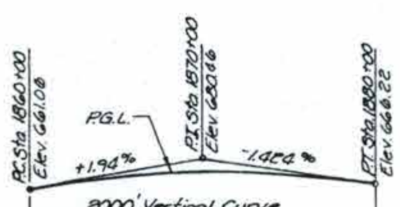



## SECTION C-C

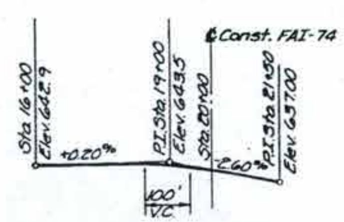
** REMOVE & REPLACE 4" SLOPEWALL WHERE REQUIRED FOR CONSTRUCTION OF PIER WIDENING. COST INCIDENTAL TO CLASS X CONCRETE.

**APPROVED**
FOR STRUCTURAL ADEQUACY ONLY

Ralph E. Anderson




## FAI-74 PROFILE GRADE
(Along ℄ Pavement)




## "L" STREET PROFILE GRADE
(℄ Pavement Southbound Lanes)

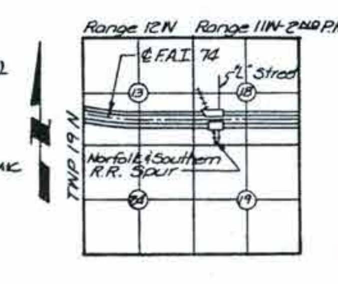
## R.R. SIDING PROFILE
(Top of Rail)

DESIGN STRESSES (EXIST. ELEMENTS TO BE REUSED)
$f'_c$ = 3,500 psi
$f_y$ = 40,000 psi (REINF. BARS)
$f_s$ = 20,000 psi (REINF. BARS)
$f_y$ = 36,000 psi (STRUCT. STEEL)

DESIGN SPECIFICATIONS
AASHTO 1989 AND APPLICABLE INTERIMS (1990) AND SEISMIC RETROFITTING GUIDELINES FOR HIGHWAY BRIDGES.

LOADING
HS 20-44 & ALTERNATE MILITARY WITH ALLOWANCES FOR 25 PSF F.W.S.

DESIGN STRESSES (NEW CONSTRUCTION)
$f'_c$ = 3,500 psi
$f_y$ = 60,000 psi (REINF. BARS)
$f_y$ = 36,000 psi NEW (M-183 STRUCT. STEEL)




## LOCATION SKETCH


**ESCA CONSULTANTS, INC.**

| | | |
|---|---|---|
| DESIGNED BY: | RDP | 8-89 |
| DRAWN BY: | TP/WEM | 8-89 |
| CHECKED BY: | JRF | 8-89 |
| APPROVED BY: | RDP | 8-89 |

**GENERAL PLAN & ELEVATION**
**FAI 74 OVER "L" STREET & RR SIDING**
**FAI RTE. 74 SECTION (92-11VB) BR**
**VERMILION COUNTY**
**STATION 1877+01.73**
**STRUCTURE NO. 092-0008 (E.B.)**
**STRUCTURE NO. 092-0009 (W.B.)**

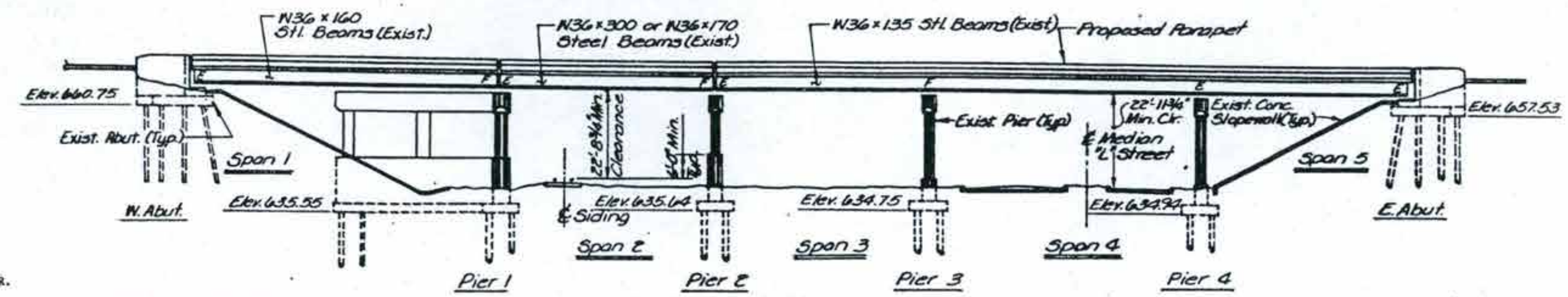
| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | ❊ | Vermilion | 165 | 91 |
| STA | | TO STA | | |
| FED. ROAD DIST. NO. | | ILLINOIS | PROJECT | |

❊(92-11VB)BR

Dwg. No. 2 of 41

## GENERAL NOTES

1. SEE PROPOSAL FOR BORING DATA.
2. FASTENERS SHALL BE HIGH STRENGTH BOLTS. BOLTS 3/4" Ø, OPEN HOLES 13/16" Ø, UNLESS OTHERWISE NOTED.
3. CALCULATED WEIGHT OF STRUCTURAL STEEL = 74,000 LBS.
5. ALL CONTACT SURFACES OF JOINTS FOR THE DIAPHRAGMS AND BOLTED SPLICES SHALL BE FREE OF PAINT OR LACQUER.
6. FIELD WELDING OF CONSTRUCTION ACCESSORIES WILL NOT BE PERMITTED TO THE BOTTOM FLANGE OF BEAMS OR GIRDERS NOR TO THE TOP FLANGE FOR A DISTANCE EQUAL TO ONE-FOURTH THE SPAN LENGTH EACH WAY FROM THE PIER SUPPORTS. FIELD WELDING IN OTHER AREAS WILL BE PERMITTED ONLY WHEN APPROVED BY THE ENGINEER.
7. ANCHOR BOLTS SHALL BE SET BEFORE BOLTING DIAPHRAGMS OVER SUPPORTS.
8. THE NEW MAIN LOAD CARRYING MEMBER COMPONENTS SUBJECT TO TENSILE STRESS SHALL CONFORM TO THE SUPPLEMENTAL REQUIREMENTS FOR NOTCH TOUGHNESS ZONE 2. THESE COMPONENTS ARE THE NEW WIDE FLANGE BEAMS AND ALL SPLICE PLATE MATERIAL FOR THESE NEW BEAMS.
9. REINFORCEMENT BARS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-31, M-42 OR M-53 GRADE 60.
10. PLAN DIMENSIONS AND DETAILS RELATIVE TO EXISTING STRUCTURE HAVE BEEN TAKEN FROM EXISTING PLANS AND ARE SUBJECT TO NOMINAL CONSTRUCTION VARIATIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY SUCH DIMENSIONS AND DETAILS IN THE FIELD AND MAKE NECESSARY APPROVED ADJUSTMENTS PRIOR TO CONSTRUCTION OR ORDERING OF MATERIALS. SUCH VARIATIONS SHALL NOT BE CAUSE FOR ADDITIONAL COMPENSATION FOR A CHANGE IN THE SCOPE OF THE WORK; HOWEVER, THE CONTRACTOR WILL BE PAID FOR THE QUANTITY ACTUALLY FURNISHED AT THE UNIT PRICE BID FOR THE WORK.
11. EXPANSION BOLTS SHALL CONSIST OF APPROVED. EXPANSION ANCHORS, PROVIDING MINIMUM CERTIFIED PROOF LOAD = 4,080 LBS., AND 3/4" Ø X 12" HOOKED BOLTS.
12. BEARING SEAT SURFACES SHALL BE CONSTRUCTED OR ADJUSTED TO THE DESIGNATED ELEVATIONS WITHIN A TOLERANCE OF 1/8 INCH. ADJUSTMENT SHALL BE MADE EITHER BY GRINDING THE SURFACE OR BY SHIMMING THE BEARING. TWO 1/8" ADJUSTING SHIMS, OF THE DIMENSIONS OF THE BOTTOM BEARING PLATE, SHALL BE PROVIDED FOR EACH BEARING IN ADDITION TO ALL OTHER PLATES OR SHIMS.
13. THE CONTRACTOR SHALL DRIVE ONE CONCRETE TEST PILE IN A PERMANENT LOCATION AT EACH ABUTMENT ON THE EB BRIDGE AND ONE STEEL HP 10X42 PILE IN A PERMANENT LOCATION AT THE RETAINING WALL AND AT PIER 2 ON THE EB BRIDGE AS DIRECTED BY THE ENGINEER BEFORE ORDERING THE REMAINDER OF THE PILES.
14. THE CONTRACTOR WILL BE REQUIRED TO MARK ON TOP OF THE CONCRETE DECK THE LOCATIONS OF THE TOP FLANGE OF ALL THE STEEL BEAMS OR GIRDERS, PRIOR TO ANY REMOVAL OF THE BRIDGE CONCRETE DECK. SAW CUTTING DIRECTLY OVER THE TOP OF THE BEAM OR GIRDER FLANGES IS NOT PERMITTED.
15. SLOPEWALL SHALL BE REINFORCED WITH WELDED WIRE FABRIC, 6"x6" - W4.0xW4.0, WEIGHING 58 LBS. PER SQ. FT.
16. BRIDGE SEAT SEALER SHALL BE APPLIED TO THE BEARING SEATS AT ALL ABUTMENTS AND AT PIERS 1 & 2 WB. ESTIMATED QUANTITY = 750 SQUARE FEET.
17. THE FIRST TWO COATS OF LEAD AND CHROMATE FREE ALKYD PAINT SYSTEM SHALL BE USED FOR SHOP AND FIELD PAINTING OF NEW STRUCTURAL STEEL.
18. STRUCTURAL STEEL SHALL ONLY BE CLEANED AND PAINTED AS REQUIRED BY THE SPECIAL PROVISION "CLEANING AND PAINTING NEW STEEL AND ADJACENT AREAS OF EXISTING STEEL STRUCTURES."



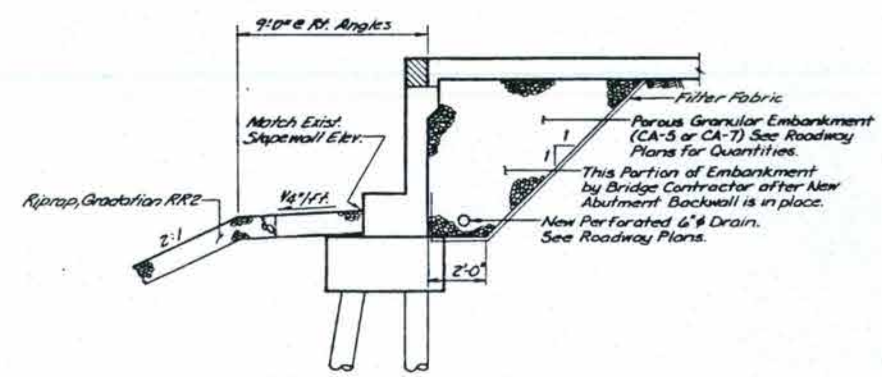

*Prior to pouring the new concrete for the deck,* all loose rust, loose mill scale, and all other foreign material shall be removed from the embedded portions of flanges of stringers. The removal shall be accomplished in accordance with the requirements of the SSPC Surface Preparation Specifications SP-11 for Power tool cleaning or SP-2 for Hand tool cleaning. Cost shall be incidental to concrete removal.

## ELEVATION
(Westbound Bridge)

## TOTAL BILL OF MATERIAL

| ITEM | UNIT | SUPER-STRUCTURE | SUB-STRUCTURE | TOTAL |
|---|---|---|---|---|
| Concrete Removal | Cu. Yd. | - | 46.8 | 46.8 |
| Expansion Bolts, ¾" Ø | Ea. | - | 221 | 221 |
| | | | | |
| Removal of Exist. Conc. Dk. No. 3 | L. Sum | 1 | - | 1 |
| Removal of Exist. Conc. Dk. No. 4 | L. Sum | 1 | - | 1 |
| Structure Excavation | Cu. Yd. | - | 433.5 | 433.5 |
| Floor Drains | Ea. | 20 | - | 20 |
| Preformed Joint Seal, 4" | Lin. Ft. | 145 | - | 145 |
| Neoprene Expansion Joint, 2" | Lin. Ft. | 172 | - | 172 |
| Class X Concrete Superstructure | Cu. Yd. | 863.7 | - | 863.7 |
| * Protective Coat | Sq. Yd. | 485 | - | 485 |
| Class X Concrete | Cu. Yd. | - | 190.5 | 190.5 |
| Furn. & Erect. Struct. Steel | L. Sum | 1 | - | 1 |
| Stud Shear Connectors | Ea. | 5298 | - | 5298 |
| Jack Exist. Struct. No. 3 | L. Sum | 1 | - | 1 |
| Jack Exist. Struct. No. 4 | L. Sum | 1 | - | 1 |
| Reinforcement Bars | Lbs. | | 2420 | 2420 |
| Reinforcement Bars (Epoxy Coated) | Lbs. | 188240 | 26310 | 214550 |
| Bridge Seat Sealer | L. Sum | - | 1 | 1 |
| Steel Piles HP10x42 | Lin. Ft. | - | 544 | 544 |
| Concrete Piles | Lin. Ft. | - | 252 | 252 |
| | | - | | |
| | | | | |
| Filter Fabric For Use With Riprap | Sq. Yd. | - | 159 | 159 |
| Test Pile Steel HP10x42 | Ea. | - | 2 | 2 |
| Test Pile Concrete | Ea. | - | 2 | 2 |
| Temporary Sheet Piling | Sq. Ft. | - | 1336 | 1336 |
| Nameplates | Ea. | 2 | - | 2 |
| Repair Concrete Structures | Sq. Ft. | - | 151 | 151 |
| Stone RipRap, Class A2 | Sq. Yd. | - | 159 | 159 |
| Elastomeric Bearing Assembly, Type II | Ea. | - | 15 | 15 |
| Drainage Scupper | Ea. | 1 | - | 1 |
| Elastomeric Brg. Assembly, Type I | Ea. | - | 46 | 46 |
| Temporary Bridge Rail | Lin. Ft. | 350 | - | 350 |
| Drainage System | L. Sum | 1 | - | 1 |
| Elastomeric Brg. Assembly, Type III | Ea. | - | 7 | 7 |
| Bridge Deck Grooving | Sq. Yd. | 2926 | | 2926 |

* INCLUDES TOP AND INSIDE FACE OF PARAPET ONLY.




## TYPICAL SECTION THRU ABUTMENTS

**ESCA**
**CONSULTANTS, INC.**

| | | |
|---|---|---|
| DESIGNED BY: | RDP | 12-89 |
| DRAWN BY: | WEM | 12-89 |
| CHECKED BY: | JRF | 12-89 |
| APPROVED BY: | RDP | 12-89 |

GENERAL NOTES & BILL OF MATERIAL
FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB)BR
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)

## NOTES

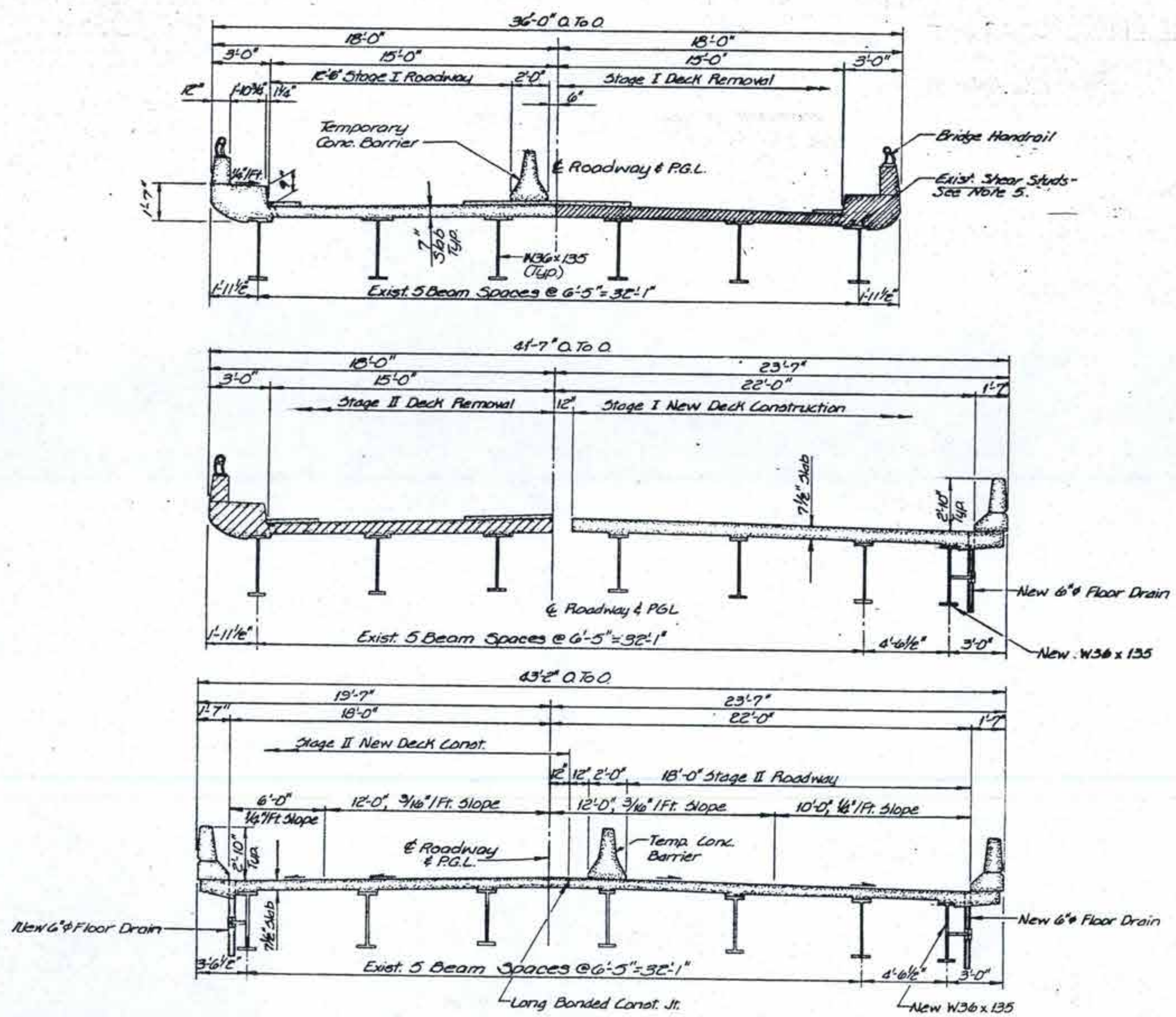
❊ (92-11VB)BR

1. HATCHED AREAS INDICATE REMOVAL OF EXISTING CONCRETE DECK.
2. FOR QUANTITIES OF TEMPORARY CONCRETE BARRIER SEE ROADWAY PLANS.
3. SEE DWG. NO. 38 FOR DETAILS OF TEMPORARY BRIDGE RAIL.
4. SEE DWG. NO. 37 FOR DETAILS OF TEMPORARY CONCRETE BARRIER.
5. SHEAR STUDS ARE PRESENT ON TOP FLANGE OF ALL EXISTING BEAMS IN ALL SPANS EXCEPT SPANS 3, 4, & 5 ON THE WB BRIDGE. SHEAR STUDS ARE TO BE PRESERVED & INCORPORATED INTO NEW WORK. EXERCISE CARE DURING CONCRETE REMOVAL OPERATIONS TO AVOID DAMAGE TO STUDS. ANY STUDS DAMAGED BY THE CONTRACTOR DURING CONCRETE REMOVAL SHALL BE REPLACED - COST INCIDENTAL TO REMOVAL OF EXISTING CONCRETE DECK.
6. BITUMINOUS OVERLAY REMOVAL IS INCLUDED WITH CONCRETE DECK REMOVAL.
7. *Removal of Bridge Handrail is cost incidental to Removal of Existing Concrete Deck 3 & 4.*

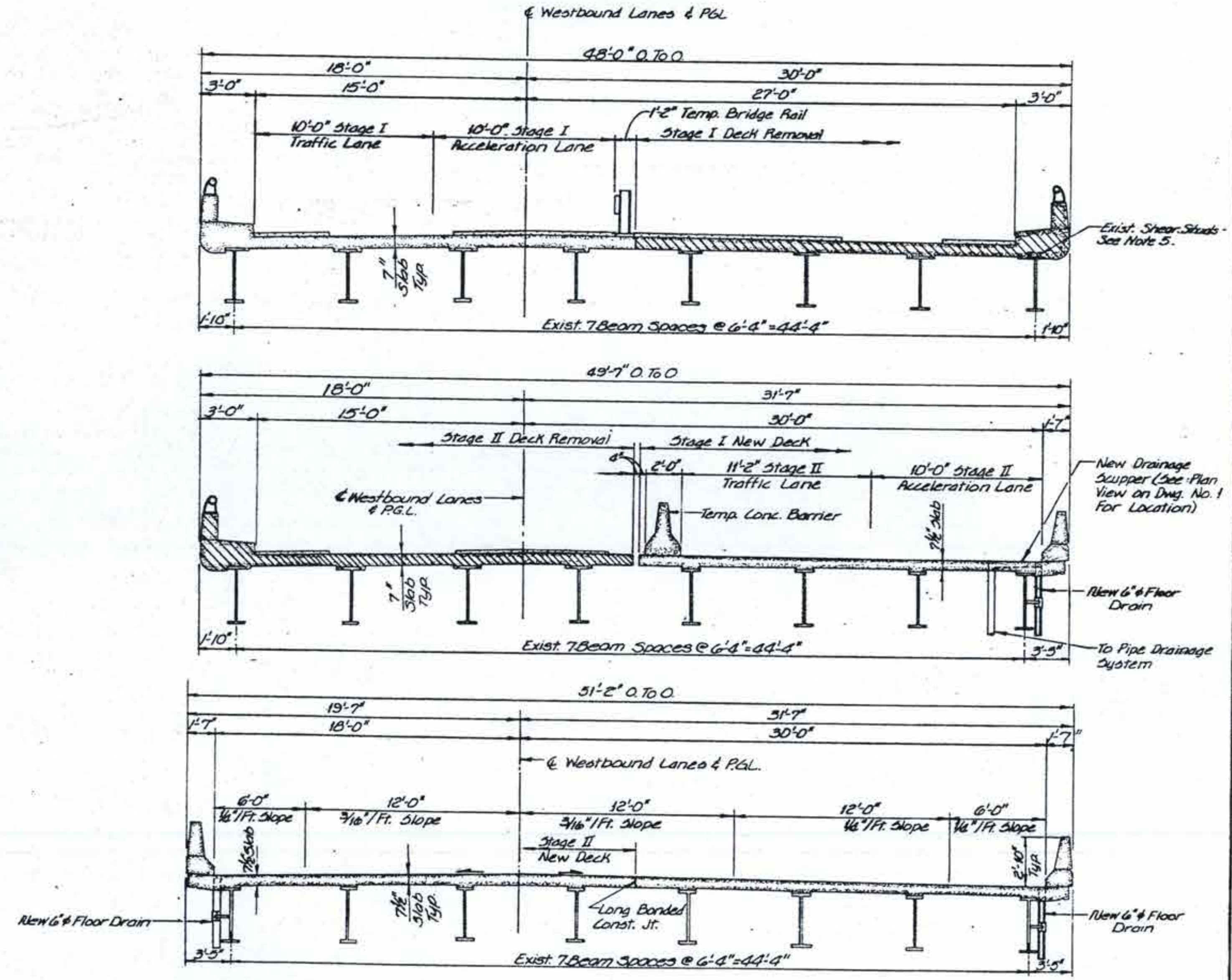
| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | ❊ | Vermilion | 165 | 92 |
| STA. | | TO STA. | | |
| FED. ROAD DIST. NO. | | ILLINOIS | PROJECT | |
| | | Dwg. No. 3 of 41 | | |

## BILL OF MATERIAL

| ITEM | UNIT | QUANTITY |
|---|---|---|
| Removal of Exist. Conc. Deck No. 3 | L.Sum | 1 |
| Removal of Exist. Conc. Deck No. 4 | L.Sum | 1 |
| | | |
| | | |




CROSS SECTIONS SHOWING STAGE REMOVAL & CONST.
(LOOKING EAST, EAST BOUND BRIDGE)




CROSS SECTIONS SHOWING STAGE REMOVAL & CONST.
(LOOKING WEST, WEST BOUND BRIDGE)

**ESCA**
CONSULTANTS, INC.

| | | |
|---|---|---|
| DESIGNED BY: | RDP | 8-89 |
| DRAWN BY: | TP/WEM | 8-89 |
| CHECKED BY: | JRF | 8-89 |
| APPROVED BY: | RDP | 8-89 |

## STAGE CONSTRUCTION DETAILS

FAI 74 OVER "I" STREET & RR SIDING
FAI RTE. 74 SECTION (92-11VB)BR
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008 (E.B.)
STRUCTURE NO. 092-0009 (W.B.)

✻(92-11VB)BR

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | ✻ | Vermilion | 165 | 93 |
| STA | | TO STA. | | |
| FED ROAD DIST. NO. | ILLINOIS | PROJECT | | |

Dwg. No. 4 of 41

## GIRDER 1

| LOCATION | STATION | OFFSET | THEORETICAL GRADE ELEVATIONS | THEORETICAL GRADE ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION |
|---|---|---|---|---|
| ℄ Brg. W. Abut. | 1876+26.75 | -16.042 | 670.092 | 670.092 |
| a | 1876+36.75 | -16.042 | 670.011 | 670.035 |
| b | 1876+46.75 | -16.042 | 669.929 | 669.968 |
| c | 1876+56.75 | -16.042 | 669.845 | 669.886 |
| d | 1876+66.75 | -16.042 | 669.760 | 669.791 |
| e | 1876+76.75 | -16.042 | 669.673 | 669.687 |
| f | 1876+86.75 | -16.042 | 669.584 | 669.585 |
| ℄ Pier 1 | 1876+94.42 | -16.042 | 669.514 | 669.514 |
| g | 1877+04.42 | -16.042 | 669.423 | 669.438 |
| h | 1877+14.42 | -16.042 | 669.329 | 669.371 |
| i | 1877+24.42 | -16.042 | 669.234 | 669.301 |
| j | 1877+34.42 | -16.042 | 669.137 | 669.219 |
| k | 1877+44.42 | -16.042 | 669.038 | 669.120 |
| l | 1877+54.42 | -16.042 | 668.938 | 669.007 |
| m | 1877+64.42 | -16.042 | 668.836 | 668.880 |
| n | 1877+74.42 | -16.042 | 668.733 | 668.749 |
| ℄ Pier 2 | 1877+82.75 | -16.042 | 668.645 | 668.645 |
| o | 1877+92.75 | -16.042 | 668.538 | 668.533 |
| p | 1878+02.75 | -16.042 | 668.430 | 668.432 |
| q | 1878+12.75 | -16.042 | 668.320 | 668.329 |
| r | 1878+22.75 | -16.042 | 668.208 | 668.219 |
| s | 1878+32.75 | -16.042 | 668.095 | 668.101 |
| t | 1878+42.75 | -16.042 | 667.980 | 667.981 |
| ℄ Pier 3 | 1878+49.25 | -16.042 | 667.904 | 667.904 |
| u | 1878+59.25 | -16.042 | 667.786 | 667.794 |
| v | 1878+69.25 | -16.042 | 667.666 | 667.683 |
| w | 1878+79.25 | -16.042 | 667.545 | 667.566 |
| x | 1878+89.25 | -16.042 | 667.422 | 667.437 |
| ℄ Brg. E. Abut. | 1879+00.50 | -16.042 | 667.282 | 667.282 |

## GIRDER 2

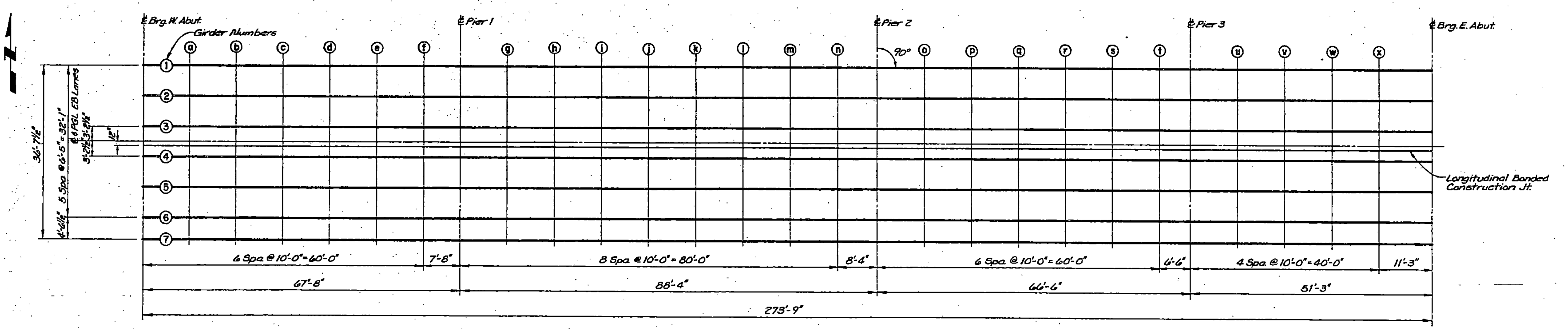
| LOCATION | STATION | OFFSET | THEORETICAL GRADE ELEVATIONS | THEORETICAL GRADE ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION |
|---|---|---|---|---|
| ℄ Brg. W. Abut. | 1876+26.75 | -9.625 | 670.213 | 670.213 |
| a | 1876+36.75 | -9.625 | 670.133 | 670.154 |
| b | 1876+46.75 | -9.625 | 670.050 | 670.084 |
| c | 1876+56.75 | -9.625 | 669.967 | 670.003 |
| d | 1876+66.75 | -9.625 | 669.881 | 669.908 |
| e | 1876+76.75 | -9.625 | 669.794 | 669.806 |
| f | 1876+86.75 | -9.625 | 669.705 | 669.706 |
| ℄ Pier 1 | 1876+94.42 | -9.625 | 669.636 | 669.636 |
| g | 1877+04.42 | -9.625 | 669.544 | 669.558 |
| h | 1877+14.42 | -9.625 | 669.450 | 669.487 |
| i | 1877+24.42 | -9.625 | 669.355 | 669.415 |
| j | 1877+34.42 | -9.625 | 669.258 | 669.331 |
| k | 1877+44.42 | -9.625 | 669.160 | 669.233 |
| l | 1877+54.42 | -9.625 | 669.059 | 669.120 |
| m | 1877+64.42 | -9.625 | 668.958 | 668.997 |
| n | 1877+74.42 | -9.625 | 668.854 | 668.868 |
| ℄ Pier 2 | 1877+82.75 | -9.625 | 668.766 | 668.766 |
| o | 1877+92.75 | -9.625 | 668.660 | 668.656 |
| p | 1878+02.75 | -9.625 | 668.551 | 668.552 |
| q | 1878+12.75 | -9.625 | 668.441 | 668.449 |
| r | 1878+22.75 | -9.625 | 668.329 | 668.338 |
| s | 1878+32.75 | -9.625 | 668.216 | 668.222 |
| t | 1878+42.75 | -9.625 | 668.101 | 668.102 |
| ℄ Pier 3 | 1878+49.25 | -9.625 | 668.025 | 668.025 |
| u | 1878+59.25 | -9.625 | 667.907 | 667.914 |
| v | 1878+69.25 | -9.625 | 667.788 | 667.803 |
| w | 1878+79.25 | -9.625 | 667.666 | 667.684 |
| x | 1878+89.25 | -9.625 | 667.544 | 667.557 |
| ℄ Brg. E. Abut. | 1879+00.50 | -9.625 | 667.403 | 667.403 |

## GIRDER 3

| LOCATION | STATION | OFFSET | THEORETICAL GRADE ELEVATIONS | THEORETICAL GRADE ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION |
|---|---|---|---|---|
| ℄ Brg. W. Abut. | 1876+26.75 | -3.208 | 670.313 | 670.313 |
| a | 1876+36.75 | -3.208 | 670.233 | 670.254 |
| b | 1876+46.75 | -3.208 | 670.151 | 670.185 |
| c | 1876+56.75 | -3.208 | 670.067 | 670.103 |
| d | 1876+66.75 | -3.208 | 669.981 | 670.008 |
| e | 1876+76.75 | -3.208 | 669.894 | 669.906 |
| f | 1876+86.75 | -3.208 | 669.805 | 669.806 |
| ℄ Pier 1 | 1876+94.42 | -3.208 | 669.736 | 669.736 |
| g | 1877+04.42 | -3.208 | 669.644 | 669.658 |
| h | 1877+14.42 | -3.208 | 669.551 | 669.588 |
| i | 1877+24.42 | -3.208 | 669.455 | 669.515 |
| j | 1877+34.42 | -3.208 | 669.359 | 669.432 |
| k | 1877+44.42 | -3.208 | 669.260 | 669.333 |
| l | 1877+54.42 | -3.208 | 669.160 | 669.221 |
| m | 1877+64.42 | -3.208 | 669.058 | 669.097 |
| n | 1877+74.42 | -3.208 | 668.954 | 668.968 |
| ℄ Pier 2 | 1877+82.75 | -3.208 | 668.867 | 668.867 |
| o | 1877+92.75 | -3.208 | 668.760 | 668.756 |
| p | 1878+02.75 | -3.208 | 668.651 | 668.652 |
| q | 1878+12.75 | -3.208 | 668.541 | 668.549 |
| r | 1878+22.75 | -3.208 | 668.430 | 668.439 |
| s | 1878+32.75 | -3.208 | 668.316 | 668.322 |
| t | 1878+42.75 | -3.208 | 668.201 | 668.202 |
| ℄ Pier 3 | 1878+49.25 | -3.208 | 668.125 | 668.125 |
| u | 1878+59.25 | -3.208 | 668.008 | 668.015 |
| v | 1878+69.25 | -3.208 | 667.888 | 667.903 |
| w | 1878+79.25 | -3.208 | 667.767 | 667.785 |
| x | 1878+89.25 | -3.208 | 667.644 | 667.657 |
| ℄ Brg. E. Abut. | 1879+00.50 | -3.208 | 667.503 | 667.503 |

## P.G.L.

| LOCATION | STATION | OFFSET | THEORETICAL GRADE ELEVATIONS | THEORETICAL GRADE ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION |
|---|---|---|---|---|
| ℄ Brg. W. Abut. | 1876+26.75 | 0.00 | 670.363 | 670.363 |
| a | 1876+36.75 | 0.00 | 670.283 | 670.304 |
| b | 1876+46.75 | 0.00 | 670.201 | 670.235 |
| c | 1876+56.75 | 0.00 | 670.117 | 670.153 |
| d | 1876+66.75 | 0.00 | 670.032 | 670.059 |
| e | 1876+76.75 | 0.00 | 669.944 | 669.956 |
| f | 1876+86.75 | 0.00 | 669.855 | 669.856 |
| ℄ Pier 1 | 1876+94.42 | 0.00 | 669.786 | 669.786 |
| g | 1877+04.42 | 0.00 | 669.694 | 669.708 |
| h | 1877+14.42 | 0.00 | 669.601 | 669.638 |
| i | 1877+24.42 | 0.00 | 669.506 | 669.566 |
| j | 1877+34.42 | 0.00 | 669.409 | 669.482 |
| k | 1877+44.42 | 0.00 | 669.310 | 669.383 |
| l | 1877+54.42 | 0.00 | 669.210 | 669.271 |
| m | 1877+64.42 | 0.00 | 669.108 | 669.147 |
| n | 1877+74.42 | 0.00 | 669.004 | 669.018 |
| ℄ Pier 2 | 1877+82.75 | 0.00 | 668.917 | 668.917 |
| o | 1877+92.75 | 0.00 | 668.810 | 668.806 |
| p | 1878+02.75 | 0.00 | 668.702 | 668.703 |
| q | 1878+12.75 | 0.00 | 668.592 | 668.600 |
| r | 1878+22.75 | 0.00 | 668.480 | 668.489 |
| s | 1878+32.75 | 0.00 | 668.366 | 668.372 |
| t | 1878+42.75 | 0.00 | 668.251 | 668.252 |
| ℄ Pier 3 | 1878+49.25 | 0.00 | 668.176 | 668.176 |
| u | 1878+59.25 | 0.00 | 668.058 | 668.065 |
| v | 1878+69.25 | 0.00 | 667.938 | 667.953 |
| w | 1878+79.25 | 0.00 | 667.817 | 667.835 |
| x | 1878+89.25 | 0.00 | 667.694 | 667.707 |
| ℄ Brg. E. Abut. | 1879+00.50 | 0.00 | 667.554 | 667.554 |




PLAN

**ESCA CONSULTANTS, INC.**

| | | |
|---|---|---|
| DESIGNED BY: | KR | 12-89 |
| DRAWN BY: | WEM | 12-89 |
| CHECKED BY: | JAG | 12-89 |
| APPROVED BY: | RDP | 12-89 |

**TOP OF SLAB ELEVATIONS (EB)**

FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB)BR
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)

*(92-11VB)BR

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | * | Vermilion | 165 | 94 |
| STA | | TO STA | | |
| FED ROAD DIST NO. | | ILLINOIS | PROJECT | |

Dwg. No. 5 of 41

## LONGITUDINAL BONDED CONSTRUCTION JOINT

| LOCATION | STATION | OFFSET | THEORETICAL GRADE ELEVATIONS | THEORETICAL GRADE ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION |
|---|---|---|---|---|
| ℄ Brg. W. Abut. | 1876+26.75 | 1.00 | 670.348 | 670.348 |
| a | 1876+36.75 | 1.00 | 670.267 | 670.288 |
| b | 1876+46.75 | 1.00 | 670.185 | 670.219 |
| c | 1876+56.75 | 1.00 | 670.101 | 670.137 |
| d | 1876+66.75 | 1.00 | 670.016 | 670.043 |
| e | 1876+76.75 | 1.00 | 669.929 | 669.941 |
| f | 1876+86.75 | 1.00 | 669.840 | 669.841 |
| ℄ Pier 1 | 1876+94.42 | 1.00 | 669.771 | 669.771 |
| g | 1877+04.42 | 1.00 | 669.679 | 669.693 |
| h | 1877+14.42 | 1.00 | 669.585 | 669.622 |
| i | 1877+24.42 | 1.00 | 669.490 | 669.550 |
| j | 1877+34.42 | 1.00 | 669.393 | 669.466 |
| k | 1877+44.42 | 1.00 | 669.295 | 669.368 |
| l | 1877+54.42 | 1.00 | 669.194 | 669.255 |
| m | 1877+64.42 | 1.00 | 669.092 | 669.131 |
| n | 1877+74.42 | 1.00 | 668.989 | 669.003 |
| ℄ Pier 2 | 1877+82.75 | 1.00 | 668.901 | 668.901 |
| o | 1877+92.75 | 1.00 | 668.794 | 668.790 |
| p | 1878+02.75 | 1.00 | 668.686 | 668.687 |
| q | 1878+12.75 | 1.00 | 668.576 | 668.584 |
| r | 1878+22.75 | 1.00 | 668.464 | 668.473 |
| s | 1878+32.75 | 1.00 | 668.351 | 668.357 |
| t | 1878+42.75 | 1.00 | 668.236 | 668.237 |
| ℄ Pier 3 | 1878+49.25 | 1.00 | 668.160 | 668.160 |
| u | 1878+59.25 | 1.00 | 668.042 | 668.049 |
| v | 1878+69.25 | 1.00 | 667.922 | 667.937 |
| w | 1878+79.25 | 1.00 | 667.801 | 667.819 |
| x | 1878+89.25 | 1.00 | 667.678 | 667.691 |
| ℄ Brg. E. Abut. | 1878+00.50 | 1.00 | 667.538 | 667.538 |

## GIRDER 4

| LOCATION | STATION | OFFSET | THEORETICAL GRADE ELEVATIONS | THEORETICAL GRADE ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION |
|---|---|---|---|---|
| ℄ Brg. W. Abut. | 1876+26.75 | 3.208 | 670.313 | 670.313 |
| a | 1876+36.75 | 3.208 | 670.233 | 670.254 |
| b | 1876+46.75 | 3.208 | 670.151 | 670.185 |
| c | 1876+56.75 | 3.208 | 670.067 | 670.103 |
| d | 1876+66.75 | 3.208 | 669.981 | 670.008 |
| e | 1876+76.75 | 3.208 | 669.894 | 669.906 |
| f | 1876+86.75 | 3.208 | 669.805 | 669.806 |
| ℄ Pier 1 | 1876+94.42 | 3.208 | 669.736 | 669.736 |
| g | 1877+04.42 | 3.208 | 669.644 | 669.658 |
| h | 1877+14.42 | 3.208 | 669.551 | 669.588 |
| i | 1877+24.42 | 3.208 | 669.455 | 669.515 |
| j | 1877+34.42 | 3.208 | 669.359 | 669.432 |
| k | 1877+44.42 | 3.208 | 669.260 | 669.333 |
| l | 1877+54.42 | 3.208 | 669.160 | 669.221 |
| m | 1877+64.42 | 3.208 | 669.058 | 669.097 |
| n | 1877+74.42 | 3.208 | 668.954 | 668.968 |
| ℄ Pier 2 | 1877+82.75 | 3.208 | 668.867 | 668.867 |
| o | 1877+92.75 | 3.208 | 668.760 | 668.756 |
| p | 1878+02.75 | 3.208 | 668.651 | 668.652 |
| q | 1878+12.75 | 3.208 | 668.541 | 668.549 |
| r | 1878+22.75 | 3.208 | 668.430 | 668.439 |
| s | 1878+32.75 | 3.208 | 668.316 | 668.322 |
| t | 1878+42.75 | 3.208 | 668.201 | 668.202 |
| ℄ Pier 3 | 1878+49.25 | 3.208 | 668.125 | 668.125 |
| u | 1878+59.25 | 3.208 | 668.008 | 668.015 |
| v | 1878+69.25 | 3.208 | 667.888 | 667.903 |
| w | 1878+79.25 | 3.208 | 667.767 | 667.785 |
| x | 1878+89.25 | 3.208 | 667.644 | 667.657 |
| ℄ Brg. E. Abut. | 1879+00.50 | 3.208 | 667.503 | 667.503 |

## GIRDER 5

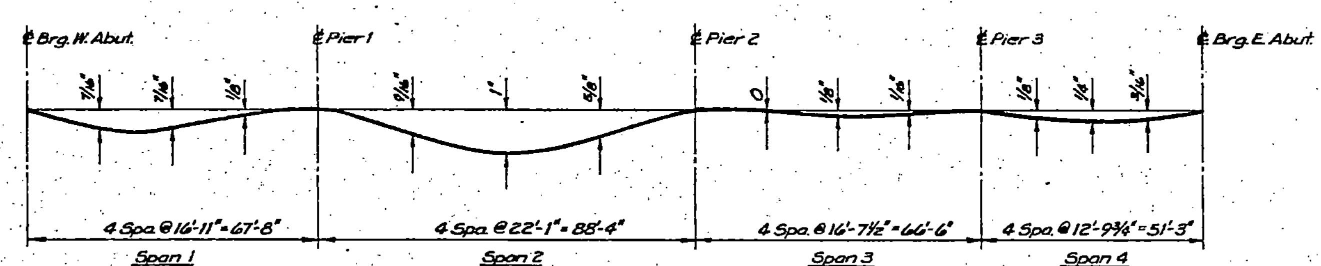
| LOCATION | STATION | OFFSET | THEORETICAL GRADE ELEVATIONS | THEORETICAL GRADE ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION |
|---|---|---|---|---|
| ℄ Brg. W. Abut. | 1876+26.75 | 9.625 | 670.213 | 670.213 |
| a | 1876+36.75 | 9.625 | 670.133 | 670.154 |
| b | 1876+46.75 | 9.625 | 670.050 | 670.084 |
| c | 1876+56.75 | 9.625 | 669.967 | 670.003 |
| d | 1876+66.75 | 9.625 | 669.881 | 669.908 |
| e | 1876+76.75 | 9.625 | 669.794 | 669.806 |
| f | 1876+86.75 | 9.625 | 669.705 | 669.706 |
| ℄ Pier 1 | 1876+94.42 | 9.625 | 669.636 | 669.636 |
| g | 1877+04.42 | 9.625 | 669.544 | 669.558 |
| h | 1877+14.42 | 9.625 | 669.450 | 669.487 |
| i | 1877+24.42 | 9.625 | 669.355 | 669.415 |
| j | 1877+34.42 | 9.625 | 669.258 | 669.331 |
| k | 1877+44.42 | 9.625 | 669.160 | 669.233 |
| l | 1877+54.42 | 9.625 | 669.059 | 669.120 |
| m | 1877+64.42 | 9.625 | 668.958 | 668.997 |
| n | 1877+74.42 | 9.625 | 668.854 | 668.868 |
| ℄ Pier 2 | 1877+82.75 | 9.625 | 668.766 | 668.766 |
| o | 1877+92.75 | 9.625 | 668.660 | 668.656 |
| p | 1878+02.75 | 9.625 | 668.551 | 668.552 |
| q | 1878+12.75 | 9.625 | 668.441 | 668.449 |
| r | 1878+22.75 | 9.625 | 668.329 | 668.338 |
| s | 1878+32.75 | 9.625 | 668.216 | 668.222 |
| t | 1878+42.75 | 9.625 | 668.101 | 668.102 |
| ℄ Pier 3 | 1878+49.25 | 9.625 | 668.025 | 668.025 |
| u | 1878+59.25 | 9.625 | 667.907 | 667.914 |
| v | 1878+69.25 | 9.625 | 667.788 | 667.803 |
| w | 1878+79.25 | 9.625 | 667.666 | 667.684 |
| x | 1878+89.25 | 9.625 | 667.544 | 667.557 |
| ℄ Brg. E. Abut. | 1879+00.50 | 9.625 | 667.403 | 667.403 |

## GIRDER 6

| LOCATION | STATION | OFFSET | THEORETICAL GRADE ELEVATIONS | THEORETICAL GRADE ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION |
|---|---|---|---|---|
| ℄ Brg. W. Abut. | 1876+26.75 | 16.042 | 670.902 | 670.092 |
| a | 1876+36.75 | 16.042 | 670.011 | 670.030 |
| b | 1876+46.75 | 16.042 | 669.929 | 669.959 |
| c | 1876+56.75 | 16.042 | 669.845 | 669.876 |
| d | 1876+66.75 | 16.042 | 669.760 | 669.784 |
| e | 1876+76.75 | 16.042 | 669.673 | 669.684 |
| f | 1876+86.75 | 16.042 | 669.584 | 669.585 |
| ℄ Pier 1 | 1876+94.42 | 16.042 | 669.514 | 669.514 |
| g | 1877+04.42 | 16.042 | 669.423 | 669.435 |
| h | 1877+14.42 | 16.042 | 669.329 | 669.361 |
| i | 1877+24.42 | 16.042 | 669.234 | 669.286 |
| j | 1877+34.42 | 16.042 | 669.137 | 669.200 |
| k | 1877+44.42 | 16.042 | 669.038 | 669.102 |
| l | 1877+54.42 | 16.042 | 668.938 | 668.992 |
| m | 1877+64.42 | 16.042 | 668.836 | 668.870 |
| n | 1877+74.42 | 16.042 | 668.733 | 668.745 |
| ℄ Pier 2 | 1877+82.75 | 16.042 | 668.645 | 668.645 |
| o | 1877+92.75 | 16.042 | 668.538 | 668.535 |
| p | 1878+02.75 | 16.042 | 668.430 | 668.431 |
| q | 1878+12.75 | 16.042 | 668.320 | 668.327 |
| r | 1878+22.75 | 16.042 | 668.208 | 668.216 |
| s | 1878+32.75 | 16.042 | 668.095 | 668.100 |
| t | 1878+42.75 | 16.042 | 667.980 | 667.981 |
| ℄ Pier 3 | 1878+49.25 | 16.042 | 667.904 | 667.904 |
| u | 1878+59.25 | 16.042 | 667.786 | 667.792 |
| v | 1878+69.25 | 16.042 | 667.666 | 667.679 |
| w | 1878+79.25 | 16.042 | 667.545 | 667.561 |
| x | 1878+89.25 | 16.042 | 667.422 | 667.434 |
| ℄ Brg. E. Abut. | 1879+00.50 | 16.042 | 667.282 | 667.282 |

## GIRDER 7

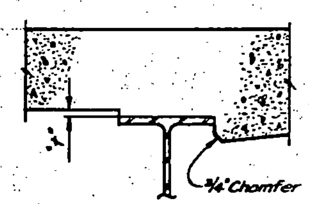
| LOCATION | STATION | OFFSET | THEORETICAL GRADE ELEVATIONS | THEORETICAL GRADE ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION |
|---|---|---|---|---|
| ℄ Brg. W. Abut. | 1876+26.75 | 20.583 | 669.997 | 669.997 |
| a | 1876+36.75 | 20.583 | 669.917 | 669.937 |
| b | 1876+46.75 | 20.583 | 669.835 | 669.866 |
| c | 1876+56.75 | 20.583 | 669.751 | 669.784 |
| d | 1876+66.75 | 20.583 | 669.665 | 669.690 |
| e | 1876+76.75 | 20.583 | 669.578 | 669.589 |
| f | 1876+86.75 | 20.583 | 669.489 | 669.490 |
| ℄ Pier 1 | 1876+94.42 | 20.583 | 669.420 | 669.420 |
| g | 1877+04.42 | 20.583 | 669.328 | 669.341 |
| h | 1877+14.42 | 20.583 | 669.234 | 669.268 |
| i | 1877+24.42 | 20.583 | 669.139 | 669.194 |
| j | 1877+34.42 | 20.583 | 669.042 | 669.109 |
| k | 1877+44.42 | 20.583 | 668.944 | 669.011 |
| l | 1877+54.42 | 20.583 | 668.844 | 668.900 |
| m | 1877+64.42 | 20.583 | 668.742 | 668.778 |
| n | 1877+74.42 | 20.583 | 668.638 | 668.651 |
| ℄ Pier 2 | 1877+82.75 | 20.583 | 668.550 | 668.550 |
| o | 1877+92.75 | 20.583 | 668.444 | 668.441 |
| p | 1878+02.75 | 20.583 | 668.335 | 668.336 |
| q | 1878+12.75 | 20.583 | 668.225 | 668.232 |
| r | 1878+22.75 | 20.583 | 668.113 | 668.121 |
| s | 1878+32.75 | 20.583 | 668.000 | 668.005 |
| t | 1878+42.75 | 20.583 | 667.885 | 667.886 |
| ℄ Pier 3 | 1878+49.25 | 20.583 | 667.809 | 667.809 |
| u | 1878+59.25 | 20.583 | 667.691 | 667.697 |
| v | 1878+69.25 | 20.583 | 667.572 | 667.586 |
| w | 1878+79.25 | 20.583 | 667.451 | 667.467 |
| x | 1878+89.25 | 20.583 | 667.328 | 667.341 |
| ℄ Brg. E. Abut. | 1879+00.50 | 20.583 | 667.187 | 667.187 |



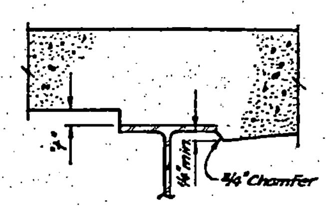

NOTE: THE ABOVE DEFLECTIONS ARE NOT TO BE USED IN THE FIELD IF THE ENGINEER IS WORKING FROM THE "THEORETICAL GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTIONS" AS SHOWN ON DWGS. NO. 4 & 5.

## DEAD LOAD DEFLECTION DIAGRAM

(INCLUDES WEIGHT OF CONCRETE ONLY)




AT MINIMUM FILLET




AT MAXIMUM FILLET

## FILLET HEIGHTS

TO DETERMINE "t":

AFTER ALL STRUCTURAL STEEL HAS BEEN ERECTED, ELEVATIONS OF THE TOP FLANGES OF THE BEAMS SHALL BE TAKEN AT INTERVALS SHOWN ON DWG. NO. 4. THESE ELEVATIONS SUBTRACTED FROM THE "THEORETICAL GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTION" SHOWN ABOVE, MINUS SLAB THICKNESS, EQUALS THE FILLET HEIGHT "t" ABOVE TOP FLANGE OF BEAMS.

ESCA CONSULTANTS, INC.

| | | |
|---|---|---|
| DESIGNED BY: | KMR | 12-89 |
| DRAWN BY: | WEM | 12-89 |
| CHECKED BY: | JAG | 12-89 |
| APPROVED BY: | RDP | 12-89 |

## TOP OF SLAB ELEVATIONS (EB)

FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB)BR
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | ※ | Vermilion | 165 | 95 |
| STA. | | TO STA. | | |
| FED ROAD DIST NO. | ILLINOIS | PROJECT | | |

※ (92-11VB) BR

Dwg. No. 6 of 41

## GIRDER 8

| LOCATION | STATION | OFFSET | THEORETICAL GRADE ELEVATIONS | THEORETICAL GRADE ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION |
|---|---|---|---|---|
| ℄ Brg. W. Abut. | 1875+63.87 | -28.167 | 670.307 | 670.307 |
| a | 1875+73.87 | -28.167 | 670.237 | 670.288 |
| b | 1875+83.87 | -28.167 | 670.165 | 670.256 |
| c | 1875+93.87 | -28.167 | 670.092 | 670.206 |
| d | 1876+03.87 | -28.167 | 670.017 | 670.133 |
| e | 1876+13.87 | -28.167 | 669.940 | 670.038 |
| f | 1876+23.87 | -28.167 | 669.862 | 669.924 |
| g (℄ Brg. Pier 1) | 1876+36.39 | -28.167 | 669.762 | 669.762 |
| h (℄ Brg. Pier 1) | 1876+38.34 | -28.167 | 669.746 | 669.746 |
| i | 1876+49.65 | -28.167 | 669.652 | 669.711 |
| j | 1876+60.95 | -28.167 | 669.557 | 669.666 |
| k | 1876+72.25 | -28.167 | 669.459 | 669.600 |
| l | 1876+83.55 | -28.167 | 669.360 | 669.511 |
| m | 1876+94.85 | -28.167 | 669.258 | 669.399 |
| n | 1877+06.15 | -28.167 | 669.154 | 669.263 |
| o | 1877+17.45 | -28.167 | 669.048 | 669.107 |
| p (℄ Brg. Pier 2) | 1877+28.75 | -28.167 | 668.940 | 668.940 |
| q (℄ Brg. Pier 2) | 1877+30.25 | -28.167 | 668.925 | 668.925 |
| r | 1877+40.25 | -28.167 | 668.827 | 668.839 |
| s | 1877+50.25 | -28.167 | 668.728 | 668.746 |
| t | 1877+60.25 | -28.167 | 668.626 | 668.642 |
| u | 1877+70.25 | -28.167 | 668.523 | 668.530 |
| ℄ Pier 3 | 1877+82.75 | -28.167 | 668.392 | 668.392 |
| v | 1877+92.75 | -28.167 | 668.286 | 668.294 |
| w | 1878+02.75 | -28.167 | 668.177 | 668.198 |
| x | 1878+12.75 | -28.167 | 668.067 | 668.095 |
| y | 1878+22.75 | -28.167 | 667.956 | 667.981 |
| z | 1878+32.75 | -28.167 | 667.842 | 667.858 |
| aa | 1878+42.75 | -28.167 | 667.727 | 667.732 |
| ℄ Pier 4 | 1878+49.25 | -28.167 | 667.651 | 667.651 |
| bb | 1878+59.25 | -28.167 | 667.533 | 667.538 |
| cc | 1878+69.25 | -28.167 | 667.414 | 667.426 |
| dd | 1878+79.25 | -28.167 | 667.293 | 667.309 |
| ee | 1878+89.25 | -28.167 | 667.170 | 667.182 |
| ℄ Brg. E. Abut. | 1879+00.50 | -28.167 | 667.029 | 667.029 |

## GIRDER 9

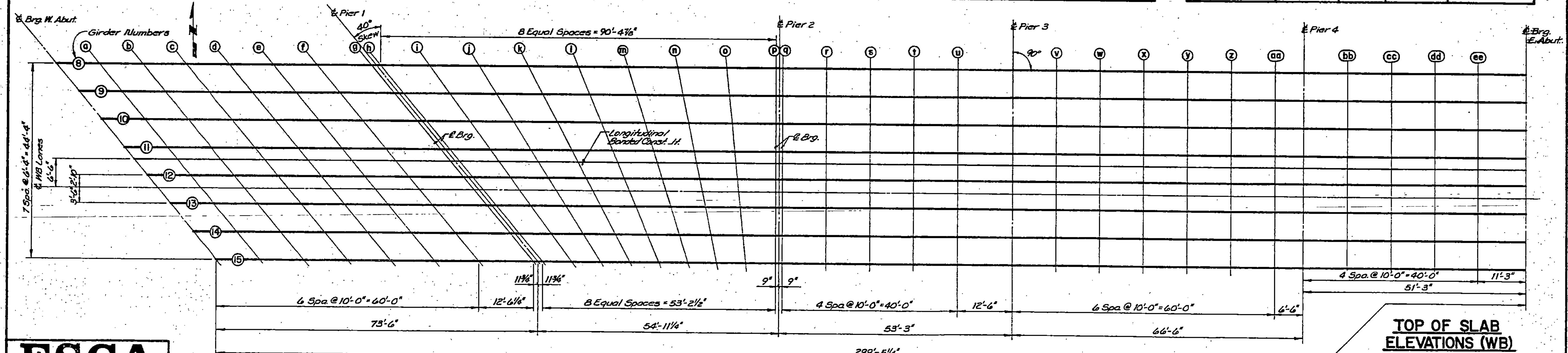
| LOCATION | STATION | OFFSET | THEORETICAL GRADE ELEVATIONS | THEORETICAL GRADE ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION |
|---|---|---|---|---|
| ℄ Brg. W. Abut. | 1875+69.18 | -21.833 | 670.402 | 670.402 |
| a | 1875+79.18 | -21.833 | 670.331 | 670.377 |
| b | 1875+89.18 | -21.833 | 670.258 | 670.339 |
| c | 1875+99.18 | -21.833 | 670.184 | 670.286 |
| d | 1876+09.18 | -21.833 | 670.108 | 670.212 |
| e | 1876+19.18 | -21.833 | 670.031 | 670.119 |
| f | 1876+29.18 | -21.833 | 669.952 | 670.008 |
| g (℄ Brg. Pier 1) | 1876+41.70 | -21.833 | 669.850 | 669.850 |
| h (℄ Brg. Pier 1) | 1876+43.66 | -21.833 | 669.834 | 669.834 |
| i | 1876+54.30 | -21.833 | 669.745 | 669.788 |
| j | 1876+64.93 | -21.833 | 669.655 | 669.733 |
| k | 1876+75.57 | -21.833 | 669.562 | 669.662 |
| l | 1876+86.20 | -21.833 | 669.468 | 669.575 |
| m | 1876+96.84 | -21.833 | 669.372 | 669.472 |
| n | 1877+07.48 | -21.833 | 669.274 | 669.352 |
| o | 1877+18.11 | -21.833 | 669.173 | 669.216 |
| p (℄ Brg. Pier 2) | 1877+28.75 | -21.833 | 669.071 | 669.071 |
| q (℄ Brg. Pier 2) | 1877+30.25 | -21.833 | 669.057 | 669.057 |
| r | 1877+40.25 | -21.833 | 668.959 | 668.970 |
| s | 1877+50.25 | -21.833 | 668.859 | 668.875 |
| t | 1877+60.25 | -21.833 | 668.758 | 668.772 |
| u | 1877+70.25 | -21.833 | 668.655 | 668.662 |
| ℄ Pier 3 | 1877+82.75 | -21.833 | 668.524 | 668.524 |
| v | 1877+92.75 | -21.833 | 668.418 | 668.425 |
| w | 1878+02.75 | -21.833 | 668.309 | 668.327 |
| x | 1878+12.75 | -21.833 | 668.199 | 668.224 |
| y | 1878+22.75 | -21.833 | 668.087 | 668.110 |
| z | 1878+32.75 | -21.833 | 667.974 | 667.988 |
| aa | 1878+42.75 | -21.833 | 667.859 | 667.863 |
| ℄ Pier 4 | 1878+49.25 | -21.833 | 667.783 | 667.783 |
| bb | 1878+59.25 | -21.833 | 667.665 | 667.669 |
| cc | 1878+69.25 | -21.833 | 667.546 | 667.557 |
| dd | 1878+79.25 | -21.833 | 667.424 | 667.439 |
| ee | 1878+89.25 | -21.833 | 667.302 | 667.313 |
| ℄ Brg. E. Abut. | 1879+00.50 | -21.833 | 667.161 | 667.161 |

## GIRDER 10

| LOCATION | STATION | OFFSET | THEORETICAL GRADE ELEVATIONS | THEORETICAL GRADE ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION |
|---|---|---|---|---|
| ℄ Brg. W. Abut. | 1875+74.49 | -15.500 | 670.496 | 670.496 |
| a | 1875+84.49 | -15.500 | 670.424 | 670.470 |
| b | 1875+94.49 | -15.500 | 670.351 | 670.432 |
| c | 1876+04.49 | -15.500 | 670.276 | 670.378 |
| d | 1876+14.49 | -15.500 | 670.199 | 670.303 |
| e | 1876+24.49 | -15.500 | 670.121 | 670.209 |
| f | 1876+34.49 | -15.500 | 670.041 | 670.097 |
| g (℄ Brg. Pier 1) | 1876+47.01 | -15.500 | 669.938 | 669.938 |
| h (℄ Brg. Pier 1) | 1876+48.97 | -15.500 | 669.922 | 669.922 |
| i | 1876+58.94 | -15.500 | 669.838 | 669.871 |
| j | 1876+68.92 | -15.500 | 669.752 | 669.812 |
| k | 1876+78.89 | -15.500 | 669.665 | 669.744 |
| l | 1876+88.86 | -15.500 | 669.576 | 669.660 |
| m | 1876+98.83 | -15.500 | 669.485 | 669.564 |
| n | 1877+08.81 | -15.500 | 669.393 | 669.453 |
| o | 1877+18.78 | -15.500 | 669.299 | 669.332 |
| p (℄ Brg. Pier 2) | 1877+28.75 | -15.500 | 669.203 | 669.203 |
| q (℄ Brg. Pier 2) | 1877+30.25 | -15.500 | 669.189 | 669.189 |
| r | 1877+40.25 | -15.500 | 669.091 | 669.102 |
| s | 1877+50.25 | -15.500 | 668.991 | 669.007 |
| t | 1877+60.25 | -15.500 | 668.890 | 668.904 |
| u | 1877+70.25 | -15.500 | 668.787 | 668.794 |
| ℄ Pier 3 | 1877+82.75 | -15.500 | 668.656 | 668.656 |
| v | 1877+92.75 | -15.500 | 668.550 | 668.557 |
| w | 1878+02.75 | -15.500 | 668.441 | 668.459 |
| x | 1878+12.75 | -15.500 | 668.331 | 668.356 |
| y | 1878+22.75 | -15.500 | 668.219 | 668.242 |
| z | 1878+32.75 | -15.500 | 668.106 | 668.120 |
| aa | 1878+42.75 | -15.500 | 667.991 | 667.995 |
| ℄ Pier 4 | 1878+49.25 | -15.500 | 667.915 | 667.915 |
| bb | 1878+59.25 | -15.500 | 667.797 | 667.801 |
| cc | 1878+69.25 | -15.500 | 667.678 | 667.689 |
| dd | 1878+79.25 | -15.500 | 667.556 | 667.571 |
| ee | 1878+89.25 | -15.500 | 667.433 | 667.444 |
| ℄ Brg. E. Abut. | 1879+00.50 | -15.500 | 667.293 | 667.293 |

## GIRDER 11

| LOCATION | STATION | OFFSET | THEORETICAL GRADE ELEVATIONS | THEORETICAL GRADE ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION |
|---|---|---|---|---|
| ℄ Brg. W. Abut. | 1875+79.81 | -9.167 | 670.575 | 670.575 |
| a | 1875+89.81 | -9.167 | 670.503 | 670.549 |
| b | 1875+99.81 | -9.167 | 670.429 | 670.510 |
| c | 1876+09.81 | -9.167 | 670.353 | 670.455 |
| d | 1876+19.81 | -9.167 | 670.275 | 670.379 |
| e | 1876+29.81 | -9.167 | 670.196 | 670.284 |
| f | 1876+39.81 | -9.167 | 670.115 | 670.171 |
| g (℄ Brg. Pier 1) | 1876+52.33 | -9.167 | 670.011 | 670.011 |
| h (℄ Brg. Pier 1) | 1876+54.29 | -9.167 | 669.995 | 669.995 |
| i | 1876+63.60 | -9.167 | 669.915 | 669.960 |
| j | 1876+72.90 | -9.167 | 669.835 | 669.916 |
| k | 1876+82.21 | -9.167 | 669.753 | 669.858 |
| l | 1876+91.52 | -9.167 | 669.669 | 669.783 |
| m | 1877+00.83 | -9.167 | 669.584 | 669.689 |
| n | 1877+10.14 | -9.167 | 669.498 | 669.579 |
| o | 1877+19.44 | -9.167 | 669.410 | 669.455 |
| p (℄ Brg. Pier 2) | 1877+28.75 | -9.167 | 669.321 | 669.321 |
| q (℄ Brg. Pier 2) | 1877+30.25 | -9.167 | 669.306 | 669.306 |
| r | 1877+40.25 | -9.167 | 669.208 | 669.219 |
| s | 1877+50.25 | -9.167 | 669.109 | 669.125 |
| t | 1877+60.25 | -9.167 | 669.007 | 669.021 |
| u | 1877+70.25 | -9.167 | 668.904 | 668.911 |
| ℄ Pier 3 | 1877+82.75 | -9.167 | 668.773 | 668.773 |
| v | 1877+92.75 | -9.167 | 668.667 | 668.674 |
| w | 1878+02.75 | -9.167 | 668.558 | 668.576 |
| x | 1878+12.75 | -9.167 | 668.448 | 668.473 |
| y | 1878+22.75 | -9.167 | 668.337 | 668.360 |
| z | 1878+32.75 | -9.167 | 668.223 | 668.237 |
| aa | 1878+42.75 | -9.167 | 668.108 | 668.112 |
| ℄ Pier 4 | 1878+49.25 | -9.167 | 668.032 | 668.032 |
| bb | 1878+59.25 | -9.167 | 667.914 | 667.918 |
| cc | 1878+69.25 | -9.167 | 667.795 | 667.806 |
| dd | 1878+79.25 | -9.167 | 667.674 | 667.689 |
| ee | 1878+89.25 | -9.167 | 667.551 | 667.562 |
| ℄ Brg. E. Abut. | 1879+00.50 | -9.167 | 667.410 | 667.410 |




PLAN

# TOP OF SLAB ELEVATIONS (WB)

FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB)BR
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)

**ESCA**
CONSULTANTS, INC.

| | | |
|---|---|---|
| DESIGNED BY: | KMR | 12-89 |
| DRAWN BY: | WEM | 12-89 |
| CHECKED BY: | JAG | 12-89 |
| APPROVED BY: | RDP | 12-89 |

**(92-11VB)BR**

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | ** | Vermilion | 165 | 96 |
| STA. | | TO STA. | | |
| FED ROAD DIST NO. | | ILLINOIS | PROJECT | |
| | | Dwg. No. 7 of 41 | | |

## LONGITUDINAL BONDED CONSTRUCTION JOINT

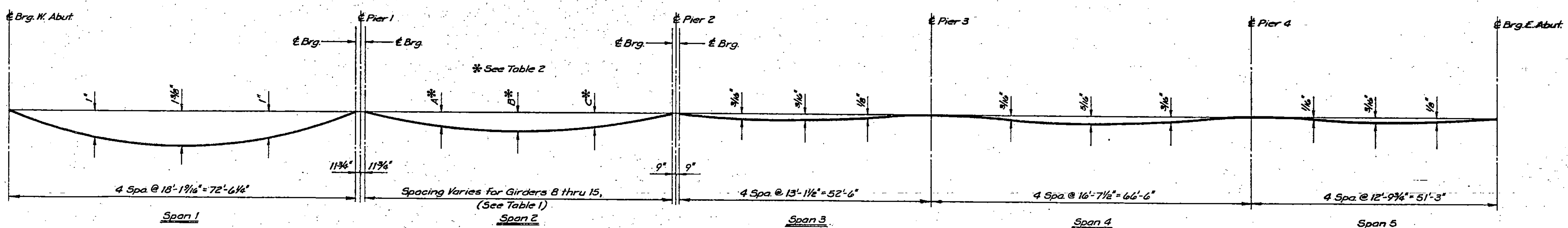
| LOCATION | STATION | OFFSET | THEORETICAL GRADE ELEVATIONS | THEORETICAL GRADE ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION |
|---|---|---|---|---|
| ℄ Brg. W. Abut. | 1875+82.04 | -6.500 | 670.601 | 670.601 |
| a | 1875+92.04 | -6.500 | 670.528 | 670.574 |
| b | 1876+02.04 | -6.500 | 670.453 | 670.534 |
| c | 1876+12.04 | -6.500 | 670.377 | 670.479 |
| d | 1876+22.04 | -6.500 | 670.299 | 670.403 |
| e | 1876+32.04 | -6.500 | 670.219 | 670.307 |
| f | 1876+42.04 | -6.500 | 670.138 | 670.194 |
| g (℄ Brg. Pier 1) | 1876+54.57 | -6.500 | 670.034 | 670.034 |
| h (℄ Brg. Pier 1) | 1876+56.52 | -6.500 | 670.017 | 670.017 |
| i | 1876+65.55 | -6.500 | 669.940 | 669.981 |
| j | 1876+74.58 | -6.500 | 669.862 | 669.935 |
| k | 1876+83.61 | -6.500 | 669.782 | 669.877 |
| l | 1876+92.64 | -6.500 | 669.701 | 669.803 |
| m | 1877+01.67 | -6.500 | 669.618 | 669.713 |
| n | 1877+10.69 | -6.500 | 669.534 | 669.607 |
| o | 1877+19.72 | -6.500 | 669.449 | 669.490 |
| p (℄ Brg. Pier 2) | 1877+28.75 | -6.500 | 669.362 | 669.362 |
| q (℄ Brg. Pier 2) | 1877+30.25 | -6.500 | 669.348 | 669.348 |
| r | 1877+40.25 | -6.500 | 669.250 | 669.261 |
| s | 1877+50.25 | -6.500 | 669.150 | 669.166 |
| t | 1877+60.25 | -6.500 | 669.049 | 669.063 |
| u | 1877+70.25 | -6.500 | 668.946 | 668.953 |
| ℄ Pier 3 | 1877+82.75 | -6.500 | 668.815 | 668.815 |
| v | 1877+92.75 | -6.500 | 668.708 | 668.715 |
| w | 1878+02.75 | -6.500 | 668.600 | 668.618 |
| x | 1878+12.75 | -6.500 | 668.490 | 668.515 |
| y | 1878+22.75 | -6.500 | 668.378 | 668.401 |
| z | 1878+32.75 | -6.500 | 668.265 | 668.279 |
| aa | 1878+42.75 | -6.500 | 668.150 | 668.154 |
| ℄ Pier 4 | 1878+49.25 | -6.500 | 668.074 | 668.074 |
| bb | 1878+59.25 | -6.500 | 667.956 | 667.960 |
| cc | 1878+69.25 | -6.500 | 667.837 | 667.848 |
| dd | 1878+79.25 | -6.500 | 667.715 | 667.730 |
| ee | 1878+89.25 | -6.500 | 667.592 | 667.603 |
| ℄ Brg. E. Abut. | 1879+00.50 | -6.500 | 667.452 | 667.452 |

## GIRDER 12

| LOCATION | STATION | OFFSET | THEORETICAL GRADE ELEVATIONS | THEORETICAL GRADE ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION |
|---|---|---|---|---|
| ℄ Brg. W. Abut. | 1875+85.12 | -2.833 | 670.636 | 670.636 |
| a | 1875+95.12 | -2.833 | 670.563 | 670.609 |
| b | 1876+05.12 | -2.833 | 670.487 | 670.568 |
| c | 1876+15.12 | -2.833 | 670.411 | 670.513 |
| d | 1876+25.12 | -2.833 | 670.332 | 670.436 |
| e | 1876+35.12 | -2.833 | 670.252 | 670.340 |
| f | 1876+45.12 | -2.833 | 670.170 | 670.226 |
| g (℄ Brg. Pier 1) | 1876+57.64 | -2.833 | 670.065 | 670.065 |
| h (℄ Brg. Pier 1) | 1876+59.60 | -2.833 | 670.049 | 670.049 |
| i | 1876+68.24 | -2.833 | 669.974 | 670.008 |
| j | 1876+76.89 | -2.833 | 669.899 | 669.961 |
| k | 1876+85.53 | -2.833 | 669.822 | 669.902 |
| l | 1876+94.18 | -2.833 | 669.744 | 669.830 |
| m | 1877+02.82 | -2.833 | 669.665 | 669.745 |
| n | 1877+11.46 | -2.833 | 669.584 | 669.646 |
| o | 1877+20.11 | -2.833 | 669.503 | 669.537 |
| p (℄ Brg. Pier 2) | 1877+28.75 | -2.833 | 669.420 | 669.420 |
| q (℄ Brg. Pier 2) | 1877+30.25 | -2.833 | 669.405 | 669.405 |
| r | 1877+40.25 | -2.833 | 669.307 | 669.318 |
| s | 1877+50.25 | -2.833 | 669.208 | 669.224 |
| t | 1877+60.25 | -2.833 | 669.106 | 669.120 |
| u | 1877+70.25 | -2.833 | 669.003 | 669.010 |
| ℄ Pier 3 | 1877+82.75 | -2.833 | 668.872 | 668.872 |
| v | 1877+92.75 | -2.833 | 668.766 | 668.773 |
| w | 1878+02.75 | -2.833 | 668.657 | 668.675 |
| x | 1878+12.75 | -2.833 | 668.547 | 668.572 |
| y | 1878+22.75 | -2.833 | 668.436 | 668.459 |
| z | 1878+32.75 | -2.833 | 668.322 | 668.336 |
| aa | 1878+42.75 | -2.833 | 668.207 | 668.211 |
| ℄ Pier 4 | 1878+49.25 | -2.833 | 668.131 | 668.131 |
| bb | 1878+59.25 | -2.833 | 668.013 | 668.017 |
| cc | 1878+69.25 | -2.833 | 667.894 | 667.905 |
| dd | 1878+79.25 | -2.833 | 667.773 | 667.788 |
| ee | 1878+89.25 | -2.833 | 667.650 | 667.661 |
| ℄ Brg. E. Abut. | 1879+00.50 | -2.833 | 667.509 | 667.509 |

## P.G.L.

| LOCATION | STATION | OFFSET | THEORETICAL GRADE ELEVATIONS | THEORETICAL GRADE ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION |
|---|---|---|---|---|
| ℄ Brg. W. Abut. | 1875+87.50 | 0.000 | 670.663 | 670.663 |
| a | 1875+97.50 | 0.000 | 670.589 | 670.635 |
| b | 1876+07.50 | 0.000 | 670.514 | 670.595 |
| c | 1876+17.50 | 0.000 | 670.436 | 670.538 |
| d | 1876+27.50 | 0.000 | 670.357 | 670.461 |
| e | 1876+37.50 | 0.000 | 670.277 | 670.365 |
| f | 1876+47.50 | 0.000 | 670.195 | 670.251 |
| g (℄ Brg. Pier 1) | 1876+60.02 | 0.000 | 670.089 | 670.089 |
| h (℄ Brg. Pier 1) | 1876+61.98 | 0.000 | 670.073 | 670.073 |
| i | 1876+70.32 | 0.000 | 670.001 | 670.031 |
| j | 1876+78.67 | 0.000 | 669.927 | 669.981 |
| k | 1876+87.02 | 0.000 | 669.853 | 669.923 |
| l | 1876+95.36 | 0.000 | 669.778 | 669.853 |
| m | 1877+03.71 | 0.000 | 669.701 | 669.771 |
| n | 1877+12.06 | 0.000 | 669.623 | 669.677 |
| o | 1877+20.40 | 0.000 | 669.544 | 669.574 |
| p (℄ Brg. Pier 2) | 1877+28.75 | 0.000 | 669.464 | 669.464 |
| q (℄ Brg. Pier 2) | 1877+30.25 | 0.000 | 669.449 | 669.449 |
| r | 1877+40.25 | 0.000 | 669.351 | 669.362 |
| s | 1877+50.25 | 0.000 | 669.252 | 669.268 |
| t | 1877+60.25 | 0.000 | 669.151 | 669.165 |
| u | 1877+70.25 | 0.000 | 669.048 | 669.055 |
| ℄ Pier 3 | 1877+82.75 | 0.000 | 668.917 | 668.917 |
| v | 1877+92.75 | 0.000 | 668.810 | 668.817 |
| w | 1878+02.75 | 0.000 | 668.702 | 668.720 |
| x | 1878+12.75 | 0.000 | 668.592 | 668.617 |
| y | 1878+22.75 | 0.000 | 668.480 | 668.503 |
| z | 1878+32.75 | 0.000 | 668.366 | 668.380 |
| aa | 1878+42.75 | 0.000 | 668.251 | 668.255 |
| ℄ Pier 4 | 1878+49.25 | 0.000 | 668.176 | 668.176 |
| bb | 1878+59.25 | 0.000 | 668.058 | 668.062 |
| cc | 1878+69.25 | 0.000 | 667.938 | 667.949 |
| dd | 1878+79.25 | 0.000 | 667.817 | 667.832 |
| ee | 1878+89.25 | 0.000 | 667.694 | 667.705 |
| ℄ Brg. E. Abut. | 1879+00.50 | 0.000 | 667.554 | 667.554 |




NOTE: THE ABOVE DEFLECTIONS ARE NOT TO BE USED IN THE FIELD IF THE ENGINEER IS WORKING FROM THE "THEORETICAL GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTIONS" AS SHOWN ON DWGS. 6,7 & 8.

## DEAD LOAD DEFLECTION DIAGRAM

(INCLUDES WEIGHT OF CONCRETE ONLY)

### TABLE 1

| GIRDER Nº | SPAN 2 GIRDER LENGTHS |
|---|---|
| 8 | 4 Spa. @ 22'-7 3/16" = 90'-4 3/4" |
| 9 | 4 Spa. @ 21'-3 1/4" = 85'-1" |
| 10 | 4 Spa. @ 19'-11 5/16" = 79'-9 1/4" |
| 11 | 4 Spa. @ 18'-7 3/8" = 74'-5 1/2" |
| 12 | 4 Spa. @ 17'-3 7/16" = 69'-1 3/4" |
| 13 | 4 Spa. @ 15'-11 1/2" = 63'-10" |
| 14 | 4 Spa. @ 14'-7 9/16" = 58'-6 1/4" |
| 15 | 4 Spa. @ 13'-3 5/8" = 53'-2 1/2" |

### TABLE 2

| GIRDER Nº | A | B | C |
|---|---|---|---|
| 8 | 1 5/16 | 1 13/16 | 1 5/16 |
| 9 | 15/16 | 1 5/16 | 15/16 |
| 10,12 | 3/4 | 1 | 3/4 |
| 11 | 1 | 1 3/8 | 1 |
| 13,14 | 9/16 | 3/4 | 9/16 |
| 15 | 3/8 | 9/16 | 3/8 |

**ESCA CONSULTANTS, INC.**

| | | |
|---|---|---|
| DESIGNED BY: | KMR | 12-89 |
| DRAWN BY: | WEM | 12-89 |
| CHECKED BY: | JAG | 12-89 |
| APPROVED BY: | RDP | 12-89 |

## TOP OF SLAB ELEVATIONS (WB)

FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB)BR
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)

## GIRDER 13

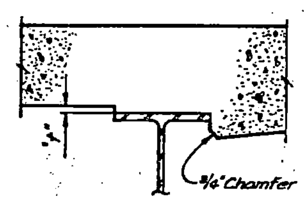
| LOCATION | STATION | OFFSET | THEORETICAL GRADE ELEVATIONS | THEORETICAL GRADE ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION |
|---|---|---|---|---|
| ℄ Brg. W. Abut. | 1875+90.44 | 3.500 | 670.587 | 670.587 |
| a | 1876+00.44 | 3.500 | 670.512 | 670.558 |
| b | 1876+10.44 | 3.500 | 670.436 | 670.517 |
| c | 1876+20.44 | 3.500 | 670.359 | 670.461 |
| d | 1876+30.44 | 3.500 | 670.279 | 670.383 |
| e | 1876+40.44 | 3.500 | 670.198 | 670.286 |
| f | 1876+50.44 | 3.500 | 670.115 | 670.171 |
| g (℄ Brg. Pier 1) | 1876+62.96 | 3.500 | 670.009 | 670.009 |
| h (℄ Brg. Pier 1) | 1876+64.92 | 3.500 | 669.993 | 669.993 |
| i | 1876+72.90 | 3.500 | 669.923 | 669.948 |
| j | 1876+80.87 | 3.500 | 669.853 | 669.899 |
| k | 1876+88.85 | 3.500 | 669.782 | 669.842 |
| l | 1876+96.83 | 3.500 | 669.709 | 669.773 |
| m | 1877+04.81 | 3.500 | 669.636 | 669.696 |
| n | 1877+12.79 | 3.500 | 669.561 | 669.607 |
| o | 1877+20.77 | 3.500 | 669.486 | 669.511 |
| p (℄ Brg. Pier 2) | 1877+28.75 | 3.500 | 669.409 | 669.409 |
| q (℄ Brg. Pier 2) | 1877+30.25 | 3.500 | 669.395 | 669.395 |
| r | 1877+40.25 | 3.500 | 669.297 | 669.308 |
| s | 1877+50.25 | 3.500 | 669.197 | 669.213 |
| t | 1877+60.25 | 3.500 | 669.096 | 669.110 |
| u | 1877+70.25 | 3.500 | 668.993 | 669.000 |
| ℄ Pier 3 | 1877+82.75 | 3.500 | 668.862 | 668.862 |
| v | 1877+92.75 | 3.500 | 668.755 | 668.762 |
| w | 1878+02.75 | 3.500 | 668.647 | 668.665 |
| x | 1878+12.75 | 3.500 | 668.537 | 668.562 |
| y | 1878+22.75 | 3.500 | 668.425 | 668.448 |
| z | 1878+32.75 | 3.500 | 668.312 | 668.326 |
| aa | 1878+42.75 | 3.500 | 668.197 | 668.201 |
| ℄ Pier 4 | 1878+49.25 | 3.500 | 668.121 | 668.121 |
| bb | 1878+59.25 | 3.500 | 668.003 | 668.007 |
| cc | 1878+69.25 | 3.500 | 667.883 | 667.894 |
| dd | 1878+79.25 | 3.500 | 667.762 | 667.777 |
| ee | 1878+89.25 | 3.500 | 667.639 | 667.650 |
| ℄ Brg. E. Abut. | 1879+00.50 | 3.500 | 667.499 | 667.499 |

## GIRDER 14

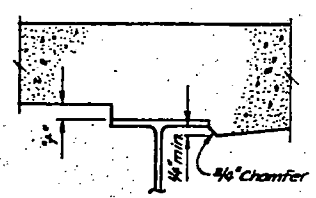
| LOCATION | STATION | OFFSET | THEORETICAL GRADE ELEVATIONS | THEORETICAL GRADE ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION |
|---|---|---|---|---|
| ℄ Brg. W. Abut. | 1875+95.75 | 9.833 | 670.449 | 670.449 |
| a | 1876+05.75 | 9.833 | 670.373 | 670.419 |
| b | 1876+15.75 | 9.833 | 670.296 | 670.377 |
| c | 1876+25.75 | 9.833 | 670.218 | 670.320 |
| d | 1876+35.75 | 9.833 | 670.137 | 670.241 |
| e | 1876+45.75 | 9.833 | 670.055 | 670.143 |
| f | 1876+55.75 | 9.833 | 669.972 | 670.028 |
| g (℄ Brg. Pier 1) | 1876+68.27 | 9.833 | 669.865 | 669.865 |
| h (℄ Brg. Pier 1) | 1876+70.23 | 9.833 | 669.848 | 669.848 |
| i | 1876+77.54 | 9.833 | 669.784 | 669.795 |
| j | 1876+84.86 | 9.833 | 669.719 | 669.739 |
| k | 1876+92.18 | 9.833 | 669.653 | 669.680 |
| l | 1876+99.49 | 9.833 | 669.586 | 669.615 |
| m | 1877+06.80 | 9.833 | 669.518 | 669.545 |
| n | 1877+14.12 | 9.833 | 669.450 | 669.470 |
| o | 1877+21.44 | 9.833 | 669.381 | 669.392 |
| p (℄ Brg. Pier 2) | 1877+28.75 | 9.833 | 669.310 | 669.310 |
| q (℄ Brg. Pier 2) | 1877+30.25 | 9.833 | 669.296 | 669.296 |
| r | 1877+40.25 | 9.833 | 669.198 | 669.209 |
| s | 1877+50.25 | 9.833 | 669.098 | 669.114 |
| t | 1877+60.25 | 9.833 | 668.997 | 669.011 |
| u | 1877+70.25 | 9.833 | 668.894 | 668.901 |
| ℄ Pier 3 | 1877+82.75 | 9.833 | 668.763 | 668.763 |
| v | 1877+92.75 | 9.833 | 668.656 | 668.663 |
| w | 1878+02.75 | 9.833 | 668.548 | 668.566 |
| x | 1878+12.75 | 9.833 | 668.438 | 668.463 |
| y | 1878+22.75 | 9.833 | 668.326 | 668.349 |
| z | 1878+32.75 | 9.833 | 668.213 | 668.227 |
| aa | 1878+42.75 | 9.833 | 668.098 | 668.102 |
| ℄ Pier 4 | 1878+49.25 | 9.833 | 668.022 | 668.022 |
| bb | 1878+59.25 | 9.833 | 667.904 | 667.908 |
| cc | 1878+69.25 | 9.833 | 667.784 | 667.795 |
| dd | 1878+79.25 | 9.833 | 667.663 | 667.678 |
| ee | 1878+89.25 | 9.833 | 667.540 | 667.551 |
| ℄ Brg. E. Abut. | 1879+00.50 | 9.833 | 667.400 | 667.400 |

## GIRDER 15

| LOCATION | STATION | OFFSET | THEORETICAL GRADE ELEVATIONS | THEORETICAL GRADE ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION |
|---|---|---|---|---|
| ℄ Brg. W. Abut. | 1876+01.07 | 16.167 | 670.288 | 670.288 |
| a | 1876+11.07 | 16.167 | 670.212 | 670.263 |
| b | 1876+21.07 | 16.167 | 670.134 | 670.225 |
| c | 1876+31.07 | 16.167 | 670.055 | 670.169 |
| d | 1876+41.07 | 16.167 | 669.973 | 670.089 |
| e | 1876+51.07 | 16.167 | 669.891 | 669.989 |
| f | 1876+61.07 | 16.167 | 669.806 | 669.868 |
| g (℄ Brg. Pier 1) | 1876+73.59 | 16.167 | 669.698 | 669.698 |
| h (℄ Brg. Pier 1) | 1876+75.54 | 16.167 | 669.681 | 669.681 |
| i | 1876+82.20 | 16.167 | 669.622 | 669.631 |
| j | 1876+88.84 | 16.167 | 669.562 | 669.578 |
| k | 1876+95.50 | 16.167 | 669.502 | 669.522 |
| l | 1877+02.15 | 16.167 | 669.441 | 669.463 |
| m | 1877+08.80 | 16.167 | 669.379 | 669.399 |
| n | 1877+15.45 | 16.167 | 669.317 | 669.333 |
| o | 1877+22.10 | 16.167 | 669.254 | 669.263 |
| p (℄ Brg. Pier 2) | 1877+28.75 | 16.167 | 669.190 | 669.190 |
| q (℄ Brg. Pier 2) | 1877+30.25 | 16.167 | 669.175 | 669.175 |
| r | 1877+40.25 | 16.167 | 669.077 | 669.089 |
| s | 1877+50.25 | 16.167 | 668.978 | 668.996 |
| t | 1877+60.25 | 16.167 | 668.876 | 668.892 |
| u | 1877+70.25 | 16.167 | 668.773 | 668.780 |
| ℄ Pier 3 | 1877+82.75 | 16.167 | 668.642 | 668.642 |
| v | 1877+92.75 | 16.167 | 668.536 | 668.544 |
| w | 1878+02.75 | 16.167 | 668.427 | 668.448 |
| x | 1878+12.75 | 16.167 | 668.317 | 668.345 |
| y | 1878+22.75 | 16.167 | 668.206 | 668.231 |
| z | 1878+32.75 | 16.167 | 668.092 | 668.108 |
| aa | 1878+42.75 | 16.167 | 667.977 | 667.982 |
| ℄ Pier 4 | 1878+49.25 | 16.167 | 667.901 | 667.901 |
| bb | 1878+59.25 | 16.167 | 667.783 | 667.788 |
| cc | 1878+69.25 | 16.167 | 667.664 | 667.676 |
| dd | 1878+79.25 | 16.167 | 667.543 | 667.559 |
| ee | 1878+89.25 | 16.167 | 667.420 | 667.432 |
| ℄ Brg. E. Abut. | 1879+00.50 | 16.167 | 667.279 | 667.279 |




AT MINIMUM FILLET




AT MAXIMUM FILLET

TO DETERMINE "t"

AFTER ALL STRUCTURAL STEEL HAS BEEN ERECTED, ELEVATIONS OF THE TOP FLANGES OF THE BEAMS SHALL BE TAKEN AT INTERVALS SHOWN ON DWG. NO. 6. THESE ELEVATIONS SUBTRACTED FROM THE "THEORETICAL GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTION" SHOWN ABOVE, MINUS SLAB THICKNESS, EQUALS THE FILLET HEIGHTS "t" ABOVE TOP FLANGE OF BEAMS.

## FILLET HEIGHTS

**ESCA CONSULTANTS, INC.**

| | | |
|---|---|---|
| DESIGNED BY: | KMR | 12-89 |
| DRAWN BY: | WEM | 12-89 |
| CHECKED BY: | JAG | 12-89 |
| APPROVED BY: | RDP | 12-89 |

## TOP OF SLAB ELEVATIONS (WB)

FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB)BR
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)

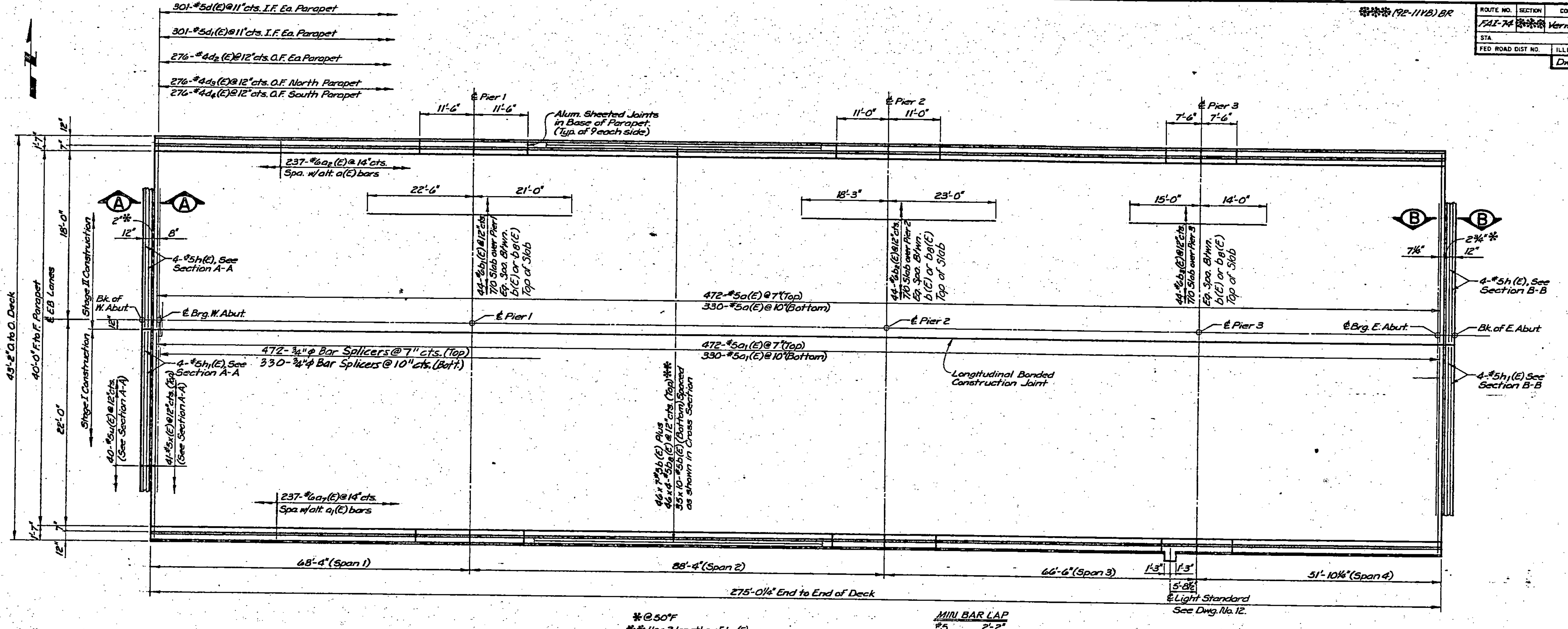
| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | *** | Vermilion | 165 | 98 |

(92-11VB)BR

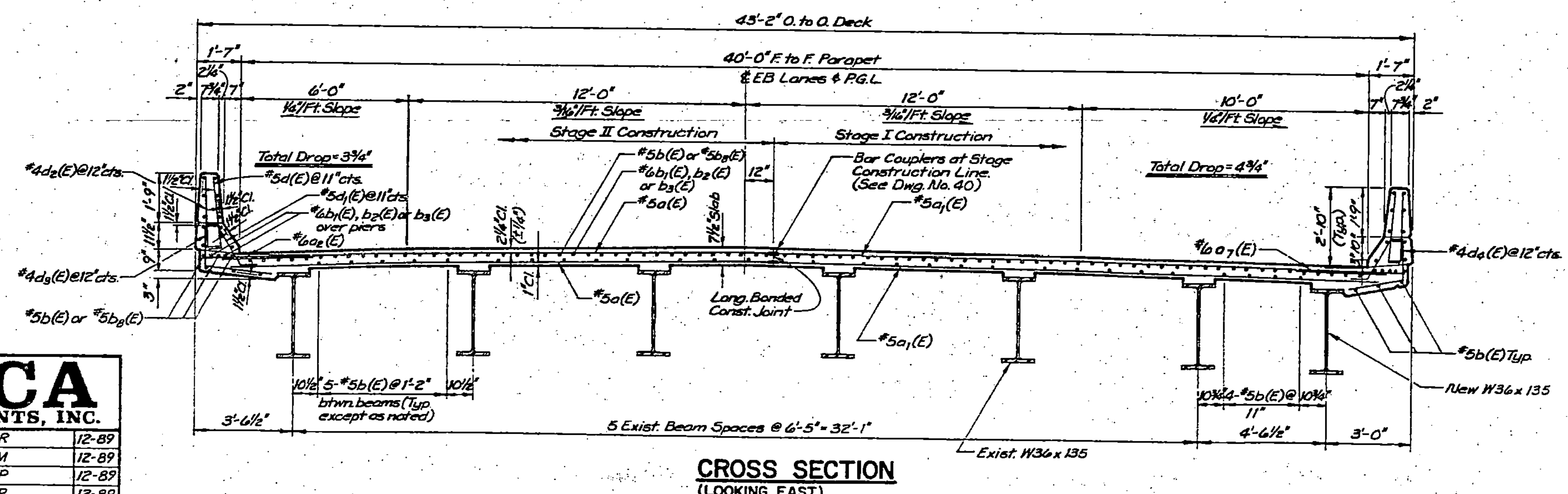
STA. TO STA.

FED. ROAD DIST. NO. | ILLINOIS | PROJECT

Dwg. No. 9 of 41




## PLAN




## CROSS SECTION
(LOOKING EAST)

## NOTES

1. SEE DWG. NO. 11 FOR SECTIONS A-A & B-B.
2. BARS INDICATED THUS: 46x9-#5, ETC., INDICATES 46 LINES OF BARS WITH 9 LENGTHS PER LINE.
3. REINFORCEMENT BARS DESIGNATED (E) SHALL BE EPOXY COATED.
4. ONLY ALUMINUM SHEETED JOINTS IN PARAPETS ARE SHOWN ON THIS DWG. LOCATION OF ALL OTHER PARAPET JOINTS ARE SHOWN ON DWG. NO. 13.
5. REINFORCEMENT BARS AND BAR SPLICERS AT STAGE LINE SHALL BE TIED WITH DOUBLE THE AMOUNT OF TIES NORMALLY USED.

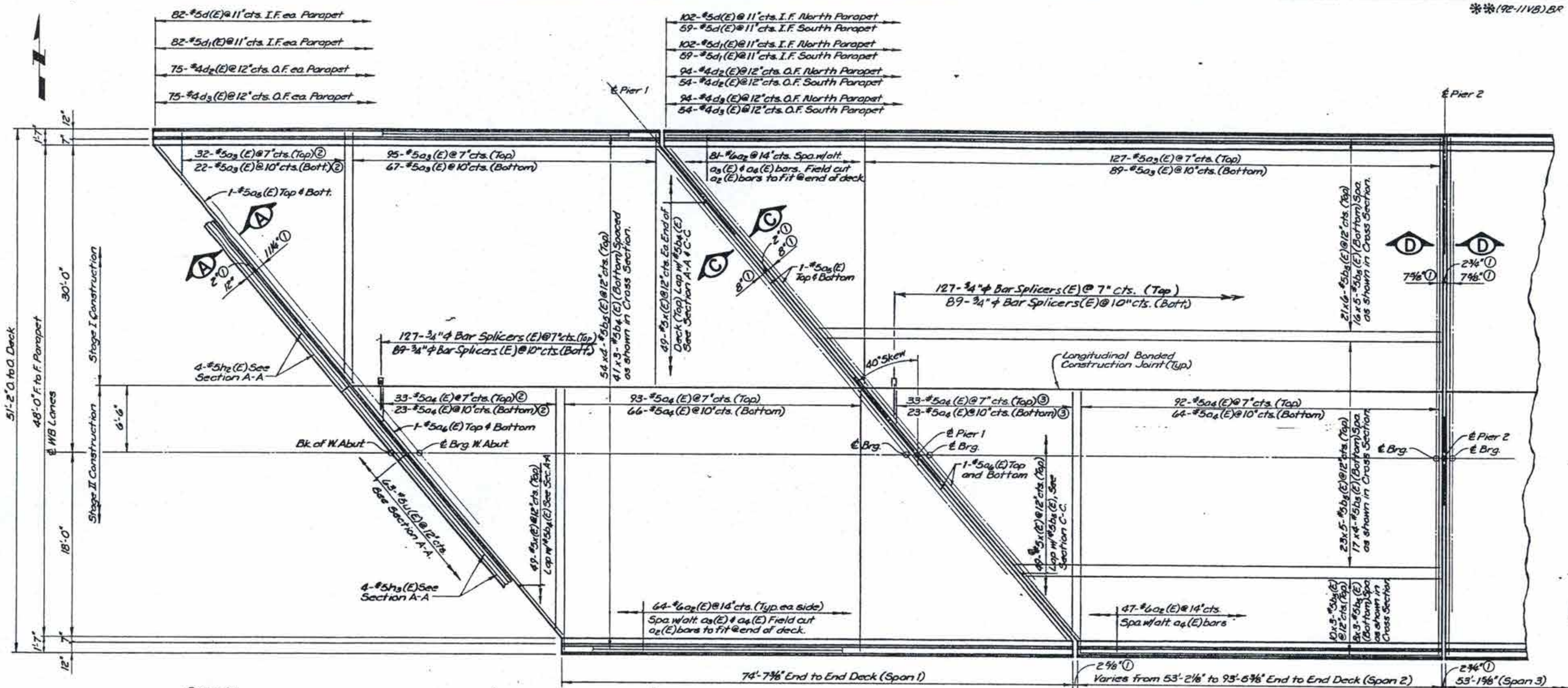
**ESCA CONSULTANTS, INC.**

| | | |
|---|---|---|
| DESIGNED BY: | KMR | 12-89 |
| DRAWN BY: | WEM | 12-89 |
| CHECKED BY: | RDP | 12-89 |
| APPROVED BY: | RDP | 12-89 |

**SUPERSTRUCTURE (EB)**
FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB)BR
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | ** | Vermilion | 165 | 99 |
| STA | | TO STA | | |
| FED ROAD DIST NO. | ILLINOIS | PROJECT | | |
| | | Dwg. No. 10 of 41 | | |

**(92-11VB)BR



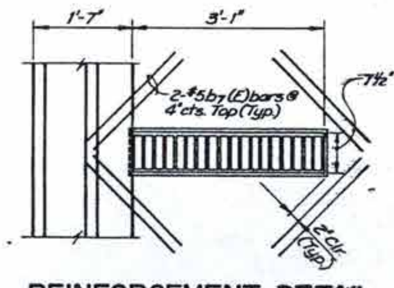

① @ 50°F.

② Order a3(E) & a4(E) bars full length. Field cut to fit skew & use remainder of bars in opposite end of span.

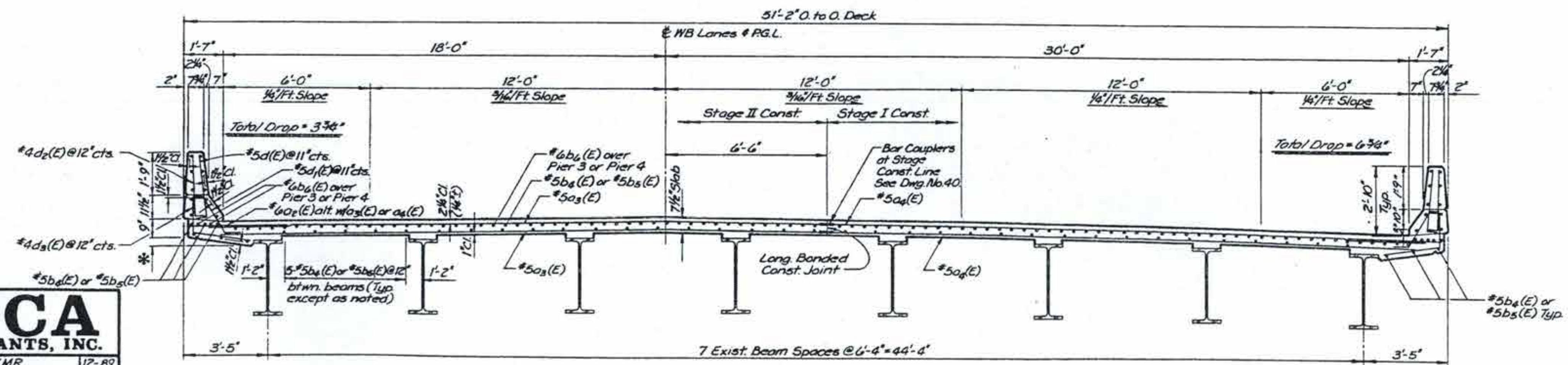
③ Order a4(E) bars full length. Field cut to fit skew & use remainder of bars in West end of Span 2, North Side.

**PLAN**

MIN BAR LAP
#5 2'-2"




**REINFORCEMENT DETAIL AT SCUPPER**




* See Section Thru Parapet on Dwg. No. 12.

**CROSS SECTION**
(LOOKING WEST)

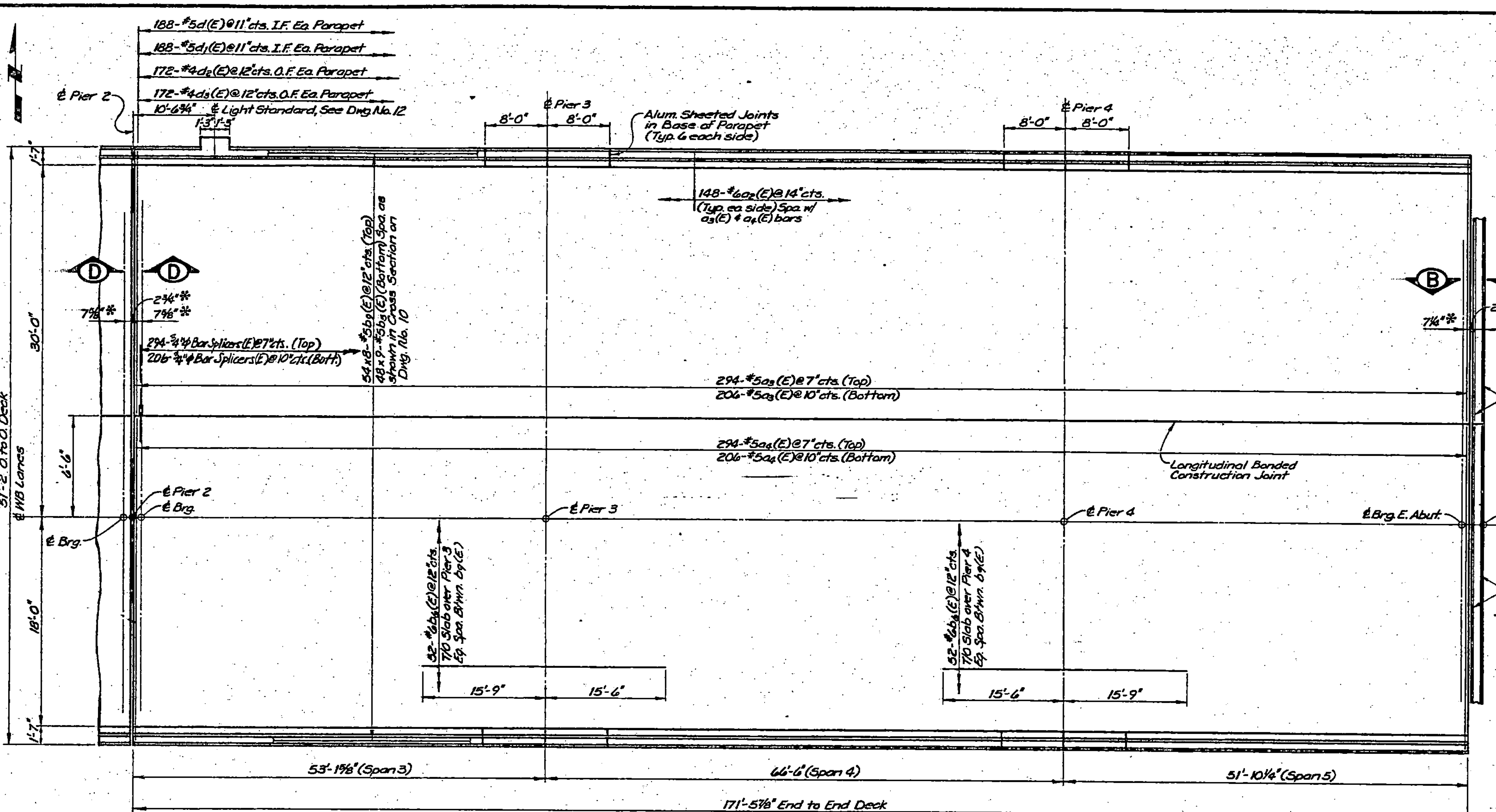
## NOTES

1. SEE DWG. NO. 11 FOR SECTIONS A-A, C-C, & D-D.
2. BARS INDICATED THUS: 10x3-#5b3, ETC., INDICATES 10 LINES OF BARS WITH 3 LENGTHS PER LINE.
3. BARS DESIGNATED (E) SHALL BE EPOXY COATED.
4. REINFORCEMENT BARS AND BAR SPLICERS AT STAGE LINE SHALL BE TIED WITH DOUBLE THE AMOUNT OF TIES NORMALLY USED.
5. CUT REINFORCEMENT BARS IN SLAB TO CLEAR DRAINAGE SCUPPERS.

**ESCA CONSULTANTS, INC.**

| | | |
|---|---|---|
| DESIGNED BY: | KMR | 12-89 |
| DRAWN BY: | WEM | 1-90 |
| CHECKED BY: | RDP | 1-90 |
| APPROVED BY: | RDP | 1-90 |

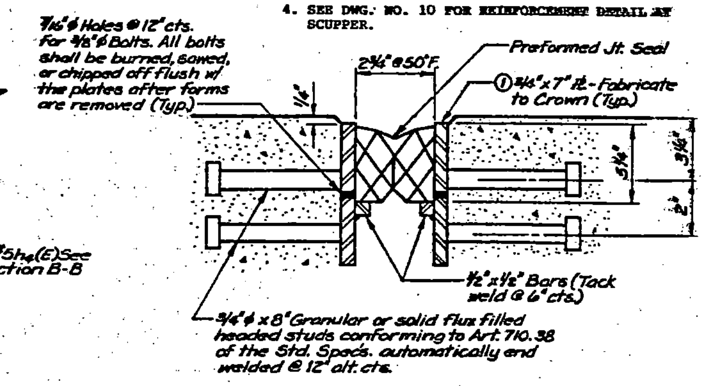
**SUPERSTRUCTURE (WB)**
FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB)BR
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)



PLAN

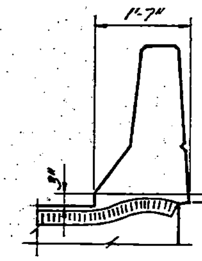
MIN. BAR LAP
#5 2'-2"

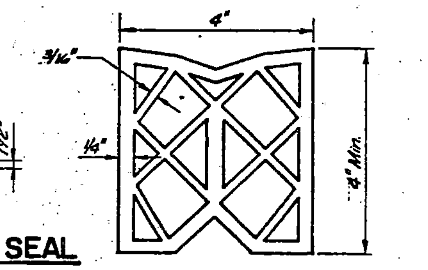
*@50°F.

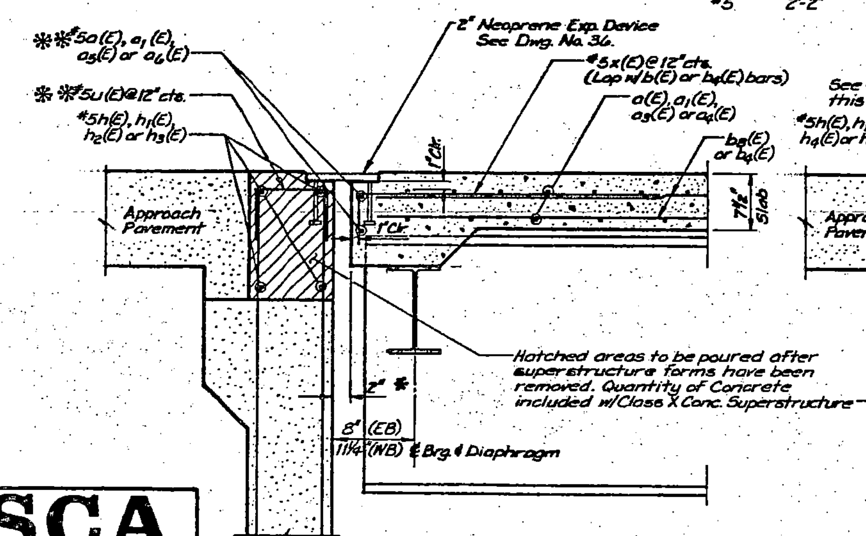


TYPICAL SECTION

①Furnish in segments of 20 ft. maximum length. Maximum space between installed segments shall be 3/16". Seal space with Silicone Sealant suitable for Structural Steel. Centerline of one space to be located at Stage Const. Line.

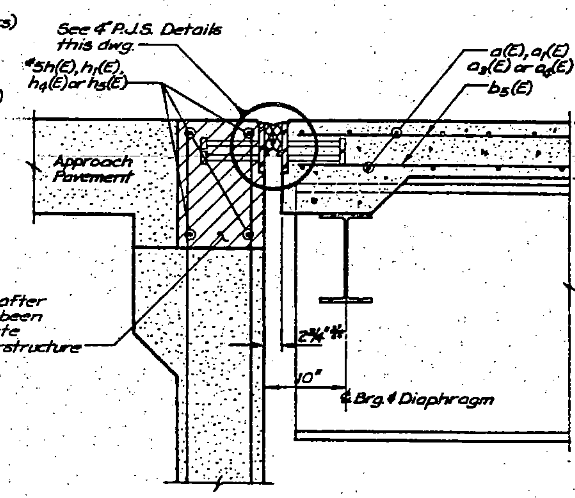

TYPICAL END OF SEAL TREATMENT


4" P.J.S. DETAILS

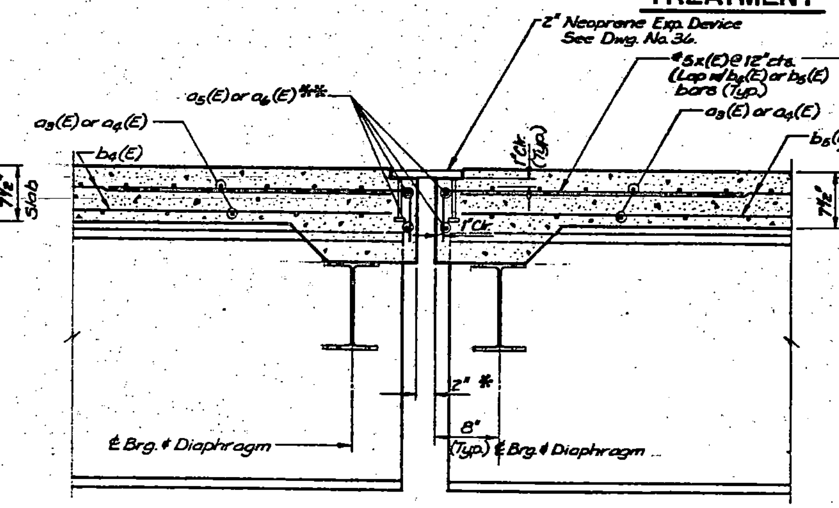


SECTION A-A

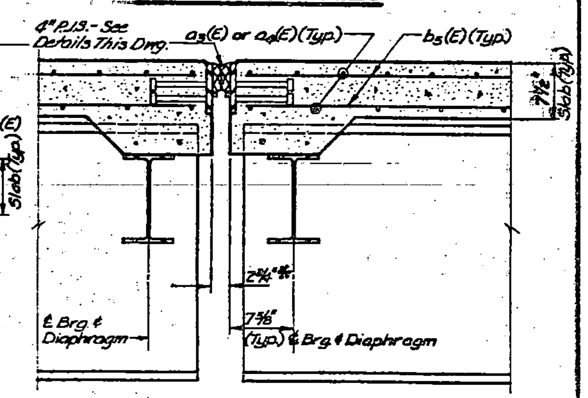
**Place h and/or a bars in back of Anchor Bolt if req'd to maintain 1" Clr. (+0, -⅛"). Anchor Bolts should be tied to a & h bars.



SECTION B-B



SECTION C-C



SECTION D-D

***(92-11VB)BR

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | *** | Vermilion | 165 | 100 |

Dwg. No. 11 of 41

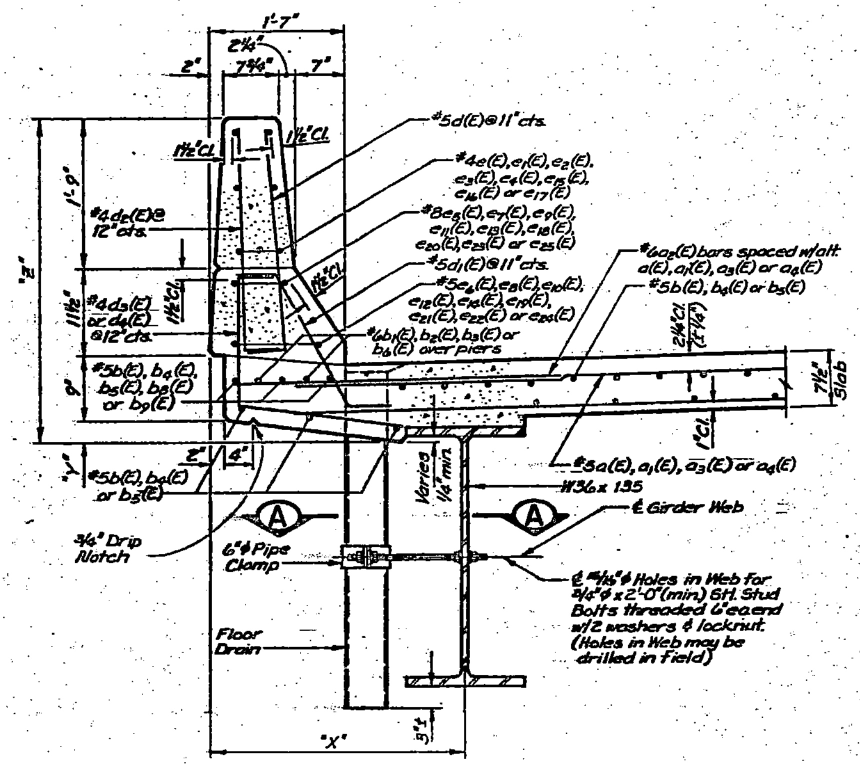
## NOTES

1. BARS INDICATED THUS: 54x9-#5b5, ETC., INDICATES 54 LINES OF BARS WITH 9 LENGTHS PER LINE.
2. BARS DESIGNATED (E) SHALL BE EPOXY COATED.
3. ONLY ALUMINUM SHEETED JOINTS IN PARAPETS ARE SHOWN ON THIS DWG. LOCATIONS OF ALL OTHER PARAPET JOINTS ARE SHOWN ON DWG. NO. 14.
4. SEE DWG. NO. 10 FOR REINFORCEMENT DETAIL AT SCUPPER.

**ESCA CONSULTANTS, INC.**

| | | |
|---|---|---|
| DESIGNED BY: | KMR | 12-89 |
| DRAWN BY: | WEM | 1-90 |
| CHECKED BY: | RDP | 1-90 |
| APPROVED BY: | RDP | 1-90 |

SUPERSTRUCTURE (WB)
FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB)BR
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)



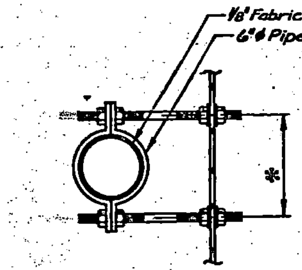

## SECTION THRU PARAPET

### X DIMENSIONS

| LOCATION | X |
|---|---|
| EB Lanes, N Side | 3'-6½" |
| EB Lanes, S Side | 3'-0" |
| WB Lanes, N Side | 3'-5" |
| WB Lanes, S Side | 3'-5" |

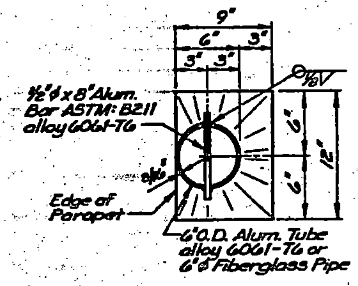
### Y & Z DIMENSIONS

| LOCATION | Y | Z |
|---|---|---|
| EB Lanes N&S Sides | 3" | 3'-8½" |
| WB Lanes, Span 1, N&S Sides | 3⅛" | 3'-8⅝" |
| WB Lanes, Span 2, N Side | 4¾" | 3'-10¼" |
| WB Lanes, Span 2, S Side | 1¾" | 3'-7¼" |
| WB Lanes, Spans 3,4 & 5, N&S | 2¼" | 3'-7¾" |

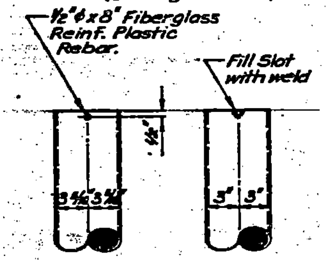



✻ Dimension as required by Pipe Clamp.

## SECTION A-A



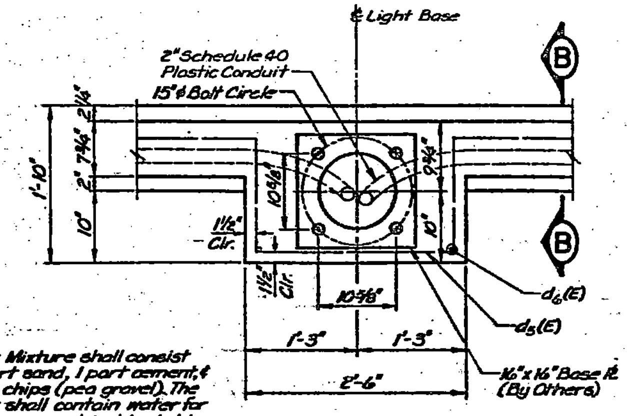

### TOP PLAN
(Showing Alum. Tube)




FIBERGLASS PIPE

ALUMINUM TUBE

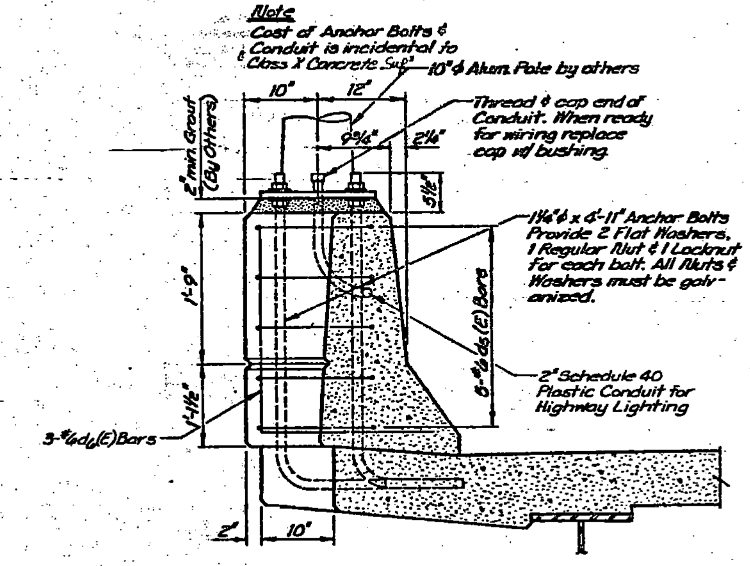
## FLOOR DRAIN DETAILS




**Note**
Grout Mixture shall consist of 1 part sand, 1 part cement, & 1 part chips (pea gravel). The grout shall contain water for a 1" slump, cost incidental to Pole.

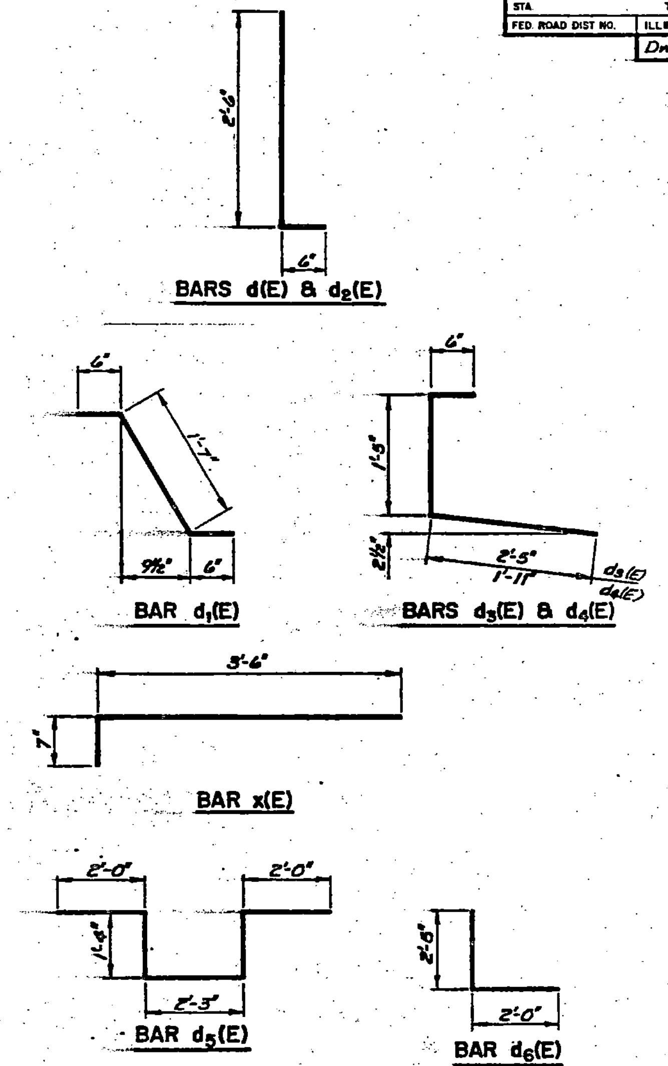
### PLAN

**Note**
Cost of Anchor Bolts & Conduit is incidental to Class X Concrete Sup.

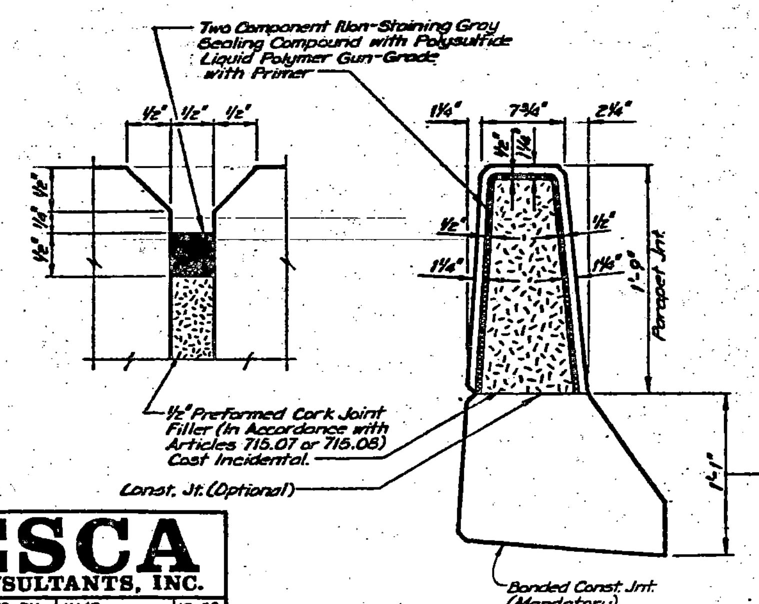



### SECTION B-B

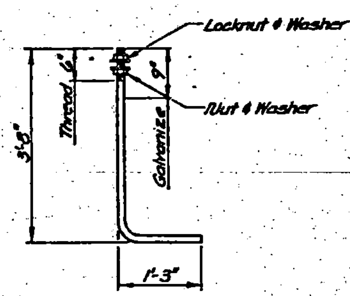
## DETAIL OF LIGHT STANDARD



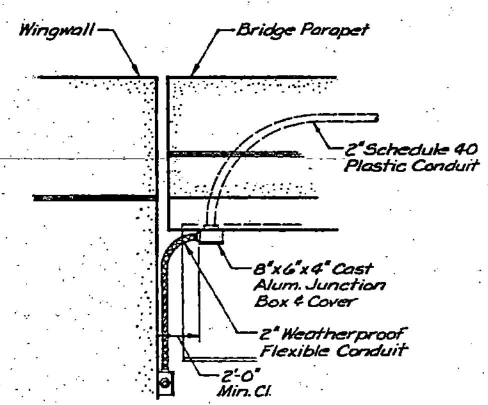

## BAR BENDING DETAILS




## DETAILS OF PARAPET JOINT
(See Dwg. Nos. 13 & 14 for locations of these joints.)

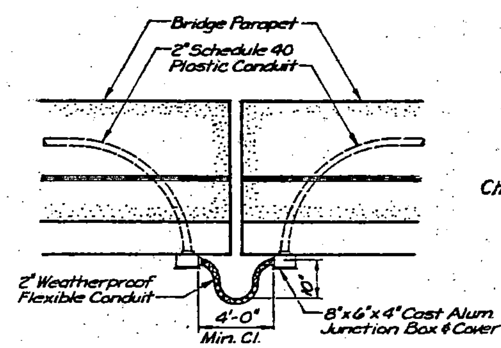



## 1¼"ϕ ANCHOR BOLT




### AT ABUTMENTS

S. Corner, W. Abut. EB Lanes Shown;
S. Corner E. Abut. EB Lanes,
N. Corner W. Abut. WB Lanes &
N. Corner E. Abut. WB Lanes Similar.




### AT NORTH PARAPET, WB LANES
### PIER 1 & PIER 2

**Note**
Cost of Plastic & Flexible Conduit, Junction Boxes, & Anchor Bolts is incidental to Class X Concrete Superstructure.

## FLEXIBLE CONDUIT DETAILS

## NOTES

1. FIBERGLASS PIPE SHALL CONFORM TO ASTM D2996, WITH SHORT-TIME RUPTURE STRENGTH HOOP TENSILE STRESS OF 30,000 P.S.I. MINIMUM.
2. THE SURFACE OF THE FIBERGLASS PIPE SHALL BE FREE OF BOND INHIBITING AGENTS.
3. THE EXTERIOR ~~SURFACES OF THE FLOOR DRAIN~~ SHALL BE PAINTED WITH A FINAL COAT OF THE LEAD & CHROMATE FREE ALKYD PAINTING SPECIFIED FOR STRUCTURAL STEEL. THE EXTERIOR SURFACES OF THE ALUMINUM TUBE SHALL BE CLEANED AND GIVEN A WASHCOAT PRETREATMENT IN ACCORDANCE WITH STEEL STRUCTURES PAINTING COUNCIL'S SPEC. SSPC-SP1 & SSPC-PAINT 27 PRIOR TO PAINTING. FIBERGLASS TO HAVE PREWASH AS PER MIL-P-15328.
4. THE CLAMPING DEVICE SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M-232.
5. SEE DWGS. 9 & 11 FOR LOCATION OF LIGHT STANDARDS.

# SUPERSTRUCTURE DETAILS

FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB)BR
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)

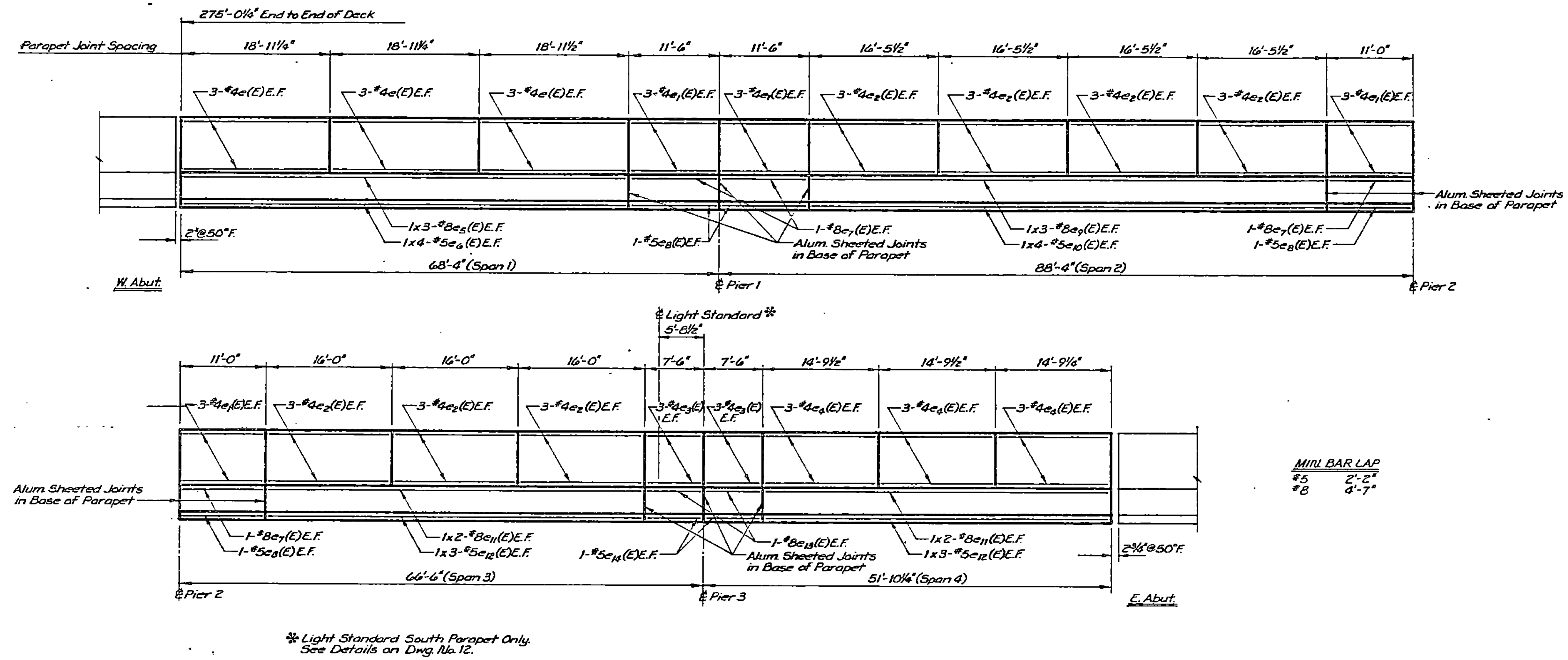
ESCA
CONSULTANTS, INC.

| | | |
|---|---|---|
| DESIGNED BY: | KMR | 12-89 |
| DRAWN BY: | WEM | 1-90 |
| CHECKED BY: | RDP | 1-90 |
| APPROVED BY: | RDP | 1-90 |

*** (92-11VB) BR

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI 74 | *** | Vermilion | 165 | 102 |
| STA. | | TO STA. | | |
| FED. ROAD DIST. NO. | | ILLINOIS | PROJECT | |

Dwg. No. 13 of 41




MIN. BAR LAP
#5 2'-2"
#8 4'-7"

* Light Standard South Parapet Only. See Details on Dwg. No. 12.

## ELEVATION OF INSIDE FACE OF PARAPET (EB)

## BILL OF MATERIAL (EB BRIDGE)

| BAR | N° | SIZE | LENGTH | SHAPE |
|---|---|---|---|---|
| a(E) | 802 | #5 | 19'-9" | — |
| $a_1$(E) | 802 | #5 | 21'-6" | — |
| $a_2$(E) | 237 | #6 | 6'-0" | — |
| $a_7$(E) | 237 | #6 | 4'-0" | — |
| | | | | |
| b(E) | 672 | #5 | 29'-4" | — |
| $b_1$(E) | 44 | #6 | 43'-6" | — |
| $b_2$(E) | 44 | #6 | 41'-3" | — |
| $b_3$(E) | 44 | #6 | 29'-0" | — |
| $b_8$(E) | 184 | #5 | 30'-0" | — |
| | | | | |
| d(E) | 602 | #5 | 3'-0" | |
| $d_1$(E) | 602 | #5 | 2'-7" | |
| $d_2$(E) | 552 | #4 | 3'-0" | |
| $d_3$(E) | 276 | #4 | 4'-4" | |
| $d_4$(E) | 276 | #4 | 3'-10" | |
| $d_5$(E) | 5 | #6 | 8'-11" | |
| $d_6$(E) | 3 | #6 | 4'-5" | |
| | | | | |
| | | | | |
| e(E) | 18 | #4 | 18'-4" | — |
| $e_1$(E) | 24 | #4 | 10'-9" | — |
| $e_2$(E) | 42 | #4 | 15'-9" | — |
| $e_3$(E) | 12 | #4 | 7'-3" | — |
| $e_4$(E) | 18 | #4 | 14'-4" | — |
| $e_5$(E) | 6 | #8 | 22'-7" | — |
| $e_6$(E) | 8 | #5 | 15'-8" | — |
| $e_7$(E) | 8 | #8 | 10'-9" | — |
| $e_8$(E) | 8 | #5 | 10'-9" | — |
| $e_9$(E) | 6 | #8 | 25'-7" | — |
| $e_{10}$(E) | 8 | #5 | 18'-0" | — |
| $e_{11}$(E) | 8 | #8 | 26'-8" | — |
| $e_{12}$(E) | 12 | #5 | 17'-2" | — |
| $e_{13}$(E) | 4 | #8 | 7'-3" | — |
| $e_{14}$(E) | 4 | #5 | 7'-3" | — |
| | | | | |
| x(E) | 41 | #5 | 4'-1" | |

| ITEM | UNIT | QUANTITY |
|---|---|---|
| Class X Conc. Superstructure | Cu. Yds. | 370.6 |
| Reinf. Bars (Epoxy Coated) | Lbs. | 81,610 |
| Preformed Joint Seal, 4" | Lin. Ft. | 43 |
| Neoprene Exp. Joint, 2" | Lin. Ft. | 42.0 |
| Floor Drains | Each | 8 |
| △ Protective Coat | Sq. Yd. | 224 |

△ Includes top and inside face of parapet only.

## NOTES

1. BARS INDICATED THUS: 1x2-#8, ETC., INDICATES 1 LINE OF BARS WITH 2 LENGTHS PER LINE.
2. REINFORCEMENT BARS DESIGNATED (E) SHALL BE EPOXY COATED.
3. EXISTING AND NEW NAME PLATES TO BE MOUNTED ON NEW PARAPETS. SEE DWG. NO. 1 & STD. 2113.
4. SEE DWG. NO. 12 FOR PARAPET JOINT DETAILS.
5. SEE DWG. NO. 12 FOR DETAILS OF LIGHT STANDARD.

ESCA CONSULTANTS, INC.

| | | |
|---|---|---|
| DESIGNED BY: | KMR | 12-89 |
| DRAWN BY: | WEM | 1-90 |
| CHECKED BY: | RDP | 1-90 |
| APPROVED BY: | RDP | 1-90 |

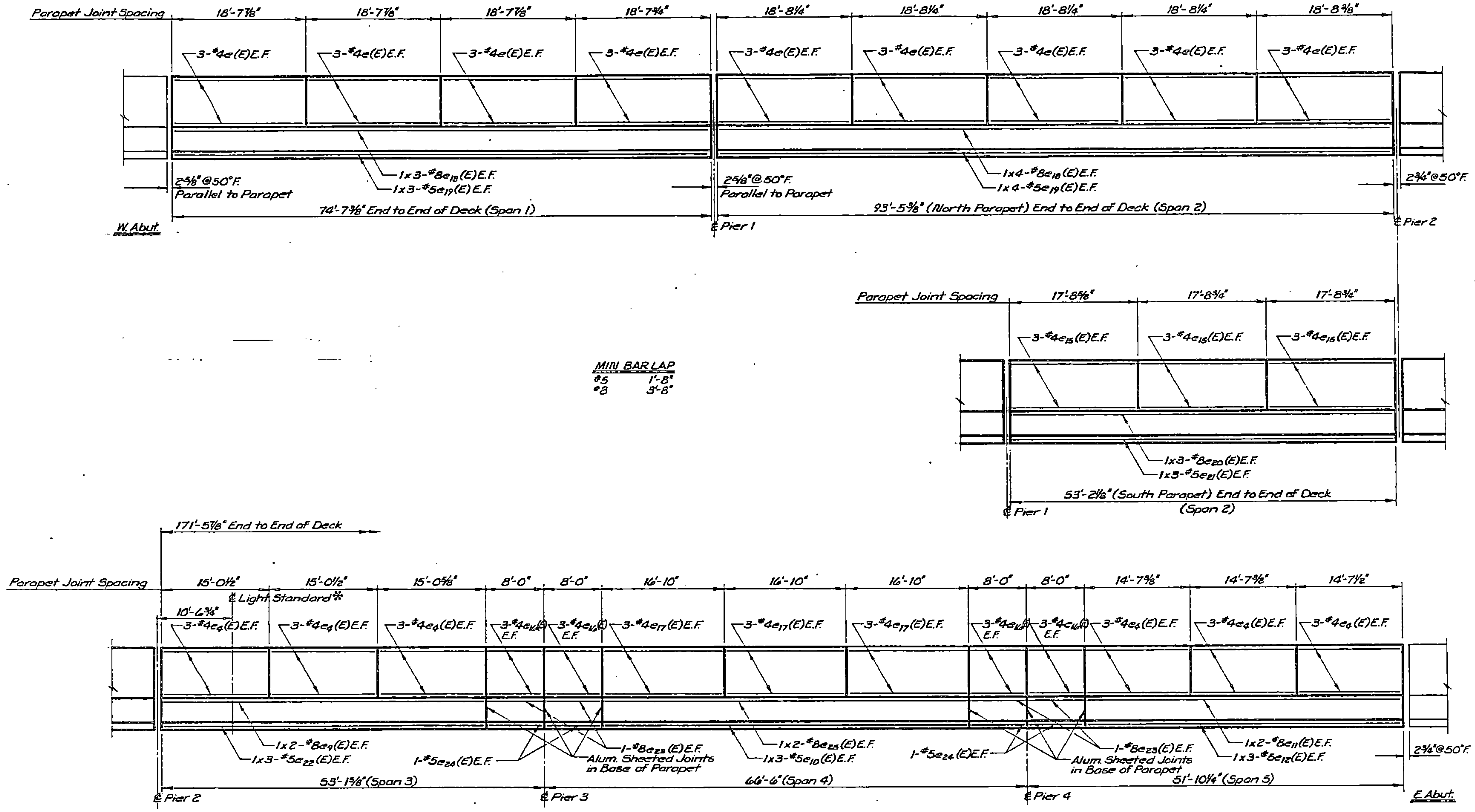
## SUPERSTRUCTURE DETAILS

FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB)BR
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)

*** (92-11VB)BR

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | *** | Vermilion | 165 | 103 |
| STA | | TO STA. | | |
| FED ROAD DIST NO | | ILLINOIS | PROJECT | |

Dwg. No. 14 of 41




*Light Standard in North Parapet Only. See Details on Dwg. No. 12.

## ELEVATION OF INSIDE FACE OF PARAPET (WB)

## NOTES

1. BARS INDICATED THUS: 1x2-#8, ETC., INDICATES 1 LINE OF BARS WITH 2 LENGTHS PER LINE.
2. REINFORCEMENT BARS DESIGNATED (E) SHALL BE EPOXY COATED.
3. EXISTING AND NEW NAME PLATES TO BE MOUNTED ON NEW PARAPETS. SEE DWG. NO. 1 & STD. 2113.
4. SEE DWG. NO. 12 FOR PARAPET JOINT DETAILS.
5. SEE DWG. NO. 12 FOR DETAILS OF LIGHT STANDARD.

## BILL OF MATERIAL
## (WB BRIDGE)

| BAR | N° | SIZE | LENGTH | SHAPE |
|---|---|---|---|---|
| $a_2$(E) | 552 | #6 | 6'-0" | — |
| $a_3$(E) | 932 | #5 | 24'-1" | — |
| $a_4$(E) | 927 | #5 | 25'-4" | — |
| $a_5$(E) | 6 | #5 | 30'-11" | — |
| $a_6$(E) | 6 | #5 | 32'-4" | — |
| | | | | |
| | | | | |
| $b_4$(E) | 123 | #5 | 26'-0" | — |
| $b_5$(E) | 1091 | #5 | 21'-0" | — |
| $b_6$(E) | 104 | #6 | 31'-3" | — |
| $b_7$(E) | 8 | #5 | 2'-0" | — |
| $b_9$(E) | 432 | #5 | 23'-2" | — |
| d(E) | 701 | #5 | 3'-0" | |
| $d_1$(E) | 701 | #5 | 2'-7" | |
| $d_2$(E) | 642 | #4 | 3'-0" | |
| $d_3$(E) | 642 | #4 | 4'-4" | |
| $d_5$(E) | 5 | #6 | 8'-11" | |
| $d_6$(E) | 3 | #6 | 4'-5" | |
| | | | | |
| | | | | |
| e(E) | 54 | #4 | 18'-4" | — |
| $e_4$(E) | 36 | #4 | 14'-4" | — |
| $e_{15}$(E) | 18 | #4 | 17'-5" | — |
| $e_9$(E) | 4 | #8 | 25'-7" | — |
| $e_{10}$(E) | 6 | #5 | 18'-0" | — |
| $e_{11}$(E) | 4 | #8 | 26'-8" | — |
| $e_{12}$(E) | 6 | #5 | 17'-2" | — |
| $e_{16}$(E) | 24 | #4 | 7'-9" | — |
| $e_{17}$(E) | 18 | #4 | 16'-7" | — |
| $e_{18}$(E) | 14 | #8 | 28'-4" | — |
| $e_{19}$(E) | 14 | #5 | 26'-0" | — |
| $e_{20}$(E) | 6 | #8 | 21'-4" | — |
| $e_{21}$(E) | 6 | #5 | 19'-0" | — |
| $e_{22}$(E) | 6 | #5 | 16'-4" | — |
| $e_{23}$(E) | 8 | #8 | 7'-9" | — |
| $e_{24}$(E) | 8 | #5 | 7'-9" | — |
| $e_{25}$(E) | 4 | #8 | 28'-0" | — |
| x(E) | 147 | #5 | 4'-1" | |

| ITEM | UNIT | QUANTITY |
|---|---|---|
| Class X Conc. Superstructure | Cu.Yds. | 493.1 |
| Reinf. Bars (Epoxy Coated) | Lbs. | 108,630 |
| Drainage Scuppers | Each | 1 |
| Neoprene Exp. Joint, 2" | Lin.Ft. | 130.0 |
| Floor Drains | Each | 10 |
| Δ Protective Coat | Sq.Yd. | 261 |
| Preformed Joint Seal, 4" | Lin.Ft. | 102 |

Δ Includes top and inside face of parapet only.

## SUPERSTRUCTURE DETAILS

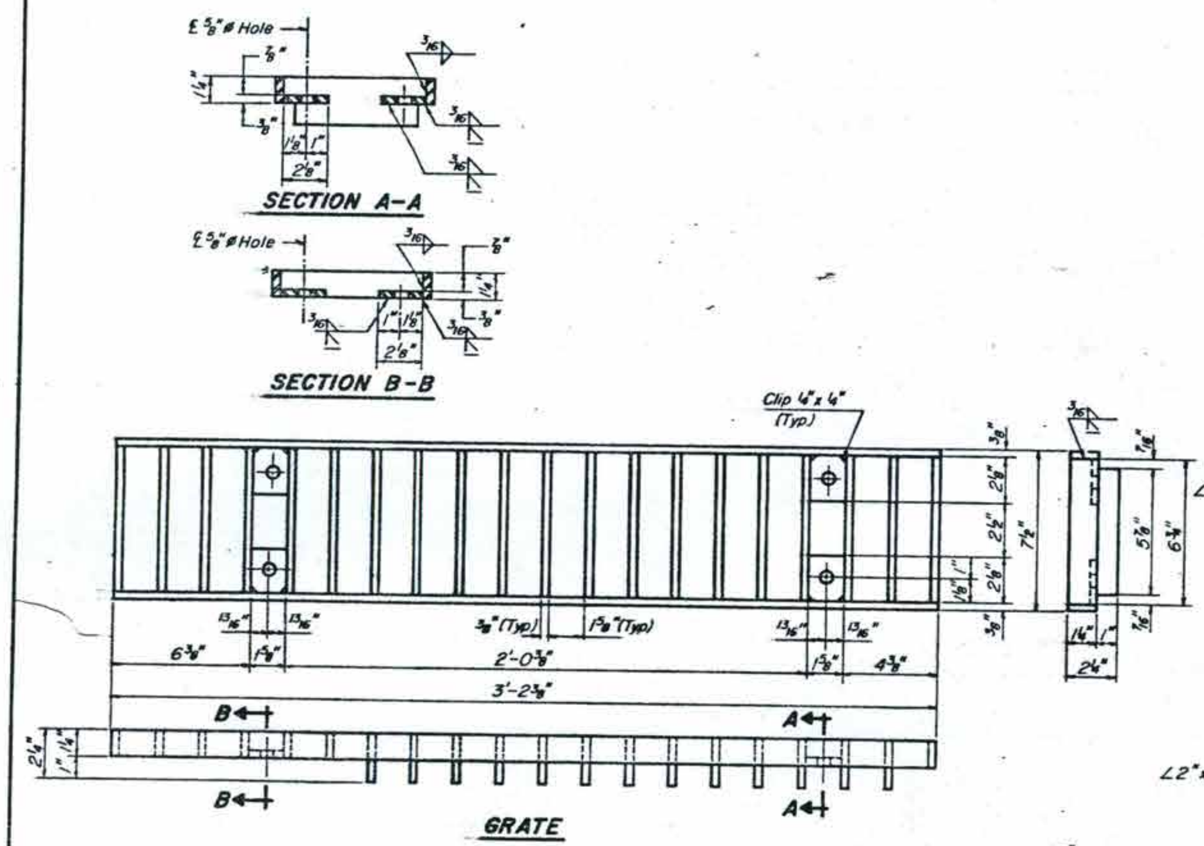
FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB)BR
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)

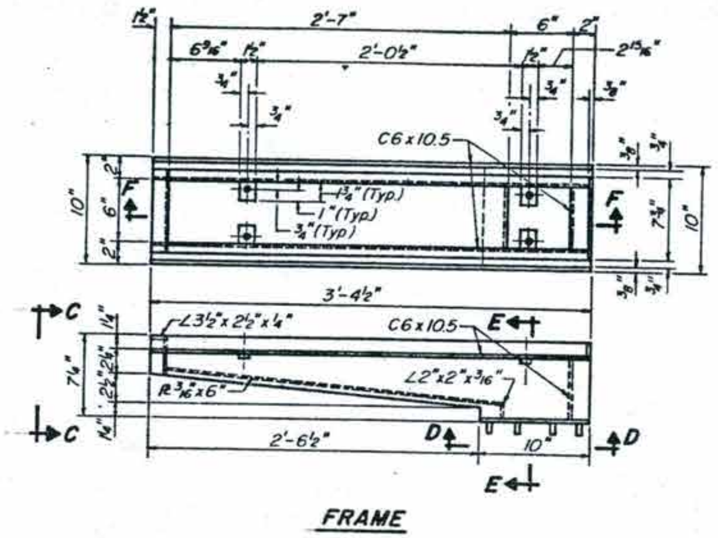
ESCA CONSULTANTS, INC.

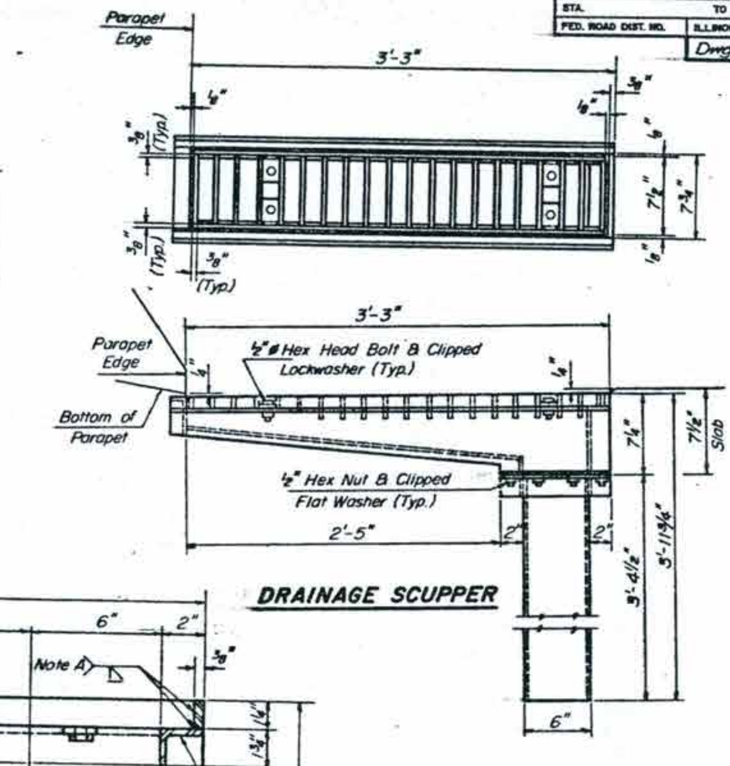
| | | |
|---|---|---|
| DESIGNED BY: | KMR | 1-90 |
| DRAWN BY: | WEM | 1-90 |
| CHECKED BY: | RDP | 1-90 |
| APPROVED BY: | RDP | 1-90 |

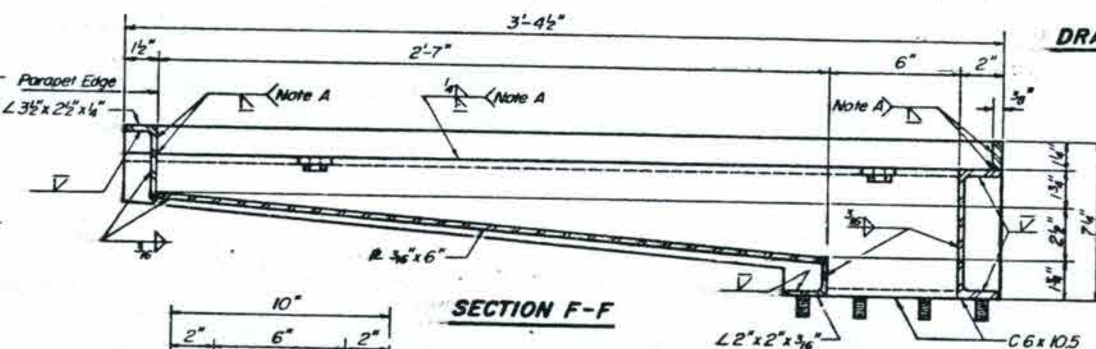
* (92-11VB)BR

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | * | Vermilion | 165 | 104 |
| STA. | | TO STA. | | |
| FED. ROAD DIST. NO. | | ILLINOIS | PROJECT | |
| | | Dwg. No. 15 of 41 | | |

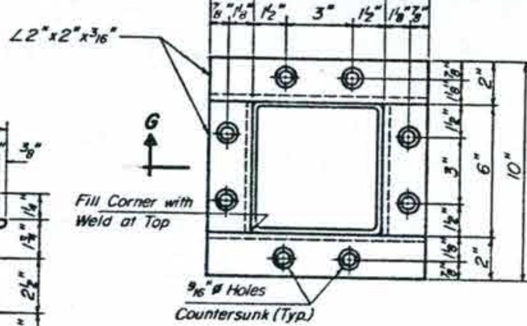


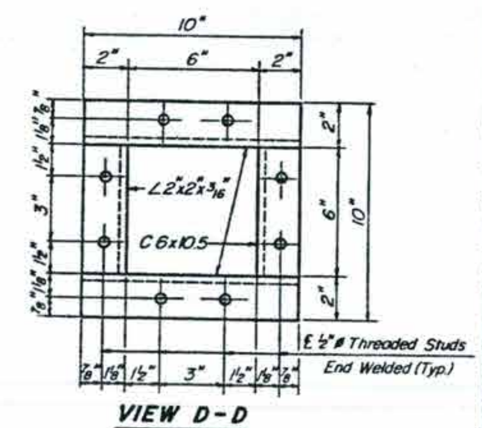


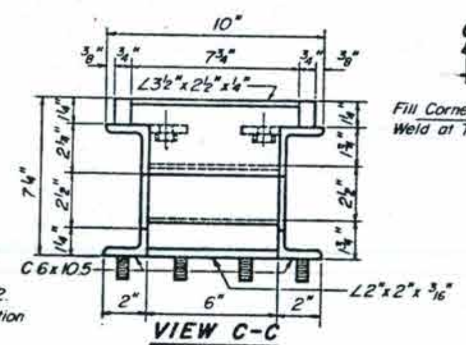




Note A: Surface of welds shall be recessed 1/16" Max. or placed flush with inside face of bars to provide clearance for Grate.







Notes:

Hollow structural steel tubing shall conform to the requirements of A.S.T.M. designation A-500 Grade B, or A-501 Structural Steel Tubing.

All other shapes, plates and bars shall conform to the requirements of A.A.S.H.T.O. M 183.

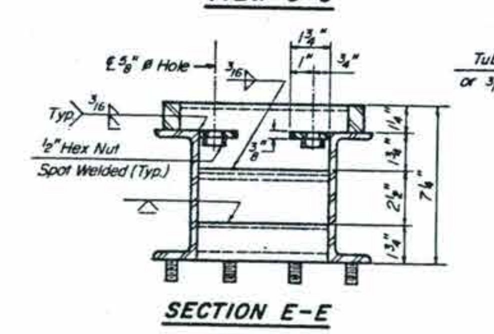
Bolts, studs, washers and nuts shall conform to the requirements of A.S.T.M. A-307.

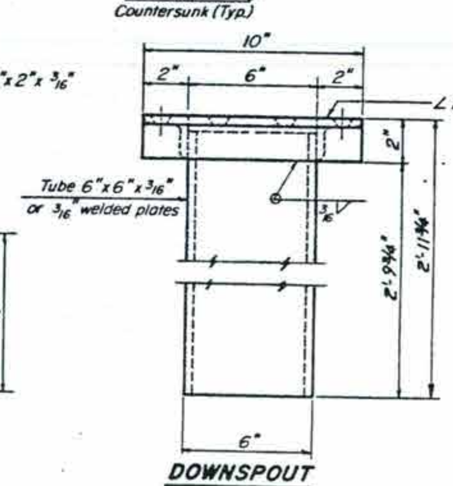
The Grate, Frame, and Downspout shall be galvanized after shop fabrication in accordance with A.A.S.H.T.O. M-111 & A.S.T.M. A-385.

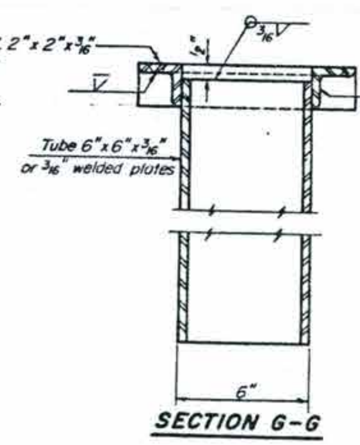
All bolts, washers and nuts shall be galvanized in accordance with A.A.S.H.T.O. M 232.

Cost of the Grate, Frame, Downspout, Bolts, Washers and Nuts including complete installation of Scupper shall be paid for at the unit bid price for "DRAINAGE SCUPPERS".

Note: See Dwg. No. 34 for continuation of downspout.







**BILL OF MATERIAL**

| ITEM | UNIT | QUANTITY |
|---|---|---|
| Drainage Scupper | Each | 1 |

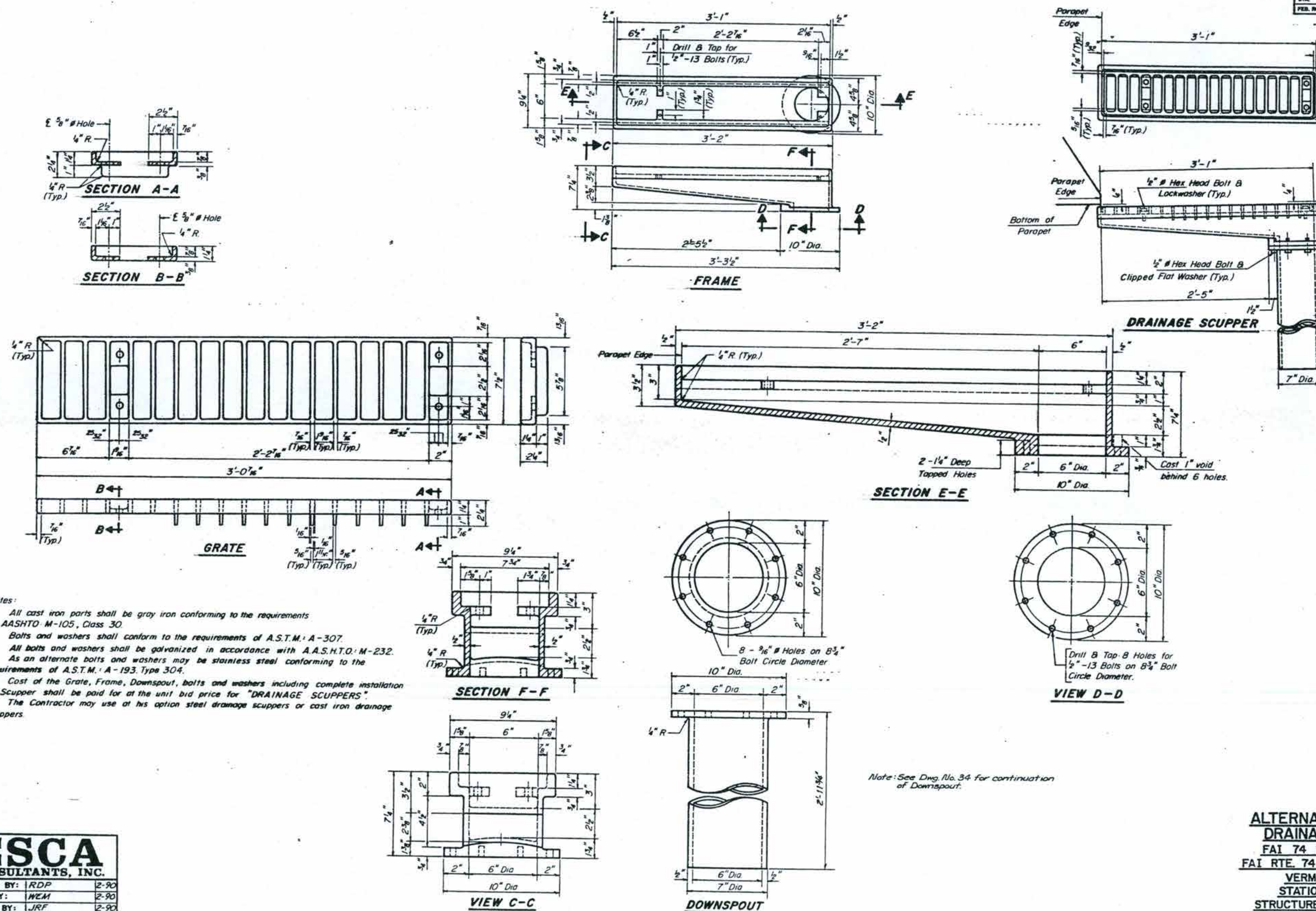
**ESCA CONSULTANTS, INC.**

| | | |
|---|---|---|
| DESIGNED BY: | RDP | 2-90 |
| DRAWN BY: | WEM | 2-90 |
| CHECKED BY: | JRF | 2-90 |
| APPROVED BY: | RDP | 2-90 |

STEEL DRAINAGE SCUPPER
FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB)BR
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | ✻ | Vermilion | 165 | 105 |
| STA. | | TO STA. | | |
| FED. ROAD DIST. NO. | | ILLINOIS | PROJECT | |
| | | Dwg. No. 16 of 41 | | |

✻ (92-11VB) BR




Notes:

All cast iron parts shall be gray iron conforming to the requirements of AASHTO M-105, Class 30.

Bolts and washers shall conform to the requirements of A.S.T.M.: A-307.

All bolts and washers shall be galvanized in accordance with A.A.S.H.T.O.: M-232.

As an alternate bolts and washers may be stainless steel conforming to the requirements of A.S.T.M.: A-193. Type 304.

Cost of the Grate, Frame, Downspout, bolts and washers including complete installation of Scupper shall be paid for at the unit bid price for "DRAINAGE SCUPPERS".

The Contractor may use at his option steel drainage scuppers or cast iron drainage scuppers.

**ESCA CONSULTANTS, INC.**

| | | |
|---|---|---|
| DESIGNED BY: | RDP | 2-90 |
| DRAWN BY: | WEM | 2-90 |
| CHECKED BY: | JRF | 2-90 |
| APPROVED BY: | RDP | 2-90 |

# ALTERNATE CAST IRON DRAINAGE SCUPPER

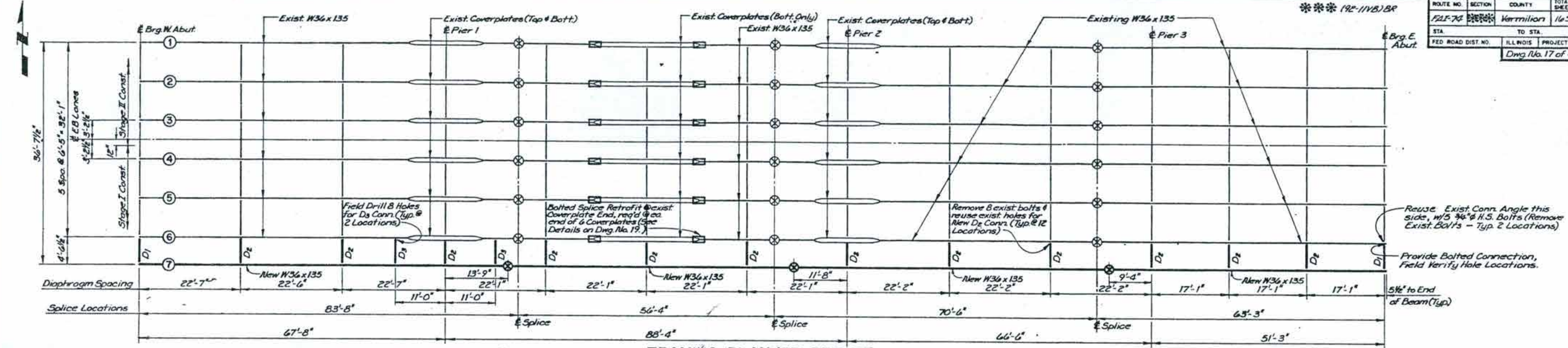
FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB)I
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | (92-11VB)BR | Vermilion | 165 | 106 |

STA. TO STA.

FED. ROAD DIST. NO. ILLINOIS PROJECT

Dwg. No. 17 of 41

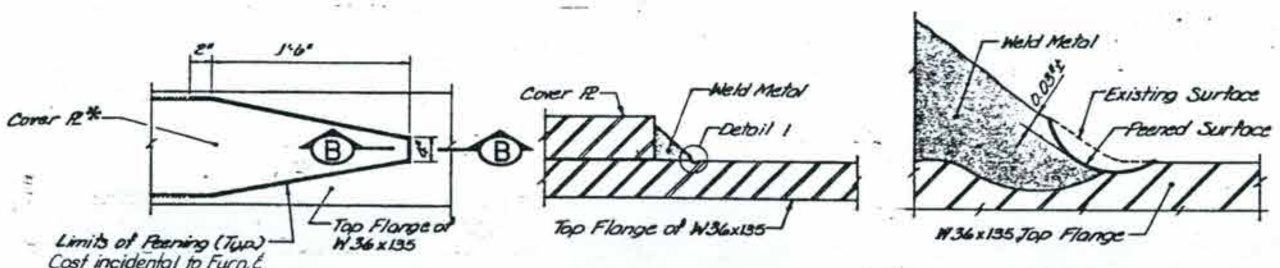



## FRAMING PLAN (EB BRIDGE)

## TABLE OF ELEVATIONS (T/O STEEL BEAMS)

| BEAM | W. ABUT | PIER 1 | SPAN 2 SPLICE | SPAN 2 SPLICE | PIER 2 | SPAN 3 SPLICE | PIER 3 | E. ABUT |
|---|---|---|---|---|---|---|---|---|
| 1 | 669.43 | 668.79 | – | – | 667.93 | – | 667.18 | 666.62 |
| 2 | 669.53 | 668.89 | – | – | 668.03 | – | 667.28 | 666.72 |
| 3 | 669.60 | 668.96 | – | – | 668.11 | – | 667.35 | 666.79 |
| 4 | 669.60 | 668.96 | – | – | 668.11 | – | 667.35 | 666.79 |
| 5 | 669.53 | 668.89 | – | – | 668.03 | – | 667.28 | 666.72 |
| 6 | 669.43 | 668.79 | – | – | 667.93 | – | 667.18 | 666.62 |
| 7 | 669.33 | 668.71 | 668.58 | 667.96 | 667.83 | 667.18 | 667.08 | 666.52 |

NOTE: ELEVATIONS SHOWN ARE TOP OF FLANGE (NOT SPLICE PLATE OR COVER PLATE) AFTER RAISING; THEY DO NOT INCLUDE DEFLECTION, AND ARE INTENDED FOR USE IN FABRICATION OF NEW STEEL BEAMS AND TO ASSIST THE CONTRACTOR IN DETERMINING REQUIRED THICKNESS OF SHIM PLATES AND FILL PLATES UNDER BEARINGS. SEE NOTE 5 UNDER "PROCEDURE" ON DWG. NO. 20.




PLAN

SECTION B-B

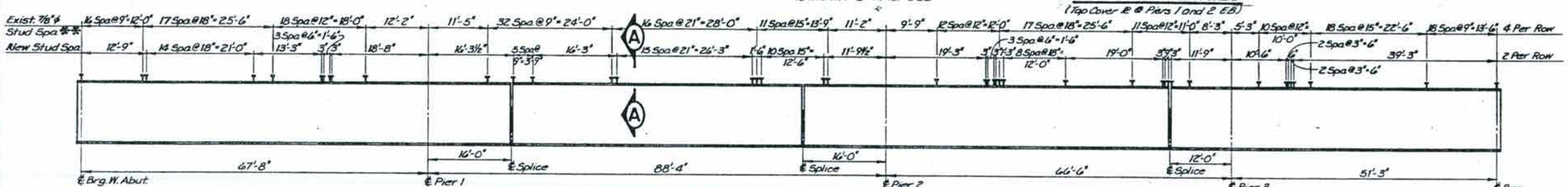
DETAIL 1

## PEENING DETAILS

(Top Cover Pl. @ Piers 1 and 2 EB)

## NOTES

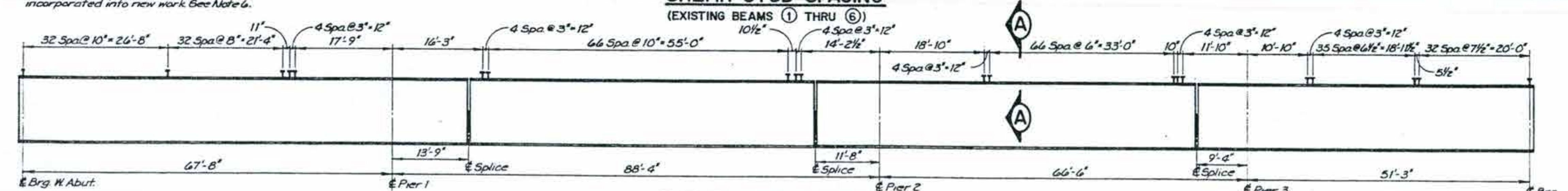
1. D1, D2, D3 INDICATES NEW DIAPHRAGMS. D1 IS W12x40, D2 & D3 ARE W16x36. SEE NOTES REGARDING CONNECTIONS ON FRAMING PLAN THIS DWG. AND DETAILS ON DWG. NO. 19.
2. PROVIDE NEW H.S. BOLTS AT ALL CONNECTIONS WHICH MUST BE UNCONNECTED OR LOOSENED IN ORDER TO REPOSITION BEAMS. SEE DWG. 20.
3. PROVIDE SHEAR STUDS ON EXISTING AND NEW BEAMS AS SHOWN ON DETAILS THIS DWG.
4. WELDS AT ENDS OF ALL EXISTING TOP COVER PLATES AT PIERS 1 & 2 ARE TO BE PEENED. PEENING IS TO BE PERFORMED UNDER FULL DEAD LOAD CONDITIONS, PRIOR TO REMOVAL OF EXISTING CONCRETE DECK. SEE DETAILS THIS DWG. & SPECIAL PROVISIONS.
5. ENDS OF EXISTING BOTTOM COVERPLATES IN SPAN 2 (NEAR MID-SPAN) ARE TO BE RETROFITTED WITH BOLTED SPLICE PLATES. THIS WORK IS TO BE PERFORMED FOR EACH STAGE AFTER EXISTING DECK IS REMOVED AND PRIOR TO FORMING FOR NEW DECK.
6. EXISTING SHEAR STUDS ON BEAMS 1 THRU 6 ARE TO BE PRESERVED AND INCORPORATED INTO NEW WORK.
7. SEE DWG. NO. 19 FOR COVERPLATE RETROFIT DETAILS.
8. THE NEW W36x135 AND ITS SPLICE PLATE MATERIAL SHALL MEET NOTCH TOUGHNESS REQUIREMENTS.




Exist. Studs are to be preserved & incorporated into new work. See Note 6.

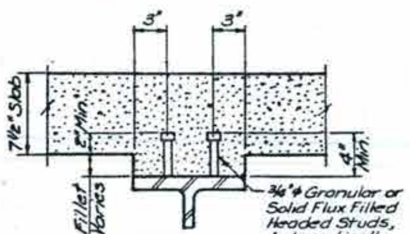
## SHEAR STUD SPACING

(EXISTING BEAMS ① THRU ⑥)




## SHEAR STUD SPACING

(NEW BEAM ⑦)




## SECTION A-A

(Showing New Studs)

ESCA CONSULTANTS, INC.

| | | |
|---|---|---|
| DESIGNED BY: | RDP | 1-90 |
| DRAWN BY: | WEM | 1-90 |
| CHECKED BY: | JRF | 1-90 |
| APPROVED BY: | RDP | 1-90 |

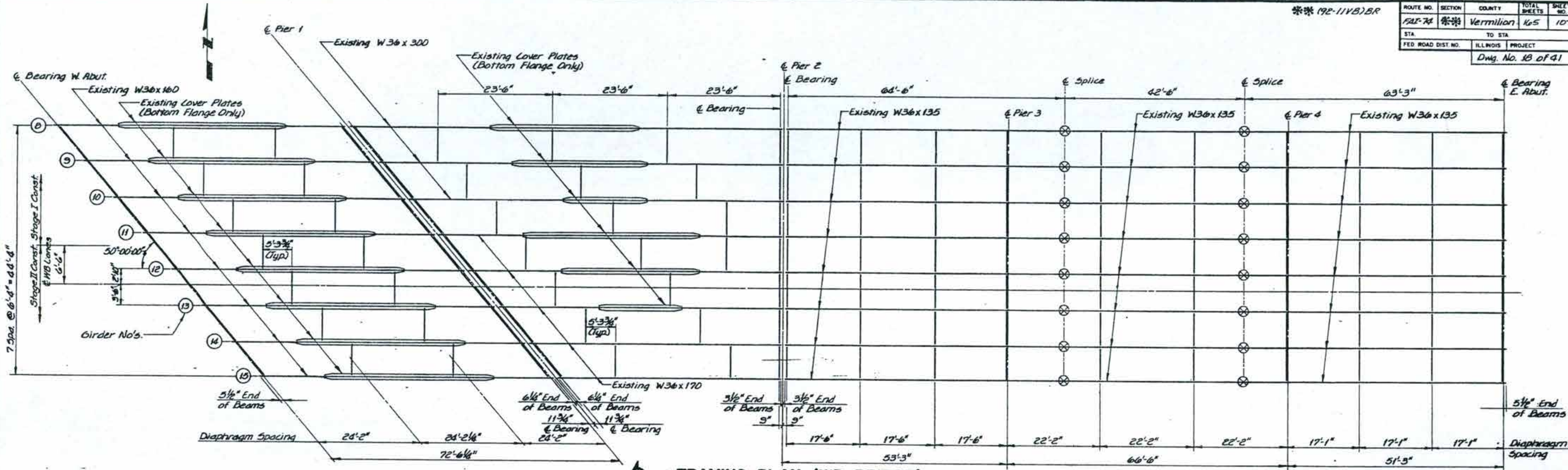
## SUPERSTRUCTURE STEEL DETAILS (EB)

FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB)BR
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)

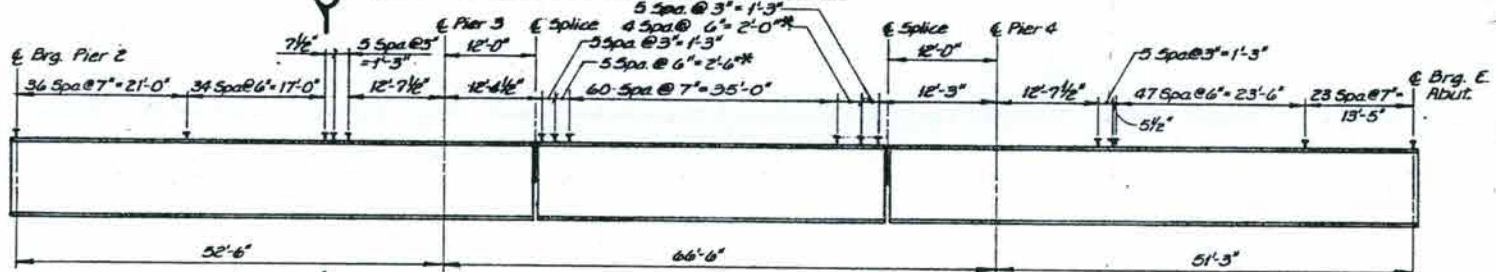
**(92-11VB)BR

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | ** | Vermilion | 165 | 107 |
| STA. | | TO STA. | | |
| FED. ROAD DIST. NO. | ILLINOIS | PROJECT | | |

Dwg. No. 18 of 41




## FRAMING PLAN (WB BRIDGE)




## SHEAR STUD SPACING

(Beams ⑧ Thru ⑮, Spans 3 Thru 5)

* Spacing May be Varied Slightly in the Field to Miss Exist. Bolts @ Splices

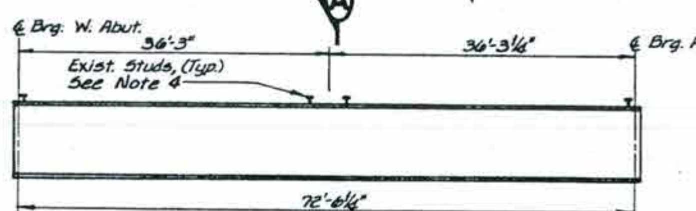
## NOTES

1. SEE DWG. NO. 17 FOR SECTION A-A.
2. PROVIDE NEW H.S. BOLTS AT ALL CONNECTIONS WHICH MUST BE UNCONNECTED OR LOOSENED IN ORDER TO REPOSITION BEAMS. SEE DWG. 20.
3. PROVIDE SHEAR STUDS ON EXISTING BEAMS AS SHOWN ON DETAILS THIS DWG.
4. EXISTING SHEAR STUDS ON BEAMS ⑧ THRU ⑮ IN SPANS 1 & 2 ARE TO BE PRESERVED AND INCORPORATED INTO NEW WORK.

## TABLE OF ELEVATIONS (T/O STEEL BEAMS)

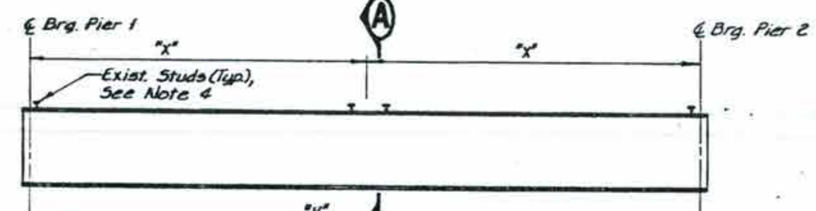
| BEAM | W. ABUT. | PIER 1, BRG. 1 | PIER 1, BRG. 2 | PIER 2, BRG. 1 | PIER 2, BRG. 2 | PIER 3 | SPAN 4 SPLICE | SPAN 4 SPLICE | PIER 4 | E. ABUT. |
|---|---|---|---|---|---|---|---|---|---|---|
| 8 | 669.64 | 669.09 | 669.08 | 668.27 | 668.26 | 667.67 | — | — | 666.93 | 666.36 |
| 9 | 669.71 | 669.16 | 669.14 | 668.38 | 668.36 | 667.78 | — | — | 667.03 | 666.47 |
| 10 | 669.80 | 669.24 | 669.23 | 668.51 | 668.50 | 667.91 | — | — | 667.16 | 666.60 |
| 11 | 669.89 | 669.32 | 669.31 | 668.63 | 668.62 | 668.04 | — | — | 667.29 | 666.72 |
| 12 | 669.92 | 669.35 | 669.33 | 668.70 | 668.69 | 668.10 | — | — | 667.36 | 666.79 |
| 13 | 669.87 | 669.30 | 669.28 | 668.70 | 668.68 | 668.10 | — | — | 667.35 | 666.79 |
| 14 | 669.76 | 669.18 | 669.16 | 668.62 | 668.61 | 668.03 | — | — | 667.28 | 666.71 |
| 15 | 669.62 | 669.03 | 669.01 | 668.52 | 668.51 | 667.92 | — | — | 667.18 | 666.61 |

NOTE: ELEVATIONS SHOWN ARE TOP OF FLANGE (NOT SPLICE PLATE OR COVER PLATE) AFTER RAISING; THEY DO NOT INCLUDE DEFLECTION, AND ARE INTENDED FOR USE IN FABRICATION OF NEW STEEL BEAMS AND TO ASSIST THE CONTRACTOR IN DETERMINING REQUIRED THICKNESS OF SHIM PLATES AND FILL PLATES UNDER BEARINGS. SEE NOTE 5 UNDER "PROCEDURE" ON DWG. NO. 20.



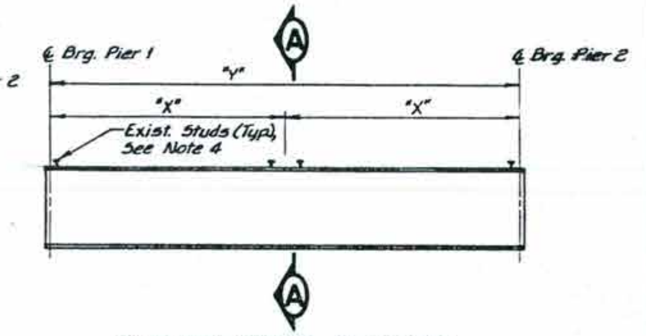

## SHEAR STUD SPACING

(Beams ⑧ Thru ⑮, Span 1)



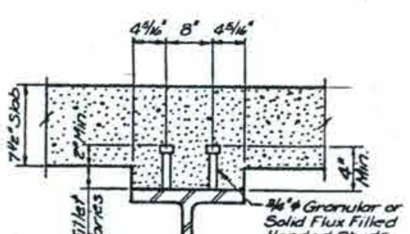

## SHEAR STUD SPACING

(Beams ⑧, ⑨, & ⑩, Span 2)



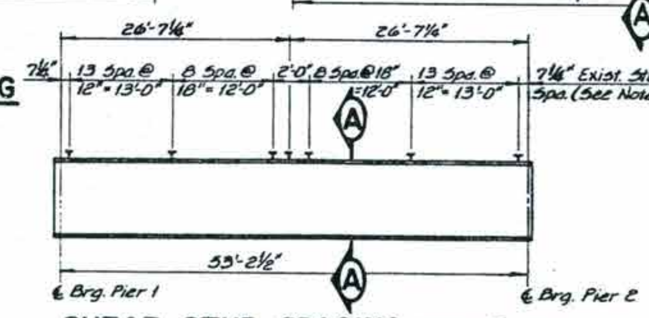

## SHEAR STUD SPACING

(Beams ⑪ Thru ⑭, Span 2)




## SECTION A-A

(Showing New Studs)




## SHEAR STUD SPACING (Beam ⑬, Span 2)

## "X" & "Y" DIMENSIONS

| BEAM | "X" | "Y" | |
|---|---|---|---|
| ⑧ | 45'-2 7/16" | 90'-4 7/8" | |
| ⑨ | 42'-6 9/16" | 85'-1 1/8" | 5-2 |
| ⑩ | 39'-10 21/32" | 79'-9 5/16" | |
| ⑪ | 37'-2 25/32" | 74'-5 9/16" | 5-3 |
| ⑫ | 34'-6 7/8" | 69'-1 3/4" | 5-4 |
| ⑬ | 31'-11" | 63'-10" | |
| ⑭ | 29'-3 1/8" | 58'-6 1/4" | 5-5 |

**ESCA CONSULTANTS, INC.**

| | | |
|---|---|---|
| DESIGNED BY: | RDP | 1-90 |
| DRAWN BY: | GGB | 1-90 |
| CHECKED BY: | JRF | 1-90 |
| APPROVED BY: | RDP | 1-90 |

# SUPERSTRUCTURE STEEL DETAILS (WB)

FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB)BR
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)

Vermilion (92-11VB)BR FAI 74 #307

## MOMENT TABLES (EB BRIDGE)

| | | EXISTING BEAMS (W/COVER PLATES) | | | | | | | NEW BEAM (NO COVER PLATE) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.4 Span 1 | Pier 1 | 0.5 Span 2 | Pier 2 | 0.55 Span 3 | Pier 3 | 0.6 Span 4 | 0.4 Span 1 | Pier 1 | 0.5 Span 2 | Pier 2 | 0.55 Span 3 | Pier 3 | 0.6 Span 4 |
| $I_s$ | $in^4$ | 7,800 | 12,741 | 9,075 | 11,889 | 7,800 | 7,800 | 7,800 | 7,800 | 7,800 | 7,800 | 7,800 | 7,800 | 7,800 | 7,800 |
| $I_c$ DL | $in^4$ | 15,114 | - | 17,895 | - | 15,114 | - | 15,114 | 13,983 | - | 13,983 | - | 13,983 | - | 13,983 |
| $I_c$ LL | $in^4$ | 20,689 | - | 25,021 | - | 20,689 | - | 20,689 | 19,411 | - | 19,411 | - | 19,411 | - | 19,411 |
| $S_s$ or Z | $in^3$ | 439 | 688 | 552 | 646 | 439 | 439 | 439 | 439 | ~~489~~ 509 | 439 | 439 | 439 | 439 | 439 |
| $S_c$ DL | $in^3$ | 584 | - | 728 | - | 584 | - | 584 | 568 | - | 568 | - | 568 | - | 568 |
| $S_c$ LL | $in^3$ | 649 | - | 806 | - | 649 | - | 649 | 636 | - | 636 | - | 636 | - | 636 |
| DL N.C. | k/ft | 0.83 | 1.15 | 0.85 | 1.14 | 0.83 | 1.10 | 0.83 | 0.67 | 0.94 | 0.67 | 0.94 | 0.67 | 0.94 | 0.67 |
| M DL N.C. | ft-k | 229.2 | 748.5 | 297.6 | 614.0 | 109.3 | 319.6 | 166.0 | 199.9 | 593.0 | 260.8 | 504.4 | 93.7 | 278.5 | 133.7 |
| DL C | k/ft | 0.27 | - | 0.27 | - | 0.27 | - | 0.27 | 0.27 | - | 0.27 | - | 0.27 | - | 0.27 |
| M DL C | ft-k | 85.2 | - | 117.2 | - | 49.9 | - | 57.9 | 89.3 | - | 124.7 | - | 50.4 | - | 56.8 |
| M LL | ft-k | 465.6 | 339.5 | 566.9 | 318.0 | 411.1 | 196.6 | 337.5 | 331.8 | 219.0 | 401.8 | 210.3 | 288.9 | 142.4 | 237.2 |
| $M_{Imp}$ | ft-k | 120.9 | 83.6 | 132.9 | 78.6 | 107.3 | 53.5 | 95.7 | 86.1 | 53.9 | 94.2 | 51.9 | 75.4 | 38.7 | 67.3 |
| 5/3 (M LL+Imp) | ft-k | 977.5 | 705.2 | 1166.3 | 661.0 | 864.0 | 416.8 | 722.0 | 696.5 | 454.8 | 826.7 | 437.0 | 607.2 | 301.9 | 507.5 |
| $M_a$ | ft-k | 1679.5 | 1889.8 | 2057.4 | 1657.5 | 1331.2 | 957.3 | 1229.7 | 1281.4 | 1362.1 | 1575.9 | 1223.8 | 976.7 | 754.5 | 907.4 |
| $f_s$ DL N.C. | ksi | 6.27 | 13.06 | 6.47 | 11.41 | 2.99 | 8.74 | 4.54 | 5.46 | 16.21 | 7.13 | 13.78 | 2.56 | 7.61 | 3.65 |
| $f_s$ DL C. | ksi | 1.75 | - | 1.93 | - | 1.03 | - | 1.19 | 1.89 | - | 2.63 | - | 1.07 | - | 1.20 |
| $f_s$ 5/3(LL+Imp) | ksi | 18.07 | 12.30 | 17.36 | 12.28 | 15.98 | 11.39 | 13.35 | 13.14 | 12.43 | 15.60 | 11.95 | 11.46 | 8.25 | 9.58 |
| $f_s$ (Total) | ksi | - | 32.96 | - | 30.80 | - | 26.17 | - | - | - | - | 33.45 | - | 20.62 | - |
| $V_R$ | k | 48.2 | - | 42.7 | - | 39.7 | - | 40.7 | 34.1 | - | 30.3 | - | 28.0 | - | 28.8 |
| $M_u$ | ft-k | 2,759 | - | 3,252 | - | 2,759 | - | 2,759 | 2,693 | 1,527 | 2,693 | - | 2,693 | - | 2,693 |
| $f_s$ (overload) | ksi | 31.87 | 29.30 | 31.32 | 27.62 | 25.11 | 23.77 | 23.35 | 24.69 | 32.62 | 30.35 | 29.55 | 18.76 | 18.50 | 17.50 |

## REACTION TABLES (EB BRIDGE)

| | | EXISTING BEAMS (W/COVER PLATES) | | | | | NEW BEAM (NO COVER PLATES) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | W. Abut. | Pier 1 | Pier 2 | Pier 3 | E. Abut. | W. Abut. | Pier 1 | Pier 2 | Pier 3 | E. Abut. |
| R DL | k | 26.7 | 100.6 | 90.0 | 67.5 | 22.4 | 23.7 | 84.4 | 76.5 | 58.4 | 19.1 |
| R LL | k | 35.4 | 49.1 | 47.9 | 40.7 | 26.8 | 25.1 | 34.3 | 33.5 | 28.8 | 19.1 |
| $R_{Imp}$ | k | 9.2 | 12.1 | 11.8 | 11.1 | 7.6 | 6.5 | 8.4 | 8.3 | 7.8 | 5.4 |
| R (Total) | k | 71.3 | 161.8 | 149.7 | 119.3 | 56.8 | 55.3 | 127.1 | 118.3 | 95.0 | 43.4 |

## MOMENT TABLES (WB BRIDGE)

| | | Beams 8 thru 15 | Beam 8 | Beam 9 | Beam 10 | Beam 11 | Beam 12 | Beam 13 | Beam 14 | Beam 15 | Beams 8 thru 15 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.5 Span 1 | 0.5 Span 2 | 0.5 Span 2 | 0.5 Span 2 | 0.5 Span 2 | 0.5 Span 2 | 0.5 Span 2 | 0.5 Span 2 | 0.5 Span 2 | 0.4 Span 3 | Pier 3 | 0.5 Span 4 | Pier 4 | 0.6 Span 5 |
| $I_s$ | $in^4$ | 11,762 | 22,524 | 22,095 | 22,095 | 12,029 | 11,847 | 11,847 | 10,500 | 10,500 | 7,800 | 7,800 | 7,800 | 7,800 | 7,800 |
| $I_c$ DL | $in^4$ | 21,762 | 33,412 | 32,436 | 32,436 | 21,361 | 20,999 | 20,999 | 18,394 | 18,394 | 15,006 | - | 15,006 | - | 15,006 |
| $I_c$ LL | $in^4$ | 30,786 | 46,271 | 44,732 | 44,732 | 30,058 | 29,478 | 29,478 | 25,401 | 25,401 | 20,577 | - | 20,577 | - | 20,577 |
| $S_s$ | $in^3$ | 722 | 1,277 | 1,243 | 1,243 | 711 | 694 | 694 | 580 | 580 | 439 | 439 | 439 | 439 | 439 |
| $S_c$ DL | $in^3$ | 921 | 1,499 | 1,454 | 1,454 | 898 | 877 | 877 | 738 | 738 | 583 | - | 583 | - | 583 |
| $S_c$ LL | $in^3$ | 1,020 | 1,668 | 1,618 | 1,618 | 998 | 976 | 976 | 822 | 822 | 648 | - | 648 | - | 648 |
| DL NC | k/ft | 0.86 | 0.99 | 0.93 | 0.93 | 0.80 | 0.79 | 0.79 | 0.78 | 0.84 | 0.80 | 1.06 | 0.80 | 1.06 | 0.80 |
| M DL NC | ft-k | 562.8 | 1015.9 | 840.8 | 736.5 | 553.8 | 475.0 | 402.9 | 332.3 | 296.9 | 151.4 | 375.3 | 159.1 | 365.6 | 141.8 |
| DL C | k/ft | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | - | 0.26 | - | 0.26 |
| M DL C | ft-k | 172.3 | 267.7 | 237.2 | 208.5 | 181.6 | 156.6 | 133.5 | 111.1 | 91.8 | 54.7 | - | 65.8 | - | 51.4 |
| M LL | ft-k | 590.7 | 776.1 | 721.1 | 665.9 | 610.8 | 555.6 | 500.6 | 449.1 | 394.5 | 342.7 | 192.7 | 403.2 | 190.3 | 318.9 |
| $M_{Imp}$ | ft-k | 149.5 | 180.1 | 171.6 | 162.6 | 153.1 | 143.1 | 132.5 | 122.4 | 110.7 | 96.5 | 52.2 | 105.3 | 51.7 | 90.5 |
| 5/3 (M LL+Imp) | ft-k | 1233.7 | 1593.7 | 1487.8 | 1380.8 | 1273.2 | 1164.5 | 1055.2 | 952.5 | 842.0 | 732.0 | 408.2 | 847.5 | 403.3 | 682.4 |
| $M_a$ | ft-k | 2559.4 | 2740.4 | 3335.6 | 3023.6 | 2611.1 | 2334.9 | 2069.0 | 1814.7 | 1599.9 | 1219.5 | 1018.6 | 1394.1 | 999.6 | 1138.3 |
| $f_s$ DL NC | ksi | 9.35 | 9.55 | 8.12 | 7.11 | 9.35 | 8.21 | 6.97 | 6.88 | 6.14 | 4.14 | 10.28 | 4.35 | 10.00 | 3.88 |
| $f_s$ DL C | ksi | 2.24 | 2.14 | 1.96 | 1.72 | 2.43 | 2.14 | 1.83 | 1.81 | 1.49 | 1.13 | - | 1.35 | - | 1.06 |
| $f_s$ 5/3 (LL+Imp) | ksi | 14.51 | 11.47 | 11.03 | 10.24 | 15.31 | 14.32 | 12.97 | 13.91 | 12.29 | 13.56 | 11.16 | 15.69 | 11.02 | 12.64 |
| $f_s$ (Total) | ksi | - | - | - | - | - | - | - | - | - | - | 27.85 | - | 27.33 | - |
| $V_R$ | k | 45.3 | 45.8 | 45.7 | 45.6 | 45.4 | 45.1 | 44.8 | 44.4 | 43.8 | 40.4 | - | 41.0 | - | 45.7 |
| $M_u$ | ft-k | 4,003 | 6,264 | 6,113 | 6,113 | 3,972 | 3,906 | 3,906 | 3,423 | 3,423 | 2,754 | - | 2,754 | - | 2,754 |
| $f_s$ (overload) | ksi | 30.74 | 26.83 | 24.64 | 22.35 | 31.99 | 29.25 | 25.92 | 27.05 | 23.85 | 23.17 | 24.99 | 26.41 | 24.55 | 21.62 |

## REACTION TABLES (WB BRIDGE)

| | | Span 1 | | Span 2, Pier 1 | | | | | | | | Span 2, Pier 2 | | | | | | | | Spans 3, 4, & 5 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | W. Abut. | Pier 1 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Pier 2 | Pier 3 | Pier 4 | E. Abut. |
| R DL | k | 40.3 | 40.3 | 56.5 | 50.4 | 47.2 | 39.4 | 36.4 | 33.5 | 30.6 | 29.5 | 56.5 | 50.4 | 47.2 | 39.4 | 36.4 | 33.5 | 30.6 | 29.5 | 21.1 | 71.4 | 70.4 | 20.5 |
| R LL | k | 30.8 | 36.1 | 33.0 | 32.4 | 31.7 | 31.1 | 30.3 | 29.3 | 28.2 | 26.9 | 37.2 | 36.9 | 36.7 | 36.3 | 35.9 | 35.4 | 34.9 | 34.2 | 26.5 | 40.0 | 39.8 | 33.0 |
| $R_{Imp}$ | k | 7.8 | 9.2 | 7.6 | 7.7 | 7.8 | 7.8 | 7.8 | 7.8 | 7.7 | 7.6 | 8.6 | 8.8 | 8.9 | 9.1 | 9.2 | 9.4 | 9.5 | 9.6 | 7.4 | 10.8 | 10.8 | 9.4 |
| R (Total) | k | 78.9 | 85.6 | 97.1 | 90.5 | 86.7 | 78.3 | 74.5 | 70.6 | 66.5 | 64.0 | 102.3 | 96.1 | 92.8 | 84.8 | 81.5 | 78.3 | 75.0 | 73.3 | 55.0 | 122.2 | 121.0 | 62.9 |

$I_s$ AND $S_s$ ARE THE MOMENT OF INERTIA AND SECTION MODULUS OF THE STEEL SECTION USED IN COMPUTING $f_s$ (TOTAL).

$I_c$ AND $S_c$ ARE THE MOMENT OF INERTIA AND SECTION MODULUS OF THE COMPOSITE SECTION USED IN COMPUTING $f_s$ (TOTAL).

VR IS THE MAXIMUM LL + IMPACT SHEAR RANGE IN SPAN.

THE FULLY PLASTIC MOMENT CAPACITY ($M_u$) IS COMPUTED ACCORDING TO AASHTO 10.50.1.1 & 10.48.1.

$M_a$ (APPLIED MOMENT) = 1.3 [M DL + $M_s$ DL + 5/3 (M LL + I)].

$f_s$ (TOTAL) IS THE SUM OF THE STRESSES DUE TO 1.3 [M DL + $M_s$ DL + 5/3 (M LL + I)].

M DL N.C. = MOMENT DUE TO DEAD LOADS ON NON-COMPOSITE SECTION.

$M_s$ DL C. = MOMENT DUE TO DEAD LOADS ON COMPOSITE SECTION.

M LL = MOMENT DUE TO LIVE LOAD ON NON-COMPOSITE OR COMPOSITE SECTION.

M IMP = MOMENT DUE TO LIVE LOAD IMPACT ON NON-COMPOSITE OR COMPOSITE SECTION.

Z Is The Plastic Section Modulus Used to Compute The Fully Plastic Moment Capacity in The Noncomposite Areas.

## EB & WB BILL OF MATERIAL

| ITEM | UNIT | QUANTITY |
|---|---|---|
| Furnish & Erect Structural Stl. | L. Sum | 1 |
| Stud Shear Connectors | Each | 5298 |
| | | |
| Weld Peening | Each | 24 |

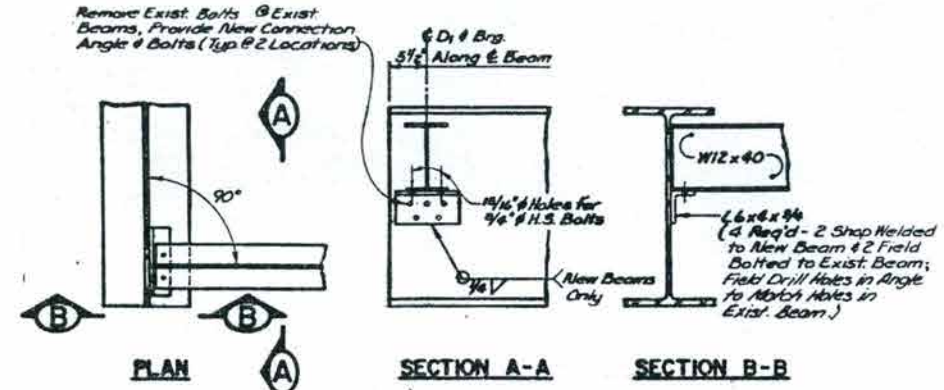
**ESCA CONSULTANTS, INC.**

| | | |
|---|---|---|
| DESIGNED BY: | RDP | 1-90 |
| DRAWN BY: | WEM | 1-90 |
| CHECKED BY: | JRF | 2-90 |
| APPROVED BY: | RDP | 2-90 |

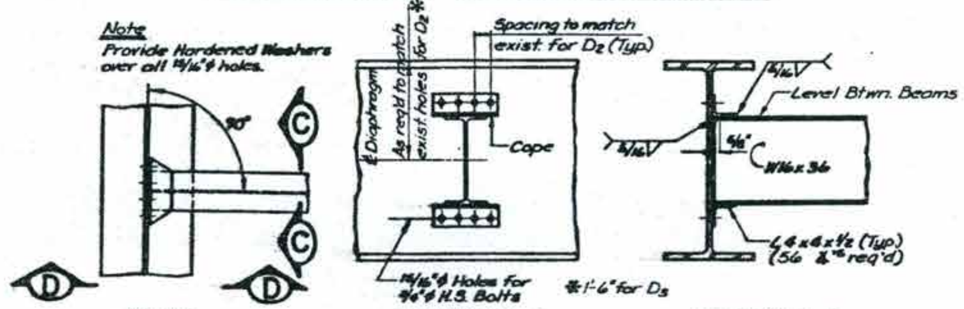
**(92-11VB)BR

| ROUTE NO | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | ** | Vermilion | 165 | 108 |
| STA | | TO STA | | |
| FED ROAD DIST NO. | ILLINOIS | PROJECT | | |

Dwg. No. 19 of 41



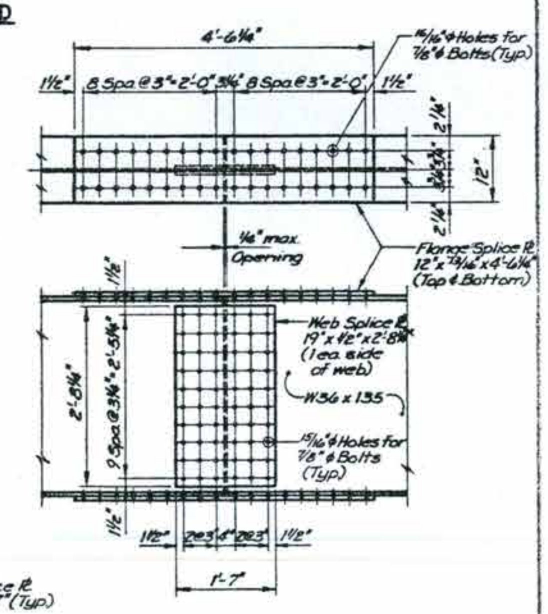

## DIAPHRAGM D1 CONNECTION DETAILS




## DIAPHRAGMS D2 & D3 CONNECTION DETAILS

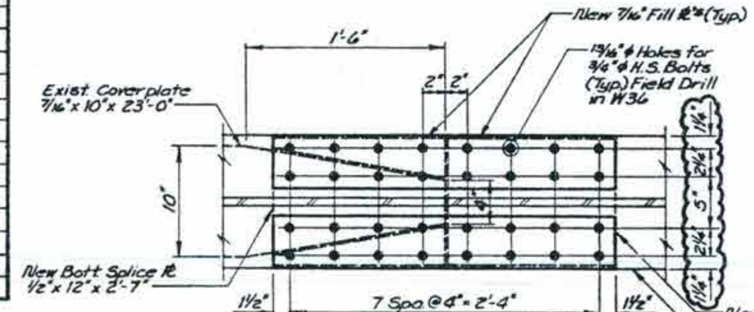
## NOTES

1. SPLICE PLATES FOR FIELD SPLICES OF NEW BEAMS AND COVERPLATE RETROFITTING ARE SUBJECT TO NOTCH TOUGHNESS REQUIREMENTS.

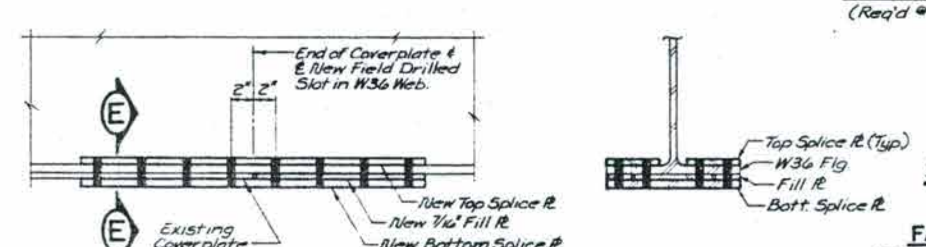



## FIELD SPLICE DETAIL

(Req'd @ 3 Locations)




SECTIONAL PLAN




ELEVATION

SECTION E-E

## COVERPLATE RETROFIT DETAILS

(Req'd @ 12 Locations in Span 2 EB - See Framing Plan)

(Rev. 1/22/92 RDP)

**SUPERSTRUCTURE STEEL DETAILS**

FAI 74 OVER L STREET

FAI RTE. 74 SECTION (92-11VB)BR

VERMILION COUNTY

STATION 1877+01.73

STRUCTURE NO. 092-0008(EB)

STRUCTURE NO. 092-0009(WB)

SN 092-0008-0009

## MOMENT TABLES (EB BRIDGE)

| | | EXISTING BEAMS (W/COVER PLATES) | | | | | | | NEW BEAM (NO COVER PLATE) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.4 Span 1 | Pier 1 | 0.5 Span 2 | Pier 2 | 0.55 Span 3 | Pier 3 | 0.6 Span 4 | 0.4 Span 1 | Pier 1 | 0.5 Span 2 | Pier 2 | 0.55 Span 3 | Pier 3 | 0.6 Span 4 |
| $I_s$ | $in^4$ | 7,800 | 12,741 | 9,075 | 11,889 | 7,800 | 7,800 | 7,800 | 7,800 | 7,800 | 7,800 | 7,800 | 7,800 | 7,800 | 7,800 |
| $I_c$ D | $in^4$ | 15,114 | - | 17,895 | - | 15,114 | - | 15,114 | 13,983 | - | 13,983 | - | 13,983 | - | 13,983 |
| $I_c$ L | $in^4$ | 20,689 | - | 25,021 | - | 20,689 | - | 20,689 | 19,411 | - | 19,411 | - | 19,411 | - | 19,411 |
| $S_s$ or Z | $in^3$ | 439 | 688 | 552 | 646 | 439 | 439 | 439 | 439 | 439 / 509 | 439 | 439 | 439 | 439 | 439 |
| $S_c$ D | $in^3$ | 584 | - | 728 | - | 584 | - | 584 | 568 | - | 568 | - | 568 | - | 568 |
| $S_c$ L | $in^3$ | 649 | - | 806 | - | 649 | - | 649 | 636 | - | 636 | - | 636 | - | 636 |
| D N.C. | k/ft | 0.83 | 1.15 | 0.85 | 1.14 | 0.83 | 1.10 | 0.83 | 0.67 | 0.94 | 0.67 | 0.94 | 0.67 | 0.94 | 0.67 |
| M D N.C. | ft-k | 229.2 | 748.5 | 297.6 | 614.0 | 109.3 | 319.6 | 166.0 | -199.9 | 593.0 | 260.8 | 504.4 | 93.7 | 278.5 | 133.7 |
| D C | k/ft | 0.27 | - | 0.27 | - | 0.27 | - | 0.27 | 0.27 | - | 0.27 | - | 0.27 | - | 0.27 |
| M D C | ft-k | 85.2 | - | 117.2 | - | 49.9 | - | 57.9 | 89.3 | - | 124.7 | - | 50.4 | - | 56.8 |
| M L | ft-k | 465.6 | 339.5 | 566.9 | 318.0 | 411.1 | 196.6 | 337.5 | 331.8 | 219.0 | 401.8 | 210.3 | 288.9 | 142.4 | 237.2 |
| $M_{Imp}$ | ft-k | 120.9 | 83.6 | 132.9 | 78.6 | 107.3 | 53.5 | 95.7 | 86.1 | 53.9 | 94.2 | 51.9 | 75.4 | 38.7 | 67.3 |
| 5/3 (M L+Imp) | ft-k | 977.5 | 705.2 | 1166.3 | 661.0 | 864.0 | 416.8 | 722.0 | 696.5 | 454.8 | 826.7 | 437.0 | 607.2 | 301.9 | 507.5 |
| $M_a$ | ft-k | 1679.5 | 1889.8 | 2057.4 | 1657.5 | 1331.2 | 957.3 | 1229.7 | 1281.4 | 1362.1 | 1575.9 | 1223.8 | 976.7 | 754.5 | 907.4 |
| $f_s$ D N.C. | ksi | 6.27 | 13.06 | 6.47 | 11.41 | 2.99 | 8.74 | 4.54 | 5.46 | 16.21 | 7.13 | 13.78 | 2.56 | 7.61 | 3.65 |
| $f_s$ D C. | ksi | 1.75 | - | 1.93 | - | 1.03 | - | 1.19 | 1.89 | - | 2.63 | - | 1.07 | - | 1.20 |
| $f_s$ 5/3(L+Imp) | ksi | 18.07 | 12.30 | 17.36 | 12.28 | 15.98 | 11.39 | 13.35 | 13.14 | 12.43 | 15.60 | 11.95 | 11.46 | 8.25 | 9.58 |
| $f_s$ (Total) | ksi | - | 32.96 | - | 30.80 | - | 26.17 | - | - | - | - | 33.45 | - | 20.62 | - |
| $V_R$ | k | 48.2 | - | 42.7 | - | 39.7 | - | 40.7 | 34.1 | - | 30.3 | - | 28.0 | - | 28.8 |
| $M_u$ | ft-k | 2,759 | - | 3,252 | - | 2,759 | - | 2,759 | 2,693 | 1,527 | 2,693 | - | 2,693 | - | 2,693 |
| $f_s$ (overload) | ksi | 31.87 | 29.30 | 31.32 | 27.62 | 25.11 | 23.77 | 23.35 | 24.69 | 32.62 | 30.35 | 29.55 | 18.76 | 18.50 | 17.50 |

## REACTION TABLES (EB BRIDGE)

| | | EXISTING BEAMS (W/COVER PLATES) | | | | | NEW BEAM (NO COVER PLATES) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | W. Abut. | Pier 1 | Pier 2 | Pier 3 | E. Abut. | W. Abut. | Pier 1 | Pier 2 | Pier 3 | E. Abut. |
| R D | k | 26.7 | 100.6 | 90.0 | 67.5 | 22.4 | 23.7 | 84.4 | 76.5 | 58.4 | 19.1 |
| R L | k | 35.4 | 49.1 | 47.9 | 40.7 | 26.8 | 25.1 | 34.3 | 33.5 | 28.8 | 19.1 |
| $R_{Imp}$ | k | 9.2 | 12.1 | 11.8 | 11.1 | 7.6 | 6.5 | 8.4 | 8.3 | 7.8 | 5.4 |
| R (Total) | k | 71.3 | 161.8 | 149.7 | 119.3 | 56.8 | 55.3 | 127.1 | 118.3 | 95.0 | 43.4 |

## MOMENT TABLES (WB BRIDGE)

| | | Beams 8 thru 15 | Beam 8 | Beam 9 | Beam 10 | Beam 11 | Beam 12 | Beam 13 | Beam 14 | Beam 15 | Beams 8 thru 15 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.5 Span 1 | 0.5 Span 2 | 0.5 Span 2 | 0.5 Span 2 | 0.5 Span 2 | 0.5 Span 2 | 0.5 Span 2 | 0.5 Span 2 | 0.5 Span 2 | 0.4 Span 3 | Pier 3 | 0.5 Span 4 | Pier 4 | 0.6 Span 5 |
| $I_s$ | $in^4$ | 11,762 | 22,524 | 22,095 | 22,095 | 12,029 | 11,847 | 11,847 | 10,500 | 10,500 | 7,800 | 7,800 | 7,800 | 7,800 | 7,800 |
| $I_c$ D | $in^4$ | 21,762 | 33,412 | 32,436 | 32,436 | 21,361 | 20,999 | 20,999 | 18,394 | 18,394 | 15,006 | - | 15,006 | - | 15,006 |
| $I_c$ L | $in^4$ | 30,786 | 46,271 | 44,732 | 44,732 | 30,058 | 29,478 | 29,478 | 25,401 | 25,401 | 20,577 | - | 20,577 | - | 20,577 |
| $S_s$ | $in^3$ | 722 | 1,277 | 1,243 | 1,243 | 711 | 694 | 694 | 580 | 580 | 439 | 439 | 439 | 439 | 439 |
| $S_c$ D | $in^3$ | 921 | 1,499 | 1,454 | 1,454 | 898 | 877 | 877 | 738 | 738 | 583 | - | 583 | - | 583 |
| $S_c$ L | $in^3$ | 1,020 | 1,668 | 1,618 | 1,618 | 998 | 976 | 976 | 822 | 822 | 648 | - | 648 | - | 648 |
| D NC | k/ft | 0.86 | 0.99 | 0.93 | 0.93 | 0.80 | 0.79 | 0.79 | 0.78 | 0.84 | 0.80 | 1.06 | 0.80 | 1.06 | 0.80 |
| M D NC | ft-k | 562.8 | 1015.9 | 840.8 | 736.5 | 553.8 | 475.0 | 402.9 | 332.3 | 296.9 | 151.4 | 375.3 | 159.1 | 365.6 | 141.8 |
| D C | k/ft | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | - | 0.26 | - | 0.26 |
| M D C | ft-k | 172.3 | 267.7 | 237.2 | 208.5 | 181.6 | 156.6 | 133.5 | 111.1 | 91.8 | 54.7 | - | 65.8 | - | 51.4 |
| M L | ft-k | 590.7 | 776.1 | 721.1 | 665.9 | 610.8 | 555.6 | 500.6 | 449.1 | 394.5 | 342.7 | 192.7 | 403.2 | 190.3 | 318.9 |
| $M_{Imp}$ | ft-k | 149.5 | 180.1 | 171.6 | 162.6 | 153.1 | 143.1 | 132.5 | 122.4 | 110.7 | 96.5 | 52.2 | 105.3 | 51.7 | 90.5 |
| 5/3 (M L+Imp) | ft-k | 1233.7 | 1593.7 | 1487.8 | 1380.8 | 1273.2 | 1164.5 | 1055.2 | 952.5 | 842.0 | 732.0 | 408.2 | 847.5 | 403.3 | 682.4 |
| $M_a$ | ft-k | 2559.4 | 2740.4 | 3335.6 | 3023.6 | 2611.1 | 2334.9 | 2069.0 | 1814.7 | 1599.9 | 1219.5 | 1018.6 | 1394.1 | 999.6 | 1138.3 |
| $f_s$ D NC | ksi | 9.35 | 9.55 | 8.12 | 7.11 | 9.35 | 8.21 | 6.97 | 6.88 | 6.14 | 4.14 | 10.26 | 4.35 | 10.00 | 3.88 |
| $f_s$ D C | ksi | 2.24 | 2.14 | 1.96 | 1.72 | 2.43 | 2.14 | 1.83 | 1.81 | 1.49 | 1.13 | - | 1.35 | - | 1.06 |
| $f_s$ 5/3 (L+Imp) | ksi | 14.51 | 11.47 | 11.03 | 10.24 | 15.31 | 14.32 | 12.97 | 13.91 | 12.29 | 13.56 | 11.16 | 15.69 | 11.02 | 12.64 |
| $f_s$ (Total) | ksi | - | - | - | - | - | - | - | - | - | - | 27.85 | - | 27.33 | - |
| $V_R$ | k | 45.3 | 45.8 | 45.7 | 45.6 | 45.4 | 45.1 | 44.8 | 44.4 | 43.8 | 40.4 | - | 41.0 | - | 45.7 |
| $M_u$ | ft-k | 4,003 | 6,264 | 6,113 | 6,113 | 3,972 | 3,906 | 3,906 | 3,423 | 3,423 | 2,754 | - | 2,754 | - | 2,754 |
| $f_s$ (overload) | ksi | 30.74 | 26.83 | 24.64 | 22.35 | 31.99 | 29.25 | 25.92 | 27.05 | 23.85 | 23.17 | 24.99 | 26.41 | 24.55 | 21.62 |

## REACTION TABLES (WB BRIDGE)

| | | Span 1 | | Span 2, Pier 1 | | | | | | | | Span 2, Pier 2 | | | | | | | | Spans 3, 4, & 5 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | W. Abut. | Pier 1 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Pier 2 | Pier 3 | Pier 4 | E. Abut. |
| R D | k | 40.3 | 40.3 | 56.5 | 50.4 | 47.2 | 39.4 | 36.4 | 33.5 | 30.6 | 29.5 | 56.5 | 50.4 | 47.2 | 39.4 | 36.4 | 33.5 | 30.6 | 29.5 | 21.1 | 71.4 | 70.4 | 20.5 |
| R L | k | 30.8 | 36.1 | 33.0 | 32.4 | 31.7 | 31.1 | 30.3 | 29.3 | 28.2 | 26.9 | 37.2 | 36.9 | 36.7 | 36.3 | 35.9 | 35.4 | 34.9 | 34.2 | 26.5 | 40.0 | 39.8 | 33.0 |
| $R_{Imp}$ | k | 7.8 | 9.2 | 7.6 | 7.7 | 7.8 | 7.8 | 7.8 | 7.8 | 7.7 | 7.6 | 8.6 | 8.8 | 8.9 | 9.1 | 9.2 | 9.4 | 9.5 | 9.6 | 7.4 | 10.8 | 10.8 | 9.4 |
| R (Total) | k | 78.9 | 85.6 | 97.1 | 90.5 | 86.7 | 78.3 | 74.5 | 70.6 | 66.5 | 64.0 | 102.3 | 96.1 | 92.8 | 84.8 | 81.5 | 78.3 | 75.0 | 73.3 | 55.0 | 122.2 | 121.0 | 62.9 |

$I_s$ AND $S_s$ ARE THE MOMENT OF INERTIA AND SECTION MODULUS OF THE STEEL SECTION USED IN COMPUTING $f_s$ (TOTAL).

$I_c$ AND $S_c$ ARE THE MOMENT OF INERTIA AND SECTION MODULUS OF THE COMPOSITE SECTION USED IN COMPUTING $f_s$ (TOTAL).

VR IS THE MAXIMUM L + IMPACT SHEAR RANGE IN SPAN.

THE FULLY PLASTIC MOMENT CAPACITY ($M_u$) IS COMPUTED ACCORDING TO AASHTO 10.50.1.1 & 10.48.1.

$M_a$ (APPLIED MOMENT) = 1.3 [M D + $M_s$ D + 5/3 (M L + I)].

$f_s$ (TOTAL) IS THE SUM OF THE STRESSES DUE TO 1.3 [M D + $M_s$ D + 5/3 (M L + I)].

M D N.C. = MOMENT DUE TO DEAD LOADS ON NON-COMPOSITE SECTION.

$M_s$ D C. = MOMENT DUE TO DEAD LOADS ON COMPOSITE SECTION.

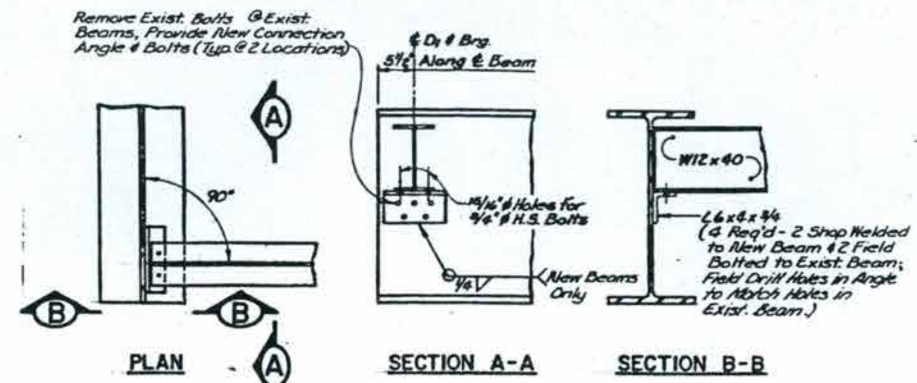
M L = MOMENT DUE TO LIVE LOAD ON NON-COMPOSITE OR COMPOSITE SECTION.

M IMP = MOMENT DUE TO LIVE LOAD IMPACT ON NON-COMPOSITE OR COMPOSITE SECTION.

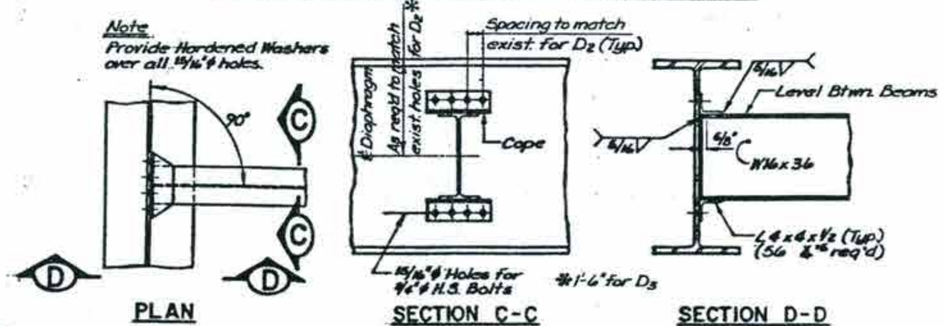
Z Is The Plastic Section Modulus Used to Compute The Fully Plastic Moment Capacity in The Noncomposite Areas.

## EB & WB BILL OF MATERIAL

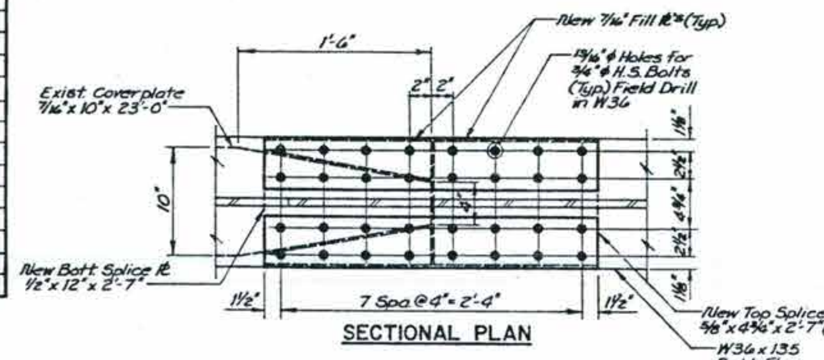
| ITEM | UNIT | QUANTITY |
|---|---|---|
| Furnish & Erect Structural Stl. | L. Sum | 1 |
| Stud Shear Connectors | Each | 5298 |
| | | |
| Weld Peening | Each | 24 |
| | | |

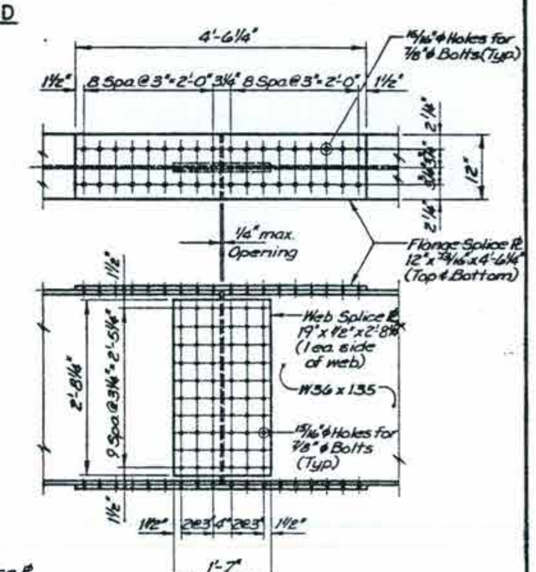



## DIAPHRAGM D1 CONNECTION DETAILS



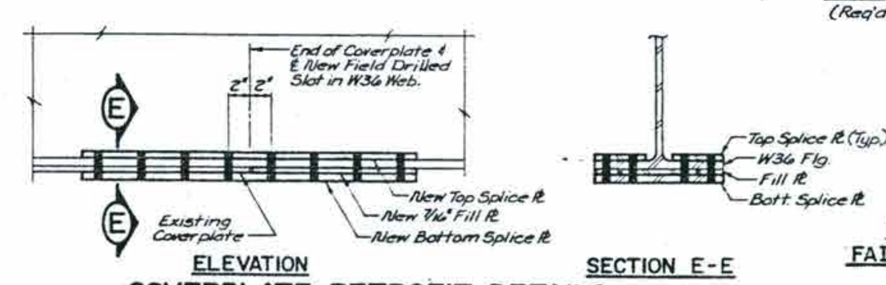

## DIAPHRAGMS D2 & D3 CONNECTION DETAILS




## FIELD SPLICE DETAIL

(Req'd @ 3 Locations)




## COVERPLATE RETROFIT DETAILS

(Req'd @ 12 Locations in Span 2 EB - See Framing Plan)

## NOTES

1. SPLICE PLATES FOR FIELD SPLICES OF NEW BEAMS AND COVERPLATE RETROFITTING ARE SUBJECT TO NOTCH TOUGHNESS REQUIREMENTS.

(92-11VB)BR

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | | Vermilion | 165 | 108 |
| STA | | TO STA | | |
| FED ROAD DIST NO | ILLINOIS | PROJECT | | |

Dwg. No. 19 of 41

**SUPERSTRUCTURE STEEL DETAILS**

FAI 74 OVER L STREET

FAI RTE. 74 SECTION (92-11VB)BR

VERMILION COUNTY

STATION 1877+01.73

STRUCTURE NO. 092-0008(EB)

STRUCTURE NO. 092-0009(WB)

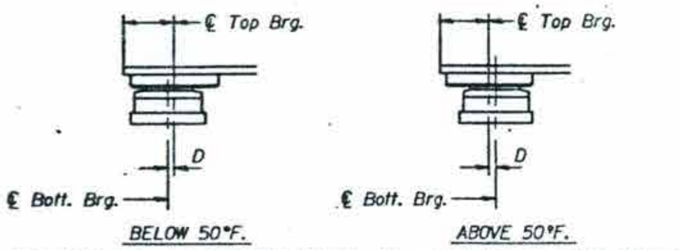
ESCA CONSULTANTS, INC.

| | | |
|---|---|---|
| DESIGNED BY: | RDP | 1-90 |
| DRAWN BY: | WEM | 1-90 |
| CHECKED BY: | JRF | 2-90 |
| APPROVED BY: | RDP | 2-90 |

Vermilion (92-11VB)BR FAI 74

Note: The 1/8" TFE sheet shall be bonded directly to the top steel plate with a two-component, medium viscosity epoxy resin, conforming to the requirements of the Federal Specification MMM-A-134, Type I. The bond agent shall be applied on the full area of the contact surfaces.

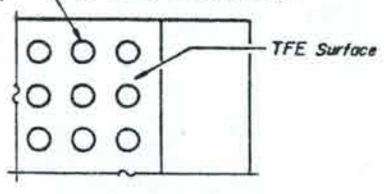
Bonding of 1/8" TFE sheet during vulcanizing process will be permitted provided the process and method of adjusting assembly height is approved by the Engineer.



BELOW 50°F. (Move bott. brg. away from fixed brg.) ABOVE 50°F. (Move bott. brg. toward fixed brg.)

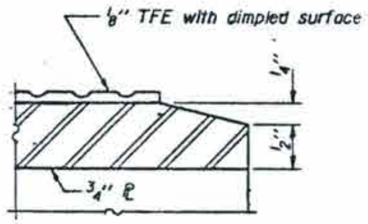
## SETTING ANCHOR BOLTS AT TYPES II & III EXP. BRG.'S

D = 1/8" per each 100' of expansion for every 15° temp. change from the normal temp. of 50°F.

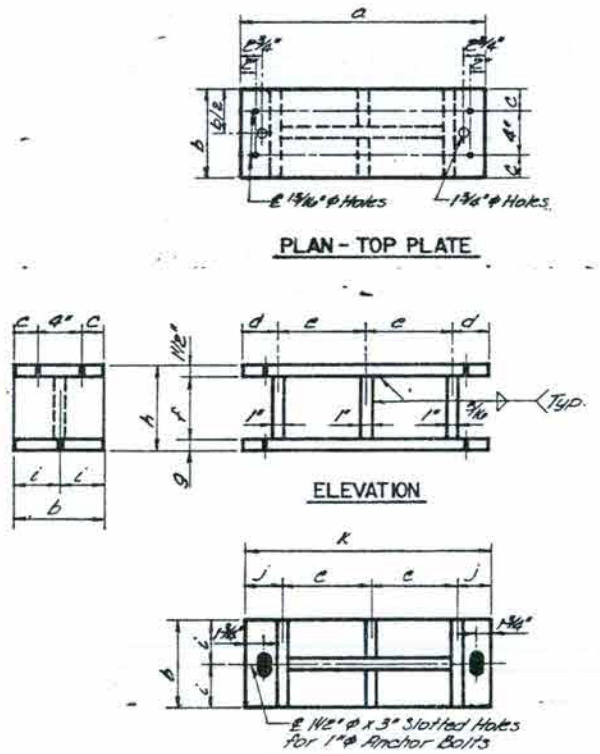


1/4"φ Dimples on 1/2" centers 1/16" deep, or equivalent.

PLAN-TFE SURFACE



SECTION THRU TFE



PLAN-TOP PLATE

ELEVATION

PLAN-BOTTOM PLATE

## STEEL PEDESTALS AT TYPES II & III EXPANSION BEARINGS

(FOR USE AT EXP. BRGS. - SEE DWG. NO. 21)

## FILL PLATE * THICKNESS TABLE

| BEAM | W. ABUT. | PIER 1 | PIER 3 | E. ABUT. | |
|---|---|---|---|---|---|
| 1 | 3/8" | 5/16" | 1 5/16" | 3/16" | |
| 2 | 3/8" | 5/16" | 1 5/16" | 3/16" | |
| 3 | 3/8" | 5/16" | 1 5/16" | 3/16" | |
| 4 | 3/8" | 5/16" | 1 5/16" | 3/16" | |
| 5 | 3/8" | 5/16" | 1 5/16" | 3/16" | |
| 6 | 3/8" | 5/16" | 1 5/16" | 3/16" | |
| 7 | 3/8" | 3/16" | 1/8" | 1 5/16" | |
| BEAM | W. ABUT. | PIER 1 SPAN 2 | PIER 2 SPAN 3 | PIER 4 | E. ABUT. |
| 8 | 3/16" | 11/16" | 2 1/8" | 1 3/8" | 3/16" |
| 9 | 3/16" | 1/2" | 2 1/8" | 1 3/8" | 3/16" |
| 10 | 3/16" | 1/2" | 2 1/8" | 1 3/8" | 3/16" |
| 11 | 3/16" | 13/16" | 5/16" | 1 3/8" | 3/16" |
| 12 | 3/16" | 1 1/16" | 5/16" | 1 3/8" | 3/16" |
| 13 | 3/16" | 1/2" | 5/16" | 1 3/8" | 3/16" |
| 14 | 3/16" | 1/2" | 5/16" | 1 3/8" | 3/16" |
| 15 | 3/16" | 1/2" | 5/16" | 1 3/8" | 3/16" |

NOTE: FILL PLATE THICKNESSES SHOWN MAY BE THE SUM OF TWO FILL PLATES.

* FIELD VERIFY; SEE NOTE 5 UNDER "PROCEDURE" THIS DWG.

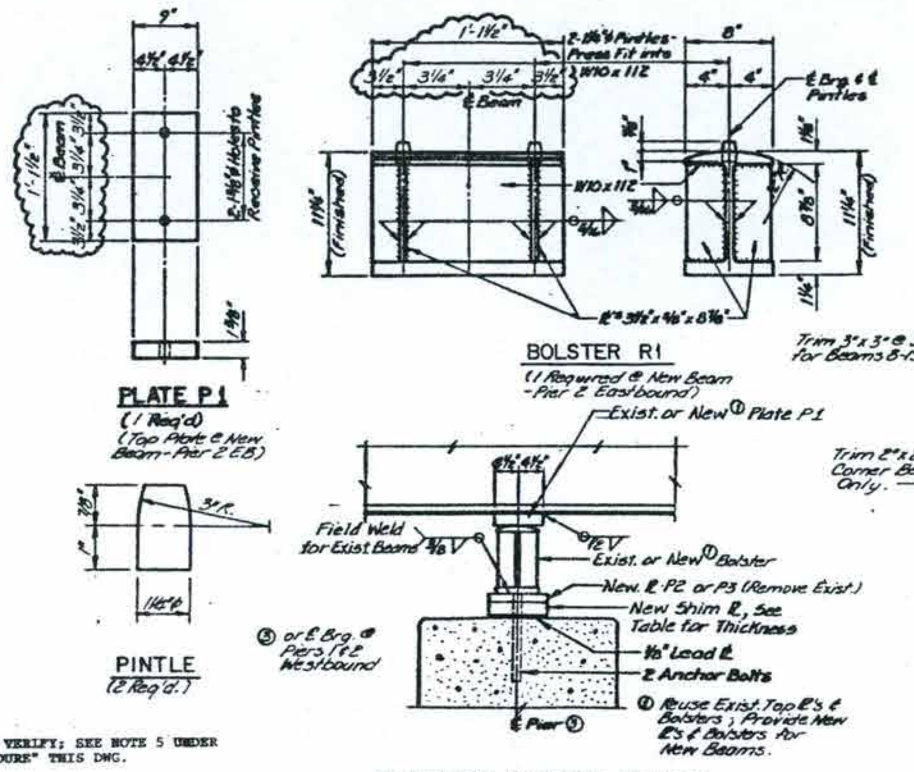


PLATE P1 (1 Req'd) (Top Plate @ New Beam - Pier 2 EB)

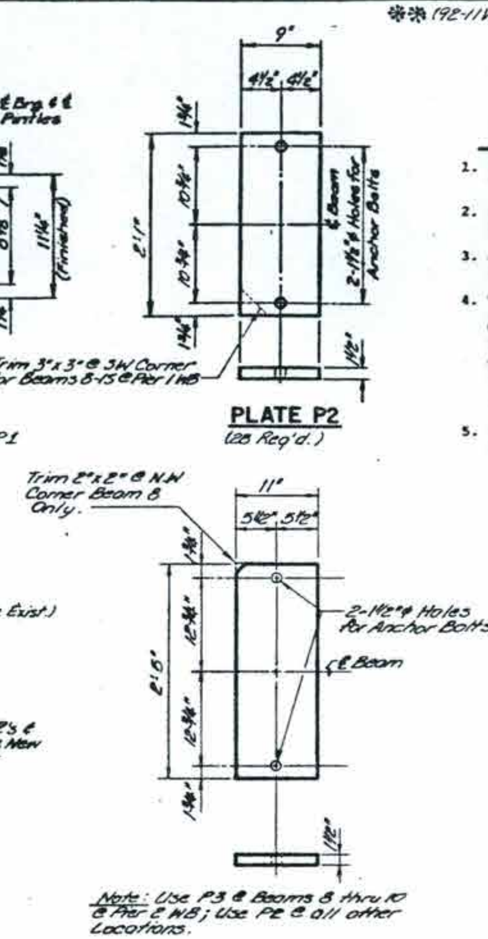
PINTLE (2 Req'd.)

BOLSTER R1 (1 Required @ New Beam - Pier 2 Eastbound)

PLATE P2 (26 Req'd.)

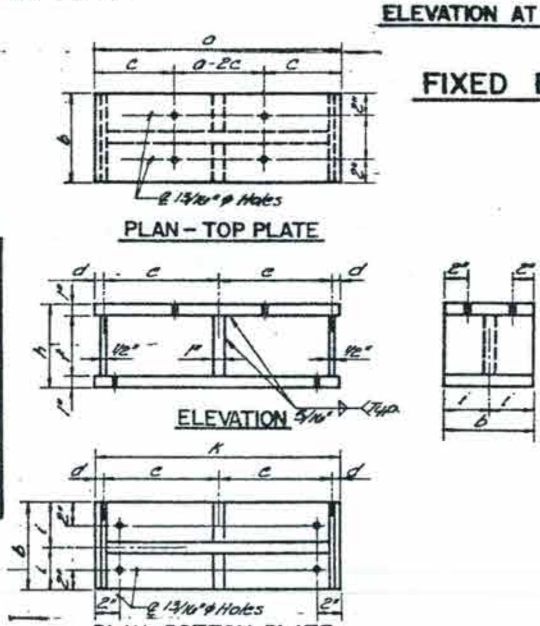
ELEVATION AT FIXED BEARING

## FIXED BEARINGS



Note: Use P3 @ Beams 8 thru 10 @ Pier 2 WB; Use P2 @ all other Locations.

PLATE P3 (3 req'd)



PLAN - TOP PLATE

ELEVATION

PLAN-BOTTOM PLATE

## STEEL PEDESTALS AT TYPE I EXPANSION BEARINGS

(FOR USE AT EXP. BRGS. - SEE DWG. NO. 21)

## STEEL PEDESTAL DIMENSIONS

| LOCATION | # REQ'D | a | b | c | d | e | f | g | h | i | j | k |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E. ABUT. EB | 7 | 1'-10 1/2" | 8" | 2" | 5" | 6 1/4" | 5 5/8" | 1 3/8" | 8 1/2" | 4" | 4" | 1'-8 1/2" |
| E. ABUT. WB | 8 | 1'-10 1/2" | 8" | 2" | 5" | 6 1/4" | 5 5/8" | 1 3/8" | 8 1/2" | 4" | 4" | 1'-8 1/2" |
| PIER 2 WB | 8 | 1'-2" | 8" | 3" | 5/8" | 6 3/8" | 9 1/16" | - | 11 1/16" | 4" | - | 1'-2" |
| W. ABUT. EB | 7 | 1'-10 1/2" | 8" | 2" | 5" | 6 1/4" | 5 7/8" | 1 3/8" | 8 3/4" | 4" | 4" | 1'-8 1/2" |
| W. ABUT. WB | 8 | 1'-2" | 10" | 3" | 5/8" | 6 3/8" | 8 3/8" | - | 10 3/8" | 5" | - | 1'-2" |
| PIER 3 EB | 7 | 1'-4" | 11" | 4" | 5/8" | 7 3/8" | 6 11/16" | - | 8 11/16" | 5 1/2" | - | 1'-4" |
| PIER 4 WB | 8 | 1'-4" | 11" | 4" | 5/8" | 7 3/8" | 6 11/16" | - | 8 11/16" | 5 1/2" | - | 1'-4" |
| PIER 1 WB | ① 5 | 1'-6" | 11" | 5" | 5/8" | 8 3/8" | 6 1/16" | - | 8 1/16" | 5 1/2" | - | 1'-6" |
| PIER 1 WB | ② 3 | 1'-6" | 11" | 2 11/16" | 5/8" | 8 3/8" | 6 1/16" | - | 8 1/16" | 5 1/2" | - | 1'-6" |
| PIER 1 EB | 7 | 1'-8" | 1'-1" | 6" | 5/8" | 9 3/8" | 6 11/16" | - | 8 11/16" | 6 1/2" | - | 1'-8" |

① Beams 11 Thru 15

② Beams 8 Thru 10

## PROCEDURE

1. THE CONTRACTOR SHALL SUBMIT FOR APPROVAL BY THE ENGINEER, PLANS FOR RAISING EXISTING BEAMS, PROVIDING NEW EXPANSION BEARINGS AND SHIMMING EXISTING FIXED BEARINGS PRIOR TO COMMENCING ANY RELATED WORK. THIS WORK SHALL BE DONE FOR EACH STAGE AFTER EXISTING CONCRETE DECK IS REMOVED AND PRIOR TO POURING OF NEW CONCRETE DECK. THE MAXIMUM DEAD LOAD REACTION PER BEAM (WEIGHT OF STEEL ONLY) AT ABUTMENTS IS 7 kips AND AT PIERS IS 16 kips.
2. DIAPHRAGMS ALONG THE STAGE CONSTRUCTION LINE SHALL BE DISCONNECTED BEFORE RAISING OPERATIONS COMMENCE. ALL NUTS ON BEARING ANCHOR BOLTS ON BEAMS TO BE RAISED SHALL BE REMOVED AND [illegible]. (CUT OFF ANCHOR BOLTS FLUSH WITH BRG. SEAT AT ALL BEARINGS EXCEPT THE EB ABUTMENTS AND THE E. ABUT. WB. ANCHOR BOLTS AT THESE LOCATIONS ARE TO BE PRESERVED AND REUSED. SEE NOTE 6.)
3. RAISING SHALL BE DONE BY JACKING. MEASURES SHALL BE TAKEN TO PREVENT LATERAL OR LONGITUDINAL DISPLACEMENT OF BEAMS DURING RAISING OPERATIONS. ALL BEAMS FOR EACH STAGE AT A GIVEN SUB-STRUCTURE ELEMENT SHALL BE SLOWLY AND CONTINUALLY RAISED THE SAME AMOUNT SIMULTANEOUSLY, WITH THE MAXIMUM AMOUNT OF RAISE LIMITED TO 1" GREATER THAN THAT REQUIRED TO INSTALL NEW BEARINGS OR SHIM PLATES. ANY SWAY OF THE STEEL DURING RAISING OPERATIONS SHALL BE IMMEDIATELY CORRECTED.
4. DIAPHRAGMS MAY BE USED AS JACKING BEAMS. IF SO, JACKS SHALL BE PLACED AT THE MIDPOINT OF THE DIAPHRAGM, ON THE CENTERLINE OF BEARING. THE STEEL SHALL BE RAISED IN INCREMENTS OF 1/2" AND SHALL BE BLOCKED IN POSITION UPON COMPLETION OF A RAISING INTERVAL. TIMBER BLOCKING MAY BE USED TO HOLD THE STRUCTURE IN PLACE WHILE JACKS ARE REPOSITIONED FOR THE NEXT LIFT.
5. PRIOR TO RAISING, ELEVATIONS OF EXISTING BEARING SEATS SHALL BE TAKEN AND THE ENGINEER SHALL VERIFY FILL PLATE AND SHIM PLATE THICKNESSES REQUIRED AT EACH BEARING. THIS SHALL BE ACCOMPLISHED BY USING FIELD MEASUREMENTS ALONG WITH THE "TABLE OF ELEVATIONS - TOP OF STEEL BEAMS" ON DWG. NOS. 17 AND 18.
6. RAISE BEAMS, REMOVE EXISTING EXPANSION BEARINGS, INSTALL NEW SHIM PLATES AND PLATES P2 OR P3 UNDER EXISTING FIXED BEARINGS, AND INSTALL NEW ELASTOMERIC EXPANSION BEARINGS. INSTALL NEW ANCHOR BOLTS WHERE REQUIRED (SEE DWG. NO. 39), AND PLACE AND TIGHTEN NUTS ON NEW AND EXISTING ANCHOR BOLTS.
7. AFTER WORK ON THE BEARINGS IS COMPLETE, REPAINT ANY AREAS DISTURBED BY WELDINGS, ETC. WITH THE SAME PAINT SYSTEM SPECIFIED FOR THE STRUCTURAL STEEL.

Rev. 1/22/92 RDP

** (92-11VB)BR

| ROUTE NO | SECTION | COUNTY | TOTAL SHEETS | SHEET NO |
|---|---|---|---|---|
| FAI-74 | ** | Vermilion | 165 | 109 |
| STA | | TO STA | | |
| FED ROAD DIST NO | | ILLINOIS | PROJECT | |

Dwg. No. 20 of 41

## NOTES

1. PORTIONS OF EXISTING FIXED BEARINGS TO BE REUSED IN NEW CONSTRUCTION.
2. SEE DWG. NO. 39 FOR ANCHOR BOLT DETAILS.
3. ANCHOR BOLTS AT FIXED BEARINGS MAY BE BUILT INTO THE MASONRY.
4. THE NEW STEEL PEDESTALS, FILL PLATES & SIDE RETAINERS FOR EXP. BRGS. AS WELL AS THE NEW PLATES P2 & SHIM PLATES UNDER EXISTING FIXED BEARINGS AND NEW PLATES P1 & P2 AND BOLSTERS R1 FOR NEW FIXED BEARINGS ARE INCLUDED IN "FURNISHING & ERECTING STRUCTURAL STEEL."
5. SEE DWG. NO. 21 FOR DETAILS OF ELASTOMERIC EXPANSION BEARINGS.

* FIELD VERIFY; SEE NOTE 5 UNDER "PROCEDURE" THIS DWG.

## SHIM PLATE * THICKNESS TABLE

| BEAM NO. | PIER 1 | PIER 2 | PIER 3 |
|---|---|---|---|
| 1 | - | 13/16" | - |
| 2 | - | 13/16" | - |
| 3 | - | 13/16" | - |
| 4 | - | 13/16" | - |
| 5 | - | 13/16" | - |
| 6 | - | 13/16" | - |
| 7 | - | 5/16" | - |
| 8 | 1 11/16" | 11/16" | 13/16" |
| 9 | 1 1/2" | 11/16" | 13/16" |
| 10 | 1 1/2" | 11/16" | 13/16" |
| 11 | 1 1/4" | 7/8" | 13/16" |
| 12 | 1 1/2" | 7/8" | 13/16" |
| 13 | 15/16" | 7/8" | 13/16" |
| 14 | 15/16" | 7/8" | 13/16" |
| 15 | 15/16" | 7/8" | 13/16" |

ESCA CONSULTANTS, INC.

| | | |
|---|---|---|
| DESIGNED BY: | RDP | 2/90 |
| DRAWN BY: | CJG | 2/90 |
| CHECKED BY: | JRF | 2/90 |
| APPROVED BY: | RDP | 2/90 |

## BEARINGS

FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB)BR
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)

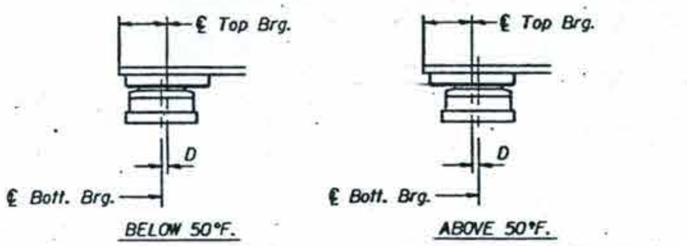
S.N. 092-0008-0009

*(92-11VB)BR

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | ** | Vermilion | 165 | 109 |
| STA. | | TO STA. | | |
| FED. ROAD DIST NO. | | ILLINOIS | PROJECT | |
| | | Dwg. No. 20 of 41 | | |

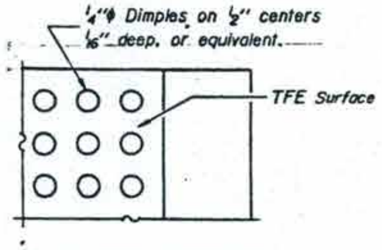
Note: The 1/8" TFE sheet shall be bonded directly to the top steel plate with a two-component, medium viscosity epoxy resin, conforming to the requirements of the Federal Specification MMM-A-134, Type I. The bond agent shall be applied on the full area of the contact surfaces.

Bonding of 1/8" TFE sheet during vulcanizing process will be permitted provided the process and method of adjusting assembly height is approved by the Engineer.

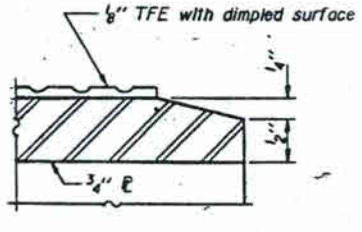



## SETTING ANCHOR BOLTS AT TYPES II & III EXP. BRG'S

D = 1/8" per each 100' of expansion for every 15° temp. change from the normal temp. of 50°F.




PLAN-TFE SURFACE




SECTION THRU TFE

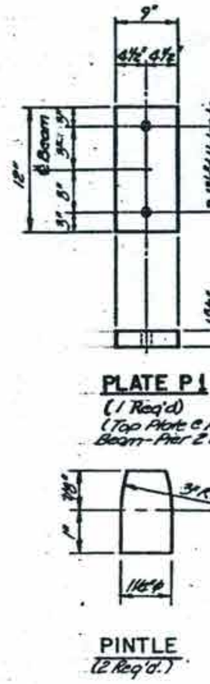
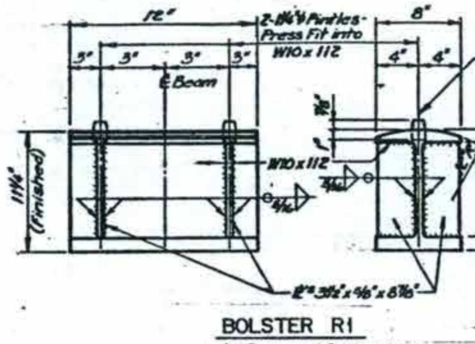



PLATE P1
(1 Req'd)
(Top Plate @ New Beam - Pier 2 Eastbound)

PINTLE
(2 Req'd.)




BOLSTER R1
(1 Required @ New Beam - Pier 2 Eastbound)

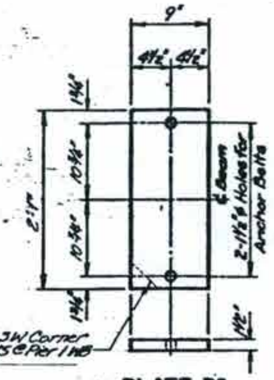
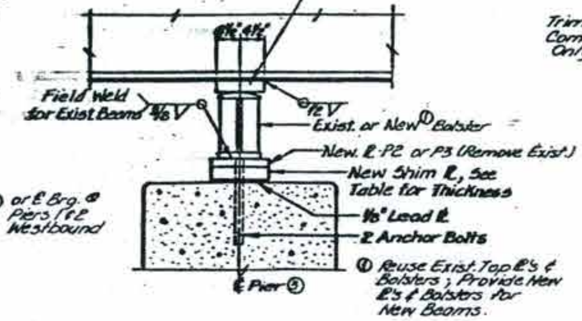
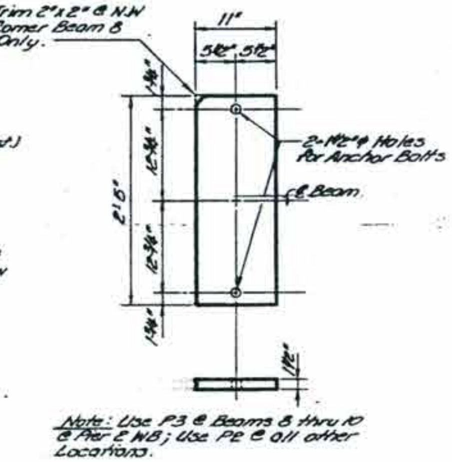



PLATE P2
(8B Req'd.)




ELEVATION AT FIXED BEARING

## FIXED BEARINGS




Note: Use P3 @ Beams 8 thru 10 @ Pier 2 WB; Use P2 @ all other Locations.

PLATE P3
(3 req'd)

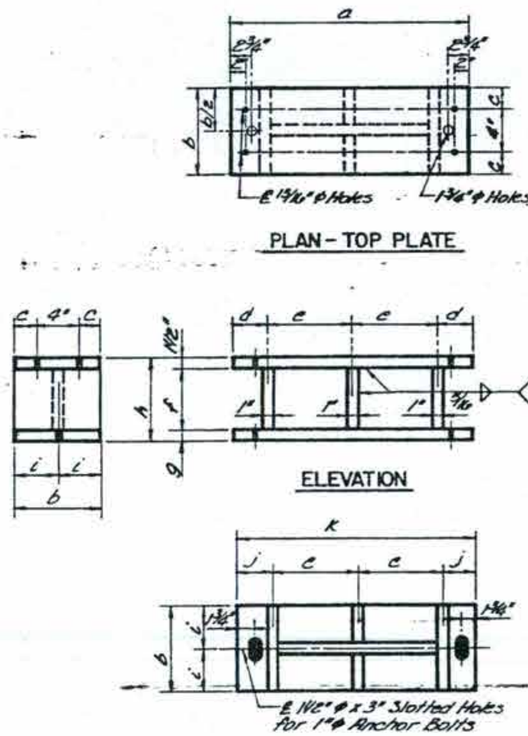
## NOTES

1. PORTIONS OF EXISTING FIXED BEARINGS TO BE REUSED IN NEW CONSTRUCTION.
2. SEE DWG. NO. 39 FOR ANCHOR BOLT DETAILS.
3. ANCHOR BOLTS AT FIXED BEARINGS MAY BE BUILT INTO THE MASONRY.
4. THE NEW STEEL PEDESTALS, FILL PLATES & SIDE RETAINERS FOR EXP. BRGS. AS WELL AS THE NEW PLATES P2 & SHIM PLATES UNDER EXISTING FIXED BEARINGS AND NEW PLATES P1 & P2 AND BOLSTERS R1 FOR NEW FIXED BEARINGS ARE INCLUDED IN "FURNISHING & ERECTING STRUCTURAL STEEL."
5. SEE DWG. NO. 21 FOR DETAILS OF ELASTOMERIC EXPANSION BEARINGS.

* FIELD VERIFY; SEE NOTE 5 UNDER "PROCEDURE" THIS DWG.

## SHIM PLATE* THICKNESS TABLE

| BEAM NO. | PIER 1 | PIER 2 | PIER 3 |
|---|---|---|---|
| 1 | - | 13/16" | - |
| 2 | - | 13/16" | - |
| 3 | - | 13/16" | - |
| 4 | - | 13/16" | - |
| 5 | - | 13/16" | - |
| 6 | - | 13/16" | - |
| 7 | - | 5/16" | - |
| 8 | 1 11/16" | 11/16" | 13/16" |
| 9 | 1 1/2" | 11/16" | 13/16" |
| 10 | 1 1/2" | 11/16" | 13/16" |
| 11 | 1 1/4" | 7/8" | 13/16" |
| 12 | 1 1/2" | 7/8" | 13/16" |
| 13 | 15/16" | 7/8" | 13/16" |
| 14 | 15/16" | 7/8" | 13/16" |
| 15 | 15/16" | 7/8" | 13/16" |




## STEEL PEDESTALS AT TYPES II & III EXPANSION BEARINGS

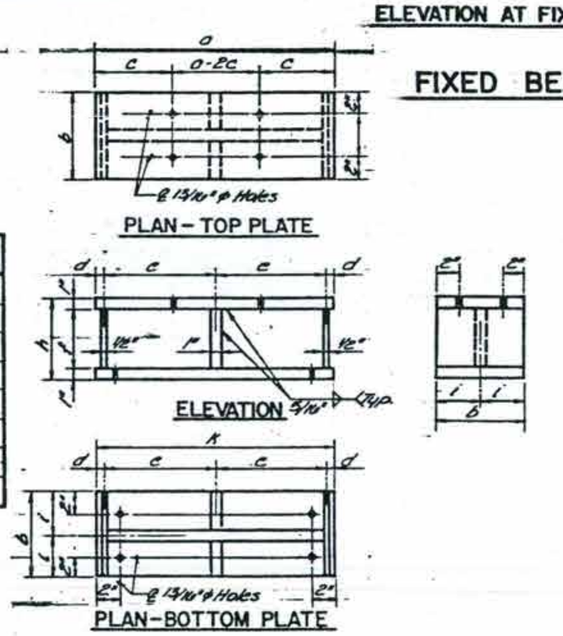
(FOR USE AT EXP. BRGS. - SEE DWG. NO. 21)

## FILL PLATE* THICKNESS TABLE

* FIELD VERIFY; SEE NOTE 5 UNDER "PROCEDURE" THIS DWG.

| BEAM | W. ABUT. | PIER 1 | PIER 3 | E. ABUT. | |
|---|---|---|---|---|---|
| 1 | 3/8" | 5/16" | 1 5/16" | 3/16" | |
| 2 | 3/8" | 5/16" | 1 5/16" | 3/16" | |
| 3 | 3/8" | 5/16" | 1 5/16" | 3/16" | |
| 4 | 3/8" | 5/16" | 1 5/16" | 3/16" | |
| 5 | 3/8" | 5/16" | 1 5/16" | 3/16" | |
| 6 | 3/8" | 5/16" | 1 5/16" | 3/16" | |
| 7 | 3/8" | 3/16" | 1/8" | 1 5/16" | |
| BEAM | W. ABUT. | PIER 1 SPAN 2 | PIER 2 SPAN 3 | PIER 4 | E. ABUT. |
| 8 | 3/16" | 11/16" | 2 1/8" | 1 3/8" | 3/16" |
| 9 | 3/16" | 1/2" | 2 1/8" | 1 3/8" | 3/16" |
| 10 | 3/16" | 1/2" | 2 1/8" | 1 3/8" | 3/16" |
| 11 | -3/16" | 13/16" | 5/16" | 1 3/8" | 3/16" |
| 12 | 3/16" | 1 1/16" | 5/16" | 1 3/8" | 3/16" |
| 13 | 3/16" | 1/2" | 5/16" | 1 3/8" | 3/16" |
| 14 | 3/16" | 1/2" | 5/16" | 1 3/8" | 3/16" |
| 15 | 3/16" | 1/2" | 5/16" | 1 3/8" | 3/16" |

NOTE: FILL PLATE THICKNESSES SHOWN MAY BE THE SUM OF TWO FILL PLATES.




## STEEL PEDESTALS AT TYPE I EXPANSION BEARINGS

(FOR USE AT EXP. BRGS. - SEE DWG. NO. 21)

## STEEL PEDESTAL DIMENSIONS

| LOCATION | # REQ'D | a | b | c | d | e | f | g | h | i | j | k |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E. ABUT. EB | 7 | 1'-10 1/2" | 8" | 2" | 5" | 6 1/4" | 5 5/8" | 1 3/8" | 8 1/2" | 4" | 4" | 1'-8 1/2" |
| E. ABUT. WB | 8 | 1'-10 1/2" | 8" | 2" | 5" | 6 1/4" | 5 5/8" | 1 3/8" | 8 1/2" | 4" | 4" | 1'-8 1/2" |
| PIER 2 WB | 8 | 1'-2" | 8" | 3" | 5/8" | 6 3/8" | 9 1/16" | - | 11 1/16" | 4" | - | 1'-2" |
| W. ABUT. EB | 7 | 1'-10 1/2" | 8" | 2" | 5" | 6 1/4" | 5 7/8" | 1 3/8" | 8 3/4" | 4" | 4" | 1'-8 1/2" |
| W. ABUT. WB | 8 | 1'-2" | 10" | 3" | 5/8" | 6 3/8" | 8 3/8" | - | 10 3/8" | 5" | - | 1'-2" |
| PIER 3 EB | 7 | 1'-4" | 11" | 4" | 5/8" | 7 3/8" | 6 11/16" | - | 8 11/16" | 5 1/2" | - | 1'-4" |
| PIER 4 WB | 8 | 1'-4" | 11" | 4" | 5/8" | 7 3/8" | 6 11/16" | - | 8 11/16" | 5 1/2" | - | 1'-4" |
| PIER 1 WB | ① 5 | 1'-6" | 11" | 5" | 5/8" | 8 3/8" | 6 1/16" | - | 8 1/16" | 5 1/2" | - | 1'-6" |
| PIER 1 WB | ② 3 | 1'-6" | 11" | 2 11/16" | 5/8" | 8 3/8" | 6 1/16" | - | 8 1/16" | 5 1/2" | - | 1'-6" |
| PIER 1 EB | 7 | 1'-8" | 1'-1" | 6" | 5/8" | 9 3/8" | 6 11/16" | - | 8 11/16" | 6 1/2" | - | 1'-8" |

① Beams 11 Thru 15
② Beams 8 Thru 10

## PROCEDURE

1. THE CONTRACTOR SHALL SUBMIT FOR APPROVAL BY THE ENGINEER, PLANS FOR RAISING EXISTING BEAMS, PROVIDING NEW EXPANSION BEARINGS AND SHIMMING EXISTING FIXED BEARINGS PRIOR TO COMMENCING ANY RELATED WORK. THIS WORK SHALL BE DONE FOR EACH STAGE AFTER EXISTING CONCRETE DECK IS REMOVED AND PRIOR TO POURING OF NEW CONCRETE DECK. THE MAXIMUM DEAD LOAD REACTION PER BEAM (WEIGHT OF STEEL ONLY) AT ABUTMENTS IS 7 kips AND AT PIERS IS 16 kips.
2. DIAPHRAGMS ALONG THE STAGE CONSTRUCTION LINE SHALL BE DISCONNECTED BEFORE RAISING OPERATIONS COMMENCE. ALL NUTS ON BEARING ANCHOR BOLTS ON BEAMS TO BE RAISED SHALL BE REMOVED AND Replaced. (CUT OFF ANCHOR BOLTS FLUSH WITH BRG. SEAT AT ALL BEARINGS EXCEPT THE EB ABUTMENTS AND THE E. ABUT. WB. ANCHOR BOLTS AT THESE LOCATIONS ARE TO BE PRESERVED AND REUSED. SEE NOTE 6.)
3. RAISING SHALL BE DONE BY JACKING. MEASURES SHALL BE TAKEN TO PREVENT LATERAL OR LONGITUDINAL DISPLACEMENT OF BEAMS DURING RAISING OPERATIONS. ALL BEAMS FOR EACH STAGE AT A GIVEN SUB-STRUCTURE ELEMENT SHALL BE SLOWLY AND CONTINUALLY RAISED THE SAME AMOUNT SIMULTANEOUSLY, WITH THE MAXIMUM AMOUNT OF RAISE LIMITED TO 1" GREATER THAN THAT REQUIRED TO INSTALL NEW BEARINGS OR SHIM PLATES. ANY SWAY OF THE STEEL DURING RAISING OPERATIONS SHALL BE IMMEDIATELY CORRECTED.
4. DIAPHRAGMS MAY BE USED AS JACKING BEAMS. IF SO, JACKS SHALL BE PLACED AT THE MIDPOINT OF THE DIAPHRAGM, ON THE CENTERLINE OF BEARING. THE STEEL SHALL BE RAISED IN INCREMENTS OF 1/2" AND SHALL BE BLOCKED IN POSITION UPON COMPLETION OF A RAISING INTERVAL. TIMBER BLOCKING MAY BE USED TO HOLD THE STRUCTURE IN PLACE WHILE JACKS ARE REPOSITIONED FOR THE NEXT LIFT.
5. PRIOR TO RAISING, ELEVATIONS OF EXISTING BEARING SEATS SHALL BE TAKEN AND THE ENGINEER SHALL VERIFY FILL PLATE AND SHIM PLATE THICKNESSES REQUIRED AT EACH BEARING. THIS SHALL BE ACCOMPLISHED BY USING FIELD MEASUREMENTS ALONG WITH THE "TABLE OF ELEVATIONS - TOP OF STEEL BEAMS" ON DWG. NOS. 17 AND 18.
6. RAISE BEAMS, REMOVE EXISTING EXPANSION BEARINGS, INSTALL NEW SHIM PLATES AND PLATES P2 OR P3 UNDER EXISTING FIXED BEARINGS, AND INSTALL NEW ELASTOMERIC EXPANSION BEARINGS. INSTALL NEW ANCHOR BOLTS WHERE REQUIRED (SEE DWG. NO. 39), AND PLACE AND TIGHTEN NUTS ON NEW AND EXISTING ANCHOR BOLTS.
7. AFTER WORK ON THE BEARINGS IS COMPLETE, REPAINT ANY AREAS DISTURBED BY WELDINGS, ETC. WITH THE SAME PAINT SYSTEM SPECIFIED FOR THE STRUCTURAL STEEL.

**ESCA CONSULTANTS, INC.**

| | | |
|---|---|---|
| DESIGNED BY: | RDP | 2/90 |
| DRAWN BY: | CJG | 2/90 |
| CHECKED BY: | JRF | 2/90 |
| APPROVED BY: | RDP | 2/90 |

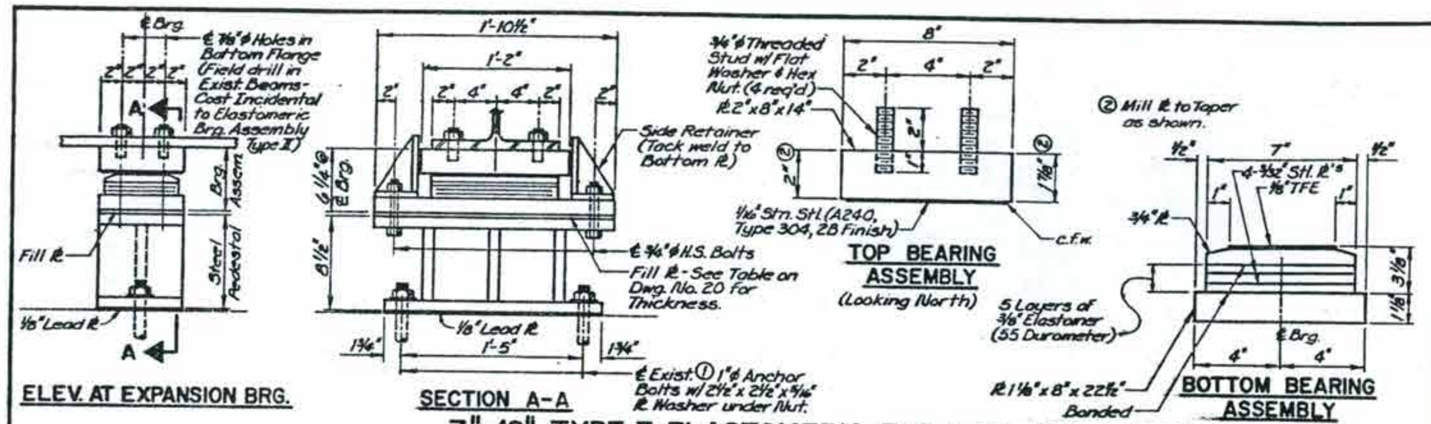
## BEARINGS

FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB)BR
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | * | Vermilion | 165 | 110 |
| STA. | | TO STA. | | |
| FED. ROAD DIST. NO. | ILLINOIS | PROJECT | | |

*(92-11VB)BR

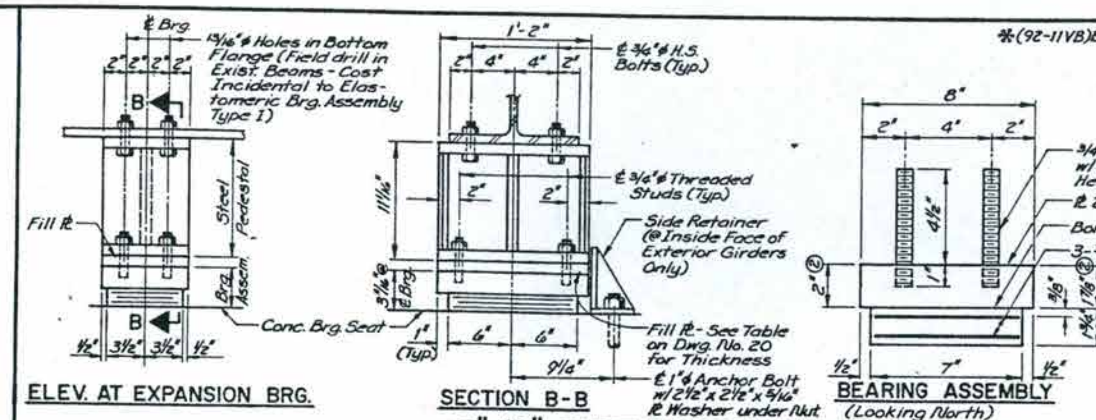
Dwg. No. 21 of 41




## 7"x12" TYPE II ELASTOMERIC EXP. BRG.

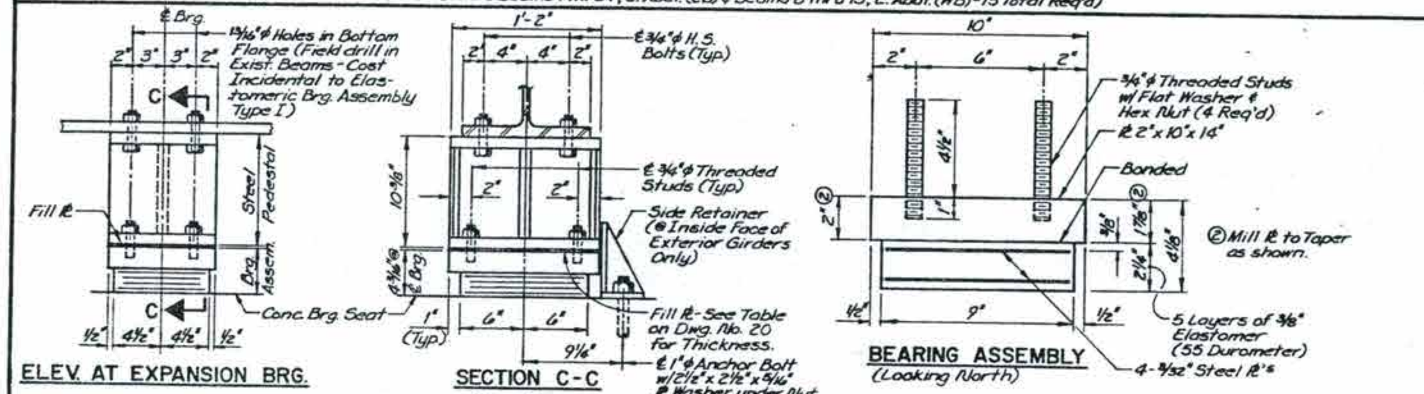
① New Anchor Bolts @ New Beam 7.

(To Be Used @ Beams 1 thru 7, E. Abut. (EB) & Beams 8 thru 15, E. Abut. (WB) - 15 Total Req'd)



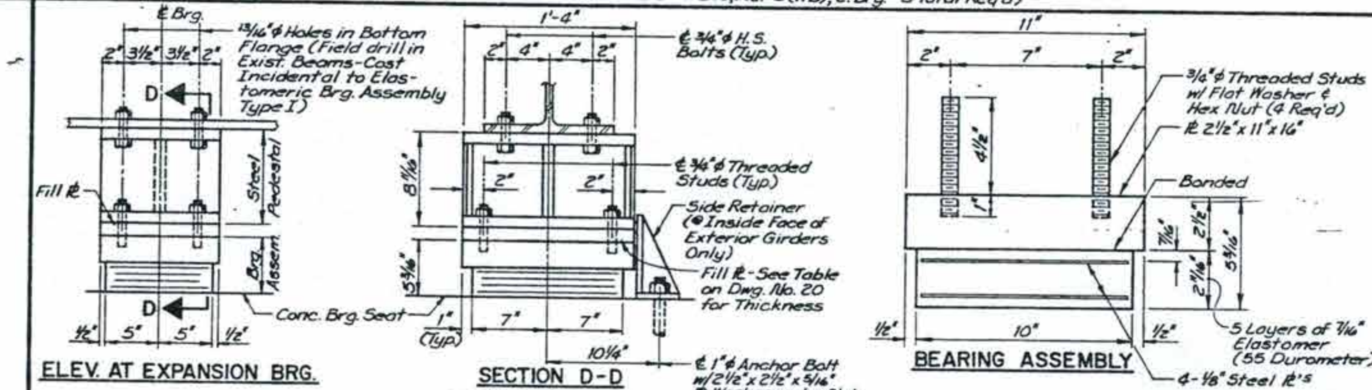

## 7"x12" TYPE I ELASTOMERIC EXP. BRG.

(To Be Used @ Beams 8 thru 15, Pier 2 (WB), E. Brg. - 8 Total Req'd)



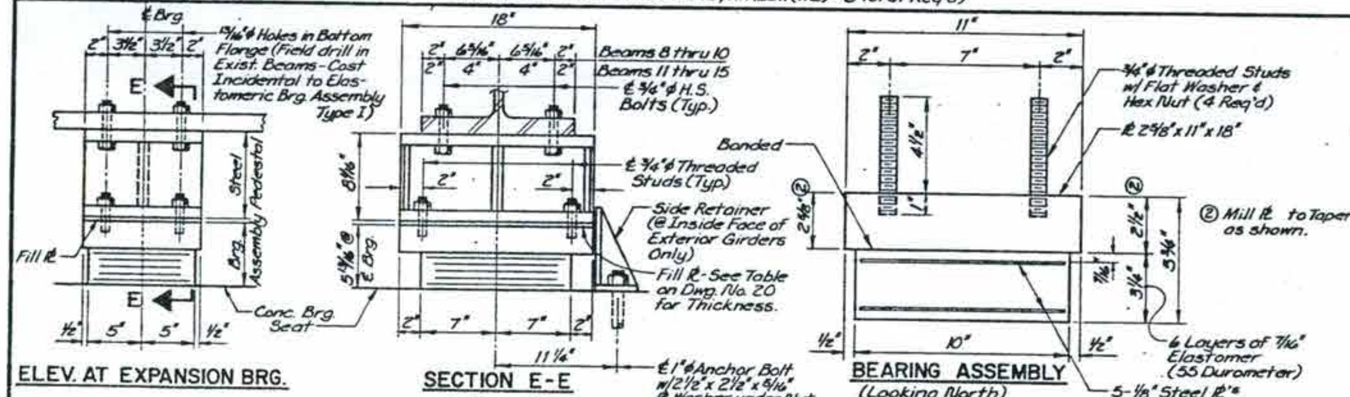

## 9"x12" TYPE I ELASTOMERIC EXP. BRG.

(To Be Used @ Beams 8 thru 15, W. Abut. (WB) - 8 Total Req'd)



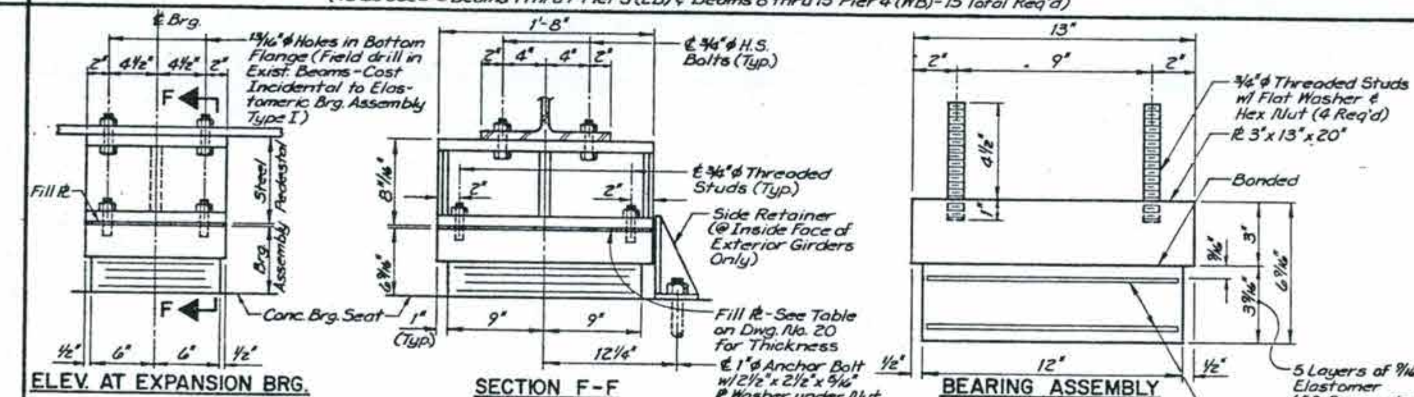

## 10"x14" TYPE I ELASTOMERIC EXP. BRG.

(To Be Used @ Beams 1 thru 7 Pier 3 (EB) & Beams 8 thru 15 Pier 4 (WB) - 15 Total Req'd)



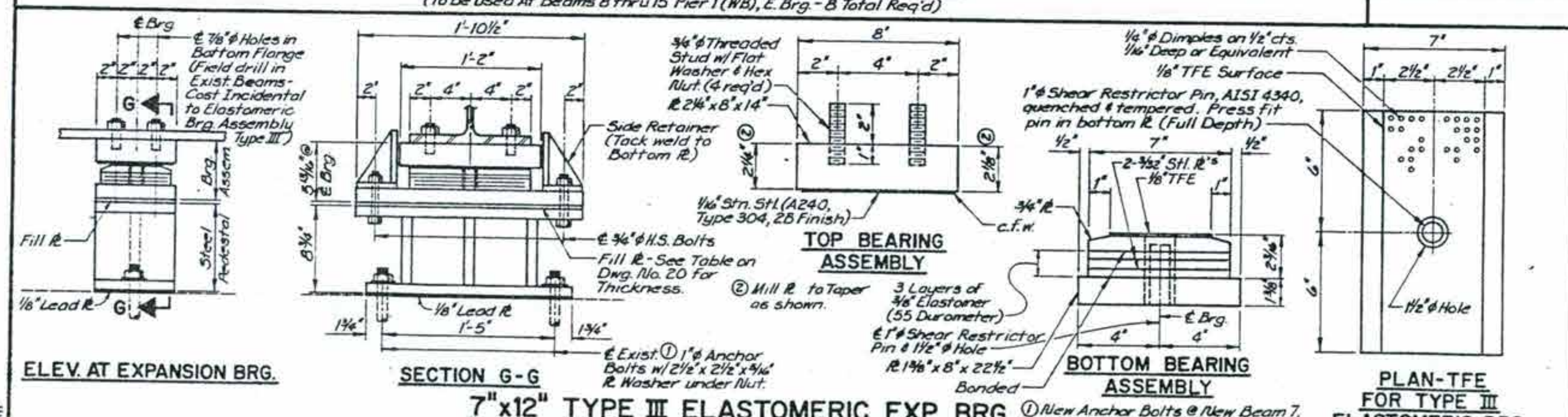

## 10"x14" TYPE I ELASTOMERIC EXP. BRG.

(To Be Used At Beams 8 thru 15 Pier 1 (WB), E. Brg. - 8 Total Req'd)




## 12"x18" TYPE I ELASTOMERIC EXP. BRG.

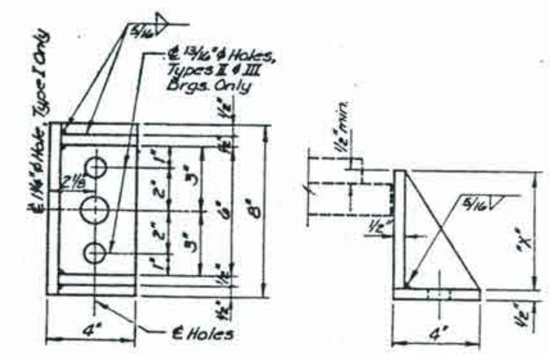
(To Be Used At Beams 1 thru 7 Pier 1 (EB) - 7 Total Req'd)




## 7"x12" TYPE III ELASTOMERIC EXP. BRG.

① New Anchor Bolts @ New Beam 7.

(To Be Used At Beams 1 thru 7 W. Abut. (EB) - 7 Total Req'd)



## SIDE RETAINER

Equivalent rolled angle w/ stiffeners will be allowed in lieu of welded plates.

### "X" DIMENSIONS

| BEARING | "X" |
|---|---|
| 7"x12" | 5¾" |
| 9"x12" | 6½" |
| 10"x14" | 7¼" |
| 12"x18" | 7⅛" |

## BILL OF MATERIAL

| ITEM | UNIT | QUANTITY |
|---|---|---|
| Elastomeric Brg. Assembly, Type I | Each | 46 |
| Elastomeric Brg. Assembly, Type II | Each | 15 |
| Elastomeric Brg. Assembly, Type III | Each | 7 |
| | | |

NOTES

1. SEE DWG. NO. 20 FOR DETAILS OF STEEL PEDESTALS, TABLE OF FILL PLATE THICKNESSES, AND OTHER MISCELLANEOUS DETAILS.
2. SEE DWG. NO. 39 FOR DETAILS OF NEW ANCHOR BOLTS.

# ELASTOMERIC BEARINGS

FAI 74 OVER L STREET

FAI RTE. 74 SECTION (92-11VB)BR

VERMILION COUNTY

STATION 1877+01.73

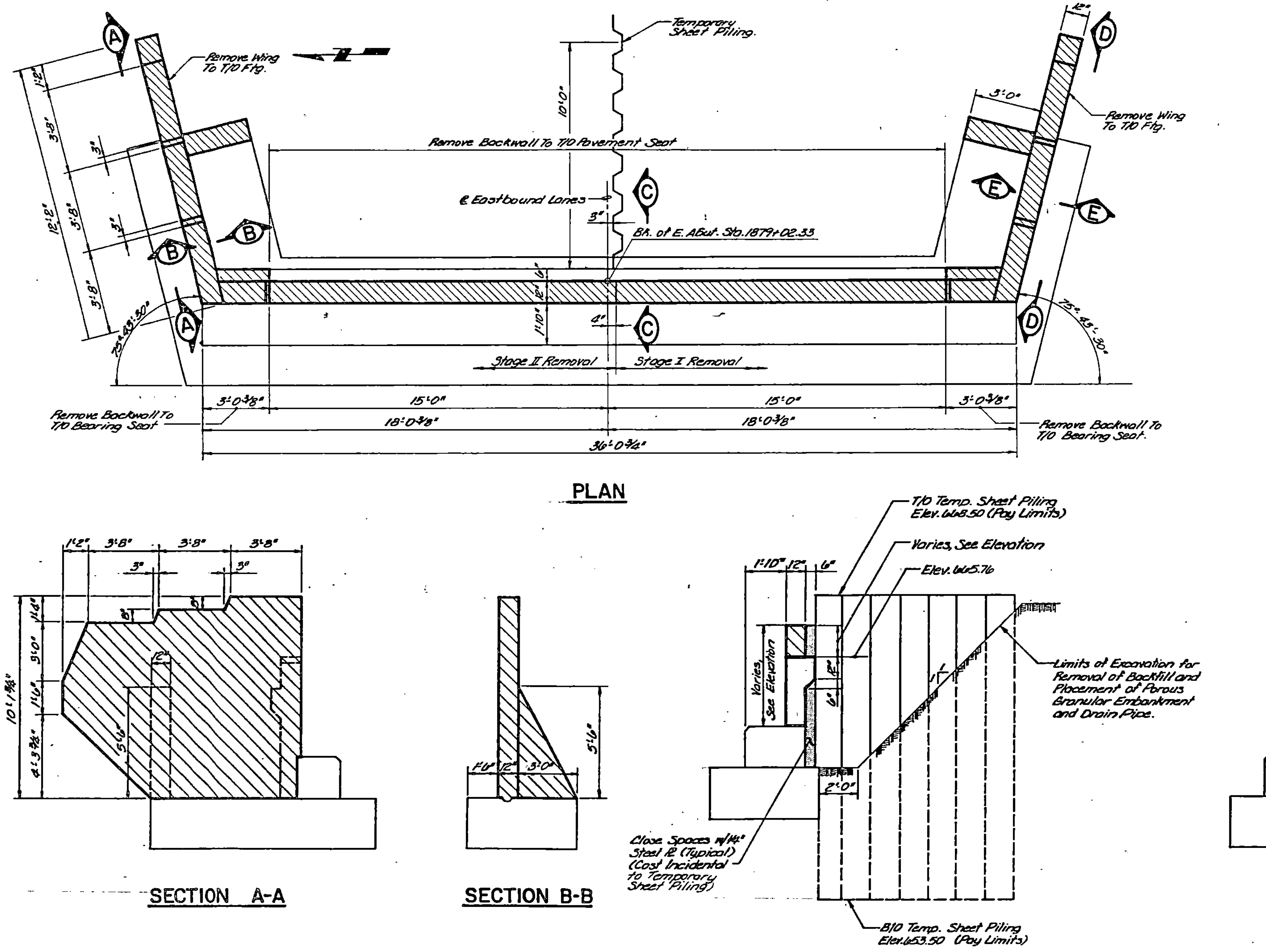
STRUCTURE NO. 092-0008(EB)

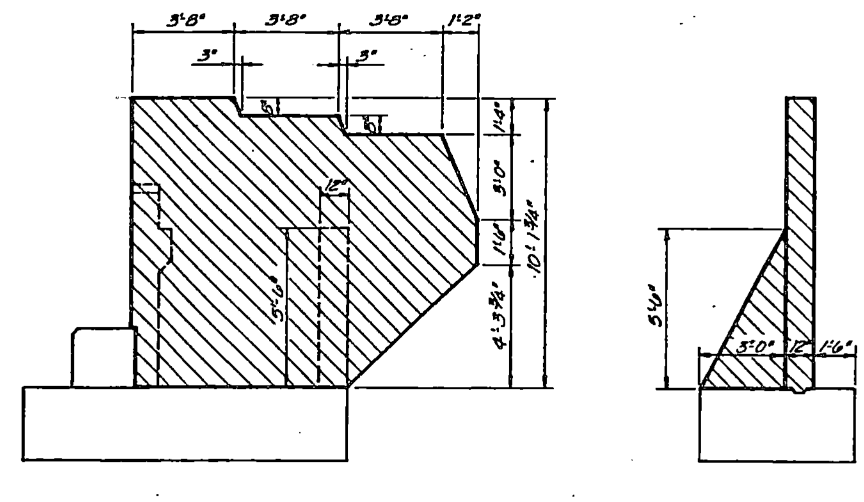
STRUCTURE NO. 092-0009(WB)

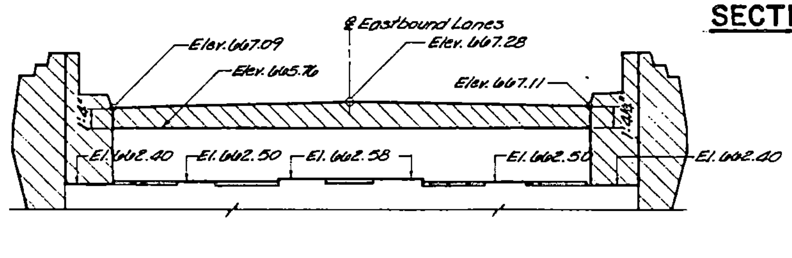
| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO |
|---|---|---|---|---|
| FAI-74 | ✻ | Vermilion | 165 | 111 |
| STA | | TO STA | | |
| FED ROAD DIST NO | ILLINOIS | PROJECT | | |

✻ (92-11VB)BR

Dwg. No. 22 of 41




ELEVATION

## NOTES

1. HATCHED AREAS INDICATE CONCRETE REMOVAL:
2. EXISTING REINFORCEMENT WHICH IS TO BE REUSED IN THE NEW CONSTRUCTION AND EXTENDS INTO REMOVAL AREAS SHALL BE PRESERVED.
3. THE INFORMATION SHOWN FOR THE TEMPORARY SHEET PILING IS ESTIMATED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A DESIGN AND COMPUTATIONS OF THE TEMPORARY SHEET PILING AND ASSOCIATED MEMBERS, IF REQUIRED, SUBJECT TO APPROVAL OF THE ENGINEER.

## BILL OF MATERIAL

| ITEM | UNIT | QUANTITY |
|---|---|---|
| Concrete Removal | Cu. Yds. | 10.8 |
| Temporary Sheet Piling | Sq. Ft. | 150 |
| Structure Excavation | Cu. Yds. | 35.5 |

**ESCA CONSULTANTS, INC.**

| | | |
|---|---|---|
| DESIGNED BY: | JAF | 1-90 |
| DRAWN BY: | CJG | 1-90 |
| CHECKED BY: | RDP | 1-90 |
| APPROVED BY: | RDP | 1-90 |

EASTBOUND LANES
E. ABUT. CONCRETE REMOVAL
FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB)BR
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)

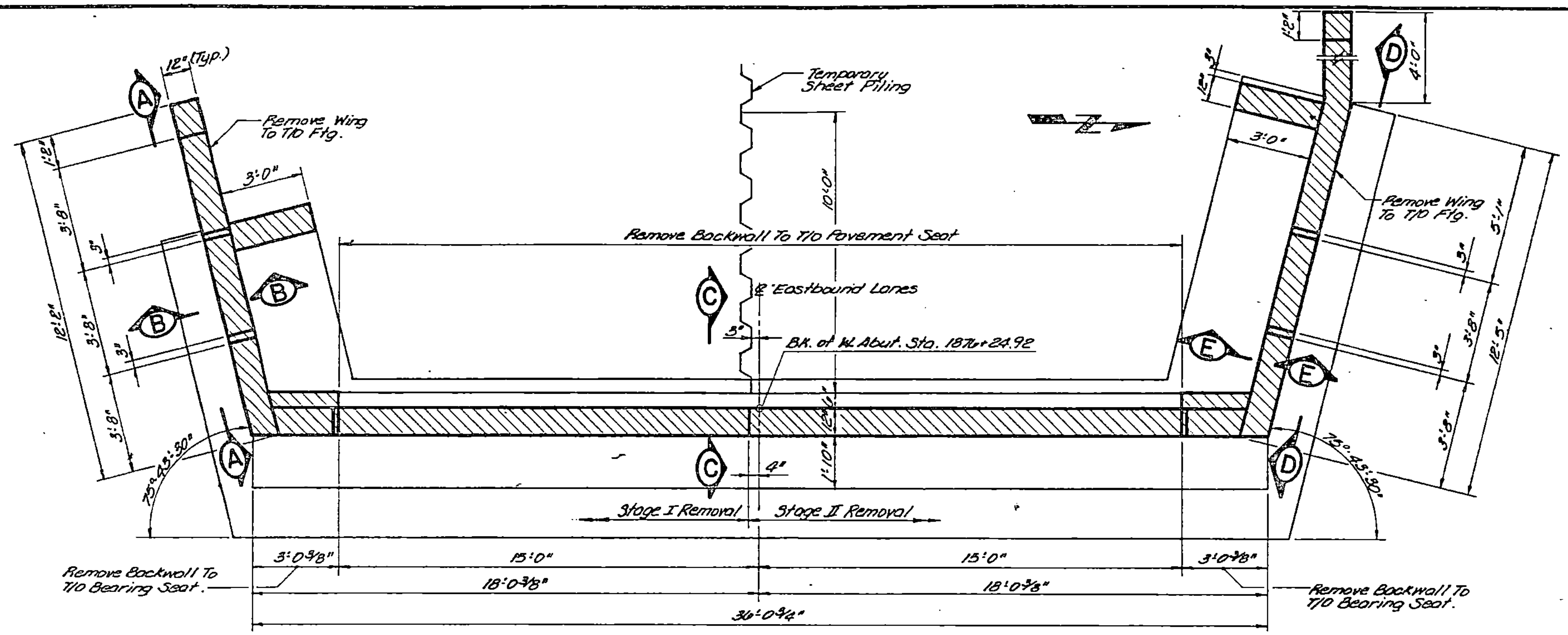
| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | ✻ | Vermilion | 165 | 112 |
| STA | TO STA | | | |
| FED ROAD DIST NO | ILLINOIS | PROJECT | | |

Dwg. No. 23 of 41

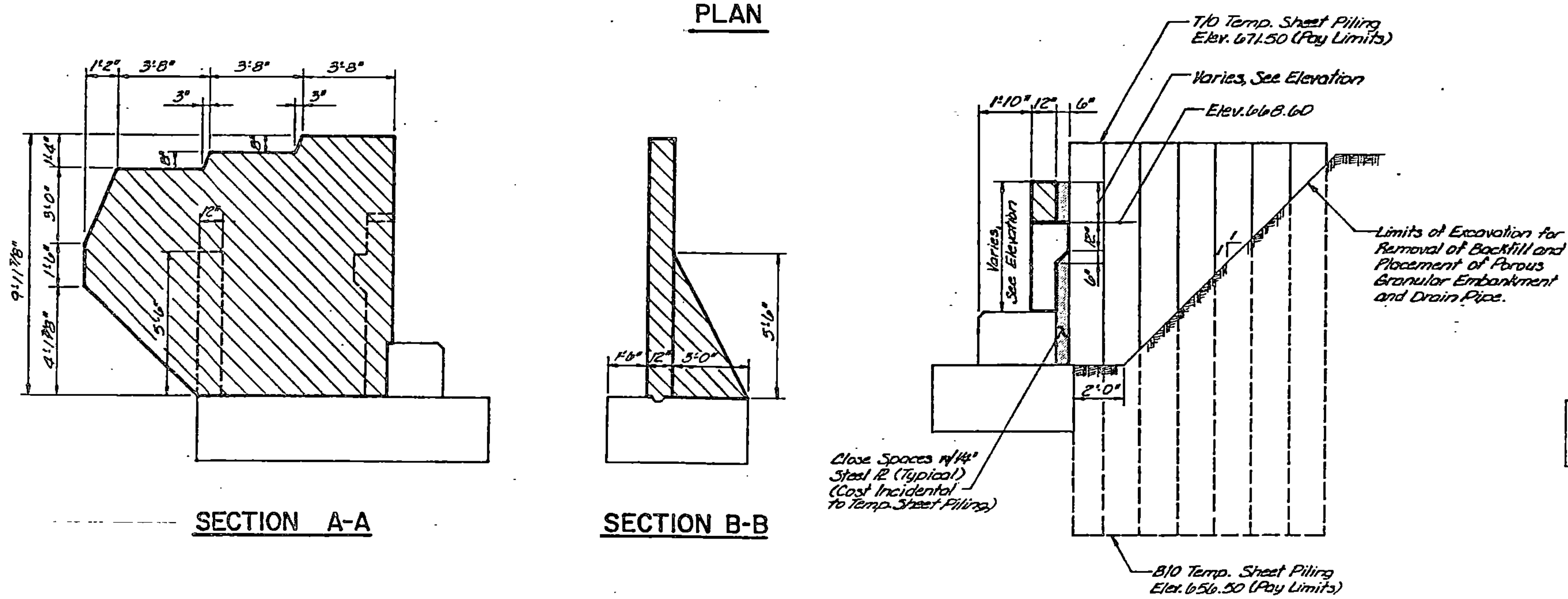
✻(92-11VB) BR

## NOTES

1. HATCHED AREAS INDICATE CONCRETE REMOVAL.
2. EXISTING REINFORCEMENT WHICH IS TO BE REUSED IN THE NEW CONSTRUCTION AND EXTENDS INTO REMOVAL AREAS SHALL BE PRESERVED.
3. THE INFORMATION SHOWN FOR THE TEMPORARY SHEET PILING IS ESTIMATED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A DESIGN AND COMPUTATIONS OF THE TEMPORARY SHEET PILING AND ASSOCIATED MEMBERS, IF REQUIRED, SUBJECT TO APPROVAL OF THE ENGINEER.




PLAN

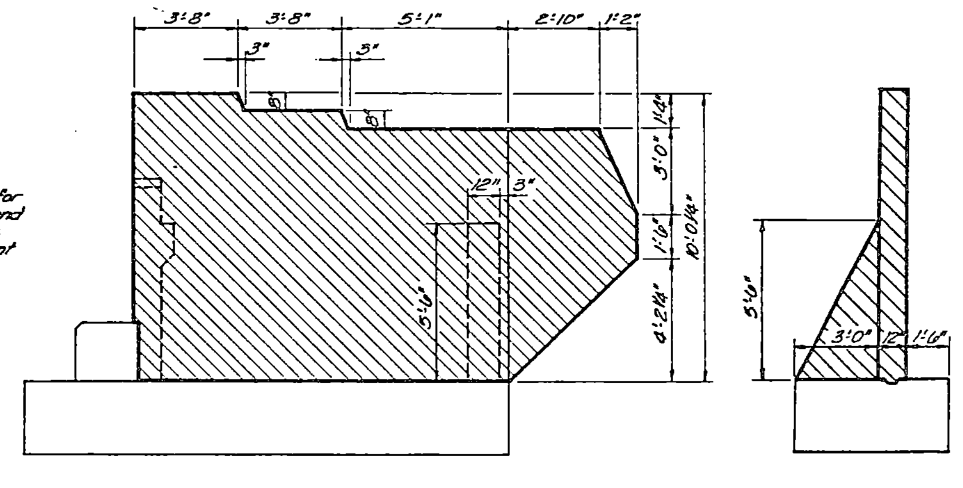


SECTION A-A

SECTION B-B

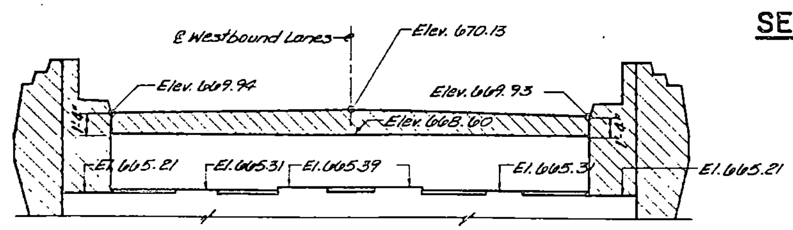


SECTION C-C



SECTION D-D

SECTION E-E




ELEVATION

## BILL OF MATERIAL

| ITEM | UNIT | QUANTITY |
|---|---|---|
| Concrete Removal | Cu. Yds. | 12.0 |
| Temporary Sheet Piling | Sq. Ft. | 150 |
| Structure Excavation | Cu. Yds. | 37.7 |

ESCA CONSULTANTS, INC.

| | | |
|---|---|---|
| DESIGNED BY: | JRF | 1-90 |
| DRAWN BY: | CJG | 1-90 |
| CHECKED BY: | RDP | 1-90 |
| APPROVED BY: | RDP | 1-90 |

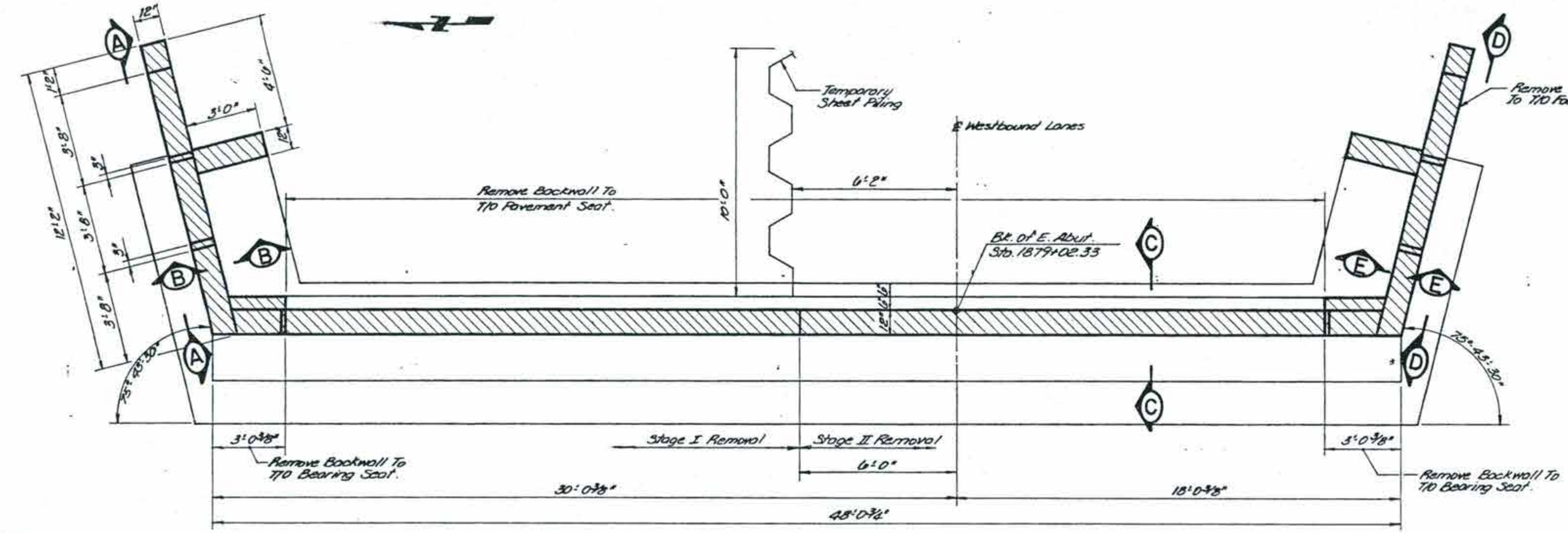
EASTBOUND LANES
W. ABUT. CONCRETE REMOVAL
FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB) BR
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)

❄ (92-11VB) BR

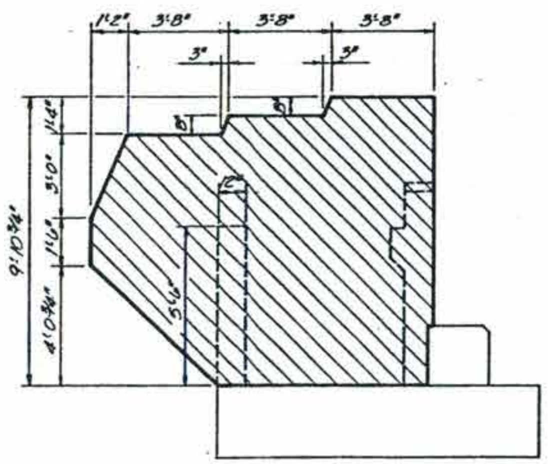
| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | ❄ | Vermilion | 165 | 113 |
| STA | | TO STA | | |
| FED ROAD DIST NO | ILLINOIS | PROJECT | | |
| | Dwg. No. 21 of 41 | | | |

## NOTES

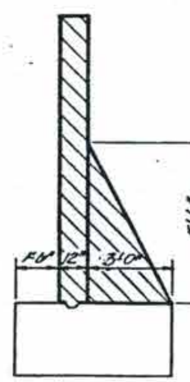
1. HATCHED AREAS INDICATE CONCRETE REMOVAL.
2. EXISTING REINFORCEMENT WHICH IS TO BE REUSED IN THE NEW CONSTRUCTION AND EXTENDS INTO REMOVAL AREAS SHALL BE PRESERVED.
3. THE INFORMATION SHOWN FOR THE TEMPORARY SHEET PILING IS ESTIMATED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A DESIGN AND COMPUTATIONS OF THE TEMPORARY SHEET PILING AND ASSOCIATED MEMBERS, IF REQUIRED, SUBJECT TO APPROVAL OF THE ENGINEER.



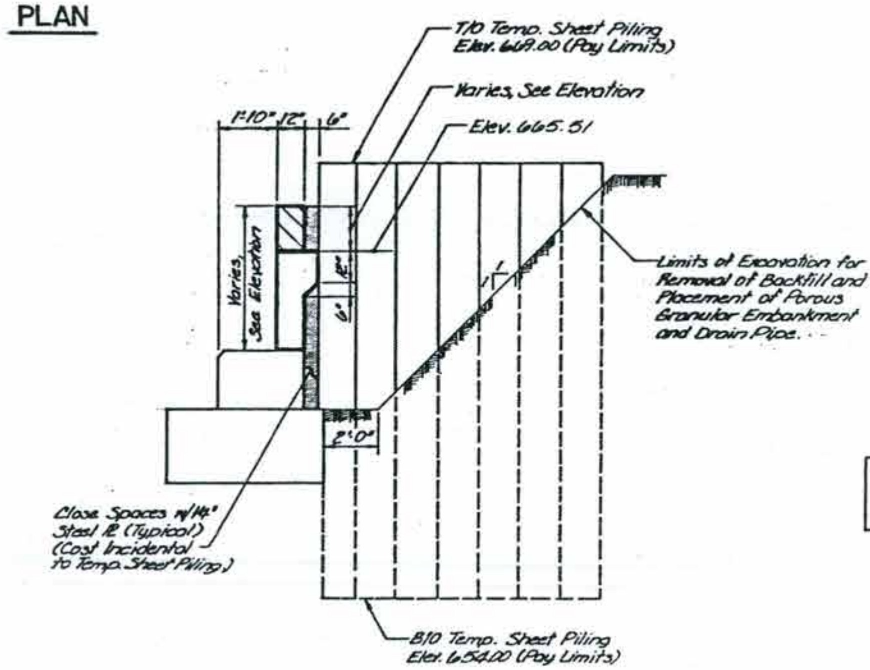

PLAN



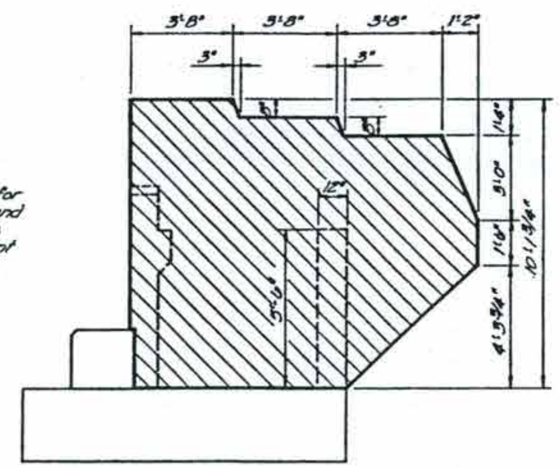
SECTION A-A



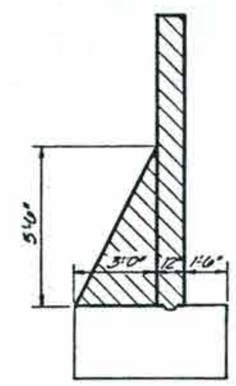
SECTION B-B



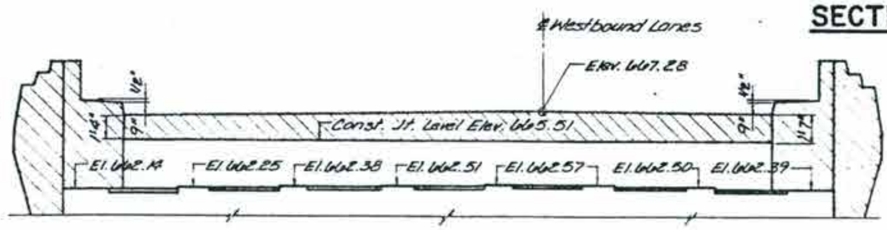

SECTION C-C



SECTION D-D



SECTION E-E




ELEVATION

## BILL OF MATERIAL

| ITEM | UNIT | QUANTITY |
|---|---|---|
| Concrete Removal | Cu. Yds. | 11.6 |
| Temporary Sheet Piling | Sq. Ft. | 150 |
| Structure Excavation | Cu. Yds. | 37.3 |
| | | |

**ESCA CONSULTANTS, INC.**

| | | |
|---|---|---|
| DESIGNED BY: | JRF | 1-90 |
| DRAWN BY: | CJG | 1-90 |
| CHECKED BY: | RDP | 1-90 |
| APPROVED BY: | RDP | 1-90 |

WESTBOUND LANES
E. ABUT. CONCRETE REMOVAL
FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB) BR
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | ✻ | Vermilion | 165 | 114 |

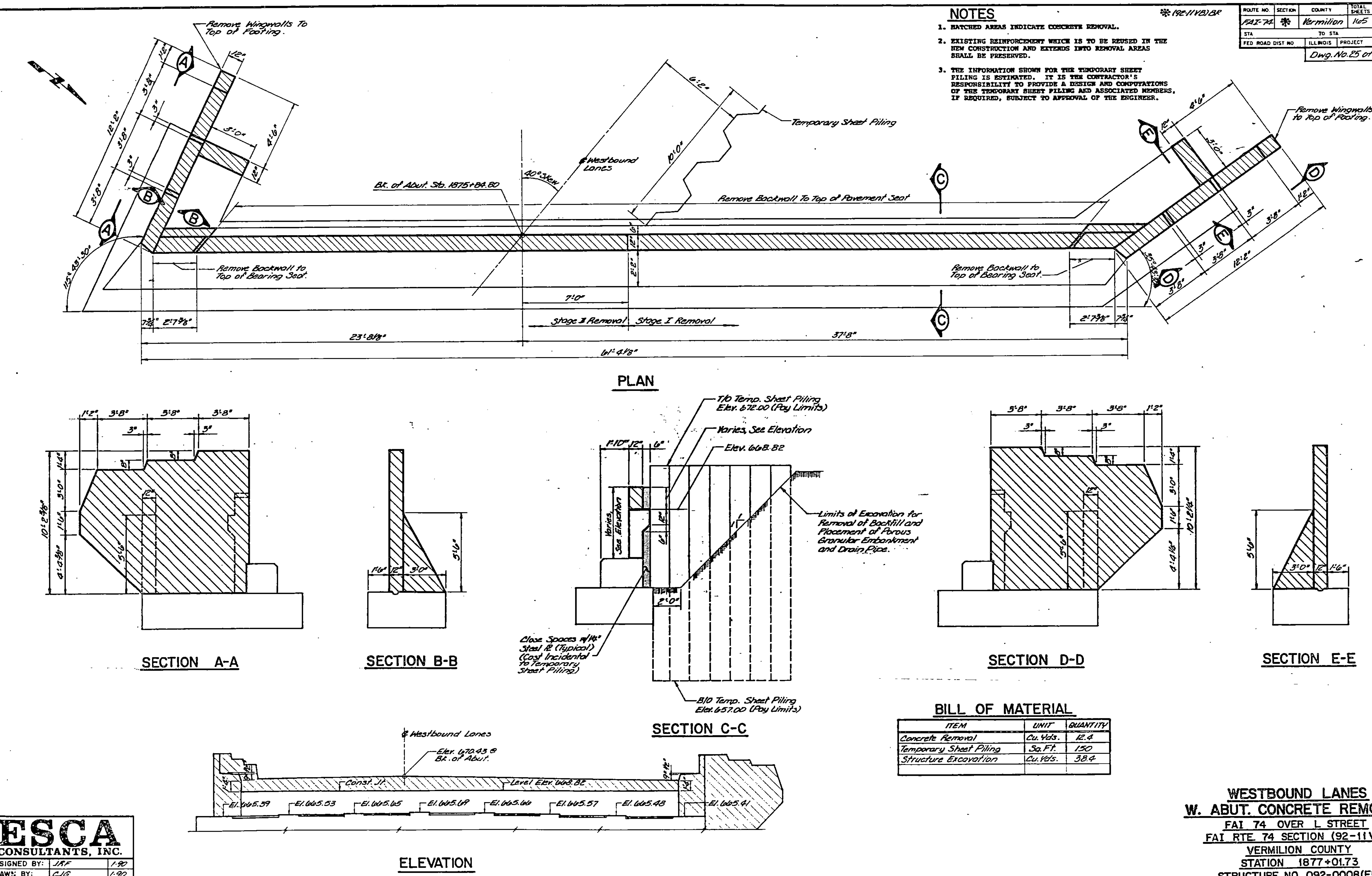
STA / TO STA / FED ROAD DIST NO / ILLINOIS / PROJECT

Dwg. No. 25 of 41

✻ (92-11VB)BR

## NOTES

1. HATCHED AREAS INDICATE CONCRETE REMOVAL.
2. EXISTING REINFORCEMENT WHICH IS TO BE REUSED IN THE NEW CONSTRUCTION AND EXTENDS INTO REMOVAL AREAS SHALL BE PRESERVED.
3. THE INFORMATION SHOWN FOR THE TEMPORARY SHEET PILING IS ESTIMATED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A DESIGN AND COMPUTATIONS OF THE TEMPORARY SHEET PILING AND ASSOCIATED MEMBERS, IF REQUIRED, SUBJECT TO APPROVAL OF THE ENGINEER.




## BILL OF MATERIAL

| ITEM | UNIT | QUANTITY |
|---|---|---|
| Concrete Removal | Cu. Yds. | 12.4 |
| Temporary Sheet Piling | Sq. Ft. | 150 |
| Structure Excavation | Cu. Yds. | 38.4 |

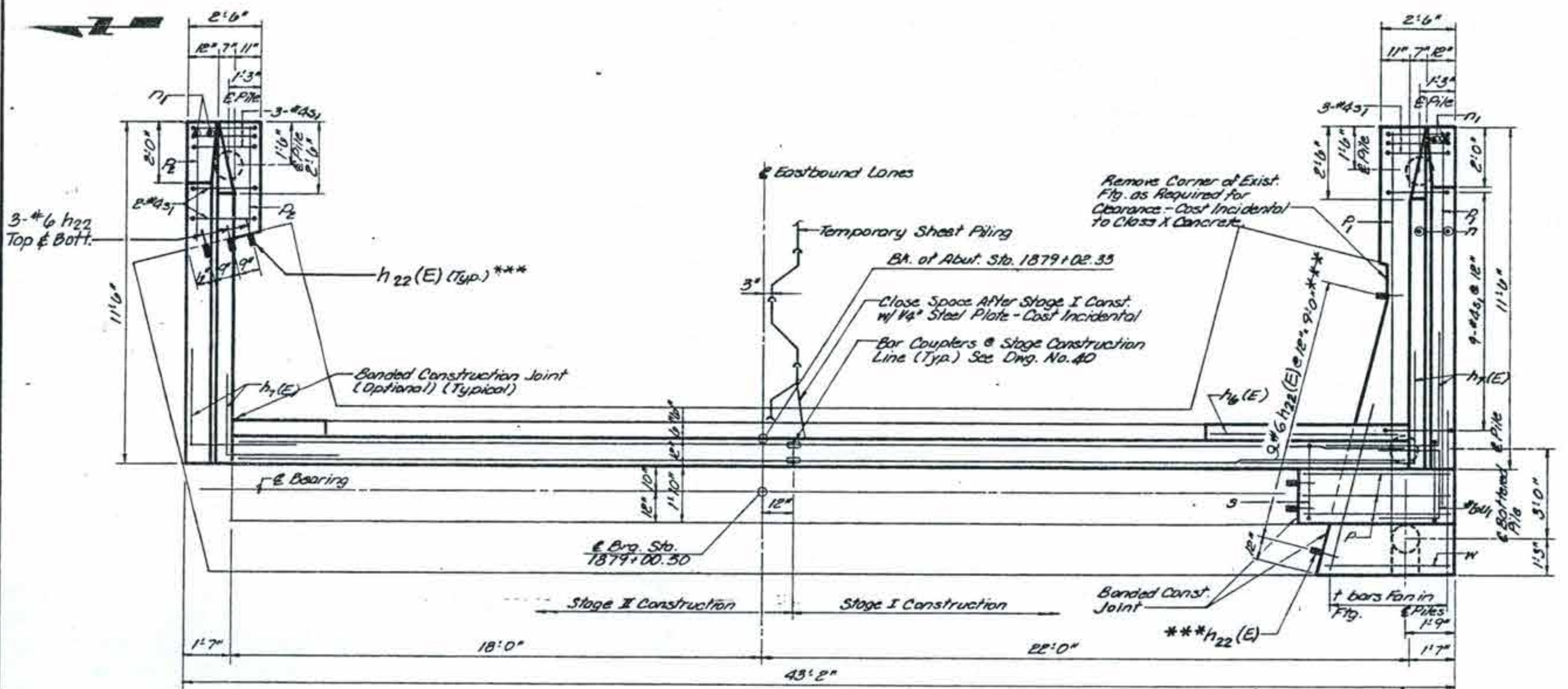
**ESCA CONSULTANTS, INC.**

| | | |
|---|---|---|
| DESIGNED BY: | JRF | 1-90 |
| DRAWN BY: | CJG | 1-90 |
| CHECKED BY: | RDP | 1-90 |
| APPROVED BY: | RDP | 1-90 |

**WESTBOUND LANES**
**W. ABUT. CONCRETE REMOVAL**
FAI 74 OVER L STREET
FAI RTE 74 SECTION (92-11VB) BR
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)

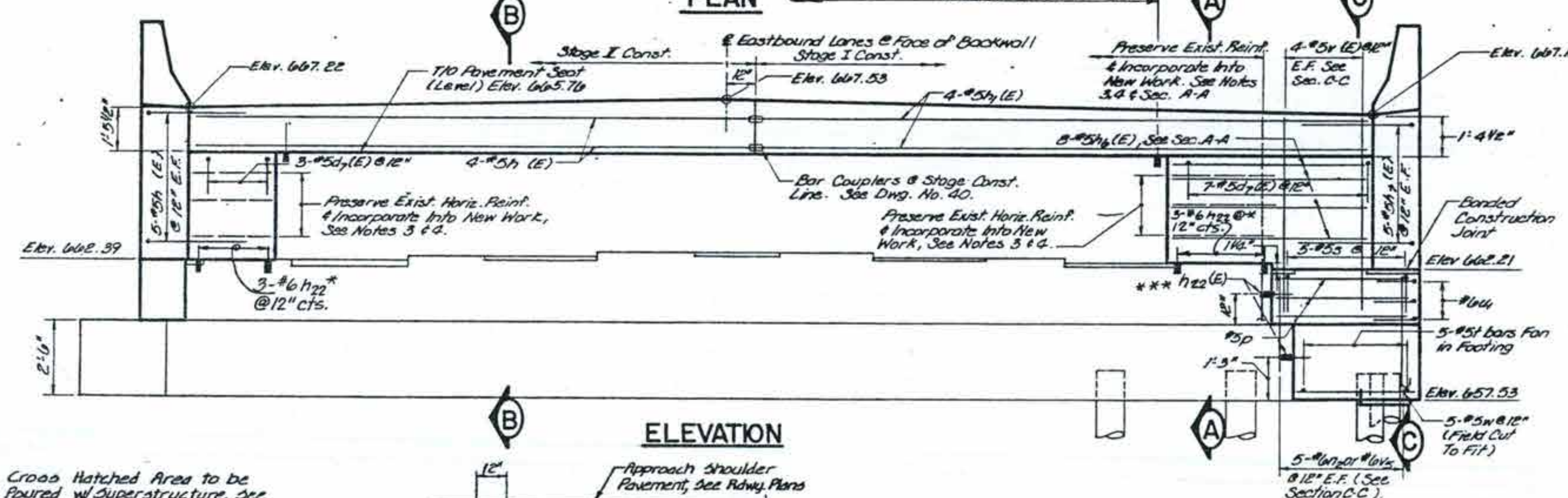
*92-11VB)BR

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | * | Vermilion | 165 | 115 |
| STA | | TO STA | | |
| FED ROAD DIST NO. | | ILLINOIS | PROJECT | |
| | | Dwg. No. 26 of 41 | | |




PLAN

* 32-#6 h22(E) bars @ ±12" cts.




ELEVATION

***#6 h22(E) bars. Epoxy Grout in 1" φ x 9" min. drilled holes. Use a grout approved by the Department or epoxy grout in accordance with BSP-11. The method of grout application shall be approved by the engineer.

* Epoxy grouted #6 bars in 1⅛" x 9" min. drilled holes. See Special Provisions.

## NOTES

1. SPACE REINFORCEMENT IN CAP TO MISS ANCHOR BOLTS.
2. REINFORCEMENT BARS DESIGNATED (E) SHALL BE EPOXY COATED.
3. EXISTING REINFORCEMENT EXTENDING INTO REMOVAL AREAS SHALL BE CLEANED, STRAIGHTENED OR BENT, REALIGNED AS REQUIRED, AND INCORPORATED INTO NEW CONSTRUCTION. COST INCIDENTAL.
4. CUT OFF EXCESS LENGTH OF EXISTING REINFORCEMENT BARS TO PROVIDE 1-1/2" CLR. COVER AS DIRECTED BY THE ENGINEER.
5. SEE DWG. NO.30 FOR BAR BENDING DETAILS AND WINGWALL DETAILS.
6. All reinforcement bars on this sheet Epoxy Coated.

## PILE DATA

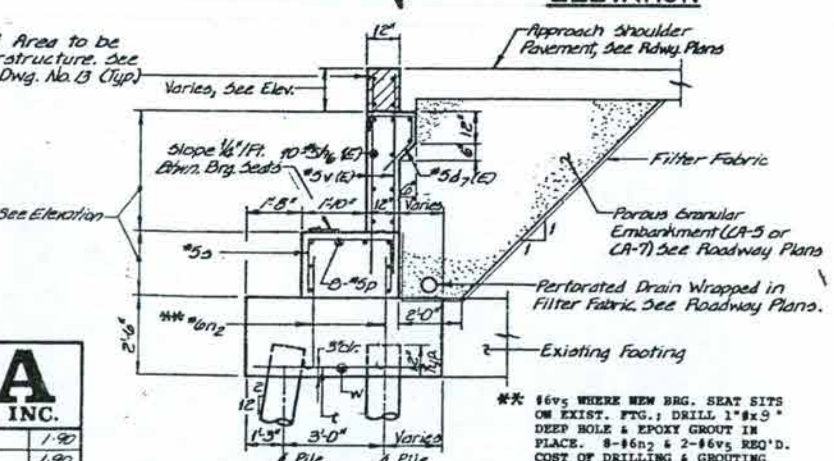
Type: Concrete
Capacity: 25 Tons
No. Req'd.: (3 Plus 1 Test)
Est. Length: 28'

## BILL OF MATERIAL

| BAR | NO | SIZE | LENGTH | SHAPE |
|---|---|---|---|---|
| d7(E) | 10 | #5 | 4'-0" | |
| h(E) | 4 | #5 | 18'-10" | |
| h1(E) | 4 | #5 | 20'-10" | |
| h6(E) | 10 | #5 | 6'-0" | |
| h7(E) | 20 | #5 | 8'-0" | |
| h8(E) | 16 | #4 | 11'-3" | |
| h9(E) | 16 | #4 | 11'-2" | |
| h10(E) | 10 | #4 | 11'-3" | |
| h11(E) | 2 | #4 | 11'-2" | |
| h22(E) | 53 | #6 | 2'-0" | |
| n(E) | 10 | #6 | 13'-10" | |
| n1(E) | 12 | #6 | 7'-8" | |
| n2(E) | 8 | #6 | 4'-2" | |
| p(E) | 8 | #5 | 8'-0" | |
| p1(E) | 6 | #7 | 14'-0" | |
| p2(E) | 6 | #7 | 3'-6" | |
| s(E) | 5 | #5 | 6'-7" | |
| s1(E) | 17 | #4 | 9'-5" | |
| t(E) | 5 | #5 | 5'-2" | |
| u1(E) | 3 | #6 | 7'-6" | |
| v(E) | 8 | #5 | 6'-8" | |
| v1(E) | 18 | #6 | 7'-5" | |
| v2(E) | 24 | #6 | 7'-3" | |
| v3(E) | 6 | #6 | 7'-3" | |
| v4(E) | 16 | #6 | 6'-0" | |
| v5(E) | 2 | #6 | 3'-6" | |
| w(E) | 5 | #5 | 5'-0" | |

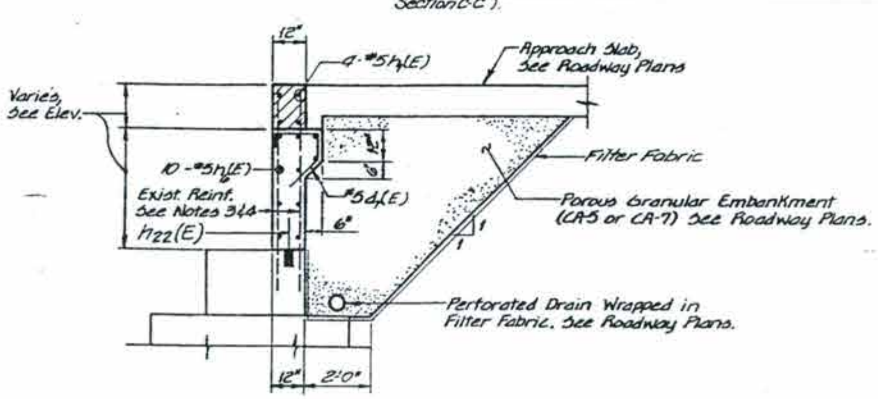
| ITEM | UNIT | QUANTITY |
|---|---|---|
| Class X Concrete | Cu. Yds. | 20.3 |
| Reinf. Bars (Epoxy Coated) | Lbs. | 2550 |
| Test Pile Concrete | Each | 1 |
| Concrete Piles | Lin. Ft. | 84' |
| Structure Excavation | Cu. Yds. | 30.8 |

Cross Hatched Area to be Poured w/ Superstructure. See Bill of Mat'l on Dwg. No. 13 (Typ.)

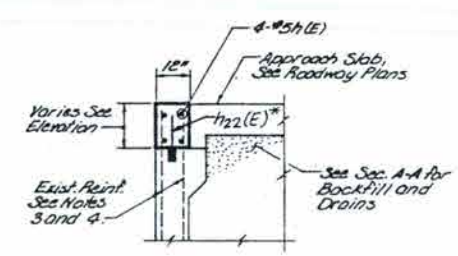



SECTION C-C

** #6v5 WHERE NEW BRG. SEAT SITS ON EXIST. FTG.; DRILL 1"φx9" DEEP HOLE & EPOXY GROUT IN PLACE. 8-#6n2 & 2-#6v5 REQ'D. COST OF DRILLING & GROUTING IS INCIDENTAL TO REINF. BARS. SEE SPECIAL PROVISIONS.




SECTION A-A




SECTION B-B

**ESCA CONSULTANTS, INC.**

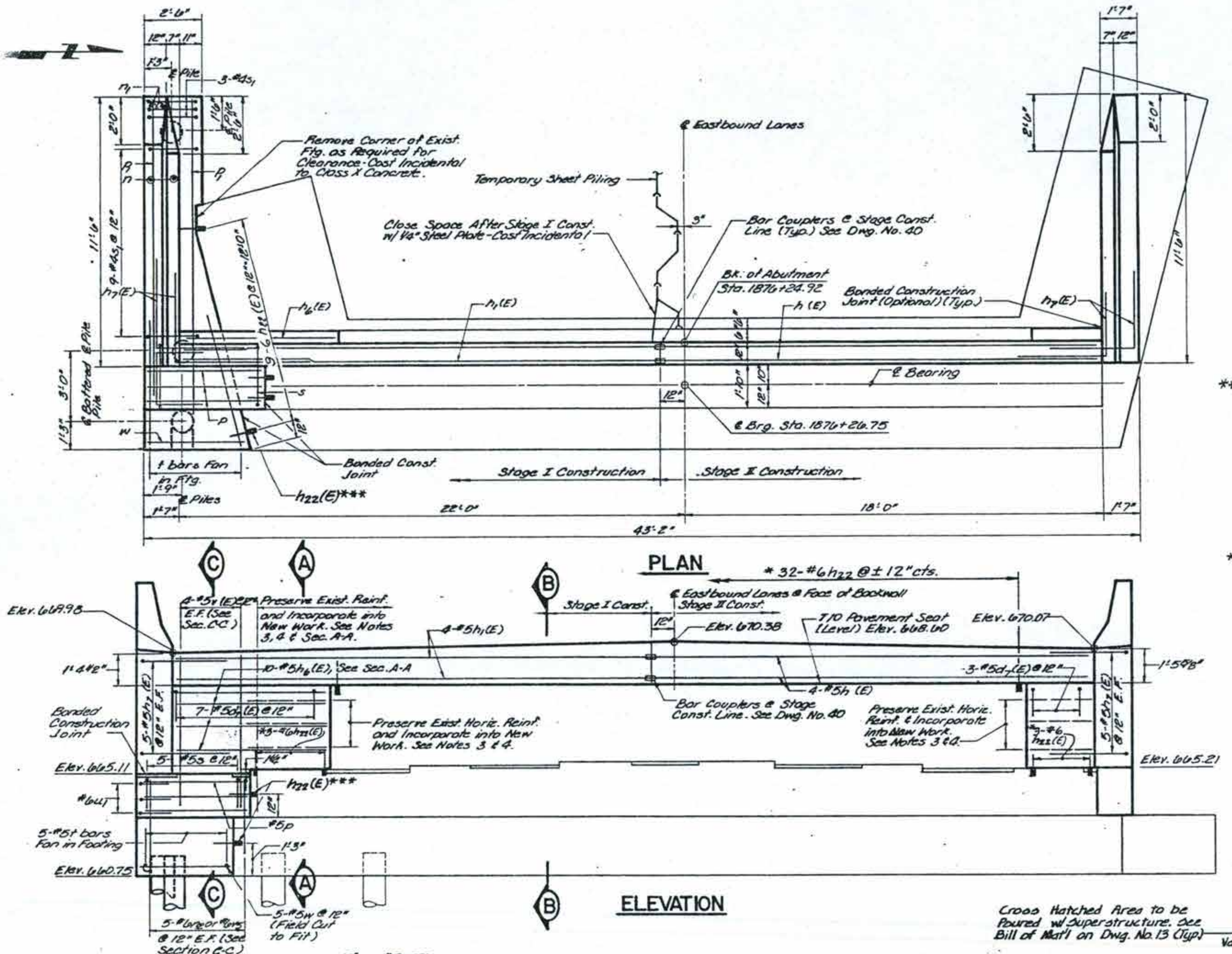
| | | |
|---|---|---|
| DESIGNED BY: | JRF | 1-90 |
| DRAWN BY: | CJG | 1-90 |
| CHECKED BY: | RDP | 1-90 |
| APPROVED BY: | RDP | 1-90 |

EAST ABUTMENT
EASTBOUND LANES
FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB)BR
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | ✻ | Vermilion | 165 | 116 |
| STA | | TO STA | | |
| FED ROAD DIST NO. | ILLINOIS | PROJECT | | |

✻(92-11VB)BR

Dwg No. 27 of 41




## NOTES

1. SPACE REINFORCEMENT IN CAP TO MISS ANCHOR BOLTS.
2. REINFORCEMENT BARS DESIGNATED (E) SHALL BE EPOXY COATED.
3. EXISTING REINFORCEMENT EXTENDING INTO REMOVAL AREAS SHALL BE CLEANED, STRAIGHTENED OR BENT, REALIGNED AS REQUIRED, AND INCORPORATED INTO NEW CONSTRUCTION. COST INCIDENTAL.
4. CUT OFF EXCESS LENGTH OF EXISTING REINFORCEMENT BARS TO PROVIDE 1-1/2" CLR. COVER AS DIRECTED BY THE ENGINEER.
5. SEE DWG. NO. 30 FOR BAR BENDING DETAILS AND WINGWALL DETAILS.
6. All reinforcement bars on this sheet Epoxy Coated.

***#6 $h_{22}$(E) bars. Epoxy Grout in 1"φ x 9" min. drilled holes. Use a grout approved by the Department or epoxy grout in accordance with BSP-11. The method of grout application shall be approved by the engineer.

* Epoxy Grouted #6 bars in 1"φ x 9" min. drilled hole. See Special Provisions.

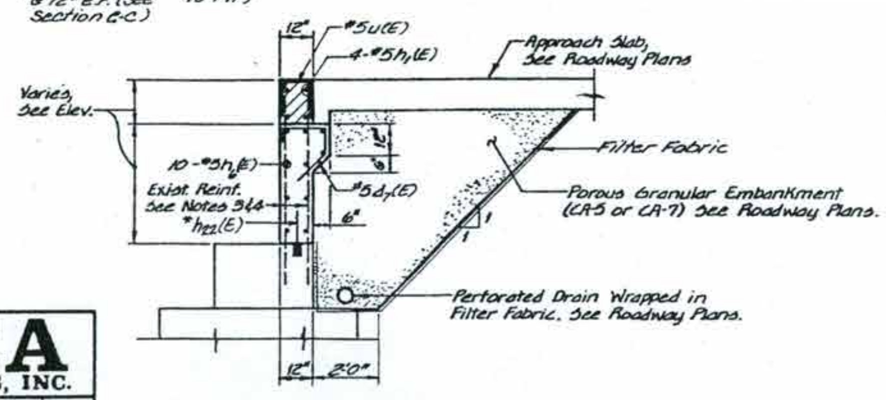
## PILE DATA

Type: Concrete
Capacity: 25 Tons
No. Req'd.: (2 Plus 1 Test)
Est. Length: 28'

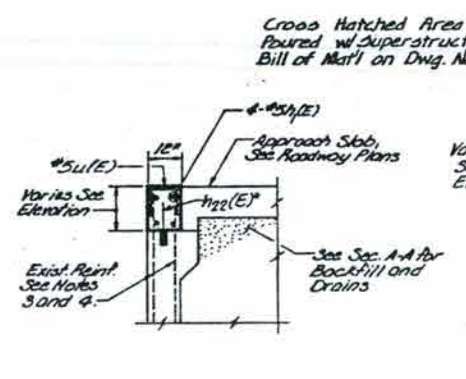
## BILL OF MATERIAL

| BAR | NO. | SIZE | LENGTH | SHAPE |
|---|---|---|---|---|
| $d_1$(E) | 10 | #5 | 4'-0" | |
| | | | | |
| | | | | |
| $h_6$(E) | 10 | #5 | 6'-0" | |
| $h_7$(E) | 20 | #5 | 8'-0" | |
| $h_8$(E) | 16 | #4 | 11'-3" | |
| $h_9$(E) | 16 | #4 | 11'-2" | |
| $h_{10}$(E) | 10 | #4 | 11'-3" | |
| $h_{11}$(E) | 2 | #4 | 11'-2" | |
| $h_1$(E) | 4 | #5 | 20'-10" | |
| h (E) | 4 | #5 | 18'-10" | |
| $h_{22}$(E) | 51 | #6 | 2'-0" | |
| | | | | |
| n(E) | 9 | #6 | 13'-10" | |
| $n_1$(E) | 6 | #6 | 7'-8" | |
| $n_2$(E) | 8 | #6 | 4'-2" | |
| | | | | |
| | | | | |
| p(E) | 8 | #5 | 5'-0" | |
| $p_1$(E) | 6 | #7 | 14'-0" | |
| | | | | |
| | | | | |
| | | | | |
| s(E) | 5 | #5 | 6'-7" | |
| $s_1$(E) | 12 | #4 | 9'-5" | |
| | | | | |
| | | | | |
| t(E) | 5 | #5 | 5'-2" | |
| | | | | |
| u(E) | 40 | #5 | 1'-11" | |
| $u_1$(E) | 3 | #6 | 7'-6" | |
| | | | | |
| | | | | |
| v (E) | 8 | #5 | 6'-8" | |
| $v_1$ (E) | 18 | #6 | 7'-5" | |
| $v_2$ (E) | 24 | #6 | 7'-3" | |
| $v_3$ (E) | 6 | #6 | 7'-3" | |
| $v_4$ (E) | 24 | #6 | 6'-0" | |
| $v_5$ (E) | 2 | #6 | 3'-6" | |
| | | | | |
| | | | | |
| w(E) | 5 | #5 | 5'-0" | |
| | | | | |

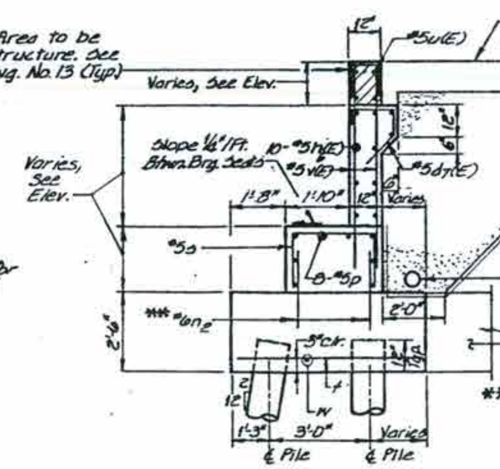
| ITEM | UNIT | QUANTITY |
|---|---|---|
| Class X Concrete | Cu. Yds. | 18.8 |
| | | |
| Reinf. Bars (Epoxy Coated) | Lbs. | 2520 |
| | | |
| Test Pile Concrete | Each | 1 |
| Concrete Piles | Lin. Ft. | 56 |
| | | |
| Structure Excavation | Cu. Yds. | 23.0 |
| | | |




SECTION A-A




SECTION B-B




** #6$v_5$ WHERE NEW BRG. SEAT SITS ON EXIST. FTG.; DRILL 1"φx 9" DEEP HOLE & EPOXY GROUT IN PLACE. 8-#6$n_2$ & 2-#6$v_5$ REQ'D. COST OF DRILLING & GROUTING IS INCIDENTAL TO REINF. BARS. SEE SPECIAL PROVISIONS.

SECTION C-C

**ESCA**
**CONSULTANTS, INC.**

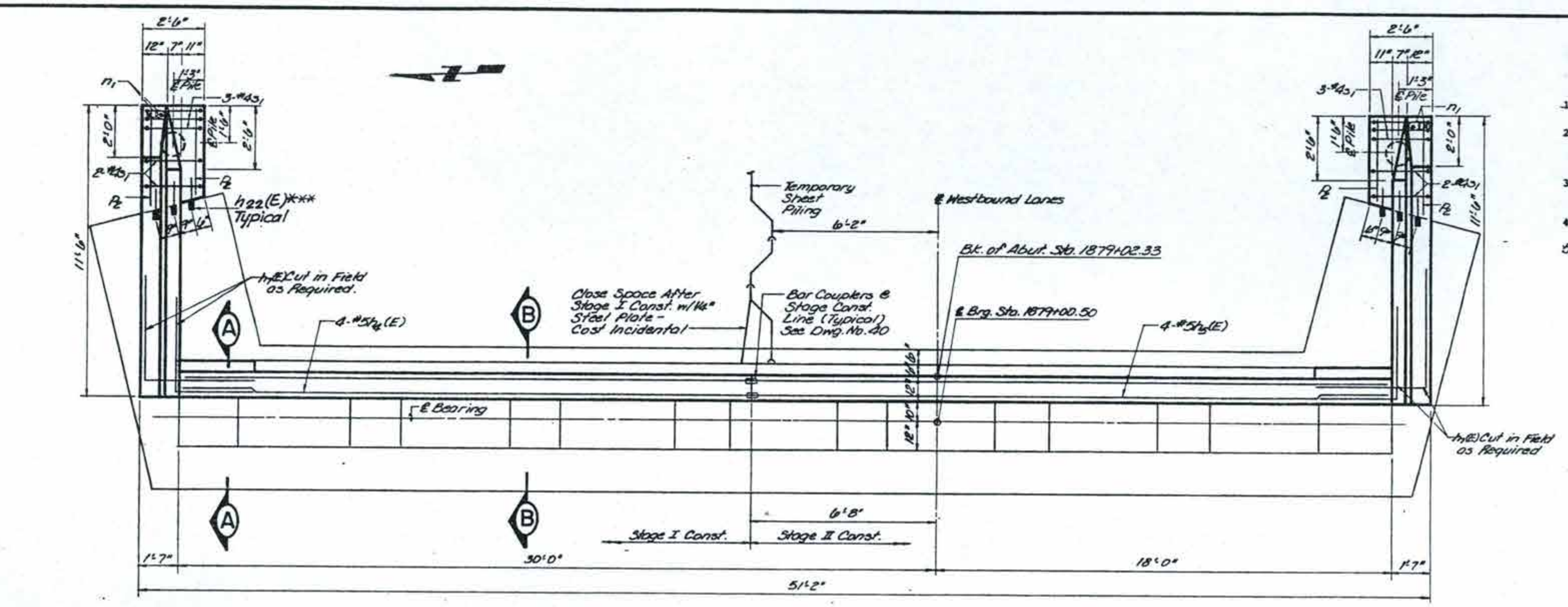
| | | |
|---|---|---|
| DESIGNED BY: | JAF | 1-90 |
| DRAWN BY: | CJG | 1-90 |
| CHECKED BY: | RDP | 1-90 |
| APPROVED BY: | RDP | 1-90 |

WEST ABUTMENT
EASTBOUND LANES
FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB)BR
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)

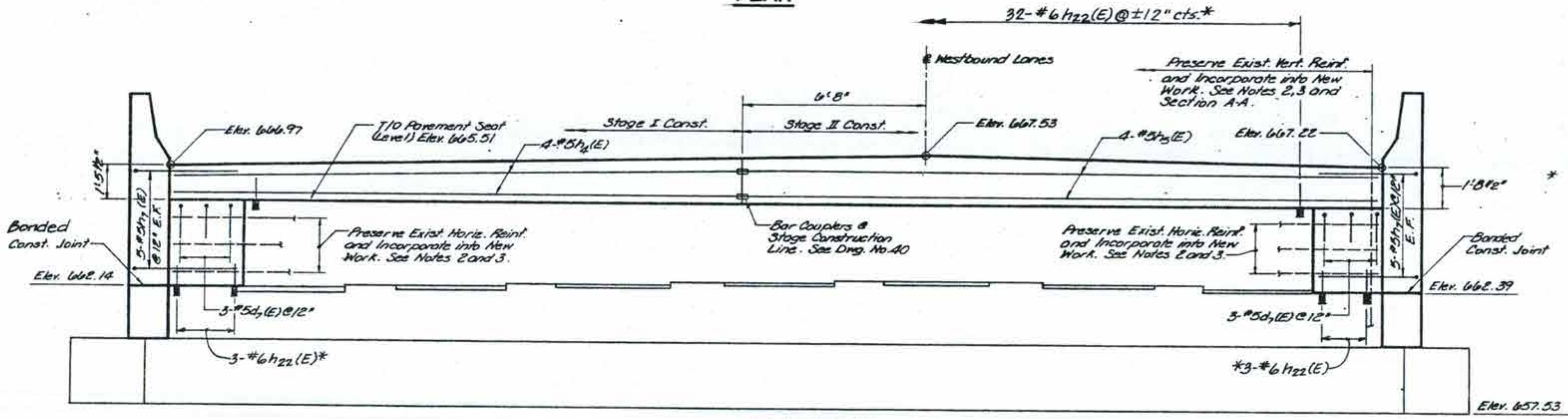
| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | ✻ | Vermilion | 165 | 117 |
| STA | | TO STA | | |
| FED ROAD DIST NO. | ILLINOIS | PROJECT | | |

Dwg. No. 28 of 41

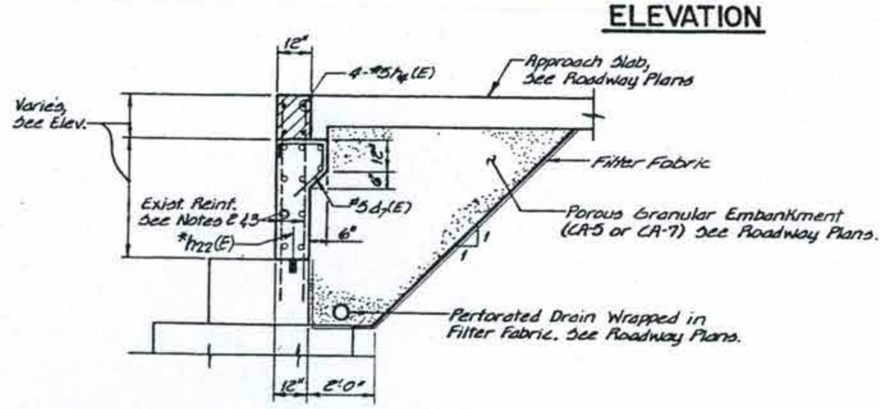
✻(92-11VB)BR



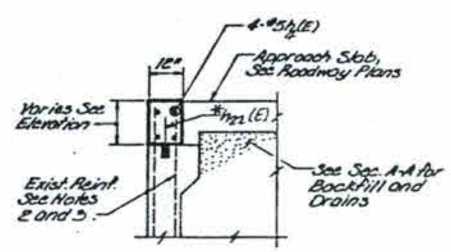

## PLAN




## ELEVATION




## SECTION A-A




## SECTION B-B

## NOTES

1. REINFORCEMENT BARS DESIGNATED (E) SHALL BE EPOXY COATED.
2. EXISTING REINFORCEMENT EXTENDING INTO REMOVAL AREAS SHALL BE CLEANED, STRAIGHTENED OR BENT, REALIGNED AS REQUIRED, AND INCORPORATED INTO NEW CONSTRUCTION. COST INCIDENTAL.
3. CUT OFF EXCESS LENGTH OF EXISTING REINFORCEMENT BARS TO PROVIDE 1-1/2" CLR. COVER AS DIRECTED BY THE ENGINEER.
4. SEE DWG. NO. 30 FOR BAR BENDING DETAILS AND WINGWALL DETAILS.
5. All reinforcement bars on this sheet Epoxy Coated.

***#6 $h_{22}$(E) bars. Epoxy Grout in 1"φ x 9" min. drilled holes. Use a grout approved by the Department or epoxy grout in accordance with BSP-11. The method of grout application shall be approved by the engineer.

* Epoxy Grouted #6 bars in 1"φ x 9" min. holes. See Special Provisions.

## BILL OF MATERIAL

| BAR | NO. | SIZE | LENGTH | SHAPE |
|---|---|---|---|---|
| $d_7$(E) | 6 | #5 | 4'-0" | |
| $h_4$(E) | 4 | #5 | 22'-6" | |
| $h_5$(E) | 4 | #5 | 25'-2" | |
| $h_7$(E) | 20 | #5 | 8'-0" | |
| $h_8$(E) | 16 | #4 | 11'-3" | |
| $h_9$(E) | 16 | #4 | 11'-2" | |
| $h_{10}$(E) | 10 | #4 | 11'-3" | |
| $h_{11}$(E) | 2 | #4 | 11'-2" | |
| $h_{22}$(E) | 44 | #6 | 2'-0" | |
| $n$(E) | 2 | #6 | 13'-10" | |
| $n_1$(E) | 12 | #6 | 7'-8" | |
| $p_2$(E) | 12 | #7 | 3'-6" | |
| $s_1$(E) | 10 | #4 | 9'-5" | |
| $v_1$(E) | 18 | #6 | 7'-5" | |
| $v_2$(E) | 24 | #6 | 7'-3" | |
| $v_3$(E) | 6 | #6 | 7'-3" | |
| $v_4$(E) | 32 | #6 | 6'-0" | |

| ITEM | UNIT | QUANTITY |
|---|---|---|
| Class X Concrete | Cu. Yds. | 15.3 |
| Reinf. Bars (Epoxy Coated) | Lbs. | 2000 |
| Structure Excavation | Cu. Yds. | 15.7 |
| Concrete Piles | Lin. Ft. | 56 |

## PILE DATA

Type: Concrete
Capacity: 25 Tons
No. Req'd.: 2
Est. Length: 28

**ESCA CONSULTANTS, INC.**

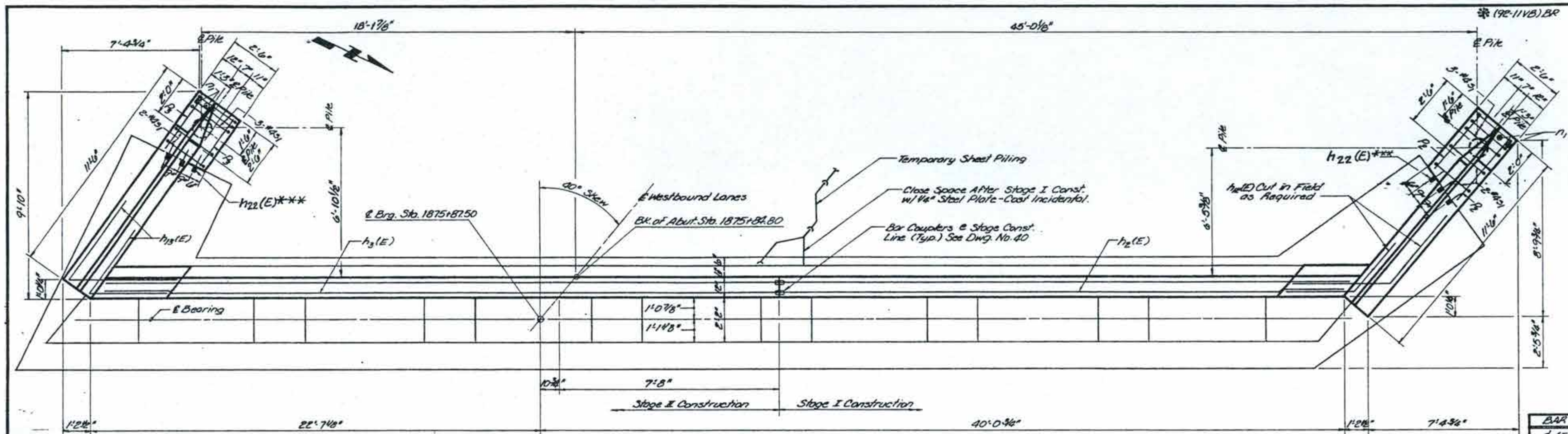
| | | |
|---|---|---|
| DESIGNED BY: | JRF | 1-90 |
| DRAWN BY: | CJG | 1-90 |
| CHECKED BY: | RDP | 1-90 |
| APPROVED BY: | RDP | 1-90 |

**EAST ABUTMENT**
**WESTBOUND LANES**
**FAI 74 OVER L STREET**
**FAI RTE. 74 SECTION (92-11VB)BR**
**VERMILION COUNTY**
**STATION 1877+01.73**
**STRUCTURE NO. 092-0008(EB)**
**STRUCTURE NO. 092-0009(WB)**

✱ (92-11VB) BR

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | ✱ | Vermilion | 165 | 118 |
| STA | | TO STA | | |
| FED ROAD DIST NO. | | ILLINOIS | PROJECT | |

Dwg. No. 29 of 41

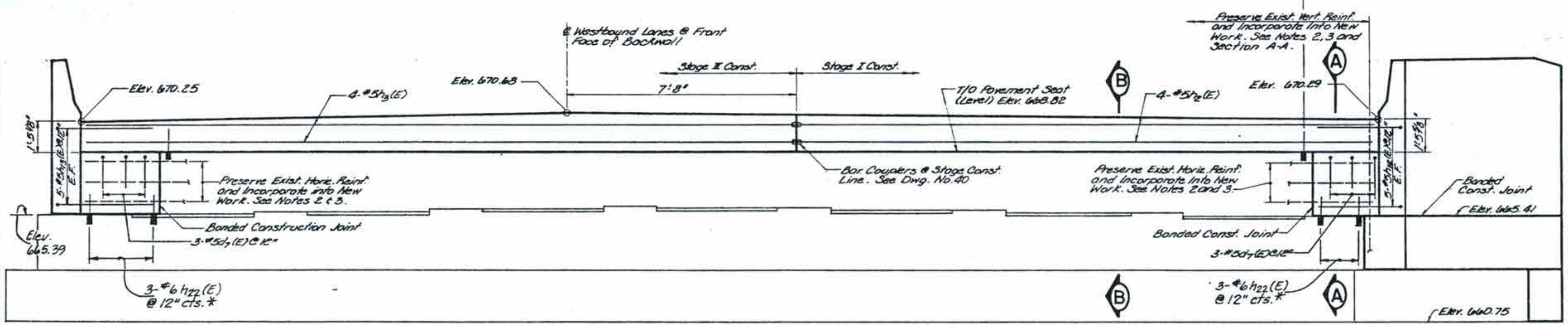



✱✱✱ #6 h22(E) bars. Epoxy Grout in 1" ⌀ x 9" min. drilled holes. Use a grout approved by the Department or epoxy grout in accordance with BSP-11. The method of grout application shall be approved by the engineer.

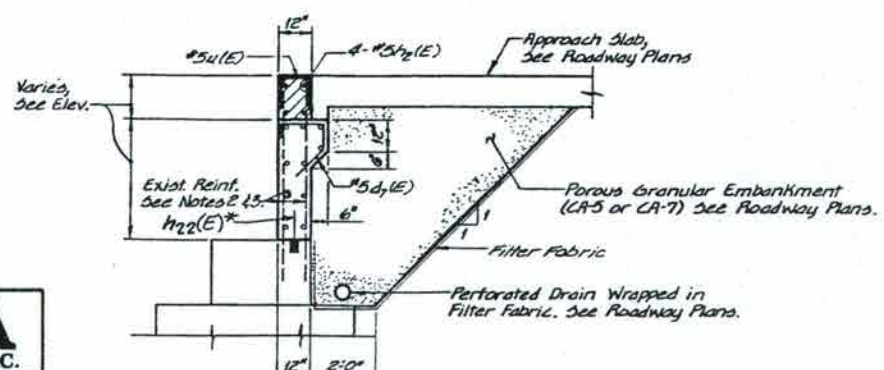
✱ Epoxy Grouted #6 bars in 1" ⌀ x 9" min. drilled holes. See Special Provisions

PLAN

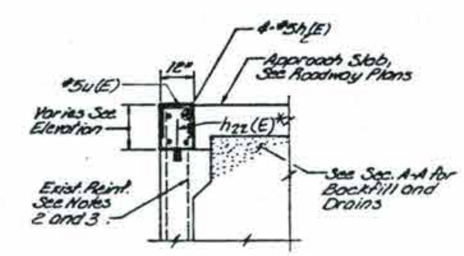
32-#6 h22(E) @ ± 12" cts.✱




ELEVATION




SECTION A-A




SECTION B-B

## BILL OF MATERIAL

| BAR | NO. | SIZE | LENGTH | SHAPE |
|---|---|---|---|---|
| $d_7$(E) | 6 | #5 | 4'-0" | |
| $h_2$(E) | 4 | #5 | 27'-3" | |
| $h_3$(E) | 4 | #5 | 34'-2" | |
| $h_{12}$(E) | 10 | #5 | 8'-6" | |
| $h_{13}$(E) | 10 | #5 | 8'-6" | |
| $h_8$(E) | 16 | #4 | 11'-3" | |
| $h_9$(E) | 16 | #4 | 11'-2" | |
| $h_{10}$(E) | 10 | #4 | 11'-3" | |
| $h_{11}$(E) | 2 | #4 | 11'-2" | |
| $h_{22}$(E) | 44 | #6 | 2'-0" | |
| | | | | |
| n(E) | 2 | #6 | 13'-10" | |
| $n_1$(E) | 12 | #6 | 7'-8" | |
| | | | | |
| | | | | |
| $p_2$(E) | 6 | #7 | 3'-6" | |
| $p_3$(E) | 6 | #7 | 3'-0" | |
| | | | | |
| | | | | |
| $s_1$(E) | 10 | #4 | 9'-5" | |
| u(E) | 63 | #5 | 1'-11" | |
| | | | | |
| $v_1$(E) | 18 | #6 | 7'-5" | |
| $v_2$(E) | 24 | #6 | 7'-3" | |
| $v_3$(E) | 6 | #6 | 7'-3" | |
| $v_4$(E) | 32 | #6 | 6'-0" | |

| ITEM | UNIT | QUANTITY |
|---|---|---|
| Class X Concrete | Cu. Yds. | 15.4 |
| Reinf. Bars (Epoxy Coated) | Lbs. | 2260 |
| Structure Excavation | Cu. Yds. | 7.0 |
| Concrete Piles | Lin. Ft. | 56 |

## NOTES

1. REINFORCEMENT BARS DESIGNATED (E) SHALL BE EPOXY COATED.
2. EXISTING REINFORCEMENT EXTENDING INTO REMOVAL AREAS SHALL BE CLEANED, STRAIGHTENED OR BENT, REALIGNED AS REQUIRED, AND INCORPORATED INTO NEW CONSTRUCTION. COST INCIDENTAL.
3. CUT OFF EXCESS LENGTH OF EXISTING REINFORCEMENT BARS TO PROVIDE 1-1/2" CLR. COVER AS DIRECTED BY THE ENGINEER.
4. SEE DWG. NO. 30 FOR BAR BENDING DETAILS AND WINGWALL DETAILS.
5. All reinforcement bars on this sheet Epoxy Coated.

## PILE DATA

Type: Concrete
Capacity: 25 Tons
No. Req'd.: 2
Est. Length: 28'

**ESCA CONSULTANTS, INC.**

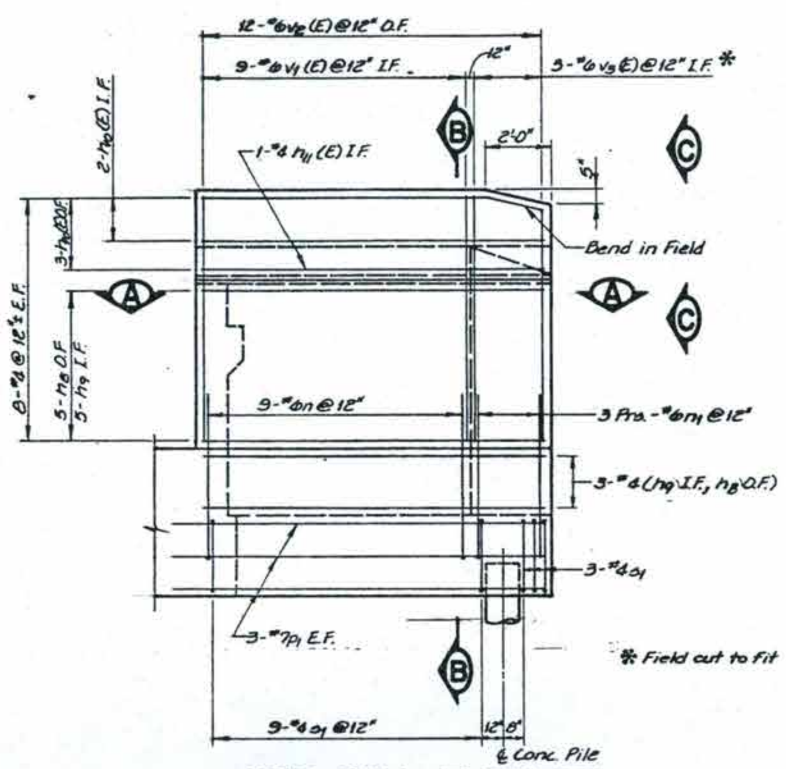
| | | |
|---|---|---|
| DESIGNED BY: | JAF | 1-90 |
| DRAWN BY: | CJG | 1-90 |
| CHECKED BY: | RDP | 1-90 |
| APPROVED BY: | RDP | 1-90 |

## WEST ABUTMENT
## WESTBOUND LANES

FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB)BR
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)

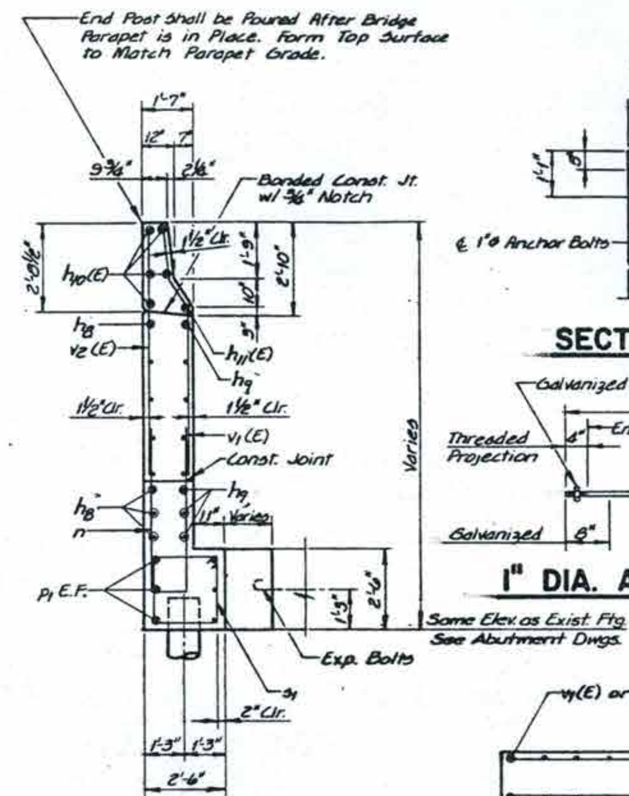
**(92-11VB)BR

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | ** | Vermilion | 165 | 119 |
| STA. | | TO STA. | | |
| FED. ROAD DIST. NO. | | ILLINOIS | PROJECT | |
| | | Dwg. No. 30 of 41 | | |

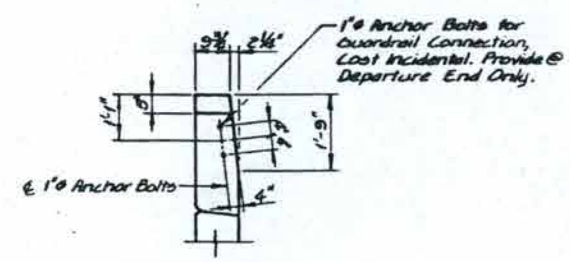



## WING WALL ELEVATION

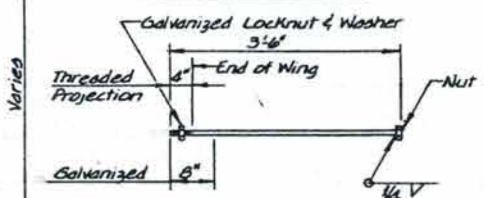
(South Wings EB Bridge)



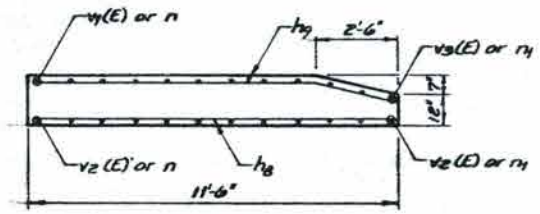

## SECTION B-B



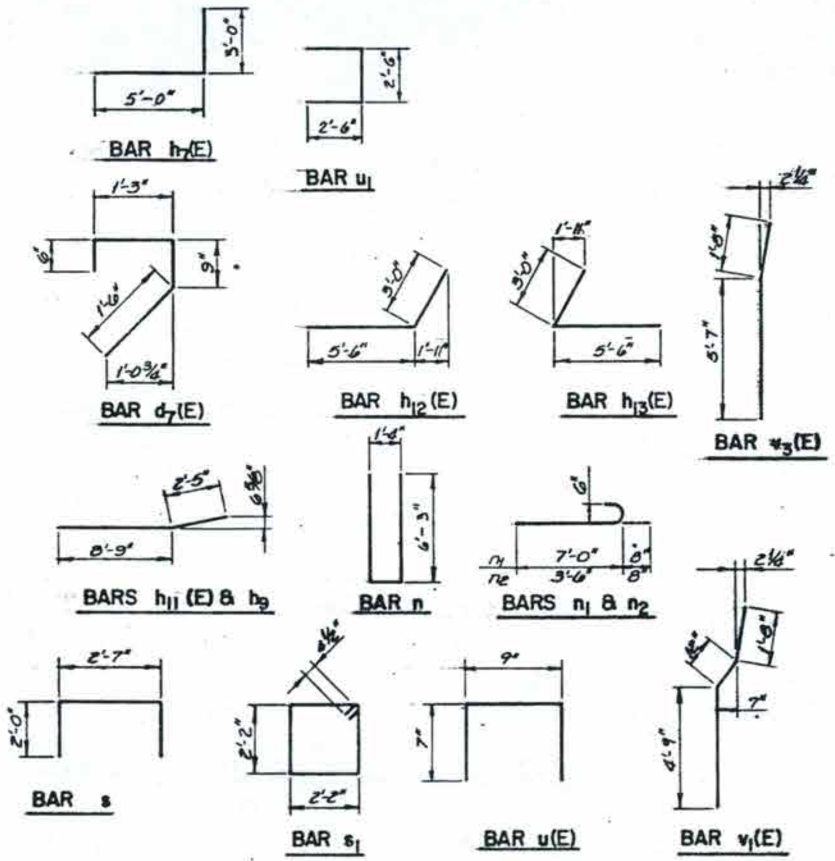

## SECTION C-C




## 1" DIA. ANCHOR BOLT

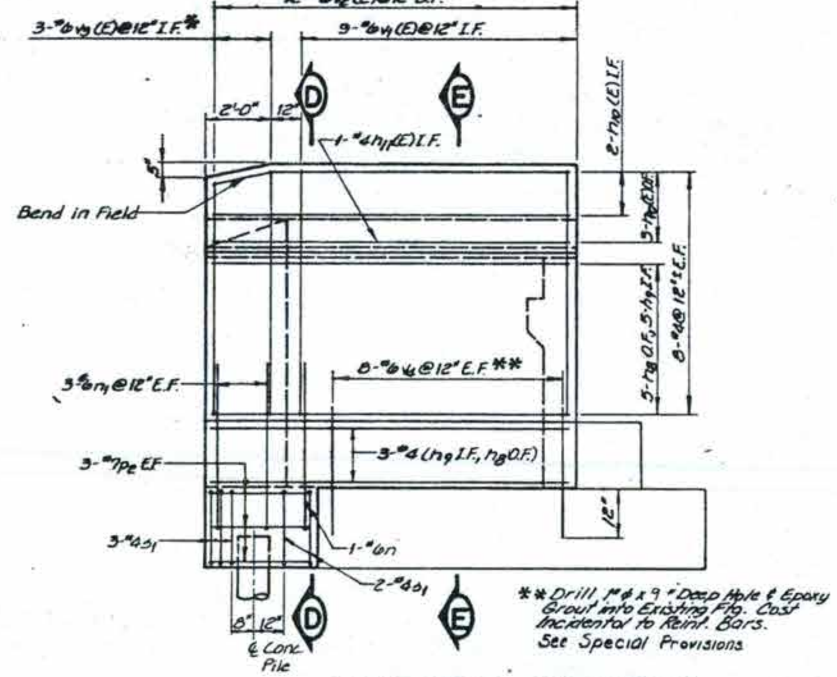



## SECTION A-A




## BAR BENDING DETAILS

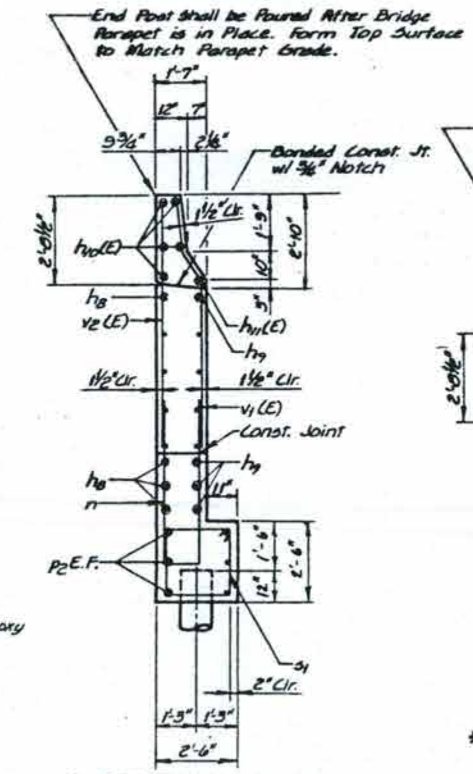
ALL BARS ON THIS SHEET ARE EPOXY COATED



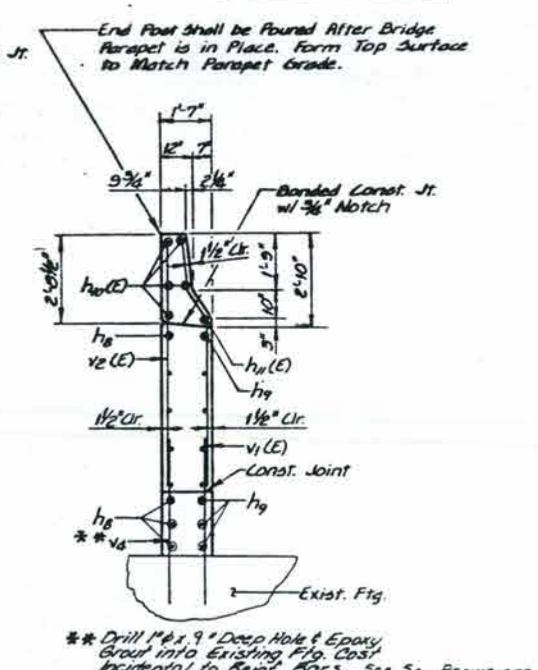

## WING WALL ELEVATION

(All Wings Except South Wings EB Bridge)

Note: EB Bridge W. Abut. N. Wing sits entirely on existing Ftg.; Use 12-#6v4 E.F. & omit #6n1, #6n, #7p2 & #4s1.




## SECTION D-D



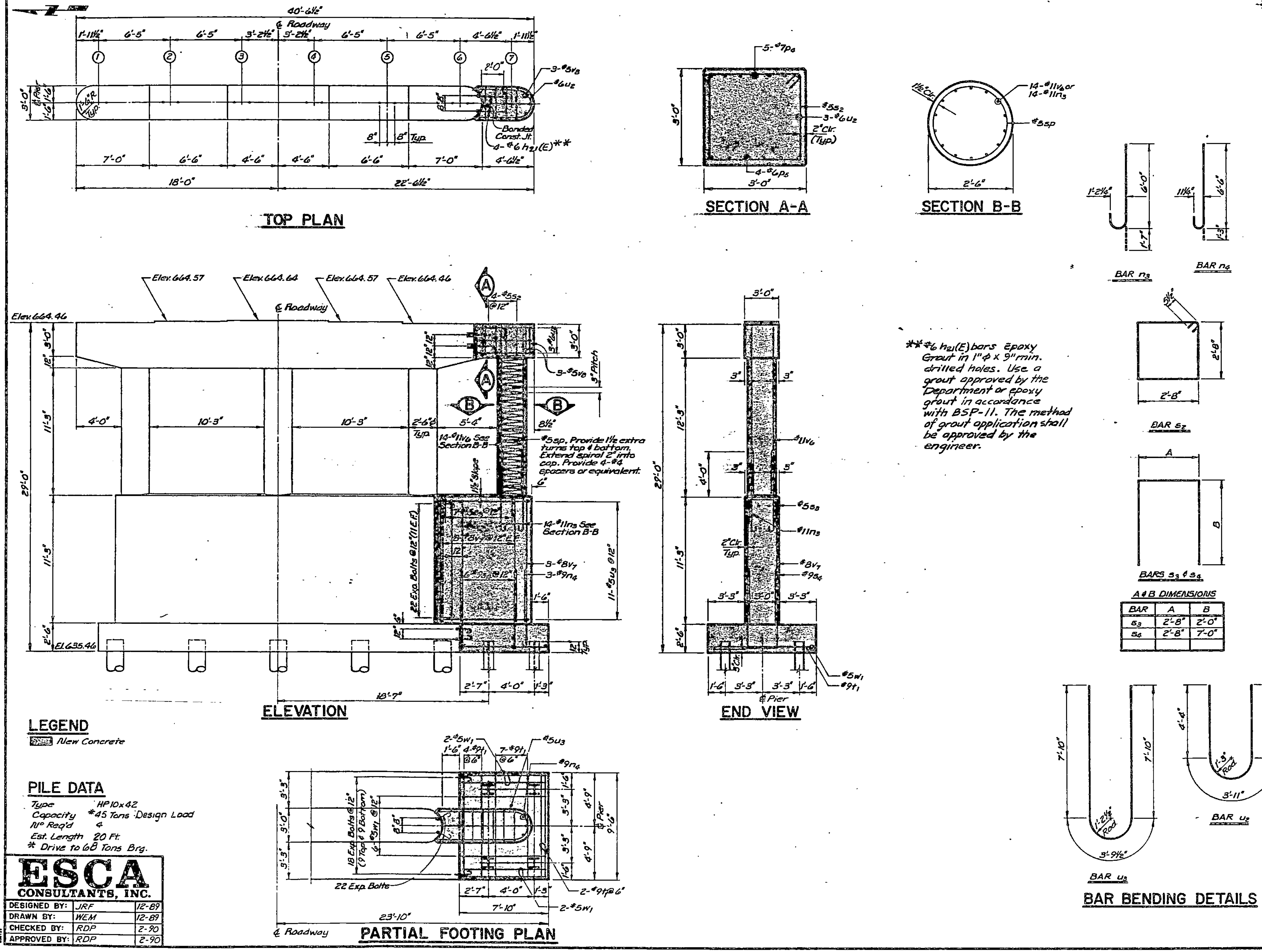

## SECTION E-E

**ESCA CONSULTANTS, INC.**

| | | |
|---|---|---|
| DESIGNED BY: | RDP | 2-90 |
| DRAWN BY: | GGB | 2-90 |
| CHECKED BY: | JRF | 2-90 |
| APPROVED BY: | RDP | 2-90 |

## ABUTMENT DETAILS

FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB) BR
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)




| A & B DIMENSIONS | | |
|---|---|---|
| BAR | A | B |
| $s_3$ | 2'-8" | 2'-0" |
| $s_4$ | 2'-8" | 7'-0" |

✱✱ #6 $h_{21}$(E) bars Epoxy Grout in 1"φ x 9" min. drilled holes. Use a grout approved by the Department or epoxy grout in accordance with BSP-11. The method of grout application shall be approved by the engineer.

## LEGEND

New Concrete

## PILE DATA

Type HP10x42
Capacity ✱45 Tons Design Load
No Req'd 4
Est. Length 20 Ft.
✱ Drive to 68 Tons Brg.

## NOTES

1. SPACE REINFORCEMENT IN CAP TO MISS ANCHOR BOLTS.
2. CHAMFER ALL CORNERS 3/4".

All reinforcement bars on this sheet Epoxy Coated.

## BILL OF MATERIAL

| BAR | No | SIZE | LENGTH | SHAPE |
|---|---|---|---|---|
| $n_3$(E) | 14 | #11 | 7'-7" | J |
| $n_4$(E) | 3 | #9 | 7'-9" | J |
| $p_4$(E) | 5 | #7 | 4'-6" | — |
| $p_5$(E) | 4 | #6 | 4'-6" | — |
| $h_{21}$(E) | 4 | #6 | 2'-9" | — |
| $s_2$(E) | 4 | #5 | 11'-7" | |
| $s_3$(E) | 7 | #5 | 6'-8" | |
| $s_4$(E) | 6 | #9 | 16'-8" | |
| ① sp(E) | 1 | #5 | 12'-3" | |
| $t_1$ | 13 | #9 | 9'-2" | — |
| $u_2$(E) | 3 | #6 | 12'-7" | |
| $u_3$(E) | 11 | #5 | 19'-5½" | |
| $v_6$(E) | 14 | #11 | 14'-9" | — |
| $v_7$(E) | 19 | #8 | 10'-9" | — |
| $v_8$(E) | 3 | #5 | 2'-8" | — |
| $w_1$ | 10 | #5 | 7'-6" | — |

| ITEM | UNIT | QUANTITY |
|---|---|---|
| Expansion Bolts, ¾"φ | Each | 44 |
| Structure Excavation | Cu. Yds. | 40.5 |
| Class X Concrete | Cu. Yds. | 20.3 |
| Steel Piles HP10x42 | Lin. Ft. | 80 |
| ② Reinforcement Bars (Epoxy Coated) | Lbs. | 4000 |

① Length = Total Height of Spiral.
② Quantity includes total length of bar in spiral (359'-8") & the 4 spacers.
Reinforcement bars designated (E) shall be Epoxy Coated.

**ESCA CONSULTANTS, INC.**

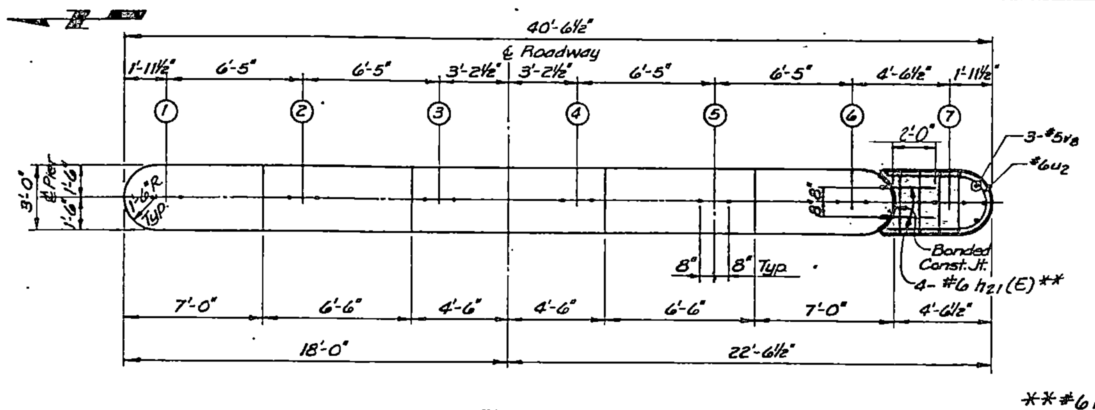
| | | |
|---|---|---|
| DESIGNED BY: | JRF | 12-89 |
| DRAWN BY: | WEM | 12-89 |
| CHECKED BY: | RDP | 2-90 |
| APPROVED BY: | RDP | 2-90 |

**PIER 1(EB)**
FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB)I
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)

❋ (92-11VB)BR

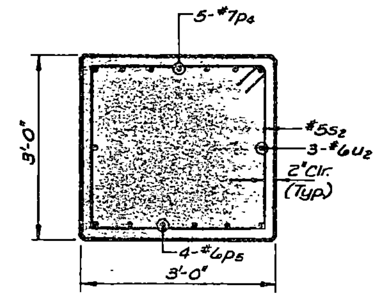
| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | ❋ | Vermilion | 165 | 121 |
| STA | | TO STA | | |
| FED ROAD DIST NO. | ILLINOIS | PROJECT | | |

Dwg. No. 32 of 41

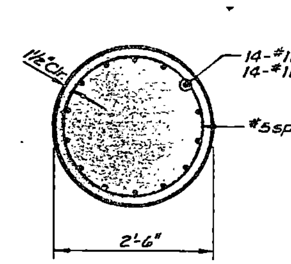


TOP PLAN

**#6 $h_{21}$(E) bars. Epoxy Grout in 1"φ x 9" min. drilled holes. Use a grout approved by the Department or epoxy grout in accordance with BSP-11. The method of grout application shall be approved by the engineer.



SECTION A-A



SECTION B-B

Note: All reinforcement bars on this sheet Epoxy Coated.

## NOTES

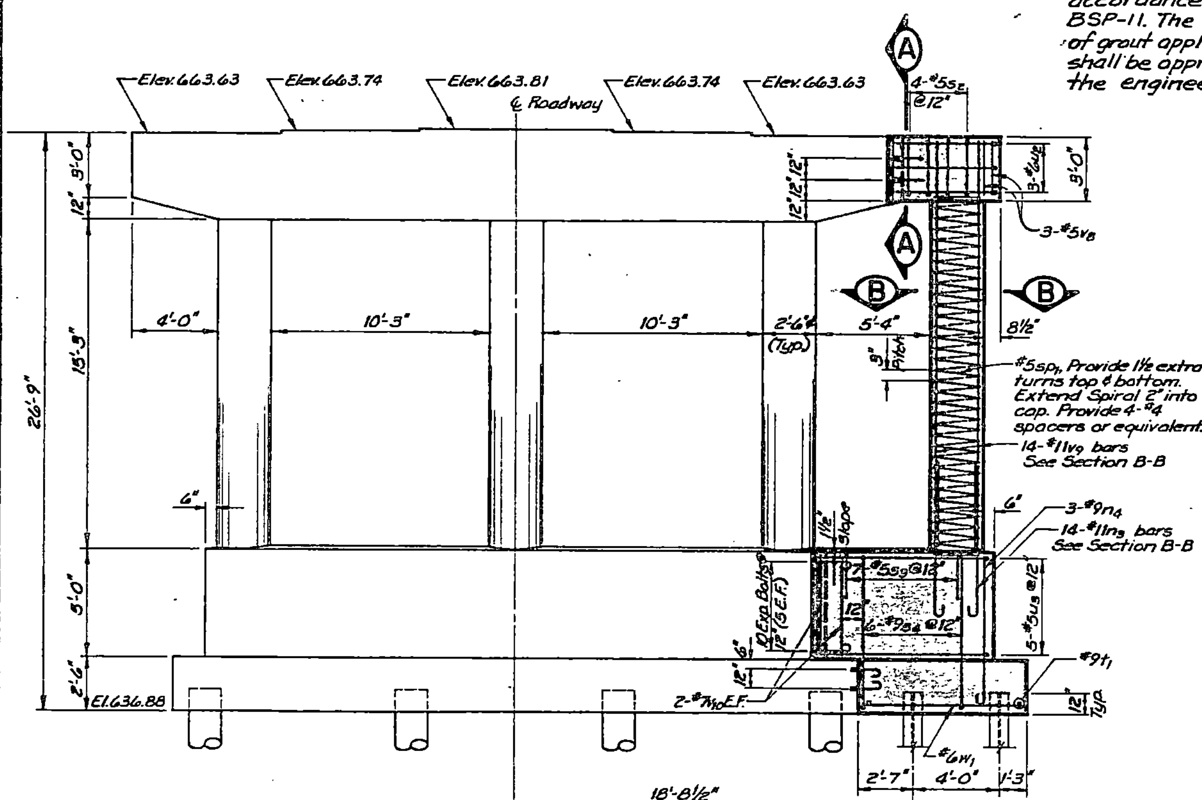
1. SEE DWG. NO. 31 FOR BAR BENDING DETAILS.
2. SPACE REINFORCEMENT IN CAP TO MISS ANCHOR BOLTS.
3. CHAMFER ALL CORNERS 3/4".
4. THE INFORMATION SHOWN FOR THE TEMPORARY SHEET PILING IS ESTIMATED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A DESIGN AND COMPUTATIONS OF THE TEMPORARY SHEET PILING AND ASSOCIATED MEMBERS, IF REQUIRED, SUBJECT TO THE APPROVAL OF THE ENGINEER.

## BILL OF MATERIAL

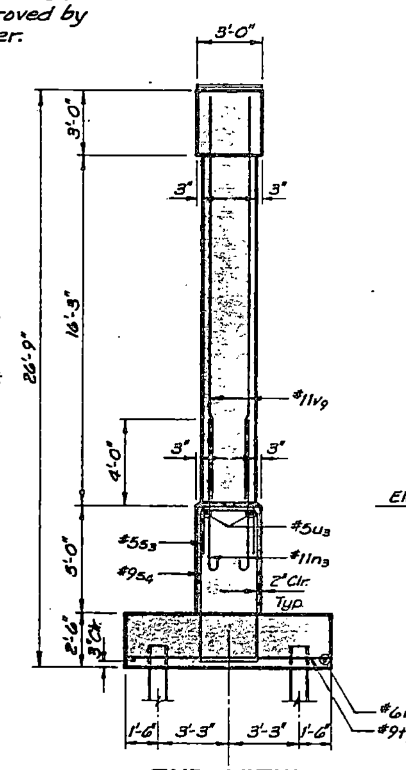
| BAR | N° | SIZE | LENGTH | SHAPE |
|---|---|---|---|---|
| $n_3$(E) | 14 | #11 | 7'-7" | J |
| $n_4$(E) | 3 | #9 | 7'-9" | J |
| $p_4$(E) | 5 | #7 | 4'-6" | — |
| $p_5$(E) | 4 | #6 | 4'-6" | — |
| $h_{21}$(E) | 4 | #6 | 2'-9" | — |
| $s_2$(E) | 4 | #5 | 11'-7" | |
| $s_3$(E) | 7 | #5 | 6'-8" | |
| $s_4$(E) | 6 | #9 | 16'-8" | |
| ① $sp_1$(E) | 1 | #5 | 16'-3" | |
| $t_1$ | 13 | #9 | 9'-2" | — |
| $u_2$(E) | 3 | #6 | 12'-7" | |
| $u_3$(E) | 5 | #5 | 19'-5½" | |
| $v_8$(E) | 3 | #5 | 2'-8" | — |
| $v_9$(E) | 14 | #11 | 18'-9" | — |
| $v_{10}$(E) | 4 | #7 | 4'-8" | — |
| $w_1$ | 10 | #5 | 7'-6" | — |

| ITEM | UNIT | QUANTITY |
|---|---|---|
| Expansion Bolts, 3/4"φ | Each | 28 |
| Structure Excavation | Cu. Yds. | 33.5 |
| Class X Concrete | Cu. Yds. | 15.7 |
| Steel Piles HP10x42 | Lin. Ft. | 60 |
| ② Reinforcement Bars (Epoxy Coated) | Lbs. | 3790 |
| Test Pile Steel HP10x42 | Each | 1 |
| Temporary Sheet Piling | Sq. Ft. | 352 |

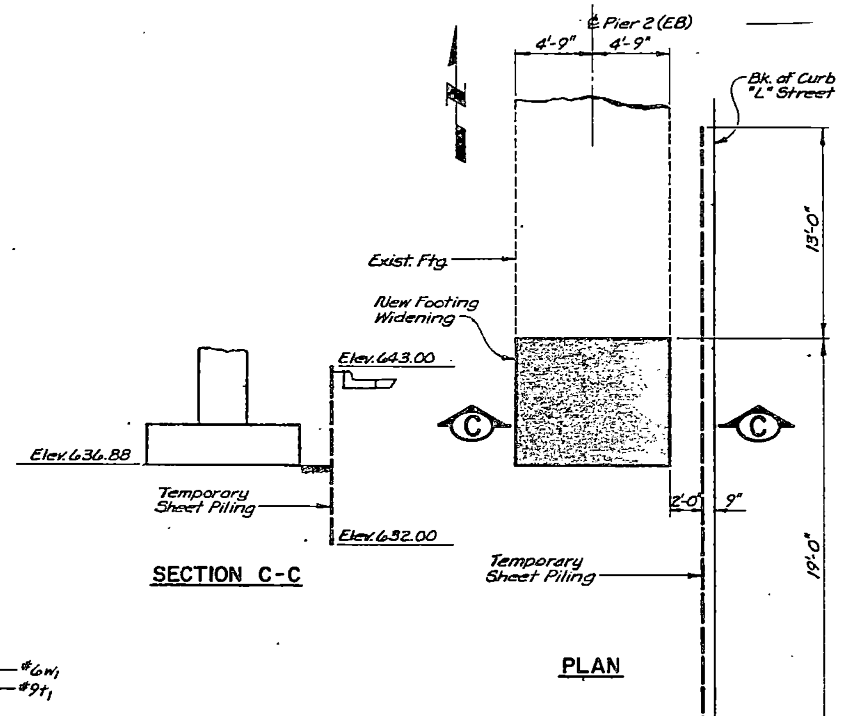
① Length = Total Height of Spiral.
② Quantity includes total length of bar in spiral (470'-4") & the 4 spacers.



ELEVATION



END VIEW



SECTION C-C

PLAN

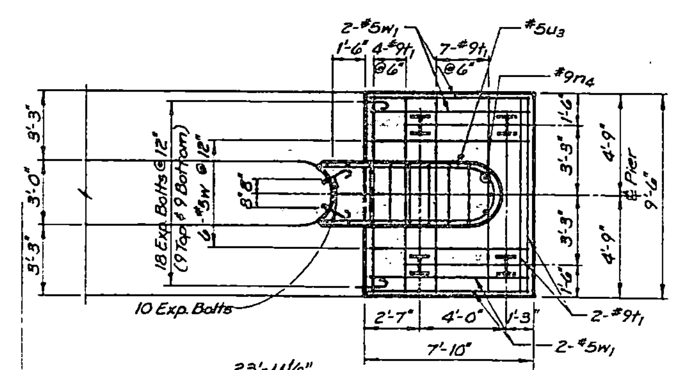
SHEET PILING REQUIRED FOR PIER WIDENING

LEGEND

New Concrete

PILE DATA

Type HP10x42
Capacity *45 Tons Design Load
N° Req'd 3 plus 1 Test
Est. Length 20 Ft.
* Drive to 68 Tons Bearing



PARTIAL FOOTING PLAN

**ESCA CONSULTANTS, INC.**

| | | |
|---|---|---|
| DESIGNED BY: | JRF | 12-89 |
| DRAWN BY: | WEM | 12-89 |
| CHECKED BY: | RDP | 2-90 |
| APPROVED BY: | RDP | 2-90 |

PIER 2(EB)
FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB)I
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)

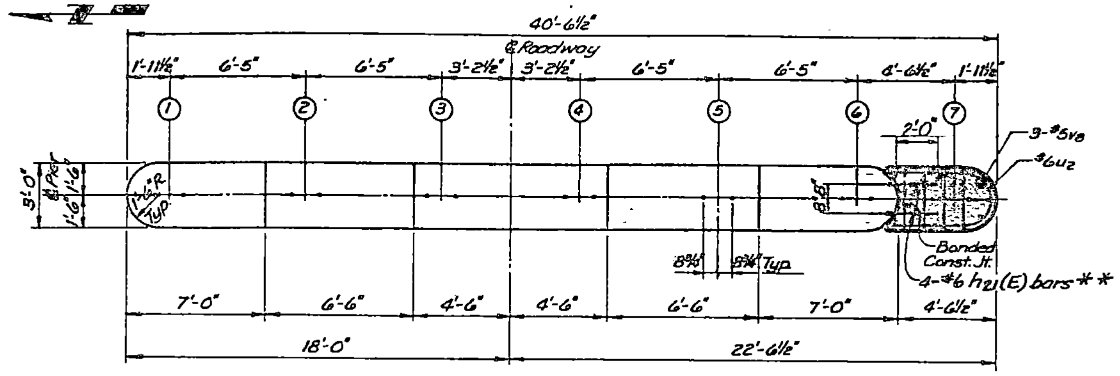
| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | ✻ | Vermilion | 165 | 122 |

STA TO STA

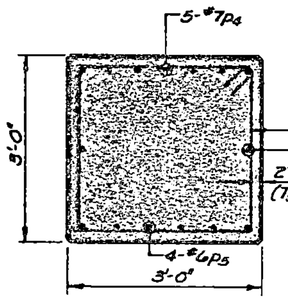
FED. ROAD DIST. NO. ILLINOIS PROJECT

Dwg. No. 33 of 41

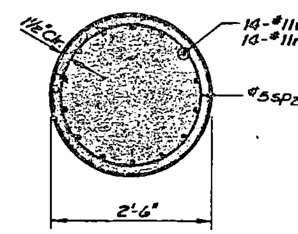
✻ (92-11VB)BR



TOP PLAN



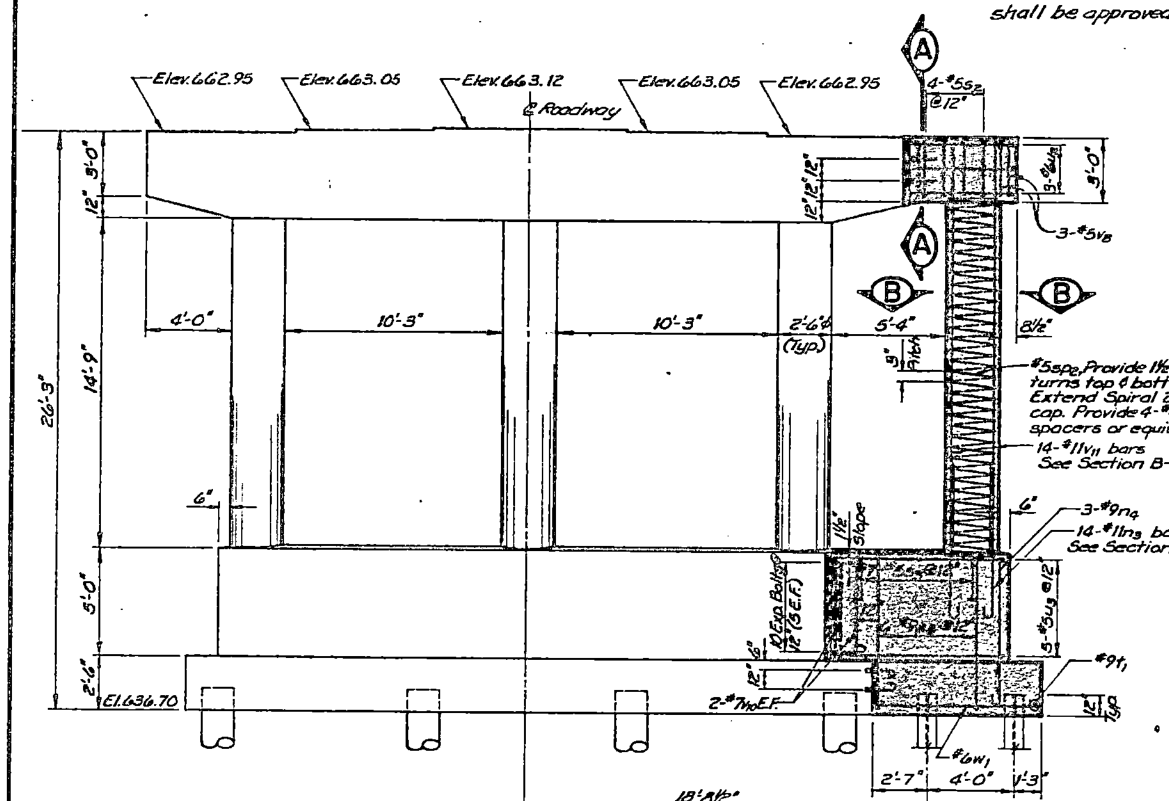
SECTION A-A



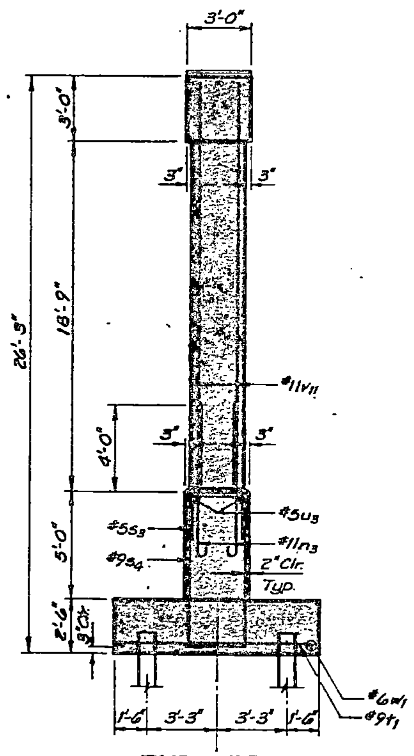
SECTION B-B

~~Note: All reinforcement bars on this sheet Epoxy Coated.~~

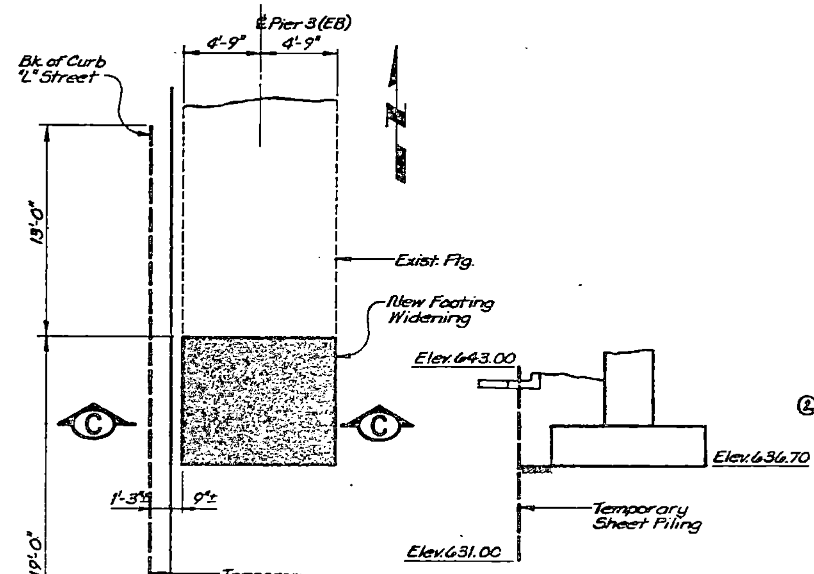
** #6 $h_{21}$(E) bars. Epoxy Grout in 1"φ X 9" min. drilled holes. Use a grout approved by the Department or epoxy grout in accordance with BSP-11. The method of grout application shall be approved by the engineer.



ELEVATION



END VIEW



PLAN

SECTION C-C

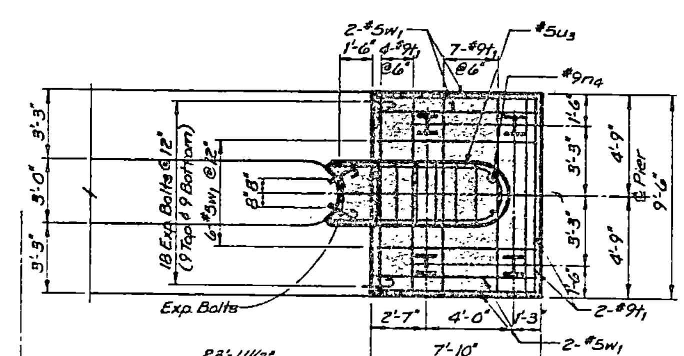
SHEET PILING REQUIRED FOR PIER WIDENING

LEGEND

New Concrete

PILE DATA

Type HP10x42
Capacity *45 Tons Design Load
No. Req'd 4
Est. Length 20 Ft.
* Drive to 68 Ton Bearing



PARTIAL FOOTING PLAN

## NOTES

1. SEE DWG. NO. 31 FOR BAR BENDING DETAILS.
2. SPACE REINFORCEMENT IN CAP TO MISS ANCHOR BOLTS.
3. CHAMFER ALL CORNERS 3/4".
4. THE INFORMATION SHOWN FOR THE TEMPORARY SHEET PILING IS ESTIMATED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A DESIGN AND COMPUTATIONS OF THE TEMPORARY SHEET PILING AND ASSOCIATED MEMBERS, IF REQUIRED, SUBJECT TO THE APPROVAL OF THE ENGINEER.

## BILL OF MATERIAL

| | BAR | No. | SIZE | LENGTH | SHAPE |
|---|---|---|---|---|---|
| | $n_3$(E) | 14 | #11 | 7'-7" | J |
| | $n_4$(E) | 3 | #9 | 7'-9" | J |
| | $p_4$(E) | 5 | #7 | 4'-6" | — |
| | $p_5$(E) | 4 | #6 | 4'-6" | — |
| | $h_{21}$(E) | 4 | #6 | 2'-9" | — |
| | $s_2$(E) | 4 | #5 | 11'-7" | |
| | $s_3$(E) | 7 | #5 | 6'-8" | ⊓ |
| | $s_4$(E) | 6 | #9 | 16'-8" | ⊔ |
| ① | $sp_2$(E) | 1 | #5 | 15'-9" | |
| | $t_1$ | 13 | #9 | 9'-2" | — |
| | $u_2$(E) | 3 | #6 | 12'-7" | ⊃ |
| | $u_3$(E) | 5 | #5 | 19'-5½" | ⊃ |
| | $v_8$(E) | 3 | #5 | 2'-8" | — |
| | $v_{10}$(E) | 4 | #7 | 4'-8" | — |
| | $v_{11}$(E) | 14 | #11 | 18'-3" | — |
| | $w_1$ | 10 | #5 | 7'-6" | — |

| | ITEM | UNIT | QUANTITY |
|---|---|---|---|
| | Expansion Bolts, ¾"φ | Each | 28 |
| | Structure Excavation | Cu. Yds. | 31.8 |
| | Class X Concrete | Cu. Yds. | 15.6 |
| | Steel Piles HP10x42 | Lin. Ft. | 80 |
| ② | Reinforcement Bars (Epoxy Coated) | Lbs. | 3740 |
| | Temporary Sheet Piling | Sq. Ft. | 384 |

① Length = Total Height of Spiral
② Quantity includes total length of bar in spiral (4.56'-6") & the 4 spacers.

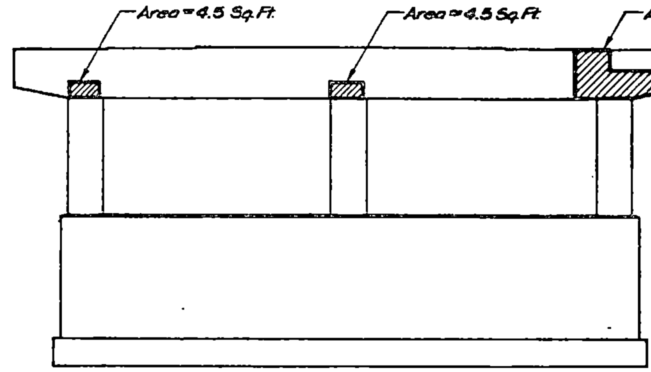
PIER 3(EB)
FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB)I
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)

ESCA CONSULTANTS, INC.

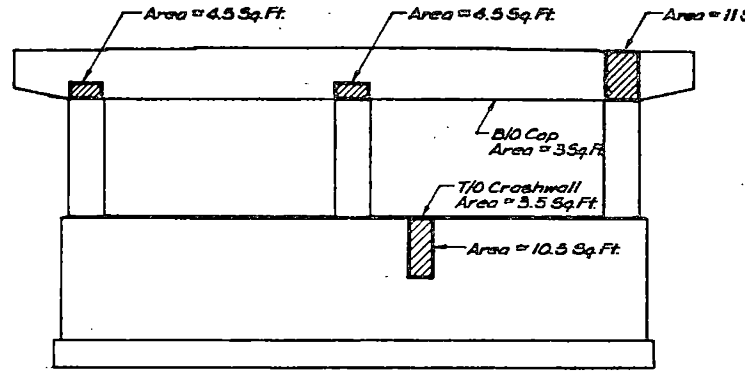
| | | |
|---|---|---|
| DESIGNED BY: | JRF | 12-89 |
| DRAWN BY: | WEM | 12-89 |
| CHECKED BY: | RDP | 2-90 |
| APPROVED BY: | RDP | 2-90 |

✻ (92-11VB) BR

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | ✻ | Vermilion | 165 | 123 |
| STA. | | TO STA. | | |
| FED. ROAD DIST. NO. | | ILLINOIS | PROJECT | |
| | | Dwg. No. 34 of 41 | | |



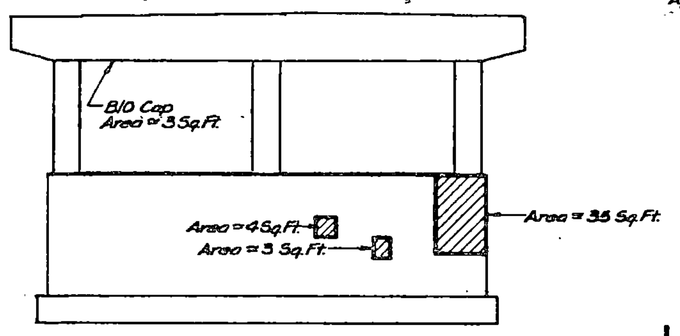

WEST ELEVATION



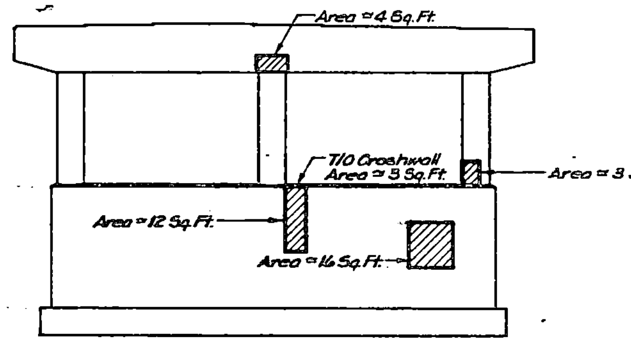

EAST ELEVATION

## PIER NO. 1

Approx. Repair Area = 68 Sq.Ft.




WEST ELEVATION



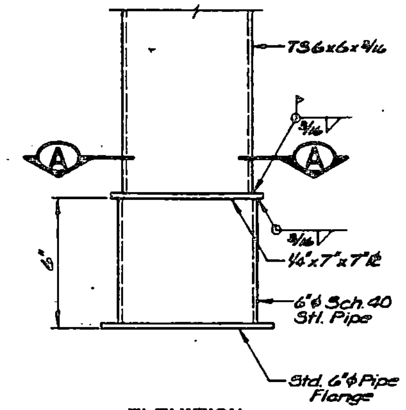

EAST ELEVATION

## LEGEND

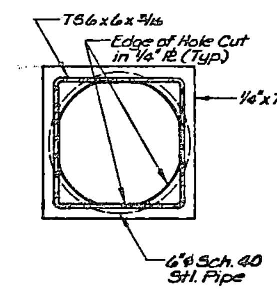
▨ Repair Concrete Structure

## PIER NO. 2

Approx. Repair Area = 83 Sq.Ft.



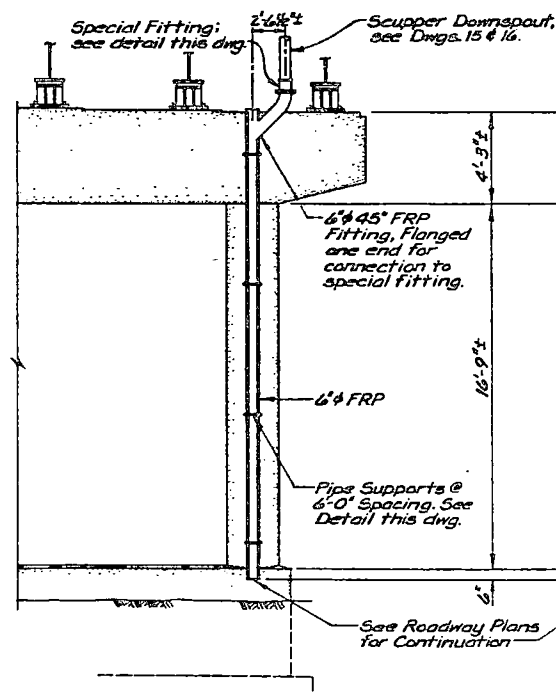

ELEVATION



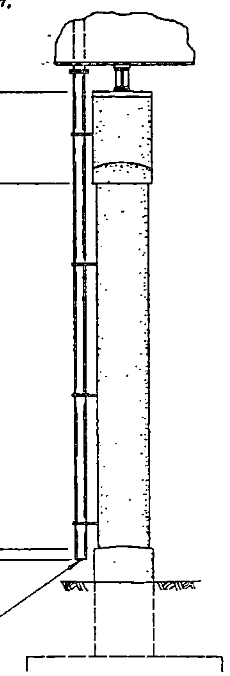

SECTION A-A

## SPECIAL FITTING DETAILS

Note: Detail shown is for use with fabricated steel drainage scupper. If cast iron scupper alternate is used, fitting shall be 6"φ Sch. 40 Pipe w/ Std. Flanges each end.




ELEVATION



SIDE VIEW

## PIER NO. 3 DOWNSPOUT SYSTEM

## NOTES

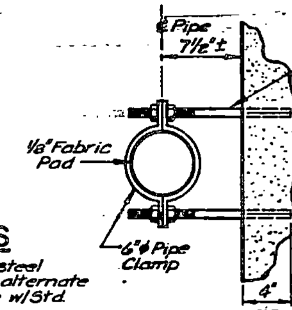
1. REPAIR LOCATIONS SHOWN ARE APPROXIMATE AND MUST BE VERIFIED IN THE FIELD BY THE ENGINEER. THE CONTRACTOR SHALL NOT COMMENCE ANY REMOVAL RELATED TO CONCRETE REPAIR UNTIL APPROVED BY THE ENGINEER.

2. SEE DWG. NO. 12 FOR NOTES PERTAINING TO FIBERGLASS PIPE.

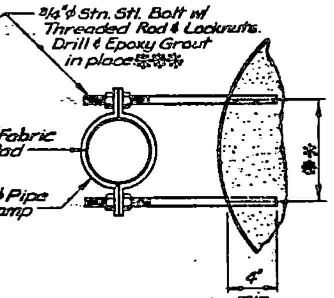
3. ALL FIBERGLASS PIPE, FITTINGS, PIPE SUPPORTS, & APPURTENANCES FOR THE DOWNSPOUT SYSTEM SHOWN AT PIER 3 ARE PAID FOR AS "DRAINAGE SYSTEM." SEE SPECIAL PROVISIONS.

## BILL OF MATERIAL

| ITEM | UNIT | QUANTITY |
|---|---|---|
| Repair Concrete Structure | Sq. Ft. | 151 |
| Drainage System | L. Sum | 1 |




PLAN AT CAP




PLAN AT COLUMN

✻✻ Dimension as req'd by Pipe Clamp Mfgr.

## PIPE SUPPORT DETAIL

✻✻✻ See Special Provision for Epoxy Grouting of Anchor Rods and Bars.

ESCA CONSULTANTS, INC.

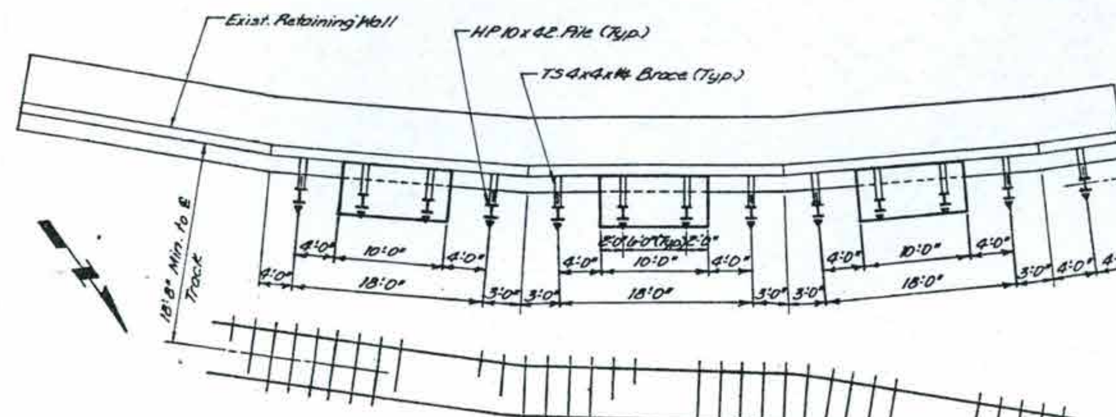
| | | |
|---|---|---|
| DESIGNED BY: | RDP | 12/89 |
| DRAWN BY: | WEM | 12/89 |
| CHECKED BY: | JRF | 12/89 |
| APPROVED BY: | RDP | 12/89 |

CONCRETE REPAIR & MISCELLANEOUS DETAILS
WESTBOUND LANES
FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB) BR
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)

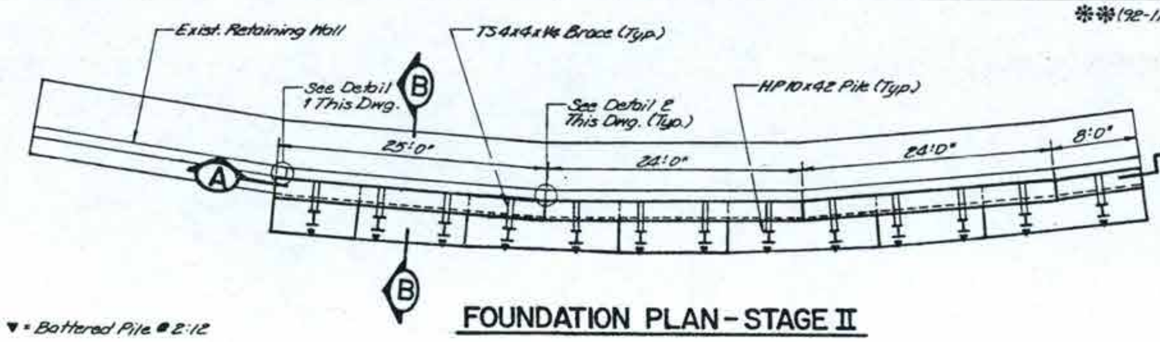
| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | ❋❋ | Vermilion | 165 | 124 |
| STA. | | TO STA. | | |
| FED ROAD DIST NO. | ILLINOIS | PROJECT | | |

Dwg. No. 35 of 41

❋❋(92-11VB)BR




## FOUNDATION PLAN - STAGE I




▼ = Battered Pile @ 2:12

## FOUNDATION PLAN - STAGE II

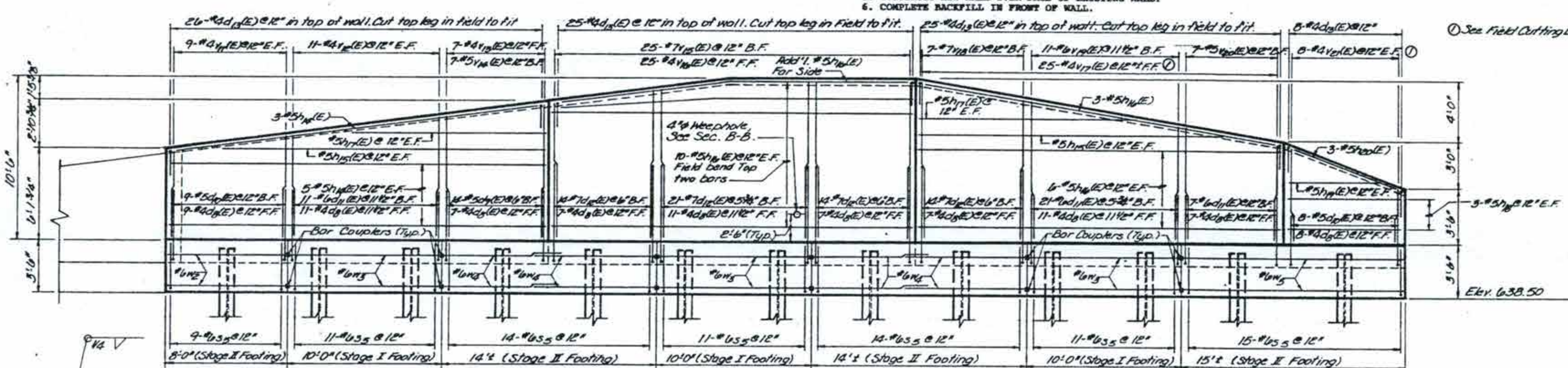
## PILE DATA

Type: HP10x42
Capacity: 20 Tons Design, Driven to Refusal
No. Req'd.: (12 Plus 1 Test)
Est. Length: 27'

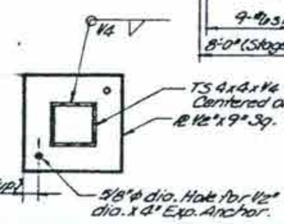
## CONSTRUCTION SEQUENCE

STAGE I:
1. DRIVE NEW PILING WITHOUT ANY EXCAVATION.
2. INSTALL NEW BRACING BETWEEN EXISTING WALL AND ALL NEW PILING. EXCAVATE ONLY AS REQUIRED TO INSTALL NEW TS 4x4 BRACING. SEE DETAIL 3 AND SECTION B-B.
3. CONSTRUCT 10' LONG PORTIONS OF FOOTING; EXCAVATE ONLY AS REQUIRED FOR 10' PORTIONS (LEAVE AS MUCH SOIL AS POSSIBLE AGAINST EXISTING WALL). COORDINATE EXCAVATION AND BACKFILL OPERATIONS WITH RAILROAD. SEE NOTE 3.
4. CURE FOOTING CONCRETE TO 3500 PSI MIN. COMPRESSION STRENGTH.

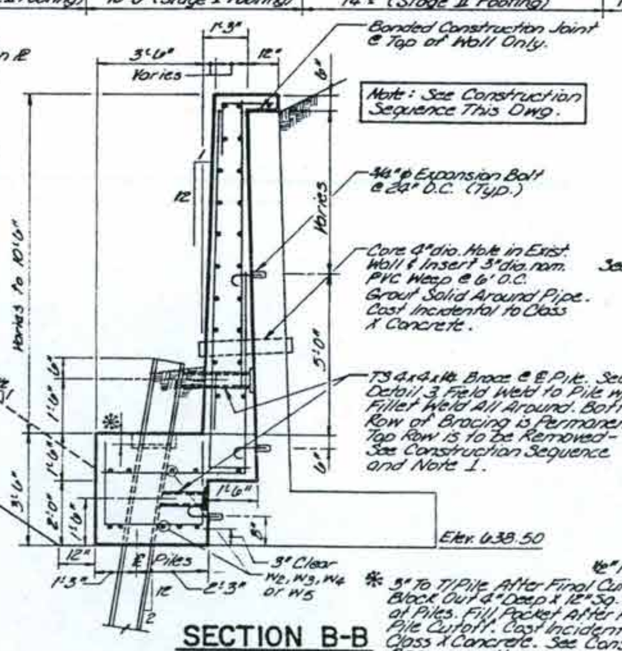
STAGE II:
1. EXCAVATE FOR REMAINING PORTIONS OF FOOTING. COORDINATE EXCAVATION AND BACKFILL OPERATIONS WITH RAILROAD.
2. CONSTRUCT REMAINDER OF FOOTINGS.
3. CURE STAGE II FOOTING CONCRETE TO 3500 PSI MIN. COMPRESSION STRENGTH.
4. REMOVE TOP ROW OF WALL BRACING AND CUT OFF PILES TO 3" BELOW TOP OF FOOTINGS; FILL POCKETS AT PILES.
5. CONSTRUCT NEW WALL OVER FACE OF EXISTING WALL.
6. COMPLETE BACKFILL IN FRONT OF WALL.



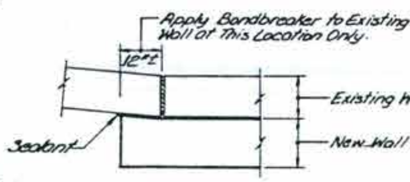

## SECTION A-A



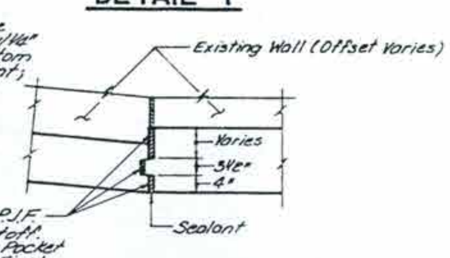

## DETAIL 3



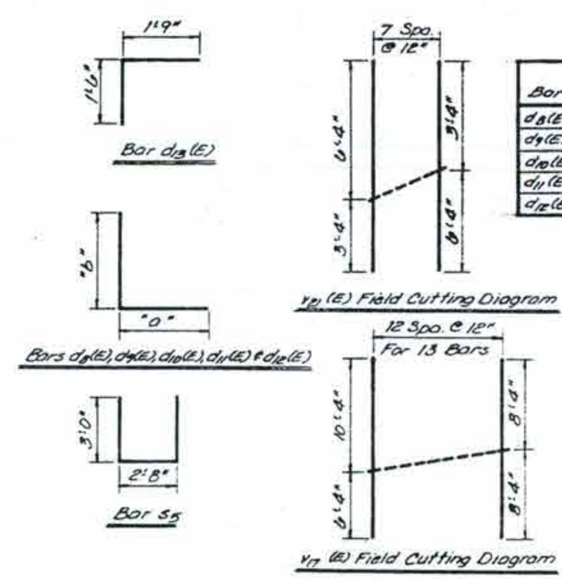

## SECTION B-B




## DETAIL 1




## DETAIL 2




| Bar | Dimensions "a" | Dimensions "b" |
|---|---|---|
| $d_8$(E) | 1'-4" | 4'-6" |
| $d_9$(E) | 4'-2" | 4'-4" |
| $d_{10}$(E) | 4'-2" | 3'-4" |
| $d_{11}$(E) | 4'-2" | 4'-4" |
| $d_{12}$(E) | 4'-2" | 6'-4" |

## BAR BENDING DETAILS

## MIN. BAR LAPS

#4 1'-9"
#5 2'-2"
#6 2'-7"
#7 3'-6"

## BILL OF MATERIAL

| BAR | NO. | SIZE | LENGTH | SHAPE |
|---|---|---|---|---|
| $d_8$(E) | 85 | #4 | 5'-10" | L |
| $d_9$(E) | 14 | #5 | 8'-6" | L |
| $d_{10}$(E) | 17 | #5 | 7'-6" | L |
| $d_{11}$(E) | 39 | #6 | 8'-6" | L |
| $d_{12}$(E) | 63 | #7 | 10'-6" | L |
| $d_{13}$(E) | 84 | #4 | 3'-3" | L |
| | | | | |
| | | | | |
| $h_{14}$(E) | 13 | #5 | 24'-8" | —— |
| $h_{15}$(E) | 4 | #5 | 20'-0" | —— |
| $h_{16}$(E) | 36 | #5 | 23'-8" | —— |
| $h_{17}$(E) | 4 | #5 | 17'-0" | —— |
| $h_{18}$(E) | 6 | #5 | 7'-8" | —— |
| $h_{19}$(E) | 2 | #5 | 5'-0" | —— |
| $h_{20}$(E) | 3 | #5 | 8'-2" | —— |
| | | | | |
| | | | | |
| $s_5$ | 85 | #6 | 8'-8" | ⊔ |
| | | | | |
| | | | | |
| $w_2$ | 10 | #6 | 7'-8" | —— |
| $w_3$ | 30 | #6 | 10'-0" | —— |
| $w_4$ | 40 | #6 | 8'-8" | —— |
| $w_5$ | 10 | #6 | 14'-8" | —— |
| | | | | |
| | | | | |
| $v_{11}$(E) | 18 | #4 | 6'-0" | —— |
| $v_{12}$(E) | 22 | #4 | 6'-10" | —— |
| $v_{13}$(E) | 7 | #4 | 8'-0" | —— |
| $v_{14}$(E) | 7 | #5 | 8'-0" | —— |
| $v_{15}$(E) | 25 | #7 | 8'-10" | —— |
| $v_{16}$(E) | 25 | #4 | 8'-10" | —— |
| $v_{17}$(E) | 13 | #4 | 16'-8" | —— |
| $v_{18}$(E) | 7 | #7 | 9'-2" | —— |
| $v_{19}$(E) | 11 | #6 | 7'-6" | —— |
| $v_{20}$(E) | 7 | #5 | 6'-4" | —— |
| $v_{21}$(E) | 8 | #4 | 9'-8" | —— |

| ITEM | UNIT | QUANTITY |
|---|---|---|
| Class X Concrete | Cu. Yds. | 69.1 |
| Reinforcement Bars | Lbs. | 2420 |
| Steel Piles HP10x42 | Lin. Ft. | 324 |
| | | |
| Test Pile Steel HP10x42 | Each | 1 |
| Structure Excavation | Cu. Yds. | 102.3 |
| Expansion Bolts 3/4"φ | Each | 121 |
| Reinf. Bars (Epoxy Coated) | Lbs. | 5450 |

## NOTES

1. THE COST OF THE PERMANENT AND TEMPORARY TS 4x4x1/4 BRACING MEMBERS IS INCIDENTAL TO STEEL PILING.
2. BARS DESIGNATED (E) SHALL BE EPOXY COATED.
3. THE AMMONIA PLANT SERVICE TRACK IS AN INFREQUENTLY USED LINE. THE CONTRACTOR SHOULD COORDINATE HIS OPERATIONS WITH THE RAILROAD AND THE AMMONIA PLANT SUCH THAT HE COMPLIES WITH THEIR REQUIREMENTS. SEE EXCAVATION LIMITS ON SECTION B-B & SPECIAL PROVISIONS.

## RETAINING WALL

FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB)BR
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)

**ESCA**
**CONSULTANTS, INC.**

| | | |
|---|---|---|
| DESIGNED BY: | JRF | 12-89 |
| DRAWN BY: | PDV/CJG | 12-89 |
| CHECKED BY: | RDP | 12-89 |
| APPROVED BY: | RDP | 12-89 |

| Joint Size | "C" at 50°F | "D" at 50°F |
|---|---|---|
| 2 | 1½" | 1½" min |
| 2½ | 2½" | 1¾" min |
| 4 | 3" | 2½" min |

## INSTALLATION NOTES

Use anchor blocks and continuous seal as anchor bolt location templates.

① Install sponge mandrels into positions shown to form flap convolution.

② Install parapet or sidewalk piece (trim roadway flap to fit before applying epoxy).

③ Install continuous seal in roadway.

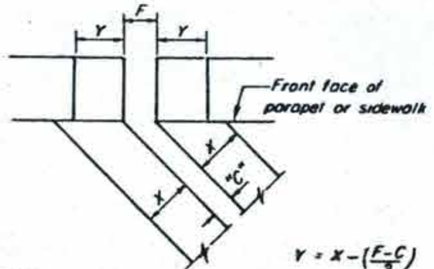
④ Install anchor blocks as indicated.

NOTE A – Maximum spacing of anchor bolts shall be 12" centers.

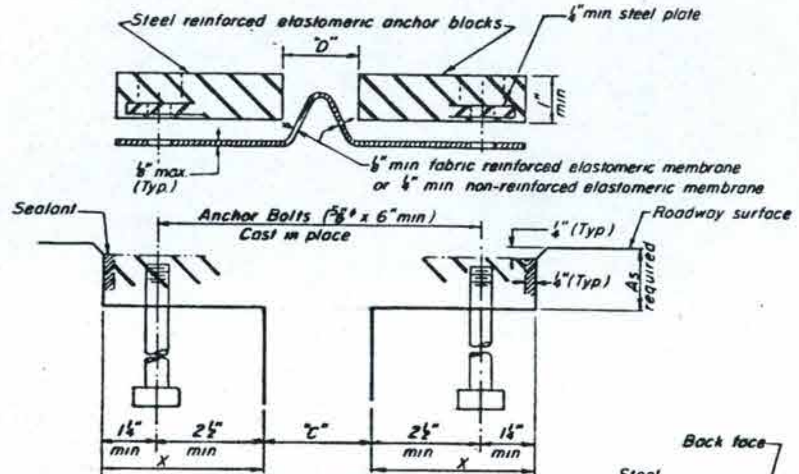
## SKEW LIMITATIONS.

The details of the anchor blocks and the elastomeric membrane in the parapet, as shown, are for up to 50° skews.

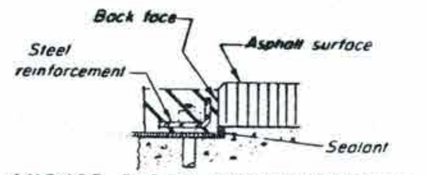
For skews greater than 50°, the anchor blocks and the elastomeric membrane, installed in accordance with dimension "D", might require modifications to insure a minimum clearance of 1½" from centerline of anchor studs to edge of parapet opening. The anchor blocks and the elastomeric membrane shall also be installed to the top of the parapet with the anchor studs spaced at ±12" cts.




FORMING BLOCKOUT SKETCH




CROSS SECTION




ANCHOR BLOCK REINFORCEMENT with ASPHALT SURFACE

## GENERAL NOTES

Continuous Seal Neoprene Expansion Joint shall consist of molded anchor blocks of elastomer and steel, field assembled over continuous lengths of elastomeric membrane. See Special Provisions.

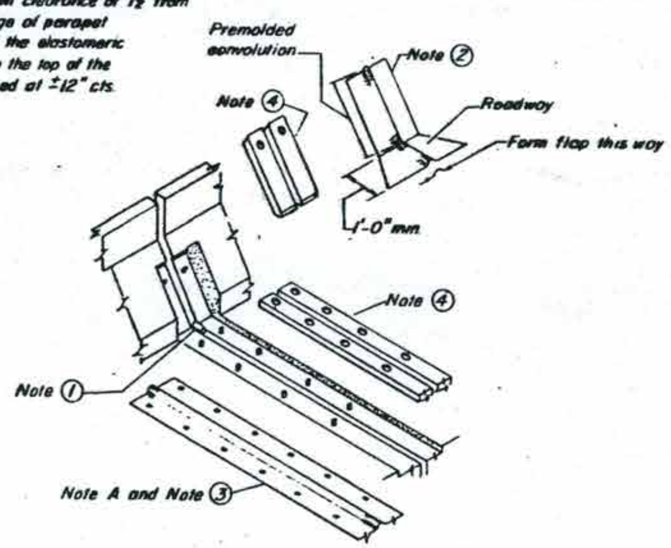
The elastomeric membrane shall be premolded with a single or a double upward convolution that will have a "memory" to return to its molded position upon joint closure.

The steel reinforcement must extend up the back face of anchor blocks when asphalt surfaces are used but is optional in concrete blockout.

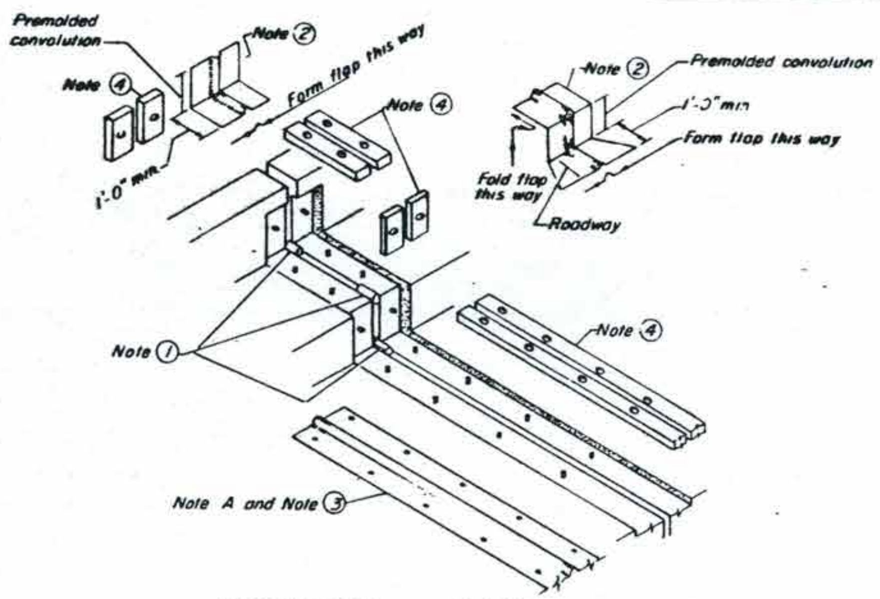
The convolution length shall be such that the extended length will not be greater than the manufactured length when the joint is fully expanded in its design range and will not protrude above the anchor blocks when the joint is fully compressed.

Joint openings shall be adjusted in accordance with Article 503.07(c) of the Standard Specifications when the deck is poured at an ambient temperature other than 50° F.

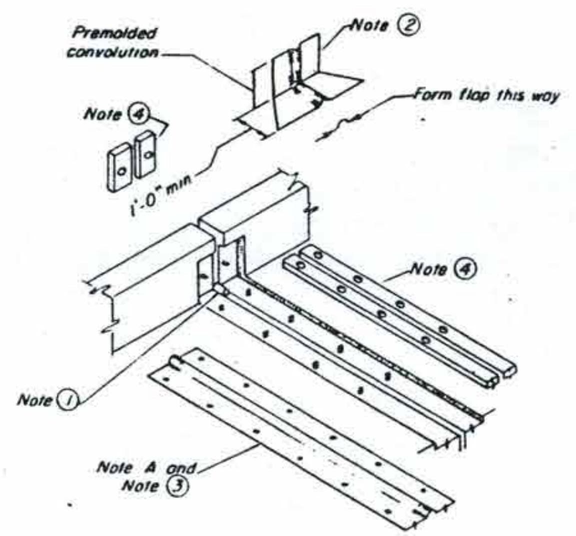
The parapet and sidewalk flaps may be furnished factory vulcanized to the roadway membrane provided the centerline of the convolution is maintained and the process and method meet the approval of the Engineer.



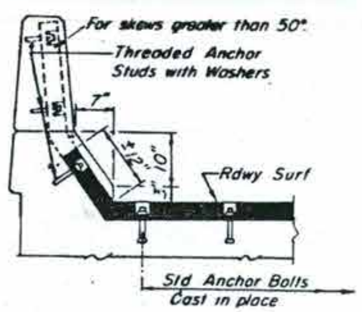

AT PARAPET



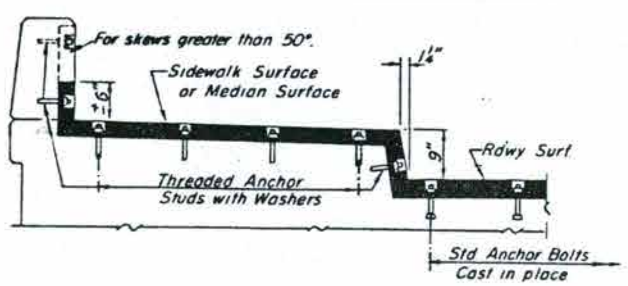

AT SIDEWALK or MEDIAN



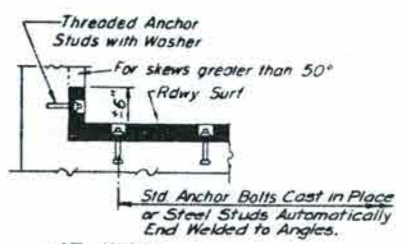

AT WALL




AT PARAPET




AT SIDEWALK or MEDIAN




AT WALL

TYPICAL END TREATMENTS

**ESCA CONSULTANTS, INC.**

| | | |
|---|---|---|
| DESIGNED BY: | RDP | 12/89 |
| DRAWN BY: | WEM | 12/89 |
| CHECKED BY: | JRF | 12/89 |
| APPROVED BY: | RDP | 12/89 |

※(92-11VB) BR

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | ※ | Vermilion | 165. | 125 |
| STA. | | TO STA. | | |
| FED. ROAD DIST. NO. 8 | ILLINOIS | PROJECT | | |
| | | Dwg. No. 36 of 41 | | |

**CONTINUOUS SEAL TYPE NEOPRENE EXPANSION JOINTS**

FAI 74 OVER L STREET

FAI RTE. 74 SECTION (92-11VB) BR

VERMILION COUNTY

STATION 1877+01.73

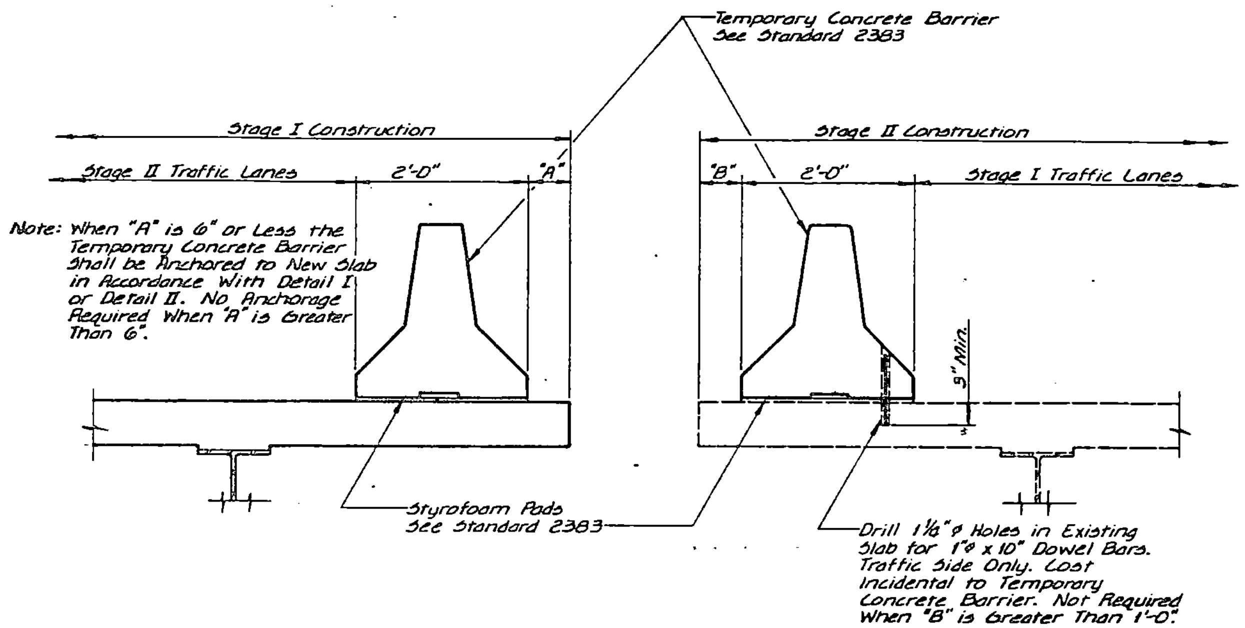
STRUCTURE NO. 092-0008(EB)

STRUCTURE NO. 092-0009(WB)

**(92-11VB) BR

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | ** | Vermilion | 165 | 126 |
| STA. | | TO STA. | | |
| FED. ROAD DIST. NO. | | ILLINOIS | PROJECT | |

Dwg. No. 37 of 41



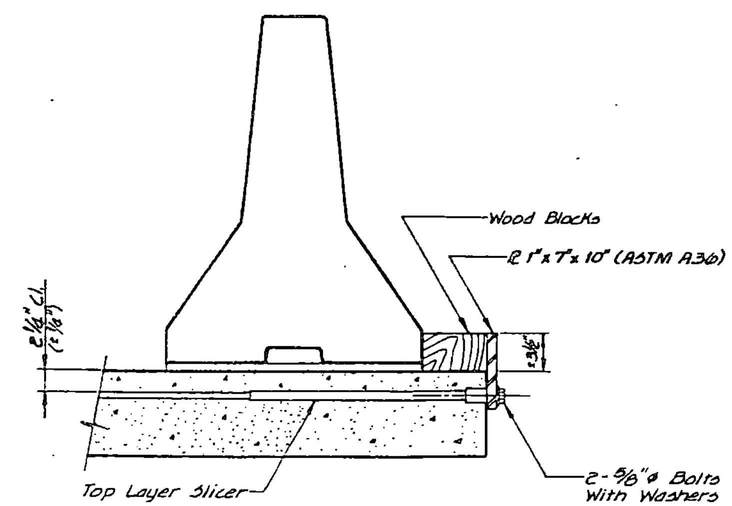

NEW SLAB

EXISTING SLAB

## SECTIONS THRU SLAB

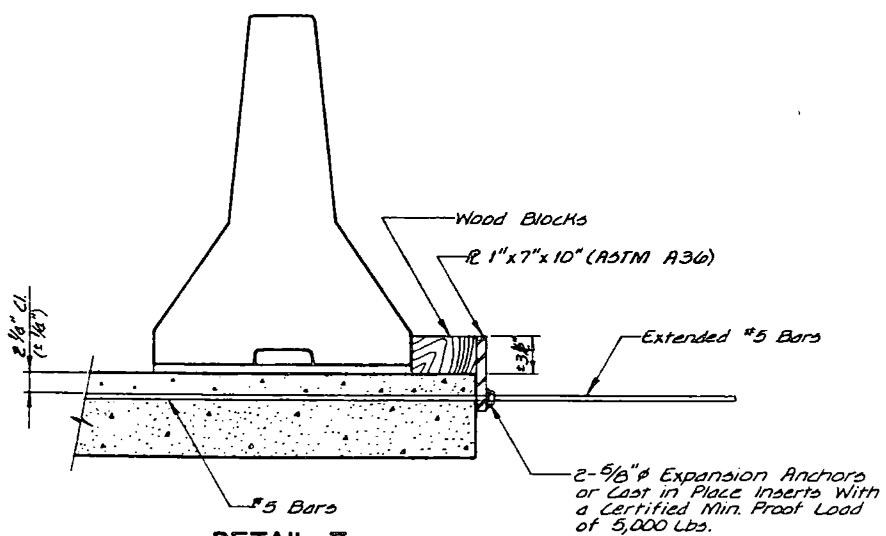
## NOTES

1. DETAIL I—WITH BAR SPLICER OR COUPLERS: CONNECT ONE (1), 1" X 7" X 10" STEEL PL TO THE TOP LAYER OF COUPLERS WITH 2-5/8"⌀ BOLTS SCREWED TO COUPLER AT APPROXIMATE ℄ OF EACH 10'-0" BARRIER PANEL.
2. DETAIL II—WITH EXTENDED REINFORCEMENT BARS: CONNECT ONE (1), 1" X 7" X 10" STEEL PL TO THE CONCRETE SLAB WITH 2-5/8"⌀ EXPANSION ANCHORS OR CAST IN PLACE INSERTS SPACED BETWEEN THE TOP LAYER OF REINFORCEMENT AT APPROXIMATE ℄ OF EACH 10'-0" BARRIER PANEL.
3. SEE ROADWAY PLANS FOR REQUIRED QUANTITY OF TEMPORARY CONCRETE BARRIER.



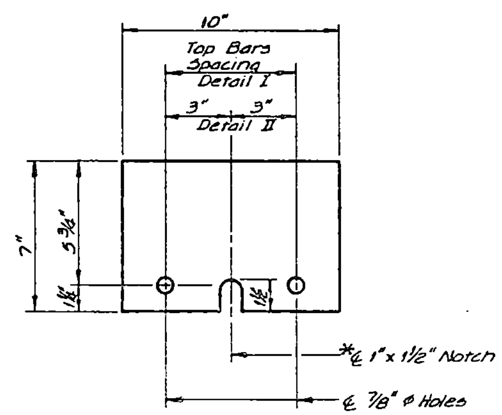

## DETAIL I

Note: The 1"x7"x10" Plate Shall Not Be Removed Until Stage II Construction Forms and Reinforcement Bars are in Place.




## DETAIL II

Note: The 1"x7"x10" Plate Shall Not be Removed Until Stage II Construction Forms and All Reinforcement Bars Are in Place and the Concrete is Ready to be Placed.




PL 1"x 7"x 10"

* Required Only With Detail II

**ESCA CONSULTANTS, INC.**

| | | |
|---|---|---|
| DESIGNED BY: | RDP | 12/89 |
| DRAWN BY: | WEM | 12/89 |
| CHECKED BY: | JRF | 12/89 |
| APPROVED BY: | RDP | 12/89 |

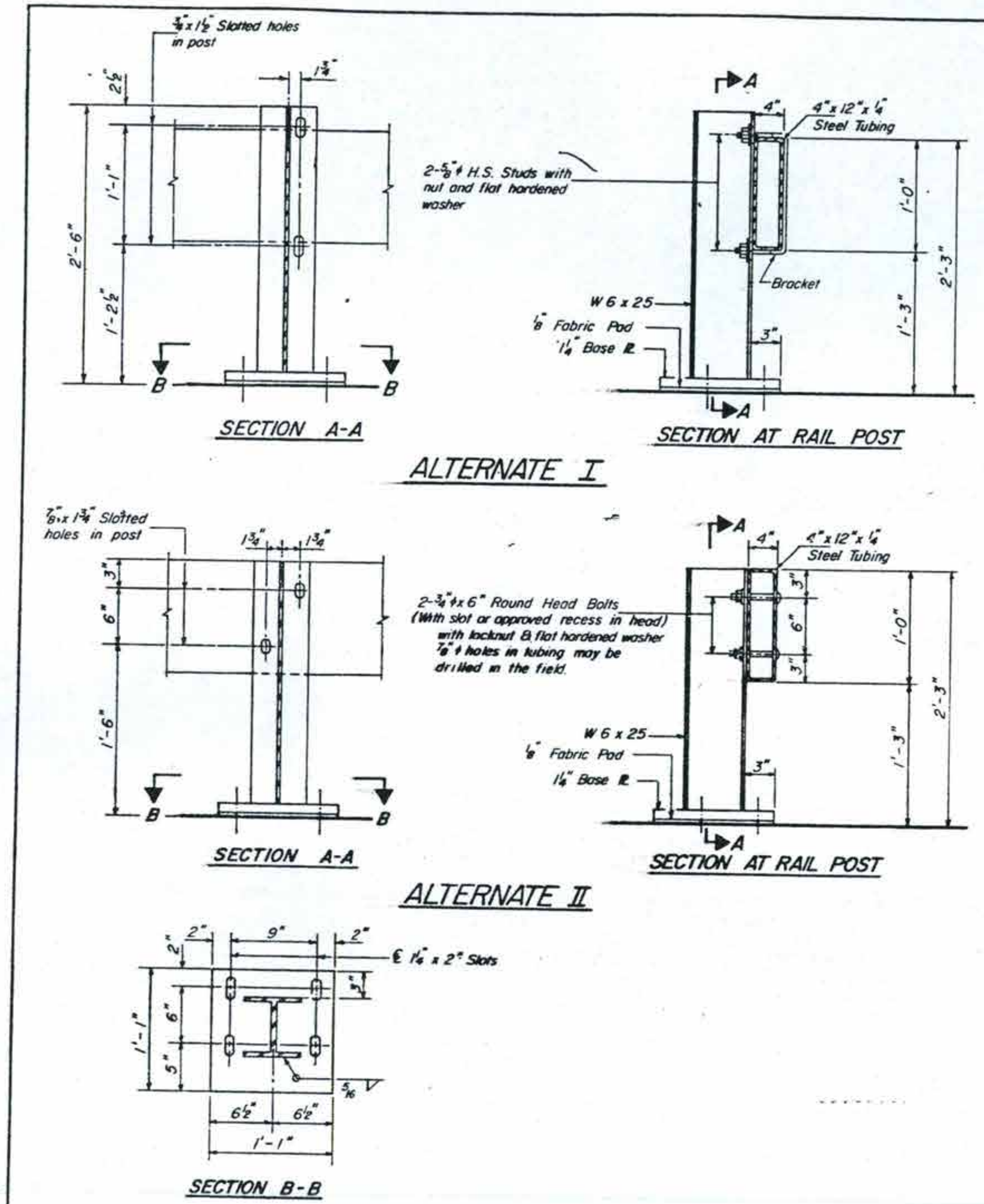
## TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION

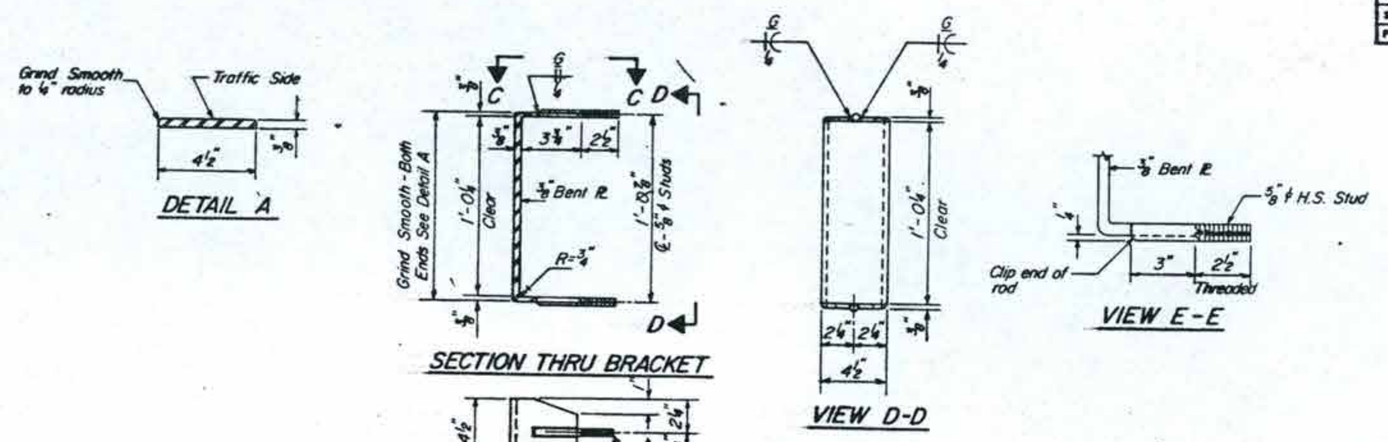
FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB) BR
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)

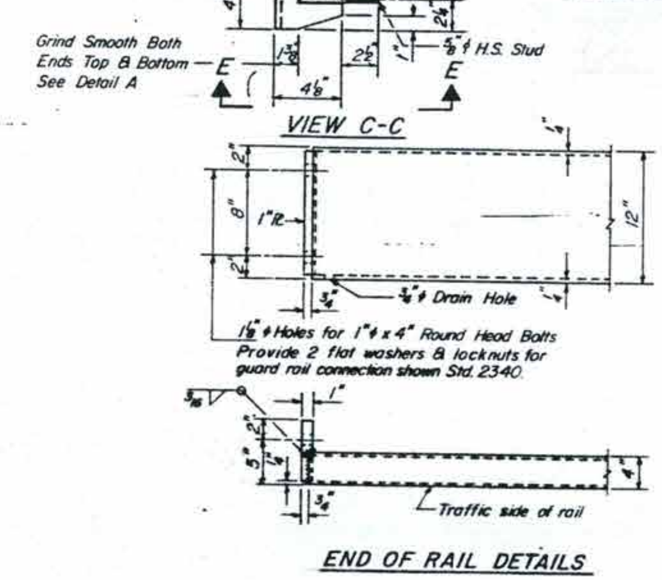
**(92-11VB) BR**

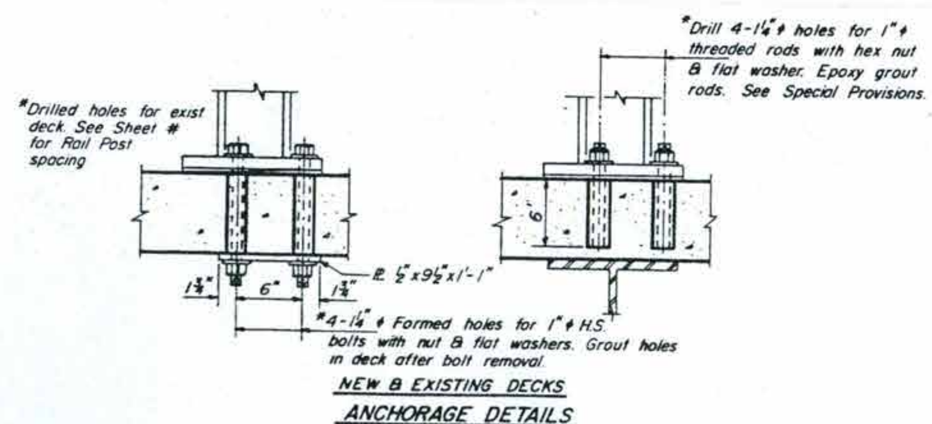
| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | (92-11VB) BR | Vermilion | 65 | 127 |
| STA. | | TO STA. | | |
| FED. ROAD DIST. NO. | | ILLINOIS | PROJECT | |

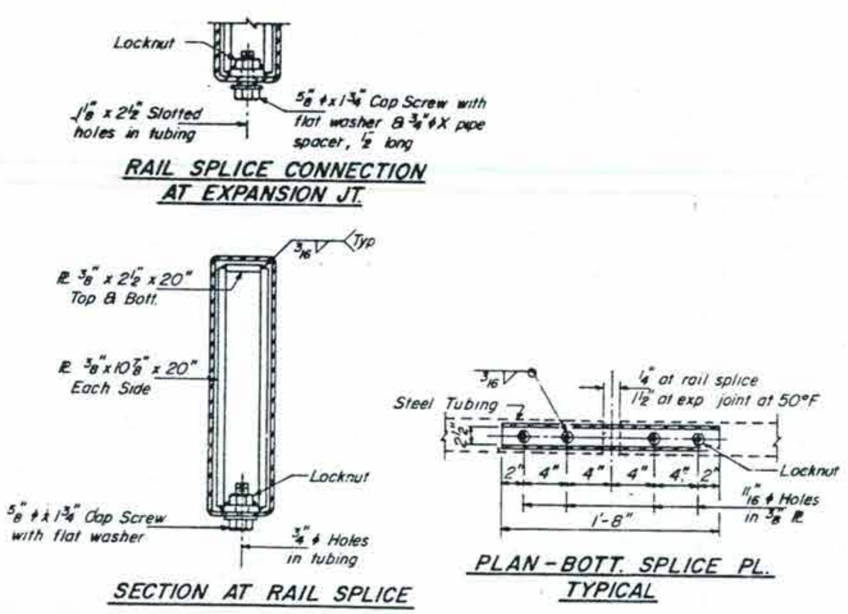
Dwg. No. 38 of 41




## NOTES

Hollow structural steel tubing shall conform to the requirements of A.S.T.M. designation A-500 Grade B Structural Steel Tubing.

All other steel shapes and plates shall conform to the requirements of A.A.S.H.T.O. M-183 except posts and brackets shall conform to A.A.S.H.T.O. M 223 Grade 50.

Bolts, cap screws, and nuts shall conform to the requirement of A.S.T.M. designation A-307 except for high strength bolts, threaded rods, studs, nuts and washers noted which shall conform to A.A.S.H.T.O. M-164.

The bridge rail shall receive one shop coat of a steel prime paint.

The 1"ϕ high strength bolts or threaded rods used to connect the railposts shall be tightened in accordance with Article 507.04(g)(3) of the Standard Specification.

See Special Provisions for Temporary Bridge Rail.

The contact surfaces between post flange, rail and inside face of bracket for Alternate shall be free of all lubricants.

The nut for ⅝"ϕ high strength studs used in Alternate I to connect bracket to post shall be tightend to a snug fit and given an additional one half turn.

### BILL OF MATERIAL

| Item | Unit | Quantity |
|---|---|---|
| Temporary Bridge Rail | Lin. Ft. | 350 |

**ESCA CONSULTANTS, INC.**

| | | |
|---|---|---|
| DESIGNED BY: | RDP | 12/89 |
| DRAWN BY: | WEM | 12/89 |
| CHECKED BY: | JRF | 12/89 |
| APPROVED BY: | RDP | 12/89 |

# TEMPORARY BRIDGE RAIL

FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB) BR
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)

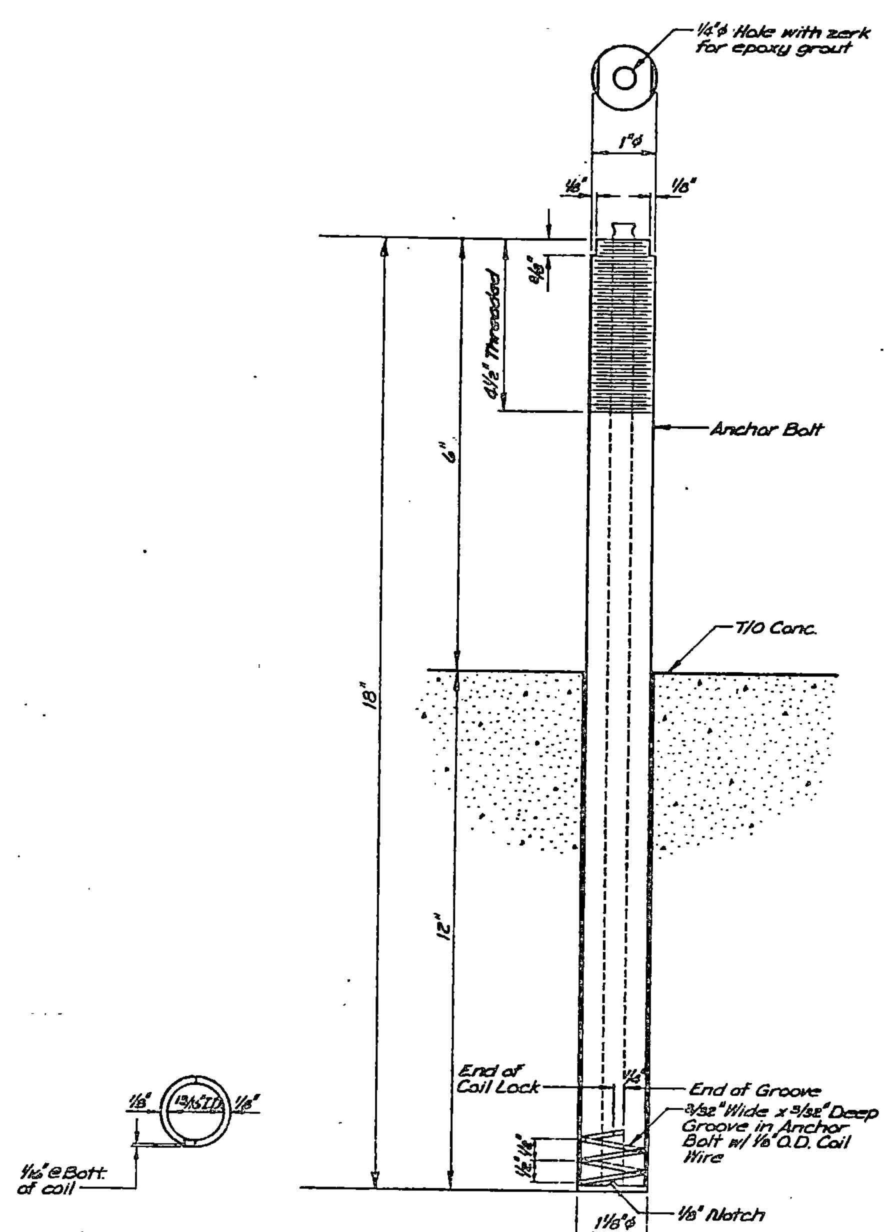
| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | ❀ | Vermilion | 165 | 128 |

❀ (92-11VB)BR

STA. TO STA.

FED. ROAD DIST. NO. | ILLINOIS | PROJECT

Dwg. No. 39 of 41




## PLAN-COIL WIRE

## ILLINOIS COIL-LOCK ANCHOR BOLT

## MATERIALS FOR ILLINOIS COIL-LOCK ANCHOR BOLT

THE ANCHOR BOLT SHALL BE FABRICATED FROM COLD DRAWN OR HOT FINISHED SEAMLESS CARBON STEEL MECHANICAL TUBING CONFORMING TO ASTM A 519, GRADE 1026 AND SUPPLIED WITH HEXAGONAL NUTS AND CUT WASHERS.

THE COIL WIRE SHALL BE MADE OF ANY SUITABLE SOFT STEEL WIRE.

THE FINISHED ANCHOR BOLT SHALL BE CLEANED OF RUST AND OTHER FOREIGN MATERIALS AND WRAPPED OR PACKAGED TO PREVENT CONTAMINATION UNTIL THEY ARE INSTALLED.

THE EPOXY GROUT SHALL BE A TWO-COMPONENT, EPOXY RESIN BONDING SYSTEM CONFORMING TO ASTM C881, TYPE I, GRADE 1 AND OF A CLASS SUITABLE FOR THE TEMPERATURE OF INSTALLATION.

## INSTALLATION PROCEDURE FOR ILLINOIS COIL-LOCK ANCHOR BOLT

1. WITH THE COIL WIRE IN PLACE, THE BOLT SHALL BE INSERTED INTO THE HOLE AND TURNED CLOCKWISE TO A SNUG FIT IN THE HOLE. NUT AND WASHER SHALL BE PLACED ON THE BOLT. THE NUT SHALL BE SELF-LOCKING AND SET FOR 1/4" FREE PLAY.
2. EPOXY GROUT SHALL BE PUMPED THROUGH THE ZERK FITTING WITH A PRESSURE GUN. PUMPING SHALL CONTINUE UNTIL THE EPOXY OVERFLOWS THE HOLE AROUND THE BOLT SHANK. AFTER PUMPING IS DISCONTINUED, EXCESS EPOXY SHALL BE IMMEDIATELY WIPED OFF.

## ALTERNATE ANCHOR BOLTS

THE CONTRACTOR MAY USE, AT HIS OPTION, THE CAPSULE OR THE ADHESIVE CARTRIDGE TYPE ANCHOR RODS THAT HAVE BEEN PREVIOUSLY TESTED AND GIVEN A PRIOR APPROVAL BY THE DEPARTMENT. THE CONTRACTOR SHALL INSTALL THESE ANCHOR RODS IN PRE-DRILLED HOLES IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND PROCEDURES.

THE CAPSULE OR THE ADHESIVE CARTRIDGE TYPE ANCHOR RODS SHALL BE A TWO PART SYSTEM COMPOSED OF:

1. A THREADED ROD STUD WITH NUT AND WASHER CONFORMING TO ASTM A307.
2. A SEALED GLASS CAPSULE OR A SEALED GLASS ADHESIVE CARTRIDGE CONTAINING PREMEASURED AMOUNT OF THE ADHESIVE CHEMICAL.

## GENERAL NOTES

1. HOLES IN THE MASONRY FOR ANCHOR BOLTS SHALL BE DRILLED THROUGH THE BASE PLATES TO THE DIAMETER AND DEPTH SHOWN OR IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION AFTER BEAMS OR GIRDERS HAVE BEEN ERECTED AND ADJUSTED.
2. PRIOR TO SETTING THE BOLTS, THE HOLES SHALL BE DRY AND ALL DUST AND LOOSE PARTICLES SHALL BE REMOVED BY THE USE OF COMPRESSED AIR OR VACUUMING.
3. THE ANCHOR BOLTS, FURNISHED AND INSTALLED AND INCLUDING THE EPOXY GROUT OR CAPSULES SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE UNIT BID PRICE FOR "FURNISHING AND ERECTING STRUCTURAL STEEL."
4. NEW ANCHOR BOLTS ARE REQUIRED FOR ALL FIXED BEARINGS AND AT NEW BEAM EXPANSION BEARINGS. THE NUMBER OF NEW ANCHOR BOLTS REQUIRED IS AS FOLLOWS:

| EASTBOUND: | | WESTBOUND: | |
|---|---|---|---|
| W. ABUT. | 2 | W. ABUT. | 2 |
| PIER 1 | 2 | PIER 1, SPAN 1 | 16 |
| PIER 2 | 14 | PIER 1, SPAN 2 | 2 |
| PIER 3 | 2 | PIER 2, SPAN 2 | 16 |
| E. ABUT. | 2 | PIER 2, SPAN 3 | 2 |
| | 22 | PIER 3 | 16 |
| | | PIER 4 | 2 |
| | | E. ABUT. | 0 |
| | | | 56 |

TOTAL ANCHOR BOLTS REQUIRED = 78

**ESCA CONSULTANTS, INC.**

| | | |
|---|---|---|
| DESIGNED BY: | RDP | 12/89 |
| DRAWN BY: | WEM | 12/89 |
| CHECKED BY: | JRF | 12/89 |
| APPROVED BY: | RDP | 12/89 |

## NOTE

THE ILLINOIS COIL LOCK ANCHOR BOLT IS A PROPRIETARY ITEM WHICH IS THE PROPERTY OF THE ILLINOIS DEPARTMENT OF TRANSPORTATION. USE, REPRODUCTION OR DISCLOSURE WITHOUT EXPRESS WRITTEN PERMISSION IS PROHIBITED AND PROTECTED UNDER FEDERAL COPYRIGHT LAWS. THE PRODUCTION AND THE FABRICATION OF THIS BOLT FOR USE ON HIGHWAY PROJECTS IN THE STATE OF ILLINOIS SHALL BE PERMITTED AND THERE SHALL BE NO INCURRED CHARGES OR FEES TO THE MANUFACTURER OR THE FABRICATOR FOR PRODUCING OR FABRICATING THIS BOLT.

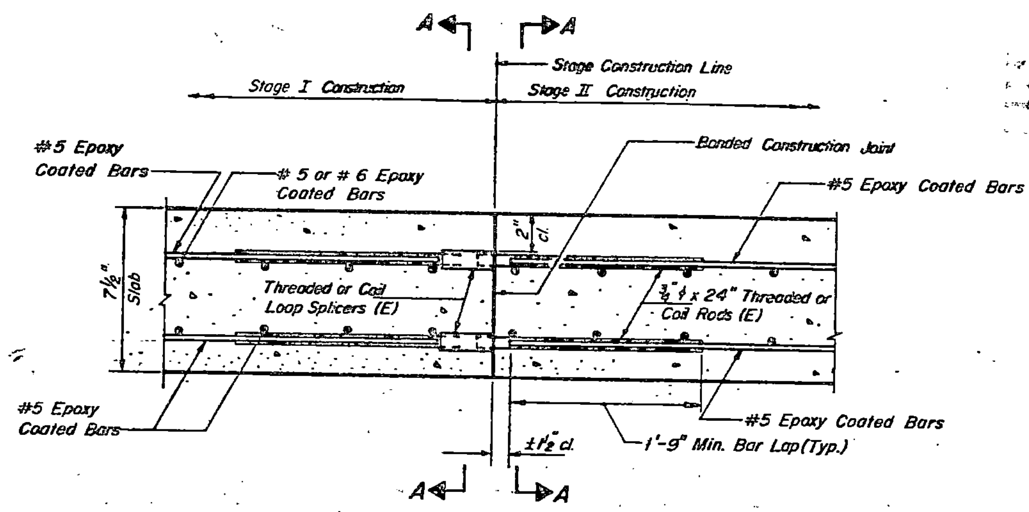
## ANCHOR BOLT DETAILS

FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB)BR
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | ※※ | Vermilion | 165 | 129 |
| STA. | | TO STA. | | |
| FED. ROAD DIST. NO. | | ILLINOIS | PROJECT | |

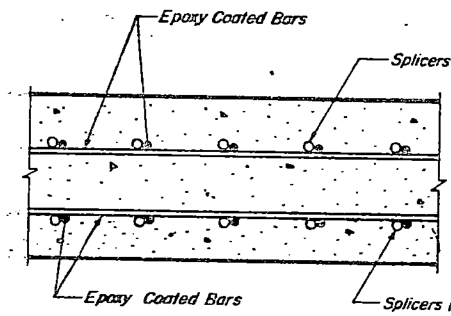
※※ (92-11VB) BR

Dwg. No. 40 of 41




SECTION THRU SLAB

Note
Splicers at Retaining Wall Similar; except uncoated Splicers. See Dwg. No. 35.




SECTION A-A

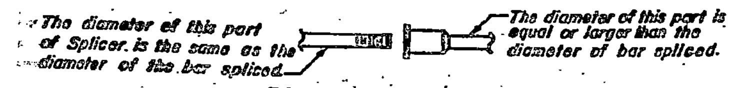
SPLICER DETAILS

No. Req'd { 1729 - Epoxy Coated; 60 - Uncoated

NOTE: COST INCIDENTAL TO REINF. BARS OR REINF. BARS (EPOXY COATED)

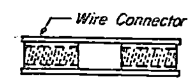
## NOTE

BAR COUPLERS ARE REQUIRED TO SPLICE TRANSVERSE REINFORCEMENT AT THE STAGE CONSTRUCTION LINE AT ABUTMENTS AND IN CONCRETE DECK. SEE DWGS. 8, 9, AND 19 THROUGH 22. BAR COUPLERS ARE ALSO USED AT THE RETAINING WALL, uncoated bar couplers, SEE DWG. NO. 35.




ROLLED THREAD DOWEL BAR

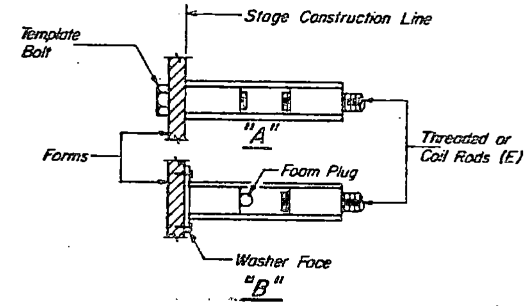
**ONE PIECE




WELDED SECTIONS

SPLICER ALTERNATIVES

** Heavy Hex Nuts conforming to ASTM A 563, Grade C, D or DH may be used.




INSTALLATION AND SETTING METHODS

"A" : Set splicer by means of a template bolt.
"B" : Set splicer by nailing to wood forms or cementing to steel forms.
(E) : Indicates epoxy coating

## NOTES

Steel Splicer (Coupler) assembly shall be of an approved type and shall develop in tension at least 125 percent of the yield strength of the lapped reinforcement bars.

Steel Splicer rods shall be of minimum 60 ksi yield strength, threaded or coiled full length and have effective tensile stress area equal or greater than that of the lapped reinforcement bars.

All reinforcement bars shall be lapped and tied to the splicer rods.

Splicer (coupler) assembly shall be epoxy coated in accordance with the requirements for reinforcement bars.

Other systems of similar design may be submitted to the Engineer for approval. Approval shall be based on certified test results from an approved testing laboratory that the proposed splicer (coupler) assembly satisfies the following requirements:

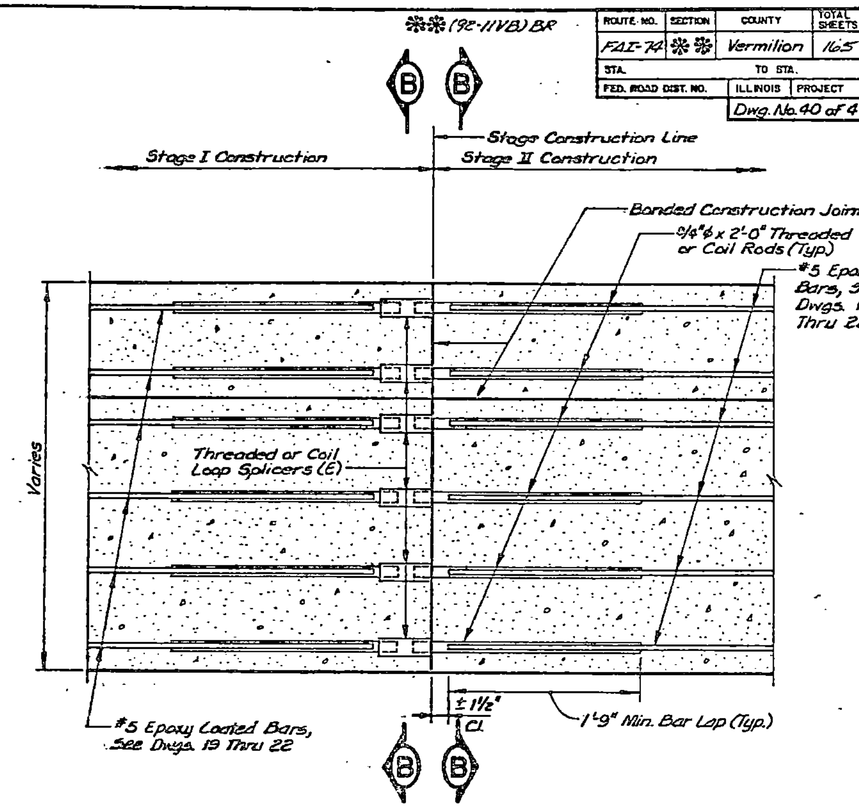
① Minimum Capacity (Tension in kips) $= 1.25 \times f_y \times A_t$

② Minimum *Pull-out Strength (Tension in kips) $= 1.25 \times fs_{allow} \times A_t$

Where $f_y$ = Yield strength of lapped reinforcement bars in k.s.i.
$fs_{allow}$ = Allowable tensile stress in lapped reinforcement bars in k.s.i. (Service Load)
$A_t$ = Tensile stress area of lapped reinforcement bars.
* 28 day concrete

Typical Splicer (Coupler) Assembly Size :

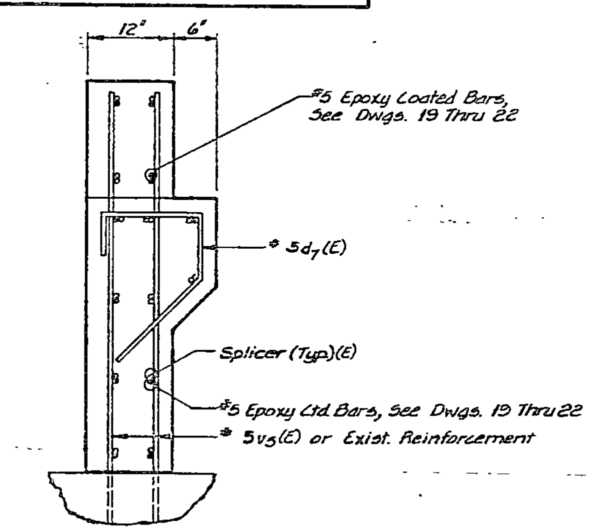
| | |
|---|---|
| #5 bar lap with ¾" ϕ Splicer (Coupler) x 2'-0" Splicer Rods | Minimum Capacity = 23.0 kips-tension; Minimum Pull-out Strength = 9.2 kips-tension |
| #6 bar lap with ¾" ϕ Splicer (Coupler) x 2'-7" Splicer Rods | Minimum Capacity = 33.0 kips-tension; Minimum Pull-out Strength = 13.2 kips-tension |




SECTION THRU ABUTMENTS

(Epoxy Coating Req'd)

NOTE: COST INCIDENTAL TO REINF. BARS (EPOXY COATED)




SECTION B-B

SPLICER DETAILS

(No. Req'd 48)

| ESCA CONSULTANTS, INC. | | |
|---|---|---|
| DESIGNED BY: | RDP | 9-89 |
| DRAWN BY: | WEM | 9-89 |
| CHECKED BY: | JRF | 11-89 |
| APPROVED BY: | RDP | 11-89 |

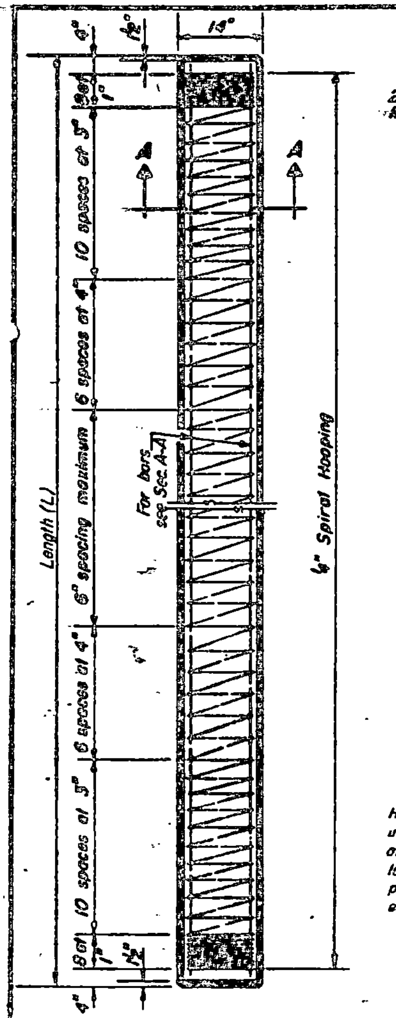
# BAR COUPLER DETAILS

FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB)BR
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| FAI-74 | ※ | Vermilion | 165 | 130 |
| STA. | | TO STA. | | |
| FED. ROAD DIST. NO. | ILLINOIS | PROJECT | | |

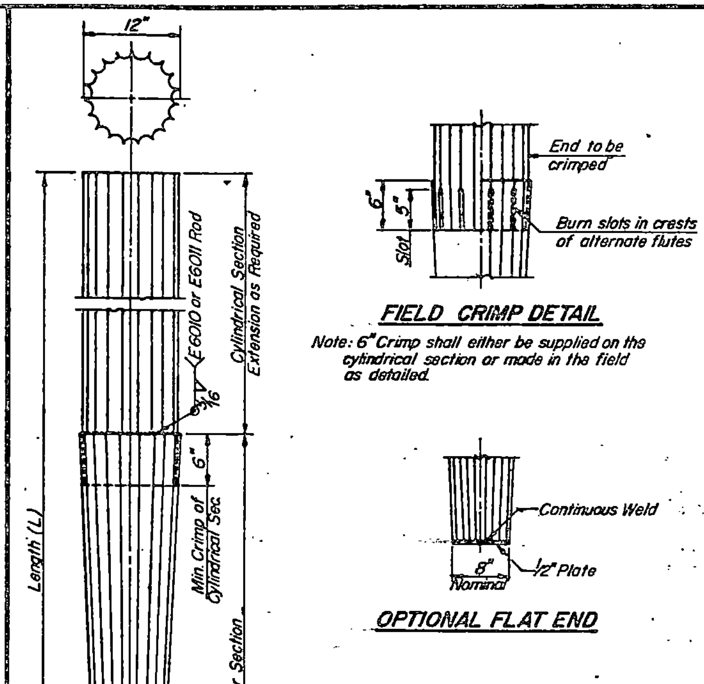
Dwg. No. 41 of 41

※ (92-11VB) BR




Handling: For Pile lengths up to 45' use two slings placed at a distance of 0.21 L from each end. For Piles longer than 45', use three slings placed at a distance of 0.12 L from each end and at mid point of pile.

DETAIL OF PRECAST CONCRETE PILES



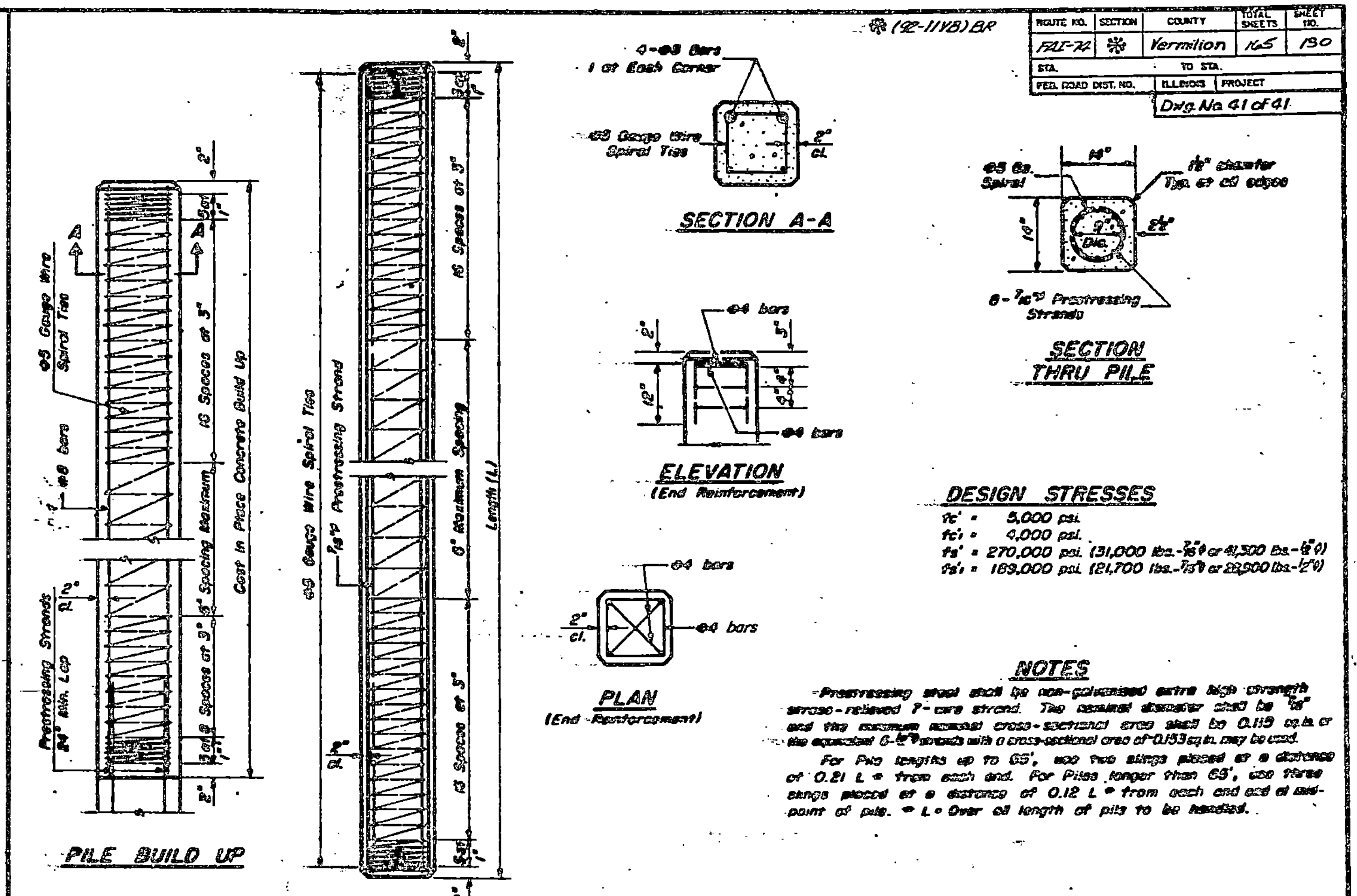

Note: 6" Crimp shall either be supplied on the cylindrical section or made in the field as detailed.

ALLOWABLE TAPER SECTIONS

10' Length - Taper 1" in 2'-6"
17' Length - Taper 1" in 4'-0"
25' Length - Taper 1" in 7'-0"
30' Length - Taper 1" in 7'-0"

NOTE:
The thickness of the shell shall be 0.1495 inches with a tolerance of 5%. The shell shall be in accordance with Article 710.05 (a) of the Standard Specification except that minimum yield strength for the steel after cold working shall be 50,000 psi.

DETAIL OF TAPERED METAL SHELLS FOR CAST IN PLACE CONCRETE PILES




DESIGN STRESSES

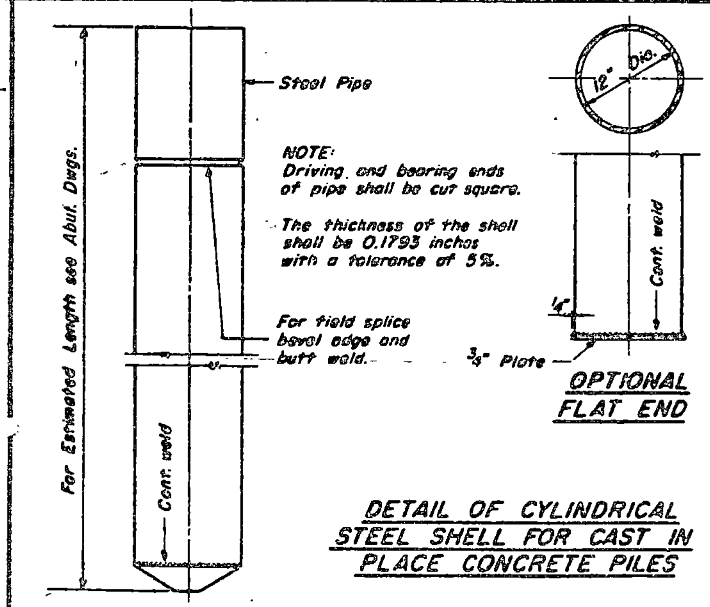
f'c = 5,000 psi.
f'ci = 4,000 psi.
f's = 270,000 psi. (31,000 lbs.-7/16"Φ or 41,300 lbs.-1/2"Φ)
f'si = 189,000 psi. (21,700 lbs.-7/16"Φ or 28,900 lbs.-1/2"Φ)

NOTES

Prestressing steel shall be non-galvanized extra high strength stress-relieved 7-wire strand. The nominal diameter shall be 7/16" and the minimum nominal cross-sectional area shall be 0.115 sq.in. or the equivalent 6-1/2"Φ strands with a cross-sectional area of 0.153 sq.in. may be used.

For Pile lengths up to 65', use two slings placed at a distance of 0.21 L* from each end. For Piles longer than 65', use three slings placed at a distance of 0.12 L* from each end and at mid-point of pile. * L = Over all length of pile to be handled.

PRECAST PRESTRESSED CONCRETE PILE

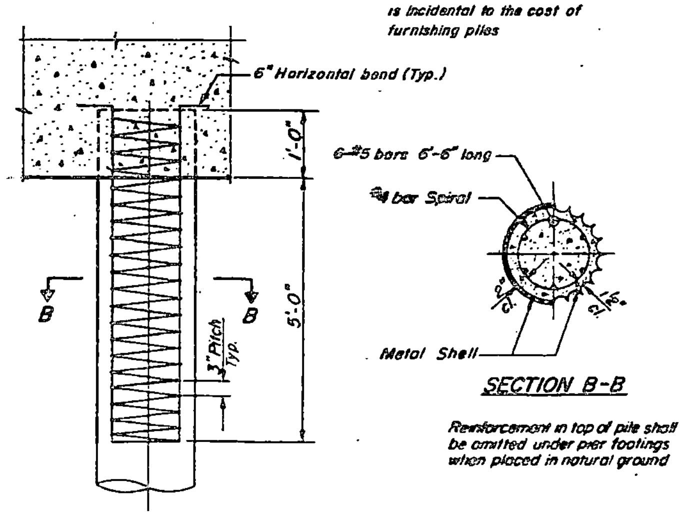



NOTE:
Driving and bearing ends of pipe shall be cut square.

The thickness of the shell shall be 0.1793 inches with a tolerance of 5%.

For field splice bevel edge and butt weld.

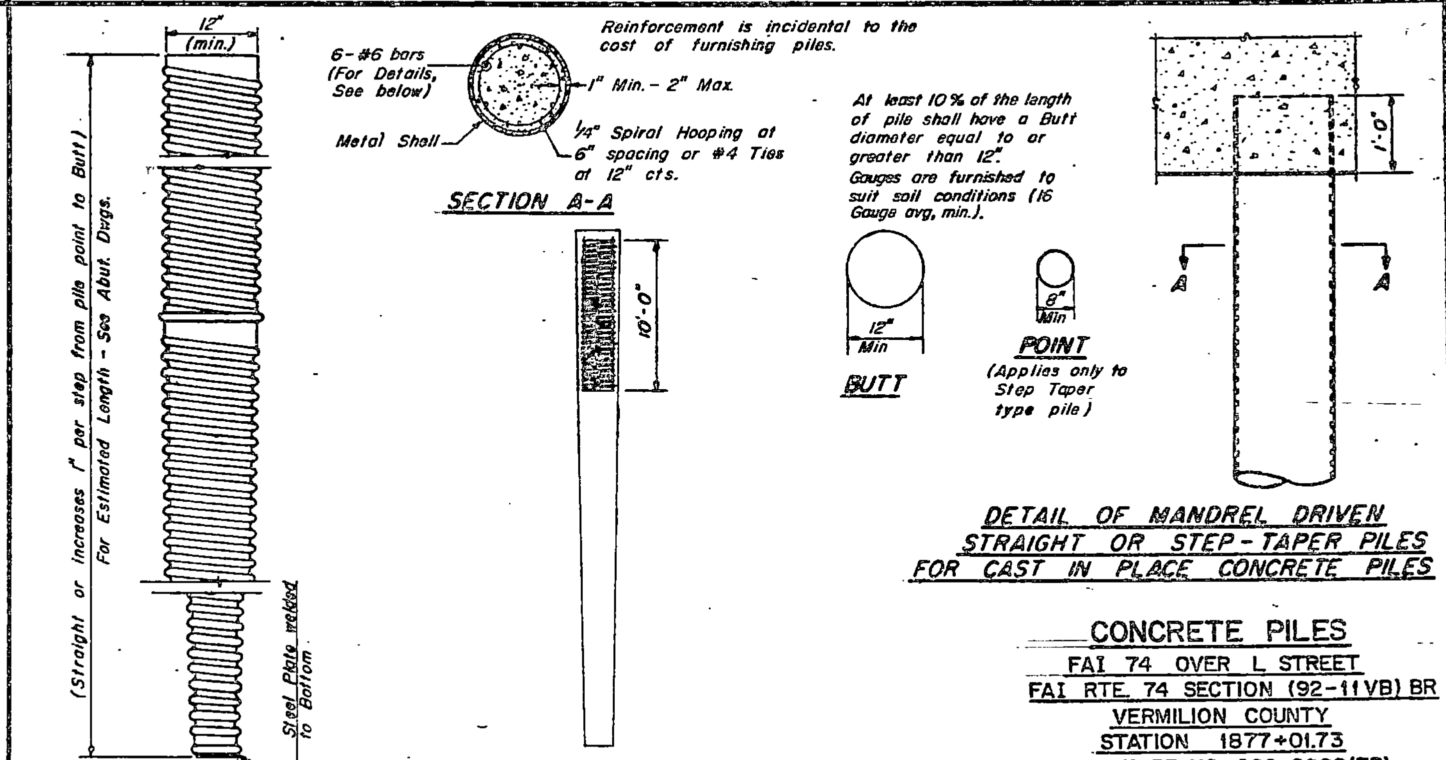
DETAIL OF CYLINDRICAL STEEL SHELL FOR CAST IN PLACE CONCRETE PILES




The cost of Reinforcement is incidental to the cost of furnishing piles

Reinforcement in top of pile shall be omitted under pier footings when placed in natural ground

DETAIL OF REINFORCEMENT FOR METAL SHELLS




Reinforcement is incidental to the cost of furnishing piles.

At least 10% of the length of pile shall have a Butt diameter equal to or greater than 12".
Gauges are furnished to suit soil conditions (16 Gauge avg. min.).

DETAIL OF MANDREL DRIVEN STRAIGHT OR STEP-TAPER PILES FOR CAST IN PLACE CONCRETE PILES

**ESCA CONSULTANTS, INC.**

| | | |
|---|---|---|
| DESIGNED BY: | RDP | 12/89 |
| DRAWN BY: | WEM | 12/89 |
| CHECKED BY: | JRF | 12/89 |
| APPROVED BY: | RDP | 12/89 |

CONCRETE PILES
FAI 74 OVER L STREET
FAI RTE. 74 SECTION (92-11VB) BR
VERMILION COUNTY
STATION 1877+01.73
STRUCTURE NO. 092-0008(EB)
STRUCTURE NO. 092-0009(WB)

| FEDERAL AID ROUTE NO | SEC | COUNTY | TOTAL SHEETS | SHEET NO |
|---|---|---|---|---|
| 74 | 92-11 VB | VERMILION | 67 | 1 |
| FED ROAD DIST NO 7 | ILLINOIS | PROJECT I-IG 74-6(38)216 | | |

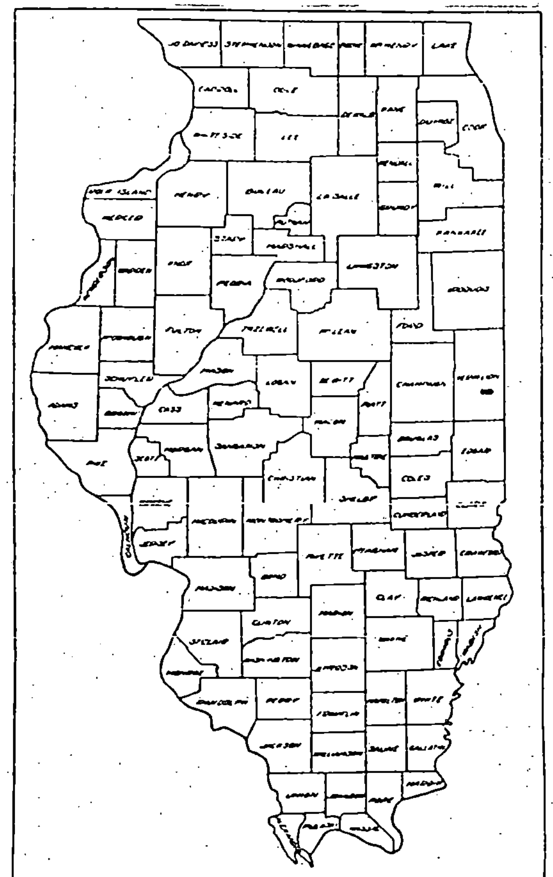
FOR INDEX OF SHEETS - SEE SHEET NO. 3
FOR SUMMARY OF QUANTITIES - SEE SHEET NO. 3

# STATE OF ILLINOIS
## DEPARTMENT OF PUBLIC WORKS AND BUILDINGS
## DIVISION OF HIGHWAYS
# PLANS FOR PROPOSED
# FEDERAL AID INTERSTATE HIGHWAY

SCALES
- PLAN 1 INCH 100 FT & 50 FT.
- PROFILE HOR 1 INCH 50 FT
- PROFILE VERT 1 INCH 10 FT & 5 FT.
- CROSS SECTIONS 1 INCH 5 FT VERTICAL, 10 FT HORIZONTAL

## F.A.I. ROUTE 74, SECTION 92-11VB, VERMILION COUNTY

## PROJECT I-IG 74-6(38) 216

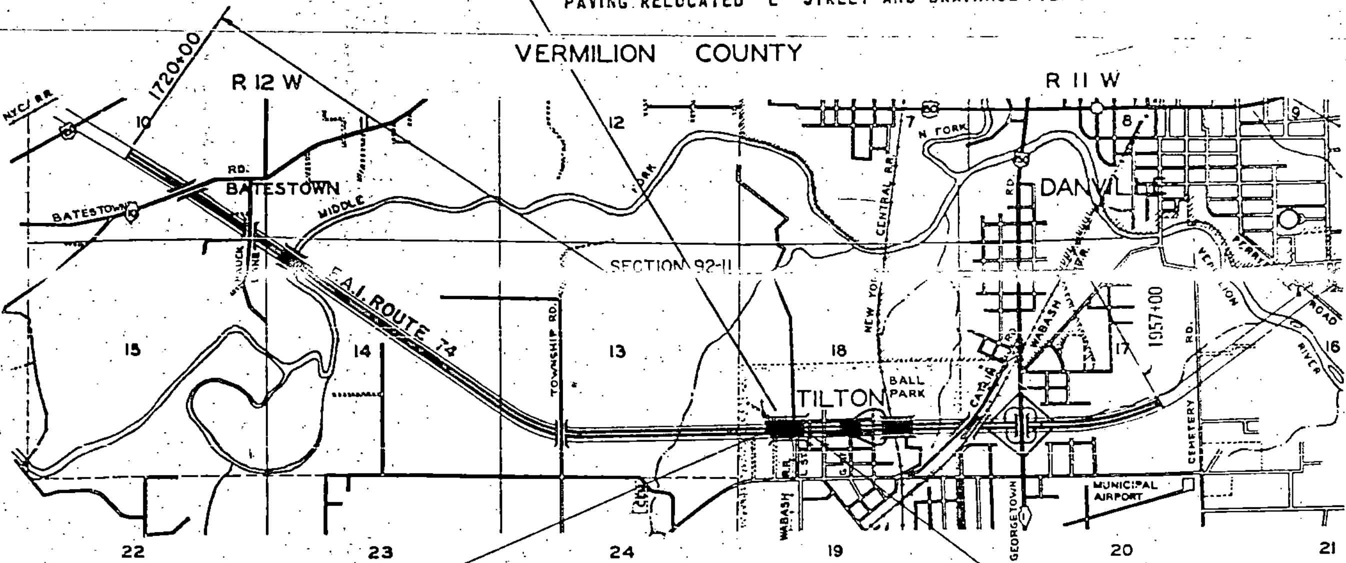

LOCATION OF SECTION INDICATED THUS:—

SECTION 92-11VB INCLUDES TWO GRADE SEPARATION STRUCTURES DESIGNATED AS LEFT AND RIGHT BRIDGE (WESTBOUND AND EASTBOUND STRUCTURES) THE LEFT BRIDGE IS A 5 SPAN STEEL BEAM STRUCTURE WITH 2 SINGLE SPANS OF 73'-6 AND 68'-6 (AT ℄ WESTBOUND) AND 3 CONTINUOUS SPANS OF 53'-3, 66'-6 AND 51'-3. A ROADWAY WIDTH OF 42'-0 AND 2'-0 SAFETY WALKS
THE RIGHT BRIDGE IS A 4 SPAN CONTINUOUS STEEL BEAM STRUCTURE WITH SPANS OF 67'-8, 88'-4, 66'-6 AND 51'-3. A ROADWAY WIDTH OF 30'-0 AND 2'-0 SAFETY WALKS
EACH STRUCTURE ON REINFORCED CONCRETE PIERS AND ABUTMENTS AT STATION 1877+01.73 TOGETHER WITH RETAINING WALL. ALSO EARTHWORK PAVING RELOCATED "L" STREET AND DRAINAGE ITEMS.

APPROVED
FOR STRUCTURAL ADEQUACY ONLY
W E Baumann 6/7/63.
Engineer of Bridges & Traffic Structures

DESIGN CLASSIFICATION
1350-T-70

VERMILION COUNTY




PROJECT BEGINS
STA. 1876+24.92

PROJECT ENDS
STA. 1879+02.33

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS AND BUILDINGS
DIVISION OF HIGHWAYS

SUBMITTED May 24 19 63
J. J. Cychol DISTRICT ENGINEER
EXAMINED June 14 19 63
ENGINEER OF ROAD PLANS AND CONTRACTS
PASSED June 14 19 63
ENGINEER OF DESIGN
APPROVED June 14 19 63
CHIEF HIGHWAY ENGINEER
APPROVED June 14 19 63
Francis S Lorenz DIRECTOR

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS
APPROVED
DIVISION ENGINEER DATE

1350-T-70

PLANS PREPARED BY
CONSOER TOWNSEND & ASSOCIATES
CONSULTING ENGINEERS
360 EAST GRAND AVE.
CHICAGO, ILL.

092-0088+0009

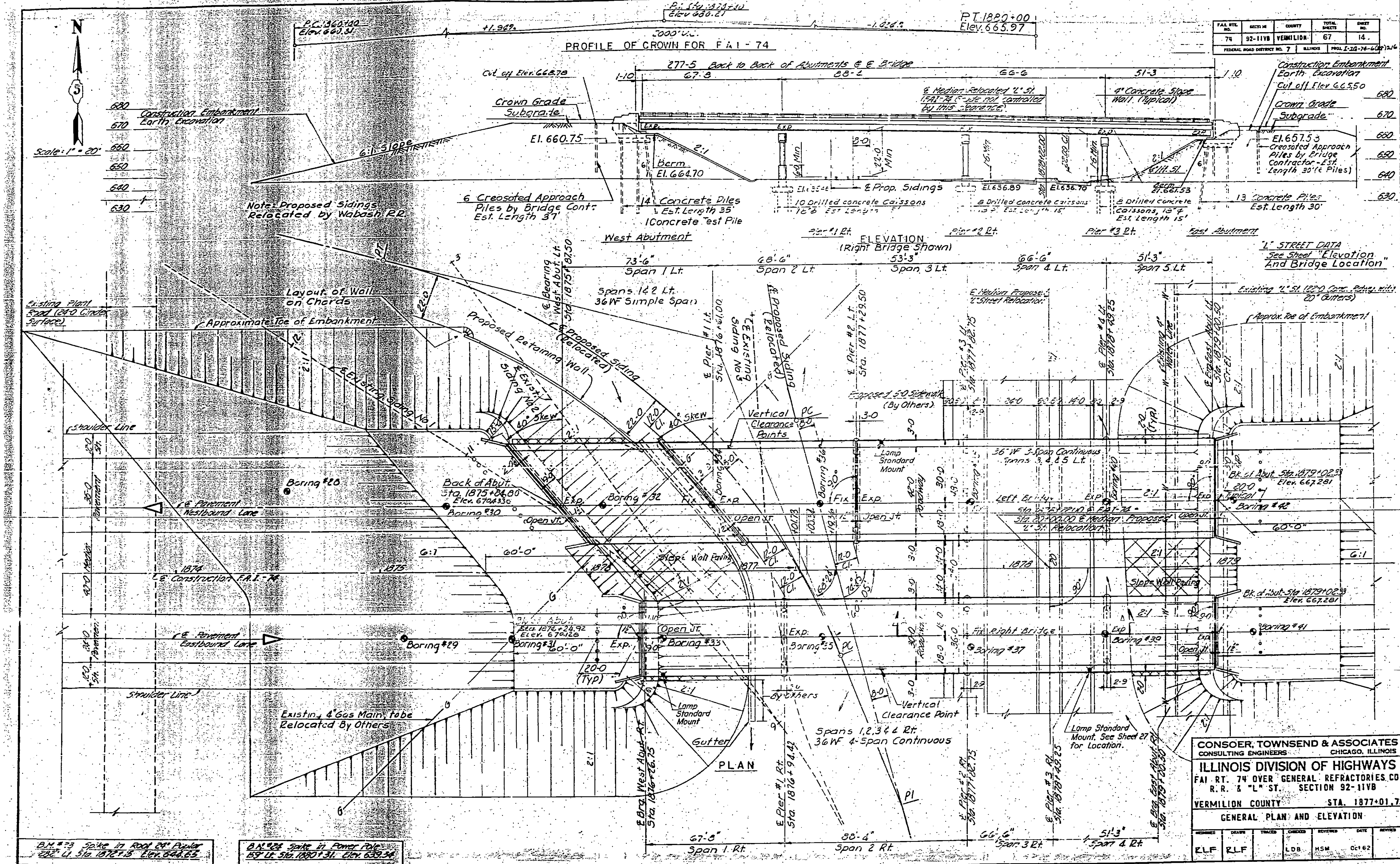
REEL
5-37

JOB NO. 23160 FAI ROUTE 74. SECTION 92-11VB VERMILION COUNTY PROJECT I-IG 74-6(38)216

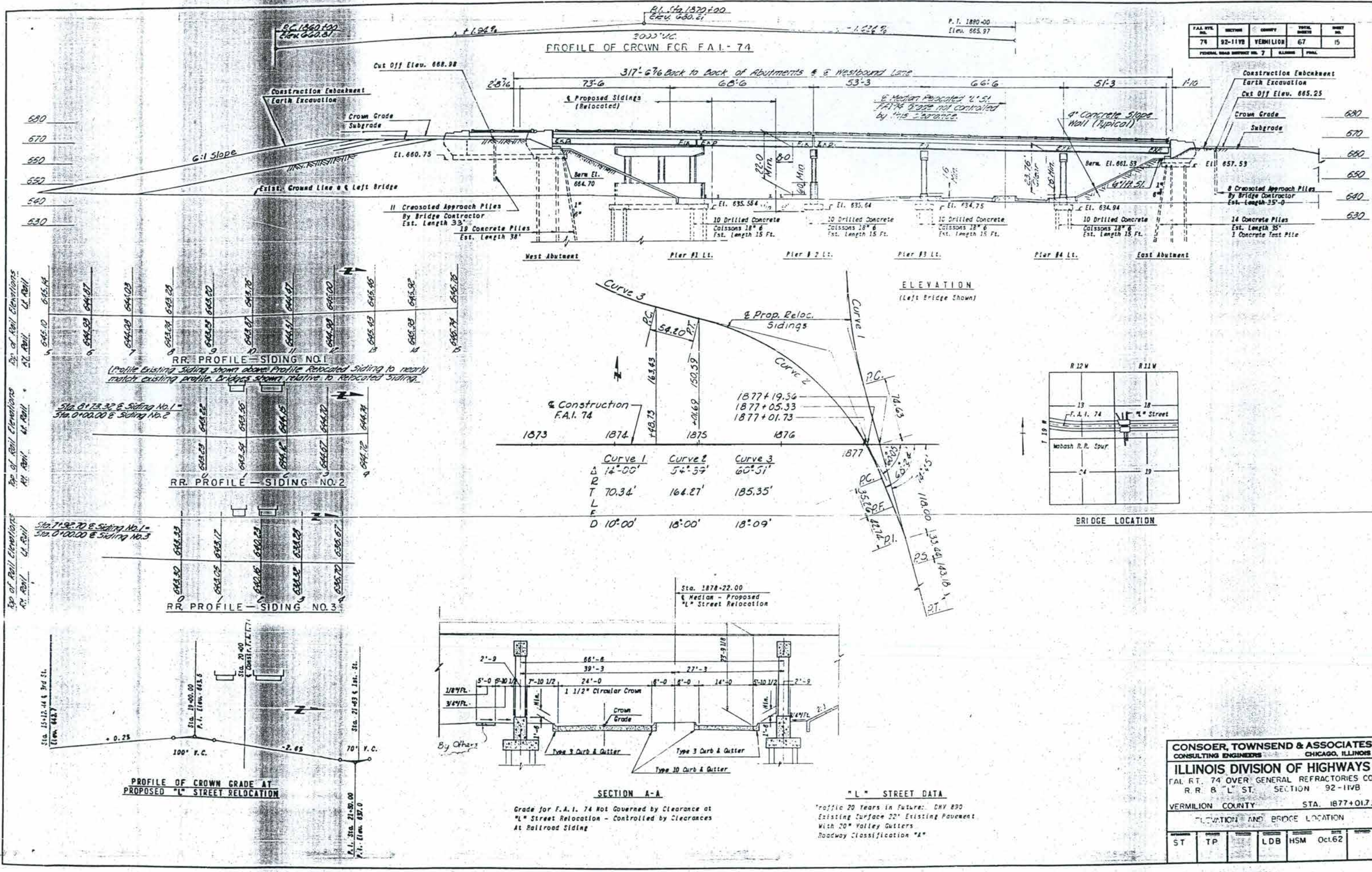
NET LENGTH SECTION = 277.41 FEET = 0.053 MILES
NET LENGTH PROJECT = 277.41 FEET = 0.053 MILES

VERMILION COUNTY SECTION 92-11VB F. A.I. ROUTE 74

Added Project Begins & Ends & Changed Net length from 317.50 To 277.41. & deleted Fabrication Steel note. 6-13-63 E.P.T.

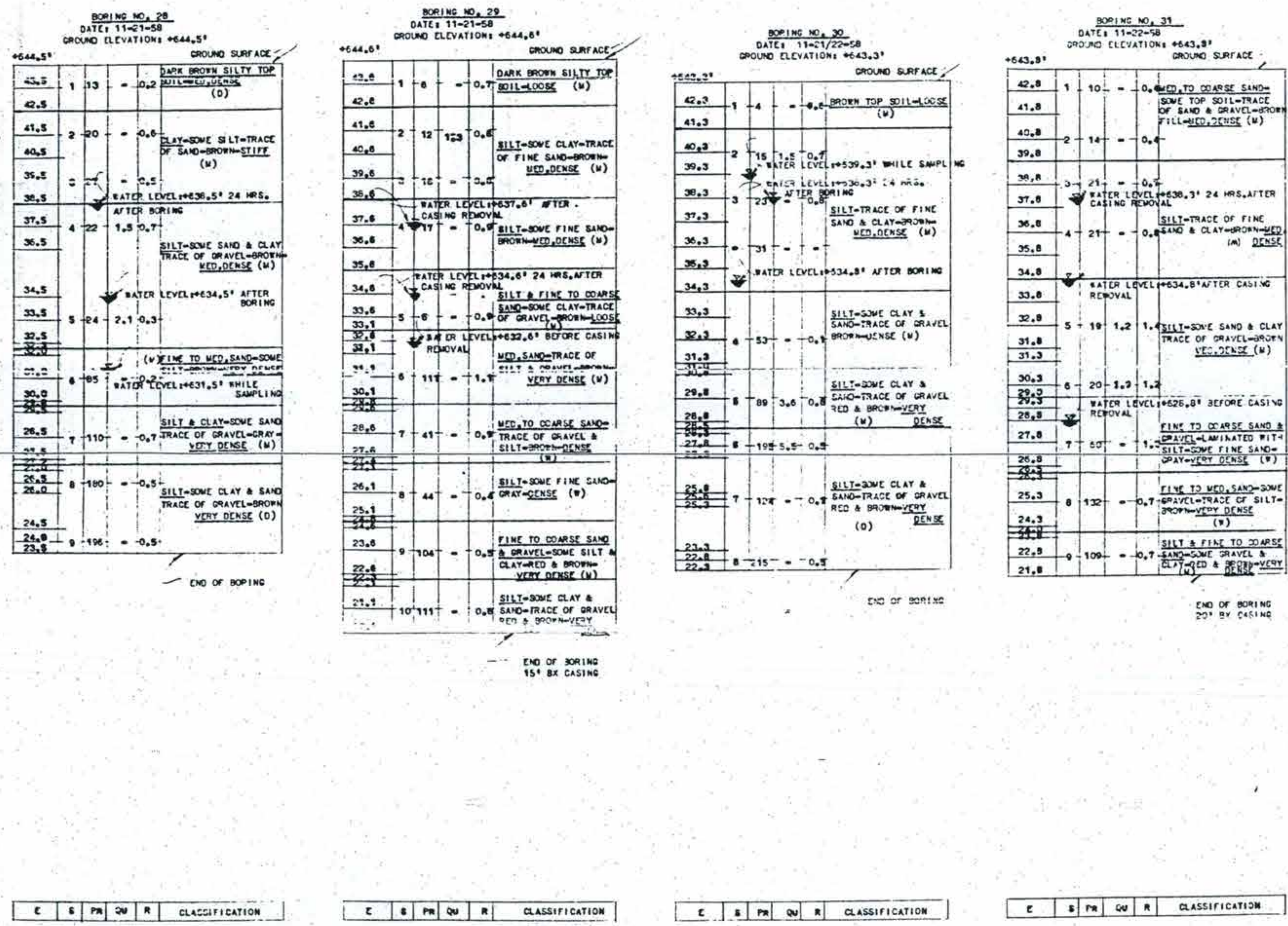


PROFILE OF CROWN FOR F.A.I. - 74
P.C. 1860+00
Elev. 660.31
P.T. 1880+00
Elev. 665.97
+1.969
2000' V.C.
277-5 Back to Back of Abutments & E Bridge
Construction Embankment
Earth Excavation
Crown Grade
Subgrade
6:1 Slope
Scale: 1" = 20'
El. 660.75
Berm
El. 664.70
6 Creosoted Approach Piles by Bridge Contr. Est. Length 37'
14 Concrete Piles Est. Length 35'
1 Concrete Test Pile
10 Drilled concrete Caissons
8 Drilled concrete Caissons
8 Drilled Concrete Caissons, Est. Length 15'
E Prop. Sidings
4" Concrete Slope Wall (Typical)
Cut off Elev. 665.50
El. 657.53
Creosoted Approach Piles by Bridge Contractor - Est. Length 30' (6 Piles)
13 Concrete Piles Est. Length 30'
West Abutment
ELEVATION
(Right Bridge Shown)
East Abutment
Note: Proposed Sidings Relocated by Wabash R.R.
"L" STREET DATA
See Sheet "Elevation And Bridge Location"
Span 1 Lt.
Span 2 Lt.
Span 3 Lt.
Span 4 Lt.
Span 5 Lt.
Spans 1 & 2 Lt. 36 WF Simple Span
Layout of Wall on Chords
Proposed Retaining Wall
Existing Plant Road (24'-0 Cinder Surface)
Approximate Toe of Embankment
Approx. Toe of Embankment
Existing "L" St. (22'-0 Conc. Pdwy. with 20" Gutters)
Shoulder Line
Boring #28
Boring #29
Boring #30
Boring #31
Boring #32
Boring #33
Boring #35
Boring #37
Boring #39
Boring #41
Boring #42
E Pavement Westbound Lane
E Pavement Eastbound Lane
E Construction F.A.I.-74
Back of Abut. Sta. 1875+84.80
36" WF 3-Span Continuous Spans 3, 4 & 5 Lt.
Slope Wall Paving
Vertical Clearance Points
Proposed 5'-0 Sidewalk (By Others)
Lamp Standard Mount
Left Bridge
Right Bridge
Existing 4" Gas Main to be Relocated By Others
Spans 1, 2, 3 & 4 Rt. 36 WF 4-Span Continuous
PLAN
Span 1 Rt.
Span 2 Rt.
Span 3 Rt.
Span 4 Rt.
Lamp Standard Mount. See Sheet 27 for Location.
B.M. #23 Spike in Root 24" Poplar 232' Lt. Sta. 1872+18 Elev. 644.65
B.M. #24 Spike in Power Pole 159' Lt. Sta. 1880+31 Elev. 639.34
F.A.I. RTE. 74 | SECTION 92-11VB | COUNTY VERMILION | TOTAL SHEETS 67 | SHEET NO. 14
FEDERAL ROAD DISTRICT NO. 7 | ILLINOIS
CONSOER, TOWNSEND & ASSOCIATES
CONSULTING ENGINEERS CHICAGO, ILLINOIS
ILLINOIS DIVISION OF HIGHWAYS
FAI RT. 74 OVER GENERAL REFRACTORIES CO. R.R. & "L" ST. SECTION 92-11VB
VERMILION COUNTY STA. 1877+01.73
GENERAL PLAN AND ELEVATION
RLF RLF LDB HSM Oct 62


F.A.I. RTE. 74 | SECTION 92-11VB | COUNTY VERMILION | TOTAL SHEETS 67 | SHEET NO. 15
FEDERAL ROAD DISTRICT NO. 7 | ILLINOIS | FINAL
PROFILE OF CROWN FOR F.A.I.-74
P.I. Sta. 1870+00
Elev. 680.21
P.C. 1860+00
Elev. 660.81
P.T. 1880+00
Elev. 665.97
+1.94%
-1.636%
2000' V.C.
317'-6 7/16 Back to Back of Abutments & ℄ Westbound Lane
Cut Off Elev. 668.98
Construction Embankment
Earth Excavation
Crown Grade
Subgrade
6:1 Slope
El. 660.75
Exist. Ground Line @ ℄ Left Bridge
11 Creosoted Approach Piles
By Bridge Contractor
Est. Length 33'
19 Concrete Piles
Est. Length 38'
℄ Proposed Sidings (Relocated)
℄ Median Relocated "L" St.
F.A.I. 74 Grade not controlled by this clearance.
4" Concrete Slope Wall (Typical)
10 Drilled Concrete Caissons 18" φ Est. Length 15 Ft.
Cut Off Elev. 665.25
8 Creosoted Approach Piles
By Bridge Contractor
Est. Length 35'-0
14 Concrete Piles
Est. Length 35'
1 Concrete Test Pile
West Abutment
Pier #1 Lt.
Pier #2 Lt.
Pier #3 Lt.
Pier #4 Lt.
East Abutment
ELEVATION
(Left Bridge Shown)
RR. PROFILE — SIDING NO. 1
(Profile Existing Siding shown above. Profile Relocated Siding to nearly match existing profile. Bridges shown relative to Relocated Siding.)
Sta. 8+73.32 ℄ Siding No. 1 = Sta. 0+00.00 ℄ Siding No. 2
RR. PROFILE — SIDING NO. 2
Sta. 7+92.70 ℄ Siding No. 1 = Sta. 0+00.00 ℄ Siding No. 3
RR. PROFILE — SIDING NO. 3
Top of Rail Elevations
Rt. Rail
Lt. Rail
Curve 1
Curve 2
Curve 3
℄ Prop. Reloc. Sidings
℄ Construction F.A.I. 74
1877+19.36
1877+05.33
1877+01.73
Curve 1 | Curve 2 | Curve 3
Δ 14°-00' | 54°-39' | 60°-51'
T 70.34' | 164.27' | 185.35'
D 10°-00' | 18°-00' | 18°-09'
BRIDGE LOCATION
Wabash R.R. Spur
"L" Street
Sta. 1878+22.00
℄ Median - Proposed "L" Street Relocation
1 1/2" Circular Crown
Type 3 Curb & Gutter
Type 10 Curb & Gutter
By Others
SECTION A-A
Grade for F.A.I. 74 Not Governed by Clearance at "L" Street Relocation - Controlled by Clearances At Railroad Siding
PROFILE OF CROWN GRADE AT PROPOSED "L" STREET RELOCATION
100' V.C.
70' V.C.
+0.2%
-2.6%
"L" STREET DATA
Traffic 20 Years in Future: DHV 890
Existing Surface 22' Existing Pavement With 20" Valley Gutters
Roadway Classification "A"
CONSOER, TOWNSEND & ASSOCIATES
CONSULTING ENGINEERS CHICAGO, ILLINOIS
ILLINOIS DIVISION OF HIGHWAYS
F.A.I. RT. 74 OVER GENERAL REFRACTORIES CO. R.R. & "L" ST. SECTION 92-11VB
VERMILION COUNTY STA. 1877+01.73
ELEVATION AND BRIDGE LOCATION
ST TP LDB HSM Oct.62

| F.A.I. RTE. NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 74 | 92-1IVBB | VERMILION | 67 | 16 |
| FEDERAL ROAD DISTRICT NO. 7 | ILLINOIS | PROJ. | | |

| BORING | STATION | OFFSET |
|---|---|---|
| 28 | 1874+54 | 40'L |
| 29 | 1875+12 | 32'R |
| 30 | 1875+32 | 32'L |
| 31 | 1875+64 | 32'R |




GENERAL NOTES

1950 CHICAGO BUILDING CODE SOIL CLASSIFICATIONS ARE USED.

E : ELEVATION
S : SAMPLE NUMBERS
PR : PENETRATION IN BLOWS PER FOOT OF 140 POUNDS HAMMER FALLING 30 INCHES
QU : UNCONFINED COMPRESSIVE STRENGTH—T/SQ.FT.
R : RECOVERY IN FEET
SS : SPLIT SPOON—SIZE: 2"O.D. SIZE: 1 3/8" I.D.
M : MOIST
D : DRY
W : WET

"LOGS PREPARED BY
SOIL TESTING SERVICES, INC.
1827 N. HARLEM AVE.
CHICAGO, 35, ILL."

WATER LEVELS INDICATED ON THE BORING LOGS ARE THE LEVELS MEASURED IN THE BORING AT THE TIMES INDICATED. IN PERVIOUS SOILS, THE INDICATED ELEVATIONS ARE CONSIDERED RELIABLE GROUND WATER LEVELS. IN IMPERVIOUS SOILS, THE ACCURATE DETERMINATION OF GROUND WATER ELEVATIONS IS NOT POSSIBLE IN EVEN SEVERAL DAYS OBSERVATION, AND ADDITIONAL EVIDENCE ON GROUND WATER ELEVATIONS MUST BE SOUGHT.

S.T.S. JOB NO. 3721-8

LOCATION # 5-1

CONSOER, TOWNSEND & ASSOCIATES
CONSULTING ENGINEERS — CHICAGO, ILLINOIS

ILLINOIS DIVISION OF HIGHWAYS

FAI RT. 74 OVER GENERAL REFRACTORIES CO. R.R. & "L" ST. SECTION 92-11VB

VERMILION COUNTY — STA. 1877 + 01.73

BORING LOGS

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED | DATE | REVISED |
|---|---|---|---|---|---|---|
| | | | LDB | HSM | 3-25-59 | |

| F.A.I. RTE. NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 74 | 92-11-VBB | VERMILION | 67 | 17 |
| FEDERAL ROAD DISTRICT NO. | | ILLINOIS | PROJ. | |

**BORING NO. 32**
DATE: 11-22-58
GROUND ELEVATION: +643.2'

+643.2' GROUND SURFACE

| E. | S | PR | QU | R | CLASSIFICATION |
|---|---|---|---|---|---|
| 42.2 / 41.2 | 1 | 14 | - | 0.5 | SILT & SAND-SOME TOP SOIL & GRAVEL-DARK BROWN-MED.DENSE (D) (FILL) |
| 40.2 / 39.2 | 2 | 20 | - | 0.? | SILT-SOME CLAY & SAND TRACE OF GRAVEL-BROWN FILL-MED.DENSE (W) |
| | | | | | WATER LEVEL: +638.2' 24 HRS. AFTER BORING |
| 38.2 / 37.2 | 3 | 39 | - | 0.2 | SILT-TRACE OF FINE SAND-BROWN-DENSE (W) |
| | | | | | WATER LEVEL: +637.2' WHILE SAMPLING |
| 36.2 / 35.2 / 34.2 | 4 | 33 | 1.3 | 1.? | |
| | | | | | WATER LEVEL: +633.2' AFTER BORING |
| 33.2 / 32.2 / 31.2 / 31.0 / 30.7 | 5 | 24 | 1.2 | 1.5 | SILT-TRACE OF CLAY & FINE SAND-BROWN-MED. DENSE (W) |
| 29.7 / 28.7 / 28.2 | 6 | 61 | 6.1 | 0.8 | |
| 27.2 / 26.2 / 25.7 | 7 | [illegible] | [illegible] | [illegible] | SILT-SOME CLAY & SAND TRACE OF GRAVEL-RED & BROWN-VERY DENSE (W) |
| 25.0 / 24.2 | 8 | 100 | 9.2 | 0.5 | |
| 23.2 / 23.0 / 22.7 | 9 | 120 | - | 0.5 | SILT-SOME CLAY & SAND TRACE OF GRAVEL-RED & BROWN-VERY DENSE (D) |

END OF BORING

**BORING NO. 33**
DATE: 11-22/23-58
GROUND ELEVATION: +542.0'

+642.0' GROUND SURFACE

| E. | S | PR | QU | R | CLASSIFICATION |
|---|---|---|---|---|---|
| 41.0 / 40.0 | 1 | 6 | - | 0.7 | BLACK TOP SOIL-LOOSE (W) |
| 39.0 / 38.0 | 2 | 14 | - | 0.7 | |
| 37.0 / 36.0 | 3 | 10 | 0.8 | 0.? | SILT-TRACE OF FINE SAND & CLAY-BROWN-MED.DENSE (W) |
| | | | | | WATER LEVEL: +636.5' 24 HRS. AFTER BORING |
| 35.0 / 34.0 / 33.0 | 4 | 5 | 0.5 | 0.9 | SILT-SOME CLAY-TRACE OF FINE SAND-BROWN-LOOSE (W) |
| 32.0 / 31.0 / 30.0 / 29.5 | 5 | 45 | 6.8 | 0.2 | |
| 28.5 / 27.5 / 27.0 | 6 | 57 | 9.2 | 1.0 | SILT-SOME CLAY & SAND-TRACE OF GRAVEL RED & BROWN-VERY DENSE (W) |
| 26.0 / 25.0 | 7 | 71 | 10.3 | 0.8 | |
| 23.5 / 22.5 | 8 | 110 | 13.7 | 0.9 | SILT-SOME CLAY & SAND-TRACE OF GRAVEL-RED & BROWN-VERY DENSE (D) |
| 21.0 / 20.0 | 9 | 30 | - | 0.2 | SILT & CLAY-TRACE OF SAND-GRAY-DENSE (D) |
| 19.? / 18.? | 10 | 145+ | - | 0.5 | SILT & CLAY-TRACE OF SAND-GRAY-VERY DENSE (D) |
| 17.0 | 11 | 120 | - | 0.5 | |

END OF BORING

**BORING NO. 34**
DATE: 11-22/23-58
GROUND ELEVATION: +642.0'

+642.0' GROUND SURFACE

| E. | S | PR | QU | R | CLASSIFICATION |
|---|---|---|---|---|---|
| 41.0 / 40.0 | 1 | 7 | - | 0.1 | CINDER FILL-BLACK-LOOSE (D) |
| 39.0 / 38.0 | 2 | 8 | - | 0.2 | |
| | | | | | WATER LEVEL: +638.0' AFTER BORING |
| 37.0 / 36.0 | 3 | 16 | - | 0.7 | SILT-TRACE OF CLAY & FINE SAND-BROWN-MED. DENSE (W) |
| | | | | | WATER LEVEL: +637.5' 24 HRS. AFTER BORING |
| 35.0 / 34.0 / 33.0 | 4 | 13 | - | 0.2 | SILT-TRACE OF CLAY & FINE SAND-BROWN-MED. DENSE (W) |
| | | | | | WATER LEVEL: +634.0' WHILE SAMPLING |
| 32.0 / 31.0 / 30.0 | 5 | 40 | 3.4 | 1.5 | SILT-SOME SAND & CLAY TRACE OF GRAVEL-BROWN DENSE (W) |
| 28.5 / 27.5 | 6 | 47 | - | 0.7 | SILT-SOME CLAY & SAND TRACE OF GRAVEL-RED & BROWN-DENSE (W) |
| 26.0 / 25.0 / 24.5 | 7 | 77 | 7.9 | 0.8 | |
| 23.5 / 22.5 | 8 | 85 | 8.7 | 0.8 | SILT-SOME CLAY & SAND TRACE OF GRAVEL-RED & BROWN-VERY DENSE (D) |
| 22.0 / 21.3 / 20.5 / 20.0 | 9 | 210 | - | 0.7 | |
| 19.5 / 18.7 / 18.0 | 10 | 182 | - | 0.7 | SILT & CLAY-TRACE OF SAND-GRAY-VERY DENSE (D) |

END OF BORING

**BORING NO. 35**
DATE: 11-23-58
GROUND ELEVATION: +643.0'

+643.0' GROUND SURFACE

| E. | S | PR | QU | R | CLASSIFICATION |
|---|---|---|---|---|---|
| 42.0 / 41.0 | 1 | 5 | - | 0.3 | MISC.FILL-DARK BROWN LOOSE (D) |
| 40.0 / 39.0 | 2 | 18 | - | 0.4 | MISC.FILL-DARK BROWN-MED.DENSE (D) |
| 38.0 | 3 | 13 | - | 0.3 | |
| 37.0 | | | | | WATER LEVEL: +637.0' 24 HRS. AFTER BORING |
| 36.0 / 35.0 / 34.0 | 4 | 9 | 1.0 | 0.8 | CLAY & SILT-TRACE OF SAND-BROWN-TOUGH (W) |
| 33.0 / 32.0 / 31.0 / 30.5 | 5 | 61 | 5.3 | 0.8 | |
| 29.0 / 28.5 / 28.0 | 6 | 74 | - | 0.5 | SILT-SOME CLAY & SAND-TRACE OF GRAVEL RED & BROWN-VERY DENSE (W) |
| 27.0 / 26.0 / 25.5 | 7 | 69 | - | 0.9 | |
| 24.5 | 8 | 63 | - | 0.5 | |
| 23.5 / 23.0 / 22.5 / 22.1 / 21.3 | 9 | 161 | - | - | |
| 20.5 / 20.0 / 19.5 | 10 | 150+ | - | - | SILT & CLAY-TRACE OF SAND-GRAY-VERY DENSE (D) |

END OF BORING

**BORING NO. 36**
DATE: 11-23-58
GROUND ELEVATION: +641.5'

+641.5' GROUND SURFACE

| E. | S | PR | QU | R | CLASSIFICATION |
|---|---|---|---|---|---|
| 40.5 / 39.5 | 1 | 8 | - | 0.3 | MISC.FILL-DARK BROWN LOOSE (D) |
| 38.5 / 37.5 | 2 | 18 | - | 0.3 | DARK BROWN TOP SOIL-MED.DENSE (W) |
| | | | | | WATER LEVEL: +637.5' 24 HRS. AFTER BORING |
| 36.5 / 35.5 | 3 | 12 | - | 0.2 | CLAY-SOME SILT-TRACE OF SAND & MISC.FILL-BROWN-TOUGH (W) |
| 34.5 / 33.5 | 4 | 6 | - | 0.1 | SILT-SOME FINE SAND & CLAY-BROWN-LOOSE (W) |
| 32.5 | | | | | WATER LEVEL: +632.5' WHILE SAMPLING |
| 31.5 | | | | | WATER LEVEL: +631.5' AFTER BORING |
| 30.5 / 29.5 / 29.? / 29.0 | 5 | 131 | - | 1.0 | MED.SAND-TRACE OF SILT-BROWN-VERY DENSE (W) |
| 28.0 / 27.0 | 6 | 83 | - | 0.7 | |
| 26.5 / 25.5 / 24.5 / 24.0 | 7 | 160 | - | 0.8 | SILT-SOME CLAY & SAND-TRACE OF GRAVEL RED & BROWN-VERY DENSE (D) |
| 23.5 / 23.0 | 8 | 187 | - | 0.7 | |

END OF BORING

| BORING | STATION | OFFSET |
|---|---|---|
| 32 | 1875+08 | 32'L |
| 33 | 1875+37 | 32'R |
| 34 | 1876+60 | 32'L |
| 35 | 1877+12 | 32'R |
| 36 | 1877+12 | 32'L |

*LOGS PREPARED BY
SOIL TESTING SERVICES, INC.
1827 N. HARLEM AVE.
CHICAGO 35, ILL.

NOTE:
FOR GENERAL NOTE SEE BORING NO. 3791-8, LOCATION # 5-1

S.T.S. JOB NO. 3791-8

LOCATION # 5-2

CONSOER, TOWNSEND & ASSOCIATES
CONSULTING ENGINEERS CHICAGO, ILLINOIS

ILLINOIS DIVISION OF HIGHWAYS
FAI RT. 74 OVER GENERAL REFRACTORIES CO. R.R. & "L" ST.
SECTION 92-11VB
VERMILION COUNTY STA. 1877+01.73

BORING LOGS

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED | DATE | REVISED |
|---|---|---|---|---|---|---|
| | | | LDB | HSM | 3-25-59 | |

| F.A.I. RTE. NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 74 | 92-11VB | VERMILION | 67 | 18 |
| FEDERAL ROAD DISTRICT NO. — | | ILLINOIS | PROJ. | |

BORING NO. 37
DATE: 11-23/24-58
GROUND ELEVATION: +643.0'

+643.0' GROUND SURFACE

| E | S | PR | QU | R | CLASSIFICATION |
|---|---|---|---|---|---|
| 42.0 | 1 | 16 | - | 0.9 | SILT-SOME CLAY & SAND DARK BROWN-FILL-MED. DENSE (D) |
| 41.0 | | | | | |
| 40.0 | 2 | 20 | - | 0.3 | |
| 39.0 | | | | | |
| 38.0 | 3 | 13 | - | 0.5 | CLAY & SILT-TRACE OF SAND-BROWN-STIFF (M) |
| 37.0 | | | | | WATER LEVEL: +637.5' 24 HRS. AFTER BORING |
| 36.0 | 4 | 6 | - | 0.3 | WATER LEVEL: +637.0' AFTER BORING |
| 35.0 | | | | | WATER LEVEL: +635.0' WHILE SAMPLING |
| 34.0 | | | | | |
| 33.0 | | | | | SILT-SOME CLAY-TRACE SAND & GRAVEL-BROWN-DENSE (M) |
| 32.0 | 5 | 56 | - | 1.5 | |
| 31.0 | | | | | |
| 30.8 | | | | | |
| 30.3 | | | | | |
| 29.5 | 6 | 109 | - | 0.8 | SILT-SOME CLAY & SAND TRACE OF GRAVEL-RED & BROWN-VERY DENSE (D) |
| 28.5 | | | | | |
| 28.0 | | | | | |
| 27.0 | 7 | 101 | 7.5 | 0.7 | |
| 26.0 | | | | | |

END OF BORING

BORING NO. 38
DATE: 11-23-58
GROUND ELEVATION: +638.8'

+638.8' GROUND SURFACE

| E | S | PR | QU | R | CLASSIFICATION |
|---|---|---|---|---|---|
| 37.8 | 1 | 8 | - | 0.1 | BLACK TOP SOIL-LOOSE (M) |
| 36.8 | | | | | |
| 35.8 | 2 | 10 | 1.5 | 0.5 | CLAY-SOME SILT-TRACE OF SAND & GRAVEL-BROWN-TOUGH (M) |
| 34.8 | | | | | WATER LEVEL: +635.3' 24 HRS. AFTER BORING |
| 33.8 | 3 | 10 | - | 0.5 | |
| 32.8 | | | | | WATER LEVEL: +634.8' AFTER BORING |
| 31.8 | 4 | 6 | - | 0.7 | WATER LEVEL: +631.8' WHILE SAMPLING |
| 30.8 | | | | | SILT-SOME SAND & CLAY-TRACE OF GRAVEL-BROWN-LOOSE (M) |
| 29.8 | | | | | |
| 28.9 | | | | | |
| 27.8 | 5 | 130 | 9.6 | 0.7 | SILT-SOME CLAY & SAND-TRACE OF GRAVEL-RED & BROWN-VERY DENSE (D) |
| 26.8 | | | | | |
| 26.3 | | | | | |
| 25.6 | 6 | 175 | - | 0.6 | |
| 24.8 | | | | | |

END OF BORING

BORING NO. 39
DATE: 11-23/24-58
GROUND ELEVATION: +641.2'

+641.2' GROUND SURFACE

| E | S | PR | QU | R | CLASSIFICATION |
|---|---|---|---|---|---|
| 40.2 | 1 | 7 | - | 0.8 | DARK BROWN SILTY TOP SOIL-LOOSE (M) |
| 39.2 | | | | | |
| 38.2 | 2 | 11 | - | 0.6 | SILT, SAND, CLAY & MISC. FILL-DARK BROWN-MED. DENSE (M) |
| 37.2 | | | | | |
| 36.2 | 3 | 11 | - | 1.0 | WATER LEVEL: +636.2' AFTER BORING |
| 35.2 | | | | | SILT-SOME SAND & CLAY-TRACE OF GRAVEL-BROWN-MED. DENSE (M) |
| 34.2 | 4 | 10 | 0.8 | 1.6 | |
| 33.2 | | | | | |
| 32.2 | | | | | |
| 31.2 | | | | | |
| 30.2 | 5 | 88 | 6.6 | 0.8 | |
| 29.2 | | | | | SILT-SOME CLAY & SAND-TRACE OF GRAVEL RED & BROWN-VERY DENSE (M) |
| 28.7 | | | | | |
| 27.7 | 6 | 63 | - | 0.8 | |
| 26.7 | | | | | |
| 26.2 | | | | | |
| 25.2 | 7 | 132 | - | 0.6 | SILT-SOME CLAY & SAND-TRACE OF GRAVEL-RED & BROWN-VERY DENSE (D) |
| 24.2 | | | | | |
| 23.7 | | | | | |
| 22.7 | 8 | 128 | - | 0.8 | |
| 21.7 | | | | | |

END OF BORING

BORING NO. 40
DATE: 11-24-58
GROUND ELEVATION: +640.5'

+640.5' GROUND SURFACE

| E | S | PR | QU | R | CLASSIFICATION |
|---|---|---|---|---|---|
| 39.5 | | | | | TOP SOIL-LOOSE (M) |
| 39.0 | 1 | 10 | 1.6 | 0.8 | CLAY-SOME SILT-TRACE OF SAND & ORGANIC MATERIAL-TOUGH (M) |
| 38.5 | | | | | |
| 37.5 | 2 | 12 | - | 0.6 | SILT-SOME SAND, CLAY & MISC. FILL-DARK BROWN-MED. DENSE (M) |
| 36.5 | | | | | |
| 35.5 | 3 | 8 | 0.8 | 0.9 | SILT-SOME CLAY-TRACE OF SAND-BROWN-LOOSE |
| 34.5 | | | | | WATER LEVEL: +635.5' AFTER BORING & 24 HRS. AFTER BORING |
| 33.5 | 4 | 13 | 1.7 | 1.2 | SILT-TRACE OF CLAY & SAND-BROWN-MED. DENSE (M) |
| 32.5 | | | | | |
| 31.5 | | | | | |
| 30.5 | | | | | |
| 29.5 | 5 | 43 | 5.0 | 0.9 | SILT-SOME CLAY & SAND-TRACE OF GRAVEL RED & BROWN-VERY DENSE (M) |
| 28.5 | | | | | |
| 28.0 | | | | | |
| 27.0 | 6 | 35 | 5.9 | 0.8 | |
| 26.0 | | | | | |
| 25.7 | | | | | |
| 25.5 | | | | | |
| 24.5 | 7 | 64 | - | 0.9 | SILT-SOME CLAY & SAND-TRACE OF GRAVEL RED & BROWN-VERY DENSE (D) |
| 23.5 | | | | | |
| 23.0 | | | | | |
| 22.0 | 8 | 80 | - | 0.8 | |
| 21.0 | | | | | |

END OF BORING

BORING NO. 41
DATE: 11-24-58
GROUND ELEVATION: 643.6'

+643.5' GROUND SURFACE

| E | S | PR | QU | R | CLASSIFICATION |
|---|---|---|---|---|---|
| 42.8 | 1 | 5 | - | 0.8 | |
| 41.5 | | | | | CLAY & SILT-SOME SAND-BROWN-TOUGH (M) |
| 40.8 | 2 | 9 | - | 0.4 | |
| 39.5 | | | | | |
| 38.6 | 3 | 25 | - | 0.8 | |
| 37.5 | | | | | WATER LEVEL: +537.8' AFTER BORING |
| 36.5 | 4 | 18 | 0.3 | 0.8 | SILT-TRACE OF FINE SAND & CLAY-BROWN-MED. DENSE (M) |
| 35.5 | | | | | WATER LEVEL: +635.5' WHILE SAMPLING |
| 34.5 | | | | | |
| 33.5 | | | | | SILT-SOME SAND & CLAY-TRACE OF GRAVEL BROWN-MED. DENSE (M) |
| 32.5 | 5 | 22 | 1.8 | 2.0 | |
| 31.5 | | | | | |
| 31.3 | | | | | |
| 31.1 | | | | | |
| 30.1 | 6 | 130 | 9.1 | 0.7 | |
| 29.1 | | | | | SILT-SOME CLAY & SAND-TRACE OF GRAVEL RED & BROWN-VERY DENSE (D) |
| 28.5 | | | | | |
| 27.5 | 7 | 182 | - | 0.8 | |
| 26.8 | | | | | |

END OF BORING

BORING NO. 42
DATE: 11-24-58
GROUND ELEVATION: +639.9'

+639.9' GROUND SURFACE

| E | S | PR | QU | R | CLASSIFICATION |
|---|---|---|---|---|---|
| 38.9 | 1 | 7 | - | 0.4 | BLACK TOP SOIL-LOOSE (M) |
| 37.9 | | | | | |
| 36.9 | 2 | 5 | - | 0.5 | CLAY & SILT-SOME SAND & CINDER FILL-BROWN & BLACK-STIFF (M) |
| 35.9 | | | | | WATER LEVEL: +636.9' AFTER BORING |
| 34.9 | 3 | 14 | 0.8 | 1.9 | SILT-SOME SAND-TRACE OF CLAY-BROWN MED. DENSE (M) |
| 33.9 | | | | | WATER LEVEL: +634.9' 24 HRS. AFTER BORING |
| 32.9 | 4 | 12 | 0.7 | 1.4 | SILT-SOME SAND & CLAY-TRACE OF GRAVEL BROWN-MED. DENSE (M) |
| 31.9 | | | | | |
| 30.9 | | | | | |
| 29.9 | | | | | |
| 28.9 | 5 | 49 | 5.0 | 0.9 | |
| 27.9 | | | | | |
| 27.4 | | | | | SILT-SOME CLAY & SAND-TRACE OF GRAVEL-RED & BROWN-VERY DENSE (D) |
| 26.4 | 6 | 34 | 10.4 | 0.8 | |
| 25.4 | | | | | |
| 24.9 | | | | | |
| 23.9 | 7 | 121 | - | 0.4 | |
| 22.9 | | | | | |

END OF BORING

| BORING | STATION | OFFSET |
|---|---|---|
| 37 | 1877+84 | 38'R |
| 38 | 1877+84 | 32'L |
| 39 | 1878+49 | 32'R |
| 40 | 1878+49 | 32'L |
| 41 | 1879+19 | 32'R |
| 42 | 1879+11 | 32'L |

*LOGS PREPARED BY
SOIL TESTING SERVICES, INC.
1827 N. HARLEM AVE.
CHICAGO 35, ILL.

NOTE:

FOR GENERAL NOTES SEE BORING NO. 3791-8, LOCATION 5-1

S.T.S. JOB NO. 3791-8

LOCATION # 5-3

CONSOER, TOWNSEND & ASSOCIATES
CONSULTING ENGINEERS CHICAGO, ILLINOIS

ILLINOIS DIVISION OF HIGHWAYS
FAI RT. 74 OVER GENERAL REFRACTORIES CO. R.R. & "L" ST.
SECTION 92-11VB
VERMILION COUNTY STA. 1877 + 01.73

BORING LOGS

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED | DATE | REVISED |
|---|---|---|---|---|---|---|
| | | | LDB | HSM | 3-25-59 | |

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

| | | | | | SHEET NO. 18 A |
|---|---|---|---|---|---|
| FAI 74 | 92-11VB | VERMILION | 67 | 18A | 67 SHEETS |

Gr. Line Elev.

**Hole #1** — 5-10-63, Hole #1 Pier #4 Lt. 32' Lt. Sta. 1879+49
640.6 B.T.
Began Wash Boring 632.5
Top of SHALE ±617.0
Gray SHALE Cuttings in Wash Water
Drill Time in this Boring is slow because bit needs reconditioning
Increased Hydr. Pressure
549.0
Coal Cuttings in Wash Water
545.5
Limit of Boring

**Hole #2** — 5-20-63, Hole #2 center Pier #2 Rt. 32' Rt. Sta. 1877+83
641.5 B.T.
Bott. of Casing 621.5
Began Wash Boring
Top of SHALE ±618.5
Gray SHALE Cuttings in Wash Water
Continued Wash Borings 5-21-63
551.5
Coal Cuttings in Wash Water
546.5
Limit of Boring

**Hole #3** — 5-21-63, Hole #3 center Pier #3 Lt. 32' Lt. Sta. 1877+83
640.8 B.T.
Bott. of Casing 621.0
Began Wash Boring
Gray SHALE Cutting in Wash Water
552.5
Coal Cuttings in Wash Water
547.0
Limit of Boring

**Hole #4** — 5-21-63, Hole #4 center West Abut. Rt. 32' Rt. Sta. 1876+27
644.5 B.T.
Bott. of Casing 624.5
Began Wash Boring
Top of SHALE
Gray SHALE Cutting in Wash Water
554.5
Coal Cuttings in Wash Water
549.5
Limit of Boring

**Hole #5** — 5-22-63, Hole #5 Pier #1 Lt. 32' Lt. Sta. 187_+61
B.T.
Bott. of Casing
Began Wash Boring
Top of SHALE
Gray SHALE Cutting in Wash Water
555.5
Coal Cutting in Wash Water
Limit of Boring

B.T. Boring Time Seconds per foot.

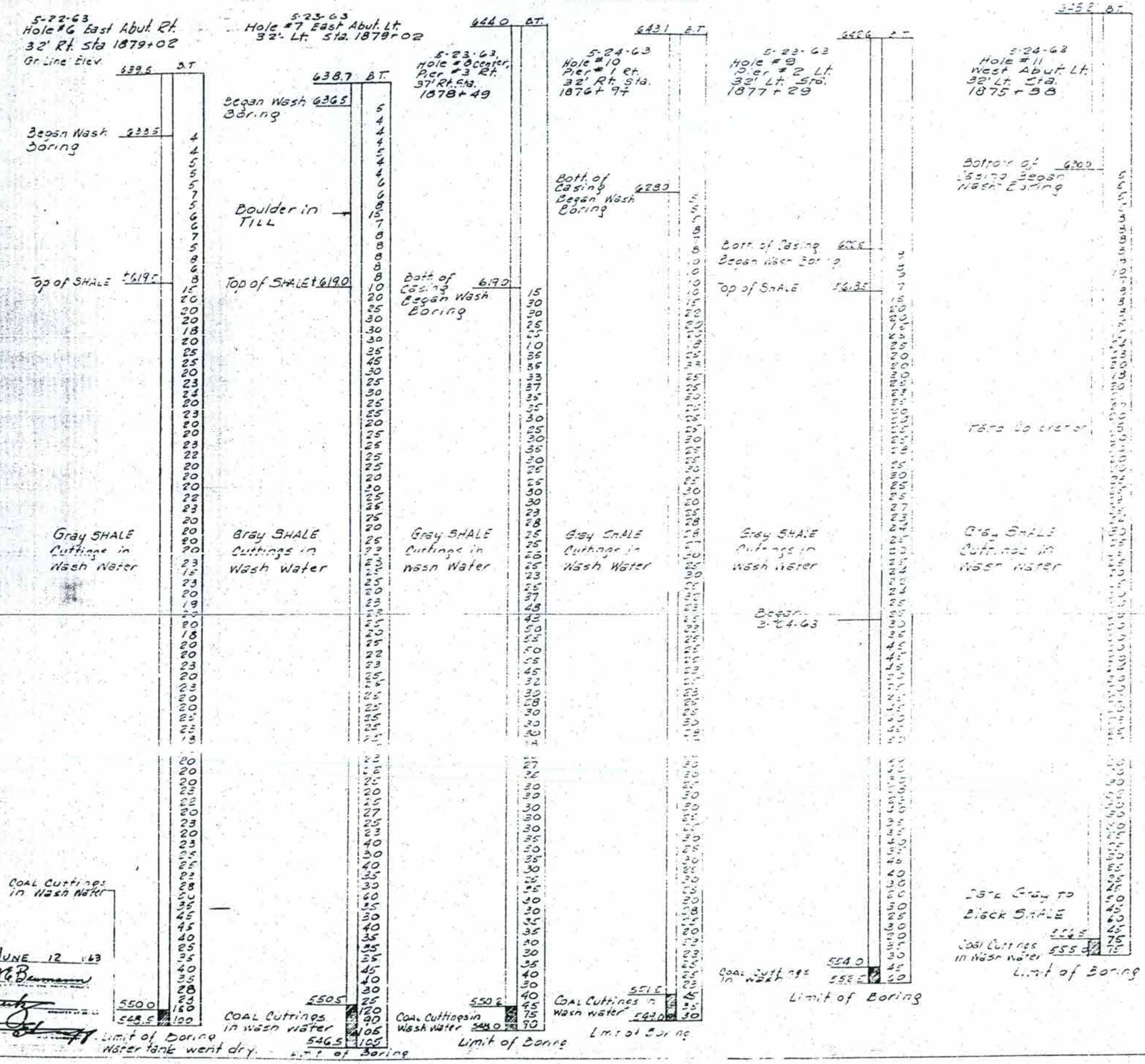
June 12 1963
W. Baumann
F.M.

WASH BORINGS
PROJ. I-IG-74-6(38) 216
F.A.I. 74 SEC. 92-11VB
VERMILION COUNTY

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

| | | | | |
|---|---|---|---|---|
| FAI 74 | 92-IIVB | VERMILION | 67 | 188 |

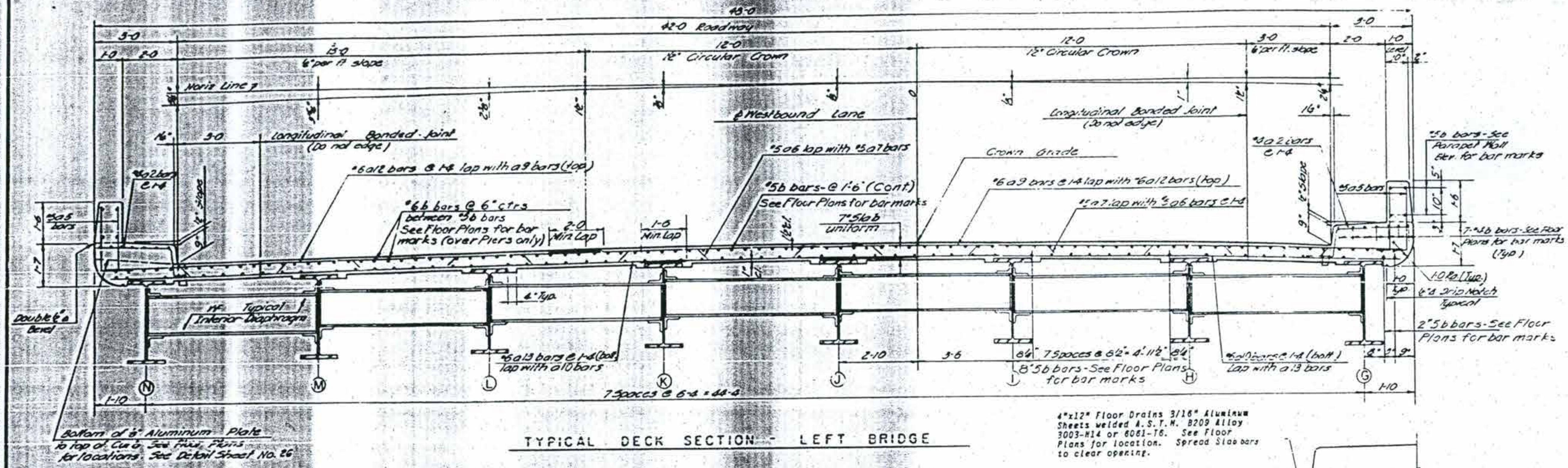
SHEET NO. 18 B
67 SHEETS




JUNE 12 1963

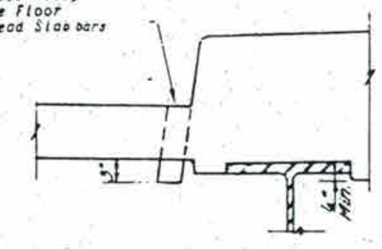
WASH BORINGS
PROJ. I-IG-74-6(38)216
F.A.I. 74 SEC. 92-IIVB
VERMILION COUNTY

| | | | | |
|---|---|---|---|---|
| 74 | 92-11VB | VERMILION | 67 | 25 |
| 7 | | | | |

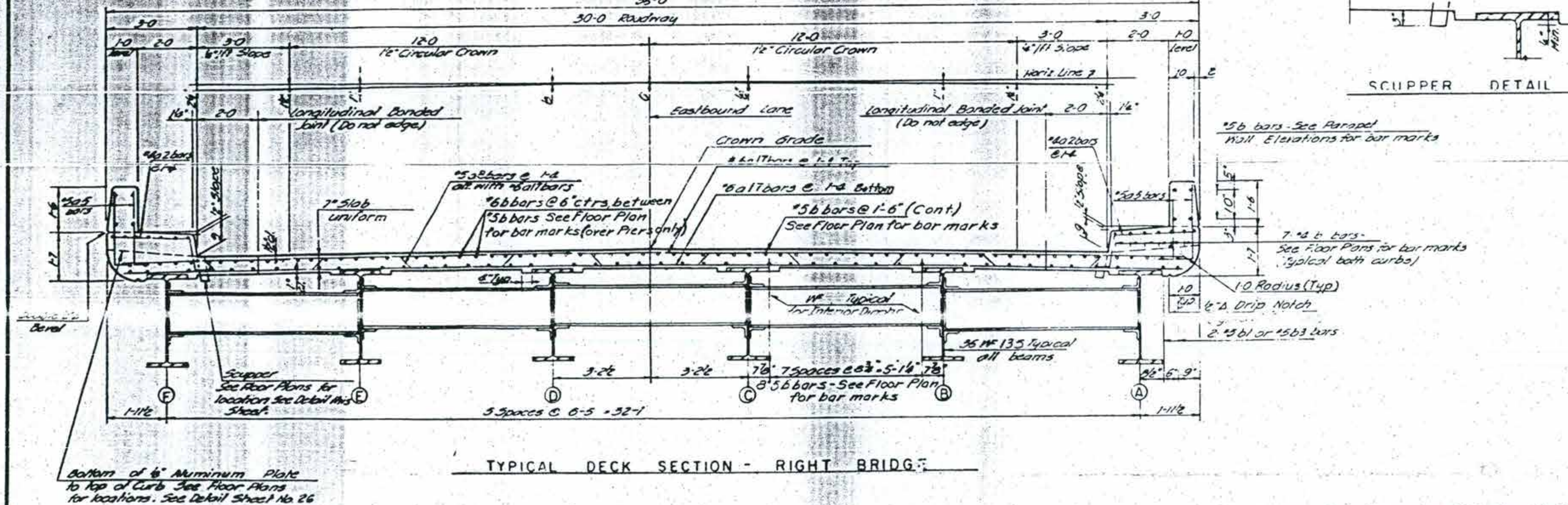



4"x12" Floor Drains 3/16" Aluminum Sheets welded A.S.T.M. B209 Alloy 3003-H14 or 6061-T6. See Floor Plans for location. Spread Slab bars to clear opening.

TYPICAL DECK SECTION - LEFT BRIDGE



SCUPPER DETAIL

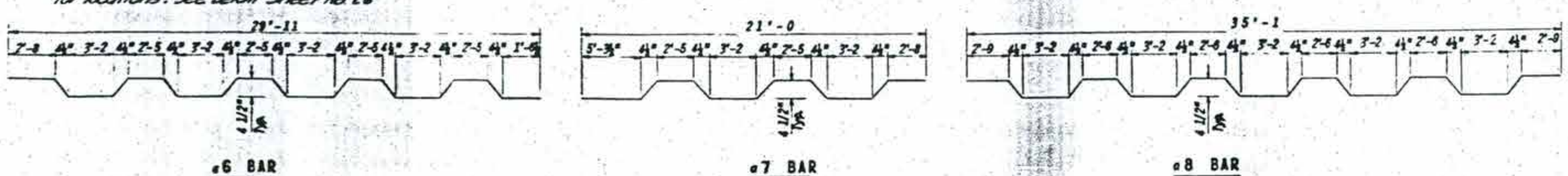



TYPICAL DECK SECTION - RIGHT BRIDGE

Note: Cost of Aluminum Plates (used in Construction Joints) and Scuppers shall be included in Unit Price Bid for Class X Concrete.

| SUPERSTRUCTURE QUANTITIES | | |
|---|---|---|
| ITEM | LT. BRIDGE | RT. BRIDGE |
| CLASS X CONCRETE | 433.3 CU. YD. | 304.4 CU. YD. |
| REINFORCEMENT BARS | 96,470 LBS. | 63,180 LBS. |
| PROTECTIVE COATING | 2,127 SQ. YD. | 1,453 SQ. YD. |

SEE SHEET "BAR SCHEDULES & SUMMARY OF PILES".




BENDING DIAGRAMS
All bar dimensions are out to out.

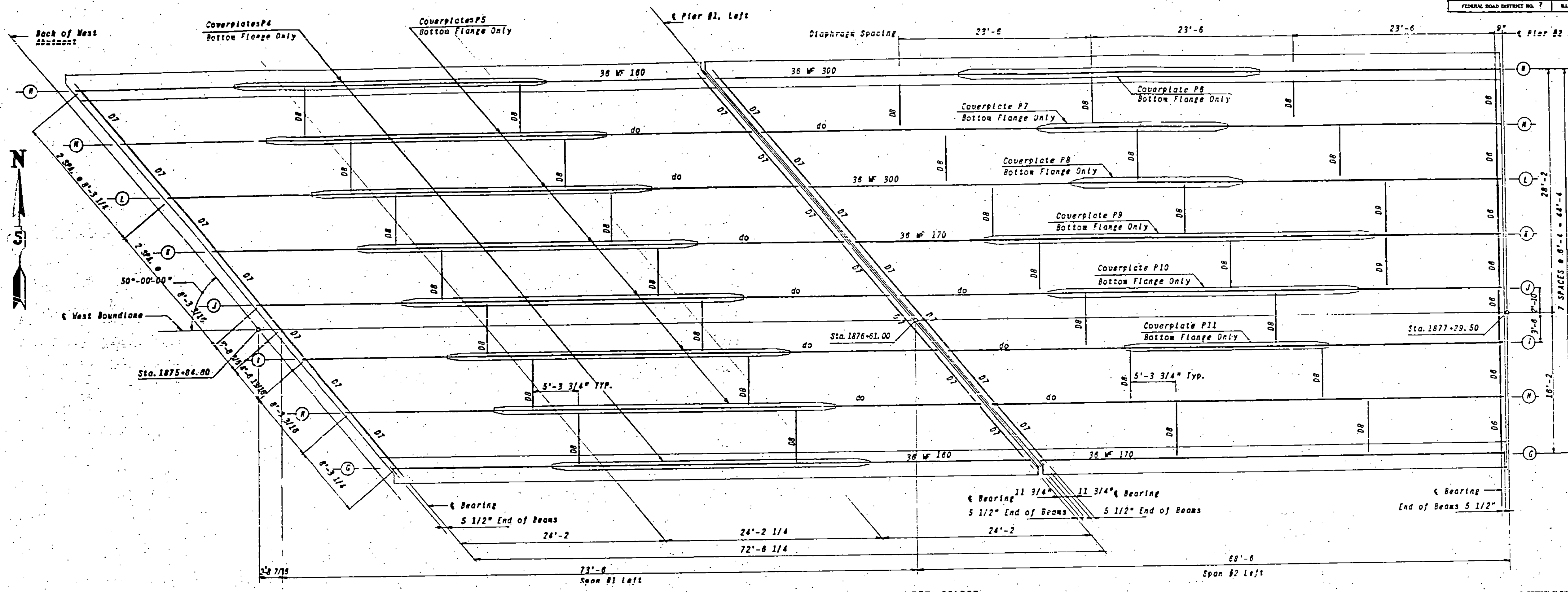
CONSOER, TOWNSEND & ASSOCIATES
CONSULTING ENGINEERS CHICAGO, ILLINOIS

ILLINOIS DIVISION OF HIGHWAYS
FAI RT. 74 OVER GENERAL REFRACTORIES CO. R.R. & "L" ST. SECTION 92-11VB
VERMILION COUNTY STA. 1977+01.73

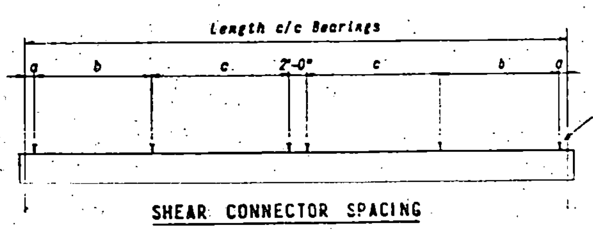
SUPERSTRUCTURE DETAILS

| | | | | | |
|---|---|---|---|---|---|
| ST | ST | | LDB | HSM Oct. 62 | |

| F.A.I. RTE. NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 74 | 92-11VB | VERMILION | 67 | 28 |
| FEDERAL ROAD DISTRICT NO. 7 | ILLINOIS | PROJ. | | |

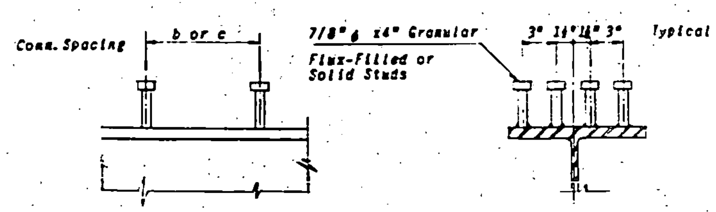



FRAMING PLAN LEFT BRIDGE
SPAN #1 & #2




SHEAR CONNECTOR SPACING

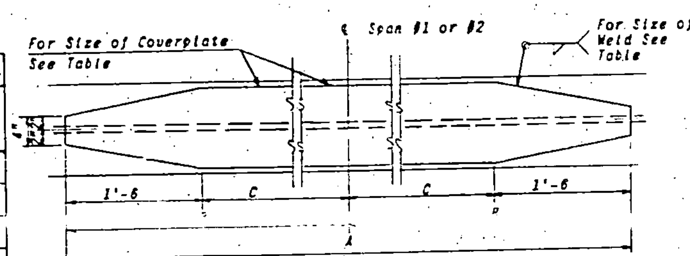
SHEAR CONNECTORS ARE INCLUDED IN QUANTITY OF STRUCTURAL STEEL EST. WT. = 7,537 LBS.




SHEAR CONNECTOR

| SPAN | GIRDER | SPAN LENGTH | SPACING a | SHEAR CONNECTOR 4"-7/8" ø STUDS SPACING b | SHEAR CONNECTOR 4"-7/8" ø STUDS SPACING c | ELEVATIONS TOP OF STEEL BEAM* WEST ABUTMENT | PIER NO. 1 | PIER NO. 1 | PIER NO. 2 |
|---|---|---|---|---|---|---|---|---|---|
| SPAN NO. 1 | G | 72'-6 1/4 | 0'-3 1/8 | 20 @ 1'-0 | 10 @ 1'-6 | 669.556 | 668.965 | | |
| | H | do | 0'-3 1/8 | 20 @ 1'-0 | 10 @ 1'-6 | 669.700 | 669.115 | | |
| | I | do | do | do | do | 669.812 | 669.234 | | |
| | J | do | do | do | do | 669.855 | 669.283 | | |
| | K | do | do | do | do | 669.827 | 669.262 | | |
| | L | do | do | do | do | 669.740 | 669.181 | | |
| | M | do | do | do | do | 669.648 | 669.093 | | |
| | N | 72'-6 1/4 | 0'-3 1/8 | 20 @ 1'-0 | 10 @ 1'-6 | 669.575 | 669.029 | | |
| SPAN NO. 2 | G | 53'-2 7/16 | 0'-7 1/4 | 13 @ 1'-0 | 8 @ 1'-6 | | | 668.952 | 668.464 |
| | H | 58'-6 1/4 | 0'-3 1/8 | 16 @ 1'-0 | 8 @ 1'-6 | | | 669.102 | 668.567 |
| | I | 63'-10 | 0'-5 | 20 @ 1'-0 | 7 @ 1'-6 | | | 669.222 | 668.641 |
| | J | 69'-1 3/4 | 0'-6 7/8 | 18 @ 1'-0 | 10 @ 1'-6 | | | 669.271 | 668.644 |
| | K | 74'-5 9/16 | 0'-2 3/4 | 21 @ 1'-0 | 10 @ 1'-6 | | | 669.250 | 668.578 |
| | L | 79'-8 5/16 | 0'-4 5/8 | 22 @ 1'-0 | 11 @ 1'-6 | | | 669.169 | 668.453 |
| | M | 85'-1 1/8 | 0'-6 9/16 | 23 @ 1'-0 | 12 @ 1'-6 | | | 669.082 | 668.321 |
| | N | 90'-4 7/8 | 0'-2 7/16 | 17 @ 1'-0 | 18 @ 1'-6 | | | 669.018 | 668.214 |

NOTE: Elevations top of steel for fabrication use only, does not include deflections.
* Elevations are at ℄ of bearings.




COVER PLATE DETAIL

| MK. | THICKNESS | WIDTH | A | B | C | WELD SIZE | NO. REQ'D. |
|---|---|---|---|---|---|---|---|
| P4 | 5/8" | 11" | 40'-0 | 20'-0 | 18'-6 | 1/4" | 2 |
| P5 | 5/8" | 11" | 40'-0 | 20'-0 | 18'-6 | 1/4" | 6 |
| P6 | 5/8" | 11" | 35'-0 | 17'-6 | 16'-0 | 1/4" | 1 |
| P7 | 1/2" | 11" | ~~32'-0~~ 22'-0 | 11'-0 | 9'-6 | 1/4" | 1 |
| P8 | 1/2" | 11" | 20'-0 | 10'-0 | 8'-6 | 1/4" | 1 |
| P9 | 1/2" | 10" | 42'-6 | 21'-3 | 19'-9 ~~20'-9~~ | 1/4" | 1 |
| P10 | 7/16" | 10" | 33'-0 | 16'-6 | 15'-0 | 1/4" | 1 |
| P11 | 7/16" | 10" | 20'-0 | 10'-0 | 8'-6 | 1/4" | 1 |

CONSOER, TOWNSEND & ASSOCIATES
CONSULTING ENGINEERS CHICAGO, ILLINOIS

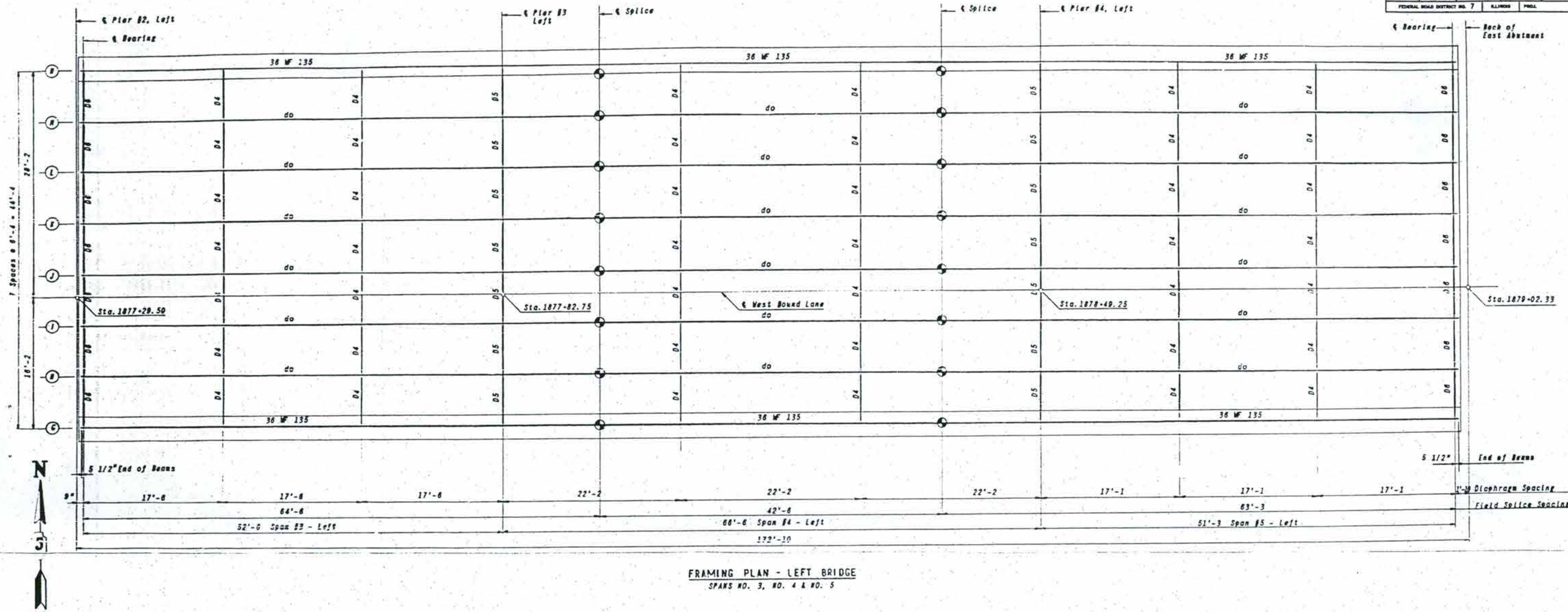
ILLINOIS DIVISION OF HIGHWAYS
FAI RT. 74 OVER GENERAL REFRACTORIES CO. R.R. & "L" ST. SECTION 92-11VB
VERMILION COUNTY STA. 1877+01.73

FRAMING PLAN
SPANS NO.1 & NO.2 LEFT BRIDGE

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED | DATE | REVISED |
|---|---|---|---|---|---|---|
| ST. | ST | | LDB | HSM | Oct. 62 | |

Rev. 11-1-63 - Changed Coverplate Dim. P7-A from 32'-0" to 22'-0" P9-C from 20'-9" to 19'-9" R.P.E.

| F.A.I. RTE. NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 74 | 92-11 VB | VERMILION | 67 | 29 |
| FEDERAL ROAD DISTRICT NO. 7 | ILLINOIS | PROJ. | | |


FRAMING PLAN - LEFT BRIDGE

SPANS NO. 3, NO. 4 & NO. 5

| TABLE OF ELEVATIONS - TOP OF STEEL BEAMS(1) | | | | | | | |
|---|---|---|---|---|---|---|---|
| BRIDGE | GIRDER | PIER NO. 2 | PIER NO. 3 | SPAN NO. 4 SPLICE | SPAN NO. 4 SPLICE | PIER NO. [illegible] | EAST ABUTMENT |
| LEFT BRIDGE | G | 668.3815 | 667.8490 | 667.7152 | 667.2416 | 667.1078 | 666.4859 |
| | H | 668.4851 | 667.9525 | 667.8188 | 667.3451 | 667.2114 | 666.5894 |
| | I | 668.5584 | 668.0258 | 667.8921 | 667.4184 | 667.2847 | 666.6627 |
| | J | 668.5621 | 668.0295 | 667.8957 | 667.4221 | 667.2883 | 666.6664 |
| | K | 668.4961 | 667.9835 | 667.8298 | 667.3561 | 667.2224 | 666.6004 |
| | L | 668.3711 | 667.8385 | 667.7048 | 667.2311 | 667.0974 | 666.4755 |
| | M | 668.2392 | 667.7066 | 667.5728 | 667.0992 | 666.9654 | 666.3435 |
| | N | 668.1315 | 667.5990 | 667.4652 | 666.9916 | 666.8578 | 666.2359 |

NOTES: For fabrication use only, does not include deflections.

1. Top of beam flanges without splice plates elevations are at ℄ of bearings, except as noted.

CONSOER, TOWNSEND & ASSOCIATES
CONSULTING ENGINEERS CHICAGO, ILLINOIS

ILLINOIS DIVISION OF HIGHWAYS
FAI RT. 74 OVER GENERAL REFRACTORIES CO. R.R. & "L" ST. SECTION 92-11VB

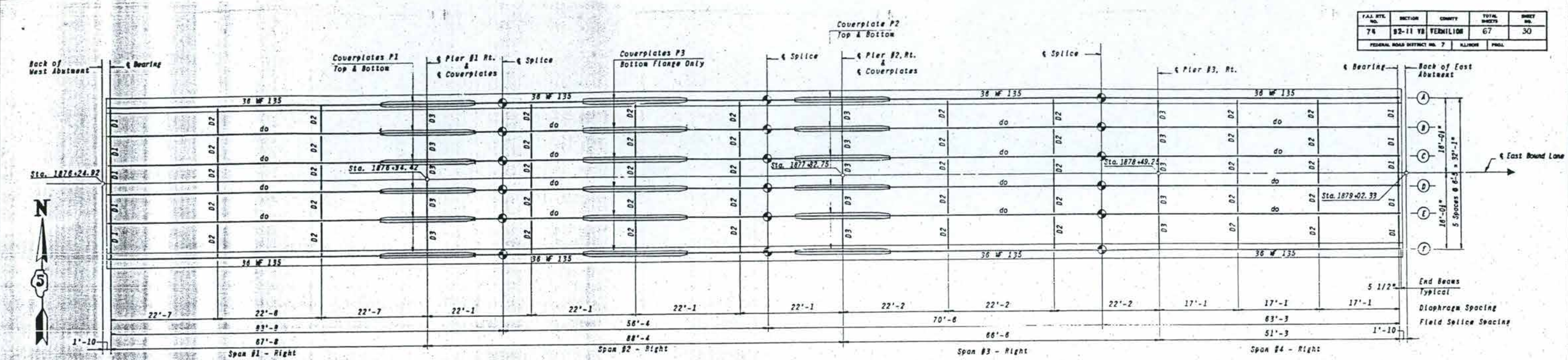
VERMILION COUNTY STA. 1877+01.73

FRAMING PLAN
SPANS NO.3 - NO.5 LEFT BRIDGE

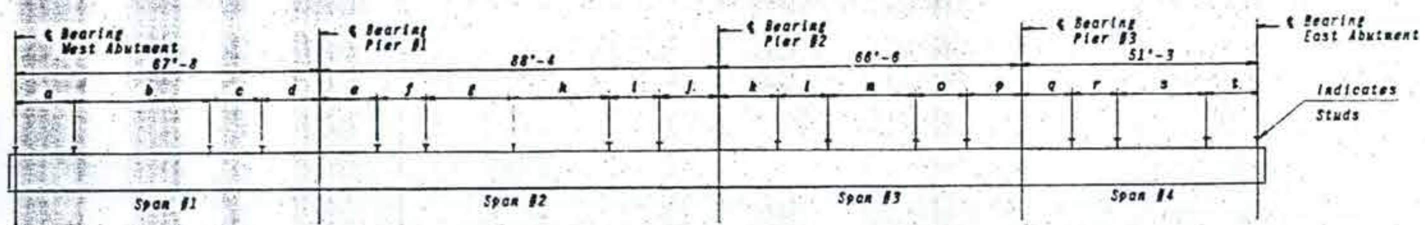
| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED | DATE | REVISED |
|---|---|---|---|---|---|---|
| ST | ST | | LDB | HSM | Oct.62 | |

| F.A.I. RTE. NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 74 | 92-1I VB | VERMILION | 67 | 30 |

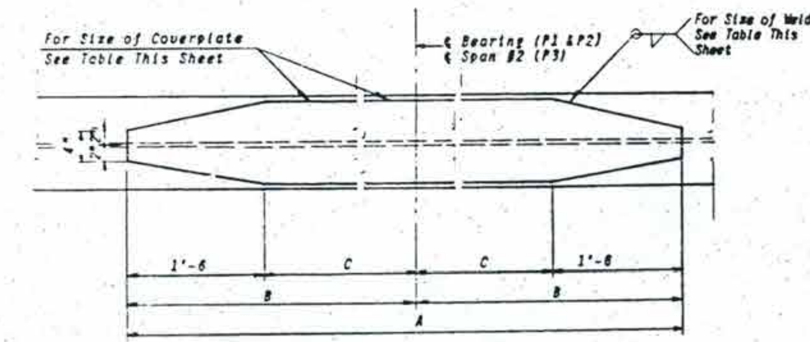
FEDERAL ROAD DISTRICT NO. 7 | ILLINOIS | PROJ.




## FRAMING PLAN RIGHT BRIDGE




## SHEAR CONNECTOR SPACING




## COVER PLATE DETAIL

| TABLE OF SHEAR CONNECTOR SPACINGS | | | | | |
|---|---|---|---|---|---|
| PART | | SHEAR CONNECTOR 4"-7/8" STUDS | PART | | SHEAR CONNECTOR 4"-7/8" STUDS |
| a | | 16 Spa. @ 0'-9=12'-0 | l | | 12 Spa. @ 1'-0=12'-0 |
| b | | 17 Spa. @ 1'-6=25'-6 | m | | 17 Spa. @ 1'-6=25'-6 |
| | | - | | | - |
| c | | 18 Spa. @ 1'-0=18'-0 | o | | 11 Spa. @ 1'-0=11'-0 |
| d | | 11'-8 | p | | 8'-3 *** |
| e | | 11'-5 *** | q | | 5'-3 |
| f | | 12 Spa. @ 0'-9=9'-0 ** | r | | 10 Spa. @ 1'-0=10'-0 |
| g | | 20 Spa. @ 0'-9=15'-0 | s | | 18 Spa. @ 1'-3=22'-6 |
| h | | 16 Spa. @ 1'-9=28'-0 | | | - |
| i | | 11 Spa. @ 1'-3=13'-9 ** | t | | 18 Spa. @ 0'-9=13'-6 |
| j | | 11'-2 *** | | | - |
| k | | 9'-9 | | | - |

NOTES:

** Space 3 studs only at top of flange splice plates to avoid interference with flange bolts at field splices.

*** Subject to adjustments due to **.

For shear connector details see Sheets "Framing Plan No. 1 & No. 2 Left Bridge" & "Structural Steel Framing Plan".

| TABLE OF ELEVATIONS -- TOP OF STEEL BEAMS* | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| BRIDGE | GIRDER | WEST ABUTMENT | PIER NO. 1 | SPAN NO. 2 SPLICE | SPAN NO. 2 SPLICE | PIER NO. 2 | SPAN NO. 3 SPLICE | PIER NO. 3 | EAST ABUTMENT |
| RIGHT BRIDGE | A | 669.3009 | 668.7236 | 668.5661 | 668.0117 | 667.8542 | 667.2468 | 667.1130 | 666.4911 |
| | B | 669.4079 | 668.8307 | 668.6732 | 668.1187 | 667.9612 | 667.3538 | 667.2201 | 666.5982 |
| | C | 669.4794 | 668.9022 | 668.7447 | 668.1902 | 668.0327 | 667.4253 | 667.2916 | 666.6696 |
| | D | 669.4794 | 668.9022 | 668.7447 | 668.1902 | 668.0327 | 667.4253 | 667.2916 | 666.6696 |
| | E | 669.4079 | 668.8307 | 668.6732 | 668.1187 | 667.9612 | 667.3538 | 667.2201 | 666.5982 |
| | F | 669.3009 | 668.7236 | 668.5661 | 668.0117 | 667.8542 | 667.2468 | 667.1130 | 666.4911 |

NOTE: For fabrication use only, does not include deflections.

* Top of beam flanges without splice plates or coverplates elevations are at ℄ of bearings, except as noted.

| COVERPLATE DIMENSIONS | | | | | | | |
|---|---|---|---|---|---|---|---|
| MK | THICKNESS | WIDTH | A | B | C | WELD SIZE | NO. REQ'D |
| P1 | 3/4" | 10" | 16'-6 | 8'-3 | 6'-9 | 1/4" | 12 |
| P2 | 5/8" | 10" | 14'-6 | 7'-3 | 5'-9 | 1/4" | 12 |
| P3 | 7/16" | 10" | 23'-0 | 11'-6 | 10'-0 | 3/16" | 6 |

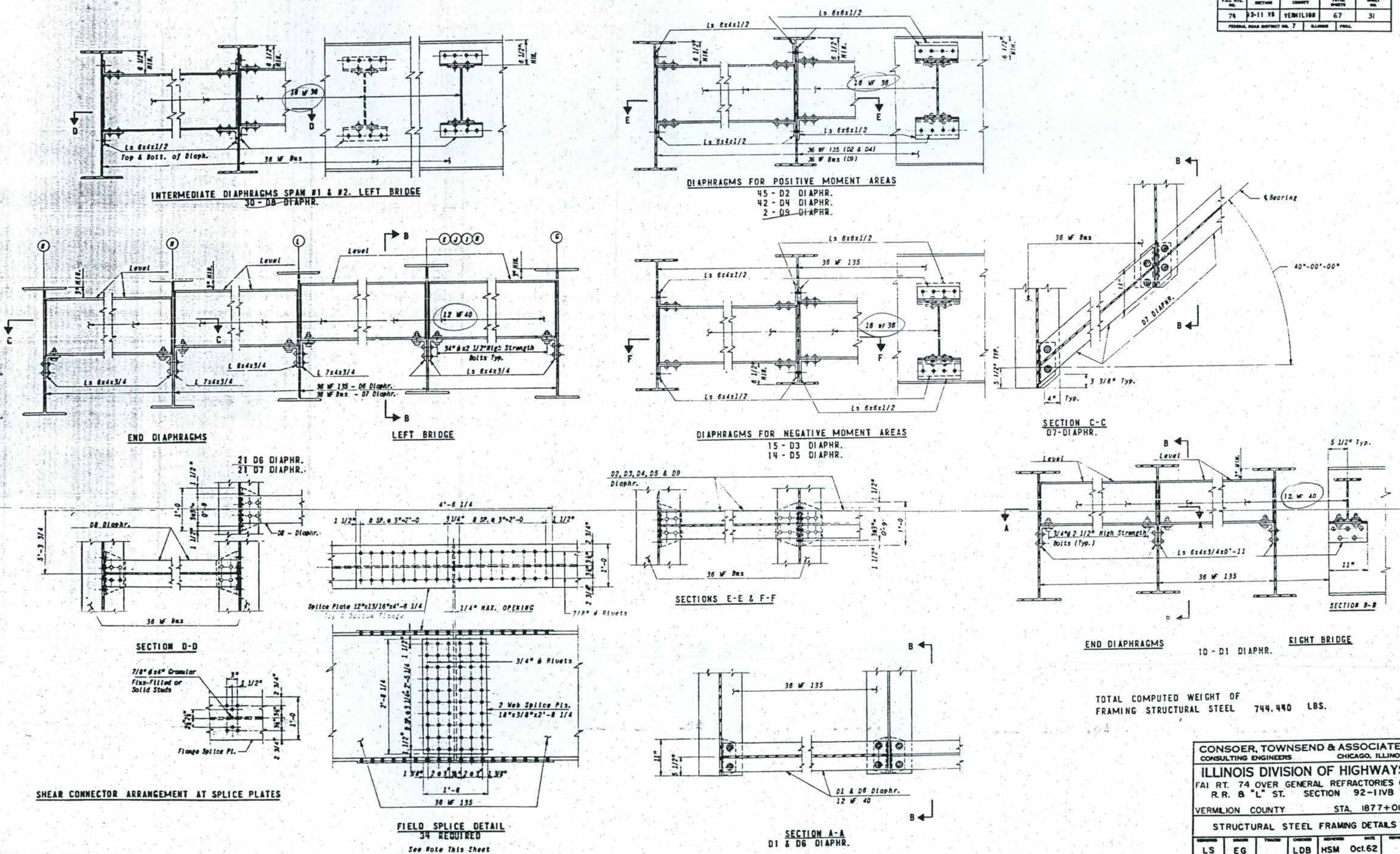
CONSOER, TOWNSEND & ASSOCIATES
CONSULTING ENGINEERS CHICAGO, ILLINOIS

ILLINOIS DIVISION OF HIGHWAYS
FAI RT. 74 OVER GENERAL REFRACTORIES CO. R.R. & "L" ST. SECTION 92-1 IVB
VERMILION COUNTY STA. 1877+01.73

FRAMING PLAN
SPANS NO.1 - NO.4 RIGHT BRIDGE

| DESIGNED | DRAWN | TRACED | CHECKED | REV. | DATE | REVISED |
|---|---|---|---|---|---|---|
| LS | LS | | LDB | HSM | Oct 62 | |

| F.A.I. RTE. NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 74 | 92-11 VB | VERMILION | 67 | 31 |
| FEDERAL ROAD DISTRICT NO. 7 | ILLINOIS | PROJ. | | |




TOTAL COMPUTED WEIGHT OF FRAMING STRUCTURAL STEEL 744,440 LBS.

CONSOER, TOWNSEND & ASSOCIATES
CONSULTING ENGINEERS CHICAGO, ILLINOIS

ILLINOIS DIVISION OF HIGHWAYS

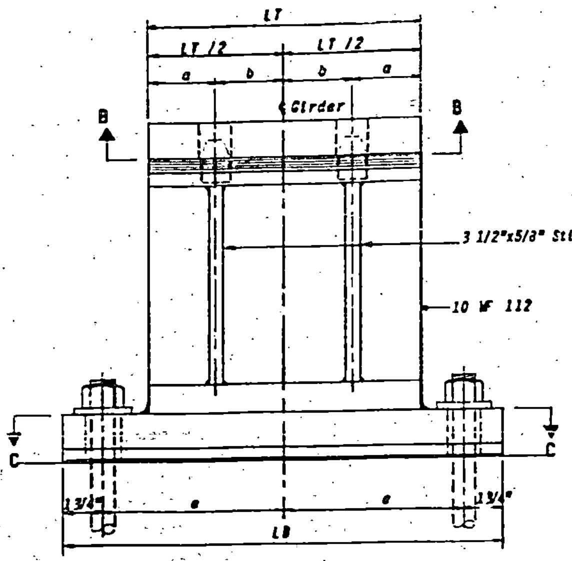
FAI RT. 74 OVER GENERAL REFRACTORIES CO. R.R. & "L" ST. SECTION 92-11VB

VERMILION COUNTY STA. 1877+01.73

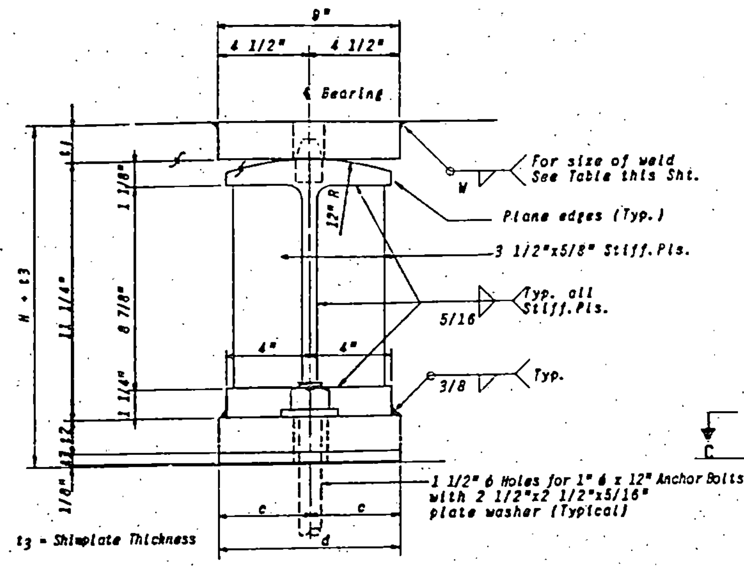
STRUCTURAL STEEL FRAMING DETAILS

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED | DATE | REVISED |
|---|---|---|---|---|---|---|
| LS | EG | | LDB | HSM | Oct.62 | |

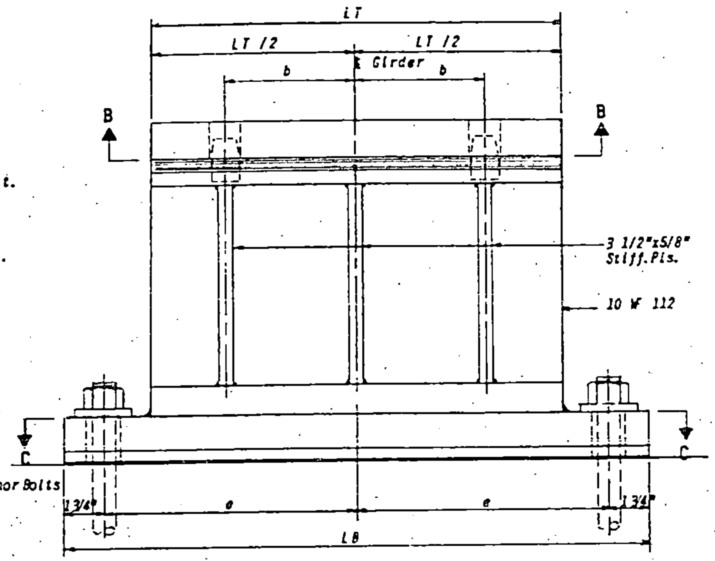
| F.A.I. RTE. NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 74 | 92-11 VB | VERMILION | 67 | 35 |
| FEDERAL ROAD DISTRICT NO. 7 | ILLINOIS | PROJ. | | |




FIXED BEARING TYPE A & B




SIDE VIEW TYPE A, B & C




FIXED BEARING TYPE C

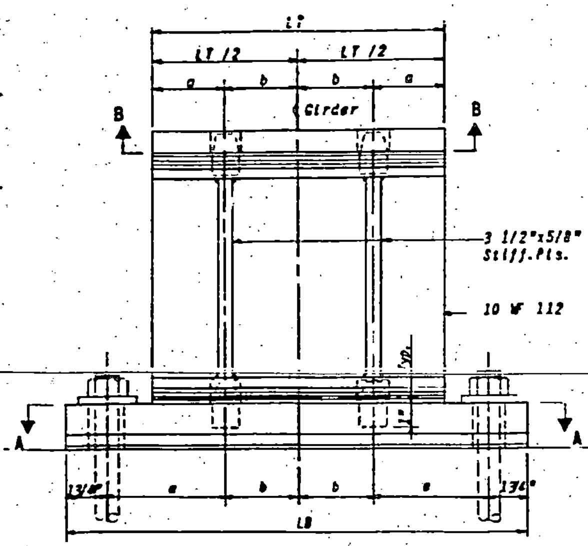
## TABLE OF BEARING DIMENSIONS & LOCATION OF BEARINGS

| PART | | DIMENS. | FIXED BEARINGS TYPE A | TYPE B | TYPE C | EXPANSION BEARINGS TYPE D | TYPE E | TYPE F | TYPE G | |
|---|---|---|---|---|---|---|---|---|---|---|
| TOP PLATE | | LT | 1'-0 | 1'-1 1/2 | 1'-5 1/2 | 1'-1 | 1'-0 | 1'-1 1/2 | 1'-6 | |
| | | a | 0'-3 | 0'-3 1/2 | 0'-2 3/4 | 0'-3 1/4 | 0'-3 | 0'-3 1/2 | 0'-3 | |
| | | b | 0'-3 | 0'-3 1/4 | 0'-6 | 0'-3 1/4 | 0'-3 | 0'-3 1/4 | 0'-6 | |
| | | t1 | 1 5/8" | 1 3/8" | 2 1/4" | 1" | 1 5/8" | 1 3/8" | 1" | |
| | | SIZE * | 9"x1 5/8"x1'-0 | 9"x1 3/8"x1'-1½ | 9"x2 1/4"x1'-5½ | 9"x1"x1'-1 | 9"x1 5/8"x1'-0 | 9"x1 3/8"x1'-1½ | 9"x1"x1'-6 | |
| BOTTOM PLATE | | LB | 1'-7 1/2 | 1'-9 | 2'-1 | 1'-8 1/2 | 1'-7 1/2 | 1'-9 | 2'-1 1/2 | |
| | | c | 0'-5 | 0'-4 1/2 | 0'-5 1/2 | 0'-4 1/2 | 0'-5 | 0'-4 1/2 | 0'-4 1/2 | |
| | | d | 0'-10 | 0'-9 | 0'-11 | 0'-9 | 0'-10 | 0'-9 | 0'-9 | |
| | | e | 0'-5 | 0'-8 3/4 | 0'-10 3/4 | 0'-5 1/4 | 0'-5 | 0'-5 1/2 | 0'-5 | |
| | | t2 | 1 1/2" | 1" | 1 1/2" | 1 3/8" | 2" | 1 7/8" | 1 3/8" | |
| | | SIZE * | 10"x1½"x1'-7½ | 9"x1"x1'-9 | 11"x1½"x2'-1 | 9"x1 3/8"x1'-8½ | 20"x2"x1'-7½ | 9"x1 7/8"x1'-9 | 9"x1 3/8"x2'-1½ | |
| SIZE OF WELD W | | | 1/2" | 5/8" | 5/8" | 1/2" | 5/8" | 5/8" | 1/2" | |
| DEPTH OF BRG. H | | | 1'-2 1/2 | 1'-1 3/4 | 1'-3 1/8 | 1'-1 5/8 | 1'-2 7/8 | 1'-2 1/2 | 1'-1 5/8 | |
| NO. REQUIRED | | | 6 | 21 | 3 | 41 | 6 | 14 | 3 | |
| RIGHT BRIDGE | 4 SPAN CONT. | WEST ABUTMENT | - | - | - | A-F | - | - | - | AT GIRDERS |
| | | PIER #1 | - | - | - | - | A-F | - | - | |
| | | PIER #2 | A-F | - | - | - | - | - | - | |
| | | PIER #3 | - | - | - | - | - | A-F | - | |
| | | EAST ABUTMENT | - | - | - | A-F | - | - | - | |
| LEFT BRIDGE | SPAN #1 | WEST ABUTMENT | - | - | - | G-N | - | - | - | |
| | | PIER #1 | - | G-N | - | - | - | - | - | |
| | SPAN #2 | PIER #1 | - | - | - | G-K | - | - | L-N | |
| | | PIER #2 | - | G-K | L-N | - | - | - | - | |
| | 3 SPAN CONT. | PIER #2 | - | - | - | G-N | - | - | - | |
| | | PIER #3 | - | G-N | - | - | - | - | - | |
| | | PIER #4 | - | - | - | - | - | G-N | - | |
| | | EAST ABUTMENT | - | - | | G-N | - | - | - | |

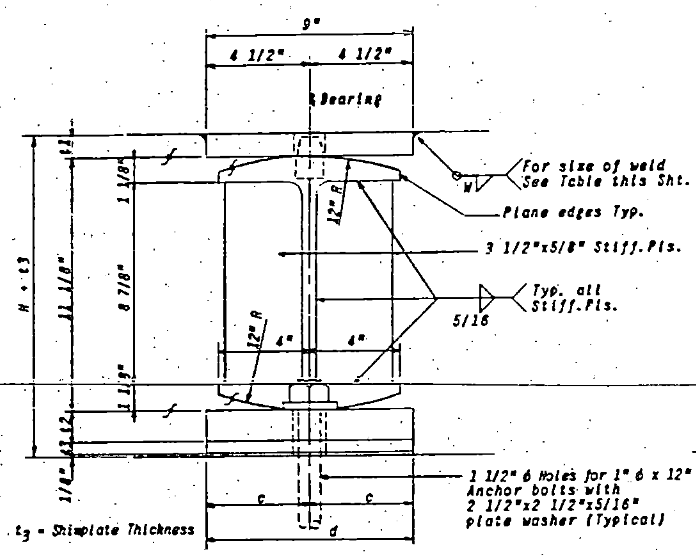
NOTES: FOR REQUIRED SHIMPLATES AND ANCHOR BOLTS SEE SHEET "EXPANSION JOINT DEVICES LEFT BRIDGE"

INDICATES FINISHED DIMENSIONS.

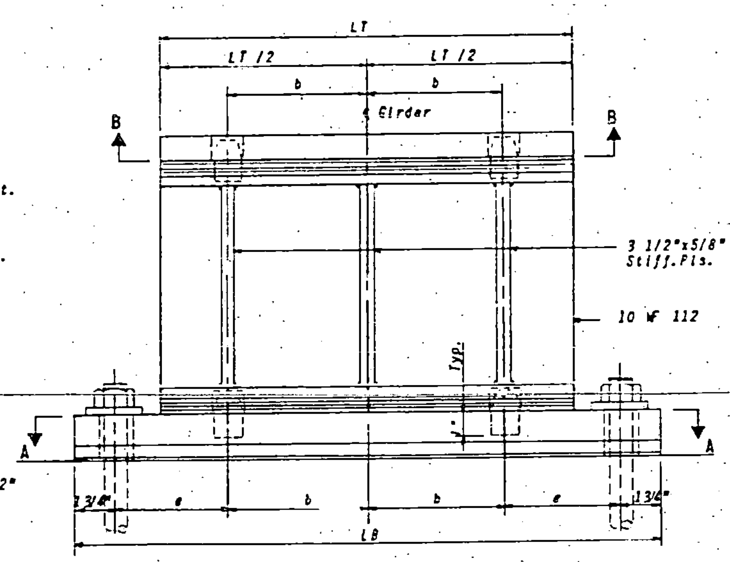
PROVIDE 50% OF THE STEEL BEARING DEVICES WITH 1/16" & 1/8" THICK SHIMPLATES. WEIGHT INCLUDED IN TOTAL COMPUTED WEIGHT OF BEARING DEVICES.




EXPANSION BEARING TYPE D, E & F



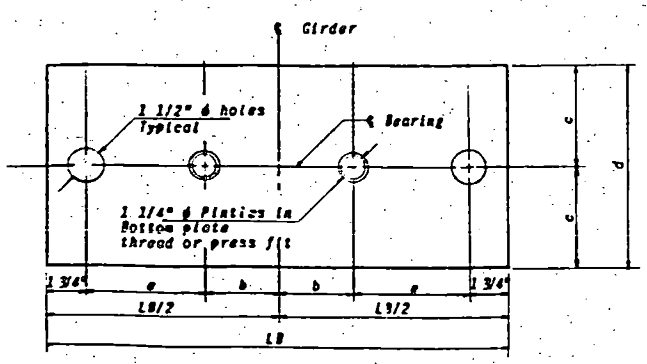

SIDE VIEW TYPE D, E, F & G



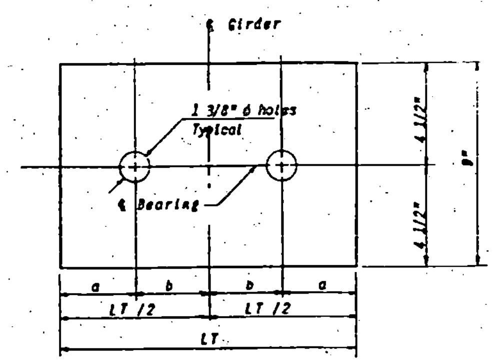

EXPANSION BEARING TYPE G

TOTAL COMPUTED WEIGHT OF BEARING DEVICES STRUCTURAL STEEL 28,950 LBS. *

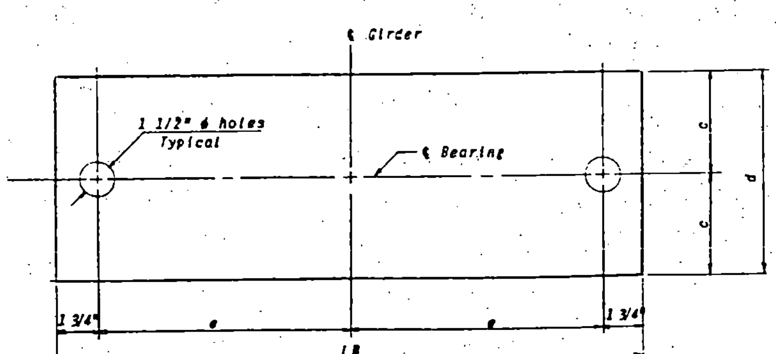
* WEIGHT OF SHIMPLATES AND ANCHOR BOLTS INCLUDED.



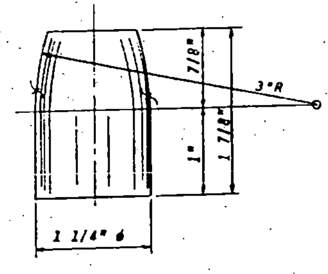

SECTION A-A
BOTTOM PLATE




SECTION B-B
TOP PLATE




SECTION C-C
BOTTOM PLATE




PINTLE

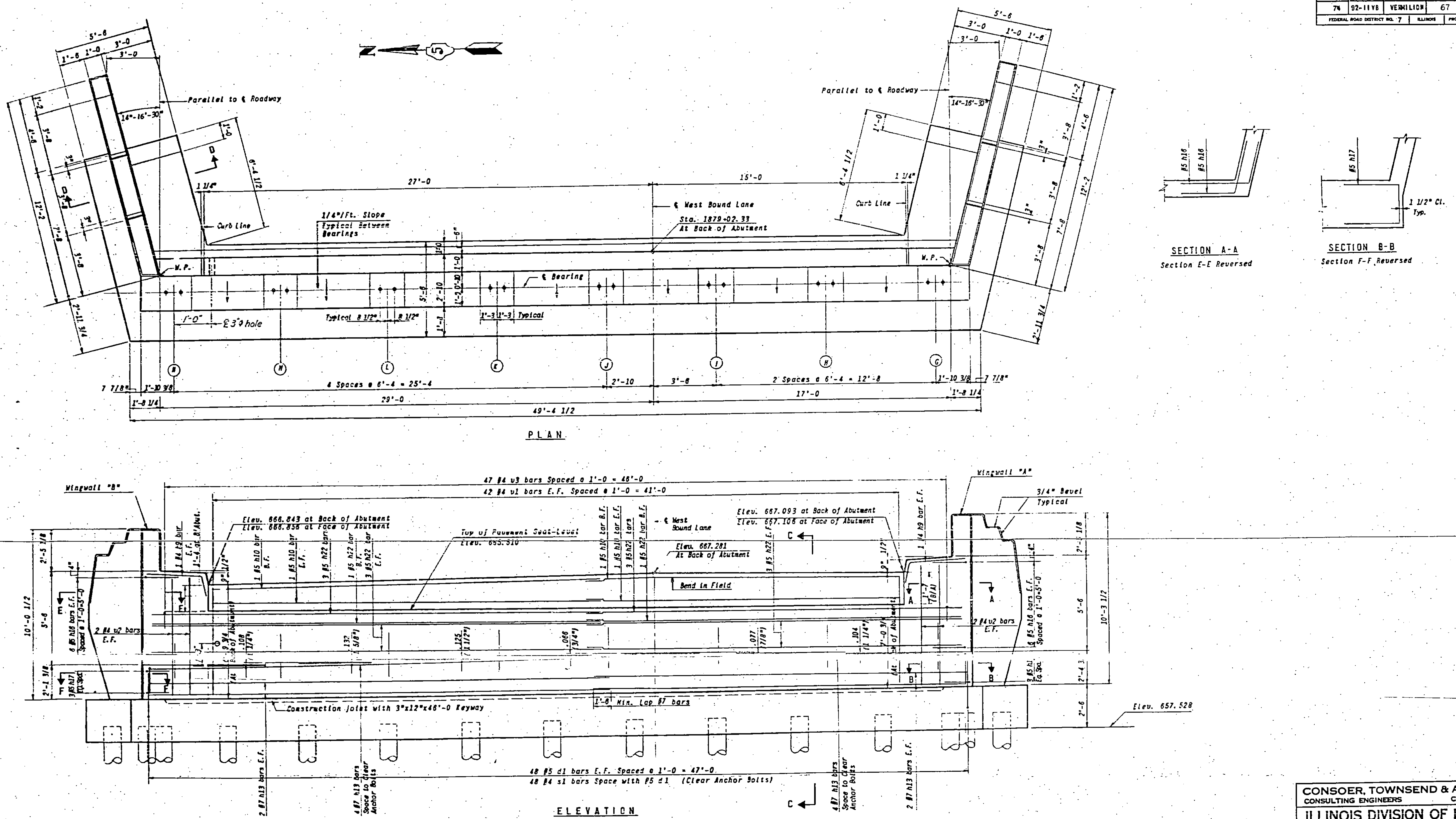
CONSOER, TOWNSEND & ASSOCIATES
CONSULTING ENGINEERS CHICAGO, ILLINOIS

ILLINOIS DIVISION OF HIGHWAYS
FAI RT. 74 OVER GENERAL REFRACTORIES CO. R.R. & "L" ST. SECTION 92-11VB
VERMILION COUNTY STA. 1877+01.73

STRUCTURAL STEEL BEARING DEVICES

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED | DATE | REVISED |
|---|---|---|---|---|---|---|
| LS | DU | | LDS | HSM | Oct.62 | |

| F.A.I. RTE. NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 74 | 92-11VB | VERMILION | 67 | 36 |
| FEDERAL ROAD DISTRICT NO. 7 | ILLINOIS | PROJ. | | |



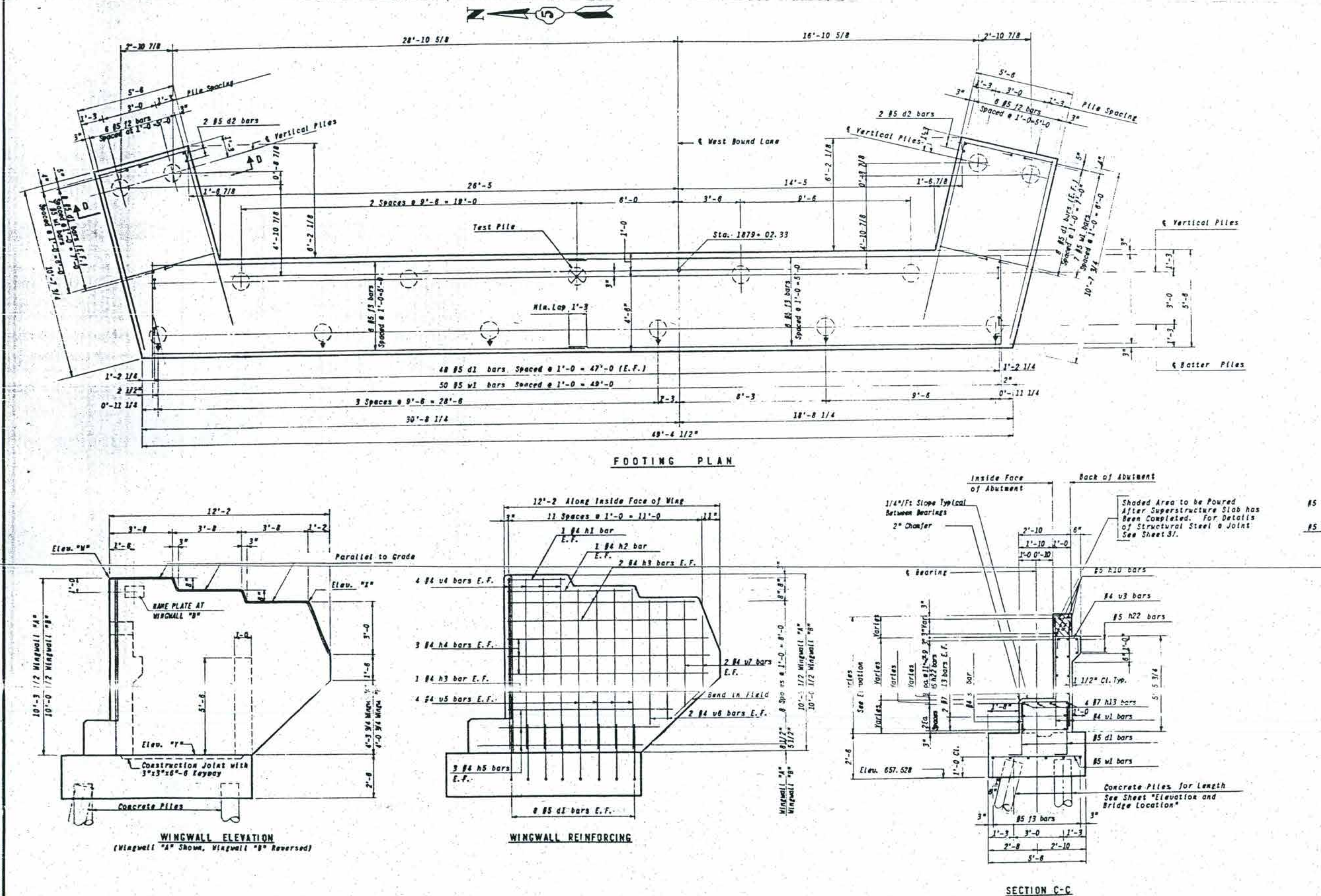

| TABLE OF ELEVATIONS | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ABUTMENT | BERM ELEV. | PROFILE ELEV BACK/ABUT. | BOTTOM OF FOOTING | WINGWALL "A" | | | WINGWALL "B" | | | BEARING SEAT ELEVATIONS | | | | | | | |
| | | | | ELEV. W | ELEV. X | ELEV. Y | ELEV. W | ELEV. X | ELEV. Y | G | H | I | J | K | L | M | N |
| EAST ABUTMENT | 661.528 | 667.281 | 657.528 | 670.325 | 668.837 | 660.028 | 670.070 | 668.587 | 660.028 | 662.392 | 662.496 | 662.569 | 662.573 | 662.507 | 662.38? | 662.250 | 662.142 |

**CONSOER, TOWNSEND & ASSOCIATES**
CONSULTING ENGINEERS — CHICAGO, ILLINOIS

**ILLINOIS DIVISION OF HIGHWAYS**
FAI RT. 74 OVER GENERAL REFRACTORIES CO. R. R. & "L" ST. SECTION 92-11VB
VERMILION COUNTY — STA: 1877+01.73
EAST ABUTMENT — LEFT BRIDGE

| DESIGNED | DRAWN | TRACED | CHECKED | REVISED | DATE | REVISIONS |
|---|---|---|---|---|---|---|
| ST | EG | | LDB | HSM | Oct62 | |

| F.A.I. RTE. NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 74 | 92-11VB | VERMILION | 67 | 37 |
| FEDERAL ROAD DISTRICT NO. 7 | ILLINOIS | PROJ. | | |



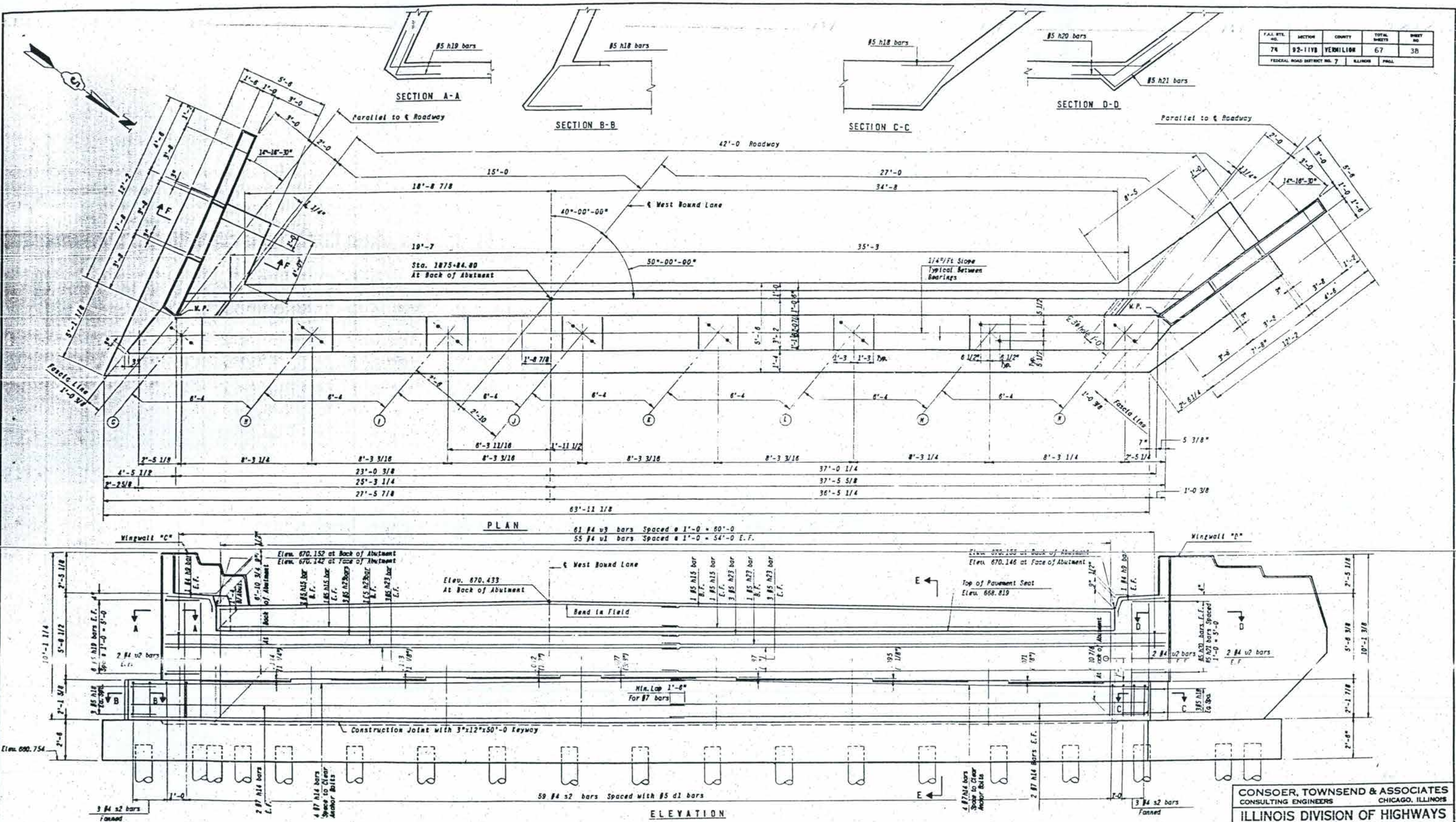

CONSOER, TOWNSEND & ASSOCIATES
CONSULTING ENGINEERS CHICAGO, ILLINOIS

ILLINOIS DIVISION OF HIGHWAYS
FAI RT. 74 OVER GENERAL REFRACTORIES CO. R.R. & "L" ST. SECTION 92-11VB
VERMILION COUNTY STA. 1877+01.73

EAST ABUTMENT LEFT BRIDGE

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED | DATE | REVISED |
|---|---|---|---|---|---|---|
| ST | EG | | LDB | HSM | Oct.62 | |

| F.A.I. RTE. NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 74 | 92-11VB | VERMILION | 67 | 38 |
| FEDERAL ROAD DISTRICT NO. 7 | ILLINOIS | PROJ. | | |




| ABUTMENT | BERM ELEV. | PROFILE ELEV. BACK/ABUT. | BOTTOM OF FOOTING | WINGWALL "C" ELEV. W | WINGWALL "C" ELEV. X | WINGWALL "C" ELEV. Y | WINGWALL "D" ELEV. W | WINGWALL "D" ELEV. X | WINGWALL "D" ELEV. Y | BEARING SEAT ELEVATIONS G | H | I | J | K | L | M | N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WEST ABUTMENT | 684.700 | 670.433 | 660.754 | 673.381 | 672.115 | 663.254 | 673.365 | 672.112 | 663.254 | 665.389 | 665.533 | 665.646 | 665.688 | 665.661 | 665.574 | 665.479 | 665.408 |

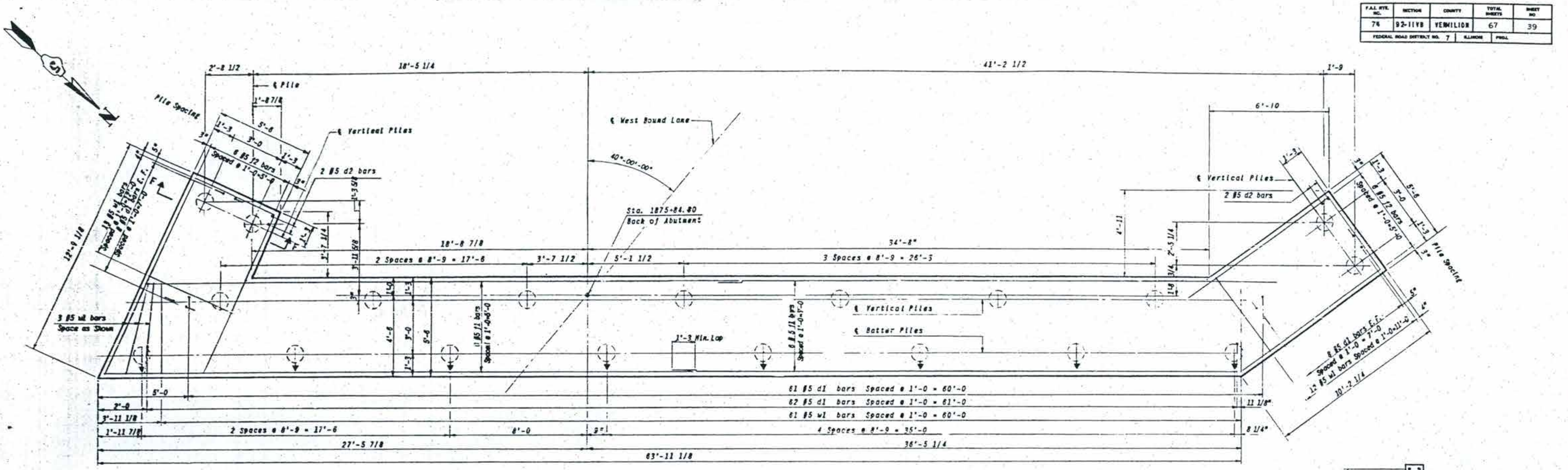
Table caption: TABLE OF ELEVATIONS

CONSOER, TOWNSEND & ASSOCIATES
CONSULTING ENGINEERS CHICAGO, ILLINOIS

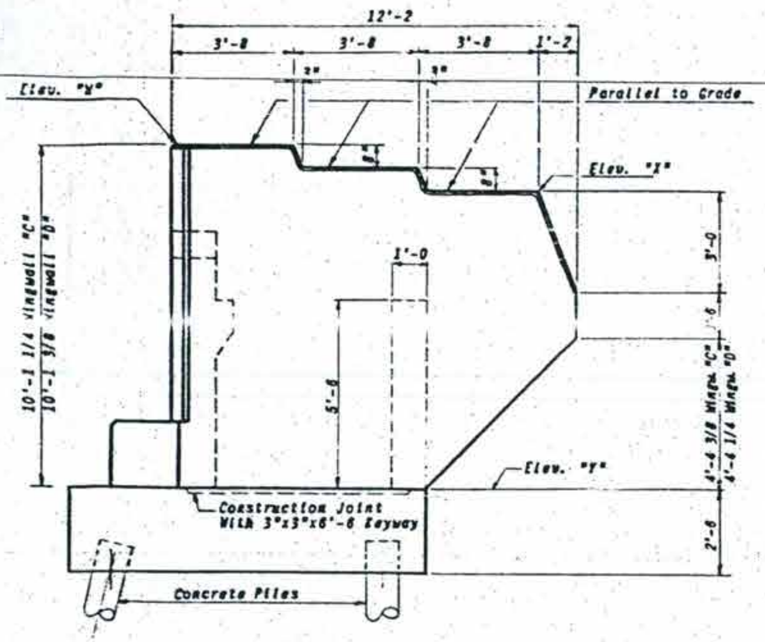
ILLINOIS DIVISION OF HIGHWAYS
FAI RT. 74 OVER GENERAL REFRACTORIES CO. R.R. & "L" ST. SECTION 92-11VB
VERMILION COUNTY STA. 1877+01.73
WEST ABUTMENT LEFT BRIDGE

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED | DATE | REVISED |
|---|---|---|---|---|---|---|
| ST | EG | | LDB | HSM | Oct.62 | |

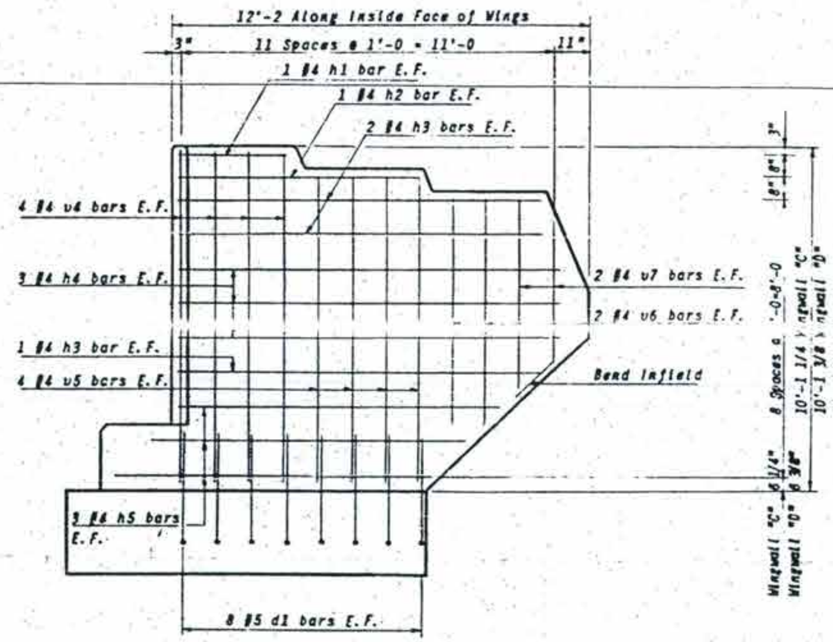
| F.A.I. RTE. NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 74 | 92-11VB | VERMILION | 67 | 39 |
| FEDERAL ROAD DISTRICT NO. 7 | ILLINOIS | PROJ. | | |



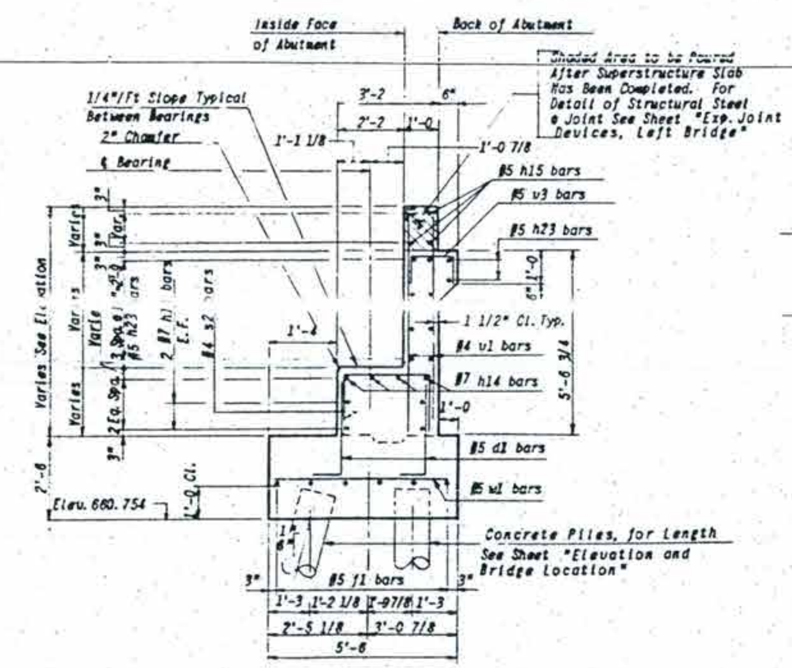

FOOTING PLAN



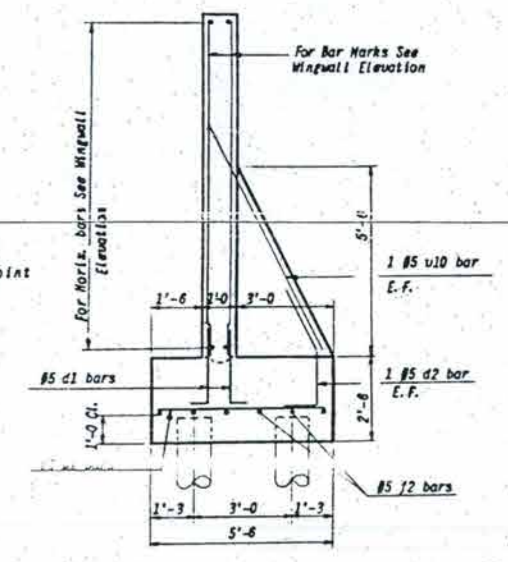

WINGWALL ELEVATION
(Wingwall "D" Shown, Wingwall "C" Reversed)




WINGWALL REINFORCEMENT




SECTION E-E




SECTION F-F

CONSOER, TOWNSEND & ASSOCIATES
CONSULTING ENGINEERS CHICAGO, ILLINOIS

ILLINOIS DIVISION OF HIGHWAYS

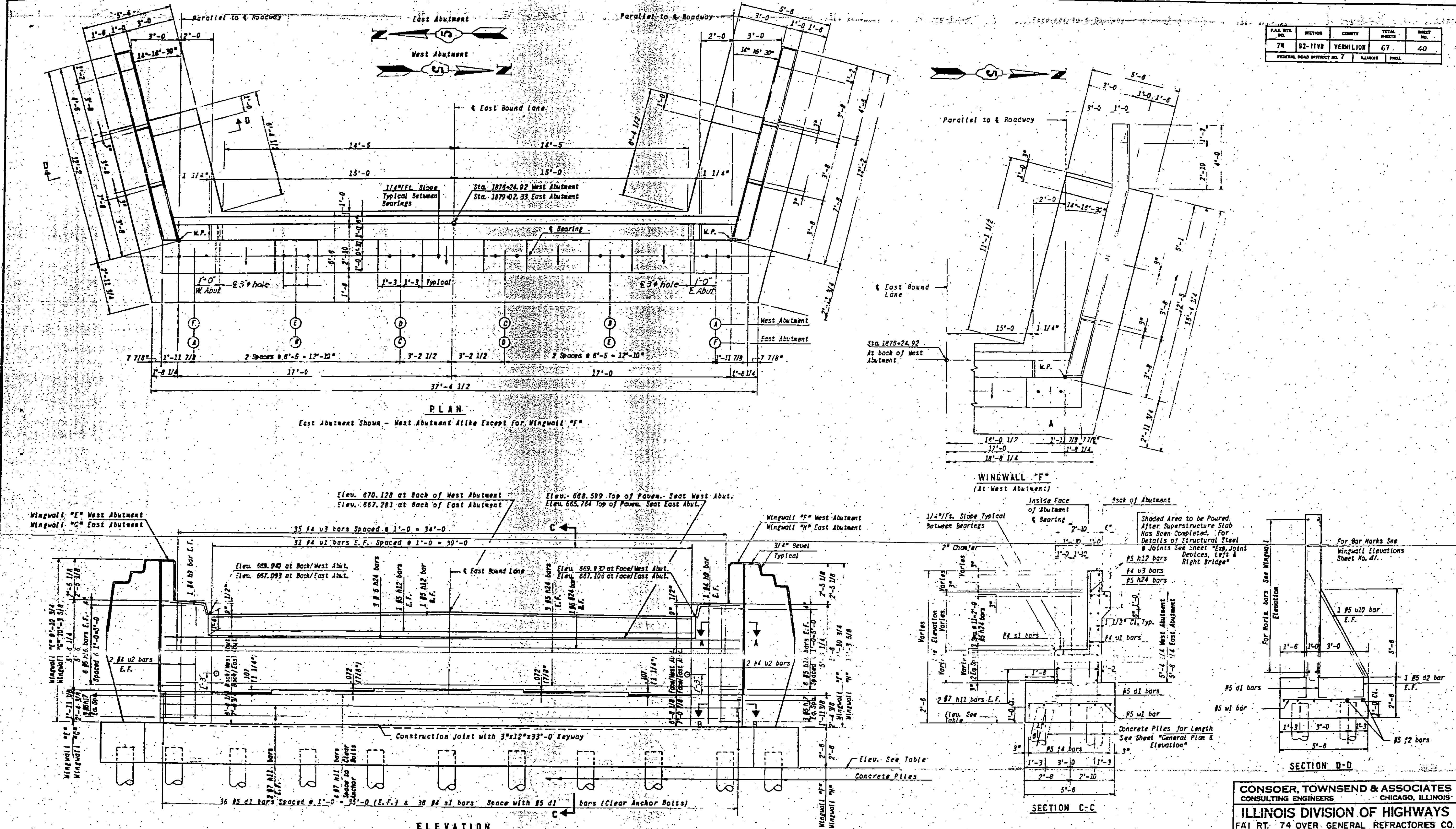
FAI RT. 74 OVER GENERAL REFRACTORIES CO. R.R. & "L" ST. SECTION 92-11VB

VERMILION COUNTY STA. 1877+01.73

WEST ABUTMENT LEFT BRIDGE

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED | DATE | REVISED |
|---|---|---|---|---|---|---|
| ST | EG | | LDB | HSM | Oct.62 | |

| F.A.I. RTE. NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 74 | 92-11VB | VERMILION | 67 | 40 |
| FEDERAL ROAD DISTRICT NO. 7 | | ILLINOIS | PROJ. | |



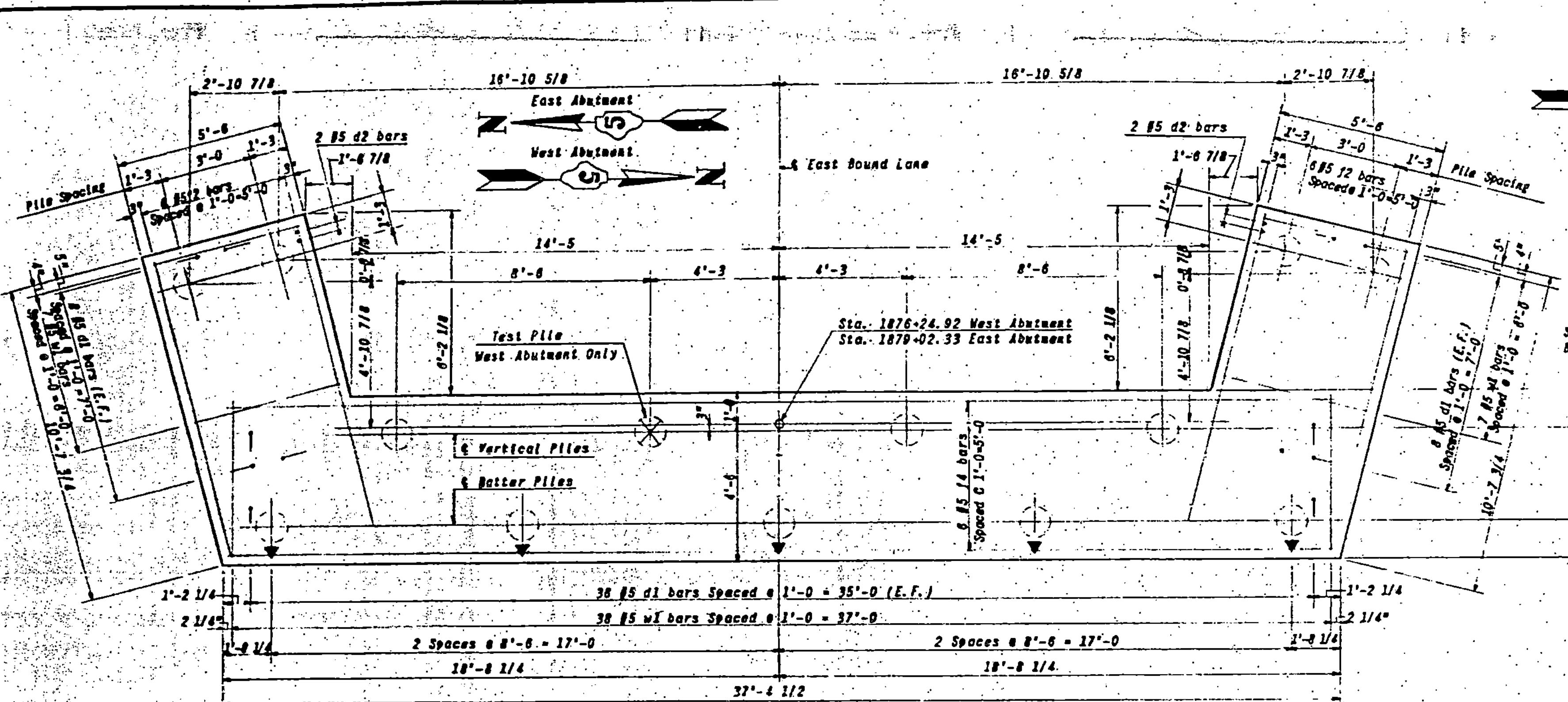

| TABLE OF ELEVATIONS | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ABUTMENT | BERM ELEV. | PROFILE ELEV. BACK/ABUT. | BOTTOM OF FOOTING | WINGWALL NO. | ELEV. "W" | ELEV. "X" | ELEV. "Y" | WINGWALL NO. | ELEV. "W" | ELEV. "X" | ELEV. "Y" | BEARING SEAT ELEVATIONS | | | | | |
| | | | | | | | | | | | | A | B | C | D | E | F |
| WEST ABUTMENT | 664.700 | 670.128 | 660.754 | E | 672.151 | 671.913 | 663.254 | F | 672.151 | 671.943 | 663.254 | 665.207 | 665.314 | 665.386 | 665.386 | 665.314 | 665.207 |
| EAST ABUTMENT | 661.528 | 667.281 | 657.528 | H | 670.325 | 668.837 | 660.028 | G | 670.325 | 668.837 | 660.028 | 662.397 | 662.504 | 662.576 | 662.576 | 662.504 | 662.397 |

CONSOER, TOWNSEND & ASSOCIATES
CONSULTING ENGINEERS CHICAGO, ILLINOIS

ILLINOIS DIVISION OF HIGHWAYS
FAI RT. 74 OVER GENERAL REFRACTORIES CO. R.R. & "L" ST. SECTION 92-11VB
VERMILION COUNTY STA. 1877+01.73
EAST & WEST ABUTMENT RIGHT BRIDGE

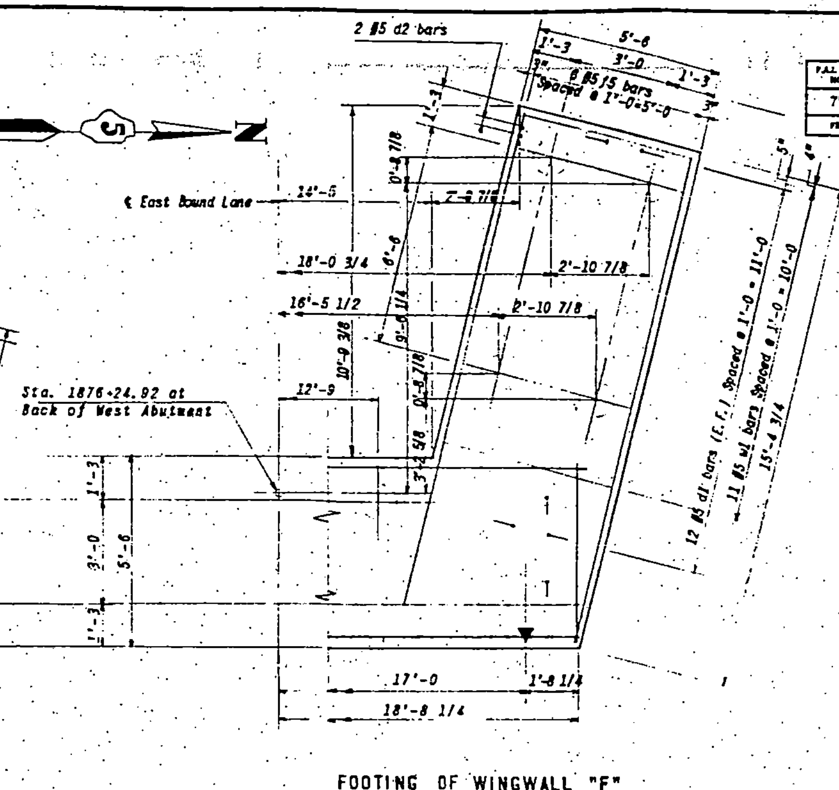
| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED | DATE | REVISED |
|---|---|---|---|---|---|---|
| ST | DU | | LDB | HSM | Oct.62 | |

| F.A.I. RTE. NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 74 | 92-11VB | VERMILION | 67 | 41 |
| FEDERAL ROAD DISTRICT NO. 7 | | ILLINOIS | FED. | |



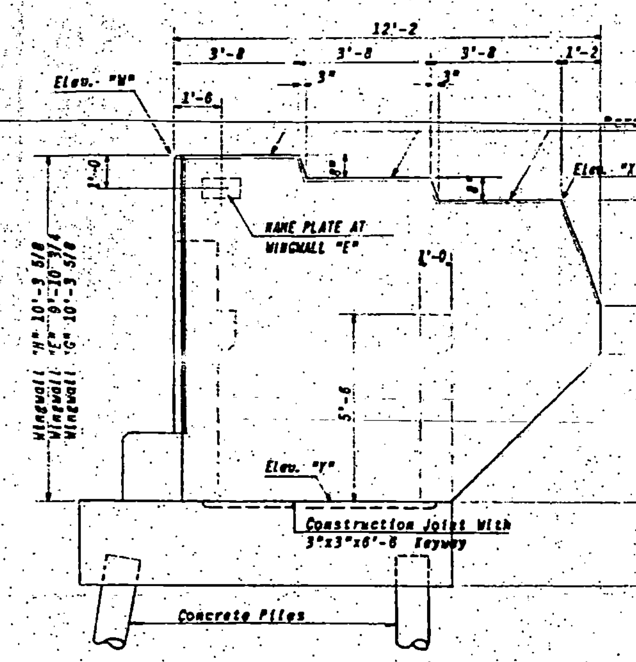

FOOTING PLAN

(East Abutment Shown - West Abutment Alike Except For Footing of Wingwall "F")



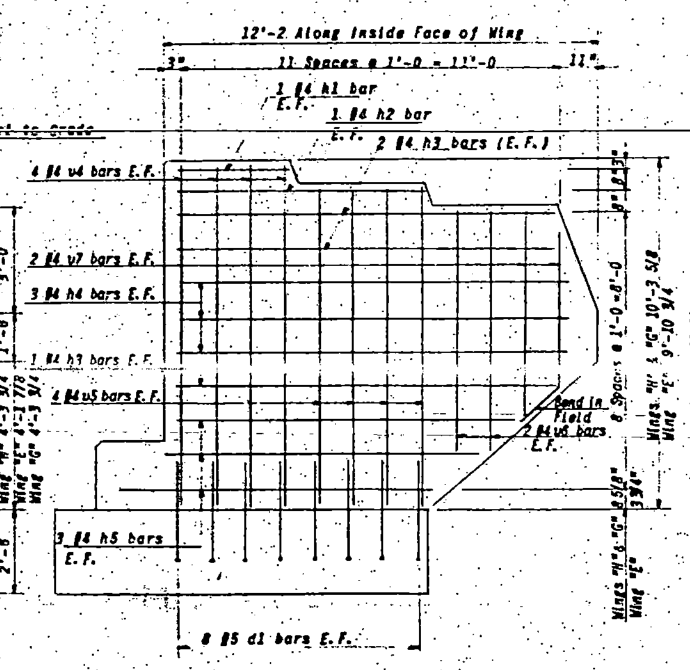

FOOTING OF WINGWALL "F"

At West Abutment

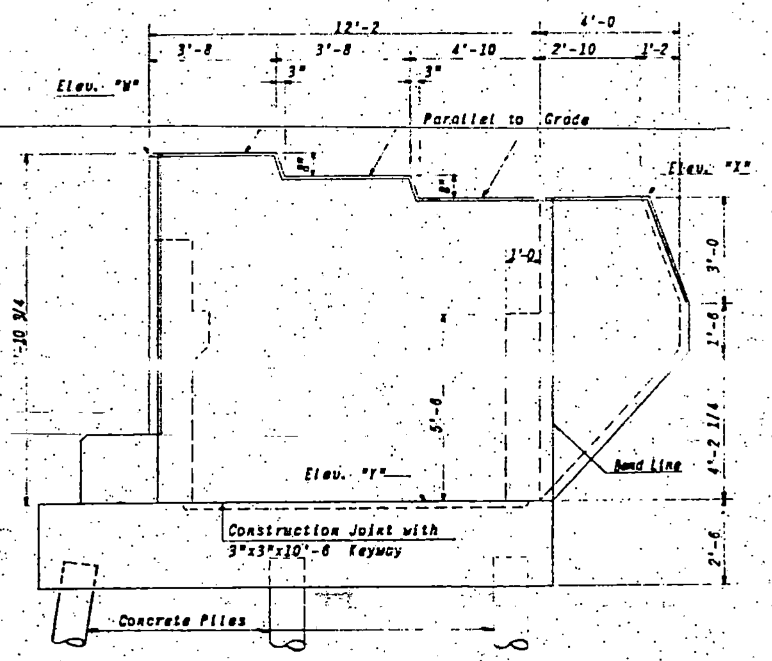



WINGWALL ELEVATION

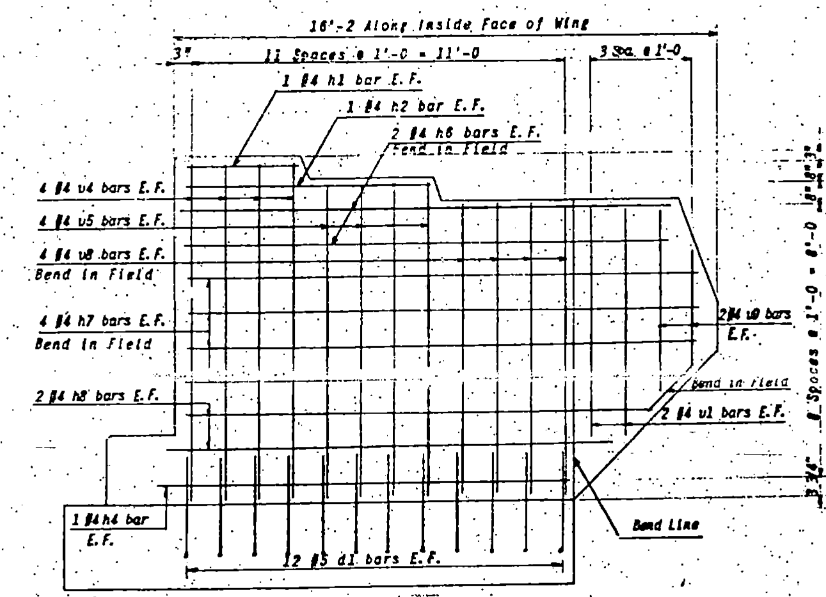
(Wingwall "H" Shown, Wingwalls "E" & "G" Reversed)




WINGWALL REINFORCING




WINGWALL "F" ELEVATION




WINGWALL "F" REINFORCING

CONSOER, TOWNSEND & ASSOCIATES
CONSULTING ENGINEERS — CHICAGO, ILLINOIS

ILLINOIS DIVISION OF HIGHWAYS

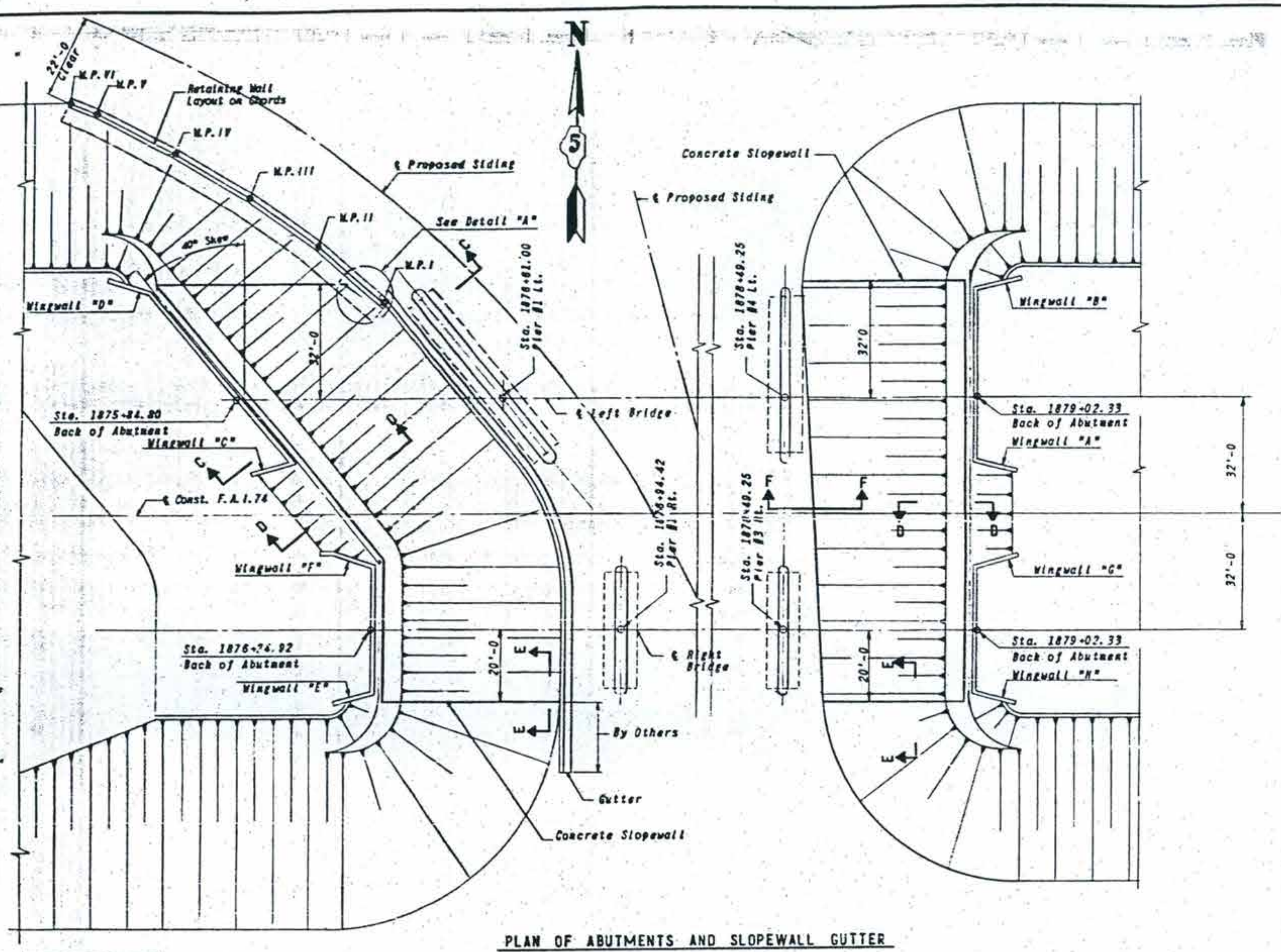
FAI RT. 74 OVER GENERAL REFRACTORIES CO. R.R. & "L" ST. SECTION 92-11VB

VERMILION COUNTY — STA. 1877+01.73

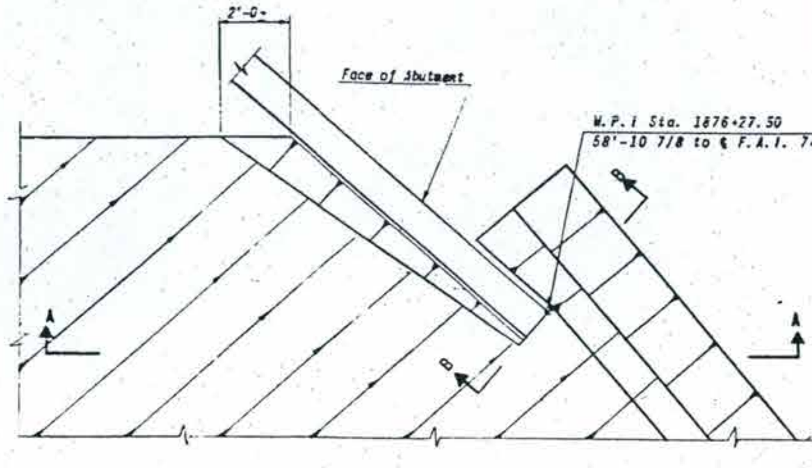
EAST & WEST ABUTMENT — RIGHT BRIDGE

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED | DATE | REVISED |
|---|---|---|---|---|---|---|
| ST | DU | | LDB | HSM | Oct.62 | |

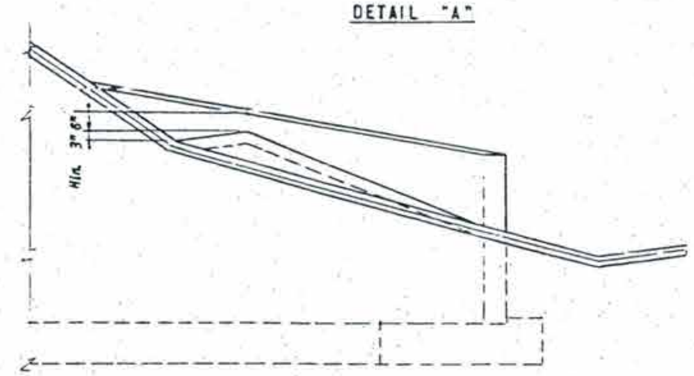
| F.A.I. RTE. NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 74 | 92-11VB | VERMILION | 67 | 42 |
| FEDERAL ROAD DISTRICT NO. 7 | ILLINOIS | | | |




PLAN OF ABUTMENTS AND SLOPEWALL GUTTER




DETAIL "A"

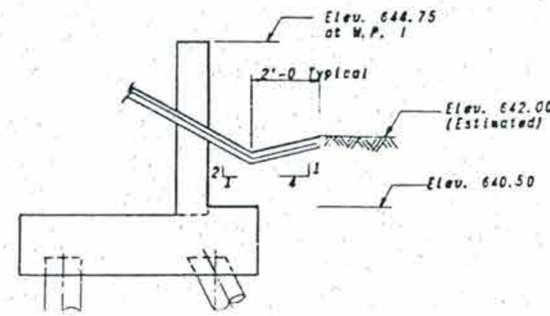



SECTION A-A

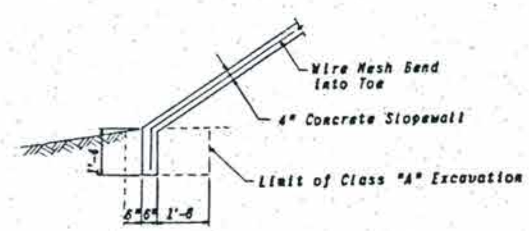

DETAIL OF DRILLED CAISSON

Type A - All Piers Left Bridge
Type B - All Piers Right Bridge

NOTE: Caisson Concrete Includes Drilled Caisson Excavation.

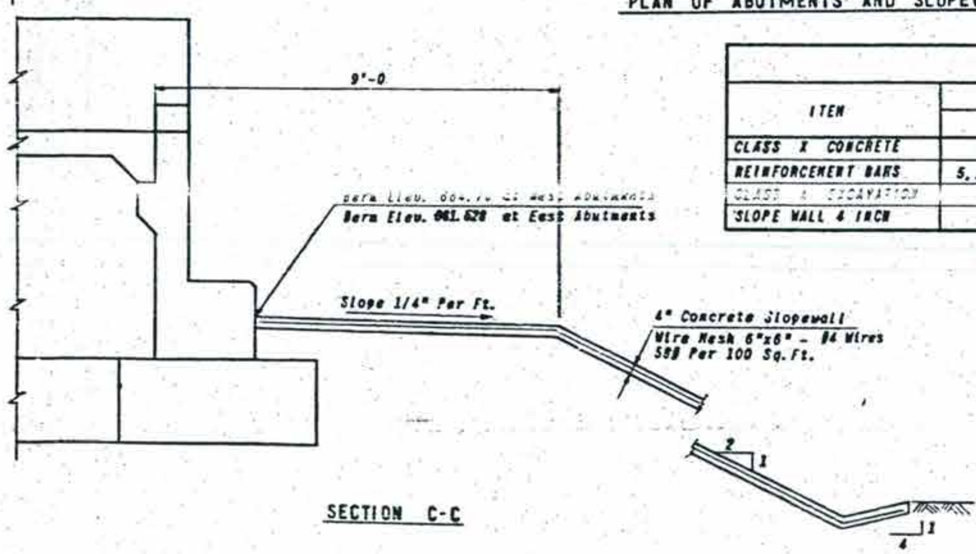



SECTION B-B

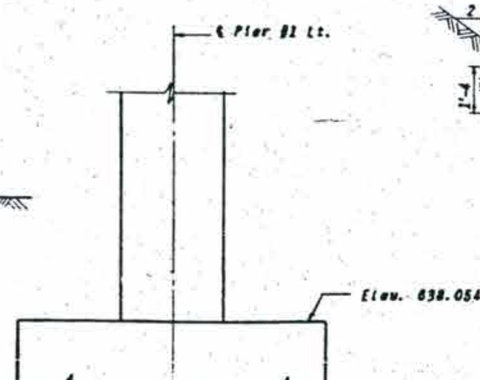


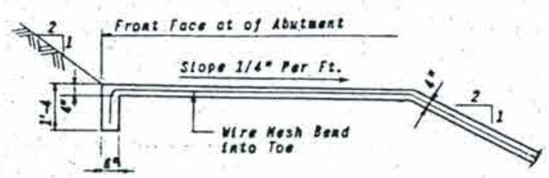

SECTION F-F

| ABUTMENT QUANTITIES | | | | |
|---|---|---|---|---|
| ITEM | WEST ABUTMENT | | EAST ABUTMENT | |
| | LEFT | RIGHT | LEFT | RIGHT |
| CLASS X CONCRETE | 75.1 CU. YDS. | 51.7 CU. YDS. | 61.1 CU. YDS. | 49.5 CU. YDS. |
| REINFORCEMENT BARS | 5,170 LBS. | 3,535 LBS. | 4,170 LBS. | 3,365 LBS. |
| CLASS A EXCAVATION | [illegible] CU. YDS. | | [illegible] CU. YDS. | |
| SLOPE WALL 4 INCH | 893.6 SQ. YDS. | | 653.4 SQ. YDS. | |

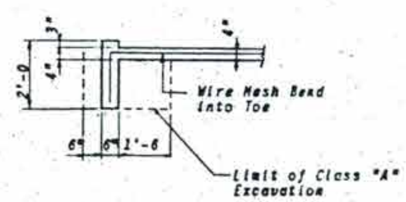



SECTION C-C




SECTION D-D




SECTION E-E

Typical Edge of Slopewall

CONSOER, TOWNSEND & ASSOCIATES
CONSULTING ENGINEERS CHICAGO, ILLINOIS

ILLINOIS DIVISION OF HIGHWAYS

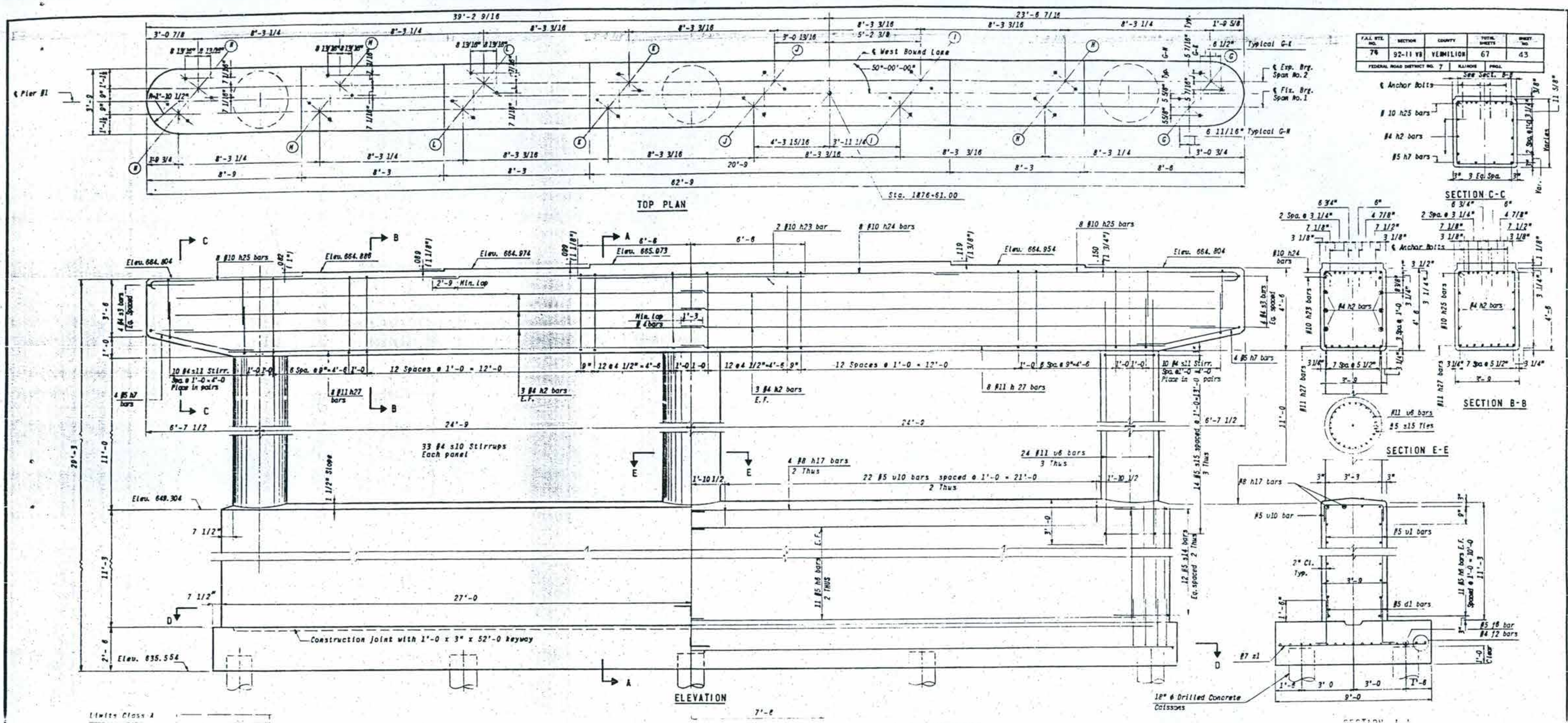
FAI RT. 74 OVER GENERAL REFRACTORIES CO. R.R. & "L" ST. SECTION 92-11VB

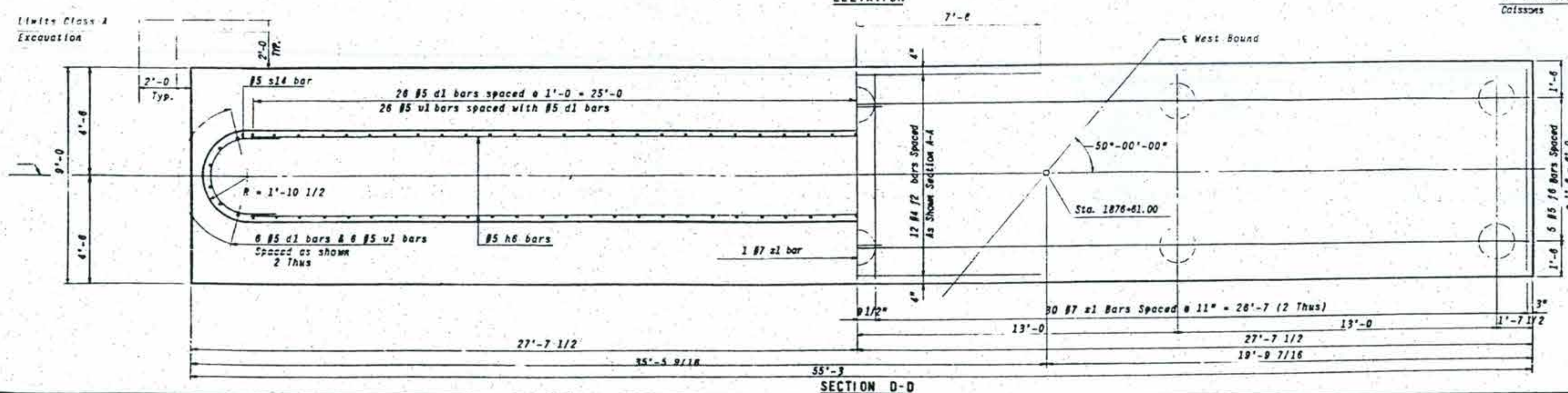
VERMILION COUNTY STA. 1877+01.73

PLAN OF ABUTMENTS AND SLOPEWALL

| | | | | | | |
|---|---|---|---|---|---|---|
| LS | EG | | LDB | HSM | Oct62 | |

| F.A.I. RTE. NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 74 | 92-11 VB | VERMILION | 67 | 43 |
| FEDERAL ROAD DISTRICT NO. 7 | ILLINOIS | PROJ. | | |




NOTE:

Caisson details see Sheet "Plan of Abutment & Slope-wall".

Caisson reinforcing - 1,540 Lbs and is included in Reinforcement Bars.

| QUANTITIES PIER NO. 1 LT. | | |
|---|---|---|
| ITEM | | |
| CLASS X CONCRETE | 179.1 | Cu. Yds. |
| REINFORCEMENT BARS | 19,570 | Lbs. |
| CLASS A EXCAVATION | 124 | Cu. Yds. |
| CAISSON CONCRETE | 16.6 | Cu. Yds. |

CONSOER, TOWNSEND & ASSOCIATES
CONSULTING ENGINEERS CHICAGO, ILLINOIS

ILLINOIS DIVISION OF HIGHWAYS

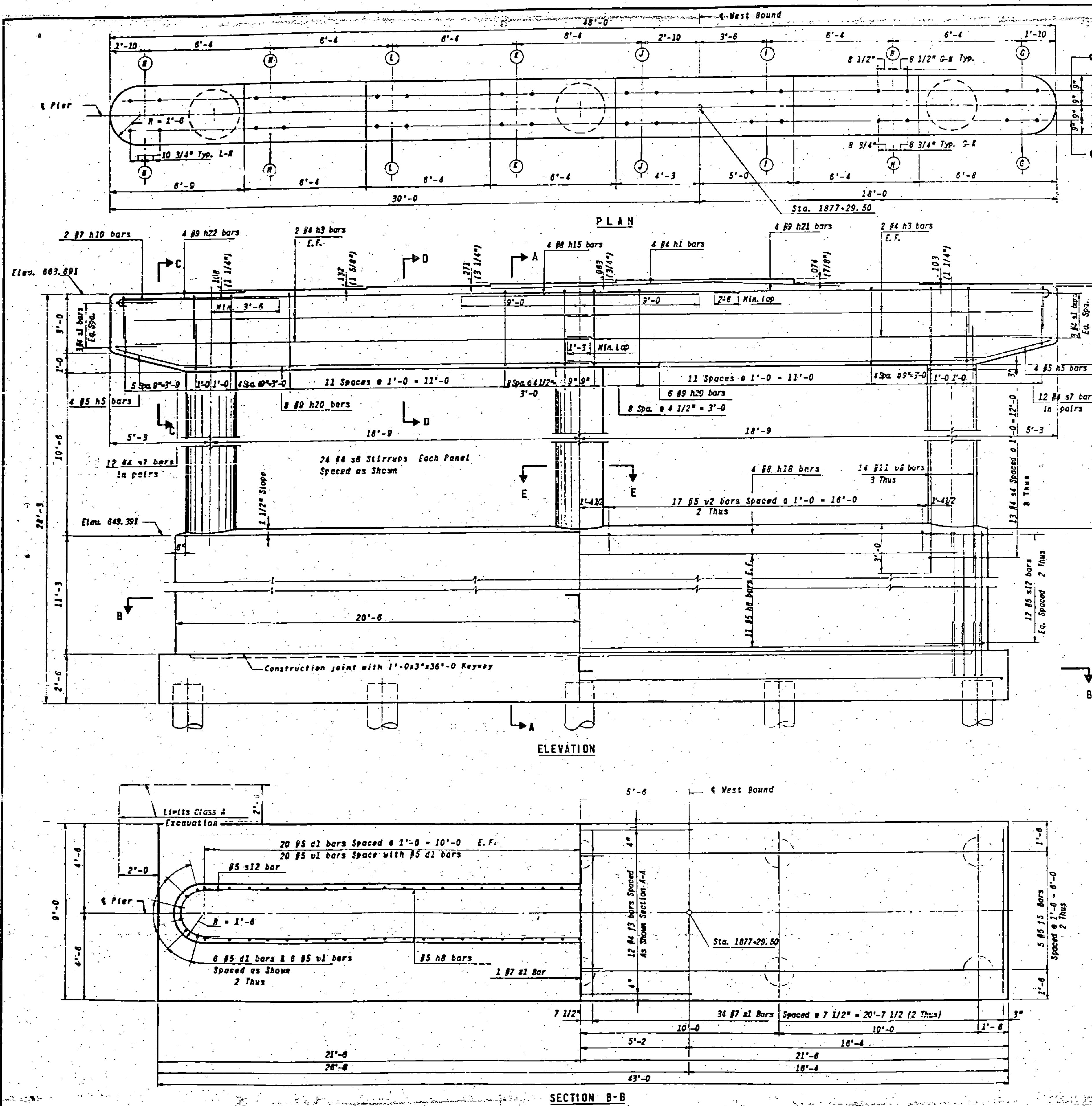
FAI RT. 74 OVER GENERAL REFRACTORIES CO. R.R. & "L" ST. SECTION 92-11VB

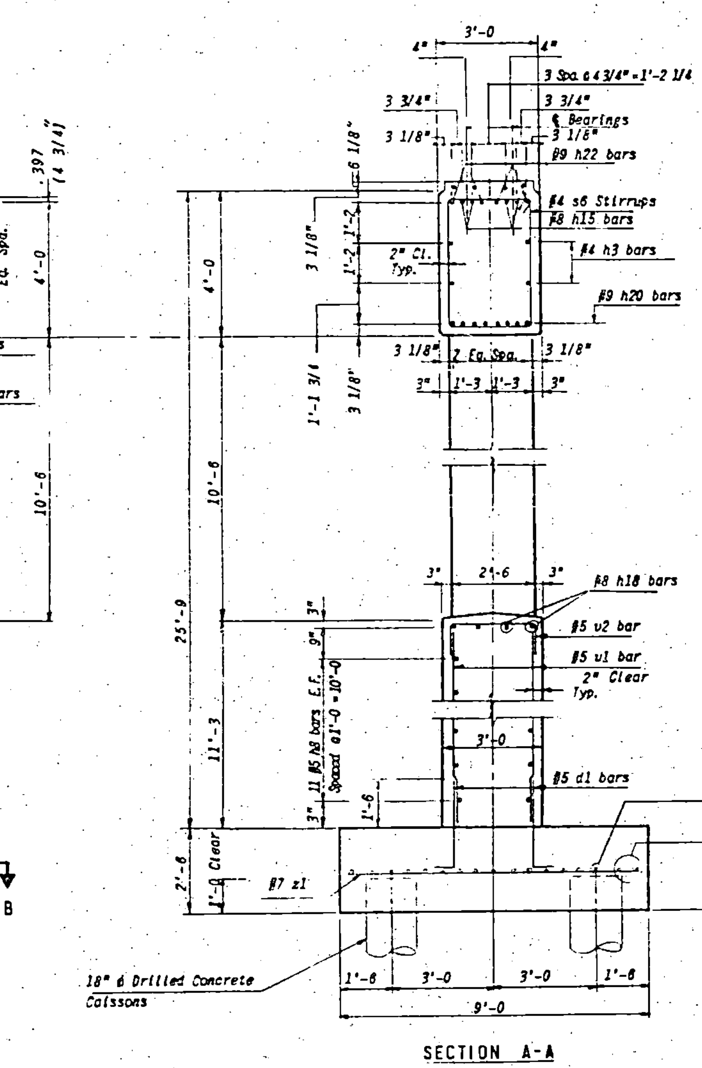
VERMILION COUNTY STA. 1877+01.73

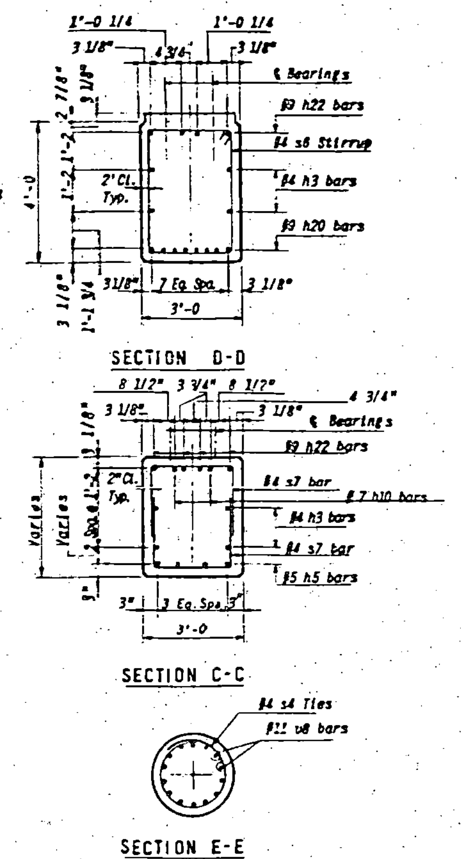
PIER NO.1 LEFT BRIDGE

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED | DATE | REVISED |
|---|---|---|---|---|---|---|
| LS | EG | | LDB | HSM | Oct.62 | |

| F.A.I. RTE. NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 74 | 92-11 VB | VERMILION | 67 | 44 |
| FEDERAL ROAD DISTRICT NO. 7 | ILLINOIS | PROJ. | | |








| QUANTITIES PIER NO. 2 LT. | | |
|---|---|---|
| ITEM | | |
| CLASS X CONCRETE | 114.8 | Cu. Yds. |
| REINFORCEMENT BARS | 12,510 | Lbs |
| CLASS A EXCAVATION | 133 | Cu. Yds. |
| CAISSON CONCRETE | 15.6 | Cu. Yds. |

TABLE OF ELEVATIONS

| PIER | BOTTOM OF FOOTING | TOP OF CRASHWALL | TOP OF RAIL | BEARING SEATS G | H | I | J | K | L | M | N |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PIER NO. 2 | 635.641 | 649.391 | 643.150± | 664.288 | 644.391 | 664.465 | 664.465 | 664.402 | 664.131 | 663.999 | 663.891 |

NOTE: Caisson details see Sheet "Plan of Abutment & Slopewall".

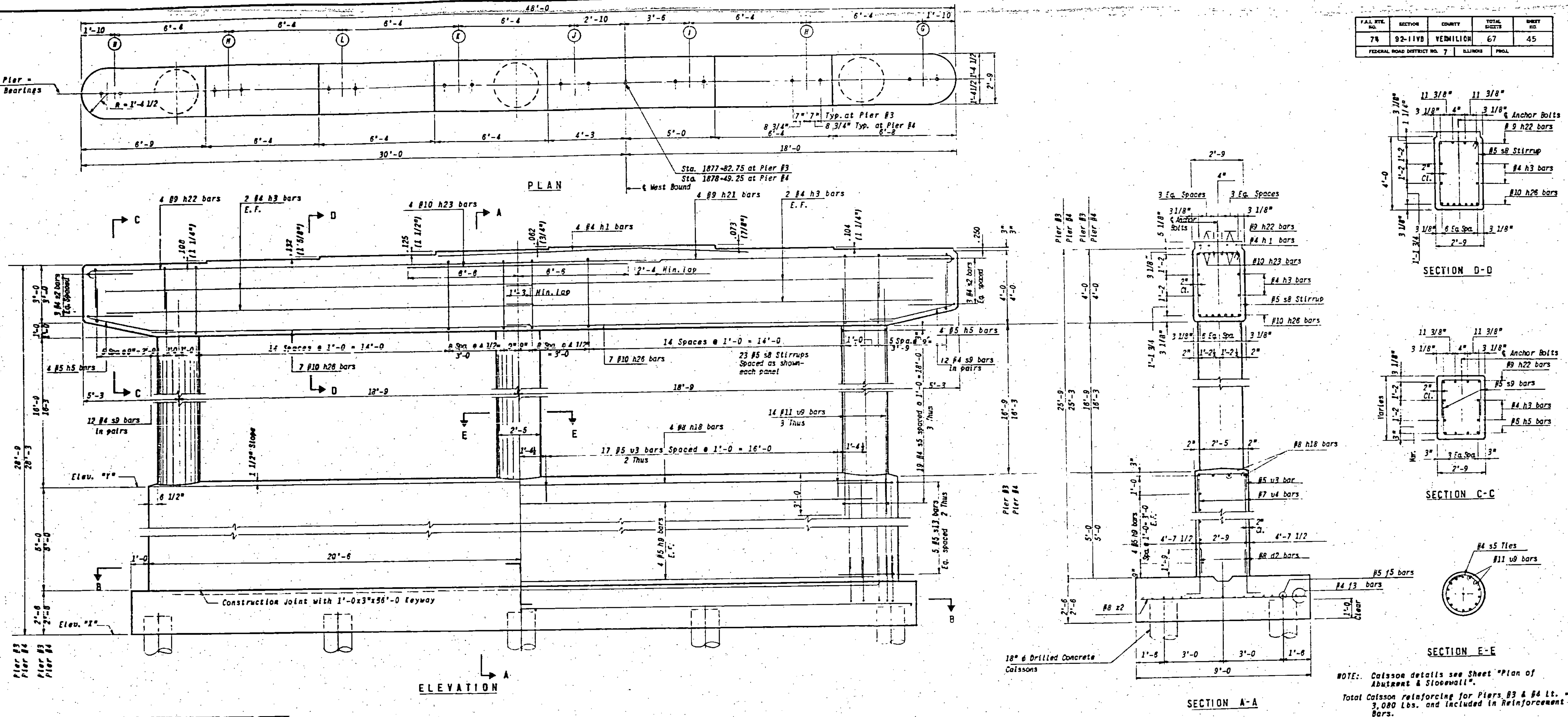
Caisson reinforcing = 1,540 lbs. and is included in Reinforcement Bars.

CONSOER, TOWNSEND & ASSOCIATES
CONSULTING ENGINEERS CHICAGO, ILLINOIS

ILLINOIS DIVISION OF HIGHWAYS
FAI RT. 74 OVER GENERAL REFRACTORIES CO. R.R. & "L" ST. SECTION 92-11VB
VERMILION COUNTY STA. 1877+01.73
PIER NO.2 LEFT BRIDGE

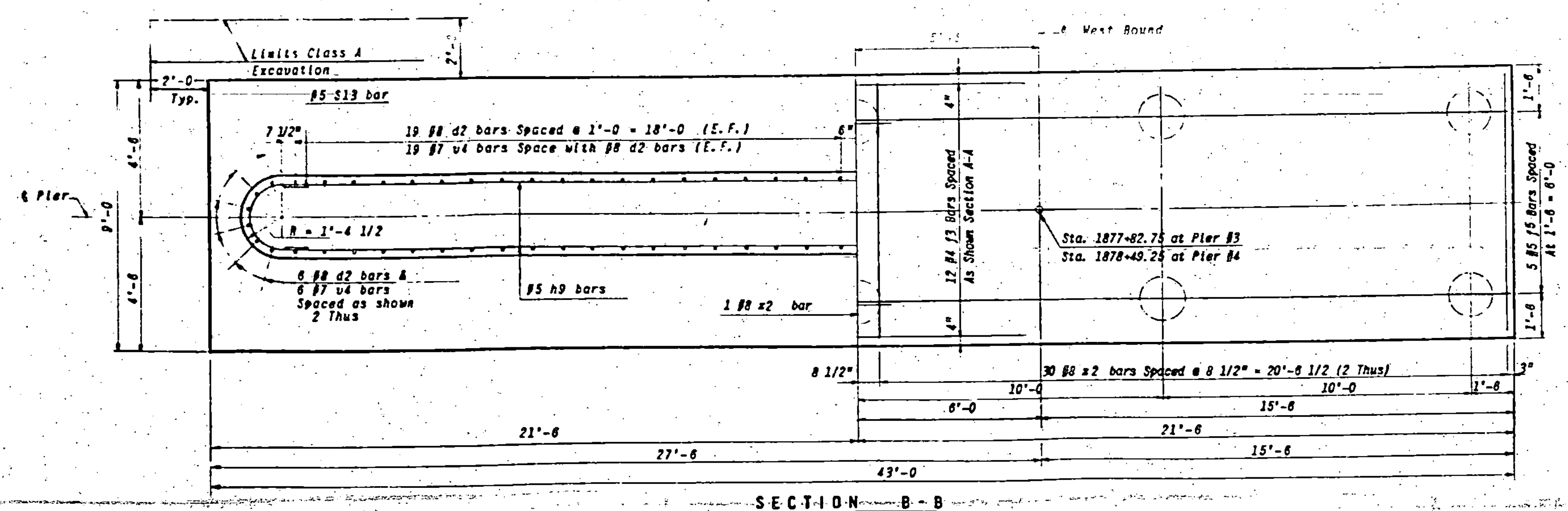
| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED | DATE | REVISED |
|---|---|---|---|---|---|---|
| LS | EG | | LDB | HSM | Oct.62 | |

| F.A.I. RTE. NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 74 | 92-11VB | VERMILION | 67 | 45 |
| FEDERAL ROAD DISTRICT NO. 7 | | ILLINOIS | PROJ. | |




NOTE: Caisson details see Sheet "Plan of Abutment & Slopewall".

Total Caisson reinforcing for Piers #3 & #4 Lt. = 3,080 Lbs. and included in Reinforcement Bars.




| TABLE OF ELEVATIONS | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | BEARING SEATS | | | | | | | |
| PIER | BOTT/FOOTING ELEV. "X" | TOP/WALL ELEV. "Y" | TOP OF PAVEMENT | G | H | I | J | K | L | M | N |
| PIER NO. 3 | 634.745 | 642.745 | 641.070 | 663.745 | 663.848 | 663.922 | 663.925 | 663.859 | 663.734 | 663.602 | 663.495 |
| PIER NO. 4 | 634.941 | 642.441 | 640.924 | 662.941 | 663.045 | 663.118 | 663.122 | 663.056 | 662.931 | 662.799 | 662.691 |

At "L" Street.

| QUANTITIES PIERS NO. 3 & 4 LT. | | |
|---|---|---|
| ITEM | PIER NO. 3 | PIER NO. 4 |
| CLASS X CONCRETE | 85.4 Cu. Yds. | 85.2 Cu. Yds. |
| REINFORCEMENT BARS | 14,540 Lbs. | 14,540 Lbs. |
| CLASS A EXCAVATION | 92 Cu. Yds. | 126 Cu. Yds. |
| CAISSON CONCRETE | 16.6 Cu. Yds. | 16.6 Cu. Yds. |

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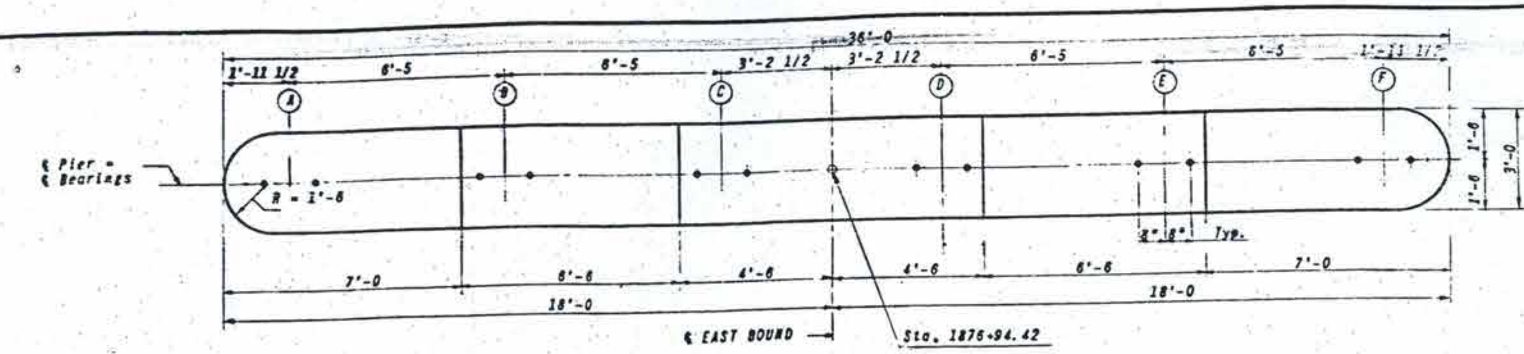
CONSULTING ENGINEERS CHICAGO, ILLINOIS

ILLINOIS DIVISION OF HIGHWAYS
FAI RT. 74 OVER GENERAL REFRACTORIES CO. R.R. & "L" ST. SECTION 92-11VB
VERMILION COUNTY STA. 1877+01.73

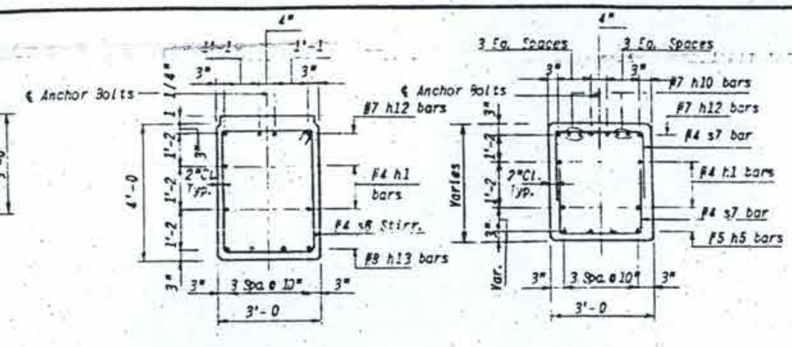
PIERS NO. 3 & NO. 4 LEFT BRIDGE

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED | DATE | REVISED |
|---|---|---|---|---|---|---|
| LS | EG | | LDB | HSM | Oct. 62 | |

| F.A.I. RTE. NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 74 | 92-11 VB | VERMILION | 67 | 46 |
| FEDERAL ROAD DISTRICT NO. 7 | ILLINOIS | | | |

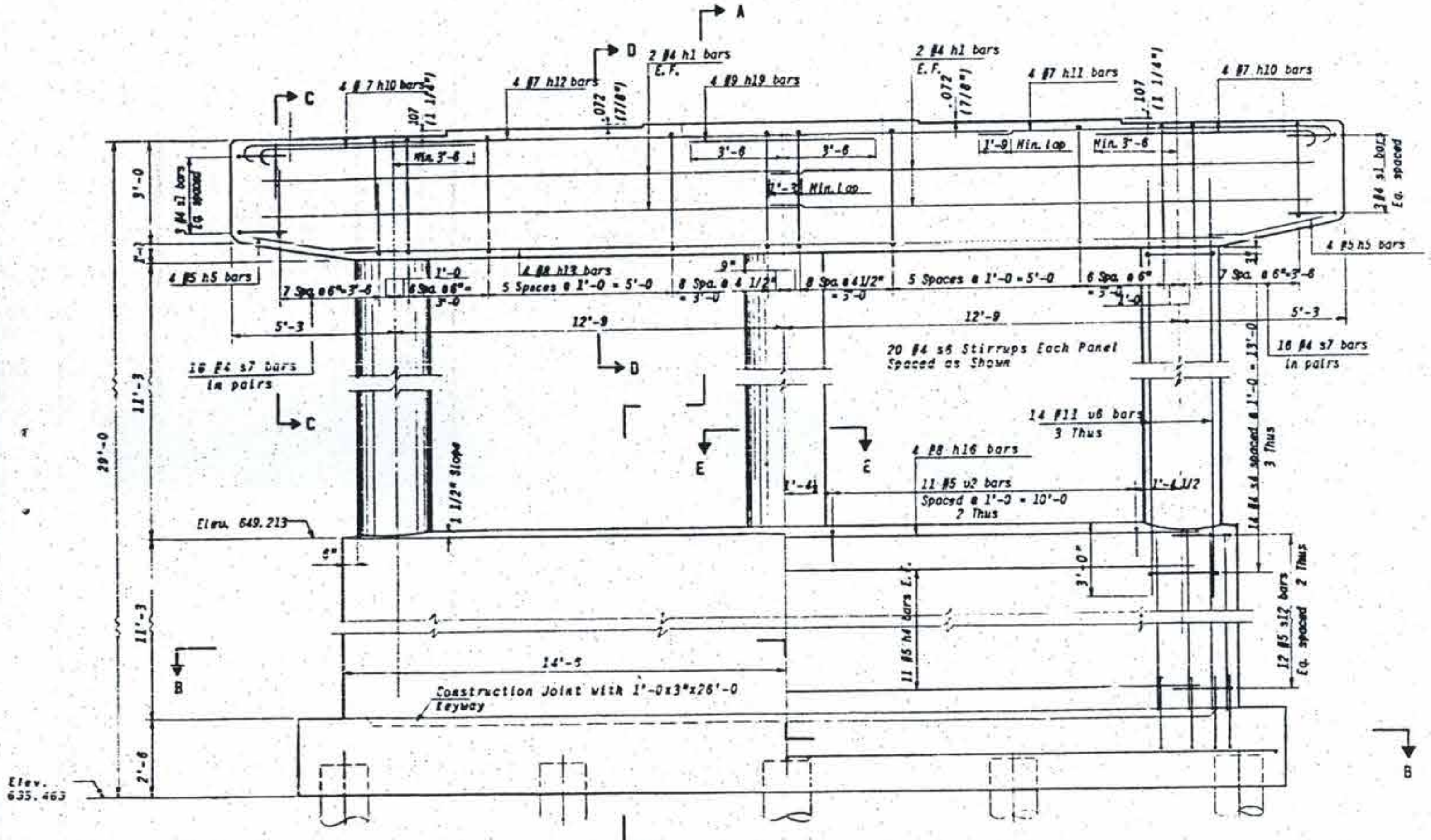



PLAN

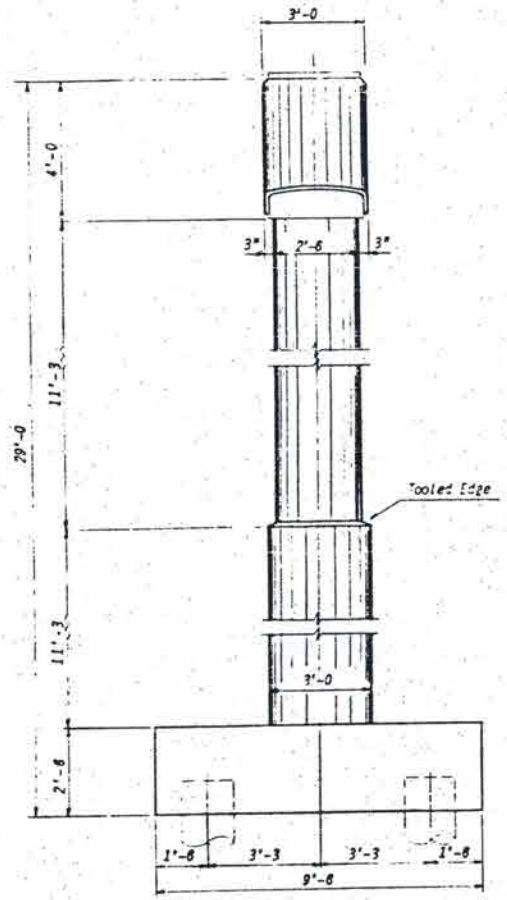


SECTION D-D

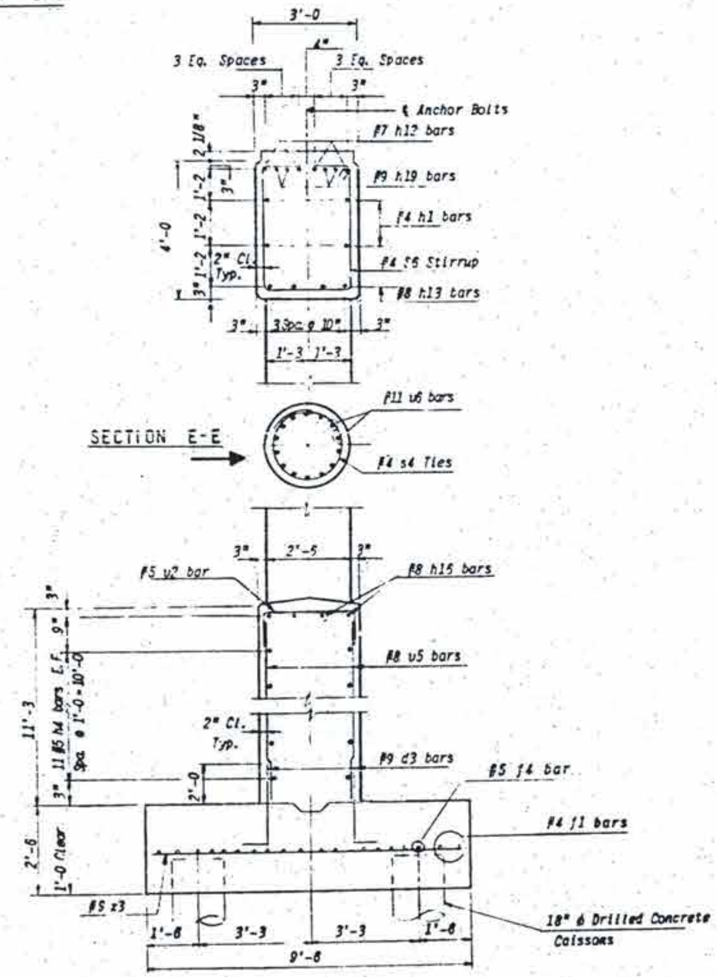
SECTION C-C



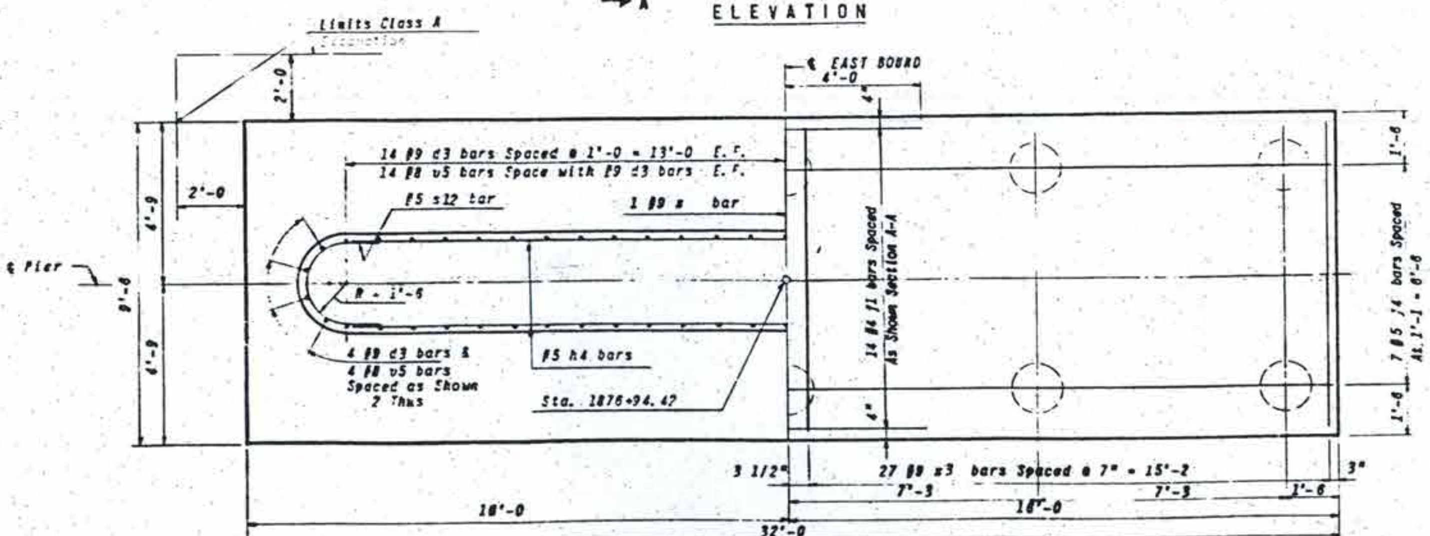

ELEVATION




END ELEVATION




SECTION A-A




SECTION B-B

| TABLE OF ELEVATIONS | | | | | | |
|---|---|---|---|---|---|---|
| PIER | BOTTOM OF FOOTING | TOP OF CRASH WALL | TOP OF RAIL ± | BEARING SEATS A = F | BEARING SEATS B = E | BEARING SEATS C = D |
| PIER NO. 1 | 635.463 | 649.213 | 643.150 | 664.463 | 664.570 | 664.642 |

NOTE: Caisson details see Sheet "Plan of Abutment & Slopewall".
Caisson reinforcing = 2,550 Lbs. and is included in Reinforcement Bars.

| QUANTITIES PIER NO. 1 RT. | |
|---|---|
| ITEM | |
| CLASS X CONCRETE | 85.8 Cu. Yds. |
| REINFORCEMENT BARS | 14,290 Lbs. |
| CLASS A EXCAVATION | 138 Cu. Yds. |
| CAISSON CONCRETE | 16.6 Cu. Yds. |

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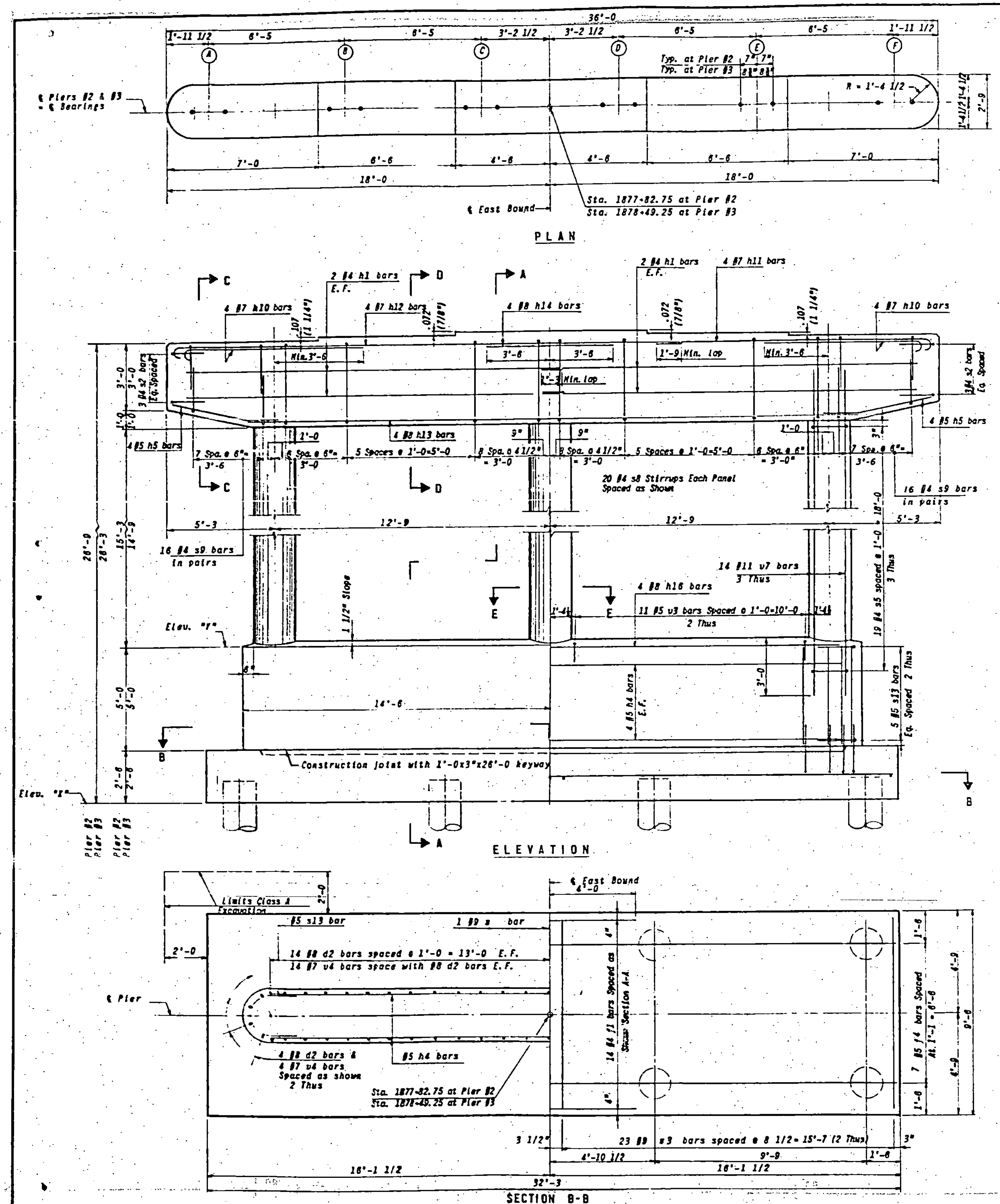
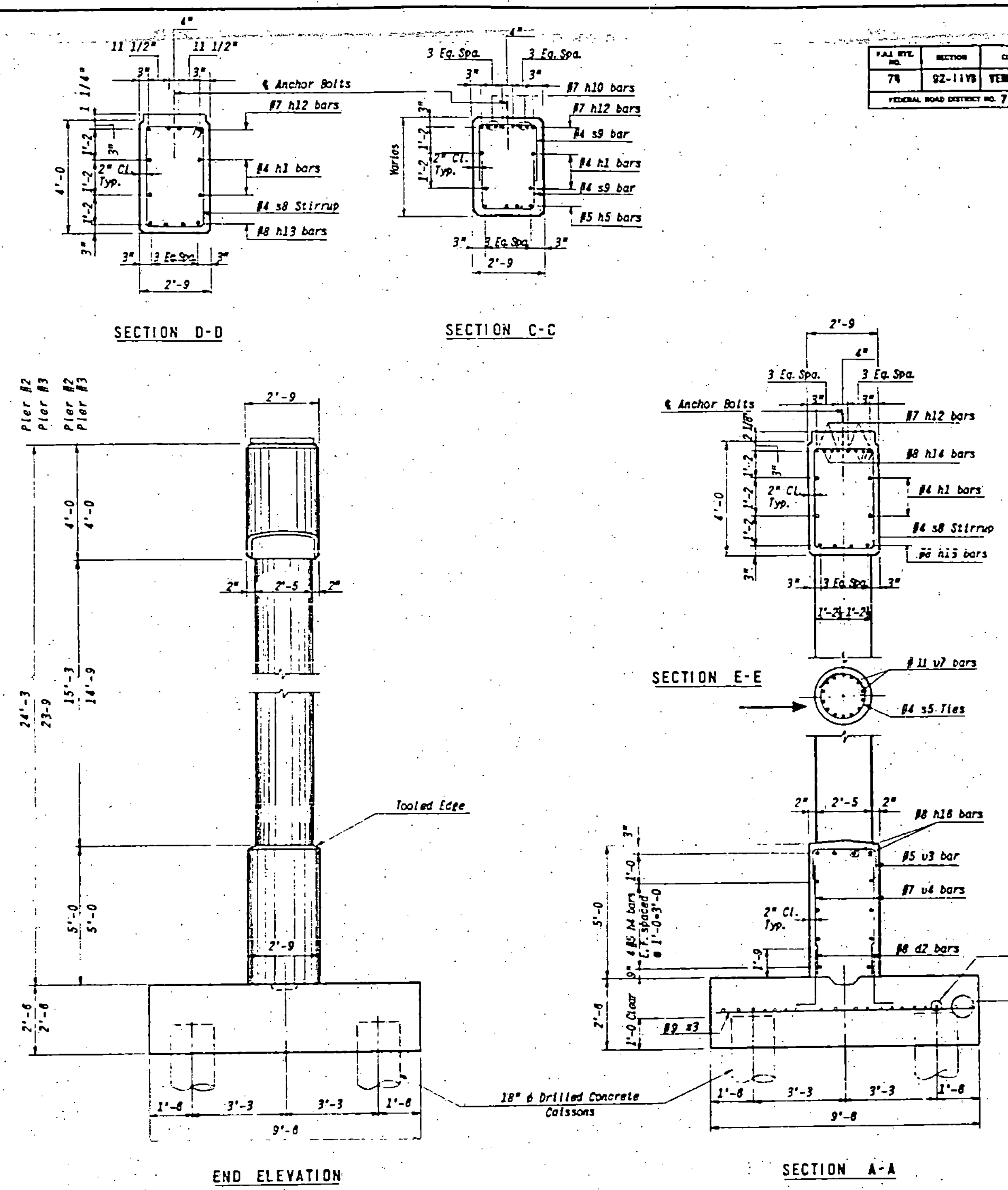
ILLINOIS DIVISION OF HIGHWAYS
FAI RT. 74 OVER GENERAL REFRACTORIES CO. R.R. & "L" ST. SECTION 92-11VB
VERMILION COUNTY STA. 1877+01.73
PIER NO.1 RIGHT BRIDGE

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED | DATE | REVISED |
|---|---|---|---|---|---|---|
| LS | EG | | LDB | HSM | Oct. 62 | |

| F.A.I. RTE. NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 74 | 92-11VB | VERMILION | 67 | 47 |
| FEDERAL ROAD DISTRICT NO. 7 | ILLINOIS | PROJ. | | |




| TABLE OF ELEVATIONS | | | | | | |
|---|---|---|---|---|---|---|
| PIER | BOTT/FOOTING ELEV. "X" | TOP/WALL ELEV. "Y" | TOP OF PAVEMENT + | BEARING SEATS A = F | BEARING SEATS B = E | BEARING SEATS C = D |
| PIER NO. 2 | 636.885 | 644.385 | 642.734 | 663.635 | 663.742 | 663.814 |
| PIER NO 3 | 636.696 | 644.196 | 642.588 | 662.946 | 663.053 | 663.125 |

+ At "L" Street

NOTE: Caisson details see sheet "Plan of Abutment & Slopewall".
Total Caisson reinforcing, Pier #2 & 3 Rt. = 4,080 Lbs. and is included in Reinforcement Bars.

| QUANTITIES PIERS NO. 2 & NO. 3 RT. | | | | |
|---|---|---|---|---|
| ITEM | PIER NO. 2 | | PIER NO. 3 | |
| CLASS X CONCRETE | 59.8 | Cu. Yds. | 59.7 | Cu. Yds. |
| REINFORCEMENT BARS | 12,420 | Lbs. | 12,420 | Lbs. |
| CLASS A EXCAVATION | 111 | Cu. Yds. | 82 | Cu. Yds. |
| Caisson Concrete | 13.3 | Cu. Yds. | 13.3 | Cu. Yds. |

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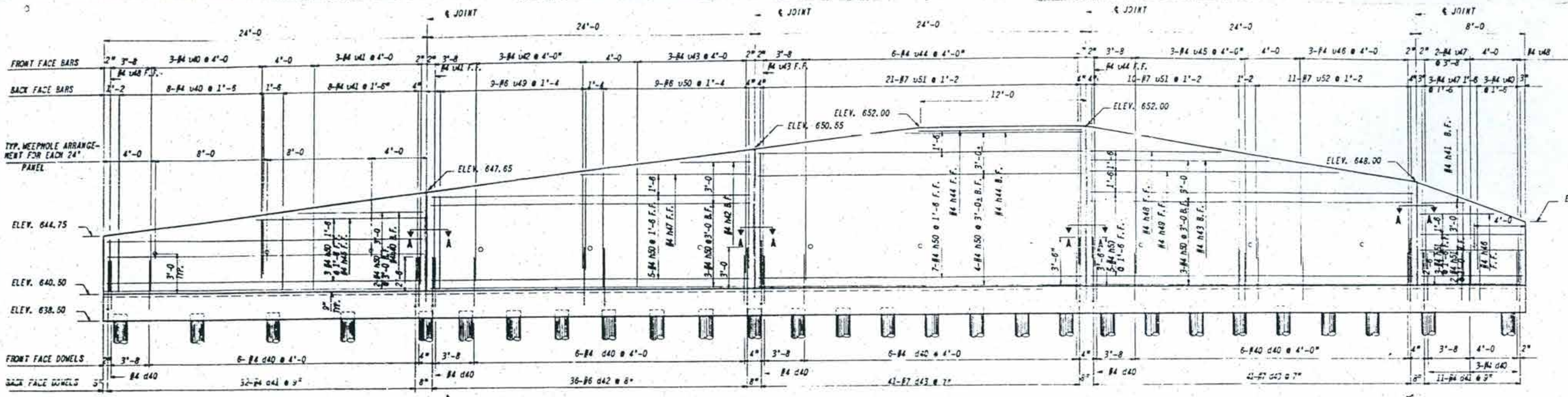
ILLINOIS DIVISION OF HIGHWAYS
FAI RT. 74 OVER GENERAL REFRACTORIES CO. R.R. & "L" ST. SECTION 92-11VB
VERMILION COUNTY STA. 1877+01.73
PIERS NO.2 & NO.3 RIGHT BRIDGE

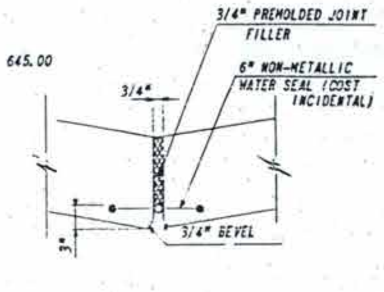
| | | | | | | |
|---|---|---|---|---|---|---|
| LS | EG | | LDB | HSM | Oct. 62 | |

| F.A.I. RTE. NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 74 | 92-11 VB | VERMILION | 67 | 48 |

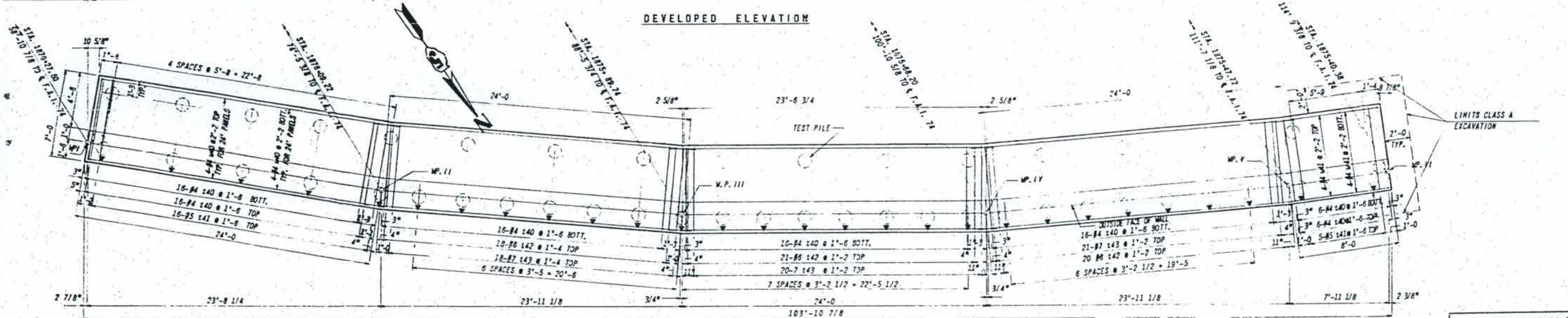
| FEDERAL ROAD DISTRICT NO. | ILLINOIS | PROJ. |
|---|---|---|



DEVELOPED ELEVATION



SECTION A-A

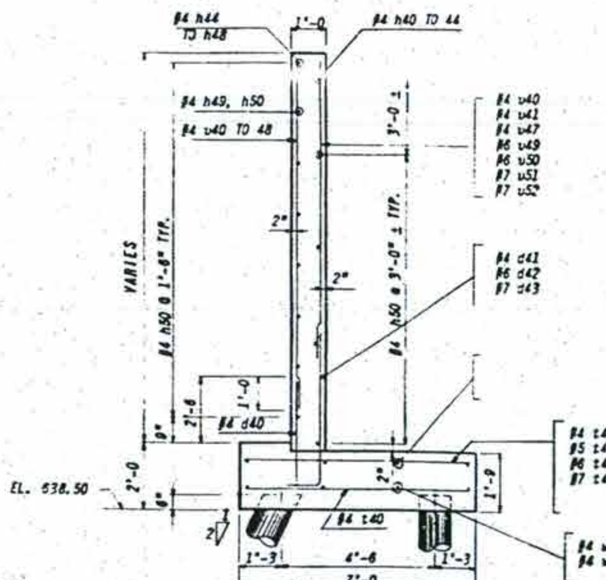


PLAN

| RETAINING WALL QUANTITIES | | |
|---|---|---|
| ITEM | | |
| CLASS X CONCRETE | 82.4 | CU. YDS. |
| REINFORCEMENT BARS | 5,710 | LBS. |
| CLASS A EXCAVATION | 198 | CU. YDS. |

NOTES:

1. WEEP HOLE COST INCIDENTAL TO CLASS X CONCRETE.
2. FOR REINFORCING STEEL AND PILE QUANTITIES SEE SHEET: "BAR SCHEDULES & SUMMARY OF PILES".



TYPICAL WALL SECTION

NOTE: VERTICAL BAR LAPS IN THE BACKFACE SHALL BE A MINIMUM OF:

1'-0" FOR #4 BARS
1'-3" FOR #6 BARS
1'-6" FOR #7 BARS

CONSOER, TOWNSEND & ASSOCIATES
CONSULTING ENGINEERS — CHICAGO, ILLINOIS

ILLINOIS DIVISION OF HIGHWAYS
FAI RT. 74 OVER GENERAL REFRACTORIES CO.
R.R. & "L" ST. SECTION 92-11VB
VERMILION COUNTY — STA. 1877+01.73

RETAINING WALL

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED | DATE | REVISED |
|---|---|---|---|---|---|---|
| OP | DU | | LDB | HSM | APR. '63 | |

| F.A.I. RTE. NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 74 | 92-11 VB | VERMILION | 67 | 49 |
| FEDERAL ROAD DISTRICT NO. 7 | ILLINOIS | PROJ. | | |

## PIER BAR SCHEDULE

| PIER NO. | | BAR | NO. | SIZE | LENGTH | SPACING | SHAPE |
|---|---|---|---|---|---|---|---|
| 1 & 2 | Lt. | x 1 | 103 | 7 | 8'-8 | as shown | |
| 1, 2 & 3 | Rt. | x 3 | 148 | 9 | 9'-0 | as shown | |
| 1, 2 & 3 | Rt. | f 1 | 28 | 4 | 8'-0 | as shown | |
| 1 | Lt. | f 2 | 12 | 4 | 15'-0 | as shown | |
| 2, 3 & 4 | Lt. | f 3 | 38 | 4 | 11'-0 | as shown | |
| 1-3 | Rt. | f 4 | 21 | 5 | 31'-8 | as shown | |
| 2, 34 | Lt. | f 5 | 30 | 5 | 22'-0 | 1'-6 | |
| 1 | Lt. | f 6 | 10 | 5 | 28'-4 | 1'-6 | |
| 3 & 4 | Lt. | x 2 | 122 | 8 | 8'-8 | 8 1/2 | |
| 1 & 2 | Lt. | d 1 | 204 | 5 | 4'-3 | 1'-0 | |
| 2 & 3 Rt. 3 & 4 | Lt. | d 2 | 300 | 8 | 5'-0 | 1'-0 | |
| 1 | Rt. | d 3 | 62 | 9 | 5'-6 | 1'-0 | |
| 1 & 2 | Lt. | v 1 | 204 | 5 | 11'-0 | 1'-0 | |
| 1 Rt. & 2 | Lt. | v 2 | 58 | 5 | 5'-3 | 1'-0 | |
| 2 & 3 Rt. 3 & 4 | Lt. | v 3 | 112 | 5 | 5'-0 | 1'-0 | |
| do | | v 4 | 300 | 7 | 4'-9 | 1'-0 | |
| 1 | Rt. | v 5 | 62 | 8 | 11'-0 | 1'-0 | |
| 1 Rt. & 1 | Lt. | v 6 | 114 | 11 | 17'-3 | as shown | |
| 2 & 3 | Rt. | v 7 | 84 | 11 | 21'-3 | as shown | |
| 2 | Lt. | v 8 | 42 | 11 | 16'-6 | as shown | |
| 3 & 4 | Lt. | v 9 | 84 | 11 | 22'-9 | as shown | |
| 1 | Lt. | v 10 | 44 | 5 | 6'-0 | 1'-0 | |
| 1-3 Rt. 2-3 | Lt. | h 1 | 36 | 4 | 17'-3 | as shown | |
| 1 | Lt. | h 2 | 12 | 4 | 30'-3 | as shown | |
| 2, 3 & 4 | Lt. | h 3 | 24 | 4 | 23'-3 | as shown | |
| 1, 2 & 4 | Rt. | h 4 | 38 | 5 | 26'-3 | as shown | |
| 1-3 Rt. 2-3 | Lt. | h 5 | 48 | 5 | 5'-8 | as shown | |
| 1 | Lt. | h 6 | 22 | 5 | 25'-9 | as shown | |
| 1 | Lt. | h 7 | 8 | 5 | 6'-6 | as shown | |
| 2 | Lt. | h 8 | 22 | 5 | 38'-0 | as shown | |
| 3 & 4 | Lt. | h 9 | 16 | 5 | 39'-3 | as shown | |
| 1-3 Rt. 2 | Lt. | h 10 | 26 | 7 | 9'-6 | as shown | |
| 1-3 | Rt. | h 11 | 12 | 7 | 12'-6 | as shown | |
| do | | h 12 | 12 | 7 | 26'-9 | as shown | |
| do | | h 13 | 12 | 8 | 27'-6 | as shown | |
| 2 & 3 | Rt. | h 14 | 8 | 8 | 7'-0 | as shown | |
| 2 | Lt. | h 15 | 4 | 8 | 18'-0 | as shown | |
| 1-3 | Rt. | h 16 | 12 | 8 | 26'-6 | as shown | |
| 1 | Lt. | h 17 | 8 | 8 | 26'-0 | as shown | |
| 2-4 | Lt. | h 18 | 12 | 8 | 38'-0 | as shown | |
| 1 | Rt. | h 19 | 4 | 9 | 7'-0 | as shown | |
| 2 | Lt. | h 20 | 14 | 9 | 20'-0 | as shown | |
| 2-4 | Lt. | h 21 | 12 | 9 | 19'-9 | as shown | |
| do | | h 22 | 12 | 9 | 33'-9 | as shown | |
| 1, 3 & 4 | Lt. | h 23 | 10 | 10 | 13'-0 | as shown | |
| 1 | Lt. | h 24 | 8 | 10 | 34'-9 | as shown | |
| do | | h 25 | 16 | 10 | 18'-6 | as shown | |
| 3 & 4 | Lt. | h 26 | 28 | 10 | 20'-0 | as shown | |
| 1 | Lt. | h 27 | 16 | 11 | 28'-6 | as shown | |
| 1 Rt. 1 | Lt. | s 1 | 12 | 4 | 6'-3 | as shown | |
| 2 & 3 Rt. 3 & 4 | Lt. | s 2 | 24 | 4 | 6'-3 | as shown | |
| 1 | Lt. | s 3 | 8 | 4 | 7'-6 | as shown | |
| 1 | Lt. | s 4 | 81 | 4 | 8'-0 | 1'-0 | |
| 2 & 3 Rt. 3 & 4 | Lt. | s 5 | 228 | 4 | 7'-9 | 1'-0 | |
| 1 Rt. & 2 | Lt. | s 6 | 88 | 4 | 13'-6 | as shown | |
| do | | s 7 | 58 | 4 | 7'-6 | as shown | |
| 2 & 3 Rt. 3 & 4 | Lt. | s 8 | 172 | 4 | 13'-0 | as shown | |
| do | | s 9 | 112 | 4 | 7'-3 | as shown | |
| 1 | Lt. | s10 | 68 | 4 | 16'-0 | as shown | |
| do | | s11 | 20 | 4 | 8'-9 | as shown | |
| 1 Rt. & 2 | Lt. | s12 | 48 | 5 | 6'-9 | as shown | |
| 2 & 3 Rt. 3 & 4 | Lt. | s13 | 40 | 5 | 6'-9 | as shown | |
| 1 | Lt. | s14 | 24 | 5 | 8'-0 | as shown | |
| do | | s15 | 42 | 5 | 10'-6 | 1'-0 | |
| All Caissons | | s16 | 858 | 3 | 4'-8 | 1'-0 | |
| Caissons Pier 1-4 | Lt. | v30 | 240 | 6 | 14'-6 | as shown | |
| " Pier 1-3 | Rt. | v31 | 158 | 8 | 14'-6 | as shown | |

### PIER QUANTITIES

| | | |
|---|---|---|
| CLASS X CONCRETE | 669.8 | CU. YDS |
| REINFORCEMENT BARS | 100,290 | LBS. |
| CLASS A EXCAVATION | 864 | CU. YDS |
| CAISSON CONCRETE | 109.6 | CU. YDS |

NOTE: Quantities shown are for all Piers (7) for quantities of each Pier see individual drawings.

## RETAINING WALL BAR SCHEDULE

| BAR | NO. | SIZE | LENGTH | SPACING | SHAPE |
|---|---|---|---|---|---|
| d 40 | 31 | 4 | 3'-9 | 4'-0 | |
| d 41 | 43 | 4 | 4'-9 | 0'-9 | |
| d 42 | 36 | 6 | 5'-3 | 0'-8 | |
| d 43 | 82 | 7 | 5'-9 | 0'-7 | |
| t 40 | 92 | 4 | 6'-6 | 1'-6 | |
| t 41 | 21 | 5 | 6'-6 | 1'-6 | |
| t 42 | 59 | 6 | 6'-6 | as shown | |
| t 43 | 59 | 7 | 6'-6 | as shown | |
| w 40 | 32 | 4 | 24'-9 | 2'-2 | |
| w 41 | 8 | 4 | 8'-9 | 2'-2 | |
| v 40 | 14 | 4 | 4'-0 | 4'-0 | |
| v 41 | 12 | 4 | 5'-6 | 4'-0 | |
| v 42 | 3 | 4 | 7'-0 | 4'-0 | |
| v 43 | 4 | 4 | 8'-8 | 4'-0 | |
| v 44 | 7 | 4 | 9'-9 | 4'-0 | |
| v 45 | 3 | 4 | 9'-0 | 4'-0 | |
| v 46 | 3 | 4 | 7'-3 | 4'-0 | |
| v 47 | 5 | 4 | 5'-9 | 4'-0 | |
| v 48 | 2 | 4 | 2'-9 | 4'-0 | |
| v 49 | 9 | 6 | 6'-6 | 1'-4 | |
| v 50 | 9 | 6 | 8'-0 | 1'-4 | |
| v 51 | 31 | 7 | 9'-3 | 1'-2 | |
| v 52 | 11 | 7 | 7'-3 | 1'-2 | |
| h 40 | 1 | 4 | 7'-9 | as shown | |
| h 41 | 1 | 4 | 3'-3 | as shown | |
| h 42 | 1 | 4 | 7'-0 | as shown | |
| h 43 | 1 | 4 | 13'-9 | as shown | |
| h 44 | 2 | 4 | 11'-9 | as shown | |
| h 45 | 1 | 4 | 13'-6 | as shown | |
| h 46 | 1 | 4 | 5'-0 | as shown | |
| h 47 | 1 | 4 | [illegible] | as shown | |
| h 48 | 1 | 4 | 8'-9 | as shown | |
| h 49 | 1 | 4 | 17'-9 | as shown | |
| h 50 | 32 | 4 | 23'-6 | as shown | |
| h 51 | 5 | 4 | 7'-6 | as shown | |

### RETAINING WALL QUANTITIES

| | | |
|---|---|---|
| CLASS X CONCRETE | 82.4 | CU. YDS |
| REINFORCEMENT BARS | 5,710 | LBS. |
| CLASS A EXCAVATION | 198 | CU. YDS |

## SUPERSTRUCTURE BAR SCHEDULE

| SPAN NO. | | BAR | NO. | SIZE | LENGTH | SPACING | SHAPE |
|---|---|---|---|---|---|---|---|
| 1 & 2 | Lt. | a 1 | 6 | 4 | 29'-0 | as shown | |
| All | | a 2 | 897 | 4 | 4'-8 | 1'-4 | |
| 2-5 | Lt. | a 3 | 6 | 4 | 22'-6 | as shown | |
| 1-4 | Rt. | a 4 | 2 | 4 | 32'-0 | as shown | |
| All | | a 5 | 2754 | 5 | 3'-0 | 1'-0 | |
| 1-5 | Lt. | a 6 | 218 | 5 | 31'-5 | 1'-4 | |
| do | | a 7 | 214 | 5 | 21'-10 | 1'-4 | |
| 1-4 | Rt. | a 8 | 206 | 5 | 36'-6 | 1'-4 | |
| 1-5 | Lt. | a 9 | 229 | 6 | 31'-0 | 1'-4 | |
| do | | a 10 | 195 | 6 | 27'-8 | 1'-5 | |
| 1 & 2 | Lt. | a 11 | 63 | 6 | 21'-9 | 0'-8 | |
| 1 & 5 | Lt. | a 12 | 195 | 6 | 18'-6 | 1'-4 | |
| do | | a 13 | 195 | 6 | 21'-0 | 1'-4 | |
| 1 | Lt. | a 14 | 34 | 6 | 19'-6 | 1'-4 | |
| 1 & 2 | Lt. | a 15 | 42 | 6 | 29'-9 | 1'-4 | |
| do | | a 16 | 68 | 6 | 32'-9 | 0'-8 | |
| 1-4 | Rt. | a 17 | 412 | 6 | 34'-10 | 1'-4 | |
| All | | b 1 | 161 | 4 | 30'-0 | as shown | |
| 1 | Lt. | b 2 | 14 | 4 | 16'-6 | as shown | |
| 2 | Lt. | b 3 | 7 | 4 | 34'-6 | as shown | |
| do | | b 4 | 7 | 4 | 26'-6 | as shown | |
| 3-5 | Lt. | b 5 | 14 | 4 | 15'-6 | as shown | |
| 2-5 Lt. & 1-4 | Rt. | b 6 | 70 | 4 | 8'-3 | as shown | |
| 3-5 Lt. & 1-4 | Rt. | b 7 | 110 | 4 | 8'-9 | as shown | |
| 3-5 | Lt. | b 8 | 28 | 4 | 19'-3 | as shown | |
| 3-5 Lt. & 1-4 | Rt. | b 9 | 76 | 4 | 14'-0 | as shown | |
| 1-4 | Rt. | b 10 | 44 | 4 | 10'-3 | as shown | |
| 1-4 | Rt. | b 11 | 14 | 4 | 38'-0 | as shown | |
| 1 & 3-5 Lt. 1-4 | Rt. | b 12 | 40 | 4 | 14'-6 | as shown | |
| do | | b 13 | 56 | 4 | 14'-9 | as shown | |
| 2 | Lt. | b 14 | 36 | 4 | 13'-9 | as shown | |
| 2-5 Lt. 1-4 | Rt. | b 15 | 52 | 4 | 11'-9 | as shown | |
| 3-5 Lt. 1-4 | Rt. | b 16 | 16 | 4 | 12'-3 | as shown | |
| 1-4 | Rt. | b 17 | 32 | 4 | 13'-3 | as shown | |
| do | | b 18 | 8 | 4 | 13'-0 | as shown | |
| 1 & 2 Lt. 1-4 | Rt. | b 19 | 829 | 5 | 30'-0 | 1'-6 | |
| 1 | Lt. | b 20 | 92 | 5 | 17'-0 | 1'-6 | |
| 2 | Lt. | b 21 | 15 | 5 | 29'-3 | 1'-6 | |
| 2 Lt. & 1-4 | Rt. | b 22 | 95 | 5 | 39'-0 | 1'-6 | |
| 3-5 | Lt. | b 23 | 480 | 5 | 35'-3 | 1'-6 | |
| 1-4 | Rt. | b 24 | 68 | 5 | 36'-0 | 1'-0 | |
| do | | b 25 | 92 | 6 | 21'-9 | 0'-6 | |
| 3-5 Lt. & 1-4 | Rt. | b 26 | 170 | 6 | 19'-3 | 0'-6 | |

### SUPERSTRUCTURE QUANTITIES

| | | |
|---|---|---|
| CLASS X CONCRETE | 737.7 | CU. YDS |
| REINFORCEMENT BARS | 159,650 | LBS. |
| PROTECTIVE COATING | 3,590 | SQ. YDS. |

NOTE: Quantities shown are for Left & Right Bridge Superstructures. For quantities of each Superstructure see Sheet "Superstructure Details".

## ESTIMATED LENGTH & QUANTITIES OF CREOSOTED TIMBER PILES

| | LOCATION | NO. | LENGTH | TOTAL LENGTH |
|---|---|---|---|---|
| RIGHT BRIDGE | W. APPROACH SLAB | 6 | 37' | 222' |
| | E. APPROACH SLAB | 6 | 30' | 180' |
| LEFT BRIDGE | W. APPROACH SLAB | 11 | 33' | 363' |
| | E. APPROACH SLAB | 8 | 35' | 280' |
| RETAINING WALL * | | 44 | 15' | 660' |

* Indicates location of 1 Test Pile Timber

## ESTIMATED LENGTH & QUANTITIES OF CONCRETE PILES

| | LOCATION | NO. | LENGTH | TOTAL LENGTH |
|---|---|---|---|---|
| RIGHT BRIDGE | WEST ABUTMENT * | 14 | 35' | 490' |
| | EAST ABUTMENT | 13 | 30' | 390' |
| LEFT BRIDGE | WEST ABUTMENT | 19 | 38' | 722' |
| | EAST ABUTMENT * | 14 | 35' | 490' |
| SUMMARY | | | | 2092 |

* Indicates locations of 1 Test Pile Concrete each.

## ABUTMENTS BAR SCHEDULE

| ABUTMENT | | BAR | NO. | SIZE | LENGTH | SPACING | SHAPE |
|---|---|---|---|---|---|---|---|
| All Abutments | | d 1 | 499 | 5 | 3'-6 | 1'-0 | |
| do | | d 2 | 16 | 5 | 3'-6 | as shown | |
| W. | Lt. | f 1 | 12 | 5 | 32'-6 | 1'-0 | |
| E. & W. | Lt. | f 2 | 42 | 5 | 9'-9 | 1'-0 | |
| E. & W. Rt. E. | Lt. | f 3 | 12 | 5 | 25'-0 | 1'-0 | |
| E. & W. | Rt. | f 4 | 12 | 5 | 36'-9 | 1'-0 | |
| W. | Rt. | f 5 | 6 | 5 | 14'-9 | 1'-0 | |
| All | | w 1 | 261 | 5 | 5'-0 | 1'-0 | |
| E. | Lt. | s 1 | 48 | 4 | 6'-3 | 1'-0 | |
| W. Lt. E & W. | Rt. | s 2 | 137 | 4 | 6'-6 | 1'-0 | |
| E. | Lt. | h 22 | 20 | 5 | 24'-6 | as shown | |
| All | | h 1 | 16 | 4 | 3'-6 | as shown | |
| do | | h 2 | 16 | 4 | 7'-0 | as shown | |
| do | | h 3 | 42 | 4 | 10'-6 | 1'-0 | |
| do | | h 4 | 44 | 4 | 11'-3 | 1'-0 | |
| do | | h 5 | 42 | 4 | 9'-8 | 1'-0 | |
| W. | Rt. | h 6 | 4 | 4 | 14'-9 | 1'-0 | |
| do | | h 7 | 8 | 4 | 15'-9 | 1'-0 | |
| do | | h 8 | 4 | 4 | 13'-0 | 1'-0 | |
| All | | h 9 | 16 | 4 | 4'-3 | as shown | |
| E. | Lt. | h 10 | 6 | 5 | 21'-6 | as shown | |
| E. & W. | Rt. | h 11 | 16 | 7 | 35'-6 | as shown | |
| do | | h 12 | 6 | 5 | 29'-6 | as shown | |
| E. | Lt. | h 13 | 16 | 7 | 24'-9 | as shown | |
| W. | Lt. | h 14 | 16 | 7 | 32'-3 | as shown | |
| do | | h 15 | 6 | 5 | 28'-0 | as shown | |
| E. Lt. E & W. | Rt. | h 16 | 72 | 5 | 5'-3 | 1'-0 | |
| do | | h 17 | 18 | 5 | 8'-0 | as shown | |
| W. | Lt. | h 18 | 6 | 5 | 7'-9 | as shown | |
| do | | h 19 | 12 | 5 | 4'-6 | 1'-0 | |
| do | | h 20 | 12 | 5 | 4'-6 | 1'-0 | |
| do | | h 21 | 6 | 5 | 4'-0 | 1'-0 | |
| W. | Lt. | h 23 | 20 | 5 | 32'-0 | as shown | |
| All | | v 1 | 322 | 4 | 6'-7 | 1'-0 | |
| do | | v 2 | 32 | 4 | 7'-3 | 1'-0 | |
| do | | v 3 | 178 | 4 | 2'-9 | 1'-0 | |
| do | | v 4 | 64 | 4 | 9'-9 | 1'-0 | |
| do | | v 5 | 64 | 4 | 9'-0 | 1'-0 | |
| do | | v 6 | 28 | 4 | 6'-9 | 1'-0 | |
| do | | v 7 | 28 | 4 | 6'-0 | 1'-0 | |
| W. | Rt. | v 8 | 8 | 4 | 8'-3 | 1'-0 | |
| do | | v 9 | 4 | 4 | 5'-6 | 1'-0 | |
| All | | v 10 | 16 | 5 | 7'-6 | as shown | |
| E & W | Rt. | H 24 | 20 | 5 | 35'-6 | AS SHOWN | |

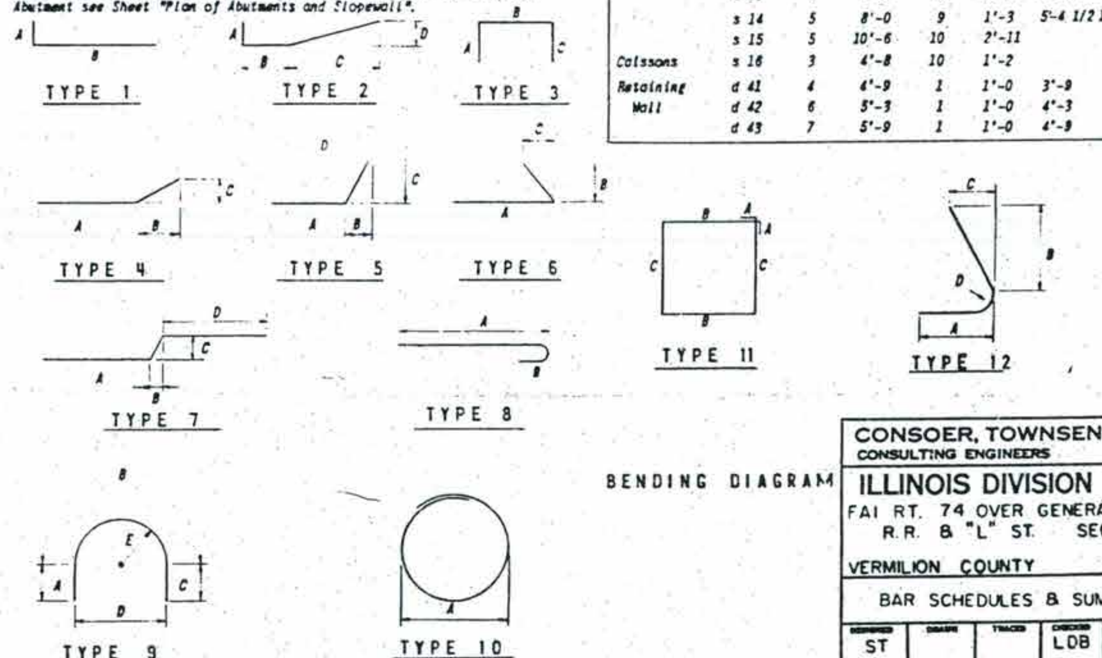
### ABUTMENT QUANTITIES

| | | |
|---|---|---|
| CLASS X CONCRETE | 237.4 | CU. YDS |
| REINFORCEMENT BARS | 16,240 | LBS. |
| CLASS A EXCAVATION | 54 | CU. YDS |
| SLOPE WALL | 1,547 | SQ. YDS |

NOTE: Quantities shown are for all Abutments for Quantities of each Abutment see Sheet "Plan of Abutments and Slopewall".

## BENDING SCHEDULE

| LOCATION | BAR MARK | SIZE | LENGTH | TYPE | A | B | C | D | E |
|---|---|---|---|---|---|---|---|---|---|
| Abutment | d 1 | 5 | 3'-6 | 1 | 0'-6 | 3'-0 | | | |
| | d 2 | 5 | 3'-6 | 2 | 0'-6 | 1'-5 | 1'-4 3/4 | 0'-9 1/8 | |
| | s 1 | 4 | 6'-3 | 3 | 1'-10 | 2'-7 | 1'-10 | | |
| | s 2 | 4 | 6'-6 | 3 | 1'-9 | 2'-11 | 1'-10 | | |
| | h 9 | 4 | 4'-3 | 4 | 2'-9 | 0'-3 | 1'-5 5/8 | | |
| | h 16 | 5 | 5'-3 | 4 | 3'-0 | 2'-2 1/8 | 0'-6 3/4 | | |
| | h 17 | 5 | 8'-0 | 3 | 2'-8 | 2'-7 | 2'-9 | | |
| | h 18 | 5 | 7'-9 | 5 | 2'-0 | 2'-4 1/2 | 2'-10 | 4'-1 | |
| | h 19 | 5 | 4'-6 | 6 | 2'-0 | 2'-3 | 1'-1 | | |
| | h 20 | 5 | 4'-6 | 4 | 2'-0 | 2'-0 3/8 | 1'-5 1/2 | | |
| | h 21 | 5 | 4'-0 | 1 | 1'-6 | 2'-6 | | | |
| | v 3 | 4 | 2'-9 | 3 | 0'-9 | 1'-3 | 0'-9 | | |
| Superstructures | a 2 | 4 | 4'-8 | 7 | 1'-0 | 0'-2 | 1'-0 | 2'-7 | |
| | a 5 | 5 | 3'-0 | 1 | 0'-6 | 2'-6 | | | |
| | a 6 | 5 | 31'-5 | } For Bending Diagrams | | | | | |
| | a 7 | 5 | 21'-10 | See Sheet "Superstructure | | | | | |
| | a 8 | 5 | 36'-6 | Details" | | | | | |
| Piers | d 1 | 5 | 4'-3 | 1 | 1'-0 | 3'-3 | | | |
| | d 2 | 8 | 5'-0 | 1 | 1'-6 | 3'-6 | | | |
| | d 3 | 9 | 5'-6 | 1 | 1'-9 | 3'-9 | | | |
| | v 2 | 5 | 5'-3 | 3 | 1'-4 | 2'-8 | 1'-3 | | |
| | v 3 | 5 | 5'-0 | 3 | 1'-4 | 2'-5 | 1'-3 | | |
| | v 10 | 5 | 6'-0 | 3 | 1'-4 | 3'-5 | 1'-3 | | |
| | h 5 | 5 | 5'-0 | 4 | 4'-0 | 1'-5 3/4 | 0'-3 | | |
| | h 7 | 5 | 6'-6 | 4 | 5'-0 | 1'-5 3/4 | 0'-3 | | |
| | h 10 | 7 | 9'-6 | 8 | 8'-6 | 1'-0 | | | |
| | h 11 | 7 | 12'-6 | 8 | 11'-6 | 1'-0 | | | |
| | h 12 | 7 | 26'-9 | 8 | 25'-0 | 1'-0 | | | |
| | h 21 | 9 | 19'-9 | 8 | 18'-3 | 1'-6 | | | |
| | h 22 | 9 | 33'-9 | 8 | 32'-3 | 1'-6 | | | |
| | h 25 | 10 | 18'-6 | 8 | 16'-9 | 1'-9 | | | |
| | s 1 | 4 | 6'-3 | 9 | 1'-0 | 4'-2 1/4 | 1'-0 3/4 | 2'-8 | 1'-4 |
| | s 2 | 4 | 6'-3 | 9 | 1'-0 | 4'-2 | 1'-1 | 2'-5 | 1'-2 1/2 |
| | s 3 | 4 | 7'-6 | 9 | 1'-0 | 5'-4 1/2 | 1'-1 1/2 | 3'-5 | 1'-8 1/2 |
| | s 4 | 4 | 8'-0 | 10 | 2'-2 | | | | |
| | s 5 | 4 | 7'-9 | 10 | 2'-1 | | | | |
| | s 6 | 4 | 13'-6 | 11 | 0'-5 | 2'-8 | 3'-8 | | |
| | s 7 | 4 | 7'-6 | 3 | 2'-5 | 2'-8 | 2'-5 | | |
| | s 8 | 4 | 13'-0 | 11 | 0'-5 | 2'-5 | 3'-8 | | |
| | s 9 | 4 | 7'-3 | 3 | 2'-5 | 2'-5 | 2'-5 | | |
| | s 10 | 4 | 16'-0 | 11 | 0'-5 | 3'-5 | 4'-2 | | |
| | s 11 | 4 | 8'-9 | 3 | 2'-8 | 3'-5 | 2'-8 | | |
| | s 12 | 5 | 6'-9 | 9 | 1'-3 | 4'-2 1/4 | 1'-3 3/4 | 2'-8 | 1'-4 |
| | s 13 | 5 | 6'-9 | 9 | 1'-3 | 4'-1/2 | 1'-4 | 2'-5 | 1'-2 1/2 |
| | s 14 | 5 | 8'-0 | 9 | 1'-3 | 5'-4 1/2 | 1'-4 1/2 | 3'-5 | 1'-8 1/2 |
| | s 15 | 5 | 10'-6 | 10 | 2'-11 | | | | |
| Caissons | s 16 | 3 | 4'-8 | 10 | 1'-2 | | | | |
| Retaining Wall | d 41 | 4 | 4'-9 | 1 | 1'-0 | 3'-9 | | | |
| | d 42 | 6 | 5'-3 | 1 | 1'-0 | 4'-3 | | | |
| | d 43 | 7 | 5'-9 | 1 | 1'-0 | 4'-9 | | | |




BENDING DIAGRAM

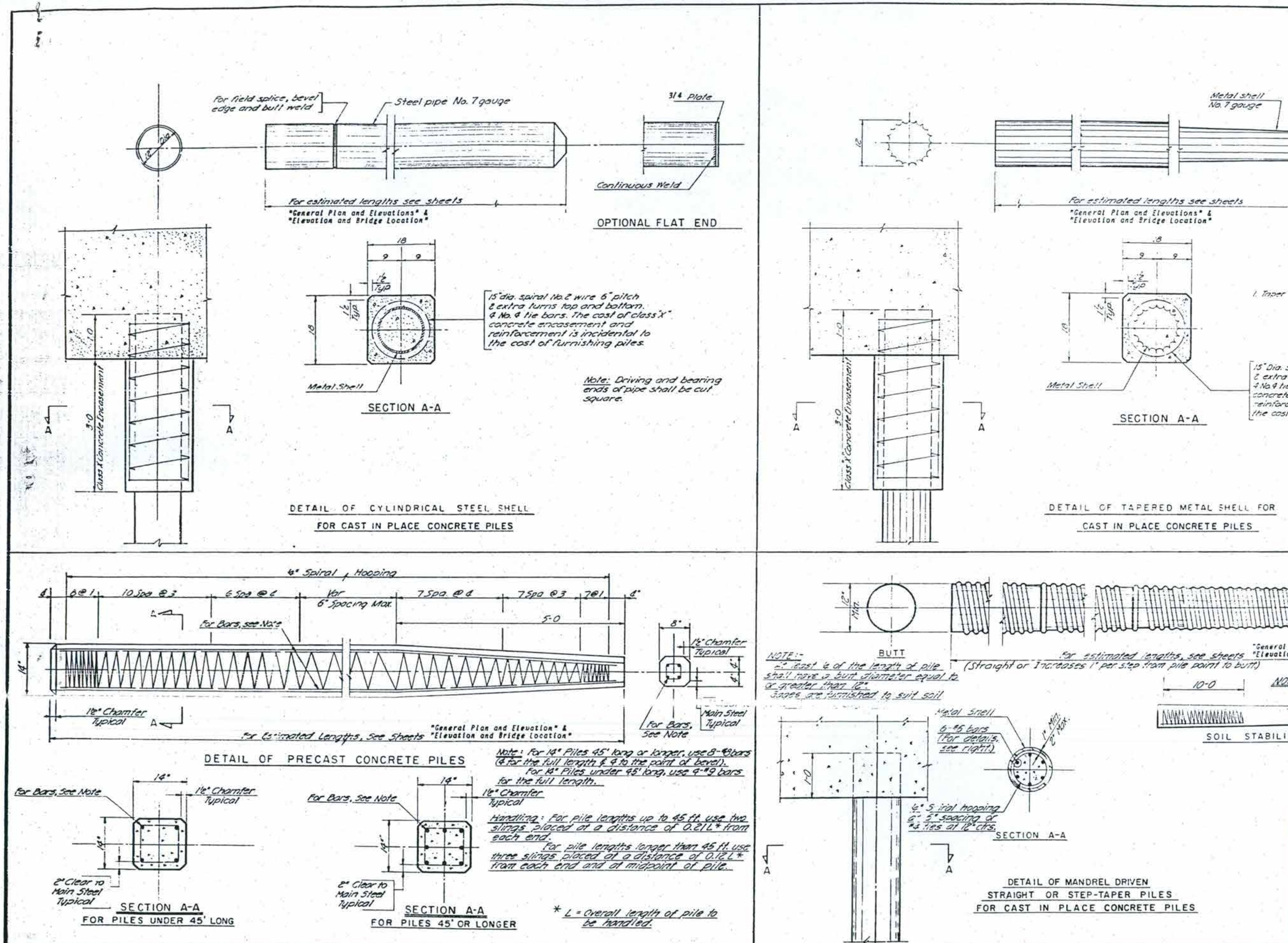
CONSOER, TOWNSEND & ASSOCIATES
CONSULTING ENGINEERS CHICAGO, ILLINOIS

ILLINOIS DIVISION OF HIGHWAYS
FAI RT. 74 OVER GENERAL REFRACTORIES CO.
R.R. & "L" ST. SECTION 92-11VB
VERMILION COUNTY STA. 1877+01.73

BAR SCHEDULES & SUMMARY OF PILES

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED | DATE | REVISED |
|---|---|---|---|---|---|---|
| ST | | | LDB | HSM | Oct.62 | |

| F.A.I. RTE. NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 74 | 92-11VB | VERMILION | 67 | 50 |
| FEDERAL ROAD DISTRICT NO. 7 | | ILLINOIS | PROJ. | |

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ILLINOIS DIVISION OF HIGHWAYS
FAI RT. 74 OVER GENERAL REFRACTORIES CO. R.R. & "L" ST. SECTION 92-11VB
VERMILION COUNTY STA. 1877+01.73

PILE DETAILS

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED | DATE | REVISED |
|---|---|---|---|---|---|---|
| | GEE | BB | LDB | HSM | Oct. 62 | |

092-0008 + 0009