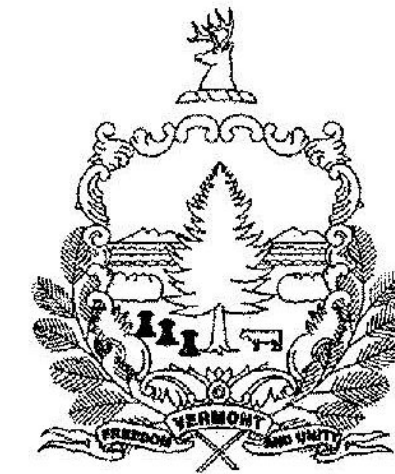
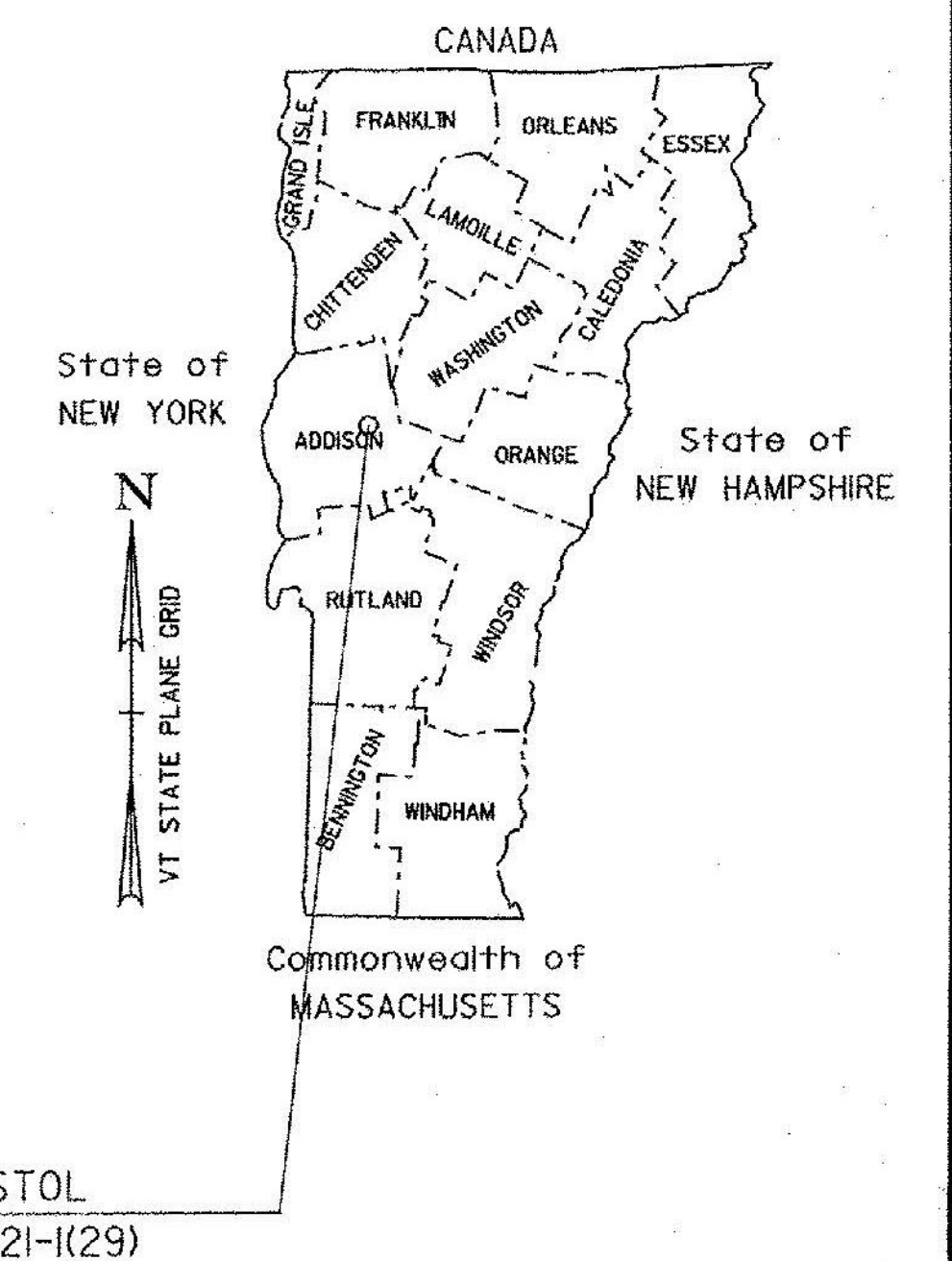
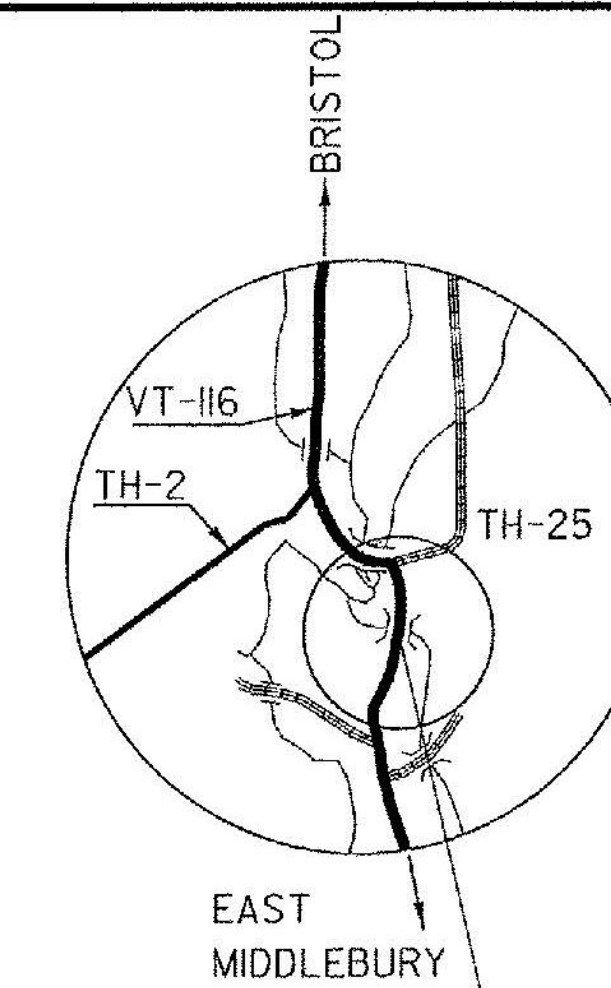


STATE OF VERMONT  
AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT  
BRIDGE PROJECT  
TOWN OF BRISTOL  
COUNTY OF ADDISON



| RECORD PLANS                                                                                                                                                           |                                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| CONTRACTOR:                                                                                                                                                            | S. D. IRELAND CONC. CONST. CORP. - BURLINGTON, VT |
| RESIDENT ENGINEER:                                                                                                                                                     | RICK HALE                                         |
| CONSTRUCTION BEGAN:                                                                                                                                                    | MAY 4, 2015                                       |
| CONSTRUCTION COMPLETE:                                                                                                                                                 | AUGUST 21, 2015                                   |
| RECORD PLANS BY:                                                                                                                                                       | RICK HALE & KEVIN KING                            |
| I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.                                                 |                                                   |
| BY                                                                                                                                                                     | <u>Phil Harrington</u> RESIDENT ENGINEER          |
| DATE                                                                                                                                                                   | <u>01/31/17</u>                                   |
| NOTE: Any further information concerning final quantities, amounts or other details relative to this project may be found at Central Files in the electronic archives. |                                                   |

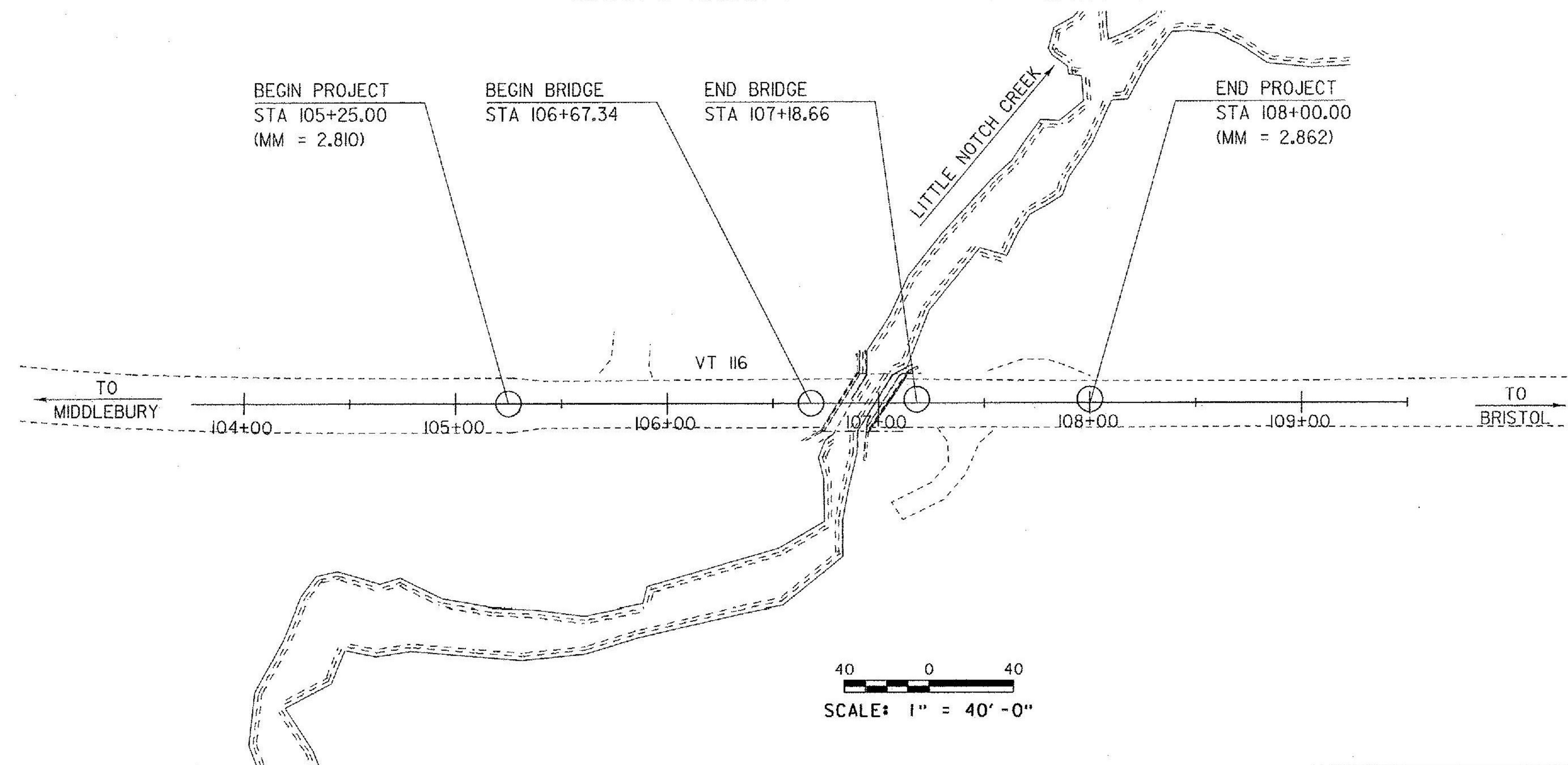
ROUTE NO : VT ROUTE 116, MINOR ARTERIAL BRIDGE NO : #6

PROJECT LOCATION : BEGINNING AT A POINT ON VT 116 APPROXIMATELY 2.82 MILES NORTHERLY OF THE BRISTOL-MIDDLEBURY TOWN LINE AND EXTENDING NORTHEASTERLY 0.052 MILES.

PROJECT DESCRIPTION : REPLACEMENT OF THE EXISTING BRIDGE INCLUDING RELATED APPROACH ROADWAY AND CHANNEL WORK.

LENGTH OF STRUCTURE :  
LENGTH OF ROADWAY :  
LENGTH OF PROJECT :

51.32 FEET.  
223.68 FEET.  
275.00 FEET.



CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JULY 20, 2011 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

|                                     |               |
|-------------------------------------|---------------|
| QUALITY ASSURANCE PROGRAM : LEVEL 2 |               |
| SURVEYED BY :                       | VSE           |
| SURVEYED DATE :                     | 1998          |
| DATUM                               |               |
| VERTICAL                            | NAVD 88       |
| HORIZONTAL                          | NAD 83 (1996) |



|                                         |                        |
|-----------------------------------------|------------------------|
| DIRECTOR OF PROJECT DELIVERY            |                        |
| APPROVED <u>HAERL</u>                   | DATE <u>11/13/2014</u> |
| PROJECT MANAGER : CAROLYN CARLSON, P.E. |                        |
| PROJECT NAME : BRISTOL                  |                        |
| PROJECT NUMBER : BRF 021-1 (29)         |                        |
| SHEET 1 OF 54 SHEETS                    |                        |



STATE OF VERMONT  
AGENCY OF TRANSPORTATION

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LRFD

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5/7/2010

SD-516.10

BRIDGE JOINT ASPHALTIC PLUG

5/7/2010

TRAFFIC DATA

YEAR

ADT

DHV

% D

% T

ADTT

2012

2600

290

53

8.9

270

2032

3000

340

53

12.9

460

20 year ESAL for flexible pavement from 2012 to 2032 : 1911000

40 year ESAL for flexible pavement from 2012 to 2052 : 4465000

Design Speed : 40 mph

HYDROLOGIC DATA

Date: Oct. 2014

DRAINAGE AREA : 10.7 sq. mi.

CHARACTER OF TERRAIN : Hilly to mountainous, mostly forested with a few open areas

STREAM CHARACTERISTICS : Mountainous in headwaters, to flatter and meandering at site

NATURE OF STREAMBED : Gravel and sand

PEAK FLOW DATA

Q 2.33 = 530 cfs

Q 50 = 1800 cfs

Q 10 = 1100 cfs

Q 100 = 2100 cfs

Q 25 = 1450 cfs

Q 500 = 2950 cfs

DATE OF FLOOD OF RECORD : Unknown

ESTIMATED DISCHARGE : Unknown

WATER SURFACE ELEV.: Unknown

NATURAL STREAM VELOCITY : @ Q50 = 6.6 fps (2.4 fps)\*

ICE CONDITIONS : Moderate

DEBRIS : Moderate

DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? Yes

IS ORDINARY RISE RAPID? Yes

IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? Yes

IF YES, DESCRIBE : Hydraulics at the bridge may be controlled by backwater from the New Haven River, during high water events on that river.

WATERSHED STORAGE : <1%

HEADWATERS : UNIFORM: X IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE : Single span concrete slab bridge.

YEAR BUILT : Built 1931, reconstructed in 1970

CLEAR SPAN(NORMAL TO STREAM): 16'

VERTICAL CLEARANCE ABOVE STREAMBED: 8'

WATERWAY OF FULL OPENING: 120 sq. ft.

DISPOSITION OF STRUCTURE: Remove and replace with a new bridge

TYPE OF MATERIAL UNDER SUBSTRUCTURE: See boring information

WATER SURFACE ELEVATIONS AT:

Q2.33 = 326.5' (327.8')\*

VELOCITY = 10.2 fps (5.8 fps)

Q10 = 329.5' (329.5')

Q25 = 329.7' (329.7')

Q50 = 329.8' (329.8')

Q100 = 330.0' (330.0')

LONG TERM STREAMBED CHANGES: The channel appears to have degraded or scoured over 5' since 1931. There is presently about 2' of local scour through the existing bridge.

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes

FREQUENCY: Below Q10

RELIEF ELEVATION: 328.8' on the northern roadway approach

DISCHARGE OVER ROAD @Q100: 1235 cfs (1305 cfs)

UPSTREAM STRUCTURE

TOWN: Bristol

DISTANCE: 2400'

HIGHWAY #: TH 27

STRUCTURE #: 20

CLEAR SPAN: 43'

CLEAR HEIGHT: 10'

YEAR BUILT: Built in 1919, reconstructed in 2002

FULL WATERWAY:

STRUCTURE TYPE: Single span steel beam bridge with wood deck

DOWNSTREAM STRUCTURE

TOWN: Bristol

DISTANCE: 250'

HIGHWAY #:

STRUCTURE #:

CLEAR SPAN:

CLEAR HEIGHT:

YEAR BUILT:

FULL WATERWAY:

STRUCTURE TYPE: Confluence with the New Haven River

LRFR LOAD RATING FACTORS

LOADING LEVELS

TONNAGE

INVENTORY

POSTING

OPERATING

COMMENTS:

TRUCK

H-20

HL-93

3S2

6 AXLE

3A STR.

4A STR.

5A SEMI

20

36

36

66

30

34.5

38

1.93

1.05

2.51

1.36

2.21

1.3

1.77

1.61

AS BUILT "REBAR" DETAIL

LEVEL I

LEVEL II

LEVEL III

TYPE:

TYPE:

TYPE:

GRADE:

GRADE:

GRADE:

PILE DRIVING AND TESTING REQUIREMENTS

1. NOMINAL PILE DRIVING CAPACITY

2. PILE TEST RESISTANCE FACTOR

3. MAXIMUM PILE TIP ELEVATION

4. ONE DYNAMIC PILE LOADING TEST SHALL BE PERFORMED AT EACH ABUTMENT.

255.00 KIP

0.65

282.00 FT

PROPOSED STRUCTURE

STRUCTURE TYPE: Single Span Pre-stressed Concrete Voids Slab Bridge

CLEAR SPAN(NORMAL TO STREAM): 41'

VERTICAL CLEARANCE ABOVE STREAMBED: 9'

WATERWAY OF FULL OPENING: 280 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 = 325.1' (327.4')

VELOCITY= 5.7 fps (2.9 fps)

Q10 = 327.1' (328.2')

Q25 = 328.2' (328.7')

Q50 = 329.1' (329.2')

Q100 = 329.4' (329.6')

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes

FREQUENCY: Between Q25 and Q50

RELIEF ELEVATION: 328.8' on the northern roadway approach

DISCHARGE OVER ROAD @Q100: 250 cfs (450 cfs)

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 329.5'

VERTICAL CLEARANCE: @ Q50 = 0.4' (0.3')

SCOUR: Maximum contraction scour up to Q500 is 7.5' without New Haven River tailwater and 7.0' with concurrent New Haven River floods.

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW: 20 cfs

DEPTH OR ELEVATION:

ORDINARY LOW WATER: 10 cfs

ORDINARY HIGH WATER: 230 cfs

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: No temporary bridge required.

CLEAR SPAN (NORMAL TO STREAM):

VERTICAL CLEARANCE ABOVE STREAMBED:

WATERWAY AREA OF FULL OPENING:

ADDITIONAL INFORMATION

\* Hydraulics at this site can be affected by high flows on the New Haven River, which is 250' downstream. Water surface elevations and velocities are reported without tailwater from that river first, followed by values based on concurrent flows on both rivers in parenthesis.

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN TRAFFIC ON AN OFF SITE DETOUR.

2. TRAFFIC SIGNALS ARE NOT NECESSARY.

3. SIDEWALKS ARE NOT NECESSARY

DESIGN VALUES

1. DESIGN LIVE LOAD

2. FUTURE PAVEMENT

3. DESIGN SPAN

HL-93

d p:

L:

48.00 FT

4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)

5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX)

6. PRESTRESSED CONCRETE STRENGTH

7. PRESTRESSED CONCRETE RELEASE STRENGTH

8. CONCRETE, HIGH PERFORMANCE CLASS AA

9. CONCRETE, HIGH PERFORMANCE CLASS A

10. CONCRETE, HIGH PERFORMANCE CLASS B

11. CONCRETE, CLASS C

12. REINFORCING STEEL

13. STRUCTURAL STEEL AASHTO M270

14. SOIL UNIT WEIGHT

15. NOMINAL BEARING RESISTANCE OF SOIL

16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)

17. NOMINAL BEARING RESISTANCE OF ROCK

18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)

19. NOMINAL AXIAL PILE RESISTANCE

20. PILE YIELD STRENGTH ASTM A572

21. PILE SIZE

22. EST. PILE LENGTHS ( TWO SUBSTRUCTURES )

23. PILE RESISTANCE FACTOR

24. LATERAL PILE DEFLECTION

25. BASIC WIND SPEED

26. MINIMUM GROUND SNOW LOAD

27. SEISMIC DATA

SEE SHT 6

f y:

f' c:

f' c:

f' c:

f' c:

f' c:

f y:

f y:

q n:

phi:

q n:

phi:

q p:

f y:

HP 12X 84

L p:

phi:

Delta:

V 3s:

p g:

S s:

S 1:

PROJECT NAME: BRISTOL

PROJECT NUMBER: BRF 021-1 (29)

FILE NAME: s10b094pi.dgn

PROJECT LEADER: C. CARLSON

DESIGNED BY: M. EVANS-MONGEON

PRELIMINARY INFORMATION

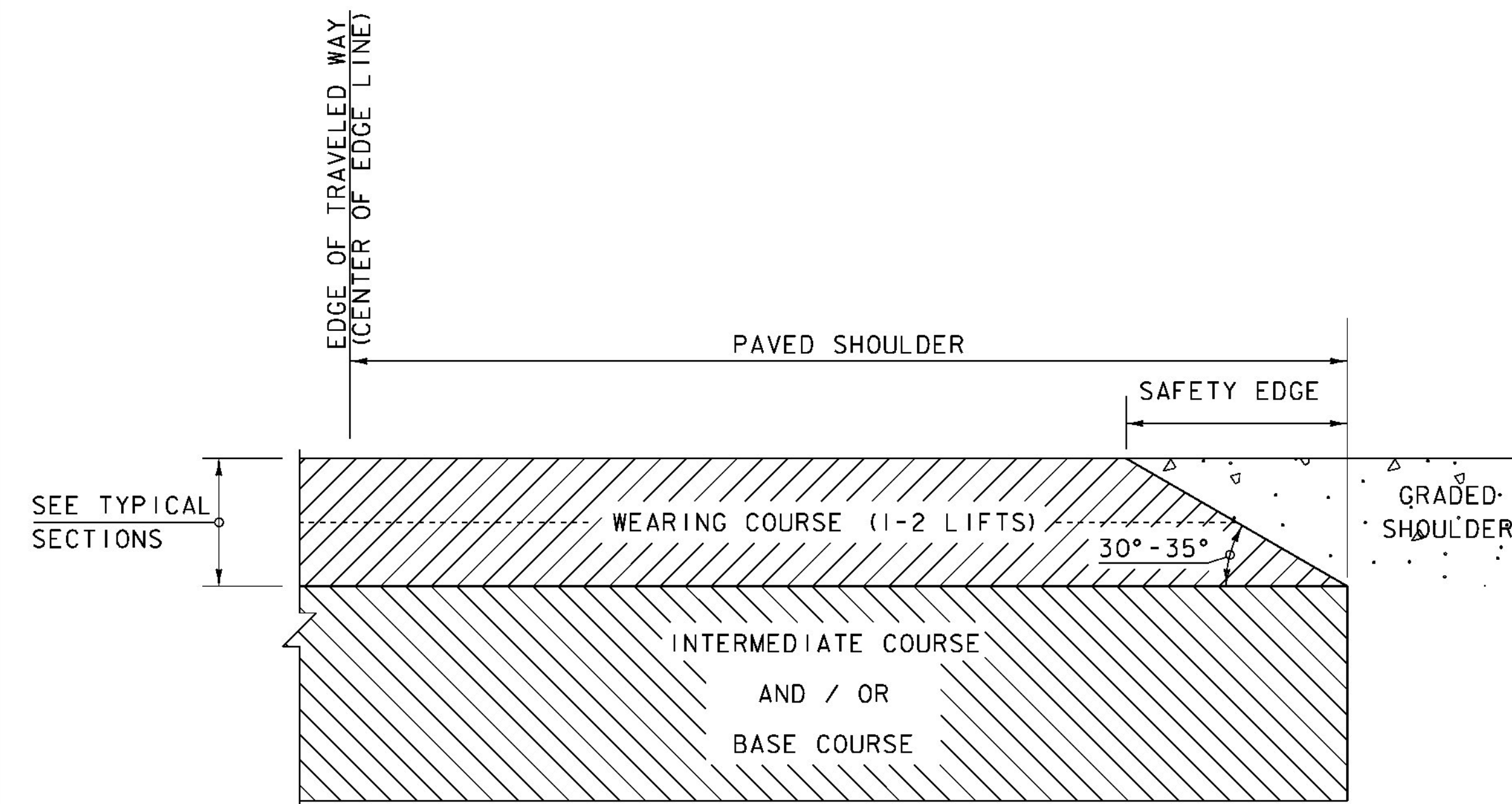
PLOT DATE: 12/5/2014

DRAWN BY: G. ROY

CHECKED BY: EVANS-MONGEO

SHEET 2 OF 54

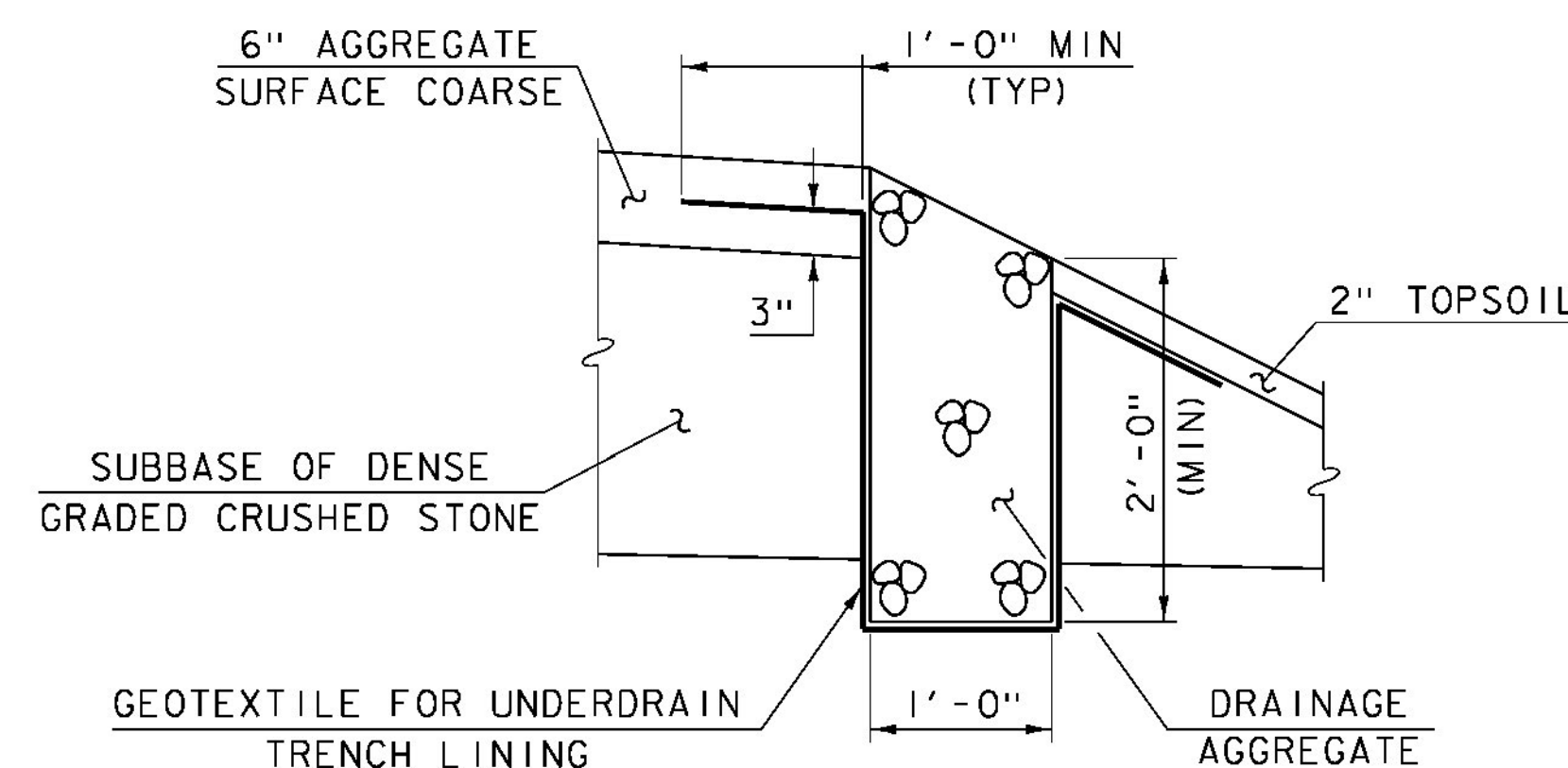




**SAFETY EDGE DETAIL**

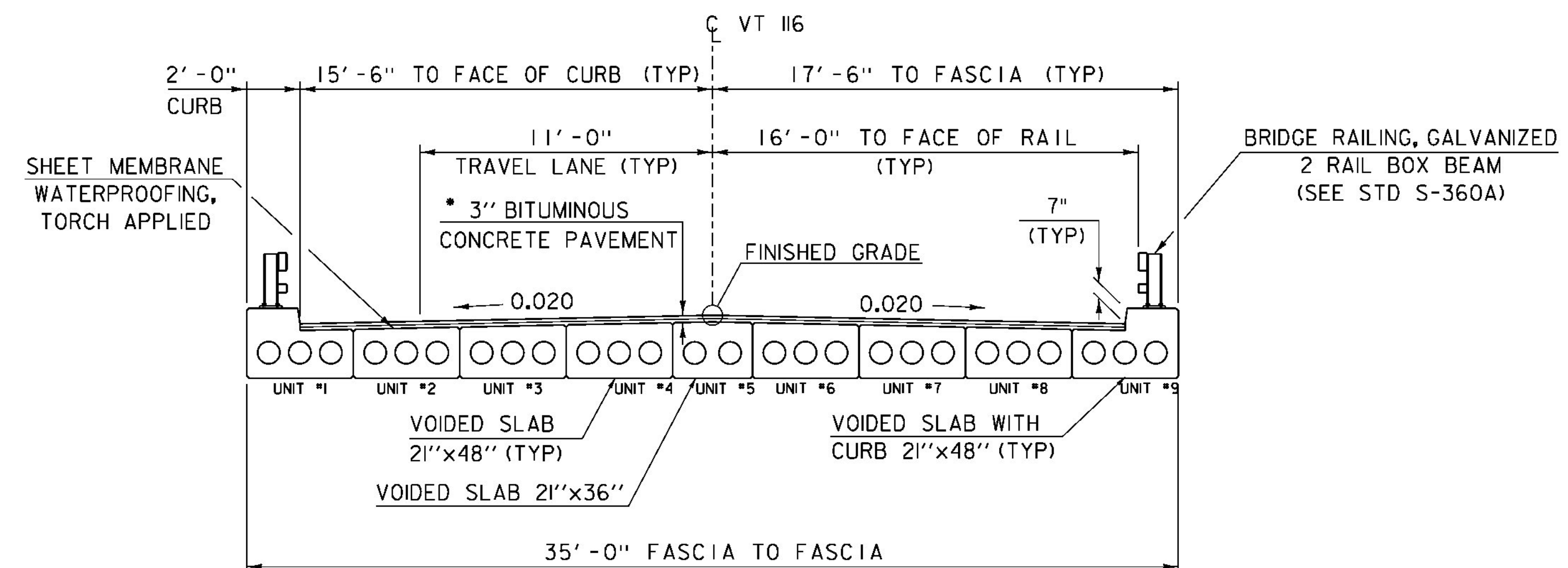
**SAFETY EDGE NOTES**

1. THE EDGE OF PAVEMENT SHALL BE FORMED IN SUCH A WAY THAT THE BITUMINOUS CONCRETE PAVEMENT IS EXTRUDED OR COMPRESSED TO FORM THE 30 TO 35 DEGREE ANGLE. DEVICES THAT SIMPLY STRIKE-OFF THE MIX WITHOUT PROVIDING ANY COMPACTIVE EFFORT WILL NOT BE ALLOWED.
2. PAVED SHOULDER EXTENDS FROM THE EDGE OF TRAVELED WAY TO THE EDGE OF THE WEARING COURSE, INCLUDING THE "SAFETY EDGE".



**SPECIAL PROVISION (STONE DIAPHRAGM)**

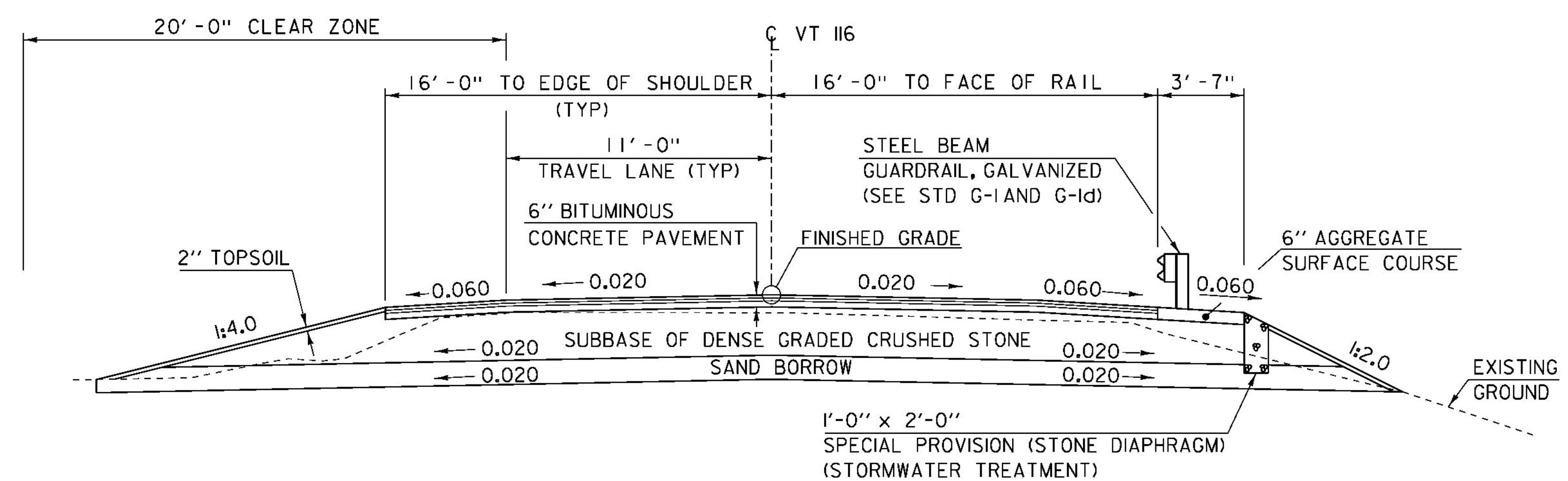
SCALE: 1" = 1'-0"



**BRIDGE TYPICAL SECTION**

SCALE: 1/4" = 1'-0"

- 1 1/2" BITUMINOUS CONCRETE PAVEMENT, TYPE IVS
- 1 1/2" BITUMINOUS CONCRETE PAVEMENT, TYPE IVS



**ROADWAY TYPICAL SECTION**

SCALE: 1/4" = 1'-0"

- 1 1/2" BITUMINOUS CONCRETE PAVEMENT, TYPE IVS
- 1 1/2" BITUMINOUS CONCRETE PAVEMENT, TYPE IVS
- 3" BITUMINOUS CONCRETE PAVEMENT, TYPE IIS
- 24" SUBBASE OF DENSE GRADED CRUSHED STONE
- 12" SAND BORROW

TACK COAT: EMULSIFIED ASPHALT IS TO BE APPLIED AT A RATE OF 0.025 GAL/SY ON ALL COLD PLANED SURFACES AND BETWEEN SUCCESSIVE COURSES OF PAVEMENT AS DIRECTED BY THE ENGINEER.

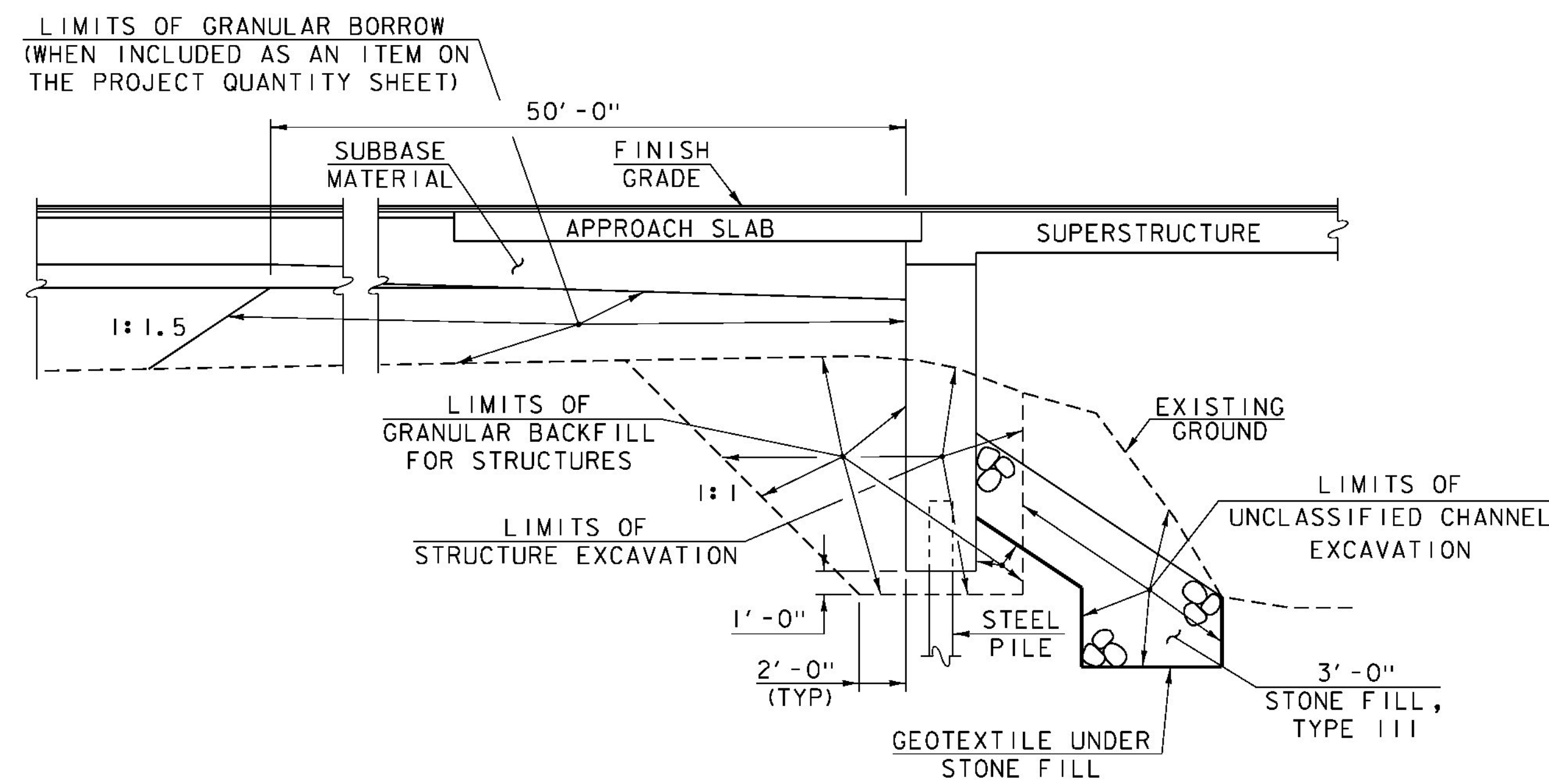
| MATERIAL TOLERANCES<br>(IF USED ON PROJECT) |          |
|---------------------------------------------|----------|
| SURFACE                                     |          |
| - PAVEMENT (TOTAL THICKNESS)                | +/- 1/4" |
| - AGGREGATE SURFACE COURSE                  | +/- 1/2" |
| SUBBASE                                     | +/- 1"   |
| SAND BORROW                                 | +/- 1"   |

PROJECT NAME: BRISTOL  
PROJECT NUMBER: BRF 021-I (29)

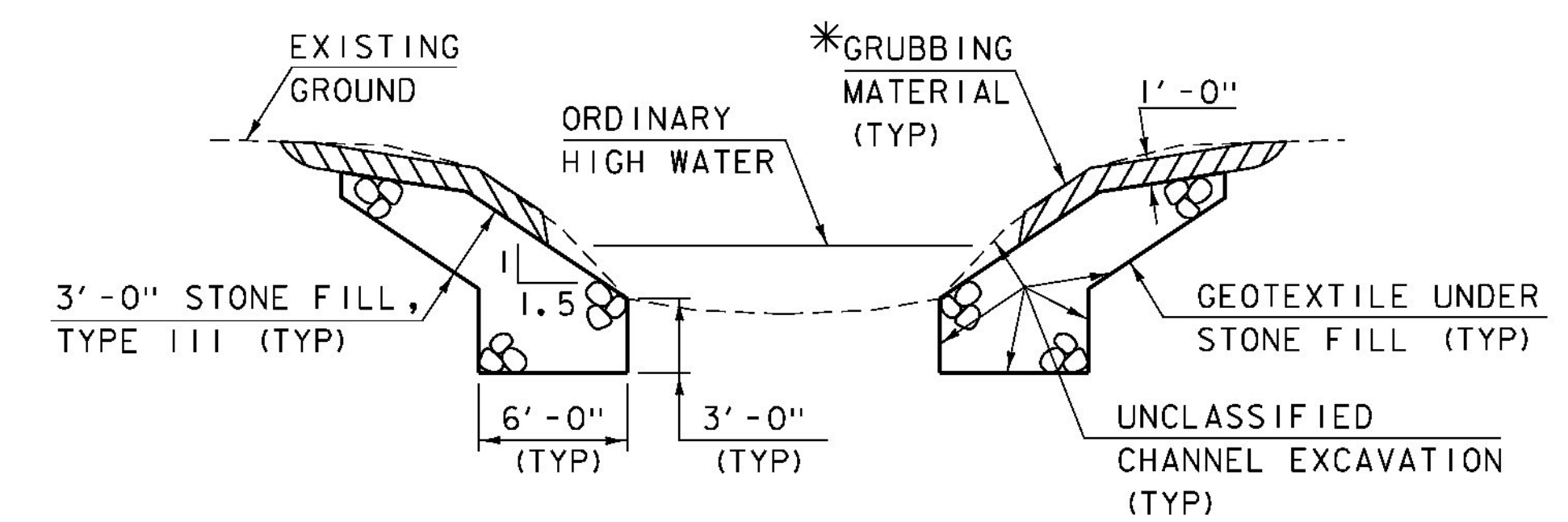
FILE NAME: si0b094typ.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: M. EVANS-MONGEON  
PROJECT TYPICAL SECTIONS (1)

PLOT DATE: 04-NOV-2014  
DRAWN BY: G. ROKES  
CHECKED BY: G. ROY  
SHEET 3 OF 54





**ABUTMENT EARTHWORK TYPICAL SECTION**  
(NOT TO SCALE)



**TYPICAL CHANNEL SECTION**  
(NOT TO SCALE)

\*GRUBBING MATERIAL SHALL NOT BE PLACED ON THE STONE FILL IN THE AREA UNDER THE BRIDGE. WHENEVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE, GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE.

|                 |                |                              |                  |             |             |
|-----------------|----------------|------------------------------|------------------|-------------|-------------|
| PROJECT NAME:   | BRISTOL        | FILE NAME:                   | si0b094typ.dgn   | PLOT DATE:  | 04-NOV-2014 |
| PROJECT NUMBER: | BRF 021-1 (29) | PROJECT LEADER:              | C. CARLSON       | DRAWN BY:   | G. ROKES    |
|                 |                | DESIGNED BY:                 | M. EVANS-MONGEON | CHECKED BY: | G. ROY      |
|                 |                | PROJECT TYPICAL SECTIONS (2) |                  | SHEET       | 4 OF 54     |



GENERAL

- 1) ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE VERMONT AGENCY OF TRANSPORTATION 2011 STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE 2012 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, AND THEIR LATEST REVISIONS.
- 2) ALL PRECAST CONCRETE ELEMENTS TO BE FABRICATED TO THE SPECIFIED DIMENSIONS WITHIN THE TOLERANCES DICTATED IN THE PRECAST/PRESTRESSED CONCRETE INSTITUTE TOLERANCE MANUAL FOR PRECAST AND PRESTRESSED CONCRETE CONSTRUCTION, MNL 135-00, AND ITS LATEST REVISIONS.
- 3) ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL, AND ARE GIVEN AT 68 DEGREES FAHRENHEIT, UNLESS NOTED OTHERWISE.
- 4) THE WEARING SURFACE SHALL BE SHIMMED TRANSVERSELY AS NECESSARY TO ACCOUNT FOR POTENTIAL DIFFERENTIAL CAMBER OF THE ADJACENT PRESTRESSED UNITS.
- 5) THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL BURIED AND AERIAL UTILITIES AND POLES PRIOR TO STARTING WORK. SEE UTILITY SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

TRAFFIC CONTROL

- 6) THE CONTRACTOR WILL BE ALLOWED TO CLOSE THE BRIDGE FOR A MAXIMUM OF FOUR CONSECUTIVE WEEKS TO COMPLETE THE BRIDGE REPLACEMENT. SEE THE SPECIAL PROVISIONS FOR WORK REQUIREMENTS AND INCENTIVE/DISINCENTIVE PROVISIONS FOR THE BRIDGE CLOSURE PERIOD.
- 7) THE CONTRACTOR SHALL NOTIFY THE TOWNS OF BRISTOL, NEW HAVEN, AND MIDDLEBURY A MINIMUM OF FOUR WEEKS PRIOR TO CLOSING THE BRIDGE.
- 8) FULL ACCESS TO ALL SIDE ROADS AND DRIVES WITHIN THE PROJECT LIMITS SHALL BE MAINTAINED AT ALL TIMES. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 900.645 "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)".
- 9) THE TEMPORARY DETOUR, TO BE USED WHILE THE BRIDGE IS CLOSED, IS SHOWN ON THE TRAFFIC DETOUR SHEET. THE INSTALLATION AND MAINTENANCE OF ALL SIGNING ASSOCIATED WITH THE TEMPORARY DETOUR SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL ALL-INCLUSIVE).
- 10) THE CONTRACTOR SHALL SUBMIT A DETAILED, SITE-SPECIFIC, TRAFFIC-CONTROL PLAN TO THE ENGINEER FOR ALL STAGES OF CONSTRUCTION. FOR APPROVAL PER SUBSECTION 105.03. NO WORK SHALL BEGIN UNTIL THE TRAFFIC-CONTROL PLAN HAS BEEN APPROVED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING THE TRAFFIC CONTROL PACKAGE IDENTIFYING THE PROJECT BEFORE, DURING AND AFTER THE EXISTING TRAFFIC CONTROL PATTERN IS ALTERED. ALL COST SHALL BE INCLUDED IN ITEM 900.645 "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)". SEE SPECIAL PROVISIONS FOR ADDITIONAL DETAILS.
- 11) THE COST FOR ALL ITEMS REQUIRED TO DESIGN AND IMPLEMENT THE CONTRACTOR'S TRAFFIC CONTROL PLAN SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 900.645 "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)". FLAGGERS AND MESSAGE BOARDS PAID SEPARATELY.
- 12) ALL SIGNS, BARRICADES, AND OTHER TRAFFIC CONTROL DEVICES SHALL BE CLEANED WEEKLY OR AS DIRECTED BY THE ENGINEER. ALL PORTABLE CHANGEABLE MESSAGE BOARDS SHALL BE INSPECTED TWICE A DAY (AM AND PM) EVERY DAY OF THE WEEK, INCLUDING WEEKENDS, TO BE SURE THAT THEY ARE OPERATING PROPERLY. THE COST FOR THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 900.645 "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)".
- 13) ALL SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MUTCD. WHERE CONFLICTS EXIST BETWEEN THE MUTCD AND THE PLANS, THE MUTCD SHALL GOVERN. FOR ADDITIONAL SIGNING REQUIREMENTS SEE THE T SERIES OF THE STANDARDS.
- 14) DUE TO STABILITY CONCERNS AT THE ABUTMENTS DURING THE ERECTION OF THE SUPERSTRUCTURE, THE CONTRACTOR SHALL SUBMIT THE ERECTION PLAN A MINIMUM OF 30 WORKING DAYS PRIOR TO THE BRIDGE CLOSURE PERIOD. UNDER NO CIRCUMSTANCES SHALL A BRIDGE CLOSURE PERIOD BEGIN PRIOR TO HAVING AN ACCEPTED ERECTION PLAN

EARTHWORK

- 15) REMOVAL OF THE EXISTING STRUCTURE SHALL BE PAID UNDER ITEM 529.15, "REMOVAL OF STRUCTURE". THIS WORK SHALL INCLUDE REMOVAL OF ANY PORTIONS OF THE EXISTING STRUCTURE THAT FALL OUTSIDE THE LIMITS OF ANY OF THE EXCAVATION ITEMS.
- 16) THE "STONE FILL, TYPE III" UNDER THE BRIDGE AS SHOWN IN THE PLANS SHALL BE PLACED BEFORE THE SUPERSTRUCTURE IS SET.

CONCRETE AND REINFORCING STEEL

- 17) ITEM 514.10, "WATER REPELLENT, SILANE", SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES ON THE BRIDGE SUPERSTRUCTURE AND SUBSTRUCTURE, WITH THE EXCEPTION OF THE BOTTOM OF THE PRECAST VOIDED SLABS BETWEEN THE DRIP NOTCHES.

- 18) ALL CONCRETE PLACED INTEGRALLY WITH THE SUPERSTRUCTURE SHALL BE ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)". ALL PRECAST SUBSTRUCTURE AND APPROACH SLAB CONCRETE SHALL MEET THE REQUIREMENTS OF SECTION 540 – PRECAST CONCRETE.
- 19) ALL REINFORCING STEEL SHALL BE DETAILED AND FABRICATED USING PROCEDURES AND TOLERANCES IN ACCORDANCE WITH APPLICABLE PUBLICATIONS OF THE "CONCRETE REINFORCING STEEL INSTITUTE".
- 20) ALL REINFORCING STEEL SHALL MEET THE REQUIREMENTS FOR REINFORCING STEEL, LEVEL II.
- 21) PAYMENT FOR REINFORCING INCLUDED IN THE PRE-CAST ELEMENTS WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE APPROPRIATE SECTION 540 CONTRACT ITEM. PAYMENT FOR REINFORCING FOR ANY CAST-IN PLACE CONCRETE WILL BE MADE UNDER ITEM 507.12, "REINFORCING STEEL, LEVEL II".

PRECAST ABUTMENTS AND POST-TENSIONING

- 22) THE UNIT PRICE FOR EACH PRECAST ABUTMENT SHALL INCLUDE THE ASSOCIATED WINGWALLS AND ALL LABOR AND MATERIAL TO CONNECT THE WINGWALLS TO THE ABUTMENT. THIS WORK SHALL BE PAID FOR UNDER ITEM 540.10, "PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 1)" OR ITEM 540.10, "PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 2)", AS APPROPRIATE.
- 23) IF VERTICAL CONSTRUCTION JOINTS ARE REQUIRED BY THE CONTRACTOR FOR SHIPMENT OF THE ABUTMENTS, THE SECTIONS SHALL BE KEYED AND MATCH CAST. A JOINT DETAIL SHALL BE SHOWN ON THE FABRICATION DRAWINGS.
- 24) POST-TENSIONING AND ASSOCIATED ITEMS ARE ONLY REQUIRED IF THE PRECAST ABUTMENT IS CONSTRUCTED IN MORE THAN ONE PIECE. ANY POST-TENSIONING STRANDS AND CONDUIT SHALL ADHERE TO THE REQUIREMENTS OF SECTION 510 – PRESTRESSED CONCRETE. GALVANIZED ANCHOR ASSEMBLIES, CONDUIT, AND POST-TENSIONING STRANDS SHALL BE INCLUDED UNDER ITEM 540.10, "PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 1) OR ITEM 540.10 "PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 2)" AS APPROPRIATE. POST-TENSIONING STRANDS SHALL BE COVERED WITH SEAMLESS POLYPROPYLENE SHEATH (WITH CORROSION INHIBITOR GREASE BETWEEN SHEATH AND STRAND) FOR THE LENGTH OF THE STRAND, EXCEPT AT ANCHORAGE LOCATIONS.
- 25) GALVANIZE ANCHOR ASSEMBLIES AFTER FABRICATION ACCORDING TO AASHTO M232M/M 232.
- 26) DESIGN VALUES
- a) CONCRETE COMPRESSIVE STRENGTH:  $f_c = 5000$  PSI.
  - b) POST-TENSIONING STRANDS: 0.5 INCH DIAMETER, 270 KSI, LOW RELAXATION 7-WIRE STRANDS.
  - c) ASSUMED MODULUS OF ELASTICITY IS 28,500 KSI.
  - d) THERE SHALL BE 2 STRANDS PER POST-TENSIONING CONDUIT.
  - e) JACKING FORCE PER STRAND = 32 KIPS
- 27) THE CONCRETE FOR THE ABUTMENT # 1 AND ABUTMENT #2 PILE CAVITIES SHALL MEET THE REQUIREMENTS OF ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)".
- 28) THE CORRUGATED STEEL PIPE SHALL MEET THE REQUIREMENTS OF SUBSECTION 711.01. ALL COSTS ASSOCIATED WITH PLACING THE CORRUGATED STEEL PIPE SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 540.10, "PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 1)" OR ITEM 540.10, "PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 2)", AS APPROPRIATE.
- 29) PROPOSED SEQUENCE OF CONSTRUCTION:
- a) PREPARE AND GRADE FOUNDATION TO REQUIRED ELEVATION.
  - b) DRIVE PILES.
  - c) PLACE PRECAST ABUTMENTS AND INSTALL TRANSVERSE STRANDS (IF MORE THAN ONE UNIT).
  - d) APPLY EPOXY BONDONG COMPOUND TO MATCH CAST FACES OF VERTICAL CONSTRUCTION JOINT.
  - e) USE A CALIBRATED JACK TO TENSION TO 3 KIPS TO REMOVE SAG IN STRANDS.
  - f) CHECK ALIGNMENT OF PILE CAP ELEMENTS.
  - g) STRESS POST-TENSIONING STRANDS USING A CALIBRATED JACK.
  - h) FILL PILE CAVITIES WITH ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)".
  - i) PLACE PRE-CAST WINGWALLS AND GROUT MECHANICAL SPLICE CONNECTORS.
  - j) BACKFILL MAY BE INITIATED AFTER SPLICE CONNECTOR GROUT HAS REACHED 85% OF 5000 PSI.
- 30) ALTERNATE SEQUENCE OF CONSTRUCTION MAY BE SUBMITTED TO THE VTRANS PROJECT MANAGER FOR APPROVAL.

H-PILES

- 31) TO PREVENT DAMAGE TO THE PILES, PILE SHOES ARE REQUIRED AND SHALL CONFORM TO SUBSECTION 505.04 (f).
- 32) THE PILES SHALL BE DRIVEN TO A NOMINAL PILE DRIVING RESISTANCE ( $R_{NDR}$ ) OF 255 KIPS, PROVIDED A MINIMUM PENETRATION OF 40 FEET BELOW THE BOTTOM OF PILE CAP HAS BEEN ACHIEVED.

- 33) A MINIMUM OF TWO DYNAMIC TESTS ARE REQUIRED DURING PILE INSTALLATION. NO LESS THAN ONE DYNAMIC PILE TEST SHALL BE CONDUCTED AT EACH ABUTMENT. PAYMENT WILL BE MADE UNDER ITEM 505.45, "DYNAMIC PILE LOADING TEST".
- 34) THE TOPS OF THE PILES AFTER DRIVING SHALL NOT VARY FROM THE POSITION SHOWN ON THE PLANS BY MORE THAN 3 INCHES. THE PILE ORIENTATION SHALL NOT VARY BY MORE THAN 5 DEGREES. THE CONTRACTOR SHALL DEMONSTRATE TO THE SATISFACTION OF THE ENGINEER HOW THE TOLERANCES WILL BE MET. THESE MEASURES SHALL BE DEMONSTRATED IN A SUBMITTAL TO BE ACCEPTED BEFORE PILE DRIVING COMMENCES.
- 35) FOR ESTIMATING PURPOSES, THE PILE TIP ELEVATIONS WERE ASSUMED AS SHOWN ON THE BORING LOGS. THE ACTUAL IN-PLACE LENGTHS MAY VARY.

PROPOSED CONSTRUCTION SEQUENCE FOR PRESTRESSED VOIDED SLABS

- 36) LAYOUT WORKING LINES:
- A. LAYOUT WORKING LINES FOR THE ENTIRE BRIDGE WIDTH ON THE SLAB SEAT.
  - B. MEASURE ALL WORKING LINES FROM A COMMON WORKING POINT.
  - C. BASE THE WORKING LINES ON THE NOMINAL SLAB WIDTHS.
- 37) VERIFY SLAB SEAT ELEVATIONS.
- 1. MEASURE ELEVATIONS AT SLAB SEATS.
  - 2. IF SEATS ARE HIGH OR LOW, TAKE CORRECTIVE ACTION.
  - 3. INSTALL BEARINGS.
- 38) ERECT SLAB:
- A. PLACE SLAB TO FIT WITHIN WORKING LINES.
  - B. AS WORK PROGRESSES, INSTALL HARDWOOD WEDGES BETWEEN ADJACENT SLABS TO MAINTAIN PROPER JOINT OPENING, A MINIMUM OF ONE WEDGE AT TRANSVERSE TENDON.
  - C. DRILL ANCHOR BOLT HOLES.
  - D. PLACE ANCHOR BOLTS.
- 39) INSTALL BACKER ROD:
- A. PLACE FILLER BELOW THE KEYWAY BOTTOM, AS SHOWN ON THE PLANS.
- 40) INSTALL TRANSVERSE TENDONS:
- A. FEED TENDONS THROUGH DUCTS.
  - B. VERIFY THAT HARDWOOD WEDGES ARE IN PLACE AS REQUIRED TO PREVENT SLIPPAGE OF SLABS.
  - C. USING A CALIBRATED JACK, POST-TENSION TENDONS TO APPROXIMATELY 5 KIPS TO REMOVE SAG IN THE TENDON AND SEAT THE CHUCK.
- 41) GROUT SHEAR KEYS:
- A. CLEAN JOINT WITH OIL-FREE AIR-BLAST IMMEDIATELY BEFORE GROUT PLACEMENT. VERIFY THAT BACKER ROD IS STILL IN PLACE.
  - B. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR ADDITIONAL JOINT PREPARATION AND GROUT PLACEMENT.
  - C. CAREFULLY ROD JOINTS TO ELIMINATE THE POSSIBILITY OF VOIDS.
- 42) POST-TENSION TRANSVERSE TENDONS:
- A. GROUT SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI, BASED ON THE MANUFACTURER'S RECOMMENDATIONS, PRIOR TO STRESSING.
  - B. POST-TENSION TENDONS TO 32 KIPS EACH USING A CALIBRATED JACK OPERATED BY QUALIFIED PERSONNEL. BEGIN WITH TENDONS AT THE ENDS AND WORK SYMMETRICALLY TOWARDS THE MID-SPAN FROM EACH END. SEE SHEET 23 FOR ADDITIONAL NOTES AND DETAIL.
  - C.
- 43) END DETAILS:
- A. GROUT ANCHOR BOLTS INTO THE SLEEVES IN THE PRE-STRESSED UNITS. BEFORE THE GROUT CURES, PLACE THE WASHER PLATE AND INSTALL THE NUT ON TOP AND TIGHTEN.
  - B. GROUT OVER THE NUT AND BOLT IN THE ANCHOR BOLT BLOCK OUTS.
  - C. SEE SHEET 23 FOR ADDITIONAL NOTES AND DETAILS.
- 44) FINISH WORK:
- A. REMOVE WEDGES AND SURFACE PATCH THE FASCIA SLABS AT TRANSVERSE TENDONS.
- 45) FILL KEYWAY WITH TYPE IV MORTAR ACCORDING TO SECTION 510. GROUTING SHALL BE PAID FOR UNDER ITEM 510.24, "GROUTING SHEAR KEYS".
- 46) ALTERNATE SEQUENCE OF CONSTRUCTION MAY BE SUBMITTED TO THE VTRANS PROJET MANAGER FOR APPROVAL.
- 47) THE FABRICATOR MAY ALTER THE DESIGN AS DETAILED IN THESE PLANS TO ACCOMMODATE THEIR SPECIFIC OPERATION. ALTERNATE CONFIGURATIONS SHALL MEET ALL OF THE APPLICABLE DESIGN CRITERIA, LOADINGS AND CODES; AND SHALL BE STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER, LICENSED IN VERMONT.

|                   |                       |             |               |
|-------------------|-----------------------|-------------|---------------|
| PROJECT NAME:     | BRISTOL               |             |               |
| PROJECT NUMBER:   | BRF 021-I (29)        |             |               |
| FILE NAME:        | si0b094proj_notes.dgn | PLOT DATE:  | 04-NOV-2014   |
| PROJECT LEADER:   | C. CARLSON            | DRAWN BY:   | R. PELLETT    |
| DESIGNED BY:      | M. EVANS-MONGEON      | CHECKED BY: | EVANS-MONGEON |
| PROJECT NOTES (i) |                       | SHEET       | 5 OF 54       |



- 48.) DESIGN VALUES FOR PRESTRESSED CONCRETE VOIDED SLABS
- a) CONCRETE COMPRESSIVE STRENGTH:  $f_c = 7,500$  PSI.
  - b) LIVE LOAD HL-93.
  - c) CONCRETE COMPRESSIVE STRENGTH AT RELEASE:  $f_{ci} = 5,000$  PSI
  - d) ASSUMED MODULUS OF ELASTICITY = 28,500 KSI.
  - e) PRESTRESSING STRANDS: 0.6 INCH DIAMETER, 270 KSI, LOW-RELAXATION 7-WIRE STRAND PULLED TO 75% OF THEIR ULTIMATE TENSILE STRENGTH.
  - f) POST TENSIONING STRANDS: 0.5 INCH DIAMETER, 270 KSI, LOW-RELAXATION 7 WIRE STRAND.
  - g) THERE SHALL BE TWO (2) TRANSVERSE STRANDS PER CONDUIT. JACKING FORCE PER STRAND = 32 KIPS.
  - h) POST-TENSIONING STRANDS SHALL BE COVERED WITH SEAMLESS POLYPROPYLENE SHEATH (WITH CORROSION INHIBITOR GREASE BETWEEN SHEATH AND STRAND) FOR THE LENGTH OF THE STRAND, EXCEPT AT ANCHORAGE LOCATIONS.
  - i) SERVICE LOADS:

|                                                                |                 |  |                             |                         |
|----------------------------------------------------------------|-----------------|--|-----------------------------|-------------------------|
|                                                                |                 |  |                             |                         |
|                                                                | FASCIA<br>UNITS |  | 4 FOOT<br>INTERIOR<br>UNITS | UNIT 5<br>(3 FOOT UNIT) |
|                                                                |                 |  |                             |                         |
| MEMBER<br>MOMENT<br>(UNFACTORED)                               | 320 FT-KIPS     |  | 290 FT-KIPS                 | 230 FT- KIPS            |
|                                                                |                 |  |                             |                         |
| SUPERIMPOSED<br>DEAD LOAD<br>MOMENT<br>(UNFACTORED)            | 40 FT-KIPS      |  | 40 FT-KIPS                  | 40 FT-KIPS              |
|                                                                |                 |  |                             |                         |
| LIVE LOAD AND<br>IMPACT<br>MOMENT<br>(UNFACTORED)              | 332 FT-KIPS     |  | 312 FT-KIPS                 | 273 FT-KIPS             |
|                                                                |                 |  |                             |                         |
| DEAD LOAD<br>REACTION PER<br>BRG<br>(UNFACTORED)               | 16 KIPS         |  | 14 KIPS                     | 12 KIPS                 |
|                                                                |                 |  |                             |                         |
| LIVE LOAD AND<br>IMPACT<br>REACTION PER<br>BRG<br>(UNFACTORED) | 24 KIPS         |  | 24 KIPS                     | 15 KIPS                 |
|                                                                |                 |  |                             |                         |
| TOTAL<br>REACTION PER<br>BRG<br>(UNFACTORED)                   | 40 KIPS         |  | 38 KIPS                     | 27 KIPS                 |
|                                                                |                 |  |                             |                         |
| FINAL CAMBER                                                   | 3/8 INCH        |  | 3/8 INCH                    | 3/8 INCH                |

|                                  |                           |
|----------------------------------|---------------------------|
| PROJECT NAME: BRISTOL            |                           |
| PROJECT NUMBER: BRF 021-I (29)   |                           |
| FILE NAME: si0b094proj_notes.dgn | PLOT DATE: 04-NOV-2014    |
| PROJECT LEADER: C. CARLSON       | DRAWN BY: R. PELLETT      |
| DESIGNED BY: M. EVANS-MONGEON    | CHECKED BY: EVANS-MONGEON |
| PROJECT NOTES (2)                | SHEET 6 OF 54             |



| STATE OF VERMONT<br>AGENCY OF TRANSPORTATION |  |  |  |  |  |  |  |         |          |                 |        | QUANTITY SHEET 1 |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|----------------------------------------------|--|--|--|--|--|--|--|---------|----------|-----------------|--------|------------------|-----------------|--------------|--------------------------------------------------------------|------|------------------------------|-------------|---------|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--|--|
| SUMMARY OF ESTIMATED QUANTITIES              |  |  |  |  |  |  |  |         |          |                 |        | TOTALS           |                 | DESCRIPTIONS |                                                              |      |                              |             |         | DETAILED SUMMARY OF QUANTITIES |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  | ROADWAY | TRAINING | EROSION CONTROL | BRIDGE |                  | FULL C.E. ITEMS | GRAND TOTAL  | FINAL                                                        | UNIT | ITEMS                        | ITEM NUMBER | ROUND   | QUANTITIES                     | UNIT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ITEMS |  |  |
| 1                                            |  |  |  |  |  |  |  |         |          |                 |        | 1                |                 | LS           | CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS |      |                              |             | 201.10  |                                | <div>EARTHWORKS SUMMARY</div> <div>FILL AVAILABLE</div> <div>735CYCOMMON EXCAVATION (0.70 x 1050 CY)</div> <div>180CYUNCLASSIFIED CHANNEL EXCAVATION (0.30 x 600)</div> <div>35CYTRENCH EXCAVATION OF EARTH (0.70 x 50)</div> <div>144CYSTRUCTURE EXCAVATION (0.30 x 480)</div> <div>6CYROUNDING</div> <div>1100CYTOTAL FILL AVAILABLE</div> <div>FILL REQUIRED</div> <div>154CYFACTORED FILL (134 x 1.15)</div> <div>6CYROUNDING</div> <div>160CYTOTAL FILL REQUIRED</div> <div>940CYTOTAL WASTE</div> |       |  |  |
| 1050                                         |  |  |  |  |  |  |  |         |          |                 |        | 1050             |                 | CY           | COMMON EXCAVATION                                            |      |                              |             | 203.15  |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        | 600              |                 | CY           | UNCLASSIFIED CHANNEL EXCAVATION                              |      |                              |             | 203.27  |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
| 330                                          |  |  |  |  |  |  |  |         |          |                 |        | 330              |                 | CY           | SAND BORROW                                                  |      |                              |             | 203.31  |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
| 40                                           |  |  |  |  |  |  |  |         |          |                 |        | 50               |                 | CY           | TRENCH EXCAVATION OF EARTH                                   |      |                              |             | 204.20  |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
| 1                                            |  |  |  |  |  |  |  |         |          |                 |        | 1                |                 | CY           | TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)           |      |                              |             | 204.22  |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        | 480              |                 | CY           | STRUCTURE EXCAVATION                                         |      |                              |             | 204.25  |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        | 220              |                 | CY           | GRANULAR BACKFILL FOR STRUCTURES                             |      |                              |             | 204.30  |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
| 270                                          |  |  |  |  |  |  |  |         |          |                 |        | 270              |                 | SY           | COLD PLANING, BITUMINOUS PAVEMENT                            |      |                              |             | 210.10  |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
| 980                                          |  |  |  |  |  |  |  |         |          |                 |        | 980              |                 | CY           | SUBBASE OF DENSE GRADED CRUSHED STONE                        |      |                              |             | 301.35  |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
| 50                                           |  |  |  |  |  |  |  |         |          |                 |        | 50               |                 | CY           | AGGREGATE SURFACE COURSE                                     |      |                              |             | 401.10  |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
| 9                                            |  |  |  |  |  |  |  |         |          |                 |        | 9                |                 | CWT          | EMULSIFIED ASPHALT                                           |      |                              |             | 404.65  |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
| 1                                            |  |  |  |  |  |  |  |         |          |                 |        | 1                |                 | LU           | PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)                  |      |                              |             | 406.50  |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        | 1                |                 | LS           | FURNISHING EQUIPMENT FOR DRIVING PILING                      |      |                              |             | 504.10  |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        | 600              |                 | LF           | STEEL PILING, HP 12 X 84                                     |      |                              |             | 505.165 |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        | 2                |                 | EACH         | DYNAMIC PILE LOADING TEST                                    |      |                              |             | 505.45  |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        | 928              |                 | LB           | REINFORCING STEEL, LEVEL II                                  |      |                              |             | 507.12  |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        | 50               |                 | LF           | PRESTRESSED CONCRETE VOIDED SLABS (21" X 36")                |      |                              |             | 510.22  |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        | 100              |                 | LF           | PRESTRESSED CONCRETE VOIDED SLABS (21" X 48" )(FASCIA)       |      |                              |             | 510.22  |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        | 300              |                 | LF           | PRESTRESSED CONCRETE VOIDED SLABS (21" X 48" )(INTERIOR)     |      |                              |             | 510.22  |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        | 400              |                 | LF           | GROUTING SHEAR KEYS                                          |      |                              |             | 510.24  |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        | 10               |                 | GAL          | WATER REPELLENT, SILANE                                      |      |                              |             | 514.10  |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        | 70               |                 | LF           | BRIDGE EXPANSION JOINT, ASPHALTIC PLUG                       |      |                              |             | 516.10  |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        | 180              |                 | SY           | SHEET MEMBRANE WATERPROOFING, TORCH APPLIED                  |      |                              |             | 519.20  |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        | 70               |                 | LF           | JOINT SEALER, HOT POURED                                     |      |                              |             | 524.11  |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        | 110              |                 | LF           | BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM                   |      |                              |             | 525.33  |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        | 1                |                 | EACH         | REMOVAL OF STRUCTURE (690 SF -EST.)                          |      |                              |             | 529.15  |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        | 36               |                 | EACH         | BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD    |      |                              |             | 531.17  |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        | 1                |                 | LS           | PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 1)                  |      |                              |             | 540.10  |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        | 1                |                 | LS           | PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 2)                  |      |                              |             | 540.10  |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        | 1                |                 | LS           | PRECAST CONCRETE STRUCTURE (APPROACH SLAB NO. 1)             |      |                              |             | 540.10  |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        | 1                |                 | LS           | PRECAST CONCRETE STRUCTURE (APPROACH SLAB NO. 2)             |      |                              |             | 540.10  |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              | BEGIN OPTION AA                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  | 66      |          |                 |        |                  |                 | 66           |                                                              | LF   | 24" CAAP .060 (2-2/3 X 1/2)  | 601.0225    |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  | 66      |          |                 |        |                  |                 | 66           |                                                              | LF   | 24" PCCSP .064 (2-2/3 X 1/2) | 601.0425    |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  | 66      |          |                 |        |                  |                 | 66           |                                                              | LF   | 24" CPEP(SL)                 | 601.2620    |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              | END OPTION AA                                                |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
| 30                                           |  |  |  |  |  |  |  |         |          |                 |        | 30               |                 | CY           | STONE FILL, TYPE II                                          |      |                              |             | 613.11  |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        | 380              |                 | CY           | STONE FILL, TYPE III                                         |      |                              |             | 613.12  |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
| 160                                          |  |  |  |  |  |  |  |         |          |                 |        | 160              |                 | LF           | CAST-IN-PLACE CONCRETE CURB, TYPE B                          |      |                              |             | 616.28  |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |
|                                              |  |  |  |  |  |  |  |         |          |                 |        |                  |                 |              |                                                              |      |                              |             |         |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |  |  |



| STATE OF VERMONT<br>AGENCY OF TRANSPORTATION |  |  |  |  |  |  |  |  |         |          |                    |        |                    | QUANTITY SHEET 2 |       |              |                                                                |                    |       |                  |      |                                |  |  |  |
|----------------------------------------------|--|--|--|--|--|--|--|--|---------|----------|--------------------|--------|--------------------|------------------|-------|--------------|----------------------------------------------------------------|--------------------|-------|------------------|------|--------------------------------|--|--|--|
| SUMMARY OF ESTIMATED QUANTITIES              |  |  |  |  |  |  |  |  |         |          |                    |        |                    | TOTALS           |       | DESCRIPTIONS |                                                                |                    |       |                  |      | DETAILED SUMMARY OF QUANTITIES |  |  |  |
|                                              |  |  |  |  |  |  |  |  | ROADWAY | TRAINING | EROSION<br>CONTROL | BRIDGE | FULL C.E.<br>ITEMS | GRAND TOTAL      | FINAL | UNIT         | ITEMS                                                          | ITEM NUMBER        | ROUND | QUANTITIES       | UNIT | ITEMS                          |  |  |  |
|                                              |  |  |  |  |  |  |  |  | 260     |          |                    |        |                    | 260              |       | LF           | STEEL BEAM GUARDRAIL, GALVANIZED                               | 621.20             |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  | 4       |          |                    |        |                    | 4                |       | EACH         | ANCHOR FOR STEEL BEAM RAIL                                     | 621.60             |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  | 4       |          |                    |        |                    | 4                |       | EACH         | GUARDRAIL APPROACH SECTION, GALVANIZED 2 RAIL BOX BEAM         | 621.72             |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  | 170     |          |                    |        |                    | 170              |       | LF           | REMOVAL AND DISPOSAL OF GUARDRAIL                              | 621.80             |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  | 640     |          |                    |        |                    | 640              |       | HR           | FLAGGERS                                                       | 630.15             |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  |         |          |                    |        | 1                  | 1                |       | LS           | FIELD OFFICE, ENGINEERS                                        | 631.10             |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  |         |          |                    |        | 1                  | 1                |       | LS           | TESTING EQUIPMENT, CONCRETE                                    | 631.16             |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  |         |          |                    |        | 1                  | 1                |       | LS           | TESTING EQUIPMENT, BITUMINOUS                                  | 631.17             |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  |         |          |                    |        | 3000               | 3000             |       | DL           | FIELD OFFICE TELEPHONE (N.A.B.I.)                              | 631.26             |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  |         | 520      |                    |        |                    | 520              |       | HR           | EMPLOYEE TRAINEESHIP                                           | 634.10             |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  | 1       |          |                    |        |                    | 1                |       | LS           | MOBILIZATION/DEMOBILIZATION                                    | 635.11             |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  | 2       |          |                    |        |                    | 2                |       | EACH         | PORTABLE CHANGEABLE MESSAGE SIGN                               | 641.15             |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  | 1050    |          |                    |        |                    | 1050             |       | LF           | 4 INCH WHITE LINE                                              | 646.20             |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  | 1050    |          |                    |        |                    | 1050             |       | LF           | 4 INCH YELLOW LINE                                             | 646.21             |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  | 140     |          |                    |        | 560                | 700              |       | SY           | GEOTEXTILE UNDER STONE FILL                                    | 649.31             |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  | 260     |          |                    |        |                    | 260              |       | SY           | GEOTEXTILE FOR UNDERDRAIN TRENCH LINING                        | 649.41             |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  |         |          | 230                |        |                    | 230              |       | SY           | GEOTEXTILE FOR SILT FENCE                                      | 649.51             |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  |         |          | 90                 |        |                    | 90               |       | SY           | GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED               | 649.515            |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  |         |          | 70                 |        |                    | 70               |       | SY           | GEOTEXTILE FOR FILTER CURTAIN                                  | 649.61             |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  |         |          | 20                 |        |                    | 20               |       | LB           | SEED                                                           | 651.15             |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  |         |          | 20                 |        |                    | 20               |       | LB           | SEED, WINTER RYE                                               | 651.17             |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  |         |          | 100                |        |                    | 100              |       | LB           | FERTILIZER                                                     | 651.18             |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  |         |          | 1                  |        |                    | 1                |       | TON          | AGRICULTURAL LIMESTONE                                         | 651.20             |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  |         |          | 1                  |        |                    | 1                |       | TON          | HAY MULCH                                                      | 651.25             |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  |         |          | 50                 |        |                    | 50               |       | CY           | TOPSOIL                                                        | 651.35             |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  |         |          |                    |        | 80                 | 80               |       | SY           | GRUBBING MATERIAL                                              | 651.40             |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  |         |          | 1                  |        |                    | 1                |       | LS           | EPSC PLAN                                                      | 652.10             |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  |         |          | 50                 |        |                    | 50               |       | HR           | MONITORING EPSC PLAN                                           | 652.20             |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  |         |          | 1                  |        |                    | 1                |       | LU           | MAINTENANCE OF EPSC PLAN (N.A.B.I.)                            | 652.30             |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  |         |          | 260                |        |                    | 260              |       | SY           | TEMPORARY EROSION MATTING                                      | 653.20             |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  |         |          | 30                 |        |                    | 30               |       | CY           | VEHICLE TRACKING PAD                                           | 653.35             |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  |         |          | 620                |        |                    | 620              |       | LF           | BARRIER FENCE                                                  | 653.50             |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  |         |          | 420                |        |                    | 420              |       | LF           | PROJECT DEMARCATION FENCE                                      | 653.55             |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  | 1       |          |                    |        |                    | 1                |       | SF           | TRAFFIC SIGNS, TYPE A                                          | 675.20             |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  | 16      |          |                    |        |                    | 16               |       | LF           | SQUARE TUBE SIGN POST AND ANCHOR                               | 675.341            |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  |         |          |                    |        | 20                 | 20               |       | CY           | SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ) | 900.608            |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  | 30      |          |                    |        |                    | 30               |       | CY           | SPECIAL PROVISION (STONE DIAPHRAGM)                            | 900.608            |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  | 8       |          |                    |        |                    | 8                |       | EACH         | SPECIAL PROVISION (CPM SCHEDULE)                               | 900.620            |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  | 1       |          |                    |        |                    | 1                |       | LS           | SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)             | 900.645            |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  | 1       |          |                    |        |                    | 1                |       | LU           | SPECIAL PROVISION (NCENTIVE/DISINCENTIVE)(N.A.B.I.)            | 900.650            |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  |         |          |                    |        |                    |                  |       |              |                                                                |                    |       |                  |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  |         |          |                    |        |                    |                  |       |              |                                                                | PROJECT NAME:      |       | BRISTOL          |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  |         |          |                    |        |                    |                  |       |              |                                                                | PROJECT NUMBER:    |       | BRF 021-I (29)   |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  |         |          |                    |        |                    |                  |       |              |                                                                | FILE NAME:         |       | si0b094qs.dgn    |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  |         |          |                    |        |                    |                  |       |              |                                                                | PROJECT LEADER:    |       | C. CARLSON       |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  |         |          |                    |        |                    |                  |       |              |                                                                | DESIGNED BY:       |       | M. EVANS-MONGEON |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  |         |          |                    |        |                    |                  |       |              |                                                                | QUANTITY SHEET (2) |       | SHEET 8 OF 54    |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  |         |          |                    |        |                    |                  |       |              |                                                                | PLOT DATE:         |       | 04-NOV-2014      |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  |         |          |                    |        |                    |                  |       |              |                                                                | DRAWN BY:          |       | R. PELLETT       |      |                                |  |  |  |
|                                              |  |  |  |  |  |  |  |  |         |          |                    |        |                    |                  |       |              |                                                                | CHECKED BY:        |       | EVANS-MONGEON    |      |                                |  |  |  |



## QUANTITY SHEET 3

|                 |                  |               |
|-----------------|------------------|---------------|
| PROJECT NAME:   | BRISTOL          |               |
| PROJECT NUMBER: | BRF 021-I (29)   |               |
| FILE NAME:      | si0b094qs.dgn    | PLOT DATE:    |
| PROJECT LEADER: | C. CARLSON       | DRAWN BY:     |
| DESIGNED BY:    | M. EVANS-MONGEON | CHECKED BY:   |
| QUANTITY SHEET  | 3                | SHEET 9 OF 54 |







GENERAL INFORMATION

SYMBOLGY LEGEND NOTE

THE SYMBOLGY ON THIS SHEET IS INTENDED TO COVER STANDARD CONVENTIONAL SYMBOLGY. THE SYMBOLGY IS USED FOR EXISTING & PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROJECT ANNOTATION, AS NOTED ON PROJECT PLAN SHEETS. THIS LEGEND SHEET COVERS THE BASICS. SYMBOLGY ON PLANS MAY VARY, PLAN ANNOTATIONS AND NOTES SHOULD BE USED TO CLARIFY AS NEEDED.

R. O. W. ABBREVIATIONS (CODES) & SYMBOLS

| POINT    | CODE  | DESCRIPTION                  |
|----------|-------|------------------------------|
|          | CH    | CHANNEL EASEMENT             |
|          | CONST | CONSTRUCTION EASEMENT        |
|          | CUL   | CULVERT EASEMENT             |
|          | D&C   | DISCONNECT & CONNECT         |
|          | DIT   | DITCH EASEMENT               |
|          | DR    | DRAINAGE EASEMENT            |
|          | DRIVE | DRIVEWAY EASEMENT            |
|          | EC    | EROSION CONTROL              |
|          | HWY   | HIGHWAY EASEMENT             |
|          | I&M   | INSTALL & MAINTAIN EASEMENT  |
|          | LAND  | LANDSCAPE EASEMENT           |
|          | R&RES | REMOVE & RESET               |
|          | R&REP | REMOVE & REPLACE             |
|          | SR    | SLOPE RIGHT                  |
|          | UE    | UTILITY EASEMENT             |
|          | (P)   | PERMANENT EASEMENT           |
|          | (T)   | TEMPORARY EASEMENT           |
| ■        | BNDNS | BOUND SET                    |
| ▣        | BNDNS | BOUND TO BE SET              |
| ●        | IPNS  | IRON PIN SET                 |
| ◎        | IPNS  | IRON PIN TO BE SET           |
| ⊠        | CALC  | EXISTING ROW POINT           |
| ○        | PROW  | PROPOSED ROW POINT           |
| [LENGTH] |       | LENGTH CARRIED ON NEXT SHEET |

COMMON TOPOGRAPHIC POINT SYMBOLS

| POINT | CODE   | DESCRIPTION               |
|-------|--------|---------------------------|
| ⚓     | APL    | BOUND APPARENT LOCATION   |
| ▣     | BM     | BENCHMARK                 |
| ▣     | BND    | BOUND                     |
| ▣     | CB     | CATCH BASIN               |
| ⚓     | COMB   | COMBINATION POLE          |
| ▣     | DITHR  | DROP INLET THROATED DNC   |
| ⚓     | EL     | ELECTRIC POWER POLE       |
| ⊙     | FPOLE  | FLAGPOLE                  |
| ⊙     | GASFIL | GAS FILLER                |
| ⊙     | GP     | GUIDE POST                |
| ×     | GSO    | GAS SHUT OFF              |
| ⊙     | GUY    | GUY POLE                  |
| ⊙     | GUYW   | GUY WIRE                  |
| ×     | GV     | GATE VALUE                |
| ⊙     | H      | TREE HARDWOOD             |
| △     | HCTRL  | CONTROL HORIZONTAL        |
| △     | HVCTRL | CONTROL HORIZ. & VERTICAL |
| ⚓     | HYD    | HYDRANT                   |
| ⊙     | IP     | IRON PIN                  |
| ⊙     | IPIPE  | IRON PIPE                 |
| ⚓     | LI     | LIGHT - STREET OR YARD    |
| ⊙     | MB     | MAILBOX                   |
| ⊙     | MH     | MANHOLE (MH)              |
| ▣     | MM     | MILE MARKER               |
| ⊙     | PM     | PARKING METER             |
| ▣     | PMK    | PROJECT MARKER            |
| ⊙     | POST   | POST STONE/WOOD           |
| ⚓     | RRSIG  | RAILROAD SIGNAL           |
| ⚓     | RRSL   | RAILROAD SWITCH LEVER     |
| ⚓     | S      | TREE SOFTWOOD             |
| ⊙     | SAT    | SATELLITE DISH            |
| ⊙     | SHRUB  | SHRUB                     |
| ⚓     | SIGN   | SIGN                      |
| ⚓     | STUMP  | STUMP                     |
| ⚓     | TEL    | TELEPHONE POLE            |
| ⊙     | TIE    | TIE                       |
| ⚓     | TSIGN  | SIGN W/DOUBLE POST        |
| ⚓     | VCTRL  | CONTROL VERTICAL          |
| ⊙     | WELL   | WELL                      |
| ×     | WSO    | WATER SHUT OFF            |

THESE ARE COMMON VAOT SURVEY POINT SYMBOLS FOR EXISTING FEATURES, ALSO USED FOR PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROPOSED ANNOTATION.

PROPOSED GEOMETRY CODES

| CODE | DESCRIPTION             |
|------|-------------------------|
| PC   | POINT OF CURVATURE      |
| PI   | POINT OF INTERSECTION   |
| CC   | CENTER OF CURVE         |
| PT   | POINT OF TANGENCY       |
| PCC  | POINT OF COMPOUND CURVE |
| PRC  | POINT OF REVERSE CURVE  |
| POB  | POINT OF BEGINNING      |
| POE  | POINT OF ENDING         |
| STA  | STATION PREFIX          |
| AH   | AHEAD STATION SUFFIX    |
| BK   | BACK STATION SUFFIX     |
| D    | CURVE DEGREE OF (100FT) |
| R    | CURVE RADUIS OF         |
| T    | CURVE TANGENT LENGTH    |
| L    | CURVE LENGTH OF         |
| E    | CURVE EXTERNAL DISTANCE |

UTILITY SYMBOLGY

UNDERGROUND UTILITIES

|          |    |    |    |    |                           |
|----------|----|----|----|----|---------------------------|
| — UGU —  | .. | .. | .. | .. | UTILITY (GENERIC-UNKNOWN) |
| — UT —   | .. | .. | .. | .. | TELEPHONE                 |
| — UE —   | .. | .. | .. | .. | ELECTRIC                  |
| — UC —   | .. | .. | .. | .. | CABLE (TV)                |
| — UEC —  | .. | .. | .. | .. | ELECTRIC+CABLE            |
| — UET —  | .. | .. | .. | .. | ELECTRIC+TELEPHONE        |
| — UCT —  | .. | .. | .. | .. | CABLE+TELEPHONE           |
| — UECT — | .. | .. | .. | .. | ELECTRIC+CABLE+TELEP.     |
| — G —    | .. | .. | .. | .. | GAS LINE                  |
| — W —    | .. | .. | .. | .. | WATER LINE                |
| — S —    | .. | .. | .. | .. | SANITARY SEWER (SEPTIC)   |

ABOVE GROUND UTILITIES (AERIAL)

|             |    |    |    |    |                           |
|-------------|----|----|----|----|---------------------------|
| — AGU —     | .. | .. | .. | .. | UTILITY (GENERIC-UNKNOWN) |
| — T —       | .. | .. | .. | .. | TELEPHONE                 |
| — E —       | .. | .. | .. | .. | ELECTRIC                  |
| — C —       | .. | .. | .. | .. | CABLE (TV)                |
| — EC —      | .. | .. | .. | .. | ELECTRIC+CABLE            |
| — ET —      | .. | .. | .. | .. | ELECTRIC+TELEPHONE        |
| — AER E&T — | .. | .. | .. | .. | ELECTRIC+TELEPHONE        |
| — CT —      | .. | .. | .. | .. | CABLE+TELEPHONE           |
| — ECT —     | .. | .. | .. | .. | ELECTRIC+CABLE+TELEP.     |
| — .. —      | .. | .. | .. | .. | UTILITY POLE GUY WIRE     |

PROJECT CONSTRUCTION SYMBOLGY

PROJECT DESIGN & LAYOUT SYMBOLGY

|        |    |        |                       |
|--------|----|--------|-----------------------|
| — -- — | CZ | — -- — | CLEAR ZONE            |
| —————  |    | —————  | PLAN LAYOUT MATCHLINE |

PROJECT CONSTRUCTION FEATURES

|                           |                            |
|---------------------------|----------------------------|
| △ — △ — △ — △             | TOP OF CUT SLOPE           |
| ○ — ○ — ○ — ○             | TOE OF FILL SLOPE          |
| ⊗ ⊗ ⊗ ⊗ ⊗                 | STONE FILL                 |
| -----                     | BOTTOM OF DITCH            |
| =====                     | CULVERT PROPOSED           |
| -----                     | STRUCTURE SUBSURFACE       |
| PDF — PDF —               | PROJECT DEMARCATION FENCE  |
| BF — x — x — BF — x — x — | BARRIER FENCE              |
| xxxxxxxxxxxxxxxxxxxx      | TREE PROTECTION ZONE (TPZ) |
| //////                    | STRIPING LINE REMOVAL      |
| ~~~~~                     | SHEET PILES                |

CONVENTIONAL BOUNDARY SYMBOLGY

BOUNDARY LINES

|                            |             |         |                                        |
|----------------------------|-------------|---------|----------------------------------------|
| —————                      | TOWN LINE   | —————   | TOWN BOUNDARY LINE                     |
| —————                      | COUNTY LINE | —————   | COUNTY BOUNDARY LINE                   |
| —————                      | STATE LINE  | —————   | STATE BOUNDARY LINE                    |
| ———                        |             | ———     | PROPOSED STATE R.O.W. (LIMITED ACCESS) |
| ———                        |             | ———     | PROPOSED STATE R.O.W.                  |
| ———                        |             | ———     | STATE ROW (LIMITED ACCESS)             |
| ———                        |             | ———     | STATE ROW                              |
| ———                        |             | ———     | TOWN ROW                               |
| -----                      |             | -----   | PERMANENT EASEMENT LINE (P)            |
| -----                      |             | -----   | TEMPORARY EASEMENT LINE (T)            |
| +                          |             | +       | SURVEY LINE                            |
| P — L —                    |             | P — L — | PROPERTY LINE (P/L)                    |
| △ — SR — △ — SR — △ — SR — |             |         | SLOPE RIGHTS                           |
| 6f ———— 6f ————            |             |         | 6F PROPERTY BOUNDARY                   |
| 4f ———— 4f ————            |             |         | 4F PROPERTY BOUNDARY                   |
| HAZ ———— HAZ ————          |             |         | HAZARDOUS WASTE                        |

EPSC LAYOUT PLAN SYMBOLGY

EPSC MEASURES

|                   |                                         |
|-------------------|-----------------------------------------|
| ONNOONNOONNO      | FILTER CURTAIN                          |
| — x — x — x — x — | SILT FENCE                              |
| — x — x — x — x — | SILT FENCE WOVEN WIRE                   |
| ▶ —▶ —▶ —▶ —▶     | CHECK DAM                               |
| ▣                 | DISTURBED AREAS REQUIRING RE-VEGETATION |
| ⊗                 | EROSION MATTING                         |

ENVIRONMENTAL RESOURCES

|                 |                                 |
|-----------------|---------------------------------|
| —————           | WETLAND BOUNDARY                |
| -----           | RIPARIAN BUFFER ZONE            |
| -----           | WETLAND BUFFER ZONE             |
| -----           | SOIL TYPE BOUNDARY              |
| — T&E —         | THREATENED & ENDANGERED SPECIES |
| — HAZ — HAZ —   | HAZARDOUS WASTE AREA            |
| — AG —          | AGRICULTURAL LAND               |
| — HABITAT —     | FISH & WILDLIFE HABITAT         |
| — FLOOD PLAIN — | FLOOD PLAIN                     |
| — OHW —         | ORDINARY HIGH WATER (OHW)       |
| — ● — ● — ● —   | STORM WATER                     |
| -----           | USDA FOREST SERVICE LANDS       |
| -----           | WILDLIFE HABITAT SUIT/CONN      |

ARCHEOLOGICAL & HISTORIC

|                   |                            |
|-------------------|----------------------------|
| — ARCH —          | ARCHEOLOGICAL BOUNDARY     |
| — HISTORIC DIST — | HISTORIC DISTRICT BOUNDARY |
| — HISTORIC —      | HISTORIC AREA              |
| Ⓜ                 | HISTORIC STRUCTURE         |

CONVENTIONAL TOPOGRAPHIC SYMBOLGY

EXISTING FEATURES

|                  |                    |
|------------------|--------------------|
| -----            | ROAD EDGE PAVEMENT |
| -----            | ROAD EDGE GRAVEL   |
| -----            | DRIVEWAY EDGE      |
| -----            | DITCH              |
| -----            | FOUNDATION         |
| x — x — x — x —  | FENCE (EXISTING)   |
| □ — □ — □ — □ —  | FENCE WOOD POST    |
| ○ — ○ — ○ — ○ —  | FENCE STEEL POST   |
| ~~~~~            | GARDEN             |
| ○ — ○ — ○ — ○ —  | ROAD GUARDRAIL     |
|                  | RAILROAD TRACKS    |
| -----            | CULVERT (EXISTING) |
| ○○○○○○○○○○○○○○○○ | STONE WALL         |
| -----            | WALL               |
| ~~~~~            | WOOD LINE          |
| ~~~~~            | BRUSH LINE         |
| ~~~~~            | HEDGE              |
| =====            | BODY OF WATER EDGE |
| =====            | LEDGE EXPOSED      |

|                                |                           |
|--------------------------------|---------------------------|
| PROJECT NAME:                  | BRISTOL                   |
| PROJECT NUMBER:                | BRF 021-I (29)            |
| FILE NAME: si0c094legend.dgn   | PLOT DATE: 04-NOV-2014    |
| PROJECT LEADER: C. CARLSON     | DRAWN BY: R. PELLETT      |
| DESIGNED BY: M. EVANS-MONGEON  | CHECKED BY: EVANS-MONGEON |
| CONVENTIONAL SYMBOLGY - LEGEND | SHEET 11 OF 54            |



GPS CONTROL POINTS

HVCTRL #1

CGS TRIANGULATION STATION DISC

"BRISTOL 2 1970"

NORTH = 595643.717  
EAST = 1485447.780  
ELEV. = 577.427

STATION IS LOCATED ABOUT 0.8 KM (0.5 MILE) WEST OF CENTER OF BRISTOL , IN THE WEST ANGLE OF THE T-INTERSECTION OF STATE HIGHWAY 17 AND A MACADAM ROAD RUNNING NORTH, UP ON A LOW CUTBANK, IN SOUTHWEST CORNER OF SCHOOL PLAYGROUND, FORMERLY BRISTOL AIRPORT. TO REACH STATION FROM THE MAIN INTERSECTION IN CENTER OF BRISTOL, GO WEST ON STATE HIGHWAY 17 FOR 0.97 KM (0.6 MILE) TO STATION ON RIGHT, WHERE THE HIGHWAY BEGINS TO CURVE LEFT, DOWNGRADE. STATION MARK IS A STANDARD DISK STAMPED BRISTOL 2 1910, SET IN TOP OF A 0.25 m (10 INCH) DIAMETER, CONCRETE MONUMENT FLUSH WITH THE GROUND. IT IS 21 m (69 FEET) NORTHWEST OF CENTER LINE OF HIGHWAY 17, 13.4 m (44 FEET) WEST-NORTHWEST OF CENTER LINE OF MACAOAM SIOE ROAD, 1.4 m (4.5 FEET) NORTH OF POWER POLE 29, 6.64 m (21.8 FEET) NORTH OF A FIRE HYORANT, AND 0.46 m (1.5 FEET) SOUTHWEST OF A METAL WITNESS POST

HVCTRL #2

STANDARD DISK STAMPED

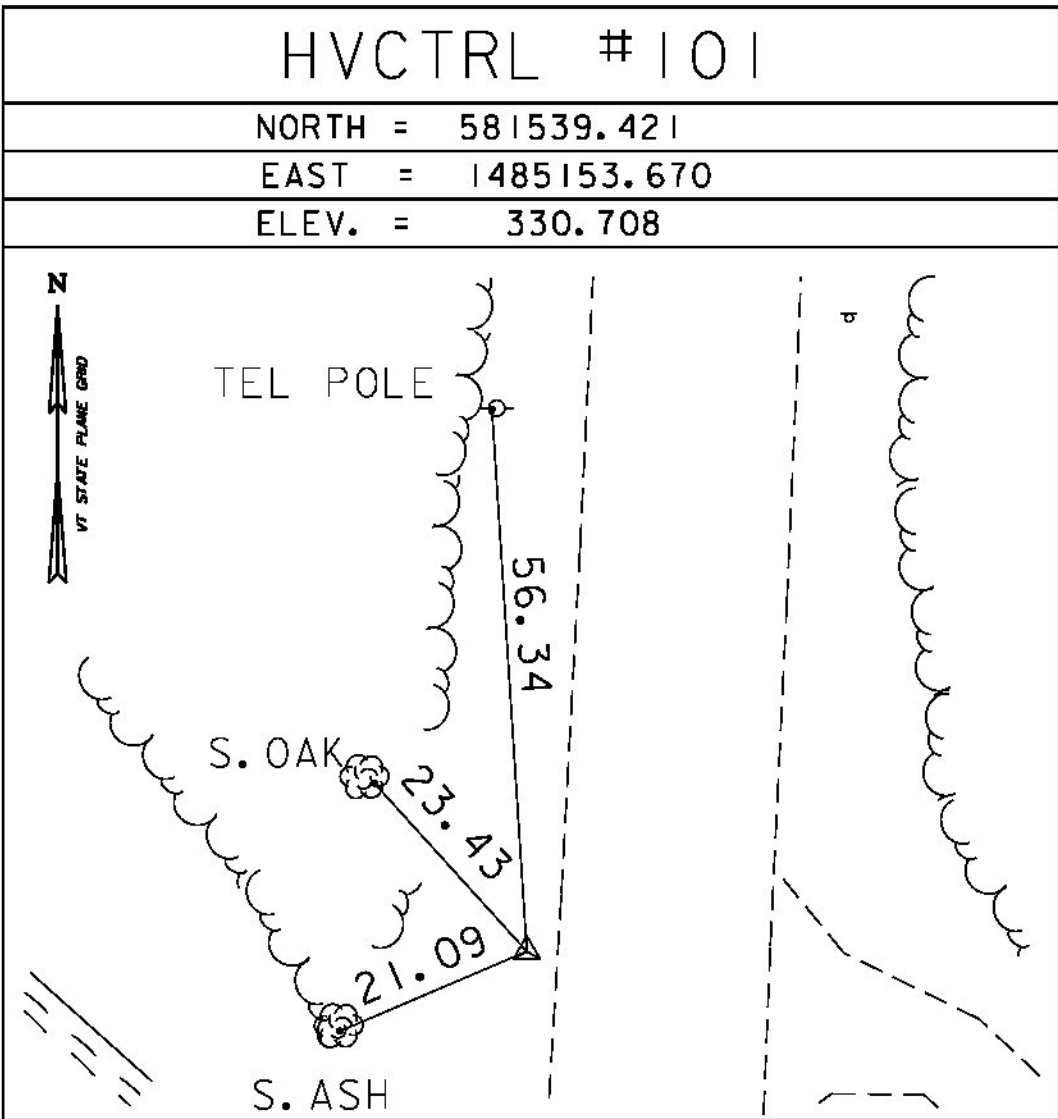
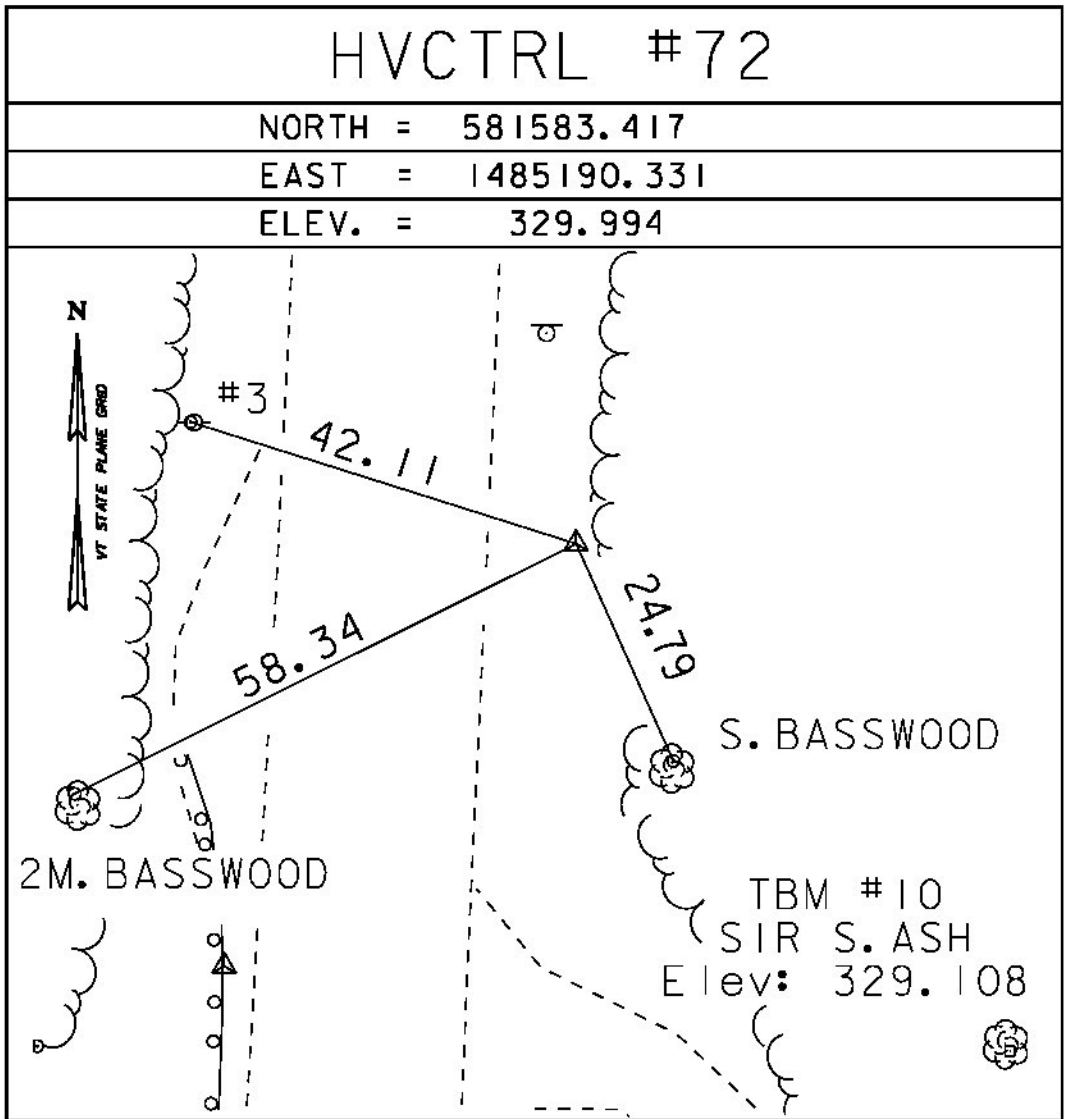
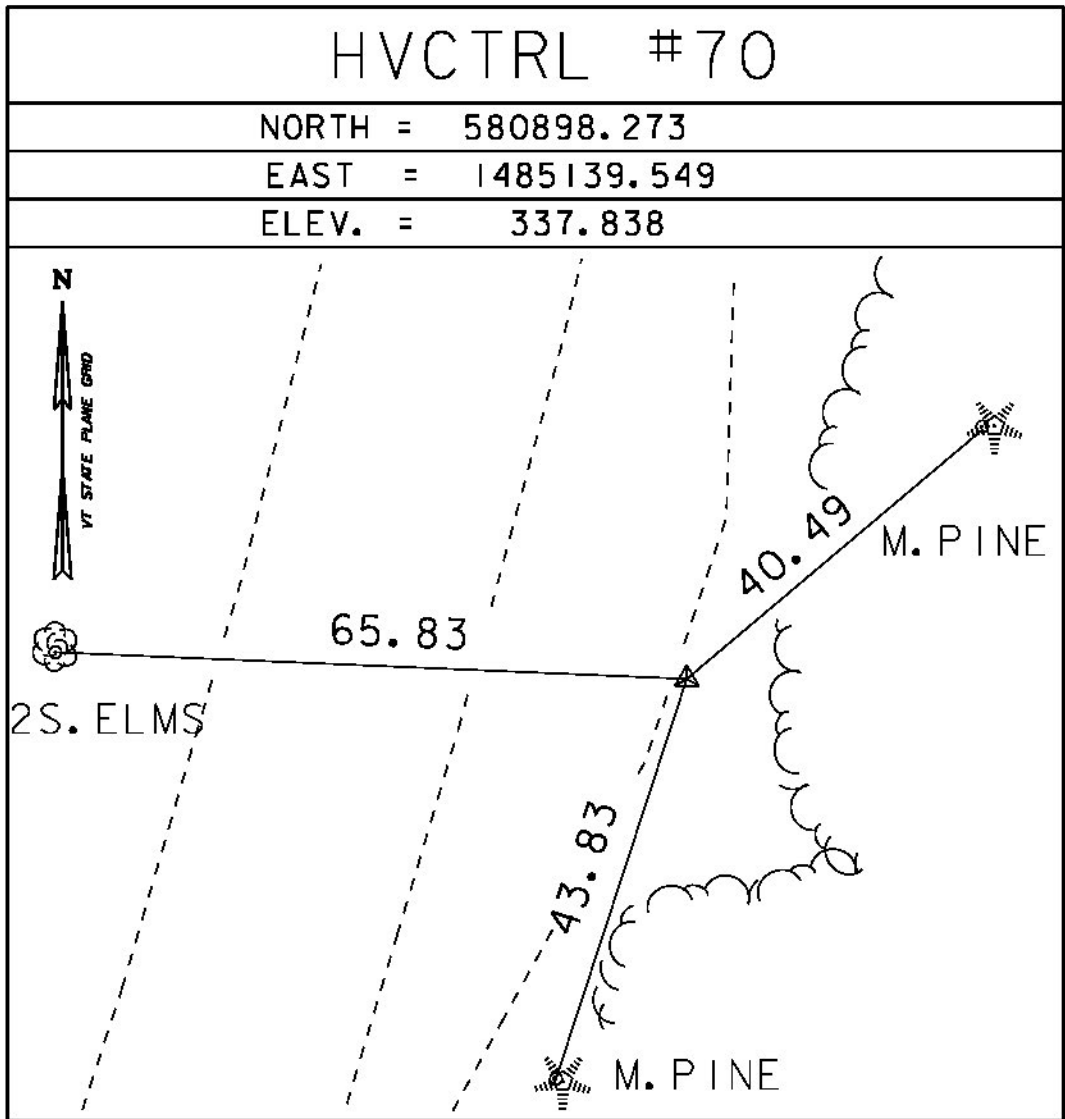
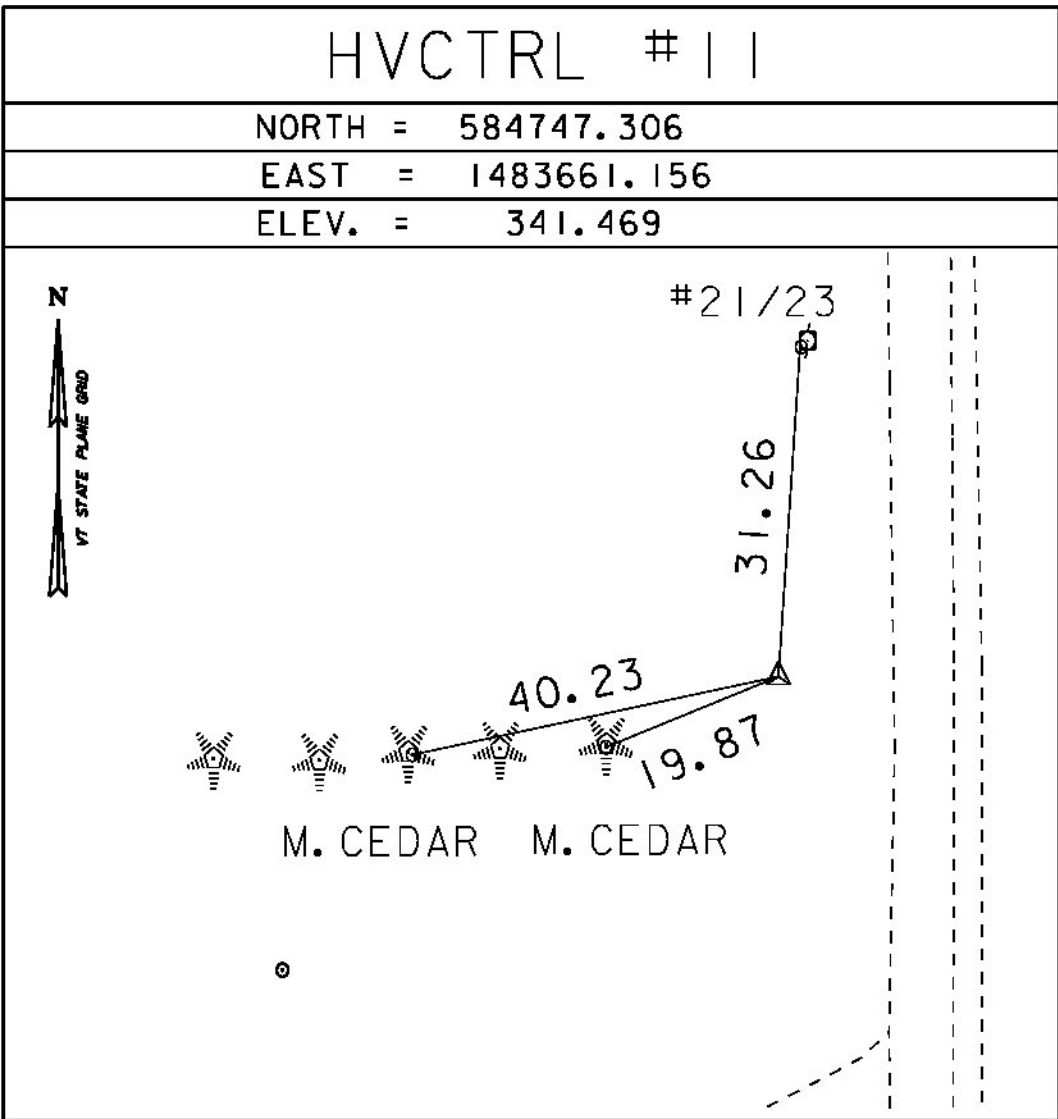
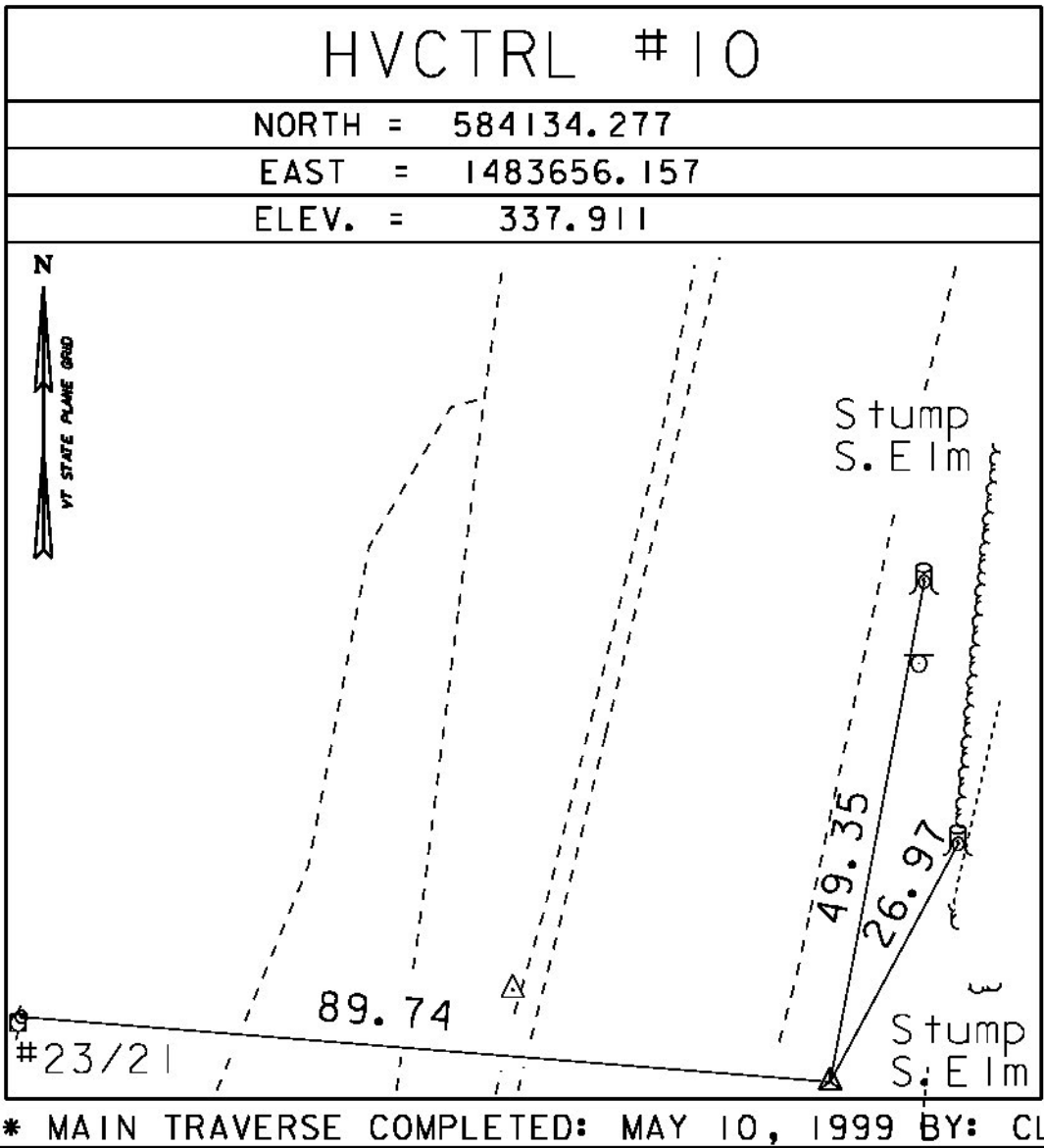
"POWERLINE 1991"

NORTH = 592458.116  
EAST = 1466209.098  
ELEV. = 425.521

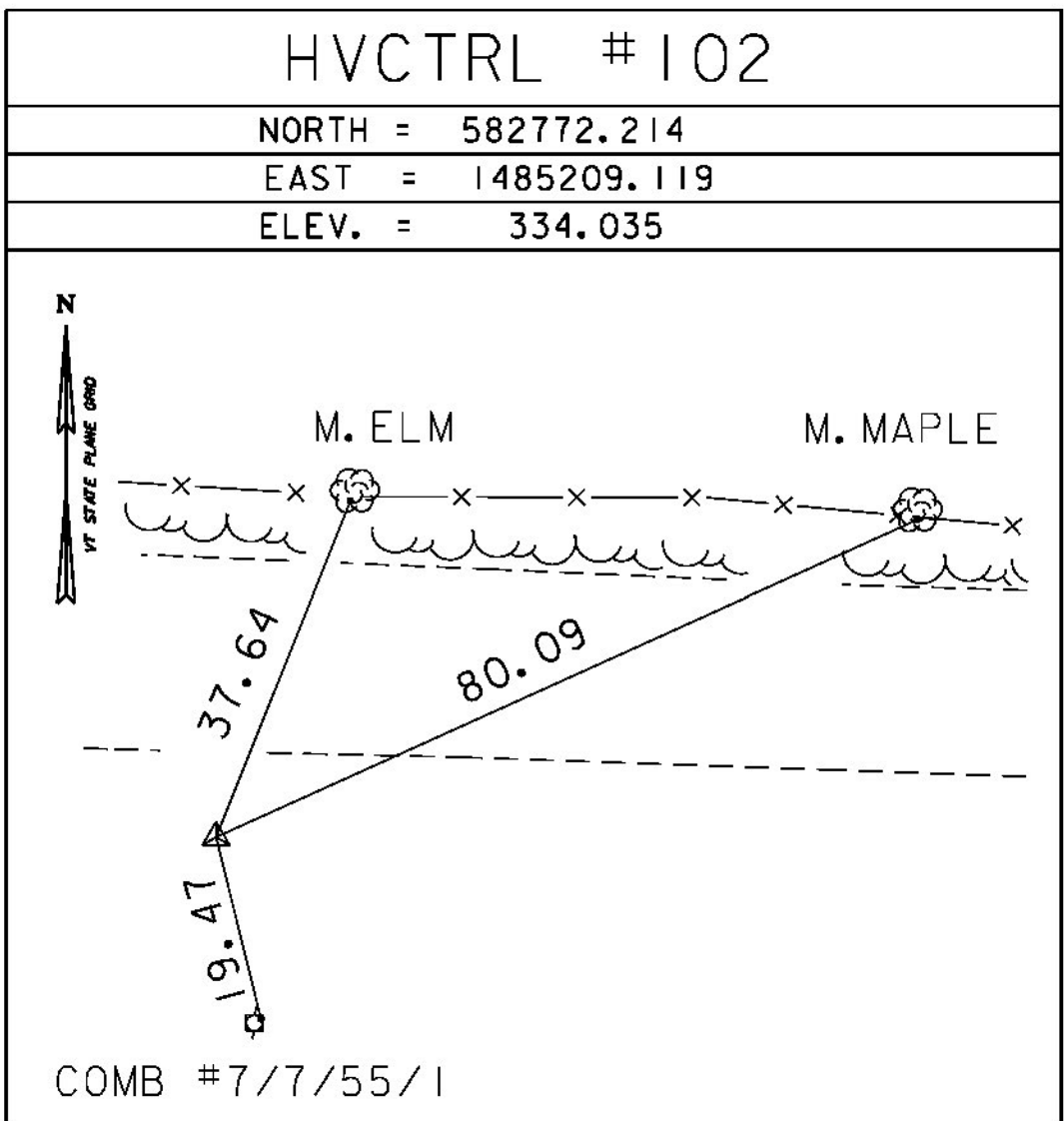
GENERAL LOCATION, NEW HAVEN, VT. TO REACH FROM THE INTERSECTION OF VT ROUTE 17 EAST AND US ROUTE 7 IN NEW HAVEN JUNCTION, GO EAST ALONG VT ROUTE 17 FOR 1.4 KM (0.9 MILE) TO A POWERLINE CROSSING AND THE MARK ON THE LEFT. THE MARK IS, SET FLUSH WITH GROUND SURFACE IN THE TOP OF A 25 cm (1 FOOT) DIAMETER CONCRETE MONUMENT. IT IS 12.7 m (41.7 FEET) NORTH OF AND ABOUT LEVEL WITH THE CENTERLINE OF VT ROUTE 17, 3.7 m (12.1 FEET) EAST OF POLE NO.3. 15.3 m (50.2 FEET) WEST OF POLE NO.303, AND 0.8 m (2.6 FEET) NORTH OF A FIBERGLASS WITNESS POST.

\* Description provided by the Vermont Agency of Transportation Geodetic Survey Unit

TRAVERSE TIES



ALIGNMENT TIES



| VT 116             |           |              |              |
|--------------------|-----------|--------------|--------------|
|                    | STATION   | NORTHING     | EASTING      |
| POB                | 103+75.00 | 581168.0686  | 1485151.1601 |
| POE                | 109+50.00 | 581742.4986  | 1485176.7565 |
| Tangent Direction: |           | N 2°33'05" E |              |
| Tangent Length:    |           | 575.00       |              |

| CHANNEL            |           |               |              |
|--------------------|-----------|---------------|--------------|
|                    | STATION   | NORTHING      | EASTING      |
| POB                | 800+00.00 | 581417.2360   | 1485230.3702 |
| POT                | 801+50.00 | 581486.7772   | 1485097.4640 |
| Tangent Direction: |           | N 62°26'55" W |              |

| DATUM      |             |
|------------|-------------|
| VERTICAL   | NAVD 88     |
| HORIZONTAL | NAD 83 (96) |
| ADJUSTMENT | Unknown     |

|                                |                           |
|--------------------------------|---------------------------|
| PROJECT NAME: BRISTOL          |                           |
| PROJECT NUMBER: BRF 021-I (29) |                           |
| FILE NAME: si0b094+1e.dgn      | PLOT DATE: 04-NOV-2014    |
| PROJECT LEADER: C. CARLSON     | DRAWN BY: R. BULLOCK      |
| DESIGNED BY: M. EVANS-MONGEON  | CHECKED BY: EVANS-MONGEON |
| TIE SHEET                      | SHEET 12 OF 54            |



STA 105+55.0 LT - STA 106+02.9 LT - 47.9'

CONSTRUCT GRAVEL DRIVE

STA 105+79.0 LT - 16'

BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM

STA 106+73.3 LT - STA 107+28.2 LT  
STA 106+57.8 RT - STA 107+12.7 RT

CAST-IN-PLACE CONCRETE CURB, TYPE B

STA 106+20.8 RT - STA 106+60.8 RT  
STA 106+35.3 LT - STA 106+75.2 LT  
STA 107+10.8 RT - STA 107+50.7 RT  
STA 107+25.2 LT - STA 107+65.2 LT

STEEL BEAM GUARDRAIL, GALVANIZED

STA 105+94.2 LT - STA 106+44.2 LT  
STA 105+28.7 RT - STA 106+28.7 RT  
STA 107+57.3 LT - STA 108+19.8 LT  
STA 107+41.8 RT - STA 107+79.3 RT

## ANCHOR FOR STEEL BEAM RAIL

STA 106+00.5 LT  
STA 105+35.0 RT  
STA 108+13.4 LT  
STA 107+73.0 RT

GUARDRAIL APPROACH SECTION, GALVANIZED 2 RAIL BOX BEAM

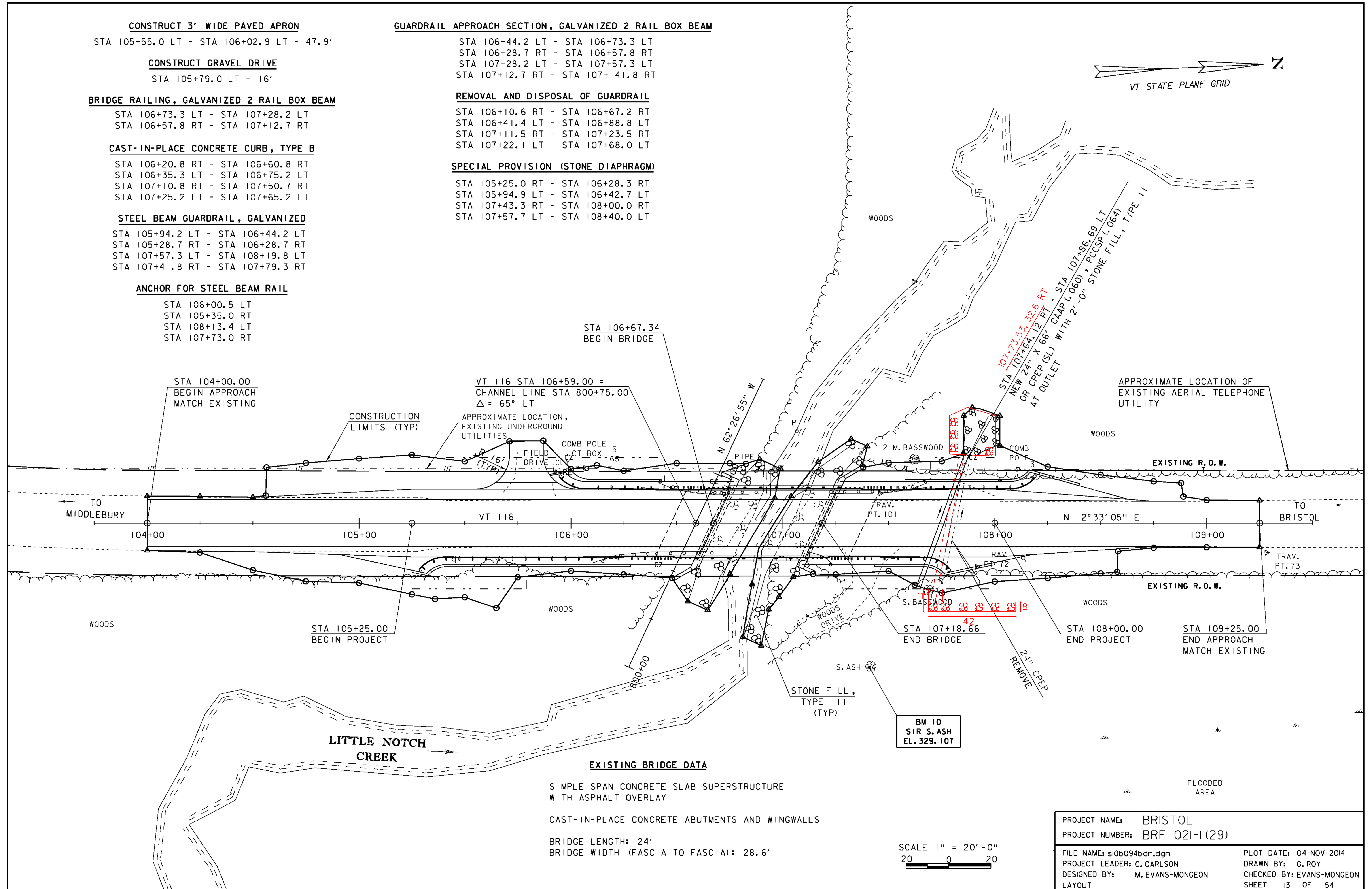
STA 106+44.2 LT - STA 106+73.3 LT  
STA 106+28.7 RT - STA 106+57.8 RT  
STA 107+28.2 LT - STA 107+57.3 LT  
STA 107+12.7 RT - STA 107+ 41.8 RT

## REMOVAL AND DISPOSAL OF GUARDRAIL

STA 106+10.6 RT - STA 106+67.2 RT  
STA 106+41.4 LT - STA 106+88.8 LT  
STA 107+11.5 RT - STA 107+23.5 RT  
STA 107+22.1 LT - STA 107+68.0 LT

SPECIAL PROVISION (STONE DIAPHRAGM)

STA 105+25.0 RT - STA 106+28.3 RT  
STA 105+94.9 LT - STA 106+42.7 LT  
STA 107+43.3 RT - STA 108+00.0 RT  
STA 107+57.7 LT - STA 108+40.0 LT

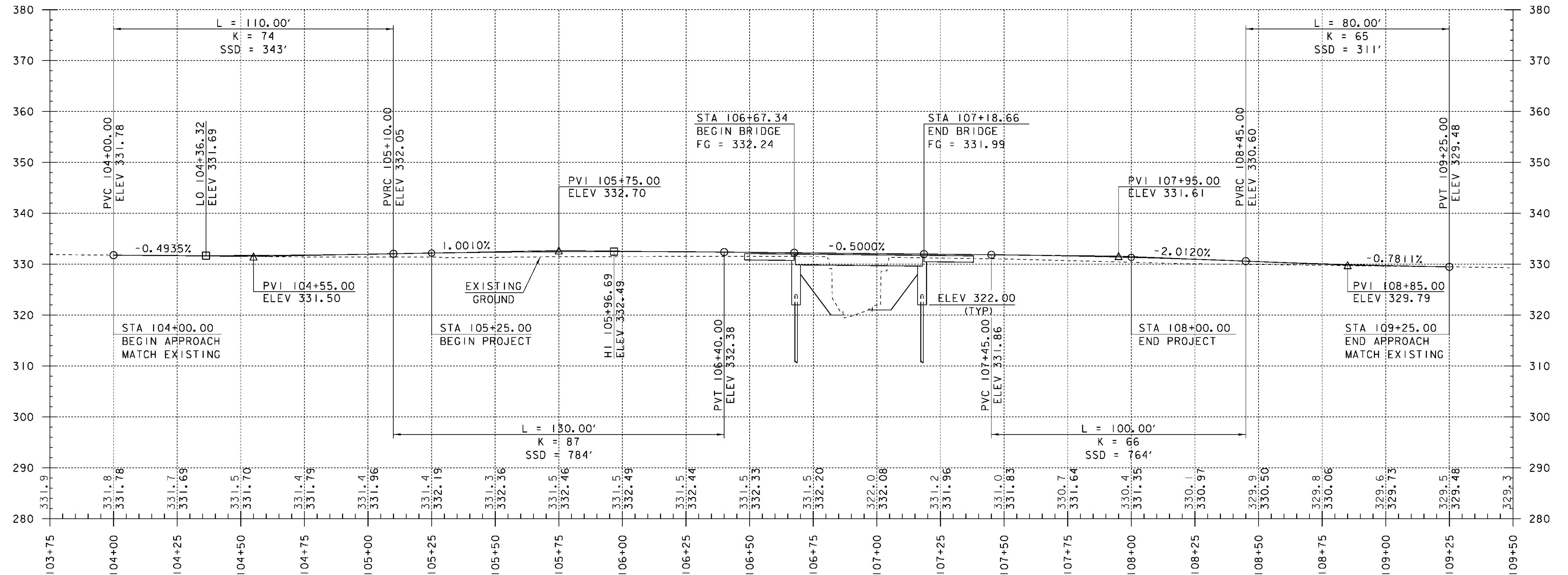


|                 |               |
|-----------------|---------------|
| PROJECT NAME:   | BRISTOL       |
| PROJECT NUMBER: | BRF 021-1(29) |

FILE NAME: s10b094bdr.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: M. EVANS-MONGEON  
LAYOUT

PLOT DATE: 04-NOV-2014  
DRAWN BY: G. ROY  
CHECKED BY: EVANS-MONGEON  
SHEET 13 OF 54





**NOTE:**

ELEVATIONS SHOWN TO THE NEAREST TENTH ARE  
EXISTING GROUND ALONG PROPOSED CENTERLINE.

ELEVATIONS SHOWN TO THE NEAREST HUNDREDTH ARE  
FINISH GRADES ALONG PROPOSED CENTERLINE.

**PROFILE ALONG VT 116**

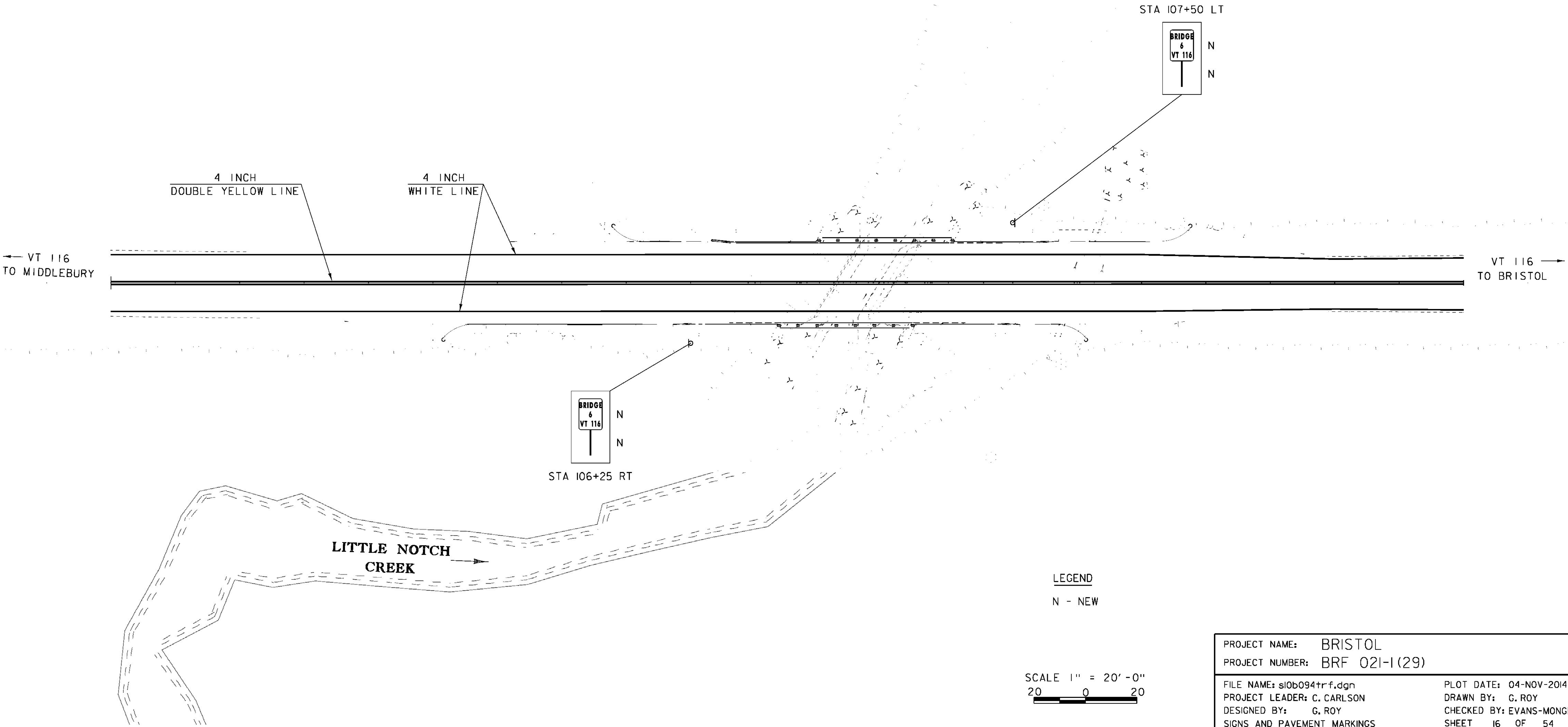
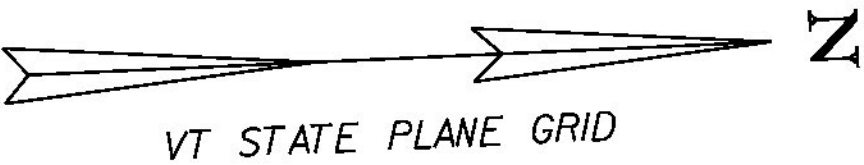
|                 |                |
|-----------------|----------------|
| PROJECT NAME:   | BRISTOL        |
| PROJECT NUMBER: | BRF 021-I (29) |
| FILE NAME:      | si0b094pro.dgn |
| PROJECT LEADER: | C. CARLSON     |
| DESIGNED BY:    | G. ROY         |
| PROFILE         |                |
| PLOT DATE:      | 04-NOV-2014    |
| DRAWN BY:       | G. ROY         |
| CHECKED BY:     | EVANS-MONGEON  |
| SHEET           | 14 OF 54       |







4 INCH YELLOW LINE  
STA 104+00 - STA 109+25 (DOUBLE Q)  
4 INCH WHITE LINE  
STA 104+00.0 - STA 109+25.0 RT  
STA 104+00.0 - STA 109+25.0 LT



|                                |                           |
|--------------------------------|---------------------------|
| PROJECT NAME: BRISTOL          |                           |
| PROJECT NUMBER: BRF 021-I (29) |                           |
| FILE NAME: si0b094trf.dgn      | PLOT DATE: 04-NOV-2014    |
| PROJECT LEADER: C. CARLSON     | DRAWN BY: G. ROY          |
| DESIGNED BY: G. ROY            | CHECKED BY: EVANS-MONGEON |
| SIGNS AND PAVEMENT MARKINGS    | SHEET 16 OF 54            |



# TRAFFIC SIGN SUMMARY SHEET

|                                       |                                 |
|---------------------------------------|---------------------------------|
| PROJECT NAME: <b>BRISTOL</b>          |                                 |
| PROJECT NUMBER: <b>BRF 021-1 (29)</b> |                                 |
| FILE NAME: <b>s10b094trf.dgn</b>      | PLOT DATE: <b>04-NOV-2014</b>   |
| PROJECT MANAGER: <b>C. CARLSON</b>    | DRAWN BY: <b>G. ROY</b>         |
| DESIGNED BY: <b>EVANS-MONGEON</b>     | CHECKED BY: <b>EVANS-MONGEO</b> |
| <b>TRAFFIC SIGN SUMMARY</b>           | <b>SHEET 17 OF 54</b>           |



| <u>AASHTO</u> |                                   |
|---------------|-----------------------------------|
| A1            | Gravel and Sand                   |
| A3            | Fine Sand                         |
| A2            | Silty or Clayey Gravel and Sand   |
| A4            | Silty Soil - Low Compressibility  |
| A5            | Silty Soil - Highly Compressible  |
| A6            | Clayey Soil - Low Compressibility |
| A7            | Clayey Soil - Highly Compressible |

| R.O.D. (%) | ROCK DESCRIPTION |
|------------|------------------|
| <25        | Very Poor        |
| 25 to 50   | Poor             |
| 51 to 75   | Fair             |
| 76 to 90   | Good             |
| >90        | Excellent        |

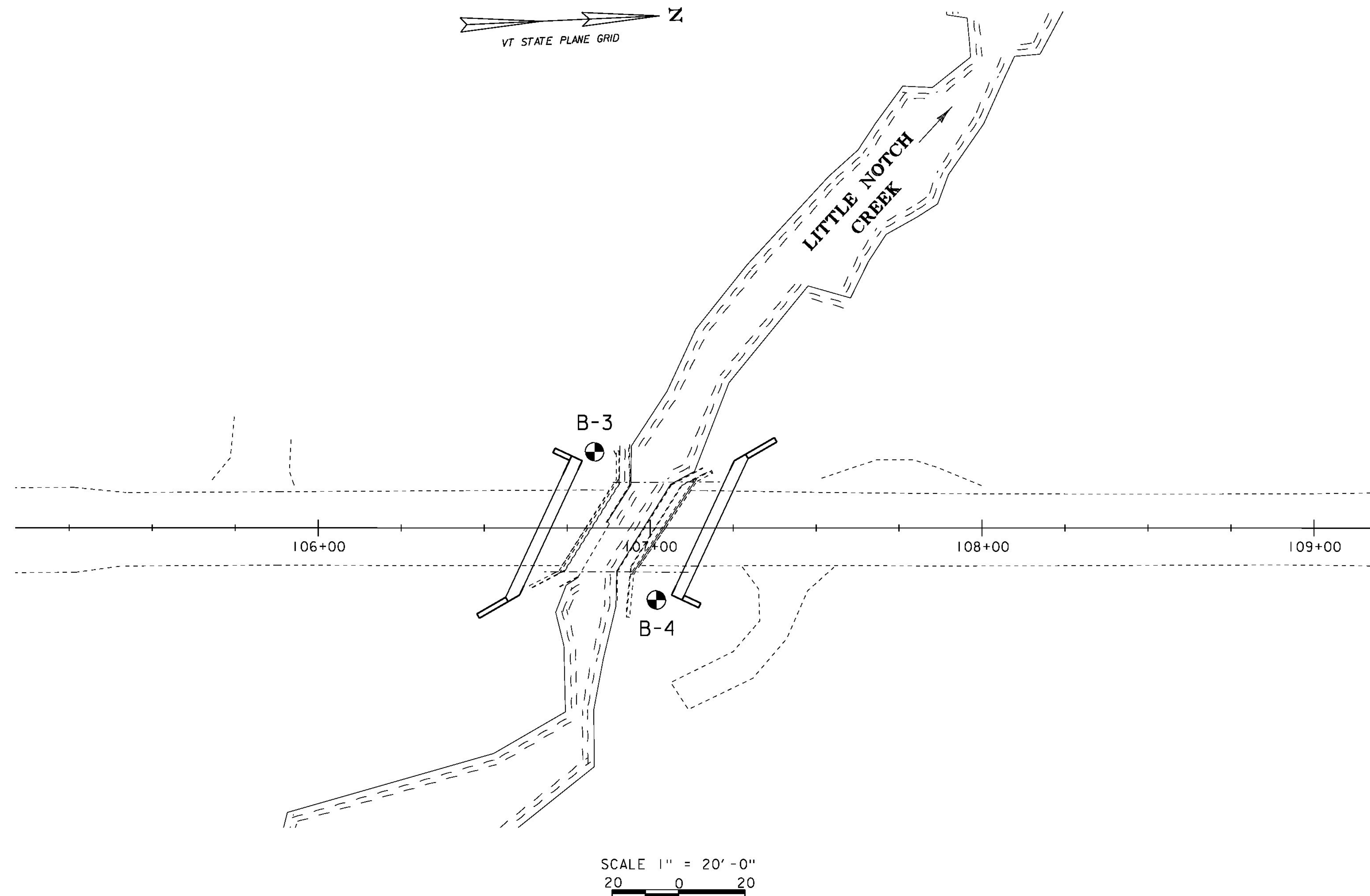
| UNDRAINED<br>SHEAR STRENGTH<br>IN P.S.F. | CONSISTENCY |
|------------------------------------------|-------------|
| <250                                     | Very Soft   |
| 250-500                                  | Soft        |
| 500-1000                                 | Med. Stiff  |
| 1000-2000                                | Stiff       |
| 2000-4000                                | Very Stiff  |
| >4000                                    | Hard        |

| DENSITY<br>(GRANULAR SOILS) |                  | CONSISTENCY<br>(COHESIVE SOILS) |                  |
|-----------------------------|------------------|---------------------------------|------------------|
| N                           | DESCRIPTIVE TERM | N                               | DESCRIPTIVE TERM |
| <5                          | Very Loose       | <2                              | Very Soft        |
| 5-10                        | Loose            | 2-4                             | Soft             |
| 11-24                       | Med. Dense       | 5-8                             | Med. Stiff       |
| 25-50                       | Dense            | 9-15                            | Stiff            |
| >50                         | Very Dense       | 16-30                           | Very Stiff       |
|                             |                  | 31-60                           | Hard             |
|                             |                  | >60                             | Very Hard        |

|       |                                  |
|-------|----------------------------------|
|       | Water Elevation                  |
| ⊕     | Standard Penetration Boring      |
| ⊕     | Auger Boring                     |
| ⊙     | Rod Sounding                     |
| S     | Sample                           |
| N     | Standard Penetration Test        |
|       | Blow Count Per Foot For:         |
|       | 2" O.D. Sampler                  |
|       | 1 3/8" I.D. Sampler              |
|       | Hammer Weight Of 140 Lbs.        |
|       | Hammer Fall Of 30"               |
| VS    | Field Vane Shear Test            |
| US    | Undisturbed Soil Sample          |
| B     | Blast                            |
| DC    | Diamond Core                     |
| MD    | Mud Drill                        |
| WA    | Wash Ahead                       |
| HSA   | Hollow Stem Auger                |
| AX    | Core Size 1 1/8"                 |
| BX    | Core Size 1 5/8"                 |
| NX    | Core Size 2 1/8"                 |
| M     | Double Tube Core Barrel Used     |
| LL    | Liquid Limit                     |
| PL    | Plastic Limit                    |
| PI    | Plasticity Index                 |
| NP    | Non Plastic                      |
| w     | Moisture Content (Dry Wgt.Basis) |
| D     | Dry                              |
| M     | Moist                            |
| MTW   | Moist To Wet                     |
| W     | Wet                              |
| Sat   | Saturated                        |
| Bo    | Boulder                          |
| Gr    | Gravel                           |
| Sa    | Sand                             |
| SI    | Silt                             |
| CI    | Clay                             |
| HP    | Hardpan                          |
| Le    | Ledge                            |
| NLTD  | No Ledge To Depth                |
| CNPF  | Can Not Penetrate Further        |
| TLOB  | Top Of Ledge Or Boulder          |
| NR    | No Recovery                      |
| Rec.  | Recovery                         |
| %Rec. | Percent Recovery                 |
| ROD   | Rock Quality Designation         |
| CBR   | California Bearing Ratio         |
| <     | Less Than                        |
| >     | Greater Than                     |
| R     | Refusal (N > 100)                |
| VTSPG | NAD83 - See Note 7               |

|     |        |      |              |
|-----|--------|------|--------------|
| blk | Black  | pnk  | Pink         |
| bl  | Blue   | pu   | Purple       |
| brn | Brown  | rd   | Red          |
| dk  | Dark   | tn   | Tan          |
| gry | Gray   | wh   | White        |
| gn  | Green  | yel  | Yellow       |
| lt  | Light  | mltc | Multicolored |
| or  | Orange |      |              |

| HOLE NO. | STATION   | OFFSET   | GROUND ELEVATION | ELEV. TLOB | NORTHING    | EASTING      |
|----------|-----------|----------|------------------|------------|-------------|--------------|
| B-3      | 106+83.30 | 22.97 LT | 329.137          | NLTD       | 581477.0707 | 1485141.9404 |
| B-4      | 107+01.92 | 21.65 RT | 329.587          | NLTD       | 581493.6861 | 1485187.3409 |



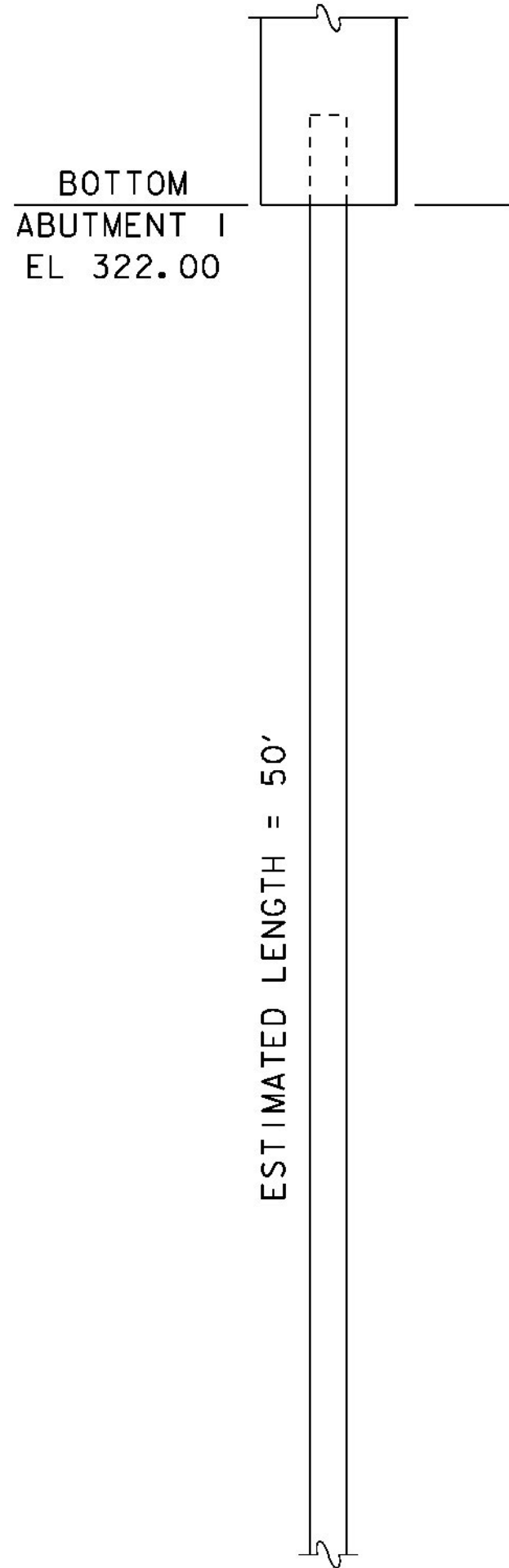
|                                                                                                      |                                                                                                                  |
|------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| BEDROCK (LEDGE) - Rock in its native location of Indefinite thickness.                               | VARVED - Alternate layers of silt and clay.                                                                      |
| BOULDER - A rock fragment with an average dimension > 12 inches.                                     | HARDPAN - Extremely dense soil, cemented layer, not softened when wet.                                           |
| COBBLE - Rock fragments with an average dimension between 3 and 12 inches.                           | MUCK - Soft organic soil (containing > 10% organic material).                                                    |
| GRAVEL - Rounded particles of rock < 3" and > 0.0787" (#10 sieve).                                   | MOISTURE CONTENT - Weight of water divided by dry weight of soil.                                                |
| SAND - Particles of rock < 0.0787" (#10 sieve) and > 0.0029" (#200 sieve).                           | FLOWING SAND - Granular soil so saturated (loose) that it flows into drill casing during extraction of wash rod. |
| SILT - Soil < 0.0029" (#200 sieve), non or slightly plastic and exhibits no strength when air-dried. | STRIKE - Angle from magnetic north to line of intersection of bed with a horizontal plane.                       |
| CLAY - Fine grained soil, exhibits plasticity when moist and considerable strength when air-dried.   | DIP - Inclination of bed with a horizontal plane.                                                                |

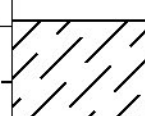
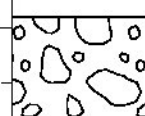
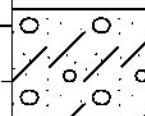
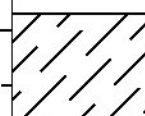
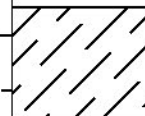
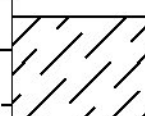
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|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1. The subsurface explorations shown herein were made between <u>12/18/02</u> and <u>3/12/02</u> by the Agency.</p> <p>2. Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.</p> <p>3. Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.</p> | <p><u>GENERAL NOTES</u></p> <p>4. Engineering judgment was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgment by the Contractor.</p> | <p>5. Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.</p> <p>6. Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.</p> <p>7. Northing and Easting coordinates are shown in Vermont State Plane Grid North American Datum 1983 in meters and survey feet.</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                 |                |
|-----------------|----------------|
| PROJECT NAME:   | BRISTOL        |
| PROJECT NUMBER: | BRF 021-1 (29) |

|                            |                           |
|----------------------------|---------------------------|
| FILE NAME: si0b094bor.dgn  | PLOT DATE: 04-NOV-2014    |
| PROJECT LEADER: C. CARLSON | DRAWN BY: G. ROY          |
| DESIGNED BY: EVANS-MONGEON | CHECKED BY: EVANS-MONGEON |
| BORING INFORMATION SHEET   | SHEET 18 OF 54            |





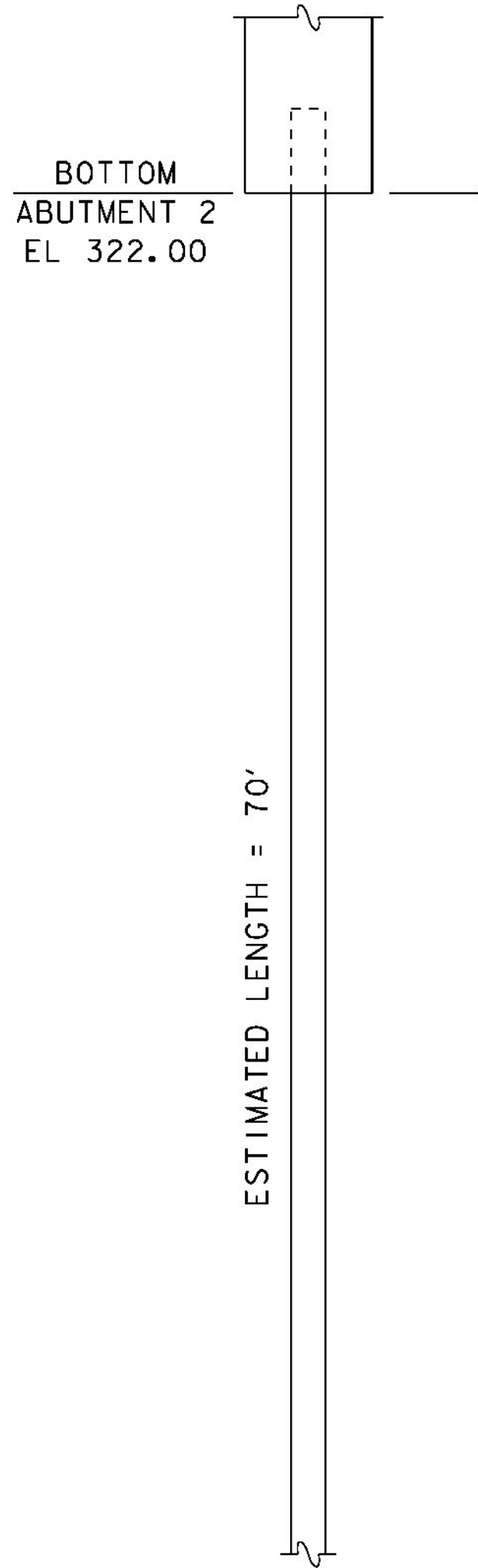
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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|--|-----------------------------------------|--|--------------------------|--|--------------------------|--------------------|----------|--------|---------|
|                                                                                                                                                                                                                                                                                                                                                    |                                                                                     | STATE OF VERMONT<br>AGENCY OF TRANSPORTATION<br>MATERIALS & RESEARCH SECTION<br>SUBSURFACE INFORMATION |  | BORING LOG                              |  | Boring No.: B-3          |  |                          |                    |          |        |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                     |                                                                                                        |  | BRISTOL<br>BRF 021-1(29)<br>VT-116 BR-6 |  | Page No.: 1 of 2         |  |                          |                    |          |        |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                     |                                                                                                        |  |                                         |  | Pin No.: 78F187          |  |                          |                    |          |        |         |
| Checked By: CCB                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                     |                                                                                                        |  |                                         |  |                          |  |                          |                    |          |        |         |
| Boring Crew: TALLMAN, SOMERS, RUSSELL                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                     |                                                                                                        |  | Casing                                  |  | Sampler                  |  | Groundwater Observations |                    |          |        |         |
| Date Started: 8/27/02 Date Finished: 9/12/02                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                     |                                                                                                        |  | Type: WB SS                             |  | I.D.: 3. in 1.5 in       |  | Date                     | Depth (ft)         | Notes    |        |         |
| VTSPG NAD83: N 581477.07 ft E 1485141.94 ft                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                     |                                                                                                        |  | Hammer Wt: N.A. 140 lb.                 |  | Hammer Fall: N.A. 30 in. |  | 09/12/02                 | 7.38               |          |        |         |
| Station: 106+83.30 Offset: -22.97                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                     |                                                                                                        |  | Hammer/Rod Type: Auto/AWJ               |  |                          |  |                          |                    |          |        |         |
| Ground Elevation: 329.14 ft                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                     |                                                                                                        |  | Rig: CME 45C SKID C <sub>E</sub> = 1.33 |  |                          |  |                          |                    |          |        |         |
| Depth (ft)                                                                                                                                                                                                                                                                                                                                                                                                                          | Strata                                                                              | CLASSIFICATION OF MATERIALS (Description)                                                              |  |                                         |  |                          |  | Blows / 6" (N Value)     | Moisture Content % | Gravel % | Sand % | Fines % |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                   |    | A-4, SiSa with a Trace of Organics (2.3%), gry, Moist, Rec. = 1.1 ft                                   |  |                                         |  |                          |  | 1-1-1-1 (2)              | 36.3               |          | 50.6   | 49.4    |
| 10                                                                                                                                                                                                                                                                                                                                                                                                                                  |    | A-1-a, SaGr, gry, Moist, Rec. = 0.3 ft                                                                 |  |                                         |  |                          |  | 3-3-14-23 (17)           | 11.2               | 65.2     | 30.3   | 4.5     |
| 15                                                                                                                                                                                                                                                                                                                                                                                                                                  |   | A-2-4, SiGr, gry, Moist, Rec. = 0.2 ft                                                                 |  |                                         |  |                          |  | 5-8-9-4 (17)             | 14.0               | 53.4     | 17.2   | 29.4    |
| 20                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | A-4, SaSi, gry, Moist, Rec. = 1.1 ft                                                                   |  |                                         |  |                          |  | 5-4-4-3 (8)              | 23.7               | 6.2      | 27.6   | 66.2    |
| 25                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | A-4, SaSi, gry, Moist, Rec. = 1.3 ft                                                                   |  |                                         |  |                          |  | 4-2-2-2 (4)              | 28.5               | 0.1      | 21.8   | 78.1    |
| 30                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | A-4, GrSaSi, gry, Moist, Rec. = 0.8 ft                                                                 |  |                                         |  |                          |  | 2-1-3-2 (4)              | 15.3               | 25.2     | 34.6   | 40.2    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                     |  | BXDC, Boulder, 32.2 ft - 33.5 ft                                                                       |  |                                         |  |                          |  |                          |                    |          |        |         |
| 35                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | A-4, SiSa, gry, Moist, Rec. = 0.8 ft                                                                   |  |                                         |  |                          |  | 6-7-9-8 (16)             | 21.6               | 1.5      | 57.3   | 41.2    |
| Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual.<br>2. N Values have not been corrected for hammer energy; C <sub>E</sub> is the hammer energy correction factor.<br>3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made. |                                                                                     |                                                                                                        |  |                                         |  |                          |  |                          |                    |          |        |         |

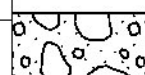
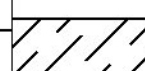
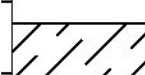
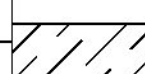
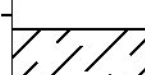
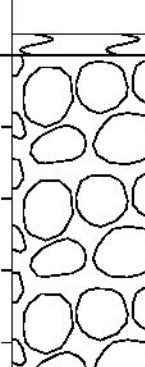
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| BORING LOG                                                                                                                                                                                                                                                                                                                                                                                                                          |        | Boring No.: B-3                                                    |            |       |                    |                    |          |        |         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------------------------------------------------------------------|------------|-------|--------------------|--------------------|----------|--------|---------|
| BRISTOL                                                                                                                                                                                                                                                                                                                                                                                                                             |        | Page No.: 2 of 2                                                   |            |       |                    |                    |          |        |         |
| BRF 021-1(29)                                                                                                                                                                                                                                                                                                                                                                                                                       |        | Pin No.: 78F187                                                    |            |       |                    |                    |          |        |         |
| VT-116 BR-6                                                                                                                                                                                                                                                                                                                                                                                                                         |        | Checked By: CCB                                                    |            |       |                    |                    |          |        |         |
| Boring Crew: TALLMAN, SOMERS, RUSSELL                                                                                                                                                                                                                                                                                                                                                                                               |        | Groundwater Observations                                           |            |       |                    |                    |          |        |         |
| Date Started: 8/27/02 Date Finished: 9/12/02                                                                                                                                                                                                                                                                                                                                                                                        |        | Date                                                               | Depth (ft) | Notes |                    |                    |          |        |         |
| VTSPG NAD83: N 581477.07 ft E 1485141.94 ft                                                                                                                                                                                                                                                                                                                                                                                         |        | 09/12/02                                                           | 7.38       |       |                    |                    |          |        |         |
| Station: 106+83.30 Offset: -22.97                                                                                                                                                                                                                                                                                                                                                                                                   |        |                                                                    |            |       |                    |                    |          |        |         |
| Ground Elevation: 329.14 ft                                                                                                                                                                                                                                                                                                                                                                                                         |        |                                                                    |            |       |                    |                    |          |        |         |
| Type: WB SS                                                                                                                                                                                                                                                                                                                                                                                                                         |        |                                                                    |            |       |                    |                    |          |        |         |
| I.D.: 3. in 1.5 in                                                                                                                                                                                                                                                                                                                                                                                                                  |        |                                                                    |            |       |                    |                    |          |        |         |
| Hammer Wt: N.A. 140 lb.                                                                                                                                                                                                                                                                                                                                                                                                             |        |                                                                    |            |       |                    |                    |          |        |         |
| Hammer Fall: N.A. 30 in.                                                                                                                                                                                                                                                                                                                                                                                                            |        |                                                                    |            |       |                    |                    |          |        |         |
| Hammer/Rod Type: Auto/AWJ                                                                                                                                                                                                                                                                                                                                                                                                           |        |                                                                    |            |       |                    |                    |          |        |         |
| Rig: CME 45C SKID C <sub>r</sub> = 1.33                                                                                                                                                                                                                                                                                                                                                                                             |        |                                                                    |            |       |                    |                    |          |        |         |
| Depth (ft)                                                                                                                                                                                                                                                                                                                                                                                                                          | Strata | CLASSIFICATION OF MATERIALS (Description)                          |            |       | Blows/6" (N Value) | Moisture Content % | Gravel % | Sand % | Fines % |
| 40                                                                                                                                                                                                                                                                                                                                                                                                                                  |        | No Recovery. Stone in sampler, 38.4 ft - 39.4 ft                   |            |       | R/2.75" (R)        |                    |          |        |         |
| 45                                                                                                                                                                                                                                                                                                                                                                                                                                  |        | BXDC, No Sample, Boulder, 43.1 ft - 45.9 ft                        |            |       |                    |                    |          |        |         |
| 50                                                                                                                                                                                                                                                                                                                                                                                                                                  |        | BXDC, Cleaned out casing, 48.2 ft - 49.2 ft                        |            |       | 27-53-62-42 (R)    | 7.7                | 42.7     | 35.2   | 22.1    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                     |        | A-1-b, SiSaGr, gry, Moist, Rec. = 1.3 ft                           |            |       |                    |                    |          |        |         |
| 55                                                                                                                                                                                                                                                                                                                                                                                                                                  |        | No Recovery, Possible stone in front of sampler, 54.1 ft - 55.4 ft |            |       | 32-66-70 (R)       |                    |          |        |         |
| 60                                                                                                                                                                                                                                                                                                                                                                                                                                  |        | BXDC, Cleaned out casing, 57.9 ft - 59.0 ft                        |            |       | 19-34-53-3.0" (87) | 14.7               | 3.5      | 25.3   | 71.2    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                     |        | A-4, SaSi (HP), gry, Moist, Rec. = 1.8 ft                          |            |       |                    |                    |          |        |         |
| 65                                                                                                                                                                                                                                                                                                                                                                                                                                  |        | BXDC, Cored ahead, 62.0 ft - 64.0 ft                               |            |       | 57-80-92 (R)       | 8.8                | 19.5     | 45.0   | 35.5    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                     |        | A-4, SiSa (HP), gry, Moist, Rec. = 1.1 ft                          |            |       |                    |                    |          |        |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                     |        | Field Note: Advanced casing to 66.5 ft.                            |            |       |                    |                    |          |        |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                     |        | Hole stopped @ 66.5 ft                                             |            |       |                    |                    |          |        |         |
| 70                                                                                                                                                                                                                                                                                                                                                                                                                                  |        |                                                                    |            |       |                    |                    |          |        |         |
| Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual.<br>2. N Values have not been corrected for hammer energy; C <sub>r</sub> is the hammer energy correction factor.<br>3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made. |        |                                                                    |            |       |                    |                    |          |        |         |

PROJECT NAME: BRISTOL  
PROJECT NUMBER: BRF 021-1(29)  
FILE NAME: si0b094bor.dgn PLOT DATE: 04-NOV-2014  
PROJECT LEADER: C. CARLSON DRAWN BY: C. ROY  
DESIGNED BY: M. EVANS-MONGEON CHECKED BY: EVANS-MONGEON  
BORING LOG SHEET (1) SHEET 19 OF 54



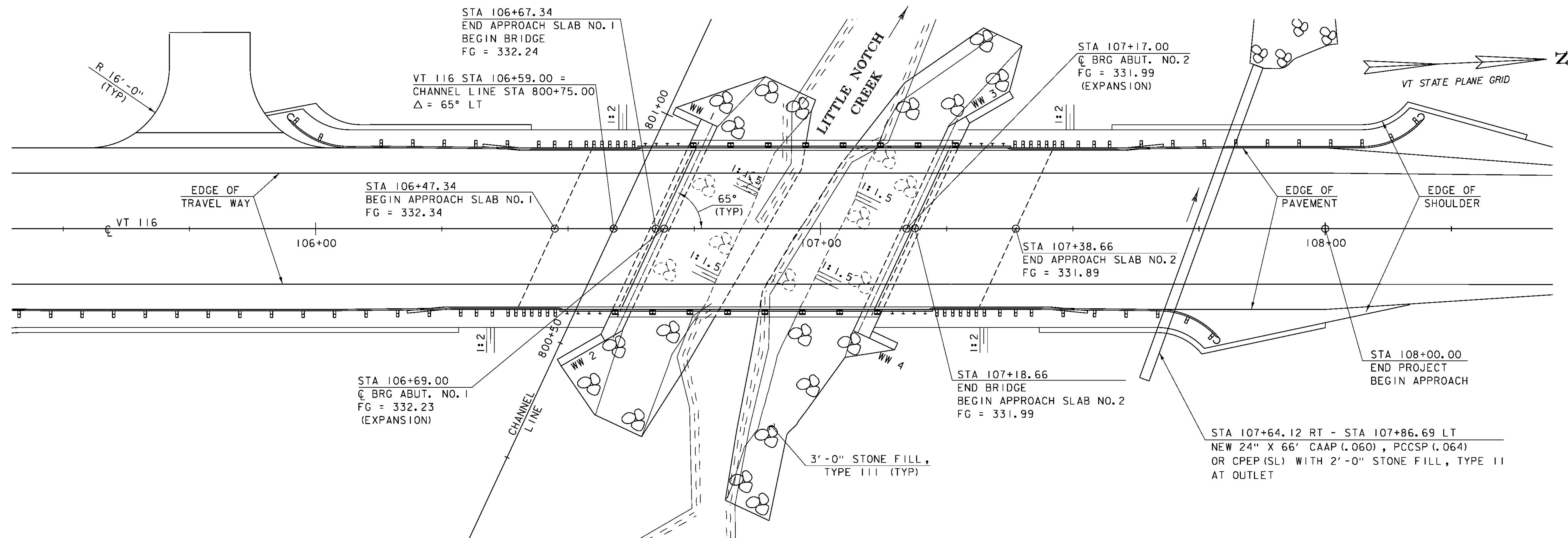


|                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                           |  |                                         |                       |                                                        |            |        |         |      |      |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|--|-----------------------------------------|-----------------------|--------------------------------------------------------|------------|--------|---------|------|------|
|  |                                                                                                                                                                                                                                                                                                                                                                                                                                        | STATE OF VERMONT<br>AGENCY OF TRANSPORTATION<br>MATERIALS & RESEARCH SECTION<br>SUBSURFACE INFORMATION    |  | BORING LOG                              |                       | Boring No.: B-4                                        |            |        |         |      |      |
|                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                           |  | BRISTOL<br>BRF 021-1(29)<br>VT-116 BR-6 |                       | Page No.: 1 of 2<br>Pin No.: 78F187<br>Checked By: CCB |            |        |         |      |      |
| Boring Crew: YOUNG, SOMERS                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                           |  | Casing Sampler                          |                       | Groundwater Observations                               |            |        |         |      |      |
| Date Started: 7/02/02 Date Finished: 7/16/02                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                           |  | Type: WB SS                             | Date                  |                                                        | Depth (ft) |        | Notes   |      |      |
| VTSPG NAD83: N 581493.69 ft E 1485187.34 ft                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                           |  | I.D.: 3. in 1.5 in                      | 07/16/02              |                                                        | 8.0        |        |         |      |      |
| Station: 107+01.90 Offset: 21.65                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                           |  | Hammer Wt: N.A. 140 lb.                 |                       |                                                        |            |        |         |      |      |
| Ground Elevation: 329.59 ft                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                           |  | Hammer Fall: N.A. 30 in.                |                       |                                                        |            |        |         |      |      |
|                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                           |  | Hammer/Rod Type: Auto/AWJ               |                       |                                                        |            |        |         |      |      |
|                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                           |  | Rig: CME 45C TRACK                      | C <sub>E</sub> = 1.34 |                                                        |            |        |         |      |      |
| Depth (ft)                                                                        | Strata                                                                                                                                                                                                                                                                                                                                                                                                                                 | CLASSIFICATION OF MATERIALS (Description)                                                                 |  |                                         | Blows/6" (N Value)    | Moisture Content %                                     | Gravel %   | Sand % | Fines % | LL % | PI % |
| 10                                                                                |                                                                                                                                                                                                                                                                                                                                                       | No sample. Appears to be SiSaGr, 4.9 ft - 6.9 ft                                                          |  |                                         | 2-1-2-2 (3)           |                                                        |            |        |         |      |      |
|                                                                                   |                                                                                                                                                                                                                                                                                                                                                       | A-1-b, GrSa, gry, Moist, Rec. = 1.0 ft                                                                    |  |                                         | 4-1-1-1 (2)           | 20.2                                                   | 26.9       | 62.2   | 10.9    |      |      |
|                                                                                   |                                                                                                                                                                                                                                                                                                                                                       | No sample. Appears to be SiGrSa, gry, Moist, 14.7 ft - 16.7 ft                                            |  |                                         | 7-3-3-5 (6)           |                                                        |            |        |         |      |      |
| 20                                                                                |                                                                                                                                                                                                                                                                                                                                                      | A-4, Si, gry, Moist, Rec. = 1.2 ft                                                                        |  |                                         | 3-2-4-3 (6)           | 21.1                                                   |            | 15.3   | 84.7    |      |      |
|                                                                                   |                                                                                                                                                                                                                                                                                                                                                     | A-4, Si, gry, Moist, Rec. = 1.0 ft                                                                        |  |                                         | 3-1-3-3 (4)           | 22.5                                                   |            | 11.8   | 88.2    |      |      |
|                                                                                   |                                                                                                                                                                                                                                                                                                                                                     | A-4, SaSi, gry, Moist, Rec. = 1.2 ft                                                                      |  |                                         | 2-4-5-3 (9)           | 23.2                                                   | 9.9        | 32.8   | 57.3    |      |      |
| 30                                                                                |                                                                                                                                                                                                                                                                                                                                                     | A-4, SaSi, gry, Moist, Rec. = 0.8 ft                                                                      |  |                                         | 2-1-7-2 (8)           | 16.5                                                   | 20.0       | 30.4   | 49.6    |      |      |
|                                                                                   |                                                                                                                                                                                                                                                                                                                                                     | Visual Classification: Broken Rock, Rec. = 0.2 ft, 39.4 ft - 40.0 ft<br>NXDC, Boulders, 40.0 ft - 49.2 ft |  |                                         | 24-100/1.5" (R)       |                                                        |            |        |         |      |      |
|                                                                                   |                                                                                                                                                                                                                                                                                                                                                     | A-1-b, SiSaGr, gry, Moist, Rec. = 0.4 ft<br>NXDC, Boulders, 50.2 ft - 52.9 ft                             |  |                                         | 100/5.0" (R)          | 8.3                                                    | 41.3       | 33.9   | 24.8    |      |      |
| 50                                                                                |                                                                                                                                                                                                                                                                                                                                                     | A-4, Si, gry, Moist, Rec. = 1.6 ft                                                                        |  |                                         | 34-39-40-44 (79)      | 13.9                                                   | 5.1        | 19.1   | 75.8    | 18   | 2    |
|                                                                                   | Notes:<br>1. Stratification lines represent approximate boundary between material types. Transition may be gradual.<br>2. N Values have not been corrected for hammer energy; C <sub>E</sub> is the hammer energy correction factor.<br>3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made. |                                                                                                           |  |                                         |                       |                                                        |            |        |         |      |      |

ESTIMATED  
PILE TIP  
EL 254.00

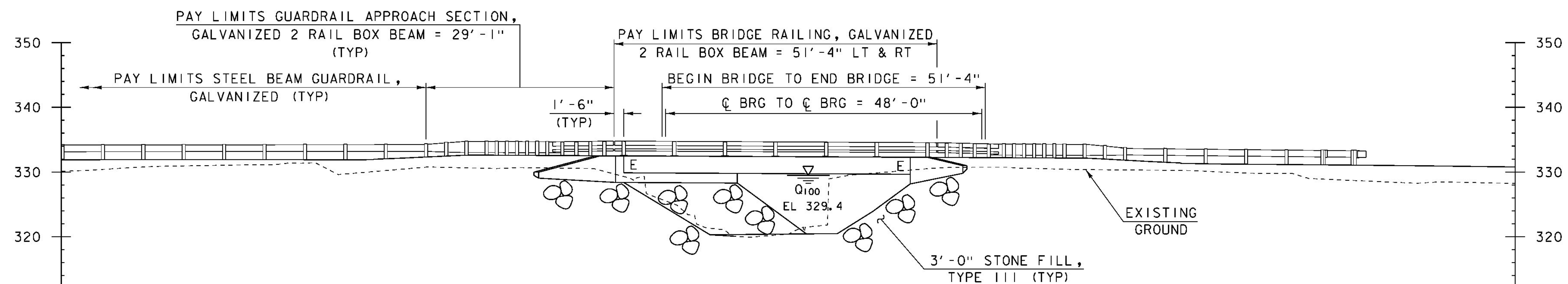
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                        |  |                                          |  |                                                        |                    |            |        |         |      |      |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|--|------------------------------------------|--|--------------------------------------------------------|--------------------|------------|--------|---------|------|------|
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                              | STATE OF VERMONT<br>AGENCY OF TRANSPORTATION<br>MATERIALS & RESEARCH SECTION<br>SUBSURFACE INFORMATION |  | BORING LOG                               |  | Boring No.: B-4                                        |                    |            |        |         |      |      |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                        |  | BRISTOL<br>BRF 021-1(29)<br>VT-116 BR-6  |  | Page No.: 2 of 2<br>Pin No.: 78F187<br>Checked By: CCB |                    |            |        |         |      |      |
| Boring Crew: YOUNG, SOMERS                   |                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                        |  | Casing Sampler                           |  | Groundwater Observations                               |                    |            |        |         |      |      |
| Date Started: 7/02/02 Date Finished: 7/16/02 |                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                        |  | Type: WB SS                              |  | Date                                                   |                    | Depth (ft) |        | Notes   |      |      |
| VTSPG NAD83: N 581493.69 ft E 1485187.34 ft  |                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                        |  | I.D.: 3. in 1.5 in                       |  | 07/16/02                                               |                    | 8.0        |        |         |      |      |
| Station: 107+01.90 Offset: 21.65             |                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                        |  | Hammer Wt: N.A. 140 lb.                  |  |                                                        |                    |            |        |         |      |      |
| Ground Elevation: 329.59 ft                  |                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                        |  | Hammer Fall: N.A. 30 in.                 |  |                                                        |                    |            |        |         |      |      |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                        |  | Hammer/Rod Type: Auto/AWJ                |  |                                                        |                    |            |        |         |      |      |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                        |  | Rig: CME 45C TRACK C <sub>E</sub> = 1.34 |  |                                                        |                    |            |        |         |      |      |
| Depth (ft)                                   | Strata                                                                                                                                                                                                                                                                                                                                                                                                                       | CLASSIFICATION OF MATERIALS (Description)                                                              |  |                                          |  | Blows/6" (N Value)                                     | Moisture Content % | Gravel %   | Sand % | Fines % | LL % | PI % |
| 60                                           |                                                                                                                                                                                                                                                                                                                                                                                                                              | A-4, GrSi, gry, Moist, Rec. = 1.4 ft                                                                   |  |                                          |  | 98-61-78-100/3.5" (R)                                  | 13.3               | 23.5       | 12.6   | 63.9    | 22   | 5    |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                              | A-4, GrSi, gry, Moist, Rec. = 1.4 ft                                                                   |  |                                          |  | 19-76-100/5.0" (R)                                     | 11.8               | 20.5       | 18.1   | 61.4    | 20   | 4    |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                              | A-4, SaSi, gry, Moist, Rec. = 0.6 ft                                                                   |  |                                          |  | 71-100/2.0" (R)                                        | 11.0               | 18.8       | 21.3   | 59.9    |      |      |
| 70                                           |                                                                                                                                                                                                                                                                                                                                                                                                                              | A-4, GrSiSa, gry, Moist, Rec. = 1.3 ft                                                                 |  |                                          |  | 21-48-89-R (R)                                         | 14.1               | 22.8       | 39.9   | 37.3    |      |      |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                              | A-2-4, SiSa, gry, Moist, Rec. = 1.3 ft                                                                 |  |                                          |  | 20-51-101 (R)                                          | 14.0               | 13.9       | 55.4   | 30.7    |      |      |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                              | Boulders, 81.7 ft - 86.6 ft                                                                            |  |                                          |  |                                                        |                    |            |        |         |      |      |
| Hole stopped @ 86.6 ft                       |                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                        |  |                                          |  |                                                        |                    |            |        |         |      |      |
| 90                                           | Remarks:<br>1. The first boring was started at 107+01.9, offset 20.8 ft Rt. This boring was discontinued at 52.9 ft. The casing broke off at 44.3 ft.<br>2. A second boring was started at 107+01.9, offset 22.5' Rt. and was discontinued at 44.3 ft due to wearing out of casing bit in boulders from 36.1-44.3 feet.                                                                                                      |                                                                                                        |  |                                          |  |                                                        |                    |            |        |         |      |      |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                        |  |                                          |  |                                                        |                    |            |        |         |      |      |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                        |  |                                          |  |                                                        |                    |            |        |         |      |      |
| 100                                          |                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                        |  |                                          |  |                                                        |                    |            |        |         |      |      |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                        |  |                                          |  |                                                        |                    |            |        |         |      |      |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                        |  |                                          |  |                                                        |                    |            |        |         |      |      |
| 110                                          |                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                        |  |                                          |  |                                                        |                    |            |        |         |      |      |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                        |  |                                          |  |                                                        |                    |            |        |         |      |      |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                        |  |                                          |  |                                                        |                    |            |        |         |      |      |
| Notes:                                       | 1. Stratification lines represent approximate boundary between material types. Transition may be gradual.<br>2. N Values have not been corrected for hammer energy; C <sub>E</sub> is the hammer energy correction factor.<br>3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made. |                                                                                                        |  |                                          |  |                                                        |                    |            |        |         |      |      |





# PLAN

SCALE 1" = 10'-0"

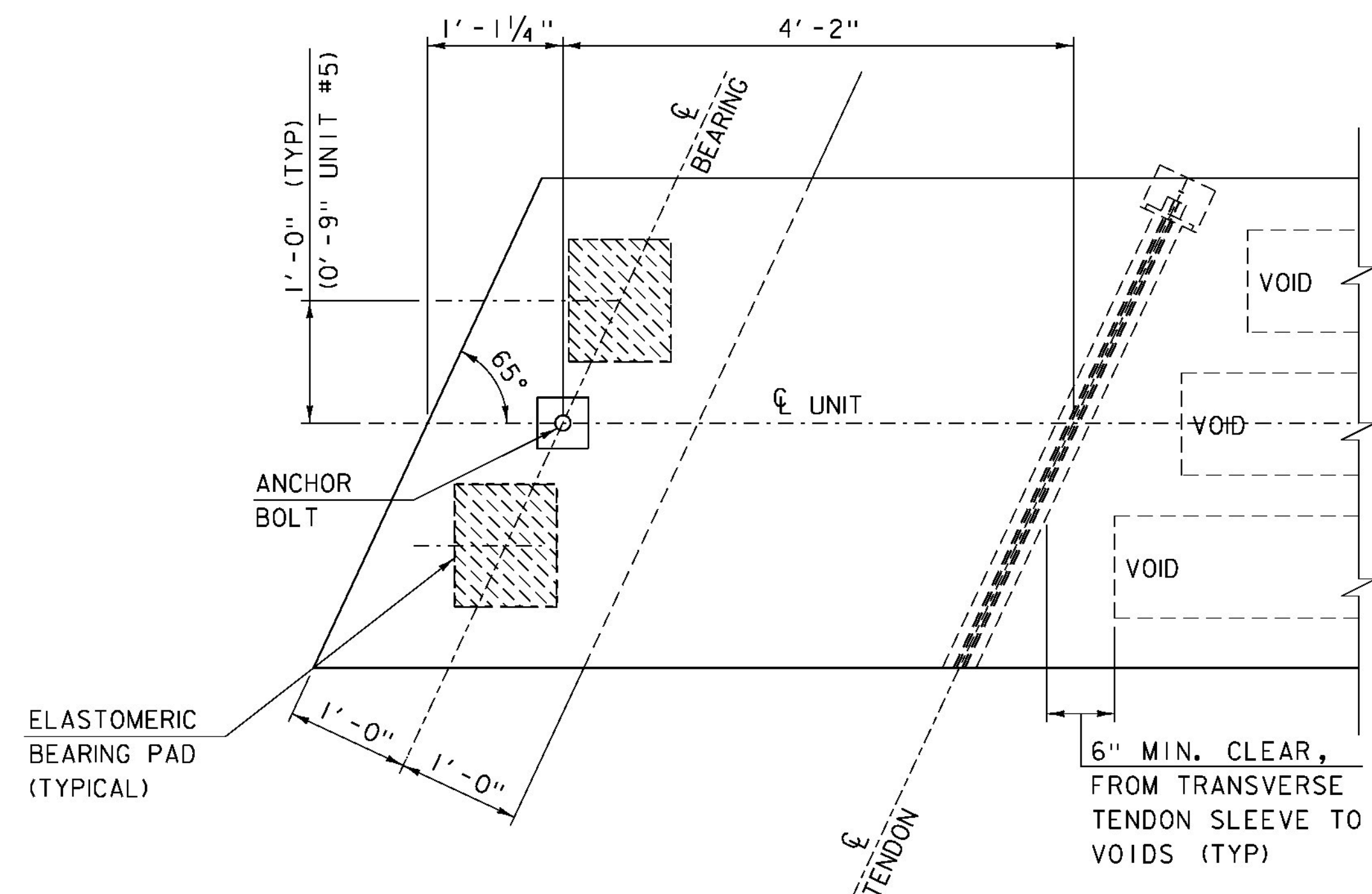


# ELEVATION

SCALE 1" = 10'-0"

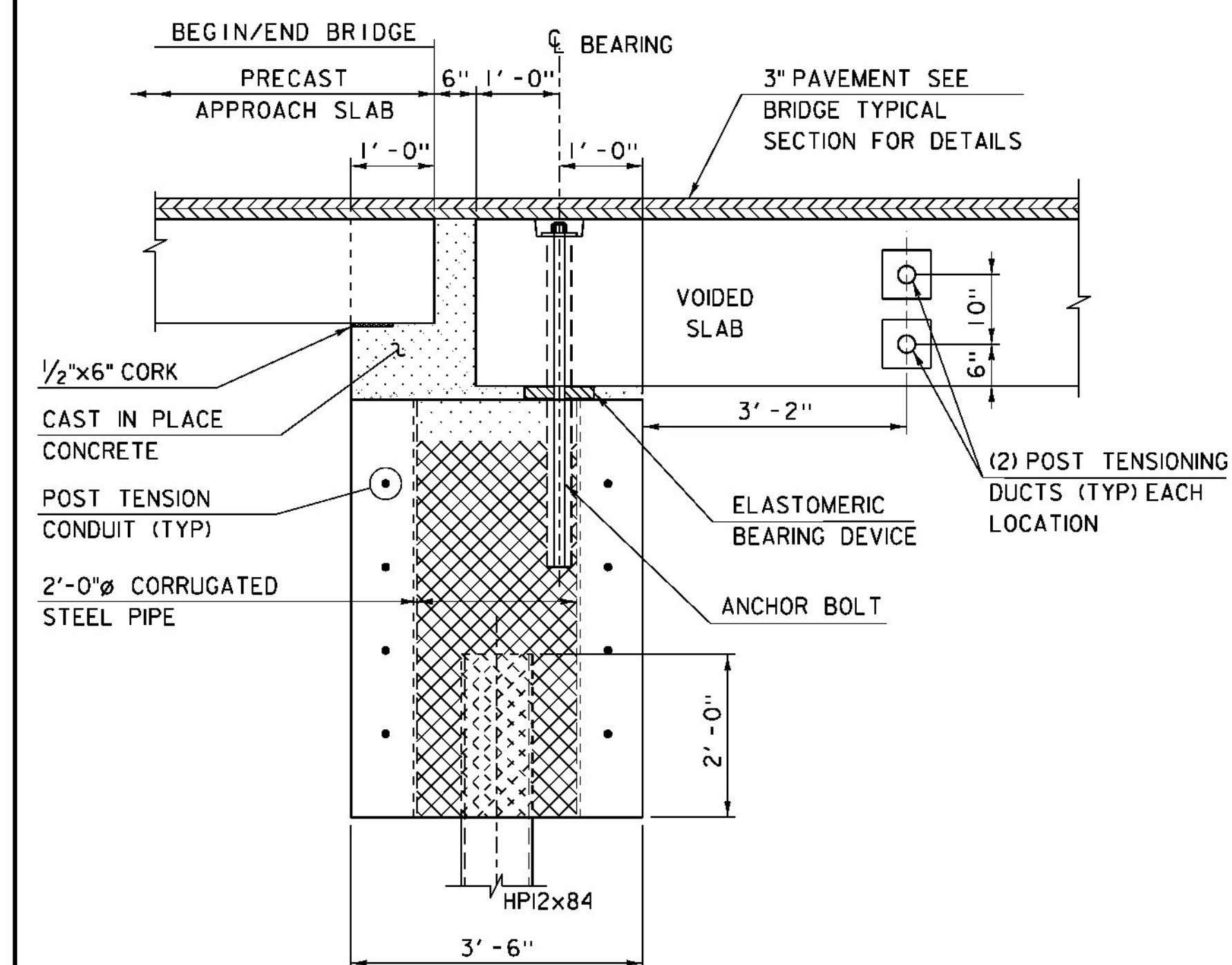
|                    |                  |
|--------------------|------------------|
| PROJECT NAME:      | BRISTOL          |
| PROJECT NUMBER:    | BRF 021-1(29)    |
| FILE NAME:         | si0b094pe.dgn    |
| PROJECT LEADER:    | C. CARLSON       |
| DESIGNED BY:       | M. EVANS-MONGEON |
| PLAN AND ELEVATION |                  |
| PLOT DATE:         | 05-DEC-2014      |
| DRAWN BY:          | G. ROY           |
| CHECKED BY:        | EVANS-MONGEON    |
| SHEET              | 21 OF 54         |





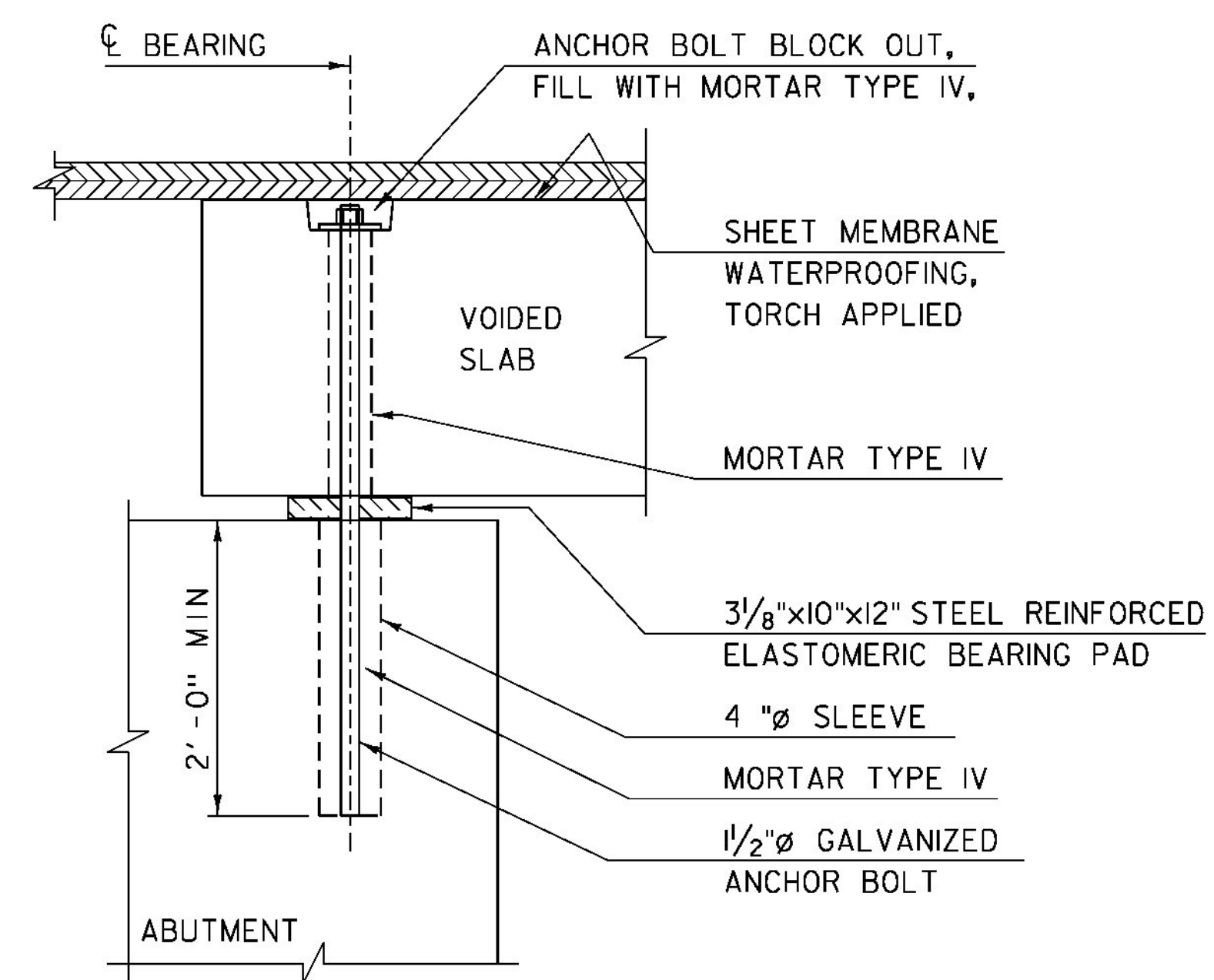
**BEARING PAD PLACEMENT DETAIL**

SCALE: 1" = 1'-0"



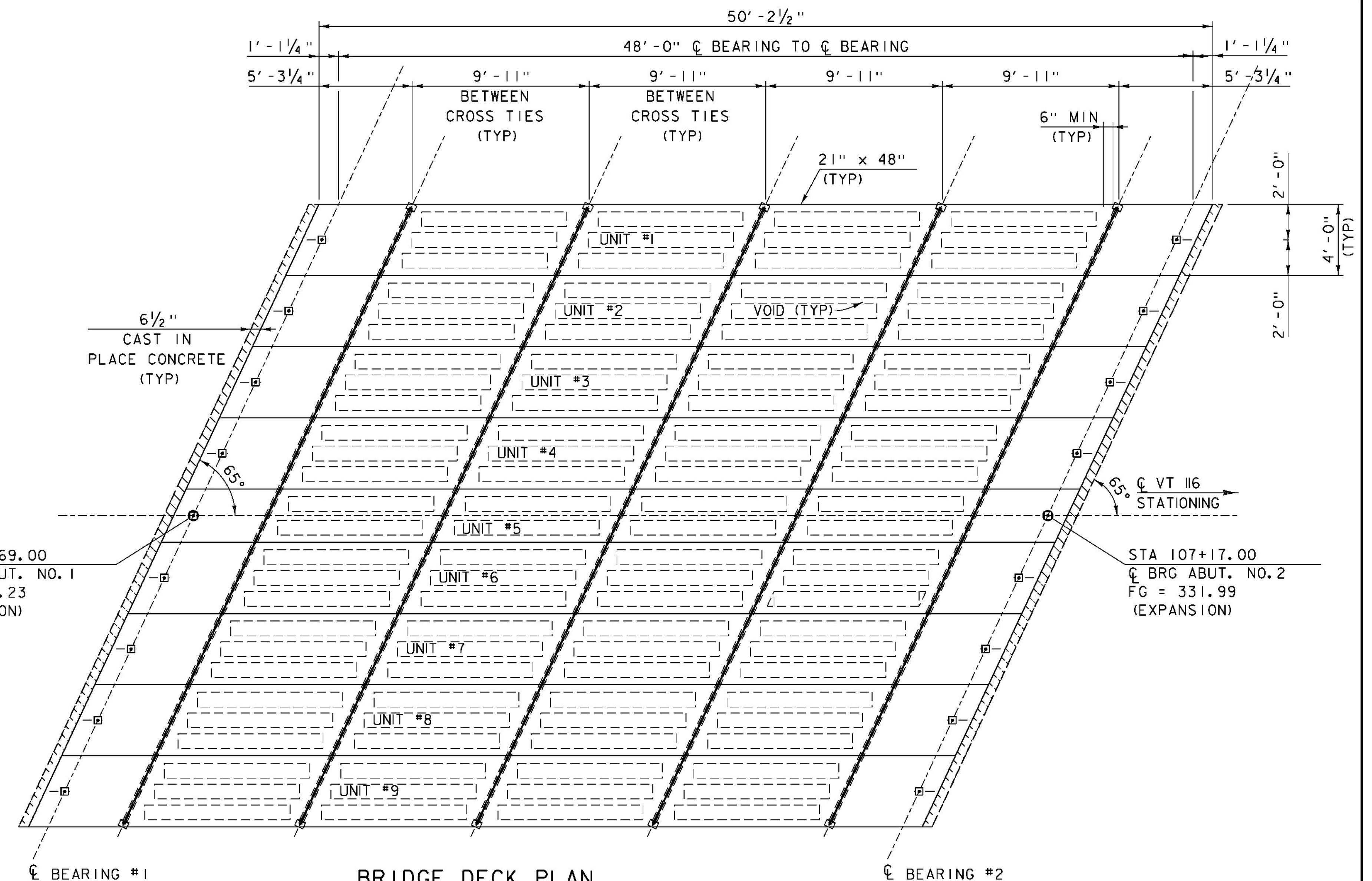
**BEGIN/END BRIDGE DETAIL**

SCALE: 3/4" = 1'-0"



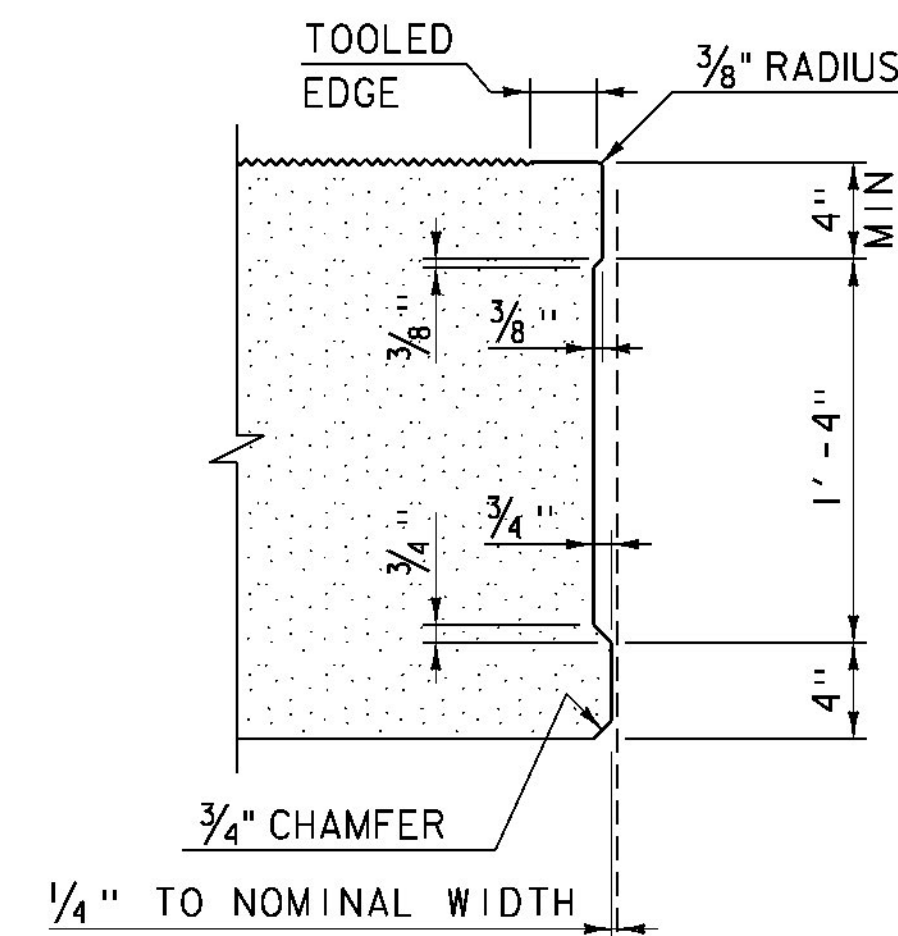
**ANCHOR BOLT DETAIL**

SCALE: 1" = 1'-0"



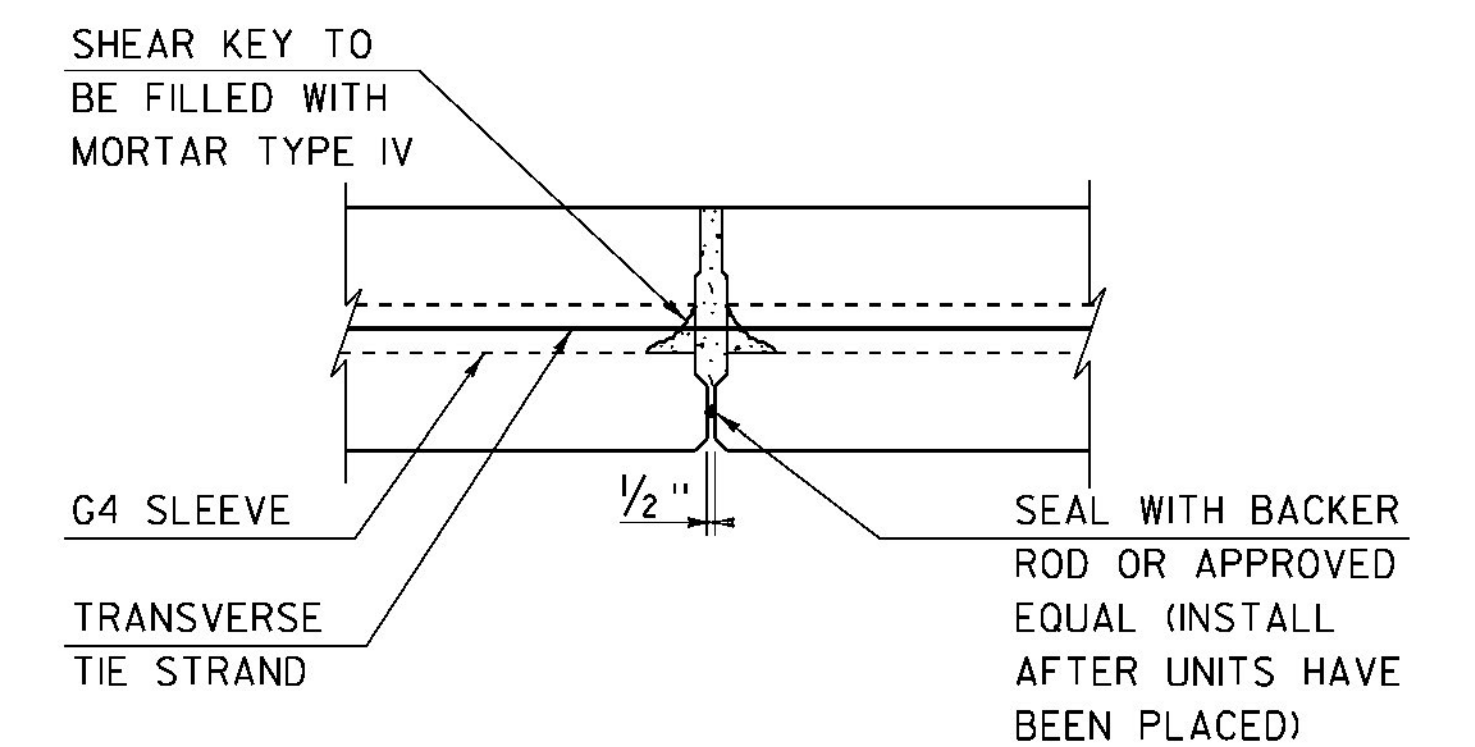
**BRIDGE DECK PLAN**

SCALE: 1/4" = 1'-0"



**FULL DEPTH SHEAR KEY DETAIL**

SCALE: 1/2" = 1'-0"



**SHEAR KEY SECTION**

SCALE: 1" = 1'-0"

PROJECT NAME: BRISTOL  
PROJECT NUMBER: BRF 021-I(29)

FILE NAME: si0b094sup.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: C. MOONEY  
BRIDGE DECK PLAN

PLOT DATE: 24-NOV-2014  
DRAWN BY: R. PELLET  
CHECKED BY: EVANS-MONGEON  
SHEET 22 OF 54





\* 1/2" x 5" x 5" WASHER  
WITH 1 1/2" DIA.  
HOLE (GALVANIZED)



Diagram illustrating the cross-section of a bridge deck, showing nine units (UNIT 1 to UNIT 9) and various dimensions and components:

- Dimensions:**
  - 17'-6" TO FASCIA (from centerline to fascia)
  - 15'-6" TO FACE OF CURB (from centerline to curb face)
  - 16'-0" TO FACE OF RAIL (from centerline to rail face)
  - 1'-6" RAIL (TYP) (typical rail width)
  - 2'-0" CURB (typical curb width)
  - 35'-0" FASCIA TO FASCIA (total width)
- Components and Details:**
  - 7" REVEAL (TYP):** Typical reveal dimension.
  - SHEET MEMBRANE WATERPROOFING, TORCH APPLIED:** Waterproofing layer.
  - FINISH GRADE:** The top surface of the deck.
  - \*3" BITUMINOUS CONCRETE PAVEMENT:** Pavement layer.
  - BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM (SEE STD S-360A):** Railing structure.
  - VOIDED SLAB 21"x48" (FASCIA) (TYP):** Slab type for fascia.
  - VOIDED SLAB 21"x48" (INTERIOR) (TYP):** Slab type for interior.
  - VOIDED SLAB 21"x36":** Slab type for interior.
  - PRESTRESSED CONCRETE VOIDED SLABS:** Main deck structure.
  - VT 116:** Vertical curve data.
  - 0.020:** Slope or grade indicator.

BRIDGE TYPICAL SECTION

\* 1 1/2" BITUMINOUS CONCRETE PAVEMENT, TYPE IVS  
1 1/2" BITUMINOUS CONCRETE PAVEMENT, TYPE IVS

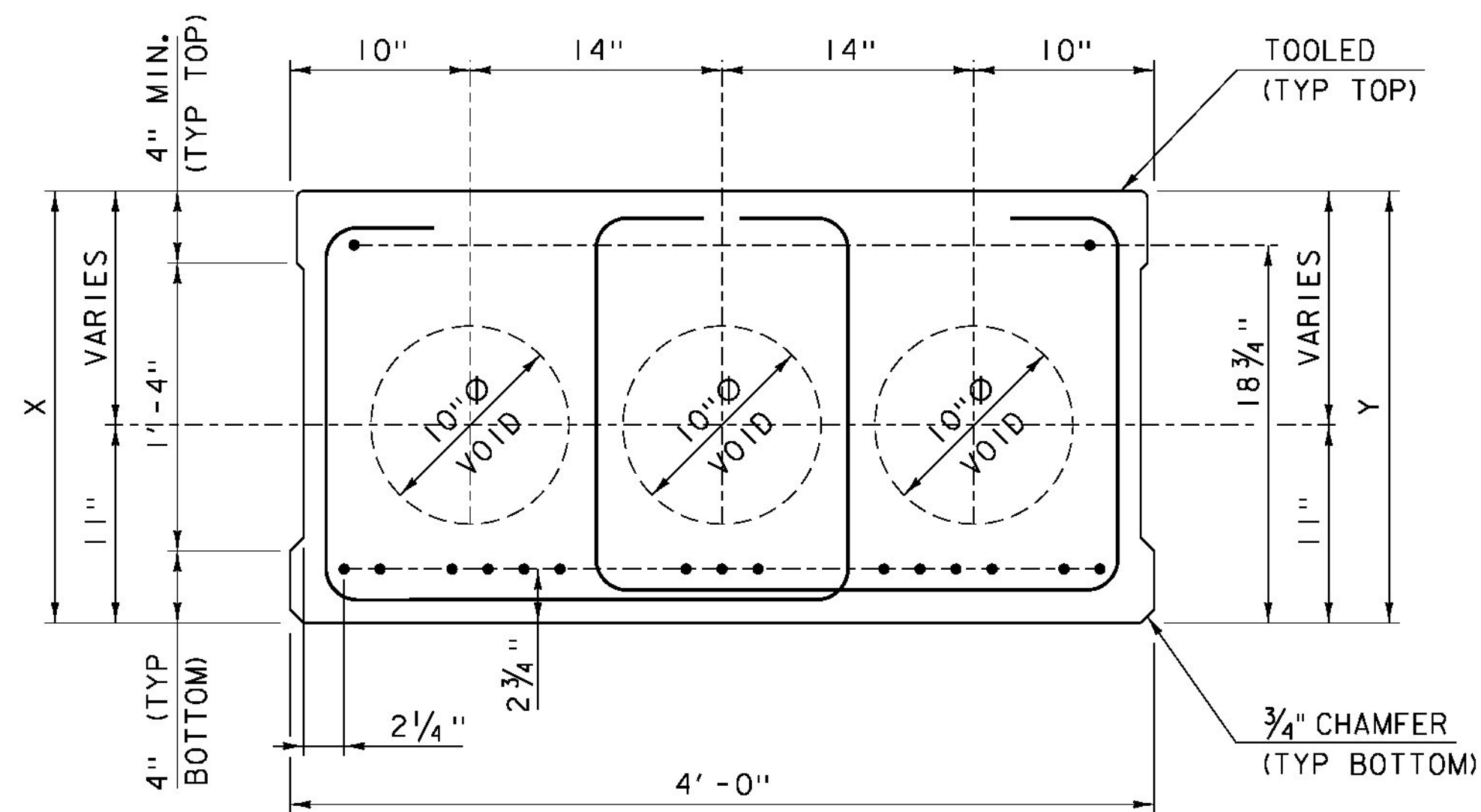
7. THE FABRICATOR SHALL SUPPLY A SELF ADHESIVE COMPRESSIBLE SEALER BETWEEN THE BOTTOM OF THE UNITS AND THE BRIDGE SEAT. THIS COMPRESSIBLE SEALER SHALL SURROUND THE 2 1/2" DIA SLEEVE IN THE UNIT. THE PURPOSE OF THE SEALER IS TO FACILITATE PLACEMENT OF THE MORTAR AROUND THE ANCHOR BOLTS. PAYMENT WILL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 531.17, "BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD"



2. THE 1/2" PLATE SHALL CONFORM TO AASHTO M 270M/ M 270 GRADE 50. THE PLATE AND CHUCK SHALL BE GALVANIZED ACCORDING TO AASHTO M111M/ M111.

|                                |                           |
|--------------------------------|---------------------------|
| PROJECT NAME:                  | BRISTOL                   |
| PROJECT NUMBER:                | BRF 021-1 (29)            |
| FILE NAME: s10b094sup.dgn      | PLOT DATE: 04-NOV-2014    |
| PROJECT LEADER: C. CARLSON     | DRAWN BY: R. PELLETT      |
| DESIGNED BY: C. MOONEY         | CHECKED BY: EVANS-MONGEON |
| BRIDGE VOIDED SLAB DETAILS (1) | SHEET 23 OF 54            |

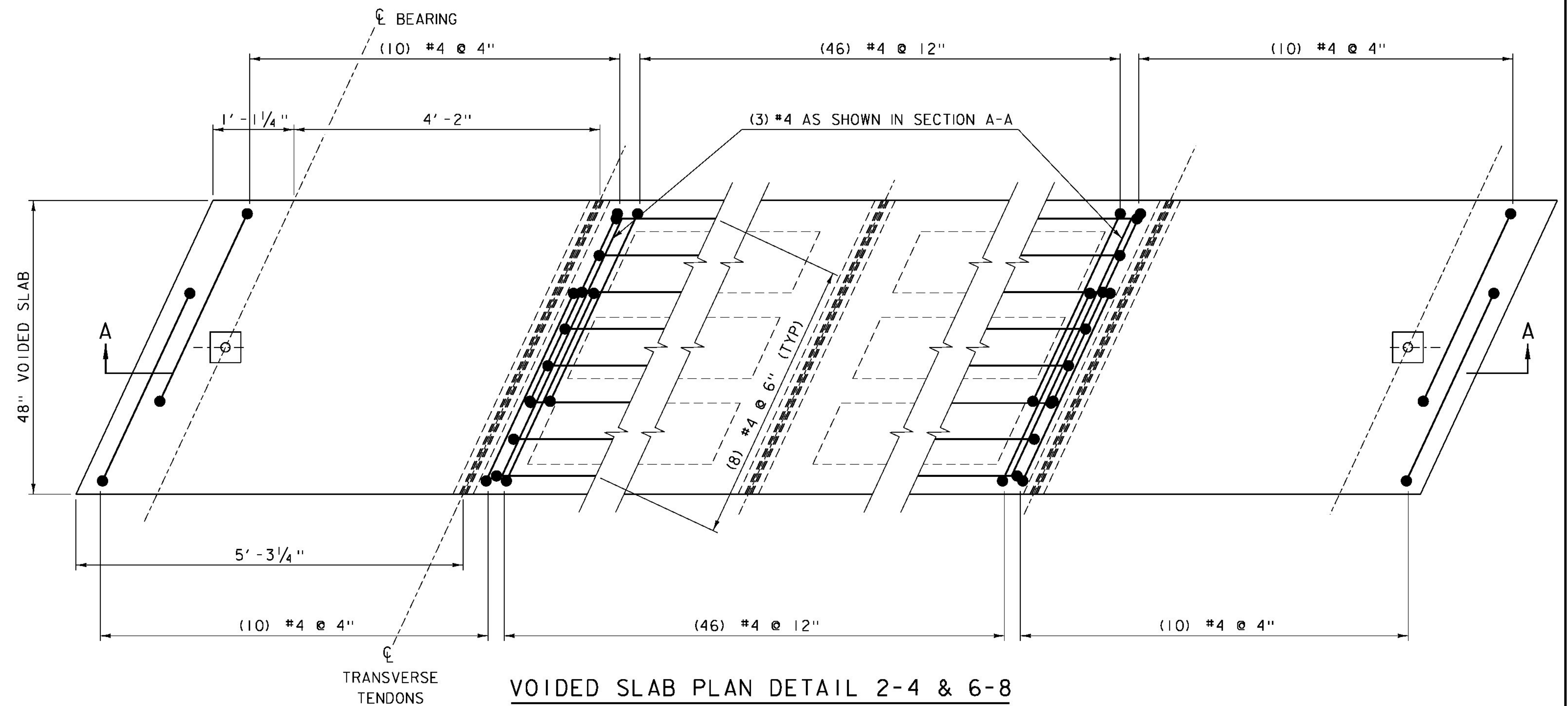




VOIDED SLAB UNIT #2-#4 & #6-#8 TYPICAL

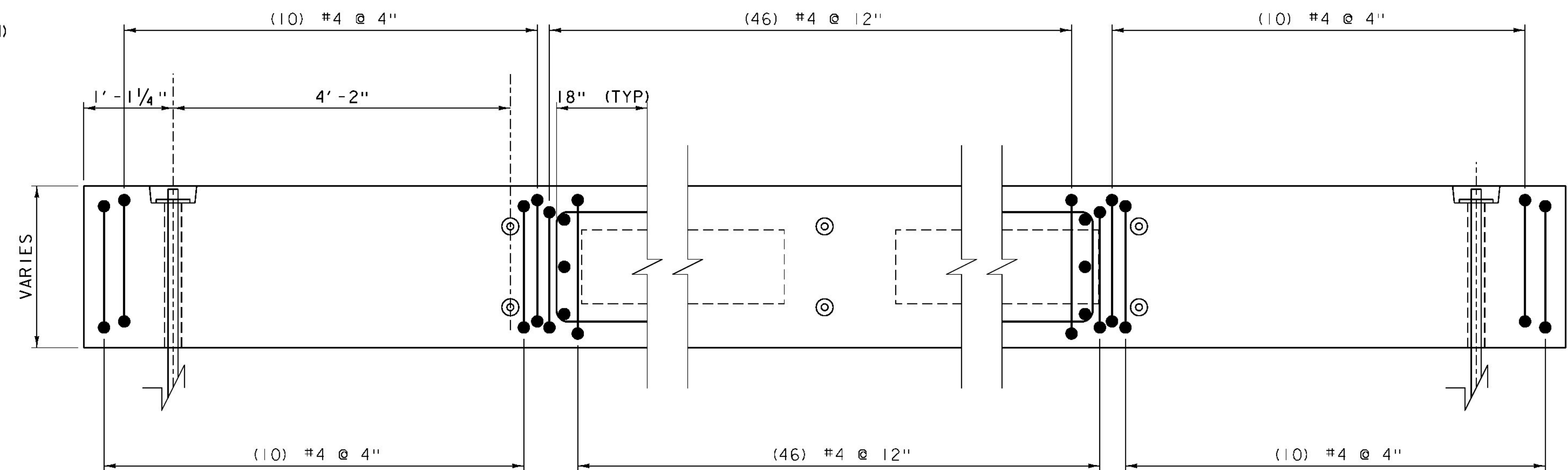
SCALE: 1 1/2" = 1'-0"

| VOIDED<br>SLAB<br>UNIT | QUANTITY | ( X )<br>DIMENSION | ( Y )<br>DIMENSION | BOTTOM<br>STRAND<br>COUNT | TOP<br>STRAND<br>COUNT |
|------------------------|----------|--------------------|--------------------|---------------------------|------------------------|
| #2                     | 1        | 21 1/2"            | 22 1/2"            | 14                        | 2                      |
| #3                     | 1        | 22 1/2"            | 23 1/2"            | 15                        | 2                      |
| #4                     | 1        | 23 1/2"            | 24 1/2"            | 15                        | 2                      |
| #6                     | 1        | 24 1/2"            | 23 1/2"            | 15                        | 2                      |
| #7                     | 1        | 23 1/2"            | 22 1/2"            | 15                        | 2                      |
| #8                     | 1        | 22 1/2"            | 21 1/2"            | 14                        | 2                      |



VOIDED SLAB PLAN DETAIL 2-4 & 6-8

SCALE: 1" = 1'-0"



VOIDED SLAB SECTION A-A 2-4 & 6-8

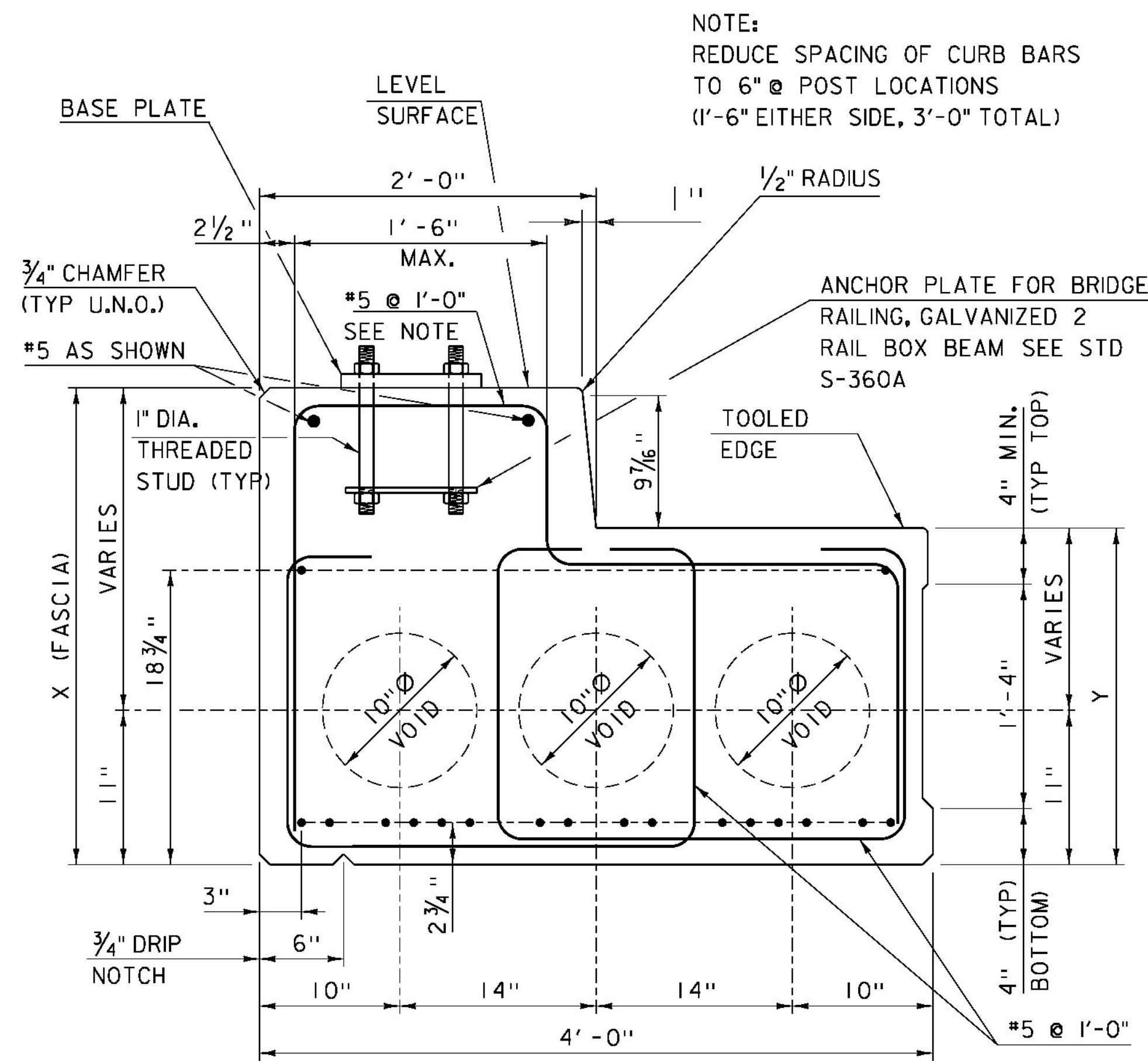
SCALE: 1" = 1'-0"

PROJECT NAME: BRISTOL  
PROJECT NUMBER: BRF 021-1 (29)

FILE NAME: si0b094sup.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: C. MOONEY  
BRIDGE VOIDED SLAB DETAILS (2)

PLOT DATE: 04-NOV-2014  
DRAWN BY: R. PELLET  
CHECKED BY: EVANS-MONGEON  
SHEET 24 OF 54

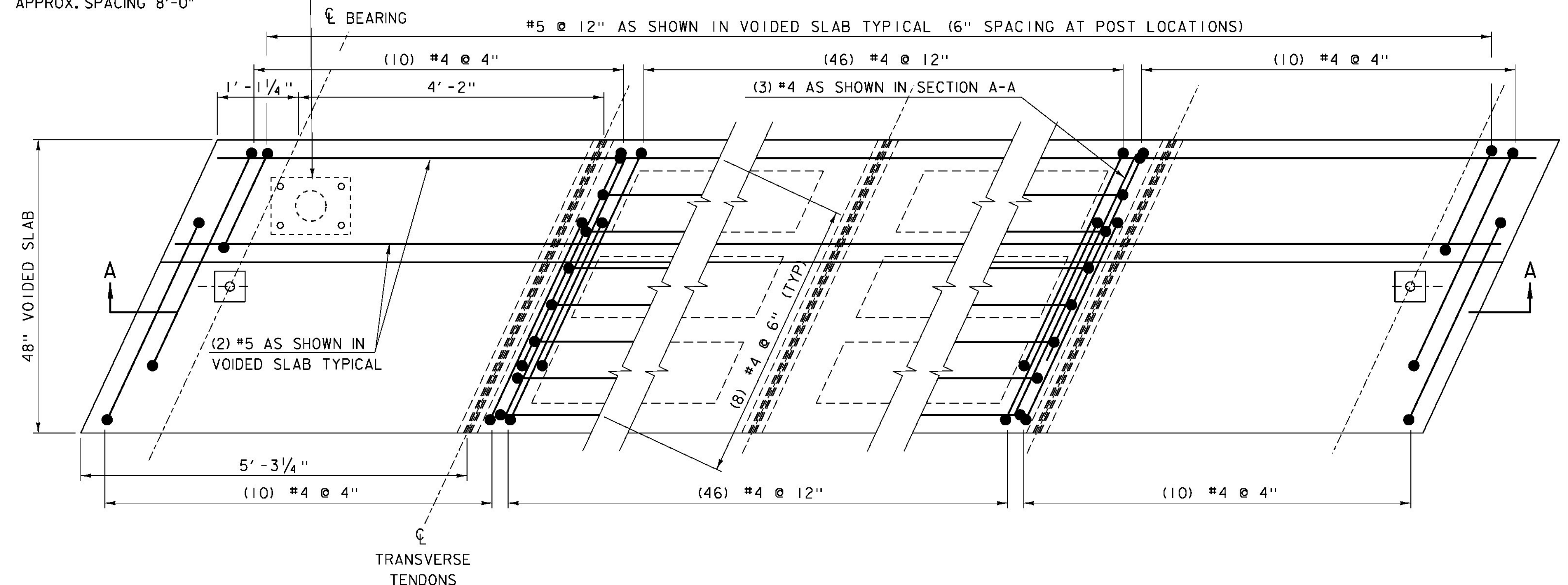




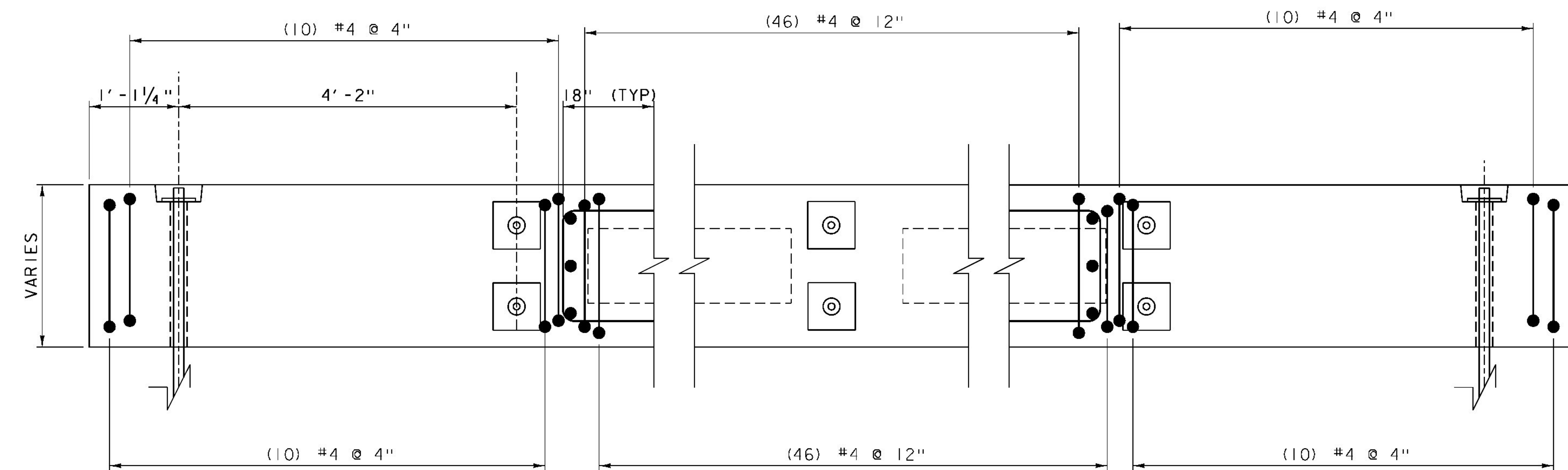
VOIDED SLAB UNIT #1 & #9 TYPICAL  
SCALE: 1 1/2" = 1'-0"

| VOIDED SLAB UNIT | QUANTITY | ( X ) FASCIA DIMENSION | ( Y ) DIMENSION | BOTTOM STRAND COUNT | TOP STRAND COUNT |
|------------------|----------|------------------------|-----------------|---------------------|------------------|
| #1               | 1        | 31"                    | 21 1/2"         | 16                  | 2                |
| #9               | 1        | 31"                    | 21 1/2"         | 16                  | 2                |

ANCHOR PLATE AND THREADED RODS  
FOR BRIDGE RAIL POST ATTACHMENT  
APPROX. SPACING 8'-0"



VOIDED SLAB PLAN DETAIL 1 (9 SIMILAR)  
SCALE: 1" = 1'-0"



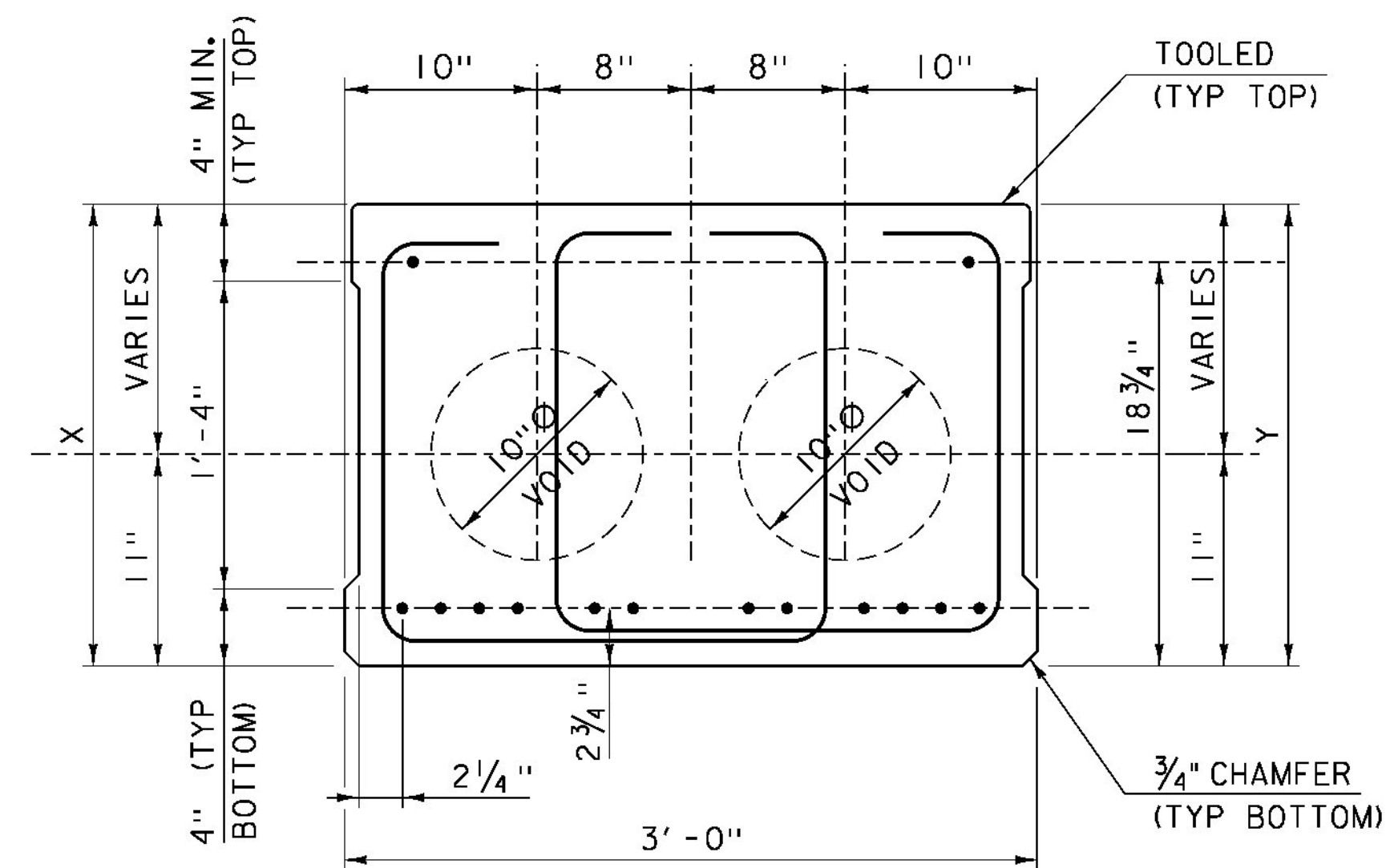
VOIDED SLAB SECTION A-A 1 (9 SIMILAR)  
SCALE: 1" = 1'-0"

PROJECT NAME: BRISTOL  
PROJECT NUMBER: BRF 021-I (29)

FILE NAME: si0b094sup.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: C. MOONEY  
BRIDGE VOIDED SLAB DETAILS (3)

PLOT DATE: 04-NOV-2014  
DRAWN BY: R. PELLET  
CHECKED BY: EVANS-MONGEON  
SHEET 25 OF 54



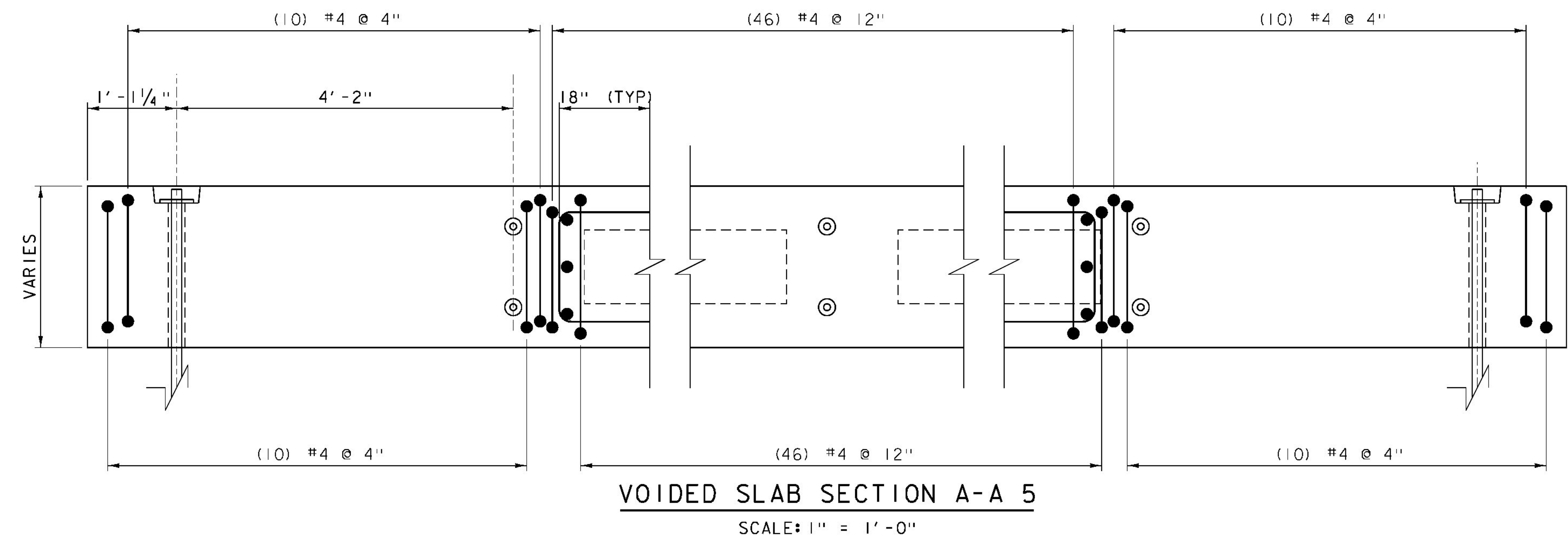
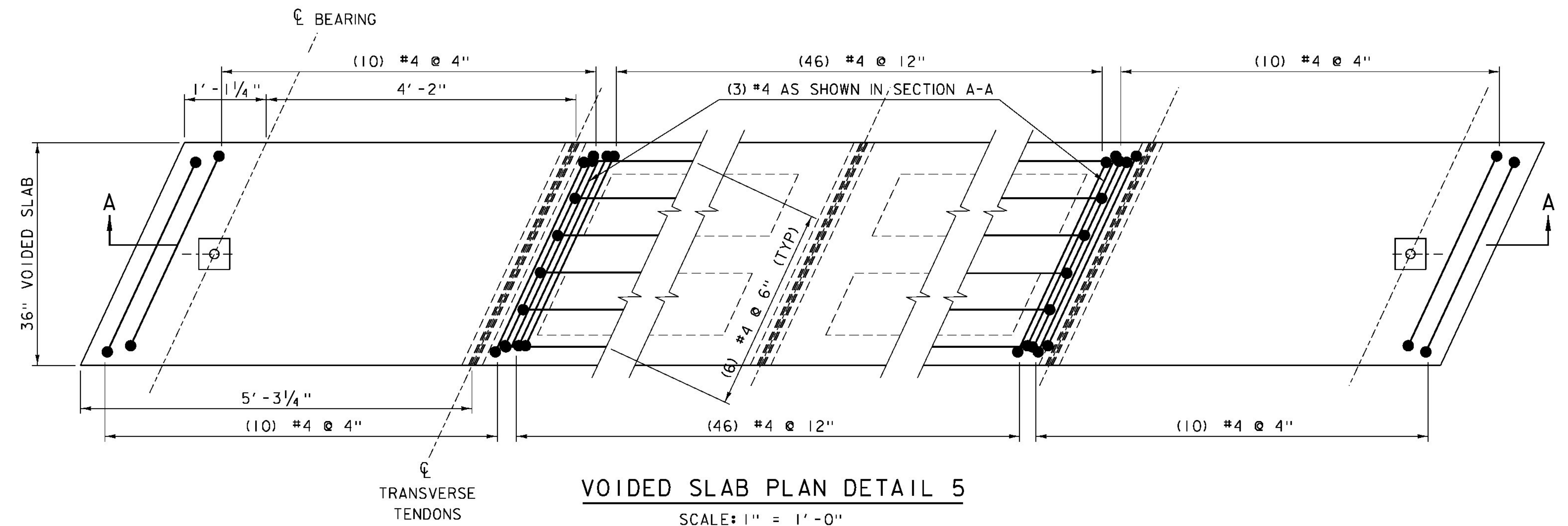


**VOIDED SLAB UNIT #5 TYPICAL**

SCALE: 1 1/2" = 1'-0"

| VOIDED SLAB UNIT | QUANTITY | ( X ) DIMENSION | ( Y ) DIMENSION | BOTTOM STRAND COUNT | TOP STRAND COUNT |
|------------------|----------|-----------------|-----------------|---------------------|------------------|
| #5               | 1        | 24 1/2"         | 24 1/2"         | 12                  | 2                |

NOTE:  
ROADWAY CROWN AT CENTER OF VOIDED SLAB UNIT #5 IS ACHIEVED BY VARIING THE PAVEMENT DEPTH BY 3/8"

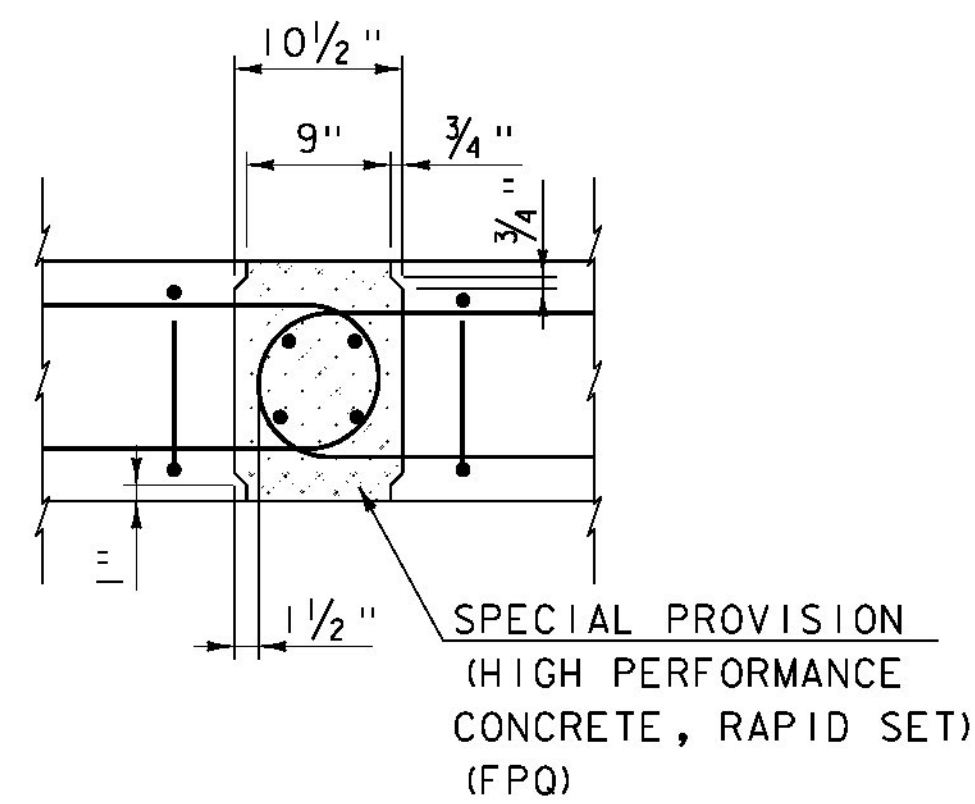


PROJECT NAME: BRISTOL  
PROJECT NUMBER: BRF 021-I (29)

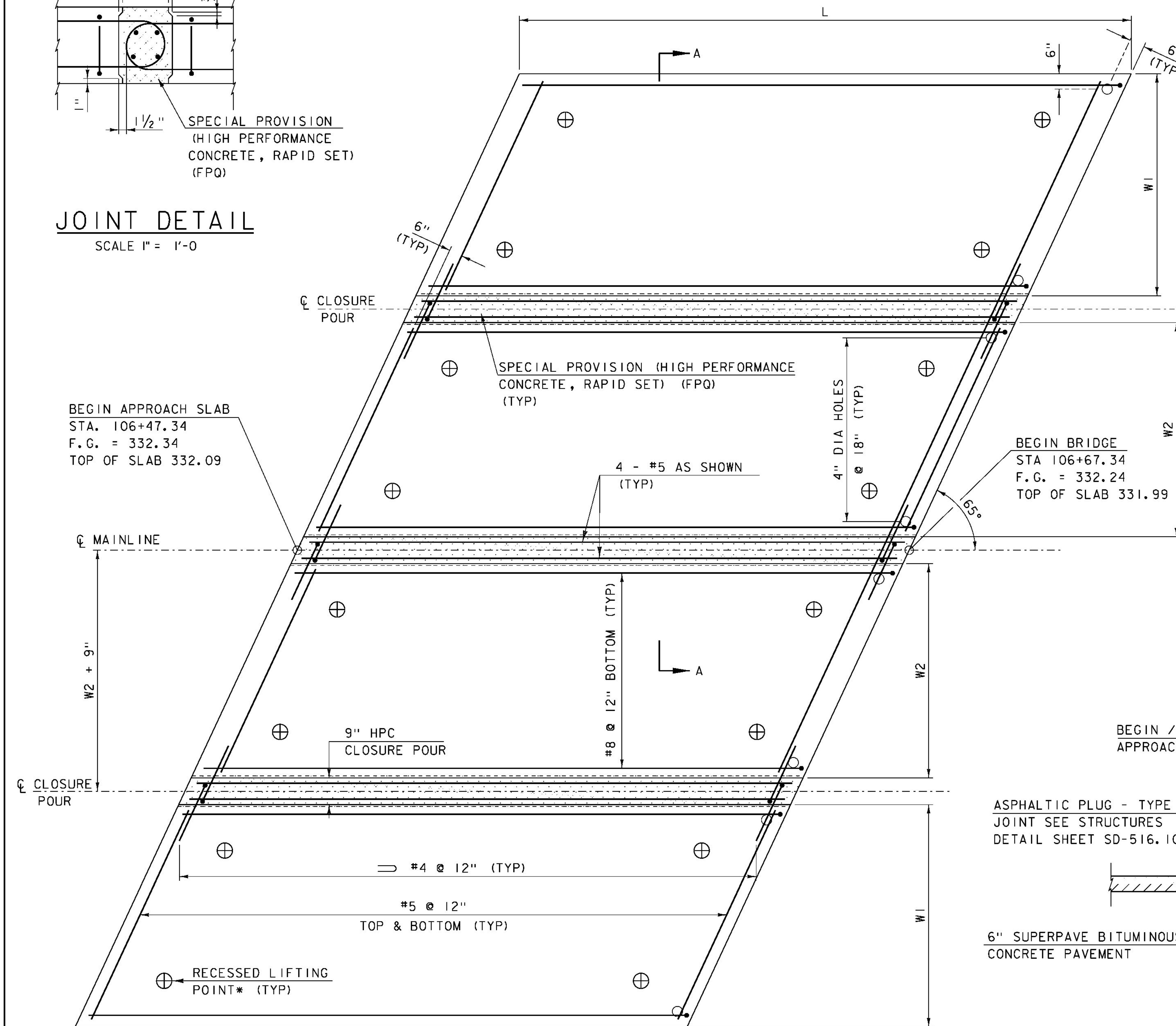
FILE NAME: si0b094sup.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: C. MOONEY  
BRIDGE VOIDED SLAB DETAILS (4)

PLOT DATE: 04-NOV-2014  
DRAWN BY: R. PELLET  
CHECKED BY: EVANS-MONGEON  
SHEET 26 OF 54

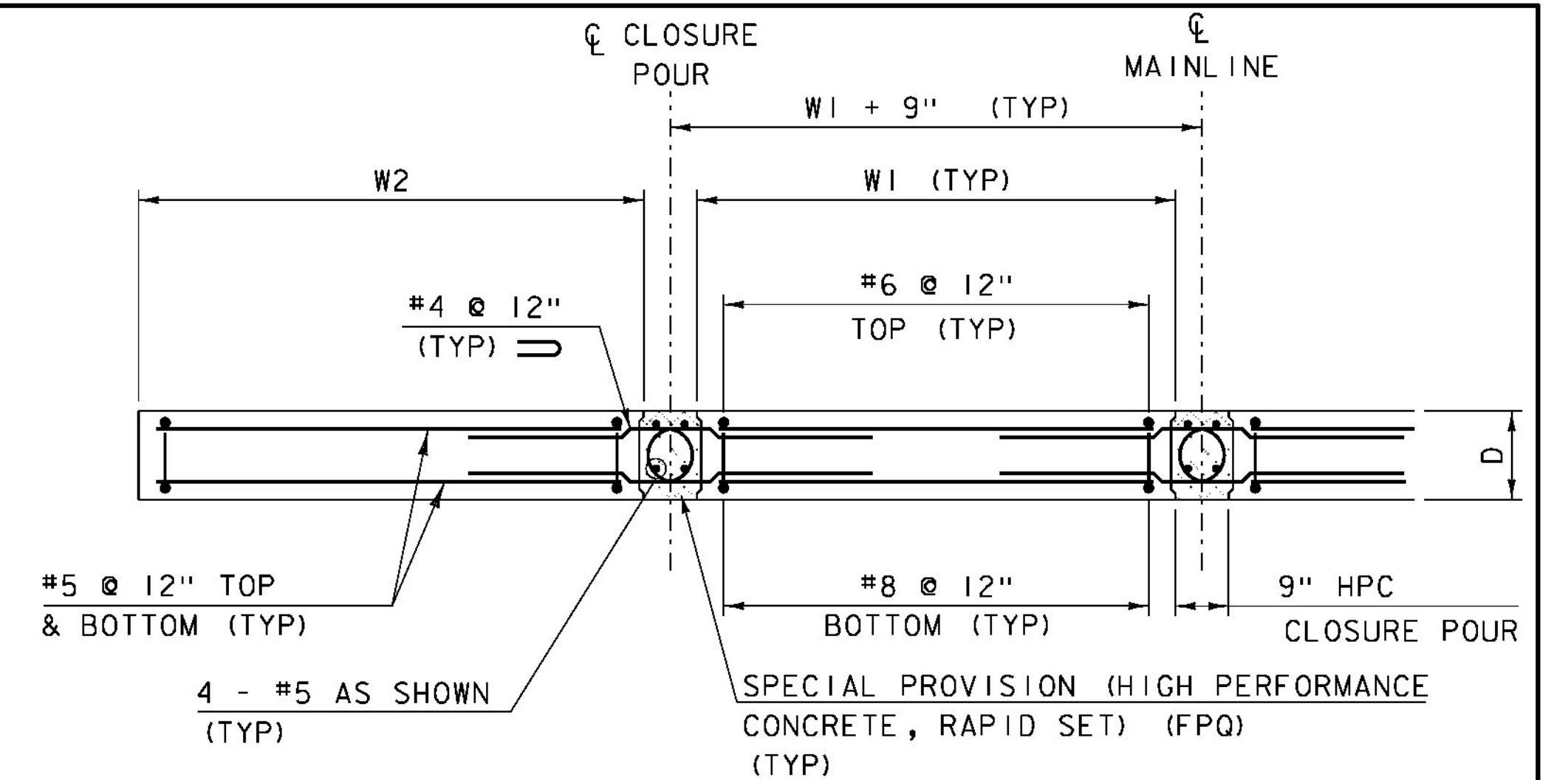




**JOINT DETAIL**  
SCALE 1" = 1'-0



\* ALTERNATE LIFTING POINTS MAY BE SUBMITTED WITH CALCULATIONS FOR NEW LOCATIONS.  
**APPROACH SLAB I PLAN VIEW**  
SCALE 1/2" = 1'-0



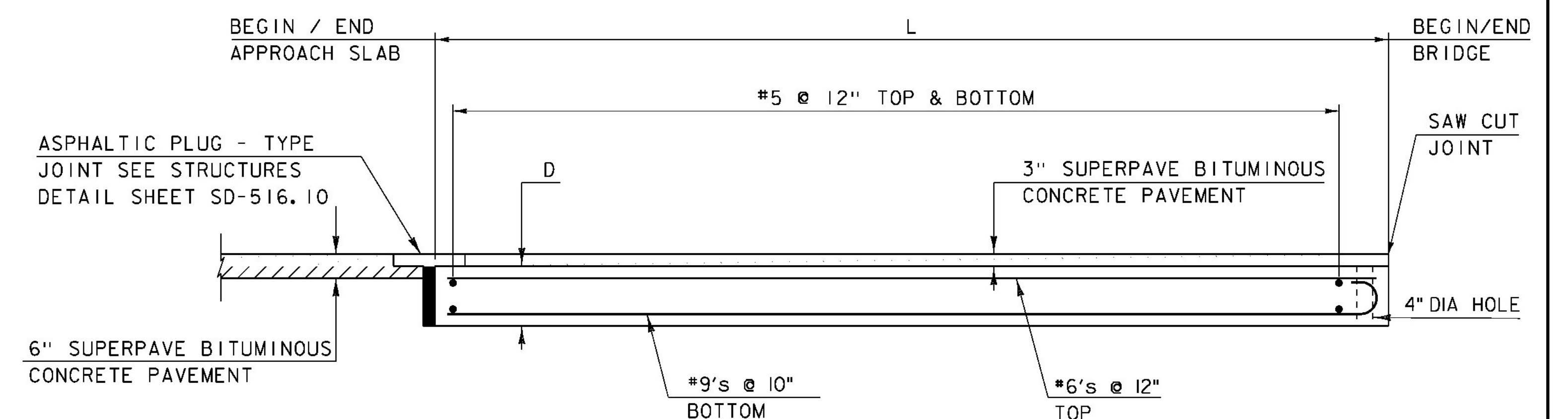
**SECTION A-A**  
SCALE 1/2" = 1'-0

|               | STATION   | @ 15'-6" OFFSET |
|---------------|-----------|-----------------|
| BEGIN AS#1 LT | 106+54.57 | 331.75          |
| BEGIN AS#1 RT | 106+40.11 | 331.82          |
| END AS#1 LT   | 106+74.57 | 331.65          |
| END AS#1 RT   | 106+60.11 | 331.72          |

**APPROACH SLAB ELEVATIONS**  
ALL ELEVATIONS ARE TOP OF SLAB

|    |        |
|----|--------|
| D  | 1'-3"  |
| L  | 20'-0" |
| W1 | 7'-3"  |
| W2 | 7'-0"  |

**APPROACH SLAB DIMENSIONS**

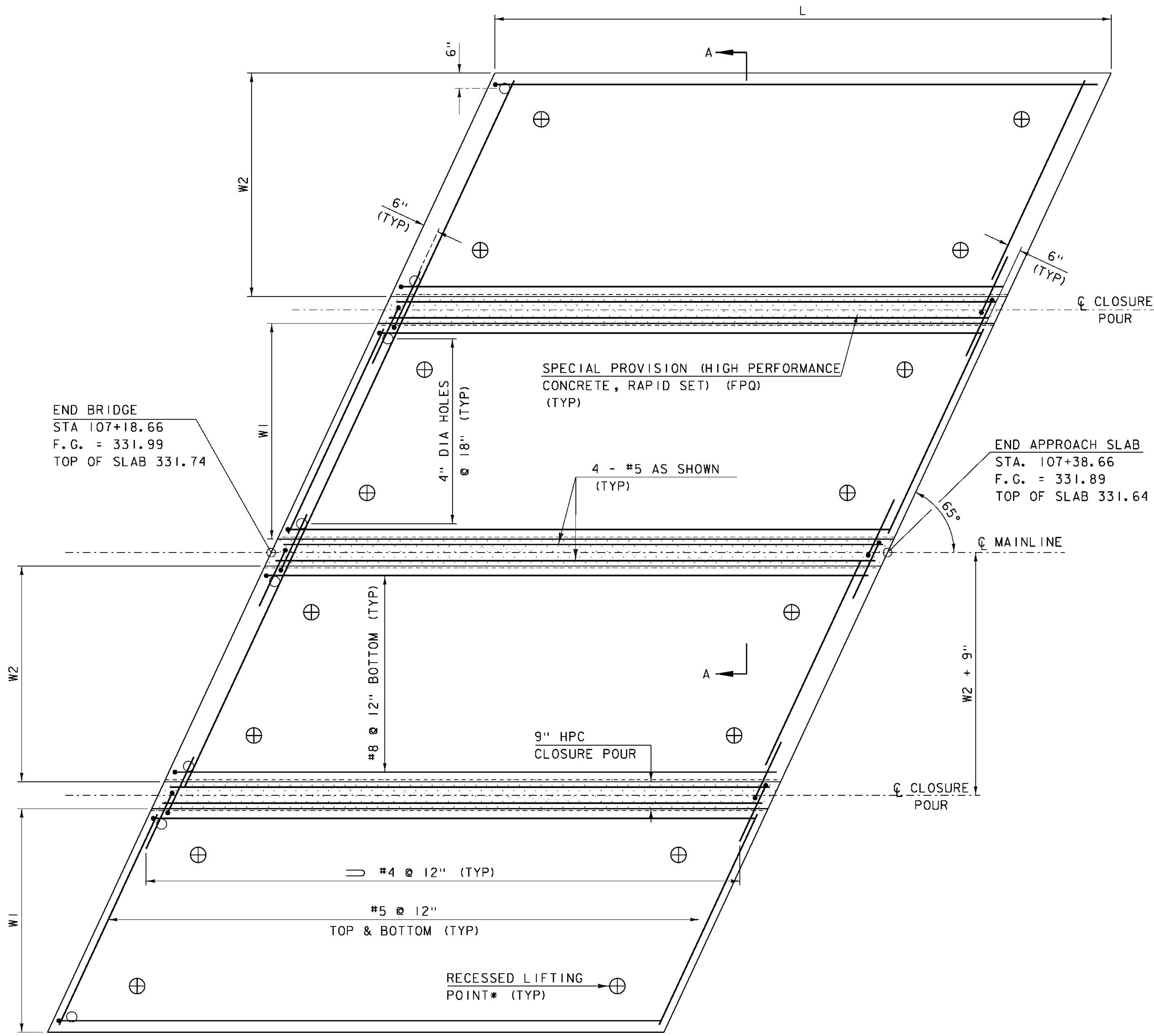


**APPROACH SLAB ELEVATION VIEW**  
SCALE 1/2" = 1'-0

**NOTE:**  
NF = NEAR FACE  
FF = FAR FACE  
EF = EACH FACE  
▲ = CUT TO FIT IN FIELD  
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.  
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

|                 |               |                          |                |             |               |
|-----------------|---------------|--------------------------|----------------|-------------|---------------|
| PROJECT NAME:   | BRISTOL       | FILE NAME:               | si0b094sub.dgn | PLOT DATE:  | 05-DEC-2014   |
| PROJECT NUMBER: | BRF 021-1(29) | PROJECT LEADER:          | C. CARLSON     | DRAWN BY:   | R. PELLETT    |
|                 |               | DESIGNED BY:             | C. MOONEY      | CHECKED BY: | EVANS-MONGEON |
|                 |               | APPROACH SLAB #1 DETAILS |                | SHEET       | 27 OF 54      |





\* ALTERNATE LIFTING POINTS MAY BE SUBMITTED WITH CALCULATIONS FOR NEW LOCATIONS.

**APPROACH SLAB 2 PLAN VIEW**  
SCALE 1/2" = 1'-0

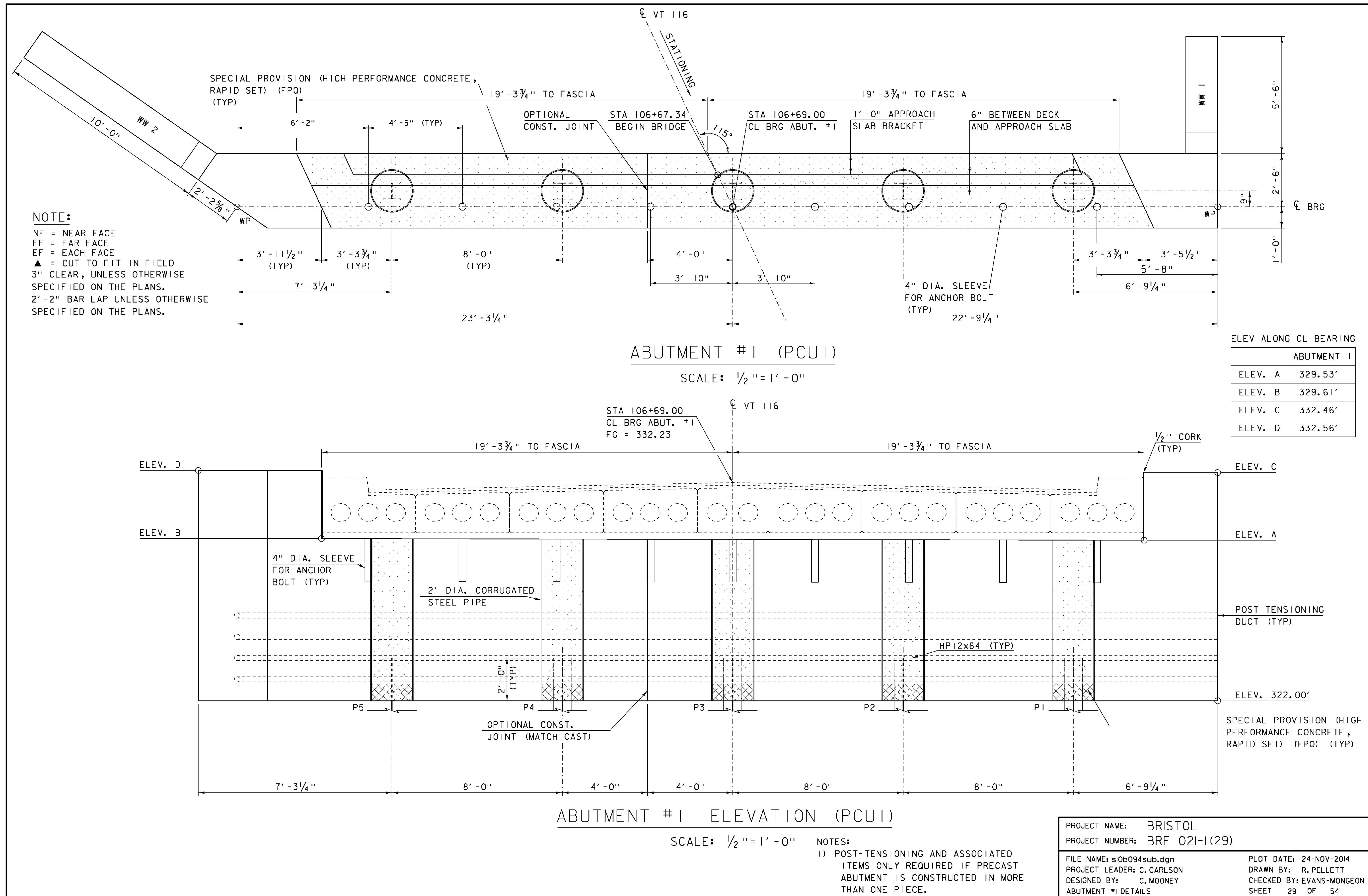
|               | STATION   | @ 15'-6" OFFSET | ℄      |
|---------------|-----------|-----------------|--------|
| BEGIN AS#2 RT | 107+11.43 | 331.47          | 331.78 |
| BEGIN AS#2 LT | 107+25.89 | 331.40          | 331.71 |
| END AS#2 RT   | 107+31.43 | 331.37          | 331.68 |
| END AS#2 LT   | 107+45.89 | 331.30          | 331.61 |

**APPROACH SLAB ELEVATIONS**  
ALL ELEVATIONS ARE TOP OF SLAB

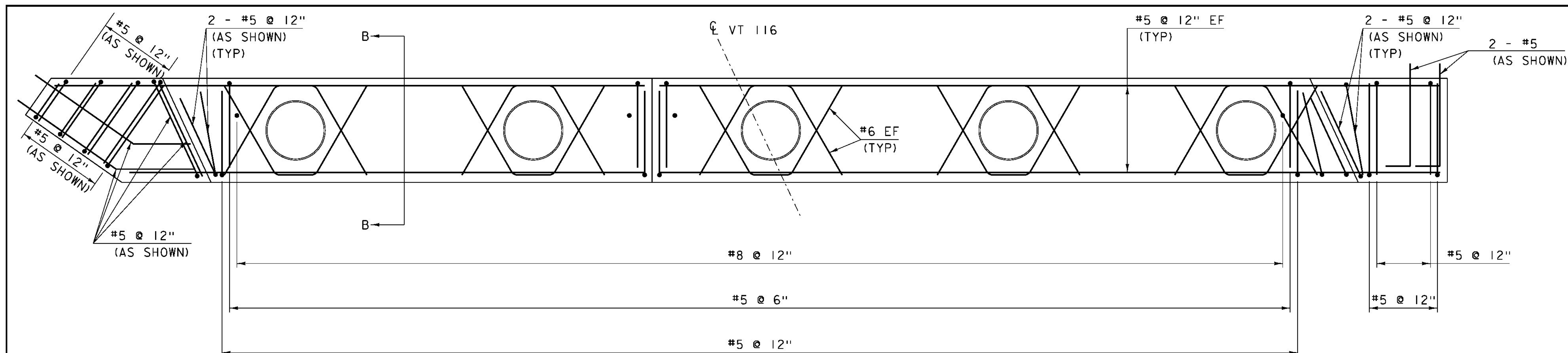
SEE APPROACH SLAB #1 DETAILS FOR ADDITIONAL INFORMATION

|                 |               |                          |                |             |               |
|-----------------|---------------|--------------------------|----------------|-------------|---------------|
| PROJECT NAME:   | BRISTOL       | FILE NAME:               | si0b094sub.dgn | PLOT DATE:  | 04-NOV-2014   |
| PROJECT NUMBER: | BRF 021-1(29) | PROJECT LEADER:          | C. CARLSON     | DRAWN BY:   | R. PELLETT    |
|                 |               | DESIGNED BY:             | C. MOONEY      | CHECKED BY: | EVANS-MONGEON |
|                 |               | APPROACH SLAB #2 DETAILS |                | SHEET       | 28 OF 54      |



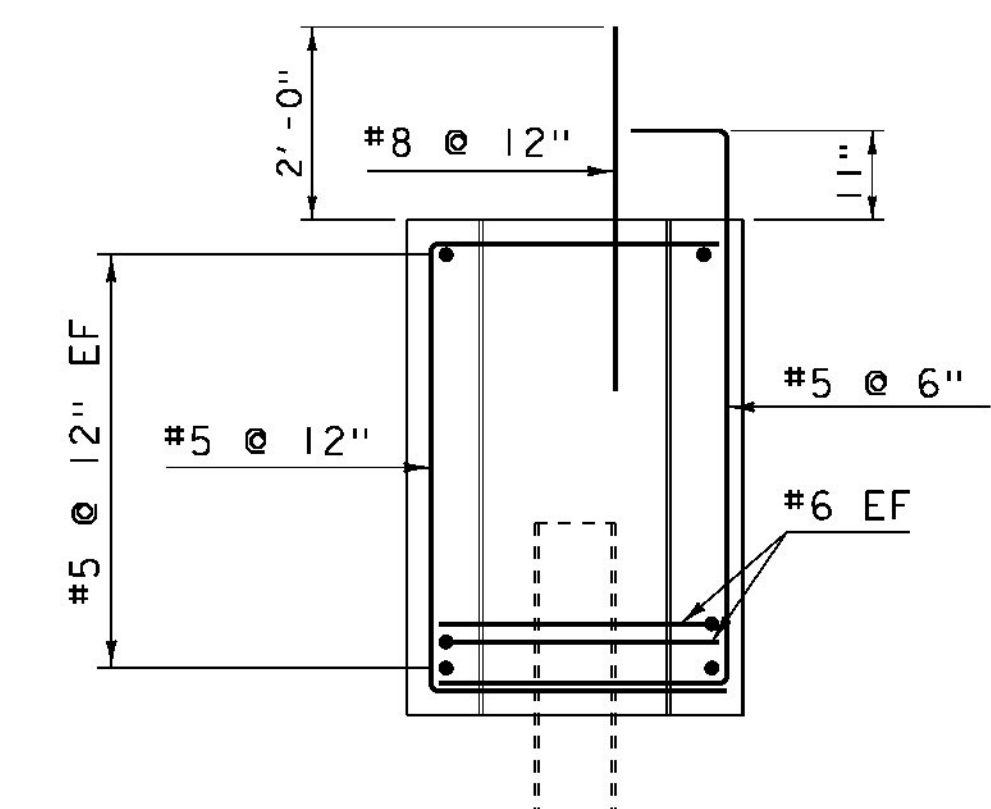






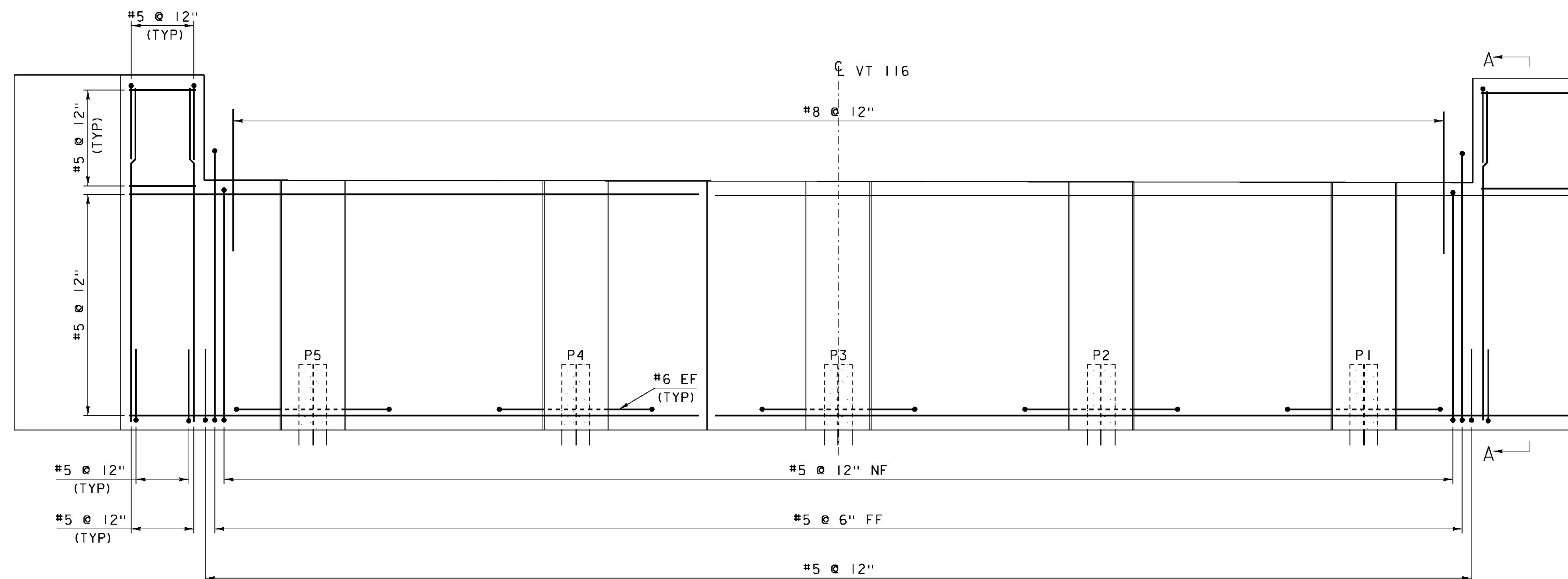
ABUTMENT #1 REINFORCING PLAN (PCU1)

SCALE: 1/2" = 1' - 0"



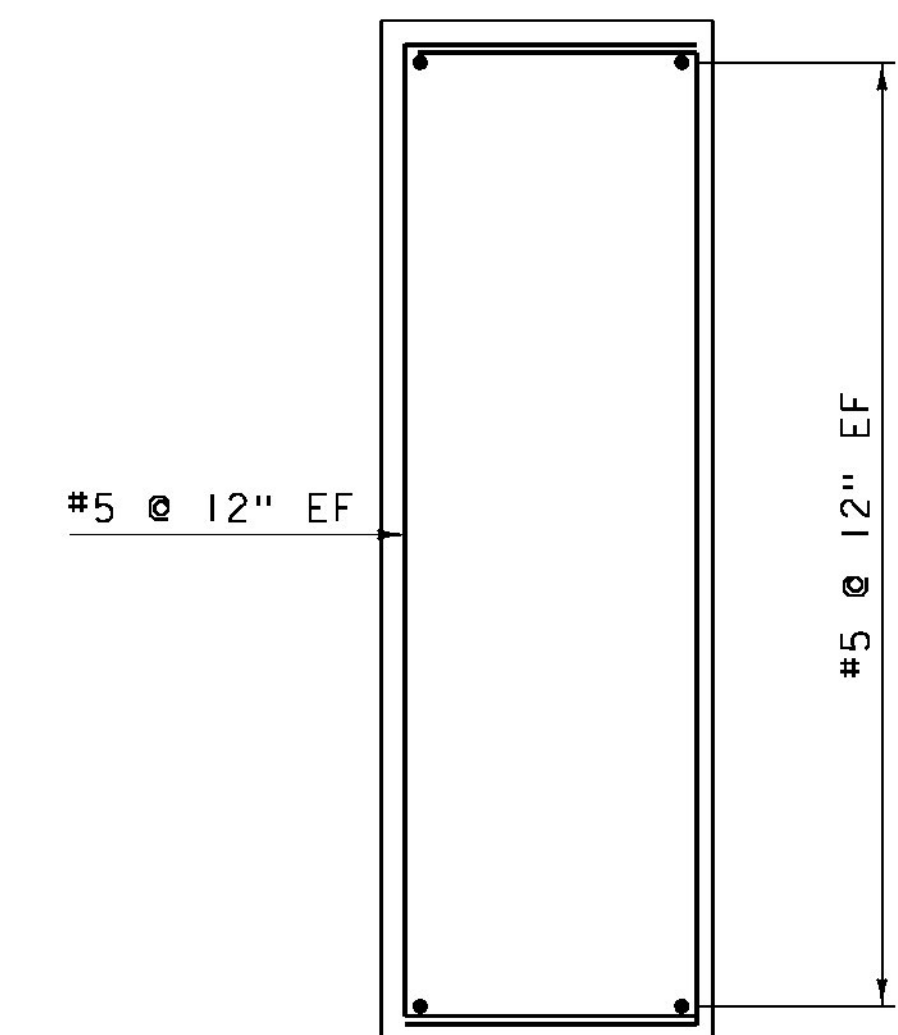
SECTION B-B

SCALE: 1/2" = 1' - 0"



ABUTMENT #1 REINFORCING ELEVATION (PCU1)

SCALE: 1/2" = 1' - 0"



SECTION A-A

SCALE: 1/2" = 1' - 0"

NOTE:

NF = NEAR FACE  
FF = FAR FACE  
EF = EACH FACE  
▲ = CUT TO FIT IN FIELD  
3" CLEAR, UNLESS OTHERWISE  
SPECIFIED ON THE PLANS.  
2' - 2" BAR LAP UNLESS OTHERWISE  
SPECIFIED ON THE PLANS.

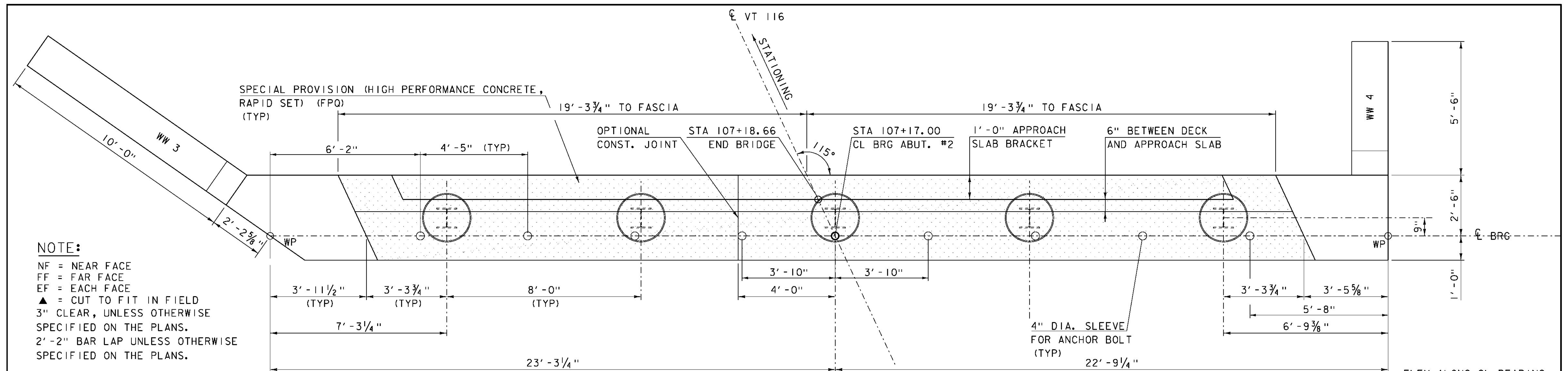
NOTES:

1) POST-TENSIONING AND ASSOCIATED  
ITEMS ONLY REQUIRED IF PRECAST  
ABUTMENT IS CONSTRUCTED IN MORE  
THAN ONE PIECE.

PROJECT NAME: BRISTOL  
PROJECT NUMBER: BRF 021-1(29)

|                            |                           |
|----------------------------|---------------------------|
| FILE NAME: si0b094sub.dgn  | PLOT DATE: 24-NOV-2014    |
| PROJECT LEADER: C. CARLSON | DRAWN BY: R. PELLETT      |
| DESIGNED BY: C. MOONEY     | CHECKED BY: EVANS-MONGEON |
| ABUTMENT #1 REINFORCING    | SHEET 30 OF 54            |



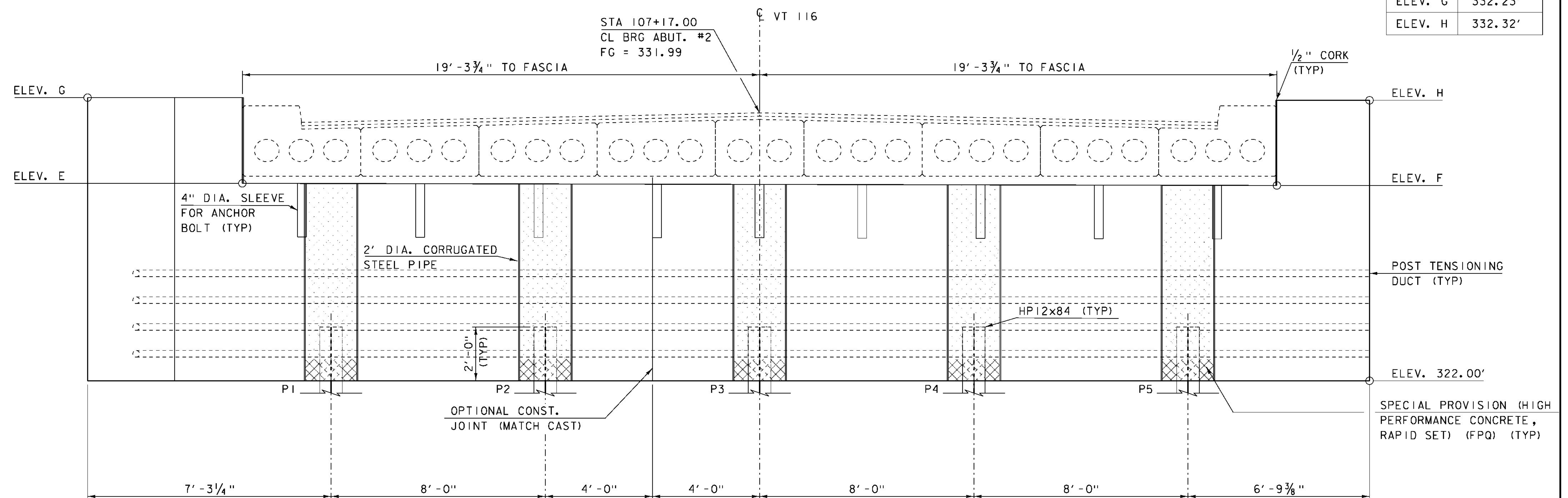


### ABUTMENT #2 (PCU1)

SCALE: 1/2" = 1' - 0"

ELEV ALONG CL BEARING

|         | ABUTMENT 2 |
|---------|------------|
| ELEV. E | 329.29'    |
| ELEV. F | 329.37'    |
| ELEV. G | 332.23'    |
| ELEV. H | 332.32'    |



### ABUTMENT #2 ELEVATION (PCU1)

SCALE: 1/2" = 1' - 0"

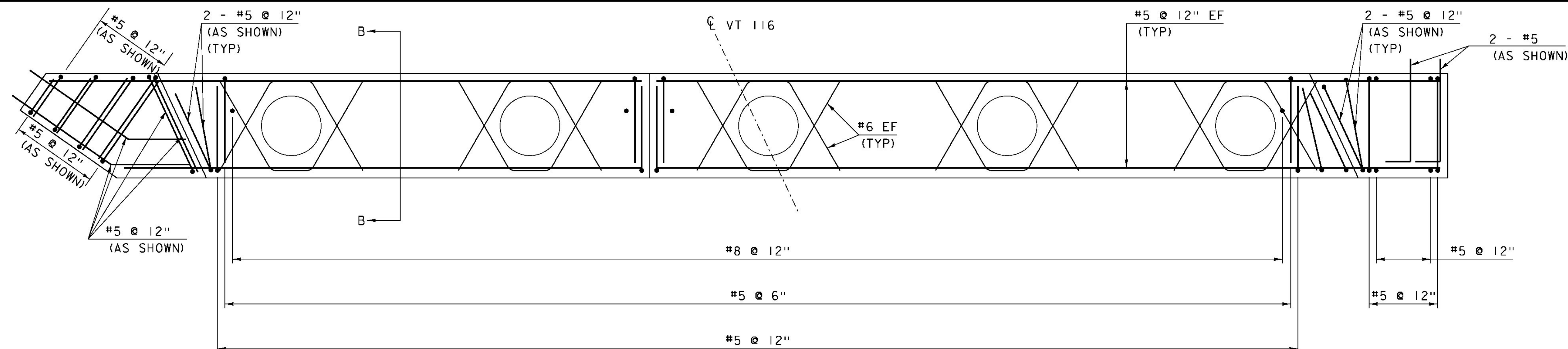
NOTES:  
 1) POST-TENSIONING AND ASSOCIATED ITEMS ONLY REQUIRED IF PRECAST ABUTMENT IS CONSTRUCTED IN MORE THAN ONE PIECE.

PROJECT NAME: BRISTOL  
 PROJECT NUMBER: BRF 021-I(29)

FILE NAME: si0b094sub.dgn  
 PROJECT LEADER: C. CARLSON  
 DESIGNED BY: C. MOONEY  
 ABUTMENT #2 DETAILS

PLOT DATE: 24-NOV-2014  
 DRAWN BY: R. PELLETT  
 CHECKED BY: EVANS-MONGEON  
 SHEET 31 OF 54

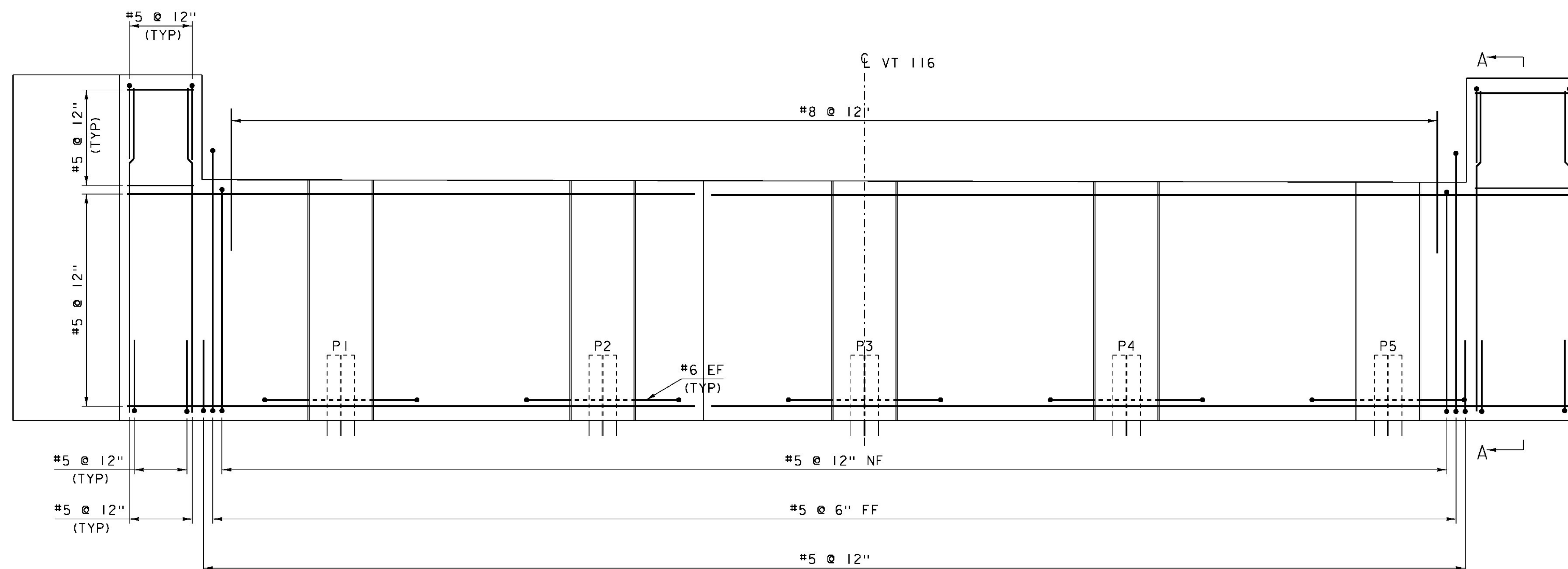




ABUTMENT #2 REINFORCING PLAN (PCU1)

SCALE:  $\frac{1}{2}" = 1' - 0"$

(SEE SHEET "ABUTMENT #1 REINFORCING" FOR SECTION B-B)



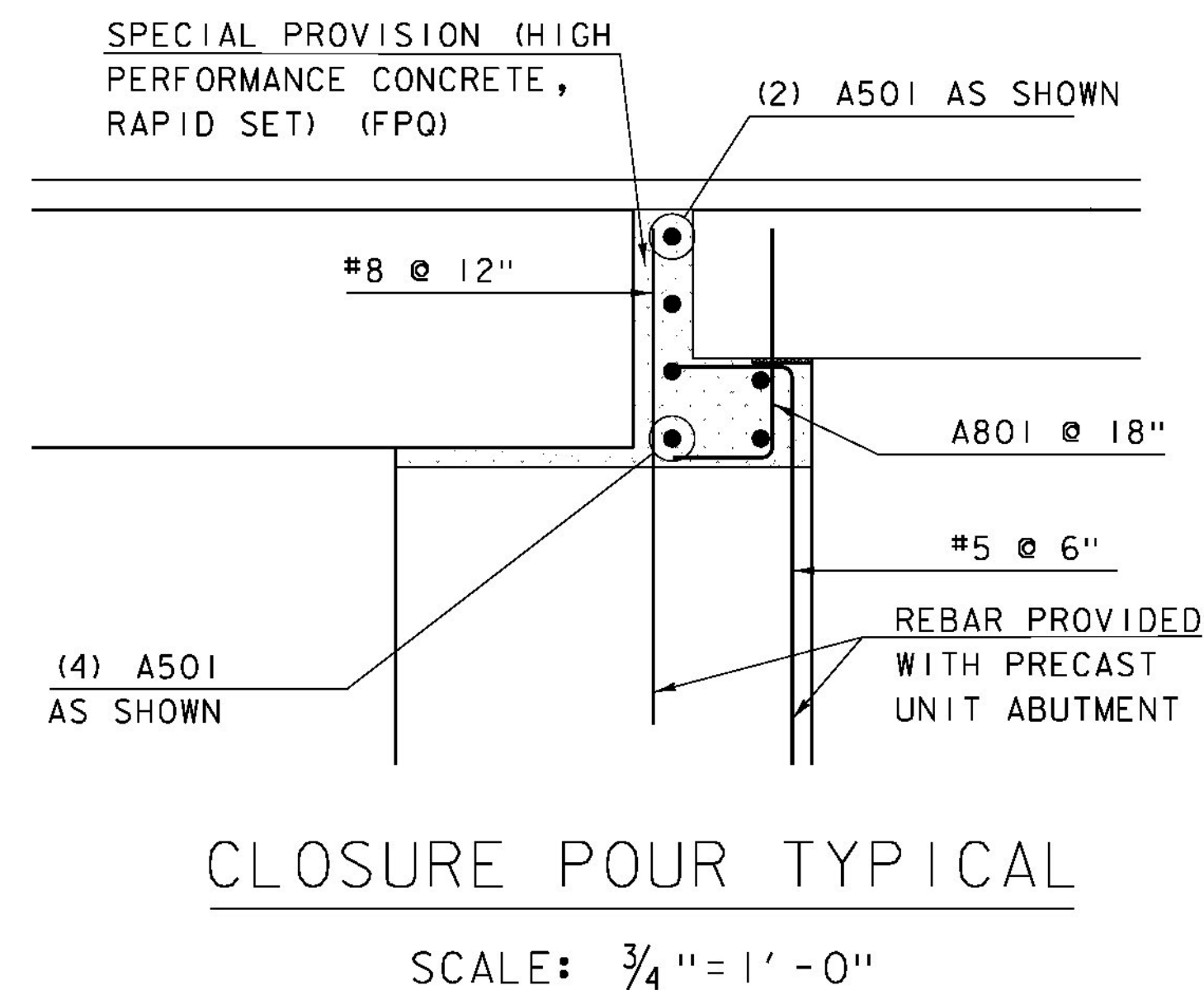
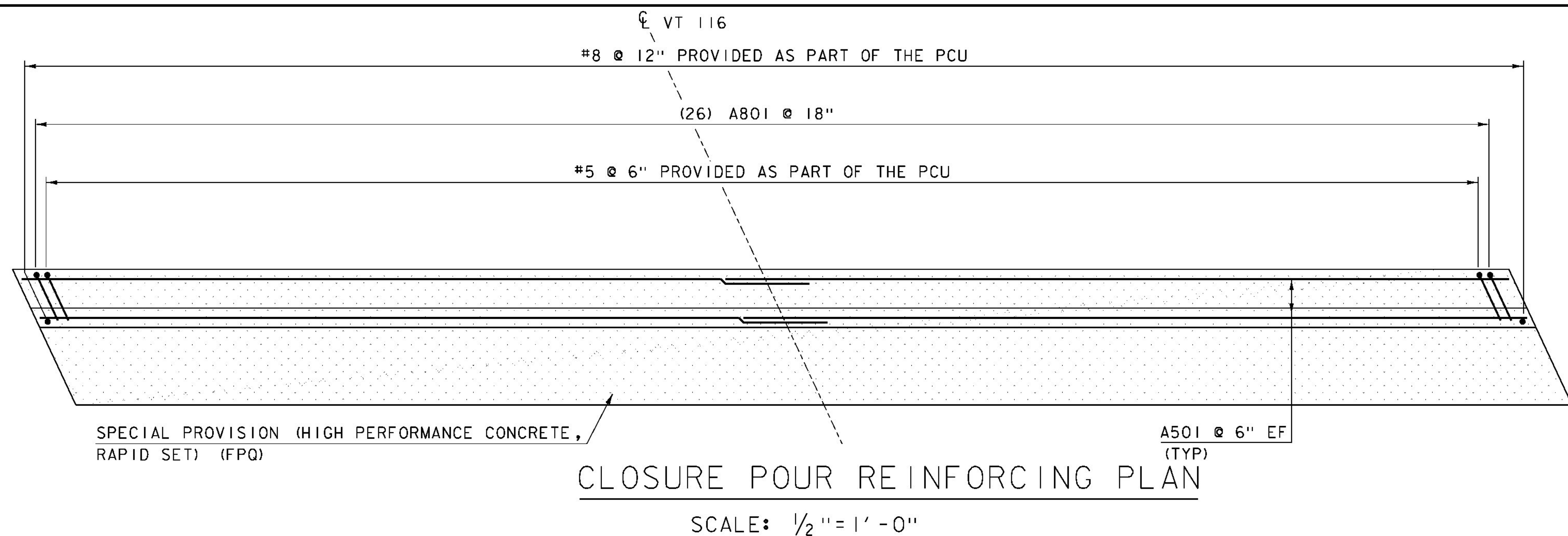
ABUTMENT #2 REINFORCING ELEVATION (PCU1)

SCALE:  $\frac{1}{2}" = 1' - 0"$

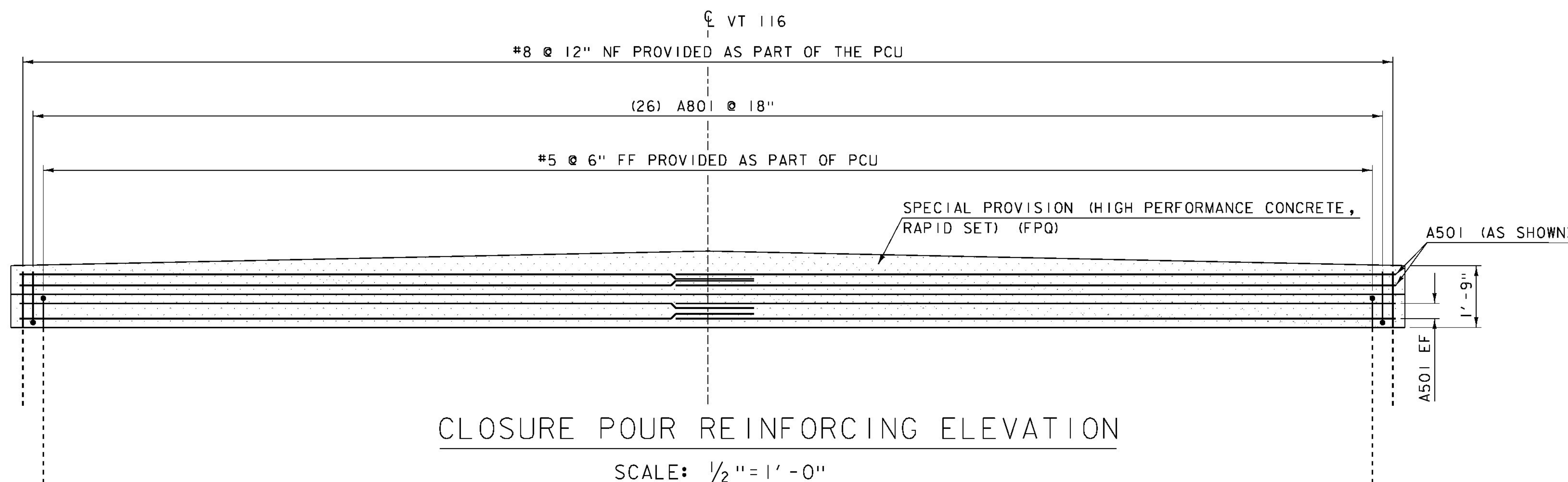
(SEE SHEET "ABUTMENT #1 REINFORCING" FOR SECTION A-A)

|                         |                |
|-------------------------|----------------|
| PROJECT NAME:           | BRISTOL        |
| PROJECT NUMBER:         | BRF 021-I (29) |
| FILE NAME:              | si0b094sub.dgn |
| PROJECT LEADER:         | C. CARLSON     |
| DESIGNED BY:            | C. MOONEY      |
| ABUTMENT #2 REINFORCING |                |
| PLOT DATE:              | 24-NOV-2014    |
| DRAWN BY:               | R. PELLETT     |
| CHECKED BY:             | EVANS-MONGEON  |
| SHEET                   | 32 OF 54       |





NOTE: NF=NEAR FACE  
FF=Far Face  
EF=EACH FACE  
▲=CUT TO FIT IN FIELD  
3" CLEAR, UNLESS OTHERWISE  
SPECIFIED ON THE PLANS.  
2'-2" BAR LAP UNLESS OTHERWISE  
SPECIFIED ON THE PLANS



## REINFORCING STEEL NOTES

- UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING NO. 18 SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", AASHTO M 31 (ASTM A 615-SI). ALL BARS SHALL BE GRADE 60, UNLESS OTHERWISE DESIGNATED.
- FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS, AND OTHER STANDARD PRACTICE, SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".
- BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
- ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
- "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
- "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
- WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
- ▲ DENOTES BARS TO BE CUT IN FIELD.
- \* DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.

## REINFORCING STEEL SCHEDULE

| ITEM | EACH | SIZE | LENGTH  | MARK    | TYPE | A       | B      | C   | D | E | F | G | H | J | K | R | O |
|------|------|------|---------|---------|------|---------|--------|-----|---|---|---|---|---|---|---|---|---|
| *    | 13   | 5    | 20'- 2" | 1A501.2 | STR  | 20'- 2" |        |     |   |   |   |   |   |   |   |   |   |
| *    | 26   | 8    | 3'- 0"  | 1A801.2 | 2    | 1'- 0"  | 2'- 0" | --- |   |   |   |   |   |   |   |   |   |
| *    | 13   | 5    | 20'- 2" | 2A501.2 | STR  | 20'- 2" |        |     |   |   |   |   |   |   |   |   |   |
| *    | 26   | 8    | 3'- 0"  | 2A801.2 | 2    | 1'- 0"  | 2'- 0" | --- |   |   |   |   |   |   |   |   |   |

A B C

BAR TYPE 2

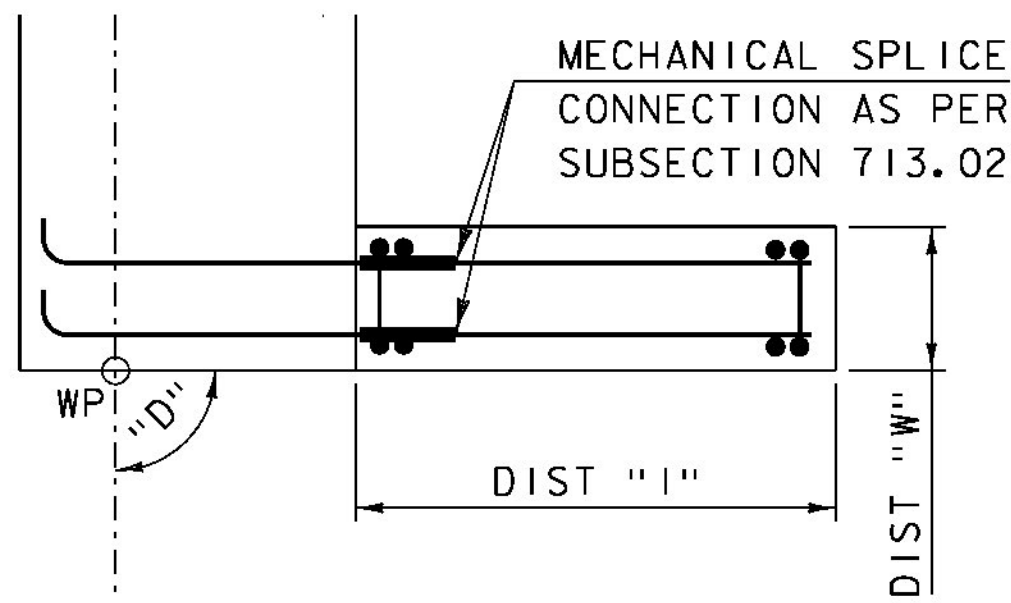
PROJECT NAME: BRISTOL  
PROJECT NUMBER: BRF 021-I(29)

FILE NAME: si0b094sub.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: C. MOONEY  
CLOSURE POUR REINFORCING DETAILS

PLOT DATE: 04-NOV-2014  
DRAWN BY: R. PELLET  
CHECKED BY: EVANS-MONGEON  
SHEET 33 OF 54

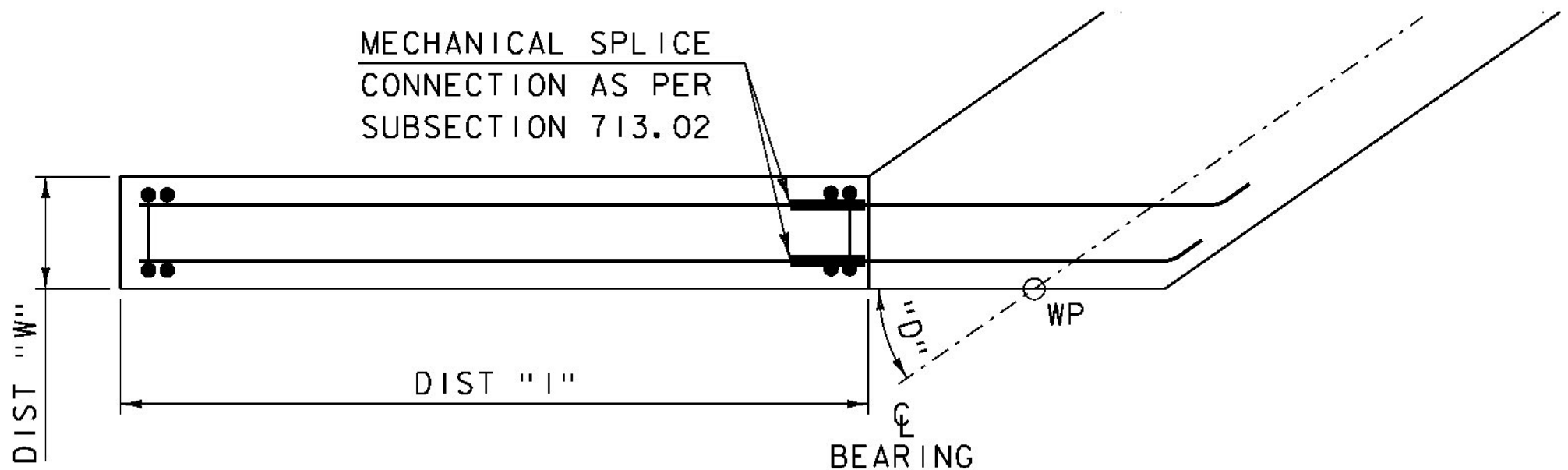


PCU 3-6 ELEVATIONS



WW1&4 PLAN (PCU 3&6)

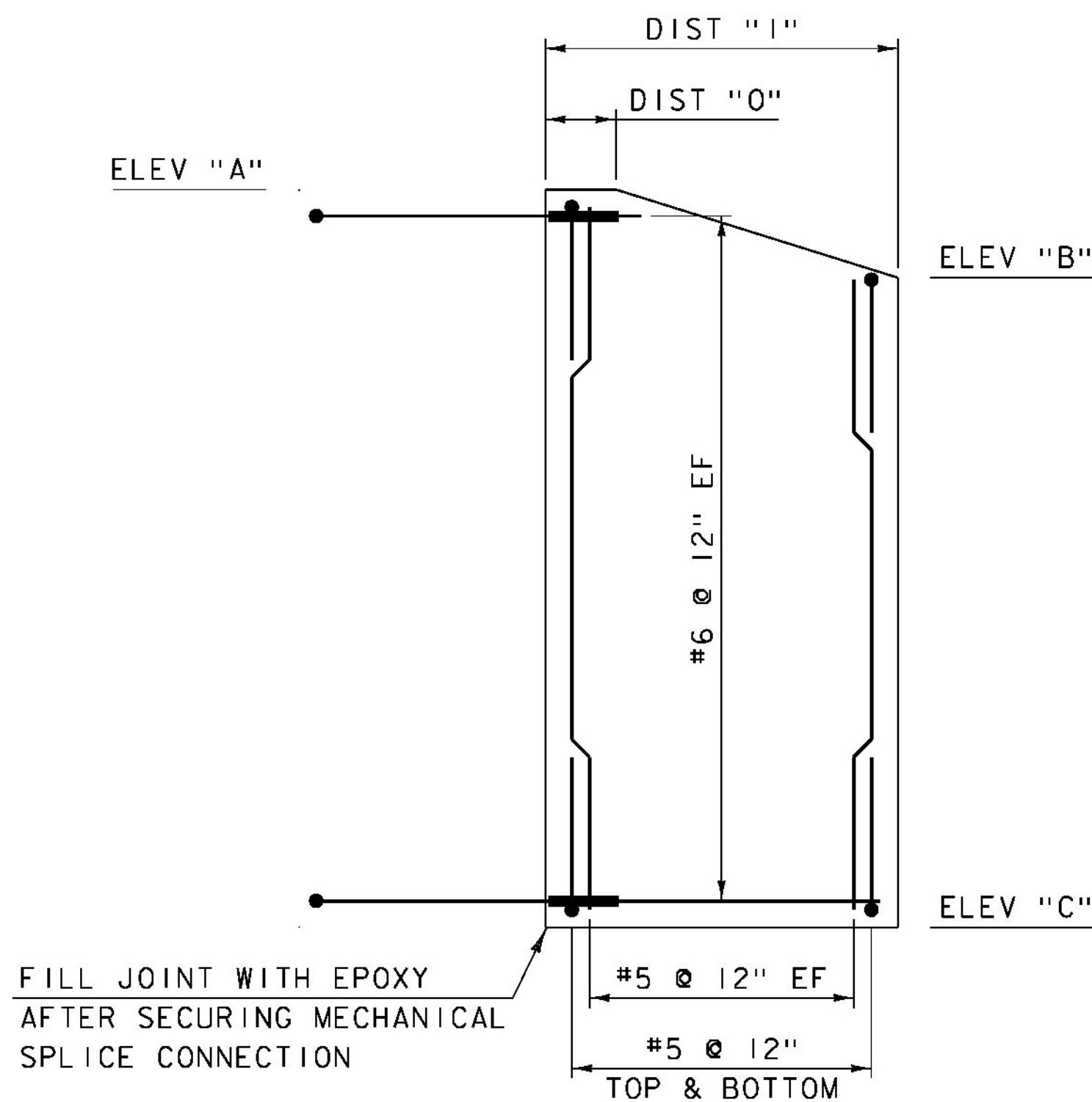
SCALE 1/2" = 1'-0"



WW2&3 PLAN (PCU 4&5)

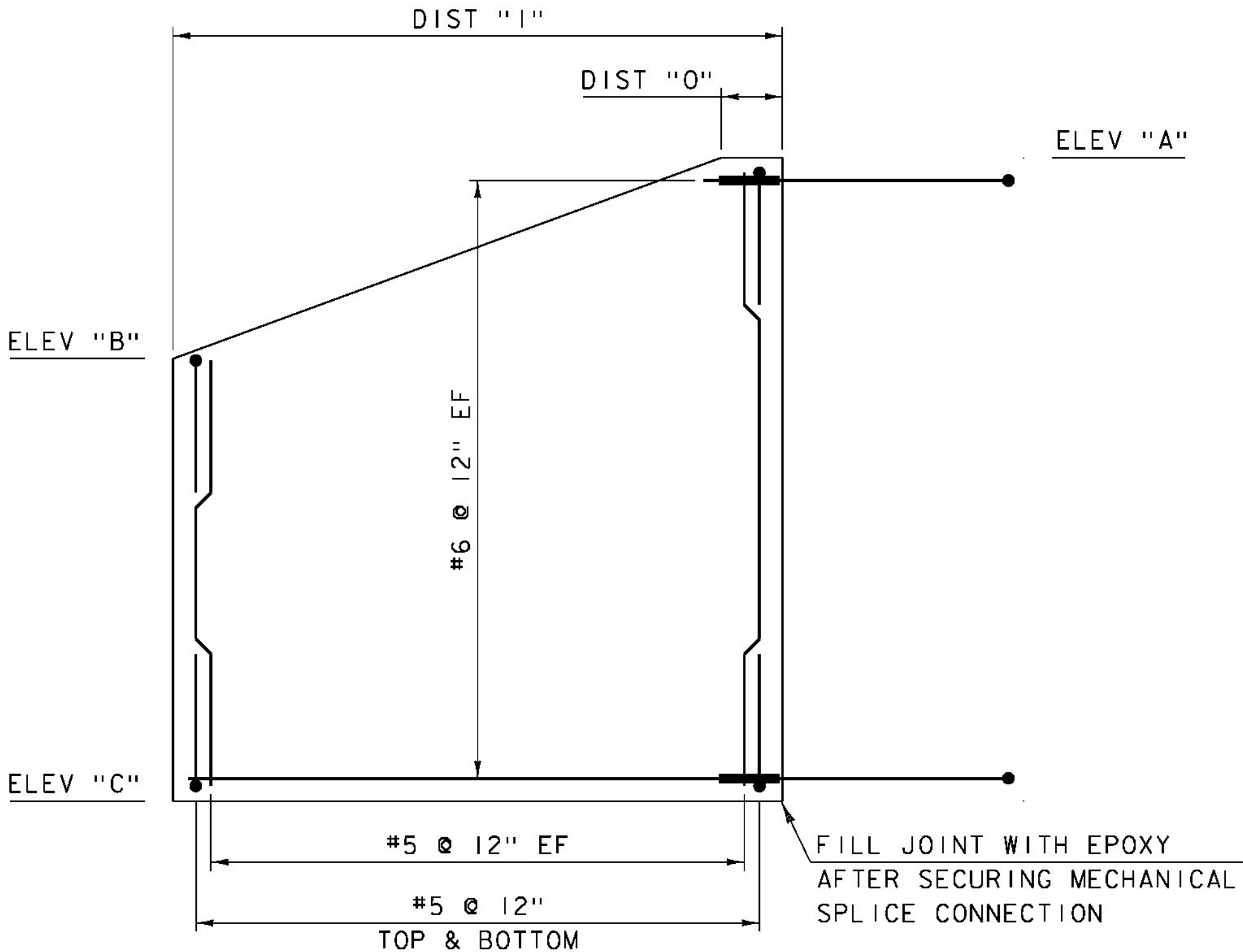
SCALE 1/2" = 1'-0"

|           | WW1 (PCU 3) | WW2 (PCU 4) | WW3 (PCU 5) | WW4 (PCU 6) |
|-----------|-------------|-------------|-------------|-------------|
| ELEV "A"  | 332.46      | 332.56      | 332.22      | 332.32      |
| ELEV "B"  | 331.21      | 329.26      | 329.31      | 331.00      |
| ELEV "C"  | 322.00      | 322.00      | 322.00      | 322.00      |
| DIST "W"  | 1'-6"       | 1'-6"       | 1'-6"       | 1'-6"       |
| DIST "I"  | 5'-6"       | 10'-0"      | 10'-0"      | 5'-6"       |
| DIST "O"  | 1'-0"       | 1'-0"       | 1'-0"       | 1'-0"       |
| ANGLE "D" | 90°         | 35°         | 35°         | 90°         |



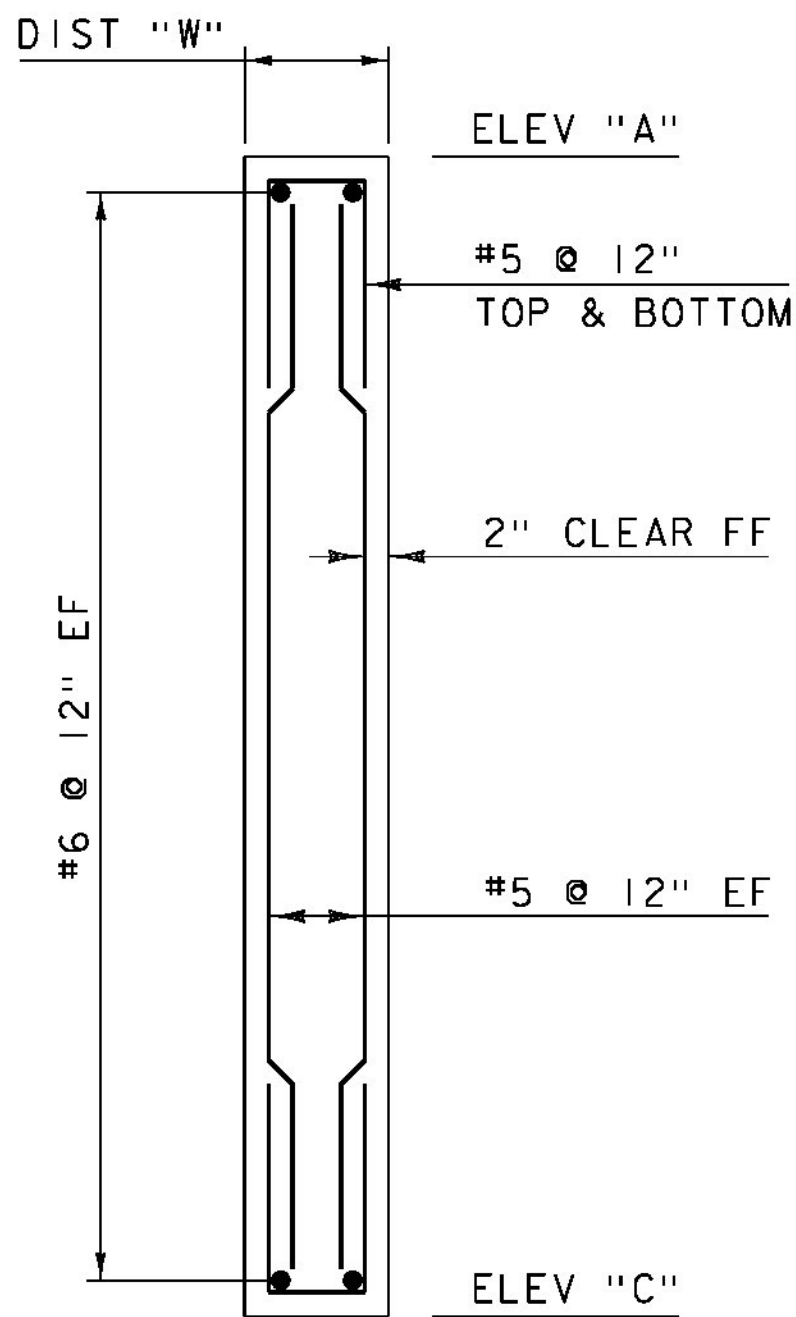
WW1&4 ELEVATION (PCU 3&6)

SCALE 1/2" = 1'-0"



WW2&3 ELEVATION (PCU 3&6)

SCALE 1/2" = 1'-0"



WINGWALL TYPICAL

SCALE 1/2" = 1'-0"

NOTE:

NF = NEAR FACE  
FF = FAR FACE  
EF = EACH FACE  
▲ = CUT TO FIT IN FIELD  
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.  
2'-7" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

NOTES:

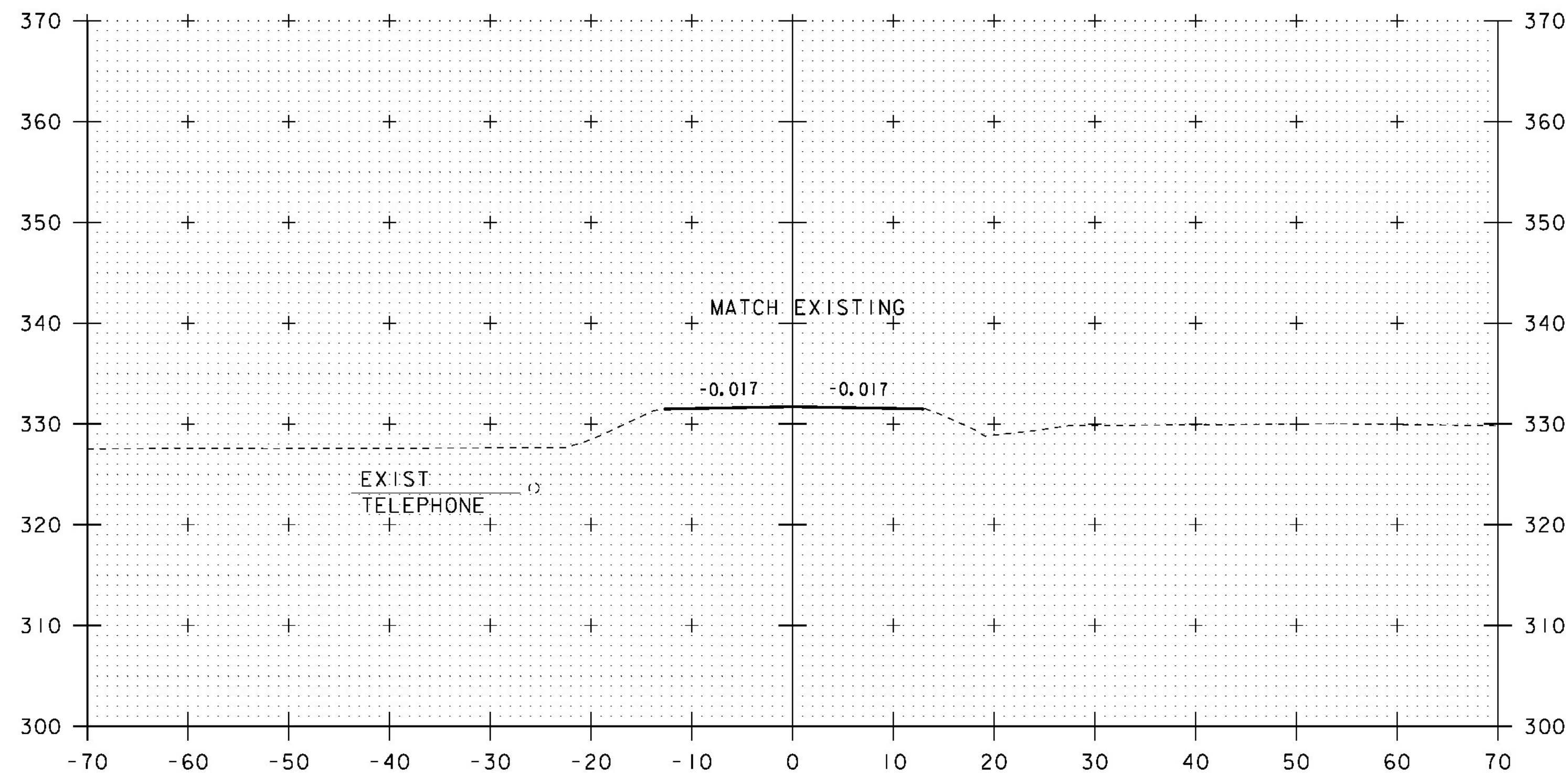
- EPOXY GROUT SHALL BE INCIDENTAL TO ITEM 540.10, "PRECAST CONCRETE STRUCTURE".
- ALL REINFORCING STEEL AND MECHANICAL CONNECTORS SHALL BE INCLUDED IN THE UNIT PROCE BID FOR ITEM 540.10, "PRECAST CONCRETE STRUCTURE".
- ALL REINFORCING STEEL IN WINGWALLS SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR LEVEL II REINFORCING. ALL MECHANICAL CONNECTORS IN WINGWALLS SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR LEVEL I (EPOXY COATED) REINFORCING.
- THE BRIDGE PLAQUE FURNISHED BY THE AGENCY SHALL BE CAST INTO WINGWALL 2. ALL WORK TO INSTALL THE PLAQUE SHALL BE INCIDENTAL TO THE APPROPRIATE PRECAST CONCRETE STRUCTURE ITEM. SEE SD-502.00 FOR FURTHER DETAILS.

PROJECT NAME: BRISTOL  
PROJECT NUMBER: BRF 021-I(29)

FILE NAME: si0b094sub.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: C. MOONEY  
WINGWALL DETAILS

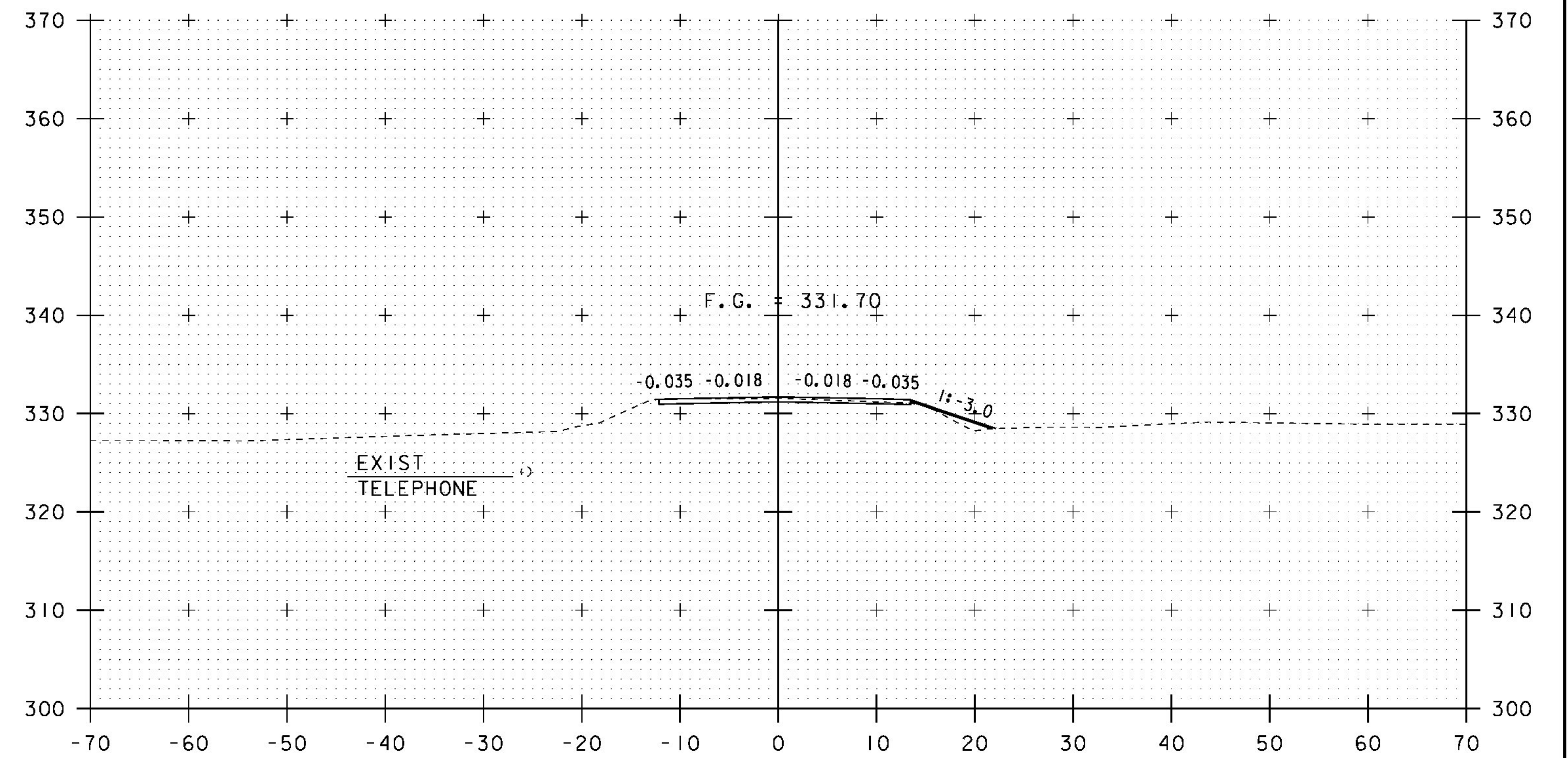
PLOT DATE: 04-NOV-2014  
DRAWN BY: R. PELLETT  
CHECKED BY: EVANS-MONGEON  
SHEET 34 OF 54



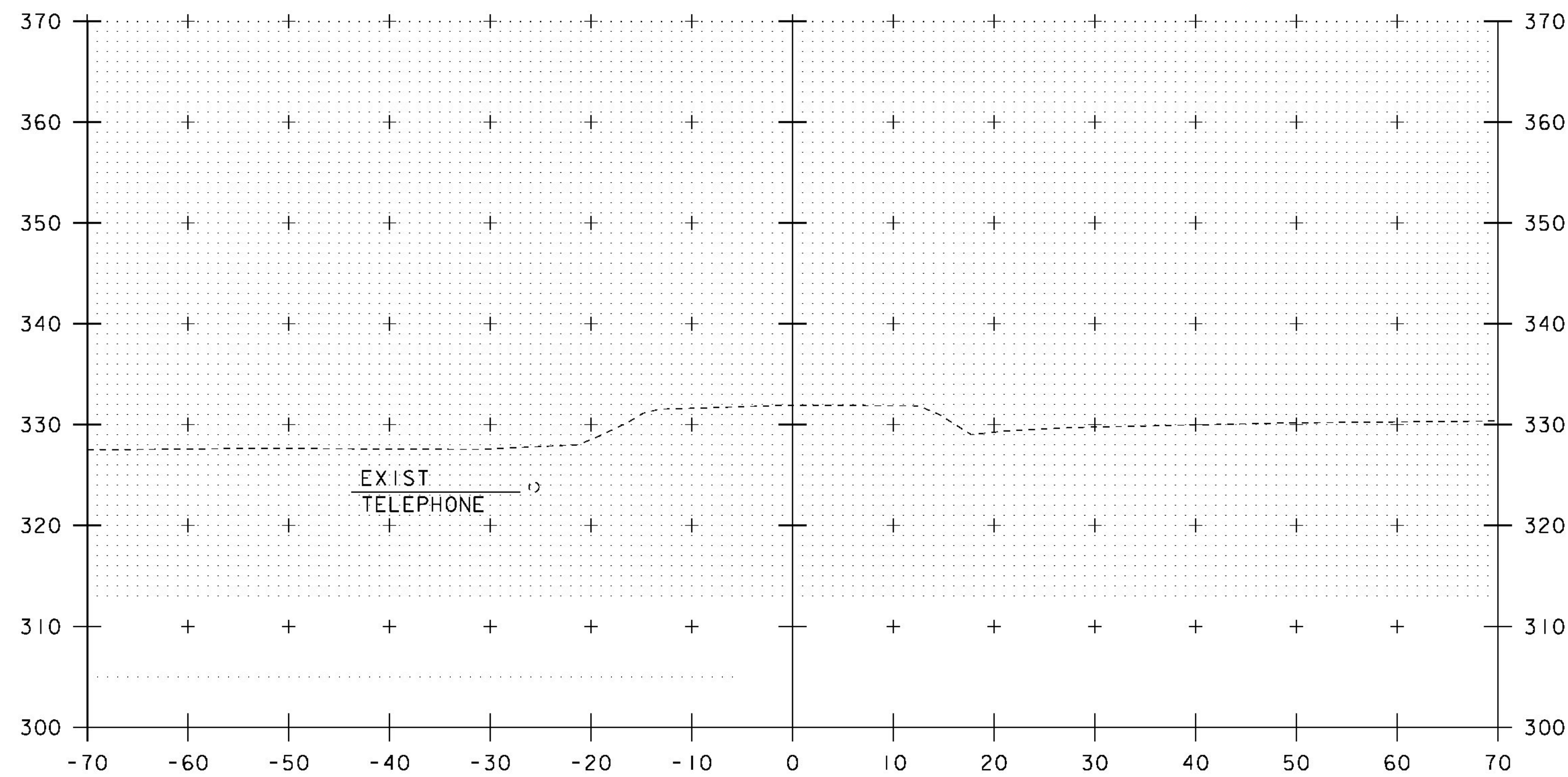


104+00

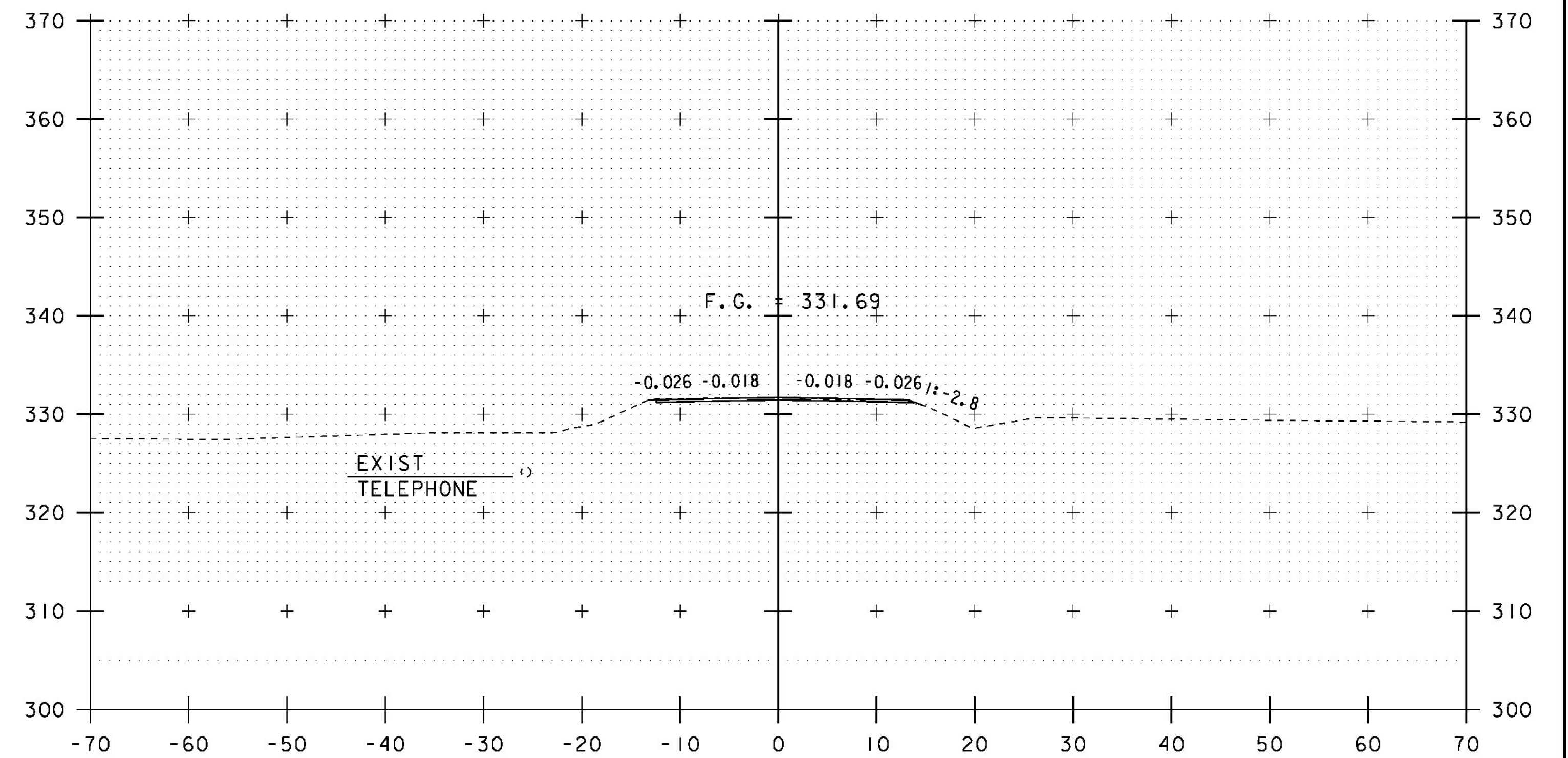
STA 104+00.00  
BEGIN APPROACH  
MATCH EXISTING



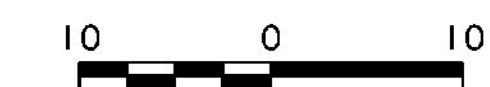
104+50



103+75



104+25



SCALE: 1" = 10'-0"

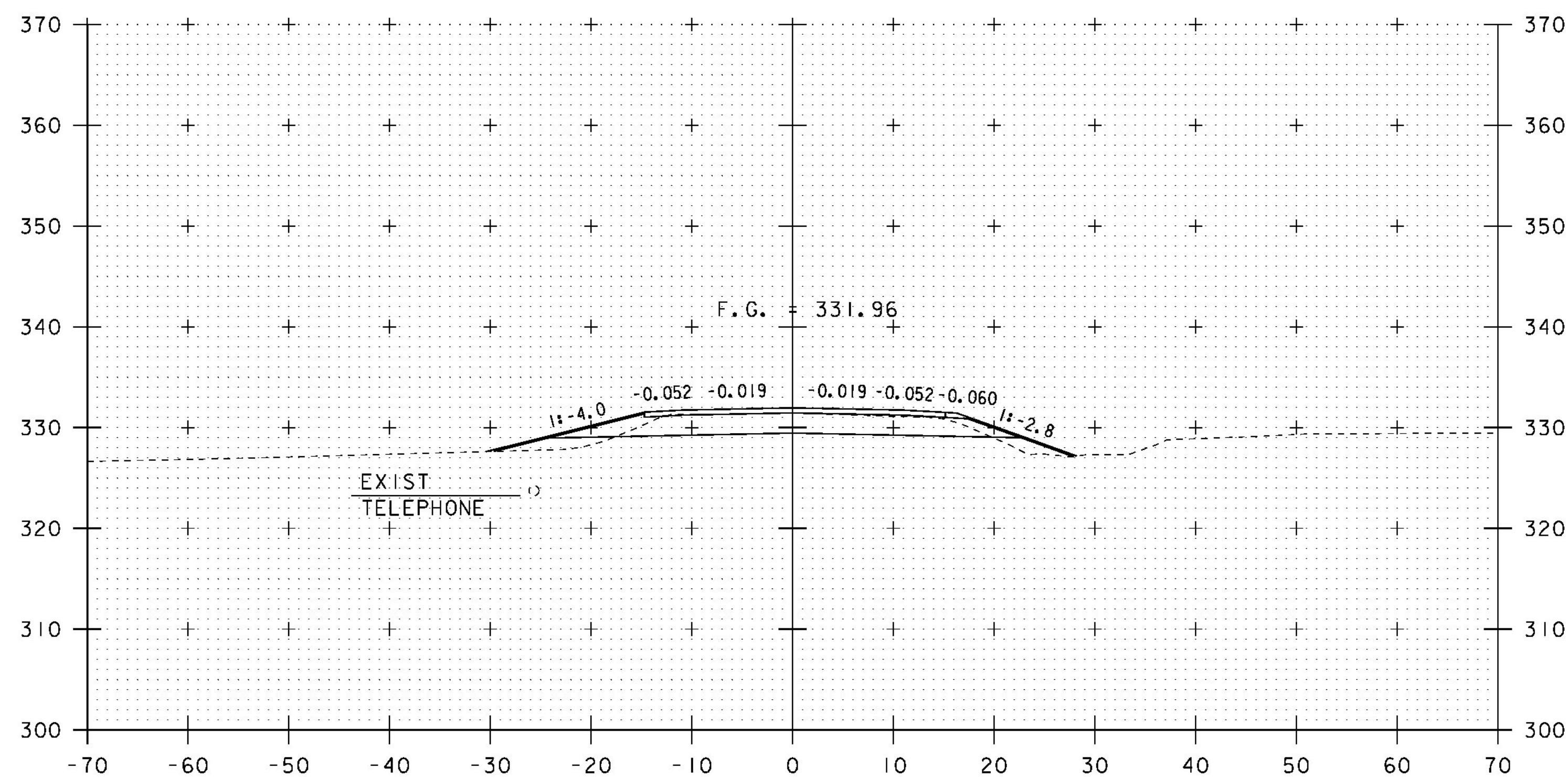
STA. 103+75 TO STA. 104+50

PROJECT NAME: BRISTOL  
PROJECT NUMBER: BRF 021-1 (29)

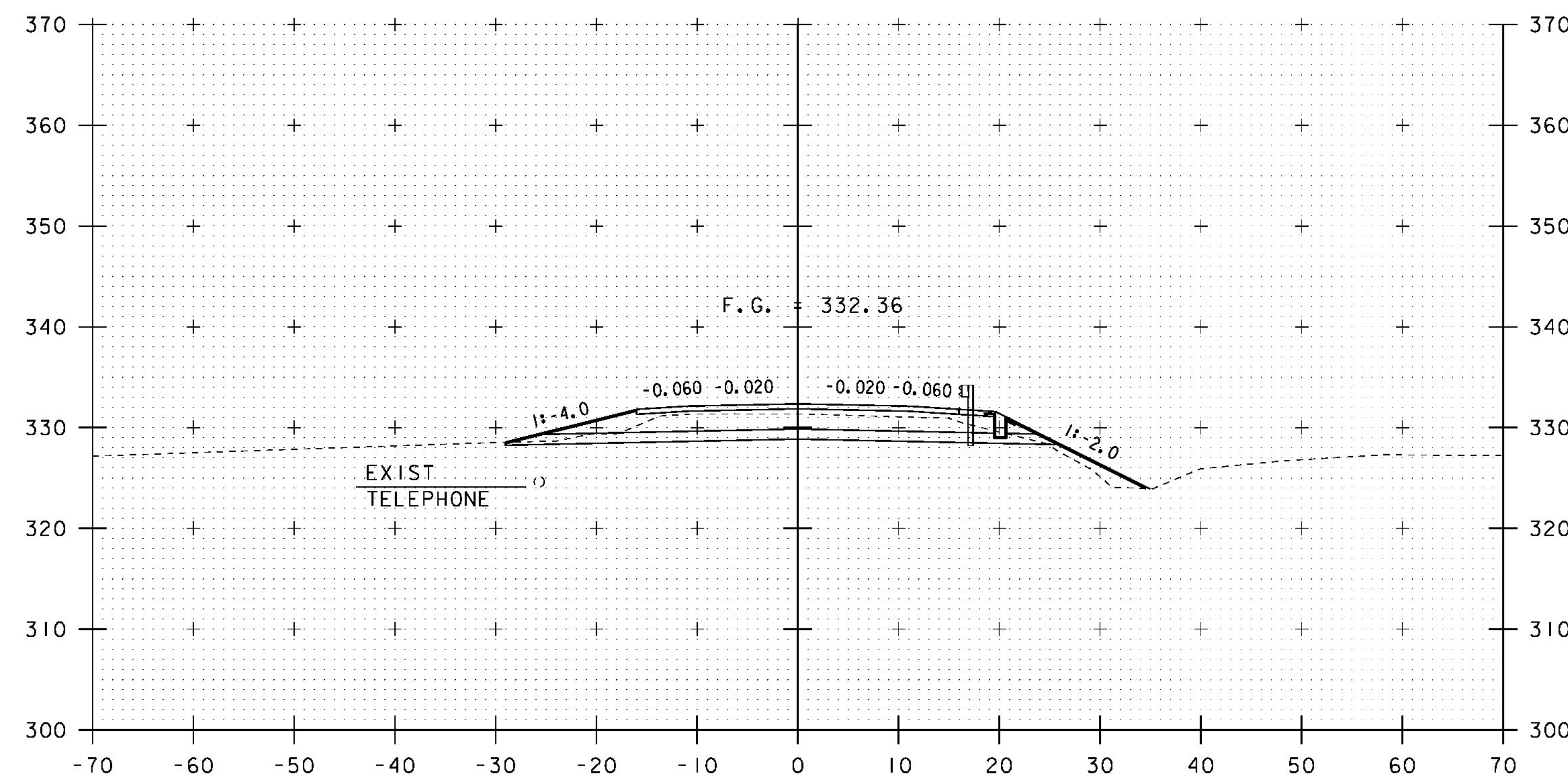
FILE NAME: si0b094xsl.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: G. ROY  
VT 116 CROSS SECTIONS (1)

PLOT DATE: 04-NOV-2014  
DRAWN BY: G. ROY  
CHECKED BY: EVANS-MONGEON  
SHEET 35 OF 54

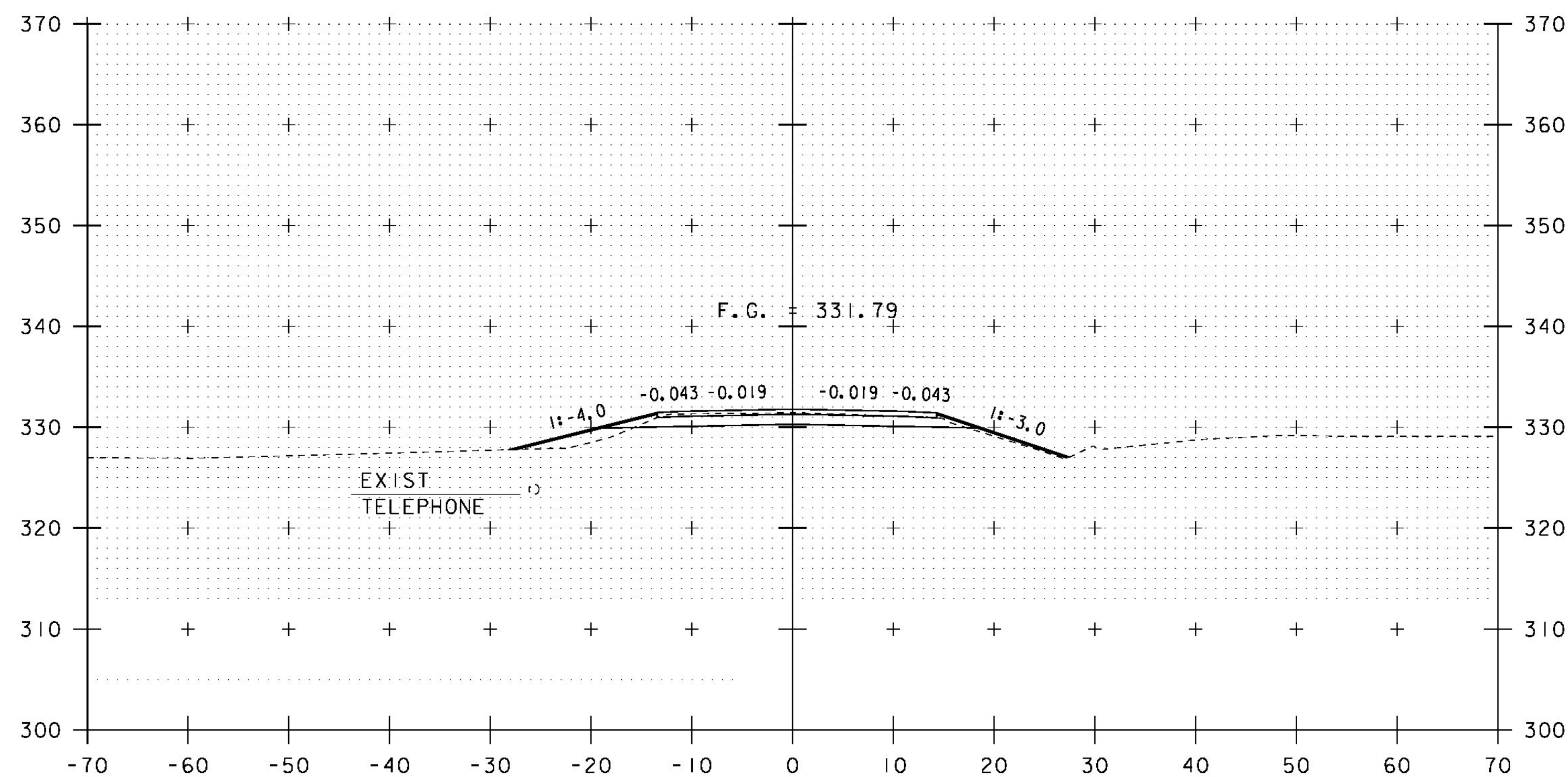




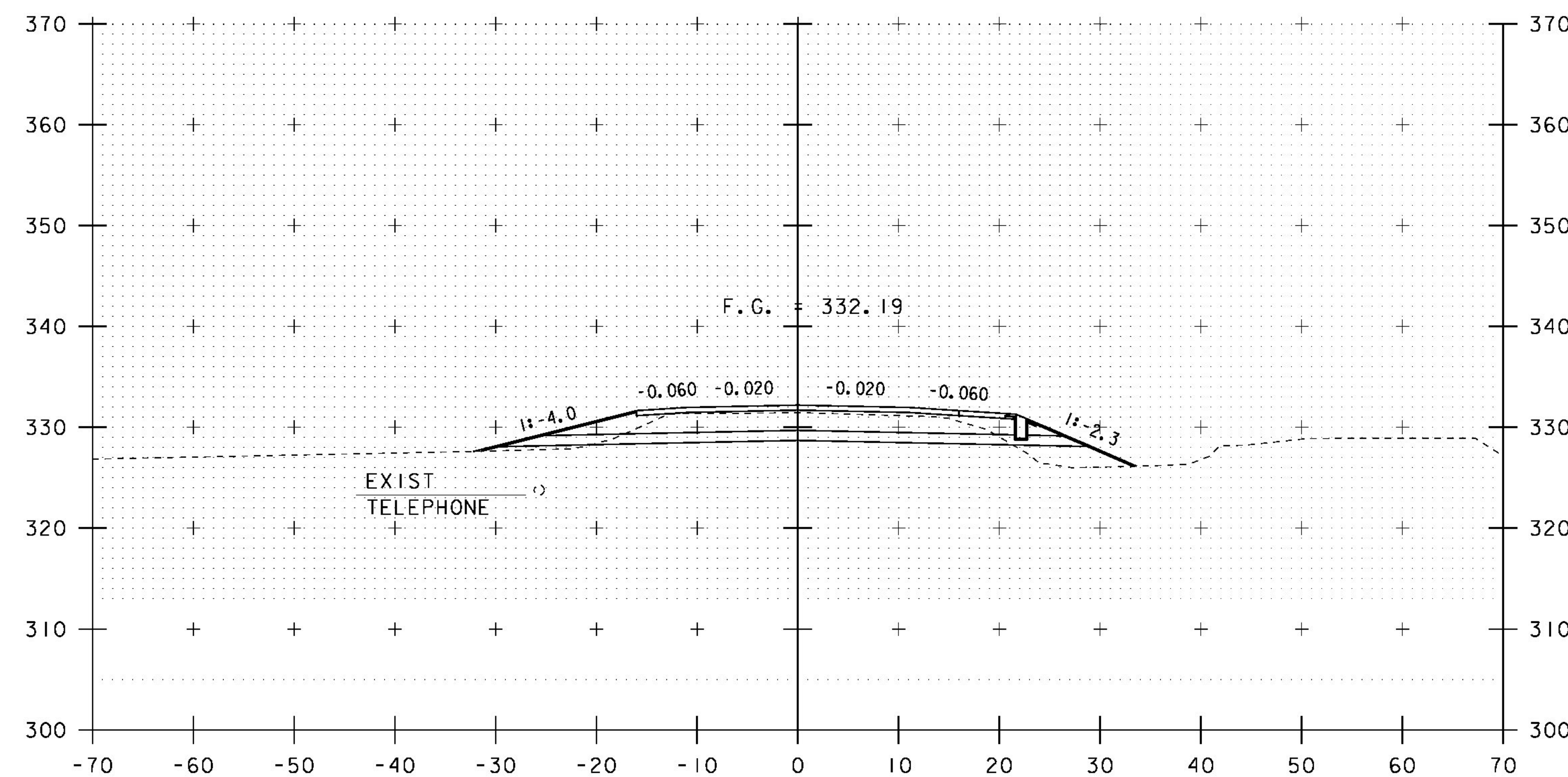
105+00



105+50



104+75



105+25

SPECIAL PROVISION (STONE DIAPHRAGM)  
STA 105+25.0 RT - STA 106+28.3 RT

STA 105+25.00  
END APPROACH  
BEGIN PROJECT

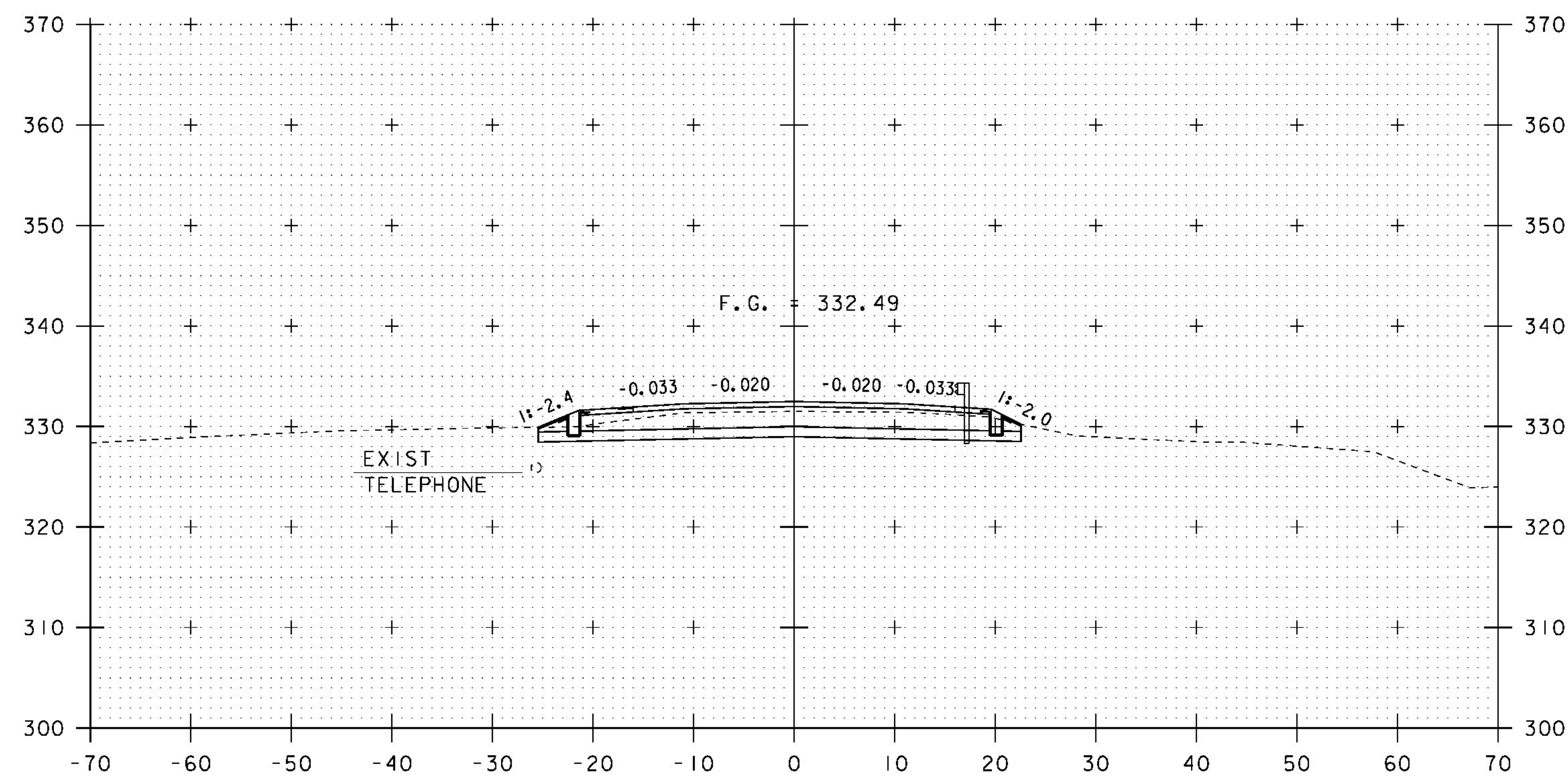
10 0 10

SCALE: 1" = 10'-0"

STA. 104+75 TO STA. 105+50

|                           |                |             |               |
|---------------------------|----------------|-------------|---------------|
| PROJECT NAME:             | BRISTOL        | PLOT DATE:  | 04-NOV-2014   |
| PROJECT NUMBER:           | BRF 021-1 (29) | DRAWN BY:   | G. ROY        |
| FILE NAME:                | si0b094xsl.dgn | CHECKED BY: | EVANS-MONGEON |
| PROJECT LEADER:           | C. CARLSON     | SHEET       | 36 OF 54      |
| DESIGNED BY:              | G. ROY         |             |               |
| VT 116 CROSS SECTIONS (2) |                |             |               |

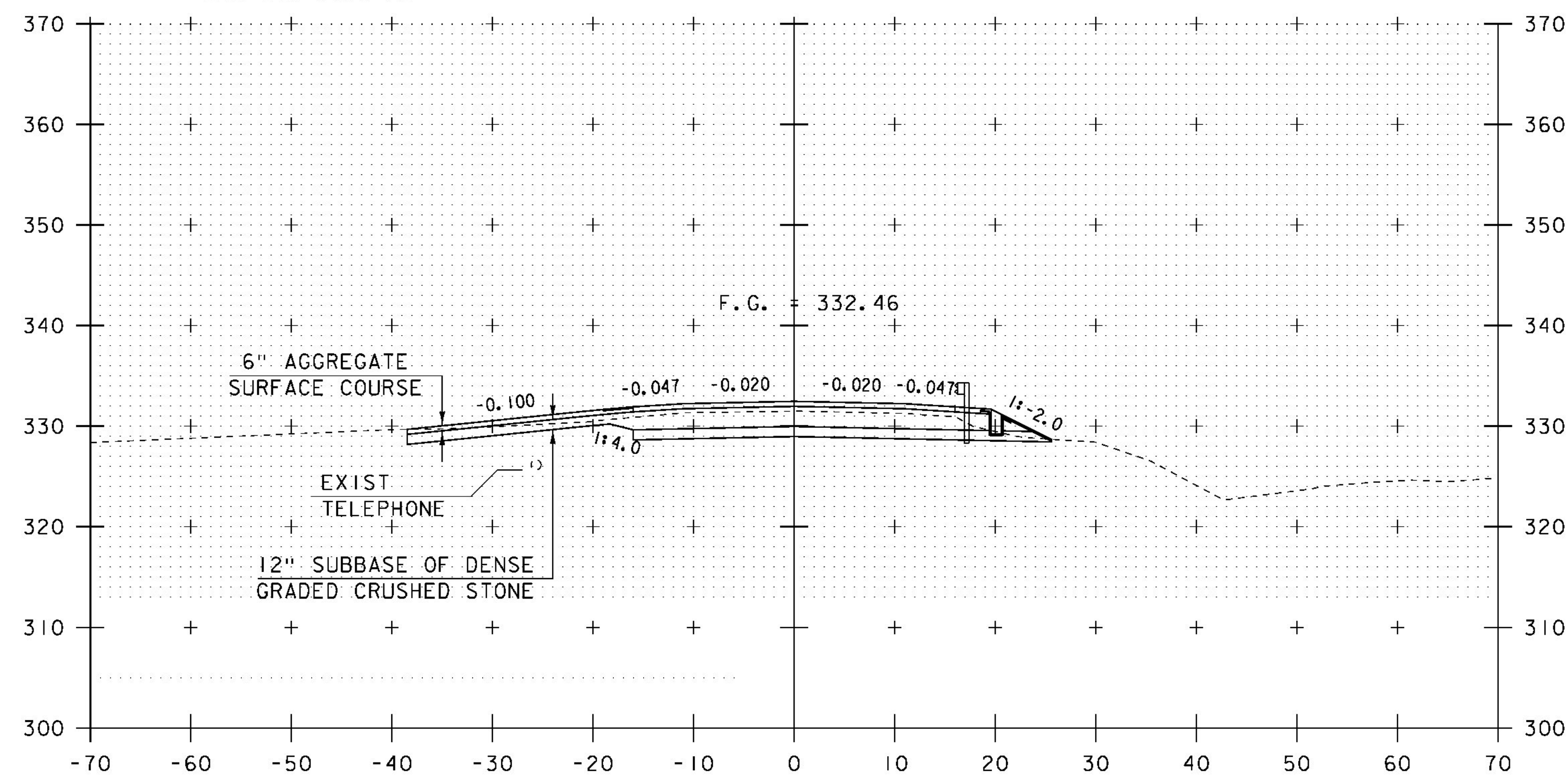




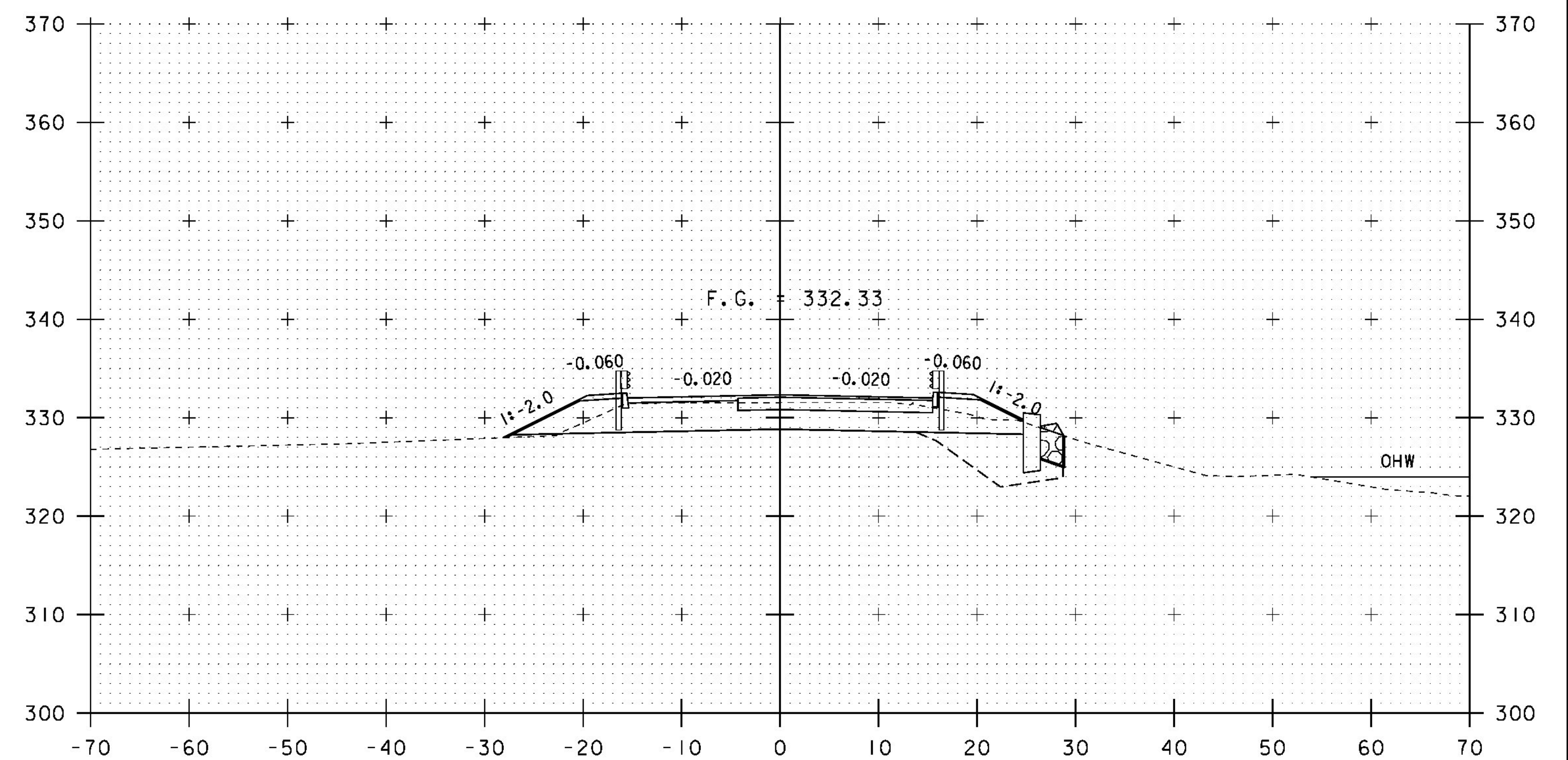
SPECIAL PROVISION (STONE DIAPHRAGM)  
STA 105+94.9 LT - STA 106+42.7 LT

106+00

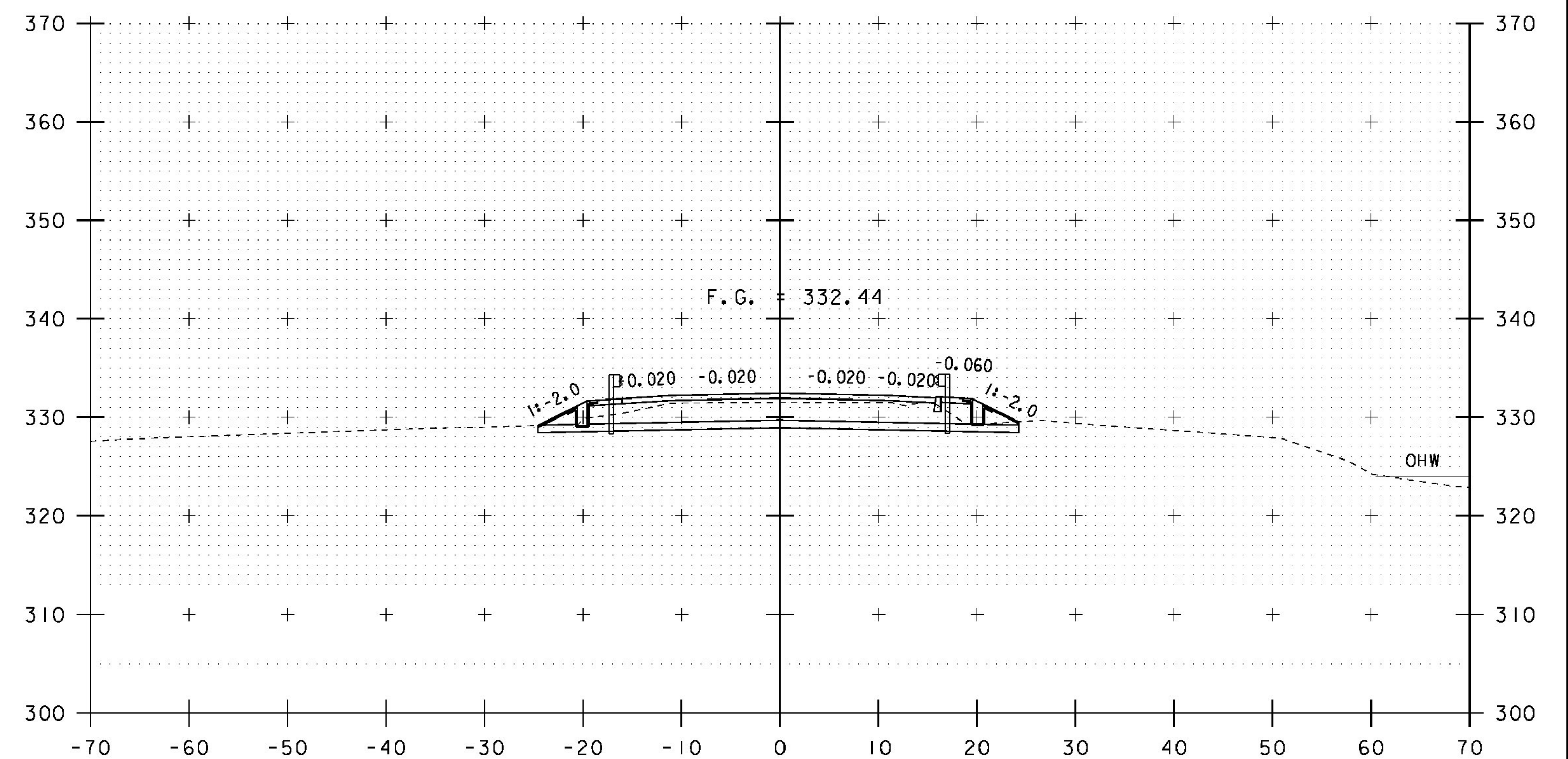
CONSTRUCT GRAVEL DRIVE  
STA 105+83.0 LT



105+75



106+50



106+25



SCALE: 1" = 10'-0"

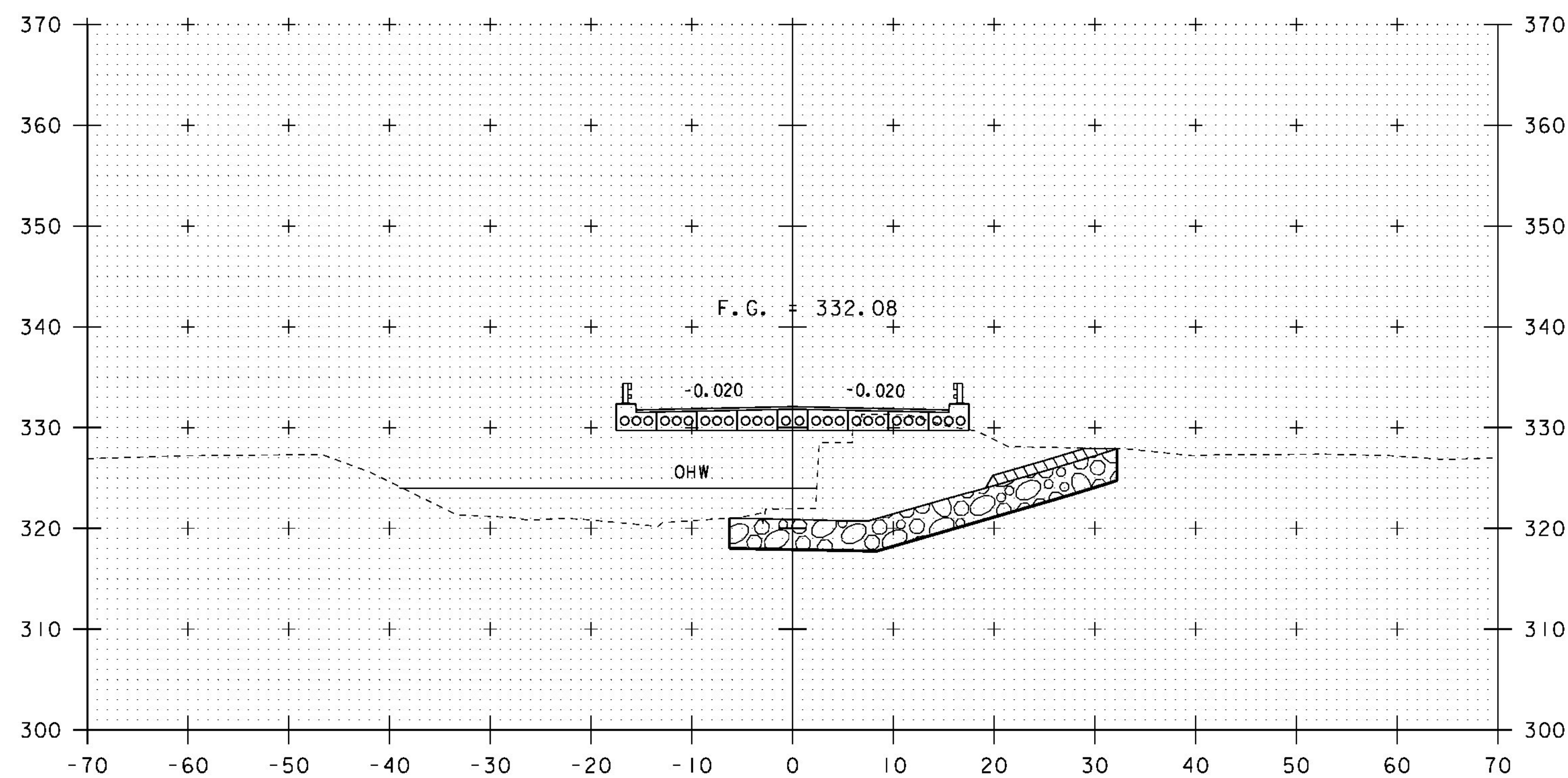
STA. 105+75 TO STA. 106+50

PROJECT NAME: BRISTOL  
PROJECT NUMBER: BRF 021-1 (29)

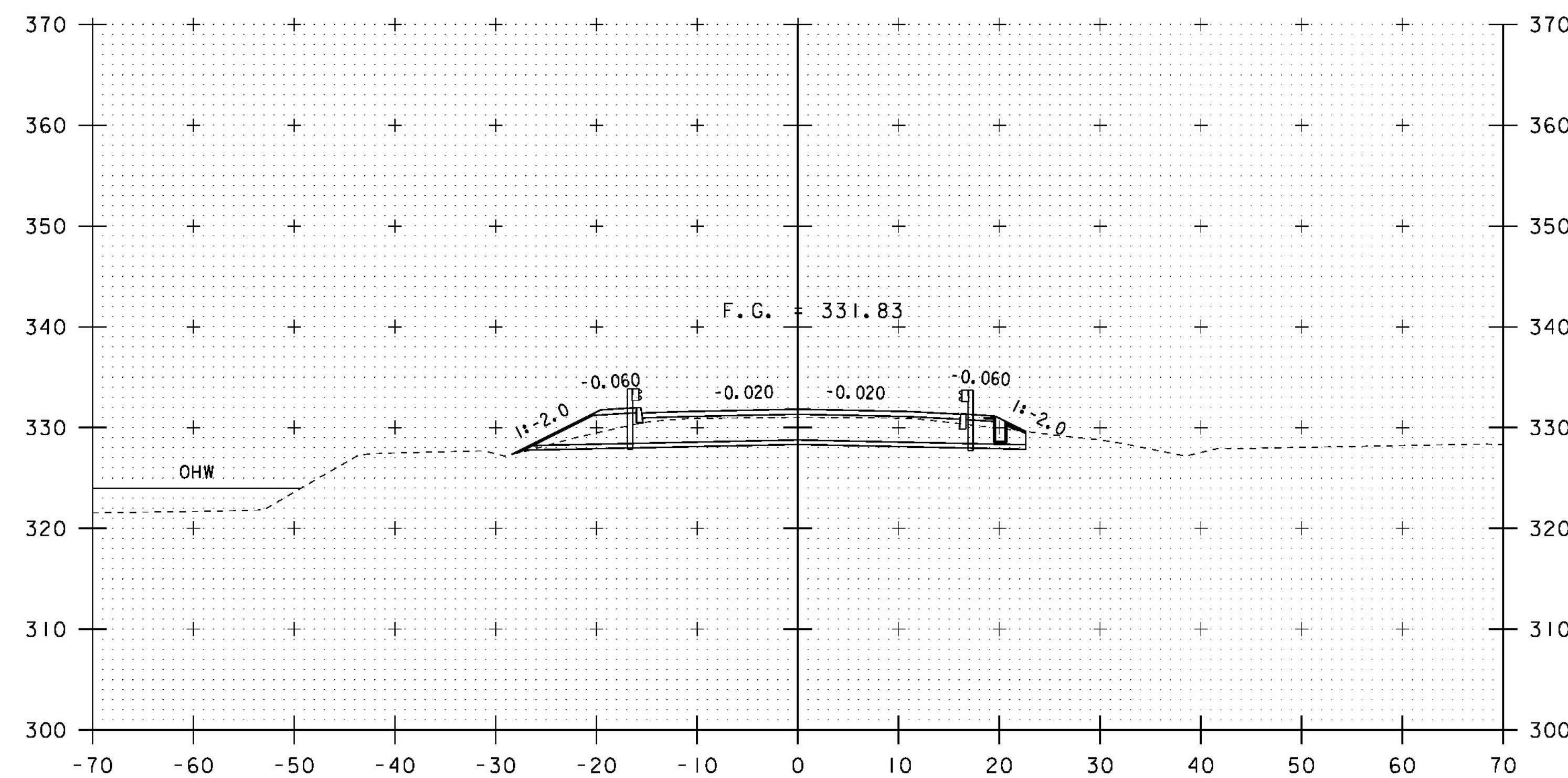
FILE NAME: si0b094xsl.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: G. ROY  
VT 116 CROSS SECTIONS (3)

PLOT DATE: 04-NOV-2014  
DRAWN BY: G. ROY  
CHECKED BY: EVANS-MONGEON  
SHEET 37 OF 54



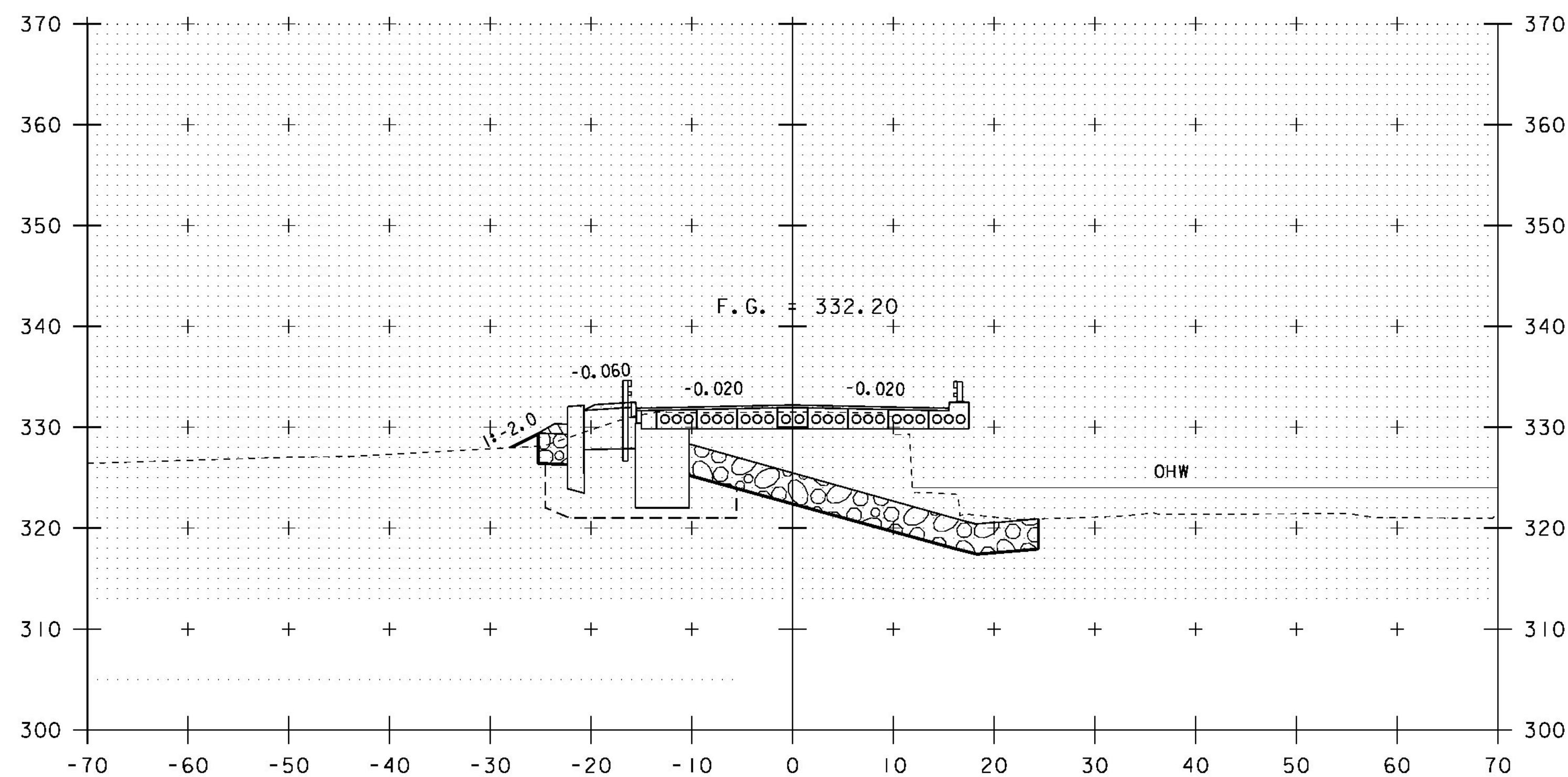


107+00



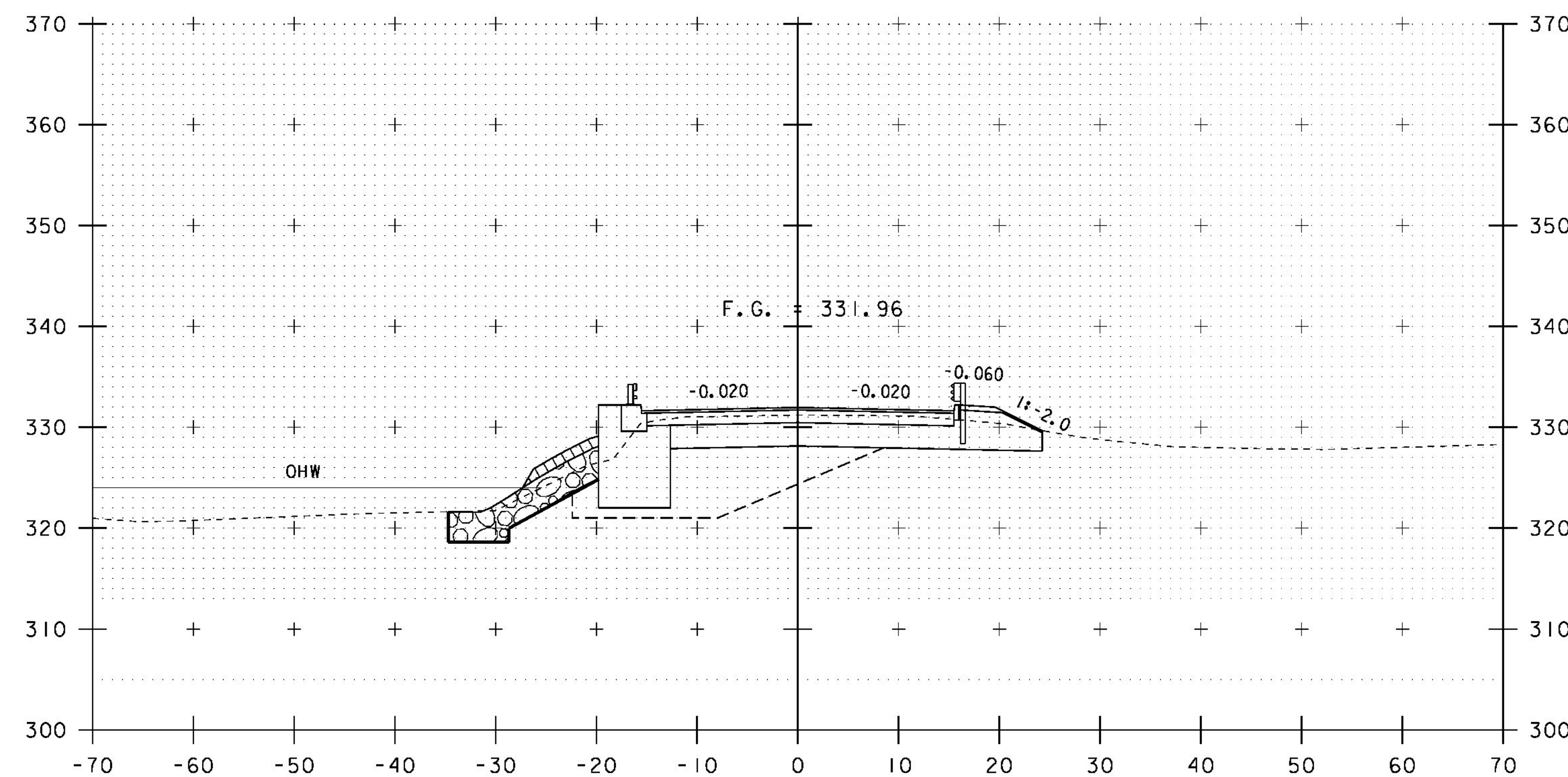
107+50

SPECIAL PROVISION (STONE DIAPHRAGM)  
STA 107+43.3 RT - STA 108+00.0 RT



106+75

STA 106+67.34  
END ROADWAY  
BEGIN BRIDGE



107+25

STA 107+18.66  
END BRIDGE  
RESUME ROADWAY

10 0 10  
SCALE: 1" = 10'-0"

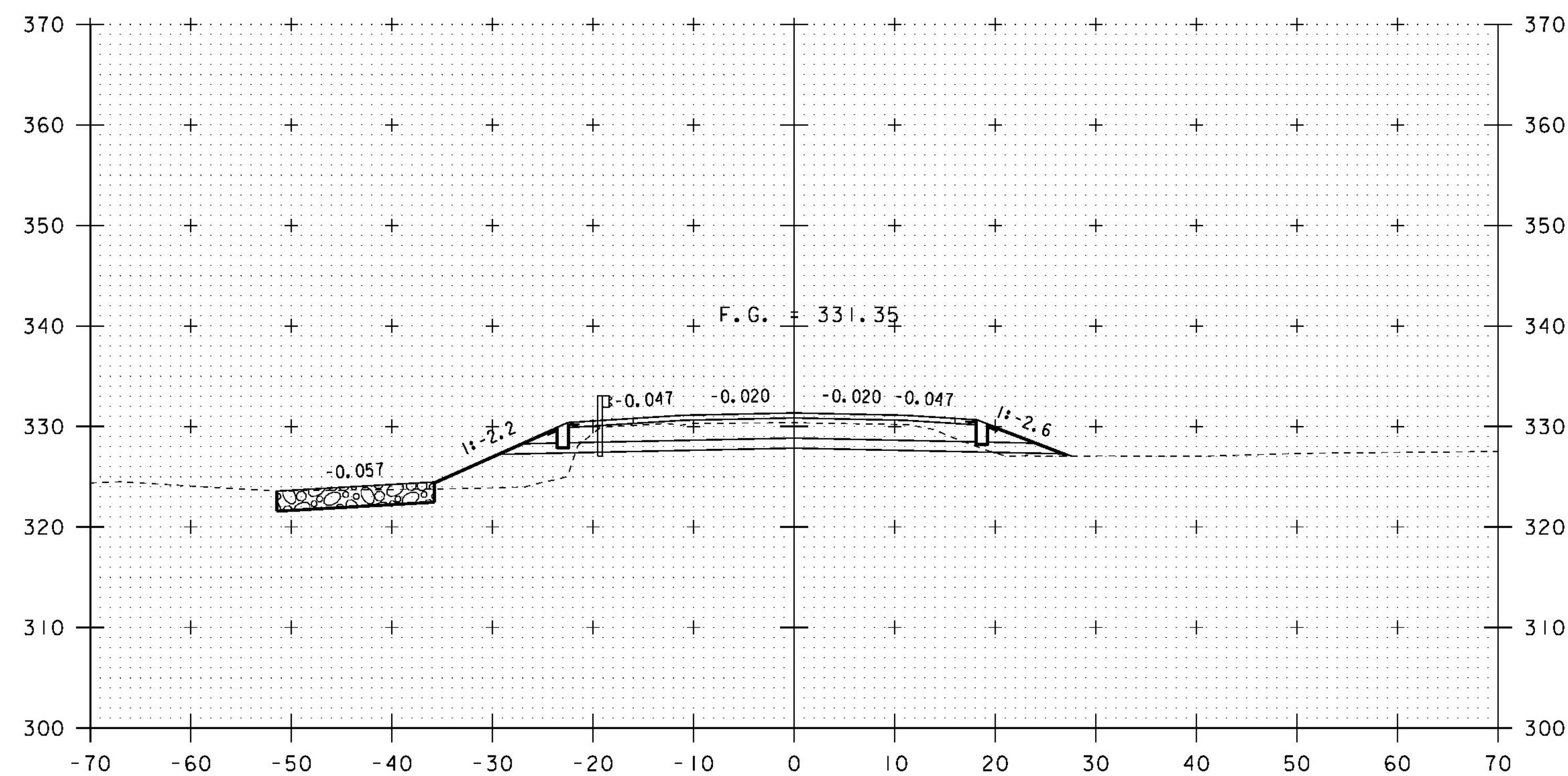
STA. 106+75 TO STA. 107+50

PROJECT NAME: BRISTOL  
PROJECT NUMBER: BRF 021-I (29)

FILE NAME: si0b094xsl.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: G. ROY  
VT 116 CROSS SECTIONS (4)

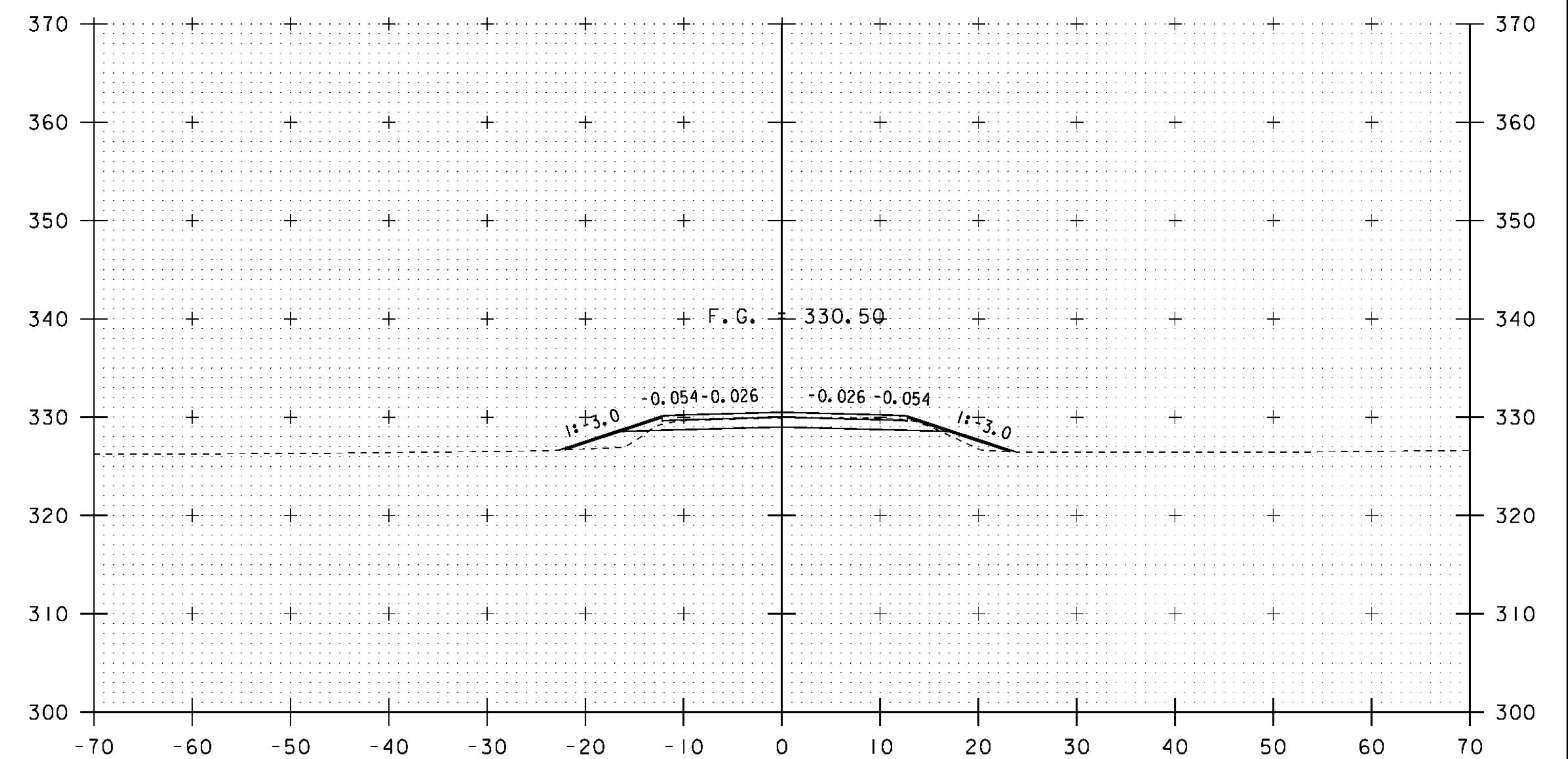
PLOT DATE: 04-NOV-2014  
DRAWN BY: G. ROY  
CHECKED BY: EVANS-MONGEON  
SHEET 38 OF 54



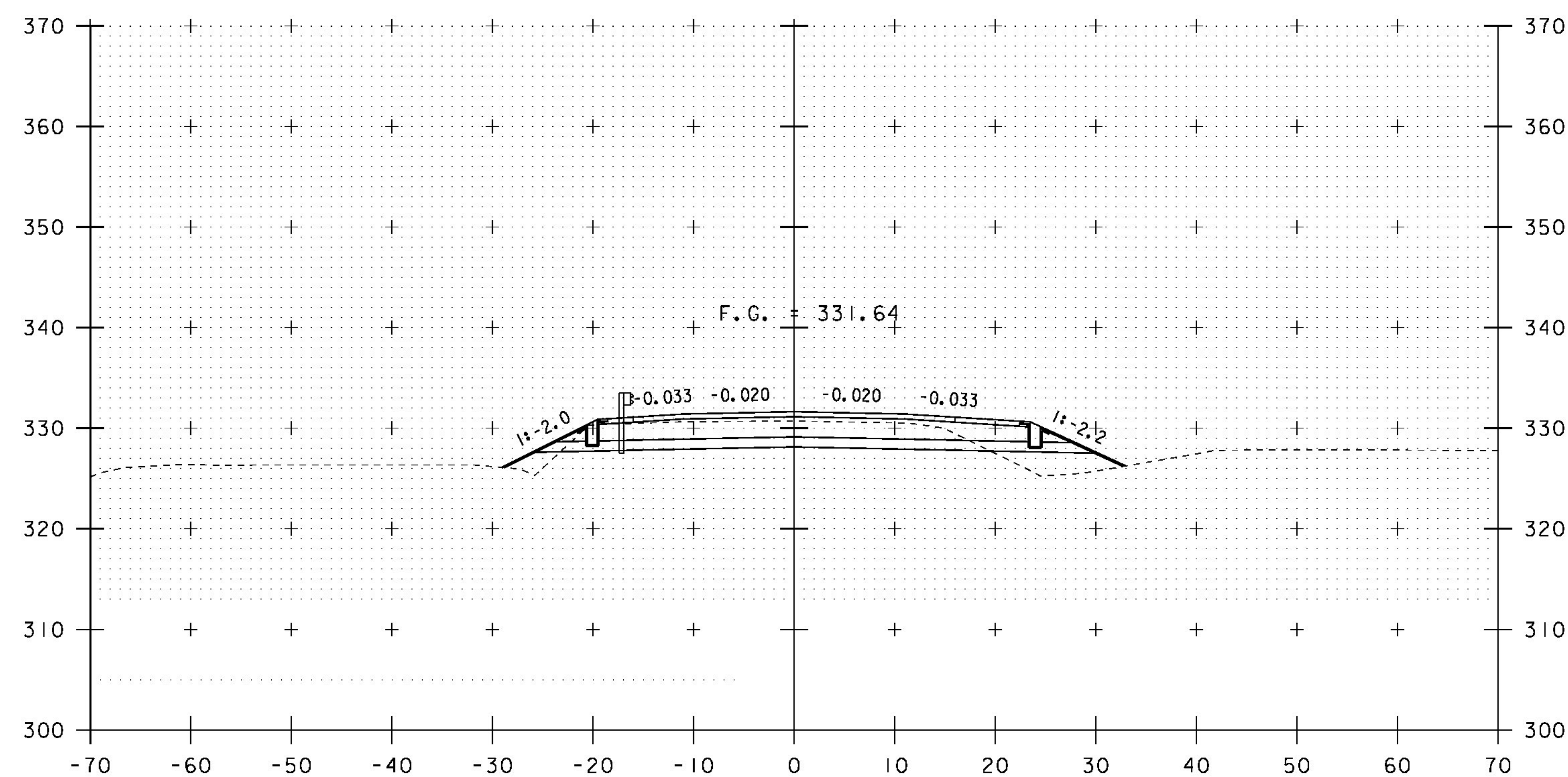


108+00

STA 108+00.00  
END PROJECT  
BEGIN APPROACH

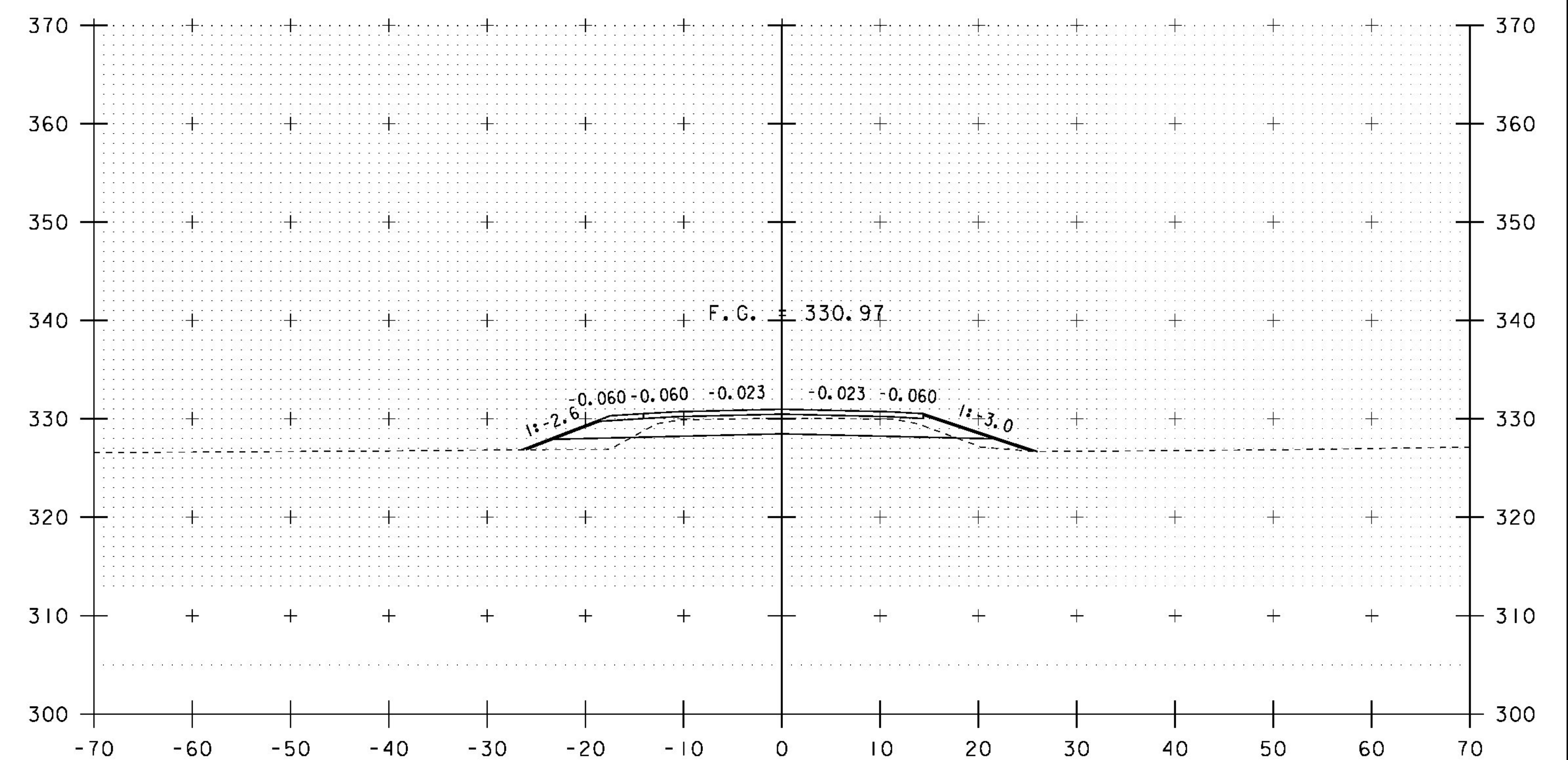


108+50



107+75

SPECIAL PROVISION (STONE DIAPHRAGM)  
STA 107+57.7 LT - STA 108+40.0 LT



108+25

10 0 10  
SCALE: 1" = 10' - 0"

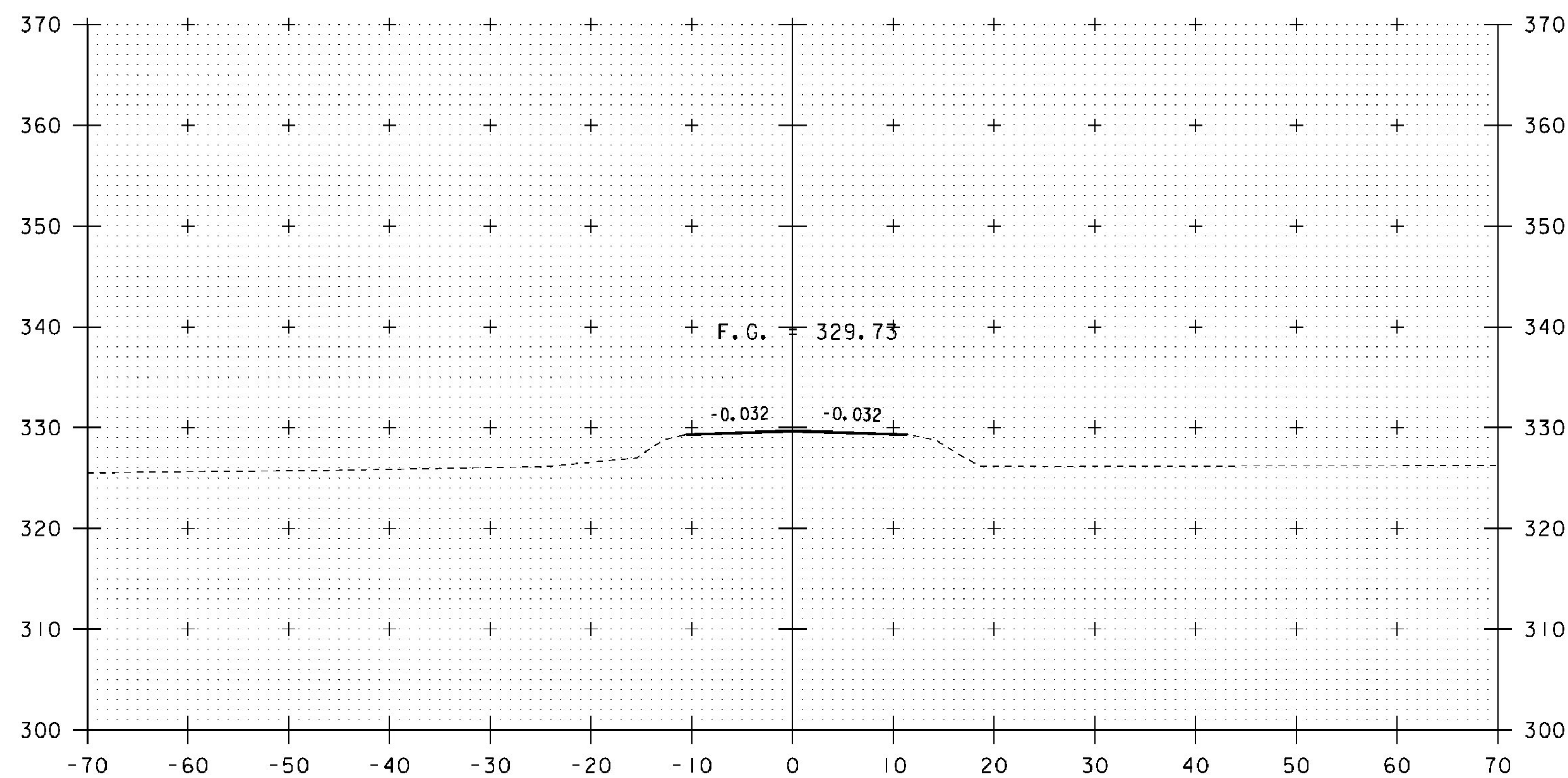
STA. 107+75 TO STA. 108+50

PROJECT NAME: BRISTOL  
PROJECT NUMBER: BRF 021-1 (29)

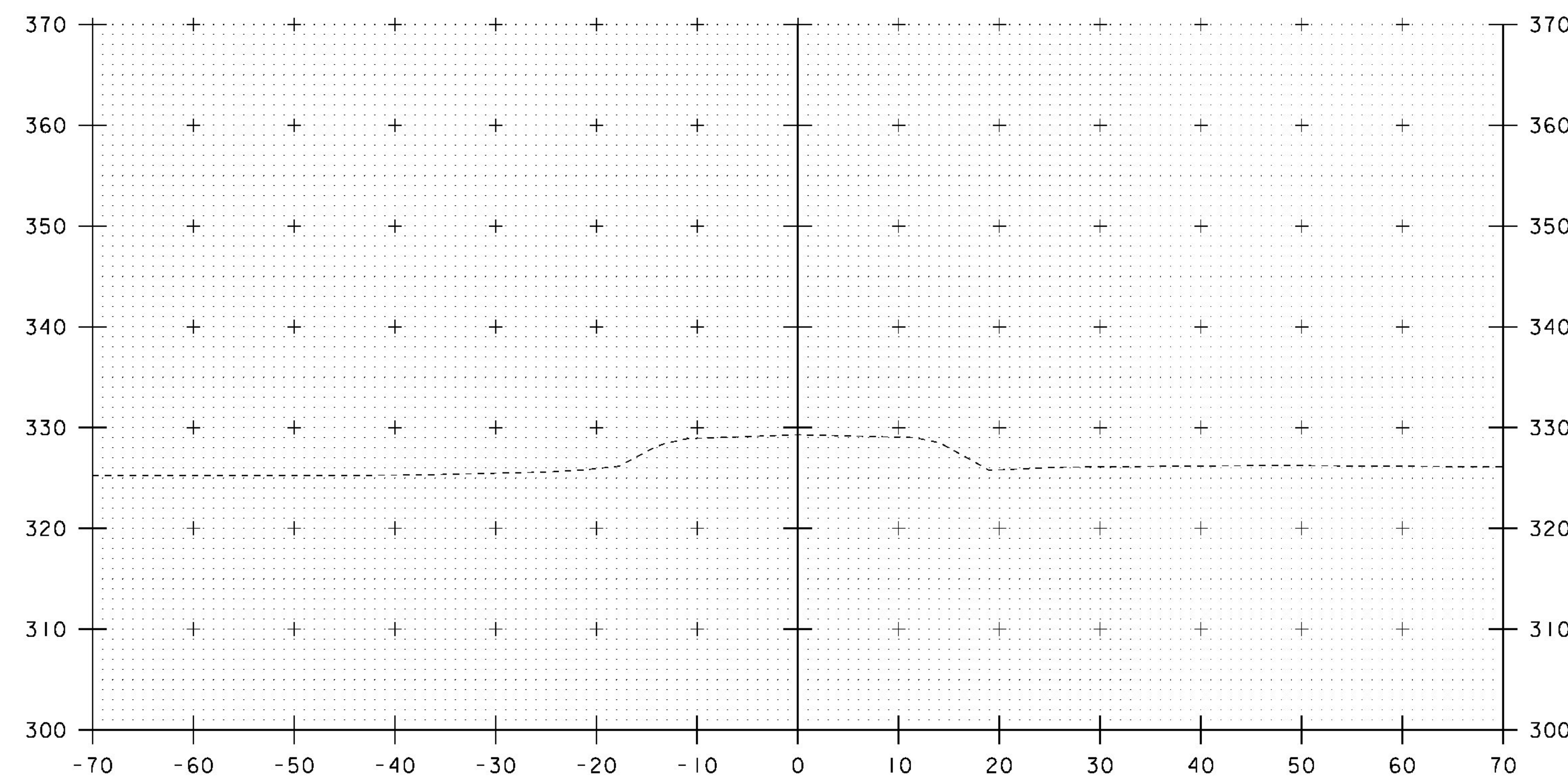
FILE NAME: si0b094xsl.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: G. ROY  
VT 116 CROSS SECTIONS (5)

PLOT DATE: 04-NOV-2014  
DRAWN BY: G. ROY  
CHECKED BY: EVANS-MONGEON  
SHEET 39 OF 54

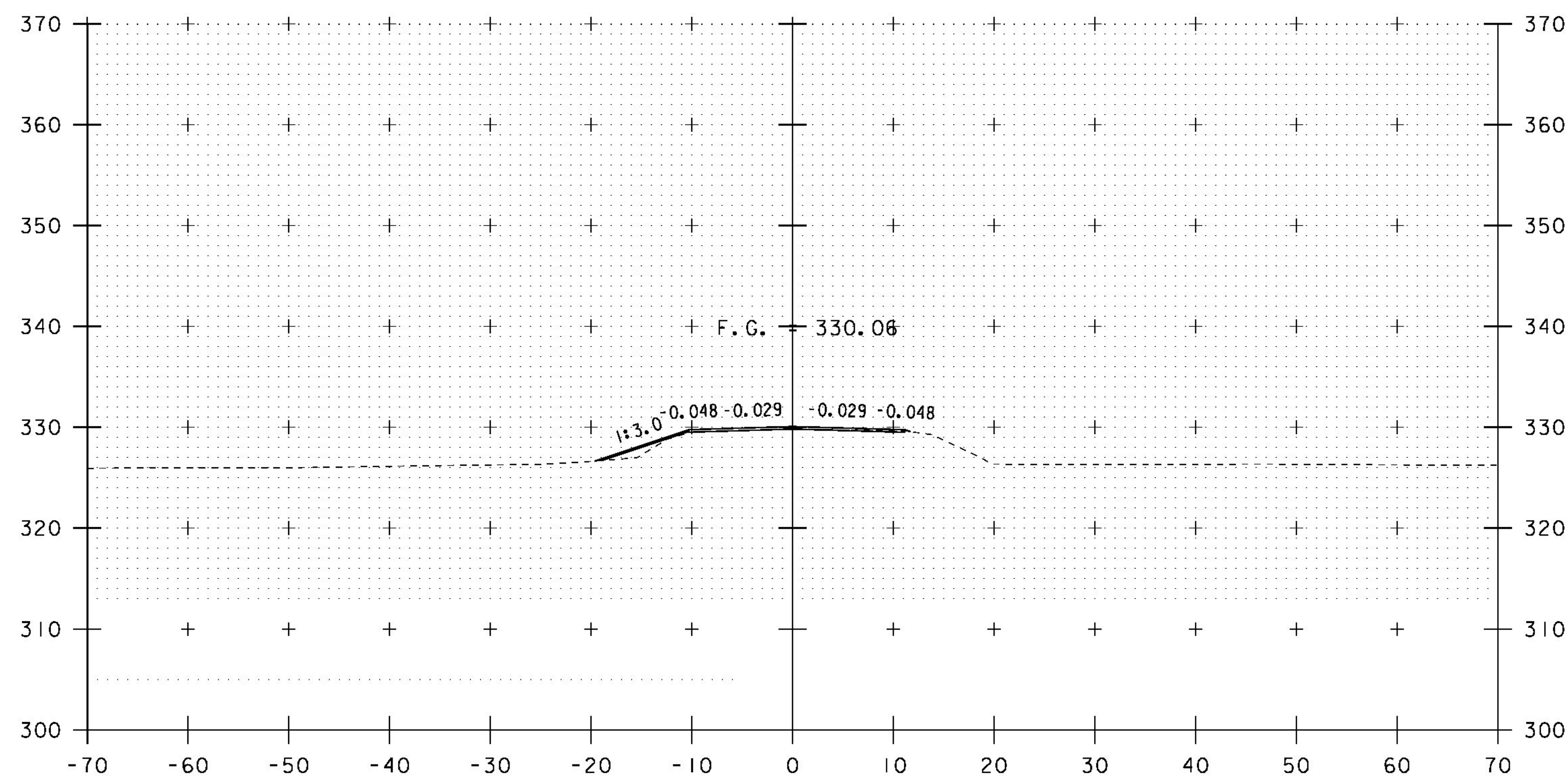




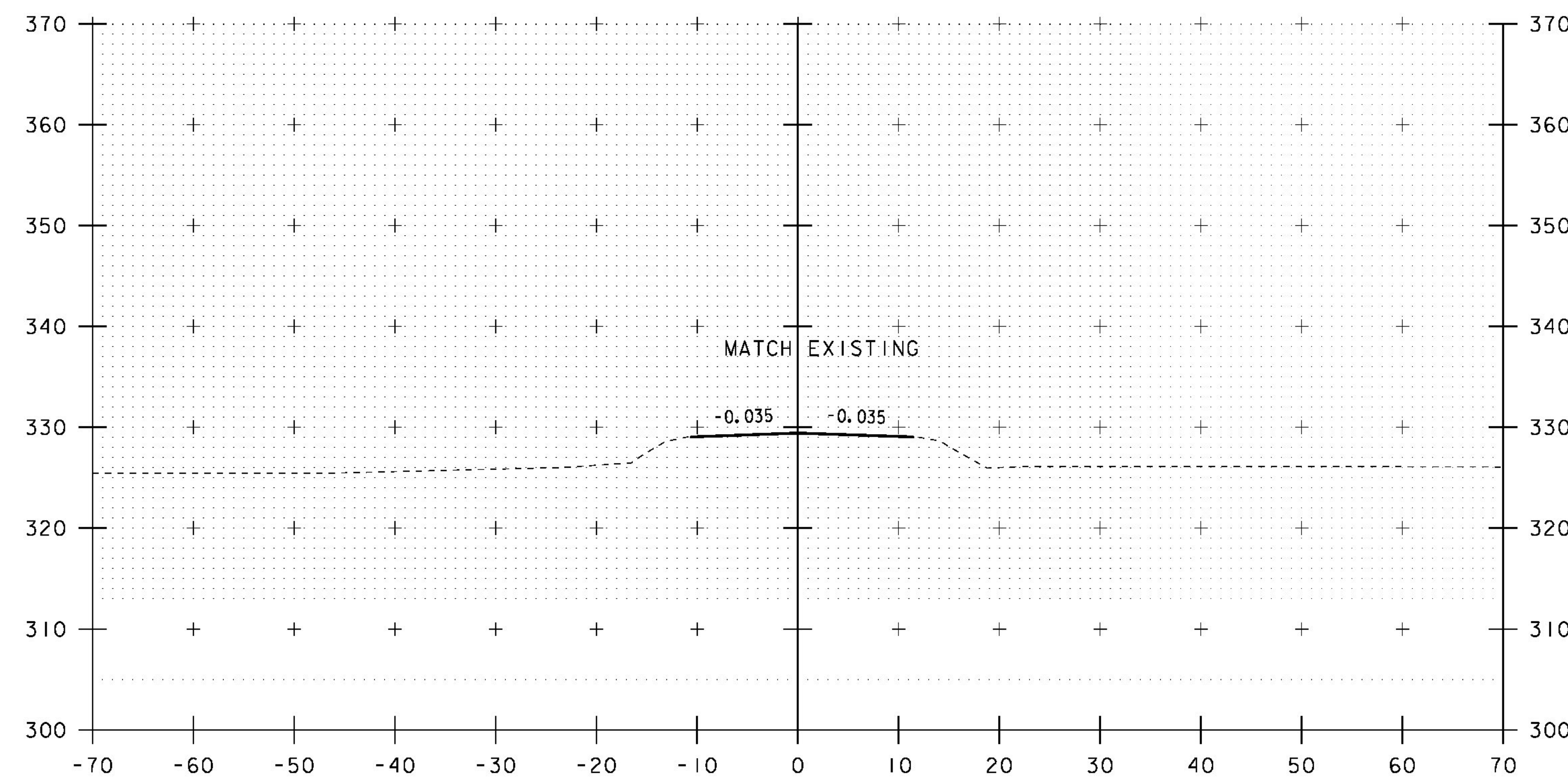
109+00



109+50

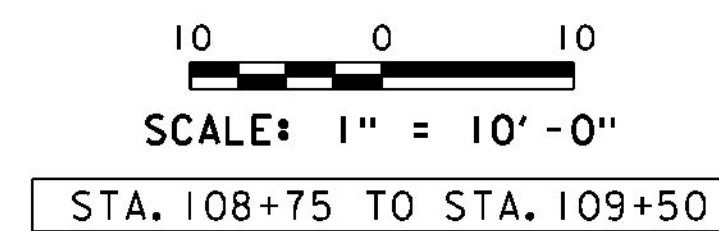


108+75



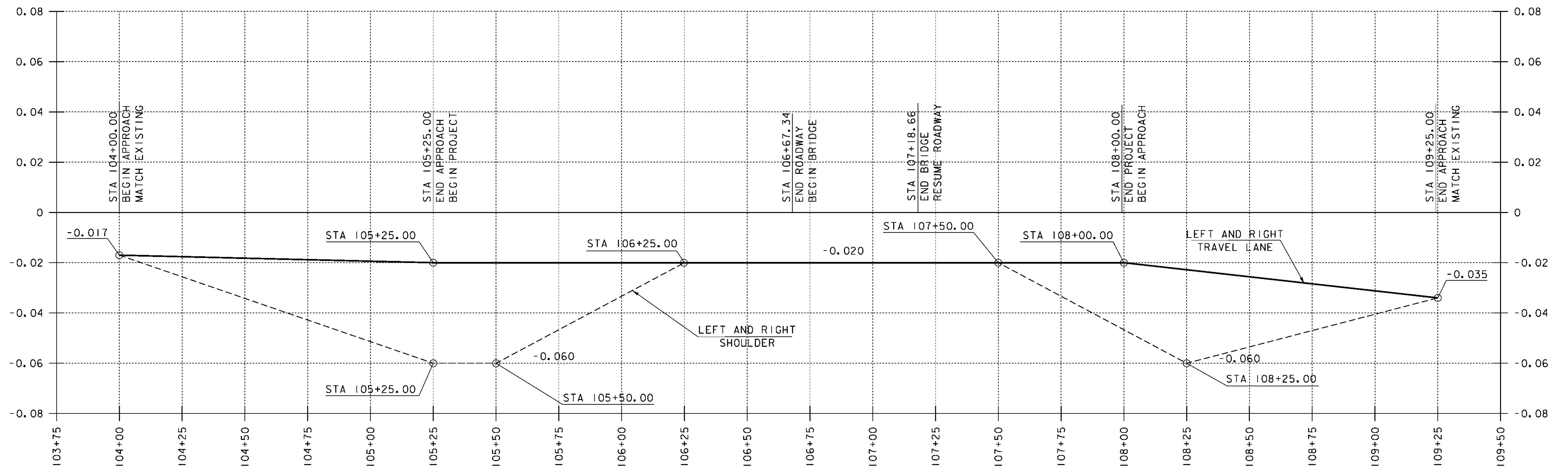
109+25

STA 109+25.00  
END APPROACH  
MATCH EXISTING



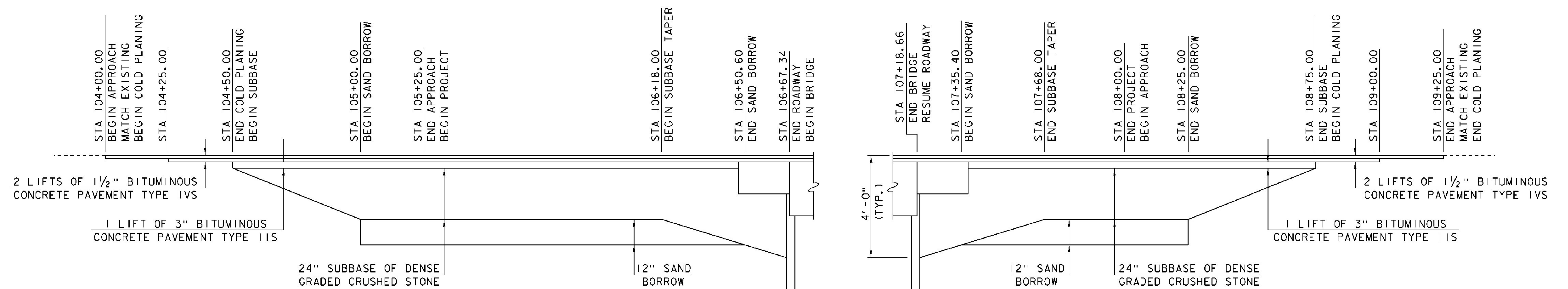
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| PROJECT NAME:              | BRISTOL                   |
| PROJECT NUMBER:            | BRF 021-I (29)            |
| FILE NAME: si0b094xsl.dgn  | PLOT DATE: 04-NOV-2014    |
| PROJECT LEADER: C. CARLSON | DRAWN BY: G. ROY          |
| DESIGNED BY: G. ROY        | CHECKED BY: EVANS-MONGEON |
| VT 116 CROSS SECTIONS (6)  | SHEET 40 OF 54            |





### VT 116 BANKING DIAGRAM

HORIZONTAL SCALE: 1" = 20'-0"  
VERTICAL SCALE: 1" = 0.02' /'



#### NOTES:

1. SEE SECTIONS TO DETERMINE CUT OR FILL.
2. SEE PROJECT TYPICAL SECTIONS FOR ABUTMENT EARTHWORK DETAILS.

### VT 116 MATERIAL TRANSITION DETAIL

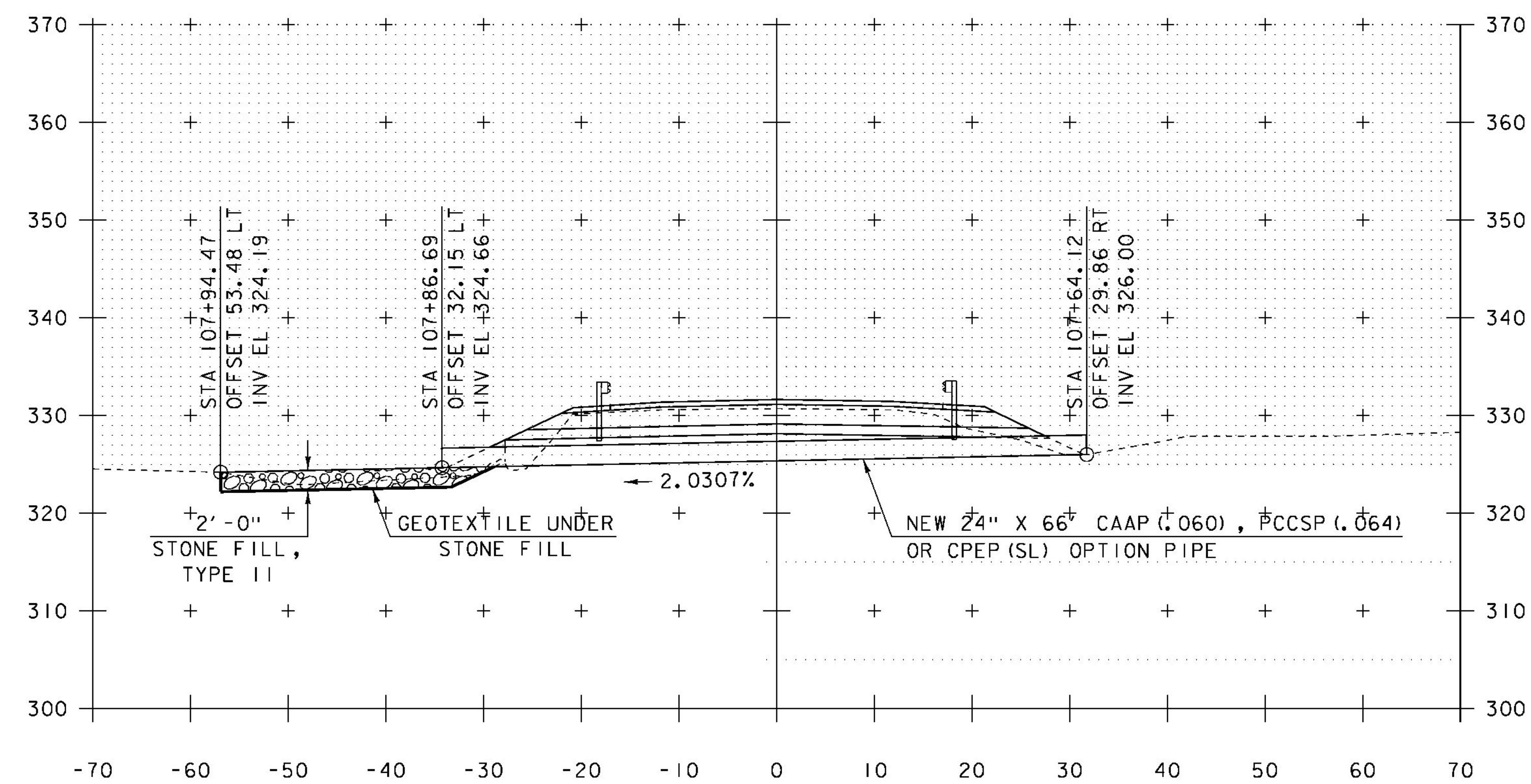
HORIZONTAL SCALE: 1" = 20'-0"  
VERTICAL SCALE: 1" = 2'-0"

PROJECT NAME: BRISTOL  
PROJECT NUMBER: BRF 021-I(29)

FILE NAME: si0b094bdt.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: G. ROY  
BANKING DIAGRAM AND MATERIAL TRANSITION DETAIL SHEET 41 OF 54

PLOT DATE: 04-NOV-2014  
DRAWN BY: C. ROY  
CHECKED BY: EVANS-MONGEON





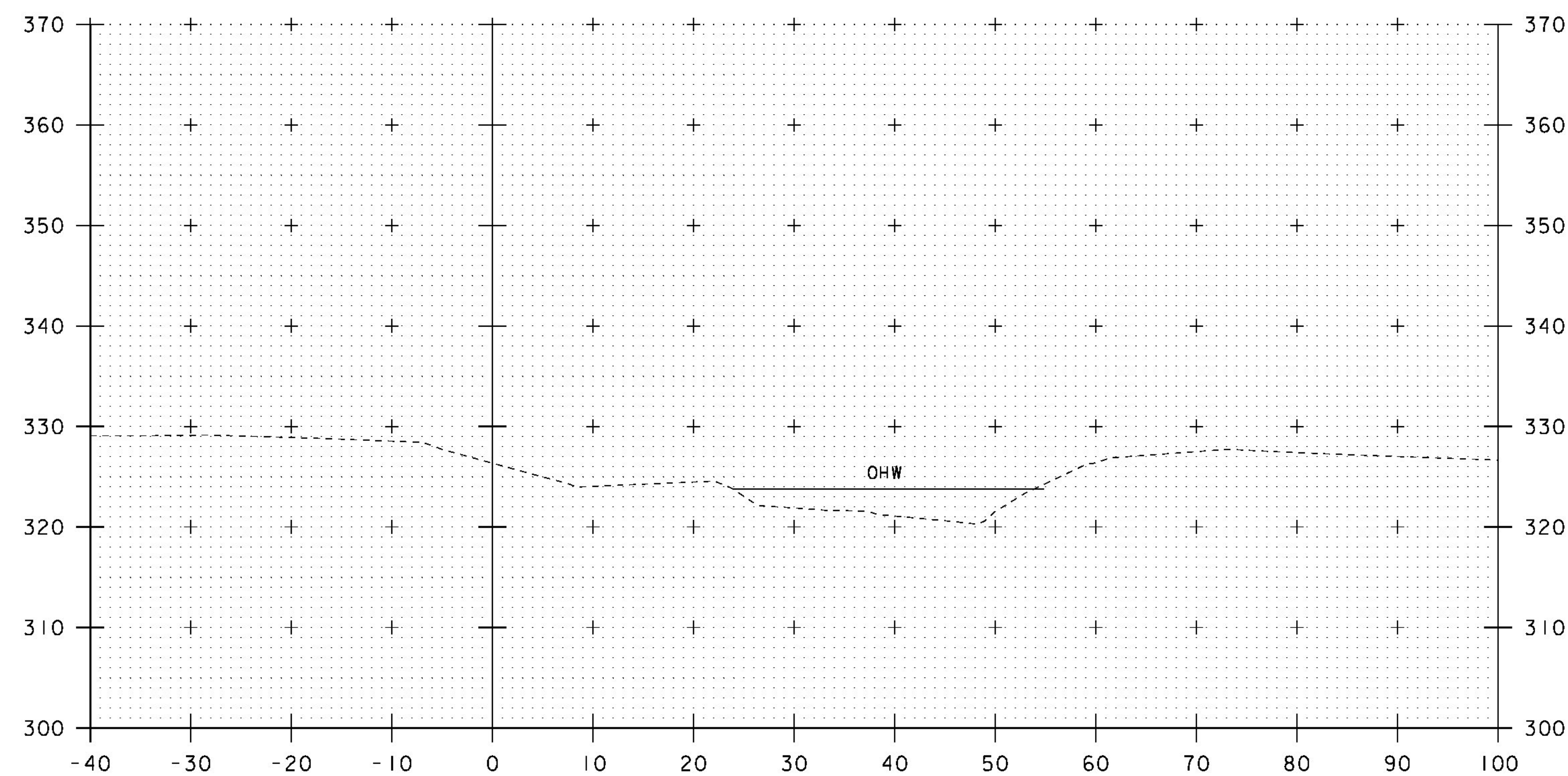
107+75, ASKEW 20° RT

10 0 10  
SCALE: 1" = 10'-0"

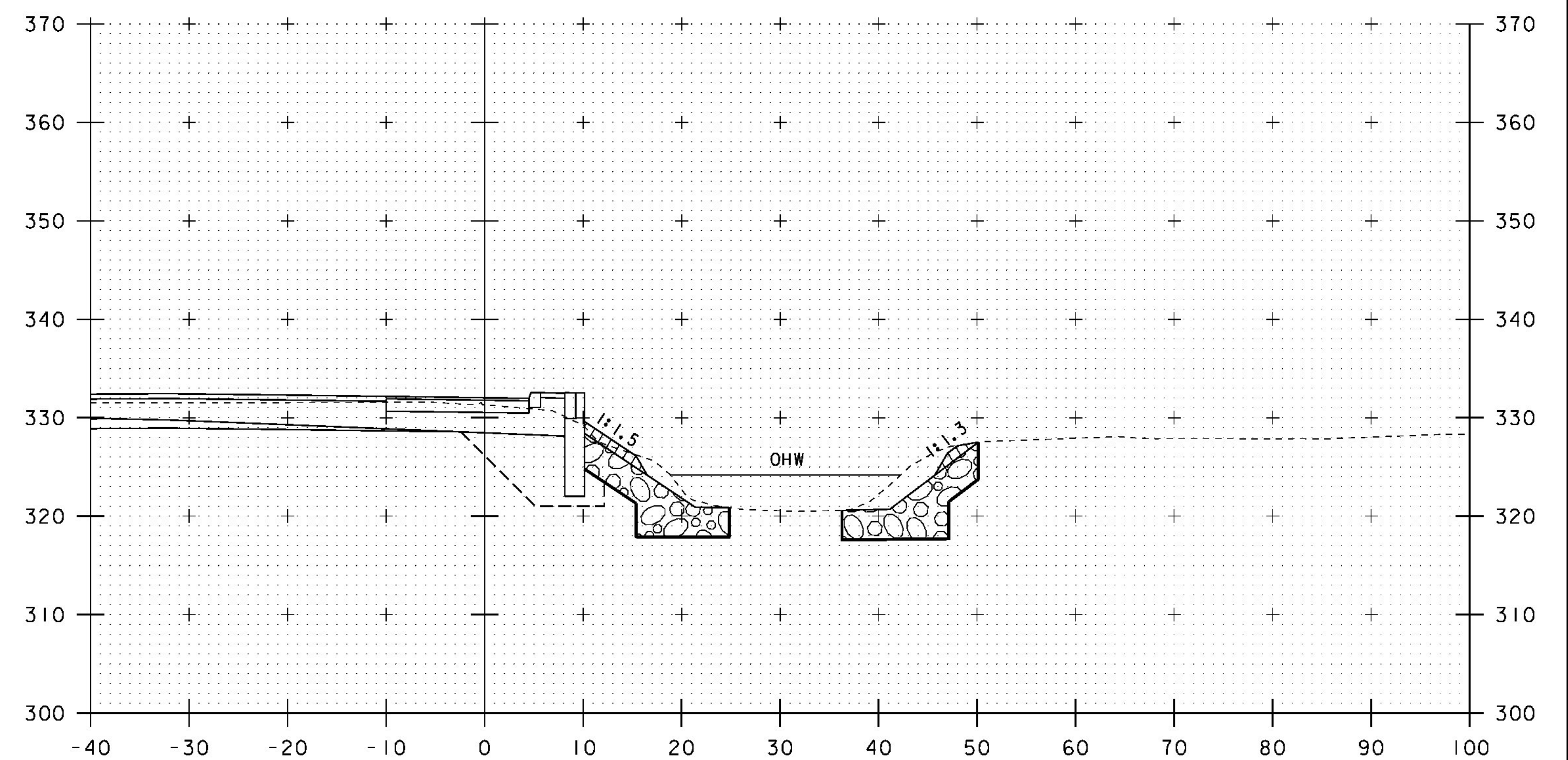
PROJECT NAME: BRISTOL  
PROJECT NUMBER: BRF 021-I (29)

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| FILE NAME: si0b094xsl.dgn  | PLOT DATE: 04-NOV-2014    |
| PROJECT LEADER: C. CARLSON | DRAWN BY: G. ROY          |
| DESIGNED BY: G. ROY        | CHECKED BY: EVANS-MONGEON |
| PIPE PROFILE               | SHEET 42 OF 54            |

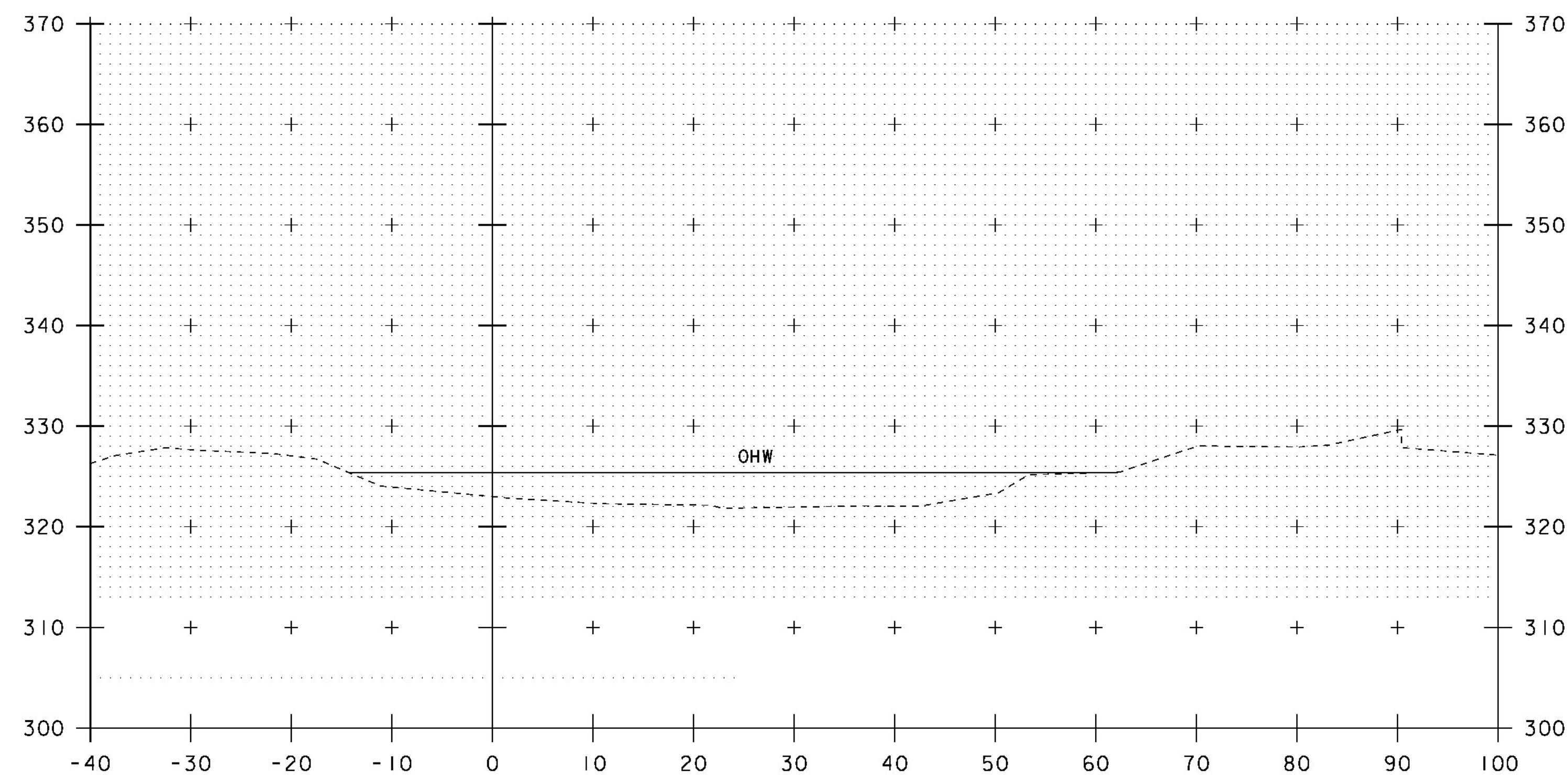




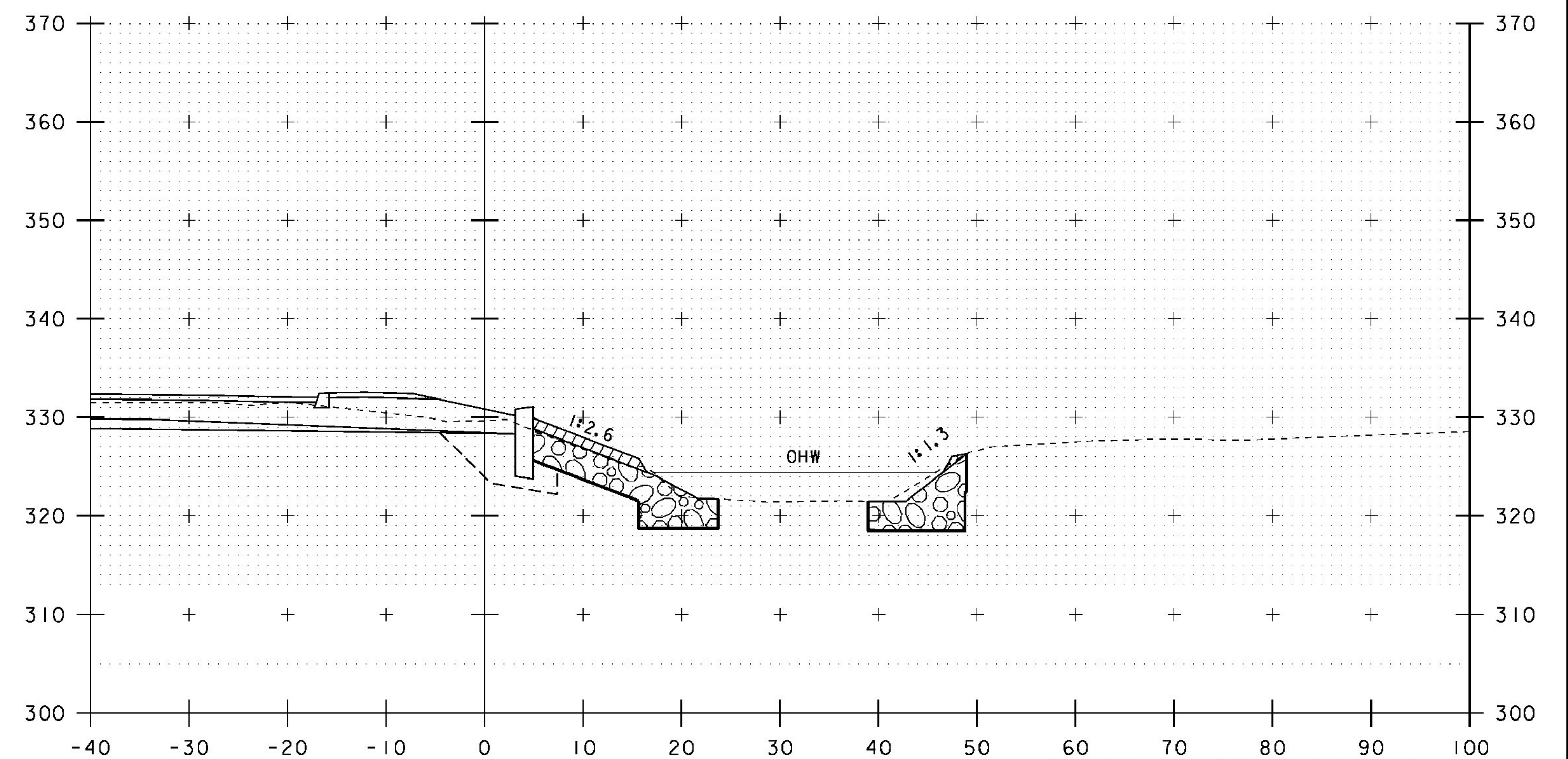
800+25



800+60



800+00



800+50

CHANNEL STA 800+43.4 RT  
BEGIN STRUCTURE EXCAVATION  
GRANULAR BACKFILL FOR STRUCTURES

CHANNEL STA 800+40.0 RT  
BEGIN UNCLASSIFIED CHANNEL EXCAVATION  
GEOTEXTILE UNDER STONE FILL  
STONE FILL, TYPE III  
GRUBBING MATERIAL

10 0 10  
SCALE: 1" = 10'-0"

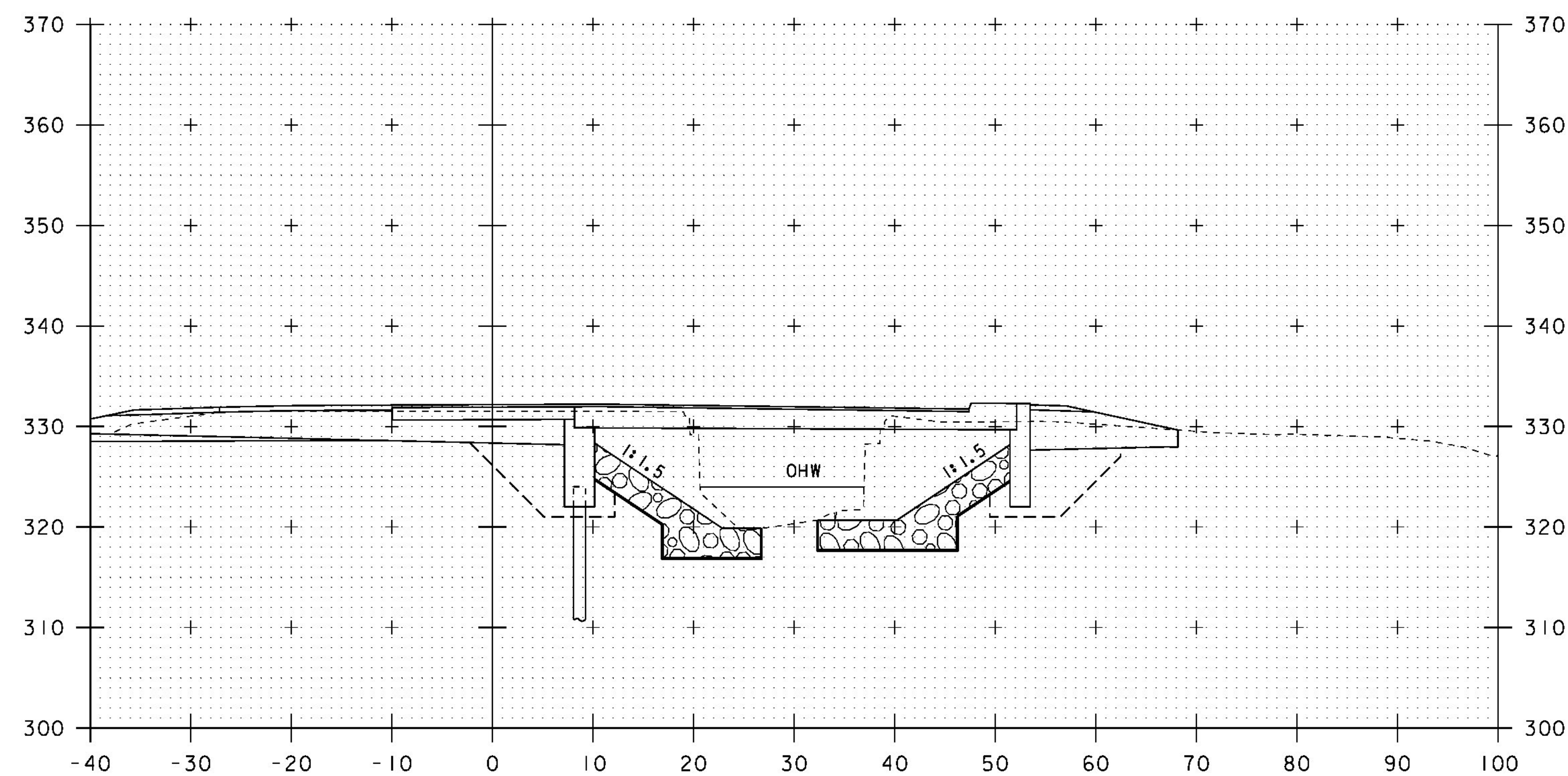
STA. 800+00 TO STA. 800+60

CHANNEL STA 800+35.6 FAR RT  
BEGIN UNCLASSIFIED CHANNEL EXCAVATION  
GEOTEXTILE UNDER STONE FILL  
STONE FILL, TYPE III  
GRUBBING MATERIAL

PROJECT NAME: BRISTOL  
PROJECT NUMBER: BRF 021-I (29)

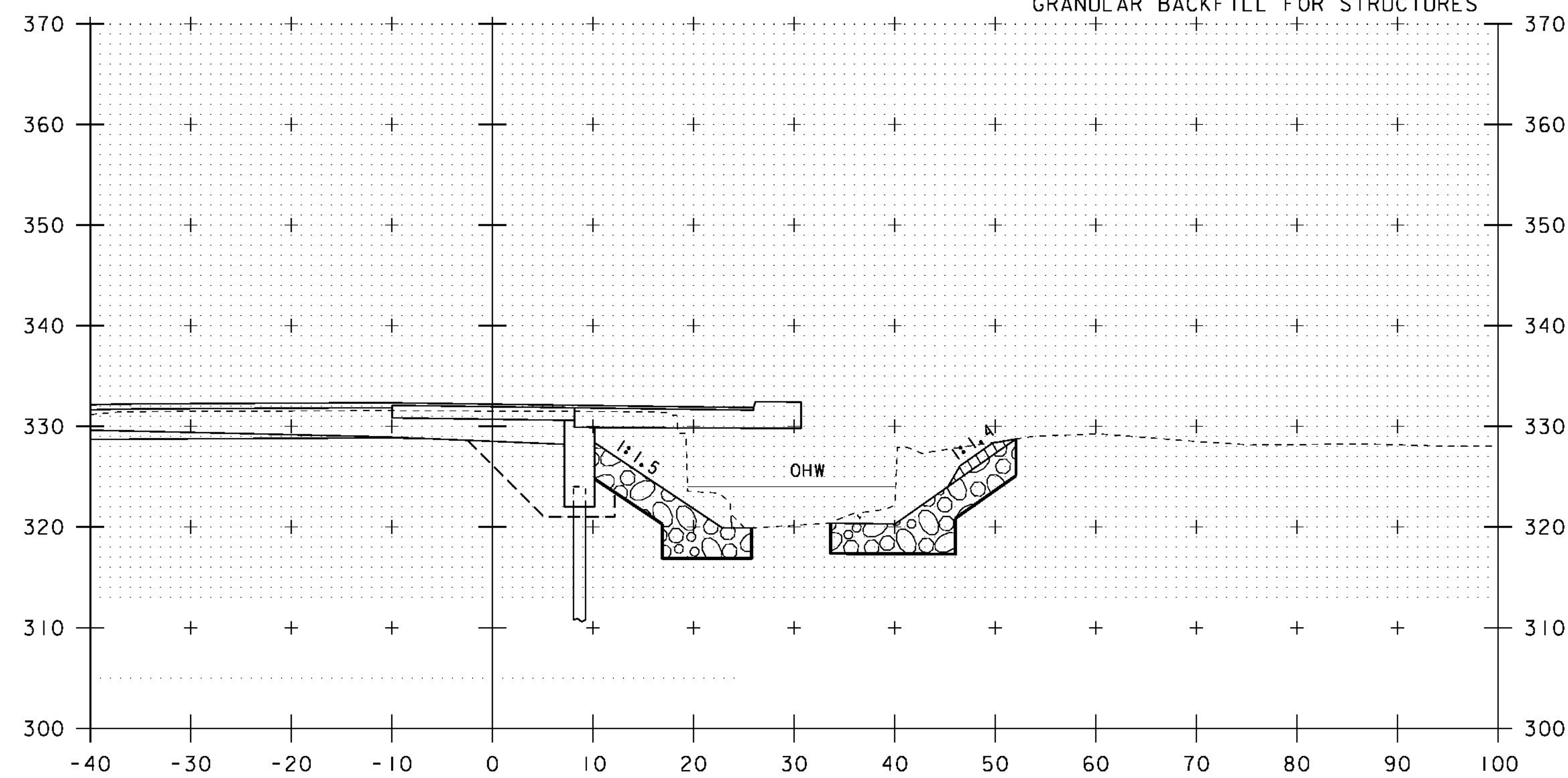
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PROJECT LEADER: C. CARLSON  
DESIGNED BY: G. ROY  
CHANNEL CROSS SECTIONS (1)  
PLOT DATE: 04-NOV-2014  
DRAWN BY: G. ROY  
CHECKED BY: EVANS-MONGEON  
SHEET 43 OF 54





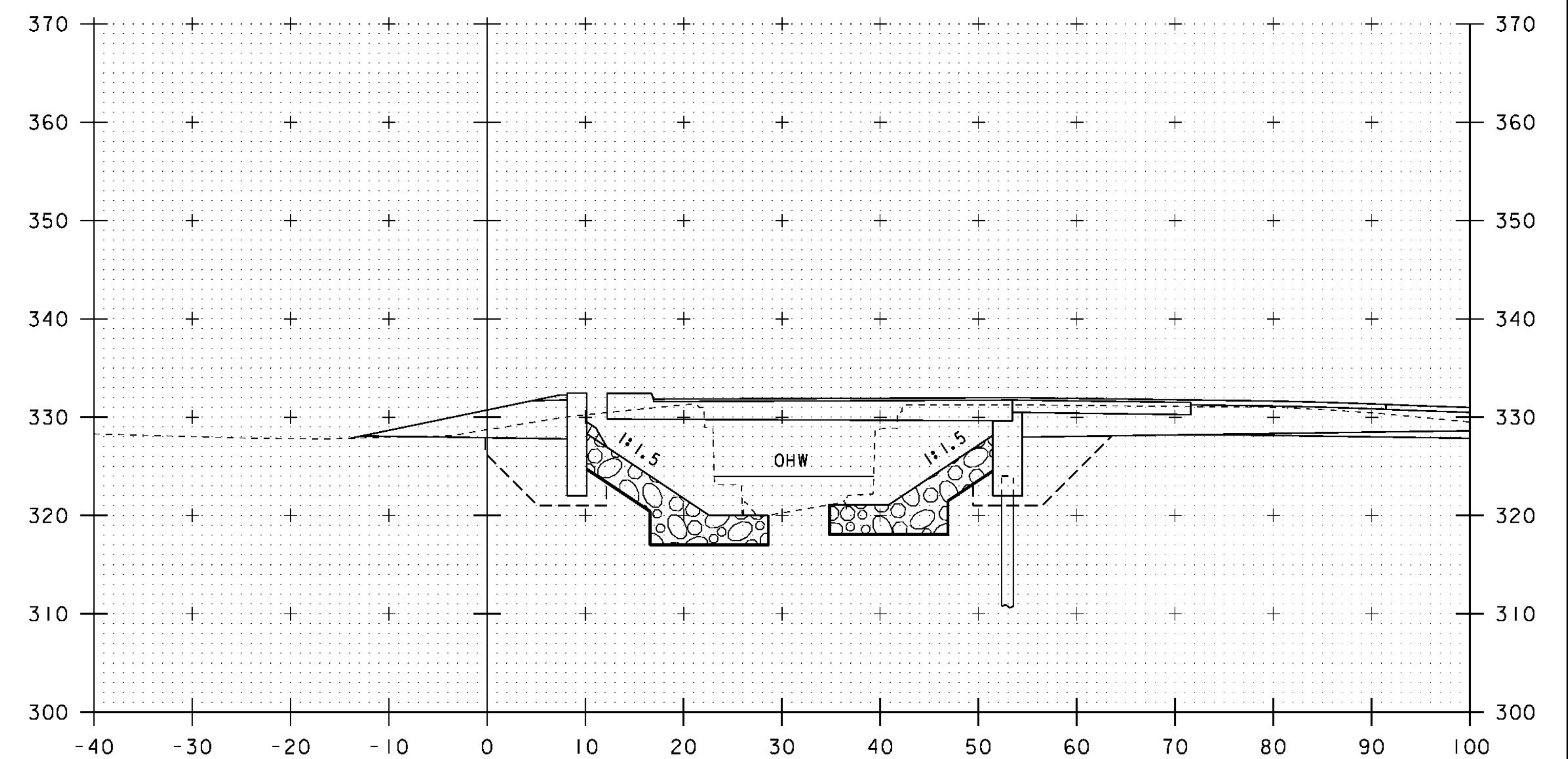
800+80

CHANNEL STA 800+80.0 FAR RT  
END GRUBBING MATERIAL  
CHANNEL STA 800+74.7 FAR RT  
BEGIN STRUCTURE EXCAVATION  
GRANULAR BACKFILL FOR STRUCTURES



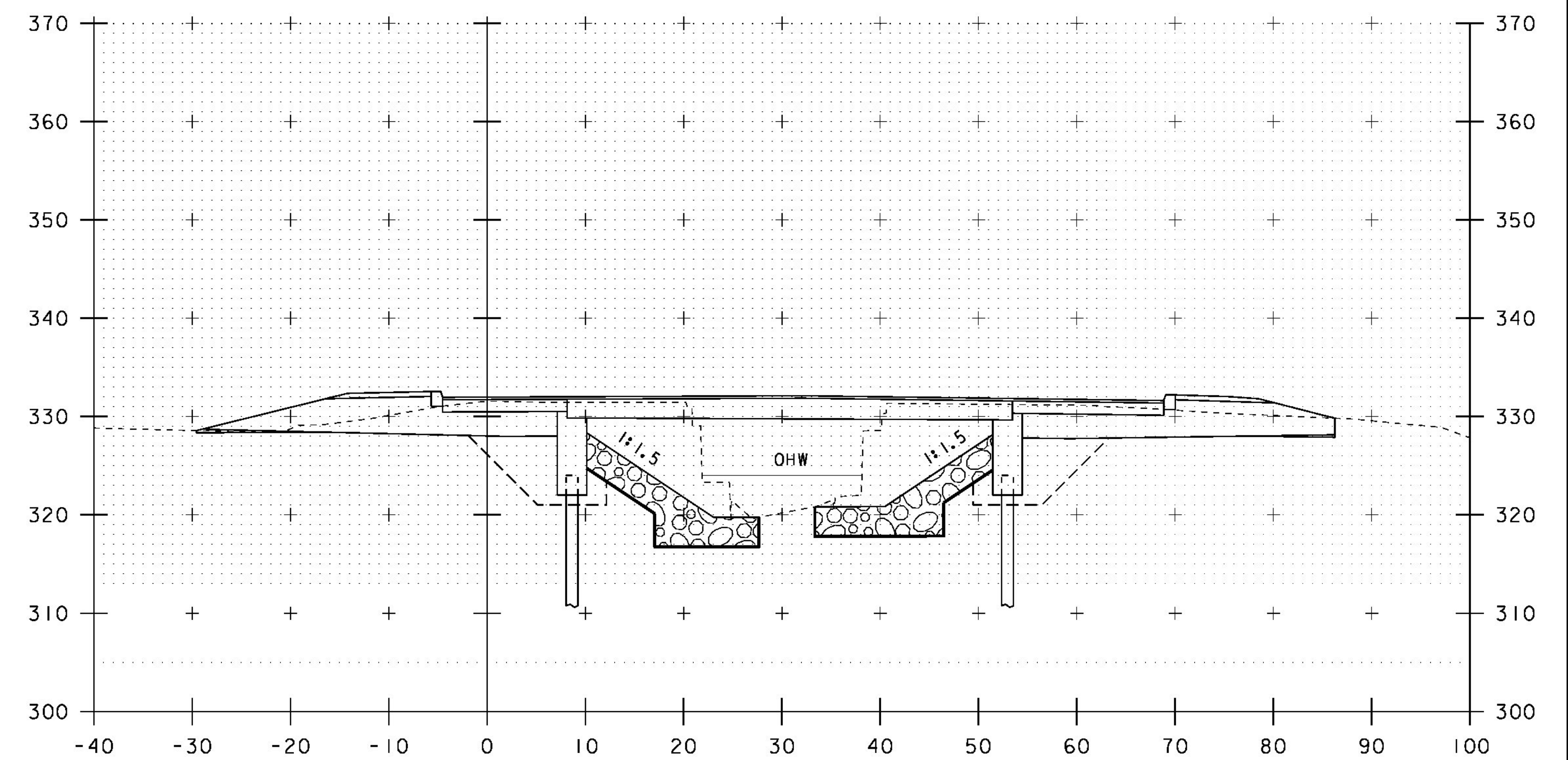
800+70

CHANNEL STA 800+61.0 RT  
END GRUBBING MATERIAL



801+00

CHANNEL STA 800+99.0 RT  
BEGIN GRUBBING MATERIAL



800+90

10 0 10

SCALE: 1" = 10' - 0"

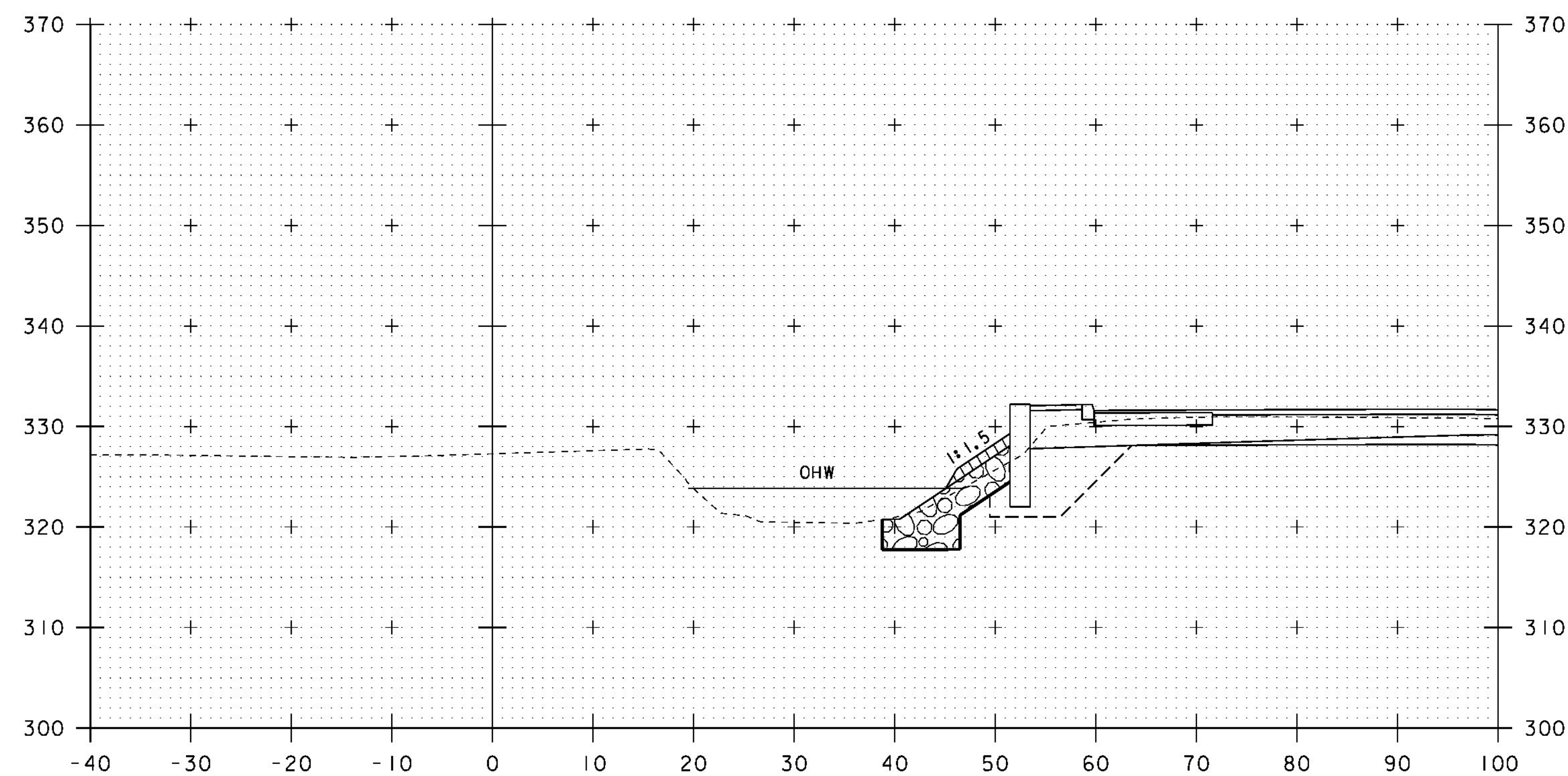
STA. 800+70 TO STA. 801+00

PROJECT NAME: BRISTOL  
PROJECT NUMBER: BRF 021-1 (29)

FILE NAME: si0b094xsl.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: G. ROY  
CHANNEL CROSS SECTIONS (2)

PLOT DATE: 04-NOV-2014  
DRAWN BY: G. ROY  
CHECKED BY: EVANS-MONGEON  
SHEET 44 OF 54

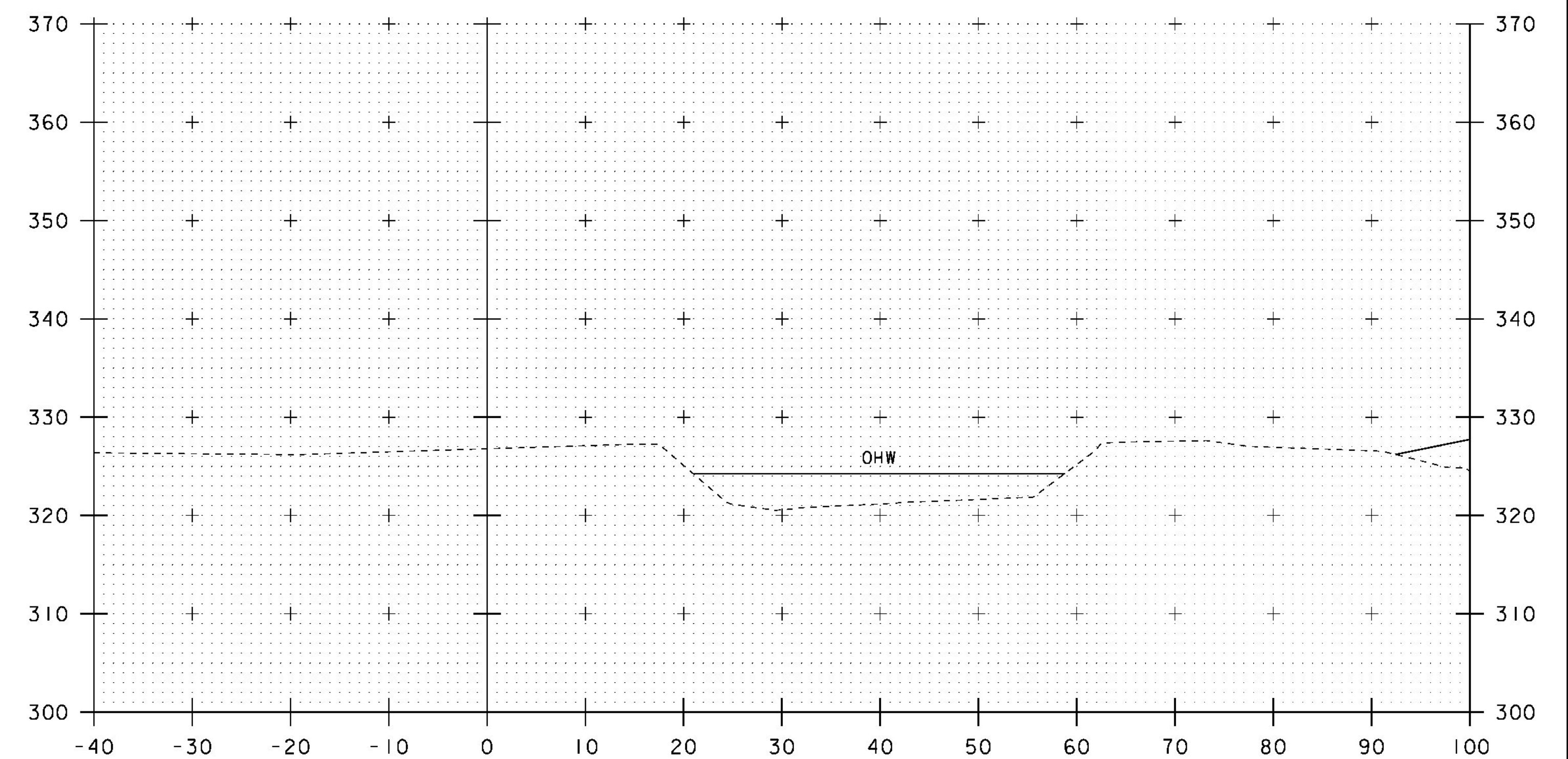




CHANNEL STA 801+15.0 RT  
END UNCLASSIFIED CHANNEL EXCAVATION  
GEOTEXTILE UNDER STONE FILL  
STONE FILL, TYPE III  
GRUBBING MATERIAL

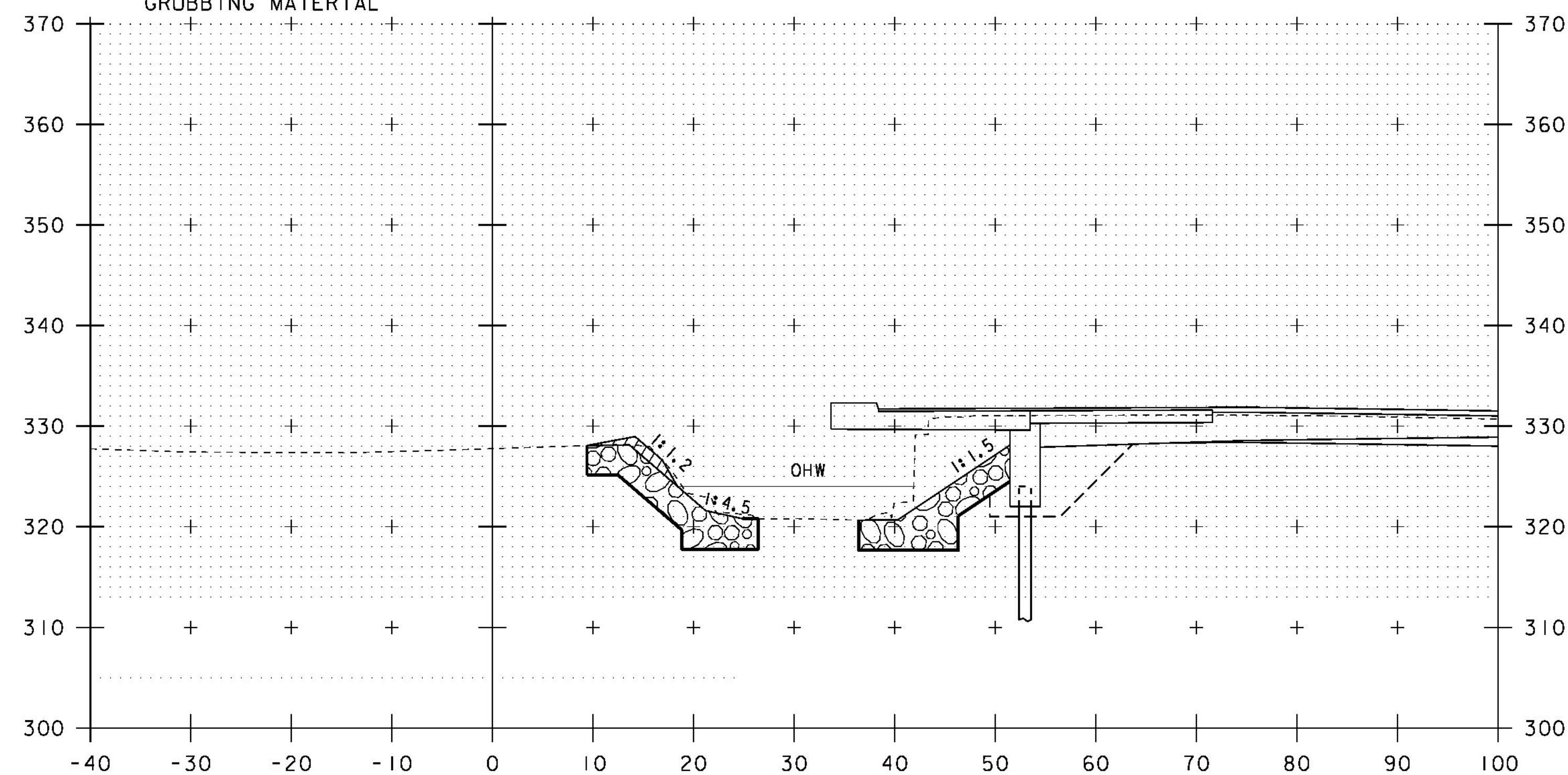
801+20

CHANNEL STA 801+18.0 FAR RT  
BEGIN GRUBBING MATERIAL



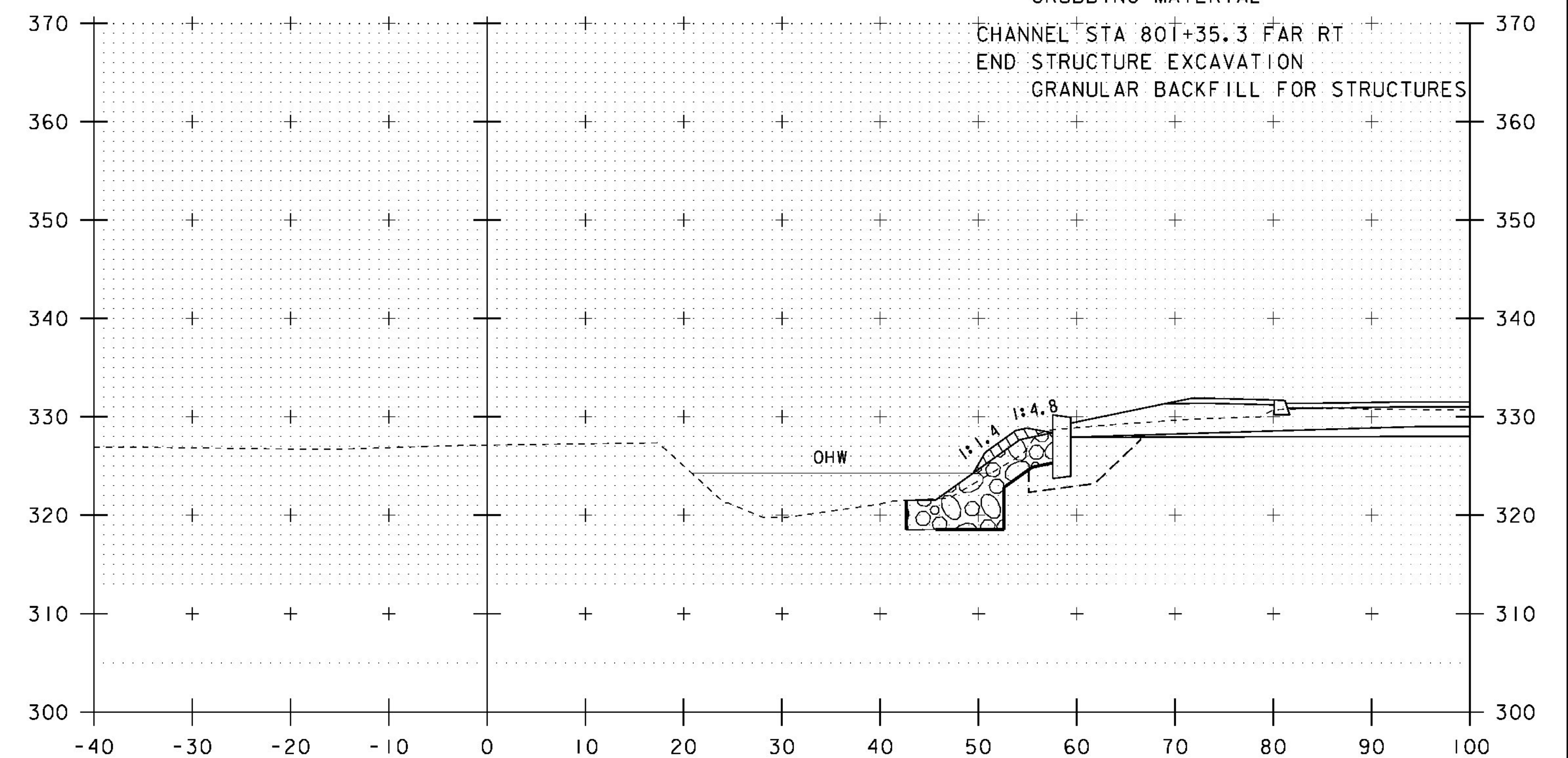
CHANNEL STA 801+42.0 FAR RT  
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GEOTEXTILE UNDER STONE FILL  
STONE FILL, TYPE III  
GRUBBING MATERIAL

801+50



CHANNEL STA 801+04.0 RT  
END STRUCTURE EXCAVATION  
GRANULAR BACKFILL FOR STRUCTURES

801+10



CHANNEL STA 801+35.3 FAR RT  
END STRUCTURE EXCAVATION  
GRANULAR BACKFILL FOR STRUCTURES

801+30

10 0 10  
SCALE: 1" = 10'-0"

STA. 801+10 TO STA. 801+50

PROJECT NAME: BRISTOL  
PROJECT NUMBER: BRF 021-1(29)

FILE NAME: si0b094xsl.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: G. ROY  
CHANNEL CROSS SECTIONS (3)

PLOT DATE: 04-NOV-2014  
DRAWN BY: G. ROY  
CHECKED BY: EVANS-MONGEON  
SHEET 45 OF 54



BRISTOL BRIDGE 6: ESPC PLAN “LOW RISK” NARRATIVE

1.1 PROJECT DESCRIPTION

BRISTOL BRF 021-1(29) CONSISTS OF THE REPLACEMENT OF BRIDGE 6 ON VT ROUTE 116 OVER THE LITTLE NOTCH CREEK, IN THE TOWN OF BRISTOL IN ADDISON COUNTY, VERMONT. A NEW PRECAST CONCRETE BRIDGE #6 (APPROX. 50 FT SPAN) WILL BE CONSTRUCTED ON NEW ABUTMENTS ON THE EXISTING HORIZONTAL ALIGNMENT. ACCELERATED BRIDGE CONSTRUCTION IS PLANNED FOR THIS BRIDGE; NO DETOUR BRIDGE IS PLANNED.

TOTAL AREA OF DISTURBANCE FOR THE BRIDGE #6 AREA IS 0.70 ACRES. THIS INCLUDES THE LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT AREA, AS WELL AS WASTE, BORROW AND STAGING AREAS, AND OTHER EARTH DISTURBING ACTIVITIES WITHIN OR DIRECTLY ADJACENT TO THE PROJECT LIMITS, AS SHOWN ON THE ATTACHED EPSC PLAN. IT IS ANTICIPATED THAT THIS PROJECT WILL LAST ONE CONSTRUCTION SEASON.

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY

THE LAND ADJOINING THE BRIDGE #6 PROJECT SITE CONSISTS OF RELATIVELY FLAT AGRICULTURAL LAND TO THE SOUTH WEST AND THE LITTLE NOTCH CREEK AND WETLANDS TO THE NORTH AND EAST.

1.2.2 DRAINAGE, WATERWAYS, BODIES OF WATER, AND PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES

BRIDGE 6 SPANS OVER THE LITTLE NOTCH CREEK. THERE ARE WETLANDS TO THE NORTH AND EAST OF THE BRIDGE, WHICH ARE WELL ESTABLISHED WITH SMALL TREES, HIGH GRASSES AND HEAVY BRUSH. NO HOUSES OR OTHER BUILDINGS ARE WITHIN THE PROJECT LIMITS. LITTLE NOTCH CREEK FLOWS INTO THE NEW HAVEN RIVER, APPROX. 220 FT DOWNSTREAM FROM THE PROJECT SITE.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF A COMBINATION OF GRASS/HAY, LIGHT WOODS, BRUSH, UNDERGROWTH, AND WETLANDS. STONE FILL COVERED WITH GRUBBING MATERIAL WILL STABILIZE STEEPER (CHANNEL) SLOPES . SEED AND MULCH (OR BIODEGRADABLE EROSION MATTING WHERE SPECIFIED) WILL STABILIZE FLATTER SLOPES. UPON PROJECT COMPLETION, THE CHANNEL WILL BE ARMORED WITH STONE FILL TYPE III AS SPECIFIED ON THE PLANS. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES.

1.2.4 SOILS

THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR ADDISON COUNTY, VERMONT IS THE SOURCE OF THE SOILS INFORMATION.  
THERE ARE 3 TYPES OF SOILS EXPECTED ON THIS PHASE OF THE PROJECT:  
1. WINOOSKI VERY FINE SANDY LOAM, 2. COBBLY ALLUVIAL LAND, 3. HADLEY VERY FINE SANDY LOAM, FREQUENTLY FLOODED. THE TWO LOAMS ARE CONSIDERED HIGHLY ERODIBLE (K=0.49).

NOTE: K-VALUES GENERALLY INDICATE THE FOLLOWING: 0.00-0.17 = LOW EROSION POTENTIAL  
0.18-0.36 = MODERATE EROSION POTENTIAL  
0.37 AND HIGHER = HIGH EROSION POTENTIAL

1.2.5 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: NO  
HISTORICAL OR ARCHEOLOGICAL AREAS: YES, ADJOINS ARCHEOLOGICAL AREA IN PLOWED FIELD, (WEST OF STA.106+00)  
  
PRIME AGRICULTURAL LAND: NO  
THREATENED AND ENDANGERED SPECIES: NO  
WATER RESOURCE: LITTLE NOTCH CREEK, A TRIBUTARY OF THE NEW HAVEN RIVER  
WETLANDS: YES, CLASS II

1.3 RISK EVALUATION

THIS PROJECT FALLS UNDER THE JURISDICTION OF GENERAL PERMIT 3-9020(AMENDED 2008) FOR STORMWATER RUNOFF FROM CONSTRUCTION SITES FOR LOW RISK PROJECTS ANY MODIFICATIONS TO THE PROJECT THAT INCREASES THE RISK TO ENVIRONMENTAL RESOURCES SHALL BE RE-EVALUATED IN ACCORDANCE WITH THE PERMIT REQUIREMENTS. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY ADDITIONAL PERMITTING.

THIS WORK MAY BE CONSIDERED PART OF A LARGER COMMON PLAN OF DEVELOPMENT. BRISTOL F 021-1(15) REPLACES BRIDGES 7 AND 8 (JUST TO THE NORTH OF BRIDGE 6), IS A MODERATE RISK PROJECT WITH AN OVERALL RISK SCORE OF 2, WHICH WOULD NOT BE INCREASED BY THE ADDITION OF THE BRIDGE 6 WORK. NOTE: THE TWO PROJECTS HAVE A COMBINED INDIVIDUAL STORMWATER DISCHARGE PERMIT #5221-INDS.

1.4 EROSION PREVENTION AND SEDIMENT CONTROL (EPSC)

THE EROSION CONTROL PLANS ARE MEANT AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. THE PRINCIPLES OUTLINED IN THIS NARRATIVE CONSIST OF APPLYING MEASURES THROUGHOUT CONSTRUCTION OF THE PROJECT IN ORDER TO MINIMIZE SEDIMENT TRANSPORT TO THE RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORM WATER CONTROLS AND OTHER POLLUTION PREVENTION PRACTICES. THEY HAVE BEEN PROPOSED BY THE DESIGNER AS A BASIS FOR PROTECTING RESOURCES AND WILL NEED TO BE BUILT UPON BASED ON THE SPECIFIC MEANS AND METHODS OF THE CONTRACTOR. REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR SPECIFIC GUIDANCE AND CONSTRUCTION DETAILING.

ALL MEASURES SHALL BE REGULARLY MAINTAINED AND SHALL BE CHECKED FOR SEDIMENT BUILD-UP. SEDIMENT SHALL BE DISPOSED OF AT AN APPROVED SITE WHERE IT WILL NOT BE SUBJECT TO EROSION.

1.4.1 MARK SITE BOUNDARIES

SITE BOUNDARIES AND AREAS THAT CAN BE ACCESSED BY CONSTRUCTION EQUIPMENT SHALL BE DELINEATED.  
PROJECT DEMARCATION FENCING , DENOTED -PDF- ON THE PLANS, SHALL BE USED TO PHYSICALLY MARK SITE BOUNDARIES. BECAUSE THIS PROJECT FALLS UNDER CGP3-9020, BARRIER FENCE, DENOTED -BF- ON THE PLANS, SHALL BE USED INSTEAD OF PROJECT DEMARCATION FENCE WITHIN 100 FT OF A WATER RESOURCE (STREAM, BROOK, LAKE, POND, WETLAND, ETC) AND AT AREAS IDENTIFIED AS ARCHEOLOGICALLY SENSITIVE.

1.4.2 LIMIT DISTURBANCE AREA

PREVENTING INITIAL SOIL EROSION IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. EARTH DISTURBANCE CAN BE MINIMIZED THROUGH CONSTRUCTION PHASING, BY ONLY OPENING UP EARTH AS NECESSARY.THIS CAN LIMIT THE AREA THAT WILL BE DISTURBED AND EXPOSED TO EROSION. EMPLOY TEMPORARY CONSTRUCTION STABILIZATION PRACTICES IN INCREMENTAL STAGES (PHASING) AS CONSTRUCTION PROCEEDS. ADDITIONAL MEASURES MAY BE NEEDED DUE TO THE PHASING OF THE PROJECT AND AS DIRECTED BY THE ENGINEER.

MAINTAINING VEGETATED BUFFERS ALONG STREAM BANKS, WETLANDS AND OTHER SENSITIVE AREAS IS A CRUCIAL EROSION CONTROL MEASURE THAT SHALL BE ESTABLISHED WHEREVER POSSIBLE.

1.4.3 SITE ENTRANCE/ EXIT STABILIZATION

TRACKING OF SEDIMENT ONTO PUBLIC HIGHWAYS SHALL BE MINIMIZED TO REDUCE THE POTENTIAL FOR RUNOFF ENTERING RECEIVING WATERS. INSTALLATION SHALL COINCIDE WITH THE CONTRACTOR'S PROGRESS SCHEDULE.

1.4.4 INSTALL SEDIMENT BARRIERS

SEDIMENT BARRIERS SHALL BE UTILIZED TO INTERCEPT RUNOFF AND ALLOW SUSPENDED SEDIMENT TO SETTLE OUT. THEY SHALL BE INSTALLED PRIOR TO ANY UP SLOPE WORK.

INSTALL SILT FENCE AS PROPOSED ON THE EPSC PLAN, ACCORDING TO DETAIL PROVIDED. BECAUSE THIS PROJECT FALLS UNDER CGP-3-9020, WOVEN WIRE REINFORCED SILT FENCE SHALL BE USED INSTEAD OF SILT FENCE WITHIN 100 FEET UPSLOPE OF RECEIVING WATERS.

1.4.5 DIVERT UPLAND RUNOFF WITH SWALES

THE PROJECT SITE IS RELATIVELY FLAT SO CONSTRUCTION OF DIVERSIONARY SWALES IS NOT ANTICIPATED.

1.4.6 SLOW DOWN CHANNELIZED RUNOFF

THE PROJECT SITE IS RELATIVELY FLAT SO CONSTRUCTION OF STONE CHECK DAMS IS NOT ANTICIPATED.

1.4.7 CONSTRUCT PERMANENT CONTROLS

PERMANENT STORMWATER TREATMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH PERMIT CONDITIONS.  
PRIMARY PERMANENT CONTROLS ARE AS FOLLOWS:  
1. PEA GRAVEL DIAPHRAGMS (ALONG THE EDGE OF ROADWAY) FOR PRE-TREATMENT OF RUNOFF  
2. NON-ROOFTOP DISCONNECTION - FROM STORMWATER PERMIT SITE BALANCING  
3. STONE FILL, TYPE III FOR CHANNEL PROTECTION  
4. GRUBBING MATERIAL OVER STONE FILL

1.4.8 STABILIZE EXPOSED SOILS DURING CONSTRUCTION

ALL AREAS OF DISTURBANCE MUST HAVE TEMPORARY STABILIZATION IN PLACE WITHIN 48 HOURS OF DISTURBANCE OR IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT 3-9020 AUTHORIZATION.

SURFACE ROUGHENING OF ALL EXPOSED SLOPES, COMBINED WITH TEMPORARY MULCHING, SHALL BE UTILIZED ON A REGULAR BASIS. BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1:3. THE FORECAST OF RAINFALL SHALL TRIGGER IMMEDIATE PROTECTION OF EXPOSED SOILS.

1.4.9 WINTER STABILIZATION

ALTHOUGH WINTER WORK IS NOT PLANNED, VARIOUS MEASURES SPECIFIC TO WINTER CONSTRUCTION MAY BE NECESSARY SHOULD THE PROJECT WORK EXTEND INTO WINTER (OCT. 15 - APRIL 15). REFER TO THE LOW RISK SITE HANDBOOK FOR GUIDANCE.

1.4.10 STABILIZE SOIL AT FINAL GRADE

EXPOSED SOIL MUST BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE, OR SOONER IF RAIN IS FORECAST. SEED, MULCH, FERTILIZER AND LIME SHALL BE USED TO ESTABLISH PERMANENT VEGETATION. FOR SLOPES STEEPER THAN 1:3, BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED INSTEAD OF MULCH.

1.4.11 DE-WATERING ACTIVITIES

DISCHARGE FROM DEWATERING ACTIVITIES THAT FLOWS OFF OF THE CONSTRUCTION SITE MUST NOT CAUSE OR CONTRIBUTE TO A VIOLATION OF VERMONT WATER QUALITY STANDARDS.

1.4.12 INSPECT YOUR SITE

INSPECT THE PROJECT SITE BASED ON SPECIAL PROVISION REQUIREMENTS OR CONSTRUCTION GENERAL PERMIT AUTHORIZATION STIPULATIONS.

1.5 SEQUENCE AND STAGING

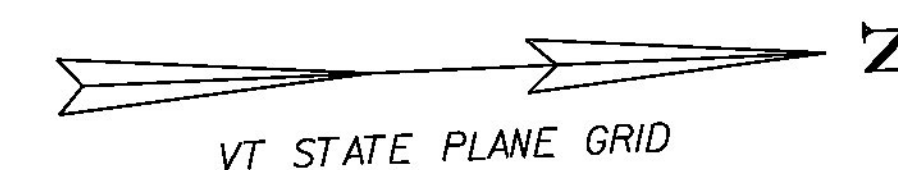
THE CONTRACTOR SHALL DEVELOP A SEQUENCE AND STAGING PLAN USING THE GUIDANCE OUTLINED IN THE VTRANS EPSC PLAN CONTRACTOR CHECKLIST.

1.5.2 OFF-SITE ACTIVITIES

IN ADDITION TO THE CONTRACTOR CHECKLIST ANY ACTIVITIES OUTSIDE THE CONSTRUCTION LIMITS SHALL FOLLOW SUBSECTIONS 105.25- 105.29 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

|                                |                           |
|--------------------------------|---------------------------|
| PROJECT NAME: BRISTOL          |                           |
| PROJECT NUMBER: BRF 021-I (29) |                           |
| FILE NAME: si0b094epsc_nar.dgn | PLOT DATE: 01-DEC-2014    |
| PROJECT LEADER: C. CARLSON     | DRAWN BY: G. ROKES        |
| DESIGNED BY: M. EVANS-MONGEON  | CHECKED BY: EVANS-MONGEON |
| EPSC NARRATIVE                 | SHEET 46 OF 54            |





SOIL INFORMATION  
WINOOSKI VERY FINE SANDY LOAM (WO)  
HYDROGROUP TYPE B  
MODERATELY WELL DRAINED  
ERODIBILITY HIGH

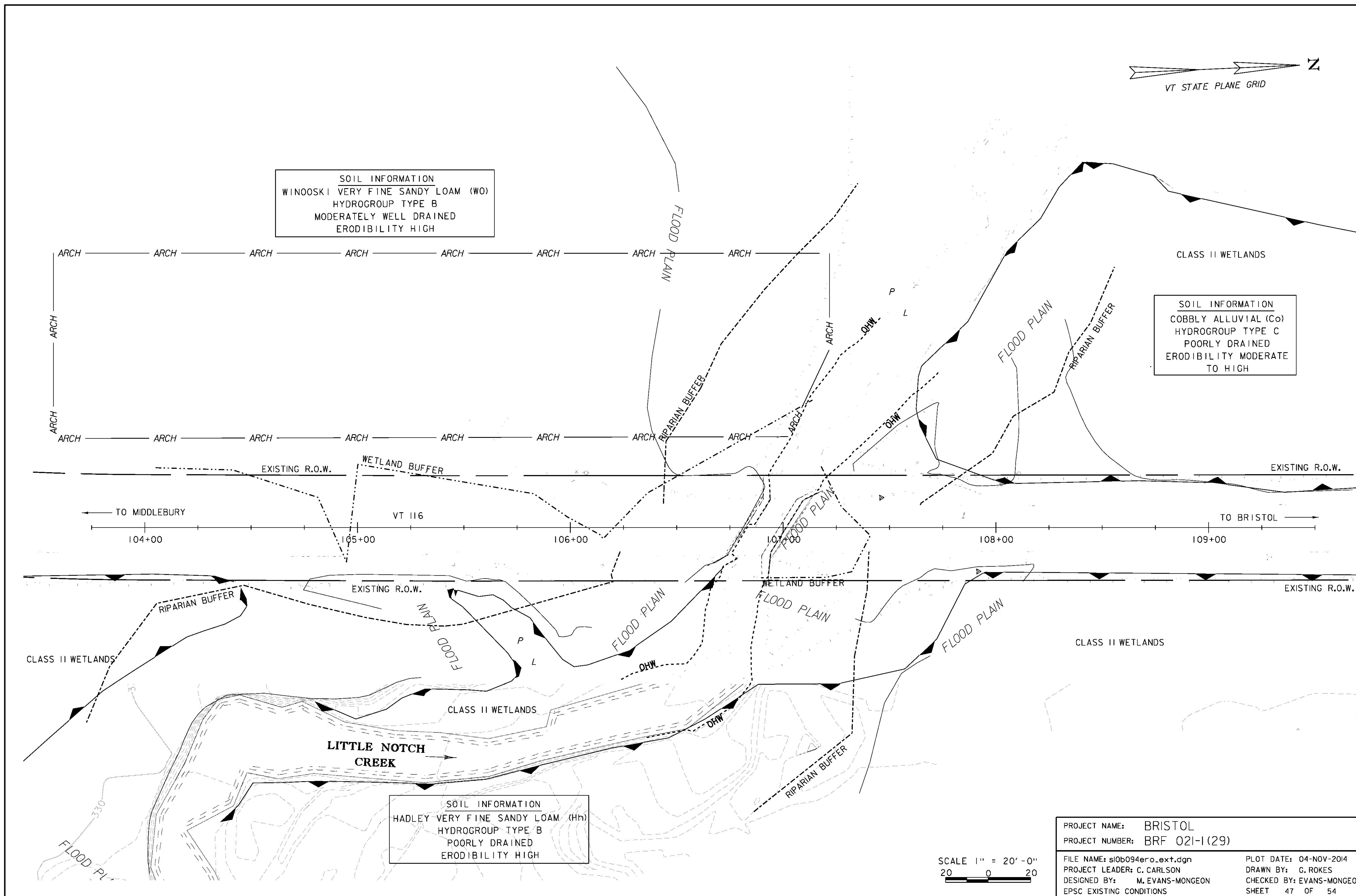
SOIL INFORMATION  
COBBLY ALLUVIAL (Co)  
HYDROGROUP TYPE C  
POORLY DRAINED  
ERODIBILITY MODERATE  
TO HIGH

SOIL INFORMATION  
HADLEY VERY FINE SANDY LOAM (Hh)  
HYDROGROUP TYPE B  
POORLY DRAINED  
ERODIBILITY HIGH

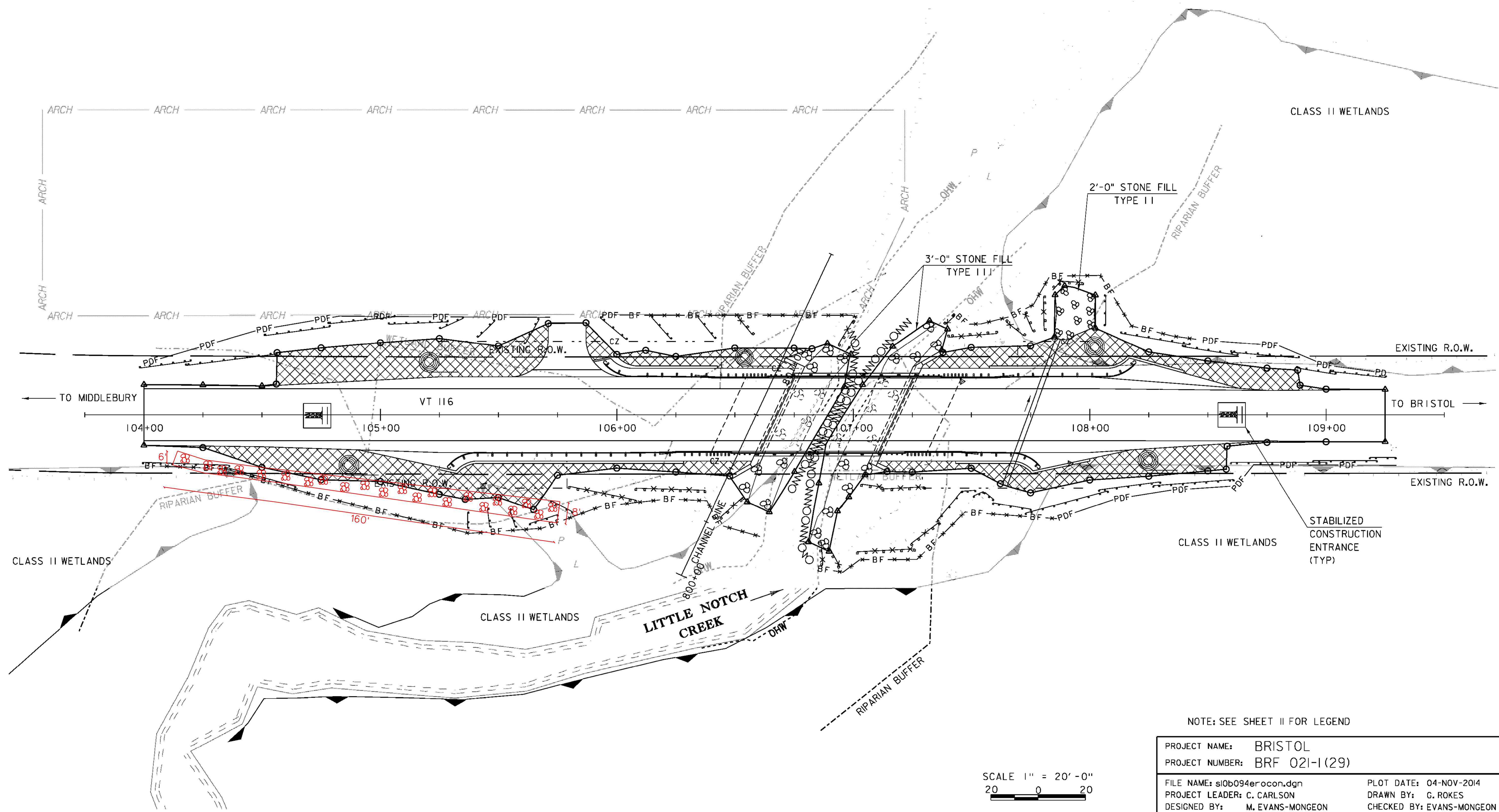
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PROJECT NUMBER: BRF 021-1(29)

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| FILE NAME: si0b094ero.ext.dgn | PLOT DATE: 04-NOV-2014    |
| PROJECT LEADER: C. CARLSON    | DRAWN BY: G. ROKES        |
| DESIGNED BY: M. EVANS-MONGEON | CHECKED BY: EVANS-MONGEON |
| EPSC EXISTING CONDITIONS      | SHEET 47 OF 54            |

SCALE 1" = 20'-0"  
20 0 20

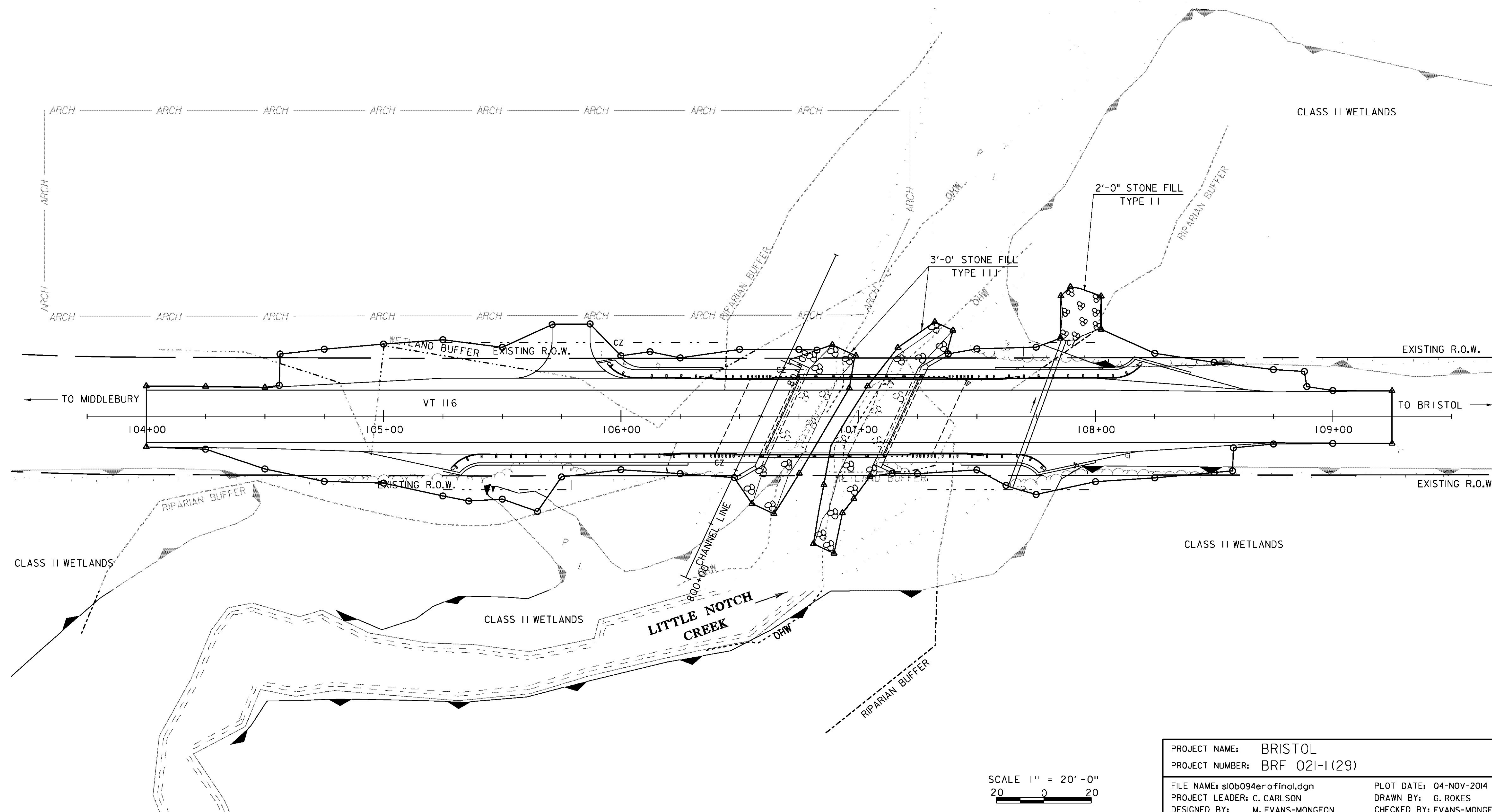
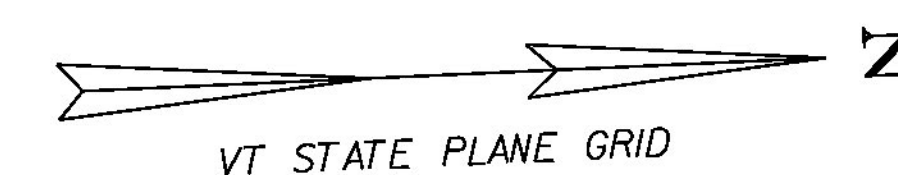






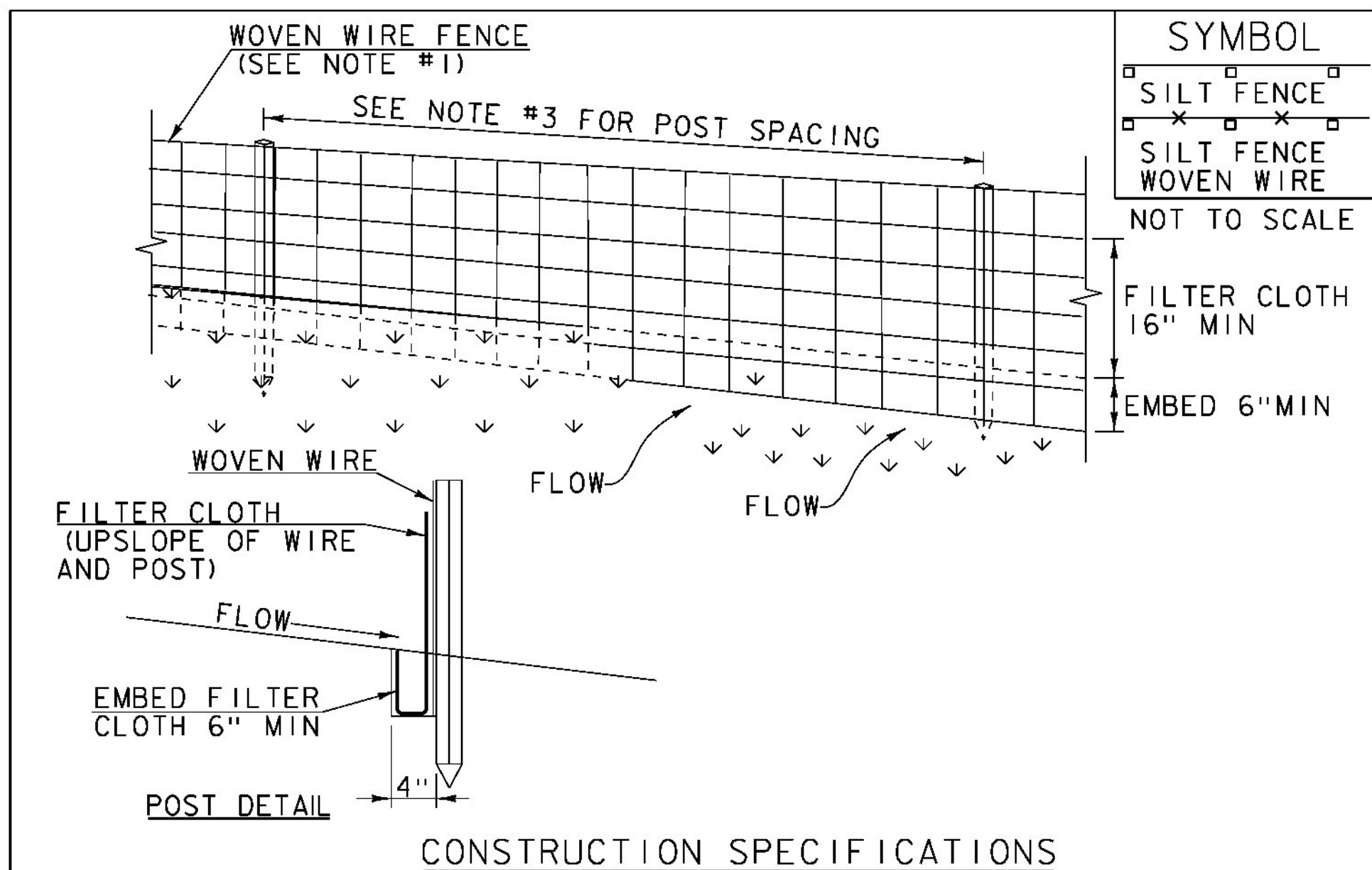
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| PROJECT LEADER:              | C. CARLSON        | DRAWN BY:   | G. ROKES      |
| DESIGNED BY:                 | M. EVANS-MONGEON  | CHECKED BY: | EVANS-MONGEON |
| EPSC CONSTRUCTION CONDITIONS |                   | SHEET       | 48 OF 54      |





|                                |                           |
|--------------------------------|---------------------------|
| PROJECT NAME: BRISTOL          |                           |
| PROJECT NUMBER: BRF 021-I (29) |                           |
| FILE NAME: si0b094e.rvt        | PLOT DATE: 04-NOV-2014    |
| PROJECT LEADER: C. CARLSON     | DRAWN BY: G. ROKES        |
| DESIGNED BY: M. EVANS-MONGEON  | CHECKED BY: EVANS-MONGEON |
| EPSC FINAL CONDITIONS          | SHEET 49 OF 54            |





1. WOVEN WIRE REINFORCED FENCE IS REQUIRED WITHIN 100' UPSLOPE OF RECEIVING WATERS WHEN THE PROJECT FALLS UNDER A CONSTRUCTION STORMWATER PERMIT. WOVEN WIRE SHALL BE A MIN. 14 GAUGE WITH A 6" MAX. MESH OPENING.
2. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFIL100X, STABILINKA T140N OR APPROVED EQUIVALENT.
3. POST SPACING FOR WIRE-BACKED FENCE SHALL BE 10' MAXIMUM. FOR FILTER-CLOTH FENCE, WHEN ELONGATION IS >50%, POST SPACING SHALL NOT EXCEED 4' AND WHEN ELONGATION IS <50%, POST SPACING SHALL NOT EXCEED 6'.
4. WOVEN WIRE FENCE IS TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES. FILTER CLOTH IS TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY 6" AND FOLDED.
6. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN SEDIMENT REACHES HALF OF FABRIC HEIGHT.

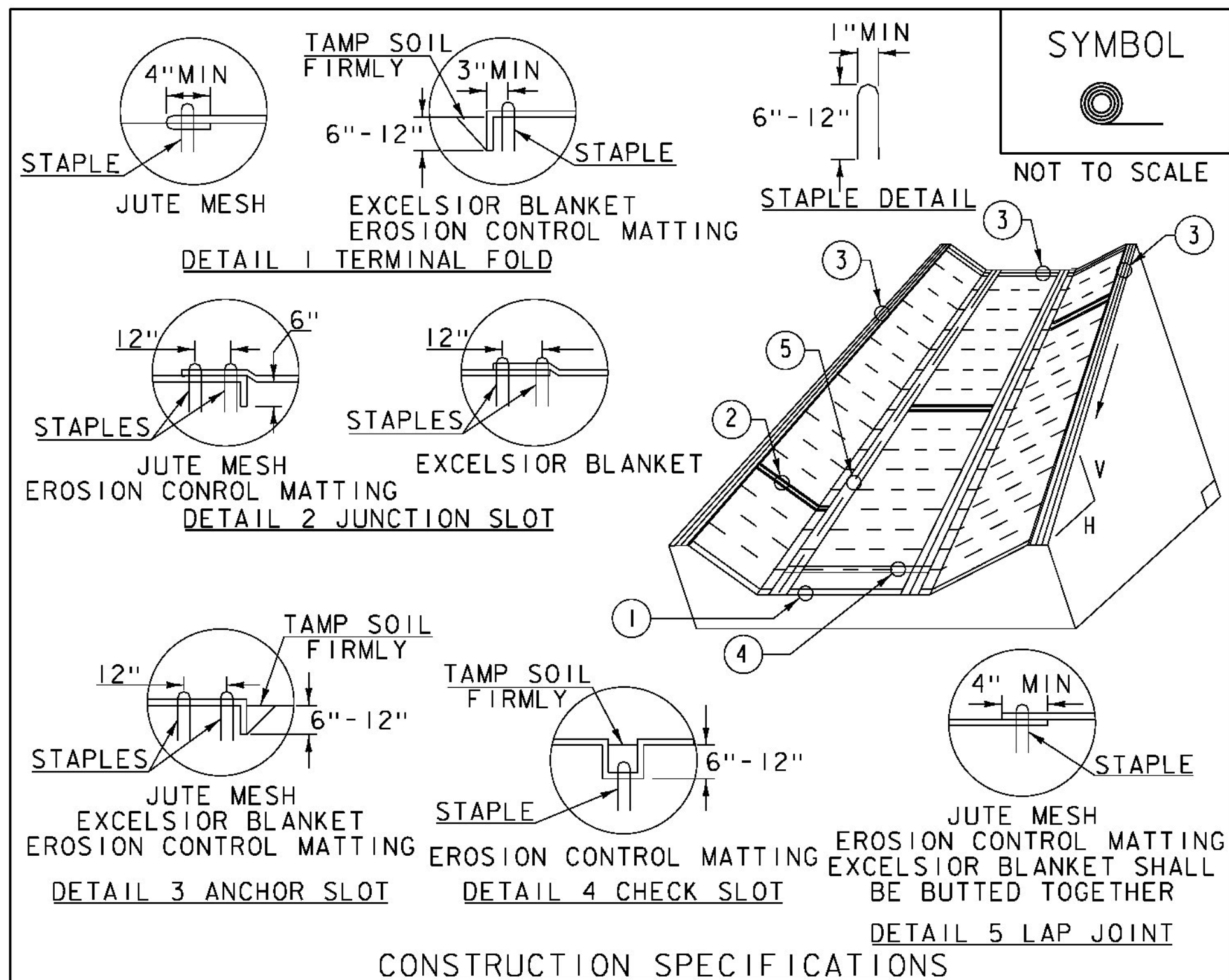
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC  
ORIGINALLY DEVELOPED BY USDA-NRCS  
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

## SILT FENCE

NOTES:  
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 AND AS SHOWN IN THE PLANS FOR GEOTEXTILE FOR SILT FENCE (PAY ITEM 649.51) OR GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED (PAY ITEM 649.515).

| REVISIONS         |     |
|-------------------|-----|
| MARCH 21, 2008    | WHF |
| DECEMBER 11, 2008 | WHF |
| JANUARY 13, 2009  | WHF |



1. EROSION MATTING, CHECK SLOTS, SHALL BE SPACED IN DITCH CHANNEL SO THAT ONE OCCURS WITHIN EACH 50' ON SLOPES OF MORE THAN 4% AND LESS THAN 6%. ON SLOPES OF 6% OR MORE, THEY SHALL BE SPACED SO THAT ONE OCCURS WITHIN EACH 25'.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4'X225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4'X150' ROLL OF MATERIAL.
4. DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.
5. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

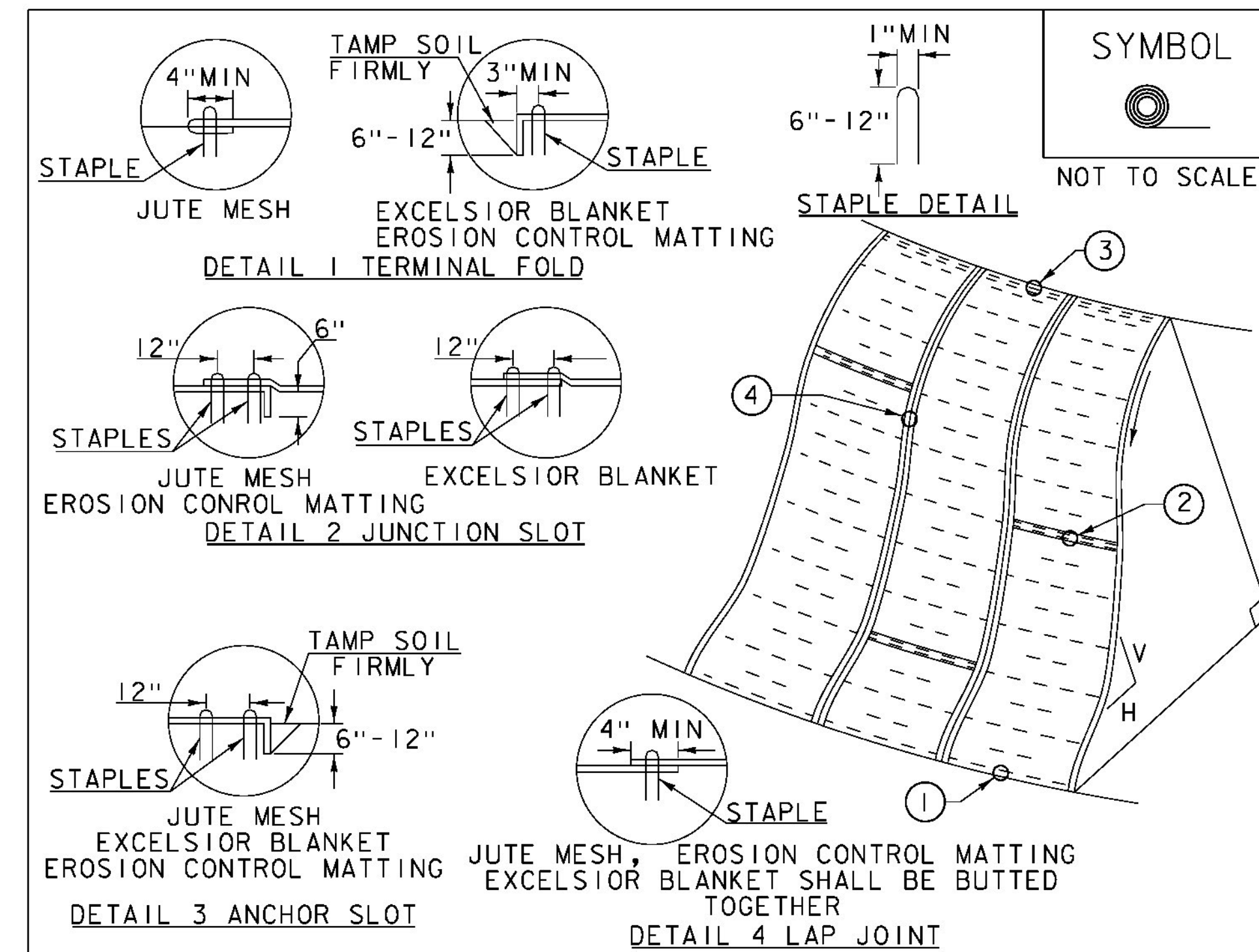
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC  
ORIGINALLY DEVELOPED BY USDA-NRCS  
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

## ROLLED EROSION CONTROL PRODUCT (RECP) DITCH

NOTES:  
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 AND AS SHOWN IN THE PLANS FOR TEMPORARY EROSION MATTING (PAY ITEM 653.20) OR PERMANENT EROSION MATTING (PAY ITEM 653.21).

| REVISIONS        |     |
|------------------|-----|
| MARCH 8, 2007    | JMF |
| APRIL 16, 2007   | WHF |
| JANUARY 13, 2009 | WHF |



1. APPLY TO SLOPES GREATER THAN 3H:1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4'X225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4'X150' ROLL OF MATERIAL.
4. DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.
5. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC  
ORIGINALLY DEVELOPED BY USDA-NRCS  
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

## ROLLED EROSION CONTROL PRODUCT (RECP) SIDE SLOPE

NOTES:  
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.  
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 AND AS SHOWN IN THE PLANS FOR TEMPORARY EROSION MATTING (PAY ITEM 653.20) OR PERMANENT EROSION MATTING (PAY ITEM 653.21).

| REVISIONS        |     |
|------------------|-----|
| APRIL 16, 2007   | JMF |
| JANUARY 13, 2009 | WHF |

PROJECT NAME: BRISTOL  
PROJECT NUMBER: BRF 021-1(29)

FILE NAME: si0b094epscdet.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: M. EVANS-MONGEON  
EPSC DETAILS (1)

PLOT DATE: 04-NOV-2014  
DRAWN BY: C. ROKES  
CHECKED BY: EVANS-MONGEON  
SHEET 50 OF 54















**CONSTRUCT 3' WIDE PAVED APRON**  
STA 105+55.0 LT - STA 106+02.9 LT - 47.9'

**CONSTRUCT GRAVEL DRIVE**  
STA 105+79.0 LT - 16'

**BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM**

STA 106+73.3 LT - STA 107+28.2 LT  
STA 106+57.8 RT - STA 107+12.7 RT

**CAST-IN-PLACE CONCRETE CURB, TYPE B**

STA 106+20.8 RT - STA 106+60.8 RT  
STA 106+35.3 LT - STA 106+75.2 LT  
STA 107+10.8 RT - STA 107+50.7 RT  
STA 107+25.2 LT - STA 107+65.2 LT

**STEEL BEAM GUARDRAIL, GALVANIZED**

STA 105+94.2 LT - STA 106+44.2 LT  
STA 105+28.7 RT - STA 106+28.7 RT  
STA 107+57.3 LT - STA 108+19.8 LT  
STA 107+41.8 RT - STA 107+79.3 RT

**ANCHOR FOR STEEL BEAM RAIL**

STA 106+00.5 LT  
STA 105+35.0 RT  
STA 108+13.4 LT  
STA 107+73.0 RT

**BEGIN ROW PROJECT  
104+11, 25' LT**

**GUARDRAIL APPROACH SECTION, GALVANIZED 2 RAIL BOX BEAM**

STA 106+44.2 LT - STA 106+73.3 LT  
STA 106+28.7 RT - STA 106+57.8 RT  
STA 107+28.2 LT - STA 107+57.3 LT  
STA 107+12.7 RT - STA 107+41.8 RT

**REMOVAL AND DISPOSAL OF GUARDRAIL**

STA 106+10.6 RT - STA 106+67.2 RT  
STA 106+41.4 LT - STA 106+88.8 LT  
STA 107+11.5 RT - STA 107+23.5 RT  
STA 107+22.1 LT - STA 107+68.0 LT

**SPECIAL PROVISION (STONE DIAPHRAGM)**

STA 105+25.0 RT - STA 106+28.3 RT  
STA 105+94.9 LT - STA 106+42.7 LT  
STA 107+43.3 RT - STA 108+00.0 RT  
STA 107+57.7 LT - STA 108+40.0 LT

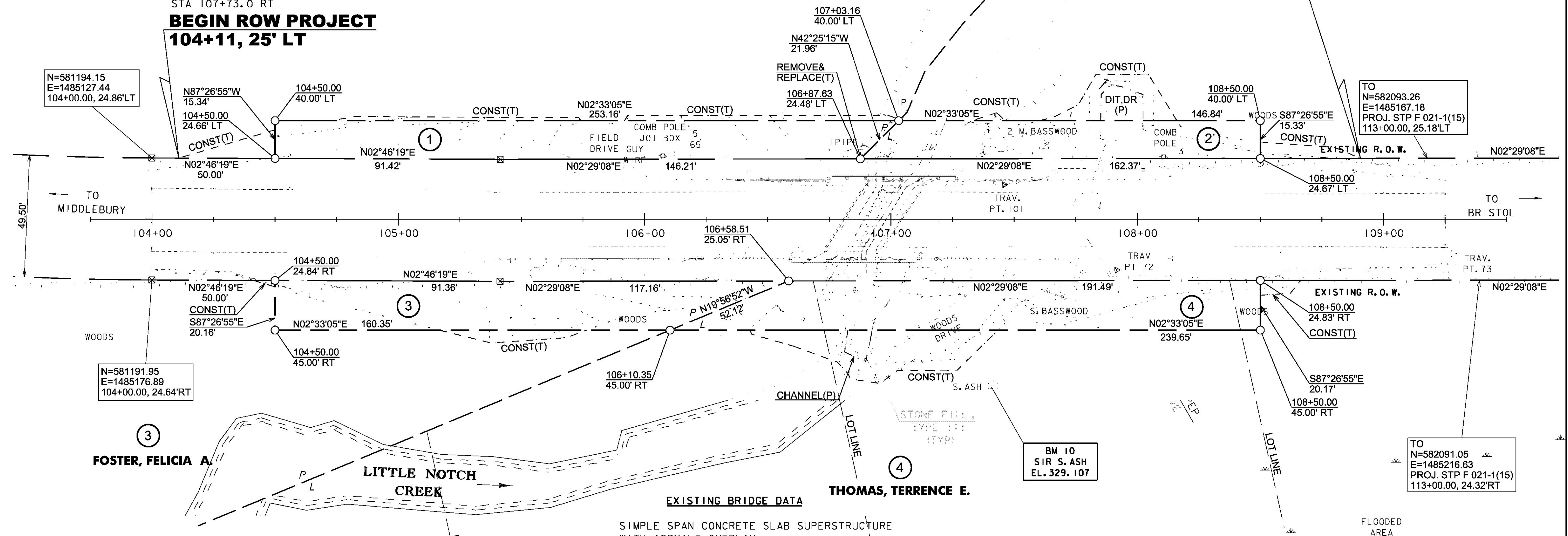
**REMOVE AND REPLACE PROPERTY MARKERS**

| EXISTING                                                         | PROPOSED                                                        |
|------------------------------------------------------------------|-----------------------------------------------------------------|
| I. PIPE<br>N=581481.62<br>E=1485140.49<br>106+87.77<br>24.62' LT | I. PIN<br>N=581497.69<br>E=1485125.81<br>107+03.16<br>40.00' LT |

VT STATE PLANE GRID

**BARRECA, CHRISTOPHER**

**END ROW PROJECT  
108+91, 25' LT**



LINES SHOWN ON THIS PLAN AS EXISTING  
PROPERTY LINES P/L ARE BELIEVED TO  
BE ACCURATE BUT SHOULD NOT BE RELIED  
UPON FOR PURPOSES UNRELATED TO THE  
STATE OF VERMONT'S ACQUISITION OF LAND  
AND RIGHTS FOR THIS PROJECT.

**FOR R.O.W.  
USE ONLY**

**EXISTING BRIDGE DATA**  
SIMPLE SPAN CONCRETE SLAB SUPERSTRUCTURE  
WITH ASPHALT OVERLAY

CAST-IN-PLACE CONCRETE ABUTMENTS AND WINGWALLS

BRIDGE LENGTH: 24'  
BRIDGE WIDTH (FASCIA TO FASCIA): 28.6'

SCALE 1" = 20' - 0"  
20 0 20

PROJECT NAME: BRISTOL  
PROJECT NUMBER: BRF 021-K(29)

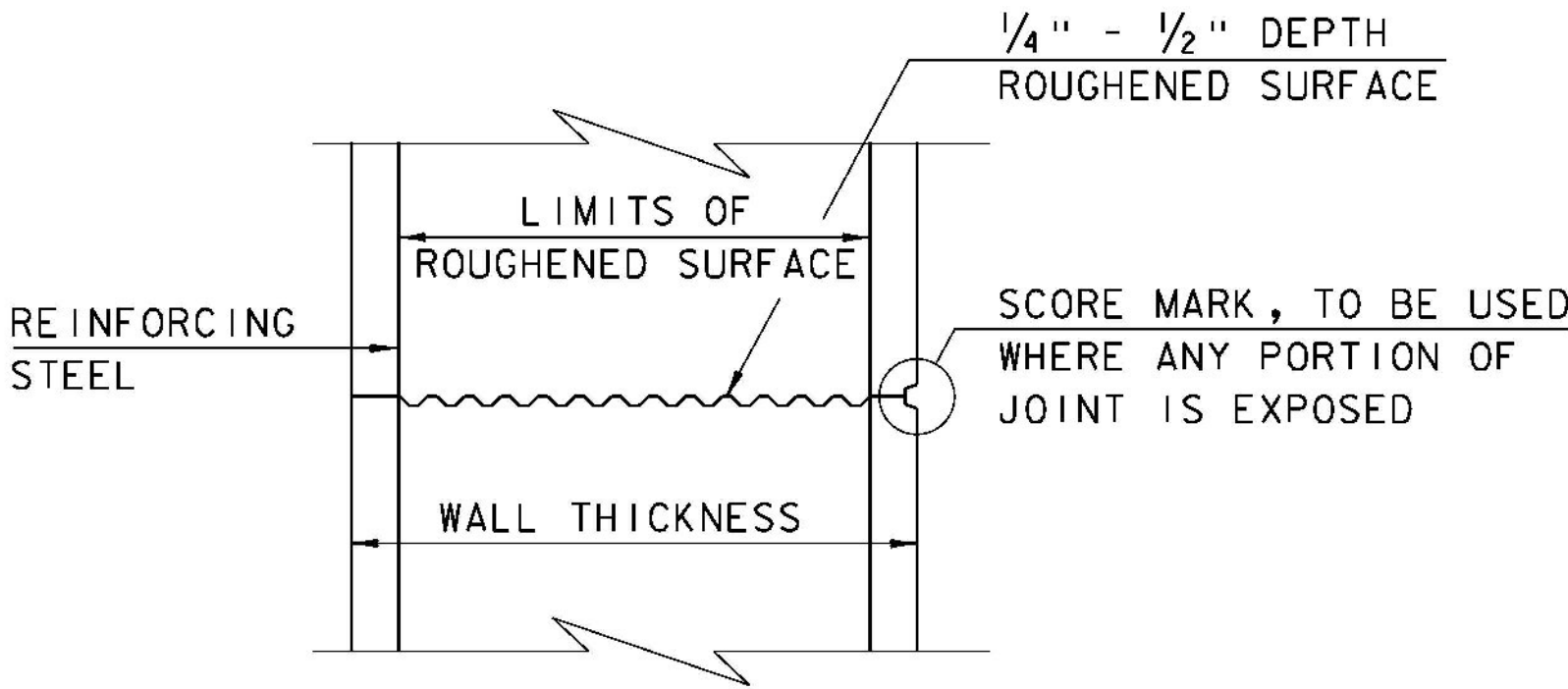
FILE NAME: r10b094lay.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: EVANS-MONGEON  
ROW LAYOUT SHEET 1 OF 1

PLOT DATE: 04-NOV-2014  
DRAWN BY: E. PIERCE  
CHECKED BY: E. PIERCE  
SHEET 54 OF 54



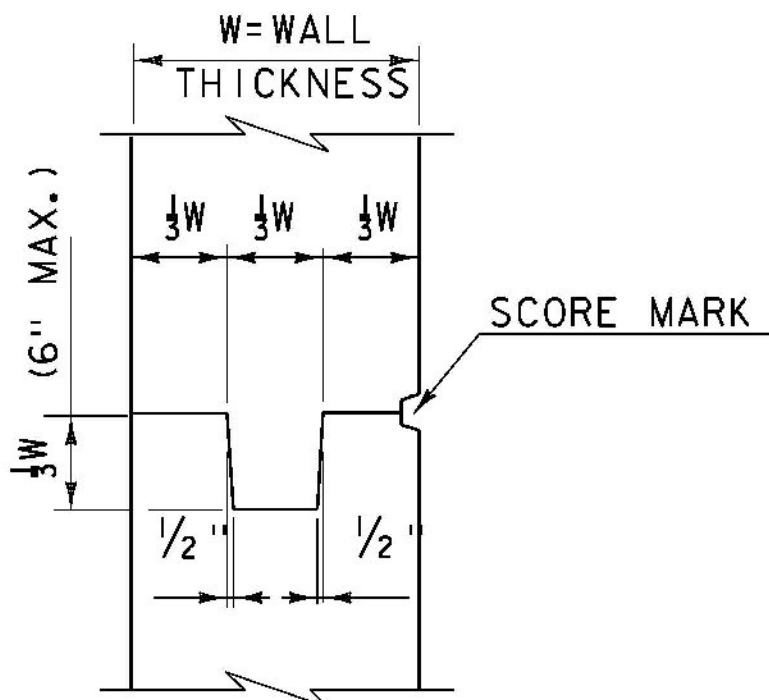
CONCRETE GENERAL NOTES

- 1. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" x 1"
- 2. REINFORCING STEEL SIZE AND SPACING SHOWN IN THE PLANS IS BASED ON 60 KSI STEEL, UNLESS NOTED OTHERWISE. WITH THE ENGINEER'S PERMISSION, BAR SIZE AND SPACING MAY BE MODIFIED ACCORDING TO THE LATEST AASHTO LRFD BRIDGE DESIGN SPECIFICATION AND STRUCTURES DESIGN MANUAL WHEN USING HIGHER STRENGTH STEEL.

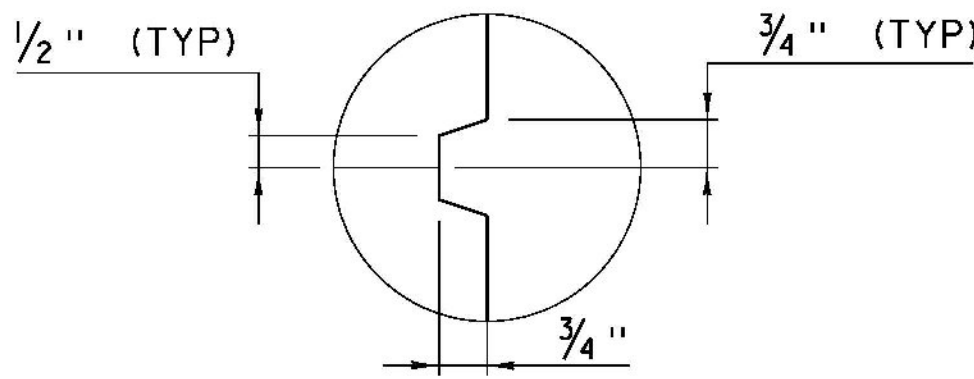


TYPICAL HORIZONTAL CONSTRUCTION JOINT  
(NOT TO SCALE)

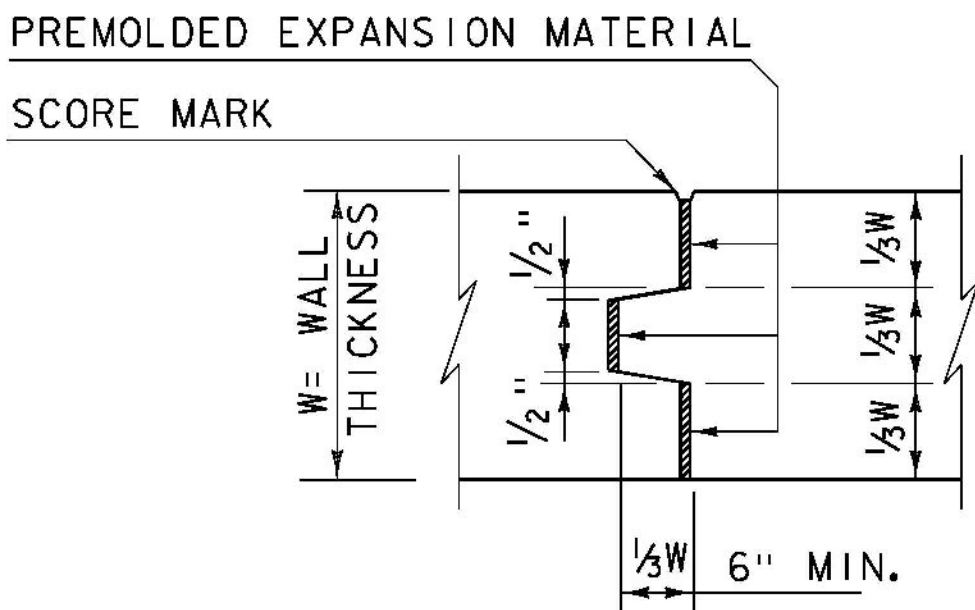
- 1. THE SURFACE OF THE CONCRETE CONSTRUCTION JOINTS SHALL BE CLEANED AND FREE OF LAITANCE.
- 2. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.



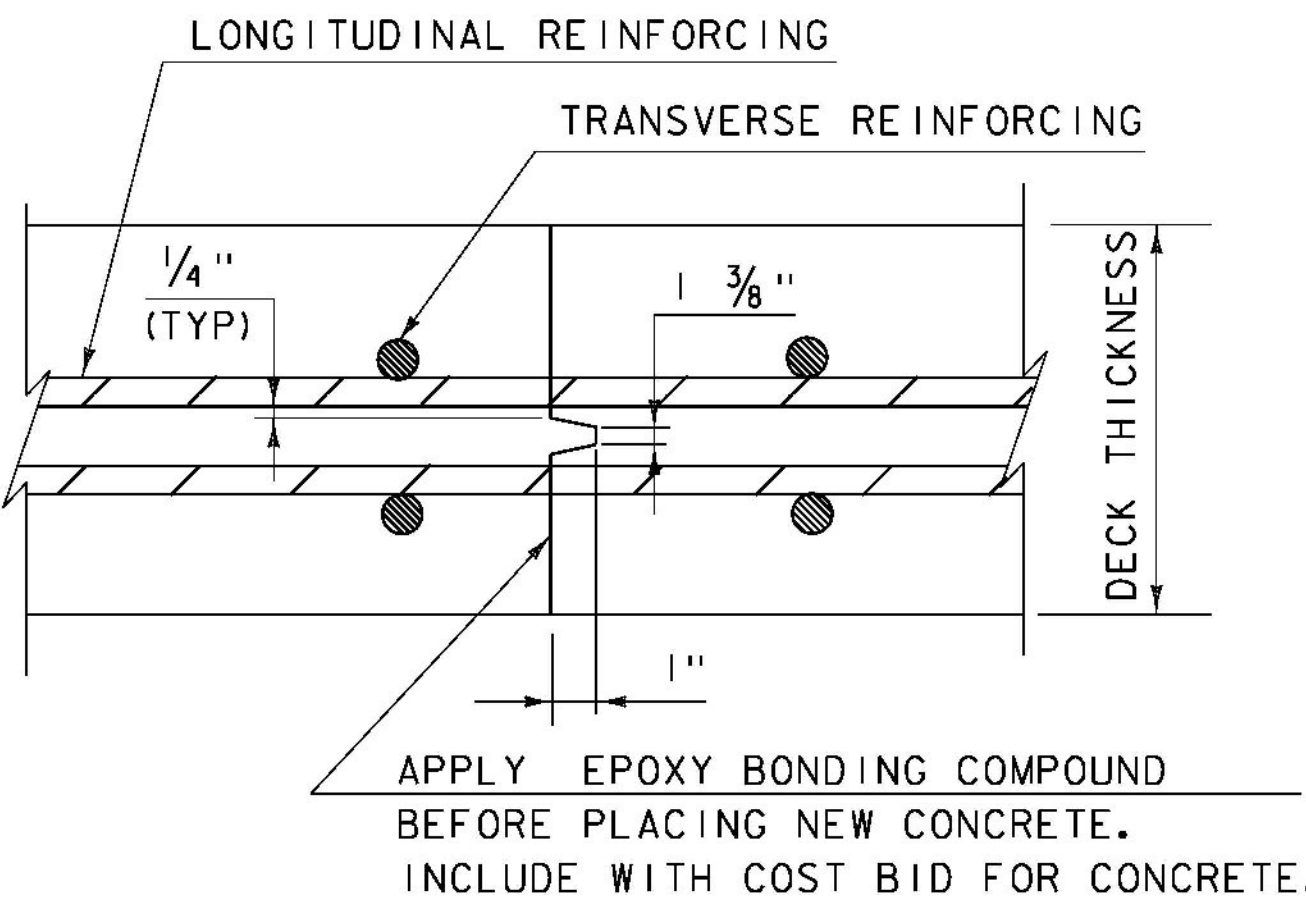
TYPICAL CONCRETE CONSTRUCTION JOINT  
(NOT TO SCALE)



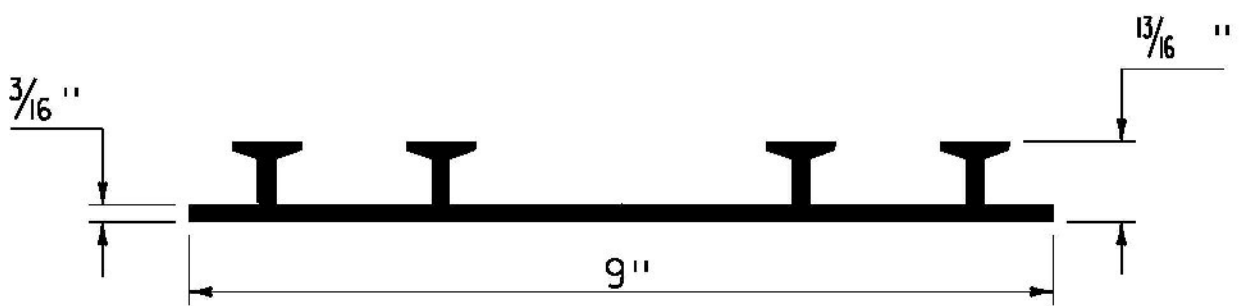
SCORE MARK DETAIL  
(NOT TO SCALE)



TYPICAL CONCRETE EXPANSION JOINT  
(NOT TO SCALE)



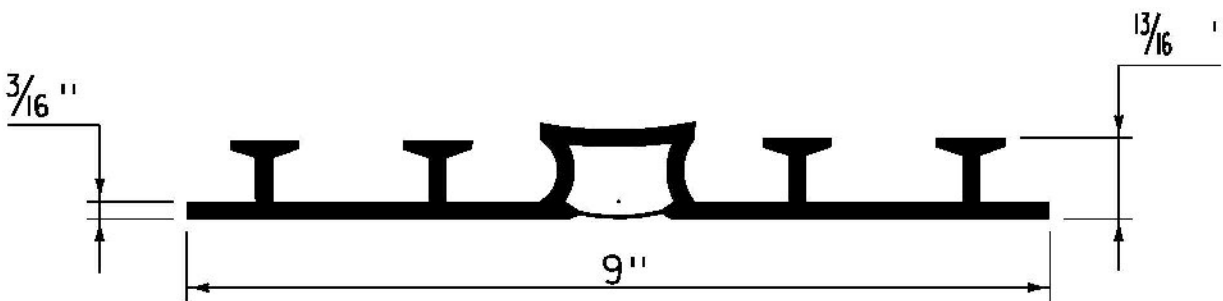
TRANSVERSE BRIDGE SLAB  
CONSTRUCTION JOINT DETAILS  
(NOT TO SCALE)



P.V.C. WATERSTOP FOR  
CONSTRUCTION JOINTS  
(NOT TO SCALE)

PAYMENT FOR THE P.V.C. WATERSTOP SHALL BE INCIDENTAL TO THE UNIT BID PRICE FOR THE ADJACENT CONCRETE.

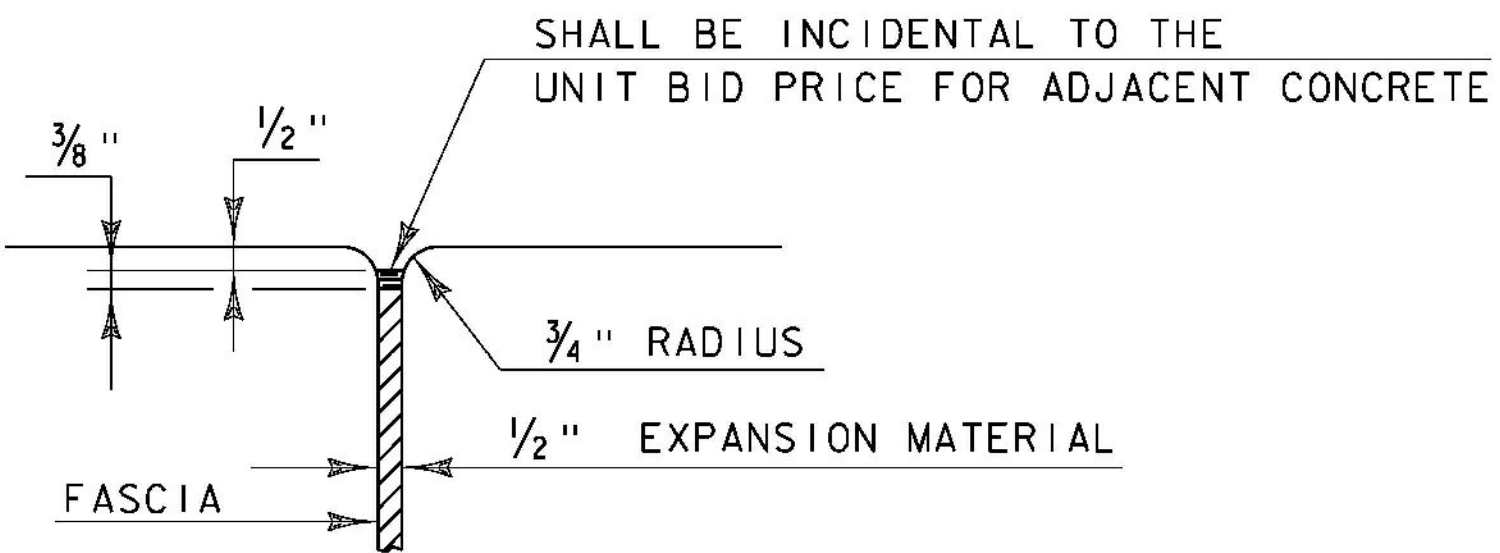
OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



P.V.C. WATERSTOP FOR  
EXPANSION JOINTS  
(NOT TO SCALE)

PAYMENT FOR THE P.V.C. WATERSTOP SHALL BE INCIDENTAL TO THE UNIT BID PRICE FOR THE ADJACENT CONCRETE.

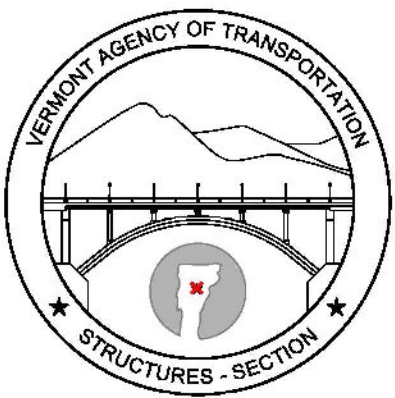
OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



JOINT BETWEEN FASCIA  
AND WINGWALL  
(NOT TO SCALE)

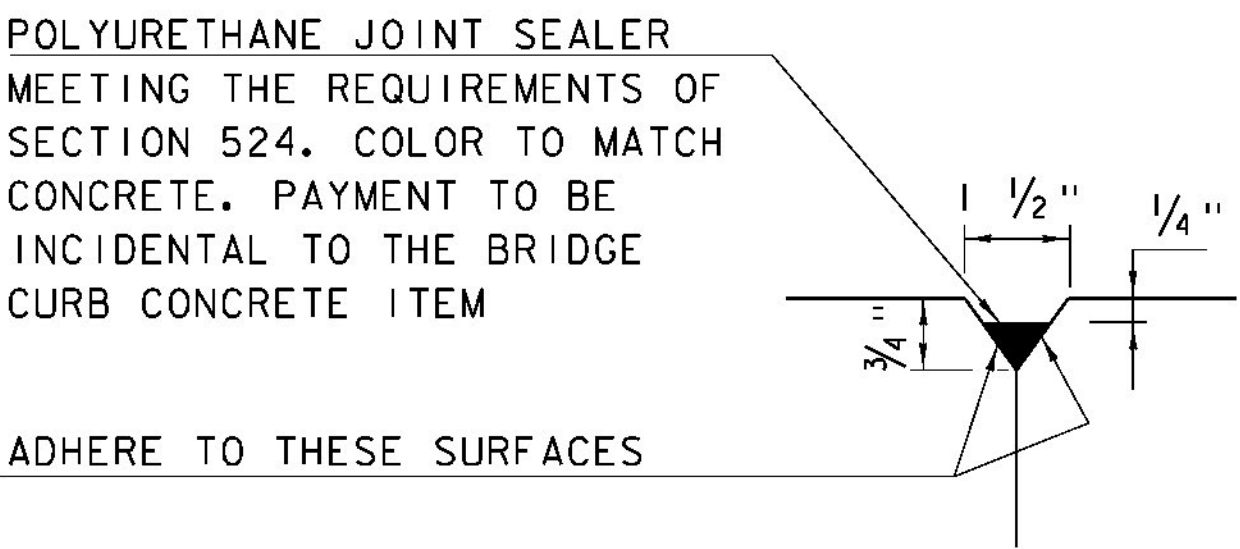
| REVISIONS        |                                                               |
|------------------|---------------------------------------------------------------|
| MAY 7, 2010      | APPROVED FOR USE BY VAOT STRUCTURES SECTION                   |
| FEBRUARY 9, 2012 | REBAR SUBSTITUTION ALLOWANCE ADDED TO CONCRETE GENERAL NOTES. |
|                  |                                                               |
|                  |                                                               |
|                  |                                                               |
|                  |                                                               |
|                  |                                                               |

CONCRETE  
DETAILS AND NOTES

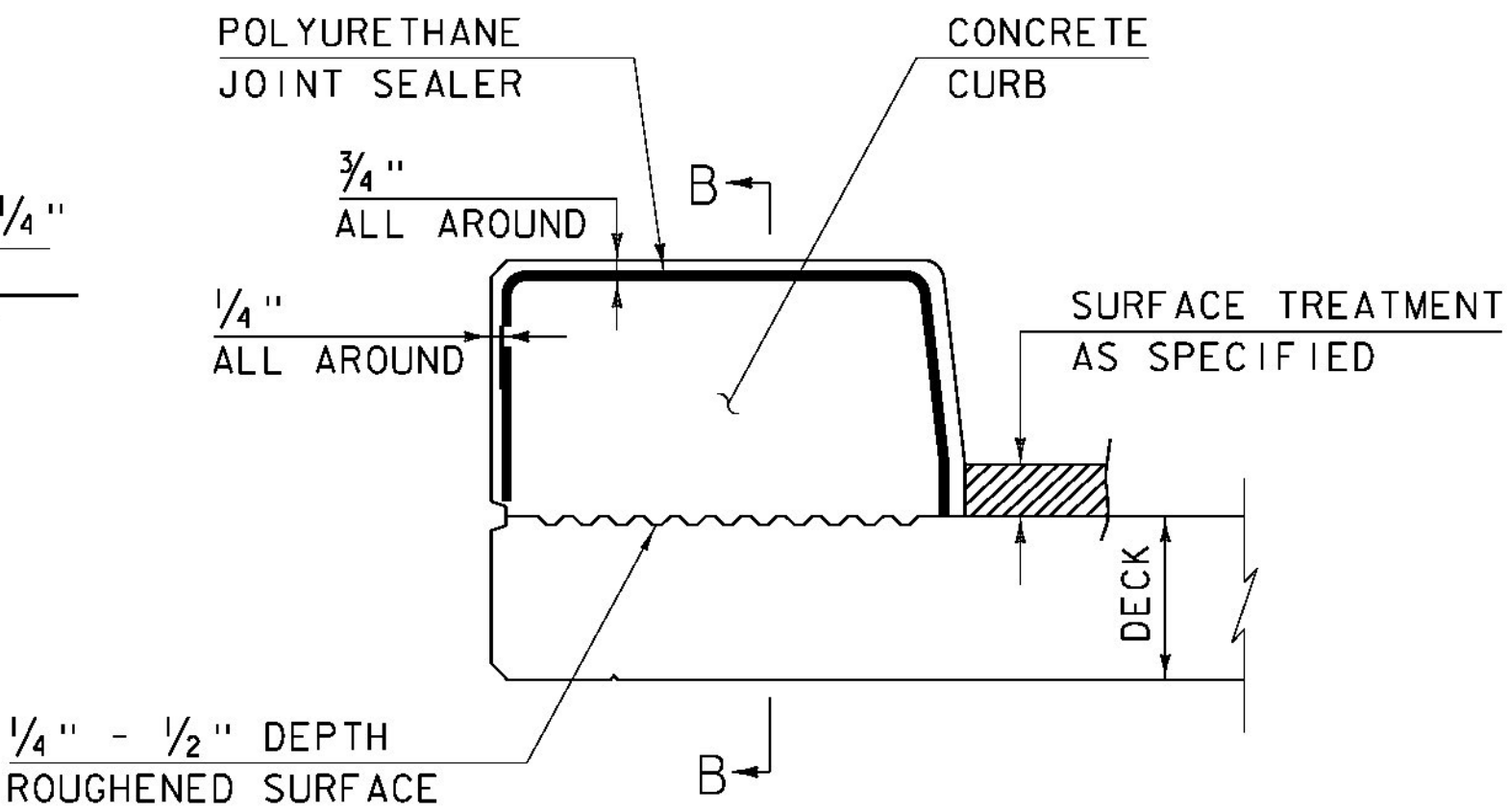


STRUCTURES  
DETAIL  
SD-501.00



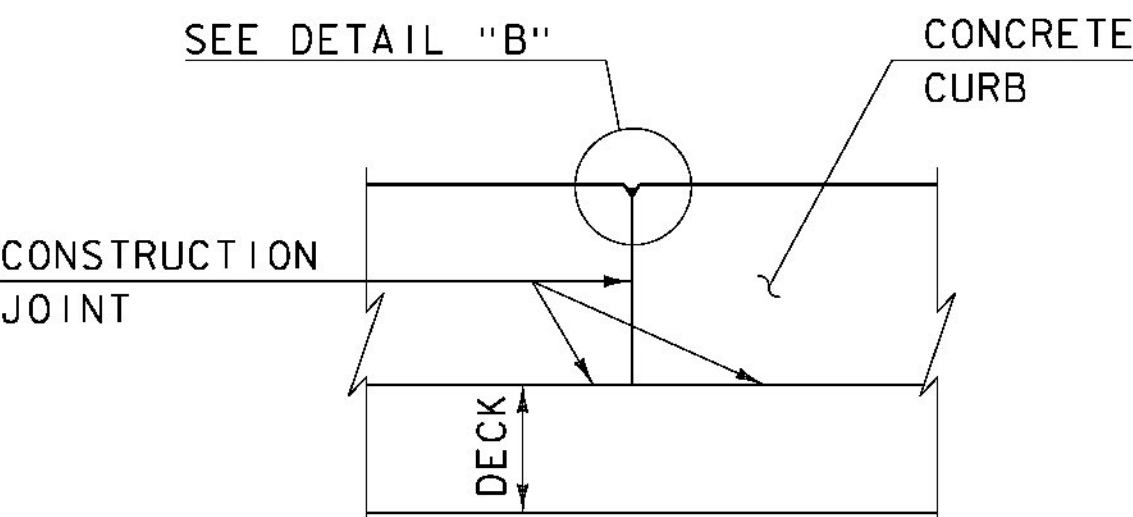


DETAIL "B"  
(NOT TO SCALE)

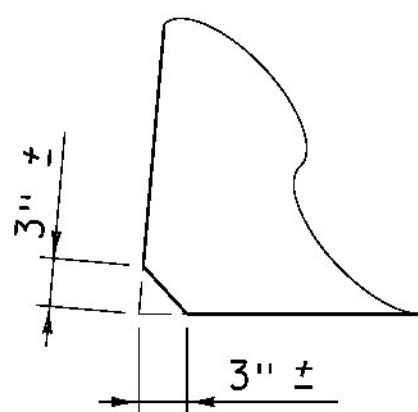


CONCRETE CURB JOINT SECTION  
(NOT TO SCALE)

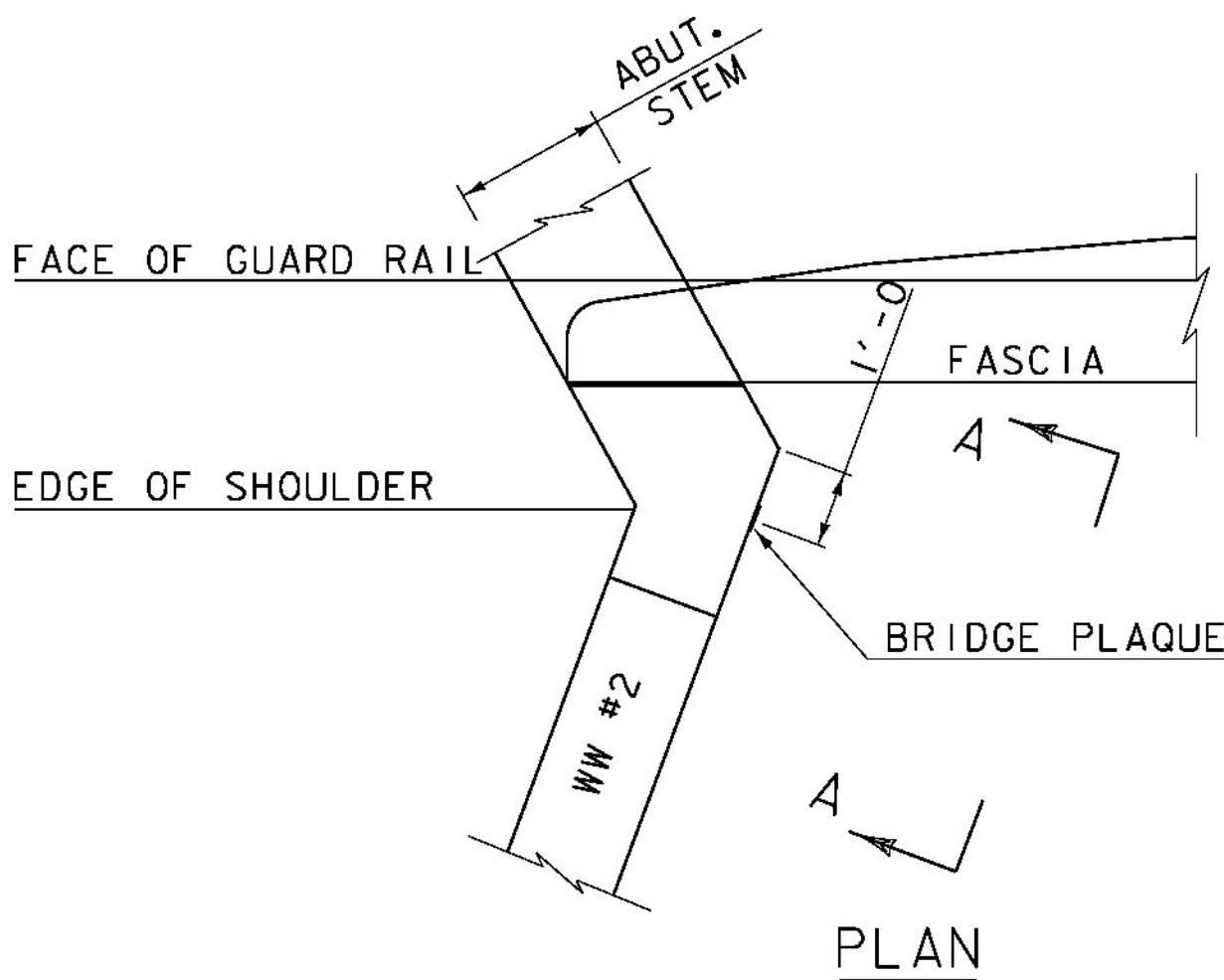
1. SEE TYPICAL HORIZONTAL CONSTRUCTION JOINT  
DETAIL FOR ADDITIONAL INFORMATION



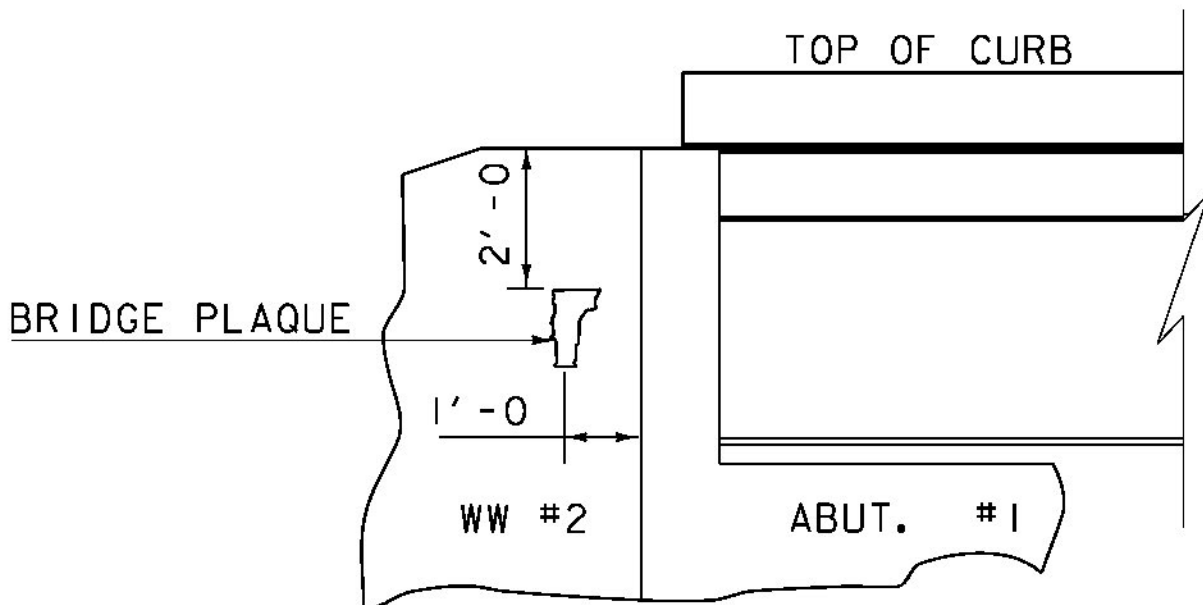
SECTION B - B  
(NOT TO SCALE)



ACUTE ANGLE  
CLIP DETAIL  
(NOT TO SCALE)



PLAN



VIEW "A - A"

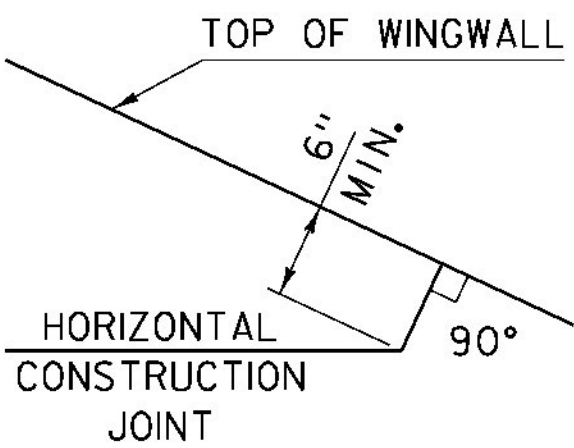
BRIDGE PLAQUE  
(NOT TO SCALE)

THE BRIDGE PLAQUE WILL BE SUPPLIED BY THE AGENCY OF  
TRANSPORTATION AND SHALL BE INSTALLED BY THE CONTRACTOR AT  
ABUTMENT #1 ON THE RIGHT SIDE AS SHOWN OR AS DIRECTED BY  
THE ENGINEER.

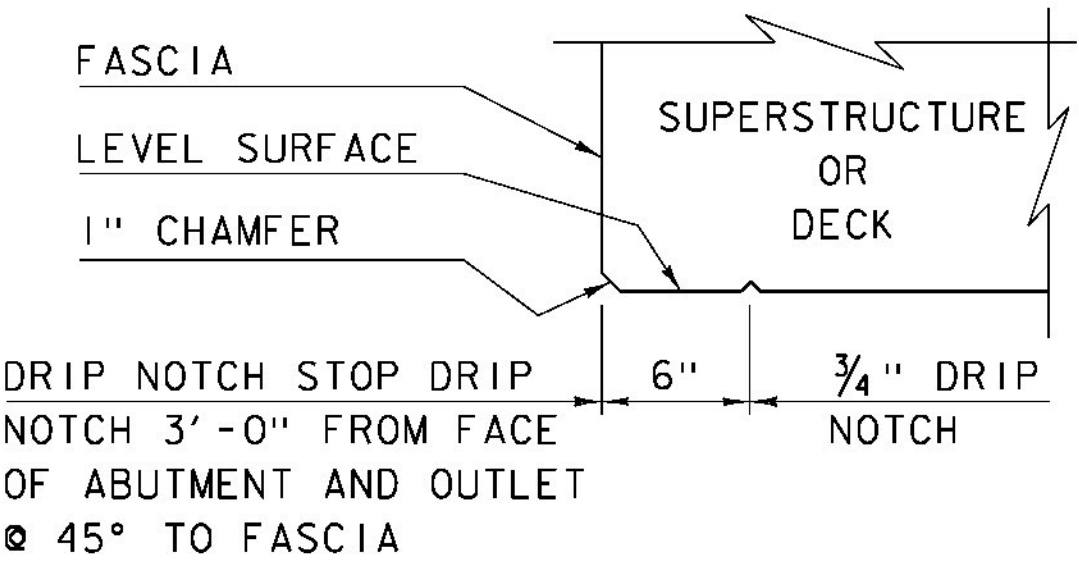
PAYMENT FOR INSTALLATION OF THE BRIDGE PLAQUE SHALL BE  
INCIDENTAL TO THE ADJACENT CONCRETE.

CONCRETE CURB JOINT NOTES

1. CONCRETE CURBS MAY BE PLACED IN ONE CONTINUOUS OPERATION IF AN APPROVED SHRINKAGE REDUCING ADMIXTURE LISTED IN THE SPECIAL PROVISIONS IS USED WITH THE CONCRETE MIX DESIGN. PAYMENT FOR THE SHRINKAGE REDUCING ADMIXTURE WILL BE INCIDENTAL TO THE BRIDGE CURB CONCRETE ITEM.
2. IF THE CONTRACTOR CHOOSES NOT TO USE AN APPROVED SHRINKAGE REDUCING ADMIXTURE, THE CURBS SHALL BE CONSTRUCTED WITH CONSTRUCTION JOINTS SPACED AT A MAXIMUM OF 15'-0" CENTER TO CENTER AND 2'-0" MINIMUM FROM THE CENTER OF NEAREST BRIDGE RAILING POST.
3. ON MULTI-SPAN CONTINUOUS SUPERSTRUCTURES, REGARDLESS OF WHETHER APPROVED SHRINKAGE REDUCING ADMIXTURE IS USED, CURB JOINTS SHALL BE LOCATED OVER THE CENTERLINE OF PIERS AND 7'-0" EACH SIDE OF THE CENTERLINE OF EACH PIER.
4. WHEN CURB JOINTS ARE USED THE CURBS SHALL BE PLACED IN ALTERNATE SECTIONS WITH A MINIMUM OF 48 HOUR DELAY BETWEEN ADJACENT PLACEMENTS.
5. LONGITUDINAL REINFORCING SHALL BE CONTINUOUS THROUGH CURB CONSTRUCTION JOINTS. CURB STIRRUP BARS SHALL BE TURNED AS NECESSARY TO MAINTAIN COVER IN THE FLARED CURB ENDS.
6. THE JOINT SPACING AND DETAILS SHOWN SHALL APPLY TO SIDEWALKS WHEN SHOWN IN THE PLANS.



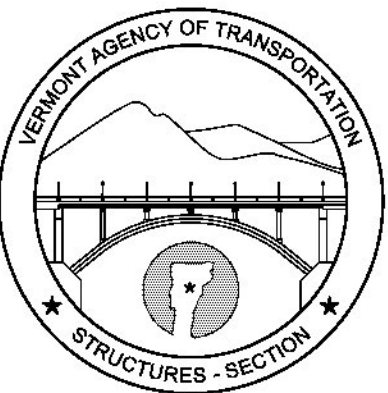
HORIZONTAL WINGWALL  
CONSTRUCTION JOINT  
(NOT TO SCALE)



DRIP NOTCH DETAIL  
(NOT TO SCALE)

| REVISIONS        |                                                     |
|------------------|-----------------------------------------------------|
| MAY 7, 2010      | APPROVED FOR USE BY VAOT STRUCTURES SECTION         |
| JUNE 4, 2010     | MODIFIED AND ADDED TWO DETAILS                      |
| OCTOBER 10, 2012 | MODIFIED HORZ. JOINT WINGWALL ADD 6" MIN. DIMENSION |
|                  |                                                     |
|                  |                                                     |
|                  |                                                     |
|                  |                                                     |

CONCRETE  
DETAILS AND NOTES



STRUCTURES  
DETAIL  
SD-502.00



ASPHALTIC PLUG JOINT NOTES

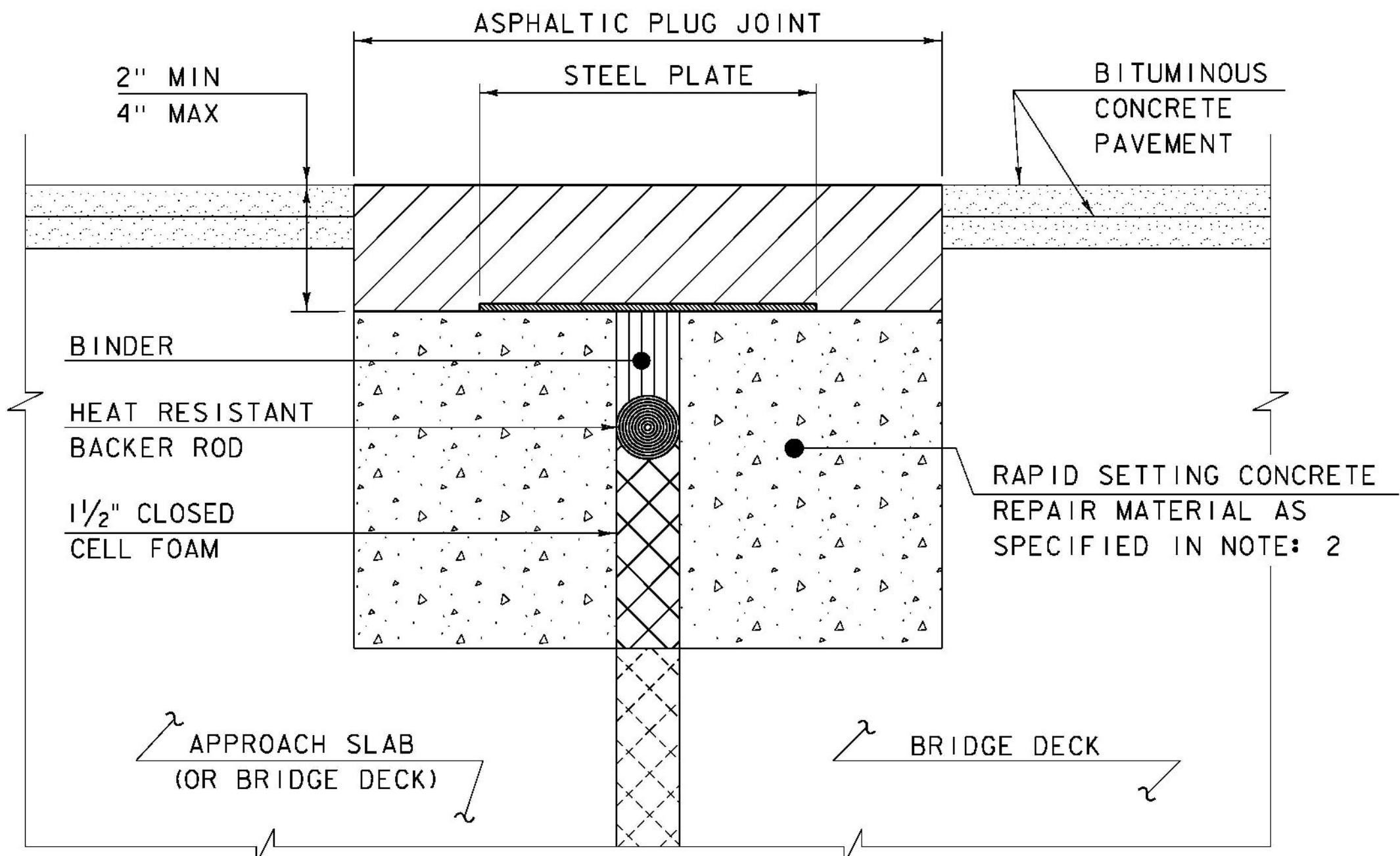
INSTALLATION:

1. LOCATE THE JOINT CENTRALLY OVER THE DECK OVERLAY EXPANSION GAP OR FIXED JOINT, MARKED OUT TO THE MANUFACTURER'S RECOMMENDED WIDTH.
2. REMOVE THE BITUMINOUS CONCRETE PAVEMENT FULL DEPTH AS SHOWN ON THE PLANS. THE PAVEMENT SHALL BE DRY AND SAW CUT TO THE LIMITS REQUIRED TO PLACE THE JOINT. A PNEUMATIC HAMMER AND CHISEL MAY BE USED ADJACENT TO THE CURB ONLY WHEN SAW CUTTING IS NOT POSSIBLE.
3. BLAST CLEAN THE JOINT AREA OF DEBRIS, ASPHALT AND SHEET MEMBRANE. THOROUGHLY DRY THE JOINT AREA WITH COMPRESSED AIR PRIOR TO APPLYING BINDER MATERIAL.
4. PLACE PROPERLY SIZED HEAT RESISTANT BACKER ROD IN THE MOVEMENT GAP ALLOWING FOR 1" +/- OF BINDER ABOVE THE ROD.
5. HEAT AND PLACE THE BINDER MATERIAL AS RECOMMENDED BY THE MANUFACTURER.
6. IMMEDIATELY AFTER TOP COATING, CAST AN ANTI-SKID MATERIAL OVER THE JOINT TO REDUCE THE RISK OF TRACKING.

WEATHER LIMITATIONS

APPLY BINDER MATERIAL ONLY WHEN THE FOLLOWING CONDITIONS PREVAIL OR AS RECOMMENDED BY THE MANUFACTURER:

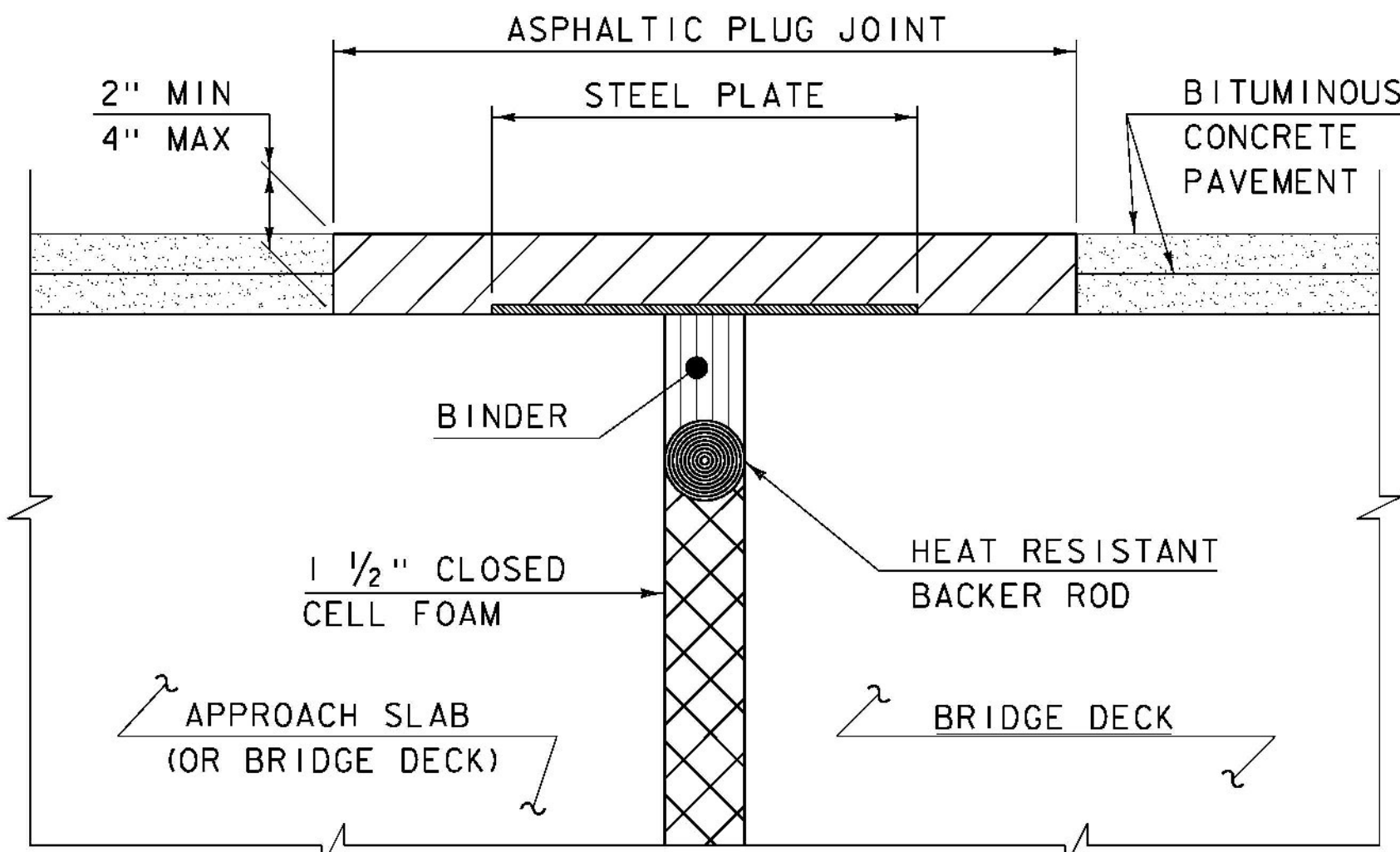
1. THE AMBIENT AIR TEMPERATURE IS AT LEAST 10 DEG C (50 DEG F) AND RISING.
2. THE ROAD SURFACE IS DRY.
3. WEATHER CONDITIONS OR OTHER CONDITIONS ARE FAVORABLE AND ARE EXPECTED TO REMAIN SO FOR THE PERFORMANCE OF SATISFACTORY WORK.



ASPHALTIC PLUG JOINT DETAIL - REHAB

NOTES:

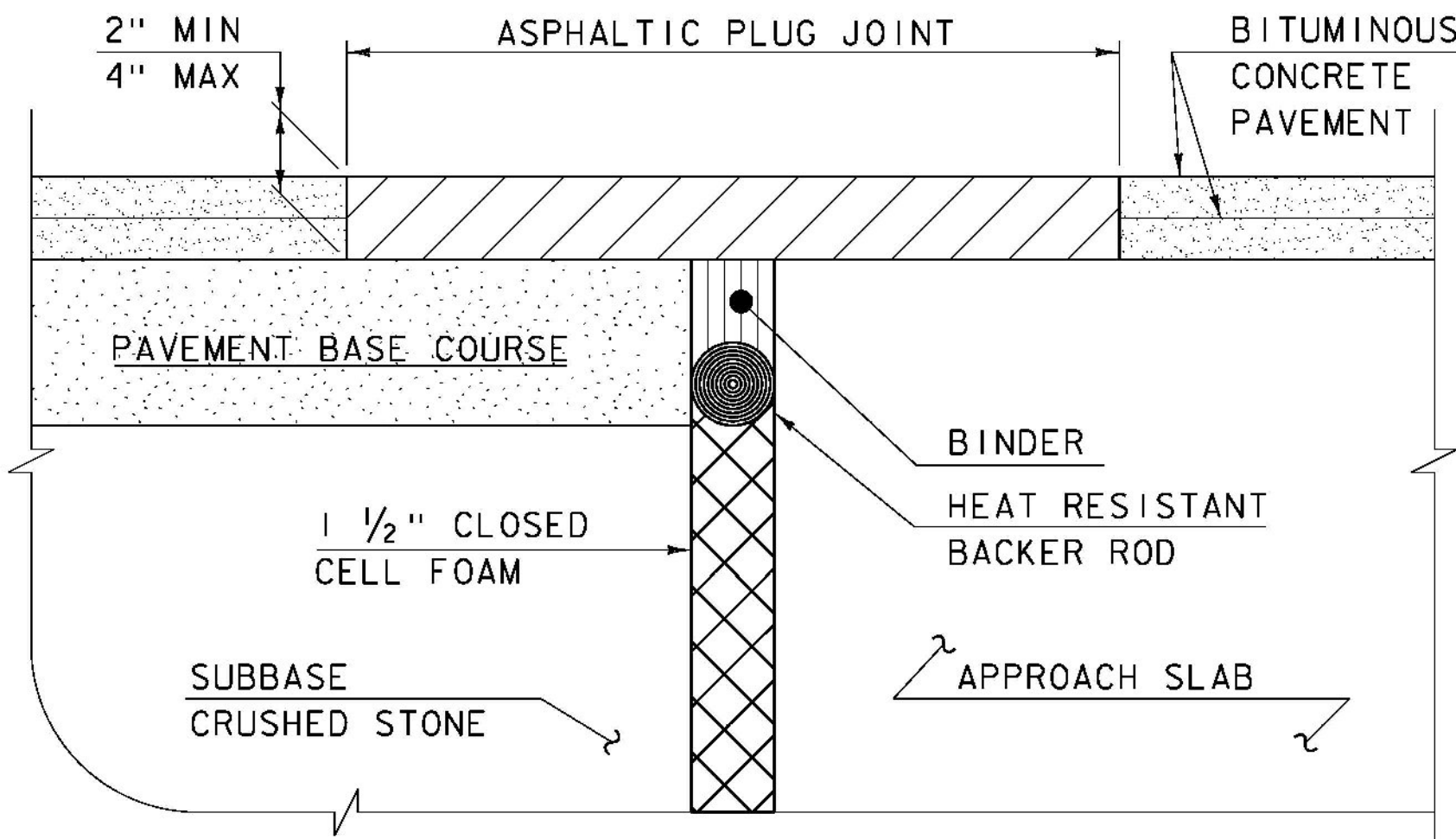
1. THE CONTRACTOR SHALL REMOVE ALL ASPHALTIC PLUG JOINT MATERIAL AND DETERIORATED CONCRETE AS DIRECTED BY THE ENGINEER. REMOVAL OF THE FIRST 4 INCHES OF MATERIAL SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 516.10 BRIDGE EXPANSION JOINT, ASPHALTIC PLUG. ANY REMOVAL OF MATERIAL GREATER THAN 4 INCHES SHALL BE INCLUDED IN THE BID PRICE OF ITEM 580.20 RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE.
2. THE CONTRACTOR SHALL REPLACE REMOVED MATERIAL THAT IS LESS THAN 4" FROM FINISHED GRADE WITH ASPHALTIC PLUG JOINT MATERIAL MEETING THE REQUIREMENTS OF SUBSECTION 707.15. ALL REMOVED MATERIAL THAT IS GREATER THAN 4 INCHES FROM FINISHED GRADE SHALL BE REPLACED WITH RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE MEETING THE REQUIREMENTS OF SUBSECTION 780.04.
3. REINFORCING STEEL NOT SHOWN FOR CLARITY.
4. PLACE 1/4" THICK BY 8" WIDE SECTIONS OF STEEL PLATE OVER THE CENTER OF THE MOVEMENT GAP. SECURE THE PLATES FROM MOVING BY INSERTING LOCATING PINS THROUGH THE PRE-STAMPED HOLES INTO BACKER ROD AND COVER WITH HOT BINDER. THE STEEL PLATES MAY BE OMITTED WHERE THE ENGINEER DETERMINES THAT THE APPROACH SLAB OR BRIDGE DECK WILL PROVIDE INADEQUATE SUPPORT AND WHERE VERTICAL MOVEMENT OF THE PLATES MIGHT OCCUR.



ASPHALTIC PLUG JOINT DETAIL "A" - NEW

NOTE:

PLACE 1/4" THICK BY 8" WIDE SECTIONS OF STEEL PLATE OVER THE CENTER OF THE MOVEMENT GAP. SECURE THE PLATES FROM MOVING BY INSERTING LOCATING PINS THROUGH THE PRE-STAMPED HOLES INTO BACKER ROD AND COVER WITH HOT BINDER.

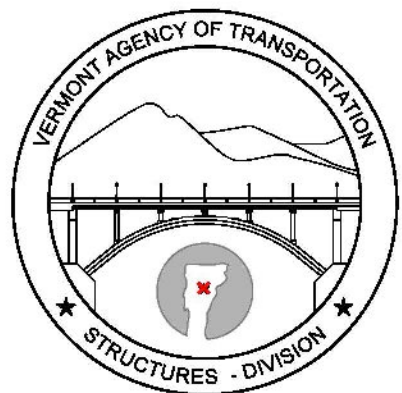


ASPHALTIC PLUG JOINT DETAIL "B" - NEW

DETAILS ON THIS SHEET ARE NOT TO SCALE.

| REVISIONS       |                                             |
|-----------------|---------------------------------------------|
| MAY 7, 2010     | APPROVED FOR USE BY VAOT STRUCTURES SECTION |
| AUGUST 29, 2011 | ADD DETAIL "B" AND REV. NOTES               |
|                 |                                             |
|                 |                                             |
|                 |                                             |
|                 |                                             |
|                 |                                             |

BRIDGE JOINT  
ASPHALTIC PLUG



STRUCTURES  
DETAIL  
SD-516.10



# Precast Bridge Abutments

## Bristol BRF 021-1(29)

### Concrete:

Mix Designation: P60TER

|                         |          |
|-------------------------|----------|
| 1. Specified Mix Design | 5000 PSI |
| 2. Proposed Mix Design  | 6000 PSI |
| 3. Striping Strength    | 3500 PSI |
| 4. Handling Strength    | 3500 PSI |
| 5. Shipping Strength    | 5000 PSI |
| 6. Install Strength     | 5000 PSI |
| 7. Traffic Loading      | 5000 PSI |

### Fabrication Tolerances:

|                     |                                                                                           |
|---------------------|-------------------------------------------------------------------------------------------|
| 1. Width            | ±1/4"                                                                                     |
| 2. Height           | ±1/4"                                                                                     |
| 3. Length           | ±1/2"                                                                                     |
| 4. Rebar Cover      | 3" Min. (Unless Noted Otherwise)                                                          |
| 5. Rebar Spacing    | ±1"                                                                                       |
| 6. Rebar Clearance  | ±1/4"  |
| 7. Insert Placement | ±1/4"                                                                                     |

### Reinforcing:

#### General Notes:

1. Reinforcing Steel - ASTM A615, Grade 60, Level II, Dual Coated.
2. Bar tied at every intersection.
3. Grout Sleeves to be epoxy coated.
4. Three grout couplers will be provided for each bar size for testing purposes
5. See rebar schedule for random bar samples available for the State. Two #4 bars @ 2'-6" will be provided for testing as well.

#### Tolerances:

1. Spacing ±1"
2. Clearance ±1/4"
3. Clear Cover 3" U.N.O.

#### Lap Lengths:

1. Per AASHTO 5.11.2.1.1 & 5.11.5.3.1  
Lap Length for Level II (Dual Coated):  
#4 Bar=17"  
#5 Bar=26"  
#6 Bar=39"  
#7 Bar=53"  
#8 Bar=69"

Note: See pg 6 for typical vertical lap lengths for bars extending into cast in place abutment sections

### General Notes:

1. All precast pieces will be dry fit prior to shipping.
2. All lifting anchor points to be grouted after use.(by site contractor
3. All rebar spacing chairs to be plastic
4. All exposed edges to be chamfered 1"

### Post Tensioning

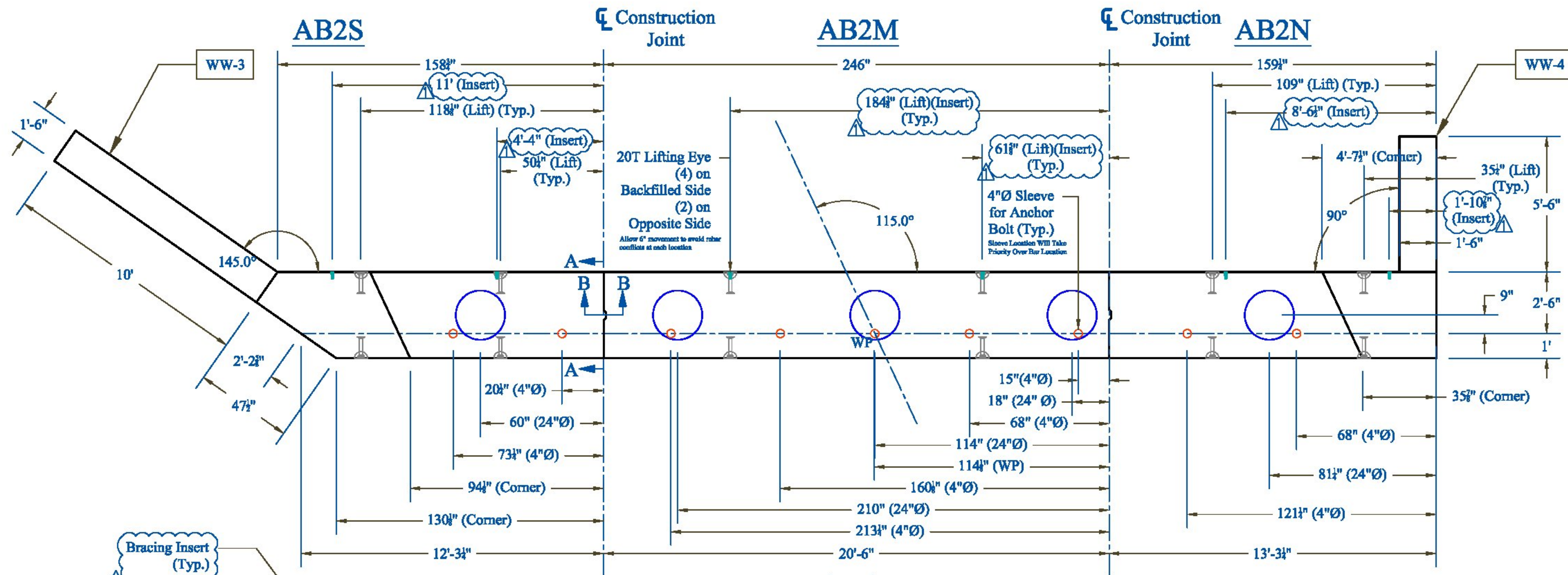
1. All anchoring assemblies will be galvanized plated.
2. Two tensioning strands per duct.
3. Tension ducts will be 3" SCH 40 PVC conduit.
4. Post tension strands will be .5"Ø, 270 ksi, low relaxation, 7-wire strands.
5. Strands will be tensioned to 32 kips prior to the H-pile sleeves being filled with HPC RS.
6. Tensioning block outs to be filled with grout of vertical overhead repair material after tensioning is complete.

|                     |                                                                                                                                                                         |                                                                           |                                                                                         |                                                                                         |                                                                                                |                                                                                 |                                                                                       |             |         |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-------------|---------|
| CONTRACTOR'S VISIT: | <div>Vermont Agency of Transportation<br/><b>RECEIVED</b><br/>CK'D BY MEM OK'D BY CWC<br/>Apr. 17, 2015<br/>RESUBMIT APPROVED ✓<br/>BY C. Carlson DATE 04-17-2015</div> | Rev. 1<br>Date 04/16/15<br>By IBA<br>Description Changes per State Review | PRECAST CONCRETE ABUTMENT SHOP DRAWINGS (SDI JOB #15264)                                |                                                                                         | INSTALLER:<br>S.D. Ireland Concrete<br>193 Industrial Ave<br>Williston, VT 05495<br>03/17/2015 | FABRICATOR:<br>193 INDUSTRIAL AVE.<br>WILLISTON, VT 05495<br>Ph: (802) 658-0201 |  | COVER_SHEET | 1_OF_16 |
|                     |                                                                                                                                                                         |                                                                           | SUPERVISOR: M. WHEELER<br>DETAILER: I. ADAMS<br>CHECKER: E. Barendse<br>ENGINEER: VTAOT | PROJECT NAME:<br>Bristol BRF 021-1(29)<br>PROJECT #: 021-1(29)<br>LOCATION: Bristol, VT |                                                                                                |                                                                                 |                                                                                       |             |         |

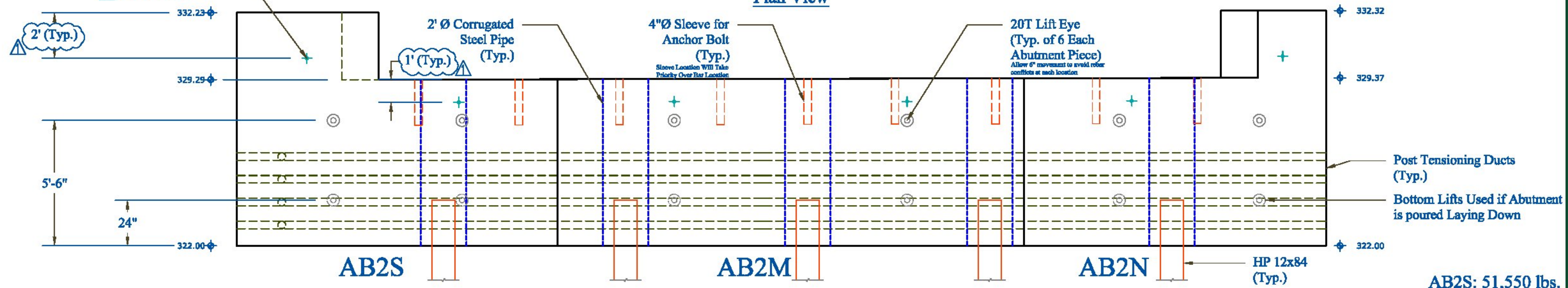








Plan View



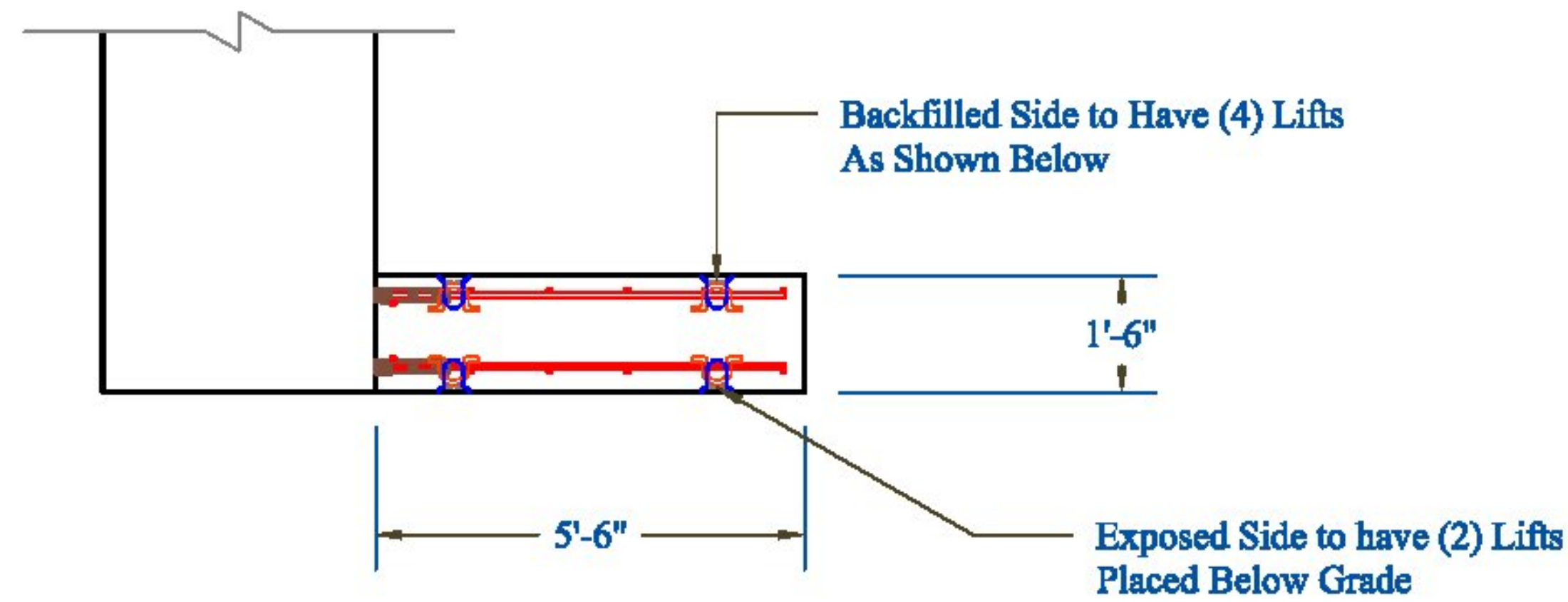
Elevation View

AB2S: 51,550 lbs.  
AB2M: 67,500 lbs  
AB2N: 53,050 lbs

|                     |                                                                                                                                                         |  |           |                  |           |                                         |                                                                                                                                                     |  |                                                                                         |  |                                                                                                |                                                                                 |  |                                                                                                             |  |         |  |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------|------------------|-----------|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------|--|---------|--|
| CONTRACTOR'S VISIT: | Vermont Agency of Transportation<br><b>RECEIVED</b><br>CK'D BY MEM OK'D BY CWC<br>Apr. 17, 2015<br>RESUBMIT APPROVED ✓<br>BY C. Carlson DATE 04-17-2015 |  | Rev.<br>1 | Date<br>04/16/15 | By<br>IBA | Description<br>Changes per State Review | PRECAST CONCRETE ABUTMENT SHOP DRAWINGS (SDI JOB #15264)<br>SUPERVISOR: M. WHEELER<br>DETAILER: I. ADAMS<br>CHECKER: E. Barendse<br>ENGINEER: VTAOT |  | PROJECT NAME:<br>Bristol BRP 021-1(29)<br>PROJECT #: 021-1(29)<br>LOCATION: Bristol, VT |  | INSTALLER:<br>S.D. Ireland Concrete<br>193 Industrial Ave<br>Williston, VT 05495<br>03/17/2015 | FABRICATOR:<br>193 INDUSTRIAL AVE.<br>WILLISTON, VT 05495<br>Ph: (802) 658-0201 |  | SD  Ireland<br>PRECAST |  | 3_OF_16 |  |
|                     |                                                                                                                                                         |  |           |                  |           |                                         |                                                                                                                                                     |  |                                                                                         |  | ABUTMENT_2                                                                                     |                                                                                 |  |                                                                                                             |  |         |  |



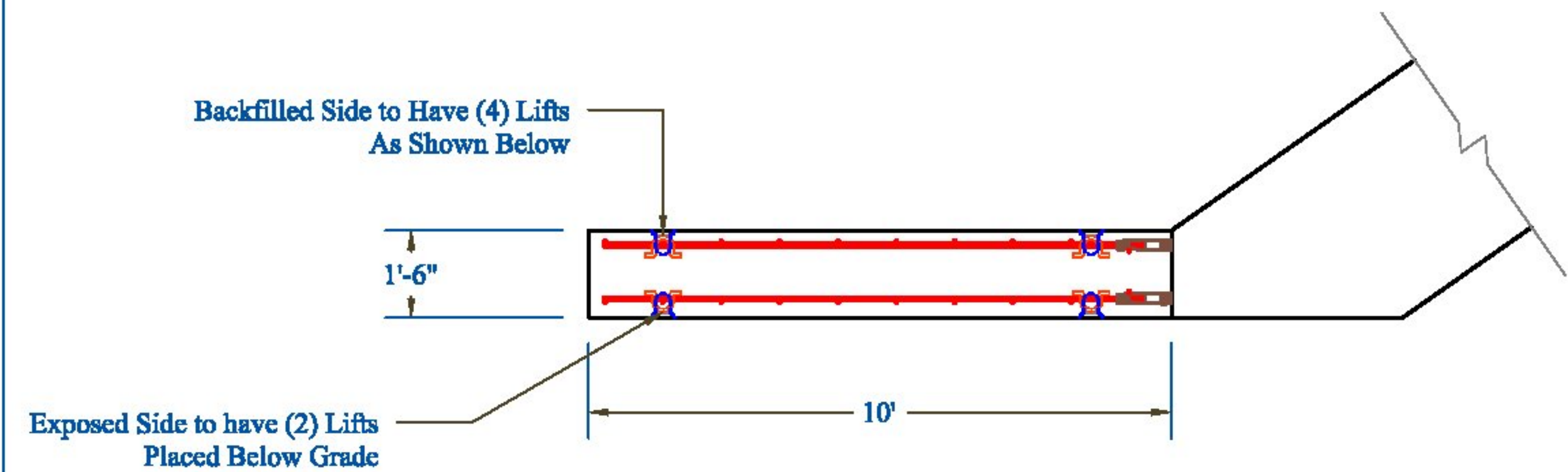
WW1: Plan View



Note: Reference rebar drawings  
for grout sleeve spacing and  
quantities for each wing wall.

Weight = 12,160 lbs

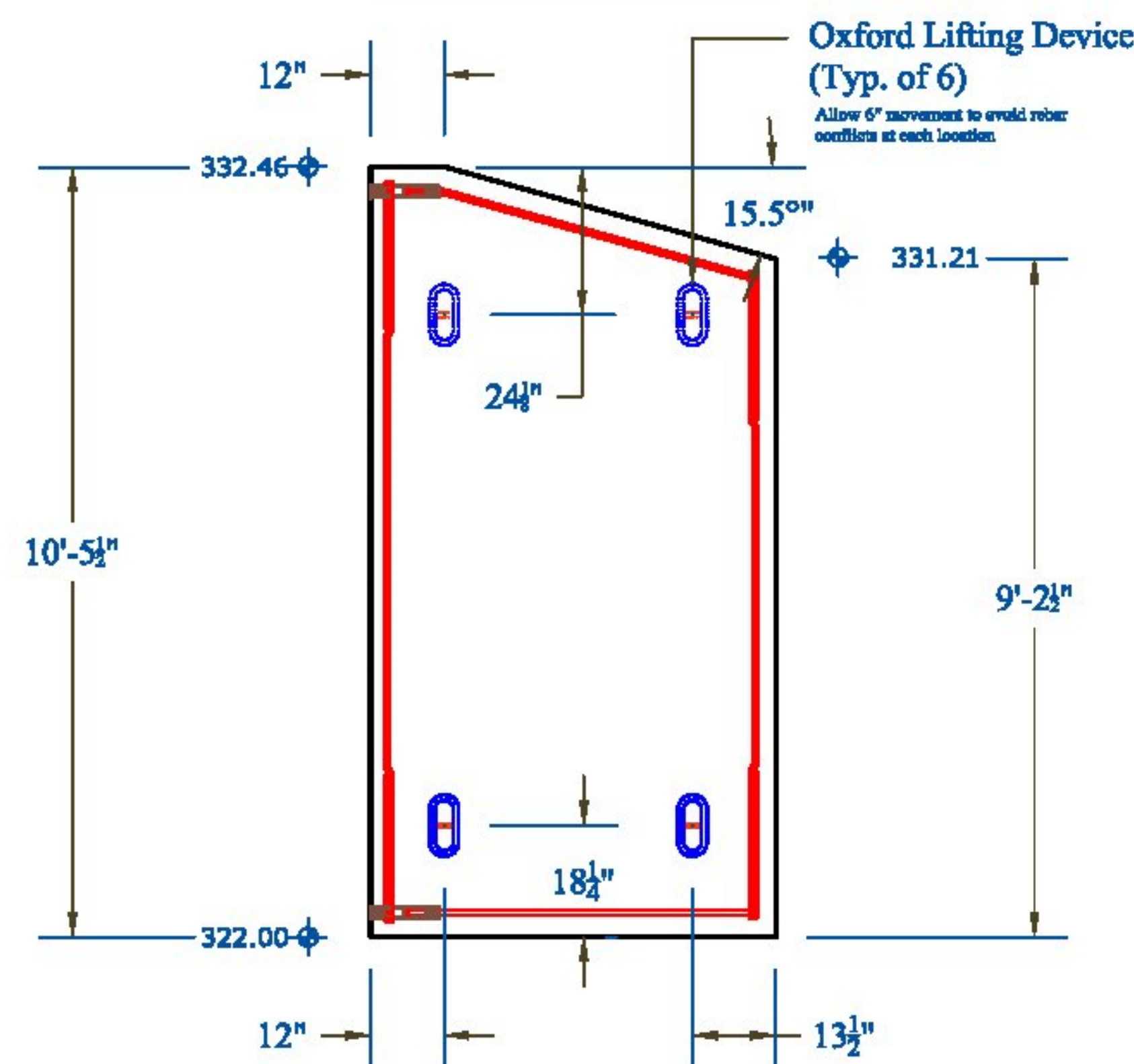
WW2: Plan View



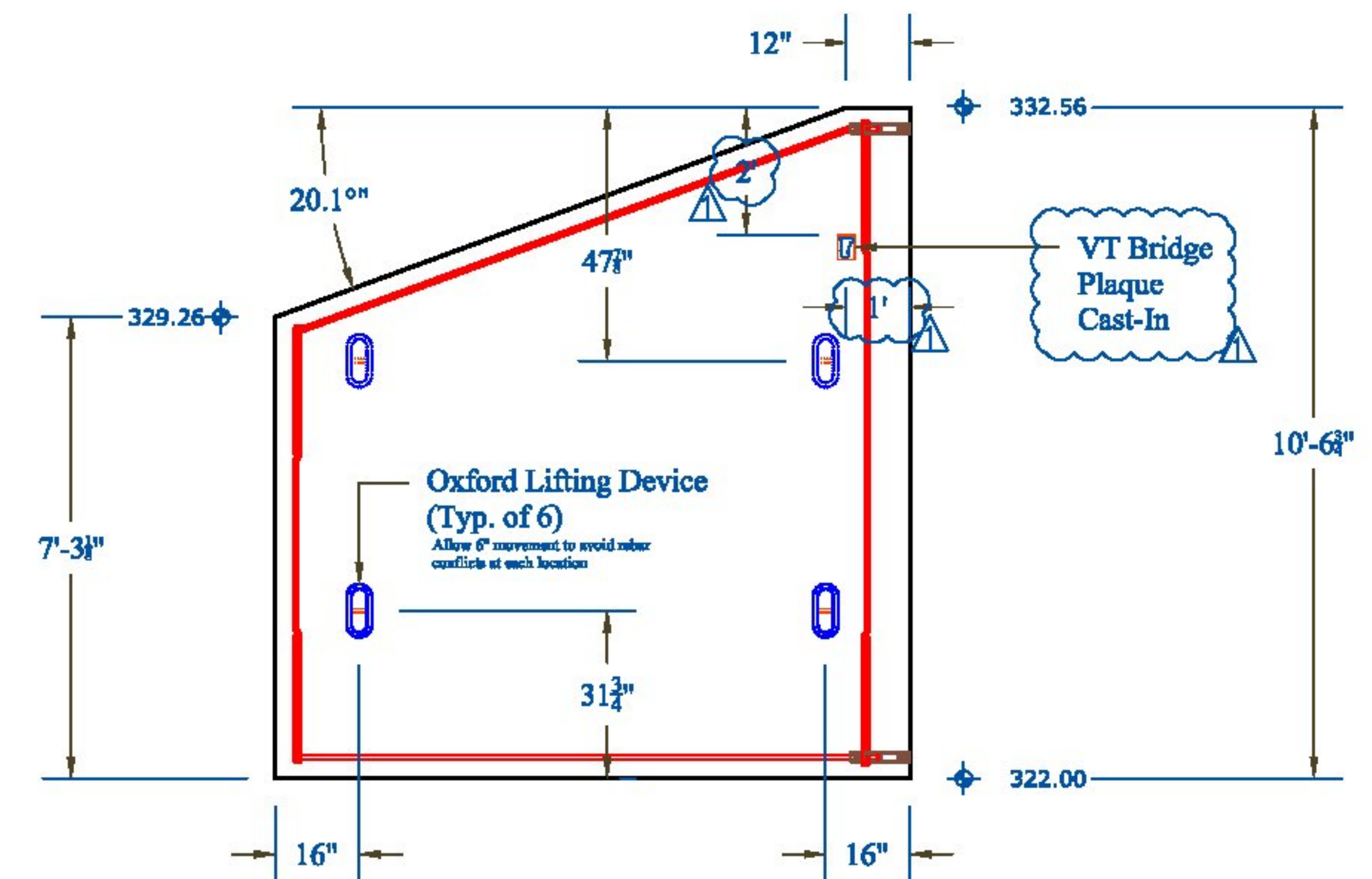
Note: Reference rebar drawings  
for grout sleeve spacing and  
quantities for each wing wall.

Weight = 20,166 lbs

WW1: Elevation View



WW2: Elevation View

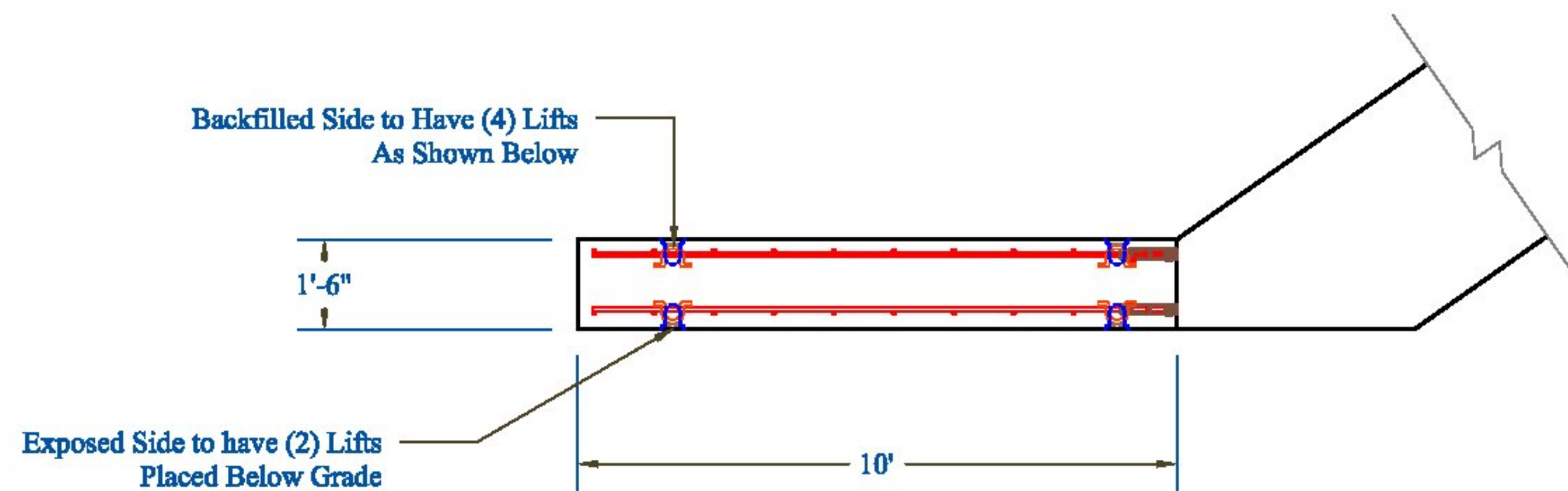


|                     |                                  |  |  |      |          |     |                          |                                                          |                       |                     |                       |                     |
|---------------------|----------------------------------|--|--|------|----------|-----|--------------------------|----------------------------------------------------------|-----------------------|---------------------|-----------------------|---------------------|
| CONTRACTOR'S VISIT: | Vermont Agency of Transportation |  |  | Rev. | Date     | By  | Description              | PRECAST CONCRETE ABUTMENT SHOP DRAWINGS (SDI JOB #15264) |                       |                     | INSTALLER:            | FABRICATOR:         |
|                     | RECEIVED                         |  |  | 1    | 04/16/15 | IBA | Changes per State Review | SUPERVISOR: M. WHEELER                                   | PROJECT NAME:         | PROJECT # 021-1(29) | S.D. Ireland Concrete | 193 INDUSTRIAL AVE. |
|                     | CK'D BY MEM OK'D BY CWC          |  |  |      |          |     |                          | DETAILER: I. ADAMS                                       | Bristol BRF 021-1(29) |                     | 193 Industrial Ave    | WILLISTON, VT 05495 |
|                     | Apr. 17, 2015                    |  |  |      |          |     |                          | CHECKER: E. Barendse                                     | PROJECT # 021-1(29)   |                     | Ph: (802) 658-0201    |                     |
|                     | RESUBMIT APPROVED                |  |  |      |          |     |                          | ENGINEER: VTAOT                                          | LOCATION: Bristol, VT |                     |                       |                     |
|                     | BY C. Carlson DATE 04-17-2015    |  |  |      |          |     |                          |                                                          |                       |                     | 03/17/2015            | WINGWALLS_1         |
|                     |                                  |  |  |      |          |     |                          |                                                          |                       |                     |                       | 4_OF_16             |





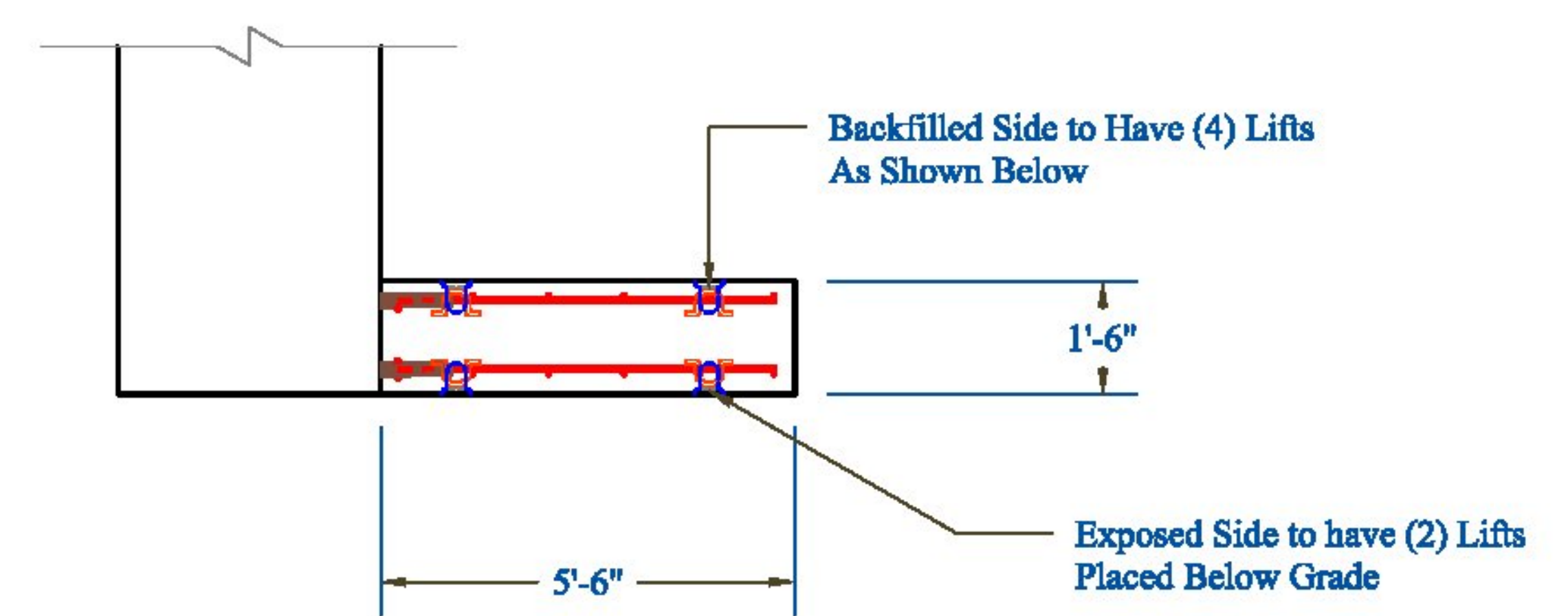
WW3: Plan View



△ Note: Reference rebar drawings for grout sleeve spacing and quantities for each wing wall.

Weight = 19,802 lbs

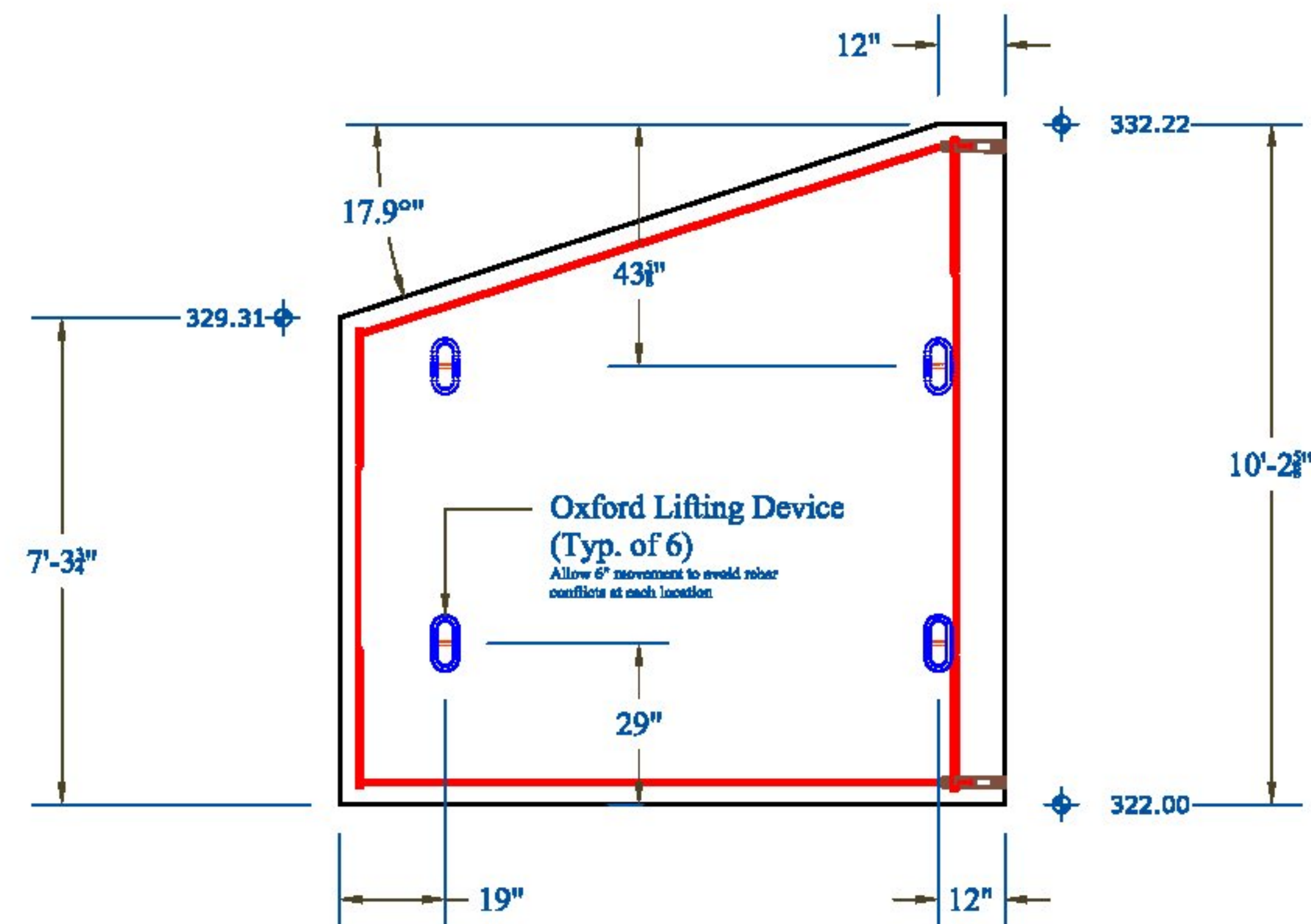
WW4: Plan View



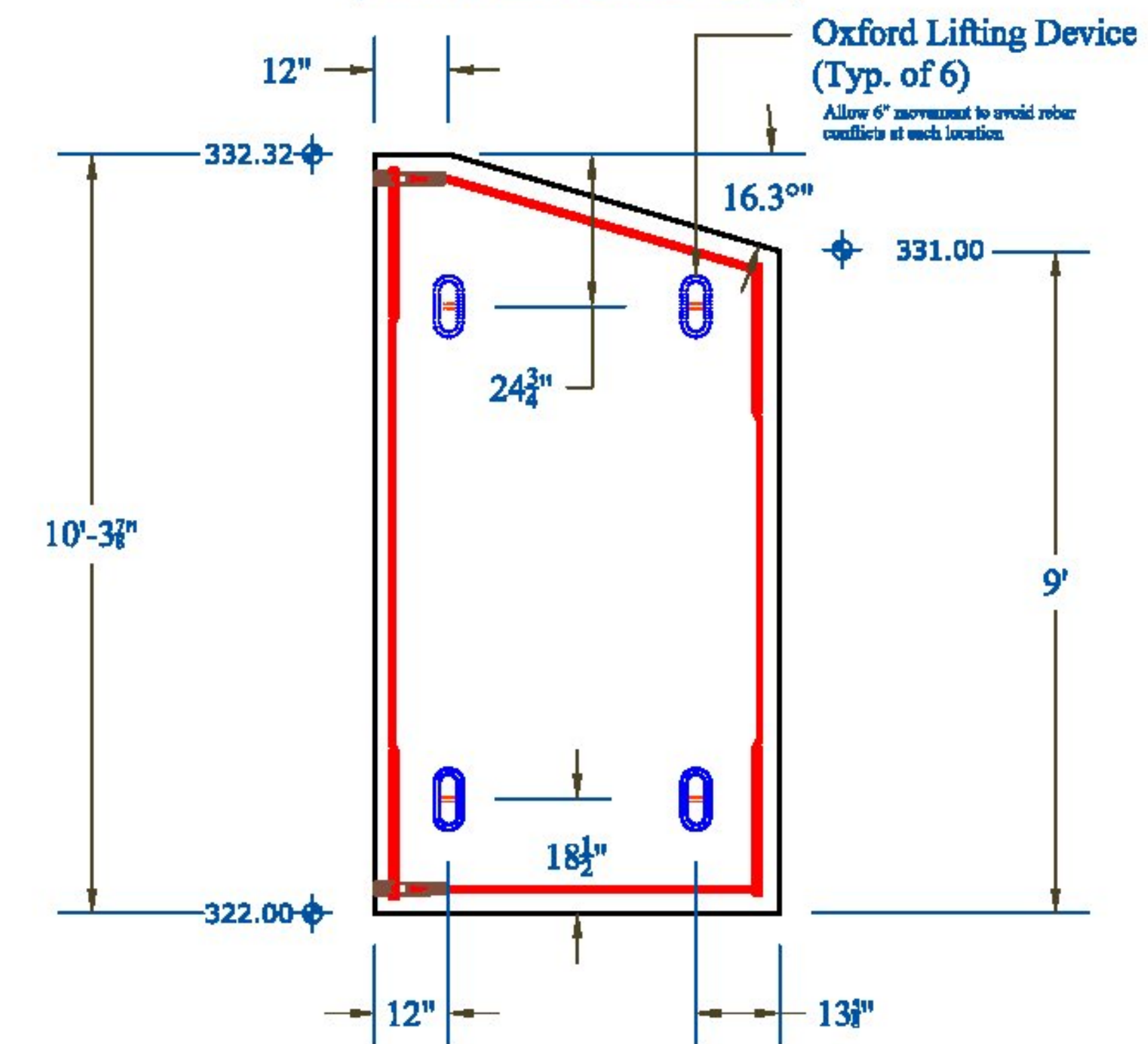
△ Note: Reference rebar drawings for grout sleeve spacing and quantities for each wing wall.

Weight = 11,953 lbs

WW3: Elevation View



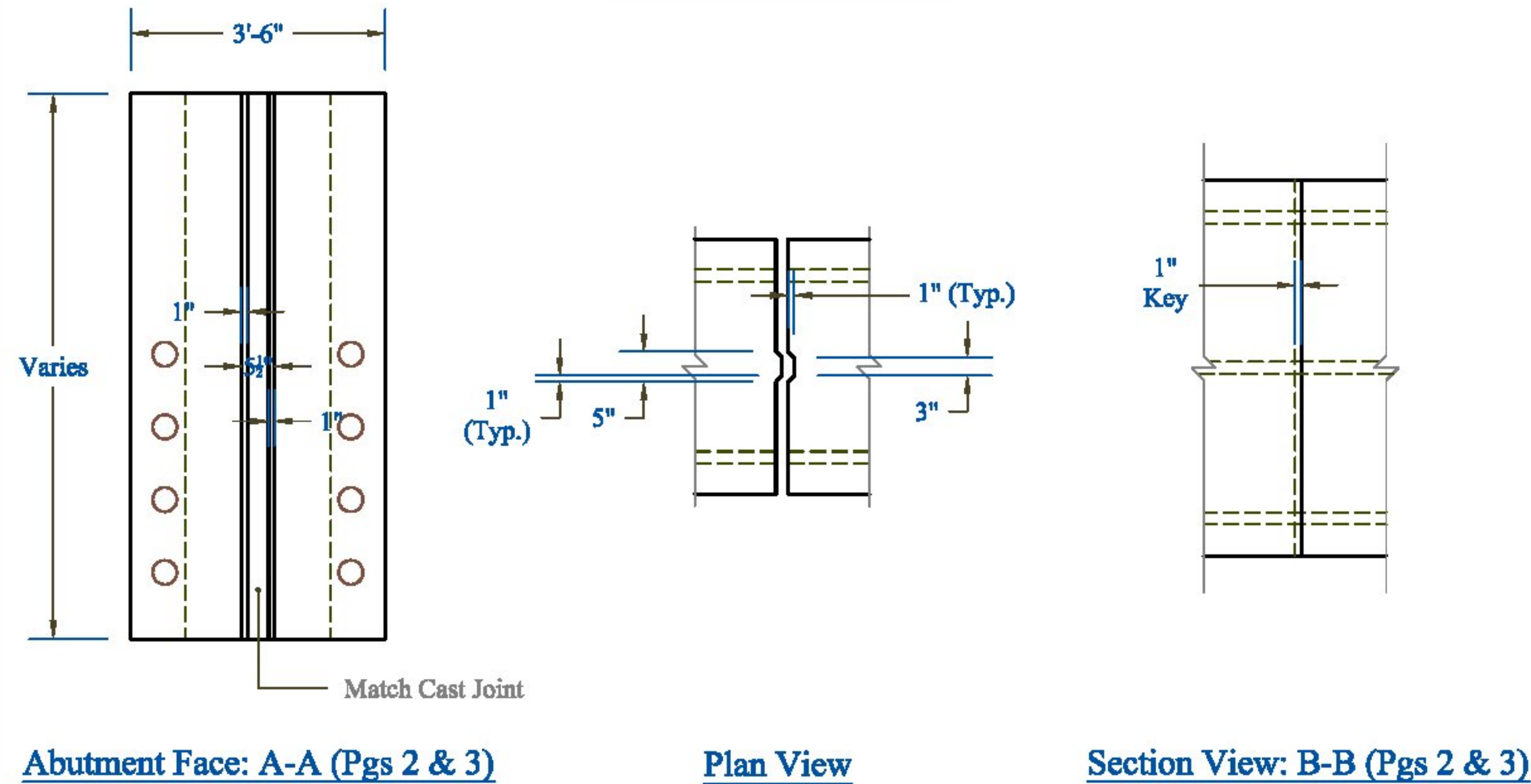
WW4: Elevation View



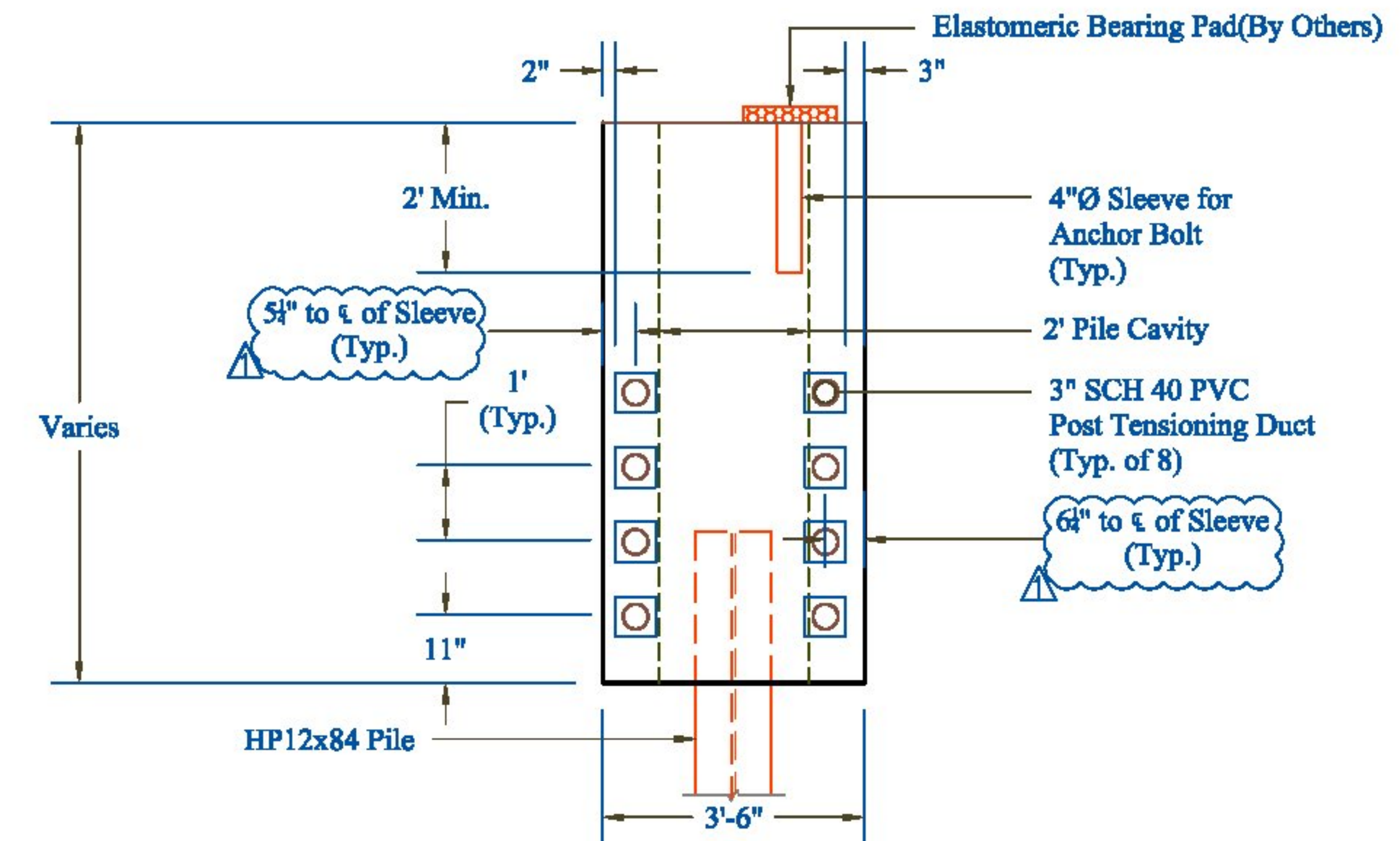
|                     |                                                                                                                                                                                                     |      |          |     |                          |                                                                                         |                                                                                        |                                                                                  |                                                                                 |                                          |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|-----|--------------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------|------------------------------------------|
| CONTRACTOR'S VISIT: | <div>Vermont Agency of Transportation</div> <div>RECEIVED</div> <div>CK'D BY MEM OK'D BY CWC</div> <div>Apr. 17, 2015</div> <div>RESUBMIT APPROVED ✓</div> <div>BY C. Carlson DATE 04-17-2015</div> | Rev. | Date     | By  | Description              | PRECAST CONCRETE ABUTMENT SHOP DRAWINGS (SDI JOB #15264)                                |                                                                                        | INSTALLER:                                                                       | FABRICATOR:                                                                     | <div>SD Ireland</div> <div>PRECAST</div> |
|                     |                                                                                                                                                                                                     | 1    | 04/16/15 | IBA | Changes per State Review | SUPERVISOR: M. WHEELER<br>DETAILER: I. ADAMS<br>CHECKER: E. Barendse<br>ENGINEER: VTAOT | PROJECT NAME:<br>Bristol BRP 021-1(29)<br>PROJECT # 021-1(29)<br>LOCATION: Bristol, VT | S.D. Ireland Concrete<br>193 Industrial Ave<br>Williston, VT 05495<br>03/17/2015 | 193 INDUSTRIAL AVE.<br>WILLISTON, VT 05495<br>Ph: (802) 658-0201<br>WINGWALLS_2 |                                          |



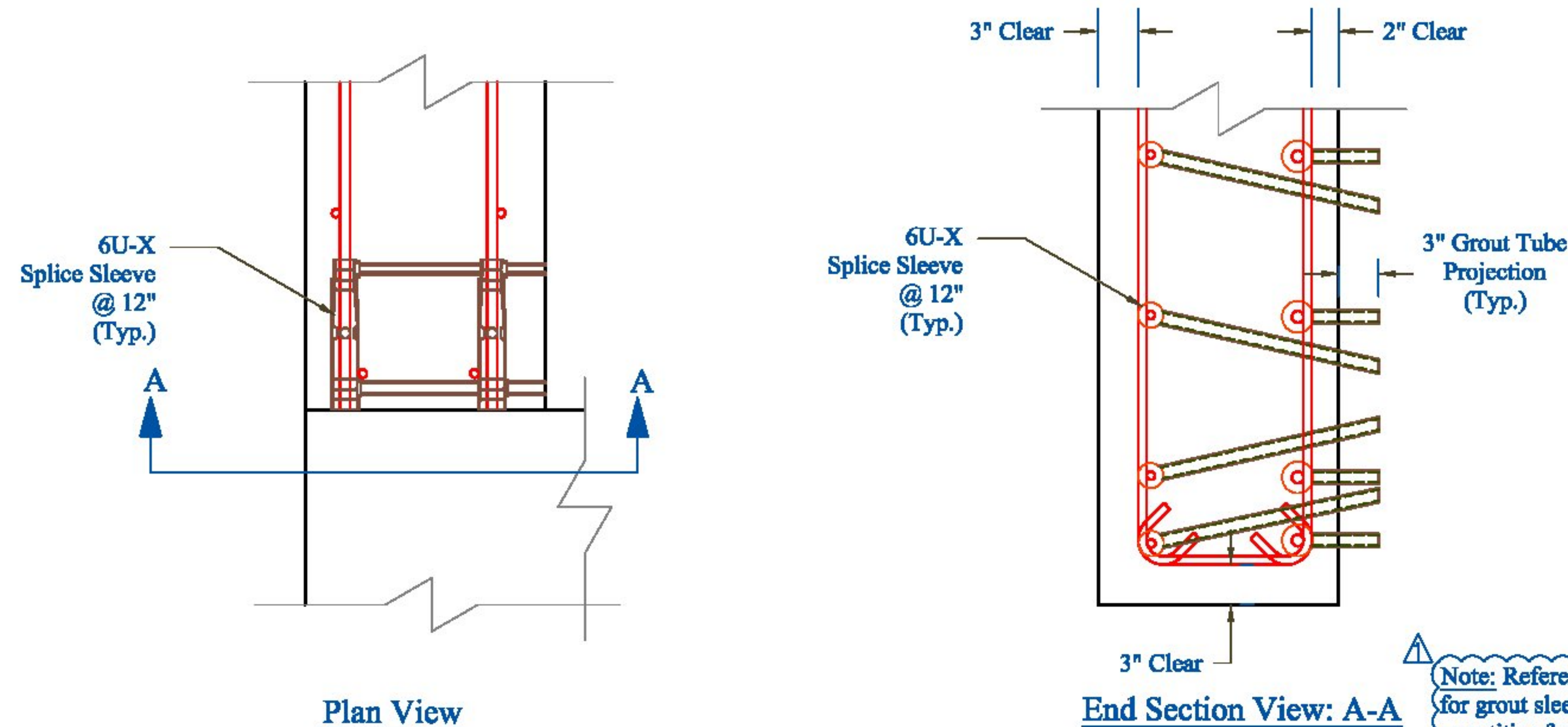
### Match Cast Joint Detail



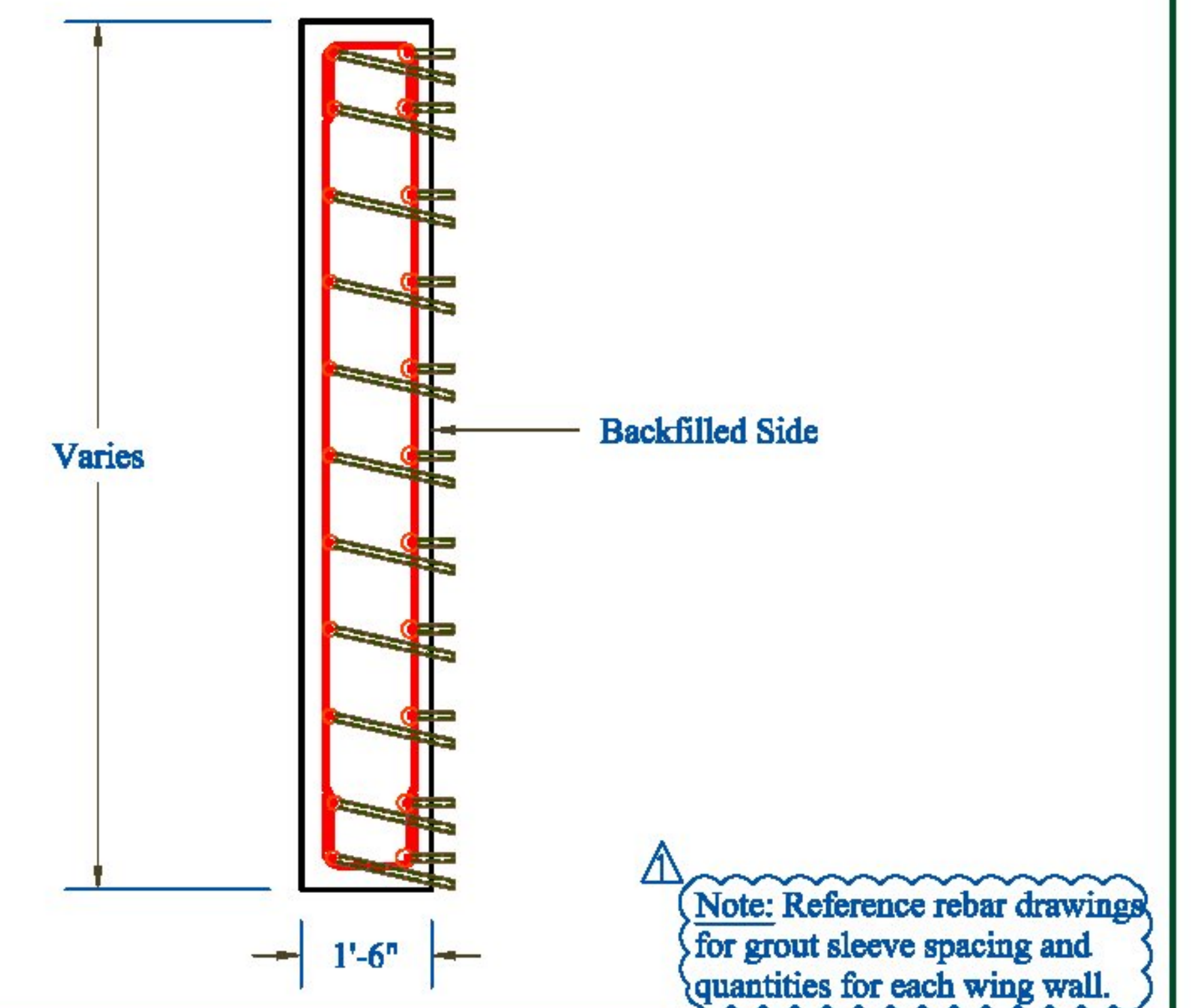
### Abutment 1 & 2: Typical Section



### Wingwall Grout Sleeve Detail



### Wingwall 1 - 4: Typical Section

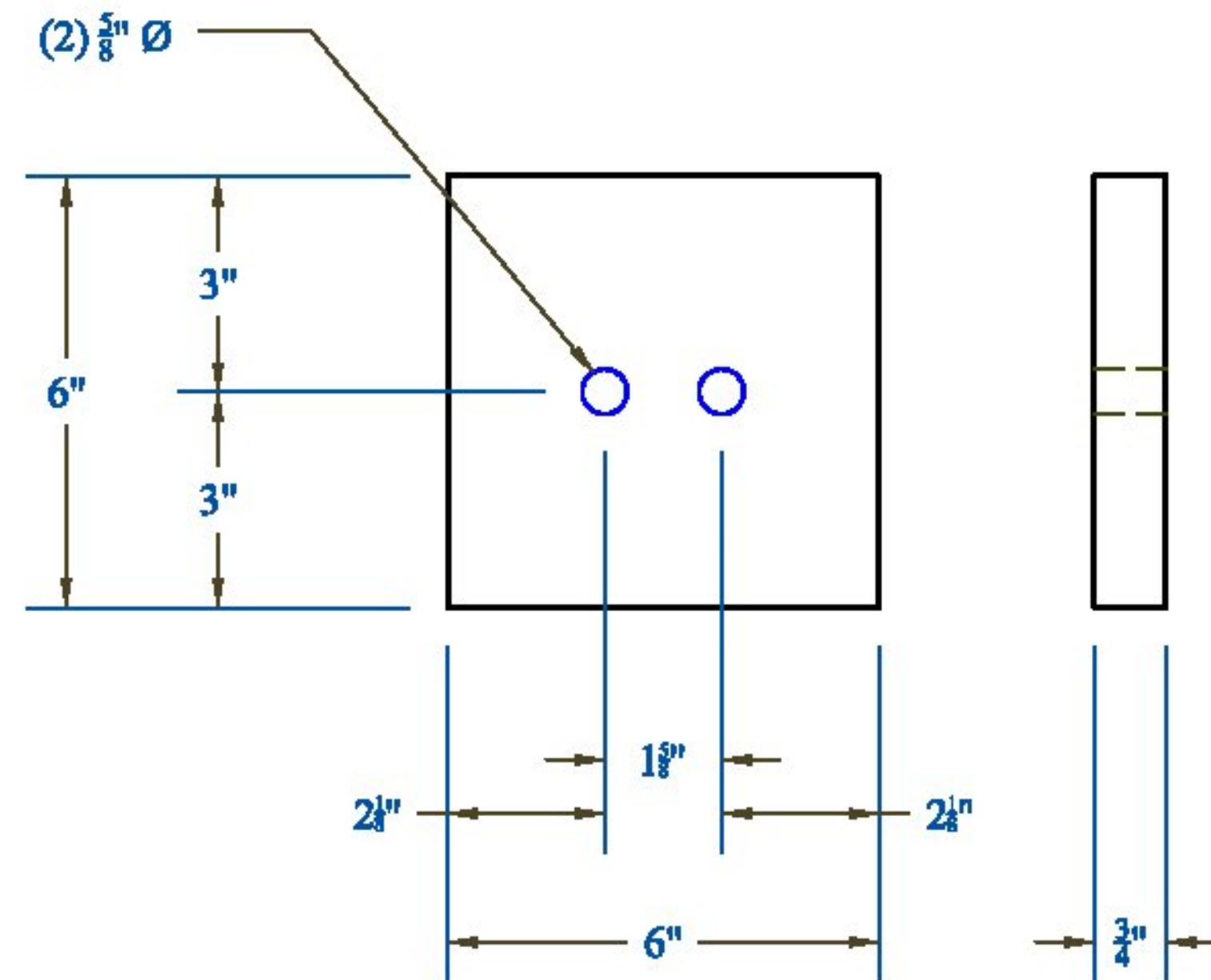


|                    |                                                                                                                                                                                                   |        |               |        |                                      |                                                                                         |                                                                                        |                                                                                  |                                                                                 |                                                                                       |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---------------|--------|--------------------------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| CONTRACTORS VISPE: | <div>Vermont Agency of Transportation</div> <div>RECEIVED</div> <div>CK'D BY MEM OK'D BY CWC</div> <div>Apr. 17, 2015</div> <div>RESUBMIT APPROVED</div> <div>BY C. Carlson DATE 04-17-2015</div> | Rev. 1 | Date 04/16/15 | By IBA | Description Changes per State Review | PRECAST CONCRETE ABUTMENT SHOP DRAWINGS (SDI JOB #15264)                                |                                                                                        | INSTALLER:<br>S.D. Ireland Concrete<br>193 Industrial Ave<br>Williston, VT 05495 | FABRICATOR:<br>193 INDUSTRIAL AVE.<br>WILLISTON, VT 05495<br>Ph: (802) 658-0201 |  |
|                    |                                                                                                                                                                                                   |        |               |        |                                      | SUPERVISOR: M. WHEELER<br>DETAILER: I. ADAMS<br>CHECKER: E. Barendse<br>ENGINEER: VTAOT | PROJECT NAME:<br>Bristol BR# 021-1(29)<br>PROJECT # 021-1(29)<br>LOCATION: Bristol, VT |                                                                                  |                                                                                 |                                                                                       |
|                    |                                                                                                                                                                                                   |        |               |        |                                      |                                                                                         |                                                                                        | 03/17/2015                                                                       | DETAILS                                                                         | 6_OF_16                                                                               |

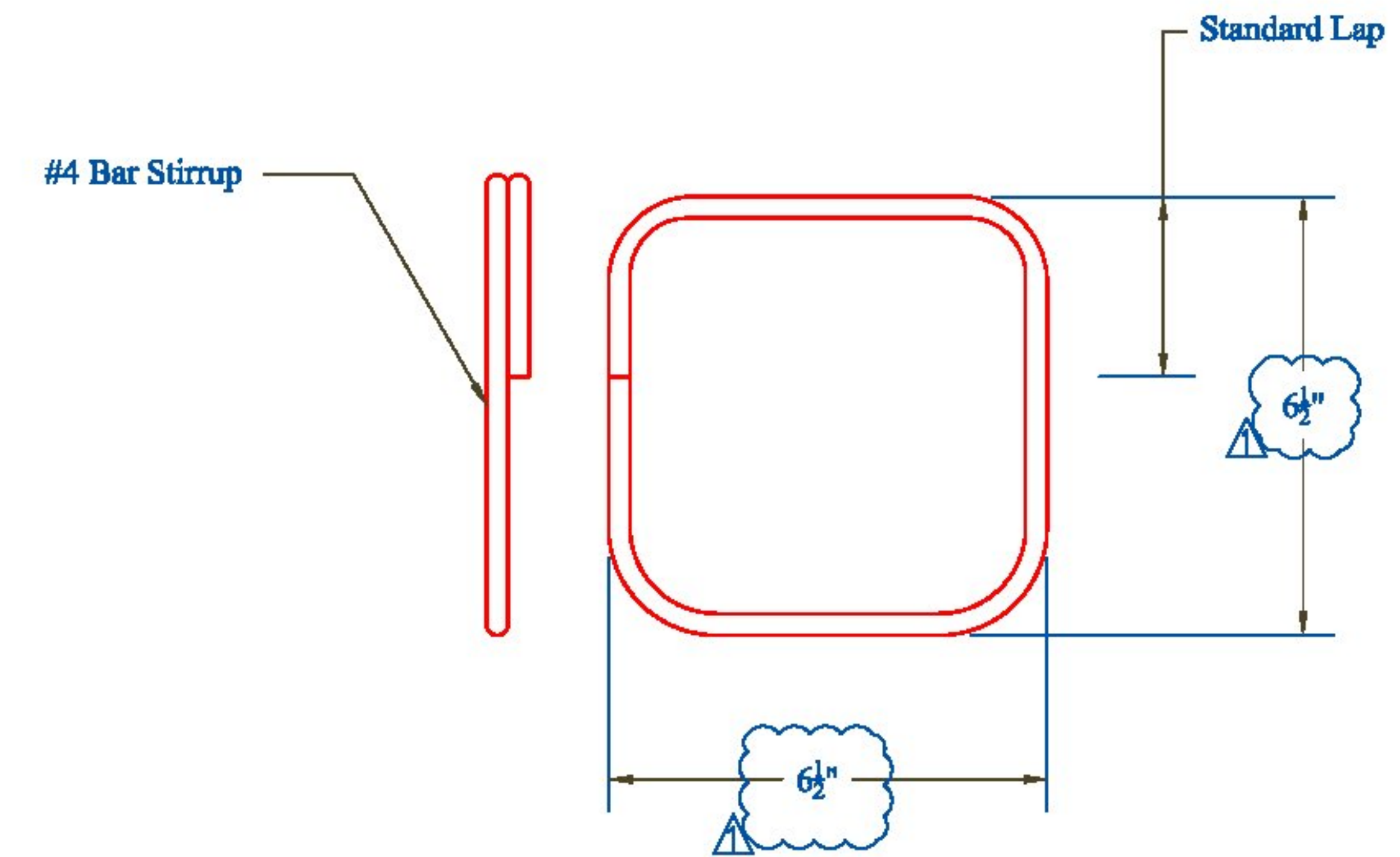


### Tension Duct Bearing Plate

\*See Post Tensioning Note 1 on Pg. 1\*

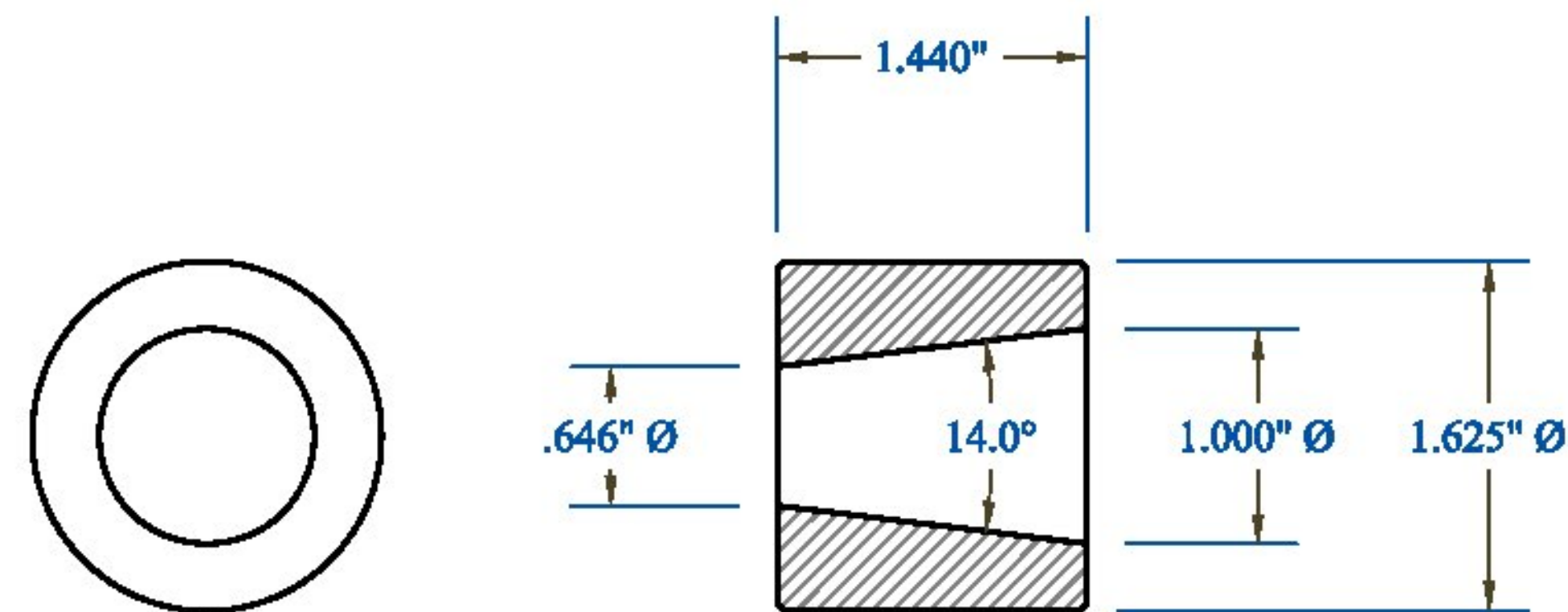


### Reinforcement Detail at Tensioning Blockouts



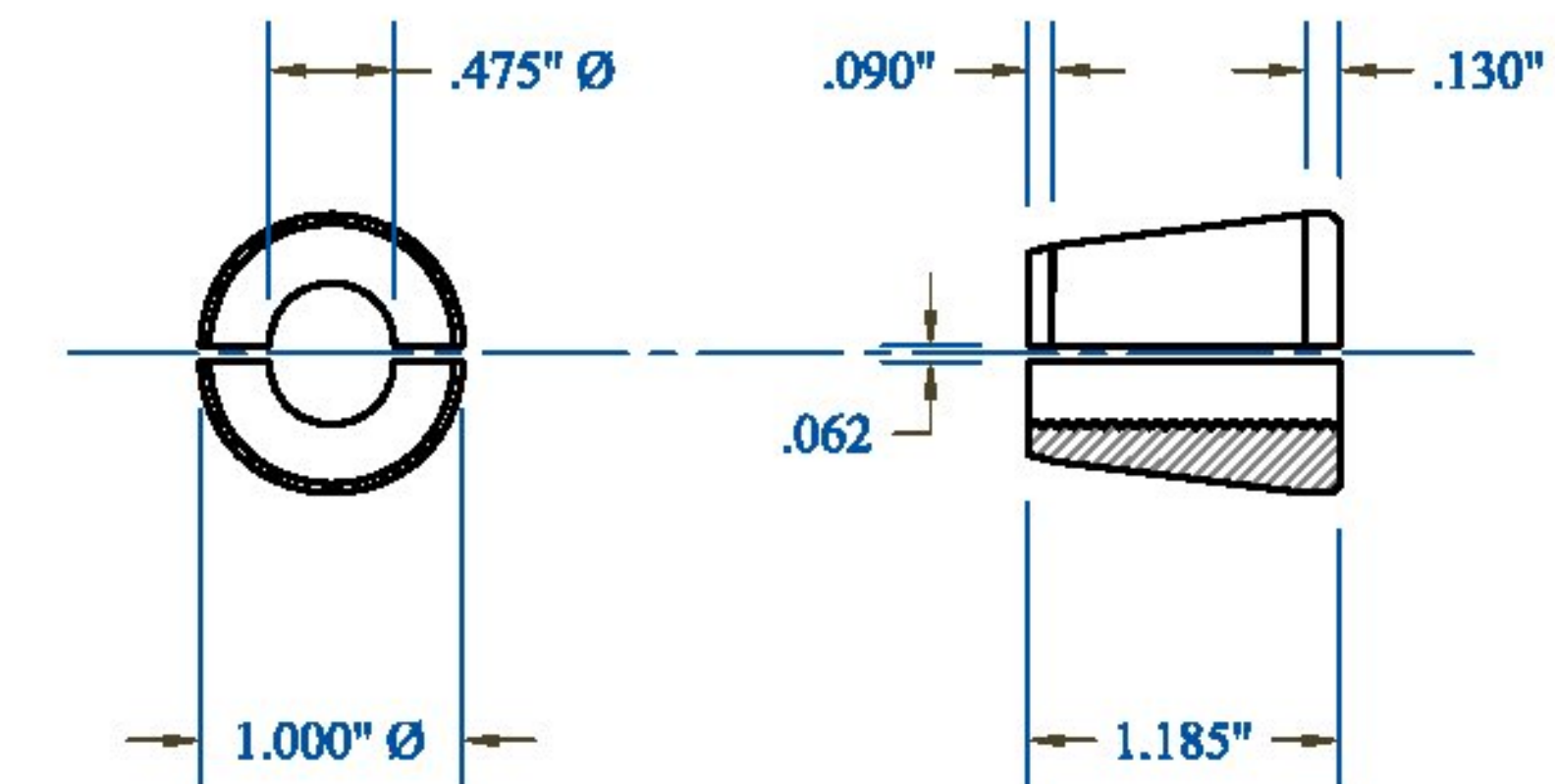
### 0.5" Barrel Chuck

\*See Post Tensioning Note 1 on Pg. 1\*



### 0.5" 2-Part Wedge

\*See Post Tensioning Note 1 on Pg. 1\*



|                     |                                                                                                                                                         |                                                                                        |            |                   |           |                                         |                                                          |  |                                                                                  |  |                                                                                 |  |                                                                                       |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|------------|-------------------|-----------|-----------------------------------------|----------------------------------------------------------|--|----------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------|
| CONTRACTOR'S VISIT: | Vermont Agency of Transportation<br><b>RECEIVED</b><br>CK'D BY MEM OK'D BY CWC<br>Apr. 17, 2015<br>RESUBMIT APPROVED ✓<br>BY C. Carlson DATE 04-17-2015 |                                                                                        | Rev.<br>1  | Date<br>04/16/15  | By<br>IBA | Description<br>Changes per State Review | PRECAST CONCRETE ABUTMENT SHOP DRAWINGS (SDI JOB #15264) |  | INSTALLER:<br>S.D. Ireland Concrete<br>193 Industrial Ave<br>Williston, VT 05495 |  | FABRICATOR:<br>193 INDUSTRIAL AVE.<br>WILLISTON, VT 05495<br>Ph: (802) 658-0201 |  |  |
|                     | SUPERVISOR: M. WHEELER<br>DETAILER: I. ADAMS<br>CHECKER: E. Barendse<br>ENGINEER: VTAOT                                                                 | PROJECT NAME:<br>Bristol BRP 021-1(29)<br>PROJECT # 021-1(29)<br>LOCATION: Bristol, VT | 03/17/2015 | POST_TENSIONING_1 |           | 7_OF_16                                 |                                                          |  |                                                                                  |  |                                                                                 |  |                                                                                       |

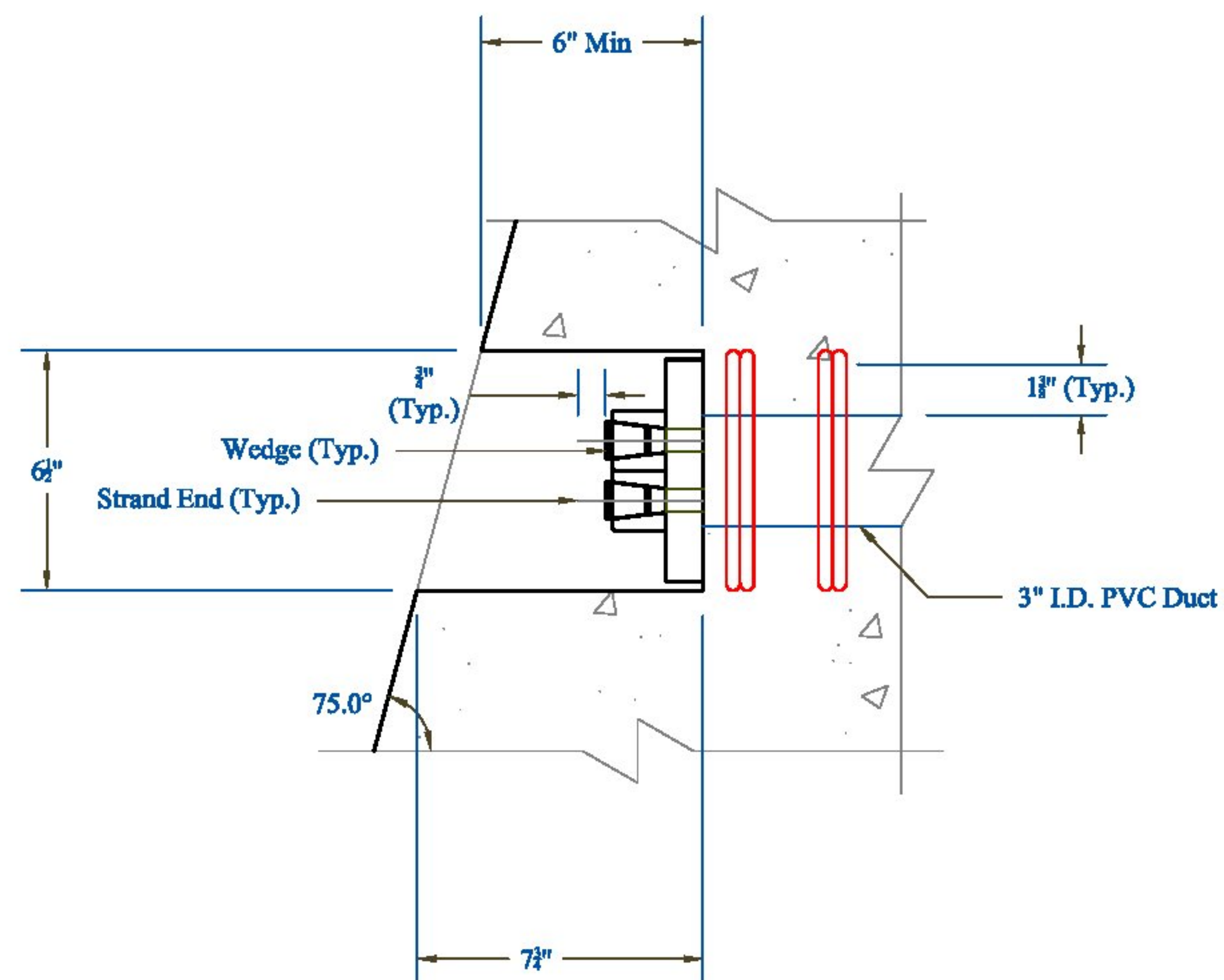
03/17/2015

POST\_TENSIONING\_1

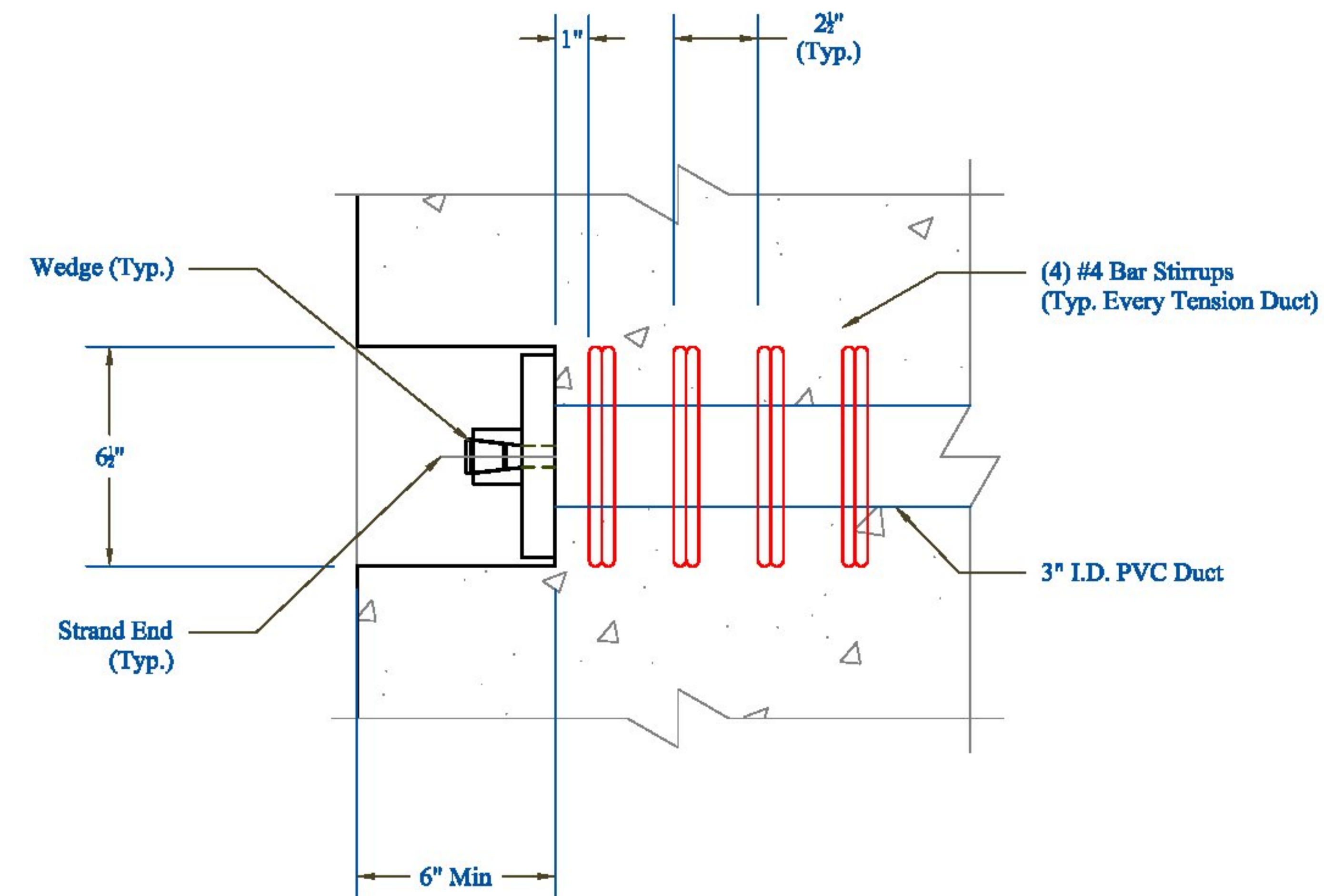
7\_OF\_16



**Tensioning Blockout Plan**  
 \*See Post Tensioning Note 1 & 6 on Pg. 1\*



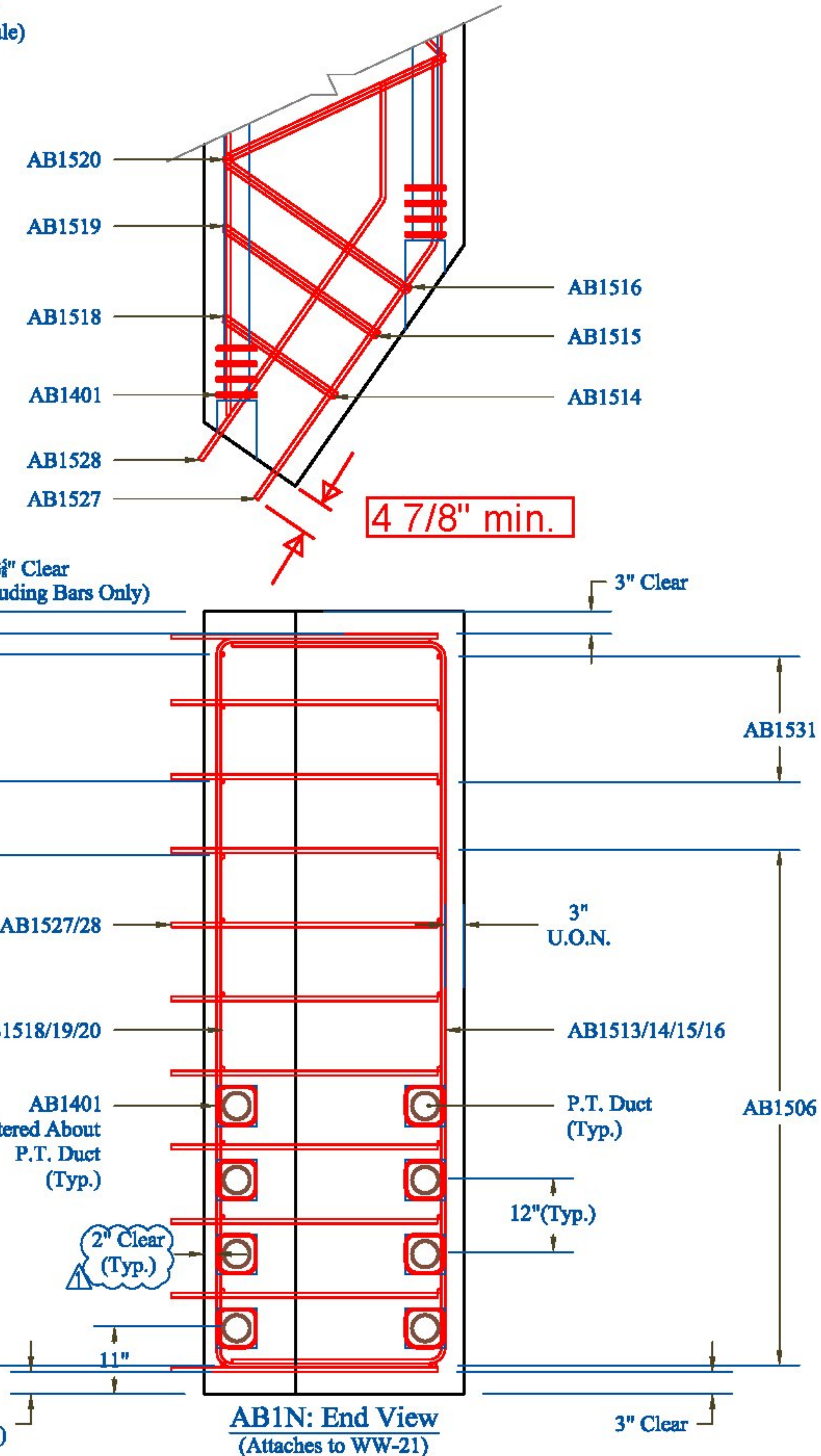
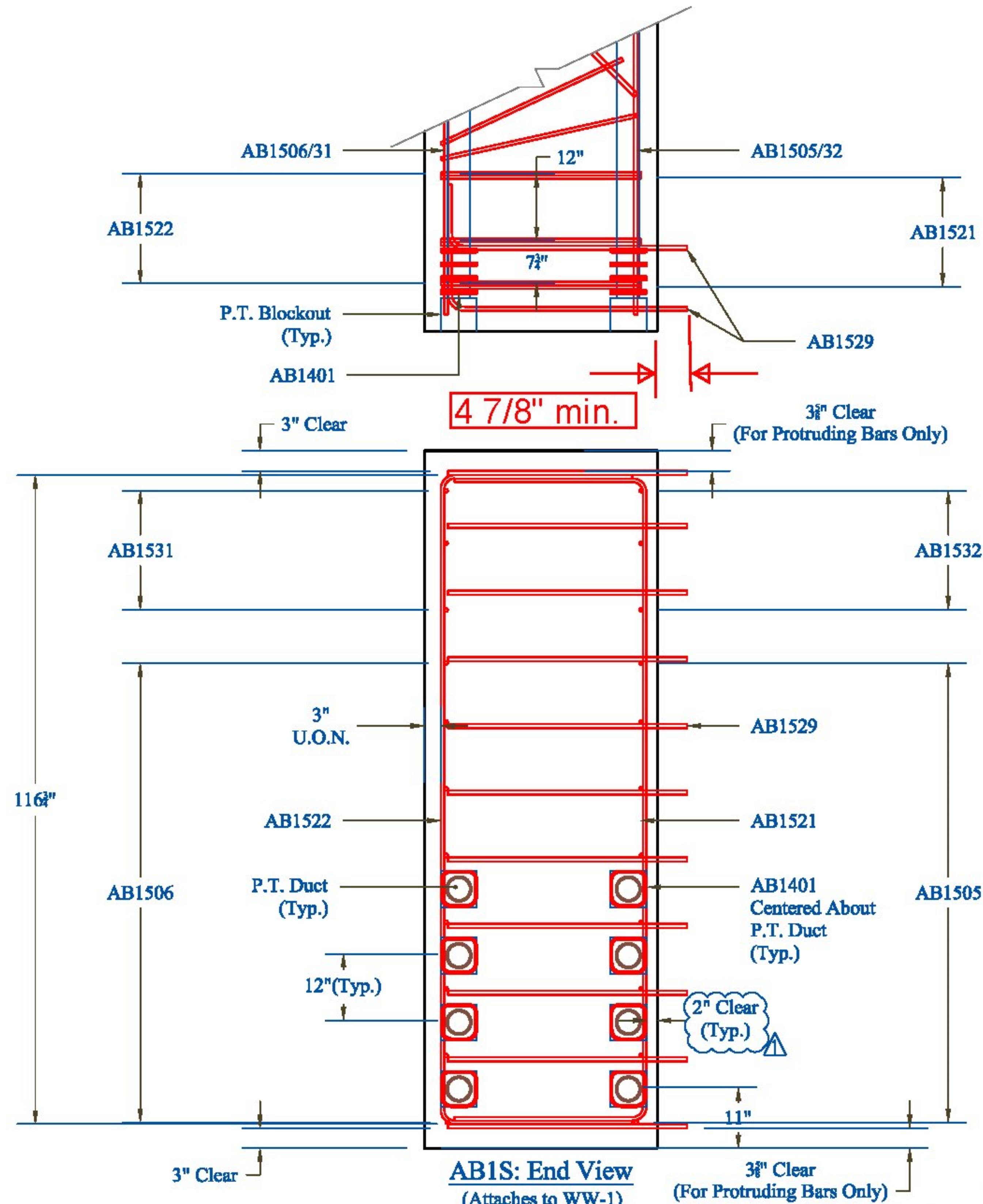
**Tensioning Blockout Section**  
 \*See Post Tensioning Note 1 & 6 on Pg. 1\*



|                     |                                                                                                                                                                         |      |          |     |                          |                                                                                         |                                                                                         |                                                                                  |                                                                                       |                                          |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|-----|--------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|------------------------------------------|
| CONTRACTOR'S VISPE: | <div>Vermont Agency of Transportation<br/><b>RECEIVED</b><br/>CK'D BY MEM OK'D BY CWC<br/>Apr. 17, 2015<br/>RESUBMIT APPROVED ✓<br/>BY C. Carlson DATE 04-17-2015</div> | Rev. | Date     | By  | Description              | PRECAST CONCRETE ABUTMENT SHOP DRAWINGS (SDI JOB #15264)                                |                                                                                         | INSTALLER:                                                                       | FABRICATOR:                                                                           | <div><b>SD Ireland</b><br/>PRECAST</div> |
|                     |                                                                                                                                                                         | 1    | 04/16/15 | IBA | Changes per State Review | SUPERVISOR: M. WHEELER<br>DETAILER: I. ADAMS<br>CHECKER: E. Barendse<br>ENGINEER: VTAOT | PROJECT NAME:<br>Bristol BR# 021-1(29)<br>PROJECT #: 021-1(29)<br>LOCATION: Bristol, VT | S.D. Ireland Concrete<br>193 Industrial Ave<br>Williston, VT 05495<br>03/17/2015 | 193 INDUSTRIAL AVE.<br>WILLISTON, VT 05495<br>Ph: (802) 658-0201<br>POST_TENSIONING_2 |                                          |



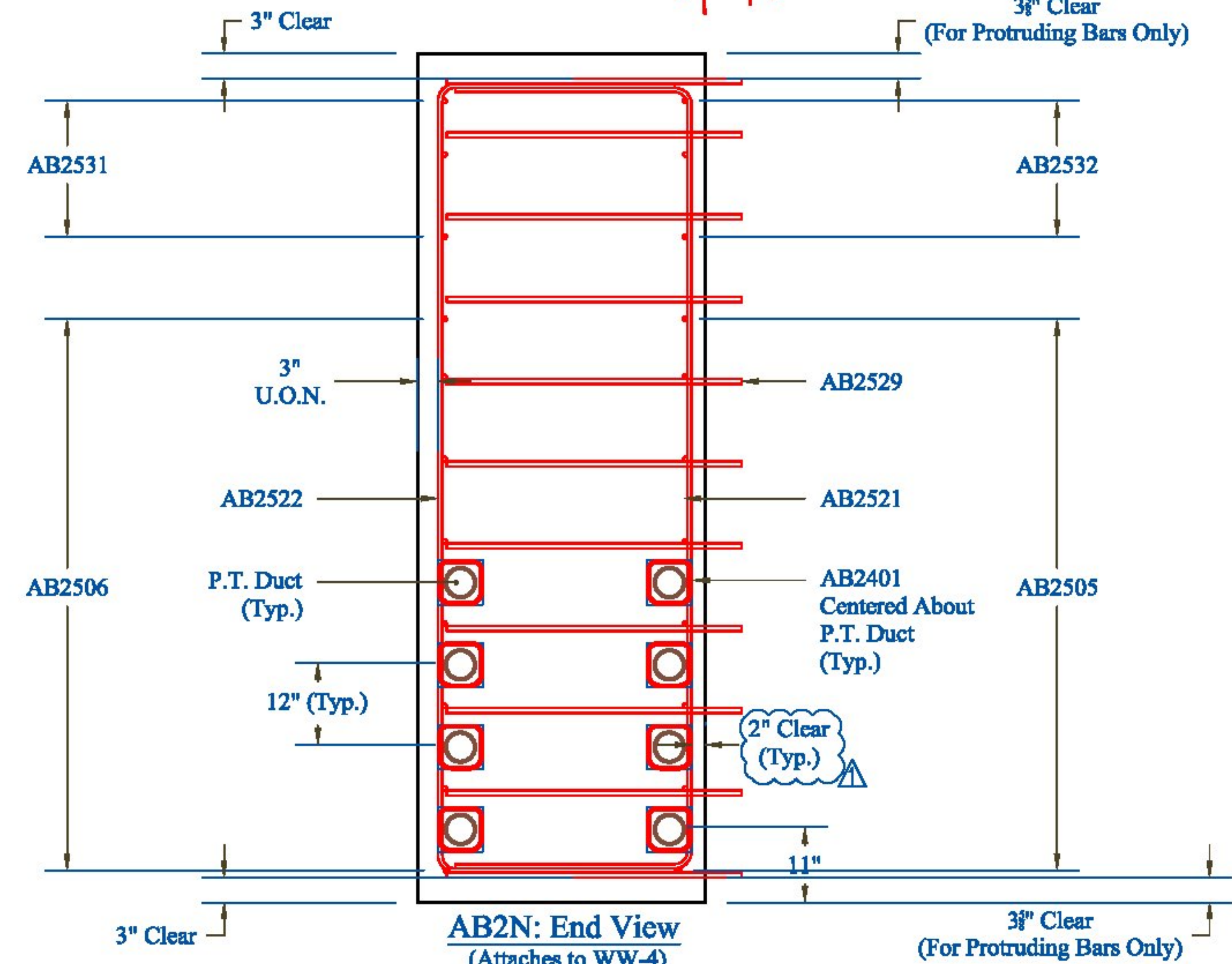
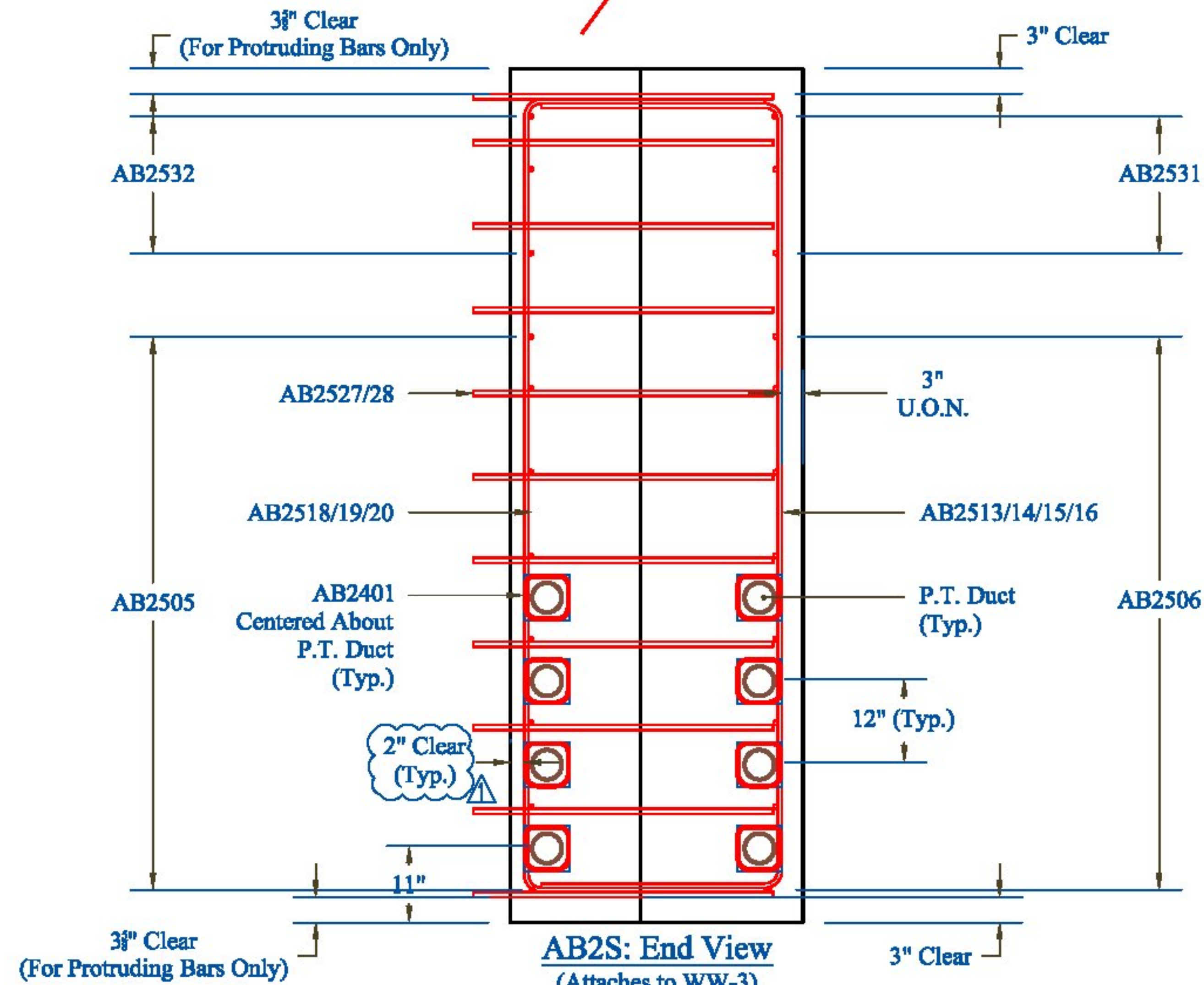
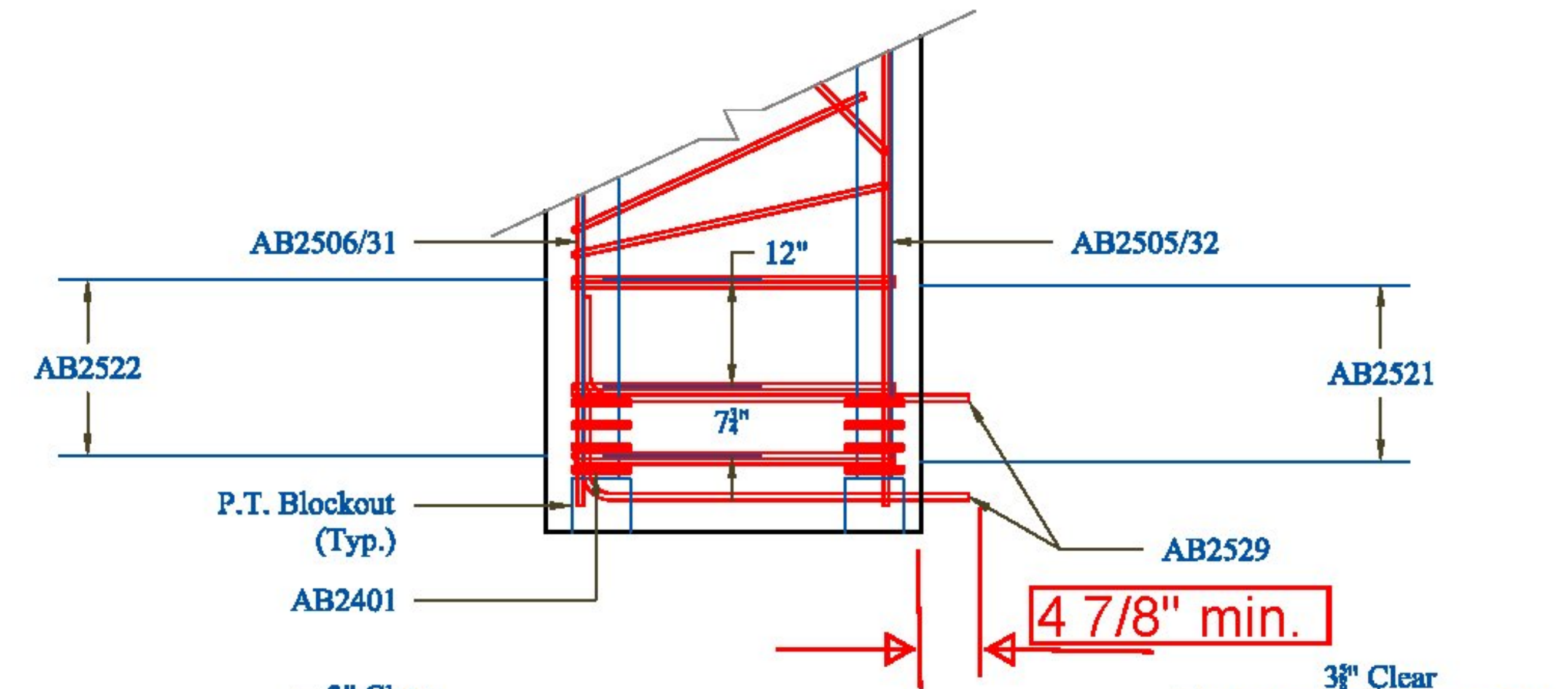
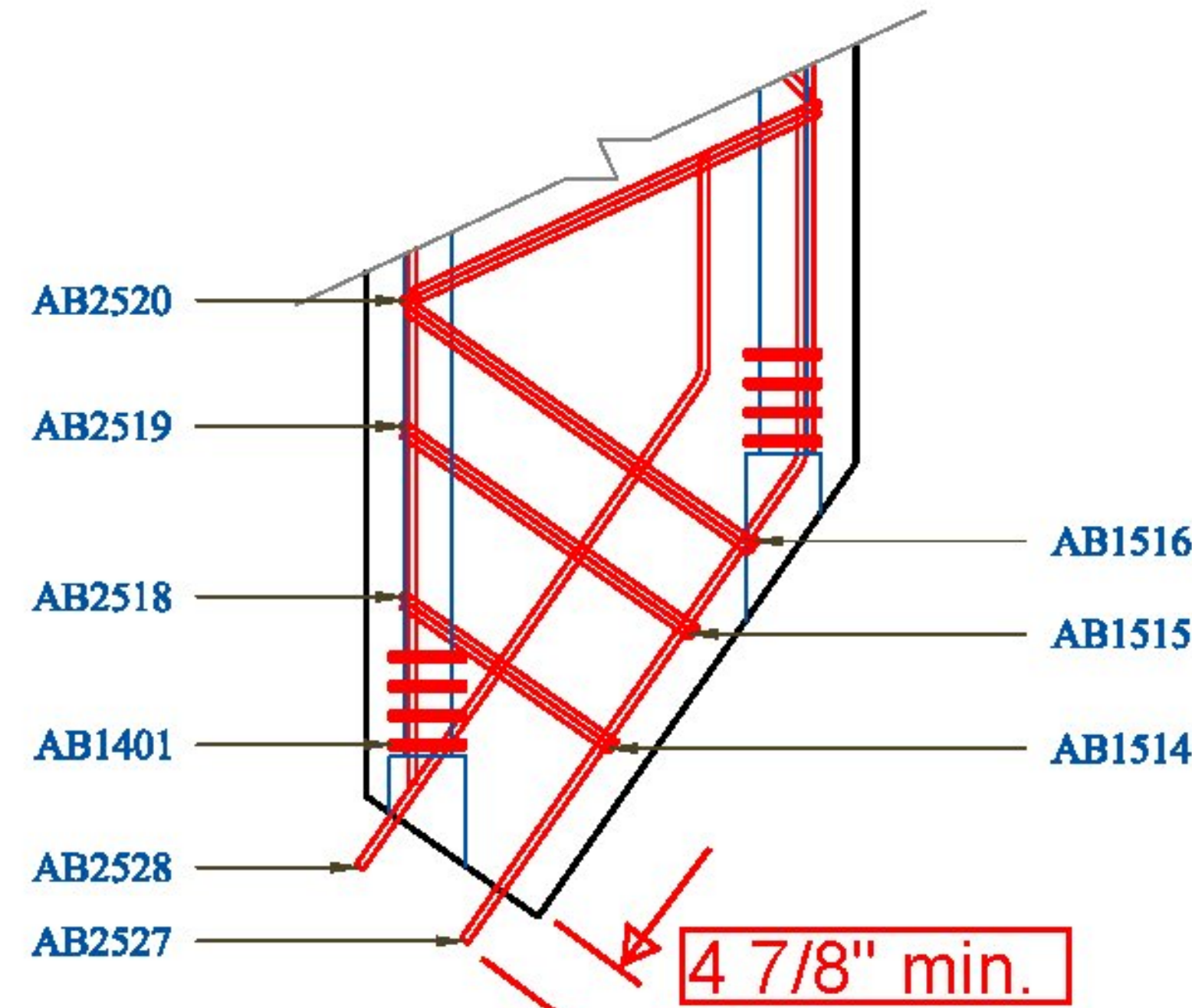
**End Bar Detail: Abutment 1**  
(Refer to Rebar Plan for Full Bar Schedule)



|                     |                                                                                                                                                                              |  |  |           |                  |           |                                         |                                                                                         |                                                                                        |                                                                                  |                  |                                                                                 |  |                                                                                       |  |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|-----------|------------------|-----------|-----------------------------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|------------------|---------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------|--|
| CONTRACTOR'S VISIT: | Vermont Agency of Transportation<br><b>RECEIVED</b><br><br>CK'D BY MEM OK'D BY CWC<br><br>Apr. 17, 2015<br><br>RESUBMIT APPROVED AS NOTED ✓<br>BY C. Carlson DATE 04-17-2015 |  |  | Rev.<br>1 | Date<br>04/16/15 | By<br>IBA | Description<br>Changes per State Review | PRECAST CONCRETE ABUTMENT SHOP DRAWINGS (SDI JOB #15264)                                |                                                                                        | INSTALLER:<br>S.D. Ireland Concrete<br>193 Industrial Ave<br>Williston, VT 05495 |                  | FABRICATOR:<br>193 INDUSTRIAL AVE.<br>WILLISTON, VT 05495<br>Ph: (802) 658-0201 |  |  |  |
|                     |                                                                                                                                                                              |  |  |           |                  |           |                                         | SUPERVISOR: M. WHEELER<br>DETAILER: I. ADAMS<br>CHECKER: E. Barendse<br>ENGINEER: VTAOT | PROJECT NAME:<br>Bristol BRP 021-1(29)<br>PROJECT # 021-1(29)<br>LOCATION: Bristol, VT | 03/17/2015                                                                       | END_BAR_DETAIL_1 |                                                                                 |  | 9_OF_16                                                                               |  |

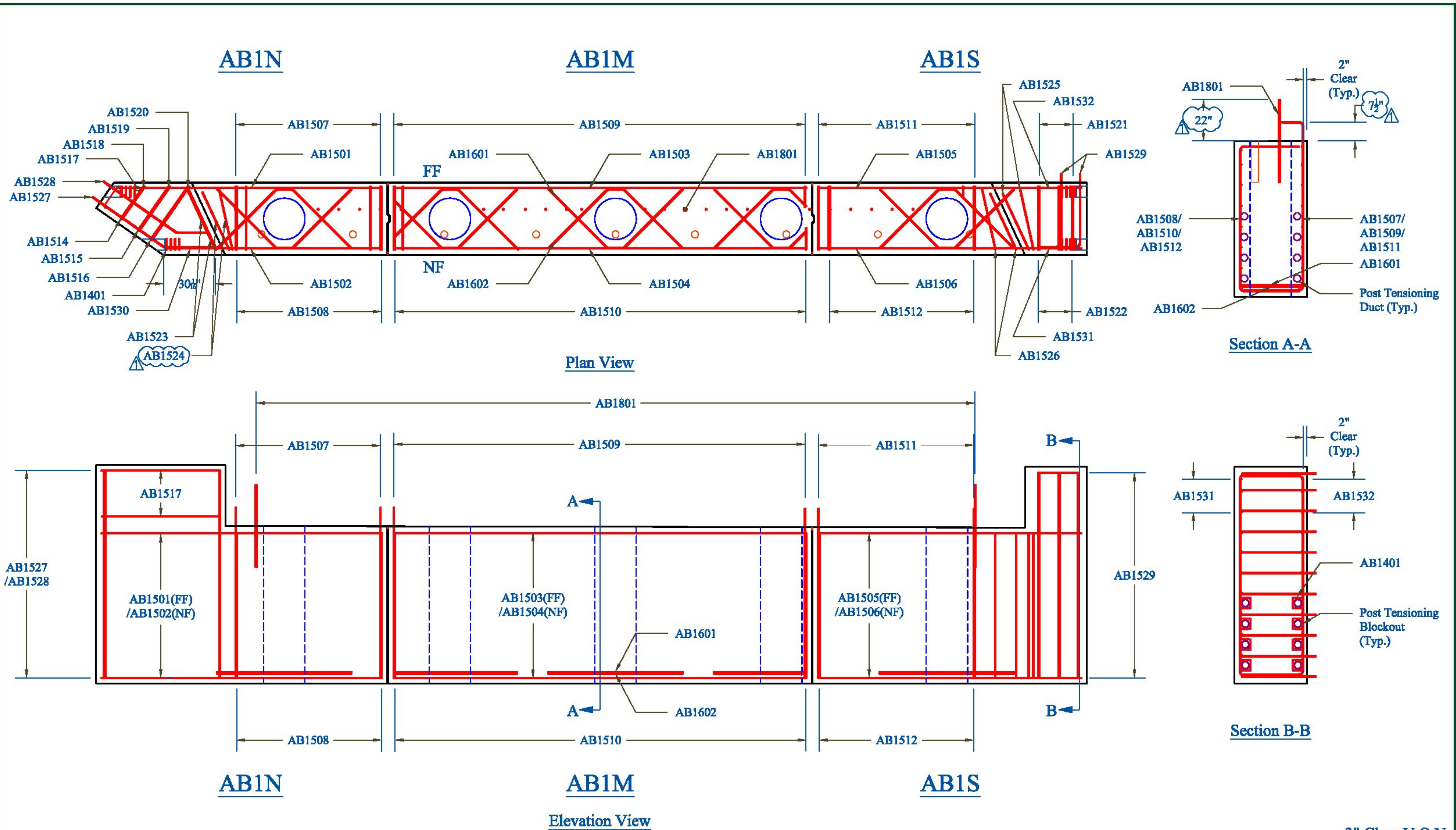


**End Bar Detail: Abutment 2**  
(Refer to Rebar Plan for Full Bar Schedule)



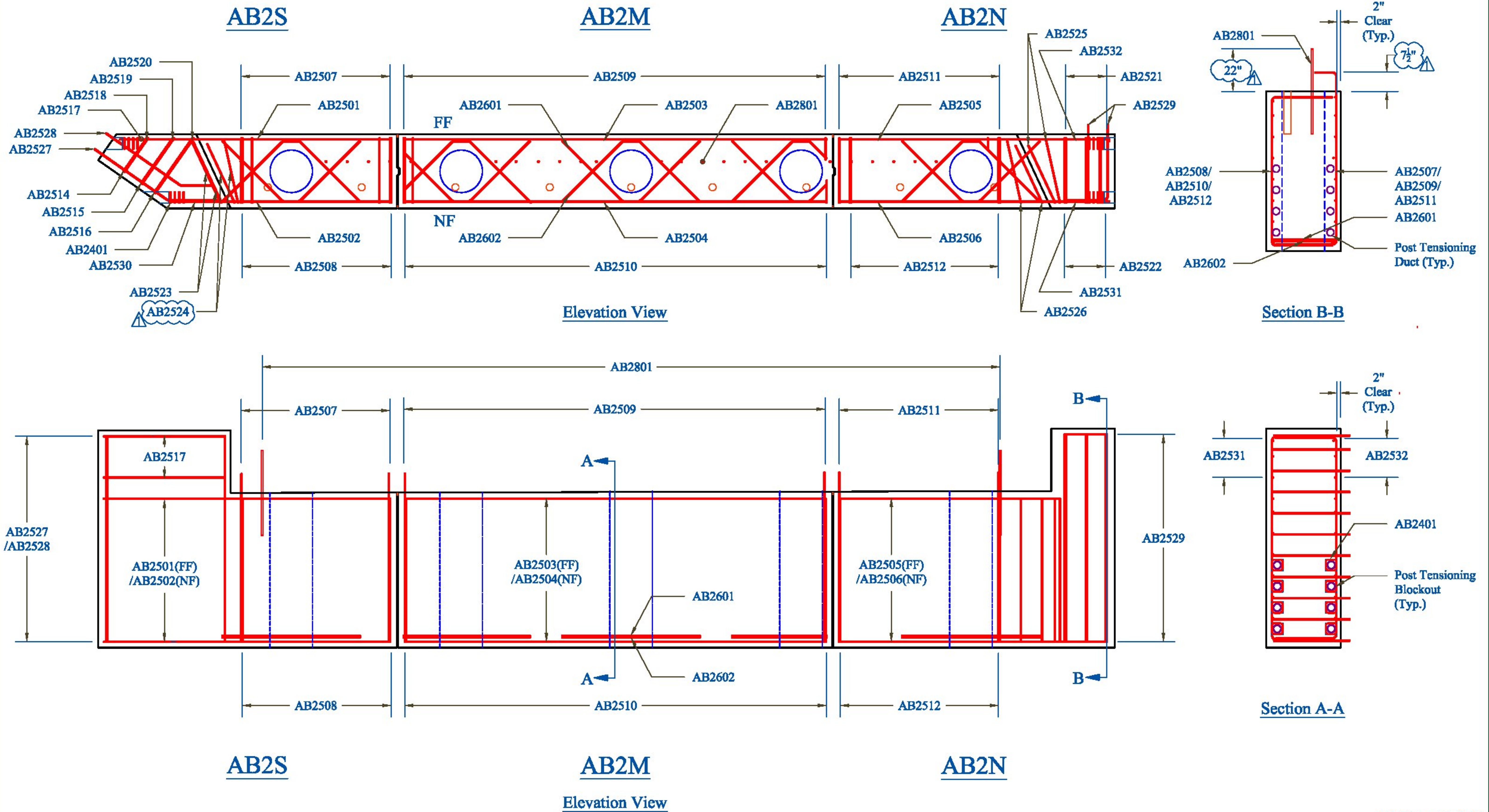
|                     |                                                                                                                                                                                  |  |  |                                                                             |                                                                                                                                                                           |  |                                                                                                      |  |                                                                                                |  |                                                                                               |  |                                                                                                  |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------|
| CONTRACTOR'S VISIT: | <div>Vermont Agency of Transportation<br/><b>RECEIVED</b><br/>CK'D BY MEM OK'D BY CWC<br/>Apr. 17, 2015<br/>RESUBMIT APPROVED AS NOTED ✓<br/>BY C. Carlson DATE 04-17-2015</div> |  |  | <div>Rev. 1 Date 04/16/15 By IBA Description Changes per State Review</div> | <div>PRECAST CONCRETE ABUTMENT SHOP DRAWINGS (SDI JOB #15264)</div> <div>SUPERVISOR: M. WHEELER<br/>DETAILER: I. ADAMS<br/>CHECKER: E. Barendse<br/>ENGINEER: VTAOT</div> |  | <div>PROJECT NAME:<br/>Bristol BRP 021-1(29)<br/>PROJECT # 021-1(29)<br/>LOCATION: Bristol, VT</div> |  | <div>INSTALLER:<br/>S.D. Ireland Concrete<br/>193 Industrial Ave<br/>Williston, VT 05495</div> |  | <div>FABRICATOR:<br/>193 INDUSTRIAL AVE.<br/>WILLISTON, VT 05495<br/>Ph: (802) 658-0201</div> |  | <div></div> |
|                     |                                                                                                                                                                                  |  |  |                                                                             |                                                                                                                                                                           |  | 03/17/2015                                                                                           |  | END_BAR_DETAIL_2                                                                               |  | 10_OF_16                                                                                      |  |                                                                                                  |





|                     |  |                                  |  |      |          |     |                          |                                                          |                       |                       |                     |                           |  |
|---------------------|--|----------------------------------|--|------|----------|-----|--------------------------|----------------------------------------------------------|-----------------------|-----------------------|---------------------|---------------------------|--|
| CONTRACTOR'S VISIT: |  | Vermont Agency of Transportation |  | Rev. | Date     | By  | Description              | PRECAST CONCRETE ABUTMENT SHOP DRAWINGS (SDI JOB #15264) |                       | INSTALLER:            | FABRICATOR:         | 3" Clear U.O.N.           |  |
|                     |  | <b>RECEIVED</b>                  |  | 1    | 04/16/15 | IBA | Changes per State Review | SUPERVISOR: M. WHEELER                                   | PROJECT NAME:         | S.D. Ireland Concrete | 193 INDUSTRIAL AVE. | <b>SD Ireland PRECAST</b> |  |
|                     |  | CK'D BY MEM OK'D BY CWC          |  |      |          |     |                          | DETAILER: I. ADAMS                                       | Bristol BRP 021-1(29) | 193 Industrial Ave    | WILLISTON, VT 05495 |                           |  |
|                     |  | Apr. 17, 2015                    |  |      |          |     |                          | CHECKER: E. Barendse                                     | PROJECT #: 021-1(29)  | Ph: (802) 658-0201    |                     |                           |  |
|                     |  | RESUBMIT APPROVED ✓              |  |      |          |     |                          | ENGINEER: VTAOT                                          | LOCATION: Bristol, VT |                       |                     |                           |  |
|                     |  | BY C. Carlson DATE 04-17-2015    |  |      |          |     |                          |                                                          |                       | 03/17/2015            | ABUTMENT_1          | 11_OF_16                  |  |

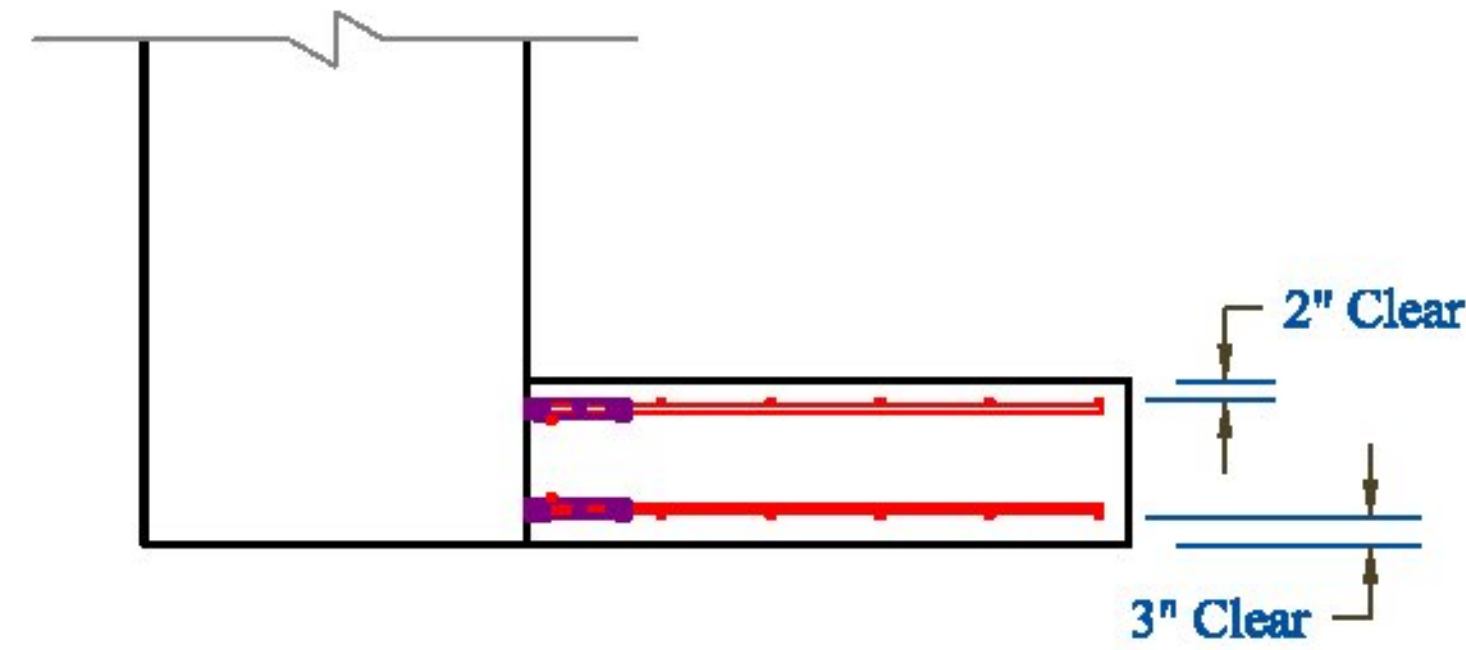




|                     |  |                                                                                                                                                         |  |                                                                           |                                                                                                                                                     |  |                                                                                         |                                                                                                |                                                                                 |                                              |  |
|---------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|----------------------------------------------|--|
| CONTRACTOR'S VISIT: |  | Vermont Agency of Transportation<br><b>RECEIVED</b><br>CK'D BY MEM OK'D BY CWC<br>Apr. 17, 2015<br>RESUBMIT APPROVED ✓<br>BY C. Carlson DATE 04-17-2015 |  | Rev. 1<br>Date 04/16/15<br>By IBA<br>Description Changes per State Review | PRECAST CONCRETE ABUTMENT SHOP DRAWINGS (SDI JOB #15264)<br>SUPERVISOR: M. WHEELER<br>DETAILER: I. ADAMS<br>CHECKER: E. Barendse<br>ENGINEER: VTAOT |  | PROJECT NAME:<br>Bristol BRP 021-1(29)<br>PROJECT #: 021-1(29)<br>LOCATION: Bristol, VT | INSTALLER:<br>S.D. Ireland Concrete<br>193 Industrial Ave<br>Williston, VT 05495<br>03/17/2015 | FABRICATOR:<br>193 INDUSTRIAL AVE.<br>WILLISTON, VT 05495<br>Ph: (802) 658-0201 | 3" Clear U.O.N.<br><b>SD Ireland PRECAST</b> |  |
|                     |  |                                                                                                                                                         |  |                                                                           |                                                                                                                                                     |  |                                                                                         | ABUTMENT_2                                                                                     |                                                                                 | 12_OF_16                                     |  |

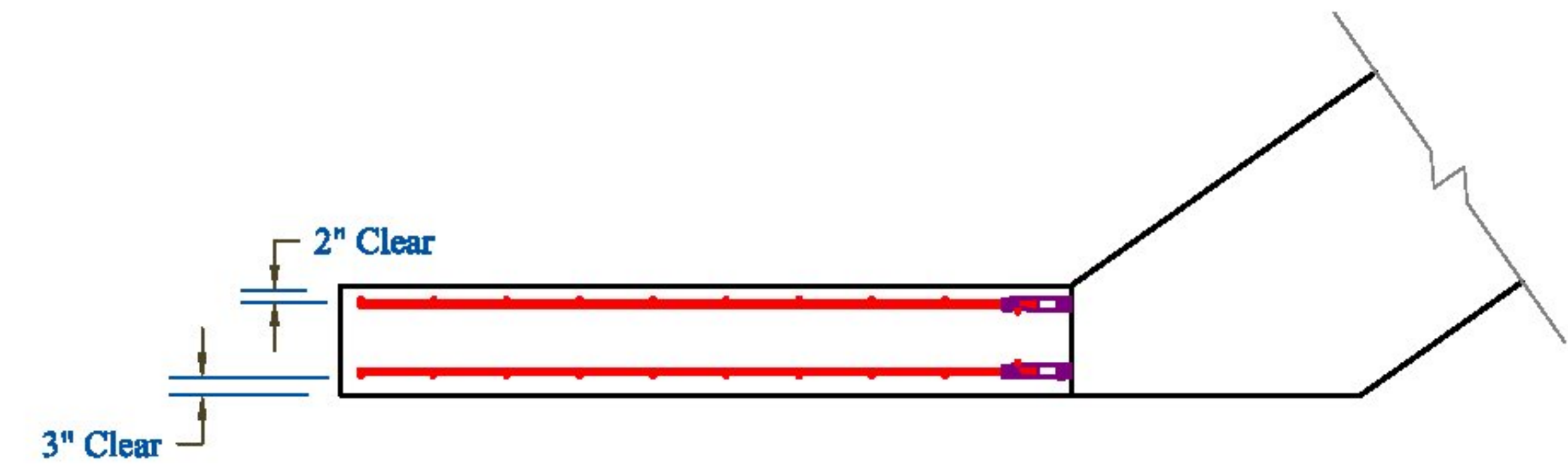


WW1: Plan View



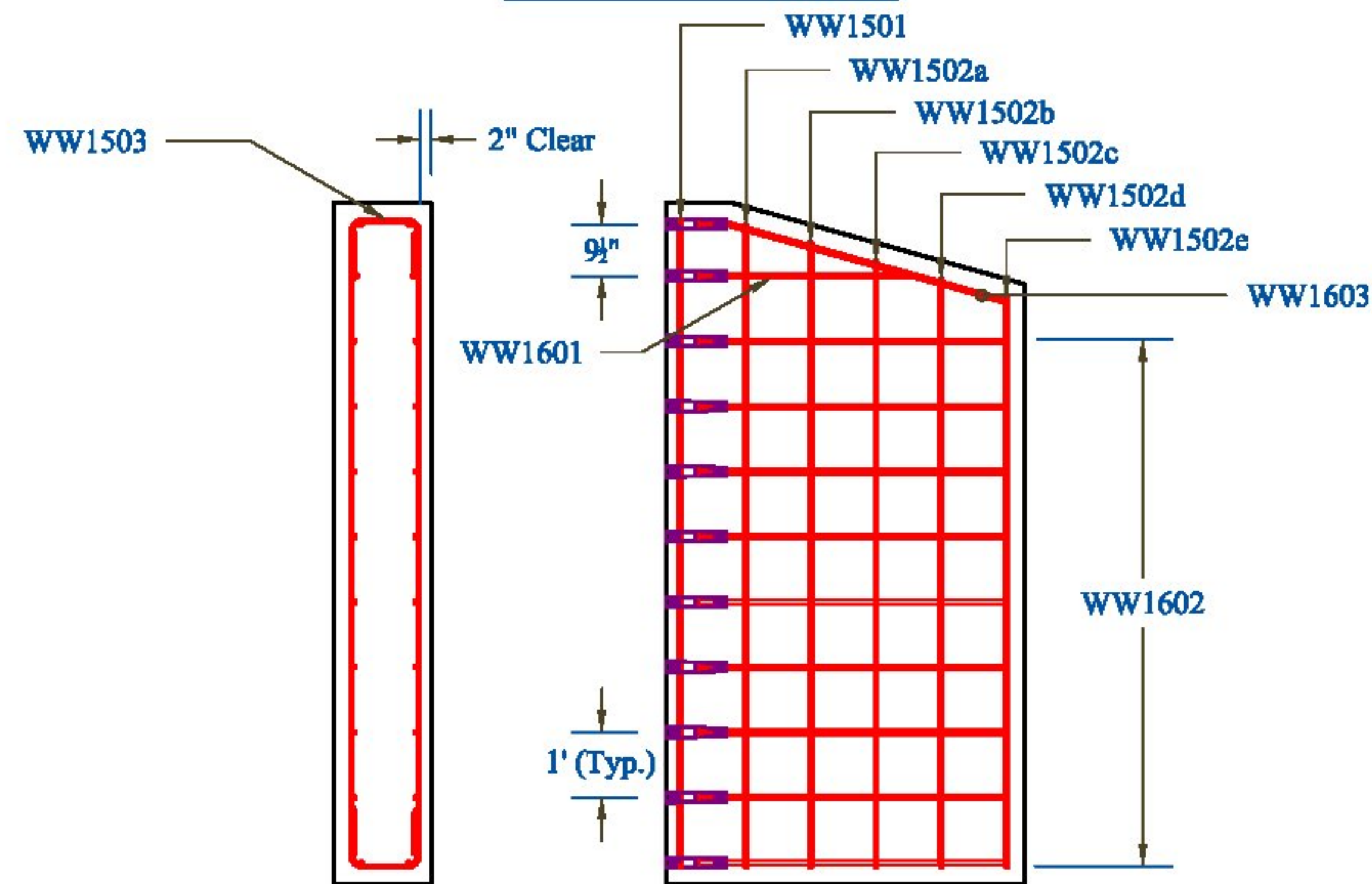
Note: Reference reinforcing schedule for bar dimensions and quantities. Piece drawing may not reflect actual bar order.

WW2: Plan View



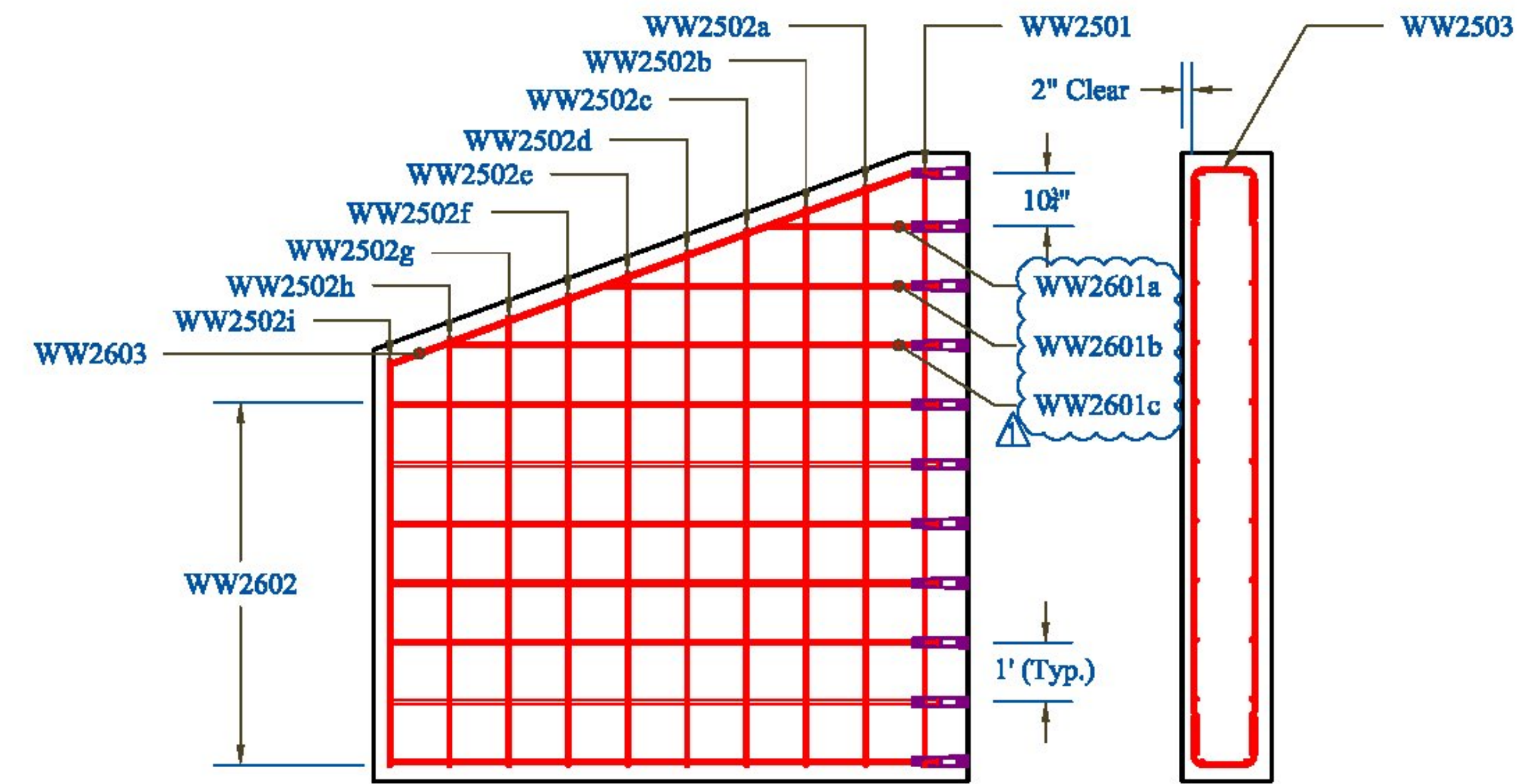
Note: Reference reinforcing schedule for bar dimensions and quantities. Piece drawing may not reflect actual bar order.

WW1: Elevation View



3" Clear U.O.N.

WW2: Elevation View

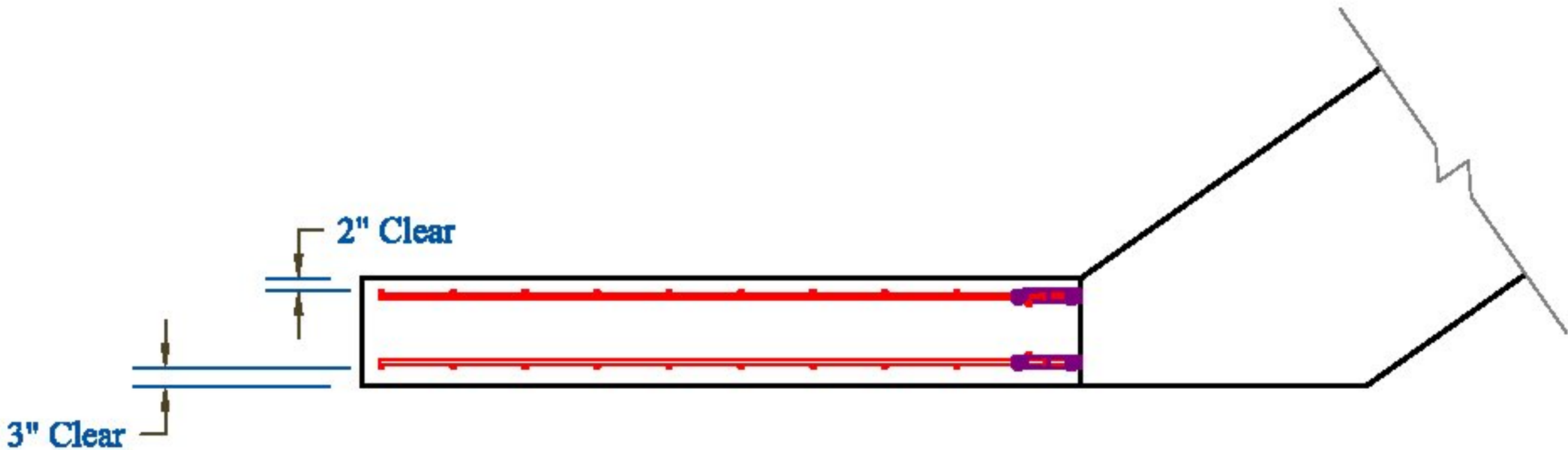


3" Clear U.O.N.

|                    |                                                                                                                                                         |  |                                                                           |                                                                                         |                                                                                        |                                                                                  |                                                                                 |          |                                                                                       |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------|----------|---------------------------------------------------------------------------------------|
| CONTRACTORS VISPE: | Vermont Agency of Transportation<br><b>RECEIVED</b><br>CK'D BY MEM OK'D BY CWC<br>Apr. 17, 2015<br>RESUBMIT APPROVED ✓<br>BY C. Carlson DATE 04-17-2015 |  | Rev. 1<br>Date 04/16/15<br>By IBA<br>Description Changes per State Review | PRECAST CONCRETE ABUTMENT SHOP DRAWINGS (SDI JOB #15264)                                |                                                                                        | INSTALLER:<br>S.D. Ireland Concrete<br>193 Industrial Ave<br>Williston, VT 05495 | FABRICATOR:<br>193 INDUSTRIAL AVE.<br>WILLISTON, VT 05495<br>Ph: (802) 658-0201 |          |  |
|                    |                                                                                                                                                         |  |                                                                           | SUPERVISOR: M. WHEELER<br>DETAILER: I. ADAMS<br>CHECKER: E. Barendse<br>ENGINEER: VTAOT | PROJECT NAME:<br>Bristol BRP 021-1(29)<br>PROJECT # 021-1(29)<br>LOCATION: Bristol, VT | 03/17/2015                                                                       | WINGWALLS_1                                                                     | 13_OF_16 |                                                                                       |

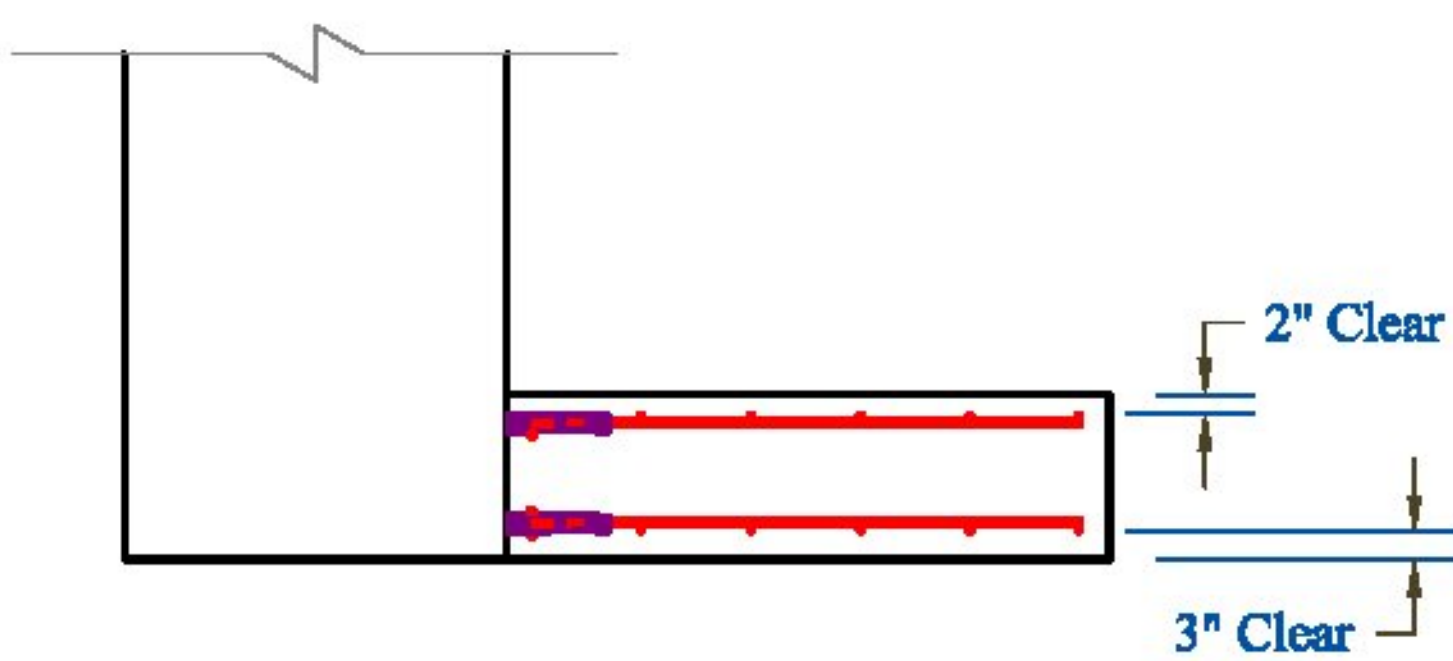


WW3: Plan View



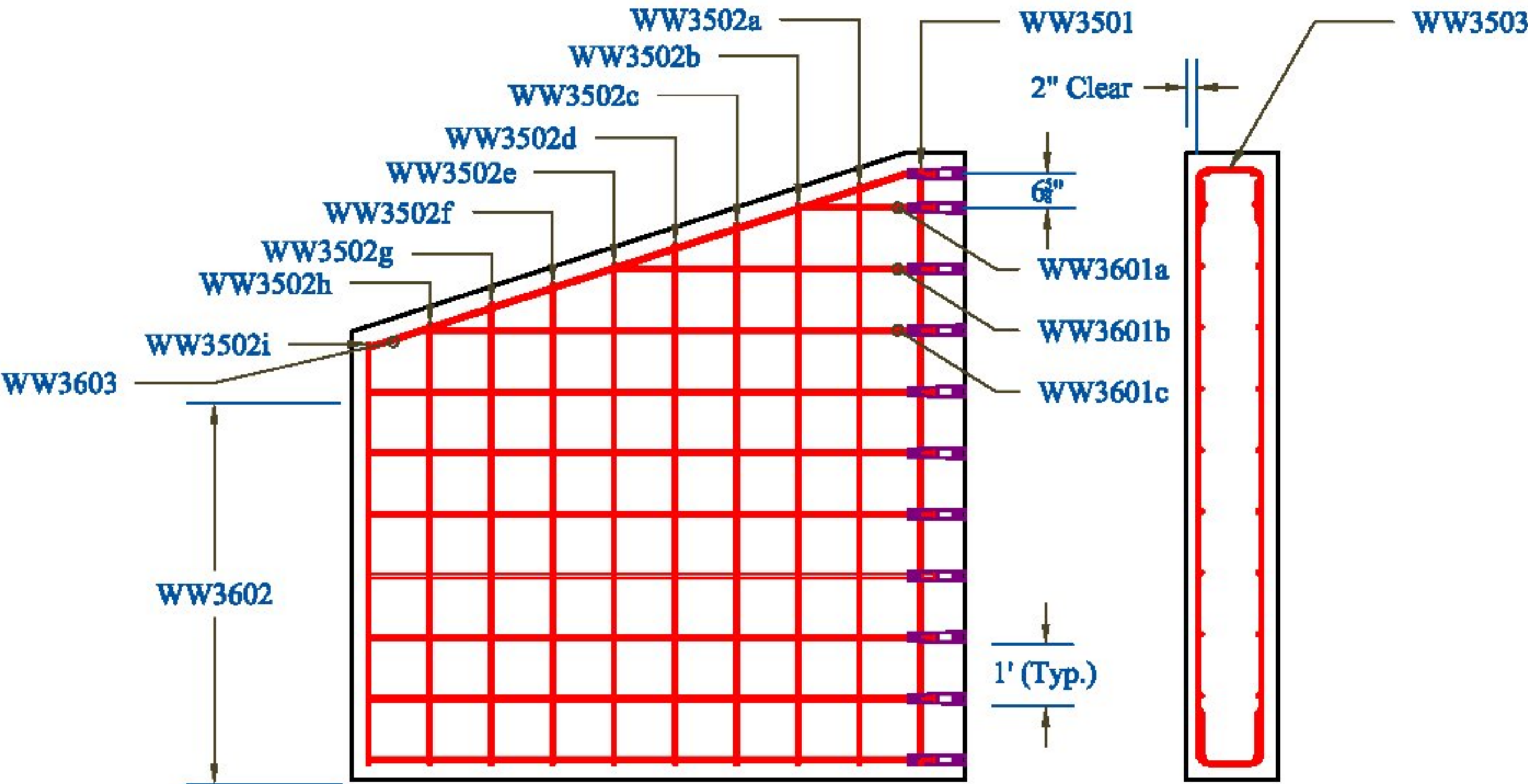
Note: Reference reinforcing schedule for bar dimensions and quantities. Piece drawing may not reflect actual bar order.

WW4: Plan View



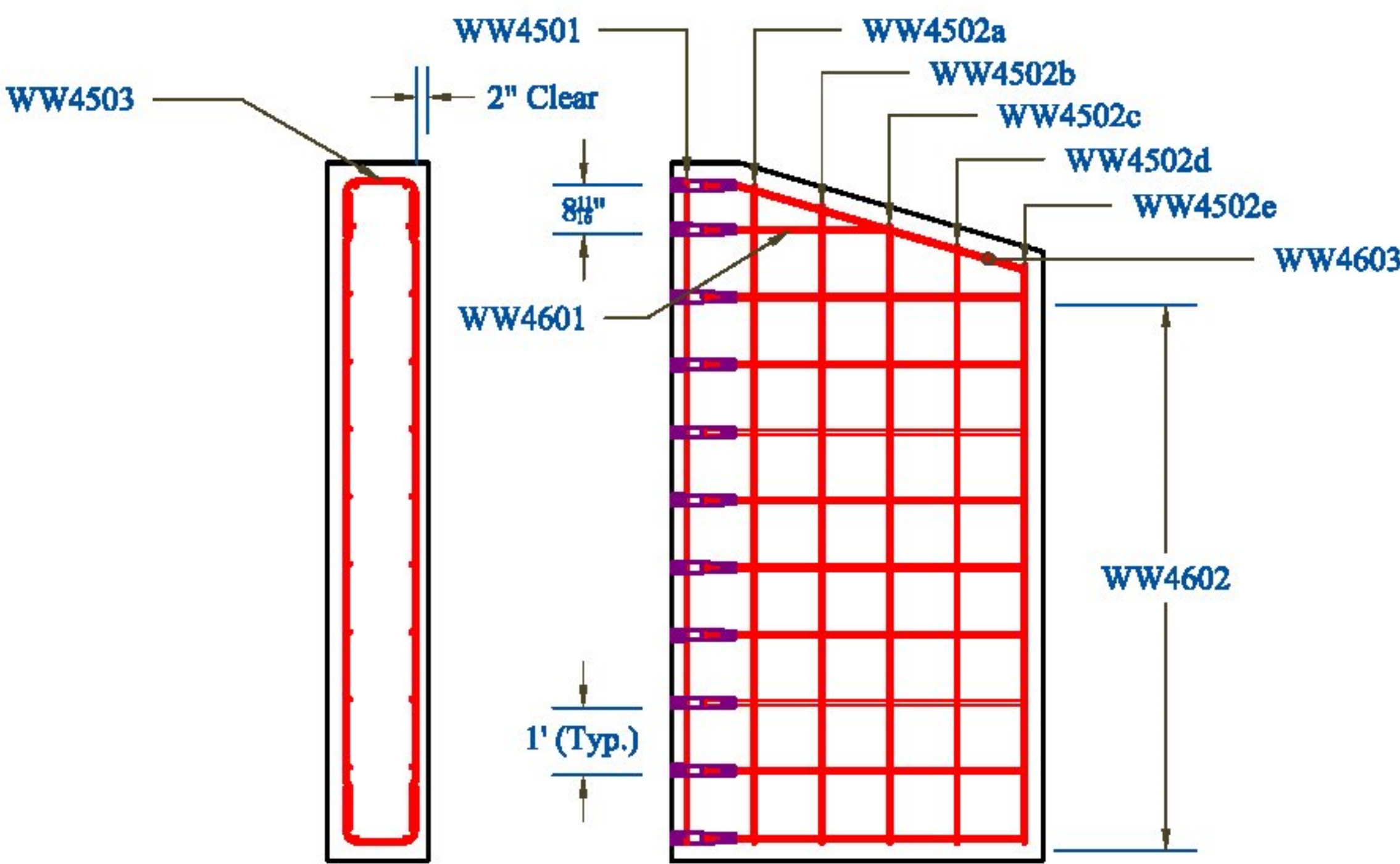
Note: Reference reinforcing schedule for bar dimensions and quantities. Piece drawing may not reflect actual bar order.

WW3: Elevation View



3" Clear U.O.N.

WW4: Elevation View



3" Clear U.O.N.

|                     |                                                                                                                                                                         |                                                                           |                                                                                         |                                                                                         |                                                                                                |                                                                                 |  |             |          |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|--|-------------|----------|
| CONTRACTOR'S VISIT: | <div>Vermont Agency of Transportation<br/><b>RECEIVED</b><br/>CK'D BY MEM OK'D BY CWC<br/>Apr. 17, 2015<br/>RESUBMIT APPROVED ✓<br/>BY C. Carlson DATE 04-17-2015</div> | Rev. 1<br>Date 04/16/15<br>By IBA<br>Description Changes per State Review | PRECAST CONCRETE ABUTMENT SHOP DRAWINGS (SDI JOB #15264)                                |                                                                                         | INSTALLER:<br>S.D. Ireland Concrete<br>193 Industrial Ave<br>Williston, VT 05495<br>03/17/2015 | FABRICATOR:<br>193 INDUSTRIAL AVE.<br>WILLISTON, VT 05495<br>Ph: (802) 658-0201 |  | WINGWALLS_2 | 14_OF_16 |
|                     |                                                                                                                                                                         |                                                                           | SUPERVISOR: M. WHEELER<br>DETAILER: I. ADAMS<br>CHECKER: E. Barendse<br>ENGINEER: VTAOT | PROJECT NAME:<br>Bristol BR# 021-1(29)<br>PROJECT #: 021-1(29)<br>LOCATION: Bristol, VT |                                                                                                |                                                                                 |  |             |          |



| Location            | Mark   | Description | Size | Spacing | Length   | Qty. | A        | B        | C       |
|---------------------|--------|-------------|------|---------|----------|------|----------|----------|---------|
| AB1N Hor Bar FF     | AB1501 | Str         | #5   | 12"     | 153 3/4" | 8    | 153 3/4" |          |         |
| AB1N Hor Bar NF     | AB1502 | Str         | #5   | 12"     | 126"     | 9    | 126"     |          |         |
| AB1M Hor Bar FF     | AB1503 | Str         | #5   | 12"     | 239-1/2" | 8    | 239-1/2" |          |         |
| AB1M Hor Bar NF     | AB1504 | Str         | #5   | 12"     | 239-1/2" | 8    | 239-1/2" |          |         |
| AB1S Hor Bar FF     | AB1505 | Str         | #5   | 12"     | 153"     | 8    | 153"     |          |         |
| AB1S Hor Bar NF     | AB1506 | Str         | #5   | 12"     | 153"     | 8    | 153"     |          |         |
| AB1N Vert Bar FF    | AB1507 | 2           | #5   | 6"      | 146 3/4" | 15   | 12-1/2"  | 97-1/4"  | 37"     |
| AB1N Vert Bar NF    | AB1508 | 2           | #5   | 12"     | 158 3/8" | 8    | 37"      | 84-3/8"  | 37"     |
| AB1M Vert Bar FF    | AB1509 | 2           | #5   | 6"      | 146 3/8" | 41   | 12-1/2"  | 96-7/8"  | 37"     |
| AB1M Vert Bar NF    | AB1510 | 2           | #5   | 12"     | 158 3/8" | 21   | 37"      | 84-3/8"  | 37"     |
| AB1S Vert Bar FF    | AB1511 | 2           | #5   | 6"      | 146"     | 16   | 12-1/2"  | 96-1/2"  | 37"     |
| AB1S Vert Bar NF    | AB1512 | 2           | #5   | 12"     | 158 3/8" | 9    | 37"      | 84-3/8"  | 37"     |
| AB1 Pile Cavity Bar | AB1601 | 3           | #6   | N/A     | 106-1/2" | 5    | 48-1/4"  | 10"      | 48-1/4" |
| AB1 Pile Cavity Bar | AB1602 | 3           | #6   | N/A     | 106-1/2" | 5    | 48-1/4"  | 10"      | 48-1/4" |
| AB1N End Vert       | AB1514 | 2           | #5   | 12"     | 164-1/4" | 1    | 23-1/8"  | 118"     | 23-1/8" |
| AB1N End Vert       | AB1515 | 2           | #5   | 12"     | 181"     | 1    | 31-1/2"  | 118"     | 31-1/2" |
| AB1N End Vert       | AB1516 | 2           | #5   | 12"     | 193-3/4" | 1    | 37-7/8"  | 118"     | 37-7/8" |
| AB1N End Hor        | AB1517 | Str         | #5   | 12"     | 42-1/4"  | 3    | 42-1/4"  |          |         |
| AB1N End Vert       | AB1518 | 2           | #5   | 12"     | 165-1/4" | 1    | 23-5/8"  | 118"     | 23-5/8" |
| AB1N End Vert       | AB1519 | 2           | #5   | 12"     | 182-1/4" | 1    | 32-1/8"  | 118"     | 32-1/8" |
| AB1N End Vert       | AB1520 | 2           | #5   | 12"     | 194-3/4" | 1    | 38-3/8"  | 118"     | 38-3/8" |
| AB1S End Vert       | AB1521 | 2           | #5   | 12"     | 190-3/4" | 3    | 37"      | 116-3/4" | 37"     |
| AB1S End Vert       | AB1522 | 2           | #5   | 12"     | 190-3/4" | 3    | 37"      | 116-3/4" | 37"     |
| AB1N End Vert CP    | AB1523 | 2           | #5   | N/A     | 197-1/4" | 2    | 38-1/4"  | 120-3/4" | 38-1/4" |
| AB1N End Vert       | AB1524 | 2           | #5   | N/A     | 158-3/8" | 2    | 37"      | 84-3/8"  | 37"     |
| AB1S End Vert CP    | AB1525 | 2           | #5   | N/A     | 193-1/2" | 2    | 37"      | 119-1/2" | 37"     |
| AB1S End Vert       | AB1526 | 2           | #5   | N/A     | 158-3/8" | 2    | 37"      | 84-3/8"  | 37"     |
| WW2 Sleeve Bar      | AB1527 | 5           | #5   | 12"     | 80-1/2"  | 11   | 50-1/2"  | 30"      | 145°    |
| WW2 Sleeve Bar      | AB1528 | 5           | #5   | 12"     | 70-3/8"  | 11   | 51-1/2"  | 18-7/8"  | 145°    |
| WW1 Sleeve Bar      | AB1529 | 1           | #5   | 12"     | 54-3/4"  | 22   | 43"      | 11-3/4"  |         |
| AB1N End Hor        | AB1530 | Str         | #5   | 12"     | 29-3/4"  | 3    | 29-3/4"  |          |         |
| AB1S End Hor        | AB1531 | Str         | #5   | 12"     | 31-1/4"  | 3    | 31-1/4"  |          |         |
| AB1S End Hor        | AB1532 | Str         | #5   | 12"     | 47-1/4"  | 3    | 47-1/4"  |          |         |
| AB1 Burst Bar       | AB1401 | 4           | #4   | N/A     | 41-1/2"  | 64   | 6 1/2"   | 6 1/2"   | 4-1/2"  |
| AB1 Vert Dowels     | AB1801 | Str         | #8   | 12"     | 44 1/2"  | 39*  | 44 1/2"  |          |         |
| AB2S Hor Bar FF     | AB2501 | Str         | #5   | 12"     | 153 3/4" | 8    | 153 3/4" |          |         |
| AB2S Hor Bar NF     | AB2502 | Str         | #5   | 12"     | 126"     | 9*   | 126"     |          |         |
| AB2M Hor Bar FF     | AB2503 | Str         | #5   | 12"     | 239-1/2" | 8    | 239-1/2" |          |         |
| AB2M Hor Bar NF     | AB2504 | Str         | #5   | 12"     | 239-1/2" | 8    | 239-1/2" |          |         |
| AB2N Hor Bar FF     | AB2505 | Str         | #5   | 12"     | 153"     | 8    | 153"     |          |         |
| AB2N Hor Bar NF     | AB2506 | Str         | #5   | 12"     | 153"     | 8    | 153"     |          |         |
| AB2S Vert Bar FF    | AB2507 | 2           | #5   | 6"      | 143-1/8" | 15   | 12-1/2"  | 93-5/8"  | 37"     |
| AB2S Vert Bar NF    | AB2508 | 2           | #5   | 12"     | 155-1/2" | 8    | 37"      | 81-1/2"  | 37"     |
| AB2M Vert Bar FF    | AB2509 | 2           | #5   | 6"      | 143-1/2" | 41   | 12-1/2"  | 94"      | 37"     |
| AB2M Vert Bar NF    | AB2510 | 2           | #5   | 12"     | 155-1/2" | 21   | 37"      | 81-1/2"  | 37"     |
| AB2N Vert Bar FF    | AB2511 | 2           | #5   | 6"      | 143-3/4" | 16   | 12-1/2"  | 94-1/4"  | 37"     |
| AB2N Vert Bar NF    | AB2512 | 2           | #5   | 12"     | 155-1/2" | 9    | 37"      | 81-1/2"  | 37"     |
| AB2 Pile Cavity Bar | AB2601 | 3           | #6   | N/A     | 106-1/2" | 5    | 48-1/4"  | 10"      | 48-1/4" |
| AB2 Pile Cavity Bar | AB2602 | 3           | #6   | N/A     | 106-1/2" | 5    | 48-1/4"  | 10"      | 48-1/4" |
| AB2S End Vert       | AB2514 | 1           | #5   | 12"     | 160-1/4" | 1    | 23 1/8"  | 114"     | 23 1/8" |
| AB2S End Vert       | AB2515 | 1           | #5   | 12"     | 177"     | 1    | 31 1/2"  | 114"     | 31 1/2" |
| AB2S End Vert       | AB2516 | 1           | #5   | 12"     | 189-3/4" | 1    | 37 7/8"  | 114"     | 37 7/8" |
| AB2S End Hor        | AB2517 | Str         | #5   | 12"     | 42-1/2"  | 1    | 42 1/2"  |          |         |
| AB2S End Vert       | AB2518 | 1           | #5   | 12"     | 161-1/4" | 1    | 23 5/8"  | 114"     | 23 5/8" |
| AB2S End Vert       | AB2519 | 1           | #5   | 12"     | 178-1/4" | 1    | 32 1/8"  | 114"     | 32 1/8" |
| AB2S End Vert       | AB2520 | 1           | #5   | 12"     | 190-3/4" | 1    | 38 3/8"  | 114"     | 38 3/8" |
| AB2N End Vert       | AB2521 | 2           | #5   | 12"     | 189"     | 3    | 37"      | 115"     | 37"     |
| AB2N End Vert       | AB2522 | 2           | #5   | 12"     | 189"     | 3    | 37"      | 115"     | 37"     |
| AB2S End Vert CP    | AB2523 | 2           | #5   | N/A     | 195-3/4" | 2    | 39-1/2"  | 116-3/4" | 39-1/2" |
| AB2S End Vert       | AB2524 | 2           | #5   | N/A     | 155-1/2" | 2    | 37"      | 81-1/2"  | 37"     |

This length should be 95 1/4", at most, bottom elevation is 322.25, top elevation is 330.19 +/-

This length should be 94 3/4", at most, bottom elevation is 322.25, top elevation is 330.15 +/-

This length should be 94 1/2", at most, bottom elevation is 322.25, top elevation is 330.13 +/-

This length should be 91 3/4", at most, bottom elevation is 322.25, top elevation is 329.89 +/-

This length should be 92", at most, bottom elevation is 322.25, top elevation is 329.91 +/-

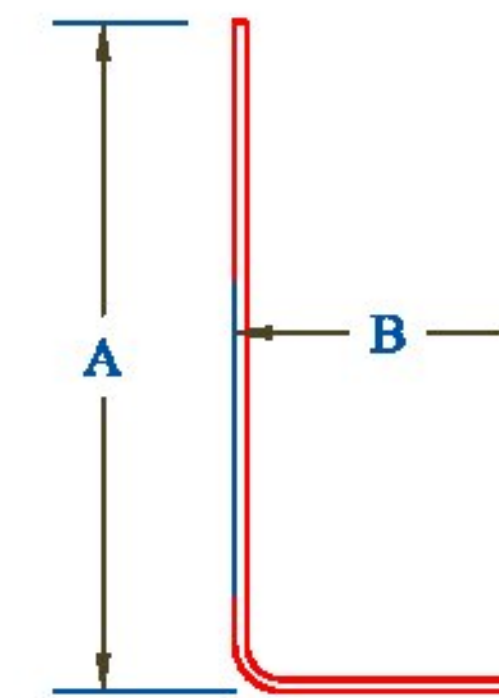
This length should be 92 1/2", at most, bottom elevation is 322.25, top elevation is 329.95 +/-

\*One Bar Added for Testing

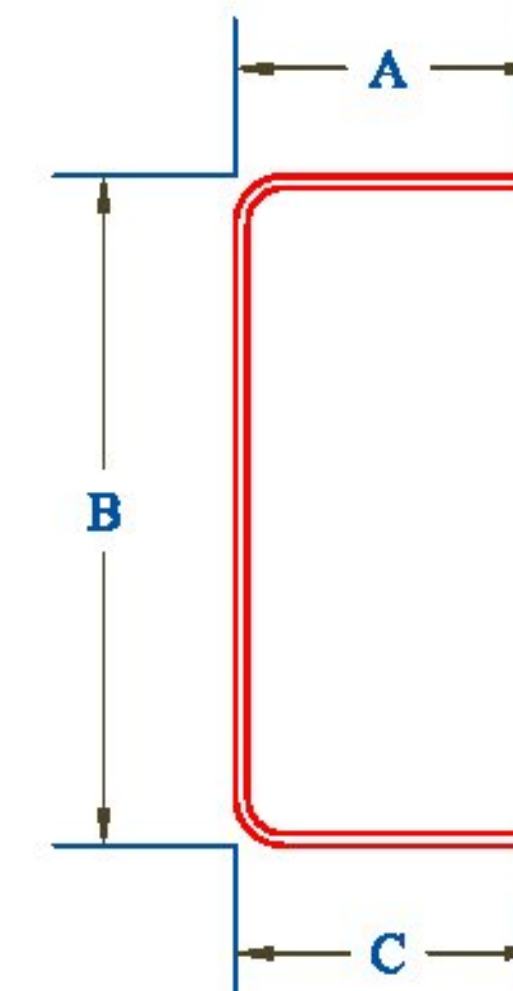
## Bar Bend Types



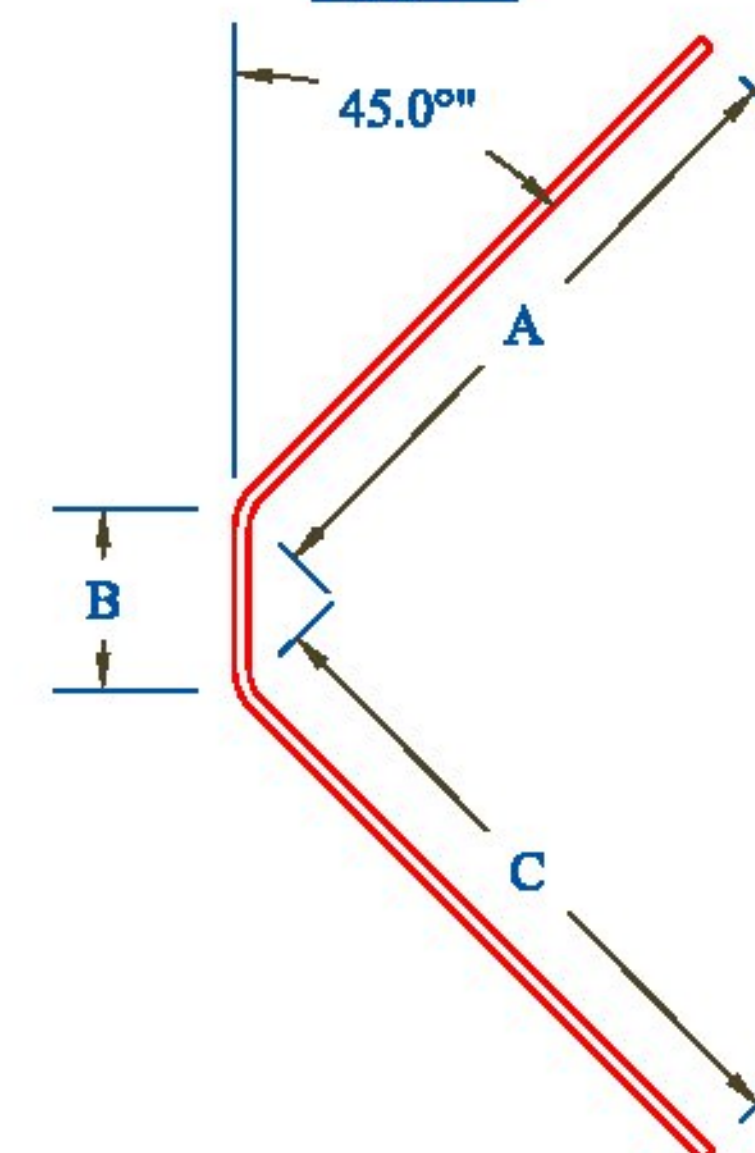
Straight



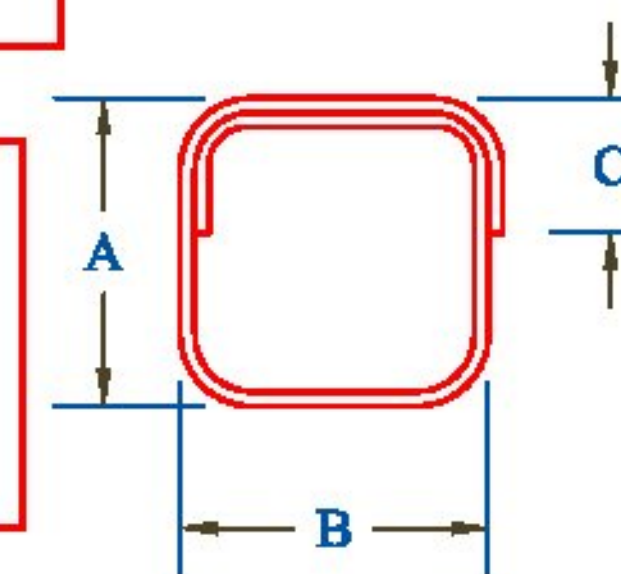
Type 1



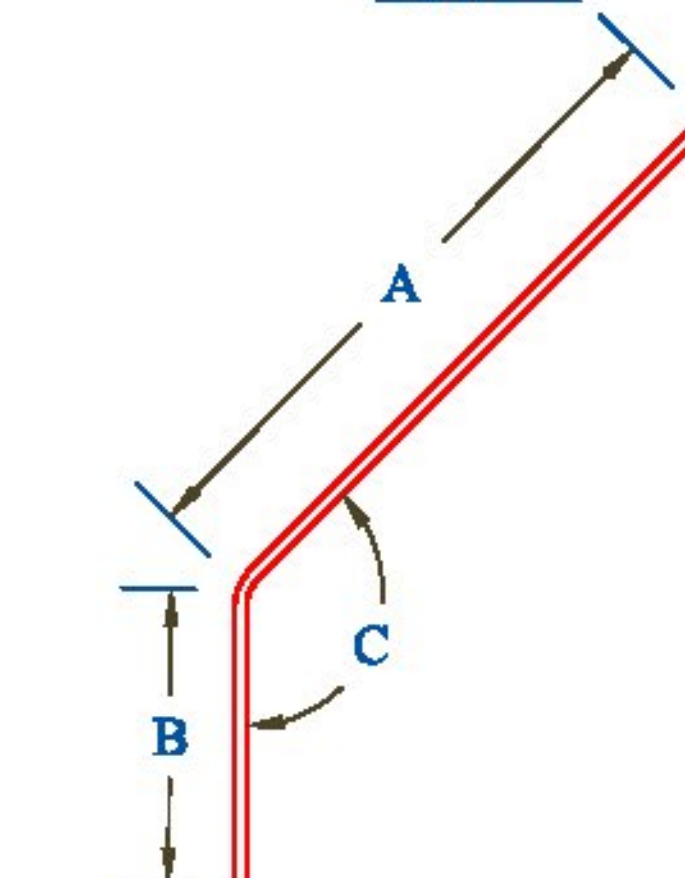
Type 2



Type 3



Type 4



Type 5

| Std. Bar Bend Ø |        |
|-----------------|--------|
| Bar #           | Bend Ø |
| #4              | 3"     |
| #5              | 3 3/4" |
| #6              | 4 1/2" |

|                    |                                                                                                                                                                |        |               |        |                                      |                                                                                                                                                     |  |                                                                                        |                                                                                                |                                                                                 |                              |       |          |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---------------|--------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|------------------------------|-------|----------|
| CONTRACTOR'S VISIT | <b>RECEIVED</b><br>Vermont Agency of Transportation<br>CK'D BY MEM OK'D BY CWC<br>Apr. 17, 2015<br>RESUBMIT APPROVED AS NOTED<br>BY C. Carlson DATE 04-17-2015 | Rev. 1 | Date 04/16/15 | By IBA | Description Changes per State Review | PRECAST CONCRETE ABUTMENT SHOP DRAWINGS (SDI JOB #15264)<br>SUPERVISOR: M. WHEELER<br>DETAILER: I. ADAMS<br>CHECKER: E. Barendse<br>ENGINEER: VTAOT |  | PROJECT NAME:<br>Bristol BRP 021-1(29)<br>PROJECT # 021-1(29)<br>LOCATION: Bristol, VT | INSTALLER:<br>S.D. Ireland Concrete<br>193 Industrial Ave<br>Williston, VT 05495<br>03/17/2015 | FABRICATOR:<br>193 INDUSTRIAL AVE.<br>WILLISTON, VT 05495<br>Ph: (802) 658-0201 | <b>SD Ireland</b><br>PRECAST | BAR_1 | 15_OF_16 |
|                    |                                                                                                                                                                |        |               |        |                                      |                                                                                                                                                     |  |                                                                                        |                                                                                                |                                                                                 |                              |       |          |



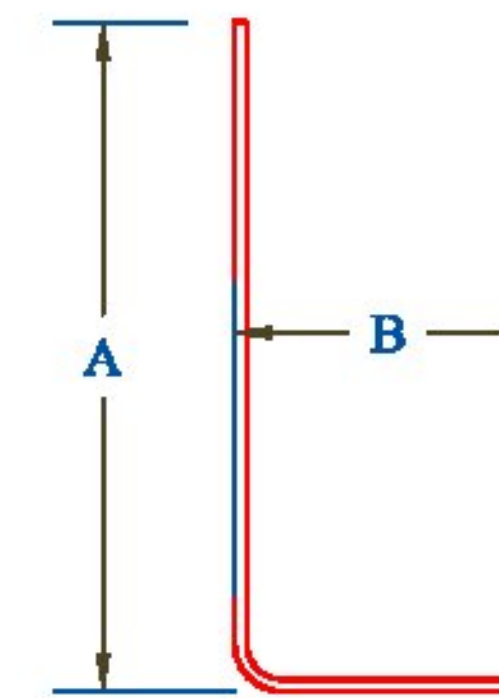
|                  |         |     |    |     |          |    |          |          |        |
|------------------|---------|-----|----|-----|----------|----|----------|----------|--------|
| AB2N End Vert CP | AB2525  | 2   | #5 | N/A | 191-3/4" | 2  | 37"      | 117-3/4" | 37"    |
| AB2N End Vert    | AB2526  | 2   | #5 | N/A | 155-1/2" | 2  | 37"      | 81-1/2"  | 37"    |
| WW3 Sleeve Bar   | AB2527  | 5   | #5 | 12" | 80-1/2"  | 11 | 50-1/2"  | 30"      | 145°   |
| WW3 Sleeve Bar   | AB2528  | 5   | #5 | 12" | 70-3/8"  | 11 | 51-1/2"  | 18-7/8"  | 145°   |
| WW4 Sleeve Bar   | AB2529  | 1   | #5 | 12" | 54-3/4"  | 22 | 43"      | 11-3/4"  |        |
| AB2S End Hor     | AB2530  | Str | #5 | 12" | 29-3/4"  | 3  | 29-3/4"  |          |        |
| AB2N End Hor     | AB2531  | Str | #5 | 12" | 31-1/4"  | 3  | 31-1/4"  |          |        |
| AB2N End Hor     | AB2532  | Str | #5 | 12" | 47-1/4"  | 3  | 47-1/4"  |          |        |
| AB2 Burst Bar    | AB2401  | 4   | #4 | N/A | 41-1/2"  | 64 | 6 1/2"   | 6 1/2"   | 4-1/2" |
| AB2 Vert Dowels  | AB2801  | Str | #8 | 12" | 44 1/2"  | 38 | 44 1/2"  |          |        |
| WW1 Sleeve Vert  | WW1501  | Str | #5 | N/A | 119-1/2" | 2  | 119-1/2" |          |        |
| WW1 Slope Vert   | WW1502a | Str | #5 | 12" | 118-5/8" | 2  | 118-5/8" |          |        |
| WW1 Slope Vert   | WW1502b | Str | #5 | 12" | 115-3/8" | 2  | 115-3/8" |          |        |
| WW1 Slope Vert   | WW1502c | Str | #5 | 12" | 112"     | 2  | 112"     |          |        |
| WW1 Slope Vert   | WW1502d | Str | #5 | 12" | 108-3/4" | 2  | 108-3/4" |          |        |
| WW1 Slope Vert   | WW1502e | Str | #5 | 12" | 105-3/8" | 2  | 105-3/8" |          |        |
| WW1 Slope Hor    | WW1601  | Str | #6 | 12" | 39-3/4"  | 2  | 39-3/4"  |          |        |
| WW1 Hor Bar      | WW1602  | Str | #6 | 12" | 56-7/8"  | 19 | 56-7/8"  |          |        |
| WW1 Bent Top     | WW1603  | 5   | #6 | N/A | 58-3/4"  | 2  | 53-1/4"  | 5-1/2"   | 164.5° |
| WW1 Vert U Bars  | WW1503  | 2   | #5 | 12" | 61"      | 12 | 24"      | 13"      | 24"    |
| WW2 Sleeve Vert  | WW2501  | Str | #5 | N/A | 120-3/4" | 2  | 120-3/4" |          |        |
| WW2 Slope Vert   | WW2502a | Str | #5 | 12" | 117-3/8" | 2  | 117-3/8" |          |        |
| WW2 Slope Vert   | WW2502b | Str | #5 | 12" | 113"     | 2  | 113"     |          |        |
| WW2 Slope Vert   | WW2502c | Str | #5 | 12" | 108-5/8" | 2  | 108-5/8" |          |        |
| WW2 Slope Vert   | WW2502d | Str | #5 | 12" | 104-1/8" | 2  | 104-1/8" |          |        |
| WW2 Slope Vert   | WW2502e | Str | #5 | 12" | 99-3/4"  | 2  | 99-3/4"  |          |        |
| WW2 Slope Vert   | WW2502f | Str | #5 | 12" | 95-3/8"  | 2  | 95-3/8"  |          |        |
| WW2 Slope Vert   | WW2502g | Str | #5 | 12" | 91"      | 2  | 91"      |          |        |
| WW2 Slope Vert   | WW2502h | Str | #5 | 12" | 86-5/8"  | 2  | 86-5/8"  |          |        |
| WW2 Slope Vert   | WW2502i | Str | #5 | 12" | 82-1/8"  | 2  | 82-1/8"  |          |        |
| WW2 Slope Hor    | WW2601a | Str | #6 | 12" | 34-5/8"  | 2  | 34-5/8"  |          |        |
| WW2 Slope Hor    | WW2601b | Str | #6 | 12" | 67-3/8"  | 2  | 67-3/8"  |          |        |
| WW2 Slope Hor    | WW2601c | Str | #6 | 12" | 100-1/4" | 2  | 100-1/4" |          |        |
| WW2 Hor Bar      | WW2602  | Str | #6 | 12" | 110-7/8" | 14 | 110-7/8" |          |        |
| WW2 Bent Top     | WW2603  | 5   | #6 | N/A | 117-1/4" | 2  | 111-3/4" | 5-1/2"   | 159.9° |
| WW2 Vert U Bars  | WW2503  | 2   | #5 | 12" | 61"      | 20 | 24"      | 13"      | 24"    |
| WW3 Sleeve Vert  | WW3501  | Str | #5 | N/A | 116-5/8" | 2  | 116-5/8" |          |        |
| WW3 Slope Vert   | WW3502a | Str | #5 | 12" | 113-3/4" | 2  | 113-3/4" |          |        |
| WW3 Slope Vert   | WW3502b | Str | #5 | 12" | 109-7/8" | 2  | 109-7/8" |          |        |
| WW3 Slope Vert   | WW3502c | Str | #5 | 12" | 106"     | 2  | 106"     |          |        |
| WW3 Slope Vert   | WW3502d | Str | #5 | 12" | 102-1/8" | 2  | 102-1/8" |          |        |
| WW3 Slope Vert   | WW3502e | Str | #5 | 12" | 98-1/4"  | 2  | 98-1/4"  |          |        |
| WW3 Slope Vert   | WW3502f | Str | #5 | 12" | 94-1/4"  | 2  | 94-1/4"  |          |        |
| WW3 Slope Vert   | WW3502g | Str | #5 | 12" | 90-3/8"  | 2  | 90-3/8"  |          |        |
| WW3 Slope Vert   | WW3502h | Str | #5 | 12" | 86-1/2"  | 2  | 86-1/2"  |          |        |
| WW3 Slope Vert   | WW3502i | Str | #5 | 12" | 82-5/8"  | 2  | 82-5/8"  |          |        |
| WW3 Slope Hor    | WW3601a | Str | #6 | 12" | 26"      | 2  | 26"      |          |        |
| WW3 Slope Hor    | WW3601b | Str | #6 | 12" | 63-1/4"  | 3* | 63-1/4"  |          |        |
| WW3 Slope Hor    | WW3601c | Str | #6 | 12" | 100-1/4" | 2  | 100-1/4" |          |        |
| WW3 Hor Bar      | WW3602  | Str | #6 | 12" | 110-7/8" | 14 | 110-7/8" |          |        |
| WW3 Bent Top     | WW3603  | 5   | #6 | N/A | 116-1/8" | 2  | 110-3/4" | 5-3/8"   | 162.1° |
| WW3 Vert U Bars  | WW3503  | 2   | #5 | 12" | 61"      | 10 | 24"      | 13"      | 24"    |
| WW4 Sleeve Vert  | WW4501  | Str | #5 | N/A | 117-3/4" | 2  |          |          |        |
| WW4 Slope Vert   | WW4502a | Str | #5 | 12" | 117"     | 2  | 117"     |          |        |
| WW4 Slope Vert   | WW4502b | Str | #5 | 12" | 113-3/8" | 2  | 113-3/8" |          |        |
| WW4 Slope Vert   | WW4502c | Str | #5 | 12" | 109-7/8" | 2  | 109-7/8" |          |        |
| WW4 Slope Vert   | WW4502d | Str | #5 | 12" | 106-3/8" | 2  | 106-3/8" |          |        |
| WW4 Slope Vert   | WW4502e | Str | #5 | 12" | 102-7/8" | 2  | 102-7/8" |          |        |
| WW4 Slope Hor    | WW4601  | Str | #6 | 12" | 32-1/4"  | 2  | 32-1/4"  |          |        |
| WW4 Hor Bar      | WW4602  | Str | #6 | 12" | 56-7/8"  | 18 | 56-7/8"  |          |        |
| WW4 Bent Top     | WW4603  | 5   | #6 | N/A | 59"      | 2  | 53-1/2"  | 5-1/2"   | 163.7° |
| WW4 Vert U Bars  | WW4503  | 2   | #5 | 12" | 61"      | 12 | 24"      | 13"      | 24"    |

\*One Bar Added for Testing

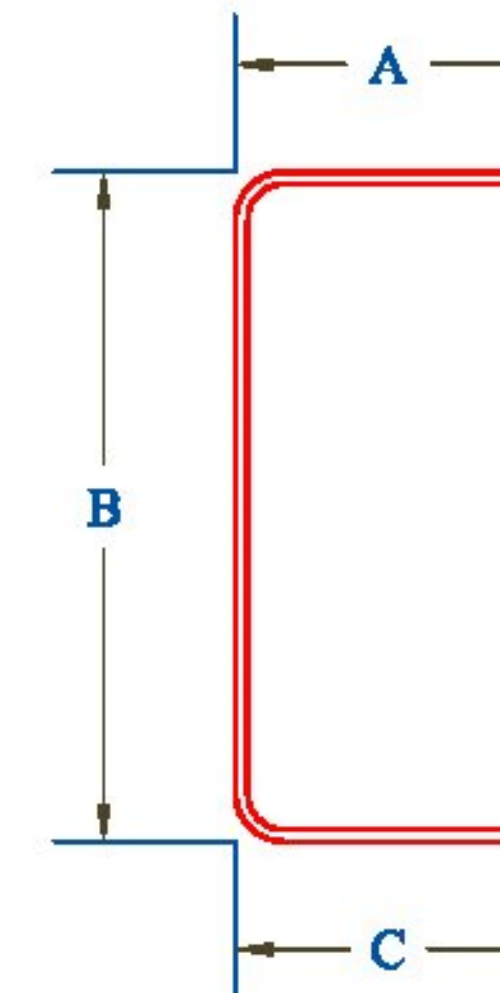
## Bar Bend Types



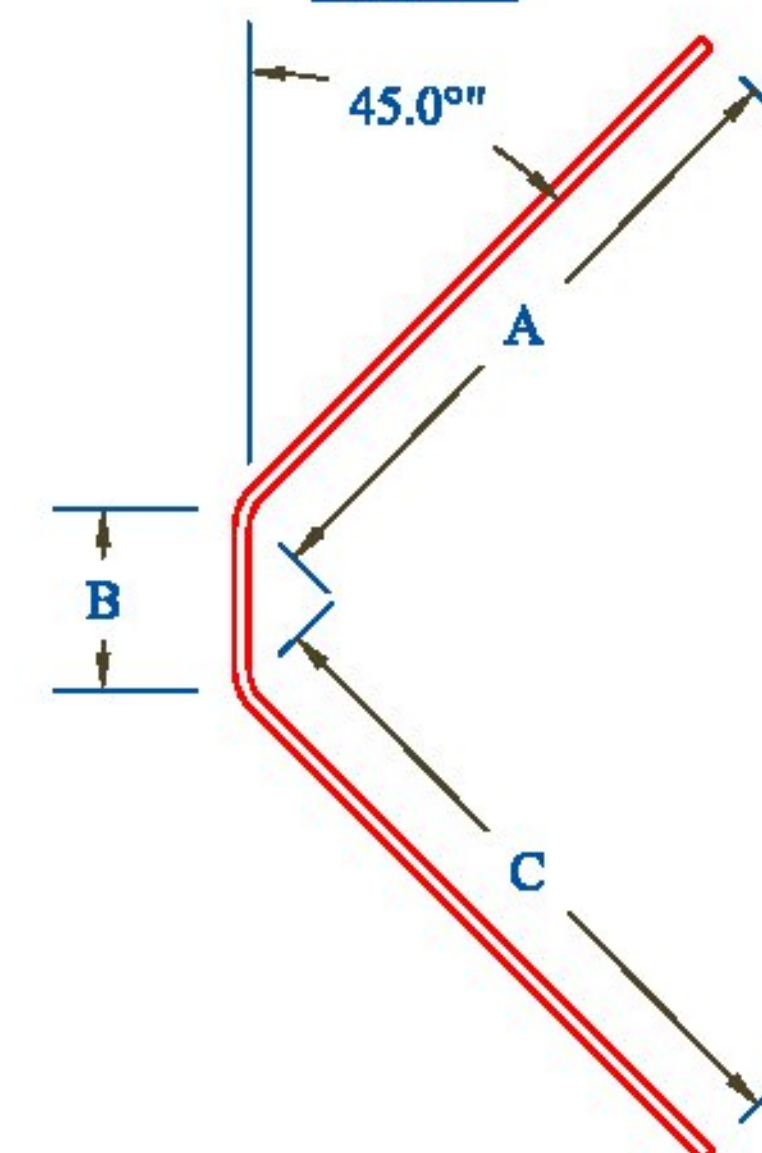
Straight



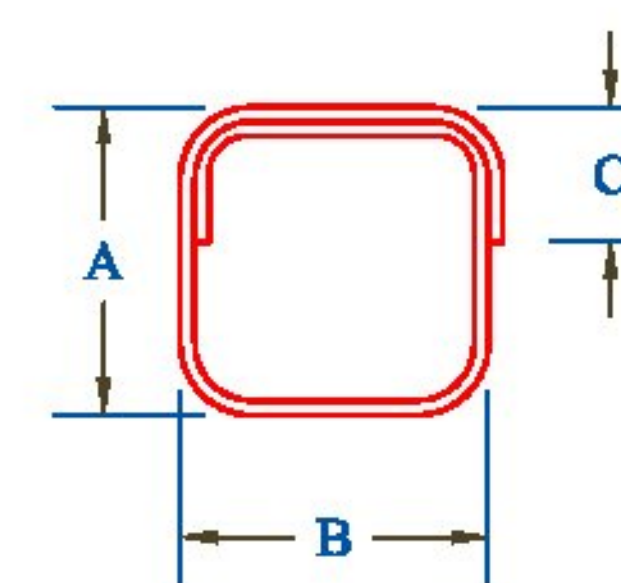
Type 1



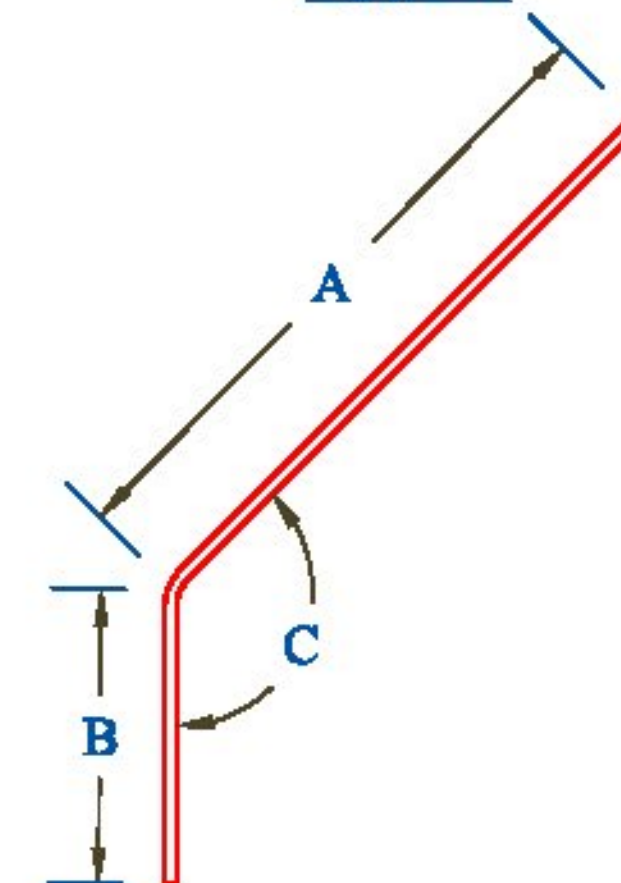
Type 2



Type 3



Type 4



Type 5

| Std. Bar Bend Ø |        |
|-----------------|--------|
| Bar #           | Bend Ø |
| #4              | 3"     |
| #5              | 3 3/4" |
| #6              | 4 1/2" |

|                   |                                                                                                                                                         |  |                                                                           |                                                                                                                                                     |  |                                                                                        |                                                                                                |                                                                                                                |          |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|----------|
| CONTRACTORS VISPE | Vermont Agency of Transportation<br><b>RECEIVED</b><br>CK'D BY MEM OK'D BY CWC<br>Apr. 17, 2015<br>RESUBMIT APPROVED ✓<br>BY C. Carlson DATE 04-17-2015 |  | Rev. 1<br>Date 04/16/15<br>By IBA<br>Description Changes per State Review | PRECAST CONCRETE ABUTMENT SHOP DRAWINGS (SDI JOB #15264)<br>SUPERVISOR: M. WHEELER<br>DETAILER: I. ADAMS<br>CHECKER: E. Barendse<br>ENGINEER: VTAOT |  | PROJECT NAME:<br>Bristol BRP 021-1(29)<br>PROJECT # 021-1(29)<br>LOCATION: Bristol, VT | INSTALLER:<br>S.D. Ireland Concrete<br>193 Industrial Ave<br>Williston, VT 05495<br>03/17/2015 | FABRICATOR:<br>193 INDUSTRIAL AVE.<br>WILLISTON, VT 05495<br>Ph: (802) 658-0201<br>SD Ireland PRECAST<br>BAR_2 | 16_OF_16 |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|----------|



# Precast Approach Slabs

## Bristol BRF 021-1(29)

### Concrete:

Mix Designation: P60TER

1. Specified Mix Design - 5000 PSI
2. Proposed Mix Design - 6000 PSI
3. Striping Strength - 4000 PSI
4. Handling Strength - 4000 PSI
5. Shipping Strength - 5000 PSI
6. Install Strength - 5000 PSI
7. Traffic Loading - 5000 PSI

### Fabrication Tolerances:

1. Width  $\pm 1/4"$
2. Height  $\pm 1/4"$
3. Length  $\pm 1/2"$
4. Rebar Cover 3" Min. (Unless Noted Otherwise)
5. Rebar Spacing  $\pm 1"$
6. Rebar Clearance  $\pm 1/4"$
7. Insert Placement  $\pm 1/4"$

### Approach Slab Finish:

1. Top surface to be smooth flat finish

### Reinforcing:

#### General Notes:

1. Reinforcing Steel - ASTM A615, Grade 60, Level II, Dual Coated
2. Bar tied at every intersection.
3. Contractor must coordinate closure pour vertical dowel bars with the associated sleeves cast into the approach slab as submitted. Note that the spacing of these sleeves do not exactly match the spacing indicated on sheet 33 of 54.

#### Tolerances:

1. Spacing  $\pm 1"$
2. Clearance  $\pm 1/4"$

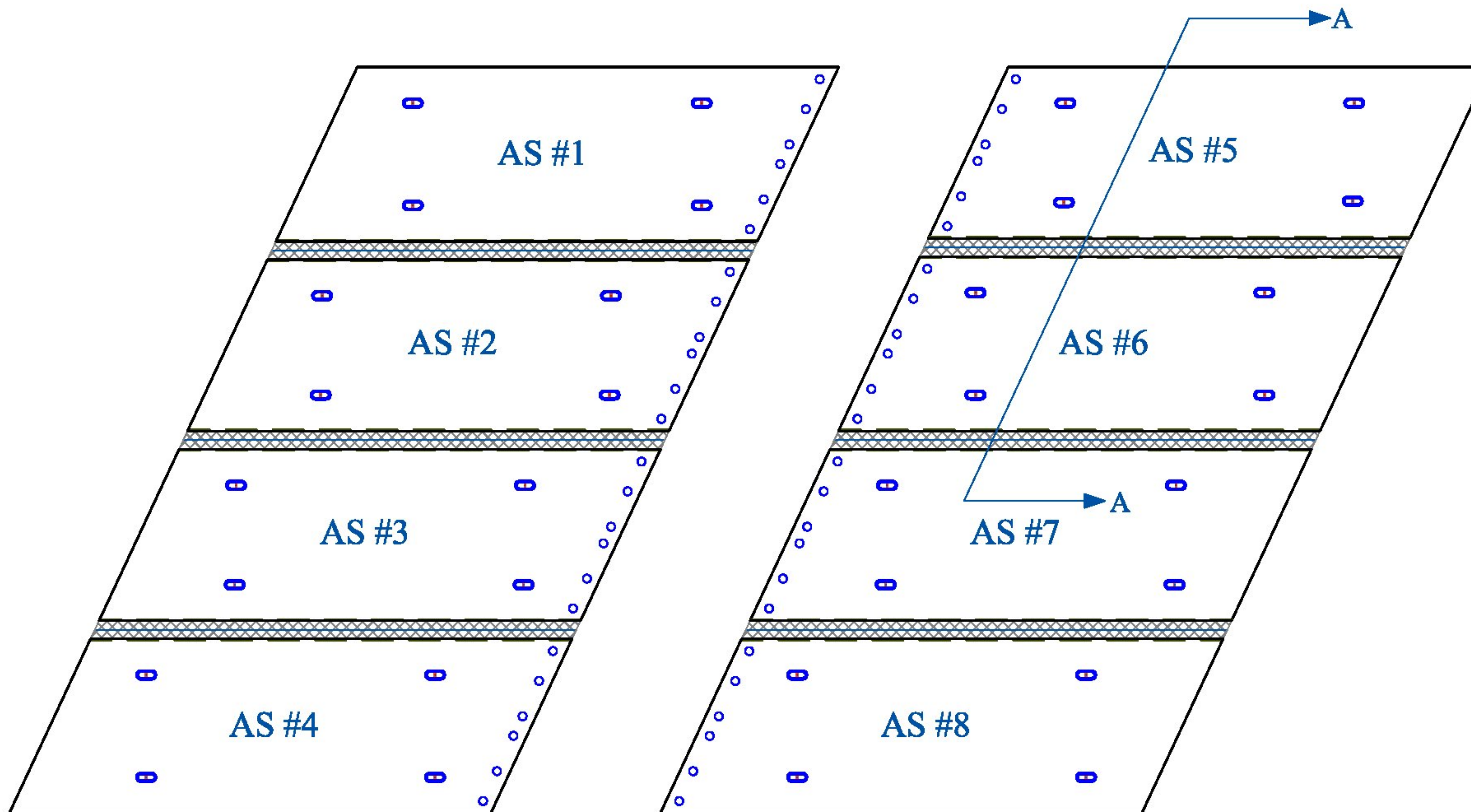
#### Lap Lengths:

1. Per AASHTO 5.11.2.1.1 & 5.11.5.3.1  
Lap Length for Level II (Dual Coated):  
#4 Bar=17"  
#5 Bar=31"  
#6 Bar=39"  
#7 Bar=53"  
#8 Bar=69"

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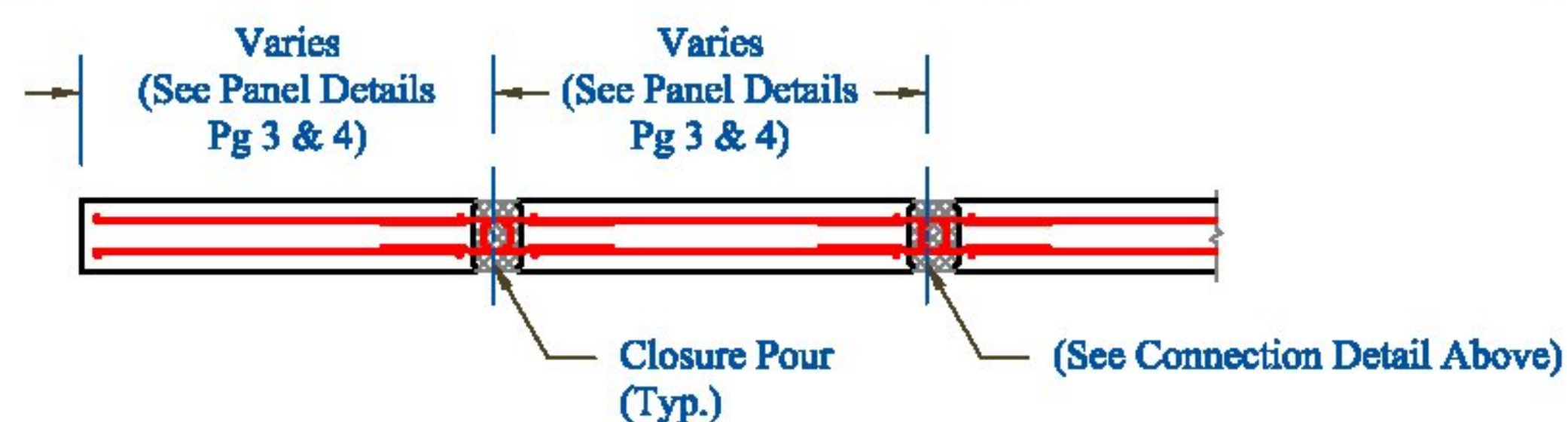
| CONTRACTORS VISIT | Rev. | Date     | By  | Description                                 | PRECAST CONCRETE APPROACH SLAB SHOP DRAWINGS (SDI JOB #15738) | INSTALLER:          | FABRICATOR:         |
|-------------------|------|----------|-----|---------------------------------------------|---------------------------------------------------------------|---------------------|---------------------|
|                   | 1    | 04/08/15 | IBA | Changes per State Review                    | SUPERVISOR: E. Barendse                                       | S.D. Ireland        | 193 INDUSTRIAL AVE. |
|                   | 2    | 04/16/15 | IBA | Changes per State Changes Received 04/13/15 | DETAILER: I. ADAMS                                            | 193 Industrial Ave  | WILLISTON, VT 05495 |
|                   |      |          |     |                                             | CHECKER: E. Barendse                                          | WILLISTON, VT 05495 | Ph: (802) 658-0201  |
|                   |      |          |     |                                             | ENGINEER: X                                                   | 03/17/2015          | COVER_PAGE          |
|                   |      |          |     |                                             |                                                               |                     | 1_OF_10             |



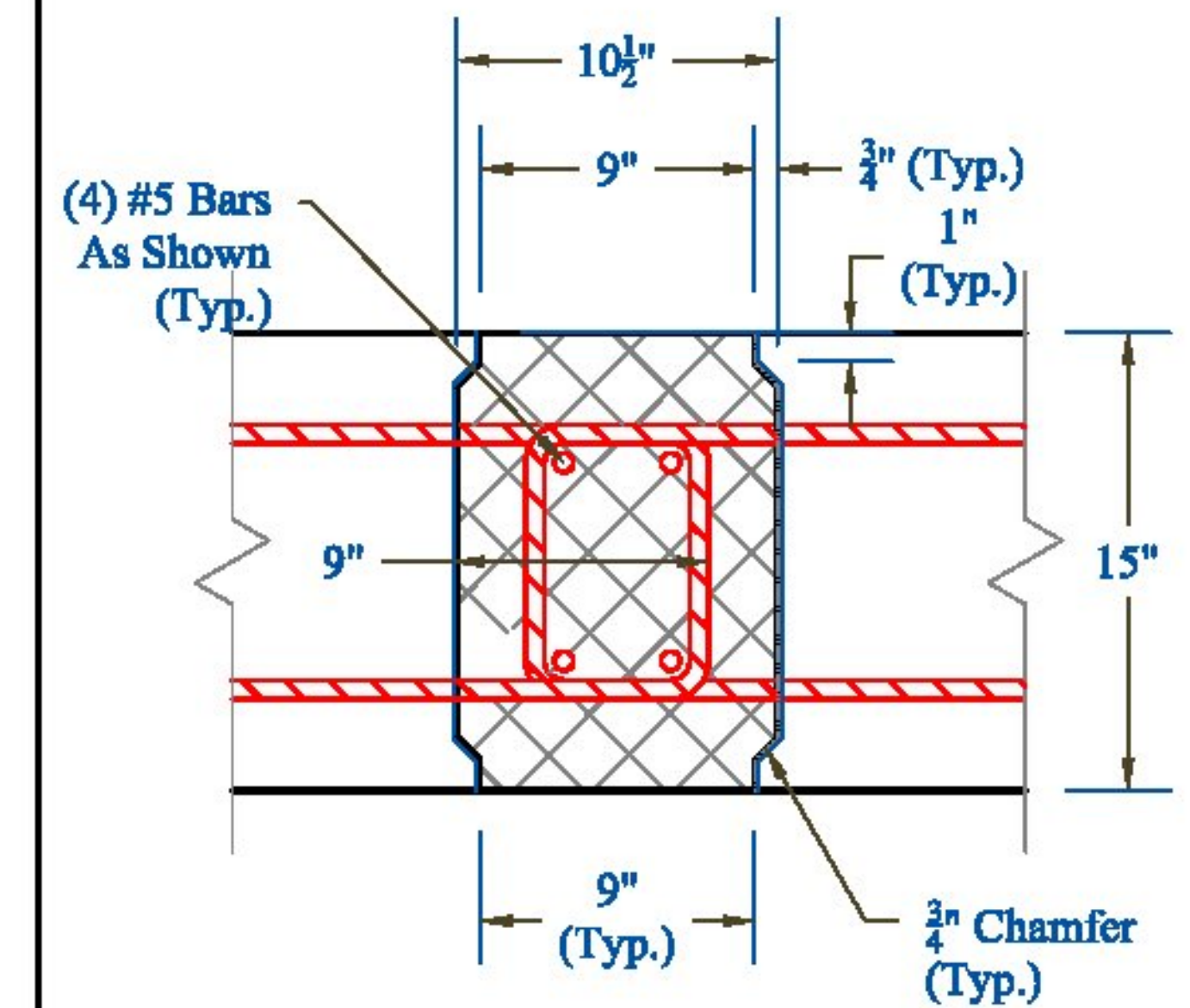


Approach Slab 1: Plan

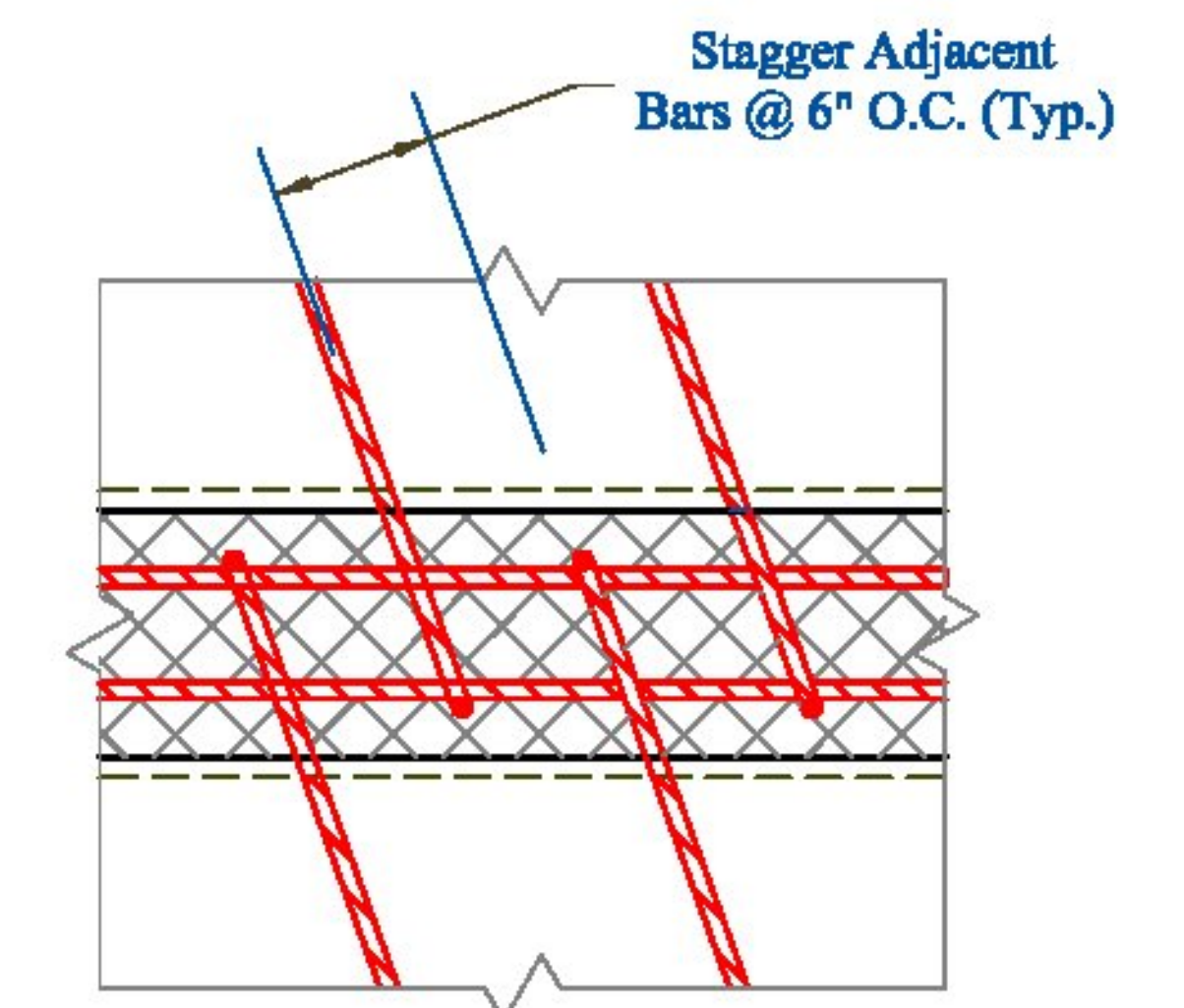
Approach Slab 2: Plan



Section A-A



Connection Detail Section



Connection Detail Plan

Table of Pieces

| Name | Qty | Thickness | Vol (Cu Yd) | Wt (lbs) |
|------|-----|-----------|-------------|----------|
| As#1 | 1   | 1'-3"     | 6.71        | 26,840   |
| As#2 | 1   | 1'-3"     | 6.48        | 25,925   |
| As#3 | 1   | 1'-3"     | 6.48        | 25,925   |
| As#4 | 1   | 1'-3"     | 6.71        | 26,840   |
| As#5 | 1   | 1'-3"     | 6.48        | 25,925   |
| As#6 | 1   | 1'-3"     | 6.71        | 26,840   |
| As#7 | 1   | 1'-3"     | 6.48        | 25,925   |
| As#8 | 1   | 1'-3"     | 6.71        | 26,840   |

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| CONTRACTORS VISIT | Rev. | Date     | By  | Description                                 |
|-------------------|------|----------|-----|---------------------------------------------|
|                   | 1    | 04/08/15 | IBA | Changes per State Review                    |
|                   | 2    | 04/16/15 | IBA | Changes per State Changes Received 04/13/15 |

PRECAST CONCRETE APPROACH SLAB SHOP DRAWINGS (SDI JOB #15738)

SUPERVISOR: E. Barendse  
 DETAILER: I. ADAMS  
 CHECKER: E. Barendse  
 ENGINEER: X

PROJECT NAME:  
 Bristol BRP 021-1(29)  
 PROJECT #: 021-1(29)  
 LOCATION: Bristol, VT

INSTALLER:  
 S.D. Ireland  
 193 Industrial Ave  
 Williston, VT 05495

03/17/2015

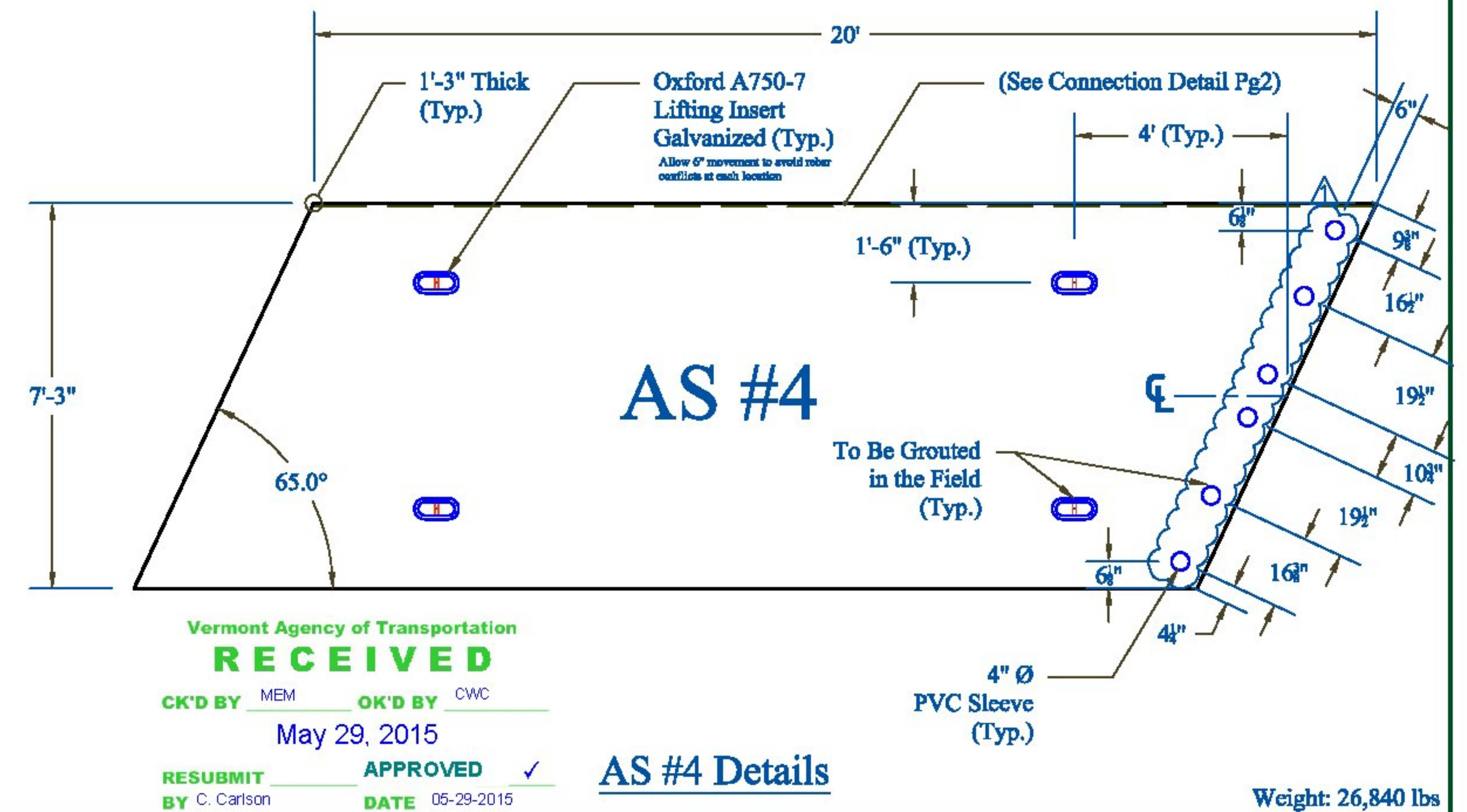
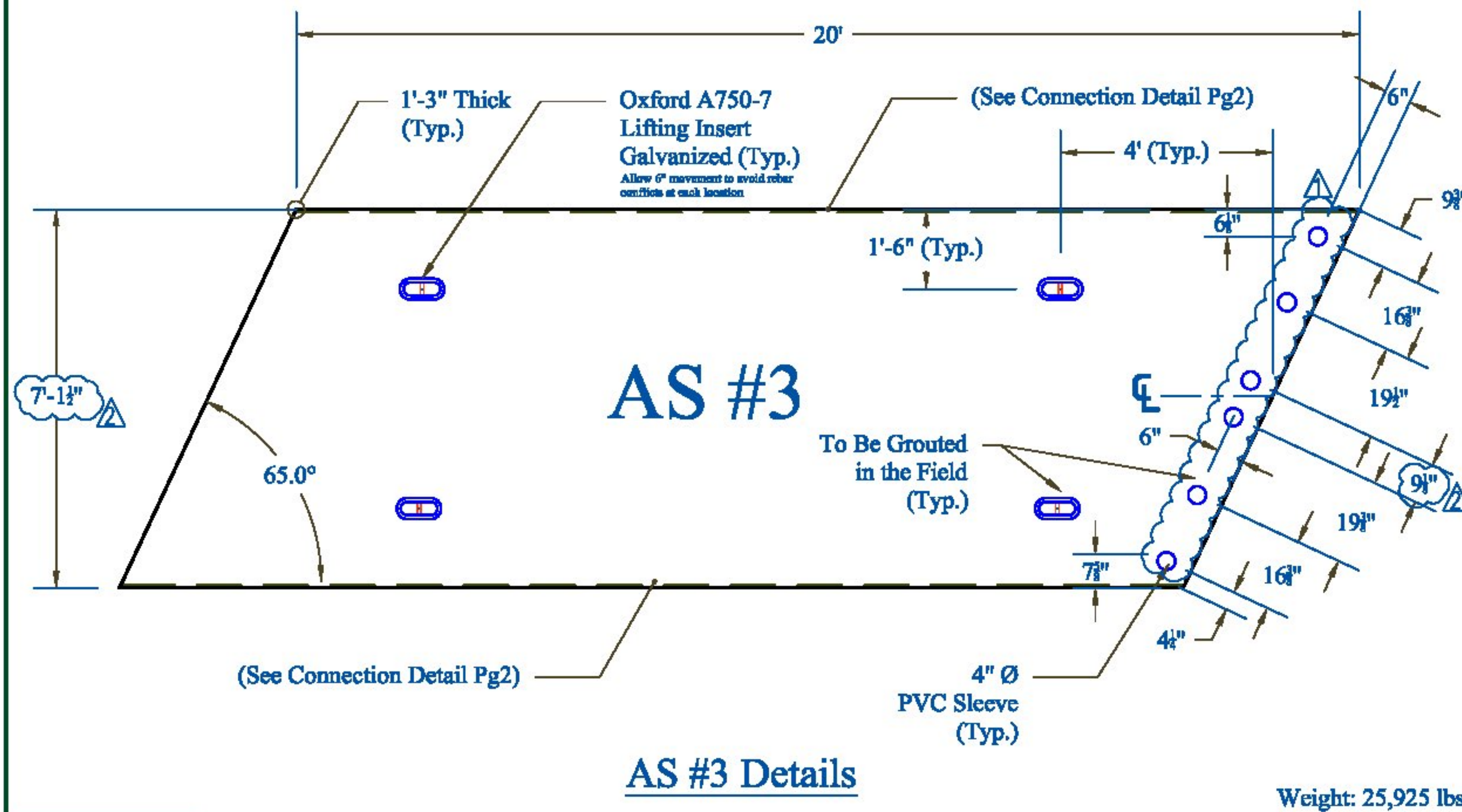
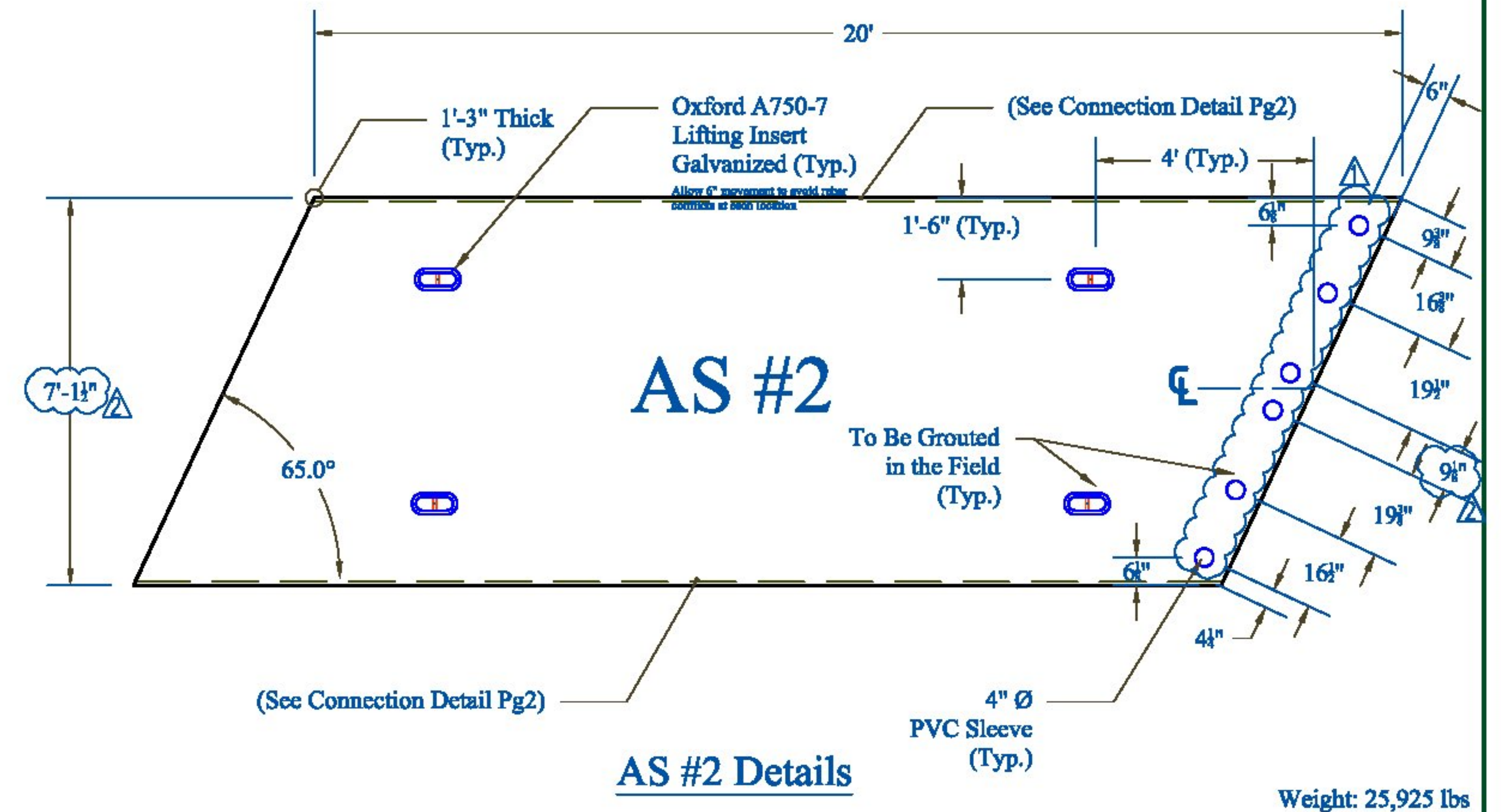
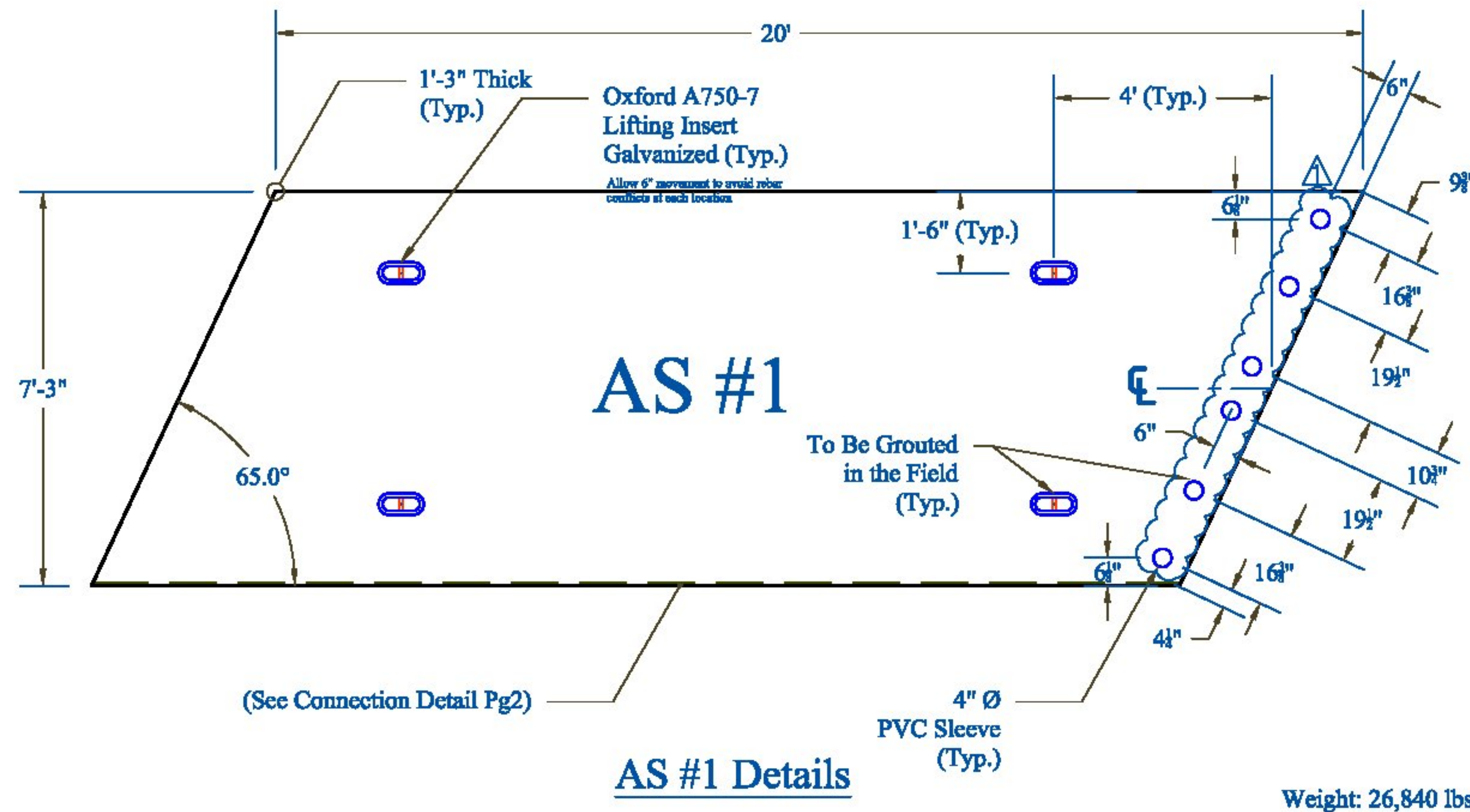
FABRICATOR:  
 193 INDUSTRIAL AVE.  
 WILLISTON, VT 05495  
 Ph: (802) 658-0201

**SD Ireland**  
 PRECAST

PLAN\_ELEVATION

2\_OF\_10



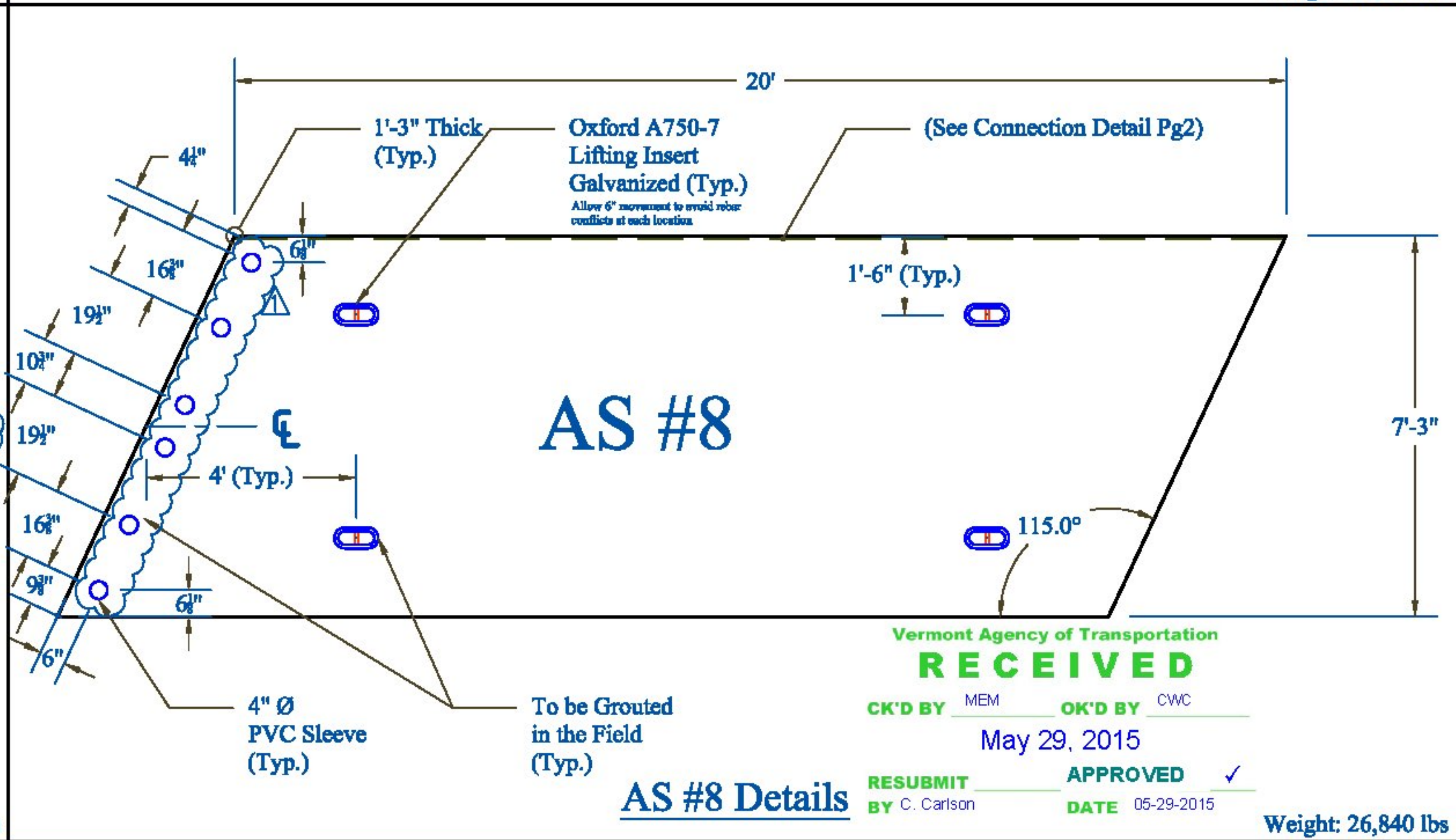
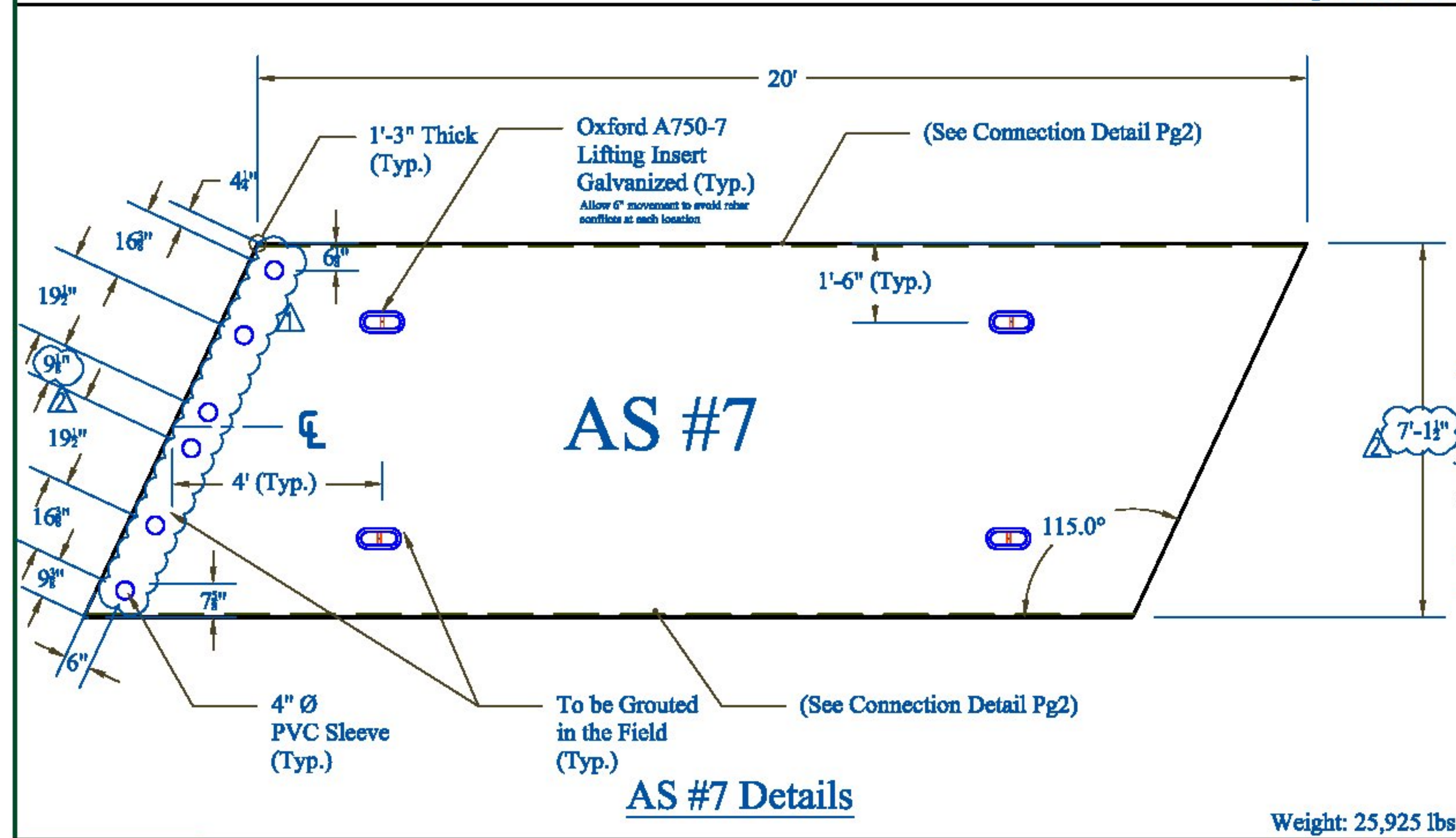
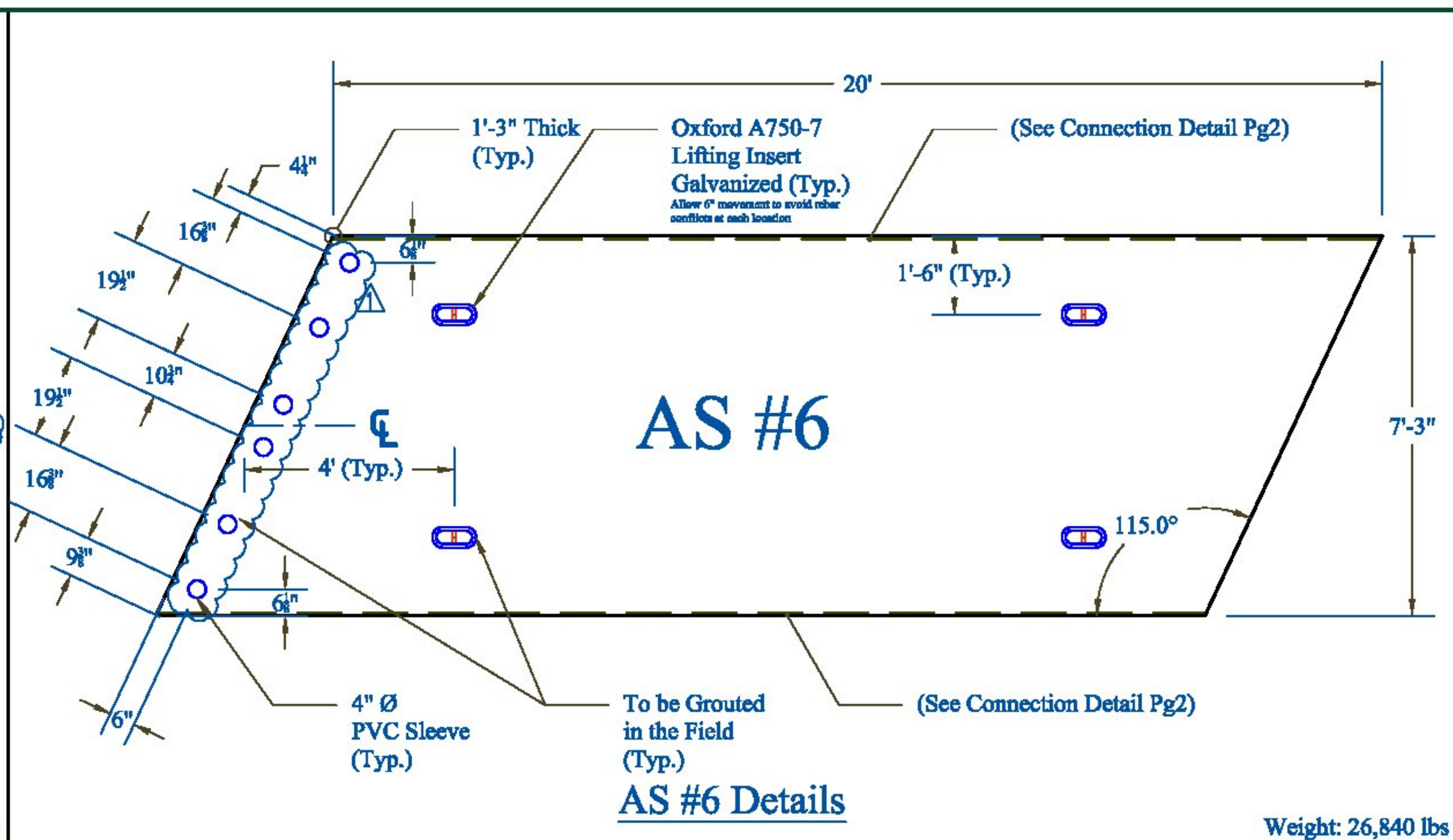
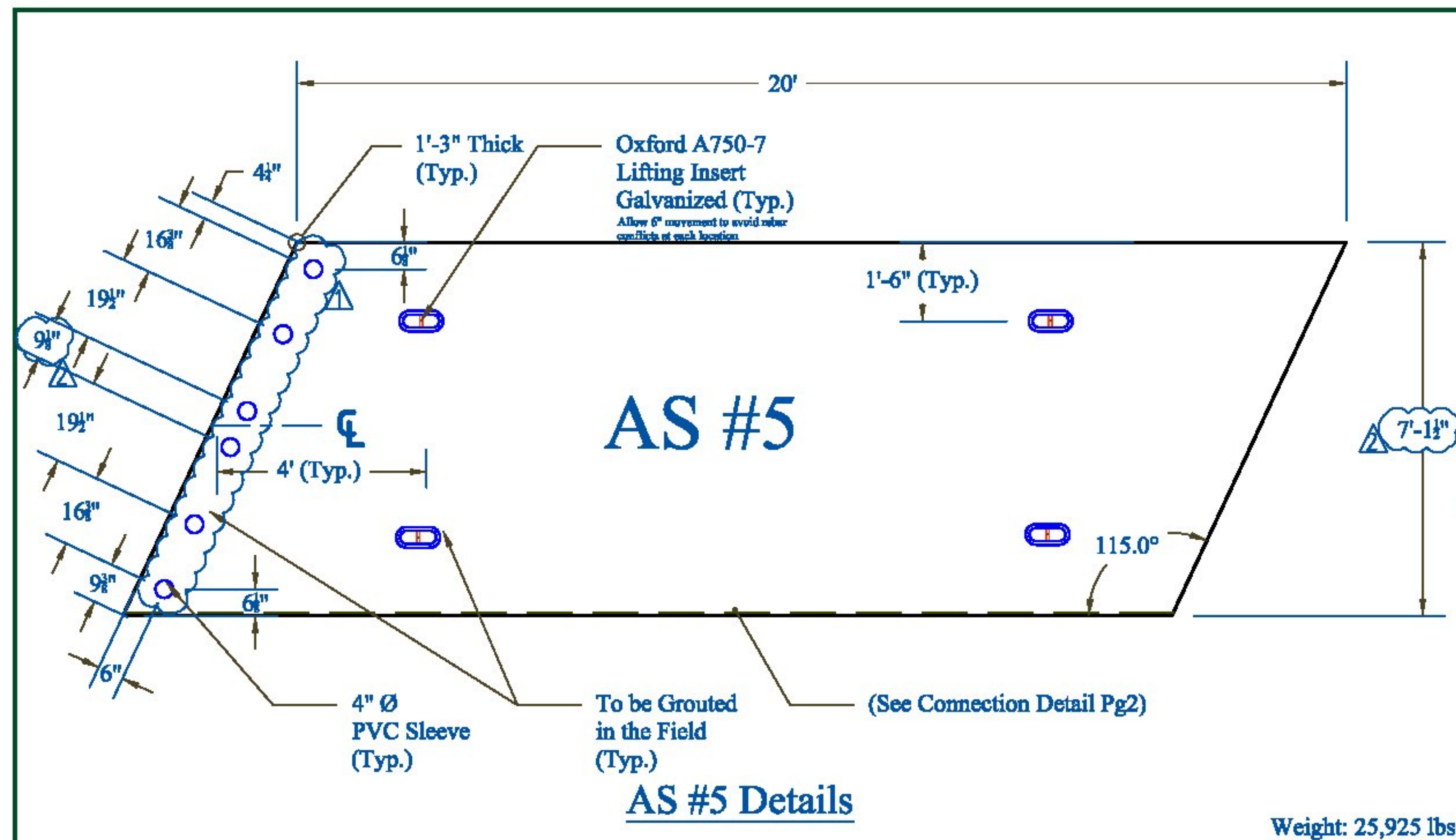


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 BY C. Carlson DATE 05-29-2015

| CONTRACTORS VISIT | Rev. | Date     | By  | Description                                 | PRECAST CONCRETE APPROACH SLAB SHOP DRAWINGS (SDI JOB #15738) | INSTALLER:          | FABRICATOR:         |
|-------------------|------|----------|-----|---------------------------------------------|---------------------------------------------------------------|---------------------|---------------------|
|                   | 1    | 04/09/15 | IBA | Changes per State Review                    | SUPERVISOR: E. Barendse                                       | S.D. Ireland        | 193 INDUSTRIAL AVE. |
|                   | 2    | 04/16/15 | IBA | Changes per State Changes Received 04/13/15 | DETAILER: I. ADAMS                                            | 193 Industrial Ave  | WILLISTON, VT 05495 |
|                   |      |          |     |                                             | CHECKER: E. Barendse                                          | Williston, VT 05495 | Ph: (802) 658-0201  |
|                   |      |          |     |                                             | ENGINEER: X                                                   | 03/17/2015          | PANELS_1            |
|                   |      |          |     |                                             |                                                               |                     | 3_OF_10             |







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|                                                                                                                                                                            |                                                                                                                                                       |                                                                                                                                                                            |                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| CONTRACTORS VISIT: Rev. 1 Date 04/08/15 By IBA Description Changes per State Review<br>Rev. 2 Date 04/16/15 By IBA Description Changes per State Changes Received 04/13/15 | PRECAST CONCRETE APPROACH SLAB SHOP DRAWINGS (SDI JOB #15738)<br>SUPERVISOR: E. Barendse<br>DETAILER: I. ADAMS<br>CHECKER: E. Barendse<br>ENGINEER: X | PROJECT NAME: Bristol BRP 021-1(29)<br>PROJECT #: 021-1(29)<br>LOCATION: Bristol, VT<br>INSTALLER: S.D. Ireland<br>193 Industrial Ave<br>Williston, VT 05495<br>03/17/2015 | FABRICATOR: 193 INDUSTRIAL AVE.<br>WILLISTON, VT 05495<br>Ph: (802) 658-0201<br><b>SD Ireland</b><br>PRECAST<br>PANELS_2 4_OF_10 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|

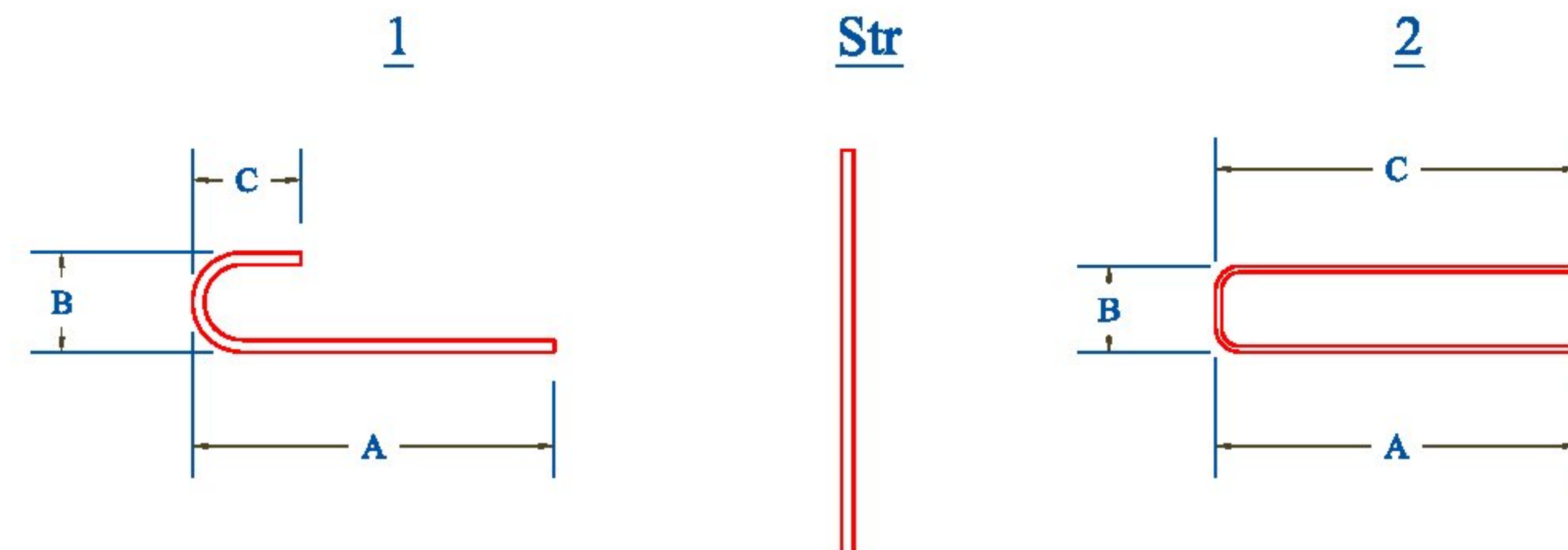


### Reinforcing Schedule

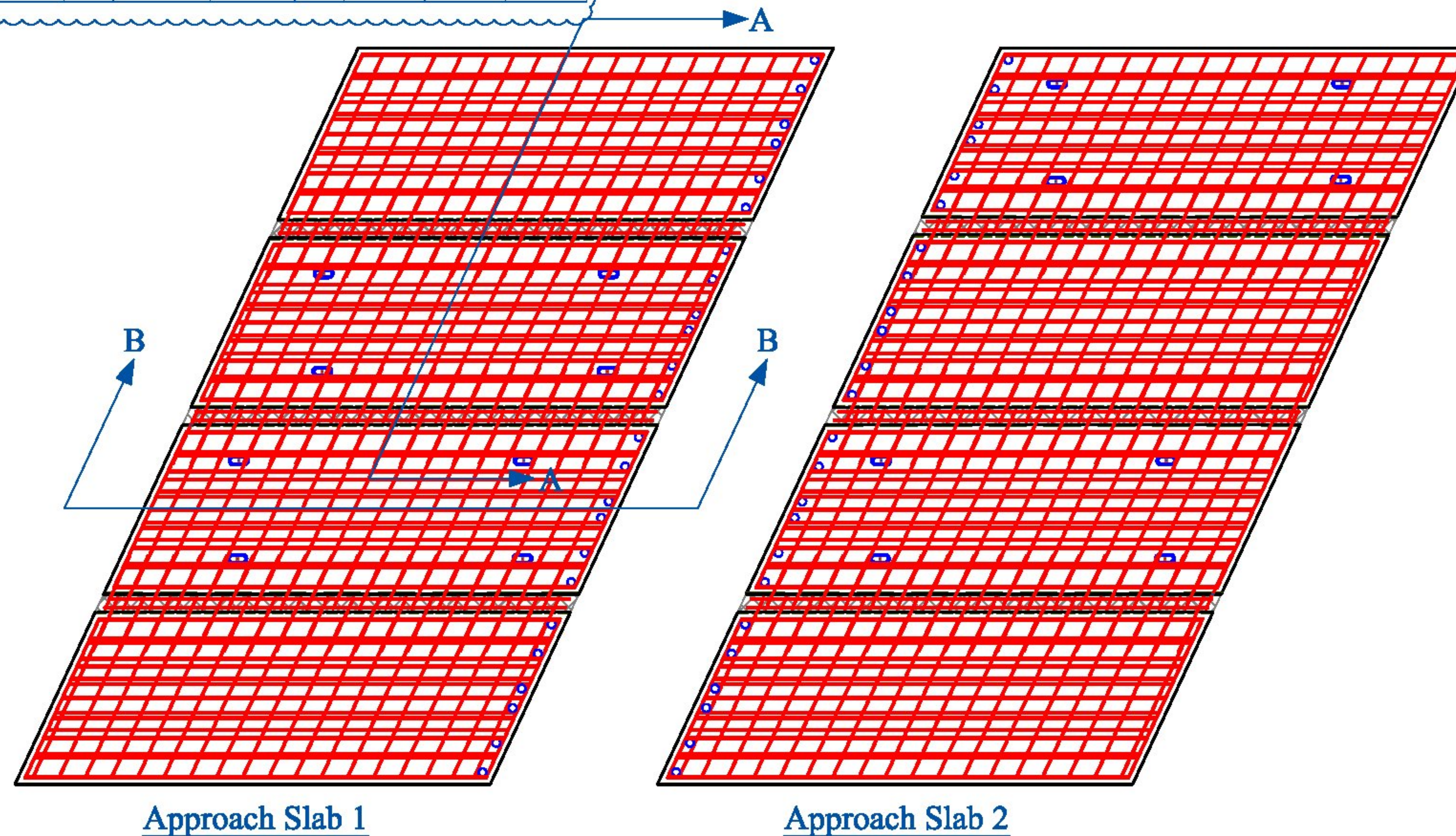
| Location         | Mark   | Description | Size | Spacing | Length   | Qty. | A        | B       | C   |
|------------------|--------|-------------|------|---------|----------|------|----------|---------|-----|
| CP Hook Bars     | AS1401 | 2           | #4   | 12"     | 67-1/8"  | 106* | 30"      | 7-1/8"  | 30" |
| CP Sm Hook Bars  | AS1402 | 2           | #4   | 12"     | 66-1/8"  | 3    | 30"      | 6-1/8"  | 30" |
| AS#1/#4 T&B Mats | AS1501 | Str         | #5   | 12"     | 89-1/8"  | 79*  | 89-1/8"  |         |     |
| AS#2/#3 T&B Mats | AS1502 | Str         | #5   | 12"     | 87 1/2"  | 78   | 87 1/2"  |         |     |
| CP Hor Bars      | AS1503 | Str         | #5   | N/A     | 233-1/8" | 12   | 233-1/8" |         |     |
| Top Hor Bar      | AS1601 | Str         | #6   | 12"     | 233"     | 34   | 233"     |         |     |
| Bottom Hor Hooks | AS1901 | 1           | #9   | 10"     | 253-1/4" | 36   | 233"     | 11-1/4" | 9"  |
| CP Hook Bars     | AS2401 | 2           | #4   | 12"     | 67-1/8"  | 105  | 30"      | 7-1/8"  | 30" |
| CP Sm Hook Bars  | AS2402 | 2           | #4   | 12"     | 66-1/8"  | 3    | 30"      | 6-1/8"  | 30" |
| AS#6/#8 T&B Mats | AS2501 | Str         | #5   | 12"     | 89-1/8"  | 80   | 89-1/8"  |         |     |
| AS#5/#7 T&B Mats | AS2502 | Str         | #5   | 12"     | 87 1/2"  | 76   | 87 1/2"  |         |     |
| CP Hor Bars      | AS2503 | Str         | #5   | N/A     | 233-1/8" | 12   | 233-1/8" |         |     |
| Top Hor Bar      | AS2601 | Str         | #6   | 12"     | 233"     | 35*  | 233"     |         |     |
| Bottom Hor Hooks | AS2901 | 1           | #9   | 10"     | 253-1/4" | 37*  | 233"     | 11-1/4" | 9"  |

\*One Bar Added for Testing

## Rebar Bend Types



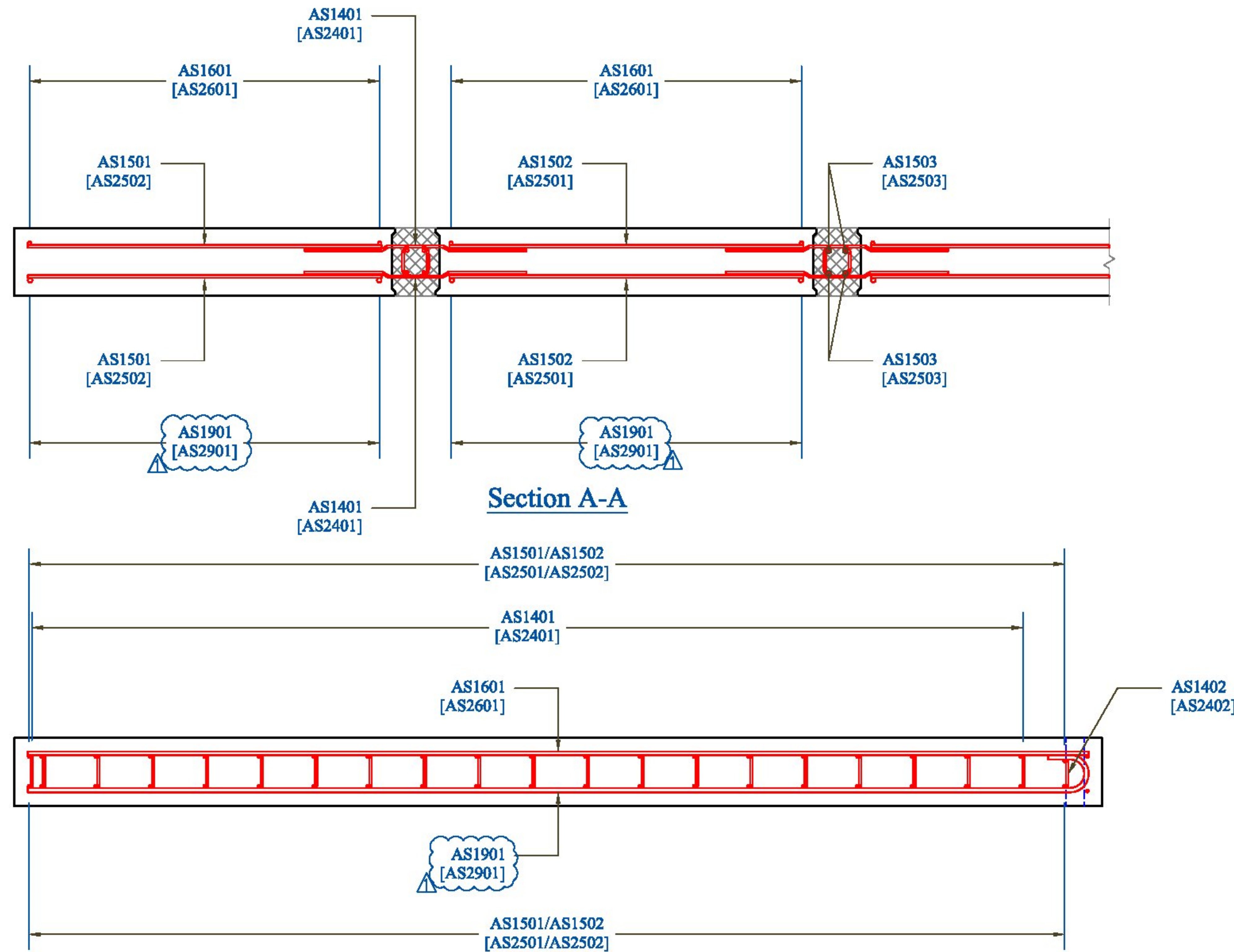
| Std. Bar Bend Ø |                   |
|-----------------|-------------------|
| Bar #           | Bend Ø            |
| #4              | 3"                |
| #5              | 3 $\frac{3}{4}$ " |
| #6              | 4 $\frac{1}{2}$ " |
| #9              | 9 $\frac{1}{2}$ " |



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| CONTRACTORS VISIT |   |          |     | Rev                                         | Date | By | Description | PRECAST CONCRETE APPROACH SLAB SHOP DRAWINGS (SDI JOB #15738) |  | INSTALLER:                                                                             | FABRICATOR: | SD  Ireland PRECAST |  |
|-------------------|---|----------|-----|---------------------------------------------|------|----|-------------|---------------------------------------------------------------|--|----------------------------------------------------------------------------------------|-------------|----------------------------------------------------------------------------------------------------------|--|
|                   | 1 | 04/08/15 | IBA | Changes per State Review                    |      |    |             | SUPERVISOR: E. Barendse                                       |  | S.D. Ireland<br>193 Industrial Ave<br>Williston, VT 05495                              |             | 193 INDUSTRIAL AVE.<br>WILLISTON, VT 05495<br>Ph: (802) 658-0201                                         |  |
|                   | 2 | 04/16/15 | IBA | Changes per State Changes Received 04/13/15 |      |    |             | DETAILER: I. ADAMS<br>CHECKER: E. Barendse<br>ENGINEER: X     |  | PROJECT NAME:<br>Bristol BRP 021-1(29)<br>PROJECT # 021-1(29)<br>LOCATION: Bristol, VT |             | 03/17/2015                                                                                               |  |
|                   |   |          |     |                                             |      |    |             |                                                               |  | BAR PLAN                                                                               |             | 5 OF 10                                                                                                  |  |

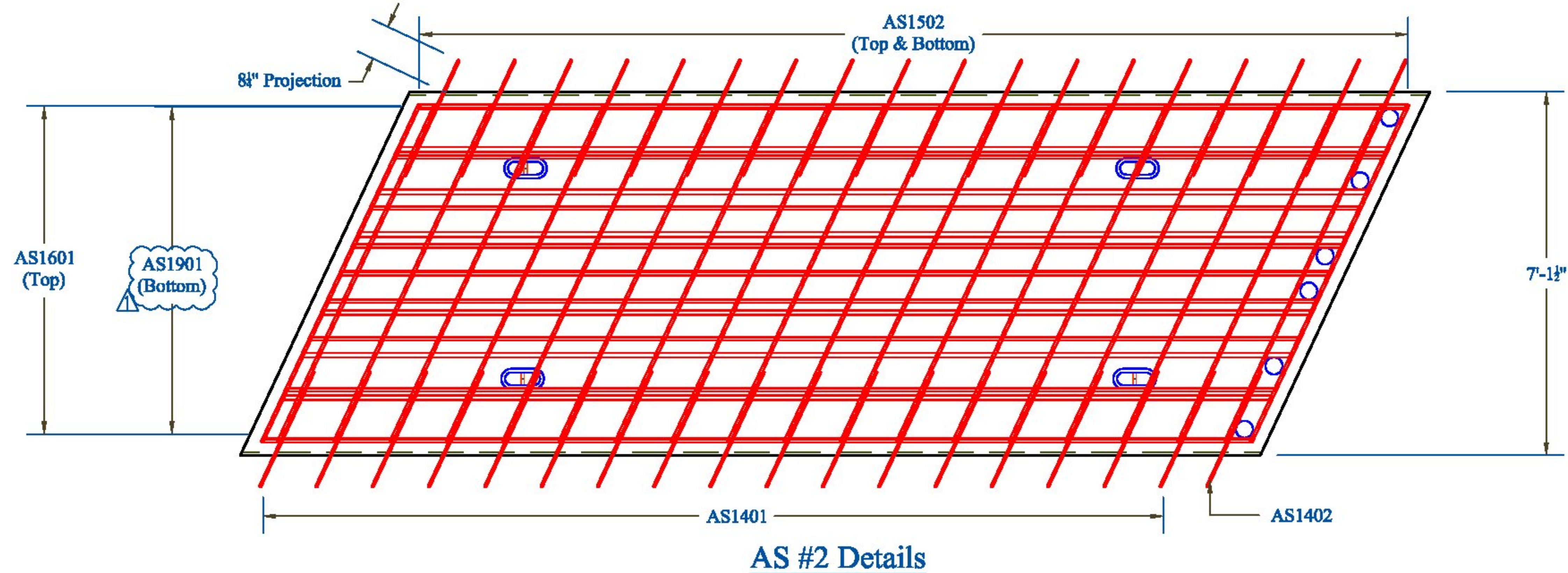
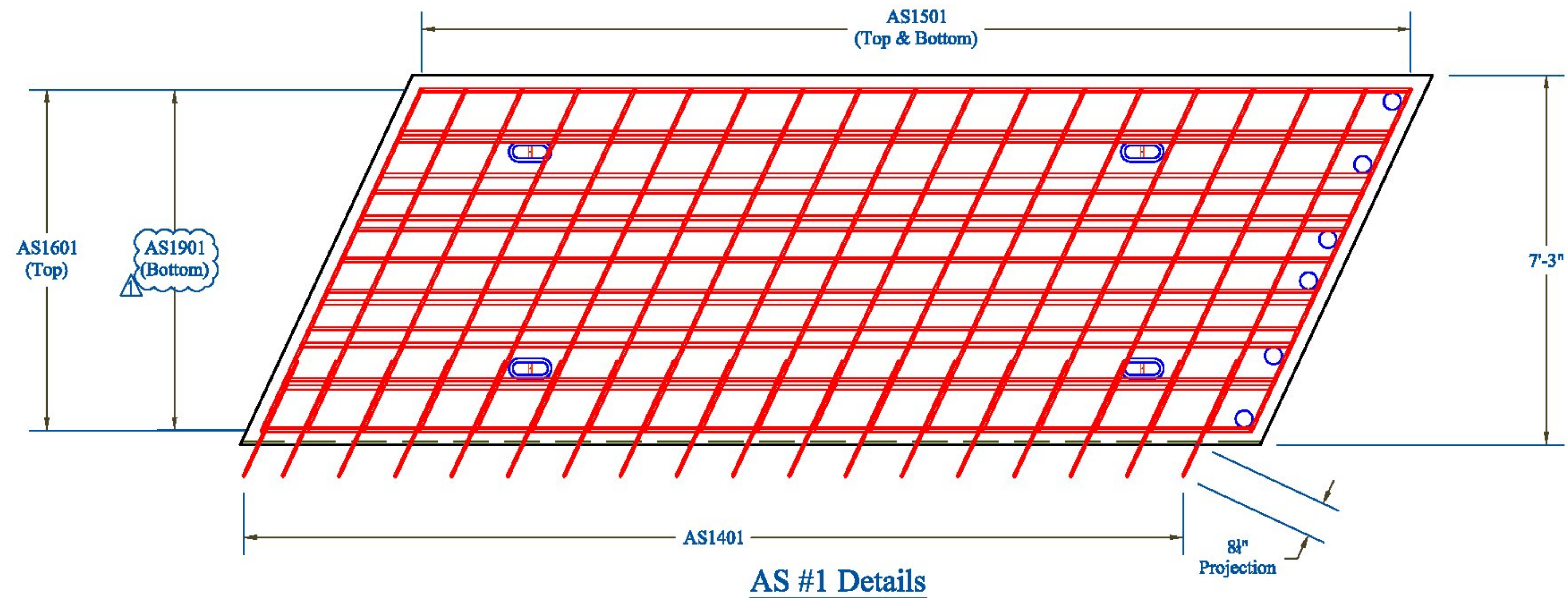




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| CONTRACTORS VISIT | Rev. | Date     | By  | Description                                 | PRECAST CONCRETE APPROACH SLAB SHOP DRAWINGS (SDI JOB #15738) |               |                       | INSTALLER:         |                     | FABRICATOR:        |         |
|-------------------|------|----------|-----|---------------------------------------------|---------------------------------------------------------------|---------------|-----------------------|--------------------|---------------------|--------------------|---------|
|                   | 1    | 04/08/15 | IBA | Changes per State Review                    | SUPERVISOR: E. Barendse                                       | PROJECT NAME: | Bristol BRF 021-1(29) | S.D. Ireland       | 193 INDUSTRIAL AVE. |                    |         |
|                   | 2    | 04/16/15 | IBA | Changes per State Changes Received 04/13/15 | DETAILER: I. ADAMS                                            | PROJECT #:    | 021-1(29)             | 183 Industrial Ave | WILLISTON, VT 05495 |                    |         |
|                   |      |          |     |                                             | CHECKER: E. Barendse                                          | LOCATION:     | Bristol, VT           |                    |                     | Ph: (802) 658-0201 |         |
|                   |      |          |     |                                             | ENGINEER: X                                                   |               |                       | 03/17/2015         |                     | SECTION_VIEWS      | 6_OF_10 |

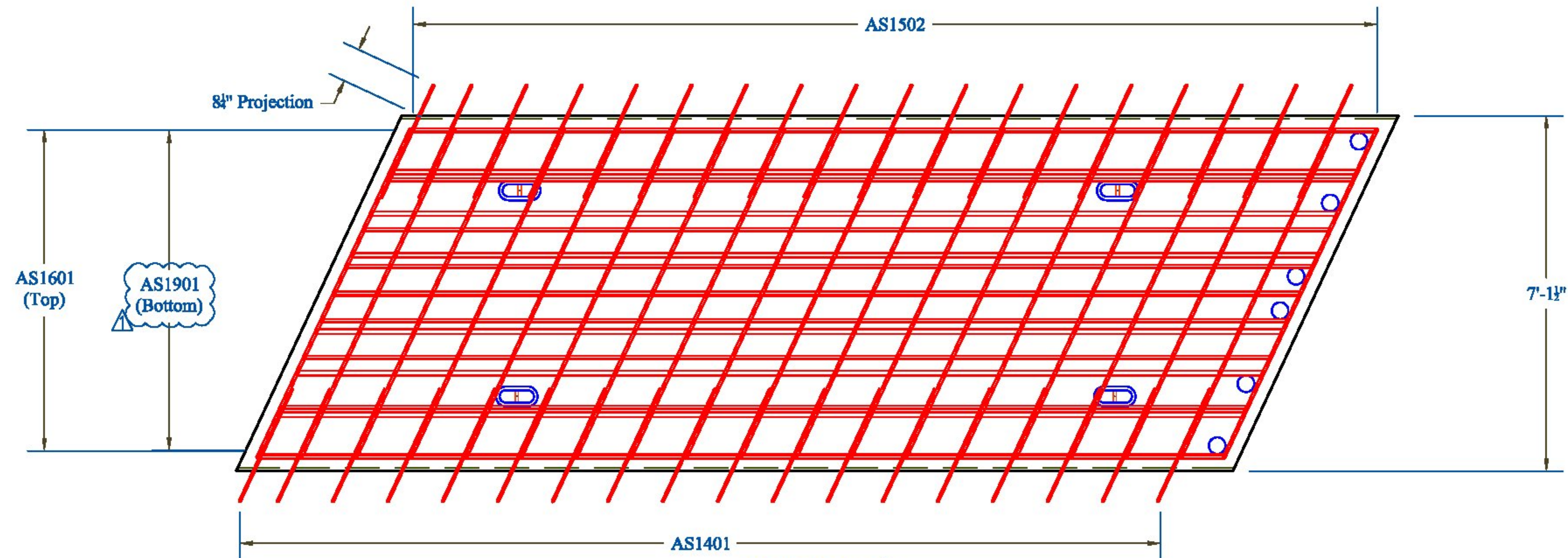




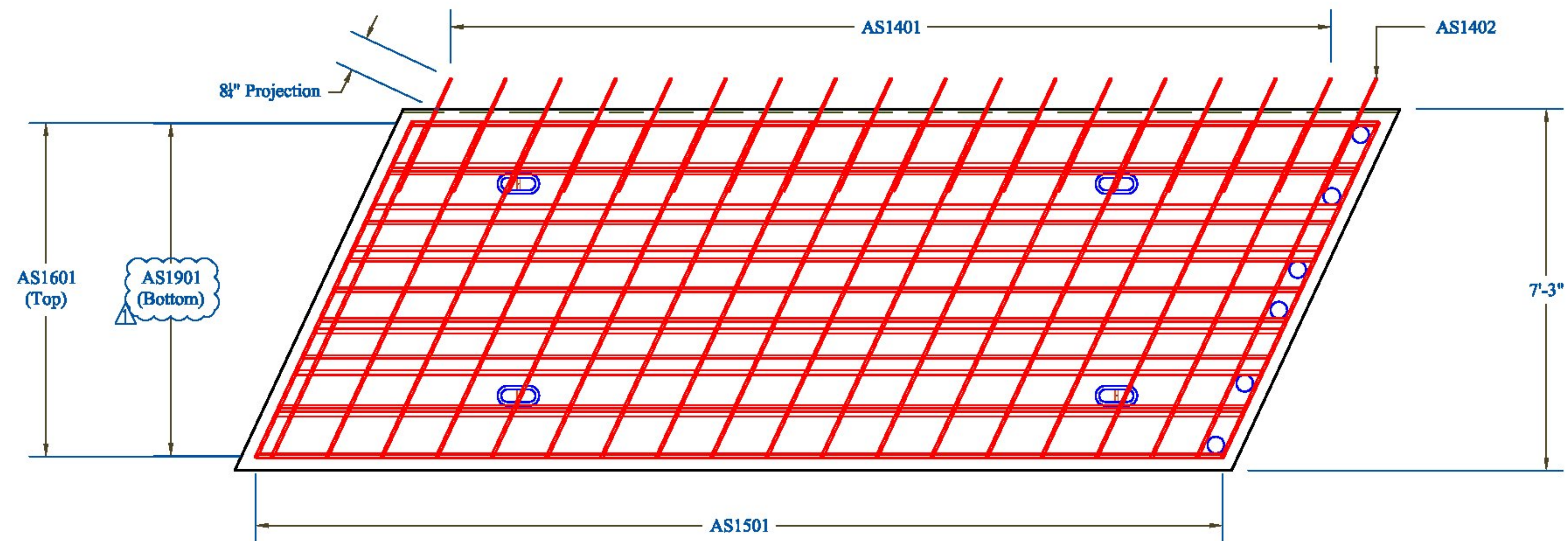
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| CONTRACTORS VISIT | Rev. | Date     | By  | Description                                 | PRECAST CONCRETE APPROACH SLAB SHOP DRAWINGS (SDI JOB #15738) |               |                       | INSTALLER:         |                     | FABRICATOR:                                                                           |         |
|-------------------|------|----------|-----|---------------------------------------------|---------------------------------------------------------------|---------------|-----------------------|--------------------|---------------------|---------------------------------------------------------------------------------------|---------|
|                   | 1    | 04/09/15 | IBA | Changes per State Review                    | SUPERVISOR: E. Barendse                                       | PROJECT NAME: | Bristol BRF 021-1(29) | S.D. Ireland       | 193 INDUSTRIAL AVE. |  |         |
|                   | 2    | 04/16/15 | IBA | Changes per State Changes Received 04/13/15 | DETAILER: I. ADAMS                                            | PROJECT #:    | 021-1(29)             | 183 Industrial Ave | WILLISTON, VT 05495 |                                                                                       |         |
|                   |      |          |     |                                             | CHECKER: E. Barendse                                          | LOCATION:     | Bristol, VT           | Ph: (802) 658-0201 |                     | AS1_AS2                                                                               | 7_OF_10 |
|                   |      |          |     |                                             | ENGINEER: X                                                   |               |                       | 03/17/2015         |                     |                                                                                       |         |





AS #3 Details

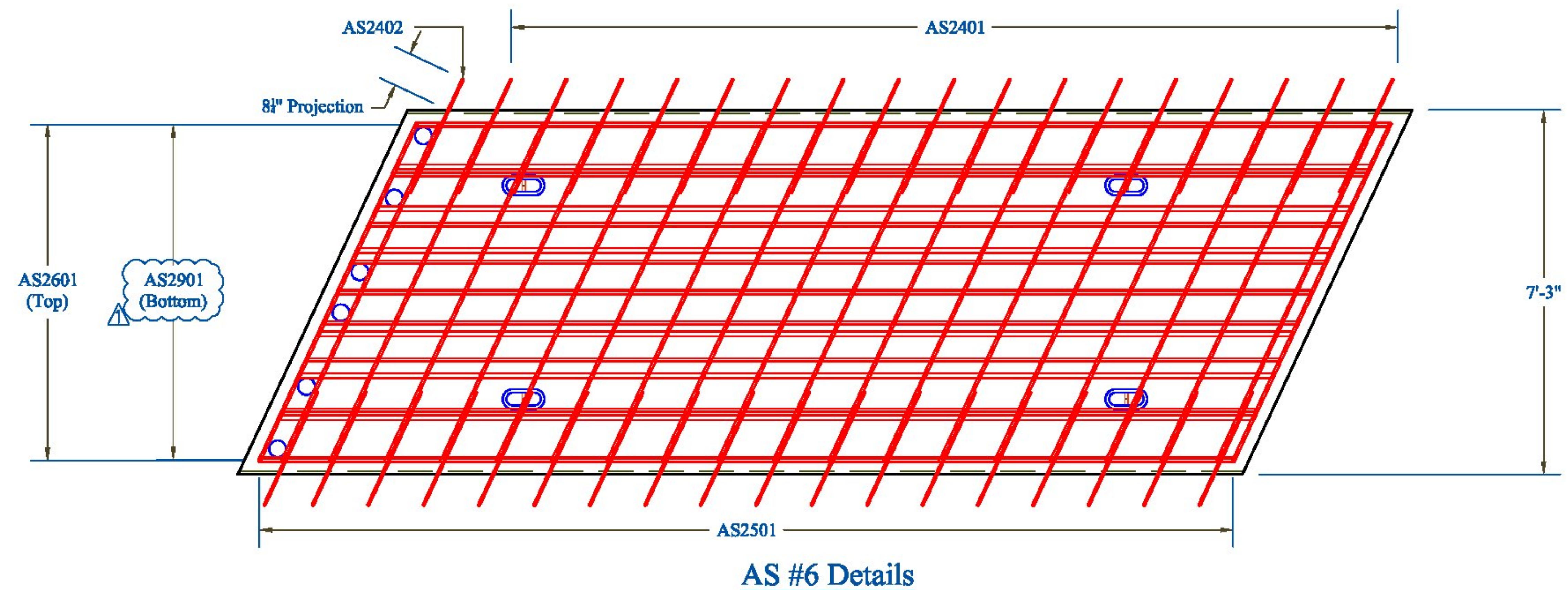
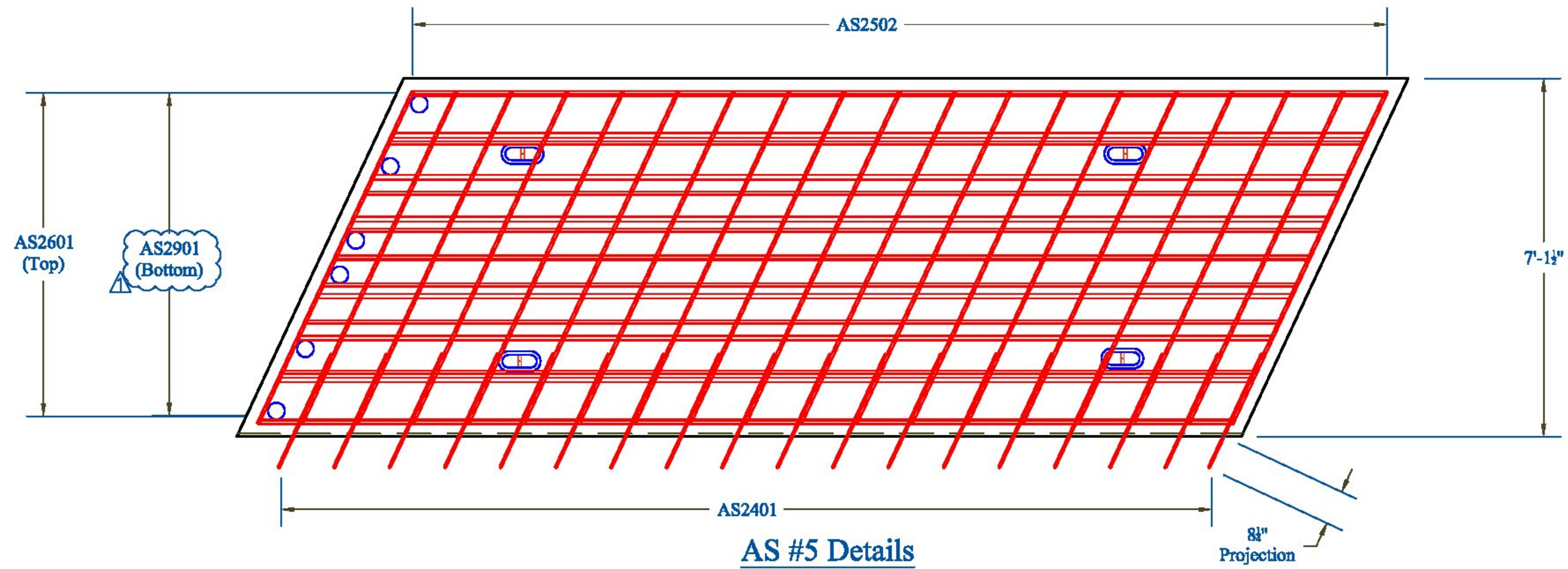


AS #4 Details

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 May 29, 2015  
 RESUBMIT APPROVED ✓  
 BY C. Carlson DATE 05-29-2015

| CONTRACTORS VISIT | Rev. | Date     | By  | Description                                 | PRECAST CONCRETE APPROACH SLAB SHOP DRAWINGS (SDI JOB #15738) |               |                       | INSTALLER:         |                     | FABRICATOR:                                                                                      |                                           |
|-------------------|------|----------|-----|---------------------------------------------|---------------------------------------------------------------|---------------|-----------------------|--------------------|---------------------|--------------------------------------------------------------------------------------------------|-------------------------------------------|
|                   | 1    | 04/09/15 | IBA | Changes per State Review                    | SUPERVISOR: E. Barendse                                       | PROJECT NAME: | Bristol BRF 021-1(29) | S.D. Ireland       | 193 INDUSTRIAL AVE. | SD  PRECAST | WILLISTON, VT 05495<br>Ph: (802) 658-0201 |
|                   | 2    | 04/16/15 | IBA | Changes per State Changes Received 04/13/15 | DETAILER: I. ADAMS                                            | PROJECT #:    | 021-1(29)             | 183 Industrial Ave |                     |                                                                                                  |                                           |
|                   |      |          |     |                                             | CHECKER: E. Barendse                                          | LOCATION:     | Bristol, VT           | Wilton, VT 05495   |                     |                                                                                                  |                                           |
|                   |      |          |     |                                             | ENGINEER: X                                                   |               |                       |                    |                     |                                                                                                  |                                           |
|                   |      |          |     |                                             |                                                               |               |                       | 03/17/2015         |                     | AS3_AS4                                                                                          | 8_OF_10                                   |



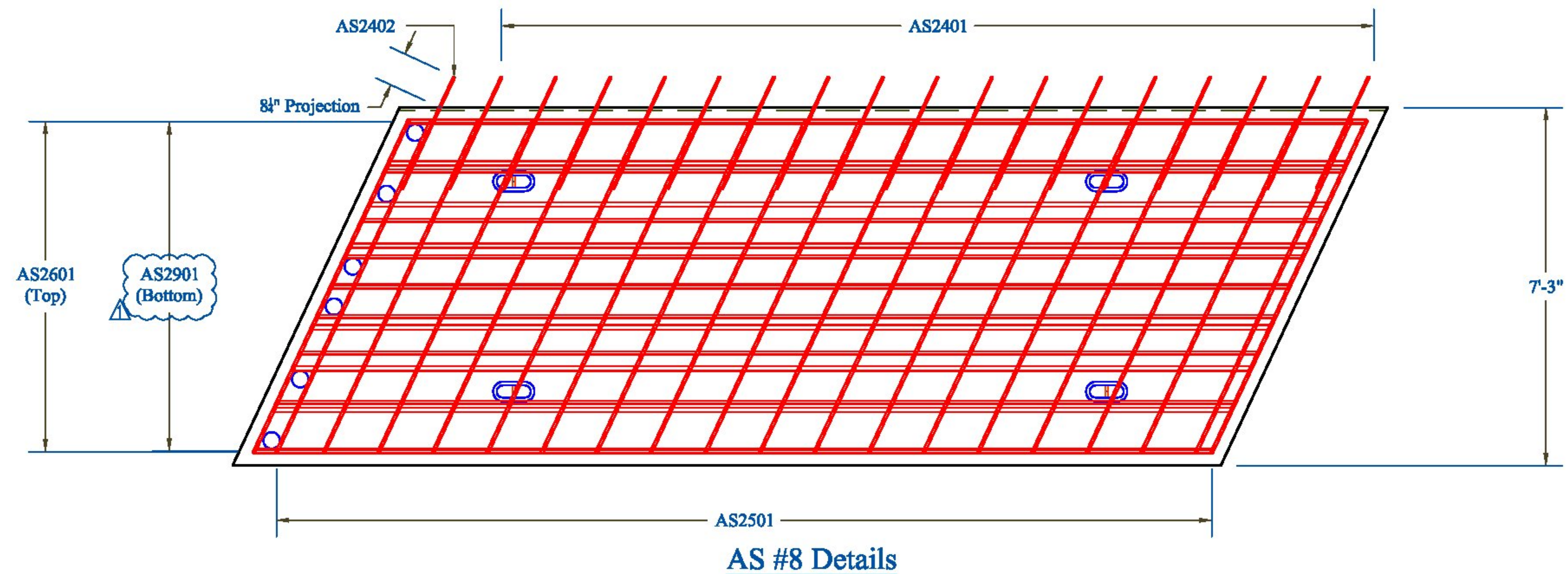
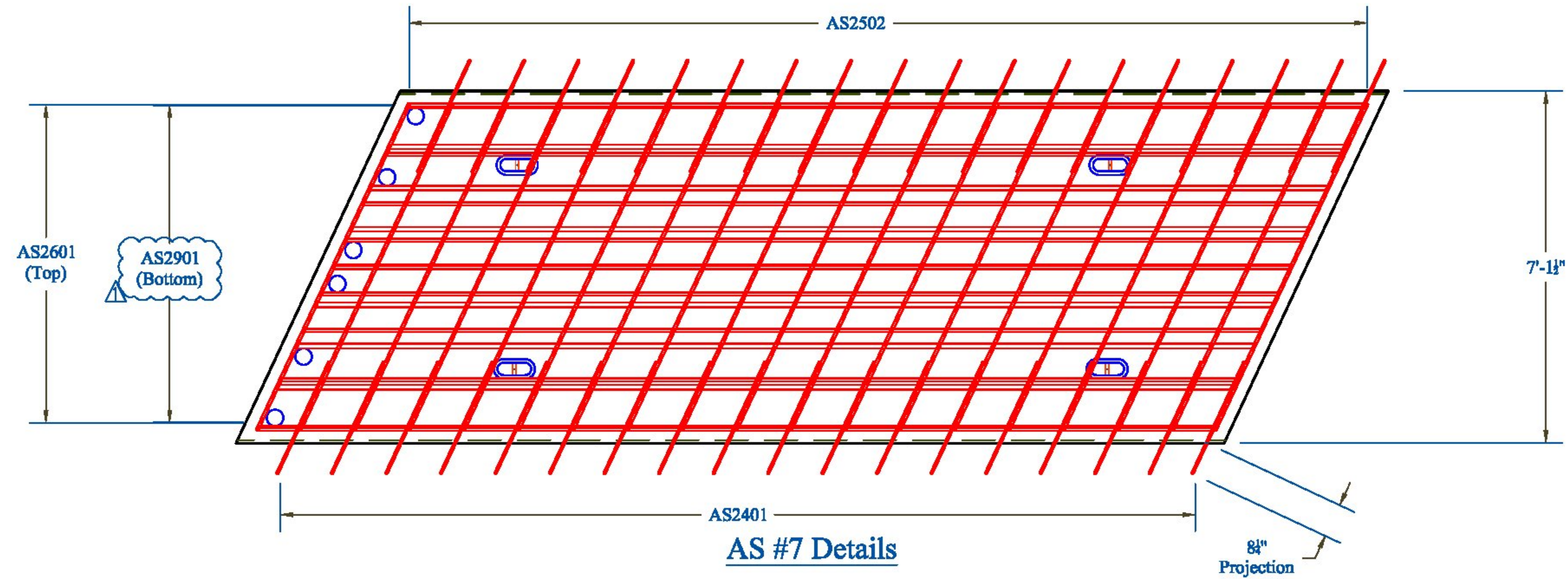


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| CONTRACTORS VISIT |          |     |                                             |                         | PRECAST CONCRETE APPROACH SLAB SHOP DRAWINGS (SDI JOB #15738) |                       |  |                     | INSTALLER: |                     | FABRICATOR: |  |
|-------------------|----------|-----|---------------------------------------------|-------------------------|---------------------------------------------------------------|-----------------------|--|---------------------|------------|---------------------|-------------|--|
| Rev.              | Date     | By  | Description                                 | SUPERVISOR: E. Barendse |                                                               | PROJECT NAME:         |  | S.D. Ireland        |            | 193 INDUSTRIAL AVE. |             |  |
| 1                 | 04/08/15 | IBA | Changes per State Review                    | DETAILER: I. ADAMS      |                                                               | Bristol BRP 021-1(29) |  | 193 Industrial Ave  |            | WILLISTON, VT 05495 |             |  |
| 2                 | 04/16/15 | IBA | Changes per State Changes Received 04/13/15 | CHECKER: E. Barendse    |                                                               | PROJECT # 021-1(29)   |  | Williston, VT 05495 |            | Ph: (802) 658-0201  |             |  |
|                   |          |     |                                             | ENGINEER: X             |                                                               | LOCATION: Bristol, VT |  | 03/17/2015          |            | AS5_AS6             |             |  |
|                   |          |     |                                             |                         |                                                               |                       |  |                     |            | 9_OF_10             |             |  |

**SD Ireland**  
 PRECAST





Vermont Agency of Transportation  
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 BY C. Carlson DATE 05-29-2015

| CONTRACTORS VISIT | Rev. | Date     | By  | Description                                 | PRECAST CONCRETE APPROACH SLAB SHOP DRAWINGS (SDI JOB #15738) |                       |                    |                     |
|-------------------|------|----------|-----|---------------------------------------------|---------------------------------------------------------------|-----------------------|--------------------|---------------------|
|                   | 1    | 04/09/15 | IBA | Changes per State Review                    | SUPERVISOR: E. Barendse                                       | PROJECT NAME:         | INSTALLER:         | FABRICATOR:         |
|                   | 2    | 04/16/15 | IBA | Changes per State Changes Received 04/13/15 | DETAILER: I. ADAMS                                            | Bristol BRP 021-1(29) | S.D. Ireland       | 193 INDUSTRIAL AVE. |
|                   |      |          |     |                                             | CHECKER: E. Barendse                                          | PROJECT #: 021-1(29)  | 183 Industrial Ave | WILLISTON, VT 05495 |
|                   |      |          |     |                                             | ENGINEER: X                                                   | LOCATION: Bristol, VT | Wilton, VT 05495   | Ph: (802) 658-0201  |
|                   |      |          |     |                                             |                                                               | 03/17/2015            | AS7_AS8            | 10_OF_10            |

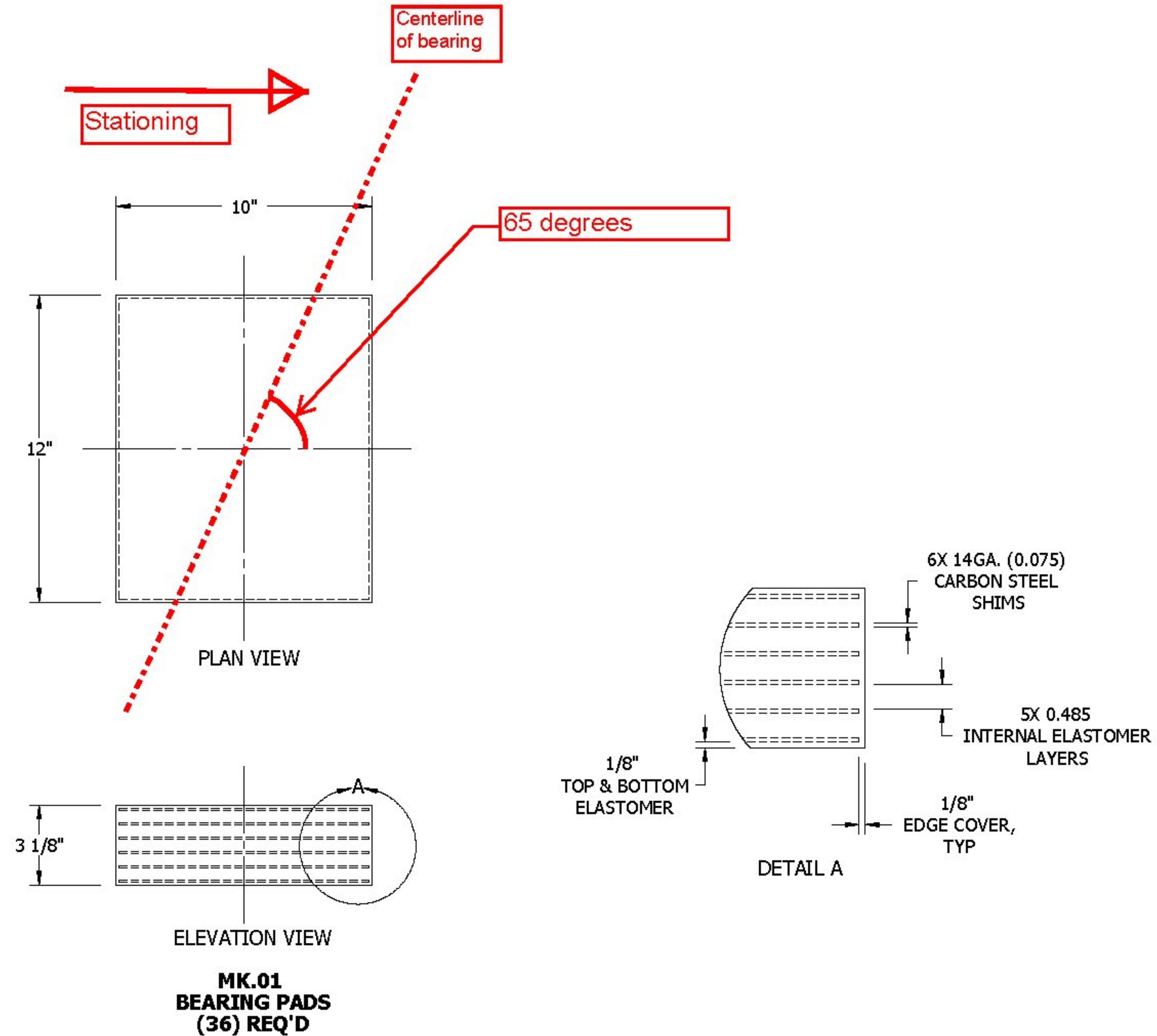




GENERAL NOTES

1. ALL BEARINGS SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS, LATEST EDITION, SECTIONS 531 AND 731 AND THE CONTRACT PRINTS, UNLESS NOTED OTHERWISE.
2. MATERIALS:  
ELASTOMER.....50 DURO NATURAL, GRADE 4  
(110 ± 15 psi)  
CARBON STEEL SHIMS.....ASTM A1011, GR. 50
3. TOLERANCES:  
LAMINATED ELASTOMERIC PADS:  
DUROMETER.....± 5  
OVERALL THICKNESS (VERTICAL) OVER 1 1/4".....-0, +1/4"  
OVERALL LENGTH & WIDTH (HORIZONTAL) 36" OR LESS.....-0, +1/4"  
THICKNESS OF INDIVIDUAL  
LAYERS OF ELASTOMER.....± 1/8"  
PARALLELISM:  
TOP.....0.005 rad  
SIDES.....1/4"  
EDGE COVER.....-0, +1/8"
4. MARKINGS:  
EACH BEARING SHALL BE PERMANENTLY MARKED IN A LOCATION THAT IS VISIBLE WHEN THE DEVICE IS INSTALLED IN THE COMPLETED STRUCTURE. MARKING SHALL BE SEP STANDARD:  
CONTRACT/ORDER #  
LOT#  
BEARING ID # (MK. #)  
LOCATION/BRIDGE #  
ELASTOMER TYPE AND GRADE  
ORIENTATION (WHERE APPLICABLE)
5. TESTING: PER SPECIFICATIONS CITED IN GENERAL NOTE #1.
6. SEP TO PROVIDE ONLY THE ITEMS SHOWN ON THIS DRAWING.
7. SHIPPING: BEARINGS SHALL BE PACKAGED IN SUCH A MANNER TO ENSURE THAT DURING SHIPMENT AND STORAGE THE BEARINGS WILL BE PROTECTED AGAINST DAMAGE FROM HANDLING, WEATHER OR ANY NORMAL HAZARD.
8. REPRESENTATIVE  
CUSTOMER SERVICE: STEVE BOWMAN.....903-677-4318  
TECHNICAL: MIKE SPELLMAN.....903-677-4342

| REVISIONS |             |    |           |
|-----------|-------------|----|-----------|
| REV.      | DESCRIPTION | BY | DATE      |
| A         | SUBMITTAL   | AL | 3/25/2015 |



Vermont Agency of Transportation  
**RECEIVED**

CK'D BY MEM OK'D BY CWC

Mar. 25, 2015

RESUBMIT BY C. Carlson APPROVED AS NOTED DATE 04-08-2015

BRIDGE NO.  
6  
COUNTY  
ADDISON  
PROJECT NO.  
BRF 021-1(29)

ALL DIMENSIONS ARE IN INCHES  
UNLESS OTHERWISE SPECIFIED

NOTE

INFORMATION SET FORTH IN THIS DRAWING IS PROPRIETARY WITH Seismic Energy Products, Inc. THIS DRAWING SHALL NOT BE REPRODUCED, COPIED, LOANED OR SUBMITTED TO OUTSIDE PARTIES FOR EXAMINATION WITHOUT OUR CONSENT EXCEPT FOR THE PURPOSE FOR WHICH IT WAS INTENDED.

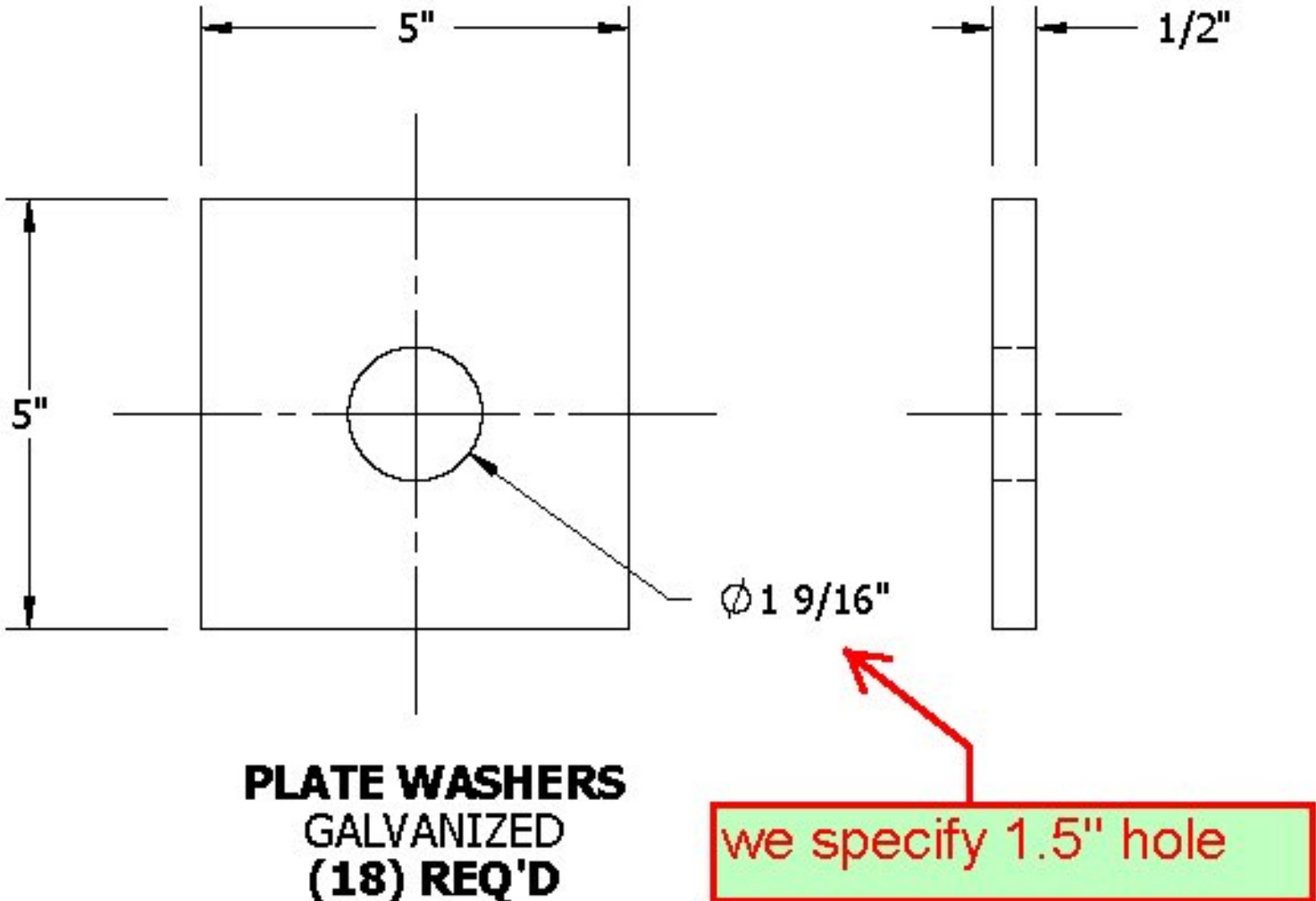
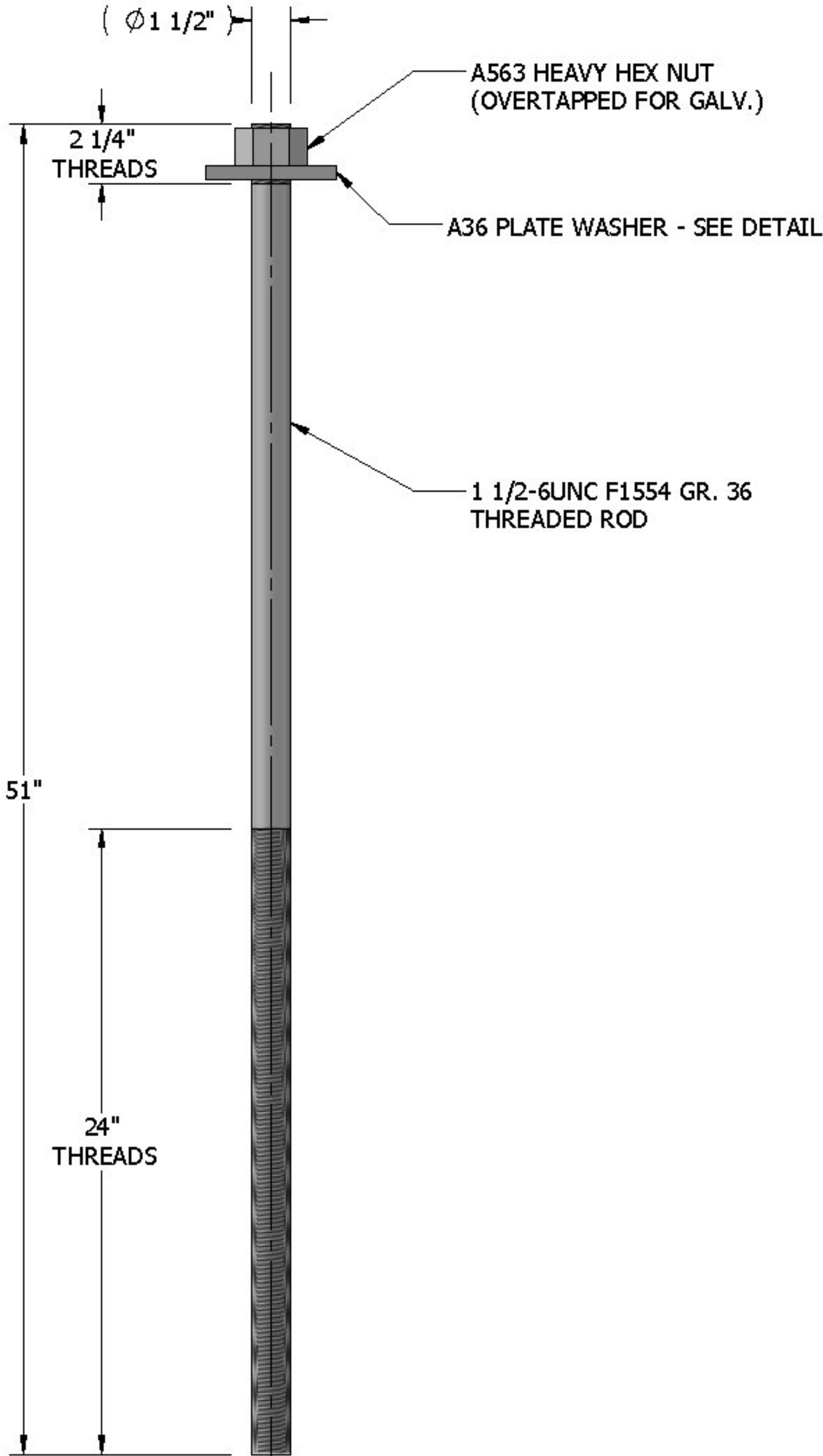
|                                                                                                                                                                                                             |                 |                                 |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------------------------|--|
|  <b>Seismic Energy Products, Inc.</b><br>STRUCTURAL BEARINGS FOR BRIDGES & BUILDINGS<br>ATHENS, TX PHONE: 903-675-8571 |                 |                                 |  |
| BEARING ASSY FOR:<br><b>STATE OF VERMONT AGENCY OF TRANSPORTATION</b><br><br><b>BRISTOL</b>                                                                                                                 |                 |                                 |  |
| CONTRACTOR:<br><b>S.D. IRELAND BROTHERS CORP</b>                                                                                                                                                            |                 |                                 |  |
| DRAWN<br>ALUTTRELL                                                                                                                                                                                          | DATE<br>3/17/15 | PO #<br>S. QT.                  |  |
| CHECKED                                                                                                                                                                                                     | DATE            | SO NO. & ST.<br><b>61921 VT</b> |  |
| REVIEWED                                                                                                                                                                                                    | DATE            | <b>SHEET 1 OF 2</b>             |  |



| REVISIONS |             |    |           |
|-----------|-------------|----|-----------|
| REV.      | DESCRIPTION | BY | DATE      |
| A         | SUBMITTAL   | AL | 3/25/2015 |

**TOLERANCES:**  
 ANCHOR ROD LENGTH.....-0, +1/4"  
 WASHER:  
   VERTICAL..... ± 1/16"  
   HORIZONTAL..... ± 1/4"  
   FLATNESS.....0.001 x NOMINAL  
   HOLE/SLOT POSITION..... ± 1/16"  
   HOLE/SLOT SIZE.....-0, +1/16"

**GALVANIZE:** PER ASTM A123 OR A153 AS APPLICABLE.



**MK.02  
 ANCHOR RODS  
 GALVANIZED  
 (18) REQ'D**



**Seismic Energy Products, Inc.**  
STRUCTURAL BEARINGS FOR BRIDGES & BUILDINGS  
 ATHENS, TX      PHONE: 903-675-8571

BEARING ASSY FOR:  
**STATE OF VERMONT AGENCY OF TRANSPORTATION**  
  
**BRISTOL**

CONTRACTOR:  
**S.D. IRELAND BROTHERS CORP**

|                    |                 |                                 |
|--------------------|-----------------|---------------------------------|
| DRAWN<br>ALUTTRELL | DATE<br>3/17/15 | PO #<br>S. QT.                  |
| CHECKED<br>.       | DATE<br>.       | SO NO. & ST.<br><b>61921 VT</b> |
| REVIEWED<br>.      | DATE<br>.       | <b>SHEET 2 OF 2</b>             |

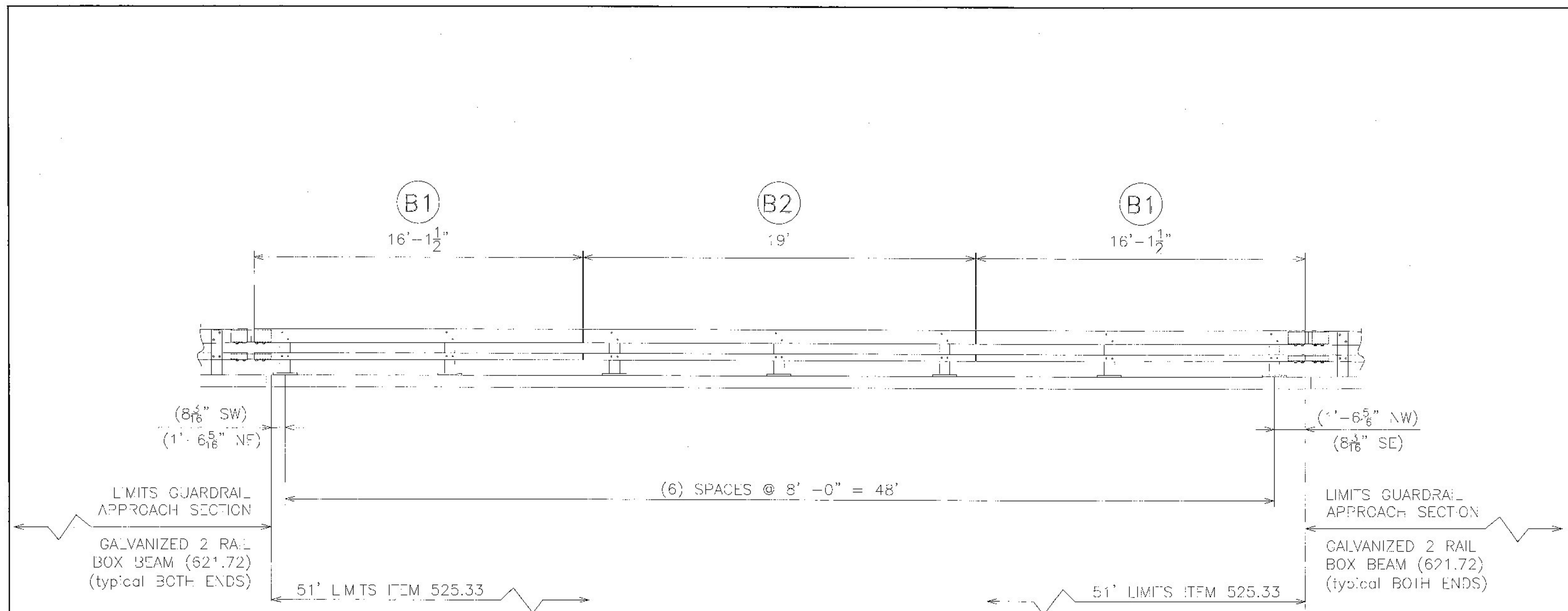
ALL DIMENSIONS ARE IN INCHES  
 UNLESS OTHERWISE SPECIFIED

**NOTE**

INFORMATION SET FORTH IN THIS DRAWING IS PROPRIETARY WITH Seismic Energy Products, Inc. THIS DRAWING SHALL NOT BE REPRODUCED, COPIED, LOANED OR SUBMITTED TO OUTSIDE PARTIES FOR EXAMINATION WITHOUT OUR CONSENT EXCEPT FOR THE PURPOSE FOR WHICH IT WAS INTENDED.

|                              |                                                                                                                                                                                                                                                                    |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| BRIDGE NO.<br>6              | INFORMATION SET FORTH IN THIS DRAWING IS PROPRIETARY WITH Seismic Energy Products, Inc. THIS DRAWING SHALL NOT BE REPRODUCED, COPIED, LOANED OR SUBMITTED TO OUTSIDE PARTIES FOR EXAMINATION WITHOUT OUR CONSENT EXCEPT FOR THE PURPOSE FOR WHICH IT WAS INTENDED. |
| COUNTY<br>ADDISON            |                                                                                                                                                                                                                                                                    |
| PROJECT NO.<br>BRF 021-1(29) |                                                                                                                                                                                                                                                                    |





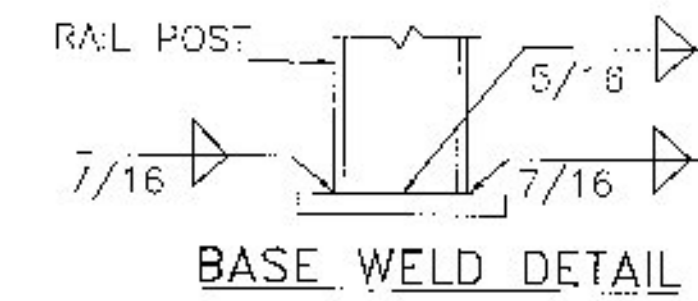
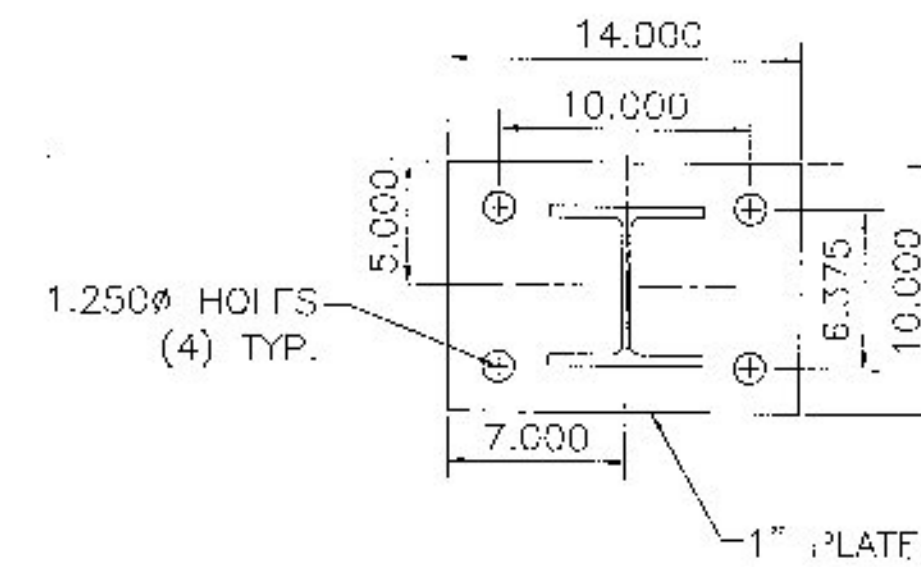
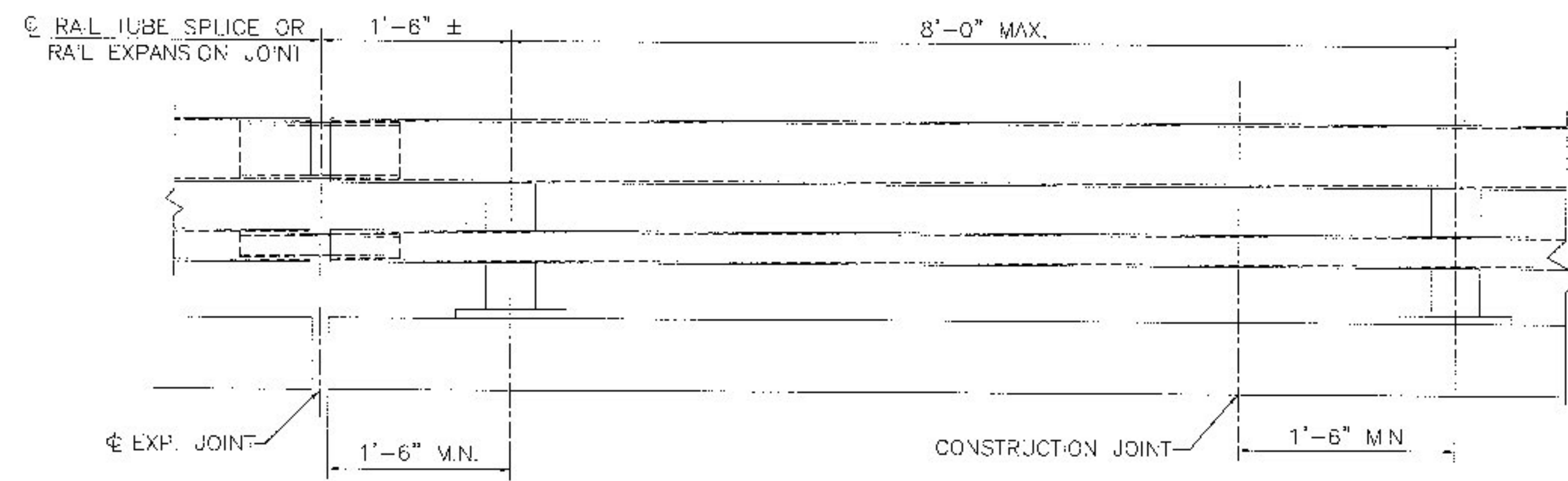
**B.I.N. #6**  
**TYPICAL SIDE RAILING ELEVATION**  
 LOOKING AT FACE OF RAIL FROM CENTERLINE OF ROAD

Vermont Agency of Transportation  
**RECEIVED**  
 CK'D BY MEM OK'D BY CWC  
 Apr. 16, 2015  
 RESUBMIT APPROVED ✓  
 BY C. Carlson DATE 05-06-2015

|                            |                   |         |      |
|----------------------------|-------------------|---------|------|
| No.                        | Initial submittal | Remarks | Date |
| 0                          |                   |         |      |
| REVISIONS - APPLIES TO SET |                   |         |      |

|                                                                                                                                                                           |                                                                                  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| <b>HIGHWAY SAFETY CORP</b><br>GLASTONBURY, CT<br>860-633-9445                                                                                                             |                                                                                  |
| ITEM 525.33 2-RAIL BRIDGERAIL GALVANIZED<br>BRIDGE REHABILITATION<br>RT. 116 OVER LITTLE NOTCH CREEK<br>B.I.N. #6 P.I.N. BR 021-1 (29)<br>TOWN OF BRISTOL, ADDISON COUNTY |                                                                                  |
| GENERAL CONTRACTOR<br>LAFAYETTE                                                                                                                                           | CERTIFIED FABRICATOR<br>HSC JOB NO.<br><b>2040</b><br>SHEET NO.<br><b>1 of 4</b> |
| DRAWN MKT<br>CHECKED <i>[Signature]</i><br>DATE 04-15-15<br>SCALE NONE<br>SIZE D                                                                                          |                                                                                  |





#### NOTES:

1. ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 525.
2. PRIOR TO GALVANIZING, ALL EXPOSED CUT OR SHEARED EDGES SHALL BE ROUNDED TO A 1/16" RADIUS AND BE FREE OF BURRS.
3. ALL POSTS SHALL BE SET NORMAL TO GRADE.
4. SECTIONS OF RAIL TUBES SHALL BE ATTACHED TO A MINIMUM OF TWO (2) RAIL POSTS AND, PREFERRED, TO AT LEAST FOUR (4) POSTS.
5. RAIL TUBE EXPANSION JOINT SHALL BE PROVIDED IN ANY RAIL BAY SPANNING THE END OF AN INTEGRAL ABUTMENT BRIDGE AND, AT ALL SUPERSTRUCTURE EXPANSION JOINTS, EXPANSION JOINT WIDTH SHALL BE 4" AT 45° AND WILL BE ADJUSTED IN THE FIELD BY THE ENGINEER FOR OTHER TEMPERATURES.
6. HOLES IN RAILS FOR RAIL TUBE ATTACHMENT SHALL BE FIELD-DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC RICH PAINT DURING INSTALLATION.
7. RAIL POST ANCHORING NUTS SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ONE-EIGHTH TURN.
8. RAIL TUBES SHALL BE ATTACHED USING 3/4" FULL DIAMETER BODY ASTM A449 ROUND HEAD BOLTS INSERTED THROUGH THE FACE OF THE TUBE. HOLES IN POSTS SHALL BE 1/16" LARGER THAN THE BOLT SIZE.
9. ANY BENDING OR CURVING OF RAIL SHALL BE DONE IN A FABRICATION PLAN IN ACCORDANCE WITH SUBMITTED PROCEDURES.
10. THE MINIMUM DISTANCE FROM A POST TO AN EXPANSION JOINT SHALL BE SUCH TO MAINTAIN MINIMUM EDGE DISTANCE OF 5" FROM ANY ANCHOR STUD TO THE END OF THE SLAB, OR TO THE EXPANSION JOINT RECESS POUR, IF ONE IS USED.
11. A DELINEATOR (SEE VDOT STANDARD DRAWING G 1 FOR DETAILS) SHALL BE INSTALLED AT NEAREST POST TO 30 FT SPACING, WHILE IS TO BE INSTALLED ON THE DRIVER'S RIGHT. FOR ONE WAY BRIDGES, YELLOW IS TO BE INSTALLED ON THE DRIVER'S LEFT. PAYMENT SHALL BE INCIDENTAL TO OTHER PLANS.
12. THIS RAILING MEETS THE REQUIREMENTS FOR A TL-4 SERVICE LEVEL.

#### MATERIALS

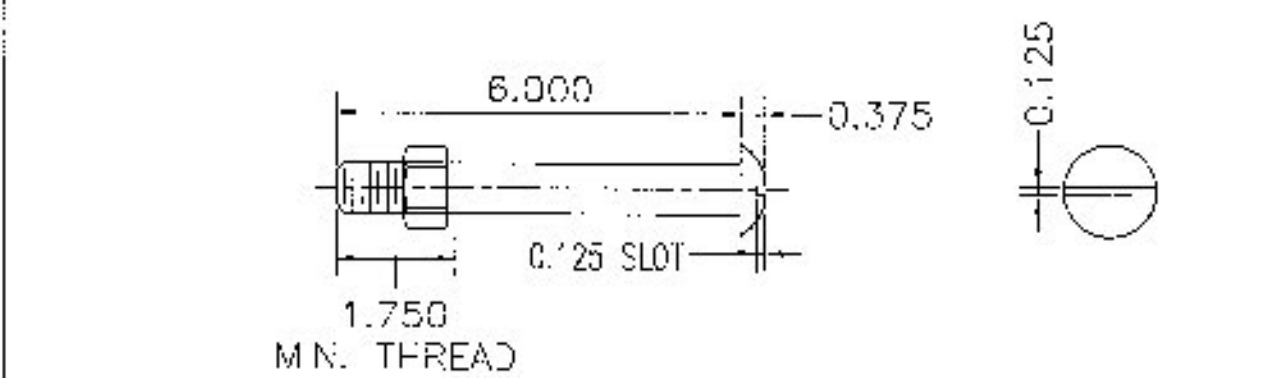
RAIL TUBES.....ASTM A500 GRADE B OR ASTM A501  
 RAIL POSTS AND BASE PLATES.....ASTM A36/A709M, GRADE 50  
 ALL OTHER SHAPES AND PLATES.....ASTM A709/A709M, GRADE 50  
 ANCHOR STUDS.....ASTM A449  
 ALL OTHER BOLTS (UNLESS NOTED).....AASHTO M164, TYPE 1

NUTS FOR AASHTO M164 BOLTS AND FOR ANCHOR STUDS SHALL COMPLY WITH AASHTO M291 (ASTM A563).

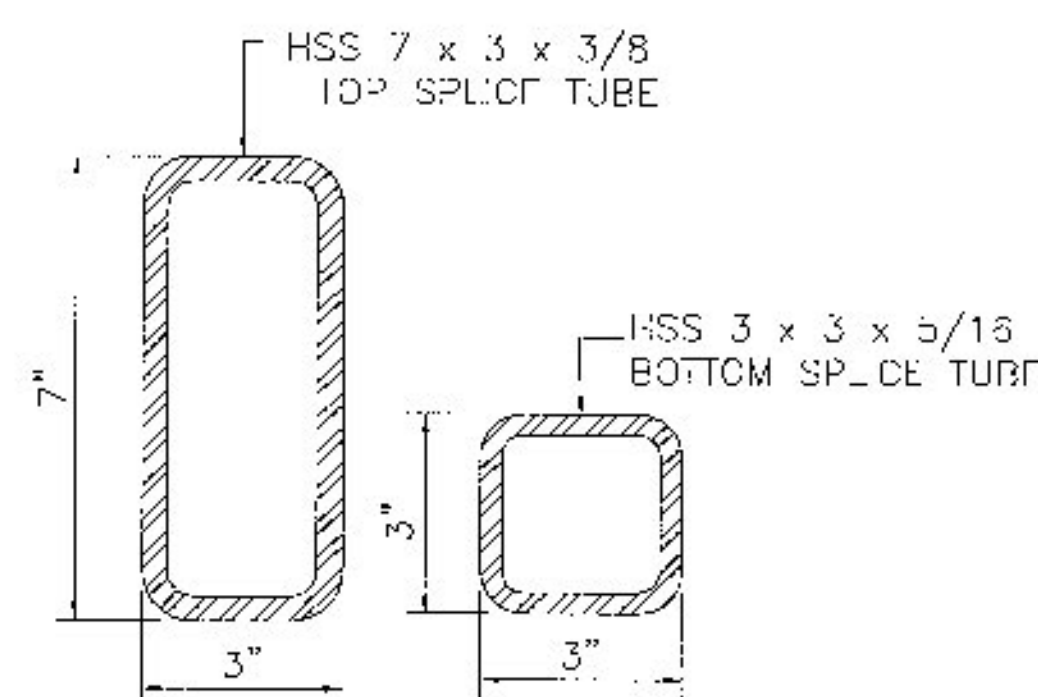
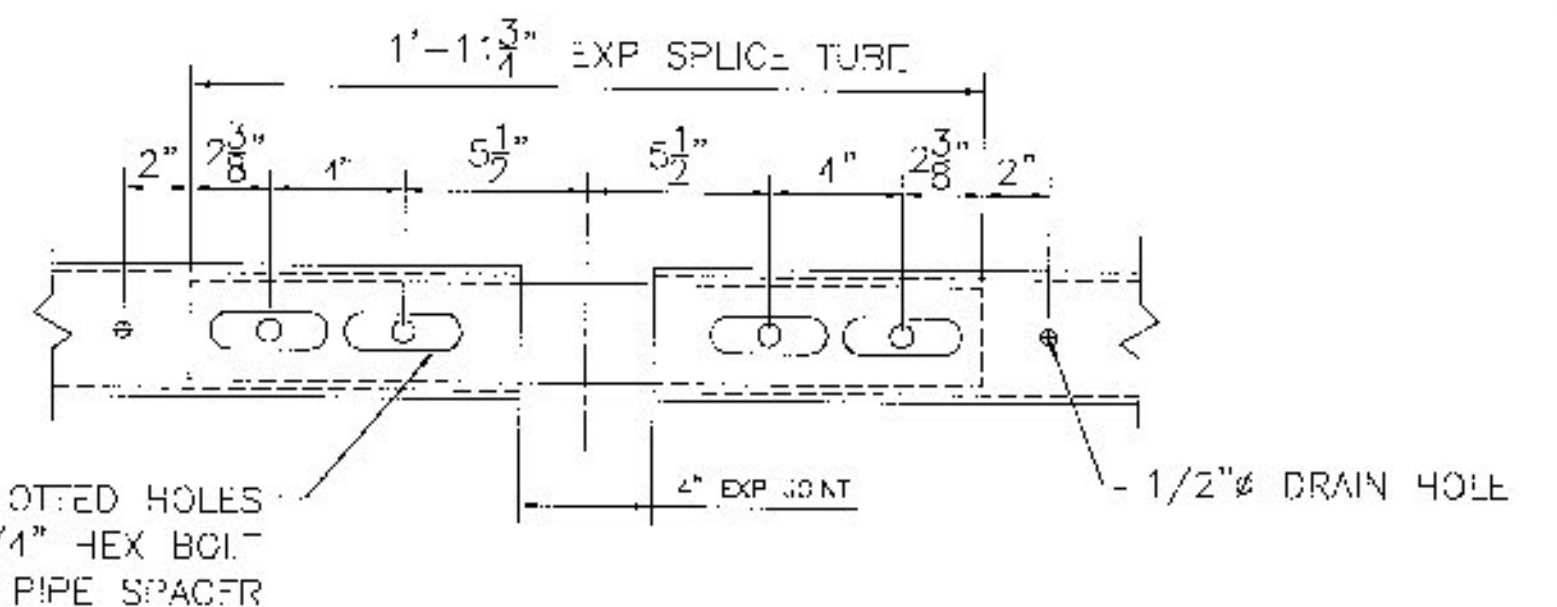
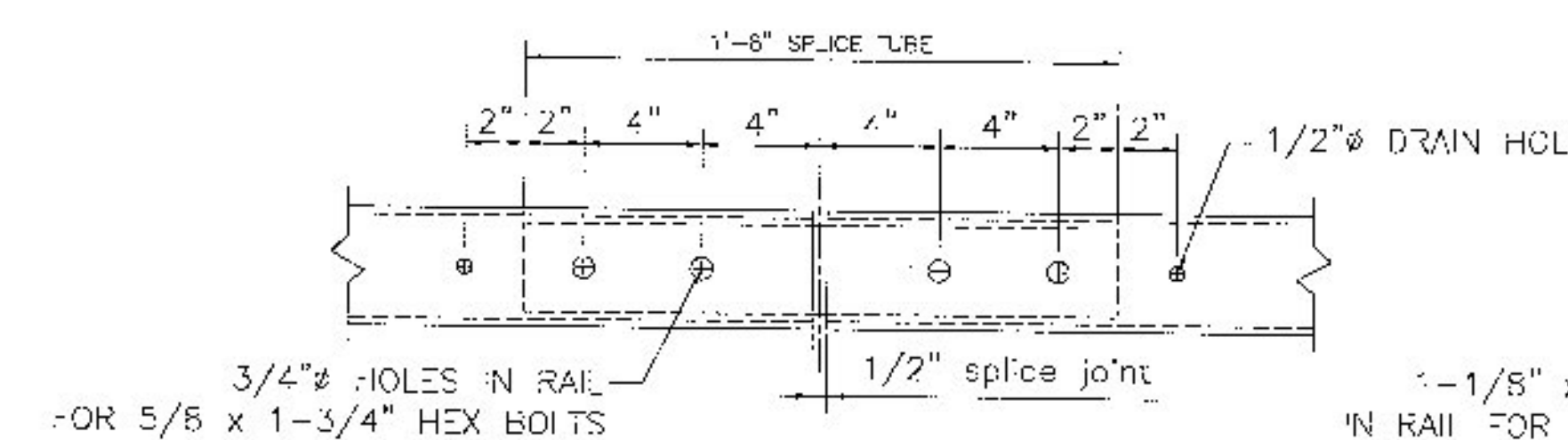
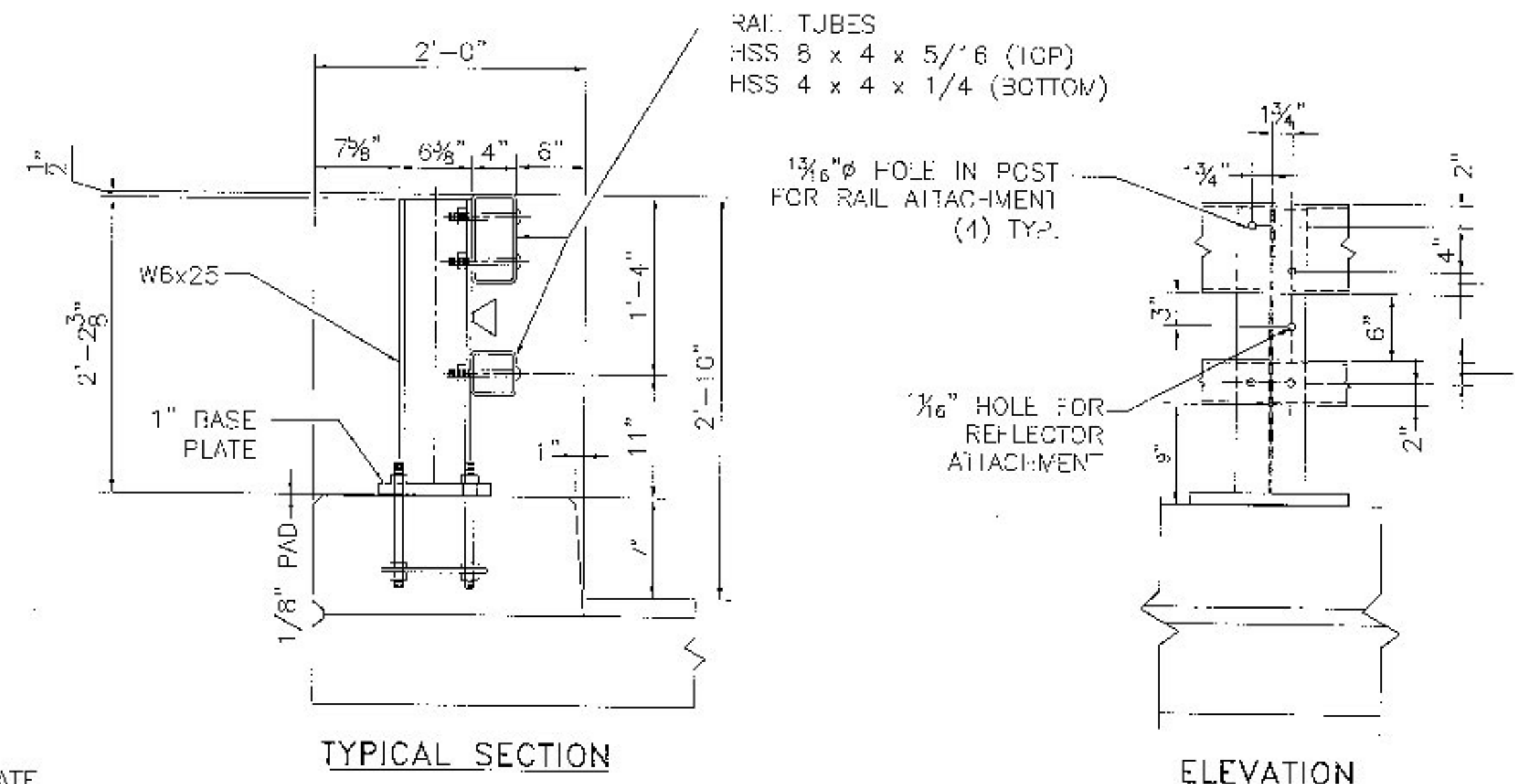
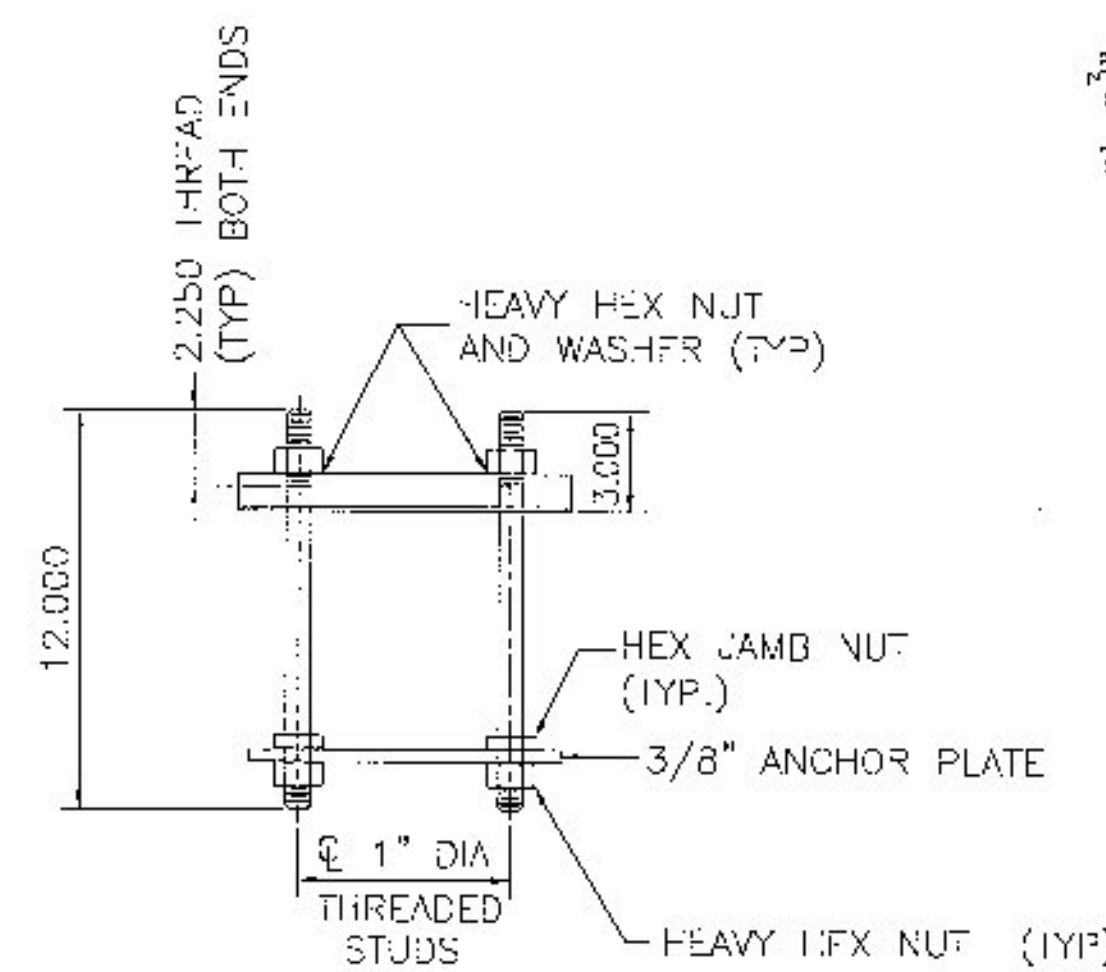
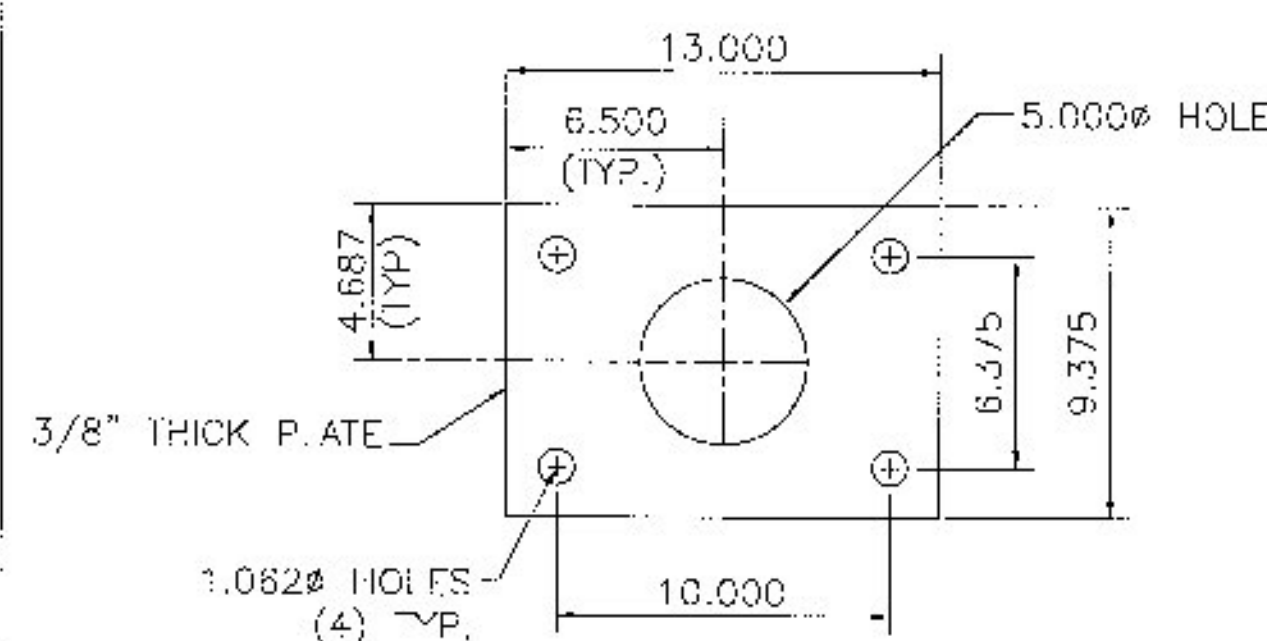
WASHERS SHALL COMPLY WITH AASHTO M293 (ASTM F436) SPECIFICATIONS.

1/8" PAD SHALL COMPLY WITH STANDARD SPECIFICATION SUBSECTION 731.01 OR 731.02.

RAIL POSTS AND BASE PLATES SHALL BE TESTED FOR IMPACT PROPERTIES IN ACCORDANCE WITH ASTM A370 CHARPY IMPACT TESTING USING TYPE A SPECIMEN.

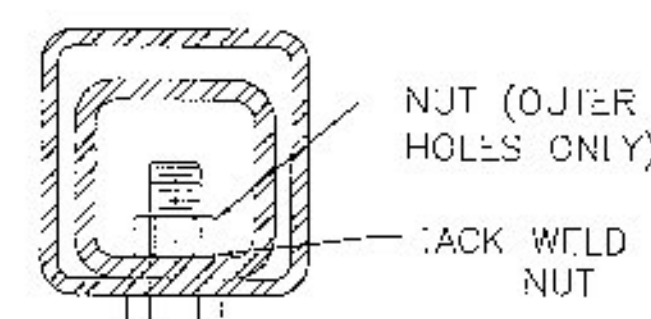


3/4" DIA. A449  
 ROUND HEAD BOLT  
 (WITH WASHER AND PREVAILING TORQUE TYPE LOCK NUT)  
 (SEE NOTE #8)  
 ONLY FULL DIAMETER BODY BOLTS WILL BE ALLOWED.



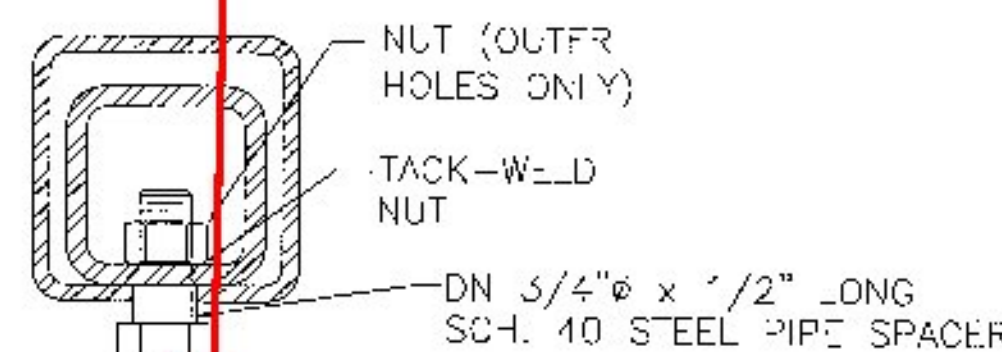
5/8" TAPPED HOLE IN SPLICE TUBE & 3/4" HOLE IN RAIL TUBE FOR BOLT & PLAIN HARDENED WASHER

FIXED SPLICE JOINT SECTION



5/8" TAPPED HOLE IN SPLICE TUBE AND 1-1/8" x 1/4" SLOT IN RAIL TUBE FOR BOLT AND PLAIN HARDENED WASHER

EXPANSION JOINT SECTION



where is "C"  
 specified? should  
 be 3 1/2"

Vermont Agency of Transportation

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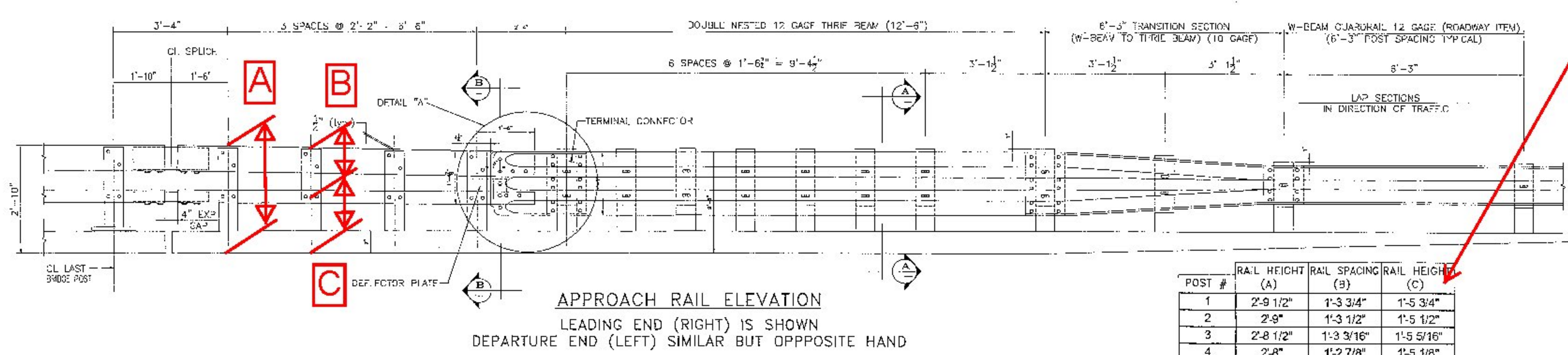
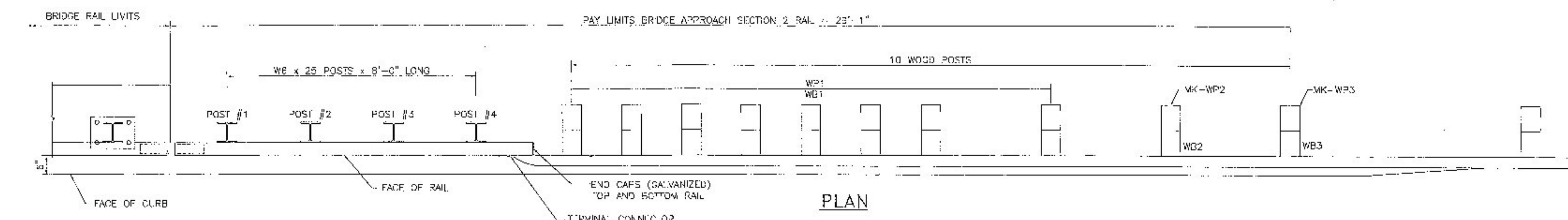
Apr. 16, 2015

RESUBMIT APPROVED AS NOTED

BY C. Carlson DATE 05-06-2015

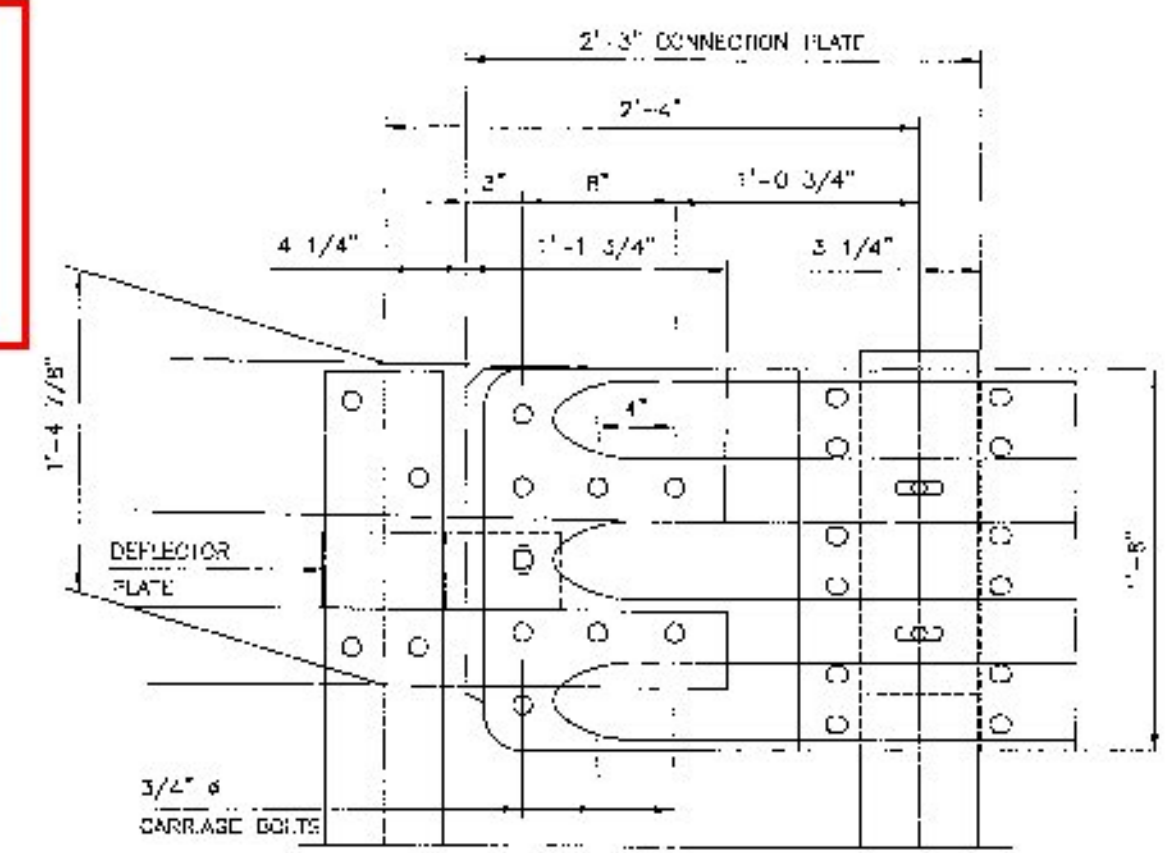
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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| <b>HIGHWAY SAFETY CORP</b><br>GLASTONBURY, CT<br>860-633-9445                                                                                                             |                                                                     |
| ITEM 525.33 2-RAIL BRIDGERAIL GALVANIZED<br>BRIDGE REHABILITATION<br>RT. 116 OVER LITTLE NOTCH CREEK<br>R.I.N. #6 P.I.N. BR 021-1 (29)<br>TOWN OF BRISTOL, ADDISON COUNTY | <b>CERTIFIED FABRICATOR</b><br>REC JOB NO. 2040<br>SHEET NO. 2 of 4 |
| GENERAL CONTRACTOR<br>SUB CONTRACTOR LAFAYETTE<br>DRAWN MKT CHECKED DATE 04-15-15 SCALE NONE SUT D                                                                        |                                                                     |



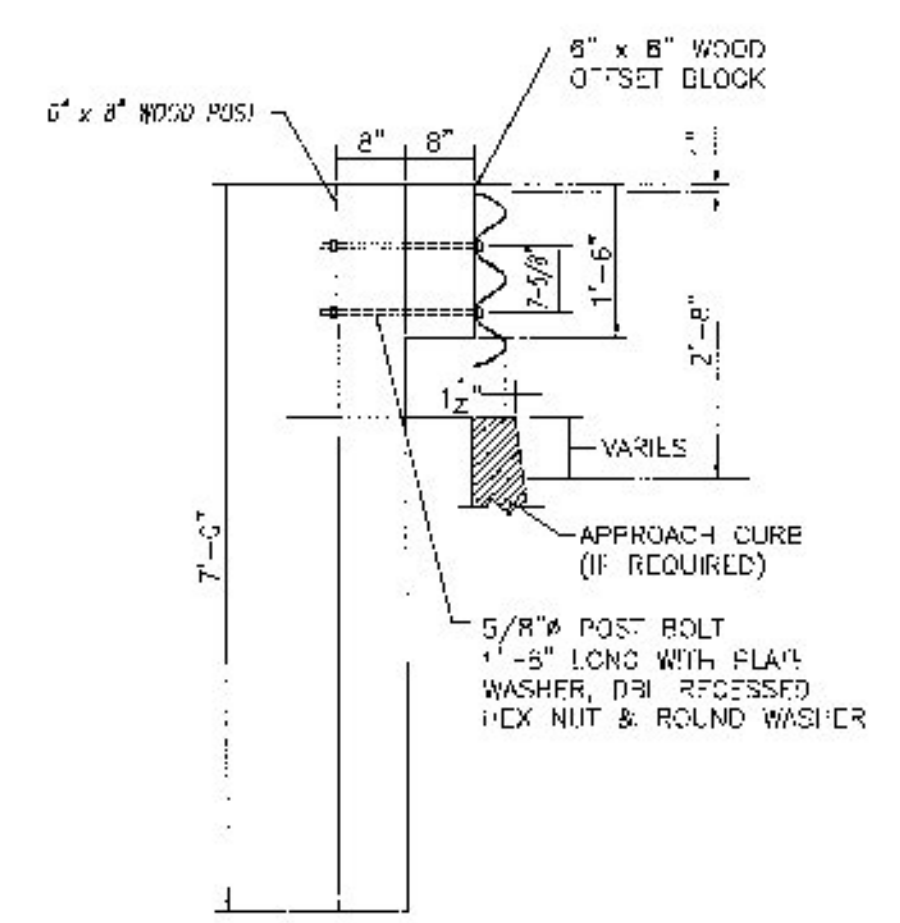


| POST # | RAIL HEIGHT (A) | RAIL SPACING (B) | RAIL HEIGHT (C) |
|--------|-----------------|------------------|-----------------|
| 1      | 2'-9 1/2"       | 1'-3 3/4"        | 1'-5 3/4"       |
| 2      | 2'-9"           | 1'-3 1/2"        | 1'-5 1/2"       |
| 3      | 2'-8 1/2"       | 1'-3 3/16"       | 1'-5 5/16"      |
| 4      | 2'-8"           | 1'-2 7/8"        | 1'-5 1/8"       |

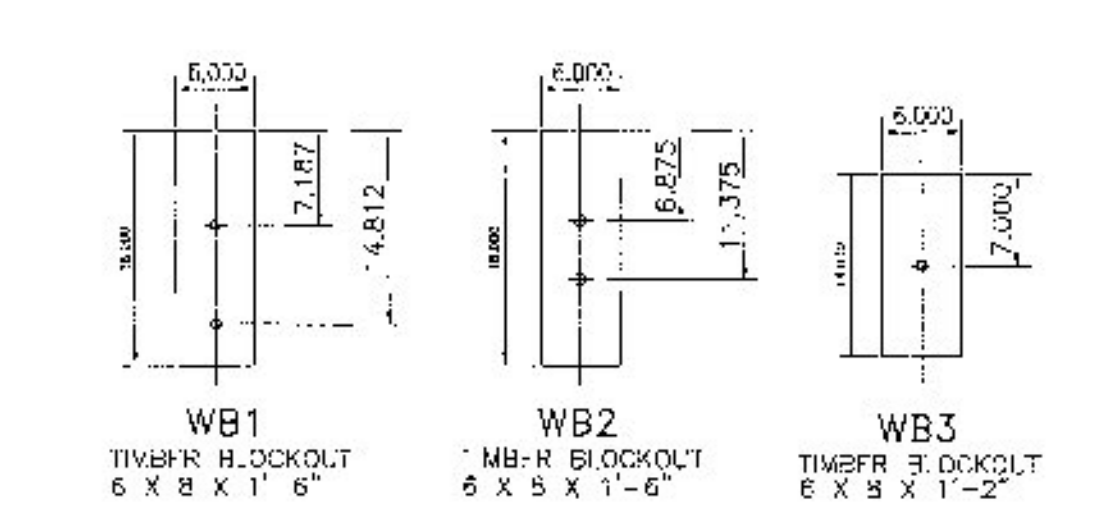
where are "A", "B" and "C" shown?



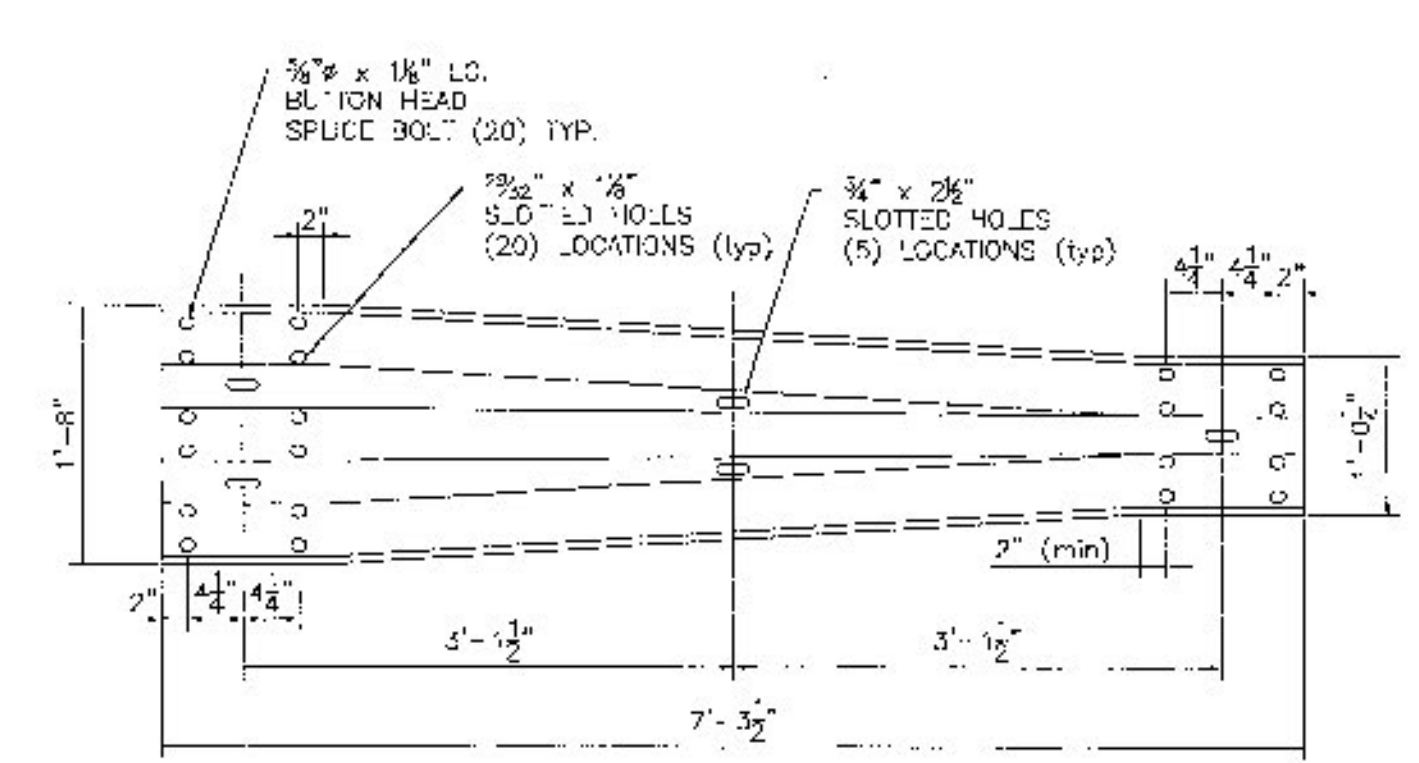
DETAIL A



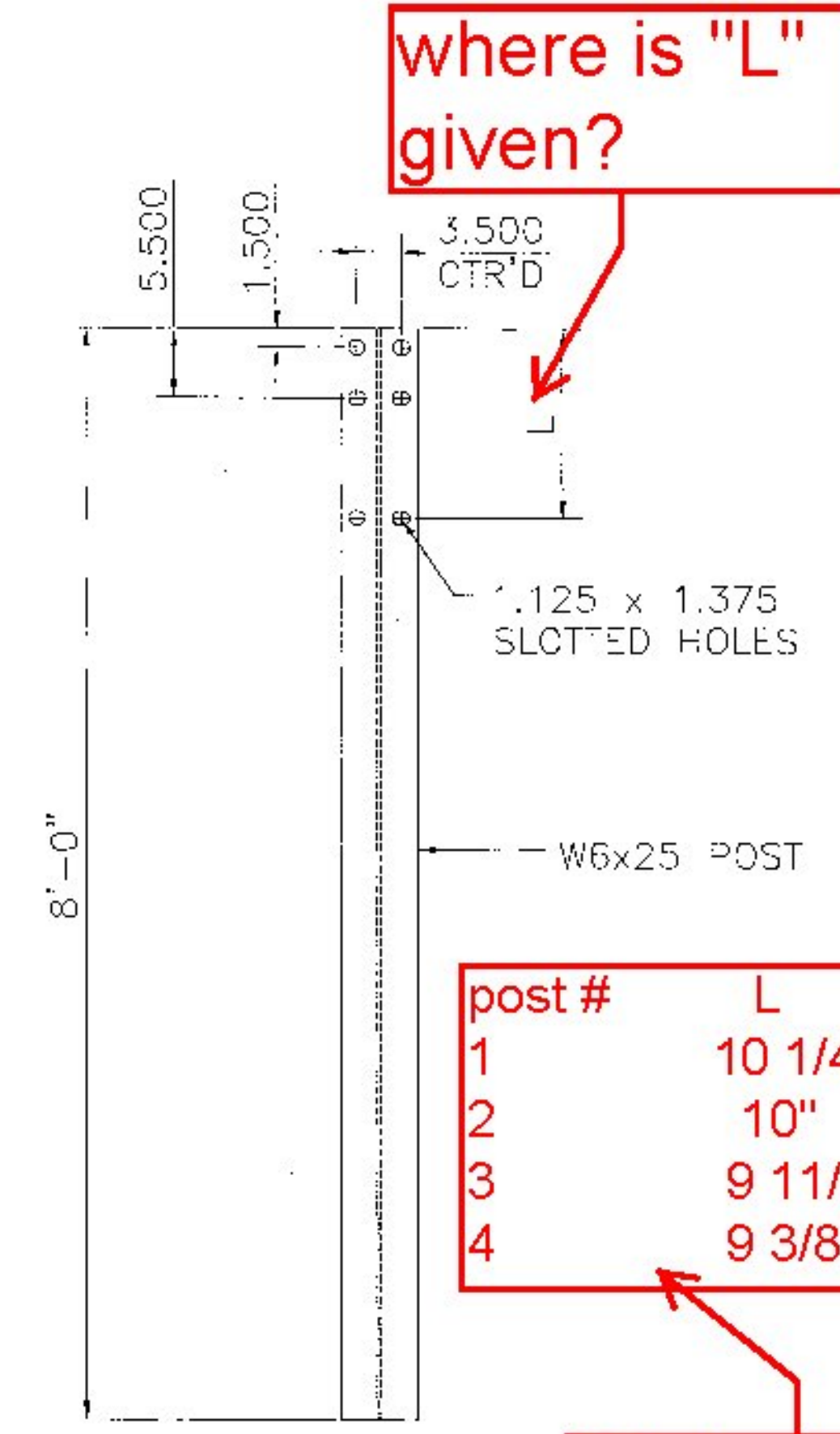
SECTION A-A



WOOD BLOCK DETAILS



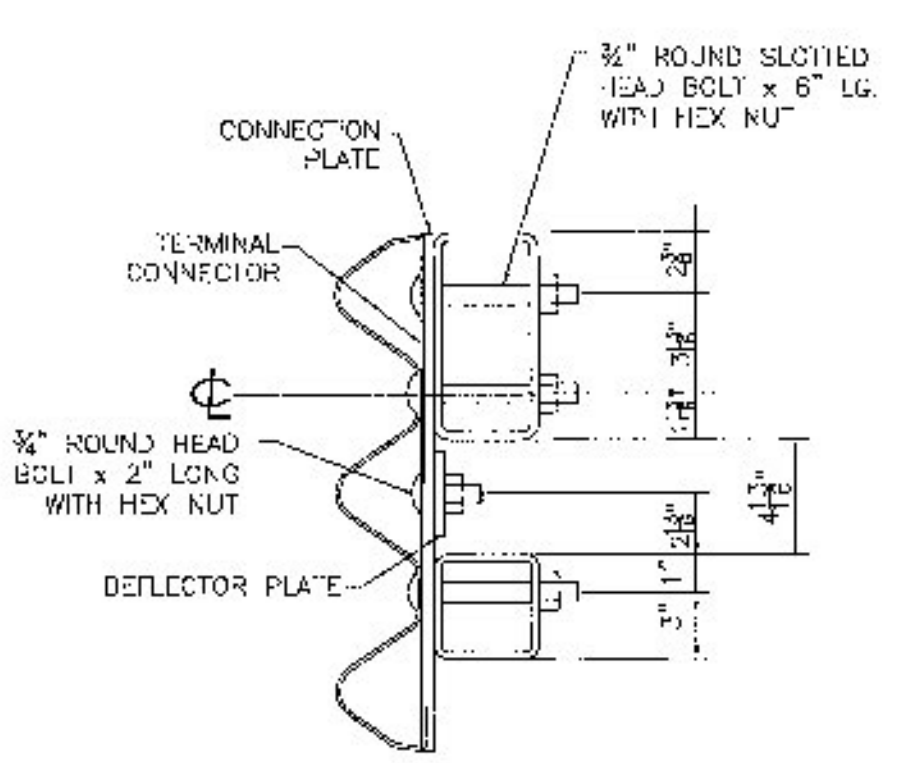
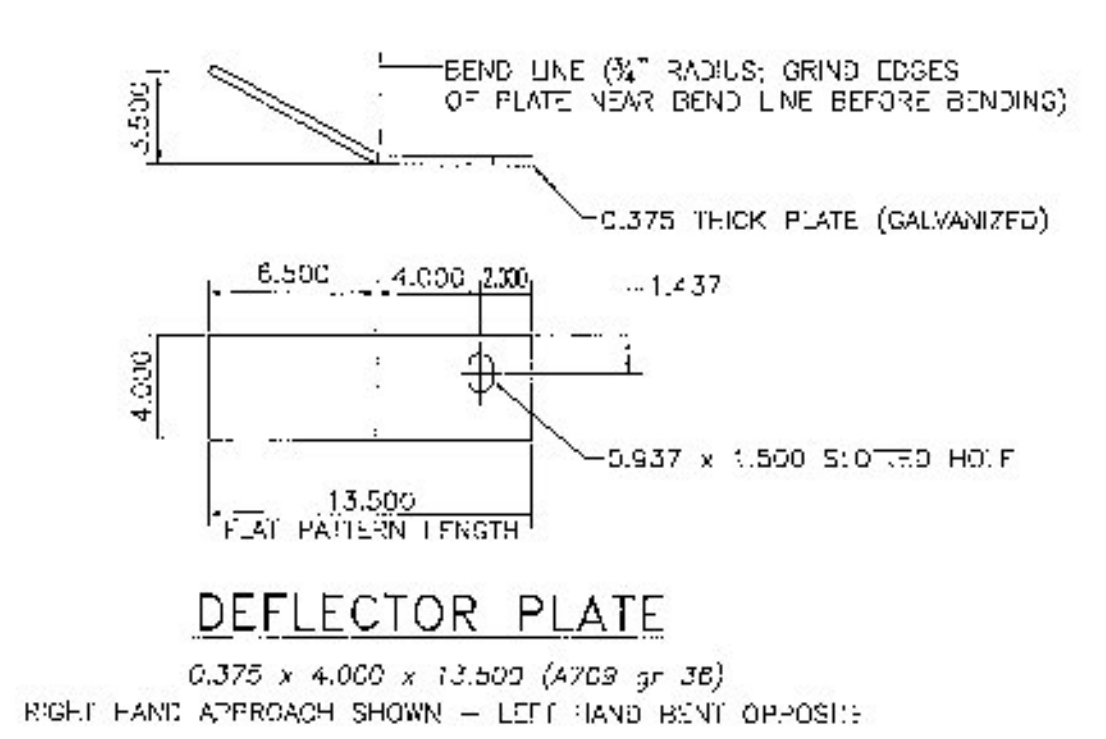
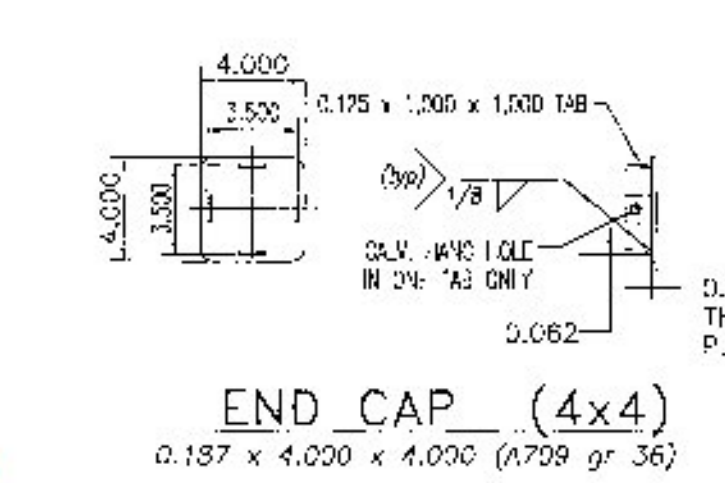
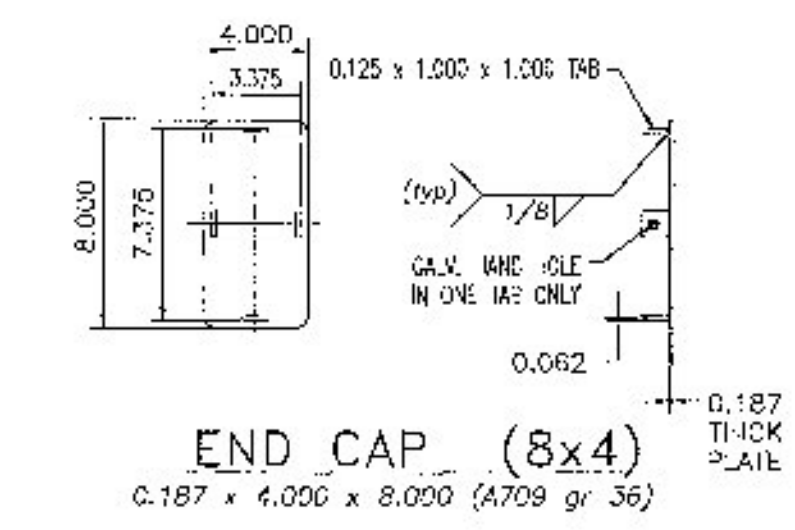
THIRF TRANSITION PANEL  
10 GAUGE (ASTM A180 B2)



where is "L" given?

| post # | L        |
|--------|----------|
| 1      | 10 1/4"  |
| 2      | 10"      |
| 3      | 9 11/16" |
| 4      | 9 3/8"   |

fabricator, please verify



SECTION B-B

Vermont Agency of Transportation  
**RECEIVED**  
CK'D BY MEM OK'D BY CWC  
Apr. 16, 2015  
RESUBMIT APPROVED AS NOTED  
BY C. Carlson DATE 05-06-2015

|                                                                                                                                                                           |                  |                                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------------------------------------------------------|
| <b>HIGHWAY SAFETY CORP</b><br>GLASTONBURY, CT<br>860-633-9445                                                                                                             |                  | <b>CERTIFIED FABRICATOR</b><br>DATE 05-06-2015<br>SHEET NO. 3 of 4 |
| ITEM 525.33 2-RAIL BRIDGERAIL GALVANIZED<br>BRIDGE REHABILITATION<br>RT. 116 OVER LITTLE NOTCH CREEK<br>B.I.N. #6 P.I.N. BR 021-1 (29)<br>TOWN OF BRISTOL, ADDISON COUNTY |                  |                                                                    |
| GENERAL CONTRACTOR<br>LAFAYETTE                                                                                                                                           | DATE<br>04-15-15 | SCALE<br>NONE                                                      |
| DRAWN<br>MKT                                                                                                                                                              | CHECKED<br>DATE  | SIZE<br>D                                                          |



# BILL OF MATERIAL

## BRIDGE #6

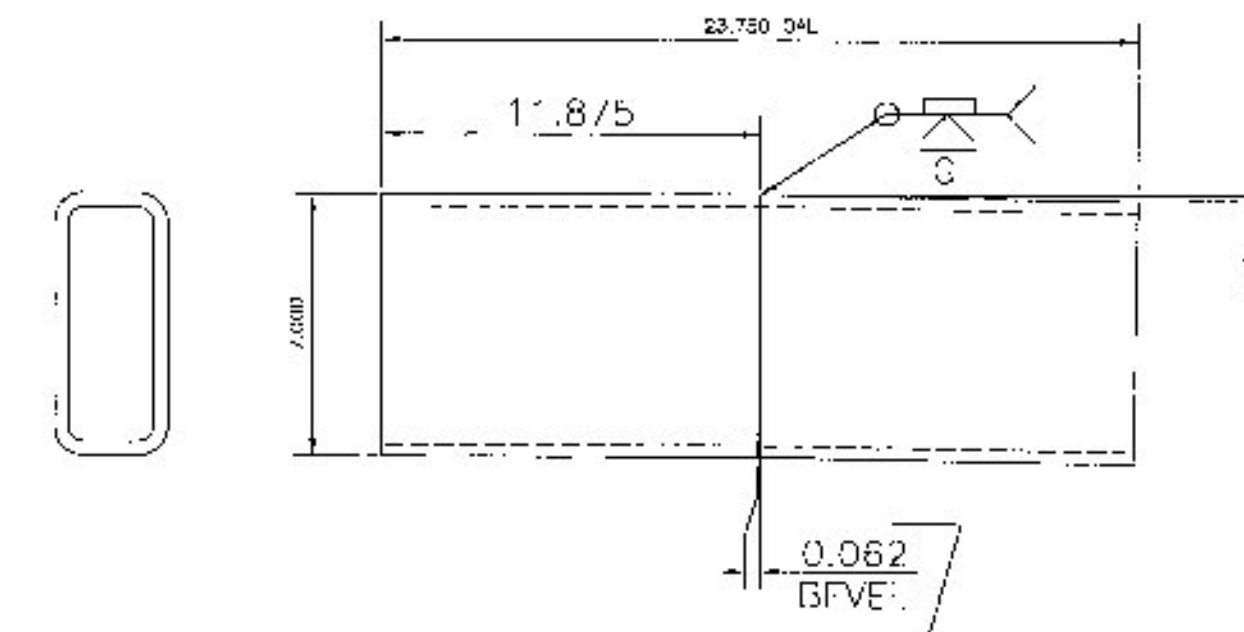
TOTAL PAY LENGTH ITEM 525.33 = 102 LF

| Qty | mk | Description                                                                                       | Spec.       |
|-----|----|---------------------------------------------------------------------------------------------------|-------------|
| 14  |    | BRIDGE RAILING POST W6 x 25 x 2'-2.375" OAH WITH 1 x 10 x 14 BASE PLATE (GLV)                     | A709 gr 50  |
| 4   |    | SPLICE TUBE (FOR 8x4 RAIL) HSS 7 x 3 x 3/8 x 1'-8.000" OAL w/ TAPPED HOLES & 2 WELDED NUTS (GLV)  | A500 gr B   |
| 4   |    | SPLICE TUBE (FOR 4x4 RAIL) HSS 3 x 3 x 5/16 x 1'-8.000" OAL w/ TAPPED HOLES & 2 WELDED NUTS (GLV) | A500 gr B   |
| 4   | B1 | UPPER RAIL TUBE HSS 8 x 4 x 5/16 x 16'-1.500" LG (GLV) one end holes, one end slots               | A500 gr B   |
| 2   | B2 | UPPER RAIL TUBE HSS 8 x 4 x 5/16 x 19' LG (GLV) one end holes, one end slots                      | A500 gr B   |
| 4   | B1 | LOWER RAIL TUBE HSS 4 x 4 x 1/4 x 16'-1.500" LG (GLV) one end holes, one end slots                | A500 gr B   |
| 2   | B2 | LOWER RAIL TUBE HSS 4 x 4 x 1/4 x 19' LG (GLV) one end holes, one end slots                       | A500 gr B   |
| 14  |    | ANCHOR SPACER PLATE PL 0.375 x 13.000 x 9.375                                                     | A709 gr 36  |
| 56  |    | ANCHOR STUD DBL END PART THREAD - 1" DIA x 12.000 w/ 2.250" THD EACH END (GLV)                    | A449        |
| 112 |    | HEAVY HEX NUT 1" (GLV)                                                                            | A563 DH     |
| 56  |    | ROUND WASHER (SAE) - 1" DIA SMALL (GLV)                                                           | F436        |
| 56  |    | JAM NUT 1" (GLV)                                                                                  | A563 DH     |
| 56  |    | ROUND HEAD POST BOLT slot or wrench head - no shoulder 3/4" DIA x 6" LG. FULL BODY (GLV)          | A449 / A325 |
| 56  |    | LOCK NUT 3/4" (GLV)                                                                               | A563 DH     |
| 56  |    | ROUND WASHER (SAE) 3/4" (GLV)                                                                     | F436        |
| 32  |    | HEX HEAD BOLT 5/8" DIA x 1.75" LG. (GLV)                                                          | A325        |
| 32  |    | ROUND WASHER (SAE) 5/8" (GLV)                                                                     | F436        |
| 14  |    | BEARING PAD 0.125" THICK x 10.000 x 14.000 (NEOPRENE 80 duro +/-10)                               | aashto M251 |

## APPROACH BRIDGE #6

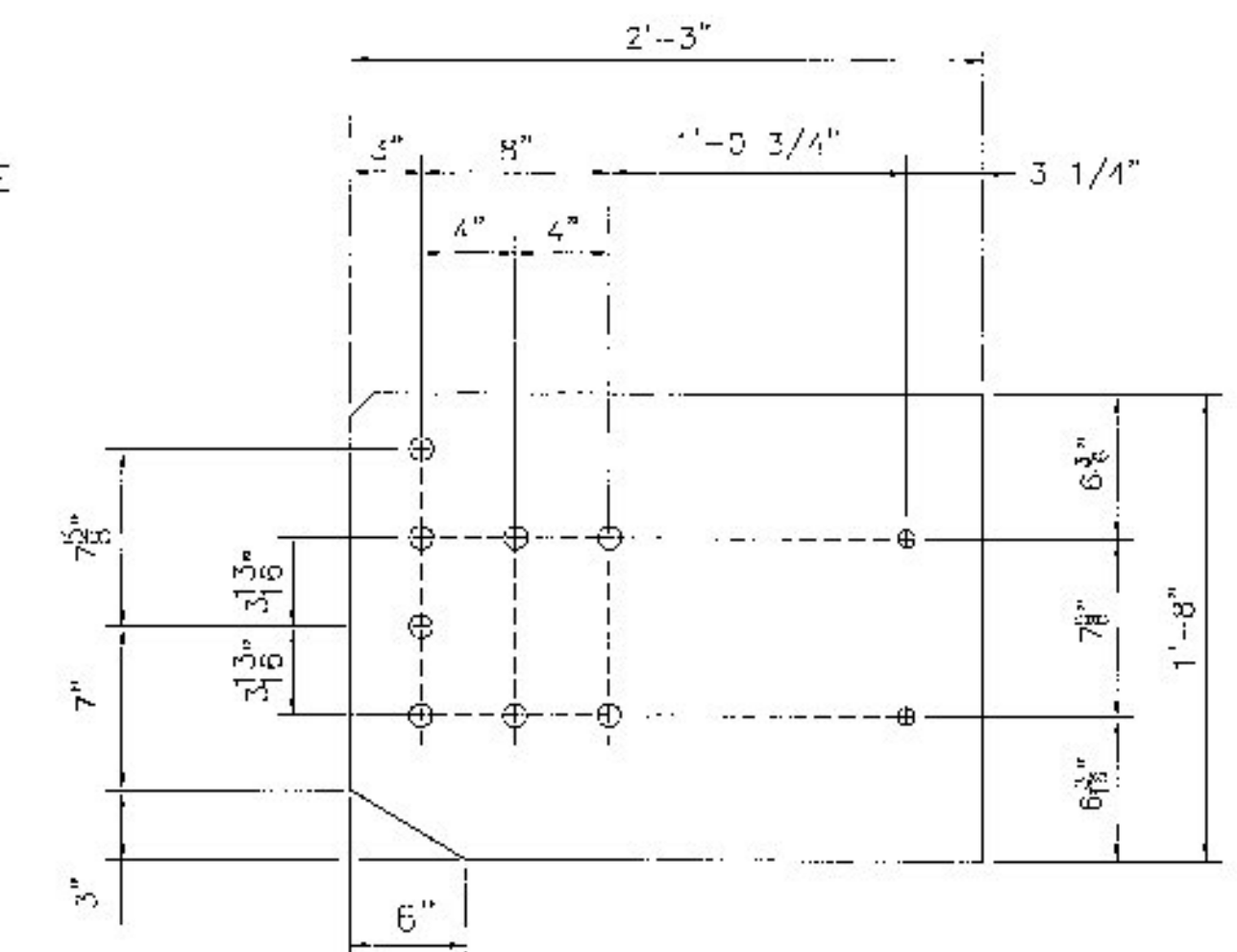
QUANTITY = 4

| Qty | mk | Description                                                                                              | Spec.          |
|-----|----|----------------------------------------------------------------------------------------------------------|----------------|
| 4   | 01 | W6x25 APPROACH POST - #1 x 8'-0" OAL (GALV)                                                              | A709 gr 50     |
| 4   | 02 | W6x25 APPROACH POST - #2 x 8'-0" OAL (GALV)                                                              | A709 gr 50     |
| 4   | 03 | W6x25 APPROACH POST - #3 x 8'-0" OAL (GALV)                                                              | A709 gr 50     |
| 4   | 04 | W6x25 APPROACH POST - #4 x 8'-0" OAL (GALV)                                                              | A709 gr 50     |
| 4   |    | UPPER RAIL APPROACH TUBE HSS 8 x 4 x 5/16 x 9'-4.000" w/ 3.500 SLOTS FOR 4" EXP GAP (GALV)               | A500 gr B      |
| 4   |    | LOWER RAIL APPROACH TUBE HSS 4 x 4 x 5/16 x 9'-4.000" w/ 3.500 SLOTS FOR 4" EXP GAP (GALV)               | A500 gr B      |
| 4   |    | CONNECTION PLATE PL 0.375" x 20.000" x 27.000" (GALV)                                                    | A709 gr 36     |
| 2   |    | DEFLECTOR PLATE (RIGHT) PL 0.375 x 4.000 x 13.375 (GALV)                                                 | A709 gr 36     |
| 2   |    | DEFLECTOR PLATE (LEFT) PL 0.375 x 4.000 x 13.375 (GALV)                                                  | A709 gr 36     |
| 4   |    | END CAP FOR 8x4 TUBE 0.187 THICK PLATE 8.000 x 4.000 w/ WELDED TABS (GALV)                               | A709 gr 36     |
| 4   |    | END CAP FOR 4x4 TUBE 0.187 THICK PLATE 4.000 x 4.000 w/ WELDED TABS (GALV)                               | A709 gr 36     |
| 4   |    | (ANGLED) SPLICE TUBE (EXPANSION) FOR 8x4 UPPER RAIL HSS 7 x 3 x 3/8 x 1'-11.750" OAL (GALV)              | A500 gr B      |
| 4   |    | SPLICE TUBE (EXPANSION) FOR 4x4 LOWER RAIL HSS 3 x 3 x 5/16 x 1'-11.750" OAL (GALV)                      | A500 gr B      |
| 32  |    | WOOD POST (WP1) 6 x 8 x 7'-0"                                                                            | TIMBER         |
| 32  |    | WOOD BLOCKOUT (WB1) 6 x 8 x 1'-6"                                                                        | TIMBER         |
| 4   |    | WOOD POST (WP2) 6 x 8 x 7'-0"                                                                            | TIMBER         |
| 4   |    | WOOD BLOCKOUT (WB2) 6 x 8 x 1'-6"                                                                        | TIMBER         |
| 4   |    | WOOD POST (WP3) 6 x 8 x 7'-0"                                                                            | TIMBER         |
| 4   |    | WOOD BLOCKOUT (WB3) 6 x 8 x 1'-2"                                                                        | TIMBER         |
| 4   |    | THREE FLAT LIP BRIDGE SHOE (MODIFIED) 10 GA. GALV                                                        | aashto M180 B2 |
| 4   |    | THREE TRANSITION PANEL 6'-3" / 3'-1 1/2" 10 GA. GALV.                                                    | aashto M180 B2 |
| 8   |    | THREE PANEL 12'-6" / 1'-6 3/4" 12 GA. GALV.                                                              | aashto M180 A2 |
| 92  |    | ROUND HEAD POST BOLT slot or wrench head - no shoulder 3/4" DIA x 6" LG. (GLV) w/ LOCK NUT & FLAT WASHER | A449           |
| 4   |    | ROUND HEAD POST BOLT slot or wrench head - no shoulder 3/4" DIA x 2" LG. (GLV) w/ HEX NUT                | A449           |
| 8   |    | ROUND HEAD POST BOLT - oval shoulder 5/8" DIA x 1'-8" LG. (GALV) w/ DBL RECESS NUT, FLAT WASHER          | A307           |
| 68  |    | ROUND HEAD POST BOLT - oval shoulder 5/8" DIA x 1'-6" LG. (GALV) w/ DBL RECESS NUT, FLAT WASHER          | A307           |
| 32  |    | HEX HEAD BOLT 5/8 x 1-3/4" (GALV) w/ FLAT WASHER                                                         | A325           |
| 128 |    | PANEL SPLICE BOLT 5/8 x 1-1/4" (GALV) w/ DOUBLE RECESSED NUT                                             | A307           |
| 76  |    | RECTANGULAR PLATE WASHER 0.187 x 1.750 x 3.000 (GALV)                                                    | A709 gr 36     |
| 32  |    | SPACER PIPE - GALVANIZED 3/4" SCH. 40 x 1/2" LONG (GLV)                                                  | A53 gr B       |



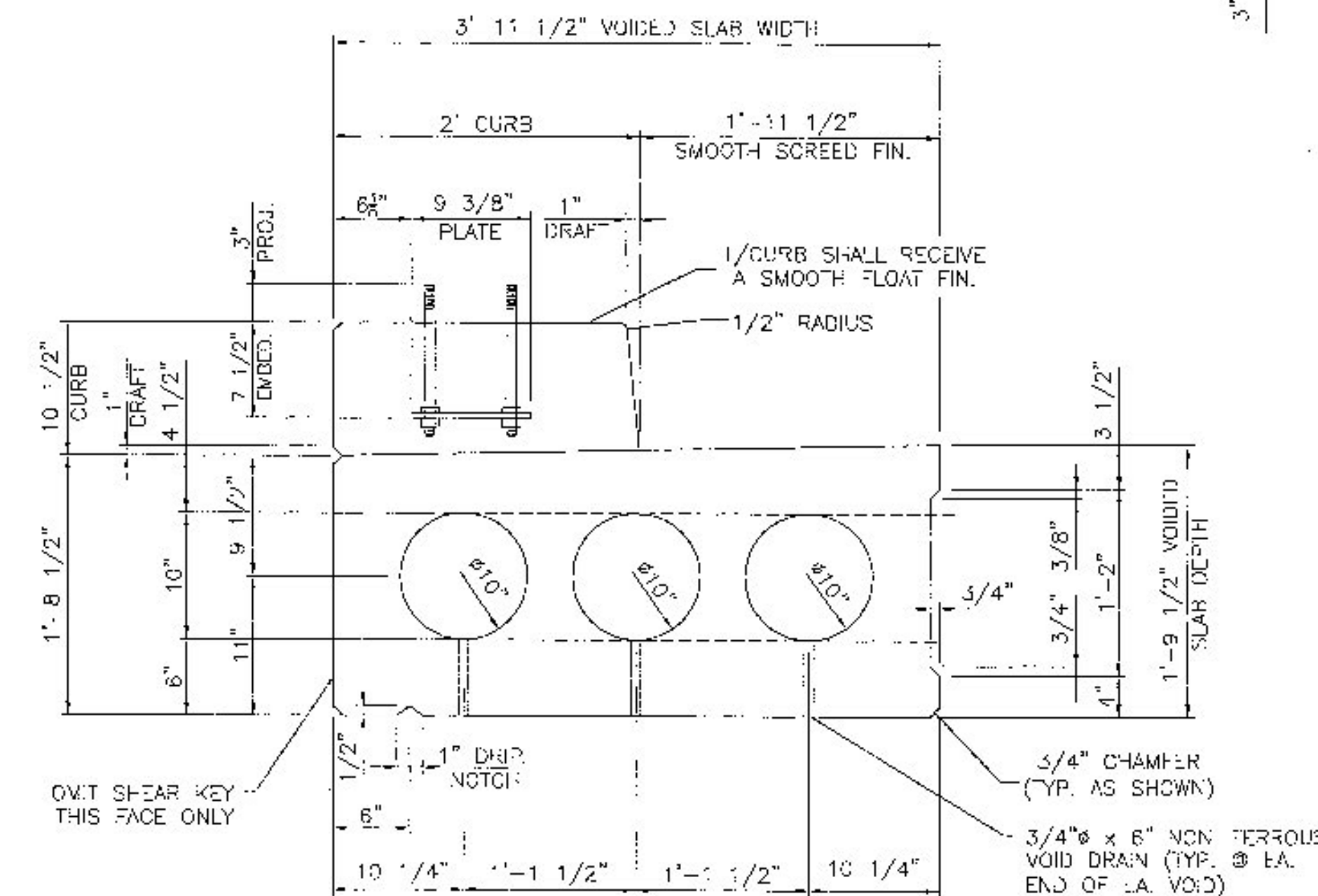
### ANGLED SPLICE DETAIL

HSS 7 x 3 x 3/8 - FOR UPPER RAIL SPLICE  
SFE BRIDGE RAIL SHOE FOR DETAIL ON LOWER RAIL SPLICE TUBE



### CONNECTION PLATE

3/8" x 1'-8" x 2'-3"



### CURB SECTION

Vermont Agency of Transportation

**RECEIVED**

CK'D BY MEM OK'D BY CWC

Apr. 16, 2015

RESUBMIT APPROVED  
BY C. Carlson DATE 05-06-2015

**HIGHWAY SAFETY CORP**  
GLASTONBURY, CT  
860-633-9445

ITEM 525.33 2-RAIL BRIDGERAIL GALVANIZED  
BRIDGE REHABILITATION  
RT. 116 OVER LITTLE NOTCH CREEK  
B.I.N. #6 P.I.N. BR 021-1 (29)  
TOWN OF BRISTOL, ADDISON COUNTY

CERTIFIED  
FABRICATOR

2040

GENERAL CONTRACTOR  
SUB CONTRACTOR  
DRAWN MKT  
DATE 04-15-15  
SCALE NONE  
SIZE D



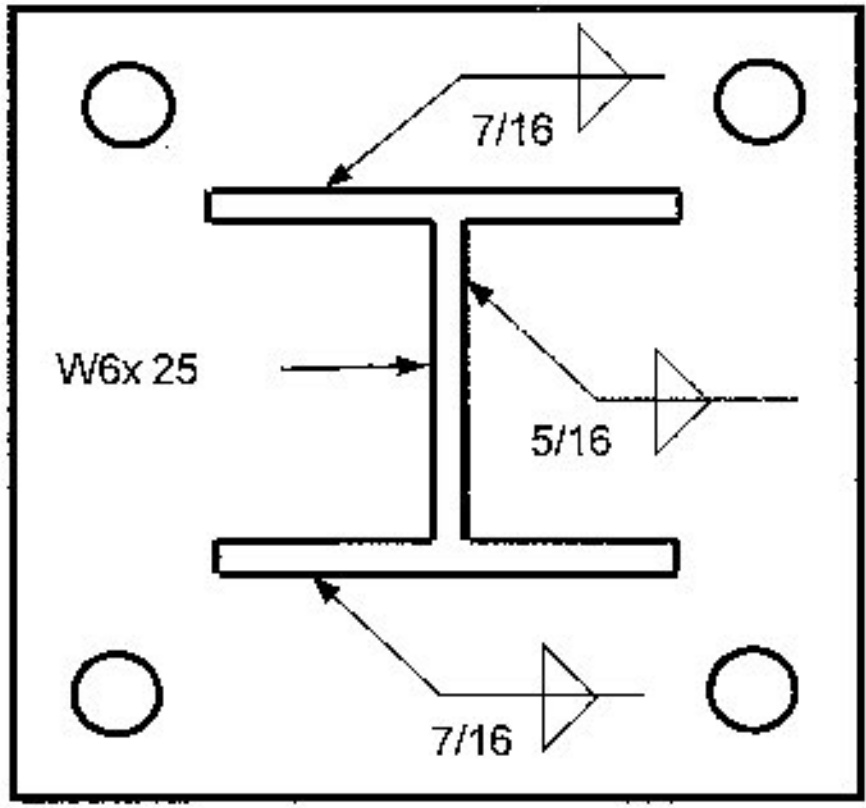
# Highway Safety Corporation

Glastonbury, CT

## Welding Procedure Specification

|                                      |                                                                                                 |                     |
|--------------------------------------|-------------------------------------------------------------------------------------------------|---------------------|
| Material specification               | A572 gr 50, A709 Gr 50                                                                          |                     |
| Welding process                      | Gas Metal Arc Welding (GMAW) Spray Transfer                                                     |                     |
| Manual, semi-automatic, or automatic | Semi-Automatic                                                                                  |                     |
| Position of welding                  | Flat (1F) or Horizontal (2F)                                                                    |                     |
| Filler metal specification           | AWS A5.18                                                                                       |                     |
| Filler metal classification          | ER70S-6                                                                                         |                     |
| Electrode and manufacturer           | Lincoln Electric Lincoln Weld L-56                                                              |                     |
| Flux and manufacturer                | N/A                                                                                             |                     |
| Shielding gas                        | 86% Argon / 14% CO2                                                                             | Flow rate 35-45 CFM |
| Single or multiple pass              | Single or Multiple                                                                              |                     |
| Single or multiple arc               | Single                                                                                          |                     |
| Welding current                      | DCEP                                                                                            |                     |
| Polarity                             | Reverse - electrode positive                                                                    |                     |
| Welding progression                  | Stringers                                                                                       |                     |
| Root treatment                       | clean base metal                                                                                |                     |
| Preheat and interpass temperature    | base metal up to 3/4" (50°F) ; over 3/4 thru 1-1/2" ( 150°F ) : over 1-1/2" thru 2-1/2" (225°F) |                     |
| Postheat treatment                   | None                                                                                            |                     |
| Electrode extension                  | 3/4" ± 1/4"                                                                                     |                     |

### WELDING PROCEDURE

| Weld size | Pass no. | Electrode size | Welding parameters |             | Travel speed  | Joint detail                                                                          |
|-----------|----------|----------------|--------------------|-------------|---------------|---------------------------------------------------------------------------------------|
|           |          |                | Amperes            | Volts       |               |                                                                                       |
| 5/16"     | 1        | 0.062"         | 300 A<br>± 30      | 29 V<br>± 2 | 15 ipm<br>± 2 |  |
| 7/16"     | 1 & 2    | 0.062"         | ↓                  | ↓           | 15 ipm<br>± 2 |                                                                                       |
|           |          |                |                    |             |               |                                                                                       |

**APPROVED**

By Jeff Clark at 11:29 am, May 06, 2015

This procedure may vary due to fabrication sequence, fit-up, pass size, etc. within the limitation of variables given in section 5 of latest edition AWS D1.5

|                    |                 |                |                            |
|--------------------|-----------------|----------------|----------------------------|
| WPS no.            | W-VTPEDPOST1    | Fabricator     | Highway Safety Corporation |
| Revision no.       | 0               | Prepared By:   | Paul Radice                |
| Supporting PQR no. | Pre-Qualified   | Date           | 4/15/15                    |
| Project Name       | Bristol Vermont | Project Number | BRF 021-1 (29)             |



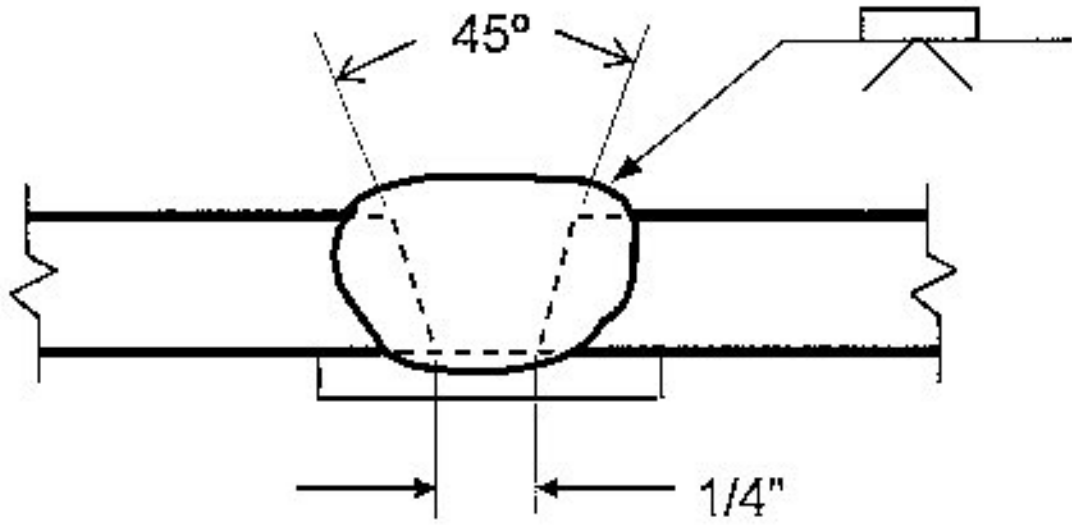
# Highway Safety Corporation

Glastonbury, CT

## Welding Procedure Specification

|                                      |                                    |                     |
|--------------------------------------|------------------------------------|---------------------|
| Material specification               | ASTM A500 gr B                     |                     |
| Welding process                      | Gas Metal Arc Welding (GMAW)       |                     |
| Manual, semi-automatic, or automatic | Semi-Automatic                     |                     |
| Position of welding                  | Flat (1F) or Horizontal (2F)       |                     |
| Filler metal specification           | AWS A5.18                          |                     |
| Filler metal classification          | ER70S-6                            |                     |
| Electrode and manufacturer           | Lincoln Electric Lincoln Weld L-56 |                     |
| Flux and manufacturer                | N/A                                |                     |
| Shielding gas                        | 86% Argon / 14% CO2                | Flow rate 35-45 CFM |
| Single or multiple pass              | Single                             |                     |
| Single or multiple arc               | Single                             |                     |
| Welding current                      | DCEP                               |                     |
| Polarity                             | Reverse - electrode positive       |                     |
| Welding progression                  | Stringers                          |                     |
| Root treatment                       | clean base metal                   |                     |
| Preheat and interpass temperature    | base metal up to 3/4" (50°F)       |                     |
| Postheat treatment                   | None                               |                     |
| Electrode extension                  | 3/4" ± 1/4"                        |                     |

### WELDING PROCEDURE

| Weld size                                                       | Pass no. | Electrode size | Welding parameters |             | Travel speed  | Joint detail                                                                                      |
|-----------------------------------------------------------------|----------|----------------|--------------------|-------------|---------------|---------------------------------------------------------------------------------------------------|
|                                                                 |          |                | Amperes            | Volts       |               |                                                                                                   |
|                                                                 | 1        | 0.063"         | 300 A<br>± 30      | 29 V<br>± 2 | 15 ipm<br>± 2 | B-U2a-GF<br> |
| <div>APPROVED<br/>By Jeff Clark at 11:29 am, May 06, 2015</div> |          |                |                    |             |               |                                                                                                   |

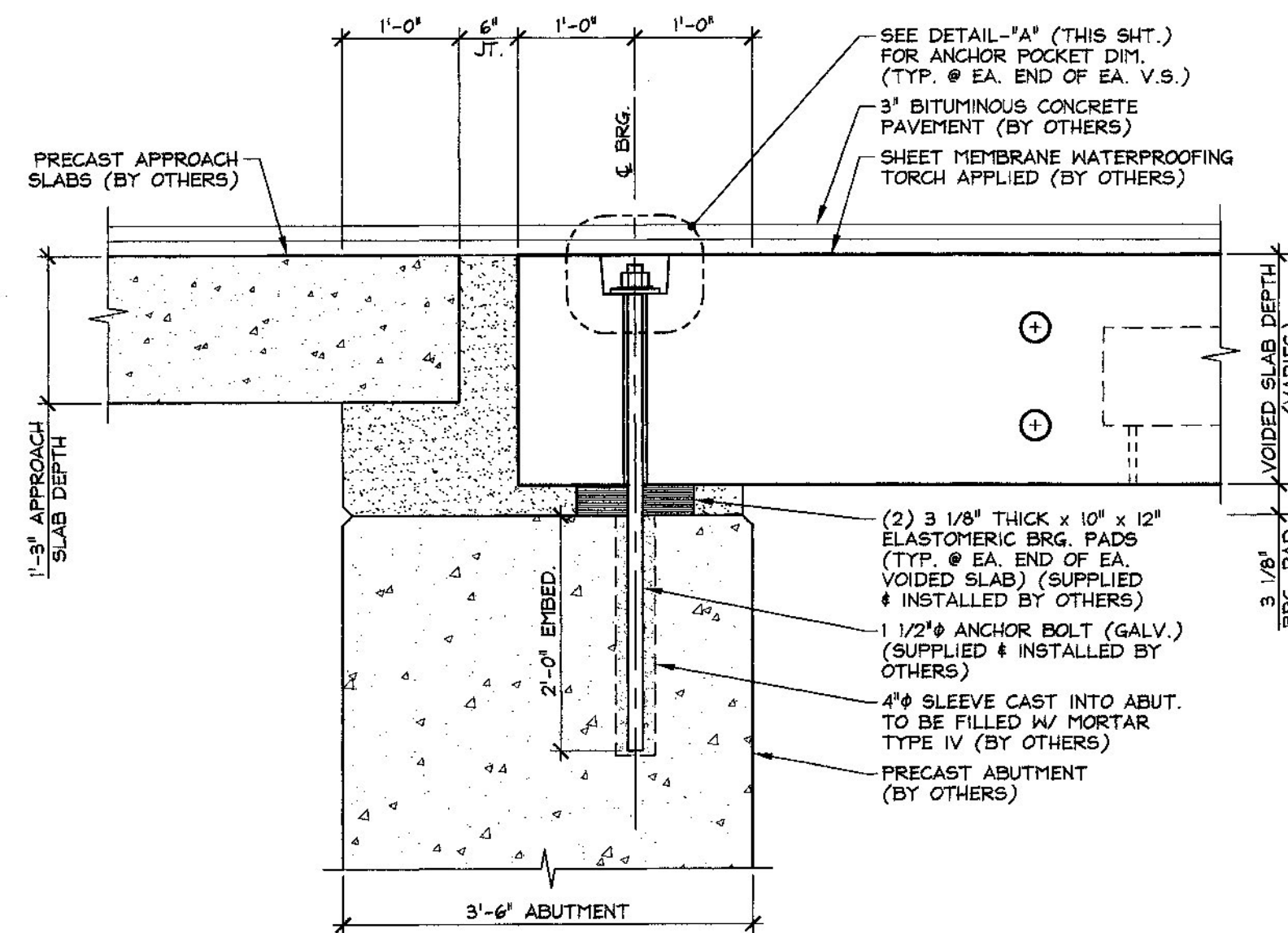
This procedure may vary due to fabrication sequence, fit-up, pass size, etc. within the limitation of variables given in section 5 of latest edition AWS D1.1

|                    |                 |                |                            |
|--------------------|-----------------|----------------|----------------------------|
| WPS no.            | W-VGwBCK        | Fabricator     | Highway Safety Corporation |
| Revision no.       | 0               | Prepared By:   | Paul Radice                |
| Supporting PQR no. | Pre-Qualified   | Date           | 4/15/15                    |
| Project Name       | Bristol Vermont | Project Number | BRF 021-1 (29)             |

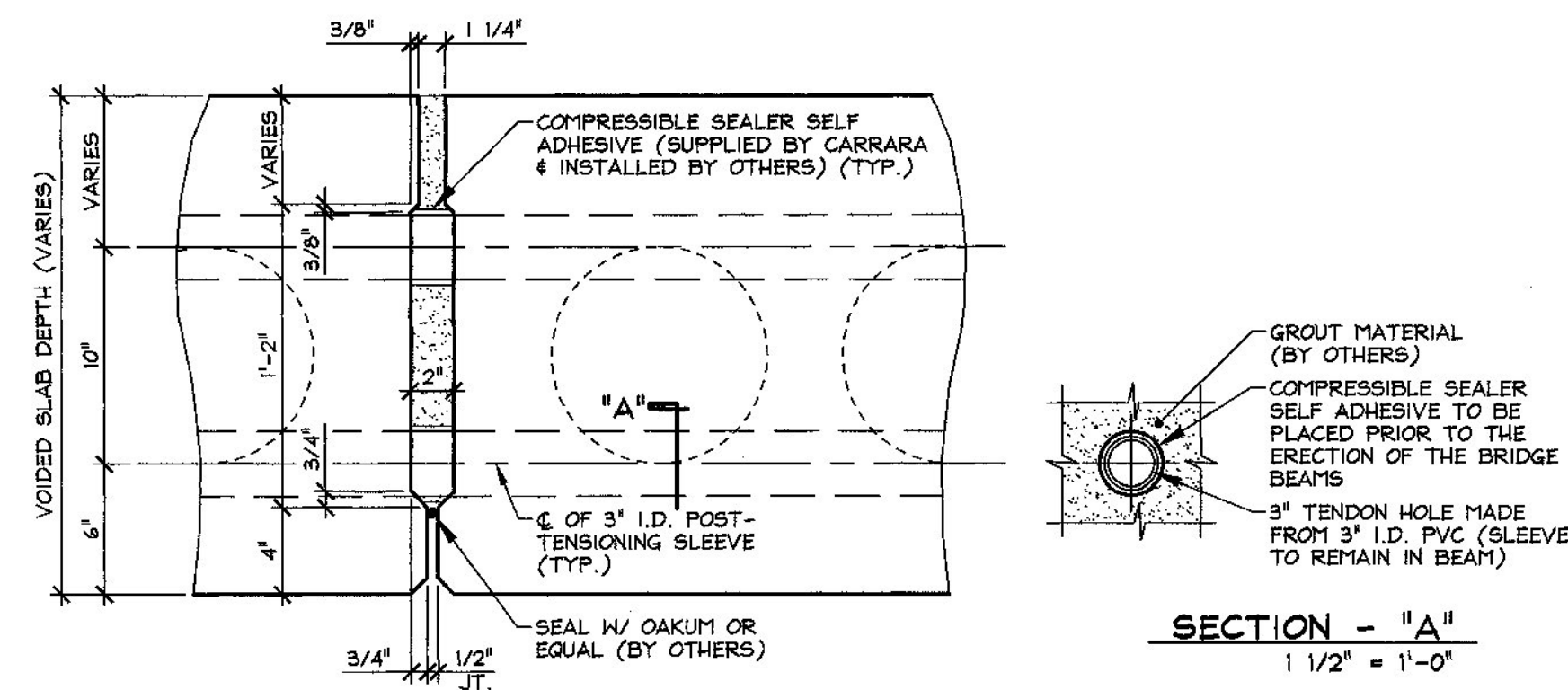




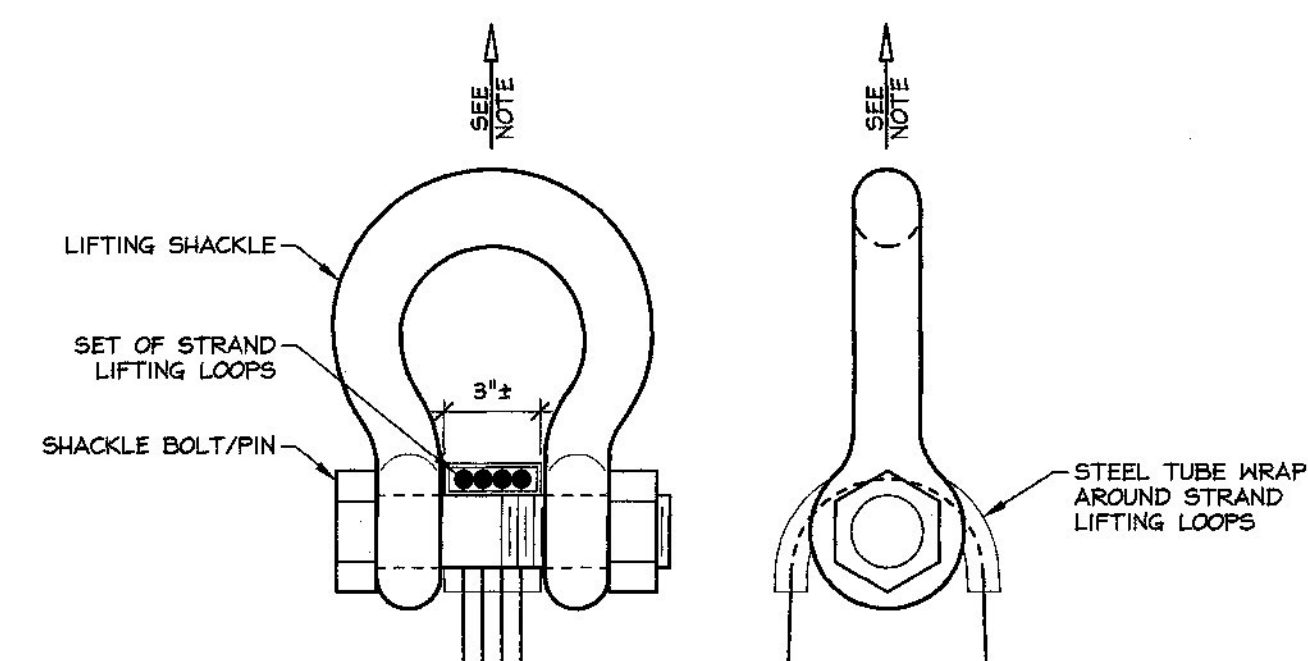




**A BEARING SECTION**  
F2  
3/4" = 1'-0"

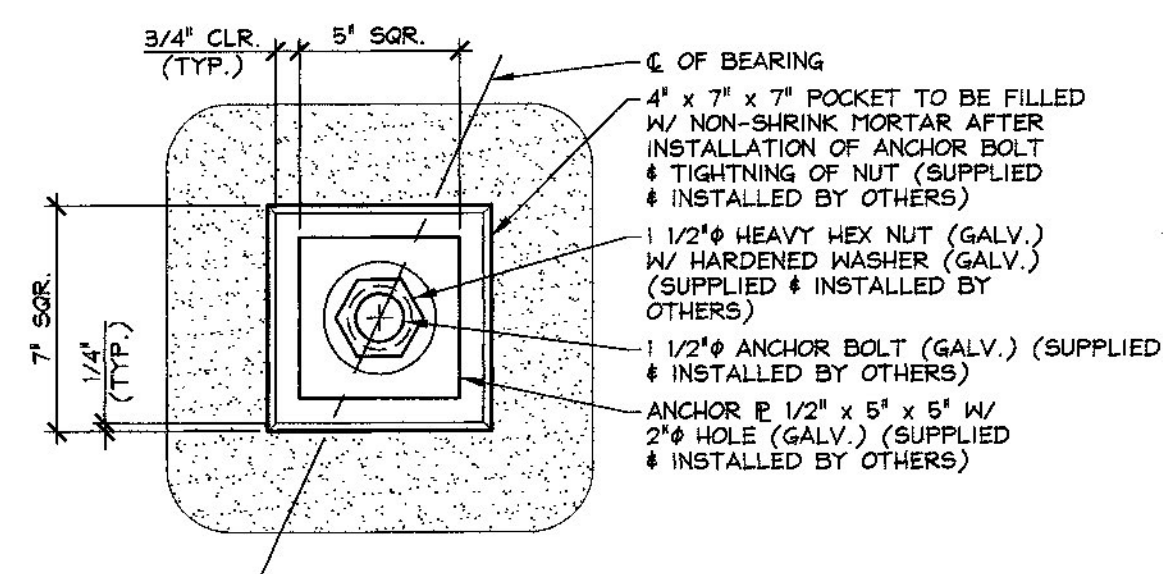


**B SHEAR KEY SECTION @ P.T. SLEEVE**  
F2  
1 1/2" = 1'-0"

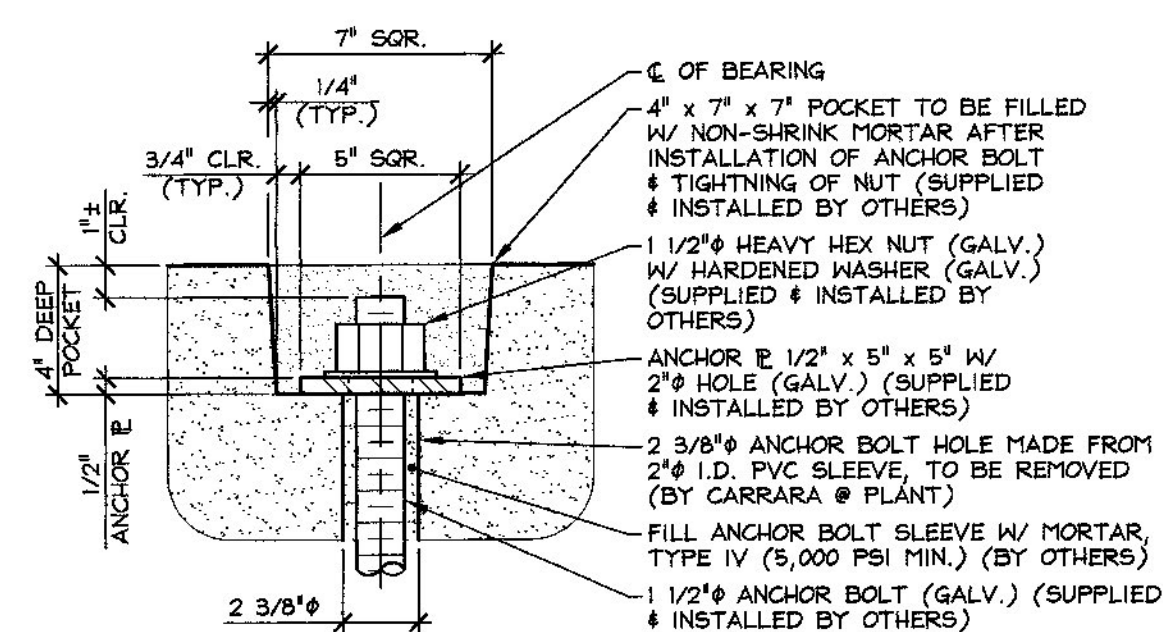


NOTE: SLAB SHALL BE HANDLED AND ERECTED USING THE LIFTING LOOPS ONLY. RIGGING SHALL BE CONFIGURED SUCH THAT EQUAL FORCES ARE APPLIED TO EACH SET OF LIFTING LOOPS AT EACH END OF THE SLAB. SHACKLE BOLT/PIN SHALL BE PLACED UNDER LIFT LOOPS AS SHOWN. DESIGN AND CONFIGURATION OF RIGGING BY PURCHASER.

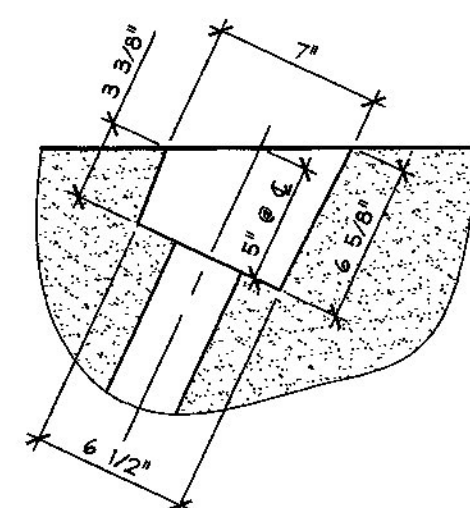
**LIFTING SHACKLE DETAILS**  
N.T.S.



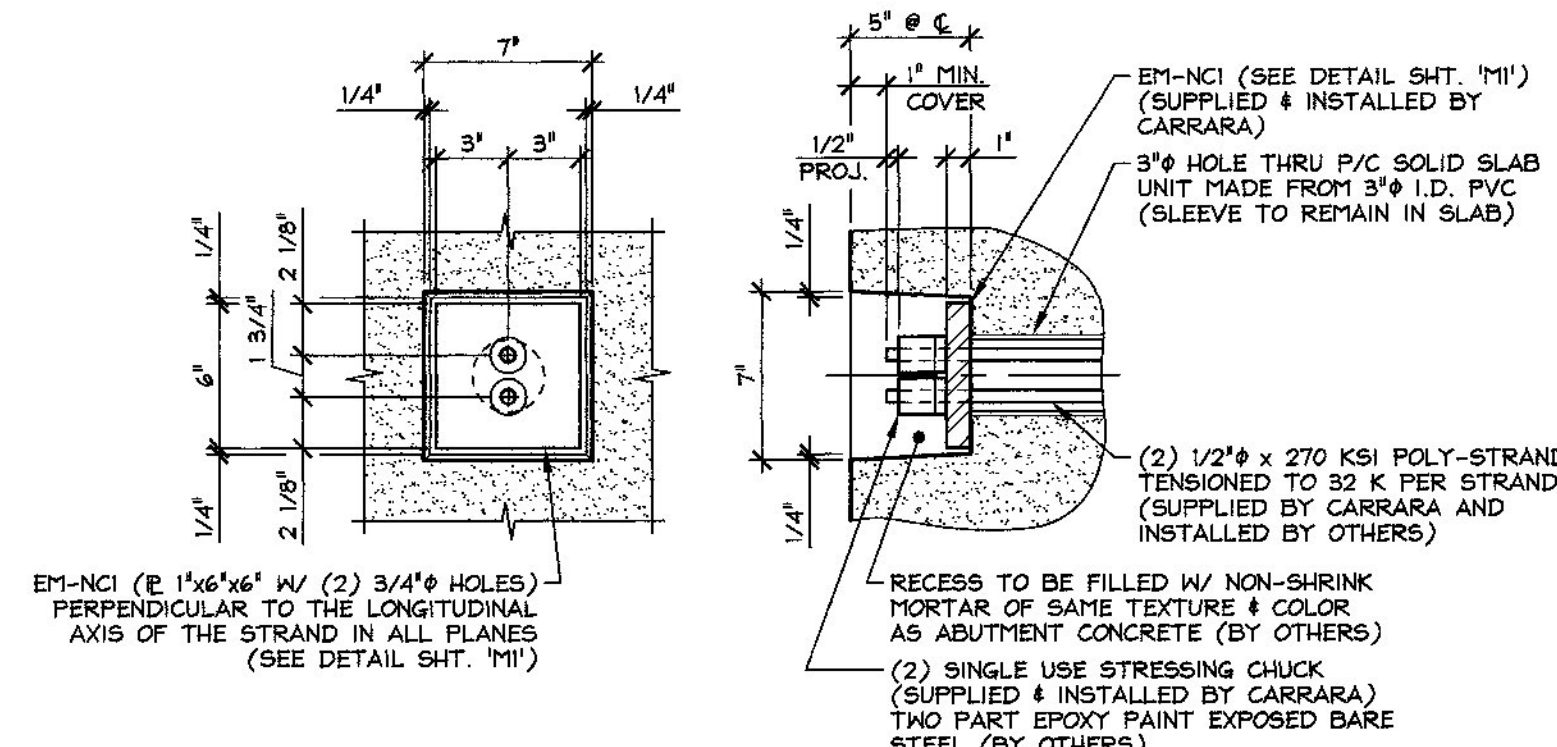
**PLAN VIEW**



**SECTION A-F2**  
2" = 1'-0"



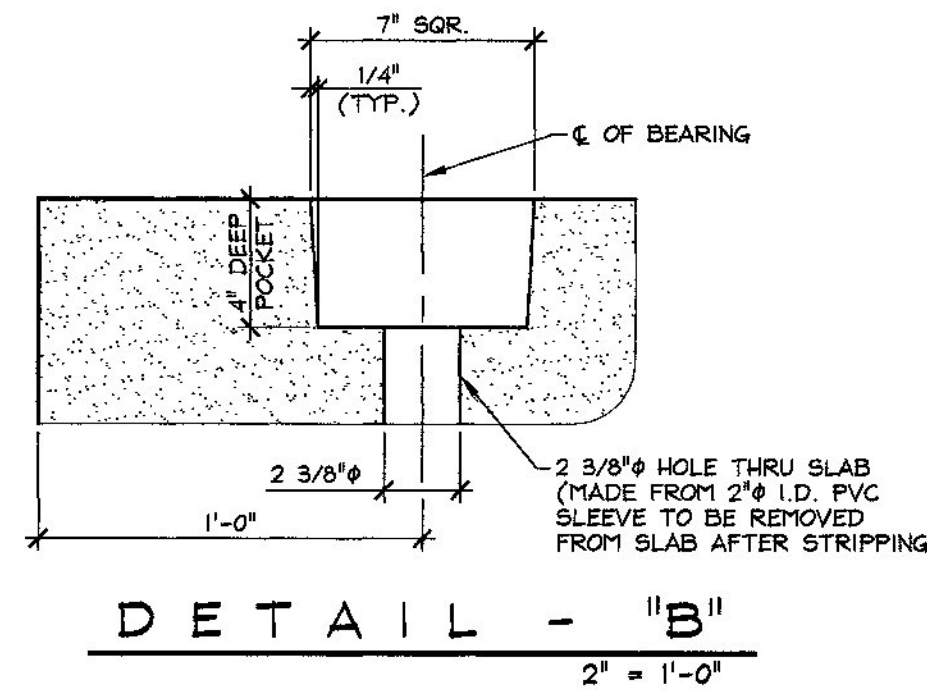
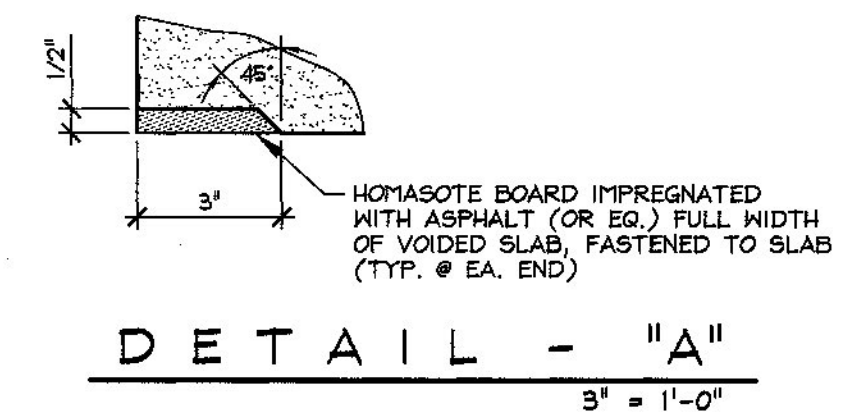
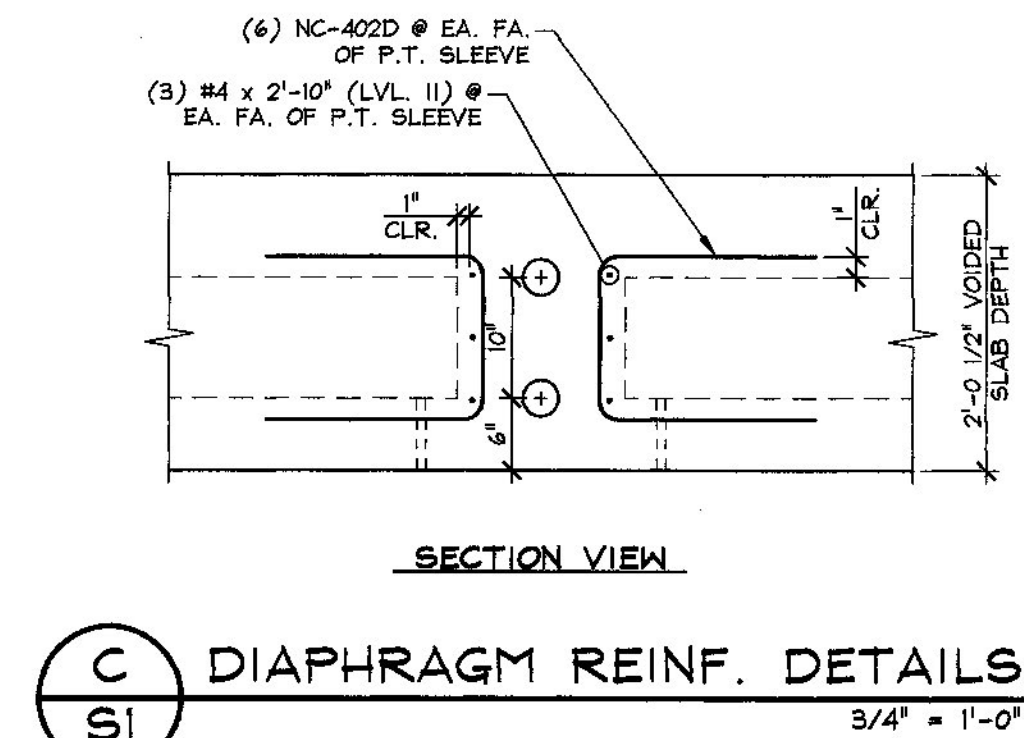
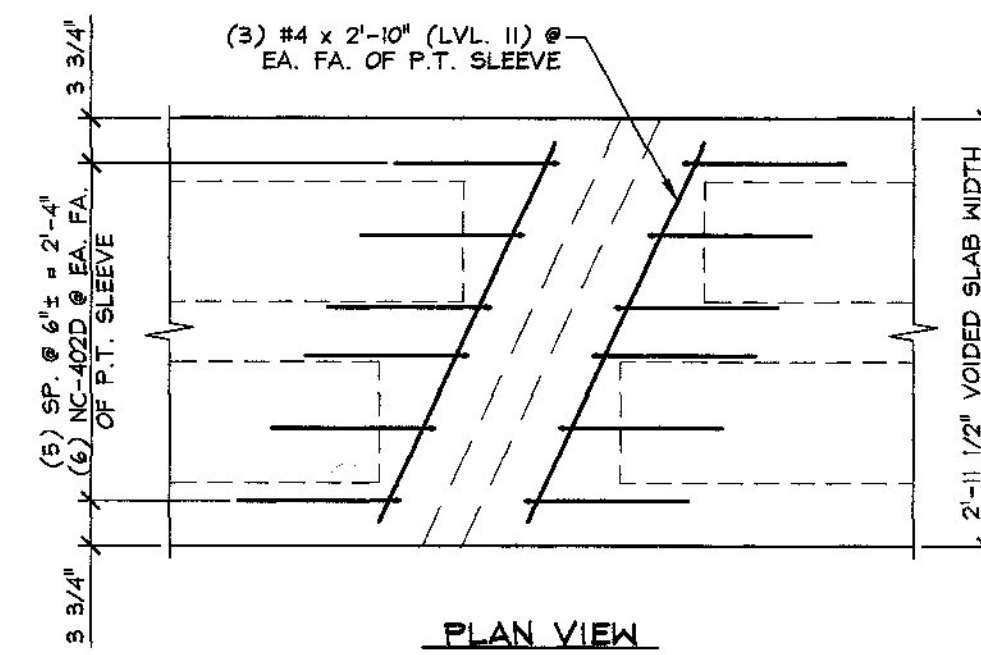
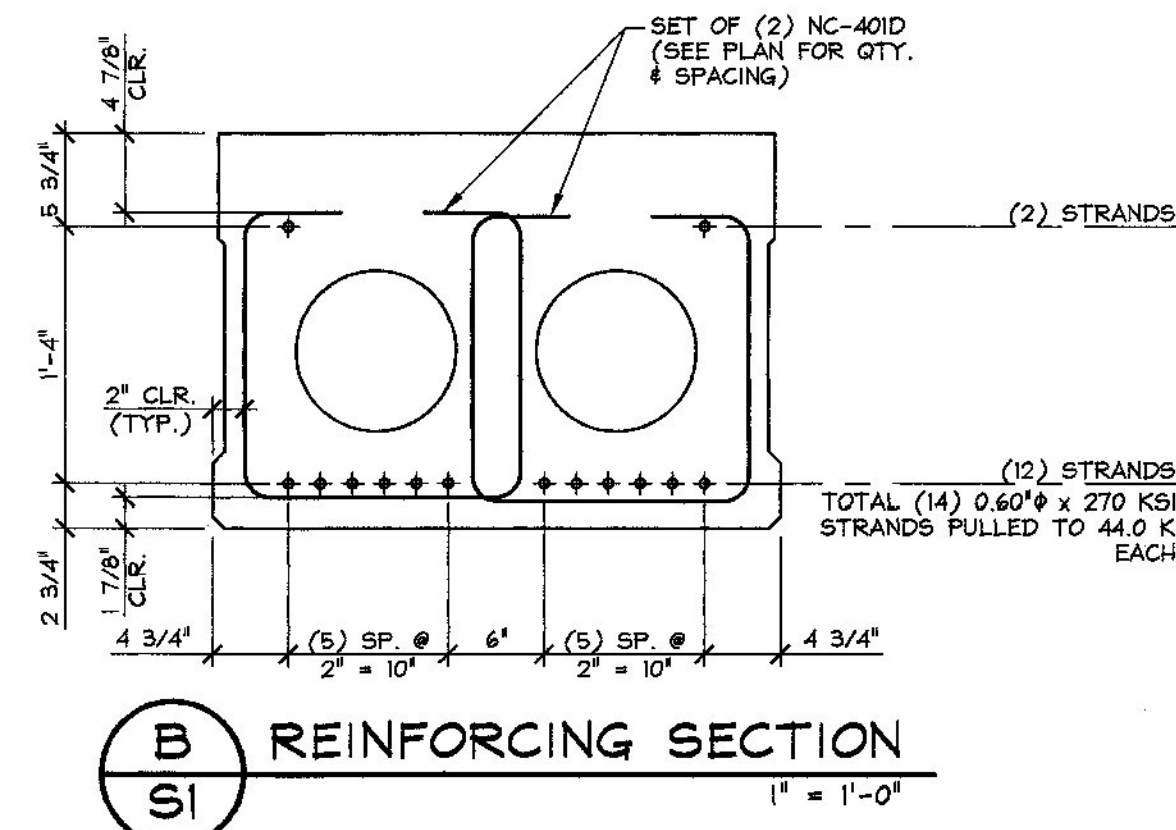
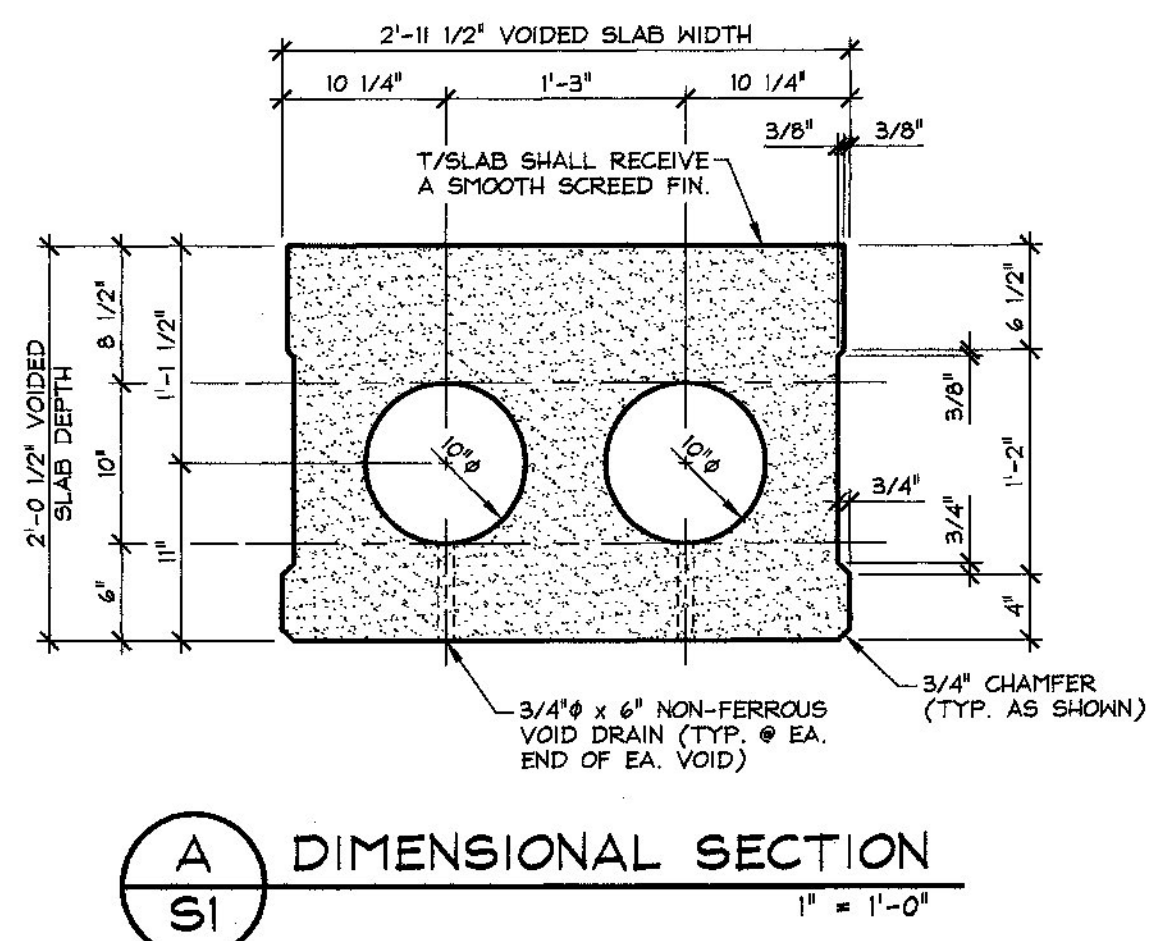
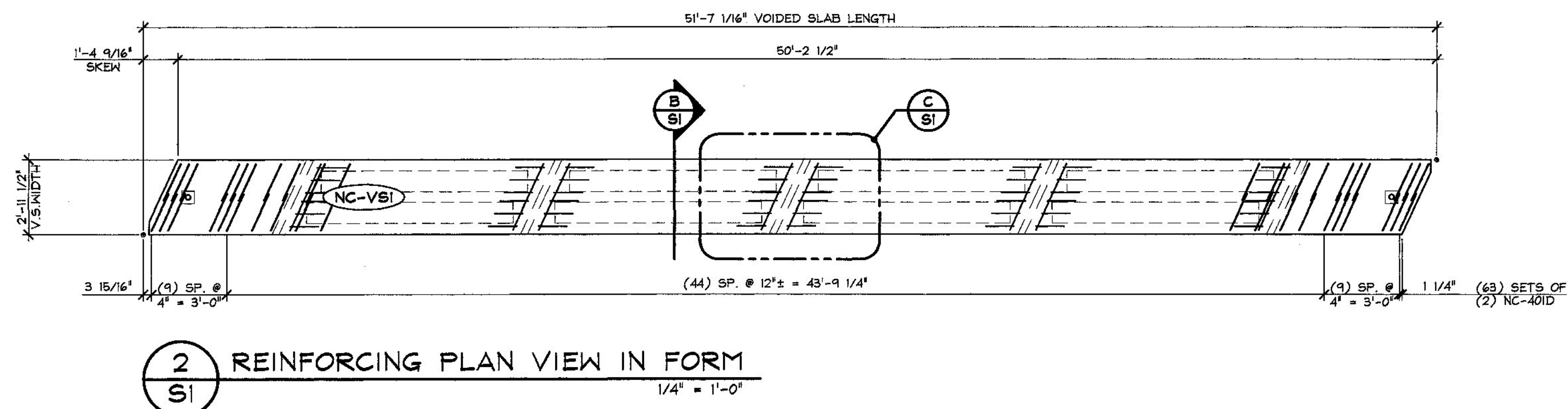
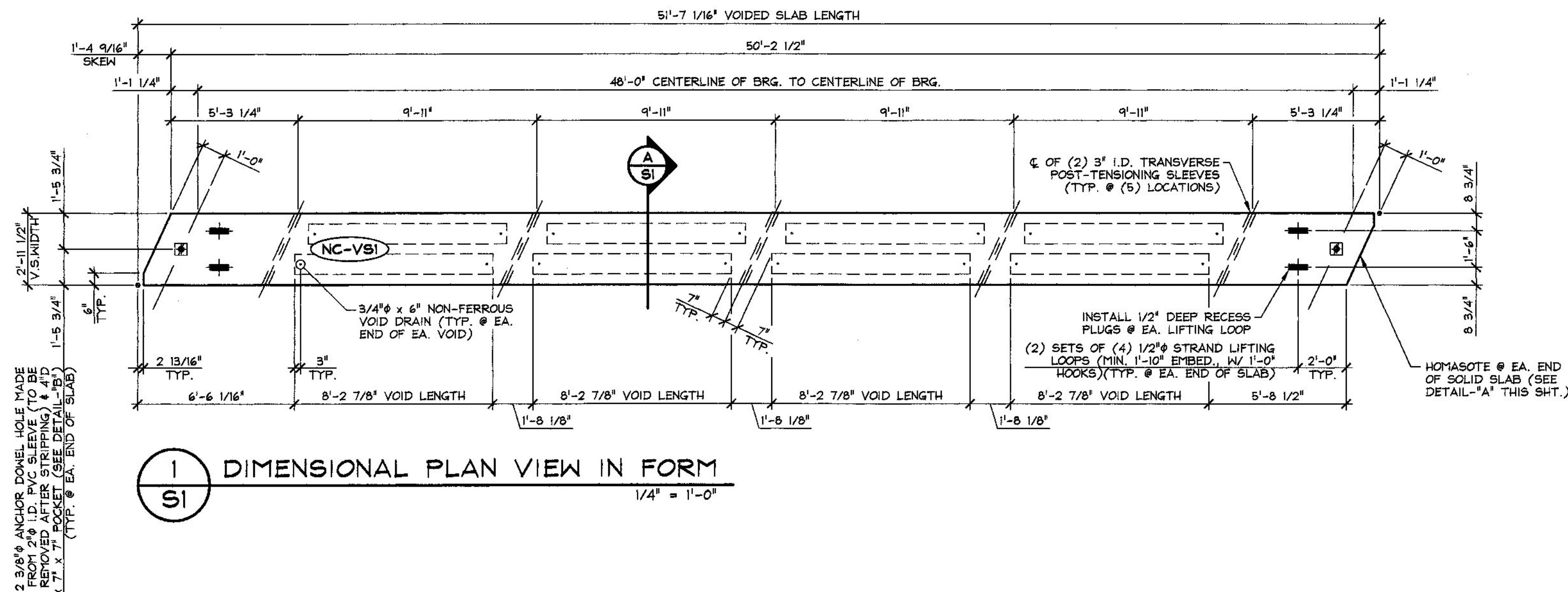
**PLAN OF POCKET**



**FASCIA ELEVATION SECTION AT CENTERLINE B-F2**  
1 1/2" = 1'-0"

|                                                                                                                                                                                                         |                                                                                                                                                                              |  |                                                                                         |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------|--|
| <p>APPROVAL STAMP:</p> <p>Vermont Agency of Transportation</p> <p><b>RECEIVED</b></p> <p>CK'D BY MEM OK'D BY CWC</p> <p>Mar. 16, 2015</p> <p>RESUBMIT APPROVED</p> <p>BY C. Carlson DATE 03-27-2015</p> | <p><b>J.P. CARRARA &amp; SONS INC.</b></p> <p>Precast &amp; Prestress Manufacturer</p> <p>2464 CASE ST., NEWFERRY, VERMONT 05753 Phone: (802)388-6361 Fax: (802)388-9010</p> |  | <p><b>S.D. IRELAND CONCRETE CONSTRUCTION CORP.</b></p> <p>SOUTH BURLINGTON, VERMONT</p> |  |
|                                                                                                                                                                                                         | <p><b>STATE OF VERMONT AGENCY OF TRANSPORTATION</b></p> <p>COUNTY OF ADDISON</p>                                                                                             |  | <p>DATE: MAR. 6, 2015</p> <p>SCALE: NOTED</p>                                           |  |
|                                                                                                                                                                                                         | <p><b>TOWN OF BRISTOL</b></p> <p>VT RT. 116 (MINOR ARTERIAL) OVER LITTLE NOTCH CREEK</p> <p>BRIDGE NO.: 6 PROJECT NO.: BRF 021-1(29)</p>                                     |  | <p>CHKD: P.C. DFTM: B.L.</p> <p>JOB NO: 23461-015</p>                                   |  |
|                                                                                                                                                                                                         | <p><b>SUPERSTRUCTURE SECTIONS &amp; DETAILS</b></p>                                                                                                                          |  | <p>DWG. NO: <b>F2</b></p>                                                               |  |





3 4

1 5 7 9 11 13 14 12 10 8 6 2

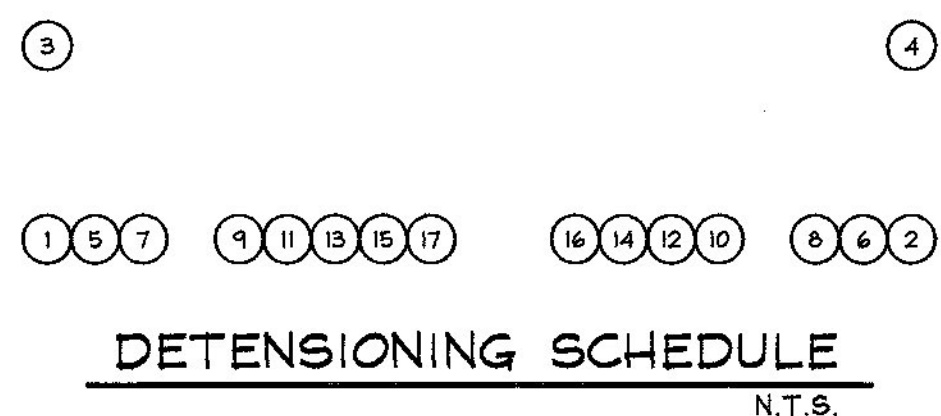
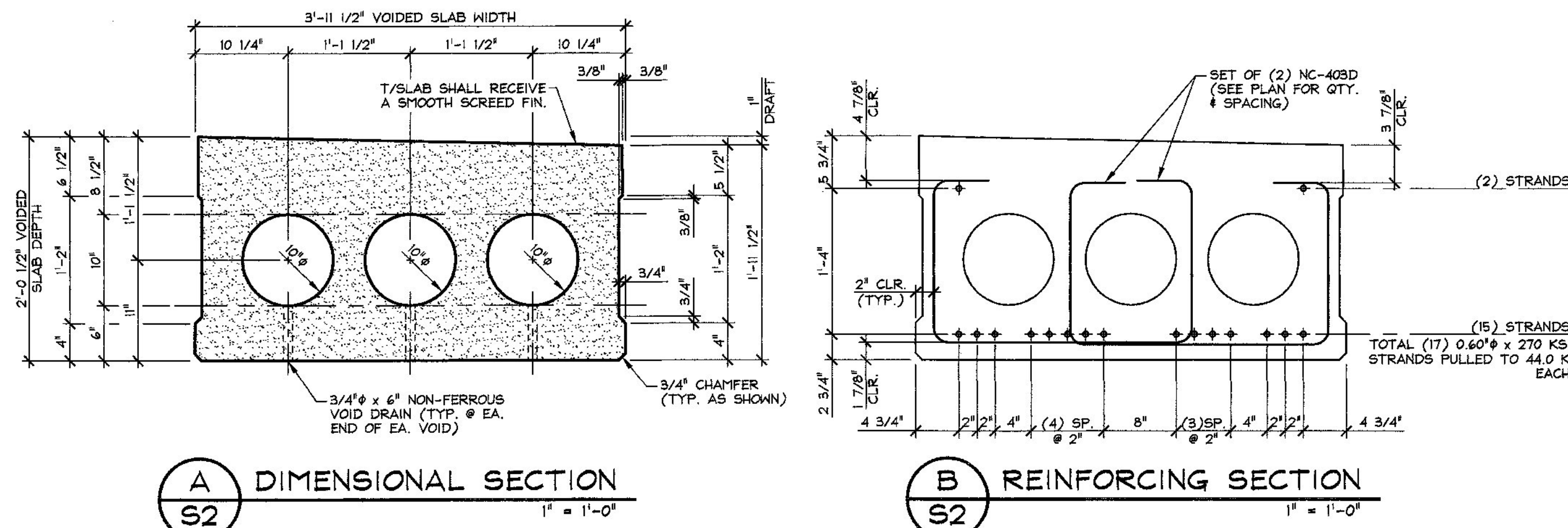
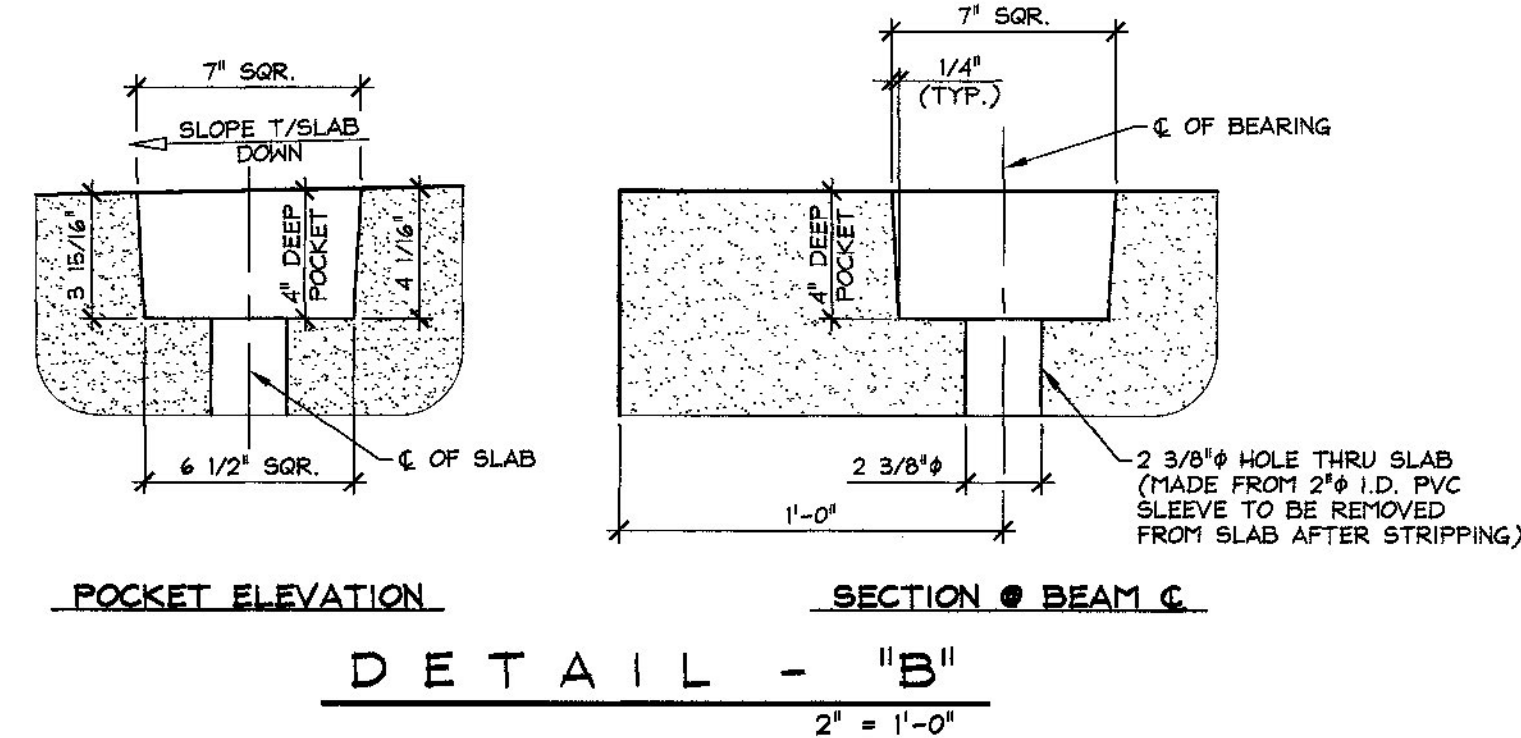
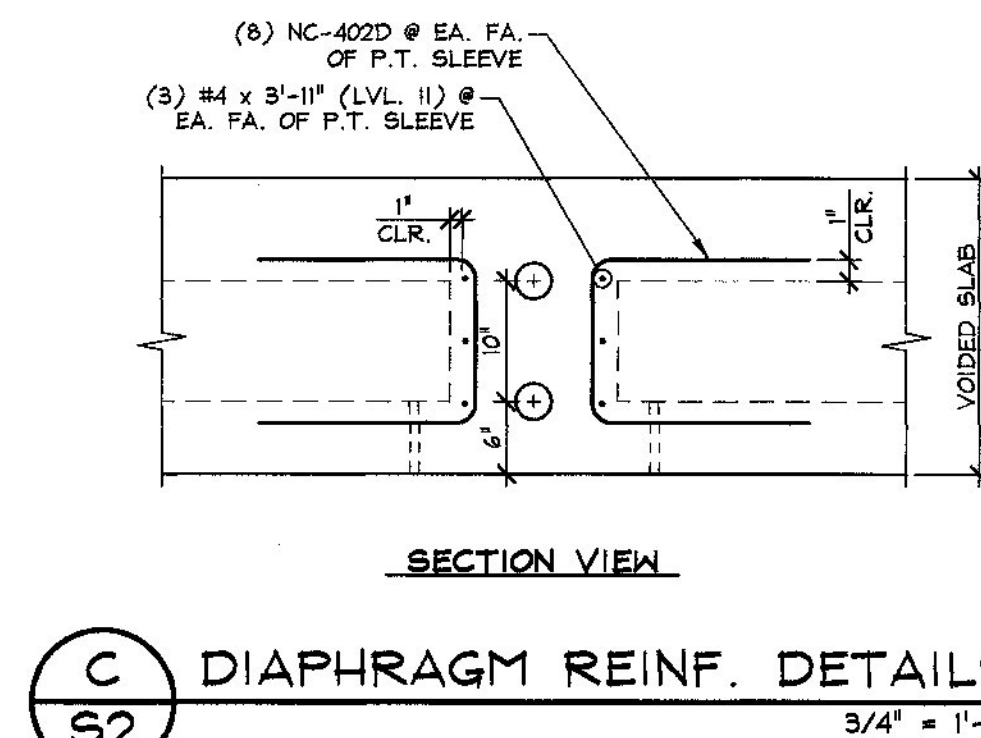
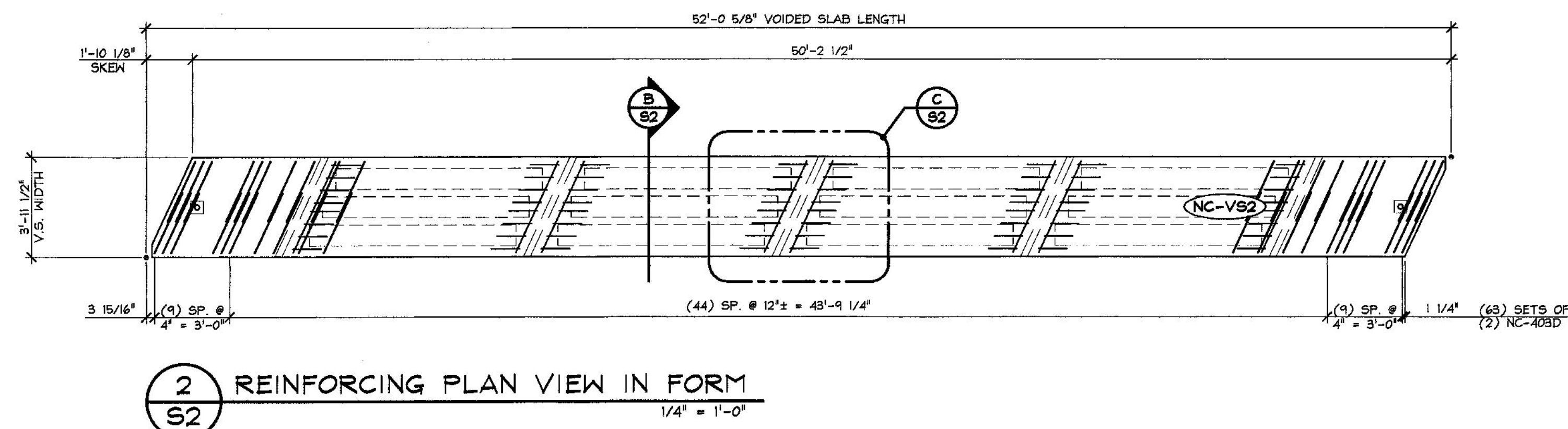
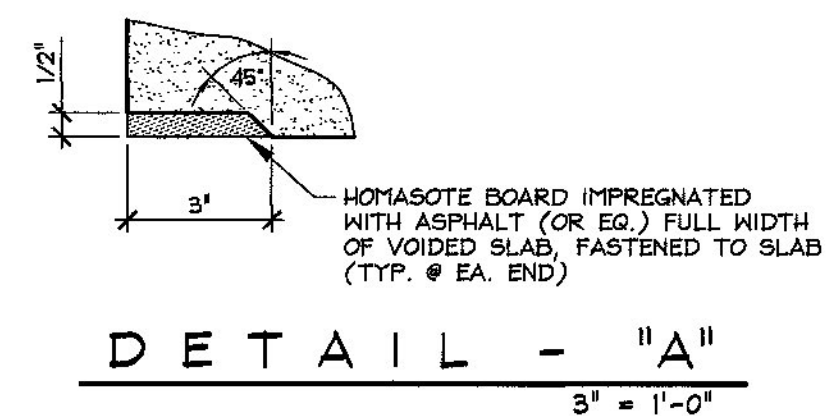
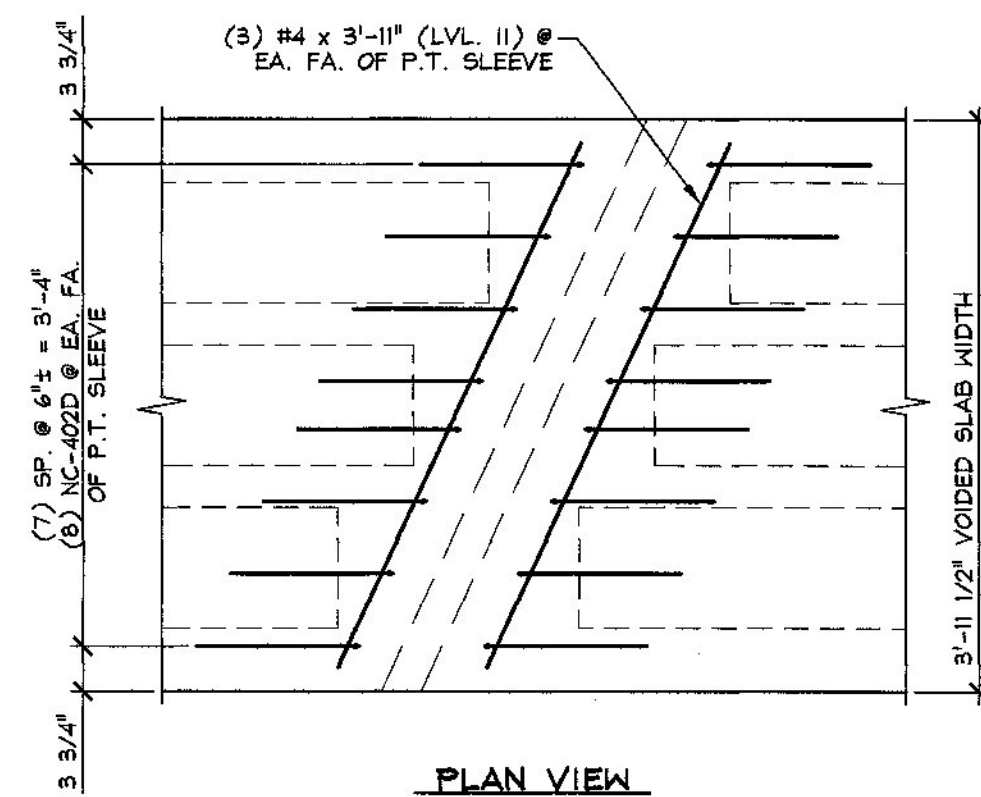
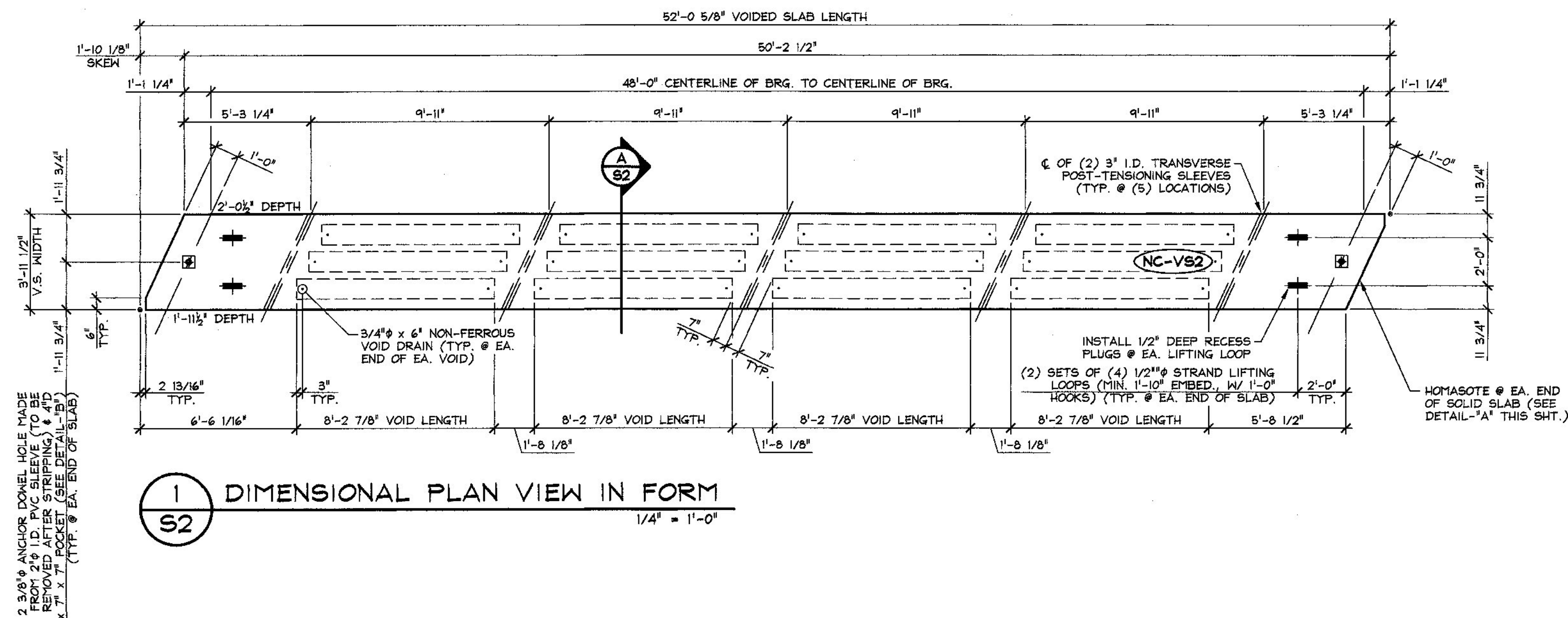
DETENSIONING SCHEDULE

N.T.S.

| MARK:                       | NC-VS1  | QTY.: 1                             | WT.: 19.37 T | VOL.: 9.57 cy |
|-----------------------------|---------|-------------------------------------|--------------|---------------|
| MATERIAL LIST / VOIDED SLAB |         |                                     |              |               |
| ITEM                        | MARK    | DESCRIPTION                         |              | QTY.          |
| 1                           | NC-401D | #4 BENT BAR (LEVEL II, DUAL COATED) |              | 126           |
| 2                           | NC-402D | #4 BENT BAR (LEVEL II, DUAL COATED) |              | 48            |
| 3                           |         | #4 x 2'-10\"                        |              | 24            |
| 4                           |         |                                     |              |               |
| 5                           |         |                                     |              |               |
| 6                           |         |                                     |              |               |
| 7                           |         | 3/4\"                               |              | 16            |
| 8                           |         | 10\"                                |              | 8             |
| 9                           |         | SET OF (4) 1/2\"                    |              | 4             |
| 10                          |         |                                     |              |               |

|                                                                                                                                                                              |                                                                                                                                                                           |  |                                                                                         |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------|--|
| APPROVAL STAMP:<br><br>Vermont Agency of Transportation<br><b>RECEIVED</b><br>CK'D BY MEM OK'D BY CWC<br>Mar. 16, 2015<br>RESUBMIT APPROVED<br>BY C. Carlson DATE 03-27-2015 | <b>J.P. CARRARA &amp; SONS INC.</b><br>Precast & Prestress Manufacturer<br><small>2404 DGE ST., MIDDLEBURY, VERMONT 05753 Phone: (802)388-6361 Fax: (802)388-9010</small> |  | S.D. IRELAND CONCRETE<br>CONSTRUCTION CORP.<br><small>SOUTH BURLINGTON, VERMONT</small> |  |
|                                                                                                                                                                              | STATE OF VERMONT AGENCY OF TRANSPORTATION<br>COUNTY OF ADDISON                                                                                                            |  | DATE: MAR. 6, 2015<br>SCALE: NOTED                                                      |  |
|                                                                                                                                                                              | TOWN OF BRISTOL<br>VT RT. 116 (MINOR ARTERIAL) OVER LITTLE NOTCH CREEK<br>BRIDGE NO.: 6 PROJECT NO.: BRP 021-1(29)                                                        |  | CHKD: P.C. DFTM: B.L.<br>JOB NO: 23461-015                                              |  |
|                                                                                                                                                                              | PRESTRESSED VOIDED SLAB DETAILS                                                                                                                                           |  | DWG. NO: S1                                                                             |  |

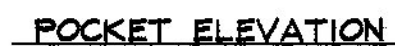
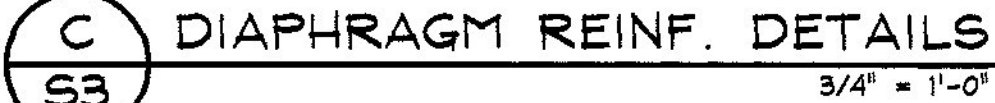




| MARK: NC-VS2                | QTY: 2  | WT: 25.10 T                         | VOL: 12.40 cy |
|-----------------------------|---------|-------------------------------------|---------------|
| MATERIAL LIST / VOIDED SLAB |         |                                     |               |
| ITEM                        | MARK    | DESCRIPTION                         | QTY.          |
| 1                           | NC-402D | #4 BENT BAR (LEVEL II, DUAL COATED) | 64            |
| 2                           | NC-403D | #4 BENT BAR (LEVEL II, DUAL COATED) | 126           |
| 3                           |         | #4 x 3'-11\"                        | 24            |
| 4                           |         |                                     |               |
| 5                           |         |                                     |               |
| 6                           |         |                                     |               |
| 7                           |         | 3/4\"                               | 24            |
| 8                           |         | 10\"                                | 12            |
| 9                           |         | SET OF (4) 1/2\"                    | 4             |
| 10                          |         |                                     |               |

|                                                                                                                                                                              |                                                                                                                                                             |  |                                                                              |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------|--|
| APPROVAL STAMP:<br><br>Vermont Agency of Transportation<br><b>RECEIVED</b><br>CK'D BY MEM OK'D BY CWC<br>Mar. 16, 2015<br>RESUBMIT APPROVED<br>BY C. Carlson DATE 03-27-2015 | <b>J.P. CARRARA &amp; SONS INC.</b><br>Precast & Prestress Manufacturer<br>2464 CASE ST., WINDLEBURY, VERMONT 05753 Phone: (802)368-6361 Fax: (802)368-9010 |  | <b>S.D. IRELAND CONCRETE CONSTRUCTION CORP.</b><br>SOUTH BURLINGTON, VERMONT |  |
|                                                                                                                                                                              | <b>STATE OF VERMONT AGENCY OF TRANSPORTATION</b><br>COUNTY OF ADDISON                                                                                       |  | DATE: MAR. 6, 2015<br>SCALE: NOTED                                           |  |
|                                                                                                                                                                              | <b>TOWN OF BRISTOL</b><br>VT RT. 116 (MINOR ARTERIAL) OVER LITTLE NOTCH CREEK<br>BRIDGE NO.: 6 PROJECT NO.: BRP 021-1(29)                                   |  | CHKD: P.C. DFTM: B.L.<br>JOB NO: 23461-015                                   |  |
|                                                                                                                                                                              | <b>PRESTRESSED VOIDED SLAB DETAILS</b>                                                                                                                      |  | DWG. NO: <b>S2</b>                                                           |  |





APPROVAL STAMP:

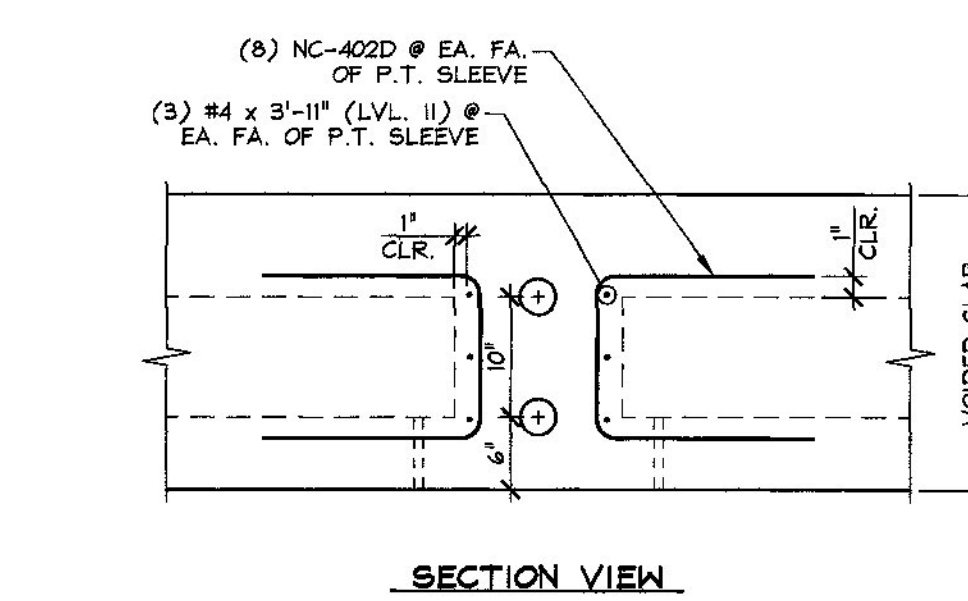
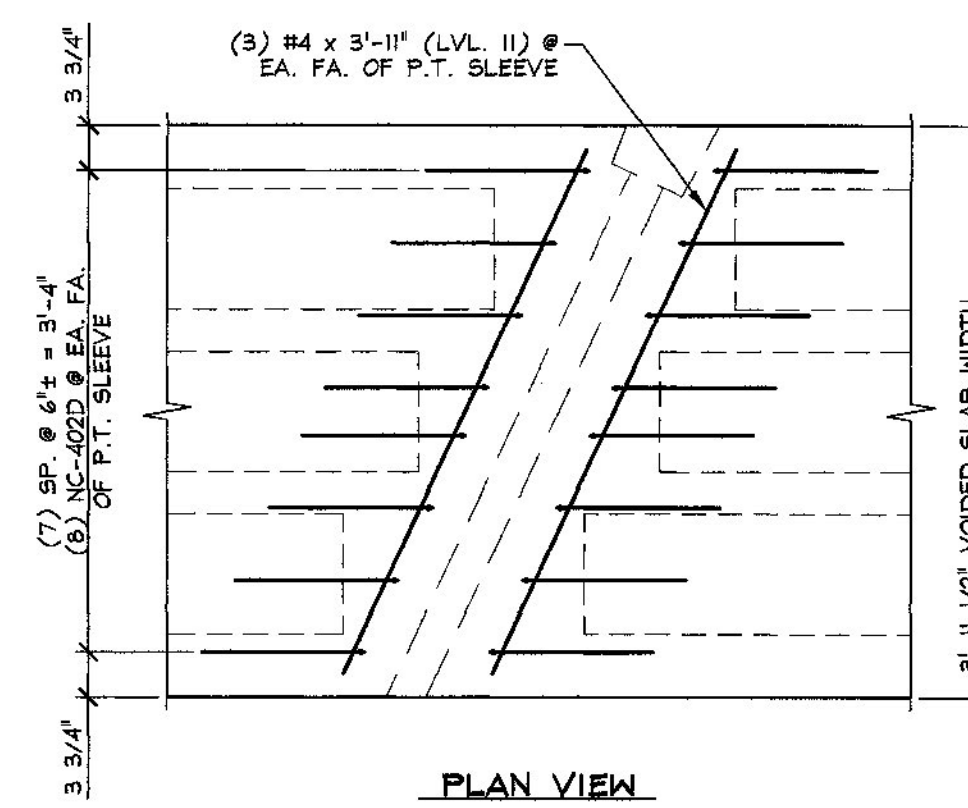
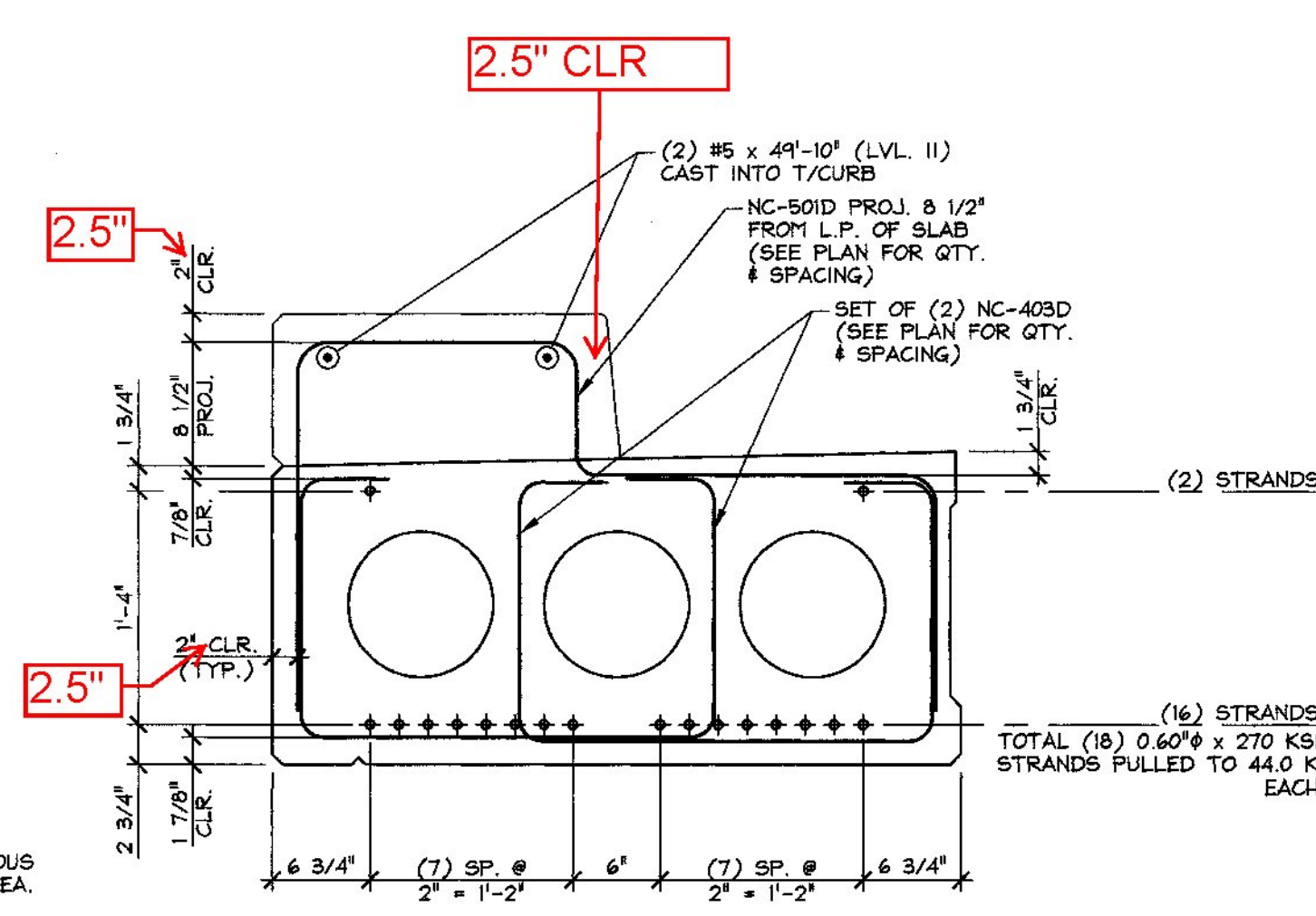
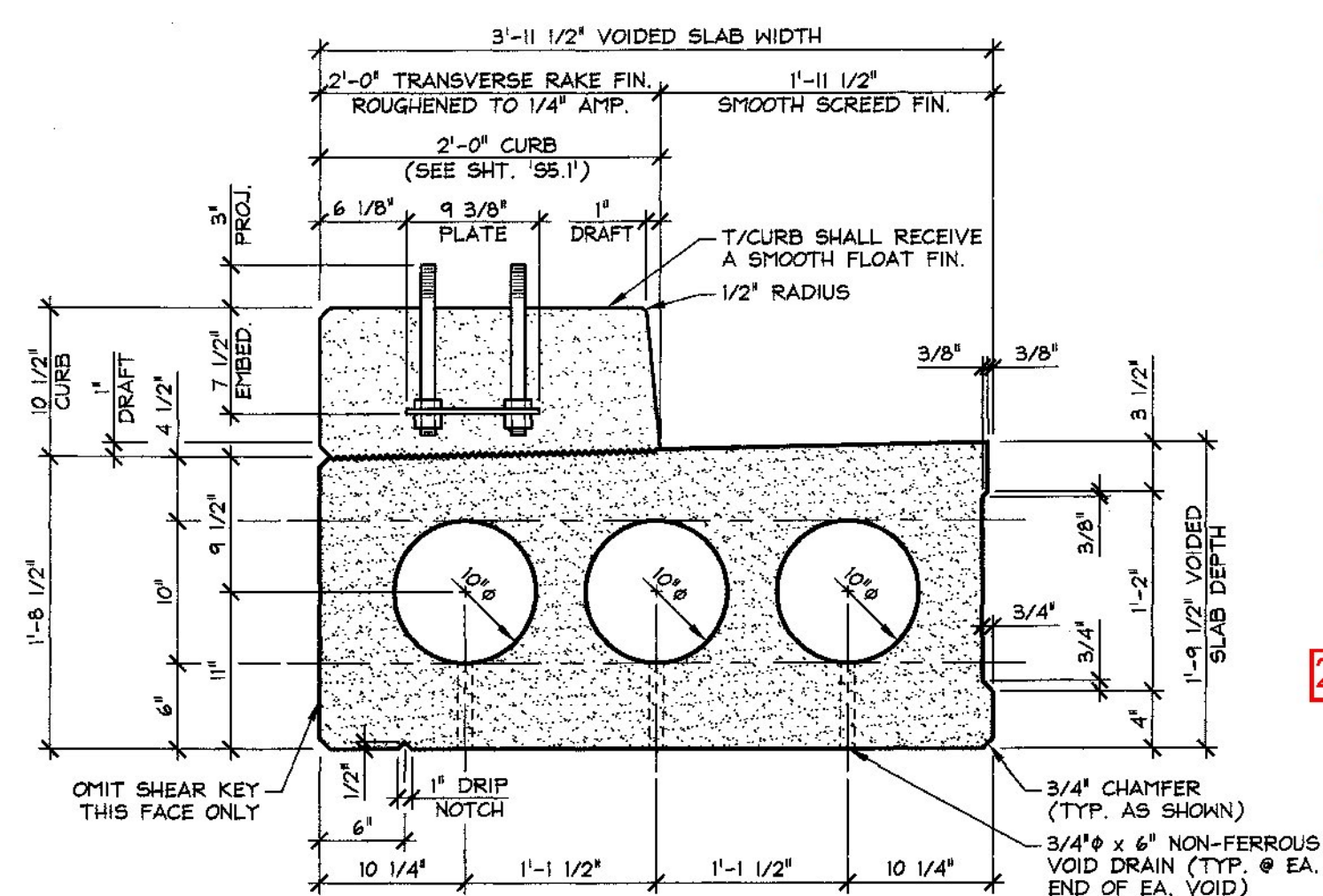
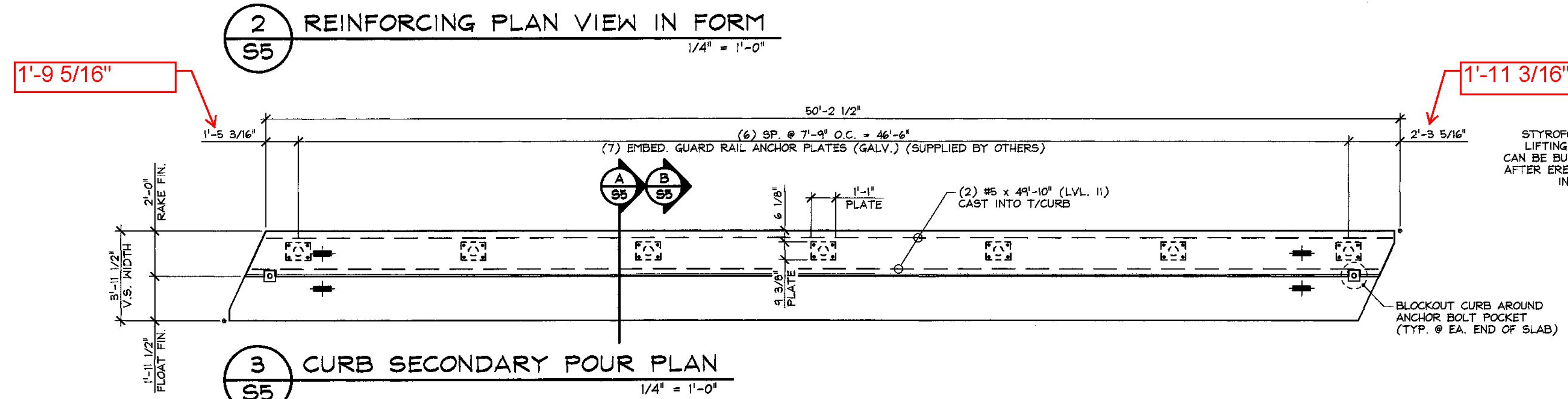
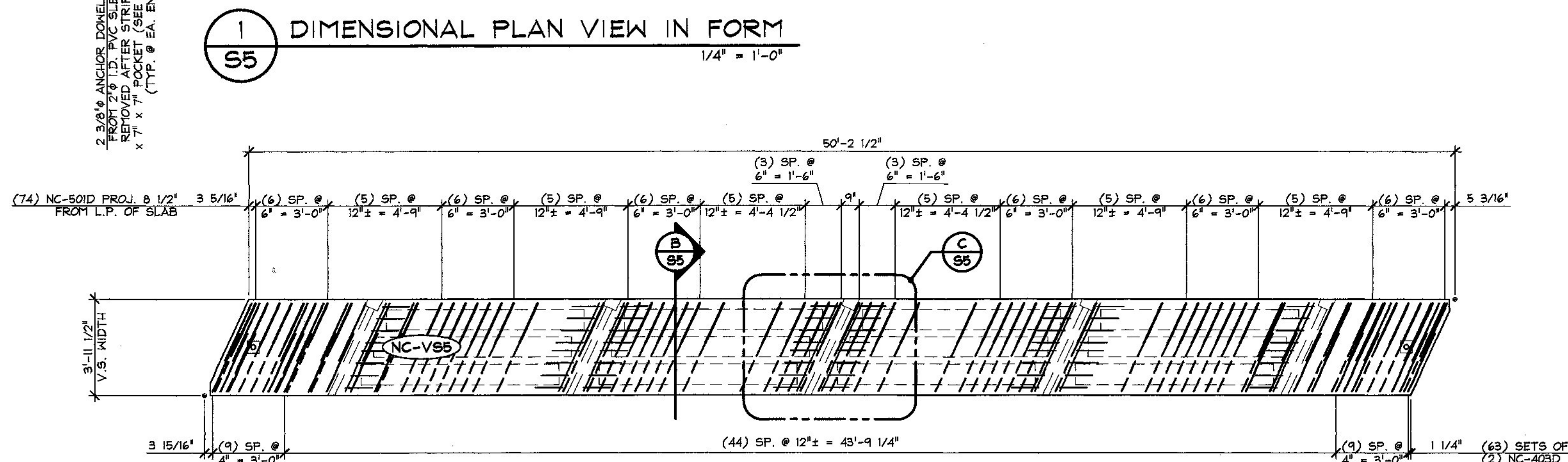
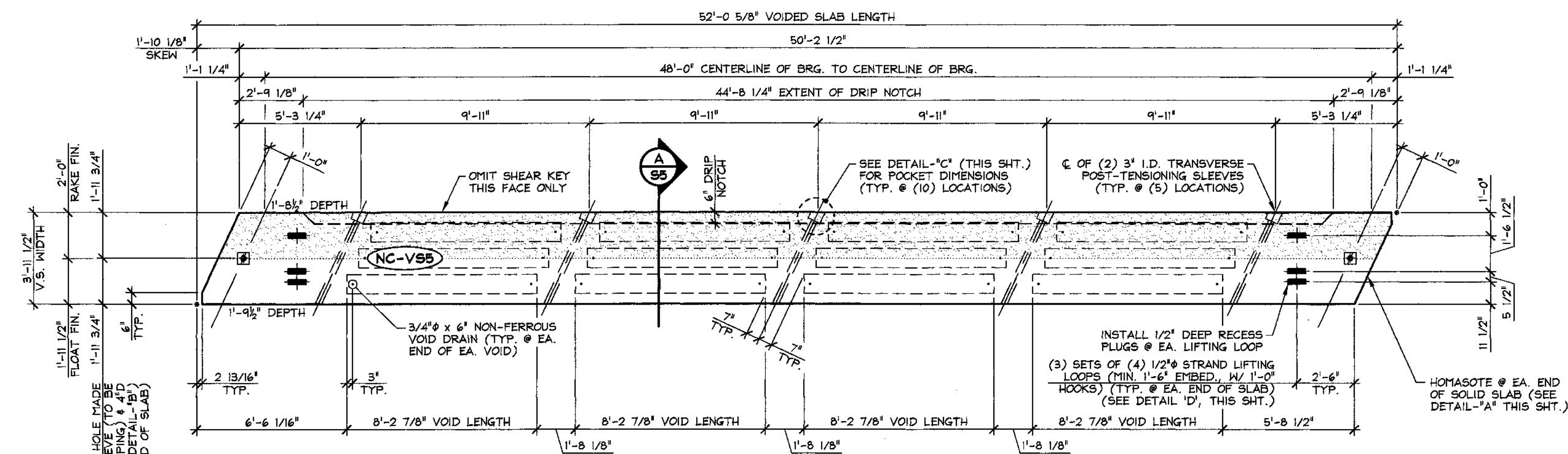
Vermont Agency of Transportation  
**RECEIVED**  
CK'D BY MEM OK'D BY CWC  
Mar. 16, 2015  
RESUBMIT APPROVED  
RY, G. Carlson DATE 03-27-2015

| MARK:                       | NC-VS3  | QTY.: 2                               | WT.: 24.04 T | VOL.: 11.87 cy |
|-----------------------------|---------|---------------------------------------|--------------|----------------|
| MATERIAL LIST / VOIDED SLAB |         |                                       |              |                |
| ITEM                        | MARK    | DESCRIPTION                           |              | QTY.           |
| 1                           | NC-402D | #4 BENT BAR (LEVEL II, DUAL COATED)   |              | 64             |
| 2                           | NC-403D | #4 BENT BAR (LEVEL II, DUAL COATED)   |              | 126            |
| 3                           |         | #4 x 3'-11" (LEVEL II, DUAL COATED)   |              | 24             |
| 4                           |         |                                       |              |                |
| 5                           |         |                                       |              |                |
| 6                           |         |                                       |              |                |
| 7                           |         | 3/4"φ x 6' NON-FERROUS VOID DRAIN     |              | 24             |
| 8                           |         | 10"φ x 8'-2 7/8" VOID                 |              | 12             |
| 9                           |         | SET OF (4) 1/2"φ STRAND LIFTING LOOPS |              | 4              |
| 10                          |         |                                       |              |                |

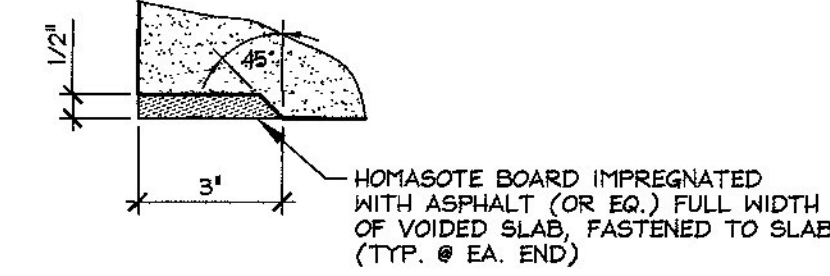




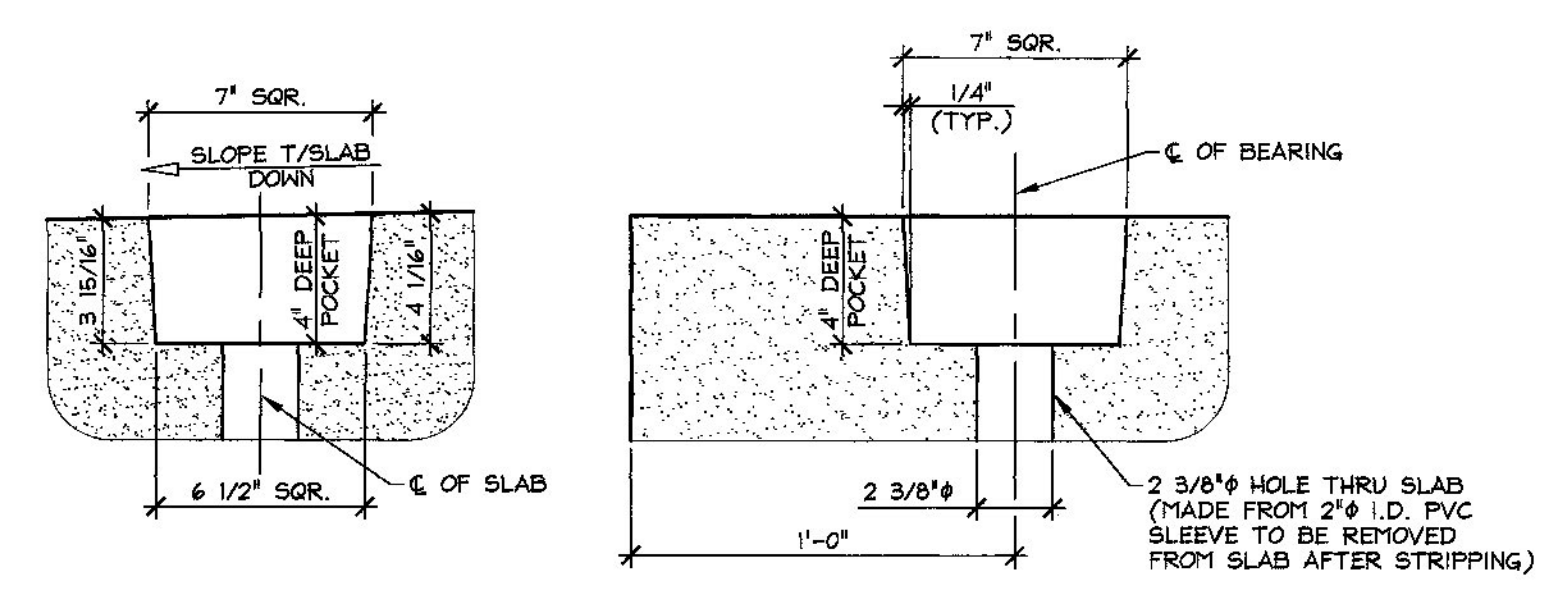




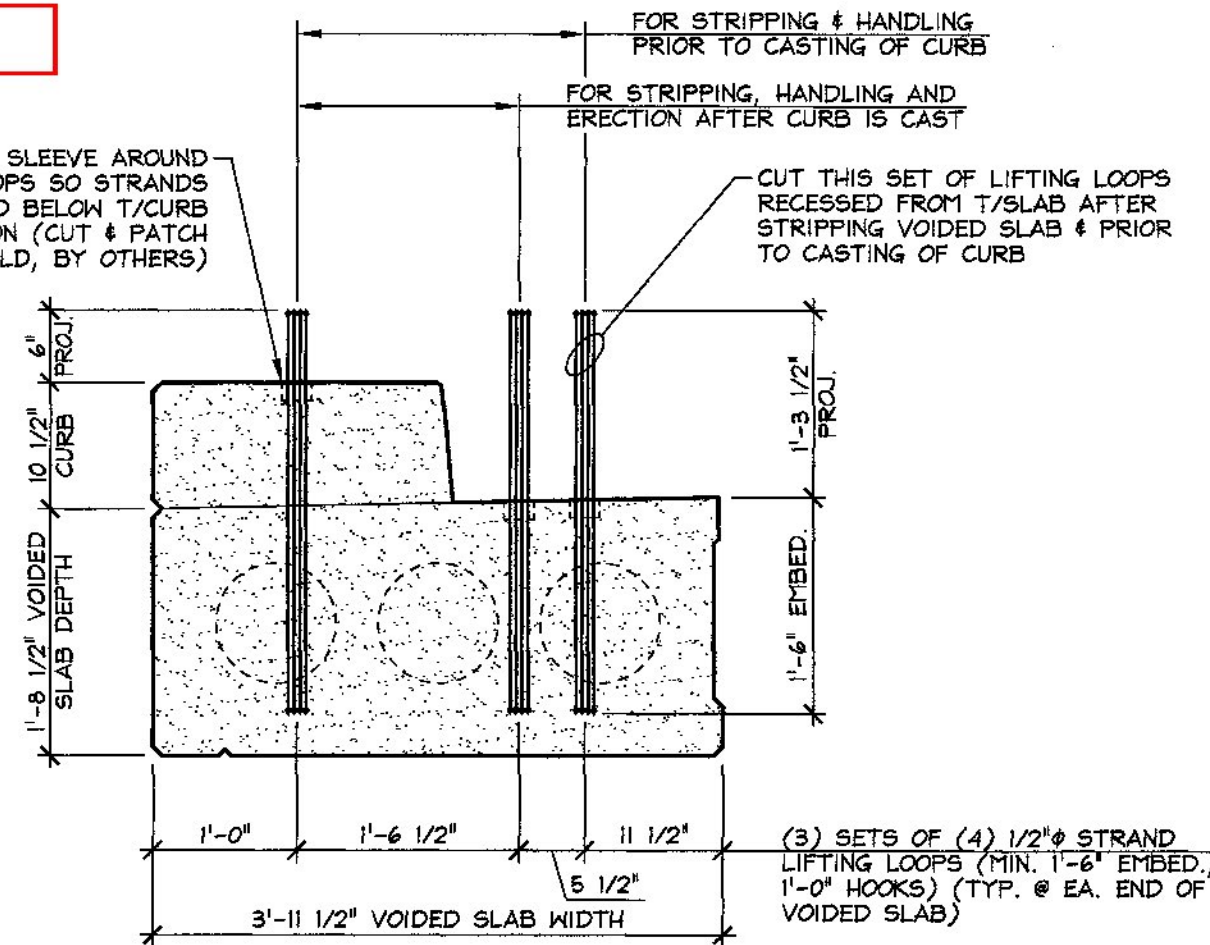
C DIAPHRAGM REINF. DETAILS  
3/4\" = 1'-0"



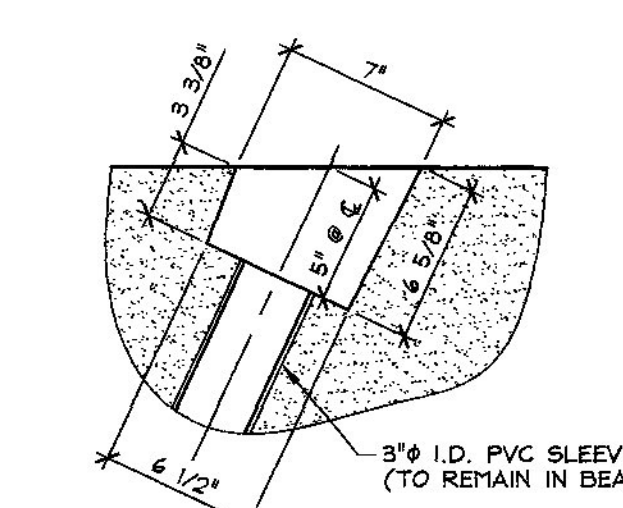
DETAIL - 'A'  
3\" = 1'-0"



DETAIL - 'B'  
2\" = 1'-0"



D LIFTING LOOP DETAIL  
3/4\" = 1'-0"



DETAIL - 'C'  
1 1/2\" = 1'-0"

| MARK: NC-VS5                |         | QTY.: 2                                              | 21.71 T <sup>m</sup> SLAB<br>6.95 T <sup>m</sup> CURE | 10.72 cy = SLAB<br>3.23 cy = CURE |
|-----------------------------|---------|------------------------------------------------------|-------------------------------------------------------|-----------------------------------|
|                             |         |                                                      | 28.26 T <sup>m</sup> TOTAL                            | 13.95 cy = TOTAL                  |
| MATERIAL LIST / VOIDED SLAB |         |                                                      |                                                       |                                   |
| ITEM                        | MARK    | DESCRIPTION                                          |                                                       | QTY.                              |
| 1                           | NC-402D | #4 BENT BAR (LEVEL II, DUAL COATED)                  |                                                       | 64                                |
| 2                           | NC-403D | #4 BENT BAR (LEVEL II, DUAL COATED)                  |                                                       | 126                               |
| 3                           |         | #4 x 3'-11\" (LEVEL II, DUAL COATED)                 |                                                       | 24                                |
| 4                           | NC-501D | #5 BENT BAR (LEVEL II, DUAL COATED)                  |                                                       | 74                                |
| 5                           |         | #5 x 4'-9\" (LEVEL II, DUAL COATED)                  |                                                       | 2                                 |
| 6                           |         |                                                      |                                                       |                                   |
| 7                           |         | GUARD RAIL ANCHOR PLATE (GALV.) (SUPPLIED BY OTHERS) |                                                       | 7                                 |
| 8                           |         | 3/4\" x 6\" NON-FERROUS VOID DRAIN                   |                                                       | 24                                |
| 9                           |         | 10\" x 8'-2 7/8\" VOID                               |                                                       | 12                                |
| 10                          |         | SET OF (4) 1/2\" STRAND LIFTING LOOPS                |                                                       | 6                                 |

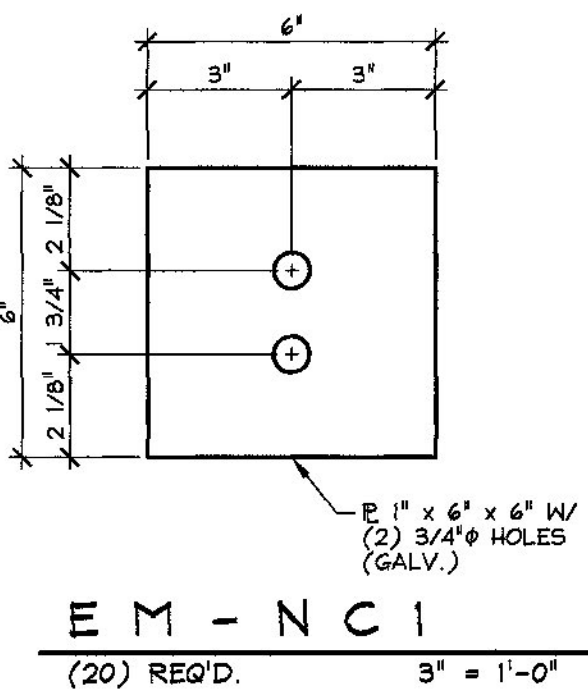
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Vermont Agency of Transportation  
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Mar. 16, 2015  
RESUBMIT APPROVED AS NOTED  
BY C. Carlson DATE 03-27-2015

J.P. CARRARA & SONS INC.  
Precast & Prestress Manufacturer  
2444 GAGE ST., MIDDLEBURY, VERMONT 05753 Phone: (802)388-6361 Fax: (802)388-8010  
S.D. IRELAND CONCRETE CONSTRUCTION CORP.  
SOUTH BURLINGTON, VERMONT  
STATE OF VERMONT AGENCY OF TRANSPORTATION  
COUNTY OF ADDISON  
TOWN OF BRISTOL  
VT RT. 116 (MINOR ARTERIAL) OVER LITTLE NOTCH CREEK  
BRIDGE NO.: 6 PROJECT NO.: BRP 021-1(29)  
DATE: MAR. 6, 2015  
SCALE: NOTED  
CHKD: P.C. DFTM: B.L.  
JOB NO: 23461-015  
PRESTRESSED VOIDED SLAB DETAILS  
DWG. NO: S5

DETENSIONING SCHEDULE  
N.T.S.

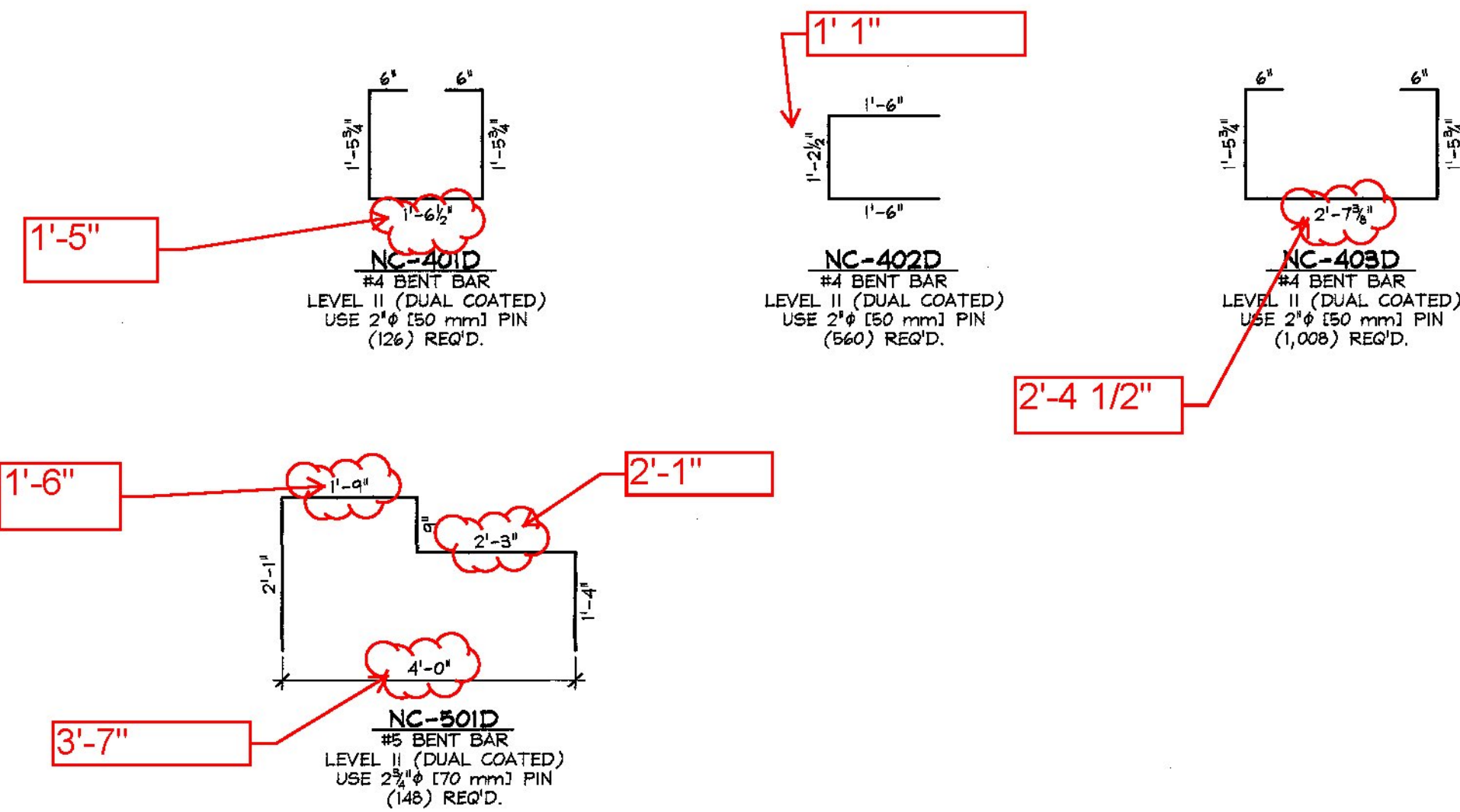
|   |   |   |   |    |    |    |    |    |    |    |    |    |   |   |   |
|---|---|---|---|----|----|----|----|----|----|----|----|----|---|---|---|
| 1 | 5 | 7 | 9 | 11 | 13 | 15 | 17 | 18 | 16 | 14 | 12 | 10 | 8 | 6 | 2 |
|---|---|---|---|----|----|----|----|----|----|----|----|----|---|---|---|





MISCELLANEOUS MATERIALS

| ITEM | MARK   | QTY. | DESCRIPTION                                  | REMARKS                             |
|------|--------|------|----------------------------------------------|-------------------------------------|
| 1    | EM-NC1 | 20   | 1" THICK x 6" x 6" W/ (2) 3/4" HOLES (GALV.) | FOR ERECTION; SEE DETAIL THIS SHEET |
| 2    |        | 40   | 1/2" SINGLE USE STRESSING CHUCK              | FOR ERECTION                        |
| 3    |        | 20   | 1/2" x 270 KSI x 4'-4" LONG POLYSTRAND       | FOR ERECTION                        |
| 4    |        | 80   | COMPRESSIBLE SEALER SELF ADHESIVE            | FOR ERECTION                        |
| 5    |        |      |                                              |                                     |
| 6    |        |      |                                              |                                     |
| 7    |        | 24   | #4 x 2'-10" (LEVEL II, DUAL COATED)          |                                     |
| 8    |        | 192  | #4 x 3'-11" (LEVEL II, DUAL COATED)          |                                     |
| 9    |        |      |                                              |                                     |
| 10   |        | 4    | #5 x 4'-10" (LEVEL II, DUAL COATED)          |                                     |
| 11   |        |      |                                              |                                     |
| 12   |        | 208  | 3/4" x 6" NON-FERROUS VOID DRAIN             |                                     |
| 13   |        | 104  | 10" x 8'-2 7/8" VOID                         |                                     |
| 14   |        | 14   | GUARD RAIL ANCHOR PLATE (GALV.)              | SUPPLIED BY OTHERS                  |
| 15   |        | 40   | SET OF (4) 1/2" STRAND LIFTING LOOPS         |                                     |
| 16   |        |      |                                              |                                     |
| 17   |        |      |                                              |                                     |
| 18   |        |      |                                              |                                     |
| 19   |        |      |                                              |                                     |
| 20   |        |      |                                              |                                     |



|                                                                                                                                                                                                                                             |                                                                                                                                                                                       |                                                                                          |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|--|
| <div>APPROVAL STAMP:</div> <div><div>Vermont Agency of Transportation</div><div>RECEIVED</div><div>CK'D BY MEM OK'D BY CWC</div><div>Mar. 16, 2015</div><div>RESUBMIT APPROVED AS NOTED</div><div>BY C. Carlson DATE 03-27-2015</div></div> | <div>J.P. CARRARA &amp; SONS INC.</div> <div>Precast &amp; Prestress Manufacturer</div> <div>2464 OASE ST., MIDDLEBURY, VERMONT 05753 Phone: (802) 388-6361 Fax: (802) 388-9010</div> | <div>S.D. IRELAND CONCRETE CONSTRUCTION CORP.</div> <div>SOUTH BURLINGTON, VERMONT</div> |  |
|                                                                                                                                                                                                                                             | <div>STATE OF VERMONT AGENCY OF TRANSPORTATION</div> <div>COUNTY OF ADDISON</div>                                                                                                     | <div>DATE: MAR. 6, 2015</div> <div>SCALE: NOTED</div>                                    |  |
|                                                                                                                                                                                                                                             | <div>TOWN OF BRISTOL</div> <div>VT RT. 116 (MINOR ARTERIAL) OVER LITTLE NOTCH CREEK</div> <div>BRIDGE NO.: 6 PROJECT NO.: BRP 021-1(24)</div>                                         | <div>CHKD: P.C. DFTM: B.L.</div> <div>JOB NO: 23461-015</div>                            |  |
|                                                                                                                                                                                                                                             | <div>MATERIALS LIST</div>                                                                                                                                                             | <div>DWG. NO: M1</div>                                                                   |  |