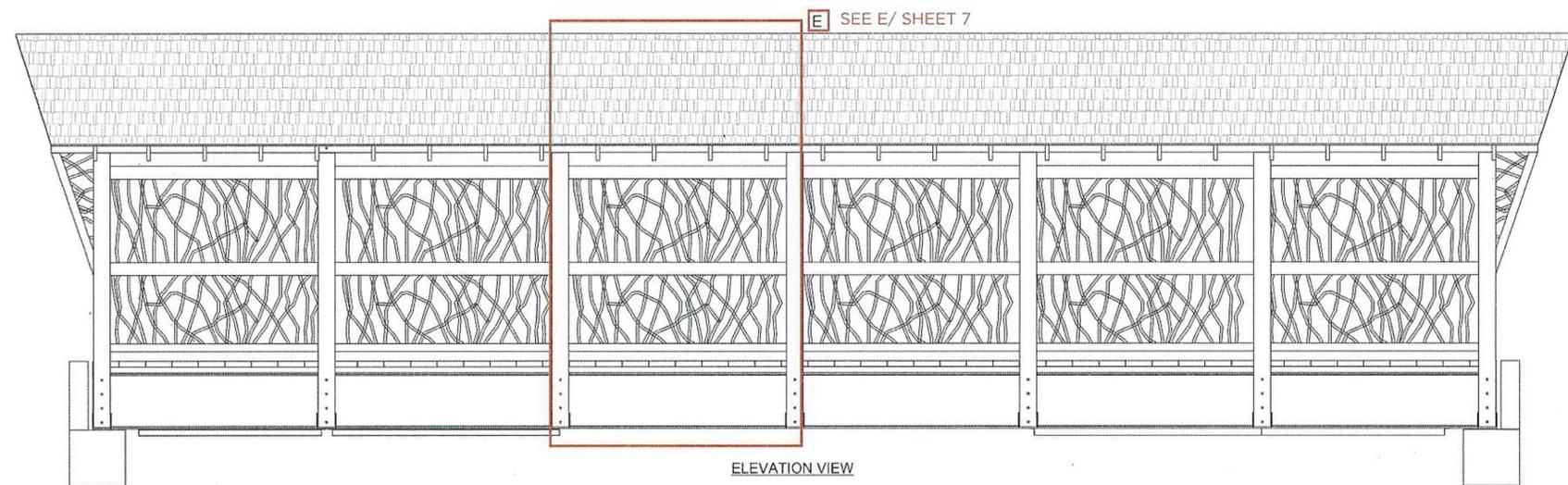
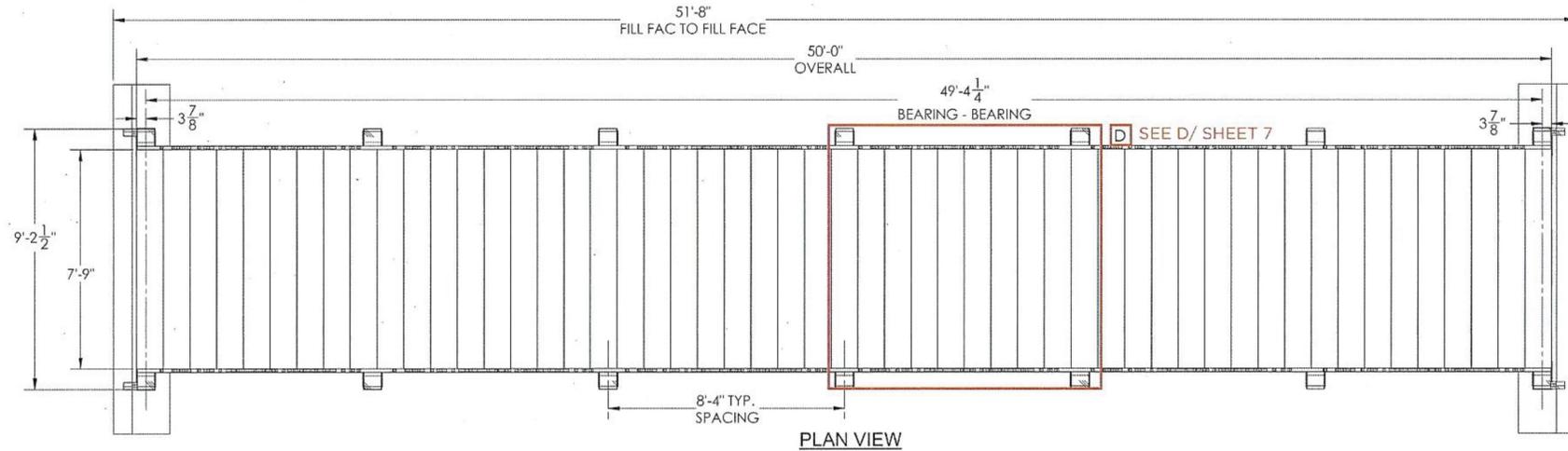




VICINITY MAP

LAKE JAMES COVERED BRIDGE TRAIL



SHEET	DESCRIPTION
1	COVER SHEET
2	STRUCTURAL FRAMING
3	SUPERSTRUCTURE CROSS-SECTION
4	SUBSTRUCTURE & FOUNDATION
5	SURVEY & PROFILE
6	APPROACH
7	REVISIONS

GENERAL NOTES:

- CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING EXISTING UNDERGROUND UTILITIES IN THE AREA OF CONSTRUCTION.
- THE CONTRACTOR SHALL COORDINATE HIS WORK ACTIVITIES WITH THE OWNER.
- CONTRACTOR SHALL CHECK AND VERIFY GIVEN DIMENSIONS, TAKE ADDITIONAL DIMENSIONS AS REQUIRED AND REPORT ANY INACCURACIES TO THE ENGINEER.
- OMISSIONS OR CONFLICTS BETWEEN VARIOUS ELEMENTS OF THE DRAWINGS, SPECIFICATION, NOTES AND DETAILS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND RESOLVED BEFORE PROCEEDING WITH THE WORK.
- THE DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE ALL OF THE METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION.

DESIGN CRITERIA:

- ASCE 7-10
- AASHTO LRFD GUIDE SPECIFICATION FOR PEDESTRAIN BRIDGES
- AISC STEEL LRFD

DESIGN LOADS:

- LIVE LOAD = 90PSF
- DEAD LOAD = 15PSF + SELF WEIGHT
- GROUND SNOW LOAD = 15 PSF
- BASE WIND VELOCITY = 35PSF APPLIED TO BRIDGE HEIGHT AS IF ENCLOSED (AS PER AASHTO PED. BRIDGE SPEC.)

CONCRETE NOTES:

- CONCRETE CONSTRUCTION SHALL COMPLY WITH ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" (LATEST EDITION), ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (LATEST EDITION), AND ACI 302 "GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION" (LATEST EDITION).
- REINFORCING STEEL SHALL BE FABRICATED AND PLACED IN COMPLIANCE WITH ACI 315 "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT" (LATEST EDITION).
- MIX DESIGN SHALL BE IN ACCORDANCE WITH CHAPTER 5 OF ACI 318.
- MINIMUM CEMENT CONTENT = 500 LBS PER CUBIC YARD.
- CONCRETE SHALL BE NORMAL WEIGHT CONCRETE AND SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS.
- MAXIMUM SLUMP = 4" PLUS OR MINUS 1".
- THE MAX AGGREGATE SIZE SHALL BE 1".
- CONCRETE AGGREGATES SHALL COMPLY WITH ASTM C33 AND SHALL BE FREE OF CLAY, LOAM, LUMPS OR OTHER DELETERIOUS SUBSTANCES.
- REINFORCING SHALL BE DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
- CONCRETE SHALL BE AIR ENTRAINMENT WITH 6% AVERAGE AIR CONTENT WITH A 1.5% TOLERANCE. AIR ENTRAINMENT SHALL COMPLY WITH ASTM C260.
- REINFORCEMENT LAP SPLICES SHALL BE 40 TIMES THE BAR DIAMETER UNLESS OTHERWISE NOTED.
- REINFORCEMENT COVER SHALL BE 3" WHEN POURED ADJACENT TO GROUND SURFACE AND 1.5" ELSEWHERE.
- MASONRY GROUT SHALL BE A SELF-CONSOLIDATING MASONRY GROUT WITH A MAXIMUM SLUMP OF 11" AND A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3,000 PSI. THE MAXIMUM AGGREGATE SIZE SHALL BE 1/8".
- CMU MORTAR SHALL BE TYPE S OR M.
- CONCRETE SHALL BE CONSOLIDATED USING CONCRETE VIBRATOR IN ACCORDANCE WITH 309R-05.

FASTENERS:

- PROVIDE FASTENERS OF SIZE AND TYPE INDICATED THAT COMPLY WITH REQUIREMENTS SPECIFIED IN THIS ARTICLE
- CONCRETE ANCHORS, CONCRETE, REBAR, AND OTHER ABUTMENT HARDWARE TO BE PROVIDED BY CONTRACTOR
- STEEL HARDWARE COMPLYING WITH ASTM A 307
- EXPANSION ANCHORS: ANCHOR BOLTS AND SLEEVE ASSEMBLY OF MATERIAL INDICATED BELOW WITH CAPABILITY TO SUSTAIN, WITHOUT FAILURE, A LOAD EQUAL TO 6 TIMES THE LOAD IMPOSED WHEN INSTALLED IN UNIT MASONRY ASSEMBLIES AND EQUAL TO 4 TIMES THE LOAD IMPOSED WHEN INSTALLED IN CONCRETE AS DETERMINED BY TESTING PER ASTM E 488 CONDUCTED BY A QUALIFIED INDEPENDENT TESTING AND INSPECTING AGENCY.

STEEL:

- ALL STRUCTURAL STEEL FOR THIS STRUCTURE SHALL BE UNPAINTED ASTM A588 STEEL WITH A MIN. YIELD STRENGTH OF 50KSI, UNLESS OTHER WAS NOTED

HELICAL PILES:

- INSTALL TO MINIMUM ULTIMATE CAPACITY OF 24 KIPS PER PILE.
- SUGGESTED HELIX DIAMETERS 10IN - 12IN -14IN TO ACHIEVE CAPACITY. THESE ARE SUGGESTIONS THE FINAL SIZE TO DETERMINED BY INSTALLATION CONTRACTOR.
- USE GALVANIZED STEEL 2-7/8" DIAMETER ROUND HELICAL PILE.
- PILE CAP MINIMUM DIAMETER TO BE 8IN.
- GROUT FILL PILE AFTER INSTALLATION.
- INSTALL IN COMPLIANCE WITH ICC AC-308.
- MINIMUM EMBEDMENT DEPTH OF 16FT.
- INSTALLATION CONTRACTOR TO SUPPLY A TABLE LISTING THE PILE TORQUE, CAPACITIES, & DEPTHS ACHIEVE, AFTER PILE INSTALL. THESE CAPACITIES ARE TO BE PROVIDED TO THE ENGINEER OF RECORD PRIOR TO THE INSTALL OF THE END BENT CAPS.
- RECOMMENDED HELIX DIAMETERS ARE 10IN - 12IN -14IN TO ACHIEVE CAPACITY

INSPECTION NOTES:

- SHOULD THE HELICAL PILES BECOME EXPOSED DUE TO EROSION, CONTACT ENGINEER IMMEDIATELY.
- THE BRIDGE SHOULD BE INSPECTED BIENNIALLY BY A LICENSED ENGINEER. IN ADDITION, THE STREAMBED SLOPES SHOULD BE INSPECTED AFTER MAJOR RAIN EVENTS TO MONITOR FOR SCOUR/STREAMBED MIGRATION.

RAILING NOTES

- IN LIEU OF RHODODENDRON RAILING, AN ALTERNATE BRIDGE RAILING MAY BE USED NOT TO EXCEED 100 LBS. PER LINEAL FOOT.

WOOD NOTES

- APPROVED POSTS: 8-10" ROUND LOCUST POSTS; 8X8 WESTERN RED CEDAR #2 AND BETTER, SURFACED; OR OTHER APPROVED BY OWNER.
- ALL OTHER WOOD MATERIAL TO BE PRESSURE TREATED PINE OR OTHER APPROVED BY OWNER.
- ALL PT WOOD MEMBERS TO BE TREATED W/ TWO COATS OF SIKKENS CETOL LOG & SIDING (OR EQUAL); COLOR: NATURAL OAK. LOCUST AND CEDAR TO BE STAINED W/ SIKKENS PROLUXCE CETOL DOOR AND WINDOW FINISH. COLOR: CLEAR SATIN ; APPLY PER MANUFACTURERS INSTRUCTIONS. CEDAR SHINGLE ROOF NOT TO BE STAINED.
- ALL OPENINGS IN RAILING TO BE LESS THAN 4"
- RHODODENDRON RAILS TO BE HARVESTED IN WINTER TO PREVENT SPLITTING AND SHRINKING.

Areté
ENGINEERS, PLLC
123 SLOPES COURT
BOONE, NC 28607



LAKE JAMES COVERED
TRAIL BRIDGE

DATE:10/05/18
DRAWN BY: AGF
CHECK BY: TSA
APPROVED BY: TSA
PROJECT NO: 1611

SHEET CONTENTS
COVER SHEET
NOTES

REVISIONS

A	HELIX NOTES
B	RAILING NOTES
C	WOOD NOTES
D	PLAN VIEW REVISION
E	ELEVATION REVISION

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SHEET NO.
Sheet1



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TRAIL BRIDGE

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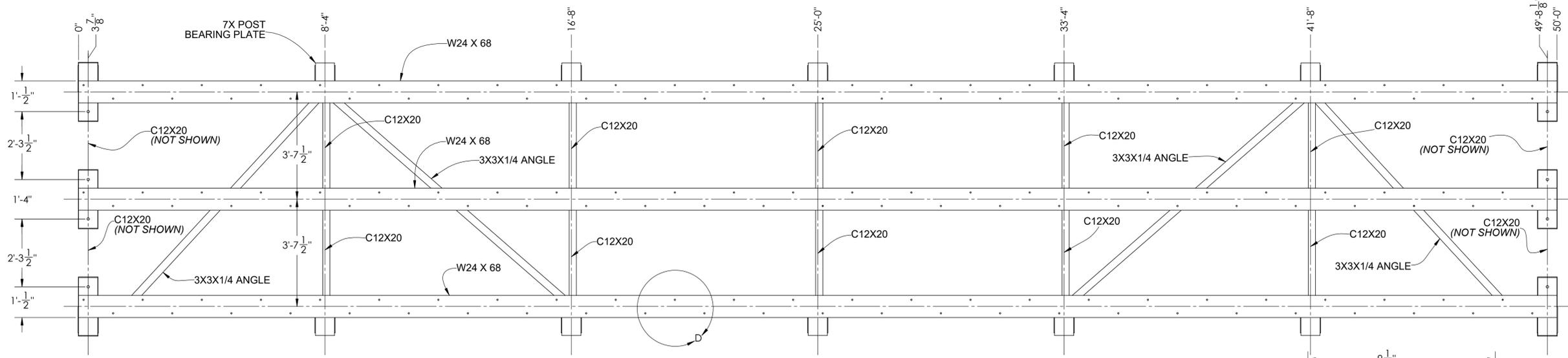
SHEET CONTENTS
STRUCTURAL FRAMING

REVISIONS

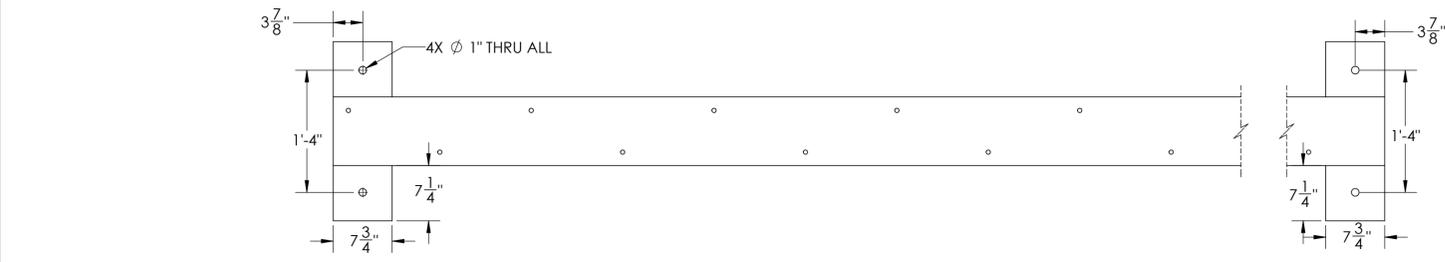
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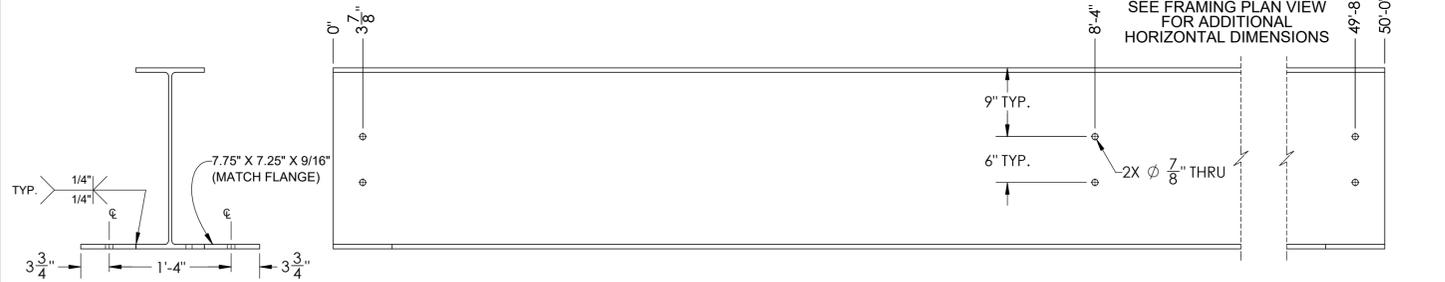
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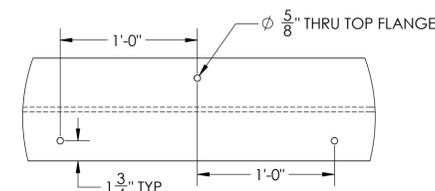
A
2 FRAMING PLAN VIEW



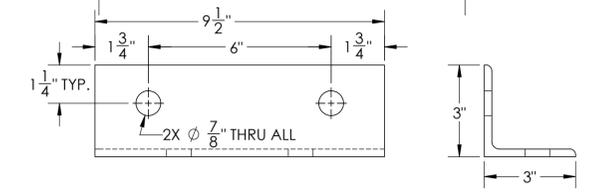
B
2 CENTER BEAM DETAILS QTY:1



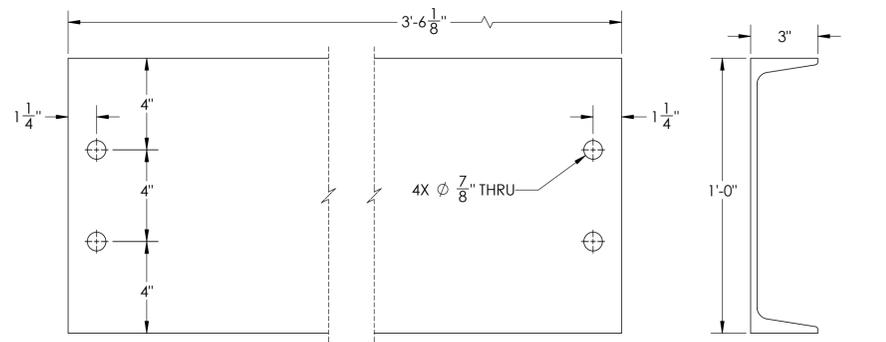
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2 FASICA BEAM DETAILS QTY:2



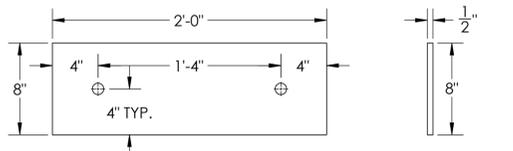
D
2 NAILER HOLE DIMENSIONS



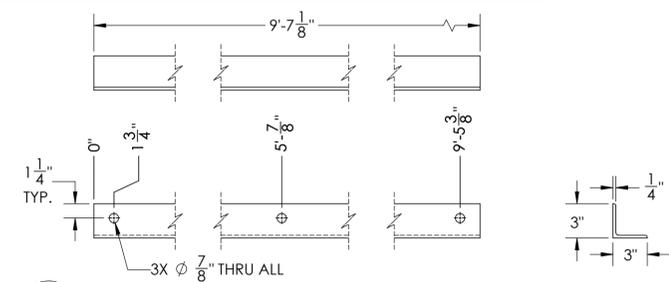
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2 DIAPHRAGM ANGLE DETAIL QTY:28



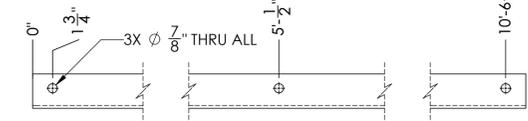
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2 DIAPHRAGM DETAILS QTY:14



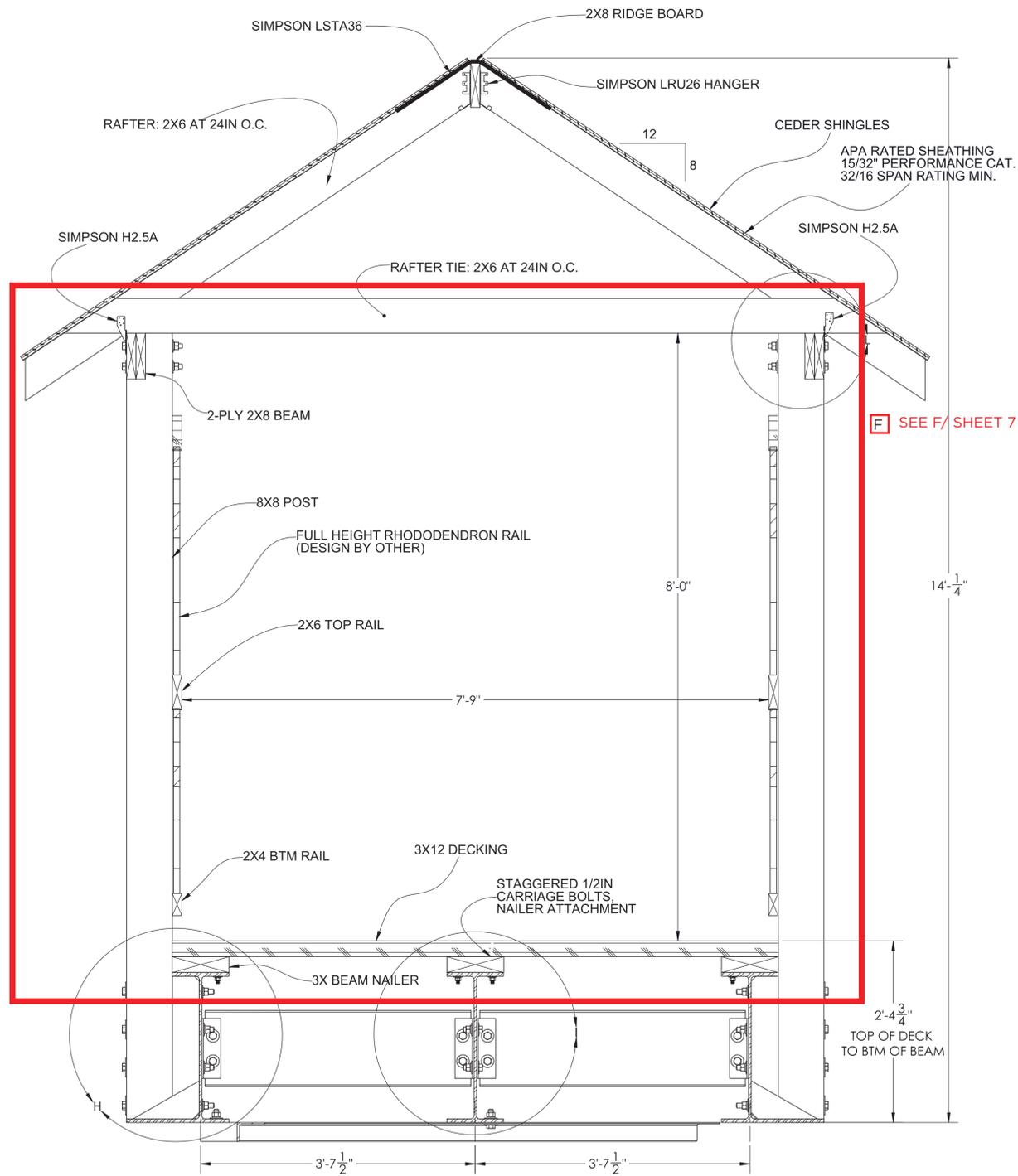
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2 MASONRY PLATE QTY:6



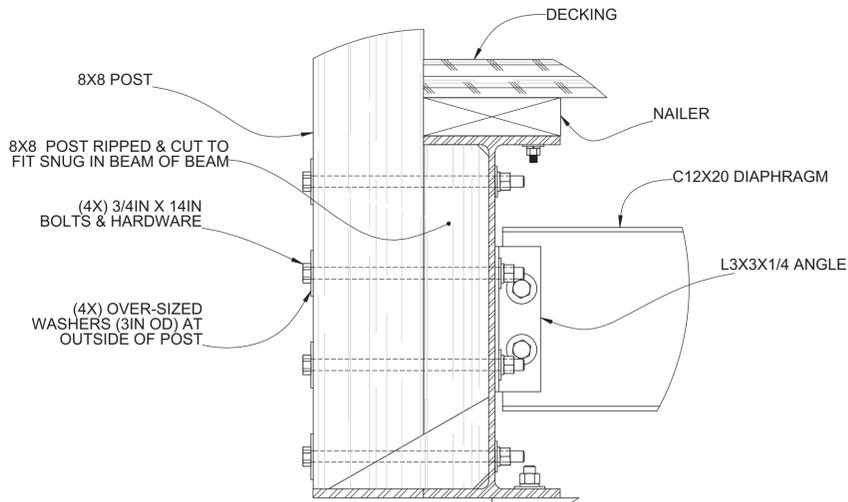
O
2 BTM LATERAL BRACING BAY 1 & 6 QTY:2



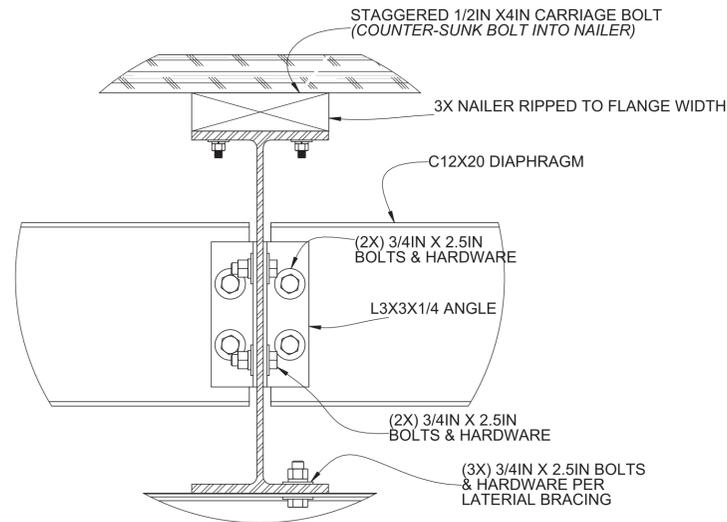
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2 BTM LATERAL BRACING BAY 2 & 5 QTY:2



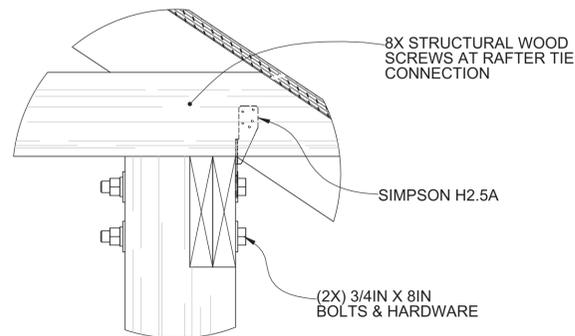
F SEE F/ SHEET 7



H 3 TYPICAL POST TO FASICA BEAM CONNECTION



I 3 TYPICAL BEAM & DIAPHRAGM CONNECTION



J 3 TYPICAL RAFTER CONNECTION



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LAKE JAMES COVERED
TRAIL BRIDGE

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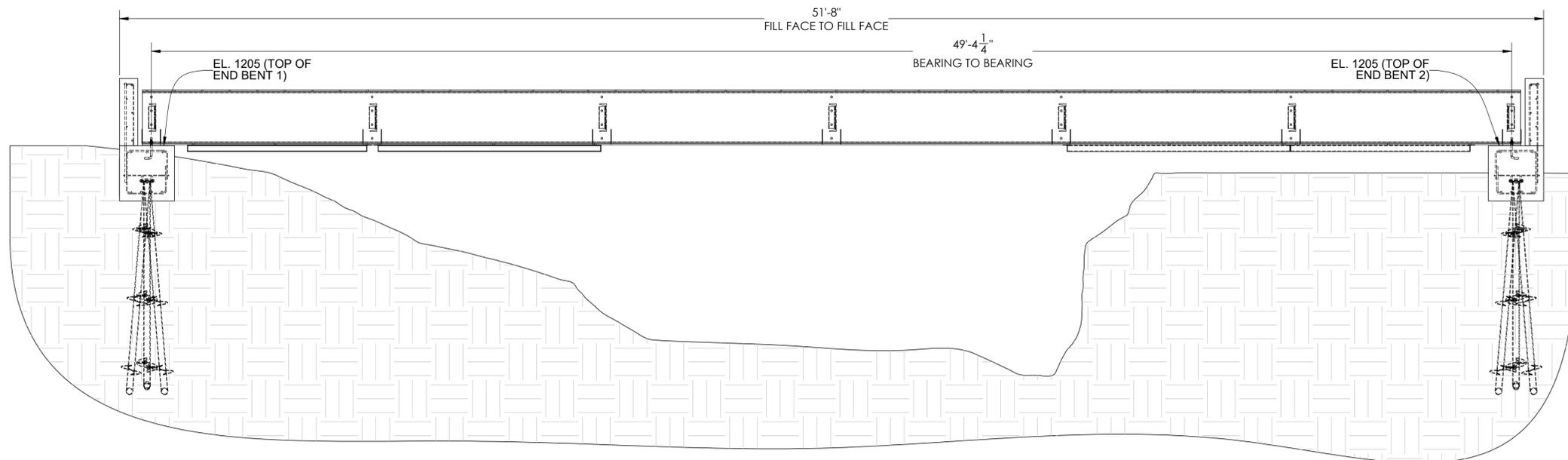
SHEET CONTENTS
SUPERSTRUCTURE
CROSS-SECTION

REVISIONS
F TYP. CROSS SECTION

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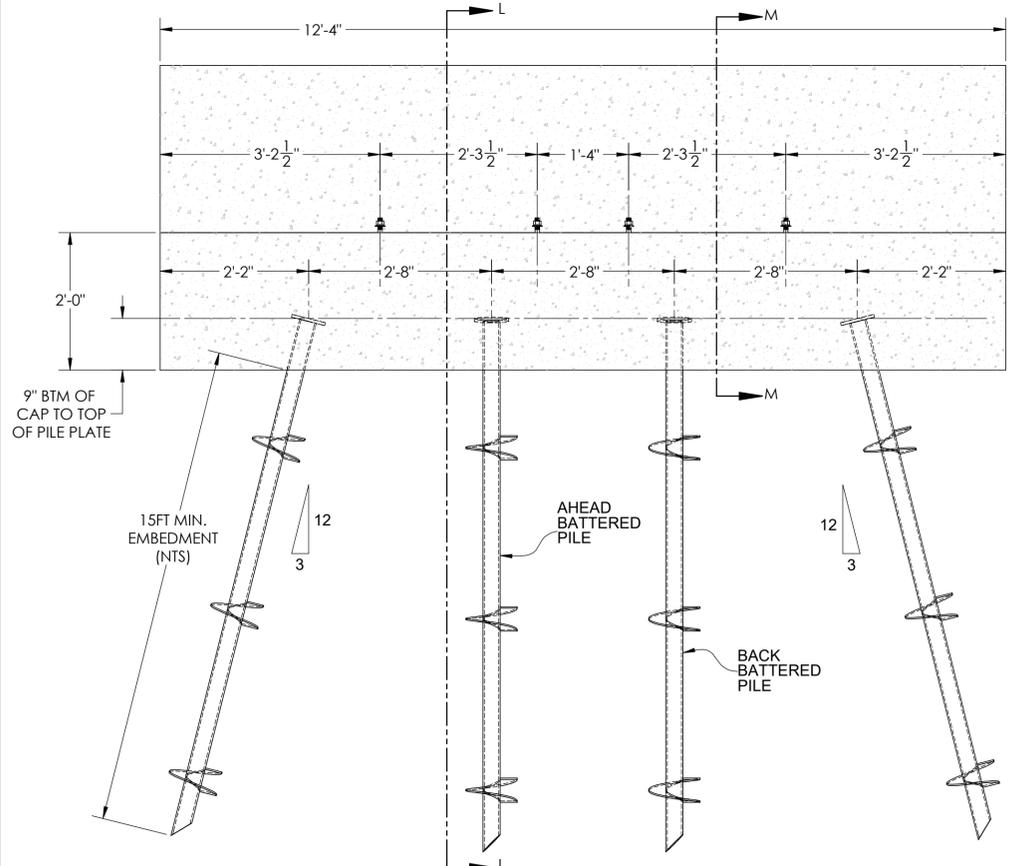
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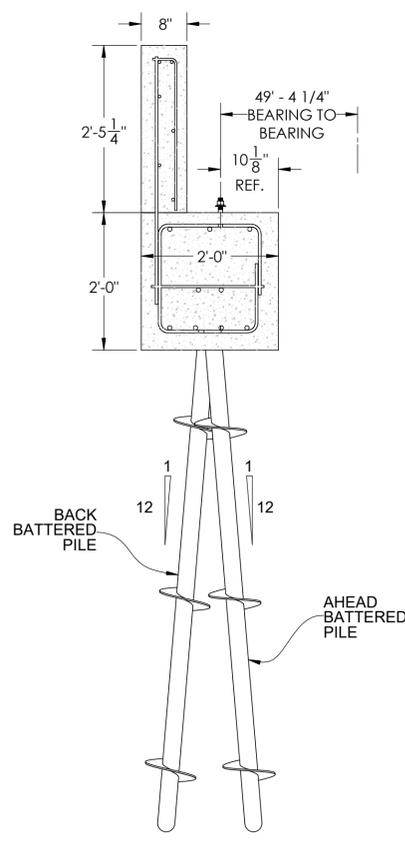


PROFILE AT CENTER LINE OF BRIDGE

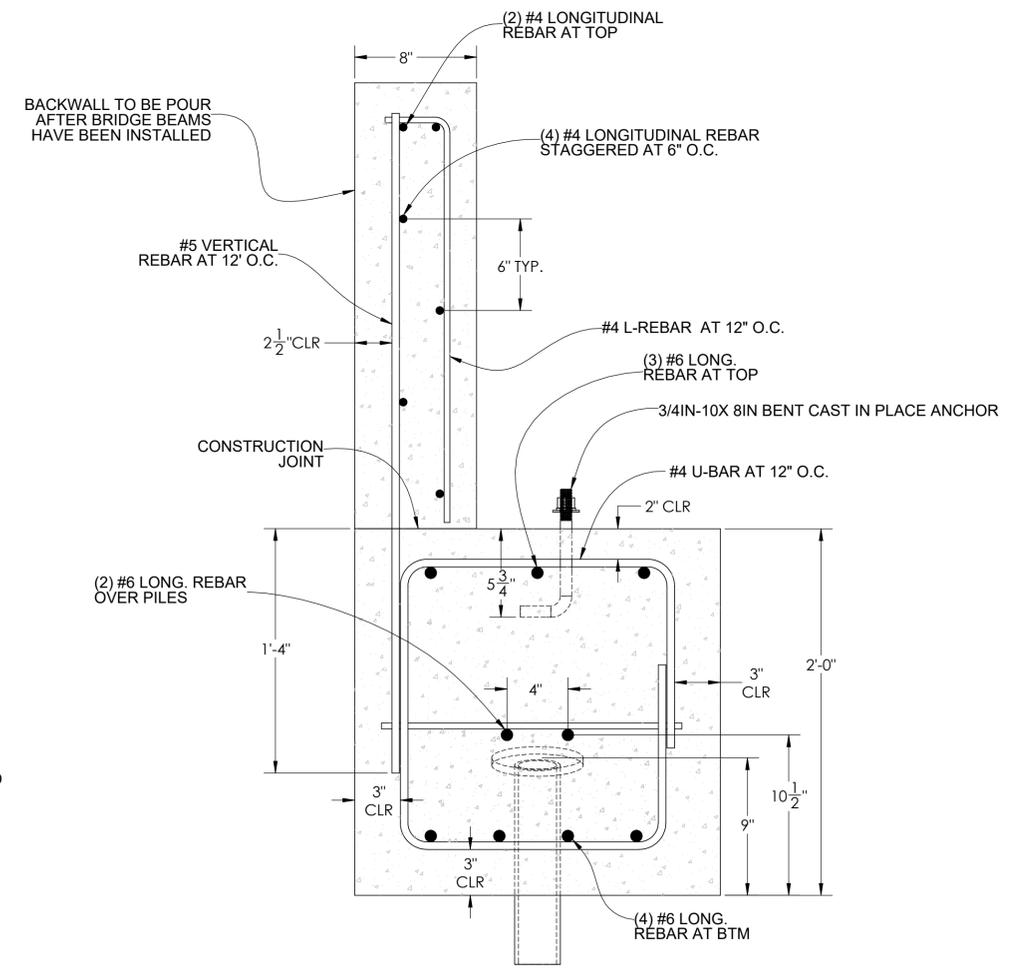
- HELICAL PILES:
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TYPICAL END BENT FRONT ELEVATION (END BENT 1 SHOWN)



TYP. CENTER 2 PILES



TYP. END BENT REBAR



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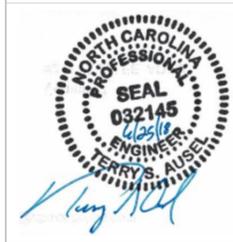
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SHEET CONTENTS
 SUBSTRUCTURE & FOUNDATION

REVISIONS
 A HELIX NOTES

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Sheet4



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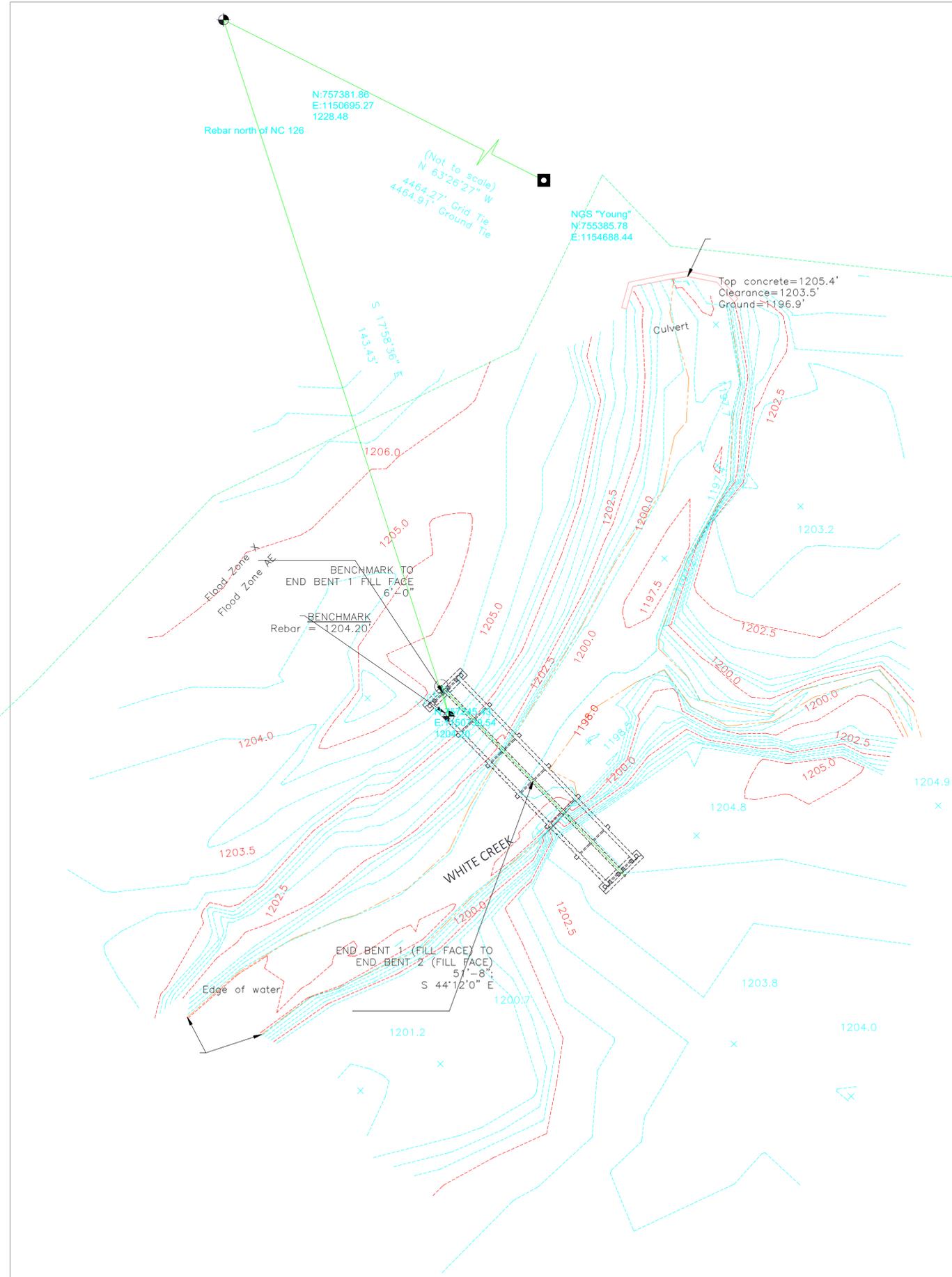
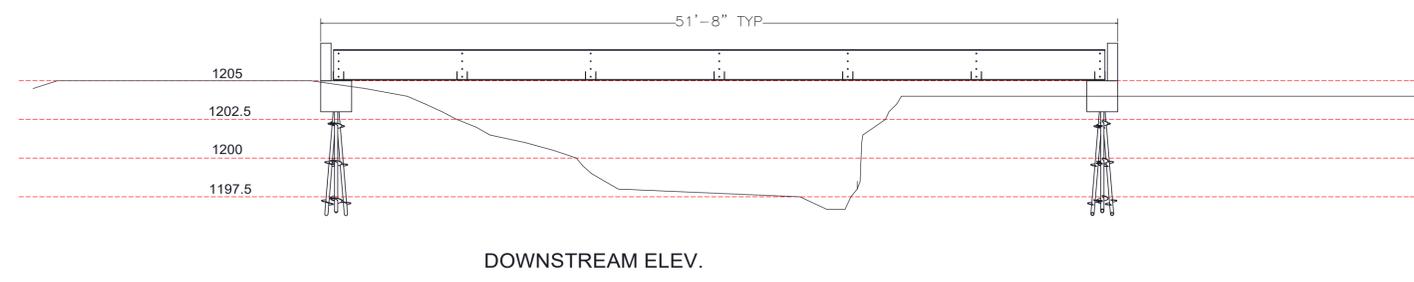
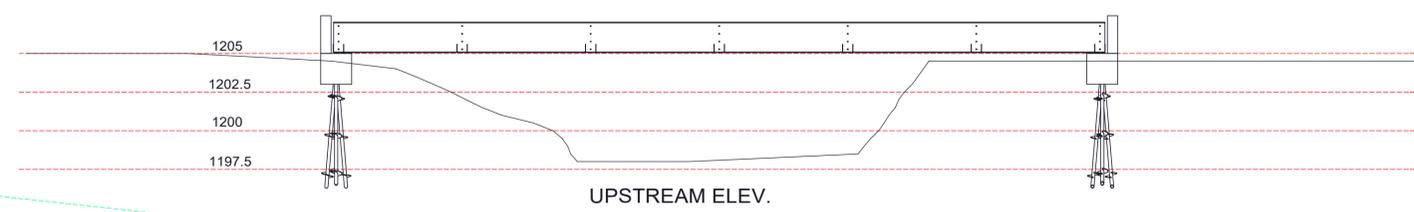
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SHEET CONTENTS
SURVEY & PROFILE

REVISIONS

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SHEET NO.
Sheet5



Rebar north of NC 126
N:757381.86
E:1150695.27
1228.48
(Not to scale)
N 63°26'27" W
4464.27' Grid Tie
4464.91' Ground Tie

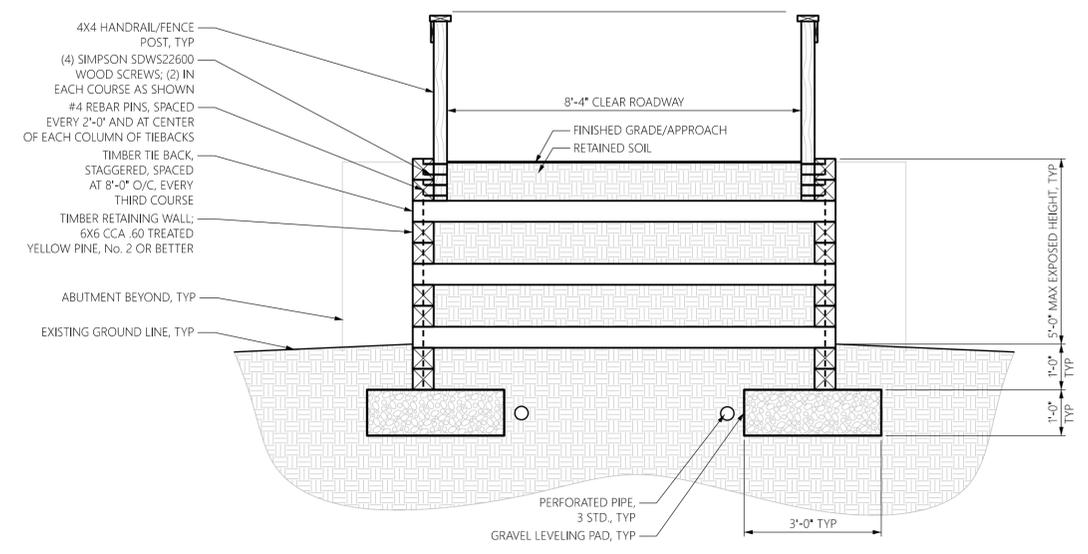
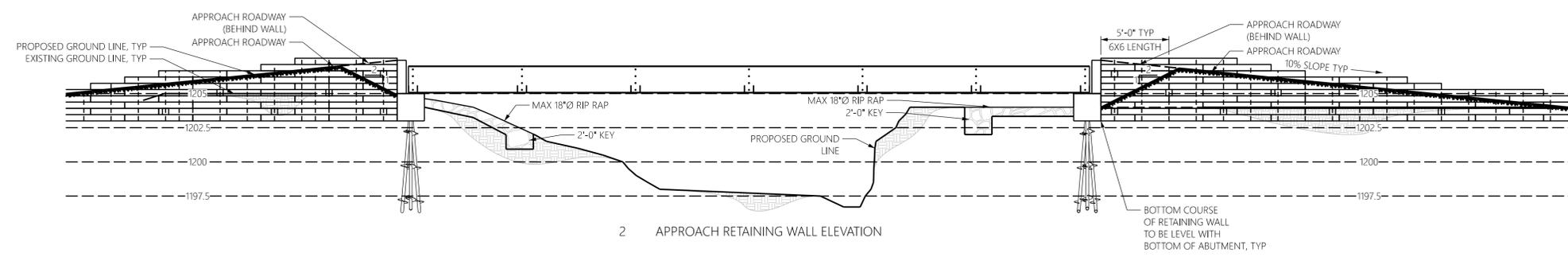
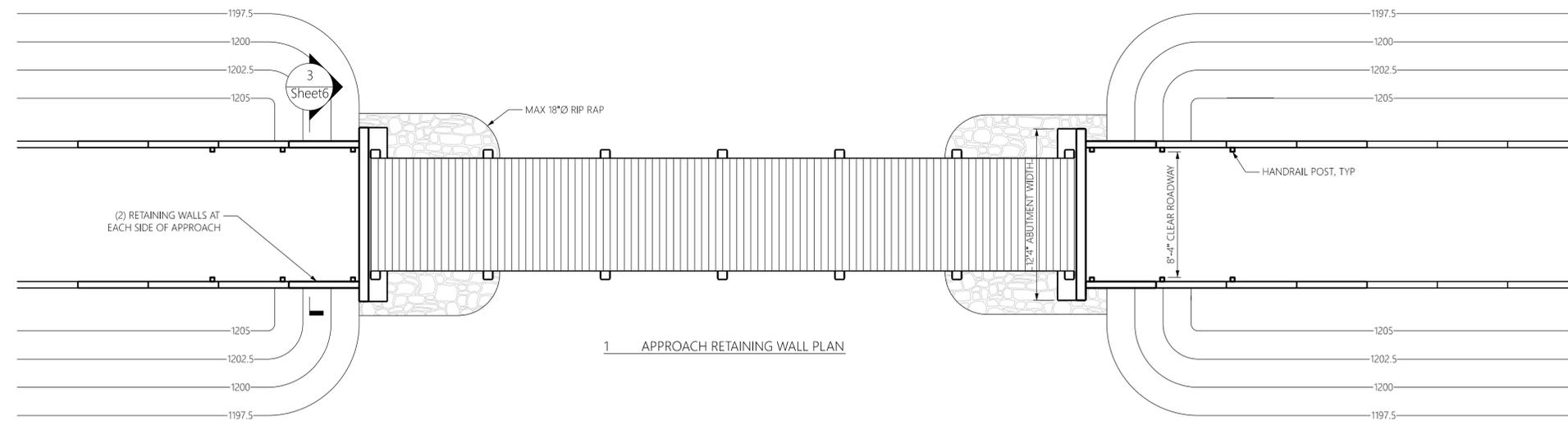
NGS "Young"
N:755385.78
E:1154688.44

Top concrete=1205.4'
Clearance=1203.5'
Ground=1196.9'

BENCHMARK TO
END BENT 1 FILL FACE
6'-0"
BENCHMARK
Rebar = 1204.20

END BENT 1 (FILL FACE) TO
END BENT 2 (FILL FACE)
51'-8"
S 44°12'0" E

Edge of water



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123 SLOPES COURT
BOONE, NC 28607



SUBJECT ADDRESS

LAKE JAMES COVERED TRAIL BRIDGE

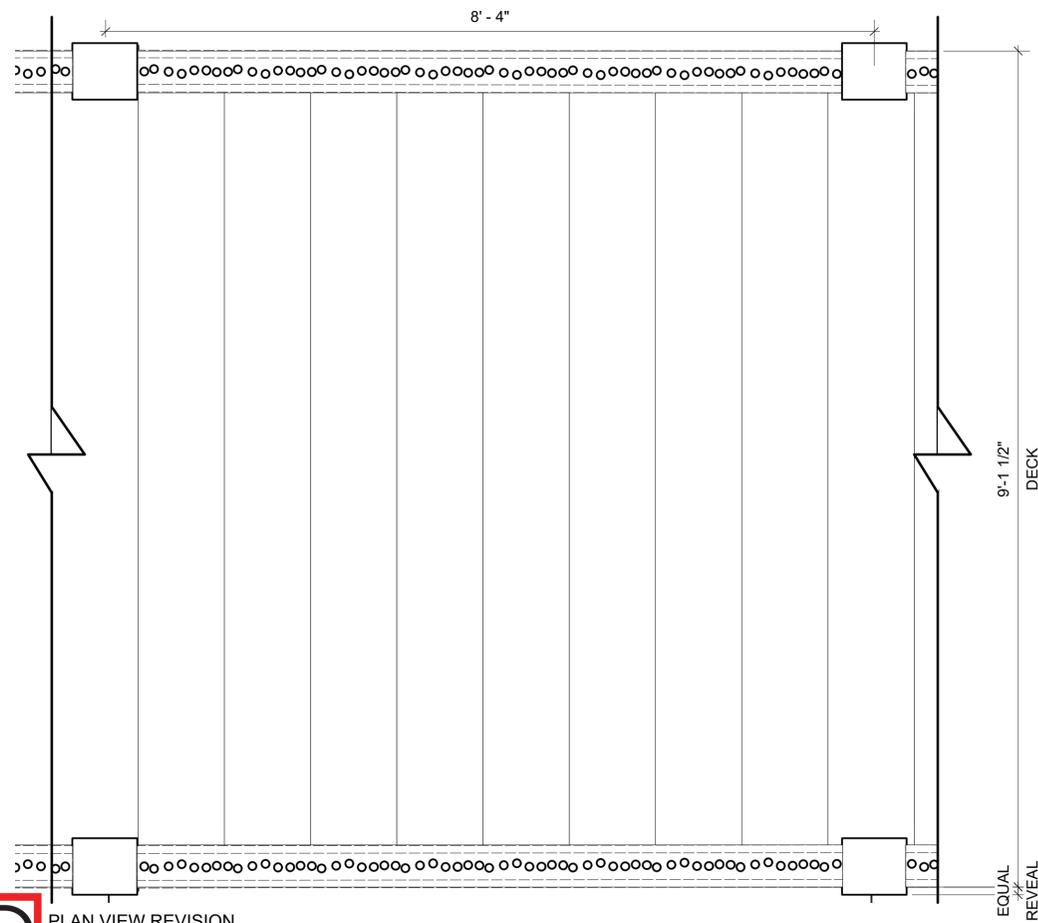
DATE: 12/14/17
DRAWN BY: AGF
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SHEET CONTENTS
APPROACH RETAINING WALL PLAN,
SECTIONS, AND ELEVATION

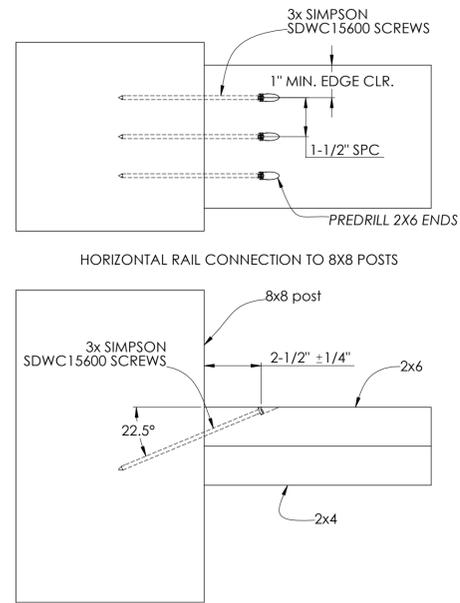
REVISIONS	
A	BANK ARMORING
B	PROPOSED/EXISTNG GRADE
C	TIMBER RETAINING WALL

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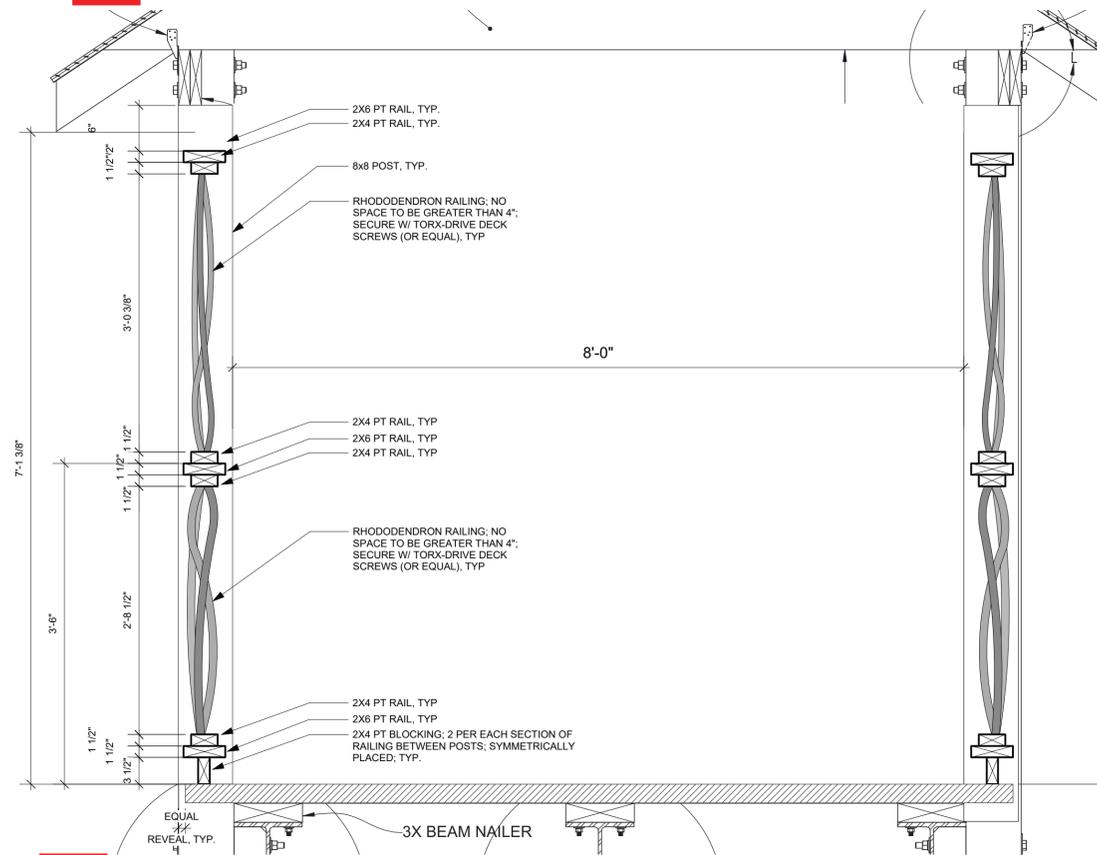
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Sheet6



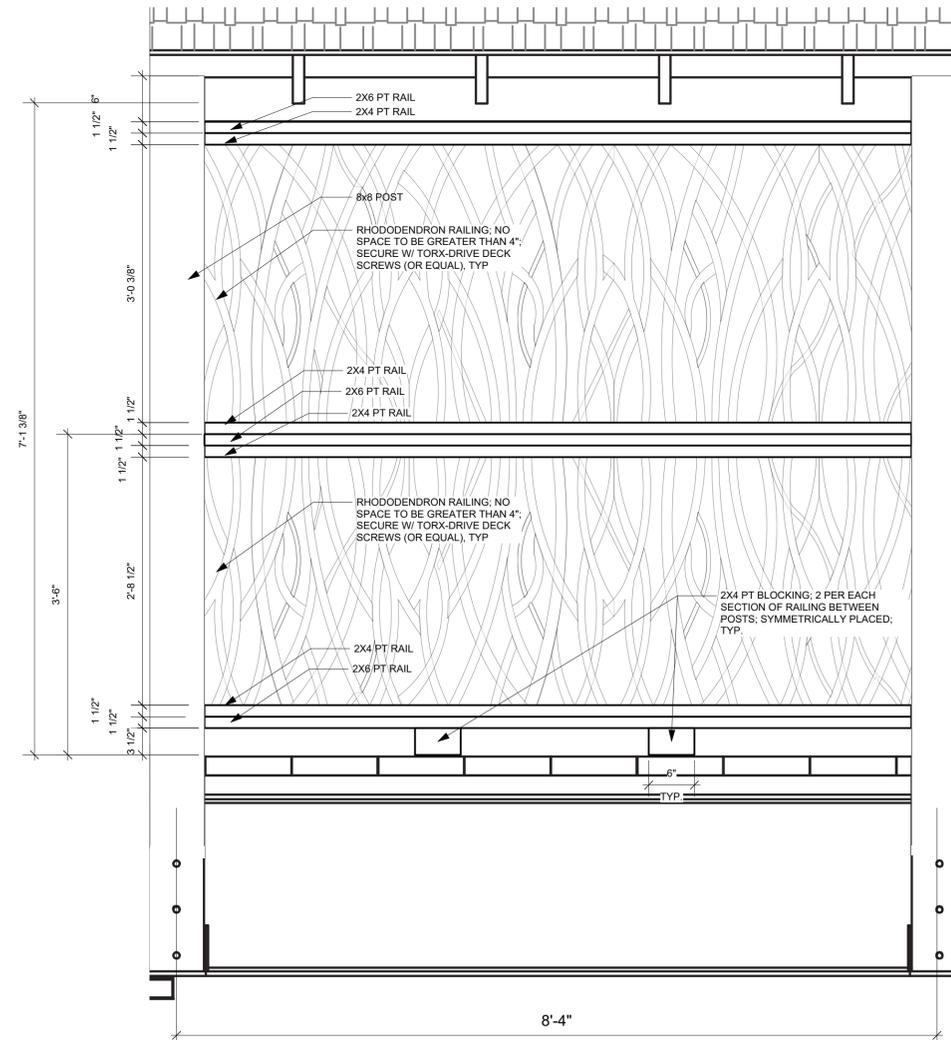
D PLAN VIEW REVISION
Scale: 1" = 1'-0"



1 TYPICAL RAIL CONNECTION



F TYPICAL CROSS SECTION REVISION
Scale: 1" = 1'-0"



E ELEVATION VIEW REVISION
Scale: 1" = 1'-0"



SUBJECT LOCATION

LAKE JAMES COVERED
TRAIL BRIDGE

DATE: 10/05/18
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SHEET CONTENTS
REVISIONS

REVISIONS

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Sheet 7