

03-09-12 LETTING ITEM 110

| F.A.S. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---------------------|----------------|----------|---------------------------|-----------|
| 733 | 06-00088-00-BR | MACOUPIN | 35 | 1 |
| FED. ROAD DIST. NO. | | | ILLINOIS FED. AID PROJECT | |

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION PLANS FOR PROPOSED HIGHWAY BRIDGE PROGRAM

**PROJECT NO. BRS-0733(110)
F.A.S. 733 (C.H. 20) OVER MACOUPIN CREEK
SECTION 06-00088-00-BR
MACOUPIN COUNTY
C-96-217-09**

INDEX OF SHEETS

- 1 - TITLE SHEET
- 2 - SUMMARY OF QUANTITIES, DETAILS & TYPICAL SECTIONS
- 3 - SCHEDULES, DETAILS & TYPICAL SECTIONS
- 4 - PLAN & PROFILE
- 5 - EROSION CONTROL PLAN
- 6-26 - STRUCTURE PLANS
- 27-28 - BORINGS
- 29-35 - CROSS SECTIONS

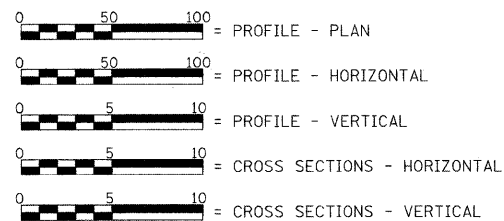
STANDARDS

- STANDARD 000001-06
- STANDARD 280001-06
- STANDARD 515001-03
- STANDARD 542401-01
- STANDARD 601101-01
- STANDARD 630301-05
- STANDARD 631032-07
- STANDARD 666001-01
- STANDARD 701006-03
- STANDARD 701301-04
- STANDARD 701901-02
- STANDARD BLR 21-9
- STANDARD BLR 24-2

UTILITIES

- VERIZON
1-800-892-0123
- ILLINOIS POWER
HILLSBORO, IL 62049
1-800-755-5000

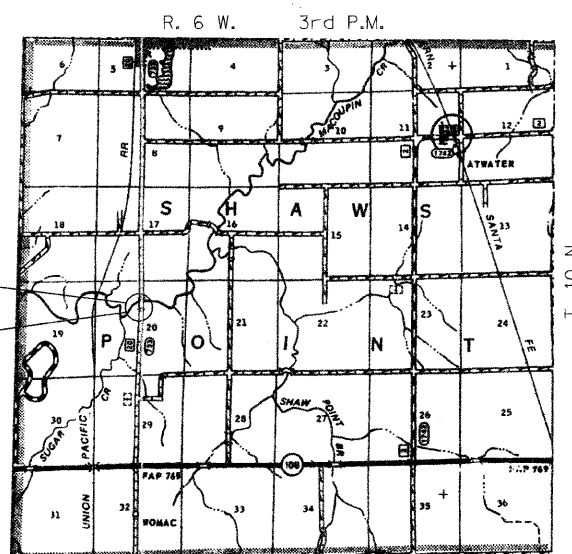
SCALE IN FEET



LAND SECTION - 20
 LAND QUARTER SECTION - N.W.
 FUNCTIONAL CLASSIFICATION: COLLECTOR
 A.D.T. - 325 (2005)
 A.D.T. - 488 (2028)
 40 M.P.H. DESIGN SPEED

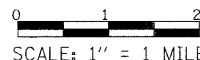
PROJECT ENDS
STA. 100+30.00

 PROJECT BEGINS
STA. 92+00.00



LOCATION PLAN

LENGTH OF SECTION - 830.00 FEET = 0.157 MILES



EXISTING STRUCTURE: FIVE SPAN CONCRETE DECK BRIDGE ON STEEL STRINGERS WITH CONCRETE PIERS AND OPEN CONCRETE ABUTMENTS. ±279'-6" BK.-BK. ABUTMENTS, ±28'-0" OUT-OUT DECK, STEEL CHANNEL RAIL, 0° SKEW. EXISTING STRUCTURE NO. 059-3007.

PROPOSED STRUCTURE: THREE SPAN CONCRETE DECK ON WELDED STEEL PLATE GIRDERS ON INTEGRAL CONCRETE ABUTMENTS. 36'-0" OUT. TO OUT. DECK, 290'-0" BK. TO BK. ABUTMENTS. STEEL RAILING TYPE SM. 0° SKEW. PROPOSED STRUCTURE NO. 059-3307.

TOLL FREE
 "JOINT UTILITY LOCATION INFORMATION FOR EXCAVATORS"
 (WWW.I.E.) TELEPHONE NUMBER
 1-800-892-0123

CONTRACT No. 93562



Christopher P. Kohlman 12/8/11
 EXPIRATION: 11/30/2013

APPROVED December 6, 2011
Thomas A. Reinhardt
 COUNTY ENGINEER

PASSED 12/10 2011
Tom J. P.
 DISTRICT SIX ENGINEER OF
 LOCAL ROADS & STREETS

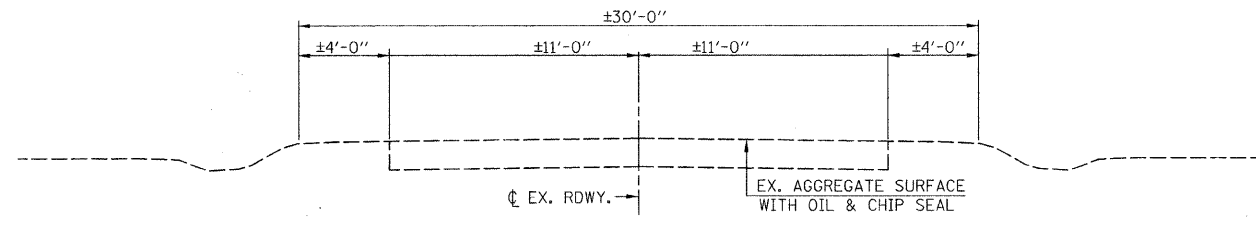
PASSED 12-29-2011
Ken Schambeau
 DISTRICT SIX CONSTRUCTION ENGINEER

Releasing For
 Bid Based on
 Limited Review
12/10 2011
Roger J. Driskell
 DEPUTY DIRECTOR OF HIGHWAYS,
 REGION FOUR ENGINEER

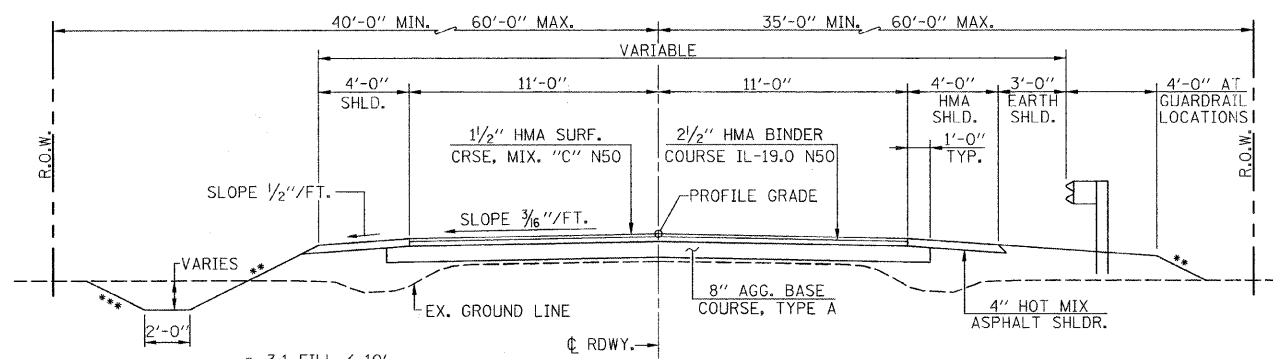
STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

| FILE NAME | USER NAME | DESIGNED | REVISED | Allen Henderson & Associates, Inc. Civil and Structural Engineers Springfield, IL. 62703 Phone: (217)544-8033 IL Design Firm No. 184-001907 | TITLE SHEET | | F.A.S. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|-----------|-----------|----------|---------|--|---|--|---|----------------|----------|--------------|-----------|
| #FILES# | #USER# | DRAWN | REVISED | | SCALE: 1" = 1 MILE SHEET NO. 1 OF 35 SHEETS | | 733 | 06-00088-00-BR | MACOUPIN | 35 | 1 |
| | | CHECKED | REVISED | | | | CONTRACT NO. 93562 | | | | |
| | | DATE | REVISED | | | | FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT | | | | |

| | | | | |
|---|----------------|----------|--------------|-----------|
| F.A.S. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| 733 | 06-00088-00-BR | MACOUPIN | 35 | 2 |
| CONTRACT NO. | | | | |
| FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT | | | | |

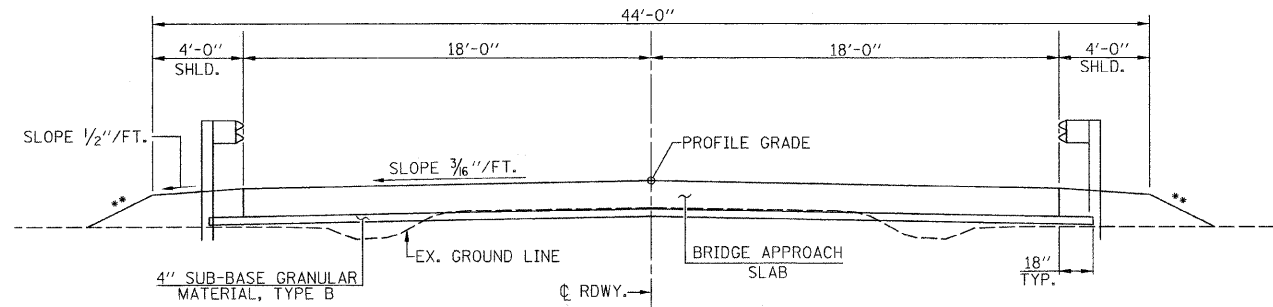


EXISTING CROSS SECTION

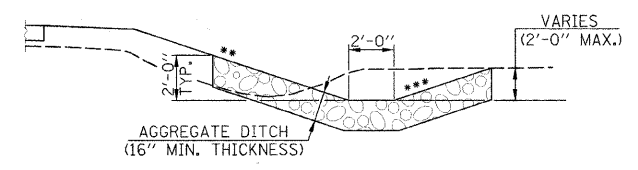


PROPOSED CROSS SECTION
(STA. 92+00 TO STA. 93+48 & STA. 96+98 TO STA. 100+30)

- * 3:1 FILL < 10'
- 2:1 FILL > 10'
- ** 3:1 CUT < 10'
- 2:1 CUT > 10'



PROPOSED CROSS SECTION
(STA. 93+48 TO STA. 93+78 & STA. 96+68 TO STA. 96+98)



AGGREGATE DITCH DETAIL

SUMMARY OF QUANTITIES

| CODE NO. | ITEM | UNIT | QUANTITY |
|----------|--|--------|----------|
| 20100110 | TREE REMOVAL (6 TO 15 UNITS DIAMETER) | UNIT | 45 |
| 20200100 | EARTH EXCAVATION | CU YD | 914 |
| 21101000 | SUB-BASE GRANULAR MATERIAL, TYPE B | TON | 27 |
| 20300100 | CHANNEL EXCAVATION | CU YD | 945 |
| 20400800 | FURNISHED EXCAVATION | CU YD | 1121 |
| 28000250 | TEMPORARY EROSION CONTROL SEEDING | POUND | 110 |
| 28000305 | TEMPORARY DITCH CHECKS | FOOT | 40 |
| 28000400 | PERIMETER EROSION BARRIER | FOOT | 299 |
| 28300400 | AGGREGATE DITCH | TON | 632 |
| 35100100 | AGGREGATE BASE COURSE, TYPE A | TON | 673 |
| 40600100 | BITUMINOUS MATERIALS (PRIME COAT) | GALLON | 440 |
| 40603080 | HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50 | TON | 165 |
| 40603310 | HOT-MIX ASPHALT SURFACE COURSE, MIX 'C', N50 | TON | 99 |
| 42001430 | BRIDGE APPROACH PAVEMENT CONNECTOR (FLEXIBLE) | SQ YD | 29.4 |
| 48203100 | HOT MIX ASPHALT SHOULDERS | TON | 96 |
| 50100100 | REMOVAL OF EXISTING STRUCTURES | EACH | 1 |
| 50200100 | STRUCTURE EXCAVATION | CU YD | 214 |
| 50201101 | COFFERDAM (TYPE 1) - LOCATION 1 | EACH | 1 |
| 50201102 | COFFERDAM (TYPE 1) - LOCATION 2 | EACH | 1 |
| 50300225 | CONCRETE STRUCTURES | CU YD | 156.9 |
| 50300255 | CONCRETE SUPERSTRUCTURE | CU YD | 417.7 |
| 50300260 | BRIDGE DECK GROOVING | SQ YD | 1096 |
| 50300280 | CONCRETE ENCASEMENT | CU YD | 4.2 |
| 50300300 | PROTECTIVE COAT | SQ YD | 1160 |
| 50500105 | FURNISHING AND ERECTING STRUCTURAL STEEL | L SUM | 1 |
| 50500505 | STUD SHEAR CONNECTORS | EACH | 3726 |
| 50800205 | REINFORCEMENT BARS, EPOXY COATED | POUND | 118500 |
| 50800515 | BAR SPLICERS | EACH | 72 |
| 50800530 | MECHANICAL SPLICERS | EACH | 56 |
| 50901050 | STEEL RAILING, TYPE SM | FOOT | 580 |
| 51201600 | FURNISHING STEEL PILES HP12X53 | FOOT | 305 |
| 51201710 | FURNISHING STEEL PILES HP12X84 | FOOT | 480 |
| 51202305 | DRIVING PILES | FOOT | 305 |
| 51203600 | TEST PILE STEEL HP12X53 | EACH | 2 |
| 51203710 | TEST PILE STEEL HP12X84 | EACH | 2 |
| 51500100 | NAME PLATES | EACH | 1 |
| 52100520 | ANCHOR BOLTS 1" | EACH | 48 |
| 542D1063 | PIPE CULVERTS, CLASS D, TYPE 2 18" | FOOT | 48 |
| 54215553 | METAL END SECTIONS 18" | EACH | 2 |
| 59100100 | GEOCOMPOSITE WALL DRAIN | SQ YD | 76 |
| 63100087 | TRAFFIC BARRIER TERMINAL, TYPE 6A | EACH | 4 |
| 63100167 | TRAFFIC BARRIER TERMINAL TYPE 1, SPECIAL (TANGENT) | EACH | 4 |
| 66600105 | FURNISHING AND ERECTING RIGHT-OF-WAY MARKERS | EACH | 8 |
| 67100100 | MOBILIZATION | L SUM | 1 |
| 78001110 | PAINT PAVEMENT MARKING - LINE 4" | FOOT | 1040 |
| 78201000 | TERMINAL MARKER - DIRECT APPLIED | EACH | 4 |
| X0326301 | SETTING AND DRIVING PILES IN ROCK | EACH | 12 |
| X0327301 | RELOCATE EXISTING MAILBOX | EACH | 1 |
| X2070304 | POROUS GRANULAR EMBANKMENT, SPECIAL | CU YD | 161 |
| X2501000 | SEEDING, CLASS 2 (SPECIAL) | ACRE | 1.1 |
| X2810808 | STONE DUMPED RIPRAP, CLASS A4 (SPECIAL) | TON | 862 |
| X7010216 | TRAFFIC CONTROL AND PROTECTION, (SPECIAL) | L SUM | 1 |
| Z0076600 | TRAINEES | Hour | 500 |
| Z0046304 | PIPE UNDERDRAINS FOR STRUCTURES 4" | FOOT | 150 |

* SEE SPECIAL PROVISIONS
 Δ SPECIALTY ITEMS
 + 0042

CONSTRUCTION TYPE CODE: 0011
 BRIDGE TYPE: X071

GENERAL NOTES

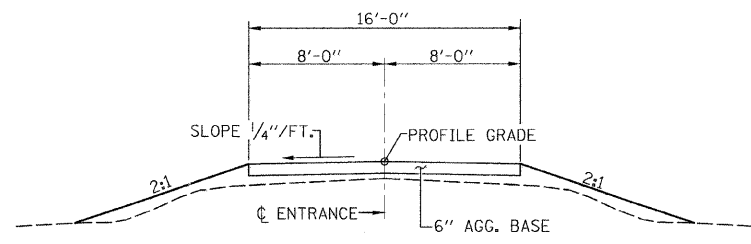
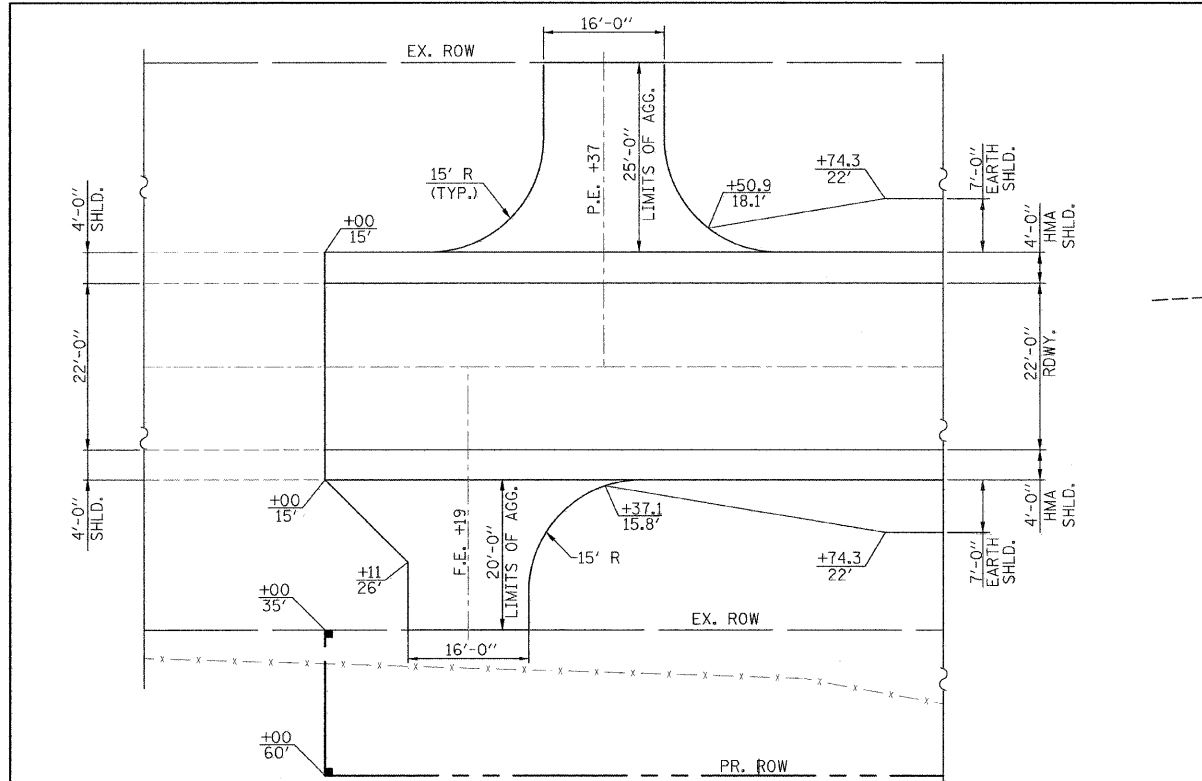
WHERE SECTION OR SUBSECTION STONES ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED BEFORE SUCH STONES ARE REMOVED. THE CONTRACTOR SHALL PROTECT AND PRESERVE ALL PROPERTY MARKERS AND MONUMENTS UNTIL THE OWNER, AUTHORIZED SURVEYOR, OR AGENT HAS WITNESSED OR REFERENCED THEIR LOCATION. SEEDING: FERTILIZER NUTRIENTS SHALL BE APPLIED AT A RATIO OF 1:1:1 AND AT A RATE OF 90 POUNDS PER ACRE FOR EACH NUTRIENT. MULCH SHALL BE APPLIED AT THE RATE OF 2 TONS PER ACRE. AREAS TO BE SEEDED SHALL CONSIST OF ALL DISTURBED EARTH SURFACES WITHIN THE RIGHT OF WAY AS DIRECTED BY THE ENGINEER. NO COMMITMENTS.

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| FILE NAME = | USER NAME = #USER# | DESIGNED | REVISED |
| #FILES# | | DRAWN | REVISED |
| | PLOT SCALE = #SCALE# | CHECKED | REVISED |
| | PLOT DATE = #DATE# | DATE | REVISED |

Allen Henderson & Associates, Inc.
 Civil and Structural Engineers Springfield, IL
 62703 Phone: (217)544-8033 IL Design Firm
 No. 184-001907

| | | | | | | |
|--|--------------------------|--------------------|----------------|----------|--------------|-----------|
| SUMMARY OF QUANTITIES, DETAILS & TYPICAL SECTIONS | | F.A.S. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| SCALE: | SHEET NO. 2 OF 35 SHEETS | 733 | 06-00088-00-BR | MACOUPIN | 35 | 2 |
| STA. | TO STA. | CONTRACT NO. 93562 | | | | |
| FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT | | | | | | |

| | | | | |
|---------------------|----------------|--------------|------------------|-----------|
| F.A.S. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| 733 | 06-00088-00-BR | MACOUPIN | 35 | 3 |
| FED. ROAD DIST. NO. | | ILLINOIS | FED. AID PROJECT | |
| | | CONTRACT NO. | | |



PROPOSED ENTRANCE CROSS SECTION

**SCHEDULE
RELOCATE EXISTING MAILBOX**

| LOCATION | QUANTITY (EACH) |
|--------------------|-----------------|
| STA. 92+42 16' RT. | 1 |
| TOTAL | 1 |

**SCHEDULE
FURNISHING & ERECTING R.O.W. MARKER**

| LOCATION | QUANTITY (EACH) |
|------------------------|-----------------|
| STA. 92+00 35.34' RT. | 1 |
| STA. 92+00 60.00' RT. | 1 |
| STA. 93+25 39.61' LT. | 1 |
| STA. 93+25 60.00' LT. | 1 |
| STA. 100+30 60.00' LT. | 1 |
| STA. 100+30 39.31' LT. | 1 |
| STA. 100+30 60.00' RT. | 1 |
| STA. 100+30 45.69' RT. | 1 |
| TOTAL | 8 |

**SCHEDULE
HOT-MIX ASPHALT**

| LOCATION | HMA BINDER CRSE, IL-19.0, N50 (TON) | HMA SURF CRSE, MIX "C", N50 (TON) | BIT MATERIALS (PRIME COAT) (GALLON) | HMA SHOULDERS (TON) |
|---------------------------|-------------------------------------|-----------------------------------|-------------------------------------|---------------------|
| STA. 92+00 TO STA. 93+42 | 51 | 30.5 | 135.5 | 30 |
| STA. 97+04 TO STA. 100+30 | 114 | 68.5 | 304.5 | 66 |
| TOTAL | 165 | 99 | 440 | 96 |

**SCHEDULE
PIPE CULVERTS (CMP)**

| LOCATION | CL D, TY 2 18" Ø (FOOT) | METAL END SECTIONS, 18" (EACH) |
|-------------------------------|-------------------------|--------------------------------|
| STA. 97+63 TO STA. 98+11, LT. | 48 | 2 |
| TOTAL | 48 | 2 |

**SCHEDULE
PAINT PAVEMENT MARKING - LINE 4"**

| LOCATION | YELLOW SOLID NO PASSING LINE (FOOT) | YELLOW SKIP DASH (FOOT) |
|---------------------------|-------------------------------------|-------------------------|
| STA. 92+00 TO STA. 100+30 | 830 | 210 |
| TOTAL | 1040 | |

**SCHEDULE
TREE REMOVAL (6 TO 15 UNITS DIAMETER)**

| LOCATION | QUANTITY (UNIT) |
|--------------------|-----------------|
| STA. 94+28 40' LT. | 6 |
| STA. 94+60 38' LT. | 12 |
| STA. 94+67 33' LT. | 15 |
| STA. 94+76 25' LT. | 6 |
| STA. 96+89 40' LT. | 6 |
| TOTAL | 45 |

**SCHEDULE
SEEDING, CLASS 2 (SPECIAL)**

| LOCATION | QUANTITY (ACRE) |
|--------------------------------|-----------------|
| STA. 92+00 TO STA. 100+30, LT. | 0.5 |
| STA. 92+00 TO STA. 100+30, RT. | 0.6 |
| TOTAL | 1.1 |

**SCHEDULE
AGGREGATE BASE COURSE, TYPE A**

| LOCATION | QUANTITY (TON) |
|---------------------------|----------------|
| STA. 92+00 TO STA. 93+42 | 171 |
| STA. 93+55 TO STA. 93+68 | 13 |
| STA. 96+78 TO STA. 96+91 | 13 |
| STA. 97+04 TO STA. 100+30 | 392 |
| F.E. STA. 92+19 RT. | 17 |
| P.E. STA. 92+37 LT. | 19 |
| F.E. STA. 97+90 LT. | 48 |
| TOTAL | 673 |

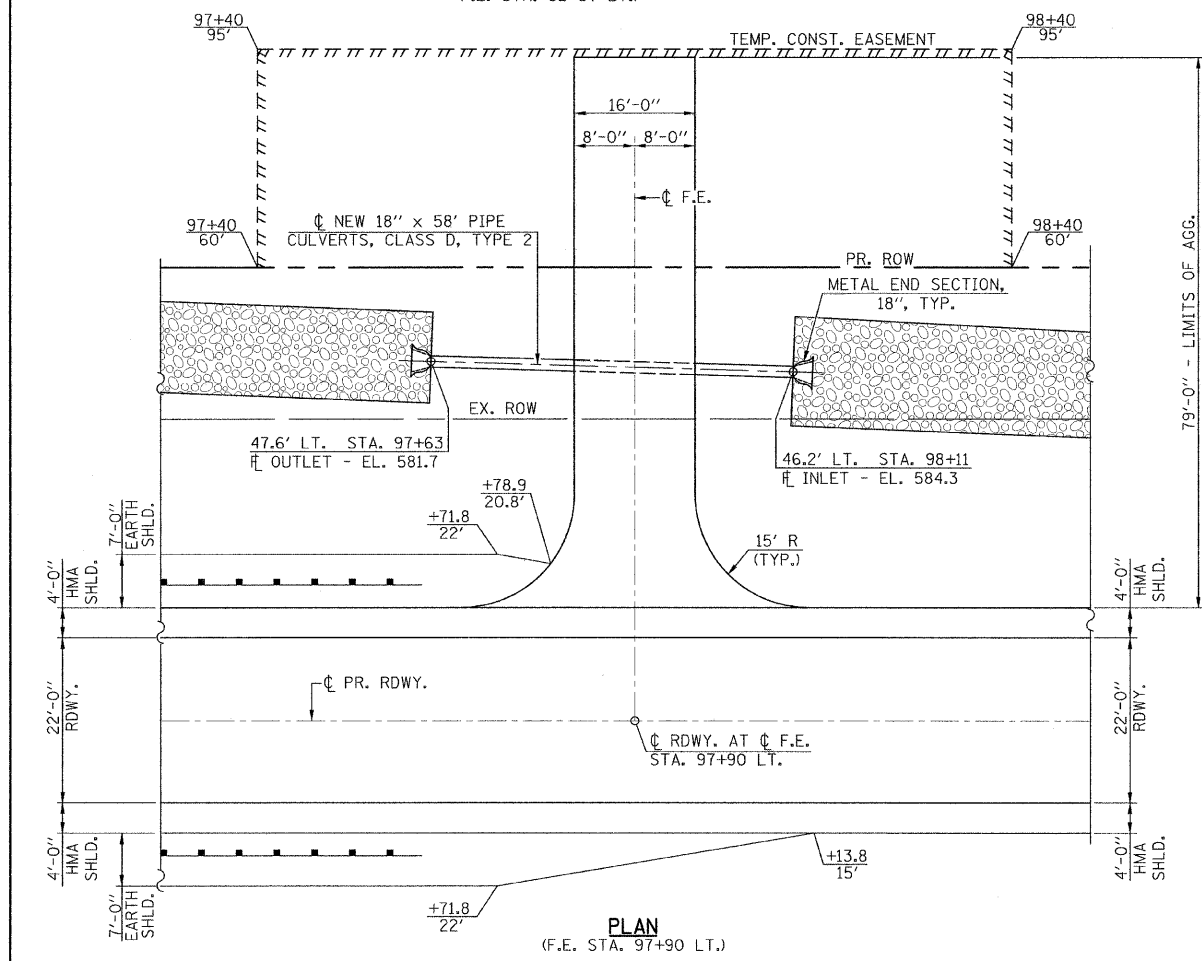
EARTHWORK SCHEDULE

| LOCATION | EARTH EXCAVATION | EARTH EXCAVATION ADJUSTED FOR SHRINKAGE | EMBANKMENT | EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-) |
|--|------------------|---|-------------|---|
| | CU. YD. | CU. YD. | CU. YD. | CU. YD. |
| STA. 92+00 TO STA. 92+50 | 69 | 52 | 0 | 52 |
| STA. 92+50 TO STA. 93+00 | 92 | 69 | 26 | 43 |
| STA. 93+00 TO STA. 93+50 | 56 | 42 | 119 | -77 |
| STA. 93+50 TO STA. 93+78 | 37 | 28 | 104 | -76 |
| BRIDGE OMISSION STA. 93+78 TO STA. 96+68 | | | | |
| STA. 96+68 TO STA. 97+00 | 95 | 71 | 256 | -185 |
| STA. 97+00 TO STA. 97+50 | 81 | 61 | 490 | -429 |
| STA. 97+50 TO STA. 98+00 | 23 | 17 | 807 | -790 |
| STA. 98+00 TO STA. 98+50 | 70 | 53 | 321 | -268 |
| STA. 98+50 TO STA. 99+00 | 119 | 89 | 194 | -105 |
| STA. 99+00 TO STA. 99+50 | 144 | 108 | 69 | 39 |
| STA. 99+50 TO STA. 100+00 | 110 | 82 | 12 | 70 |
| STA. 100+00 TO STA. 100+30 | 18 | 14 | 2 | 12 |
| TOTAL | 914 | 686 | 1807 | -1121 |

* QUANTITY HAS BEEN REDUCED BY 593 CU. YD. (50% OF SUITABLE CHANNEL EXCAVATION & STRUCTURE EXCAVATION THAT MAY BE USED IN THE EMBANKMENT AS DIRECTED BY THE ENGINEER.

HOT-MIX ASPHALT MIXTURE REQUIREMENTS

| MIXTURE USE | SURFACE COURSE | BINDER COURSE | HMA SHOULDERS |
|-------------------|----------------|----------------|----------------|
| AC / PG | PG64-22 | PG64-22 | PG64-22 |
| DESIGN AIR VOIDS | 4% @ NDES = 50 | 4% @ NDES = 50 | 4% @ NDES = 50 |
| GRADATION MIXTURE | IL 9.5 OR 12.5 | IL-19.0 | IL-19.0 |
| FRICTION AGG. | MIX. "C" | N/A | N/A |



| | | | |
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| FILE NAME = | USER NAME = #USER# | DESIGNED - | REVISED - |
| #FILES# | | DRAWN - | REVISED - |
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| | PLOT DATE = #DATE# | DATE - | REVISED - |



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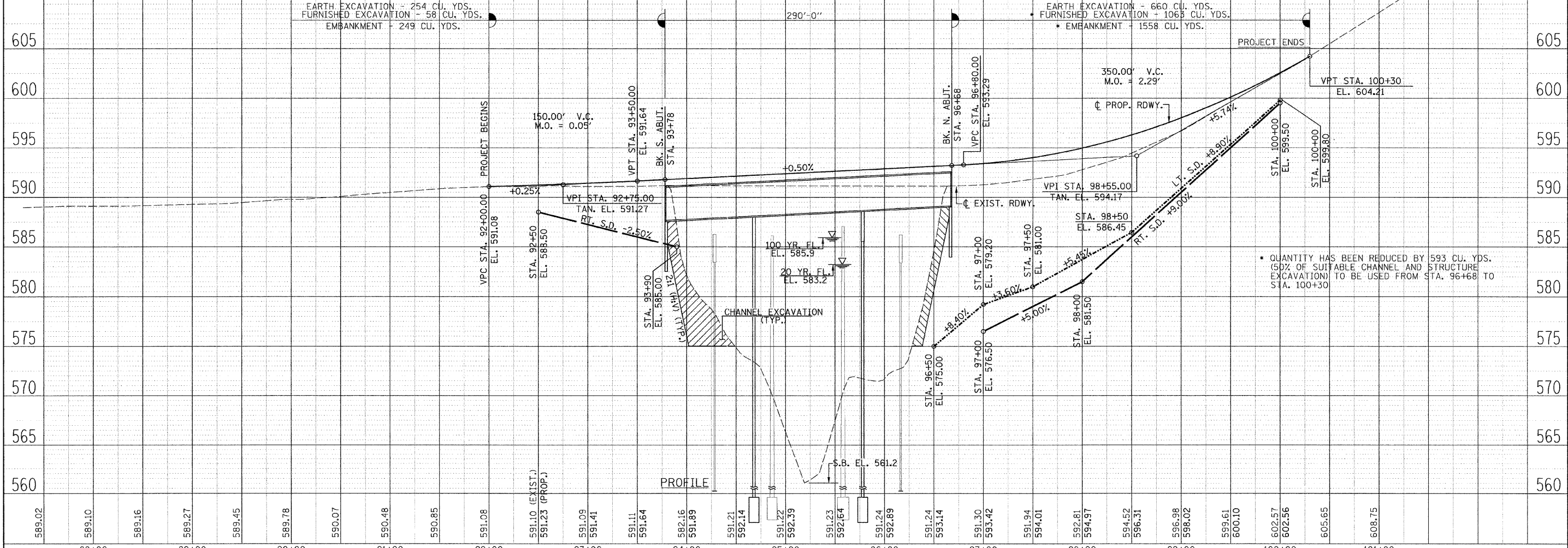
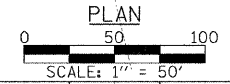
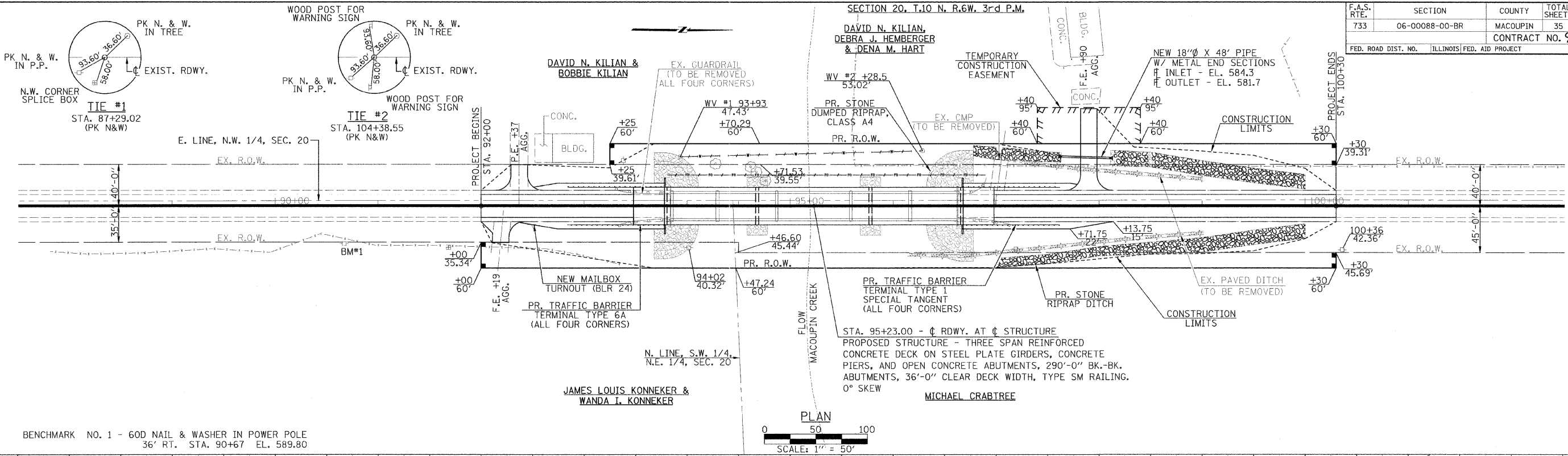
SCHEDULES, DETAILS & TYPICAL SECTIONS

| | | | |
|--------|--------------------------|------|---------|
| SCALE: | SHEET NO. 3 OF 35 SHEETS | STA. | TO STA. |
|--------|--------------------------|------|---------|

| | | | | |
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FED. ROAD DIST. NO. [ILLINOIS] FED. AID PROJECT



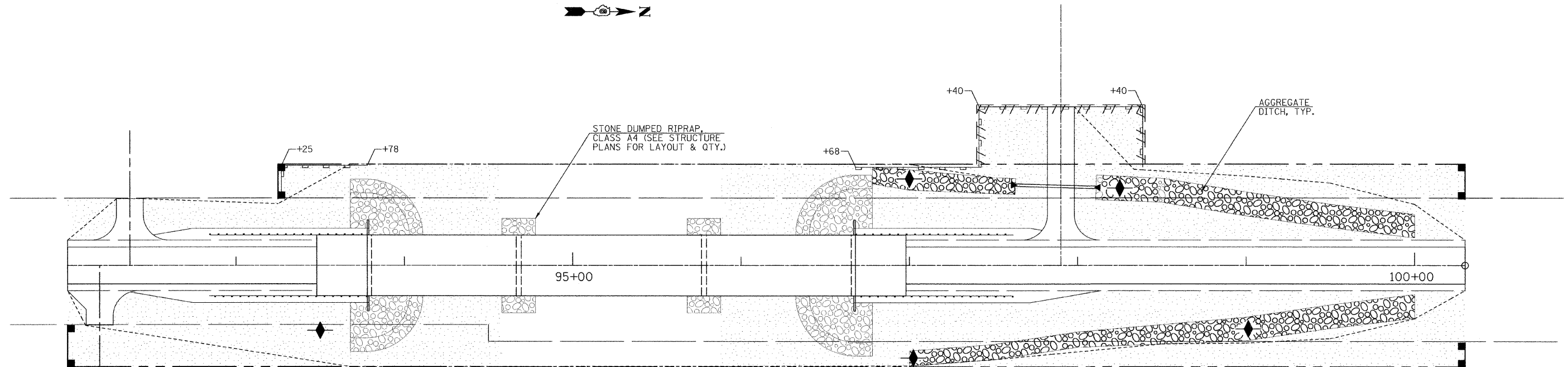
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| FILE NAME - #FILES* | USER NAME = #USER* | DESIGNED - | REVISED - | Allen Henderson & Associates, Inc. Civil and Structural Engineers Springfield, IL. 62703 Phone: (217)544-8033 IL Design Firm No. 184-001907 | PLAN AND PROFILE SCALE: 1" = 50' SHEET NO. 4 OF 35 SHEETS STA. 92+00.00 TO STA. 100+30.00 | F.A.S. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| | PLOT SCALE = #SCALE* | CHECKED - | REVISED - | | | 733 | 06-00088-00-BR | MACOUPIN | 35 | 4 |
| | PLOT DATE = #DATE* | DRAWN - | REVISED - | | | CONTRACT NO. | | | | |
| | | CHECKED - | REVISED - | | | FED. ROAD DIST. NO. [ILLINOIS] FED. AID PROJECT | | | | |

| | | |
|------|--------------------|------|
| PLAN | SURVEYED | DATE |
| | NOTE BOOK | |
| | ALIGNMENT CHECKED | |
| | RT. OF WAY CHECKED | |
| | ROAD FILE MADE | |

| | | |
|---------|---------------------------|------|
| PROFILE | SURVEYED | DATE |
| | NOTES | |
| | REVISIONS CHECKED | |
| | EMAIL NOTED | |
| | STRUCTURE NOTATIONS C/P/D | |

| | | | |
|---------------------|----------------------|------------|-----------|
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| | PLOT DATE = #DATE* | DRAWN - | REVISED - |
| | | CHECKED - | REVISED - |

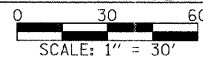
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|---------------------------|----------------|---------------------------|--------------|-----------|
| F.A.S. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| 733 | 06-00088-00-BR | MACOUPIN | 35 | 5 |
| FED. ROAD DIST. NO. _____ | | ILLINOIS FED. AID PROJECT | | |
| | | CONTRACT NO. _____ | | |



LEGEND

- PERIMETER EROSION BARRIER
- AGGREGATE EROSION CONTROL
- TEMPORARY EROSION CONTROL SEEDING
- AGGREGATE DITCH
- STONE DUMPED RIPRAP, CLASS A4

EROSION CONTROL PLAN



SCHEDULE PERIMETER EROSION BARRIER

| LOCATION | QUANTITY (FOOT) |
|------------------------------|-----------------|
| STA. 93+25 TO STA. 93+78 LT. | 73 |
| STA. 96+68 TO STA. 98+40 LT. | 226 |
| TOTAL | 299 |

SCHEDULE TEMPORARY DITCH CHECKS

| LOCATION | QUANTITY (FOOT) |
|----------------------|-----------------|
| STA. 93+50 RT. | 8 |
| STA. 97+00 LT. & RT. | 16 |
| STA. 98+25 LT. | 8 |
| STA. 99+00 RT. | 8 |
| TOTAL | 40 |

SCHEDULE TEMPORARY EROSION CONTROL SEEDING

| LOCATION | QUANTITY (POUND) |
|--------------------------------|------------------|
| STA. 92+00 TO STA. 100+30, LT. | 50 |
| STA. 92+00 TO STA. 100+30, RT. | 60 |
| TOTAL | 110 |

SCHEDULE AGGREGATE DITCH

| LOCATION | QUANTITY (TON) |
|-------------------------------|----------------|
| STA. 96+78 TO STA. 97+63 LT. | 81 |
| STA. 98+11 TO STA. 100+00 LT. | 238 |
| STA. 97+00 TO STA. 100+00 RT. | 313 |
| TOTAL | 632 |

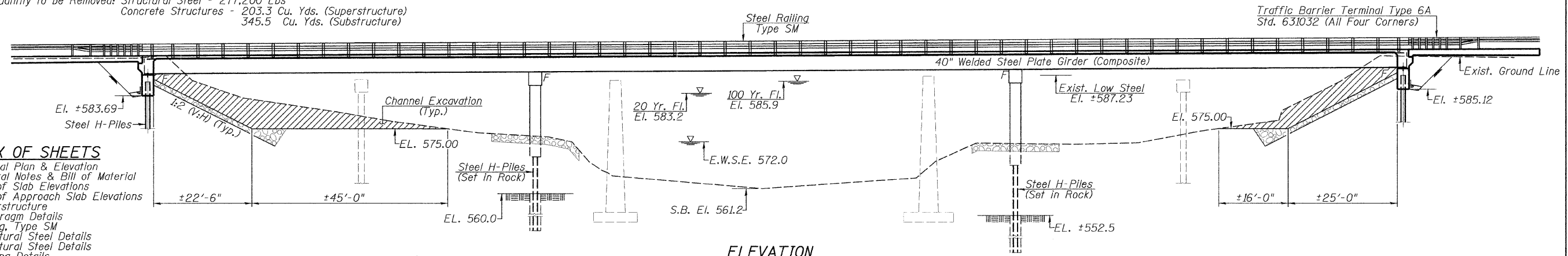
Benchmark: 60D Nail & Washer in Power Pole. Sta. 90+67 36' Rt. El. 589.80.

Existing Structure: S.N. 059-3007 was originally built as F.A.S. Route 733 Section 18B.18F in 1948 at Sta. 95+23. The original structure was a Five Span Steel I-Beam Bridge with R.C. Pile Bent Abutments, R.C. Pile Bent Piers on Precast Concrete Piles at Piers 1, 4, and R.C. Solid Wall Piers on Concrete Footings with Timber Piles at Piers 2 & 3. ±279'-6" Bk.-Bk. Abutments, 43'-3" (Spans 1 & 5), 57'-6" (Spans 2 & 4) 72'-0" (Span 3), ±28'-0" Out.-Out. Deck. 0° Skew.

No Salvage

Estimated Quantity to be Removed: Structural Steel - 277,200 Lbs
Concrete Structures - 203.3 Cu. Yds. (Superstructure)
345.5 Cu. Yds. (Substructure)

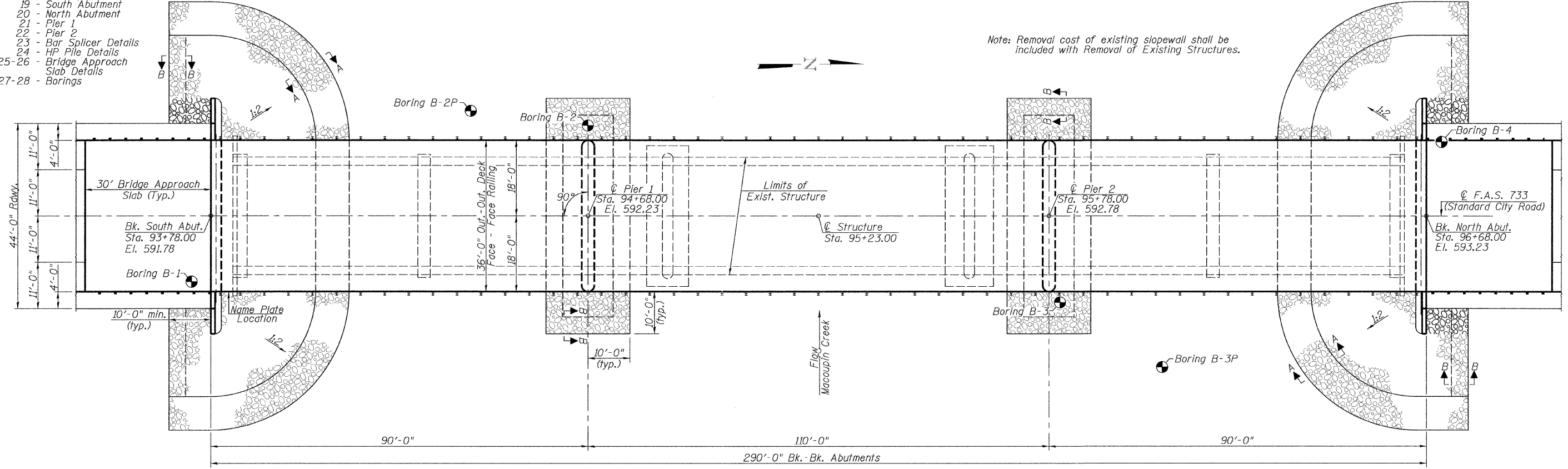
| F.A.S. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|----------------|----------|--------------|-----------|
| 733 | 06-00088-00-BR | MACOUPIN | 35 | 6 |
| FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT | | | CONTRACT NO. | |



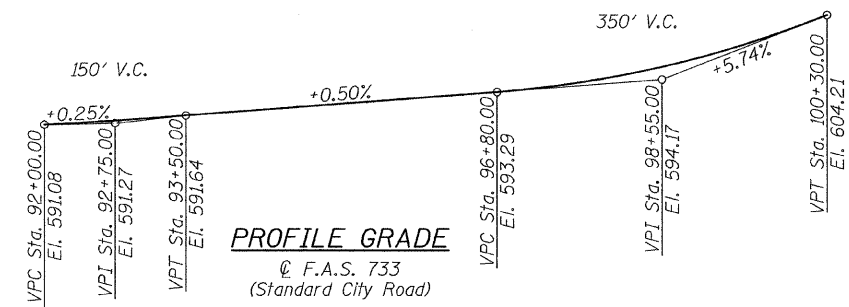
ELEVATION

- INDEX OF SHEETS**
- 6 - General Plan & Elevation
 - 7 - General Notes & Bill of Material
 - 8-10 - Top of Slab Elevations
 - 11-12 - Top of Approach Slab Elevations
 - 13 - Superstructure
 - 14 - Diaphragm Details
 - 15 - Railing, Type SM
 - 16 - Structural Steel Details
 - 17 - Structural Steel Details
 - 18 - Bearing Details
 - 19 - South Abutment
 - 20 - North Abutment
 - 21 - Pier 1
 - 22 - Pier 2
 - 23 - Bar Splicer Details
 - 24 - HP Pile Details
 - 25-26 - Bridge Approach Slab Details
 - 27-28 - Borings

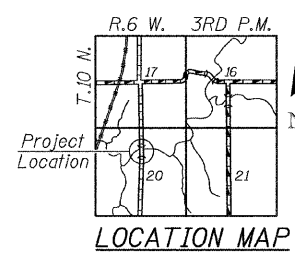
Note: Removal cost of existing slopewall shall be included with Removal of Existing Structures.



PLAN



PROFILE GRADE



LOCATION MAP

Date: 1/18/2011

 Gerald B. Rothman

I certify that to the best of my knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current "A.A.S.H.T.O. LRFD Bridge Design Specifications".

Expiration Date 11/30/2012

| | | | |
|-------------|--------------------|-------------------|-----------|
| FILE NAME = | USER NAME = #USER# | DESIGNED - F.L.L. | REVISED - |
| *FILE# | | DRAWN - M.J.S. | REVISED - |
| | | CHECKED - | REVISED - |
| | | DATE - | REVISED - |

Allen Henderson & Associates, Inc.
 Civil and Structural Engineers Springfield, IL
 62703 Phone: (217)544-8033 IL Design Firm
 No. 184-001907

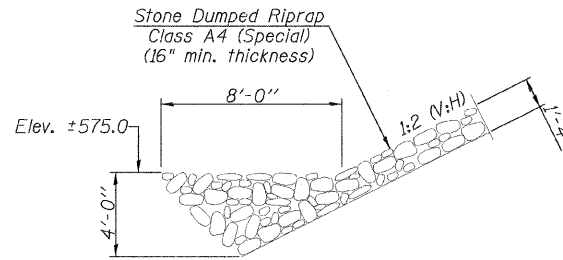
| | | | |
|-------------------------------------|--|------|---------|
| SCALE: NONE | | STA. | TO STA. |
| GENERAL PLAN & ELEVATION | | | |

| F.A.S. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|----------------|----------|--------------------|-----------|
| 733 | 06-00088-00-BR | MACOUPIN | 35 | 6 |
| FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT | | | CONTRACT NO. 93562 | |

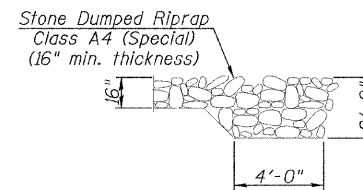
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|---------------------|----------------|---------------------------|--------------|-----------|
| F.A.S. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| 733 | 06-00088-00-BR | MACOUPIN | 35 | 7 |
| FED. ROAD DIST. NO. | | ILLINOIS FED. AID PROJECT | | |
| | | CONTRACT NO. | | |

GENERAL NOTES

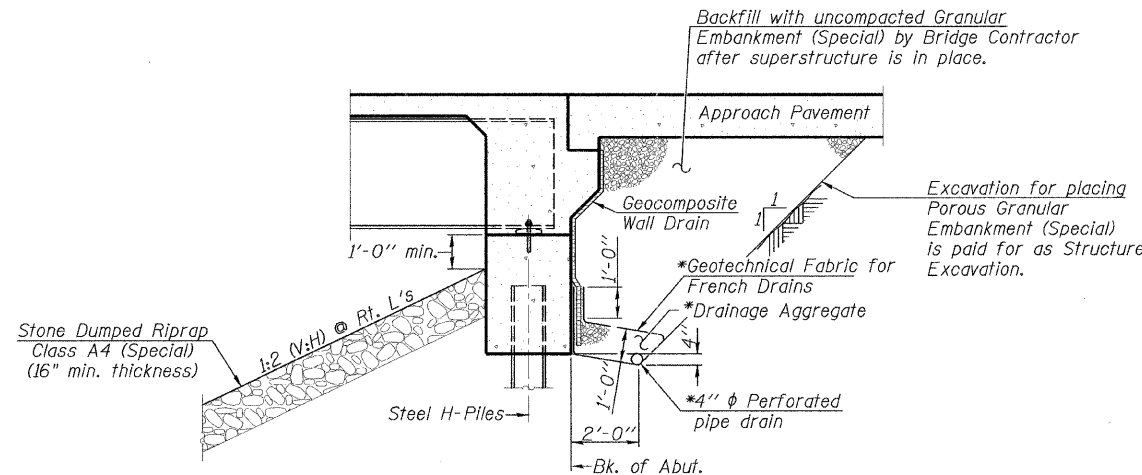
Fasteners shall be AASHTO M164 Type I, mechanically galvanized bolts. Bolts 7/8 in. ϕ , holes 15/16 in. ϕ , unless otherwise noted. Calculated weight of Structural Steel = 314050 pounds. No field welding is permitted except as specified in the contract documents. Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60. See Special Provisions. Reinforcement bars designated (E) shall be epoxy coated. Bearing seat surfaces shall be constructed or adjusted to their designated elevations within a tolerance of 1/8 inch (0.01 ft.). Adjustment shall be made either by grinding the surface or by shimming the bearings. The Inorganic Zinc Rich Primer / Acrylic / Acrylic Paint System shall be used for shop and field painting of new structural steel except where otherwise noted. The color of the final finish coat for all interior steel surfaces shall be gray, Munsell No. 5B 7/1. The color of the final finish coat for the exterior and bottom flange of the fascia beams shall be Interstate Green, Munsell No. 7.5G 4/8. See Special Provision for "Cleaning and Painting New Metal Structures". Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer. The embankment configuration shown shall be the minimum that must be placed and compacted prior to construction of the abutments. All diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted. Individual diaphragms at supports may be temporarily disconnected to install bearing anchor rods. Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2. The structural steel plates of the Bearing Assembly shall conform to the requirements of AASHTO M 270 Grade 50.



SECTION A-A



SECTION B-B



SECTION THRU INTEGRAL ABUTMENT

(Horiz. dim. @ Rt. L's)

*Included in the cost of Pipe Underdrains for Structures, 4"

Note:
All drainage system components shall extend to 2'-0" from the end of each wingwall except an outlet pipe shall extend until intersecting with the side slopes. The pipes shall drain into concrete headwalls. (See Article 601.05 of the Standard Specifications and Highway Standard 601101).

TOTAL BILL OF MATERIAL

| ITEM | UNIT | SUPER | SUB | TOTAL |
|---|---------|--------|-------|--------|
| Channel Excavation | Cu. Yd. | | | 945 |
| Porous Granular Embankment (Special) | Cu. Yd. | | | 161 |
| Removal of Existing Structures | Each | | | 1 |
| Structure Excavation | Cu. Yd. | | 214 | 214 |
| Cofferdam (Type 1) (Location 1) | Each | | 1 | 1 |
| Cofferdam (Type 1) (Location 2) | Each | | 1 | 1 |
| Concrete Structures | Cu. Yd. | 22.2 | 134.7 | 156.9 |
| Concrete Superstructure | Cu. Yd. | 417.7 | | 417.7 |
| Bridge Deck Grooving | Sq. Yd. | 1096 | | 1096 |
| Concrete Encasement | Cu. Yd. | | 4.2 | 4.2 |
| Protective Coat | Sq. Yd. | 1160 | | 1160 |
| Furnishing & Erecting Structural Steel | L. Sum | 1 | | 1 |
| Stud Shear Connectors | Each | 3726 | | 3726 |
| Reinforcement Bars, Epoxy Coated | Pound | 105040 | 13460 | 118500 |
| Bar Splicers | Each | 72 | | 72 |
| Mechanical Splicers | Each | | | 56 |
| Steel Railing, Type SM | Foot | 580 | | 580 |
| Furnishing Steel Piles HP 12 x 53 | Foot | | 305 | 305 |
| Furnishing Steel Piles HP 12 x 84 | Foot | | 480 | 480 |
| Driving Piles | Foot | | 305 | 305 |
| Test Pile Steel HP 12 x 53 | Foot | | 2 | 2 |
| Test Pile Steel HP 12 x 84 | Each | | 2 | 2 |
| Name Plates | Each | 1 | | 1 |
| Anchor Bolts 1" | Each | | 48 | 48 |
| Geocomposite Wall Drain | Sq. Yd. | | 76 | 76 |
| Setting and Driving Piles in Rock | Each | | 12 | 12 |
| Stone Dumped Riprap, Class A4 (Special) | Ton | | | 862 |
| Pipe Underdrains for Structures, 4" | Foot | | 150 | 150 |

LOADING HL-93

Allow 50#/sq. ft. for future wearing surface.

DESIGN STRESSES

$f'_c = 3500$ psi
 $f_y = 60,000$ psi (reinforcement)
 $f_y = 50,000$ psi (M 270 Grade 50 Structural Steel)

DESIGN SPECIFICATIONS

2007 AASHTO LRFD Bridge Design Specifications, 4th Edition with Interims

SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
Bedrock Acceleration Coefficient (A) = 0.06g
Site Coefficient (s) = 1.0

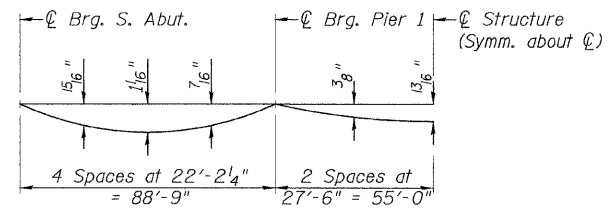
MACOUPIN CREEK
BUILT 20 BY
MACOUPIN COUNTY
SECTION 06-00088-00-BR
F.A.S. RT. 733 STA. 95+23
STR. NO. 059-3307 LOADING HL-93

NAME PLATE
(Standard 515001)

WATERWAY INFORMATION

| Drainage Area = 129.23 Sq. Mi. | | Pr. Low Grade Elev. 589.1 | | @ Sta. 88+00 | | |
|--------------------------------|------------------------|---------------------------|------------------------------|----------------|-------------------------|----------------------------|
| Flood | Freq. Yr. | Q C.F.S. | Opening Sq. Ft. Exist. Prop. | Natural H.W.E. | Head - ft. Exist. Prop. | Headwater El. Exist. Prop. |
| Design | 20 | 8224 | 2795 3215 | 583.2 | 0.1 0.1 | 583.3 583.3 |
| Base | 100 | 12129 | 3459 3936 | 585.9 | 0.1 0.1 | 586.0 586.0 |
| Exist. Overtop. | Greater than 500 years | | | | | |
| Prop. Overtop. | Greater than 500 years | | | | | |
| Max. Calc. | 500 | 15997 | 3814 4423 | 588.2 | 0.1 0.0 | 588.3 588.2 |

| | | | | |
|---------------------|----------------|----------|---------------------------|-----------|
| F.A.S. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| 733 | 06-00088-00-BR | MACOUPIN | 35 | 8 |
| FED. ROAD DIST. NO. | | | ILLINOIS FED. AID PROJECT | |
| | | | CONTRACT NO. | |

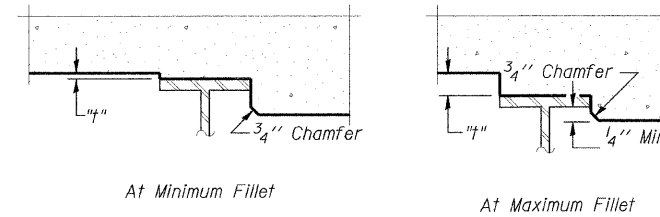


DEAD LOAD DEFLECTION DIAGRAM

(Includes weight of concrete only.)

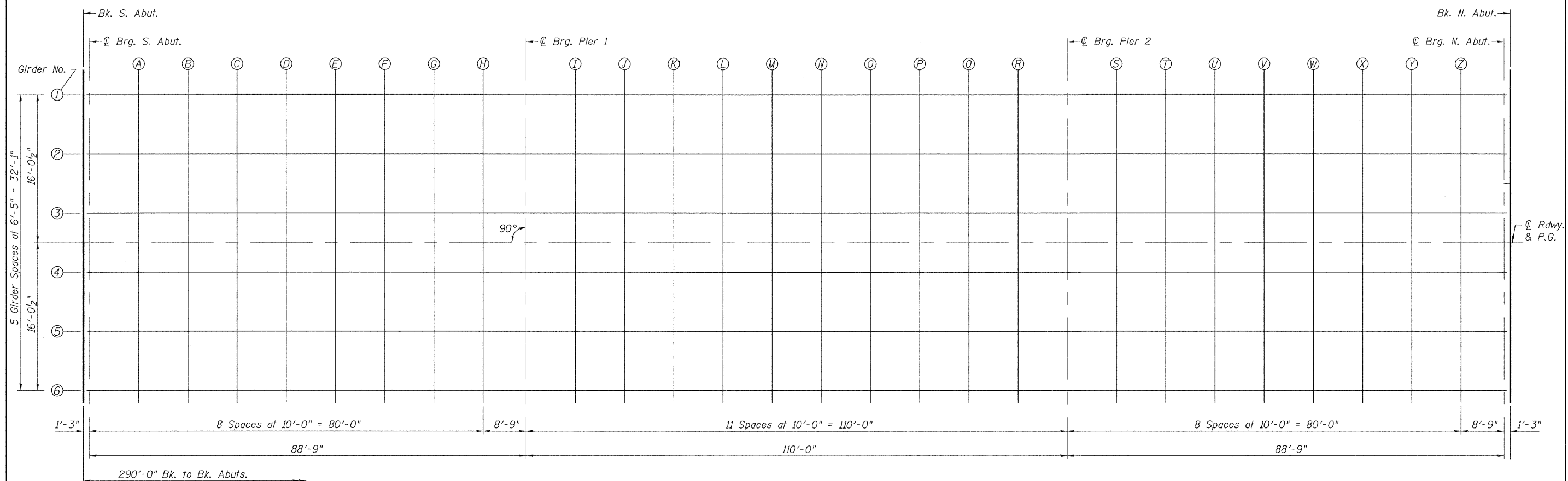
Note:

The above deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown on Sheets 9 & 10 of 35.



To determine "h": After all structural steel has been erected, elevations of the top flanges of the girders shall be taken at intervals shown below. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown on sheets 9 & 10 of 35, minus slab thickness, equals the fillet heights "h" above top flange of girders.

FILLET HEIGHTS



PLAN

| | | | | | | | | | | | | |
|-------------|----------------------|------------|-----------|--|-------------------------------|--|---|----------------|--------------------|--------------|-----------|--|
| FILE NAME = | USER NAME = #USER# | DESIGNED - | REVISED - | <p>Allen Henderson & Associates, Inc. Civil and Structural Engineers Springfield, IL 62703 Phone: (217)544-8033 IL Design Firm No. 184-001907</p> | TOP OF SLAB ELEVATIONS | | F.A.S. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. | |
| #FILE# | PLOT SCALE = #SCALE# | DRAWN - | REVISED - | | | | 733 | 06-00088-00-BR | MACOUPIN | 39 | 8 | |
| | PLOT DATE = #DATE# | CHECKED - | REVISED - | | SCALE: NONE | | STA. | TO STA. | CONTRACT NO. 99562 | | | |
| | | DATE - | REVISED - | | | | FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT | | | | | |

BEAM 1

BEAM 2

BEAM 3

CENTERLINE ROADWAY & PROFILE GRADE

| Location | Station | Offset | Theoretical Grade Elevations | Theoretical Grade Elevations Adjusted For Dead Load Deflection | Location | Station | Offset | Theoretical Grade Elevations | Theoretical Grade Elevations Adjusted For Dead Load Deflection | Location | Station | Offset | Theoretical Grade Elevations | Theoretical Grade Elevations Adjusted For Dead Load Deflection | Location | Station | Offset | Theoretical Grade Elevations | Theoretical Grade Elevations Adjusted For Dead Load Deflection |
|-----------------|----------|---------|------------------------------|--|-----------------|----------|--------|------------------------------|--|-----------------|----------|--------|------------------------------|--|-----------------|----------|--------|------------------------------|--|
| Bk. S. Abut. | 93+78.00 | -16.042 | 591.54 | 591.54 | Bk. S. Abut. | 93+78.00 | -9.625 | 591.64 | 591.64 | Bk. S. Abut. | 93+78.00 | -3.208 | 591.73 | 591.73 | Bk. S. Abut. | 93+78.00 | 0.00 | 591.78 | 591.78 |
| ¢ Brg. S. Abut. | 93+79.25 | -16.042 | 591.55 | 591.55 | ¢ Brg. S. Abut. | 93+79.25 | -9.625 | 591.64 | 591.64 | ¢ Brg. S. Abut. | 93+79.25 | -3.208 | 591.74 | 591.74 | ¢ Brg. S. Abut. | 93+79.25 | 0.00 | 591.79 | 591.79 |
| A | 93+89.25 | -16.042 | 591.60 | 591.64 | A | 93+89.25 | -9.625 | 591.69 | 591.73 | A | 93+89.25 | -3.208 | 591.79 | 591.83 | A | 93+89.25 | 0.00 | 591.84 | 591.88 |
| B | 93+99.25 | -16.042 | 591.65 | 591.72 | B | 93+99.25 | -9.625 | 591.74 | 591.81 | B | 93+99.25 | -3.208 | 591.84 | 591.91 | B | 93+99.25 | 0.00 | 591.89 | 591.96 |
| C | 94+09.25 | -16.042 | 591.70 | 591.78 | C | 94+09.25 | -9.625 | 591.79 | 591.88 | C | 94+09.25 | -3.208 | 591.89 | 591.98 | C | 94+09.25 | 0.00 | 591.94 | 592.03 |
| D | 94+19.25 | -16.042 | 591.75 | 591.84 | D | 94+19.25 | -9.625 | 591.84 | 591.93 | D | 94+19.25 | -3.208 | 591.94 | 592.03 | D | 94+19.25 | 0.00 | 591.99 | 592.08 |
| E | 94+29.25 | -16.042 | 591.80 | 591.88 | E | 94+29.25 | -9.625 | 591.89 | 591.97 | E | 94+29.25 | -3.208 | 591.99 | 592.07 | E | 94+29.25 | 0.00 | 592.04 | 592.12 |
| F | 94+39.25 | -16.042 | 591.85 | 591.90 | F | 94+39.25 | -9.625 | 591.94 | 592.00 | F | 94+39.25 | -3.208 | 592.04 | 592.10 | F | 94+39.25 | 0.00 | 592.09 | 592.14 |
| G | 94+49.25 | -16.042 | 591.90 | 591.93 | G | 94+49.25 | -9.625 | 591.99 | 592.02 | G | 94+49.25 | -3.208 | 592.09 | 592.12 | G | 94+49.25 | 0.00 | 592.14 | 592.17 |
| H | 94+59.25 | -16.042 | 591.95 | 591.96 | H | 94+59.25 | -9.625 | 592.04 | 592.05 | H | 94+59.25 | -3.208 | 592.14 | 592.15 | H | 94+59.25 | 0.00 | 592.19 | 592.20 |
| ¢ Brg. Pier 1 | 94+68.00 | -16.042 | 591.99 | 591.99 | ¢ Brg. Pier 1 | 94+68.00 | -9.625 | 592.09 | 592.09 | ¢ Brg. Pier 1 | 94+68.00 | -3.208 | 592.18 | 592.18 | ¢ Brg. Pier 1 | 94+68.00 | 0.00 | 592.23 | 592.23 |
| I | 94+78.00 | -16.042 | 592.04 | 592.04 | I | 94+78.00 | -9.625 | 592.14 | 592.14 | I | 94+78.00 | -3.208 | 592.23 | 592.24 | I | 94+78.00 | 0.00 | 592.28 | 592.28 |
| J | 94+88.00 | -16.042 | 592.09 | 592.11 | J | 94+88.00 | -9.625 | 592.19 | 592.20 | J | 94+88.00 | -3.208 | 592.28 | 592.30 | J | 94+88.00 | 0.00 | 592.33 | 592.35 |
| K | 94+98.00 | -16.042 | 592.14 | 592.18 | K | 94+98.00 | -9.625 | 592.24 | 592.27 | K | 94+98.00 | -3.208 | 592.33 | 592.37 | K | 94+98.00 | 0.00 | 592.38 | 592.42 |
| L | 95+08.00 | -16.042 | 592.19 | 592.25 | L | 95+08.00 | -9.625 | 592.29 | 592.34 | L | 95+08.00 | -3.208 | 592.38 | 592.44 | L | 95+08.00 | 0.00 | 592.43 | 592.49 |
| M | 95+18.00 | -16.042 | 592.24 | 592.31 | M | 95+18.00 | -9.625 | 592.34 | 592.40 | M | 95+18.00 | -3.208 | 592.43 | 592.50 | M | 95+18.00 | 0.00 | 592.48 | 592.55 |
| N | 95+28.00 | -16.042 | 592.29 | 592.36 | N | 95+28.00 | -9.625 | 592.39 | 592.45 | N | 95+28.00 | -3.208 | 592.48 | 592.55 | N | 95+28.00 | 0.00 | 592.53 | 592.60 |
| O | 95+38.00 | -16.042 | 592.34 | 592.40 | O | 95+38.00 | -9.625 | 592.44 | 592.49 | O | 95+38.00 | -3.208 | 592.53 | 592.59 | O | 95+38.00 | 0.00 | 592.58 | 592.64 |
| P | 95+48.00 | -16.042 | 592.39 | 592.43 | P | 95+48.00 | -9.625 | 592.49 | 592.52 | P | 95+48.00 | -3.208 | 592.58 | 592.62 | P | 95+48.00 | 0.00 | 592.63 | 592.67 |
| Q | 95+58.00 | -16.042 | 592.44 | 592.46 | Q | 95+58.00 | -9.625 | 592.54 | 592.55 | Q | 95+58.00 | -3.208 | 592.63 | 592.65 | Q | 95+58.00 | 0.00 | 592.68 | 592.70 |
| R | 95+68.00 | -16.042 | 592.49 | 592.49 | R | 95+68.00 | -9.625 | 592.59 | 592.59 | R | 95+68.00 | -3.208 | 592.68 | 592.69 | R | 95+68.00 | 0.00 | 592.73 | 592.73 |
| ¢ Brg. Pier 2 | 95+78.00 | -16.042 | 592.54 | 592.54 | ¢ Brg. Pier 2 | 95+78.00 | -9.625 | 592.64 | 592.64 | ¢ Brg. Pier 2 | 95+78.00 | -3.208 | 592.73 | 592.73 | ¢ Brg. Pier 2 | 95+78.00 | 0.00 | 592.78 | 592.78 |
| S | 95+88.00 | -16.042 | 592.59 | 592.60 | S | 95+88.00 | -9.625 | 592.69 | 592.70 | S | 95+88.00 | -3.208 | 592.78 | 592.79 | S | 95+88.00 | 0.00 | 592.83 | 592.84 |
| T | 95+98.00 | -16.042 | 592.64 | 592.67 | T | 95+98.00 | -9.625 | 592.74 | 592.77 | T | 95+98.00 | -3.208 | 592.83 | 592.86 | T | 95+98.00 | 0.00 | 592.88 | 592.91 |
| U | 96+08.00 | -16.042 | 592.69 | 592.75 | U | 96+08.00 | -9.625 | 592.79 | 592.84 | U | 96+08.00 | -3.208 | 592.88 | 592.94 | U | 96+08.00 | 0.00 | 592.93 | 592.99 |
| V | 96+18.00 | -16.042 | 592.74 | 592.82 | V | 96+18.00 | -9.625 | 592.84 | 592.92 | V | 96+18.00 | -3.208 | 592.93 | 593.01 | V | 96+18.00 | 0.00 | 592.98 | 593.06 |
| W | 96+28.00 | -16.042 | 592.79 | 592.88 | W | 96+28.00 | -9.625 | 592.89 | 592.98 | W | 96+28.00 | -3.208 | 592.98 | 593.07 | W | 96+28.00 | 0.00 | 593.03 | 593.12 |
| X | 96+38.00 | -16.042 | 592.84 | 592.93 | X | 96+38.00 | -9.625 | 592.94 | 593.02 | X | 96+38.00 | -3.208 | 593.03 | 593.12 | X | 96+38.00 | 0.00 | 593.08 | 593.17 |
| Y | 96+48.00 | -16.042 | 592.89 | 592.96 | Y | 96+48.00 | -9.625 | 592.99 | 593.06 | Y | 96+48.00 | -3.208 | 593.08 | 593.15 | Y | 96+48.00 | 0.00 | 593.13 | 593.20 |
| Z | 96+58.00 | -16.042 | 592.94 | 592.98 | Z | 96+58.00 | -9.625 | 593.04 | 593.08 | Z | 96+58.00 | -3.208 | 593.13 | 593.17 | Z | 96+58.00 | 0.00 | 593.18 | 593.22 |
| ¢ Brg. N. Abut. | 96+66.75 | -16.042 | 592.98 | 592.98 | ¢ Brg. N. Abut. | 96+66.75 | -9.625 | 593.08 | 593.08 | ¢ Brg. N. Abut. | 96+66.75 | -3.208 | 593.18 | 593.18 | ¢ Brg. N. Abut. | 96+66.75 | 0.00 | 593.22 | 593.22 |
| Bk. N. Abut. | 96+68.00 | -16.042 | 592.99 | 592.99 | Bk. N. Abut. | 96+68.00 | -9.625 | 593.09 | 593.09 | Bk. N. Abut. | 96+68.00 | -3.208 | 593.18 | 593.18 | Bk. N. Abut. | 96+68.00 | 0.00 | 593.23 | 593.23 |

BEAM 4

| Location | Station | Offset | Theoretical Grade Elevations | Theoretical Grade Elevations Adjusted For Dead Load Deflection |
|-----------------|----------|--------|------------------------------|--|
| Bk. S. Abut. | 93+78.00 | 3.208 | 591.73 | 591.73 |
| ☉ Brg. S. Abut. | 93+79.25 | 3.208 | 591.74 | 591.74 |
| A | 93+89.25 | 3.208 | 591.79 | 591.83 |
| B | 93+99.25 | 3.208 | 591.84 | 591.91 |
| C | 94+09.25 | 3.208 | 591.89 | 591.98 |
| D | 94+19.25 | 3.208 | 591.94 | 592.03 |
| E | 94+29.25 | 3.208 | 591.99 | 592.07 |
| F | 94+39.25 | 3.208 | 592.04 | 592.10 |
| G | 94+49.25 | 3.208 | 592.09 | 592.12 |
| H | 94+59.25 | 3.208 | 592.14 | 592.15 |
| ☉ Brg. Pier 1 | 94+68.00 | 3.208 | 592.18 | 592.18 |
| I | 94+78.00 | 3.208 | 592.23 | 592.24 |
| J | 94+88.00 | 3.208 | 592.28 | 592.30 |
| K | 94+98.00 | 3.208 | 592.33 | 592.37 |
| L | 95+08.00 | 3.208 | 592.38 | 592.44 |
| M | 95+18.00 | 3.208 | 592.43 | 592.50 |
| N | 95+28.00 | 3.208 | 592.48 | 592.55 |
| O | 95+38.00 | 3.208 | 592.53 | 592.59 |
| P | 95+48.00 | 3.208 | 592.58 | 592.62 |
| Q | 95+58.00 | 3.208 | 592.63 | 592.65 |
| R | 95+68.00 | 3.208 | 592.68 | 592.69 |
| ☉ Brg. Pier 2 | 95+78.00 | 3.208 | 592.73 | 592.73 |
| S | 95+88.00 | 3.208 | 592.78 | 592.79 |
| T | 95+98.00 | 3.208 | 592.83 | 592.86 |
| U | 96+08.00 | 3.208 | 592.88 | 592.94 |
| V | 96+18.00 | 3.208 | 592.93 | 593.01 |
| W | 96+28.00 | 3.208 | 592.98 | 593.07 |
| X | 96+38.00 | 3.208 | 593.03 | 593.12 |
| Y | 96+48.00 | 3.208 | 593.08 | 593.15 |
| Z | 96+58.00 | 3.208 | 593.13 | 593.17 |
| ☉ Brg. N. Abut. | 96+66.75 | 3.208 | 593.18 | 593.18 |
| Bk. N. Abut. | 96+68.00 | 3.208 | 593.18 | 593.18 |

BEAM 5

| Location | Station | Offset | Theoretical Grade Elevations | Theoretical Grade Elevations Adjusted For Dead Load Deflection |
|-----------------|----------|--------|------------------------------|--|
| Bk. S. Abut. | 93+78.00 | 9.625 | 591.64 | 591.64 |
| ☉ Brg. S. Abut. | 93+79.25 | 9.625 | 591.64 | 591.64 |
| A | 93+89.25 | 9.625 | 591.69 | 591.73 |
| B | 93+99.25 | 9.625 | 591.74 | 591.81 |
| C | 94+09.25 | 9.625 | 591.79 | 591.88 |
| D | 94+19.25 | 9.625 | 591.84 | 591.93 |
| E | 94+29.25 | 9.625 | 591.89 | 591.97 |
| F | 94+39.25 | 9.625 | 591.94 | 592.00 |
| G | 94+49.25 | 9.625 | 591.99 | 592.02 |
| H | 94+59.25 | 9.625 | 592.04 | 592.05 |
| ☉ Brg. Pier 1 | 94+68.00 | 9.625 | 592.09 | 592.09 |
| I | 94+78.00 | 9.625 | 592.14 | 592.14 |
| J | 94+88.00 | 9.625 | 592.19 | 592.20 |
| K | 94+98.00 | 9.625 | 592.24 | 592.27 |
| L | 95+08.00 | 9.625 | 592.29 | 592.34 |
| M | 95+18.00 | 9.625 | 592.34 | 592.40 |
| N | 95+28.00 | 9.625 | 592.39 | 592.45 |
| O | 95+38.00 | 9.625 | 592.44 | 592.49 |
| P | 95+48.00 | 9.625 | 592.49 | 592.52 |
| Q | 95+58.00 | 9.625 | 592.54 | 592.55 |
| R | 95+68.00 | 9.625 | 592.59 | 592.59 |
| ☉ Brg. Pier 2 | 95+78.00 | 9.625 | 592.64 | 592.64 |
| S | 95+88.00 | 9.625 | 592.69 | 592.70 |
| T | 95+98.00 | 9.625 | 592.74 | 592.77 |
| U | 96+08.00 | 9.625 | 592.79 | 592.84 |
| V | 96+18.00 | 9.625 | 592.84 | 592.92 |
| W | 96+28.00 | 9.625 | 592.89 | 592.98 |
| X | 96+38.00 | 9.625 | 592.94 | 593.02 |
| Y | 96+48.00 | 9.625 | 592.99 | 593.06 |
| Z | 96+58.00 | 9.625 | 593.04 | 593.08 |
| ☉ Brg. N. Abut. | 96+66.75 | 9.625 | 593.08 | 593.08 |
| Bk. N. Abut. | 96+68.00 | 9.625 | 593.09 | 593.09 |

BEAM 6

| Location | Station | Offset | Theoretical Grade Elevations | Theoretical Grade Elevations Adjusted For Dead Load Deflection |
|-----------------|----------|--------|------------------------------|--|
| Bk. S. Abut. | 93+78.00 | 16.042 | 591.54 | 591.54 |
| ☉ Brg. S. Abut. | 93+79.25 | 16.042 | 591.55 | 591.55 |
| A | 93+89.25 | 16.042 | 591.60 | 591.64 |
| B | 93+99.25 | 16.042 | 591.65 | 591.72 |
| C | 94+09.25 | 16.042 | 591.70 | 591.78 |
| D | 94+19.25 | 16.042 | 591.75 | 591.84 |
| E | 94+29.25 | 16.042 | 591.80 | 591.88 |
| F | 94+39.25 | 16.042 | 591.85 | 591.90 |
| G | 94+49.25 | 16.042 | 591.90 | 591.93 |
| H | 94+59.25 | 16.042 | 591.95 | 591.96 |
| ☉ Brg. Pier 1 | 94+68.00 | 16.042 | 591.99 | 591.99 |
| I | 94+78.00 | 16.042 | 592.04 | 592.04 |
| J | 94+88.00 | 16.042 | 592.09 | 592.11 |
| K | 94+98.00 | 16.042 | 592.14 | 592.18 |
| L | 95+08.00 | 16.042 | 592.19 | 592.25 |
| M | 95+18.00 | 16.042 | 592.24 | 592.31 |
| N | 95+28.00 | 16.042 | 592.29 | 592.36 |
| O | 95+38.00 | 16.042 | 592.34 | 592.40 |
| P | 95+48.00 | 16.042 | 592.39 | 592.43 |
| Q | 95+58.00 | 16.042 | 592.44 | 592.46 |
| R | 95+68.00 | 16.042 | 592.49 | 592.49 |
| ☉ Brg. Pier 2 | 95+78.00 | 16.042 | 592.54 | 592.54 |
| S | 95+88.00 | 16.042 | 592.59 | 592.60 |
| T | 95+98.00 | 16.042 | 592.64 | 592.67 |
| U | 96+08.00 | 16.042 | 592.69 | 592.75 |
| V | 96+18.00 | 16.042 | 592.74 | 592.82 |
| W | 96+28.00 | 16.042 | 592.79 | 592.88 |
| X | 96+38.00 | 16.042 | 592.84 | 592.93 |
| Y | 96+48.00 | 16.042 | 592.89 | 592.96 |
| Z | 96+58.00 | 16.042 | 592.94 | 592.98 |
| ☉ Brg. N. Abut. | 96+66.75 | 16.042 | 592.98 | 592.98 |
| Bk. N. Abut. | 96+68.00 | 16.042 | 592.99 | 592.99 |

| | | | | |
|---------------------|----------------|----------|---------------------------|-----------|
| F.A.S. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| 733 | 06-00088-00-BR | MACOUPIN | 35 | 11 |
| FED. ROAD DIST. NO. | | | ILLINOIS FED. AID PROJECT | |
| | | | CONTRACT NO. | |

WEST EDGE OF APPROACH

| Location | Station | Offset | Theoretical Grade Elevations |
|---------------------|----------|---------|------------------------------|
| End S. Appr. Pav't. | 93+48.00 | -18.000 | 591.36 |
| A1 | 93+58.00 | -18.000 | 591.41 |
| A2 | 93+68.00 | -18.000 | 591.46 |
| Bk. S. Abut. | 93+78.00 | -18.000 | 591.51 |

WEST EDGE OF PAVEMENT

| Location | Station | Offset | Theoretical Grade Elevations |
|---------------------|----------|---------|------------------------------|
| End S. Appr. Pav't. | 93+48.00 | -11.000 | 591.47 |
| A1 | 93+58.00 | -11.000 | 591.52 |
| A2 | 93+68.00 | -11.000 | 591.57 |
| Bk. S. Abut. | 93+78.00 | -11.000 | 591.62 |

☉ ROADWAY & P.G.

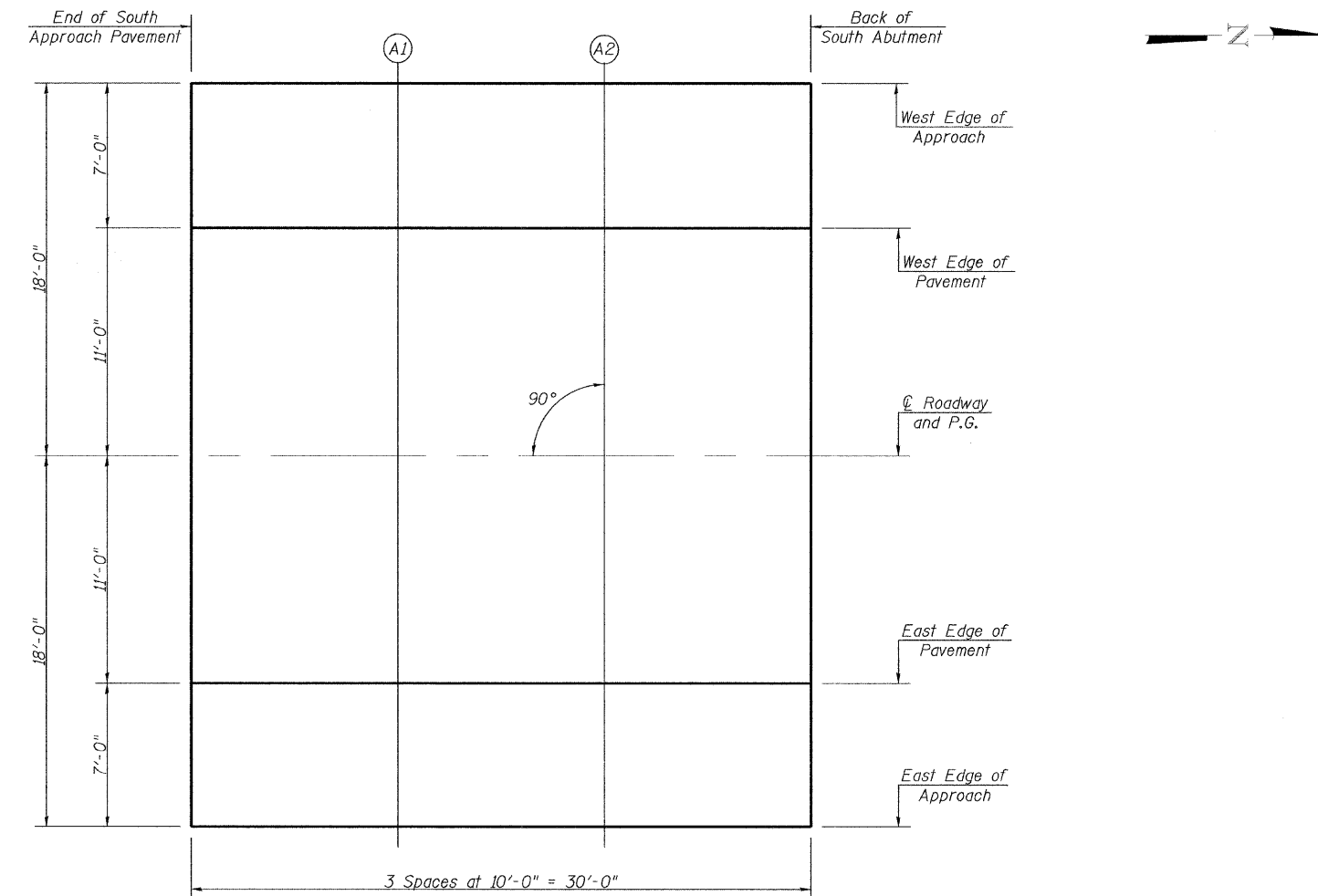
| Location | Station | Offset | Theoretical Grade Elevations |
|---------------------|----------|--------|------------------------------|
| End S. Appr. Pav't. | 93+48.00 | 0.000 | 591.63 |
| A1 | 93+58.00 | 0.000 | 591.68 |
| A2 | 93+68.00 | 0.000 | 591.73 |
| Bk. S. Abut. | 93+78.00 | 0.000 | 591.78 |

EAST EDGE OF PAVEMENT

| Location | Station | Offset | Theoretical Grade Elevations |
|---------------------|----------|--------|------------------------------|
| End S. Appr. Pav't. | 93+48.00 | 11.000 | 591.47 |
| A1 | 93+58.00 | 11.000 | 591.52 |
| A2 | 93+68.00 | 11.000 | 591.57 |
| Bk. S. Abut. | 93+78.00 | 11.000 | 591.62 |

EAST EDGE OF APPROACH

| Location | Station | Offset | Theoretical Grade Elevations |
|---------------------|----------|--------|------------------------------|
| End S. Appr. Pav't. | 93+48.00 | 18.000 | 591.36 |
| A1 | 93+58.00 | 18.000 | 591.41 |
| A2 | 93+68.00 | 18.000 | 591.46 |
| Bk. S. Abut. | 93+78.00 | 18.000 | 591.51 |



PLAN

| | | | | | | | | | | | |
|-------------|----------------------|------------|-----------|--|--|----------------|-------------|---|--------|--------------|-----------|
| FILE NAME = | USER NAME = #USER# | DESIGNED - | REVISED - |  Allen Henderson & Associates, Inc. Civil and Structural Engineers Springfield, IL 62703 Phone: (217)544-8033 IL Design Firm No. 184-001907 | TOP OF APPROACH SLAB ELEVATIONS | | F.A.S. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| #FILE# | | DRAWN - | REVISED - | | 733 | 06-00088-00-BR | MACOUPIN | 35 | 11 | | |
| | PLOT SCALE = #SCALE# | CHECKED - | REVISED - | | CONTRACT NO. 93562 | | | FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT | | | |
| | PLOT DATE = #DATE# | DATE - | REVISED - | | SCALE: NONE | STA. | TO STA. | | | | |

| | | | | |
|---------------------|----------------|---------------------------|--------------|-----------|
| F.A.S. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| 733 | 06-00088-00-BR | MACOUPIN | 35 | 12 |
| FED. ROAD DIST. NO. | | ILLINOIS FED. AID PROJECT | | |
| | | CONTRACT NO. | | |

WEST EDGE OF APPROACH

| Location | Station | Offset | Theoretical Grade Elevations |
|---------------------|----------|---------|------------------------------|
| Bk. N. Abut. | 96+68.00 | -18.000 | 592.96 |
| A3 | 96+78.00 | -18.000 | 593.01 |
| A4 | 96+88.00 | -18.000 | 593.06 |
| End N. Appr. Pav't. | 96+98.00 | -18.000 | 593.13 |

WEST EDGE OF PAVEMENT

| Location | Station | Offset | Theoretical Grade Elevations |
|---------------------|----------|---------|------------------------------|
| Bk. N. Abut. | 96+68.00 | -11.000 | 593.07 |
| A3 | 96+78.00 | -11.000 | 593.12 |
| A4 | 96+88.00 | -11.000 | 593.17 |
| End N. Appr. Pav't. | 96+98.00 | -11.000 | 593.24 |

☉ ROADWAY & P.G.

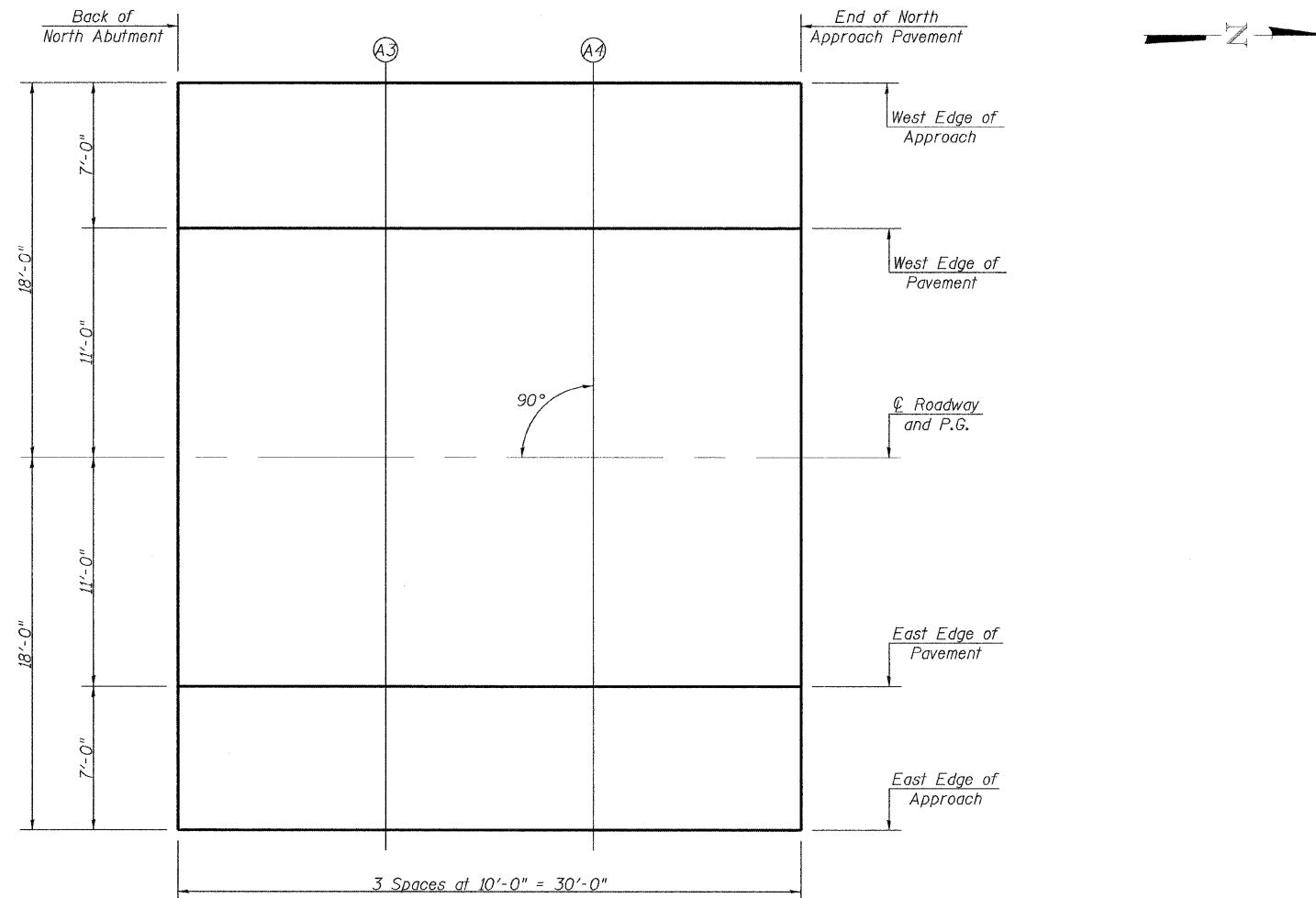
| Location | Station | Offset | Theoretical Grade Elevations |
|---------------------|----------|--------|------------------------------|
| Bk. N. Abut. | 96+68.00 | 0.000 | 593.23 |
| A3 | 96+78.00 | 0.000 | 593.28 |
| A4 | 96+88.00 | 0.000 | 593.33 |
| End N. Appr. Pav't. | 96+98.00 | 0.000 | 593.40 |

EAST EDGE OF PAVEMENT


| Location | Station | Offset | Theoretical Grade Elevations |
|---------------------|----------|--------|------------------------------|
| Bk. N. Abut. | 96+68.00 | 11.000 | 593.07 |
| A3 | 96+78.00 | 11.000 | 593.12 |
| A4 | 96+88.00 | 11.000 | 593.17 |
| End N. Appr. Pav't. | 96+98.00 | 11.000 | 593.24 |

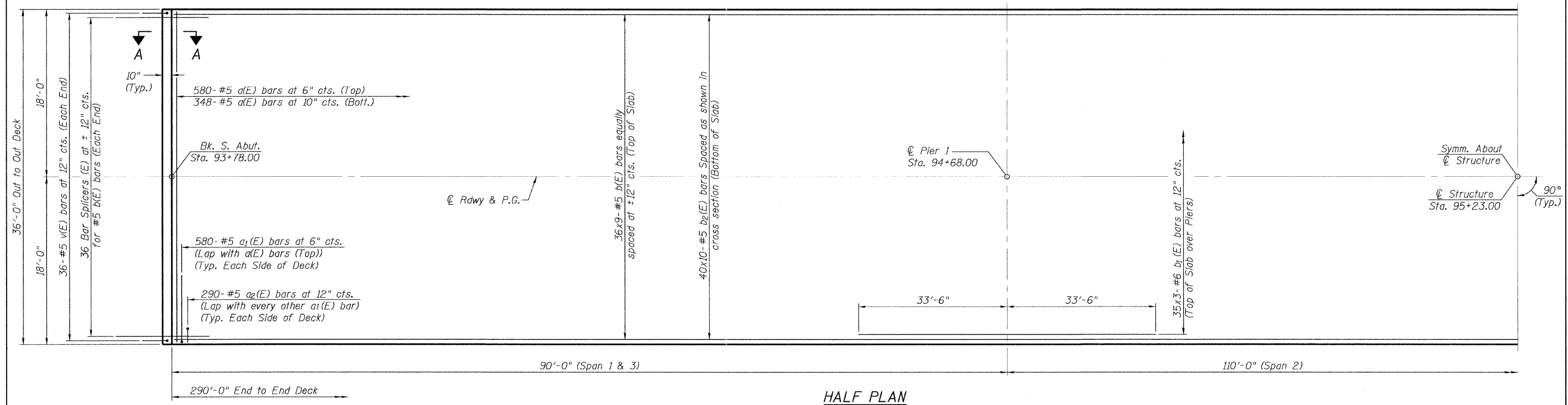
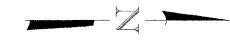
EAST EDGE OF APPROACH

| Location | Station | Offset | Theoretical Grade Elevations |
|---------------------|----------|--------|------------------------------|
| Bk. N. Abut. | 96+68.00 | 18.000 | 592.96 |
| A3 | 96+78.00 | 18.000 | 593.01 |
| A4 | 96+88.00 | 18.000 | 593.06 |
| End N. Appr. Pav't. | 96+98.00 | 18.000 | 593.13 |

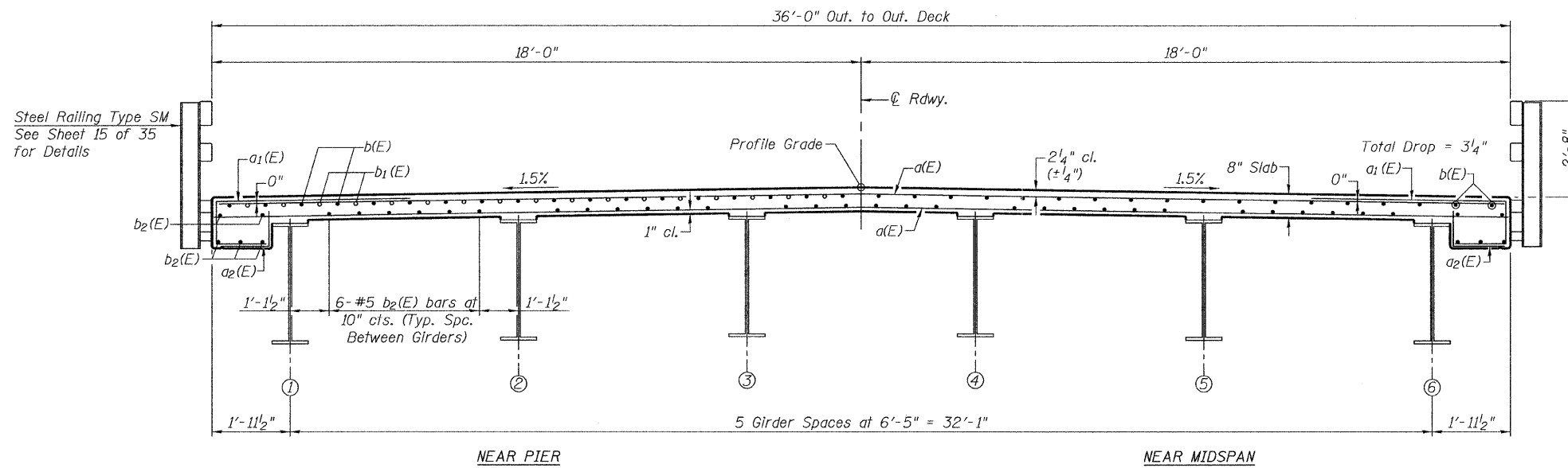


PLAN

| | | | | | | | | | | | | |
|-------------|----------------------|------------|-----------|--|--|------|---------------------|---------|---------------------------|--------------|-----------|----|
| FILE NAME = | USER NAME = #USER# | DESIGNED - | REVISED - |  Allen Henderson & Associates, Inc. Civil and Structural Engineers Springfield, IL 62703 Phone: (217)544-8033 IL Design Firm No. 184-001907 | TOP OF APPROACH SLAB ELEVATIONS | | F.A.S. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. | |
| #FILE# | | DRAWN - | REVISED - | | SCALE: NONE | STA. | TO STA. | 733 | 06-00088-00-BR | MACOUPIN | 35 | 12 |
| | PLOT SCALE = #SCALE# | CHECKED - | REVISED - | | | | FED. ROAD DIST. NO. | | ILLINOIS FED. AID PROJECT | | | |
| | PLOT DATE = #DATE# | DATE - | REVISED - | | | | | | CONTRACT NO. 93562 | | | |



HALF PLAN



CROSS SECTION
(Looking North)

MIN. BAR LAP

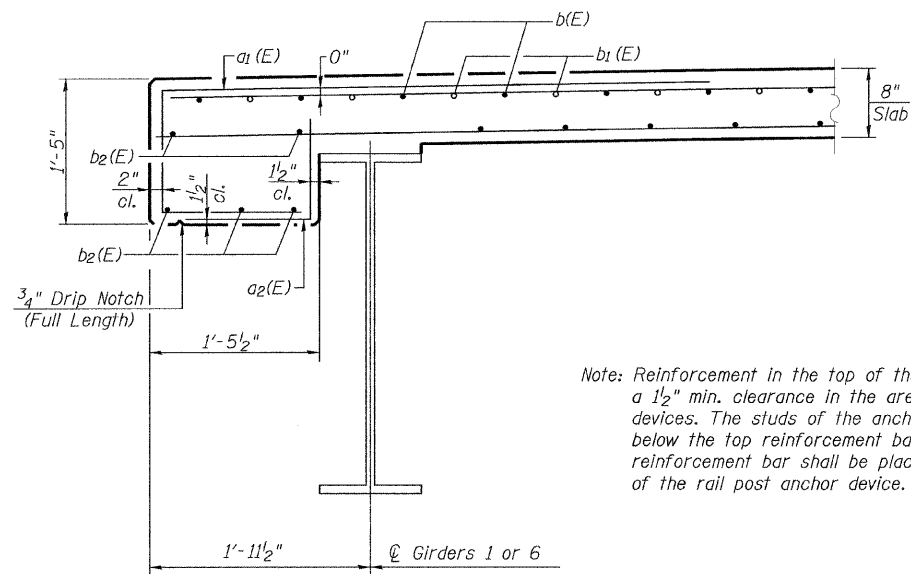
#5 bar = 1'-8"
#6 bar = 2'-7"

SUPERSTRUCTURE
BILL OF MATERIAL

| Bar | No. | Size | Length | Shape |
|---------------------------------|------|---------|--------|-------|
| a(E) | 928 | #5 | 35'-8" | — |
| a1(E) | 1160 | #5 | 6'-3" | — |
| a2(E) | 580 | #5 | 2'-1" | — |
| b(E) | 324 | #5 | 34'-0" | — |
| b1(E) | 210 | #6 | 25'-0" | — |
| b2(E) | 400 | #5 | 30'-8" | — |
| m(E) | 10 | #6 | 35'-8" | — |
| mi(E) | 24 | #6 | 9'-2" | — |
| m2(E) | 10 | #6 | 6'-0" | — |
| ms(E) | 4 | #6 | 1'-7" | — |
| s(E) | 82 | #5 | 5'-11" | — |
| si(E) | 72 | #4 | 11'-0" | □ |
| v(E) | 72 | #5 | 3'-4" | — |
| Reinforcement Bar, Epoxy Coated | | Pound | 77770 | |
| Concrete Superstructure | | Cu. Yd. | 313.2 | |
| Bar Splicers | | Each | 72 | |

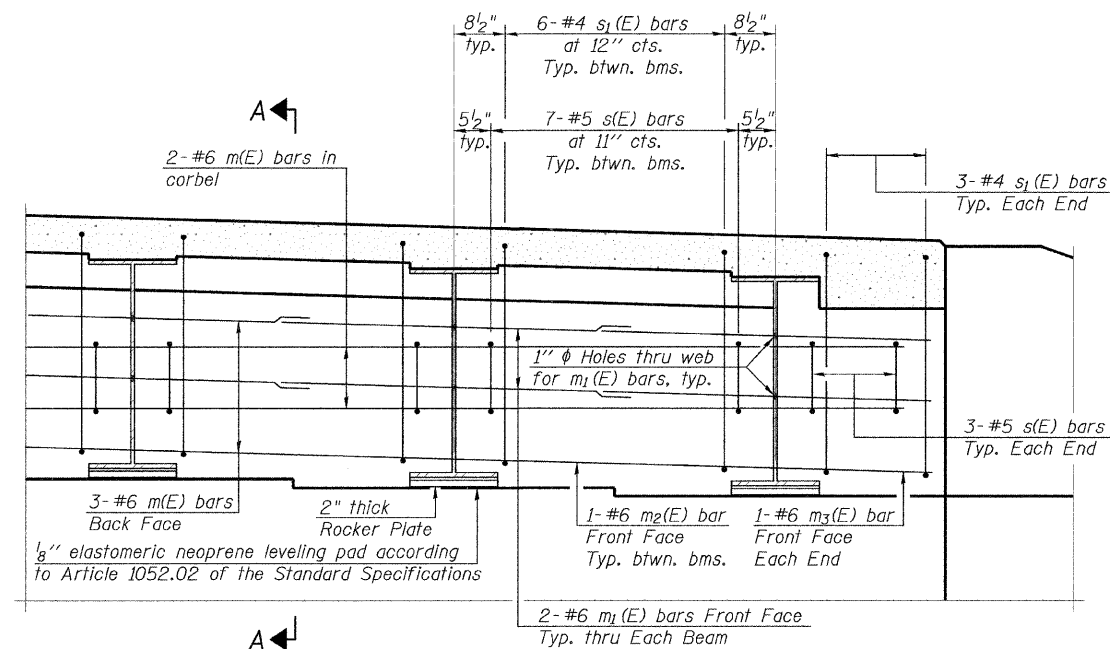
Note: Reinforcement in the top of the deck may be placed with a 1/2" min. clearance in the area of the rail post anchor devices. The studs of the anchor devices shall be placed below the top reinforcement bars and outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.

See Sheet 14 of 35 for Superstructure details & Section A-A.
For details of a1(E), a2(E) and v(E) bars see sheet 14 of 35.
Bars indicated thus 36x9- #5 etc. indicates 36 lines of bars with 9 lengths per line.

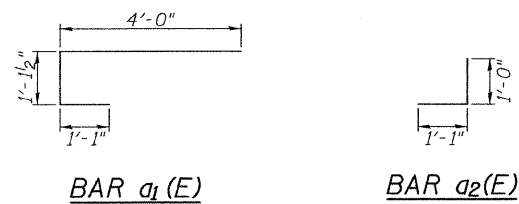


SECTION THRU EDGE OF SLAB

Note: Reinforcement in the top of the deck may be placed with a 1/2" min. clearance in the area of the rail post anchor devices. The studs of the anchor devices shall be placed below the top reinforcement bars and outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.



DIAPHRAGM ELEVATION AT ABUTMENT

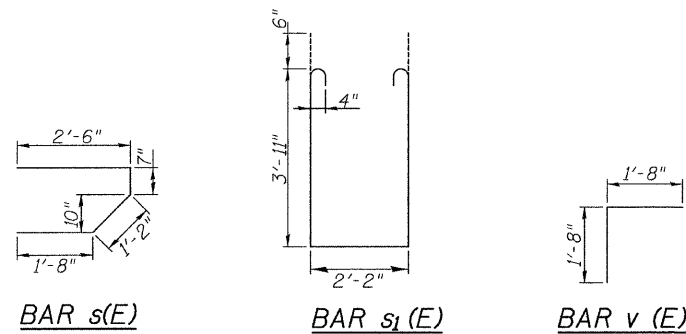


BAR a1(E)

BAR a2(E)

Notes:
 Reinforcement bars in diaphragm are billed with superstructure on sheet 13 of 35.
 Concrete in diaphragm is included with Concrete Superstructure on sheet 13 of 35.
 The s(E) and s1(E) bars shall be placed parallel to the girders. Spacing for these bars shall be at right angles to the girders.

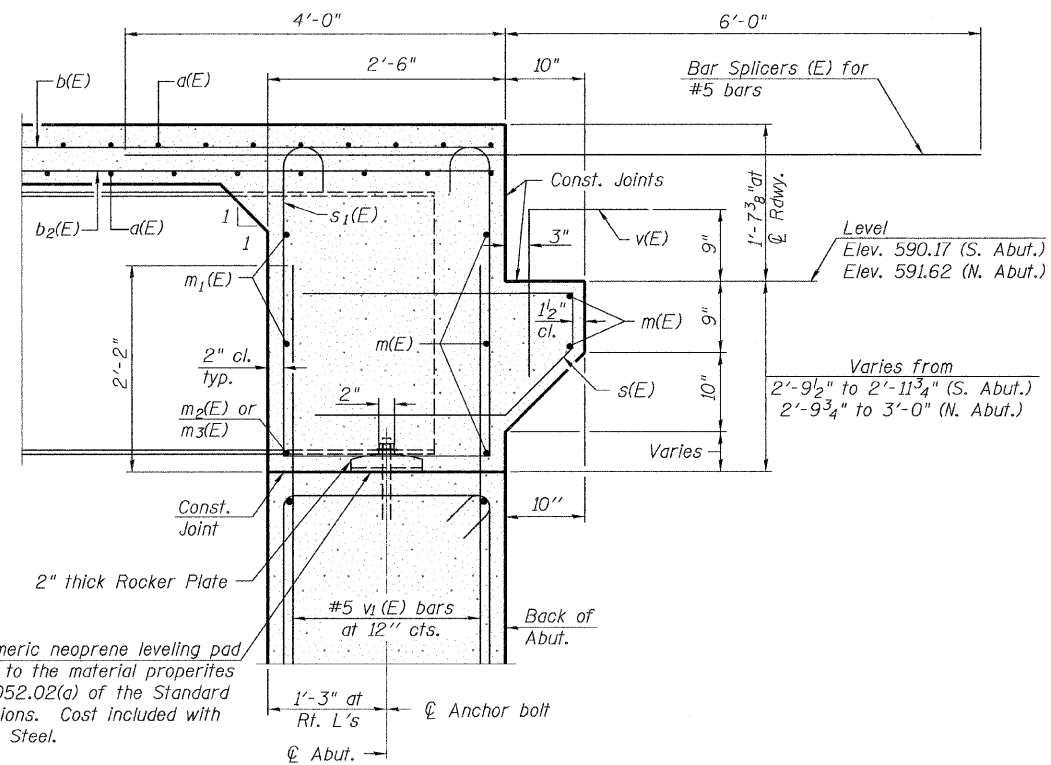
MIN. BAR LAP
 #6 bar = 2'-9"



BAR s(E)

BAR s1(E)

BAR v(E)



SECTION A-A

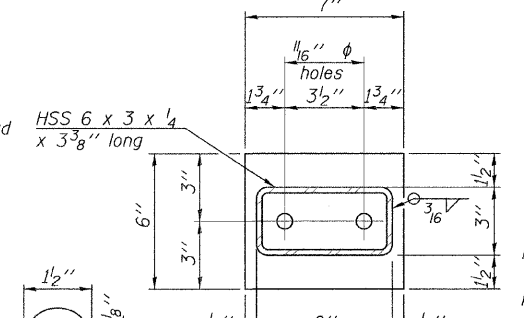
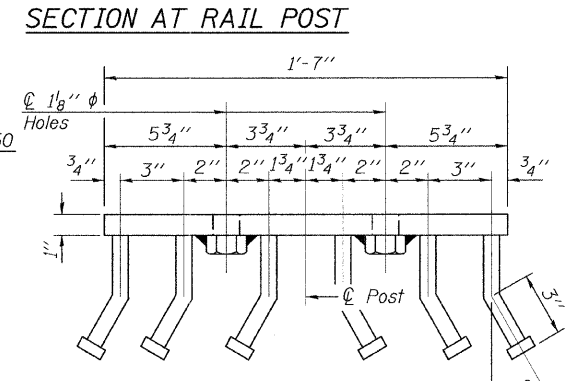
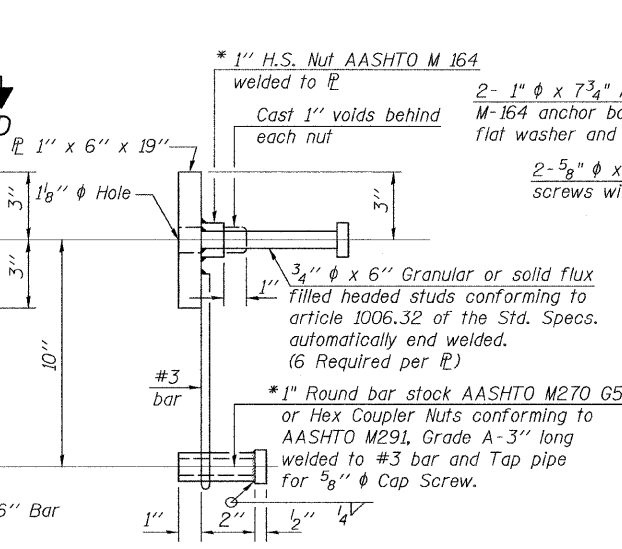
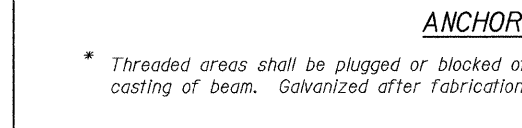
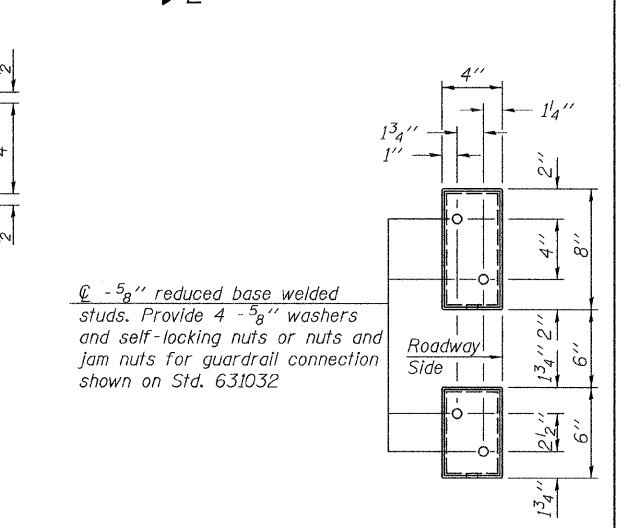
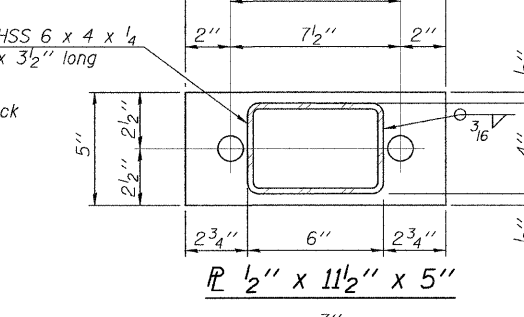
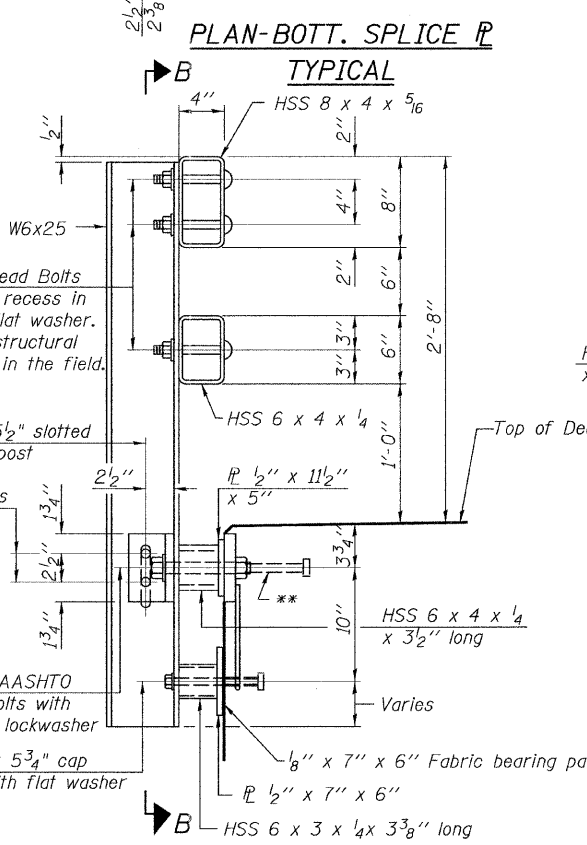
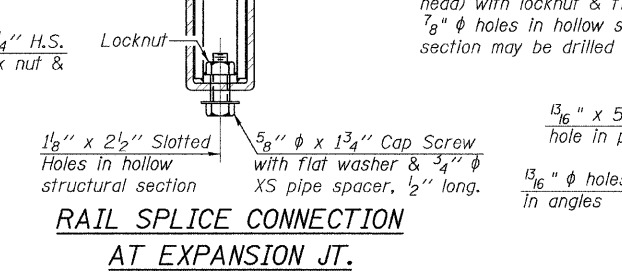
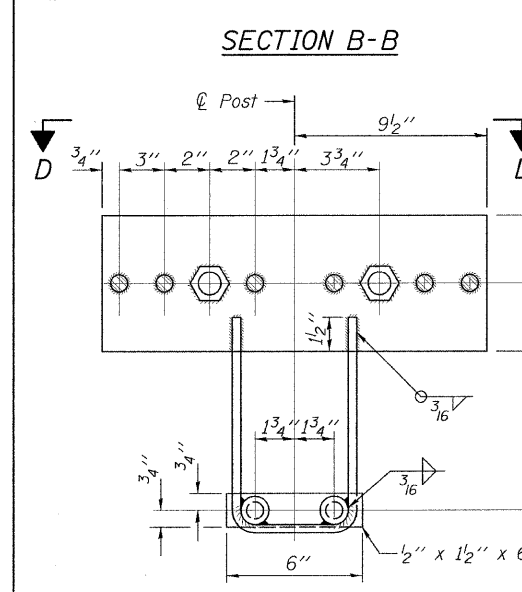
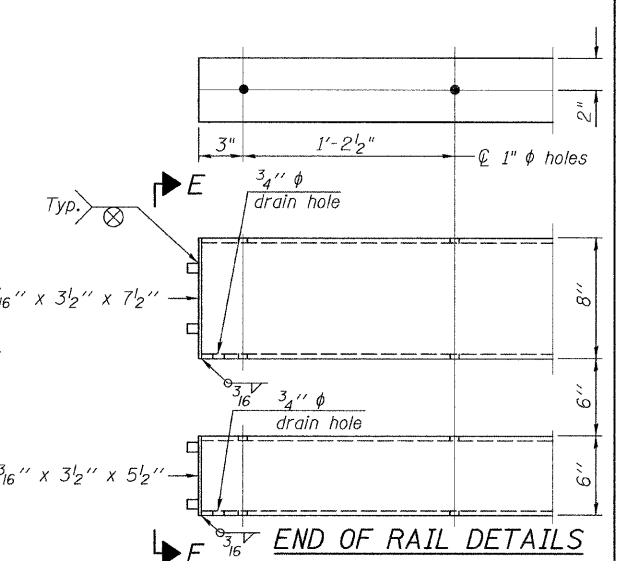
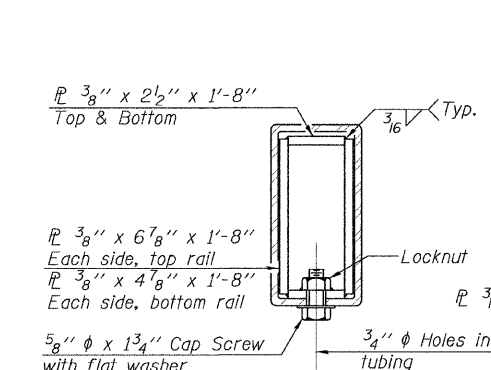
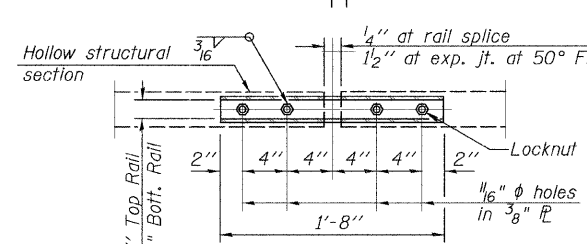
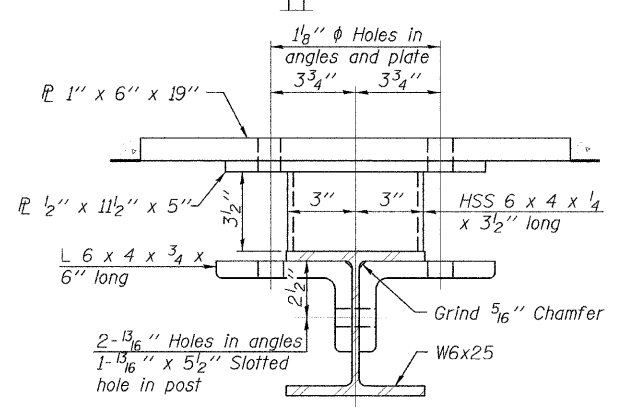
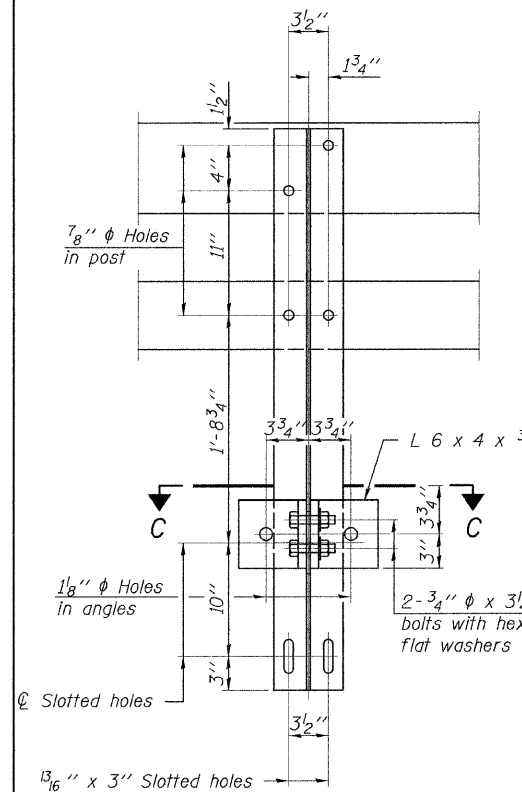
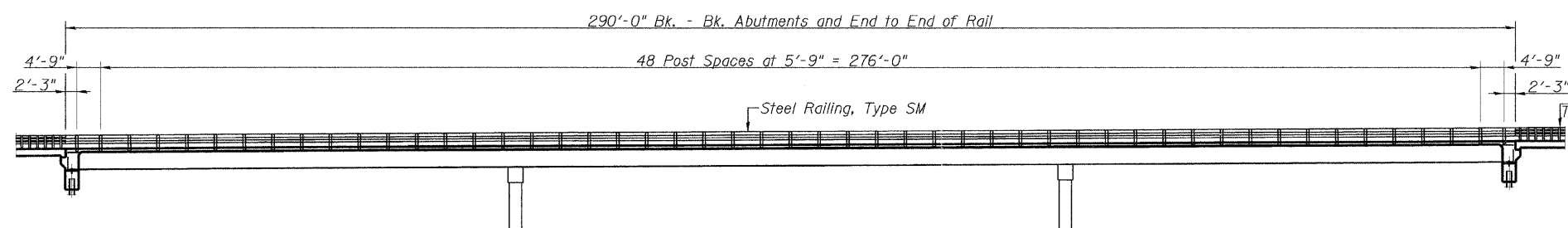
Dimensions at right angles to abutment, except as shown.

SI-DS1

11-1-06

| | | | | | | | | | | | | |
|-------------|----------------------|------------|-----------|--|-------------------|--|---|----------------|--------------------|--------------|-----------|--|
| FILE NAME = | USER NAME = #USER# | DESIGNED - | REVISED - | Allen Henderson & Associates, Inc. Civil and Structural Engineers Springfield, IL. 62703 Phone: (217)544-8033 IL. Design Firm No. 184-001907 | DIAPHRAGM DETAILS | | F.A.S. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. | |
| #FILE# | PLOT SCALE = #SCALE# | DRAWN - | REVISED - | | | | 733 | 06-00088-00-BR | MACOUPIN | 35 | 14 | |
| | PLOT DATE = #DATE# | CHECKED - | REVISED - | | SCALE: NONE | | STA. | TO STA. | CONTRACT NO. 93562 | | | |
| | | DATE - | REVISED - | | | | FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT | | | | | |

| | | | | |
|---------------------|----------------|---------------------------|--------------|-----------|
| F.A.S. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| 733 | 06-00088-00-BR | MACOUPIN | 35 | 15 |
| FED. ROAD DIST. NO. | | ILLINOIS FED. AID PROJECT | | |
| | | CONTRACT NO. | | |

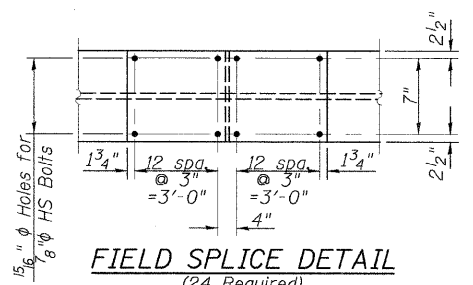
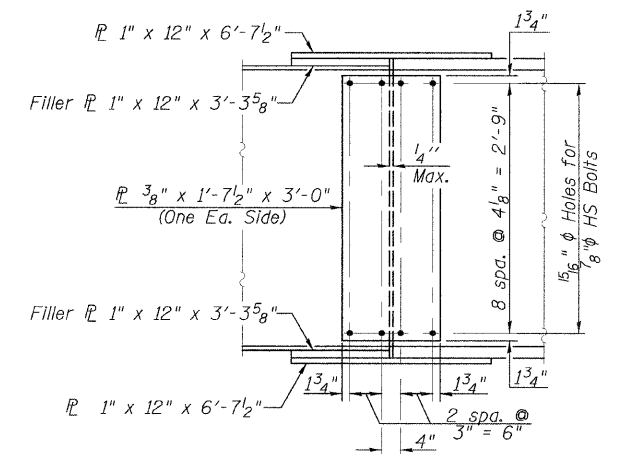
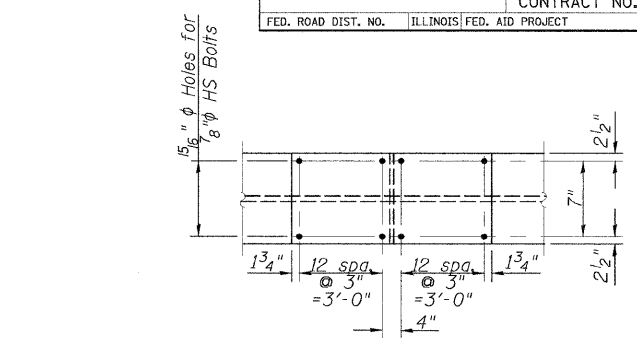
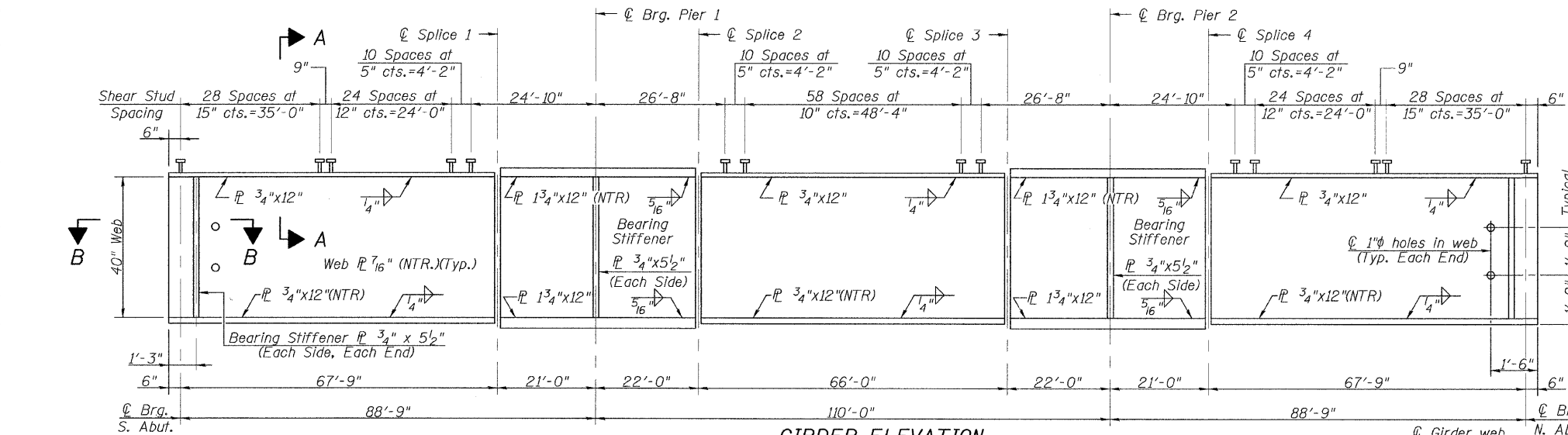
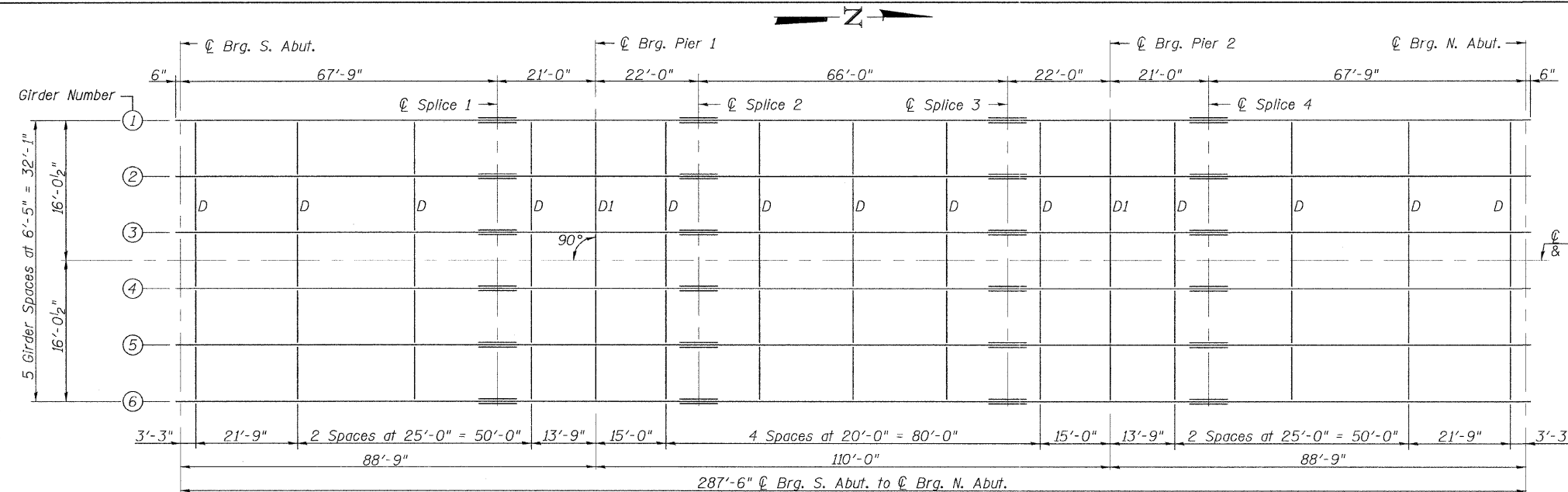


Notes:
 All field drilled holes shall be coated with an approved zinc rich paint before erection.
 For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Bridge Rail, Type SM.
 All steel rail members shall be galvanized according to Article 509.05 of the Standard Specifications.
 ** The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.

BILL OF MATERIAL

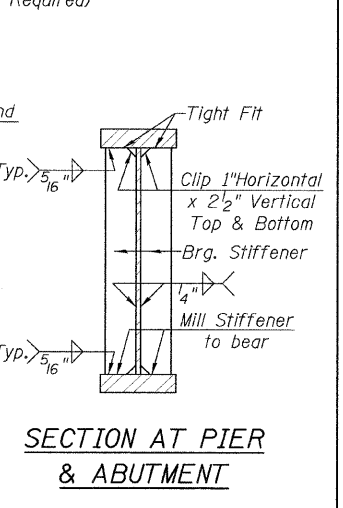
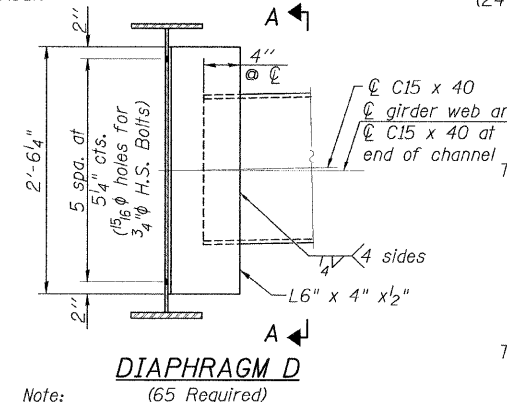
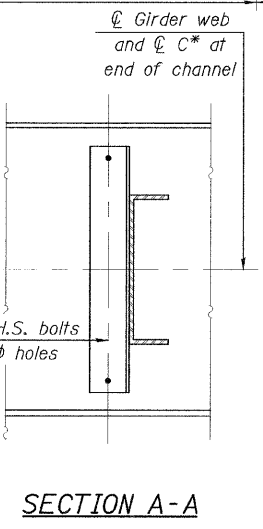
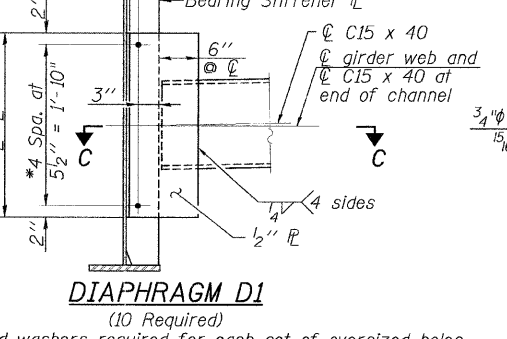
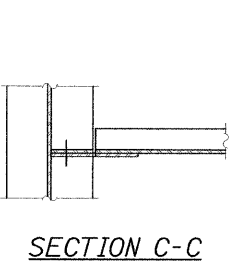
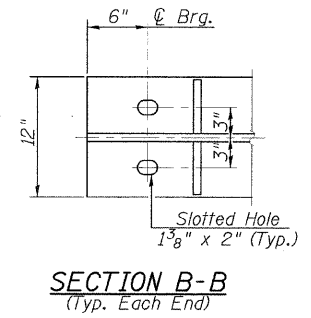
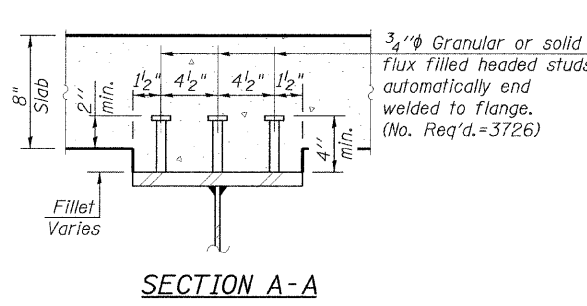
| Item | Unit | Quantity |
|------------------------|------|----------|
| Steel Railing, Type SM | Foot | 580 |

| | | | | |
|---------------------|----------------|---------------------------|--------------|-----------|
| F.A.S. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| 733 | 06-00088-00-BR | MACOUPIN | 35 | 16 |
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| | | CONTRACT NO. | | |



Note:
Two hardened washers required for each set of oversized holes.
* 3/4" φ HS bolts, 15/16" φ holes

Note:
Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.
All girders, diaphragms, bearing stiffeners, connection plates and splice plate material shall be AASHTO M 270, Grade 50.



Note:
Two hardened washers required for each set of oversized holes.
* Alternate channels are permitted to facilitate material acquisition. Calculated weight of structural steel is based on the lighter section. The alternate, if utilized, shall be provided at no additional cost to the Department.

| | | | |
|-------------|--------------------|------------|-----------|
| FILE NAME = | USER NAME = #USER# | DESIGNED - | REVISED - |
| #FILE# | | DRAWN - | REVISED - |
| | | CHECKED - | REVISED - |
| | | DATE - | REVISED - |

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No. 184-001907

| | | |
|-------------|------|---------|
| SCALE: NONE | STA. | TO STA. |
|-------------|------|---------|

| | | | | |
|---------------------|----------------|---------------------------|--------------|-----------|
| F.A.S. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| 733 | 06-00088-00-BR | MACOUPIN | 35 | 16 |
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| | | CONTRACT NO. 93562 | | |

| | 0.4 Sp. 1 or 0.6 Sp. 3 | Pier #1 or Pier #2 | 0.5 Span 2 |
|-----------------------------|--------------------------|--------------------|------------|
| I_s | (in ⁴) 9807 | 20646 | 9807 |
| $I_c(n)$ | (in ⁴) 24491 | - | 24491 |
| $I_c(3n)$ | (in ⁴) 18436 | - | 18436 |
| S_s | (in ³) 473 | 949 | 473 |
| $S_c(n)$ | (in ³) 661 | - | 661 |
| $S_c(3n)$ | (in ³) 606 | - | 606 |
| DC1 | (k/ft) 0.800 | 0.899 | 0.800 |
| M _{DC1} | (k) 390 | 969 | 300 |
| DC2 | (k/ft) 0.025 | 0.025 | 0.025 |
| M _{DC2} | (k) 13 | 26 | 12 |
| DW | (k/ft) 0.300 | 0.300 | 0.300 |
| M _{DW} | (k) 160 | 309 | 145 |
| M _{ℓ + Imp} | (k) 1086 | 1115 | 1121 |
| M _u (Strength I) | (k) 2644 | 3659 | 2569 |
| $\phi_r M_n, \phi_r M_{nc}$ | (k) 3297 | - | 3359 |
| f_s DC1 | (ksi) 9.9 | 12.3 | 7.6 |
| f_s DC2 | (ksi) 0.3 | 0.3 | 0.2 |
| f_s DW | (ksi) 3.2 | 3.9 | 2.9 |
| f_s 1.3(ℓ+I) | (ksi) 25.6 | 18.3 | 26.5 |
| f_s (Service II) | (ksi) 39.0 | 34.8 | 37.2 |
| f_s (Total)(Strength I) | (ksi) - | 46.2 | - |
| V _r | (k) 32 | - | 35 |

| | Abuts. | Piers |
|----------------------|----------|-------|
| R _{DC1} | (k) 25.6 | 93.6 |
| R _{DC2} | (k) 0.8 | 2.8 |
| R _{DW} | (k) 9.8 | 33.3 |
| R _{ℓ + Imp} | (k) 76.8 | 137.9 |
| R _{Total} | (k) 113 | 267.6 |

| | Girder #1 | Girder #2 | Girder #3 | Girder #4 | Girder #5 | Girder #6 |
|-----------------|-----------|-----------|-----------|-----------|-----------|-----------|
| ℄ Brg. S. Abut. | 590.754 | 590.850 | 590.946 | 590.946 | 590.850 | 590.754 |
| ℄ Splice #1 | 590.968 | 591.065 | 591.161 | 591.161 | 591.065 | 590.968 |
| ℄ Brg. Pier #1 | 591.067 | 591.164 | 591.260 | 591.260 | 591.164 | 591.067 |
| ℄ Splice #2 | 591.171 | 591.268 | 591.364 | 591.364 | 591.268 | 591.171 |
| ℄ Splice #3 | 591.501 | 591.598 | 591.694 | 591.694 | 591.598 | 591.501 |
| ℄ Brg. Pier #2 | 591.617 | 591.714 | 591.810 | 591.810 | 591.714 | 591.617 |
| ℄ Splice #4 | 591.728 | 591.825 | 591.921 | 591.921 | 591.825 | 591.728 |
| ℄ Brg. N. Abut. | 592.191 | 592.287 | 592.384 | 592.384 | 592.287 | 592.191 |

** For Fabrication only

I_s, S_s : Non-composite moment of inertia and section modulus of the steel section used for computing f_s (Total-Strength I, and Service II) due to non-composite dead loads (in.⁴ and in.³).

$I_c(n), S_c(n)$: Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing f_s (Total-Strength I, and Service II) due to short-term composite live loads (in.⁴ and in.³).

$I_c(3n), S_c(3n)$: Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing f_s (Total-Strength I, and Service II) due to long-term composite (superimposed) dead loads (in.⁴ and in.³).

DC1: Un-factored non-composite dead load (kips/ft.).

M_{DC1}: Un-factored moment due to non-composite dead load (kip-ft.).

DC2: Un-factored long-term composite (superimposed excluding future wearing surface) dead load (kips/ft.).

M_{DC2}: Un-factored moment due to long-term composite (superimposed excluding future wearing surface) dead load (kip-ft.).

DW: Un-factored long-term composite (superimposed future wearing surface only) dead load (kips/ft.).

M_{DW}: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).

M_{ℓ + Imp}: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).

M_u (Strength I): Factored design moment (kip-ft.).
1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_{ℓ + Imp}

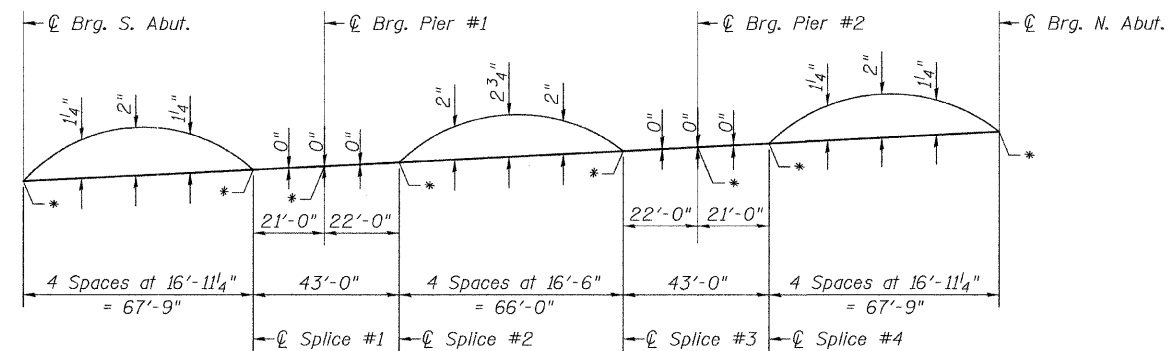
$\phi_r M_n$: Compact composite positive moment capacity computed according to Article 6.10.7.1 (kip-ft.).

$\phi_r M_{nc}$: Compact non-composite negative moment capacity computed according to Article A6.1.1 (kip-ft.).

f_s (Service II): Sum of stresses as computed from the moments below (ksi).
M_{DC1} + M_{DC2} + M_{DW} + 1.3 M_{ℓ + Imp}

f_s (Total)(Strength I): Sum of stresses as computed from the moments below on non-compact section (ksi).
1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_{ℓ + Imp}

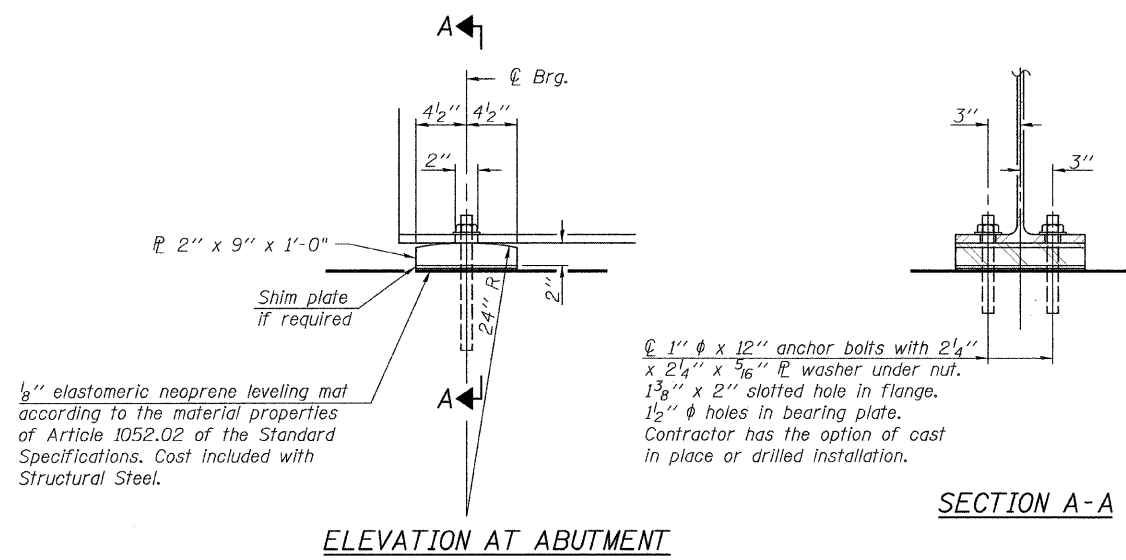
V_r: Factored shear range computed according to Article 6.10.10.



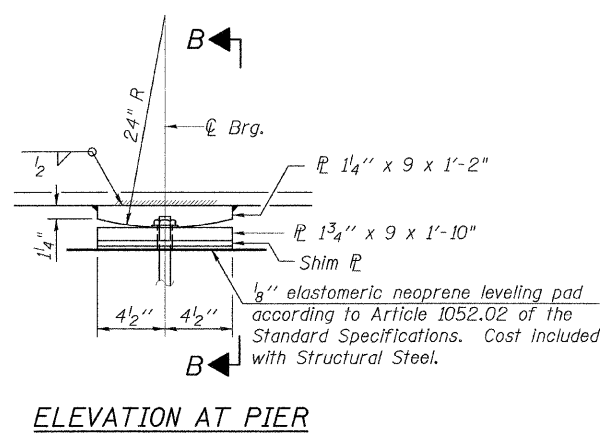
CAMBER DIAGRAM

* See Table for Top of Web Elevations.

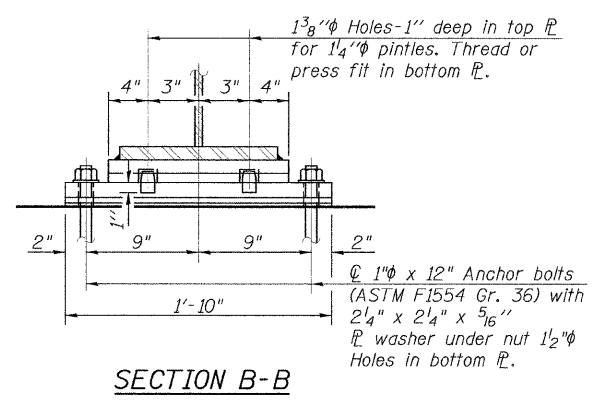
| | | | | |
|---------------------|----------------|---------------------------|--------------|-----------|
| F.A.S. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| 733 | 06-00088-00-BR | MACOUPIN | 35 | 18 |
| FED. ROAD DIST. NO. | | ILLINOIS FED. AID PROJECT | | |
| | | CONTRACT NO. | | |



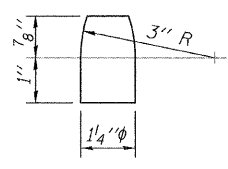
FIXED BEARING AT ABUTMENT
(12 Required)



FIXED BEARING AT PIERS
(12 Required)



Notes:
Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. ASTM A307 Grade C anchor bolts may be used in lieu of ASTM F1554 Grade 36 (Fy=36ksi). The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.
Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
The structural steel bearing plates of the fixed bearings, including pintles shall conform to the requirements of AASHTO M 270, Grade 50.
Two 1/8 in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

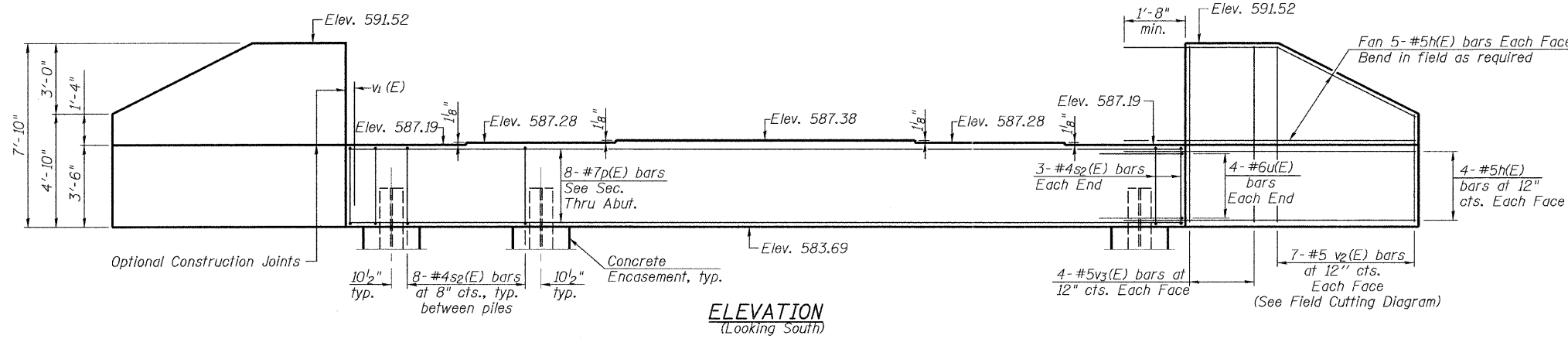


Notes: Pour steps monolithically with cap.
Space reinforcement in cap to miss anchor bolts.

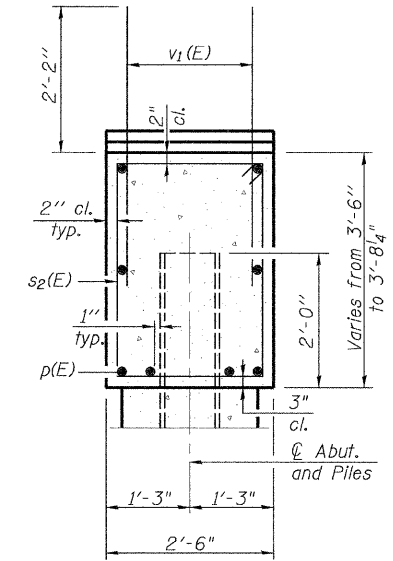
PILE DATA

Type: HP 12x53
Nominal Required Bearing: 419 kips
Factored Resistance Available: 210 kips
Est. Length: 27 ft.
No. Production Piles: 5
No. Test Piles: 1

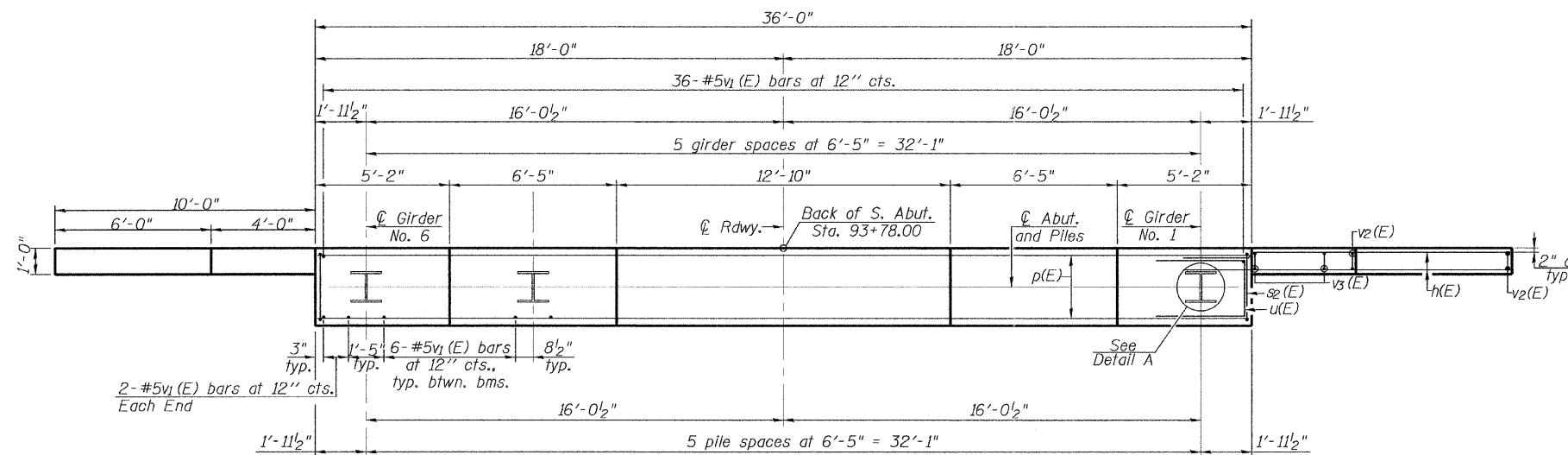
| | | | | |
|---------------------|----------------|---------------------------|--------------|-----------|
| F.A.S. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| 733 | 06-00088-00-BR | MACOUPIN | 35 | 19 |
| FED. ROAD DIST. NO. | | ILLINOIS FED. AID PROJECT | | |
| | | CONTRACT NO. | | |



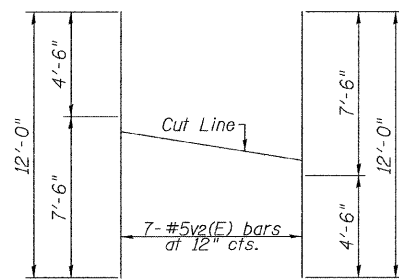
ELEVATION
(Looking South)



SEC. THRU ABUT.

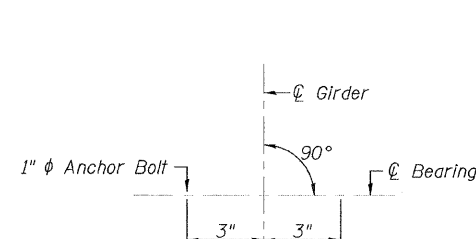


PLAN

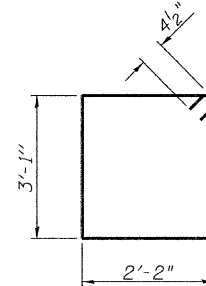


FIELD CUTTING DIAGRAM

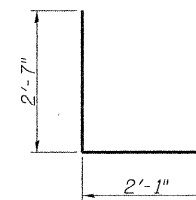
Order v2(E) full length. Cut as shown and use remainder of bars in opposite face.



DETAIL A



BAR s2(E)



BAR u(E)

**SOUTH ABUTMENT
BILL OF MATERIAL**

| Bar | No. | Size | Length | Shape |
|----------------------------------|-----|---------|--------|-------|
| h(E) | 36 | #5 | 12'-6" | — |
| p(E) | 8 | #7 | 35'-8" | — |
| s2(E) | 46 | #4 | 11'-3" | □ |
| u(E) | 8 | #6 | 7'-3" | U |
| v1(E) | 70 | #5 | 4'-4" | — |
| v2(E) | 14 | #5 | 12'-0" | — |
| v3(E) | 16 | #5 | 7'-6" | — |
| Structure Excavation | | Cu. Yd. | 86 | |
| Concrete Structures | | Cu. Yd. | 17.2 | |
| Reinforcement Bars, Epoxy Coated | | Pound | 2100 | |
| Furnishing Steel Piles HP12x53 | | Foot | 135 | |
| Driving Piles | | Foot | 135 | |
| Test Pile, HP12x53 | | Each | 1 | |
| Concrete Encasement | | Cu. Yd. | 2.1 | |

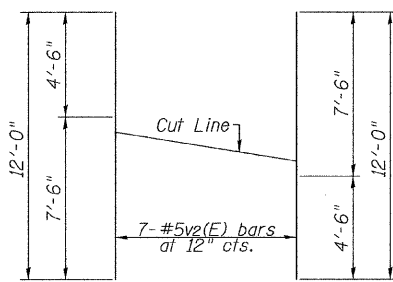
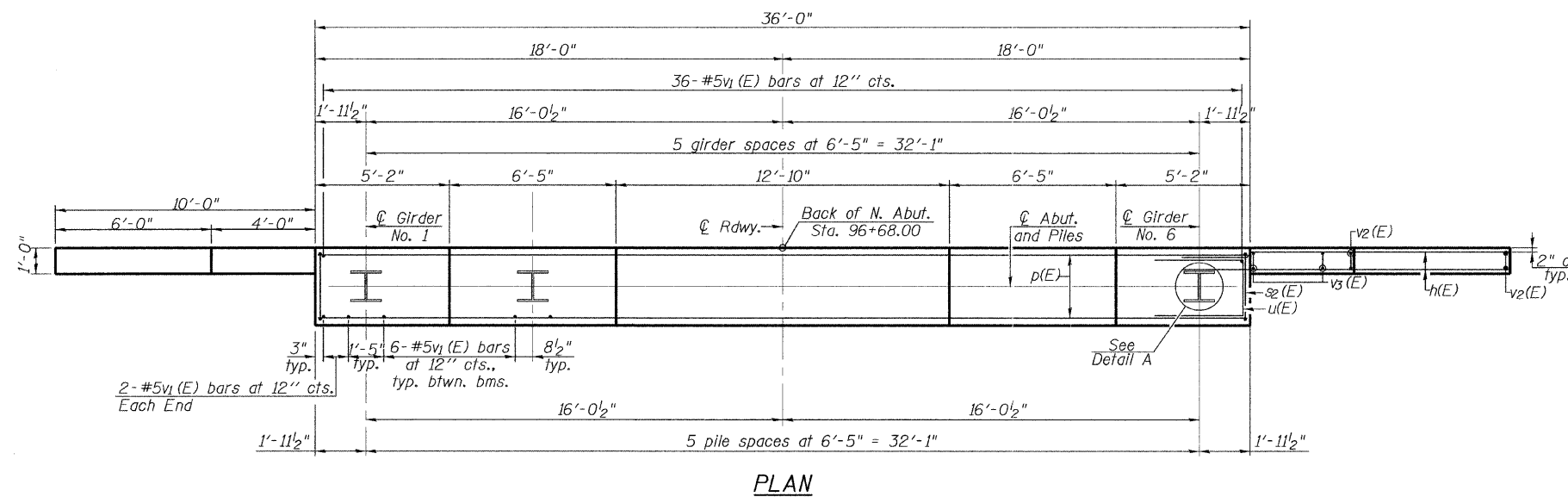
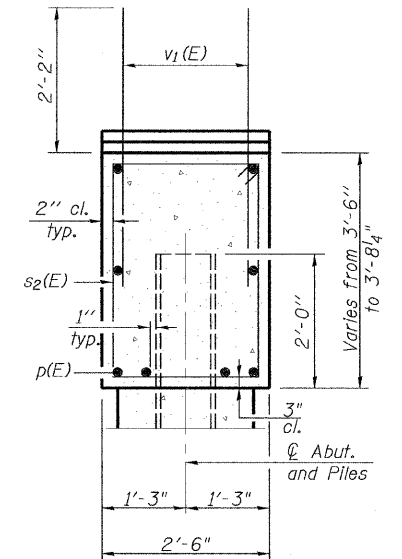
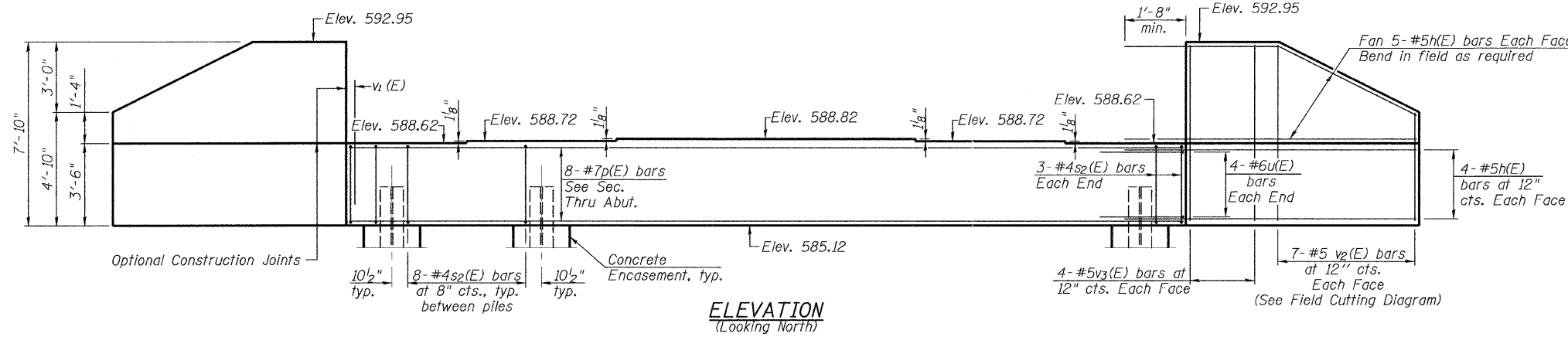
For details of piles and Concrete Encasement, see sheet 24 of 35.

Notes: Pour steps monolithically with cap.
Space reinforcement in cap to miss anchor bolts.

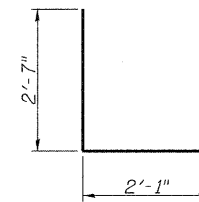
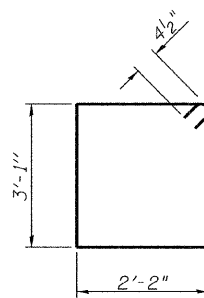
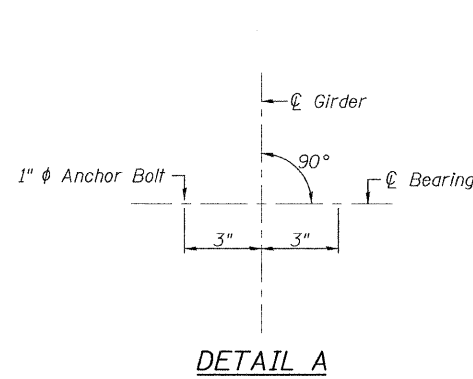
PILE DATA

Type: HP 12x53
Nominal Required Bearing: 419 kips
Factored Resistance Available: 210 kips
Est. Length: 34 ft.
No. Production Piles: 5
No. Test Piles: 1

| | | | | |
|---------------------|----------------|---------------------------|--------------|-----------|
| F.A.S. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| 733 | 06-00088-00-BR | MACOUPIN | 35 | 20 |
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| | | CONTRACT NO. | | |



Order v2(E) full length. Cut as shown and use remainder of bars in opposite face.



**NORTH ABUTMENT
BILL OF MATERIAL**

| Bar | No. | Size | Length | Shape |
|----------------------------------|-----|---------|--------|-------|
| h(E) | 36 | #5 | 12'-6" | — |
| p(E) | 8 | #7 | 35'-8" | — |
| s2(E) | 46 | #4 | 11'-3" | □ |
| u(E) | 8 | #6 | 7'-3" | — |
| v1(E) | 70 | #5 | 4'-4" | — |
| v2(E) | 14 | #5 | 12'-0" | — |
| v3(E) | 16 | #5 | 7'-6" | — |
| Structure Excavation | | Cu. Yd. | 74 | |
| Concrete Structures | | Cu. Yd. | 17.2 | |
| Reinforcement Bars, Epoxy Coated | | Pound | 2100 | |
| Furnishing Steel Piles HP12x53 | | Foot | 170 | |
| Driving Piles | | Foot | 170 | |
| Test Pile Steel HP12x53 | | Each | 1 | |
| Concrete Encasement | | Cu. Yd. | 2.1 | |

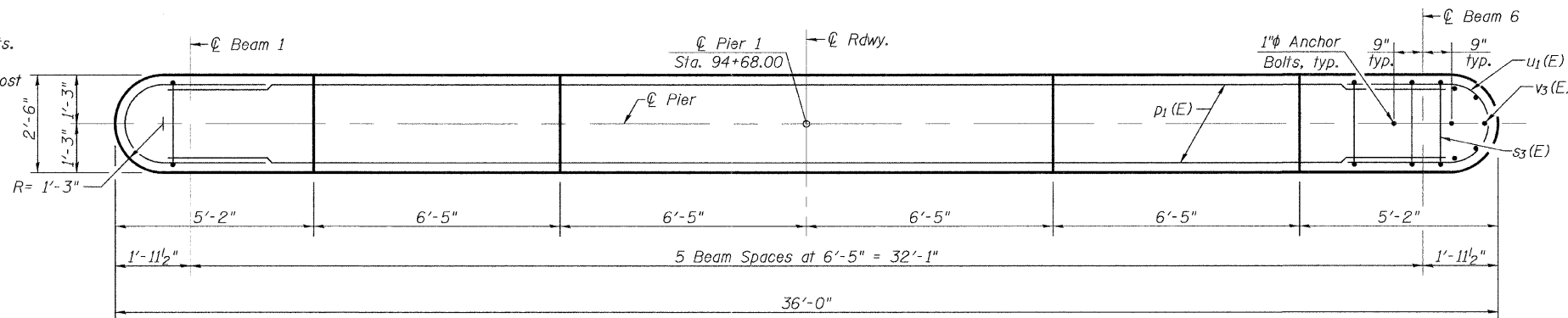
For details of piles and Concrete Encasement, see sheet 24 of 35.

| | | | | |
|------------------------------|------------------------|-------------------------------|-----------------|--------------|
| F.A.S. RTE. 733 | SECTION 06-00088-00-BR | COUNTY MACOUPIN | TOTAL SHEETS 35 | SHEET NO. 21 |
| FED. ROAD DIST. NO. ILLINOIS | | FED. AID PROJECT CONTRACT NO. | | |

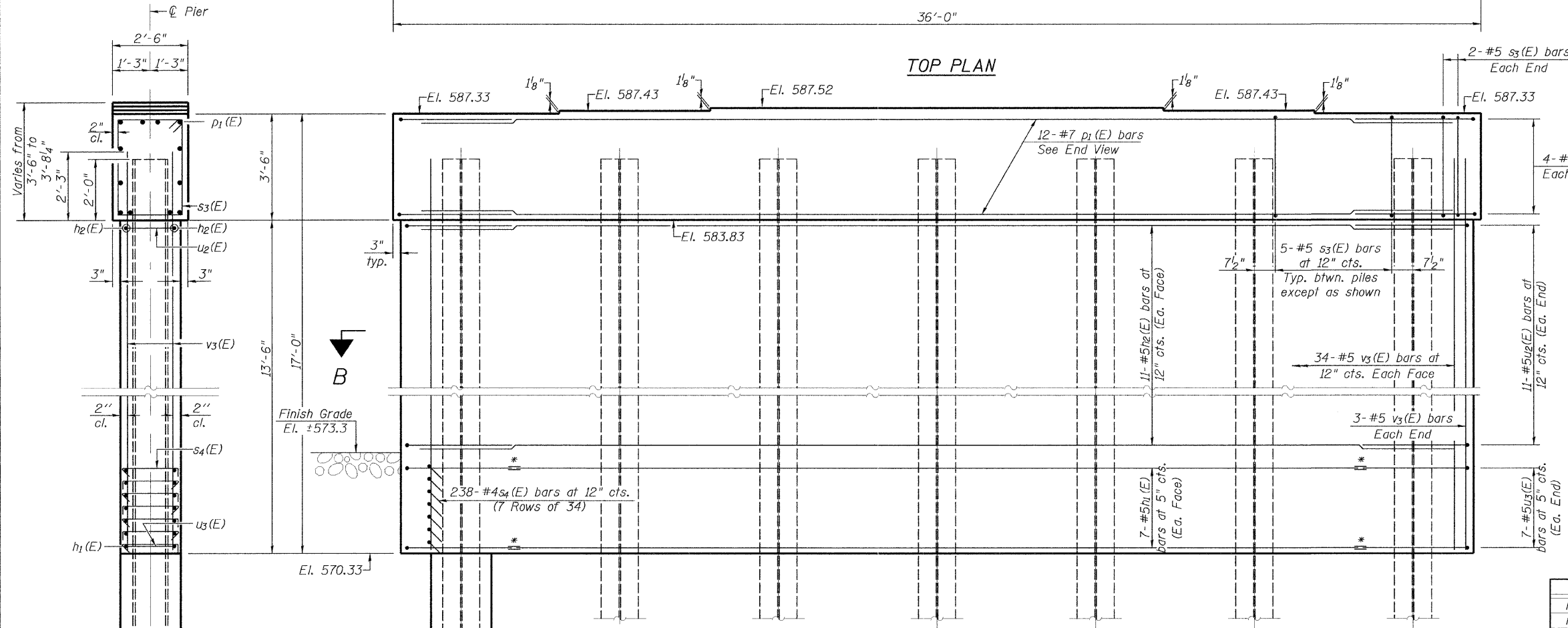
Notes:
 Space reinforcement in cap to miss anchor bolts.
 Pour steps monolithically with cap.
 Cofferdam Excavation to be included with the cost of Cofferdam (Type 1) (Location 1)
 For details of piles, see sheet 24 of 35.

PILE DATA

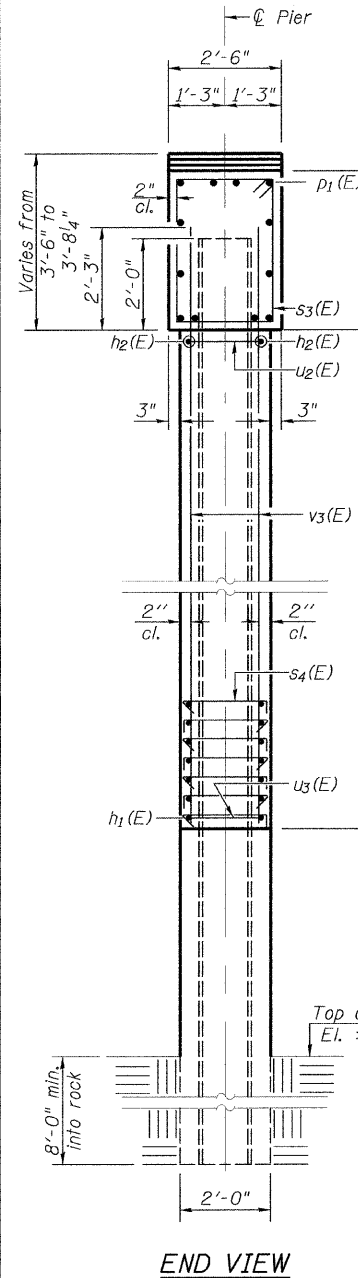
Type: HP 12x84
 Nominal Required Bearing: 664 kips
 Factored Resistance Available: 332 kips
 Est. Length: 36'
 No. Production Piles: 6
 No. Test Piles: 1



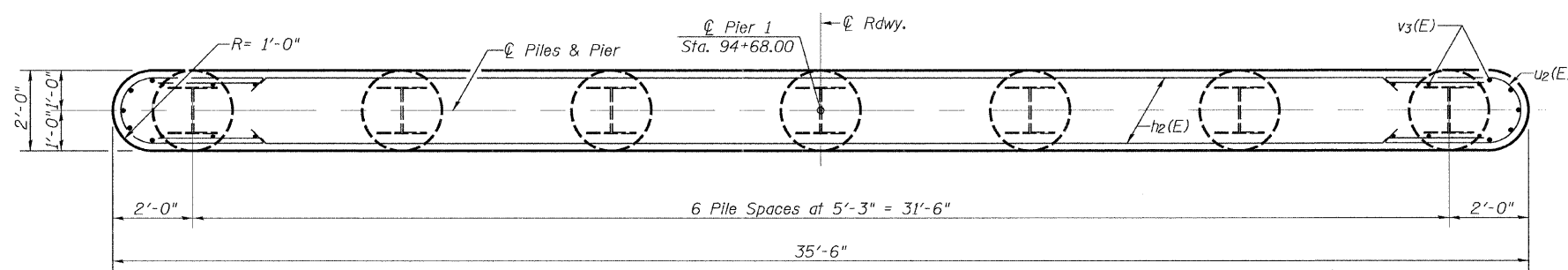
TOP PLAN



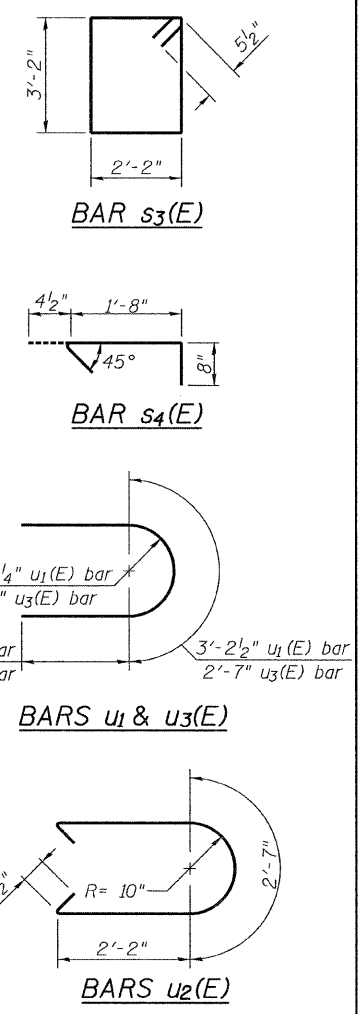
ELEVATION
(Looking North)



END VIEW



SECTION B-B



**PIER 1
BILL OF MATERIAL**

| Bar | No. | Size | Length | Shape |
|-----------------------------------|-----|------|---------|-------|
| h1(E) | 14 | #5 | 29'-6" | — |
| h2(E) | 22 | #5 | 33'-6" | — |
| p1(E) | 12 | #7 | 33'-6" | — |
| s3(E) | 34 | #5 | 11'-7" | □ |
| s4(E) | 238 | #4 | 2'-9" | ┌ |
| u1(E) | 8 | #6 | 8'-5" | U |
| u2(E) | 22 | #5 | 7'-10" | U |
| u3(E) | 14 | #5 | 6'-7" | U |
| v3(E) | 74 | #5 | 15'-7" | — |
| Structure Excavation | | | Cu. Yd. | 27 |
| Concrete Structures | | | Cu. Yd. | 46.9 |
| Reinforcement Bars, Epoxy Coated | | | Pound | 4450 |
| Furnishing Steel Piles, HP 12x84 | | | Foot | 216 |
| Test Pile, Steel HP 12x84 | | | Each | 1 |
| Setting and Driving Piles in Rock | | | Each | 6 |
| Cofferdam (Type 1) (Location 1) | | | Each | 1 |
| Mechanical Splicers | | | Each | 28 |

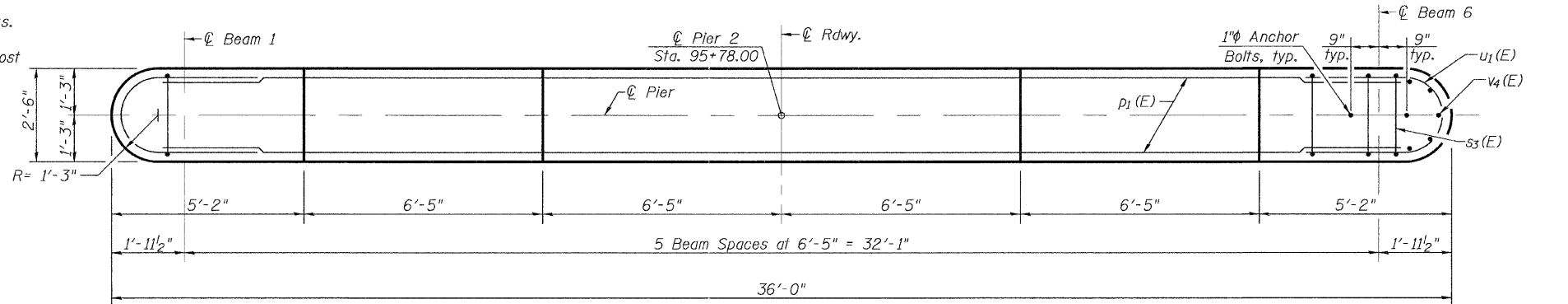
Allen Henderson & Associates, Inc.
 Civil and Structural Engineers Springfield, IL
 62703 Phone: (217)544-8033 IL Design Firm
 No. 184-001907

| | | | | |
|---------------------|----------------|---------------------------|--------------|-----------|
| F.A.S. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| 733 | 06-00088-00-BR | MACOUPIN | 35 | 22 |
| FED. ROAD DIST. NO. | | ILLINOIS FED. AID PROJECT | | |
| | | CONTRACT NO. | | |

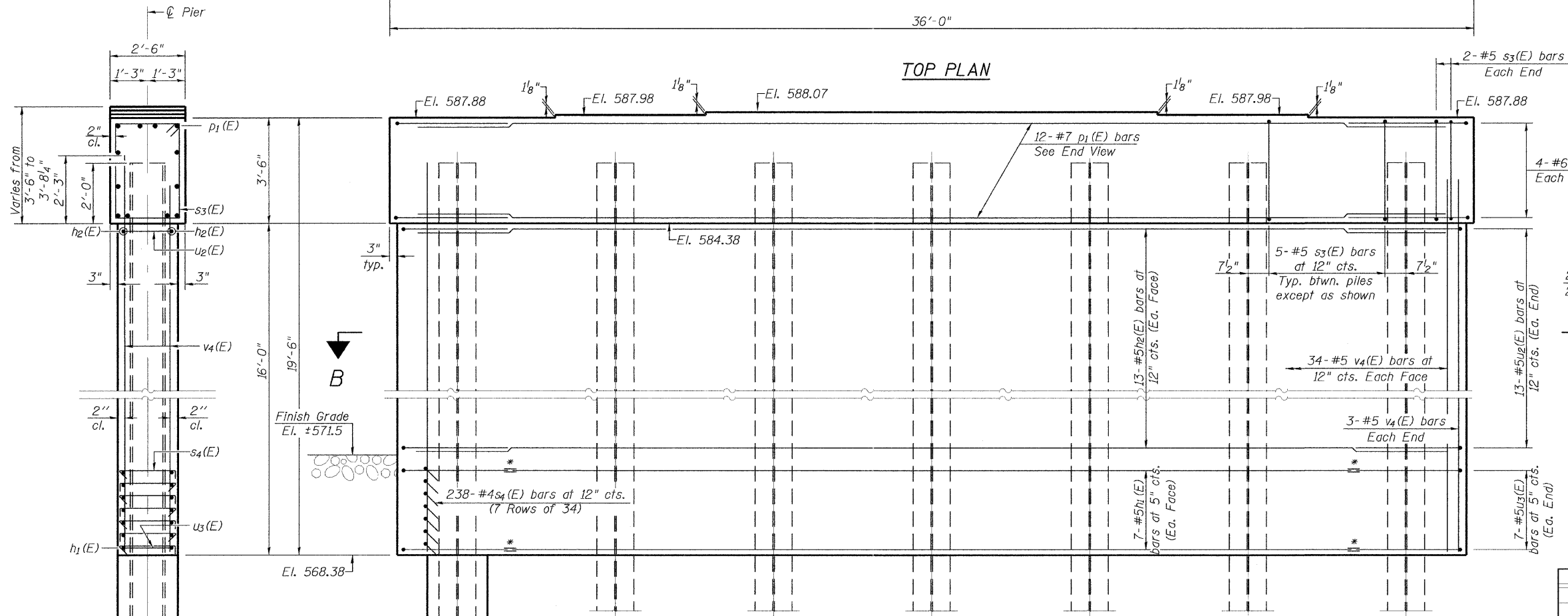
Notes:
 Space reinforcement in cap to miss anchor bolts.
 Pour steps monolithically with cap.
 Cofferdam Excavation to be included with the cost of Cofferdam (Type 1) (Location 2)
 For details of piles, see sheet 24 of 35.

PILE DATA

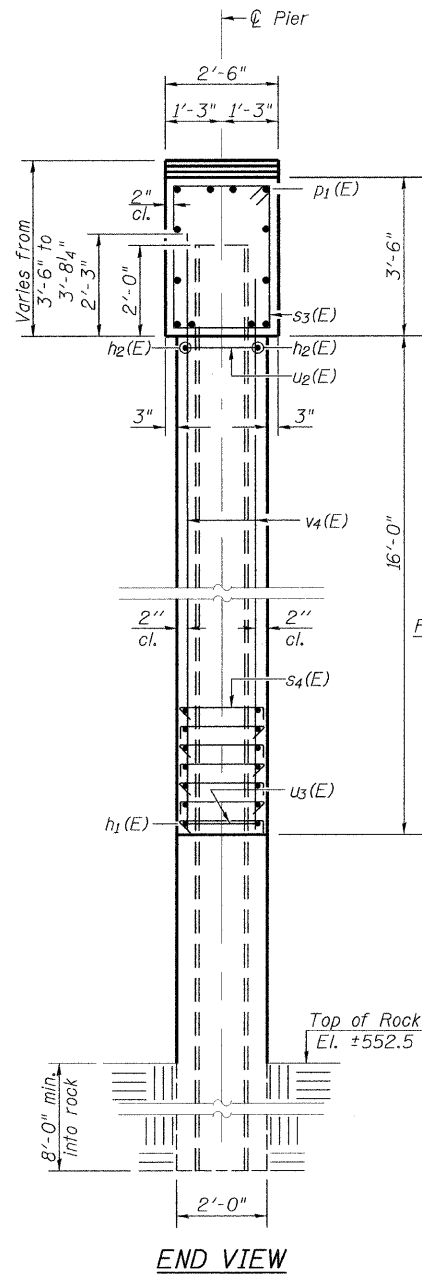
Type: HP 12x84
 Nominal Required Bearing: 664 Kips
 Factored Resistance Available: 332 Kips
 Est. Length: 44'
 No. Production Piles: 6
 No. Test Piles: 1



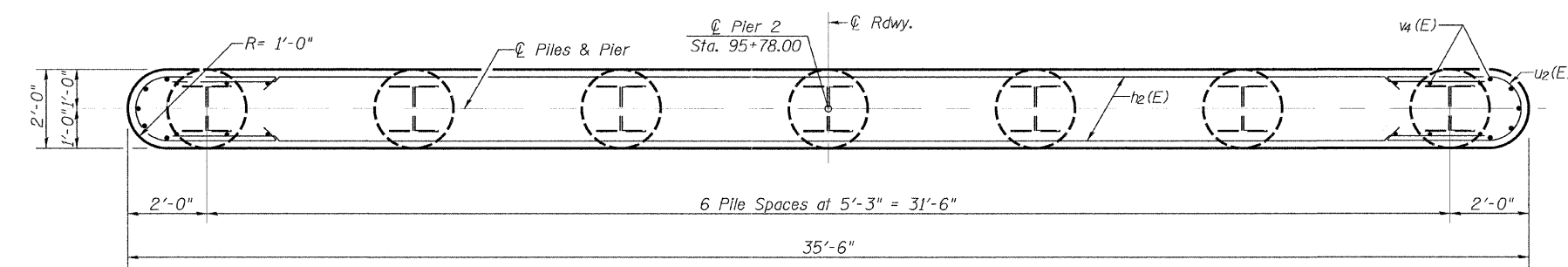
TOP PLAN



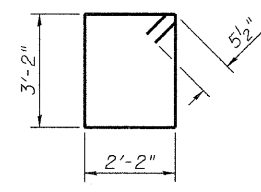
ELEVATION
(Looking North)



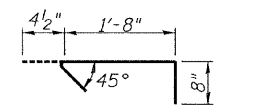
END VIEW



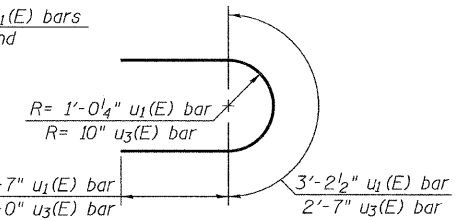
SECTION B-B



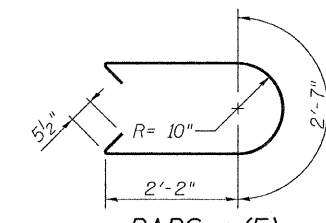
BAR s3(E)



BAR s4(E)



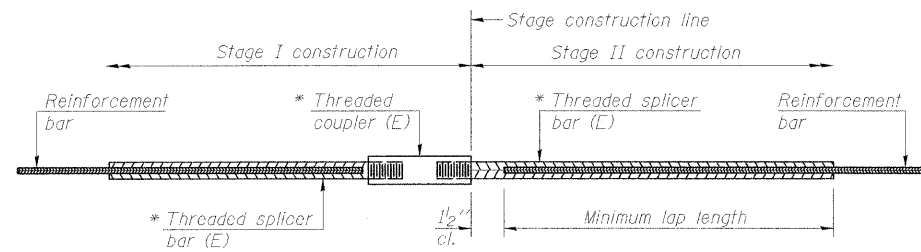
BARS u1 & u3(E)



BARS u2(E)

PIER 2
BILL OF MATERIAL

| Bar | No. | Size | Length | Shape |
|-----------------------------------|-----|------|---------|-------|
| h1(E) | 14 | #5 | 29'-6" | — |
| h2(E) | 26 | #5 | 33'-6" | — |
| p1(E) | 12 | #7 | 33'-6" | — |
| s3(E) | 34 | #5 | 11'-7" | □ |
| s4(E) | 238 | #4 | 2'-9" | J |
| u1(E) | 8 | #6 | 8'-5" | U |
| u2(E) | 26 | #5 | 7'-10" | U |
| u3(E) | 14 | #5 | 6'-7" | U |
| v4(E) | 74 | #5 | 18'-0" | — |
| Structure Excavation | | | Cu. Yd. | 27 |
| Concrete Structures | | | Cu. Yd. | 53.4 |
| Reinforcement Bars, Epoxy Coated | | | Pound | 4810 |
| Furnishing Steel Piles, HP 12x84 | | | Foot | 264 |
| Test Pile Steel HP 12x84 | | | Each | 1 |
| Setting and Driving Piles in Rock | | | Each | 6 |
| Cofferdam (Type 1) (Location 2) | | | Each | 1 |
| Mechanical Splicers | | | Each | 28 |



STANDARD BAR SPLICER ASSEMBLY

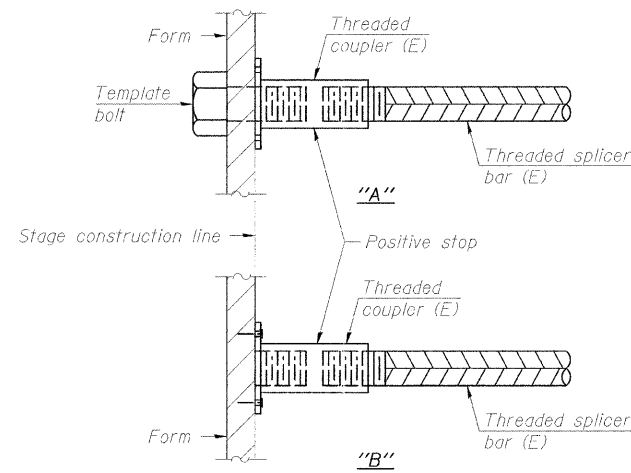
| Bar size to be spliced | Minimum Lap Lengths | | | | |
|------------------------|---------------------|---------|---------|---------|---------|
| | Table 1 | Table 2 | Table 3 | Table 4 | Table 5 |
| 3, 4 | 1'-5" | 1'-11" | 2'-1" | 2'-4" | 2'-3" |
| 5 | 1'-9" | 2'-5" | 2'-7" | 2'-11" | 2'-10" |
| 6 | 2'-1" | 2'-11" | 3'-1" | 3'-6" | 3'-4" |
| 7 | 2'-9" | 3'-10" | 4'-2" | 4'-8" | 4'-6" |
| 8 | 3'-8" | 5'-1" | 5'-5" | 6'-2" | 5'-10" |
| 9 | 4'-7" | 6'-5" | 6'-10" | 7'-9" | 7'-5" |

Table 1: Black bar, 0.8 Class C
 Table 2: Black bar, Top bar lap, 0.8 Class C
 Table 3: Epoxy bar, 0.8 Class C
 Table 4: Epoxy bar, Top bar lap, 0.8 Class C
 Table 5: Epoxy bar, Top bar lap, Class B

Threaded splicer bar length = min. lap length + 1/2" + thread length

* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

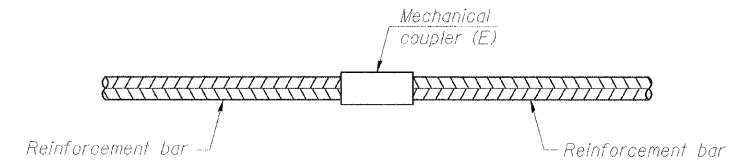
| Location | Bar size | No. assemblies required | Table for minimum lap length |
|----------|----------|-------------------------|------------------------------|
| | | | |
| | | | |
| | | | |



INSTALLATION AND SETTING METHODS

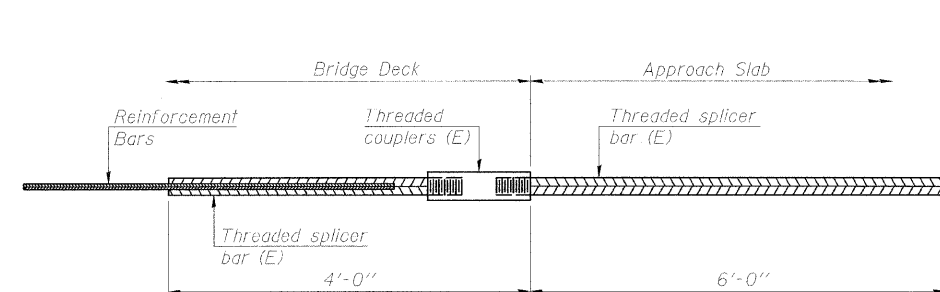
"A" : Set bar splicer assembly by means of a template bolt.
 "B" : Set bar splicer assembly by nailing to wood forms or cementing to steel forms.
 (E) : Indicates epoxy coating.

| |
|--|
| Bar Splicer for #5 bar |
| Min. Capacity = 23.0 kips - tension |
| Min. Pull-out Strength = 12.3 kips - tension |
| No. Required = 72 |



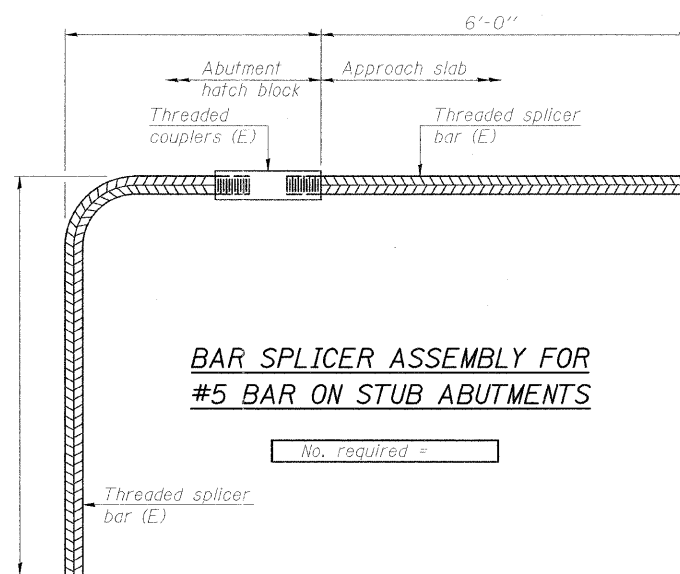
STANDARD MECHANICAL SPLICER

| Location | Bar size | No. assemblies required |
|----------|----------|-------------------------|
| Pier 1 | #5 | 28 |
| Pier 2 | #5 | 28 |



BAR SPLICER ASSEMBLY FOR #5 BAR ON INTEGRAL OR SEMI-INTEGRAL ABUTMENTS

No. required = 72



BAR SPLICER ASSEMBLY FOR #5 BAR ON STUB ABUTMENTS

No. required =

NOTES

Splicer bars shall be deformed with threaded ends and have a minimum 60 ksi yield strength.
 All reinforcement shall be lapped and tied to the splicer bars.
 Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars. See Section 508 of the Standard Specifications.
 See special provision for Mechanical Splicers.
 See approved list of bar splicer assemblies and mechanical splicers for alternatives.

BSD-1

7-1-10

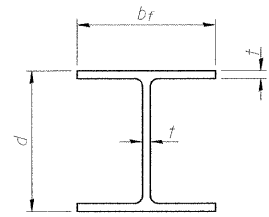
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| | PLOT DATE = #DATE# | DATE - | REVISED - |



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 No. 184-001907

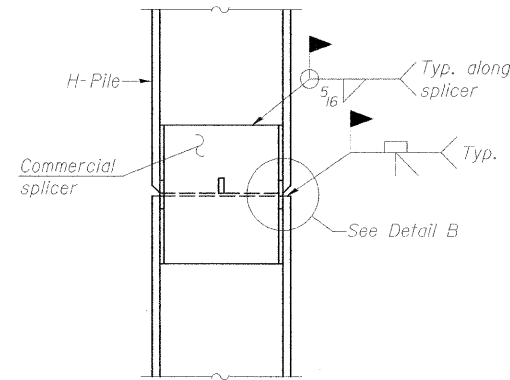
| | |
|--|--------------|
| BAR SPLICER ASSEMBLY AND MECHANICAL SPLICER DETAILS | |
| SCALE: NONE | STA. TO STA. |

| | | | | |
|---------------------|----------------|------------------|--------------|-----------|
| F.A.S. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| 733 | 06-00088-00-BR | MACOUPIN | 35 | 24 |
| FED. ROAD DIST. NO. | | FED. AID PROJECT | | |
| | | CONTRACT NO. | | |

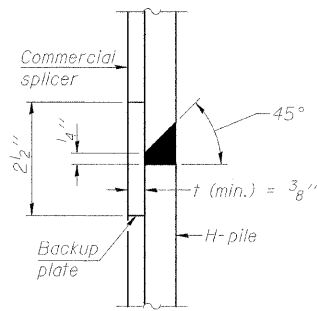


STEEL PILE TABLE

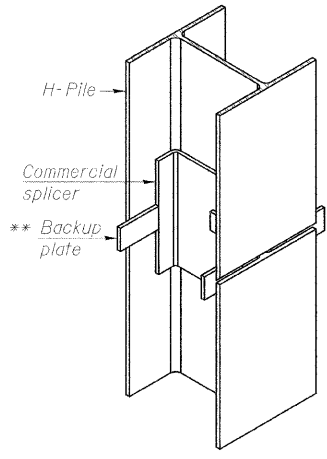
| Designation | Depth d | Flange width bf | Web and Flange thickness t | Encasement diameter A |
|-------------|---------|-----------------|----------------------------|-----------------------|
| HP 14x117 | 14 1/4" | 14 7/8" | 13/16" | 30" |
| x102 | 14" | 14 3/4" | 11/16" | 30" |
| x89 | 13 7/8" | 14 3/4" | 5/8" | 30" |
| x73 | 13 5/8" | 14 5/8" | 1/2" | 30" |
| HP 12x84 | 12 1/4" | 12 1/4" | 11/16" | 24" |
| x74 | 12 1/8" | 12 1/4" | 5/8" | 24" |
| x63 | 12" | 12 1/2" | 1/2" | 24" |
| x53 | 11 3/4" | 12" | 7/16" | 24" |
| HP 10x57 | 10" | 10 1/4" | 9/16" | 24" |
| x42 | 9 3/4" | 10 1/8" | 7/16" | 24" |
| HP 8x36 | 8" | 8 1/8" | 7/16" | 18" |



ELEVATION

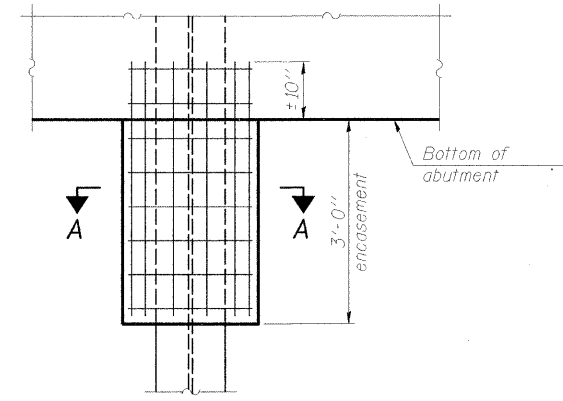


DETAIL "B"

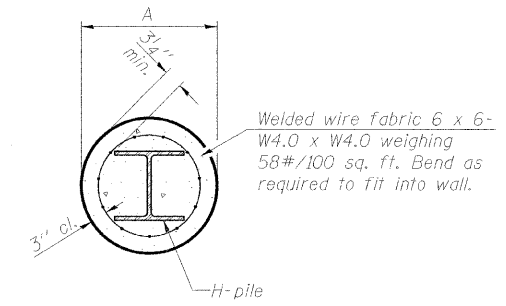


ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE

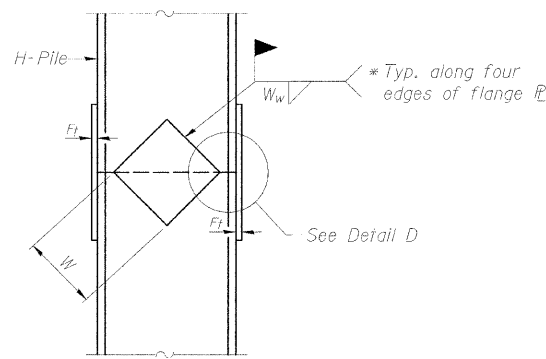


ELEVATION

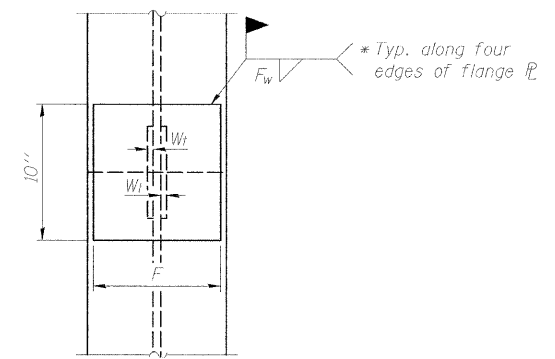


SECTION A-A

PILE ENCASEMENT

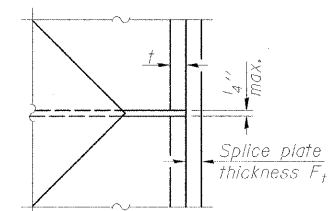


ELEVATION



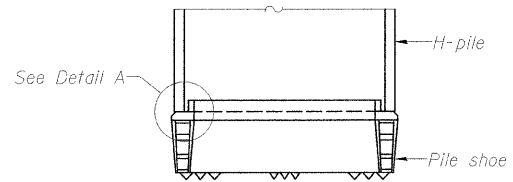
END VIEW

| Designation | F | F _t | F _w | W | W _t | W _w |
|-------------|---------|----------------|----------------|--------|----------------|----------------|
| HP 14x117 | 12 1/2" | 1" | 7/8" | 7 3/4" | 5 9/8" | 1/2" |
| x102 | 12 1/2" | 7/8" | 3/4" | 7 3/4" | 5 9/8" | 1/2" |
| x89 | 12 1/2" | 3/4" | 11/16" | 7 3/4" | 5 9/8" | 1/2" |
| x73 | 12 1/2" | 5/8" | 9/16" | 7 3/4" | 5 9/8" | 1/2" |
| HP 12x84 | 10" | 7/8" | 11/16" | 6 1/2" | 5 9/8" | 1/2" |
| x74 | 10" | 7/8" | 11/16" | 6 1/2" | 5 9/8" | 1/2" |
| x63 | 10" | 5/8" | 1/2" | 6 1/2" | 1/2" | 3/8" |
| x53 | 10" | 5/8" | 1/2" | 6 1/2" | 1/2" | 3/8" |
| HP 10x57 | 8" | 3/4" | 9/16" | 5 1/4" | 1/2" | 3/8" |
| x42 | 8" | 5/8" | 9/16" | 5 1/4" | 1/2" | 3/8" |
| HP 8x36 | 7" | 5/8" | 7/16" | 4 1/4" | 1/2" | 3/8" |

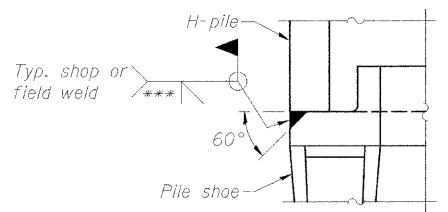


DETAIL D

WELDED PLATE FIELD SPLICE

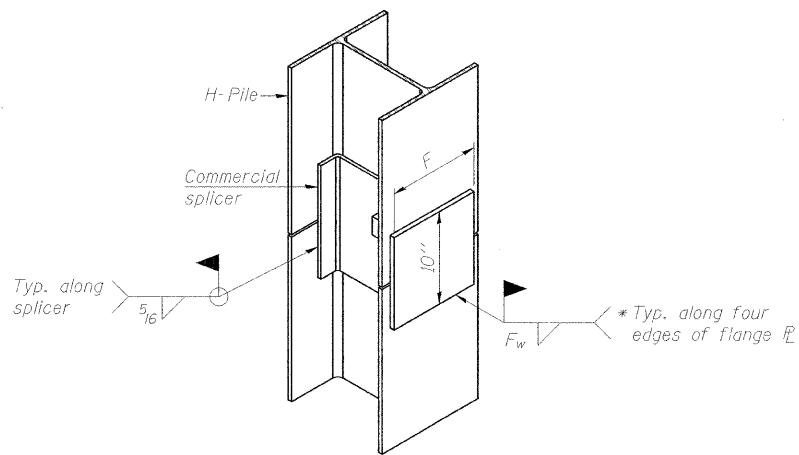


ELEVATION



DETAIL A

H-PILE SHOE ATTACHMENT



ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE ALTERNATE

- * Interrupt welds 1/4" from end of web and/or each flange.
- ** Remove portions of backup plates that extend outside the flanges.
- *** Weld size per pile shoe manufacturer (5/16" min.).

Note:
The steel H-piles shall be according to AASHTO M270 Grade 50.

F-HP 7-1-10

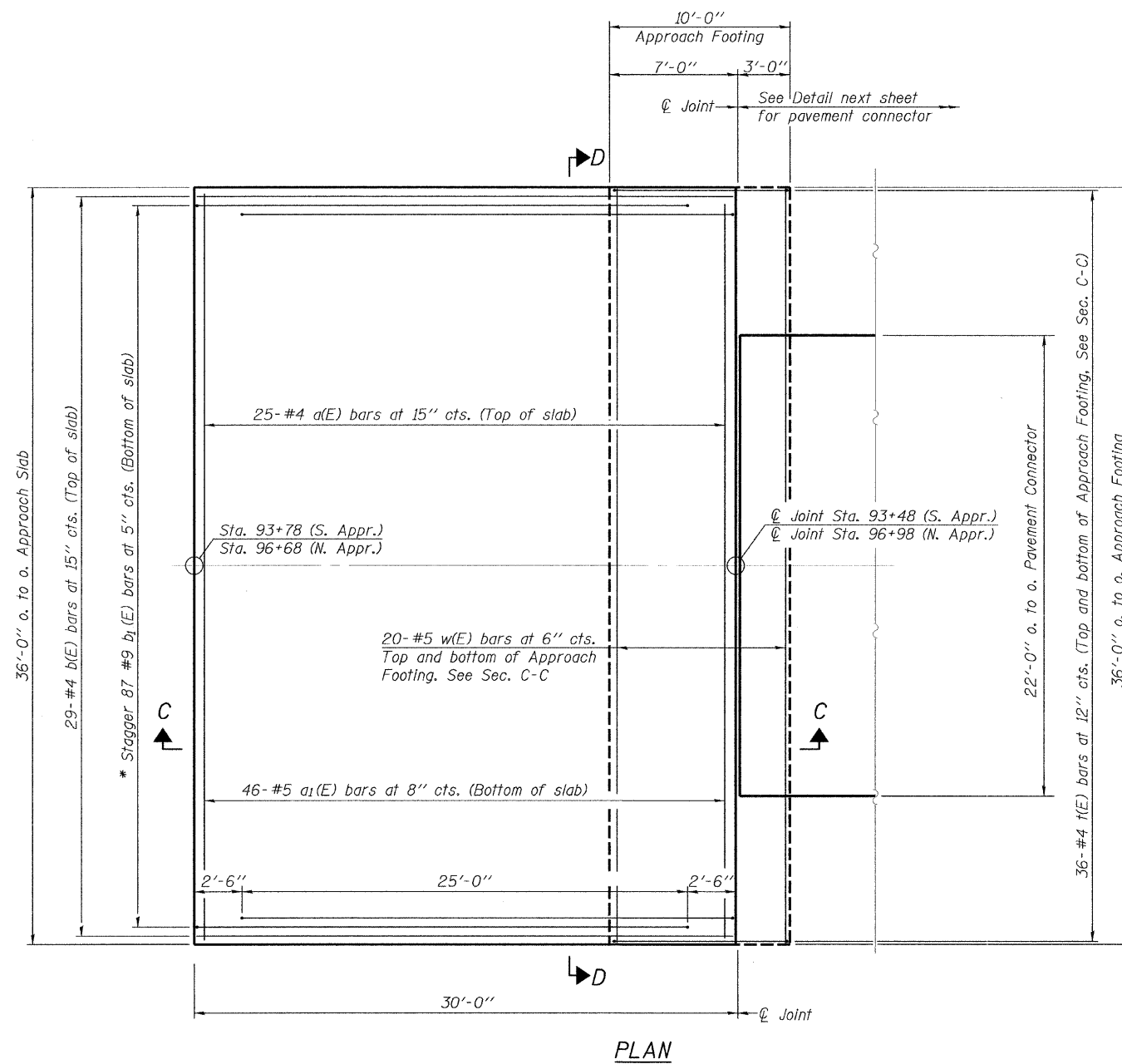
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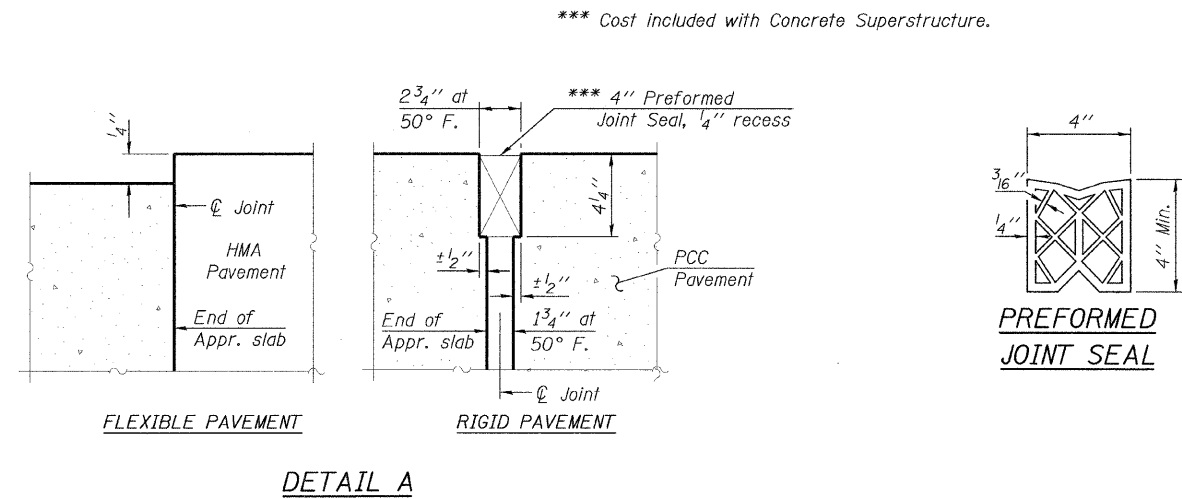
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| HP PILE DETAILS | | F.A.S. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| SCALE: NONE | STA. | 733 | 06-00088-00-BR | MACOUPIN | 35 | 24 |
| | TO STA. | CONTRACT NO. 93562 | | | | |
| | | FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT | | | | |

| | | | | |
|---------------------|----------------|---------------------------|--------------|-----------|
| F.A.S. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| 733 | 06-00088-00-BR | MACOUPIN | 35 | 25 |
| FED. ROAD DIST. NO. | | ILLINOIS FED. AID PROJECT | | |
| | | CONTRACT NO. | | |

Notes:
 Work this sheet with 26 of 35.
 See sheet 26 of 35 for Sections C-C & D-D.
 a(E), a₁(E), and w(E) bar spacings measured perpendicular to ϕ Rdwy.



* Tilt #9 b₁(E) bars as required to maintain clearance.

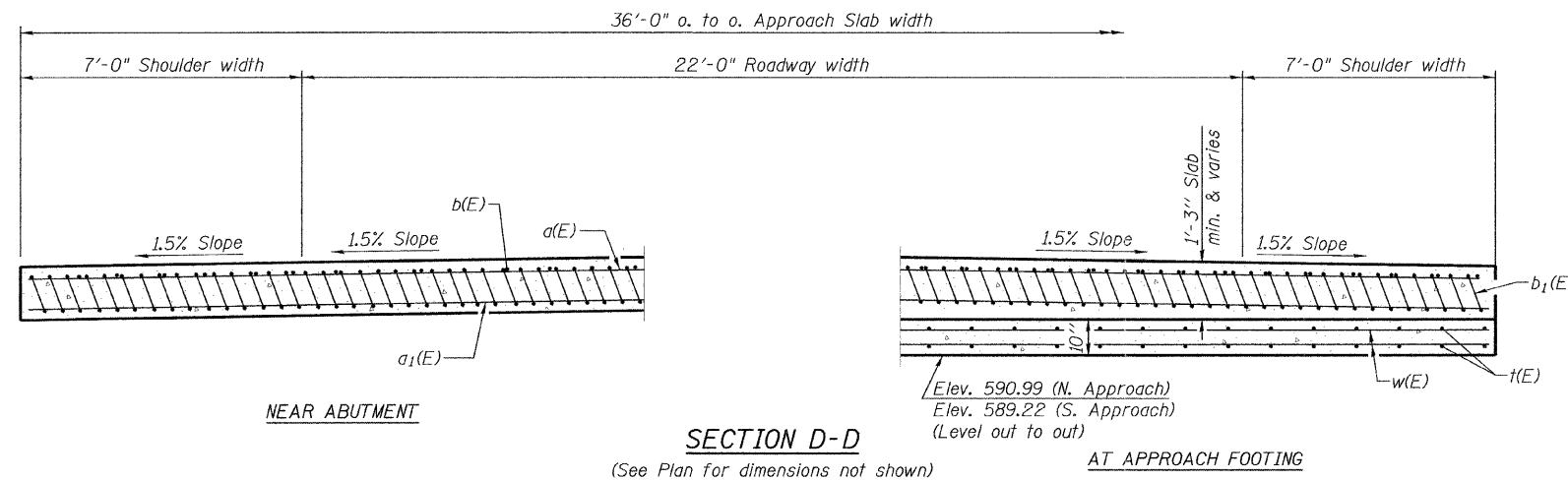
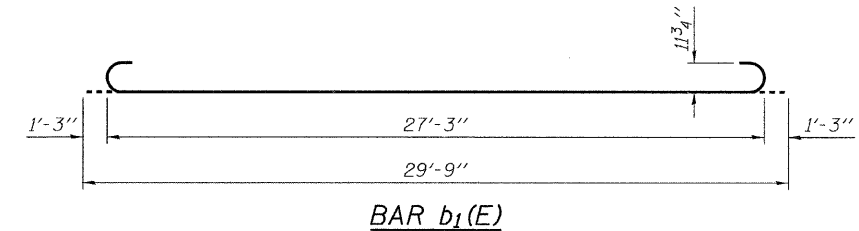
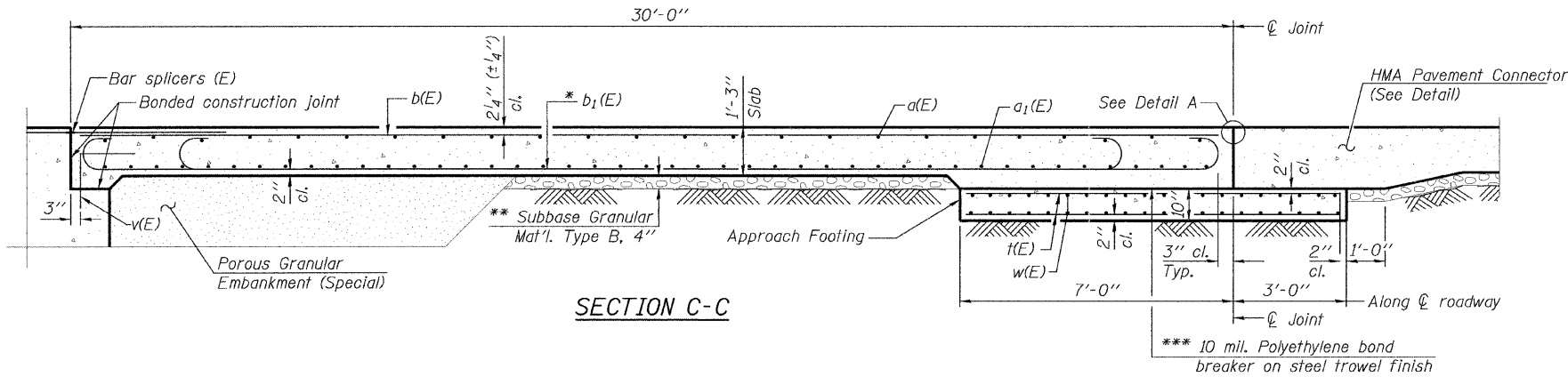


BRIDGE APPROACH SLAB DETAILS

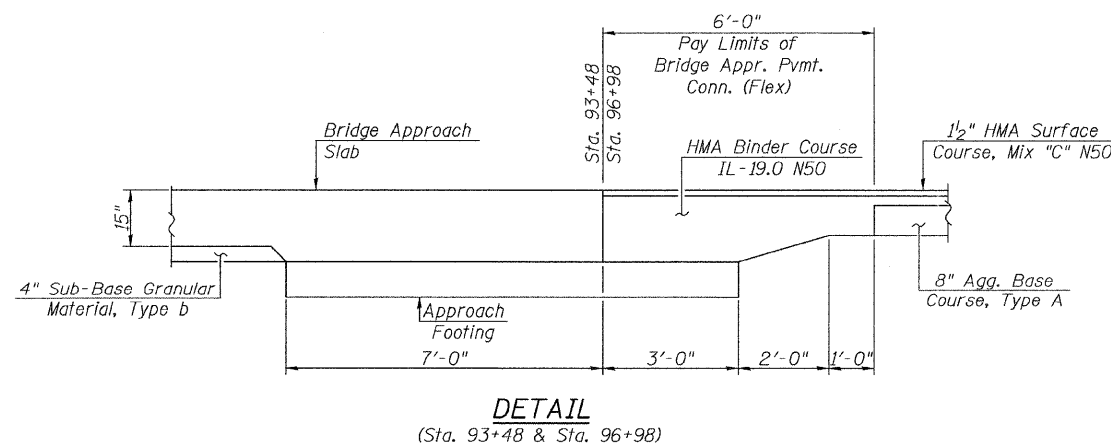
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| FILE NAME = | USER NAME = #USER# | DESIGNED - | REVISED - | Allen Henderson & Associates, Inc. Civil and Structural Engineers Springfield, IL. 62703 Phone: (217)544-8033 IL Design Firm No. 184-001907 | BRIDGE APPROACH SLAB DETAILS | | F.A.S. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. | |
| #FILE# | | DRAWN - | REVISED - | | SCALE: | STA. | TO STA. | 733 | 06-00088-00-BR | MACOUPIN | 35 | 25 |
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| | PLOT DATE = #DATE# | DATE - | REVISED - | | | | | FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT | | | | |

| | | | | |
|---------------------|----------------|---------------------------|--------------|-----------|
| F.A.S. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| 733 | 06-00088-00-BR | MACOUPIN | 35 | 26 |
| FED. ROAD DIST. NO. | | ILLINOIS FED. AID PROJECT | | |
| | | CONTRACT NO. | | |

Notes:
 Work this sheet with sheet 25 of 35.
 See sheet 25 of 35 for Detail A.
 Approach slab concrete shall be paid for as Concrete Superstructure.
 Approach footing concrete shall be paid for as Concrete Structures.
 Reinforcement shall be paid for as Reinforcement Bars, Epoxy Coated.
 For v(E) bar details, see sheet 14 of 35.
 The approach footing maximum applied service bearing pressure (Q_{max}) = 2.0 ksf.
 For bar splicer details, see sheet 23 of 35.
 Cost of excavation for approach footing included with Concrete Structures.
 For Porous Granular Embankment (Special) and drainage treatment details, see sheet 7 of 35.



* Tilt #9 b₁(E) bars as required to maintain clearance.
 ** Included in roadway quantities.
 *** Cost included with Concrete Superstructure.



**TWO APPROACHES
 BILL OF MATERIAL**

| Bar | No. | Size | Length | Shape |
|----------------------------------|-----|------|---------|-------|
| a(E) | 50 | #4 | 35'-8" | — |
| a ₁ (E) | 92 | #5 | 35'-8" | — |
| b(E) | 58 | #4 | 29'-8" | — |
| b ₁ (E) | 174 | #9 | 29'-9" | C |
| t(E) | 144 | #4 | 9'-8" | — |
| w(E) | 80 | #5 | 35'-8" | — |
| Concrete Superstructure | | | Cu. Yd. | 104.5 |
| Concrete Structures | | | Cu. Yd. | 22.2 |
| Reinforcement Bars, Epoxy Coated | | | Pound | 27270 |

BRIDGE APPROACH SLAB DETAILS

ILLINOIS DEPARTMENT OF TRANSPORTATION

Sheet 1 of 1
Date 10/19/07

ROUTE South Standard City Road DESCRIPTION Bridge over Macoupin Creek
SECTION 06-00088-00-BR LOCATION LOCATION
COUNTY Macoupin DRILLING METHOD 4"CFA DRILLED BY MDI/CK
STRUCT. S.N. 059-3007 CHECKED BY QTE/WKS
HAMMER TYPE Automatic

Boring No. B-3
Station
Offset Moved boring
45 feet northeast

| Depth | Blows per 6 in. | Qu | W % | Surface Water Elev. Groundwater Elevation First Encountered 16' Upon Completion After 24 Hrs. | Depth | Blows per 6 in. | Qu | W % |
|--|-----------------|------|-----|---|-------|-----------------|----|-----|
| Topsoil 6" | | | | | | | | |
| Brown and gray low plastic SILTY CLAY, trace sand | | | | | | | | |
| | 3 | | | | | | | |
| | 4 | 3.50 | 11 | | | | | |
| | 5 | P | | | 25 | | | |
| A-4 | | | | | | | | |
| | 6 | | | | | | | |
| | 6 | 4.50 | 11 | | | | | |
| | 5 | 7 | P | | | | | |
| Brown and gray low plastic SILTY CLAY, trace sand | | | | | | | | |
| | 6 | | | | | | | |
| | 6 | 3.60 | 13 | | | | | |
| | 7 | S | | | 30 | | | |
| A-6 | | | | | | | | |
| | 3 | | | | | | | |
| | 4 | 1.35 | 22 | | | | | |
| | 10 | 4 | B | | | | | |
| Gray and brown medium plastic SILTY CLAY, trace sand | | | | | | | | |
| | 2 | | | | | | | |
| | 3 | 0.90 | 21 | | | | | |
| | 4 | B | | | 35 | | | |
| A-7 | | | | | | | | |
| Brown and gray low plastic SILTY CLAY, some sand | | | | | | | | |
| | 2 | | | | | | | |
| | 2 | 0.50 | 20 | | | | | |
| | 15 | 3 | P | | | | | |
| A-4 | | | | | | | | |
| | 3 | | | | | | | |
| | 3 | 1.50 | 19 | | | | | |
| | 3 | P | | | 40 | | | |
| Weathered Rock fragments | | | | | | | | |
| | 7 | | | | | | | |
| | 12 | 1.25 | 12 | | | | | |
| Rock fragments | | | | | | | | |
| | 20 | 50/6 | P | | | | | |
| Auger refusal at 20 feet 8 inches | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | 45 | | | |

ILLINOIS DEPARTMENT OF TRANSPORTATION

Sheet 1 of 1
Date 10/19/07

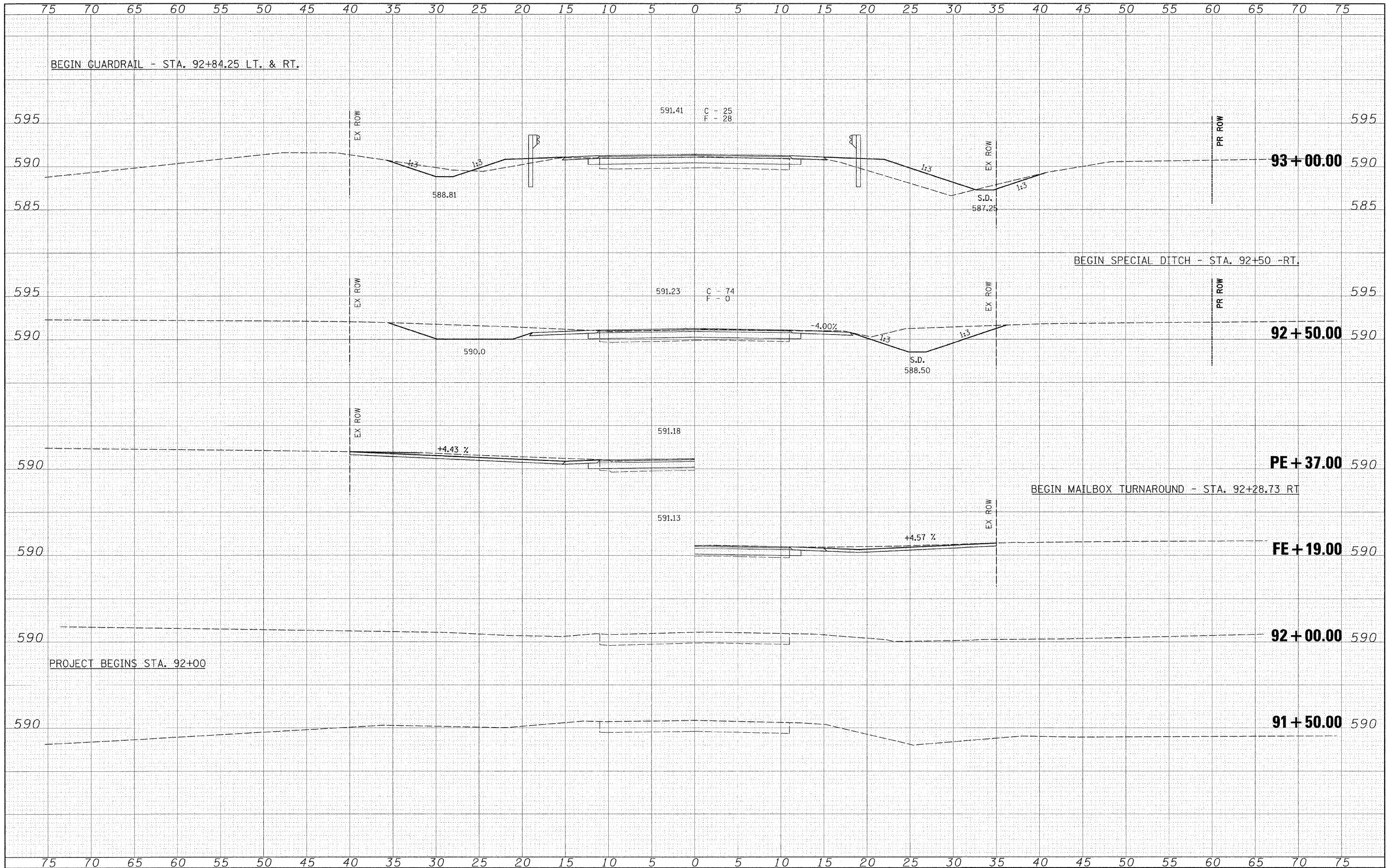
ROUTE South Standard City Road DESCRIPTION Bridge over Macoupin Creek
SECTION 06-00088-00-BR LOCATION LOCATION
COUNTY Macoupin DRILLING METHOD 4"CFA DRILLED BY MDI/CK
STRUCT. S.N. 059-3007 CHECKED BY QTE/WKS
HAMMER TYPE Automatic

Boring No. B-4
Station
Offset Moved 7 feet north

| Depth | Blows per 6 in. | Qu | W % | Surface Water Elev. Groundwater Elevation First Encountered 28.5' Upon Completion After 24 Hrs. | Depth | Blows per 6 in. | Qu | W % |
|--|-----------------|------|-----|---|-------|-----------------|------|-----|
| Asphalt 9" | | | | | | | | |
| Crushed rock 6" | | | | | | | | |
| | 7 | | | | | | | |
| FILL - Brown and gray low plastic SILTY CLAY | | | | | | | | |
| | 4 | 4.00 | 10 | | | | | |
| | 5 | P | | | 25 | | | |
| | | | | | | 3 | | |
| | | | | | | 3 | 1.00 | 24 |
| | | | | | | 4 | P | |
| Brown and gray medium plastic SILTY CLAY | | | | | | | | |
| | 3 | | | | | | | |
| | 4 | 1.55 | 26 | | | | | |
| | 5 | S | | | | 2 | | |
| A-7 | | | | | | | | |
| Brown and gray low plastic SILTY CLAY, some sand, trace gravel | | | | | | | | |
| | | | | | | | | |
| | | | | | | 3 | 1.40 | 23 |
| | | | | | | 4 | B | |
| A-4 | | | | | | | | |
| Brown and gray low plastic SILTY CLAY, trace sand, gravel | | | | | | | | |
| | 3 | | | | | 0 | | |
| | 3 | 1.85 | 17 | | | 1 | 0.25 | 24 |
| | 3 | S | | | 30 | 2 | P | |
| A-6 | | | | | | | | |
| | 2 | | | | | 1 | | |
| | 1 | 0.70 | 20 | | | 1 | 0.50 | 24 |
| | 10 | 2 | B | | | 1 | P | |
| Gray weathered SHALE | | | | | | | | |
| | 3 | | | | | 9 | | |
| | 4 | 3.00 | 19 | | | 50/1" | 4.50 | 7 |
| | 5 | P | | | 35 | | P | |
| Weathered LIMESTONE | | | | | | | | |
| Auger refusal at 35.5 feet | | | | | | | | |
| | 6 | | | | | | | |
| | 4 | 2.00 | 23 | | | | | |
| | 15 | 6 | P | | | | | |
| Gray low plastic SILTY CLAY, some sand | | | | | | | | |
| | 2 | | | | | | | |
| | 4 | 1.20 | 24 | | | | | |
| | 4 | B | | | 40 | | | |
| A-4 | | | | | | | | |
| Brown low plastic SILTY CLAY, trace sand | | | | | | | | |
| | 3 | | | | | | | |
| | 4 | 1.00 | 24 | | | | | |
| | 20 | 5 | B | | | | | |
| A-6 | | | | | | | | |
| | 3 | | | | | | | |
| | 4 | 2.00 | 23 | | | | | |
| | 4 | P | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | 45 | | | |

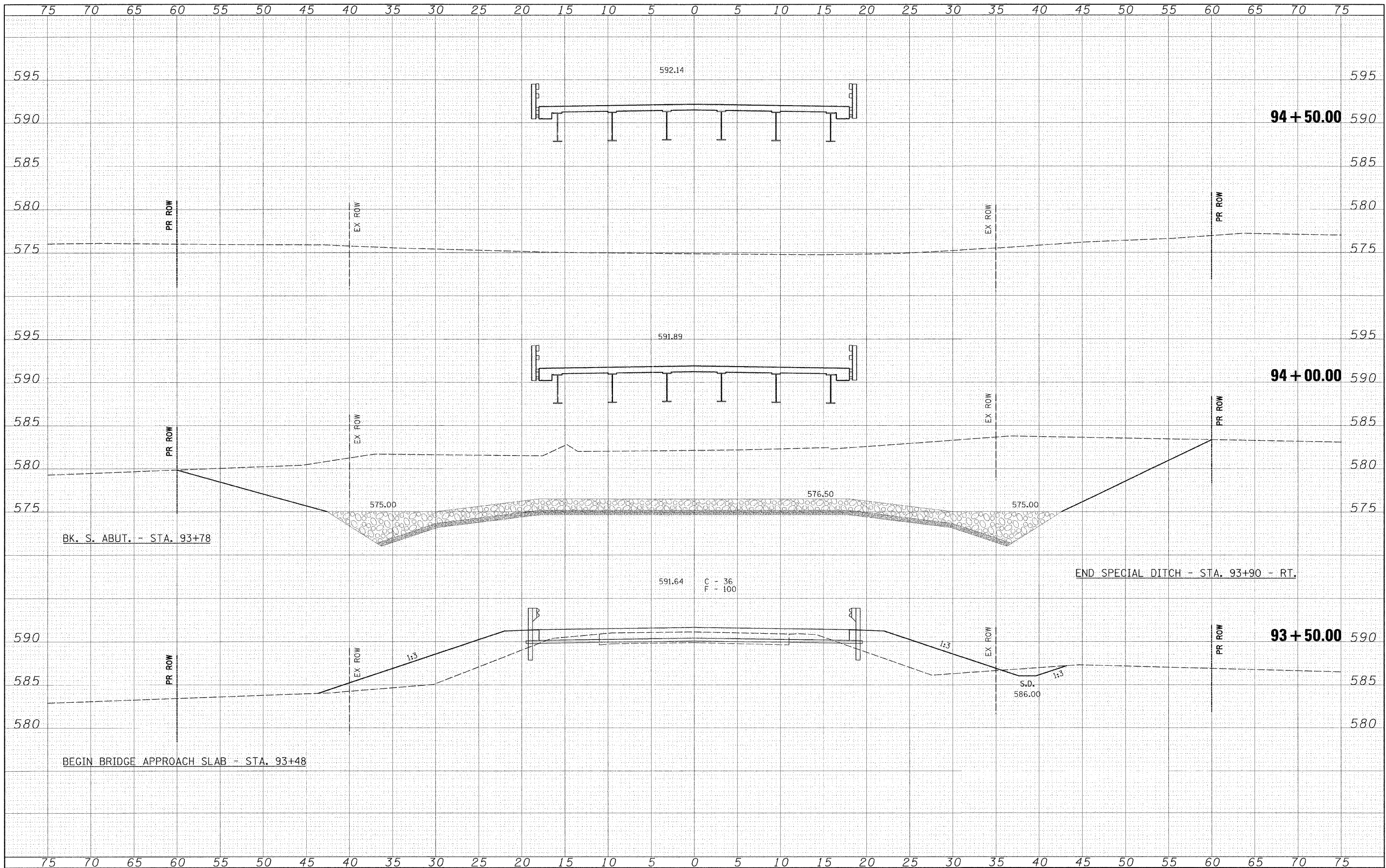
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FINAL SURVEY BY DATE
 SURVEYED BY DATE
 NOTE BOOK NO. DATE
 TEMPLATE NO. DATE
 AREAS CHECKED

ORIGINAL SURVEY BY DATE
 SURVEYED BY DATE
 NOTE BOOK NO. DATE
 TEMPLATE NO. DATE
 AREAS CHECKED



FILE NAME =
 #FILEL#

USER NAME = #USER#
 DESIGNED -
 DRAWN -
 CHECKED -
 DATE -

REVISOR -
 REVISIONS -
 REVISIONS -
 REVISIONS -

SCALE = #SCALE#
 PLOT DATE = #DATE#



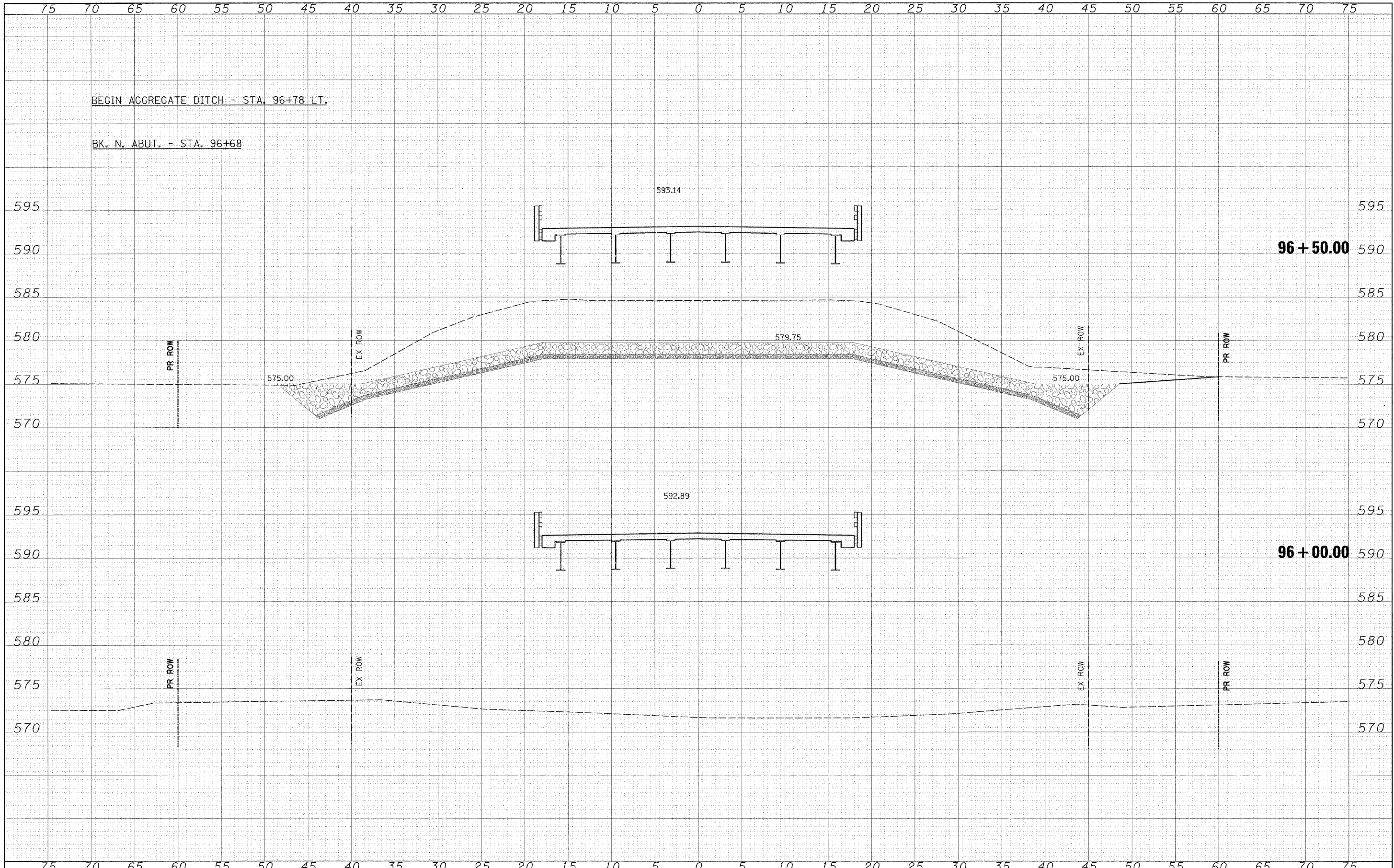
Allen Henderson & Associates, Inc.
 Civil and Structural Engineers Springfield, IL
 62703 Phone: (217)544-8033 IL Design Firm
 No. 184-001907


CROSS SECTIONS
 SCALE: 1" = 5'
 SHEET NO. 2 OF 7 SHEETS
 STA. 93+50 TO STA. 94+50

| | | | | |
|---|---------------------------|--------------------|--------------------|-----------------|
| F.A.S. RTE. 733 | SECTION 06-00088-00-BR | COUNTY MACOUPIN | TOTAL SHEETS 35 | SHEET NO. 30 |
| FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT | | | CONTRACT NO. 93562 | |

FINAL SURVEYED BY DATE
 SURVEYED BY DATE
 NOTE BOOK NO.
 TEMPLATE AREAS CHECKED

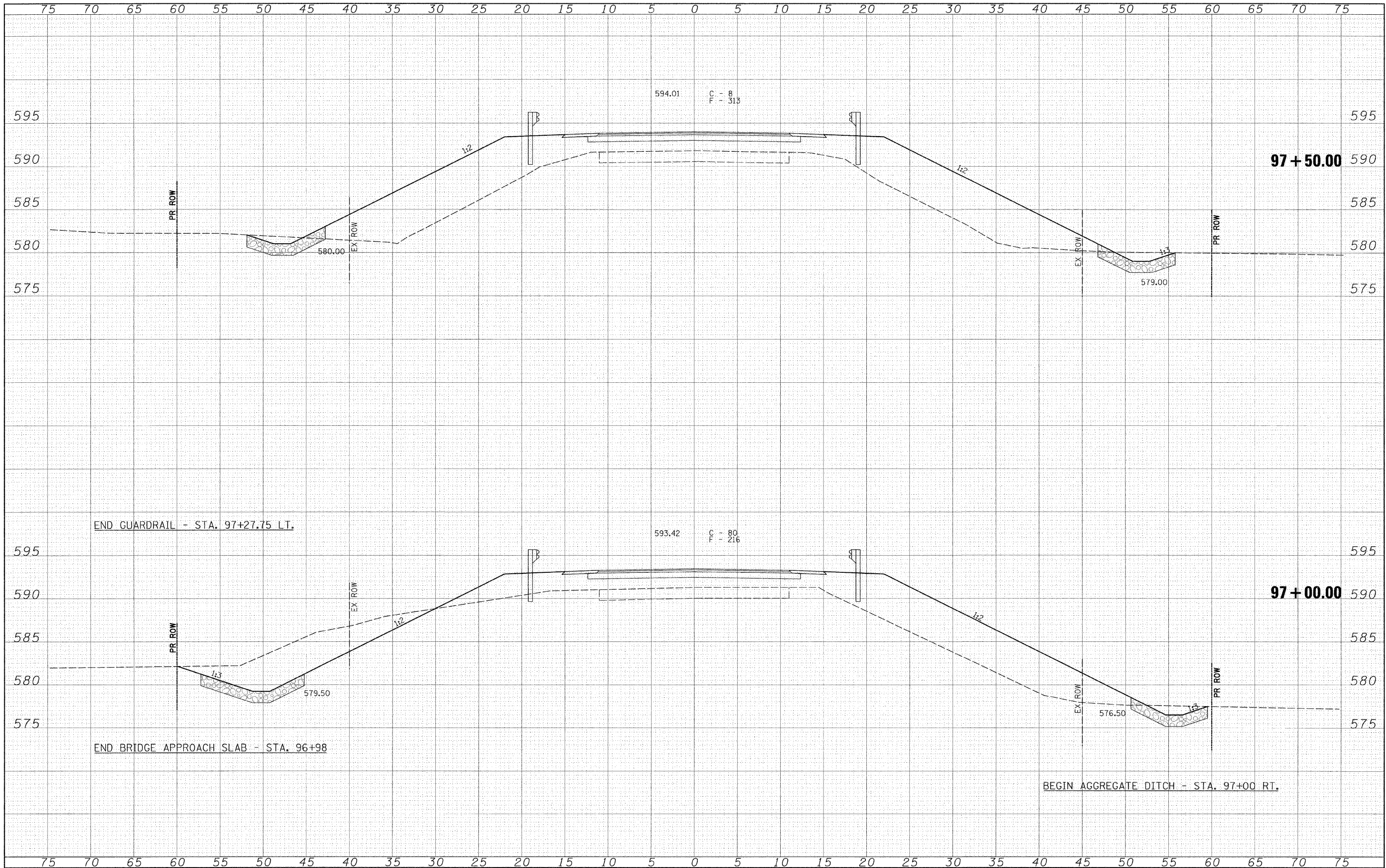
ORIGINAL SURVEYED BY DATE
 SURVEYED BY DATE
 NOTE BOOK NO.
 TEMPLATE AREAS CHECKED



| | | | | | | | | | | | | |
|----------------------|--------------------|------------|-----------|--|-----------------------|--|-------------------------|----------|--------------------------|--------------|---|--|
| FILE NAME = | USER NAME = #USER# | DESIGNED - | REVISOR - |  Allen Henderson & Associates, Inc. Civil and Structural Engineers Springfield, IL 62703 Phone: (217)544-8033 IL Design Firm No. 184-001907 | CROSS SECTIONS | | F.A.S. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. | |
| #FILE# | DRAWN - | REVISOR - | 733 | | | | 06-00088-00-BR | MACOUPIN | 35 | 32 | | |
| PLOT SCALE = #SCALE# | CHECKED - | REVISOR - | | | SCALE: 1" = 5' | | SHEET NO. 4 OF 7 SHEETS | | STA. 96+00 TO STA. 96+50 | | FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT | |
| PLOT DATE = #DATE# | DATE - | REVISOR - | | | CONTRACT NO. 93562 | | | | | | | |

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|---------------|----|------|
| FINAL SURVEY | BY | DATE |
| NOTE BOOK | | |
| AREAS CHECKED | | |

| | | |
|-----------------|----|------|
| ORIGINAL SURVEY | BY | DATE |
| NOTE BOOK | | |
| AREAS CHECKED | | |



FILE NAME =
#FILE#

USER NAME = #USER#
DESIGNED -
DRAWN -
CHECKED -
DATE -

REVISOR -
REVISOR -
REVISOR -
REVISOR -



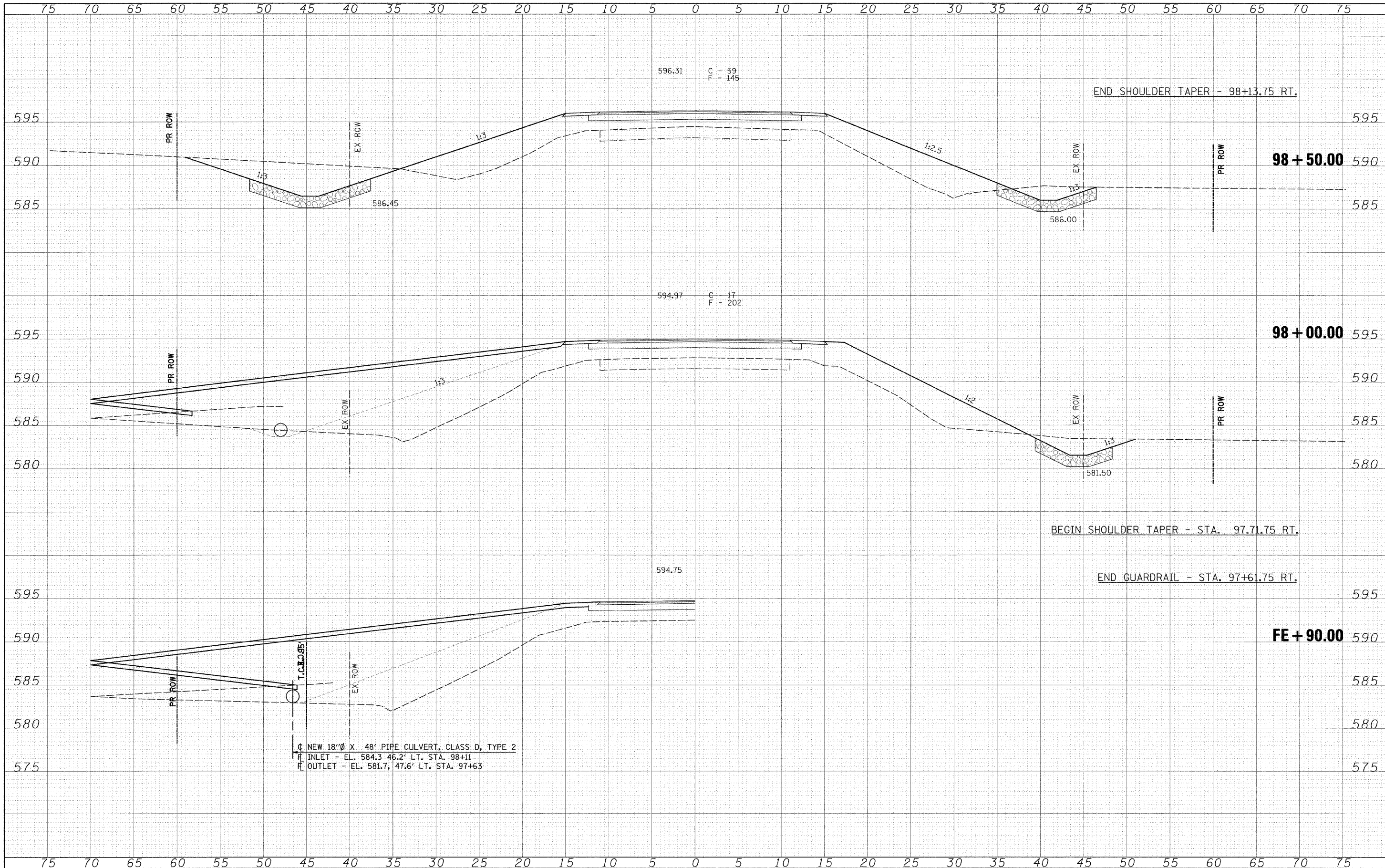
Allen Henderson & Associates, Inc.
Civil and Structural Engineers Springfield, IL
62703 Phone: (217)544-8033 IL Design Firm
No. 184-001907

CROSS SECTIONS
SCALE: 1" = 5'
SHEET NO. 5 OF 7 SHEETS
STA. 97+00 TO STA. 97+50

| | | | | |
|---|---------------------------|--------------------|--------------------|-----------------|
| F.A.S. RTE. 733 | SECTION 06-00088-00-BR | COUNTY MACOUPIN | TOTAL SHEETS 35 | SHEET NO. 33 |
| CONTRACT NO. 93562 | | | | |
| FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT | | | | |

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|--------------|---------------|------|
| FINAL SURVEY | SURVEYED | DATE |
| NOTE BOOK | PLOTTED | BY |
| NO. | TEMPLATE | |
| | AREAS CHECKED | |

| | | |
|-----------------|---------------|------|
| ORIGINAL SURVEY | SURVEYED | DATE |
| NOTE BOOK | PLOTTED | BY |
| NO. | TEMPLATE | |
| | AREAS CHECKED | |



C NEW 18"Ø X 48' PIPE CULVERT, CLASS D, TYPE 2
 R INLET - EL. 584.3 46.2' LT. STA. 98+11
 R OUTLET - EL. 581.7, 47.6' LT. STA. 97+63

FILE NAME =
 #FILE#

USER NAME = #USER#
 PLOT SCALE = #SCALE#
 PLOT DATE = #DATE#

DESIGNED -
 DRAWN -
 CHECKED -
 DATE -

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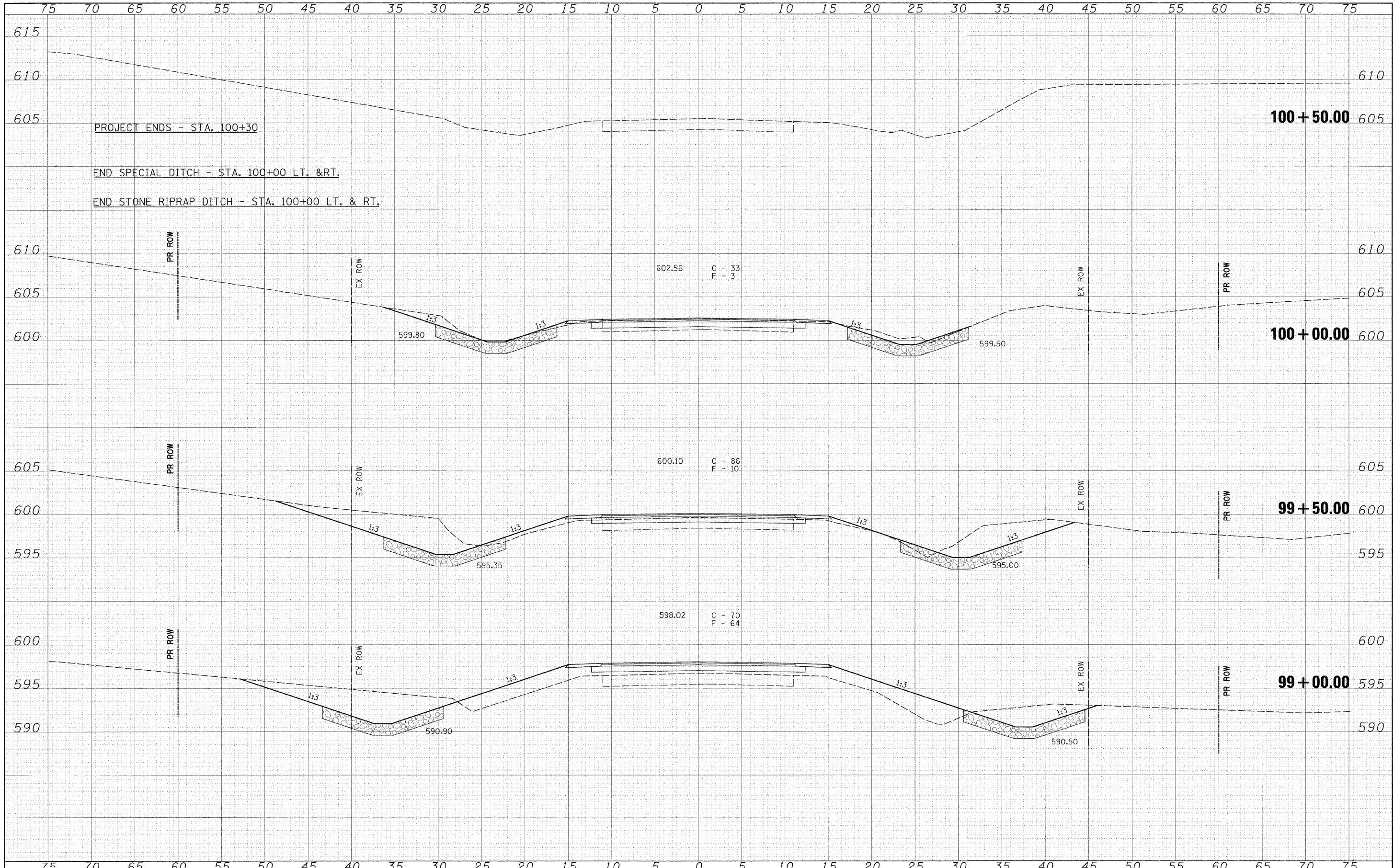
Allen Henderson & Associates, Inc.
 Civil and Structural Engineers Springfield, IL.
 62703 Phone: (217)544-8033 IL Design Firm
 No. 184-001907

CROSS SECTIONS
 SCALE: 1" = 5'
 SHEET NO. 6 OF 7 SHEETS
 STA. 97+90 TO STA. 98+50

| F.A.S. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|----------------|----------|--------------|-----------|
| 733 | 06-00088-00-BR | MACOUPIN | 35 | 34 |
| CONTRACT NO. 93562 | | | | |
| FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT | | | | |

| | |
|---------------|------|
| FINAL SURVEY | DATE |
| SURVEYED BY | |
| NOTED BY | |
| NOTE BOOK NO. | |
| AREAS CHECKED | |

| | |
|-----------------|------|
| ORIGINAL SURVEY | DATE |
| SURVEYED BY | |
| NOTED BY | |
| NOTE BOOK NO. | |
| AREAS CHECKED | |



| | | | | | | | | | | | |
|----------------------|--------------------|------------|-----------|---|-----------------------|----------------|---------------------------|---------|---------------------------|--------------------|-----------|
| FILE NAME = | USER NAME = #USER# | DESIGNED - | REVISED - | Allen Henderson & Associates, Inc. Civil and Structural Engineers Springfield, IL. 62703 Phone: (217)544-8033 IL Design Firm No. 184-001907 | CROSS SECTIONS | | F.A.S. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| #FILE# | | DRAWN - | REVISED - | | 733 | 06-00088-00-BR | MACOUPIN | 35 | 35 | | |
| PLOT SCALE = #SCALE# | | CHECKED - | REVISED - | | SCALE: 1" = 5' | | SHEET NO. 7 OF 7 SHEETS | | STA. 99+00 TO STA. 100+50 | CONTRACT NO. 98562 | |
| PLOT DATE = #DATE# | | DATE - | REVISED - | | FED. ROAD DIST. NO. | | ILLINOIS FED. AID PROJECT | | | | |