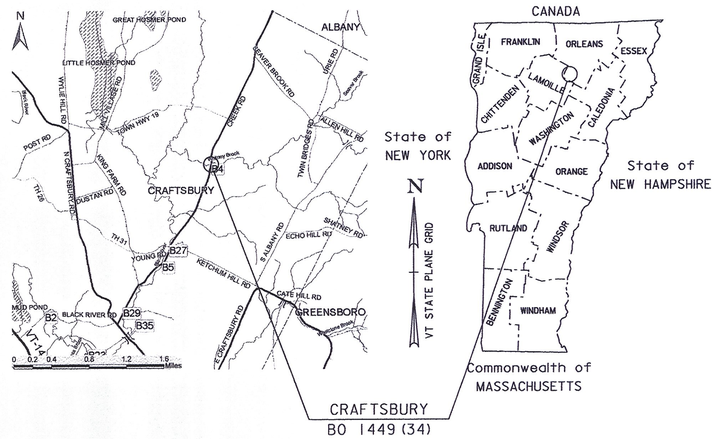
STATE OF VERMONT
AGENCY OF TRANSPORTATION



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

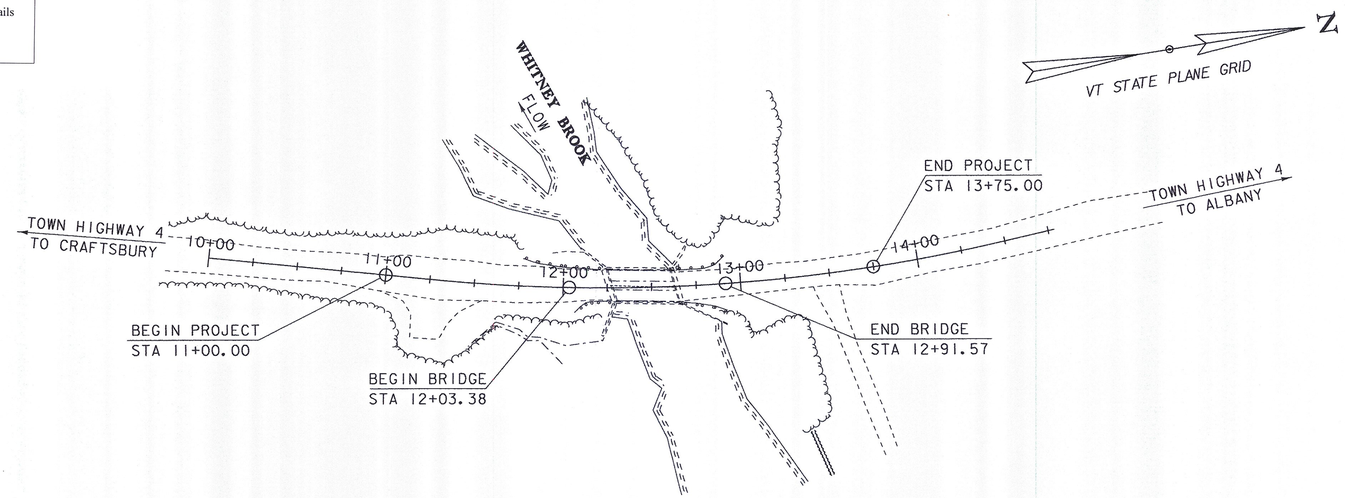
RECORD PLANS

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 1/10/18

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.

BUILT AS DESIGNED

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

DIRECTOR OF PROJECT DELIVERY
APPROVED Kevin L Marshia 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 ASHPALTIC 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
2016	200	50	59	1.5	15
2036	210	50	59	2	20

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

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

Design Speed : 35 mph

AS BUILT "REBAR" DETAIL

LEVEL I	LEVEL II	LEVEL III
TYPE:	TYPE:	TYPE:
GRADE:	GRADE:	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						
	H-20	HL-93	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
TONNAGE	**20**	**36**	**36**	**66**	**30**	**34.5**	**38**
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

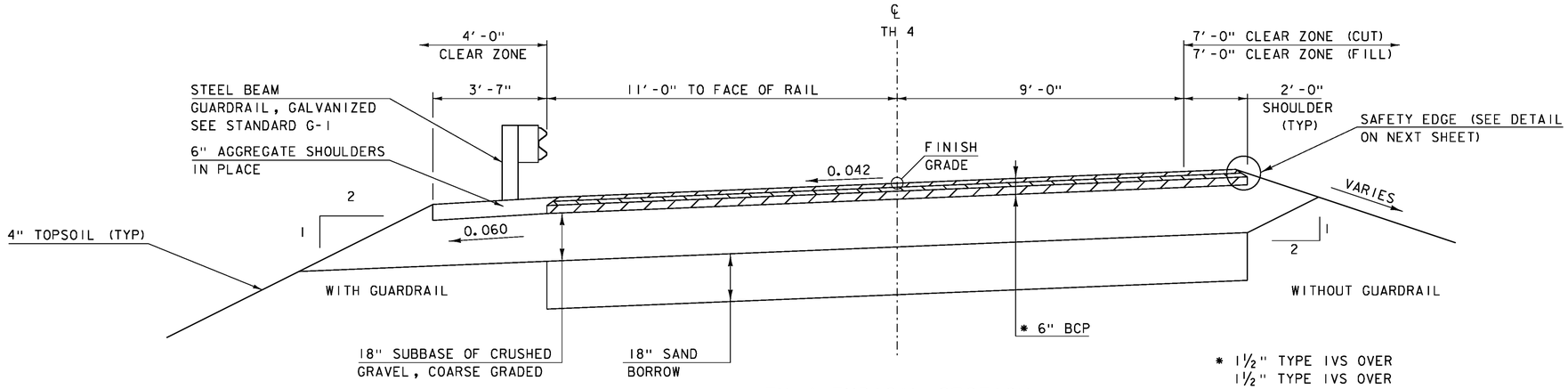
1.	DESIGN LIVE LOAD		HL-93
2.	FUTURE PAVEMENT	d_p:	3.0 INCH
3.	DESIGN SPAN	L:	85.00 FT
4.	MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	- - -
5.	PRESTRESSING STRAND	f_y:	- - -
6.	PRESTRESSED CONCRETE STRENGTH	f'_c:	- - -
7.	PRESTRESSED CONCRETE RELEASE STRENGTH	f'_{ci}:	- - -
8.	CONCRETE, 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	f_y:	60 KSI
13.	STRUCTURAL STEEL AASHTO M270 (WEATHERING)	f_y:	50 KSI
14.	NOMINAL BEARING RESISTANCE OF SOIL	q_n:	4.0 KSF
15.	SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	SEE GEN. NOTES
16.	NOMINAL BEARING RESISTANCE OF ROCK	q_n:	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	V_{3s}:	- - -
21.	MINIMUM GROUND SNOW LOAD	p_g:	- - -
22.	SEISMIC DATA	S_s:	- - -
		S_1:	- - -
23.			
24.			- - -
25.			- - -
26.			- - -

PGA: SEE GEN. NOTES

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

FILE NAME: s13j100excel.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: W. LAMMER
PRELIMINARY INFORMATION SHEET

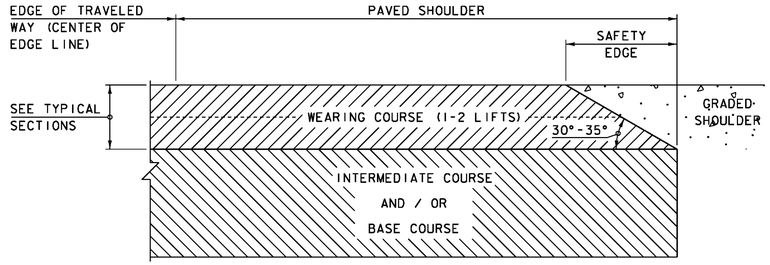
PLOT DATE: 27-OCT-2015
DRAWN BY: S. COLEY
CHECKED BY: W. LAMMER



TH 4 TYPICAL SECTION

SCALE ½" = 1'-0"

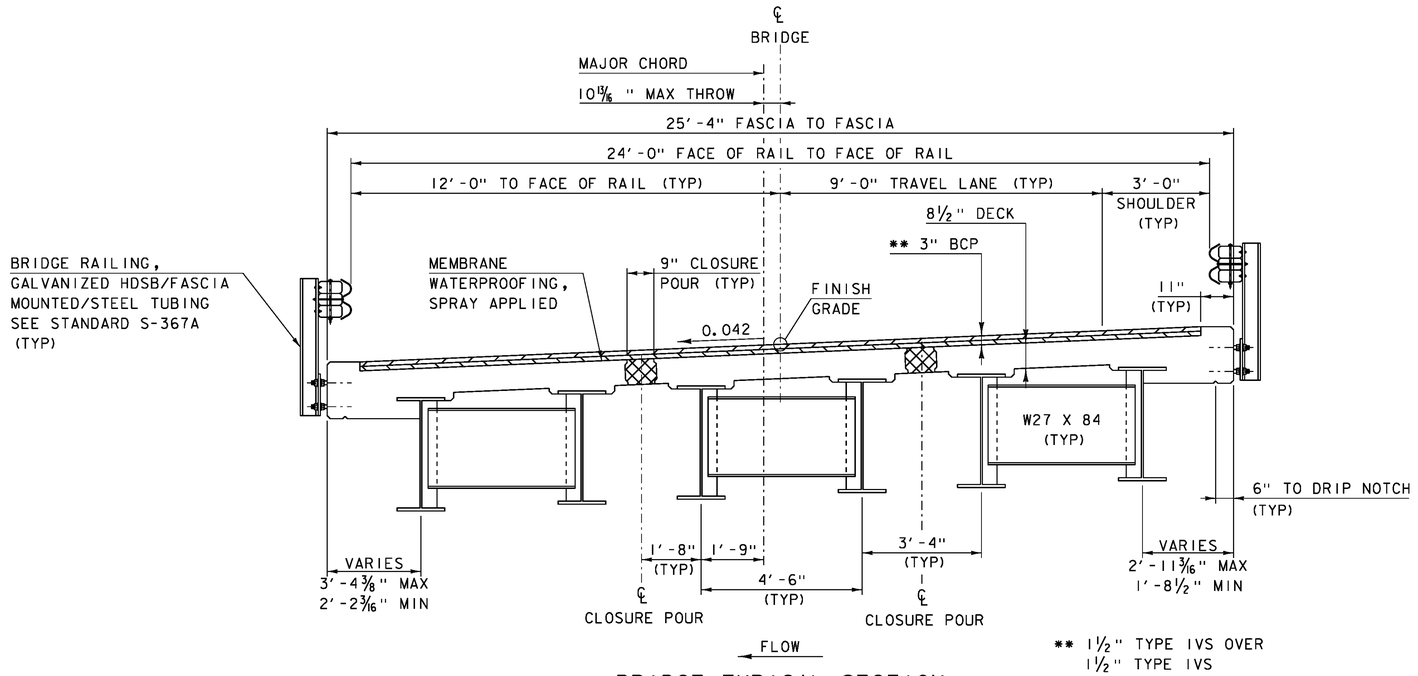
* 1½" TYPE IVS OVER
1½" TYPE IVS OVER
3" TYPE IIS



SAFETY EDGE DETAIL

NOT TO SCALE

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".



BRIDGE TYPICAL SECTION

SCALE ½" = 1'-0"

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

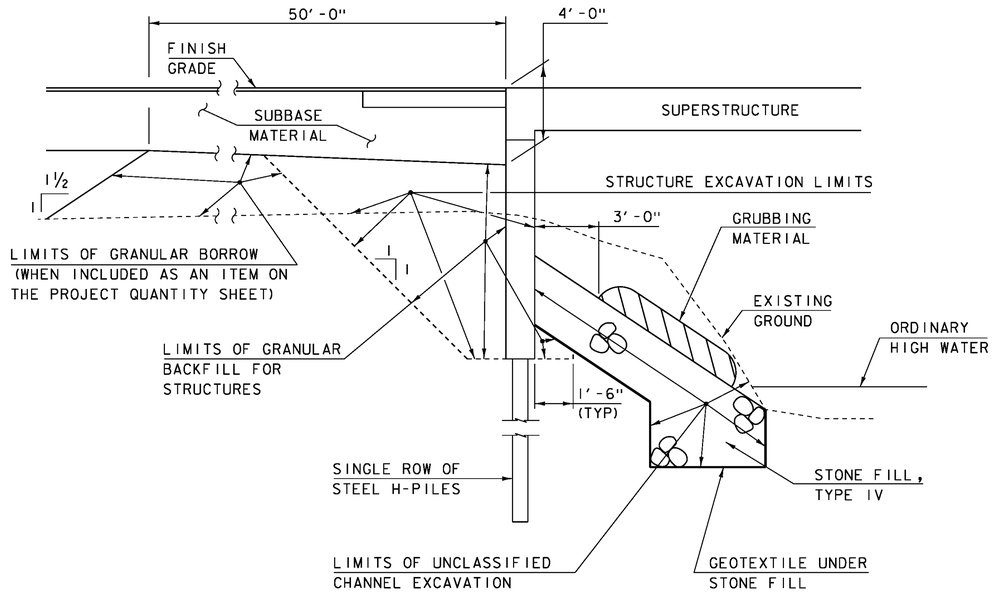
(IF USED ON PROJECT)

SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- ¼"
- AGGREGATE SURFACE COURSE	+/- ½"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"

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

FILE NAME: sl3j100typical.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: W. LAMMER
TYPICAL SECTIONS 1

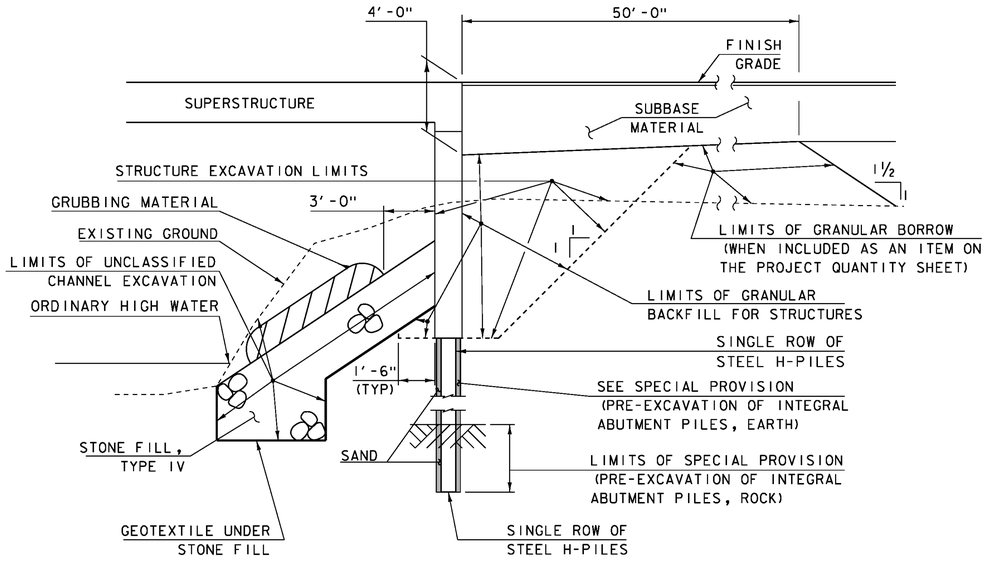
PLOT DATE: 27-OCT-2015
DRAWN BY: W. LAMMER
CHECKED BY: S. COLEY
SHEET 3 OF 42



TYPICAL INTEGRAL ABUTMENT 1 SECTION

NOT TO SCALE

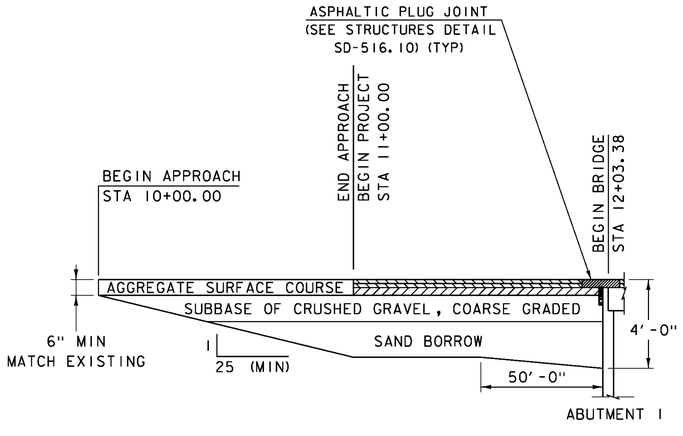
NOTE. ACTUAL EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR. HOWEVER, ONLY THE EXCAVATION BETWEEN THE LIMITS SHOWN WILL BE PAID FOR UNDER ITEM 204.25 "STRUCTURE EXCAVATION".



TYPICAL INTEGRAL ABUTMENT 2 SECTION

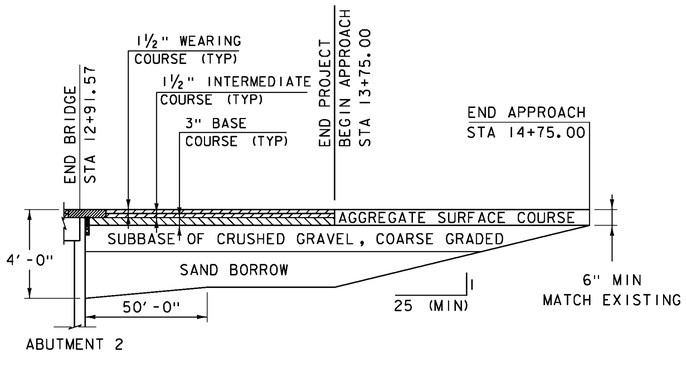
NOT TO SCALE

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-EXCAVTION OF PILES REQUIRED AT ABUTMENT 2 ONLY.



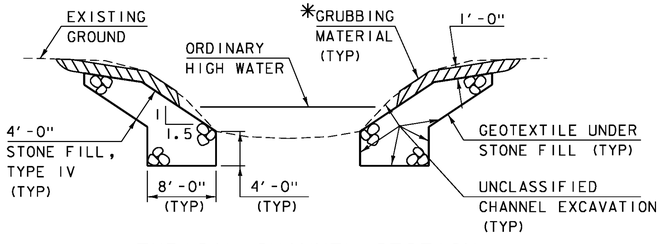
BEGIN PROJECT MATERIAL TRANSITION

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: sl3j100typical.dgn	PLOT DATE: 14-OCT-2015
PROJECT LEADER: R. YOUNG	DRAWN BY: W. LAMMER
DESIGNED BY: W. LAMMER	CHECKED BY: S. COLEY
TYPICAL SECTIONS 2	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 DETAILIED 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: sl3j100gen.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

ROADWAY	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND
1				1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10	
690				690		CY	COMMON EXCAVATION	203.15	
10				10		CY	SOLID ROCK EXCAVATION	203.16	
		970		970		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27	
390				390		CY	SAND BORROW	203.31	
1				1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22	
		280		280		CY	STRUCTURE EXCAVATION	204.25	
		120		120		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30	
610				610		CY	SUBBASE OF CRUSHED GRAVEL, COARSE GRADED	301.25	
100				100		CY	AGGREGATE SURFACE COURSE	401.10	
25				25		CY	AGGREGATE SHOULDERS, IN PLACE	402.10	
5				5		CWT	EMULSIFIED ASPHALT	404.65	
1				1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50	
		1		1		LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10	
		210		210		LF	STEEL PILING, HP 12 X 63	505.155	
		2		2		EACH	DYNAMIC PILE LOADING TEST	505.45	
		2000		2000		LB	REINFORCING STEEL, LEVEL II (FPQ)	507.12	
		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	

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS
		EARTHWORK SUMMARY
		FILL AVAILABLE
690	CY	COMMON EXCAVATION (690x1.0)
291	CY	CHANNEL EXCAVATION (970x0.3)
0	CY	UNDERDRAIN EXCAVATION (0x0.9)
84	CY	STRUCTURE EXCAVATION (280x0.3)
0.9	CY	TRENCH EXCAVATION OF EARTH (1x0.9)
6	CY	ROUNDING
1080	CY	TOTAL FILL AVAILABLE
90	CY	FILL REQUIRED (90 CY EARTH + 0 CY GRANULAR)
103.5	CY	PLANIMETERED FILL (x1.15)
4.1	CY	ROUNDING
110	CY	TOTAL FILL REQUIRED
960	CY	TOTAL WASTE
		SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)
40	TON	TYPE IIS BASE
25	TON	TYPE IVS INTER
25	TON	TYPE IVS WEARING
90	TON	TOTAL

PROJECT NAME: CRAFTSBURY
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QUANTITY SHEET 1

PLOT DATE: 14-OCT-2015
DRAWN BY: S. COLEY
CHECKED BY: W. LAMMER
SHEET 6 OF 42

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 2

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	TESTING EQUIPMENT, CONCRETE	631.16				
									1	1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17				
									3000	3000		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26				
						1				1		LS	MOBILIZATION/DEMOBILIZATION	635.11				
								500		500		SY	GEOTEXTILE UNDER STONE FILL	649.31				
							230			230		SY	GEOTEXTILE FOR SILT FENCE	649.51				
							55			55		SY	GEOTEXTILE FOR FILTER CURTAIN	649.61				
							10			10		LB	SEED	651.15				
							100			100		LB	FERTILIZER	651.18				
							1			1		TON	AGRICULTURAL LIMESTONE	651.20				
							1			1		TON	HAY MULCH	651.25				
							70			70		CY	TOPSOIL	651.35				
							300			300		SY	GRUBBING MATERIAL	651.40				
							1			1		LS	EPSC PLAN	652.10				
							40			40		HR	MONITORING EPSC PLAN	652.20				
							1			1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30				
							390			390		SY	TEMPORARY EROSION MATTING	653.20				
							35			35		CY	VEHICLE TRACKING PAD	653.35				
							210			210		LF	BARRIER FENCE	653.50				
							760			760		LF	PROJECT DEMARCATION FENCE	653.55				
						0.66				0.66		SF	TRAFFIC SIGNS, TYPE A	675.20				
						16				16		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341				
						1				1		EACH	REMOVING SIGNS	675.50				
								40		40		CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)	900.608				
						23240				23240		DL	SPECIAL PROVISION (INCENTIVE/DISINCENTIVE)(N.A.B.I.)	900.615				
						5				5		EACH	SPECIAL PROVISION (CPM SCHEDULE)	900.620				
								40		40		LF	SPECIAL PROVISION (PRE-EXCAVATION OF INTEGRAL ABUTMENT PILES, EARTH)	900.640				
								25		25		LF	SPECIAL PROVISION (PRE-EXCAVATION OF INTEGRAL ABUTMENT PILES, ROCK)	900.640				
								265		265		LF	SPECIAL PROVISION (PREFABRICATED BRIDGE UNIT SUPERSTRUCTURE)(FPQ)	900.640				
						1				1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)	900.645				
						1				1		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY)(N.A.B.I.)	900.650				
						1				1		LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT, SMALL QUANTITY)(N.A.B.I.)	900.650				
						90				90		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				

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PLOT DATE: 14-OCT-2015
DRAWN BY: S. COLEY
CHECKED BY: W. LAMMER
SHEET 7 OF 42

GENERAL INFORMATION

SYMBOLOGY LEGEND NOTE

THE SYMBOLOGY ON THIS SHEET IS INTENDED TO COVER STANDARD CONVENTIONAL SYMBOLOGY. THE SYMBOLOGY 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. SYMBOLOGY 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 SYMBOLOGY

UNDERGROUND UTILITIES

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

ABOVE GROUND UTILITIES (AERIAL)

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

PROJECT CONSTRUCTION SYMBOLOGY

PROJECT DESIGN & LAYOUT SYMBOLOGY

- 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 — BF — BARRIER FENCE
- TREE PROTECTION ZONE (TPZ)
- STRIPING LINE REMOVAL
- SHEET PILES

CONVENTIONAL BOUNDARY SYMBOLOGY

BOUNDARY LINES

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

EPSC LAYOUT PLAN SYMBOLOGY

EPSC MEASURES

- FILTER CURTAIN
- SILT FENCE
- SILT FENCE WOVEN WIRE
- CHECK DAM
- DISTURBED AREAS REQUIRING RE-VEGETATION
- EROSION MATTING

SEE EPSC DETAIL SHEETS FOR ADDITIONAL SYMBOLOGY

ENVIRONMENTAL RESOURCES

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

ARCHEOLOGICAL & HISTORIC

- ARCH — ARCHEOLOGICAL BOUNDARY
- HISTORIC DIST — HISTORIC DISTRICT BOUNDARY
- HISTORIC — HISTORIC AREA
- Ⓗ HISTORIC STRUCTURE

CONVENTIONAL TOPOGRAPHIC SYMBOLOGY

EXISTING FEATURES

- ROAD EDGE PAVEMENT
- ROAD EDGE GRAVEL
- DRIVEWAY EDGE
- DITCH
- FOUNDATION
- 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: sl3l100excel.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: W. LAMMER
LEGEND SHEET

PLOT DATE: 14-OCT-2015
DRAWN BY: M.LONGSTREET
CHECKED BY: S. COLEY
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

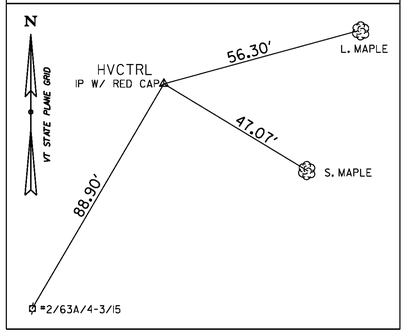
NORTH = 788941.399
EAST = 1679123.394
ELEV. = 1094.105

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

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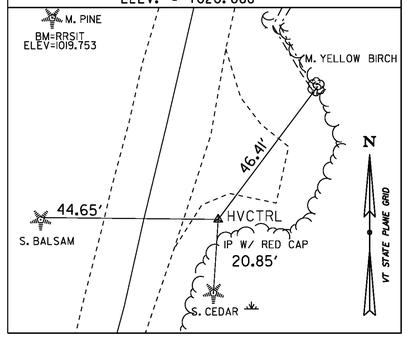
EAST = 1678687.880
ELEV. = 1020.668



_____

NORTH = _____
EAST = _____
ELEV. = _____

_____

NORTH = _____
EAST = _____
ELEV. = _____

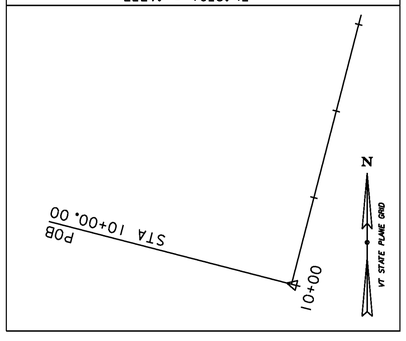
_____

NORTH = _____
EAST = _____
ELEV. = _____

ALIGNMENT TIES

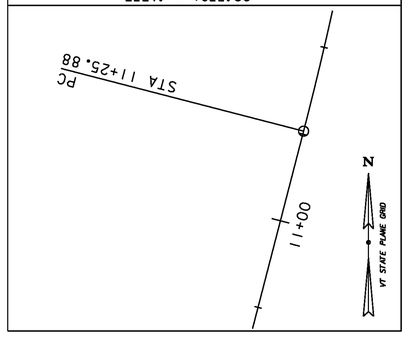
POB STA 10+00.00

NORTH = 787303.2263
EAST = 1678642.4332
ELEV. = 1025.42



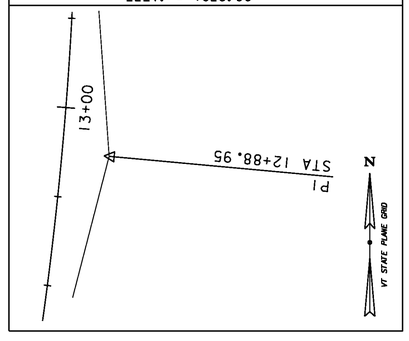
PC STA 11+25.88

NORTH = 787425.0995
EAST = 1678673.9402
ELEV. = 1022.38



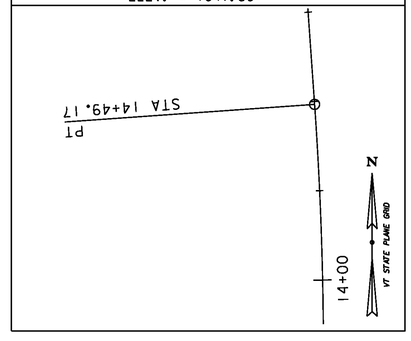
PI STA 12+88.95

NORTH = 787582.9747
EAST = 1678714.7545
ELEV. = 1028.90



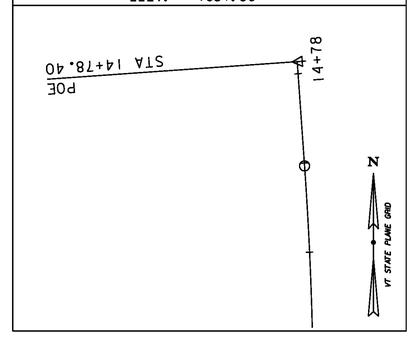
PT STA 14+49.17

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: 13J100/Survey/xl13J100t1
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

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

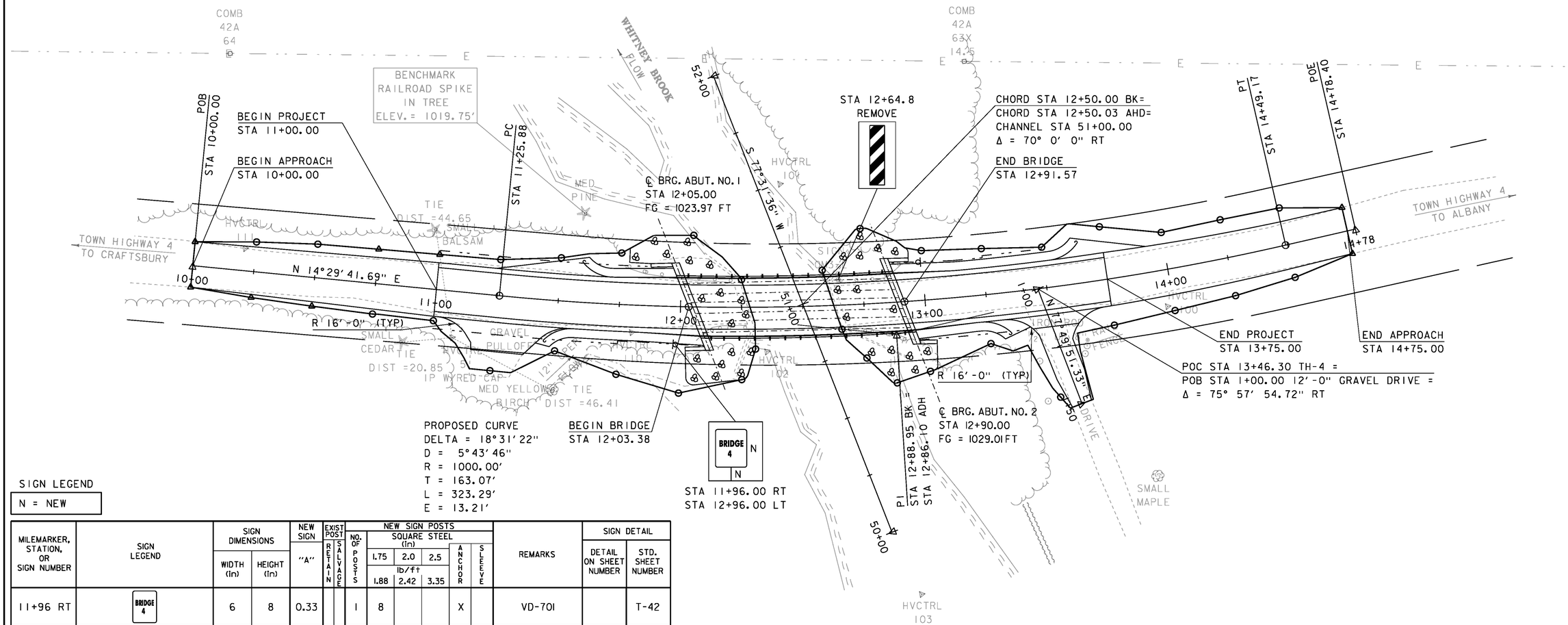
STEEL BEAM GUARDRAIL, GALVANIZED
STA 11+59.1 LT - STA 11+71.4 LT
STA 11+45.1 RT - STA 11+81.8 RT
STA 13+14.8 LT - STA 13+64.9 LT
STA 13+21.9 RT - STA 13+33.8 RT

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.

N
VT STATE PLANE GRID



SIGN LEGEND
N = NEW

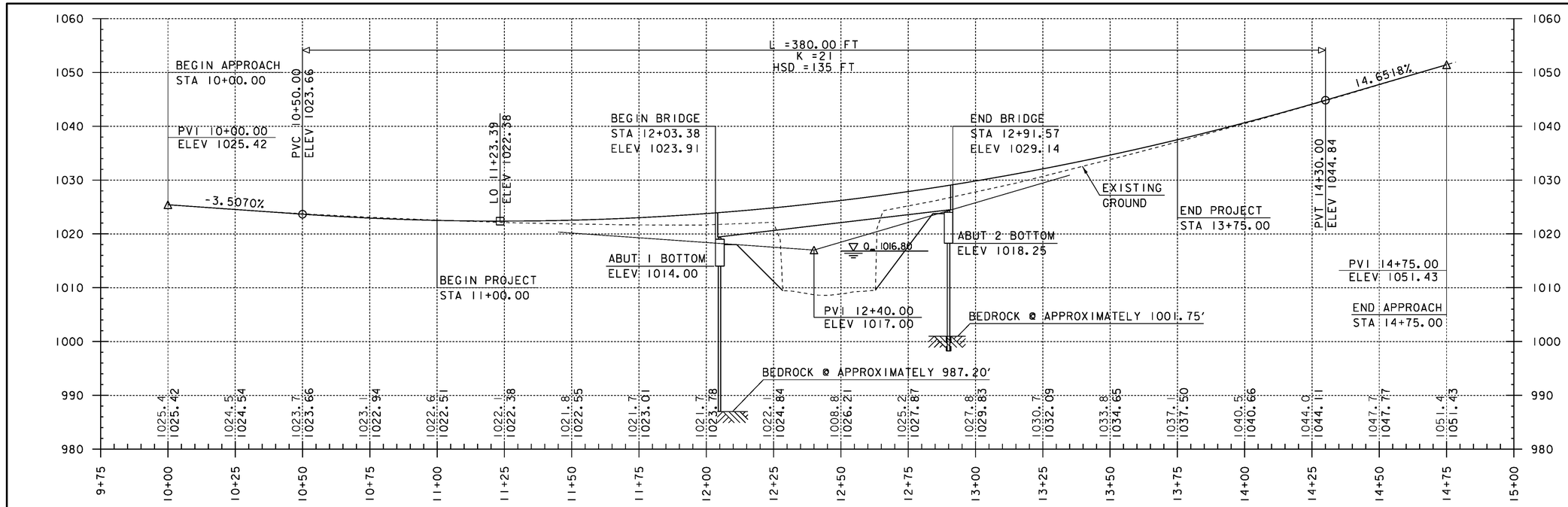
MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS WIDTH (In)	SIGN DIMENSIONS HEIGHT (In)	NEW SIGN "A"	EXIST POST RETAIN	EXIST POST SALVAGE	NEW SIGN POSTS NO. OF POSTS	NEW SIGN POSTS SQUARE STEEL (In) 1.75 lb/ft 1.88	2.0 lb/ft 2.42	2.5 lb/ft 3.35	ANCHOR	SLEEVE	REMARKS	SIGN DETAIL DETAIL ON SHEET NUMBER	SIGN DETAIL STD. SHEET NUMBER
11+96 RT	BRIDGE 4	6	8	0.33			1	8			X		VD-701		T-42
12+96 LT	BRIDGE 4	6	8	0.33			1	8			X		VD-701		T-42
								FT 16	FT	FT		EA			
	TOTALS			SF 0.66				FT 16					SHS = STANDARD HIGHWAY SIGNS (MUTCD)		

FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE VTRANS "SIGN POST DESIGN GUIDELINE."

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

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

FILE NAME: sl3j100border.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: W. LAMMER
LAYOUT SHEET
PLOT DATE: 14-OCT-2015
DRAWN BY: S. COLEY
CHECKED BY: W. LAMMER
SHEET 10 OF 42



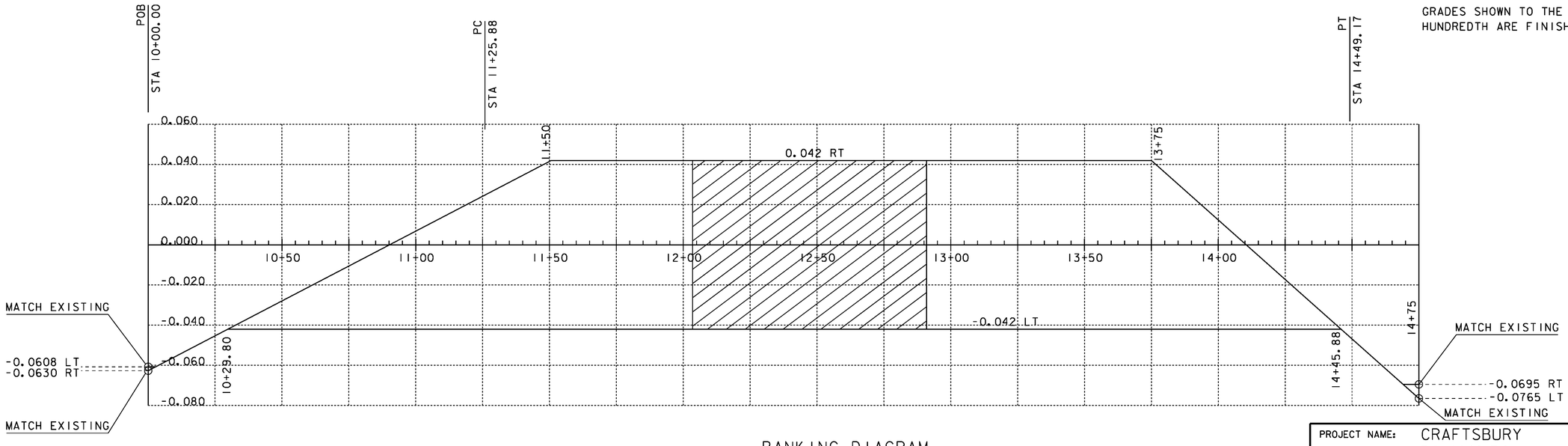
TH-4 PROFILE

HORIZONTAL SCALE 1"=20'
VERTICAL SCALE 1"=10'

NOTE:

GRADES SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG ℄

GRADES SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADE ALONG ℄



BANKING DIAGRAM

HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: NOT TO SCALE

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

FILE NAME: si3j100profile.dgn	PLOT DATE: 14-OCT-2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. COLEY
DESIGNED BY: W. LAMMER	CHECKED BY: W. LAMMER
PROFILE & BANKING DIAGRAM	SHEET 11 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 1⅜" 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 1⅛"
BX	Core Size 1⅝"
NX	Core Size 2 ⅛"
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		

DEFINITIONS (AASHTO)

BEDROCK (LEDGE) - Rock in its native location of indefinite thickness.

BOULDER - A rock fragment with an average dimension > 12 inches.

COBBLE - Rock fragments with an average dimension between 3 and 12 inches.

GRAVEL - Rounded particles of rock < 3" and > 0.0787" (#10 sieve).

SAND - Particles of rock < 0.0787" (#10 sieve) and > 0.0029" (#200 sieve).

SILT - Soil < 0.0029" (#200 sieve), non or slightly plastic and exhibits no strength when air-dried.

CLAY - Fine grained soil, exhibits plasticity when moist and considerable strength when air-dried.

VARVED - Alternate layers of silt and clay.

HARDPAN - Extremely dense soil, cemented layer, not softened when wet.

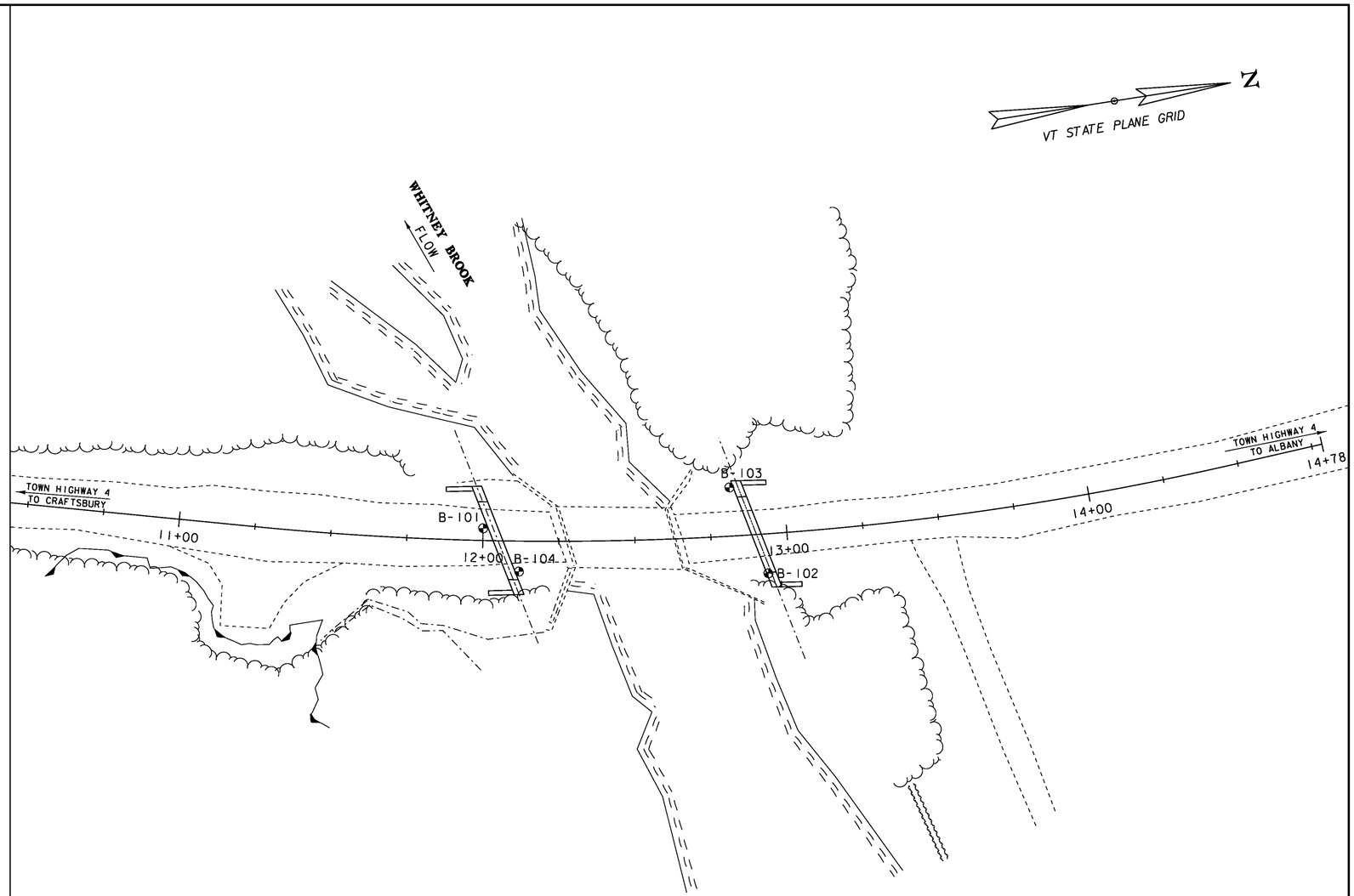
MUCK - Soft organic soil (containing > 10% organic material.

MOISTURE CONTENT - Weight of water divided by dry weight of soil.

FLOWING SAND - Granular soil so saturated (loose) that it flows into drill casing during extraction of wash rod.

STRIKE - Angle from magnetic north to line of intersection of bed with a horizontal plane.

DIP - Inclination of bed with a horizontal plane.



BORING LAYOUT

SCALE 1" = 20'-0"

20 0 20

GENERAL NOTES

1. The subsurface explorations shown herein were made between 1/31/2014 and 3/05/2014 by the Agency.
2. Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
3. Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.
4. Engineering judgment was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgment by the Contractor.
5. Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.
6. Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.
7. 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: s13j100boring.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: W. LAMMER
BORING INFORMATION SHEET

PLOT DATE: 14-OCT-2015
DRAWN BY: S. COLEY
CHECKED BY: W. LAMMER
SHEET 12 OF 42

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

BORING LOG

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

Boring No.: **B-101**
Page No.: 1 of 1
Pin No.: 13J100
Checked By:

Boring Crew: JUDKINS, HOOK, DAIGNEAULT
Date Started: 2/27/14 Date Finished: 2/27/14
VTSPG NAD83: N 787498.10 ft E 1678685.90 ft
Station: 12+00 Offset: -4.00
Ground Elevation: 1021.5 ft

	Casing	Sampler
Type:	WB	
I.D.:	4 in	
Hammer Wt:	N.A.	N.A.
Hammer Fall:	N.A.	N.A.
Hammer/Rod Type:		
Rig:	CME 45C SKID	C_e = 1.33

Groundwater Observations		
Date	Depth (ft)	Notes
03/05/14	12.8	AM

ABUT. 1 BTM.
ELEV. 1014.00

EST. LENGTH = 26.50'

EST. PILE TIP
ELEV. 987.50

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 %
		Field Note:, Drilled to find bedrock, No samples were taken.								
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)	8 10 10 9 10	Top of Bedrock @ 34.0 ft				
		Hole stopped @ 39.0 ft								
		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_e 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.

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

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

Boring No.: **B-102**
Page No.: 1 of 1
Pin No.: 13J100
Checked By:

Boring Crew: JUDKINS, HOOK, DAIGNEAULT
Date Started: 3/05/14 Date Finished: 3/05/14
VTSPG NAD83: N 787589.50 ft E 1678714.10 ft
Station: 12+93 Offset: 13.00
Ground Elevation: 1027.0 ft

	Casing	Sampler
Type:	WB	
I.D.:	4 in	
Hammer Wt:	N.A.	N.A.
Hammer Fall:	N.A.	N.A.
Hammer/Rod Type:		
Rig:	CME 45C SKID	C_e = 1.33

Groundwater Observations		
Date	Depth (ft)	Notes
03/05/14	2.3	While drilling.

ABUT. 2 BTM.
ELEV. 1018.25

EST. LENGTH = 20.75'

EST. PILE TIP
ELEV. 997.5

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 %
		Field Note:, Drilled to find bedrock, No samples were taken.								
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)	3 4 5 6 4	Top of Bedrock @ 24.5 ft				
		Hole stopped @ 29.5 ft								
		Remarks: 1. Hole collapsed at 11.9 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_e 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.

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

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

FILE NAME: sl3j100boring.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: L.J.STONE
BORING LOGS 1

PLOT DATE: 14-OCT-2015
DRAWN BY: L.J.STONE
CHECKED BY: O.M.DARISSE
SHEET 13 OF 42

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	Sampler
Type:	WB	SS
I.D.:	4 in	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_e = 1.34

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

ABUT. 2 BTM.
ELEV. 1018.25

EST. LENGTH = 22.25'

EST. PILE TIP
ELEV. 996.00

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 %
0		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
5		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
		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
10		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.								
		A-4, SaSi (HP), gry, Moist, Rec. = 0.8 ft, Lab Note: A few pieces of Broken Rock were within sample.				33-43-R@2.5" (R)	9.8	19.6	30.9	49.5
		Field Note:, NXDC, Cleaned out casing.								
15		A-4, SaSi (HP), gry, Moist, Rec. = 1.2 ft				25-46-R@5.0" (R)	10.5	18.6	27.1	54.3
		Field Note:, NXDC, Cleaned out casing.								
		A-4, SaSi (HP), gry, Moist, Rec. = 0.7 ft				39-49-R@1.0" (R)	11.7	18.2	28.1	53.7
		Field Note:, NXDC, Cleaned out casing.								
		A-4, SaSi (HP), gry, Moist, Rec. = 0.3 ft				43-R@6.0" (R)	14.8	7.5	21.9	70.6
		Field Note:, NXDC, Cleaned out casing.								
20		A-4, SaSi (HP), gry, Moist, Rec. = 0.8 ft				40-46-R@1.0" (R)	13.0	16.2	24.8	59.0
		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		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 4 5					
		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 3					
30		Hole stopped @ 34.0 ft								
35										

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_e 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.

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

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	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 45C SKID	C_e = 1.33

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

ABUT. 1 BTM.
ELEV. 1014.00

EST. LENGTH = 27.10'

EST. PILE TIP
ELEV. 986.90

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 %
0		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
5		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)				
		Field Note:, Cleaned out casing with roller cone., Casing dropped to 9.5 feet during clean out.								
10		A-2-4, GrSiSa, brn, MTW, Rec. = 0.9 ft				12-2-2-3 (4)	24.8	21.7	51.4	26.9
		Field Note:, NXDC, Lost water return at 12.5 ft.								
		Field Note:, NXDC								
15		Field Note:, NXMDC, Silty Sand (HP), Cleaned out casing.								
		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
20		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.								
25		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
30		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 6 4 4 6	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	2 (30)	87 (87)	3 3 3					
35		40.1 ft - 43.1 ft, Bluish-gray, Micaceous quartz-rich Limestone, Moderately hard, Unweathered, Fair rock, NXMDC, RMR = 58								
40		Hole stopped @ 43.1 ft								
45										

Remarks:
1. Hole collapsed at 23.1 ft.
2. Core barrel bit broke. Bit is still in hole at 43.1 ft.

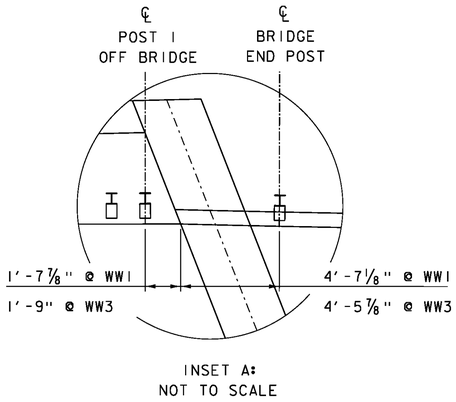
Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_e is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations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

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

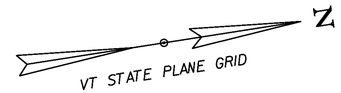
PROJECT NAME: CRAFTSBURY
PROJECT NUMBER: BO 1449(34)

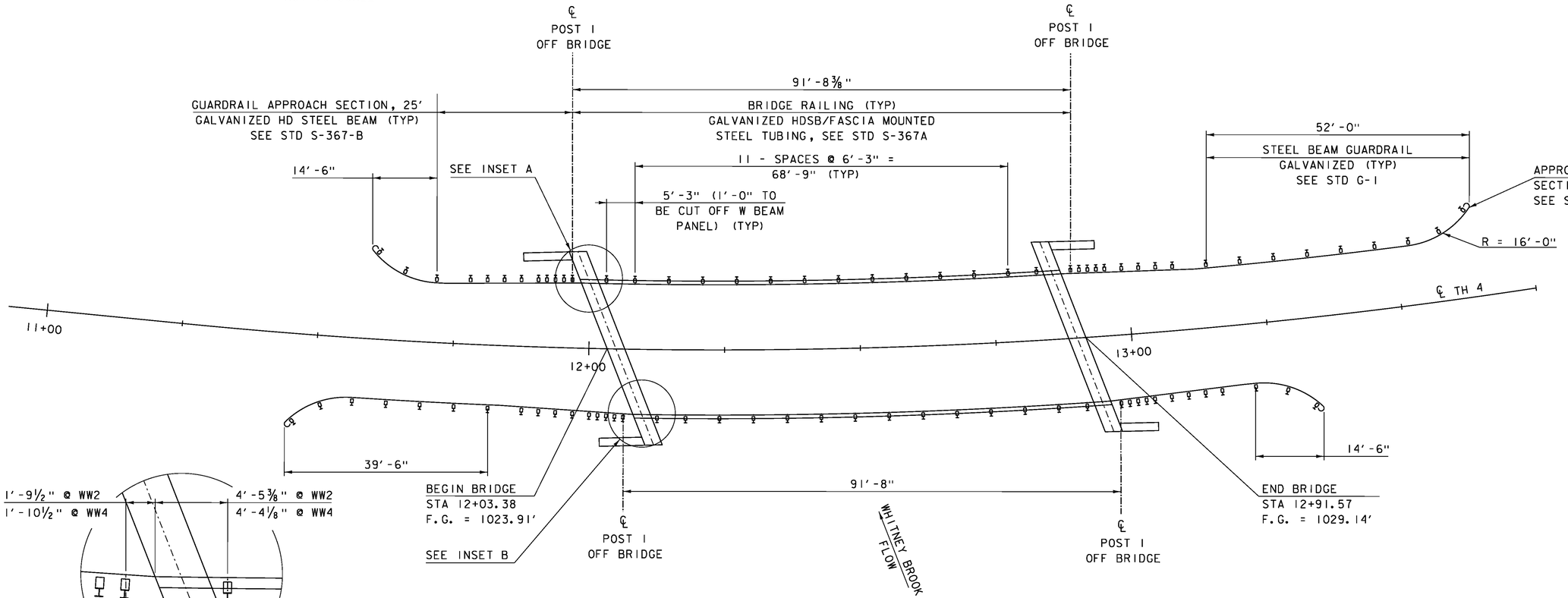
FILE NAME: sl3j100boring.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: L.J.STONE
BORING LOGS 2

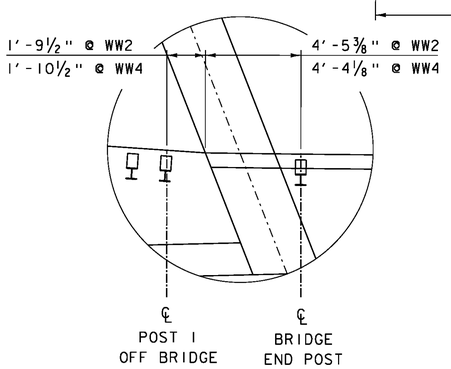
PLOT DATE: 14-OCT-2015
DRAWN BY: L.J.STONE
CHECKED BY: O.M.DARISSE
SHEET 14 OF 42



INSET A:
NOT TO SCALE







INSET B:
NOT TO SCALE

RAIL LAYOUT SHEET

SCALE 1" = 10'-0"

10 0 10

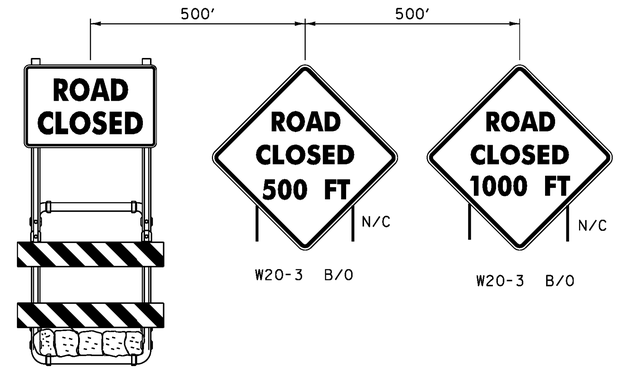
PROJECT NAME:	CRAFTSBURY
PROJECT NUMBER:	BO 1449(34)
FILE NAME: sl3j100rail.dgn	PLOT DATE: 14-OCT-2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. COLEY
DESIGNED BY: W. LAMMER	CHECKED BY: W. LAMMER
RAIL LAYOUT SHEET	SHEET 15 OF 42

NOTES:

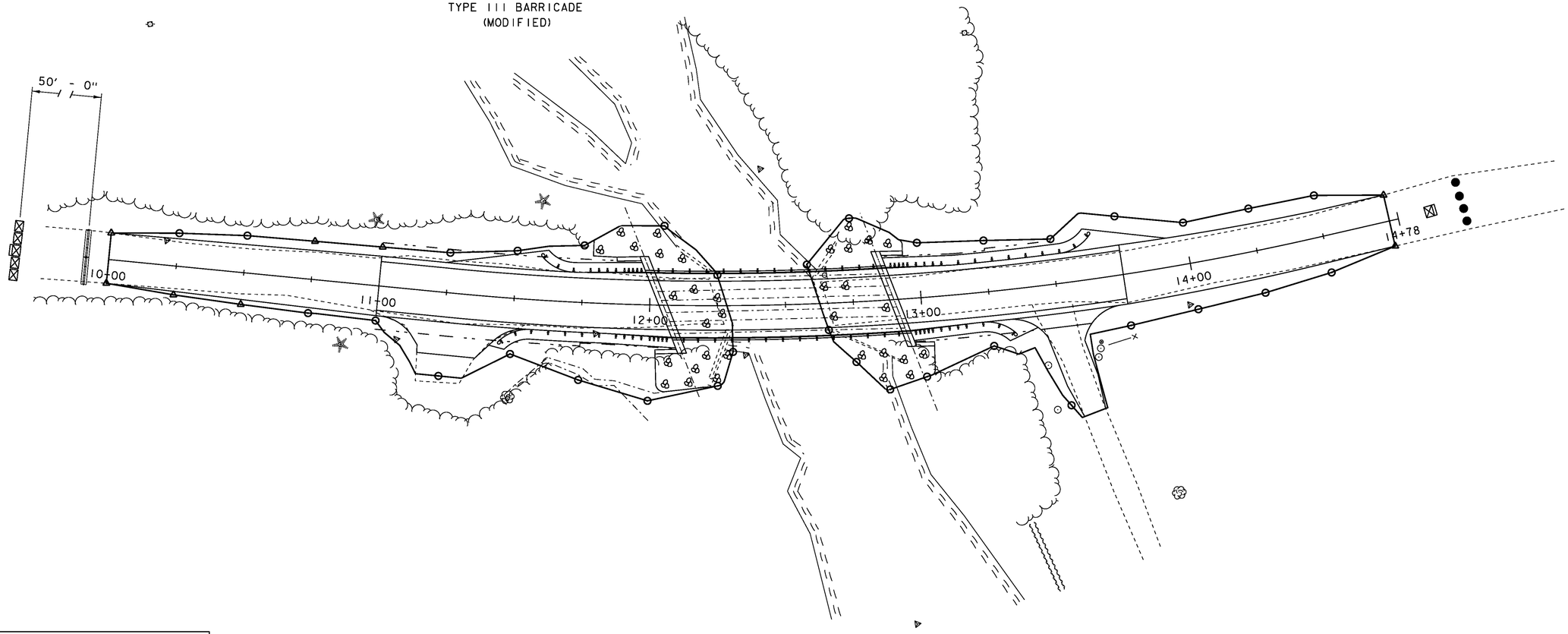
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SIGNS AND BARRICADES SHOWN ON THIS SHEET. THEY WILL BE CONSIDERED INCIDENTAL TO ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)".

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.



R11-2D B/W SIGN MOUNTED ON TYPE III BARRICADE (MODIFIED)



LEGEND

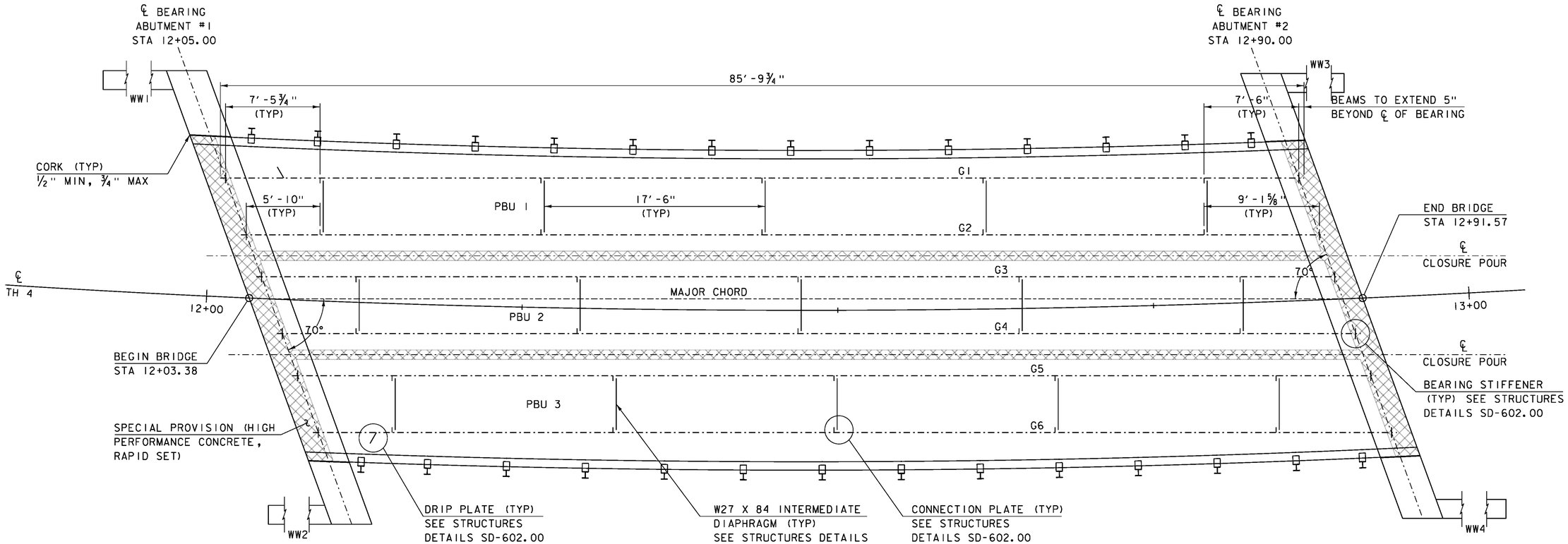
N/C	- NEW/CONSTRUCTION ONLY
B/O	- BLACK/ORANGE
B/W	- BLACK/WHITE
●	- RETROREFLECTIVE PLASTIC DRUM
☒	- TYPE III BARRICADE
☒	- TYPE III BARRICADE (MOD.)
═	TEMPORARY TRAFFIC BARRIER

TRAFFIC LAYOUT SHEET

SCALE 1" = 20'-0"

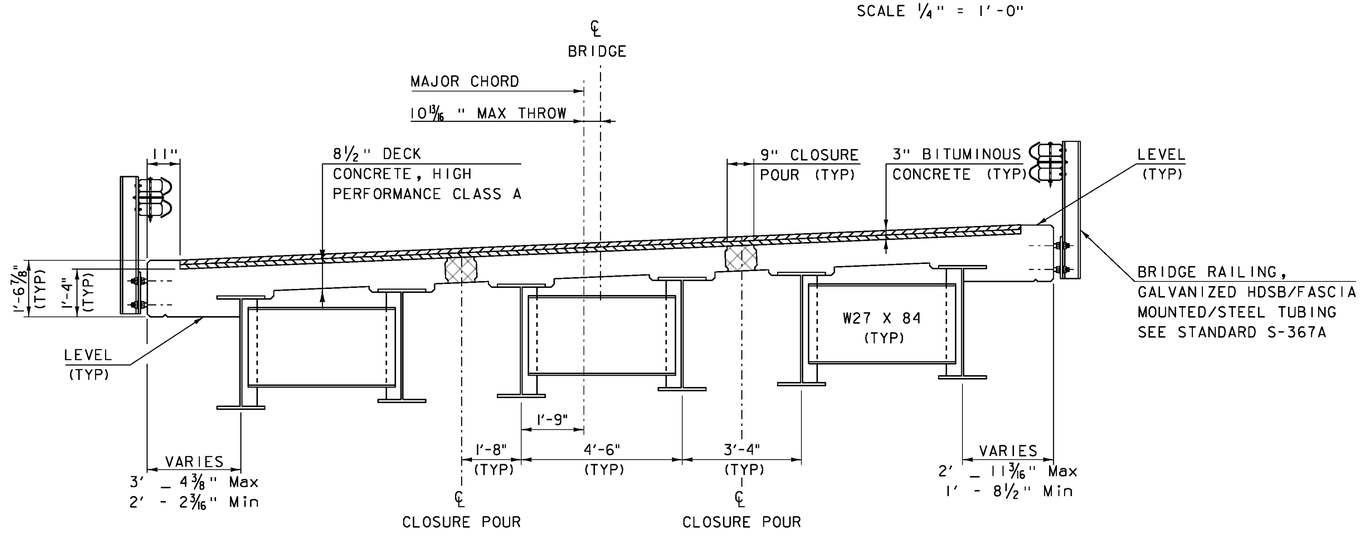
20 0 20

PROJECT NAME:	CRAFTSBURY
PROJECT NUMBER:	BO 1449(34)
FILE NAME: sl3j100traff.dgn	PLOT DATE: 14-OCT-2015
PROJECT LEADER: R. YOUNG	DRAWN BY: W. LAMMER
DESIGNED BY: W. LAMMER	CHECKED BY: J. SALVATORI
TRAFFIC LAYOUT SHEET	SHEET 16 OF 42



SUPERSTRUCTURE PLAN

SCALE ¼" = 1′-0"



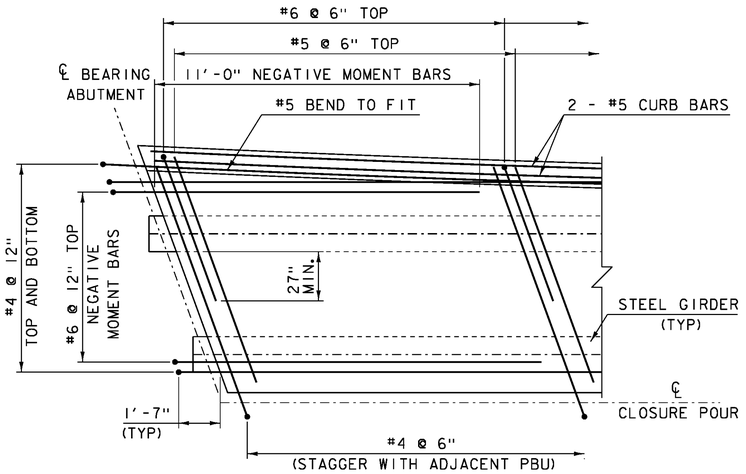
BRIDGE TYPICAL SECTION

SCALE ½" = 1′-0"

SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)

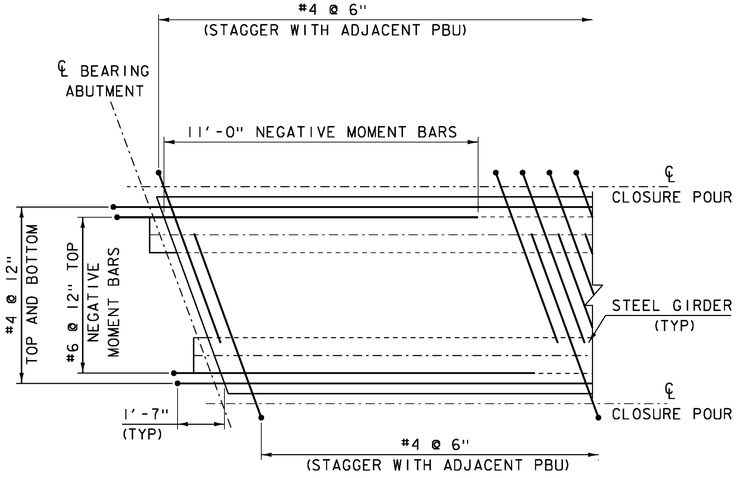
BITUMINOUS CONCRETE PAVEMENT

PROJECT NAME: CRAFTSBURY	
PROJECT NUMBER: BO 1449(34)	
FILE NAME: sl3j100sup.dgn	PLOT DATE: 14-OCT-2015
PROJECT LEADER: R. YOUNG	DRAWN BY: W. LAMMER
DESIGNED BY: W. LAMMER	CHECKED BY: S. COLEY
SUPERSTRUCTURE PLAN	SHEET 17 OF 42



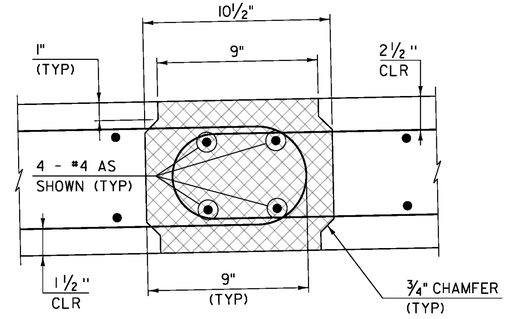
PBU 1 & 3

SCALE 3/8" = 1'-0"



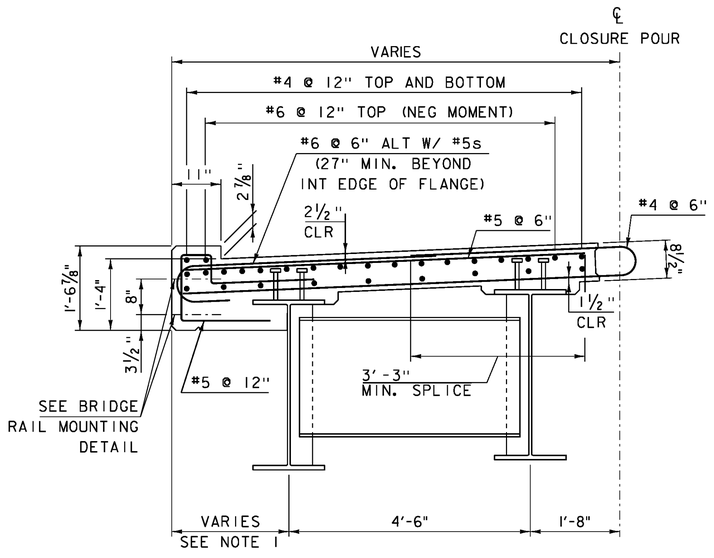
PBU 2

SCALE 3/8" = 1'-0"



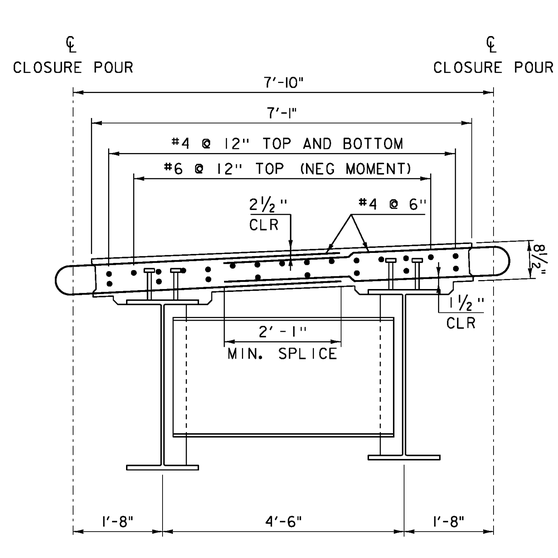
CLOSURE POUR DETAIL SECTION

N.T.S.



PBU 1 & 3

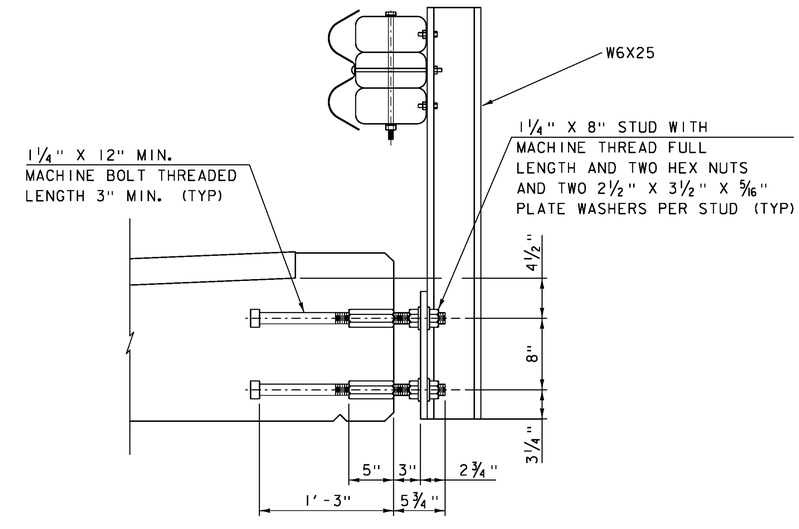
SCALE 3/4" = 1'-0"



PBU 2

SCALE 3/4" = 1'-0"

NOTE:
1. PBU 1, 2'-2 3/16" MIN, 3'-4 3/8" MAX
   PBU 3, 1'-8 1/2" MIN, 2'-1 13/16" MAX
2. PBU 1 SHOWN, PBU 3 SIMILAR.



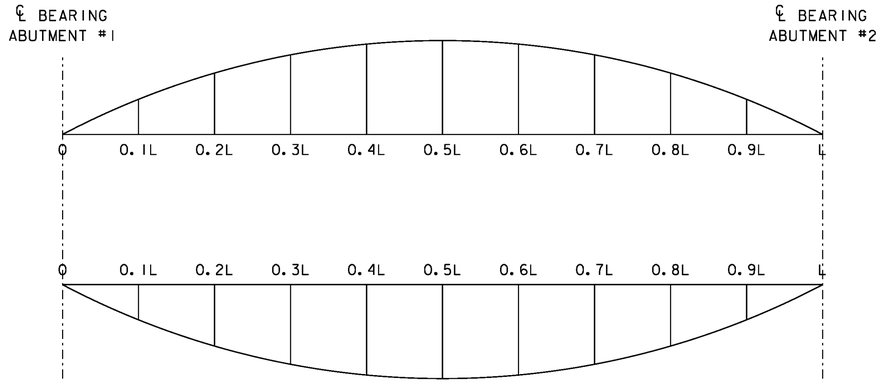
BRIDGE RAIL MOUNTING DETAIL

SCALE 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	PLOT DATE: 14-OCT-2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. COLEY
DESIGNED BY: W. LAMMER	CHECKED BY: W. LAMMER
PBU TYPICAL SECTIONS	SHEET 18 OF 42

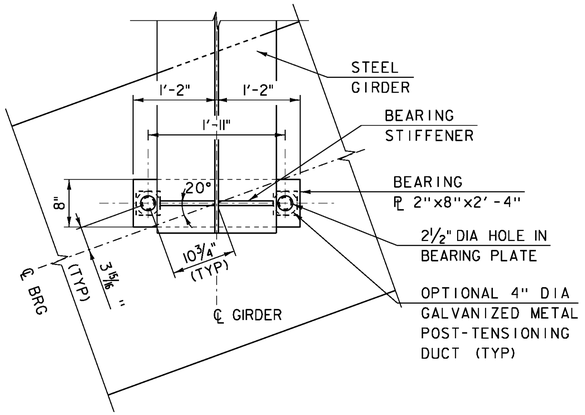


DEAD LOAD DEFLECTION DIAGRAM

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 7/8"	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 1/8"	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 1/8"	3 5/8"	3 11/16"	3 5/8"	3 1/8"	2 1/4"	1 3/16"

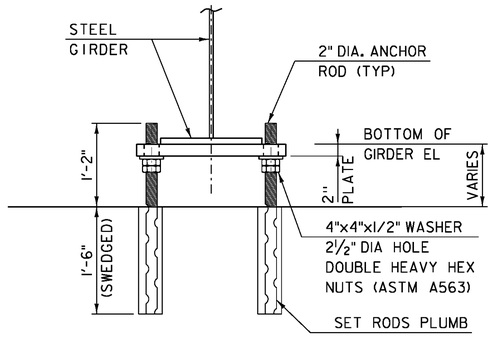
GIRDERS 2, 3, 4, & 5	.1L	.2L	.3L	.4L	.5L	.6L	.7L	.8L	.9L
STEEL DEFLECTION	3/16"	3/8"	1/2"	9/16"	5/8"	9/16"	1/2"	3/8"	3/16"
SLAB & SUPER DEFLECTION	5/8"	1 3/16"	1 5/8"	1 15/16"	2"	1 15/16"	1 5/8"	1 3/16"	5/8"
TOTAL DEFLECTION	13/16"	1 9/16"	2 1/8"	2 1/2"	2 5/8"	2 1/2"	2 1/8"	1 9/16"	13/16"
RESIDUAL CAMBER	0"	0"	0"	0"	0"	0"	0"	0"	0"
TOTAL CAMBER	13/16"	1 9/16"	2 1/8"	2 1/2"	2 5/8"	2 1/2"	2 1/8"	1 9/16"	13/16"



TEMPORARY BEARING ASSEMBLY PLAN

SCALE: 1" = 1'-0"

BOTTOM OF GIRDER ELEVATIONS		
GIRDER	ABUTMENT #1	ABUTMENT #2
G1	1018.64	1023.58
G2	1018.90	1023.89
G3	1019.10	1024.12
G4	1019.36	1024.43
G5	1019.55	1024.66
G6	1019.81	1024.97



TEMPORARY BEARING ASSEMBLY ELEVATION

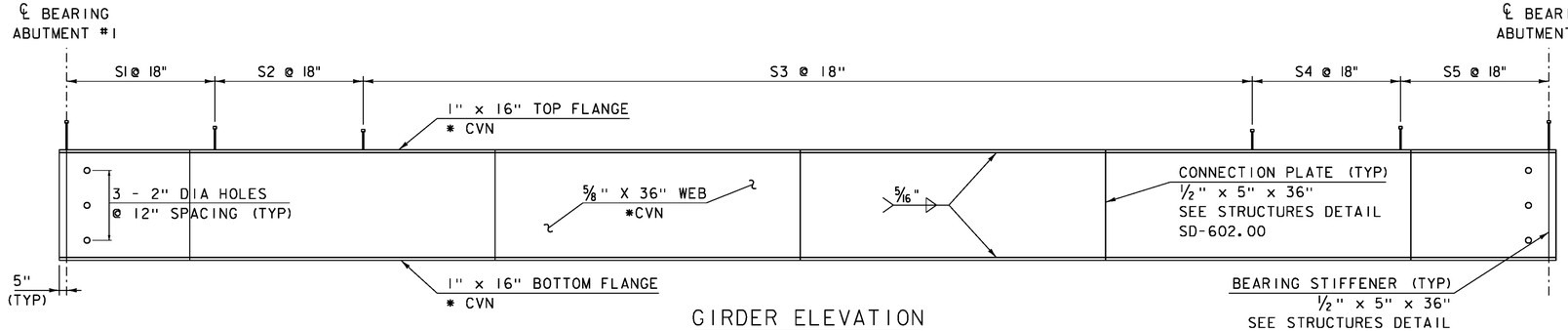
SCALE: 1" = 1'-0"

TEMPORARY BEARING NOTES

1. PAYMENT FOR TEMPORARY BEARING ASSEMBLIES WILL BE CONSIDERED INCIDENTAL TO THE APPROPRIATE PRECAST CONCRETE ABUTMENT ITEMS.

2. 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.

3. 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"

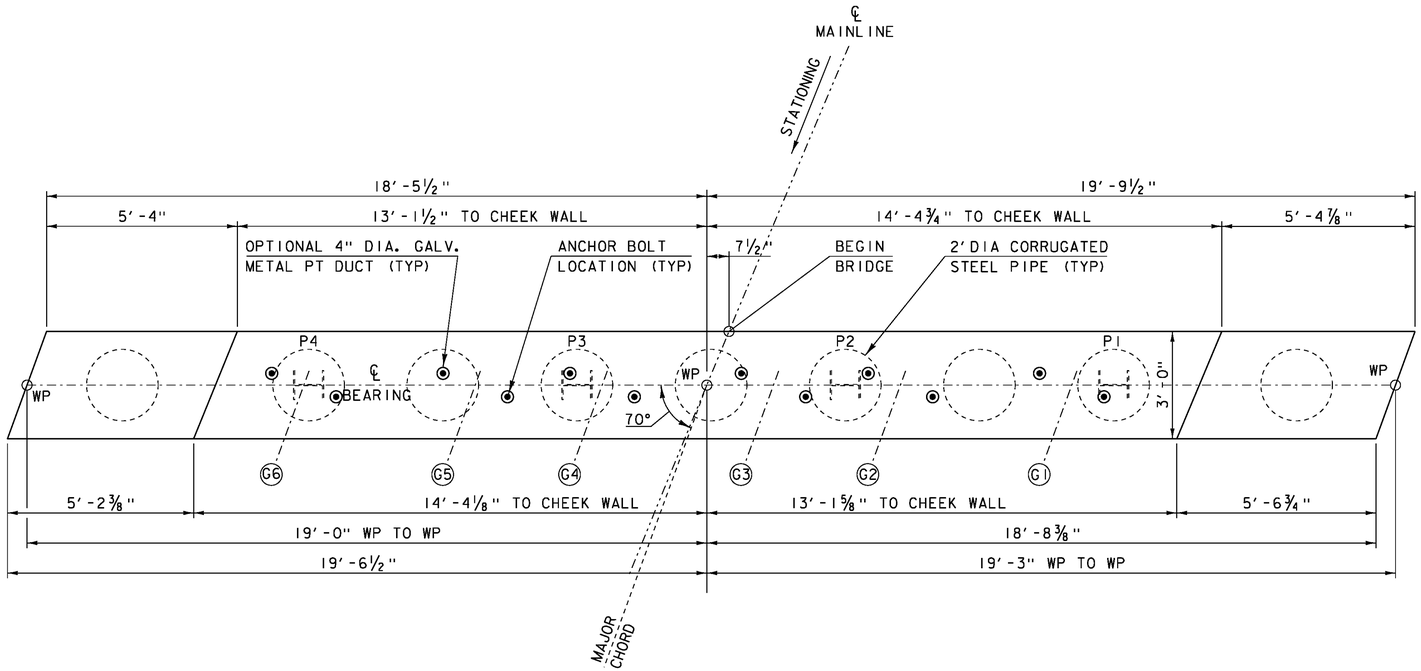
WELDED SHEAR STUD CONNECTORS TABLE				
SHEAR STUD	SIZE	START	STOP	SHEAR STUD QUANTITY
S1	7/8" X 10"	0.0L	0.1L	6 PER ROW x 2 ROWS
S2	7/8" X 8"	0.1L	0.2L	6 PER ROW x 2 ROWS
S3	7/8" X 7"	0.2L	0.8L	34 PER ROW x 2 ROWS
S4	7/8" X 8"	0.8L	0.9L	6 PER ROW x 2 ROWS
S5	7/8" X 10"	0.9L	1.0L	6 PER ROW x 2 ROWS

* CVN DENOTES THAT CHARPY V-NOTCH TEST IS REQUIRED

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

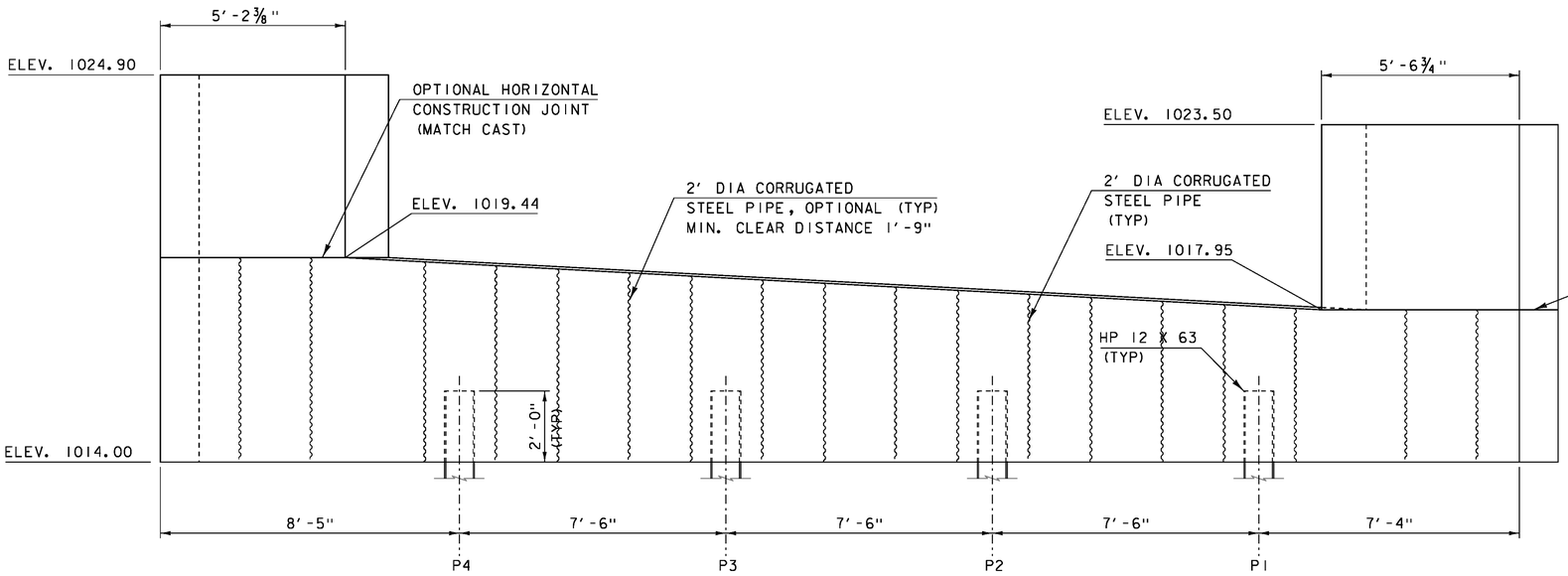
FILE NAME: sl3j100sup.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: W. LAMMER
GIRDER AND BEARING DETAILS

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



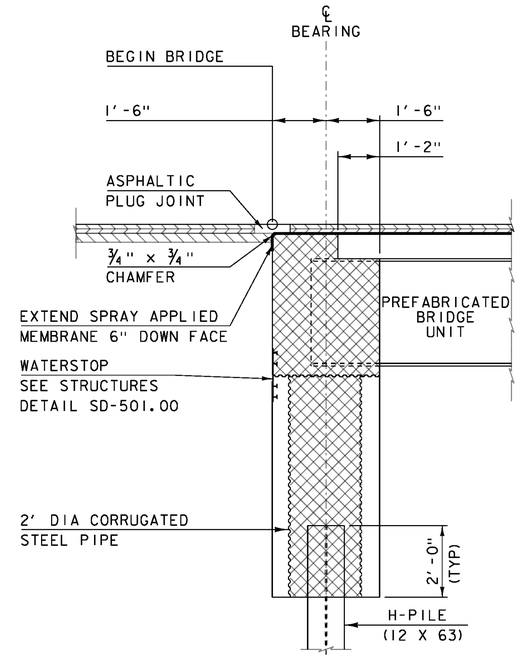
ABUTMENT 1 PLAN (PCU 1)

SCALE ½″ = 1′-0



ABUTMENT 1 ELEVATION (PCU 1)

SCALE ½″ = 1′-0



ABUTMENT TYPICAL

SCALE ½″ = 1′-0

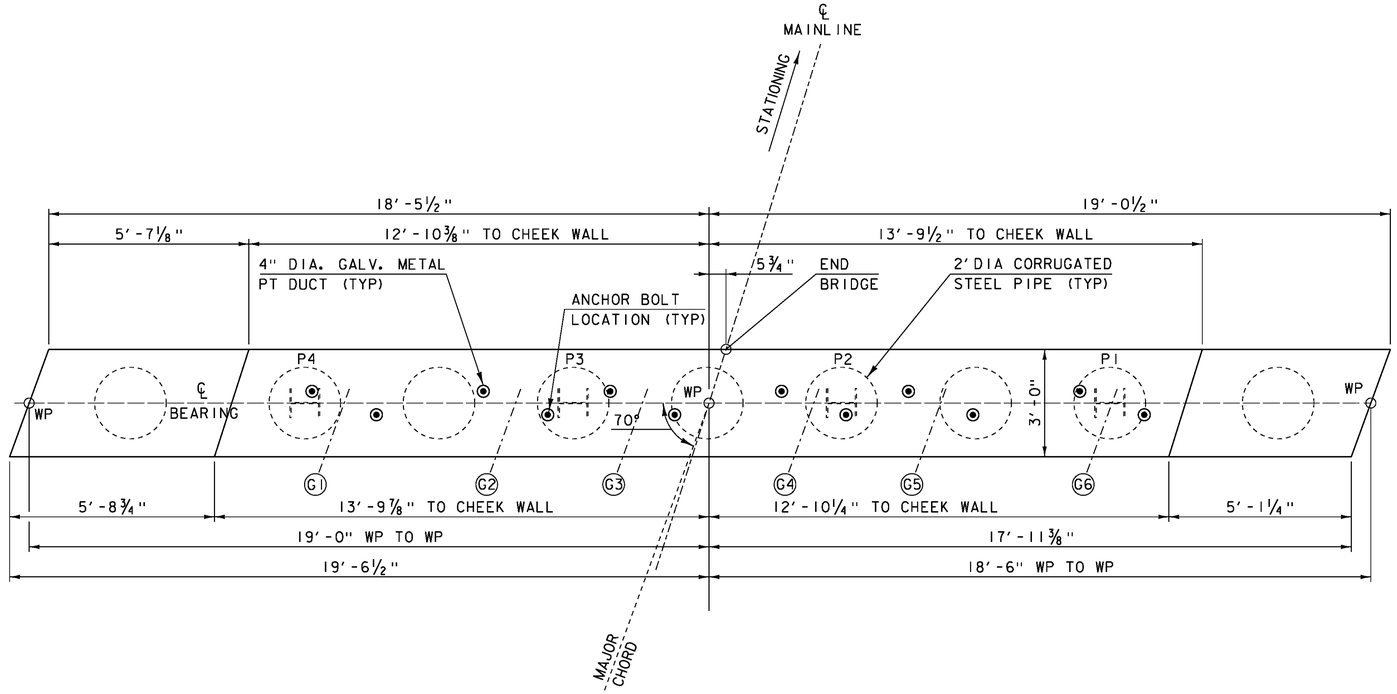
NOTES:

1. 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)

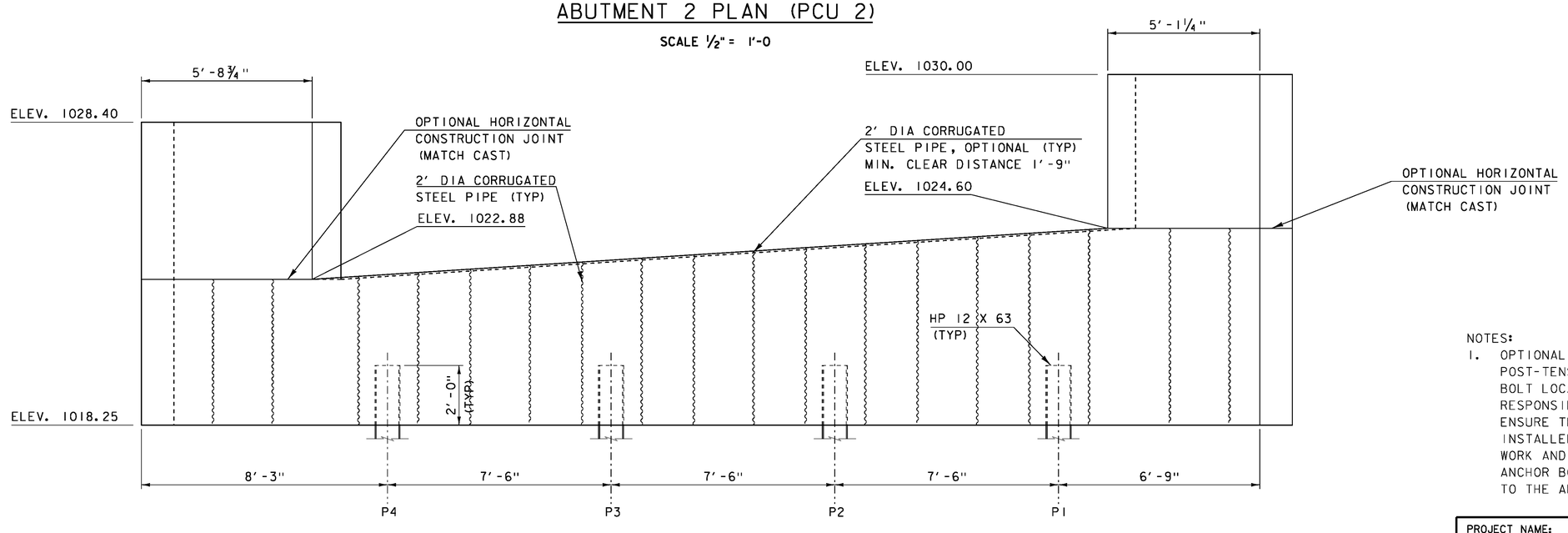
FILE NAME: sl3j100sub.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: W. LAMMER
ABUTMENT 1 PLAN

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



ABUTMENT 2 PLAN (PCU 2)

SCALE ½″ = 1′-0



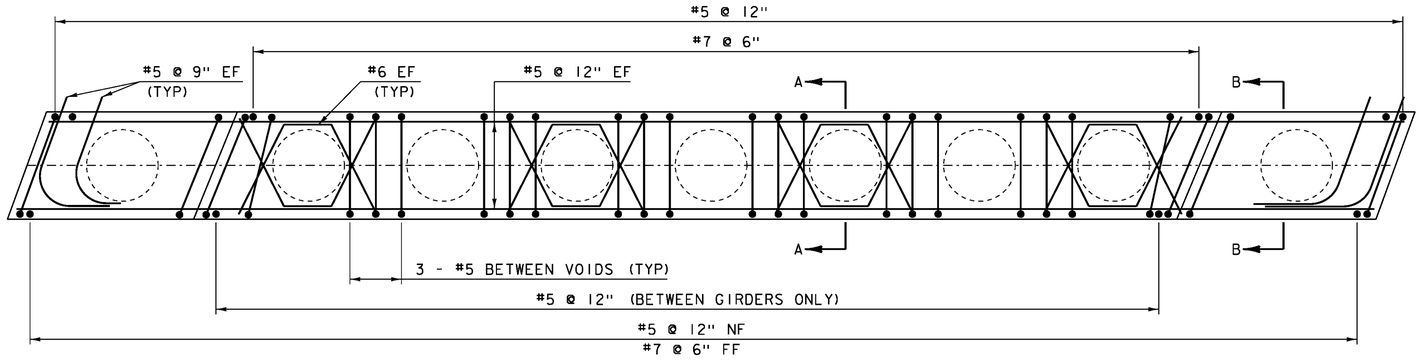
ABUTMENT 2 ELEVATION (PCU 2)

SCALE ½″ = 1′-0

NOTES:

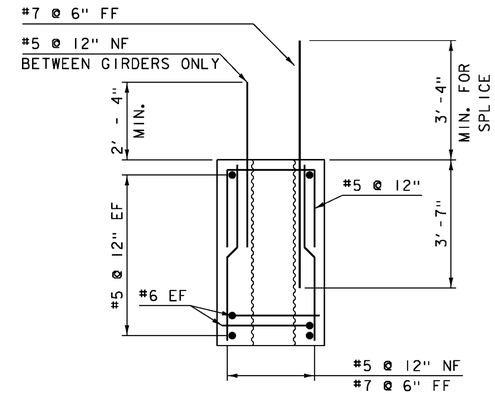
1. OPTIONAL 4″ DIAMETER GALVANIZED METAL POST-TENSIONING DUCTS ARE SHOWN AT ANCHOR BOLT LOCATIONS. THE CONTRACTOR IS RESPONSIBLE FOR DEVELOPING A METHOD TO ENSURE THAT THE ANCHOR BOLTS CAN BE PROPERLY INSTALLED AT ALL LOCATIONS. PAYMENT FOR ALL WORK AND MATERIALS NECESSARY TO INSTALL THE ANCHOR BOLTS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

PROJECT NAME:	CRAFTSBURY
PROJECT NUMBER:	BO 1449(34)
FILE NAME: sl3j100sub.dgn	PLOT DATE: 14-OCT-2015
PROJECT LEADER: R. YOUNG	DRAWN BY: W. LAMMER
DESIGNED BY: W. LAMMER	CHECKED BY: S. COLEY
ABUTMENT 2 PLAN	SHEET 21 OF 42



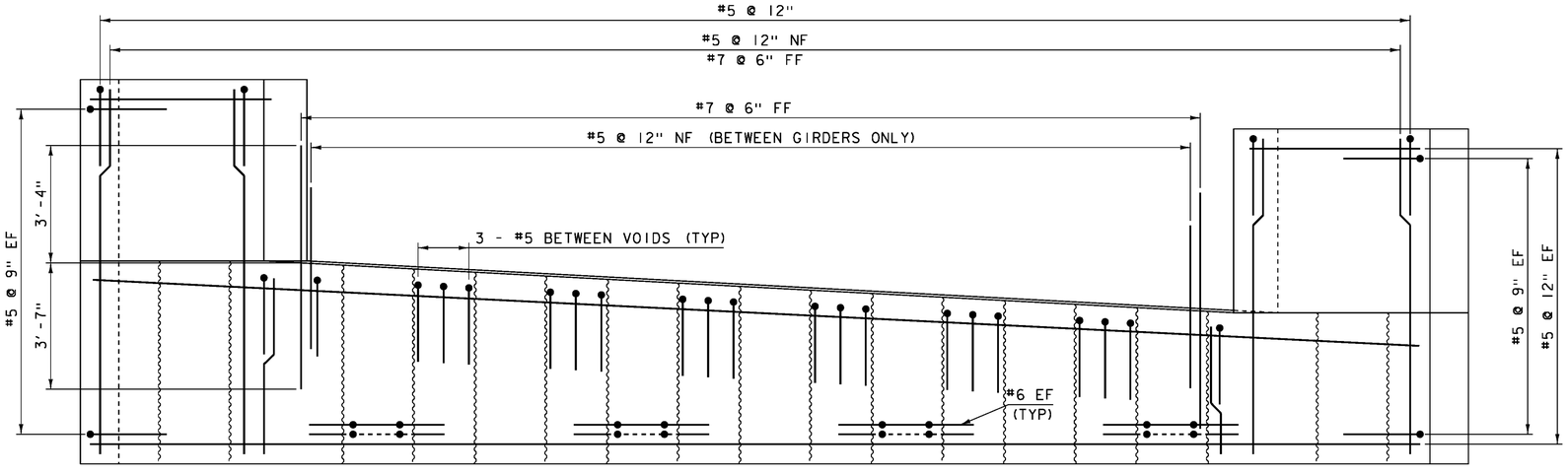
ABUTMENT 1 REINFORCING PLAN (PCU 1)

SCALE 1/2" = 1'-0



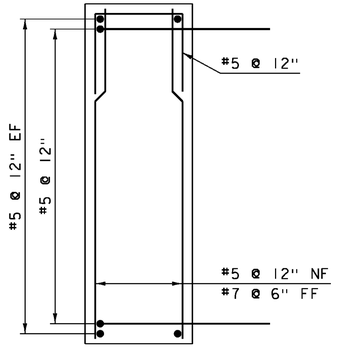
SECTION A-A

NTS



ABUTMENT 1 REINFORCING ELEVATION (PCU 1)

SCALE 1/2" = 1'-0



SECTION B-B

NTS

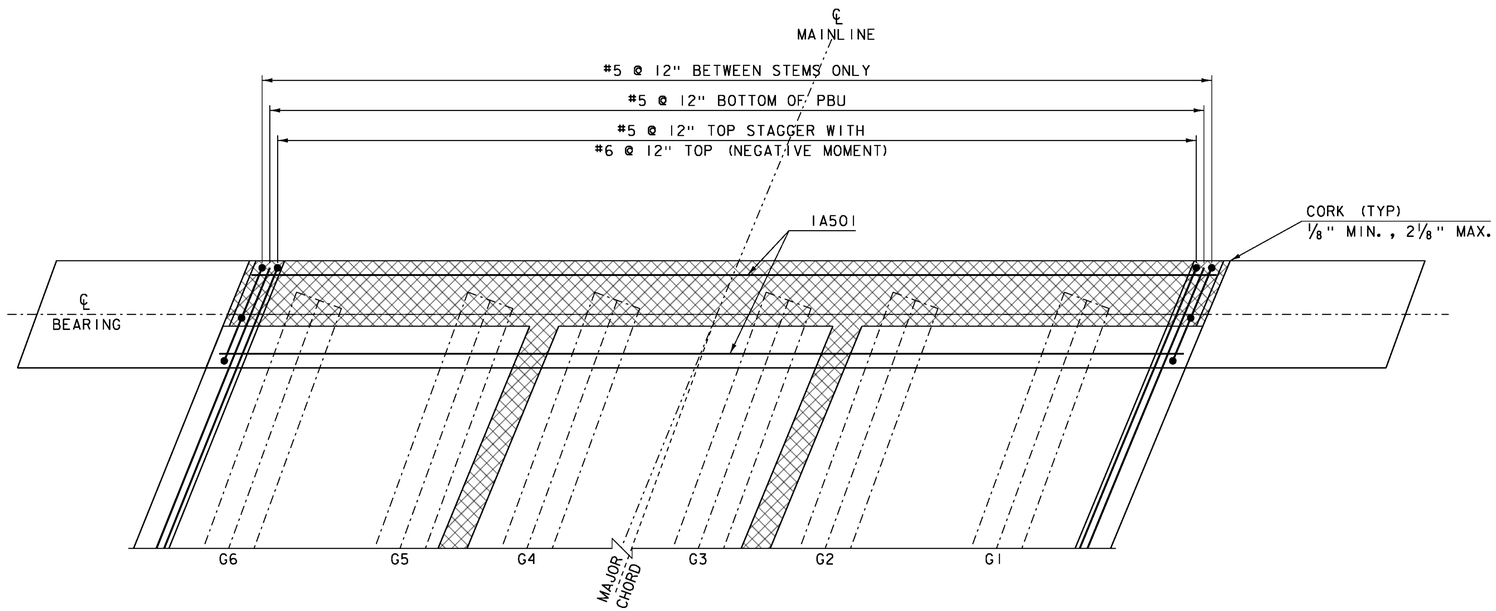
NOTES:
1. ABUTMENT 1 SHOWN, ABUTMENT 2 SIMILAR

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)

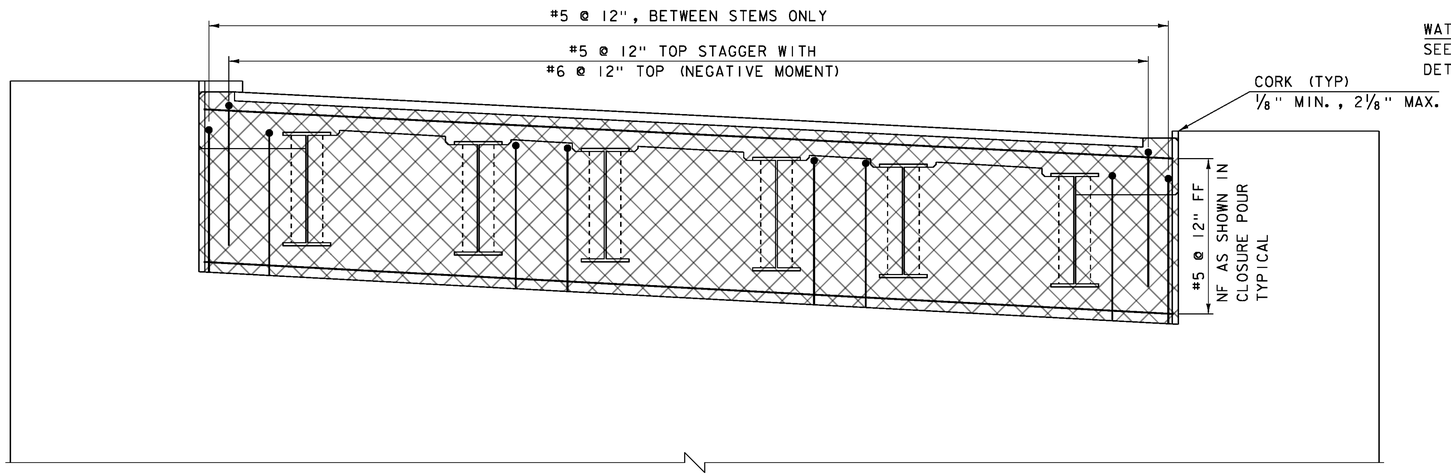
FILE NAME: sl3j100sub.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: W. LAMMER
ABUTMENT REINFORCING

PLOT DATE: 14-OCT-2015
DRAWN BY: W. LAMMER
CHECKED BY: S. COLEY
SHEET 22 OF 42



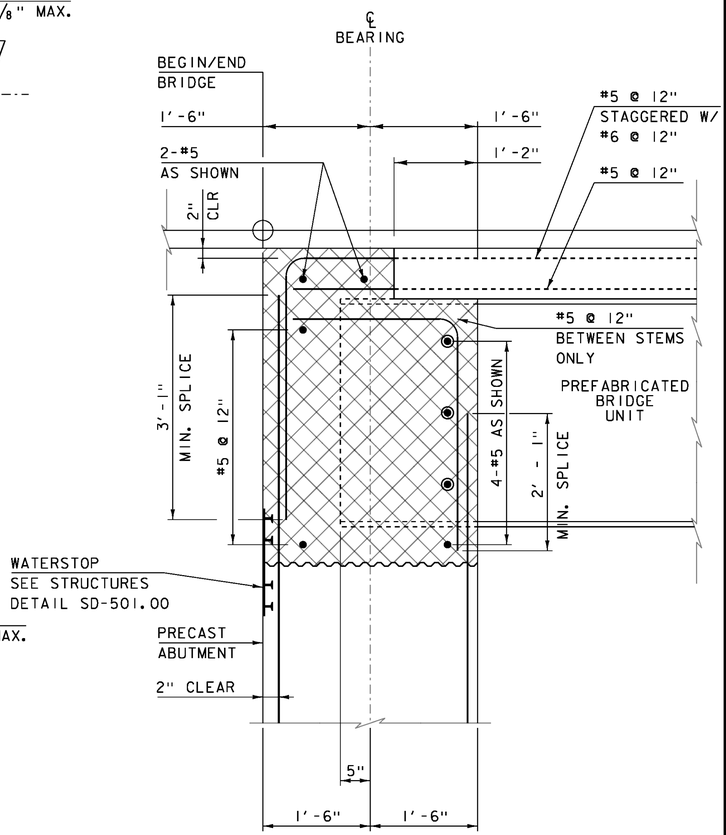
CLOSURE POUR PLAN

SCALE 1/2" = 1'-0



CLOSURE POUR ELEVATION

SCALE 1/2" = 1'-0



CLOSURE POUR TYPICAL

SCALE 1" = 1'-0

NOTE:

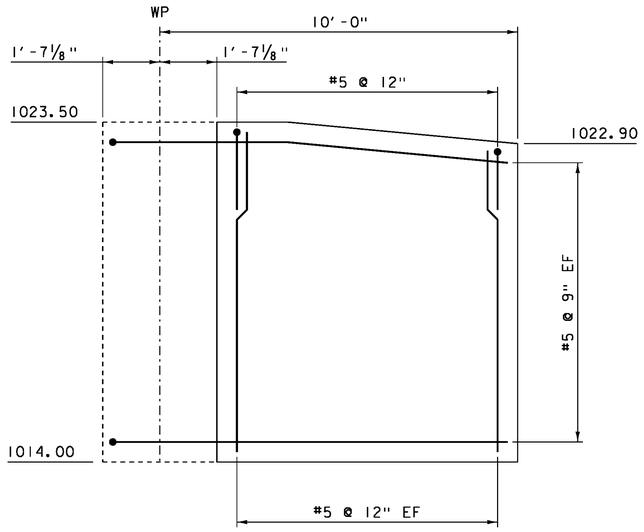
1. ABUTMENT 1 REINFORCING SHOWN. ABUTMENT 2 REINFORCING SIMILAR.

2. SEE ABUTMENT REINFORCING FOR ADDITIONAL REINFORCING IN THE CLOSURE POUR.

NOTE:

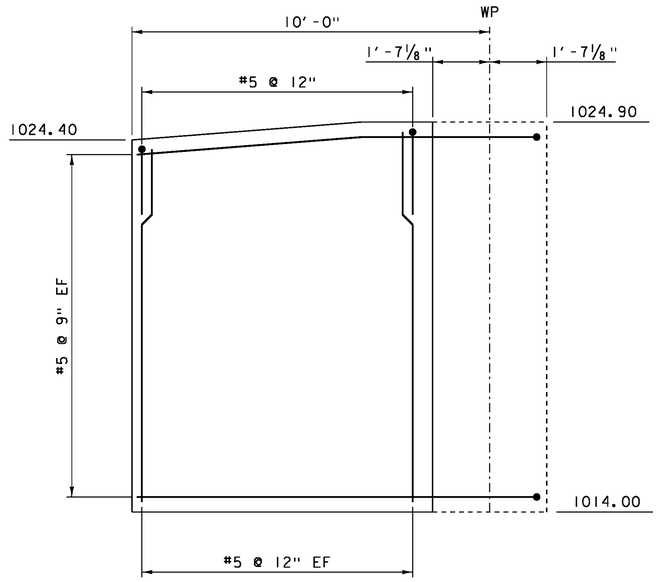
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME:	CRAFTSBURY
PROJECT NUMBER:	BO 1449(34)
FILE NAME: sl3j100sub.dgn	PLOT DATE: 14-OCT-2015
PROJECT LEADER: R. YOUNG	DRAWN BY: W. LAMMER
DESIGNED BY: W. LAMMER	CHECKED BY: S. COLEY
ABUTMENT CLOSURE POUR DETAILS	SHEET 23 OF 42



WINGWALL 1 ELEVATION

SCALE ½" = 1'-0

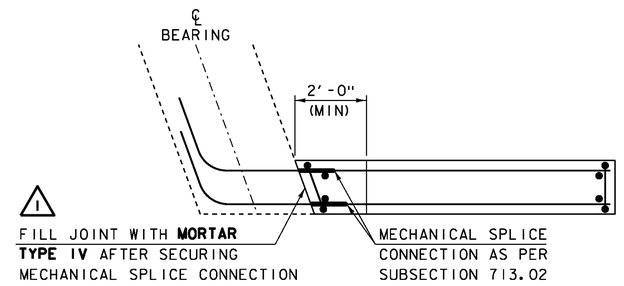


WINGWALL 2 ELEVATION

SCALE ½" = 1'-0

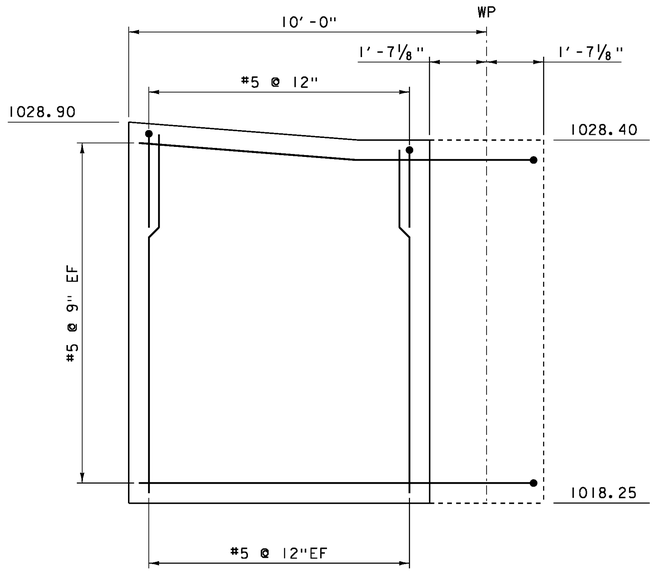
NOTES:

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.



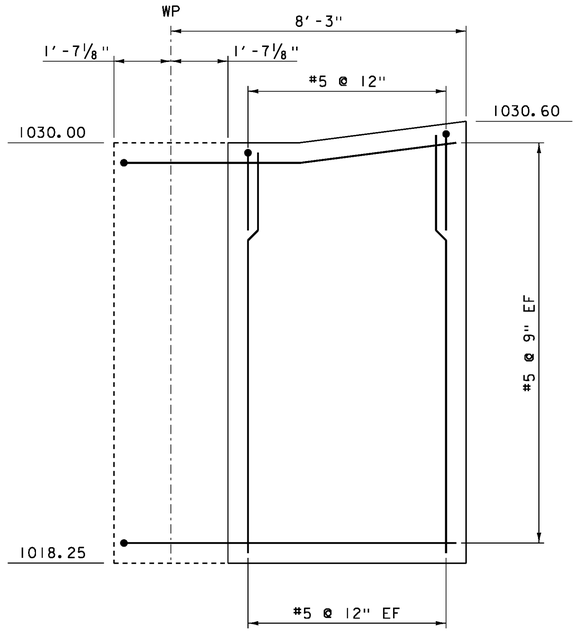
WINGWALL TYPICAL PLAN VIEW

SCALE ½" = 1'-0



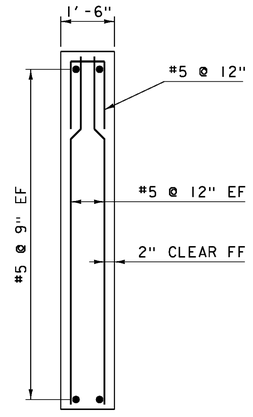
WINGWALL 3 ELEVATION

SCALE ½" = 1'-0



WINGWALL 4 ELEVATION

SCALE ½" = 1'-0



WINGWALL TYPICAL SECTION

SCALE ½" = 1'-0

NOTE:

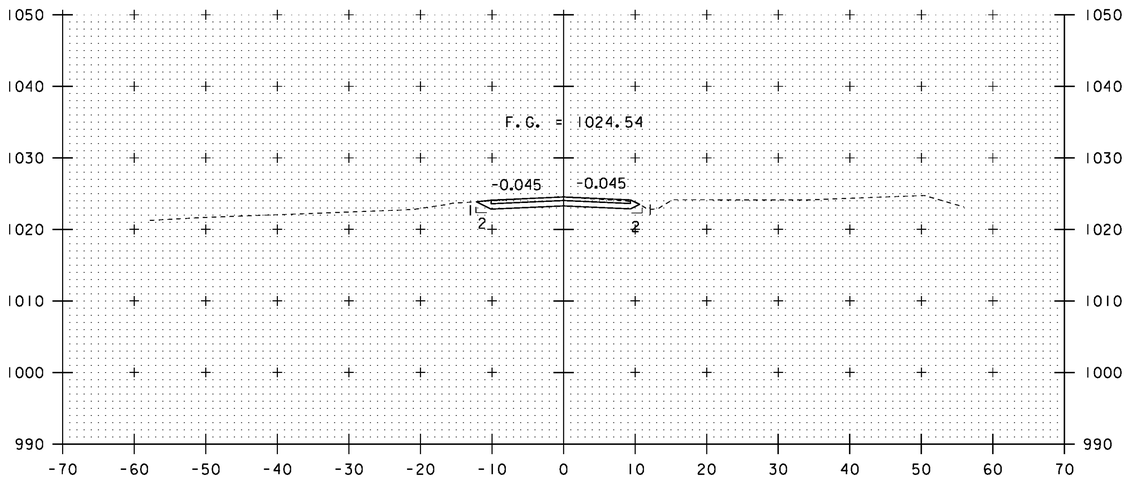
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

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

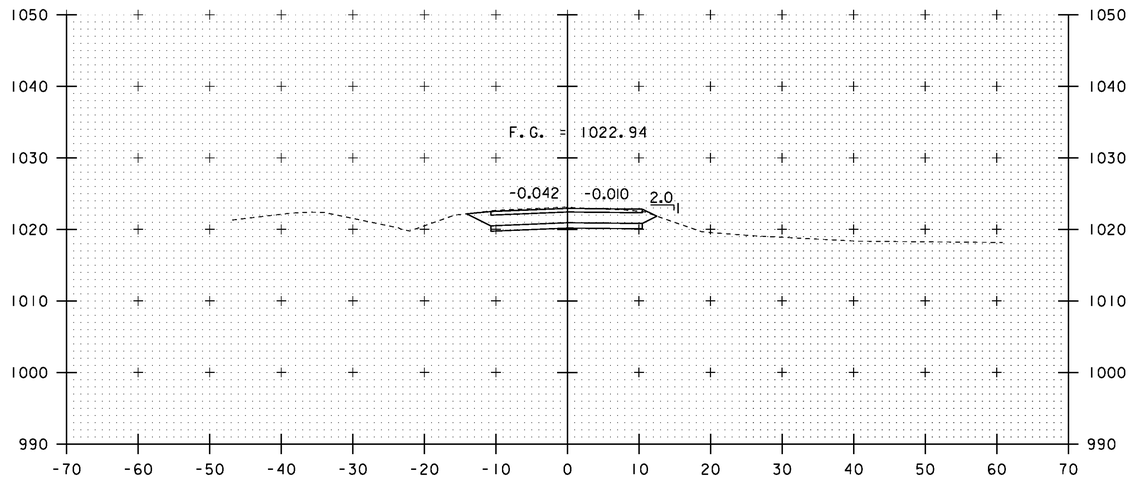
PROJECT NAME: CRAFTSBURY
PROJECT NUMBER: BO 1449(34)

FILE NAME: s13j100sub.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: W. LAMMER
WINGWALL DETAILS

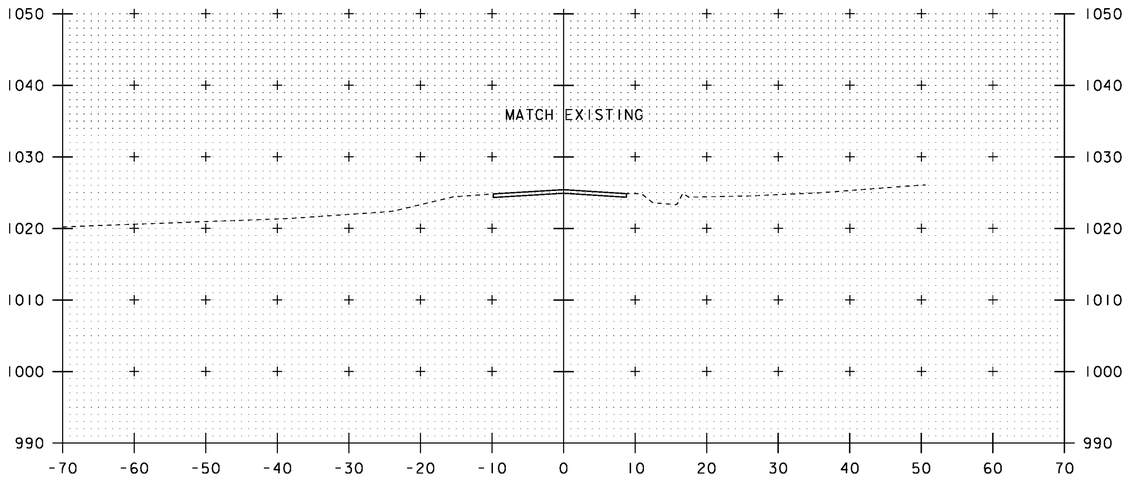
PLOT DATE: 17-NOV-2015
DRAWN BY: W. LAMMER
CHECKED BY: S. COLEY
SHEET 24 OF 42



10+25

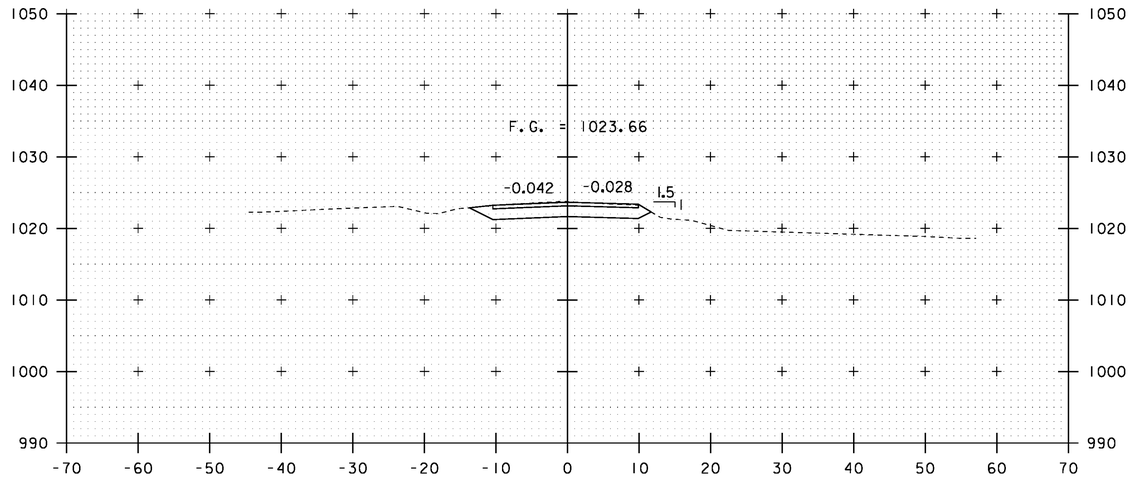


10+75



STA 10+00.00
BEGIN APPROACH

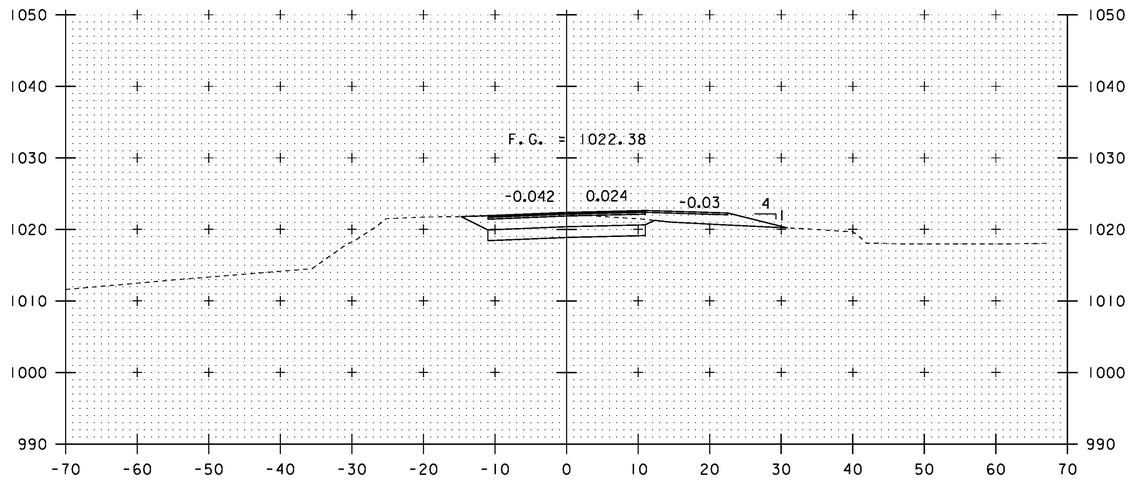
10+00



10+50

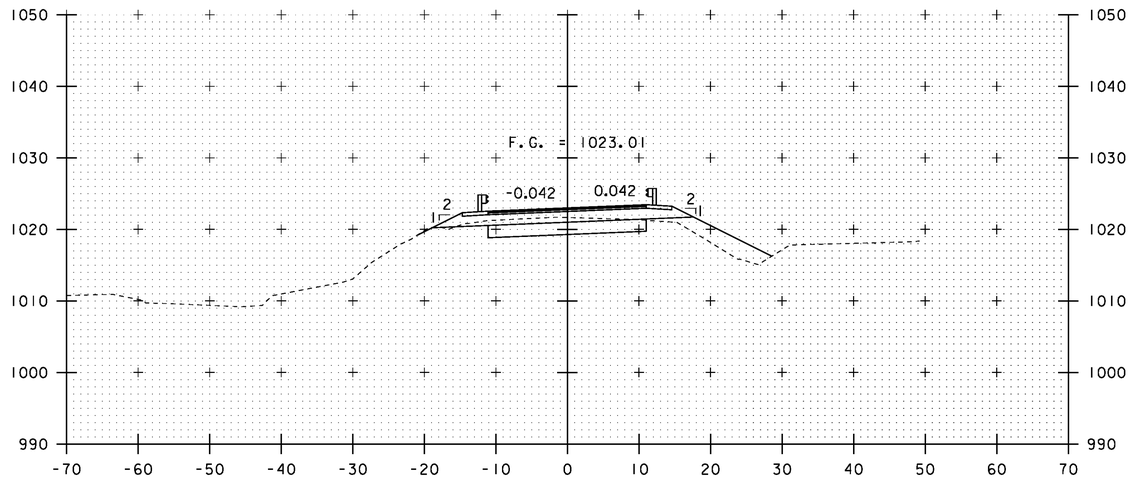
STA. 10+00 TO STA. 10+75

PROJECT NAME: CRAFTSBURY	
PROJECT NUMBER: BO 1449(34)	
FILE NAME: s13j100xs.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

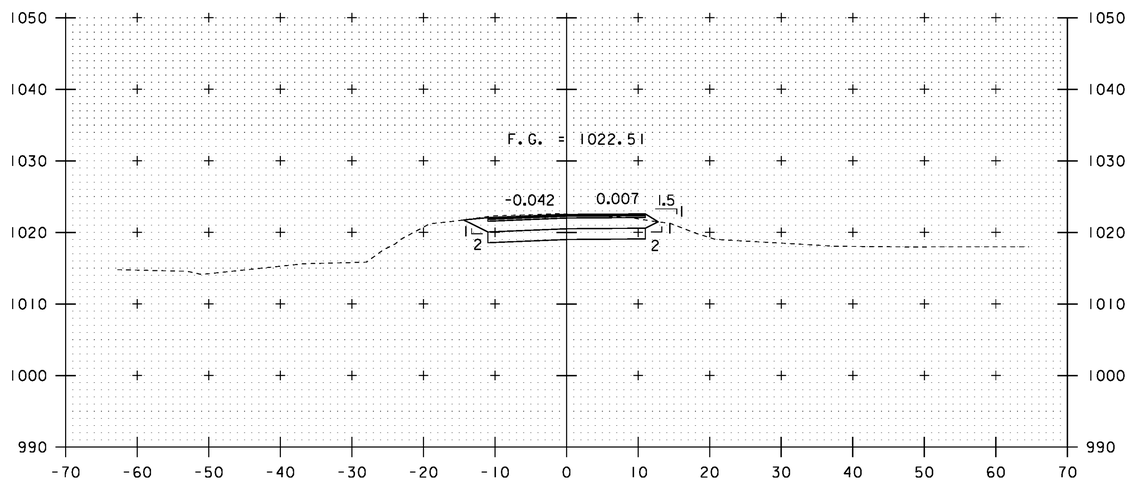


11+25

STA 11+28.50 RT
RECONSTRUCT 12' DRIVE (PULL-OFF AREA)

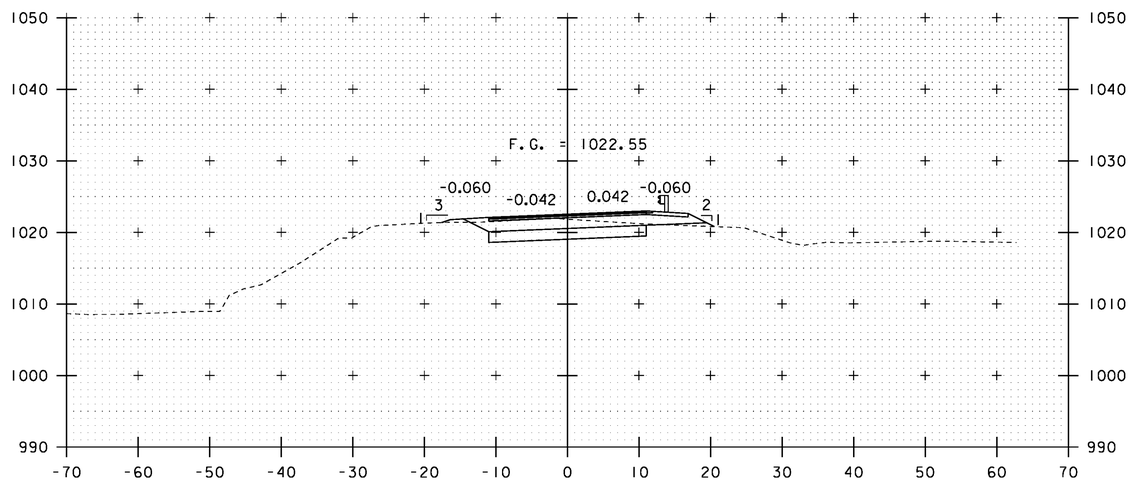


11+75



STA 11+00.00
BEGIN PROJECT

11+00



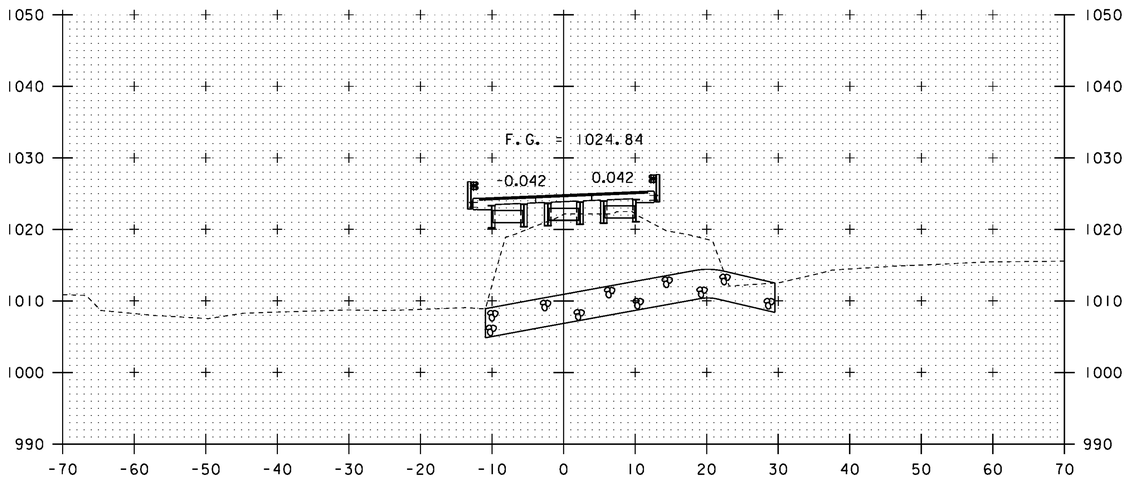
11+50

STA. 11+00 TO STA. 11+75

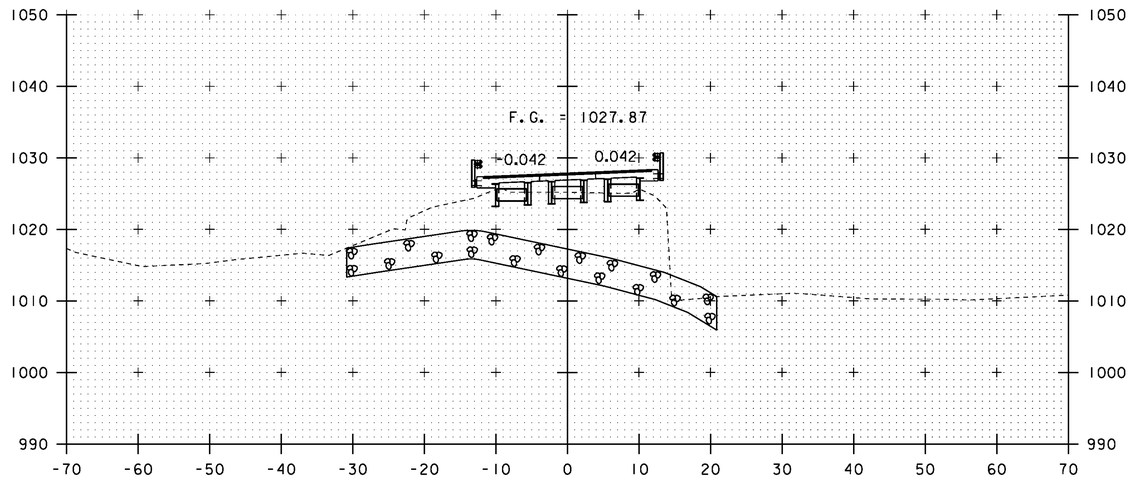
PROJECT NAME: CRAFTSBURY
PROJECT NUMBER: BO 1449(34)

FILE NAME: si3j100xs.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: W. LAMMER
MAINLINE CROSS SECTIONS 2

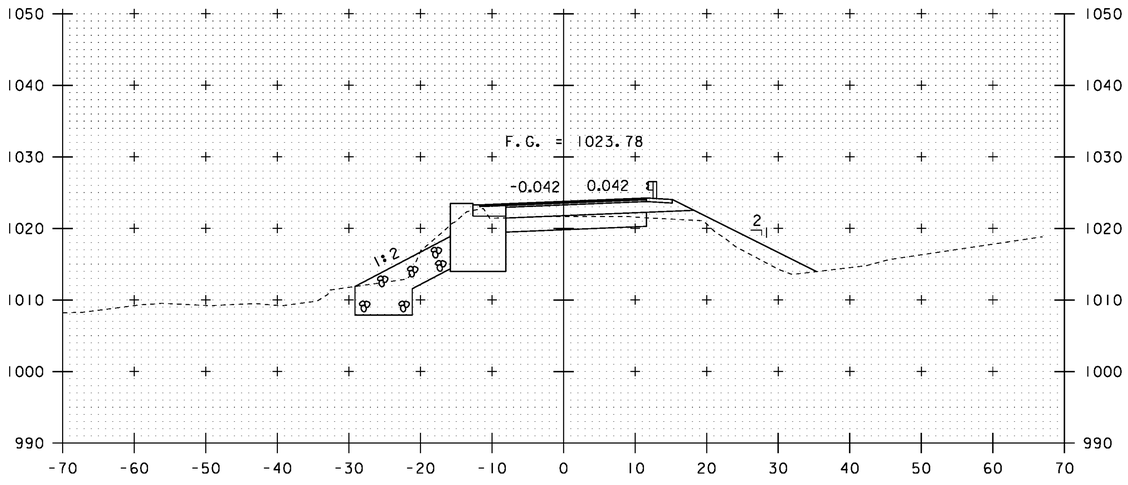
PLOT DATE: 14-OCT-2015
DRAWN BY: S. COLEY
CHECKED BY: W. LAMMER
SHEET 26 OF 42



12+25

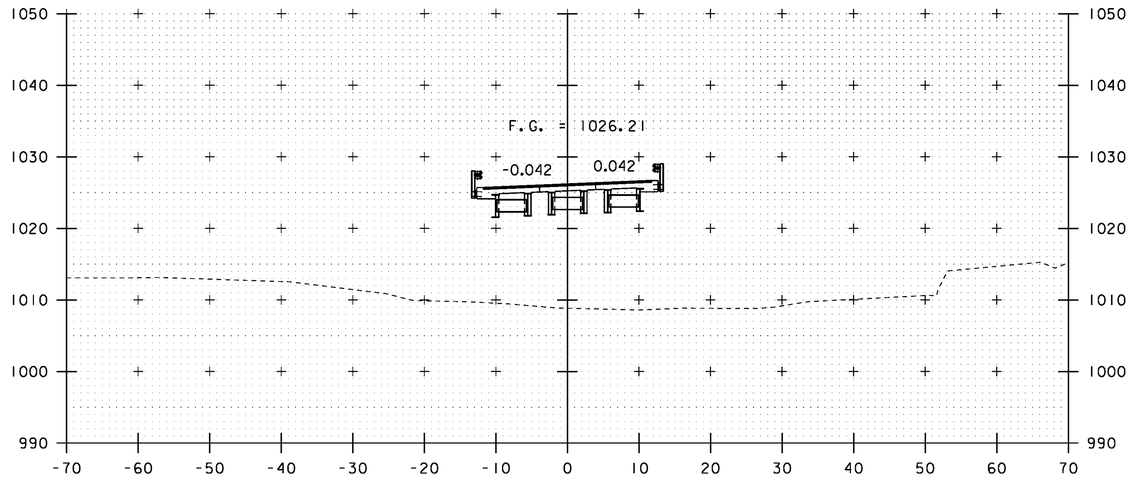


12+75



BEGIN BRIDGE
STA 12+03.38

12+00

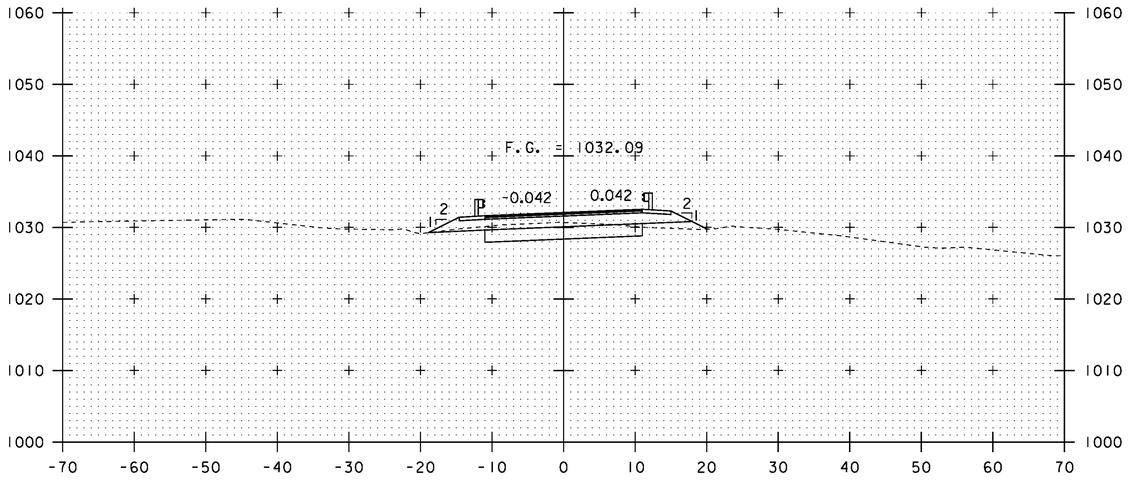


12+50

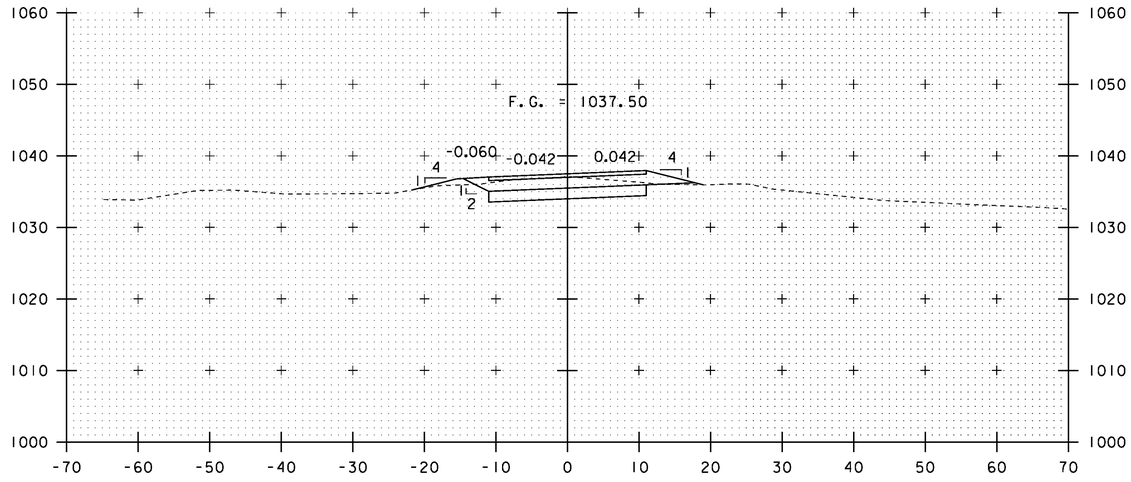
STA. 12+00 TO STA. 12+75

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

FILE NAME: s13j100xs.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 3	SHEET 27 OF 42



13+25

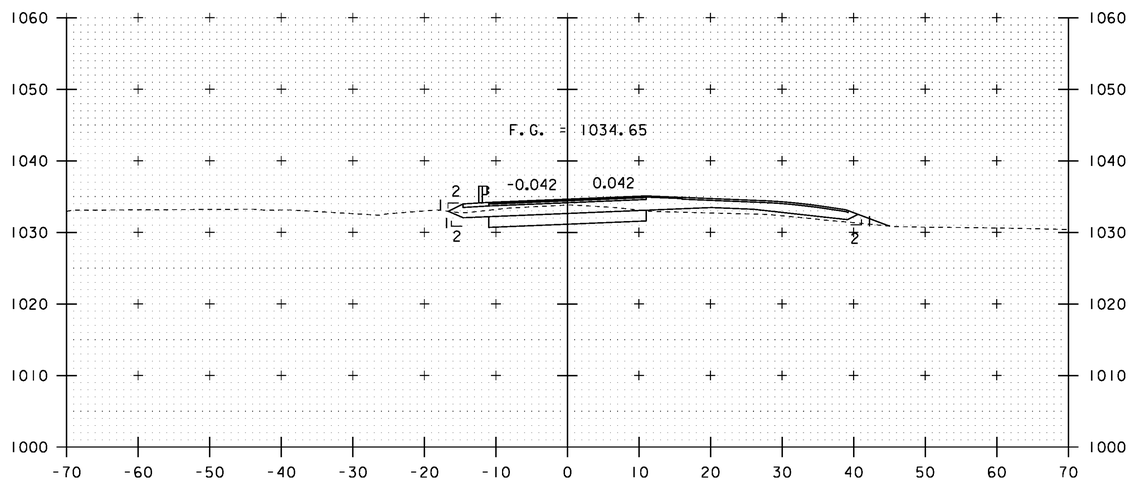


STA 13+75.00
END PROJECT

13+75

END BRIDGE
STA 12+91.57

13+00



13+50

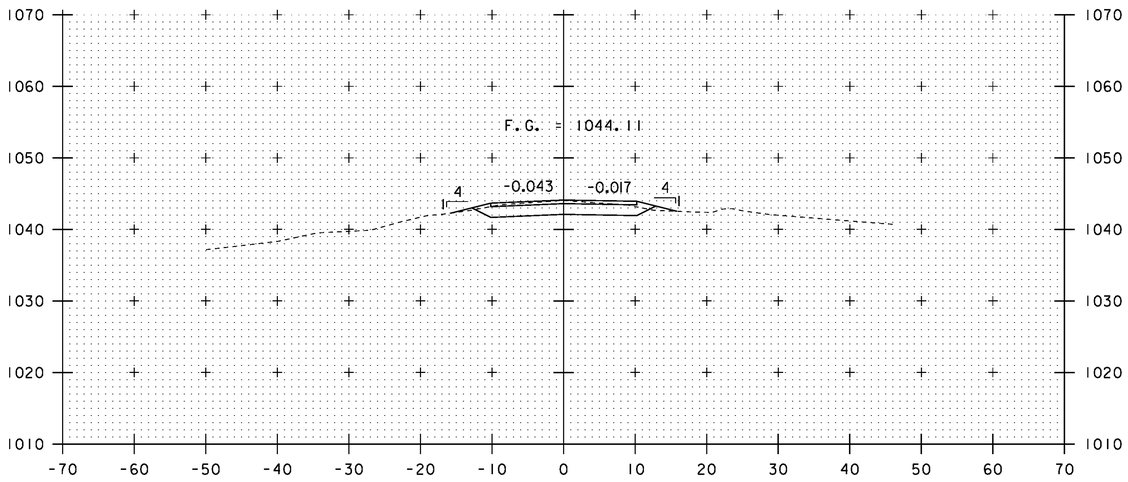
STA 13+46.30 RT
RECONSTRUCT DRIVE
12' WIDE

STA. 13+00 TO STA. 13+75

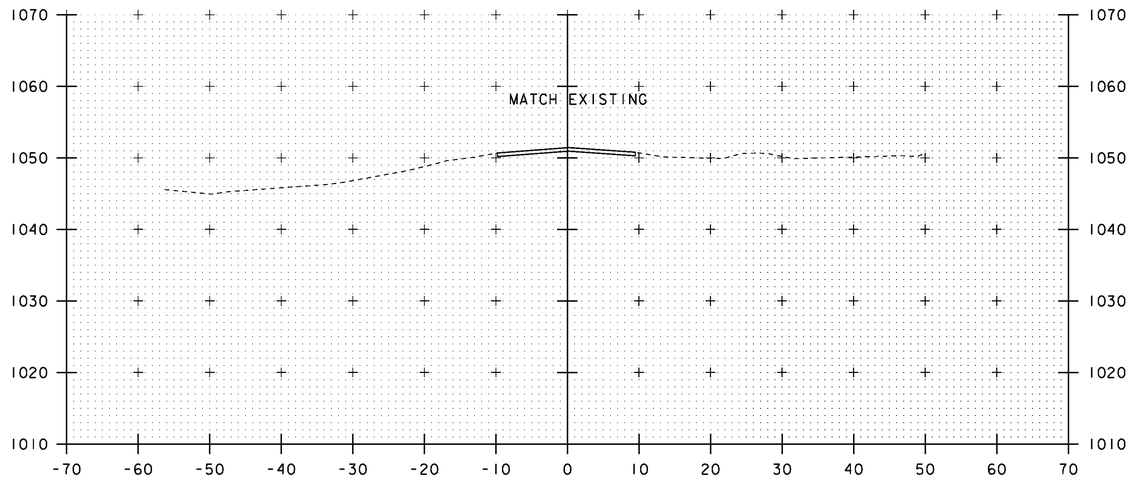
PROJECT NAME: CRAFTSBURY
PROJECT NUMBER: BO 1449(34)

FILE NAME: s13j100xs.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: W. LAMMER
MAINLINE CROSS SECTIONS 4

PLOT DATE: 14-OCT-2015
DRAWN BY: S. COLEY
CHECKED BY: W. LAMMER
SHEET 28 OF 42

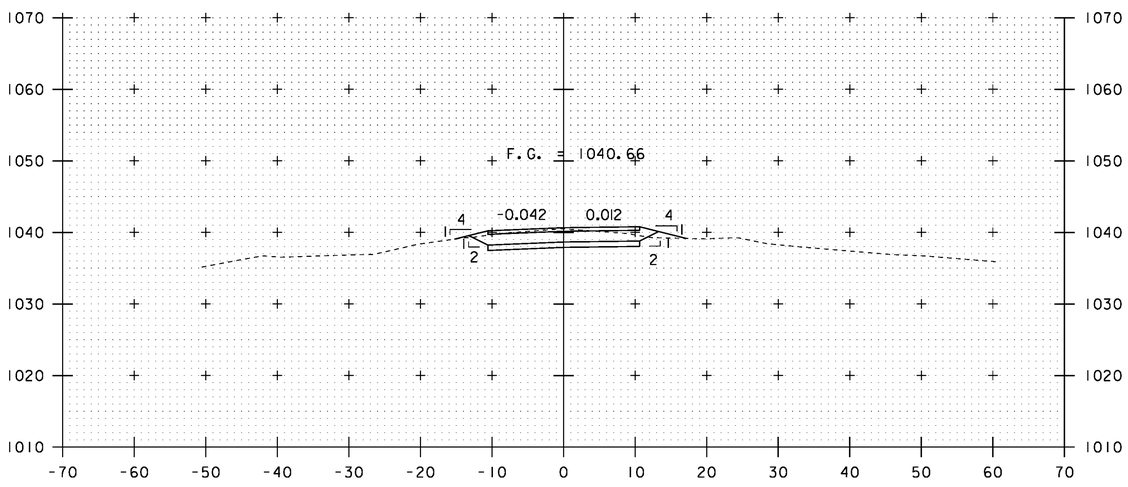


14+25

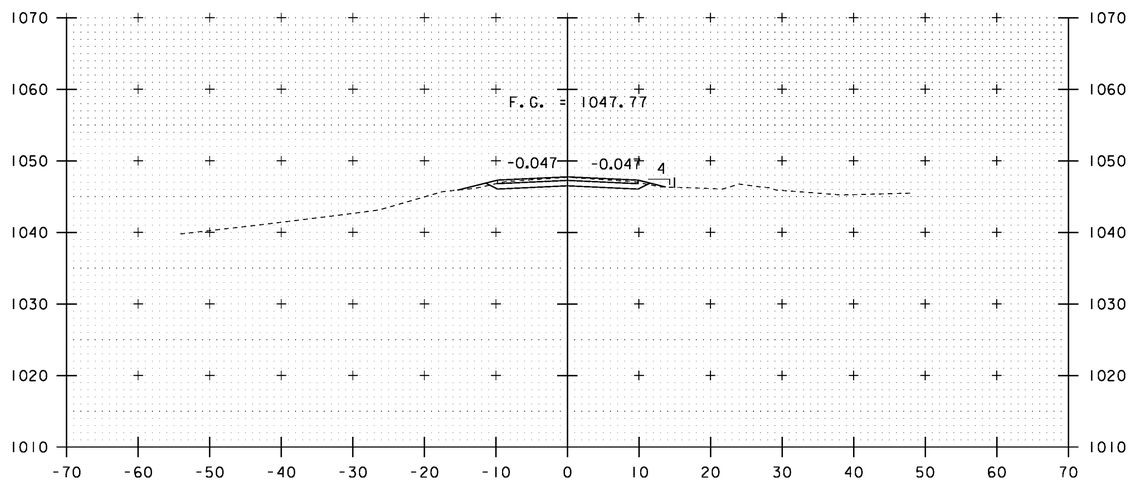


STA 14+75.00
END APPROACH

14+75



14+00

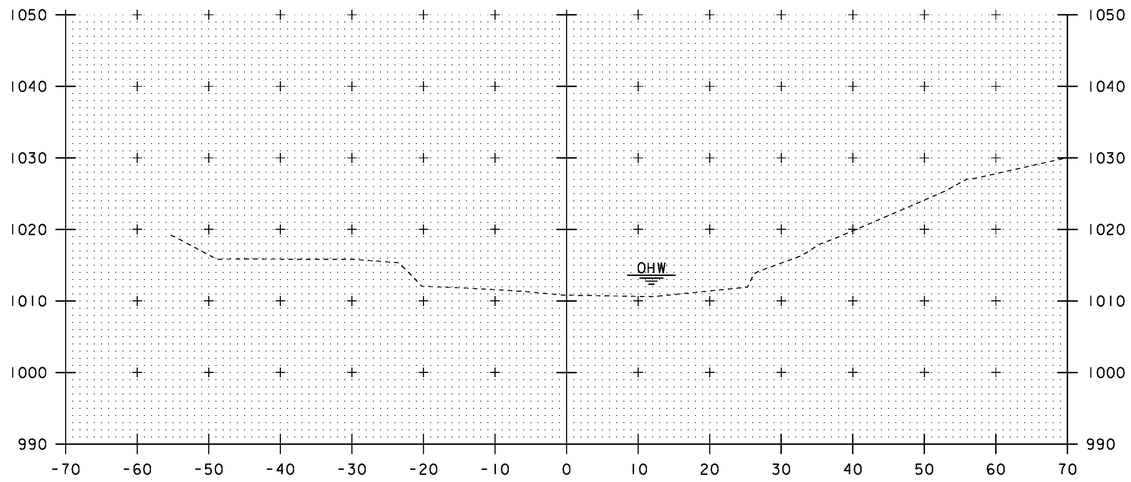


14+50

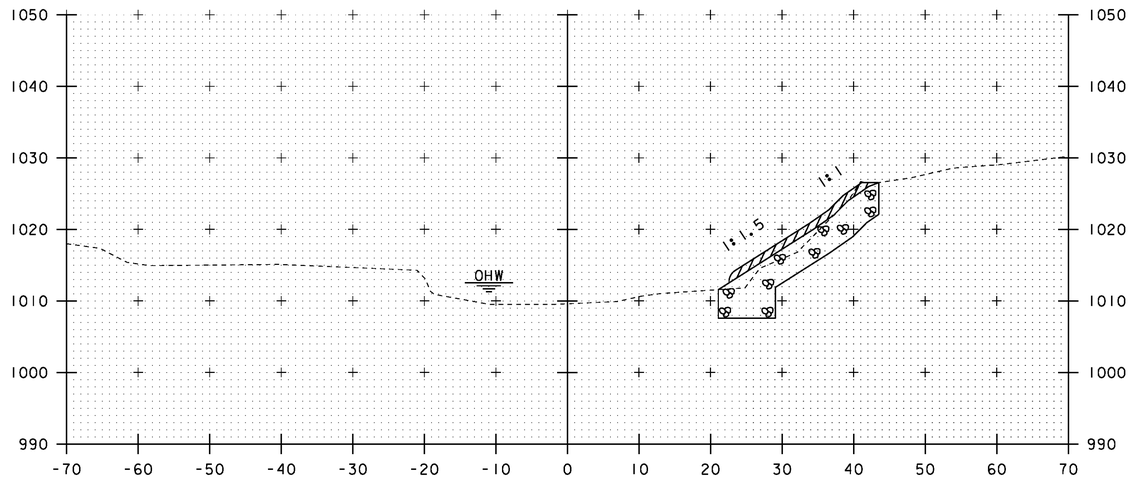
STA. 14+00 TO STA. 14+75

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

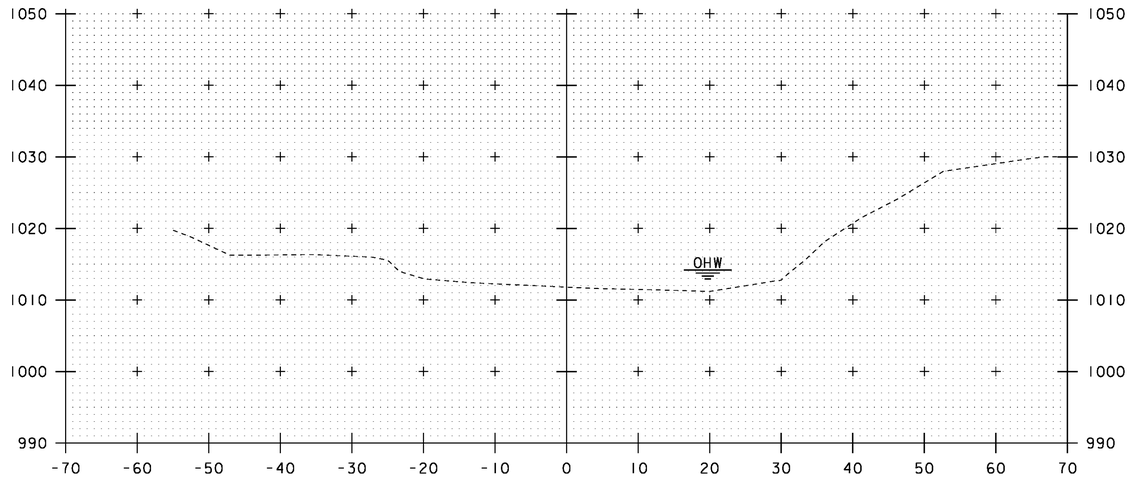
FILE NAME: s13j100xs.dgn	PLOT DATE: 14-OCT-2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. COLEY
DESIGNED BY: W. LAMMER	CHECKED BY: W. LAMMER
MAINLINE CROSS SECTIONS 5	SHEET 29 OF 42



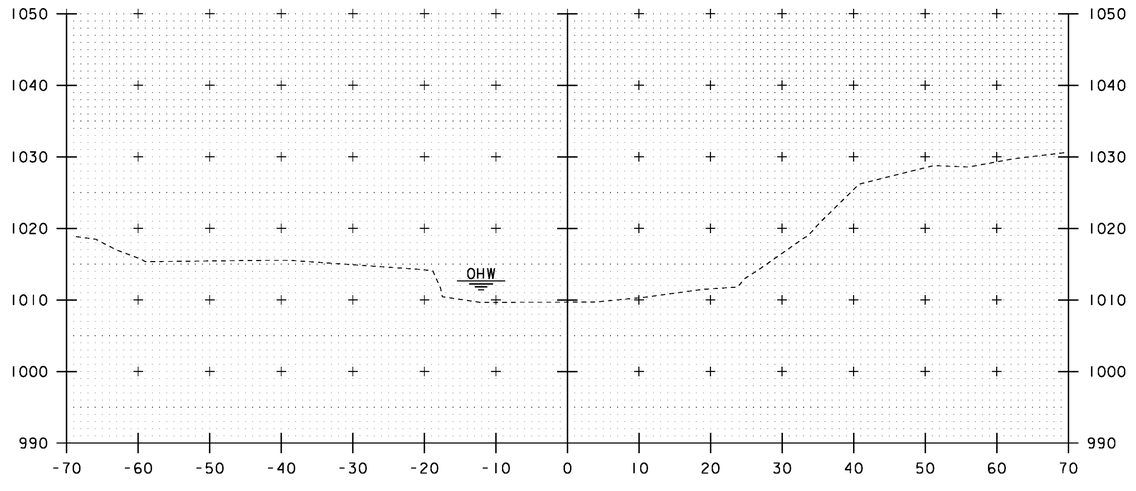
50+25



50+60



50+00



50+50

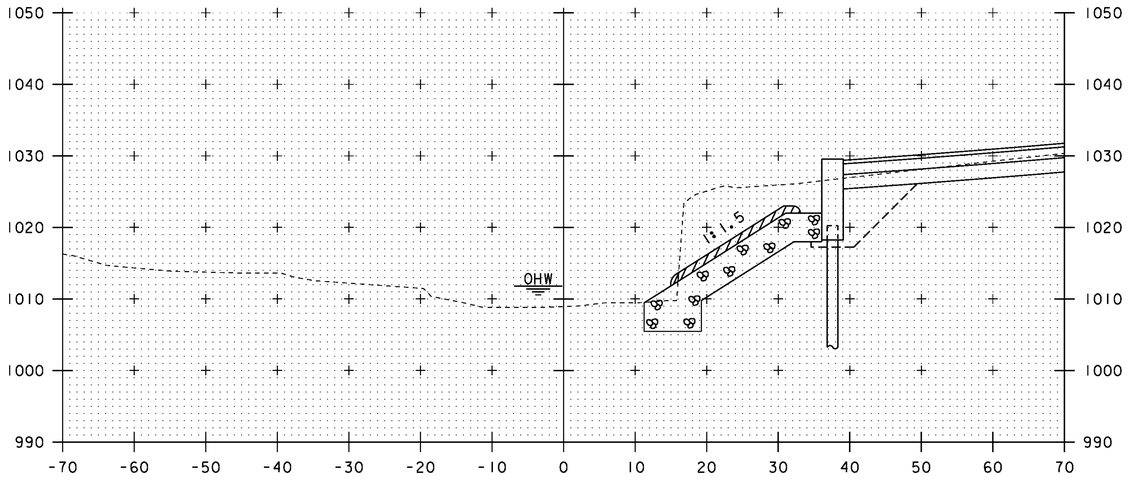
BEGIN STONE FILL, TYPE IV
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL
UNCLASSIFIED CHANNEL EXCAVATION
STA 50+55.40 RT

STA. 50+00 TO STA. 50+50

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

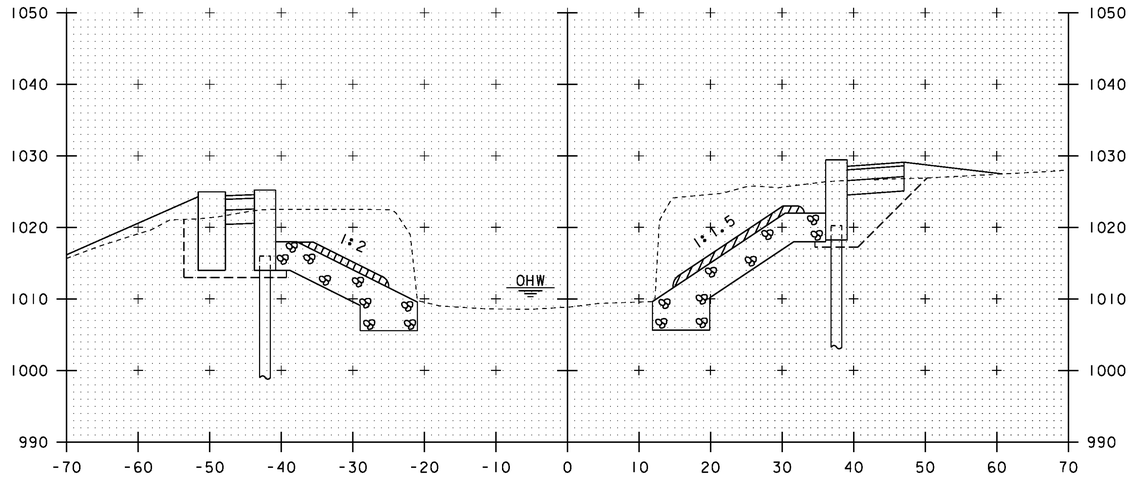
FILE NAME: s13j100xs.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: W. LAMMER
CHANNEL CROSS SECTIONS 1

PLOT DATE: 14-OCT-2015
DRAWN BY: S. COLEY
CHECKED BY: W. LAMMER
SHEET 30 OF 42

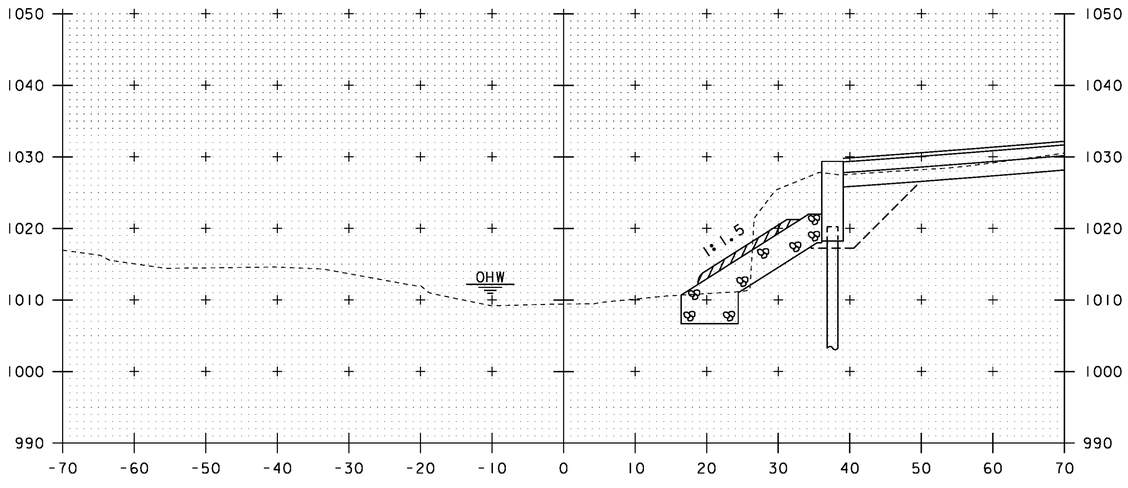


BEGIN STONE FILL, TYPE IV
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL
UNCLASSIFIED CHANNEL EXCAVATION
STA 50+80.29 LT

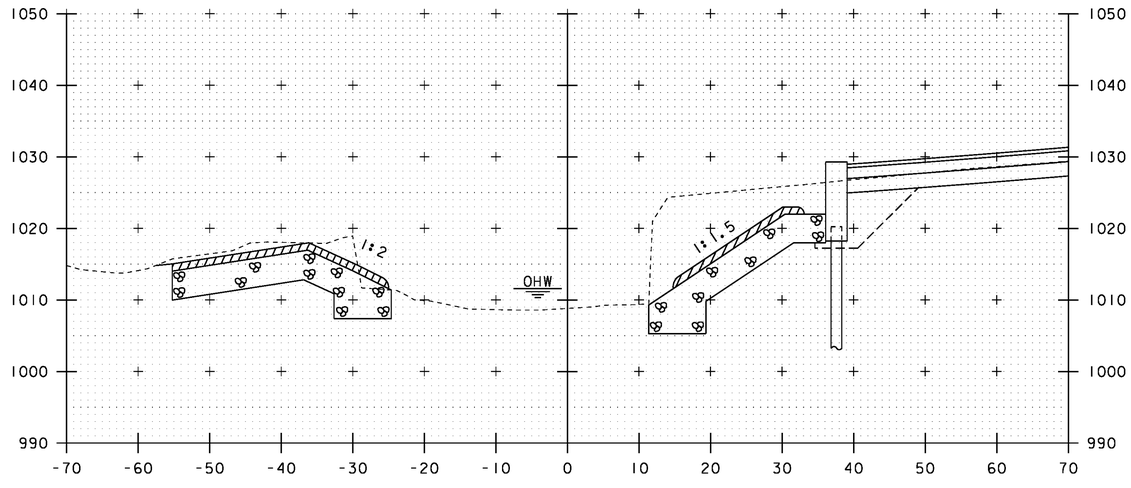
50+80



51+00



50+70



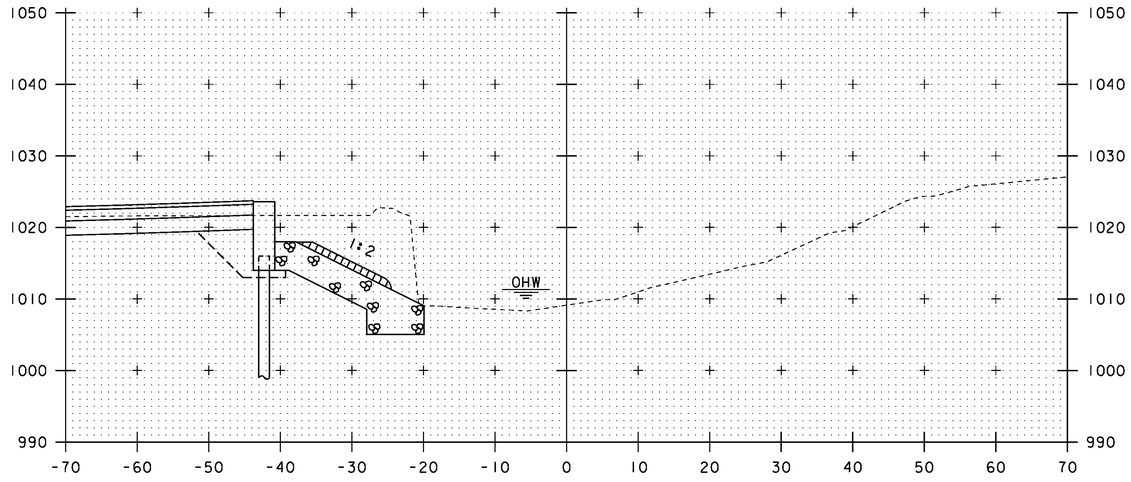
50+90

STA. 50+70 TO STA. 51+00

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

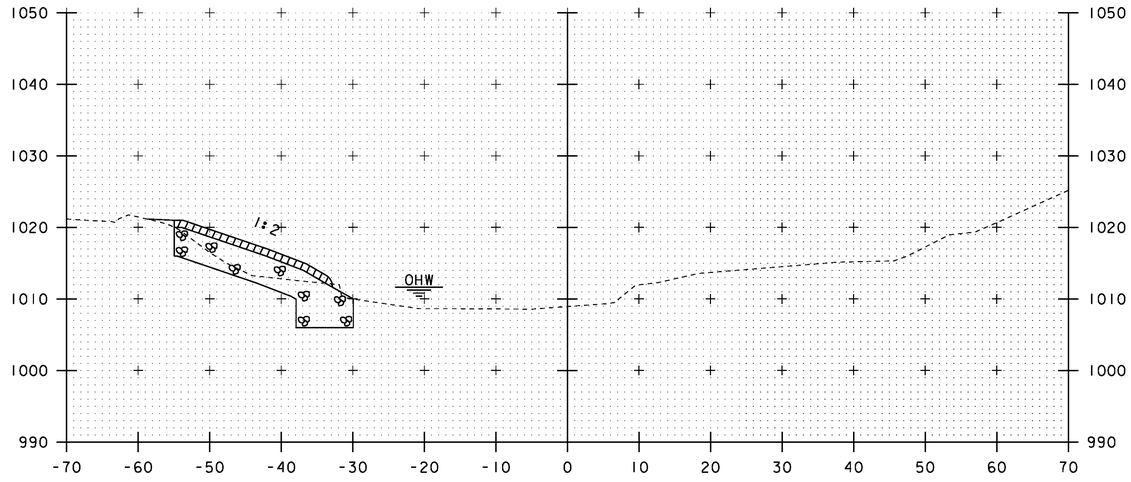
FILE NAME: s13j100xs.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: W. LAMMER
CHANNEL CROSS SECTIONS 2

PLOT DATE: 14-OCT-2015
DRAWN BY: S. COLEY
CHECKED BY: W. LAMMER
SHEET 31 OF 42

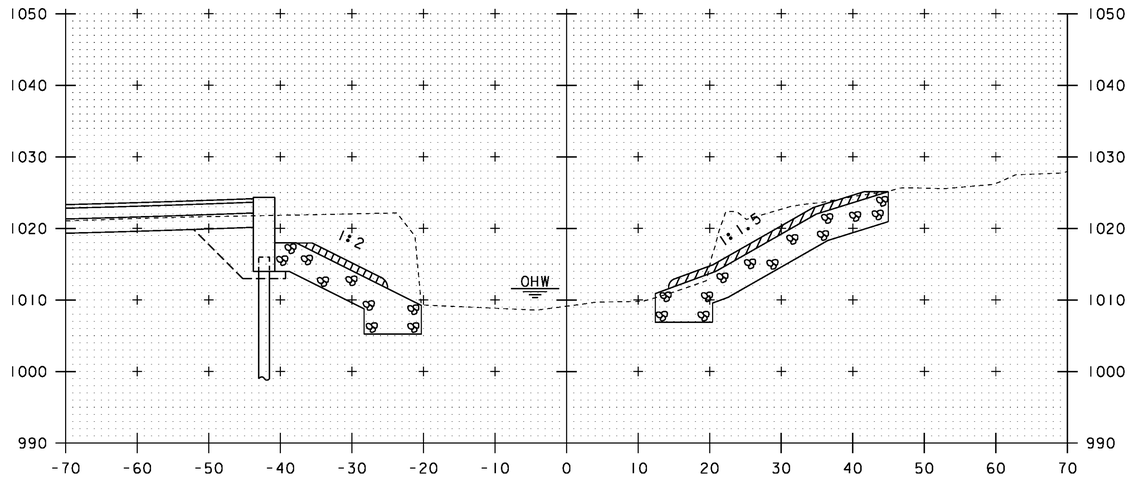


51+20

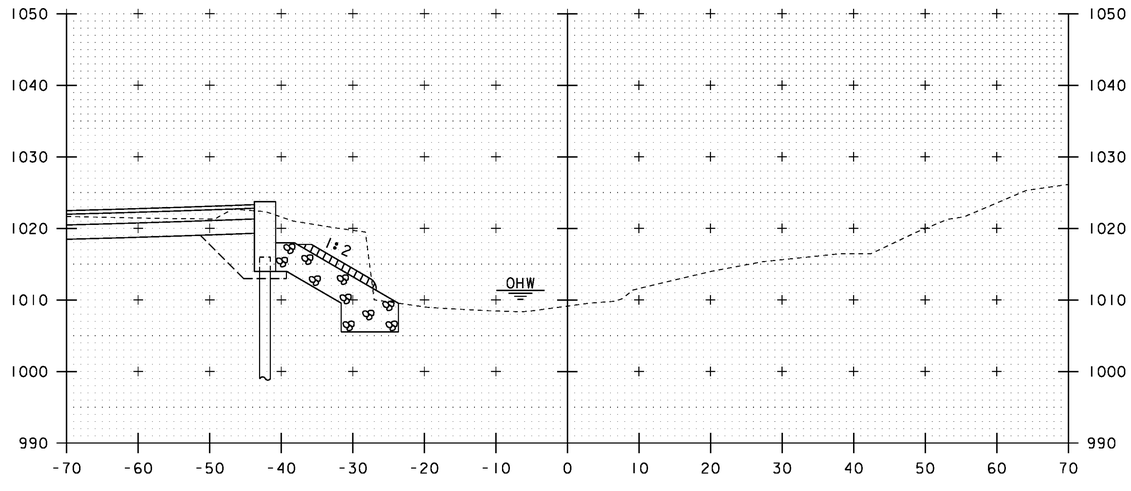
END STONE FILL, TYPE IV
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL
UNCLASSIFIED CHANNEL EXCAVATION
STA 51+20.00 RT



51+40



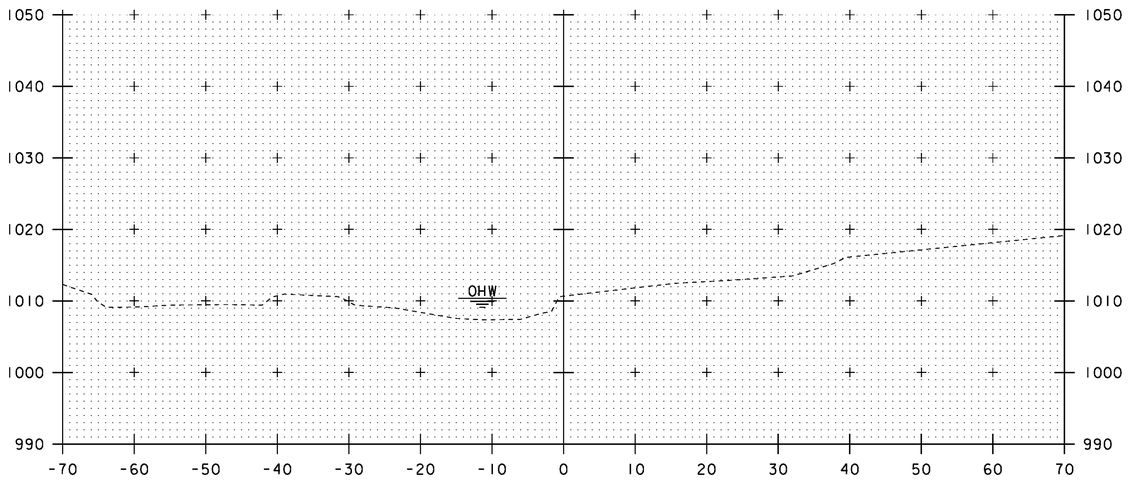
51+10



51+30

STA. 51+10 TO STA. 51+30

PROJECT NAME: CRAFTSBURY	
PROJECT NUMBER: BO 1449(34)	
FILE NAME: s13j100xs.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 3	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

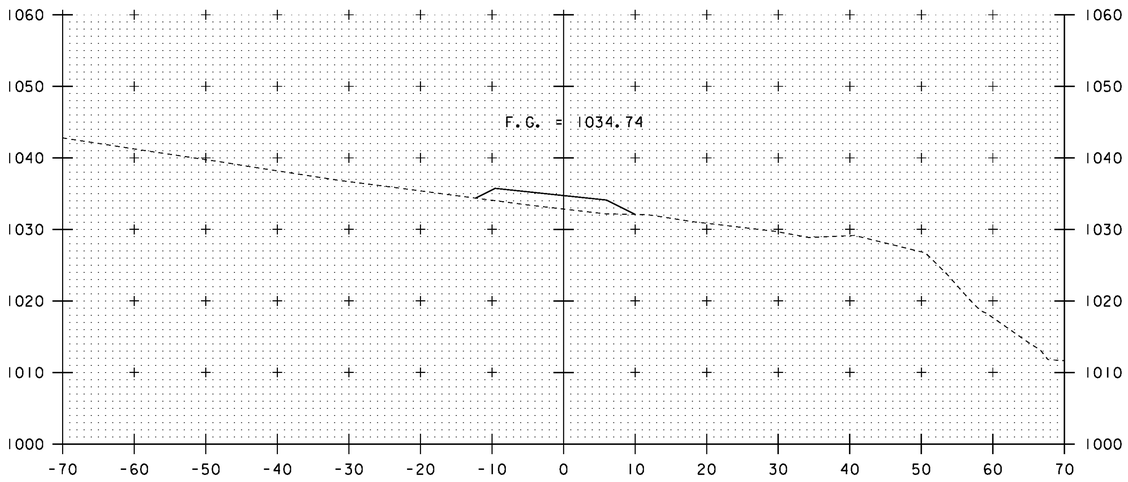
52+00

STA. 51+50 TO STA. 52+00

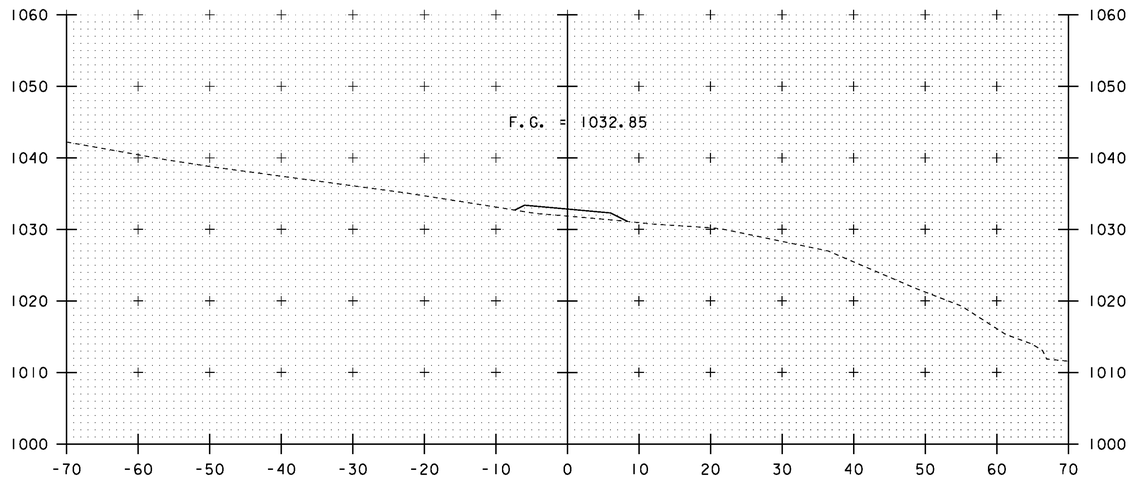
PROJECT NAME: CRAFTSBURY
PROJECT NUMBER: BO 1449(34)

FILE NAME: s13j100xs.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: W. LAMMER
CHANNEL CROSS SECTIONS 4

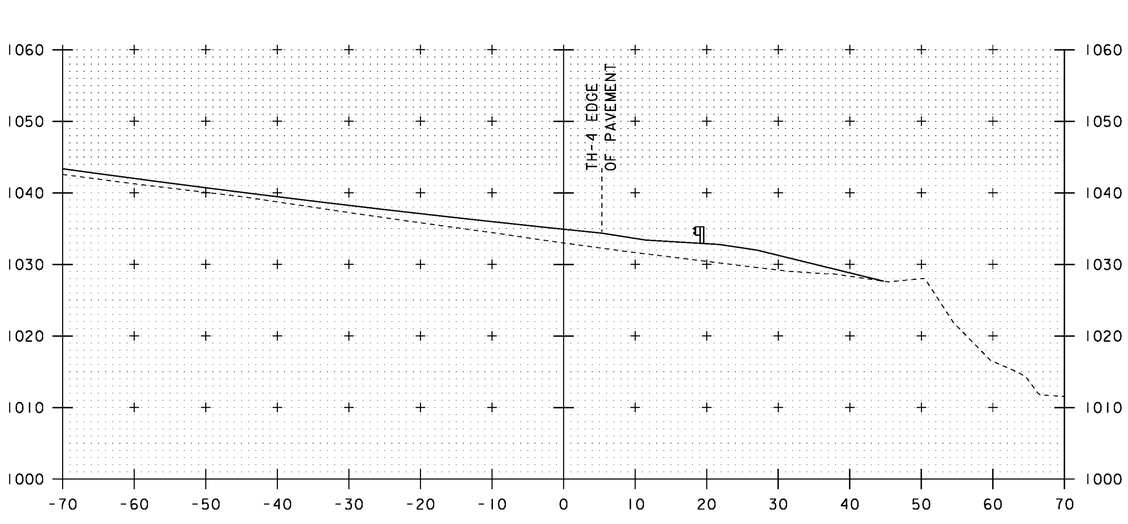
PLOT DATE: 14-OCT-2015
DRAWN BY: S. COLEY
CHECKED BY: W. LAMMER
SHEET 33 OF 42



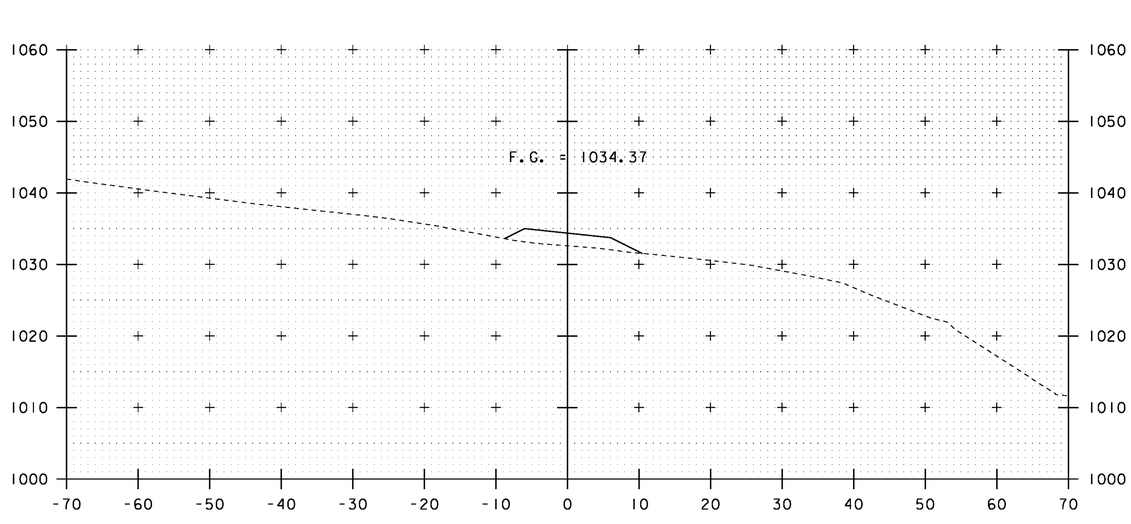
1+20



1+40



1+10



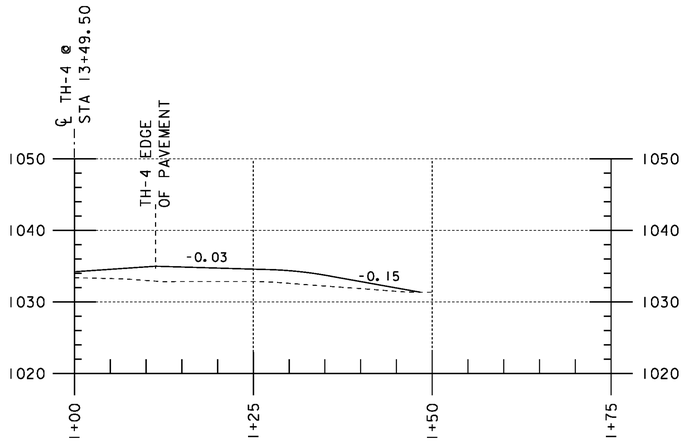
1+30

STA. 1+10 TO STA. 1+40

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

FILE NAME: s13j100xs.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: W. LAMMER
DRIVE CROSS SECTIONS 1

PLOT DATE: 14-OCT-2015
DRAWN BY: S. COLEY
CHECKED BY: W. LAMMER
SHEET 34 OF 42



DRIVE PROFILE

1+50

STA. 1+50 TO STA. 1+50

PROJECT NAME:	CRAFTSBURY
PROJECT NUMBER:	BO 1449(34)
FILE NAME: s13j100xs.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 CONDTRUCTION 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 EROSIVE 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 EROSIVE 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
PROJECT LEADER: R. YOUNG
DESIGNED BY: L.J.STONE
EPSC NARRATIVE

PLOT DATE: 14-OCT-2015
DRAWN BY: S. COLEY
CHECKED BY: W. LAMMER
SHEET 36 OF 42

RUMNEY FINE SANDY LOAM,
FREQUENTLY FLOODED
0% - 2% SLOPES
NOT HIGHLY ERODIBLE
K = 0.28

BUCKLAND FINE SANDY LOAM, VERY STONY
35% - 60% SLOPES
HIGHLY ERODIBLE
K = 0.43

CABOT SILT LOAM, VERY STONY
0% - 8% SLOPES
POTENTIALLY HIGHLY ERODIBLE
K = 0.32

COLTON - DUXBURY COMPLEX
15% - 25% SLOPES
HIGHLY ERODIBLE
K = 0.20/0.32

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

VT. STATE PLANE GRID

WHITTNEY BROOK

FLOW

FLOOD PLAIN

1

DOWNING, JOHN O.

EXISTING R.O.W.

TOWN HIGHWAY 4
TO CRAFTSBURY

3 RODS R.O.W.
49.50

TOWN HIGHWAY 4
TO ALBANY

3 RODS R.O.W.
49.50

GRAVEL
PULLOFF

IRON ROD
1/2" UP, 8" RAIL
CLENCHE

DRIVE

2

**ATWOOD, EUGENE JR.,
ATWOOD, JEFFREY P.,
ATWOOD, JUSTIN,
JASMAN, VICKI L.,
ATWOOD, EUGENE R. & JEANETTE I. - LIFE ESTATE**

3

**GOODWIN, DENNIS A.
& LAURA Q.**

**N/F
LAVIN, KATHERINE**

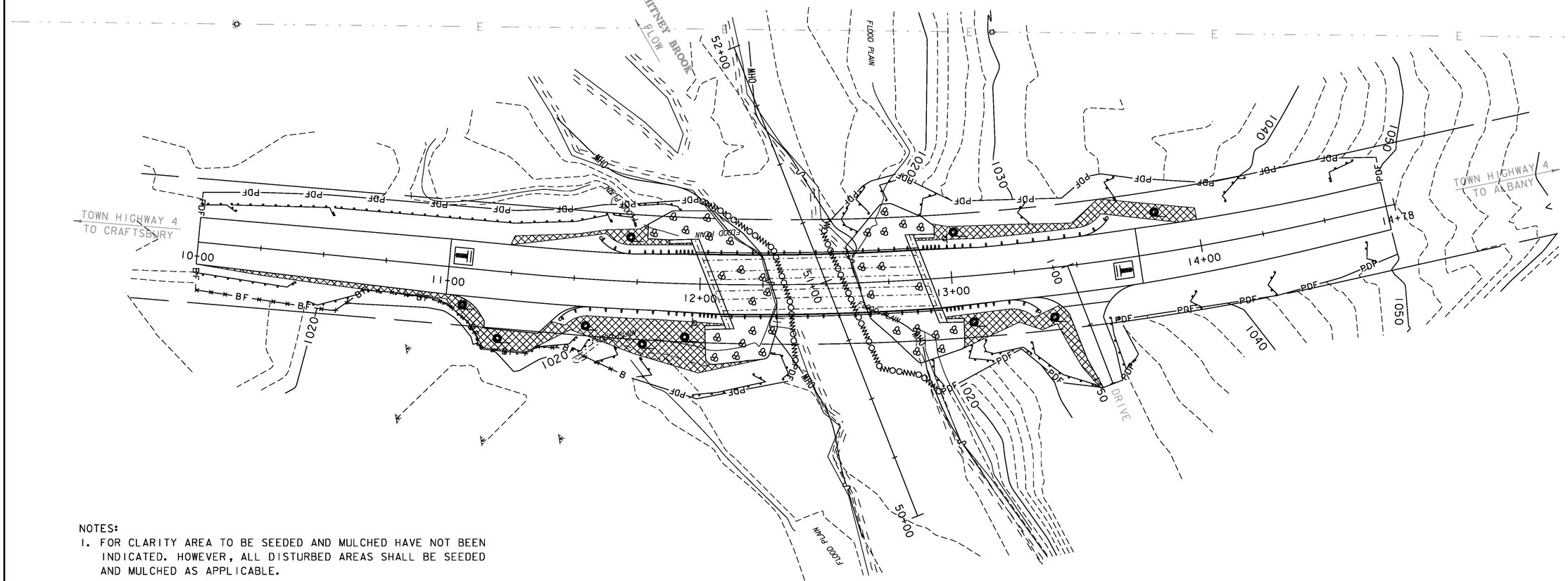
EPSC EXISTING CONDITIONS

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

PROJECT NAME:	CRAFTSBURY
PROJECT NUMBER:	BO 1449(34)
FILE NAME: s13j100ero_border.dgn	PLOT DATE: 14-OCT-2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. COLEY
DESIGNED BY: S. COLEY	CHECKED BY: W. LAMMER
EPSC EXISTING CONDITIONS	SHEET 37 OF 42

N

VT STATE PLANE GRID



NOTES:

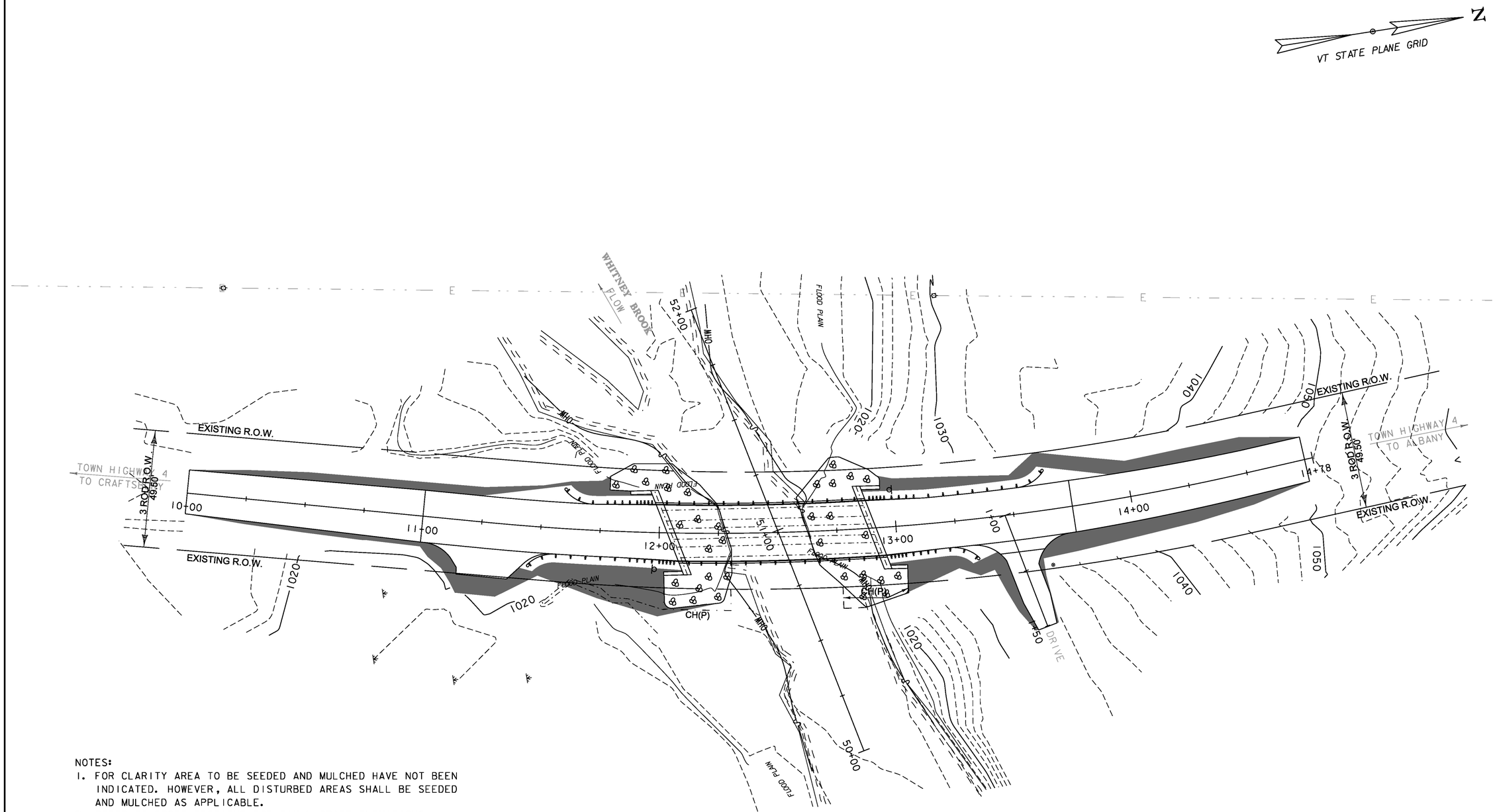
1. FOR CLARITY AREA TO BE SEEDED AND MULCHED HAVE NOT BEEN INDICATED. HOWEVER, ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED AS APPLICABLE.

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.

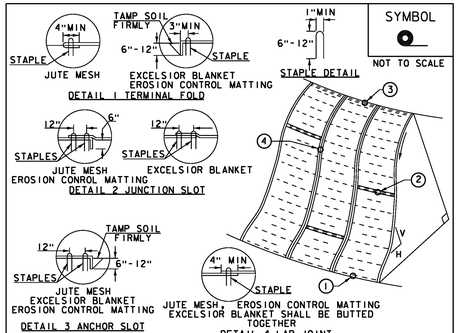
EPSC FINAL SITE PLAN

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



SYMBOL

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

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

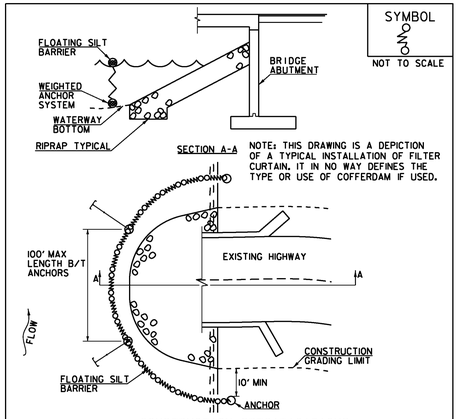
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

ROLLED EROSION CONTROL PRODUCT (RECP) SIDE SLOPE

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

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

REVISIONS		
APRIL 16, 2007		JMF
JANUARY 13, 2009		WHF



SYMBOL

NOT TO SCALE

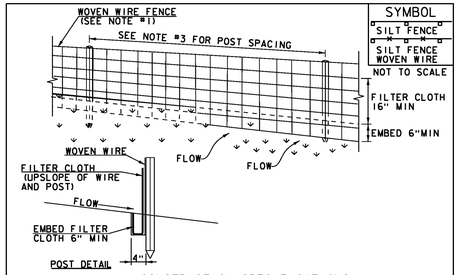
CONSTRUCTION SPECIFICATIONS

1. FILTER CURTAIN SHALL NOT BE PLACED ACROSS A FLOWING WATERWAY, OR IN A WATERWAY WITH STREAM VELOCITIES GREATER THAN 1.5 FEET/SECOND.
2. MAXIMUM 100' LENGTH BETWEEN ANCHORS.
3. LAST SECTION SHALL TERMINATE A MINIMUM OF 10' BEYOND LIMIT OF DISTURBANCE.
4. THE WEIGHTED ANCHOR SYSTEM SHALL BE A TYPE WHICH ALLOWS THE CURTAIN TO CONFORM TO THE BOTTOM OF THE WATERWAY.
5. THE CURTAIN SHALL BE REMOVED BY SLOWLY PULLING TOWARD THE SHORE MINIMIZING THE ESCAPE OF SEDIMENTS INTO WATERWAY.

FILTER CURTAIN

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 FOR GEOTEXTILE FOR FILTER CURTAIN (PAY ITEM 649.60).

REVISIONS		
APRIL 1, 2008		WHF
JANUARY 13, 2009		WHF
SEPTEMBER 4, 2009		WHF



SYMBOL

SILT FENCE

SILT FENCE WOVEN WIRE

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE REINFORCED FENCE IS REQUIRED WITHIN 100' UPSLOPE OF RECEIVING WATERS WHEN THE PROJECT FALLS UNDER A CONSTRUCTION STORMWATER PERMIT. WOVEN WIRE SHALL BE A MIN. 14 GAUGE WITH A 6" MAX. MESH OPENING.
2. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI100X, STABILINKA T140N OR APPROVED EQUIVALENT.
3. POST SPACING FOR WIRE-BACKED FENCE SHALL BE 10' MAXIMUM. FOR FILTER-CLOTH FENCE, WHEN ELONGATION IS >50%, POST SPACING SHALL NOT EXCEED 4' AND WHEN ELONGATION IS <50%, POST SPACING SHALL NOT EXCEED 6'.
4. WOVEN WIRE FENCE IS TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES. FILTER CLOTH IS TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY 6" AND FOLDED.
6. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN SEDIMENT REACHES HALF OF FABRIC HEIGHT.

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

SILT FENCE

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

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 AND AS SHOWN IN THE PLANS FOR GEOTEXTILE FOR SILT FENCE (PAY ITEM 649.5) ~~OR GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED (PAY ITEM 649.515)~~

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

VAOT LOW GROW/FINE FESCUE MIX						
	LBS/AC					
WEIGHT	BROADCAST	HYDROSEED	NAME	LATIN NAME	GERM	PURITY
38%	57	95	CREEPING RED FESCUE	FESTUCA RUBRA VAR. RUBRA	90%	98%
29%	43.5	72.5	HARD FESCUE	FESTUCA LONGIFOLIA	85%	95%
15%	22.5	37.5	CHEWINGS FESCUE	FESTUCA RUBRA VAR. COMMUTATA	87%	95%
15%	22.5	37.5	ANNUAL RYEGRASS	LOLIUM MULTIFLORUM	90%	95%
3%	4.5	7.5	INERTS			
100%	150	250				

VAOT RURAL AREA MIX						
	LBS/AC					
WEIGHT	BROADCAST	HYDROSEED	NAME	LATIN NAME	GERM	PURITY
37.5%	22.5	45	CREEPING RED FESCUE	FESTUCA RUBRA VAR. RUBRA	85%	98%
37.5%	22.5	45	TALL FESCUE	FESTUCA ARUNDINACEA	90%	95%
5.0%	3	6	RED TOP	AGROSTIS GIGANTEA	90%	95%
15.0%	9	18	WHITE FIELD CLOVER	TRIFOLIUM REPENS	85%	98%
5.0%	3	6	ANNUAL RYE GRASS	LOLIUM MULTIFLORUM	85%	95%
100%	60	120				

GENERAL AMENDMENT GUIDANCE		
FERTILIZER	LIME	
10/20/10	AG LIME	PELLITIZED
500 LBS/AC	2 TONS/AC	1 TONS/AC

CONSTRUCTION GUIDANCE

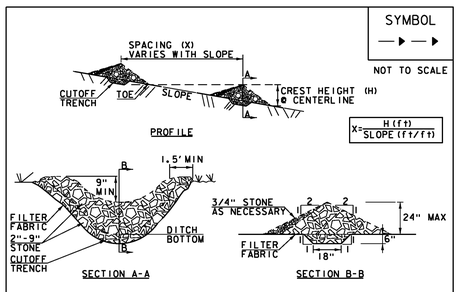
1. SEED MIX: THE CONTRACTOR SHALL COORDINATE WITH THE RESIDENT ENGINEER ON WHICH SEED MIX TO USE.
2. SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED UPLAND (NON WETLAND) AREAS DISTURBED BY THE CONTRACTOR.
3. ALL SEED MIXTURES: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
4. FERTILIZER AND LIMESTONE: SHALL FOLLOW RATES SHOWN ON PLAN OR AS DIRECTED BY THE ENGINEER.
5. HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, ACHIEVE 90% GROUND COVER OR AS DIRECTED BY THE ENGINEER.
6. HYDROSEEDING: ALTHOUGH GUIDANCE IS GIVEN ABOVE THE SITE CONDITIONS AND THE TYPE OF HYDROSEED PROPOSED FOR USE WILL ULTIMATELY DICTATE THE AMOUNTS AND TYPES OF SOIL AMENDMENTS TO BE APPLIED.
7. TURF ESTABLISHMENT: PLACING SEED, FERTILIZER, LIME AND MULCH PRIOR TO SEPTEMBER 15 AND AFTER APRIL 15 CAN BETTER ENSURE A VIGOROUS GROWTH OF GRASS.

ADAPTED FROM VTRANS TECHNICAL LANDSCAPE MANUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES

TURF ESTABLISHMENT

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 651 FOR SEED (PAY ITEM 651.15)

REVISIONS		
JANUARY 12, 2015		WHF



SYMBOL

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION.
2. CHECK DAMS SHALL BE SPACED SO THAT THE ELEVATION OF THE CREST OFTHE DOWNSTREAM DAM IS AT THE SAME ELEVATION AS THE TOE OF THE UPSTREAM DAM.
3. 3/4" FILTERING STONE MAY BE ADDED TO THE FACE OF THE CHECK DAM AS NECESSARY.
4. EXTEND THE STONE A MINIMUM OF 1.5' BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
5. PROTECT CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
6. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.
7. MAXIMUM DRAINAGE AREA 2 ACRES.

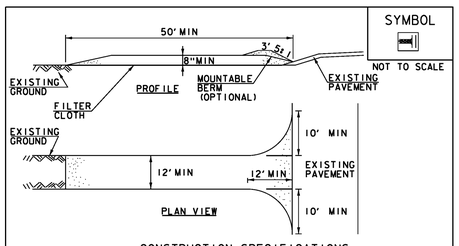
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

CHECK DAM

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

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR TEMPORARY STONE CHECK DAM, TYPE I (PAY ITEM 653.25)

REVISIONS		
MARCH 21, 2008		WHF
JANUARY 8, 2009		WHF



SYMBOL

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. STONE SIZE- USE 1-4" STONE, RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH- NOT LESS THAN 50' (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30' MINIMUM LENGTH APPLIES).
3. THICKNESS- NOT LESS THAN 8".
4. WIDTH- 12' MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. 24' IF SINGLE ENTRANCE TO SITE.
5. GEOTEXTILE MUST BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.
6. SURFACE WATER- ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE, IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED ACCORDING TO PERMIT REQUIREMENTS.

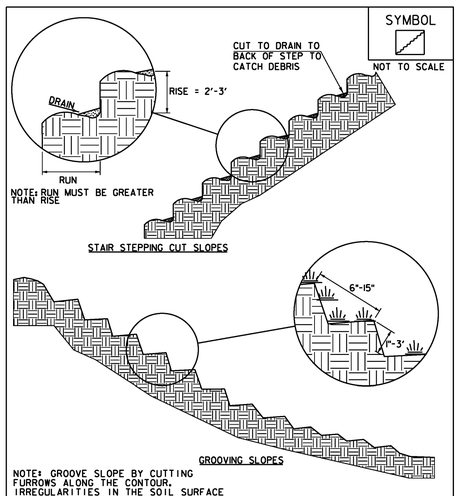
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

STABILIZED CONSTRUCTION ENTRANCE

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

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR VEHICLE TRACKING PAD (PAY ITEM 653.35) OR AS SPECIFIED IN THE CONTRACT.

REVISIONS		
MARCH 24, 2008		WHF
JANUARY 13, 2009		WHF



SYMBOL

NOT TO SCALE

NOTE: GROOVE SLOPE BY CUTTING FURROWS ALONG THE CONTOUR. IRREGULARITIES IN THE SOIL SURFACE CATCH RAINWATER AND RETAIN LIME, FERTILIZER AND SEED.

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

SURFACE ROUGHENING

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

THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT

REVISIONS		
APRIL 1, 2008		WHF
JANUARY 13, 2009		WHF

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

FILE NAME: s13j100erodetails.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: W. LAMMER
EPSC DETAILS

PLOT DATE: 14-OCT-2015
DRAWN BY: W. LAMMER
CHECKED BY: J. SALVATORI

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

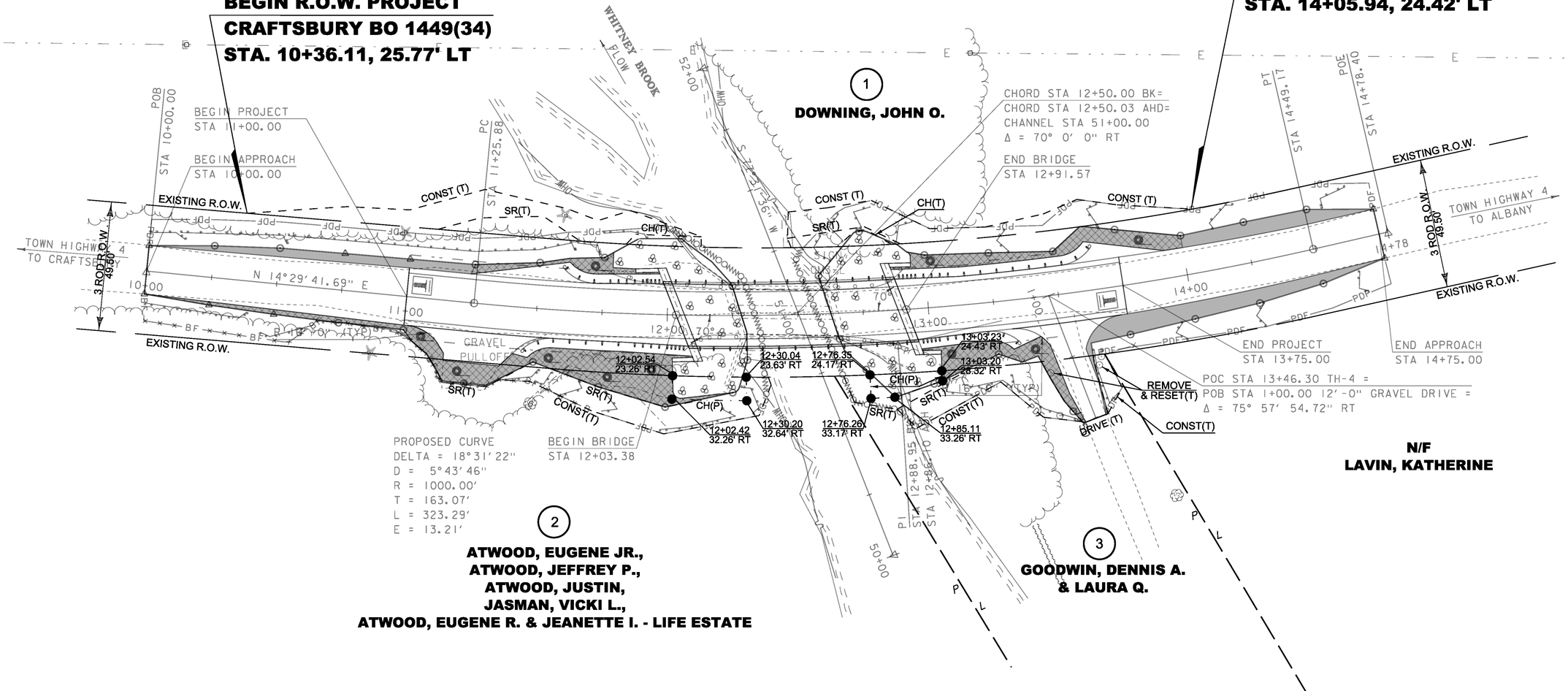
BRIDGE RAILING, GALVANIZED HDSB/FASCIA MOUNTED/STEEL TUBING
STA 11+96.7 LT - STA 12+89.5 LT
STA 12+06.5 RT - STA 12+97.2 RT

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.

N
VT STATE PLANE GRID

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



1
DOWNING, JOHN O.

2
ATWOOD, EUGENE JR.,
ATWOOD, JEFFREY P.,
ATWOOD, JUSTIN,
JASMAN, VICKI L.,
ATWOOD, EUGENE R. & JEANETTE I. - LIFE ESTATE

3
GOODWIN, DENNIS A.
& LAURA Q.

N/F
LAVIN, KATHERINE

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
PROJECT NUMBER: BO 1449(34)

FILE NAME: sl3j100rowlay.dgn
PROJECT LEADER: C. WILLIAMS
DESIGNED BY: L. STONE
ROW LAYOUT SHEET 1 OF 1

PLOT DATE: 14-OCT-2015
DRAWN BY: D. BEARD
CHECKED BY: O. DARISSE
SHEET 41 OF 42

STATE OF VERMONT
AGENCY OF TRANSPORTATION

RIGHT - OF - WAY DETAIL SHEET

TABLE OF PROPERTY ACQUISITION

PARCEL NO.	PROPERTY OWNER	ROW LAYOUT NO.	BEGINNING STATION	ENDING STATION	TAKE	REMAINDER	RIGHT			RECORDING DATA					REMARKS
					AREA±	AREA±	TYPE	T / P	AREA ±	TITLE	DATE	TOWN / CITY	BOOK	PAGE	
1	DOWNING, JOHN O.	1	10+36.11 LT	12+12.72 LT			CONSTRUCTION	T	1,146 SF	WDOE	09/04/15	CRAFTSBURY	71	352	INCL. EC & PDF
			11+09 LT	11+65 LT			SLOPE	T	275 SF						INCL. EC
			11+83.21 LT	12+12.72 LT			CHANNEL	T	108 SF						INCL. EC, STONE FILL & TEMP. FILTER CURTAIN
			12+46.66 LT	14+05.94 LT			CONSTRUCTION	T	1,079 SF						INCL. EC & PDF
			12+46.66 LT	12+91.04 LT			SLOPE	T	135 SF						INCL. EC & FILTER CURTAIN
			12+66.21 LT	12+87.54 LT			CHANNEL	T	75 SF						INCL. STONE FILL
2	ATWOOD, EUGENE JR.,	1	11+11 RT	11+47 RT			SLOPE	T	235 SF	WDOE	06/23/15	CRAFTSBURY	71	173-174	INCL. EC & BF
	ATWOOD, JEFFREY P.,		11+38 RT	12+38 RT			CONSTRUCTION	T	929 SF						INCL. EC & PDF
	ATWOOD, JUSTIN,		11+57 RT	12+11 RT			SLOPE	T	324 SF						INCL. EC
	JASMAN, VICKI L.,		12+02.42 RT	12+30.20 RT			CHANNEL	P	256 SF						INCL. STONE FILL, TEMP. EC
	ATWOOD, EUGENE R. &														
	JEANETTE I. - LIFE ESTATE														
3	GOODWIN, DENNIS A. & LAURA Q.	1	12+66 RT	13+14 RT			SLOPE	T	207 SF	WDOE	05/19/15	CRAFTSBURY	71	108-109	INCL. EC & FILTER CURTAIN
			12+76.26 RT	13+03.23 RT			CHANNEL	P	201 SF						INCL. STONE FILL & TEMP. EC
			12+86 RT	13+53 RT			CONSTRUCTION	T	731 SF						INCL. EC & PDF
			13+46.30 RT				DRIVE	T	383 SF						12' WIDE GRAVEL; INCL. EC
			13+50 RT				REMOVE & RESET	T							GATE
			13+60 RT	13+69 RT			CONSTRUCTION	T	122 SF						INCL. PDF
4	TELEPHONE OPERATING COMPANY OF VERMONT, LLC		10+36.11 LT	14+05.94 LT											UTILITY
5	VERMONT ELECTRIC COOPERATIVE		10+36.11 LT	14+05.94 LT											UTILITY

TABLE OF REVISIONS

REVISION NO.	ROW SET SHEET #	DESCRIPTION	DATE
1	3, 4	PARCEL 1 - CHANGE OWNER NAME TO	01/28/15
		JOHN O. DOWNING.	
		REV BY: MT C.O. 9963 APP BY: RC	
2	3, 4	PARCEL 1, DOWNING - CHANGE (P)	03/20/15
		EASEMENT TO (T) PER PROPERTY	
		OWNER'S REQUEST. APPROVED BY	
		STRUCTURES SECTION.	
		REV BY: MT C.O. 9980 APP BY: RC	
3	3, 4	PARCEL 3, GOODWIN - ADD REMOVE &	05/04/15
		RESET FOR GATE AT 13+50 RT PER	
		PROPERTY OWNER REQUEST.	
		REV BY: MT C.O. 9994 APP BY: RC	

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

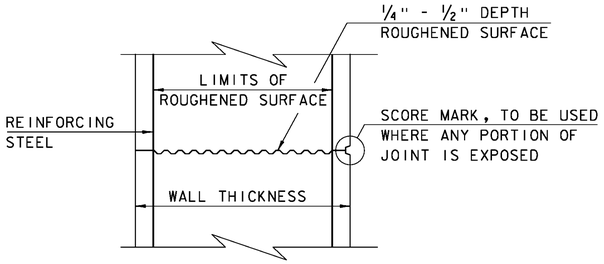
PROJECT NAME: CRAFTSBURY
PROJECT NUMBER: BO 1449(34)

FILE NAME: r13j100detail.xls
PROJECT LEADER: C. WILLIAMS
DESIGNED BY: A. EGIZI
R.O.W. DETAIL SHEET #1

PLOT DATE: 14-OCT-2015
DRAWN BY: M. TROTTIER
CHECKED BY: R. CLOUTIER
SHEET 42 OF 42

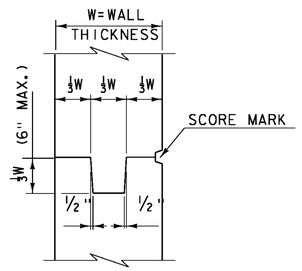
CONCRETE GENERAL NOTES

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.

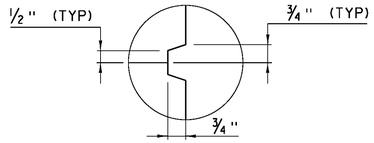


TYPICAL HORIZONTAL CONSTRUCTION JOINT
(NOT TO SCALE)

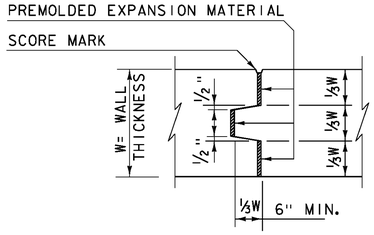
1. THE SURFACE OF THE CONCRETE CONSTRUCTION JOINTS SHALL BE CLEANED AND FREE OF LAITANCE.
2. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.



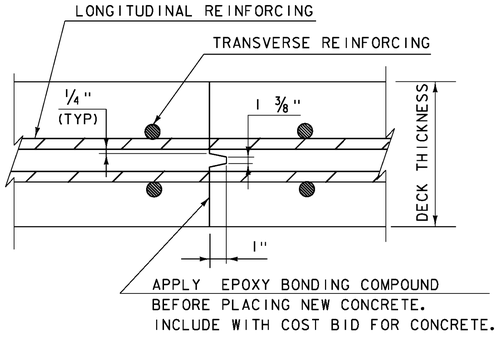
TYPICAL CONCRETE CONSTRUCTION JOINT
(NOT TO SCALE)



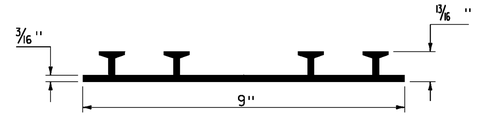
SCORE MARK DETAIL
(NOT TO SCALE)



TYPICAL CONCRETE EXPANSION JOINT
(NOT TO SCALE)



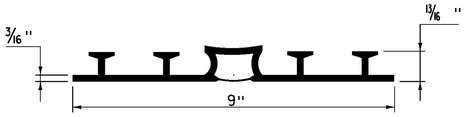
TRANSVERSE BRIDGE SLAB CONSTRUCTION JOINT DETAILS
(NOT TO SCALE)



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.

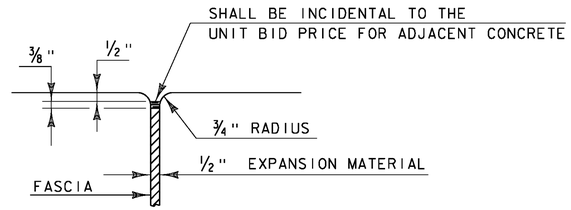
OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



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.



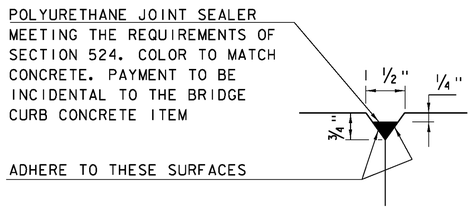
JOINT BETWEEN FASCIA AND WINGWALL
(NOT TO SCALE)

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

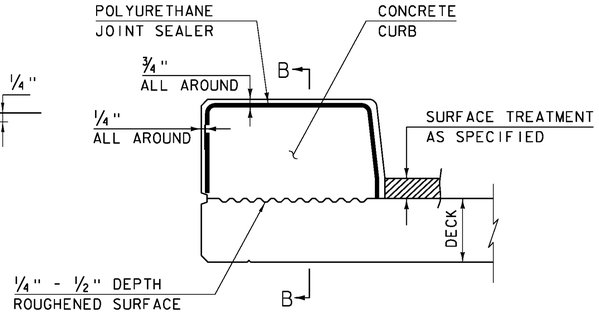
CONCRETE DETAILS AND NOTES

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

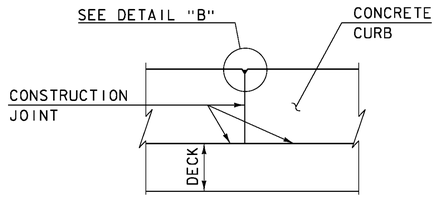
STRUCTURES DETAIL
SD-501.00



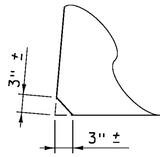
DETAIL "B"
(NOT TO SCALE)



CONCRETE CURB JOINT SECTION
(NOT TO SCALE)



SECTION B - B
(NOT TO SCALE)



ACUTE ANGLE CLIP DETAIL
(NOT TO SCALE)

1. SEE TYPICAL HORIZONTAL CONSTRUCTION JOINT DETAIL FOR ADDITIONAL INFORMATION

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.

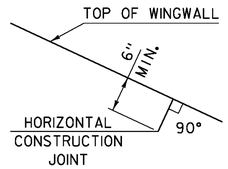
2. IF THE CONTRACTOR CHOOSES NOT TO USE AN APPROVED SHRINKAGE REDUCING ADMIXTURE, THE CURBS SHALL BE CONSTRUCTED WITH CONSTRUCTION JOINTS SPACED AT A MAXIMUM OF 15'-0" CENTER TO CENTER AND 2'-0" MINIMUM FROM THE CENTER OF NEAREST BRIDGE RAILING POST.

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.

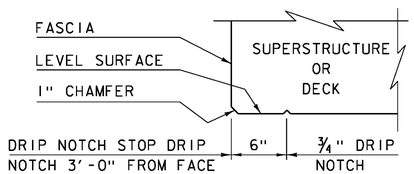
4. WHEN CURB JOINTS ARE USED THE CURBS SHALL BE PLACED IN ALTERNATE SECTIONS WITH A MINIMUM OF 48 HOUR DELAY BETWEEN ADJACENT PLACEMENTS.

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.

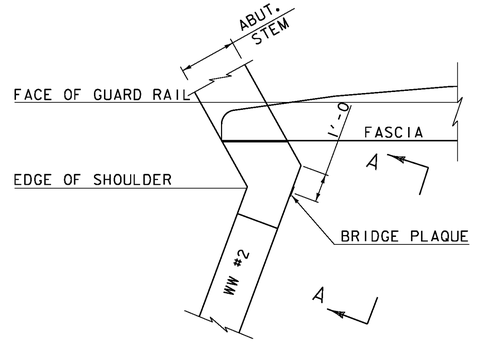
6. THE JOINT SPACING AND DETAILS SHOWN SHALL APPLY TO SIDEWALKS WHEN SHOWN IN THE PLANS.



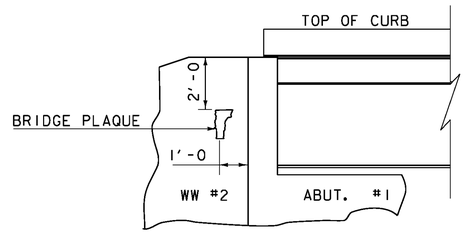
HORIZONTAL WINGWALL CONSTRUCTION JOINT
(NOT TO SCALE)



DRIP NOTCH DETAIL
(NOT TO SCALE)



PLAN



VIEW "A - A"

BRIDGE PLAQUE
(NOT TO SCALE)

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

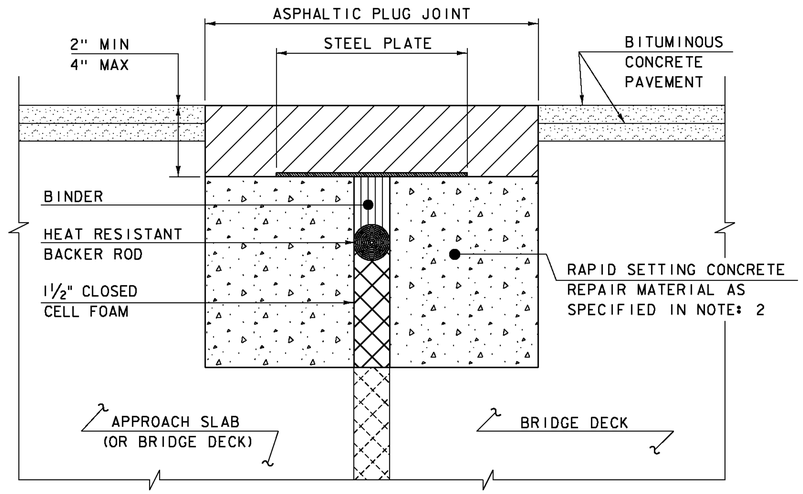
PAYMENT FOR INSTALLATION OF THE BRIDGE PLAQUE SHALL BE INCIDENTAL TO THE ADJACENT CONCRETE.

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

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

STRUCTURES DETAIL
SD-502.00



ASPHALTIC PLUG JOINT DETAIL - REHAB

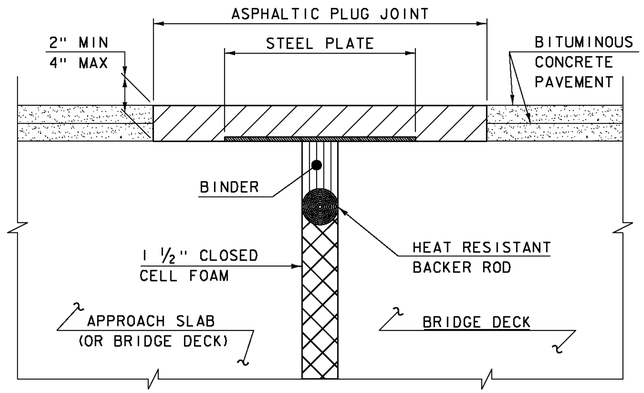
NOTES:

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.

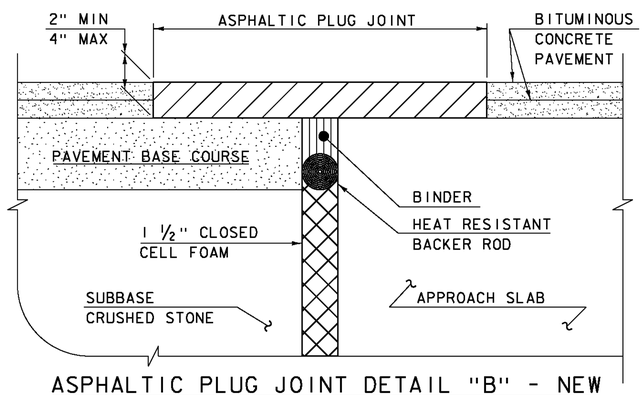
3. REINFORCING STEEL NOT SHOWN FOR CLARITY.

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

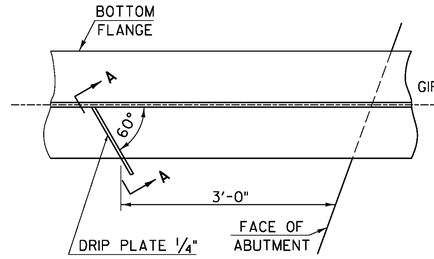
BRIDGE JOINT
ASPHALTIC PLUG

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - DIVISION

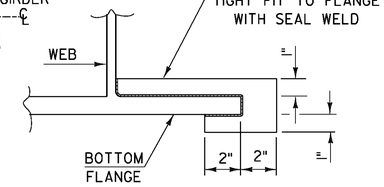
STRUCTURES DETAIL
SD-516.10

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 506.19, 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 506.19.
3. ALL WELDING SHALL CONFORM TO THE PROVISIONS OF SUBSECTION 506.10.
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.

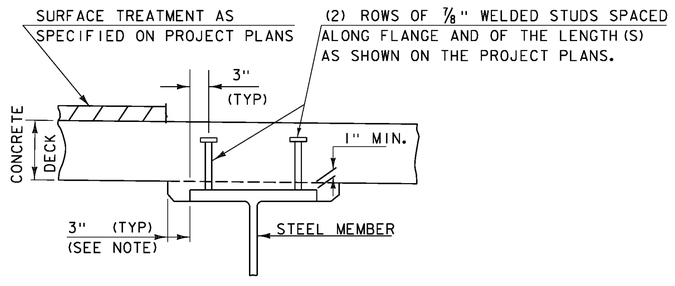


PLAN DRIP PLATE



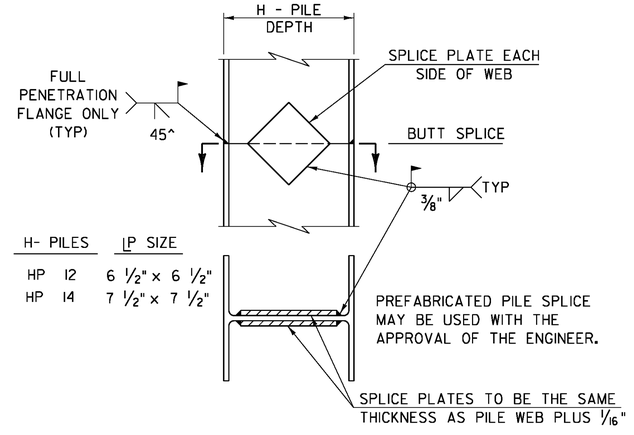
SECTION A - A

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



DETAIL OF PILE SPLICE

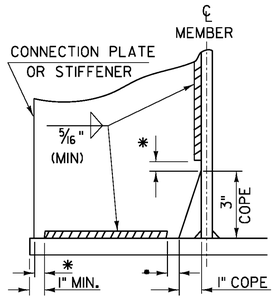
DETAILS ON THIS SHEET ARE "NOT TO SCALE" UNLESS NOTED OTHERWISE.

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

STRUCTURAL STEEL DETAILS & NOTES

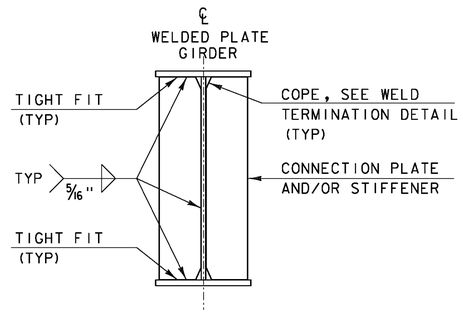
VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

STRUCTURES DETAIL
SD-601.00



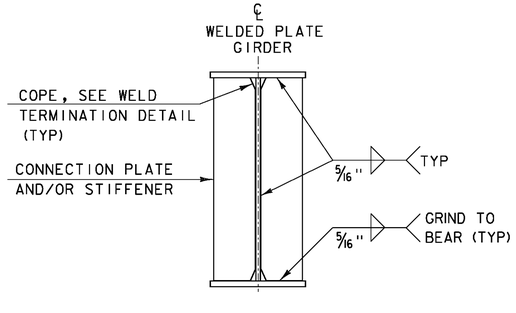
WELD TERMINATION AND COPING DETAILS FOR STEEL MEMBERS

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

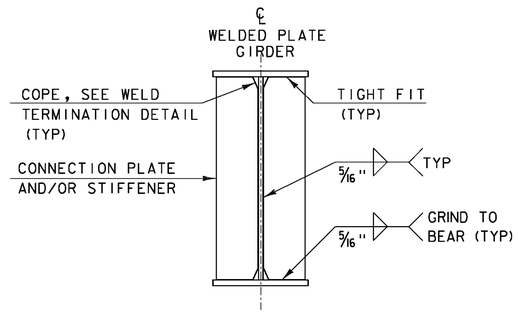


INTERMEDIATE CONNECTION PLATES AND/OR STIFFENERS FOR WELDED PLATE GIRDERS

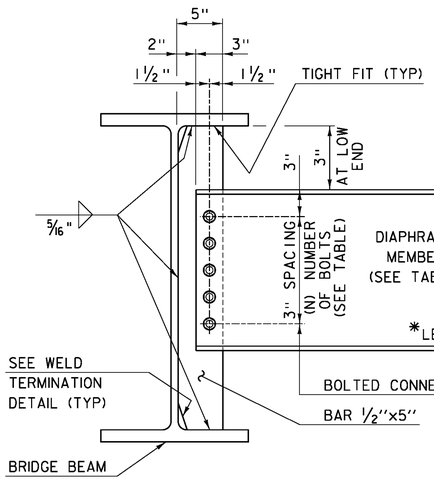
INTERMEDIATE DETAIL IS ONLY USED WHEN PLATE DOES NOT OCCUR AT AN ABUTMENT OR PIER.



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



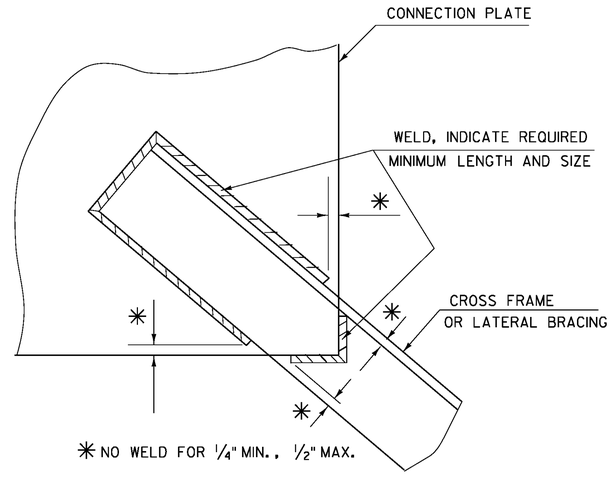
PIER BEARING STIFFENERS AND/OR CONNECTION PLATES FOR WELDED PLATE GIRDERS



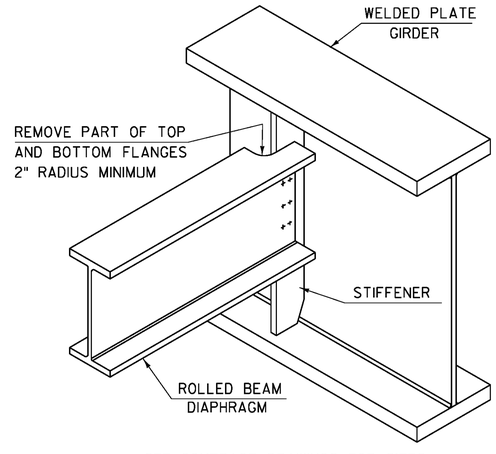
DEPTH		DIAPHRAGM MEMBER	(N) BOLTS
ROLLED BEAM	24" 30"	C15x33.9	4
	31" 36"	MC18x42.7	5
	37" 42"	W21x44	6
PLATE GIRDER WEB	31" 36"	W27x84	7
	37" 42"	W33x118	9
	43" 48"	W36x135	10

INTERMEDIATE DIAPHRAGMS FOR 24" TO 48" BRIDGE BEAMS

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



WELD LOCATION DETAIL AT CROSS FRAMES AND LATERAL BRACING



SEE CONTRACT DRAWINGS FOR SIZES OF MEMBERS AND CONNECTION DETAILS

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

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

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 A709) 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 "WT1" ON THIS DRAWING FOR WELD TERMINATION DETAIL.

5) SHOP APPLIED STUDS SHALL BE AUTO END WELDED. SEE DETAIL "SS1".

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 ⚠	WP1	201
	GIRDER STIFFENER TO WEB FILLET WELDING	M270-50W TO M270-50W ⚠	WP4	250
	GIRDER STIFFENER TO FLANGE FILLET WELDING	M270-50W TO M270-50W ⚠	WP3	480
	DRIP PLATES TO GIRDER FLANGE	M270-50W TO M270-50W ⚠	WP8	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.

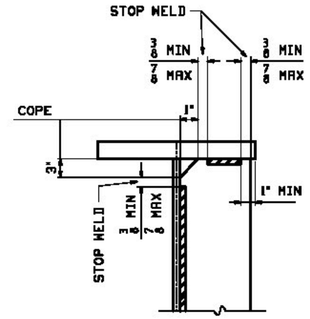
ALL STEEL SHALL BE UNPAINTED.

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.

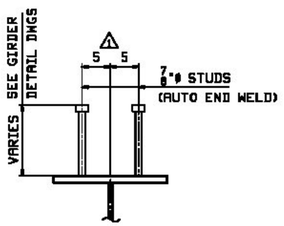
REVIEWED
By Bill Lammer at 9:13 am, May 26, 2016

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



DETAIL "WT1"
STIFFENER WELD TERMINATION

NOTE TO ENGINEER:
THESE NOTES ARE NOT INTENDED TO BE ALL INCLUSIVE AND COMPLIANCE WITH RELEVANT SPECIFICATIONS REMAIN UNCHANGED.



DETAIL "SS1"
STUD SPACING AND WELDING

DETAILS FOR POSITIONING DTI (LIW) WASHERS (PER ASTM F-959)

DTI UNDER HEAD - TURN NUT	DTI UNDER NUT - TURN NUT	DTI UNDER NUT - TURN HEAD	DTI UNDER HEAD - TURN HEAD
DTI TO BE PLACED UNDER HEAD	* ADDITIONAL WASHER REQ'D IF HOLE IS OVERSIZED (TYP.)	Turn HEAD To Tighten	DTI TO BE PLACED UNDER WASHER @ HEAD
.005" MIN GRIP AFTER TENSION	.005" MIN GRIP AFTER TENSION	.005" MIN GRIP AFTER TENSION	Turn HEAD To Tighten
Turn Nut To Tighten	Turn Nut To Tighten	Hardened Flat Washer	.005" MIN GRIP AFTER TENSION
Hardened Flat Washer	Hardened Flat Washer		Hardened Flat Washer
BOLT DETAIL "DTI1"	**BOLT DETAIL "DTI2"**	**BOLT DETAIL "DTI3"**	**BOLT DETAIL "DTI4"**
THIS IS THE PREFERED METHOD.	DTI UNDER NUT FOR VISIBILITY.	DTI UNDER NUT FOR VISIBILITY. 2 HARD FLAT WASHERS ARE REQ'D	DTI UNDER HEAD FOR VISIBILITY.

Flat washer not required here.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
⚠	5/4/16	APPROVAL COMMENTS	JTB	LWD		
0						

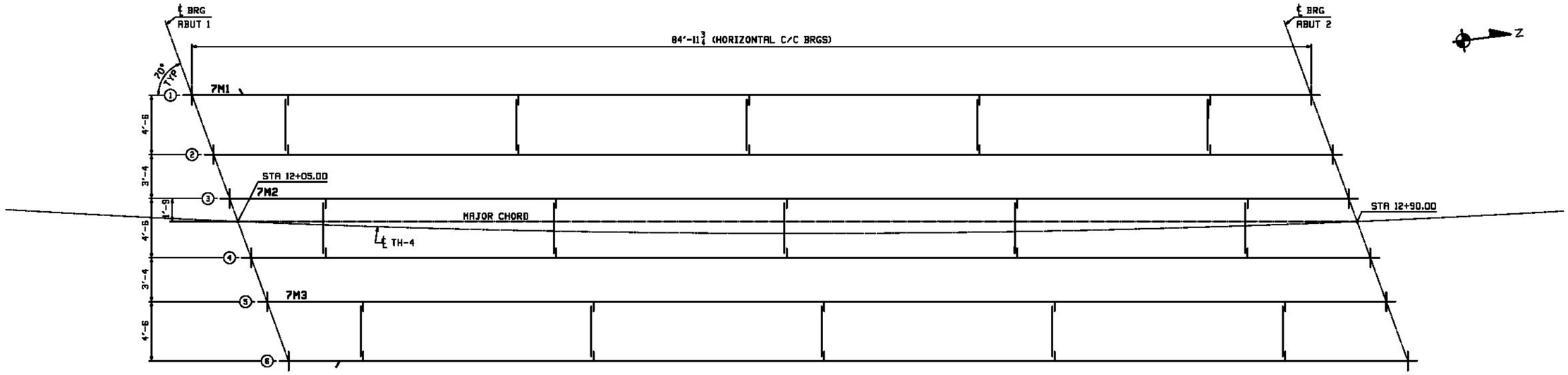
MATERIAL: | SURFACE PREP. & PAINT: | HOLES: | SHOP BOLTS:

DESCRIPTION: GENERAL NOTES

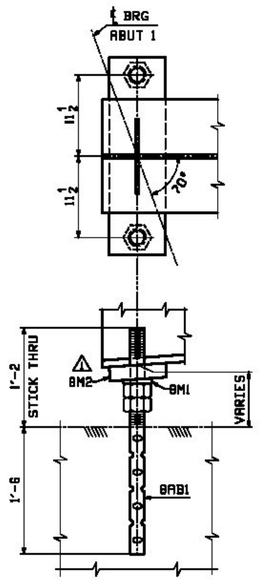
CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE. SOUTH PORTLAND, ME 04106
PHONE (207) 780-6722 FAX. (207) 780-6725
TENDON 3067

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

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		GN1
CUSTOMER: CCS CONSTRUCTORS INC.			REV. ⚠

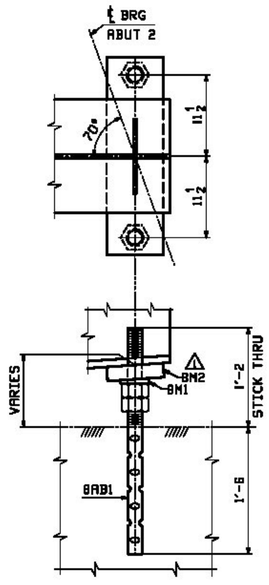


FRAMING PLAN



ELEVATION VIEW - ABUT 1

TYP LINES 1 THRU 6
(TEMPORARY BEARING ASSEMBLY)



ELEVATION VIEW - ABUT 2

TYP LINES 1 THRU 6
(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

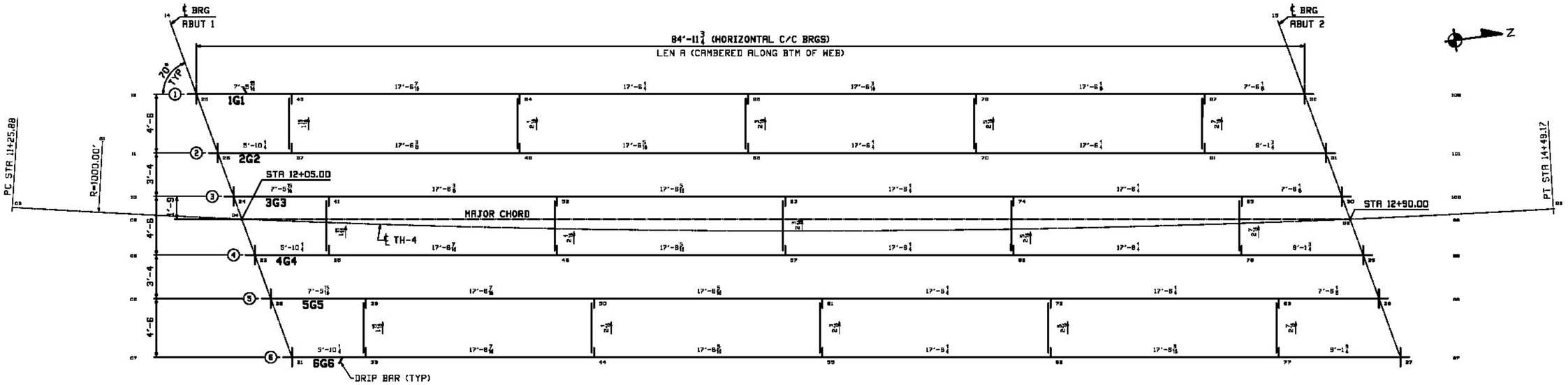
REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
1	5/4/16	APPROVAL COMMENTS	JTB	LWD		
0						

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) 780-6725
TENSOR 3067

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. BD 1449(34)	649-1	E1	
CUSTOMER: CCS CONSTRUCTORS INC.		REV. 1	

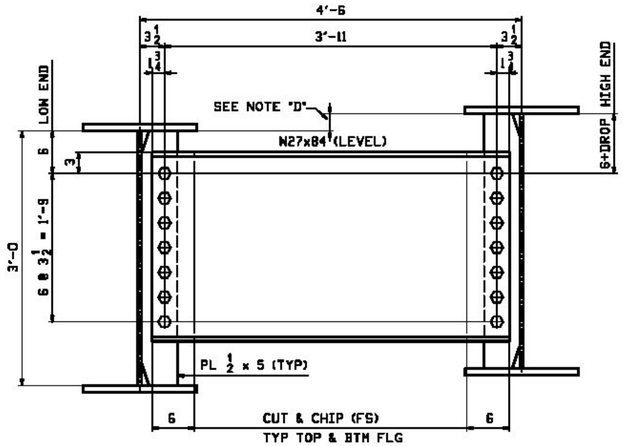


CALCULATION PLAN

Line	LEN A	GRADES ABUT 1	GRADES ABUT 2
1	85'-1 1/16	0.0581	0.0581
2	85'-1 3/16	0.0587	0.0587
3	85'-1 1/4	0.0591	0.0591
4	85'-1 1/4	0.0597	0.0597
5	85'-1 5/16	0.0601	0.0601
6	85'-1 7/16	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 +/- 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 15/16"ø FOR 7/8"ø HSB.

NOTE "D"
DROP VARIES IN MAGNITUDE.

Vermont Agency of Transportation
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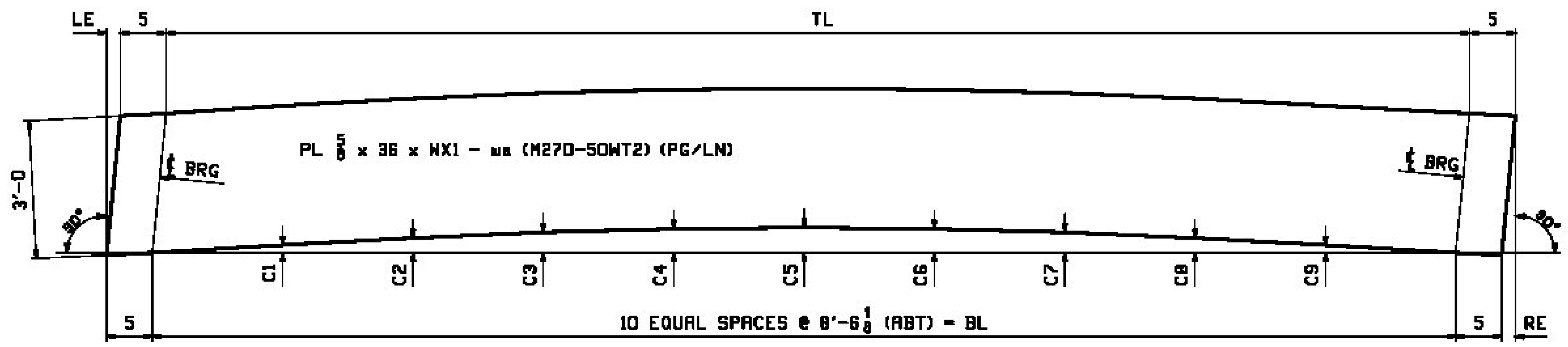
REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
0						

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50WT2	SEE DWG GN1	15/16"ø	7/8"ø HSB

DESCRIPTION: CALCULATION PLAN & LAYOUTS

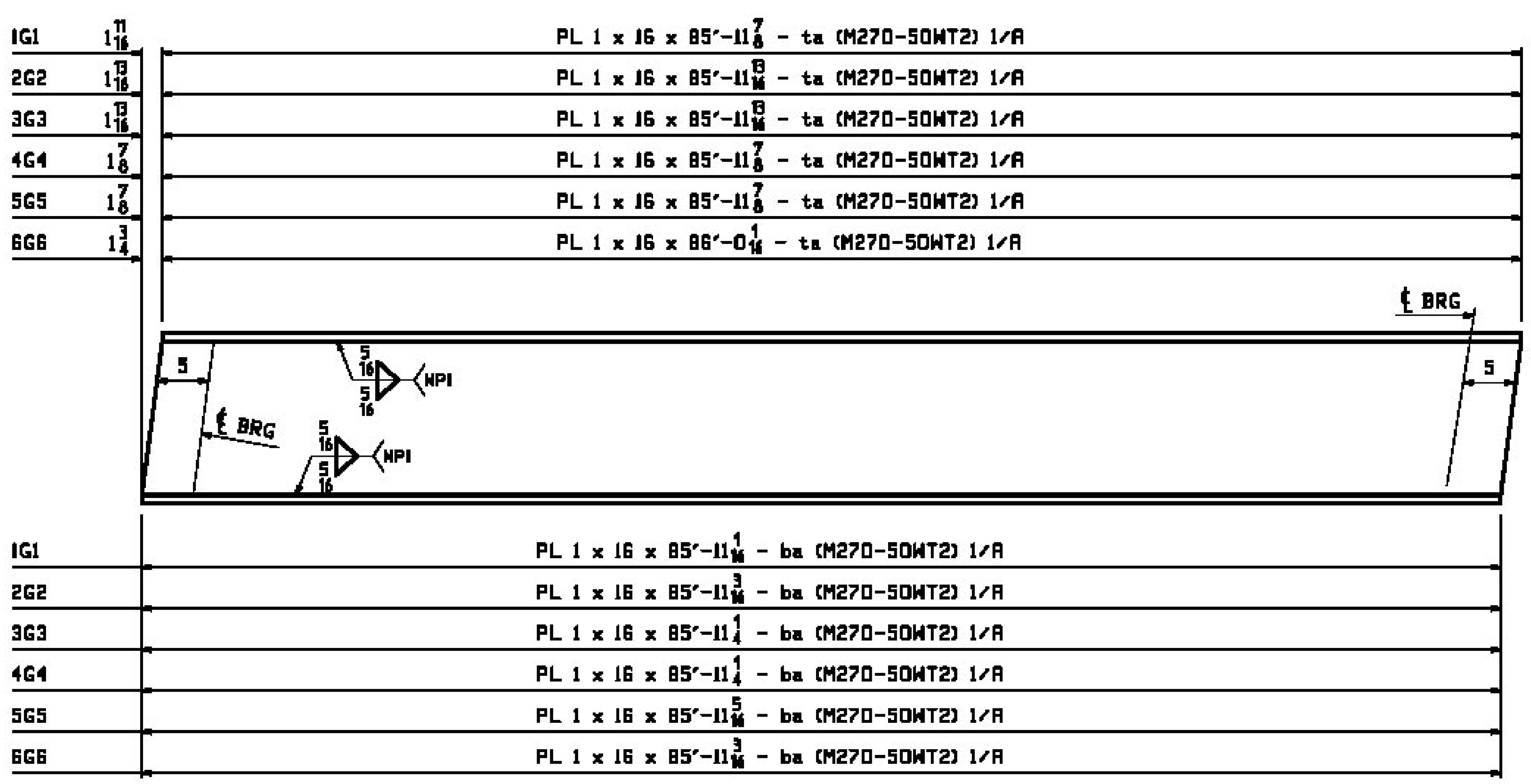
CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE. PHONE (207) 780-6722
SOUTH PORTLAND, ME 04106 FAX. (207) 780-6725

STRUCTURE:	TH-4 OVER WHITNEY BROOK ROUTE NO: TH-4, RURAL MINOR COLLECTOR BRIDGE REPLACEMENT COUNTY OF ORLEANS	DRAWN: JTB	DATE: 02/25
		CHKD: LWD	DATE: 03/02
LOCATION:	TOWN OF CRAFTSBURY, VERMONT	JOB NO.	DWG NO.
PROJ NO.	BD 1449(34)	649-1	WS1
CUSTOMER:	CCS CONSTRUCTORS INC.		REV. 0



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 1/16	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 13/16	85'-1 3/16	1 13/16	2 7/16	86'-1 5/8	13/16	1 9/16	2 1/8	2 1/2	2 5/8	2 1/2	2 1/8	1 9/16	13/16	1/E
3G3	85'-1 13/16	85'-1 1/4	1 13/16	2 3/8	86'-1 5/8	13/16	1 9/16	2 1/8	2 1/2	2 5/8	2 1/2	2 1/8	1 9/16	13/16	1/E
4G4	85'-1 7/8	85'-1 1/4	1 7/8	2 1/2	86'-1 3/4	13/16	1 9/16	2 1/8	2 1/2	2 5/8	2 1/2	2 1/8	1 9/16	13/16	1/E
5G5	85'-1 7/8	85'-1 5/16	1 7/8	2 7/16	86'-1 3/4	13/16	1 9/16	2 1/8	2 1/2	2 5/8	2 1/2	2 1/8	1 9/16	13/16	1/E
6G6	85'-2 1/16	85'-1 3/16	1 3/4	2 5/8	86'-1 13/16	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



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

NOTES:

1. FOR GENERAL NOTES SEE DRAWING GN1.
2. "T2" DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TEST AT H FREQ. FOR ZONE 2

Vermont Agency of Transportation
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BY RSY DATE 05/26/2016

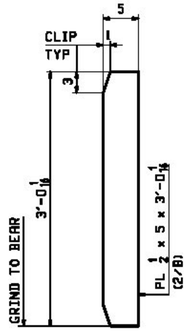
REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
0		~				

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50WT2	SEE DWG GN1		

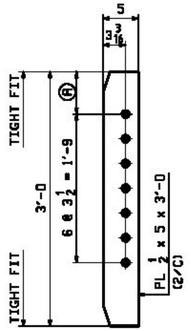
DESCRIPTION: CAMBER & FLANGE DIAGRAMS

CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE. PHONE (207) 780-6722
SOUTH PORTLAND, ME 04106 FAX. (207) 780-6726

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.	BO 1449(34)	649-1	C1
CUSTOMER:	CCS CONSTRUCTORS INC.		REV. △

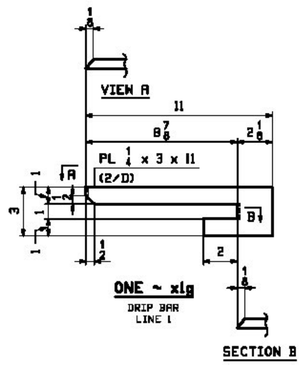


24 ~ x1a
ABUT BRG STIFFENER



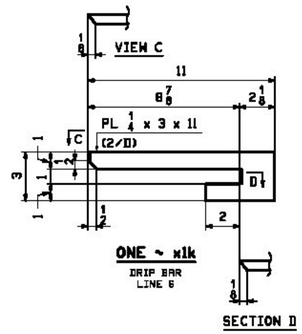
MARK "A"
INT DIAPH CONN PL

MARK "A"	QTY	Ⓡ	
x1b	15	6	LOW END
x1c	6	8	DROPS 1 5/16 & 2 1/16
x1d	3	8 3/16	DROP 2 3/16
x1f	6	8 3/8	DROP 2 5/16 & 2 7/16



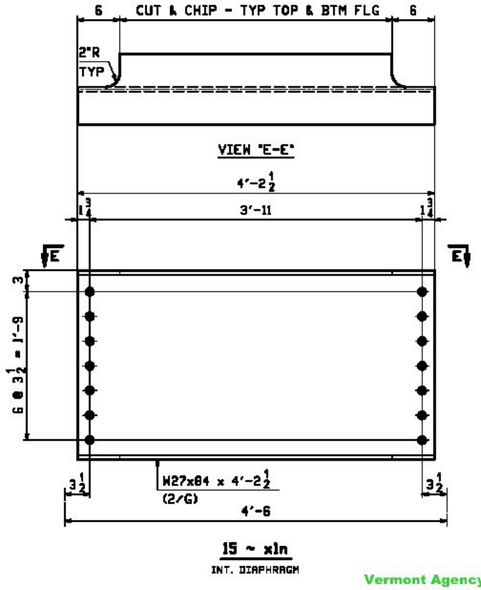
ONE ~ x1g
DRIP BAR
LINE 1

SECTION B

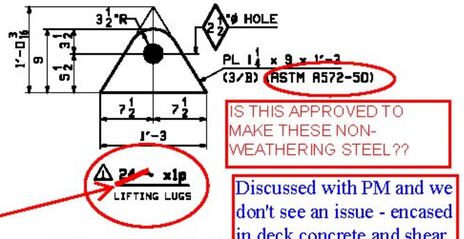


ONE ~ x1k
DRIP BAR
LINE 6

SECTION D



15 ~ x1n
INT. DIAPHRAGM



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.

12

Should this be 12, not 24?

NOTE:
FOR GENERAL NOTES SEE DRAWING GN1.

Vermont Agency of Transportation
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May 19, 2016
RESUBMIT No Approved AsNoted
BY RSY DATE 05/26/2016

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
1	4/28/16	ADD LIFTING LUGS (EXTRA X1) REMOVE x1m	JTB	LWD		
0						

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50W (UN)	SEE DWG GN1	15/16"ø (UN)	NONE

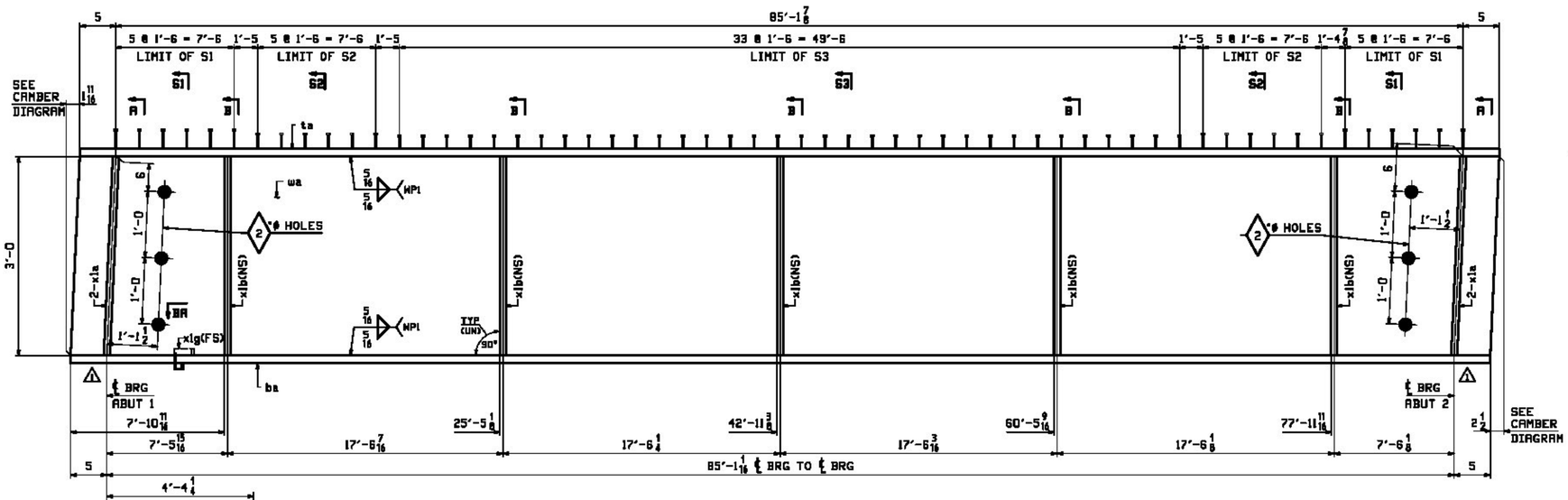
DESCRIPTION: STANDARD DETAILS

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 DATE: 02/25
CHKD: LWD DATE: 03/02

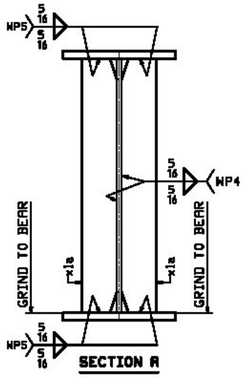
LOCATION: TOWN OF CRAFTSBURY, VERMONT
JOB NO. 649-1
DWG NO. X1
PROJ NO. BO 1449(34)
CUSTOMER: CCS CONSTRUCTORS INC.
REV. 1



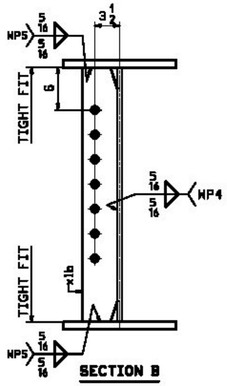
ONE - GIRDER - 1G1 (SUB-ASSEMBLY)

FOR GIRDER STANDARD DETAILS SEE DRAWING X1.
FOR CAMBER & FLANGE DIAGRAMS SEE DRAWING C1.
FOR GENERAL NOTES SEE DRAWING GN1.
T2 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING.

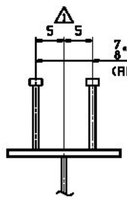
SECTION BA



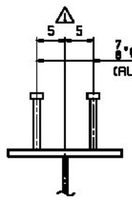
SECTION A



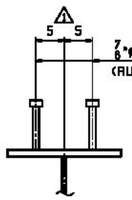
SECTION B



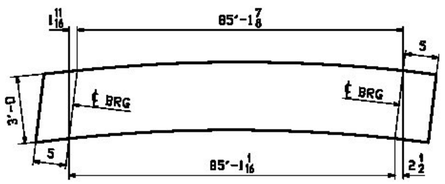
SECTION S1



SECTION S2



SECTION S3



ORIENTATION DIAGRAM
FOR CAMBER SEE DRAWING C1

PGM INFO PAGE	PGM INFO LINE	SHOP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		1G1	1		GIRDER				16334	
1	C		1	wt	PL 5/8x36	86	9 1/16	M270-50W T2	6594	
1	A		1	ta	PL 1x16	85	11 3/8	M270-50W T2	4682	
1	A		1	ba	PL 1x16	85	11 13/16	M270-50W T2	4678	
2	B		4	x1a	PL 1/2x5	3	0 1/16	MIC	26	
2	C		5	x1b	PL 1/2x5	3	0		26	
2	B		1	x1g	PL 1/4x3	0	11		2	
3	B		24		STUD 3/4 ø	0	10	AUGR	0.83	
3	C		24		STUD 3/4 ø	0	8	AUGR	1	
3	B		58		STUD 3/4 ø	0	7	AUGR	1	

BILL OF MATERIAL

JOB NO. 649-1 | DRAWING NO. 1 | REV. 1

Vermont Agency of Transportation
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CK'D BY RSF/SMC OK'D BY WDL
May 19, 2016
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BY RSY DATE 05/26/2016

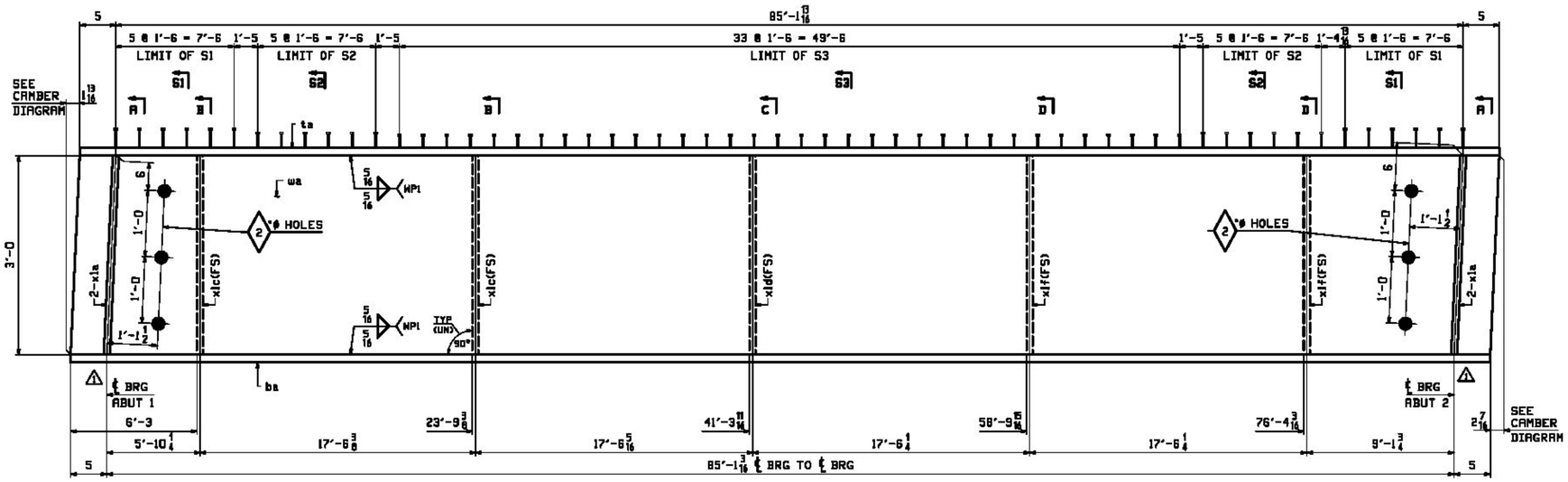
REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
1	5/4/16	APPROVAL COMMENTS	JTB	LWD		
0						

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50W (UN)	SEE DWG GN1	15/16"ø (UN)	NONE

DESCRIPTION: GIRDER - 1G1

CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE. SOUTH PORTLAND, ME 04105
PHONE (207) 780-6722 FAX. (207) 780-6725
TENSAR JOINT

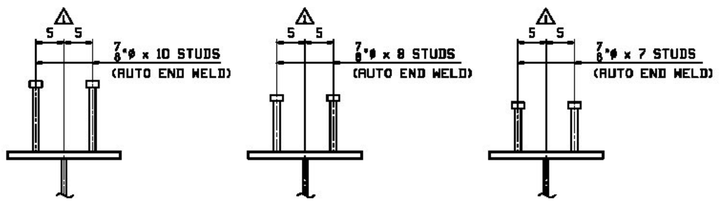
STRUCTURE:	TH-4 OVER WHITNEY BROOK ROUTE NO: TH-4, RURAL MINOR COLLECTOR BRIDGE REPLACEMENT COUNTY OF ORLEANS	DRAWN: JTB	DATE: 02/25
		CHKD: LWD	DATE: 03/02
LOCATION:	TOWN OF CRAFTSBURY, VERMONT	JOB NO.	DWG NO.
PROJ NO.	BD 1449(34)	649-1	1
CUSTOMER:	CCS CONSTRUCTORS INC.		REV. 1



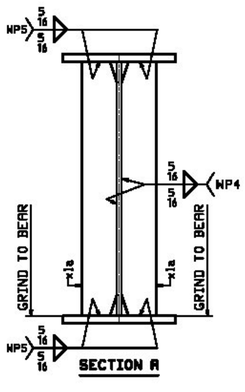
FORM INFO		SHOP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
								649-1	2	1
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		2G2	1		GIRDER				16332	
1	E		1	wt	PL 5/8x36	86	1 5/8	M270-50W T2	6595	
1	A		1	ta	PL 1x16	85	11 13/16	M270-50W T2	4681	
1	A		1	ba	PL 1x16	85	11 13/16	M270-50W T2	4679	
2	B		4	x1a	PL 1/2x5	3	0 1/16	MIC	26	
2	C		2	x1c	PL 1/2x5	3	0		26	
2	C		1	x1d	PL 1/2x5	3	0		26	
2	C		2	x1f	PL 1/2x5	3	0		26	
3	B		24		STUD 7/8 ø	0	10	AUTO	0.93	
3	C		24		STUD 7/8 ø	0	8	AUTO	1	
3	D		58		STUD 7/8 ø	0	7	AUTO	1	

ONE - GIRDER - 2G2 (SUB-ASSEMBLY)

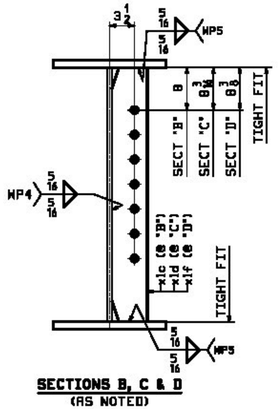
FOR GIRDER STANDARD DETAILS SEE DRAWING X1.
FOR CAMBER & FLANGE DIAGRAMS SEE DRAWING C1.
FOR GENERAL NOTES SEE DRAWING GN1.
T2 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING.



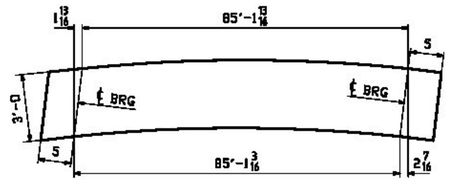
SECTION S1 | SECTION S2 | SECTION S3



SECTION A



SECTIONS B, C & D (AS NOTED)



ORIENTATION DIAGRAM
FOR CAMBER SEE DRAWING C1

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		
0						

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50W (UN)	SEE DWG GN1	13/16"ø (UN)	NONE

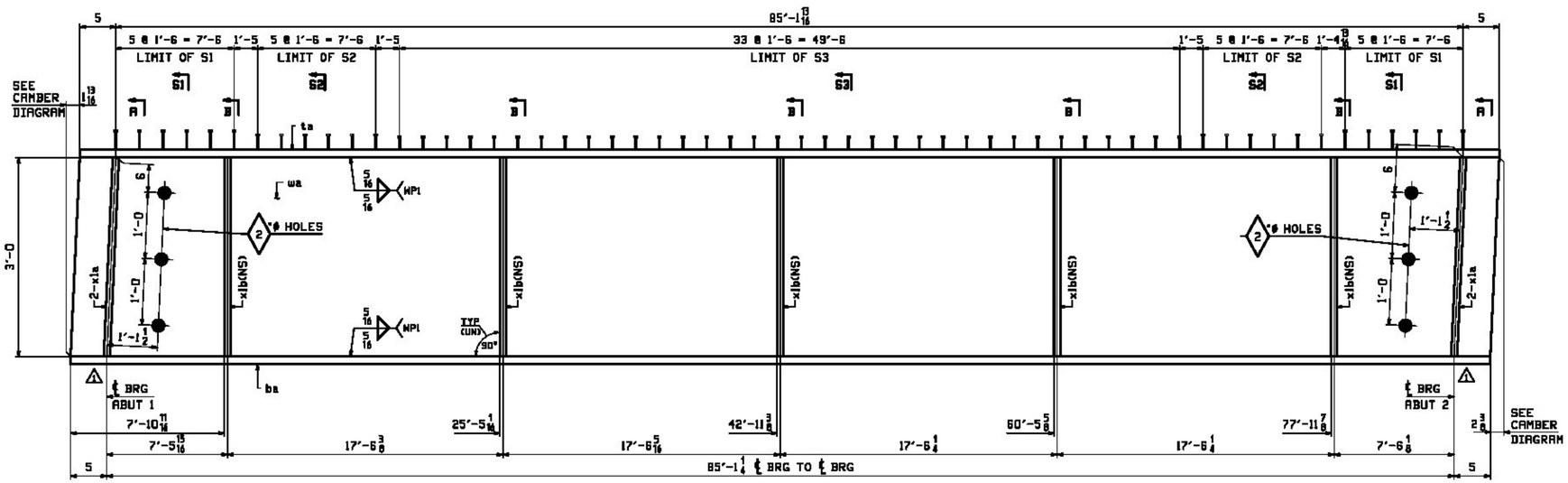
DESCRIPTION: GIRDER - 2G2

CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE. PHONE (207) 780-6722
SOUTH PORTLAND, ME 04106 FAX. (207) 780-6725
TENSAR 3397

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.	BD 1449(34)	649-1	2
CUSTOMER:	CCS CONSTRUCTORS INC.		REV. 1

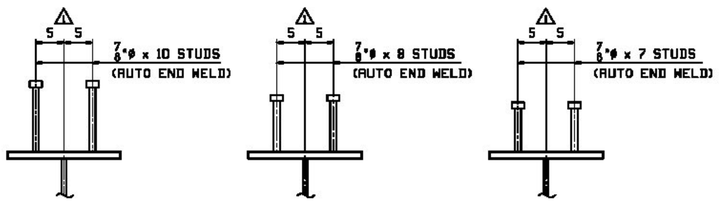
FAB INFO		SHOP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		3G3	1		GIRDER				16332	
1	E		1	wt	PL $\frac{5}{8}$x36	86	$1\frac{5}{8}$	M270-50W T2	6595	
1	A		1	ta	PL 1x16	85	$11\frac{13}{16}$	M270-50W T2	4681	
1	A		1	ba	PL 1x16	85	$11\frac{1}{4}$	M270-50W T2	4679	
2	B		4	x1a	PL $\frac{1}{2}$x5	3	$0\frac{1}{16}$	MIC	26	
2	C		5	x1b	PL $\frac{1}{2}$x5	3	0		26	
3	B		24		STUD $\frac{7}{8}$ ø	0	10	AWS	0.93	
3	C		24		STUD $\frac{7}{8}$ ø	0	8	AWS	1	
3	D		58		STUD $\frac{7}{8}$ ø	0	7	AWS	1	

JOB NO. 649-1 | DRAWING NO. 3 | REV. 1

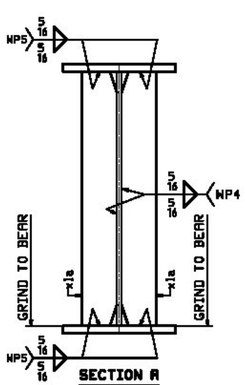


ONE - GIRDER - 3G3 (SUB-ASSEMBLY)

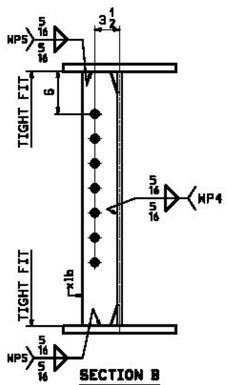
FOR GIRDER STANDARD DETAILS SEE DRAWING X1.
FOR CAMBER & FLANGE DIAGRAMS SEE DRAWING C1.
FOR GENERAL NOTES SEE DRAWING GN1.
T2 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING.



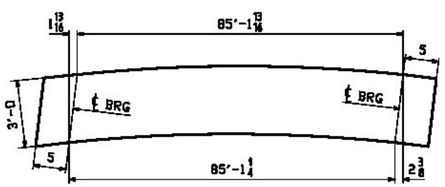
SECTION S1 | SECTION S2 | SECTION S3



SECTION A



SECTION B



ORIENTATION DIAGRAM
FOR CAMBER SEE DRAWING C1

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		
0						

MATERIAL:	SURFACE PREP. & PRINT:	HOLES:	SHOP BOLTS:
M270-50W (UN)	SEE DWG GN1	15/16 ø (UN)	NONE

DESCRIPTION: GIRDER - 3G3

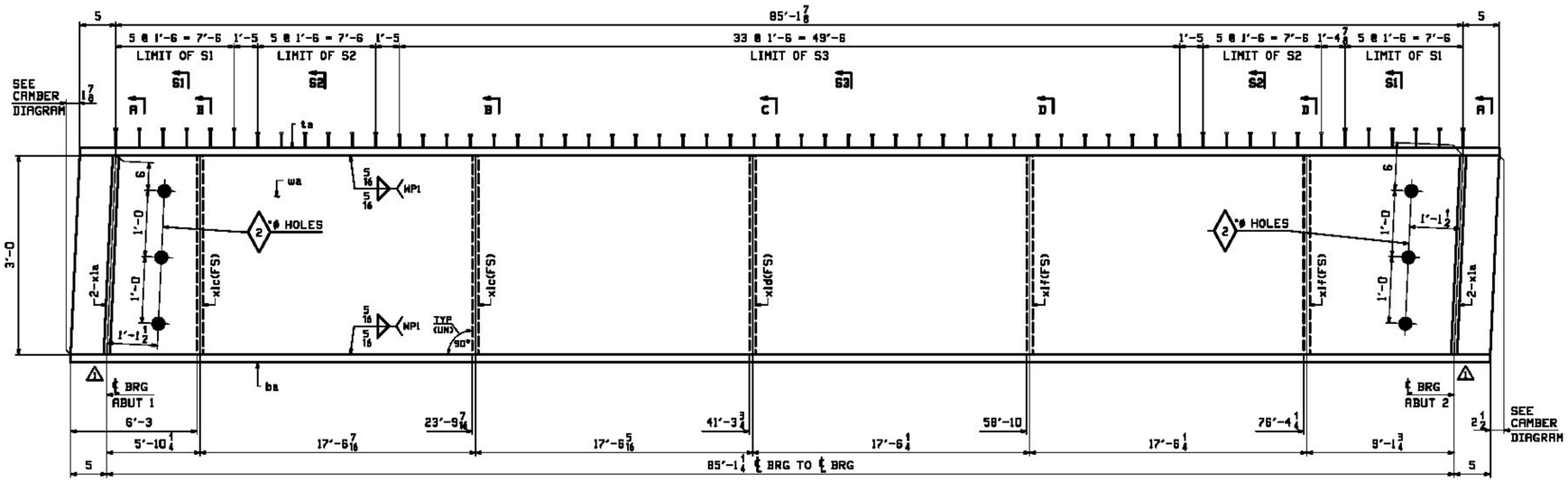
CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE. SOUTH PORTLAND, ME 04106
PHONE (207) 780-6722 FAX. (207) 780-6725
TEMBOR 3067

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

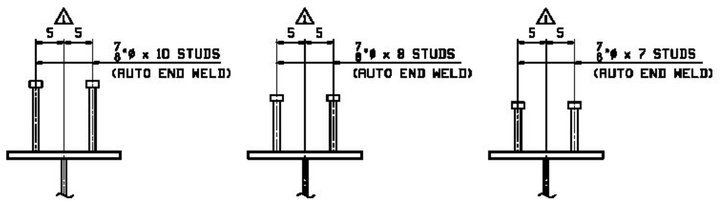
LOCATION: TOWN OF CRAFTSBURY, VERMONT
JOB NO. 649-1
DWG NO. 3 REV. 1

PROJ NO. BO 1449(34)
CUSTOMER: CCS CONSTRUCTORS INC.

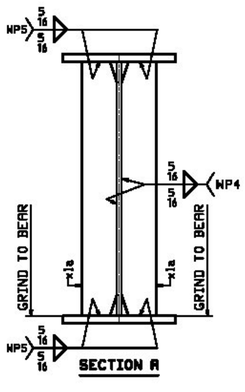


ONE - GIRDER - 4G4 (SUB-ASSEMBLY)

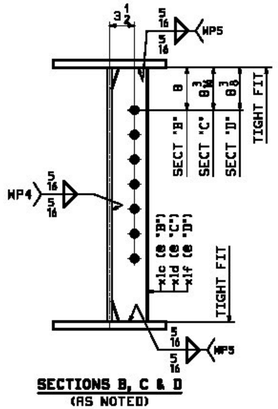
FOR GIRDER STANDARD DETAILS SEE DRAWING X1.
FOR CAMBER & FLANGE DIAGRAMS SEE DRAWING C1.
FOR GENERAL NOTES SEE DRAWING GN1.
T2 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING.



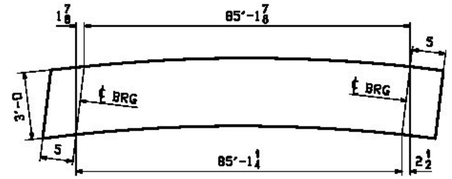
SECTION S1 | SECTION S2 | SECTION S3



SECTION A



SECTIONS B, C & D
(AS NOTED)



ORIENTATION DIAGRAM
FOR CAMBER SEE DRAWING C1

FAB INFO PAGE	FAB INFO LINE	SHOP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		4G4	1		GIRDER				16334	
1	E		1	wt	PL 5/16x36	86	1 3/4	M270-50W T2	6596	
1	A		1	ta	PL 1x16	85	11 1/4	M270-50W T2	4682	
1	A		1	ba	PL 1x16	85	11 1/4	M270-50W T2	4679	
2	B		4	x1a	PL 1/2x5	3	0 1/16	MIC	26	
2	C		2	x1c	PL 1/2x5	3	0		26	
2	C		1	x1d	PL 1/2x5	3	0		26	
2	C		2	x1f	PL 1/2x5	3	0		26	
3	B		24		STUD 7/8 ø	0	10	AWS	0.93	
3	C		24		STUD 7/8 ø	0	8	AWS	1	
3	D		58		STUD 7/8 ø	0	7	AWS	1	

BILL OF MATERIAL

JOB NO. 649-1 | DRAWING NO. 4 | REV. 1

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

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
1	5/4/16	APPROVAL COMMENTS	JTB	LWD		
0						

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50W (UN)	SEE DWG GN1	13/16" ø (UN)	NONE

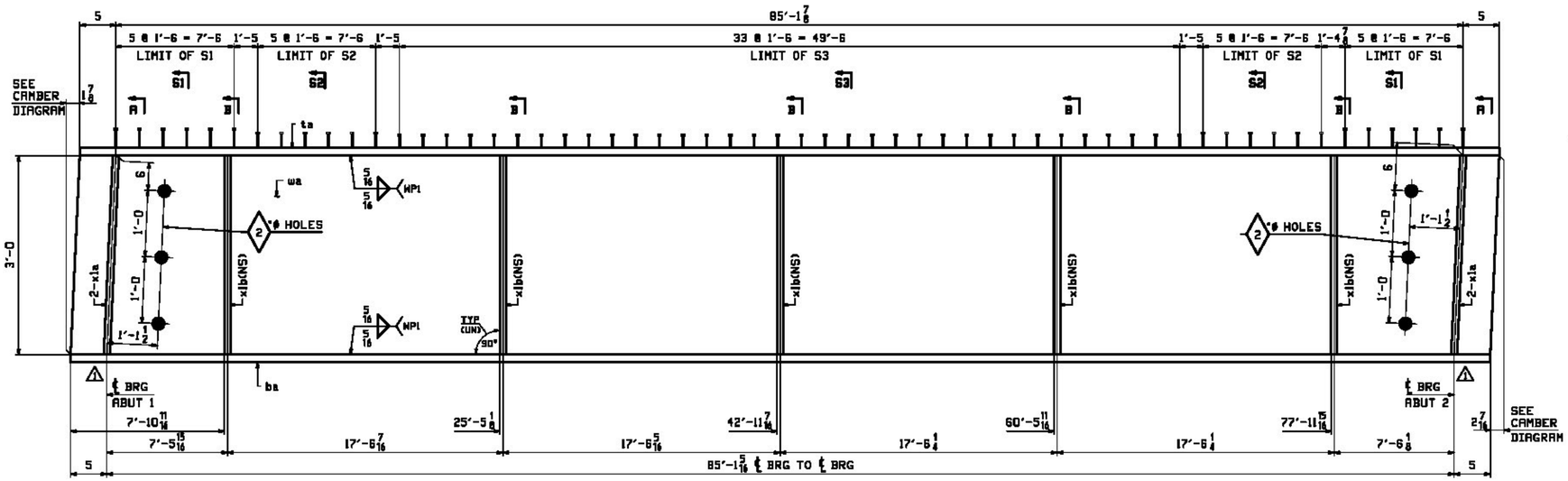
DESCRIPTION: GIRDER - 4G4

CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE. SOUTH PORTLAND, ME 04106
PHONE (207) 780-6722 FAX. (207) 780-6725
TENSAR 33567

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

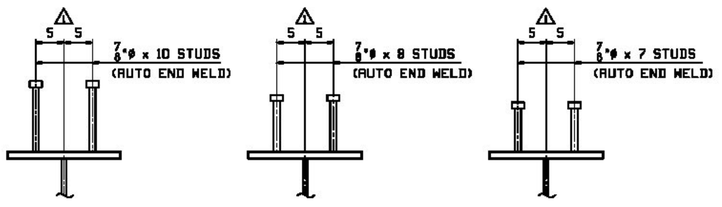
DRAWN:	DATE:
JTB	02/25
CHKD:	DATE:
LWD	03/02

LOCATION: TOWN OF CRAFTSBURY, VERMONT
JOB NO. 649-1
DWG NO. 4
PROJ NO. BD 1449(34)
REV. 1
CUSTOMER: CCS CONSTRUCTORS INC.

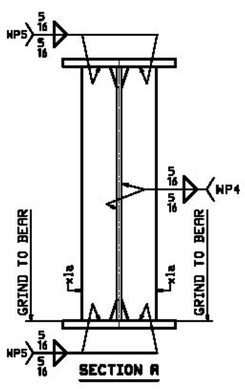


ONE - GIRDER - 5G5 (SUB-ASSEMBLY)

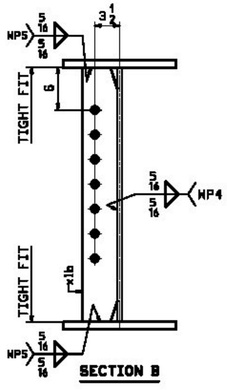
FOR GIRDER STANDARD DETAILS SEE DRAWING X1.
FOR CAMBER & FLANGE DIAGRAMS SEE DRAWING C1.
FOR GENERAL NOTES SEE DRAWING GN1.
T2 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING.



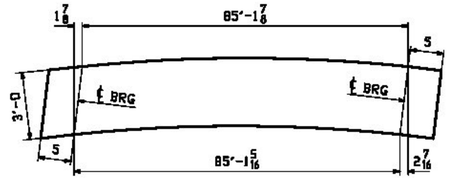
SECTION S1 SECTION S2 SECTION S3



SECTION A



SECTION B



ORIENTATION DIAGRAM
FOR CAMBER SEE DRAWING C1

FORM INFO PAGE	FORM INFO LINE	SHOP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		5G5	1		GIRDER				16334	
1	E		1	wt	PL 5/8x36	86	1 3/4	M270-50W T2	6596	
1	A		1	ta	PL 1x16	85	11 1/8	M270-50W T2	4682	
1	A		1	ba	PL 1x16	85	11 15/16	M270-50W T2	4679	
2	B		4	x1a	PL 1/2x5	3	0 1/16	MIC	26	
2	C		5	x1b	PL 1/2x5	3	0		26	
3	B		24		STUD 7/8 ϕ	0	10	AUG8	0.93	
3	C		24		STUD 7/8 ϕ	0	8	AUG8	1	
3	D		68		STUD 7/8 ϕ	0	7	AUG8	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

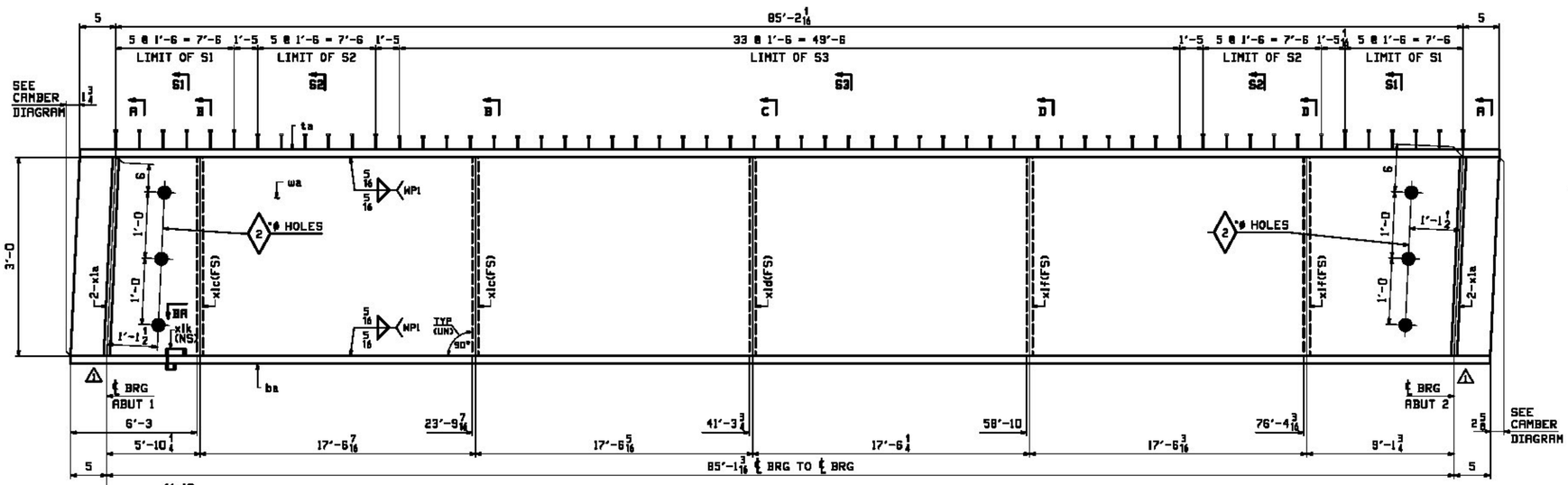
REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
0	5/4/16	APPROVAL COMMENTS	JTB	LWD		

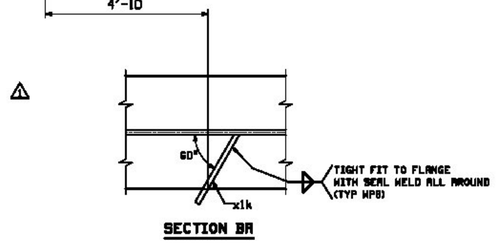
MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50W (UN)	SEE DWG GN1	13/16"ϕ (UN)	NONE

DESCRIPTION: GIRDER - 5G5

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

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. 649-1	DWG NO. 5	
PROJ NO. BD 1449(34)		REV. 0	
CUSTOMER: CCS CONSTRUCTORS INC.			

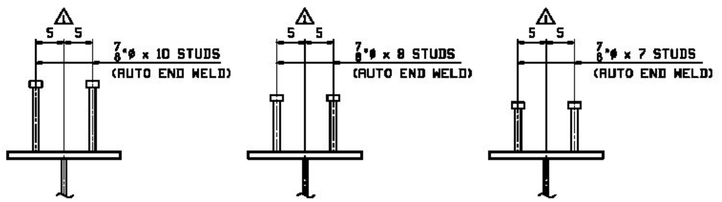




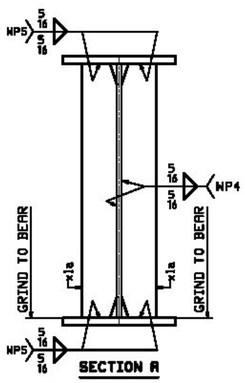
SECTION BR

ONE - GIRDER - 6G6 (SUB-ASSEMBLY)

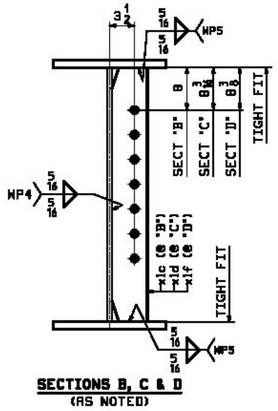
FOR GIRDER STANDARD DETAILS SEE DRAWING X1.
FOR CAMBER & FLANGE DIAGRAMS SEE DRAWING C1.
FOR GENERAL NOTES SEE DRAWING GN1.
T2 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING.



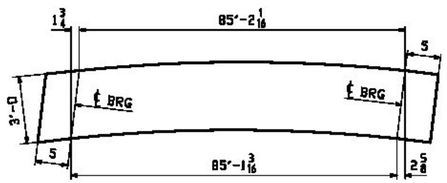
SECTION S1 SECTION S2 SECTION S3



SECTION A



SECTIONS B, C & D
(AS NOTED)



ORIENTATION DIAGRAM
FOR CAMBER SEE DRAWING C1

FAB INFO PAGE	FAB INFO LINE	SHOP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		SGG	1		GIRDER				16337	
1	C		1	wt	PL 5/8x36	86	10 1/16	M270-50W T2	6596	
1	A		1	ta	PL 1x16	86	0 1/8	M270-50W T2	4883	
1	A		1	ba	PL 1x16	85	11 3/16	M270-50W T2	4879	
2	B		4	x1a	PL 1/2x5	3	0 1/16	MIC	26	
2	C		2	x1c	PL 1/2x5	3	0		26	
2	C		1	x1d	PL 1/2x5	3	0		26	
2	C		2	x1f	PL 1/2x5	3	0		26	
2	D		1	x1k	PL 1/4x3	0	11		2	
3	B		24		STUD 7/8 ø	0	10	AWS	0.93	
3	C		24		STUD 7/8 ø	0	8	AWS	1	
3	D		58		STUD 7/8 ø	0	7	AWS	1	

JOB NO. 649-1 | DRAWING NO. 6 | REV. 1

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

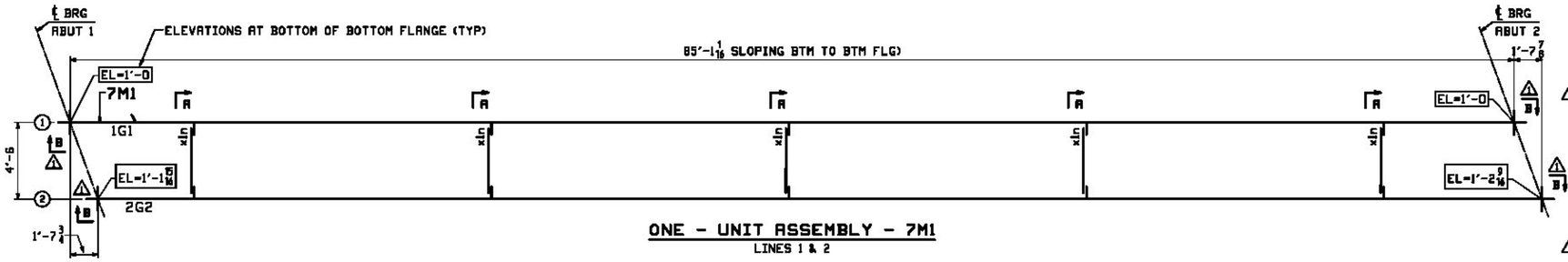
REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
1	5/4/16	APPROVAL COMMENTS	JTB	LWD		
0						

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50W (UN)	SEE DWG GN1	15/16"ø (UN)	NONE

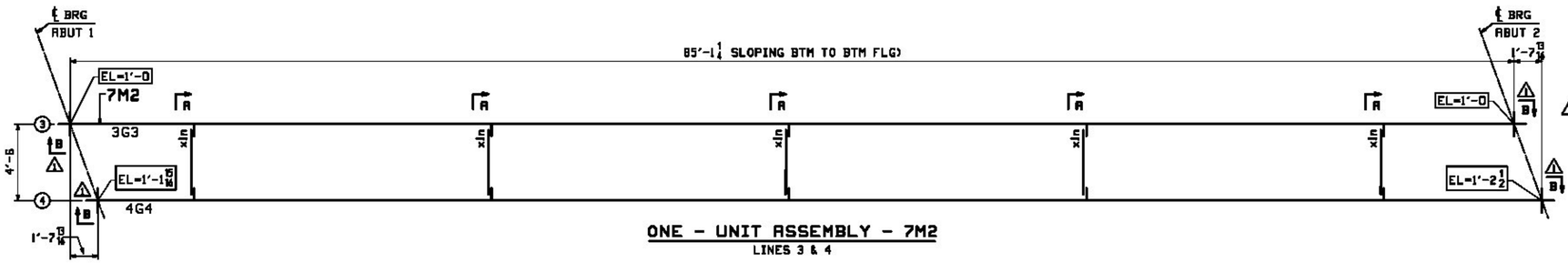
DESCRIPTION: GIRDER - 6G6

CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE. SOUTH PORTLAND, ME 04106
PHONE (207) 780-6722 FAX. (207) 780-6725
TEMBOR 3067

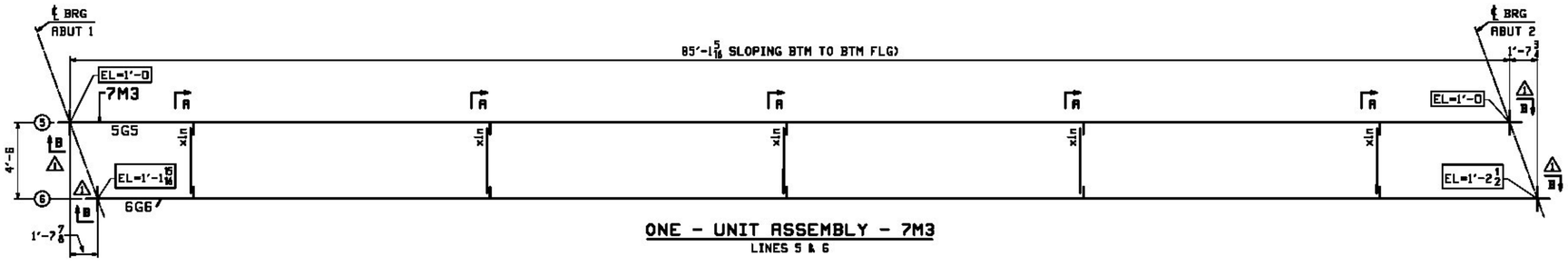
STRUCTURE: TH-4 OVER WHITNEY BROOK ROUTE NO: TH-4, RURAL MINOR COLLECTOR BRIDGE REPLACEMENT COUNTY OF ORLEANS	DRAWN: JTB	DATE: 02/25	
	CHKD: LWD	DATE: 03/02	
LOCATION: TOWN OF CRAFTSBURY, VERMONT	JOB NO. 649-1	DWG NO. 6	
PROJ NO. BO 1449(34)			
CUSTOMER: CCS CONSTRUCTORS INC.		REV. 1	



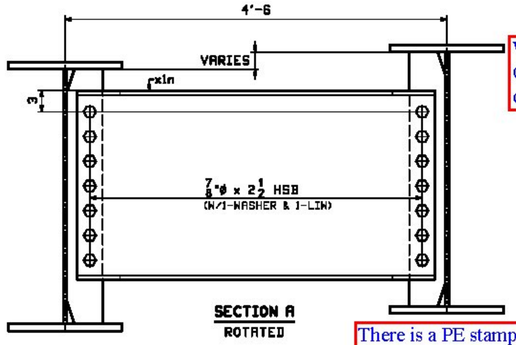
ONE - UNIT ASSEMBLY - 7M1
LINES 1 & 2



ONE - UNIT ASSEMBLY - 7M2
LINES 3 & 4

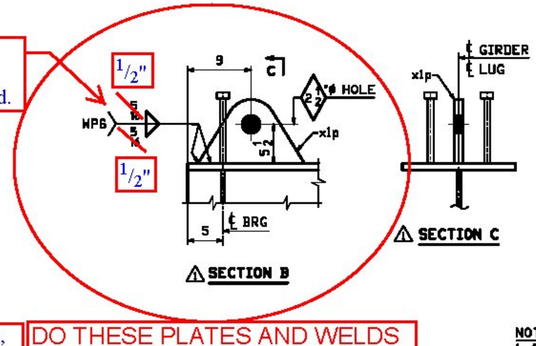


ONE - UNIT ASSEMBLY - 7M3
LINES 5 & 6



SECTION A
ROTATED

Weld design on Calderwood lifting calculations is 1/2" weld.



SECTION B

SECTION C

There is a PE stamped design for the plates, the weld says "70xx". Email from Calderwood says 80ksi electrode is ok.

DO THESE PLATES AND WELDS HAVE A PE STAMPED DESIGN?

NOTES:
1. ALL ELEVATIONS AND DIMENSIONS ARE GIVEN TO THE BOTTOM OF THE BOTTOM FLANGE.
2. FOR GENERAL NOTES SEE DRAWING GN1.

FAB INFO PAGE	FAB INFO LINE	SHOP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		7M1	1		UNIT ASSEMBLY				35199	
			1	1G1	GIRDER SUB-ASSEMBLY			SEE DWG 1	16588	
			1	2G2	GIRDER SUB-ASSEMBLY			SEE DWG 2	16586	
2	G		5	x1n	W 27x84	4	2 1/2		354	
4	B		4	x1p	PL 1 1/4 x 9	1	3	A572-50	48	
3	G		70		7/8 ø HSB	0	2 1/2	A325-X	0.80	
3	J		70		7/8 ø HSW			F436-X	0.07	
3	K		70		LOAD IND. WASH FOR 7/8 ø HSB			F959	0.07	
		7M2	1		UNIT ASSEMBLY				35200	
			1	3G3	GIRDER SUB-ASSEMBLY			REF DWG 3	16587	
			1	4G4	GIRDER SUB-ASSEMBLY			REF DWG 4	16588	
2	G		5	x1n	W 27x84	4	2 1/2		354	
4	B		4	x1p	PL 1 1/4 x 9	1	3	A572-50	48	
3	G		70		7/8 ø HSB	0	2 1/2	A325-X	0.80	
3	J		70		7/8 ø HSW			F436-X	0.07	
3	K		70		LOAD IND. WASH FOR 7/8 ø HSB			F959	0.07	
		7M3	1		UNIT ASSEMBLY				35204	
			1	5G5	GIRDER SUB-ASSEMBLY			SEE DWG 5	16588	
			1	6G6	GIRDER SUB-ASSEMBLY			REF DWG 6	16591	
2	G		5	x1n	W 27x84	4	2 1/2		354	
4	B		4	x1p	PL 1 1/4 x 9	1	3	A572-50	48	
3	G		70		7/8 ø HSB	0	2 1/2	A325-X	0.80	
3	J		70		7/8 ø HSW			F436-X	0.07	
3	K		70		LOAD IND. WASH FOR 7/8 ø HSB			F959	0.07	

BILL OF MATERIAL

JOB NO. 649-1 | DRAWING NO. 7 | 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

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
1	4/28/16	ADD LIFTING LUGS (EXTRA X1)	JTB	LWD		
0						

MATERIAL: M270-50W (UN) | SURFACE PREP. & PAINT: SEE DWG GN1 | HOLES: AS NOTED | SHOP BOLTS: AS NOTED

DESCRIPTION: UNIT ASSEMBLIES

CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE. SOUTH PORTLAND, ME 04106
PHONE (207) 780-6722 FAX. (207) 780-6725
TENSAR 3067

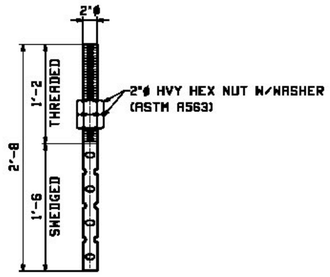
STRUCTURE: TH-4 OVER WHITNEY BROOK
ROUTE NO: TH-4, RURAL MINOR COLLECTOR
BRIDGE REPLACEMENT
COUNTY OF ORLEANS

DRAWN: JTB DATE: 02/25
CHKD: LWD DATE: 03/02

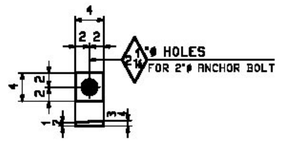
LOCATION: TOWN OF CRAFTSBURY, VERMONT
PROJ NO. BD 1448(34)
CUSTOMER: CCS CONSTRUCTORS INC.

JOB NO. 649-1 | DWG NO. 7 | REV. 1

FAB'N INFO		SHOP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
								649-1	8	⚠1
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		BAB1	24		ANCHOR BOLTS				34	
2	L		24		2 ø HDD	2	8	F1554-55	28	
2	M		48		2 ø HHN			A563 (DH)	3	
					DEV. PLATE WASHERS					
2	N	BM1	24		PL $\frac{3}{4}$x4	0	4	GIP	3	
					BEARING PLATES					
2	K	BM2	12		PL 2x8	2	4		127	

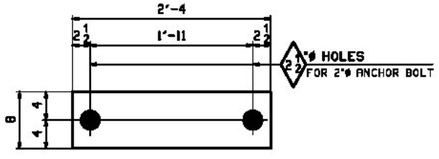


24 - ANCHOR BOLTS - BAB1



24 - PLATE WASHERS - BM1

⚠ PLACE A MARK ON THE WASHER TO INDICATE THE HIGH POINT AND TOP OF WASHER



⚠ 12 - BEARING PLATES - BM2

NOTE:
FOR GENERAL NOTES SEE DRAWING GN1.

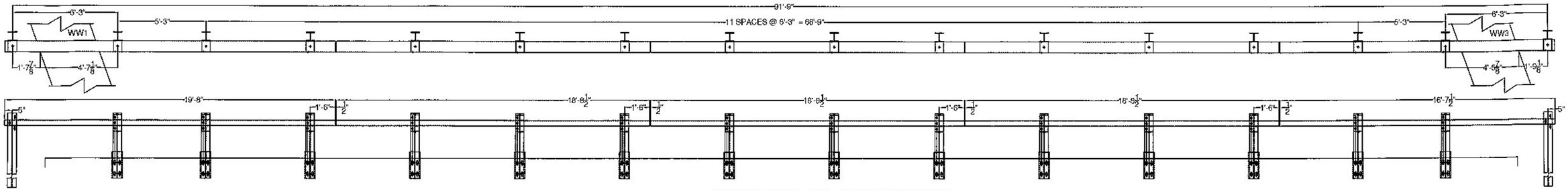
REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
⚠1	5/4/16	APPROVAL COMMENTS	JTB	LWD		
0						

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50W (UN)	SEE DWG GN1	AS NOTED	NONE

DESCRIPTION: ANCHOR BOLTS

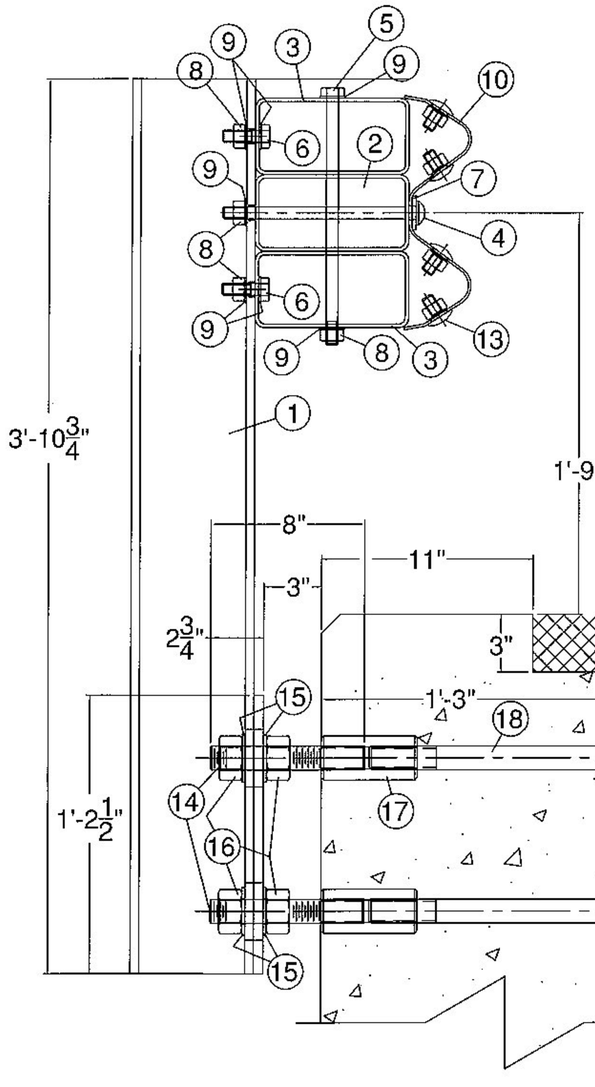
CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE. PHONE (207) 780-6722
SOUTH PORTLAND, ME 04106 FAX. (207) 780-6725
TENSAR 3067

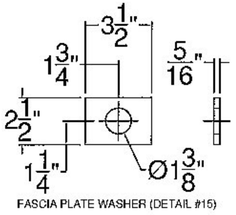
STRUCTURE: TH-4 OVER WHITNEY BROOK ROUTE NO: TH-4, RURAL MINOR COLLECTOR BRIDGE REPLACEMENT COUNTY OF ORLEANS	DRAWN: JTB	DATE: 02/25	
	CHKD: LWD	DATE: 03/02	
LOCATION: TOWN OF CRAFTSBURY, VERMONT	JOB NO. 649-1	DWG NO. 8	
PROJ NO. BD 1449(34)			
CUSTOMER: CCS CONSTRUCTORS INC.		REV. ⚠1	



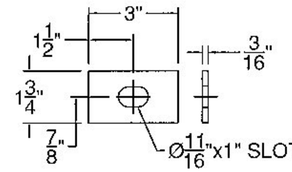
"W" PANEL NOT SHOWN FOR DRAWING CLARITY

WEST RAILING, FACING WEST

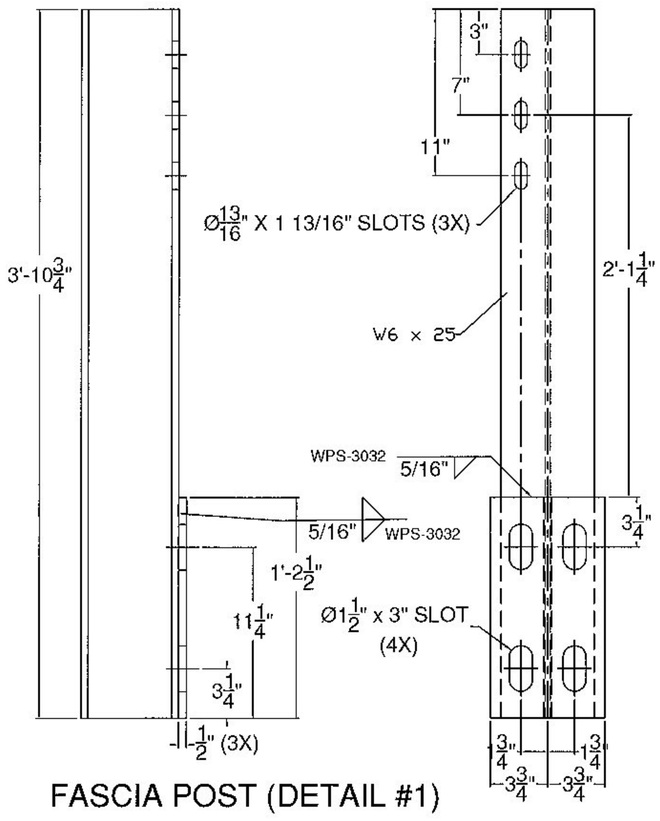




FASCIA PLATE WASHER (DETAIL #15)



SPECIAL WASHER (DETAIL #7)



FASCIA POST (DETAIL #1)

BILL OF MATERIAL				
DET#	QTY	PART		ASTM DESIGNATION
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

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

NOTES:
1. ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 525.
2. GRIND ALL EDGES TO A MINIMUM RADIUS OF 1/16", PRIOR TO GALVANIZING.
3. ALL POSTS SHALL BE SET NORMAL TO GRADE.
4. SPLICES FOR THE STEEL BEAM GUARDRAIL SHALL LAP IN THE DIRECTION OF TRAFFIC.
5. A RAILING JOINT SPLICE SHALL BE PROVIDED IN ANY RAIL BAY SPANNING THE END OF AN INTEGRAL ABUTMENT BRIDGE AND AT ALL SUPERSTRUCTURE EXPANSION JOINTS.
6. SEE STANDARD DRAWING G-lb 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.
7. 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.
8. FOR RADII LESS THAN 950 FEET, HSS8x4 TUBES SHALL BE SHOP BENT TO FIT THE APPLICABLE CURVE.
9. THE MINIMUM DISTANCE FROM THE LAST POST TO THE END OF SLAB IS 1'-6".
10. FERRULES SHALL BE 12L14 COLD DRAWN CARBON STEEL.
11. HOLES IN RAIL FOR RAIL TUBE ATTACHMENT WILL BE SHOP DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO INSTALLATION.
12. THIS RAILING MEETS THE REQUIREMENTS FOR A TL-2 SERVICE LEVEL.

ITEM #: 525.44

SHEET 1 OF 2

STRUCTURAL STEEL TO COMPLY W/ ASTM A6

GALAVANIZING TO BE PER ASTM A123, UNLESS OTHERWISE SPECIFIED.

TOLERANCE UNLESS OTHERWISE NOTED:
HOLES - ± 1/32"
FRACTIONS - ± 1/16"
ANGLES - ± 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
E	1	2/17/16	REVISED PER 2/11/16 EMAIL	E.P.
V				

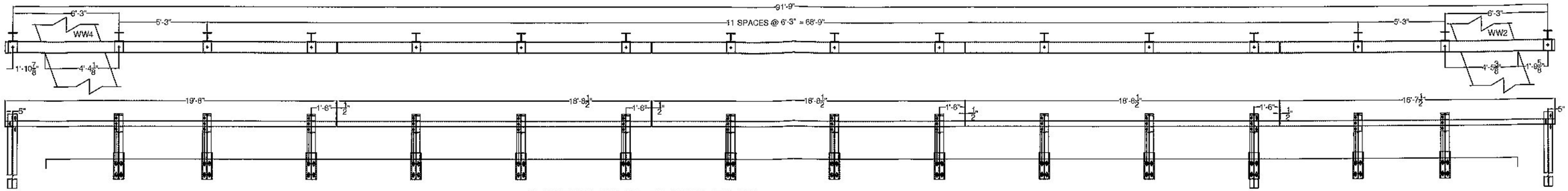
NO.	DATE	DESCRIPTION	BY

ELDERLEE, INC.
OAKS CORNERS, NEW YORK 14518
email: diong@elderlee.com / speek@elderlee.com
Tel: 315-789-6670 Fax: 315-789-6615

ORTHOGRAPHIC PROJECTION

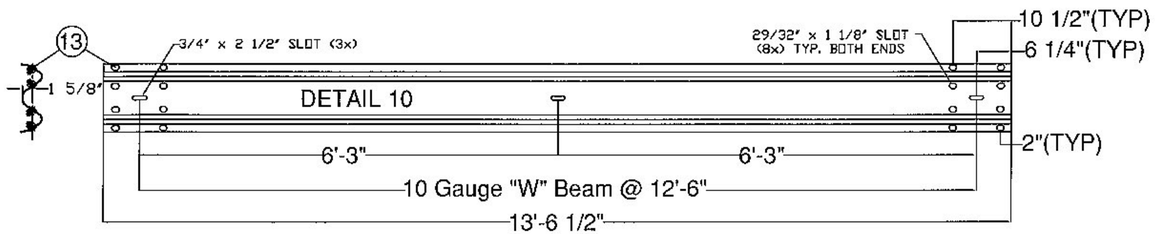
DRAWN	E.P.	1/13/16
CHECKED	D.L.	1/14/16
APPROVED		-
SCALE	SCHEMATIC	

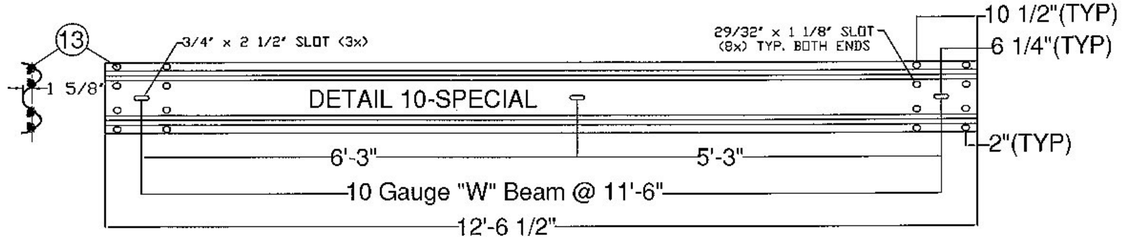
DRAWING NO. FR LaFAYETTE-CRAFTSBURY (34)

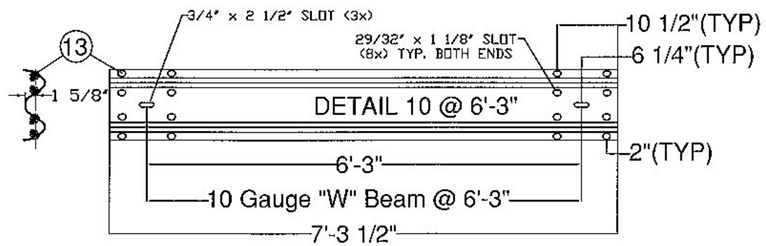


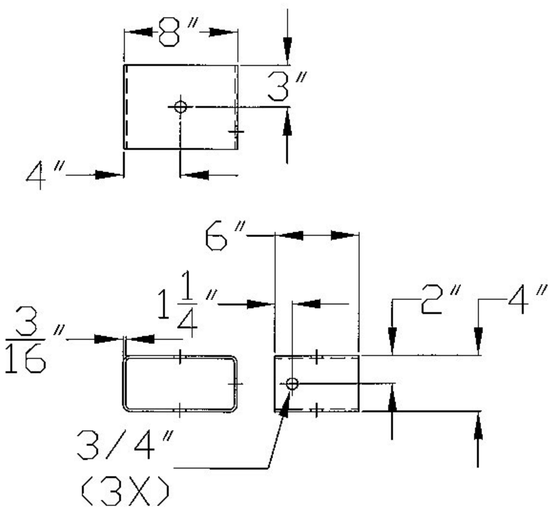
"W" PANEL NOT SHOWN FOR DRAWING CLARITY

EAST RAILING, FACING EAST

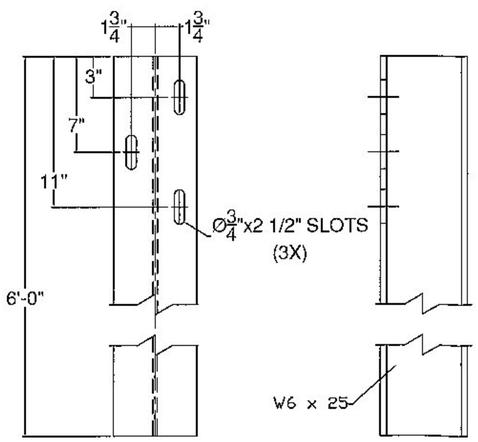




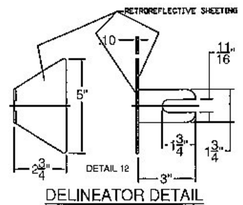




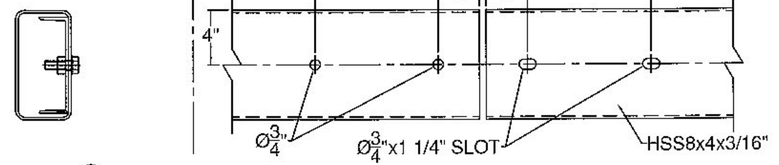
BLOCK OUT (DETAIL #3)

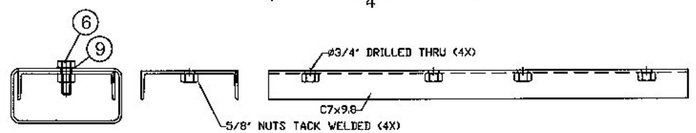


DETAIL #11

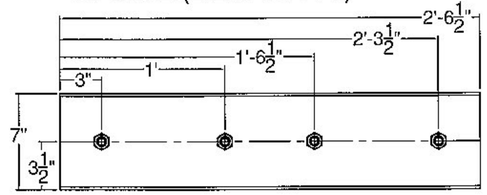


DELINEATOR DETAIL





SPLICE (DETAIL #19)



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

ITEM #: 525.44

STRUCTURAL STEEL TO COMPLY W/ ASTM A6

GALAVANIZING TO BE PER ASTM A123, UNLESS OTHERWISE SPECIFIED.

TOLERANCE UNLESS OTHERWISE NOTED:
HOLES - ± 1/32"
FRACTIONS - ± 1/16"
ANGLES - ± 1/2°

SHEET 2 OF 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
E	1	2/17/16	REVISED PER 2/11/16 EMAIL	E.P.
V				

R	NO.	DATE	DESCRIPTION	BY
E				
V				

ELDERLEE, INC.
OAKS CORNERS, NEW YORK 14518
email:dlong@elderlee.com / epeck@elderlee.com
Tel:315-789-6670 Fax:315-789-6615

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)

Vermont Agency of Transportation
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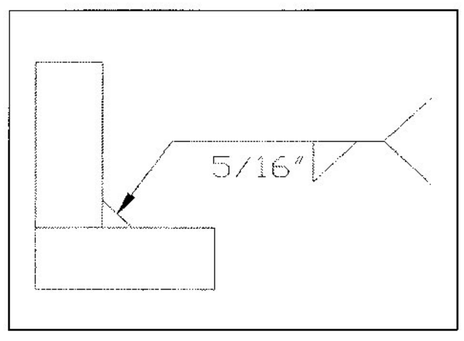
February 17, 2016
RESUBMIT No Approved
BY RSY DATE 02/23/2016

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 TO 269	27 TO 23	12 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 Min.	As-welded Max.	With PWHT Min.	With PWHT Max.
Complete pen.	-	-	-	-
Impact tested	-	-	-	-
Partial pen.	-	-	-	-
Fillet welds	1/8	All	-	-

DIAMETER RANGE QUALIFIED (in.)

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

FILLER METALS

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

THICKNESS RANGE QUALIFIED (in.)

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

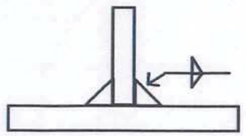
One Wallace Avenue, South Portland ME 04106

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

	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 RSF OK'D BY WDL
March 9, 2016
RESUBMIT No Approved
BY RSY DATE 05/26/2016

Signature 1

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

Signature 2

Name	Signature
Date	

Signature 3

Name	Signature
Date	

Signature 4

Name	Signature
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) Reference docs.	SAW FCM 3/32 DC- 5/7/14		

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.	As-welded Max.	With PWHT Min.	With PWHT Max.
Complete pen.	-	-	-	-
Impact tested	0.625	no max.	-	-
Partial pen.	-	-	-	-
Fillet welds	no min.	no max.	-	-

DIAMETER RANGE QUALIFIED (in.)

	As-welded Min.	As-welded Max.	With PWHT Min.	With PWHT Max.
	N/A	N/A	-	-

FILLER METALS

THICKNESS RANGE QUALIFIED (in.)

	SFA	Classification	F-no.	A-no.	Chemical analysis or Trade name	As-welded Min.	As-welded Max.	With PWHT Min.	With PWHT 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. (ft³)	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	(kJ/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		

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Casco Bay Steel Structures

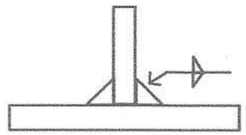
One Wallace Avenue, South Portland ME 04106

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

	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	
Peening	Not used
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.

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Signature 1

Name	Signature
Matthew Cote	
Date	
6/10/14	

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	

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

Identification #	480	Rev.
Originated by	Matthew Cote	
Date	7/22/2014	
Authorized by	Matthew J Cote	
Date	7/22/2014	

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

* Datum, As Detailed (As Fit-Up)

Position

Welding position:	Groove	
	Fillet	All
Vertical progression		Up

Base metals

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

Electrical characteristics

Transfer mode (GMAW)	N/A
Current type	Other
Other	DC+ and AC

Filler metals

AWS Specification	A5.5
AWS Classification	E-8018 H4R

Technique

Stringer or weave bead			Stringer or Weave
Multi/single pass (per side)			Single or Multiple
Number of electrodes			Varies
Spacing:	Longitudinal	(in.)	-
	Lateral	(in.)	-
	Angle	(deg.)	-
Contact tube to work		(in.)	-
Peening			Not permitted
Interpass cleaning			Brushing or grinding

Shielding

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

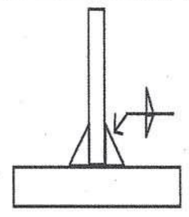
Preheat

Preheat temp.:	Min.	(°F)	See notes
Interpass temp.:	Min.	(°F)	See notes
	Max.	(°F)	450

Post weld heat treatment

Temperature	(°F)	None
Time	(hrs)	-

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

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Name	Signature	Name	Signature
Matthew J Cote	Matthew J Cote CWI 08051341 QC1 EXP 5/1/2017		
Date		Date	
7/22/2014			

Signature 3		Signature 4	
Name	Signature	Name	Signature
Date		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 biger 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

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Casco Bay Steel Structures, Inc.

WELDING PROCEDURE SPECIFICATION

Material specification ASTM Gr. 50 + G-50W
Welding process Gas Metal ARC Welding (GMAW)
Manual or machine Semi Auto
Position of welding Flat + Horizontal
Filler metal specification AWS-A5.28 ESAB
Filler metal classification E80C-Ni1
Flux N A
Shielding gas 90% AR / 10% CO2 Flow rate 35CFH +@/-4, Elec. Stickout 5/8
Single or multiple pass Single & multiple
Single or multiple arc Single
Welding current DC
Polarity DCEP
Welding progression See Detail
Root treatment Blast Clean-wire Brush-Area Tobe Free of Slag-RUST-Moisture
Preheat and interpass temperature See Table and as Required
Postheat temperature As Required
Heat Input Min 24.4 KJ/in Max 38.3 KJ/in P.Q.R. 418-FCM=34.8 KJ/IN
* 35.0 KJ/in Min for single pass

Minimum Preheat and Interpass Temperature, °C [°F]

Welding Process (Base Metal)	To 20 mm [3/4 in] Incl.	Over 20 mm [3/4 in] to 40 mm [1-1/2 in] Incl.	Over 40 mm [1-1/2 in] to 65 mm [2-1/2 in] Incl	Over 65 mm [2-1/2 in]
		Thickness of Thickest Part at Point of Welding, mm [in]		
SAW; GMAW; FCAW; SMAW (M270M [M270] [A 709M (A 709)] 345 [50],	10 [50]	20 [70]	65 [150]	110 [225]
FCM Gr50	150°F	200°F	225°F	325°F
FCM Gr50W	150°F	250°F	325°F	350°F

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

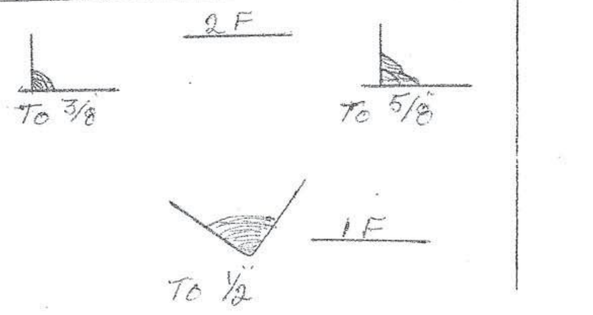
WELDING PROCEDURE

Max Interpass 440°F

Sec. 5.12.4.2

AWS D1.5 Joint detail Fillet

Pass no.	Electrode size	Welding current Amperes	Volts	Travel speed
AS REQ	.052	307	29.2	15.5
		338.7 To 276.3	31 To 27	17.5 To 13.5
* 1 Pass	.052	338.7 to 281.3	31 to 28.0	17.5 to 13.5



This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in applicable A.W.S. codes or contract specifications

Procedure no. FCM 610
Revision no. _____

Contractor Casco Bay Steel
Authorized By Paul L. Goodale
Date 8-1-2013

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