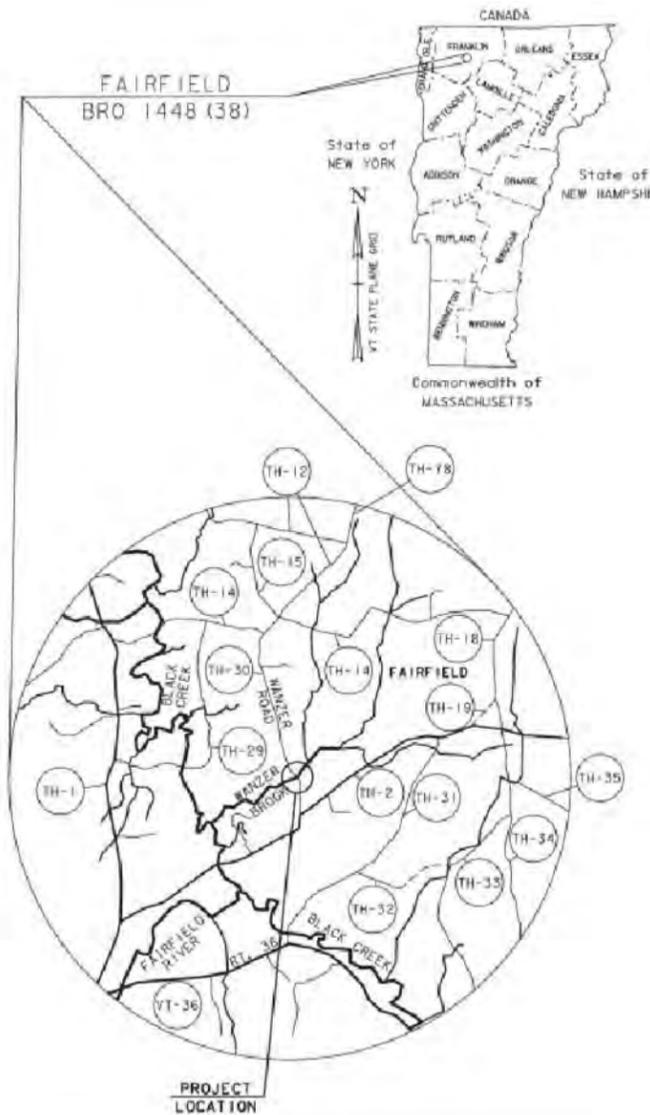


WANZER ROAD OVER WANZER BROOK: BRO 1448(38)  
 (BRIDGE NO. 48)  
 FAIRFIELD  
 FRANKLIN COUNTY  
 VERMONT

INDEX

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7	DECK DETAILS
8	HEADWALL LAYOUT
9	HEADWALL DETAILS
10	FASCIA PLATE LAYOUT AND DETAILS



<u>      </u> <b>Approved</b>	<u>      </u> <b>Approved As Noted</b>
<input checked="" type="checkbox"/> <b>Rejected</b>	
This review is only for general conformance with the design concept and the information given in the Construction Documents. Corrections or comments made on the shop drawings during the review do not relieve the Contractor from compliance with the requirements of the Plans and Specifications. Review of a specific item shall not include review of an assembly of which an item is a component. The Contractor is responsible for dimensions to be confirmed and corrected at the job site; information that pertains solely to the fabrication process or to the means, methods, techniques, sequences and procedures of construction; coordination of the Work with that of other trades and performing all Work in a safe and satisfactory manner.	
	Date <u>5/7/2014</u> By <u>T. Traver</u>

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"I HEREBY CERTIFY THAT ALL DESIGN ASSUMPTIONS HAVE BEEN VALIDATED EITHER THROUGH CONSTRUCTION DETAILS OR NOTES ON THESE DRAWINGS OR THROUGH THE CONTRACT PLANS AND PROVISIONS."

PREPARED BY:  
 AIT BRIDGES  
 20 GODFREY DRIVE  
 ORONO, ME 04473



ENGINEER \_\_\_\_\_  
 DATE \_\_\_\_\_



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PROJECT: Wanzer Road Bridge No. 48	
LOCATION: Fairfield, VT	JN: 12018
DRAWING STATUS: Approved for Construction	
Correct scale on size B paper (11x17 Ledger)	

TITLE: TITLE SHEET AND INDEX		
	INITIALS	DATE
DRAWN BY:	JEK	4-9-2014
DESIGNED BY:	JEK	49-2014
CHECKED BY:	ZU	4-9-2014

SHEET NUMBER:	1	OF 10
REV: 04-09-2014		

## SUGGESTED CONSTRUCTION SEQUENCE:

1. FORM ABUTMENTS AND PLACE REBAR
2. ATTACH BEARING PLATE TO SPINE OF TWO OUTSIDE ARCHES (SEE SHEET 9 SECTION A-A")
3. INSERT END REINFORCEMENT CAGES INTO ARCH ENDS AND INSTALL ARCHES IN ABUTMENTS
4. PLACE DECKING - CUT TO FIT SKEW - SCREW TO ARCHES - DRILL SHEAR BOLT HOLES AND INSTALL SHEAR BOLTS - INSTALL HEADWALL CLIPS ON OUTER ARCHES
5. CAST ARCHES IN ABUTMENTS
6. DRILL 3" HOLE AT APEX OF ARCH AND FILL ARCHES WITH SELF-CONSOLIDATING CONCRETE - INSTALL CLOSURE STRIP OF DECKING AT APEX OF ARCH TO COVER FILL HOLES
7. INSTALL HEADWALL HARDWARE - ERECT AND TEMPORARILY BRACE HEADWALLS
8. BACKFILL STRUCTURE ATTACHING PRIMARY GEOTEXTILE AT 32" LIFTS TO HEADWALL AND PLACING SECONDARY GEOTEXTILE HALFWAY BETWEEN PRIMARY GEOTEXTILE LIFTS (SEE SHEET 8 FOR DETAILS)
9. INSTALL HEADWALL CAP AND FASCIA PLATES

## SUPPLIED PARTS LIST:

- |     |            |  |
|-----|------------|--|
| 1.  | 8 UNITS    | COMPOSITE ARCHES   |
| 2.  | 25 UNITS   | ATLAS DECK PANELS, 42' x 20.9" x 3.7" - FIELD FITTING REQUIRED |
| 3.  | 1 UNIT     | DECK CLOSURE STRIP, 42' LONG 1/4"x8" FRP PLATE                 |
| 4.  | 1 LUMP SUM | STRUCTURAL ADHESIVE FOR DECK TO DECK CONNECTION, PLOGRIP 7770  |
| 5.  | 1 LUMP SUM | DECKING SCREWS, 1/4"x2" 410 SS                                 |
| 6.  | 1 LUMP SUM | DECK TO ARCH SHEAR BOLTS, 1/2"x6"                              |
| 7.  | 1 LUMP SUM | HEADWALL TO DECK BASE ANGLES, 2" WIDE L7"x4"x 3/8"             |
| 8.  | 38 UNITS   | HEADWALL PANELS - PRE-CUT AND PRE-DRILLED                      |
| 9.  | 1 LUMP SUM | HEADWALL BUTTERFLY TOGGLE CONNE                                |
| 10. | 1 LUMP SUM | HEADWALL WALER, 11.5" SECTIONS                                 |
| 11. | 1 LUMP SUM | HEADWALL CHANNEL CAP, 20' SECTIONS                             |
| 12. | 1 LUMP SUM | THREADED ANCHOR RODS FOR HEADWALL ATTACHMENT (F1554 Gr. 36)    |
| 13. | 1 LUMP SUM | 1/2" x 3 3/16" SCH.40 SPACER PIPE (A53 GR. B)                  |
| 14. | 1 LUMP SUM | 1/2" HEAVY HEX NUT (A564DH GR. A)                              |
| 15. | 1 LUMP SUM | 1/2" GALVANIZED LOCK WASHER                                    |
| 16. | 1 LUMP SUM | 1/2" GALVANIZED ROUND WASHER                                   |
| 17. | 1 LUMP SUM | 3/8" x 4.25" OD x 9/16" ID GALVANIZED PLATE WASHER             |
| 18. | 1 LUMP SUM | PRIMARY GEOGRID REINFORCEMENT, 6' x 150' ROLLS                 |
| 19. | 1 LUMP SUM | SECONDARY GEOGRID REINFORCEMENT, 6' x150' ROLLS                |

HEADWALL WALER, 1'-11 1/2" SECTIONS?

SIKA FLEX 1A?  
CURVED FASCIA PLATES?

## HEADWALL CONSTRUCTION NOTES:

1. THE CENTER PANEL SHOULD BE CENTERED OVER THE APEX OF THE ARCH
2. PANELS MUST BE JOINED BY INSERTING THE BUTTERFLY TOGGLE IN THE KEY WAY. THE TOGGLE MAY BE CUT AND INSERTED WITH THE AID OF A PALM HAMMER
3. HEADWALL BACK BATTER OF 1:32 IS TYPICAL TO RESULT IN A VERTICAL INSTALLATION AFTER BACKFILL. ADJUST IN FIELD AS NECESSARY
4. USE ONLY WALK BEHIND COMPACTORS WITHIN 3 FEET OF HEADWALL WITH A MINIMUM OF THREE PASSES
5. BACKFILL ARCH IN MAXIMUM 8" LOOSE LIFTS, ALTERNATING LIFTS ON EACH SIDE OF THE ARCH TO MAINTAIN BALANCED LOADING. THE MAXIMUM DEVIATION FROM EQUAL BACKFILLING WILL BE 24 INCHES.

## MATERIAL NOTES:

1. SELECT BACKFILL SHALL CONTAIN NOT MORE THAN 5% FINES (US NO. 200 SIEVE)
2. ALL STRUCTURAL FASTENERS SHALL CONFORM TO AASHTO M232 HOT DIP GALV.
3. ALL SCREWS SHALL BE 410 STAINLESS STEEL
4. STRUCTURAL ADHESIVE SHALL BE PILOGRIP 7770 OR APPROVED EQUAL

## ARCH FILLING NOTES:

1. SELF-CONSOLIDATING CONCRETE MAY BE PLACED BY PUMP OR WITH A CONCRETE BUCKET AND FUNNEL
2. EACH ARCH WILL TAKE AN ESTIMATED 1.26 CUBIC YARDS OF CONCRETE
3. NO CONCRETE SHALL BE PLACED IN THE ARCH IF IT DOES NOT MEET THE SLUMP FLOW REQUIREMENTS OF 24" - 30" SPREAD
4. DRILL THE 3" FILL HOLE IN THE ARCH AT THE APEX BETWEEN THE GAP IN THE DECKING. LEAVE THE SHEAR BOLTS OUT OF THE ADJACENT CORRUGATIONS TO ALLOW AIR VENTING DURING FILLING. INSERT SHEAR BOLTS AND PLACE CLOSURE STRIP AFTER FILLING IS COMPLETE.
5. ARCHES CAN BE INSPECTED FOR VOIDS AFTER FILLING BY TAPPING THE ARCH AND LISTENING FOR A HOLLOW SOUND. REPAIR IN ACCORDANCE WITH THE SPECIFICATIONS.



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PROJECT: Wanzer Road Bridge No. 48

LOCATION: Fairfield, VT

JN: 12018

DRAWING STATUS: Approved for Construction

Correct scale on size B paper (11x17 Ledger)

TITLE: CONSTRUCTION NOTES

DRAWN BY:

INITIALS

DATE

JEK

4-9-2014

DESIGNED BY:

JEK

49-2014

CHECKED BY:

ZU

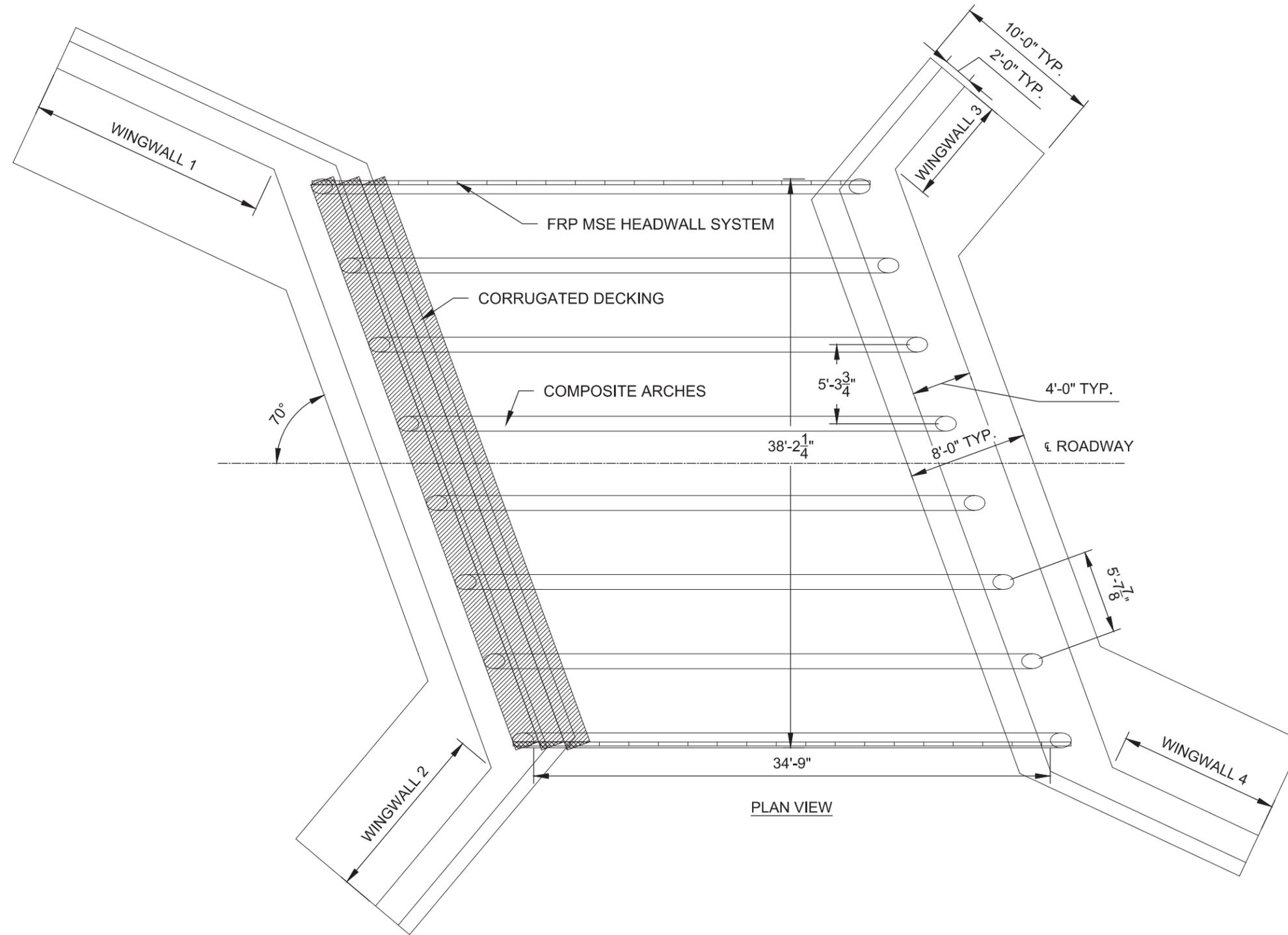
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SHEET NUMBER:

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LOCATION: Fairfield, VT

JN: 12018

DRAWING STATUS: Approved for Construction

Correct scale on size B paper (11x17 Ledger)

TITLE: PLAN

DRAWN BY:

INITIALS

DESIGNED BY:

CHECKED BY:

JEK

JEK

ZU

DATE

4-9-2014

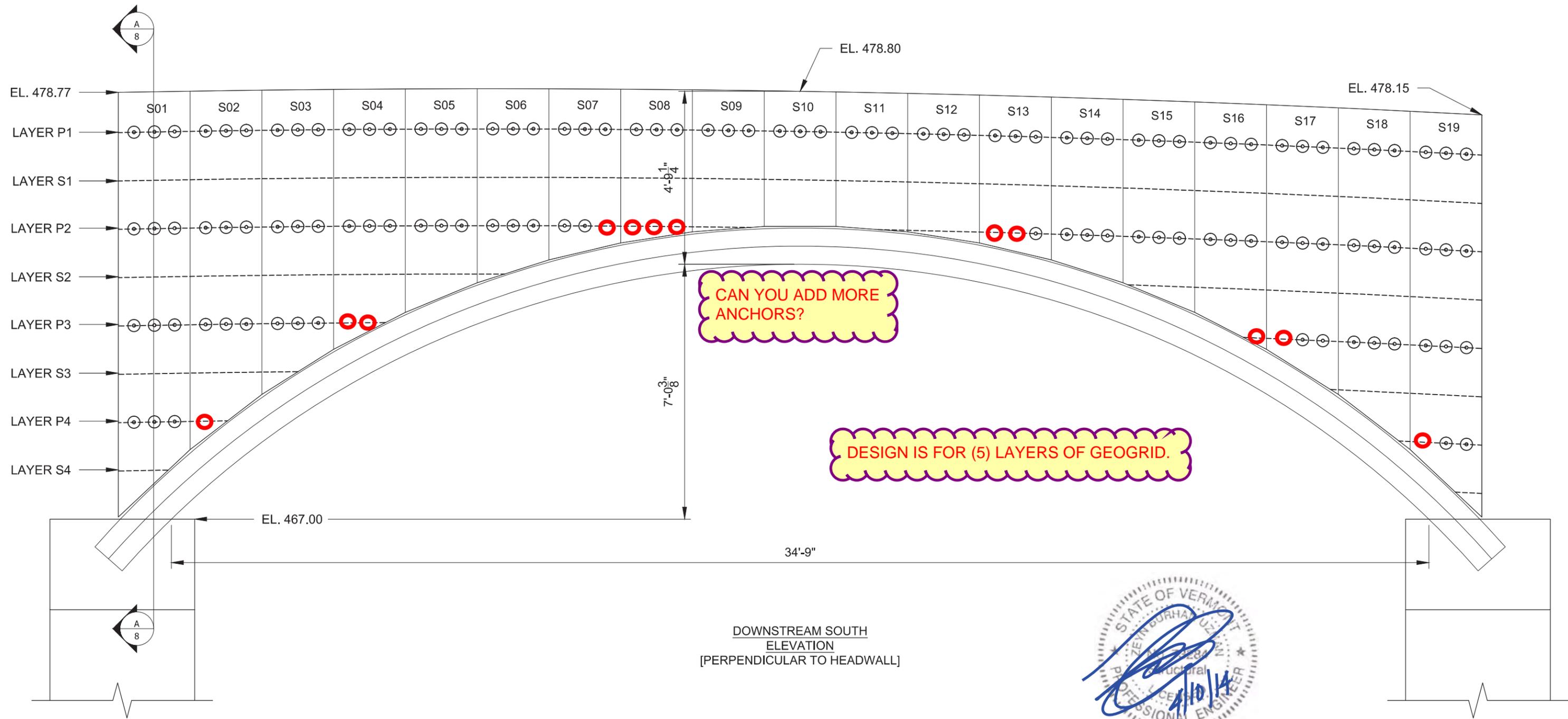
49-2014

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3 OF 10

REV: 04-09-2014



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PROJECT: Wanzer Road Bridge No. 48

LOCATION: Fairfield, VT JN: 12018

DRAWING STATUS: Approved for Construction

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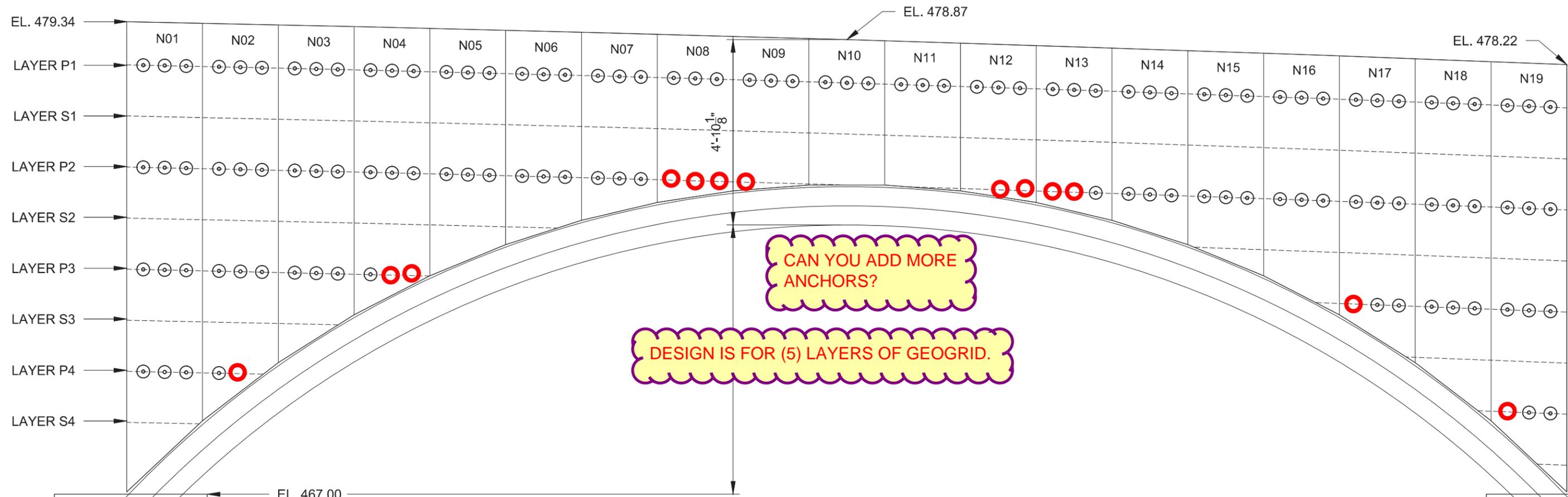
TITLE: SOUTH ELEVATION

	INITIALS	DATE
DRAWN BY:	JEK	4-9-2014
DESIGNED BY:	JEK	49-2014
CHECKED BY:	ZU	4-9-2014

SHEET NUMBER:

**4** OF 10

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CAN YOU ADD MORE ANCHORS?

DESIGN IS FOR (5) LAYERS OF GEOGRID.

UPSTREAM NORTH ELEVATION  
[PERPENDICULAR TO HEADWALL]



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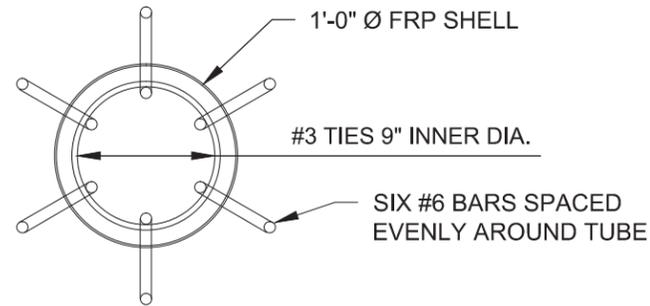
PROJECT: Wanzer Road Bridge No. 48	
LOCATION: Fairfield, VT	JN: 12018
DRAWING STATUS: Approved for Construction	
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TITLE: NORTH ELEVATION		
	INITIALS	DATE
DRAWN BY:	JEK	4-9-2014
DESIGNED BY:	JEK	49-2014
CHECKED BY:	ZU	4-9-2014

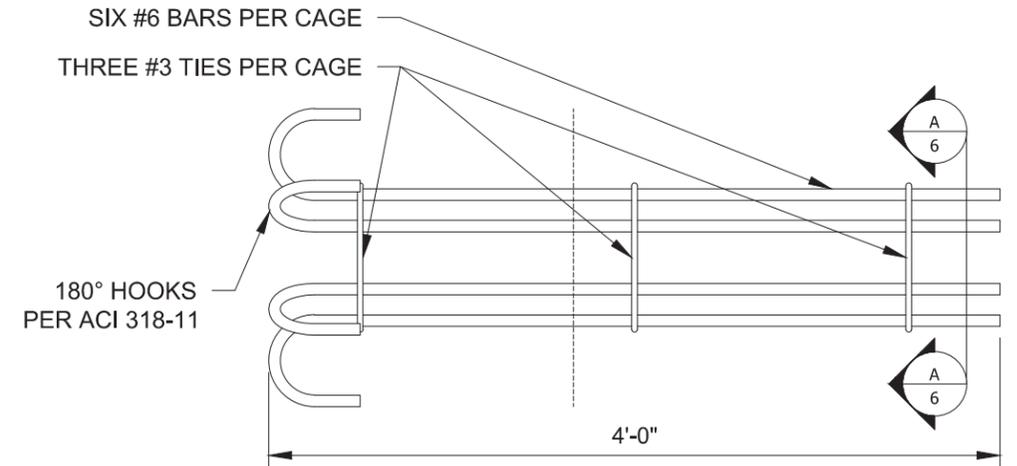
SHEET NUMBER:  
**5** OF 10  
REV: 04-09-2014

**FINISHING NOTES:**

1. ARCH MATERIALS SHALL CONFORM TO SECTION 3 OF "AASHTO LRFD GUIDE SPECIFICATIONS FOR DESIGN OF CONCRETE-FILLED FRP TUBES FOR FLEXURAL AND AXIAL MEMBERS"
2. PROJECT SHALL INCLUDE EIGHT (8) COMPOSITE ARCHES. ONE (1) LAYER OF AIT12GNP, FOUR (4) LAYERS OF AIT12GS, AND DEREKANE 610C VINYL ESTER RESIN.
3. PROJECT SHALL INCLUDE SIXTEEN (16) END REINFORCEMENT CAGES - SUPPLIED BY ERECTION CONTRACTOR
4. ARCH FINISH COAT SHALL BE SHERWIN-WILLIAMS FLUOROKEM FLUOROPOLYMER URETHANE MCSO SW4028 GYPSUM COLORED PAINT
5. ARCHES SHALL BE MANUFACTURED FOLLOWING AIT QUALITY ASSURANCE PLAN REV. 3.0
6. 3"Ø FILL HOLE AND SHEAR BOLT HOLES SHALL BE DRILLED IN THE FIELD BY ERECTION CONTRACTOR

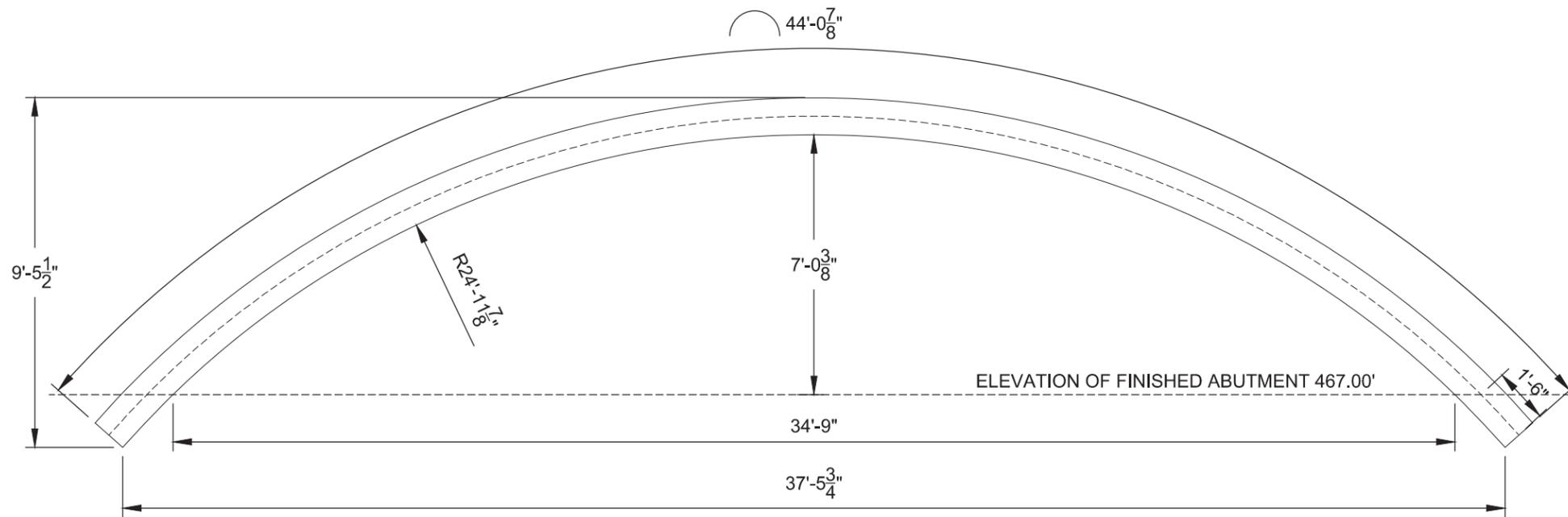


END REINFORCEMENT CAGE  
END VIEW SECTION A-A



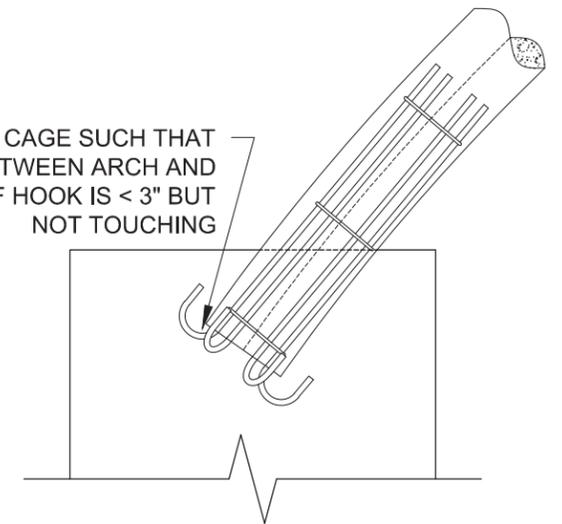
END REINFORCEMENT CAGE  
ELEVATION VIEW

CALCULATIONS SEEM TO BE BASED ON A SPECIFIC ORIENTATION OF STEEL. SHOULD A SPECIFIC ORIENTATION BE SHOWN?



ARCH FINISH DIMENSIONS

INSERT CAGE SUCH THAT GAP BETWEEN ARCH AND INSIDE OF HOOK IS < 3\"/>



END REINFORCEMENT CAGE LOCATION



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LOCATION: Fairfield, VT                      JN: 12018

DRAWING STATUS: Approved for Construction

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TITLE: ARCH DETAILS

	INITIALS	DATE
DRAWN BY:	JEK	4-9-2014
DESIGNED BY:	JEK	49-2014
CHECKED BY:	ZU	4-9-2014

SHEET NUMBER:

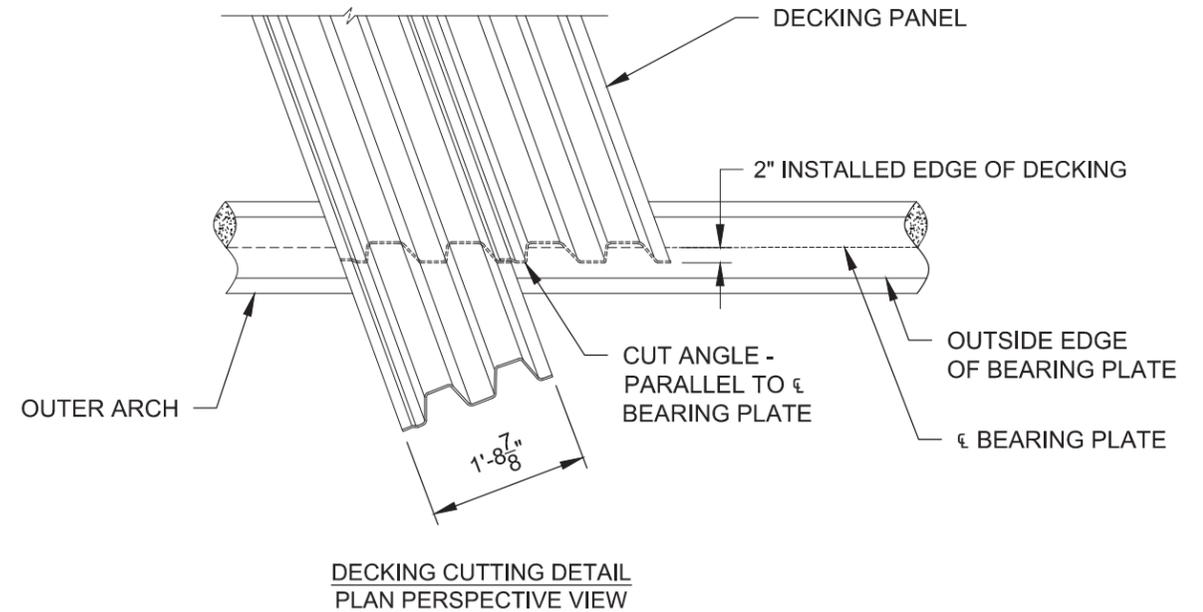
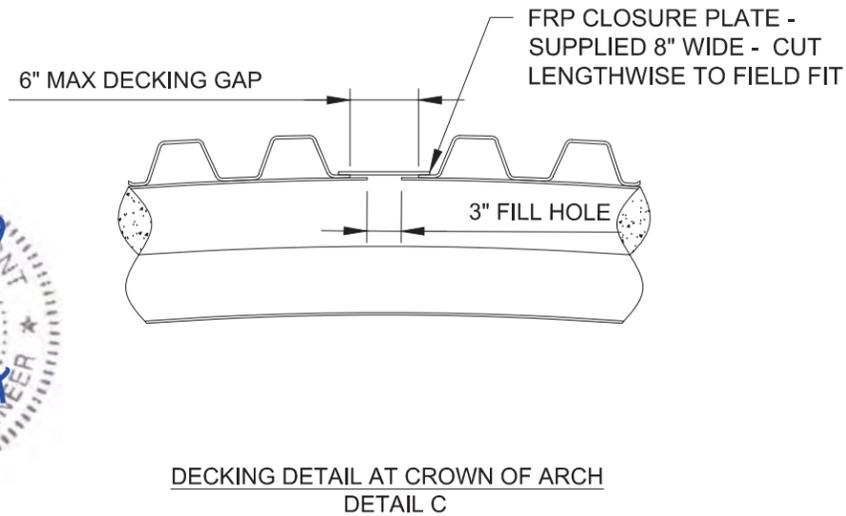
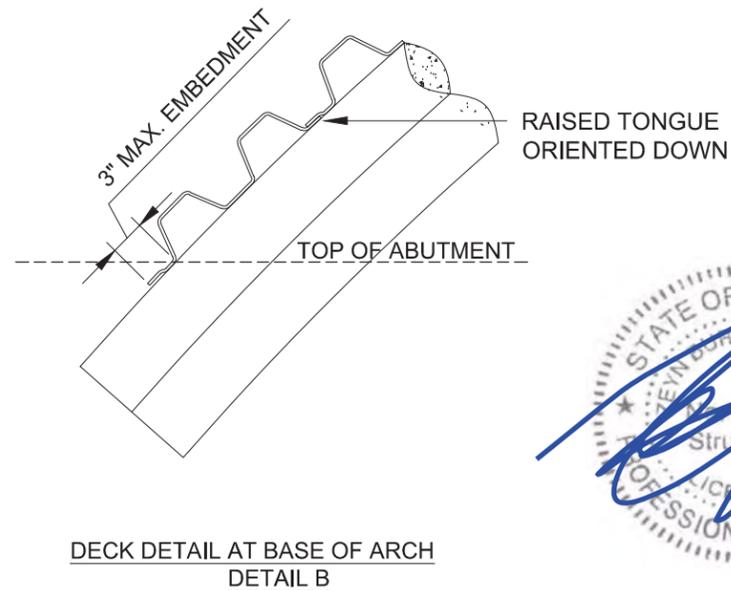
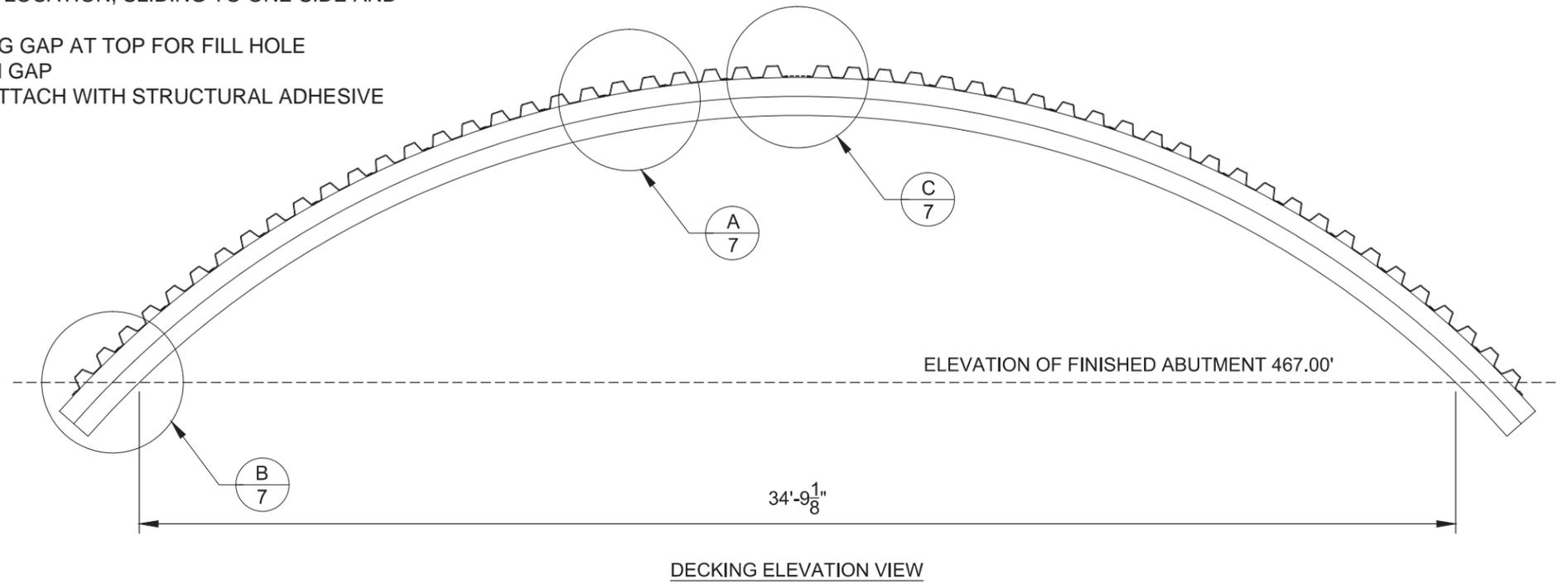
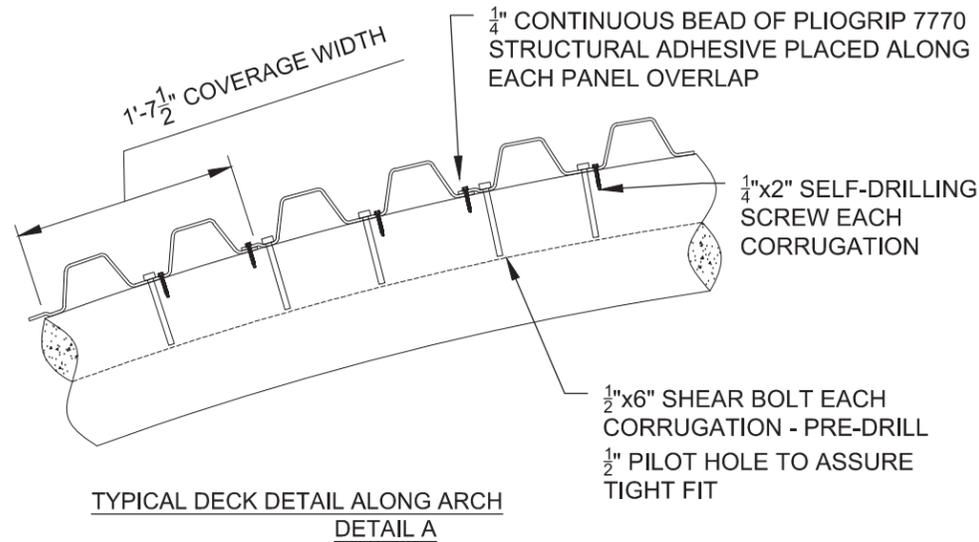
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REV: 04-09-2014

**DECK NOTES:**

1. PROJECT TO INCLUDE TWENTY-FIVE (25) ATLAS FRP DECK PANELS 42' LONG x 20.9" WIDE (19.5" COVERAGE WIDTH) x 3.7" DEEP
2. BRIDGE WIDTH TO BE SPANNED BY ONE PANEL - NO SPLICING
3. FIELD CUT PANELS TO PROPER LENGTH BY PLACING ON ARCHES, MARKING CUT LOCATION, SLIDING TO ONE SIDE AND CUTTING
4. ATTACH PANELS EACH SIDE OF ABUTMENT AND WORK TOWARD CROWN LEAVING GAP AT TOP FOR FILL HOLE
5. DRILL 3" DIAMETER ARCH CONCRETE FILLING HOLE ON SPINE AT CROWN WITHIN GAP
6. FIELD CUT CLOSURE STRIP TO FILL GAP BETWEEN DECK PANELS AT CROWN - ATTACH WITH STRUCTURAL ADHESIVE AND SCREWS



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LOCATION: Fairfield, VT      JN: 12018

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TITLE: DECK DETAILS

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DRAWN BY:	JEK	4-9-2014
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SHEET NUMBER:  
**7** OF 10  
REV: 04-09-2014

**GEOGRID NOTES:**

**PRIMARY REINFORCEMENT**

- LAYERS WITH "P" INDICATE PRIMARY REINFORCEMENT WITH TWO TAILS
- PRIMARY REINFORCEMENT IS ATTACHED TO HEADWALL BY WRAPPING CONTINUOUS EQUAL LENGTH TAILS AROUND FRP TUBES

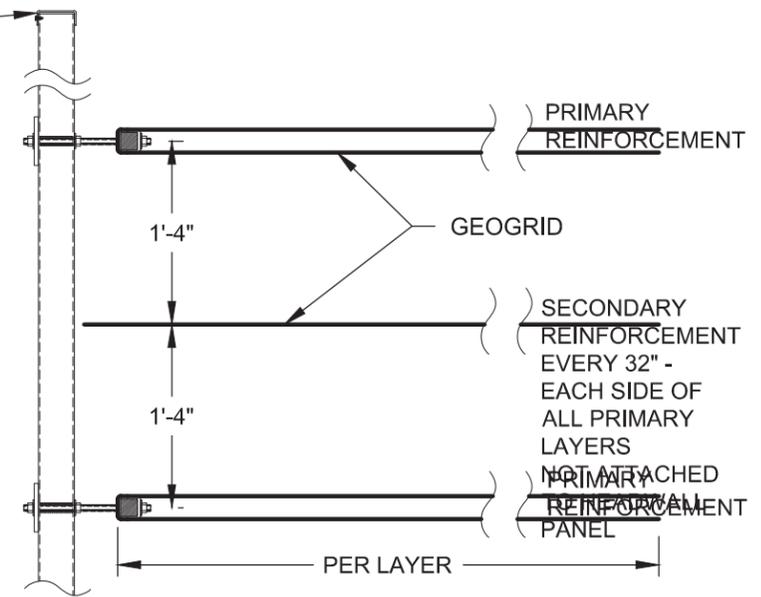
**SECONDARY REINFORCEMENT**

- LAYERS WITH "S" INDICATE SECONDARY REINFORCEMENT WITH ONE TAIL
- SECONDARY REINFORCEMENT EXTENDS TO THE HEADWALL, BUT IS NOT ATTACHED

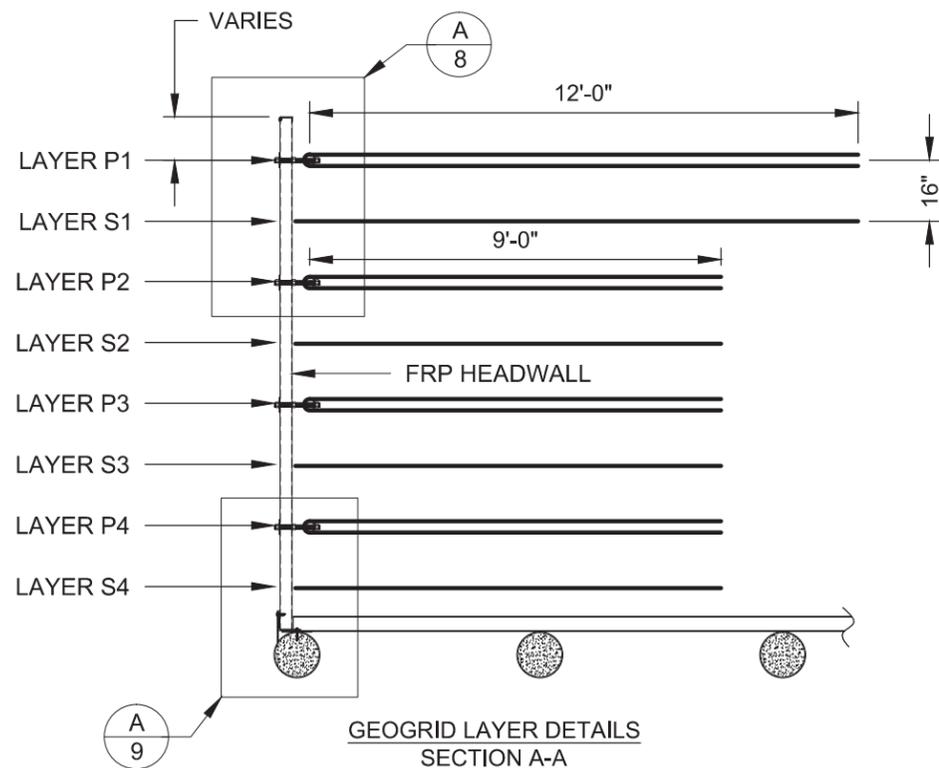
**INSTALLATION**

- FOLLOW ALL WRITTEN SPECIFICATION WHEN INSTALLING GEOGRID
- INSTALL ALL LAYERS TO THE EXTENTS INDICATED BY DASHED LINES IN ELEVATION DRAWINGS
- ADJACENT LAYERS MUST BE BUTTED TO ONE ANOTHER TO ACHIEVE 100% COVERAGE
- MACHINE DIRECTION OF GEOGRID MUST BE ORIENTED PERPENDICULAR TO WALL
- GEOGRID ROLLS ARE 6' WIDE - EXTRA WIDTH CAN BE BURIED IN BACKFILL OR CUT TO FIT
- GEOGRID IS CUT TO LENGTH - NO SPLICING IN THE MACHINE DIRECTION IS PERMITTED
- SUGGESTED BATTER IS 1:32 BACK FROM VERTICAL (BETWEEN 1.5" - 4.5")
- BACKFILL PLACEMENT SHOULD BE PLACED TO PREVENT DAMAGE AND WRINKLES

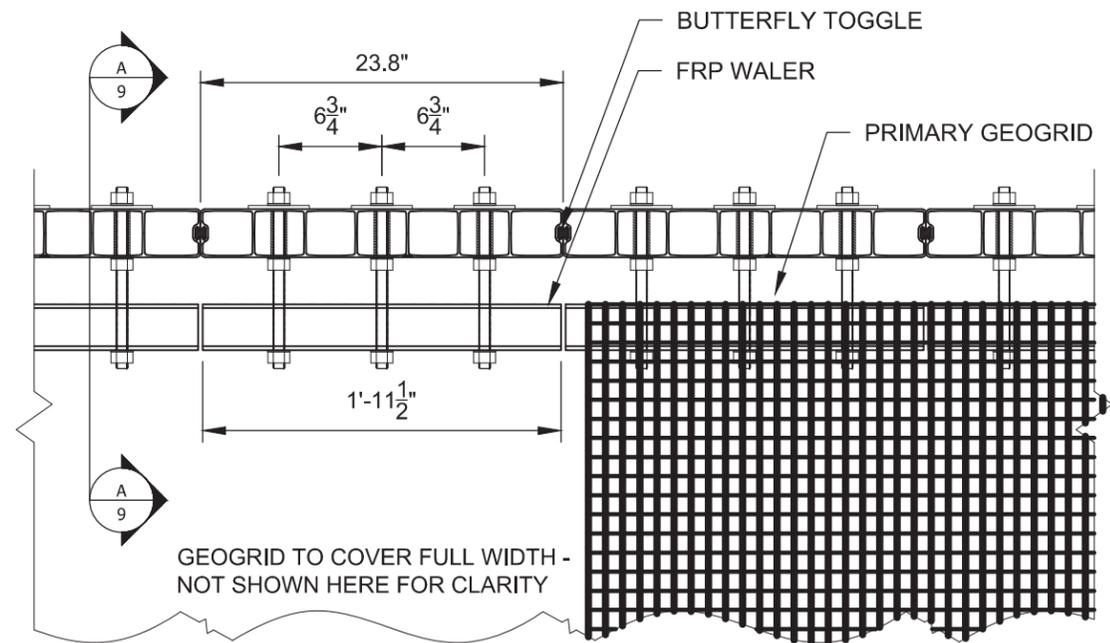
AIT SUPPLIED HEADWALL CAP  
SECURED WITH 1" SCREWS



HEADWALL-GEOGRID  
CONNECTION  
DETAIL A  
ELEVATION VIEW



GEOGRID LAYER DETAILS  
SECTION A-A



HEADWALL - GEOGRID CONNECTION  
PLAN VIEW



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Correct scale on size B paper (11x17 Ledger)

TITLE: HEADWALL LAYOUT

DRAWN BY:

INITIALS

DESIGNED BY:

CHECKED BY:

DATE

JEK

JEK

ZU

4-9-2014

49-2014

4-9-2014

SHEET NUMBER:

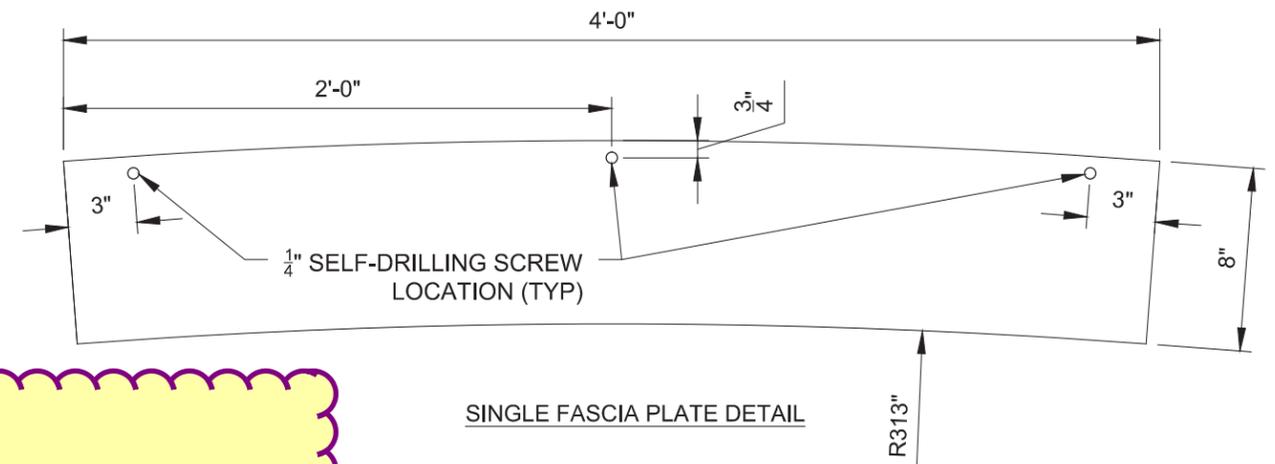
8 OF 10

REV: 04-09-2014



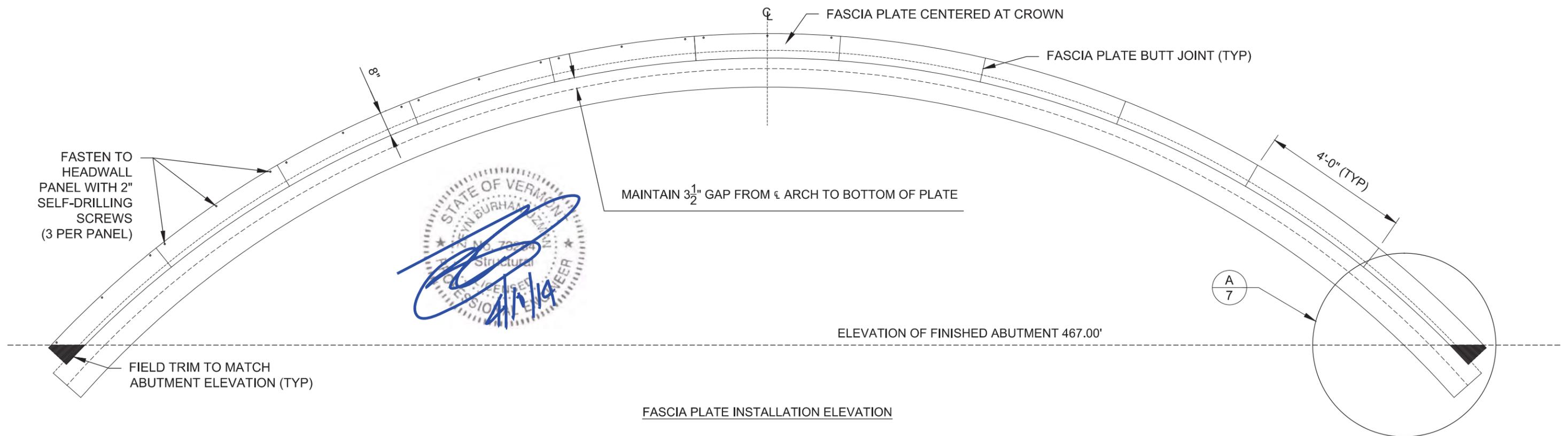
**FASCIA PLATE NOTES:**

- PROJECT SHALL INCLUDE TWENTY-TWO (22) TOTAL  $\frac{1}{10}$ " BI-DIRECTIONAL E-GLASS CURVED FASCIA PLATES
- FASCIA PLATES SHALL BE PROVIDED CUT TO DIMENSIONS SHOWN ON PLANS
- FASCIA PLATES WILL NOT BE PRE-DRILLED OR MARKED AT SCREW LOCATIONS
- FASCIA PLATES SHALL BE FINISHED WITH SHERWIN-WILLIAMS FLUOROKEM FLUOROPOLYMER URETHANE MCSO SW4028 GYPSUM COLORED PAINT



SINGLE FASCIA PLATE DETAIL

R313" TO CENTERLINE OF PLATE?  
 ARCH RADIUS: 305.875"  
 INSIDE RADIUS OF FASCIA PLATE: 305.875" + 3.5" = 309" +/- ?



FASCIA PLATE INSTALLATION ELEVATION



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TITLE: FASCIA PLATE LAYOUT AND DETAILS		
	INITIALS	DATE
DRAWN BY:	JEK	4-9-2014
DESIGNED BY:	JEK	4-9-2014
CHECKED BY:	ZU	4-9-2014

SHEET NUMBER:  
10 OF 10  
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