

STATE OF VERMONT
AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT
BRIDGE PROJECT

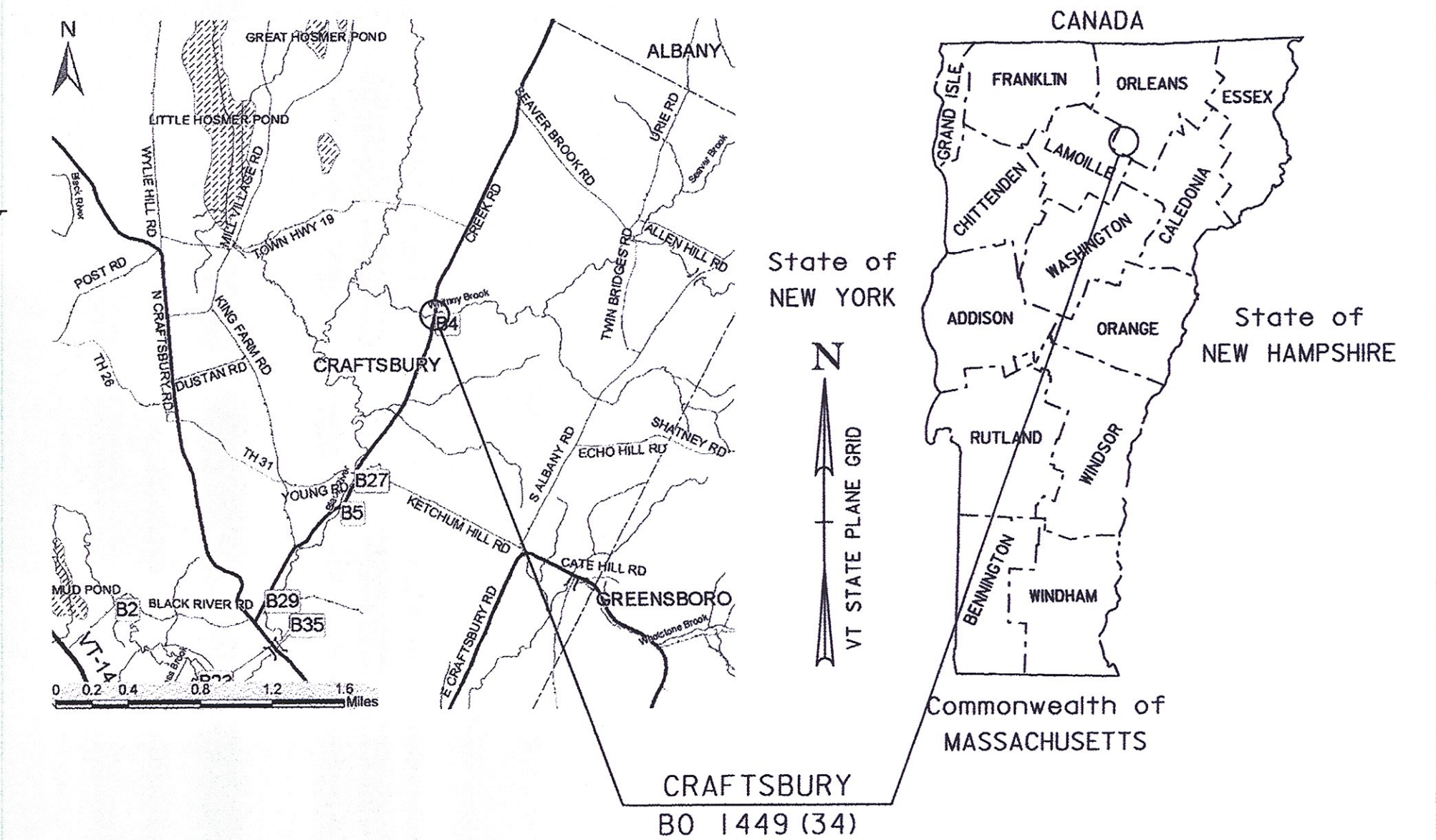
TOWN OF CRAFTSBURY
COUNTY OF ORLEANS

ROUTE NO : TH-4, RURAL MINOR COLLECTOR, CLASS 2 TOWN HIGHWAY

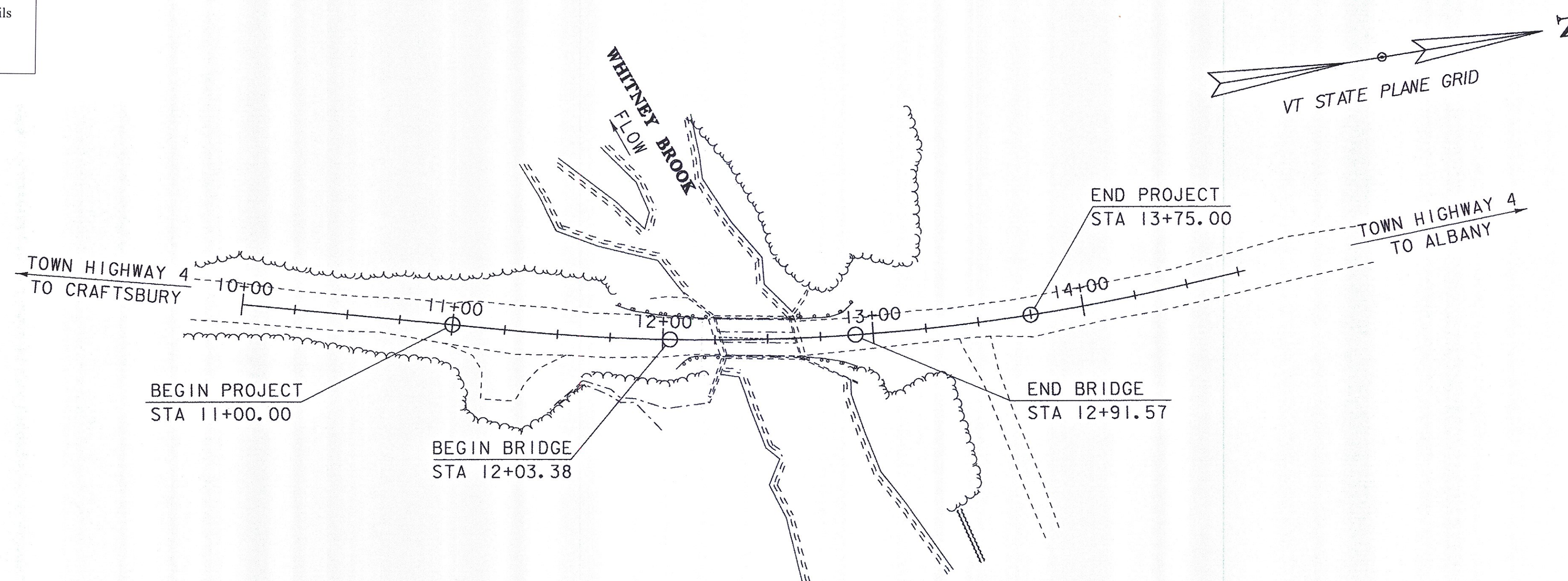
PROJECT LOCATION: ON TH 4 (CREEK ROAD), BRIDGE 4 OVER WHITNEY BROOK APPROXIMATELY
0.9 MILES NORTH OF ITS JUNCTION WITH TH 33 (KETCHUM HILL ROAD)

PROJECT DESCRIPTION: REPLACEMENT OF THE EXISTING BRIDGE (BRIDGE NO. 4)
INCLUDING MINOR APPROACH WORK

LENGTH OF STRUCTURE: 88.19 FEET
LENGTH OF ROADWAY: 186.81 FEET
LENGTH OF PROJECT: 275.00 FEET



RECORD PLANS	
CONTRACTOR:	CCS CONSTRUCTORS LLC- MORRISVILLE, VT
RESIDENT ENGINEER:	SETH HISMAN
CONSTRUCTION BEGAN:	JULY 11, 2016
CONSTRUCTION COMPLETE:	SEPTEMBER 29, 2016
RECORD PLANS BY:	SETH HISMAN & JESSE IVES
I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.	
BY	 RESIDENT ENGINEER
DATE	11/01/18
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.	

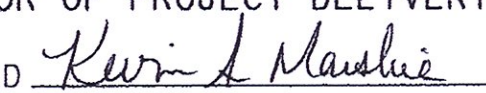


CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JULY 20, 2011 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS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

QUALITY ASSURANCE PROGRAM : LEVEL 2	
SURVEYED BY :	R. GILMAN
SURVEYED DATE :	05/28/2013
DATUM	
VERTICAL	NAVD88
HORIZONTAL	NAD 83 (CONUS)

SCALE 1" = 40'-0"
40 0 40

BUILT AS DESIGNED

DIRECTOR OF PROJECT DELIVERY	
APPROVED	 DATE 10/14/15
PROJECT MANAGER :	R. YOUNG
PROJECT NAME :	CRAFTSBURY
PROJECT NUMBER :	BO 1449 (34)
SHEET 1 OF 42 SHEETS	

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version 2013.10.17.10

LRFD

INDEX OF SHEETS

PLAN SHEETS

1

TITLE SHEET

2

PRELIMINARY INFORMATION SHEET

3 - 4

TYPICAL SECTIONS 1-2

5

GENERAL NOTES

6 - 7

QUANTITY SHEETS 1-2

8

LEGEND SHEET

9

TIE SHEET

10

LAYOUT SHEET

11

PROFILE & BANKING DIAGRAM

12

BORING INFORMATION SHEET

13 - 14

BORING LOGS 1-2

15

RAIL LAYOUT SHEET

16

TRAFFIC LAYOUT SHEET

17

SUPERSTRUCTURE PLAN

18

PBU TYPICAL SECTIONS

19

GIRDER AND BEARING DETAILS

20 - 21

ABUTMENT PLANS

22

ABUTMENT REINFORCING

23

ABUTMENT CLOSURE POUR DETAILS

24

WINGWALL DETAILS

25 - 29

MAINLINE CROSS SECTIONS

30 - 33

CHANNEL CROSS SECTIONS

34 - 35

DRIVE CROSS SECTIONS

36

EPSC NARRATIVE

37

EPSC EXISTING CONDITIONS

38

EPSC CONSTRUCTION SITE PLAN

39

EPSC FINAL CONDITIONS

40

EPSC DETAILS

41

ROW LAYOUT SHEET 1 OF 1

42

ROW DETAIL SHEET #1

STANDARDS LIST

A-61

SLOPES IN SOLID ROCK EXCAV. (ADT UNDER 400 VPD)

06-01-1994

A-76

STANDARDS FOR TOWN & DEVELOPMENT ROADS

03-03-2003

B-5

SLOPE GRADING, EMBANKMENTS, MUCK

06-01-1994

B-71

STANDARD FOR RESIDENTIAL AND COMMERCIAL DRIVES

07-08-2005

G-1

STEEL BEAM GUARDRAIL DETAILS (POST, DELINEATOR, TYPICALS)

02-10-2014

G-1D

STEEL BEAM GUARDRAIL DETAILS (END TERMINAL, ANCHOR, MEDIAN)

02-10-2014

S-367A

BRIDGE RAILING, GALVANIZED HDSB/FASCIA MOUNTED/STEEL TUBING

05-24-2012

S-367B

GUARDRAIL APPROACH SECTION, GALVANIZED HD STEEL BEAM

05-24-2012

T-1

TRAFFIC CONTROL GENERAL NOTES

08-06-2012

T-10

CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING

08-06-2012

T-28

CONSTRUCTION SIGN DETAILS

08-06-2012

T-30

CONSTRUCTION SIGN DETAILS

08-06-2012

T-42

BRIDGE NUMBER PLAQUE

04-09-2014

T-45

SQUARE TUBE SIGN POST AND ANCHOR

01-02-2013

STRUCTURES DETAIL SHEETS

SD-501.00

CONCRETE DETAILS AND NOTES

2/9/2012

SD-502.00

CONCRETE DETAILS AND NOTES

10/10/2012

SD-516.10

BRIDGE JOINT ASPHALTIC PLUG

8/29/2011

SD-601.00

STRUCTURAL STEEL DETAILS AND NOTES

6/4/2010

SD-602.00

STRUCTURAL STEEL PLATE GIRDER DETAILS AND NOTES

5/2/2011

TRAFFIC DATA

YEAR

ADT

DHV

% D

% T

ADTT

20 year ESAL for flexible pavement from 2016 to 2036 : 85000

2016

200

50

59

1.5

15

40 year ESAL for flexible pavement from 2016 to 2056 : 199000

2036

210

50

59

2

20

Design Speed : 35 mph

AS BUILT "REBAR" DETAIL

LEVEL I

TYPE:

GRADE:

LEVEL II

TYPE:

GRADE:

LEVEL III

TYPE:

GRADE:

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: May 29, 2014

DRAINAGE AREA : 13.5 sq. mi.

CHARACTER OF TERRAIN : Hilly to mountainous, a mixture of forested and open land cover

STREAM CHARACTERISTICS : Incised, alluvial, sinuous with failing banks, high sediment load

NATURE OF STREAMBED : Sand, gravel, cobbles and boulders

PEAK FLOW DATA

Q 2.33 = 450 cfs

Q 50 = 1700 cfs

Q 10 = 1050 cfs

Q 100 = 2000 cfs

Q 25 = 1400 cfs

Q 500 = 2800 cfs

DATE OF FLOOD OF RECORD : Unknown

ESTIMATED DISCHARGE: Unknown

WATER SURFACE ELEV.: Unknown

NATURAL STREAM VELOCITY : @ Q50 = 10.5 fps

ICE CONDITIONS : Moderate

DEBRIS: High potential with fallen trees in the channel

DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? No

IS ORDINARY RISE RAPID? No

IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No

IF YES, DESCRIBE:

WATERSHED STORAGE: <1% HEADWATERS: UNIFORM: X IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Single span steel beam bridge with concrete deck.

YEAR BUILT: 1929

CLEAR SPAN(NORMAL TO STREAM): 33'

VERTICAL CLEARANCE ABOVE STREAMBED: 10'

WATERWAY OF FULL OPENING: 330 sq. ft.

DISPOSITION OF STRUCTURE: Remove and replace with a new bridge

TYPE OF MATERIAL UNDER SUBSTRUCTURE: See boring logs

WATER SURFACE ELEVATIONS AT:

Q2.33 = 1013.3'

VELOCITY = 7.1 fps

Q10 = 1015.2'

" 10.7 fps

Q25 = 1016.0'

" 11.7 fps

Q50 = 1016.7'

" 12.5 fps

Q100 = 1018.0'

" 13.2 fps

LONG TERM STREAMBED CHANGES: Unstable channel banks. No other long term changes apparent.

IS THE ROADWAY OVERTOPPED BELOW Q100: No

FREQUENCY: Above Q100

RELIEF ELEVATION: 1021.7'

DISCHARGE OVER ROAD @Q100: None

UPSTREAM STRUCTURE

TOWN: N.A. - stream divides DISTANCE:

HIGHWAY #: STRUCTURE #:

CLEAR SPAN: CLEAR HEIGHT:

YEAR BUILT: FULL WATERWAY:

STRUCTURE TYPE:

DOWNSTREAM STRUCTURE

TOWN: N.A. - confluence DISTANCE:

HIGHWAY #: STRUCTURE #:

CLEAR SPAN: CLEAR HEIGHT:

YEAR BUILT: FULL WATERWAY:

STRUCTURE TYPE:

LRFR LOAD RATING FACTORS

LOADING LEVELS

TRUCK

TONNAGE

H-20

HL-93

3S2

6 AXLE

3A STR.

4A STR.

5A SEM

INVENTORY

2.8

1.32

POSTING

OPERATING

3.64

1.72

2.71

1.74

2.54

2.26

2.37

COMMENTS:

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span steel beam bridge with concrete deck.

CLEAR SPAN(NORMAL TO STREAM): 77'

VERTICAL CLEARANCE ABOVE STREAMBED: 10'

WATERWAY OF FULL OPENING: 590 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 = 1013.3'

VELOCITY= 6.8 fps

Q10 = 1015.1'

" 10.2 fps

Q25 = 1015.8'

" 10.7 fps

Q50 = 1016.4'

" 11.2 fps

Q100 = 1016.8'

" 11.8 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No

FREQUENCY: Above Q100

RELIEF ELEVATION: 1022.4'

DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 1021.1'

VERTICAL CLEARANCE: @ Q50 = 4.7'

SCOUR: Calculated contraction scour = 1' up to Q500.

REQUIRED CHANNEL PROTECTION: Stone Fill, Type IV

PERMIT INFORMATION

AVERAGE DAILY FLOW: 30 cfs DEPTH OR ELEVATION:

ORDINARY LOW WATER: 15 cfs Depth = 1'

ORDINARY HIGH WATER: 200 cfs Depth = 3'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: No temporary bridge required. Road wil be closed.

CLEAR SPAN (NORMAL TO STREAM):

VERTICAL CLEARANCE ABOVE STREAMBED:

WATERWAY AREA OF FULL OPENING:

ADDITIONAL INFORMATION

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

HL-93

2. FUTURE PAVEMENT

dp: 3.0 INCH

3. DESIGN SPAN

L: 85.00 FT

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

Δ: ---

5. PRESTRESSING STRAND

fy: ---

6. PRESTRESSED CONCRETE STRENGTH

f'c: ---

7. PRESTRESSED CONCRETE RELEASE STRENGTH

f'ci: ---

8. CONCRETE, HIGH PERFORMANCE CLASS AA

f'c: ---

9. CONCRETE, HIGH PERFORMANCE CLASS A

f'c: 4.0 KSI

10. CONCRETE, HIGH PERFORMANCE CLASS B

f'c: ---

11. CONCRETE, CLASS C

f'c: ---

12. REINFORCING STEEL

fy: 60 KSI

13. STRUCTURAL STEEL AASHTO M270 (WEATHERING)

fy: 50 KSI

14. NOMINAL BEARING RESISTANCE OF SOIL

qn: 4.0 KSF

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

φ:SEE GEN. NOTES

16. NOMINAL BEARING RESISTANCE OF ROCK

qn: 10.0 KSF

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

φ:SEE GEN. NOTES

18. PILE RESISTANCE FACTOR

φ:SEE GEN. NOTES

19. LATERAL PILE DEFLECTION

Δ: ---

20. BASIC WIND SPEED

V3s: ---

21. MINIMUM GROUND SNOW LOAD

pg: ---

22. SEISMIC DATA

PGA: SEE GEN. NOTES Ss: --- S1: ---

23.

24.

25.

26.

CRAFTSBURY

PROJECT NAME: BO 1449(34)

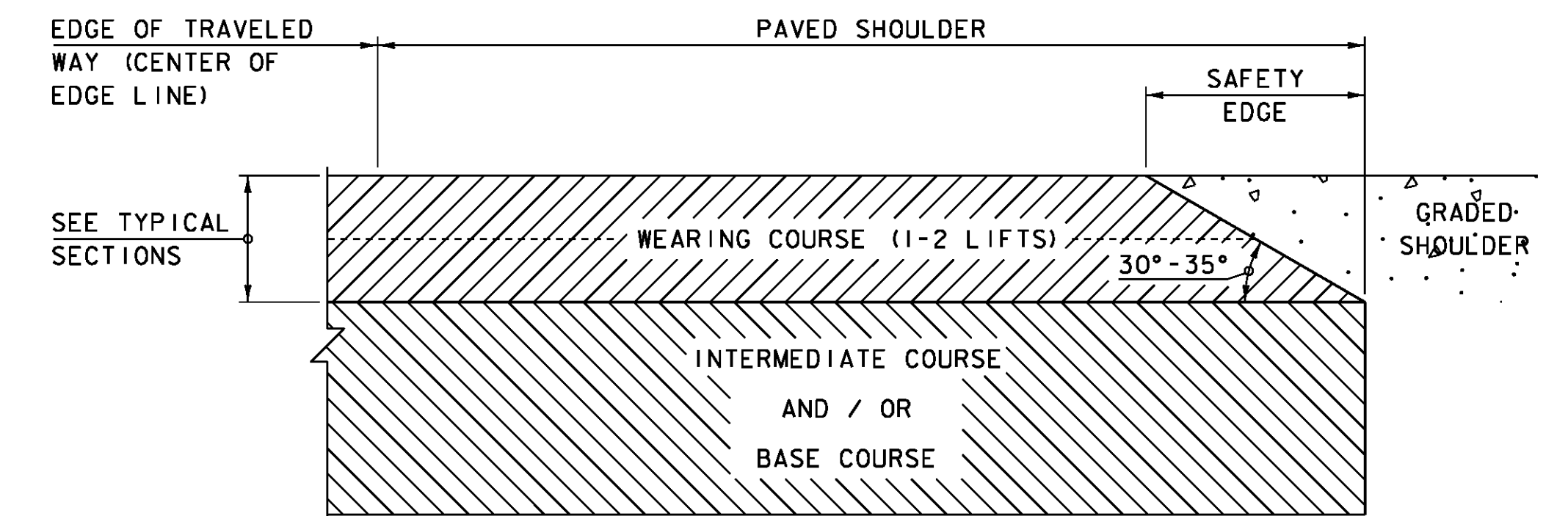
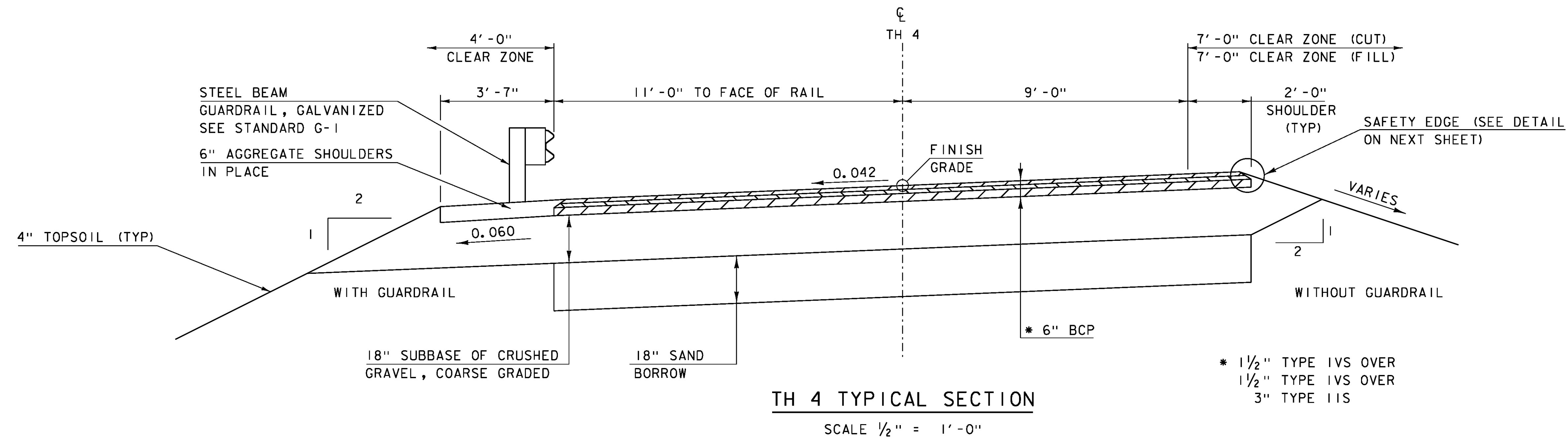
PROJECT NUMBER:

FILE NAME: s13j100excel.dgn PLOT DATE: 27-OCT-2015

PROJECT LEADER: R. YOUNG DRAWN BY: S. COLEY

DESIGNED BY: W. LAMMER CHECKED BY: W. LAMMER

PRELIMINARY INFORMATION SHEET SHEET 2 OF 42

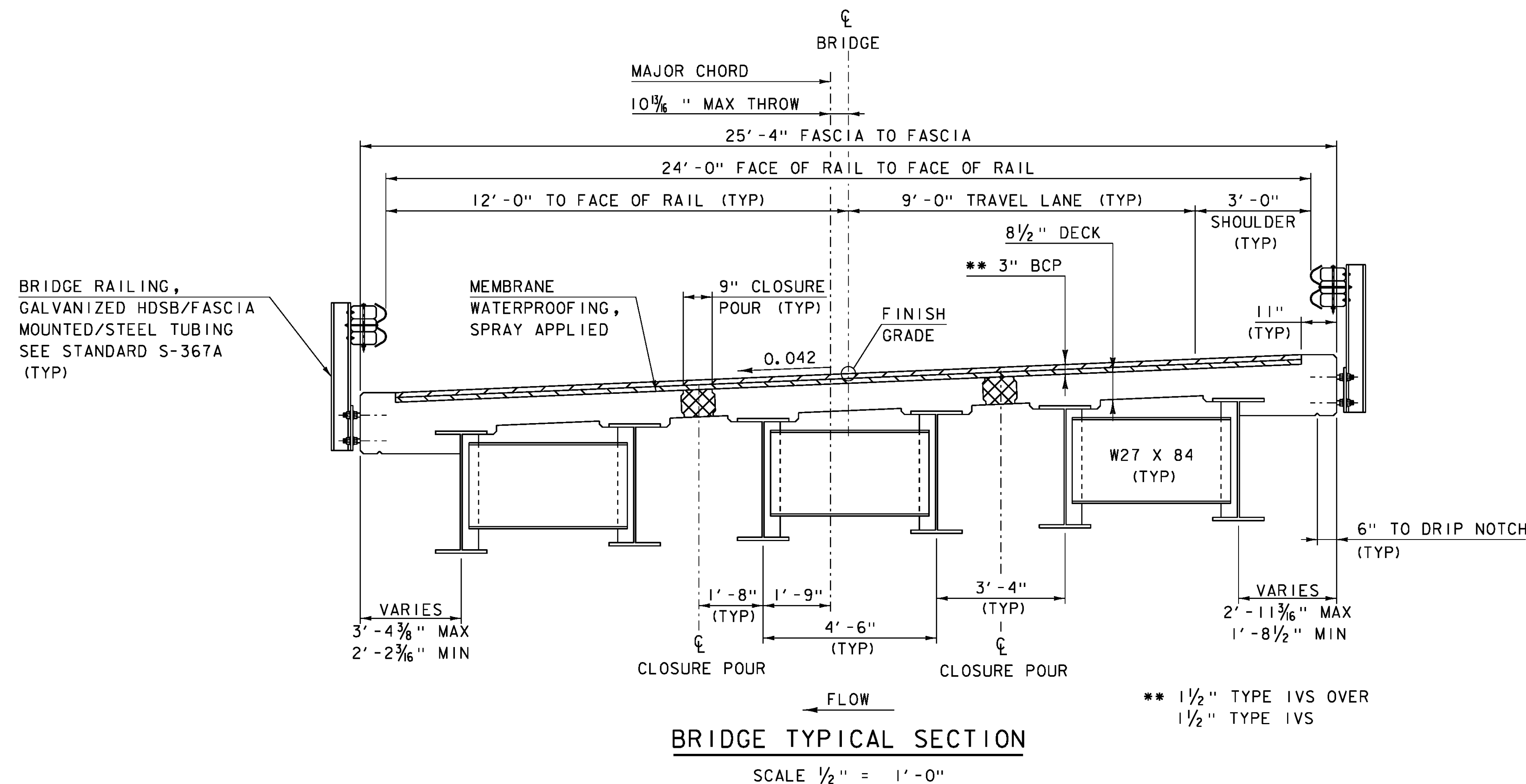


1. LEVELING COURSE MAY INCLUDE THE "SAFETY EDGE" AT THE CONTRACTOR'S CHOICE.
2. THE EDGE OF PAVEMENT SHALL BE FORMED IN SUCH A WAY THAT THE BITUMINOUS CONCRETE PAVEMENT IS EXTRUDED OR COMPRESSED TO FORM THE 30 TO 35 DEGREE ANGLE. DEVICES THAT SIMPLY STRIKE-OFF THE MIX WITHOUT PROVIDING ANY COMPACTIVE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

NOTE: BCP SHALL BE READ AS BITUMINOUS CONCRETE PAVEMENT AND SHALL BE PAID FOR UNDER ITEM 900.680 SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY).

MATERIAL TOLERANCES (IF USED ON PROJECT)

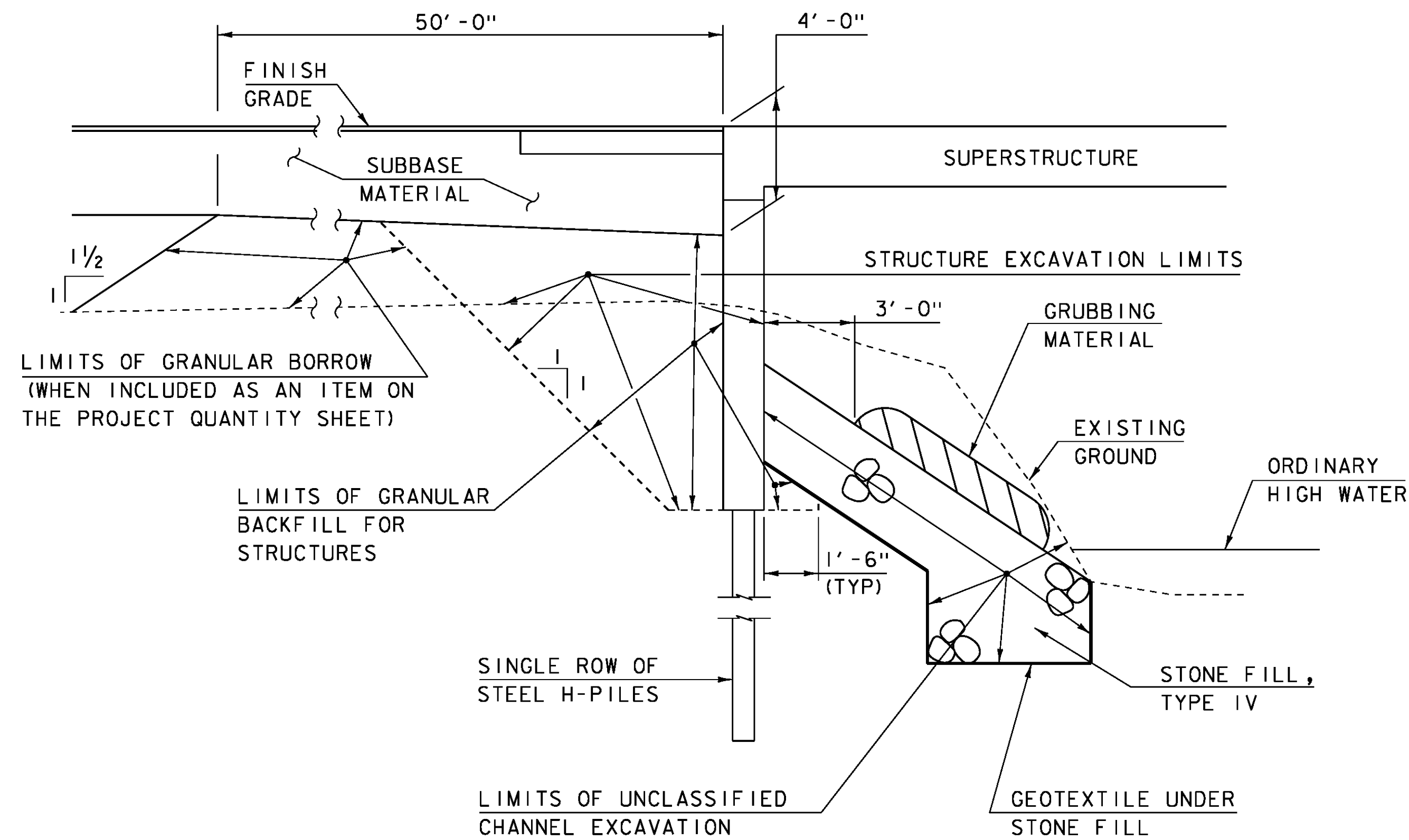
SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- 1/4"
- AGGREGATE SURFACE COURSE	+/- 1/2"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"



PROJECT NAME: CRAFTSBURY
PROJECT NUMBER: BO 1449(34)

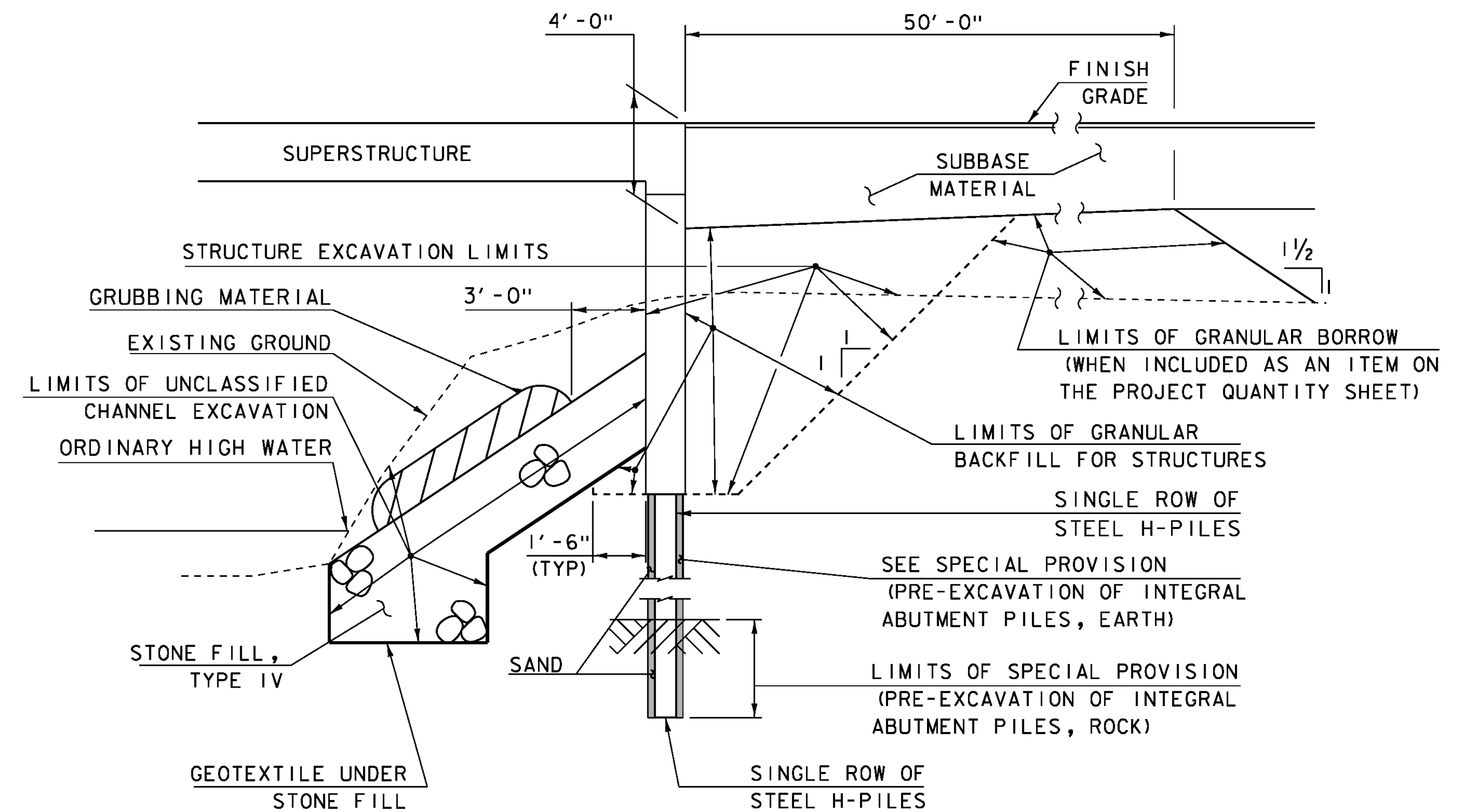
FILE NAME: sl3j100+yp1cal.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: W. LAMMER
TYPICAL SECTIONS I

PLOT DATE: 27-OCT-2015
DRAWN BY: W. LAMMER
CHECKED BY: S. COLEY
SHEET 3 OF 42



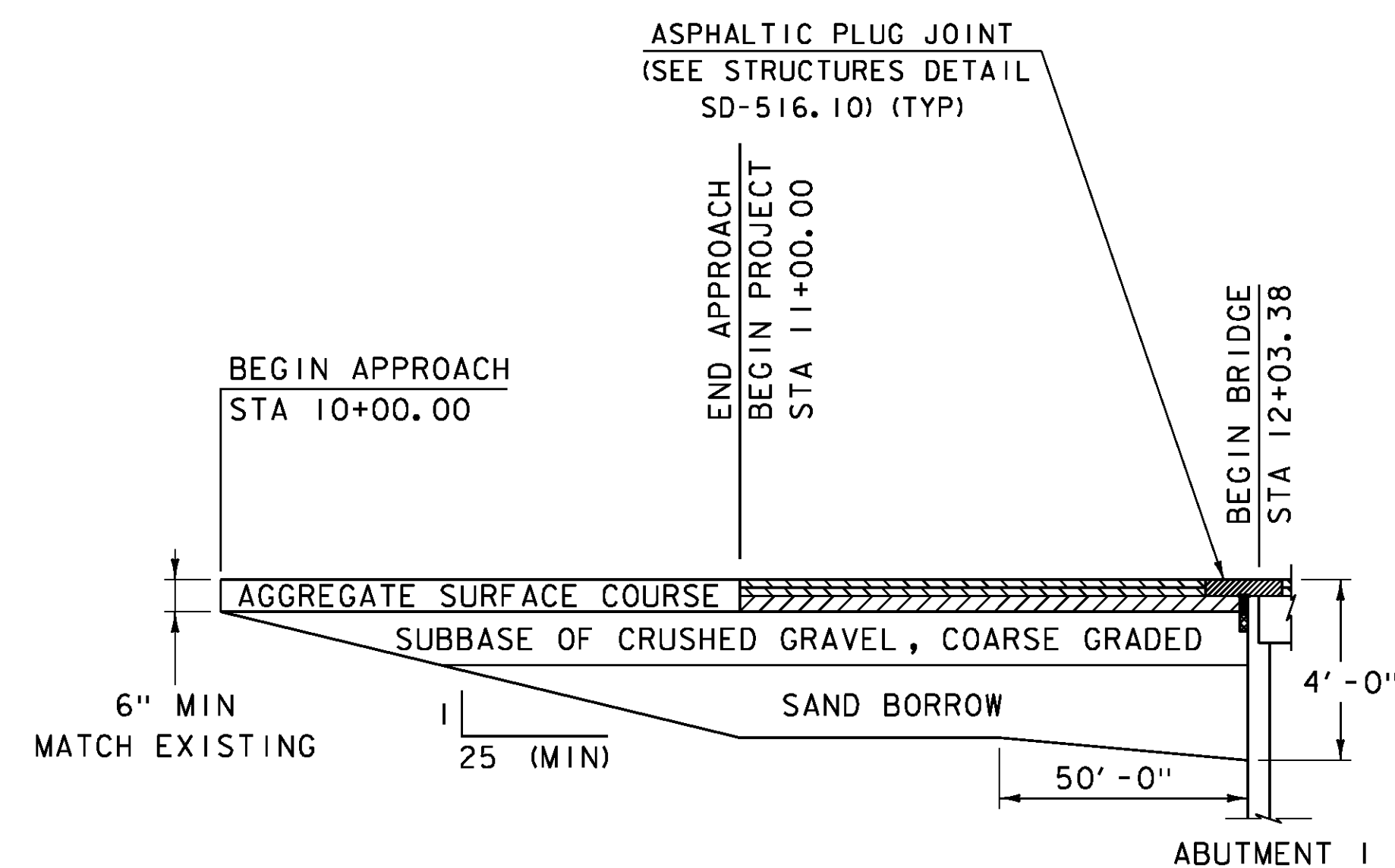
TYPICAL INTEGRAL ABUTMENT 1 SECTION
NOT TO SCALE

NOTE. ACTUAL EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR. HOWEVER, ONLY THE EXCAVATION BETWEEN THE LIMITS SHOWN WILL BE PAID FOR UNDER ITEM 204.25 "STRUCTURE EXCAVATION".

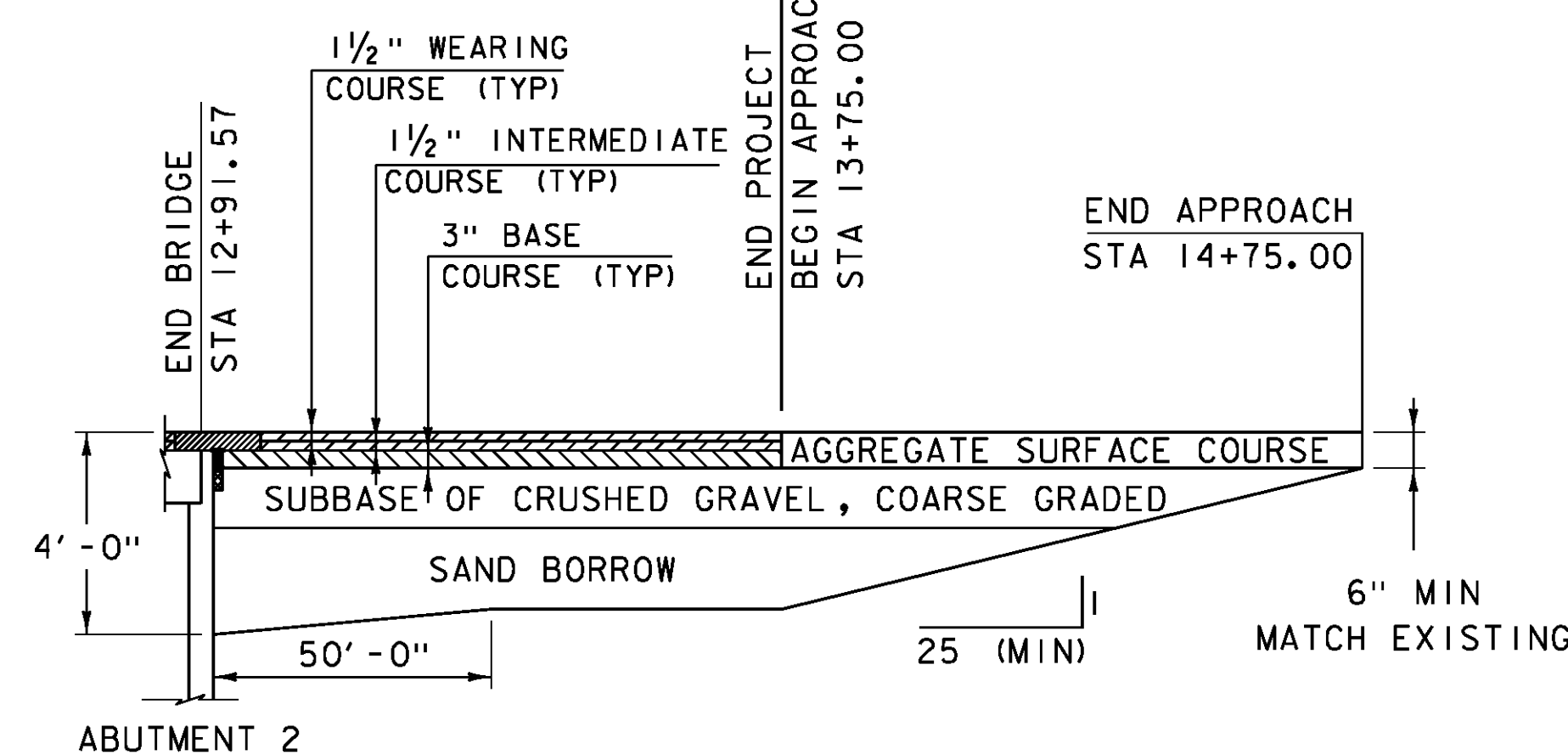


TYPICAL INTEGRAL ABUTMENT 2 SECTION
NOT TO SCALE

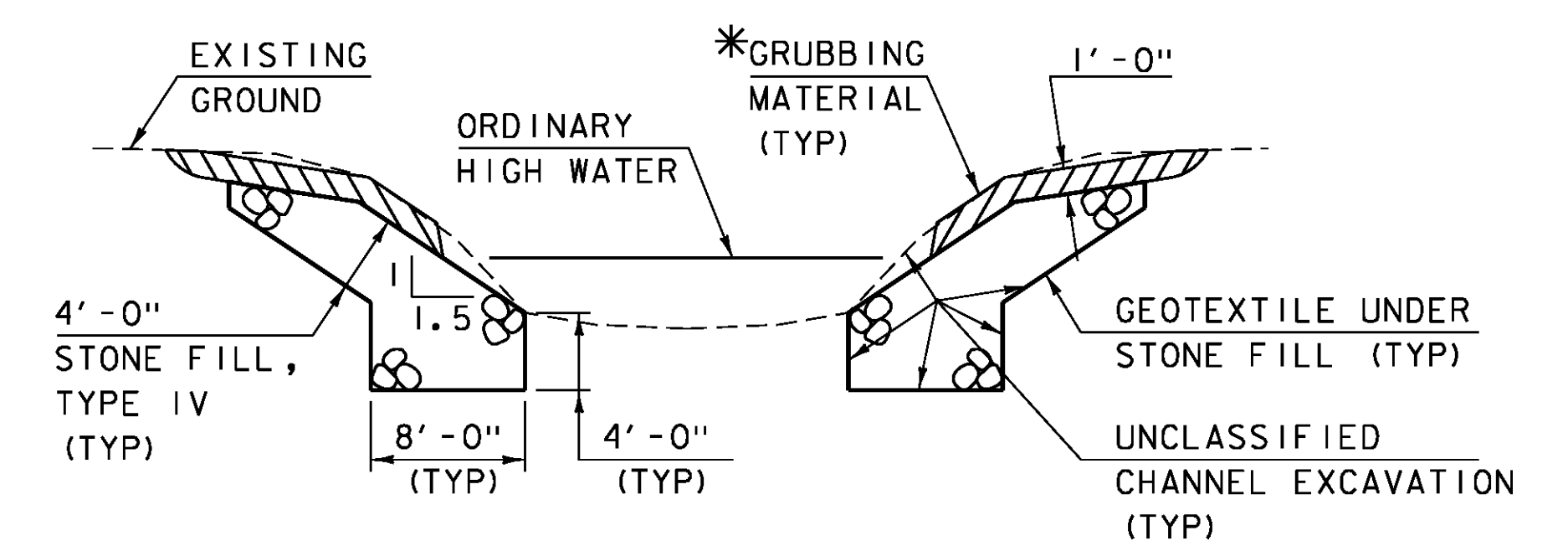
ACTUAL LIMITS OF STRUCTURE EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR. HOWEVER, ONLY EXCAVATION BETWEEN THE LIMITS SHOWN WILL BE PAID FOR UNDER ITEM 204.25 "STRUCTURE EXCAVATION". EXCAVATION BY THE CONTRACTOR OUTSIDE OF THESE LIMITS WILL BE AT THE EXPENSE OF THE CONTRACTOR. PRE-EXCAVATION OF PILES REQUIRED AT ABUTMENT 2 ONLY.



BEGIN PROJECT MATERIAL TRANSITION
NOT TO SCALE



END PROJECT MATERIAL TRANSITION
NOT TO SCALE



TYPICAL CHANNEL SECTION
(NOT TO SCALE)

*GRUBBING MATERIAL SHALL BE PLACED ON THE STONE FILL IN THE AREA UNDER THE BRIDGE FROM JUST ABOVE OHW TO 3 FT HORIZONTALLY FROM THE FRONT FACE OF THE ABUTMENT. WHENEVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE, GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE.

PROJECT NAME:	CRAFTSBURY
PROJECT NUMBER:	BO 1449(34)
FILE NAME:	sl3j100+typical.dgn
PROJECT LEADER:	R. YOUNG
DESIGNED BY:	W. LAMMER
TYPICAL SECTIONS 2	
PLOT DATE:	14-OCT-2015
DRAWN BY:	W. LAMMER
CHECKED BY:	S. COLEY
SHEET	4 OF 42

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. NO ADJUSTMENTS TO THE BITUMINOUS WEARING SURFACE ON THE BRIDGE SHALL BE MADE TO ACCOUNT FOR THE DIFFERENCE BETWEEN DECK CAMBER AND THE THEORETICAL ROADWAY PROFILE. THE WEARING SURFACE SHALL BE SHIMMED TRANSVERSELY AS NECESSARY TO ACCOUNT FOR POTENTIAL DIFFERENTIAL CAMBER OF THE ADJACENT BEAMS.
5. NO SUBSTITUTION FOR PRECAST CONCRETE WILL BE PERMITTED.

TRAFFIC CONTROL

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND IMPLEMENTATION OF A SITE SPECIFIC TRAFFIC CONTROL PACKAGE IDENTIFYING CONSTRUCTION ACTIVITIES BEFORE, DURING, AND AFTER THE BRIDGE CLOSURE PERIOD. THE CONTRACTOR SHALL SUBMIT A DETAILED TRAFFIC CONTROL PLAN TO THE PROJECT MANAGER FOR ALL STAGES OF CONSTRUCTION, FOR APPROVAL PER SUBSECTION 105.03. ALL COSTS SHALL BE INCLUDED IN ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)". SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.
7. ALL ITEMS REQUIRED TO IMPLEMENT THE CONTRACTOR'S TRAFFIC CONTROL PLAN WILL NOT BE PAID FOR DIRECTLY BUT WILL BE INCLUDED IN THE BID PRICE FOR ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)".
8. TH4 WILL BE CLOSED AT THE BRIDGE FOR THE ENTIRE CLOSURE PERIOD. IF ELECTED TO DO SO, A SIGNED DETOUR WILL BE THE SOLE RESPONSIBILITY OF THE TOWN. NO DETOUR SIGNS WILL BE PERMITTED WITHIN A STATE OWNED RIGHT-OF-WAY.
9. ALL SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MUTCD. FOR ADDITIONAL SIGNING INSTRUCTIONS SEE THE T SERIES OF THE STANDARD DRAWINGS. WHERE CONFLICTS EXIST, THE MUTCD SHALL GOVERN.

EARTHWORK

10. REMOVAL OF THE EXISTING STRUCTURE WILL BE PAID FOR UNDER ITEM 529.15, "REMOVAL OF STRUCTURE". THIS WORK SHALL INCLUDE REMOVAL OF THE EXISTING SUPERSTRUCTURE AS WELL AS ANY PORTIONS OF THE EXISTING ABUTMENTS THAT FALL OUTSIDE THE LIMITS OF STRUCTURE EXCAVATION OR UNCLASSIFIED CHANNEL EXCAVATION.
11. THE "STONE FILL, TYPE IV" UNDER THE BRIDGE AS SHOWN IN THE PLANS SHALL BE PLACED BEFORE THE NEW SUPERSTRUCTURE IS SET.
12. THE CONTRACTOR MAY SUBSTITUTE SUBBASE MATERIAL FOR THE SAND BORROW SHOWN IN THE MATERIALS TRANSITION. THE SUBBASE MATERIAL SHALL BE THE TYPE SPECIFIED IN THE CONTRACT AND SHALL BE PLACED TO MEET THE SUBBASE SPECIFICATIONS. IF SUBBASE IS PLACED IN LIEU OF SAND BORROW, A GEOTEXTILE MEETING THE REQUIREMENTS OF ITEM 649.11 "GEOTEXTILE FOR ROAD BED SEPARATOR" SHALL BE PLACED BETWEEN THE SUBGRADE AND SUBBASE MATERIAL. ALL COSTS ASSOCIATED WITH THE SUBSTITUTION INCLUDING THE GEOTEXTILE WILL BE CONSIDERED INCIDENTAL TO 203.31 "SAND BORROW".

CONCRETE

13. WATER REPELLENT, SILANE SHALL BE FURNISHED IN ACCORDANCE WITH SECTION 514 AND SHALL BE APPLIED TO ALL EXPOSED CONCRETE ON THE BRIDGE SUPERSTRUCTURE AND SUBSTRUCTURE, WITH THE EXCEPTION OF THE BOTTOM OF THE DECK BETWEEN THE DRIP NOTCHES. ALL COSTS ASSOCIATED WITH APPLYING SILANE WILL BE CONSIDERED INCIDENTAL TO THE APPROPRIATE PRECAST CONCRETE ABUTMENT AND "SPECIAL PROVISION (PREFABRICATED BRIDGE UNIT SUPERSTRUCTURE)" CONTRACT ITEM AS APPLICABLE.
14. CONCRETE FOR THE DECK CLOSURE POUR SHALL MEET THE REQUIREMENTS OF ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)".
15. ALL PRECAST SUBSTRUCTURE CONCRETE SHALL MEET THE REQUIREMENTS OF SECTION 540 – PRECAST CONCRETE.
16. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1 INCH X 1 INCH UNLESS OTHERWISE NOTED.
17. THE CONCRETE EDGES ALONG THE LONGITUDINAL CLOSURE POURS SHALL BE TREATED TO PROVIDE A ROUGHENED/ EXPOSED AGGREGATE SURFACE. THE AMPLITUDE OF THE EXPOSED AGGREGATE SHALL BE A MINIMUM OF 1/8" AND BE COMPLETED PRIOR TO ERECTION OF THE BEAMS. THE FABRICATOR SHALL INDICATE THE METHOD USED TO ACHIEVE THIS SURFACE ON THE FABRICATION DRAWINGS AND METHOD USED TO PROTECT THE REINFORCING STEEL.
18. ALL LIFTING POINTS IN THE SUPERSTRUCTURE SHALL BE REMOVABLE TO THE MINIMUM CLEAR COVER FOR REINFORCING STEEL SPECIFIED IN THE PLANS. THE LIFTING POINTS SHALL BE DETAILED IN THE APPROPRIATE FABRICATION DRAWING. PAYMENT FOR THIS WORK WILL BE CONSIDERED INCIDENTAL TO THE APPROPRIATE PRECAST ITEM.
19. ALL RECESSED LIFTING POINTS SHALL BE FILLED WITH A TYPE IV MORTAR PER SUBSECTION 707.03 AND WILL BE CONSIDERED INCIDENTAL TO THE APPROPRIATE PRECAST ITEM.
20. ALL FORM SUPPORTS AND FORM TIES THAT ARE TO REMAIN PERMANENTLY IN THE CONCRETE ABOVE THE BRIDGE SEAT SHALL BE GLAVANIZED AND CONFORM TO SECTION 726 OF THE STANDARD SPECIFICATIONS.

REINFORCING STEEL

21. ALL REINFORCING STEEL SHALL BE DETAILED AND FABRICATED USING PROCEDURES AND TOLERANCES IN ACCORDANCE WITH APPLICABLE PUBLICATIONS OF THE "CONCRETE REINFORCING STEEL INSTITUTE".

22. TEST BARS SHALL BE PROVIDED IN ACCORDANCE WITH THE "VERMONT AGENCY OF TRANSPORTATION MATERIAL SAMPLING MANUAL" AVAILABLE ON THE AGENCY WEBSITE. A MINIMUM OF TWO TEST SECTIONS ARE REQUIRED FOR EACH SIZE, BRAND, AND GRADE OR TYPE OF REINFORCING. SEE THE MANUAL FOR ACCEPTABLE DIMENSIONS OF TEST SECTIONS. ALL COSTS ASSOCIATED WITH PROVIDING BARS FOR TESTING WILL BE CONSIDERED INCIDENTAL TO THE APPROPRIATE PRECAST ITEM.

23. ALL REINFORCING STEEL IN THE PREFABRICATED BRIDGE UNITS SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR "REINFORCING STEEL, LEVEL II" AND WILL BE CONSIDERED INCIDENTAL TO THE APPROPRIATE PRECAST ITEM.
24. ALL REINFORCING STEEL IN THE CLOSURE POURS SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR "REINFORCING STEEL, LEVEL II" AND WILL BE PAID UNDER ITEM 507.12 REINFORCING STEEL, LEVEL II (FPQ)".
25. ALL REINFORCING STEEL IN THE ABUTMENTS AND WINGWALLS SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR "REINFORCING STEEL, LEVEL II" AND WILL BE CONSIDERED INCIDENTAL TO THE APPROPRIATE PRECAST ITEM.
26. CUTTING AND REPAIRING DAMAGED AREAS OF COATED REINFORCING STEEL SHALL BE PERFORMED IN ACCORDANCE WITH SUBSECTION 507.04 AND WILL BE CONSIDERED INCIDENTAL TO ITEM 507.12, "REINFORCING STEEL, LEVEL II (FPQ)".
27. MINIMUM CLEAR COVER FOR REINFORCING STEEL SHALL BE AS FOLLOWS:

ALONG BACK FACES OF WALLS AGAINST EARTH:	2 INCH
ALONG TOP SURFACE OF DECK SLAB:	2.5 INCH
ALONG BOTTOM SURFACE OF DECK SLAB:	1.5 INCH
ELSEWHERE UNLESS OTHERWISE INDICATED:	3 INCH

PRECAST ABUTMENTS

28. THE UNIT PRICE FOR EACH PRECAST ABUTMENT SHALL INCLUDE THE ASSOCIATED WINGWALLS, AND ALL LABOR AND MATERIALS TO CONNECT WINGWALLS TO THE PILE CAPS. THIS WORK WILL BE PAID FOR UNDER THE APPROPRIATE PRECAST CONCRETE STRUCTURE ABUTMENT PAY ITEM.
29. DESIGN VALUES
- i. CONCRETE COMPRESSIVE STRENGTH: $f_c = 5,000$ PSI.
30. THE CONCRETE FOR THE ABUTMENT PILE CAVITIES SHALL MEET THE REQUIREMENTS OF ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) FPQ", AND SHALL BE WET CURED FOR A PERIOD OF NOT LESS THAN 24 HOURS, OR UNTIL IT ACHIEVES DESIGN STRENGTH, WHICHEVER OCCURS SOONER.
31. THE CORRUGATED STEEL PIPE FOR THE PILE CAVITIES 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 #1)" AND ITEM 540.10, "PRECAST CONCRETE STRUCTURE (ABUTMENT #2)".
32. AN OPTIONAL HORIZONTAL CONSTRUCTION JOINT IS SHOWN FOR ABUTMENTS #1 AND #2. THIS IS ALLOWED IN ORDER TO REDUCE THE WEIGHT OF THE ABUTMENTS FOR HANDLING, IF NECESSARY. ALL COSTS ASSOCIATED WITH CONSTRUCTING THE HORIZONTAL CONSTRUCTION JOINT WILL BE INCLUDED IN THE COST OF THE ASSOCIATED CONTRACT ITEM. ALL REINFORCING ACROSS THIS JOINT SHALL BE ADEQUATELY DEVELOPED EITHER BY SPLICING OR THE USE OF MECHANICAL SPLICE CONNECTORS. IF MECHANICAL SPLICE CONNECTORS ARE USED, THEY SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR LEVEL I (EPOXY COATED) AND WILL BE CONSIDERED INCIDENTAL TO THE APPROPRIATE PRECAST ITEM.
33. LOADING OF THE ABUTMENTS SHALL CONFORM TO SUBSECTION 501.18; HOWEVER, THE COMPRESSIVE STRENGTH SHALL BE TAKEN AS THE 28 DAY COMPRESSIVE STRENGTH SPECIFIED IN THE PROJECT SPECIAL PROVISIONS. FOR THE PURPOSES OF THIS PROJECT THE PRECAST WINGWALLS ARE CONSIDERED A SUPERIMPOSED DEAD LOAD FROM SUBSEQUENT CONCRETE. SUBSECTION 501.18(c) SHALL NOT APPLY TO THE VERTICAL CONSTRUCTION JOINT BETWEEN PRECAST ELEMENTS.
34. BACKFILL SHALL NOT BE COMPLETED UNTIL SPLICE CONNECTOR GROUT HAS REACHED 85% OF THE MANUFACTURER SPECIFIED STRENGTH.

PREFABRICATED BRIDGE UNITS

35. PREFABRICATED BRIDGE UNITS ARE A NON-PROPRIETARY PRODUCT.
36. STRUCTURAL STEEL MEMBERS DESIGNATED "CVN" IN THE PLANS SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH SUBSECTION 714.01
37. ANY HOLES IN THE WEBS OF THE FASCIA BEAMS NOT OTHERWISE FILLED SHALL BE FILLED WITH BUTTON HEAD BOLTS. THESE BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH SUBSECTION 506.19.
38. ANY CONNECTIONS NOT DETAILED ON THE PLANS SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE PROJECT MANAGER FOR APPROVAL.
39. ALL BOLTS SHALL BE TENSIONED BY THE DIRECT TENSION INDICATOR METHOD IN ACCORDANCE WITH SUBSECTION 506.19
40. ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER HIGH STRENGTH BOLTS IN 15/16" DIAMETER HOLES, PER SECTION 506 UNLESS OTHERWISE NOTED.
41. ALL WELDING SHALL CONFORM TO THE PROVISIONS OF SUBSECTION 506.10
42. FLEMING BRACKETS OR SIMILAR FALSE WORK SHALL BE PLACED AT A MAXIMUM SPACING OF 4 FEET. THE BRACKETS SHALL BEAR NEAR THE BOTTOM FLANGE AND IN NO CASE SHALL THEY BEAR ABOVE THE BOTTOM QUARTER OF THE WEB.
43. AFTER THE SUPERSTRUCTURE STEEL HAS BEEN ERECTED AT THE DECK CASTING SITE, AND BEFORE ANY FORMWORK OR OTHER LOADS ARE ADDED TO THE GIRDERS, ELEVATIONS ALONG THE TOP OF THE GIRDERS SHALL BE TAKEN AS DIRECTED BY THE RESIDENT ENGINEER FOR USE IN DETERMINING DECK FORMWORK ELEVATIONS.
44. GIRDER WEBS AND CROSS FRAMES SHALL BE PLUMB IN FINAL POSITION.

45. PBU DECKS AND CURB SHALL BE PRECAST AND MEET THE REQUIREMENTS OF "CONCRETE, HIGH PERFORMANCE CLASS A".
46. PBU STRUCTURAL STEEL SHALL MEET THE REQUIREMENTS OF SECTION 506 OF THE STANDARD SPECIFICATIONS.
47. THE PBU'S SHALL BE FABRICATED IN A MANNER SUCH THAT THE LOAD FROM THE SCREED IS EVENLY DISTRIBUTED AMONG THE BEAMS IN ORDER TO PREVENT DIFFERENTIAL DEFLECTION BETWEEN UNITS.
48. 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.
49. THE FABRICATOR MAY ALTER THE DESIGN AS DETAILED IN THESE PLANS TO ACCOMMODATE THEIR SPECIFIC OPERATION. THIS ALTERATION SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER LICENSED IN STATE OF VERMONT TO MEET SPECIFIED CRITERIA AND SHALL BE APPROVED BY THE PROJECT MANAGER.

H-PILES

50. FOR ESTIMATING PURPOSES, THE PILE TIP ELEVATIONS WERE ASSUMED AS SHOWN ON THE BORING LOGS. THE ACTUAL IN PLACE LENGTHS MAY VARY.
51. THE PILES SHALL BE HP 12 X 63 AT ABUTMENT 1 AND ABUTMENT 2.
52. TO PREVENT DAMAGE TO THE PILES, PILE SHOES ARE REQUIRED FOR DRIVEN PILES AND SHALL CONFORM TO SUBSECTION 505.04 (f).
53. THE PILES AT ABUTMENT 1 SHALL BE DRIVEN TO A NOMINAL AXIAL PILE DRIVING RESISTANCE (RNDR) OF 320 KIPS, PROVIDED A MINIMUM PENETRATION OF 23 FEET BELOW THE BOTTOM OF PILE CAP HAS BEEN ACHIEVED AND THE PILE IS SEATED ON BEDROCK.
54. THE PILE LOCATIONS AT ABUTMENT 2 SHALL BE PRE-EXCAVATED A MINIMUM OF FIVE (5) FEET INTO COMPETENT BEDROCK. THE MINIMUM REQUIRED PILE LENGTH AT ABUTMENT 2 IS 13 FEET BELOW THE BOTTOM OF THE PILE CAP. PRE-EXCAVATED HOLES SHALL BE A MINIMUM OF 23 INCHES IN DIAMETER. THE PILES AT ABUTMENT 2 SHALL BE SEATED ON THE BEDROCK WITH A PILE DRIVING HAMMER TO A NOMINAL AXIAL PILE DRIVING RESISTANCE OF 297 KIPS.
55. A MINIMUM OF TWO DYNAMIC PILE TESTS SHALL BE CONDUCTED ON PILES AT ABUTMENT 1. THIS WILL BE CONSIDERED INCIDENTAL TO ITEM 505.45, "DYNAMIC PILE LOADING TEST". NO LOAD TESTING IS REQUIRED AT ABUTMENT 2.
56. THE TOPS OF THE PILES AFTER DRIVING OR PLACEMENT 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 HOW THE TOLERANCES WILL BE MET TO THE SATISFACTION OF THE ENGINEER. THESE MEASURES SHALL BE DEMONSTRATED IN A SUBMITTAL TO BE ACCEPTED BEFORE PILE DRIVING COMMENCES.
57. PAYMENT FOR PRE-EXCAVATION WILL BE CONSIDERED INCIDENTAL TO ITEM 900.640, "SPECIAL PROVISION (PRE-EXCAVATION OF INTEGRAL ABUTMENTS PILES, EARTH) OR ITEM 900.640, "SPECIAL PROVISION (PRE-EXCAVATION OF INTEGRAL ABUTMENTS PILES, ROCK)". THE ENTIRE PRE-EXCAVATED HOLE SHALL BE BACKFILLED WITH SAND AFTER THE PILE IS SET, OR THE PILES MAY BE DRIVEN THROUGH THE SAND. SAND SHALL CONFORM TO THE REQUIREMENTS OF SUBSECTION 703.03. REFER TO THE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.

MISCELLANEOUS

58. REMOVING AND RESETTING GATE AT STATION 13+50 RT WILL BE CONSIDERED INCIDENTAL TO ITEM 620.50, "REMOVING AND RESETTING FENCE (FPQ)". THIS WORK SHALL INCLUDE REMOVAL, STORAGE AND RESETTING AND ADJUSTING THE GATE AS NECESSARY TO ENSURE PROPER OPERATION OF THE GATE.
59. ITEM 404.65 "EMULSIFIED ASPHALT" IS TO BE APPLIED AT A RATE OF 0.025 GAL/SY BETWEEN SUCCESSIVE COURSES OF PAVEMENT AND AT THE RATE OF 0.060 GAL/SY ON ALL COLD PLANED SURFACES OR AS DIRECTED BY THE ENGINEER.

PROJECT NAME: CRAFTSBURY	
PROJECT NUMBER: BO 1449(34)	
FILE NAME: s13j100gen.dgn	PLOT DATE: 22-OCT-2015
PROJECT LEADER: R. YOUNG	DRAWN BY: W. LAMMER
DESIGNED BY: W. LAMMER	CHECKED BY: S. COLEY
GENERAL NOTES	SHEET 5 OF 42

STATE OF VERMONT AGENCY OF TRANSPORTATION														QUANTITY SHEET 1											
SUMMARY OF ESTIMATED QUANTITIES													TOTALS		DESCRIPTIONS						DETAILED SUMMARY OF QUANTITIES				
									ROADWAY	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				EARTHWORK SUMMARY				
									690				690		CY	COMMON EXCAVATION	203.15				FILL AVAILABLE				
									10				10		CY	SOLID ROCK EXCAVATION	203.16		690	CY	COMMON EXCAVATION (690x1.0)				
											970		970		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27		291	CY	CHANNEL EXCAVATION (970x0.3)				
									390				390		CY	SAND BORROW	203.31		0	CY	UNDERDRAIN EXCAVATION (0x0.9)				
									1				1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22		84	CY	STRUCTURE EXCAVATION (280x0.3)				
											280		280		CY	STRUCTURE EXCAVATION	204.25		0.9	CY	TRENCH EXCAVATION OF EARTH (1x0.9)				
											120		120		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30		6	CY	ROUNDING				
									610				610		CY	SUBBASE OF CRUSHED GRAVEL, COARSE GRADED	301.25		1080	CY	TOTAL FILL AVAILABLE				
									100				100		CY	AGGREGATE SURFACE COURSE	401.10		90	CY	FILL REQUIRED (90 CY EARTH + 0 CY GRANULAR)				
									25				25		CY	AGGREGATE SHOULDERS, IN PLACE	402.10		103.5	CY	PLANIMETERED FILL (x1.15)				
									5				5		CWT	EMULSIFIED ASPHALT	404.65		4.1	CY	ROUNDING				
									1				1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50				SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)				
											1		1		LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10		40	TON	TYPE I/S BASE				
											210		210		LF	STEEL PILING, HP 12 X 63	505.155		25	TON	TYPE I/S INTER				
											2		2		EACH	DYNAMIC PILE LOADING TEST	505.45		25	TON	TYPE I/S WEARING				
											2000		2000		LB	REINFORCING STEEL, LEVEL II (FPQ)	507.12		90	TON	TOTAL				
											15		15		GAL	WATER REPELLENT, SILANE	514.10								
											60		60		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10								
											240		240		SY	MEMBRANE WATERPROOFING, SPRAY APPLIED	520.10								
											190		190		LF	BRIDGE RAILING, GALVANIZED HDSB/FASCIA MOUNTED/STEEL TUBING	525.44								
											1		1		EACH	REMOVAL OF STRUCTURE (730 SF - EST.)	529.15								
																BEGIN OPTION AA									
											1		1		LS	PRECAST CONCRETE STRUCTURE (ABUTMENT #1)	540.10								
											1		1		LS	SPECIAL PROVISION (CONTRACTOR FABRICATED PRECAST CONCRETE STRUCTURE)(ABUTMENT #1)	900.645								
																END OPTION AA									
																BEGIN OPTION BB									
											1		1		LS	PRECAST CONCRETE STRUCTURE (ABUTMENT #2)	540.10								
											1		1		LS	SPECIAL PROVISION (CONTRACTOR FABRICATED PRECAST CONCRETE STRUCTURE)(ABUTMENT #2)	900.645								
																END OPTION BB									
									1				1		TON	DUST AND ICE CONTROL WITH CALCIUM CHLORIDE	609.15								
											560		560		CY	STONE FILL, TYPE IV	613.13								
									18.5				18.5		LF	REMOVING AND RESETTING FENCE (FPQ)	620.50								
									120.5				120.5		LF	STEEL BEAM GUARDRAIL, GALVANIZED	621.20								
									4				4		EACH	ANCHOR FOR STEEL BEAM RAIL	621.60								
									4				4		EACH	GUARDRAIL APPROACH SECTION, GALV HD STEEL BEAM	621.737								
									125				125		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80								
									200				200		HR	FLAGGERS	630.15								
												1	1		LS	FIELD OFFICE, ENGINEERS	631.10								
																						PROJECT NAME: CRAFTSBURY			
																						PROJECT NUMBER: BO 1449(34)			
																						FILE NAME: sl3ji00excel.dgn			
																						PLOT DATE: 14-OCT-2015			
																						PROJECT LEADER: R. YOUNG			
																						DRAWN BY: S. COLEY			
																						DESIGNED BY: W. LAMMER			
																						CHECKED BY: W. LAMMER			
																						QUANTITY SHEET 1			
																						SHEET 6 OF 42			

QUANTITY SHEET 2

PROJECT NAME: CRAFTSBURY	
PROJECT NUMBER: BO 1449(34)	
FILE NAME: s13j00excel.dgn	PLOT DATE: 14-OCT-2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. COLEY
DESIGNED BY: W. LAMMER	CHECKED BY: W. LAMMER
QUANTITY SHEET 2	SHEET 7 OF 42

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	
— UT —	UTILITY (GENERIC-UNKNOWN)
— UE —	TELEPHONE
— UC —	ELECTRIC
— UEC —	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)	
— T —	UTILITY (GENERIC-UNKNOWN)
— E —	TELEPHONE
— C —	ELECTRIC
— EC —	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 —	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
+ ——— + ——— + ———	PROPERTY LINE (P/L)
P ——— L ——— P ——— L ———	PROPERTY LINE (P/L)
△ — SR — ○ — 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
— — — — —	SILT FENCE
— x — x — x — x —	SILT FENCE WOVEN WIRE
— — — — —	CHECK DAM
▣	DISTURBED AREAS REQUIRING RE-VEGETATION
⊗	EROSION MATTING

SEE EPSC DETAIL SHEETS FOR ADDITIONAL SYMBOLGY

ENVIRONMENTAL RESOURCES	
——— T&E ———	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: CRAFTSBURY	
PROJECT NUMBER: BO 1449(34)	
FILE NAME: sl3j100excel.dgn	PLOT DATE: 14-OCT-2015
PROJECT LEADER: R. YOUNG	DRAWN BY: M.LONGSTREET
DESIGNED BY: W. LAMMER	CHECKED BY: S. COLEY
LEGEND SHEET	SHEET 8 OF 42

GPS CONTROL POINTS

HVCTRL #1

FAIRMONT AZ MK

NORTH = 792320.218
EAST = 1680762.771
ELEV. = 1212.560

GENERAL LOCATION, CRAFTSBURY, VT.
TO REACH FROM THE INTERSECTION OF VT ROUTE 15 AND VT ROUTE 14 NORTH IN HARDWICK, GO NORTH ALONG VT ROUTE 14 FOR 7.1 MI (11.4 KM) TO THE INTERSECTION OF EAST CRAFTSBURY ROAD RIGHT. TURN RIGHT AND GO EAST ALONG EAST CRAFTSBURY ROAD FOR 1.0 MI (1.6 KM) TO THE INTERSECTION OF SOUTH CRAFTSBURY ROAD LEFT. TURN LEFT AND GO NORTHWEST ALONG SOUTH CRAFTSBURY ROAD FOR 0.7 MI (1.1 KM) TO THE INTERSECTION OF CREEK ROAD RIGHT. TURN RIGHT AND GO NORTHEAST ALONG CREEK ROAD FOR 3.0 MI (4.8 KM) TO THE SITE OF THE MARK ON THE LEFT OPPOSITE A GRAVEL FIELD DRIVE. THE MARK IS SET 5 CM (2 INCHES) BELOW GROUND SURFACE IN THE TOP OF A MASSIVE BURIED CONCRETE SLAB. IT IS 6.3 M (20.7 FT) NORTHWEST OF AND ABOUT 0.4 M (1.3 FT) LOWER THAN THE CENTERLINE OF CREEK ROAD, 15.3 M (50.2 FT) SOUTH OF A WELL PIPE WHICH PROJECTS 0.8 M (2.6 FT) ABOVE GROUND SURFACE AND 38.5 M (126.3 FT) NORTH OF AND ACROSS THE ROAD FROM POLE NO 42A/43.

HVCTRL #2

FAIRMONT

NORTH = 788941.399
EAST = 1679123.394
ELEV. = 1094.105

GENERAL LOCATION, CRAFTSBURY, VT.
TO REACH FROM THE INTERSECTION OF VT ROUTE 15 AND VT ROUTE 14 NORTH IN HARDWICK, GO NORTH ALONG VT ROUTE 14 FOR 7.1 MI (11.4 KM) TO THE INTERSECTION OF EAST CRAFTSBURY ROAD RIGHT. TURN RIGHT AND GO EAST ALONG EAST CRAFTSBURY ROAD FOR 1.0 MI (1.6 KM) TO THE INTERSECTION OF SOUTH CRAFTSBURY ROAD LEFT. TURN LEFT AND GO NORTHWEST ALONG SOUTH CRAFTSBURY ROAD FOR 0.7 MI (1.1 KM) TO THE INTERSECTION OF CREEK ROAD RIGHT. TURN RIGHT AND GO NORTHEAST ALONG CREEK ROAD FOR 2.3 MI (3.7 KM) TO THE SITE OF THE MARK ON THE RIGHT. THE MARK IS SET 15 CM (6 INCHES) BELOW GROUND SURFACE IN THE TOP OF A FENO STYLE MONUMENT. IT IS 4.9 M (16.1 FT) SOUTHEAST OF AND ABOUT LEVEL WITH THE CENTERLINE OF CREEK ROAD, 5.5 M (18.0 FT) SOUTHWEST OF THE CENTERLINE OF A GRAVEL DRIVE, 23.0 M (75.5 FT) NORTH-NORTHWEST OF POLE NO 42A/60/18 AND 4.3 M (14.1 FT) NORTH-NORTHWEST OF A CEDAR POST WITH A POSTED SIGN. NOTE, DATUM HAS AN INCORRECT DATUM PUNCH, TAKE CARE TO USE THE CORRECT ONE, THE ONE IN THE CENTER.

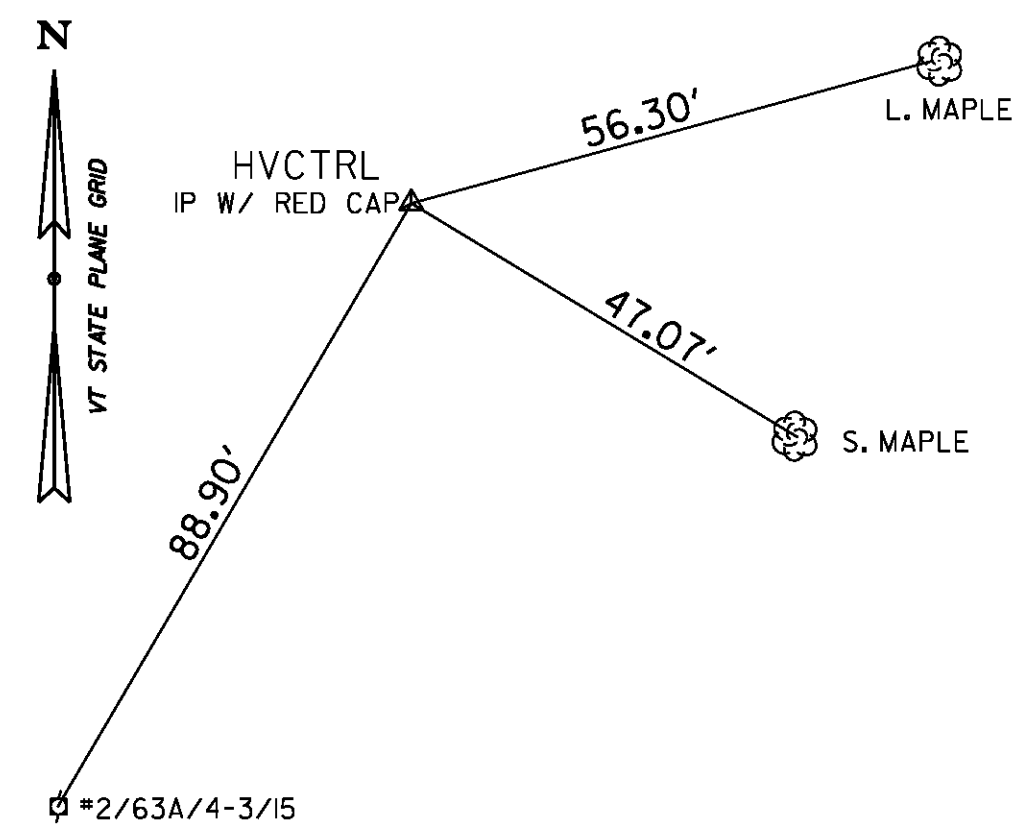
TRAVERSE TIES

HVCTRL #4

NORTH = 787964.131

EAST = 1678676.111

ELEV. = 1071.281

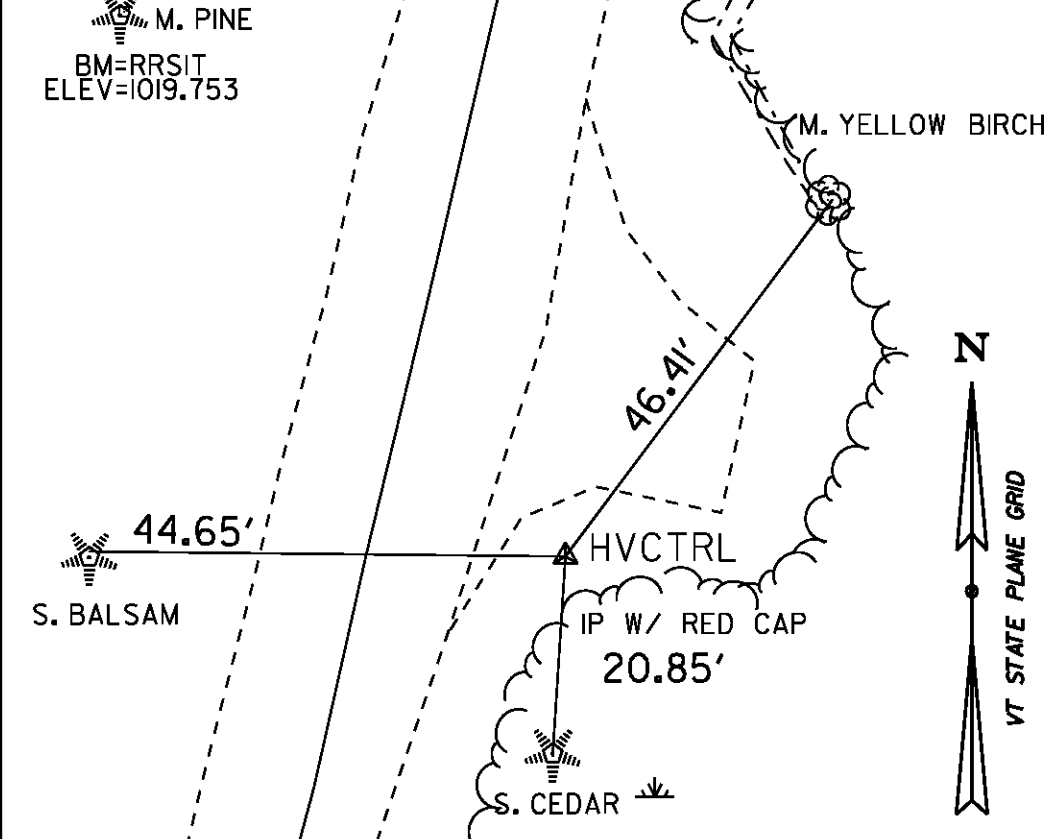


HVCTRL #5

NORTH = 787403.434

EAST = 1678687.880

ELEV. = 1020.668



NORTH =

EAST =

ELEV. =

NORTH =

EAST =

ELEV. =

NORTH =

EAST =

ELEV. =

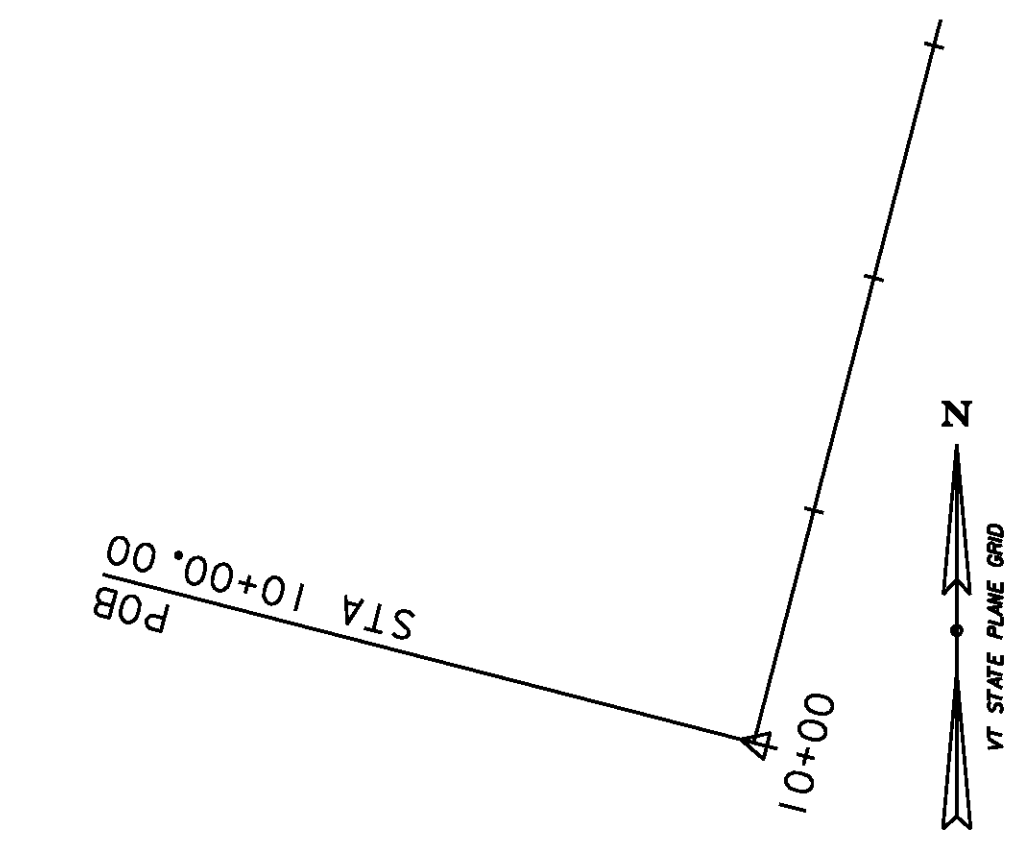
ALIGNMENT TIES

POB STA 10+00.00

NORTH = 787303.2263

EAST = 1678642.4332

ELEV. = 1025.42

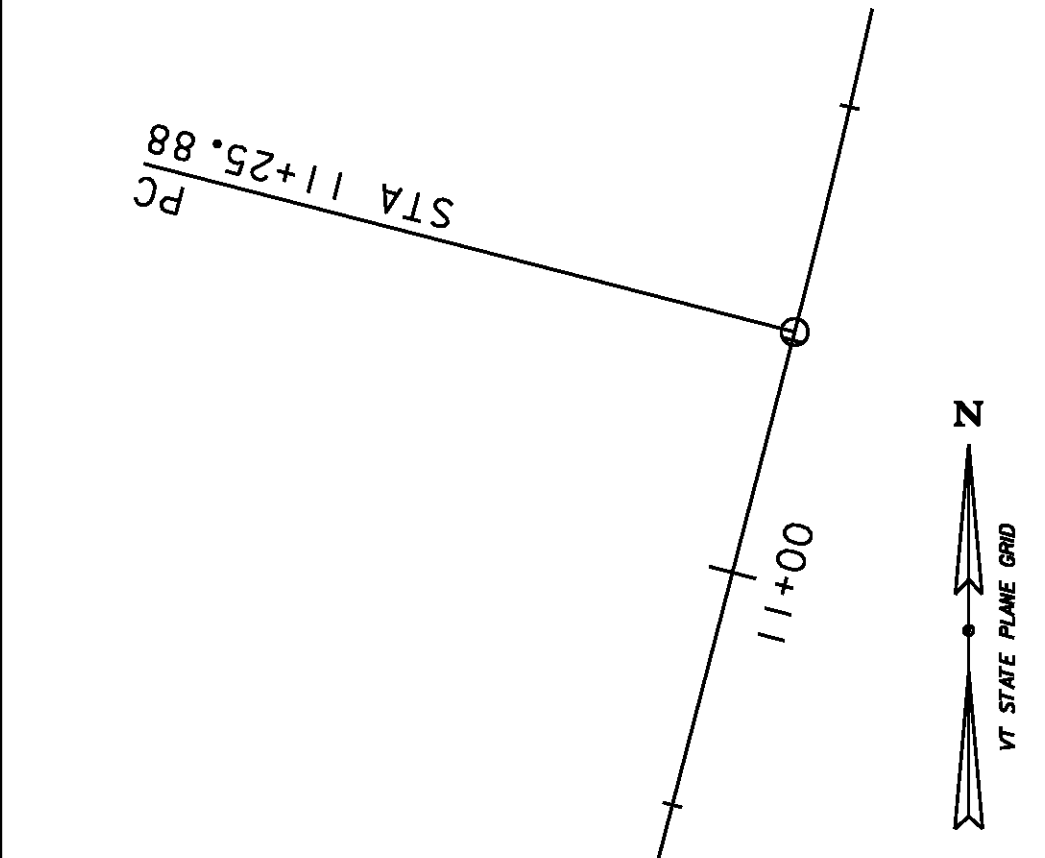


PC STA 11+25.88

NORTH = 787425.0995

EAST = 1678673.9402

ELEV. = 1022.38

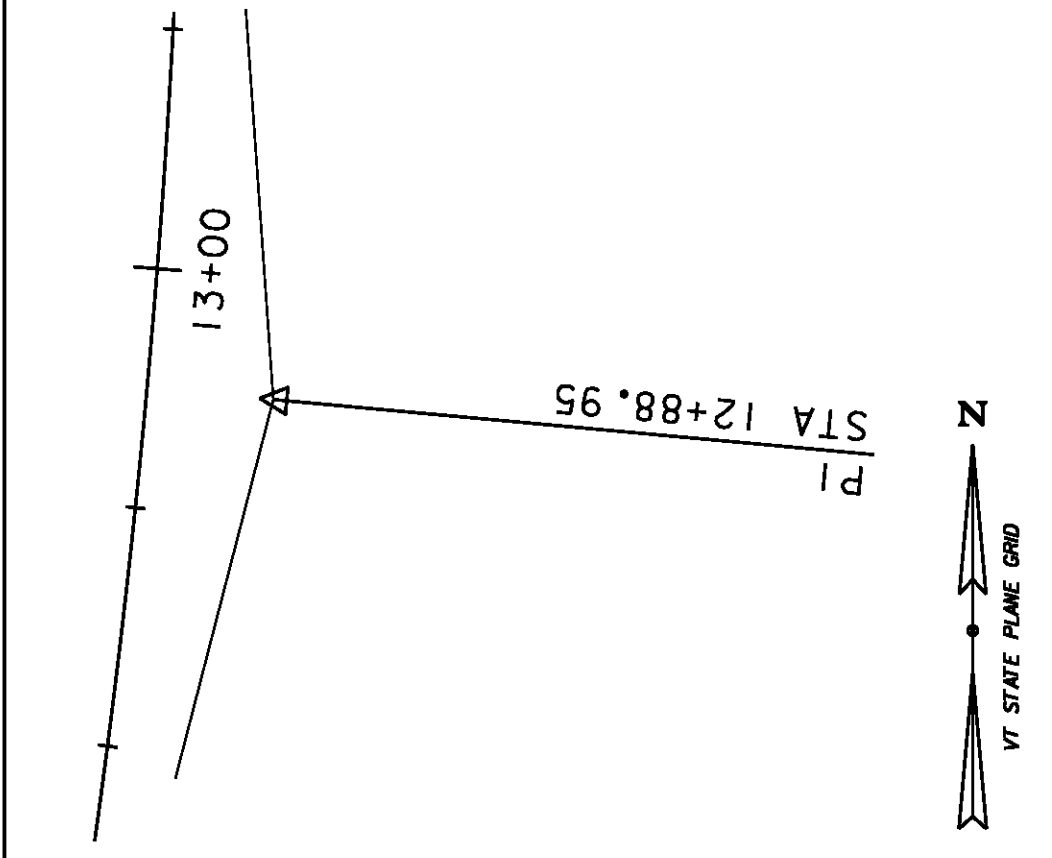


PI STA 12+88.95

NORTH = 787582.9747

EAST = 1678714.7545

ELEV. = 1028.90

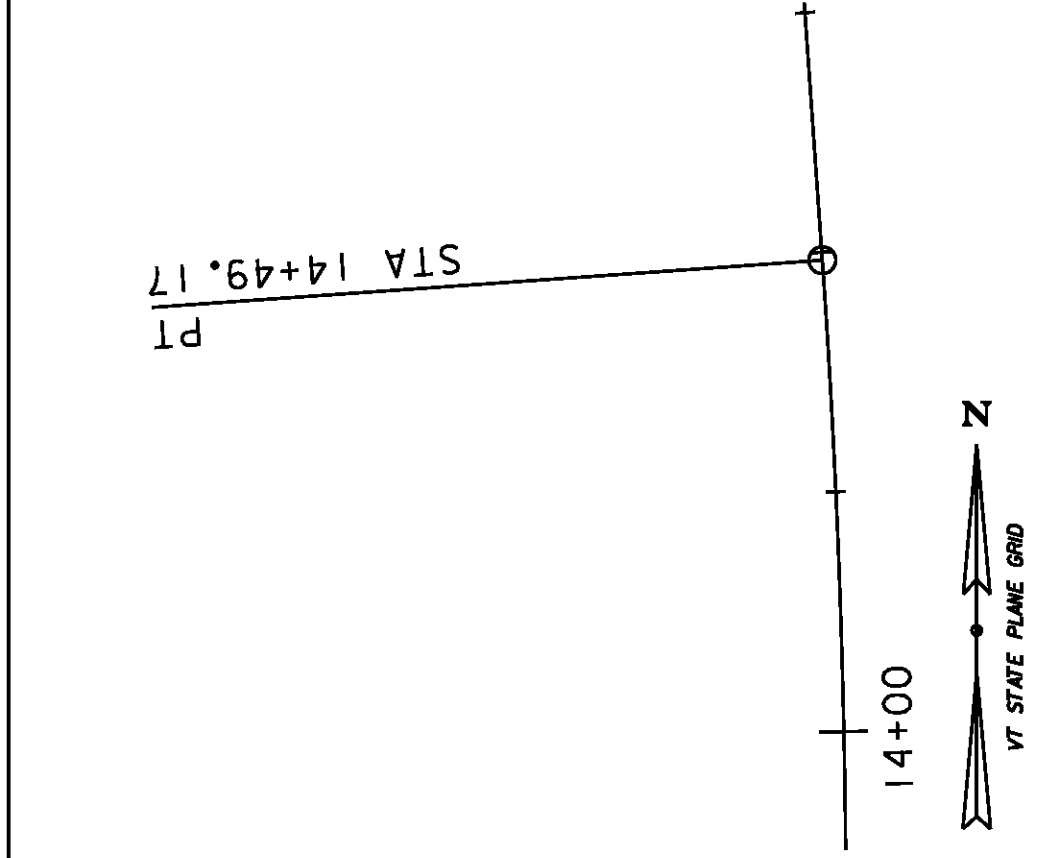


PT STA 14+49.17

NORTH = 787745.6375

EAST = 1678703.3002

ELEV. = 1047.59

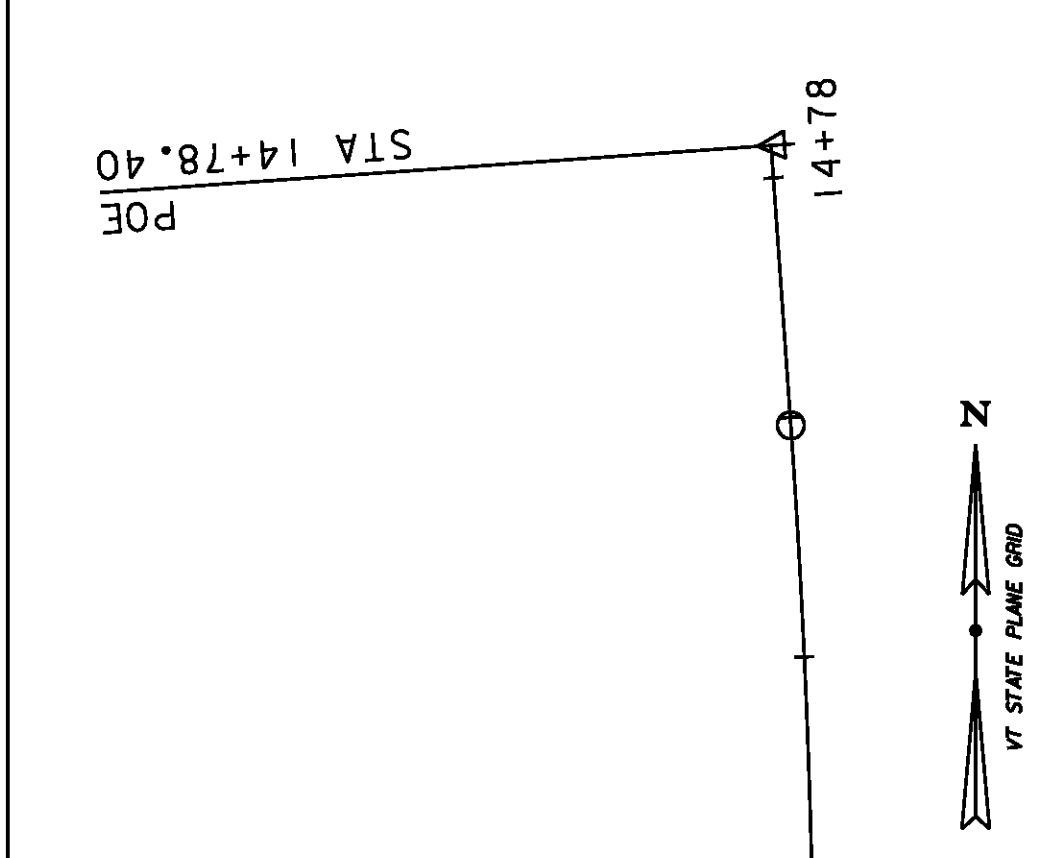


POE STA 14+78.40

NORTH = 787774.7950

EAST = 1678701.2470

ELEV. = 1051.86



DATUM

VERTICAL NAVD 88

HORIZONTAL NAD 83(CONUS)

ADJUSTMENT COMPASS

PROJECT NAME: CRAFTSBURY

PROJECT NUMBER: BO 1449 (34)

FILE NAME: I3J100/Survey/xI3J100+1

PROJECT LEADER: R. YOUNG

DESIGNED BY: C. WILLIAMS

TIE SHEET

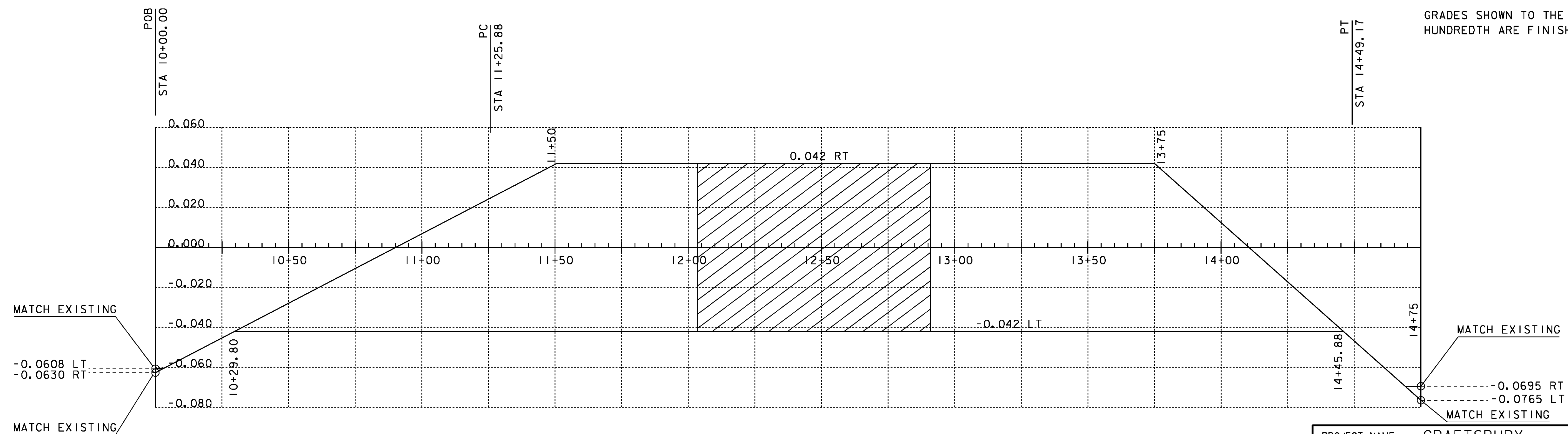
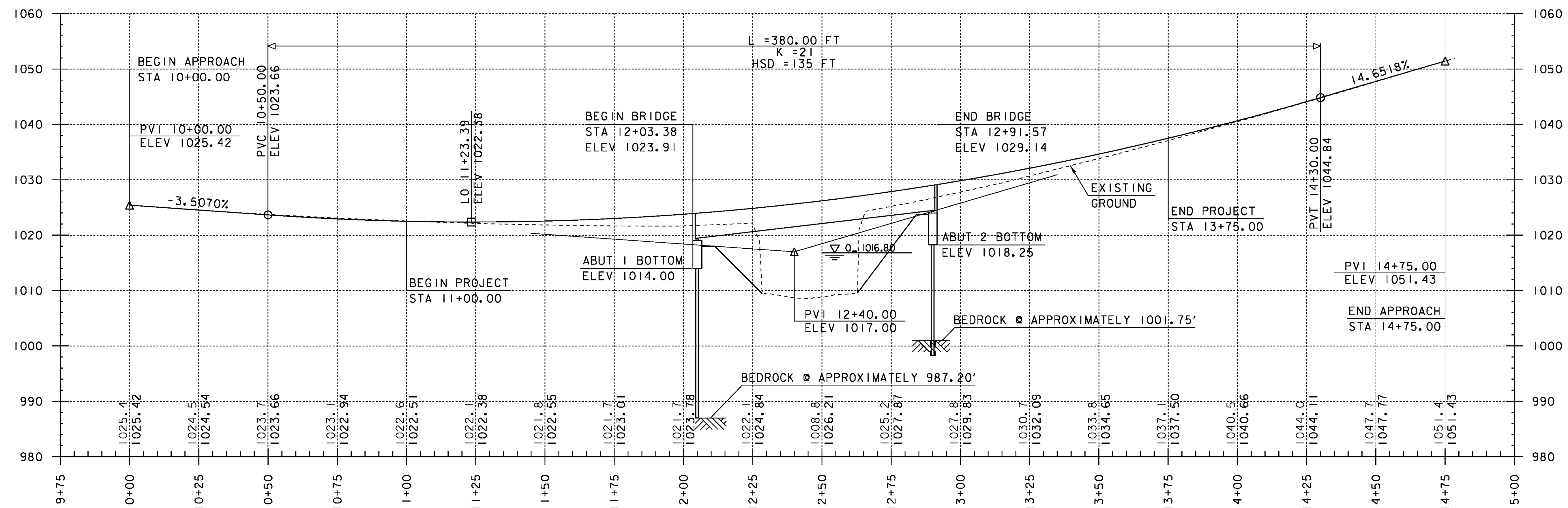
PLOT DATE: 14-OCT-2015

DRAWN BY: S. DONOVAN

CHECKED BY: P. BEYOR

SHEET 9 OF 42

PLOT DATE: 14-OCT-2015
DRAWN BY: S. COLEY
CHECKED BY: W. LAMMER
SHEET 10 OF 42



SOIL CLASSIFICATION

AASHTO	
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

ROCK QUALITY DESIGNATION

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

SHEAR STRENGTH

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

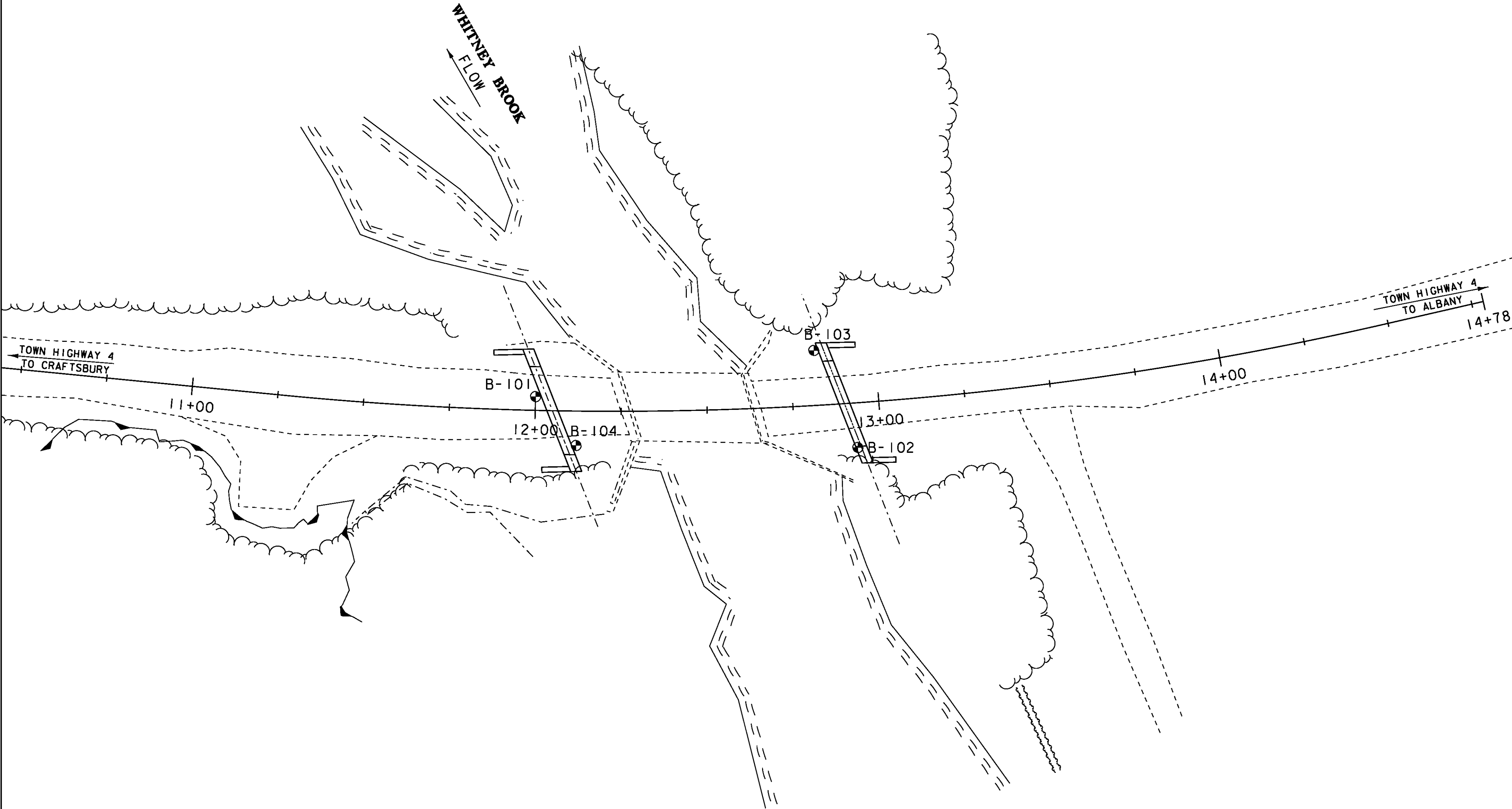
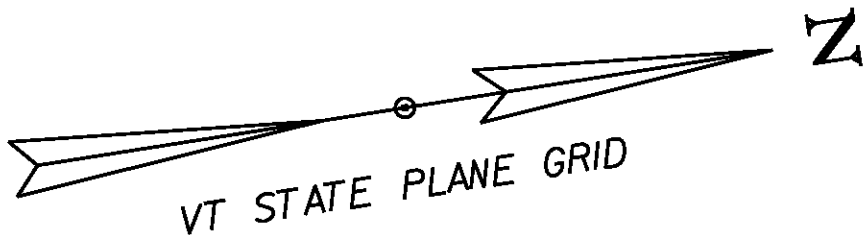
CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

DENSITY (GRANULAR SOILS)		CONSISTENCY (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

COMMONLY USED SYMBOLS

▼	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 3/8"
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
Cl	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
RQD	Rock Quality Designation
CBR	California Bearing Ratio
<	Less Than
>	Greater Than
R	Refusal (N > 100)
VTSPG	NAD83 - See Note 7

COLOR			
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		



BORING LAYOUT

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

GENERAL NOTES

- The subsurface explorations shown herein were made between 1/31/2014 and 3/05/2014 by the Agency.
- 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.
- 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.
- 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.
- 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.
- 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.
- Northing and Easting coordinates are shown in Vermont State Plane Grid North American Datum 1983 in meters and survey feet.

BORING CHART

HOLE NO.	SURV. STATION	OFFSET	GROUND ELEV.	ELEV. TLOB
B-101	12+00	4.0 LT	1021.5	987.5
B-102	12+93	13.0 RT	1027.0	1002.5
B-103	12+82	16.0 LT	1025.0	1001.0
B-104	12+12	10.0 RT	1022.0	986.9

PROJECT NAME: CRAFTSBURY
PROJECT NUMBER: BO 1449(34)

FILE NAME: sl3j100boring.dgn	PLOT DATE: 14-OCT-2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. COLEY
DESIGNED BY: W. LAMMER	CHECKED BY: W. LAMMER
BORING INFORMATION SHEET	SHEET 12 OF 42

ABUT. 1 BTM.
ELEV. 1014.00

EST. LENGTH = 26.50'

EST. PILE TIP
ELEV. 987.50

BORING LOG 2 CRAFTSBURY BO 1449(34) GPJ VERMONT AOT.GDT 3/20/14

 STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG		Boring No.: B-101	
		CRAFTSBURY BO 1449(34) TH-4 BR-4		Page No.: 1 of 1	
				Pin No.: 13J100	
				Checked By: _____	
Boring Crew: JUDKINS, HOOK, DAIGNEAULT		Casing	Sampler	Groundwater Observations	
Date Started: 2/27/14 Date Finished: 2/27/14		Type: WB		Date	Depth (ft)
VTSPG NAD83: N 787498.10 ft E 1678685.90 ft		I.D.: 4 in		03/05/14	12.8
Station: 12+00 Offset: -4.00		Hammer Wt: N.A.	N.A.	Notes	
Ground Elevation: 1021.5 ft		Hammer Fall: N.A.	N.A.		
		Hammer/Rod Type:			
		Rig: CME 45C SKID	C _r = 1.33		
Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)		Run (Dip deg.)	Core Rec. % (RQD %)
5		Field Note:, Drilled to find bedrock, No samples were taken.		Drill Rate minutes/ft	Blows/6" (N Value)
10				Moisture Content %	Gravel %
15				Sand %	Fines %
20					
25					
30					
35		34.0 ft - 39.0 ft, Dark-bluish-gray, Micaceous quartz-rich Limestone, Moderately hard, Unweathered, Poor rock, NXMDC, Quartz vein at 34.75 feet. RMR = 39		1 (30)	44 (0)
40		Hole stopped @ 39.0 ft		8 10 10 9 10	Top of Bedrock @ 34.0 ft
45		Remarks: 1. Hole collapsed at 17.0 ft.			
Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. N Values have not been corrected for hammer energy. C is the hammer energy correction factor. 3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.					

ABUT. 2 BTM.
ELEV. 1018.25

EST. LENGTH = 20.75'

EST. PILE TIP
ELEV. 997.5

BORING LOG 2 CRAFTSBURY BO 1449(34) GPJ VERMONT AOT.GDT 3/20/14

 STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG		Boring No.: B-102	
		CRAFTSBURY BO 1449(34) TH-4 BR-4		Page No.: 1 of 1	
				Pin No.: 13J100	
				Checked By: _____	
Boring Crew: JUDKINS, HOOK, DAIGNEAULT		Casing	Sampler	Groundwater Observations	
Date Started: 3/05/14 Date Finished: 3/05/14		Type: WB		Date	Depth (ft)
VTSPG NAD83: N 787589.50 ft E 1678714.10 ft		I.D.: 4 in		03/05/14	2.3
Station: 12+93 Offset: 13.00		Hammer Wt: N.A.	N.A.	Notes	
Ground Elevation: 1027.0 ft		Hammer Fall: N.A.	N.A.		
		Hammer/Rod Type:			
		Rig: CME 45C SKID	C _r = 1.33		
Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)		Run (Dip deg.)	Core Rec. % (RQD %)
5		Field Note:, Drilled to find bedrock, No samples were taken.		Drill Rate minutes/ft	Blows/6" (N Value)
10				Moisture Content %	Gravel %
15				Sand %	Fines %
20					
25		24.5 ft - 29.5 ft, Dark-bluish-gray, Micaceous quartz-rich Limestone, Moderately hard, Unweathered, Fair rock, NXMDC, Quartz vein at 26.9 feet. RMR = 44		1 (30)	94 (40)
30		Hole stopped @ 29.5 ft		3 4 5 6 4	Top of Bedrock @ 24.5 ft
35		Remarks: 1. Hole collapsed at 11.9 ft.			
40					
45					
Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. N Values have not been corrected for hammer energy. C is the hammer energy correction factor. 3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.					



STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING LOG

CRAFTSBURY
BO 1449(34)
TH-4 BR-4

Boring No.: **B-103**
Page No.: 1 of 1
Pin No.: 13J100
Checked By:

Boring Crew: JUDKINS, HOOK, NIETO
Date Started: 1/31/14 Date Finished: 2/10/14
VTSPG NAD83: N 787581.20 ft E 1678684.90 ft
Station: 12+82 Offset: -16.00
Ground Elevation: 1025.0 ft

Casing Type: WB I.D.: 4 in Sampler: SS 1.5 in
Hammer Wt: N.A. 140 lb.
Hammer Fall: N.A. 30 in.
Hammer/Rod Type: Auto/AWJ
Rig: CME 45C TRACK C_r = 1.34

Groundwater Observations

Date	Depth (ft)	Notes
02/10/14	9.5	AM
02/10/14	4.2	Casing removed.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
5		A-1-b, SiGrSa, Dk/brn, Moist, Rec. = 0.7 ft				2-1-1-1 (2)	28.6	33.2	44.3	22.5
		A-2-4, SiSa, Dk/brn, Moist, Rec. = 0.9 ft, NXDC, Cleaned out casing.				7-4-3-3 (7)	13.4	18.5	53.9	27.6
		A-2-4, GrSiSa, Dk/brn, MTW, Rec. = 0.6 ft, NXDC, Cleaned out casing.				7-2-2-2 (4)	16.3	23.2	50.2	26.6
		A-4, SiSa, Dk/brn, MTW, Rec. = 0.4 ft				3-8-17-21 (25)	16.6	18.3	41.2	40.5
10		A-4, GrSiSa, Dk/brn, Moist, Rec. = 1.0 ft, NXDC, Cleaned out casing.				11-12-15-14 (27)	13.2	20.7	42.1	37.2
		A-4, SiSa, Dk/brn, Moist, Rec. = 0.6 ft				33-33-31-R@2.5" (64)	11.2	16.4	43.7	39.9
		Field Note: NXDC, Cleaned out casing.				33-43-R@2.5" (R)	9.8	19.6	30.9	49.5
		Field Note: NXDC, Cleaned out casing.				25-46-R@5.0" (R)	10.5	18.6	27.1	54.3
15		A-4, SaSi (HP), gry, Moist, Rec. = 0.8 ft, Lab Note: A few pieces of Broken Rock were within sample.				39-49-R@1.0" (R)	11.7	18.2	28.1	53.7
		A-4, SaSi (HP), gry, Moist, Rec. = 1.2 ft				43-R@6.0" (R)	14.8	7.5	21.9	70.6
		Field Note: NXDC, Cleaned out casing.				40-46-R@1.0" (R)	13.0	16.2	24.8	59.0
		A-4, SaSi (HP), gry, Moist, Rec. = 0.7 ft								
20		A-4, SaSi (HP), gry, Moist, Rec. = 0.3 ft								
		Field Note: NXDC, Cleaned out casing.								
		Field Note: NXDC, Cleaned out casing.								
		Field Note: NXDC, Cleaned out casing.								
25		24.0 ft - 25.0 ft, Bluish-gray, Micaceous quartz-rich Limestone, Moderately hard, Unweathered, Fair rock, NXDC, RMR = 44	1 (30)	90 (0)		Top of Bedrock @ 24.0 ft				
		25.0 ft - 29.0 ft, Dark-gray to silvery-gray, Lustrous, carbonaceous muscovite-biotite-quartz (+/- garnet) Phyllite, and Dark-bluish-gray Micaceous quartz-rich Limestone. Medium to moderately hard, Unweathered, Fair rock, NXMDC, RMR = 49	2 (30)	95 (70)	6					
					4					
					5					
30		29.0 ft - 34.0 ft, Dark-gray to silvery-gray, Lustrous, carbonaceous muscovite-biotite-quartz (+/- garnet) Phyllite, and Dark-bluish-gray Micaceous quartz-rich Limestone. Medium to moderately hard, Unweathered, Fair rock, NXMDC, RMR = 53	3 (30)	98 (86)	4					
					3					
					3					
					4					
35		Hole stopped @ 34.0 ft			3					

Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.



STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING LOG

CRAFTSBURY
BO 1449(34)
TH-4 BR-4

Boring No.: **B-104**
Page No.: 1 of 1
Pin No.: 13J100
Checked By:

Boring Crew: DAIGNEAULT, HOOK, JUDKINS
Date Started: 2/24/14 Date Finished: 2/26/14
VTSPG NAD83: N 787507.50 ft E 1678701.40 ft
Station: 12+12 Offset: 10.00
Ground Elevation: 1022.0 ft

Casing Type: WB I.D.: 4 in Sampler: SS 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_r = 1.33

Groundwater Observations

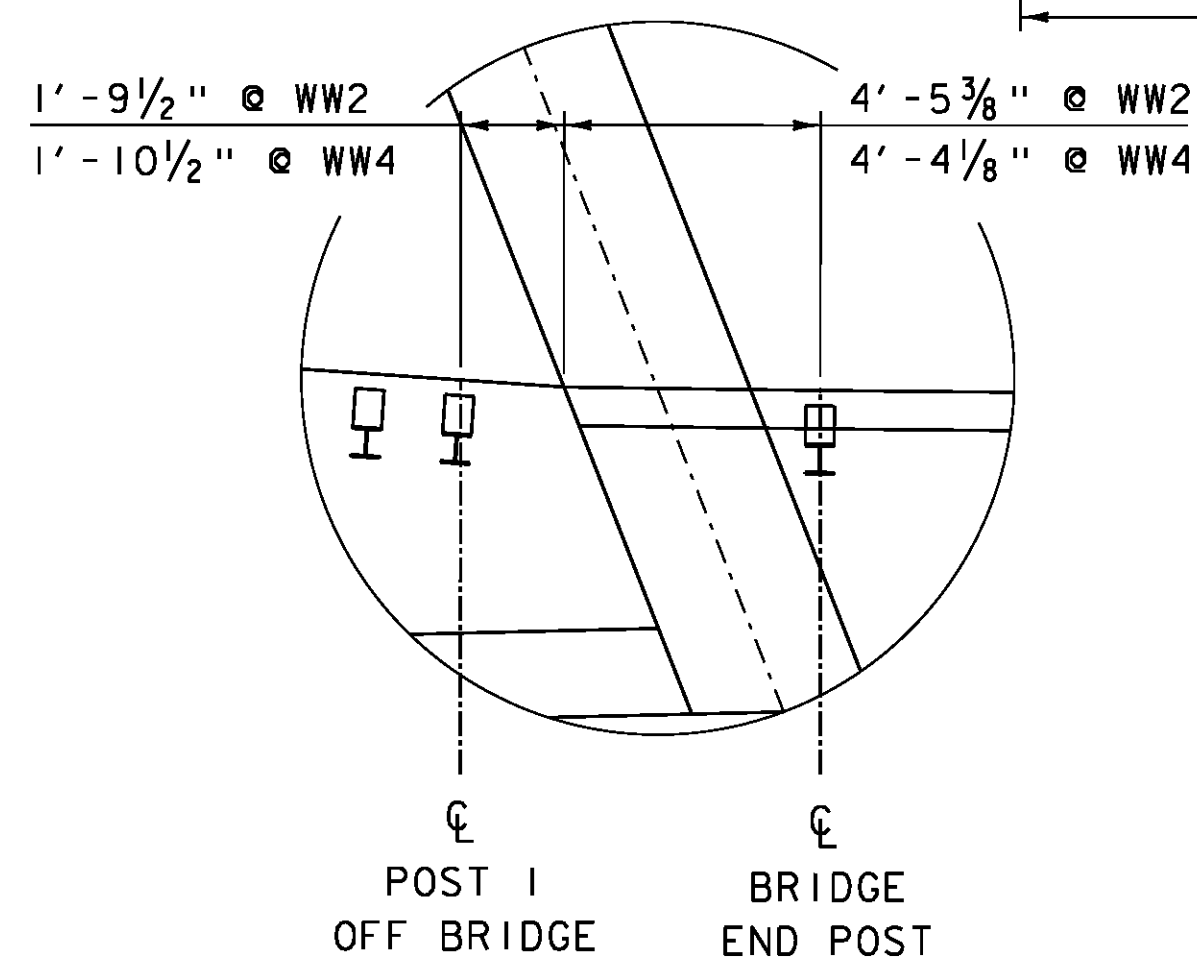
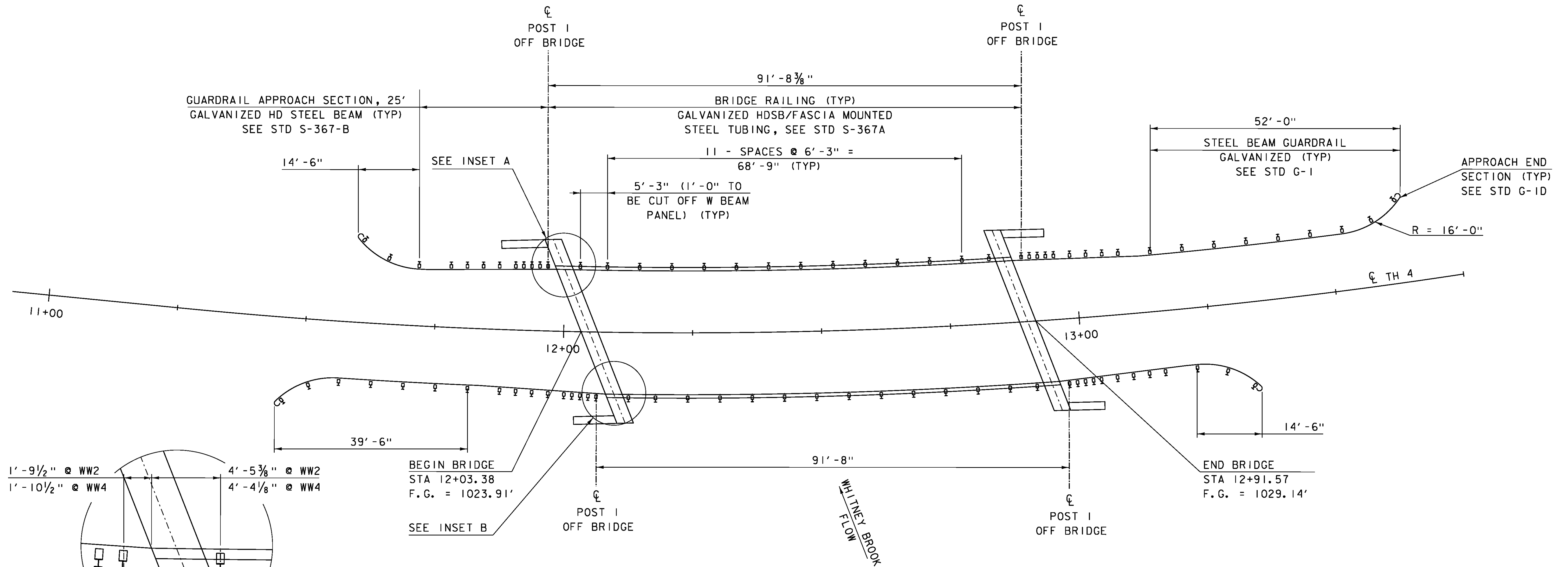
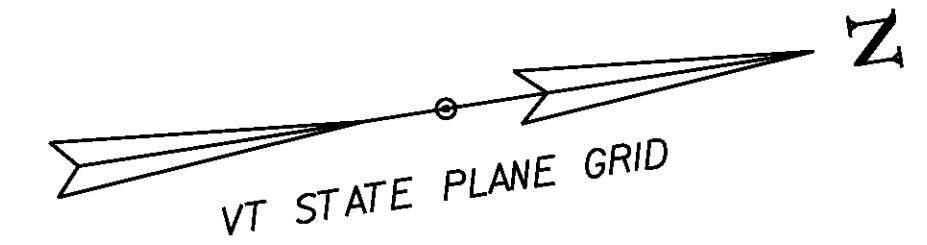
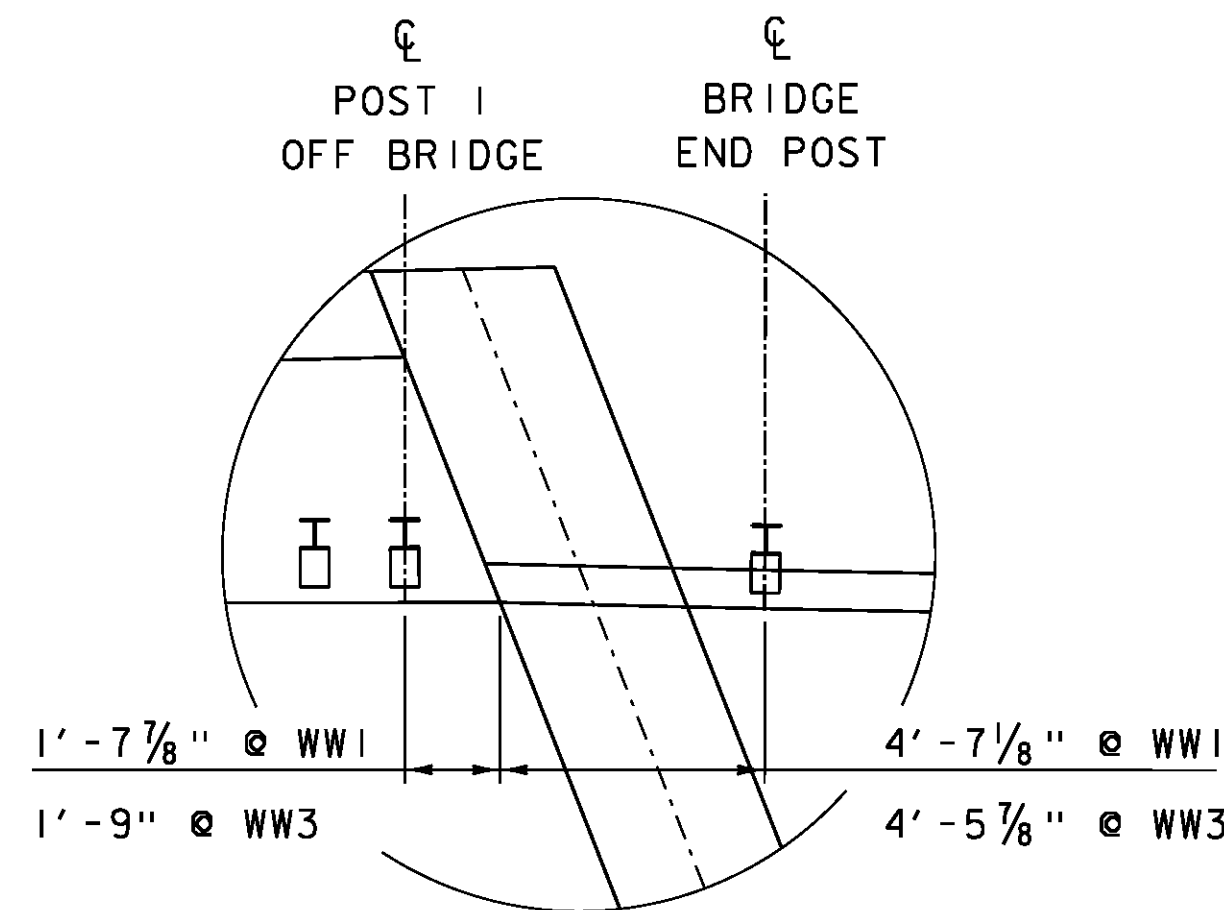
Date	Depth (ft)	Notes
02/26/14	12.4	While drilling.
02/27/14	13.2	AM, Open Hole.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
5		A-2-4, GrSiSa, brn, Moist, Rec. = 1.5 ft, Cleaned out casing with roller cone.				8-34-34-R@2.5" (68)	13.9	21.2	57.3	21.5
		A-2-4, SiSa, brn, Moist, Rec. = 0.9 ft				2-5-3-2 (8)	21.5	12.7	65.0	22.3
		A-2-4, SiSa, brn, Moist, Rec. = 1.1 ft, Cleaned out with roller cone.				2-1-1-2 (2)	16.2	12.1	63.0	24.9
		Field Note: Appears to be Silty Sand, No Recovery.				3-WR-1-1 (1)				
10		Field Note: Cleaned out casing with roller cone., Casing dropped to 9.5 feet during clean out.				12-2-2-3 (4)	24.8	21.7	51.4	26.9
		A-2-4, GrSiSa, brn, MTW, Rec. = 0.9 ft								
		Field Note: NXDC, Lost water return at 12.5 ft.								
		Field Note: NXDC								
15		Field Note: NXMDC, Silty Sand (HP), Cleaned out casing.								
20		A-1-a, SaGr (HP), gry, Moist, Rec. = 0.4 ft, Lab Note: Broken Rock was within sample.				10-R@3.5" (R)	8.9	60.3	26.2	13.5
25		Field Note: NXDC								
		Visual Description: Broken Rock with silt & sand, gry, Moist, Rec. = 0.2 ft, Insufficient sample for testing.				R@3.5" (R)	7.2			
		Field Note: Cleaned out casing with roller cone.								
30		A-4, SaSi (HP), gry, Moist, Rec. = 1.1 ft				39-49-R@1.0" (R)	15.0	7.2	31.1	61.7
		Field Note: Cleaned out casing with roller cone.				R@1.0" (R)	15.5	60.3	27.7	12.0
35		Visual Classification, Broken Rock with sand, gry, Moist, Rec. = 0.1 ft, Lab Note: Sample was mostly small pieces of Broken Rock. Core bit broke off.	1 (30)	78 (24)	5	Top of Bedrock @ 35.1 ft				
		35.1 ft - 40.1 ft, Dark-gray to silvery-gray, Lustrous, carbonaceous muscovite-biotite-quartz (+/- garnet) Phyllite, and Dark-bluish-gray Micaceous quartz-rich Limestone. Medium to moderately hard, Unweathered, Fair rock, NXMDC, RMR = 53			6					
		40.1 ft - 43.1 ft, Bluish-gray, Micaceous quartz-rich Limestone, Moderately hard, Unweathered, Fair rock, NXMDC, RMR = 58			4					
					6					
40		40.1 ft - 43.1 ft, Bluish-gray, Micaceous quartz-rich Limestone, Moderately hard, Unweathered, Fair rock, NXMDC, RMR = 58	2 (30)	87 (87)	3					
					3					
					3					
45		Hole stopped @ 43.1 ft								

Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

PROJECT NAME: CRAFTSBURY
PROJECT NUMBER: BO 1449(34)

FILE NAME: sl3j100bor1ng.dgn PLOT DATE: 14-OCT-2015
PROJECT LEADER: R. YOUNG DRAWN BY: L.J.STONE
DESIGNED BY: L.J.STONE CHECKED BY: O.M.DARISSE
BORING LOGS 2 SHEET 14 OF 42



RAIL LAYOUT SHEET

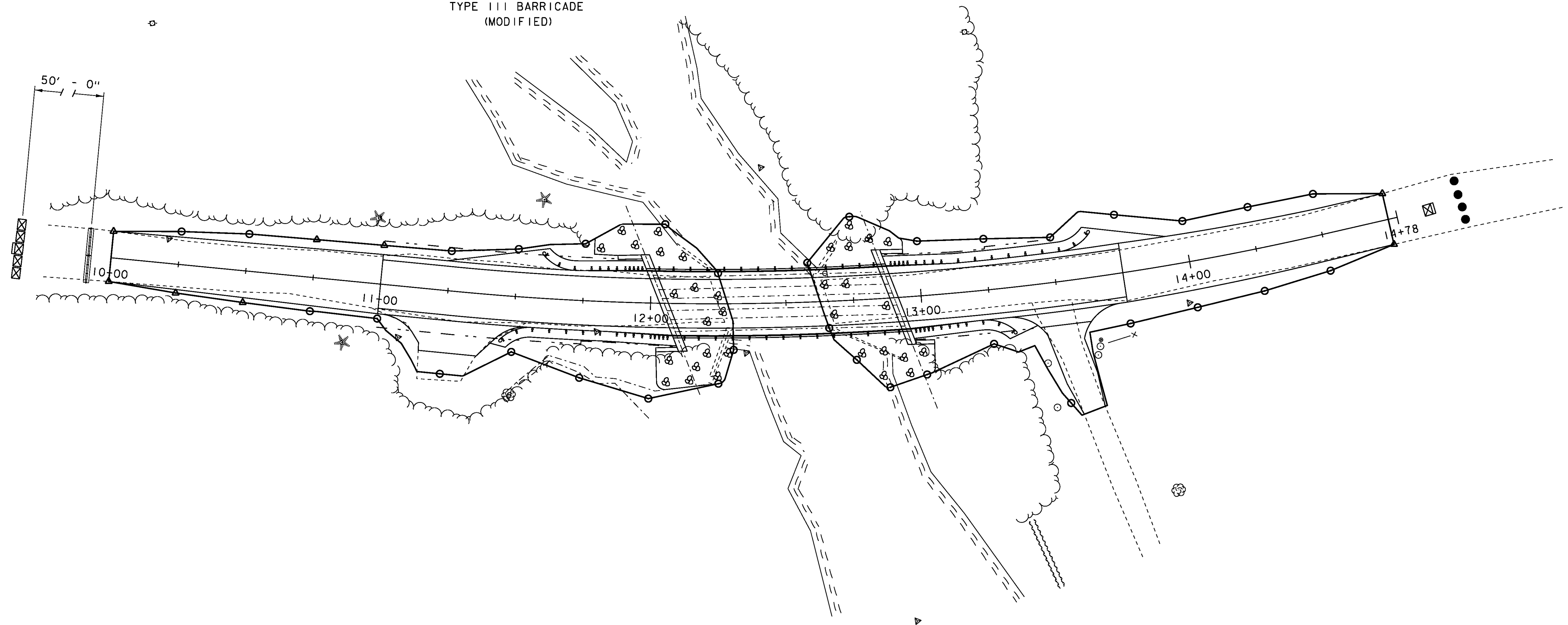
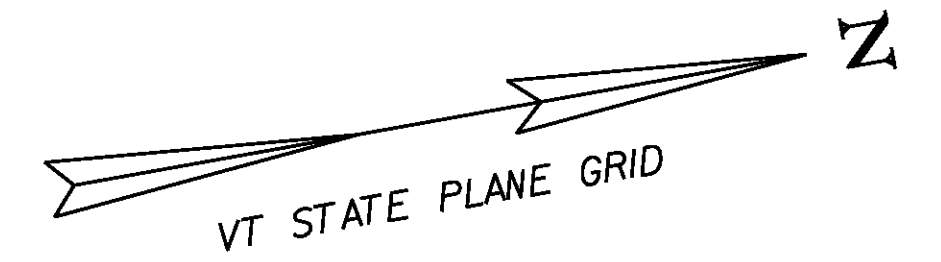
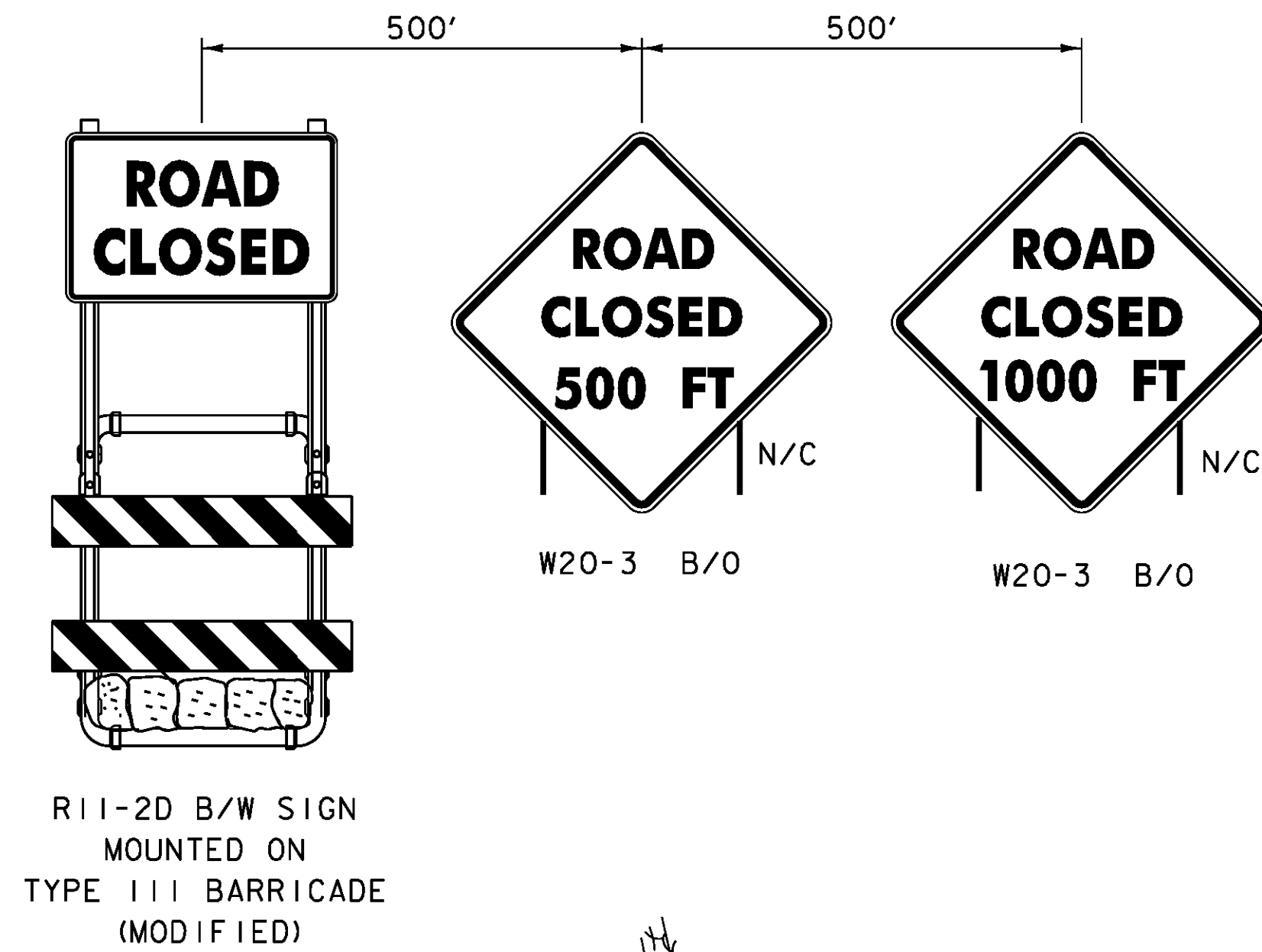
SCALE 1" = 10' - 0"



PROJECT NAME:	CRAFTSBURY	PLOT DATE:	14-OCT-2015
PROJECT NUMBER:	BO 1449(34)	DRAWN BY:	S. COLEY
FILE NAME:	sl3j100rail.dgn	CHECKED BY:	W. LAMMER
PROJECT LEADER:	R. YOUNG	SHEET	15 OF 42
DESIGNED BY:	W. LAMMER		
RAIL LAYOUT SHEET			

NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SIGNS AND BARRICADES SHOWN ON THIS SHEET. THEY WILL BE CONSIDERED INCIDENTAL TO ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)".
2. TEMPORARY TRAFFIC BARRIER AT EACH END OF THE PROJECT SHALL BE CONSIDERED INCIDENTAL TO PAY ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)" AND FURNISHED IN ACCORDANCE WITH SECTION 621.
3. SEE STANDARD T-10 FOR TYPICAL APPROACH SIGNING.



LEGEND

- N/C - NEW/CONSTRUCTION ONLY
B/O - BLACK/ORANGE
B/W - BLACK/WHITE
● - RETROREFLECTIVE PLASTIC DRUM
⊠ - TYPE III BARRICADE
⊠ - TYPE III BARRICADE (MOD.)
= TEMPORARY TRAFFIC BARRIER

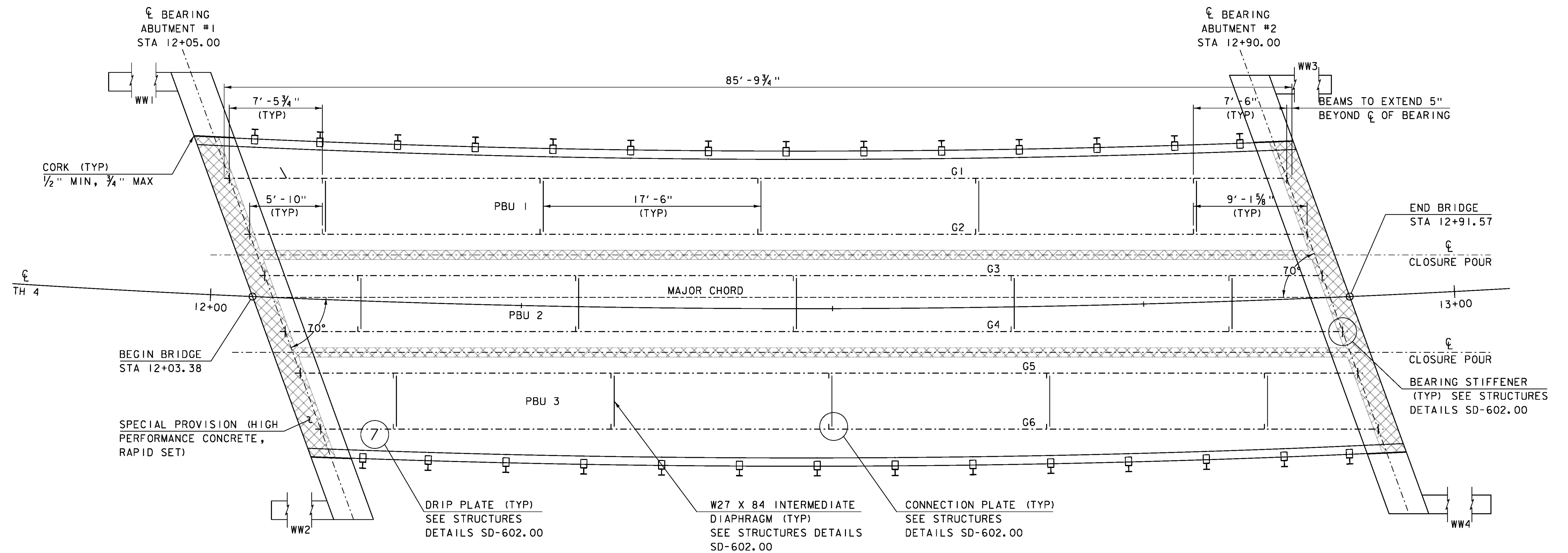
TRAFFIC LAYOUT SHEET

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

PROJECT NAME: CRAFTSBURY
PROJECT NUMBER: BO 1449(34)

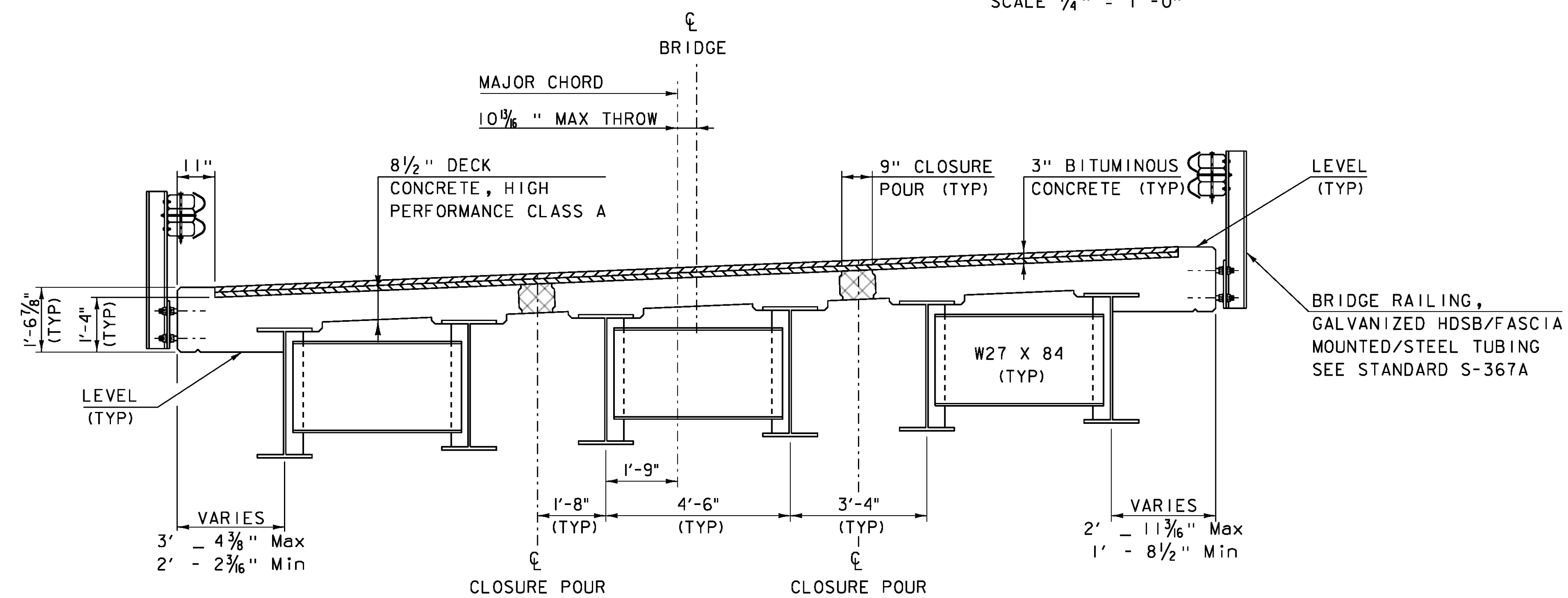
FILE NAME: sl3j100traff.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: W. LAMMER
TRAFFIC LAYOUT SHEET

PLOT DATE: 14-OCT-2015
DRAWN BY: W. LAMMER
CHECKED BY: J. SALVATORI
SHEET 16 OF 42



SUPERSTRUCTURE PLAN

SCALE 1/4" = 1' - 0"



BRIDGE TYPICAL SECTION

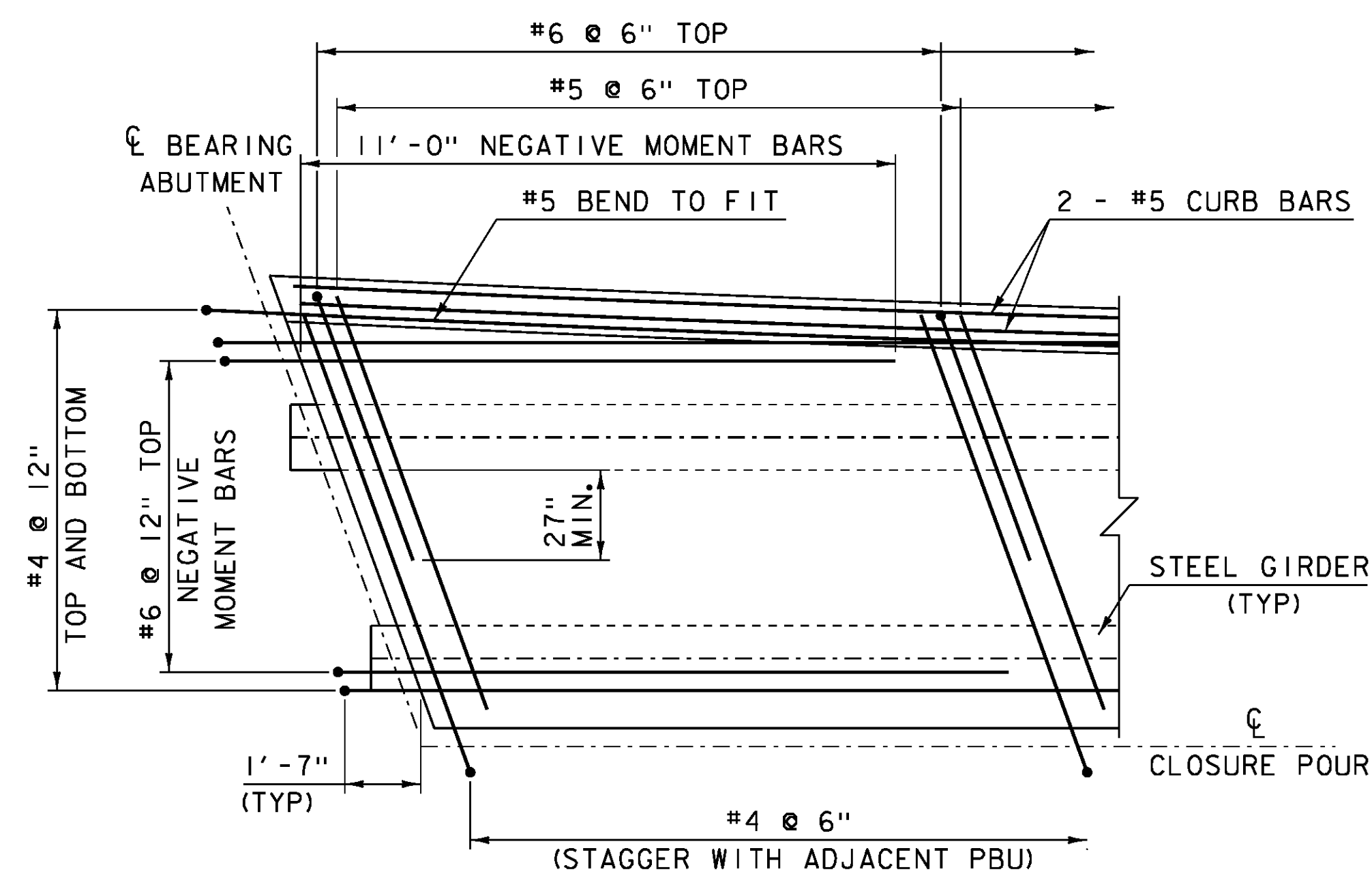
SCALE 1/2" = 1' - 0"

- SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)
- BITUMINOUS CONCRETE PAVEMENT

PROJECT NAME: CRAFTSBURY
 PROJECT NUMBER: BO 1449(34)

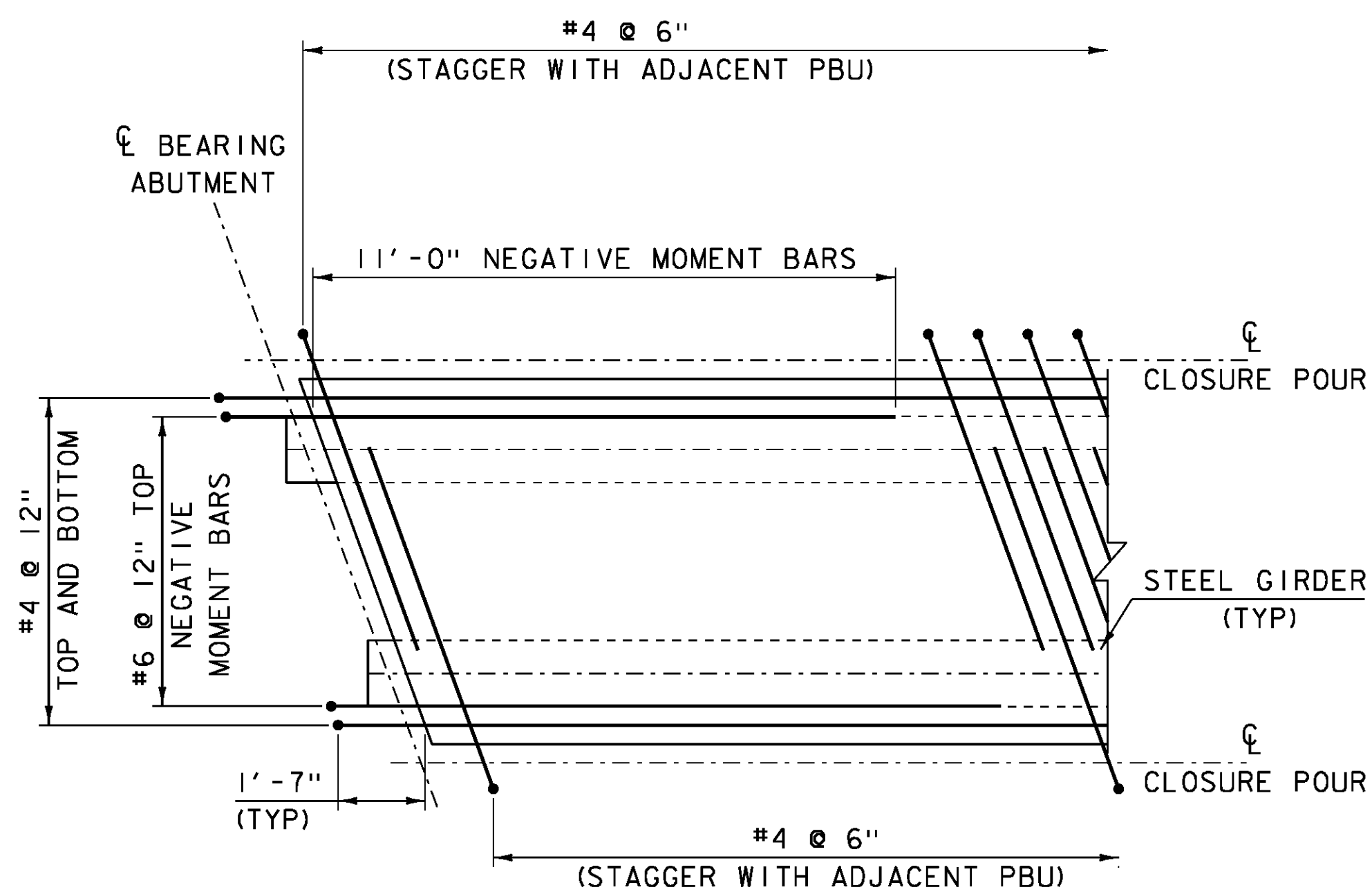
FILE NAME: sl3j100sup.dgn
 PROJECT LEADER: R. YOUNG
 DESIGNED BY: W. LAMMER
 SUPERSTRUCTURE PLAN

PLOT DATE: 14-OCT-2015
 DRAWN BY: W. LAMMER
 CHECKED BY: S. COLEY
 SHEET 17 OF 42



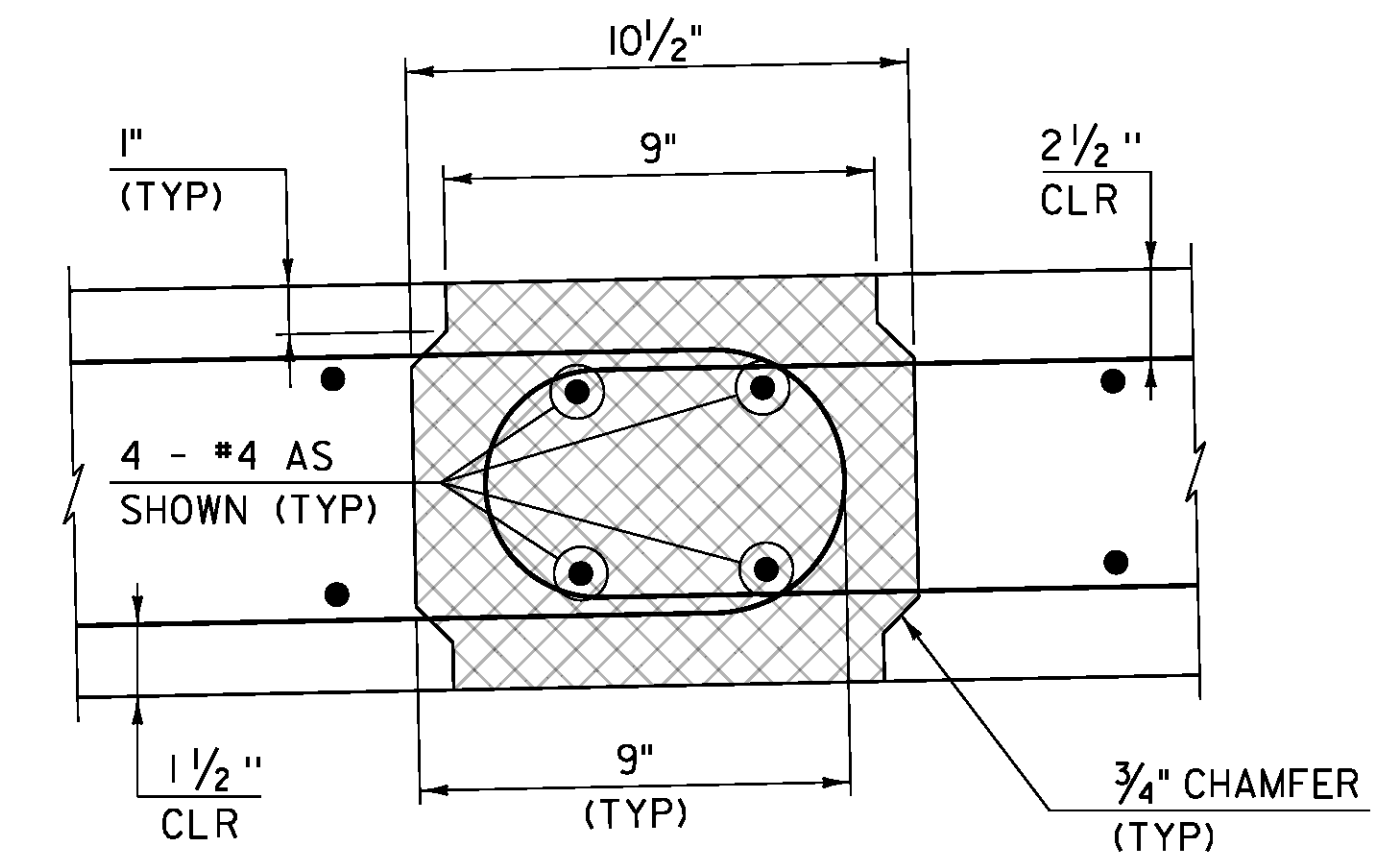
PBU 1 & 3

SCALE $\frac{3}{8}$ " = 1'-0"



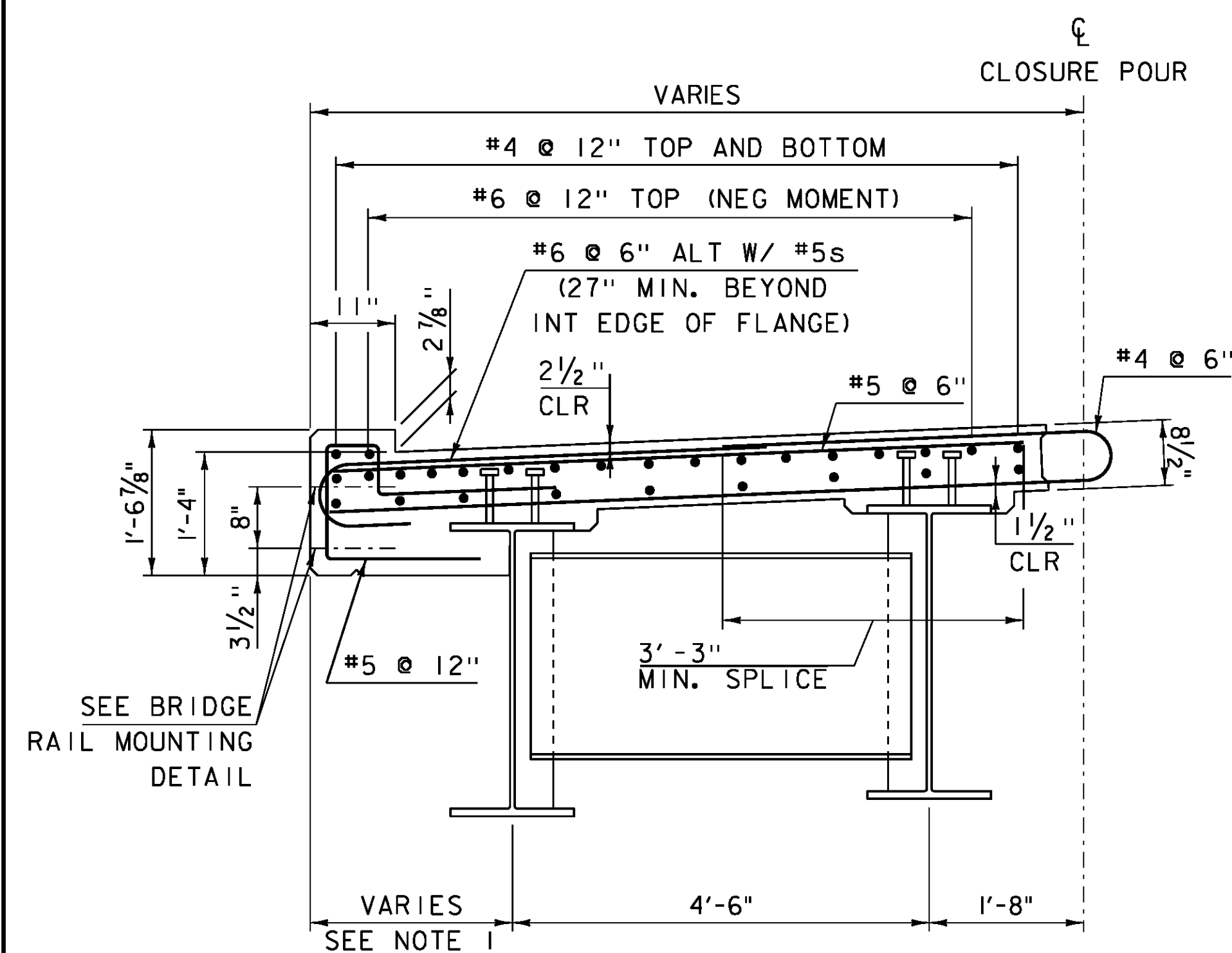
PBU 2

SCALE $\frac{3}{8}$ " = 1'-0"



CLOSURE POUR DETAIL SECTION

N.T.S.

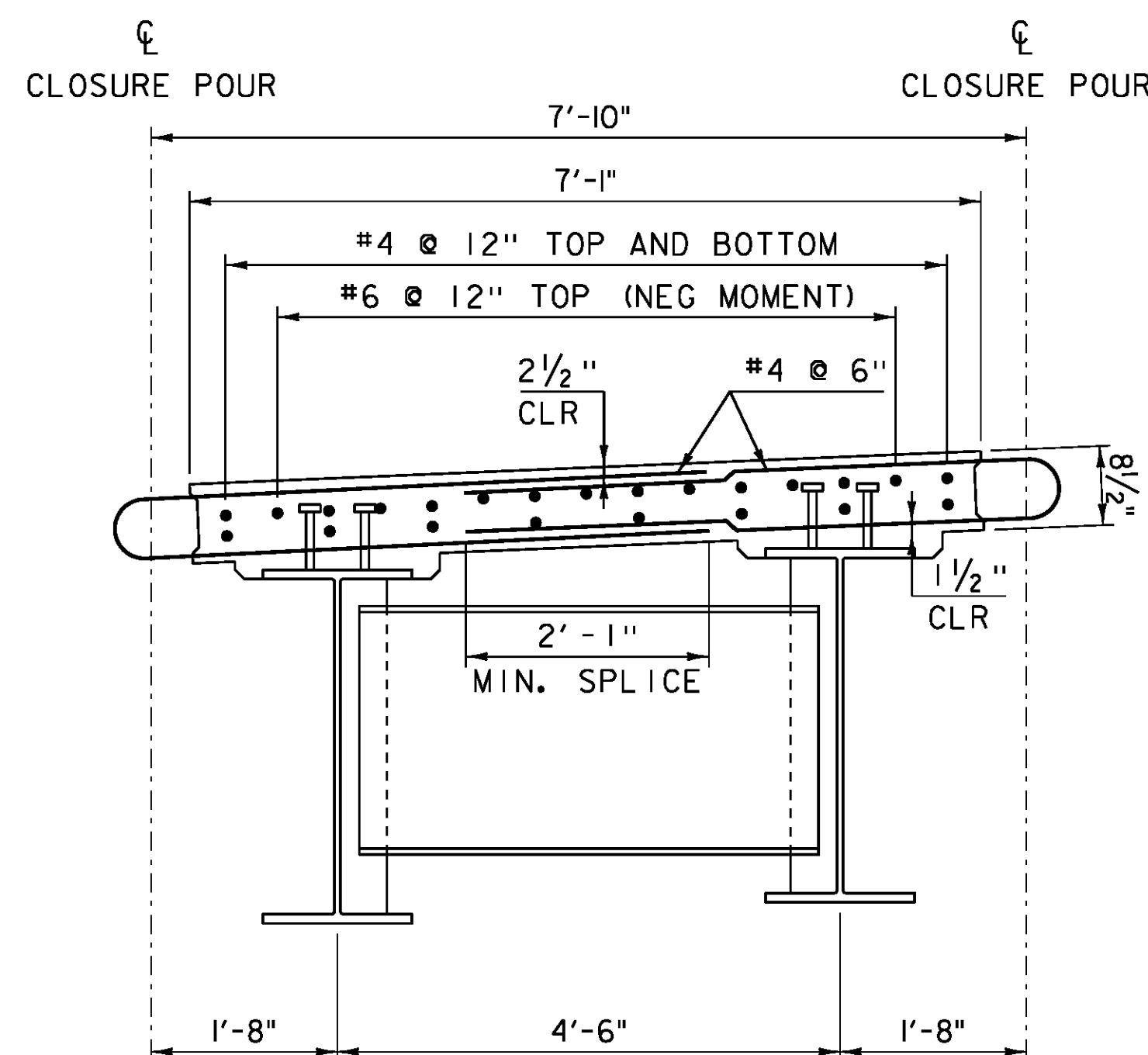


PBU 1 & 3

SCALE $\frac{3}{4}$ " = 1'-0"

NOTE:

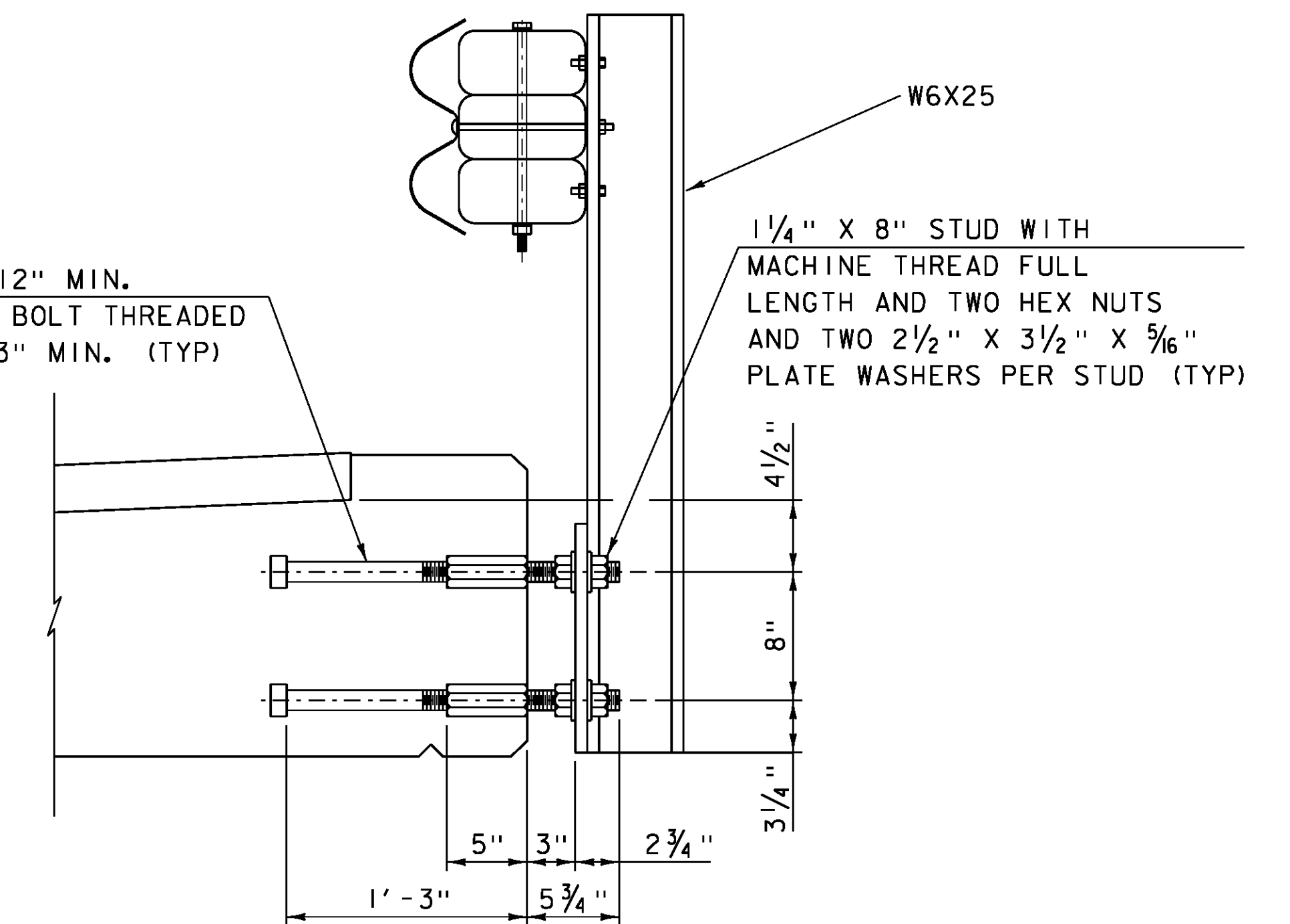
1. PBU 1, 2'-2 $\frac{3}{16}$ " MIN, 3'-4 $\frac{3}{8}$ " MAX
PBU 3, 1'-8 $\frac{1}{2}$ " MIN, 2'-1 $\frac{9}{16}$ " MAX
2. PBU 1 SHOWN, PBU 3 SIMILAR.



PBU 2

SCALE $\frac{3}{4}$ " = 1'-0"

1 1/4" X 12" MIN.
MACHINE BOLT THREADED
LENGTH 3" MIN. (TYP)



BRIDGE RAIL MOUNTING DETAIL

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

NOTE:

SEE STANDARD S-367A FOR MORE DETAILS

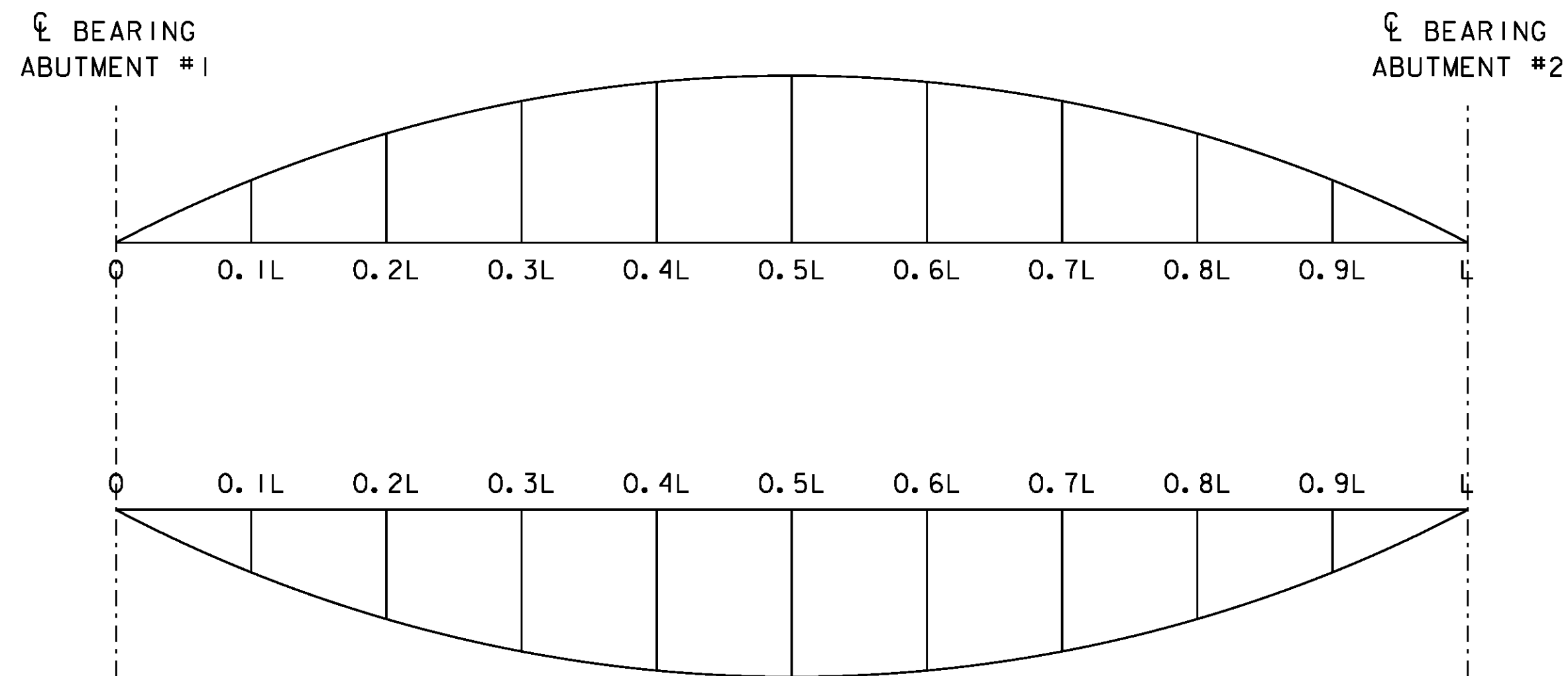
NOTE:

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: CRAFTSBURY
PROJECT NUMBER: BO 1449(34)

FILE NAME: sl3j100sup.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: W. LAMMER
PBU TYPICAL SECTIONS

PLOT DATE: 14-OCT-2015
DRAWN BY: S. COLEY
CHECKED BY: W. LAMMER
SHEET 18 OF 42

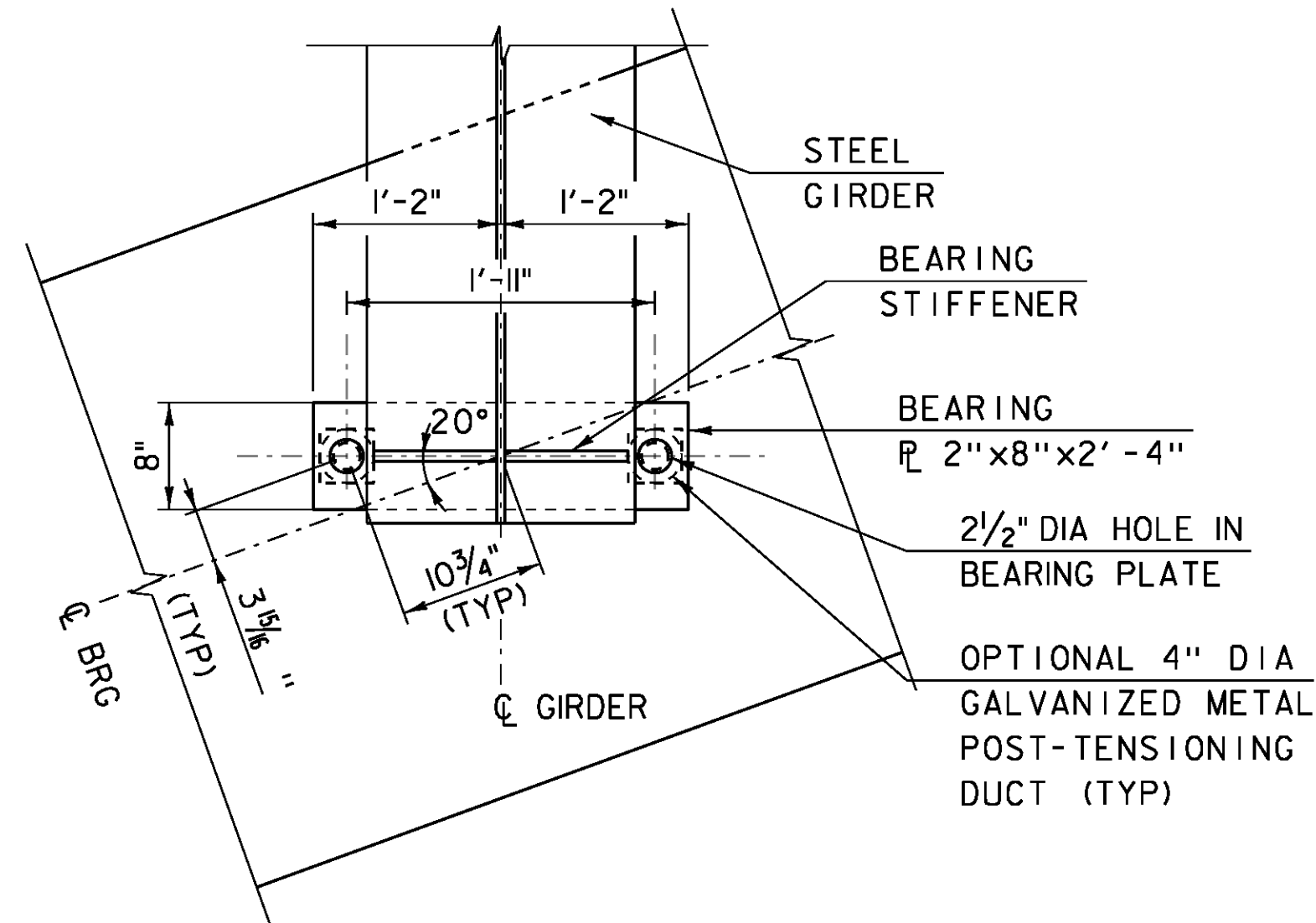


DEAD LOAD DEFLECTION DIAGRAM

NOT TO SCALE
SEE TABLES BELOW

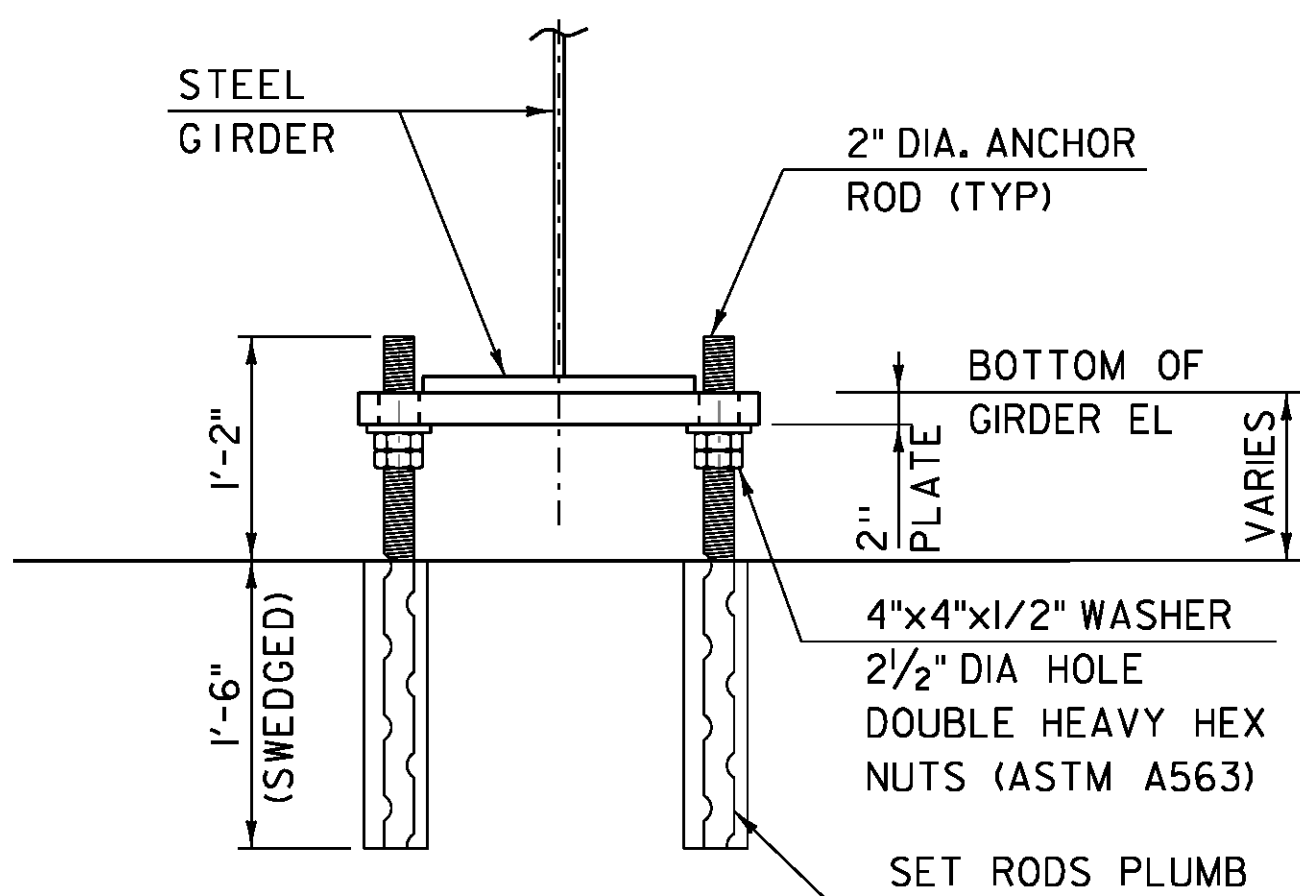
GIRDER 1, 6	.1L	.2L	.3L	.4L	.5L	.6L	.7L	.8L	.9L
STEEL DEFLECTION	3/16"	3/8"	1/2"	9/16"	5/8"	9/16"	1/2"	3/8"	3/16"
SLAB & SUPER DEFLECTION	1"	1 1/8"	2 5/8"	3 1/16"	3 3/16"	3 1/16"	2 5/8"	1 7/8"	1"
TOTAL DEFLECTION	1 3/16"	2 1/4"	3 3/8"	3 5/8"	3 11/16"	3 5/8"	3 1/8"	2 1/4"	1 3/16"
RESIDUAL CAMBER	0"	0"	0"	0"	0"	0"	0"	0"	0"
TOTAL CAMBER	1 3/16"	2 1/4"	3 3/8"	3 5/8"	3 11/16"	3 5/8"	3 1/8"	2 1/4"	1 3/16"

GIRDERS 2, 3, 4, & 5	.1L	.2L	.3L	.4L	.5L	.6L	.7L	.8L	.9L
STEEL DEFLECTION	3/16"	3/8"	1/2"	9/16"	5/8"	9/16"	1/2"	3/8"	3/16"
SLAB & SUPER DEFLECTION	5/8"	1 3/16"	1 5/8"	1 15/16"	2"	1 15/16"	1 5/8"	1 3/16"	5/8"
TOTAL DEFLECTION	11/16"	1 9/16"	2 1/8"	2 1/2"	2 5/8"	2 1/2"	2 1/8"	1 9/16"	11/16"
RESIDUAL CAMBER	0"	0"	0"	0"	0"	0"	0"	0"	0"
TOTAL CAMBER	11/16"	1 9/16"	2 1/8"	2 1/2"	2 5/8"	2 1/2"	2 1/8"	1 9/16"	11/16"



TEMPORARY BEARING ASSEMBLY PLAN

SCALE: 1" = 1'-0"

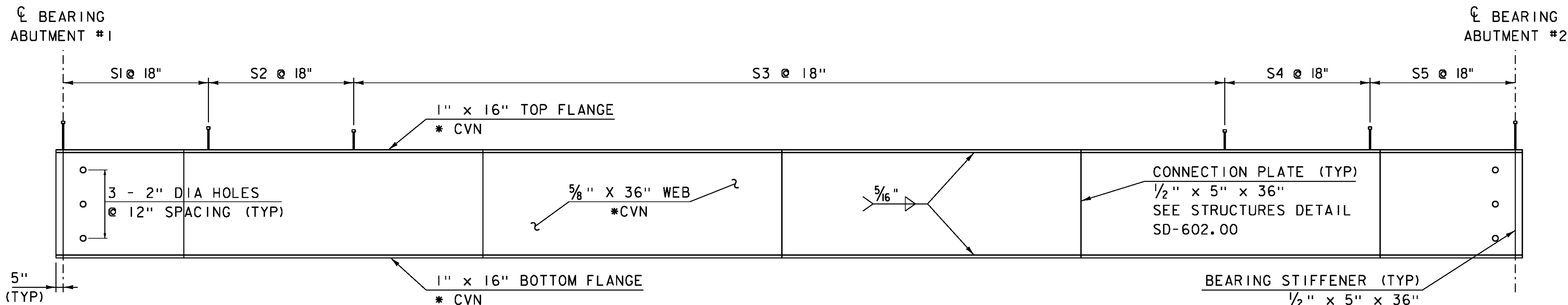


TEMPORARY BEARING ASSEMBLY ELEVATION

SCALE: 1" = 1'-0"

TEMPORARY BEARING NOTES

- PAYMENT FOR TEMPORARY BEARING ASSEMBLIES WILL BE CONSIDERED INCIDENTAL TO THE APPROPRIATE PRECAST CONCRETE ABUTMENT ITEMS.
- BEARING PLATES SHALL BE LEVEL PRIOR TO SETTING PREFABRICATED BRIDGE UNITS. ELEVATIONS SHALL BE ADJUSTED TO WITHIN 0.01FT OF ELEVATIONS NOTED DURING OFF-SITE FABRICATION OF THE UNITS.
- BEARING PLATE STEEL SHALL CONFORM TO SUBSECTION 714.03. ANCHOR RODS SHALL MEET THE REQUIREMENTS OF SUBSECTION 714.08, AND SHALL BE GRADE 55.



GIRDER ELEVATION

SCALE: HORIZ: 1/4" = 1'-0"
VERT: 1/2" = 1'-0"

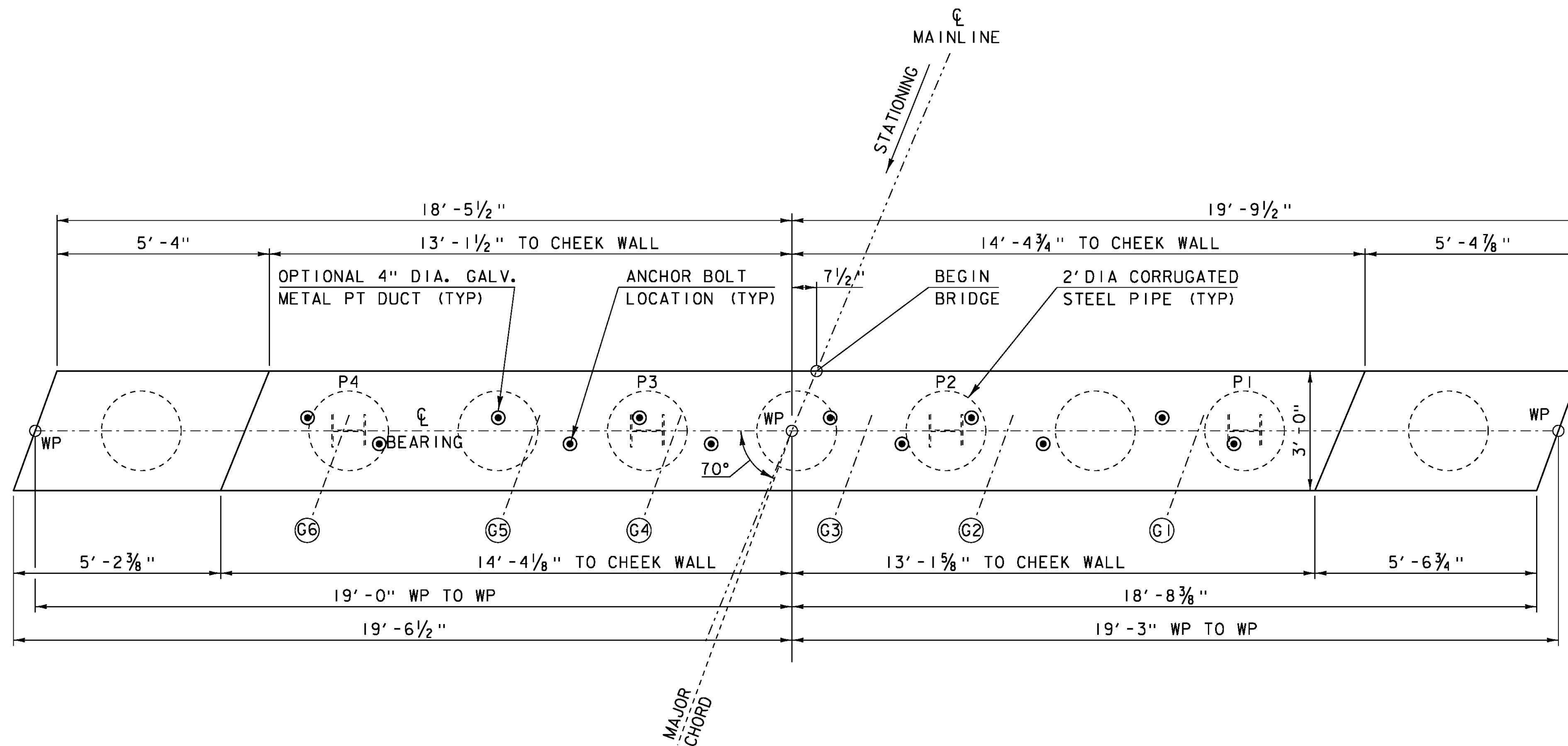
WELDED SHEAR STUD CONNECTORS TABLE					
SHEAR STUD	SIZE	START	STOP	SHEAR STUD QUANTITY	
S1	7/8" X 10"	0.0L	0.1L	6 PER ROW	X 2 ROWS
S2	7/8" X 8"	0.1L	0.2L	6 PER ROW	X 2 ROWS
S3	7/8" X 7"	0.2L	0.8L	34 PER ROW	X 2 ROWS
S4	7/8" X 8"	0.8L	0.9L	6 PER ROW	X 2 ROWS
S5	7/8" X 10"	0.9L	1.0L	6 PER ROW	X 2 ROWS

* CVN DENOTES THAT CHARPY V-NOTCH TEST IS REQUIRED

PROJECT NAME: CRAFTSBURY
PROJECT NUMBER: BO 1449(34)

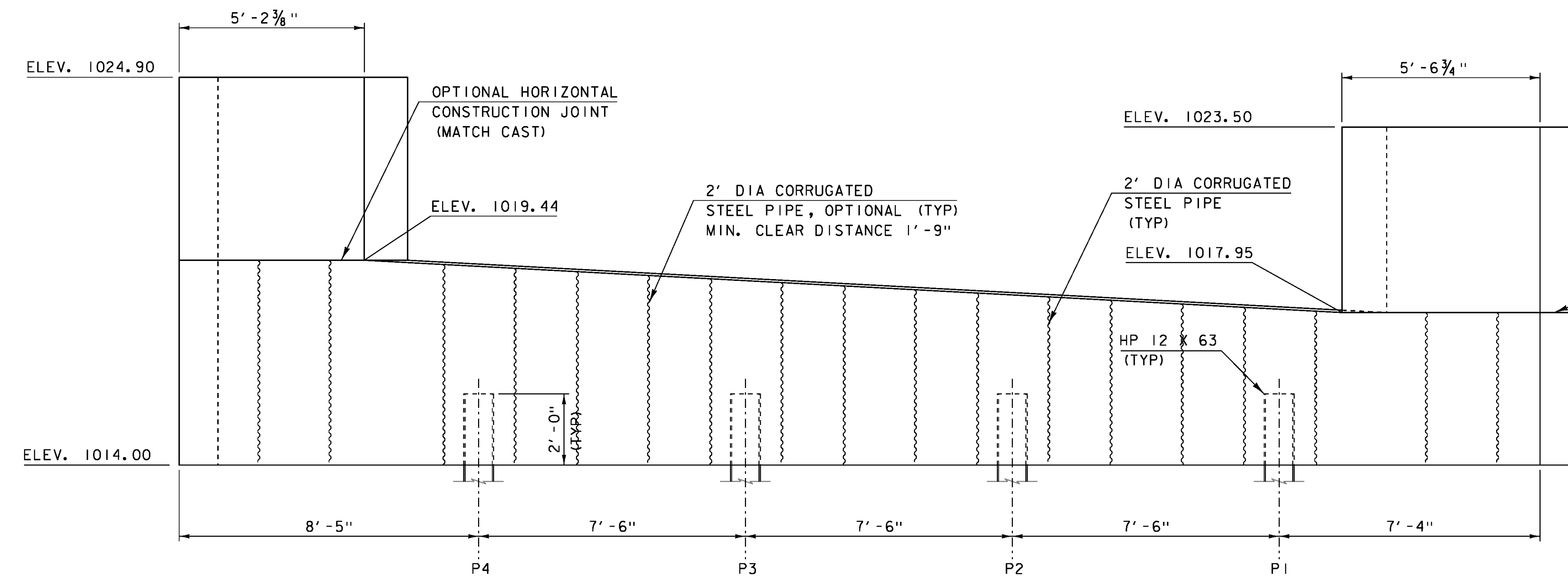
FILE NAME: sl3j100sup.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: W. LAMMER
GIRDER AND BEARING DETAILS

PLOT DATE: 14-OCT-2015
DRAWN BY: S. COLEY
CHECKED BY: J. GRIGAS
SHEET 19 OF 42



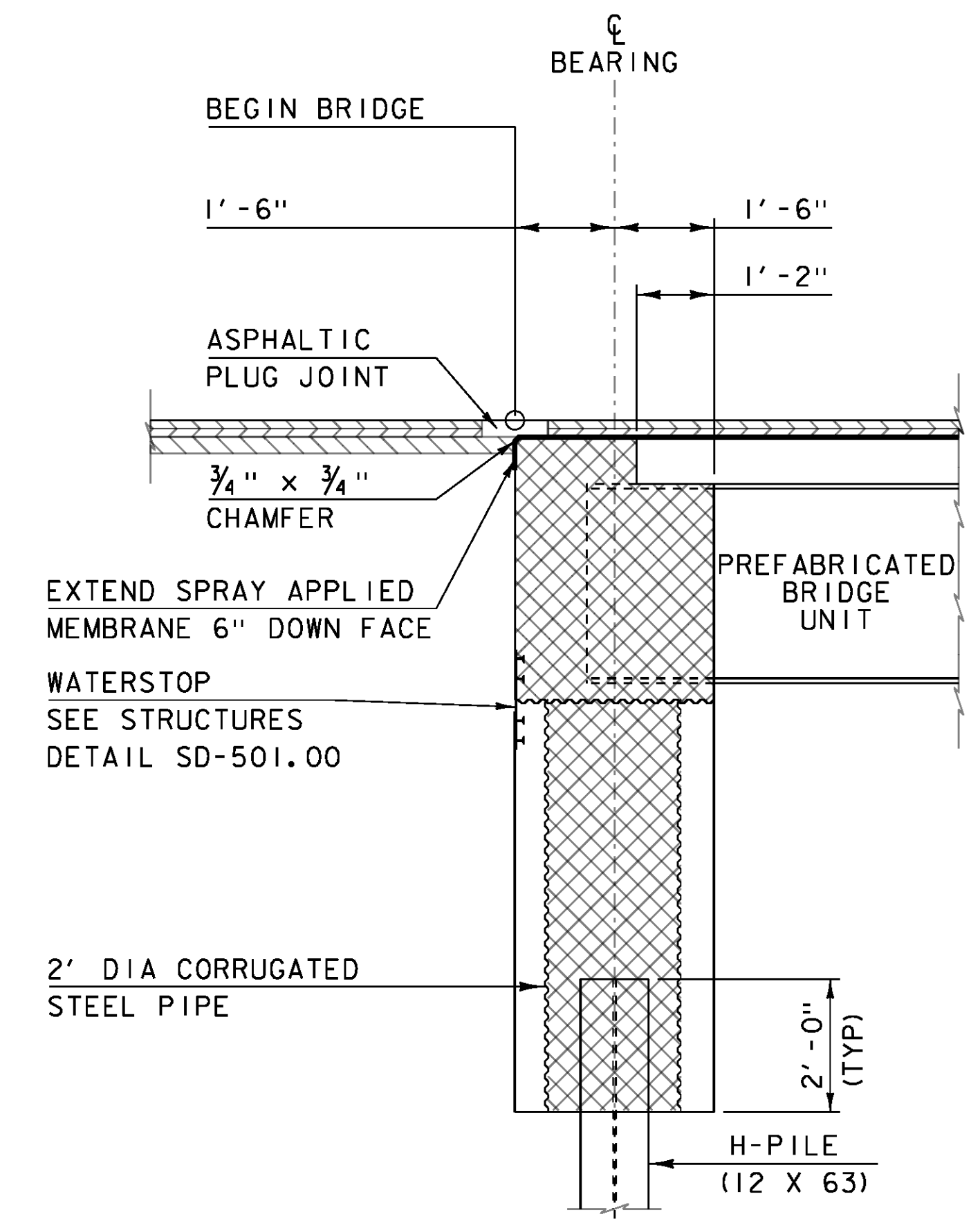
ABUTMENT I PLAN (PCU I)

SCALE 1/2" = 1'-0"



ABUTMENT I ELEVATION (PCU I)

SCALE 1/2" = 1'-0"



ABUTMENT TYPICAL

SCALE 1/2" = 1'-0"

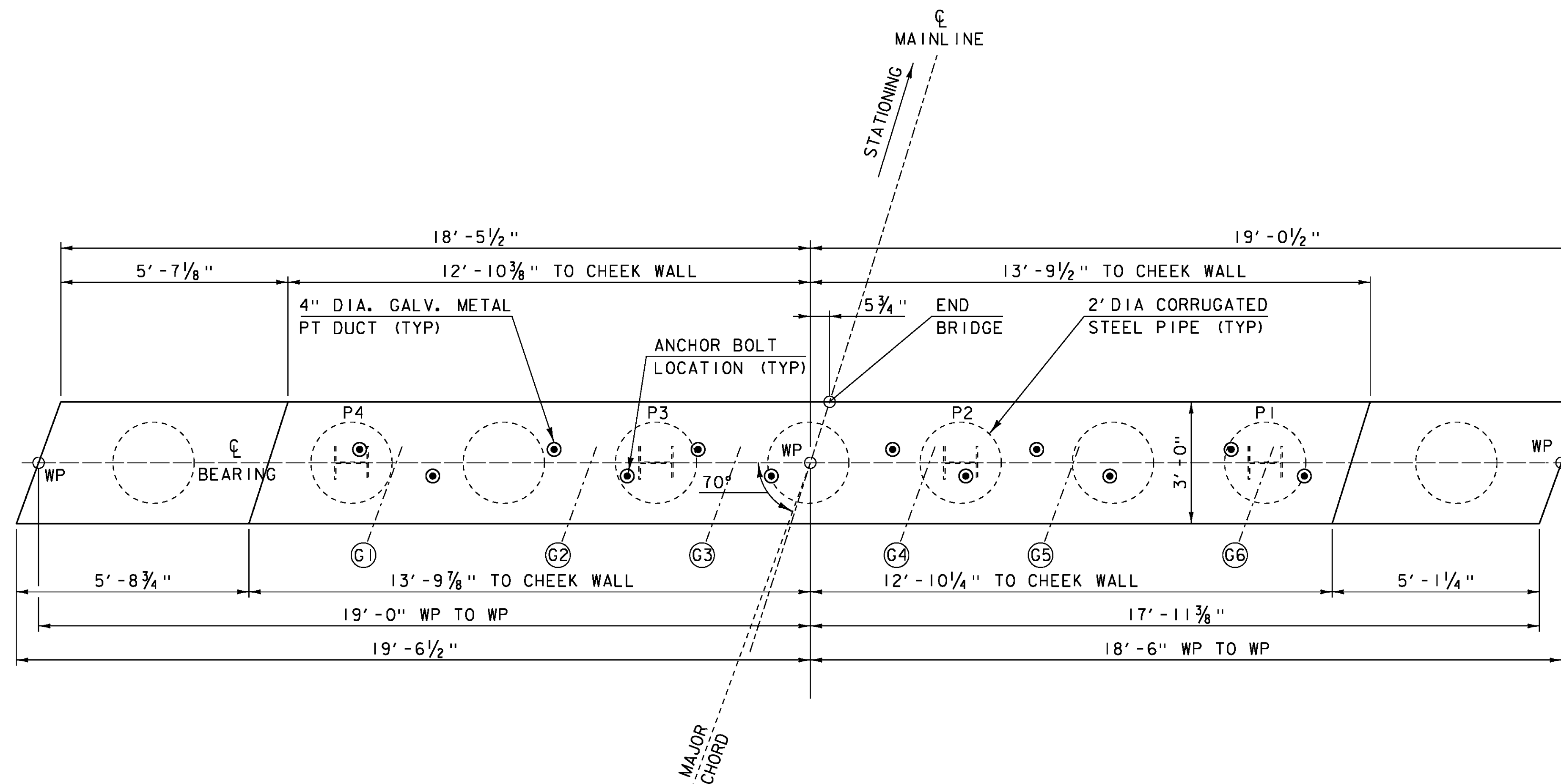
NOTES:

- OPTIONAL 4" DIAMETER GALVANIZED METAL POST-TENSIONING DUCTS ARE SHOWN AT ANCHOR BOLT LOCATIONS. THE CONTRACTOR IS RESPONSIBLE FOR DEVELOPING A METHOD TO ENSURE THAT THE ANCHOR BOLTS CAN BE PROPERLY INSTALLED AT ALL LOCATIONS. PAYMENT FOR ALL WORK AND MATERIALS NECESSARY TO INSTALL THE ANCHOR BOLTS WILL BE CONSIDERED INCIDENTAL TO THE APPROPRIATE PRECAST ABUTMENT ITEMS.

PROJECT NAME: CRAFTSBURY
PROJECT NUMBER: BO 1449(34)

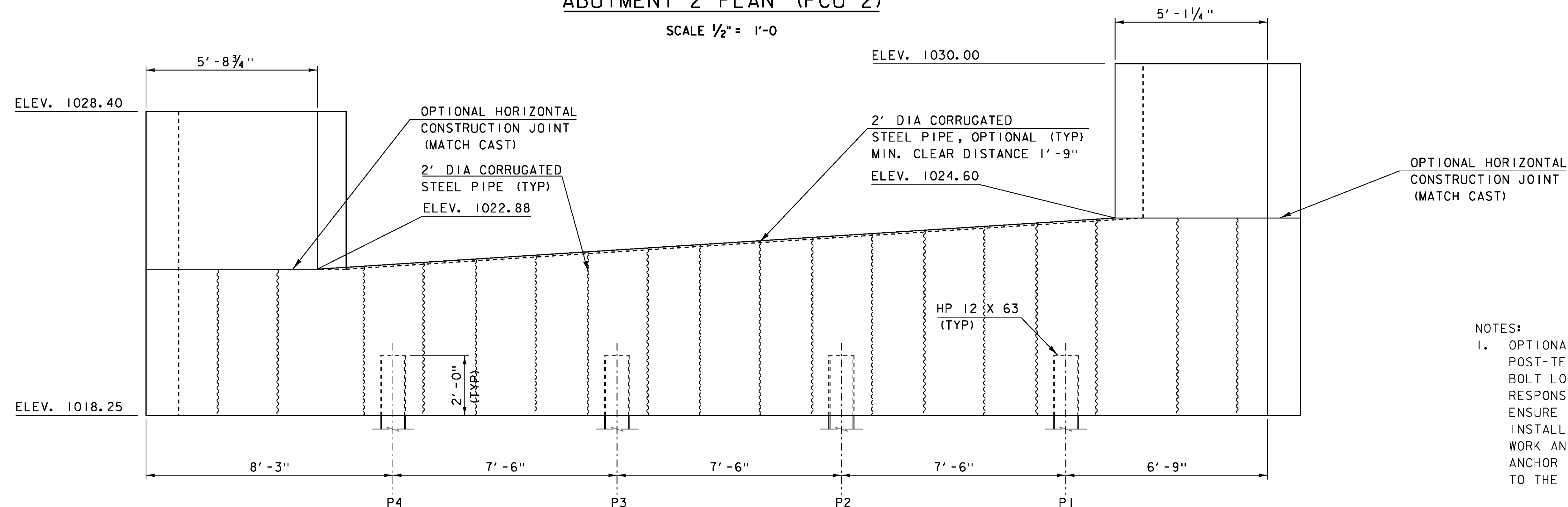
FILE NAME: sl3j100sub.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: W. LAMMER
ABUTMENT I PLAN

PLOT DATE: 14-OCT-2015
DRAWN BY: W. LAMMER
CHECKED BY: S. COLEY
SHEET 20 OF 42



ABUTMENT 2 PLAN (PCU 2)

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



ABUTMENT 2 ELEVATION (PCU 2)

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

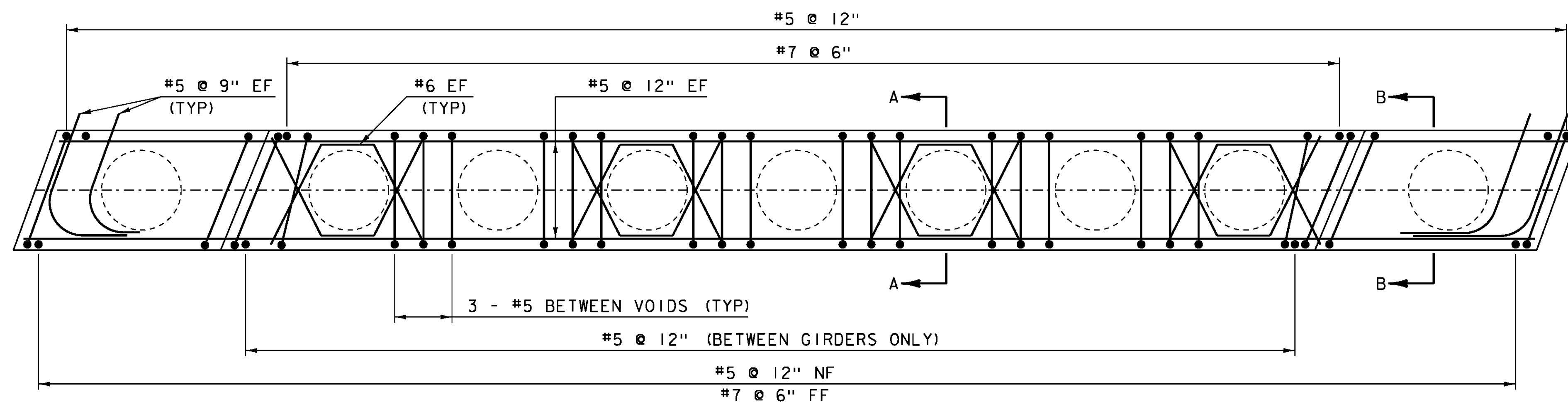
NOTES:

- OPTIONAL 4" DIAMETER GALVANIZED METAL POST-TENSIONING DUCTS ARE SHOWN AT ANCHOR BOLT LOCATIONS. THE CONTRACTOR IS RESPONSIBLE FOR DEVELOPING A METHOD TO ENSURE THAT THE ANCHOR BOLTS CAN BE PROPERLY INSTALLED AT ALL LOCATIONS. PAYMENT FOR ALL WORK AND MATERIALS NECESSARY TO INSTALL THE ANCHOR BOLTS WILL BE CONSIDERED INCIDENTAL TO THE APPROPRIATE PRECAST ABUTMENT ITEMS.

PROJECT NAME: CRAFTSBURY
PROJECT NUMBER: BO 1449(34)

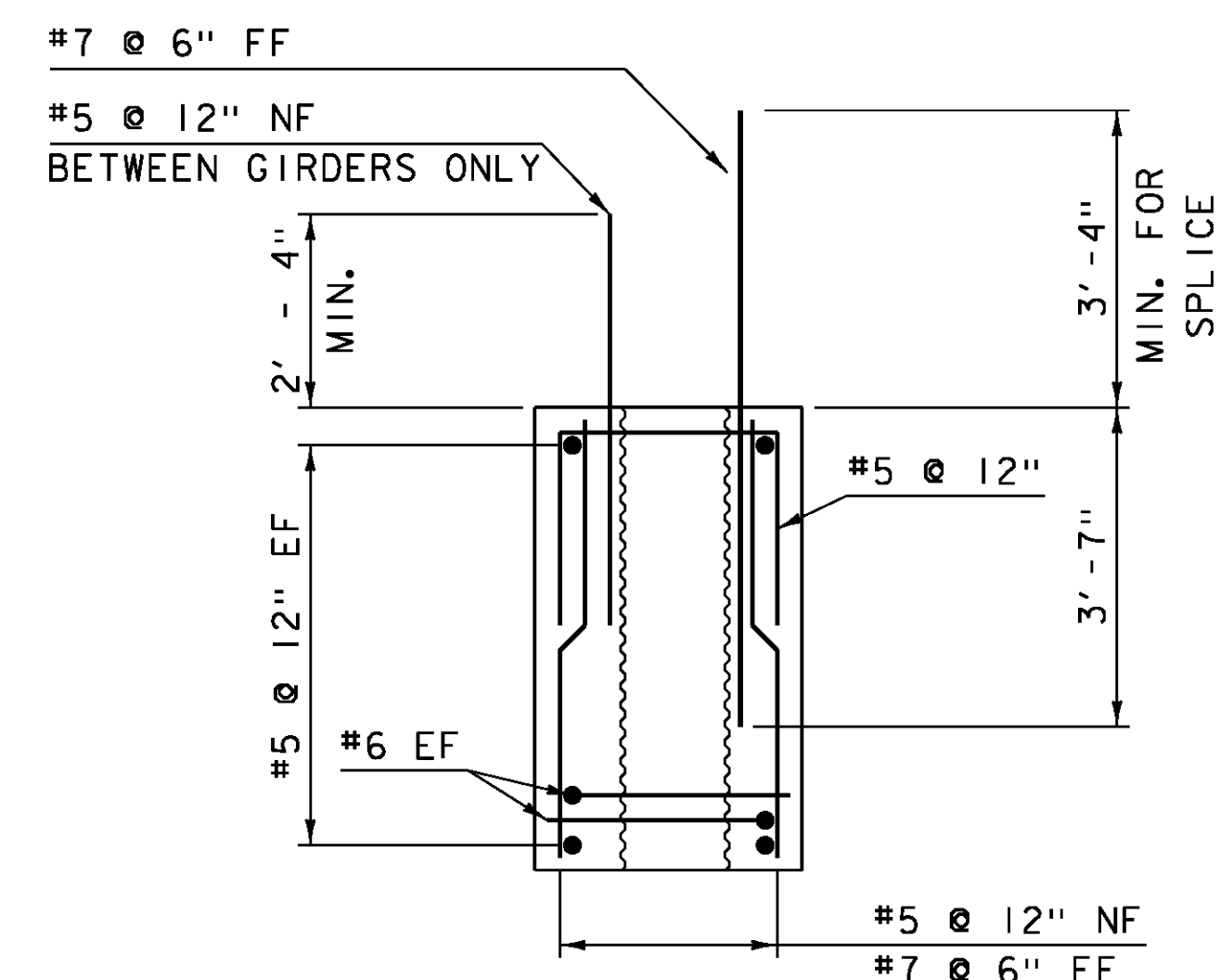
FILE NAME: sl3j100sub.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: W. LAMMER
ABUTMENT 2 PLAN

PLOT DATE: 14-OCT-2015
DRAWN BY: W. LAMMER
CHECKED BY: S. COLEY
SHEET 21 OF 42



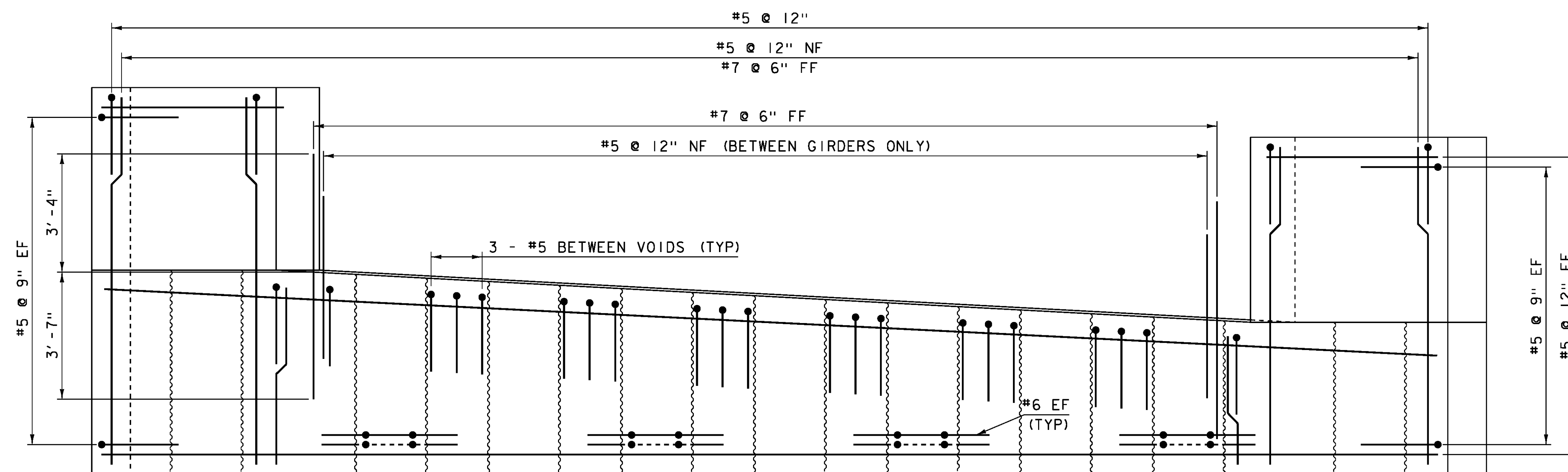
ABUTMENT 1 REINFORCING PLAN (PCU 1)

SCALE 1/2" = 1'-0



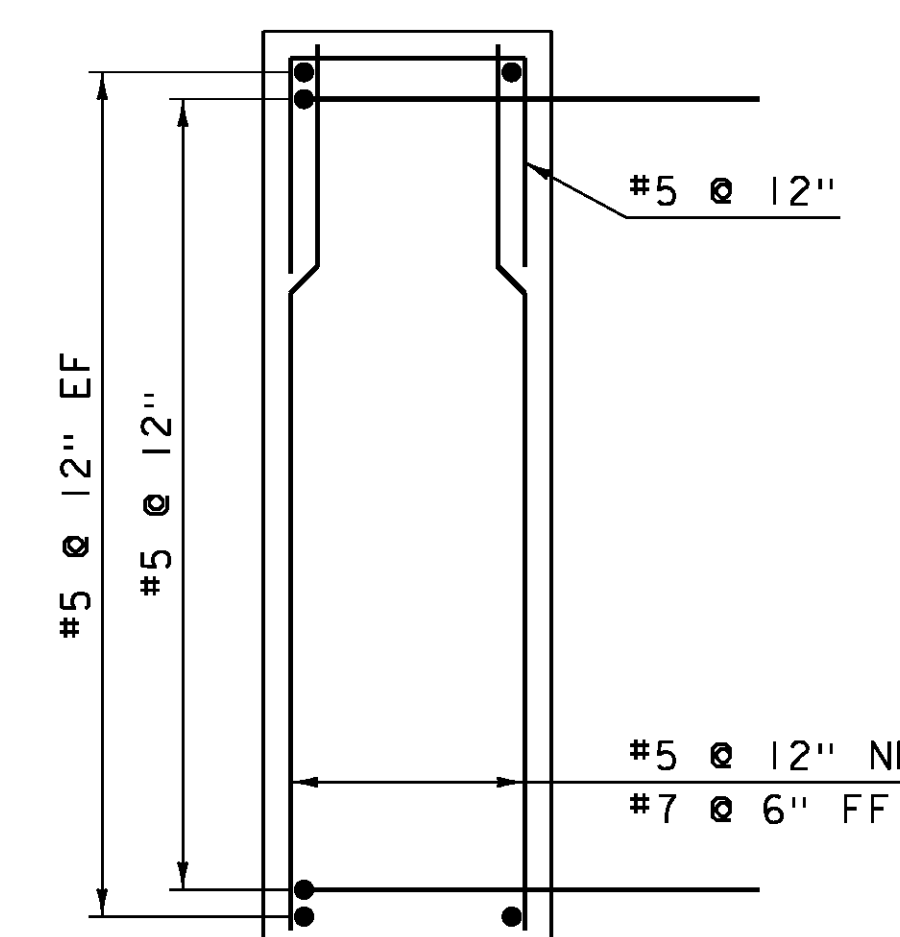
SECTION A-A

NTS



ABUTMENT 1 REINFORCING ELEVATION (PCU 1)

SCALE 1/2" = 1'-0



SECTION B-B

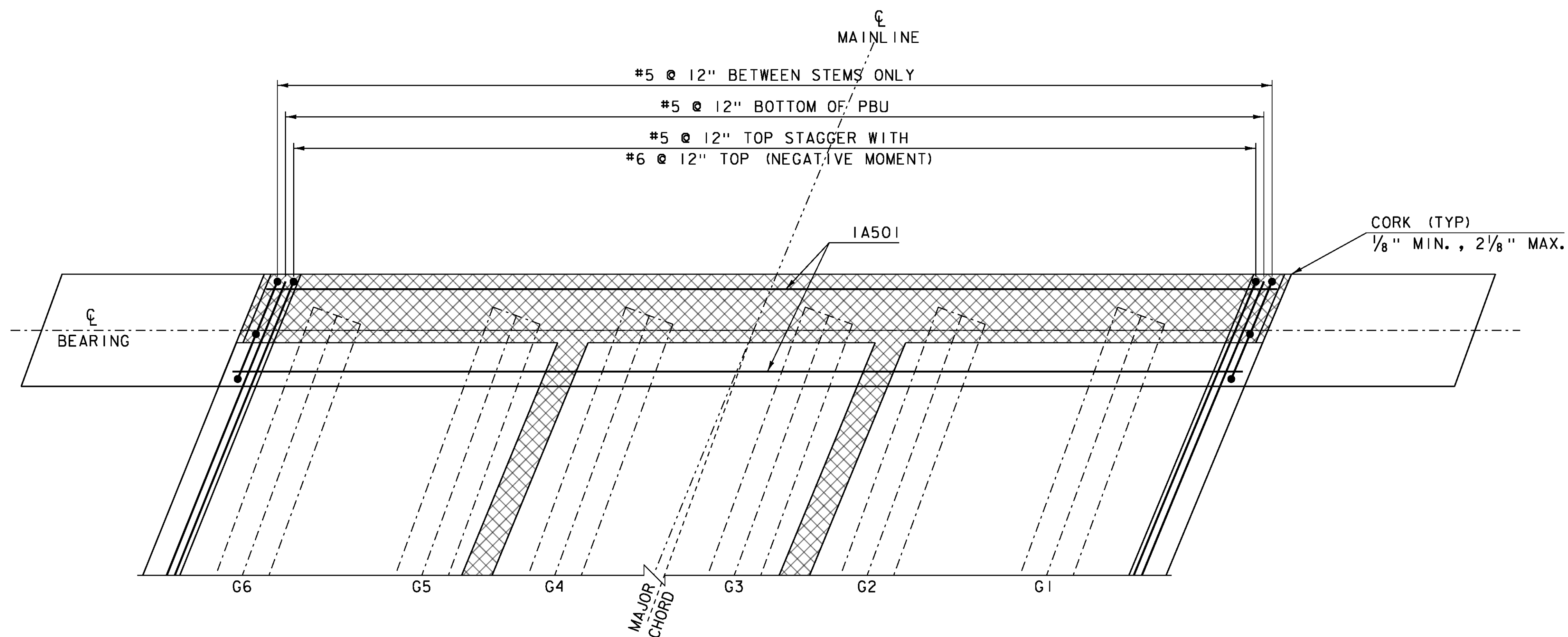
NTS

NOTES:
1. ABUTMENT 1 SHOWN, ABUTMENT 2 SIMILAR

NOTE:

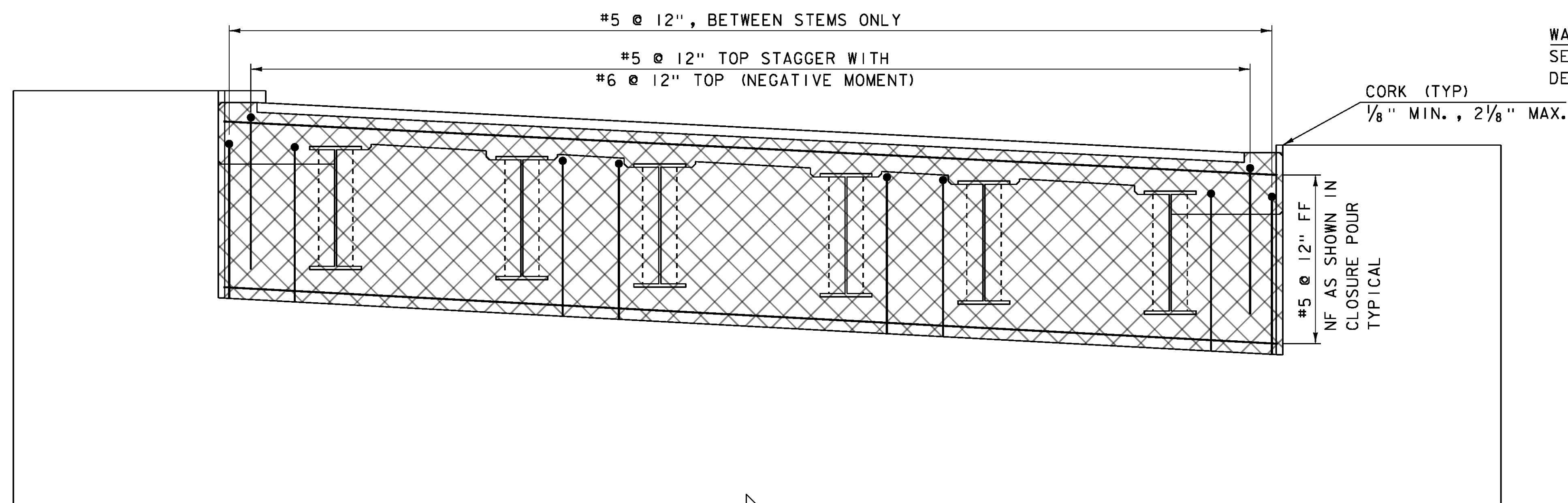
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE
SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE
SPECIFIED ON THE PLANS.

PROJECT NAME:	CRAFTSBURY
PROJECT NUMBER:	BO 1449(34)
FILE NAME:	sl3j100sub.dgn
PROJECT LEADER:	R. YOUNG
DESIGNED BY:	W. LAMMER
ABUTMENT REINFORCING	
PLOT DATE:	14-OCT-2015
DRAWN BY:	W. LAMMER
CHECKED BY:	S. COLEY
SHEET	22 OF 42



CLOSURE POUR PLAN

SCALE 1/2" = 1'-0

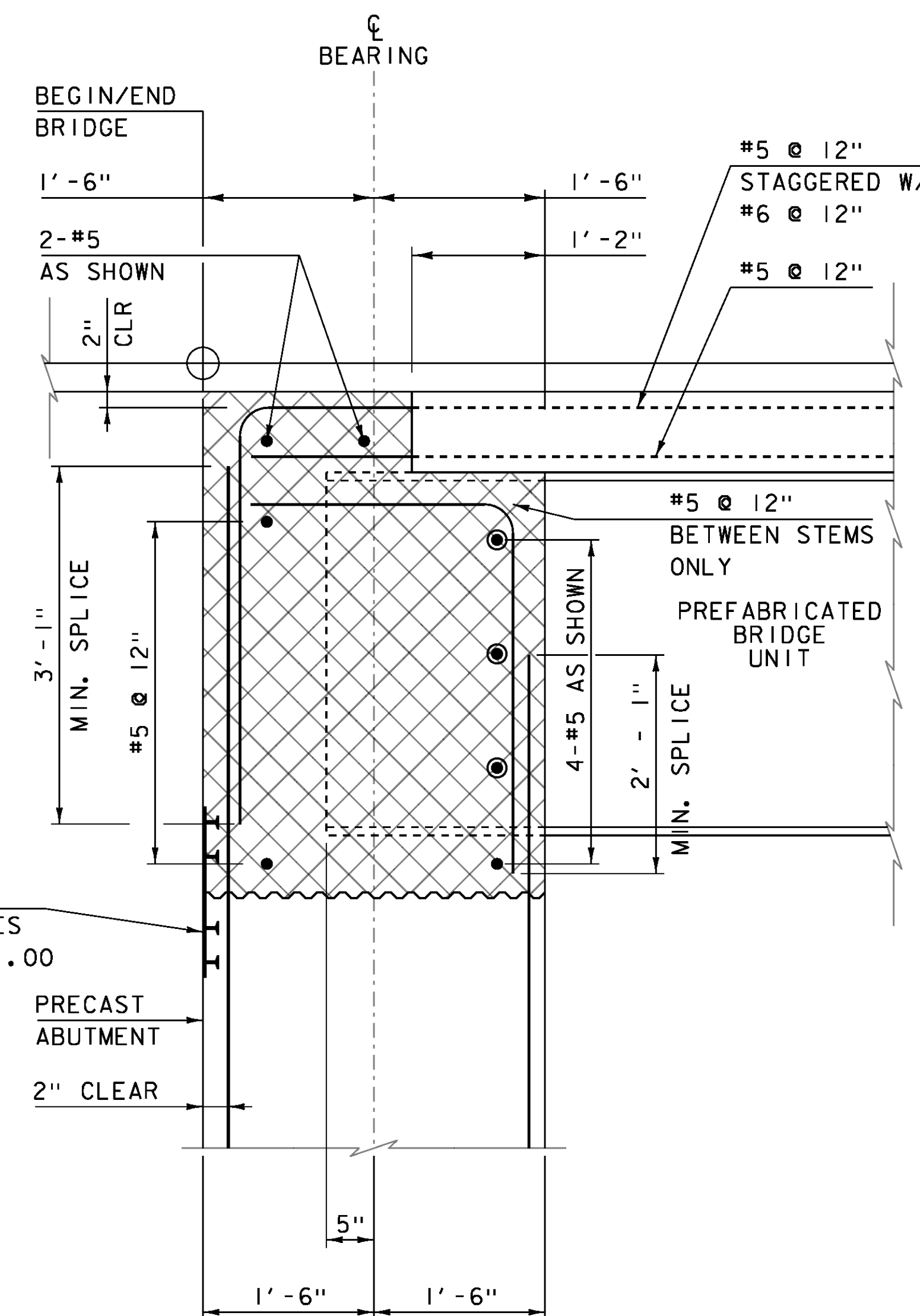


CLOSURE POUR ELEVATION

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.



CLOSURE POUR TYPICAL

SCALE 1" = 1'-0

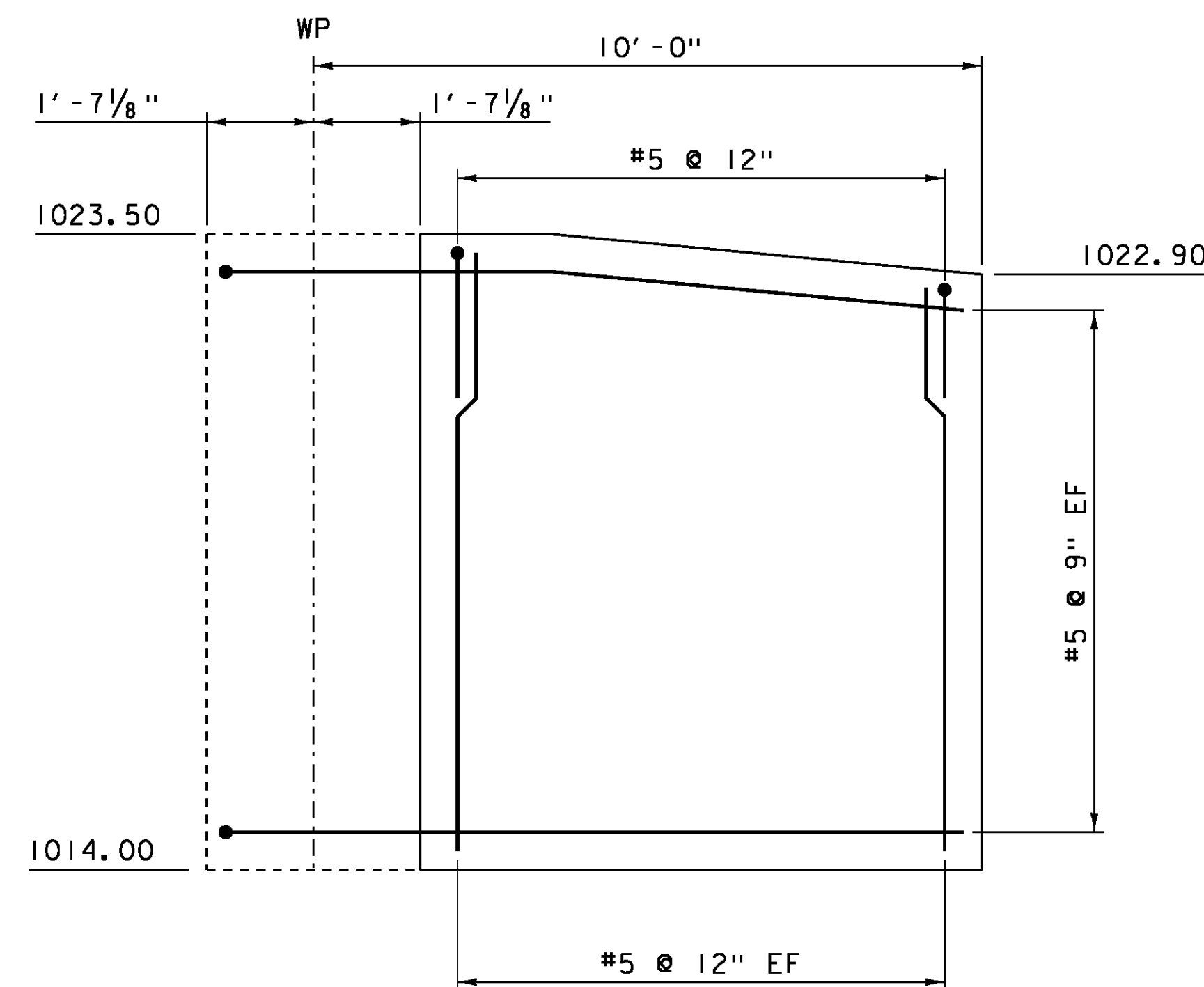
NOTE:

1. ABUTMENT 1 REINFORCING SHOWN. ABUTMENT 2 REINFORCING SIMILAR.
2. SEE ABUTMENT REINFORCING FOR ADDITIONAL REINFORCING IN THE CLOSURE POUR.

PROJECT NAME: CRAFTSBURY
PROJECT NUMBER: BO 1449(34)

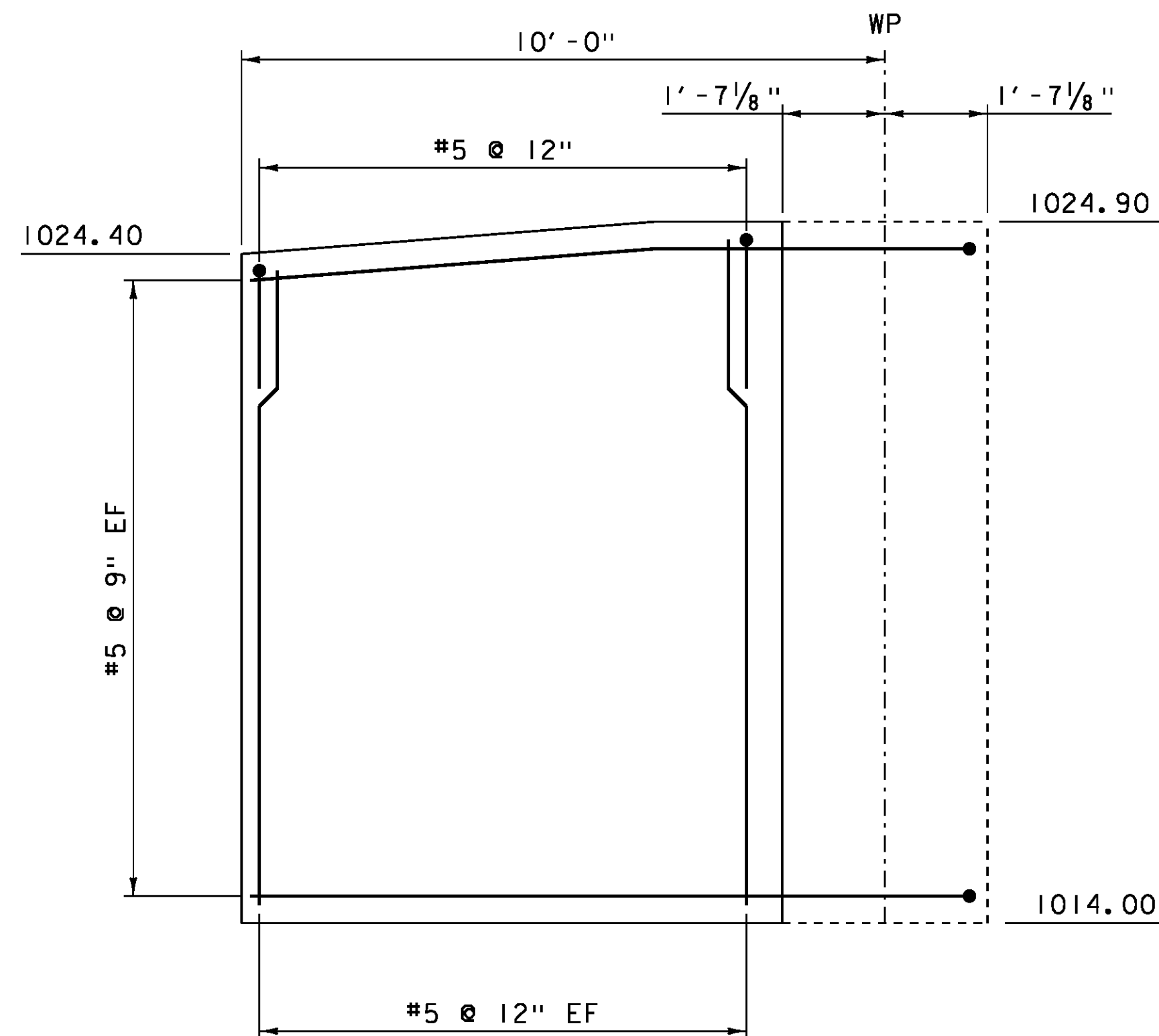
FILE NAME: sl3j100sub.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: W. LAMMER
ABUTMENT CLOSURE POUR DETAILS

PLOT DATE: 14-OCT-2015
DRAWN BY: W. LAMMER
CHECKED BY: S. COLEY
SHEET 23 OF 42



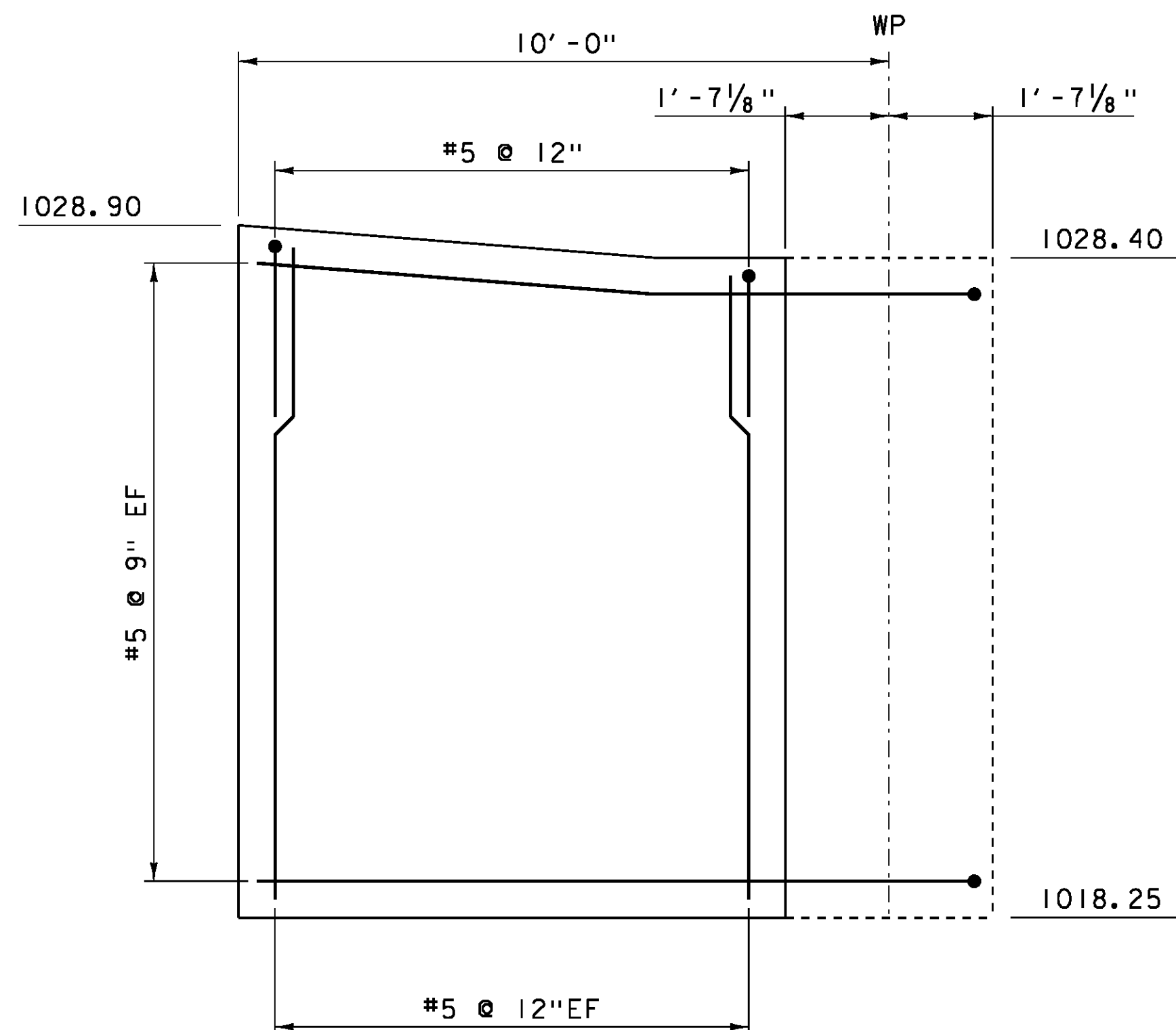
WINGWALL 1 ELEVATION

SCALE 1/2" = 1'-0



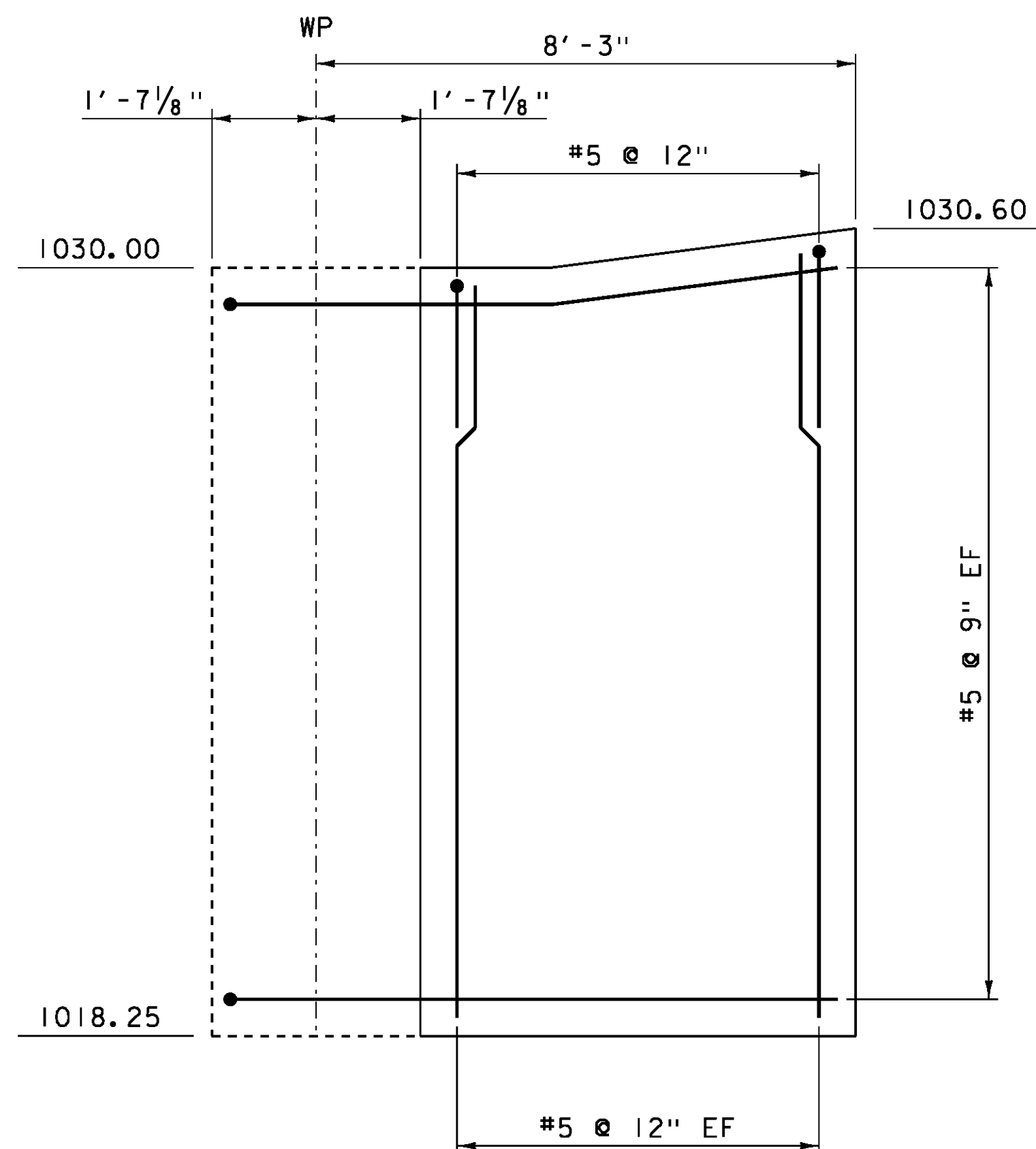
WINGWALL 2 ELEVATION

SCALE 1/2" = 1'-0



WINGWALL 3 ELEVATION

SCALE 1/2" = 1'-0



WINGWALL 4 ELEVATION

SCALE 1/2" = 1'-0

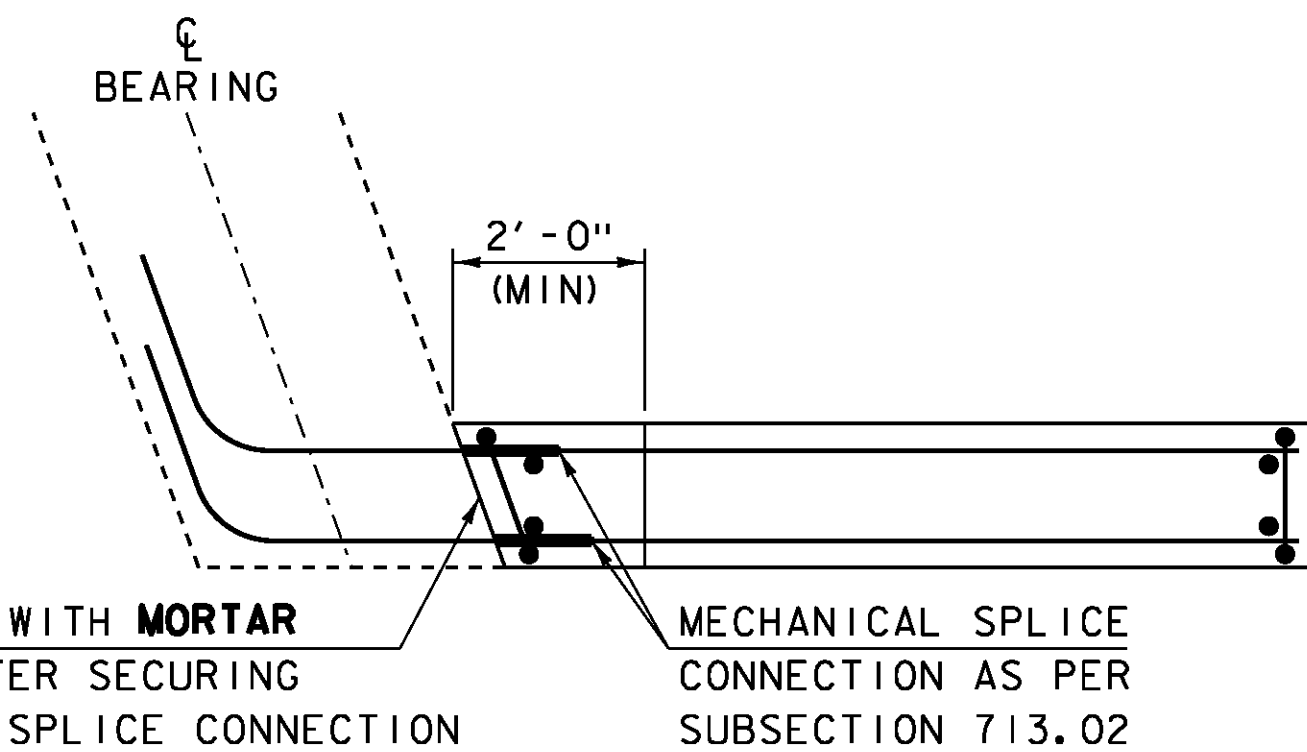


NOTES:

1. MORTAR TYPE IV SHALL BE PLACED IN THE JOINT BETWEEN THE PRECAST PILE CAP AND THE PRECAST WINGWALL IN ACCORDANCE WITH SUBSECTION 540.11 GROUT, AND WILL BE CONSIDERED INCIDENTAL TO THE APPROPRIATE PRECAST CONCRETE STRUCTURE ITEM.
2. 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.
3. THE BRIDGE PLAQUE FURNISHED BY THE AGENCY SHALL BE CAST INTO WINGWALL 2. ALL WORK TO INSTALL THE PLAQUE WILL BE CONSIDERED INCIDENTAL TO THE APPROPRIATE PRECAST CONCRETE STRUCTURE ITEM. SEE SD-502.00 FOR FURTHER DETAILS.

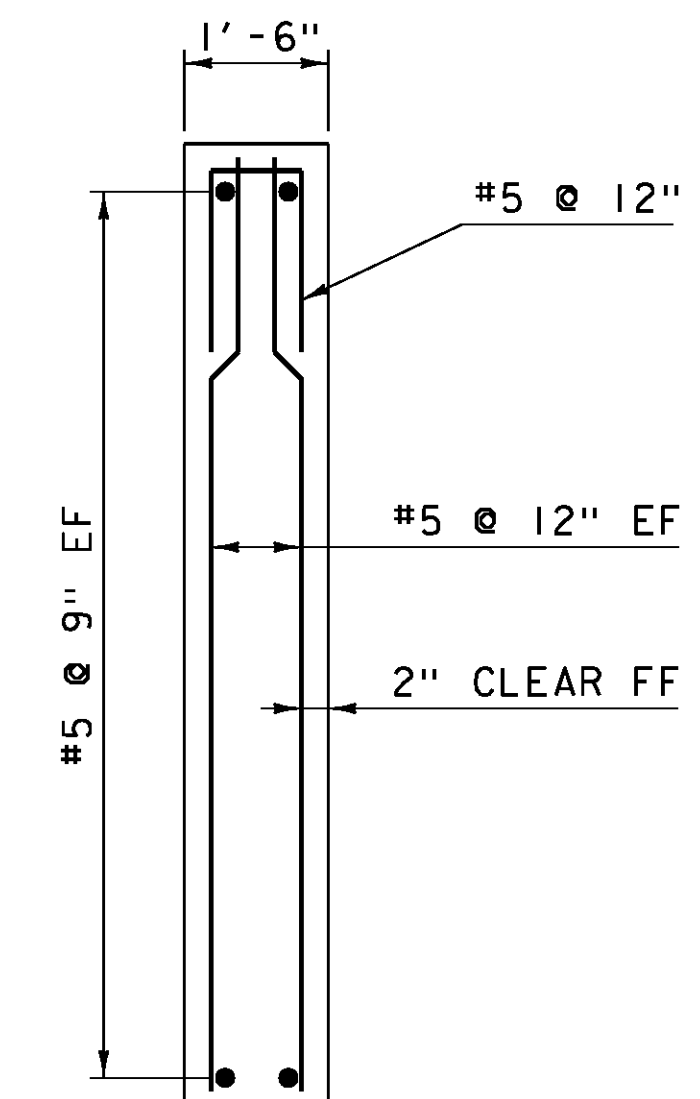


FILL JOINT WITH MORTAR TYPE IV AFTER SECURING MECHANICAL SPLICE CONNECTION



WINGWALL TYPICAL PLAN VIEW

SCALE 1/2" = 1'-0



WINGWALL TYPICAL SECTION

SCALE 1/2" = 1'-0

NOTE:

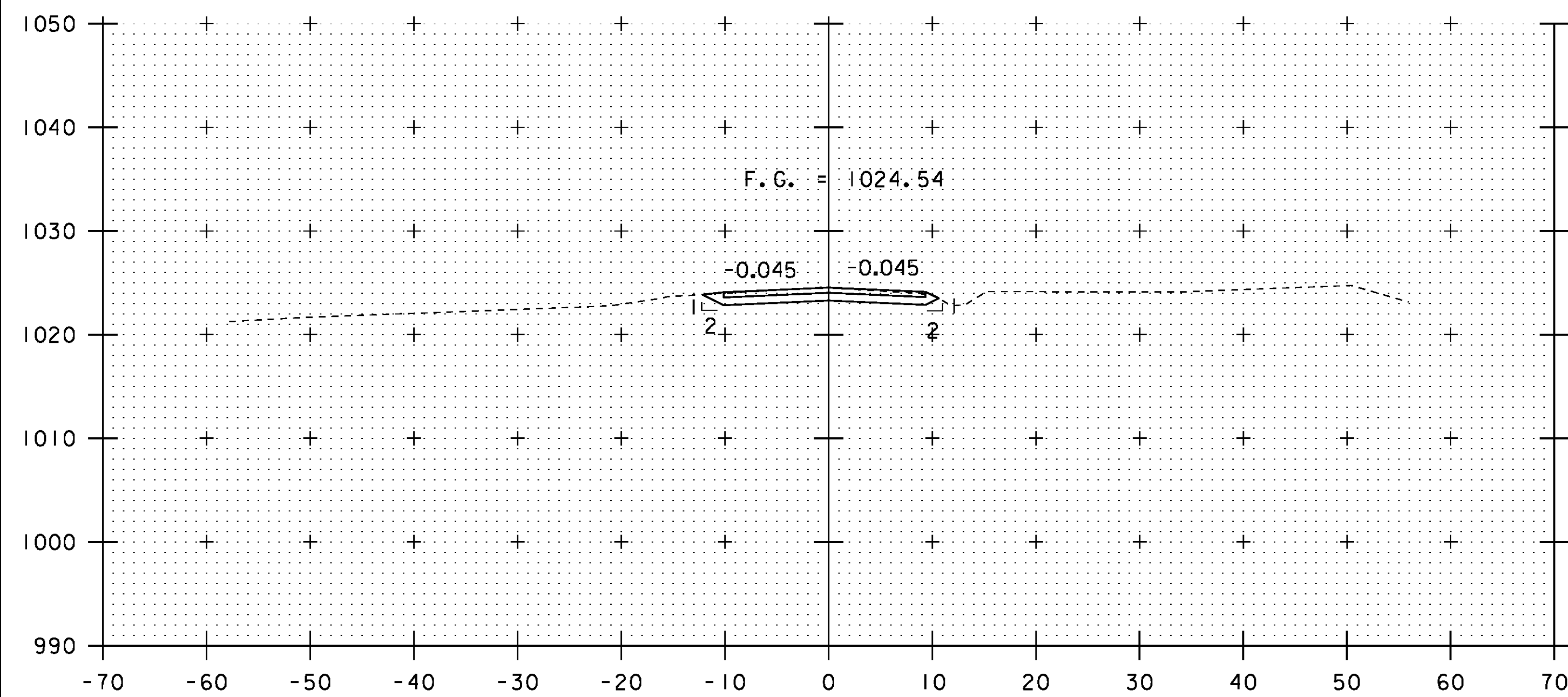
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

REVISION	DATE	DESCRIPTION	BY
1	11-17-2015	EPOXY/EPOXY GROUT CHANGED TO MORTAR TYPE IV	WL

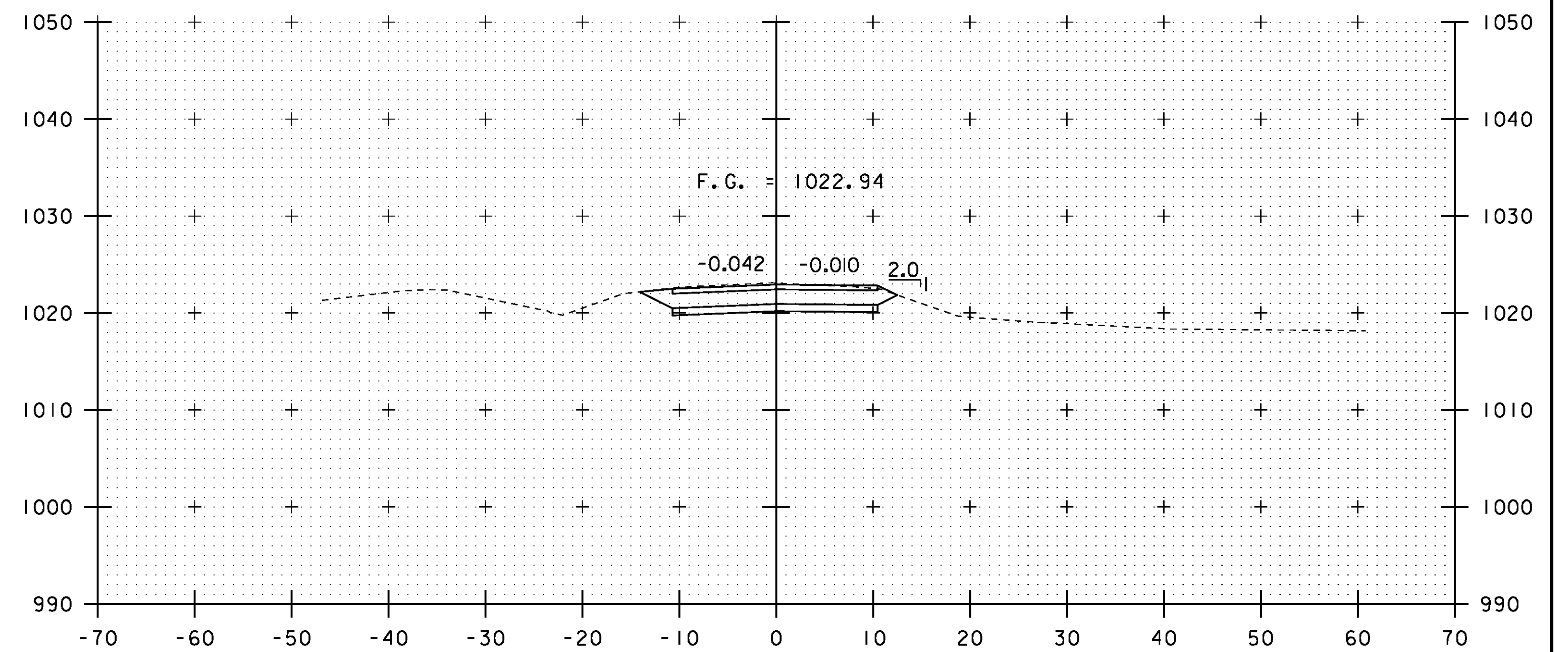
PROJECT NAME: CRAFTSBURY
PROJECT NUMBER: BO 1449(34)

FILE NAME: sl3j100sub.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: W. LAMMER
WINGWALL DETAILS

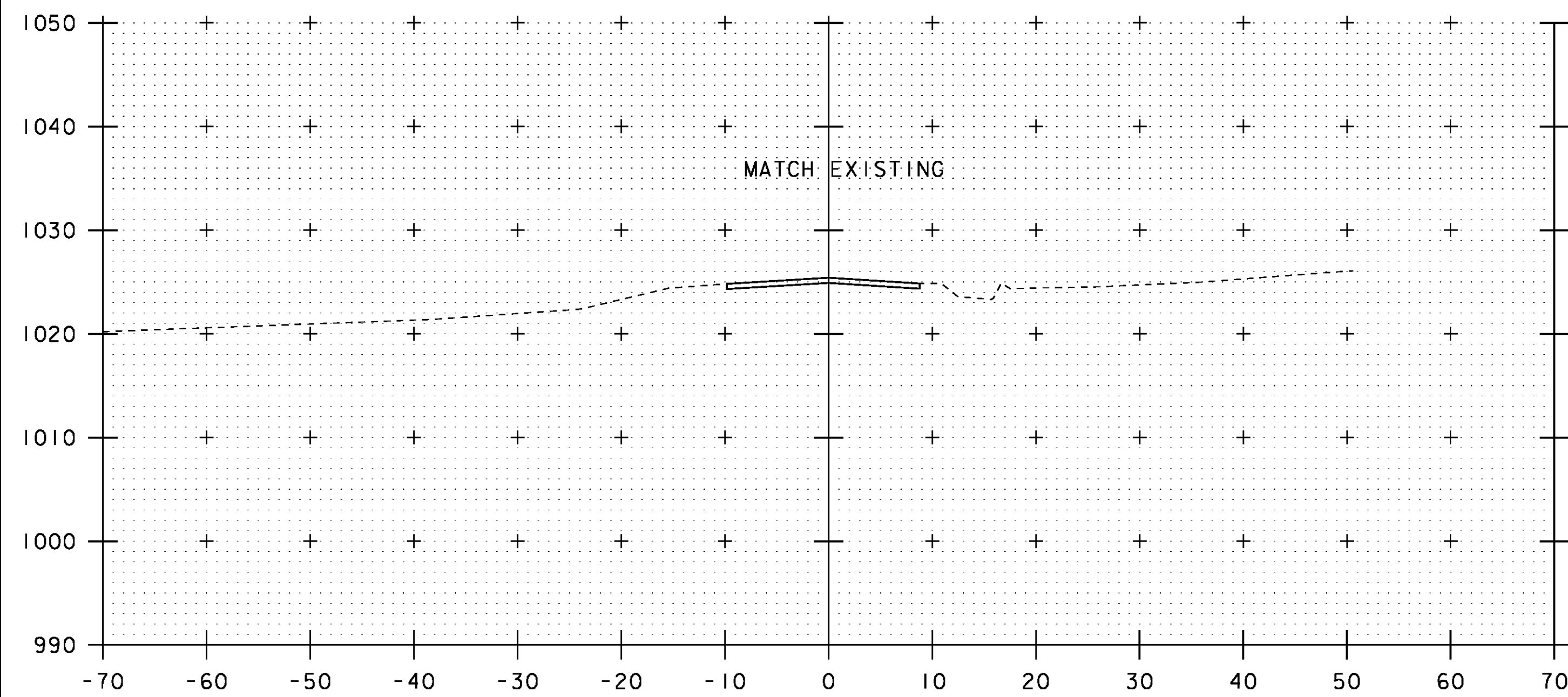
PLOT DATE: 17-NOV-2015
DRAWN BY: W. LAMMER
CHECKED BY: S. COLEY
SHEET 24 OF 42



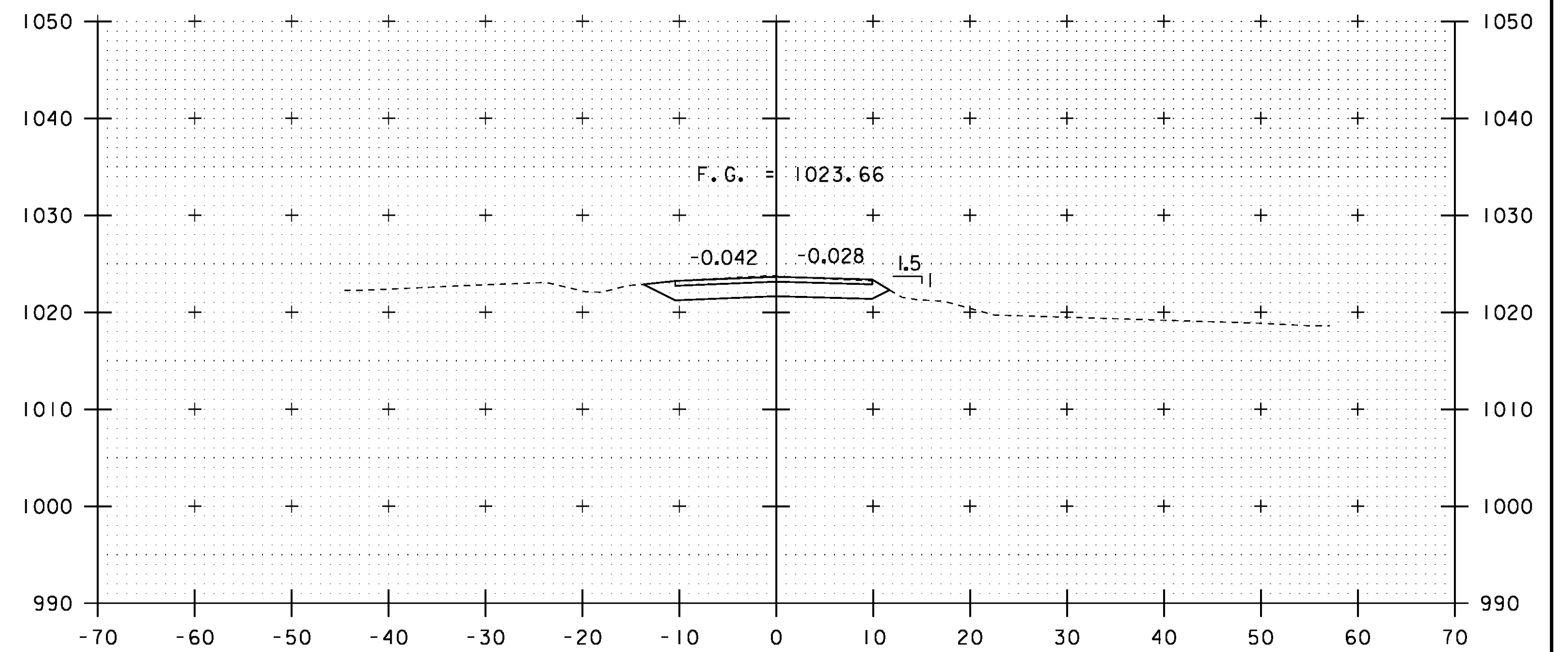
10+25



10+75



10+00

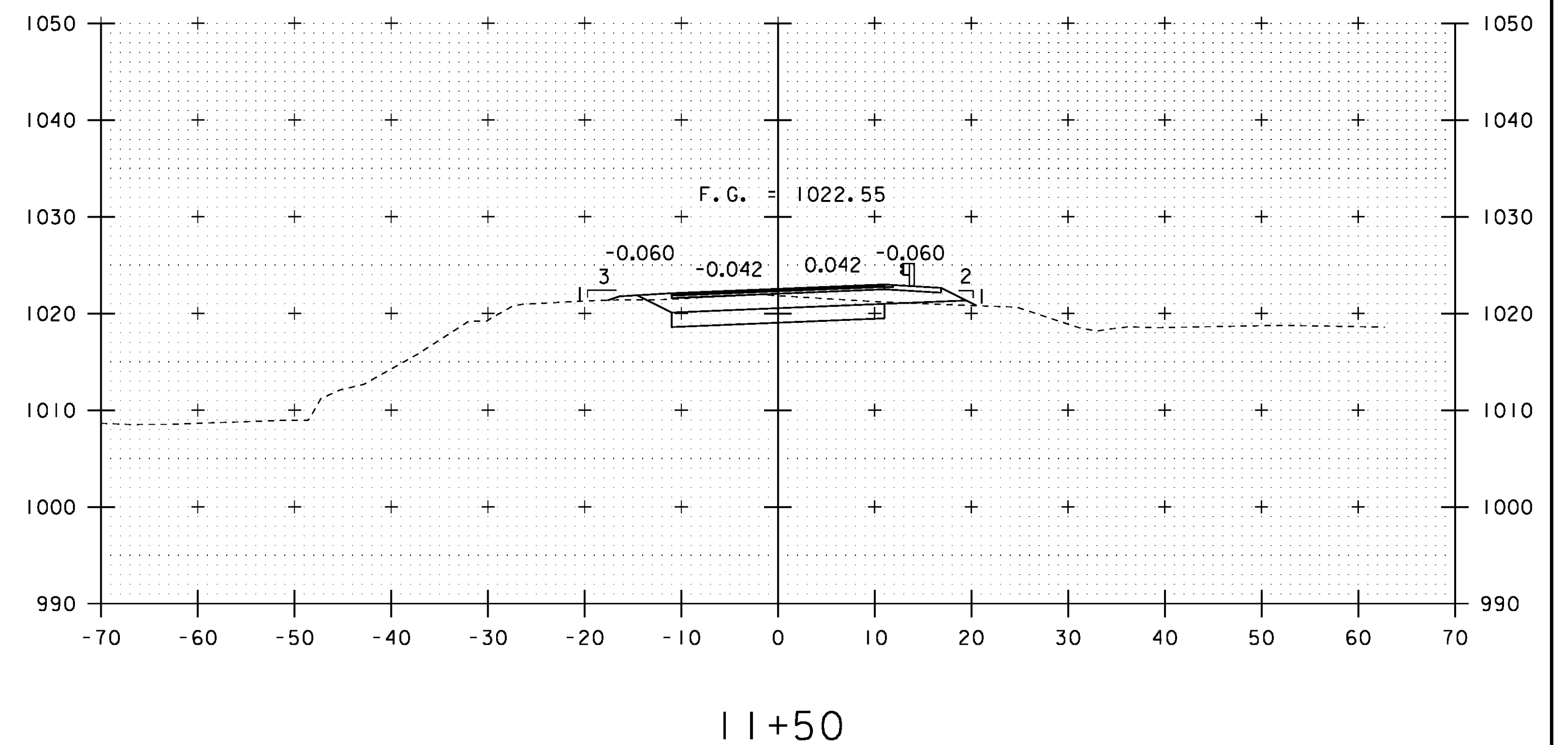
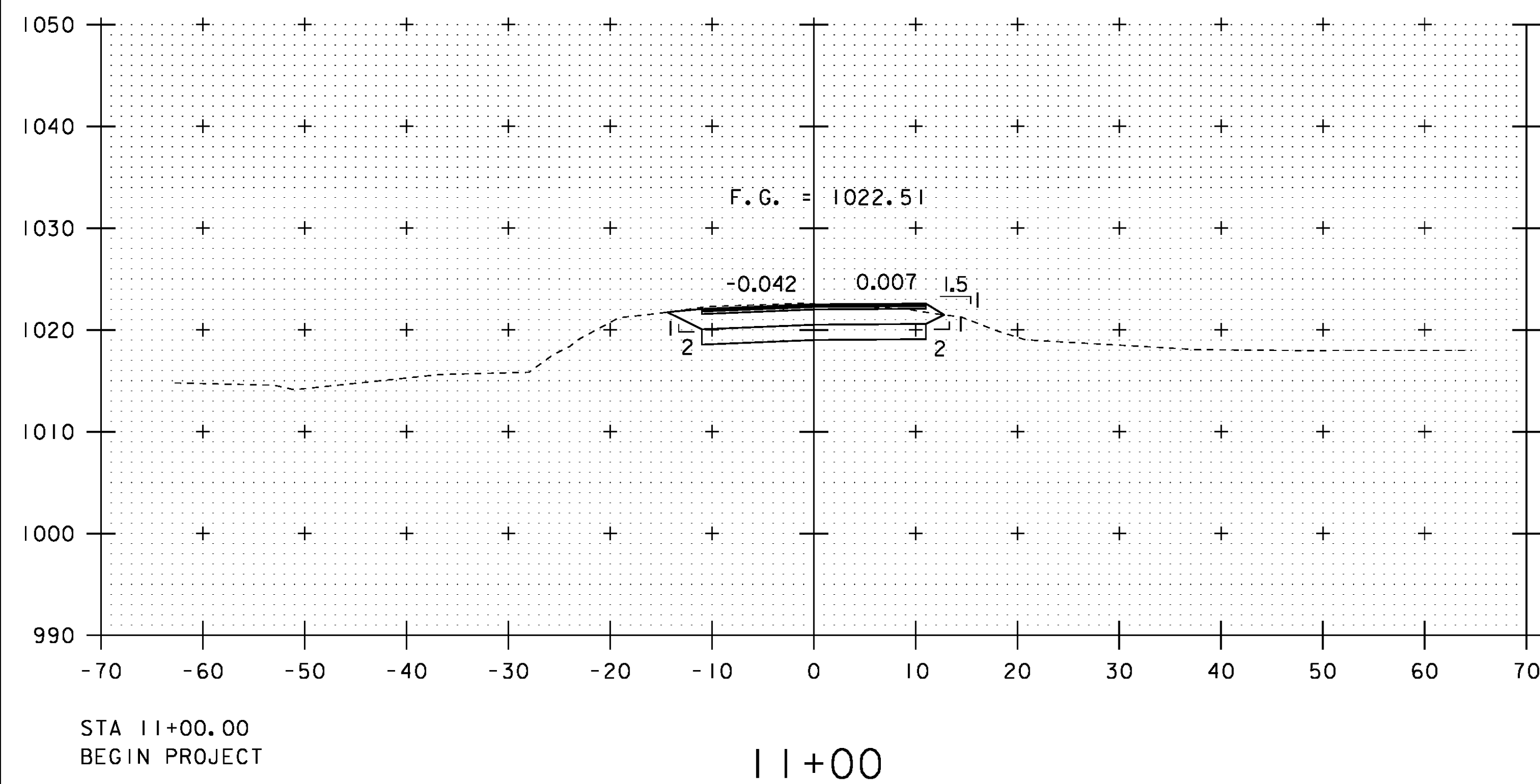
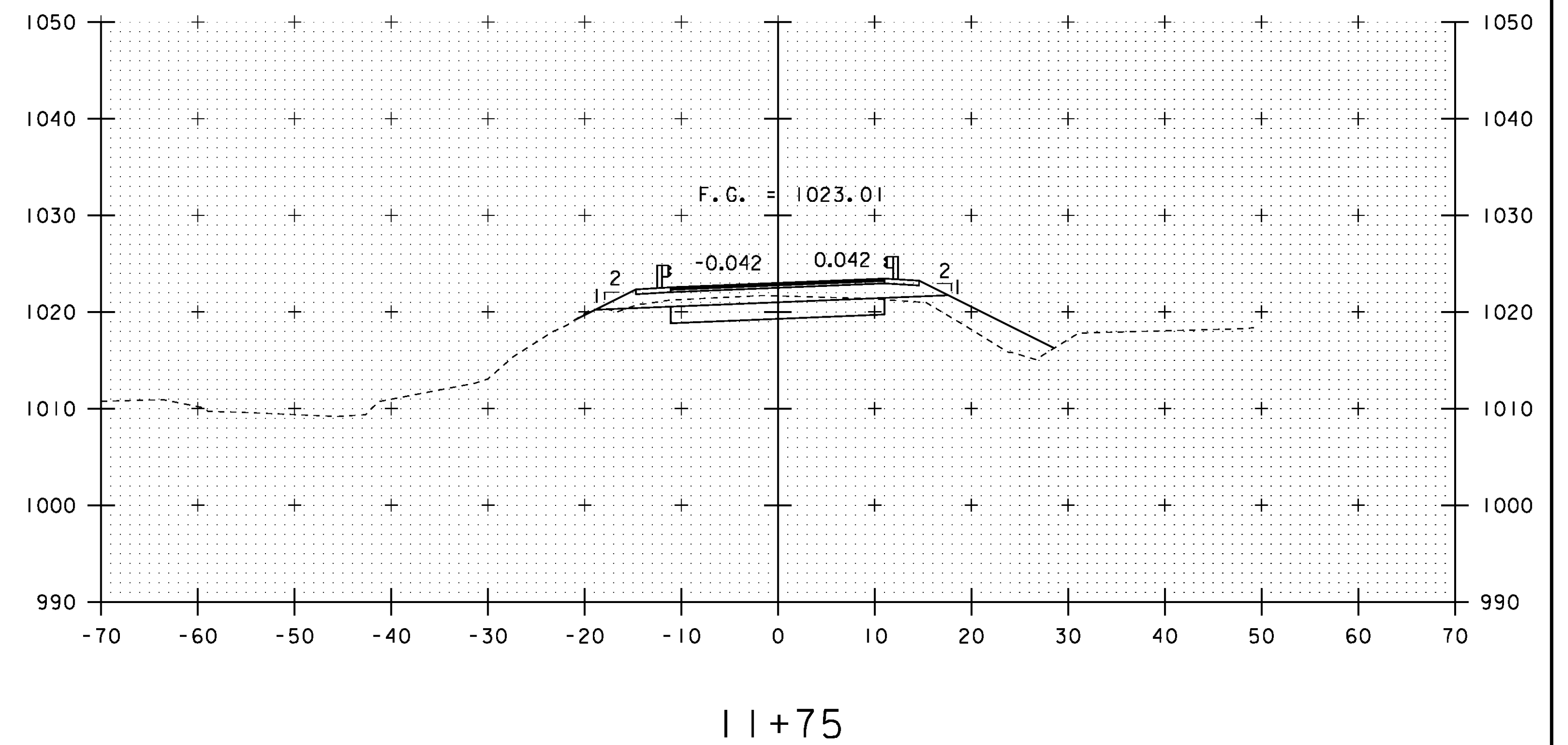
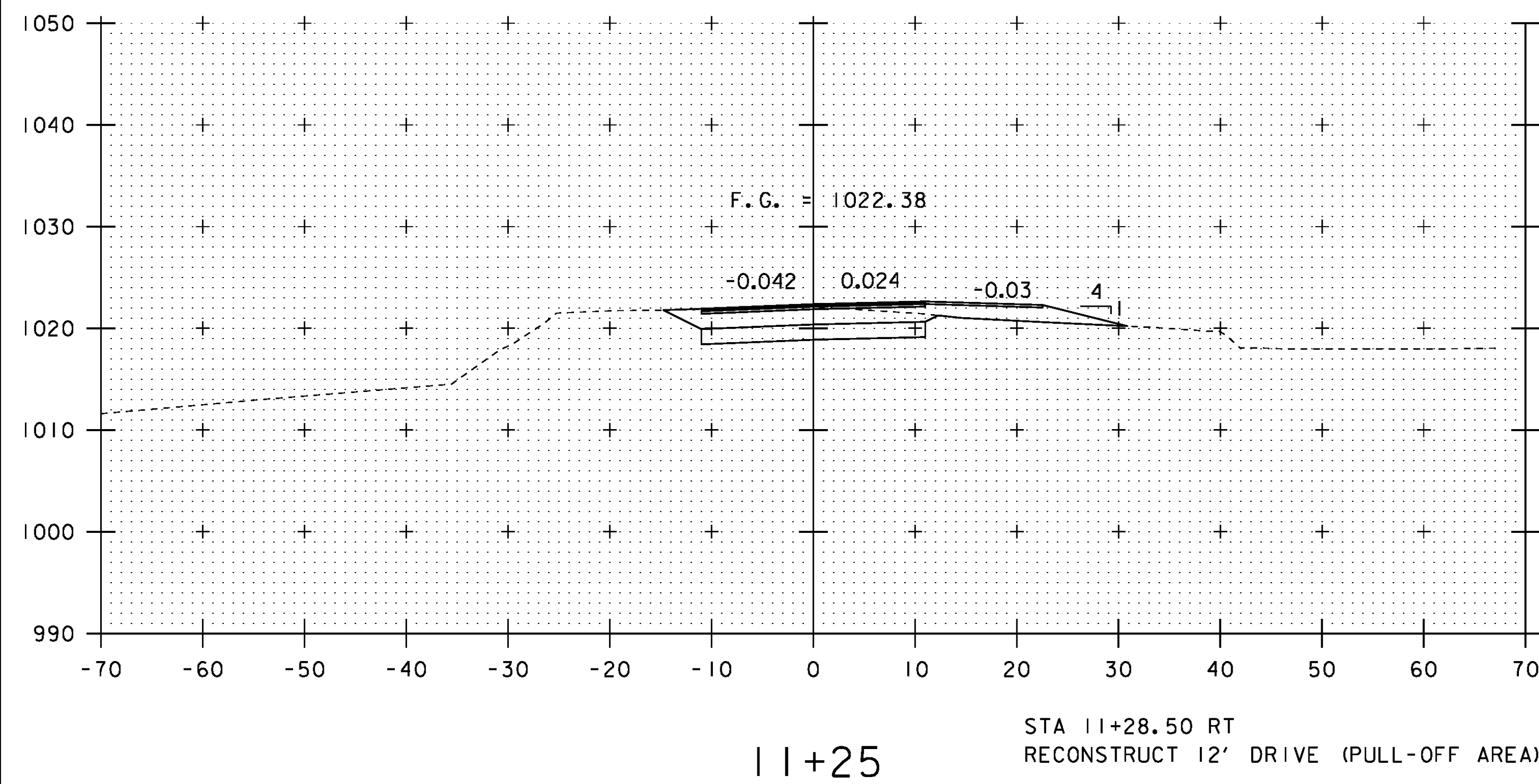


10+50

STA 10+00.00
BEGIN APPROACH

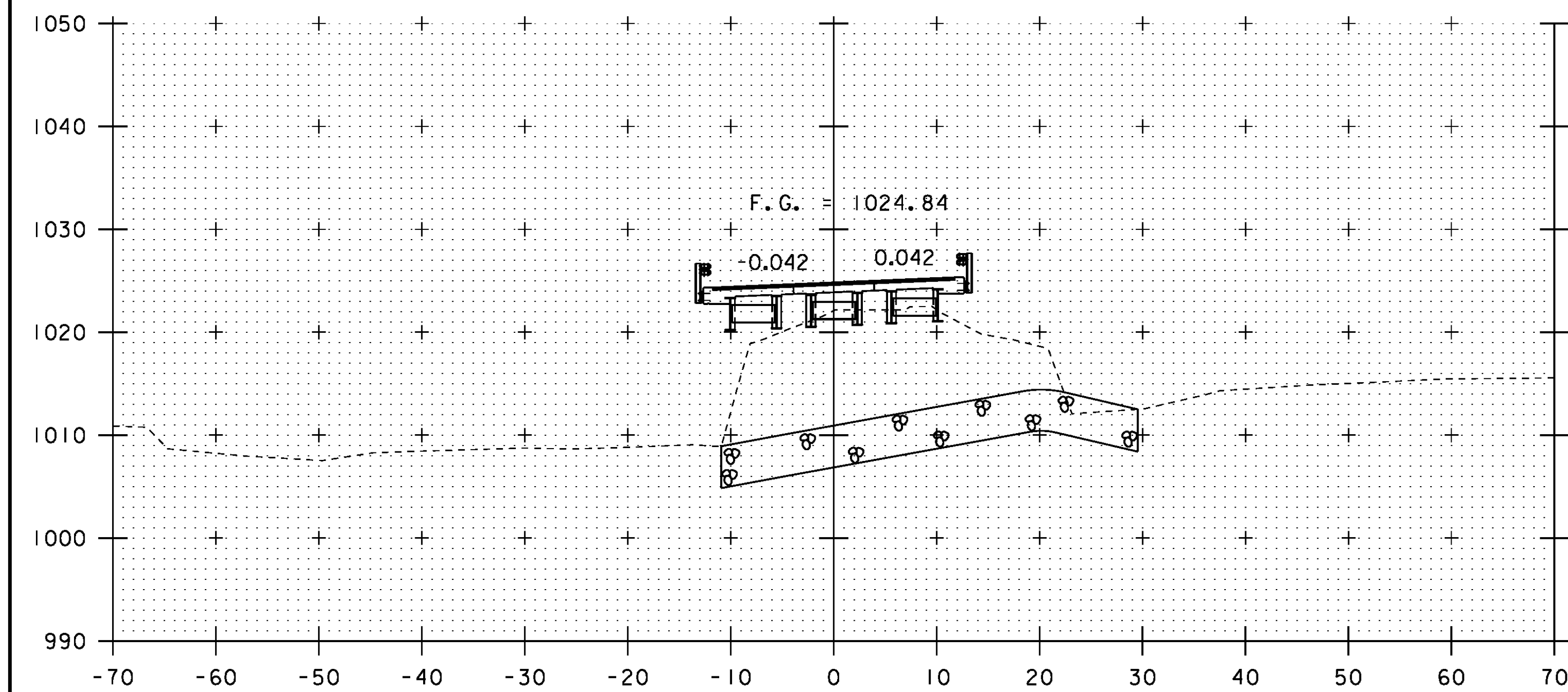
STA. 10+00 TO STA. 10+75

PROJECT NAME: CRAFTSBURY	
PROJECT NUMBER: BO 1449(34)	
FILE NAME: sl3j100xs.dgn	PLOT DATE: 14-OCT-2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. COLEY
DESIGNED BY: W. LAMMER	CHECKED BY: W. LAMMER
MAINLINE CROSS SECTIONS 1	SHEET 25 OF 42

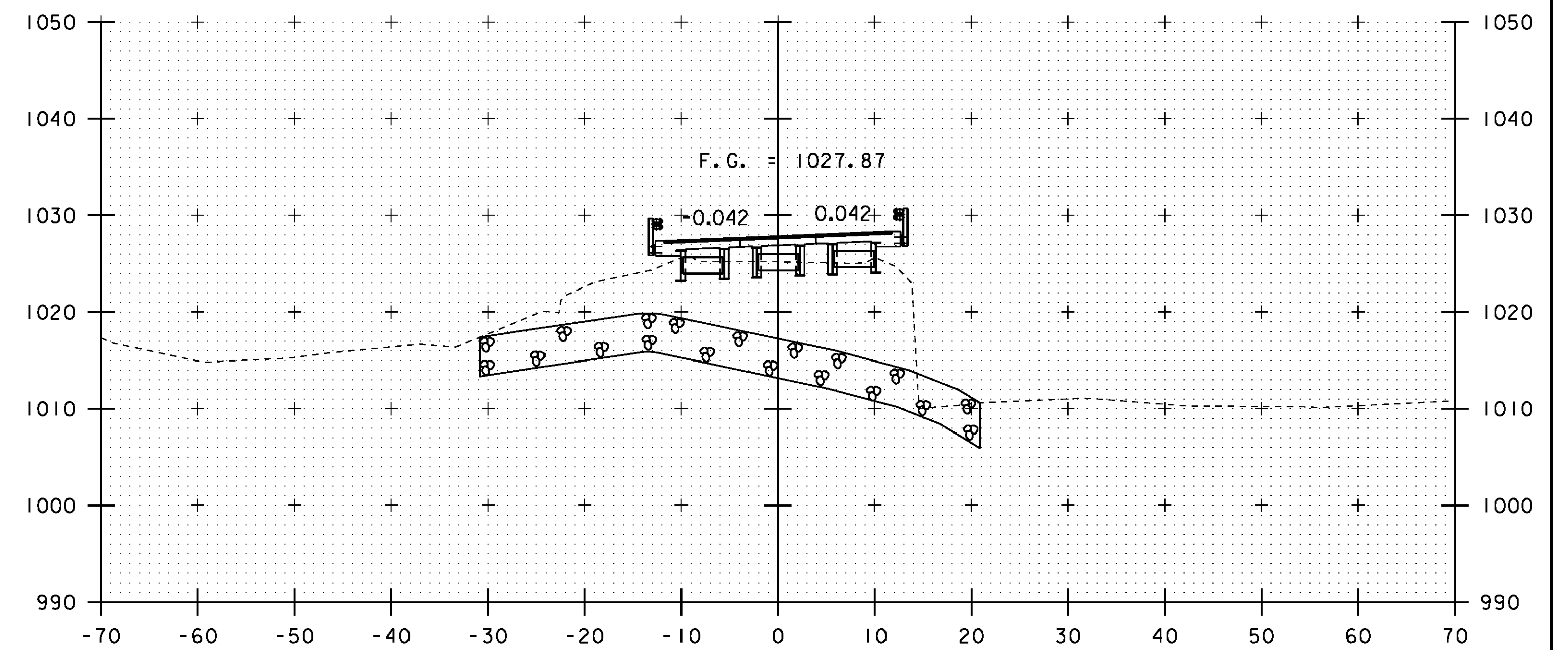


STA. 11+00 TO STA. 11+75

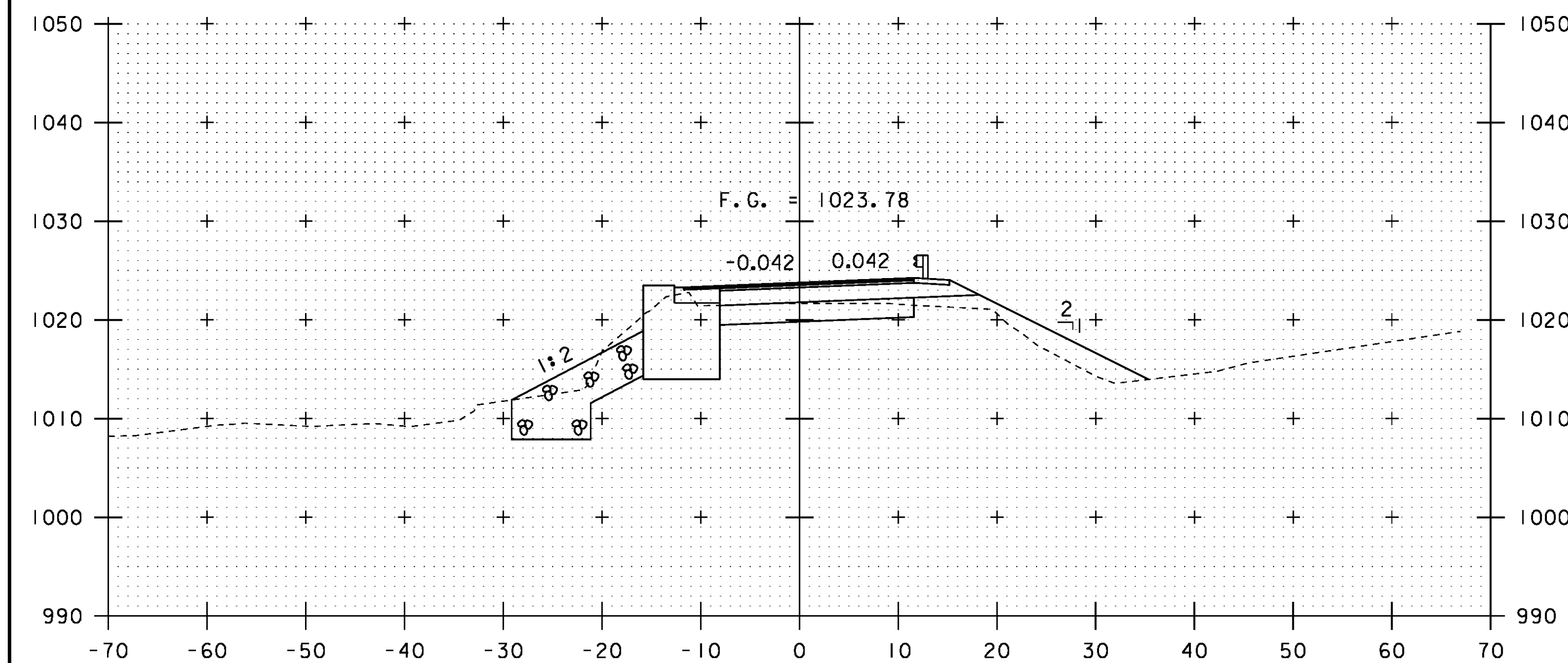
PROJECT NAME: CRAFTSBURY	
PROJECT NUMBER: BO 1449(34)	
FILE NAME: sl3j100xs.dgn	PLOT DATE: 14-OCT-2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. COLEY
DESIGNED BY: W. LAMMER	CHECKED BY: W. LAMMER
MAINLINE CROSS SECTIONS 2	SHEET 26 OF 42



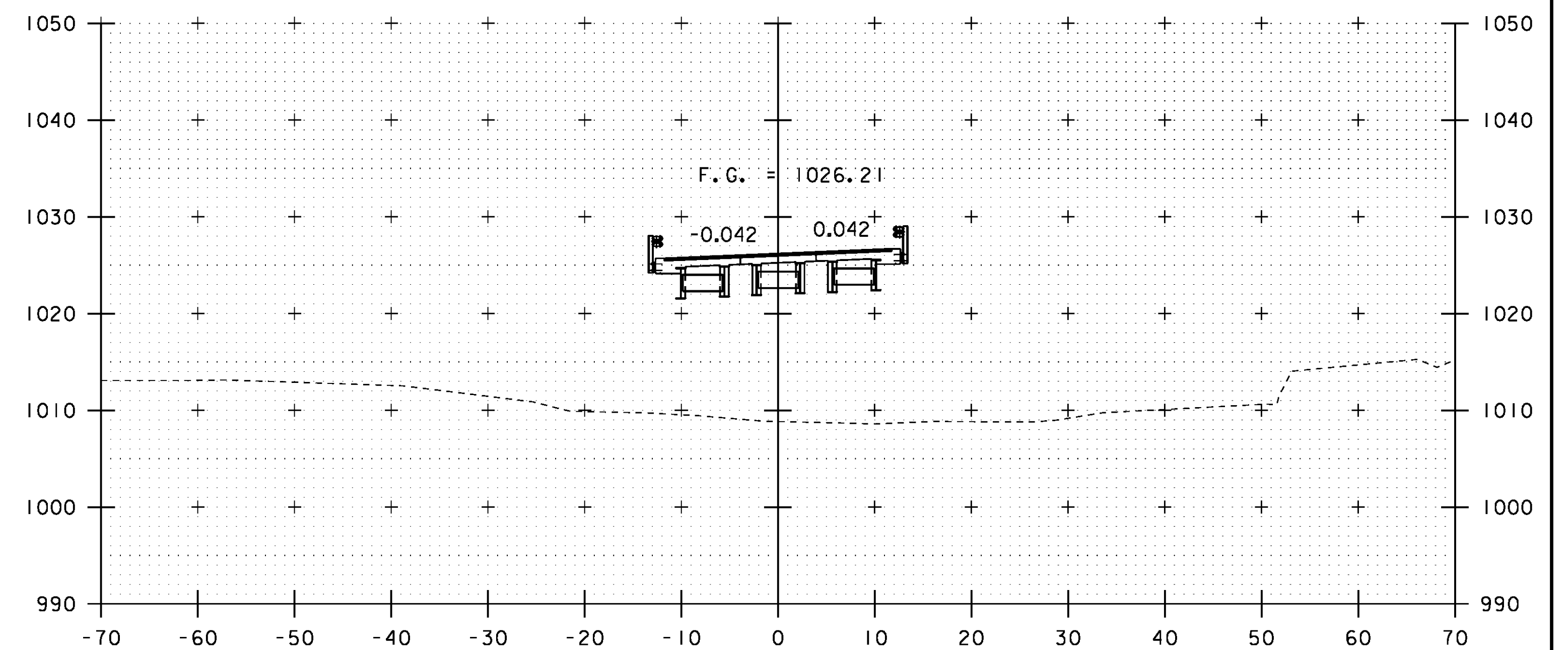
12+25



12+75



12+00

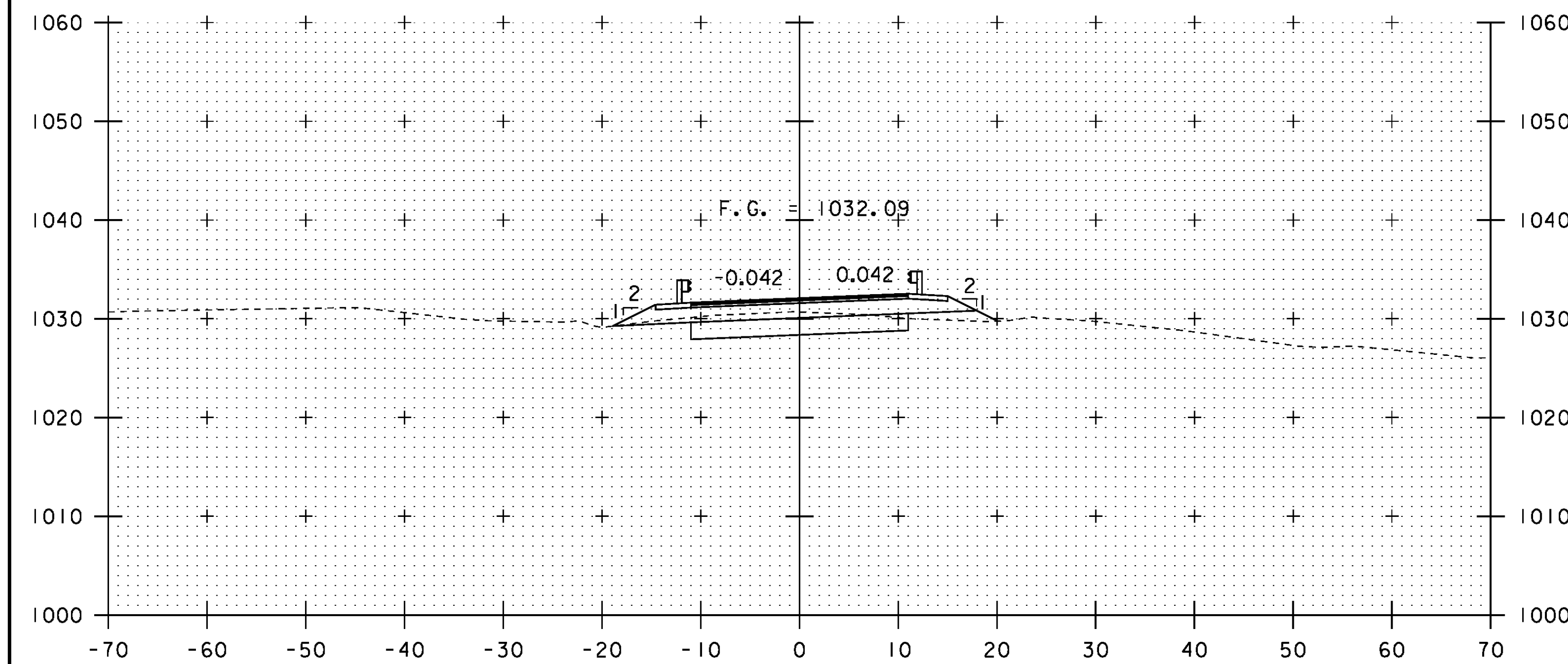


12+50

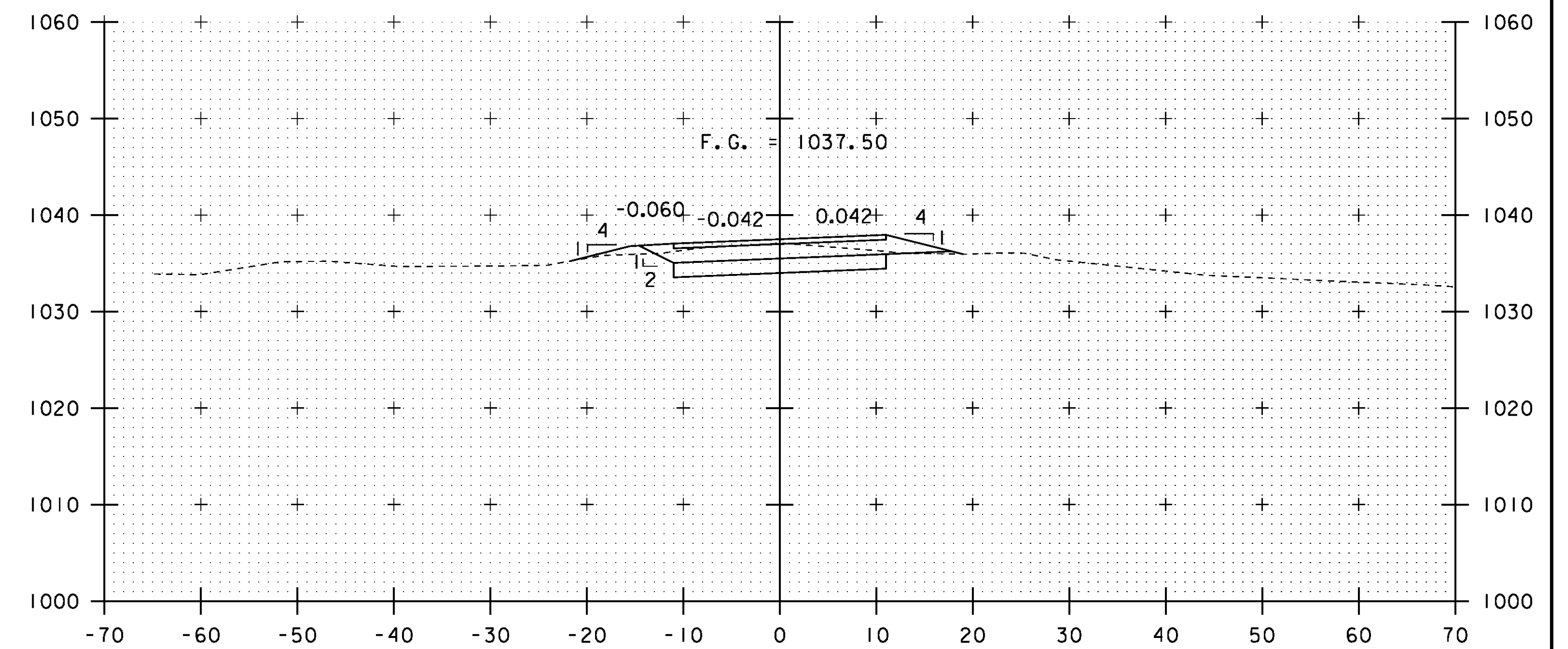
BEGIN BRIDGE
STA 12+03.38

STA. 12+00 TO STA. 12+75

PROJECT NAME:	CRAFTSBURY
PROJECT NUMBER:	BO 1449(34)
FILE NAME:	sl3j100xs.dgn
PROJECT LEADER:	R. YOUNG
DESIGNED BY:	W. LAMMER
MAINLINE CROSS SECTIONS 3	
PLOT DATE:	14-OCT-2015
DRAWN BY:	S. COLEY
CHECKED BY:	W. LAMMER
SHEET	27 OF 42

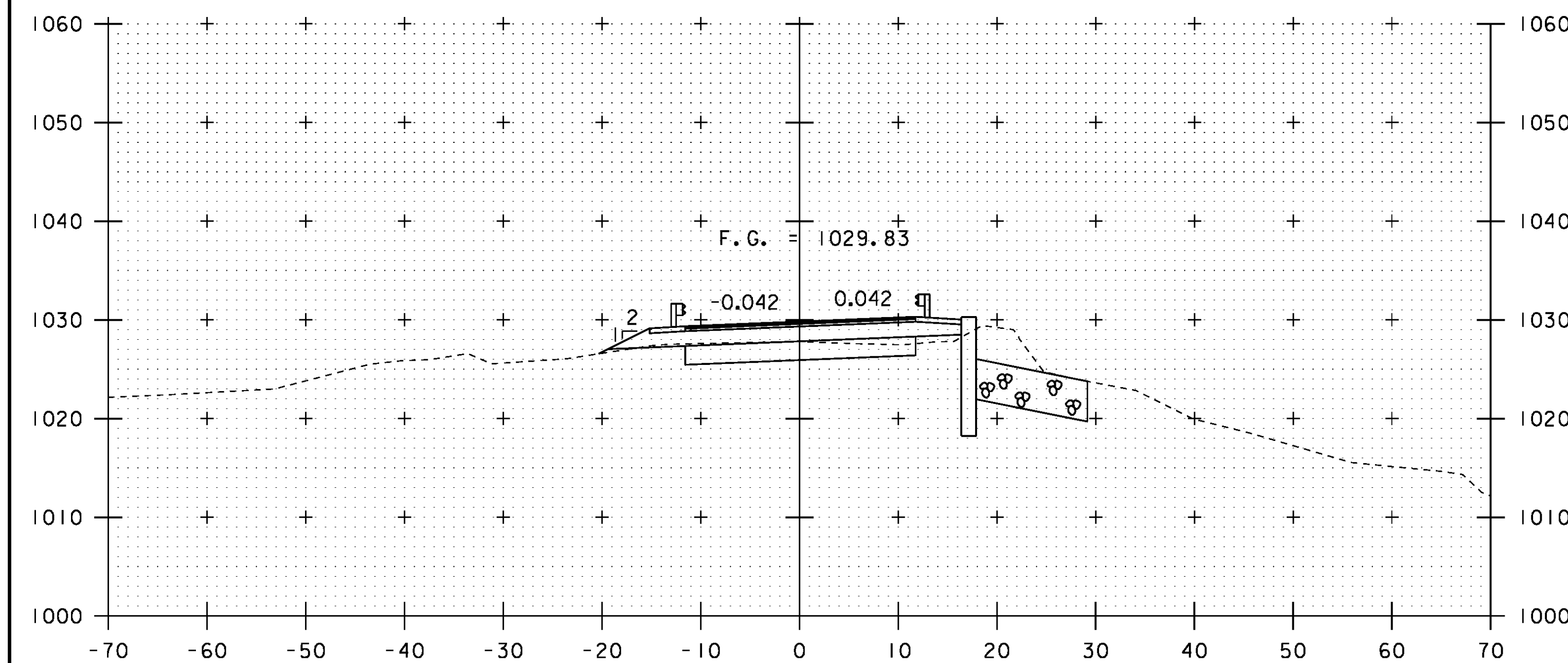


13+25



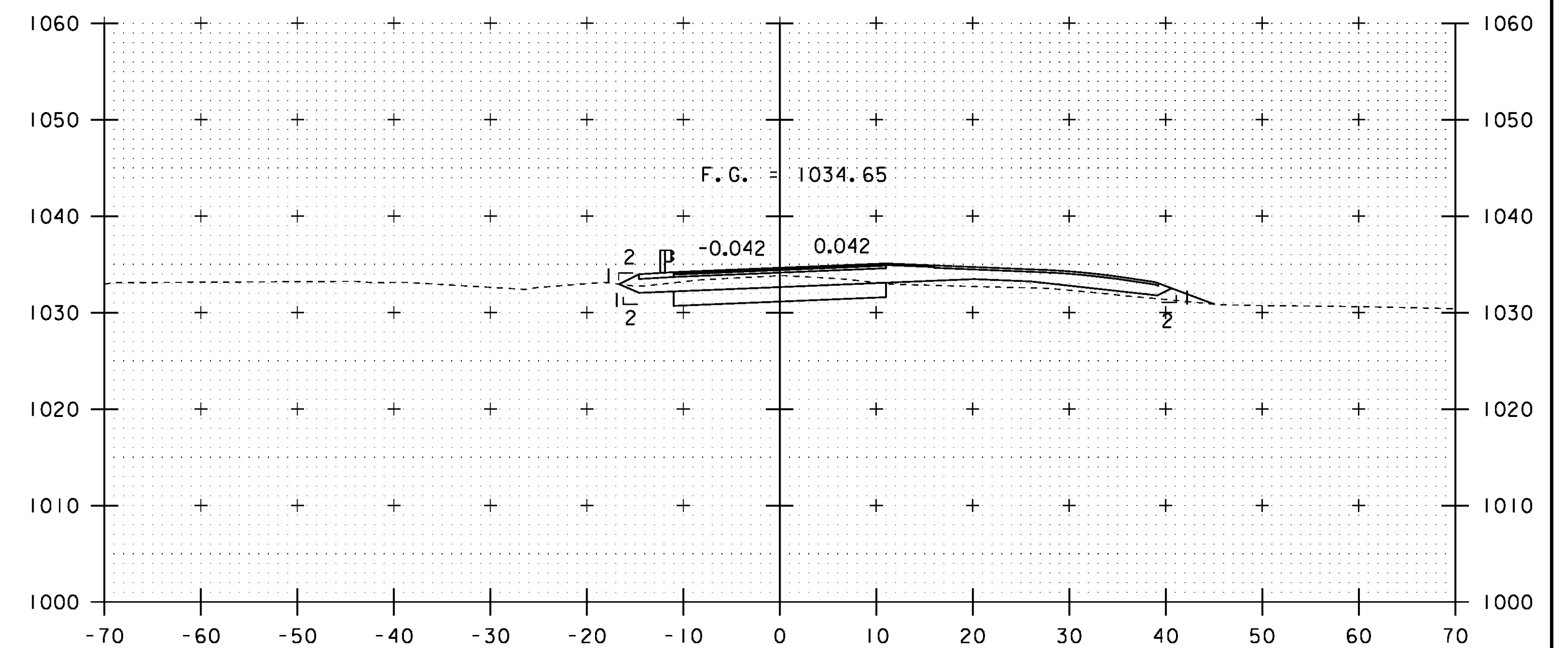
STA 13+75.00
END PROJECT

13+75



END BRIDGE
STA 12+91.57

13+00

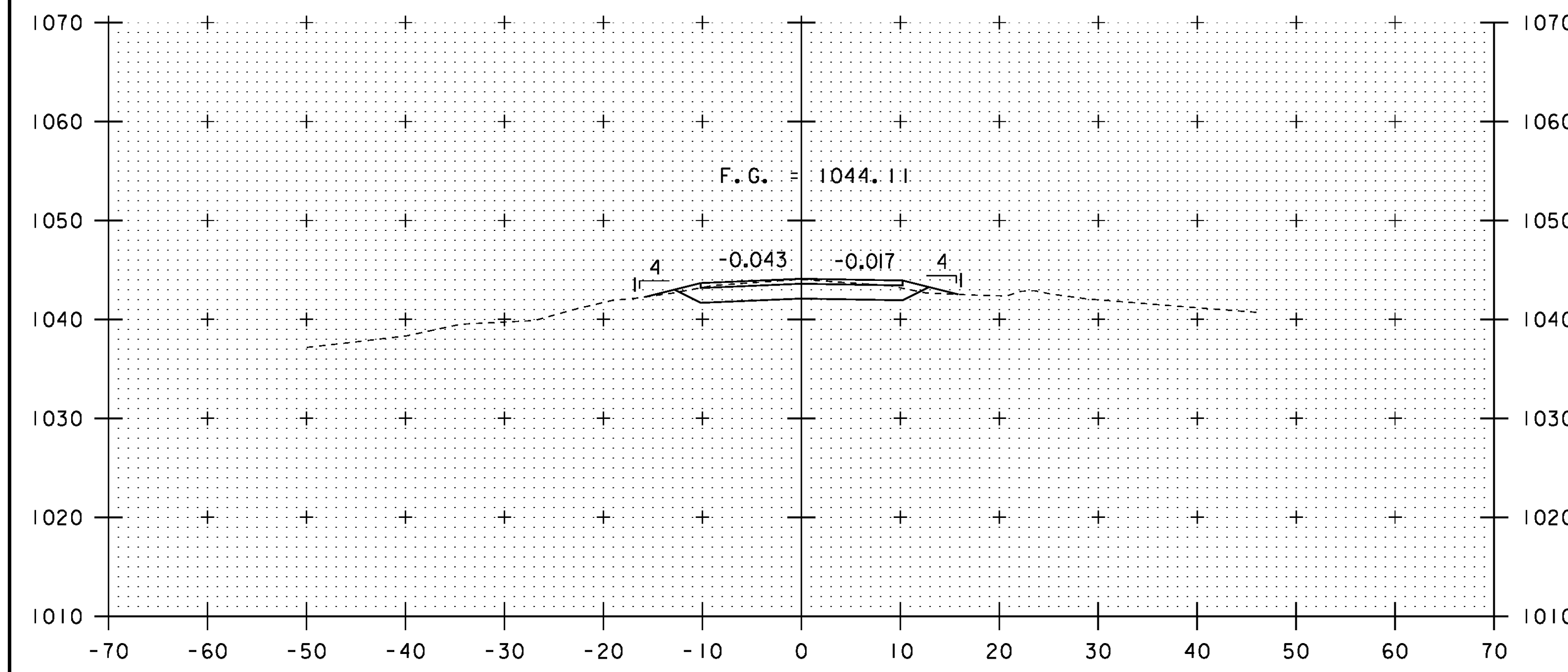


STA 13+46.30 RT
RECONSTRUCT DRIVE
12' WIDE

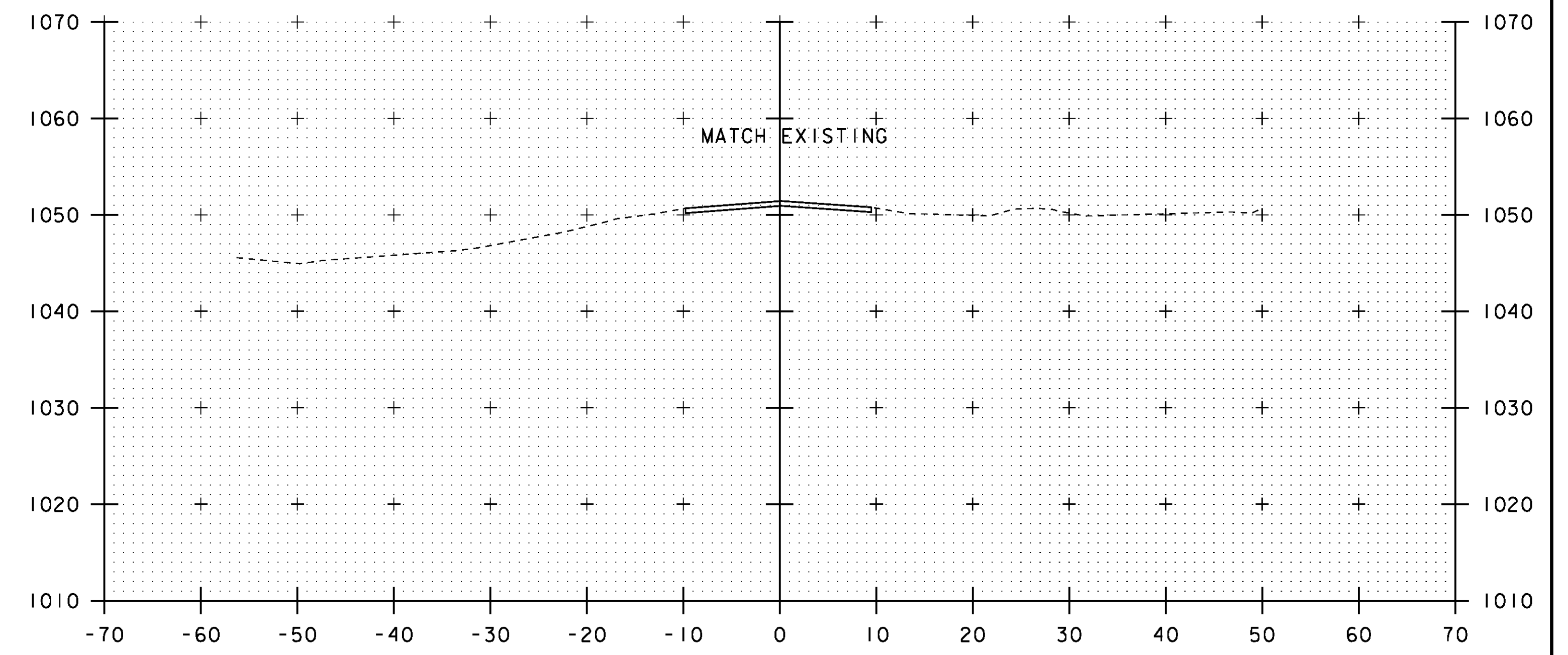
13+50

STA. 13+00 TO STA. 13+75

PROJECT NAME: CRAFTSBURY	
PROJECT NUMBER: BO 1449(34)	
FILE NAME: sl3j100xs.dgn	PLOT DATE: 14-OCT-2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. COLEY
DESIGNED BY: W. LAMMER	CHECKED BY: W. LAMMER
MAINLINE CROSS SECTIONS 4	SHEET 28 OF 42

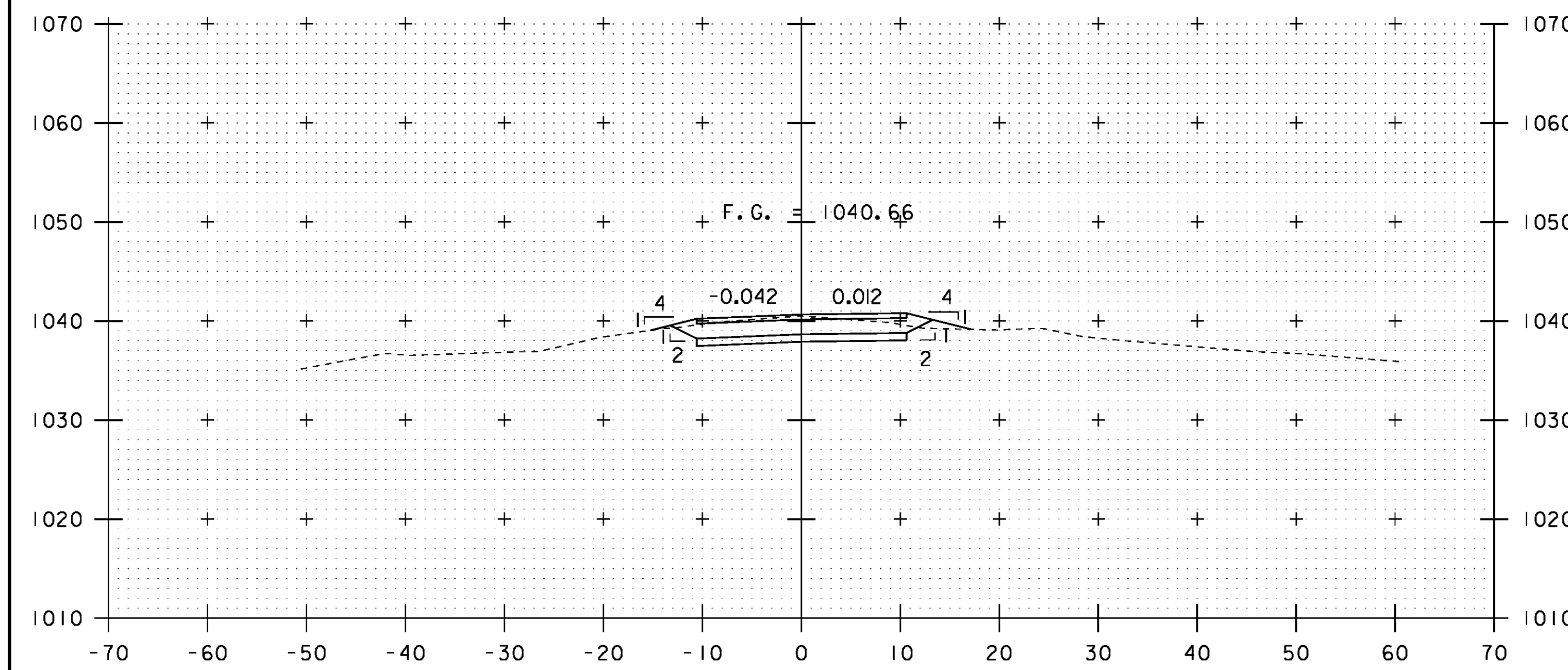


14+25

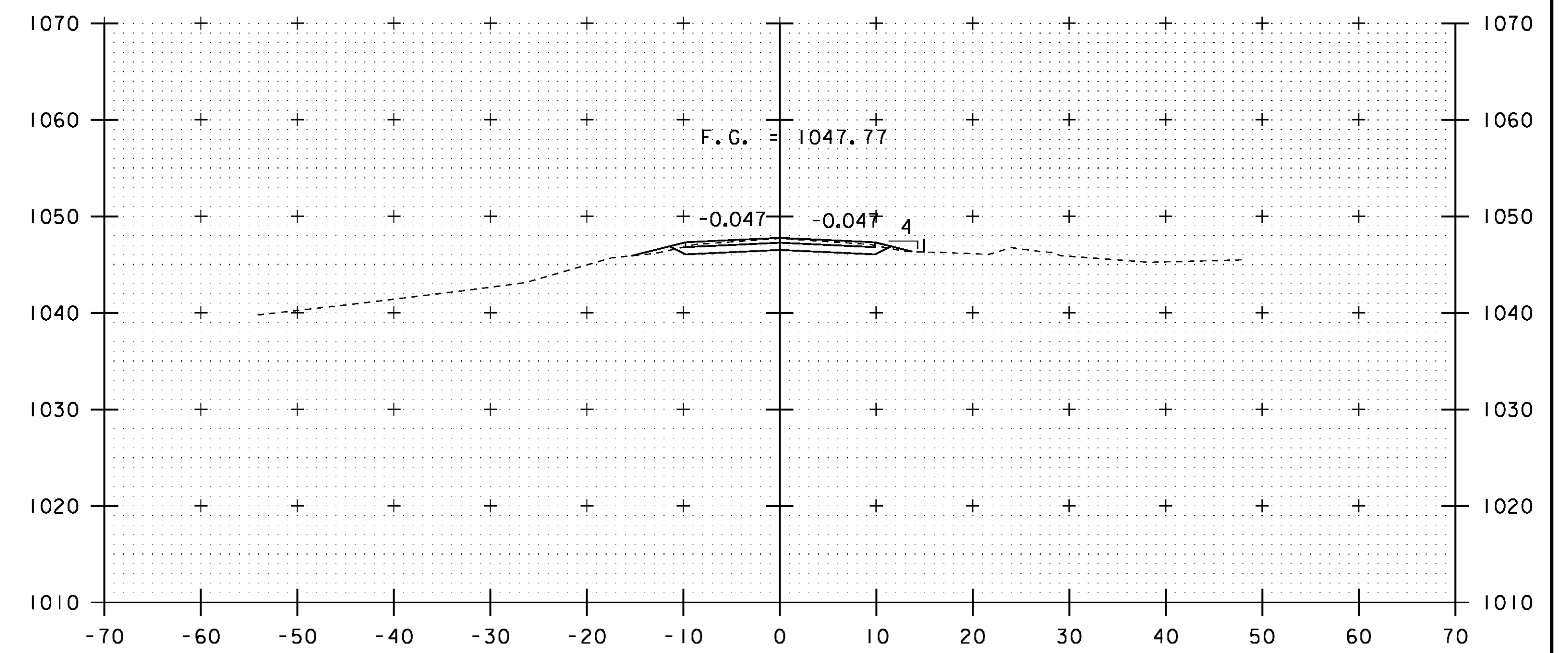


STA 14+75.00
END APPROACH

14+75



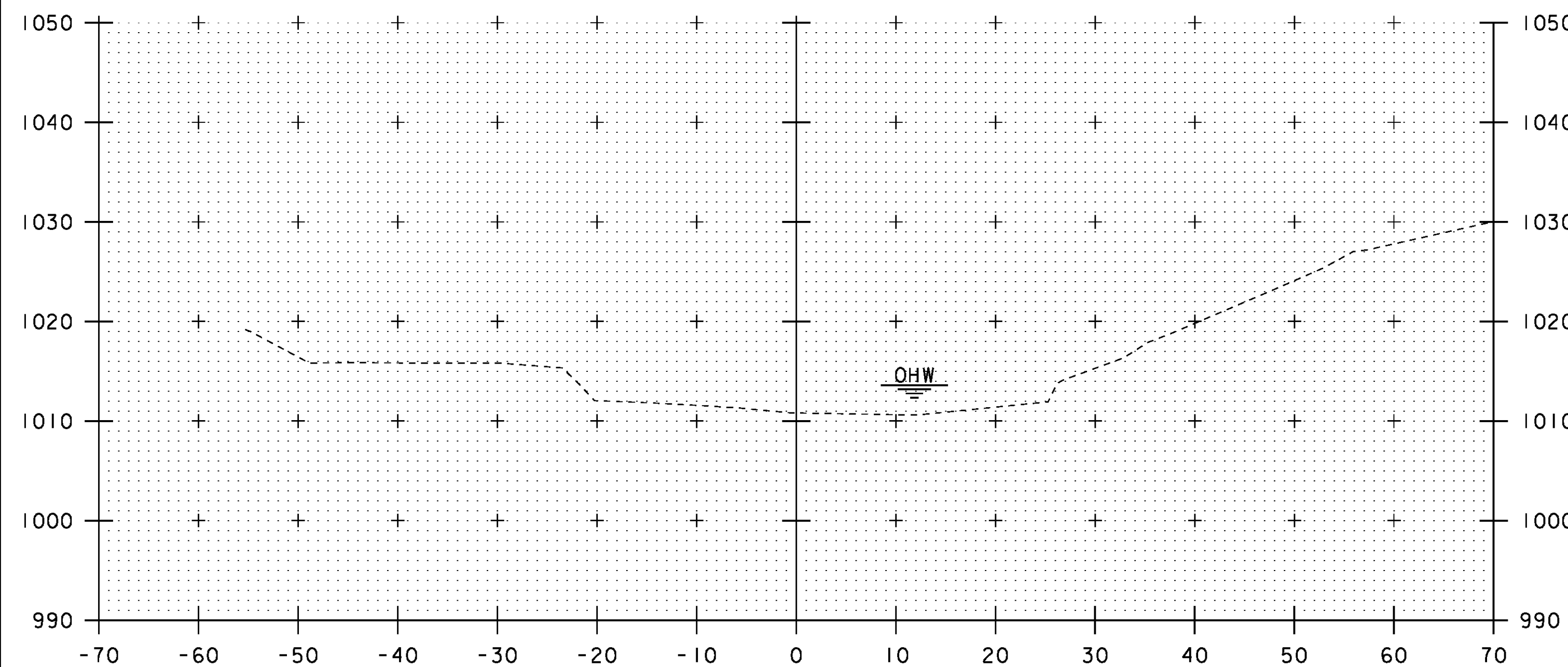
14+00



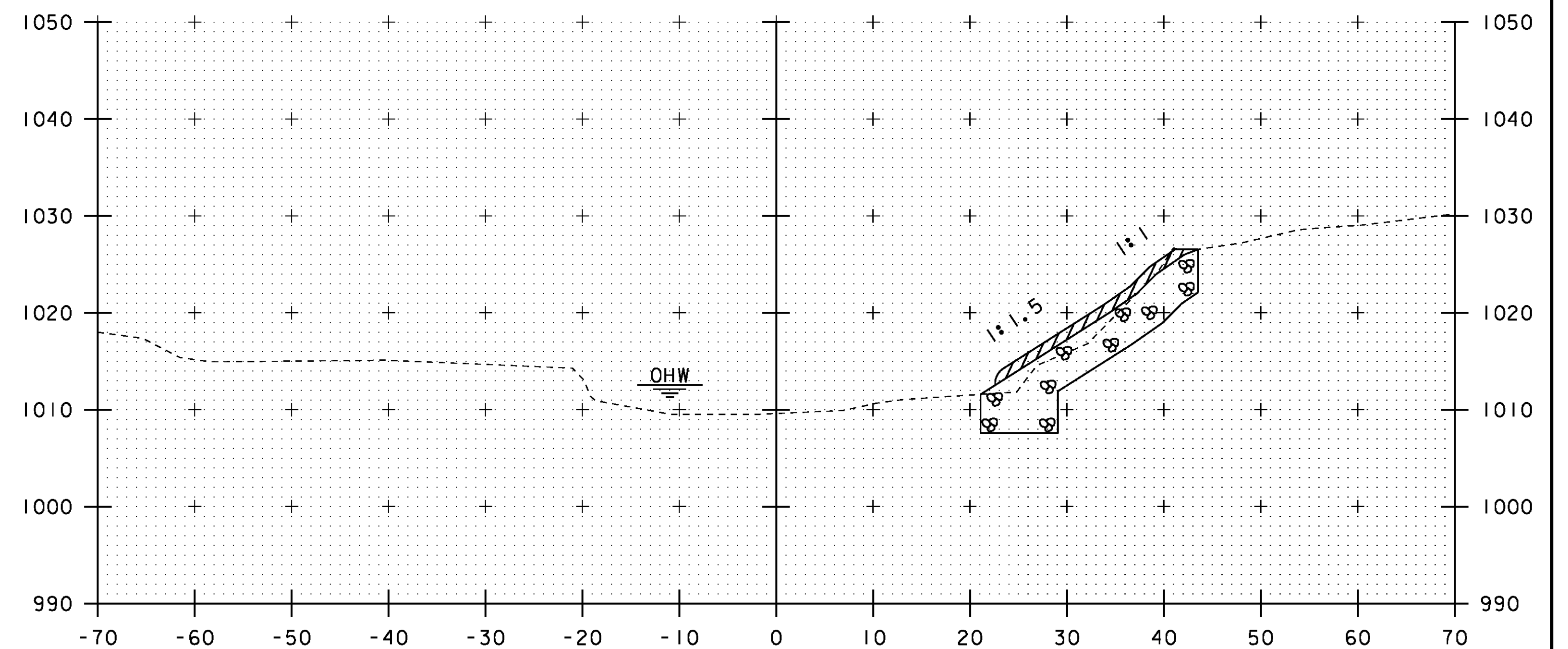
14+50

STA. 14+00 TO STA. 14+75

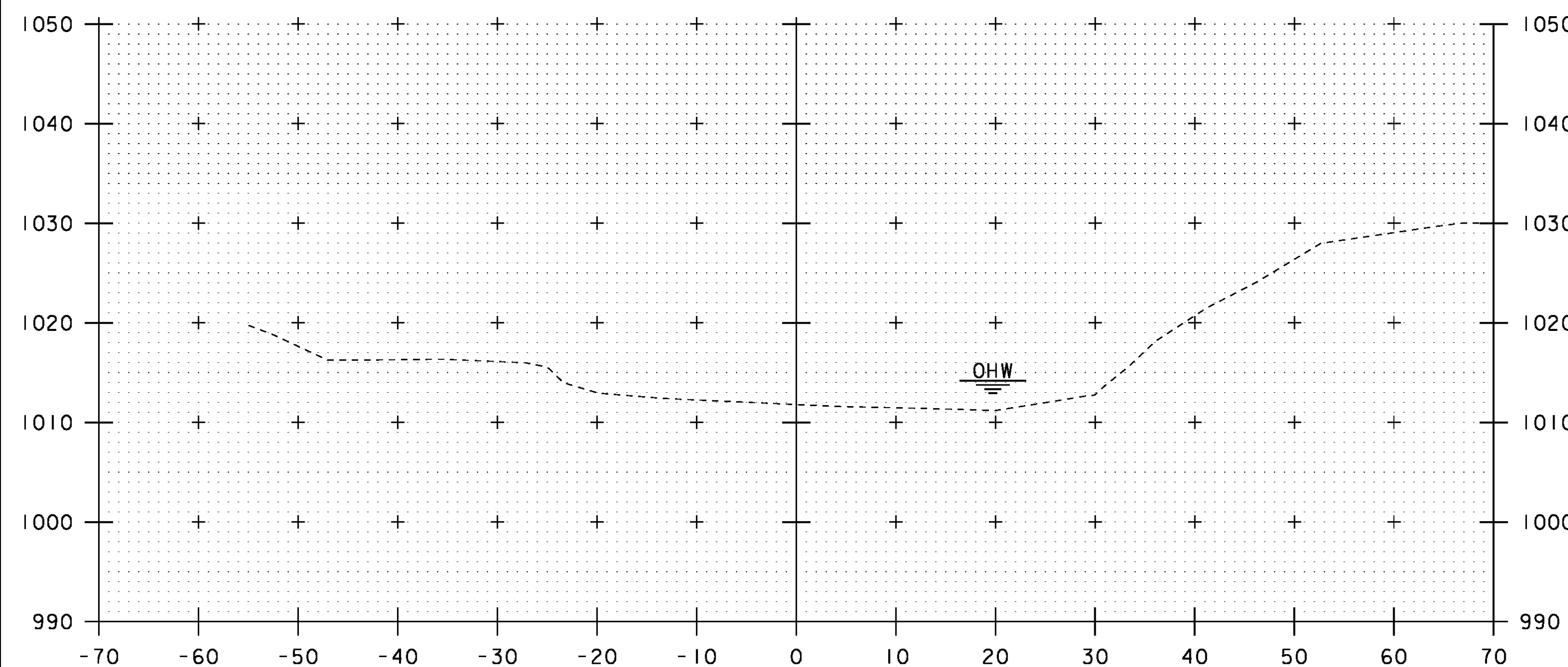
PROJECT NAME: CRAFTSBURY	
PROJECT NUMBER: BO 1449(34)	
FILE NAME: sl3j100xs.dgn	PLOT DATE: 14-OCT-2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. COLEY
DESIGNED BY: W. LAMMER	CHECKED BY: W. LAMMER
MAINLINE CROSS SECTIONS 5	SHEET 29 OF 42



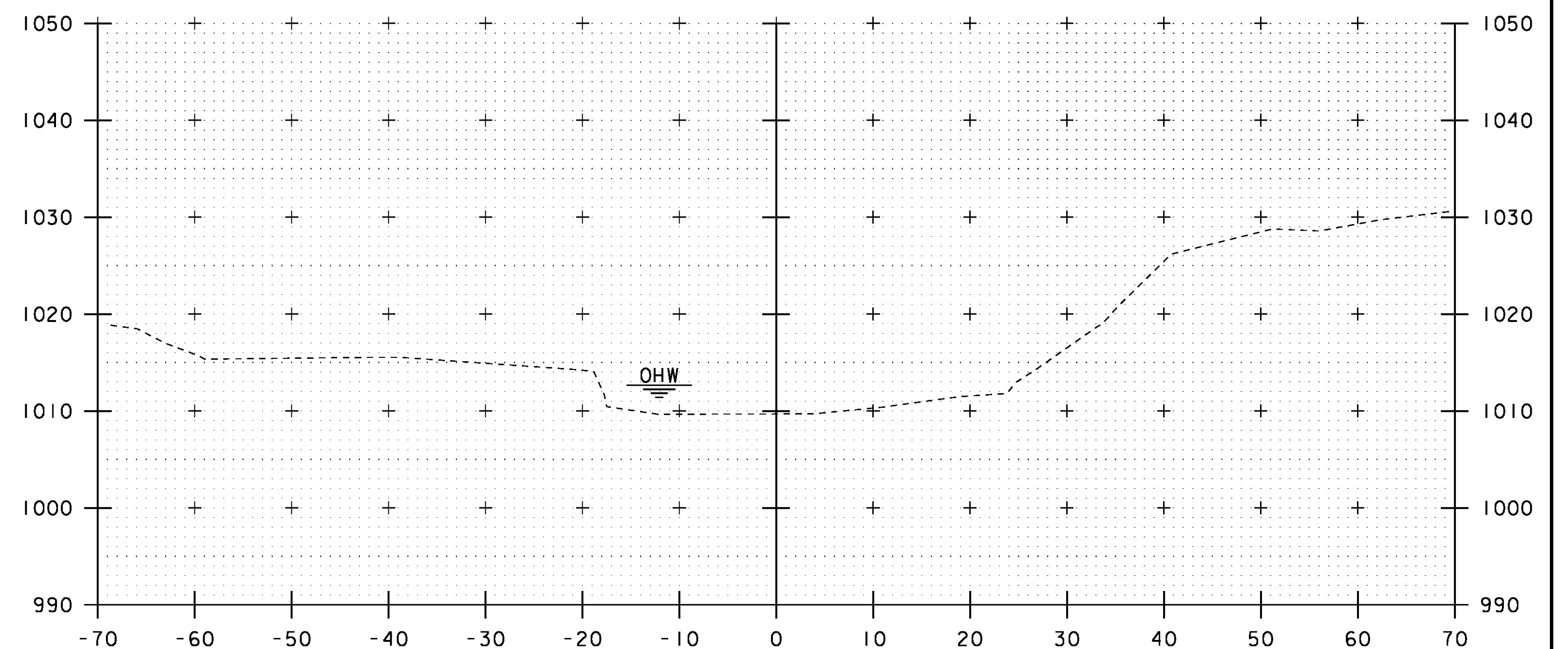
50+25



50+60



50+00

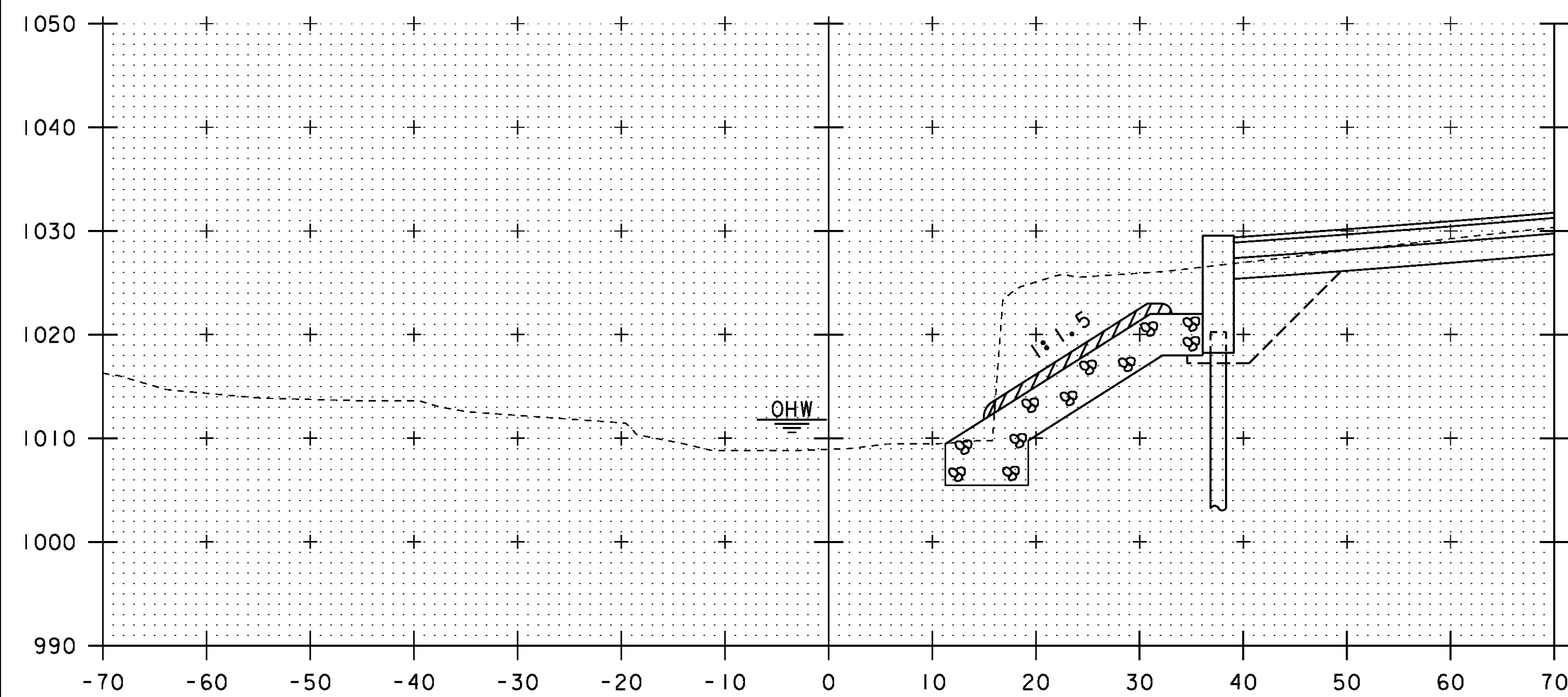


50+50

BEGIN STONE FILL, TYPE IV
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL
UNCLASSIFIED CHANNEL EXCAVATION
STA 50+55.40 RT

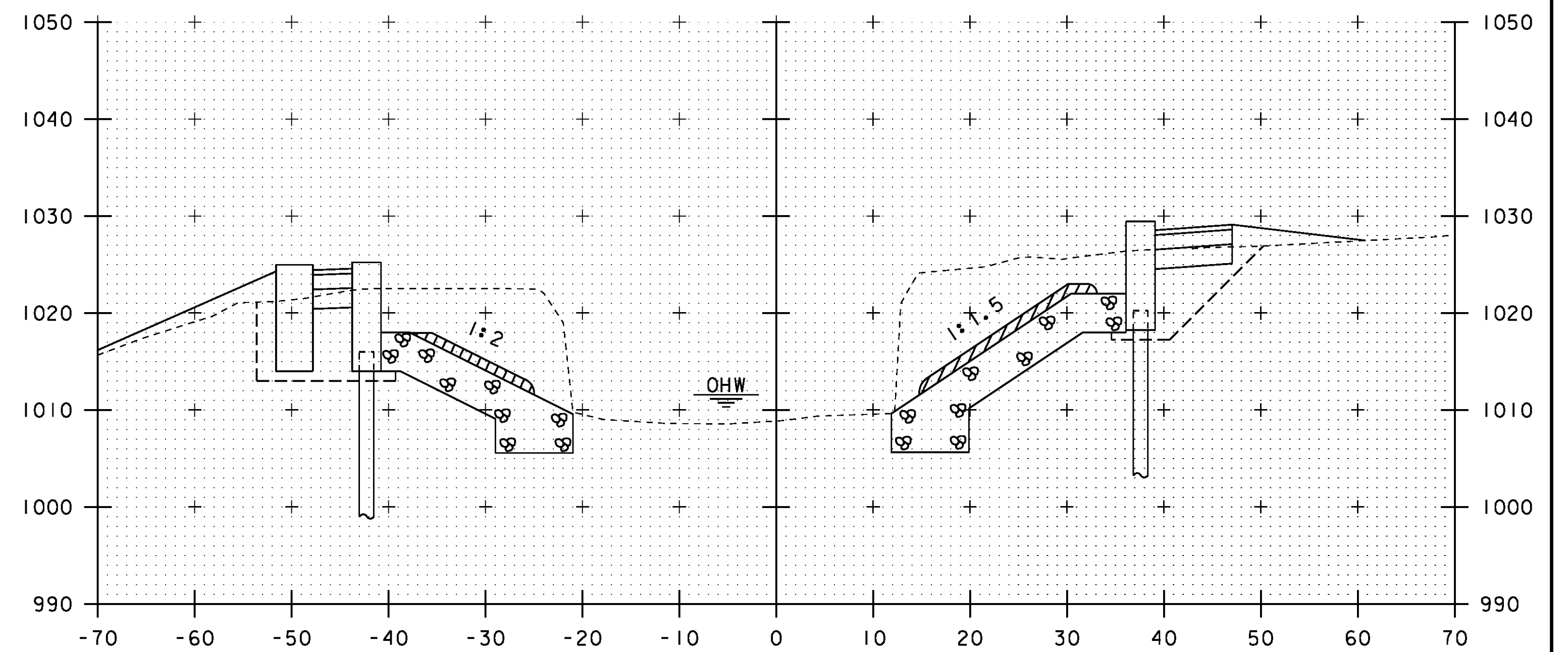
STA. 50+00 TO STA. 50+50

PROJECT NAME:	CRAFTSBURY
PROJECT NUMBER:	BO 1449(34)
FILE NAME:	sl3j100xs.dgn
PROJECT LEADER:	R. YOUNG
DESIGNED BY:	W. LAMMER
CHANNEL CROSS SECTIONS:	I
PLOT DATE:	14-OCT-2015
DRAWN BY:	S. COLEY
CHECKED BY:	W. LAMMER
SHEET	30 OF 42

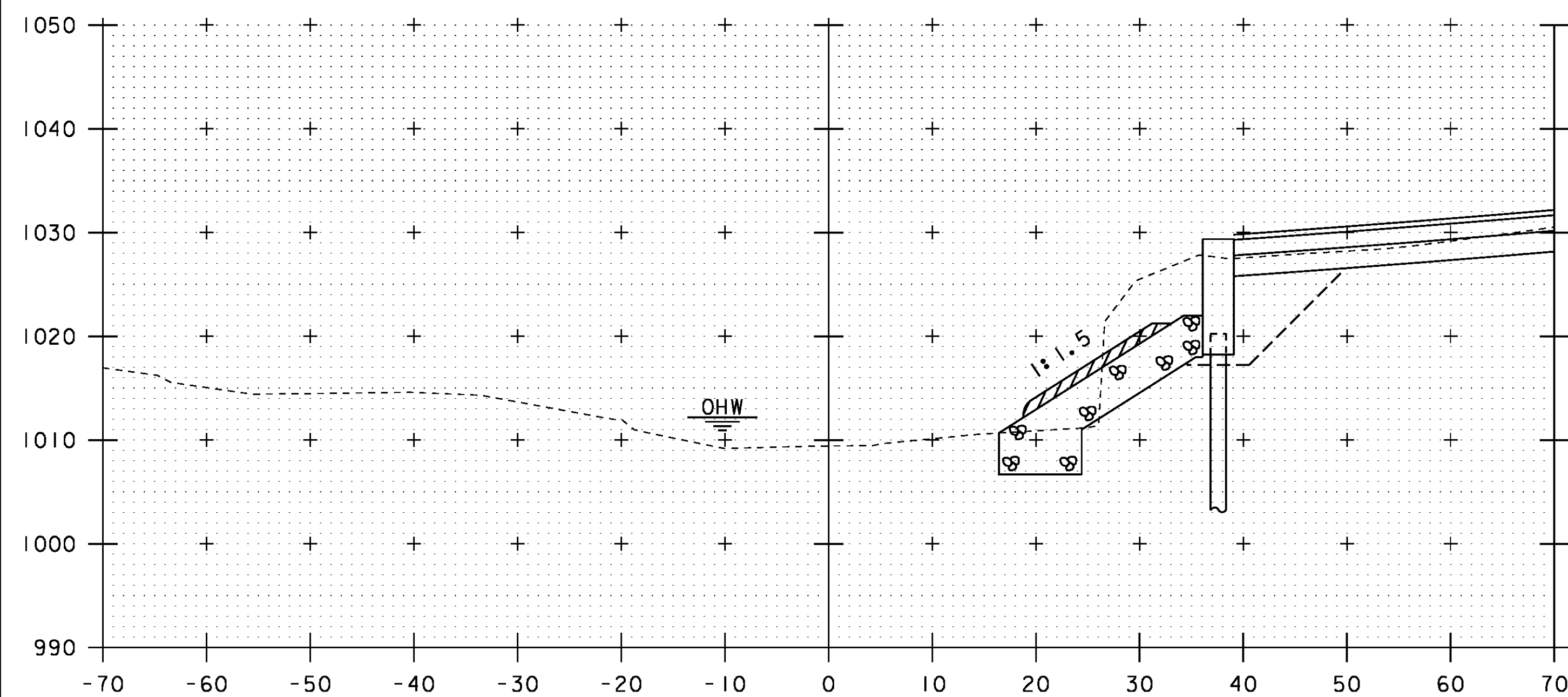


BEGIN STONE FILL, TYPE IV
 GEOTEXTILE UNDER STONE FILL
 GRUBBING MATERIAL
 UNCLASSIFIED CHANNEL EXCAVATION
 STA 50+80.29 LT

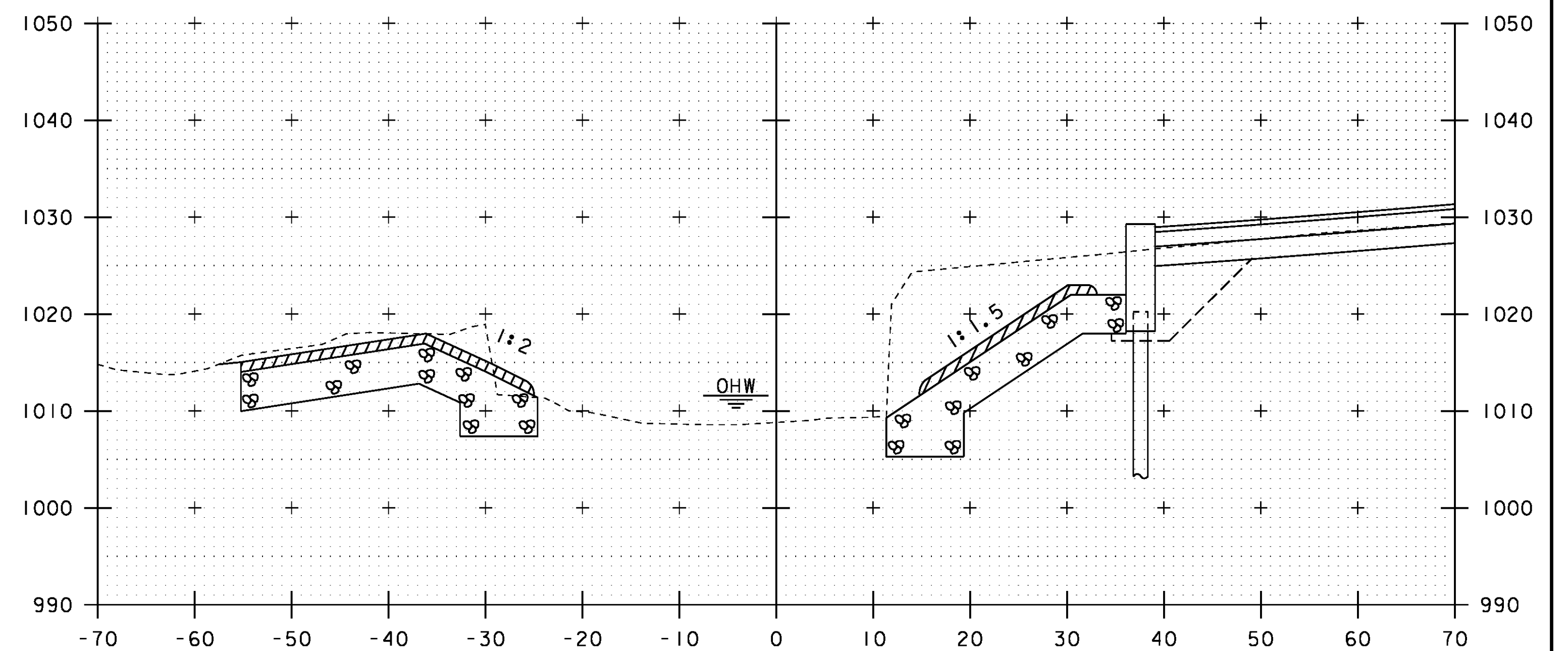
50+80



51+00



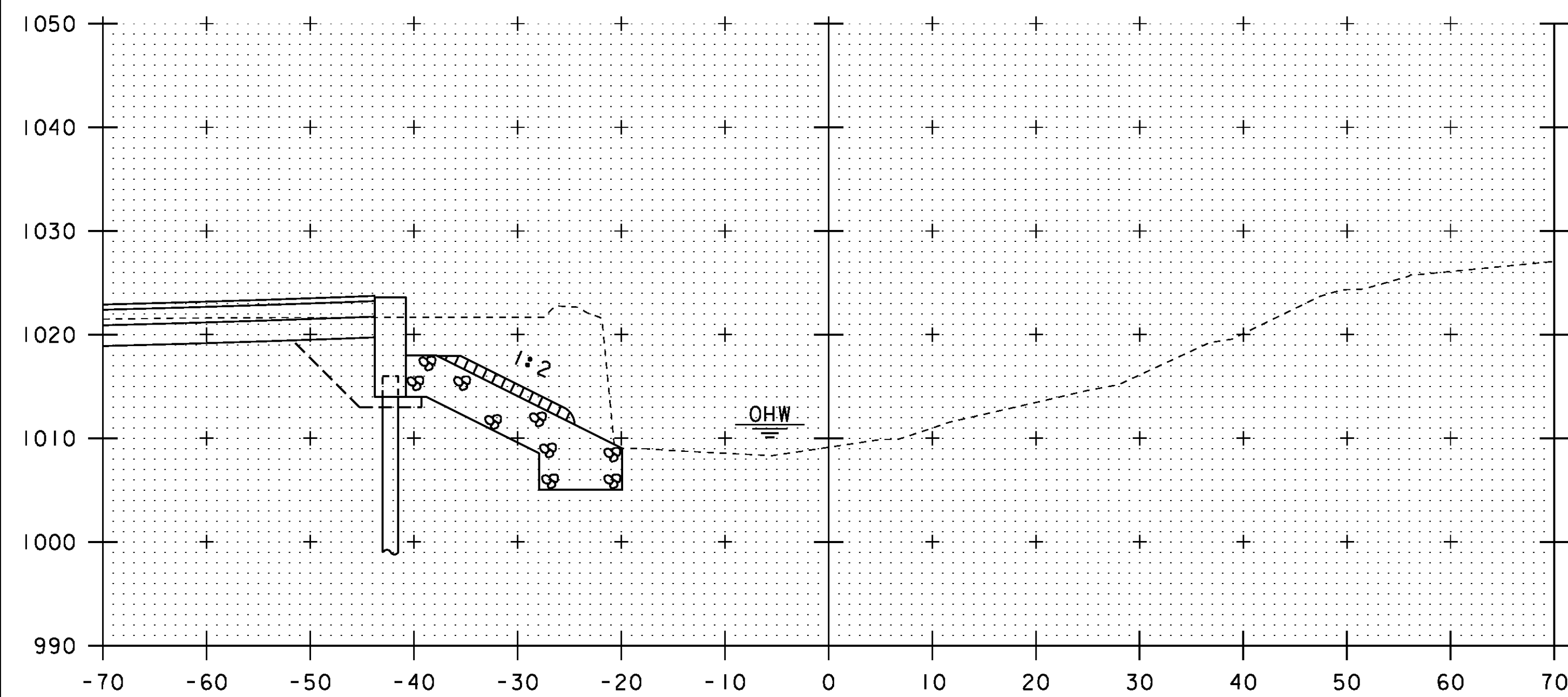
50+70



50+90

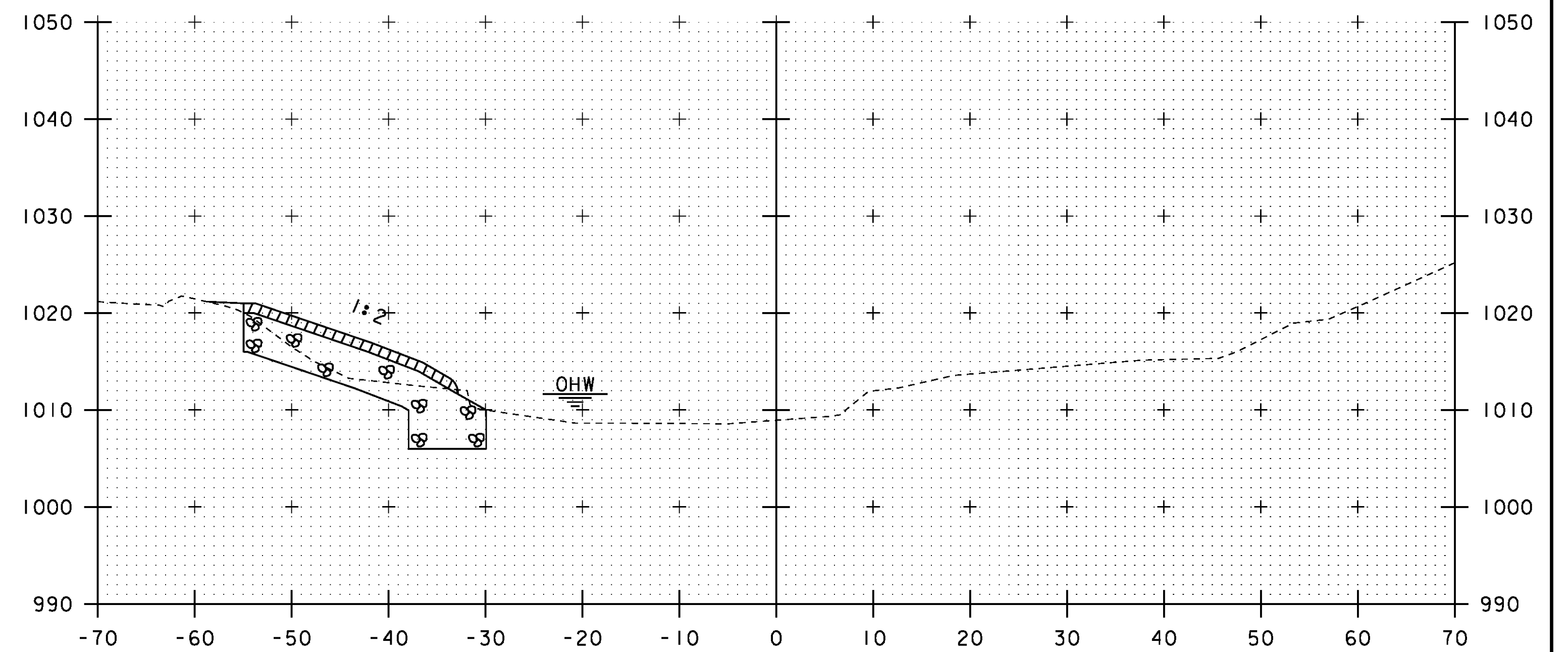
STA. 50+70 TO STA. 51+00

PROJECT NAME: CRAFTSBURY	
PROJECT NUMBER: BO 1449(34)	
FILE NAME: sl3j100xs.dgn	PLOT DATE: 14-OCT-2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. COLEY
DESIGNED BY: W. LAMMER	CHECKED BY: W. LAMMER
CHANNEL CROSS SECTIONS 2	SHEET 31 OF 42

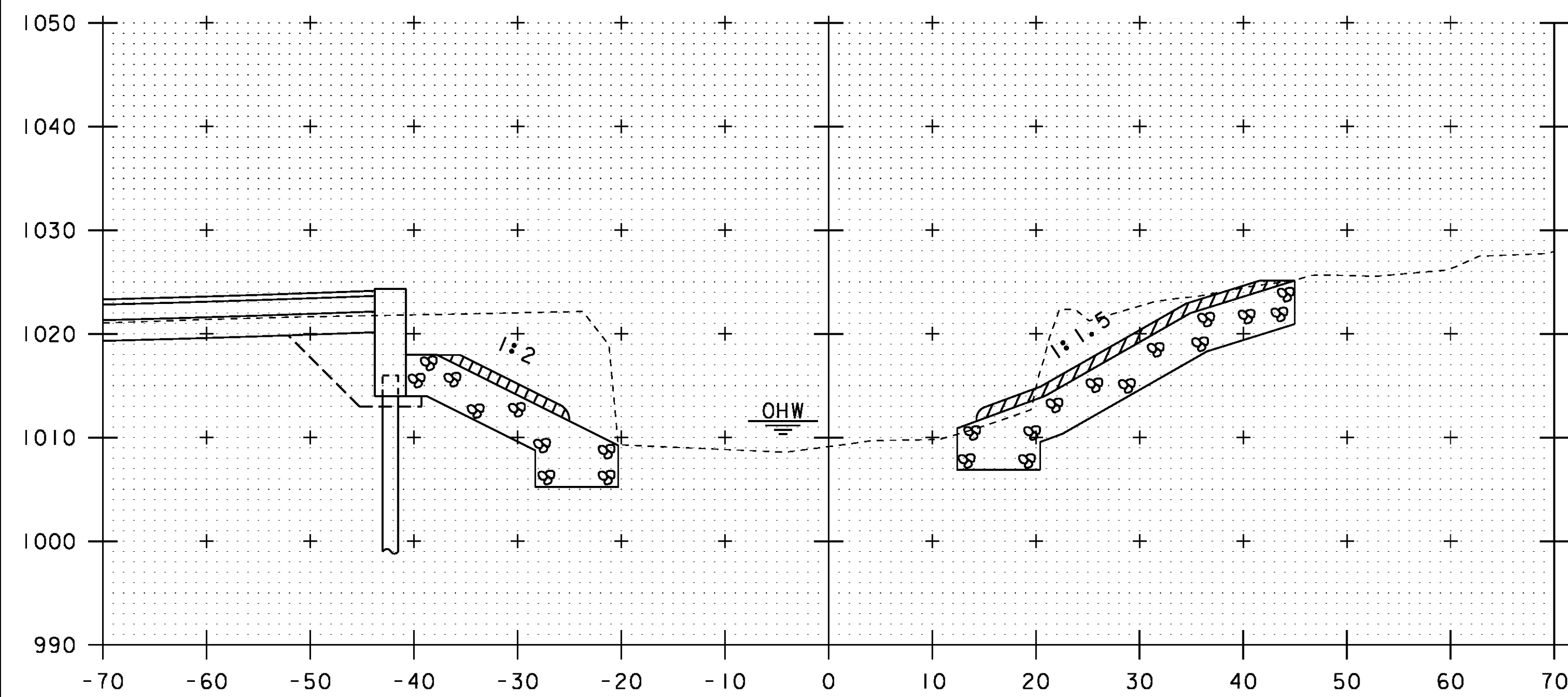


51+20

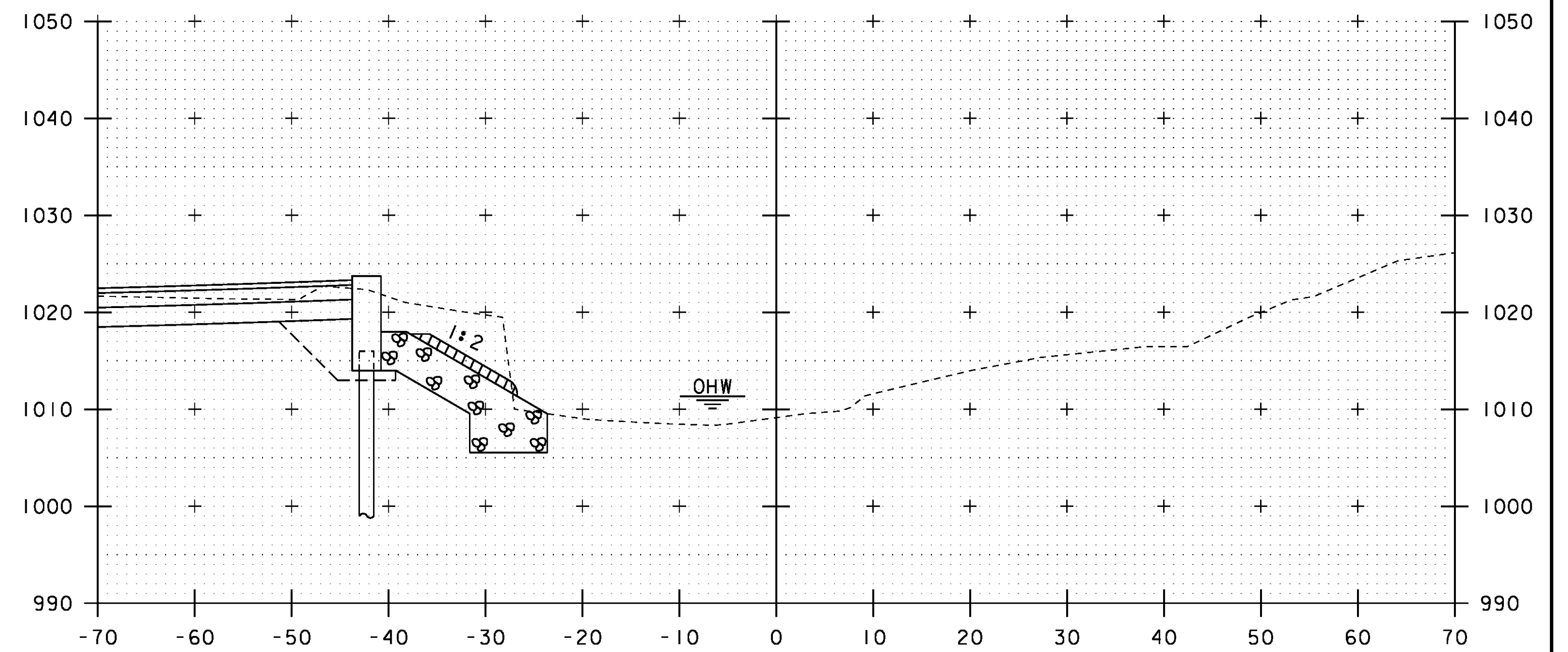
END STONE FILL, TYPE IV
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL
UNCLASSIFIED CHANNEL EXCAVATION
STA 51+20.00 RT



51+40



51+10



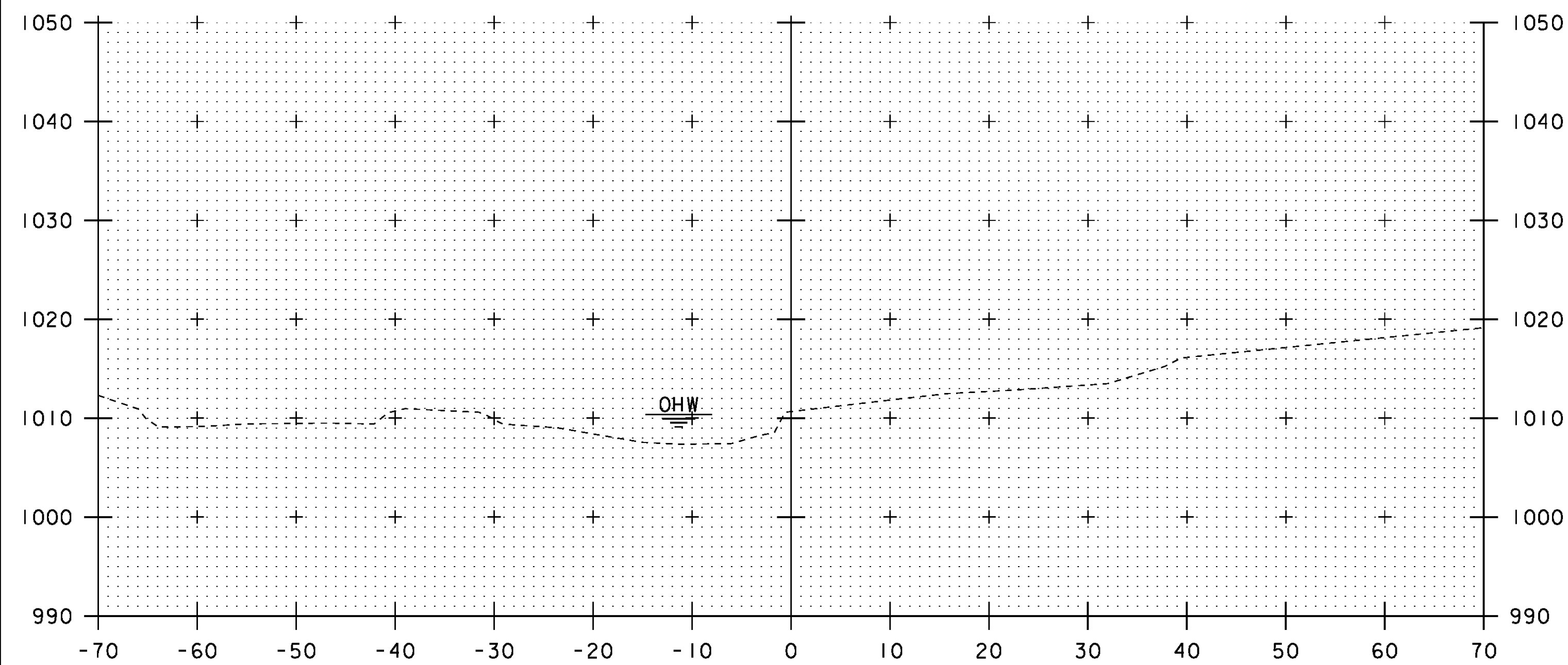
51+30

STA. 51+10 TO STA. 51+30

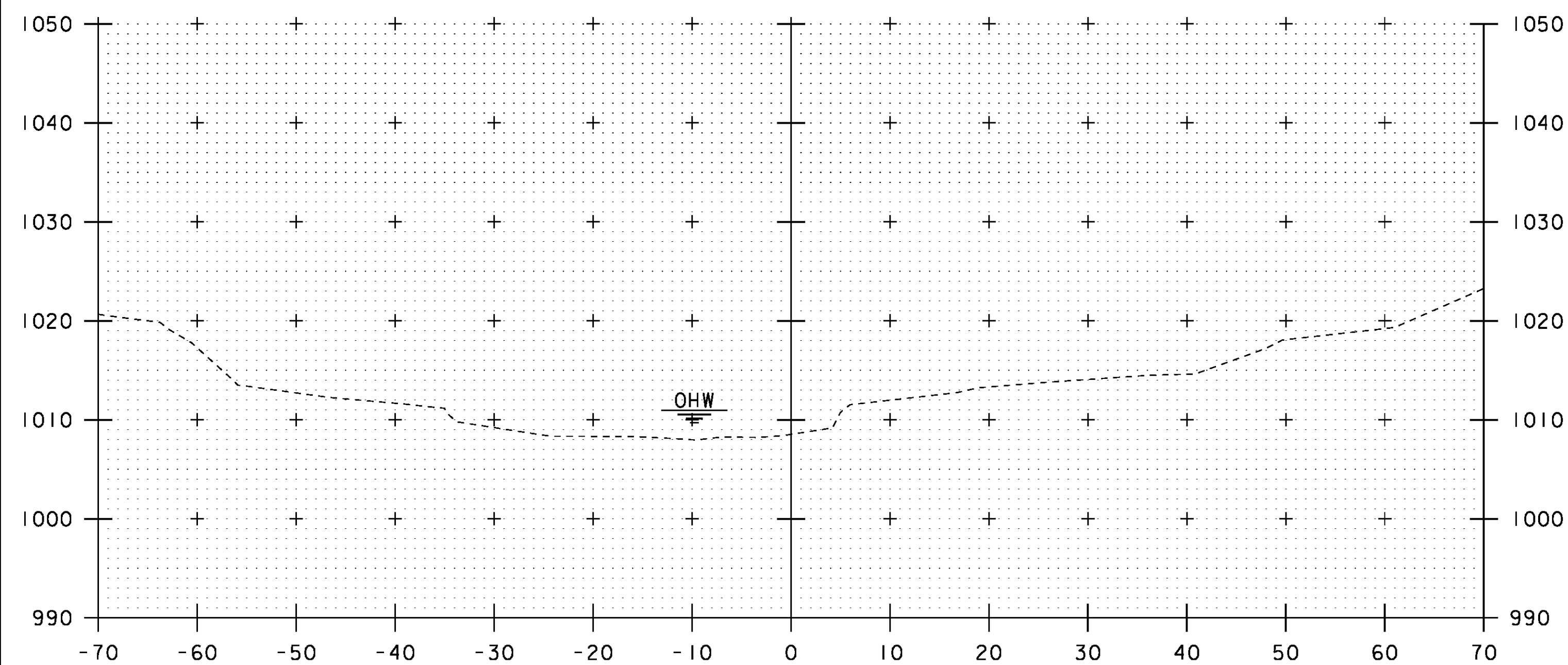
PROJECT NAME: CRAFTSBURY
PROJECT NUMBER: BO 1449(34)

FILE NAME: sl3j100xs.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: W. LAMMER
CHANNEL CROSS SECTIONS 3

PLOT DATE: 14-OCT-2015
DRAWN BY: S. COLEY
CHECKED BY: W. LAMMER
SHEET 32 OF 42

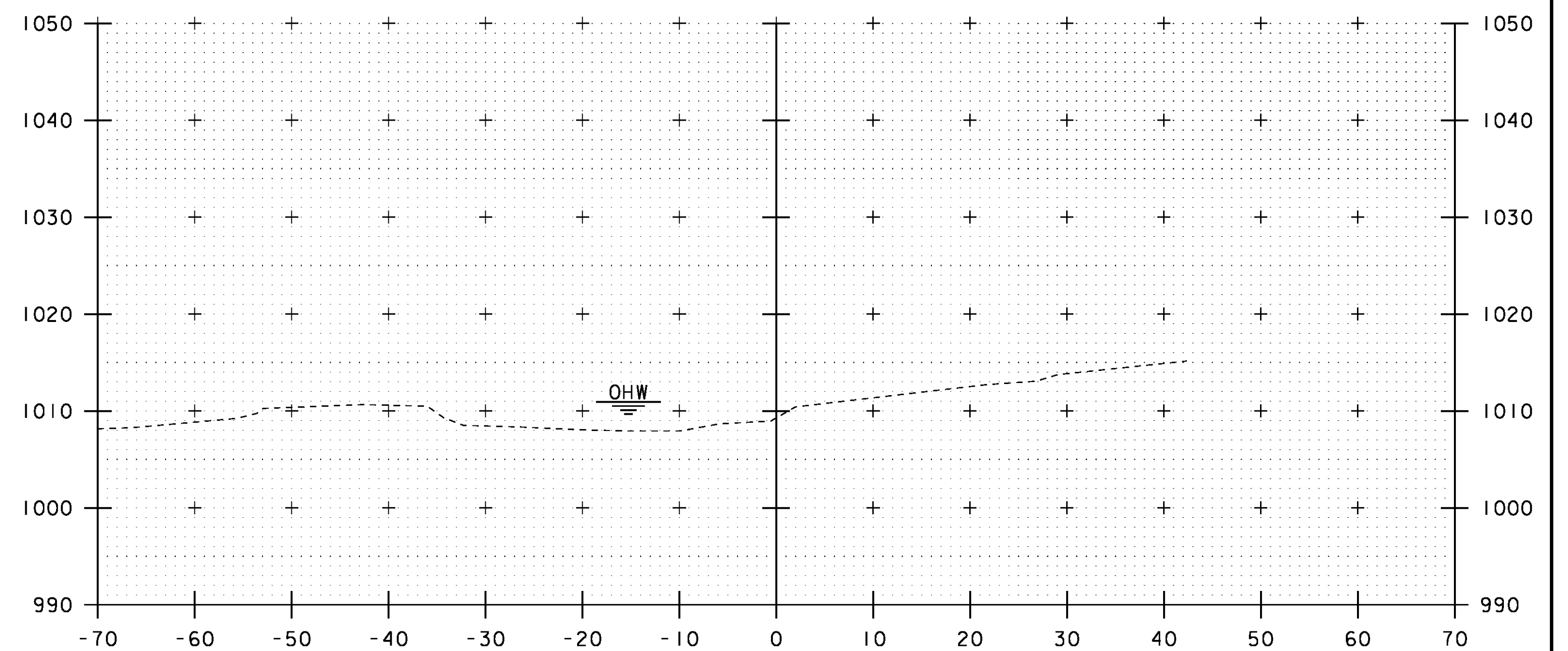


51+75



51+50

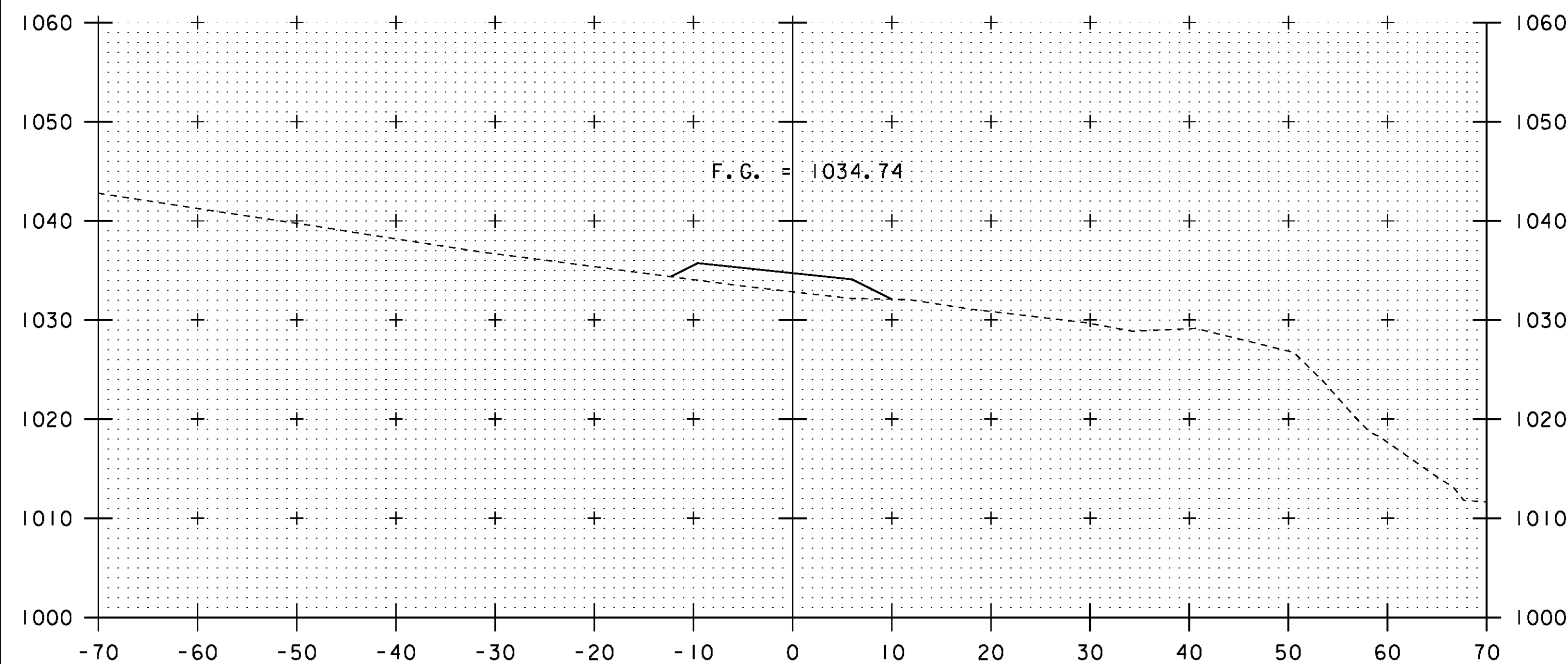
END STONE FILL, TYPE IV
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL
UNCLASSIFIED CHANNEL EXCAVATION
STA 51+48.19 LT



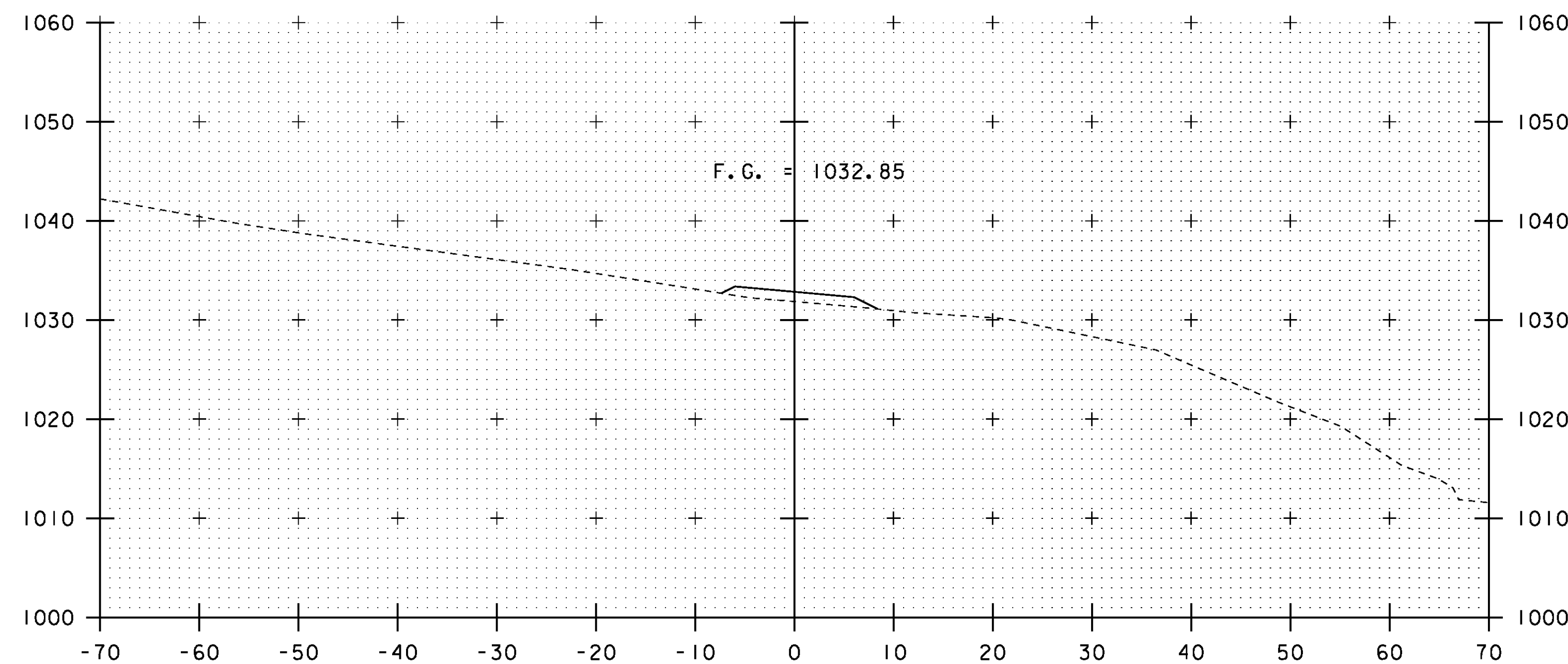
52+00

STA. 51+50 TO STA. 52+00

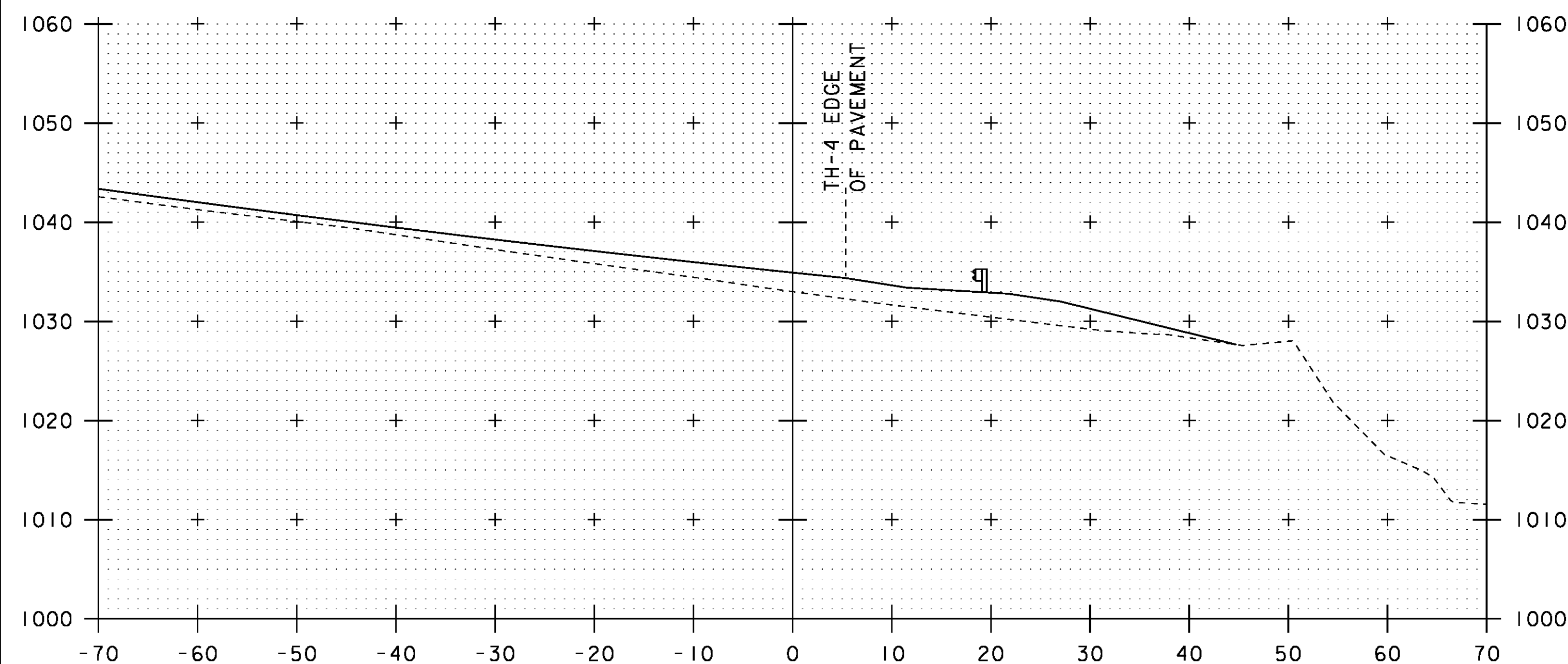
PROJECT NAME: CRAFTSBURY	
PROJECT NUMBER: BO 1449(34)	
FILE NAME: sl3j100xs.dgn	PLOT DATE: 14-OCT-2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. COLEY
DESIGNED BY: W. LAMMER	CHECKED BY: W. LAMMER
CHANNEL CROSS SECTIONS 4	SHEET 33 OF 42



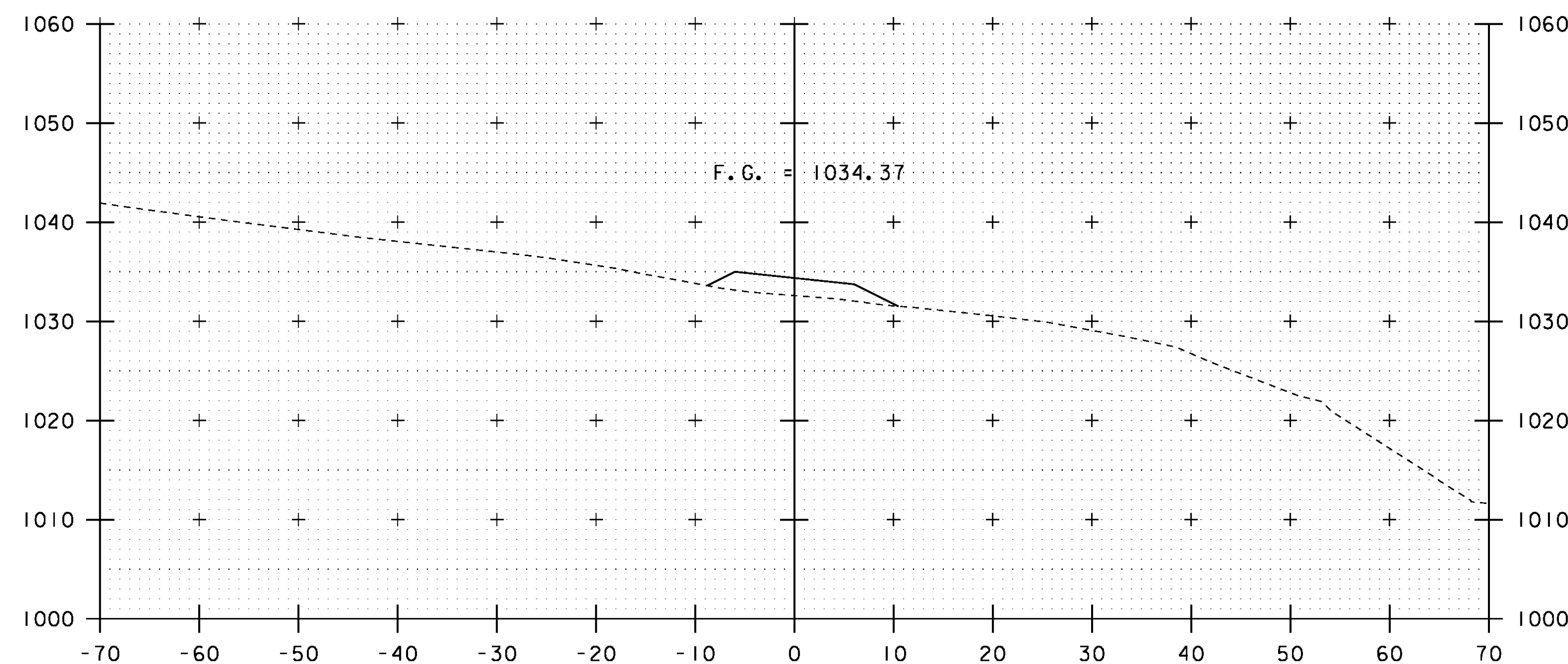
I+20



I+40



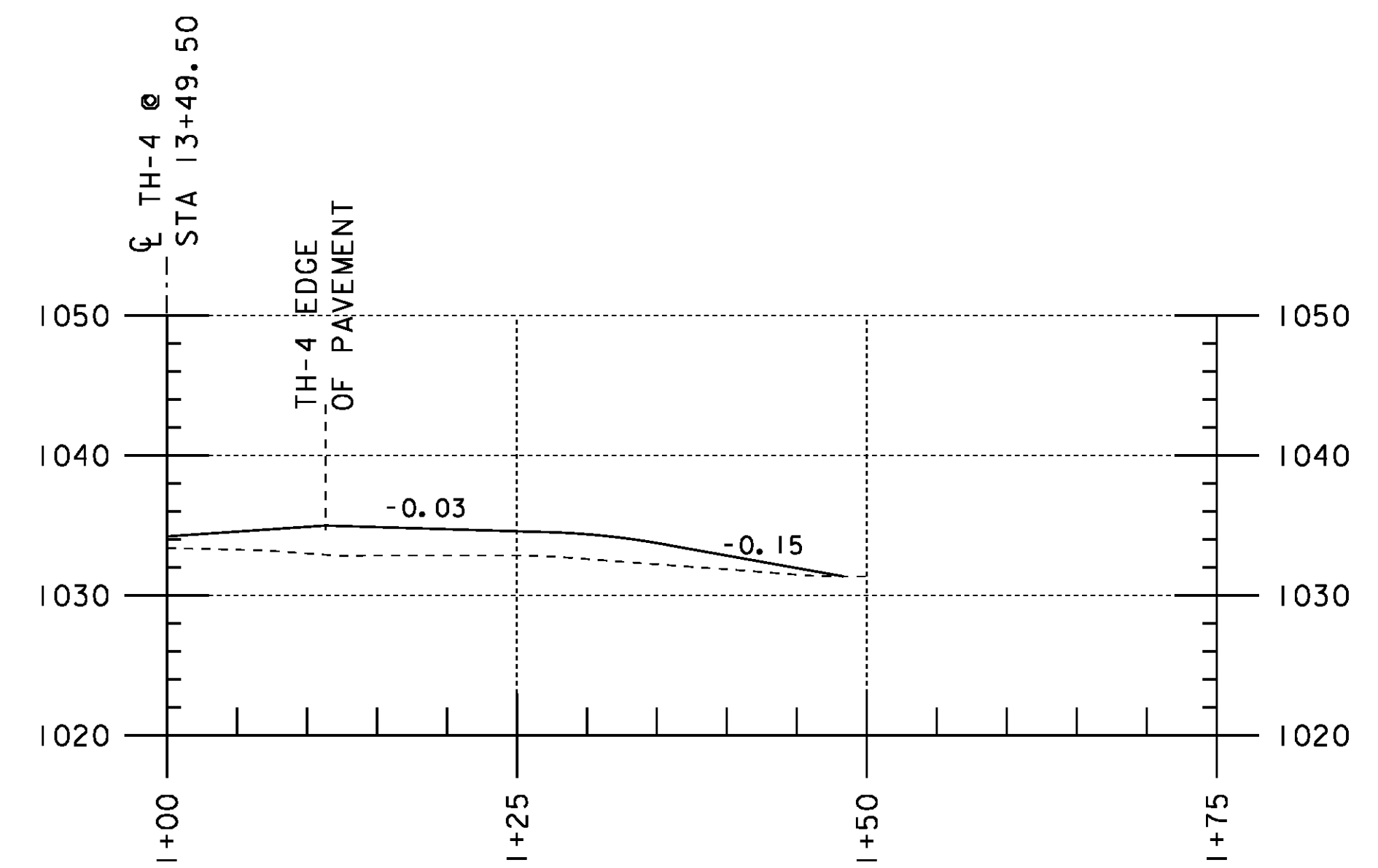
I+10



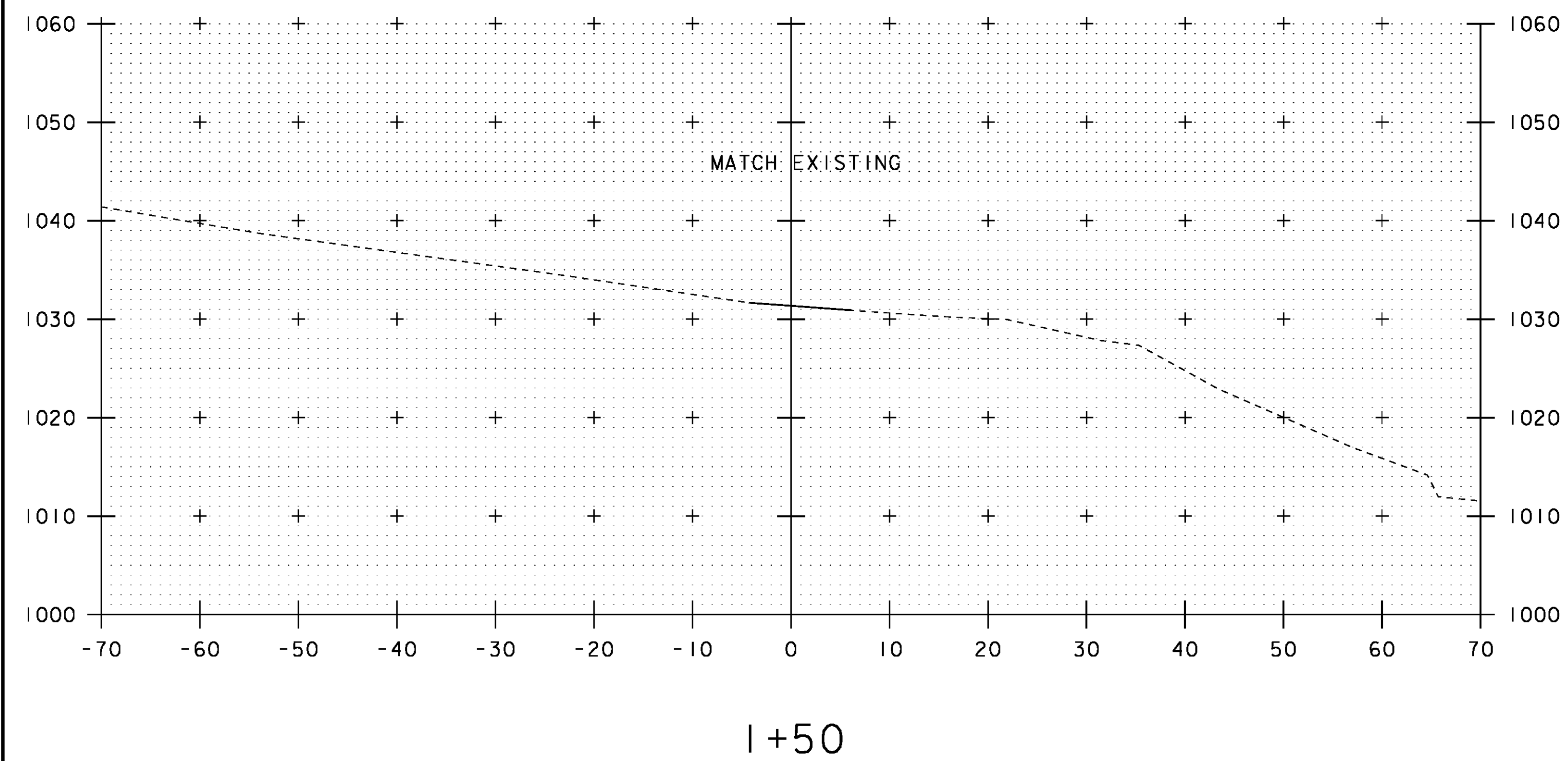
I+30

STA. I+10 TO STA. I+40

PROJECT NAME: CRAFTSBURY	
PROJECT NUMBER: BO 1449(34)	
FILE NAME: sl3j100xs.dgn	PLOT DATE: 14-OCT-2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. COLEY
DESIGNED BY: W. LAMMER	CHECKED BY: W. LAMMER
DRIVE CROSS SECTIONS I	SHEET 34 OF 42



DRIVE PROFILE



STA. 1+50 TO STA. 1+50

PROJECT NAME: CRAFTSBURY	
PROJECT NUMBER: BO 1449(34)	
FILE NAME: sl3j100xs.dgn	PLOT DATE: 14-OCT-2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. COLEY
DESIGNED BY: W. LAMMER	CHECKED BY: W. LAMMER
DRIVE CROSS SECTIONS 2	SHEET 35 OF 42

EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT ENTAILS THE CONSTRUCTION OF A NEW BRIDGE WITH RELATED APPROACH WORK TO REPLACE BRIDGE 4 ON TOWN HIGHWAY 4 OVER THE WHITNEY BROOK IN CRAFTSBURY, ORLEANS COUNTY, VERMONT.

THE BRIDGE WILL BE CLOSED TO TRAFFIC FOR 4 WEEKS DURING CONSTRUCTION.

NOTE: AREA OF DISTURBANCE INCLUDES 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.

TOTAL AREA OF DISTURBANCE AS SHOWN ON THE ATTACHED EPSC PLAN IS APPROXIMATELY 0.46 ACRES.

IT IS ANTICIPATED THAT THIS PROJECT WILL LAST ONE CONSTRUCTION SEASON.

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY

THE TERRAIN IS HILLY TO MOUNTAINOUS, WITH A MIXTURE OF FORESTED AND OPEN LAND COVER.

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

THE WHITNEY BROOK IS THE ONLY WATER SOURCE ON THE PROJECT SITE. THE BROOK IS CLASSIFIED AS INCISED, ALLUVIAL, AND SINUOUS, WITH FAILING BANKS AND A HIGH SEDIMENT LOAD AND WITH A STREAM BED CONSISTING OF SAND, GRAVEL, COBBLES, AND BOULDERS. THE TRIBUTARY AREA IS 13.5 SQUARE MILES.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF MIXED SOFT AND HARDWOOD TREES AND UNDERGROWTH. DISTURBED VEGETATION WILL BE RE-ESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES.

1.2.4 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF ORLEANS, VERMONT.

CABOT SILT LOAM, VERY STONY 0-8% SLOPES HYDRO SOIL GROUP D K-FACTOR 0.32	COLTON-DUXBURY COMPLEX 15-25% SLOPES HYDRO SOIL GROUP A K-FACTOR 0.20/0.32
RUMNEY FINE SANDY LOAM 0-2% SLOPES HYDRO SOIL GROUP C K-FACTOR 0.28	BUCKLAND FINE SANDY LOAM, VERY STONY 35-60% SLOPES HYDRO SOIL GROUP C K-FACTOR 0.43

NOTE: K-VALUES GENERALLY INDICATE THE FOLLOWING:
0.0-0.23 = LOW EROSION POTENTIAL
0.24-0.36 = MODERATE EROSION POTENTIAL
0.37 AND HIGHER = HIGH EROSION POTENTIAL

1.2.5 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: THE AREA IS A WILDLIFE TRAVEL CORRIDOR FOR WILDLIFE TRAVELING FROM THE BLACK RIVER FLOODPLAIN TO THE WEST AND THE UPLAND/FARMLAND HABITAT TO THE EAST OF THE PROJECT.
ARCHEOLOGICAL AREAS: THERE ARE TWO AREAS OF ARCHAEOLOGICAL SENSITIVITY, LOCATED ON HIGH TERRACES TO THE NORTHWEST AND NORTHEAST OF THE BRIDGE. THESE AREAS ARE WELL OUTSIDE THE PROJECT LIMITS.
HISTORICAL PLACES: NO
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES: NORTHERN LONG-EARED BAT
WATER RESOURCE: WHITNEY BROOK
WETLANDS: THERE IS A SMALL WETLAND TO THE SOUTH OF THE BRIDGE AND TO THE EAST OF TOWN HIGHWAY 4, ADJACENT TO THE SMALL PULL-OFF AREA.

1.3 RISK EVALUATION

THIS PROJECT DOES NOT FALL UNDER THE JURISDICTION OF GENERAL PERMIT 3-9020 FOR STORMWATER RUNOFF FROM CONSTRUCTION SITES. SHOULD CHANGES PRIOR TO OR DURING CONDRUCTION RESULT IN ONE OR MORE ARCES OF EARTH DISTURBANCE OR SHOULD THE PROJECT BECOME PART OF A LARGER PLAN OF DEVELOPMENT, THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY ADDITIONAL PERMITTING.

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

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. 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 CONSTRUCTION EQUIPMENT CAN ACCESS SHALL BE DELINEATED.

PROJECT DEMARCATION FENCING (PDF) AND BARRIER FENCE SHALL BE INSTALLED AS SHOWN ON THE PLANS TO PHYSICALLY MARK SITE BOUNDARIES. THIS MEASURE LIMITS THE AREA THAT CAN BE DISTURBED AND EXPOSED TO EROSIIVE EFFECTS.

1.4.2 LIMIT DISTURBANCE AREA
PREVENTING INITIAL SOIL EROSION BY MINIMIZING THE EXPOSED AREA 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 AS PHASES CHANGE. FOR PROJECTS WHICH FALL UNDER THE CONSTRUCTION GENERAL PERMIT, ONLY THE ACREAGE LISTED ON THE PERMIT AUTHORIZATION MAY BE EXPOSED AT ANY GIVEN TIME.

MAINTAINING VEGETATED BUFFERS ALONG STREAM BANKS, WETLANDS OR OTHER SENSITIVE AREAS IS A CRUCIAL EROSION AND SEDIMENT CONTROL MEASURE THAT SHOULD 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. AS THIS PROJECT IS LOCATED ON AN UNPAVED ROAD, STABILIZED CONSTRUCTION ENTRANCES ARE NOT SPECIFIED.

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.

SILT FENCE WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN.

FILTER CURTAIN WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN.

1.4.5 DIVERT UPLAND RUNOFF
DIVERSIONARY MEASURES SHALL BE USED TO INTERCEPT RUNOFF FROM ABOVE THE CONSTRUCTION AND DIRECT IT AROUND THE DISTURBED AREA SO THAT CLEAN WATER DOES NOT BECOME MUDDIED WHILE TRAVELING OVER EXPOSED SOILS ON THE CONSTRUCTION SITE.

DIVERSIONARY MEASURES ARE NOT ANTICIPATED ON THIS PROJECT.

1.4.6 SLOW DOWN CHANNELIZED RUNOFF
CHECK STRUCTURES SHALL BE UTILIZED TO REDUCE THE VELOCITY, AND THUS THE EROSIIVE POTENTIAL, OF CONCENTRATED FLOW IN CHANNELS, IF NECESSARY. DUE TO SITE TOPOGRAPHY IT IS NOT ANTICIPATED CHECK DAMS ARE NEEDED.

1.4.7 CONSTRUCT PERMANENT CONTROLS
UPON PROJECT COMPLETION, THE CHANNEL WILL BE ARMORED WITH STONE FILL TYPE IV, AS SPECIFIED ON THE PLANS.

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 EVENTS SHALL TRIGGER IMMEDIATE PROTECTION OF EXPOSED SOILS.

1.4.9 WINTER STABILIZATION
VARIOUS MEASURES SPECIFIC TO WINTER MAY BE NECESSARY SHOULD THE PROJECT EXTEND INTO WINTER (OCTOBER 15 THROUGH APRIL 15). REFER TO THE LOW RISK SITE HANDBOOK FOR GUIDANCE.

WINTER WORK IS NOT ANTICIPATED.

1.4.10 STABILIZE SOIL AT FINAL GRADE
EXPOSED SOIL MUST BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE.

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 THE VERMONT WATER QUALITY STANDARDS.

DEWATERING ACTIVITIES ARE NOT ANTICIPATED ON THIS PROJECT.

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

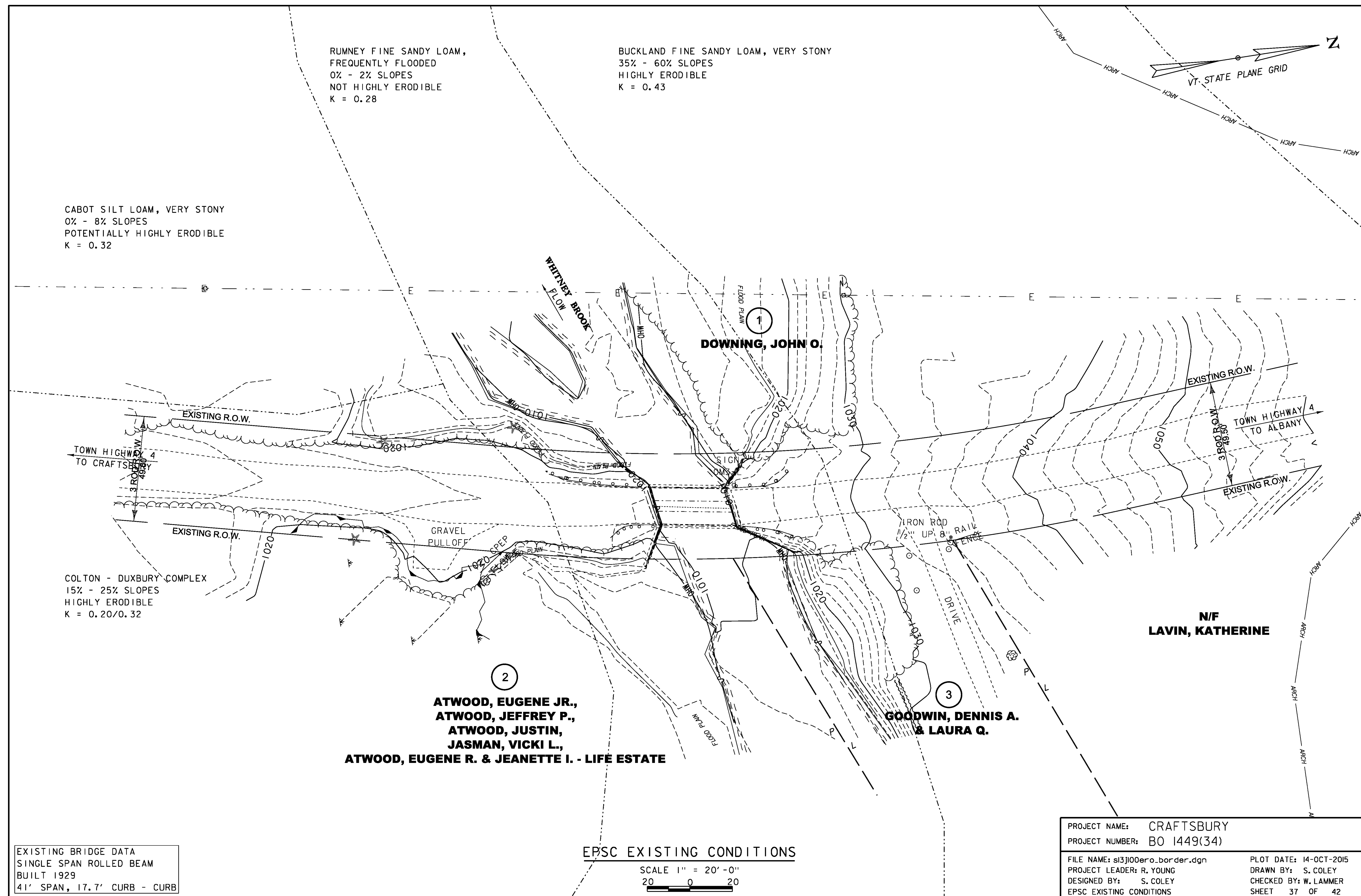
1.5 SEQUENCE AND STAGING

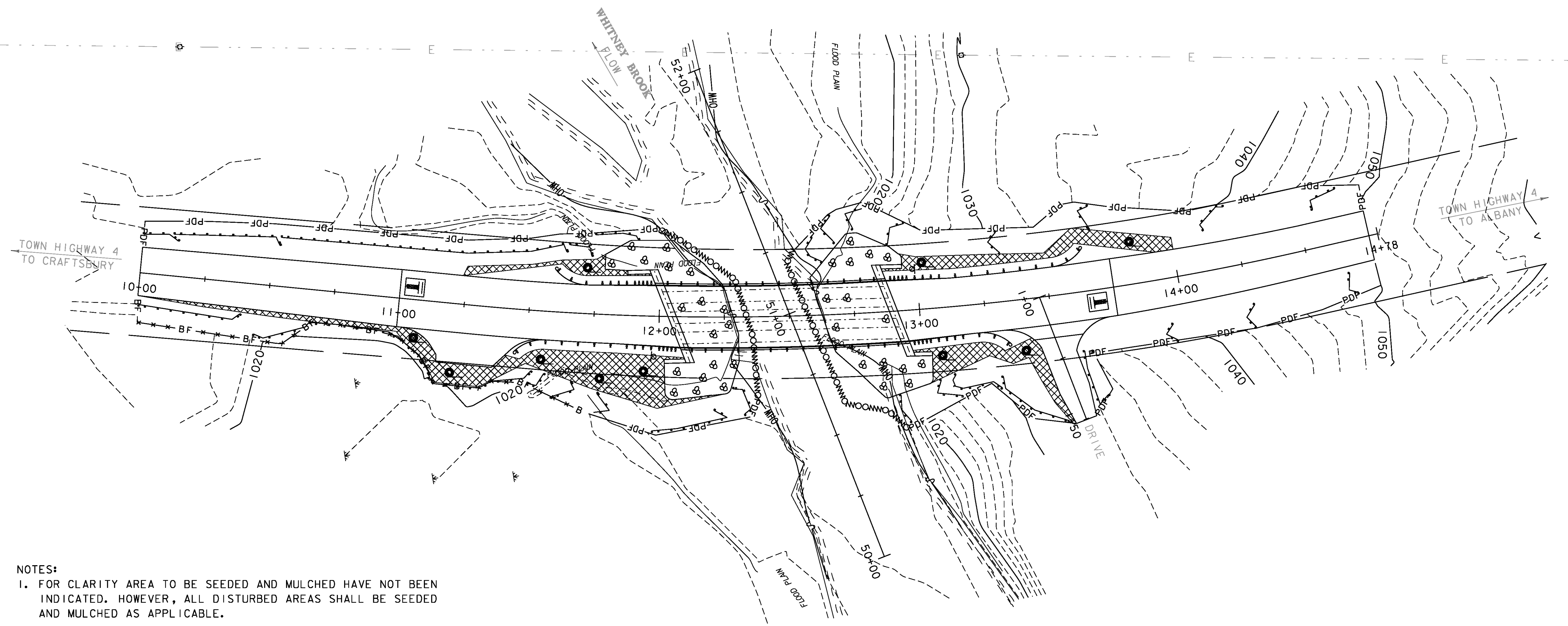
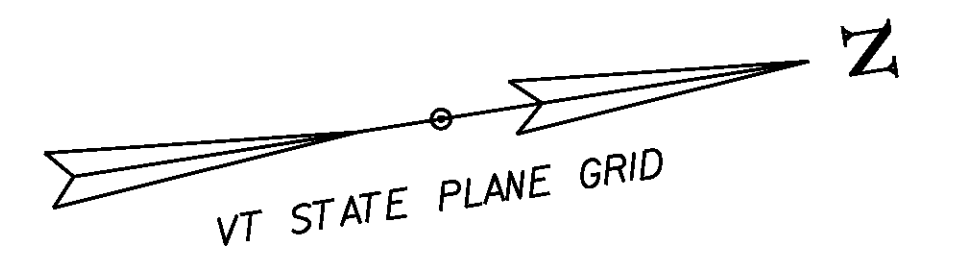
THIS SECTION WILL BE DEVELOPED BY THE CONTRACTOR USING THE GUIDANCE OUTLINED IN THE VTRANS EPSC PLAN CONTRACTOR CHECKLIST.

1.5.1 CONSTRUCTION SEQUENCE

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: CRAFTSBURY	
PROJECT NUMBER: BO 1449(34)	
FILE NAME: s13j100EPSC_narrative.dgn	PLOT DATE: 14-OCT-2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. COLEY
DESIGNED BY: L.J.STONE	CHECKED BY: W. LAMMER
EPSC NARRATIVE	SHEET 36 OF 42



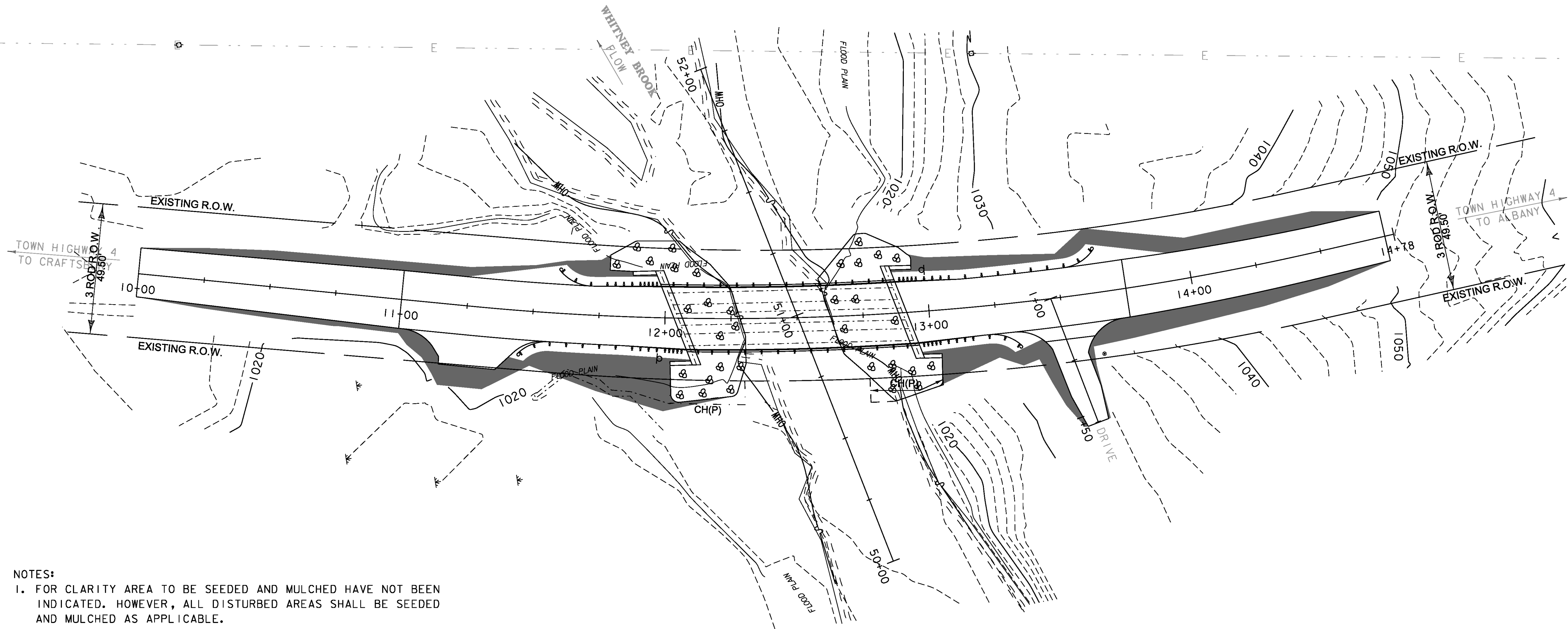
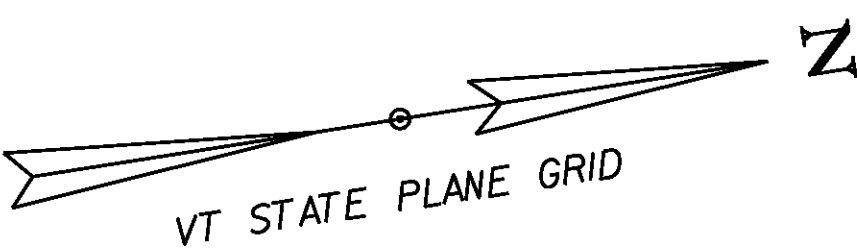


NOTES:
1. FOR CLARITY AREA TO BE SEEDED AND MULCHED HAVE NOT BEEN INDICATED. HOWEVER, ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED AS APPLICABLE.

EPSC CONSTRUCTION SITE PLAN

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

PROJECT NAME: CRAFTSBURY	
PROJECT NUMBER: BO 1449(34)	
FILE NAME:	PLOT DATE: 14-OCT-2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. COLEY
DESIGNED BY: S. COLEY	CHECKED BY: W. LAMMER
EPSC CONSTRUCTION SITE PLAN	SHEET 38 OF 42

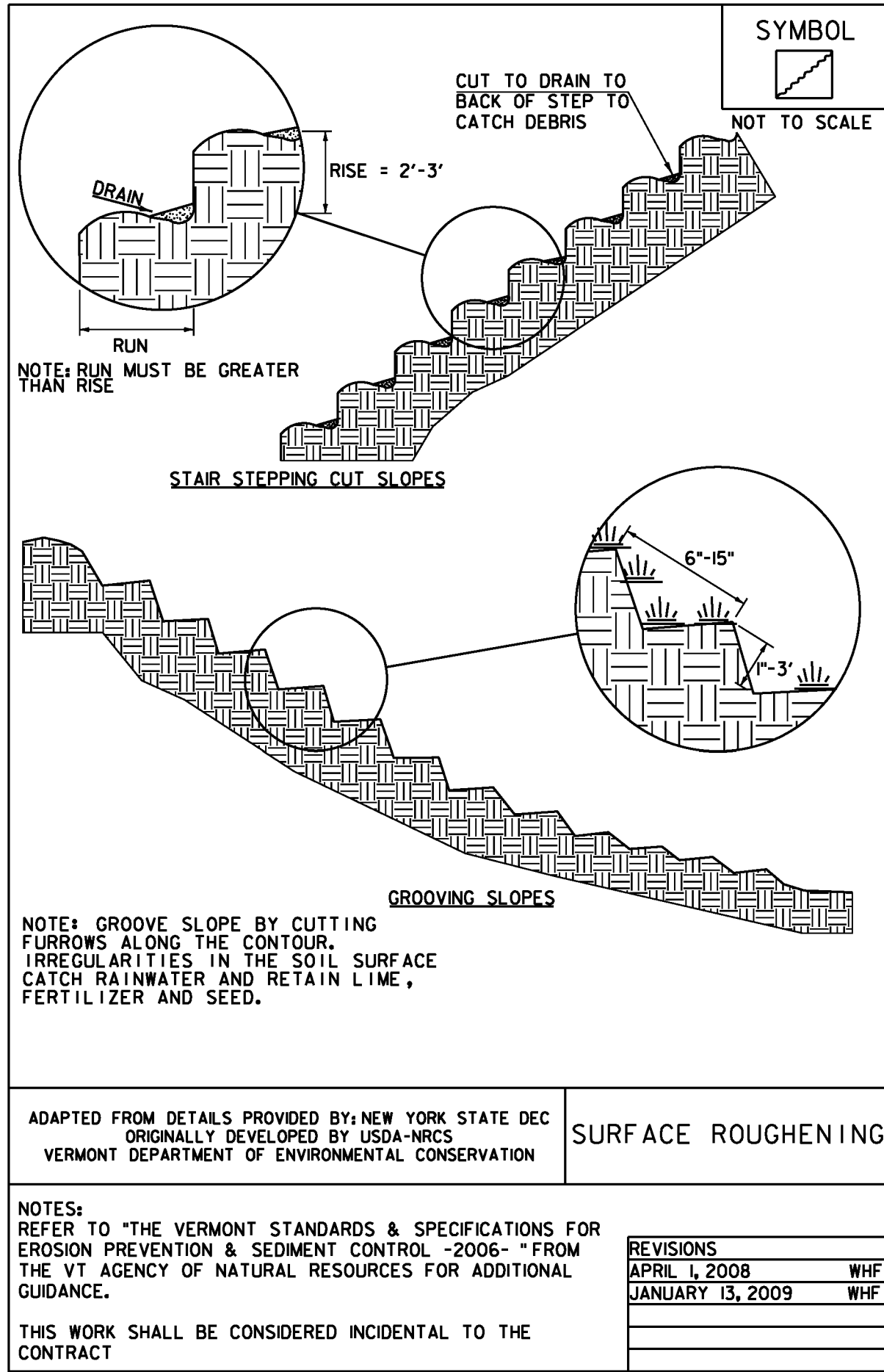
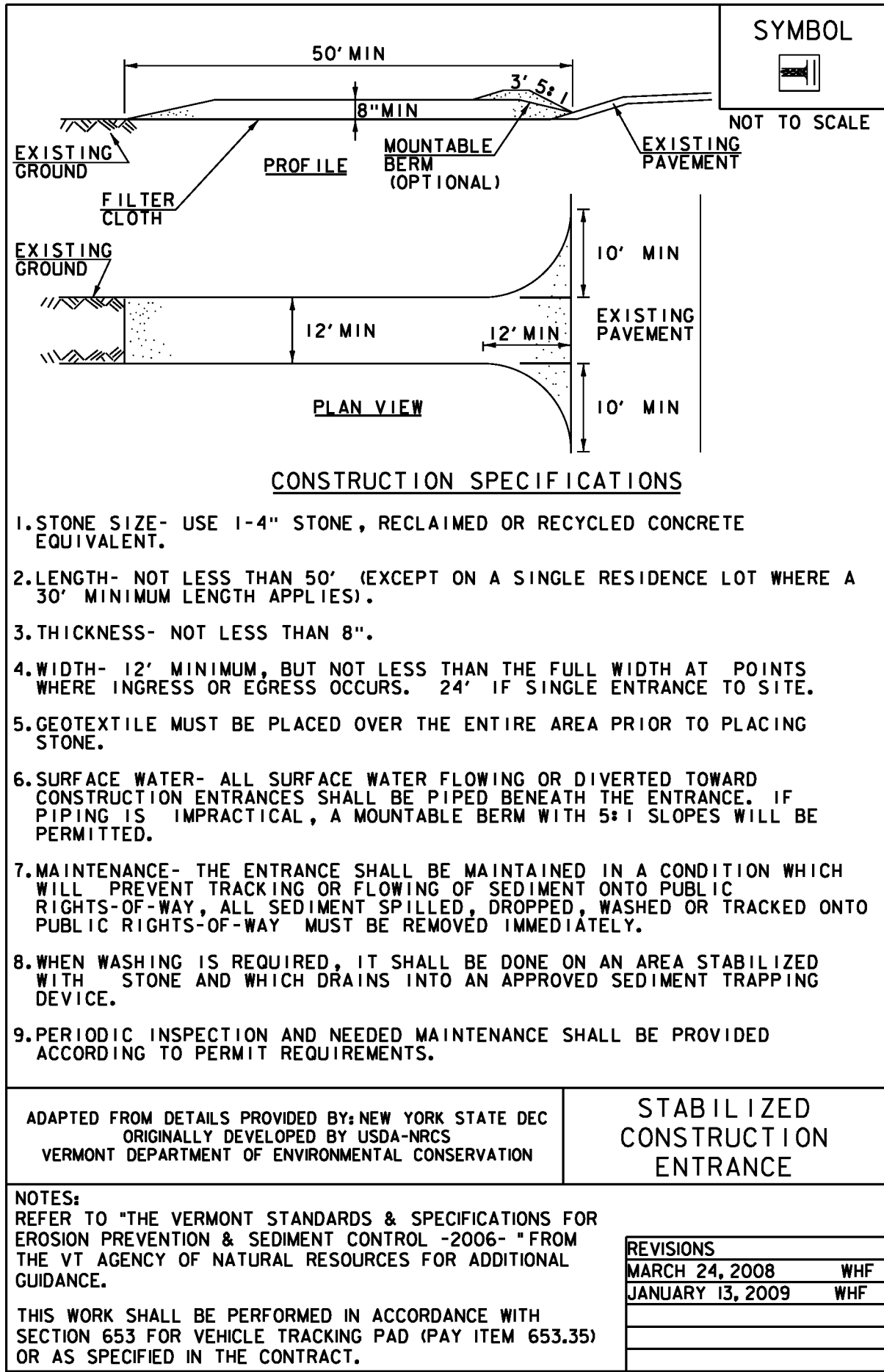
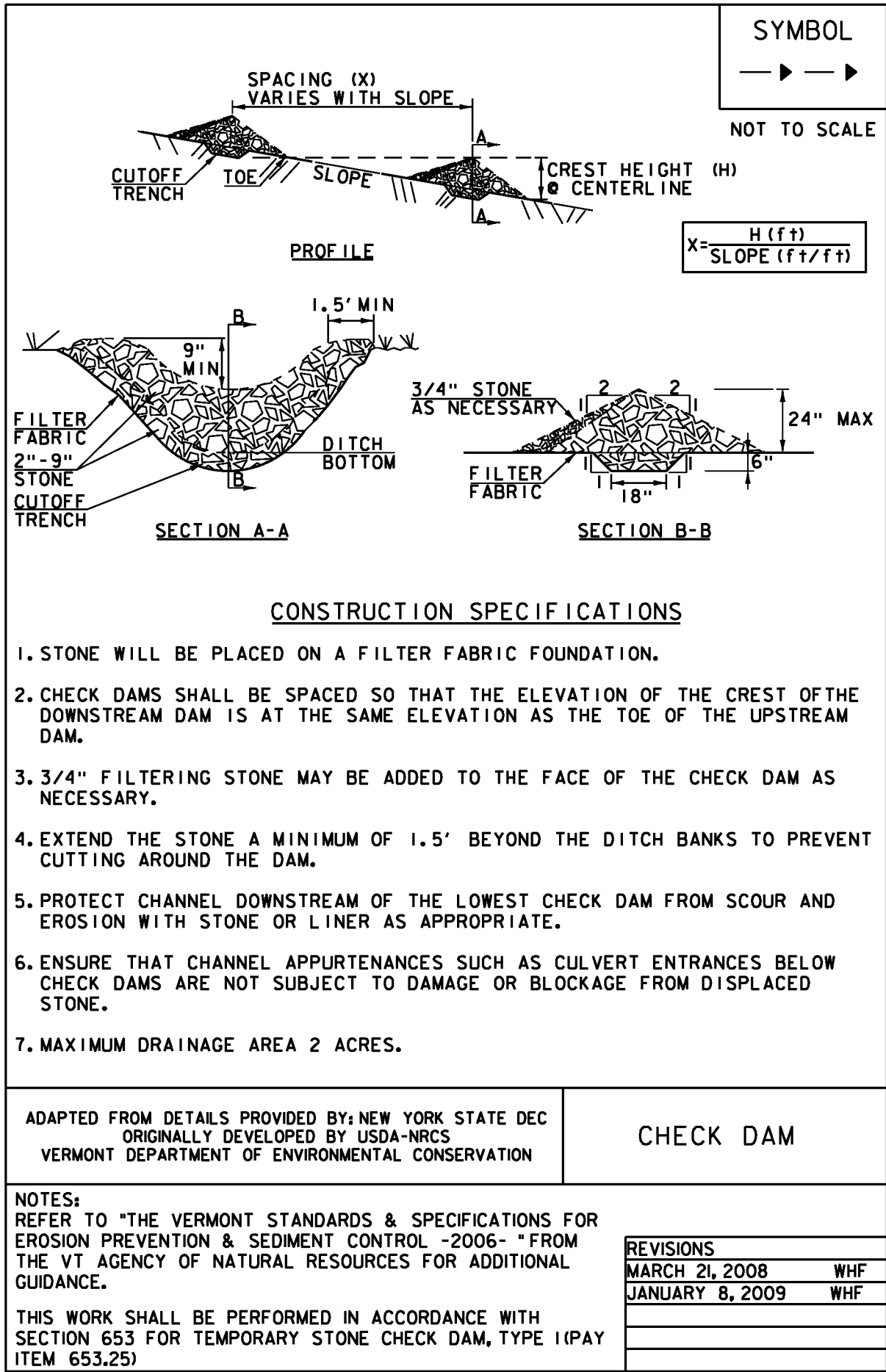
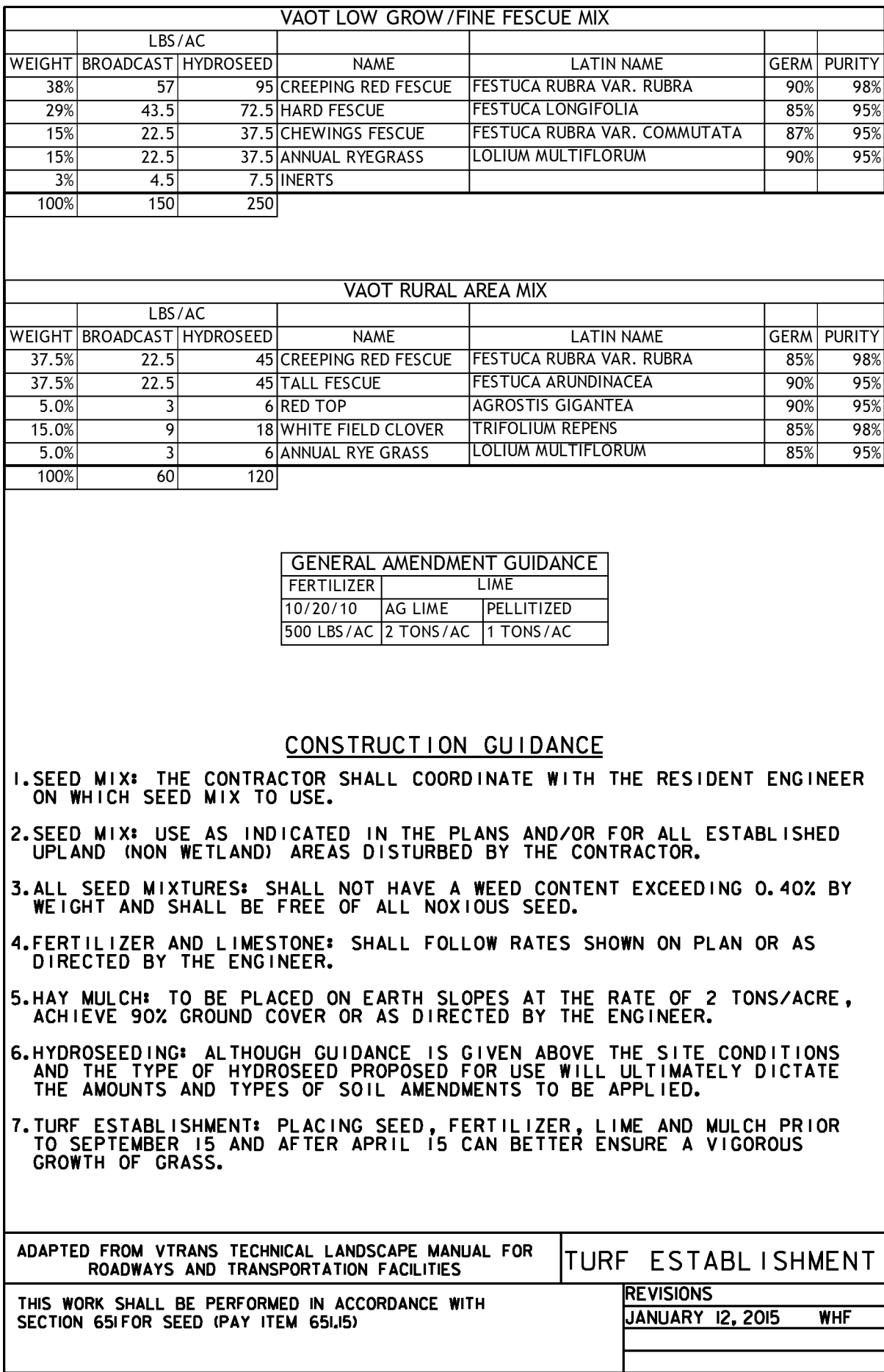
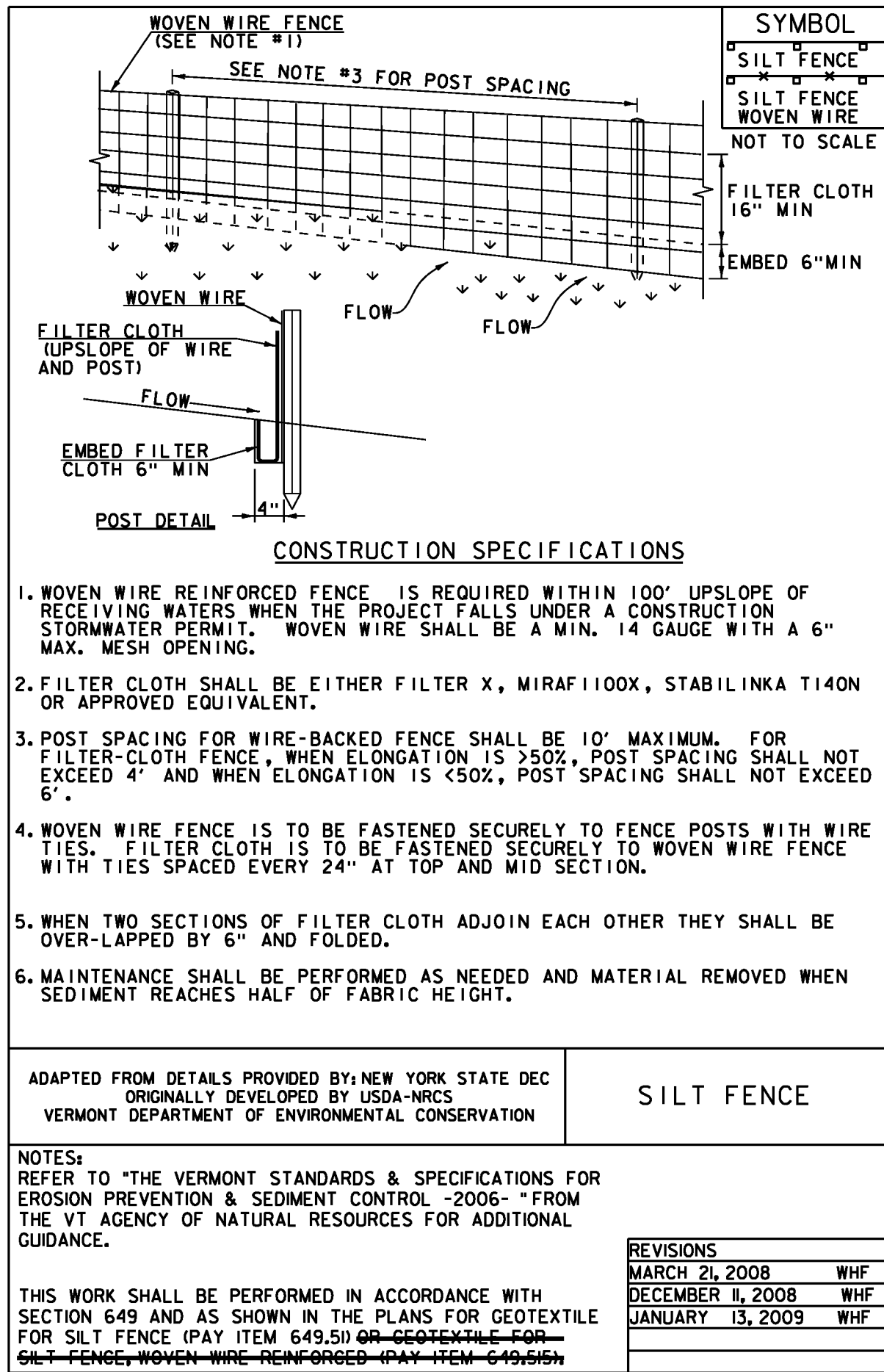
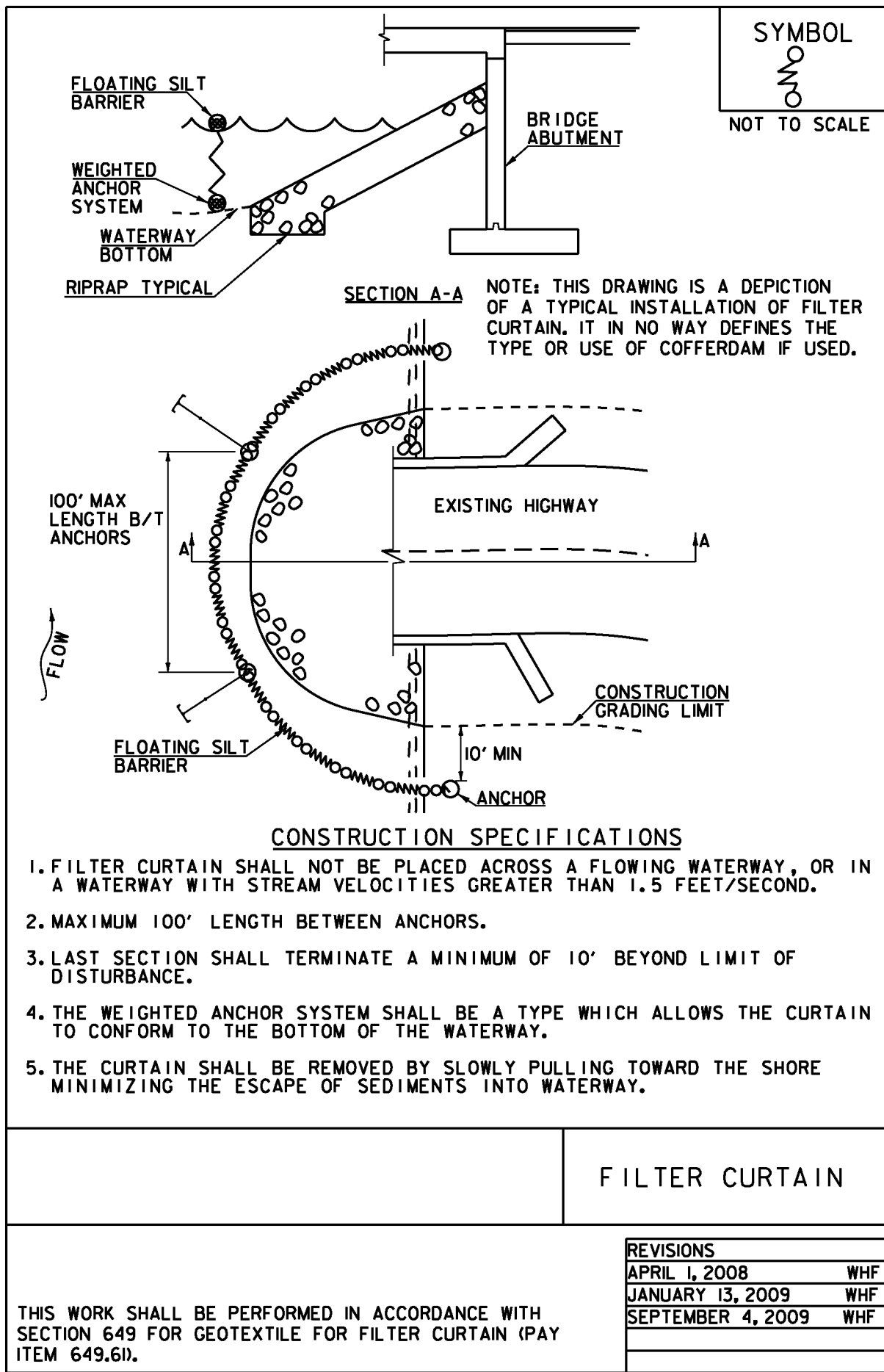
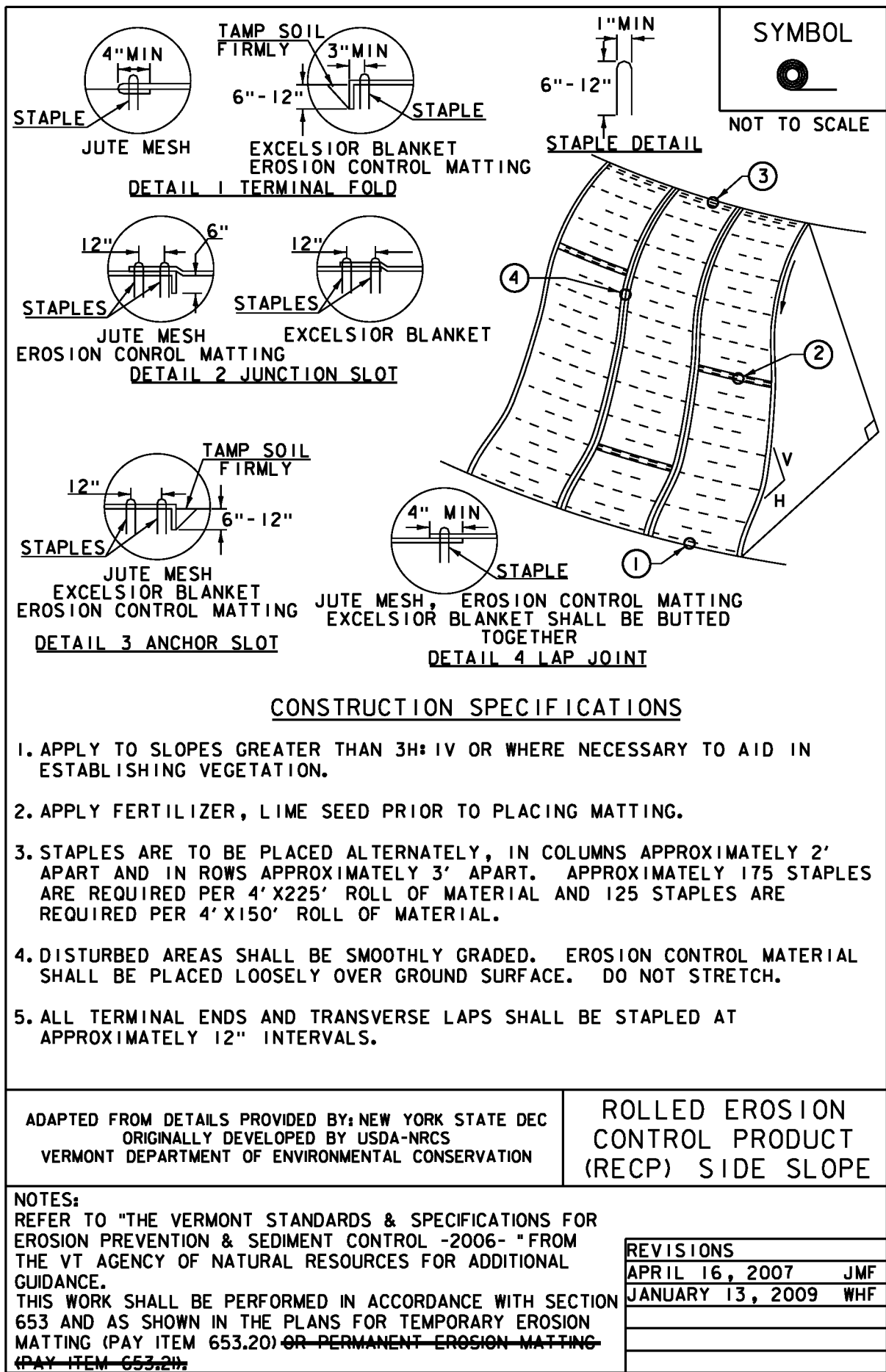


- NOTES:
1. FOR CLARITY AREA TO BE SEEDED AND MULCHED HAVE NOT BEEN INDICATED. HOWEVER, ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED AS APPLICABLE.
 2. REFER TO CROSS SECTIONS FOR FINAL GRADE ELEVATIONS.

EPSC FINAL SITE PLAN

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

PROJECT NAME: CRAFTSBURY	
PROJECT NUMBER: BO 1449(34)	
FILE NAME: sl3j100ero_border.dgn	PLOT DATE: 14-OCT-2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. COLEY
DESIGNED BY: S. COLEY	CHECKED BY: W. LAMMER
EPSC FINAL SITE PLAN	SHEET 39 OF 42



PROJECT NAME: CRAFTSBURY
PROJECT NUMBER: BO 1449(34)

FILE NAME: s13J000rodetails.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: W. LAMMER
EPSC DETAILS

PLOT DATE: 14-OCT-2015
DRAWN BY: W. LAMMER
CHECKED BY: J. SALVATORI
SHEET 40 OF 42

CONSTRUCT GRAVEL PULL-OFF
STA 11+02 RT - STA 11+55 RT

CONSTRUCT 5'-0" PAVED APRON
STA 13+31 RT - STA 13+72 RT

CONSTRUCT GRAVEL DRIVE
STA 13+46.30 RT - 12.00' WIDE

BITUMINOUS CONCRETE PAVEMENT
STA 11+00.00 - STA 13+75.00

6" AGGREGATE SURFACE COURSE
STA 10+00.00 - STA 11+00.00
STA 13+75.00 - STA 14+75.00

REMOVAL AND DISPOSAL OF GUARDRAIL
STA 11+77 LT - STA 12+21 LT
STA 12+06 RT - STA 12+27 RT
STA 12+64 LT - STA 12+91 LT
STA 12+67 RT - STA 12+92 RT

REMOVING SIGNS
STA 12+64.8

TRAFFIC SIGNS, TYPE A
STA 11+96.00 RT
STA 12+96.00 LT

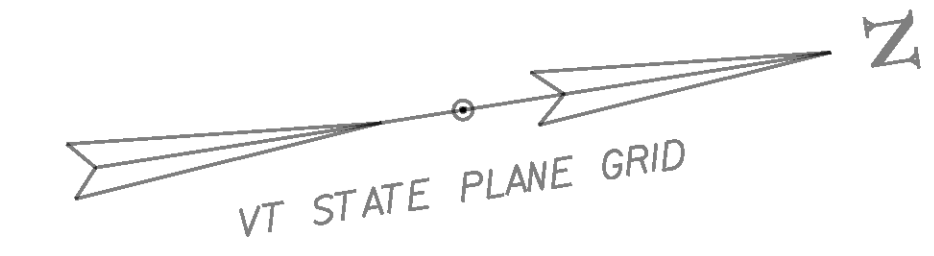
ANCHOR FOR STEEL BEAM GUARDRAIL
STA 11+66 LT
STA 11+52 RT
STA 13+58 LT
STA 13+27 RT

STEEL BEAM GUARDRAIL, GALVANIZED
STA 11+59.1 LT - STA 11+71.4 LT
STA 11+45.1 RT - STA 11+81.8 RT
STA 13+14.8 LT - STA 13+64.9 LT
STA 13+21.9 RT - STA 13+33.8 RT

GUARDRAIL APPROACH SECTION,
GALVANIZED HD STEEL BEAM
STA 11+71.4 LT - STA 11+96.7 LT
STA 11+81.8 RT - STA 12+06.5 RT
STA 12+89.5 LT - STA 13+14.8 LT
STA 12+97.2 RT - STA 13+21.9 RT

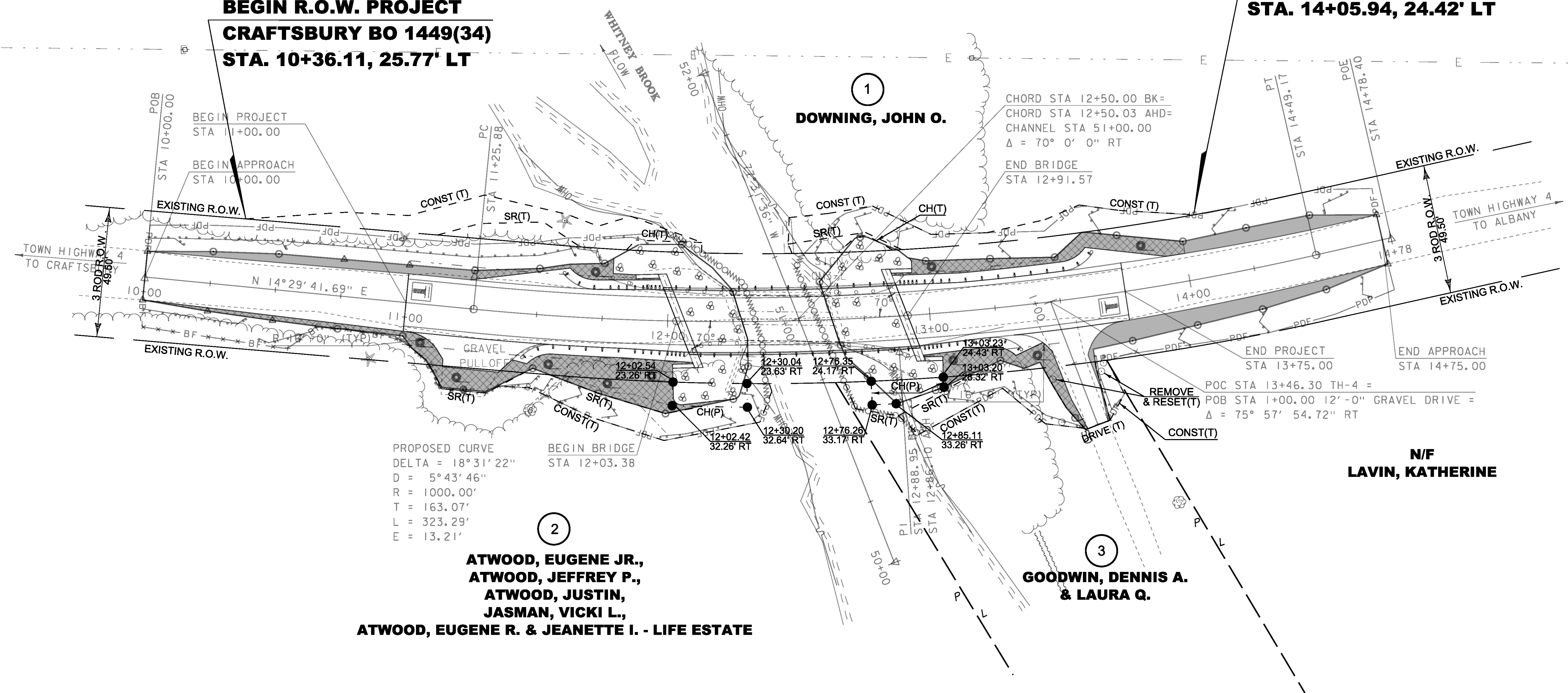
BRIDGE RAILING, GALVANIZED
HDSB/FASCIA MOUNTED/STEEL TUBING
STA 11+96.7 LT - STA 12+89.5 LT
STA 12+06.5 RT - STA 12+97.2 RT

REMOVING AND RESETTING GATE
STA 13+50.00 RT
NOTE: THE EXISTING FENCE AT
13+60 RT TO 13+80 RT WILL BE
REMOVED BY THE PROPERTY OWNER.



**BEGIN R.O.W. PROJECT
CRAFTSBURY BO 1449(34)
STA. 10+36.11, 25.77' LT**

**END R.O.W. PROJECT
CRAFTSBURY BO 1449(34)
STA. 14+05.94, 24.42' LT**



EXISTING BRIDGE DATA
SINGLE SPAN ROLLED BEAM
BUILT 1929
41' SPAN, 17.7' CURB - CURB

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

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

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
TOWN OF CRAFTSBURY'S ACQUISITION OF
LAND AND RIGHTS FOR THIS PROJECT.

PROJECT NAME: CRAFTSBURY	PLOT DATE: 14-OCT-2015
PROJECT NUMBER: BO 1449(34)	DRAWN BY: D. BEARD
FILE NAME: sl3j100rowlay.dgn	CHECKED BY: O. DARISSE
PROJECT LEADER: C. WILLIAMS	SHEET 41 OF 42
DESIGNED BY: L. STONE	
ROW LAYOUT SHEET 1 OF 1	

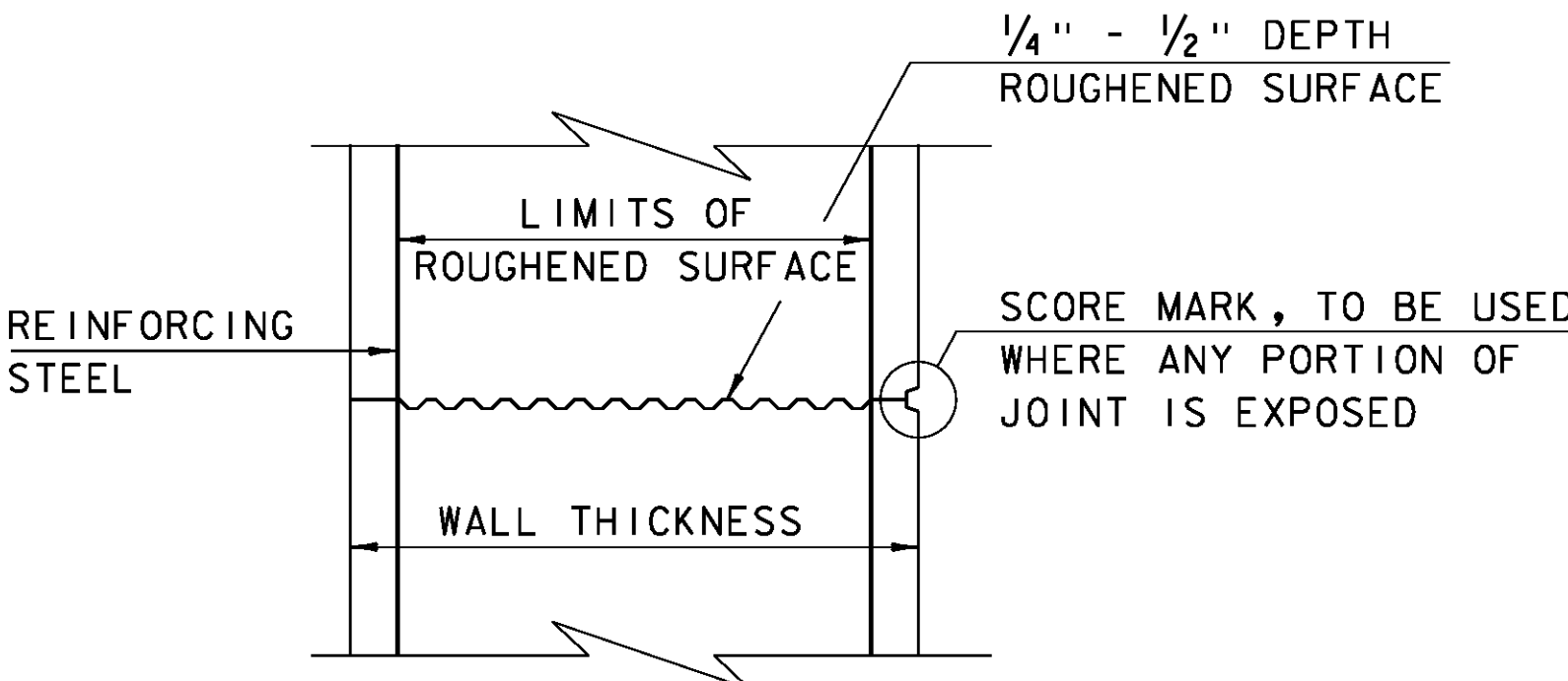
RIGHT - OF - WAY DETAIL SHEET

[illegible]

APPROVED: RYAN CLOUTIER DATE: 08-29-14
CHIEF, PLANS & TITLES

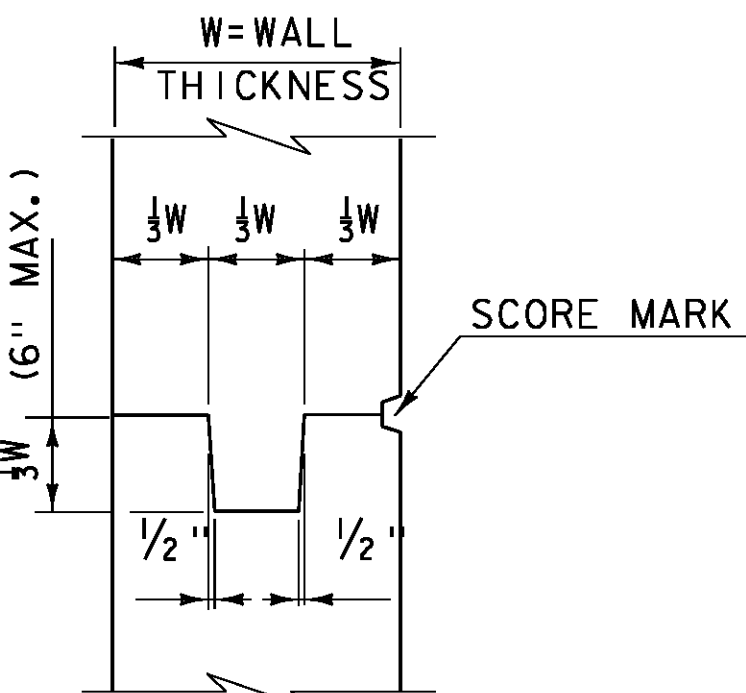
CONCRETE GENERAL NOTES

- 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.

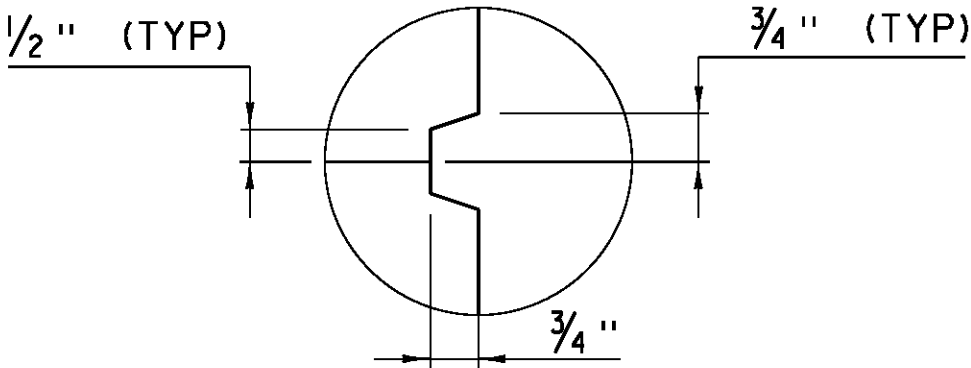


TYPICAL HORIZONTAL CONSTRUCTION JOINT
(NOT TO SCALE)

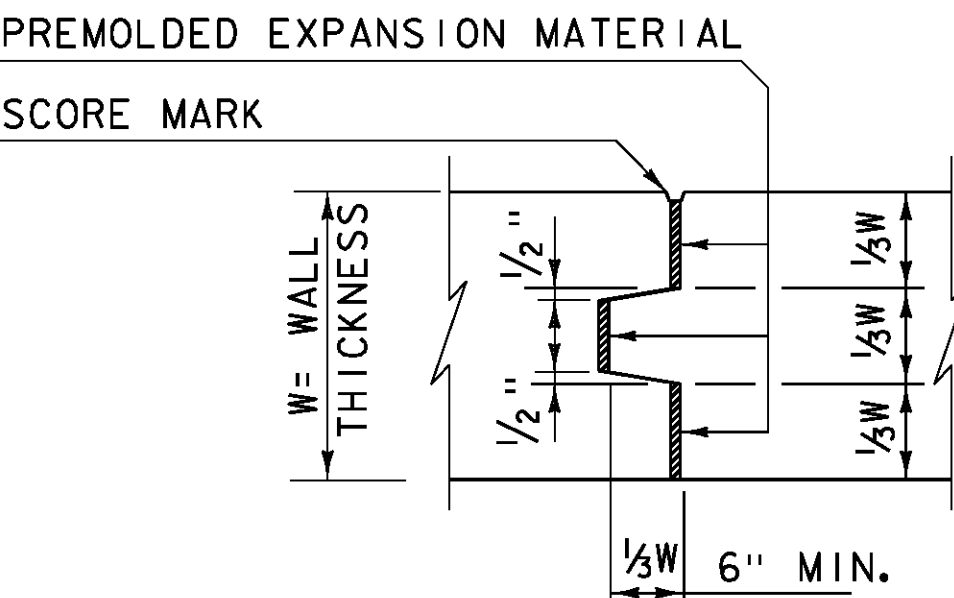
- 1. THE SURFACE OF THE CONCRETE CONSTRUCTION JOINTS SHALL BE CLEANED AND FREE OF LAITANCE.
- 2. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.



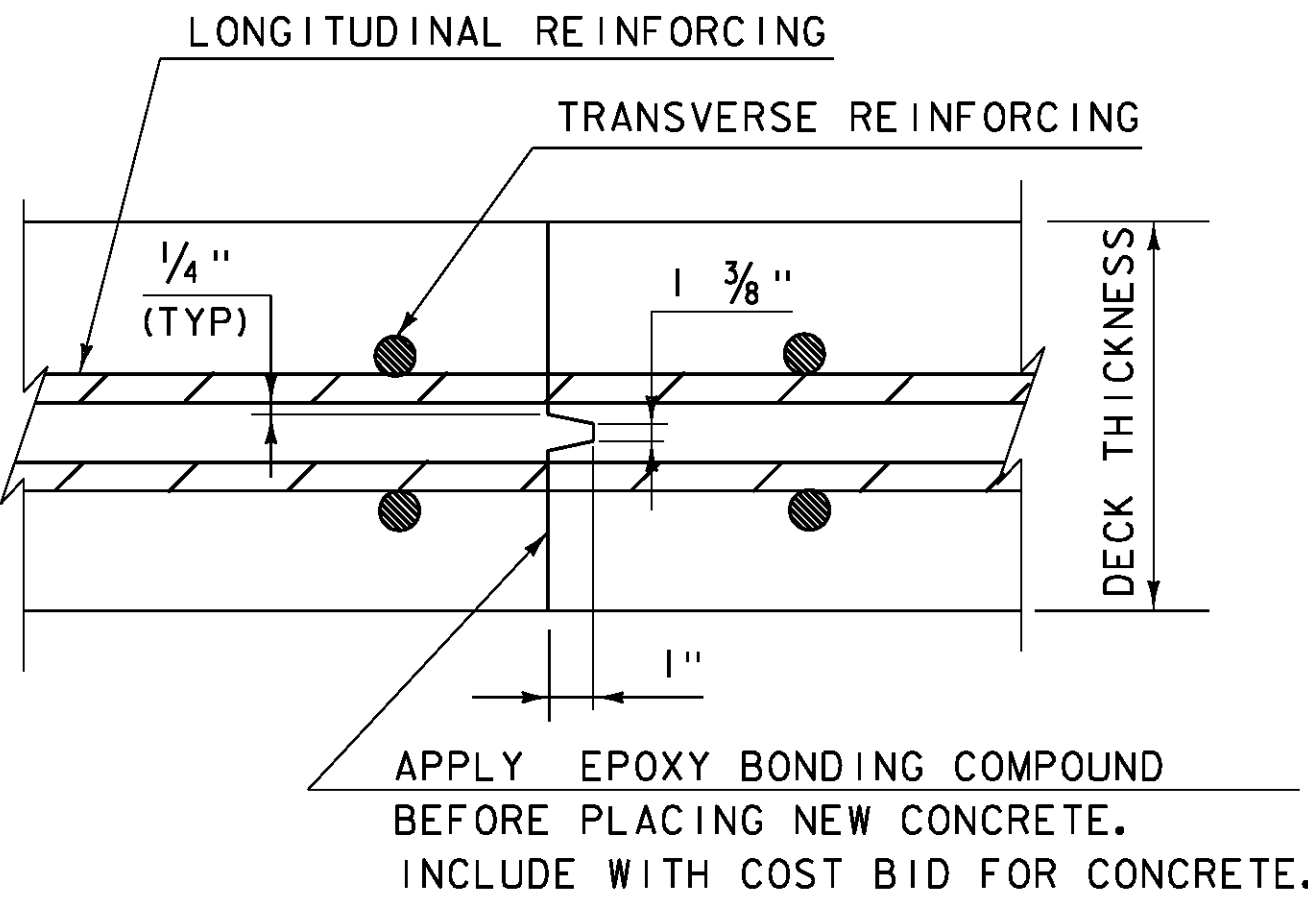
TYPICAL CONCRETE CONSTRUCTION JOINT
(NOT TO SCALE)



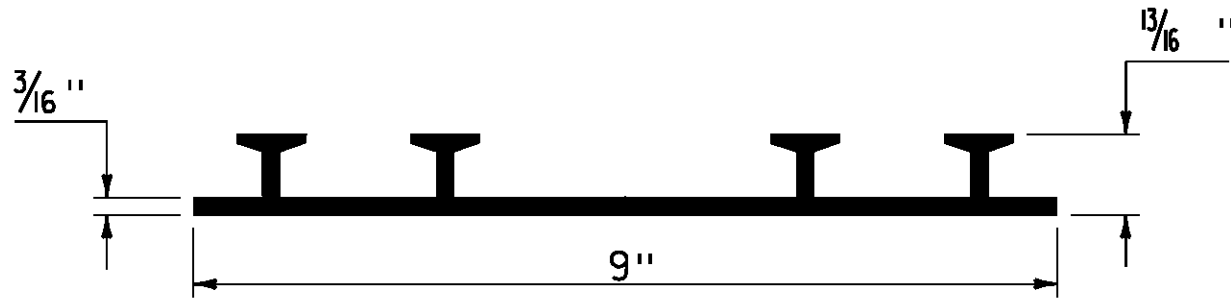
SCORE MARK DETAIL
(NOT TO SCALE)



TYPICAL CONCRETE EXPANSION JOINT
(NOT TO SCALE)



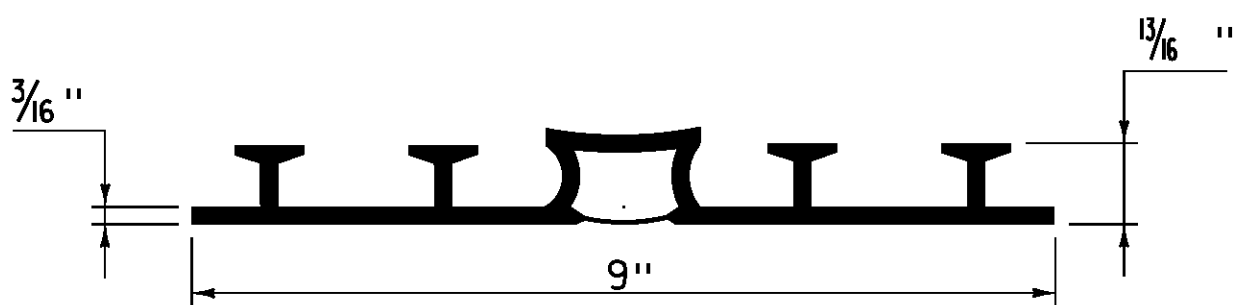
TRANSVERSE BRIDGE SLAB
CONSTRUCTION JOINT DETAILS
(NOT TO SCALE)



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.

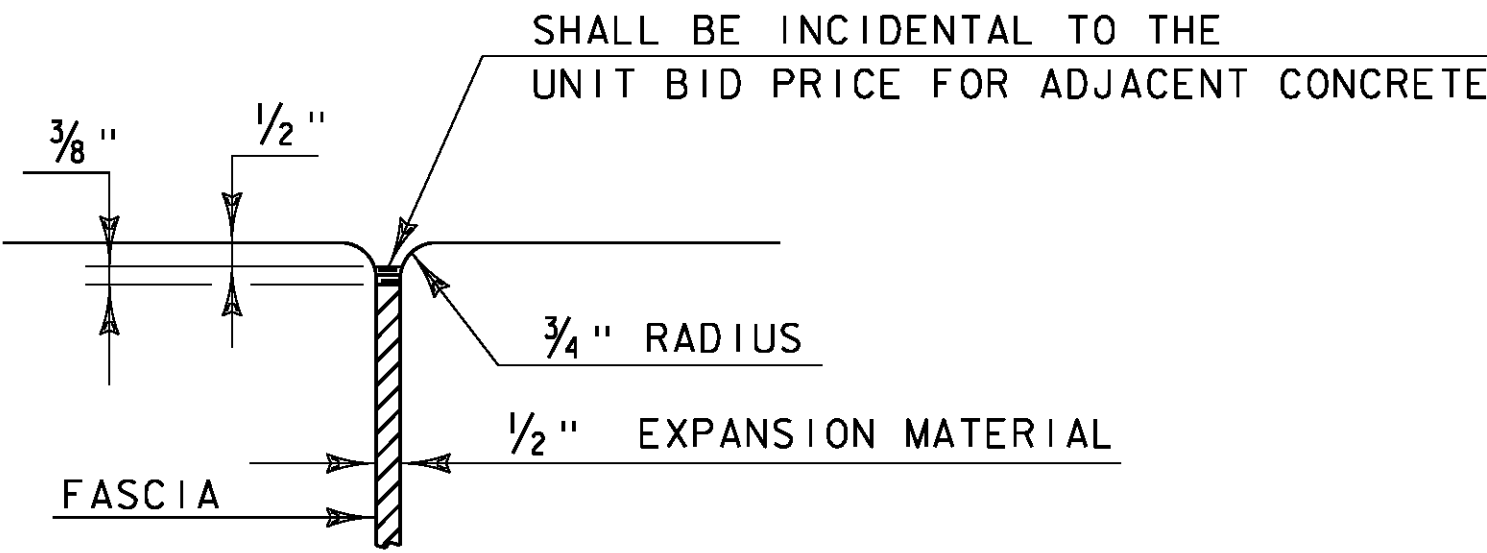
OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



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.

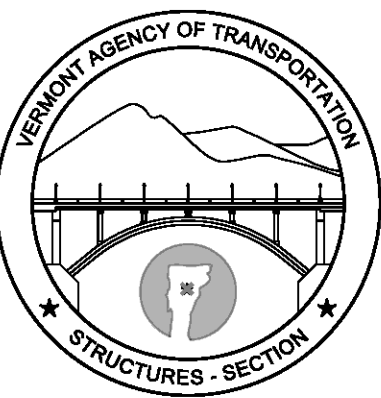


JOINT BETWEEN FASCIA
AND WINGWALL
(NOT TO SCALE)

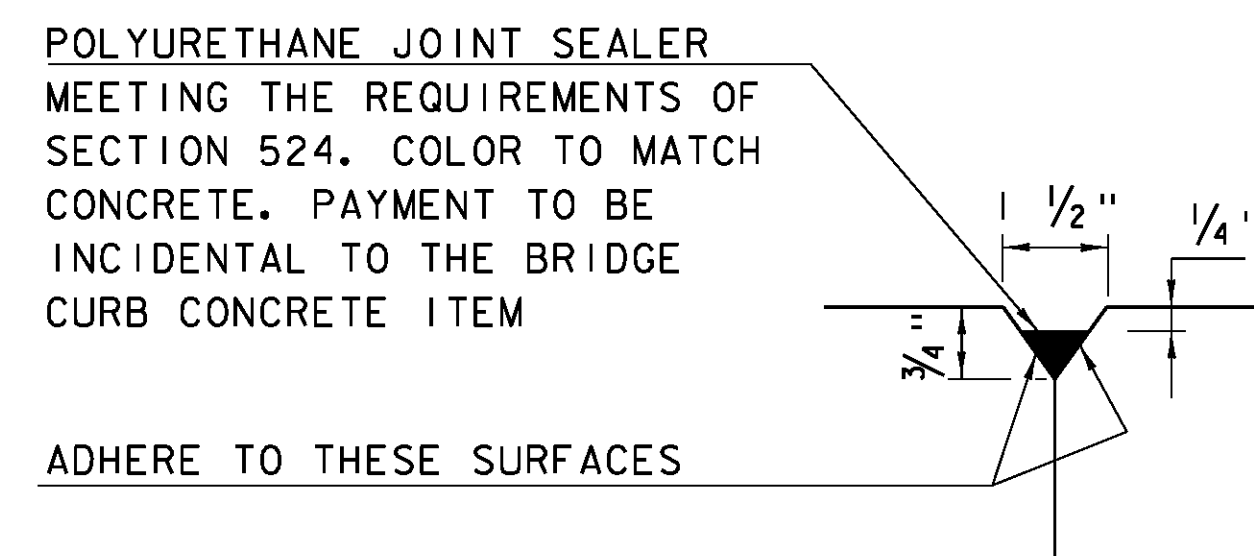
REVISIONS

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

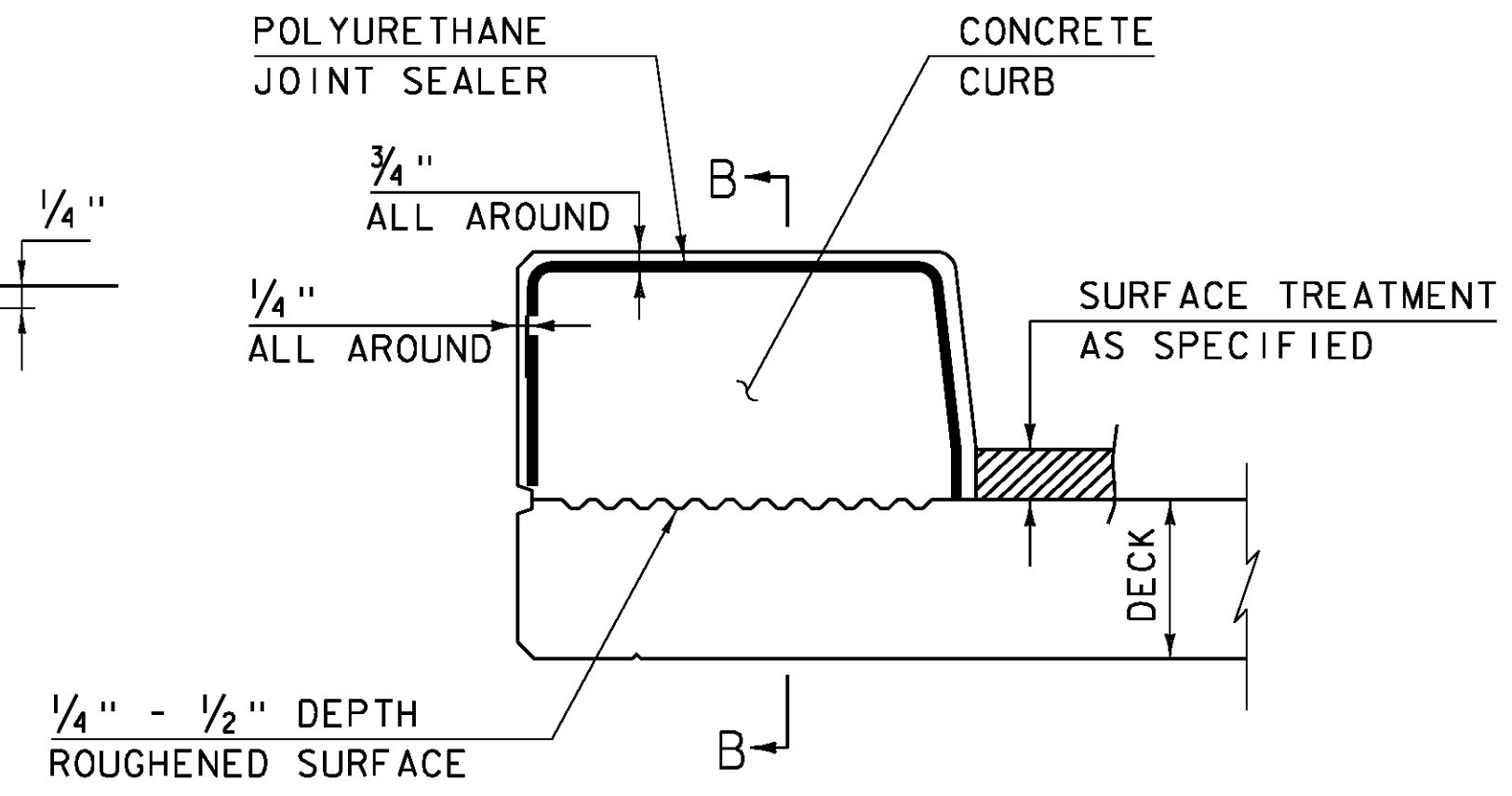
CONCRETE
DETAILS AND NOTES



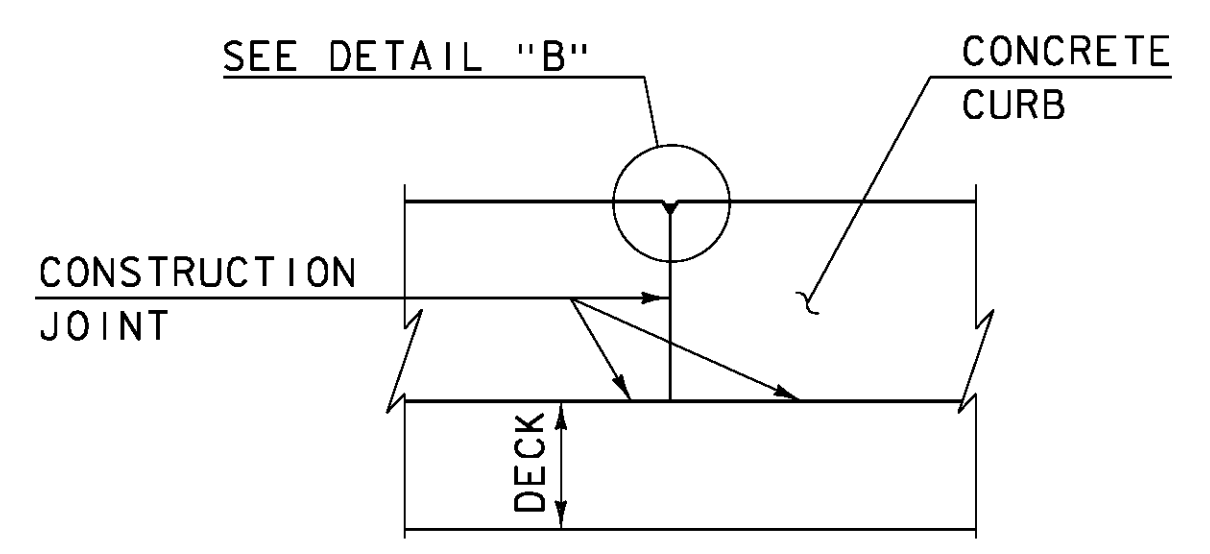
STRUCTURES
DETAIL
SD-501.00



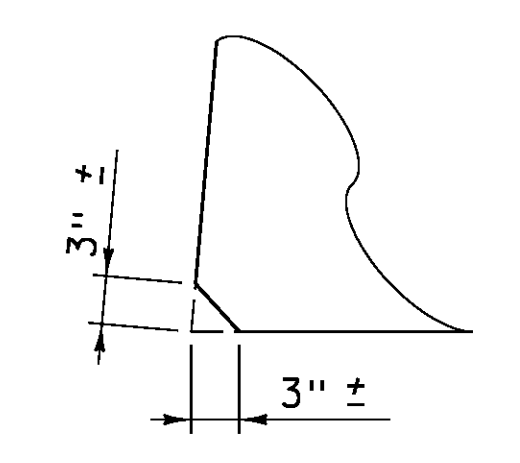
DETAIL "B"
(NOT TO SCALE)



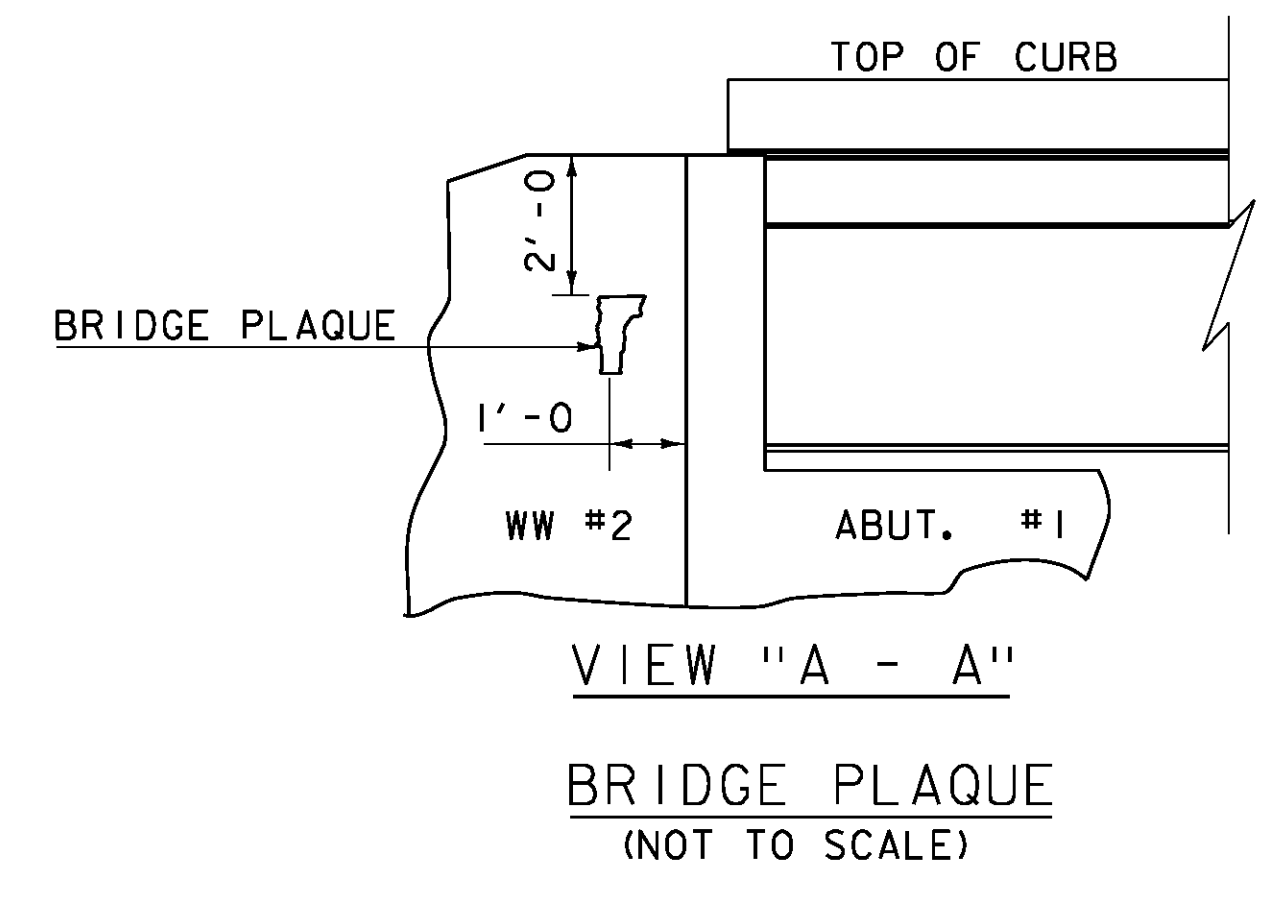
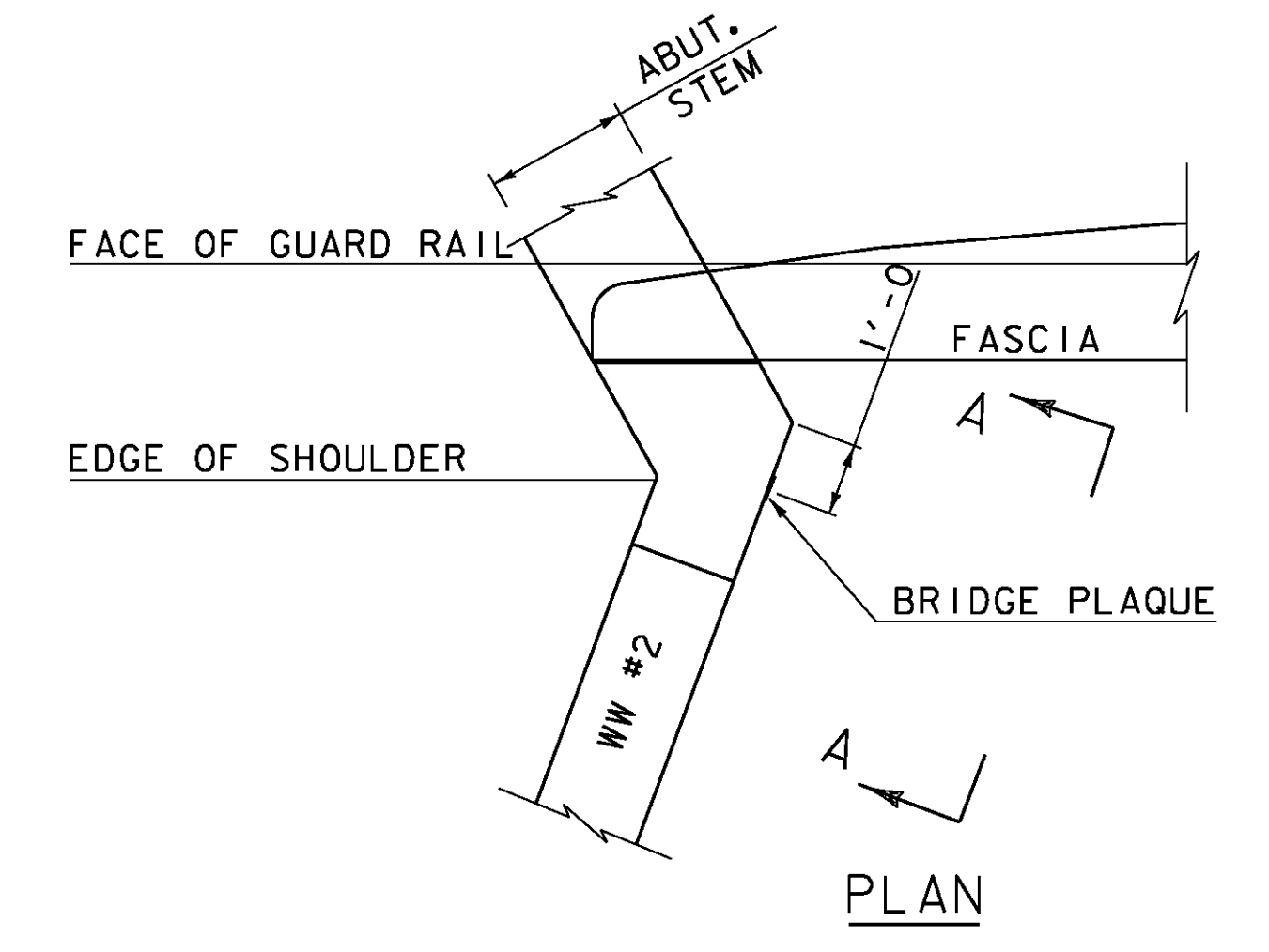
CONCRETE CURB JOINT SECTION
(NOT TO SCALE)



SECTION B - B
(NOT TO SCALE)



ACUTE ANGLE
CLIP DETAIL
(NOT TO SCALE)

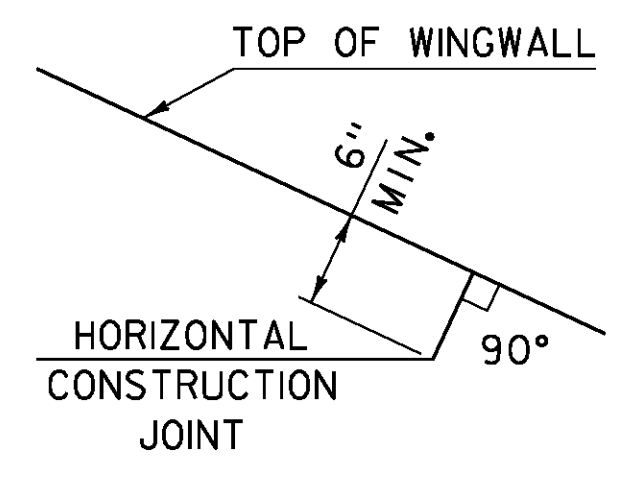


THE BRIDGE PLAQUE WILL BE SUPPLIED BY THE AGENCY OF TRANSPORTATION AND SHALL BE INSTALLED BY THE CONTRACTOR AT ABUTMENT #1 ON THE RIGHT SIDE AS SHOWN OR AS DIRECTED BY THE ENGINEER.

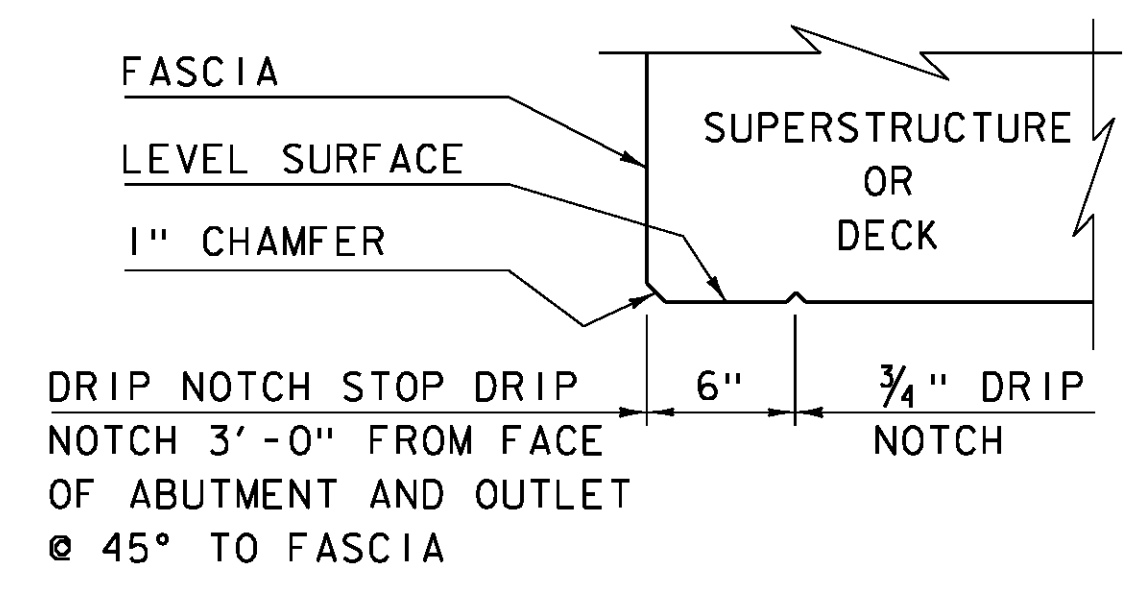
PAYMENT FOR INSTALLATION OF THE BRIDGE PLAQUE SHALL BE INCIDENTAL TO THE ADJACENT CONCRETE.

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.



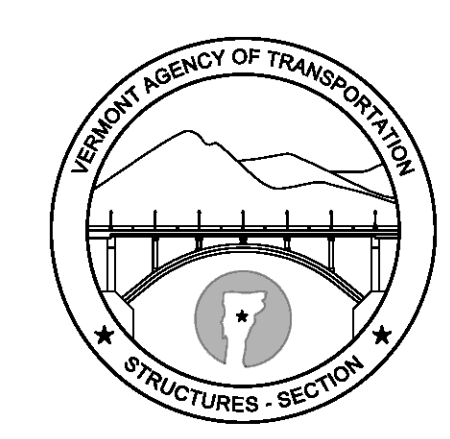
HORIZONTAL WINGWALL
CONSTRUCTION JOINT
(NOT TO SCALE)



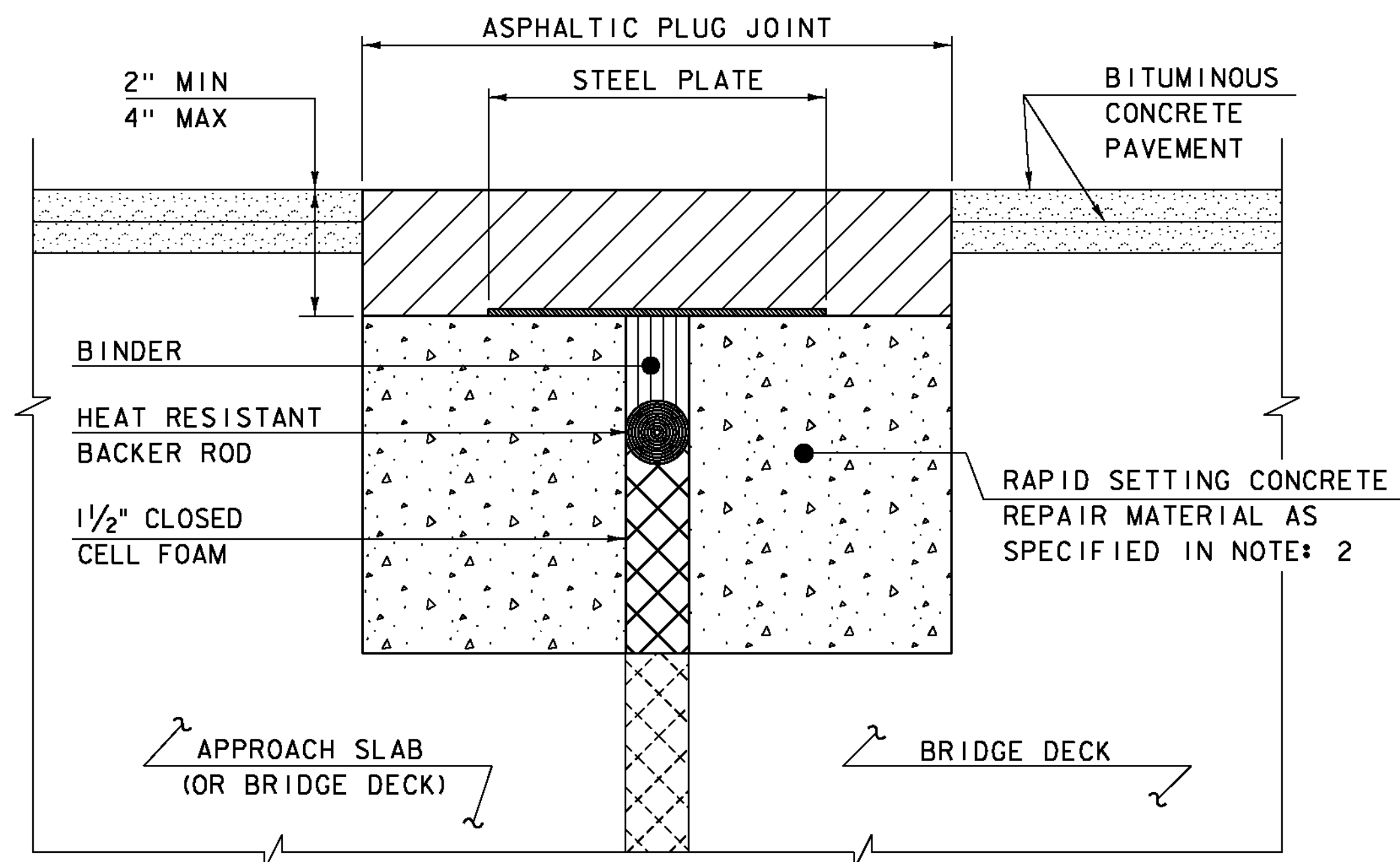
DRIP NOTCH DETAIL
(NOT TO SCALE)

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



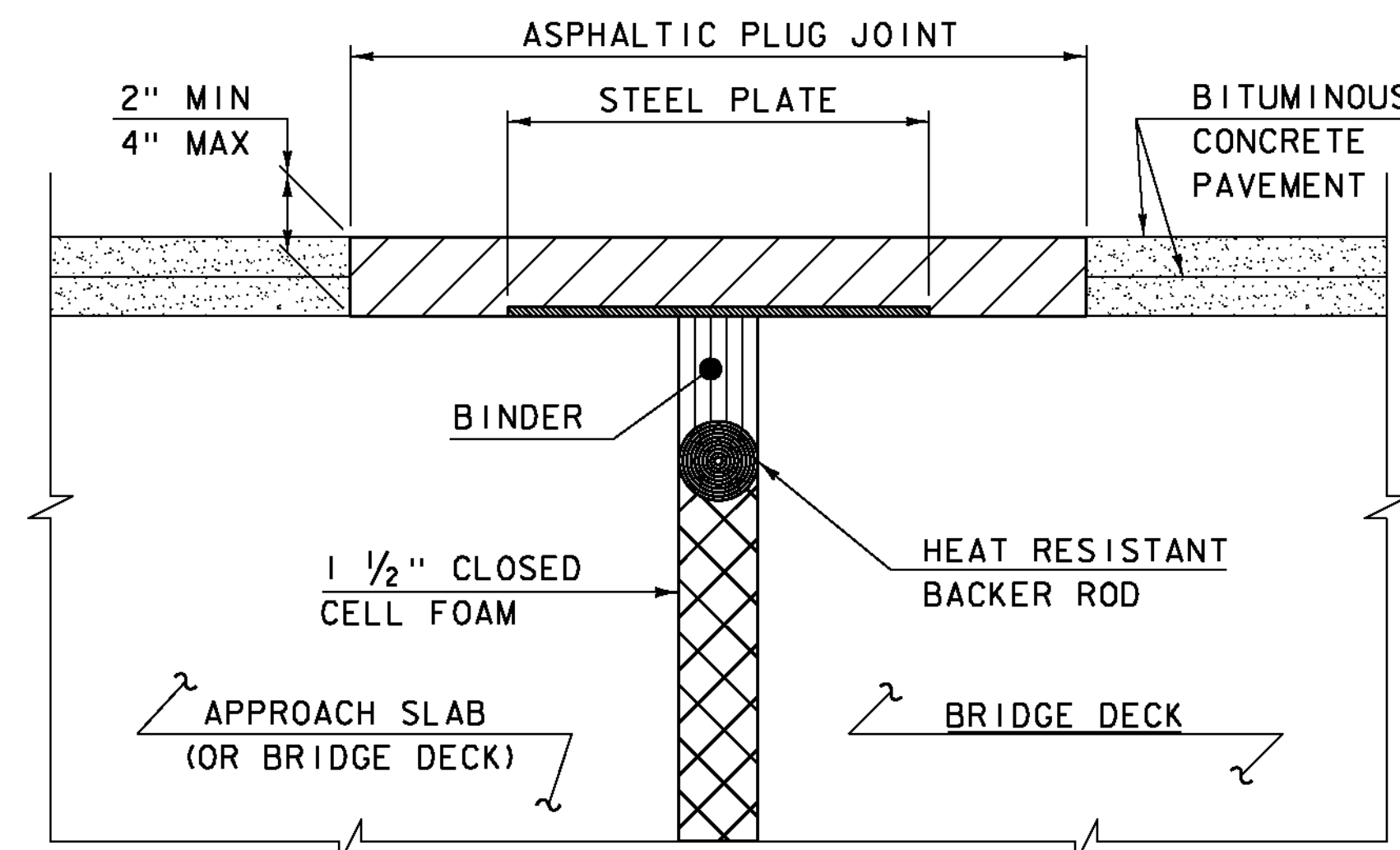
STRUCTURES
DETAIL
SD-502.00



ASPHALTIC PLUG JOINT DETAIL - REHAB

NOTES:

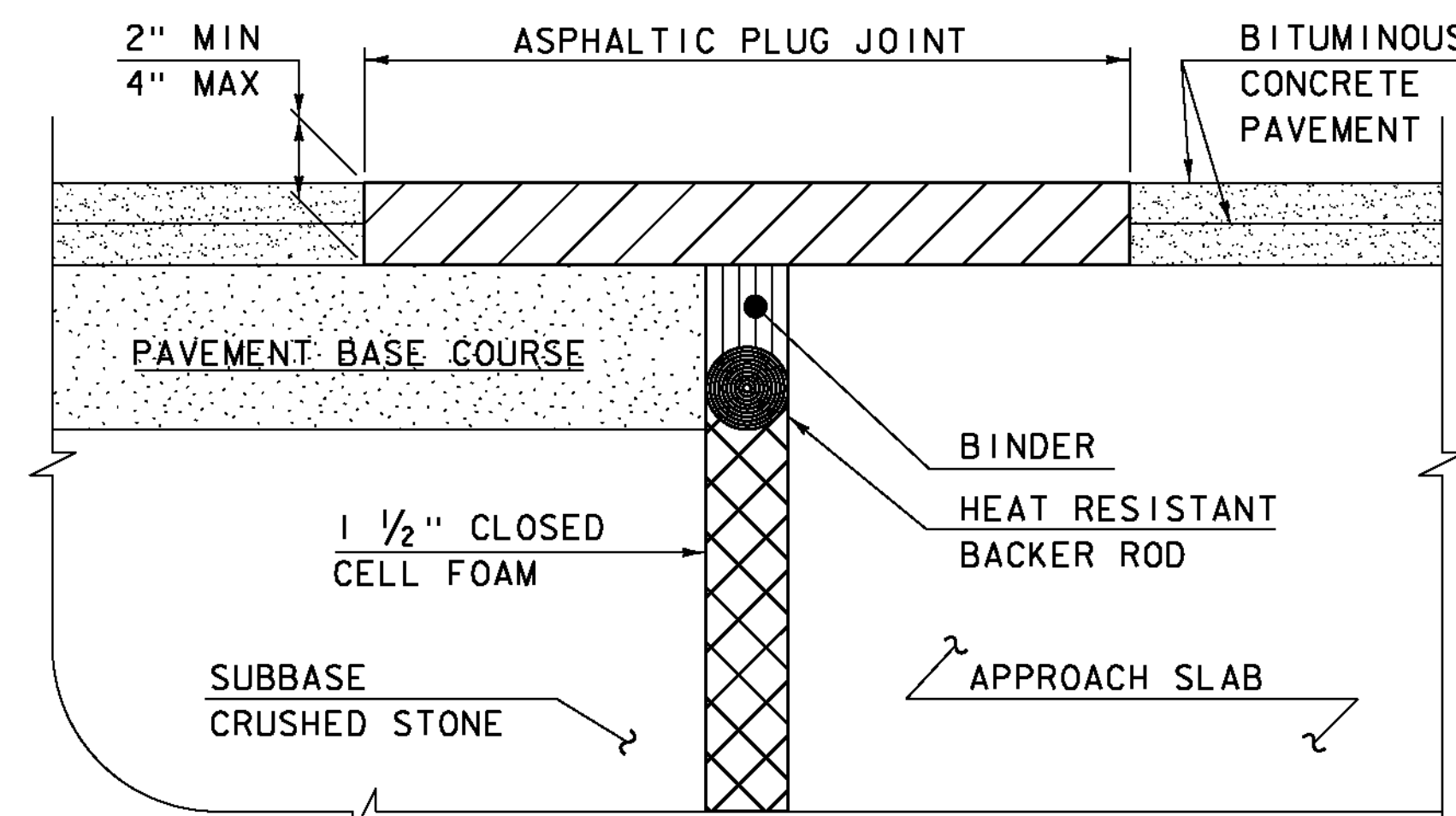
1. THE CONTRACTOR SHALL REMOVE ALL ASPHALTIC PLUG JOINT MATERIAL AND DETERIORATED CONCRETE AS DIRECTED BY THE ENGINEER. REMOVAL OF THE FIRST 4 INCHES OF MATERIAL SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 516.10 BRIDGE EXPANSION JOINT, ASPHALTIC PLUG. ANY REMOVAL OF MATERIAL GREATER THAN 4 INCHES SHALL 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

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

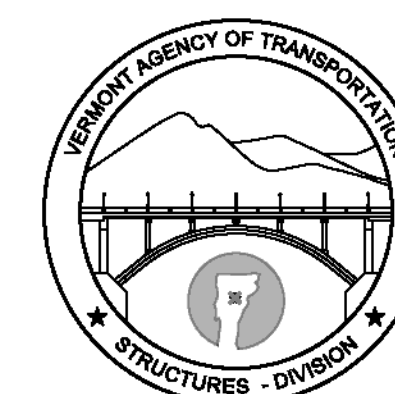
APPLY BINDER MATERIAL ONLY WHEN THE FOLLOWING CONDITIONS PREVAIL OR AS RECOMMENDED BY THE MANUFACTURER:

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.

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

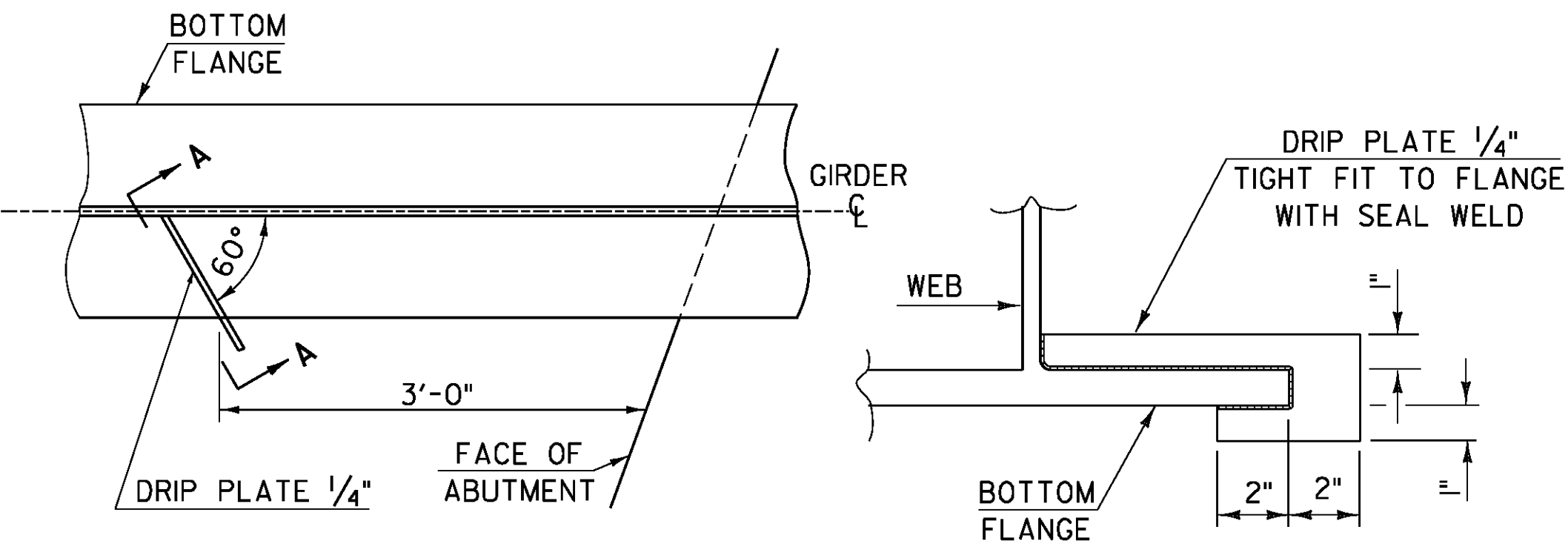
BRIDGE JOINT
ASPHALTIC PLUG



STRUCTURES
DETAIL
SD-516.10

STRUCTURAL STEEL GENERAL NOTES:

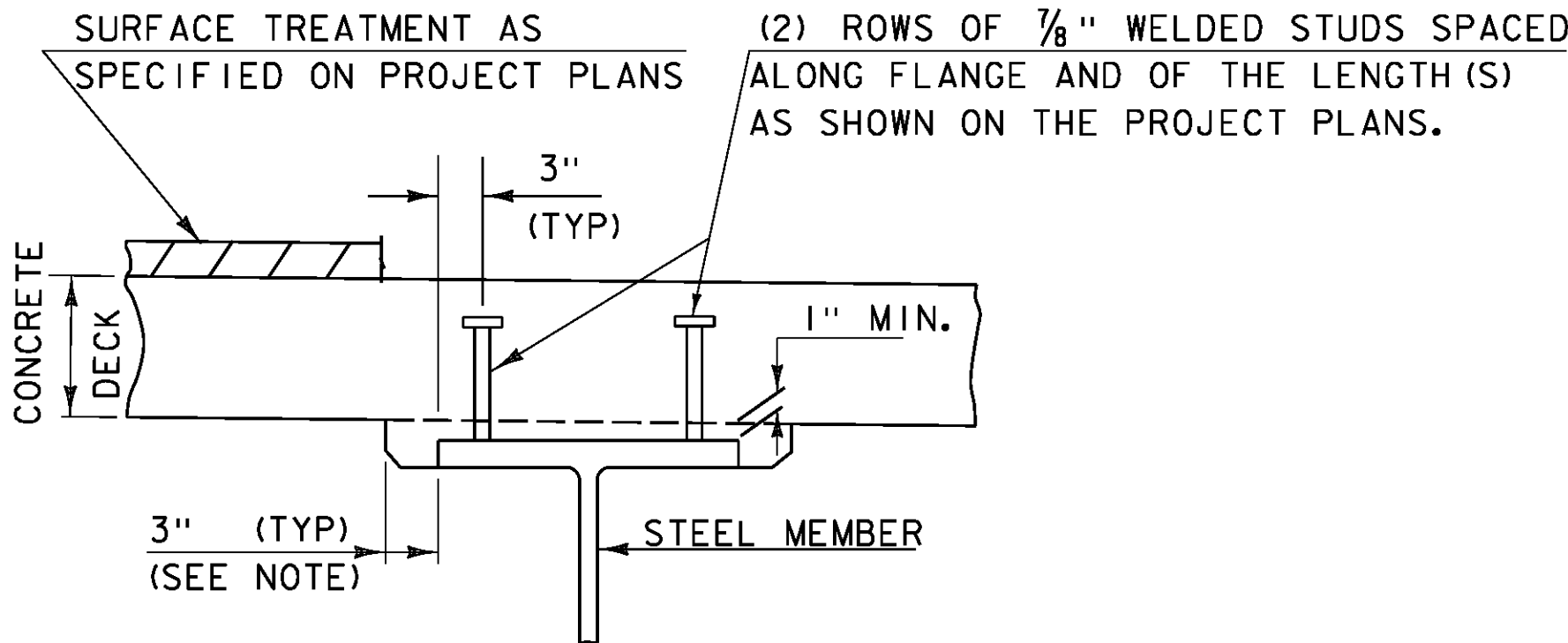
- 1. ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER HIGH-STRENGTH BOLTS IN 15/16" DIAMETER HOLES, PER SUBSECTION 506.I9, UNLESS OTHERWISE SPECIFIED.
- 2. ALL HOLES IN THE WEBS OF THE FASCIA GIRDERS THAT ARE NOT OTHERWISE FILLED, SHALL BE FILLED WITH EITHER BUTTON HEAD OR HEX HEAD BOLTS. THESE BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH SUBSECTION 506.I9.
- 3. ALL WELDING SHALL CONFORM TO THE PROVISIONS OF SUBSECTION 506.I0.
- 4. ANY CONNECTIONS THAT ARE NOT DETAILED ON THE PLANS SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE STRUCTURES ENGINEER FOR APPROVAL.
- 5. STRUCTURAL STEEL MEMBERS DESIGNATED "CVN" IN THE PLANS SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH SUBSECTION 714.01 OF THE STANDARD SPECIFICATIONS.
- 6. ENDS OF GIRDERS ARE TO BE VERTICAL IN THEIR FINAL POSITION.
- 7. AFTER SUPERSTRUCTURE STEEL HAS BEEN ERECTED, ELEVATIONS ALONG THE TOP OF THE GIRDERS SHALL BE TAKEN AS DIRECTED BY THE RESIDENT ENGINEER FOR USE IN DETERMINING FINISHED GRADES.



PLAN DRIP PLATE

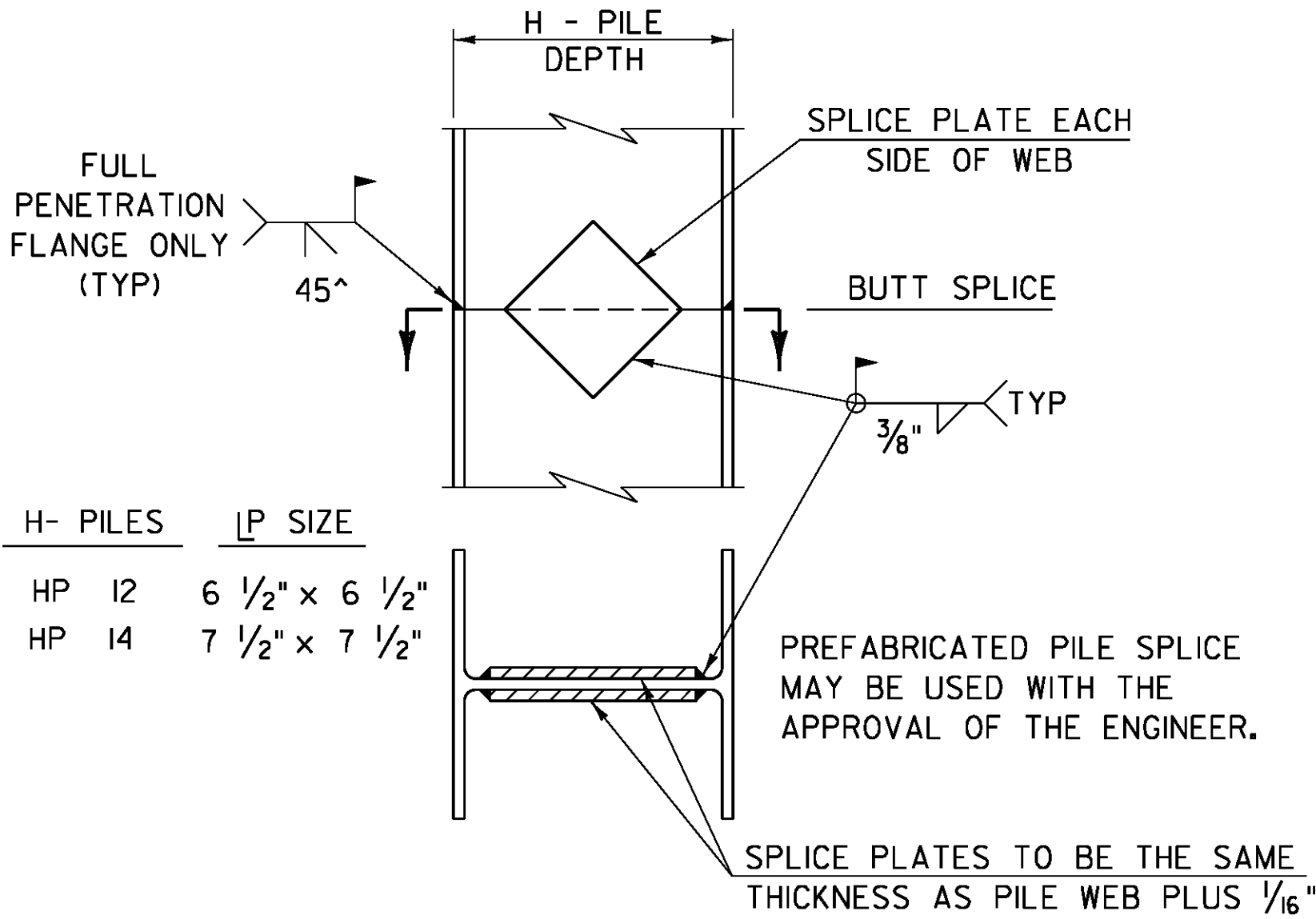
SECTION A - A

NOTE: DRIP PLATES SHALL BE PLACED ON OUTSIDE EDGE OF FASCIA GIRDERS ON THE HIGH SIDE OF ALL PIERS AND ABUTMENTS OR AS INDICATED ON PROJECT PLANS.



NOTE:
THE 3" HORIZONTAL SECTION MAY BE ELIMINATED FOR FORMING SYSTEMS DESIGNED FOR THE CONSTRUCTION OF VERTICAL HAUNCHES. ANY VOIDS RESULTING FROM FORMING SYSTEM ELEMENTS SHALL BE FILLED WITH JOINT SEALER, POLYURETHANE MEETING THE REQUIREMENTS OF SECTION 524. THE COST OF THE JOINT SEALER, POLYURETHANE SHALL BE INCIDENTAL TO THE ADJACENT CONCRETE.

HAUNCH AND SHEAR CONNECTOR DETAIL



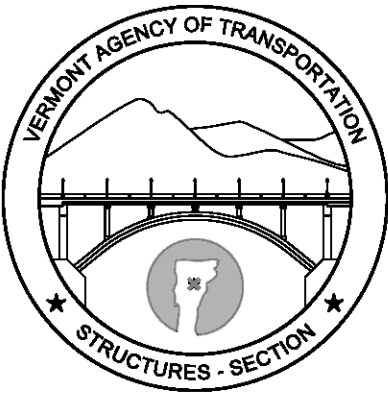
H- PILES	IP SIZE
HP 12	6 1/2" x 6 1/2"
HP 14	7 1/2" x 7 1/2"

DETAIL OF PILE SPLICE

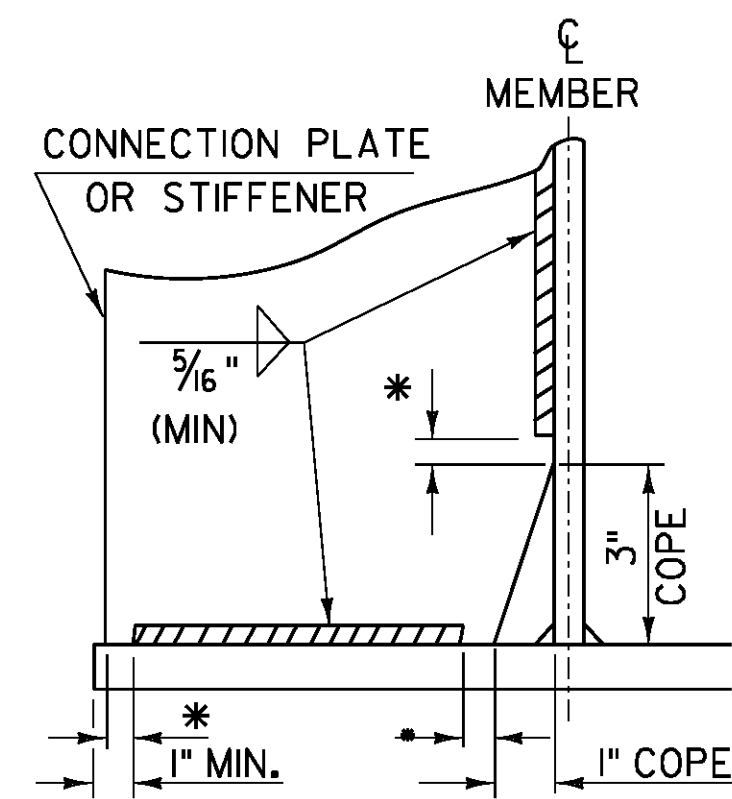
DETAILS ON THIS SHEET ARE "NOT TO SCALE" UNLESS NOTED OTHERWISE.

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
JUNE 4, 2010	MODIFIED NOTES

STRUCTURAL STEEL
DETAILS & NOTES

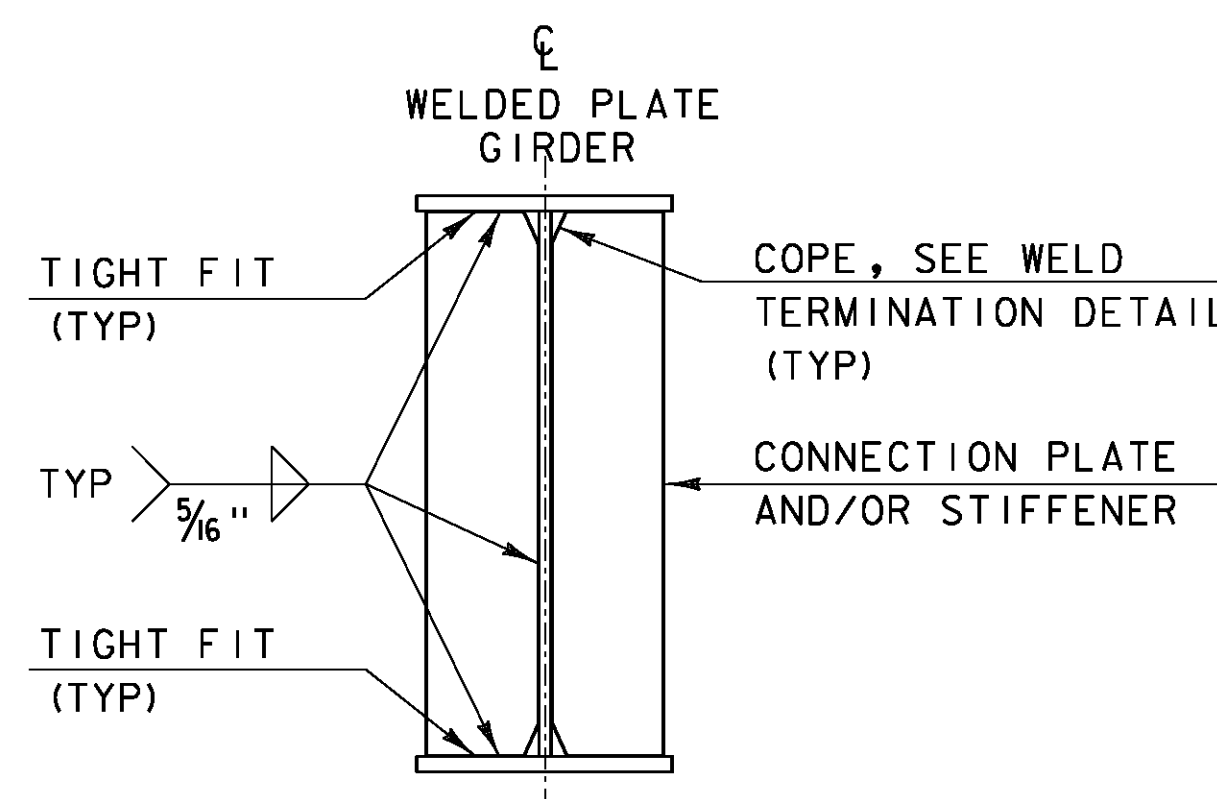


STRUCTURES
DETAIL
SD-601.00



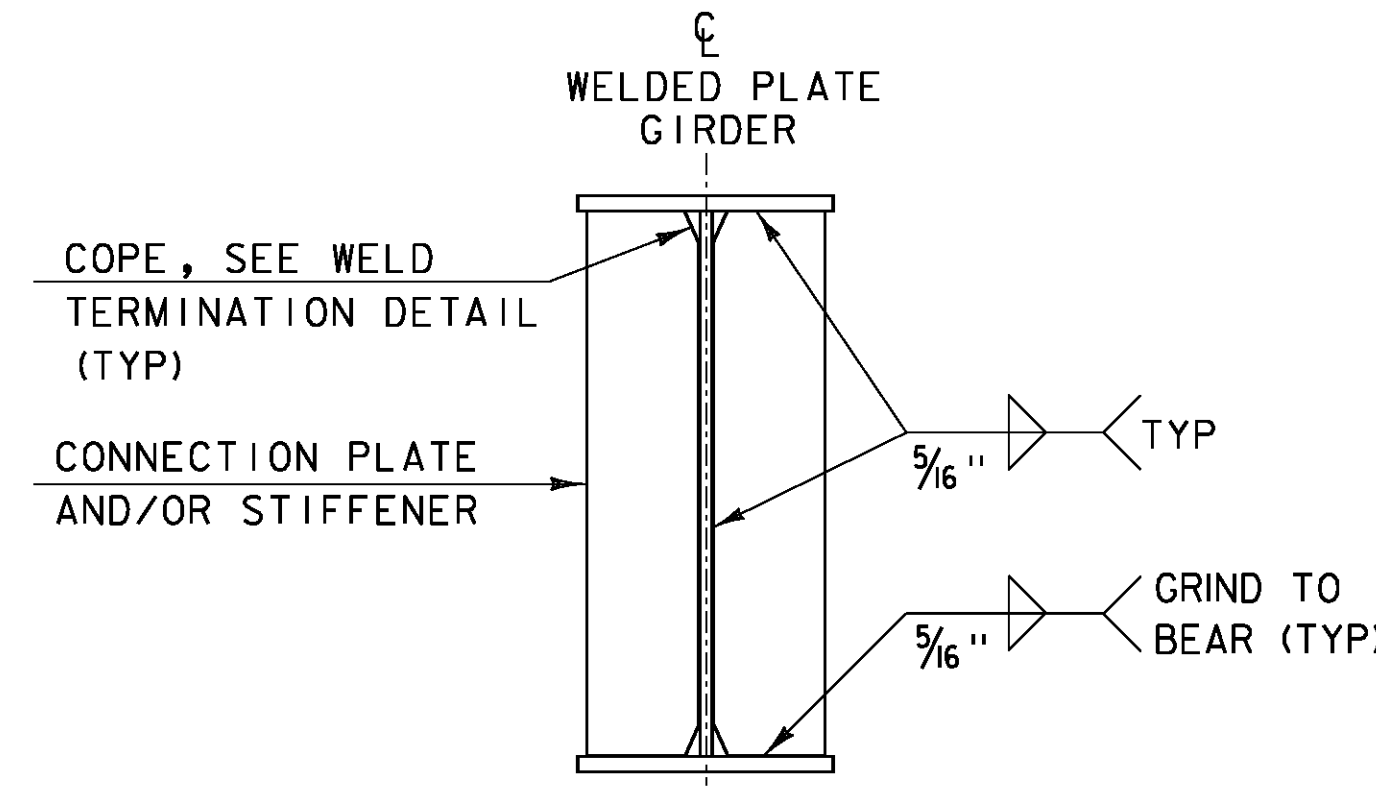
WELD TERMINATION AND COPING
DETAILS FOR STEEL MEMBERS

*NO WELD FOR 3/8" MIN. 7/8" MAX. (EXCEPT MUST
MAINTAIN 1" MINIMUM FROM EDGE OF FLANGE)

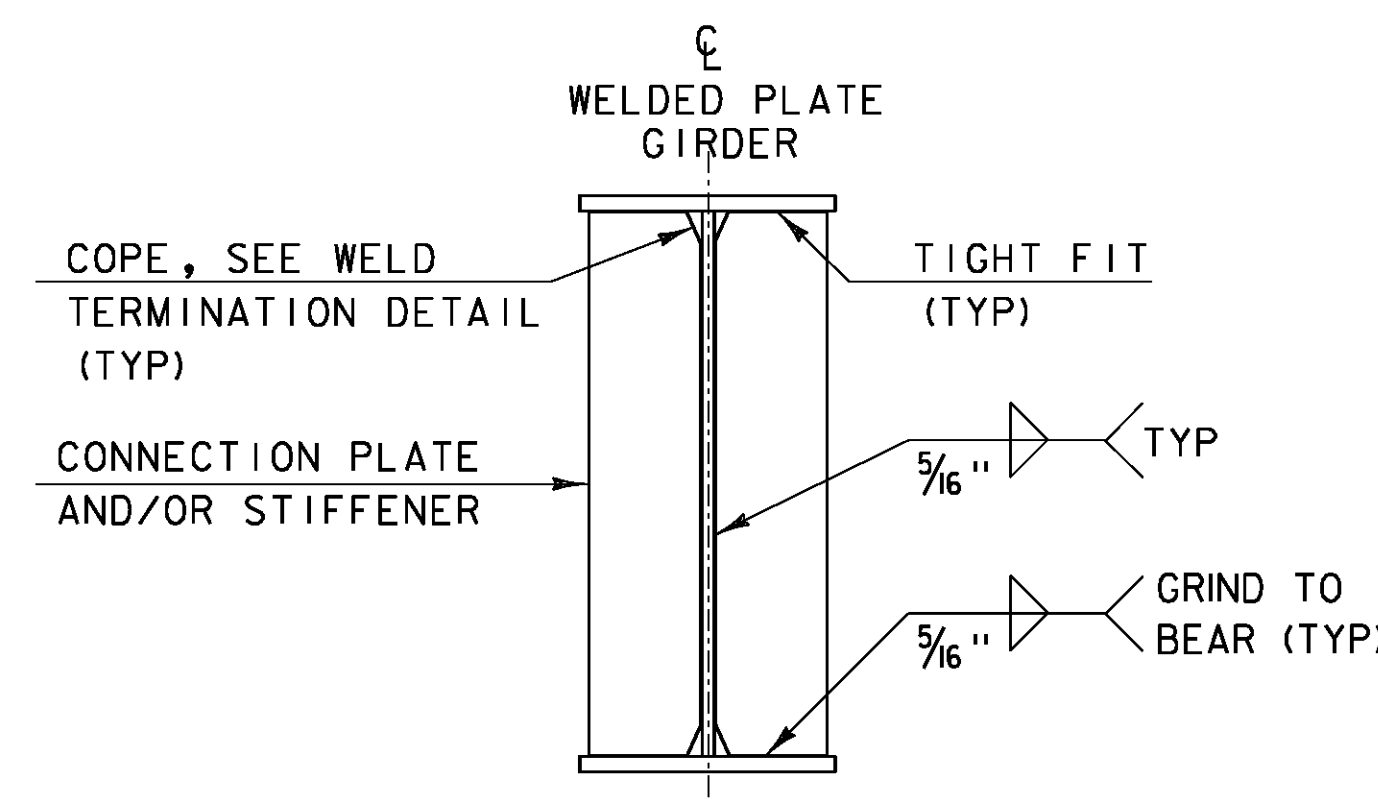


INTERMEDIATE CONNECTION PLATES
AND/OR STIFFENERS FOR WELDED
PLATE GIRDERS

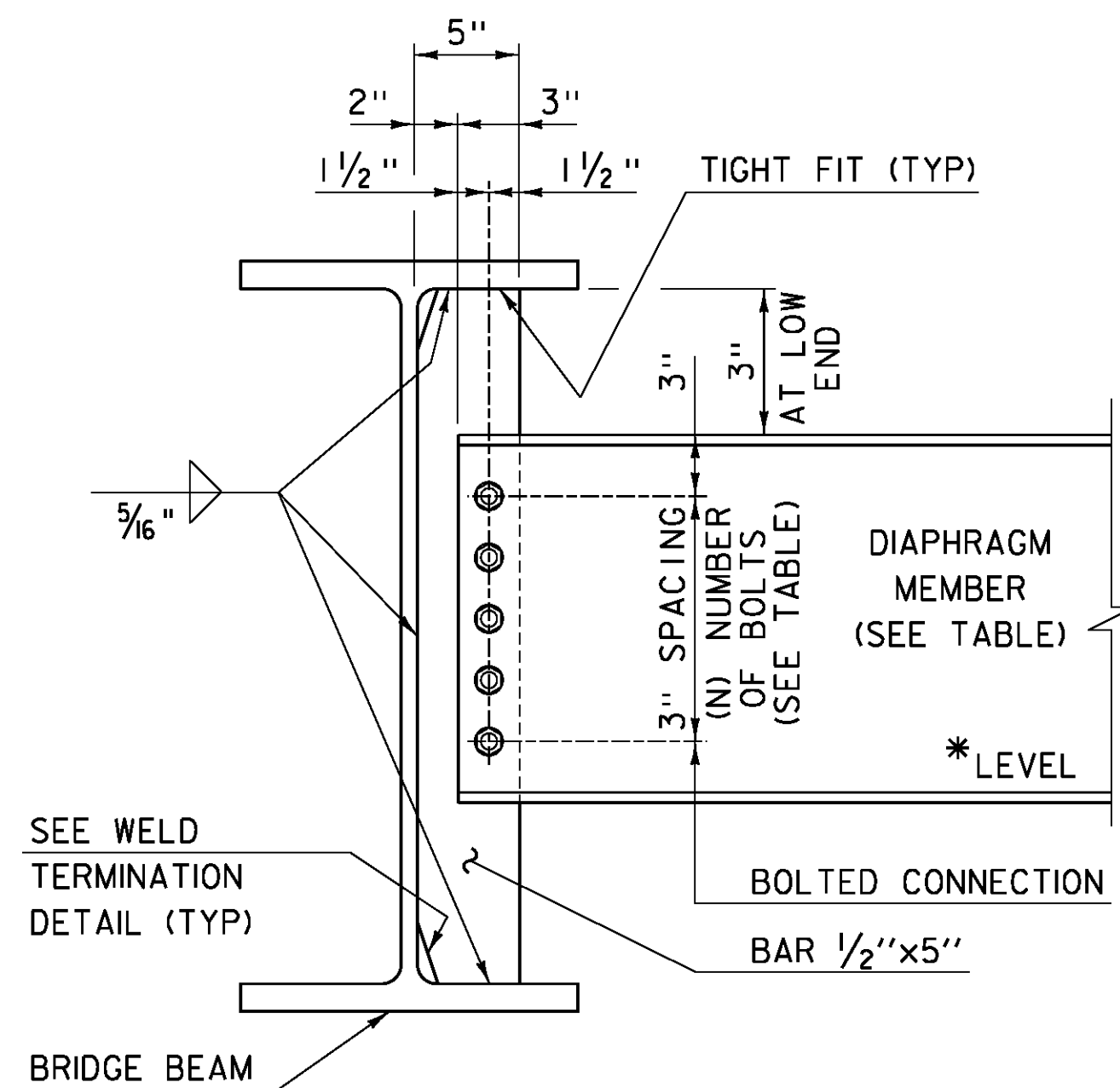
INTERMEDIATE DETAIL IS ONLY USED WHEN PLATE DOES
NOT OCCUR AT AN ABUTMENT OR PIER.



ABUTMENT BEARING STIFFENERS
AND/OR CONNECTION PLATES
FOR WELDED PLATE GIRDERS



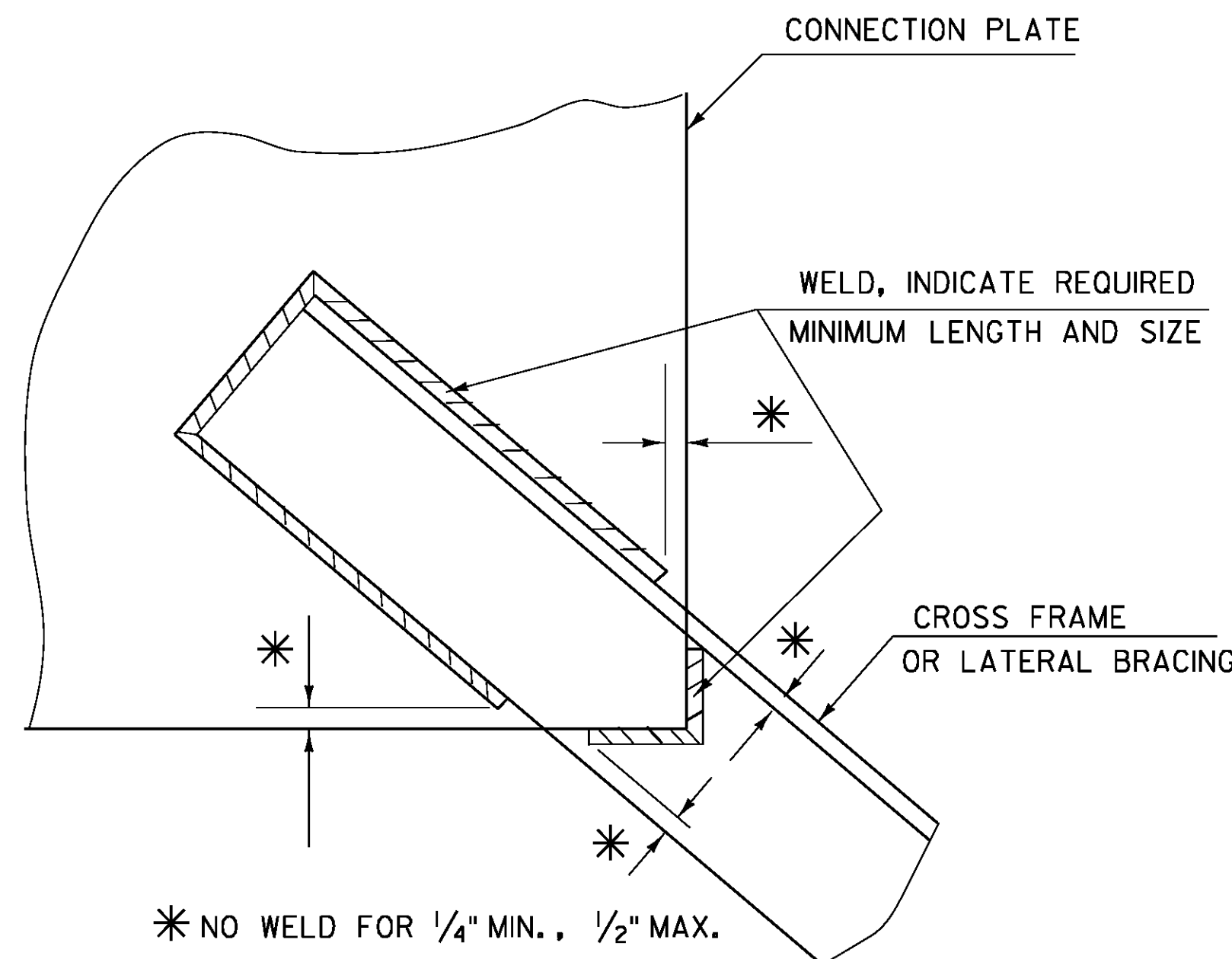
PIER BEARING STIFFENERS
AND/OR CONNECTION PLATES
FOR WELDED PLATE GIRDERS



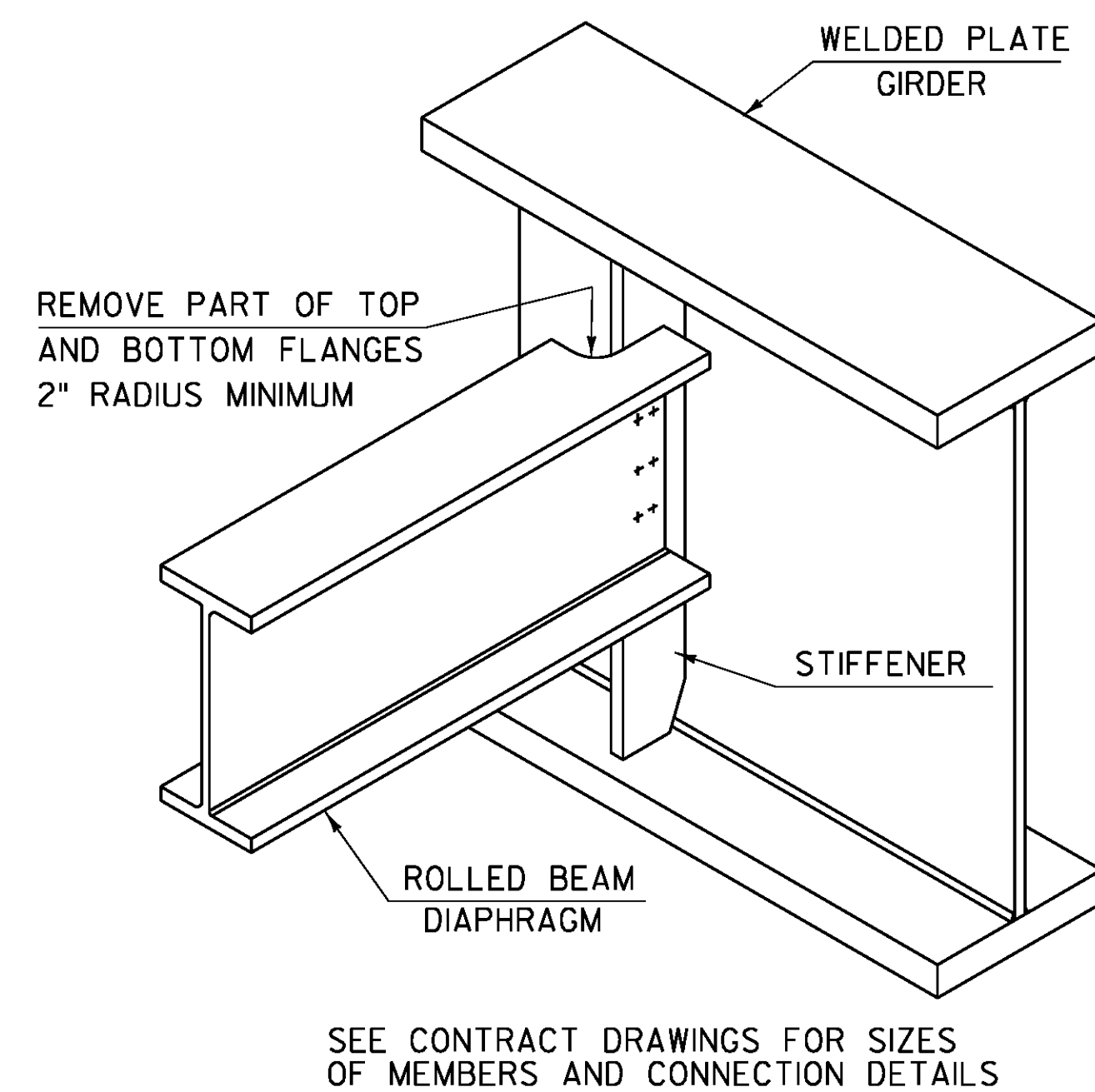
INTERMEDIATE DIAPHRAGMS
FOR 24" TO 48" BRIDGE BEAMS

* IF CLEARANCE CANNOT BE MET, DIAPHRAGM MAY BE SLOPED.

	DEPTH	DIAPHRAGM MEMBER	(N) BOLTS
ROLLED BEAM	24"	C15x33.9	4
	30"		
	31"	MC18x42.7	5
	36"		
PLATE GIRDER WEB	37"	W21x44	6
	42"		
	31"	W27x84	7
	36"		
	37"	W33x118	9
	42"		
	43"	W36x135	10
	48"		



WELD LOCATION DETAIL AT CROSS
FRAMES AND LATERAL BRACING

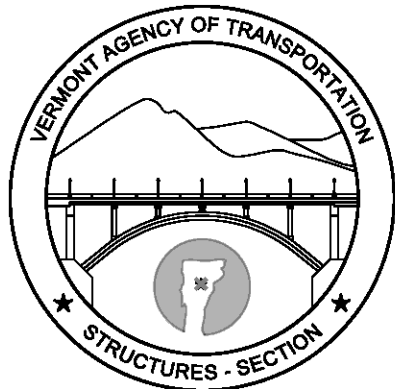


ROLLED BEAM USED AS DIAPHRAGM

DETAILS ON THIS SHEET ARE "NOT TO SCALE" UNLESS NOTED OTHERWISE.

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
MAY 2, 2011	ADD INTERMEDIATE DIAPHRAGMS DETAIL & ADD NOT TO SCALE NOTE

STRUCTURAL STEEL PLATE GIRDER DETAILS AND NOTES



STRUCTURES
DETAIL
SD-602.00

ABUTMENT 2 CLOSURE POUR

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS

ALL MATERIAL AND WORKMANSHIP TO BE IN ACCORDANCE WITH THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011 WITH LATEST REVISIONS AND THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS FOR HIGHWAY BRIDGES DATED 2012, AND ITS LATEST REVISIONS.

MATERIAL SPECIFICATIONS

- 1) ALL STEEL TO BE UNPAINTED AASHTO M270 (ASTM A708) GRADE 50W (UN).
- 2) MATERIAL NOTED "CVN" OR "T2" ON DETAIL DRAWINGS SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF VERMONT STANDARD SPECIFICATIONS SECTION 714.01.
- 3) HIGH STRENGTH BOLTS:
-ASTM A325 (AASHTO M164) TYPE 3 W/ A563 GRADE C3 NUTS, F959 (TYPE 3) DIRECT TENSION INDICATOR (DTI) & F436W WASHERS.
BOLTS & NUTS SHALL BE ROTATIONAL CAPACITY TESTED. DO NOT MIX NUTS & BOLTS FROM DIFFERENT CONTAINERS UNLESS ALL BOLTS & NUTS HAVE THE SAME LOT NUMBER.
- 4) DIRECT TENSION INDICATOR WASHERS CONFORMING TO ASTM F959 SHALL BE INSTALLED WITH ALL HIGH STRENGTH BOLTS.

FABRICATION

- 1) ALL HOLES SHALL BE DRILLED FULL SIZE UNLESS NOTED.
- 2) ALL FINS, SLIVERS AND TEARS SHALL BE REMOVED.
- 3) ALL ROUGH SURFACES SHALL BE GROUND SMOOTH.
- 4) FLAME CUT EDGES SHALL BE GROUND OVER THEIR ENTIRE SURFACE SUCH THAT ANY HARDENED SURFACE LAYER IS REMOVED.

WELDING

- 1) THE CONFIGURATION OF THE WELD JOINTS AND ALL WELDING PROCEDURES SHALL BE IN ACCORDANCE WITH THE CURRENT AASHTO/AWS D1.5 BRIDGE WELDING CODE AND IN ADDITION TO SPECIFICATIONS SHOWN ABOVE. ALL WELDING WILL BE DETAILED TO PRE-QUALIFIED JOINTS, UNLESS PROHIBITED BY THE DESIGNER.
- 2) WELDING OF MAIN LOAD CARRYING MEMBERS AND ATTACHMENTS SHALL BE PERFORMED USING THE AUTOMATIC SUBMERGED ARC & SHIELDED METAL ARC PROCESSES. ALL WELDS ARE CONTINUOUS U.N.
- 3) NON DESTRUCTIVE TESTING OF WELDS SHALL BE IN ACCORDANCE WITH THE REFERENCED SPECIFICATION.
- 4) SEE DETAIL "WTI" ON THIS DRAWING FOR WELD TERMINATION DETAIL.
- 5) SHOP APPLIED STUDS SHALL BE AUTO END WELDED. SEE DETAIL "SSI".

WELD PROCEDURE

THE FOLLOWING CASCO WELDING PROCEDURES SHALL BE USED:

	WELD DESCRIPTION	MAT'L GRADE	WP	CASCO WELD PROC.
GIRDERS	GIRDER WEB TO FLANGE FILLET WELD	M270-50W TO M270-50W	MP1	201
	GIRDER STIFFENER TO WEB FILLET WELDING	M270-50W TO M270-50W	MP4	250
	GIRDER STIFFENER TO FLANGE FILLET WELDING	M270-50W TO M270-50W	MP5	480
	DRAIN PLATES TO GIRDER FLANGE	M270-50W TO M270-50W	MP6	480 or 610

CONNECTIONS

- 1) ALL CONNECTIONS SHALL BE MADE WITH A-325 HS BOLTS, INSTALLED PER SECTION 506.19(c). BOLTED CONNECTIONS SHALL BE INSTALLED USING DIRECT TENSION INDICATORS. REFER TO SECTION 506.19 OF THE GENERAL SPECIAL PROVISIONS. (SEE BOLT DETAILS THIS DRAWING).
- 2) BOLTS SHALL HAVE HEAVY HEX NUT, HEAVY HEX HEAD, DTI, AND AT LEAST ONE FLAT WASHER EACH. WASHER TO BE PLACED UNDER TURNED ELEMENT.
- 3) PIECE MARKS WILL BE LOCATED AS SHOWN ON ERECTION DRAWINGS.

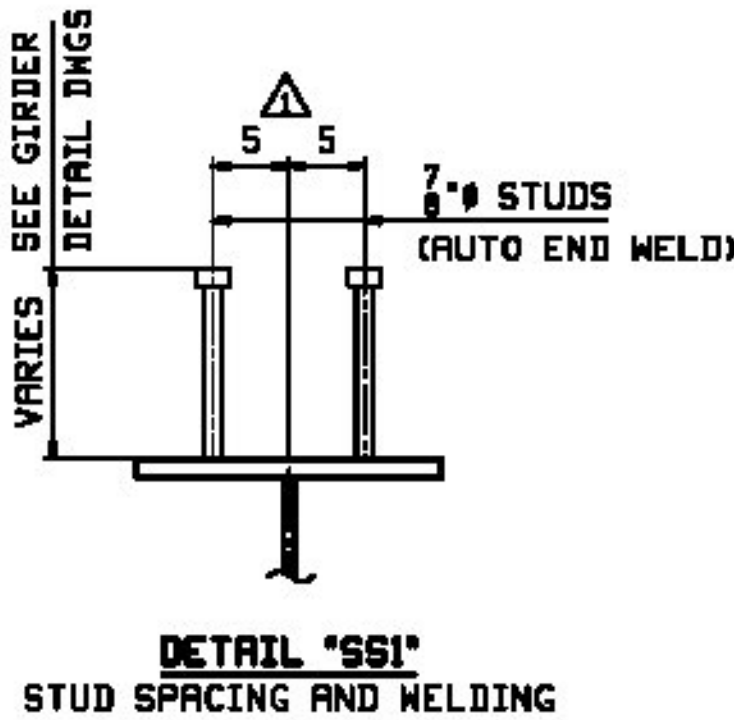
CLEANING & PAINTING

UNPAINTED STEEL SHALL BE BLAST CLEANED TO SSPC SP-10 TO ACHIEVE A UNIFORM WEATHERED APPEARANCE.

ALL STEEL SHALL BE UNPAINTED.

Are the lifting tabs going to be removed after PBU's are set? If so, should methods/location/etc. for removal be included on these plans??

We are presuming that they are being left in place. Lifting tabs are 9" tall and shear studs are 10" tall in this area. Assumed haunch is 7" in this area, so the transverse reinforcing should be able to be placed around the lifting tabs.

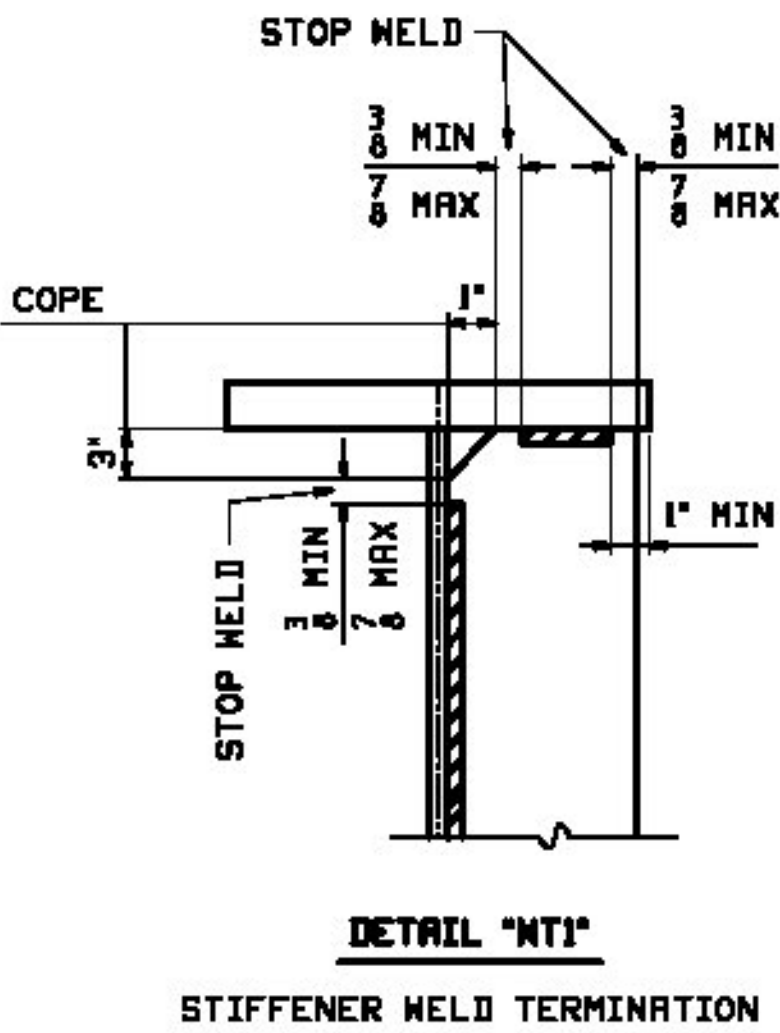


REVIEWED

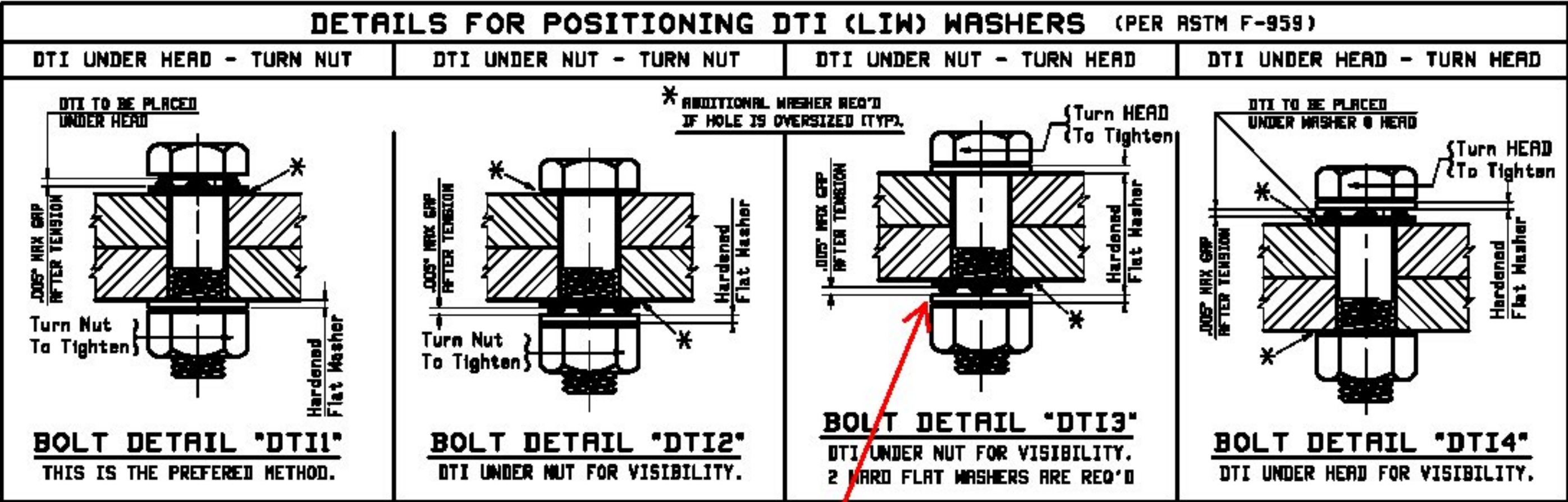
By Bill Lammer at 9:13 am, May 26, 2016

REVIEWED

By Stephen Coley (STEPHEN.COLEY@state.vt.us) at 10:45 am, May 23, 2016



NOTE TO ENGINEER:
WHERE NOTED ARE NOT INTENDED TO BE ALL INCLUDING AND COMPLIANCE WITH RELEVANT SPECIFICATIONS REMAIN UNCHANGED.



Flat washer not required here.

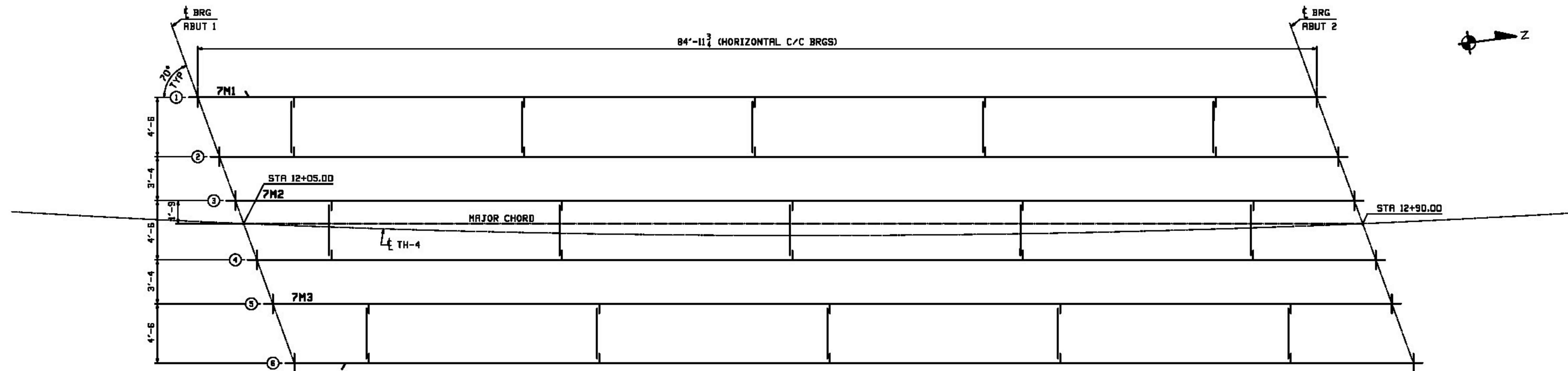
Vermont Agency of Transportation
RECEIVED

CK'D BY RSP/SMC OK'D BY WDL

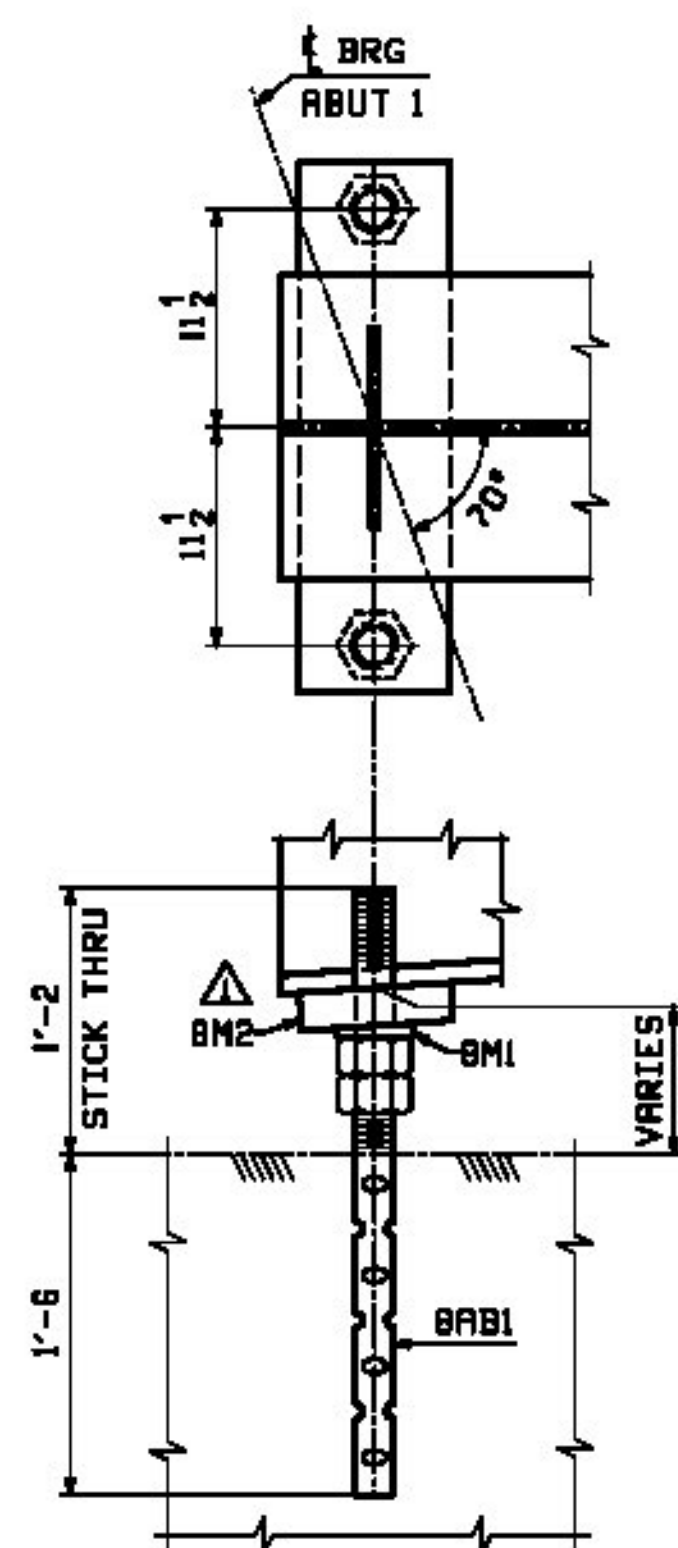
May 19, 2016

RESUBMIT No Approved AsNoted
BY RSY DATE 05/26/2016

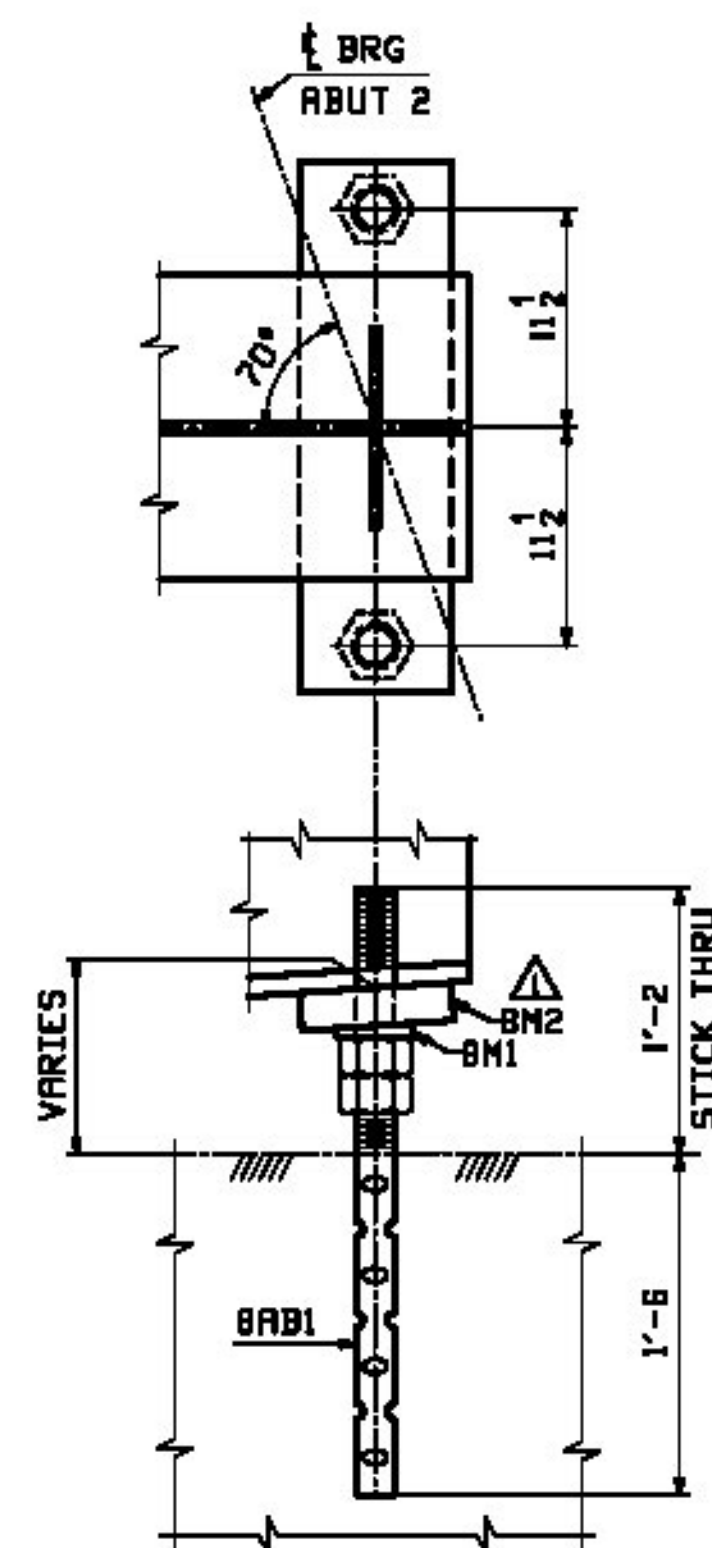
5/4/16	APPROVAL COMMENTS	JTB	LWD
REV. DATE	REMARKS	DWN	CHK
MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
DESCRIPTION: GENERAL NOTES			
CASCO BAY STEEL STRUCTURES, INC. 1 WALLACE AVE. PHONE (207) 780-6722 SOUTH PORTLAND, ME 04106 FAX (207) 780-6725			
STRUCTURE:	TH-4 OVER WHITNEY BROOK ROUTE NO: TH-4, RURAL MINOR COLLECTOR BRIDGE REPLACEMENT COUNTY OF ORLEANS	DRAWN:	JTB
LOCATION:	TOWN OF CRAFTSBURY, VERMONT	DATE:	02/25
PROJ NO.	BD 1449(34)	CHKD:	LWD
CUSTOMER:	CCS CONSTRUCTORS INC.	DATE:	03/02
		JOB NO.	DWG NO.
		649-1	GN1
		REV.	Δ



FRAMING PLAN



ELEVATION VIEW - ABUT 1
TYP LINES 1 THRU 8
(TEMPORARY BEARING ASSEMBLY)



ELEVATION VIEW - ABUT 2
TYP LINES 1 THRU 8
(TEMPORARY BEARING ASSEMBLY)

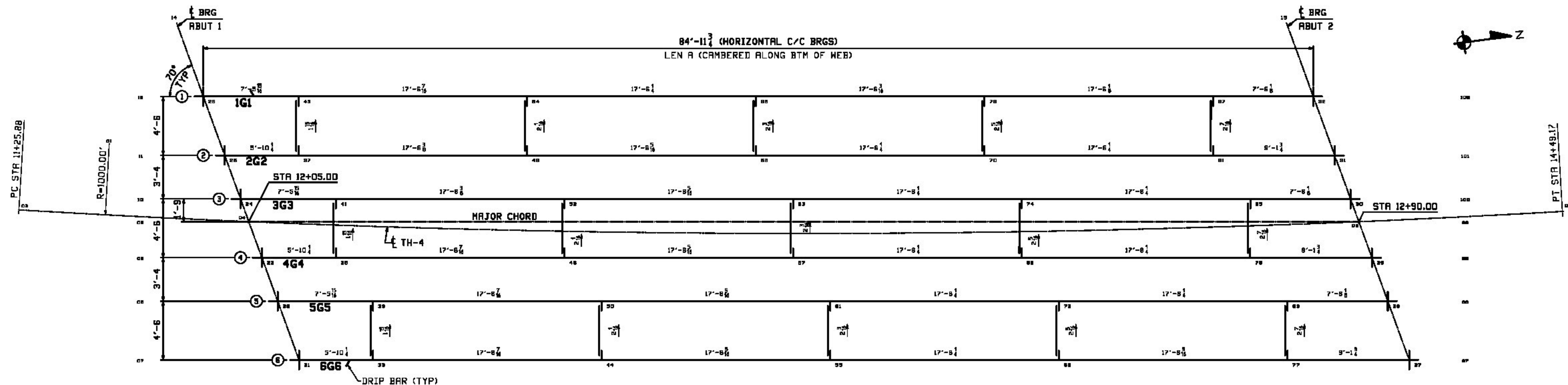
Vermont Agency of Transportation
RECEIVED

CK'D BY RSF/SMC OK'D BY WDL

May 19, 2016

RESUBMIT No Approved AsNoted
BY RSY DATE 05/26/2016

	5/4/16	APPROVAL COMMENTS	JTB	LWD		
0						
REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
MATERIAL:		SURFACE PREP. & PAINT:	HOLES:		SHOP BOLTS:	
DESCRIPTION: FRAMING PLAN						
		CASCO BAY STEEL STRUCTURES, INC. 1 WALLACE AVE. PHONE (207) 780-6722 SOUTH PORTLAND, ME 04106 FAX (207) 780-6726			 TEMCOR 5067	
STRUCTURE: TH-4 OVER WHITNEY BROOK ROUTE NO: TH-4, RURAL MINOR COLLECTOR BRIDGE REPLACEMENT COUNTY OF ORLEANS			DRAWN: JTB	DATE: 02/25		
			CHKD: LWD	DATE: 03/02		
LOCATION: TOWN OF CRAFTSBURY, VERMONT			JOB NO.	DWG NO.		
PROJ NO. BO 1449(34)			649-1			
CUSTOMER: CCS CONSTRUCTORS INC.			E1			
			REV. 			

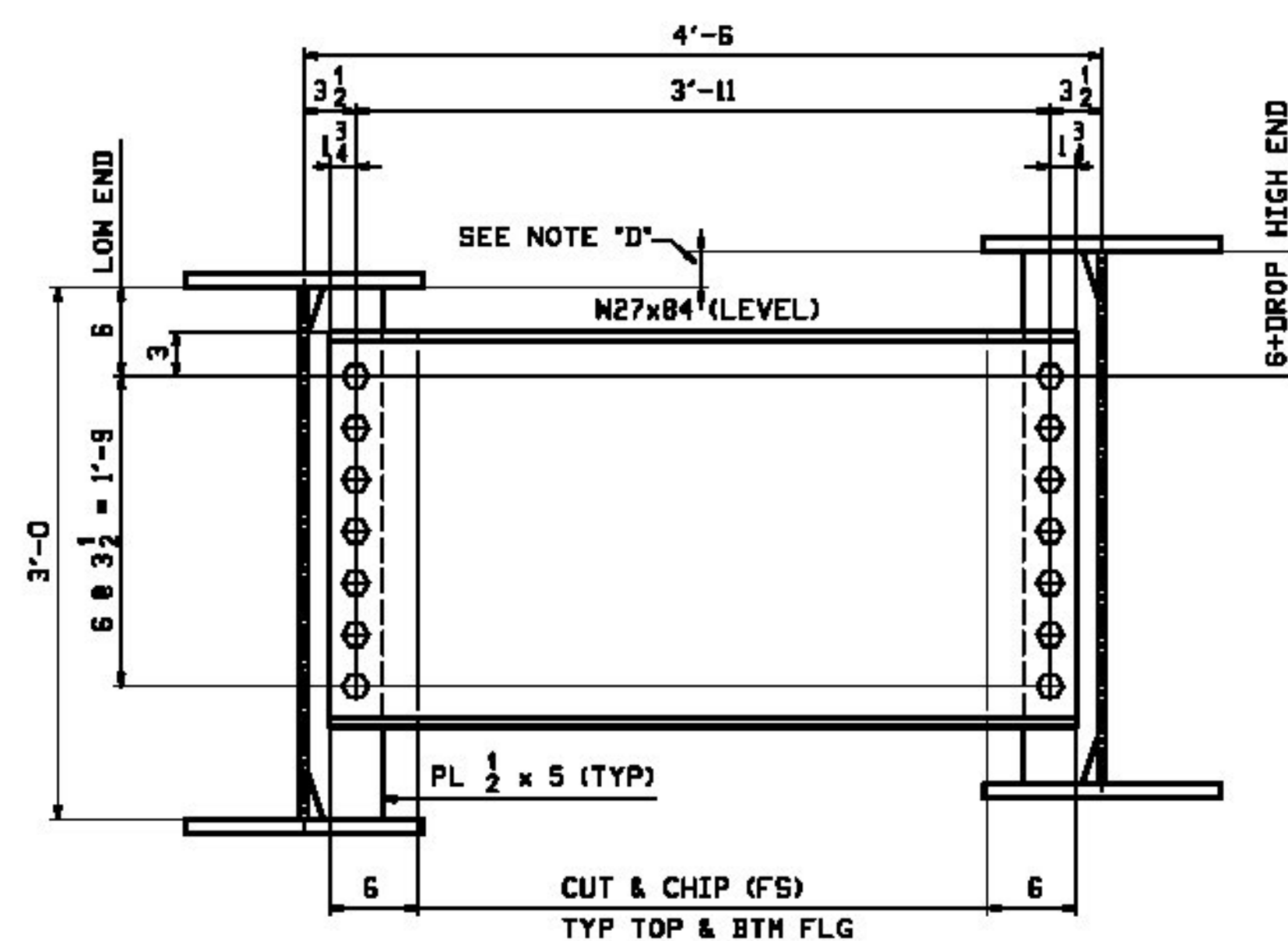


CALCULATION PLAN

Line	LEN A	GRADES	
		ABUT 1	ABUT 2
1	85'-1 1/16	0.0581	0.0581
2	85'-1 1/16	0.0587	0.0587
3	85'-1 1/16	0.0581	0.0581
4	85'-1 1/16	0.0597	0.0597
5	85'-1 1/16	0.0601	0.0601
6	85'-1 1/16	0.0607	0.0607

**** NOTE ****
THE PURPOSE OF THIS DRAWING IS TO COORDINATE GEOMETRIC CONTROL INFORMATION. THIS DWG IS SUBMITTED FOR INFORMATION ONLY AND IS NOT INTENDED FOR SHOP FABRICATION.

- CALCULATION PLAN NOTES:**
1. LONGITUDINAL DIMENSIONS ARE SLOPING ALONG BTM OF GIRDERS WITH CORRECTIONS MADE FOR DL CAMBER, V.C. & GRADE (UN).
 2. TRANSVERSE DIMENSIONS ARE IN A HORIZONTAL PLANE (UN).
 3. ARROW POINTS TOWARD LOW END OF MEMBER.
 4. ENDS OF GIRDERS & BRGS STIFF'S ARE VERTICAL AFTER DL ROTATION.
 5. DIAPHRAGM STIFFENERS ARE NORMAL TO GRADE.
 6. BOTTOM POINT NUMBERS = TOP POINT NUMBERS + 500.
 7. COMBINE DIAPHRAGMS FOR DIFFERENCE IN DROPS OF $\pm \frac{1}{8}$.
 8. FOR LAYOUTS SEE "TD" DRAWING.



TYP. INT. DIAPHRAGMS
(LOOKING UP-STATION)
15 REQ'D

- NOTES:**
1. DIAPHRAGMS & CONN. PLATES SHALL BE ASTM A709 GRADE 50W.
 2. ALL BOLT HOLES SHALL BE $\frac{5}{16}$ " FOR $\frac{7}{8}$ " HSB.

NOTE "D"
DROP VARIES IN MAGNITUDE.

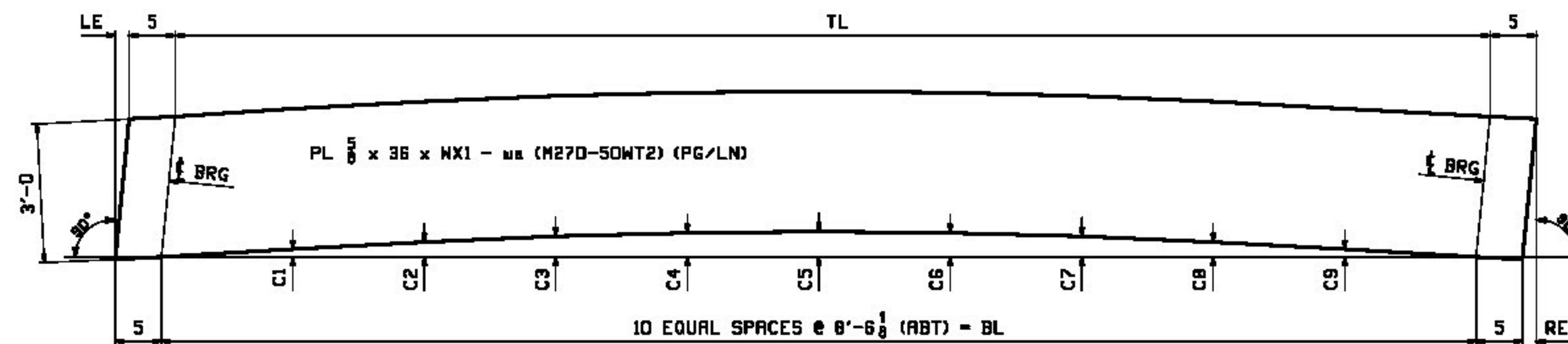
Vermont Agency of Transportation
RECEIVED

CK'D BY RSE/SMC OK'D BY WDL

May 19, 2016

RESUBMIT No Approved AsNoted
BY RSY DATE 05/26/2016

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
MATERIAL:		SURFACE PREP. & PAINT:	HOLES:		SHOP BOLTS:	
M270-SOWT2		SEE DWG GNI	$\frac{15}{16}$ "		$\frac{7}{8}$ " HSB	
DESCRIPTION: CALCULATION PLAN & LAYOUTS						
STRUCTURE: TH-4 OVER WHITNEY BROOK ROUTE NO: TH-4, RURAL MINOR COLLECTOR BRIDGE REPLACEMENT COUNTY OF ORLEANS			DRAWN: JTB CHKD: LWD		DATE: 02/25 DATE: 03/02	
LOCATION: TOWN OF CRAFTSBURY, VERMONT			JOB NO.		DWG NO.	
PROJ NO. 80 1449(34)			649-1		WS1	
CUSTOMER: CCS CONSTRUCTORS INC.					REV. A	



CAMBER DIAGRAM FOR 1G1, 2G2, 3G3, 4G4, 5G5, 6G6

MARK	TL	BL	LE	RE	WX1	C1	C2	C3	C4	C5	C6	C7	C8	C9	PG/LN
1G1	85'-1 ⁷ / ₈	85'-1 ¹ / ₄	1 ¹¹ / ₁₆	2 ¹ / ₂	86'-1 ⁹ / ₁₆	1 ³ / ₁₆	2 ¹ / ₄	3 ¹ / ₈	3 ⁵ / ₈	3 ¹³ / ₁₆	3 ⁵ / ₈	3 ¹ / ₈	2 ¹ / ₄	1 ³ / ₁₆	1/C
2G2	85'-1 ⁹ / ₁₆	85'-1 ³ / ₁₆	1 ¹³ / ₁₆	2 ⁷ / ₁₆	86'-1 ⁵ / ₁₆	9 ⁹ / ₁₆	1 ⁹ / ₁₆	2 ¹ / ₈	2 ¹ / ₂	2 ⁵ / ₈	2 ¹ / ₂	2 ¹ / ₈	1 ⁹ / ₁₆	13 ¹³ / ₁₆	1/E
3G3	85'-1 ¹³ / ₁₆	85'-1 ¹ / ₄	1 ¹³ / ₁₆	2 ³ / ₈	86'-1 ⁵ / ₁₆	9 ⁹ / ₁₆	1 ⁹ / ₁₆	2 ¹ / ₈	2 ¹ / ₂	2 ⁵ / ₈	2 ¹ / ₂	2 ¹ / ₈	1 ⁹ / ₁₆	13 ¹³ / ₁₆	1/E
4G4	85'-1 ⁷ / ₈	85'-1 ¹ / ₄	1 ⁷ / ₈	2 ¹ / ₂	86'-1 ³ / ₄	9 ⁹ / ₁₆	1 ⁹ / ₁₆	2 ¹ / ₈	2 ¹ / ₂	2 ⁵ / ₈	2 ¹ / ₂	2 ¹ / ₈	1 ⁹ / ₁₆	13 ¹³ / ₁₆	1/E
5G5	85'-1 ⁷ / ₈	85'-1 ⁵ / ₁₆	1 ⁷ / ₈	2 ⁷ / ₁₆	86'-1 ³ / ₄	9 ⁹ / ₁₆	1 ⁹ / ₁₆	2 ¹ / ₈	2 ¹ / ₂	2 ⁵ / ₈	2 ¹ / ₂	2 ¹ / ₈	1 ⁹ / ₁₆	13 ¹³ / ₁₆	1/E
6G6	85'-2 ¹ / ₁₆	85'-1 ³ / ₁₆	1 ³ / ₄	2 ⁵ / ₈	86'-1 ⁹ / ₁₆	1 ³ / ₁₆	2 ¹ / ₄	3 ¹ / ₈	3 ⁵ / ₈	3 ¹³ / ₁₆	3 ⁵ / ₈	3 ¹ / ₈	2 ¹ / ₄	1 ³ / ₁₆	1/C

1G1	1 ¹¹ / ₁₆	PL 1 x 16 x 85'-11 ⁷ / ₈ - ta (M270-50WT2) 1/A
2G2	1 ¹³ / ₁₆	PL 1 x 16 x 85'-11 ⁹ / ₁₆ - ta (M270-50WT2) 1/A
3G3	1 ¹³ / ₁₆	PL 1 x 16 x 85'-11 ⁹ / ₁₆ - ta (M270-50WT2) 1/A
4G4	1 ⁷ / ₈	PL 1 x 16 x 85'-11 ⁷ / ₈ - ta (M270-50WT2) 1/A
5G5	1 ⁷ / ₈	PL 1 x 16 x 85'-11 ⁷ / ₈ - ta (M270-50WT2) 1/A
6G6	1 ³ / ₄	PL 1 x 16 x 86'-0 ¹ / ₁₆ - ta (M270-50WT2) 1/A

1G1	PL 1 x 16 x 85'-11 ¹ / ₁₆ - ba (M270-50WT2) 1/A
2G2	PL 1 x 16 x 85'-11 ³ / ₁₆ - ba (M270-50WT2) 1/A
3G3	PL 1 x 16 x 85'-11 ¹ / ₁₆ - ba (M270-50WT2) 1/A
4G4	PL 1 x 16 x 85'-11 ¹ / ₁₆ - ba (M270-50WT2) 1/A
5G5	PL 1 x 16 x 85'-11 ⁵ / ₁₆ - ba (M270-50WT2) 1/A
6G6	PL 1 x 16 x 85'-11 ³ / ₁₆ - ba (M270-50WT2) 1/A

FLANGE DIAGRAM FOR 1G1, 2G2, 3G3, 4G4, 5G5, 6G6

NOTES:

- FOR GENERAL NOTES SEE DRAWING GNI.
- "T2" DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TEST AT H FREQ. FOR ZONE 2

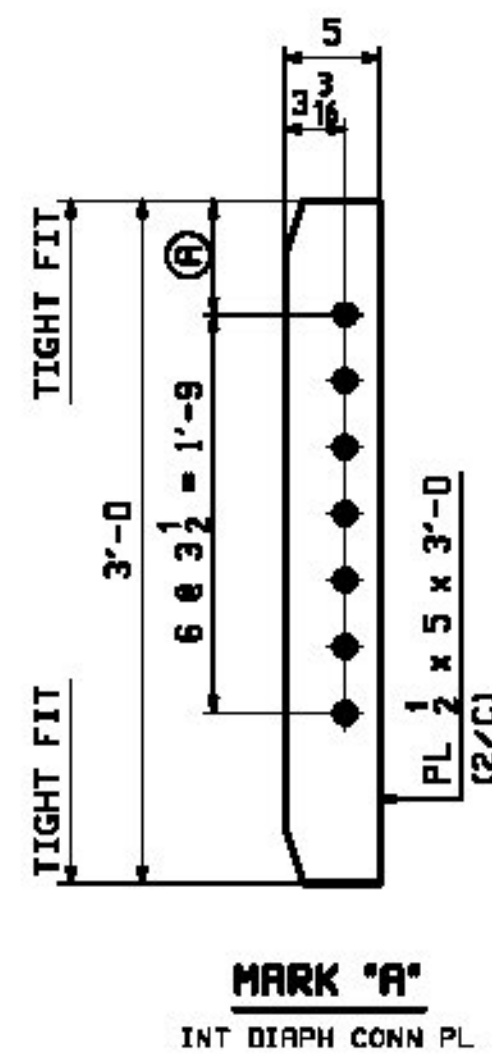
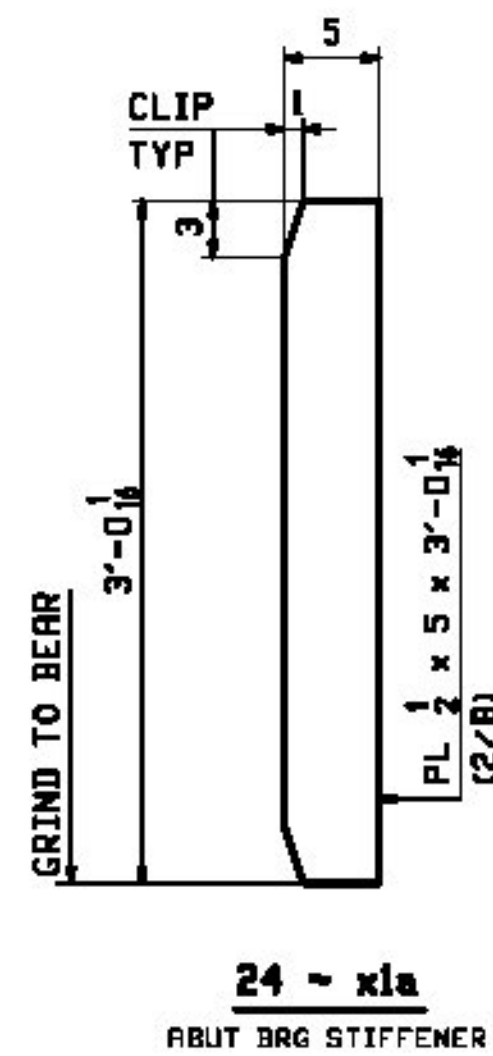
Vermont Agency of Transportation
RECEIVED

CK'D BY RSF/SMC OK'D BY WDL

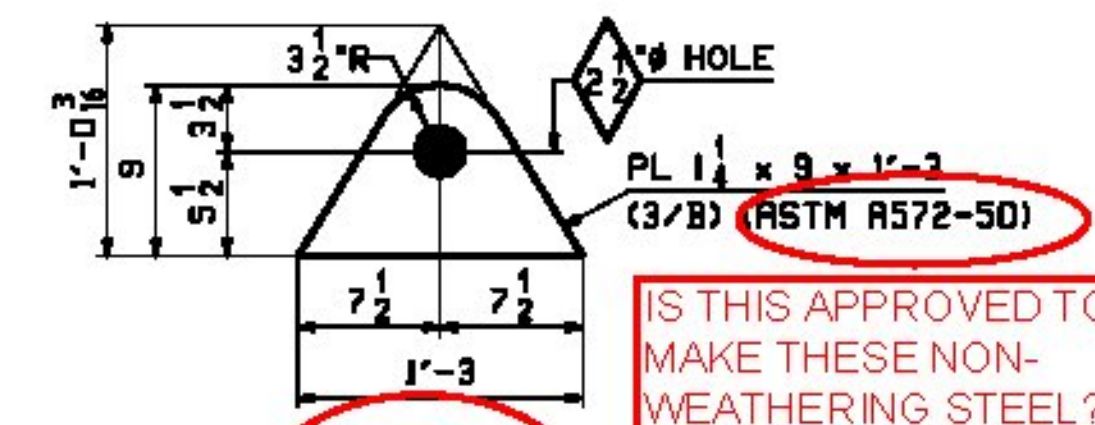
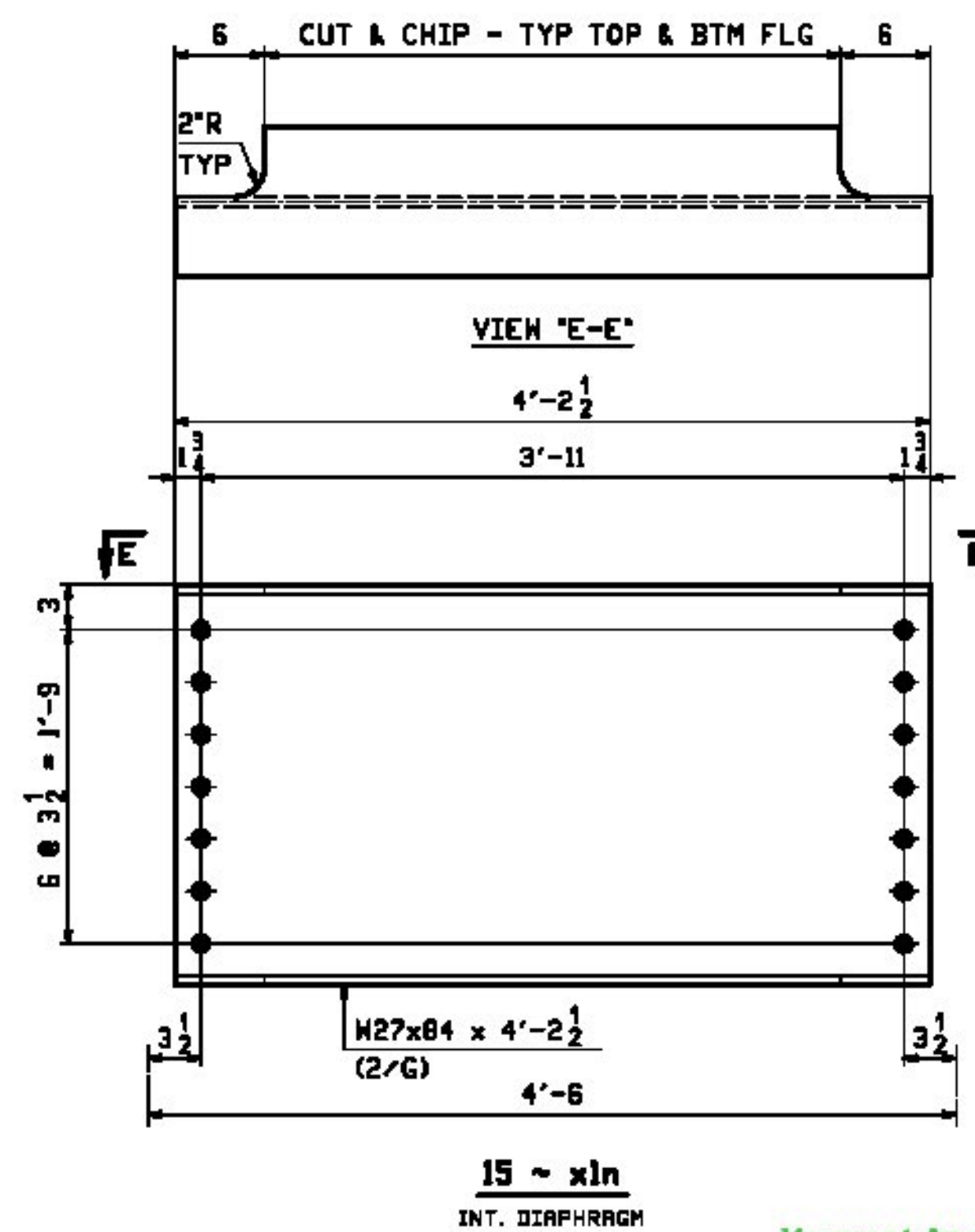
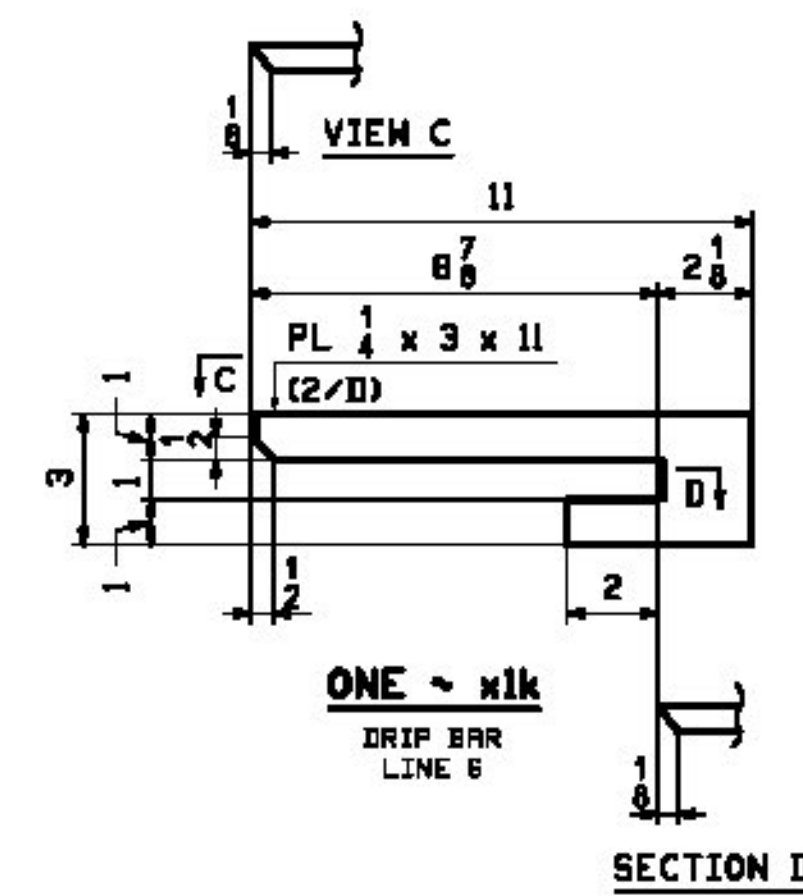
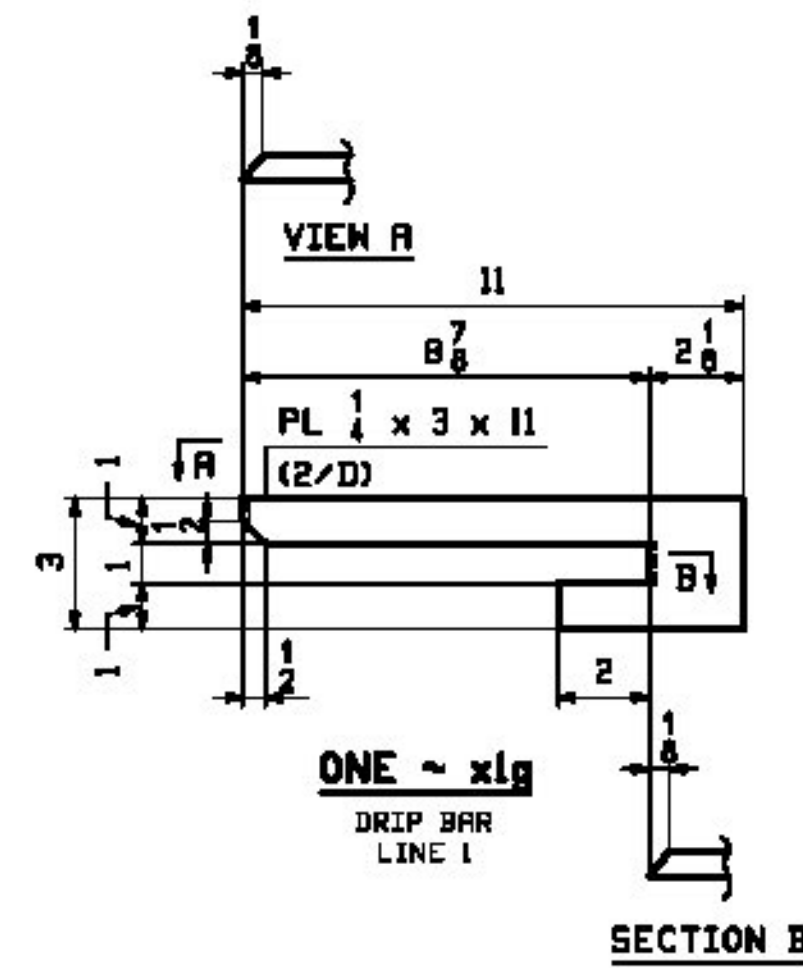
May 19, 2016

RESUBMIT No Approved AsNoted
BY RSY DATE 05/26/2016

									</



MARK "A"	QTY	(A)	
x1b	15	6	LOW END
x1c	6	8	DROPS 1 5/8 & 2 1/8
x1d	3	8 3/8	DROP 2 3/8
x1f	6	8 3/8	DROP 2 5/8 & 2 7/8



IS THIS APPROVED TO MAKE THESE NON-WEATHERING STEEL??

Discussed with PM and we don't see an issue - encased in deck concrete and shear studs are non-weathering.

Should this be 12, not 24?

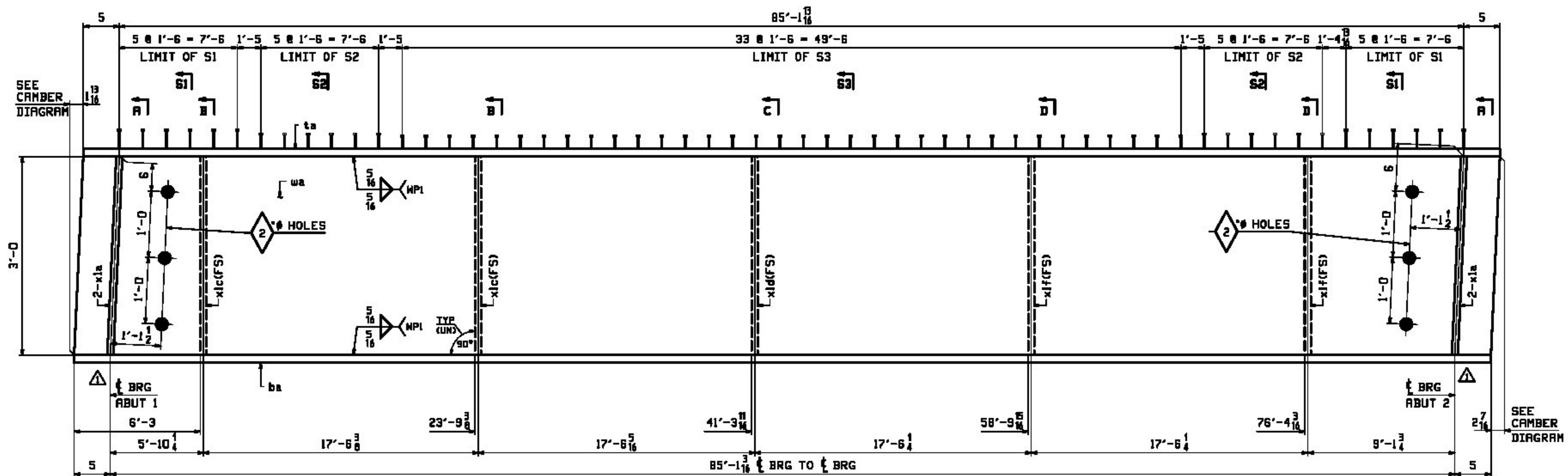
NOTE:
FOR GENERAL NOTES SEE DRAWING GNI.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
1	4/28/16	ADD LIFTING LUGS (EXTRA X1) REMOVE x1n	JTB	LWD		
MATERIAL: M270-50W (UN) SURFACE PREP. & PAINT: SEE DWG GNI HOLES: 1/2" (UN) SHOP BOLTS: NONE						
DESCRIPTION: STANDARD DETAILS						
STRUCTURE: TH-4 OVER WHITNEY BROOK ROUTE NO: TH-4, RURAL MINOR COLLECTOR BRIDGE REPLACEMENT COUNTY OF ORLEANS						
LOCATION: TOWN OF CRAFTSBURY, VERMONT						
PROJ NO. 80 1449(34)						
CUSTOMER: CCS CONSTRUCTORS INC.						
DRAWN: JTB DATE: 02/25 CHKD: LWD DATE: 03/02						
JOB NO. 649-1 DWG NO. X1						
REV. 1						

Vermont Agency of Transportation
RECEIVED

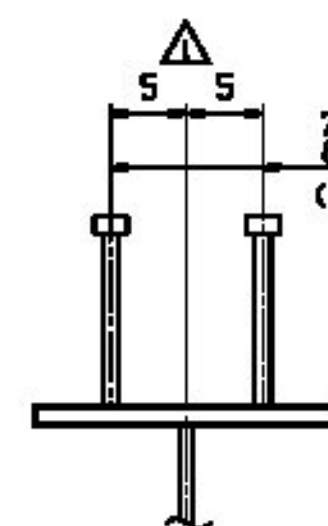
CK'D BY RSF/SMC OK'D BY WDL
May 19, 2016

RESUBMIT No Approved AsNoted
BY RSY DATE 05/26/2016

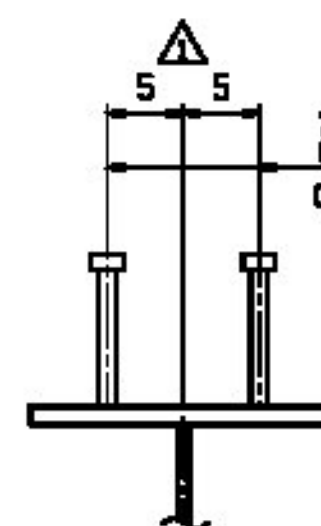


ONE - GIRDER - 2G2 (SUB-ASSEMBLY)

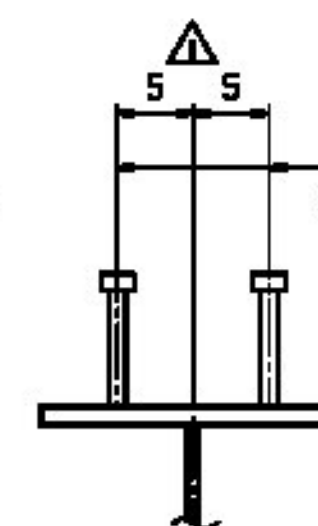
FOR GIRDER STANDARD DETAILS SEE DRAWING X1.
FOR CAMBER & FLANGE DIAGRAMS SEE DRAWING C1.
FOR GENERAL NOTES SEE DRAWING GNI.
T2 DENOTES MATERIAL SUBJECT TO CHAMPY V-NOTCH TESTING.



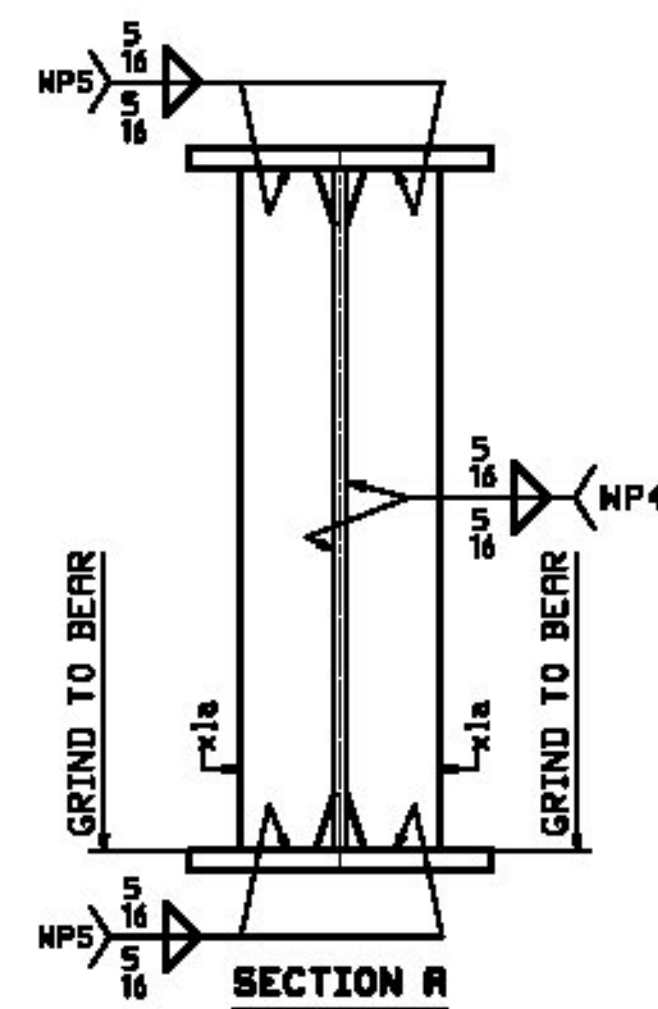
SECTION S1



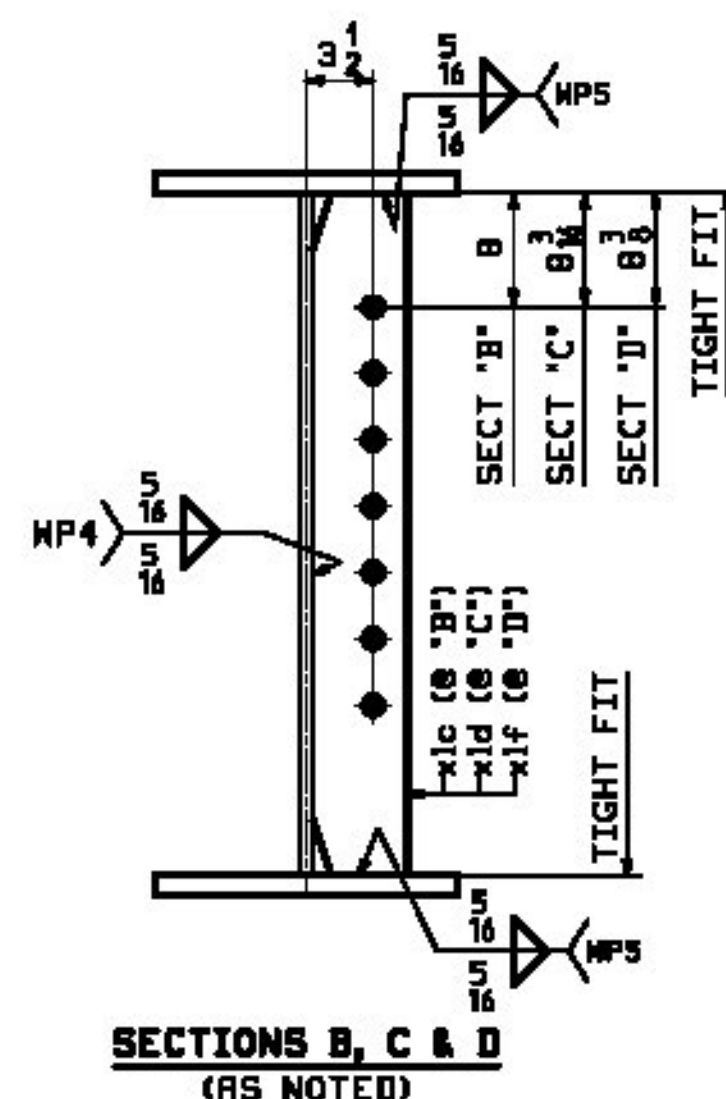
SECTION S2



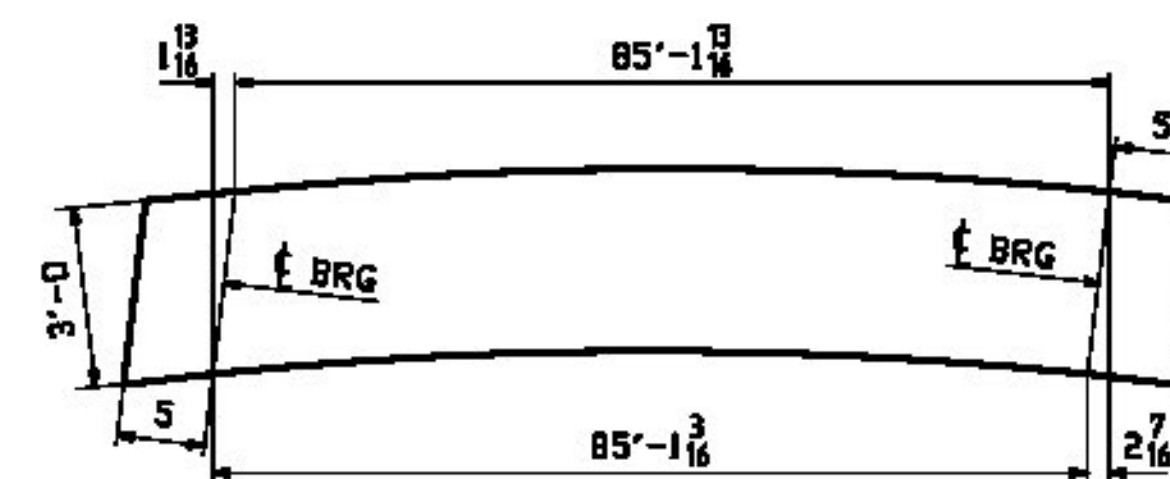
SECTION S3



SECTION A



SECTIONS B, C & D
(AS NOTED)



ORIENTATION DIAGRAM
FOR CAMBER SEE DRAWING C1

PAGE LINE	MARK	QTY	MARK	MATERIAL	LENGTH		REMARKS	WT	PROCUREMENT NOTES
					FT	INCHES			
	2G2	1		GIRDER				16332	
1	E	1	wa	PL 5/8 x 36	86	1 1/2	H270-SOWT2	6595	
1	A	1	ta	PL 1x16	85	11 1/2	H270-SOWT2	4681	
1	A	1	bw	PL 1x16	85	11 1/2	H270-SOWT2	4679	
2	B	4	x1a	PL 2x5	3	0 1/2	NIC	25	
2	C	2	x1c	PL 2x5	3	0		25	
2	C	1	x1d	PL 2x5	3	0		25	
2	C	2	x1f	PL 2x5	3	0		25	
3	B	24		STUD 1/2"	0	10	NIC	0.93	
3	C	24		STUD 1/2"	0	9	NIC	1	
3	D	58		STUD 1/2"	0	7	NIC	1	

Vermont Agency of Transportation

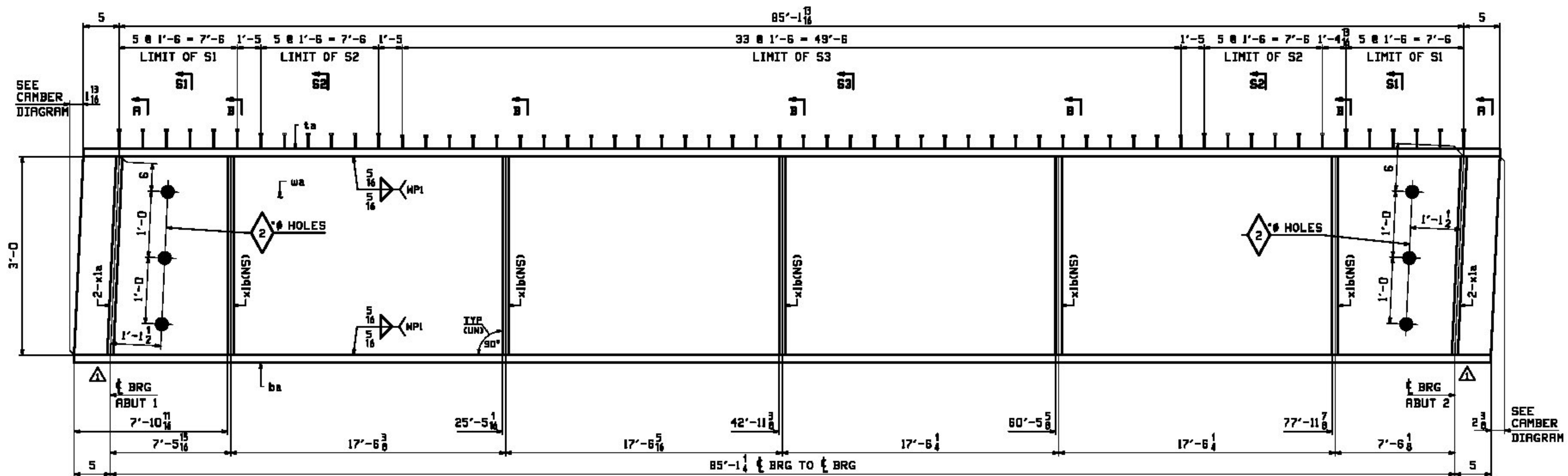
RECEIVED

CK'D BY RSF/SMC OK'D BY WDL

May 19, 2016

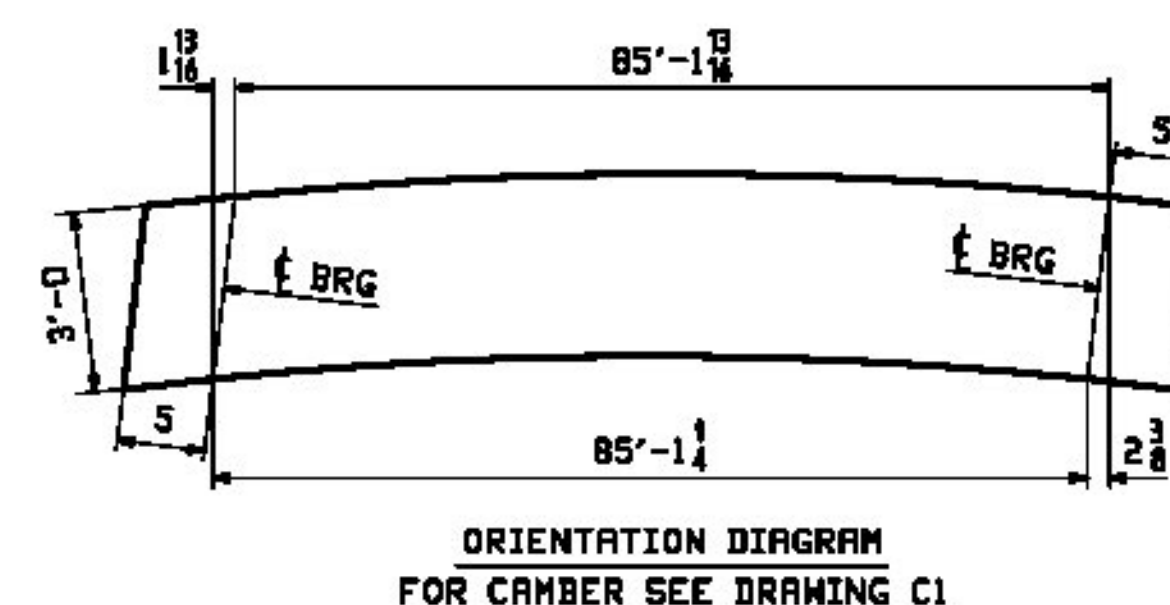
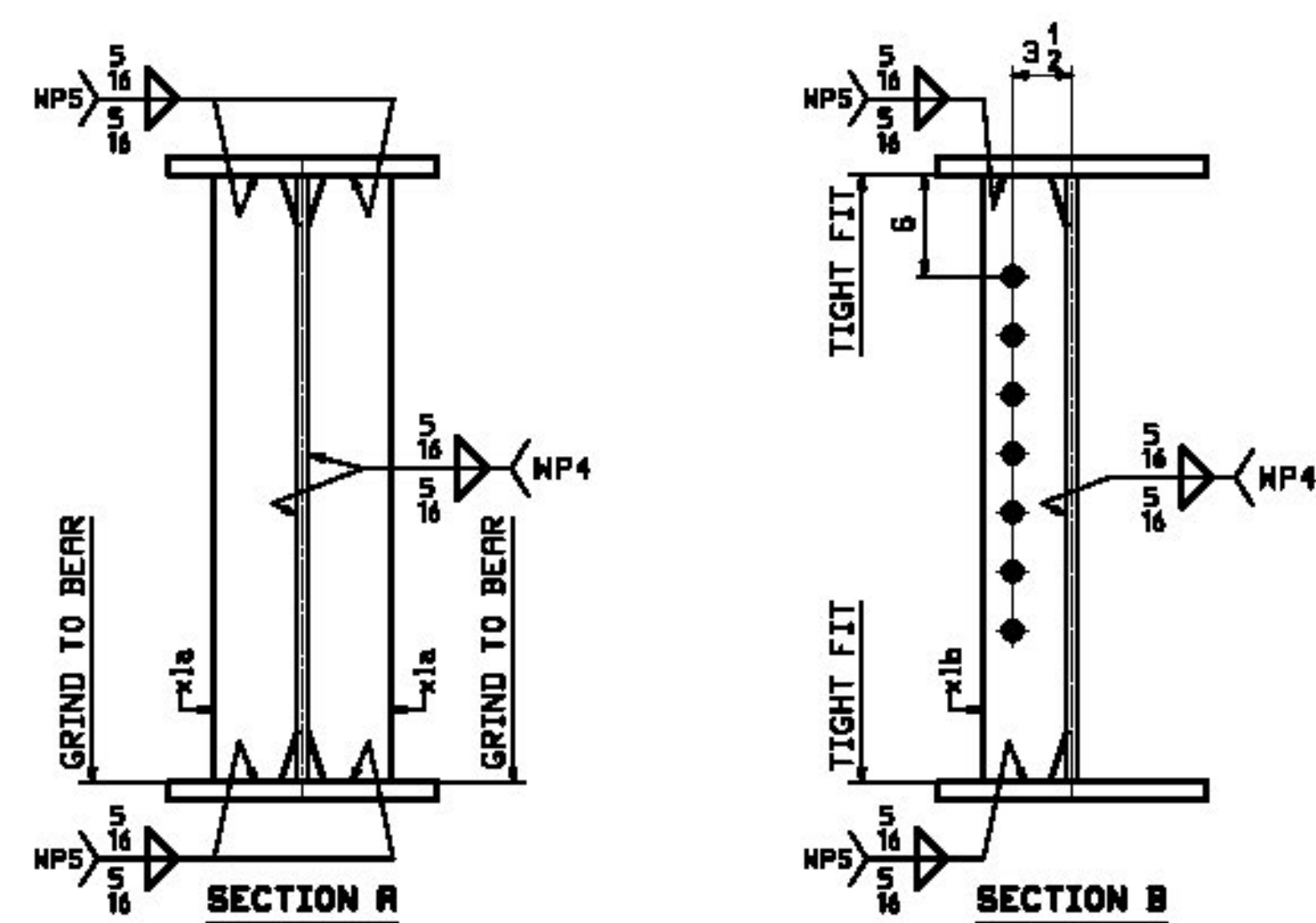
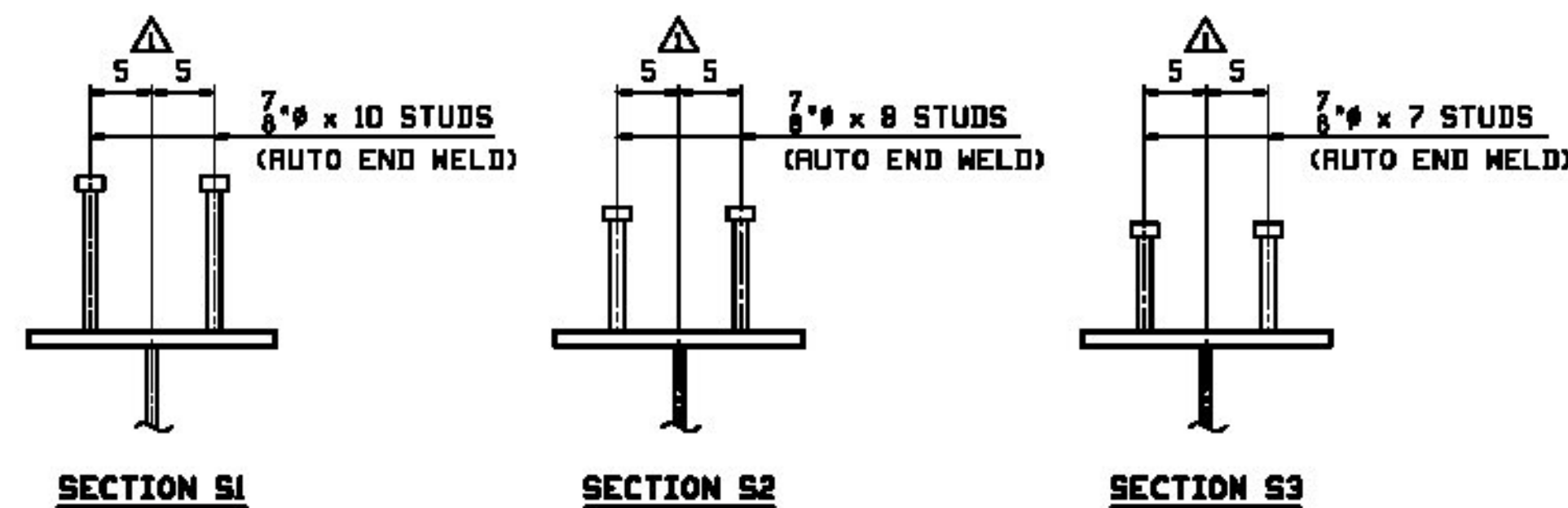
RESUBMIT No Approved AsNoted
BY RSY DATE 05/26/2016

	5/4/16	APPROVAL COMMENTS	JTB	LWD		
						
REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
MATERIAL:		SURFACE PREP. & PAINT:		HOLES:		SHOP BOLTS:
M270-SOW (UN)		SEE DWG GNI		15 16" Ø (UN)		NONE
DESCRIPTION: GIRDER - 2G2						
			CASCO BAY STEEL STRUCTURES, INC. 1 WALLACE AVE. PHONE (207) 780-6722 SOUTH PORTLAND, ME 04105 FAX. (207) 780-6726			
STRUCTURE:	TH-4 OVER WHITNEY BROOK ROUTE NO: TH-4, RURAL MINOR COLLECTOR BRIDGE REPLACEMENT COUNTY OF ORLEANS				DRAWN:	DATE:
					JTB	02/25
					CHKD:	DATE:
					LWD	03/02
LOCATION:	TOWN OF CRAFTSBURY, VERMONT				JOB NO.	DWG NO.
PROJ NO.	BD 1449(34)				649-1	2
CUSTOMER:	CCS CONSTRUCTORS INC.					REV. 



ONE - GIRDER - 3G3 (SUB-ASSEMBLY)

FOR GIRDER STANDARD DETAILS SEE DRAWING X1.
FOR CAMBER & FLANGE DIAGRAMS SEE DRAWING C1.
FOR GENERAL NOTES SEE DRAWING GNI.
T2 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING.



ORIENTATION DIAGRAM
FOR CAMBER SEE DRAWING C1

JOB NO.		JOB NO.		REV.
D48-1		3		
REV.	DATE	BY	CHK	APPROVAL
1	5/4/16	JTB	LWD	
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				
40				
41				
42				
43				
44				
45				
46				
47				
48				
49				
50				
51				
52				
53				
54				
55				
56				
57				
58				
59				
60				
61				
62				
63				
64				
65				
66				
67				
68				
69				
70				
71				
72				
73				
74				
75				
76				
77				
78				
79				
80				
81				
82				
83				
84				
85				
86				
87				
88				
89				
90				
91				
92				
93				
94				
95				
96				
97				
98				
99				
100				

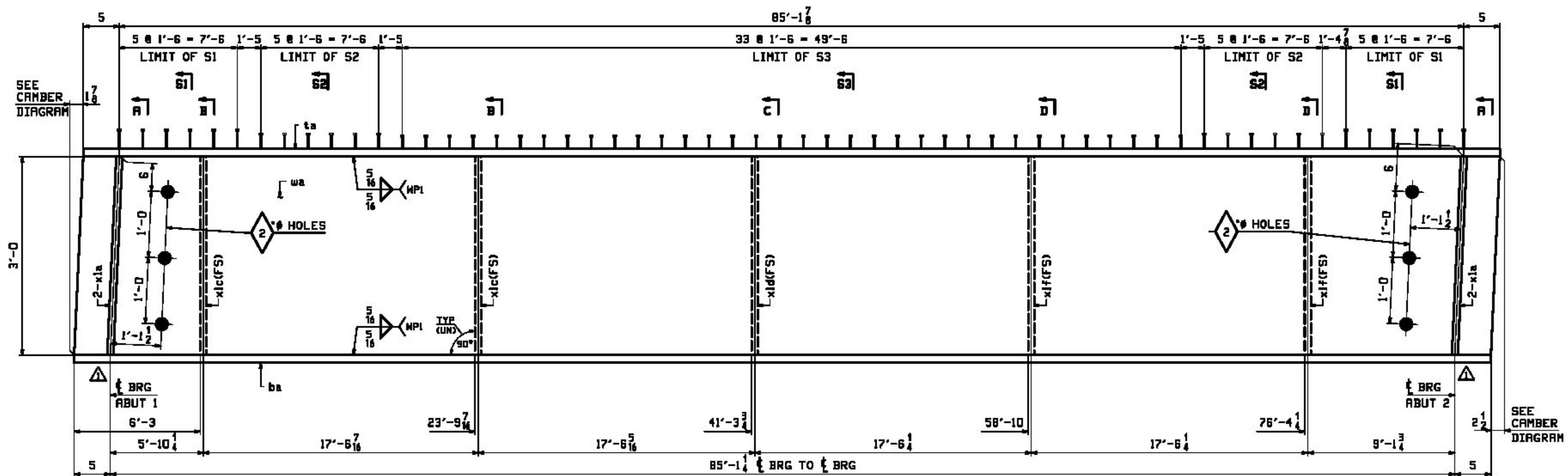
Vermont Agency of Transportation
RECEIVED

CK'D BY RSF/SMC OK'D BY WDL

May 19, 2016

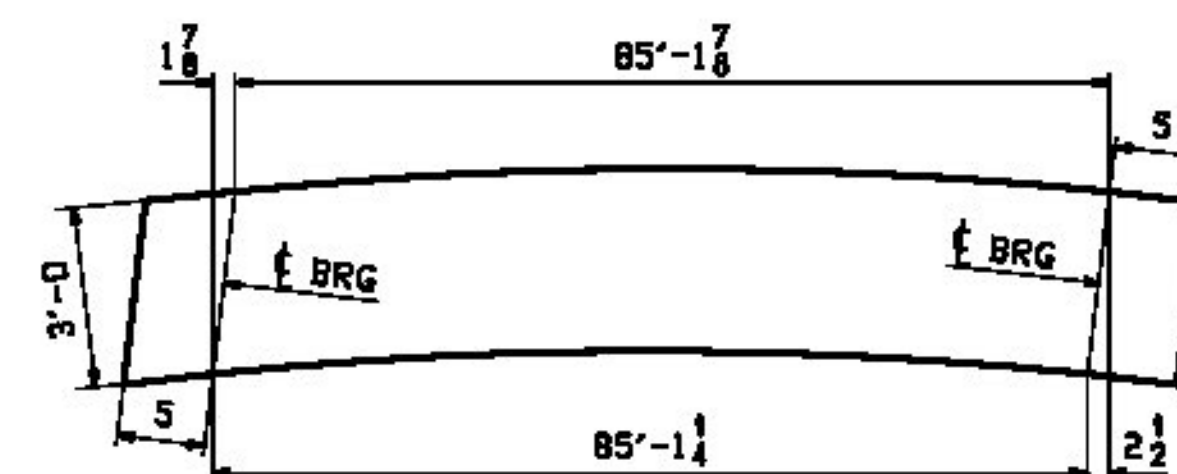
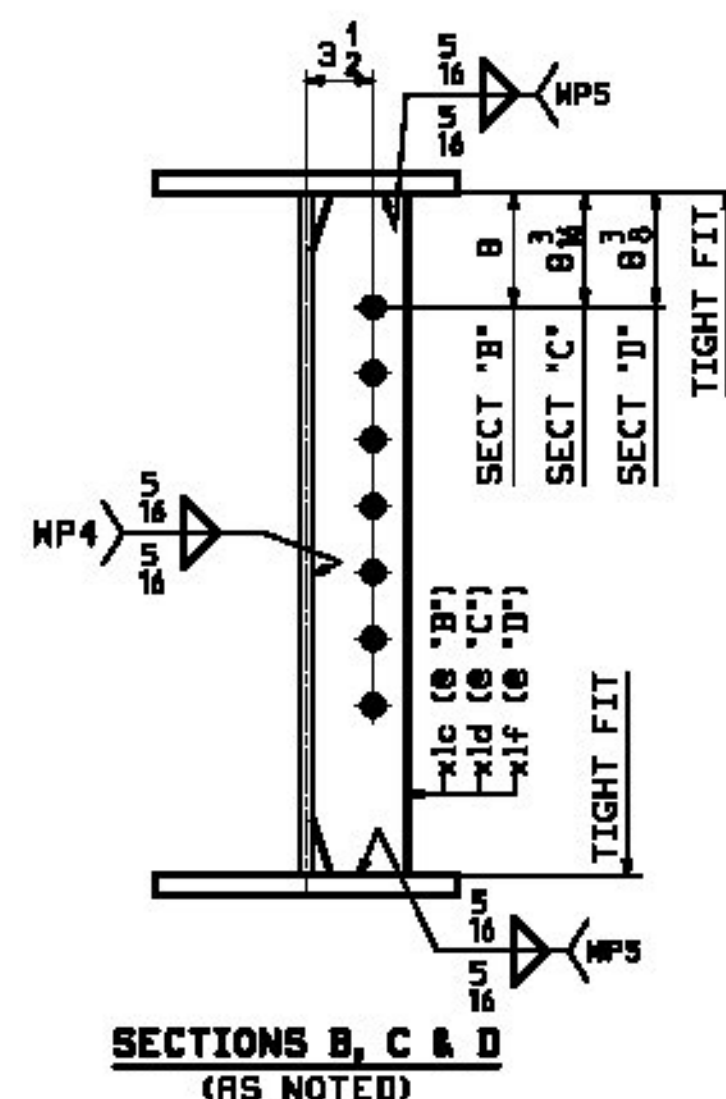
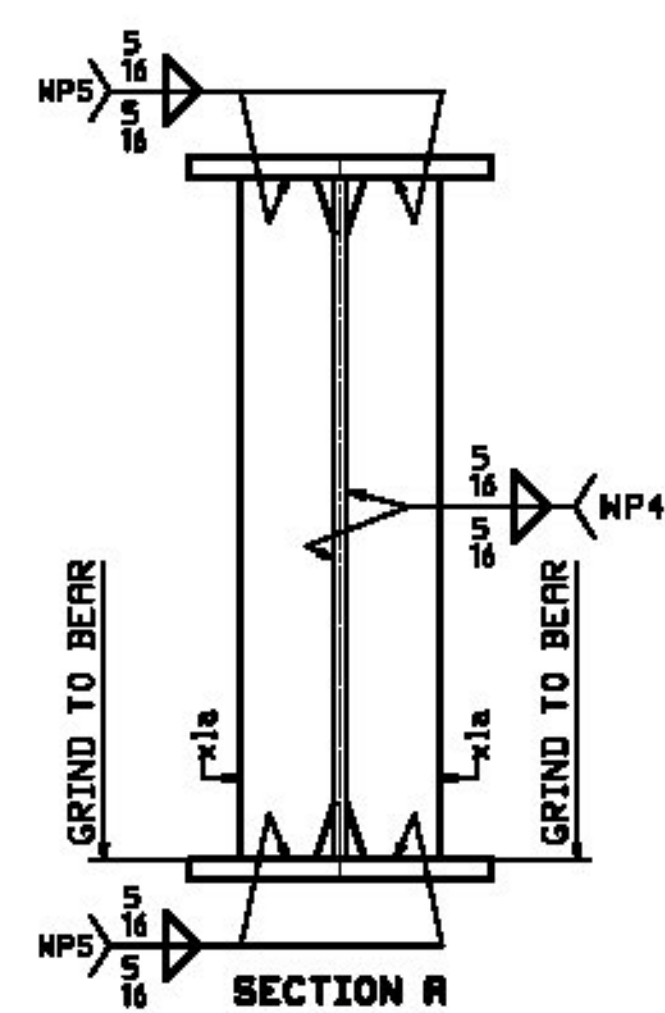
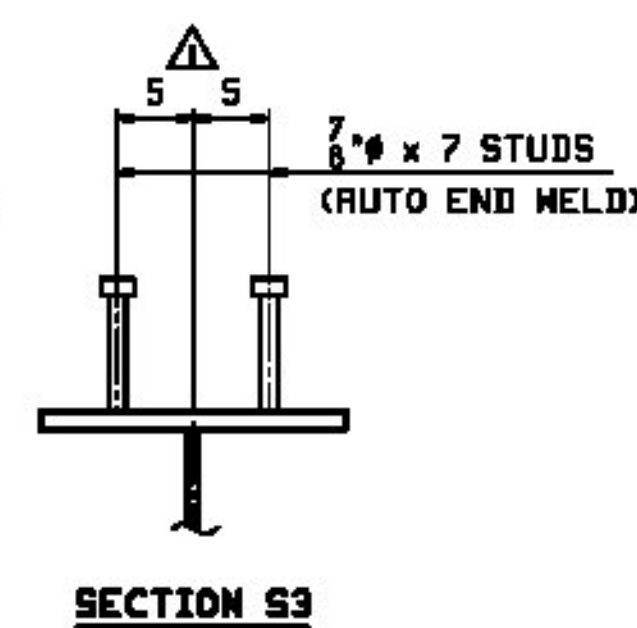
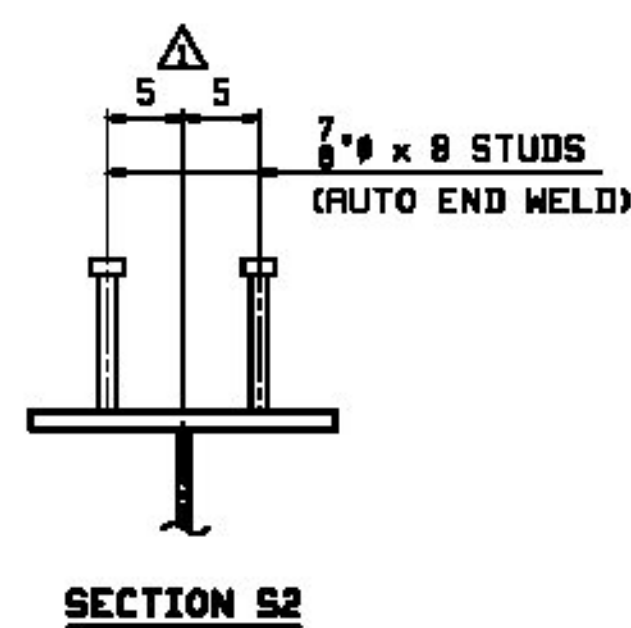
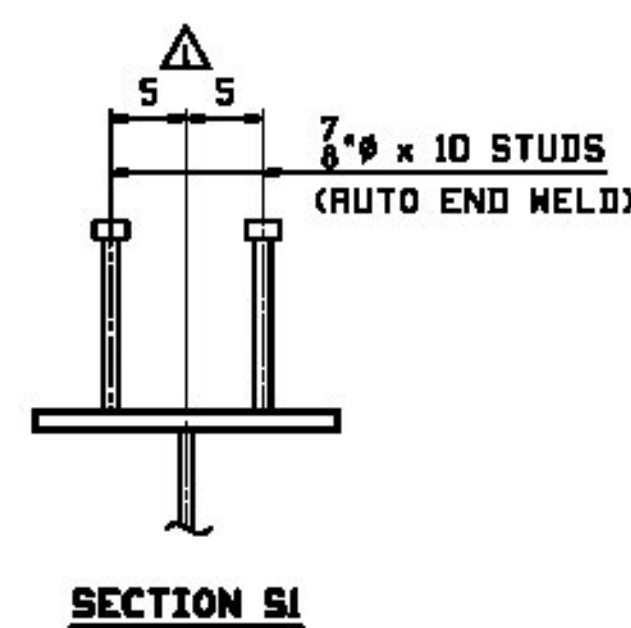
RESUBMIT No Approved AsNoted
BY RSY DATE 05/26/2016

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
1	5/4/16	APPROVAL COMMENTS	JTB	LWD		
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						
41						
42						
43						
44						
45						
46						
47						
48						
49						
50						
51						
52						
53						
54						
55						
56						
57						
58						
59						
60						
61						
62						
63						
64						
65						
66						
67						
68						
69						
70						
71						
72						
73						
74						
75						
76						
77						
78						
79						
80						
81						
82						
83						
84						
85						
86						
87						
88						
89						
90						
91						
92						
93						
94						
95						
96						
97						
98						
99						
100						



ONE - GIRDER - 4G4 (SUB-ASSEMBLY)

FOR GIRDER STANDARD DETAILS SEE DRAWING X1.
FOR CAMBER & FLANGE DIAGRAMS SEE DRAWING C1.
FOR GENERAL NOTES SEE DRAWING GNI.
T2 DENOTES MATERIAL SUBJECT TO CHAMPY V-NOTCH TESTING.



JOB INFO		SHOP		BILL OF MATERIAL				JOB NO.		DRAWING NO.		REV.	
								B49-1		4			
PRICE LINE	MARK	QTY	MARK	MATERIAL	LENGTH		REMARKS	WT	PROCUREMENT NOTES				
					FT	INCHES							
	4G4	1		GIRDER				16334					
1	E	1	WA	PL $\frac{5}{8}$ x36	86	1 $\frac{1}{2}$	W20-SCHT2	6596					
1	A	1	WA	PL 1x16	85	1 $\frac{7}{8}$	W20-SCHT2	4682					
1	A	1	WA	PL 1x16	85	1 $\frac{1}{2}$	W20-SCHT2	4679					
2	B	4	x1a	PL $\frac{1}{2}$ x5	3	0 $\frac{1}{2}$	NUE						
2	C	2	x1c	PL $\frac{1}{2}$ x5	3	0		26					
2	C	1	x1d	PL $\frac{1}{2}$ x5	3	0		26					
2	C	2	x1f	PL $\frac{1}{2}$ x5	3	0		26					
3	B	24		STUD $\frac{1}{2}$ #	0	10	RIOR	0.93					
3	C	24		STUD $\frac{1}{2}$ #	0	9	RIOR	1					
3	D	58		STUD $\frac{1}{2}$ #	0	7	RIOR	1					

Vermont Agency of Transportation
RECEIVED

CK'D BY RSF/SMC OK'D BY WDL

May 19, 2016

RESUBMIT No Approved AsNoted
BY RSY DATE 05/26/2016

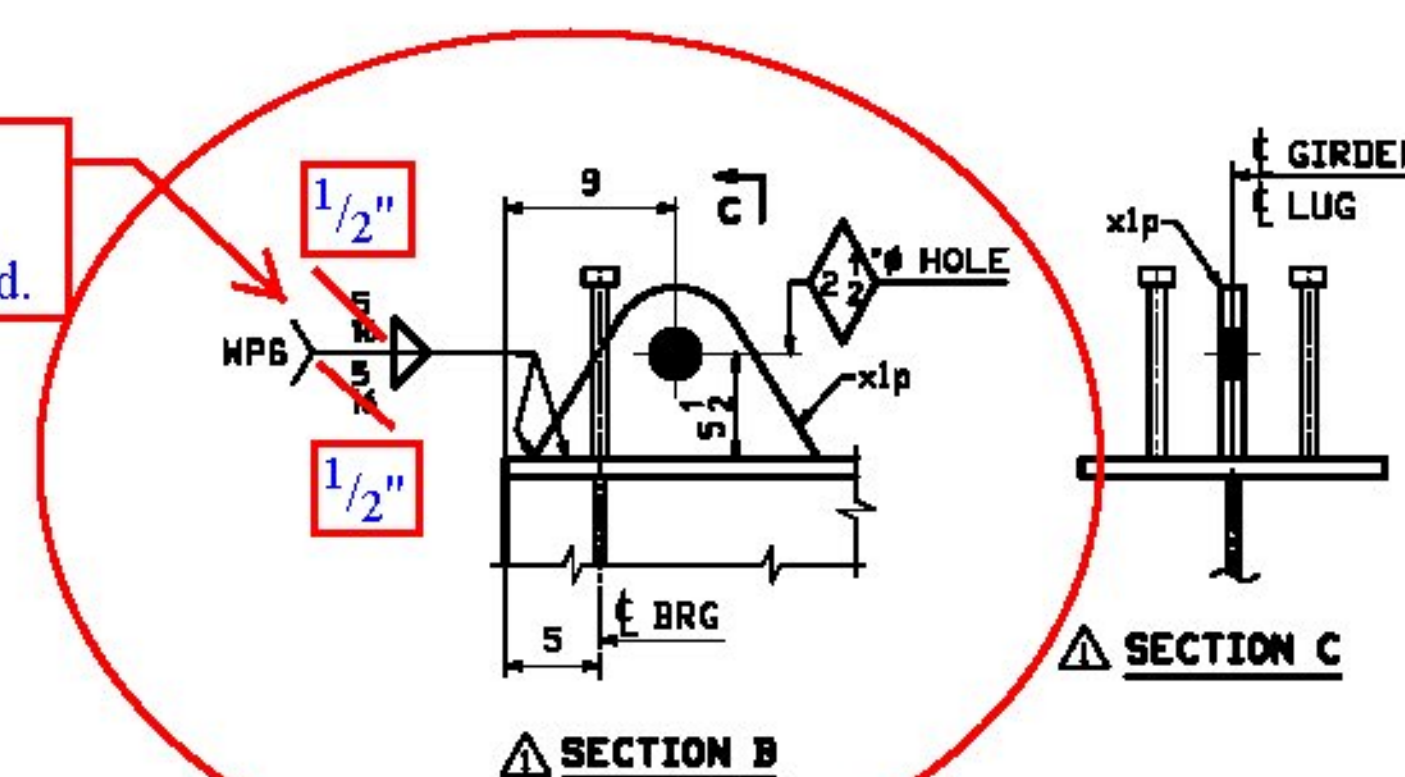
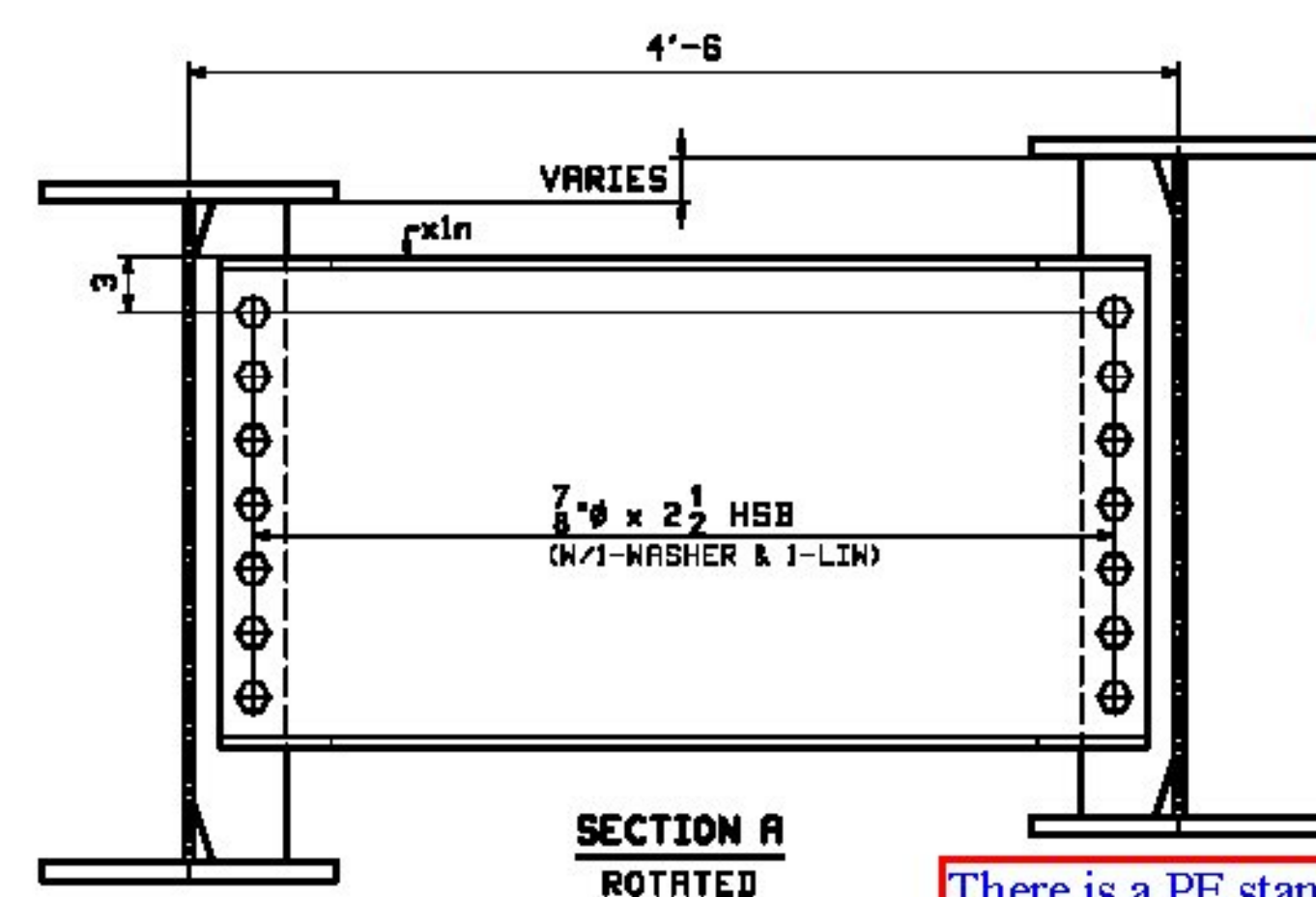
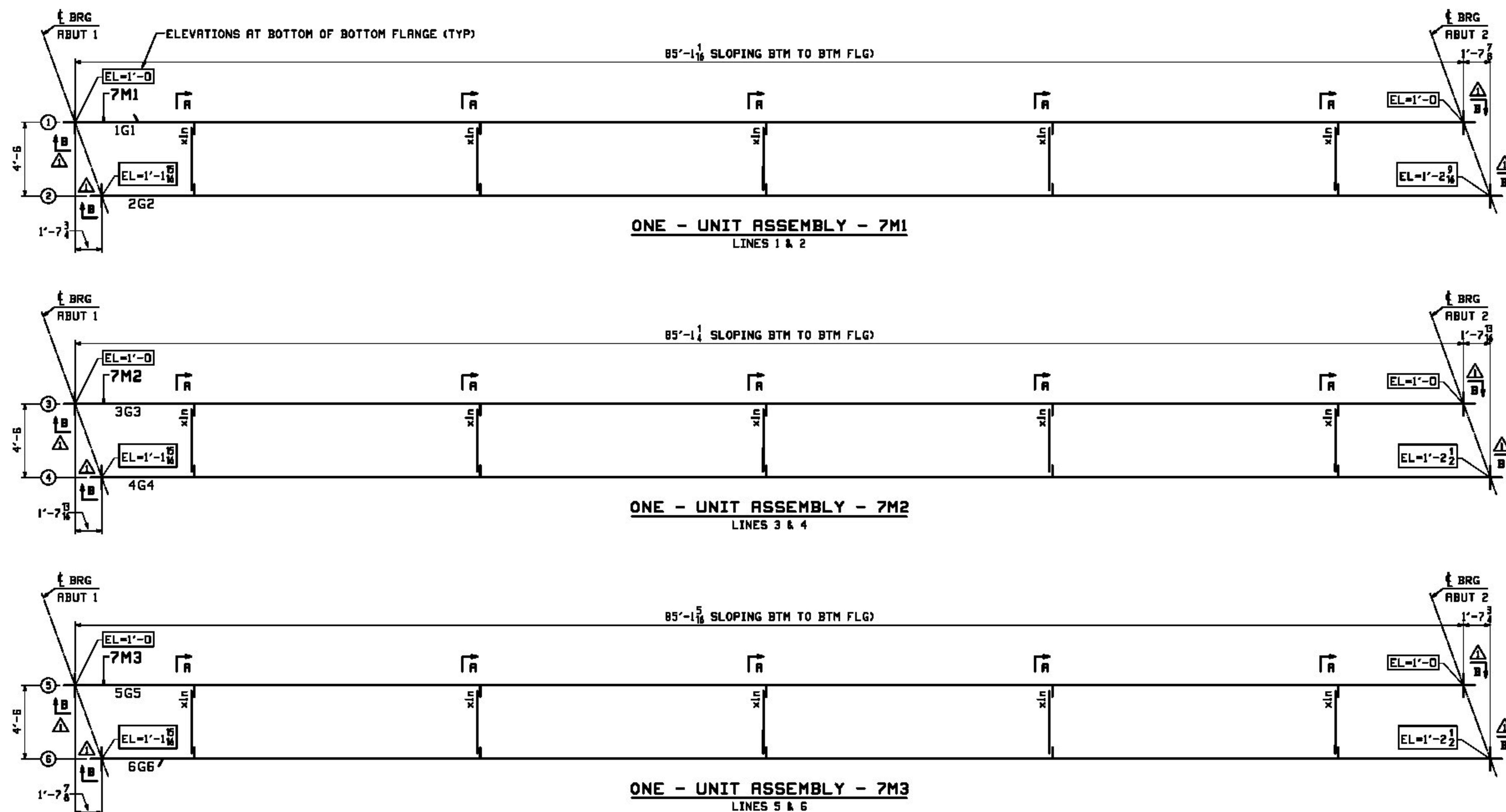
	5/4/16	APPROVAL COMMENTS	JTB	LWD		
0						
REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
MATERIAL:		SURFACE PREP. & PAINT:	HOLES:		SHOP BOLTS:	
M270-SOW (UN)		SEE DWG GNI	1/2" Ø (UN)		NONE	
DESCRIPTION:		GIRDER - 4G4				
		CASCO BAY STEEL STRUCTURES, INC. 1 MILLAGE AVE. SOUTH PORTLAND, ME 04106				
		PHONE: (207) 780-6722		FAX: (207) 780-6725		
STRUCTURE:	TH-4 OVER WHITNEY BROOK ROUTE NO. TH-4, RURAL MINOR COLLECTOR BRIDGE REPLACEMENT COUNTY OF ORLEANS	DRAWN:	DATE:			
		JTB	02/25			
LOCATION:	TOWN OF CRAFTSBURY, VERMONT	CHKD:	DATE:			
		LWD	03/02			
JOB NO.	DWC NO.					
PROJ NO.	BD 1449(34)					
CUSTOMER:	CCS CONSTRUCTORS INC.		649-1 4			
		REV.				

CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE. PHONE (207) 780-6722
SOUTH PORTLAND, ME 04106 FAX (207) 780-6725

STRUCTURE: TH-4 OVER WHITNEY BROOK
ROUTE NO: TH-4, RURAL MINOR COLLECTOR
BRIDGE REPLACEMENT
COUNTY OF ORLEANS

LOCATION: TOWN OF CRAFTSBURY, VERMONT
JOB NO. 449-1
DWG NO. 4

CUSTOMER: CCS CONSTRUCTORS INC.
REV. 4



SECTION A
ROTATED

DO THESE PLATES AND WELDS
HAVE A PE STAMPED DESIGN?

Vermont Agency of Transportation
RECEIVED

May 19, 2016

	4/28/16	ADD LIFTING LUGS (EXTRA X1)	JTB	LWD			
0							
REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP	
MATERIAL:		SURFACE PREP. & PAINT:	HOLES:		SHOP BOLTS:		
M270-50W (UN)		SEE DWG GNI	AS NOTED		AS NOTED		
DESCRIPTION:		UNIT ASSEMBLES					
		CASCO BAY STEEL STRUCTURES, INC. 1 WALLACE AVE. SOUTH PORTLAND, ME 04106				PHONE (207) 780-6722 FAX. (207) 780-6726	
							
STRUCTURE:	TH-4 OVER WHITNEY BROOK ROUTE NO: TH-4, RURAL MINOR COLLECTOR BRIDGE REPLACEMENT COUNTY OF ORLEANS				DRAWN:	DATE:	
					JTB	02/25/16	
					CHKD:	DATE:	
					LWD	03/01/16	
LOCATION:	TOWN OF CRAFTSBURY, VERMONT				JOB NO.		DWG NO.
PROJ NO.	BD 1449(34)				749-1		7
CUSTOMER:	CCS CONSTRUCTORS INC.				REV.		



11

NOTE:
FOR GENERAL NOTES SEE DRAWING GNI.

	5/4/16	APPROVAL COMMENTS	JTB	LWD		
						
REV.	DATE	REMARKS	OWN	CHK	APVL	SHOP
MATERIAL:		SURFACE PREP. & PAINT:		HOLES:		SHOP BOLTS:
M270-SOW (UN)		SEE DWG GNI		AS NOTED		NONE
DESCRIPTION: ANCHOR BOLTS						
		CASCO BAY STEEL STRUCTURES, INC. 1 WALLACE AVE. PHONE (207) 780-6722 SOUTH PORTLAND, ME 04105 FAX (207) 780-6726				
STRUCTURE:	TH-4 OVER WHITNEY BROOK ROUTE NO: TH-4, RURAL MINOR COLLECTOR BRIDGE REPLACEMENT COUNTY OF ORLEANS			DRAWN:	DATE:	
				JTB	02/25	
LOCATION:	TOWN OF CRAFTSBURY, VERMONT			CHKD:	DATE:	
				LWD	03/02	
PROJ NO.	BD 1448(34)			JOB NO.	DWG NO.	
CUSTOMER:	CCS CONSTRUCTORS INC.			649-1	8	
				REV.		

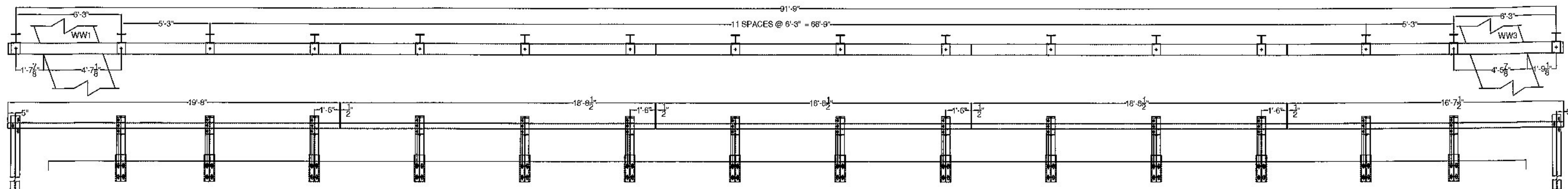
Vermont Agency of Transportation

RECEIVED

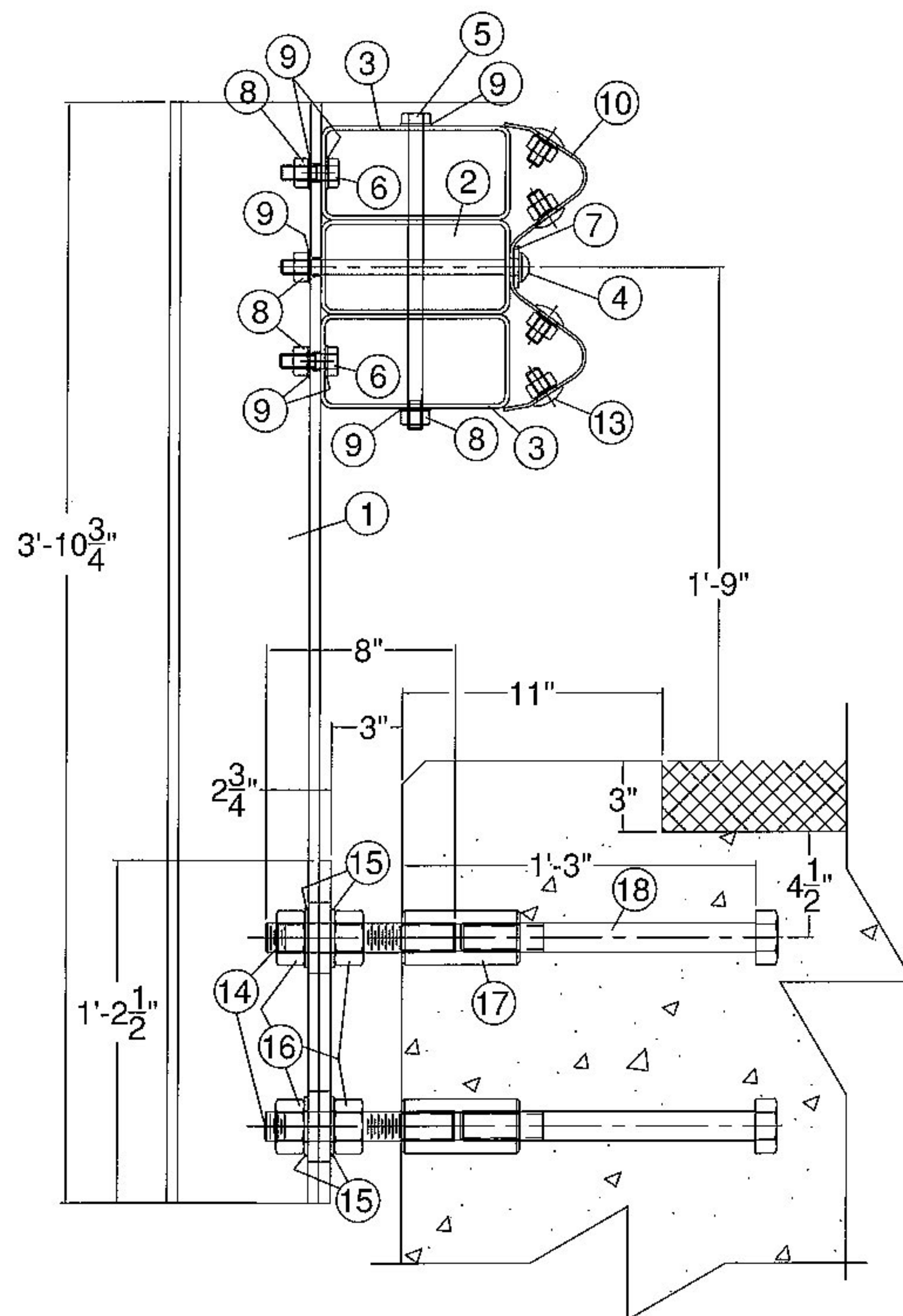
CK'D BY RSF/SMC OK'D BY WDL

May 19, 2016

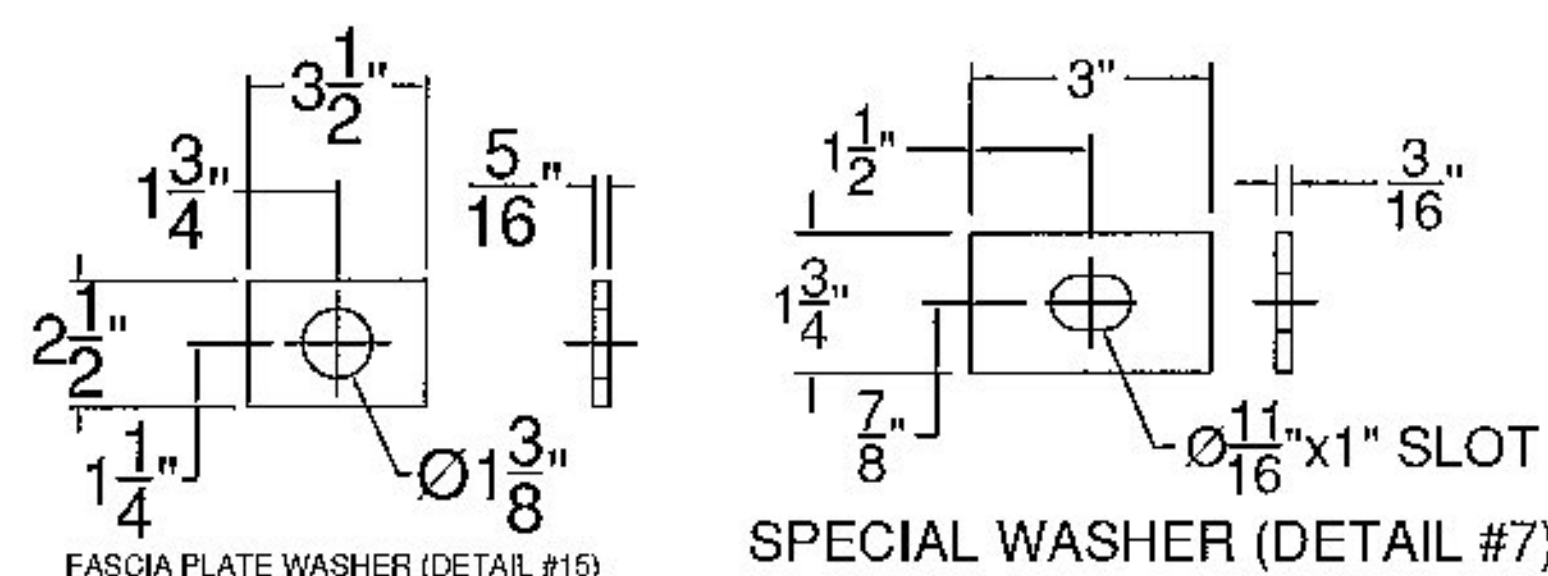
RESUBMIT	No	Approved As	Noted
BY RSY		DATE	05/26/2016



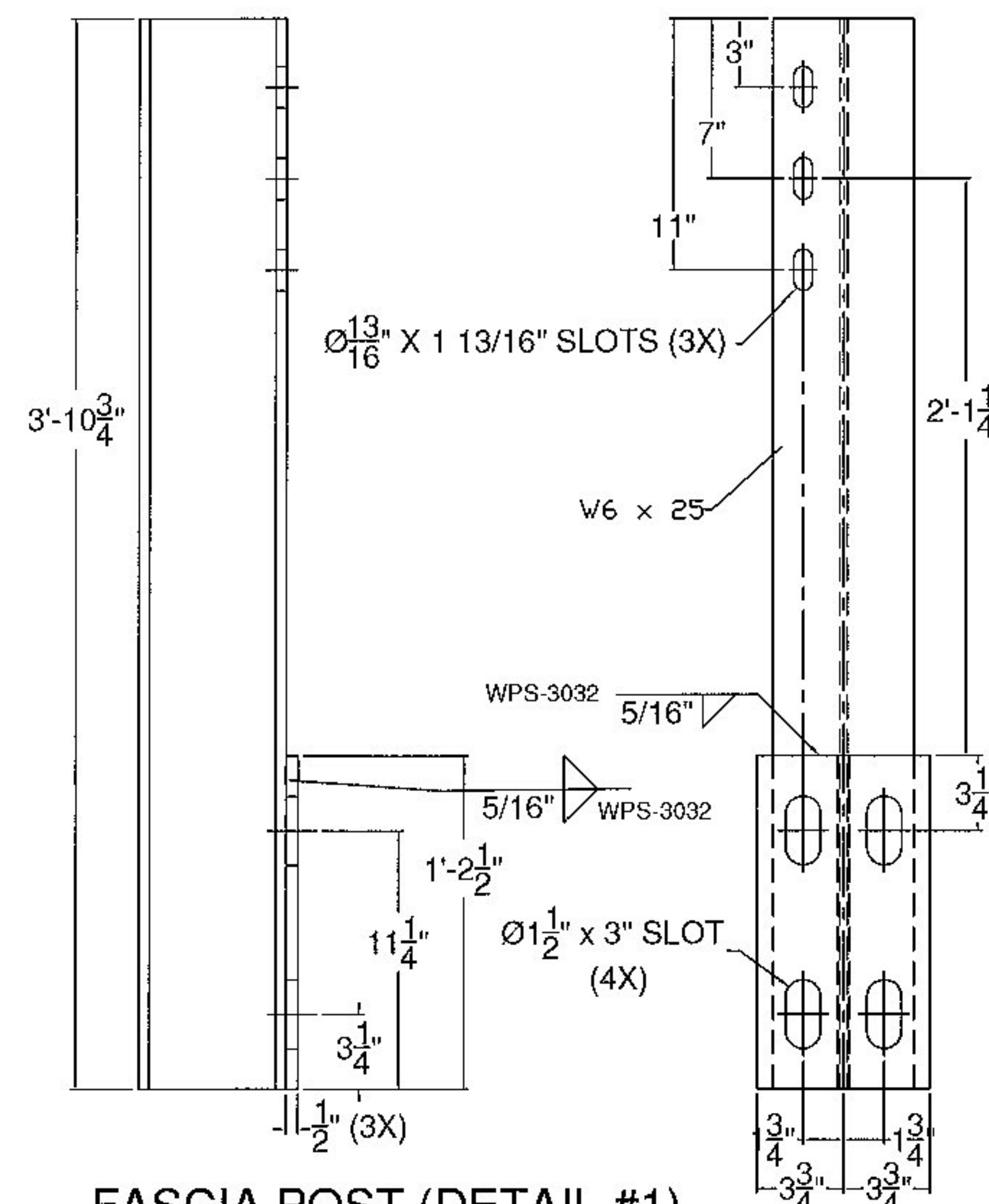
WEST RAILING, FACING WEST



FASCIA POST (DETAIL #1)



SPECIAL WASHER (DETAIL #7)



BILL OF MATERIAL					ASTM DESIGNATION
DET#	QTY	PART			
1	28	0033.903090	W6x25, TYPE 1, FASCIA POST @ 3'-10 3/4'		ASTM A572 Gr. 50
2	1	TBD	HSS8x4x3/16" TUBING @ 19'-8'		ASTM A500 Gr. B
2	1	TBD	HSS8x4x3/16" TUBING @ 19'-8'		ASTM A500 Gr. B
2	6	TBD	HSS8x4x3/16" TUBING @ 18'-8 1/2"		ASTM A500 Gr. B
2	2	TBD	HSS8x4x3/16" TUBING @ 16'-7 1/2"		ASTM A500 Gr. B
3	64	0033.90045	HSS8x4x3/16" TUBE BLOCKOUT @ 6"		ASTM A500 Gr. B
4	32	0080.05710	5/8"x10" POST BOLT, NUT, & F.W.		ASTM A307
5	32	0080.15595	5/8"x13" HEX BOLT		ASTM A307
6	96	0080.15036	5/8"x2" HEX BOLT		ASTM A307
7	32	0080.15913	3/16"x1 3/4"x3" SPECIAL WASHER		ASTM A572 Gr. 50
8	128	0080.15901	5/8" HEX NUT		ASTM A307
9	256	0080.15911	5/8" FLAT WASHER		ASTM A307
10	10	6043.00012	10 GAUGE "W" BEAM @ 12'-6" C-C.		AASHTO M180, CLASS B, TYPE II
10	4	TBD	10 GAUGE "W" BEAM @ 11'-6" (SPECIAL) C-C.		AASHTO M180, CLASS B, TYPE II
10	2	6043.00002	10 GAUGE "W" BEAM @ 6'-3" C-C.		AASHTO M180, CLASS B, TYPE II
11	4	0033.90301	W6x25 POST @ 6'-0" O.A. (POST #1)		ASTM A572 Gr. 50
* 12	6	-	DELINEATOR - TO BE SUPPLIED BY FR LAFAYETTE		ALUMINUM
13	144	0080.15013	5/8"x1-1/4" SPLICE BOLT (PANEL ASS'Y)		ASTM A307
13	144	0080.15905	5/8"x1-1/4" RECESSED NUT (PANEL ASS'Y)		ASTM A307
14	112	0042.21408	1 1/4"x8" STUD		ASTM A449
15	224	0080.19922	5/16"x2 1/2"x3 1/2" FASCIA PLATE WASHERS		ASTM A572 Gr. 50
16	224	0080.19918	1 1/4" HEX NUT		ASTM A563
17	112	0080.19921	1 1/4" x 5" COUPLER NUT W/ RT. HAND MACH. THD.		ASTM A563
18	112	0042.21412	1 1/4" x 12" MACHINE BOLT, THREAD LEN. @ 3'		ASTM A449
19	8	0033.90074	C7x9.8 CHANNEL SPLICE @ 2'-6 1/2"		ASTM A36

*- SUPPLIED BY OTHERS

NOTES

- ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 525.
- GRIND ALL EDGES TO A MINIMUM RADIUS OF 1/16", PRIOR TO GALVANIZING.
- ALL POSTS SHALL BE SET NORMAL TO GRADE.
- SPLICES FOR THE STEEL BEAM GUARDRAIL SHALL LAP IN THE DIRECTION OF TRAFFIC.
- A RAILING JOINT SPLICE SHALL BE PROVIDED IN ANY RAIL, DAY SPANNING THE END OF AN INTEGRAL ABUTMENT BRIDGE AND AT ALL SUPERSTRUCTURE EXPANSION JOINTS.
- SEE STANDARD DRAWING G-16 FOR DETAILS OF DELINEATORS. A DELINEATOR SHALL BE INSTALLED AT 30 FOOT SPACING OR THE NEAREST POST. WHITE IS TO BE INSTALLED ON THE DRIVER'S RIGHT. FOR ONE WAY BRIDGES, YELLOW IS TO BE INSTALLED ON THE DRIVER'S LEFT.
- THE 1/2" EXPANSION JOINT SHOWN IN THE RAILING ELEVATION IS DESIGNED FOR BRIDGE LENGTHS UP TO 80 FEET. ANY LONGER SPANS WILL HAVE TO BE MODIFIED TO ACCOUNT FOR THEIR MOVEMENT.
- FOR RADII LESS THAN 950 FEET, HSS8x4 TUBES SHALL BE SHOP BENT TO FIT THE APPLICABLE CURVE.
- THE MINIMUM DISTANCE FROM THE LAST POST TO THE END OF SLAB IS 1'-6".
- FERRULES SHALL BE 12L4 COLD DRAWN CARBON STEEL.
- HOLES IN RAIL FOR RAIL TUBE ATTACHMENT WILL BE SHOP DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO INSTALLATION.
- THIS RAILING MEETS THE REQUIREMENTS FOR A TL-2 SERVICE LEVEL.

ITEM #: 525.44

STRUCTURAL STEEL TO COMPLY W/ ASTM A6

GALVANIZING TO BE PER ASTM A123, UNLESS OTHERWISE SPECIFIED.

TOLERANCE UNLESS OTHERWISE NOTED:
HOLES - $\pm 1/32"$
FRACTIONS - $\pm 1/16"$
ANGLES - $\pm 1/2"$

BRIDGE RAIL DETAILS SHEET

ROUTE # TH-4, RURAL MINOR COLLECTOR, CLASS 2, BRIDGE 4 OVER WHITNEY BROOK
TOWN OF CRAFTSBURY, COUNTY OF ORLEANS, VERMONT

R NO.	DATE	DESCRIPTION	BY	R NO.	DATE	DESCRIPTION	BY
E 1	2/17/16	REVISED PER 2/11/16 EMAIL	E.P.	E 1			
V			V				



ELDERLEE, INC.

OAKS CORNERS, NEW YORK 14518

email: diong@elderlee.com / epeck@elderlee.com

Tel: 315-789-6670 Fax: 315-789-6615



RECEIVED

CK'D BY SMC/RSF OK'D BY WDL

February 17, 2016

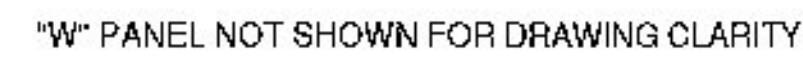
RESUBMIT No Approved

BY RSY DATE 02/23/2016

SHEET 1 OF 2

DRAWN	CHECKED	E.P.	1/13/16
		D.L.	1/14/16
APPROVED			
SCALE		SCHEMATIC	

DRAWING NO. FR LAFAYETTE-CRAFTSBURY (34)



DETAIL 10

10 Gauge "W" Beam @ 12'-6"

3/4' x 2 1/2' SLOTT (3x)

29/32' x 1 1/8' SLOTT (8x) TYP. BOTH ENDS

10 1/2'(TYP)

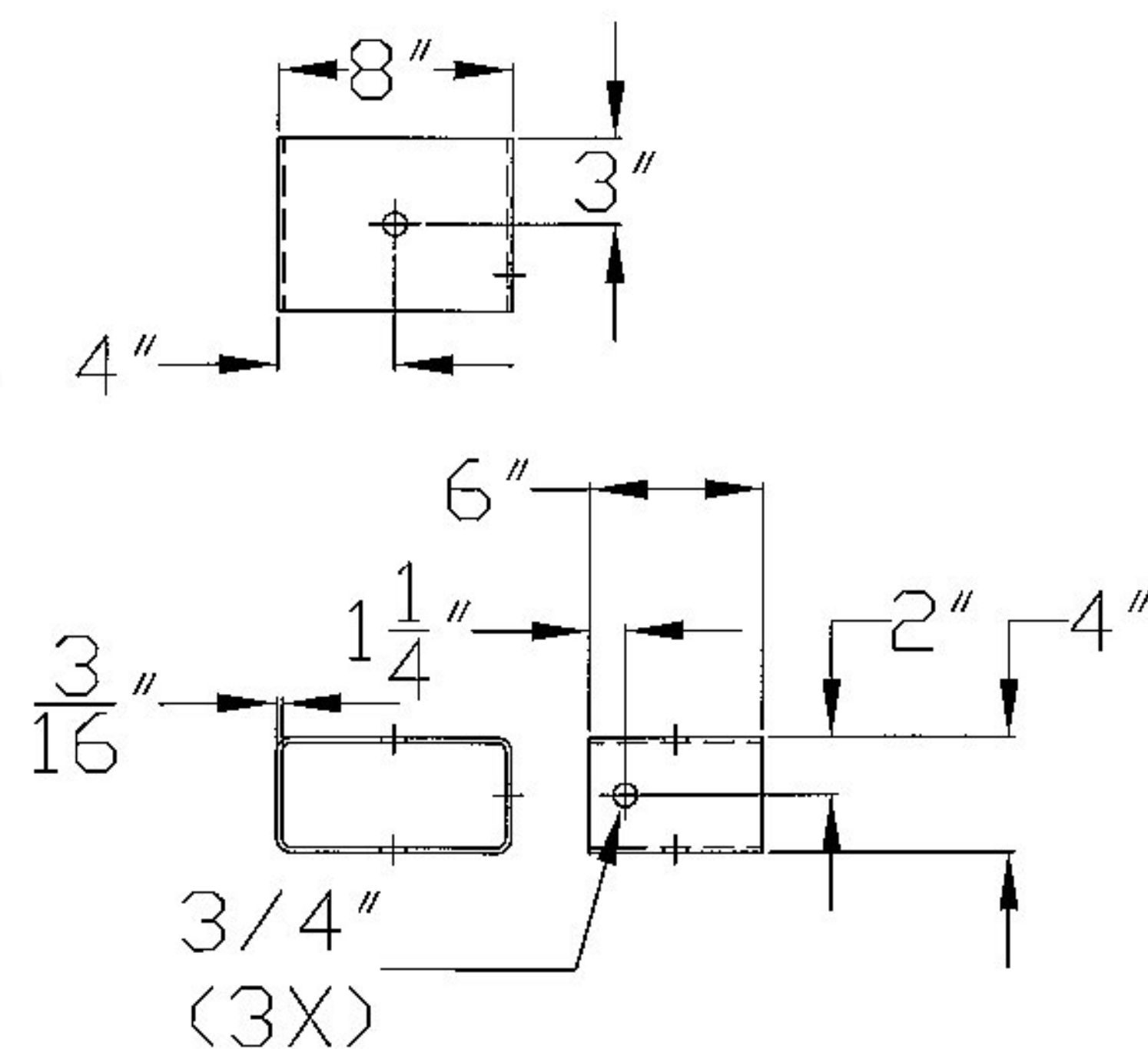
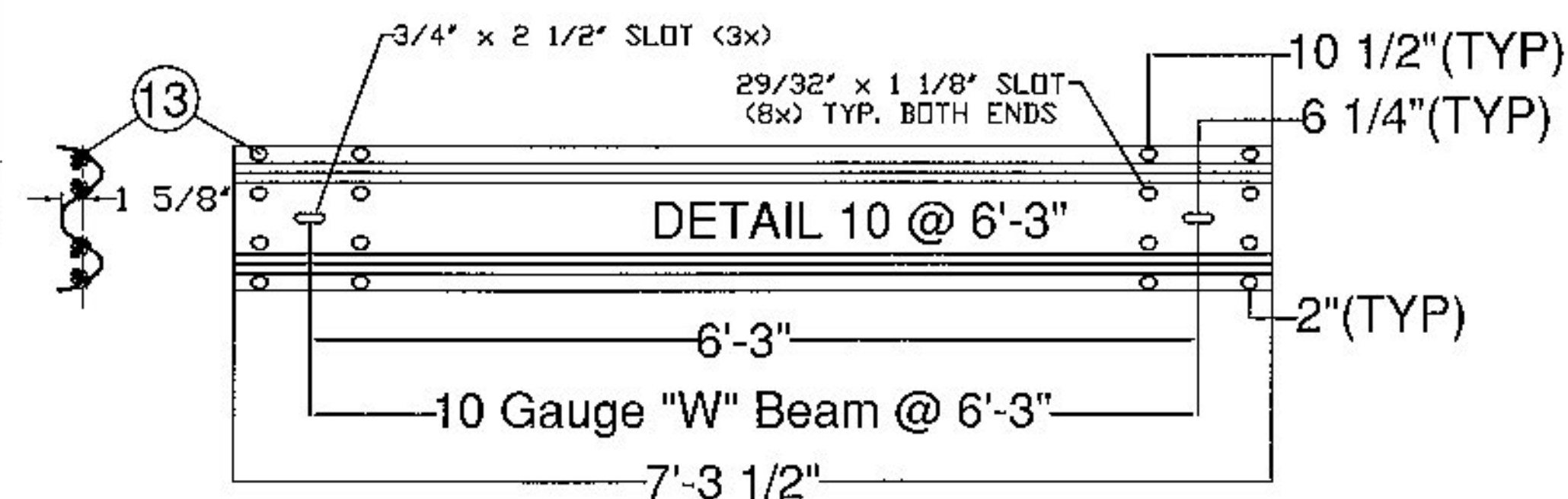
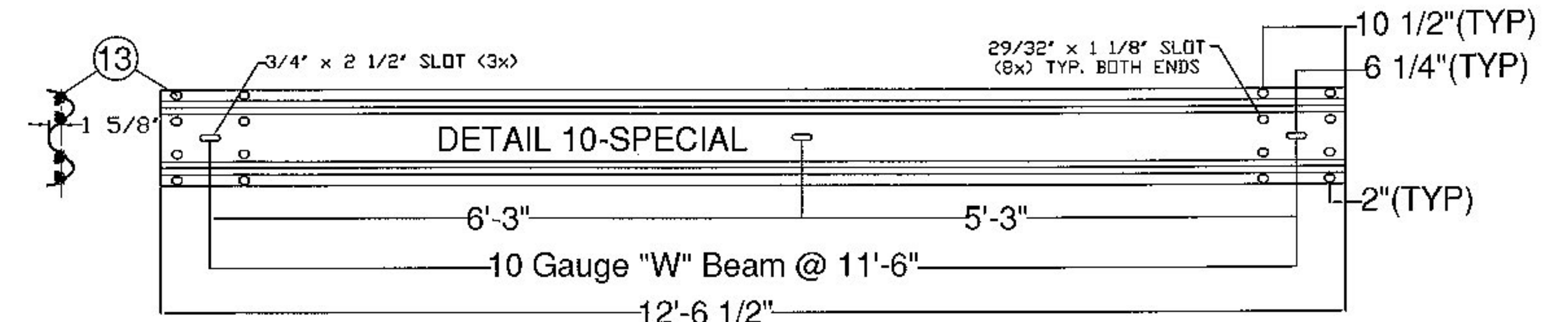
6 1/4'(TYP)

2'(TYP)

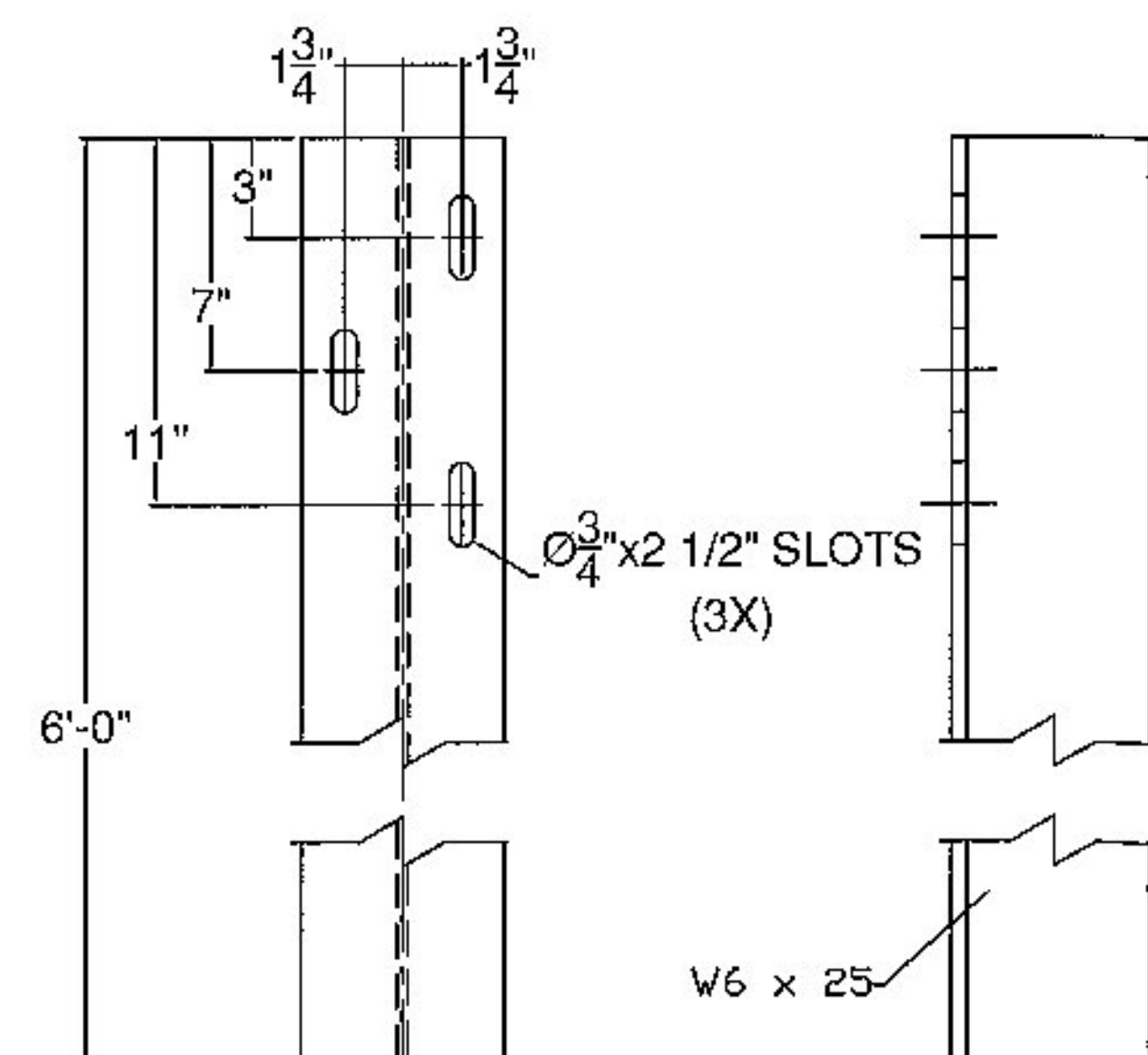
6'-3"

13'-6 1/2"

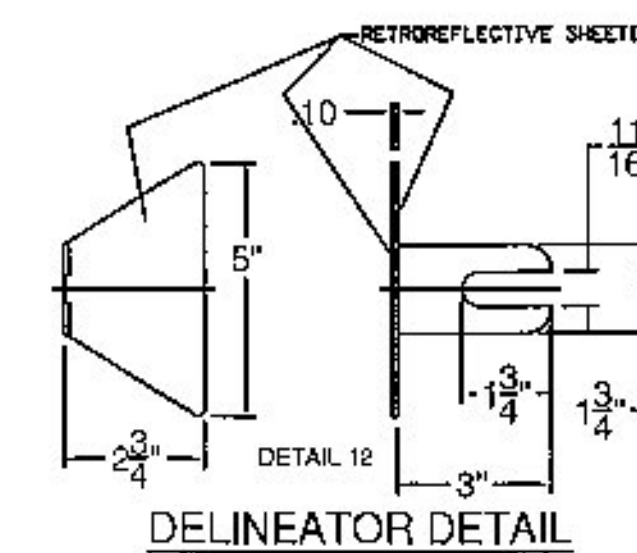
5/8"



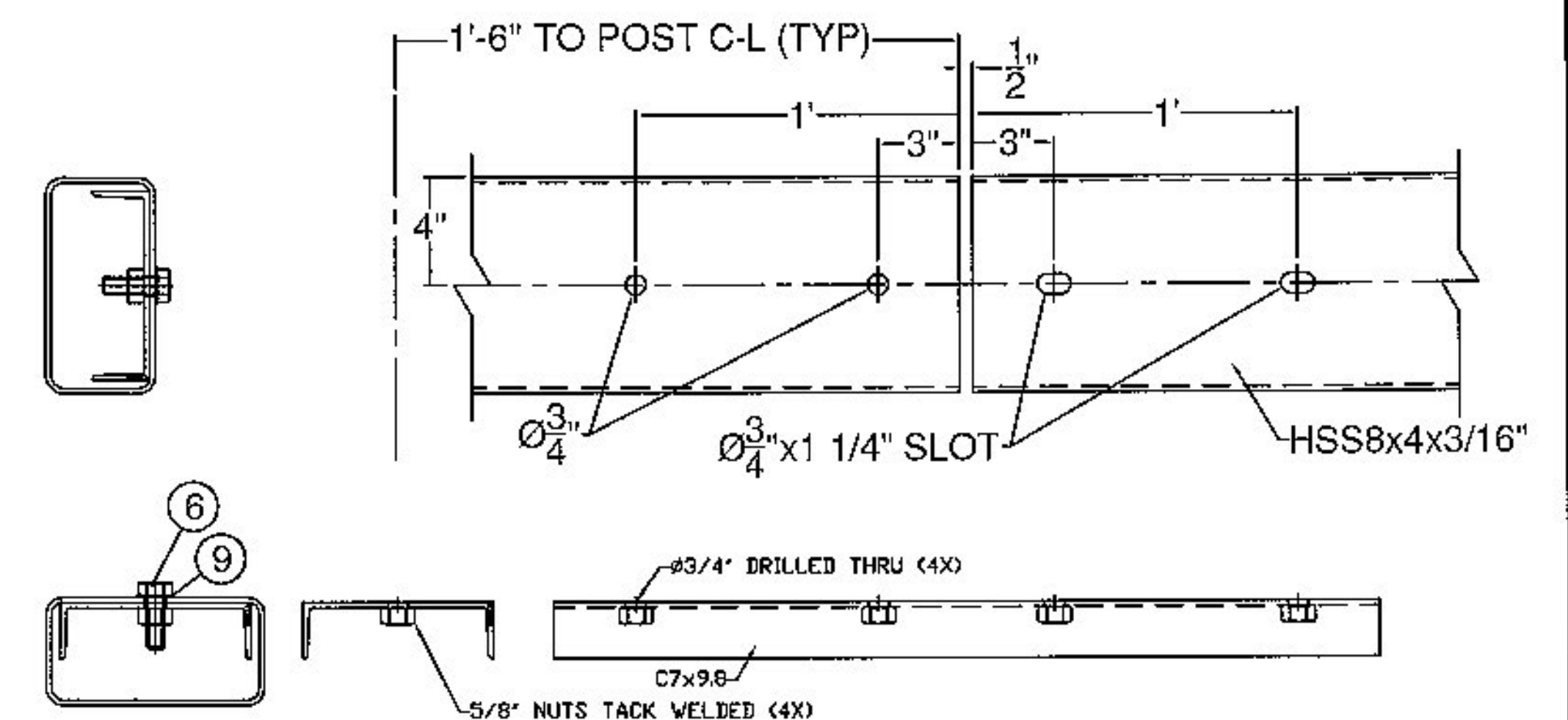
BLOCK OUT (DETAIL #3)



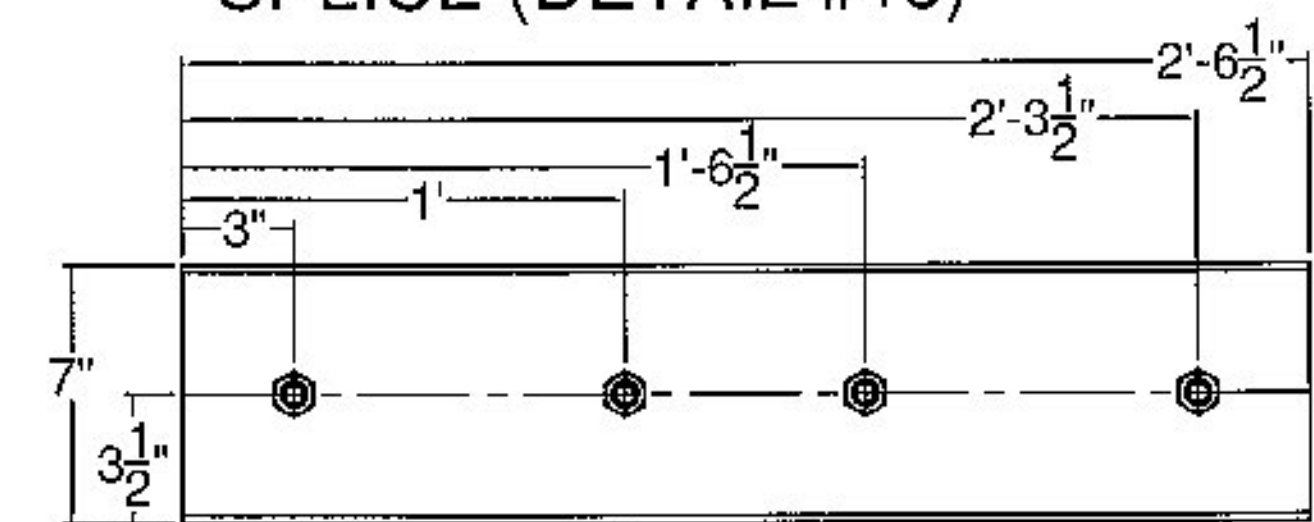
DETAIL #11



DELINEATOR DETAIL



SPLICE (DETAIL #19)



SHEET 2 OF 2

ITEM #: 525.44

STRUCTURAL STEEL TO
COMPLY W/ ASTM A6

ROUTE # TH-4, RURAL MINOR COLLECTOR, CLASS 2, BRIDGE 4 OVER WHITNEY BROOK
TOWN OF CRAFTSBURY, COUNTY OF ORLEANS, VERMONT

TOLERANCE UNLESS
OTHERWISE NOTED:
HOLES - $\pm 1/32"$
FRACTIONS - $\pm 1/16"$
ANGLES - $\pm 1/2^\circ$

FRACTIONS - $\pm 1/16'$
 ANGLES - $\pm 1/2'$

Vermont Agency of Transportation
RECEIVED

CK'D BY SMC/RSF OK'D BY WDL

February 17, 2016

RESUBMIT No **Approved**
BY RSY **DATE** 02/23/2016

BRIDGE RAIL DETAILS SHEET

ROUTE # TH-4, RURAL MINOR COLLECTOR, CLASS 2, BRIDGE 4 OVER WHITNEY BROOK
TOWN OF CRAFTSBURY, COUNTY OF ORLEANS, VERMONT

R	NO.	DATE	DESCRIPTION	BY	R	NO.	DATE	DESCRIPTION	BY
E	1	2/7/16	REVISED PER 2/11/16 EMAIL	E.P.	E				
V					V				



ELDERLEE, INC.
OAKS CORNERS, NEW YORK 14618
 email: dlong@elderlee.com / epsek@elderlee.com
 Tel: 315-789-6670. Fax: 315-789-6615



ASME CERTIFIED
FABRICATOR



ORTHOGRAPHIC
PROJECTION

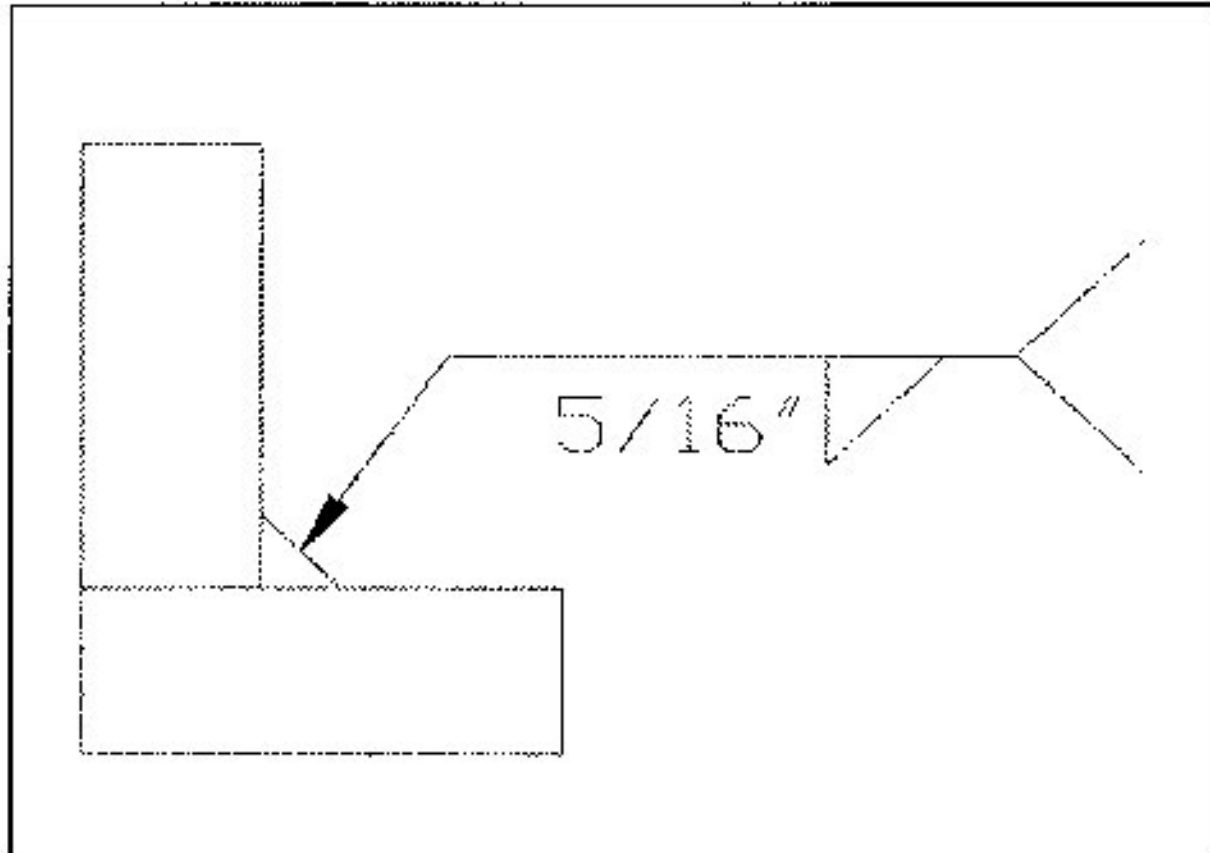
DRAWN	E.P.	1/13/16
CHECKED	D.L.	1/14/16
APPROVED		
SCALE	SCHEMATIC	
DRAWING NO. FR LAFAYETTE-CRAFTSBURY (34)		

WELDING PROCEDURE SPECIFICATION

PQR ELDERLEE #3

Material Specification A572 GR. 50 TO A572 GR. 50
Welding Process FCAW-G
Manual or Machine SEMAUTOMATIC
Position of Welding FLAT/HORIZONTAL
Filler Metal Specification A5.29
Filler Metal Classification E81T1-Ni1C-JH4
Flux N/A
Shielding Gas CO 2 Dew Point -40DEG F Flow Rate 50CFH
Single or Multiple Pass SINGLE
Single or Multiple Arc SINGLE
Welding Current DC ELECTRODE POSITIVE
Polarity REVERSE
Welding Progression STRINGER
Root Treatment PER D1.5
Preheat and Interpass Temperature PER D1.5
Postheat Temperature NONE
Heat Input Min Max

WELDING PROCEDURE

Pass no.	Electrode size	Welding Current		Travel speed	Joint detail
		Amperes	Volts		
1	1/16	310	25	11	
Variable	LIMITS	341	27	12	
		TO 269	TO 23	TO 10	

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

Procedure No. 3032
Revision No.

Contractor Elderlee, Inc.
Authorized By RANDY SCOTT
Date 2/17/2016



Casco Bay Steel Structures
One Wallace Avenue, South Portland ME 04106
AWS - Welding Procedure Specification (WPS)
WeldOffice WPS

WPS record number	201	Revision 1	Qualified to	AWS D1.5
Date	4/24/2014		Company name	Casco Bay Steel Structures
Supporting PQR(s) Reference docs.	SAW DC + FCM 2-21-14 - Rev 1			

Scope	Fillet, no PWHT (As-welded)
Joint	Joint details for this welding procedure specification in: JOINTS section of this WPS

BASE METALS

Type	Gr50/Gr50W	P-no.	Grp-no. -
Welded to	Gr50/Gr50W	P-no.	Grp-no. -
Backing	None	P-no.	Grp-no. -
Retainers			
Notes	All A709 steels with 50 ksi or less are also qualified		

THICKNESS RANGE QUALIFIED (in.)

	As-welded		With PWHT	
	Min.	Max.	Min.	Max.
Complete pen.	-	-	-	-
Impact tested	-	-	-	-
Partial pen.	-	-	-	-
Fillet welds	1/8	All	-	-

DIAMETER RANGE QUALIFIED (in.)

	As-welded		With PWHT	
	Min.	Max.	Min.	Max.
			-	-

FILLER METALS

THICKNESS RANGE QUALIFIED (in.)

	SFA	Classification	F-no.	A-no.	Chemical analysis or Trade name	As-welded		With PWHT	
						Min.	Max.	Min.	Max.
SAW	5.23	ENi1K	6		Lincolnweld LA-75	1/8	All	-	-
Flux	-	-	-	-	- Lincolnweld 960	- None -			
Sup. filler	-	-	-	-	-	- None -			

WELDING PROCEDURE

Welding process	SAW			
Type	Machine			
Minimum preheat/interpass temperature (°F)	See Backpage			
Maximum interpass temperature (°F)	490			
Filler metal size (in.)	5/32			
Layer number				
Position	F,H			
Current/polarity	DCEP			
Amperes	604			
Volts	29.5			
Travel speed (in./min)	17.1			
Maximum heat input (kJ/in.)	62.5193			
Wire feed type	Hot wire			
Wire feed speed (in./min)	N/A			
String or weave	Stringer			
C.T.W.D (in.)				
Multi/Single pass per side	Single or Multiple passes			
Multiple or single layer	Single or Multiple layer			
Oscillation	None			
Multi/single electrode	Single electrode			
Electrode angle (deg.)	As needed			
Maximum pass thickness (in.)	See Backpage			
Weld deposit chemistry	F8A2-ENi1K-Ni1-H8			
Notes				

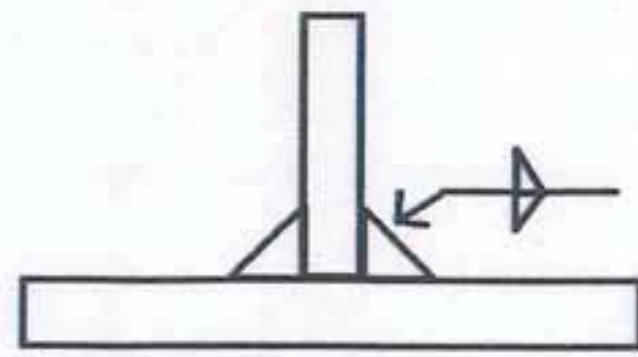
Vermont Agency of Transportation
RECEIVED
CK'D BY RSF OK'D BY WDL
March 9, 2016
RESUBMIT No Approved
BY RSY DATE 05/26/2016



Casco Bay Steel Structures
One Wallace Avenue, South Portland ME 04106
AWS - Welding Procedure Specification (WPS)
WeldOffice WPS

WPS record number	201	Revision 1	Qualified to	AWS D1.5
Date	4/24/2014		Company name	Casco Bay Steel Structures

JOINTS: Typical joint(s). See actual production drawings and engineering specifications for details.

	3/8 single pass flat 5/16 single pass Horizontal <table><tr><td></td><td>Amps</td><td>Volts</td><td>Travel Speed</td></tr><tr><td>AVG</td><td>604 /</td><td>29.5 /</td><td>17.1 IPM</td></tr><tr><td>MIN</td><td>544 /</td><td>27.4 /</td><td>14.5 IPM</td></tr><tr><td>MAX</td><td>644 /</td><td>31.6 /</td><td>19.7 IPM</td></tr></table>		Amps	Volts	Travel Speed	AVG	604 /	29.5 /	17.1 IPM	MIN	544 /	27.4 /	14.5 IPM	MAX	644 /	31.6 /	19.7 IPM	
	Amps	Volts	Travel Speed															
AVG	604 /	29.5 /	17.1 IPM															
MIN	544 /	27.4 /	14.5 IPM															
MAX	644 /	31.6 /	19.7 IPM															
* Multiple passes may be used if drawing details call for a larger size fillet weld than noted above in the position welding is being performed																		

Type of groove	Fillet weld	Minimum groove angle	(deg.)	N/A
		Minimum root opening	(in.)	N/A
		Maximum root face	(in.)	N/A

PREHEAT TABLE

Applicable standard	
AWS D1.5 Bridge Welding Code	For thickness 1/8 to 3/4(in.): 50(*F). Preheat to 70(*F) if the base metal temperature is below 32(*F). Over 3/4 thru 1-1/2(in.): 70(*F). Over 1-1/2 thru 2-1/2(in.): 150(*F). Over 2-1/2(in.): 225(*F). Refer to AWS D1.5 2010 Table 4.3 (pg 85)
AWS D1.5 2010 FCM	For thickness 1/8 to 3/4(in.): 100(*F). Over 3/4 thru 1-1/2(in.): 200(*F). Over 1-1/2 thru 2-1/2(in.): 300(*F). Over 2-1/2(in.): 350(*F). No welding to be done if ambient temperature in immediate area is below 0(*F)
New York SCM	Up to 3/4 -----100 (F) Over 3/4 to 1-1/2 -----200 (F) Over 1-1/2 to 2-1/2 -----300 (F) Over 2-1/2 -----350 (F)

TECHNIQUE

Supplementary MF control	
Peening	
Surface preparation	Grind/Blast/chemical/wirebrush clean to be free of moisture, slag, millscale, oils, dust
Initial/interpass cleaning	Brushing and Grinding
Back gouging method	None

NOTES

AWS FCM preheats are taken from AWS D1.5 2010 Clause 12 Table 12.4 and are based upon calculated heat input calculated in accordance with section 5.12 with an as welded H8 designation for the electrode combination we are using. This higher preheat will be used on non weathering steels also.

Vermont Agency of Transportation
RECEIVED

CK'D BY RSY OK'D BY WDL

March 9, 2016

RESUBMIT No Approved
BY RSY DATE 05/28/2016

Signature 1

Name	Signature	Name	Signature
Matthew Cote	 Matthew J. Cote CWI 08051341 QC1 EXP. 5/1/2017		
Date		Date	
6/2/2014			

Signature 3

Name	Signature	Name	Signature
Date		Date	



Casco Bay Steel Structures
One Wallace Avenue, South Portland ME 04106
AWS - Welding Procedure Specification (WPS)
WeldOffice WPS

WPS record number	250	Revision	Qualified to	AWS D1.5					
Date	6/10/2014		Company name	Casco Bay Steel Structures					
Supporting PQR(s)	SAW FCM 3/32 DC- 5/7/14								
Reference docs.									
Scope	Fillet, no PWHT (As-welded), impact testing								
Joint	Joint details for this welding procedure specification in: JOINTS section of this WPS								
BASE METALS									
Type	Gr50/Gr50W	P-no.	Grp-no.	-					
Welded to	Gr50/Gr50W	P-no.	Grp-no.	-					
Backing	Yes	P-no.	Grp-no.	-					
Retainers									
Notes	All A709 with 50 ksi or less are also qualified								
THICKNESS RANGE QUALIFIED (in.)									
As-welded									
Min. Max. With PWHT Min. Max.									
Complete pen.	-	-	-	-					
Impact tested	0.625	no max.	-	-					
Partial pen.	-	-	-	-					
Fillet welds	no min.	no max.	-	-					
DIAMETER RANGE QUALIFIED (in.)									
As-welded									
Min. Max. With PWHT Min. Max.									
	N/A	N/A	-	-					
THICKNESS RANGE QUALIFIED (in.)									
As-welded									
Min. Max. With PWHT Min. Max.									
	0.125	no max.	-	-					
- Required -									
- Required -									
FILLER METALS									
	SFA	Classification	F-no.	A-no.	Chemical analysis or Trade name	As-welded	With PWHT		
						Min. Max.	Min. Max.		
SAW	5.23	ENi1K	6		LincolnElectric LA-75	0.125	no max.	-	-
Flux	5.23	F8A2			LincolnElectric Lincolnweld960	- Required -			
Sup. filler						- Required -			
Flux type									
Flux from recrush. slag	No								
Suppl. filler metal vol.	(ft ³)	N/A							
WELDING PROCEDURE									
Welding process	SAW								
Type	Machine								
Minimum preheat/interpass temperature	(°F)	See Back Page							
Maximum interpass temperature	(°F)	400							
Filler metal size	(in.)	3/32							
Layer number									
Position	F,H								
Current/polarity	DCEN (straight polarity)								
Amperes	363.3								
Volts	31.6								
Travel speed	(in./min)	12.8							
Maximum heat input	(kcal/in.)	53.8138							
Wire feed type	Cold wire								
Wire feed speed	(in./min)	N/A							
String or weave	Stringer								
C.T.W.D	(in.)								
Multi/Single pass per side	Single or Multiple passes								
Multiple or single layer	Single or Multiple layer								
Oscillation	None								
Multi/single electrode	Single electrode								
Electrode angle	(deg.)	Varies							
Maximum pass thickness	(in.)	See Back Page							
Weld deposit chemistry	F8A2-ENi1K-Ni1-H8								
Notes									

Vermont Agency of Transportation

RECEIVED

CK'D BY RSF OK'D BY WDL

March 9, 2016

RESUBMIT No Approved

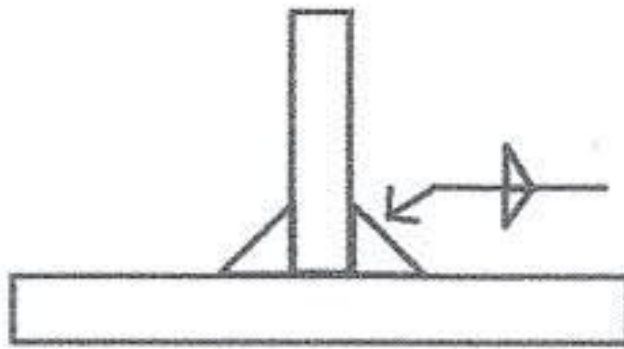
BY RSY DATE 05/26/2016



Casco Bay Steel Structures
One Wallace Avenue, South Portland ME 04106
AWS - Welding Procedure Specification (WPS)
WeldOffice WPS

WPS record number	250	Revision	Qualified to	AWS D1.5
Date	6/10/2014		Company name	Casco Bay Steel Structures

JOINTS: Typical joint(s). See actual production drawings and engineering specifications for details.

	3/8 single pass flat 5/16 single pass Horizontal <table><tr><td></td><td>Amps</td><td>Volts</td><td>Travel Speed</td></tr><tr><td>AVG</td><td>363.3 /</td><td>31.6 /</td><td>12.8</td></tr><tr><td>MIN</td><td>326.9 /</td><td>29.4 /</td><td>10.8</td></tr><tr><td>MAX</td><td>399.6 /</td><td>33.8 /</td><td>14.7</td></tr></table>		Amps	Volts	Travel Speed	AVG	363.3 /	31.6 /	12.8	MIN	326.9 /	29.4 /	10.8	MAX	399.6 /	33.8 /	14.7	
	Amps	Volts	Travel Speed															
AVG	363.3 /	31.6 /	12.8															
MIN	326.9 /	29.4 /	10.8															
MAX	399.6 /	33.8 /	14.7															
* Multiple passes may be used if drawing details call for a larger size fillet weld than noted above in the position welding is being performed																		

Type of groove	Fillet weld	Minimum groove angle (deg.)	N/A
		Minimum root opening (in.)	N/A
		Maximum root face (in.)	N/A

PREHEAT TABLE

Applicable standard	
AWS D1.5 Bridge Welding Code	For thickness 1/8 to 3/4(in.): 50(*F). Preheat to 70(*F) if the base metal temperature is below 32(*F). Over 3/4 thru 1-1/2(in.): 70(*F). Over 1-1/2 thru 2-1/2(in.): 150(*F). Over 2-1/2(in.): 225(*F). Refer to AWS D1.5 2010 Table 4.3 (pg 85)
AWS D1.5 2010 FCM	For thickness 1/8 to 3/4(in.): 100(*F). Over 3/4 thru 1-1/2(in.): 200(*F). Over 1-1/2 thru 2-1/2(in.): 300(*F). Over 2-1/2(in.): 350(*F). No welding to be done if ambient temperature in immediate area is below 0(*F)
New York SCM	Up to 3/4 -----100 (F) Over 3/4 to 1-1/2 -----200 (F) Over 1-1/2 to 2-1/2 -----300 (F) Over 2-1/2 -----350 (F)

TECHNIQUE

Supplementary MF control	Not used
Peening	Grind/Blast/chemical/wirebrush clean to be free of moisture, slag, millscale, oils, dust
Surface preparation	Brushing and Grinding
Initial/interpass cleaning	
Back gouging method	None

NOTES

AWS FCM preheats are taken from AWS D1.5 2010 Clause 12 Table 12.4 and are based upon calculated heat input calculated in accordance with section 5.12 with an as welded H8 designation for the electrode combination we are using. This higher preheat will be used on non weathering steels also.

Vermont Agency of Transportation
RECEIVED

CK'D BY RSF OK'D BY WDL

March 9, 2016

RESUBMIT No Approved
BY RSY DATE 05/26/2016

Signature 1	Signature	Signature 2	Signature
Name	Matthew J Cote	Name	
Date	6/10/14	Date	
Signature 3	Signature	Signature 4	Signature
Name		Name	
Date		Date	



Casco Bay Steel Structures
One Wallace Ave, South Portland ME 04106
AWS - Prequalified Welding Procedure Specification (pWPS)
WeldOffice WPS

Company name	Casco Bay Steel Structures
Welding process	SMAW
Process type	Manual

Joint design used

Joint type	T - T joint
Joint design	Fillet Weld
Backing	No
Backing material	Not Applicable
Root opening (R)*	(in.)
Root face (f)*	(in.)
Groove angle (a)*	(deg.)
Radius (J - U)*	(deg.)
Back gouging	No
Back gouging method	None

Base metals * Datum, As Detailed (As Fit-Up)

Spec., type or grade	Gr 50/ Gr50W
Thickness:	
Groove (in.)	
Fillet (in.)	1/8" and above
Diameter (Pipe) (in.)	

Filler metals

AWS Specification	A5.5
AWS Classification	E-8018 H4R

Shielding

Flux	-
Electrode-flux (class)	-
Gas composition	-
Gas flow rate (cft)	-
Gas cup size (in.)	-

Welding procedure

Layer	Pass	Process	Filler metal class	Filler metal diameter (in.)	Current type / polarity	Amps	Wire feed speed (in./min)	Volts	Travel speed (in./min)	Joint details
1	All	SMAW	E-8018 H4R	1/8	DCEP	100-160	-	n/a	varies	
1	All	SMAW	E-8018 H4R	1/8	AC	90-160	-	n/a	varies	
1	All	SMAW	E-8018 H4R	5/32	DCEP	140-210	-	n/a	varies	
1	All	SMAW	E-8018 H4R	5/32	AC	130-210	-	n/a	varies	
1	All	SMAW	E-8018 H4R	3/16	DCEP	200-300	-	n/a	varies	
1	All	SMAW	E-8018 H4R	3/16	AC	180-300	-	n/a	varies	

Designation FILLET

Notes

LINCOLN ELECTRIC EXCALIBUR 8018-C3 MR

SEE BACKSIDE FOR MORE DETAILS

Vermont Agency of Transportation

RECEIVED

CK'D BY RSF OK'D BY WDL

March 9, 2016

RESUBMIT No Approved
BY RSY DATE 05/26/2016

Signature 1

Name	Signature
Matthew J Cote	
Date	
7/22/2014	

Matthew J Cote
CWI 08051341
QC1 EXP 5/1/2017

Signature 2

Name	Signature
Date	

Signature 3

Name	Signature
Date	

Signature 4

Name	Signature
Date	



Identification #	480	Rev.
------------------	-----	------

AWS D1.5 2010

Single Pass Fillet weld in 1F position, No bigger than 3/8 in a single pass
Single Pass Fillet weld in 2F, 4F position, No bigger than 5/16 in a single pass
Single Pass Fillet weld in 3F position, No bigger than 1/2 in a single pass

For thickness 1/8 to 3/4(in.): 50°F). Preheat to 70(°F) if the base metal temperature is below 32(°F).
Over 3/4 thru 1-1/2(in.): 70(°F).
Over 1-1/2 thru 2-1/2(in.): 150(°F).
Over 2-1/2(in.): 225(°F). Refer to AWS D1.5 2010 Table 4.3 (pg85)

FOR FRACTURE CRITICAL WELDS

For thickness 1/8 to 3/4(in.): 125°F).
Over 3/4 thru 1-1/2(in.): 200(°F).
Over 1-1/2 thru 2-1/2(in.): 300(°F).
Over 2-1/2(in.): 350(°F). No welding to be done if ambient temperature in immediate area is below 0(°F)

ALL VERTICAL WELDING SHALL BE DONE UPWARD

IF A GAP FROM 1/16 TO 3/16 IS EVIDENT, INCREASE WELD SIZE 1/16 FOR EACH 1/16 GAP

EX 1/16 GAP IS +1/16 FROM DETAILED SIZE
1/8 GAP IS +1/8 FROM DETAILED SIZE
3/16 GAP IS +3/16 FROM DETAILED SIZE

Preheats to the NYSSCM

	Gr 50	Gr 50W
to 3/4	50F	100F
over 3/4 to 1-1/2	70F	200F
over 1-1/2 to 2-1/2	150F	300F
over 2-1/2	225	350F

Vermont Agency of Transportation
RECEIVED
CK'D BY RSF OK'D BY WDL
March 9, 2016
RESUBMIT No Approved
BY RSY DATE 05/26/2016

WELDING PROCEDURE SPECIFICATION

Preheats to the NYSSCM

	Gr 50	Gr 50W
to 3/4	50F	100F
over 3/4 to 1-1/2	70F	200F
over 1-1/2 to 2-1/2	150F	300F
over 2-1/2	225	350F

WELDING PROCEDURE

Max Interpass 440°F

Sec. 5.12.4.2

Joint detail Flillet

2 F

To $\frac{1}{2}$

Contractor Casco Bay Steel

Vermont Agency of Transportation
RECEIVED

Authorized By Paul E. Goodale

Date 8-1-2013

March 9, 2016

RESUBMIT	No	Approved
BY RSY		DATE 05/26/2016