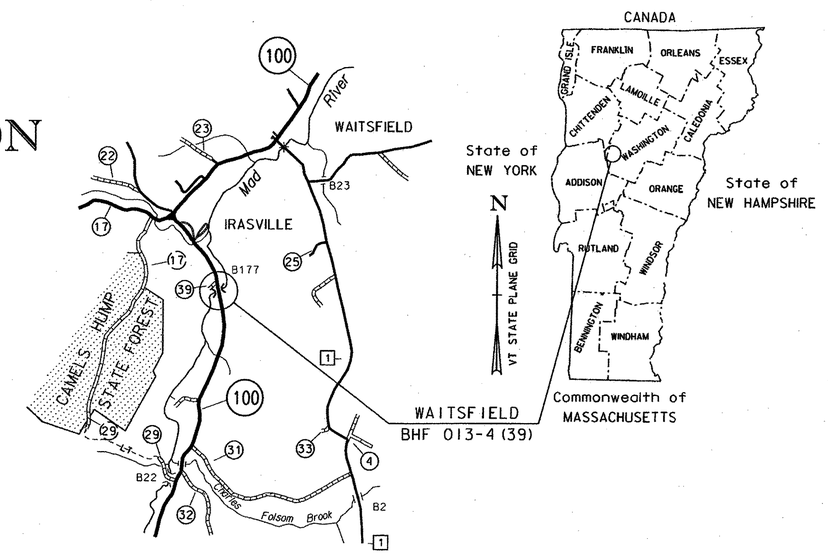
STATE OF VERMONT
AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT
BRIDGE PROJECT

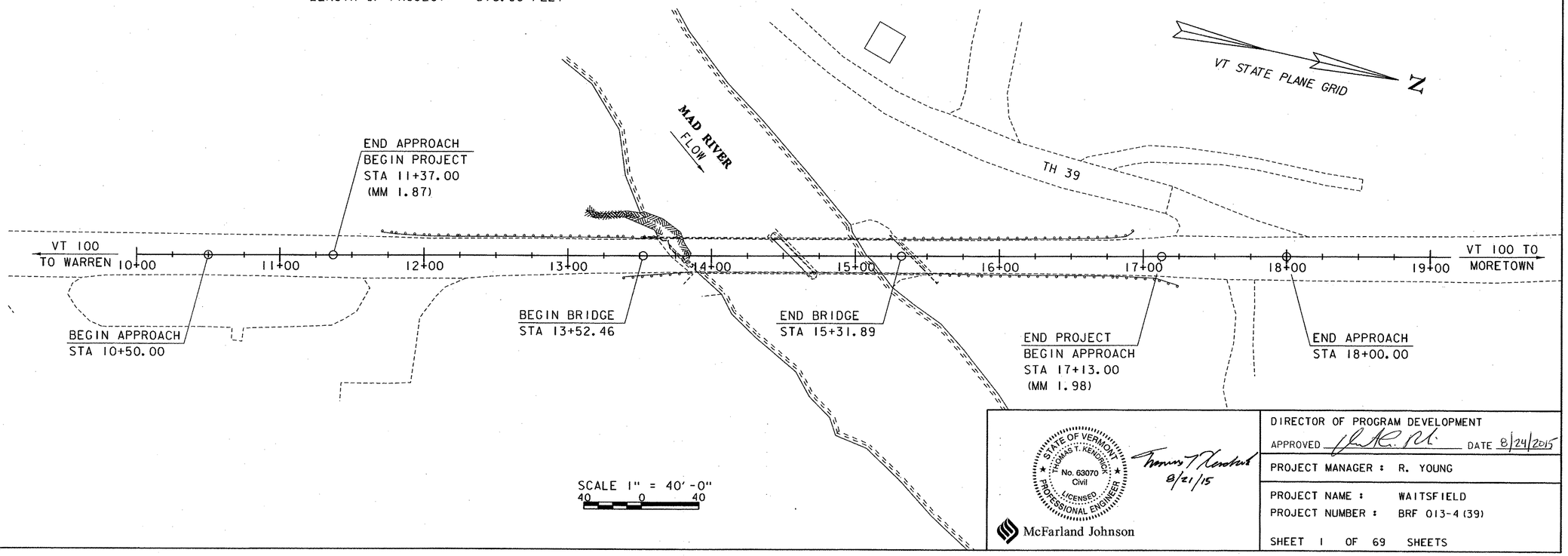
TOWN OF WAITSFIELD
COUNTY OF WASHINGTON

ROUTE NO : VT 100 (MINOR ARTERIAL) BRIDGE NO : 177

BEGINNING AT A POINT APPROXIMATLY 0.8 MILES SOUTH OF JUNCTION OF VT ROUTE 100 WITH VT ROUTE 17 AND EXTENDING NORTHERLY 576 FEET ALONG VT ROUTE 100

WORK TO BE PERFORMED UNDER THIS PROJECT INCLUDES REPLACEMENT OF THE EXISTING BRIDGE WITH A NEW BRIDGE ON THE EXISTING ALIGNMENT WITH NECESSARY ROADWAY AND CHANNEL WORK.

LENGTH OF STRUCTURE: 179.43 FEET
LENGTH OF ROADWAY: 396.57 FEET
LENGTH OF PROJECT: 576.00 FEET



THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE DIRECTOR OF PROGRAM DEVELOPMENT.

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

QUALITY ASSURANCE PROGRAM : LEVEL 2
SURVEYED BY : G. HITCHCOCK SURVEYED DATE : 5-23-2012
DATUM VERTICAL NAVD88 HORIZONTAL NAD83 (2007)

STATE OF VERMONT
THOMAS T. KENDRICK
No. 63070
Civil
LICENSED
PROFESSIONAL ENGINEER

8/21/15

McFarland Johnson

DIRECTOR OF PROGRAM DEVELOPMENT
APPROVED _____ DATE 8/24/2015

PROJECT MANAGER : R. YOUNG

PROJECT NAME : WAITSFIELD
PROJECT NUMBER : BRF 013-4(39)

SHEET 1 OF 69 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version
LRFD

INDEX OF SHEETS

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SD-502.00	CONCRETE DETAILS AND NOTES	10/10/2012
SD-516.10	BRIDGE JOINT ASHPALTIC PLUG	8/29/2011
SD-516.11a	BRIDGE EXPANSION JOINT, VERMONT	2/24/2011
SD-516.11b	BRIDGE EXPANSION JOINT, VERMONT	2/24/2011
SD-601.00	STRUCTURAL STEEL DETAILS AND NOTES	6/4/2010
SD-602.00	STRUCTURAL STEEL PLATE GIRDER DETAILS AND NOTES	5/2/2011

REV	DATE	DESCRIPTION
1	10/13/15	SHEET ADDITIONS

AS BUILT "REBAR" DETAIL

LEVEL I	LEVEL II	LEVEL III
TYPE:	TYPE:	TYPE:
GRADE:	GRADE:	GRADE:

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2015	4100	610	55	6.2	230
2035	4400	650	55	10.1	400

20 year ESAL for flexible pavement from 2015 to 2035 : 1143000

40 year ESAL for flexible pavement from 2015 to 2055 : 2684000

Design Speed : 40 mph

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: February 2015

DRAINAGE AREA : 56. 2 sq. mi.
CHARACTER OF TERRAIN : Mountainous, rural, mix of woods and meadow
STREAM CHARACTERISTICS : Sinuous, incised, alluvial
NATURE OF STREAMBED : Sand and gravel

PEAK FLOW DATA

Q 2.33 =	2975 cfs	Q 50 =	8550 cfs
Q 10 =	5250 cfs	Q 100 =	10,300 cfs
Q 25 =	6950 cfs	Q 500 =	15,450 cfs

DATE OF FLOOD OF RECORD: Unknown
ESTIMATED DISCHARGE: Unknown
WATER SURFACE ELEV.: Unknown
NATURAL STREAM VELOCITY : @ Q50 = 8.0 fps
ICE CONDITIONS : Moderate
DEBRIS: Moderate
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? Yes
IS ORDINARY RISE RAPID? Yes
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No
IF YES, DESCRIBE:

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

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: 2-span continuous rolled beam bridge
YEAR BUILT: 1938
CLEAR SPAN(NORMAL TO STREAM): 122' - 6' pier = 116'
VERTICAL CLEARANCE ABOVE STREAMBED: ~16'
WATERWAY OF FULL OPENING: 1760 sq. ft.
DISPOSITION OF STRUCTURE: Remove and replace
TYPE OF MATERIAL UNDER SUBSTRUCTURE: See borings

WATER SURFACE ELEVATIONS AT:

Q2.33 =	713.6'	VELOCITY =	6.0 fps
Q10 =	716.5'	"	6.8 fps
Q25 =	717.8'	"	7.8 fps
Q50 =	719.0'	"	8.6 fps
Q100 =	720.1'	"	9.5 fps

LONG TERM STREAMBED CHANGES: Some undermining during high flows and scour hole through the bridge

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: N/A
RELIEF ELEVATION: 725.9'
DISCHARGE OVER ROAD @Q100: N/A

UPSTREAM STRUCTURE

TOWN: Waitsfield — DISTANCE: 8960'
HIGHWAY # : TH 29 — STRUCTURE #: 22
CLEAR SPAN: 57' — CLEAR HEIGHT:
YEAR BUILT: 1999 — FULL WATERWAY:
STRUCTURE TYPE: Welded pony truss

DOWNSTRUCTURE STRUCTURE

TOWN: Waitsfield — DISTANCE: 7970'
HIGHWAY # : TH 1 — STRUCTURE #: CB 4
CLEAR SPAN: 99' — CLEAR HEIGHT:
YEAR BUILT: 1833, reconstructed 1973 — FULL WATERWAY:
STRUCTURE TYPE: King post wooden covered bridge

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	1.94	1.46					
POSTING							
OPERATING	2.52	1.89	2.62	1.54	2.81	2.47	2.4
COMMENTS:							

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span steel beam bridge

CLEAR SPAN(NORMAL TO STREAM): 134'
VERTICAL CLEARANCE ABOVE STREAMBED: ~14'
WATERWAY OF FULL OPENING: 1575 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	713.5'	VELOCITY=	6.1 fps
Q10 =	716.5'	"	6.9 fps
Q25 =	717.7'	"	7.9 fps
Q50 =	718.9'	"	8.6 fps
Q100 =	720.0'	"	9.5 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: N/A
RELIEF ELEVATION: 725.9'
DISCHARGE OVER ROAD @Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 722.0'
VERTICAL CLEARANCE: @ Q50 = 3.1'

SCOUR: Contraction scour 0' up to Q200

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW:	115 cfs	
ORDINARY LOW WATER:	55 cfs	DEPTH OR ELEVATION: ~709'
ORDINARY HIGH WATER:	1280 cfs	~712'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: None required.
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:	0.0 INCH
3. DESIGN SPAN	L:	172.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	---
5. PRESTRESSING STRAND	f_y:	---
6. PRECAST CONCRETE STRUCTURE	f'_c:	5.0 KSI
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'_{ci}:	---
8. SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)	f'_c:	5.0 KSI
9. CONCRETE, HIGH PERFORMANCE CLASS A	f'_c:	4.0 KSI
10. CONCRETE, HIGH PERFORMANCE CLASS B	f'_c:	3.5 KSI
11. SPECIAL PROVISION (ULTRA HIGH PERFORMANCE CONCRETE)(FPQ)	f'_c:	14.5 KSI
12. REINFORCING STEEL	f_y:	60 KSI
13. STRUCTURAL STEEL AASHTO M270 (WEATHERING)	f_y:	50 KSI
14. SOIL UNIT WEIGHT	γ:	0.140 KSI
15. NOMINAL BEARING RESISTANCE OF SOIL	q_n:	---
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
17. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	70.0 KSF
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	0.45
19. PILE YIELD STRENGTH ASTM A572	f_y:	50 KSI
20. PILE SIZE		HP 14x89
20. ESTIMATED PILE LENGTH	L_p:	50 FT
21. NOMINAL AXIAL PILE RESISTANCE (SEE PROJECT NOTES)		---
22. LATERAL PILE DEFLECTION	Δ:	0.50 INCH
23. BASIC WIND SPEED	V_{3s}:	100 MPH
24. MINIMUM GROUND SNOW LOAD	p_g:	---
25. SEISMIC DATA PGA: ---	S_s:	---
26.		---
27.		---
28.		---

PROJECT NAME: **WAITSFIELD**
PROJECT NUMBER: **BF 013-4(39)**

FILE NAME: **z12b136quantity.xlsm**
PROJECT LEADER: **R.YOUNG**
DESIGNED BY: **VTRANS/D.KULL**
PRELIMINARY INFORMATION SHEET 1

PLOT DATE: 10/13/2015
DRAWN BY: **S. MERKWAN**
CHECKED BY: **T.KENDRICK**

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PROJECT NOTES

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT, AGENCY OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2011, AND ITS LATEST REVISIONS, AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, LRFD SIXTH EDITION, DATED 2012 AND ITS LATEST REVISIONS.

2. THE BRIDGE IS DESIGNED FOR HL-93 LIVE LOADING.

3. ALL DIMENSIONS SHOWN IN THE PLANS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68 DEGREES FAHRENHEIT UNLESS OTHERWISE NOTED.

4. ITEM 529.15, "REMOVAL OF STRUCTURE" WILL INCLUDE THE REMOVAL AND DISPOSAL OF THE EXISTING STRUCTURE INCLUDING THE ENTIRE SUPERSTRUCTURE, AND \THE EXISTING PIER TO THE TOP OF ITS FOOTING.

5. ABUTMENT 1 SHALL BE REMOVED TO ELEVATION 720. THE COST FOR REMOVAL OF ABUTMENT 1 SHALL BE INCLUDED IN ITEM 203.27 UNCLASSIFIED CHANNEL EXCAVATION.

6. ABUTMENT 2 SHALL BE REMOVED TO ELEVATION 711. THE COST FOR REMOVAL OF ABUTMENT 2 WILL BE INCLUDED IN ITEM 204.25 STRUCTURE EXCAVATION.

7. THE EXISTING STRUCTURAL STEEL IS PAINTED WITH A MATERIAL THAT MAY CONTAIN LEAD. THE CONTRACTOR SHALL FOLLOW ALL APPLICABLE REGULATIONS WHEN HANDLING AND WORKING WITH THIS STEEL. THE REMOVED STRUCTURAL STEEL IS THE PROPERTY OF THE CONTRACTOR. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE STATE, ITS OFFICERS, AND EMPLOYEES HARMLESS CONCERNING THE CONTRACTOR'S USE OR DISPOSAL OF THE REMOVED EXISTING STRUCTURAL STEEL.

8. ALL PRECAST CONCRETE ELEMENTS SHALL 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.

9. FOR TRAFFIC CONTROL NOTES, SEE SHEET 17.

EARTHWORK

10. TEMPORARY CONSTRUCTION FILLS WITHIN THE WATERCOURSE FOR ANY PURPOSE SHALL CONSIST OF CLEAN STONE FILL ONLY. NO OTHER FILLING IN THE STREAM SHALL OCCUR WITHOUT THE APPROVAL OF THE STREAM ALTERATION ENGINEER.

11. THE STONE FILL TYPE III UNDER THE BRIDGE AS SHOWN IN THE PLANS SHALL BE PLACED BEFORE THE STEEL GIRDERS ARE SET.

12. AT ABUTMENT NO. 1, THE FILL BEHIND THE ABUTMENTS SHALL NOT BE PLACED ABOVE THE LEVEL OF THE BRIDGE SEAT UNTIL THE GIRDERS ARE SET ON THE BRIDGE SEAT.

13. AT ABUTMENT NO. 2, THE MSE ABUTMENT BACKFILL SECTION SHALL BE PLACED TO THE UPPER PAY LIMIT OF THE ITEM PRIOR TO SETTING THE GIRDERS ON THE BRIDGE SEAT.

14. GUARDRAIL APPROACH RAIL AND STEEL BEAM GUARDRAIL SHALL BE CORED INTO ROCK WHERE REQUIRED AS DIRECTED BY AND TO THE SATISFACTION OF THE ENGINEER. ALL ASSOCIATED COSTS WILL BE INCLUDED IN THE UNIT BID PRICE FOR THE APPROPRIATE RAIL ITEM.

CONCRETE

15. ALL CONCRETE PLACED IN THE TRANSVERSE AND LONGITUDINAL CLOSURE POURS OF THE DECK AND END OF DECK PANELS AT EXPANSION JOINT WILL BE ITEM 900.608 SPECIAL PROVISION (ULTRA HIGH PERFORMANCE CONCRETE)(FPQ).

⚠ 16. ALL CONCRETE PLACED IN ABUTMENT BACKWALL HEADERS, APPROACH SLAB **CLOSURE POURS**, AND PILE VOIDS WILL BE PAID ITEM 900.608 (HIGH PERFORMANCE CONCRETE, RAPID SET)(FPQ).

⚠ 17. ALL CONCRETE PLACED IN THE BRUSH CURBS, WINGWALL CURBS, **AND SUBFOOTING (WHERE REQUIRED)** WILL BE PAID UNDER ITEM 501.33, CONCRETE, HIGH PERFORMANCE CLASS A.

18. ALL PRECAST SUPERSTRUCTURE, SUBSTRUCTURE AND APPROACH SLAB CONCRETE SHALL MEET THE REQUIREMENTS OF SECTION 540 - PRECAST CONCRETE.

19. ALL REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR REINFORCING STEEL, LEVEL II. ALL REINFORCING STEEL PLACED IN THE BRUSH CURBS, END OF DECK, APPROACH SLAB CLOSURE POURS AND BACKWALL HEADERS WILL BE PAID FOR UNDER ITEM 507.12, "REINFORCING STEEL, LEVEL II". ALL REINFORCING STEEL IN THE PRECAST ELEMENTS WILL BE INCLUDED IN THE UNIT BID PRICE FOR THE APPROPRIATE PRECAST CONCRETE PAY ITEM.

20. ITEM 514.10, "WATER REPELLENT, SILANE", SHALL BE APPLIED TO ALL EXPOSED CONCRETE SUPERSTRUCTURE AND SUBSTRUCTURE SURFACES, EXCEPT THE UNDERSIDE OF THE DECK BETWEEN DRIP NOTCHES.

21. ALL PRECAST CONCRETE SURFACES LABELED WITH "EXPOSED COARSE AGGREGATE FINISH" SHALL BE TREATED TO PROVIDE A ROUGHENED/EXPOSED COARSE AGGREGATE SURFACE. THE AMPLITUDE OF THE EXPOSED AGGREGATE SHALL BE A MINIMUM OF 1/8" AND BE COMPLETED PRIOR TO FINAL PLACEMENT OF THE PRECAST COMPONENT. THE FABRICATOR SHALL INDICATE THE METHOD USED TO ACHIEVE THIS PROFILE AND THE METHOD USED TO PROTECT THE REINFORCING STEEL ON THE FABRICATION DRAWINGS.

22. MINIMUM CLEAR COVER FOR REINFORCING STEEL SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE:
ALONG BACK FACES OF WALLS AGAINST EARTH 2.0 INCH
ALONG TOP SURFACE OF DECK SLAB 2.5 INCH
ALONG BOTTOM SURFACE OF DECK SLAB 1.5 INCH
ELSEWHERE UNLESS OTHERWISE NOTED 3.0 INCH

STRUCTURAL STEEL

23. ALL NEW STRUCTURAL STEEL SHALL CONFORM TO AASHTO M270/M270M GRADE 50W AND WILL BE PAID FOR UNDER ITEM 506.55 "STRUCTURAL STEEL PLATE GIRDER" (FPQ) UNLESS NOTED OTHERWISE.

24. ALL MEMBERS MARKED CVN MUST MEET CHARPY V-NOTCH TESTING REQUIREMENTS AS INDICATED IN SUBSECTION 714.01.

25. ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER HIGH STRENGTH BOLTS IN 15/16" DIAMETER HOLES, PER SECTION 506. ANY CONNECTION NOT DESIGNATED SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED WITH SHOP DRAWINGS.

26. TEMPORARY SUPPORTS FOR GIRDER ERECTION WILL BE INCLUDED IN ITEM 506.55 "STRUCTURAL STEEL, PLATE GIRDER" (FPQ). THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF THE TEMPORARY GIRDER SUPPORT SYSTEM. STABILITY OF THE GIRDERS UNTIL FULL DEAD LOAD IS APPLIED IS THE RESPONSIBILITY OF THE CONTRACTOR.

27. THE CROSSFRAMES SHALL BE DETAILED TO THE STEEL DEAD LOAD FIT CONDITION.

28. THE ENDS OF THE GIRDERS ARE EXPECTED TO BE OUT-OF-PLUMB UNDER FULL DEAD LOAD.

PRECAST CONCRETE DECK PANELS

29. THE PRECAST DECK PANEL LAYOUT SHOWN ON SHEET 25 MAY BE ALTERED BY THE CONTRACTOR PROVIDED THAT THE REINFORCING MEETS OR EXCEEDS THAT SHOWN.

30. ALL PRECAST DECK PANEL EDGES THAT ARE TO HAVE ULTRA HIGH PERFORMANCE CONCRETE CAST AGAINST THEM (EXCLUDING SHEAR CONNECTOR BLOCKOUTS) SHALL HAVE AN EXPOSED COARSE AGGREGATE FINISH.

31. ALL ULTRA HIGH PERFORMANCE CLOSURE POURS IN THE LONGITUDINAL AND TRANSVERSE JOINTS, AND DECK END JOINTS SHALL BE GROUND FLUSH WITH THE PRECAST DECK IN ACCORDANCE WITH ITEM 900.608 SPECIAL PROVISION (ULTRA HIGH PERFORMANCE CONCRETE)(FPQ).

32. SHEAR CONNECTOR BLOCKOUT GEOMETRY SHOWN ON SHEET 27 MAY BE ALTERED BY THE CONTRACTOR.

33. THE GIRDER BLOCKING DETAILS SHOWN ON SHEET 27 ARE CONCEPTUAL AND MAY BE ALTERED BY THE CONTRACTOR. ALL BLOCKING WILL BE INCLUDED IN THE UNIT BID PRICE FOR THE PRECAST CONCRETE STRUCTURE (8" DECK SLABS).

⚠ 34. **ALL BLOCKING AND SHIM STACK MATERIAL TO BE LEFT IN PLACE AFTER THE BRIDGE IS OPEN SHALL BE APPROVED BY THE ENGINEER.**

⚠ 35. THE CONTRACTOR SHALL PROVIDE STAMPED CALCULATIONS PREPARED BY A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF VERMONT THAT SHOW THAT TENSILE STRESSES ON BOTH FACES OF THE DECK PANELS DO NOT EXCEED THE MODULUS OF RUPTURE DURING THE HANDLING, FABRICATION, SHIPPING, **PRE-ASSEMBLY, AND FINAL** ERECTION OF THE PANEL.

PRECAST ABUTMENTS AND POST-TENSIONING

36. ABUTMENT FOOTINGS, STEMS AND BACKWALL SHALL BE PRECAST WITH PAYMENT INCLUDED IN THE APPROPRIATE PRECAST CONCRETE PAY ITEM. PAYMENT SHALL INCLUDE ALL WORK NECESSARY TO FABRICATE, DELIVER, AND ASSEMBLE EACH UNIT COMPLETE AND IN-PLACE AS SHOWN ON THE PLANS. ALL APPURTENANCES WILL BE INCIDENTAL TO THE APPROPRIATE PRECAST CONCRETE ABUTMENT PAY ITEM. STABILITY OF ALL PRECAST SUBSTRUCTURE UNITS IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL REQUIRED BACKFILLING IS COMPLETE.

37. ALL COSTS FOR GROUTING MATERIALS USED IN PRECAST MEMBERS WILL BE INCIDENTAL TO THE APPROPRIATE PRECAST PAY ITEMS UNLESS OTHERWISE NOTED.

⚠ 38. THE CONTRACTOR IS RESPONSIBLE FOR PROPER FIT-UP OF THE PRECAST AND CAST-IN-PLACE ELEMENTS, PER THE FABRICATORS RECOMMENDATIONS, APPROVED FABRICATION AND WORKING DRAWINGS AND TO THE SATISFACTION OF THE **ENGINEER.**

39. MECHANICAL GROUTED SPLICE COUPLERS SHALL BE USED TO PROVIDE MOMENT CONNECTIONS BETWEEN MEMBERS AS SHOWN IN THE PLANS. GROUTED SPLICES SHALL DEVELOP A MINIMUM OF 125% OF THE SPECIFIED YIELD STRENGTH OF THE REINFORCING BAR BEING SPLICED. ALL COSTS FOR THE GROUTED SPLICE COUPLERS WILL BE INCLUDED IN THE APPROPRIATE PRECAST PAY ITEM.

40. POST-TENSIONING STRANDS AND CONDUIT SHALL ADHERE TO THE REQUIREMENTS OF SECTION 510 - PRESTRESSED CONCRETE. GALVANIZED ANCHOR ASSEMBLIES, CONDUIT AND POST-TENSIONING STRANDS WILL BE INCLUDED UNDER THE APPROPRIATE PRECAST PAY ITEM. POST TENSIONING STRANDS SHALL BE COVERED WITH SEAMLESS POLYPROPYLENE SHEATH (WITH CORROSION INHIBITOR GREASE BETWEEN SHEATH AND STRAND) FOR THE LENGTH OF THE STRAND, EXCEPT AT ANCHORAGE LOCATIONS.

⚠ 41. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND DETAILING OF POST TENSIONING ELEMENTS. THE POST TENSIONING DESIGN SHALL FOLLOW CURRENT LRFD AND PCI MANUAL GUIDELINES. **POST TENSIONING BLOCKOUT ELEMENTS SHALL BE ORIENTED PERPENDICULAR TO THE POST-TENSIONING STRANDS.**

42. GALVANIZE ANCHOR ASSEMBLIES (SUPPORT BOLTS , NUTS, WASHERS AND LEVELING PLATES) AFTER FABRICATION ACCORDING TO AASHTO M232M/M232.

43. DESIGN VALUES:
A. CONCRETE COMPRESSIVE STRENGTH: f'c = 5000 psi
B. POST-TENSIONING STRANDS: 0.6 INCH DIAMETER, 270 KSI, LOW RELAXATION 7-WIRE STRANDS.
C. ASSUMED MODULUS OF ELASTICITY IS 28,500 KSI.
D. THERE SHALL BE 2 STRANDS PER CONDUIT.
E. THE JACKING FORCE PER STRAND = 44 KIPS.

44. THE GALVANIZED CORRUGATED STEEL PIPE SHALL MEET THE REQUIREMENTS OF SUBSECTION 711.01. ALL COSTS ASSOCIATED WITH PLACING THE CORRUGATED STEEL PIPE WILL BE INCLUDED IN THE BID PRICE FOR ITEM 540.10 "PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 1)" OR ITEM 540.10 "PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 2)" AS APPROPRIATE.

⚠ 45. **ERECTION OF THE STEEL GIRDERS SHALL NOT BE PERMITTED UNTIL THE ABUTMENT 1 FOOTING CLOSURE POUR CONCRETE HAS ACHIEVED A STRENGTH OF 1500 PSI.**

⚠ 46. BACKFILLING **ABUTMENT 1 & 2** SHALL NOT BE PERMITTED UNTIL THE GROUTED SPLICE SLEEVE CONNECTION GROUT HAS ACHIEVED A STRENGTH OF 4000 PSI.

⚠ 47. **ABUTMENT 2 POST TENSIONING SHALL OCCUR PRIOR TO PLACEMENT OF CONCRETE IN THE PILE VOIDS.**

⚠ 48. PLACEMENT OF THE PRECAST FOOTINGS WITH LEVELING BOLTS SHALL NOT BE PERMITTED UNTIL THE GROUT BED AND SUBFOOTING (WHERE REQUIRED) HAS ACHIEVED A STRENGTH OF **1500 PSI**.

⚠ 49. **THE CONCRETE CURING REQUIREMENTS PER SECTION 501.17 OF THE STANDARD SPECIFCATIONS FOR CONCRETE, HIGH PERFORMANCE CLASS A PLACED IN THE SUBFOOTING (WHERE REQUIRED) ARE ONLY REQUIRED UNTIL THE CONCRETE HAS ACHIEVED A STRENGTH OF 1500 PSI.**

SUBSTRUCTURE ON LEDGE

50. PRECAST FOOTINGS AT ABUTMENT 1 SHALL BE FOUNDED ON LEDGE WHICH HAS BEEN CLEANED OF ALL LOOSE ROCK AND DEBRIS TO ENSURE THAT THE SUBSTRUCTURE IS PLACED ON COMPETENT ROCK.

51. UPON COMPLETION OF THE EXCAVATION FOR ABUTMENT 1, AND PRIOR TO PLACING THE PRECAST ABUTMENTS AND PRIOR TO PLACING MATERIAL ON BEDROCK, THE ENGINEER SHALL NOTIFY THE VTRANS GEOLOGIST. THE GEOLOGIST WILL DETERMINE IF THE BEDROCK IS STABLE AND COMPETENT TO OBTAIN THE REQUIRED NOMINAL BEARING RESISTANCE. THE CONTRACTOR SHALL NOTIFY THE GEOLOGIST 24 HOURS IN ADVANCE OF WHEN THE ANALYSIS WILL BE NEEDED.

⚠ 52. LEDGE THAT IS EXCAVATED FOR PLACEMENT OF THE PRECAST FOOTING (OR SUB-FOOTING IF REQUIRED) SHALL BE EXCAVATED TO PROVIDE A LEVEL SURFACE OR AS DIRECTED BY THE ENGINEER. **THE SUBFOOTING (WHERE REQUIRED) SHALL HAVE A RAKED FINISH.**

⚠ 53. **ABUTMENT 1 HAS BEEN DESIGNED FOR THE TOP OF FOOTING ELEVATIONS SHOWN ON THE PLANS. LEDGE SHALL BE EXCAVATED DOWN TO THE INDICATED BOTTOM OF FOOTING, INCLUDING 3" MIN GROUT BED, FOR THE FULL WIDTH (TOE TO HEEL) OF THE CONFIGURATION. IF THE LEDGE ELEVATION IS GREATER THAN 6" BELOW THE DESIGN BOTTOM OF FOOTING, A SUBFOOTING SHALL BE POURED SO THAT THE DESIGN TOP OF FOOTING IS AT THE REQUIRED ELEVATION. THE GROUT BED WILL BE PAID UNDER THE APPROPRIATE SECTION 540 CONTRACT ITEM. THE SUBFOOTING, IF REQUIRED, WILL BE PAID UNDER ITEM 501.33 "CONCRETE, HIGH PERFORMANCE CLASS A."**

⚠ 54. ALL COSTS ASSOCIATED WITH PREVENTING ROCK FROM ENTERING THE MAD RIVER WILL BE INCLUDED IN ITEM **203.27.**

REV	DATE	DESCRIPTION
⚠	10/13/2015	NOTE REVISIONS

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12bl36frm.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
PROJECT NOTES (1 OF 2)

PLOT DATE: 10/13/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PROJECT NOTES

PILES

55. THE PILES SHALL BE HP 14X89 ORIENTED WITH THE STRONG AXIS NORMAL TO THE CENTERLINES OF GIRDERS. PILES SHALL HAVE THE FOLLOWING STRUCTURAL AND PILE DRIVING PROPERTIES:
A. PILE AXIAL PILE RESISTANCE = 1184 KIPS
B. PILE MONITORING METHOD = DYNAMIC PILE LOADING TEST
C. PILE TEST RESISTANCE FACTOR = ø=0.65
D. NOMINAL PILE DRIVING RESISTANCE (RNDR) = 375 KIPS
E. PILE DEFLECTION = 0.5 INCH

56. PILE SHOES ARE REQUIRED AND SHALL CONFORM TO SUBSECTION 505.04(F).

57. TO ENSURE THAT THE NOMINAL RESISTANCE HAS BEEN OBTAINED AND TO PREVENT OVERSTRESSING OF THE PILES DURING DRIVING OPERATIONS, DYNAMIC TESTING SHALL BE PERFORMED IN ACCORDANCE WITH SUBSECTION 505.04(d)-2 PAYMENT FOR PILE TESTING WILL BE MADE UNDER ITEM 505.45 "DYNAMIC PILE LOADING TEST". A MINIMUM OF ONE DYNAMIC PILE TEST SHALL BE CONDUCTED ON THE FIRST PILE DRIVEN. MORE TESTS MAY BE ORDERED BY THE ENGINEER. ADDITIONAL TEST(S) ORDERED BY THE ENGINEER WILL BE PAID AT THE UNIT BID PRICE FOR CONTRACT ITEM 505.45.

△2 58. **RESTRIKING OF THE TEST PILE IS NOT REQUIRED.**

59. THE TOPS OF THE PILES AFTER DRIVING SHALL NOT VARY FROM THE LOCATION 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 TOLERANCE WILL BE MET TO THE SATISFACTION OF THE ENGINEER REGARDLESS OF INSTALLATION METHOD.

60. FOR ESTIMATING PURPOSES, THE PILE TIP ELEVATIONS WERE ASSUMED AS SHOWN ON THE BORING LOGS. THE ACTUAL LENGTHS MAY VARY.

61. THE PILES SHALL BE DRIVEN TO BEDROCK AND SHALL BE EMBEDDED IN THE GROUND A MINIMUM OF 46 FEET BELOW THE BOTTOM OF THE PILE CAP.

PRECAST APPROACH SLABS

62. PRECAST CONCRETE STRENGTH: f'c = 5,000 PSI.

63. SLAB EDGES IN CONTACT WITH HPC RAPID SET CONCRETE SHALL BE SANDBLASTED PRIOR TO DELIVERY AND POWER WASHED WITH WATER PRIOR TO INSTALLATION.

64. FILL APPROACH SLAB CLOSURE POURS WITH HPC RAPID SET CONCRETE IN ACCORDANCE WITH ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)". CONCRETE SHALL HAVE A 28 DAY MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI.

65. THE FABRICATOR MAY ALTER THE DESIGN DETAILED WITHIN THESE PLANS TO ACCOMMODATE THEIR SPECIFIC OPERATION. THIS ALTERATION SHALL BE DESIGNED AND STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF VERMONT.

DOWNSPOUT NOTES

66. PAYMENT FOR ALL MATERIALS AND LABOR RELATED TO THE HOPPER AND DOWNSPOUT ASSEMBLY WILL BE INCLUDED IN ITEM 506.60, STRUCTURAL STEEL AND WILL CONFORM TO AASHTO M270M, GRADE 250.

67. BOLTS AND RELATED HARDWARE SHALL CONFORM TO ASTM A 307 GRADE A.

68. THE HOPPER AND DOWNSPOUT ASSEMBLY SHALL BE INSTALLED AFTER THE BRIDGE EXPANSION JOINT IS IN PLACE.

69. ALL HOPPER AND DOWNSPOUT COMPONENTS AND HARDWARE SHALL BE GALVANIZED UNLESS OTHERWISE NOTED.

RETAINING WALL NOTES

70. RETAINING WALLS SHALL BE SELECTED FROM THE LIST OF WALLS ON THE APPROVED VAOT EARTH RETAINING SYSTEM SELECTION CHART. SEE SPECIAL PROVISION. THE RETAINING WALL SHALL HAVE CONCRETE FACING.

71. THE WALL WILL BE PAID UNDER ITEM 900.670 SPECIAL PROVISION (RETAINING WALL).

△1 72. THE BOTTOM OF WALL SHALL BE A MINIMUM OF 4 FEET BELOW THE FINISHED GRADE IN FRONT OF THE WALL, SEE SHEET **49.**

73. THE RETAINING WALL SHALL BE DESIGNED IN ACCORDANCE WITH THE 2014 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND ITS LATEST REVISIONS. THE DESIGN SHALL INCLUDE THE EFFECTS OF ALL LOADS INCLUDING, BUT NOT LIMITED TO EARTH SURCHARGE AND HYDROSTATIC PRESSURE.

74. THE FOLLOWING SOIL PROPERTIES SHALL BE USED IN THE DESIGN OF THE RETAINING WALL:

a. FOUNDATION SOIL DESIGN VALUES
THE NOMINAL (UNFACTORED) BEARING RESISTANCE IS A FUNCTION OF THE EFFECTIVE FOOTING WIDTH AND VARIES LINEARLY FROM 7.5 KSF (EFFECTIVE WIDTH = 4') TO 17.5 KSF (EFFECTIVE WIDTH = 10')

b. FOUNDATION SOIL PARAMETERS
UNIT WEIGHT: 130 PCF
FRICTION ANGLE: 38 DEG

c. RETAINED SOIL PARAMETERS
UNIT WEIGHT: 140 PCF
FRICTION ANGLE: 34 DEG

d. RESISTANCE FACTORS (LRFD)
BEARING RESISTANCE: 0.45
SLIDING RESISTANCE: 0.80
SETTLEMENT RESISTANCE: 1.0
SCOUR RESISTANCE: 1.0

75. THE INTERFACE BETWEEN THE RETAINING WALL AND THE ABUTMENT STEM SHALL BE DESIGNED TO ALLOW 0.5 INCHES OF MOVEMENT. A JOINT DETAIL SHALL BE SUBMITTED TO THE PROJECT MANAGER FOR REVIEW AND APPROVAL. ALL COMPONENTS WILL BE INCLUDED IN THE UNIT PRICE FOR ITEM 900.670 SPECIAL PROVISION (RETAINING WALL).

REV	DATE	DESCRIPTION
△1	10/13/2015	NOTE REVISIONS
△2	10/13/2015	NOTE ADDED

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12b136frm.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
PROJECT NOTES (2 OF 2)

PLOT DATE: 10/13/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 4 **OF** 69

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES									TOTALS			DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
						ROADWAY	EROSION CONTROL	FULL C.E. ITEMS	BRIDGE	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
						1				1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10				
						2700				2700		CY	COMMON EXCAVATION	203.15				
						50			170	220		CY	SOLID ROCK EXCAVATION	203.16				**EARTHWORK SUMMARY**
									625	625		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27				FILL AVAILABLE
						525				525		CY	SAND BORROW	203.31		250	CY	STRUCTURE EXCAVATION (50% ACCEPTABLE)
						10				10		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22		2700	CY	COMMON EXCAVATION
									500	500		CY	STRUCTURE EXCAVATION	204.25		312	CY	UNCLASSIFIED CHANNEL EXCAVATION (50% ACCEPTABLE)
									460	460		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30		3262	CY	TOTAL FILL AVAILABLE
															2	600	CY	FILL REQUIRED
						360				360		SY	COLD PLANING, BITUMINOUS PAVEMENT COLD PLANING, BITUMINOUS PAVEMENT	210.10		2662	CY	TOTAL WASTE
						1450				1450		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35				
						70				70		CY	AGGREGATE SHOULDERS, IN PLACE	402.10				
						13				13		CWT	EMULSIFIED ASPHALT	404.65				
						1				1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50				
									35	35		CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33	1			
									1	1		LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10				
									550	550		LF	STEEL PILING, HP 14 X 89	505.18				
									1	1		EACH	DYNAMIC PILE LOADING TEST	505.45				
									342000	342000		LB	STRUCTURAL STEEL, PLATE GIRDER (FPQ)	506.55				
									320	320		LB	STRUCTURAL STEEL (FPQ)	506.60				
									2568	2568		LB	REINFORCING STEEL, LEVEL II	507.12	1			
									1	1		LS	SHEAR CONNECTORS (2400 - 7/8" X 7")	508.15				
									20	20		GAL	WATER REPELLENT, SILANE	514.10				
									90	90		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10				
									44	44		LF	BRIDGE EXPANSION JOINT, VERMONT	516.11				
									800	800		SY	MEMBRANE WATERPROOFING, SPRAY APPLIED	520.10				
									391	391		LF	BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM	525.33				
									1	1		EACH	REMOVAL OF STRUCTURE (4000 SF)	529.15				
									10	10		EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17				
									1	1		LS	PRECAST CONCRETE STRUCTURE (8" DECK SLABS)	540.10				
									1	1		LS	PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 1)	540.10				
									1	1		LS	PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 2)	540.10				
									1	1		LS	PRECAST CONCRETE STRUCTURE (APPROACH SLAB NO. 1)	540.10				
									1	1		LS	PRECAST CONCRETE STRUCTURE (APPROACH SLAB NO.2)	540.10				
						12				12		LF	15" RCP CLASS IV	601.0811				
						1				1		EACH	18" CPEPES	601.7015				
						70				70		LF	CLEANING CULV. PIPE, IN-PLACE [0 TO 24 IN., INCL.]	601.995				
						5				5		CY	STONE FILL, TYPE I	613.10				
						575				575		CY	STONE FILL, TYPE III	613.12				
						160				160		LF	VERTICAL GRANITE CURB	616.21				

REV	DATE	DESCRIPTION
1	10/13/2015	QUANTITY REVISION
2	10/13/2015	ITEM REMOVED

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12bl36frm.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
QUANTITY SHEET #1

PLOT DATE: 10/13/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 5 **OF** 69

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES			TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
ROADWAY	EROSION CONTROL	FULL C.E. ITEMS	BRIDGE	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
250				250		LF	STEEL BEAM GUARDRAIL, GALVANIZED	621.20				
4				4		EACH	MANUFACTURED TERMINAL SECTION, TANGENT	621.51				
4				4		EACH	GUARDRAIL APPROACH SECTION, GALVANIZED 2 RAIL BOX BEAM	621.72				
570				570		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80				
250				250		HR	UNIFORMED TRAFFIC OFFICERS	630.10				
168				168		HR	FLAGGERS	630.15				
		1		1		LS	FIELD OFFICE, ENGINEERS	631.10				
		1		1		LS	TESTING EQUIPMENT, CONCRETE	631.16				
		1		1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17				
		3000		3000		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26				
		520		520		HR	EMPLOYEE TRAINEESHIP	634.10				
1				1		LS	MOBILIZATION/DEMOBILIZATION	635.11				
4				4		EACH	PORTABLE CHANGEABLE MESSAGE SIGN	641.15				
1425				1425		LF	4 INCH WHITE LINE	646.20				
1500				1500		LF	4 INCH YELLOW LINE	646.21				
575				575		SY	GEOTEXTILE UNDER STONE FILL	649.31				
	375			375		SY	GEOTEXTILE FOR SILT FENCE	649.51				
	140			140		SY	GEOTEXTILE FOR FILTER CURTAIN	649.61				
	20			20		LB	SEED	651.15				
	130			130		LB	FERTILIZER	651.18				
	0.5			0.5		TON	AGRICULTURAL LIMESTONE	651.20				
	0.5			0.5		TON	HAY MULCH	651.25				
	70			70		CY	TOPSOIL	651.35				
450				450		SY	GRUBBING MATERIAL	651.40				
	1			1		LS	EPSC PLAN	652.10				
	50			50		HR	MONITORING EPSC PLAN	652.20				
	1			1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30				
	1275			1275		SY	TEMPORARY EROSION MATTING	653.20				
	12			12		CY	TEMPORARY STONE CHECK DAM, TYPE I	653.25				
	30			30		CY	VEHICLE TRACKING PAD	653.35				
	1025			1025		LF	PROJECT DEMARCATION FENCE	653.55				
1				1		SF	TRAFFIC SIGNS, TYPE A	675.20				
16				16		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341				
4				4		EACH	REMOVING SIGNS	675.50				
1				1		EACH	ERECTING SALVAGED SIGNS	675.60				
1				1		LU	PRICE ADJUSTMENT, FUEL (N.A.B.I.)	690.50				
			25	25		CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)	900.608	⚠1			
			425	425		CY	SPECIAL PROVISION (MECHANICALLY STABILIZED EARTH ABUTMENT BACKFILL SYSTEM) (FPQ)	900.608				
			35	35		CY	SPECIAL PROVISION (ULTRA HIGH PERFORMANCE CONCRETE) (FPQ)	900.608				
4				4		EACH	SPECIAL PROVISION (CPM SCHEDULE)	900.620	⚠1			

REV	DATE	DESCRIPTION
⚠1	10/13/2015	QUANTITY REVISION

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12b136frm.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
QUANTITY SHEET #2

PLOT DATE: 10/13/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 6 **OF** 69

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 3

SUMMARY OF ESTIMATED QUANTITIES									TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
						ROADWAY	EROSION CONTROL	FULL C.E. ITEMS	BRIDGE	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
									1	1		LS	SPECIAL PROVISION (PRE-ASSEMBLY)	900.645				
									1	1		LS	SPECIAL PROVISION (PRECAST MOCKUP)	900.645				
						1				1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL INCLUSIVE)	900.645				
						1				1		LU	SPECIAL PROVISION (INCENTIVE/DISENCENTIVE) (N.A.B.I.)	900.650				
						1				1		LU	SPECIAL PROVISION (LOCAL ROAD MAINTENANCE) (N.A.B.I.)	900.650				
						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) (N.A.B.I.)	900.650				
						305				305		SY	SPECIAL PROVISION (HAND-PLACED BITUMINOUS CONCRETE MATERIAL, DRIVES)	900.675				
									35	35		SY	SPECIAL PROVISION (RETAINING WALL)	900.675				
						805				805		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12b136frm.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
QUANTITY SHEET #3

PLOT DATE: 9/14/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 7 **OF** 69

STATE OF VERMONT
AGENCY OF TRANSPORTATION

BRIDGE QUANTITY SHEET 1

SUMMARY OF BRIDGE QUANTITIES

APPROACH SLABS	ABUTMENT NO.1	ABUTMENT NO.2	SUPERSTRUCTURE	BRIDGE TOTAL	UNIT	ITEMS	ITEM NUMBER	
	170			170	CY	SOLID ROCK EXCAVATION	203.16	
	275	350		625	CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27	
	100	400		500	CY	STRUCTURE EXCAVATION	204.25	
	80	380		460	CY	GRANULAR BACKFILL FOR STRUCTURES	204.30	
	10	1	24	35	CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33	2, 1
		1		1	LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10	
		550		550	LF	STEEL PILING, HP 14 X 89	505.18	
		1		1	EACH	DYNAMIC PILE LOADING TEST	505.45	
			342000	342000	LB	STRUCTURAL STEEL, PLATE GIRDER (FPQ)	506.55	
		320		320	LB	STRUCTURAL STEEL (FPQ)	506.60	
663	299	314	1292	2568	LB	REINFORCING STEEL, LEVEL II	507.12	1
			1	1	LS	SHEAR CONNECTORS (2400 - 7/8" X 7")	508.15	
	2	4	14	20	GAL	WATER REPELLENT, SILANE	514.10	
90				90	LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10	
		44		44	LF	BRIDGE EXPANSION JOINT, VERMONT	516.11	
175			625	800	SY	MEMBRANE WATERPROOFING, SPRAY APPLIED	520.10	
			391	391	LF	BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM	525.33	
			1	1	EACH	REMOVAL OF STRUCTURE (4000 SF)	529.15	
	5	5		10	EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17	
			1	1	LS	PRECAST CONCRETE STRUCTURE (8" DECK SLABS)	540.10	
	1			1	LS	PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 1)	540.10	
		1		1	LS	PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 2)	540.10	
1				1	LS	PRECAST CONCRETE STRUCTURE (APPROACH SLAB NO. 1)	540.10	
1				1	LS	PRECAST CONCRETE STRUCTURE (APPROACH SLAB NO.2)	540.10	
6.5	9.5	9		25	CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)	900.608	1
		425		425	CY	SPECIAL PROVISION (MECHANICALLY STABILIZED EARTH ABUTMENT BACKFILL SYSTEM) (FPQ)	900.608	
			35	35	CY	SPECIAL PROVISION (ULTRA HIGH PERFORMANCE CONCRETE) (FPQ)	900.608	
			1	1	LS	SPECIAL PROVISION (PRE-ASSEMBLY)	900.645	
			1	1	LS	SPECIAL PROVISION (PRECAST MOCKUP)	900.645	
		35		35	SY	SPECIAL PROVISION (RETAINING WALL)	900.675	

TOTALS

DESCRIPTIONS

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS

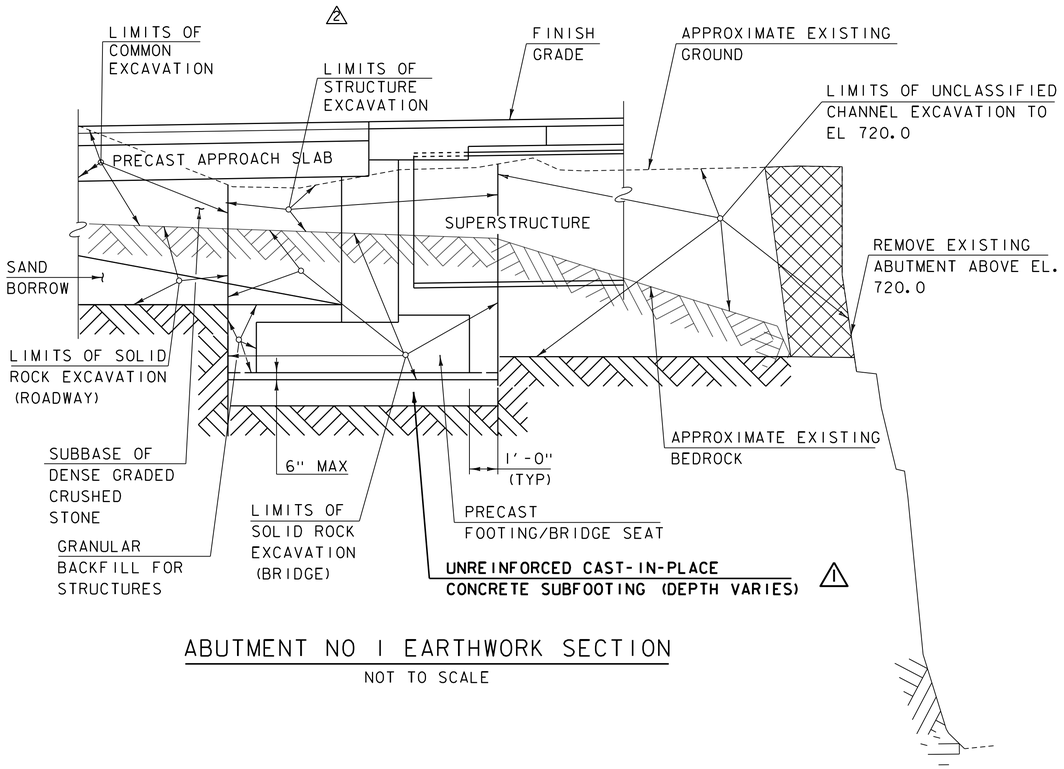
REV	DATE	DESCRIPTION
1	10/13/2015	QUANTITY REVISION
2	10/13/2015	ITEM REMOVED

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

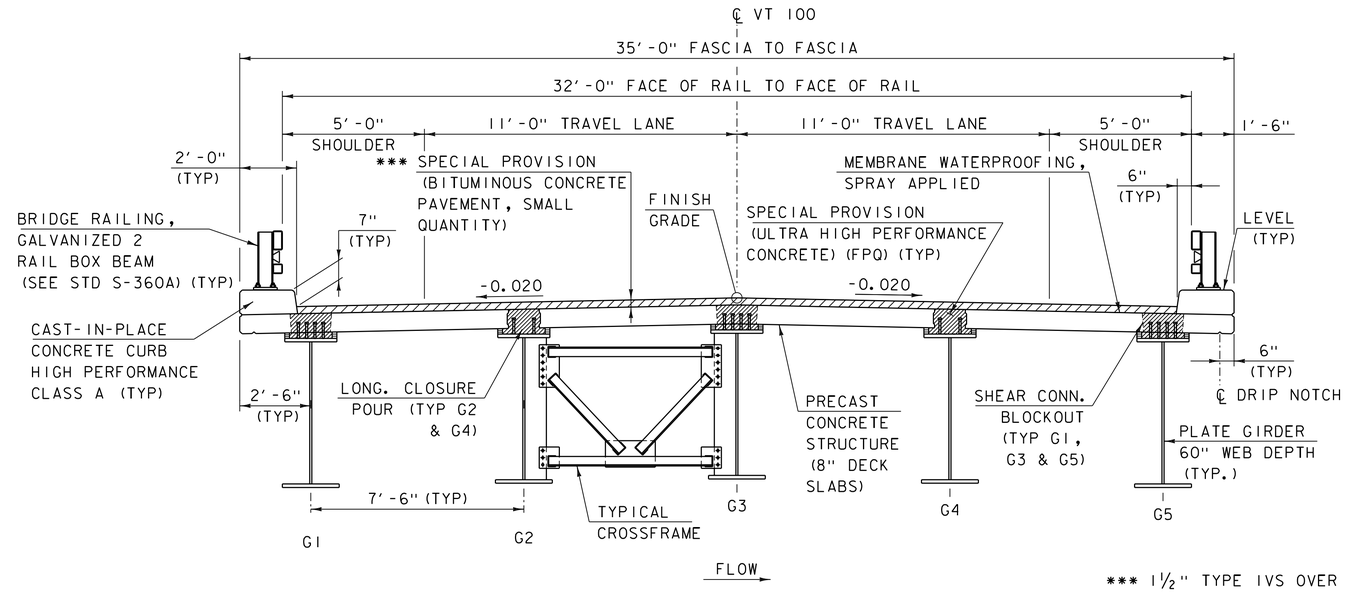
FILE NAME: z12bi36frm.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
BRIDGE QUANTITY SHEET #1

PLOT DATE: 10/13/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 8 **OF** 69



ABUTMENT NO 1 EARTHWORK SECTION

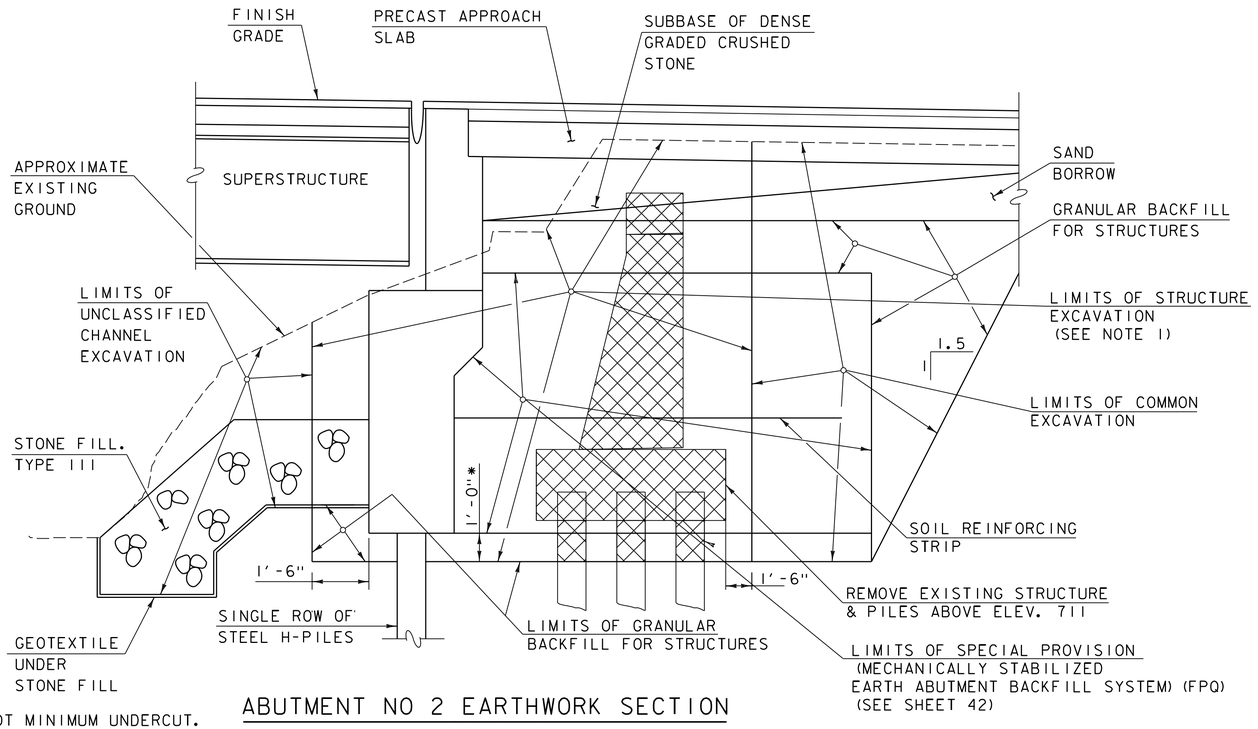
NOT TO SCALE



*** 1½" TYPE IVS OVER 1½" TYPE IVS

TYPICAL BRIDGE SECTION

SCALE ⅜" = 1'-0"



* ONE FOOT MINIMUM UNDERCUT.

ABUTMENT NO 2 EARTHWORK SECTION

NOT TO SCALE

EARTHWORK SECTION NOTES

1. ACTUAL LIMITS OF STRUCTURE EXCAVATIONS SHALL BE DETERMINED BY THE CONTRACTOR. HOWEVER, ONLY THE STRUCTURE EXCAVATION BETWEEN THE LIMITS SHOWN WILL BE PAID FOR UNDER ITEM 204.25 "STRUCTURE EXCAVATION". STRUCTURE EXCAVATION BY THE CONTRACTOR OUTSIDE OF THESE LIMITS WILL BE AT THE EXPENSE OF THE CONTRACTOR.

LEGEND

EXISTING ABUTMENT REMOVAL LIMITS

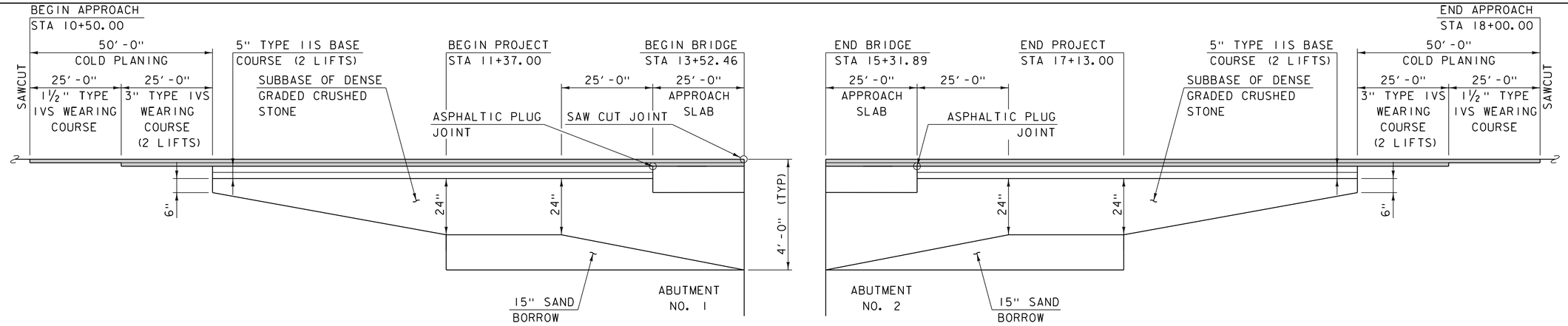
REV	DATE	DESCRIPTION
1	10/13/2015	SUBFOOTING REVISION
2	10/13/2015	DRILLING AND BLASTING NOTE REMOVED

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

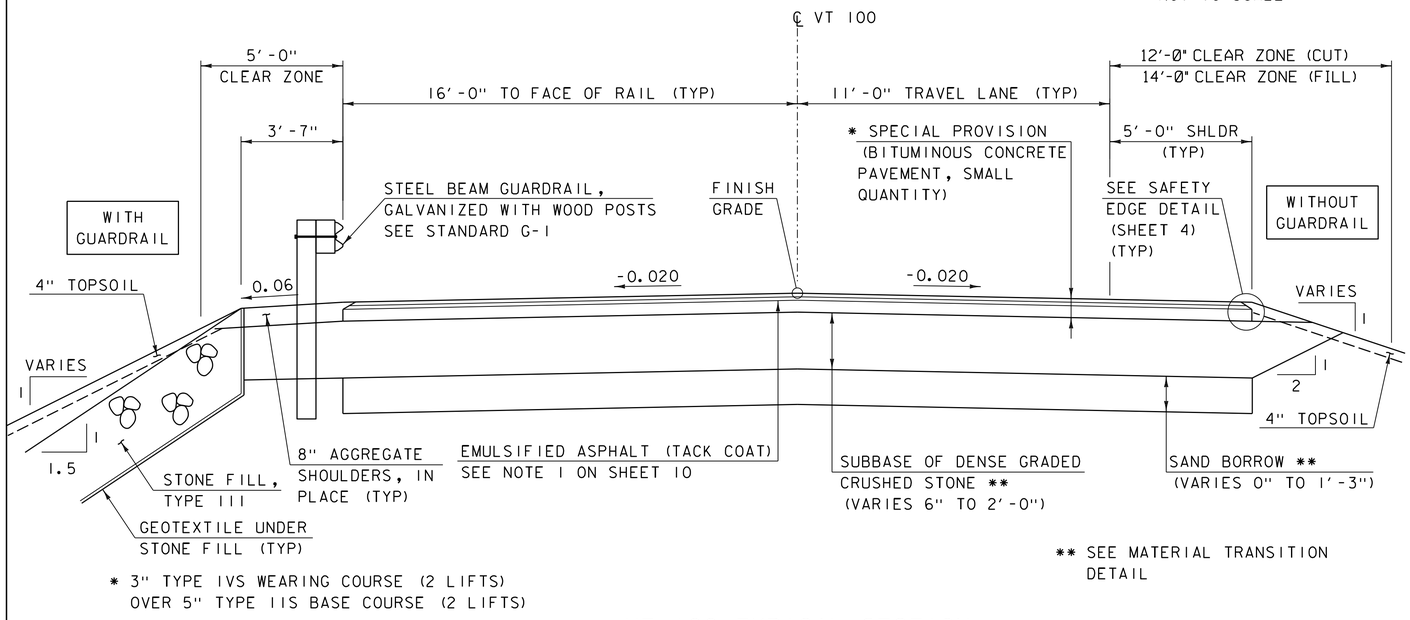
FILE NAME: z12bl36typ.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
TYPICAL SECTIONS SHEET 1

PLOT DATE: 10/13/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T. KENDRICK



MATERIAL TRANSITION DETAIL

NOT TO SCALE



* 3" TYPE IVS WEARING COURSE (2 LIFTS) OVER 5" TYPE IIS BASE COURSE (2 LIFTS)

** SEE MATERIAL TRANSITION DETAIL

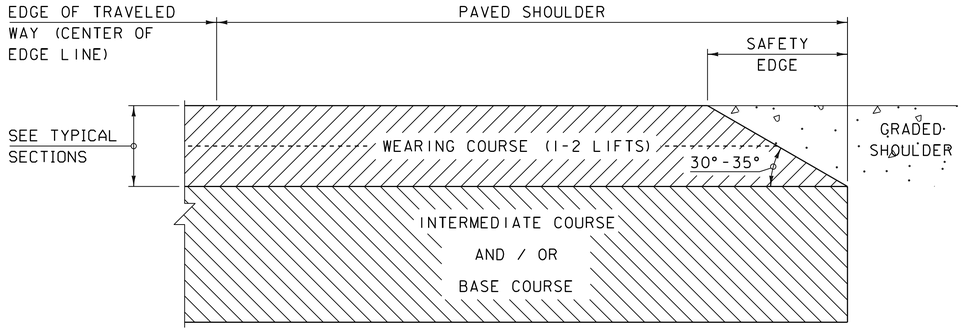
VT 100 TYPICAL SECTION

SCALE 3/8" = 1'-0"

MATERIAL TOLERANCES

(IF USED ON PROJECT)

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



SAFETY EDGE DETAIL

NOT TO SCALE

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

NOTES

1. EMULSIFIED ASPHALT SHALL BE APPLIED TO ALL COLD PLANED BITUMINOUS CONCRETE PAVEMENT SURFACES AT THE RATE OF 0.025 GAL/SY OR AS DIRECTED BY THE ENGINEER. EMULSIFIED ASPHALT SHALL ALSO BE APPLIED BETWEEN ALL LIFTS OF PAVEMENT AT THE RATE OF 0.025 GAL/SY . PAYMENT WILL BE MADE UNDER ITEM 404.65, "EMULSIFIED ASPHALT".

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12b136typ.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
TYPICAL SECTIONS SHEET 2

PLOT DATE: 9/14/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T. KENDRICK
SHEET 10 OF 69

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	BENCH MARK
	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

- 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)

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

CONVENTIONAL BOUNDARY SYMBOLOGY

BOUNDARY LINES

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

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
- (H) — 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:	WAITSFIELD
PROJECT NUMBER:	BRF 013-4(39)
FILE NAME:	12b136LegendSheet.dgn
PROJECT LEADER:	R. YOUNG
DESIGNED BY:	D. KULL
CONVENTIONAL SYMBOLOGY LEGEND	
PLOT DATE:	8/24/2015
DRAWN BY:	S. MERKWAN
CHECKED BY:	T. KENDRICK
SHEET	11 OF 69

McFarland Johnson

GPS CONTROL POINTS

HVCTRL #1

IRASVILLE

NORTH = 608604.820
EAST = 1553434.080
ELEV. = 741.000

HVCTRL #2

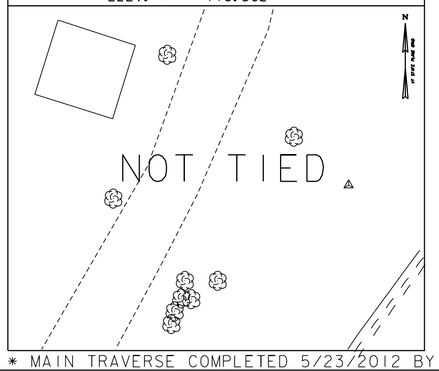
IRASVILLE AZ MK

NORTH = 610915.770
EAST = 1552896.780
ELEV. = 725.000

TRAVERSE TIES

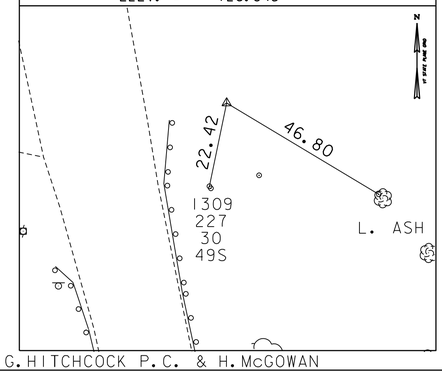
HVCTRL #3

NORTH = 609991.753
EAST = 1553027.095
ELEV. = 716.502



HVCTRL #4

NORTH = 610263.783
EAST = 1553092.163
ELEV. = 726.845



NORTH =	
EAST =	
ELEV. =	

NORTH =	
EAST =	
ELEV. =	

NORTH =	
EAST =	
ELEV. =	

* MAIN TRAVERSE COMPLETED 5/23/2012 BY G.HITCHCOCK P.C. & H.McGOWAN

ALIGNMENT COORDINATES

VT ROUTE 100			
	STATION	NORTHING	EASTING
POB	10+00.00	609547.8383	1553216.4086
POE	19+14.37	610439.9009	1553015.6516
MAD RIVER			
POB	50+00.00	609860.0926	1553037.4176
POE	53+00.00	610113.6236	1553197.7985

DATUM

VERTICAL NAVD 88
HORIZONTAL NAD 83 (07)
ADJUSTMENT COMPASS

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12bl36tie.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: VTRANS
TIE SHEET

PLOT DATE: 8/24/2015
DRAWN BY: R. BULLOCK
CHECKED BY: T. KENDRICK
SHEET 12 OF 69

COLD PLANING, BITUMINOUS PAVEMENT

STA 10+50 - STA 11+00 LT
STA 10+50 - STA 11+00 RT

CLEANING CULVERT PIPE, IN PLACE

STA 11+85 - STA 11+93 RT
STA 11+93 - STA 12+00 LT

CONSTRUCT SWALE/DITCH

STA 12+05 - STA 12+37 LT

CONSTRUCT DRIVE (HAND PLACED)

STA 11+54 - STA 12+30 RT

VERTICAL GRANITE CURB

STA 12+94 - STA 13+33 LT
STA 13+19 - STA 13+59 RT
STA 15+26 - STA 15+67 LT
STA 15+58 - STA 16+00 RT

4" WHITE LINE (4" WL)

STA 10+50 - STA 16+25, LT
STA 10+50 - STA 16+25, RT

4" YELLOW LINE (4" DYCL)

STA 10+50 - 16+25
(CL DOUBLE)

REMOVAL AND DISPOSAL OF GUARDRAIL

STA 11+70 - STA 13+52 LT
STA 13+38 - STA 13+85 RT
STA 15+31 - STA 16+94 LT
STA 15+54 - STA 16+25 RT

STEEL BEAM GUARDRAIL GALVANIZED

STA 12+07 - STA 13+01 LT
STA 13+15 - STA 13+26 RT
STA 15+58 - STA 16+24 LT
STA 15+97 - STA 16+25 RT

GUARDRAIL APPROACH SECTION, GALVANIZED 2 RAIL BOX BEAM

STA 13+01 - STA 13+33 LT
STA 13+26 - STA 13+59 RT
STA 15+26- STA 15+59 LT
STA 15+58 - STA 15+92 RT

CONSTRUCT 12.0LF x 15" RCP
CONNECT TO EXISTING 15" RCP
CONSTRUCT 18" CPEP END SECTION
CONSTRUCT STONE FILL, TYPE I
AT OUTLET

REMOVING SIGNS

STA 13+38 LT
STA 13+76 RT
STA 15+42 LT
STA 15+68 RT

NEW SIGNS

STA 13+46 RT
STA 15+40 LT

MANUFACTURED TERMINAL SECTION, TANGENT

STA 11+57 - STA 12+07 LT
STA 12+65 - STA 13+15 RT

SPECIAL PROVISION (RETAINING WALL)

STA 15+12 (17.5' LT) - STA 15+13 (34.4' LT)
STA 15+45 (19.5' RT) - STA 15+76 (40.3' LT)

VT STATE PLANE GRID N

6"
N BRIDGE 166 VT 100 8"
N
STA. 15+40 LT.
VD-701
REF. STD. SHT. E-134

STA. 13+38 LT.

STA. 15+42 LT.

STA. 13+46 RT.
VD-701
REF. STD. SHT. T-42

STA. 13+76 RT.

STA. 15+68 RT.

BEGIN APPROACH
STA 10+50.00
MATCH EXISTING

BEGIN PROJECT
STA 11+37.00

EXISTING STATE R.O.W.

VT 100
TO WARREN

4" WL
4" DYCL
4" WL

N 12°40'58.83" W

PI
STA 10+00.00

CLEAN CULVERT
PIPES

SIGN
EASY STREET CAFE

PAVED
DRIVE

BOUNDARY
MARKER

POB
STA 50+00.00

50+00
51+00
52+00
53+00

BEGIN BRIDGE
STA 13+52.46
FG EL 729.15

END BRIDGE
STA 15+31.89
FG EL 729.20

STONE FILL,
TYPE III

STONE FILL,
TYPE III

TEMPORARY
CAUSEWAY

MAINLINE STATION 14+50.00
=CHANNEL STATION 51+50.00
Δ = 45° 0" 0" RT

POB
STA 53+00.00

MAD RIVER
FLOW

PROPERTY LINE

EXISTING TOWN R.O.W.

TOWN HIGHWAY 39

40+49
41+00
42+00

HVCTRL #3
HVCTRL #24
HVCTRL #21
HVCTRL #22

WOODS

BENCH MARK
VT BRIDGE DISK ST157
ELEV. = 728.722

MATCHLINE STA 16+25 (LAYOUT 2)

10+00
11+00
12+00
13+00
14+00
15+00
16+00

LEGEND

R — REMOVE EXISTING SIGN AND POST (SALVAGE TO THE STATE)

RES — RESET EXISTING SIGN AND POST

N — NEW SIGN AND POST

EXISTING BRIDGE INFO
2 SPAN 168' LONG ROLLED BEAM
WITH CIP CONCRETE DECK BRIDGE
BRIDGE BUILT IN 1938
25' WIDE DECK

STONE FILL, TYPE III

STA 13+00 - STA 13+33 LT
STA 13+59 - STA 13+98 RT
STA 14+87 - STA 15+26 LT
STA 15+00 - STA 15+62 RT

GRUBBING MATERIAL

STA 13+00 - STA 13+61 LT
STA 13+59 - STA 13+95 RT
STA 14+90 - STA 15+26 LT
STA 15+09 - STA 15+72 RT

STONE FILL, TYPE I

STA 12+00 - STA 12+06 LT

LAYOUT

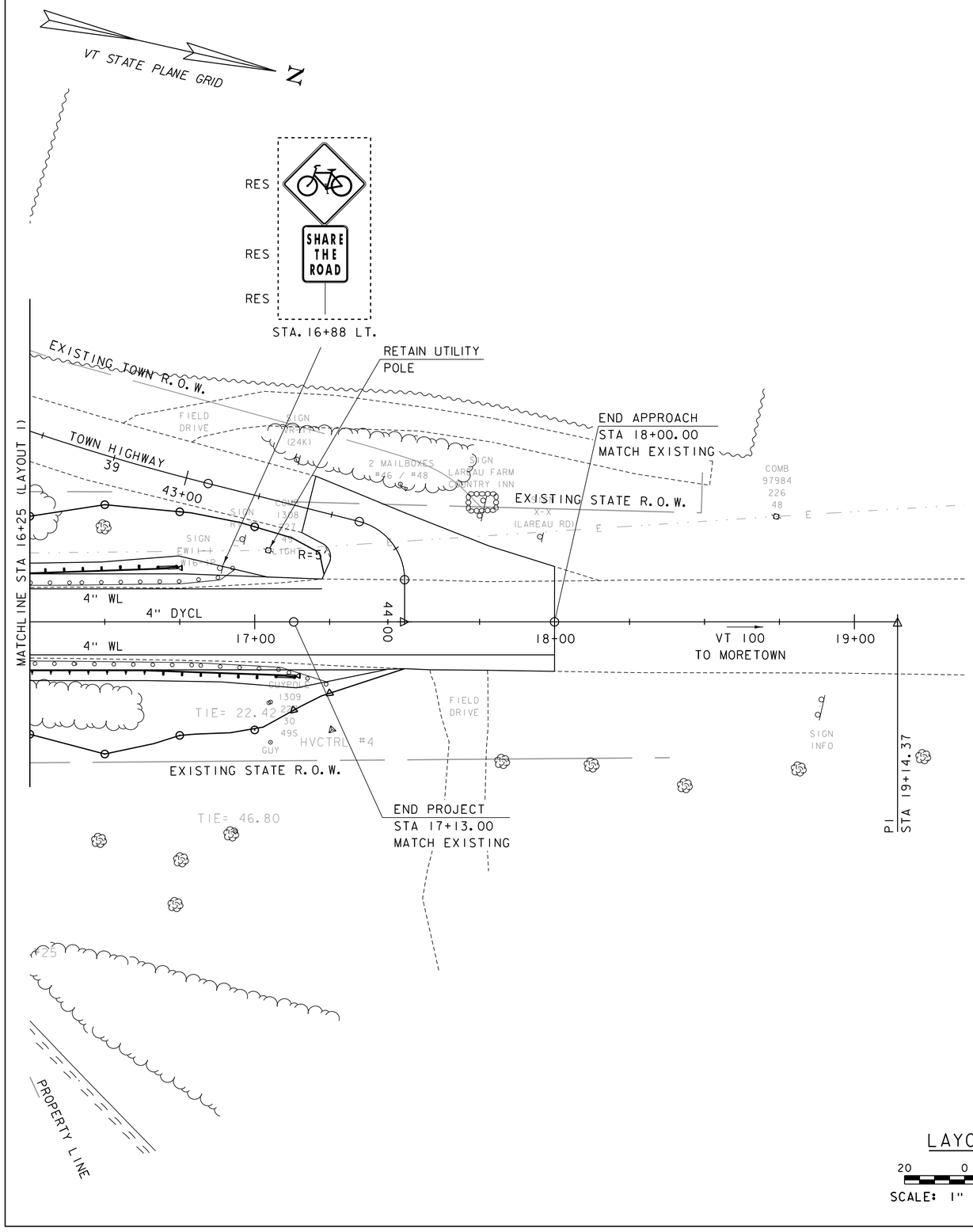
20 0 20
SCALE: 1" = 20'-0"

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12b136bdr.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
LAYOUT SHEET 1

PLOT DATE: 8/24/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T. KENDRICK
SHEET 13 OF 69



LAYOUT

20 0 20

SCALE: 1" = 20'-0"

COLD PLANING, BITUMINOUS PAVEMENT

STA 17+50 - STA 18+00 LT
STA 17+50 - STA 18+00 RT

CONSTRUCT DRIVE (HAND PLACED)

STA 17+16 - STA 18+00 LT

REMOVING SIGNS

STA 16+88 RT

ERECTING SALVAGED SIGNS

STA 16+88 RT

SETTING SALVAGED SIGN POSTS

STA 16+88 RT

4" WHITE LINE (4" WL)

STA 16+25 - STA 17+25, LT
STA 16+25 - STA 18+00, RT

4" YELLOW LINE (4" DYCL)

STA 16+25 - 18+00
(CL DOUBLE)

REMOVAL AND DISPOSAL OF GUARDRAIL

STA 16+25 - STA 17+25 RT

STEEL BEAM GUARDRAIL GALVANIZED

STA 16+25 - STA 16+63 RT

MANUFACTURED TERMINAL SECTION, TANGENT

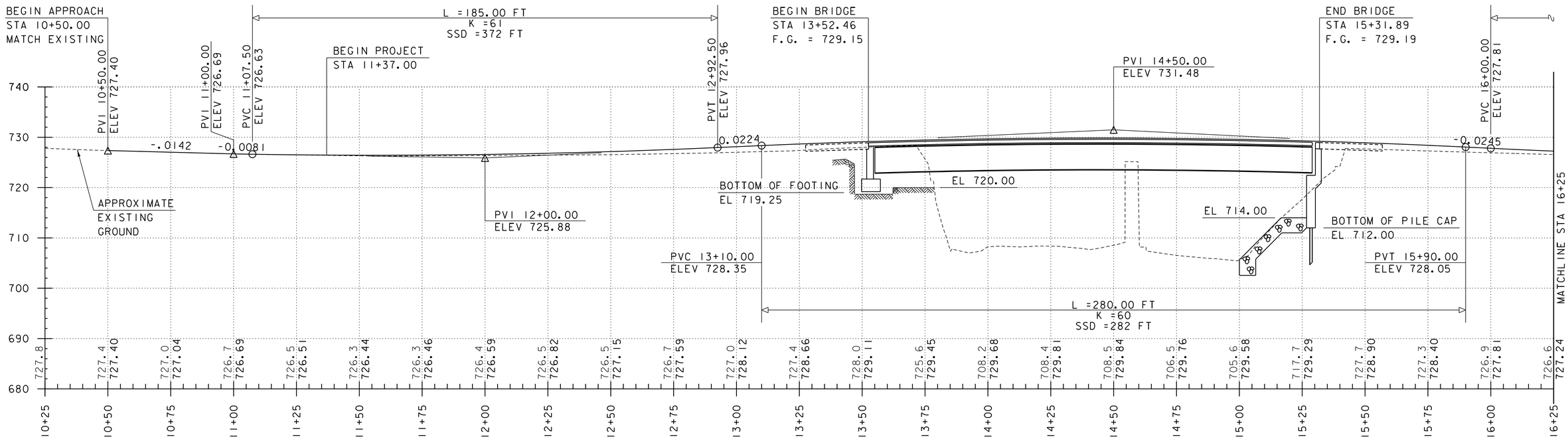
STA 16+24 - STA 16+74 LT
STA 16+63 - STA 17+13 RT

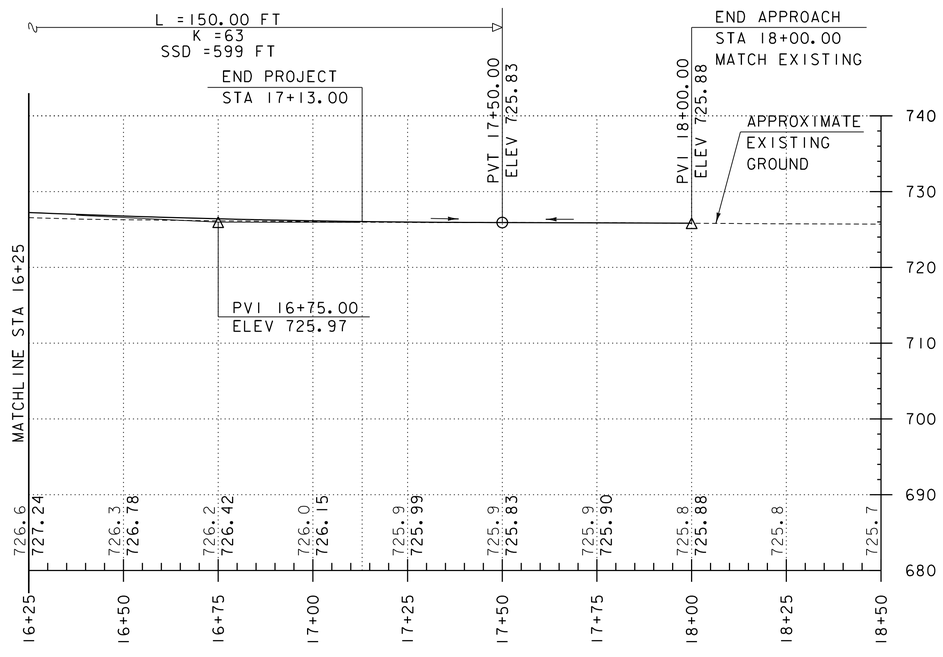
McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12bl36bdr.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
LAYOUT SHEET 2

PLOT DATE: 8/24/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T. KENDRICK
SHEET 14 OF 69





VT 100 PROFILE

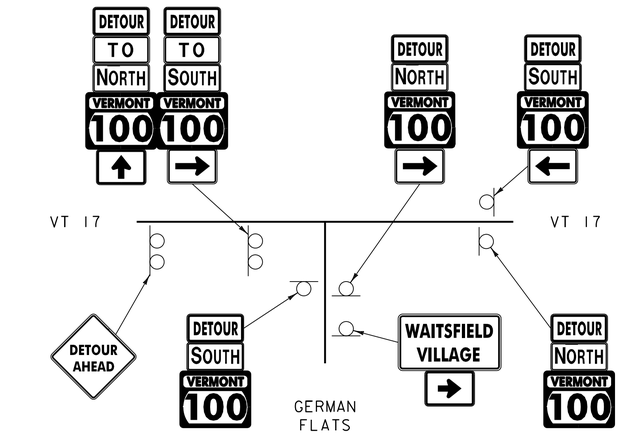
SCALE: HORIZONTAL 1"=20'-0"
VERTICAL 1"=10'-0"

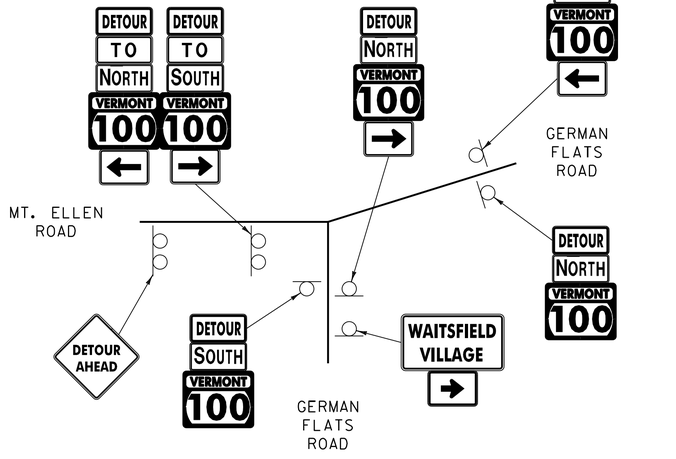
NOTES

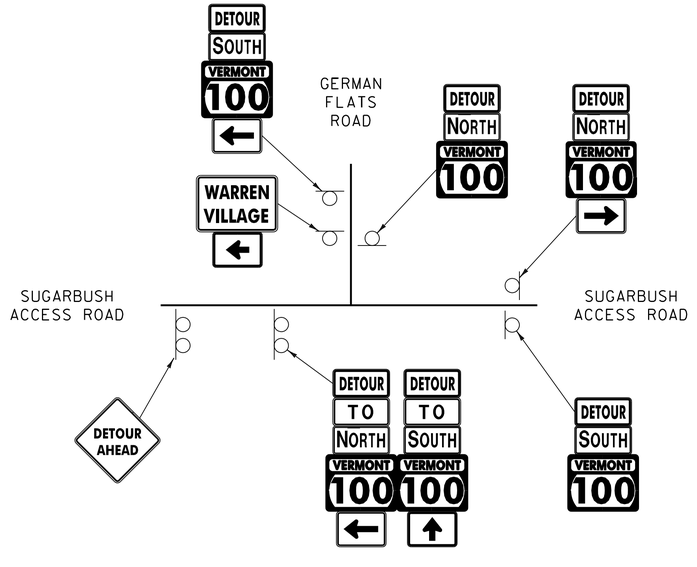
1. GRADES SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND.
2. GRADES SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADE.

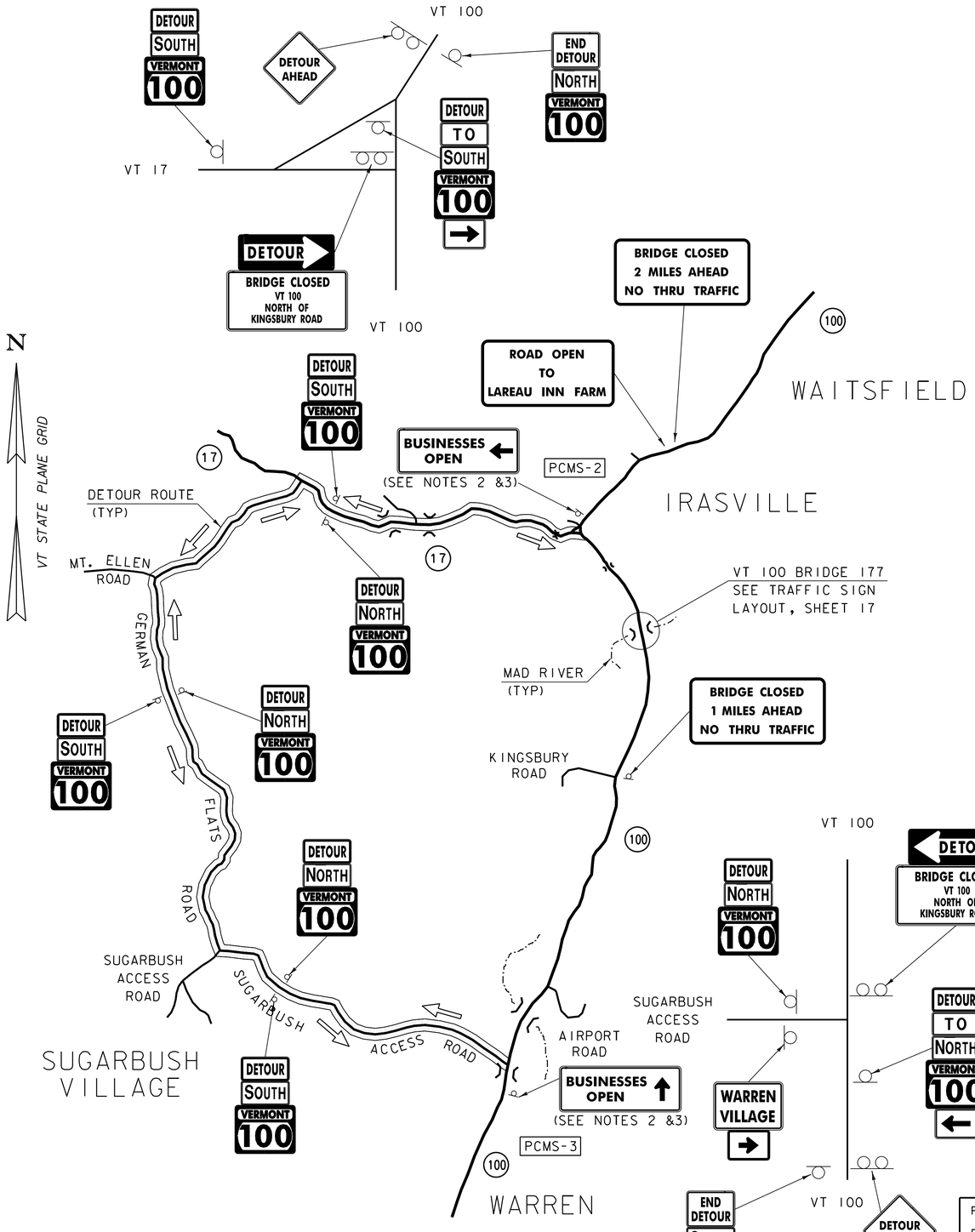
McFarland Johnson

PROJECT NAME:	WAITSFIELD
PROJECT NUMBER:	BRF 013-4(39)
FILE NAME: z12b136pro.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. MERKWAN
DESIGNED BY: B. COLBURN	CHECKED BY: T. KENDRICK
VT 100 PROFILE SHEET	SHEET 15 OF 69









DETOUR SIGNING PLAN

NOT TO SCALE

MESSAGES FOR PORTABLE CHANGEABLE MESSAGE SIGNS

(PCMS-1)

MESSAGE 1	MESSAGE 2	
BRIDGE	MMMM DD	*
CLOSED	TO	
AHEAD	MMMM DD	*

PCMS-2

MESSAGE 1	MESSAGE 2	MESSAGE 3	
VT 100	1 MILE	MMMM DD	*
BRIDGE	AHEAD	TO	
CLOSED		MMMM DD	*

MESSAGE 1	MESSAGE 2
VT 100	1 MILE
BRIDGE	AHEAD
CLOSED	

PCMS-3

MESSAGE 1	MESSAGE 2	MESSAGE 3	
VT 100	3 MILES	MMMM DD	*
BRIDGE	AHEAD	TO	
CLOSED		MMMM DD	*

MESSAGE 1	MESSAGE 2
VT 100	3 MILES
BRIDGE	AHEAD
CLOSED	

* MONTH SHALL BE SPELLED OUT
JUNE 10, NOT 6/10

NOTES

1. FOR TRAFFIC CONTROL NOTES SEE SHEET 17.
2. SIGNS SIMILAR TO VAOT STANDARD E-123.
3. SIGNS WILL HAVE BLUE BACKGROUND WITH WHITE LETTERING, AND WHITE BORDER LINE. AND SHALL BE 18"H X 48"W.

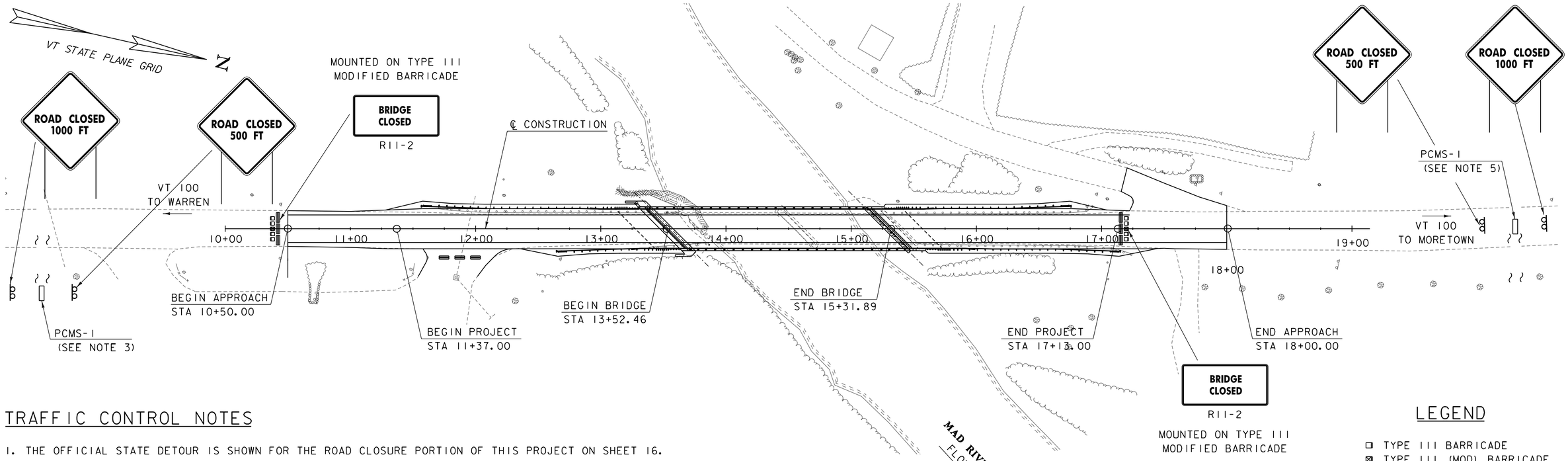
THRU LENGTH : 3.4 MILES
DETOUR LENGTH : 7.3 MILES
3 WEEK PROPOSED CLOSURE
ADDITIONAL LENGTH : 3.9 MILES
END TO END LENGTH : 10.7 MILES

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12b136dtr.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
TRAFFIC CONTROL SHEET 1

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 16 OF 69

McFarland Johnson



TRAFFIC CONTROL PLAN

NOT TO SCALE

LEGEND

- TYPE III BARRICADE
- TYPE III (MOD) BARRICADE
- TEMPORARY TRAFFIC BARRIER

TRAFFIC CONTROL NOTES

1. THE OFFICIAL STATE DETOUR IS SHOWN FOR THE ROAD CLOSURE PORTION OF THIS PROJECT ON SHEET 16.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGNING, ERECTING AND MAINTAINING (AS WELL AS REMOVING AND RESETTING) ALL DETOUR AND ON-PROJECT TEMPORARY TRAFFIC CONTROL ZONE DEVICES, INCLUDING (BUT NOT LIMITED TO) CONSTRUCTION SIGNS, BARRICADES, TEMPORARY TRAFFIC BARRIERS, PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) AND OTHER REQUIRED DEVICES (AS ORDERED BY THE ENGINEER) USED TO REGULATE, WARN AND GUIDE TRAFFIC DURING CONSTRUCTION. TRAFFIC CONTROL DEVICES SHALL MEET THE REQUIREMENTS OF LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND PERTINENT E-SERIES AND T-SERIES STANDARDS. WHERE CONFLICTS EXIST, THE MUTCD SHALL GOVERN. EXACT LOCATIONS OF DEVICES SHALL BE COORDINATED WITH THE ENGINEER. ADDITIONAL PROJECT CONSTRUCTION SIGNS SHALL BE INSTALLED AS REQUIRED BY THE ENGINEER. THE COST OF ALL DETOUR AND ON-PROJECT TEMPORARY TRAFFIC CONTROL ZONE DEVICES (WITH THE EXCEPTION OF TEMPORARY TRAFFIC BARRIERS AND PCMS) WILL BE PAID FOR UNDER ITEM 900.645, SPECIAL PROVISION (TRAFFIC CONTROL, ALL INCLUSIVE).

3. PORTABLE CHANGEABLE MESSAGE SIGNS "PCMS" SHALL BE PLACED AT THE APPROXIMATE LOCATIONS SHOWN ON THE PLANS OR WHERE DESIGNATED BY THE ENGINEER. TWO SIGNS SHALL BE PLACED AT THE BRIDGE 14 DAYS PRIOR TO THE START OF CONSTRUCTION TO WARN OF THE IMPENDING DETOURS. PAYMENT FOR THESE SIGNS SHALL BE INCLUDED IN ITEM 641.15 "PORTABLE CHANGEABLE MESSAGE SIGN".

4. THE STATE ROUTE MARKERS USED FOR THE DETOUR AS SHOWN ON THE PLANS SHALL FOLLOW STANDARDS E-127 AND E-136B. THESE SIGNS SHALL BE REMOVED AT THE END OF THE ROAD CLOSURE. THESE SIGNS AND THEIR REMOVAL SHALL BE PAID FOR UNDER ITEM 900.645, SPECIAL PROVISION (TRAFFIC CONTROL, ALL INCLUSIVE).

5. ALL TRAFFIC CONTROL DEVICES SHALL BE KEPT IN THEIR PROPER POSITION AT ALL TIMES AND SHALL BE REPAIRED, REPLACED OR CLEANED AS NECESSARY TO PRESERVE THEIR APPEARANCE AND CONTINUITY.

6. ALL SIGNS SHALL BE PLACED WITHIN THE EXISTING STATE OR TOWN RIGHTS-OF-WAY. CONSTRUCTION SIGNS SHALL NOT BE INSTALLED AS TO INTERFERE WITH STOPPING SIGHT DISTANCE AND CORNER SIGHT DISTANCE FROM DRIVES AND TOWN HIGHWAYS.

7. ACCESS TO ALL EXISTING DRIVES AND SIDE ROADS SHALL BE MAINTAINED AT ALL TIMES DURING ALL PHASES OF CONSTRUCTION EXCEPT AS SHOWN.

8. INSTALLATION OF DETOUR AND ON-SITE SIGNS SHALL NOT BLOCK ANY EXISTING TRAFFIC CONTROL SIGN ASSEMBLIES AND SHALL NOT MODIFY OR BE PLACED ADJACENT TO EXISTING ROUTE MARKER SIGN ASSEMBLIES WHEN POSSIBLE. THE CONTRACTOR SHALL MAINTAIN AT LEAST 200 FEET BETWEEN SIGN ASSEMBLIES WHENEVER POSSIBLE.

9. EXISTING SIGNS THAT ARE IN CONFLICT WITH THE TRAFFIC FLOW OF THE DETOUR SHALL BE REMOVED OR COVERED BY THE CONTRACTOR. ALL SIGNS REMOVED OR COVERED SHALL BE REPLACED OR UNCOVERED WHEN THE TRAFFIC CONTROL PLAN IS DISASSEMBLED. PAYMENT FOR THIS WORK WILL BE PAID UNDER ITEM 900.645, SPECIAL PROVISION (TRAFFIC CONTROL, ALL INCLUSIVE).

10. CONTACT DIG-SAFE AT 1-888-344-7233 PRIOR TO BREAKING GROUND TO INSTALL ANY SIGN POSTS.

11. AFTER THE IDENTIFIED WORK TO OPEN THE NEW BRIDGE TO TWO-WAY TRAFFIC IS COMPLETED, TEMPORARY TRAFFIC BARRIERS MAY BE INCORPORATED TO CONSTRUCT THE BRIDGE CURB AND BRIDGE RAILING. SEE SPECIAL PROVISIONS. ALL COSTS SHALL BE INCLUDED IN ITEM 900.645, SPECIAL PROVISION (TRAFFIC CONTROL, ALL INCLUSIVE).

12. ANY TEMPORARY BITUMINOUS CONCRETE PAVEMENT REQUIRED TO PROVIDE A LEVEL DRIVING SURFACE DURING CONSTRUCTION TO BE INCLUDED IN ITEM 900.645, SPECIAL PROVISION (TRAFFIC CONTROL, ALL INCLUSIVE).

⚠13. ATTACHMENT OF THE TEMPORARY TRAFFIC BARRIER TO THE PRECAST CONCRETE DECK PANELS IS NOT PERMITTED.

REV	DATE	DESCRIPTION
⚠	10/13/2015	TRAFFIC NOTE ADDED

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12b136dtr.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
TRAFFIC CONTROL SHEET 2

PLOT DATE: 10/13/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 17 OF 69

SOIL CLASSIFICATION

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

ROCK QUALITY DESIGNATION

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

SHEAR STRENGTH

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

CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

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

COMMONLY USED SYMBOLS

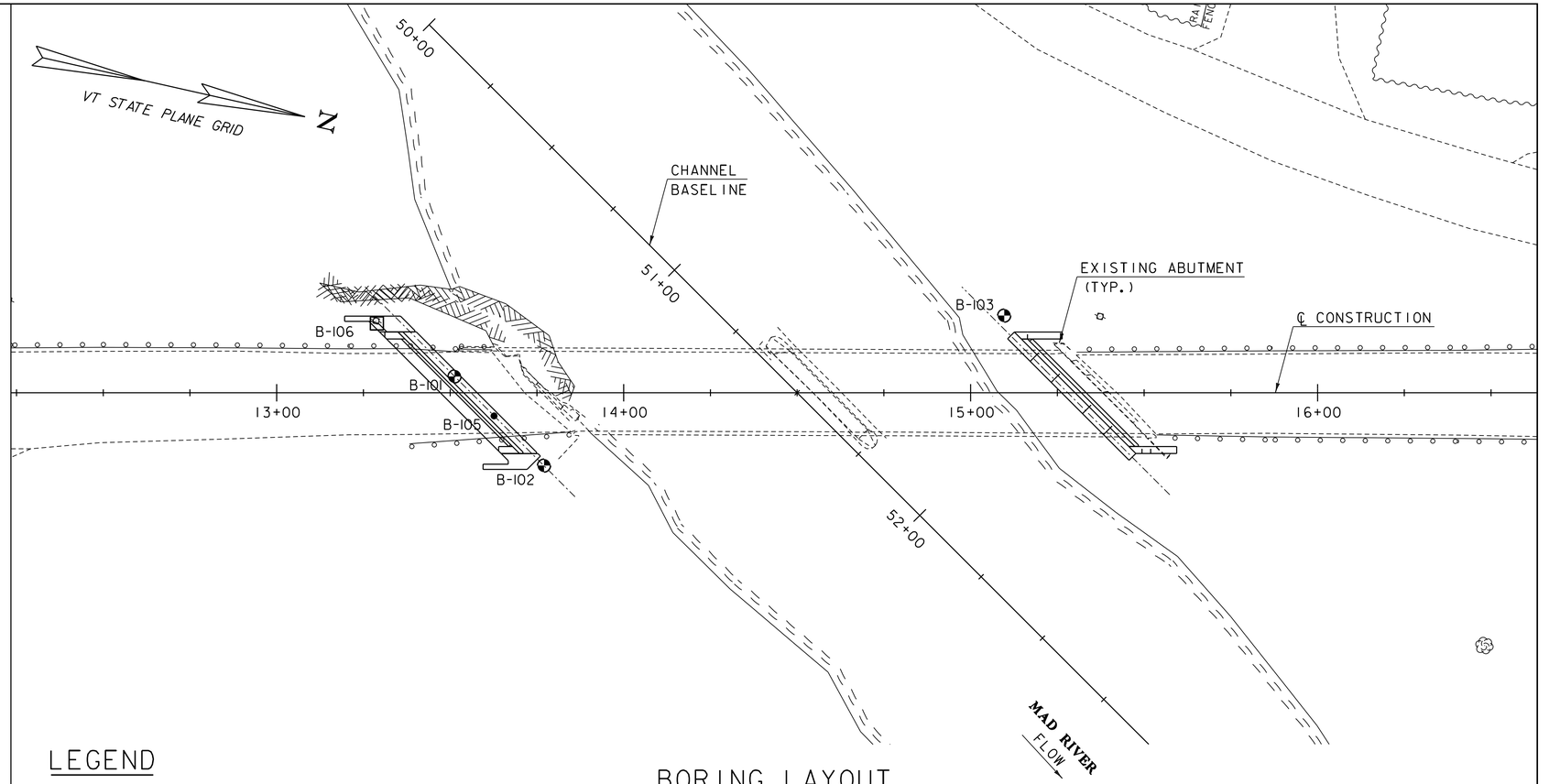
▼	Water Elevation
⊕	Standard Penetration Boring
⊕	Auger Boring
⊙	Rod Sounding
S	Sample
N	Standard Penetration Test Blow Count Per Foot For: 2" O.D. Sampler 1 3/8" I.D. Sampler Hammer Weight Of 140 Lbs. Hammer Fall Of 30"
VS	Field Vane Shear Test
US	Undisturbed Soil Sample
B	Blast
DC	Diamond Core
MD	Mud Drill
WA	Wash Ahead
HSA	Hollow Stem Auger
AX	Core Size 1 1/8"
BX	Core Size 1 5/8"
NX	Core Size 2 1/8"
M	Double Tube Core Barrel Used
LL	Liquid Limit
PL	Plastic Limit
PI	Plasticity Index
NP	Non Plastic
w	Moisture Content (Dry Wgt. Basis)
D	Dry
M	Moist
MTW	Moist To Wet
W	Wet
Sat	Saturated
Bo	Boulder
Gr	Gravel
Sa	Sand
Si	Silt
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		

LEGEND

- BORING
- LEDGE PROBE (LP)
- TEST PIT (TP)



BORING LAYOUT

20 0 20

SCALE: 1" = 20'-0"

BORING CHART

HOLE NO.	SURV. STATION	OFFSET	GROUND ELEV.	ELEV TLOB (FT.)	NORTHING	EASTING
B-101	13+51	4.7 LT.	728.3	724.3	609889.5	1553134.7
B-102	13+77	21.1 RT.	731.0	727.0	609920.3	1553154.1
B-103	15+10	26.0 LT.	716.0	666.0	610040.2	1553082.8
B-105	13+63	6.7 RT.	728.4	724.7	609903.1	1553143.3
B-106	13+29	20.0 LT.	730.1	727.0	609864.3	1553124.7

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.

GENERAL NOTES

1. The subsurface explorations shown herein were made between October 21 and October 24, 2013 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.

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: zl2bl36bor.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: VTRANS/D. KULL
BORING INFORMATION SHEET

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 18 OF 69

ABUTMENT NO 1
BOTTOM OF FOOTING
EL 719.25

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

BORING LOG

WAITSFIELD
BHF 013-4(39)
VT-100 BR-177

Boring No.: **B-101**
Page No.: 1 of 1
Pin No.: 12B136
Checked By: CEE

Boring Crew: JUDKINS, DAIGNEAULT
Date Started: 10/24/13 Date Finished: 10/24/13
VTSPG NAD83: N 609889.50 ft E 1553134.70 ft
Station: 13+51 Offset: -4.70
Ground Elevation: 728.3 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 55 TRACK	C. = 1.46

Groundwater Observations		
Date	Depth (ft)	Notes
		No water to depth.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (ROD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Asphalt Pavement, 0.0 ft - 0.55 ft								
		A-1-b, SiSaGr, brn, Moist, Rec. = 0.7 ft				22-27-12-13 (39)	6.1	48.9	30.9	20.2
2.5		Visual Description:, Weathered Rock with silt & sand, brn, Moist, Rec. = 0.6 ft					11.7			
		Visual Description:, Weathered & Broken Rock with sand, brn-gry, Moist, Rec. = 0.2 ft				R@2.5"	11.3			
5.0		4.0 ft - 9.0 ft, Light gray, Phyllitic Schist, Moderately soft, Unweathered. Fair rock, NXMDC, RMR = 54	1 (65)	94 (70)	4 4 4 4 4	Top of Bedrock @ 4.0 ft				
7.5										
10.0		9.0 ft - 14.0 ft, Light gray, Phyllitic Schist, Moderately soft, Unweathered, Good rock, NXMDC, Quartz vein from 11.5-13.0 ft., RMR = 61	2 (65)	100 (96)	4 4 5 9 10					
12.5										
		Hole stopped @ 14.0 ft								
15.0										
17.5										
20.0										
22.5										

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

ABUTMENT NO 1
BOTTOM OF FOOTING
EL 719.25

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

BORING LOG

WAITSFIELD
BHF 013-4(39)
VT-100 BR-177

Boring No.: **B-102**
Page No.: 1 of 1
Pin No.: 12B136
Checked By: CEE

Boring Crew: JUDKINS, DAIGNEAULT
Date Started: 10/23/13 Date Finished: 10/23/13
VTSPG NAD83: N 609920.30 ft E 1553154.10 ft
Station: 13+77 Offset: 21.00
Ground Elevation: 731.0 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 55 TRACK	C. = 1.46

Groundwater Observations		
Date	Depth (ft)	Notes
10/23/13	2.2	Casing removed.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (ROD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		A-1-b, SiGrSa, Dk/brn, Moist, Rec. = 1.1 ft				4-3-3-2 (6)	19.6	26.1	51.8	22.1
2.5		A-4, GrSaSi, Dk/brn, Moist, Rec. = 1.2 ft				2-1-3-R@5.0" (4)	19.5	23.6	34.9	41.5
5.0		4.0 ft - 9.0 ft, Light gray, Phyllitic Schist, Moderately soft, Unweathered. Fair rock, NXMDC, RMR = 58	1 (65)	100 (82)	6 6 5 6 5	Top of Bedrock @ 4.0 ft				
7.5										
10.0		9.0 ft - 14.0 ft, Light gray, Phyllitic Schist, Moderately soft, Unweathered, Good rock, NXMDC, RMR = 61	2 (65)	100 (90)	4 4 4 5 4					
12.5										
		Hole stopped @ 14.0 ft								
15.0										
17.5										
20.0										
22.5										

Remarks:
Hole collasped at 6.1 ft.

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

BORING LOG 2 WAITSFIELD BHF 013-4(39).GPJ \ VERMONT AOT.GDT 11/7/13

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12b136bor_log.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
BORING LOG SHEET 1

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 19 OF 69

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

BORING LOG

WAITSFIELD
BHF 013-4(39)
VT-100 BR-177

Boring No.: **B-103**
Page No.: 1 of 2
Pin No.: 12B136
Checked By: CEE

Boring Crew: JUDKINS, DAIGNEAULT
Date Started: 10/21/13 Date Finished: 10/23/13
VTSPG NAD83: N 610040.20 ft E 1553078.80 ft
Station: 15+10 Offset: 26.20
Ground Elevation: 716.0 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 55 TRACK	C. = 1.46

Groundwater Observations

Date	Depth (ft)	Notes
10/23/13	6.2	While drilling.

ABUTMENT NO 2
BOTTOM OF PILE CAP
EL 712.00

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (ROD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		A-2-4, SiGrSa, brn, Moist, Rec. = 0.6 ft				WH-3-7-R@3.5" (10)	11.4	26.8	50.5	22.7
		Visual Description:, Broken Rock (Granite) with sand, brn-gry, Moist, Rec. = 0.3 ft					5.0			
5		Field Note:, NXDC, Boulder								
		Field Note:, NXDC, Cleaned out casing								
		A-2-4, SaSiGr, brn, Wet, Rec. = 0.7 ft				10-16-8-6 (24)	12.6	46.8	22.1	31.1
		Visual Description:, Broken Rock (Granite), gry, Moist, Rec. = 0.2 ft				22-24-30-24 (54)				
10		A-2-4, SaSiGr, brn, Wet, Rec. = 0.2 ft				10-7-6-5 (13)	10.0	47.5	24.6	27.9
		A-1-b, SiSaGr, brn, Wet, Rec. = 0.7 ft				6-5-4-7 (9)	11.7	48.1	26.6	25.3
		Visual Description:, Broken Rock with sand, gry, Wet, Rec. = 0.3 ft, Insufficient sample for testing.				5-4-4-5 (8)				
15		Visual Description:, Broken Rock with silty sand, Dk/gry, MTW, Rec. = 0.2 ft, Insufficient sample for testing.								
		A-2-4, SiSa, gry, Wet, Rec. = 1.3 ft				2-2-2-2 (4)	21.3	17.1	62.1	20.8
		A-4, SaSi, gry, Wet, Rec. = 0.8 ft				WH-1-2-3 (3)	26.2	1.4	31.6	67.0
20		A-4, SaSi, gry, Wet, Rec. = 0.8 ft				WH-2-1-1 (3)	26.1	1.2	42.1	56.7
		A-4, SaSi, gry, Wet, Rec. = 0.9 ft				2-1-1-2 (2)	27.1		46.6	53.4
		A-4, SaSi, gry, Wet, Rec. = 1.1 ft, Lab Note: A small layer of clay was noticeable, but not enough for testing.				3-1-1-1 (2)	30.7	0.9	21.1	78.0
25										
30		A-4, SaSi, gry, Wet, Rec. = 0.7 ft				1-1-3-2 (4)	28.8		35.0	65.0

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

BORING LOG 2 WAITSFIELD BHF 013-4(39).GPJ VERMONT AOT.GDT 11/7/13

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

BORING LOG

WAITSFIELD
BHF 013-4(39)
VT-100 BR-177

Boring No.: **B-103**
Page No.: 2 of 2
Pin No.: 12B136
Checked By: CEE

Boring Crew: JUDKINS, DAIGNEAULT
Date Started: 10/21/13 Date Finished: 10/23/13
VTSPG NAD83: N 610040.20 ft E 1553078.80 ft
Station: 15+10 Offset: 26.20
Ground Elevation: 716.0 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 55 TRACK	C. = 1.46

Groundwater Observations

Date	Depth (ft)	Notes
10/23/13	6.2	While drilling.

ABUTMENT NO 2
ESTIMATED PILE TIP
EL 666.00

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (ROD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		A-4, SiSa, gry, Wet, Rec. = 0.7 ft				4-3-4-4 (7)	26.2	0.2	53.7	46.1
40		A-4, SaSi, gry, Wet, Rec. = 0.9 ft				2-5-4-2 (9)	28.9	0.3	30.1	69.6
45		A-4, SaSi, gry, MTW, Rec. = 0.4 ft				3-3-5-4 (8)	5.9	7.8	39.3	52.9
		Field Note:, NXDC, Cleaned out casing								
50		50.0 ft - 55.0 ft, Light gray, Phyllitic Schist, Moderately soft, Unweathered, Fair rock, NXGDC, RMR = 44	1 (65)	78 (18)	6 4 4 7 12	Top of Bedrock @ 50.0 ft				
55		55.0 ft - 60.0 ft, Light gray, Phyllitic Schist, Moderately soft, Unweathered, Good rock, NXGDC, RMR = 61	2 (65)	100 (92)	6 5 7 6 7					
60		Hole stopped @ 60.0 ft								
65		Remarks: Hole collasped at 9.2 ft.								

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

BORING LOG 2 WAITSFIELD BHF 013-4(39).GPJ VERMONT AOT.GDT 11/7/13

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12b136bor_log.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
BORING LOG SHEET 2

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 20 OF 69

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

BORING LOG

WAITSFIELD
BHF 013-4(39)
VT-100 BR-177

Boring No.: **B-105**
Page No.: 1 of 1
Pin No.: 12B136
Checked By: CEE

Boring Crew: JUDKINS, DAIGNEAULT
Date Started: 10/24/13 Date Finished: 10/24/13
VTSPG NAD83: N 609903.10 ft E 1553143.30 ft
Station: 13+63 Offset: 6.70
Ground Elevation: 728.4 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 55 TRACK	C. = 1.46

Groundwater Observations

Date	Depth (ft)	Notes

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
2.5		Field Note:, Probe to 3.7 ft., To ledge or boulder.					
		Hole stopped @ 3.7 ft TLOB					
5.0							
7.5							
10.0							
12.5							
15.0							
17.5							
20.0							
22.5							

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

ABUTMENT NO 1
BOTTOM OF FOOTING
EL 719.25

BORING LOG 2 WAITSFIELD BHF 013-4(39).GPJ VERMONT AOT.GDT 11/7/13

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

BORING LOG

WAITSFIELD
BHF 013-4(39)
VT-100 BR-177

Boring No.: **B-106**
Page No.: 1 of 1
Pin No.: 12B136
Checked By: CEE

Boring Crew: JUDKINS, DAIGNEAULT
Date Started: 10/24/13 Date Finished: 10/24/13
VTSPG NAD83: N 609864.30 ft E 1553124.70 ft
Station: 13+29 Offset: -20.00
Ground Elevation: 730.1 ft

	Casing	Sampler
Type:	HAND STEEL	
I.D.:		
Hammer Wt:	N.A.	N.A.
Hammer Fall:	N.A.	N.A.
Hammer/Rod Type:		
Rig:		C. =

Groundwater Observations

Date	Depth (ft)	Notes

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
2.5		Field Note:, Drove hand steel to 3.1 ft., To ledge or boulder.					
		Hole stopped @ 3.1 ft TLOB					
5.0							
7.5							
10.0							
12.5							
15.0							
17.5							
20.0							
22.5							

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

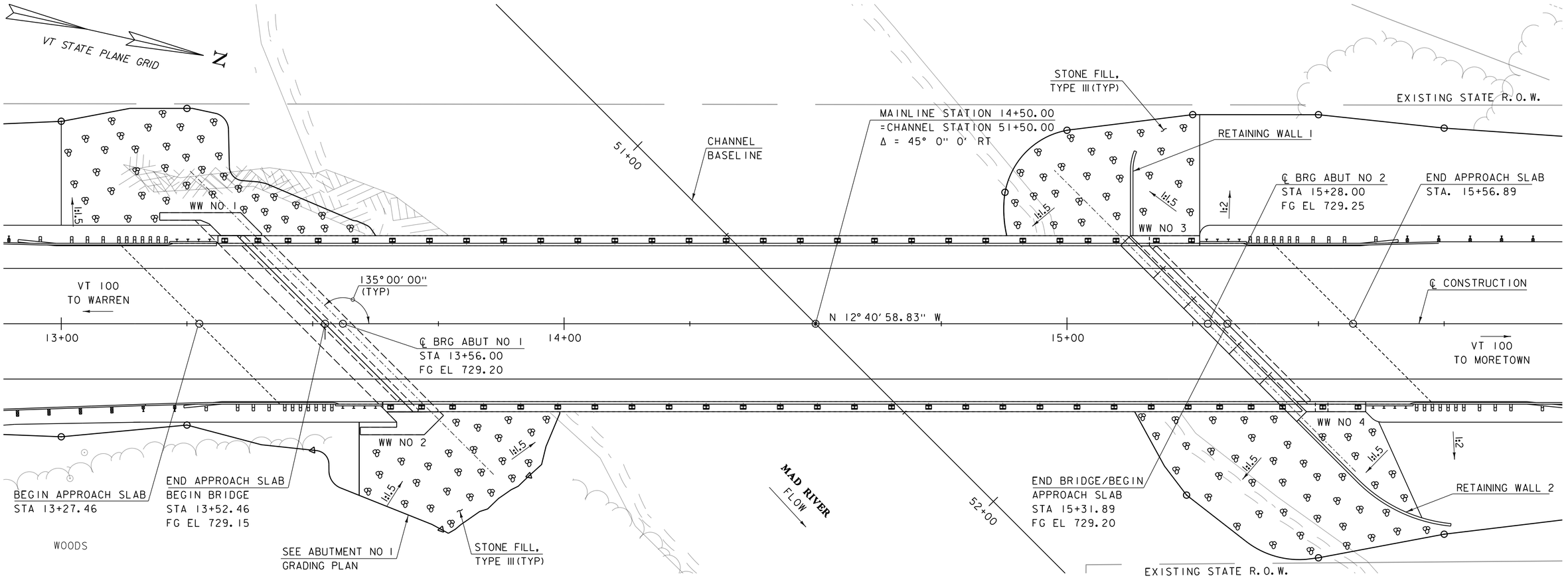
ABUTMENT NO 1
BOTTOM OF FOOTING
EL 719.25

BORING LOG 2 WAITSFIELD BHF 013-4(39).GPJ VERMONT AOT.GDT 11/7/13

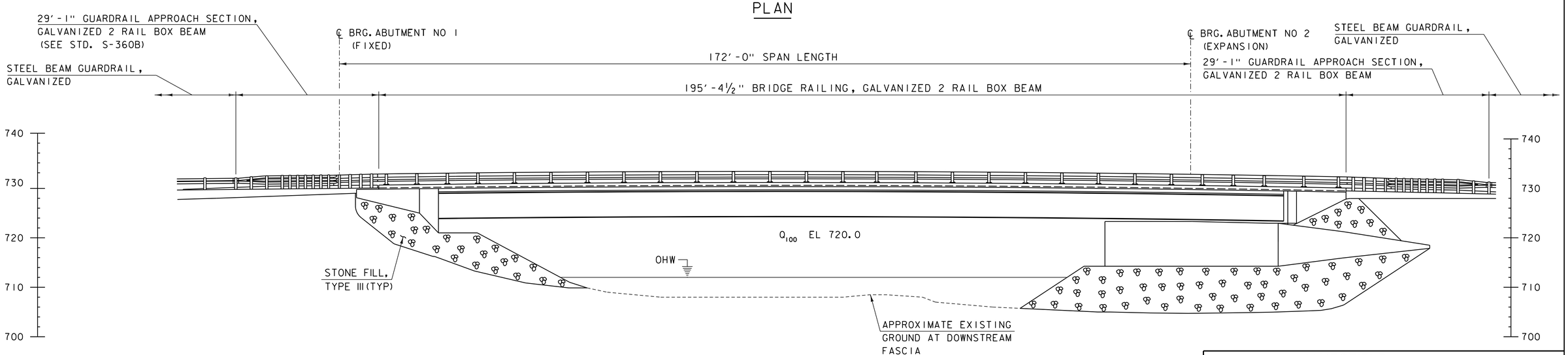
PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12b136bor_log.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
BORING LOG SHEET 3

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 21 OF 69



PLAN



ELEVATION

10 0 10

SCALE: 1" = 10'-0"

McFarland Johnson

PROJECT NAME:	WAITSFIELD
PROJECT NUMBER:	BRF 013-4(39)
FILE NAME: z12b136pe.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S.MERKWAN
DESIGNED BY: D. KULL	CHECKED BY: T. KENDRICK
PLAN AND ELEVATION	SHEET 22 OF 69

N

VT STATE PLANE GRID

EXISTING R.O.W

STATIONING

14+00

715

720

725

730

BEGIN BRIDGE
STA. 13+52.46

℄ CONSTRUCTION

W.W. #1

W.W. #2

1:5

3'-7" GR BERM (TYP)

5'-0" SHLDR (TYP)

11'-0" LANE (TYP)

LEGEND:

APPROXIMATE LOCATION OF EXISTING ABUTMENT TO BE PARTIALLY REMOVED ABOVE EL. 720.0.

NOTE:
PROPOSED BRIDGE SUPERSTRUCTURE AND APPROACH SLABS NOT SHOWN FOR CLARITY.

ABUTMENT NO 1 GRADING PLAN

5 0 5

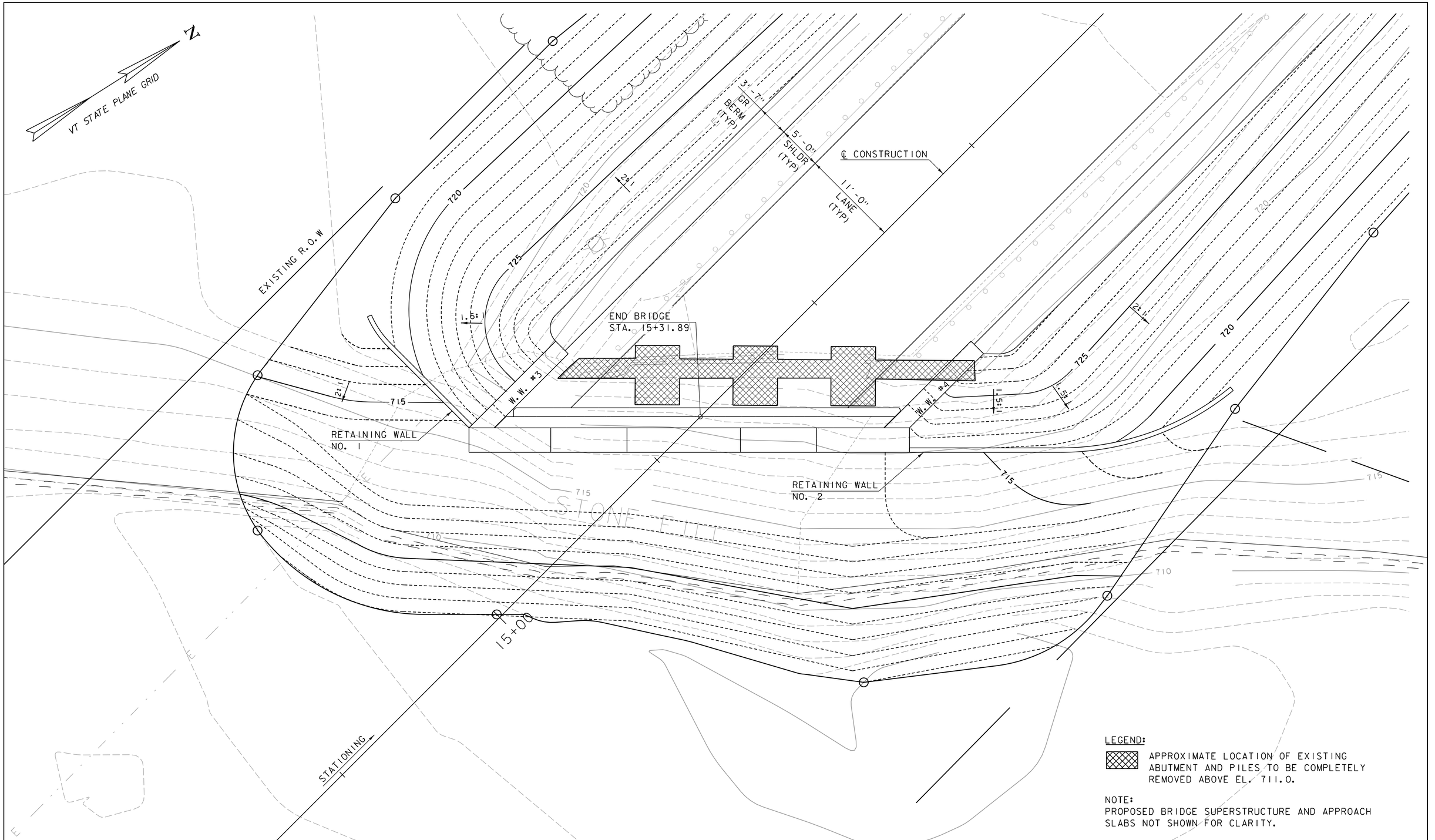
SCALE: 1" = 5'-0"

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12bl36abut_grd.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
ABUTMENT NO 1 GRADING PLAN

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 23 OF 69



ABUTMENT NO 2 GRADING PLAN

5 0 5

SCALE: 1" = 5'-0"

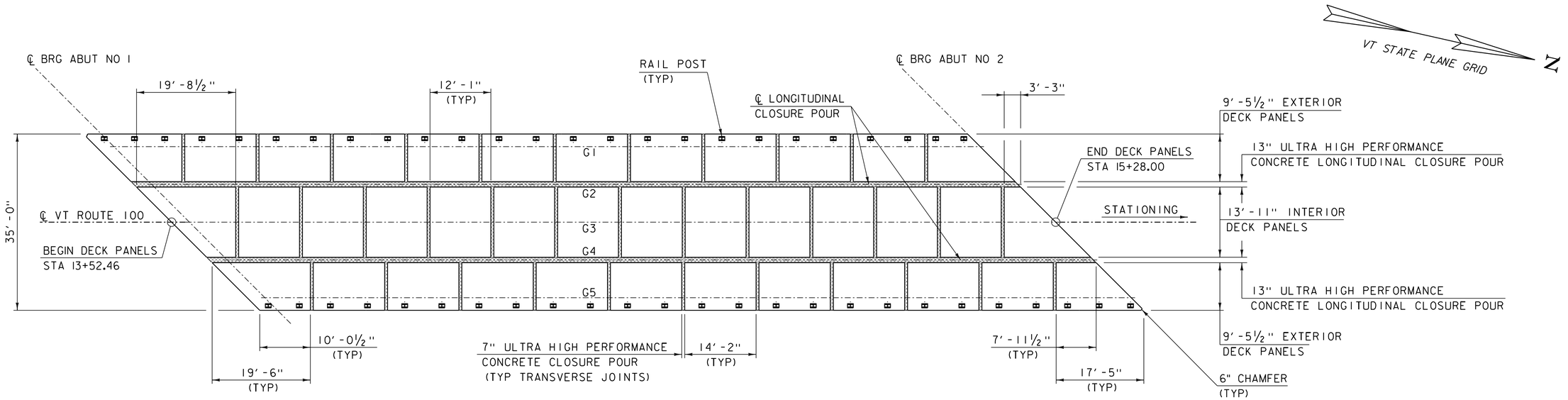
LEGEND:

APPROXIMATE LOCATION OF EXISTING ABUTMENT AND PILES TO BE COMPLETELY REMOVED ABOVE EL. 711.0.

NOTE:
PROPOSED BRIDGE SUPERSTRUCTURE AND APPROACH SLABS NOT SHOWN FOR CLARITY.

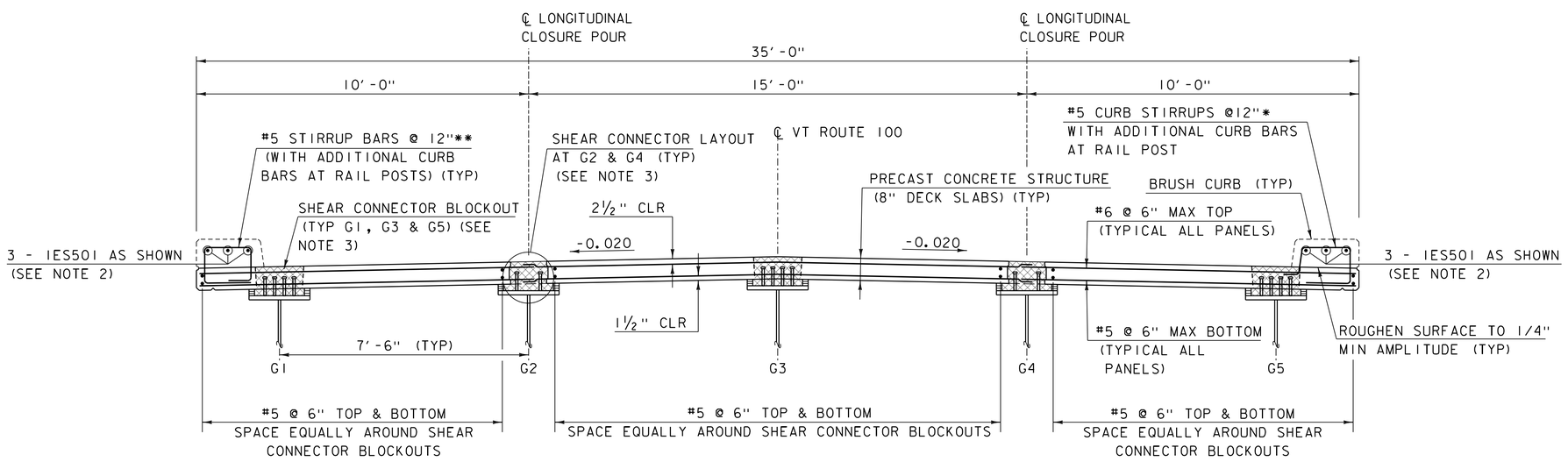
McFarland Johnson

PROJECT NAME: WAITSFIELD	
PROJECT NUMBER: BRF 013-4(39)	
FILE NAME: z12bl36abut_grd.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. MERKWAN
DESIGNED BY: D. KULL	CHECKED BY: T. KENDRICK
ABUTMENT NO 2 GRADING PLAN	SHEET 24 OF 69



PRECAST DECK PANEL LAYOUT

(NOTE: SHEAR CONNECTOR BLOCKOUTS AND BRUSHCURB NOT SHOWN FOR CLARITY)
SCALE: 3/32 " = 1′-0"



BRIDGE TYPICAL SECTION

SCALE: 3/8" = 1′-0"

* PROJECT STIRRUP LEGS INTO DECK OUTSIDE OF SHEAR CONNECTOR BLOCKOUTS AS SHOWN

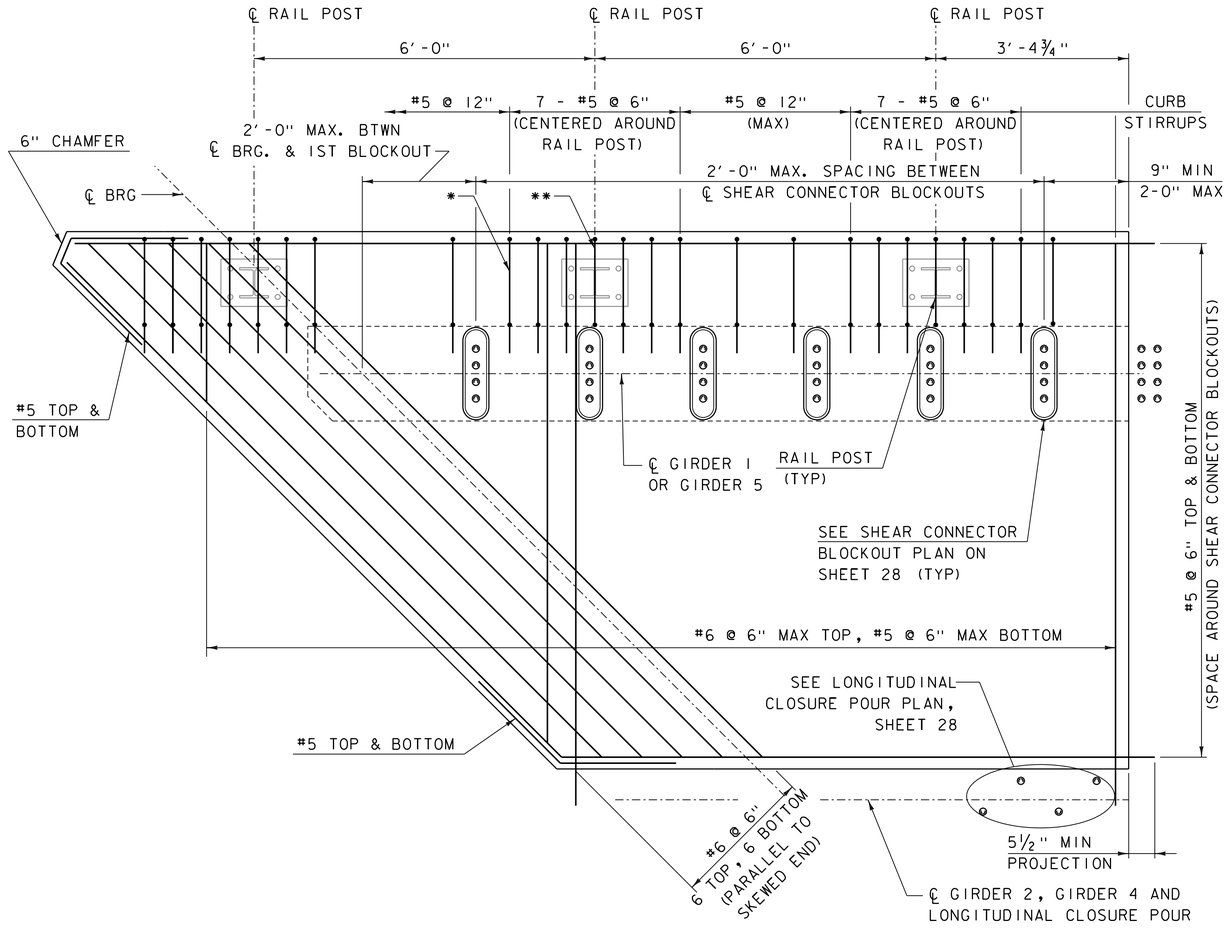
** PROJECT STIRRUP LEGS INTO CURB AT SHEAR CONNECTOR BLOCKOUTS AS SHOWN

LEGEND

SPECIAL PROVISION (ULTRA HIGH PERFORMANCE CONCRETE) (FPO)

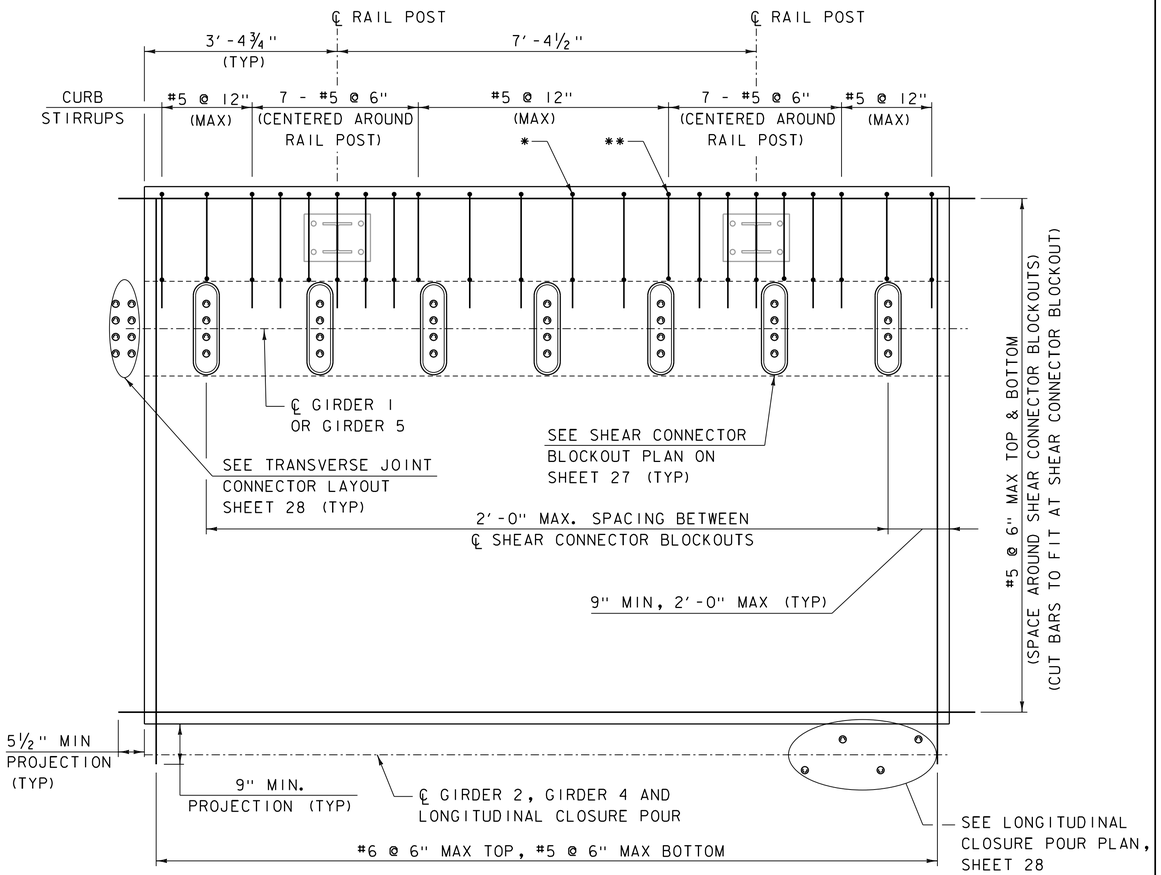
NOTES

1. ALL DECK PANEL DIMENSIONS ARE APPROXIMATE AND MAY BE REVISED BY THE CONTRACTOR.
2. SEE CONCRETE CURB JOINT NOTES ON STANDARD SHEET SD-502. MINIMUM LAP SHALL BE 2′-2". CUT BARS IN FIELD AS REQUIRED.
3. FOR ADDITIONAL SHEAR CONNECTOR LAYOUT INFORMATION SEE SHEETS 26 & 28.
4. IN ORDER TO REDUCE THE NUMBER OF COLD JOINTS IN THE UHPC CLOSURE JOINTS, IT IS PROPOSED TO PLACE UHPC IN THE END SPAN PORTIONS THE FIRST DAY TO APPROXIMATELY THE 1/3 POINT FROM EITHER END. IN THIS BATCHING AND CASTING, ALL TRANSVERSE JOINTS, LONGITUDINAL JOINTS AND SHEAR POCKETS WILL BE MONOLITHIC. ONLY FOUR JOINTS WILL EXIST AND THOSE WILL BE IN THE LONGITUDINAL HAUNCHES OVER GIRDERS 2 & 4.



TYPICAL EXTERIOR END PANEL REINFORCEMENT PLAN

ACUTE FASCIA PANEL SHOWN, OBTUSE INTERIOR PANEL SIMILAR)
SCALE: ¾" = 1'-0"



TYPICAL EXTERIOR PANEL REINFORCEMENT PLAN

(FASCIA PANEL SHOWN, INTERIOR PANEL SIMILAR)
SCALE: ¾" = 1'-0"

* PROJECT STIRRUP LEGS AS SHOWN OUTSIDE OF SHEAR CONNECTOR BLOCKOUT (TYP)

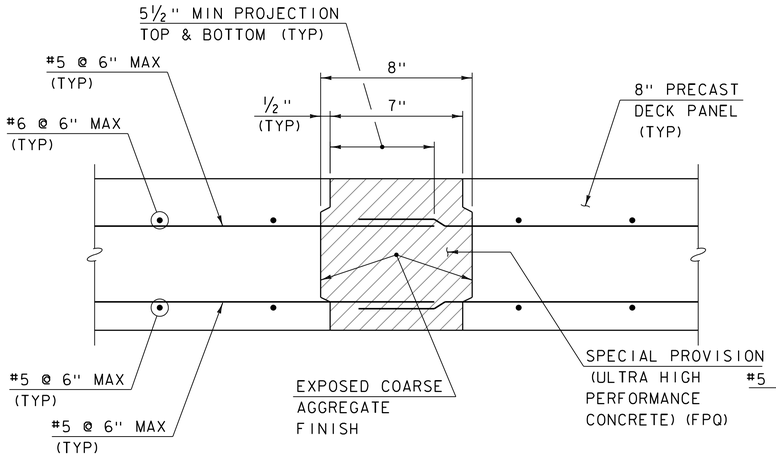
** PROJECT STIRRUP LEGS INTO CURB AT SHEAR CONNECTOR BLOCKOUT (TYP)

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.

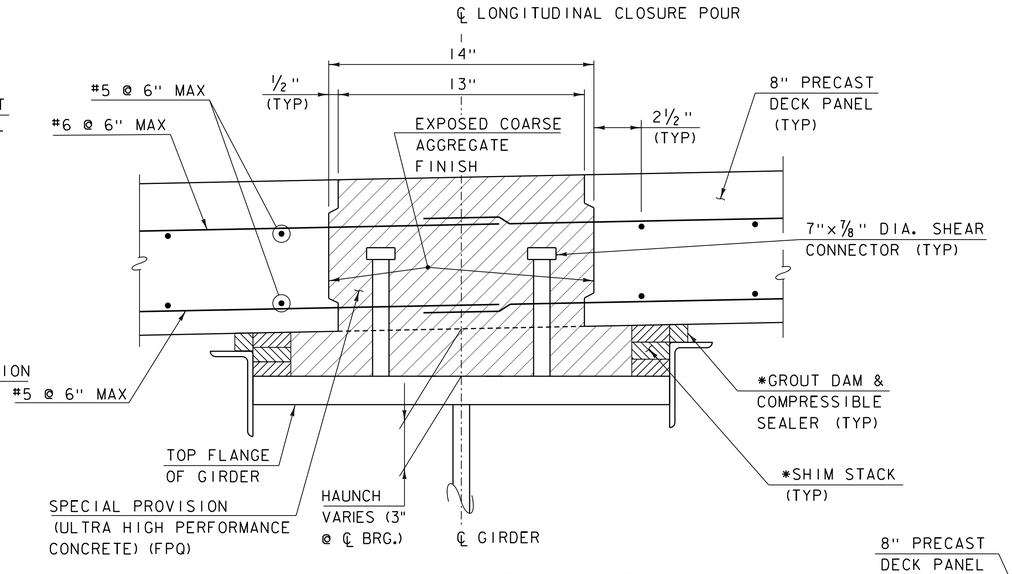
PROJECT NAME:	WAITSFIELD
PROJECT NUMBER:	BRF 013-4(39)
FILE NAME: z12b136sup_panl.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R.YOUNG	DRAWN BY: S.MERKWAN
DESIGNED BY: D.KULL	CHECKED BY: T.KENDRICK
PRECAST DECK DETAILS	SHEET 26 OF 69

McFarland Johnson



TRANSVERSE JOINT SECTION

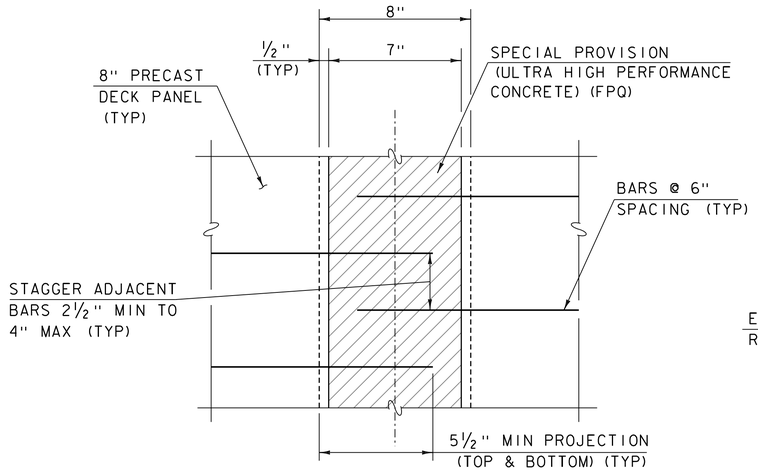
(BETWEEN PANELS)
SCALE: 3" = 1'-0"



LONGITUDINAL CLOSURE POUR SECTION

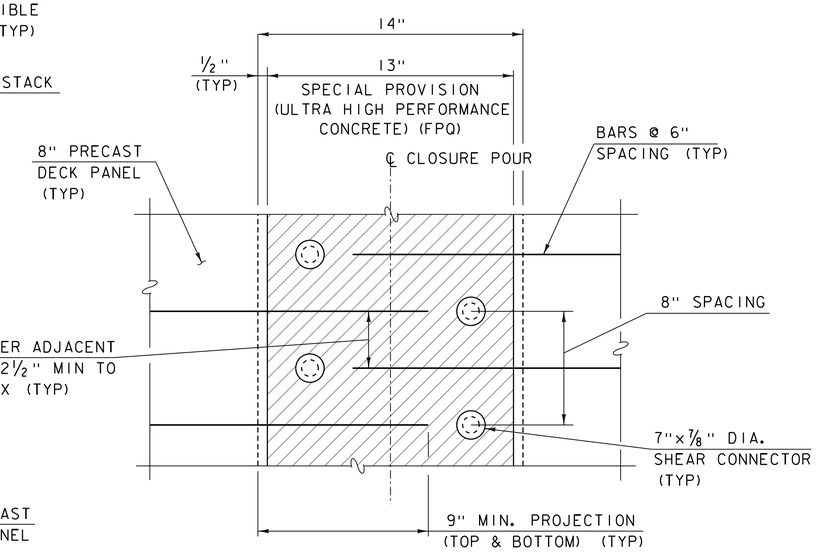
(OVER GIRDERS 2 & 4)
SCALE: 3" = 1'-0"

*THE SHIM STACK DECK SUPPORT SYSTEM & TEMPORARY GROUT DAM SHOWN IS CONCEPTUAL. THE CONTRACTOR'S PROPOSED SYSTEM SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PER SECTION 540. OF THE STANDARD SPECIFICATIONS



TRANSVERSE CLOSURE POUR PLAN

SCALE: 3" = 1'-0"



LONGITUDINAL CLOSURE POUR PLAN

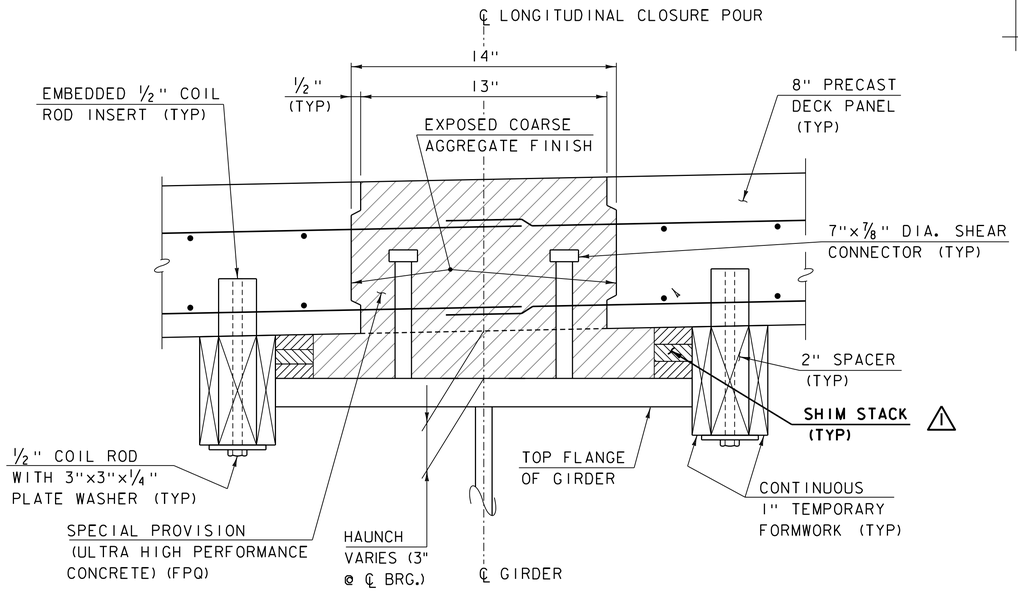
(OVER GIRDERS 2 & 4)
SCALE: 3" = 1'-0"

NOTE

1. ALTERNATE BLOCKOUT CONFIGURATIONS MAY BE PRESENTED TO THE ENGINEER FOR REVIEW AND APPROVAL USED AS LONG AS THE NUMBER OF SHEAR CONNECTORS PER GIRDER MEETS OR EXCEEDS THE AMOUNT SPECIFIED ON SHEET 31.

2. NOTE, TOP AND BOTTOM FORMS NOT SHOWN FOR CLARITY. THE CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL, DETAILS, MATERIALS, AND METHODS FOR INSTALLING FORMS THAT PREVENT LEAKAGE AND THAT RESIST THE HYDRAULIC HEAD PRESSURES THAT RESULTS WHEN PLACING UHPC. THE HEAD PRESSURE IS EQUAL TO ONE PSI PER VERTICAL FOOT OF JOINT. CONSULT WITH THE MANUFACTURERS RECOMMENDATIONS.

3. CHIMNEYS CONSISTING OF 5 GALLON PLASTIC PAILS SHALL BE PLACED AND SPACED ALONG THE JOINTS TO ADD HYDRAULIC PRESSURE TO PURGE ANY AIR POCKETS THAT MAY FORM WHILE CASTING THE UHPC. THIS SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.



ALTERNATE LONGITUDINAL CLOSURE POUR SECTION

(OVER GIRDERS 2 & 4)
SCALE: 3" = 1'-0"

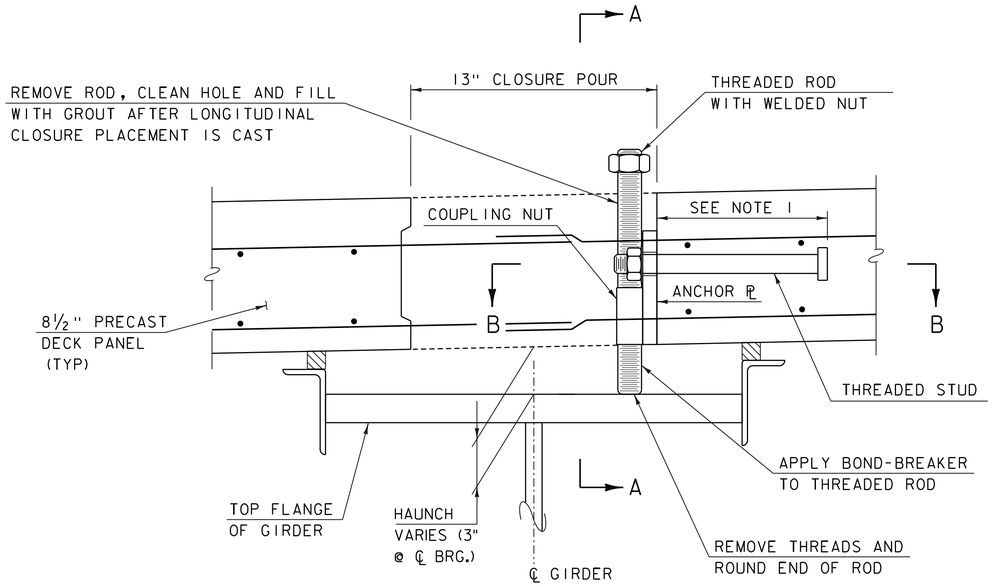
REV	DATE	DESCRIPTION
⚠1	10/13/2015	SHIM STACK NOTE REVISION

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

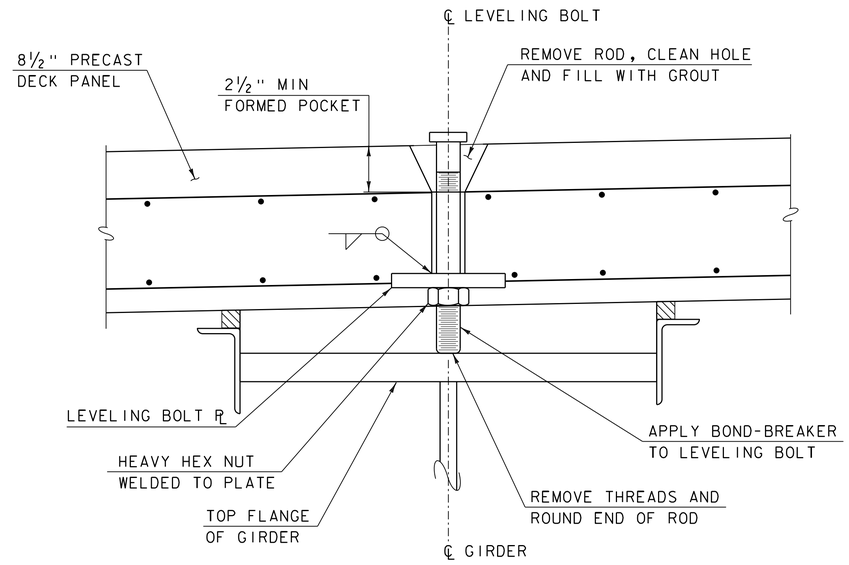
FILE NAME: z12b136sup_dtls.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
MISCELLANEOUS DECK DETAILS 1

PLOT DATE: 10/13/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 27 OF 69



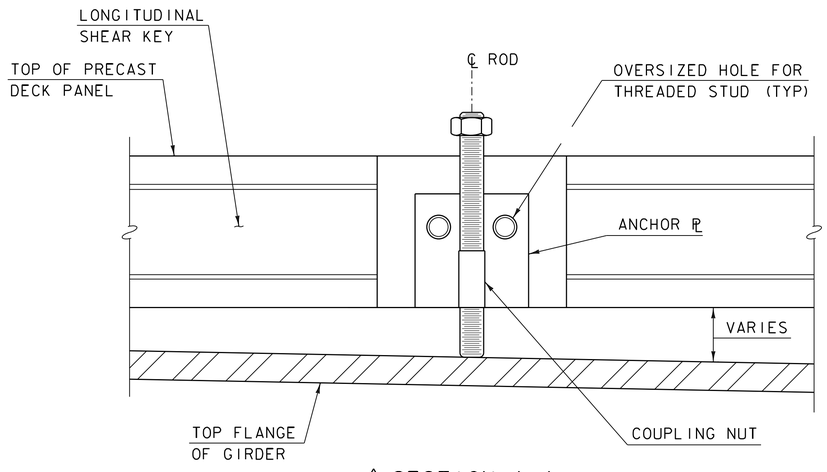
⚠ ALTERNATE LONGITUDINAL CLOSURE POUR SECTION

(OVER GIRDERS 2 & 4)
SCALE: 3" = 1'-0"
NOTE: UHPC NOT SHOWN FOR CLARITY



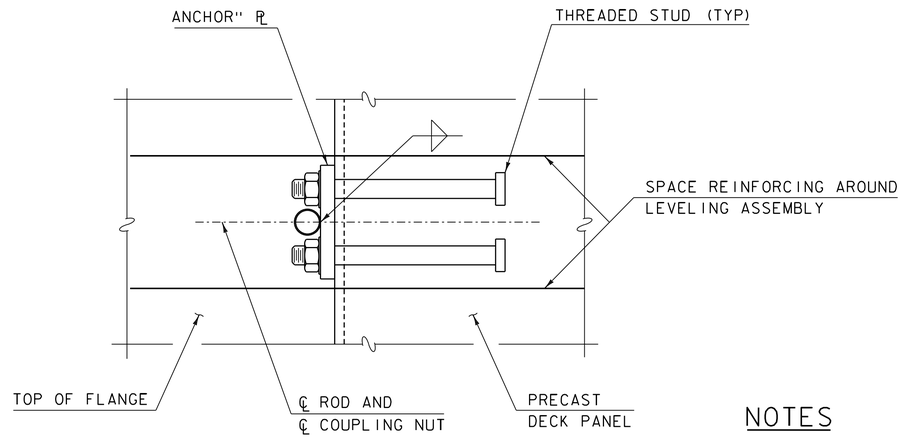
⚠ ALTERNATE INTERIOR VERTICAL ADJUSTMENT ASSEMBLY DETAIL

(OVER GIRDERS 1, 3 & 5)
SCALE: 3" = 1'-0"
NOTE: UHPC NOT SHOWN FOR CLARITY



⚠ SECTION A-A

SCALE: 3" = 1'-0"
NOTE: UHPC NOT SHOWN FOR CLARITY



⚠ SECTION B-B

SCALE: 3" = 1'-0"
NOTE: UHPC NOT SHOWN FOR CLARITY

NOTES

1. LEVELING BOLT DETAIL SHOWN IS CONCECPTUAL. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND DETAILING OF THE LEVELING DEVICE BASED ON THE WEIGHT OF THE PRECAST UNIT AND THE NUMBER OF DEVICES.

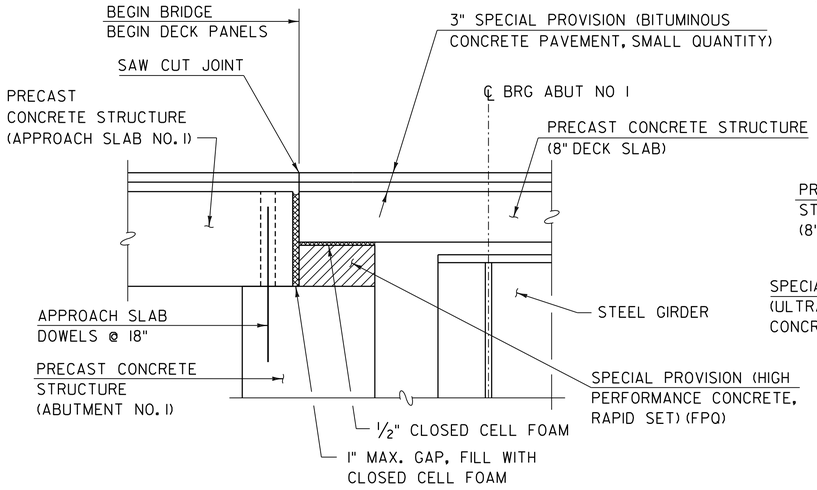
REV	DATE	DESCRIPTION
⚠1	10/13/2015	ALTERNATE CLOSURE POUR ADDITION
⚠2	10/13/2015	SHEET ADDITION

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

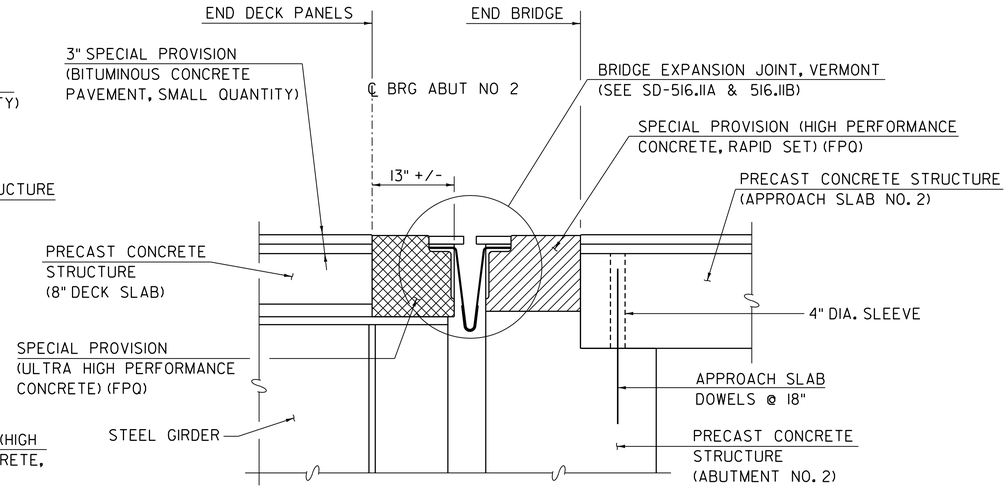
FILE NAME: z12b136sup_dtls.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
MISCELLANEOUS DECK DETAILS 2

PLOT DATE: 10/13/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET ⚠2 28 OF 69



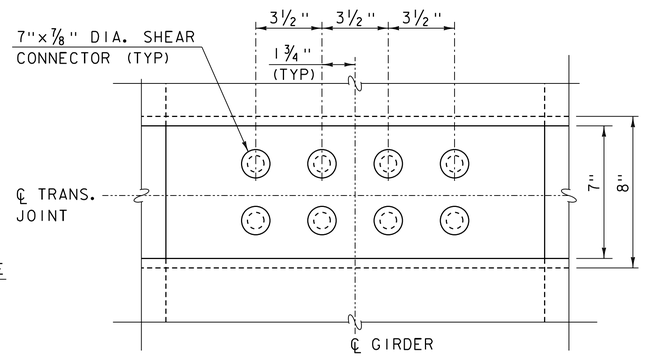
ABUT NO. 1 BRIDGE END DETAIL

SCALE: 1" = 1'-0"



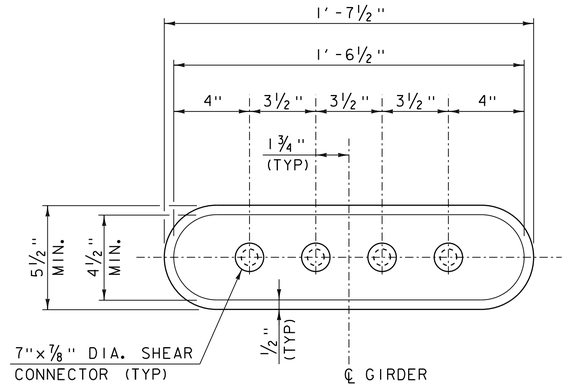
ABUT NO. 2 BRIDGE END DETAIL

SCALE: 1" = 1'-0"
(VT JOINT HARDWARE NOT SHOWN FOR CLARITY)



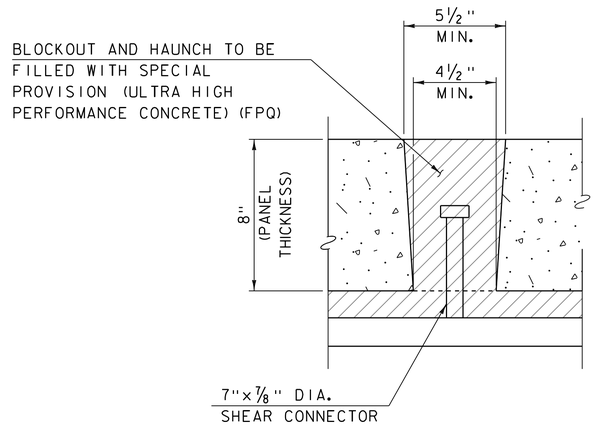
TRANSVERSE JOINT CONNECTOR LAYOUT

SCALE: 3" = 1'-0"



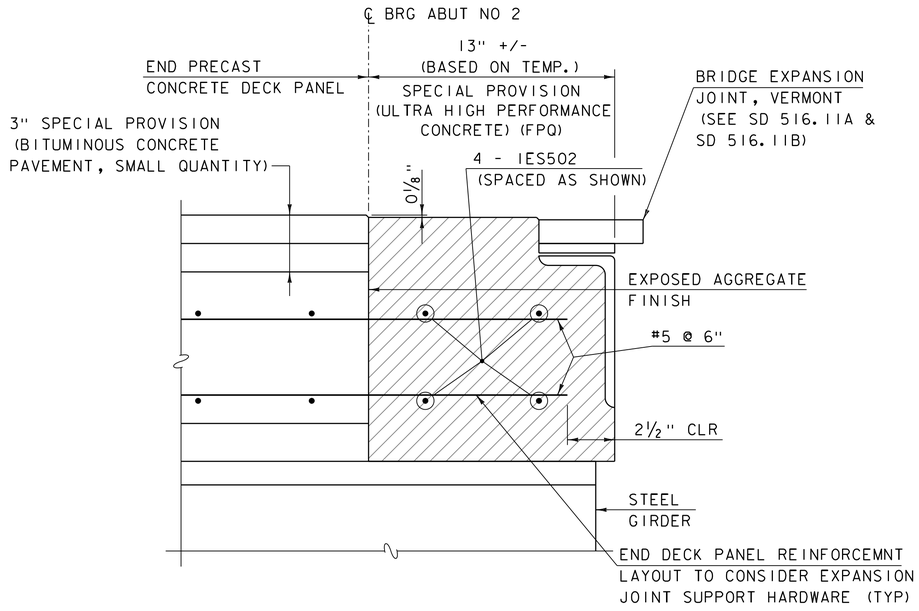
SHEAR CONNECTOR BLOCKOUT PLAN

SCALE: 3" = 1'-0"



SHEAR CONNECTOR BLOCKOUT SECTION

SCALE: 3" = 1'-0"



ABUTMENT NO 2 DECK END SECTION

SCALE: 3" = 1'-0"

NOTE: VERMONT EXPANSION JOINT
HARDWARD NOT SHOWN FOR CLARITY

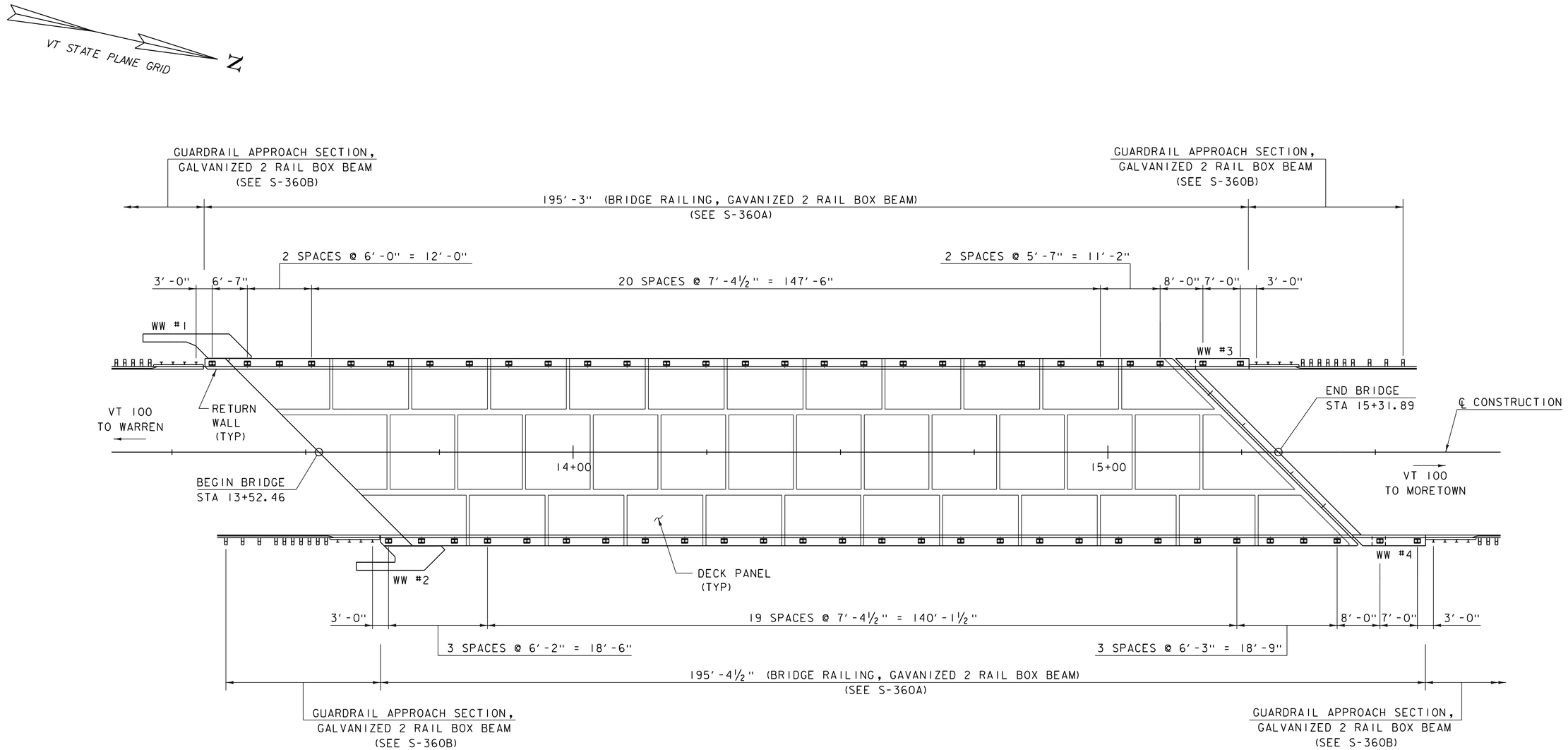
REV	DATE	DESCRIPTION
1	10/13/2015	SHEET NUMBER REVISION

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12bl36sup_dtls.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
MISCELLANEOUS DECK DETAILS 3

PLOT DATE: 10/13/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 1 28A OF 69



BRIDGE RAIL LAYOUT

SCALE: 1" = 10'-0"

NOTE

1. RAIL DIMENSIONS HAVE BEEN PROVIDED FOR INFORMATION ONLY. ACTUAL RAIL DIMENSIONS MAY BE REVISED BY CONTRACTOR BASED ON FINAL DIMENSIONS OF DECK PANELS. REFER TO S-360A FOR DETAILS.

10 0 10

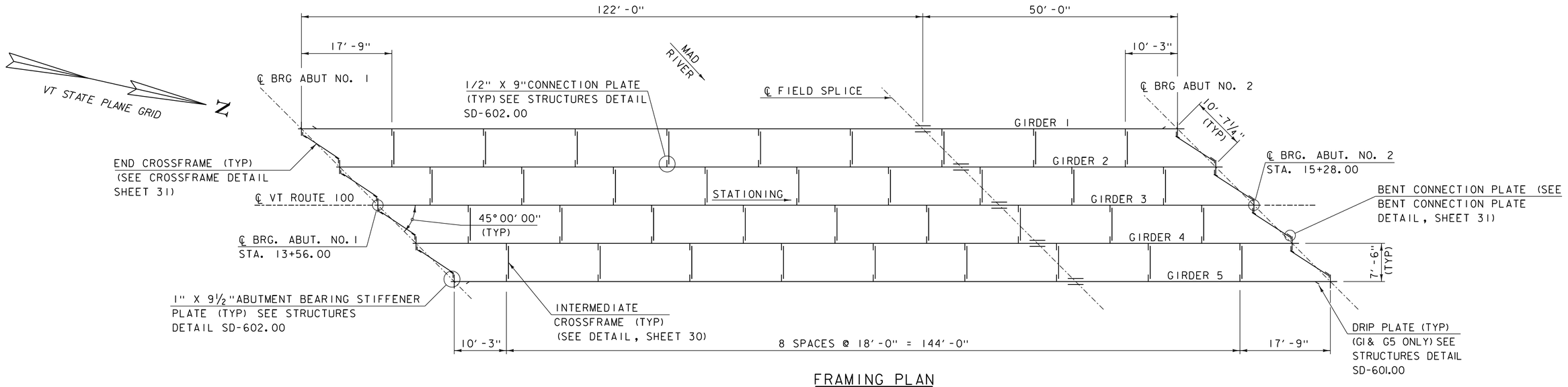
SCALE: 1" = 10'-0"

McFarland Johnson

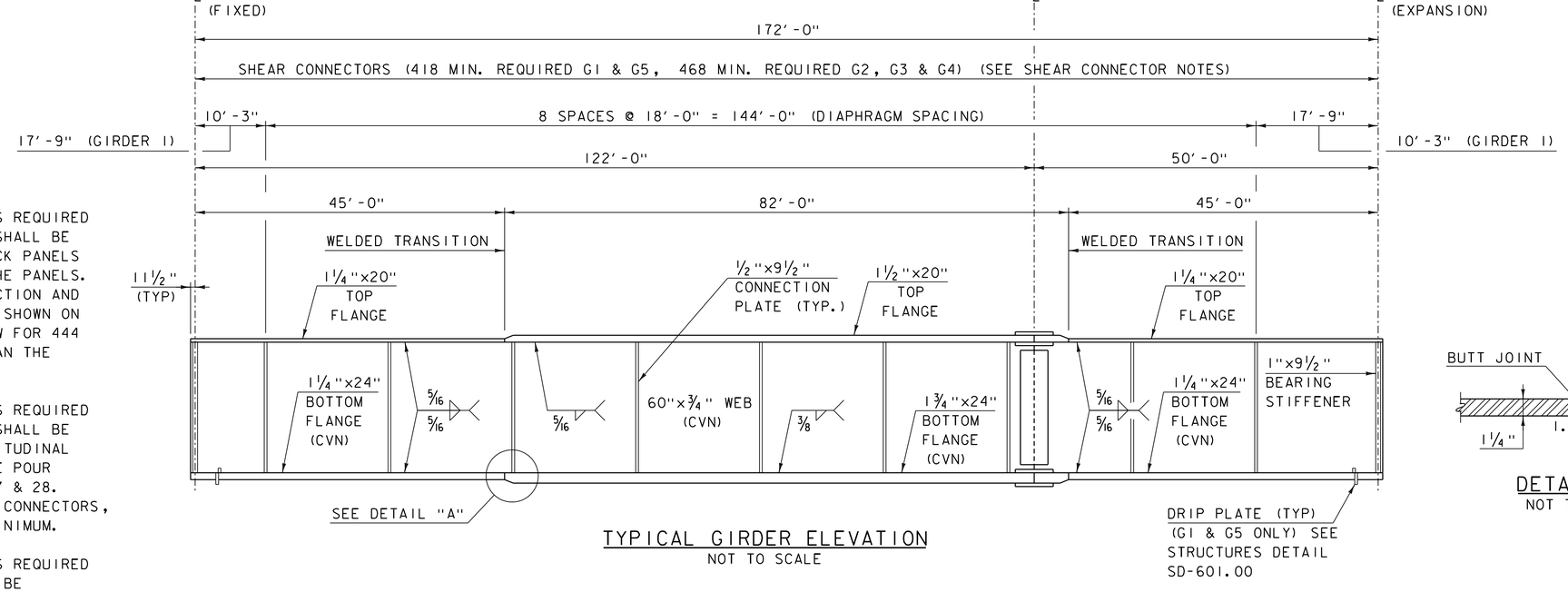
PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12b136bdr_raillay.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
BRIDGE RAIL LAYOUT SHEET

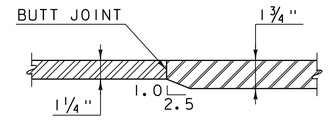
PLOT DATE: 8/24/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T. KENDRICK
SHEET 29 OF 69



FRAMING PLAN
SCALE: 1" = 10′-0"



TYPICAL GIRDER ELEVATION
NOT TO SCALE



DETAIL "A"
NOT TO SCALE

SHEAR CONNECTOR NOTES:

1. THE MINIMUM NUMBER OF SHEAR CONNECTORS REQUIRED FOR G1 & G5 IS 418. SHEAR CONNECTORS SHALL BE PLACED IN BLOCKOUTS IN THE PRECAST DECK PANELS AND IN THE TRANSVERSE JOINT BETWEEN THE PANELS. THE SHEAR CONNECTOR BLOCKOUT PLAN, SECTION AND TRANSVERSE JOINT CONNECTOR LAYOUT ARE SHOWN ON SHEET 27 & 28. THE DETAILS SHOWN ALLOW FOR 444 SHEAR CONNECTORS, WHICH IS GREATER THAN THE SPECIFIED MINIMUM.

2. THE MINIMUM NUMBER OF SHEAR CONNECTORS REQUIRED FOR G2 & G4 IS 468. SHEAR CONNECTORS SHALL BE PLACED BETWEEN THE PANELS IN THE LONGITUDINAL CLOSURE POUR. THE LONGITUDINAL CLOSURE POUR PLAN AND SECTION ARE SHOWN ON SHEET 27 & 28. THE DETAILS SHOWN ALLOW FOR 517 SHEAR CONNECTORS, WHICH IS GREATER THAN THE SPECIFIED MINIMUM.

3. THE MINIMUM NUMBER OF SHEAR CONNECTORS REQUIRED FOR G3 IS 468. SHEAR CONNECTORS SHALL BE PLACED IN BLOCKOUTS IN THE PRECAST DECK PANELS AND IN THE TRANSVERSE JOINT BETWEEN THE PANELS. THE SHEAR CONNECTOR BLOCKOUT PLAN, SECTION AND TRANSVERSE JOINT CONNECTOR LAYOUT ARE SHOWN ON SHEET 27. THE DETAILS SHOWN ALLOW FOR 454 SHEAR CONNECTORS, WHICH IS GREATER THAN THE SPECIFIED MINIMUM.

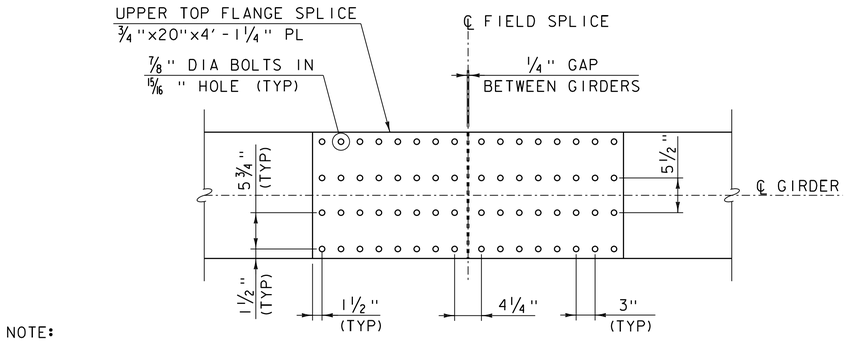
CVN = CHARPY V-NOTCH TEST IN ACCORDANCE WITH SUBSECTION 714.01

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

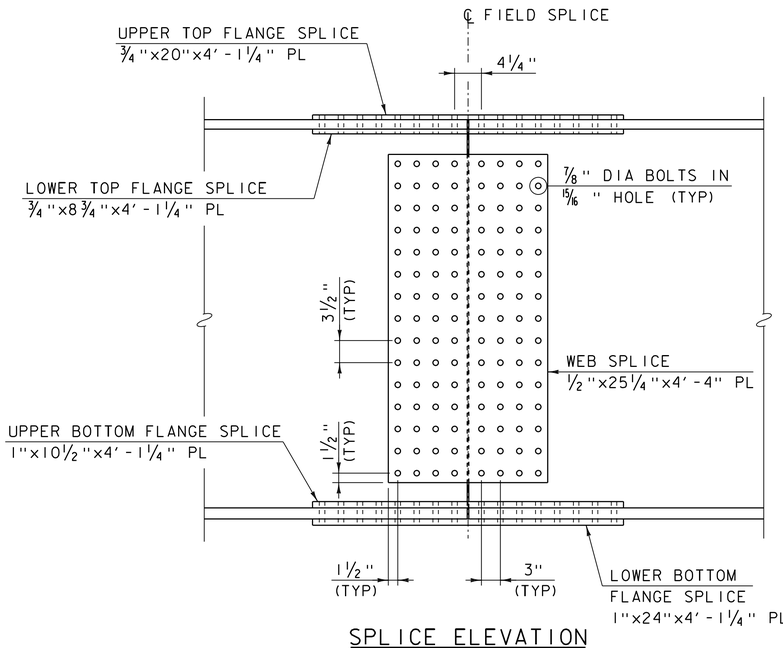
FILE NAME: 12b136sup_fram.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
FRAMING PLAN AND GIRDER ELEVATION

PLOT DATE: 8/24/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 30 OF 69

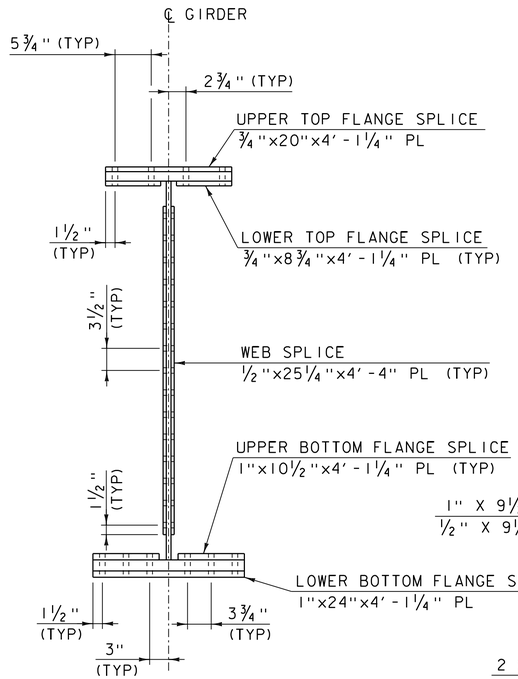


NOTE:
LOWER TOP FLANGE SPLICE
SHALL BE SIMILAR

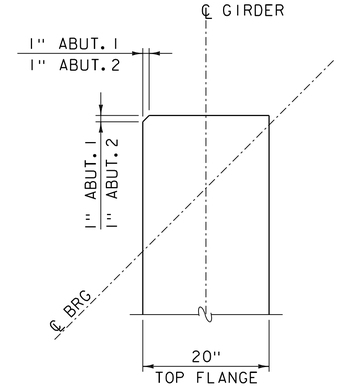
UPPER TOP FLANGE SPLICE
SCALE: 1" = 1'-0"



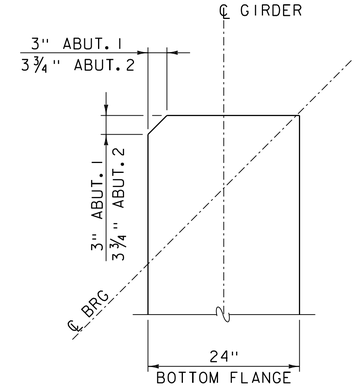
SPLICE ELEVATION
SCALE: 1" = 1'-0"



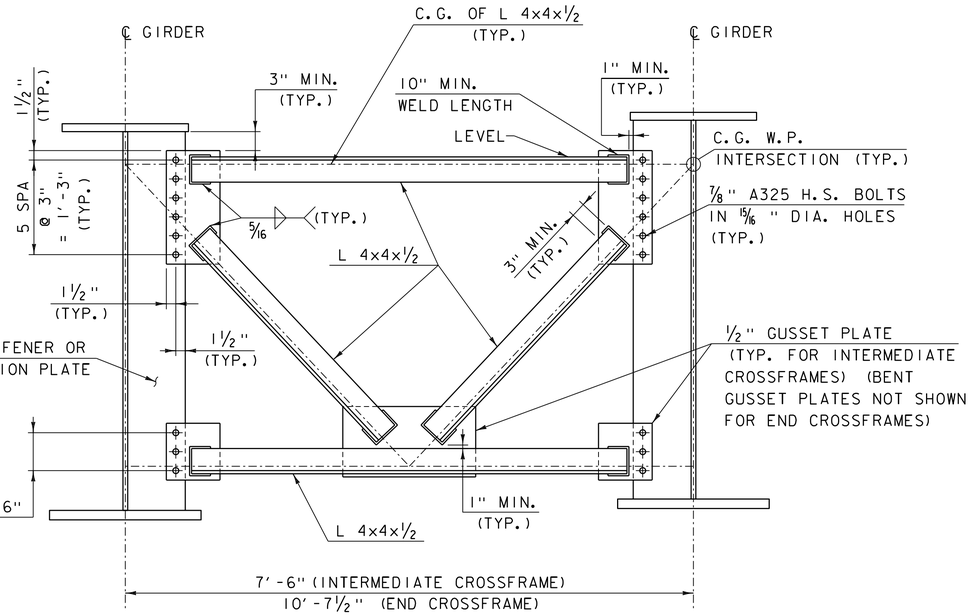
SPLICE SECTION
SCALE: 1" = 1'-0"



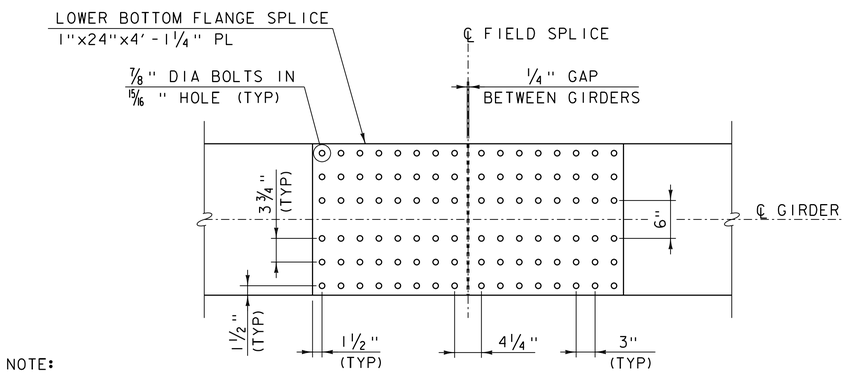
TOP FLANGE CLIP DETAIL
SCALE: 1" = 1'-0"



BOTTOM FLANGE CLIP DETAIL
SCALE: 1" = 1'-0"

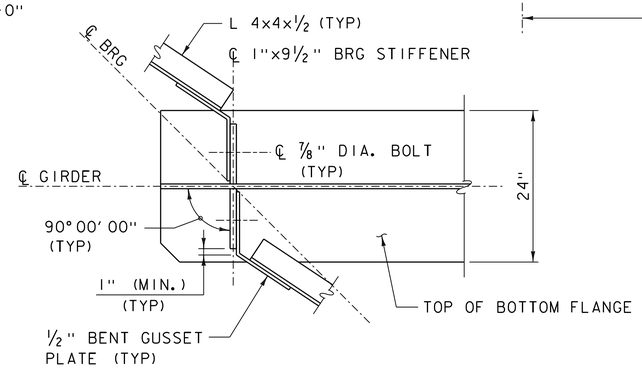


CROSSFRAME DETAIL
(INTERMEDIATE CROSSFRAME SHOWN)
SCALE: 1" = 1'-0"



NOTE:
UPPER BOTTOM FLANGE SPLICE
SHALL BE SIMILAR

LOWER BOTTOM FLANGE SPLICE
SCALE: 1" = 1'-0"



BENT CONNECTION PLATE DETAIL
SCALE: 1" = 1'-0"

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12b136sup_gird.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
MISCELLANEOUS GIRDER DETAILS

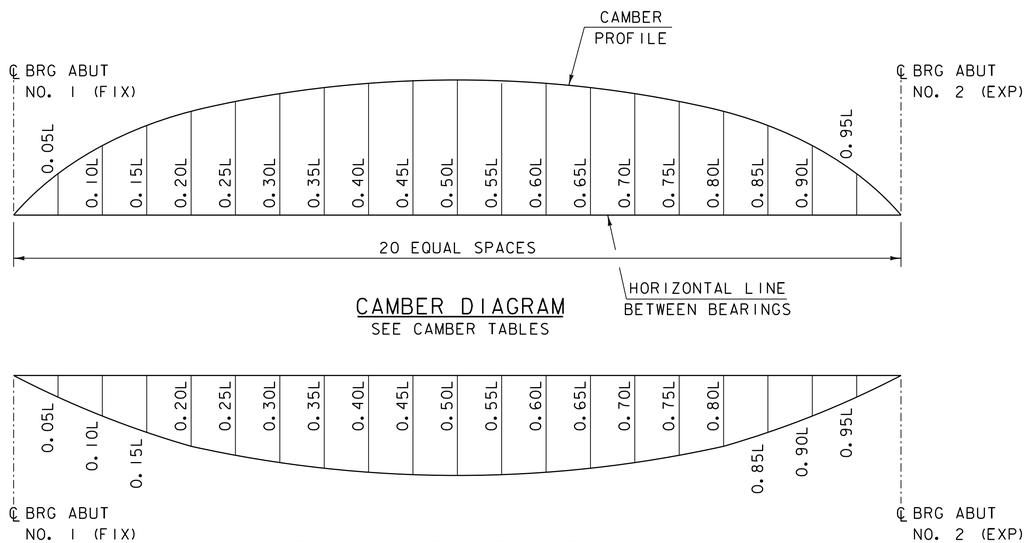
PLOT DATE: 8/24/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 31 OF 69

CAMBER TABLE - GIRDERS 1 & 5 (INCHES)

POINT ON GIRDER	CL BRG. ABUT 1	0.05 L	0.10 L	0.15 L	0.20 L	0.25 L	0.30 L	0.35 L	0.40 L	0.45 L	0.50 L	0.55 L	0.60 L	0.65 L	0.70 L	0.75 L	0.80 L	0.85 L	0.90 L	0.95 L	CL BRG. ABUT 2
STEEL DL	0.00	0.57	1.11	1.62	2.09	2.48	2.82	3.08	3.27	3.39	3.43	3.39	3.27	3.08	2.82	2.49	2.09	1.62	1.11	0.57	0.00
CONCRETE SLAB	0.00	1.07	2.11	3.08	3.96	4.72	5.34	5.84	6.21	6.43	6.51	6.43	6.21	5.84	5.34	4.72	3.96	3.08	2.11	1.07	0.00
SUPERIMPOSED DL	0.00	0.31	0.61	0.89	1.15	1.37	1.55	1.70	1.81	1.87	1.90	1.87	1.81	1.70	1.55	1.37	1.15	0.89	0.61	0.31	0.00
TOTAL DEFLECTION	0.00	1.95	3.83	5.60	7.19	8.57	9.71	10.62	11.29	11.69	11.83	11.69	11.29	10.62	9.71	8.57	7.19	5.60	3.83	1.95	0.00
VERTICAL ORDINATE	0.00	1.41	2.67	3.79	4.75	5.57	6.24	6.76	7.13	7.35	7.43	7.35	7.13	6.76	6.24	5.57	4.75	3.79	2.67	1.41	0.00
TOTAL CAMBER	0.00	3.36	6.51	9.39	11.95	14.14	15.95	17.38	18.42	19.05	19.26	19.05	18.42	17.38	15.95	14.14	11.95	9.39	6.51	3.36	0.00

CAMBER TABLE - GIRDERS 2, 3 & 4 (INCHES)

POINT ON GIRDER	CL BRG. ABUT 1	0.05 L	0.10 L	0.15 L	0.20 L	0.25 L	0.30 L	0.35 L	0.40 L	0.45 L	0.50 L	0.55 L	0.60 L	0.65 L	0.70 L	0.75 L	0.80 L	0.85 L	0.90 L	0.95 L	CL BRG. ABUT 2
STEEL DL	0.00	0.60	1.18	1.72	2.20	2.63	2.97	3.25	3.46	3.58	3.62	3.58	3.46	3.25	2.97	2.63	2.20	1.72	1.18	0.60	0.00
CONCRETE SLAB	0.00	1.23	2.42	3.53	4.54	5.40	6.12	6.70	7.12	7.37	7.46	7.37	7.12	6.70	6.12	5.40	4.54	3.53	2.42	1.23	0.00
SUPERIMPOSED DL	0.00	0.30	0.59	0.86	1.10	1.31	1.49	1.63	1.73	1.79	1.81	1.79	1.73	1.63	1.49	1.31	1.10	0.86	0.59	0.30	0.00
TOTAL DEFLECTION	0.00	2.12	4.18	6.10	7.84	9.34	10.58	11.58	12.30	12.74	12.89	12.74	12.30	11.58	10.58	9.34	7.84	6.10	4.18	2.12	0.00
VERTICAL ORDINATE	0.00	1.41	2.67	3.79	4.75	5.57	6.24	6.76	7.13	7.35	7.43	7.35	7.13	6.76	6.24	5.57	4.75	3.79	2.67	1.41	0.00
TOTAL CAMBER	0.00	3.53	6.85	9.89	12.59	14.91	16.82	18.34	19.43	20.10	20.32	20.10	19.43	18.34	16.82	14.91	12.59	9.89	6.85	3.53	0.00

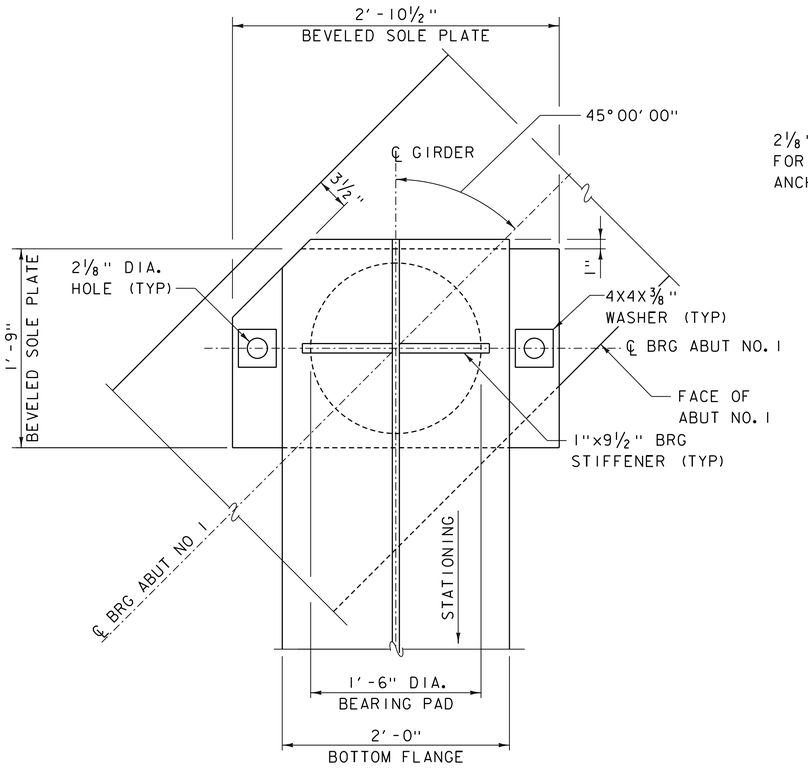


McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

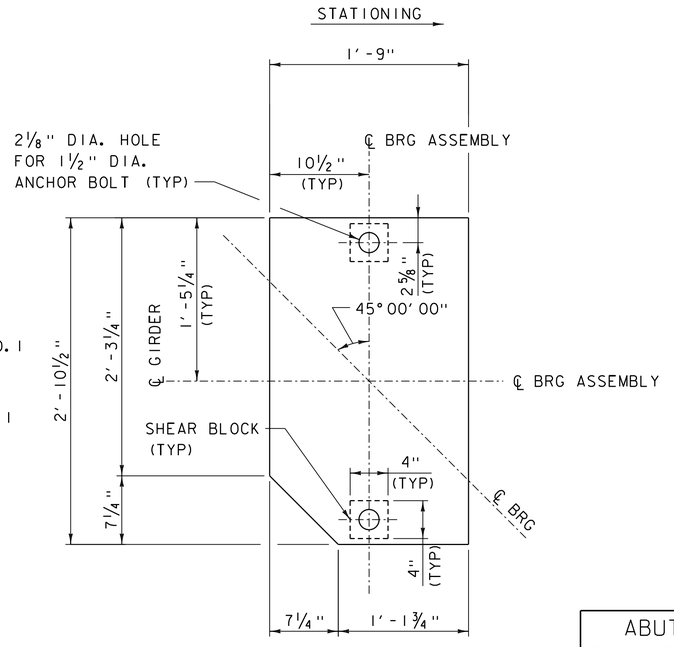
FILE NAME: 12b136sup_fram.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
CAMBER DETAILS

PLOT DATE: 8/24/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 32 OF 69

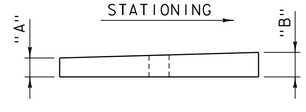


PLAN

SCALE: 1½" = 1'-0"



PLAN



ELEVATION

BEVELED SOLE PLATE

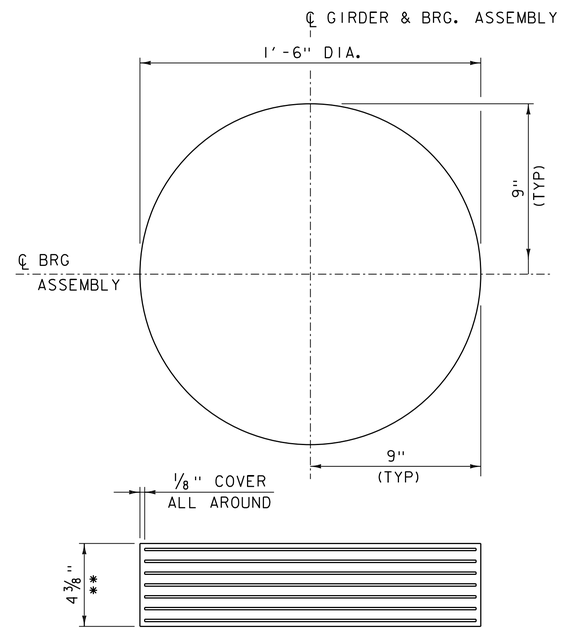
SCALE: 1½" = 1'-0"

ABUTMENT NO. 1 BEVELED SOLE PLATE THICKNESS TABLE		
	"A"	"B"
G1	1 13/16"	2 3/16"
G2	2 3/16"	2 9/16"
G3	2 3/8"	2 5/8"
G4	1 7/8"	2 1/8"
G5	2 1/8"	2 3/8"

BEARING NOTES:

1. BEARINGS SHALL CONFORM TO THE APPLICABLE SUBSECTIONS OF SECTIONS 531 AND 731.
2. ALL REINFORCEMENT BETWEEN LAYERS OF ELASTOMER SHALL BE STEEL MEETING THE REQUIREMENTS OF SUBSECTION 714.02. ALL INTERNAL STEEL SHEETS SHALL BE SAND BLASTED AND FREE OF COATINGS, RUST, AND MILL SCALE. THE PLATES SHALL BE FREE OF SHARP EDGES AND BURRS.
3. STEEL REINFORCED ELASTOMERIC BEARINGS SHALL HAVE A MINIMUM ⅛" EDGE SEAL OF ELASTOMER INTEGRAL WITH BEARING OVER ALL INTERNAL PLATES.
4. THE ELASTOMER SHALL BE GRADE 60 SHORE A DUROMETER.
5. THE ELASTOMER SHALL MEET THE REQUIREMENTS OF LOW TEMPERATURE ZONE D, GRADE 4.
6. DESIGN CRITERIA (AASHTO METHOD A):

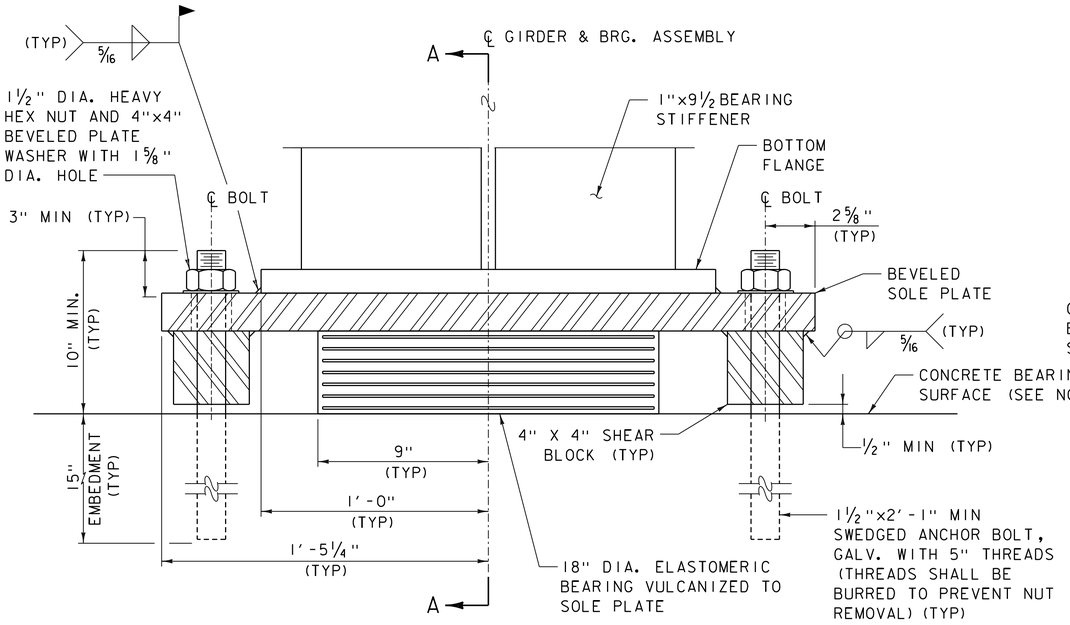
DESIGN SHEAR MODULUS:	130 PSI TO 200 PSI
MAXIMUM BEARING STRESS:	1100 PSI
DESIGN DEAD LOAD (UNFACTORED):	140 KIPS
DESIGN LIVE LOAD (UNFACTORED):	140 KIPS
DESIGN LONGITUDINAL MOVEMENT:	1.57 IN (ABUTMENT 2)



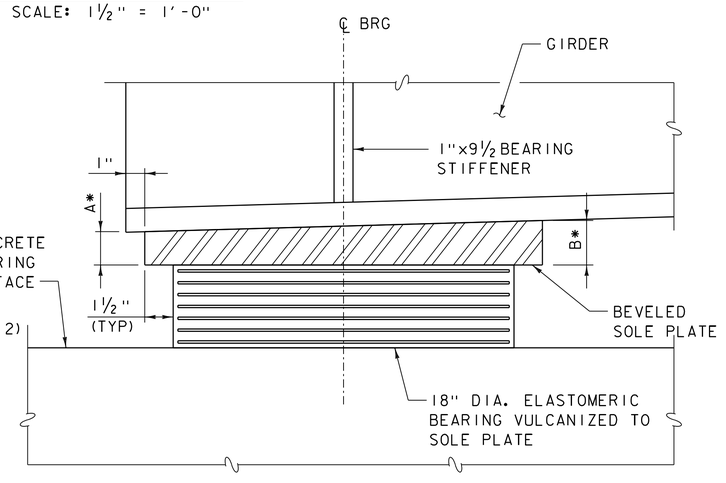
** 2 - ¼" EXTERIOR ELASTOMER LAYERS
6 - ½" INTERIOR ELASTOMER LAYERS
7 - ⅛" STEEL REINFORCING PLATES

ELASTOMERIC BEARING PAD DETAIL
(FIXED AND EXPANSION)

SCALE: 3" = 1'-0"



FRONT ELEVATION



SECTION A-A

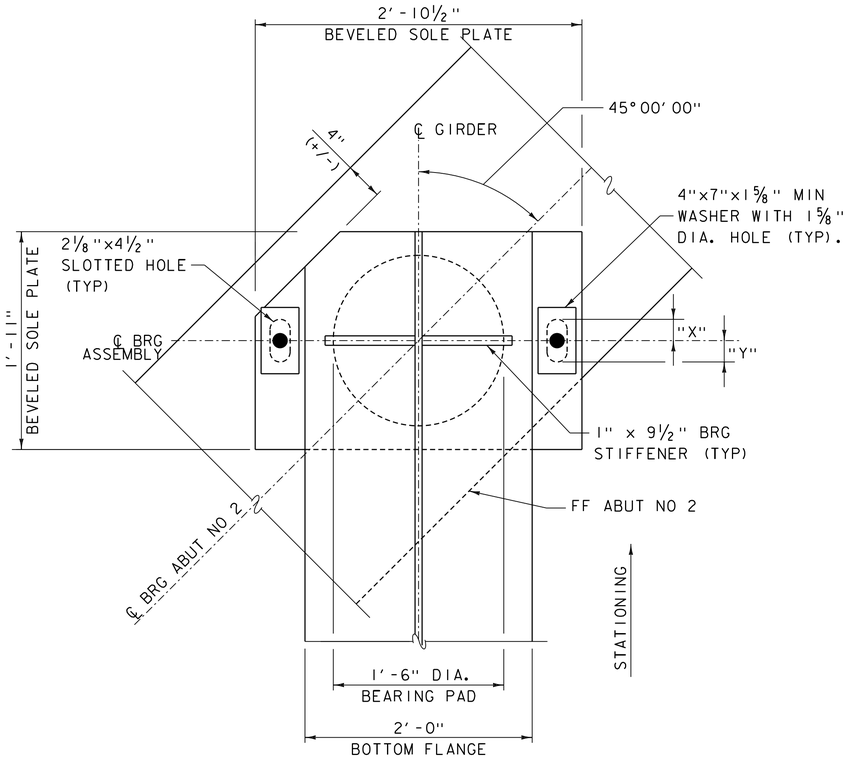
ABUTMENT NO 1 - FIXED BEARING DETAILS

SCALE: 3" = 1'-0"

*SEE ABUTMENT NO. 1 BEVELED SOLE PLATE DIMENSIONS TABLE

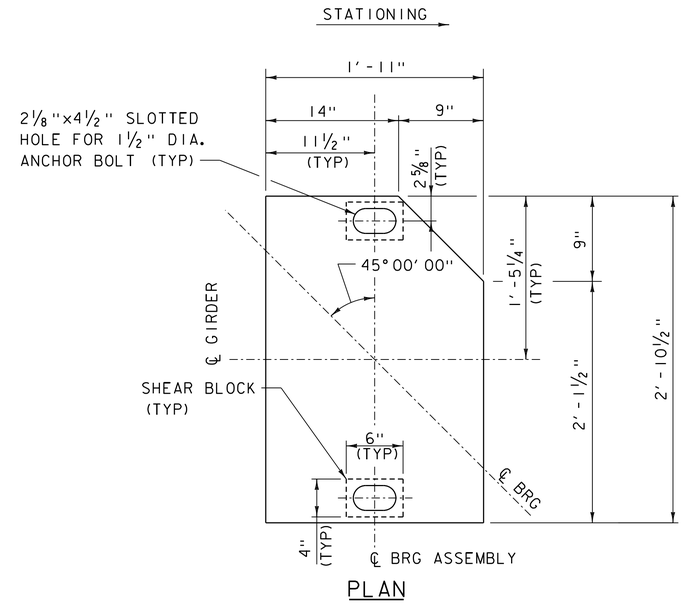
McFarland Johnson

PROJECT NAME:	WAITSFIELD
PROJECT NUMBER:	BRF 013-4(39)
FILE NAME: z12b136brg.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R.YOUNG	DRAWN BY: S.MERKWAN
DESIGNED BY: D.KULL	CHECKED BY: T.KENDRICK
BEARING DETAILS (1 OF 2)	SHEET 33 OF 69

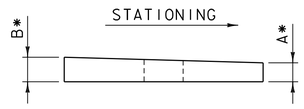


PLAN

SCALE: 1½" = 1'-0"



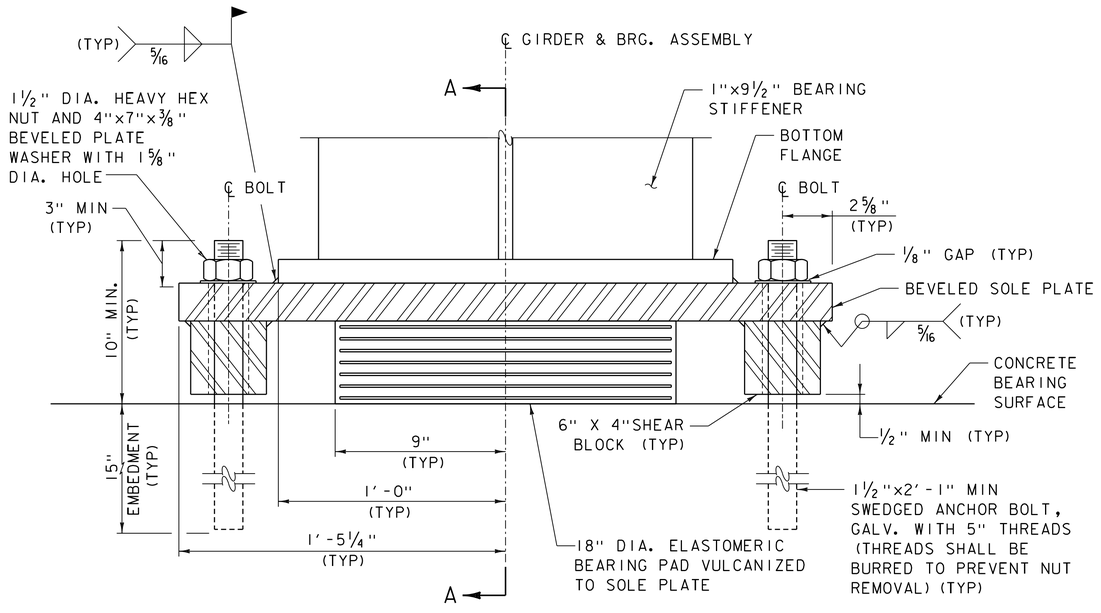
PLAN



ELEVATION

TEMPERATURE ADJUSTMENT TABLE		
TEMP.	"X"	"Y"
0° F	2⅞"	1⅝"
15° F	2⅝"	1⅞"
30° F	2½"	2"
45° F	2¼"	2¼"
60° F	2"	2½"
75° F	1⅞"	2⅝"
90° F	1⅝"	2⅞"
105° F	1½"	3"

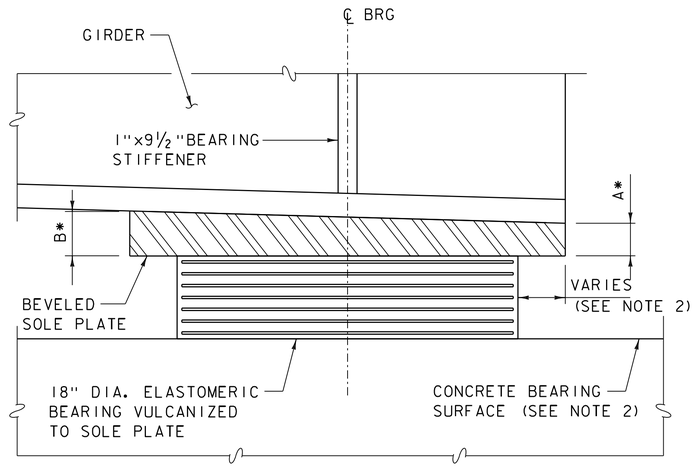
ABUTMENT NO. 2 BEVELED SOLE PLATE THICKNESS TABLE		
	"A"	"B"
G1	1¾"	2"
G2	2¼"	2½"
G3	1 15/16"	2 5/16"
G4	1 13/16"	2 3/16"
G5	1 11/16"	2 1/16"



FRONT ELEVATION

BEVELED SOLE PLATE

SCALE: 1½" = 1'-0"



SECTION A-A

BEARING NOTES:

1. FOR BEARING NOTES AND DESIGN CRITERIA, SEE BEARING DETAILS SHEET 1.
2. THE CONTRACTOR SHALL INCLUDE THE BEARING INSTALLATION PROCEDURE WITH THE FABRICATION DRAWING PACKAGE REQUIRED UNDER SUBSECTION 531.03. PROCEDURE SHALL INCLUDE BEARING ADJUSTMENT SETTING DEPENDING UPON TEMPERATURE AT TIME OF ERECTION.

ABUTMENT NO 2 - EXPANSION BEARING DETAILS

SCALE: 3" = 1'-0"

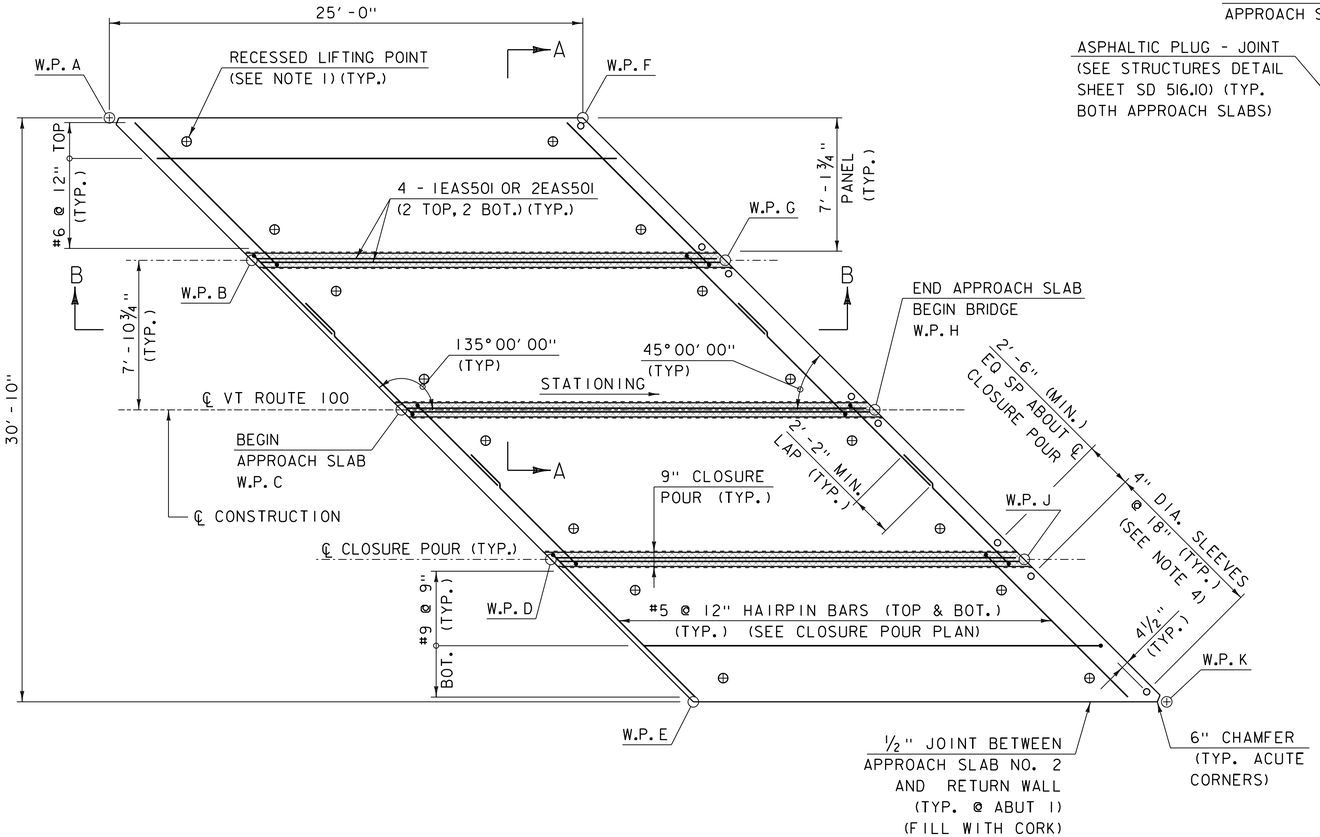
*SEE ABUTMENT NO. 2 BEVELED SOLE PLATE THICKNESS TABLE

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

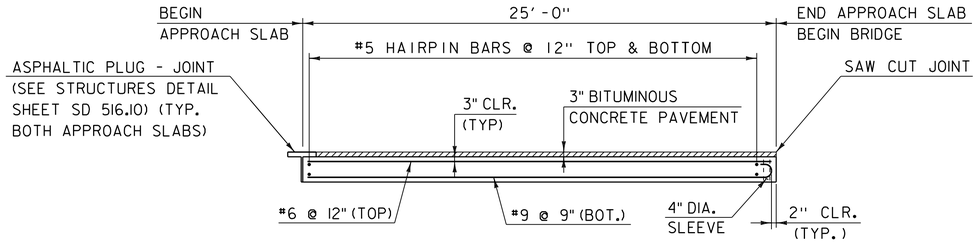
FILE NAME: zl2bl36brg.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
BEARING DETAILS (2 OF 2)

PLOT DATE: 8/24/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 34 OF 69



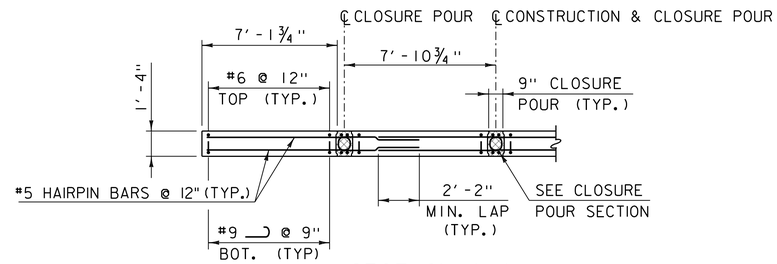
APPROACH SLAB NO. 1 PLAN

(APPROACH SLAB NO 1 SHOWN, APPROACH SLAB NO 2 SIMILAR)
SCALE: ¼" = 1'-0"



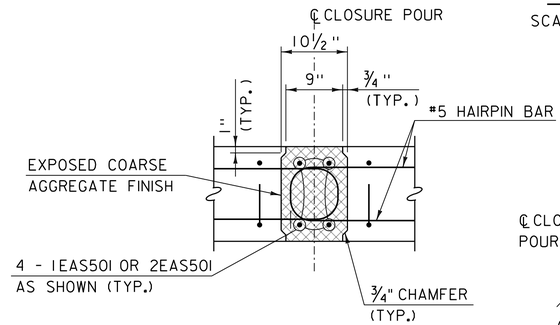
SECTION B-B

SCALE: ¼" = 1'-0"



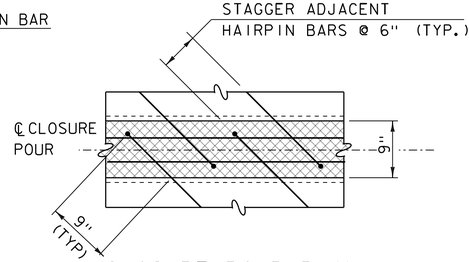
SECTION A-A

SCALE: ¼" = 1'-0"



CLOSURE POUR SECTION

SCALE: 1" = 1'-0"



CLOSURE POUR PLAN

SCALE: 1" = 1'-0"

LEGEND

SPECIAL PROVISION
(HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)

APPROACH SLAB ELEVATION TABLE

WORKING POINT	APPROACH SLAB NO. 1			APPROACH SLAB NO. 2		
	STATION	OFFSET	ELEVATION	STATION	OFFSET	ELEVATION
A	13+12.05	15.42' LT.	727.83	15+16.47	15.42' LT.	728.84
B	13+19.57	7.90' LT.	728.15	15+23.99	7.90' LT.	728.90
C	13+27.46	℄	728.46	15+31.89	℄	728.94
D	13+35.36	7.90' RT.	728.45	15+39.78	7.90' RT.	728.66
E	13+42.88	15.42' RT.	728.43	15+47.31	15.42' RT.	728.39
F	13+37.05	15.42' LT.	728.33	15+41.47	15.42' LT.	728.48
G	13+44.57	7.90' LT.	728.61	15+48.99	7.90' LT.	728.51
H	13.52.46	℄	728.90	15+56.89	℄	728.52
J	13+60.36	7.90' RT.	728.85	15+64.78	7.90' RT.	728.21
K	13+67.88	15.42' RT.	728.80	15+72.31	15.42' RT.	727.90

ALL ELEVATIONS ARE AT TOP OF APPROACH SLAB

NOTE:

▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

NOTES

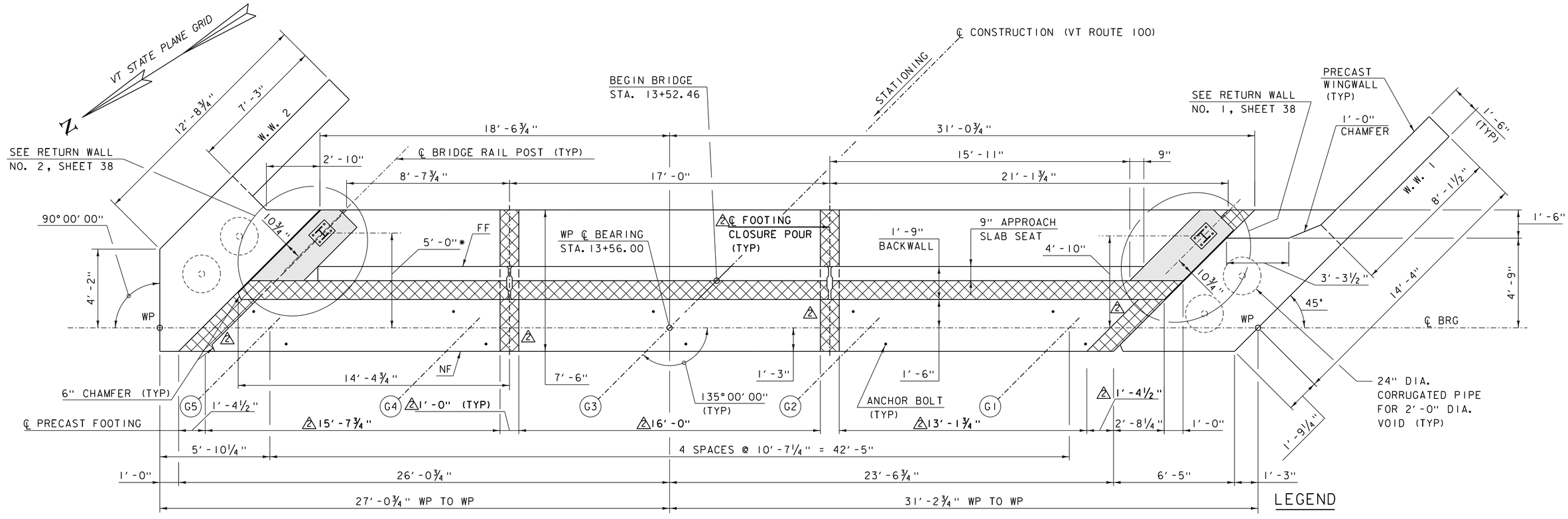
1. LIFTING POINTS ARE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. ACTUAL LIFTING LOCATIONS SHALL BE DETERMINED BY THE FABRICATOR AND INDICATED ON THE FABRICATION DRAWINGS WITH CALCULATIONS.
2. THE TOP SURFACE OF THE PRECAST APPROACH SLAB PANELS SHALL HAVE A BROOM FINISH PARALLEL TO THE CENTERLINE OF CONSTRUCTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING UNIFORM CONTACT BETWEEN THE APPROACH SLAB AND THE SUBBASE MATERIAL TO THE SATISFACTION OF THE ENGINEER. THE FABRICATION DRAWINGS SHALL INDICATE THE MEANS AND METHODS NECESSARY TO INSTALL THE APPROACH SLABS TO THE ELEVATIONS SPECIFIED.
4. SLEEVE LOCATIONS TO BE COORDINATED WITH CONSTRUCTION JOINTS AND DOWELS IN PRECAST BACKWALL.

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12bl36sub_appr.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
APPROACH SLAB DETAILS

PLOT DATE: 8/24/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 35 OF 69



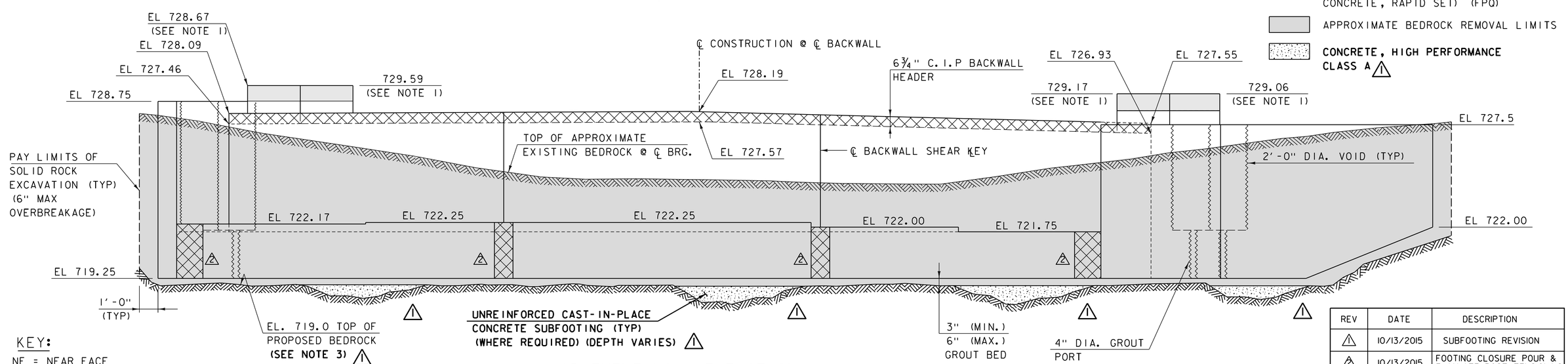
* DIMENSIONS TO ℄ OF BRIDGE RAIL POST HAVE BEEN PROVIDED FOR INFORMATIONAL PURPOSES ONLY. ACTUAL LOCATION SHALL BE DETERMINED BY THE CONTRACTOR. SEE S-360A AND BRIDGE RAIL LAYOUT.

ABUTMENT NO. 1 PLAN

SCALE: ⅜" = 1'-0"

LEGEND

- CONCRETE, HIGH PERFORMANCE, CLASS A
- SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)
- APPROXIMATE BEDROCK REMOVAL LIMITS
- **CONCRETE, HIGH PERFORMANCE CLASS A** ⚠1



ABUTMENT NO. 1 ELEVATION

SCALE: ⅜" = 1'-0"

KEY:

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

NOTES

1. TOP OF RETURN WALL ELEVATIONS ARE THEORETICAL AND SHALL MATCH TOP OF CAST-IN-PLACE CURB ELEVATIONS ON DECK.
2. BACKWALL ELEVATIONS GIVEN AT CENTERLINE OF BACKWALL.
⚠1 **3. TOP OF PROPOSED BEDROCK PROFILE SHOWN IS CONCEPTUAL.**

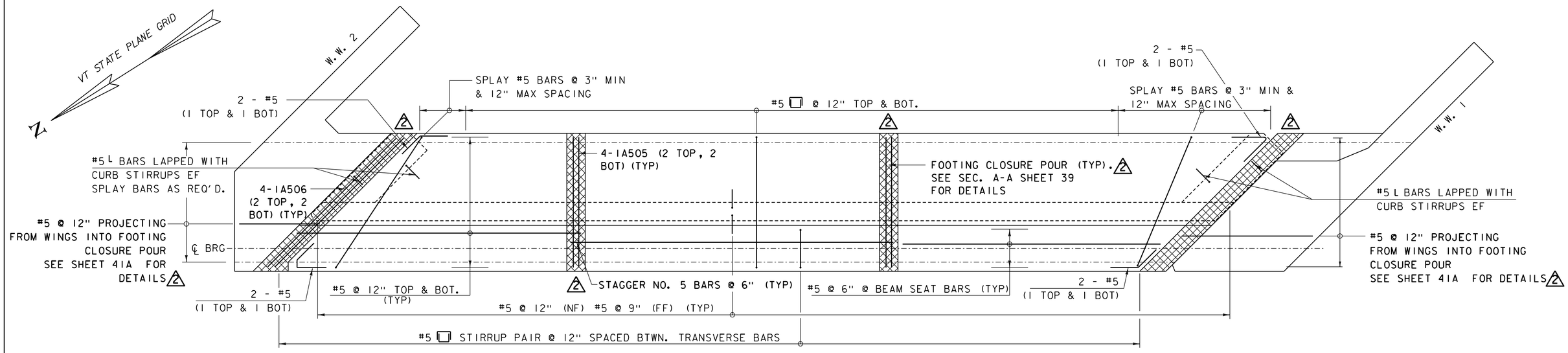
REV	DATE	DESCRIPTION
⚠1	10/13/2015	SUBFOOTING REVISION
⚠2	10/13/2015	FOOTING CLOSURE POUR & ELIMINATE POST TENSIONING

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

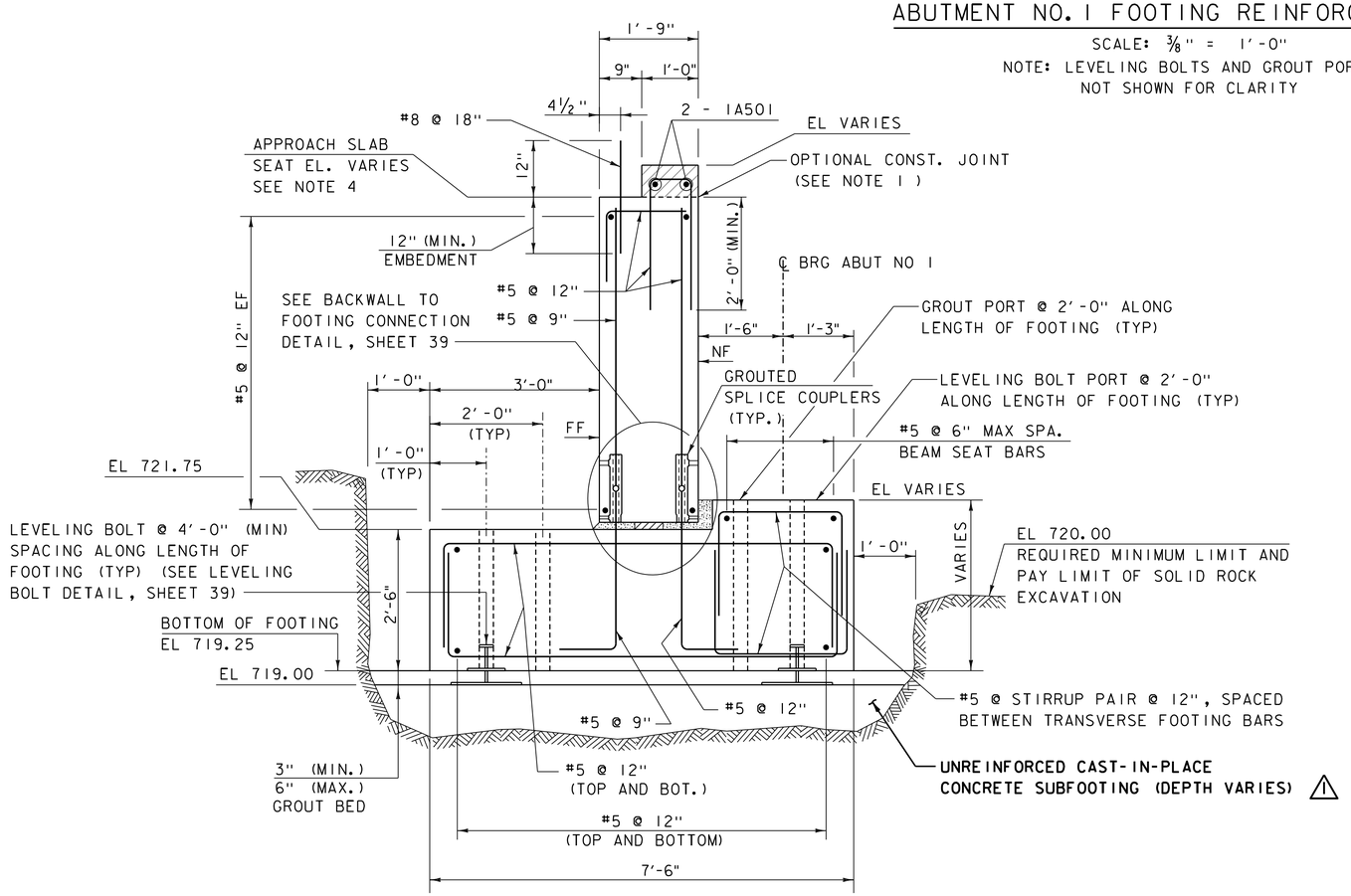
FILE NAME: z12bl36abut.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
ABUTMENT NO. 1 PLAN AND ELEVATION

PLOT DATE: 10/13/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 36 OF 69



ABUTMENT NO. 1 FOOTING REINFORCING PLAN

SCALE: 3/8" = 1'-0"
NOTE: LEVELING BOLTS AND GROUT PORTS
NOT SHOWN FOR CLARITY



TYPICAL ABUTMENT NO. 1 SECTION

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

LEGEND

SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)

NOTES

1. THE CONSTRUCTION JOINTS ABOVE THE APPROACH SLAB SEAT AND BEAM SEATS ARE OPTIONAL AND MAY BE INCLUDED WITH THE PRECAST BACKWALL. THE BACKWALL MAY ALSO BE PRECAST WITH THE FOOTING.
2. FOR APPROACH SLAB SEAT ELEVATIONS, SEE SHEET 35.

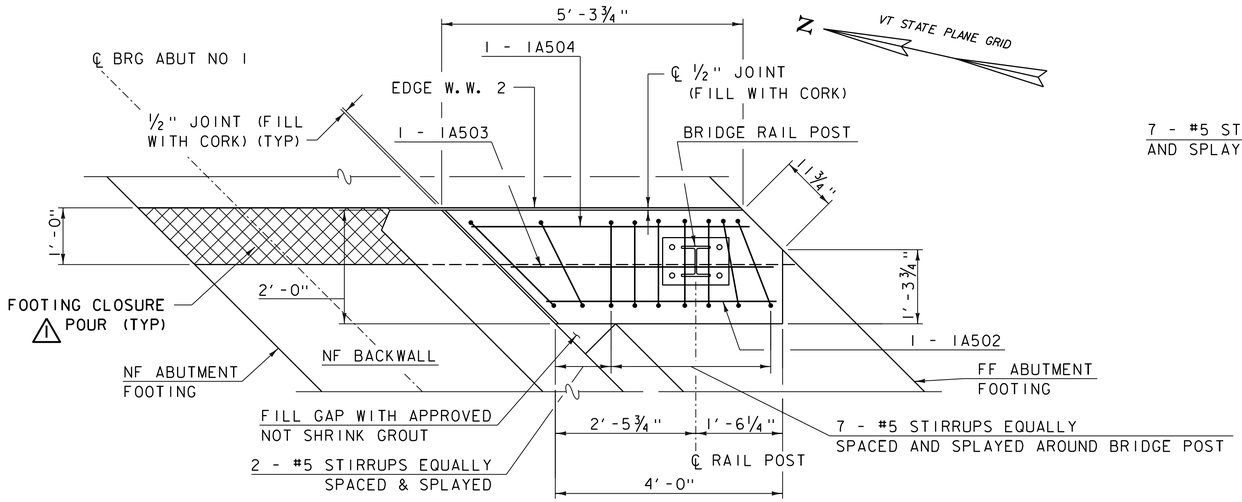
REV	DATE	DESCRIPTION
1	10/13/2015	SUBFOOTING REVISION
2	10/13/2015	CLOSURE POUR ADDITION

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

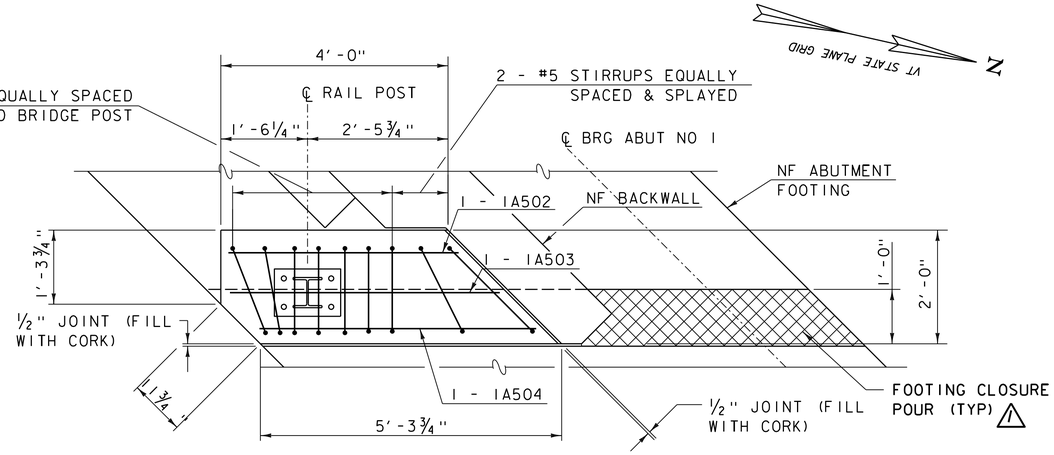
FILE NAME: z12bl36abutdtls.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
ABUTMENT NO 1 DETAILS (1 OF 3)

PLOT DATE: 10/13/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 37 OF 69



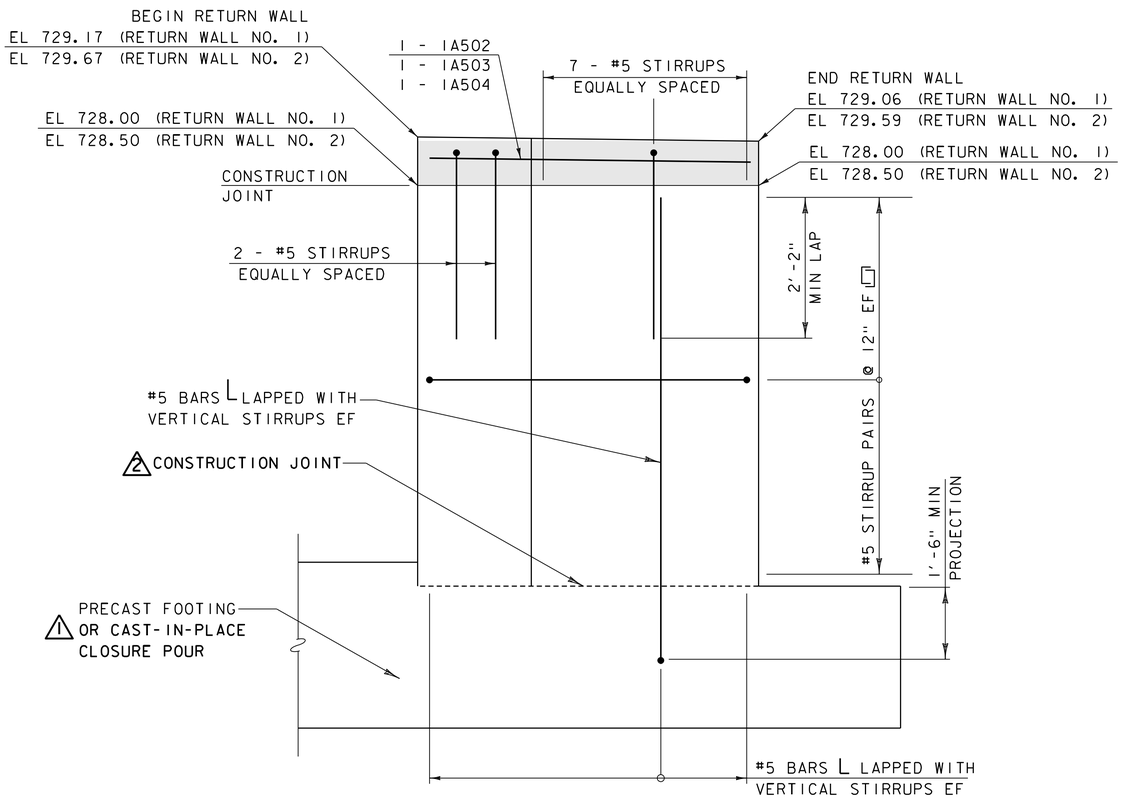
RETURN WALL NO. 2 PLAN

SCALE: ¾" = 1'-0"



RETURN WALL NO. 1 PLAN

SCALE: ¾" = 1'-0"



RETURN WALL ELEVATION

SCALE: ¾" = 1'-0"

NOTE: PRECAST WINGWALL AND BACKWALL NOT SHOWN FOR CLARITY

LEGEND

- CONCRETE, HIGH PERFORMANCE, CLASS A
- 1 SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)

NOTES

2 1.

2. TOP OF RETURN WALL ELEVATIONS ARE THEORETICAL AND SHALL MATCH CAST-IN-PLACE CURB ELEVATIONS ON DECK.

3. RAIL POST LOCATIONS TO BE DEVELOPED BY FABRICATOR AND RAIL POST MANUFACTURER.

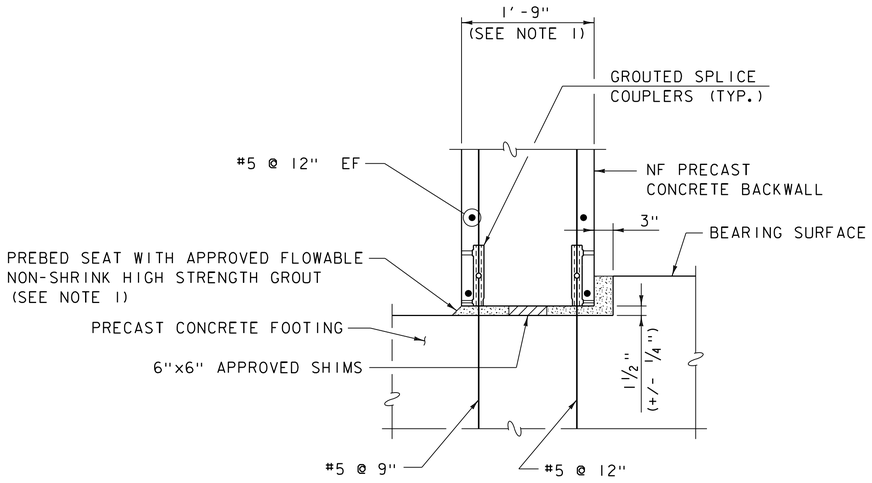
REV	DATE	DESCRIPTION
1	10/13/2015	CLOSURE POUR ADDITION
2	10/13/2015	CONSTRUCTION JOINT REV.

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

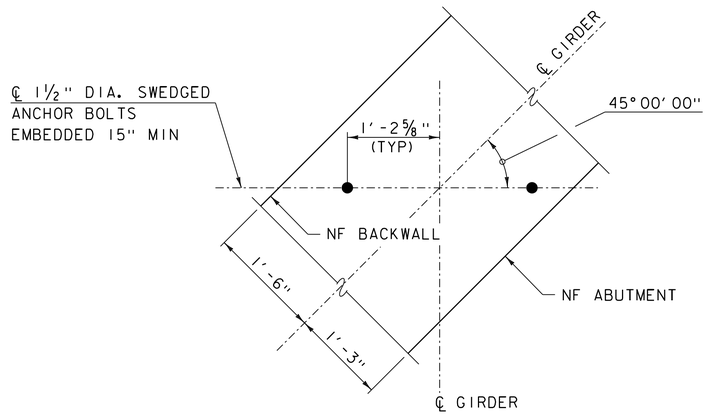
FILE NAME: z12b136abutdtls.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
ABUTMENT NO 1 DETAILS (2 OF 3)

PLOT DATE: 10/13/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 38 OF 69



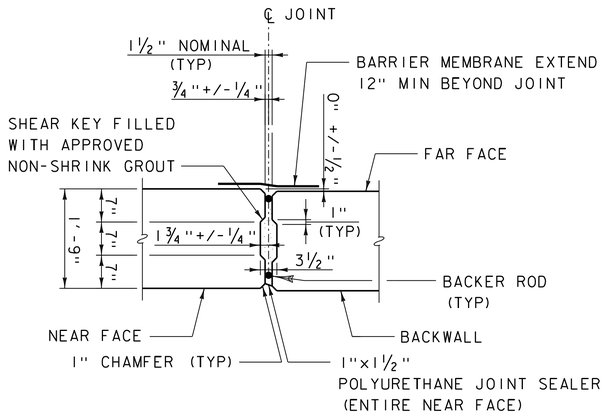
BACKWALL TO FOOTING CONNECTION DETAIL

SCALE: 1" = 1'-0"



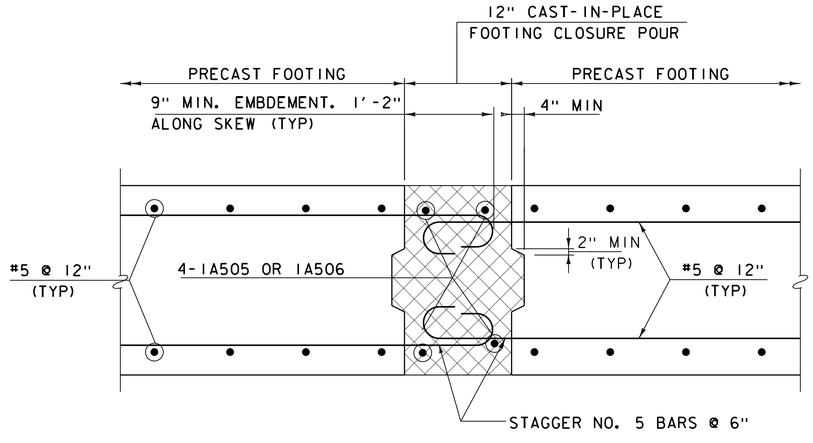
ANCHOR BOLT LAYOUT

SCALE: 1" = 1'-0"



BACKWALL VERTICAL JOINT

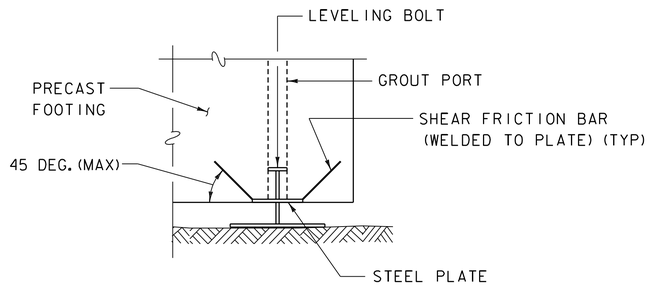
(BELOW APPROACH SLAB SEAT)
SCALE: ¾" = 1'-0"



⚠ PRECAST FOOTING CLOSURE POUR DETAIL

(SECTION A-A)

SCALE: 1" = 1'-0"



LEVELING BOLT DETAIL

SCALE: 1" = 1'-0"

NOTE: LEVELING BOLT DETAIL SHOWN IS CONCECPTUAL. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND DETAILING OF THE LEVELING DEVICE BASED ON THE WEIGHT OF THE PRECAST UNIT AND THE NUMBER OF DEVICES.

KEY:

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

NOTES

1. THE BACKWALL MAY BE PRECAST WITH THE FOOTING.
2. THE LEVELING BOLT DETAIL SHOWN IS CONCEPTUAL. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND DETAILING OF THE LEVELING DEVICE BASED ON THE WEIGHT OF THE PRECAST UNIT AND NUMBER OF DEVICES.

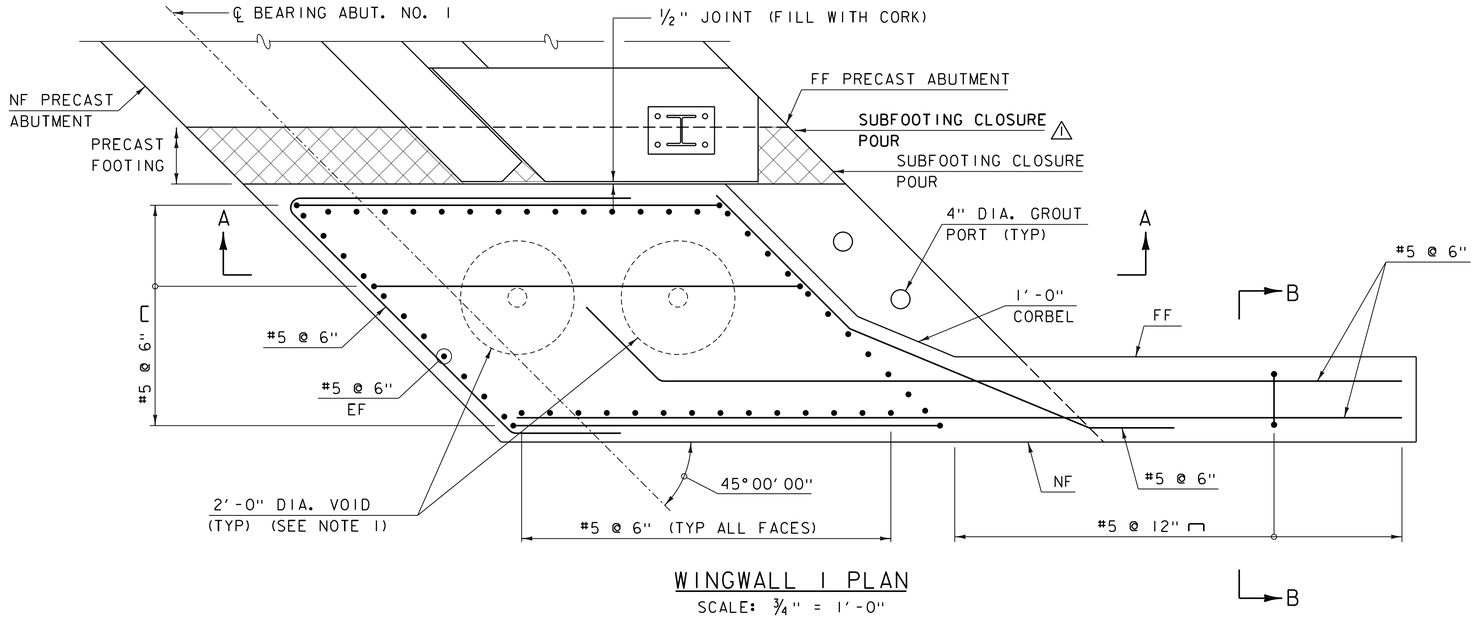
REV	DATE	DESCRIPTION
⚠	10/13/2015	FOOTING MATCH CAST JOINT REMOVAL & CLOSURE POUR ADDITION

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

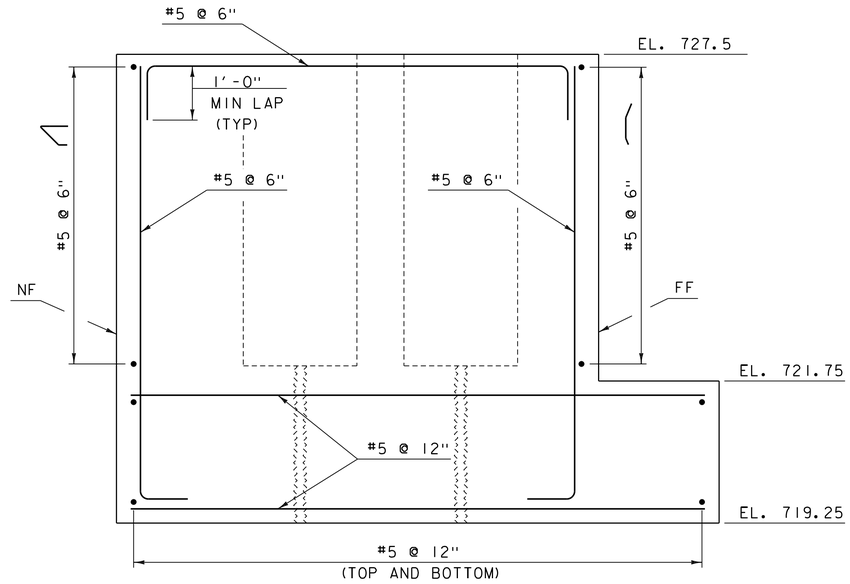
FILE NAME: z12b136abutdtls.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
ABUTMENT NO 1 DETAILS (3 OF 3)

PLOT DATE: 10/13/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 39 OF 69



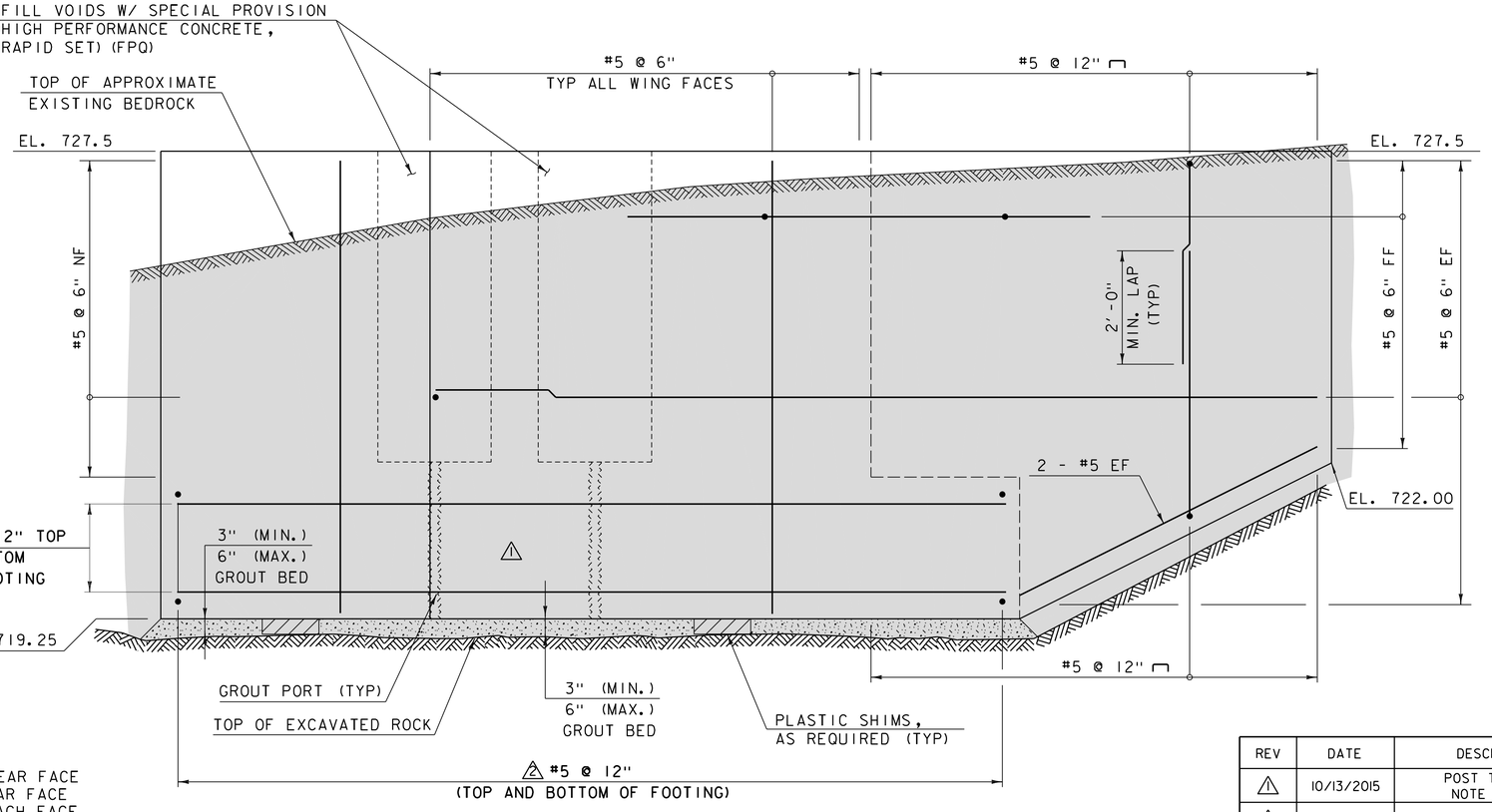
WINGWALL 1 PLAN

SCALE: ¾" = 1'-0"



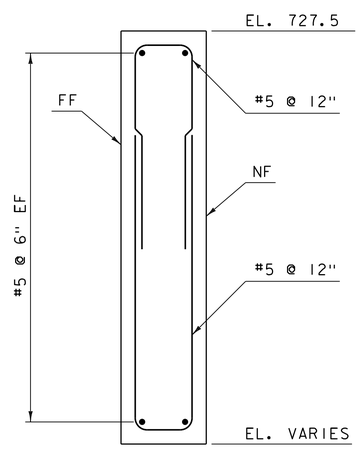
SECTION A-A

SCALE: ¾" = 1'-0"



WINGWALL 1 ELEVATION

SCALE: ¾" = 1'-0"



SECTION B-B

(CORNER BARS NOT SHOWN)
SCALE: ¾" = 1'-0"

KEY

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.

NOTE

1. VOIDS ARE OPTIONAL AND ARE INTENDED TO REDUCE PRECAST WEIGHT. LOCATION AND NUMBER OF VOIDS CAN BE VARIED BY THE CONTRACTOR PROVIDED THE REINFORCING LAYOUT AND REQUIRED CLEARANCES ARE MAINTAINED. VOIDS TO BE FILLED WITH SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ).

REV	DATE	DESCRIPTION
⚠1	10/13/2015	POST TENSIONING NOTE REMOVAL
⚠2	10/13/2015	FOOTING REBAR CALLOUT

LEGEND

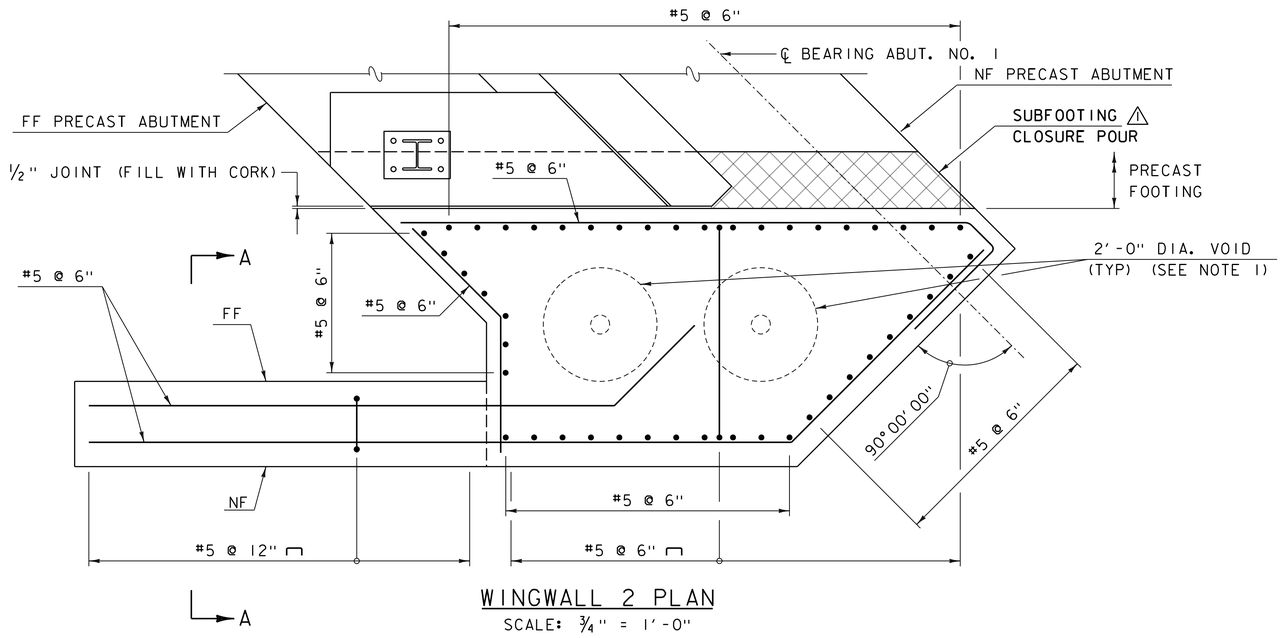
APPROXIMATE BEDROCK REMOVAL LIMITS

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

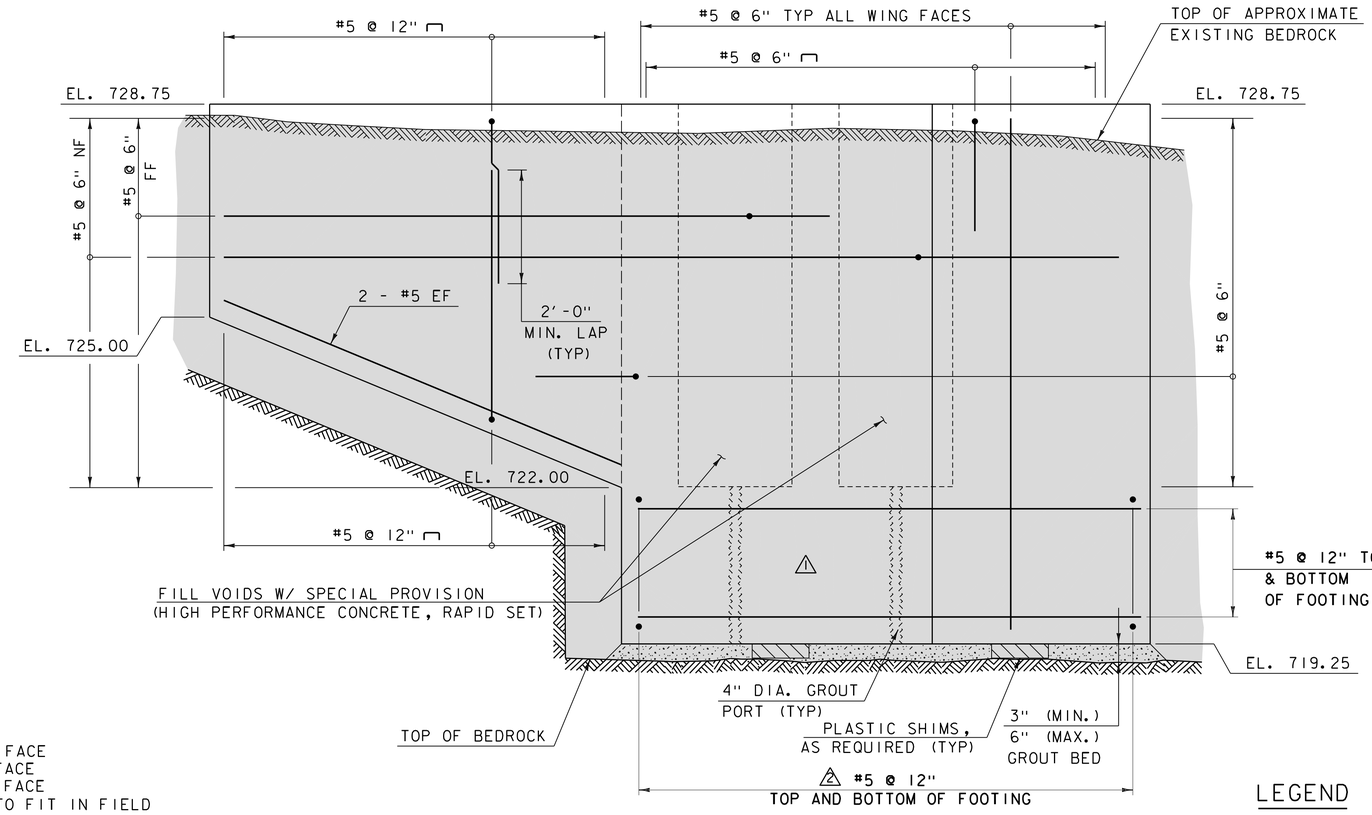
FILE NAME: z12b136wingdtls.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
ABUTMENT NO 1 WINGWALL DETAILS (1 OF 3)

PLOT DATE: 10/13/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T. KENDRICK
SHEET 40 OF 69



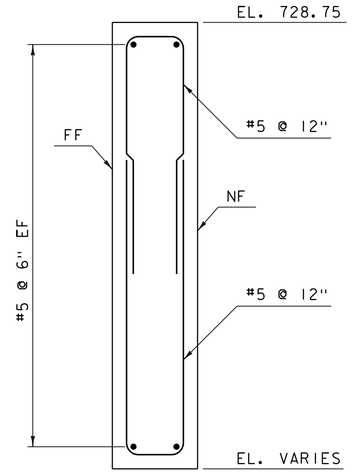
WINGWALL 2 PLAN

SCALE: ¾" = 1'-0"



WINGWALL 2 ELEVATION

SCALE: ¾" = 1'-0"



SECTION A-A

(CORNER BARS NOT SHOWN)
SCALE: ¾" = 1'-0"

KEY

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.

NOTE

1. VOIDS ARE OPTIONAL AND ARE INTENDED TO REDUCE PRECAST WEIGHT. LOCATION AND NUMBER OF VOIDS CAN BE VARIED BY THE CONTRACTOR PROVIDED THE REINFORCING LAYOUT AND REQUIRED CLEARANCES ARE MAINTAINED. VOIDS TO BE FILLED WITH SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ).

LEGEND

APPROXIMATE BEDROCK REMOVAL LIMITS

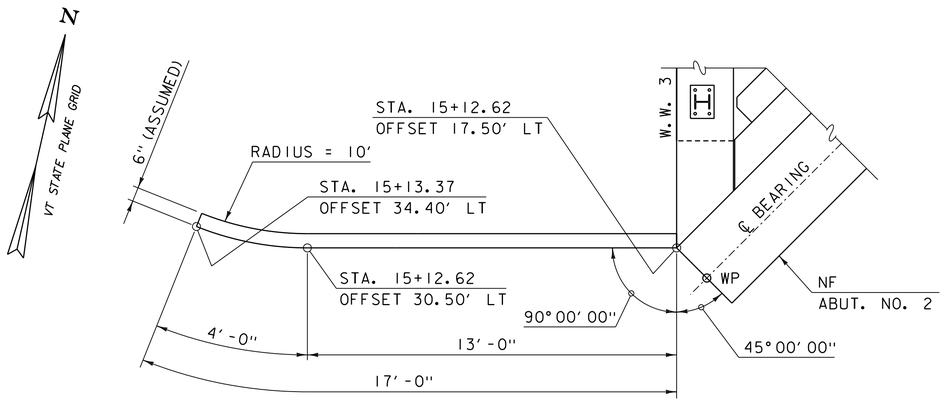
REV	DATE	DESCRIPTION
⚠1	10/13/2015	POST TENSIONING NOTE REMOVAL
⚠2	10/13/2015	FOOTING REBAR CALLOUT

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

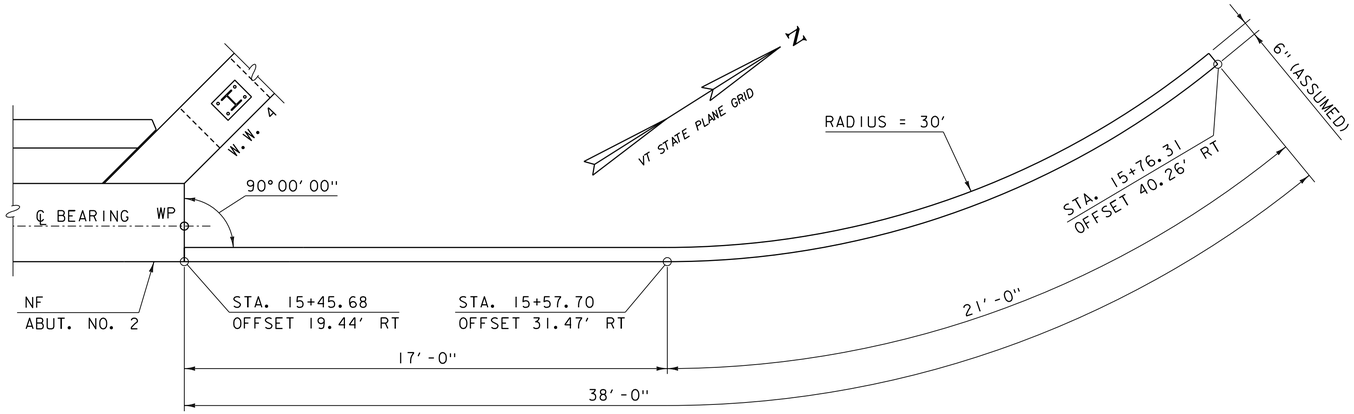
FILE NAME: z12bl36wingdtls.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
PLOT DATE: 10/13/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T. KENDRICK

ABUTMENT NO 1 WINGWALL DETAILS (2 OF 3) SHEET 41 OF 69



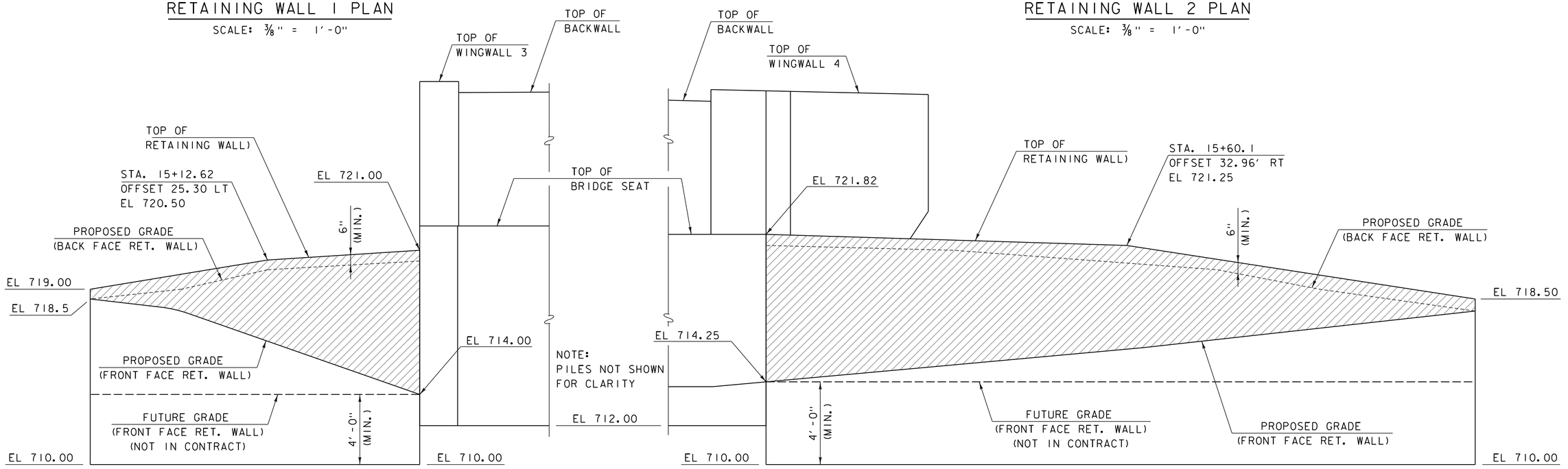
RETAINING WALL 1 PLAN

SCALE: 3/8" = 1'-0"



RETAINING WALL 2 PLAN

SCALE: 3/8" = 1'-0"

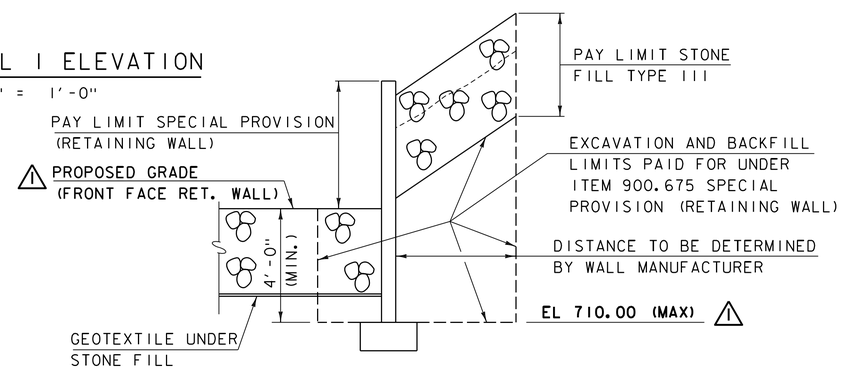


RETAINING WALL 1 ELEVATION

SCALE: 3/8" = 1'-0"

RETAINING WALL 2 ELEVATION

SCALE: 3/8" = 1'-0"



TYPICAL SECTION

SCALE: 3/8" = 1'-0"

PAY LIMITS OF ITEM 900.675
SPECIAL PROVISION (RETAINING WALL)

NOTES

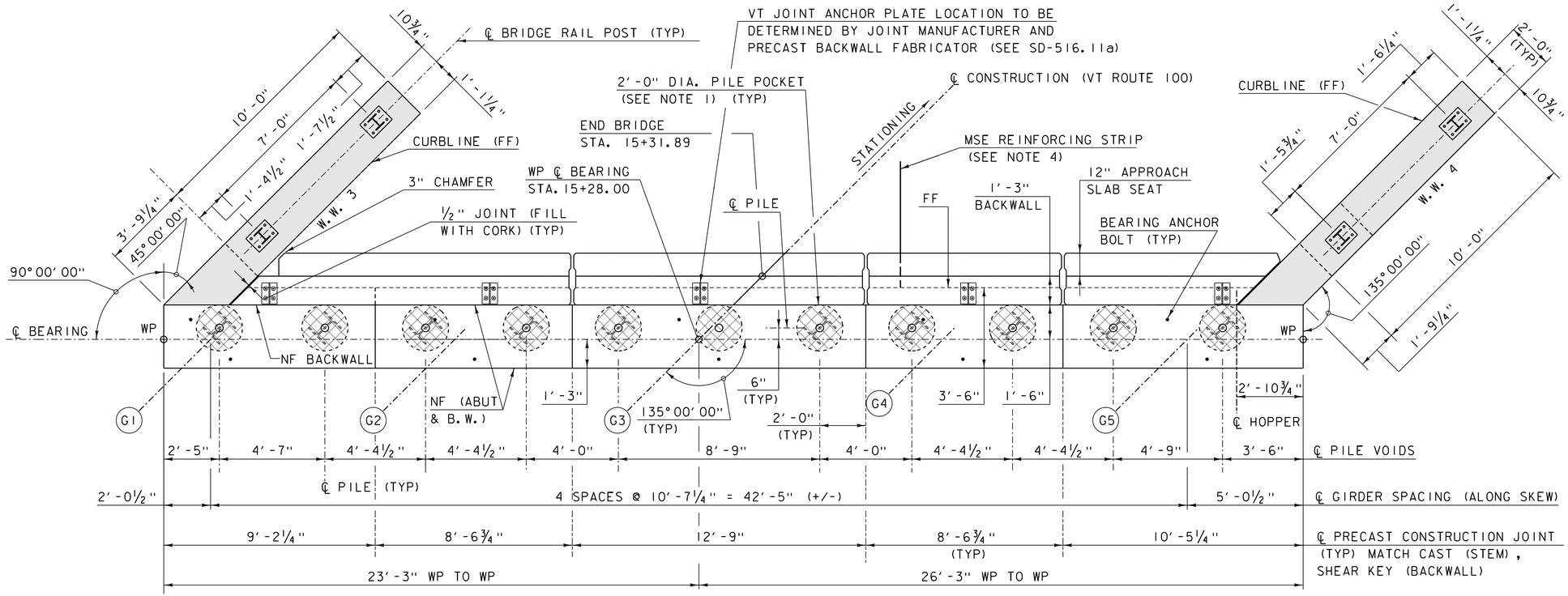
1. FOR RETAINING WALL NOTES, SEE SHEET 3.

REV	DATE	DESCRIPTION
⚠	10/13/2015	BOTTOM OF WALL REVISION

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

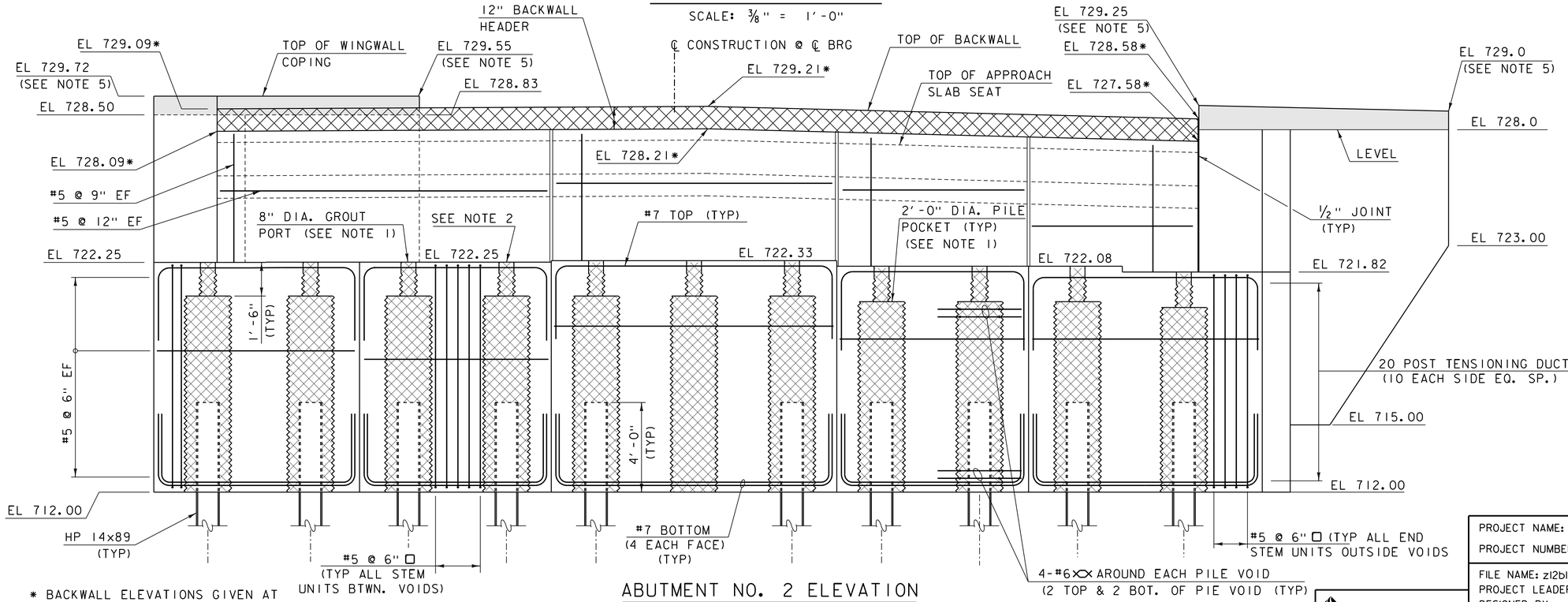
FILE NAME: z12b136sub_retwall.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
RETAINING WALL DETAILS

PLOT DATE: 10/13/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 49 OF 69



ABUTMENT NO. 2 PLAN

SCALE: ⅜" = 1'-0"



* BACKWALL ELEVATIONS GIVEN AT CENTERLINE OF BACKWALL.

ABUTMENT NO. 2 ELEVATION

SCALE: ⅜" = 1'-0"

NOTES

1. USE GALVANIZED CORRUGATED STEEL PIPE THAT CONFORMS TO SUBSECTION 711.01 FOR PILE POCKETS, STEM VOIDS AND GROUT PORTS.
2. FORM TOP 6" WITH REMOVABLE FORM TO ELIMINATE EXPOSED CORRUGATED STEEL ON THE TOP OF THE BRIDGE SEAT.
3. SET PILES PARALLEL TO THE CENTERLINE OF GIRDERS AS SHOWN.
4. FOR MSE REINFORCING STRIP DETAILS, SEE SHEET 44.
5. ELEVATION IS THEORETICAL AND SHALL MATCH TOP OF C.I.P BRIDGE CURB.

LEGEND

- CONCRETE, HIGH PERFORMANCE, CLASS A
- SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPO)

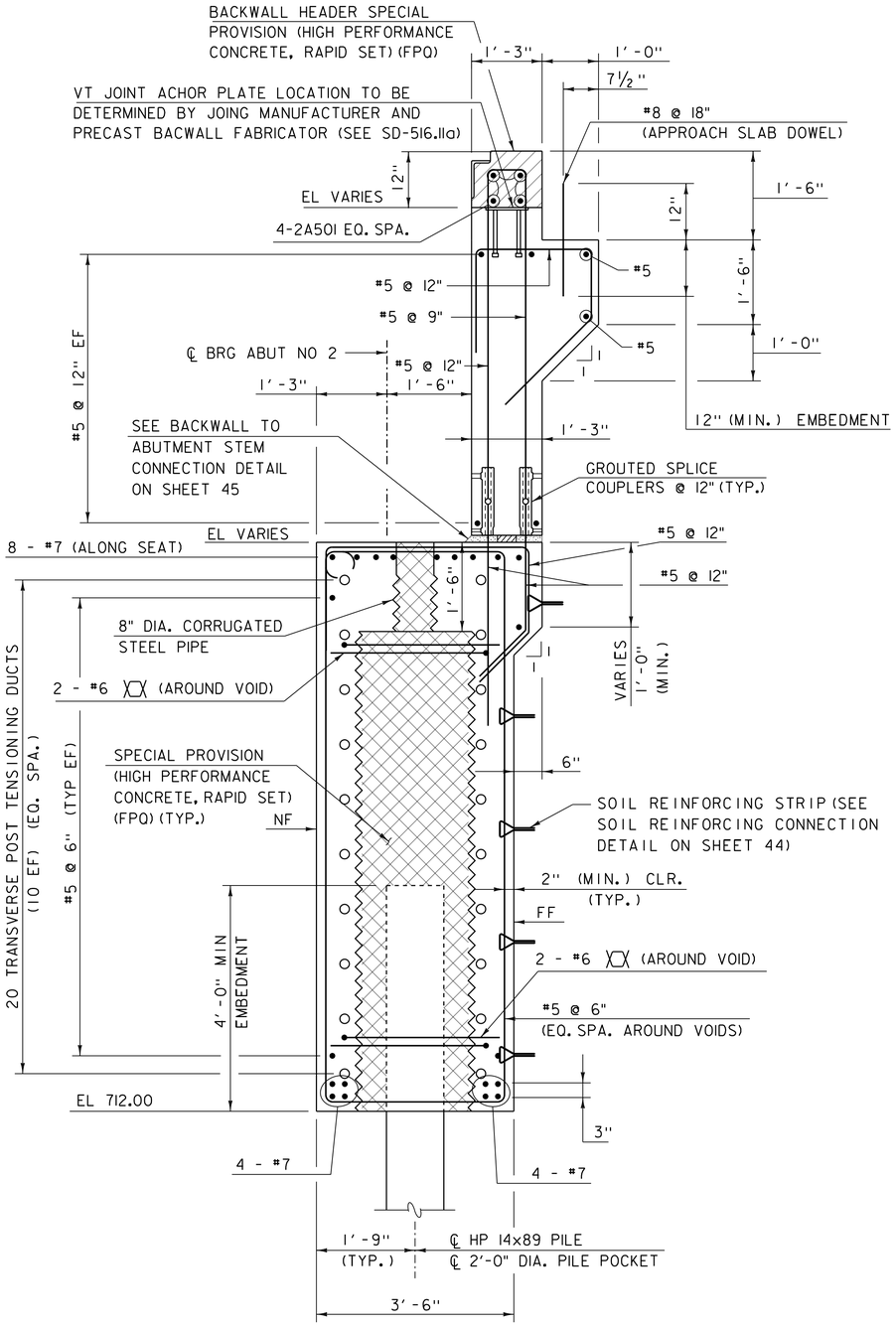
KEY:

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.

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

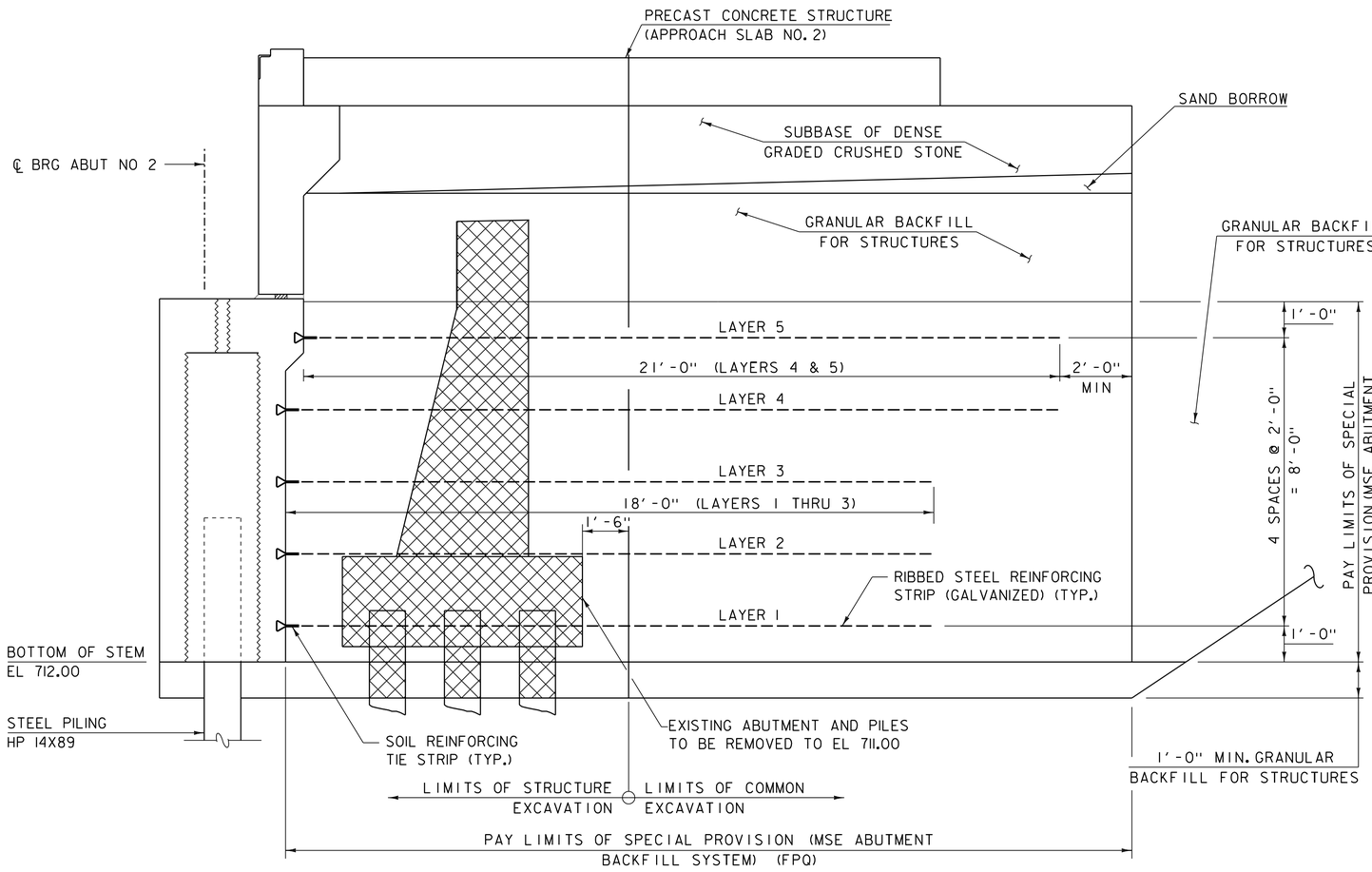
FILE NAME: zl2bl36abut.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
ABUTMENT NO. 2 PLAN AND ELEVATION
PLOT DATE: 8/24/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK



TYPICAL ABUTMENT NO. 2 SECTION

SCALE: ¾" = 1'-0"

NOTE: SOIL REINFORCING STRIPS AND THREADED INSERTS FOR DOWNSPOUT NOT SHOWN FOR CLARITY

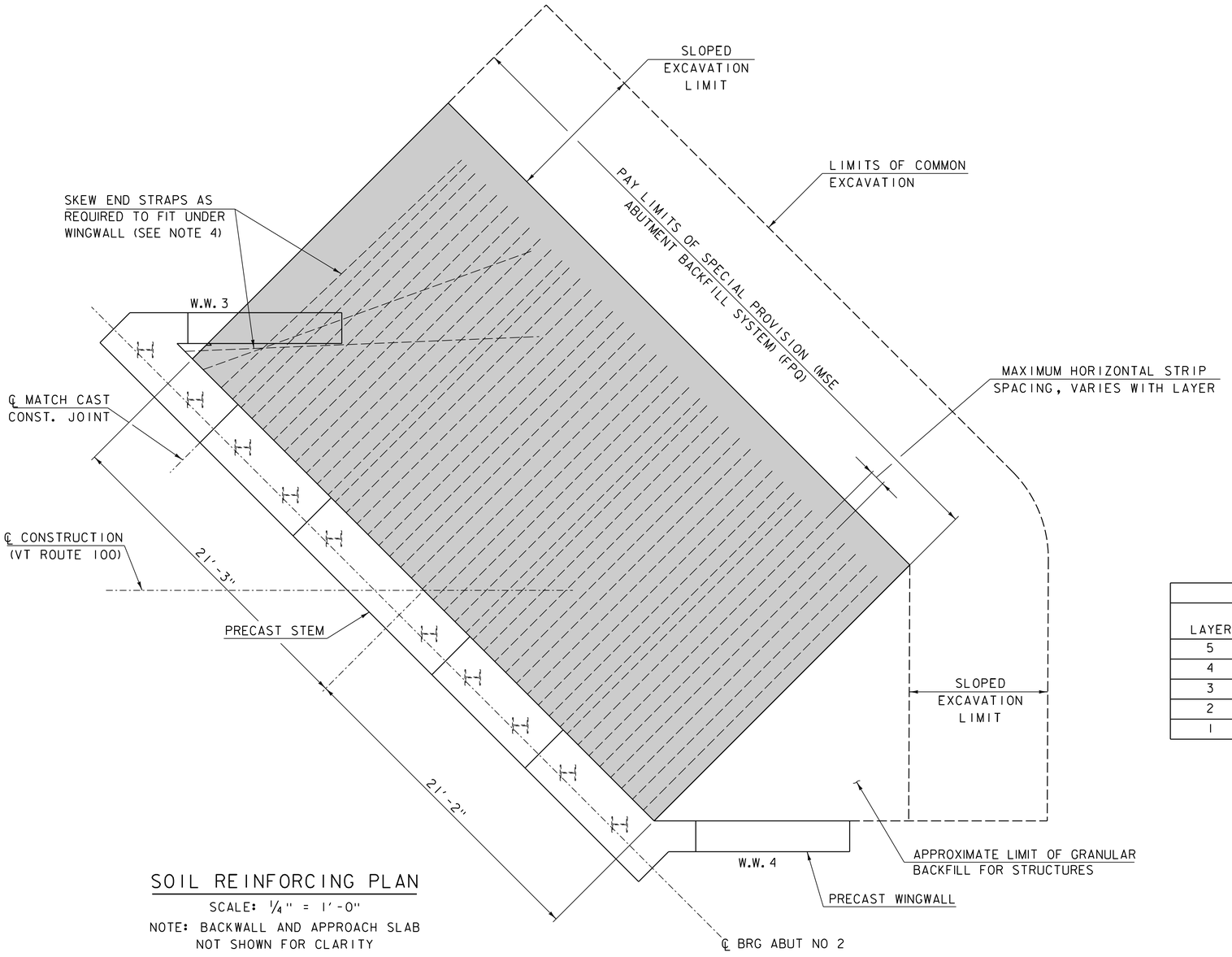


SOIL REINFORCING SECTION

SCALE: ½" = 1'-0"

PROJECT NAME:	WAITSFIELD
PROJECT NUMBER:	BRF 013-4(39)
FILE NAME: z12bl36abutdtls.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R.YOUNG	DRAWN BY: S.MERKWAN
DESIGNED BY: D.KULL	CHECKED BY: T.KENDRICK
ABUTMENT NO 2 DETAILS (1 OF 3)	SHEET 43 OF 69

McFarland Johnson

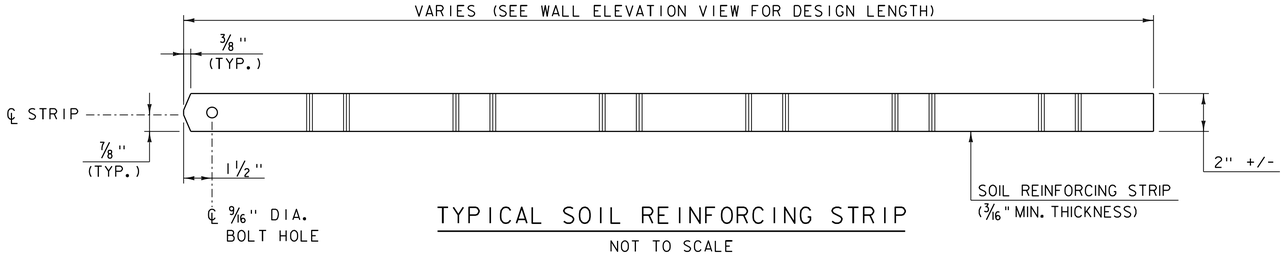


SOIL REINFORCING PLAN

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

NOTE: BACKWALL AND APPROACH SLAB NOT SHOWN FOR CLARITY

STRIP SPACING TABLE				
LAYER	DISTANCE FROM BOT. OF STEM (FT)	REINF. STRIP LENGTH (FT)	MAX HORIZ. STRIP SPACING (FT)	NO. OF STRIPS REQ.
5	9	21	1	44
4	7	21	1	44
3	5	18	2	22
2	3	18	2	22
1	1	18	2	22



TYPICAL SOIL REINFORCING STRIP

NOT TO SCALE

NOTES

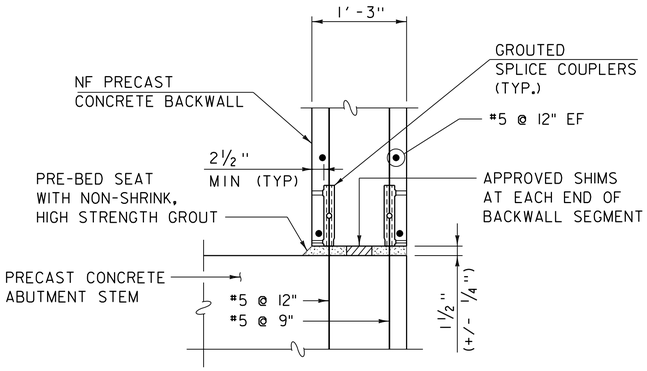
1. FOR SEQUENCE OF CONSTRUCTION, SEE PROJECT NOTES.
2. REFER TO ITEM 900.608 SPECIAL PROVISON (MECHANICALLY STABILIZED EARTH ABUTMENT BACKFILL SYSTEM) (FPO). FOR ADDITIONAL INFORMATION.
3. REINFORCING STRIPS SHALL BE SET A MINIMUM OF 6" FROM MATCH CAST CONSTRUCTION JOINTS.
4. HORIZONTAL STRIP SPACING AT STEM PANEL END ADJACENT TO W.W. 3 SHALL BE ONE FOOT AT ALL LAYERS.
5. SEE EARTHWORK NOTES FOR ADDITIONAL INFORMATION AND BACKFILLING REQUIREMENTS.

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

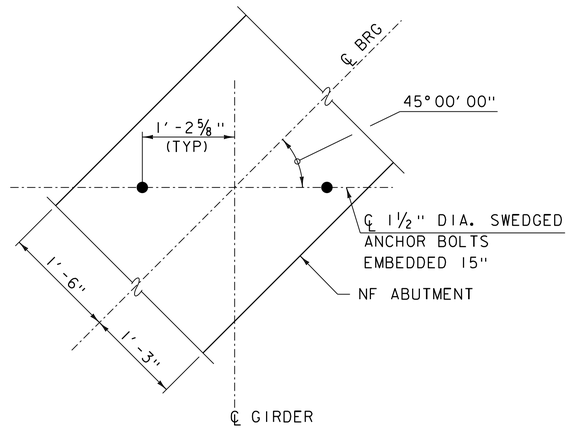
FILE NAME: z12b136abutdtls.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
ABUTMENT NO 2 DETAILS (2 OF 3)

PLOT DATE: 8/24/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK



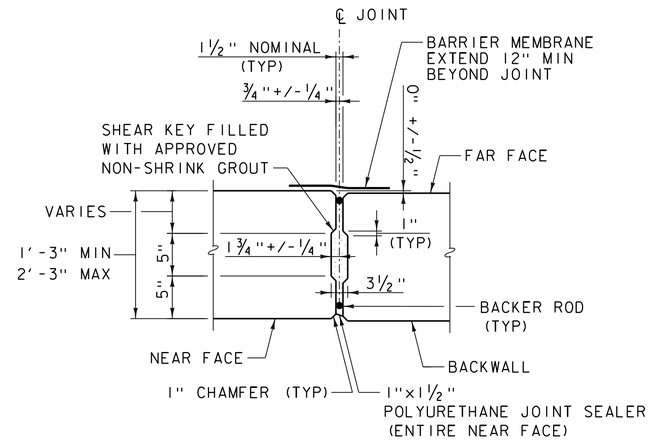
BACKWALL TO ABUTMENT STEM CONNECTION DETAIL

SCALE: 1" = 1'-0"



ANCHOR BOLT LAYOUT

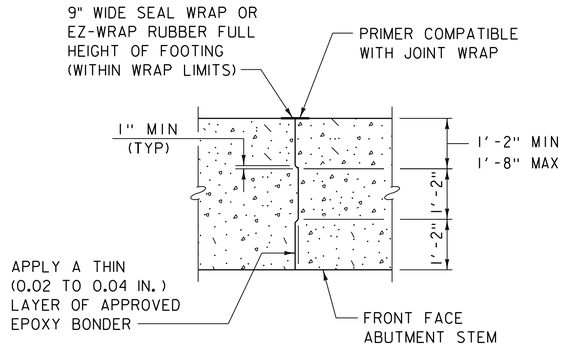
SCALE: 1" = 1'-0"



BACKWALL VERTICAL JOINT

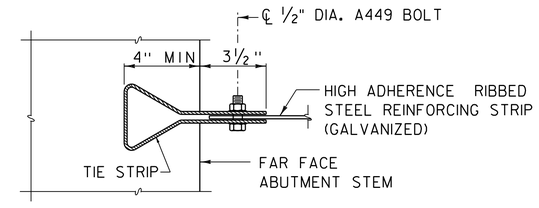
(BELOW APPROACH SLAB SEAT)

SCALE: ¾" = 1'-0"



ABUTMENT STEM MATCH CAST JOINT

SCALE: ½" = 1'-0"



SOIL REINFORCING CONNECTION DETAIL

NOT TO SCALE

NOTES

1. FOR APPROACH SLAB SEAT ELEVATIONS, SEE SHEET 34
2. FOR TIE STRIP LOCATIONS, SEE SHEET 43

NOTE:

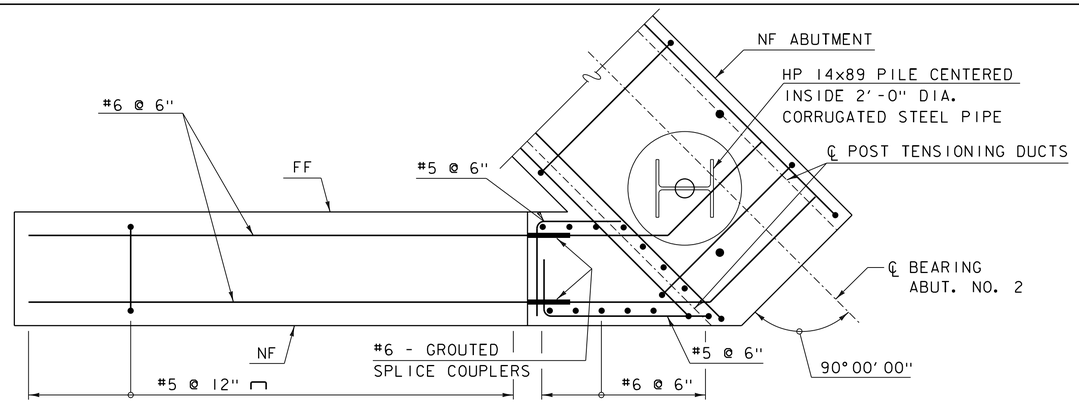
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

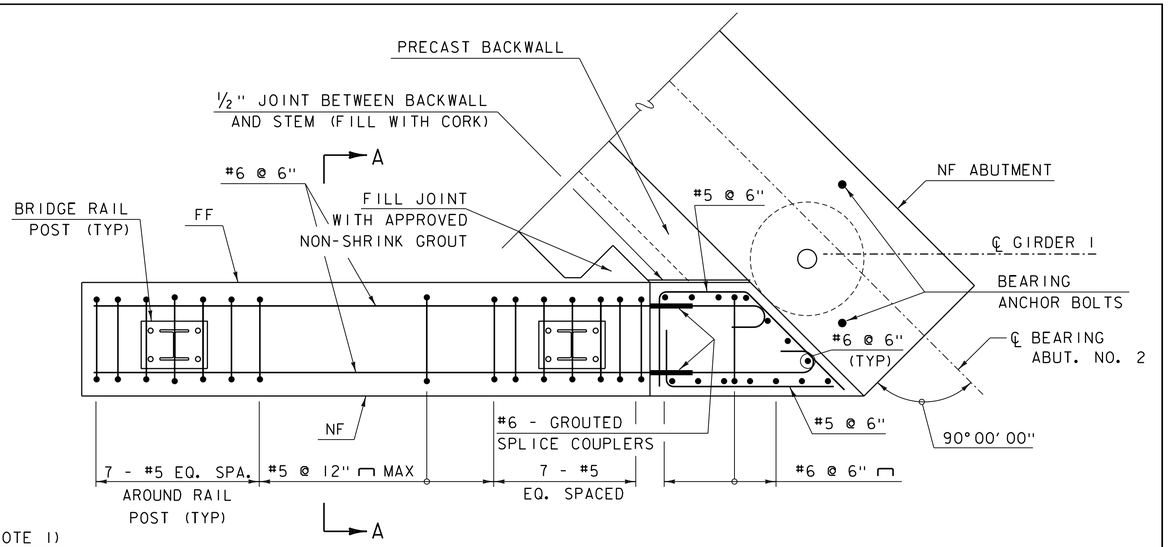
FILE NAME: z12b136abutdtls.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
ABUTMENT NO 2 DETAILS (3 OF 3)

PLOT DATE: 8/24/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK



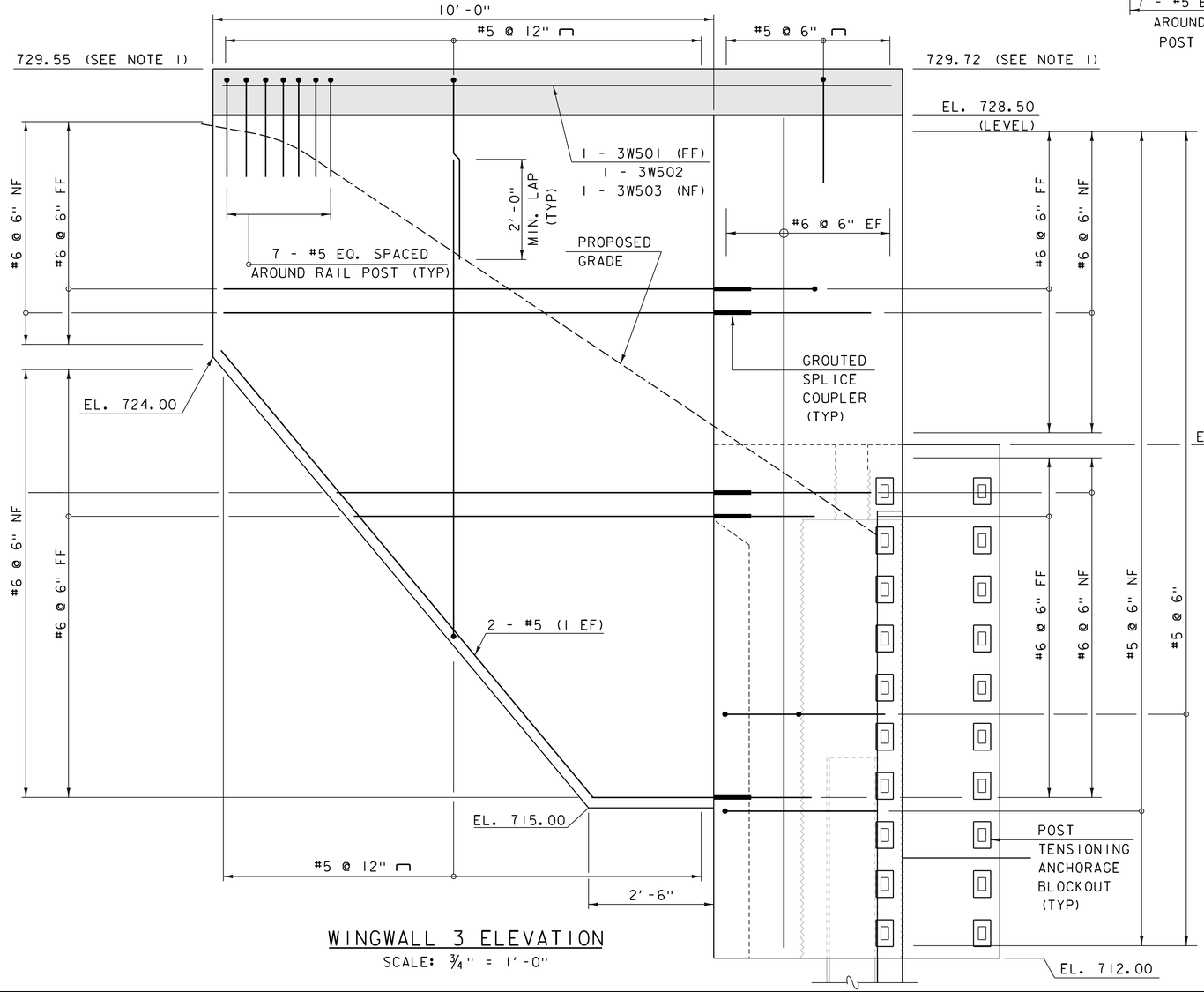
WINGWALL 3 PLAN BELOW BRIDGE SEAT

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



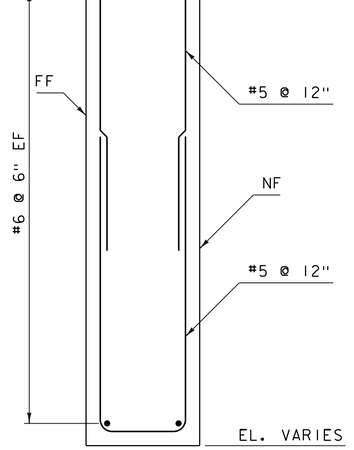
WINGWALL 3 PLAN ABOVE BRIDGE SEAT

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



WINGWALL 3 ELEVATION

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



SECTION A-A

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

NOTES

1. TOP OF WINGWALL CURB ELEVATIONS ARE THEORETICAL AND SHALL MATCH CAST-IN-PLACE CURB ELEVATIONS ON DECK.

KEY:

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.

LEGEND

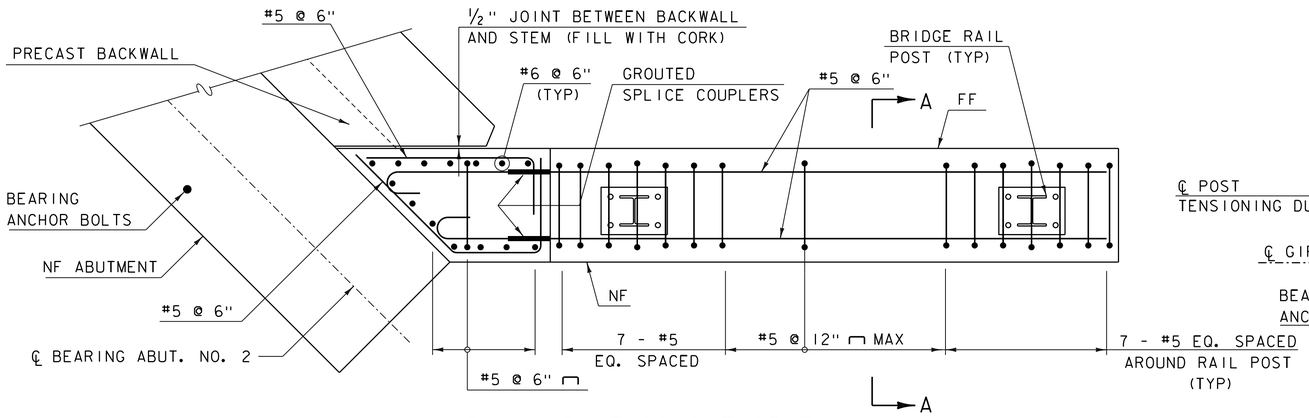
CONCRETE, HIGH PERFORMANCE, CLASS A

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

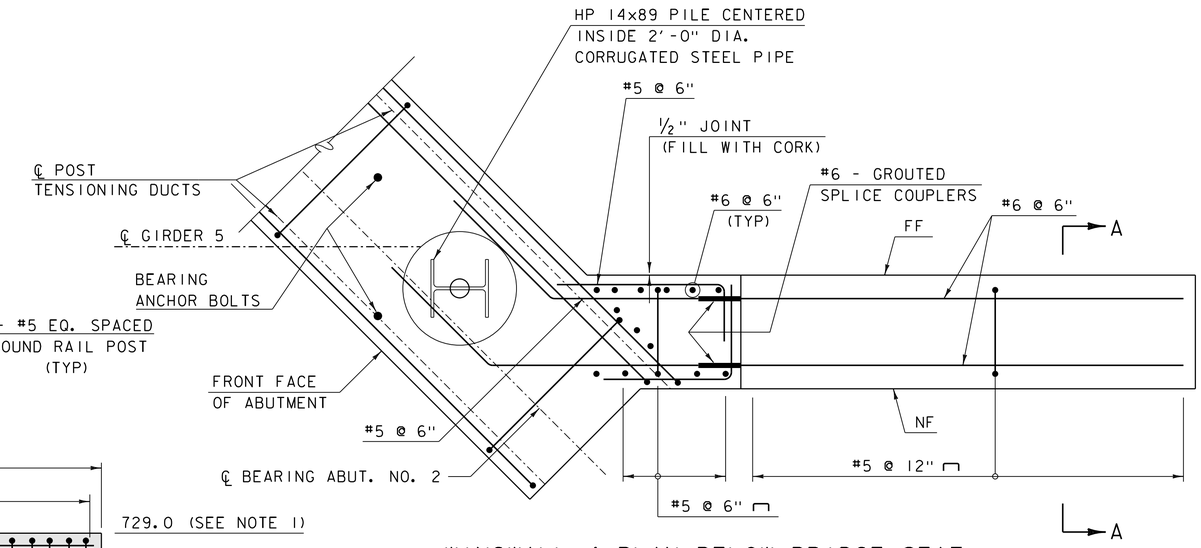
FILE NAME: z12bl36wingdtls.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
ABUTMENT NO 2 WINGWALL DETAILS (1 OF 2)

PLOT DATE: 8/24/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T. KENDRICK
SHEET 46 OF 69



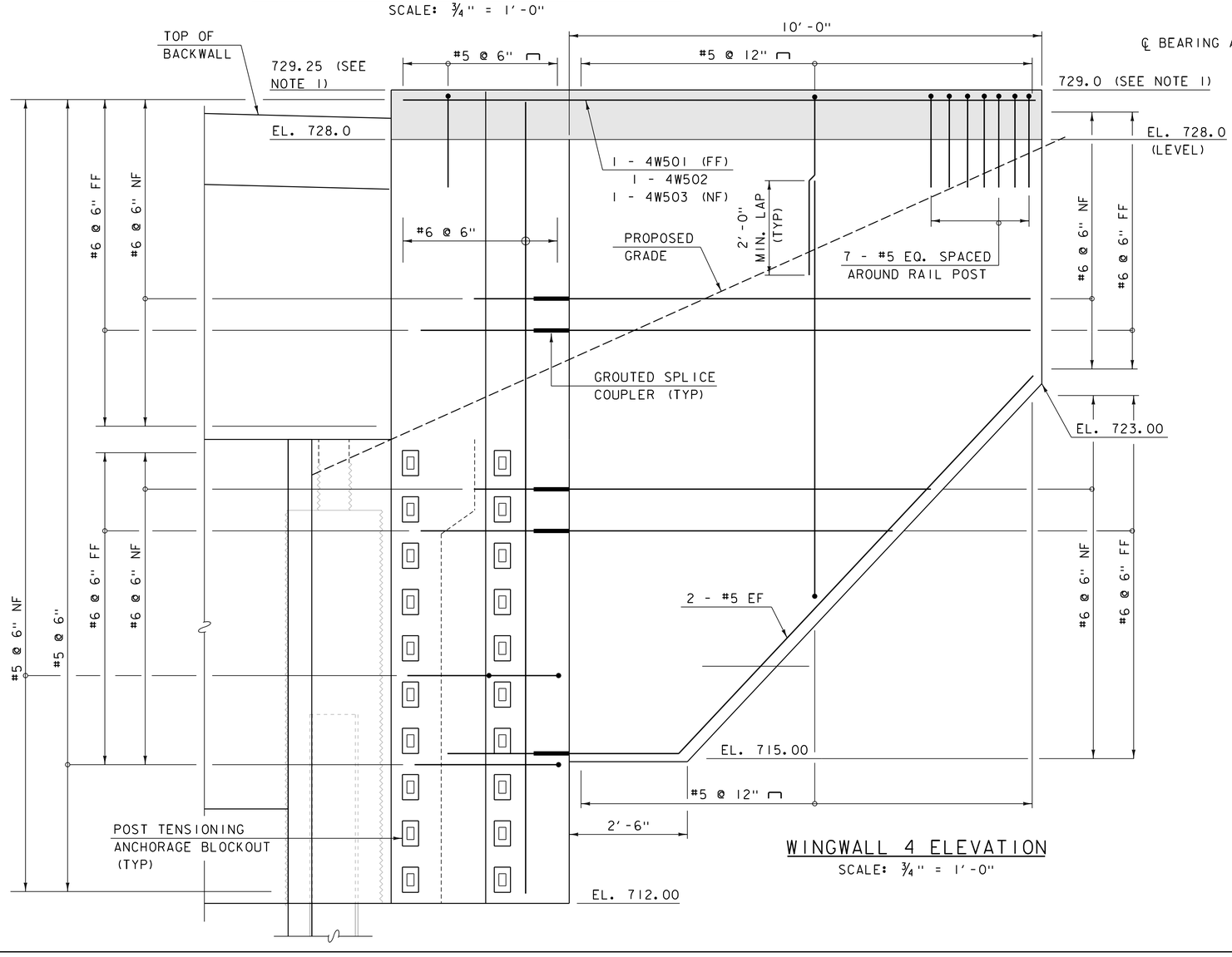
WINGWALL 4 PLAN ABOVE BRIDGE SEAT

SCALE: ¾" = 1'-0"



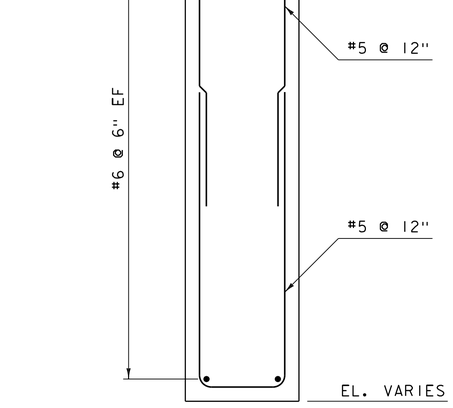
WINGWALL 4 PLAN BELOW BRIDGE SEAT

SCALE: ¾" = 1'-0"



WINGWALL 4 ELEVATION

SCALE: ¾" = 1'-0"



SECTION A-A

SCALE: ¾" = 1'-0"

NOTES

1. TOP OF WINGWALL CURB ELEVATIONS ARE THEORETICAL AND SHALL MATCH CAST-IN-PLACE CURB ELEVATIONS ON DECK.

KEY:

NF = NEAR FACE
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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.

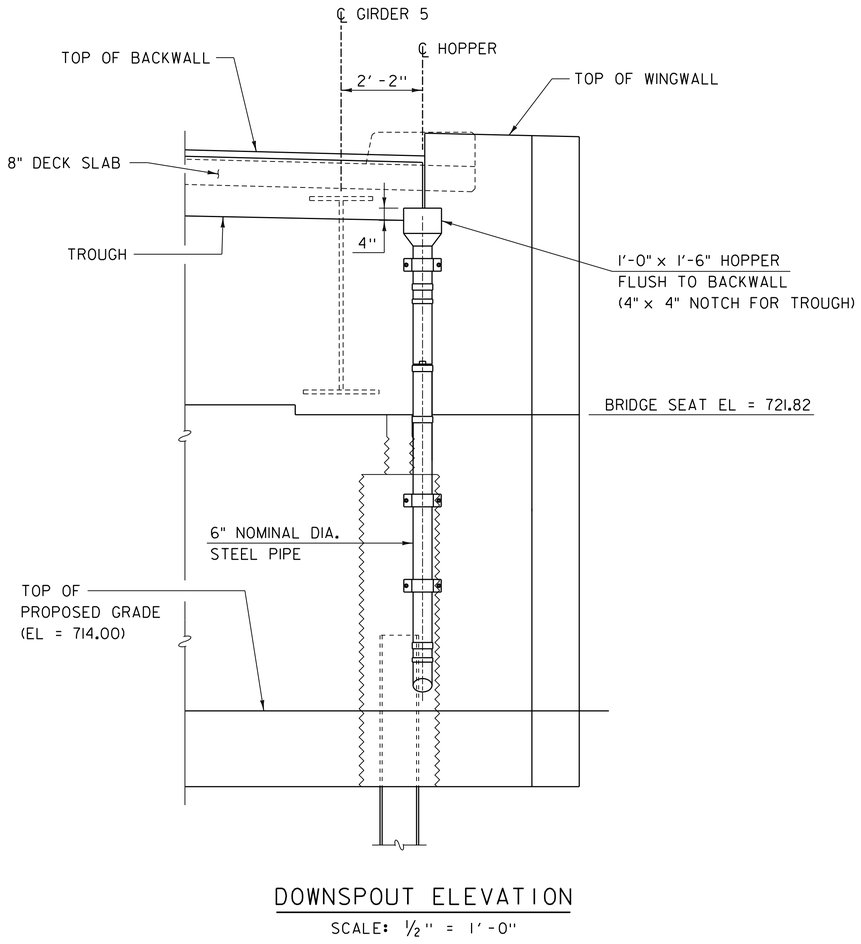
LEGEND

CONCRETE, HIGH PERFORMANCE, CLASS A

McFarland Johnson

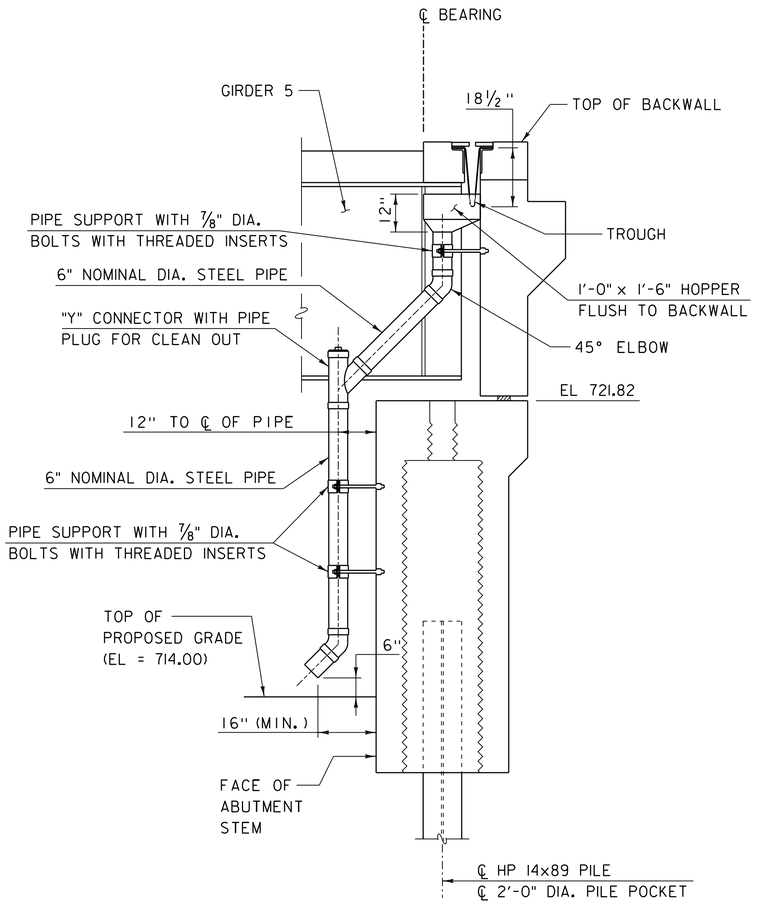
PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12bl36wingdtls.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
PLOT DATE: 8/24/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T. KENDRICK



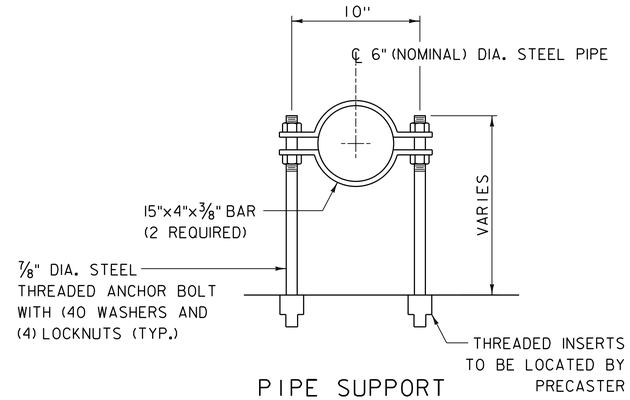
DOWNSPOUT ELEVATION

SCALE: ½" = 1'-0"



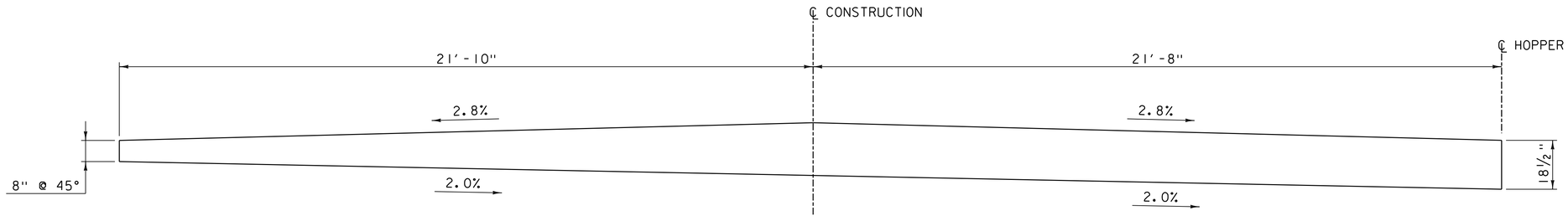
END SECTION

SCALE: ½" = 1'-0"



PIPE SUPPORT
EXTENDED ATTACHMENT

SCALE: 2" = 1'-0"

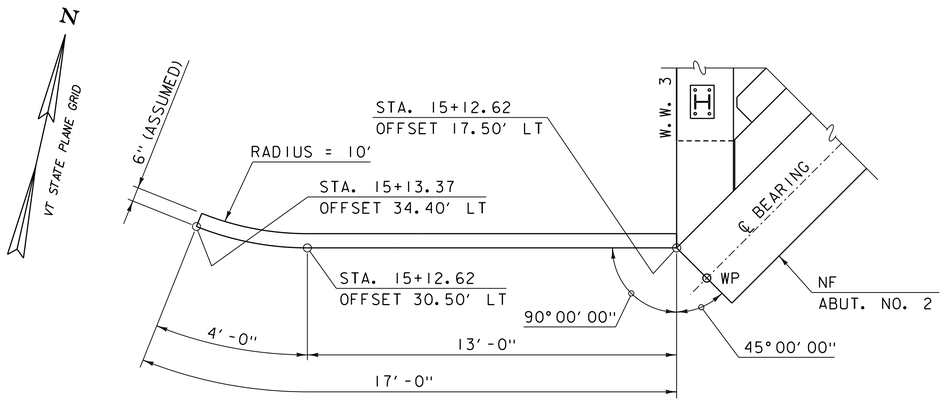


FABRIC DRAIN TROUGH PROFILE

SCALE: ½" = 1'-0"

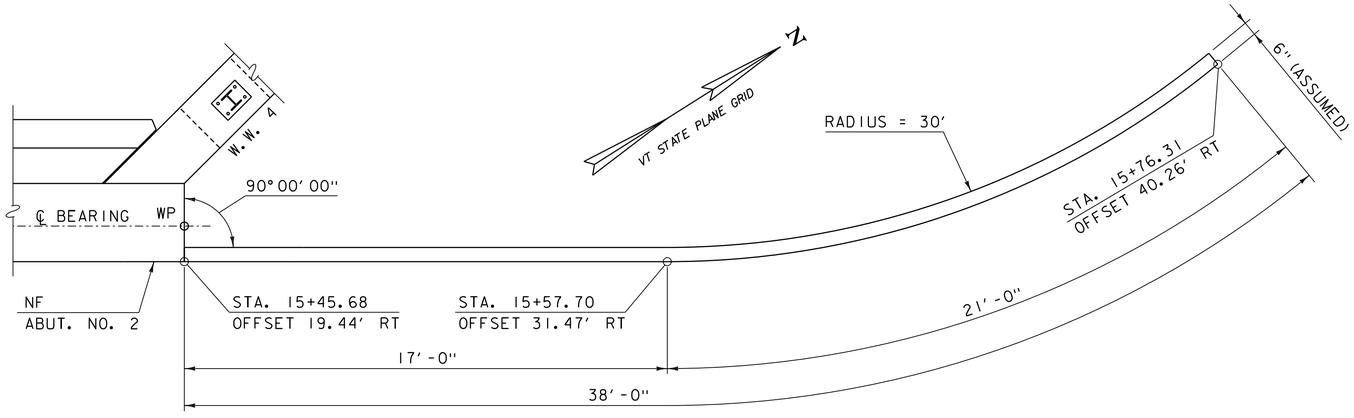
PROJECT NAME: WAITSFIELD	
PROJECT NUMBER: BRF 013-4(39)	
FILE NAME: z12bl36abutdtls.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R.YOUNG	DRAWN BY: S.MERKWAN
DESIGNED BY: D.KULL	CHECKED BY: T.KENDRICK
ABUTMENT NO. 2 HOPPER DETAILS	SHEET 48 OF 69

McFarland Johnson



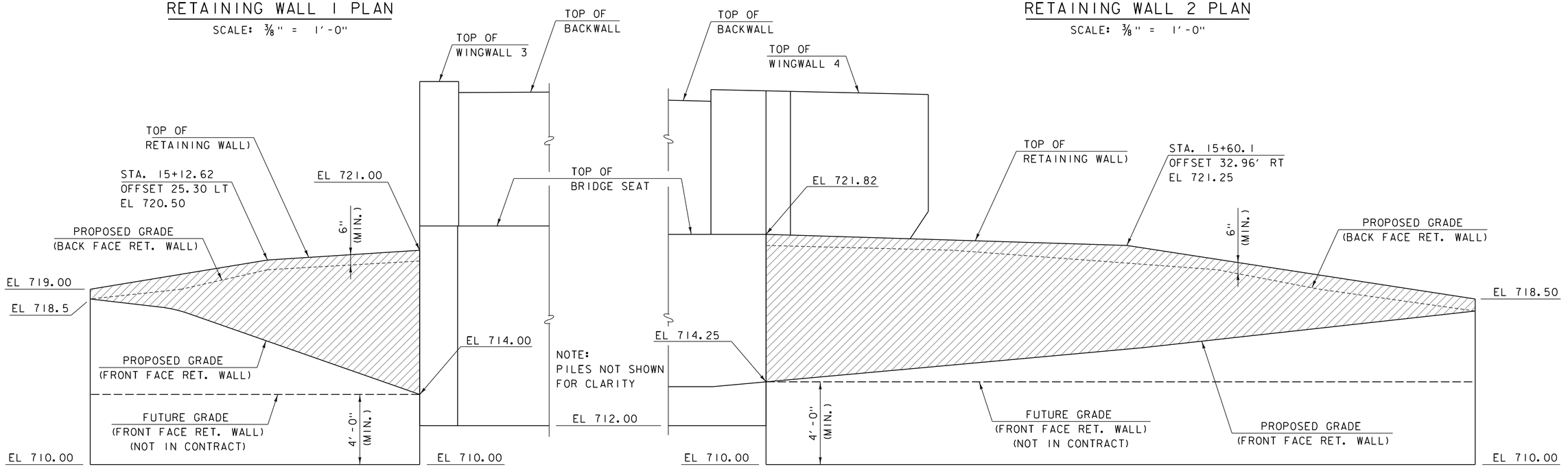
RETAINING WALL 1 PLAN

SCALE: 3/8" = 1'-0"



RETAINING WALL 2 PLAN

SCALE: 3/8" = 1'-0"

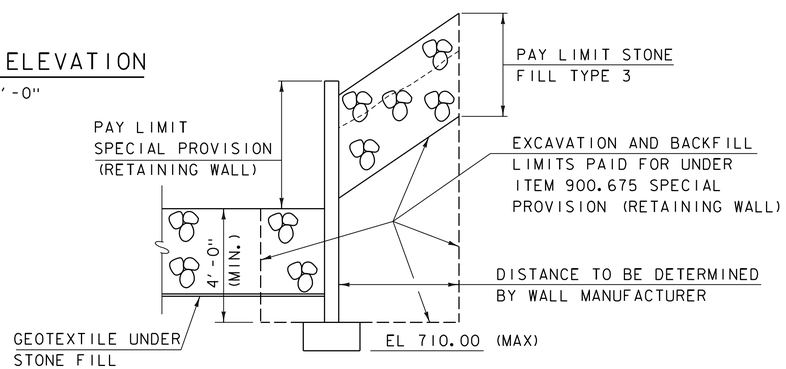


RETAINING WALL 1 ELEVATION

SCALE: 3/8" = 1'-0"

RETAINING WALL 2 ELEVATION

SCALE: 3/8" = 1'-0"



TYPICAL SECTION

SCALE: 3/8" = 1'-0"

PAY LIMITS OF ITEM 900.675
SPECIAL PROVISION (RETAINING WALL)

NOTES

1. FOR RETAINING WALL NOTES, SEE SHEET 3.

PROJECT NAME:	WAITSFIELD
PROJECT NUMBER:	BRF 013-4(39)
FILE NAME: z12b136sub_retwall.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. MERKWAN
DESIGNED BY: D. KULL	CHECKED BY: T. KENDRICK
RETAINING WALL DETAILS	SHEET 49 OF 69

STATE OF VERMONT
AGENCY OF TRANSPORTATION

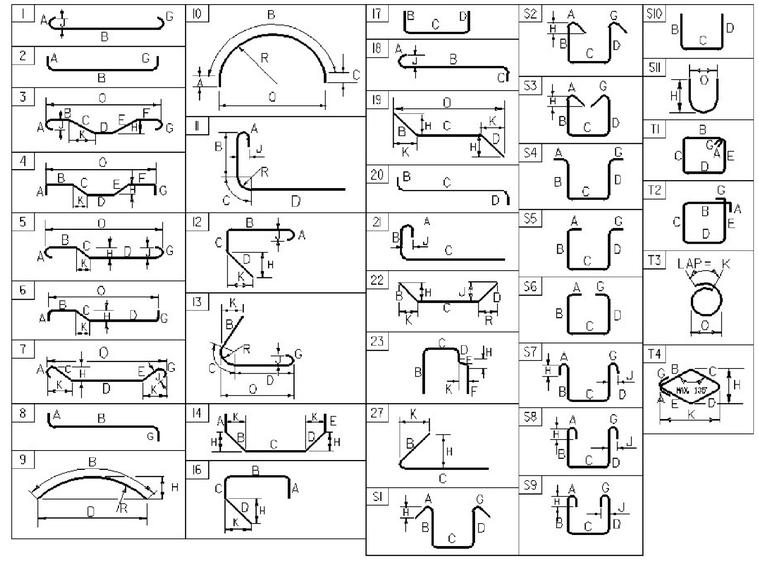
REINFORCING STEEL SCHEDULE

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	SPAN 1																
	30	5	33'- 8"	1ES501	STR												
✳	9	5	25'- 6"	1ES502	STR												
	APPROACH SLAB 1																
✳	13	5	24'- 3"	1EAS501	STR												
	APPROACH SLAB 2																
✳	13	5	24'- 8"	2EAS501	STR												
	ABUTMENT NO. 1																
✳	5	5	25'- 8"	1A501	STR												
	2	5	3'- 6"	1A502	STR												
	2	5	4'- 1"	1A503	STR												
	2	5	4'- 9"	1A504	STR												
	8	5	7'- 0"	1A505	STR	1											
	8	5	10'- 0"	1A506	STR	1											
	ABUTMENT NO. 2																
✳	9	5	22'- 9"	2A501	STR												
	WINGWALL 3																
✳	2	5	11'- 2"	3W501	STR												
	1	5	12'- 1"	3W502	STR												
	1	5	13'- 0"	3W503	STR												
	WINGWALL 4																
✳	2	5	13'- 0"	4W501	STR												
	1	5	12'- 1"	4W502	STR												
	1	5	11'- 2"	4W503	STR												

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O

~ NOTES ~

1. UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING NO. 18 SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", AASHTO M 31 (ASTM A 615-SI). ALL BARS SHALL BE GRADE 60, UNLESS OTHERWISE DESIGNATED.
2. FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS, AND OTHER STANDARD PRACTICE, SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".
3. BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
4. ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
5. "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
6. "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
7. WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
8. ▲ DENOTES BARS TO BE CUT IN FIELD.
9. ✳ DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
10. △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
11. E IN BAR MARK PREFIX DENOTES EPOXY COATED REINFORCING STEEL.
12. ⬡ **DENOTES 10/13/2015 REVISION HISTORY**



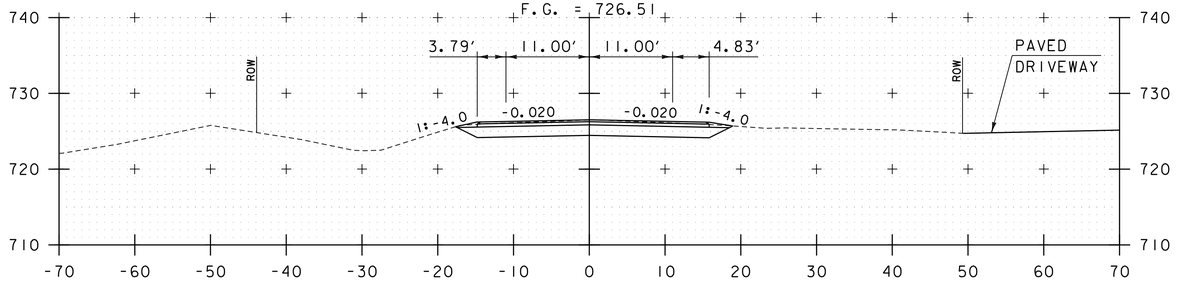
ASTM STANDARD REINFORCING BARS

BAR SIZE DESIGNATION	WEIGHT POUNDS PER FOOT	NOMINAL DIMENSIONS ROUND SECTION		
		DIAMETER INCHES	AREA INCHES ^{2}	PERIMETER INCHES
#3	0.376	0.375	0.11	1.178
#4	0.668	0.500	0.20	1.571
#5	1.043	0.625	0.31	1.963
#6	1.502	0.750	0.44	2.356
#7	2.044	0.875	0.60	2.749
#8	2.670	1.000	0.79	3.142
#9	3.400	1.128	1.00	3.544
#10	4.303	1.270	1.27	3.990
#11	5.313	1.410	1.56	4.430
#14	7.65	1.693	2.25	5.32
#18	13.60	2.257	4.00	7.09

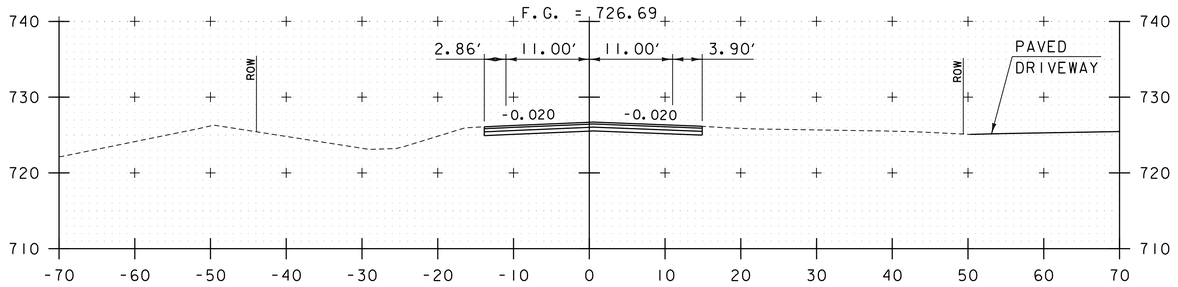
PROJECT NAME: **WAITSFIELD**
PROJECT NUMBER: **BRF 013-4(39)**

FILE NAME: **z12b136reinf.xls**
PROJECT MANAGER: **R. YOUNG**
DESIGNED BY: **D. KULL**
REINFORCING STEEL SCHEDULE

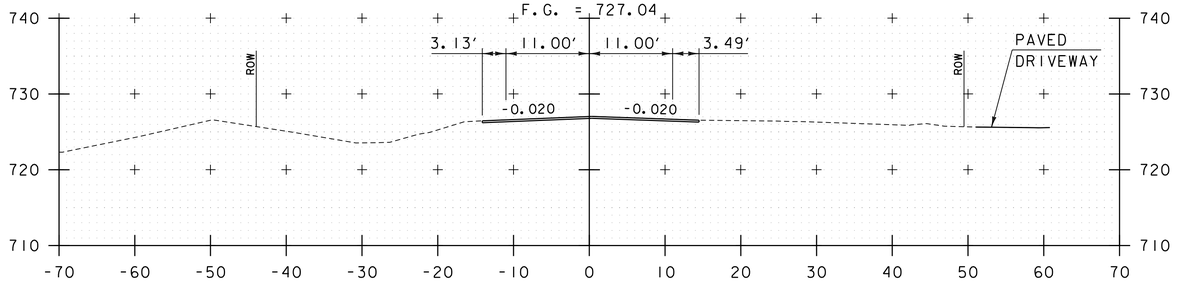
PLOT DATE: **10/12/2015**
DRAWN BY: **S. MERKWAN**
CHECKED BY: **T. KENDRICK**
SHEET **50** OF **69**



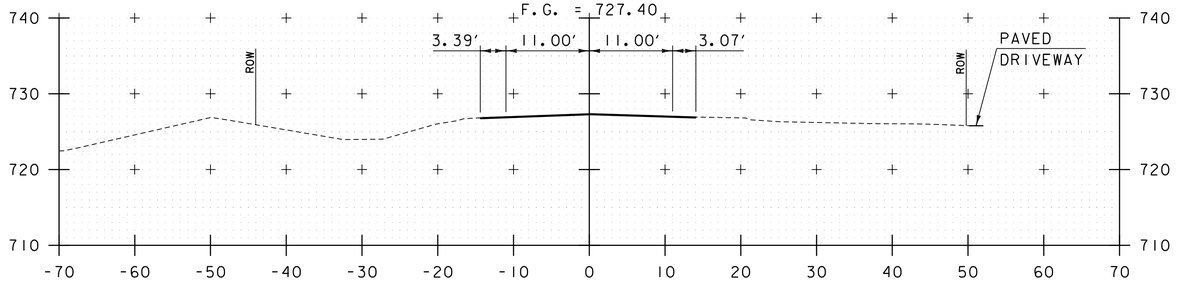
11+25



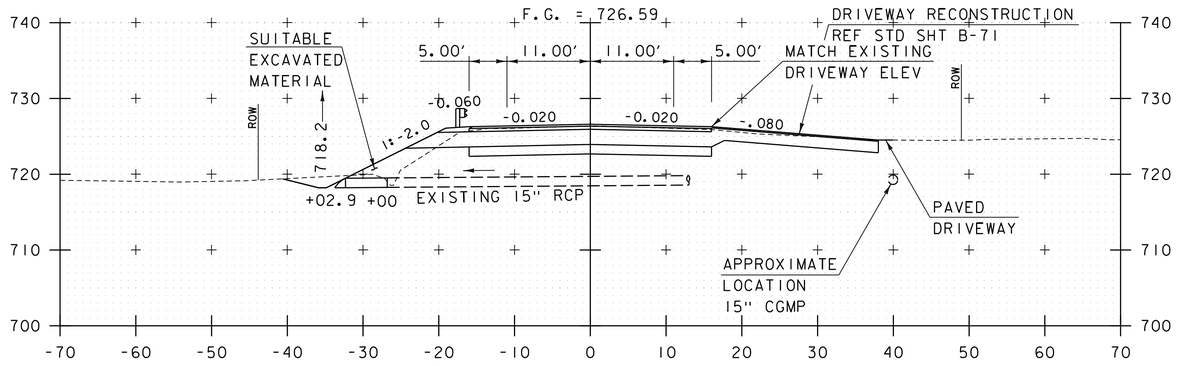
11+00



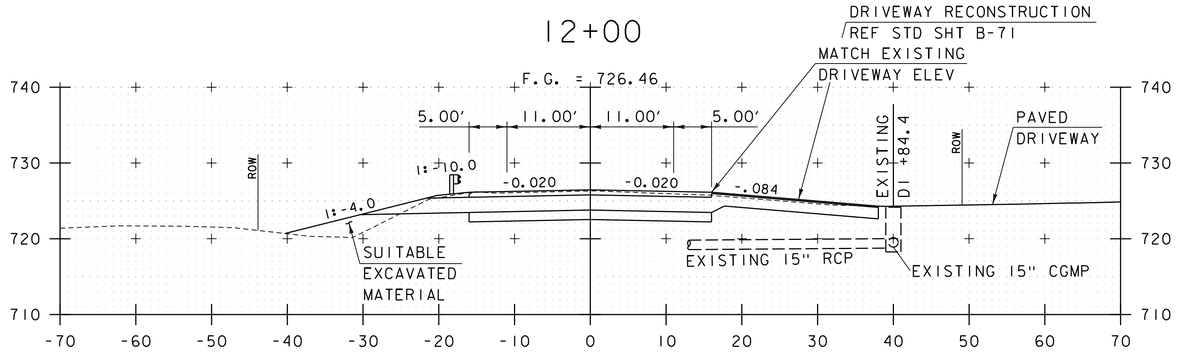
10+75



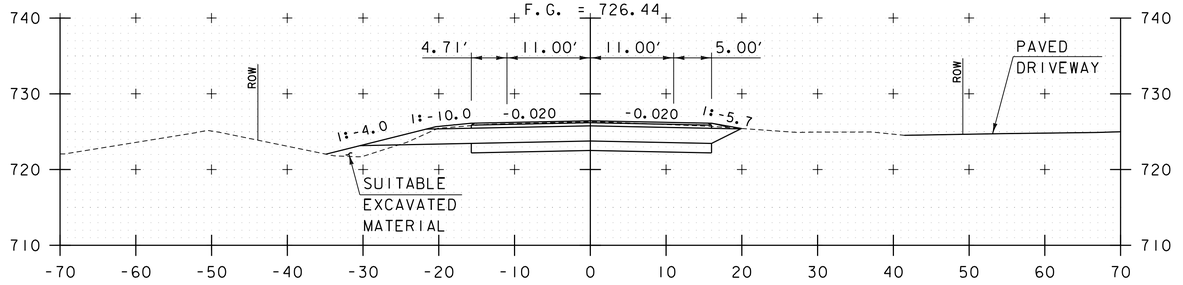
10+50
BEGIN APPROACH - MATCH EXISTING



12+00



11+75



11+50
END APPROACH - BEGIN PROJECT STA 11+37.00

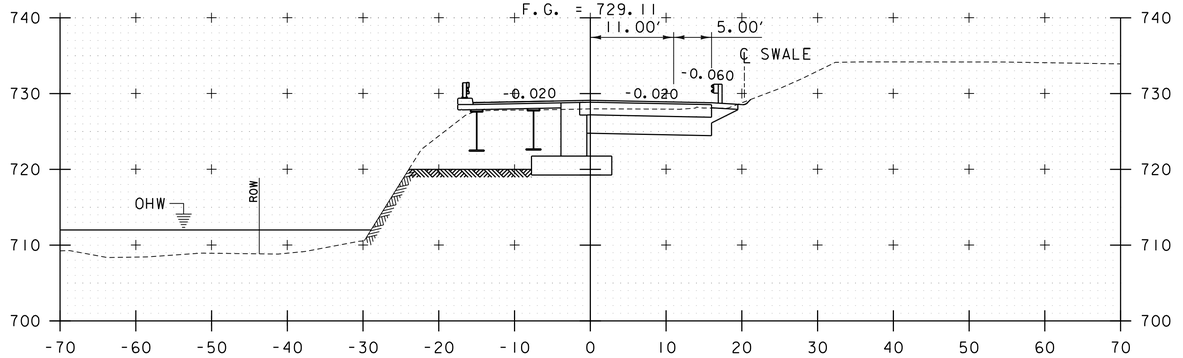
SCALE 1" = 10'-0"
10 0 10

STA. 10+50 TO STA. 12+00

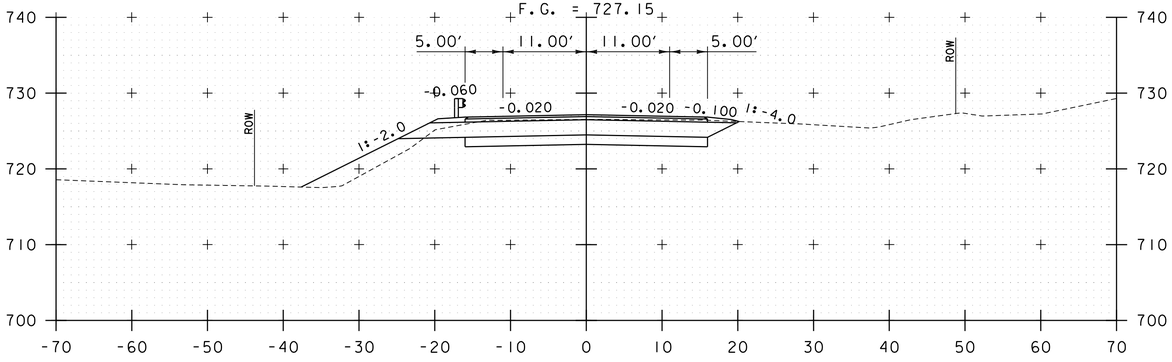
McFarland Johnson

PROJECT NAME:	WAITSFIELD
PROJECT NUMBER:	BRF 013-4(39)
FILE NAME: z12b136xsl.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. MERKWAN
DESIGNED BY: D. KULL	CHECKED BY: T. KENDRICK
VT 100 CROSS SECTION SHEET 1	SHEET 51 OF 69

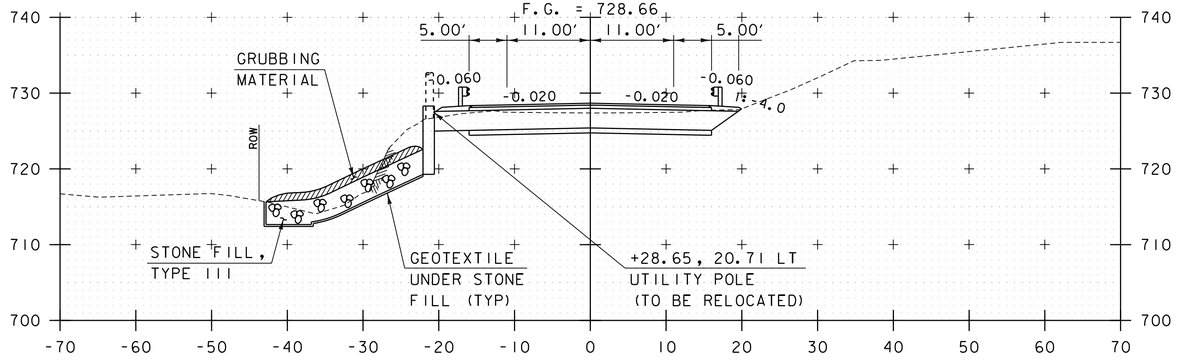
BEGIN BRIDGE STA 13+52.46



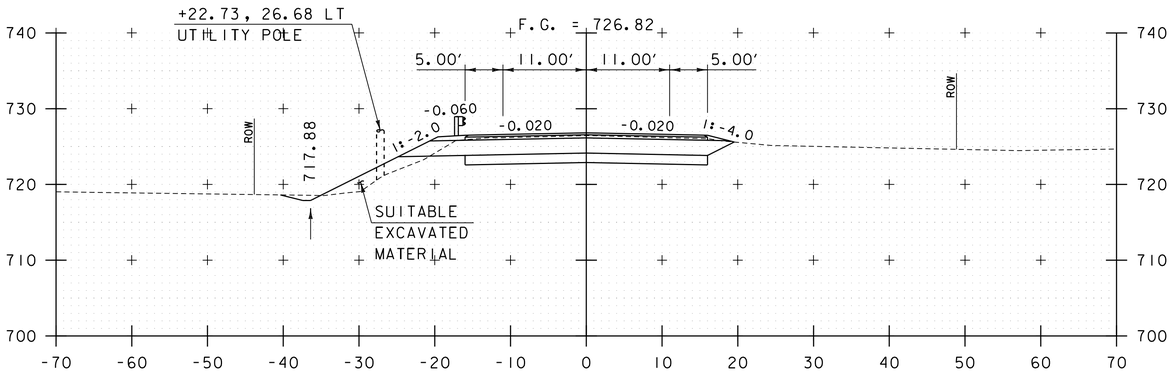
12+75



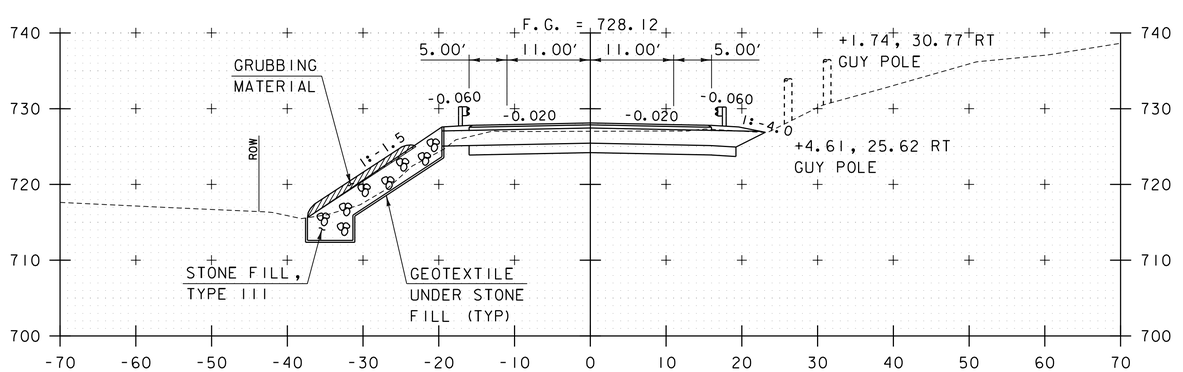
13+50



12+50



13+25



12+25

13+00

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

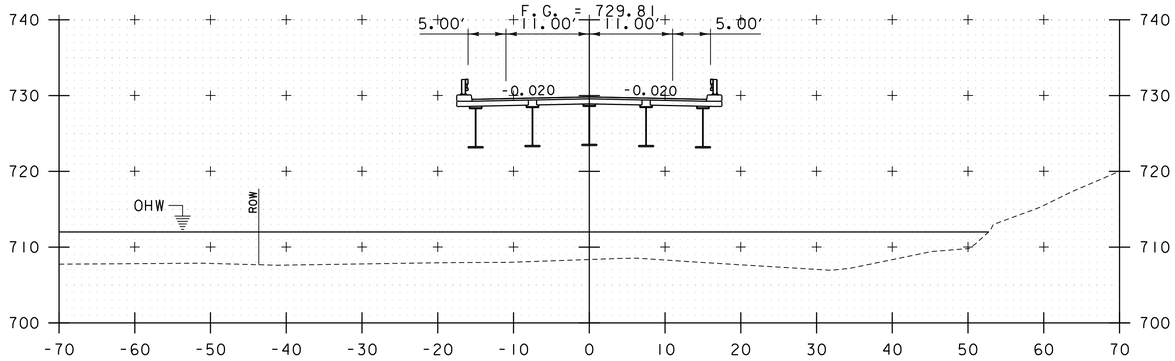
STA. 12+25 TO STA. 13+50

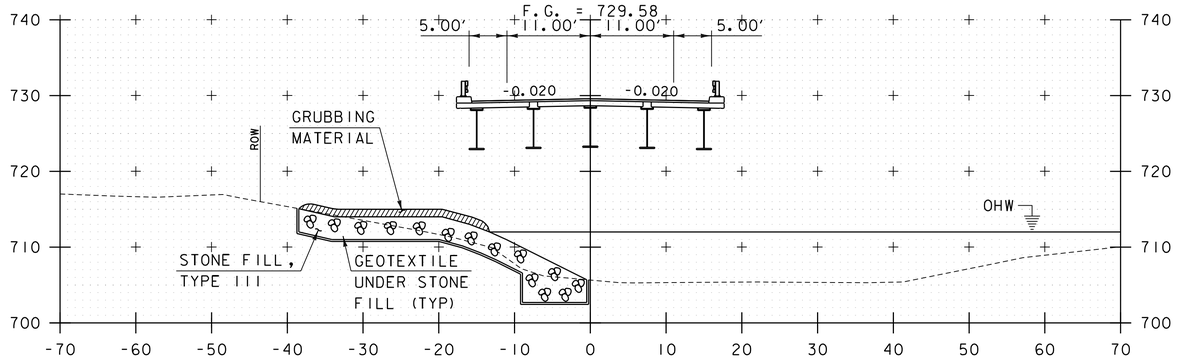
McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

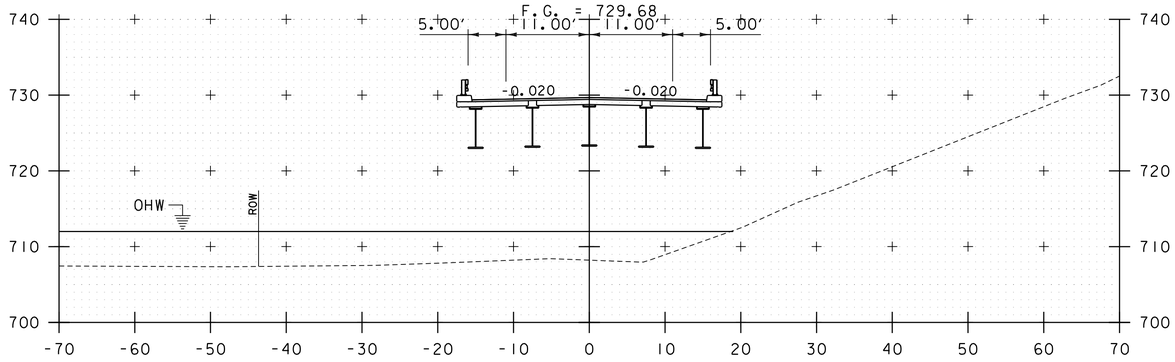
FILE NAME: z12bl36xsl.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
VT 100 CROSS SECTION SHEET 2

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 52 OF 69

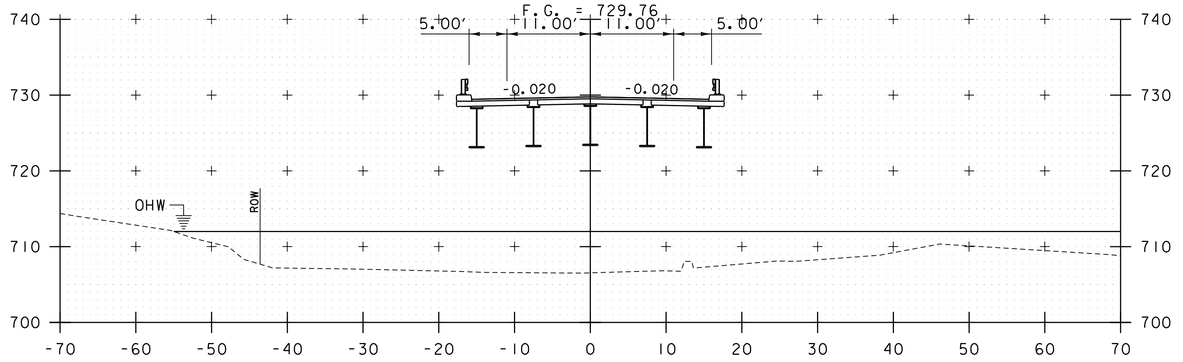




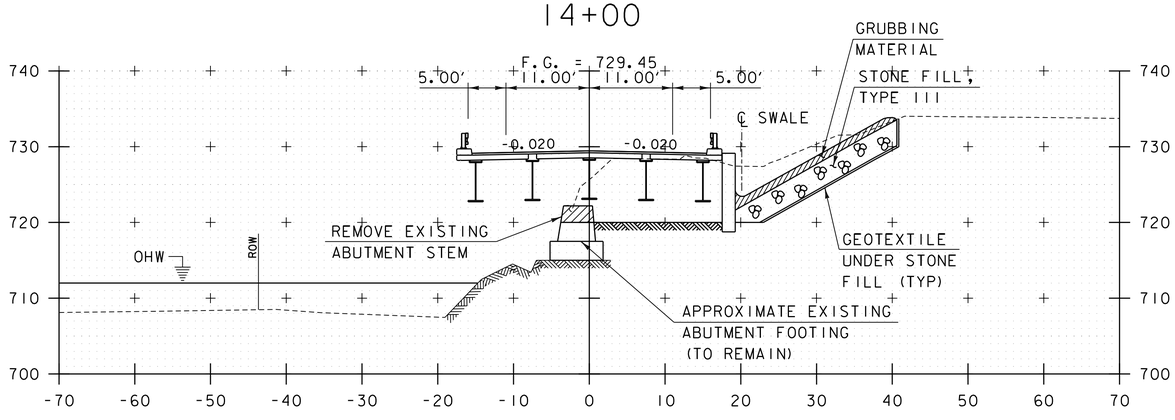
14+25



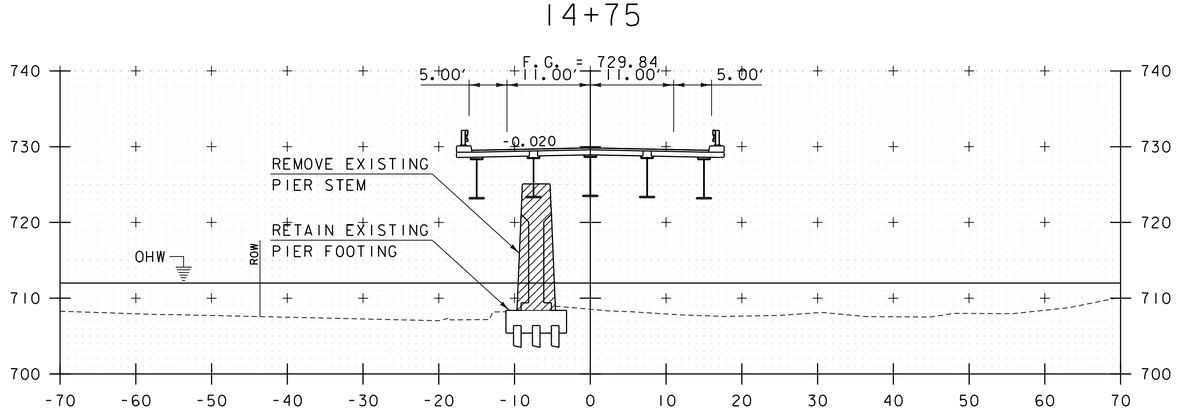
15+00



14+00



14+75



13+75

14+50

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

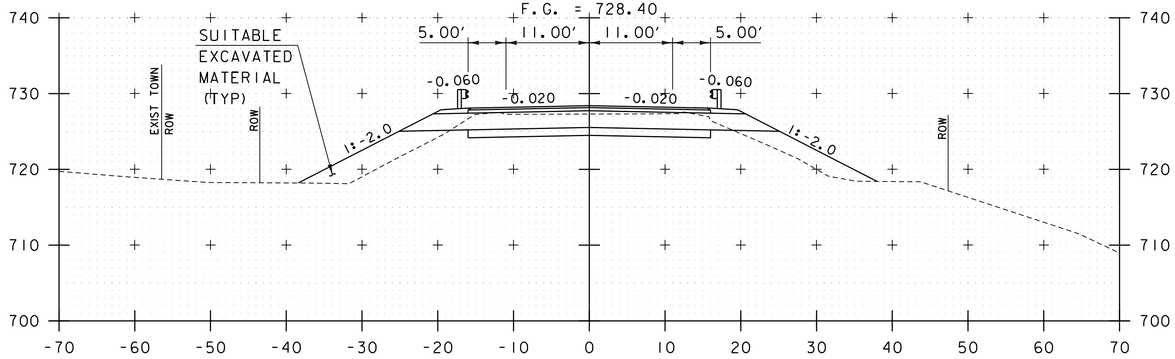
STA. 13+75 TO STA. 15+00

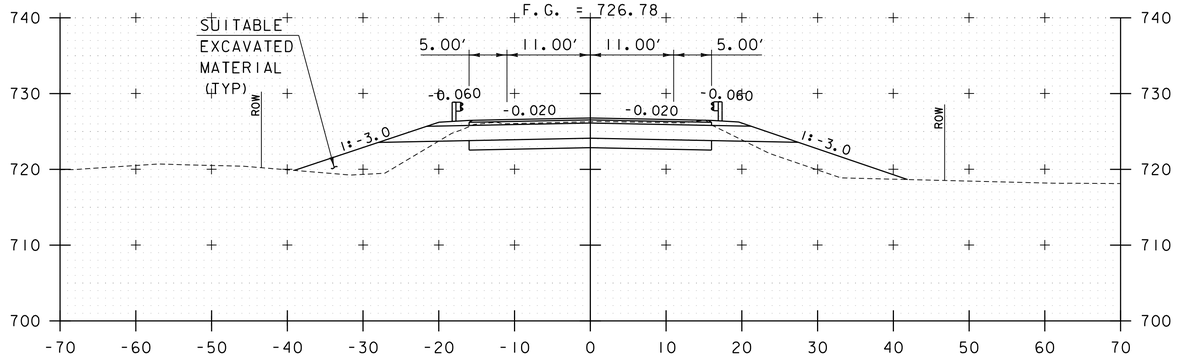
McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

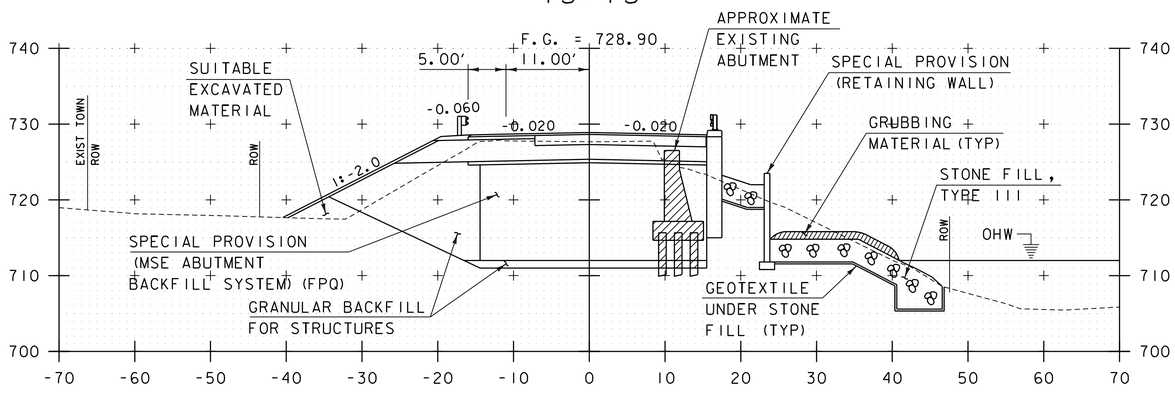
FILE NAME: z12b136xsl.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
VT 100 CROSS SECTION SHEET 3

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 53 OF 69

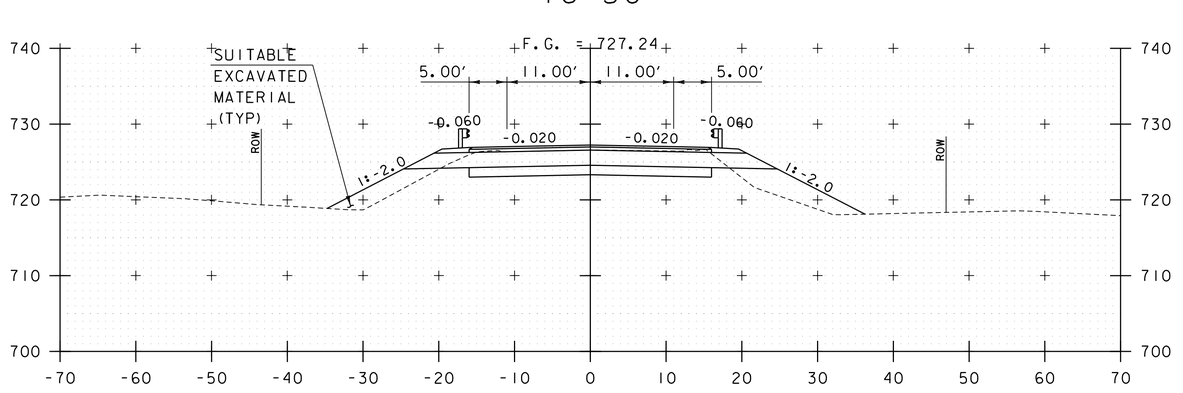




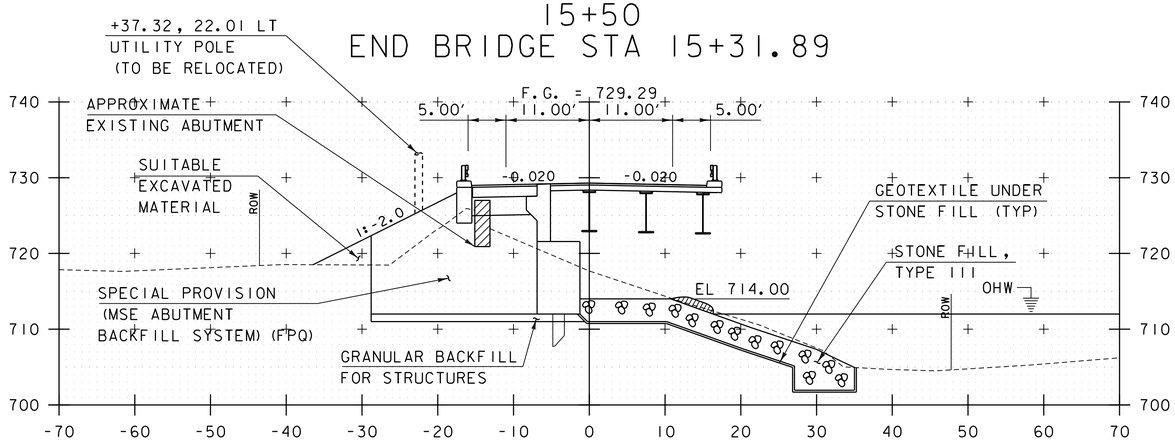
15+75



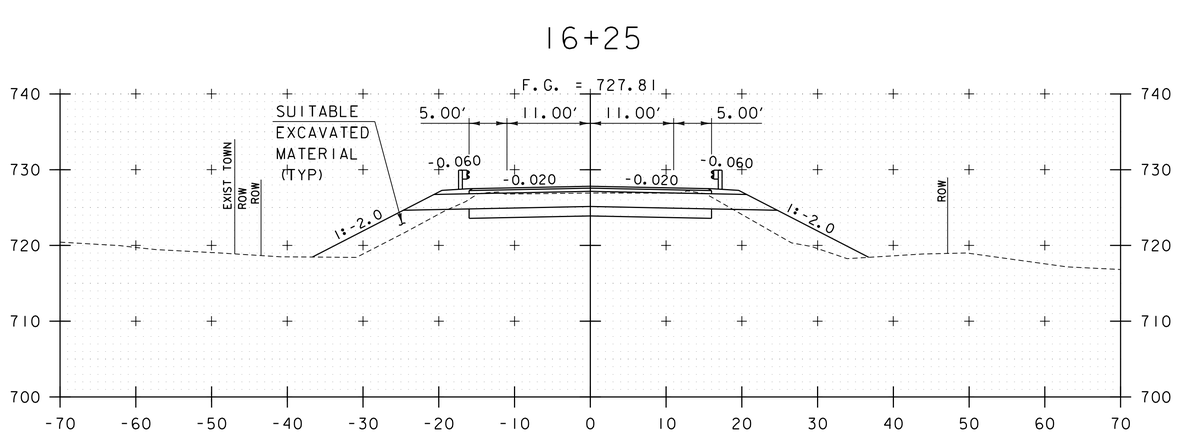
16+50



15+50
END BRIDGE STA 15+31.89



16+25



15+25

16+00

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

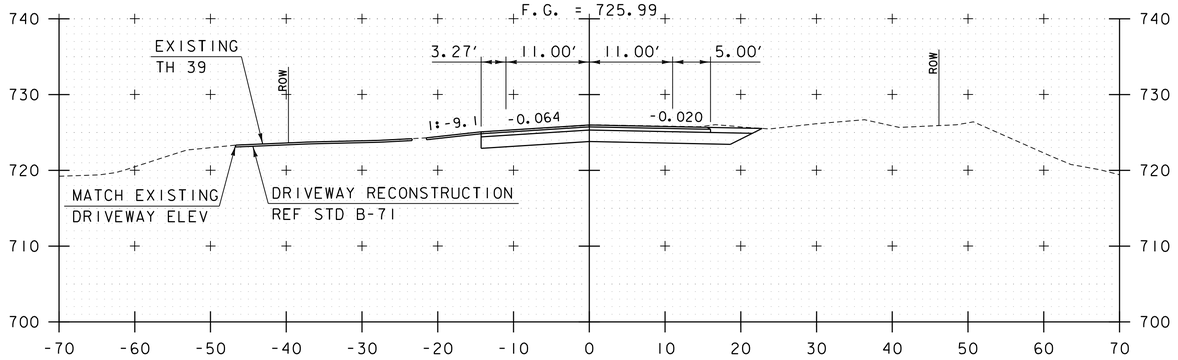
STA. 15+25 TO STA. 16+50

McFarland Johnson

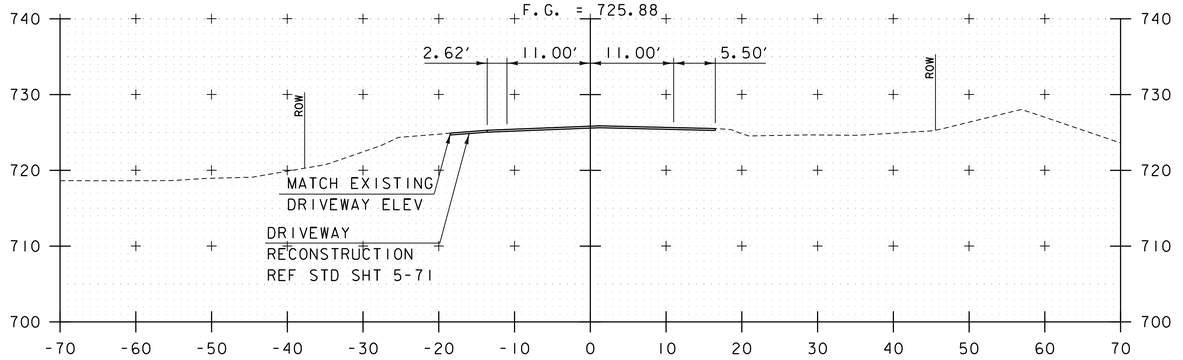
PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12bl36xsl.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
VT 100 CROSS SECTION SHEET 4

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 54 OF 69

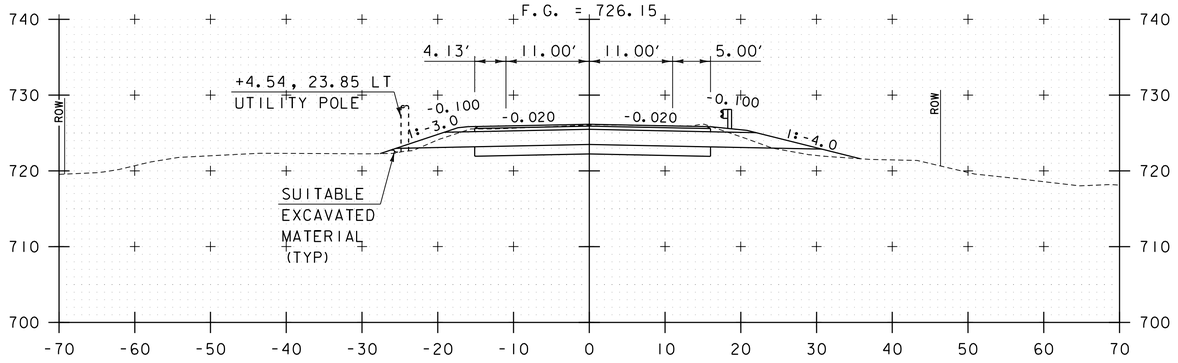


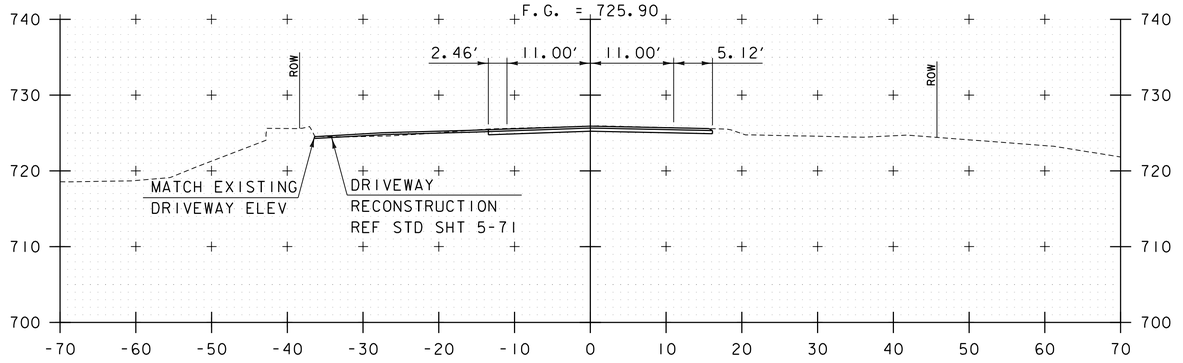
17+25



END PROJECT STA 17+13

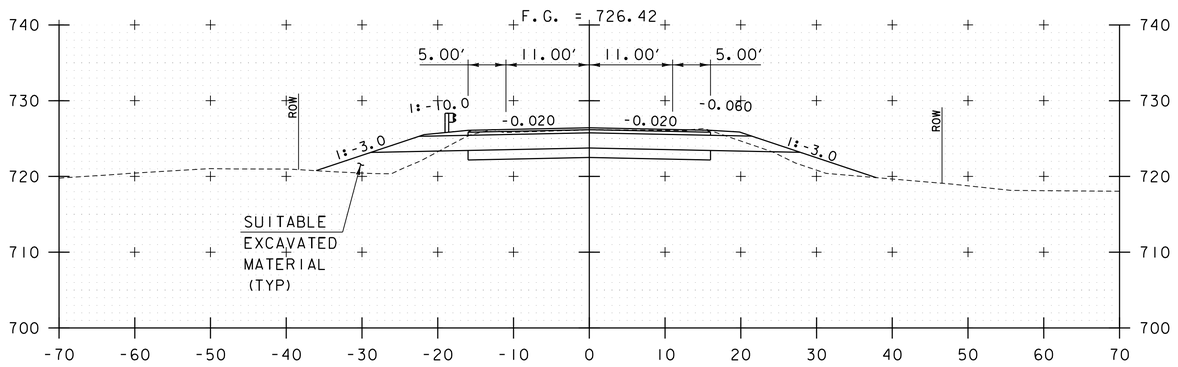
18+00

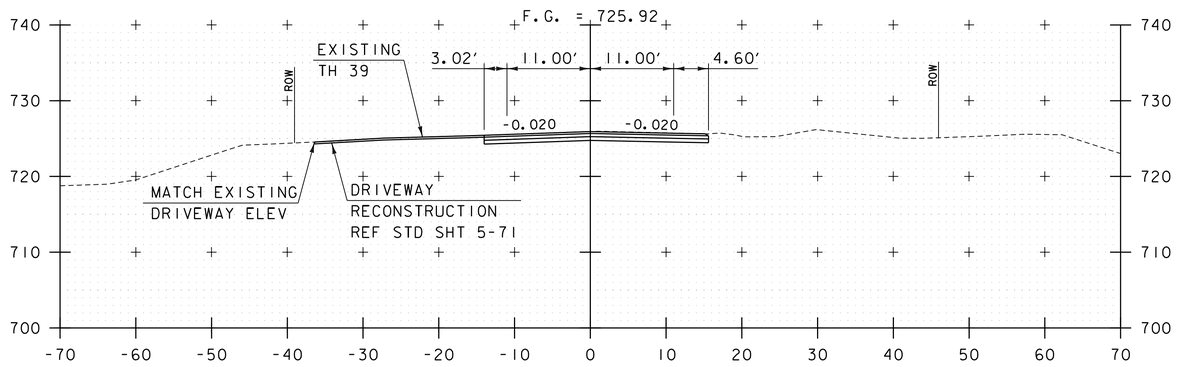




17+00

17+75





16+75

17+50

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

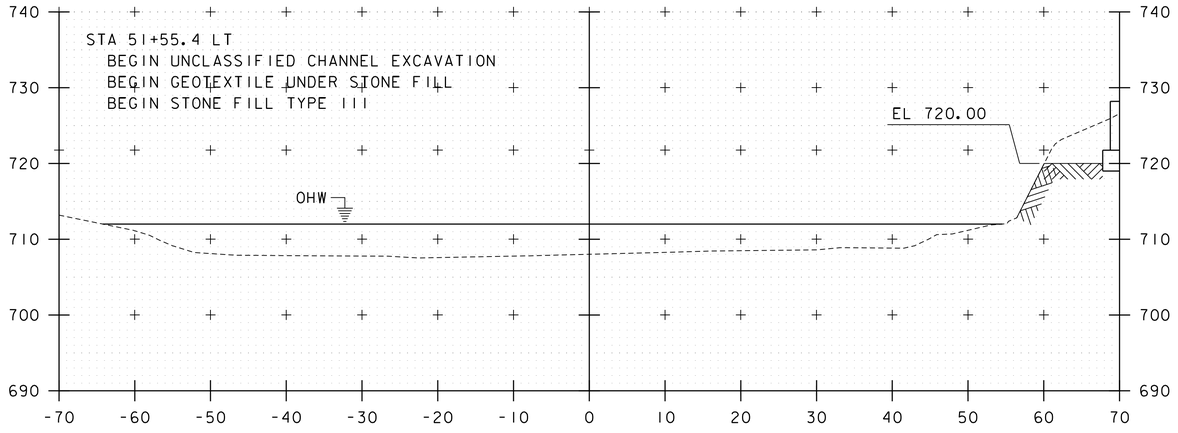
STA. 16+75 TO STA. 18+00

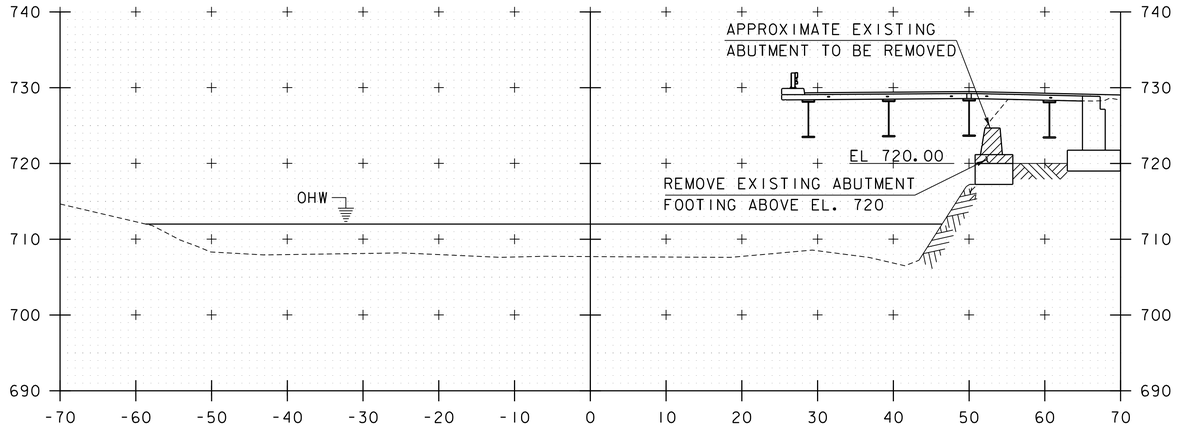
McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

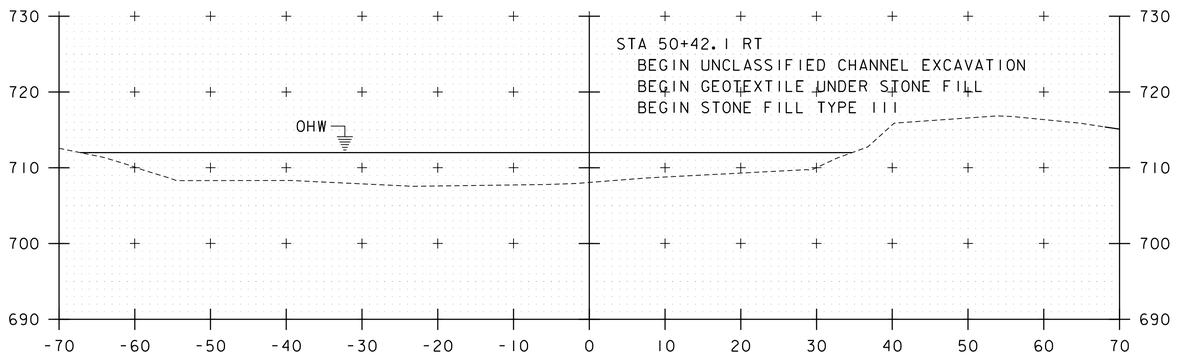
FILE NAME: z12b136xsl.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
VT 100 CROSS SECTION SHEET 5

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 55 OF 69

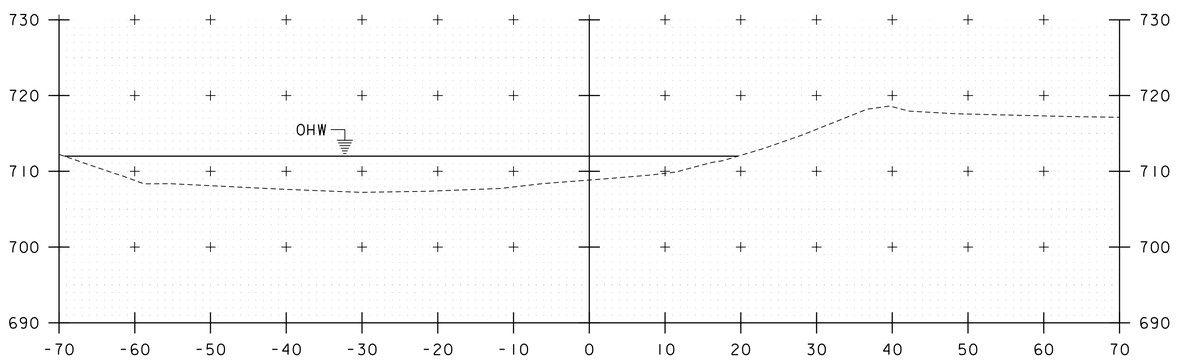




50+50

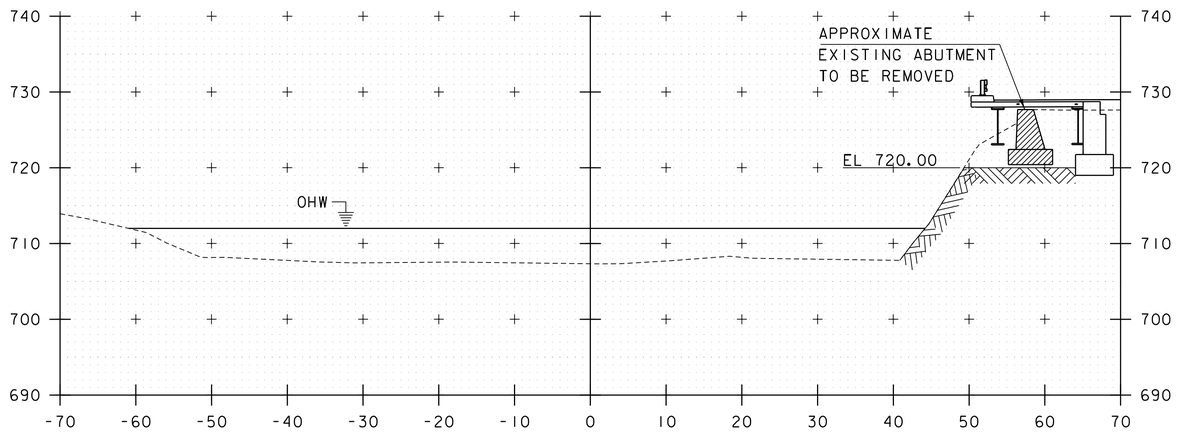


50+25



50+00

51+00



50+75

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

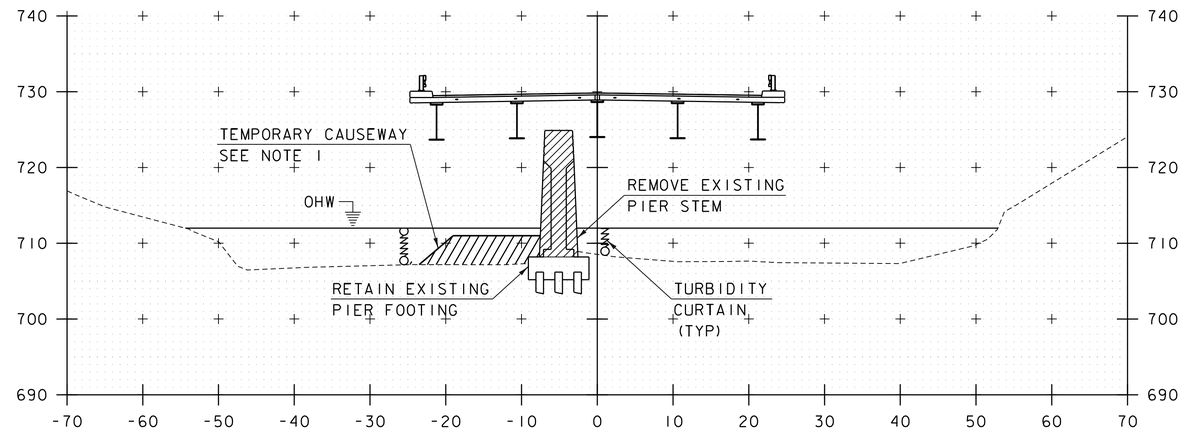
STA. 50+00 TO STA. 51+00

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

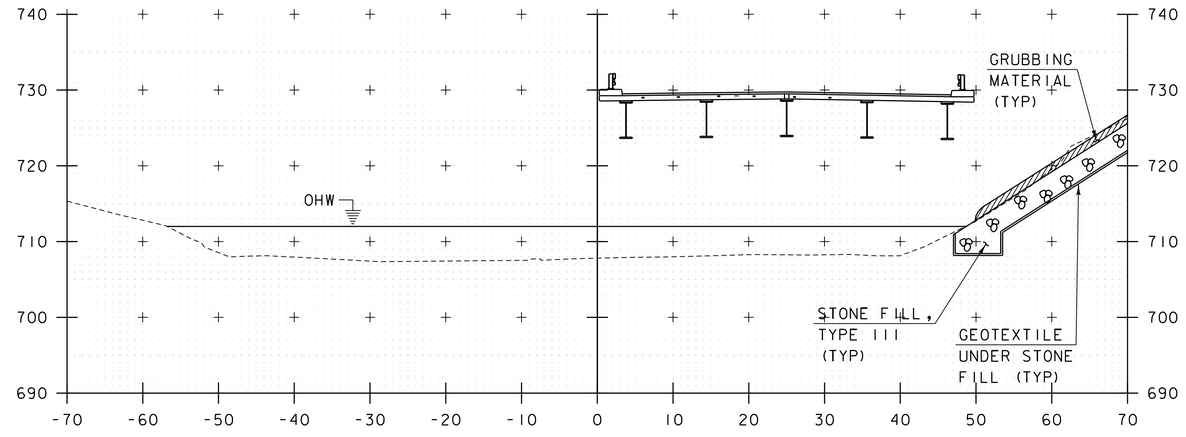
FILE NAME: z12b136xs2.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
CHANNEL CROSS SECTION SHEET 1

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 56 OF 69

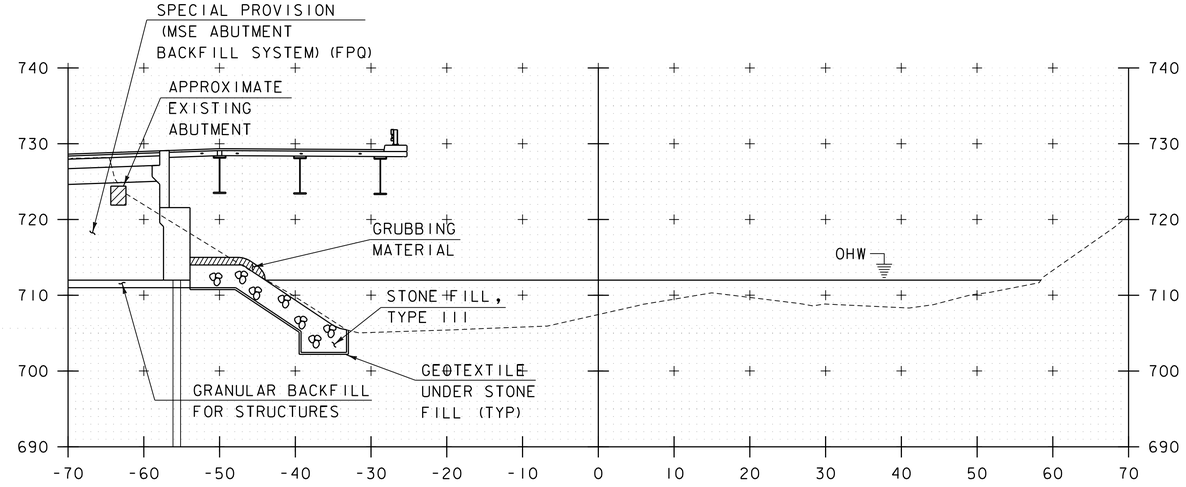


51+50

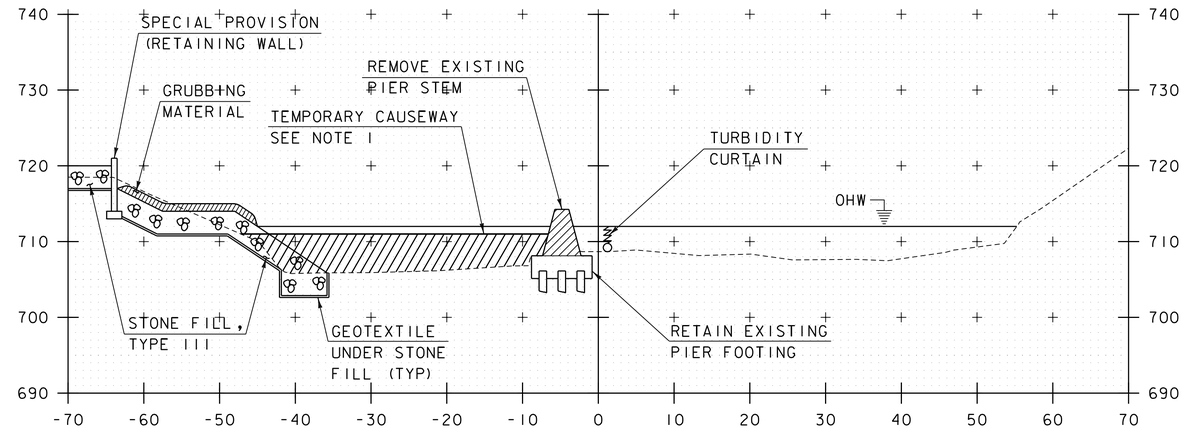
STA 51+35.2 RT
END UNCLASSIFIED CHANNEL EXCAVATION
END GEOTEXTILE UNDER STONE FILL
END STONE FILL TYPE III



51+25



52+00



51+75

NOTES

1. TEMPORARY CAUSEWAY, NO FILL ABOVE EL 711 (1' BELOW OHW). PAYMENT FOR FURNISHING, INSTALLING AND REMOVING TEMPORARY CAUSEWAY SHALL BE INCLUDED IN THE COST FOR ITEM 529.15, REMOVAL OF STRUCTURE.

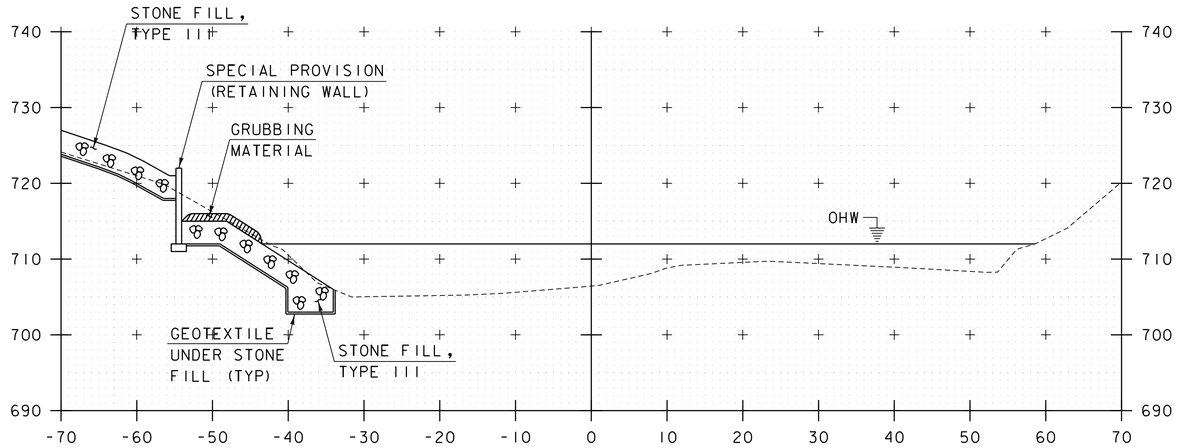
SCALE 1" = 10'-0"
10 0 10

STA. 51+16 TO STA. 52+00

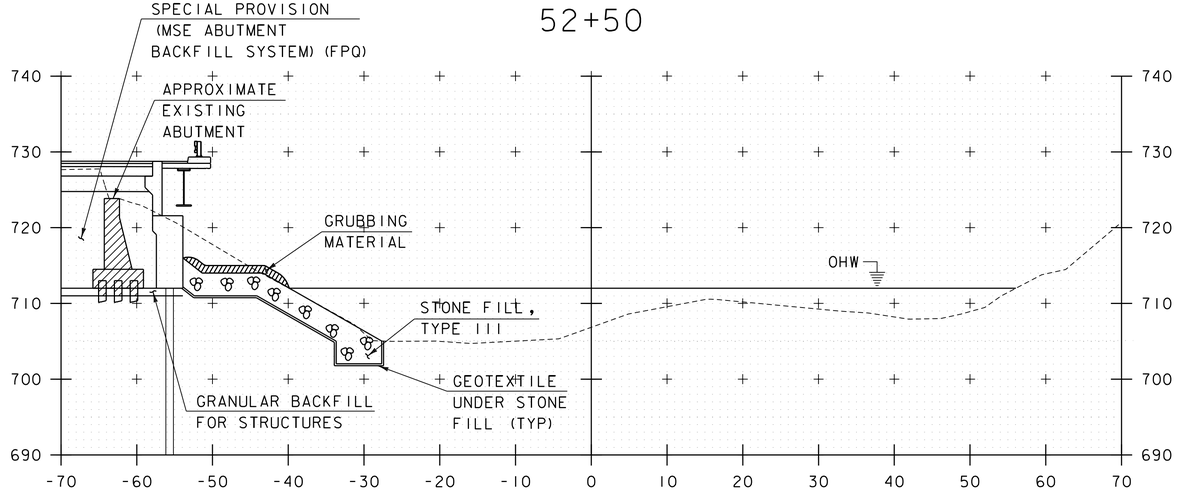
McFarland Johnson

PROJECT NAME: WAITSFIELD	
PROJECT NUMBER: BRF 013-4(39)	
FILE NAME: z12b136xs2.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. MERKWAN
DESIGNED BY: D. KULL	CHECKED BY: T. KENDRICK
CHANNEL CROSS SECTION SHEET 2	SHEET 57 OF 69

STA 52+57.9 LT
END UNCLASSIFIED CHANNEL EXCAVATION
END GEOTEXTILE UNDER STONE FILL
END STONE FILL TYPE III



52+50



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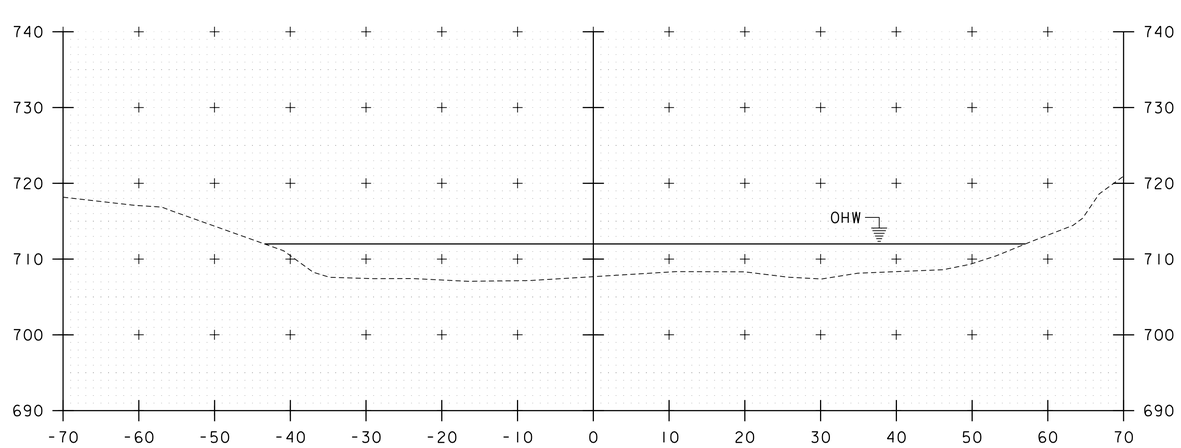
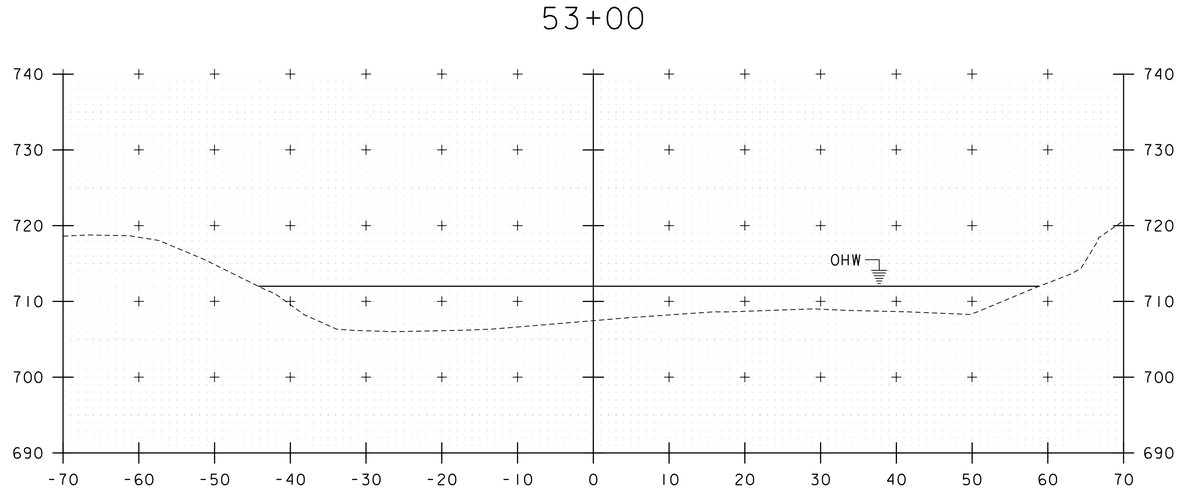


53+00



52+75

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

STA. 52+25 TO STA. 53+00

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12b136xs2.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
CHANNEL CROSS SECTION SHEET 3

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 58 OF 69

EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REMOVAL OF BRIDGE #177 WHICH IS A 168 FOOT LONG ROLLED STEEL BEAM BRIDGE. BRIDGE #177 WILL BE REPLACED BY A 175.00 FOOT SIMPLE SPAN STRUCTURE FOUNDED ON PRECAST ABUTMENTS FOUNDED ON STEEL BEARING PILES AND PRECAST SPREAD FOOTINGS ALONG THE EXISTING VT 100 ALIGNMENT. BRIDGE #177 IS LOCATED IN THE TOWN OF WAITSFIELD, ON VT ROUTE 100, APPROXIMATELY 0.8 MILES SOUTH OF THE INTERSECTION OF VT 17 AND VT 100. THIS PROJECT WILL UTILIZE ACCELERATED BRIDGE CONSTRUCTION METHODS SO THE BRIDGE WILL BE CLOSED TO TRAFFIC FOR APPROXIMATELY 21 DAYS.

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 X.XX ACRES.

IT IS ANTICIPATED THAT THIS PROJECT WILL BE COMPLETED IN LESS THAN ONE CONSTRUCTION SEASON.

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY

THE TOPOGRAPHY OF THE AREA IS HILLY WITH MOSTLY WELL ESTABLISHED FOREST AND OCCASIONAL OPEN AREAS WITHIN THE GREEN MOUNTAIN NATIONAL FOREST. ROADWAY SIDE SLOPES CONSIST OF VEGETATED UNDERGROWTH WITH SEVERAL EXPOSED LEDGE FACES.

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

THE MAD RIVER IS THE ONLY WATER SOURCE ON THE PROJECT SITE. THE MAD RIVER IS CLASSIFIED AS FLAT, WITH WIDE EARTH LINED CHANNEL UPSTREAM AND A WIDE EARTH LINED CHANNEL DOWNSTREAM OF THE SITE. THE STREAM BED CONSISTS OF GRAVEL AND SAND.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF MIXED HARDWOOD AND SOFTWOOD TREES AND UNDERGROWTH. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY AFFECTED BY REPLACEMENT OF THE EXISTING BRIDGE AND RECONSTRUCTION OF THE ROADWAY AND SIDE SLOPES WITHIN THE PROJECT LIMITS. UPON PROJECT COMPLETION, THE CHANNEL SIDE SLOPES ADJACENT TO THE BRIDGE WILL BE ARMORED WITH STONE FILL TYPE III AS SPECIFIED ON THE PLANS. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES. CLEARING SHALL BE KEPT TO A MINIMUM.

1.2.4 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF WASHINGTON, VERMONT. SOILS ON THE PROJECT SITE ARE:
MACHIAS FINE SANDY LOAM, 3% TO 8% SLOPES, "K FACTOR" = 0.17. THIS SOIL IS CONSIDERED NOT HIGHLY ERODIBLE,
WEIDER FINE SANDY LOAM, 0% TO 3% SLOPES, "K FACTOR" = 0.32. THIS SOIL IS CONSIDERED NOT HIGHLY ERODIBLE,
COLTON GRAVELY LOAMY SAND, 25% TO 60% SLOPES, "K FACTOR" = 0.17. THIS SOIL IS CONSIDERED HIGHLY ERODIBLE,
WAITSFIELD SILT LOAM, 0% TO 3% SLOPES, "K FACTOR" = 0.37. THIS SOIL IS CONSIDERED HIGHLY ERODIBLE.

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: NO
HISTORICAL OR ARCHEOLOGICAL AREAS: HISTORIC DISTRICT NORTHWEST END OF PROJECT NOT IMPACTED BY PROPOSED WORK
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: MAD RIVER
WETLANDS: YES

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 CONSTRUCTION RESULT IN ONE OR MORE ACRES 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. THEY HAVE BEEN PROPOSED BY THE DESIGNER AS A BASIS FOR PROTECTING RESOURCES AND WILL NEED TO BE BUILT UPON BASED ON THE SPECIFIC MEANS AND METHODS OF THE CONTRACTOR. REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR SPECIFIC GUIDANCE AND CONSTRUCTION DETAILING.

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

1.4.1 MARK SITE BOUNDARIES

SITE BOUNDARIES AND AREAS CONSTRUCTION EQUIPMENT CAN ACCESS SHALL BE DELINEATED.
PROJECT DEMARCATION FENCING (PDF) SHALL BE PLACED 5 FEET FROM THE TOE OF SLOPE TO PHYSICALLY MARK SITE BOUNDARIES. PDF CAN BE LOCATED CLOSER TO THE PROPOSED SLOPE LIMITS IN SENSITIVE AREAS OR AS DIRECTED BY THE ENGINEER. PDF SHALL BE INSTALLED PRIOR TO THE BEGINNING OF ANY EARTHWORK ON THE PROJECT.

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 CONSTRUCTION CHANGES.

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. INSTALLATION SHALL COINCIDE WITH THE CONTRACTOR'S PROGRESS SCHEDULE.

STABILIZED CONSTRUCTION ENTRANCES SHOULD BE INSTALLED AS PROPOSED ON THE EPSC PLAN AND ANYWHERE EQUIPMENT WILL BE GOING FROM AREAS OF EXPOSED SOILS TO PAVED SURFACES.

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 EARTHWORK IN ACCORDANCE WITH THE EROSION PREVENTION AND CONTROL PLANS.

SILT FENCE WILL BE INSTALLED AT THE TOE OF SLOPE AS PROPOSED ON THE EPSC PLAN.

AT LOCATIONS WHERE CONSTRUCTION IS IN OR NEAR WATERCOURSES OF THE STATE OF VERMONT, GEOTEXTILE FOR FILTER CURTAIN SHALL BE USED TO MINIMIZE SEDIMENT FROM ENTERING THESE WATERCOURSES. THE FILTER CURTAIN SHALL EXTEND FROM THE BOTTOM OF THE WATERCOURSE TO THE TOP OF THE WATER SURFACE. GEOTEXTILE SHALL ALSO BE PLACED ALONG THE BOTTOM OF THE WATERCOURSE WITHIN THE LIMITS OF THE FILTER CURTAIN TO FACILITATE THE REMOVAL OF SEDIMENT AND PROTECT THE EXISTING WATERCOURSE BOTTOM. IF THE CONTRACTOR CHOOSES TO USE A DIFFERENT METHOD FOR CONTAINING SEDIMENT IN THE WATERCOURSES, THE CONTRACTOR SHALL SUBMIT THE ALTERNATE METHOD TO THE ENGINEERFOR APPROVAL AT LEAST 14 DAYS PRIOR TO THE PRE-CONSTRUCTION MEETING. FILTER CURTAIN SHALL BE INSTALLED AS SHOWN ON THE EROSION PREVENTION AND SEDIMENT CONTROL PLANS PRIOR TO ANY CONSTRUCTION WITHIN 50 FEET OF WATERS OF THE STATE.

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.

THE PROJECT AREA IS RELATIVELY FLAT. THEREFORE IT IS NOT ANTICIPATED THAT DIVERSION MEASURES WILL BE NECESSARY.

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.

TEMPORARY STONE CHECK DAMS, TYPE I WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN, AT A MINIMUM.

1.4.7 CONSTRUCT PERMANENT CONTROLS

PERMANENT STORMWATER TREATMENT DEVICES, SUCH AS STONE SLOPES, PERMANENT ROLLED EROSION CONTROL PRODUCTS AND FIBER ROLLS SHALL BE INSTALLED AS SHOWN 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.

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.

1.4.10 STABILIZE SOIL AT FINAL GRADE

EXPOSED SOIL MUST BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE. SEEDING AND MULCHING SHALL BE USED TO STABILIZE SOIL. SEE THE EROSION CONTROL DETAILS FOR SEED TYPES AND APPLICATION RATES.

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.

TREATMENT OF DEWATERING COFFERDAM IS NOT ANTICIPATED ON THIS PROJECT.

1.4.12 INSPECT YOUR SITE

INSPECT THE PROJECT SITE BASED ON SPECIAL PROVISION REQUIREMENTS OR AFTER ANY RAINFALL EVENT THAT RESULTS IN DISCHARGE FROM THE SITE.

1.5 SEQUENCE AND STAGING

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

1.5.2 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.

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12b136ero_nar.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: J. SANTACRUCE
EPSC NARRATIVE

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 59 OF 69

VT STATE PLANE GRID

N

SOIL CLASSIFICATION:
MACHIAS FINE SANDY LOAM
3%-8% SLOPES
NOT HIGHLY ERODIBLE
K=0.17

SOIL CLASSIFICATION:
WEIDER VERY FINE SANDY LOAM
0%-3% SLOPES
NOT HIGHLY ERODIBLE
K=0.32

BEGIN APPROACH
STA 10+50.00
MATCH EXISTING

BEGIN PROJECT
STA 11+37.00

EXISTING STATE R.O.W.

VT 100
TO WARREN

℄ CONSTRUCTION

FIELD

CLASS III

PROPERTY LINE

CHANNEL
BASELINE

EXISTING TOWN R.O.W.

TOWN HIGHWAY
39

MIXED
HARDWOODS

MIXED HARDWOODS

MIXED SOFTWOODS
AND HARDWOODS

WOODS

SHED

M MAPLE

2-12 MAPLE

SIGN
R2-1
(40)

SIGN
EASY STREET CAFE

LIGHT
POST

BAIL
FENCE

15" RCP
PLUGGED
FLOW

2' DIA
DI

6" COMP
FLOW

L ASH

BOUNDARY
MARKER

PAVED
DRIVE

CEDARS

SIGN
ON3-R

GUYPOLE

GUY

BEGIN BRIDGE
STA 13+52.46
FG EL 729.15

END BRIDGE
STA 15+31.89
FG EL 729.20

MAD RIVER
FLOW

NOTE:
FOR EPSC PLAN SYMBOLOGY LEGEND SEE SHEET 11.

SOIL CLASSIFICATION:
COLTON GRAVELLY LOAMY SAND
25%-60% SLOPES
HIGHLY ERODIBLE
K=0.17

LAYOUT

20 0 20

SCALE: 1" = 20'-0"

MATCHLINE STA 16+25 (EXISTING LAYOUT 2)

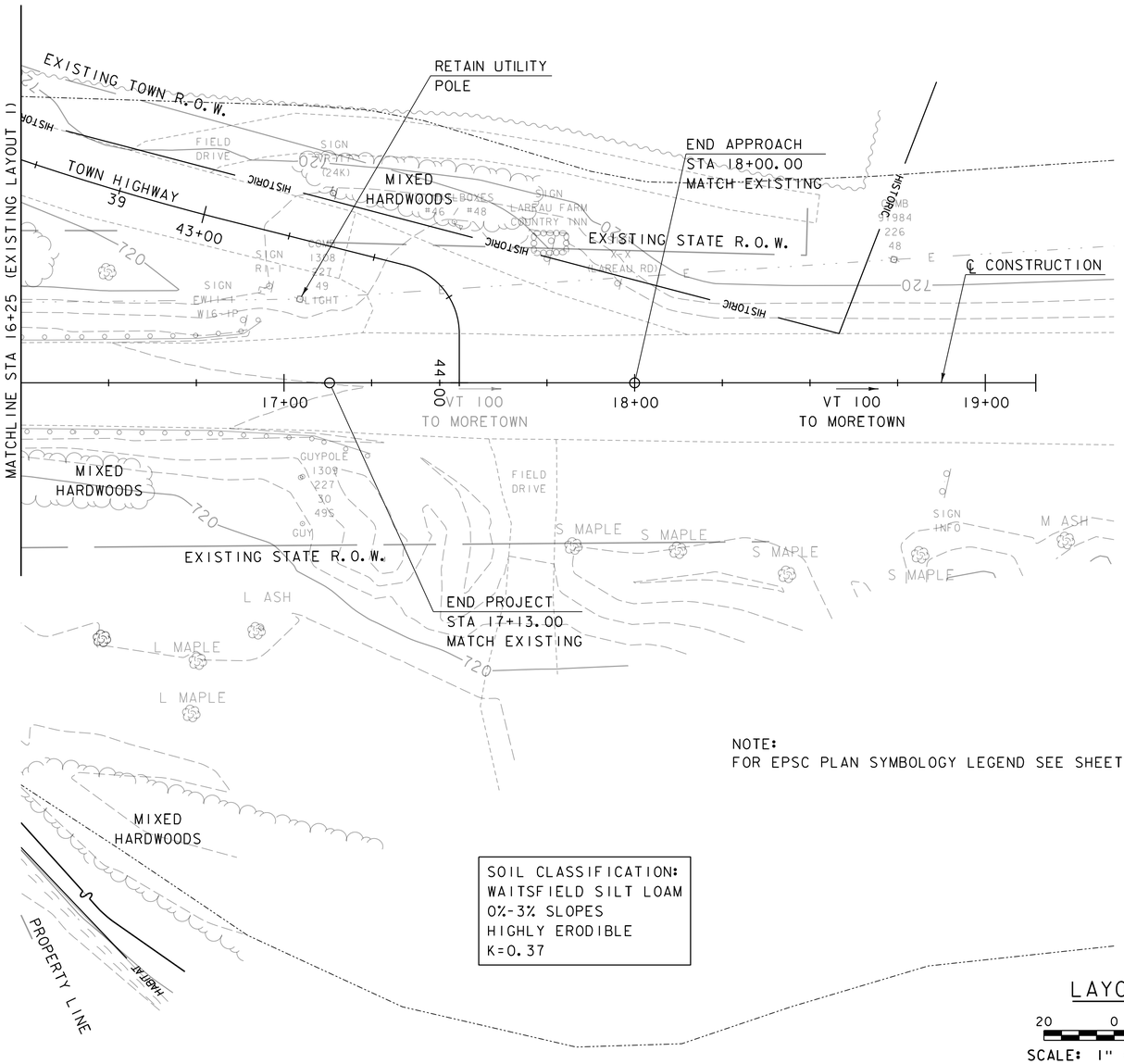
McFarland Johnson

PROJECT NAME:	WAITSFIELD
PROJECT NUMBER:	BRF 013-4(39)
FILE NAME: z12b136bdr_ero.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. MERKWAN
DESIGNED BY: J. SANTACRUCE	CHECKED BY: T. KENDRICK
EPSC EXISTING LAYOUT SHEET 1	SHEET 60 OF 69

VT STATE PLANE GRID

N

SOIL CLASSIFICATION:
WEIDER VERY FINE SANDY LOAM
0%-3% SLOPES
NOT HIGHLY ERODIBLE
K=0.32



NOTE:
FOR EPSC PLAN SYMBOLOGY LEGEND SEE SHEET 11.

SOIL CLASSIFICATION:
WAITSFIELD SILT LOAM
0%-3% SLOPES
HIGHLY ERODIBLE
K=0.37

LAYOUT

20 0 20

SCALE: 1" = 20'-0"

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BF 013-4(39)

FILE NAME: z12bl36bdr_ero.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
EPSC EXISTING LAYOUT SHEET 2

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 61 OF 69

VT STATE PLANE GRID

N

SOIL CLASSIFICATION:
MACHIAS FINE SANDY LOAM
3%-8% SLOPES
NOT HIGHLY ERODIBLE
K=0.17

SOIL CLASSIFICATION:
WEIDER VERY FINE SANDY LOAM
0%-3% SLOPES
NOT HIGHLY ERODIBLE
K=0.32

BEGIN APPROACH
STA 10+50.00
MATCH EXISTING

BEGIN PROJECT
STA 11+37.00

CONSTRUCT 12.0LF x 15" RCP
CONNECT TO EXISTING 15" RCP
CONSTRUCT 18" CPEP END SECTION
CONSTRUCT STONE FILL, TYPE I
AT OUTLET

EXISTING STATE R.O.W.

VT 100
TO WARREN

10+00 11+00 12+00 13+00 14+00 15+00 16+00

℄ CONSTRUCTION

CLEAN CULVERT
PIPES

STABILIZED CONSTRUCTION
ACCESS (SOUTH ACCESS)

EXISTING STATE R.O.W.

BEGIN BRIDGE
STA 13+52.46
FG EL 729.15

STONE FILL,
TYPE III

END BRIDGE
STA 15+31.89
FG EL 729.20

STONE FILL,
TYPE III

CHANNEL
BASELINE

TEMPORARY
CAUSEWAY

PROPERTY LINE

EXISTING TOWN R.O.W.

TOWN HIGHWAY
39

MAD RIVER
FLOW

MATCH LINE STA 16+25 (CONSTRUCTION LAYOUT 2)

NOTE:
FOR EPSC PLAN SYMBOLOGY LEGEND SEE SHEET 11.

SOIL CLASSIFICATION:
COLTON GRAVELLY LOAMY SAND
25%-60% SLOPES
HIGHLY ERODIBLE
K=0.17

LAYOUT

20 0 20

SCALE: 1" = 20'-0"

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

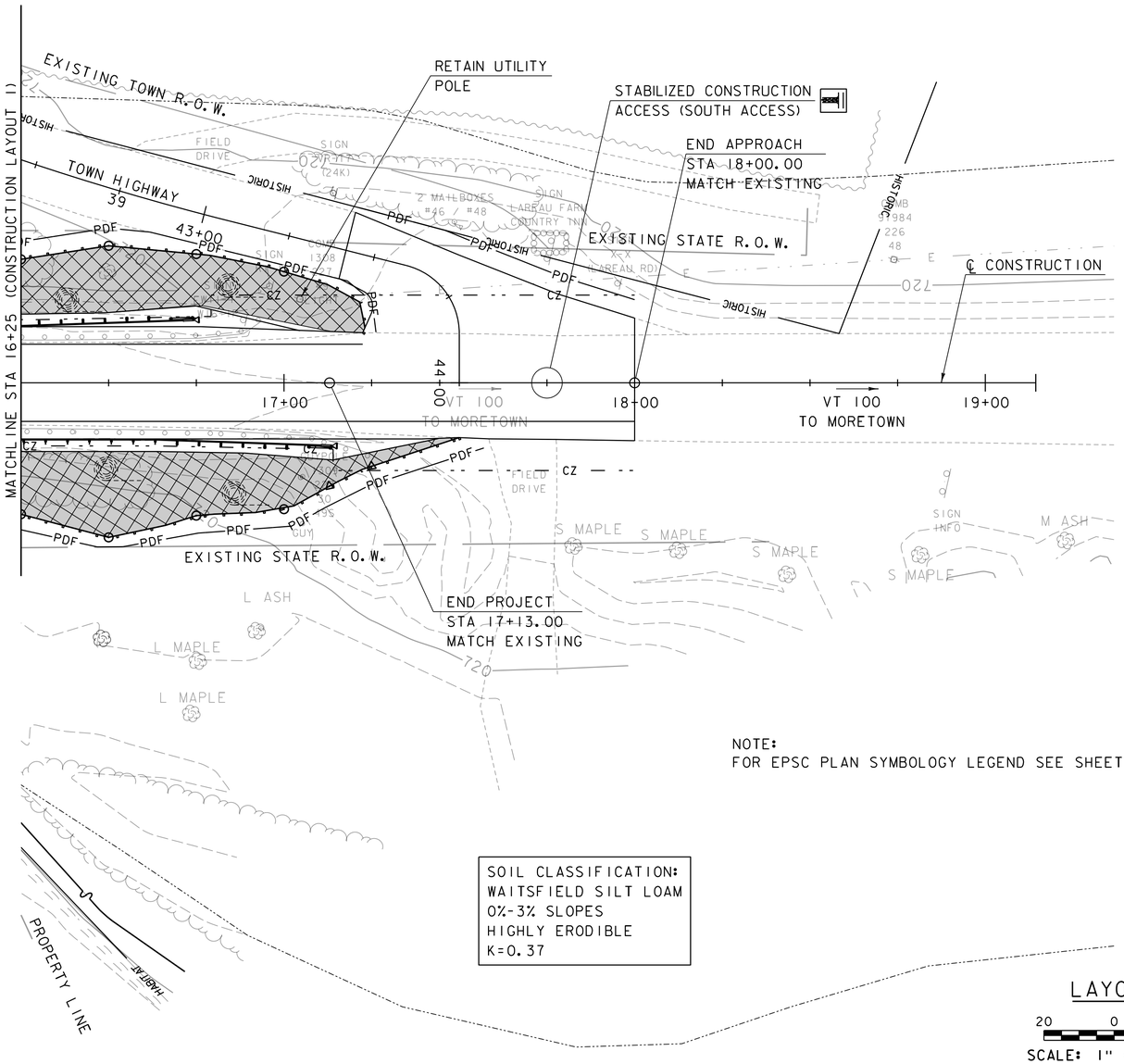
FILE NAME: z12b136bdr_ero.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: J. SANTACRUCE
EPSC CONSTRUCTION LAYOUT SHEET 1

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 62 OF 69

VT STATE PLANE GRID

N

SOIL CLASSIFICATION:
WEIDER VERY FINE SANDY LOAM
0%-3% SLOPES
NOT HIGHLY ERODIBLE
K=0.32



NOTE:
FOR EPSC PLAN SYMBOLOGY LEGEND SEE SHEET 11.

SOIL CLASSIFICATION:
WAITSFIELD SILT LOAM
0%-3% SLOPES
HIGHLY ERODIBLE
K=0.37

LAYOUT

20 0 20

SCALE: 1" = 20'-0"

NOTES

1. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY EARTH DISTURBANCE.
2. THESE PLANS SHOW A CONCEPTUAL EROSION CONTROL PLAN, THE CONTRACTOR SHALL SUBMIT A TEMPORARY EROSION CONTROL PLAN FOR APPROVAL. PAYMENT FOR DEVELOPMENT AND MODIFICATIONS TO THE EPSC SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 652.10.
3. TEMPORARY EROSION CONTROL MEASURES ARE CONCEPTUALLY SHOWN. THE CONTRACTOR MAY RELOCATE TEMPORARY MEASURES TO IMPROVE EROSION CONTROL WITH APPROVAL OF THE ENGINEER AND ON SITE COORDINATOR.
4. SILT FENCE SHALL NOT BE INSTALLED ACROSS CONTOURS.
5. THE CONTRACTOR SHALL USE OTHER TEMPORARY EROSION CONTROL MEASURES AS NECESSITATED BY THE SEQUENCE OF CONSTRUCTION OR AS DIRECTED BY THE ENGINEER AND ON SITE COORDINATOR.
6. REFER TO TEMPORARY EROSION CONTROL DETAIL SHEETS FOR ADDITIONAL DETAILS.
7. WHERE LEDGE IS EXPOSED, GRAVEL BAGS MAY BE USED INSTEAD OF FILTER CURTAIN. PAYMENT FOR GRAVEL BAGS WILL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 649.61 "GEOTEXTILE FOR FILTER CURTAIN".
8. ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED. SEE SEEDING FORMULA AND SEEDING NOTES FOR TURF REESTABLISHMENT REQUIREMENTS.
9. MONITORING AND MAINTAINING THE EROSION AND SEDIMENT CONTROL PLAN SHALL BE PER ITEM 652.20, MONITORING EPSC PLAN AND ITEM 652.30, MAINTENANCE OF EPSC PLAN.

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12bl36bdr_ero.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: J. SANTACRUCE
EPSC CONSTRUCTION LAYOUT SHEET 2

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK

VT STATE PLANE GRID

N

BEGIN APPROACH
STA 10+50.00
MATCH EXISTING

BEGIN PROJECT
STA 11+37.00

EXISTING STATE R.O.W.

VT 100
TO WARREN

10+00 11+00 12+00 13+00 14+00 15+00 16+00

℄ CONSTRUCTION

EXISTING STATE R.O.W.

SIGN
R2-1
(40)

SIGN
EASY STREET CAFE

LIGHT
POST

RAIL FENCE

15" RCP
PLUGGED
FLOW

2' DIA
DI

ST. COMP
FLOW

L ASH

BOUNDARY
MARKER

PAVED
DRIVE

CEDARS

WOODS

PROPERTY LINE

HABITAT

OHW

50+00

51+00

52+00

53+00

CHANNEL
BASELINE

BEGIN BRIDGE
STA 13+52.46
FG EL 729.15

END BRIDGE
STA 15+31.89
FG EL 729.20

STONE FILL,
TYPE III

STONE FILL,
TYPE III

MAD RIVER
FLOW

PROPERTY LINE

HISTORIC

3 ROD (49.5')

40+49

41+00

42+00

2" MAPLE

M MAPLE

SHED

EXISTING TOWN R.O.W.

TOWN HIGHWAY
39

EXISTING TOWN R.O.W.

WOODS

MATCHLINE STA 16+25 (FINAL LAYOUT 2)

NOTE:
FOR EPSC PLAN SYMBOLOGY LEGEND SEE SHEET 11.

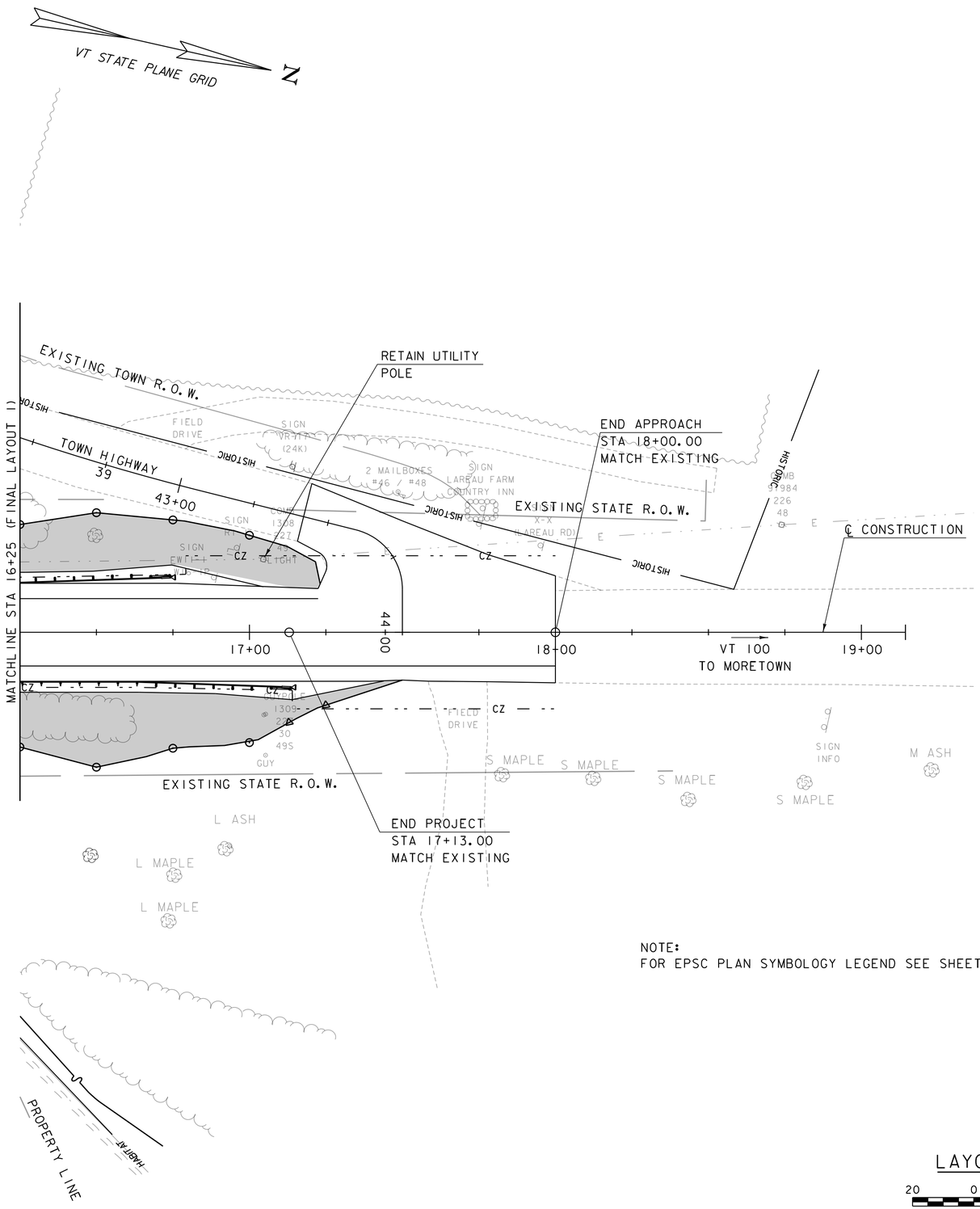
LAYOUT

20 0 20

SCALE: 1" = 20'-0"

McFarland Johnson

PROJECT NAME: WAITSFIELD	
PROJECT NUMBER: BRF 013-4(39)	
FILE NAME: z12b136bdr_ero.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R. YOUNG	DRAWN BY: P. DUSTIN
DESIGNED BY: D. KULL	CHECKED BY: T. KENDRICK
EPSC FINAL LAYOUT SHEET 1	SHEET 64 OF 69



NOTE:
FOR EPSC PLAN SYMBOLOGY LEGEND SEE SHEET 11.

LAYOUT

20 0 20

SCALE: 1" = 20'-0"

McFarland Johnson

PROJECT NAME:	WAITSFIELD
PROJECT NUMBER:	BF 013-4(39)
FILE NAME: z12bl36bdr_ero.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. MERKWAN
DESIGNED BY: D. KULL	CHECKED BY: T. KENDRICK
EPSC FINAL LAYOUT SHEET 2	SHEET 65 OF 69

EPSC LAYOUT PLAN SYMBOLOGY LEGEND

PROJECT BOUNDARY FENCE

- PDF ——— PDF PROJECT DEMARCATION FENCE
- BF —×—×—×— BF BARRIER FENCE

EPSC MEASURES

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

ENVIRONMENTAL RESOURCES

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

ARCHEOLOGICAL & HISTORIC

- ARCHEOLOGICAL BOUNDARY
- HISTORIC DISTRICT BOUNDARY
- HISTORIC AREA
- (H) HISTORIC STRUCTURE

UTILITY SYMBOLOGY

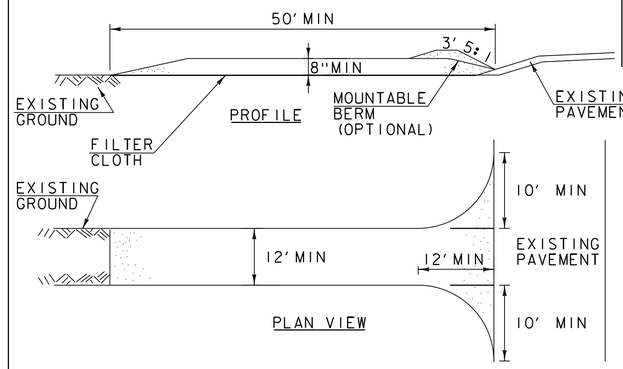
- AER E&T AREAL ELECTRIC & TELEPHONE
- E AREAL ELECTRIC
- UE UNDERGROUND ELECTRIC
- UT UNDERGROUND TELEPHONE
- UC UNDER GROUND TV
- G GAS LINE
- W WATER LINE

CONSTRUCTION FEATURES

- TOE OF SLOPE CUT OR FILL
- STONE FILL, TYPE III
- STONE FILL, TYPE II
- STONE FILL, TYPE I

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

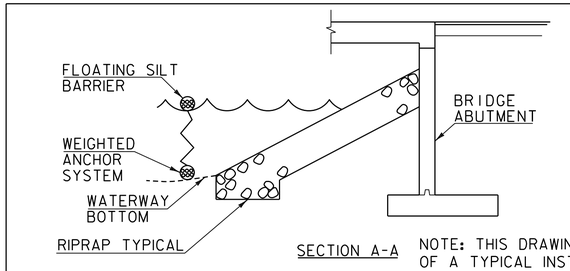
NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

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

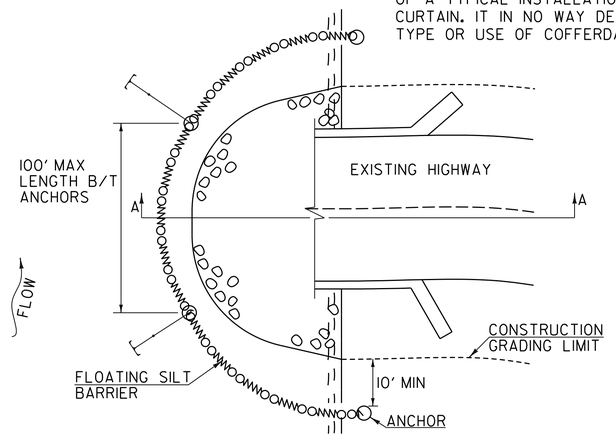
SYMBOL

NOT TO SCALE



SECTION A-A

NOTE: THIS DRAWING IS A DEPICTION OF A TYPICAL INSTALLATION OF FILTER CURTAIN. IT IN NO WAY DEFINES THE TYPE OR USE OF COFFERDAM IF USED.



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 649.61).

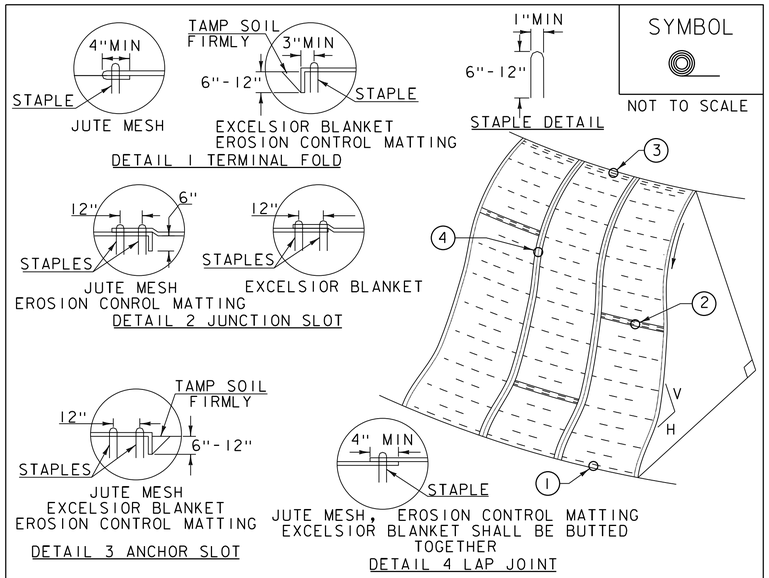
REVISIONS	
APRIL 1, 2008	WHF
JANUARY 13, 2009	WHF
SEPTEMBER 4, 2009	WHF

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12b136ero_det.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: J. SANTACRUCE
EPSC DETAILS SHEET 1

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 66 OF 69



SYMBOL

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

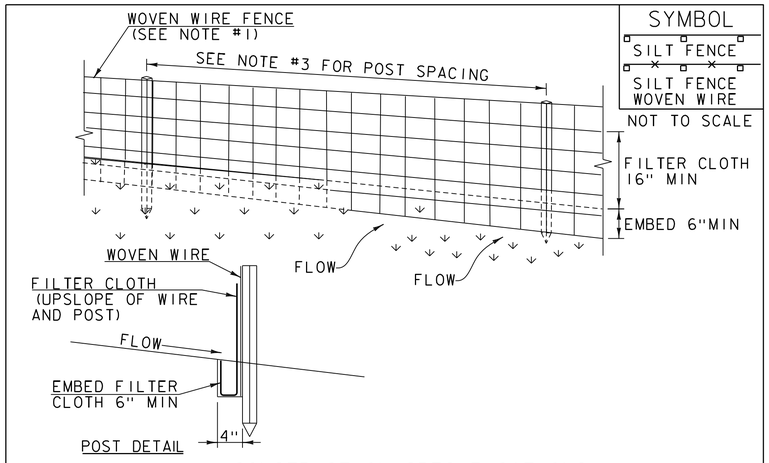
1. APPLY TO SLOPES GREATER THAN 3H:1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 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

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.

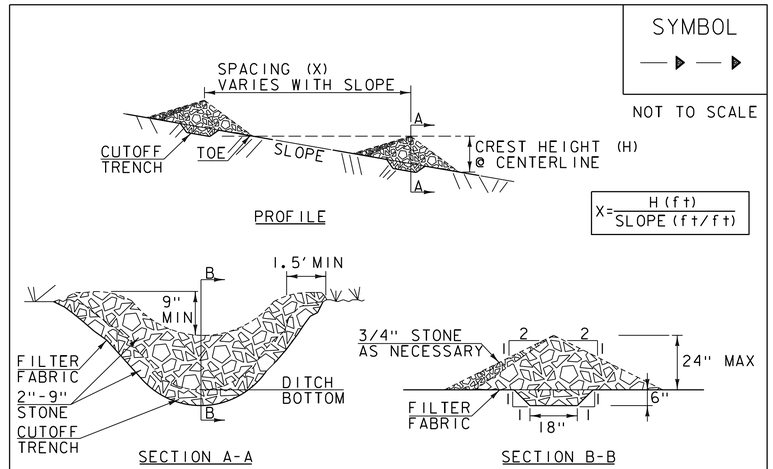
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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 649.51) OR GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED (PAY ITEM 649.515).

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



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 OF THE 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

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12bl36ero_det.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: J. SANTACRUCE
EPSC DETAILS SHEET 2

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 67 OF 69

VAOT RURAL AREA MIX

	LBS/AC				
% WEIGHT	BROADCAST	HYDROSEED	NAME	GERM %	PURITY %
37.5%	22.5	45	CREEPING RED FESCUE	85%	98%
37.5%	22.5	45	TALL FESCUE	90%	95%
5.0%	3	6	RED TOP	90%	95%
15.0%	9	18	BIRDSFOOT TREFOIL	85%	98%
5.0%	3	6	ANNUAL RYE GRASS	85%	95%
100%	60	120			

VAOT URBAN AREA MIX

	LBS/AC				
% WEIGHT	BROADCAST	HYDROSEED	NAME	GERM %	PURITY %
42.5%	34	68	CREEPING RED FESCUE	85%	98%
10.0%	8	16	PERENNIAL RYE GRASS	90%	95%
42.5%	34	68	KENTUCKY BLUE GRASS	85%	85%
5.0%	4	8	ANNUAL RYE GRASS	85%	95%
100%	80	160			

SOIL AMENDMENT GUIDANCE

FERTILIZER		LIME	
BROADCAST	HYDROSEED	BROADCAST	HYDROSEED
10-20-10	*FOLLOW*	PELLETIZED	*FOLLOW*
500 LBS/AC	*MANUFACTURER*	2 TONS/AC	*MANUFACTURER*

CONSTRUCTION GUIDANCE

1. RURAL SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED UPLAND (NON WETLAND) AREAS DISTURBED BY THE CONTRACTOR.
2. URBAN SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED LAWN 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. TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.
7. HYDROSEEDING: ALTHOUGH GUIDANCE IS GIVEN ABOVE THE SITE CONDITIONS AND THE TYPE OF HYDROSEED WILL ULTIMATELY DICTATE THE AMOUNTS AND TYPES OF SOIL AMENDMENTS TO BE APPLIED
8. 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	
JUNE 23, 2009	WHF
JANUARY 15, 2010	WHF
FEBRUARY 16, 2011	WHF

VAOT LOW GROW/FINE FESCUE MIX

	LBS/AC				
% WEIGHT	BROADCAST	HYDROSEED	NAME	GERM %	PURITY %
38.0%	57.0	95.0	CREEPING RED FESCUE	90%	98%
29.0%	43.5	72.5	SPARTAN HARD FESCUE	85%	95%
15.0%	22.5	37.5	AZAY SHEEP'S FESCUE	87%	95%
15.0%	22.5	37.5	ANNUAL RYEGRASS	90%	95%
3.0%	4.5	7.5	INERTS		
100%	150.0	250.0			

WET AREA MIX

	LBS/AC		NAME	
WEIGHT	BROADCAST	HYDROSEED	COMMON	LATIN
20%	2.0	3.0	VIGINIA WILD RYE GRASS	ELYMUS VIRGINICUS
10%	1.0	1.5	FOX SEDGE	CAREX VULPINOIDEA
20%	2.0	3.0	AMERICAN MANNAGRASS	GLYCERIA GRANDIS
10%	1.0	1.5	GIANT BUR-REED	SPARGANIUM EURYCARPUM
20%	2.0	3.0	COMMON THREE-SQUARE	SCIRPRUS AMERICANUS
10%	1.0	1.5	SOFT-STEM BULRUSH	SCIRPRUS VALIDUS
10%	1.0	1.5	CANADA RUSH	JUNCUS CANADENSIS
100%	10	15		

SOIL AMENDMENT GUIDANCE

FERTILIZER		LIME
BROADCAST	HYDROSEED	BROADCAST
5-10-5	10-20-10	PELLETIZED
500 LBS/AC		2 TONS/AC

CONSTRUCTION GUIDANCE

1. LOW GROW/FINE FESCUE SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED LOW GROW AREAS DISTURBED BY THE CONTRACTOR.
2. WET AREA MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED 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. TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.
7. HYDROSEEDING: ALTHOUGH GUIDANCE IS GIVEN ABOVE THE SITE CONDITIONS AND THE TYPE OF HYDROSEED WILL ULTIMATELY DICTATE THE AMOUNTS AND TYPES OF SOIL AMENDMENTS TO BE APPLIED
8. 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)

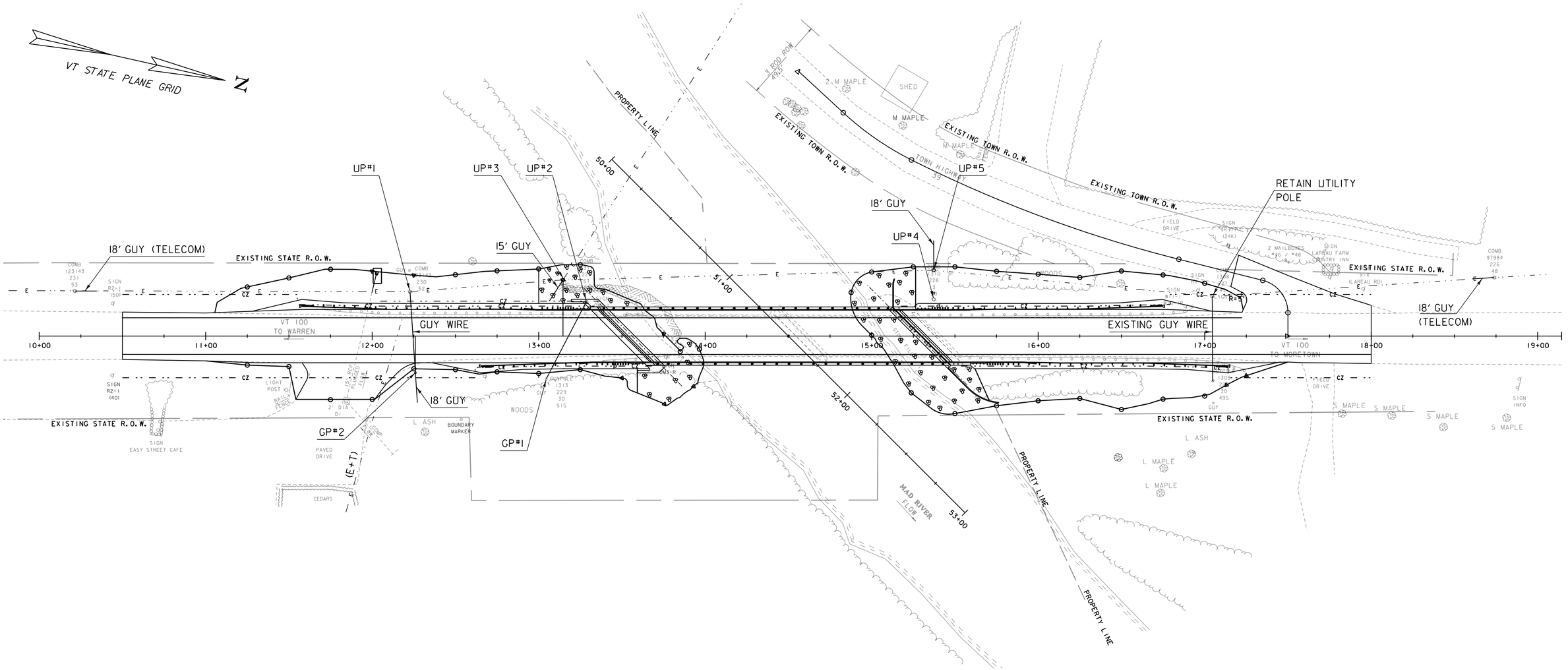
REVISIONS:	
DEC. 24, 2013	PLB
JAN. 22, 2014	PLB

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12bl36ero_det.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: J. SANTACRUCE
EPSC DETAILS SHEET 3

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 68 OF 69



LAYOUT

30 0 30

SCALE: 1" = 30'-0"

MARK	STATION	OFFSET	PHASING	NORTHING	EASTING	REMARKS	POLE NUMBER
UP#1	12+23	26' LT	PRE-CONSTRUCTION	1553141.47	609759.27	REMOVE EXISTING GUYS. ADD SPAN GUY AND DEAD END GUY.	123142/230/52
UP#2	13+28	21' LT	PRE-CONSTRUCTION	1553124.05	609863.93	REMOVE EXISTING UTILITY POLE AND LINES.	1311/229/51
UP#3	13+14	33' LT	PRE-CONSTRUCTION	1553114.43	609847.37	INSTALL NEW UTILITY POLE. ADD NEW GUY. RELOCATE ALL LINES FROM UP#2 to UP#3.	NEW POLE
UP#4	15+37	22' LT	PRE-CONSTRUCTION	1553076.96	610067.21	REMOVE EXISTING UTILITY POLE AND LINES.	1310/228/3/50
UP#5	15+37	40' LT	PRE-CONSTRUCTION	1553059.87	610063.37	INSTALL NEW UTILITY POLE WITH NEW 18' GUY WIRE. RELOCATE ALL LINES FROM UP#4 TO UP#5.	NEW POLE
GP#1	13+04	25' RT	PRE-CONSTRUCTION	1553174.52	609850.64	REMOVE EXISTING GUY POLE AND GUYS.	1313/229/30/51S
GP#2	12+16	22' RT	PRE-CONSTRUCTION	1553188.27	609773.09	INSTALL NEW GUY POLE WITH NEW GUY WIRE TO UP#1, AND NEW 18' SLOPE GUY.	NEW POLE

RIGHT OF WAY NEEDS

1. PERMANENT 12.5' AERIAL TRIM RIGHTS FOR RELOCATED ELECTRICAL LINES.
2. PERMANENT EASEMENT FOR GUY WIRE ATTACHED TO UP#5.
3. PERMANENT ACCESS EASEMENT TO UP#5.
4. PERMANENT AERIAL TRIM RIGHTS FOR RELOCATED ELECTRICAL ACROSS MAD RIVER

McFarland Johnson

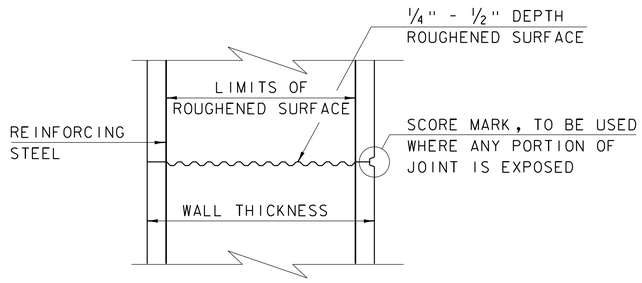
PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12b136utl.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
UTILITY RELOCATION PLAN

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 69 OF 69

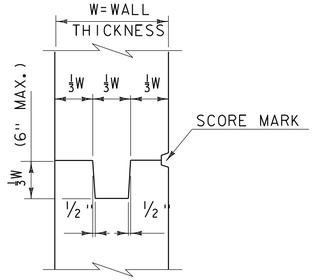
CONCRETE GENERAL NOTES

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.

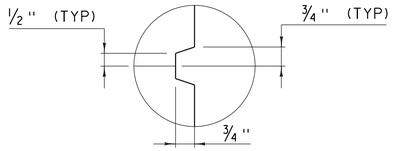


TYPICAL HORIZONTAL CONSTRUCTION JOINT
(NOT TO SCALE)

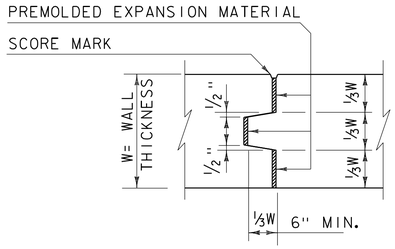
1. THE SURFACE OF THE CONCRETE CONSTRUCTION JOINTS SHALL BE CLEANED AND FREE OF LAITANCE.
2. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.



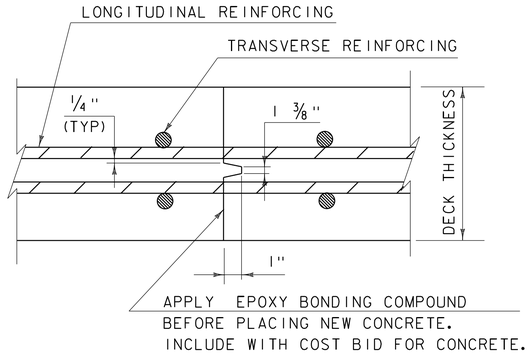
TYPICAL CONCRETE CONSTRUCTION JOINT
(NOT TO SCALE)



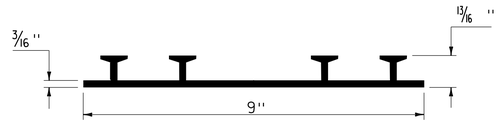
SCORE MARK DETAIL
(NOT TO SCALE)



TYPICAL CONCRETE EXPANSION JOINT
(NOT TO SCALE)



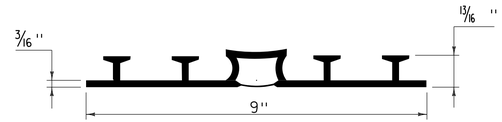
TRANSVERSE BRIDGE SLAB CONSTRUCTION JOINT DETAILS
(NOT TO SCALE)



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.

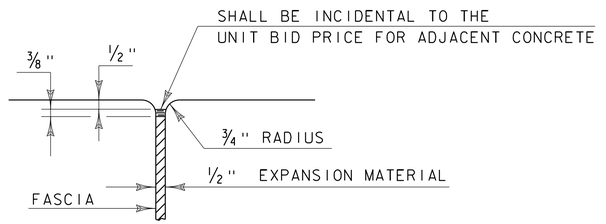
OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



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.



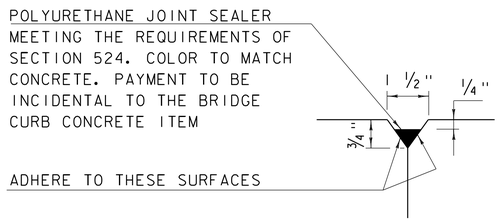
JOINT BETWEEN FASCIA AND WINGWALL
(NOT TO SCALE)

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

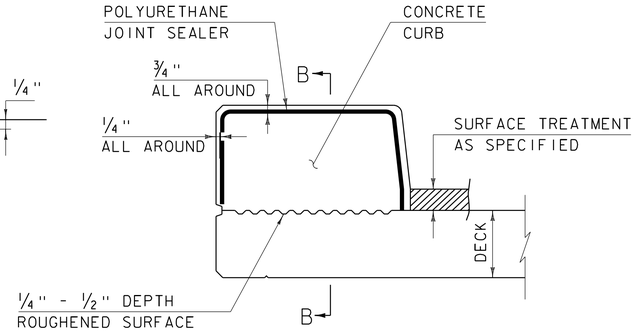
CONCRETE DETAILS AND NOTES

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

STRUCTURES DETAIL
SD-501.00

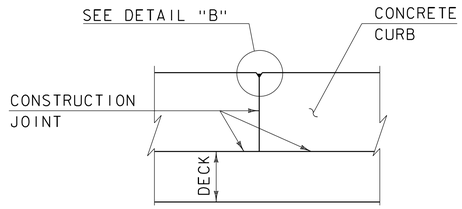


DETAIL "B"
(NOT TO SCALE)

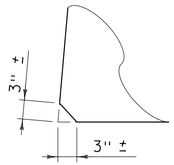


CONCRETE CURB JOINT SECTION
(NOT TO SCALE)

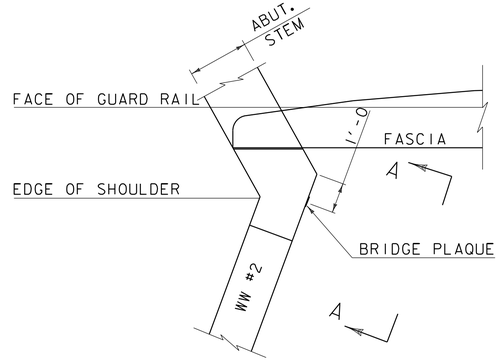
1. SEE TYPICAL HORIZONTAL CONSTRUCTION JOINT DETAIL FOR ADDITIONAL INFORMATION



SECTION B - B
(NOT TO SCALE)



ACUTE ANGLE CLIP DETAIL
(NOT TO SCALE)



PLAN

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.

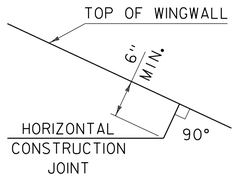
2. IF THE CONTRACTOR CHOOSES NOT TO USE AN APPROVED SHRINKAGE REDUCING ADMIXTURE, THE CURBS SHALL BE CONSTRUCTED WITH CONSTRUCTION JOINTS SPACED AT A MAXIMUM OF 15'-0" CENTER TO CENTER AND 2'-0" MINIMUM FROM THE CENTER OF NEAREST BRIDGE RAILING POST.

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.

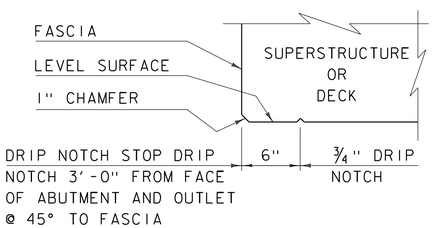
4. WHEN CURB JOINTS ARE USED THE CURBS SHALL BE PLACED IN ALTERNATE SECTIONS WITH A MINIMUM OF 48 HOUR DELAY BETWEEN ADJACENT PLACEMENTS.

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.

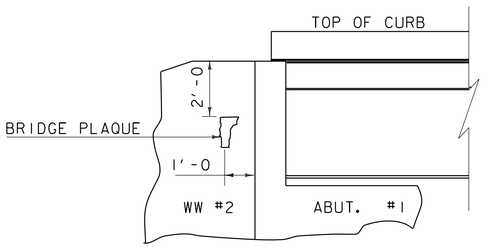
6. THE JOINT SPACING AND DETAILS SHOWN SHALL APPLY TO SIDEWALKS WHEN SHOWN IN THE PLANS.



HORIZONTAL WINGWALL CONSTRUCTION JOINT
(NOT TO SCALE)



DRIP NOTCH DETAIL
(NOT TO SCALE)



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.

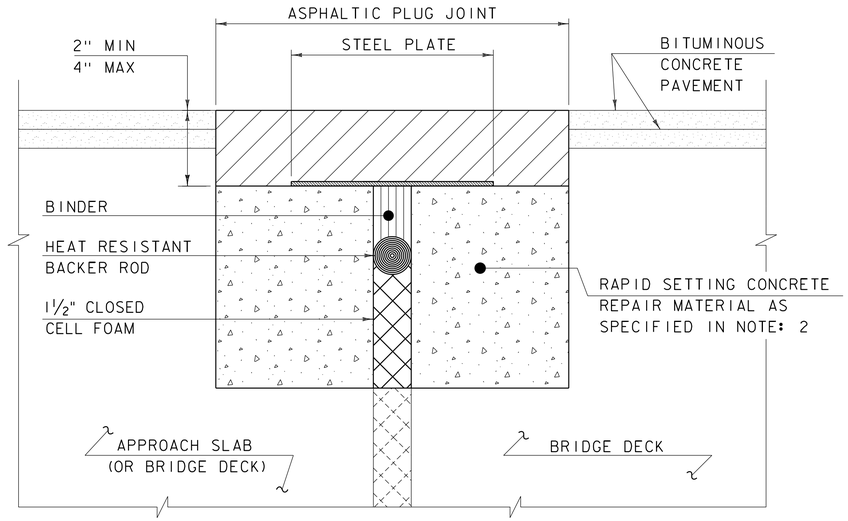
PAYMENT FOR INSTALLATION OF THE BRIDGE PLAQUE SHALL BE INCIDENTAL TO THE ADJACENT CONCRETE.

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

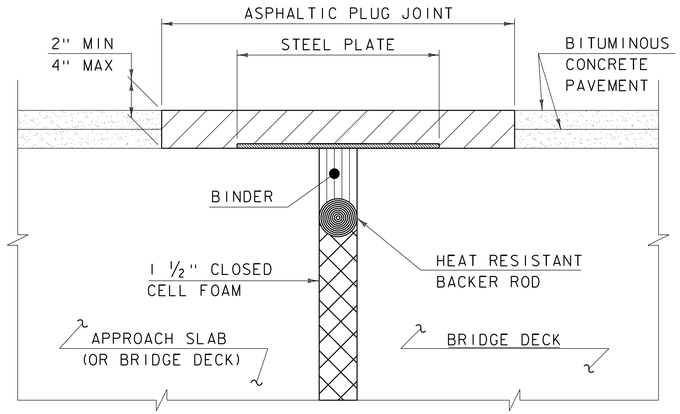
NOTES:

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.

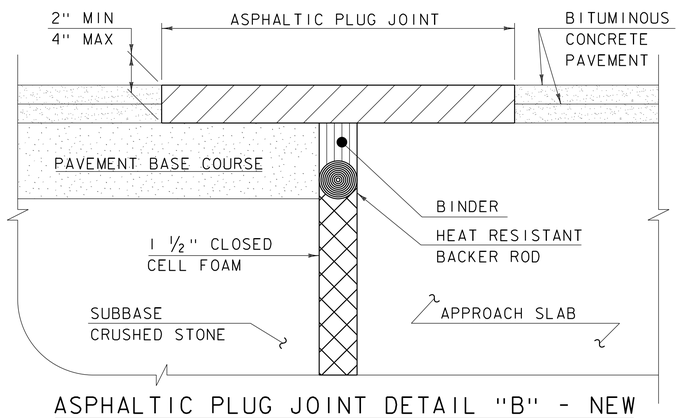
3. REINFORCING STEEL NOT SHOWN FOR CLARITY.

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.

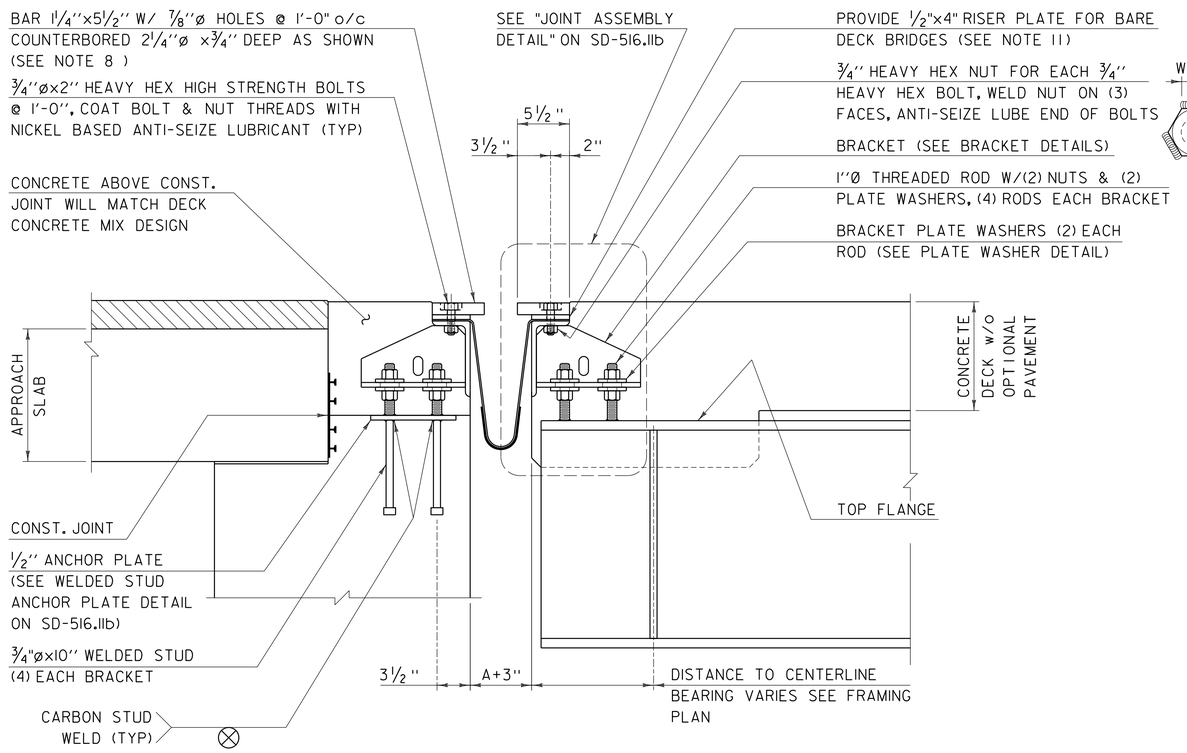
DETAILS ON THIS SHEET ARE NOT TO SCALE.

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

BRIDGE JOINT
ASPHALTIC PLUG

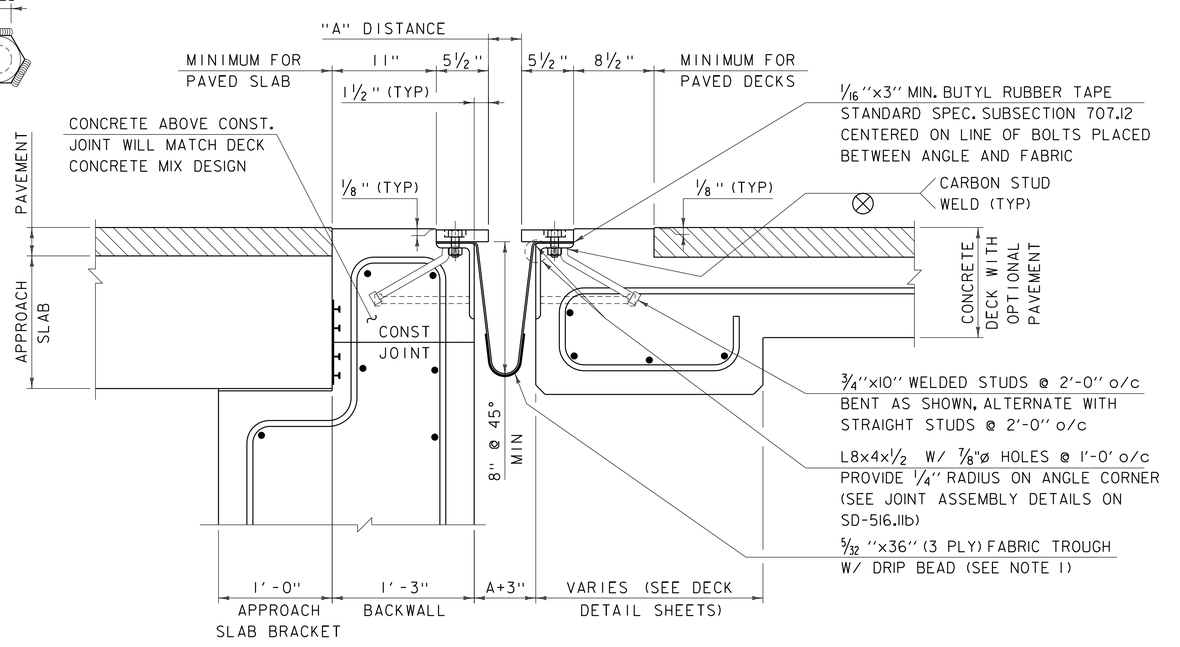
VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - DIVISION

STRUCTURES DETAIL
SD-516.10



TYPICAL SECTION AT GIRDERS

SCALE 1½" = 1'-0"



TYPICAL SECTION BETWEEN GIRDERS

SCALE 1½" = 1'-0"

NOTES FOR ITEM 516.11 "BRIDGE EXPANSION JOINT, VERMONT"

1. FABRIC TROUGH SHALL BE THOROUGHLY CLEANED AND FLUSHED AFTER PAVING OPERATION. A DRIP BEAD OF 1/4"x7" STRIP OF PREFORMED FABRIC MATERIAL SHALL BE CEMENTED TO THE BOTTOM OF THE FABRIC TROUGH USING AN ADHESIVE APPROVED BY THE MANUFACTURER. THE DRIP BEAD SHALL BE APPLIED 1" FROM THE DOWNSPOUT END OF THE TROUGH. PREFORMED FABRIC MATERIAL SHALL BE CONTINUOUS FOR THE FULL LENGTH OF THE JOINT.

2. THE EXPANSION DEVICE SHALL BE COVERED TO PROTECT THE FINISH DURING PLACING OF BRIDGE DECK CONCRETE.

3. SEE "JOINT GAP DIMENSION TABLE" FOR DISTANCE "A" VALUES IN TEMPERATURE RANGE PROVIDED.

4. JOINT BRACKET LENGTH "X" VARIES DEPENDENT ON THE BRIDGE SKEW ANGLE. THE BRACKET MUST BE LOCATED SUCH THAT THE THREADED RODS ARE NOT LESS THAN 1½" FROM GIRDERS END OR FLANGE SIDES.

5. ALL STEEL COMPONENTS SHALL BE GALVANIZED OR METALIZED AND MEET THE REQUIREMENTS OF SUBSECTION 516.02. PRIOR TO GALVANIZING OR METALIZING, ALL CORNERS AND EDGES OF STEEL PLATES, SHAPES, ETC., SHALL BE GROUND TO A 1/16" INCH RADIUS. THREADED RODS SHALL CONFORM TO THE REQUIREMENTS OF 714.04. THE "WELDED STUD ANCHOR PLATE" AND WELDED STUDS MAY BE SUPPLIED WITHOUT GALVANIZING OR METALIZING.

6. THE 4"x8"x1/2" ANGLES MAY BE FURNISHED AS ONE CONTINUOUS PIECE OR SPLICED AS SHOWN IN THE FIELD SPLICE DETAIL WHEN SPECIFIED. THE 1¼"x5 ½" BARS EACH SIDE OF THE JOINT SHALL BE PROVIDED IN TWO EQUAL LENGTHS.

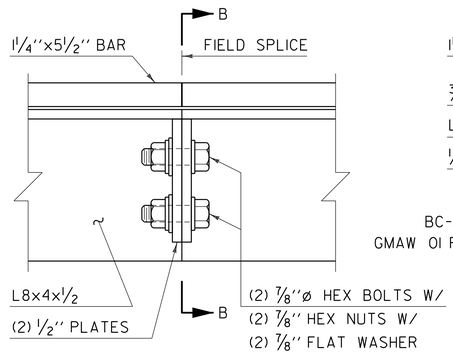
7. PROJECTING THREADS OF THE 3/4" Ø BOLTS IN THE JOINT SHALL BE GREASED BY THE CONTRACTOR PRIOR TO PLACING ADJACENT CONCRETE. THIS WILL FACILITATE BOLT REMOVAL IF REQUIRED IN THE FUTURE.

8. FILL COUNTERBORED HOLES WITH HOT POURED JOINT SEALER (STD. SPEC. 707.04) AFTER BOLT INSTALLATION. PAYMENT FOR THE WORK SHALL BE INCIDENTAL TO ITEM 516.11 "BRIDGE EXPANSION JOINT, VERMONT".

9. THE EXPANSION JOINT, INCLUDING THE FABRIC TROUGH, SHALL BE SHOP ASSEMBLED AND SHIPPED AS ONE UNIT. IF THE EXPANSION JOINT HAS A FIELD SPLICE SPECIFIED, THE FABRIC TROUGH SHALL BE SHIPPED WITH ONE UNIT AND ASSEMBLED WITH THE SECOND UNIT PRIOR TO CONCRETE PLACEMENT.

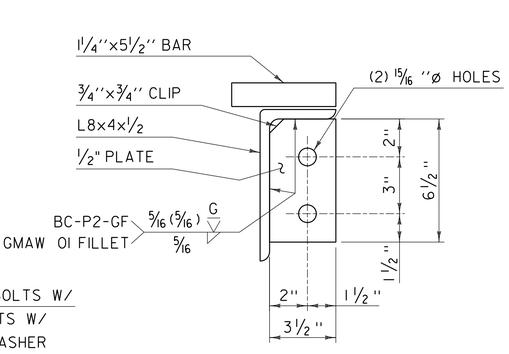
10. TEMPORARY SHIPPING ATTACHMENTS SHALL BE ATTACHED BY BOLTING; WELDING WILL NOT BE PERMITTED.

11. BARE DECK "RISER PLATE" AS SHOWN IN "TYPICAL SECTION AT GIRDERS" DRAWING SHALL BE INCLUDED ON BRIDGES WITH BARE CONCRETE DECK SPECIFIED. RISER PLATES SHALL BE INCLUDED FOR BOTH SIDES AND MATCH THE LENGTHS OF THE 1¼"x5½" BARS. THE RISER PLATE CAN BE REMOVED IF THE DECK IS MILLED IN THE FUTURE.



FIELD SPLICE DETAIL

SPLICE ONLY WHEN SPECIFIED ON PLANS.



SECTION "B-B"

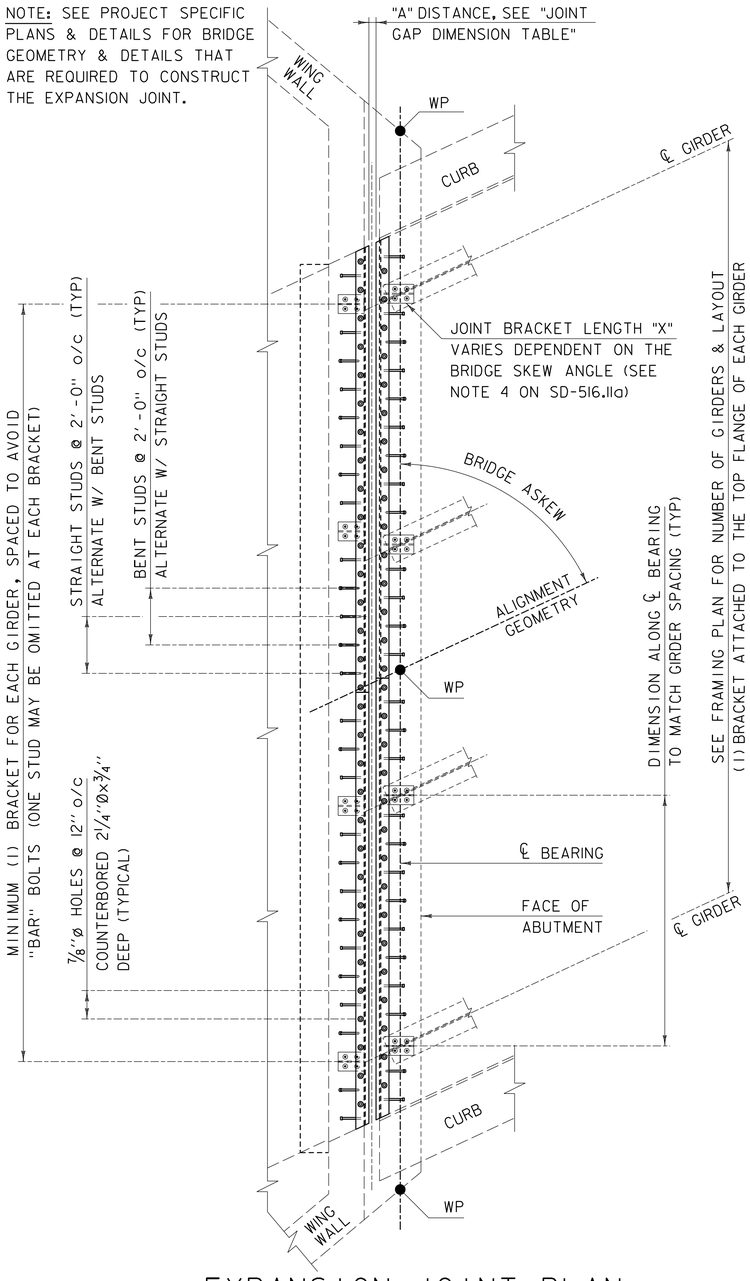
REVISIONS	
FEBRUARY 24, 2011	APPROVED FOR USE BY VAOT STRUCTURES SECTION

BRIDGE EXPANSION JOINT, VERMONT

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES SECTION

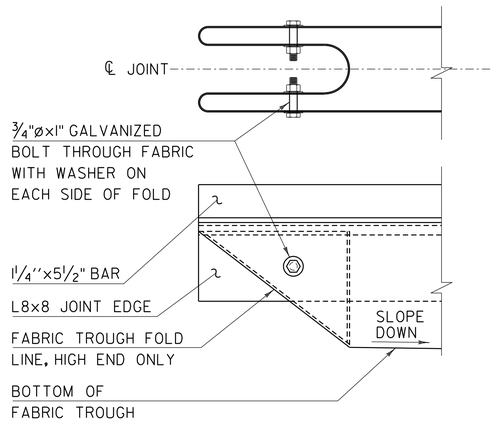
STRUCTURES DETAIL

SD-516.11a



EXPANSION JOINT PLAN

SCALE 3/8" = 1'-0"



FOLDED TROUGH END DETAIL

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

1. TROUGH SHALL BE FOLDED AT HIGH ENDS. TROUGH SHALL SLOPE AT MIN 2% DOWN TOWARD THE NEAREST DRAINAGE SPOUT HOPPER LOCATION.
2. BOLTS, NUTS AND WASHERS FOR FOLD SHALL MEET REQUIREMENTS OF SUBSECTION 714.04 AND SHALL BE GALVANIZED.

JOINT GAP DIMENSION TABLE

Temp (°F)	"A" Distance (in) Expansion Length (ft)				
	100 - 120	>120 - 140	>140 - 160	>160 - 180	>180 - 200
0	1 5/8	1 13/16	1 7/8	1 15/16	2 1/8
15	1 1/2	1 5/8	1 11/16	1 3/4	1 7/8
30	1 5/16	1 1/2	1 1/2	1 1/2	1 5/8
45	1 3/16	1 5/16	1 5/16	1 5/16	1 7/16
60	1 1/16	1 1/8	1 1/8	1 1/16	1 3/16
75	15/16	1	15/16	7/8	15/16
90	3/4	13/16	3/4	11/16	11/16
105	5/8	11/16	9/16	7/16	1/2

1) Expansion Length: Length of span, from Expansion Joint to nearest Fixed Bearing.
2) "A" Distance: measured distance during joint placement.
3) Temp: Approximate temperature of steel during joint placement.

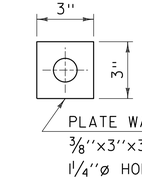
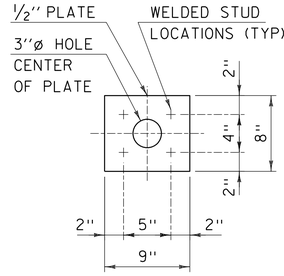


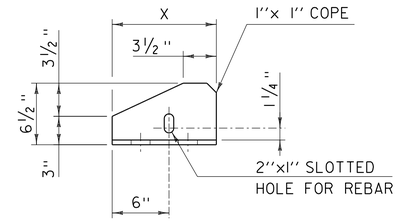
PLATE WASHER DETAIL

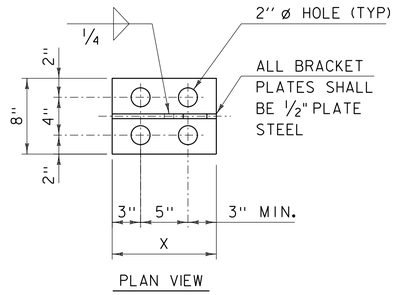
SCALE 3" = 1'-0"



WELDED STUD ANCHOR PLATE DETAIL

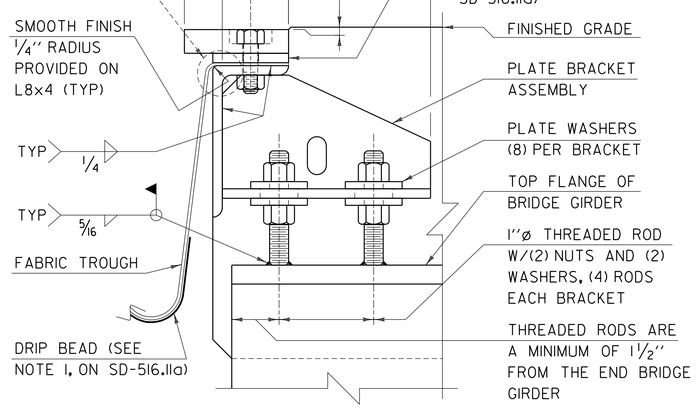
SCALE 1 1/2" = 1'-0"





BRACKET DETAILS

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



JOINT ASSEMBLY DETAIL

SCALE 3" = 1'-0"

REVISIONS	
FEBRUARY 24, 2011	APPROVED FOR USE BY VAOT STRUCTURES SECTION

BRIDGE EXPANSION JOINT, VERMONT

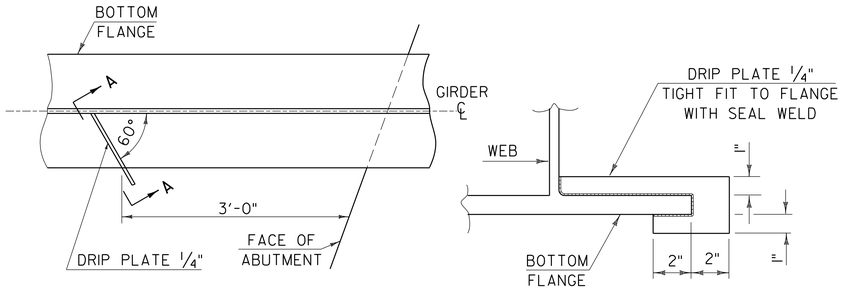
VERMONT AGENCY OF TRANSPORTATION ★ STRUCTURES - SECTION ★

STRUCTURES DETAIL

SD-516.11b

STRUCTURAL STEEL GENERAL NOTES:

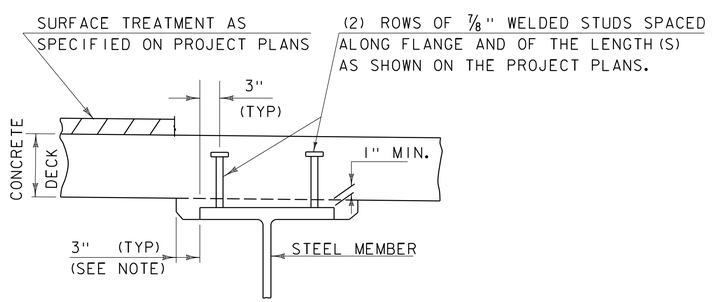
1. ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER HIGH-STRENGTH BOLTS IN 15/16" DIAMETER HOLES, PER SUBSECTION 506.19, UNLESS OTHERWISE SPECIFIED.
2. ALL HOLES IN THE WEBS OF THE FASCIA GIRDERS THAT ARE NOT OTHERWISE FILLED, SHALL BE FILLED WITH EITHER BUTTON HEAD OR HEX HEAD BOLTS. THESE BOLTS 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

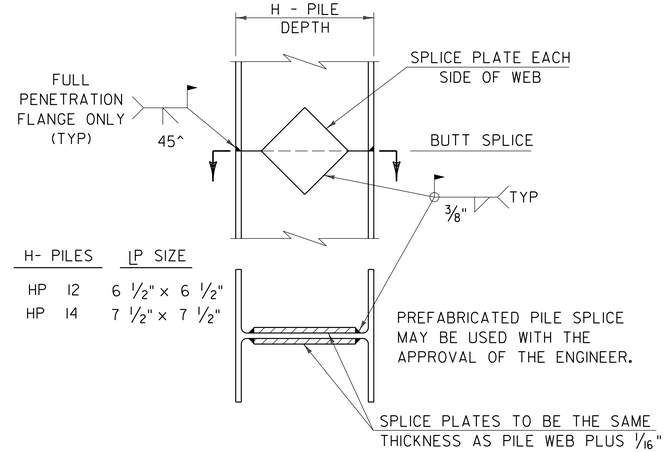
SECTION A - A

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



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

DETAIL OF PILE SPLICE

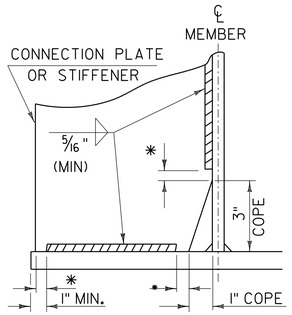
DETAILS ON THIS SHEET ARE "NOT TO SCALE" UNLESS NOTED OTHERWISE.

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

STRUCTURAL STEEL DETAILS & NOTES

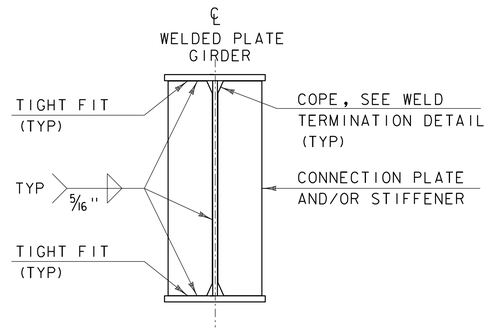
VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

STRUCTURES DETAIL
SD-601.00



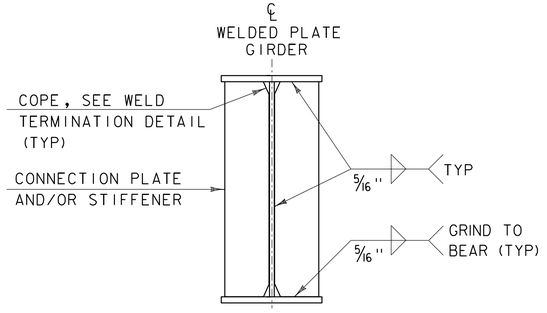
WELD TERMINATION AND COPING DETAILS FOR STEEL MEMBERS

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

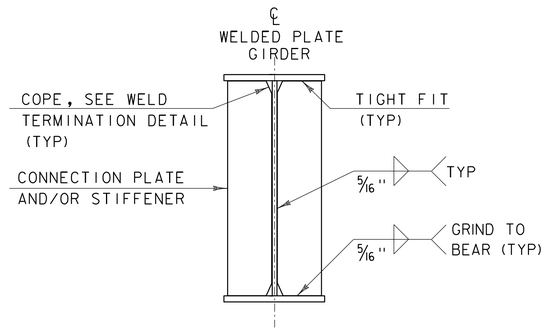


INTERMEDIATE CONNECTION PLATES AND/OR STIFFENERS FOR WELDED PLATE GIRDERS

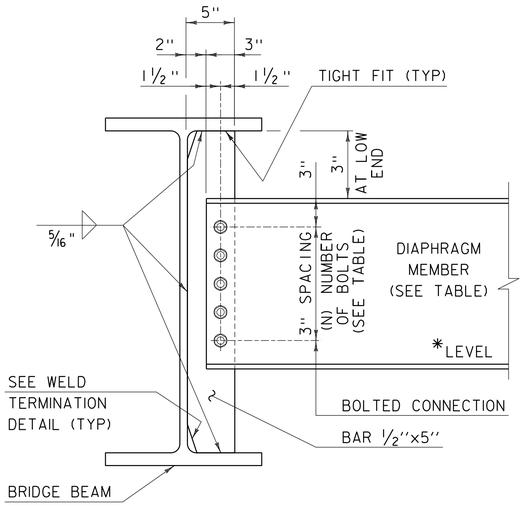
INTERMEDIATE DETAIL IS ONLY USED WHEN PLATE DOES NOT OCCUR AT AN ABUTMENT OR PIER.



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



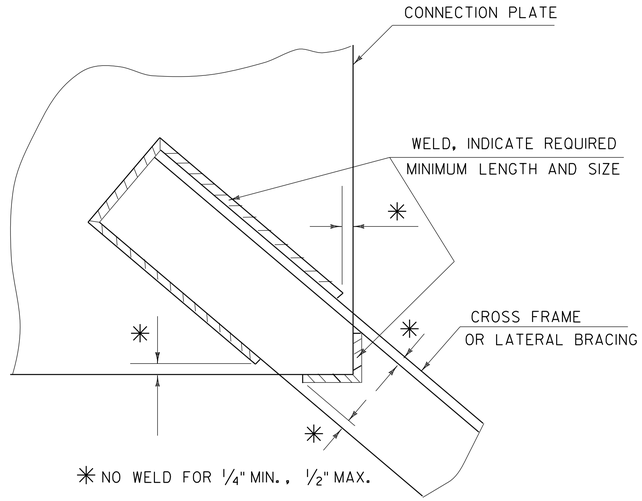
PIER BEARING STIFFENERS AND/OR CONNECTION PLATES FOR WELDED PLATE GIRDERS



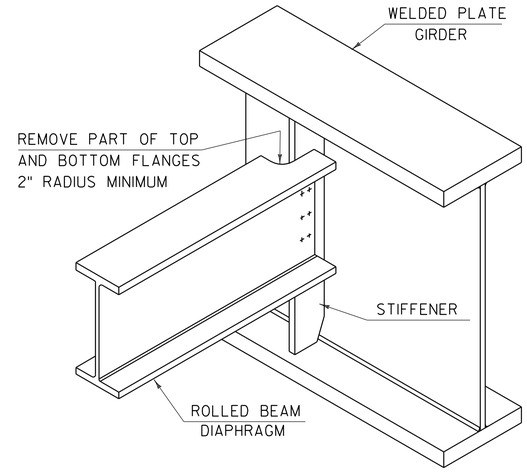
DEPTH		DIAPHRAGM MEMBER	(N) BOLTS
ROLLED BEAM	24" 30"	C15x33.9	4
	31" 36"	MC18x42.7	5
	37" 42"	W21x44	6
PLATE GIRDER WEB	31" 36"	W27x84	7
	37" 42"	W33x118	9
	43" 48"	W36x135	10

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

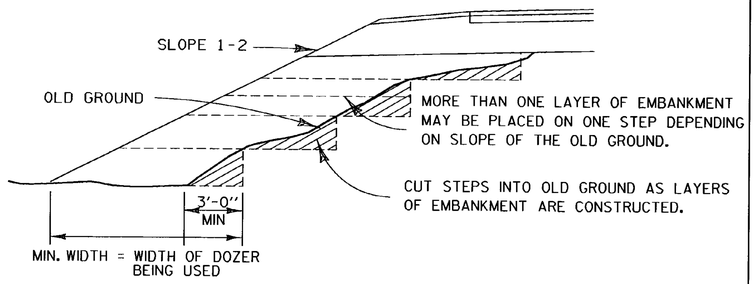
DETAILS ON THIS SHEET ARE "NOT TO SCALE" UNLESS NOTED OTHERWISE.

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

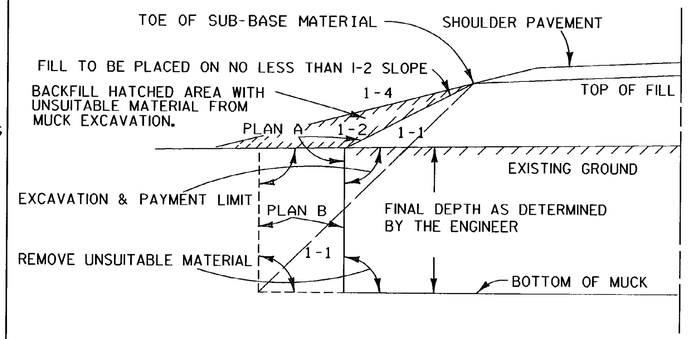
STRUCTURAL STEEL PLATE GIRDER DETAILS AND NOTES

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

STRUCTURES DETAIL SD-602.00



METHOD FOR CONSTRUCTING AN EMBANKMENT ON EARTH SLOPE



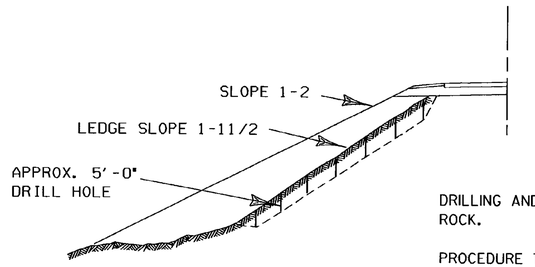
GENERAL NOTES :

THE MUCK OR UNSUITABLE MATERIAL SHALL BE EXCAVATED TO THE NEAT LINES SHOWN ON THE PLANS OR AS DETERMINED BY THE ENGINEER.

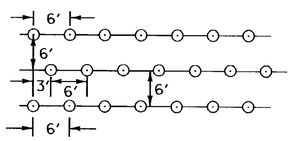
EXCAVATION AND PAYMENT LIMIT WILL BE DETERMINED FROM EITHER PLAN "A" OR PLAN "B", WHICHEVER PRODUCES THE GREATER WIDTH IN A GIVEN MUCK AREA.

BACKFILL MATERIAL MUST MEET THE REQUIREMENTS SET FORTH UNDER MUCK EXCAVATION,SECTION 203

TYPICAL NEAT PAY LINES FOR MUCK EXCAVATION



DRILL PATTERN

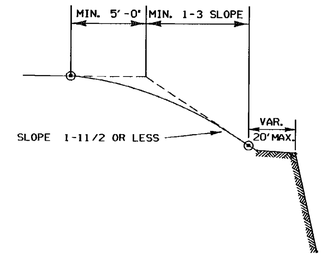


DRILLING AND BLASTING OF SOLID ROCK.

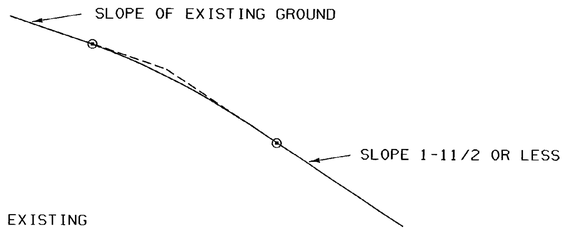
PROCEDURE TO BE FOLLOWED WHEN LEDGE SLOPE ON OLD GROUND IS BETWEEN A I-1 AND A I-5 SLOPE.

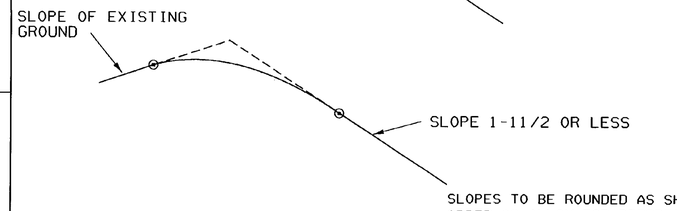
ALL HOLES TO BE APPROXIMATELY 5'-0" DEEP. HOLES TO BE IN ROWS, SPACED AND STAGGERED AS SHOWN IN DRILL PATTERN, OR AS DIRECTED BY THE ENGINEER, SEE SECTION 205

A METHOD FOR PREPARING LEDGE SLOPE BEFORE CONSTRUCTING AN EMBANKMENT



EARTH SECTIONS ABOVE STABLE ROCK OR EQUIVILENT OUTCROPS TO BE ROUNDED. AS FAR AS POSSIBLE AS THOUGH TOTAL HEIGHT OF SLOPE WAS IN EARTH CUT.

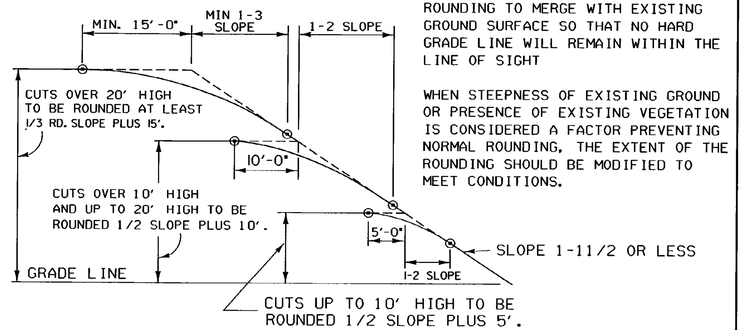




SLOPES TO BE ROUNDED AS SHOWN IN ORDER TO ALLOW FOR PERSPECTIVE FORESHORTENING AS SEEN FROM THE ROAD AND SO THAT FINISHED SLOPES WILL BETTER SUPPORT VEGETATIVE COVER.

ROUNDING TO MERGE WITH EXISTING GROUND SURFACE SO THAT NO HARD GRADE LINE WILL REMAIN WITHIN THE LINE OF SIGHT

WHEN STEEPNESS OF EXISTING GROUND OR PRESENCE OF EXISTING VEGETATION IS CONSIDERED A FACTOR PREVENTING NORMAL ROUNDING, THE EXTENT OF THE ROUNDING SHOULD BE MODIFIED TO MEET CONDITIONS.



TYPICAL SLOPE ROUNDING

REVISIONS AND CORRECTIONS

DEC. 6, 1971 - ORIGINAL APPROVAL DATE

JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.

APPROVED

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

Gordon S. MacMillan, P.E.
DIRECTOR OF ENGINEERING

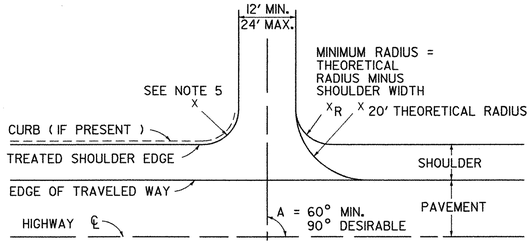
Peter M. Murphy, P.E.
DESIGN ENGINEER

EMBANKMENT ON EARTH SLOPE
EMBANKMENT ON ROCK SLOPE
MUCK EXCAVATION
TYPICAL SLOPE ROUNDING

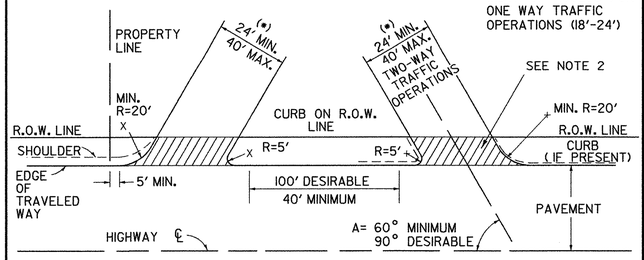
VERMONT AGENCY OF TRANSPORTATION

STANDARD B-5

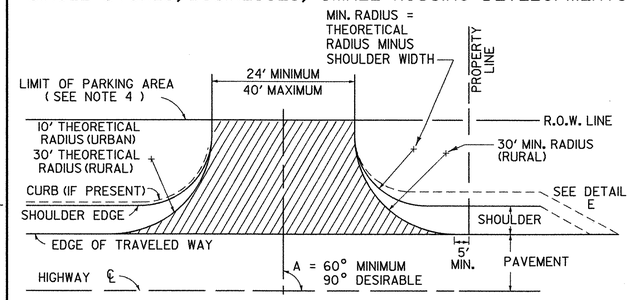
DETAIL A — RESIDENTIAL DRIVE



DETAIL B — DUAL COMMERCIAL DRIVE TO BE USED ONLY UNDER SPECIAL CONDITIONS

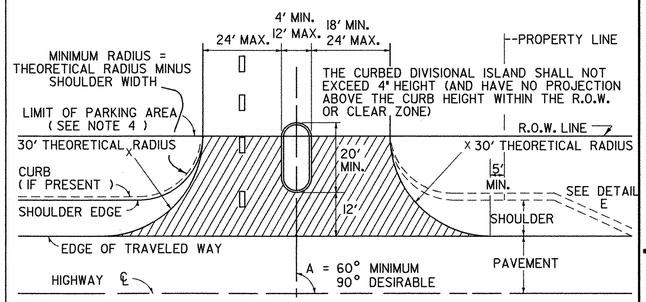


DETAIL C — TWO-WAY UNDIVIDED COMMERCIAL DRIVE FOR SINGLE STORES, BUSINESSES, SMALL HOUSING DEVELOPMENTS

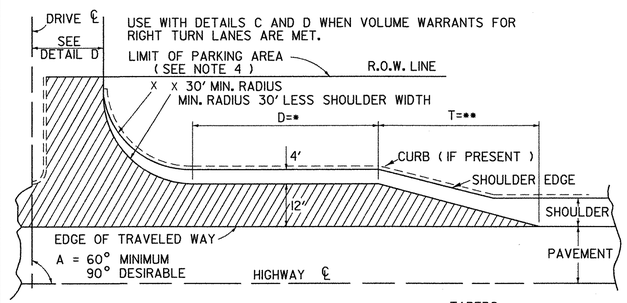


THIS DETAIL WILL ALSO APPLY TO COMMERCIAL SERVICE DRIVES, WHEN AUTHORIZED, HAVING A MAXIMUM WIDTH OF 20'. THE SERVICE DRIVE WILL HAVE A "SERVICE VEHICLES ONLY" SIGN PLACED AT THE HIGHWAY ROW LINE. SIGN SHALL BE 18"X 24" AS PRESCRIBED IN THE "STANDARD HIGHWAY SIGNS BOOK", A SUPPLEMENTAL PUBLICATION TO MUTCD.

DETAIL D — TWO-WAY COMMERCIAL DRIVE WITH DIVISIONAL ISLAND FOR SHOPPING CENTERS, LARGE HOUSING DEVELOPMENTS, INDUSTRIAL PLANTS AND SERVICE STATIONS



DETAIL E — RIGHT TURN LANE FOR COMMERCIAL DRIVE (UNSIGNALIZED INTERSECTIONS ONLY)

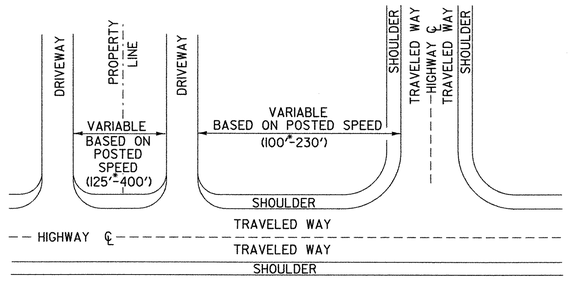


• STORAGE LENGTH IS VARIABLE DEPENDING ON TRAFFIC VOLUME AND MUST BE ADJUSTED TO PROVIDE PROPER DECELERATION LENGTH. REFER TO VAOT STANDARD E-192

TAPERS

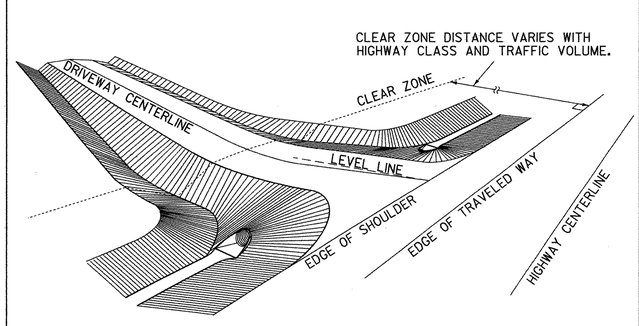
SPEED (MPH)	30	35	40	50
••LENGTH (MIN)(FT)(T)	100	120	140	180
RATE	8:1	10:1	12:1	15:1

DETAIL F — MINIMUM HORIZONTAL SEPARATION BETWEEN DRIVEWAYS AND INTERSECTING SIDEROADS

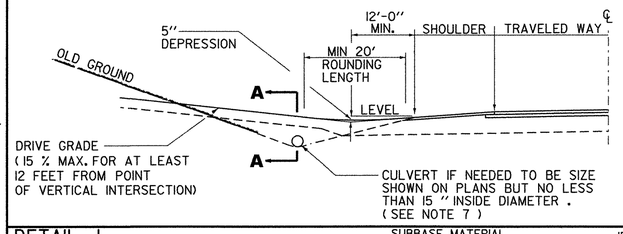


• MINIMUM UNLESS NO OTHER REASONABLE ACCESS IS AVAILABLE AND PRIOR APPROVAL IS GRANTED BY THE VAOT ITEMS SUCH AS TRAFFIC SIGNALS, HIGH TRAFFIC VOLUMES, OR FUNCTIONAL CLASS OF HIGHWAY SHOULD BE CONSIDERED WHEN DETERMINING APPROPRIATE SEPARATION DISTANCE. WHEN CURRENT RECOMMENDED SEPARATION DISTANCE CANNOT BE OBTAINED RESTRICTION OF TURNING MOVEMENTS MAY BE REQUIRED.

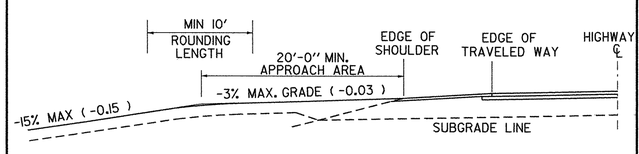
DETAIL G — PERSPECTIVE SKETCH OF DRIVE INTERSECTION SHOWING DEPRESSION



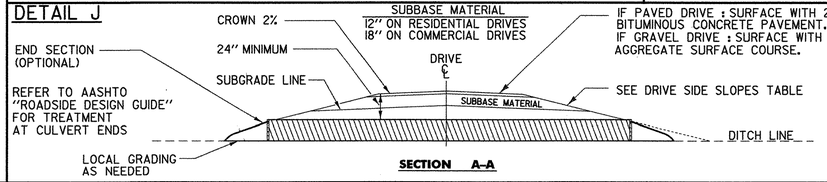
DETAIL H — PROFILE OF DRIVE INTERSECTION SHOWING 5" DEPRESSION (CUT SECTION)



DETAIL I — PROFILE OF DRIVE INTERSECTION (FILL SECTION)



DETAIL J



DRIVE SIDE SLOPES

LOCATION OF SLOPE	SLOPE RATE
V > 40 MPH	1:6 OR FLATTER
URBAN AREAS, OR V ≤ 40 MPH	1:4 DESIRABLE 1:2 ALLOWABLE
OUTSIDE CLEAR ZONE	1:2 OR FLATTER

NOTES:

1. THIS SHEET IS INTENDED FOR USE BY DESIGNERS ON HIGHWAY PROJECTS AND IN CONJUNCTION WITH A PERMIT FOR WORK WITHIN HIGHWAY RIGHTS OF WAY (FORM TA 210). ALL CONSTRUCTION REQUIRED BY THE PERMIT AND INDICATED ON THIS SHEET SHALL BE THE RESPONSIBILITY OF THE APPLICANT AND IS SUBJECT TO THE APPROVAL OF THE VT. AGENCY OF TRANSPORTATION. WHEN USED WITH THE PLANS FOR A HIGHWAY CONSTRUCTION PROJECT. THIS SHEET IS INTENDED TO BE A GUIDE FOR THE DESIGNER CONCERNING DRIVE WIDTHS, HORIZONTAL, VERTICAL AND GEOMETRIC CHARACTERISTICS.
2. ALL COMMERCIAL DRIVES SHALL BE PAVED FROM THE EDGE OF THE TRAVELED WAY TO THE HIGHWAY RIGHT-OF-WAY, TO THE FARTHEST POINT OF CURVATURE ON THE DRIVEWAY EDGE OR AS DIRECTED BY THE DISTRICT TRANSPORTATION ADMINISTRATOR. THIS PAVING IS INDICATED IN DETAILS (B THRU E) BY HATCHING.
3. DEPTH OF SUBBASE AND PAVEMENT TO BE THE SAME AS HIGHWAY OR AS SHOWN IN DETAIL J WITHIN THE LIMITS OF THE HIGHWAY RIGHT-OF-WAY.
4. VEHICULAR ACCESS FROM PARKING AREAS TO THE RIGHT-OF-WAY AT OTHER THAN APPROVED ACCESS POINTS WILL BE PREVENTED BY THE CONSTRUCTION OF CURBING OR OTHER SUITABLE PHYSICAL BARRIER.
5. IF CURB IS PRESENT, SEE APPROPRIATE CURB DETAIL STANDARD OR MATCH TOWN/CITY STANDARD CURB TREATMENT.
6. WHERE TRAFFIC VOLUME FOR A PROJECT IS SUBSTANTIAL THE AGENCY MAY REQUIRE SPECIAL LANES FOR TURNING, SIGNALS OR OTHER MODIFICATIONS. BASED ON TRAFFIC STUDIES THE AGENCY WILL DETERMINE SPECIFIC TREATMENT TO BE USED. ON DEVELOPER PROJECTS THE AGENCY WILL WORK WITH THE APPLICANT TO IMPLEMENT CHANGES TO THE STATE HIGHWAY.
7. CIRCULAR DRAINAGE CULVERTS UNDER DRIVES SHALL HAVE A MINIMUM INSIDE DIAMETER (I.D.) OF 15". PIPE ARCHES USED UNDER DRIVES SHALL HAVE A MINIMUM INSIDE CROSS-SECTIONAL AREA EQUIVALENT TO THAT PROVIDED BY A 15" CIRCULAR PIPE.
8. THE OFFSET BETWEEN THE PROPERTY LINE AND THE EDGE OF THE DRIVEWAY MAY BE GOVERNED BY LOCAL ZONING LAWS. DRIVEWAY WIDTH RESTRICTIONS SHOWN PERTAIN ONLY TO THE AREA WITHIN THE HIGHWAY R.O.W. OR THE END OF THE TURNING RADIUS WHICHEVER IS GREATEST.
9. DRIVEWAY GRADES STEEPER THAN THOSE SHOWN MAY BE ALLOWED AS LONG AS A 20' APPROACH AREA IS ACHIEVED FOR THE VEHICLE TO PAUSE BEFORE ENTERING THE HIGHWAY. (WHERE CURB & SIDEWALKS EXIST, SEE STANDARDS C-2A & C-2B)
10. INTERSECTION SIGHT DISTANCES, EQUAL TO OR GREATER THAN THOSE SHOWN BELOW, SHOULD BE PROVIDED IN BOTH DIRECTIONS FOR ALL DRIVES ENTERING ON PUBLIC HIGHWAYS, UNLESS OTHERWISE APPROVED BY THE AGENCY OF TRANSPORTATION. INTERSECTION SIGHT DISTANCE IS MEASURED FROM A POINT ON THE DRIVE AT LEAST 15 FEET FROM THE EDGE OF TRAVELED WAY OF THE ADJACENT ROADWAY AND MEASURED FROM A HEIGHT OF EYE OF 3.5 FEET ON THE DRIVE TO A HEIGHT OF 3.50 FEET ON THE ROADWAY.

SIGHT DISTANCE CHART

POSTED SPEED OR DESIGN SPEED (M.P.H.)	MINIMUM STOPPING SIGHT DISTANCE (FT)	MINIMUM INTERSECTION SIGHT DISTANCE • (FT)
25	155	280
30	200	335
35	250	390
40	305	445
45	360	500
50	425	555
55	495	610
60	570	665
65	645	720

THE ABOVE VALUES ARE TAKEN FROM THE 2004 AASHTO " A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS & STREETS."

NOTE : ADVANCE WARNING SIGNS WILL BE REQUIRED IF OBTAINABLE INTERSECTION SIGHT DISTANCES ARE BELOW MINIMUM STOPPING SIGHT DISTANCES.

THE CHART IS ENTERED TO SELECT DESIGN VALUES BASED ON THE POSTED SPEED LIMIT IN MPH. VALUES FOR DESIGN ARE CALCULATED BASED ON THE DESIGN SPEED IN MPH.

• ASSUMES A GAP OF 7.5 SECONDS IN THE TRAFFIC STREAM ON THE HIGHWAY MAINLINE BASED ON THE HIGHWAY DESIGN SPEED IN MPH. THIS ALLOWS A STOPPED PASSENGER VEHICLE TO ENTER THE MAINLINE FROM THE DRIVE WITHOUT UNDULY INTERFERING WITH THE HIGHWAY OPERATIONS.

REVISIONS AND CORRECTIONS

DEC. 11, 1992 - THIS STANDARD SUPERCEDES B-71 (7/23/80R), B-71A (3/12/90), AND B-13 (12/14/71).
JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.
MAR. 10, 1995 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.
NOV. 16, 2000 - CHANGES MADE TO CONFORM WITH LANGUAGE AND DIMENSIONS IN ACCESS MANAGEMENT PROGRAM GUIDELINES.
FEB 1, 2004 - CHANGES MADE TO SIGHT DISTANCE CHART TO CONFORM WITH NEWEST AASHTO CRITERIA.
JULY 8, 2005 - CHANGE MADE TO OBJECT HEIGHT TO CONFORM WITH NEWEST AASHTO CRITERIA

APPROVED

Richard D. Peterson
DIRECTOR OF PROGRAM DEVELOPMENT

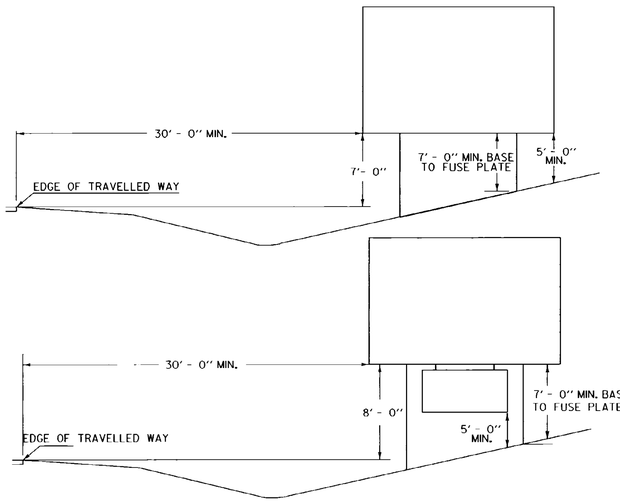
Craig S. Keller
CHIEF OF UTILITIES AND PERMITS

Michael Conway
FEDERAL HIGHWAY ADMINISTRATION

STANDARDS FOR RESIDENTIAL AND COMMERCIAL DRIVES

VERMONT AGENCY OF TRANSPORTATION

STANDARD B-71



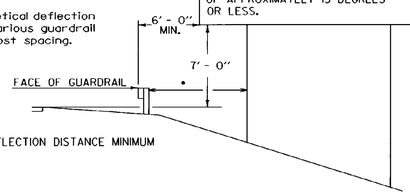
GUARDRAIL DEFLECTION CHART

(PER AASHTO - ROADSIDE DESIGN GUIDE - 1988)

TYPE		SPACING	DEFLEC.
Three Cable	w/Steel Posts	16'-0"	12 ft.
	w/Wooden Posts	12'-6"	12 ft.
W-Beam	w/WEAK Posts	12'-6"	7 ft.
	w/Strong Posts	6'-3"	3 ft.
Box Beam		6'-0"	5 ft.
Thrie Beam	w/Weak Posts	12'-6"	4 ft.
	w/Strong Posts	6'-3"	2 ft.

This chart lists the theoretical deflection distance upon impact of various guardrail with different type and post spacing.

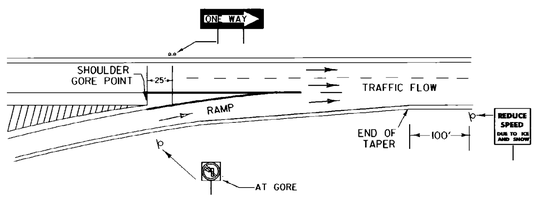
WHEN PLACED BEHIND GUARDRAIL AND BEYOND THE DEFLECTION DISTANCE FOR THAT PARTICULAR RAIL, SIGN POSTS DO NOT HAVE TO BE PLACED ON YIELDING SUPPORTS. SIGN POSTS SHALL BE PLACED ON YIELDING SUPPORTS WHEN THEY CAN BE STRUCK BY AN ERRANT VEHICLE LEAVING THE ROADWAY AT AN ENCROACHMENT ANGLE OF APPROXIMATELY 15 DEGREES OR LESS.



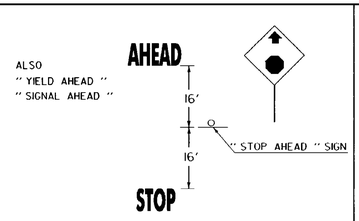
INSTALLATION DETAILS

NORMALLY SIGNS SHOULD BE MOUNTED AT 93° TO THE DIRECTION OF TRAFFIC. ON CURVED ALIGNMENT THE ANGLE OF PLACEMENT SHOULD BE DETERMINED BY THE PATH OF APPROACHING TRAFFIC RATHER THAN BY THE ROADSIDE EDGE AT THE POINT WHERE THE SIGN IS LOCATED.
WHEN INSTALLING OVERHEAD SIGNS, CANT THE SIGN FROM THE TOP TOWARD APPROACHING TRAFFIC AT A THREE DEGREE TILT ANGLE.

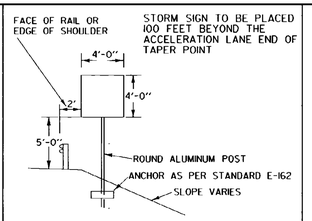
GUIDE SIGNS



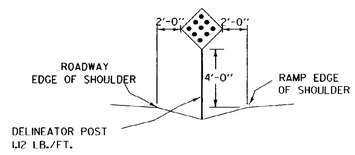
SIGN PLACEMENT AT END OF RAMP



WORD MARKING LAYOUT DETAIL



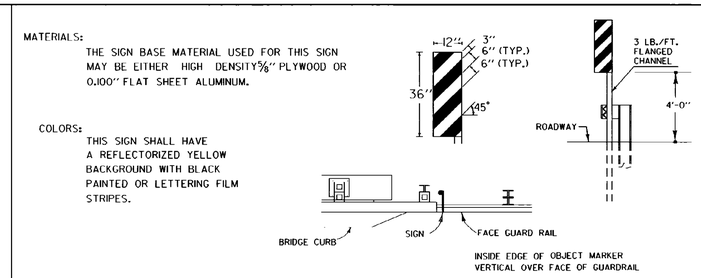
STORM SIGN



HAZARD MARKER

MATERIALS:
THE SIGN BASE MATERIAL USED FOR THIS SIGN MAY BE EITHER HIGH DENSITY ⅝" PLYWOOD OR 0.100" FLAT SHEET ALUMINUM.

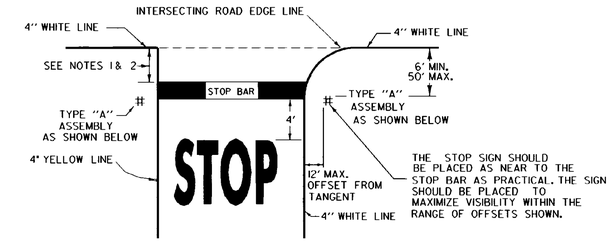
COLORS:
THIS SIGN SHALL HAVE A REFLECTORIZED YELLOW BACKGROUND WITH BLACK PAINTED OR LETTERING FILM STRIPES.



OBJECT MARKER

(TO BE USED WHEN FULL WIDTH SHOULDERS ARE NOT CARRIED ACROSS THE BRIDGE)

MARKERS MOUNTED ON THE LEFT SIDE SHALL HAVE THE DIAGONAL STRIPES SLOPING TOWARD CENTERLINE



EXIT RAMP

SHOWN FOR ILLUSTRATION PURPOSES

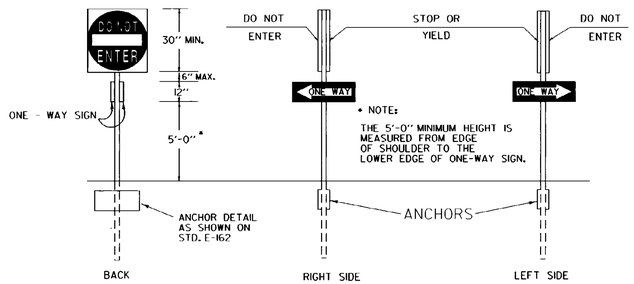
NOTES:

1. THE STOP BAR SHOULD BE PLACED AT THE DESIRED STOPPING POINT, IN NO CASE MORE THAN 30' OR LESS THAN 4' FROM THE NEAREST EDGE OF THE INTERSECTING ROADWAY.
2. AT A SIGNALIZED INTERSECTION, DELETE WORDING " STOP " AND THE STOP SIGN AND PLACE STOP BAR A MINIMUM OF 40' FROM THE NEAREST SIGNAL HEAD FOR THE APPROACH.
3. EXCLUDE THE STOP BAR FOR A YIELD CONDITION.

PAVEMENT MARKING & STOP SIGN LOCATION DETAILS

FOR OFF RAMP

TYPE "A" ASSEMBLY IS WITH "STOP" SIGN
TYPE "B" ASSEMBLY IS WITH "YIELD" SIGN

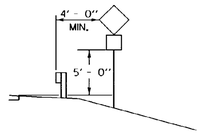


MOUNT ON - 3 LBS/FT FLANGED CHANNEL

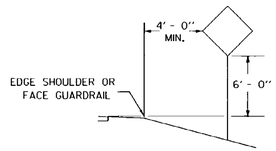
(SEE BRACKET DETAIL AS SHOWN ON STD. E-160)

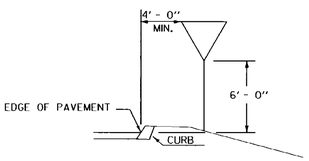
REGULATORY SIGN ASSEMBLY DETAIL

FOR OFF RAMP



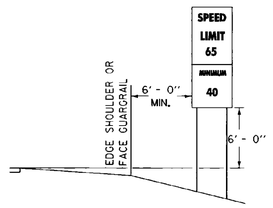
SIGN WITH SUPPLEMENTAL PLAQUE





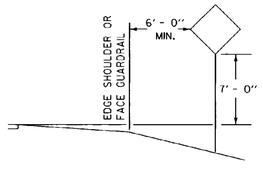
STANDARD SIGN PLACEMENT

RAMP

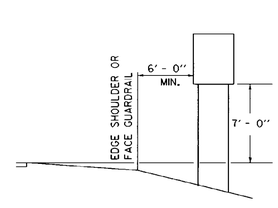


REGULATORY SIGN

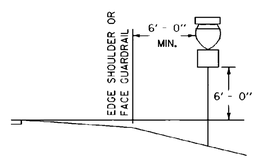
SPEED LIMIT SIGN TO BE PLACED 1600 FEET BEYOND THE END OF THE ACCELERATION LANE TAPER POINT.



WARNING SIGN

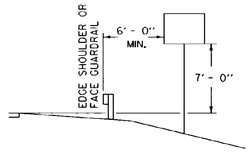


REGULATORY SIGN

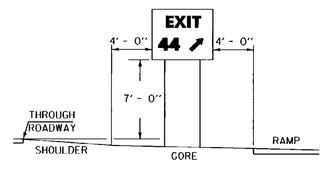


ROUTE MARKER

ROUTE REASSURANCE MARKER TO BE PLACED 600' BEYOND THE END OF THE ACCELERATION LANE TAPER POINT



GUIDE SIGN



GORE SIGN

STANDARD SIGN PLACEMENT

MAINLINE

OTHER STDS. REQUIRED: E-160 E-161 E-162 E-163

REVISIONS AND CORRECTIONS

APR. 01, 1988 - DATE OF ORIGINAL ISSUE
JUNE 21, 1989 - FHWA - CHANGE TO 7' FUSE PLATE CLEARANCE
AUG. 08, 1995 - DELETED TWO RAIL ALUMINUM FROM DEFLECTION CHART AND MINOR NOTE REVISIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon S. MacArthur
DIRECTOR OF ENGINEERING

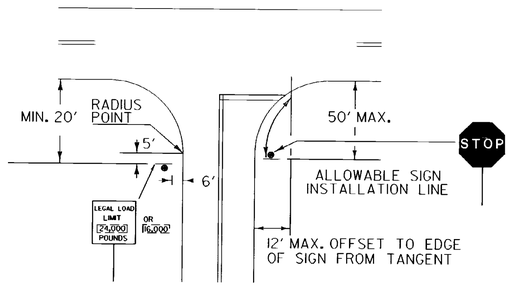
David A. Ross
TRAFFIC AND SAFETY ENGINEER

STANDARD SIGN PLACEMEMT EXPRESSWAY AND FREEWAY

/traf/std/stdel20.dgn : stdel20.i

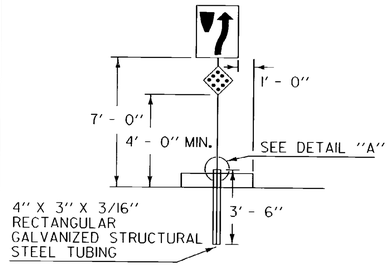
VERMONT AGENCY OF TRANSPORTATION

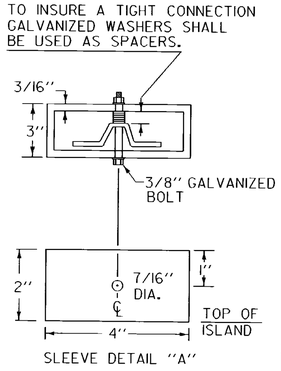
STANDARD E-120



STOP SIGN SHALL BE PLACED ON DRIVERS RIGHT, MAINTAINING MAXIMUM VISIBLITY. CLEARANCE SHALL BE A MINIMUM OF 6' AND A MAXIMUM OF 50' FROM EDGE LINE OF INTERSECTING ROADWAY AND DOES NOT HAVE TO BE ADJACENT TO THE STOP BAR.

LEGAL LOAD LIMIT AND STOP SIGNS AT INTERSECTIONS WITH TOWN HIGHWAYS

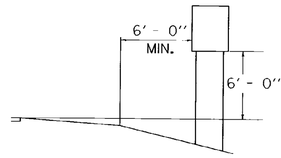


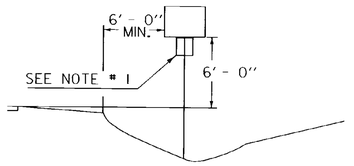


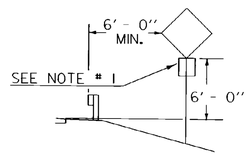
SLEEVE DETAIL "A"

SIGNS ON MEDIAN ISLANDS IN THE LINE OF TRAFFIC

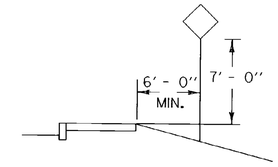
INCREASE VERTICAL CLEARANCE TO 7' IN AREAS OF FREQUENT ROADSIDE PARKING OR PEDESTRIAN ACTIVITY

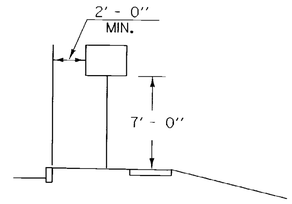




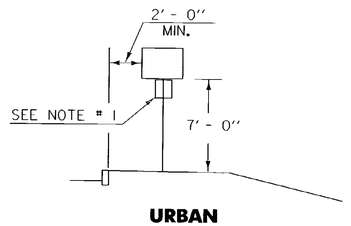


RURAL





IF SUFFICIENT CLEARANCE IS NOT AVAILABLE BETWEEN CURB AND SIDEWALK MOUNT SIGN BEHIND SIDEWALK AS SHOWN AT TOP. CHECK FOR ADEQUATE R.O.W..



URBAN

NOTES:

1. IN BOTH RURAL AND URBAN LOCATIONS. IF A SECONDARY SIGN IS MOUNTED BELOW ANOTHER SIGN, THE MINIMUM CLEARANCE MAY BE REDUCED BY ONE FOOT.
2. IN RURAL AREAS WITH NO OR MINIMAL SHOULDER, THE LATERAL CLEARANCE TO THE EDGE OF A SIGN SHOULD BE A MINIMUM OF 12' FROM THE EDGE OF THE TRAVELED WAY.
3. ALSO SEE OTHER STANDARD SHEETS FOR MOUNTING CLEARANCE AND SPACING OF DESTINATION AND ROUTE MARKER ASSEMBLIES AND TOWN LINE SIGNS.

POST REFERENCE:

REFER TO THE DETAILS ON THE APPROPRIATE STANDARD DRAWING FOR INFORMATION CONCERNING THE PROPER MOUNTING OF SIGNS ON APPROPRIATE POSTS.

OTHER STDS. REQUIRED: **E-160** **E-161** **E-162** **E-163** **E-164**

REVISIONS AND CORRECTIONS

JAN. 23, 1995 - DATE OF ORIGINAL ISSUE

AUG. 08, 1995 - VARIOUS MINOR NOTE REVISIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon S. MacArthur
DIRECTOR OF ENGINFERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

STANDARD SIGN PLACEMENT CONVENTIONAL ROAD

/traf/std/stdel21.dgn : stdel21.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-121

STREET NAME SIGNS NOTES

DESIGN

LETTERS, DIGITS, ARROWS, SYMBOLS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE "STANDARD HIGHWAY SIGNS BOOK" AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION (FHWA).

MATERIALS

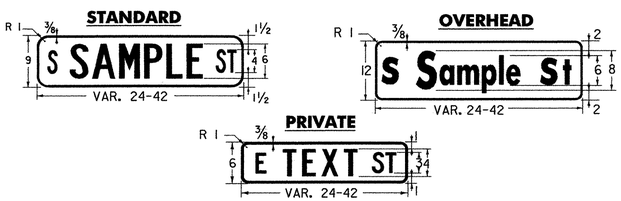
THE SIGN BASE MATERIALS USED FOR THE STREET SIGNS MAY BE EITHER OF THE FOLLOWING: A - EXTRUDED ALUMINUM BLADES WITH RETROREFLECTIVE SHEETING B - FLAT ALUMINUM BLADES WITH RETROREFECTIVE SHEETING
THE MATERIAL FOR THE BLADES SHALL BE EITHER EXTRUDED ALUMINUM WITH A 0.25 INCH FLANGE THICKNESS AND A 0.090 INCH WEBB (MIN) OR FLAT SHEET ALUMINUM WITH A MINIMUM THICKNESS OF 0.125 INCH. THE PREFERRED MOUNTING METHOD FOR STREET SIGNS IS POST TOP MOUNTING BRACKETS. HARDWARE FOR MOUNTING SIGNS TO POST SHALL BE INCIDENTAL TO OTHER ITEMS. MOUNTING METHOD WILL BE AS SHOWN ON THE PLANS. MINIMUM VERTICAL CLEARANCE IS 8 FEET TO THE BOTTOM OF THE SIGN. FOR POST TOP MOUNTINGS SIGNS SHALL HAVE TEXT ON BOTH SIDES.

COLORS

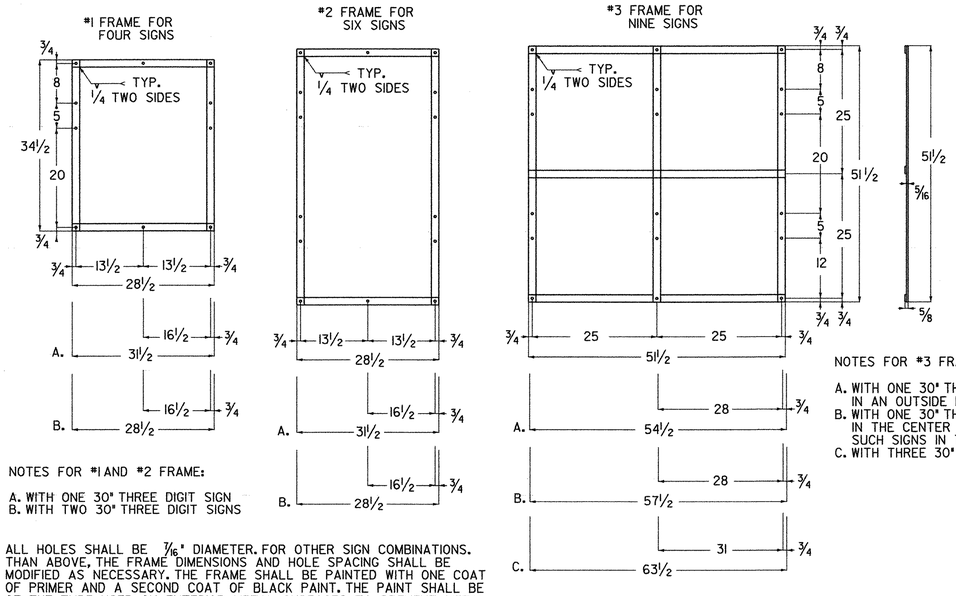
THE STREET SIGNS SHOWN ON THIS SHEET SHALL HAVE WHITE RETROREFLECTIVE ASTM TYPE III TEXT, ON A GREEN RETROREFLECTIVE ASTM TYPE III BACKGROUND. THE COLORS SHALL CONFORMWITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICALS AND APPROVED BY THE FHWA.

SPECIFICATIONS

STREET SIGNS SHALL MEET THE VAOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
STANDARD SIGNS - USE A 9 INCH HIGH BLADE WITH SERIES "B" LETTERING (MIN) WITH 6 INCH LETTERS FOR THE STREET NAME. 4 INCH LETTERS FOR OTHER TEXT. PVT. SIGNS - USE A 6 INCH HIGH BLADE WITH SERIES B LETTERING (MIN) WITH 4 INCH LETTERS FOR THE STREET NAME,3 INCH LETTERS FOR OTHER TEXT. OVERHEAD SIGNS USE A 12 INCH HIGH BLADE WITH 8 INCH UPPER CASE AND 6 INCH LOWER CASE LETTERS. FOR ALL 6, 9, 12 INCH BLADES USE LENGTHS OF 24, 30, 36 OR 42 INCH.



STREET NAME SIGNS



NOTES FOR #1 AND #2 FRAME:

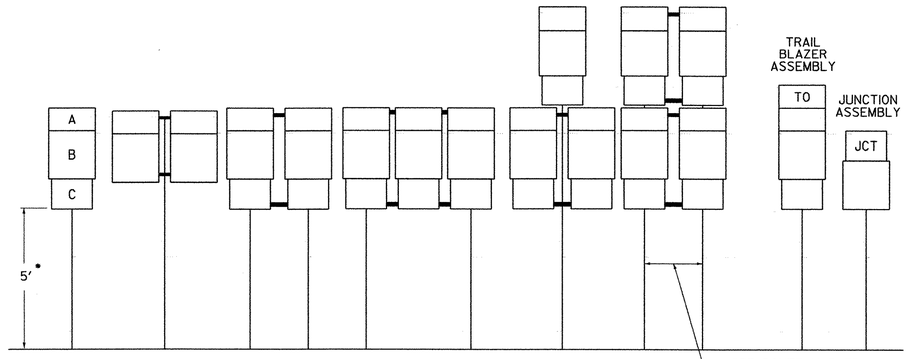
A. WITH ONE 30" THREE DIGIT SIGN
B. WITH TWO 30" THREE DIGIT SIGNS

NOTES FOR #3 FRAME:

A. WITH ONE 30" THREE DIGIT SIGN IN AN OUTSIDE POSITION.
B. WITH ONE 30" THREE DIGIT SIGN IN THE CENTER POSITION OR TWO SUCH SIGNS IN THE OUTSIDE POSITIONS.
C. WITH THREE 30" THREE DIGIT SIGNS.

ALL HOLES SHALL BE 7/16" DIAMETER. FOR OTHER SIGN COMBINATIONS. THAN ABOVE, THE FRAME DIMENSIONS AND HOLE SPACING SHALL BE MODIFIED AS NECESSARY. THE FRAME SHALL BE PAINTED WITH ONE COAT OF PRIMER AND A SECOND COAT OF BLACK PAINT. THE PAINT SHALL BE OF THE TYPE USED ON EXTERIOR METAL SURFACES TO PREVENT METAL CORROSION.
STANDARD FRAMES SHALL BE 5/16" x 1 1/2" WELDED DUCTILE IRON GRADE 60-40-18.

ROUTE MARKER ASSEMBLY FRAMES



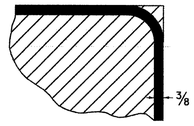
STANDARD MOUNTING OF ROUTE MARKER ASSEMBLIES

A - CARDINAL DIRECTION MARKER
B - ROUTE NUMBER
C - ADVANCE TURN ARROW OR DIRECTIONAL ARROW

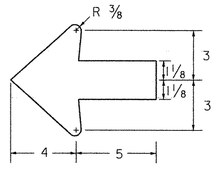
* WHERE PARKING OR PEDESTRIAN TRAFFIC WILL OCCUR IN THE IMMEDIATE VICINITY OF THESE SIGNS MINIMUM VERTICAL CLEARANCE SHALL BE INCREASED TO 7'

INSTALLATION SEQUENCE:

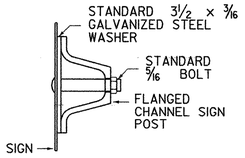
IN MULTIPLE HORIZONTAL MOUNTINGS PLACE A ROUTE MARKER ASSEMBLY INDICATING A LEFT TURN ON THE LEFT SIDE OF THE ASSEMBLY; RIGHT TURN ON THE RIGHT SIDE. FOR VERTICALLY STACKED MOUNTINGS PLACE THE STRAIGHT THROUGH MOVE INDICATION ON TOP, THE LEFT OR RIGHT TURNS AS APPROPRIATE BENEATH.



BORDER DETAIL

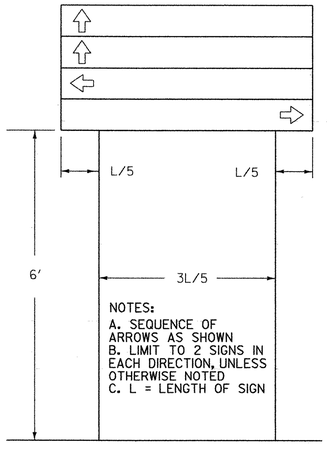


STANDARD ARROW

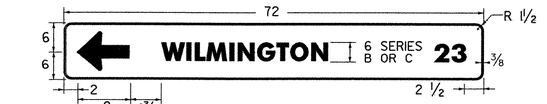


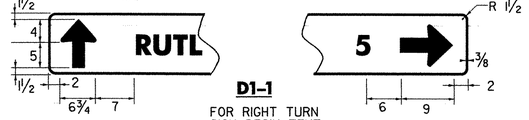
INSTALLATION DETAIL

(ALL DIMENSIONS SHOWN IN INCHES EXCEPT WHERE NOTED)



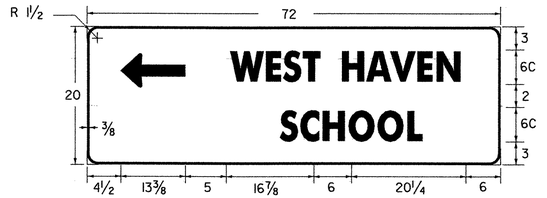
DESTINATION ASSEMBLY



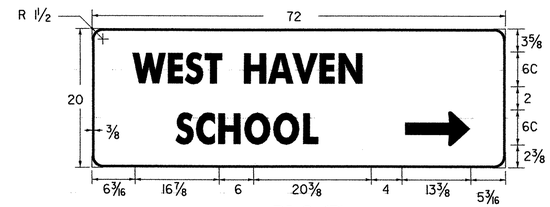


D1-1

FOR RIGHT TURN SIGN, BEGIN TEXT 2 1/2 FROM LEFT EDGE OF SIGN



D1-2 (L)



D1-2 (R)

STANDARD DESTINATION SIGNS

STANDARD DESTINATION SIGN NOTES

DESIGN

LETTERS, DIGITS, ARROWS, SYMBOLS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE "STANDARD HIGHWAY SIGNS BOOK" AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION (FHWA).

MATERIALS

THE SIGN BASE MATERIAL FOR STANDARD DESTINATION SIGNS SHALL BE HIGH DENSITY OVERLAYED PLYWOOD 5/8 INCH THICK OR FLAT SHEET ALUMINUM 1/8 INCH THICK.

COLORS

THE DESTINATION SIGNS SHOWN ON THIS SHEET SHALL HAVE WHITE RETROREFLECTIVE ASTM TYPE III TEXT, ARROWS AND BORDERS ON A GREEN RETROREFLECTIVE ASTM TYPE III BACKGROUND. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY AASHTO AND APPROVED BY THE FHWA.

APPLICATION

MULTIPLE ASSEMBLIES SHALL USE THE SAME SIZE THROUGHOUT.

SPECIFICATIONS

DESTINATION SIGNS SHALL MEET THE VAOT STANDARD SPECIFICATIONS FOR CONSTRUCTION "TRAFFIC SIGNS". ALL BORDERS ARE 3/8 INCH

OTHER STDS. E-160, E-164 REQUIRED:

REVISIONS AND CORRECTIONS

APR. 01, 1988 - DATE OF ORIGINAL ISSUE
JAN. 23, 1989 - DELETED TOWN LINE INFO.
AUG. 08, 1995 - REVISED DESTINATION SIGN DETAILS DETAILED SIGN LOCATION TYPICAL
MARCH 16, 2004 - REVISED ROUTE MARKER ASSEMBLY FRAMES DETAIL CHANGED SIZE OF D-BOARDS

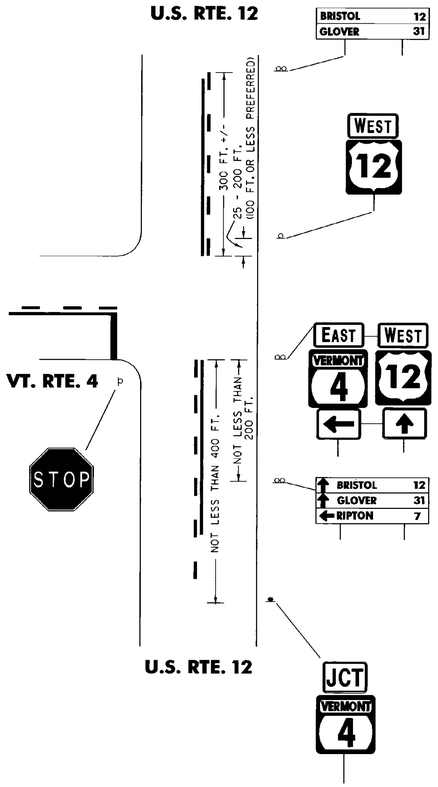
APPROVED

DIRECTOR OF PROGRAM DEVELOPMENT
TRAFFIC OPERATIONS ENGINEER
FEDERAL HIGHWAY ADMINISTRATION

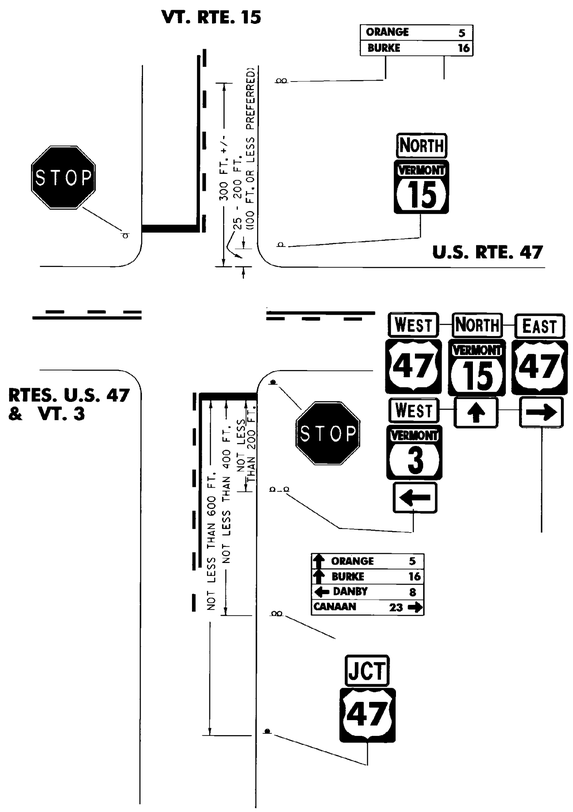
GUIDE SIGN PLACEMENT MISCELLANEOUS DETAILS

VERMONT AGENCY OF TRANSPORTATION

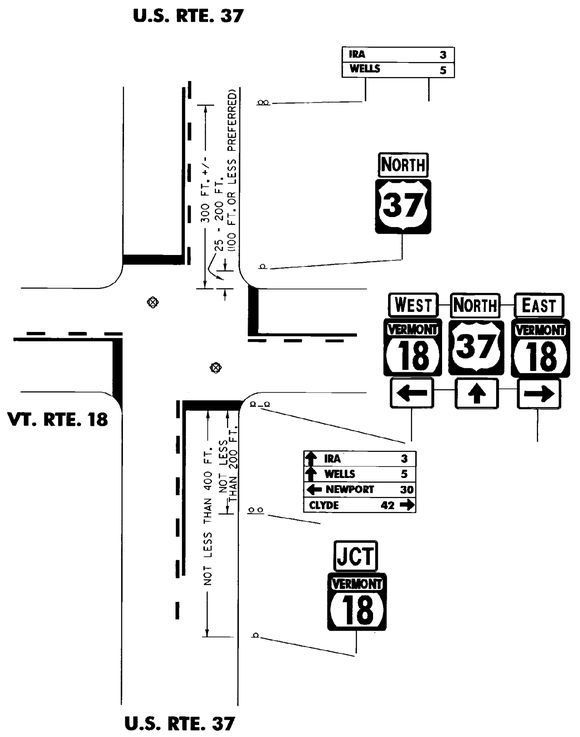
STANDARD
E-123



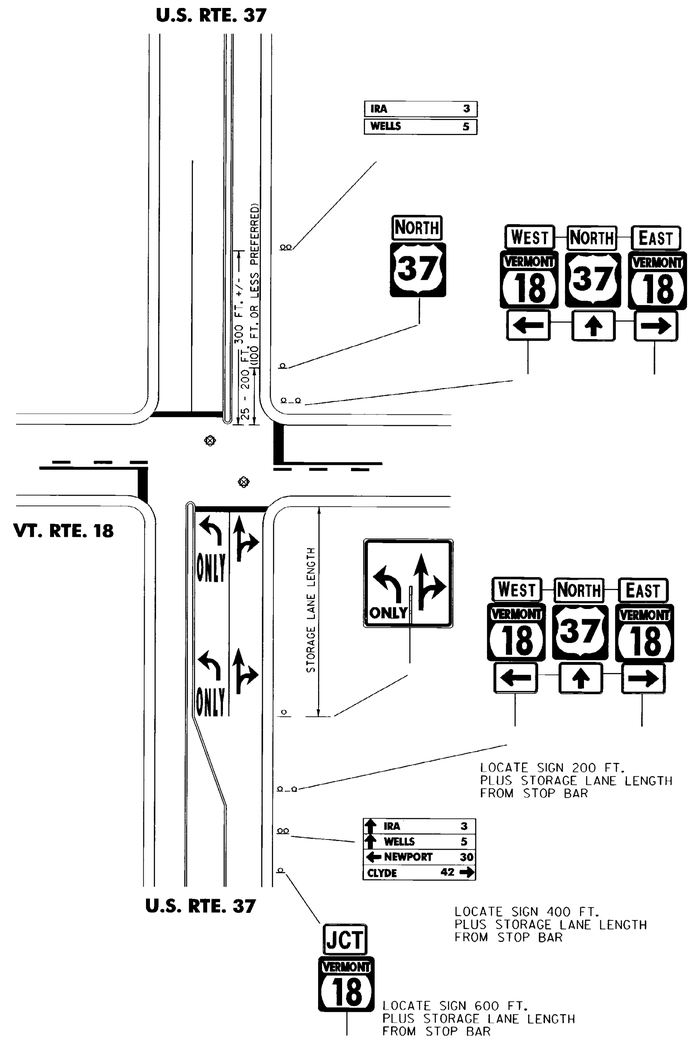
RURAL INTERSECTION – THROUGH MOVEMENT –



SINGLE LANE,STOP CONTROL



SINGLE LANE WITH SIGNAL



MULTI – LANE INTERSECTION – SIGNALIZED

GENERAL NOTES:

1. RECOMMENDED SIGN SPACING AS SHOWN IS SOMETIMES NOT OBTAINABLE DUE TO COMMERCIAL CONFLICTS ETC. AT BUSY INTERSECTIONS. JUDGEMENT MUST BE USED IN THESE CASES TO PLACE SIGNS AS TO GIVE ADEQUATE NOTICE. IT IS ESPECIALLY IMPORTANT TO PLACE SIGNS CLEAR OF OBSTRUCTION BY OTHER SIGNS, POLES, POSTS, FENCES, ETC. .
2.  - BENT ARROWS ARE USED WHEN THE INTERSECTION CANNOT BE SEEN
   - STRAIGHT ARROWS ARE TO BE USED WHEN THE INTERSECTION CAN BE SEEN.
3. SIGNING SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
4. TWO DESTINATION BOARDS FOR EACH DIRECTION ARE PERMISSABLE.

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

DEC. 18, 1989 - DATE OF ORIGINAL ISSUE
AUG. 08, 1995 - MINOR SIGN AND NOTE REVISIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon B. MacArthur
DIRECTOR OF ENGINEERING

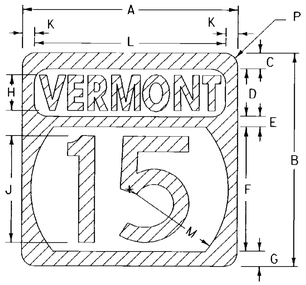
David A. Ross
TRAFFIC AND SAFETY ENGINEER

ROUTE MARKINGS AT RURAL INTERSECTIONS

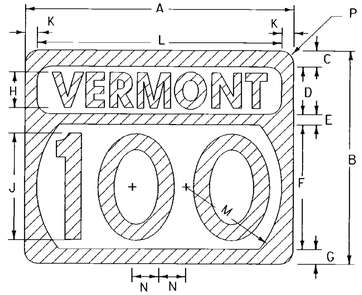
/traf/std/stdel27.dgn : stdel27.i

VERMONT AGENCY OF TRANSPORTATION

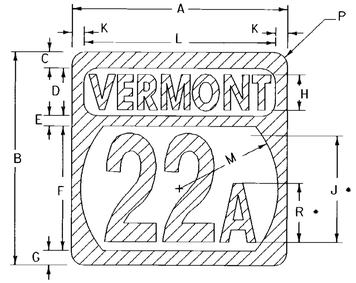
STANDARD E-127



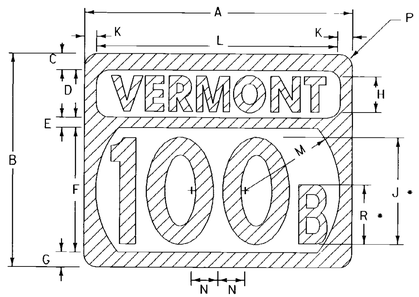
1 OR 2 DIGIT STATE ROUTE MARKER



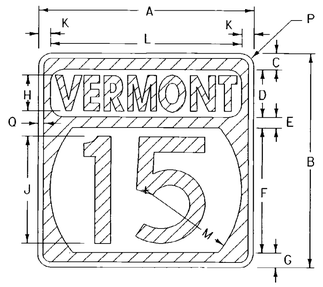
3 DIGIT STATE ROUTE MARKER

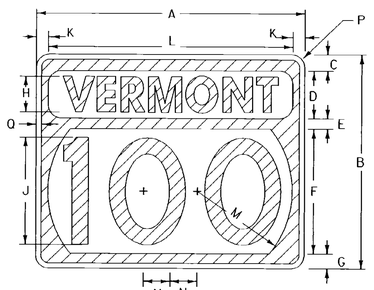


1 OR 2 DIGIT ALTERNATE STATE ROUTE MARKER



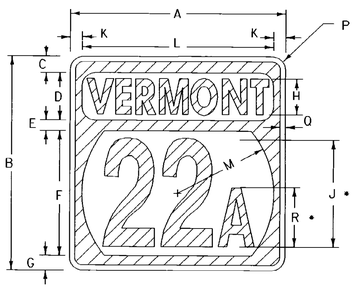
3 DIGIT ALTERNATE STATE ROUTE MARKER

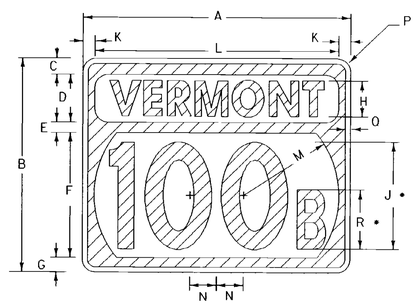




STATE ROUTE MARKER FOR GUIDE SIGN USE. (INTERSTATE TYPICAL)

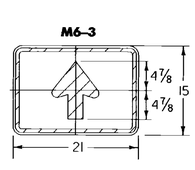
- ALTERNATE ROUTE SIGNS: OPTICALLY SPACE NUMERALS ABOUT VERTICAL CENTER-LINE AND REDUCE SPACING AS NECESSARY FOR EACH ROUTE

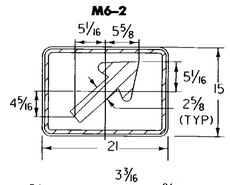


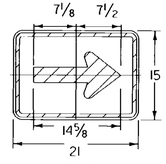


ALTERNATE STATE ROUTE MARKER FOR GUIDE SIGN USE. (INTERSTATE TYPICAL)

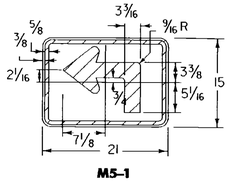
SIGN	DIMENSIONS (INCHES)															
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
1,2-digits	24	24	1½	6	1	14	1½	4C	12D	1	22	11	-	1½	½	7B
1,2-digits	36	36	2⅝	8	1¾	21	2⅝	6C	18D	2	32	16½	-	2¼	⅞	10B
3,-digits	30	24	1½	6	1	14	1½	4D	12D	1	28	11	3	1½	½	7B
3,-digits	45	36	2⅝	8	1¾	21	2⅝	6D	18D	2	41	16½	4½	2¼	⅞	10B





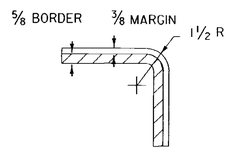


M6-1

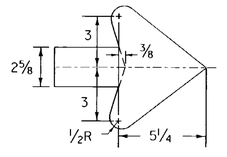


M5-1

DIRECTION ARROW OR ADVANCE TURN ARROWS

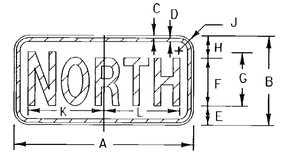


TYPICAL RADIUS DETAIL



TYPICAL ARROW DETAIL

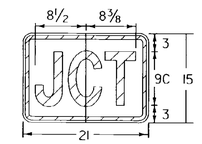
(ALL DIMENSIONS IN INCHES)



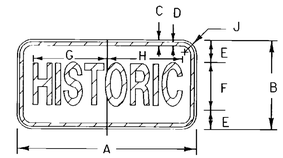
M3-1 M3-3 M3-2 M3-4

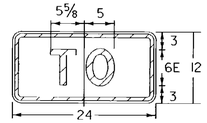
SIGN	DIMENSIONS (INCHES)									NORTH		SOUTH		EAST		WEST	
	A	B	C	D	E	F	G	H	J	K	L	K	L	K	L	K	L
MIN. & STD.	24	12	⅜	⅝	2¾	6C	7C	3¼	1½	10¼	10¼	10¼	9⅛	7⅛	8⅜	8¾	8⅛
SPECIAL	30	15	⅜	⅝	3¼	8C	9C	3¾	1½	12⅛	12⅛	12⅛	12½	10⅜	11⅛	11⅝	11⅝

M2-1



CARDINAL DIRECTION MARKER





M4-5 TRAILBLAZER

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
MIN. & STD.	24	12	⅜	⅝	3½	5B	10⅛	9⅞	1½
SPECIAL	30	15	⅜	⅝	4	7B*	12⅜	12⅝	1½

* REDUCE SPACING 35%

MATERIALS

THE SIGN BASE MATERIAL MAY BE ANY OF THE FOLLOWING, WITH THE MINIMUM THICKNESSES AS NOTED:

FLAT SHEET ALUMINUM

LESS THAN 24'' X 24''	0.060''
WHEN USED ON GUIDE SIGNS	0.060''
24'' X 24'', 30'' X 24''	0.080''
36'' X 36'', 45'' X 36''	0.100''

GALVANIZED FLAT SHEET STEEL

LESS THAN 24'' X 24''	18 GAGE
WHEN USED ON GUIDE SIGNS	18 GAGE
24'' X 24'', 30'' X 24''	16 GAGE
36'' X 36'', 45'' X 36''	14 GAGE

THE REFLECTIVE MATERIAL SHALL BE WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND. THE TEXTS MAY BE LETTERING FILM, SILK SCREENED, OR HAND PAINTED.

COLORS

COLORS FOR GUIDE USE: TEXT AND SHIELD - GREEN (REFL.) BACKGROUND AND BORDER - WHITE (REFL.)
STATE ROUTE MARKERS SHALL HAVE REFLECTIVE GREEN TEXT AND BORDERS ON REFLETORIZED WHITE BACKGROUNDS.

GREEN AREAS ARE INDICATED BY SINGLE LINE CROSSHATCHING

LETTERING

LETTERS AND DIGITS SHALL CONFORM WITH THE ''STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS'' ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FHWA.

SPECIFICATIONS

STATE ROUTE MARKERS AND AUXILIARY ROUTE MARKERS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

DESIGNS

THE DESIGNS OF STATE ROUTE MARKERS AND AUXILIARY MARKERS SHALL CONFORM WITH THE REQUIREMENTS SET FORTH IN THE ''MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES'' ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FHWA.

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

AUG. 08, 1995 - DATE OF ORIGINAL ISSUE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon B. MacArthur
DIRECTOR OF ENGINEERING

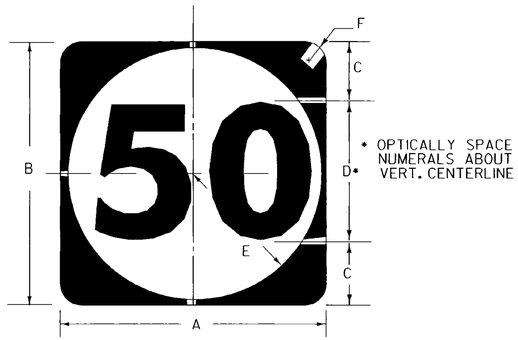
David A Ross
TRAFFIC AND SAFETY ENGINEER

STATE ROUTE MARKER SIGN DETAILS

/traf/std/stdel36b.dgn : stdel36b.i

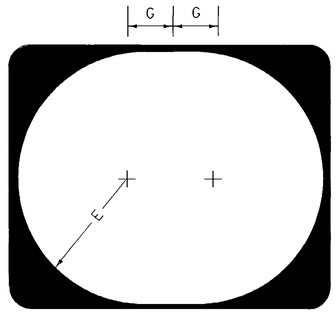
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-136 B

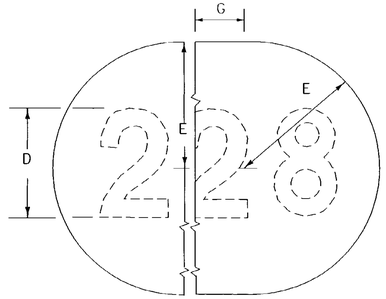


1 OR 2 DIGIT
STATE ROUTE MARKERS

SIGN	DIMENSIONS (INCHES)						
	A	B	C	D	E	F	G
1,2-digits	24	24	6	12D	11	1½	-
1,2-digits	36	36	9	18D	16½	2¼	-
3,-digits	30	24	6	12D	11	1½	3
3,-digits	45	36	9	18D	16½	2¼	4½

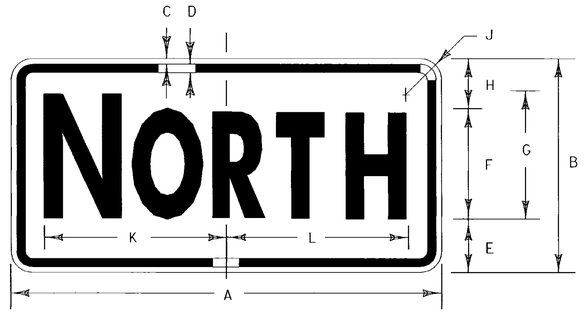


3 DIGIT
STATE ROUTE MARKER
(SEE DIMENSION CHART FOR 1OR 2 DIGIT SIGNS)



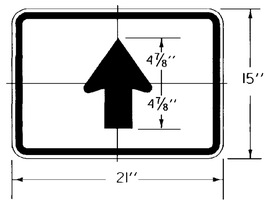
STATE ROUTE MARKER
FOR GUIDE SIGN USE

SIGN	DIMENSIONS (INCHES)		
	D	E	G
1,2-digits	12D	12	-
1,2-digits	18D	18	-
3,-digits	12D	12	3
3,-digits	18D	18	4½

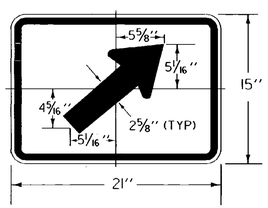


SIGN	DIMENSIONS (INCHES)									M3-1 NORTH		M3-3 SOUTH		M3-2 EAST		M3-4 WEST	
	A	B	C	D	E	F	G	H	J	K	L	K	L	K	L	K	L
MIN. & STD.	24	12	3/8	5/8	2¾	6C	7C	3¼	1½	10¼	10¼	10¼	9⅝	7⅛	8⅜	8¾	8⅛
SPECIAL	30	15	3/8	5/8	3¼	8C	9C	3¾	1½	12⅛	12⅛	12⅛	12½	10⅜	11⅛	11⅝	11⅝

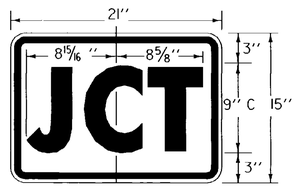
CARDINAL DIRECTION MARKER



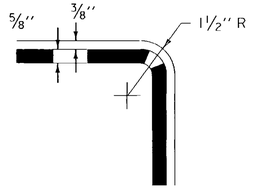
M6-3



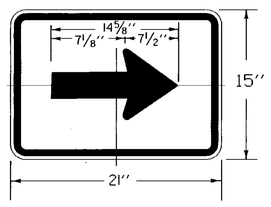
M6-2



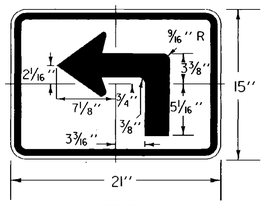
M2-1



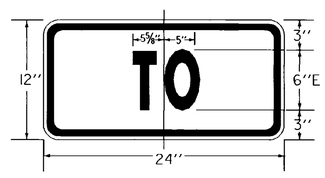
TYPICAL RADIUS AND
BORDER DETAIL



M6-1

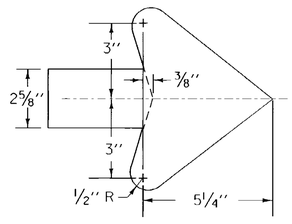


M5-1



M4-5

TRAILBLAZER



ARROW DETAILS

DIRECTION ARROW OR ADVANCE TURN ARROWS

MATERIALS

THE SIGN BASE MATERIAL MAY BE ANY OF THE FOLLOWING, WITH THE MINIMUM THICKNESSES AS NOTED:

FLAT SHEET ALUMINUM

LESS THAN 24'' X 24''	0.060''
WHEN USED ON GUIDE SIGNS	0.060''
24'' X 24'', 30'' X 24''	0.080''
36'' X 36'', 45'' X 36''	0.100''

GALVANIZED FLAT SHEET STEEL

LESS THAN 24'' X 24''	18 GAGE
WHEN USED ON GUIDE SIGNS	18 GAGE
24'' X 24'', 30'' X 24''	16 GAGE
36'' X 36'', 45'' X 36''	14 GAGE

THE REFLECTIVE MATERIAL SHALL BE WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND. THE TEXTS MAY BE LETTERING FILM, SILK SCREENED, OR HAND PAINTED.

COLORS

STATE NUMBERED TOWN HIGHWAY ROUTE MARKERS SHALL HAVE BLACK TEXT AND BORDER ON REFLECTORIZED WHITE BACKGROUNDS.

LETTERING

LETTERS AND DIGITS SHALL CONFORM WITH THE ''STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS'' ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FHWA.

SPECIFICATIONS

STATE NUMBERED TOWN HIGHWAY ROUTE MARKERS AND AUXILIARY ROUTE MARKERS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

DESIGNS

THE DESIGNS OF STATE NUMBERED TOWN HIGHWAY ROUTE MARKERS AND AUXILIARY MARKERS SHALL CONFORM WITH THE REQUIREMENTS SET FORTH IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES'' ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FHWA.

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

AUG. 08, 1995 - DATE OF ORIGINAL ISSUE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon B. MacArthur
DIRECTOR OF ENGINEERING

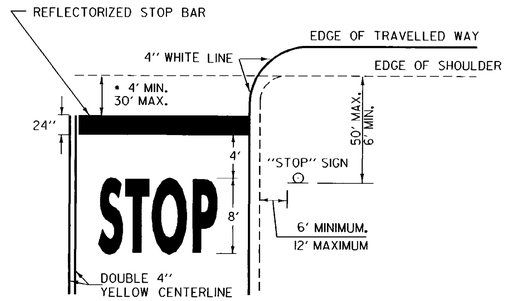
David A. Ross
TRAFFIC AND SAFETY ENGINEER

STATE NUMBERED TOWN HIGHWAY SIGN DETAILS

/traf/std/stdel36c.dgn : stdel36c.i

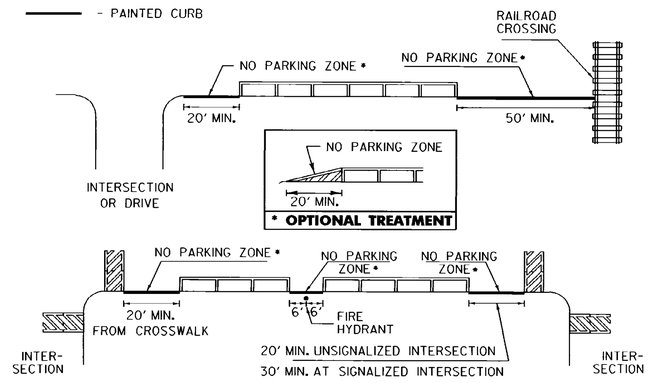
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-136 C

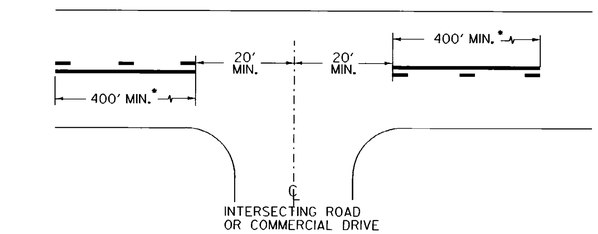


• THE "DESIRED STOPPING POINT" IS THE LOCATION BASED ON SITE CONDITIONS THAT BEST ALLOWS THE STOPPED VEHICLE TO VIEW THE APPROACHING TRAFFIC.

STOP BAR LAYOUT



NO PARKING LAYOUT DETAILS



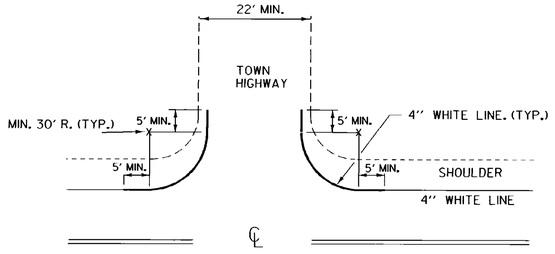
• THE SOLID LINE SHALL BE PAIRED WITH EITHER A SOLID OR DASHED LINE DEPENDING ON SIGHT DISTANCE AVAILABILITY IN THE OPPOSING DIRECTION. ADJUSTMENTS TO THE 40 FOOT CENTERLINE OPENING MAY BE MADE TO ACCOMMODATE SKEWED INTERSECTIONS.

CENTERLINE BREAKES:

A. AT ALL STATE HIGHWAYS AND TOWN HIGHWAYS, INCLUDING CLASS 4 TH'S. THAT HAVE STOP AND LEGAL LOAD LIMIT SIGNS INSTALLED

B. COMMERCIAL DRIVES:
1. WHERE A SEPERATE TURN LANE EXISTS ON THE MAIN LINE (LT. OR RT.)
2. SIGNIFICANT TRAFFIC VOLUMES EXISTS.
3. IF MOTORISTS NEED ASSISTANCE TO DEFINE ENTRANCE POINTS.

CENTERLINE LAYOUT

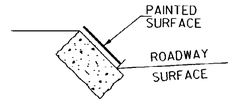


EDGELINES SHALL BE APPLIED TO ALL STATE HIGHWAYS AND SHOULD BE MAINTAINED AT A CONSTANT DISTANCE FROM THE CENTERLINE UNLESS PAVEMENT WIDTH INCREASES TO ALLOW WIDER LANES.

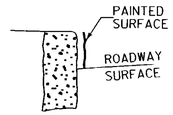
APPLY EDGELINE AS DETAILED ON ALL PAVED CLASS 1 & CLASS 2 TOWN HIGHWAYS AND ANY CLASS 3 TOWN HIGHWAY 22 FEET OR MORE IN WIDTH.

IF MIN. 30 FOOT RADIUS CANNOT BE OBTAINED, OR THE TOWN HIGHWAY IS NOT PAVED, BREAK THE EDGELINE USING AN 80 FOOT GAP AT INTERSECTION.

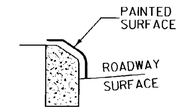
EDGELINE LAYOUTS



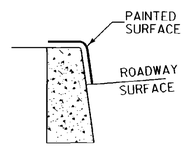
GRANITE SLOPE EDGING



VERTICAL GRANITE CURB

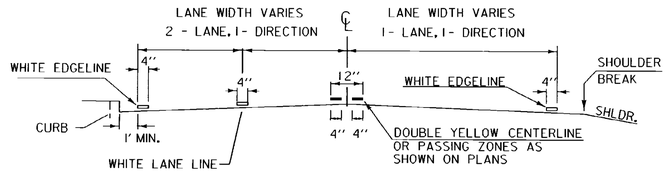


TYPE A (CONCRETE)

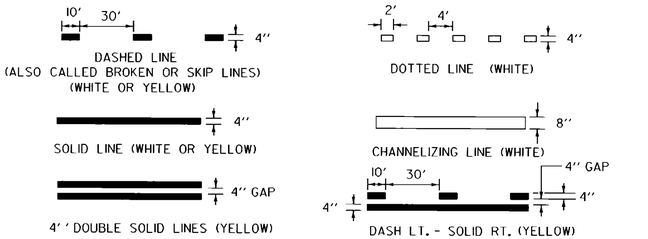


TYPE B (CONCRETE)

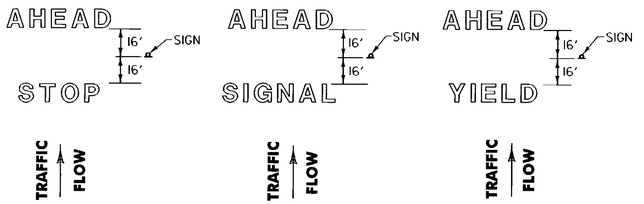
PAINTED CURB



PAVEMENT MARKING PLACEMENT DETAIL

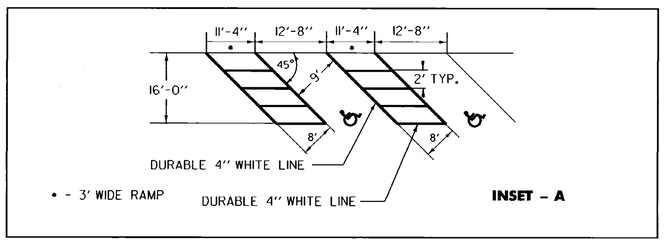


PAVEMENT MARKING LINE DETAILS



LETTER IN WORD MARKING SPACING DETAIL

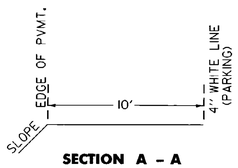
NOTE: SINGLE WORDS CENTERED ON SIGN ie: SCHOOL OR YIELD



INSET - A

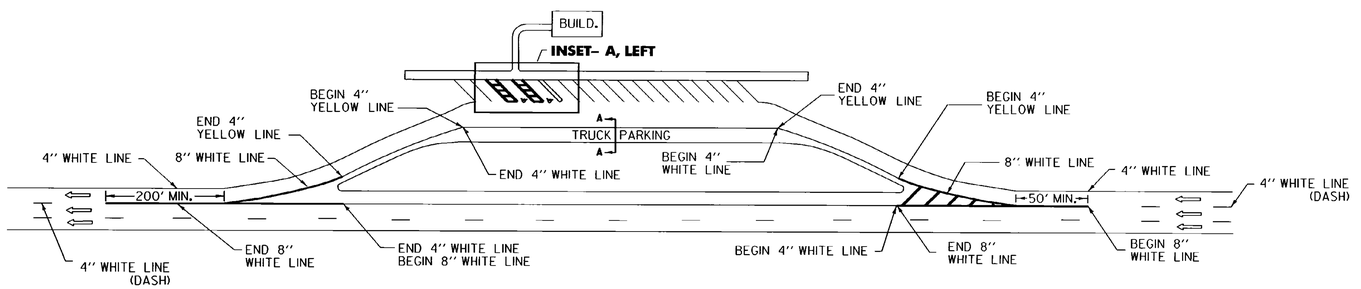
NOTE:

SEE STANDARD SHEET E-191 FOR HANDICAP SYMBOL POSITIONING AND DETAIL.



SECTION A - A

TRUCK PARKING DETAIL



REST AREA PARKING DETAILS

THIS SHEET IS NOT TO SCALE

OTHER STDS. E - 191, E - 192 REQUIRED

REVISIONS AND CORRECTIONS

AUG. 18, 1995 - DATE OF ORIGINAL ISSUE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

PAVEMENT MARKING DETAILS

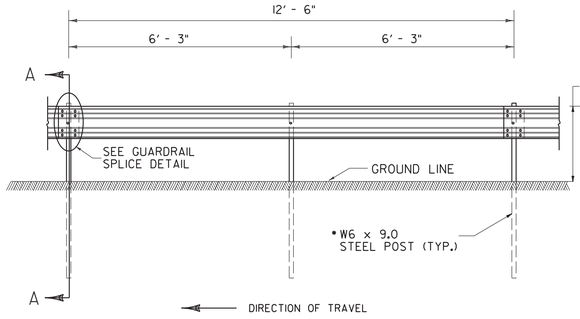
/traf/std/stdel93.dgn/stdel93.i

VERMONT AGENCY OF TRANSPORTATION

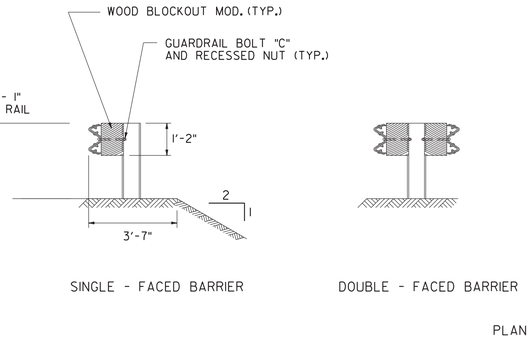
STANDARD

E-193

"W" BEAM GUARDRAIL WITH STEEL POSTS



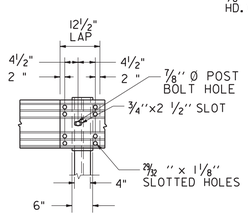
ELEVATION FROM ℄ OF ROAD



SINGLE - FACED BARRIER

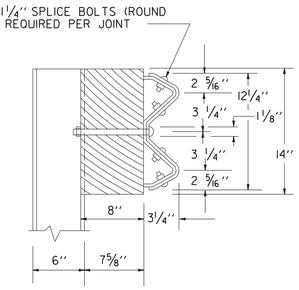
DOUBLE - FACED BARRIER

SECTION A -A



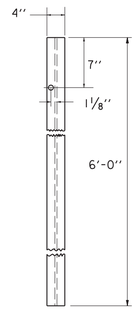
ELEVATION

PLAN

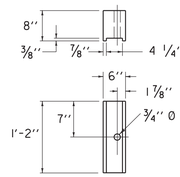


SECTION

GUARDRAIL SPLICE DETAIL



FRONT FACE STEEL POST

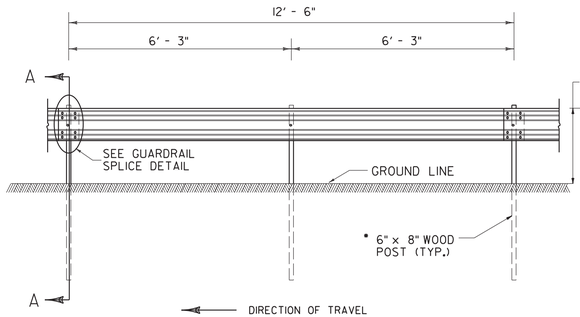


POST FACE
MODIFIED WOOD BLOCKOUT- ROUTED
6" X 8" X 1'-2"
FOR USE W/ STEEL POSTS ONLY

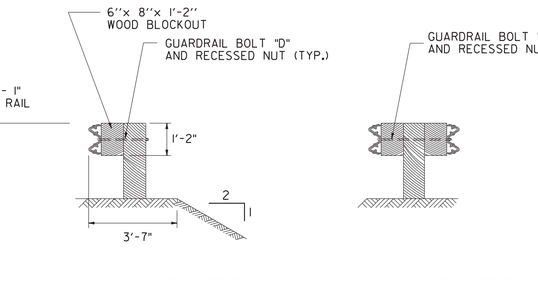
NOTES:

1. BLOCKS SHALL BE MADE OF TIMBER WITH A STRESS GRADE OF 1200 PSI OR MORE. TESTING SHALL BE IN ACCORDANCE WITH WEST COAST LUMBER INSPECTION BUREAU, SOUTHERN PINE INSPECTION BUREAU OR OTHER APPROPRIATE ASSOCIATION. TIMBER FOR BLOCKS SHALL BE ROUGH SAWN (UNPLANED) WITH DIMENSIONS INDICATED. THE SIZE TOLERANCE OF ROUGH SAWN BLOCKS IN THE DIRECTION OF THE BOLT HOLES SHALL BE NOT MORE THAN +/- ¼".
2. SUPPLY WOOD BLOCKS PER AASHTO M 168.
3. TREAT WITH PRESERVATIVE PER AASHTO M 133.
4. BLOCKOUTS MAY ALSO BE MADE OF APPROVED ALTERNATIVE MATERIAL.

"W" BEAM GUARDRAIL WITH WOOD POSTS



ELEVATION FROM ℄ OF ROAD

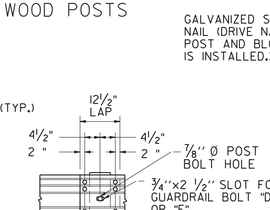


SINGLE - FACED BARRIER

DOUBLE - FACED BARRIER

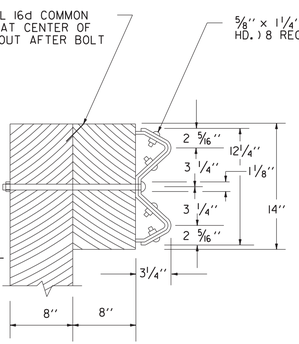
• NOTE : UNLESS OTHERWISE SPECIFIED ON PLANS

SECTION A -A



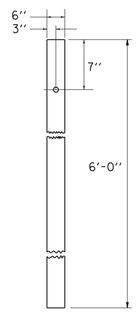
ELEVATION

PLAN

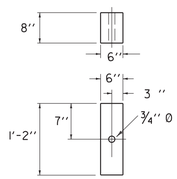


SECTION

GUARDRAIL SPLICE DETAIL



FRONT FACE WOOD POST

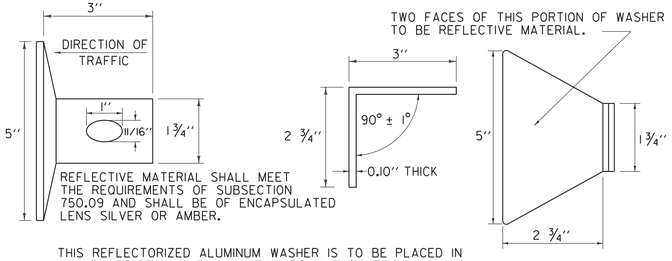


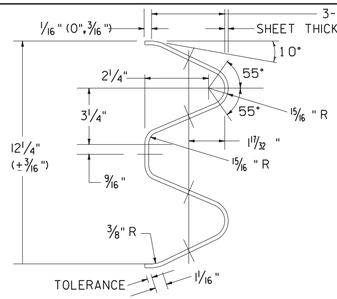
POST FACE
WOOD BLOCKOUT
6" X 8" X 1'-2"

NOTES:

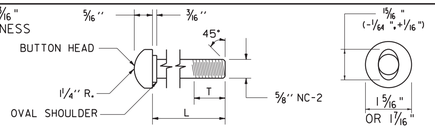
1. BLOCKS SHALL BE MADE OF TIMBER WITH A STRESS GRADE OF 1200 PSI OR MORE. TESTING SHALL BE IN ACCORDANCE WITH WEST COAST LUMBER INSPECTION BUREAU, SOUTHERN PINE INSPECTION BUREAU OR OTHER APPROPRIATE ASSOCIATION. TIMBER FOR BLOCKS SHALL BE ROUGH SAWN (UNPLANED) WITH DIMENSIONS INDICATED. THE SIZE TOLERANCE OF ROUGH SAWN BLOCKS IN THE DIRECTION OF THE BOLT HOLES SHALL BE NOT MORE THAN +/- ¼".
2. SUPPLY WOOD BLOCKS PER AASHTO M 168.
3. TREAT WITH PRESERVATIVE PER AASHTO M 133.
4. BLOCKOUTS MAY ALSO BE MADE OF APPROVED ALTERNATIVE MATERIAL.

GUARDRAIL DELINEATOR



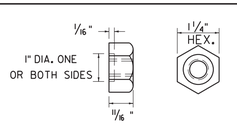


ARTBA RE-3[2@6'-3"=12'-6" CLASS A, TYPE 11-73
TYPICAL GUARDRAIL SECTION

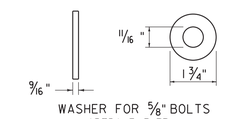


GUARDRAIL BOLT

GUARDRAIL BOLTS				FASTENER USED IN	
BOLT DES.	ARTBA REF. NO.	L	T (MIN.)	STEEL POSTS	WOOD POSTS
"A"	F-3[1¼]-76	1¼"	1"	X	X
"C"	F-3[9½]-76	9½"	1¾"	X	
"D"	F-3[18]-76	18"	2½"		X
"F"	F-3[25]-76	25"	2"		X



RECESSED NUT FOR GUARDRAIL BOLT



WASHER FOR ⅝" BOLTS
ARTBA F-13-73
NOTE: WASHER IS USED UNDER RECESSED NUT WHERE GUARDRAIL BOLT IS USED WITH WOOD POSTS.

GENERAL NOTES:

1. GUARDRAIL SHALL MEET THE REQUIREMENTS OF AASHTO M 180, CLASS A, TYPE I, UNLESS OTHERWISE DESIGNATED.
2. GUARDRAIL SHALL BE SINGLE FACED UNLESS OTHERWISE DESIGNATED.
3. GUARDRAIL SECTIONS SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC FLOW FOR THE LANE NEAREST THE GUARDRAIL.
4. FOR DESCRIPTION AND SPECIFICATION OF PARTS IDENTIFIED BY (ARTBA ...) AND OTHER DETAILS OF POSTS, POST ACCESSORIES, FASTENERS & RAIL ELEMENTS, SEE AASHTO-AGC-ARTBA JOINT TASK FORCE NO. 13, TITLED "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE", LATEST EDITION.
5. STANDARD STEEL BEAM TO BE 1/8" AND THE HEAVY DUTY TO BE 5/64 " THICK.

OTHER STANDARD REQUIRED: G-1d

REVISIONS AND CORRECTIONS

JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.

JAN. 3, 2000 - UPDATED TO REFLECT METRIC STD. CHANGES

FEB. 10, 2014 - UPDATED TO REFLECT GUARDRAIL HEIGHT OF 29"; AS NOTED IN FHWA LETTER DATED MAY 17, 2010

APPROVED

HIGHWAY SAFETY & DESIGN ENGINEER

DIRECTOR OF PROGRAM DEVELOPMENT

Mark D. Richter

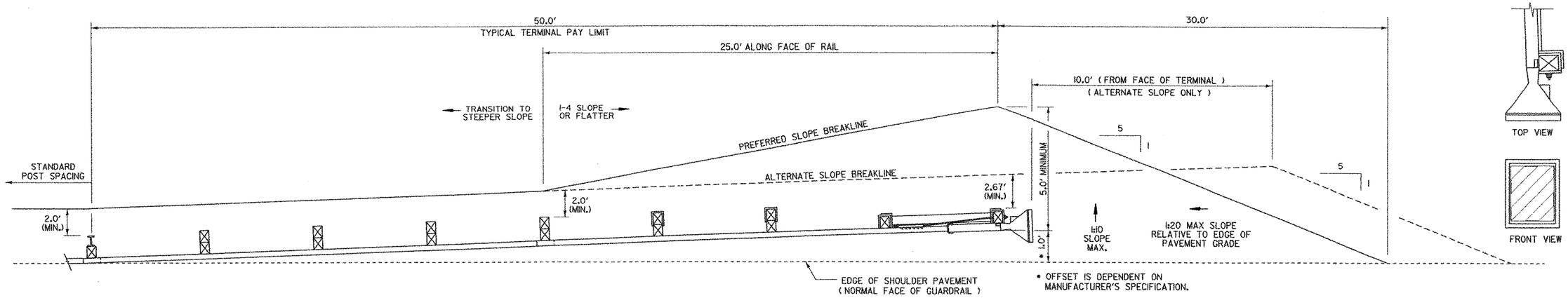
FEDERAL HIGHWAY ADMINISTRATION

STEEL BEAM GUARDRAIL WITH STEEL POSTS
STEEL BEAM GUARDRAIL WITH WOOD POSTS

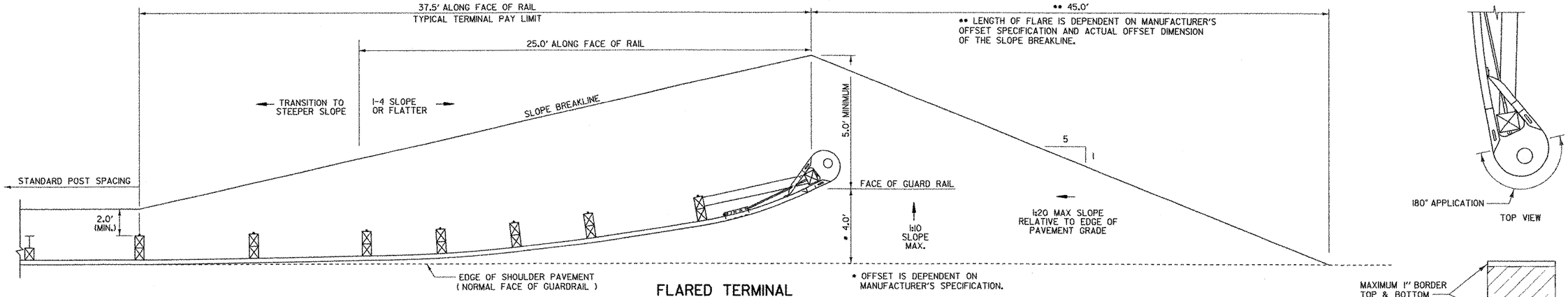
VERMONT AGENCY OF TRANSPORTATION

STANDARD

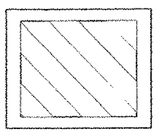
G-1



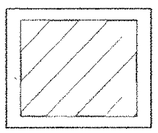
TANGENTIAL TERMINAL



FLARED TERMINAL



ORIENTATION OF REFLECTIVE SHEETING FOR LEFT SIDE OF ROAD HAZARD.



ORIENTATION OF REFLECTIVE SHEETING FOR RIGHT SIDE OF ROAD HAZARD.

GENERAL NOTES

(1) THE AREA IMMEDIATELY BEHIND AND BEYOND THE TERMINAL SHOULD BE REASONABLY TRAVERSABLE AND FREE FROM FIXED-OBJECT HAZARDS TO THE EXTENT PRACTICABLE. IF A CLEAR RUNOUT PATH IS NOT ATTAINABLE, THIS AREA SHOULD AT LEAST BE SIMILAR IN CHARACTER TO UPSTREAM/UNSHIELDED ROADSIDE AREAS.

(2) REFLECTIVE SHEETING SHALL BE PLACED ON THE TERMINAL END OF ALL TANGENT END TERMINALS. THIS SHALL BE OBJECT MARKER MATERIAL (TYPE 3 - STRIPED MARKER OM-3L AND OM-3R) CONSISTING OF A SQUARE OR RECTANGULAR SHAPE WITH ALTERNATING BLACK AND RETROREFLECTIVE YELLOW STRIPES SLOPING DOWNWARD AT AN ANGLE OF 45 DEGREES TOWARDS TRAFFIC. THE MINIMUM WIDTH OF THE YELLOW STRIPE SHALL BE 3 INCHES. THE DIMENSIONS OF THE MARKER SHALL EXTEND FOR THE FULL WIDTH OF THE FACE PLATE ON THE TERMINAL HEAD AND BE SUFFICIENT IN HEIGHT (DEPENDENT ON THE TYPE OF END TERMINAL AND HEAD SIZE). REFLECTIVE MATERIAL SHALL MEET THE REQUIREMENTS OF SUBSECTION 750.08 (B)(3) TYPE III OR HIGHER (AASHTO M 268 (ASTM 4956)). THE COST SHALL BE INCLUDED IN THE COST OF THE END TERMINAL.

(3) REFLECTIVE SHEETING SHALL BE PLACED ON THE END OF FLARED TERMINALS WHICH ARE LOCATED 6 FEET OR LESS FROM THE EDGE OF SHOULDER (NORMAL FACE OF GUARDRAIL. THIS SHALL BE THE SAME OBJECT MARKER MATERIAL SPECIFIED IN NOTE 2. THE COST OF THE REFLECTIVE SHEETING SHALL BE INCLUDED IN THE COST OF THE END TERMINAL.

(4) FOR THE FLARED TERMINAL, WITH AN OFFSET BETWEEN 4 FEET AND 6 FEET FROM THE NORMAL FACE OF GUARDRAIL, THE FOLLOWING SHALL PERTAIN; A REFLECTIVE BUTTON, MOUNTED ON A STANDARD DELINEATOR POST, SHALL BE INSTALLED AT THE NORMAL FACE OF GUARDRAIL, DIRECTLY OPPOSITE THE LEAD END OF THE TERMINAL. THE BUTTON SHALL BE WHITE FOR THE RIGHT SIDE OF THE ROAD AND YELLOW FOR THE LEFT SIDE. ANY DELINEATORS INSTALLED SHALL BE PAID FOR BY THE APPROPRIATE PAY ITEMS.

NOT TO SCALE

REVISIONS AND CORRECTIONS

OCT. 21, 1998 ORIGINAL APPROVAL

NOV. 15, 2002 MODIFIED SLOPE BREAKLINE, REFLECTIVE SHEETING ADDED

APPROVED

DIRECTOR OF PROJECT DEVELOPMENT

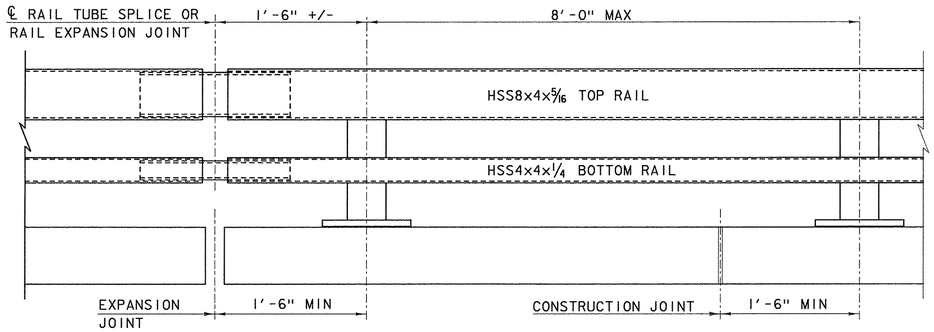
ROADWAY DESIGN ENGINEER

FEDERAL HIGHWAY ADMINISTRATION

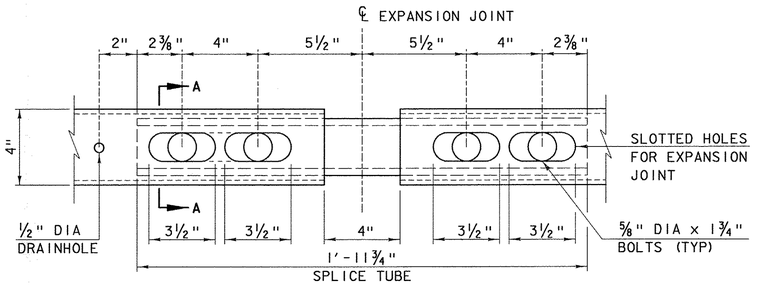
GENERIC PLANS FOR GUARDRAIL END TERMINALS

VERMONT AGENCY OF TRANSPORTATION

STANDARD G-19

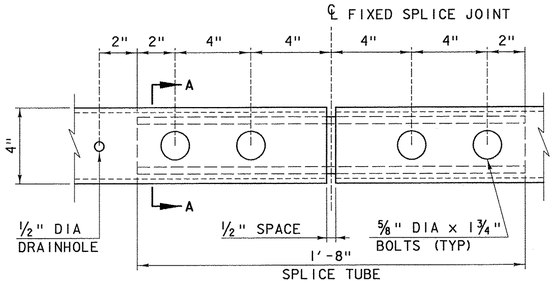


BRIDGE RAILING ELEVATION



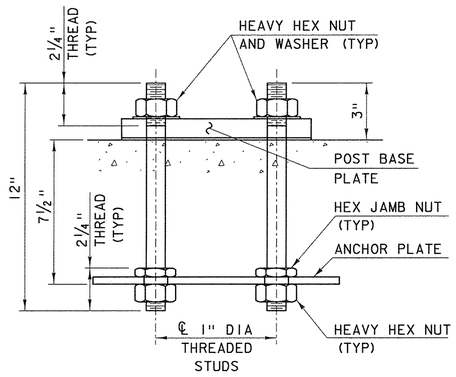
EXPANSION JOINT DETAIL

(BOTTOM VIEW)

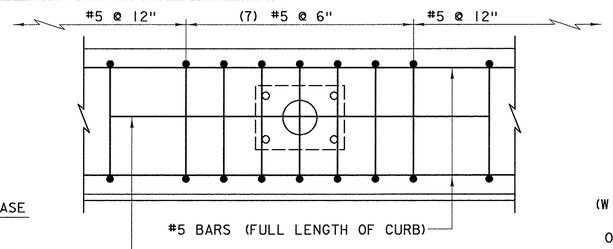


FIXED SPLICE JOINT DETAIL

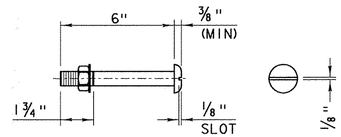
(BOTTOM VIEW)



RAIL POST ANCHORAGE

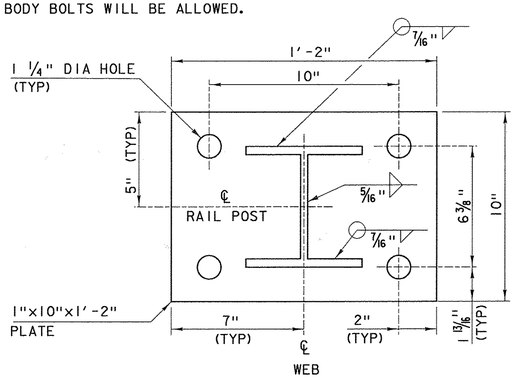


CURB REINFORCING PLAN

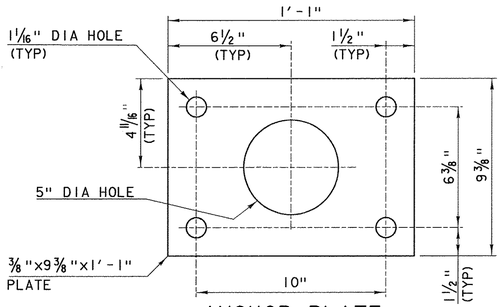


3/4" DIA A449 (TYPE 1) ROUND HEAD BOLT

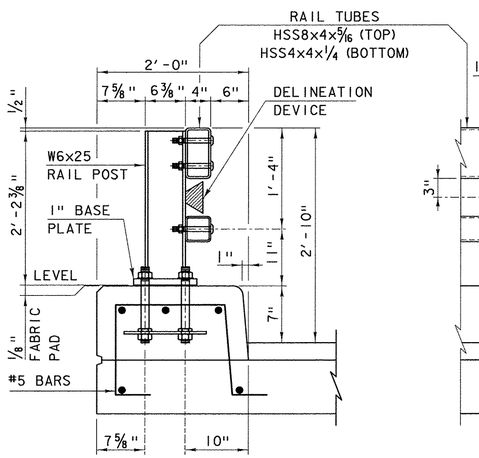
(WITH WASHER AND PREVAILING TORQUE TYPE LOCK NUT)
(SEE NOTE #8)
ONLY FULL DIAMETER BODY BOLTS WILL BE ALLOWED.



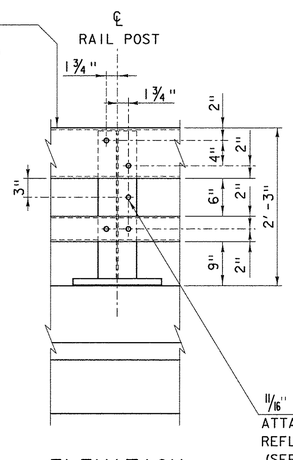
POST BASE PLATE



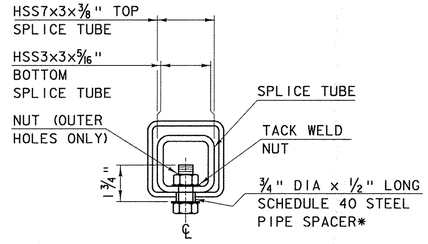
ANCHOR PLATE



TYPICAL SECTION



ELEVATION



5/8" DIA TAPPED HOLE IN SPLICE TUBE
1 1/8"x3 1/2" SLOT* OR 3/4" DIA HOLE**
IN RAIL TUBE FOR 5/8" DIA
BOLT AND PLAIN HARDENED WASHER

A-A RAIL TUBE SPLICE AND RAIL EXPANSION JOINT SECTION

*EXPANSION JOINT
** SPLICE

11/16" DIA HOLE FOR ATTACHMENT OF REFLECTOR UNITS (SEE NOTE #1 ON STANDARD S-363)

NOTES

1. ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 525.
2. PRIOR TO GALVANIZING THE ASSEMBLED POST, GRIND ALL EDGES TO A MINIMUM RADIUS OF 1/16".
3. ALL POSTS SHALL BE SET NORMAL TO GRADE.
4. SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO BRIDGE RAIL POSTS AND PREFERABLY TO AT LEAST FOUR POSTS.
5. RAIL TUBE EXPANSION JOINTS SHALL BE PROVIDED IN ANY RAIL BAY SPANNING THE END OF AN INTEGRAL ABUTMENT BRIDGE AND AT ALL SUPERSTRUCTURE EXPANSION JOINTS. EXPANSION JOINT WIDTH SHALL BE 4" AT 45°F AND WILL BE ADJUSTED IN THE FIELD BY THE ENGINEER FOR OTHER TEMPERATURES.
6. HOLES IN RAILS FOR RAIL TUBE ATTACHMENT MAY BE FIELD-DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO INSTALLATION.
7. RAIL POST ANCHORING NUTS SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ONE-EIGHTH TURN.
8. RAIL TUBES SHALL BE ATTACHED USING 3/4" FULL DIAMETER BODY ASTM A 449 (TYPE 1) ROUND HEAD BOLTS INSERTED THROUGH THE FACE OF THE TUBE. HOLES IN POSTS SHALL BE 1/16" LARGER THAN THE BOLT SIZE.
9. ANY BENDING OF RAIL SHALL BE DONE AT A FABRICATION PLANT ACCORDING TO A PROCEDURE PROVIDED BY THE FABRICATOR.
10. THE MINIMUM DISTANCE FROM THE POST TO AN EXPANSION JOINT SHALL BE DETERMINED BY THE MINIMUM EDGE DISTANCE OF 5" FROM ANY ANCHOR STUD TO THE END OF THE SLAB, OR TO THE EXPANSION JOINT RECESS POUR, IF ONE IS USED.
11. SEE STANDARD DRAWING G-1 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. PAYMENT SHALL BE INCIDENTAL TO OTHER ITEMS.
12. THIS RAILING MEETS THE REQUIREMENTS FOR A TL-4 SERVICE LEVEL.

OTHER STDS. REQUIRED: G-1

REVISIONS AND CORRECTIONS

DECEMBER 14, 2009 - ORIGINAL APPROVAL DATE
APRIL 23, 2012 - GENERAL UPDATE 2012

APPROVED

STRUCTURES PROGRAM MANAGER

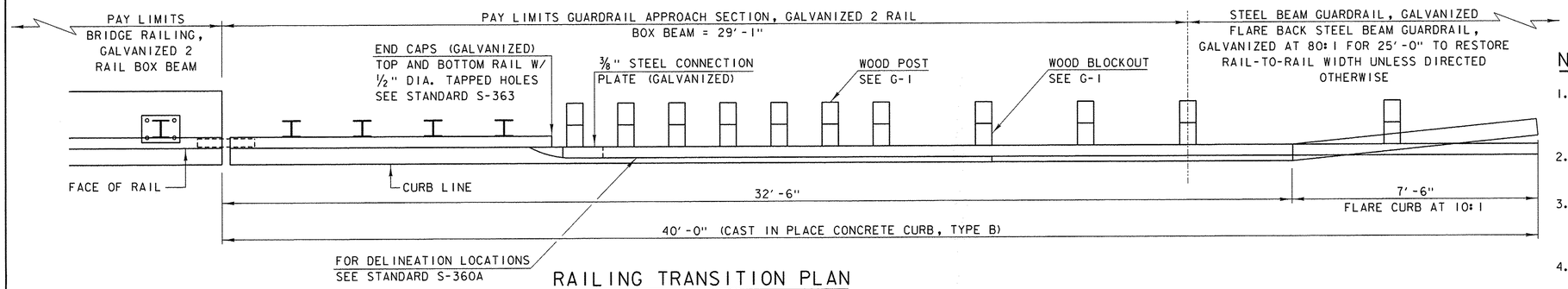
DIRECTOR OF PROGRAM DEVELOPMENT

FEDERAL HIGHWAY ADMINISTRATION

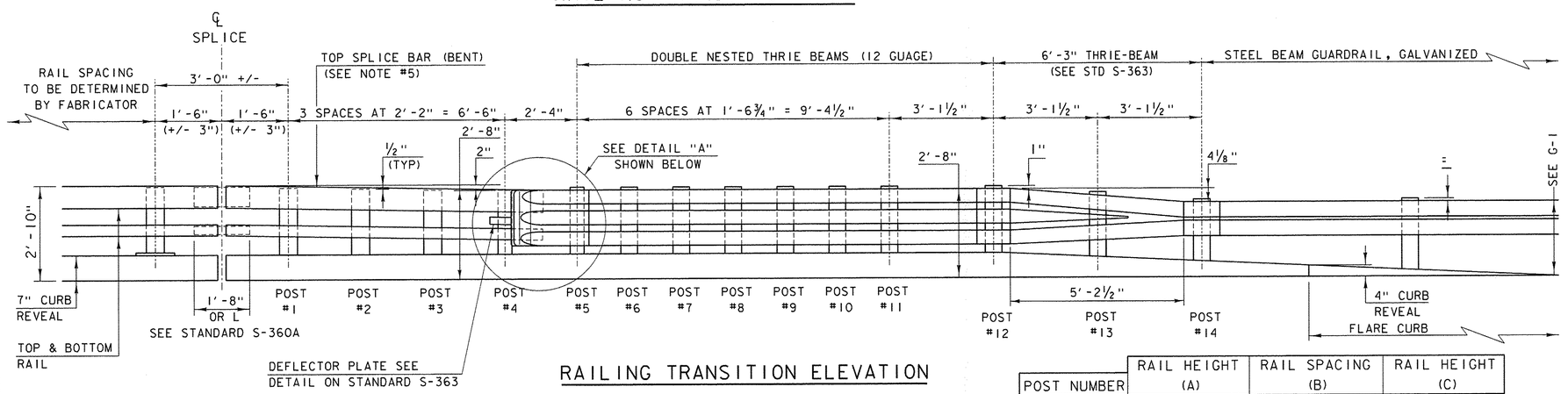
BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM

VERMONT AGENCY OF TRANSPORTATION

STANDARD S-360A



RAILING TRANSITION PLAN

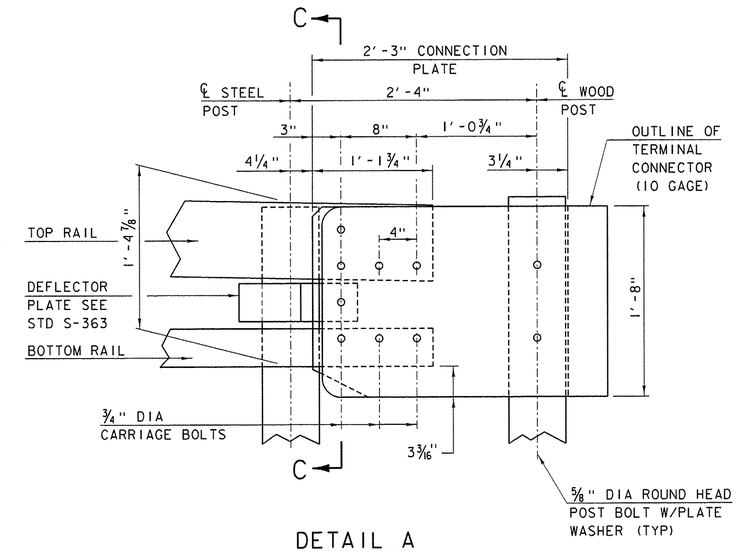


RAILING TRANSITION ELEVATION

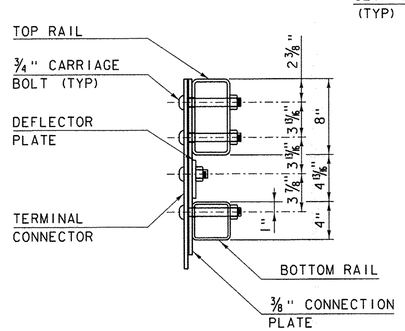
POST NUMBER	RAIL HEIGHT (A)	RAIL SPACING (B)	RAIL HEIGHT (C)
1	2'-9½"	1'-3¾"	1'-5¾"
2	2'-9"	1'-3½"	1'-5½"
3	2'-8½"	1'-3⅜16"	1'-5⅝16"
4	2'-8"	1'-2⅞"	1'-5⅛"

NOTES

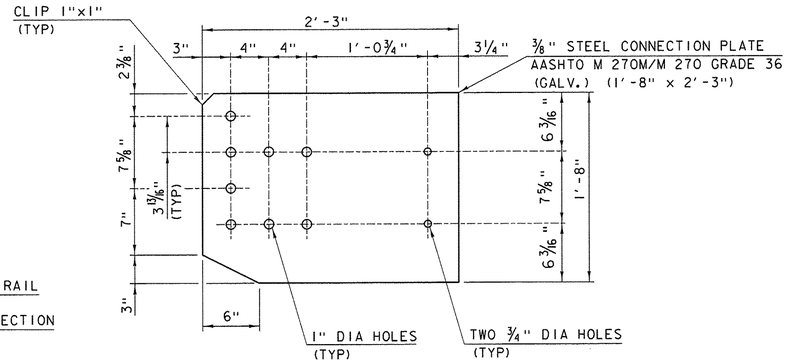
1. PAYMENT FOR GUARDRAIL APPROACH SECTION - GALVANIZED 2 RAIL BOX BEAM SHALL INCLUDE THE TERMINAL CONNECTOR, THE CONNECTION PLATE, THE DEFLECTOR PLATE, RAIL, POSTS, BLOCKS AND ATTACHMENT HARDWARE.
2. ALL APPROACH RAIL SPLICES SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC FLOW.
3. TUBE AND STEEL POST MATERIALS, DIMENSION SIZES AND NOTES SHALL BE THE SAME AS THOSE OF THE BRIDGE RAIL, UNLESS OTHERWISE NOTED.
4. APPROACH RAIL BOLTS SHALL BE ASTM A307 GRADE A AND NUTS SHALL BE AASHTO M291 (ASTM A563 GRADE A OR BETTER) (GALVANIZED). WASHERS SHALL BE ASTM F844.
5. WELD TOP SPLICE BAR TO FIT BEND. USE COMPLETE PENETRATION WELD (B-U2).



DETAIL A



SECTION C-C (CONNECTION PLATE)



CONNECTION PLATE

RAIL POST SECTION (POSTS 1-4)

OTHER STDS. REQUIRED: **G-1, S-363**

REVISIONS AND CORRECTIONS

DECEMBER 14, 2009 - ORIGINAL APPROVAL DATE
APRIL 23, 2012 - GENERAL UPDATE 2012

APPROVED

Wm. Michael Hedges
STRUCTURES ENGINEER

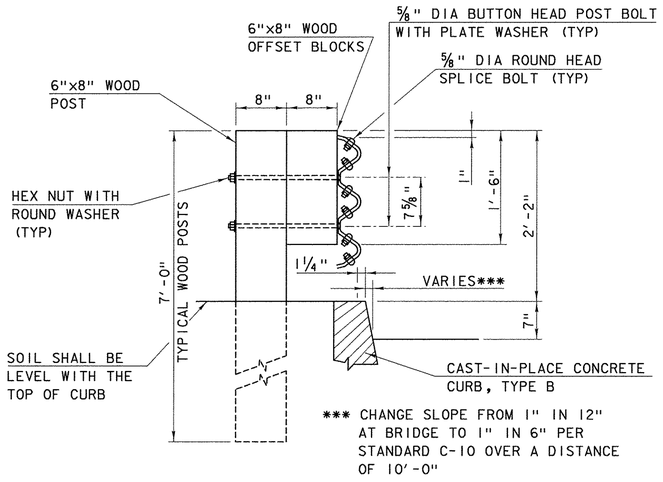
Richard Taitt
DIRECTOR OF PROGRAM DEVELOPMENT

Mark D. Richter
FEDERAL HIGHWAY ADMINISTRATION

GUARDRAIL APPROACH SECTION, GALVANIZED 2 RAIL BOX BEAM

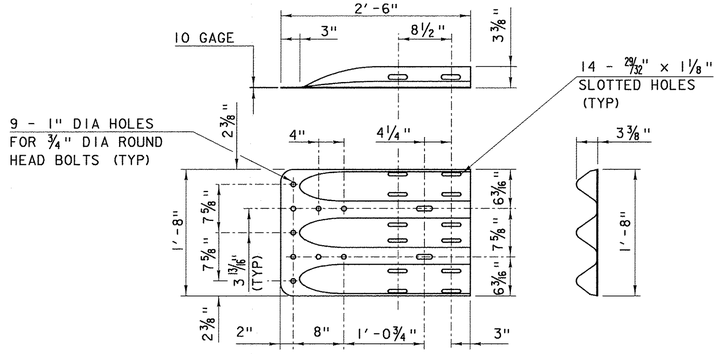
VERMONT AGENCY OF TRANSPORTATION

STANDARD
S-360B



*** CHANGE SLOPE FROM 1" IN 12" AT BRIDGE TO 1" IN 6" PER STANDARD C-10 OVER A DISTANCE OF 10'-0"

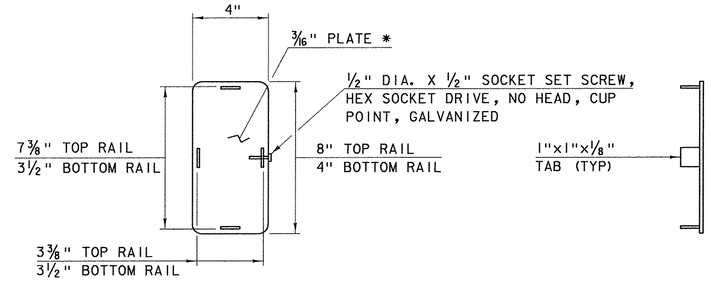
WOOD POST AND THRIE-BEAM RAIL ASSEMBLY



THRIE-BEAM TERMINAL CONNECTOR (HM-TF-13/RE-67)

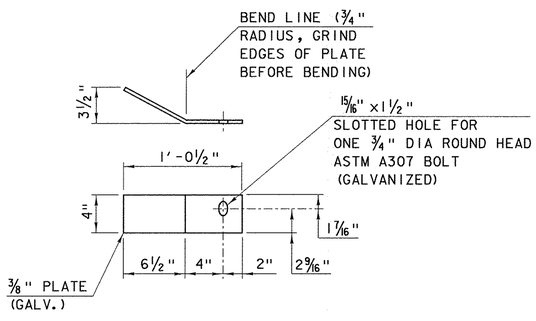
NOTES

1. DELINEATOR DEVICES SHALL BE INSTALLED PER BRIDGE RAIL AND OR GUARDRAIL STANDARD REQUIREMENTS.
2. ON BRIDGES WITH A SIDEWALK, DELINEATORS ARE NOT TO BE INSTALLED ON THE SIDEWALK SIDE OF THE BRIDGE.

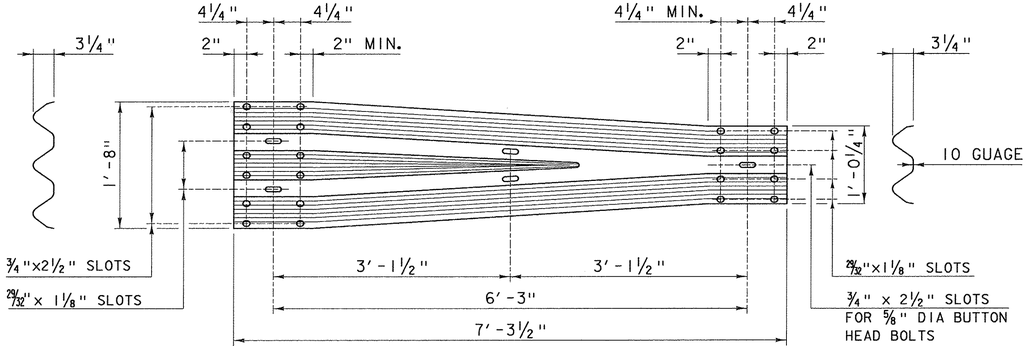


END CAP DETAIL

* ROUND CORNERS 1/2" RADIUS (TYP)



DEFLECTOR PLATE DETAIL



THRIE-BEAM TO STANDARD STEEL BEAM TRANSITION SECTION (HM-TF-13/RE-69)

OTHER STDS. REQUIRED: C-10

REVISIONS AND CORRECTIONS

DECEMBER 14, 2009 - ORIGINAL APPROVAL DATE
APRIL 23, 2012 - GENERAL UPDATE 2012

APPROVED

Wm. Michael Hedges
STRUCTURES ENGINEER

Richard Hebert
DIRECTOR OF PROGRAM DEVELOPMENT

Mark D. Richter
FEDERAL HIGHWAY ADMINISTRATION

THRIE BEAM TO STANDARD STEEL BEAM TRANSITION SECTION

VERMONT AGENCY OF TRANSPORTATION

STANDARD
S-363

1. TRAFFIC CONTROL DEVICES NOT DETAILED IN THE VERMONT AGENCY OF TRANSPORTATION (VAOT) ''STANDARD DRAWINGS'' OR THE PROJECT PLANS SHALL BE IN ACCORDANCE WITH THE "MANUAL ON TRAFFIC CONTROL DEVICES" (MUTCD) AND THE ''STANDARD HIGHWAY SIGNS AND MARKINGS'' BOOK (SHSM) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION (FHWA).

2. CONSTRUCTION SIGNS SHALL BE ERECTED BEFORE THE START OF ANY WORK AND SHALL BE COVERED UNTIL WORK COMMENCES, DURING PERIODS OF INACTIVITY OR UPON COMPLETION OF THE WORK. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER.

3. CONSTRUCTION SIGN COVERS SHALL CONSIST OF A PANEL, PAINTED FLAT BLACK, THE SAME SIZE AS THE SIGN IT COVERS. THE PANEL SHALL BE OF WOOD, PLYWOOD, HARDBOARD OR ANY MATERIAL SATISFACTORY TO THE ENGINEER. NO MATERIAL WILL BE APPROVED THAT WILL DETERIORATE BY EXPOSURE TO THE WEATHER DURING THE PROJECT. MOUNTING OF THE PANEL SHALL BE DONE IN SUCH A WAY AS NOT TO DAMAGE THE SIGN FACE MATERIAL.

4. SIGNS SHALL BE MAINTAINED IN A CLEAN AND LEGIBLE CONDITION SATISFACTORY TO THE ENGINEER. THEY SHALL BE KEPT PLUMB AND LEVEL, AND ALWAYS PRESENT A NEAT APPEARANCE. DAMAGED, DEFACED OR DIRTY SIGNS SHALL BE REPAIRED, CLEANED OR REPLACED AS ORDERED BY THE ENGINEER.

5. NO CROSS-BRACING OR BACK-BRACING TO KEEP POSTS PLUMB WILL BE ALLOWED. CONCRETE FOUNDATIONS, COLLARS OR SOIL BEARING PLATES ARE NOT PERMITTED. CONSTRUCTION SIGNS SHALL BE PLACED ON TWO POSTS.

6. CONSTRUCTION SIGNS INSTALLED ON POSTS SHALL BE SET SECURELY IN THE GROUND. THE BOTTOM OF A SIGN SHALL BE AT LEAST FIVE FEET ABOVE THE EDGE OF PAVEMENT AND THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST SIX FEET OUTSIDE THE SHOULDER POINT, FOUR FEET OUTSIDE GUARDRAIL, OR TWO FEET OUTSIDE CURBING OR SIDEWALK. THE INSTALLATION OF SIGNS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER. IN URBAN AREAS, THE BOTTOM OF THE SIGN SHALL BE AT LEAST SEVEN FEET ABOVE THE SIDEWALK OR EDGE OF PAVEMENT, WHICHEVER IS HIGHER.

7. PORTABLE SIGNS SHALL BE PLACED ON THE EDGE OF ROADWAY AND A MINIMUM OF ONE FOOT ABOVE THE TRAVELED WAY. ALL VEGETATION THAT INTERFERES WITH VISIBILITY OF THE SIGNS SHALL BE REMOVED. WHEN PLACED BEHIND GUARDRAIL, THE BOTTOM OF THE SIGN FACE SHALL BE ABOVE THE TOP OF THE GUARDRAIL.

8. SIGNS SHALL BE REMOVED UPON COMPLETION OF THE WORK AT THE DISCRETION OF THE ENGINEER.

9. ROLL UP CONSTRUCTION SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING THE "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) M 268 ["AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) D 4956] TYPE VI AND TYPE VII UNLESS OTHERWISE NOTED.

10. SOLID SUBSTRATE CONSTRUCTION SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING THE "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) M 268 ["AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) D 4956] TYPE VIII OR IX REQUIREMENTS UNLESS OTHERWISE NOTED.

11. WHERE CONSTRUCTION SIGN INSTALLATIONS ARE NOT PROTECTED BY GUARDRAIL OR OTHER APPROVED TRAFFIC BARRIERS, ALL SIGN STANDS AND POST INSTALLATIONS SHALL MEET "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 OR THE AASHTO "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH). THE APPROPRIATE RESOURCE SHALL BE DETERMINED AS DESCRIBED IN THE MASH PUBLICATION. NO SIGN POSTS SHALL EXTEND OVER THE TOP OF THE SIGN INSTALLED ON SAID POSTS. WHEN ANCHORS ARE INSTALLED, STUBS SHALL NOT BE GREATER THAN FOUR INCHES ABOVE EXISTING GROUND.

12. ROADWAY AND SHOULDER WIDTHS DEPICTED ON THE STANDARD DRAWINGS MAY VARY.

13. THESE STANDARD DRAWINGS ARE INTENDED TO SERVE AS VTRANS STANDARD OPERATING PROCEDURE. IT IS NOTED THAT COMPONENT PARTS OF A TEMPORARY TRAFFIC CONTROL WORK ZONE MAY BE MODIFIED DUE TO FIELD CONDITIONS, AT THE DISCRETION OF THE ENGINEER.

OTHER STDS. REQUIRED: **NONE**

REVISIONS AND CORRECTIONS

AUG. 6, 2012 - ORIGINAL APPROVAL DATE

APPROVED

HIGHWAY SAFETY & DESIGN ENGINEER

DIRECTOR OF PROGRAM DEVELOPMENT

Mark D. Richter

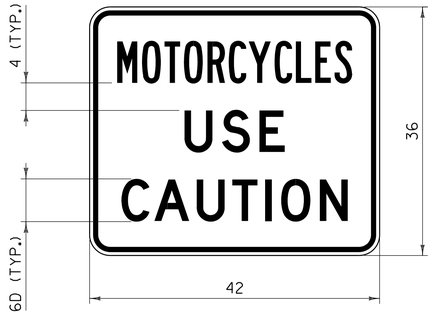
FEDERAL HIGHWAY ADMINISTRATION

TRAFFIC CONTROL GENERAL NOTES

VERMONT AGENCY OF TRANSPORTATION

STANDARD

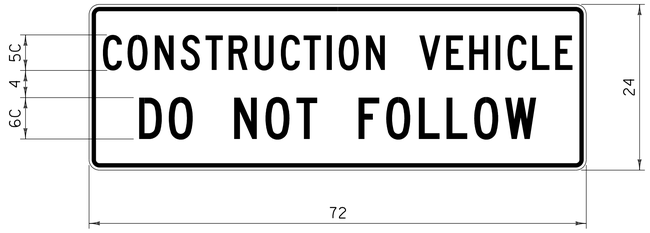
T-1



VC–004P

NOTES:

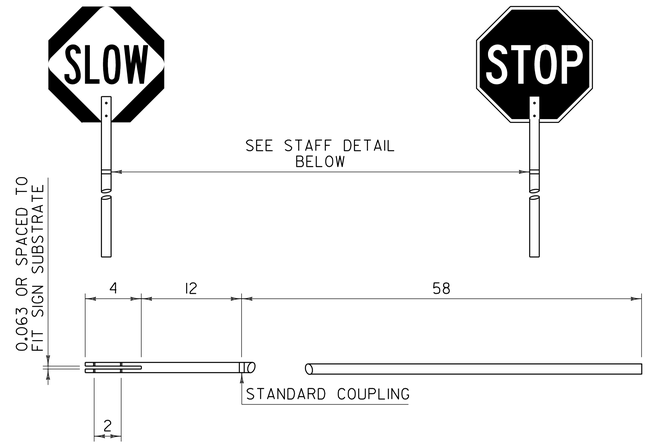
1. CORNERS SHALL BE ROUNDED TO A THREE INCH RADIUS.
2. THE BORDER SHALL BE ¾ INCH WIDE WITH A ½ INCH INDENT FROM THE EDGE OF THE SIGN.
3. "MOTORCYCLES" SHALL HAVE A SPECIFIED WIDTH OF 34 INCHES.
4. "USE" SHALL HAVE A SPECIFIED WIDTH OF 14 ½ INCHES.
5. "CAUTION" SHALL HAVE A SPECIFIED WIDTH OF 32 ¾ INCHES.
6. SIGN SHALL ONLY BE INSTALLED AS A SUPPLEMENTAL TO A PARENT WARNING SIGN AND SHALL NOT BE INSTALLED BY ITSELF.



VC–007

NOTES:

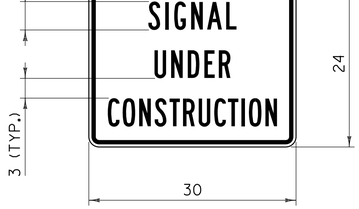
1. CORNERS SHALL BE ROUNDED TO A 1½ INCH RADIUS.
2. THE BORDER SHALL BE ⅝ INCH WIDE WITH A ⅜ INCH INDENT FROM THE EDGE OF THE SIGN.
3. "CONSTRUCTION VEHICLE" SHALL HAVE A SPECIFIED WIDTH OF 68 INCHES.
4. "DO NOT FOLLOW" SHALL HAVE A SPECIFIED WIDTH OF 57 ½ INCHES.
5. SIGN SHALL BE MOUNTED IN A CONSPICUOUS LOCATION ON THE REAR OF THE CONSTRUCTION VEHICLE.
6. THE SIGN SHALL BE MOUNTED AS NOT TO INTERFERE WITH THE VISIBILITY OF DIRECTIONAL SIGNALS OR TAIL LIGHTS AS REQUIRED BY LAW.
7. SIGN SHALL BE COVERED OR REMOVED WHEN NOT IN USE.



STOP–SLOW PADDLE & STAFF DETAIL

NOTES:

1. REFER TO THE "STANDARD HIGHWAY SIGNS AND MARKINGS" BOOK (SHSM) "TEMPORARY TRAFFIC CONTROL - WARNING SIGNS" FOR THE STOP-SLOW PADDLE DESIGN.
2. COLORS FOR THE SLOW SIDE OF THE PADDLE SHALL BE BLACK LEGEND AND BORDER ON A FLUORESCENT ORANGE DIAMOND WITH RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING AASHTO M 268 [ASTM D 4956] TYPE VII, VIII OR IX REQUIREMENTS.
3. COLORS FOR THE STOP SIDE OF THE PADDLE SHALL BE WHITE RETROREFLECTIVE LEGEND AND BORDER ON A RED RETROREFLECTIVE OCTAGON. BOTH COLORS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING AASHTO M 268 [ASTM D 4956] TYPE III.
4. SIGN SUBSTRATE MATERIALS SHALL BE ALUMINUM, ACRYLONITRILE BUTADIENE STYRENE (ABS) PLASTIC OR EQUIVALENT.
5. THE STAFF MAY BE RIGID ABS PLASTIC OR WOOD WITH A ONE TO 1½ INCH DIAMETER.
6. SIGNS SHALL BE MAINTAINED IN A CLEAN AND LEGIBLE CONDITION SATISFACTORY TO THE ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO APPROACHING TRAFFIC AT ALL TIMES. THEY SHALL BE KEPT PLUMB AND LEVEL, AND ALWAYS PRESENT A NEAT APPEARANCE. DAMAGED, DEFACED OR DIRTY SIGNS SHALL BE REPAIRED, CLEANED OR REPLACED AS ORDERED BY THE ENGINEER.



VC–820

NOTES:

1. CORNERS SHALL BE ROUNDED TO A 1½ INCH RADIUS.
2. THE BORDER SHALL BE ⅝ INCH WIDE WITH A ⅜ INCH INDENT FROM THE EDGE OF THE SIGN.
3. "SIGNAL" SHALL HAVE A SPECIFIED WIDTH OF 12 ¾ INCHES.
4. "UNDER" SHALL HAVE A SPECIFIED WIDTH OF 11 INCHES.
5. "CONSTRUCTION" SHALL HAVE A SPECIFIED WIDTH OF 24 ½ INCHES.
6. SIGN SHALL ONLY BE INSTALLED AS A SUPPLEMENTAL TO A PARENT WARNING SIGN AND SHALL NOT BE INSTALLED BY ITSELF.

GENERAL NOTES:

1. ALL LEGEND SHALL BE CENTERED VERTICALLY AND HORIZONTALLY UNLESS OTHERWISE NOTED.
2. COLORS FOR SIGNS SHALL BE BLACK LEGEND AND BORDER ON FLUORESCENT ORANGE BACKGROUND UNLESS OTHERWISE NOTED.
3. ALL DIMENSIONS IN INCHES.

OTHER STDS. REQUIRED: T–1

REVISIONS AND CORRECTIONS

AUG. 6, 2012 - ORIGINAL APPROVAL DATE

APPROVED

HIGHWAY SAFETY & DESIGN ENGINEER

DIRECTOR OF PROGRAM DEVELOPMENT

Mark D. Richter

FEDERAL HIGHWAY ADMINISTRATION

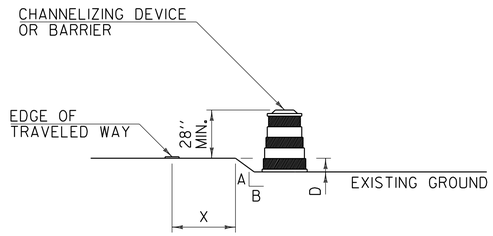
CONSTRUCTION SIGN DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD

T-30

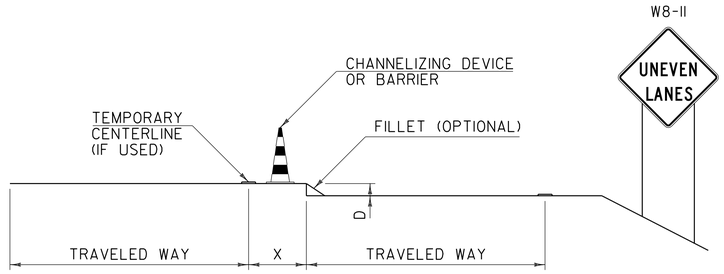
DROP-OFF ADJACENT TO TRAVELED WAY



NOTES:

1. CHANNELIZING DEVICES SHOULD BE PLACED TO MAXIMIZE THE WIDTH OF THE TRAVELED WAY.
2. SEE CHART "A" FOR SPECIFIC REQUIREMENTS.
3. IF THE DROP-OFF REQUIRES CHANNELIZING DEVICES TO REMAIN IN PLACE OVERNIGHT, THEN "LOW SHOULDER" (W8-9) OR "SHOULDER DROP-OFF SYMBOL" (W8-17) SIGNS SHOULD BE INSTALLED.

DROP-OFF BETWEEN ADJACENT TRAVELED LANES



NOTES:

1. WHENEVER A LONGITUDINAL DROP-OFF BETWEEN ADJACENT TRAVELED LANES IS TO BE LEFT OVERNIGHT, THEN "UNEVEN LANES" (W8-11) SIGNS AND CHANNELIZING DEVICES SHOULD BE INSTALLED.
2. IF REQUIRED, THE CHANNELIZING DEVICES USED SHALL BE THOSE WHICH MAXIMIZE THE WIDTH OF THE TRAVELED LANE (I.E. CONES, VERTICAL PANELS OR TUBULAR MARKERS).
3. A BITUMINOUS CONCRETE FILLET WITH A 1.5:1 SLOPE MAY BE USED IN PLACE OF CHANNELIZING DEVICES, HOWEVER THE "UNEVEN LANES" (W8-11) SIGNS SHOULD STILL BE INSTALLED.
4. SEE CHART "A" FOR SPECIFIC REQUIREMENTS.

CHART "A"
ALL SPEEDS WITH NO CURB

X (FEET)	DROP (D) (INCHES)	A:B SLOPE	DEVICE REQUIRED
0 TO 4'	LESS THAN 2"	ANY	NONE
	2" TO 6"	1:1.5 OR FLATTER	NONE
		STEEPER THAN 1:1.5	CHANNELIZING DEVICE
	GREATER THAN 6"	1:3 OR FLATTER	NONE
		STEEPER THAN 1:3	BARRIER
4' TO 10'	LESS THAN 6"	ANY	NONE
	6" TO 12"	1:3 OR FLATTER	NONE
		STEEPER THAN 1:3	BARRIER

NOTE:

1. ON BORDERLINE CONDITIONS, THE ENGINEER SHOULD DETERMINE WHICH TREATMENT IS ADEQUATE FOR THE EXISTING CONDITIONS.

GENERAL NOTES:

1. THESE CONDITIONS AND TREATMENTS ARE ONLY PART OF THE TRAFFIC CONTROL SYSTEM AND SHOULD BE USED IN ADDITION TO THE PROPER WORK ZONE SIGNING.
2. THE FOLLOWING ARE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) COMPLIANT CHANNELIZING DEVICES:

   A. VERTICAL PANEL
   B. TYPE I OR TYPE II BARRICADE
   C. PLASTIC DRUM
   D. CONE - WHERE APPLICABLE
   E. TUBULAR MARKERS

   IF CHANNELIZING DEVICES ARE REQUIRED TO STAY IN PLACE DURING NIGHTTIME HOURS, THEY SHALL BE STABILIZED WHILE UNATTENDED IN ACCORDANCE WITH THE MUTCD.
3. WHERE BARRIER IS NECESSARY, THE BARRIER SHALL BE TAPERED BEYOND THE CLEAR ZONE. WHEN THE BARRIER CANNOT BE TAPERED BEYOND THE CLEAR ZONE, A MUTCD COMPLIANT END TREATMENT SHALL BE USED. BARRIER AND END TREATMENT SHALL MEET "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 OR THE "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH). THE APPROPRIATE RESOURCE SHALL BE DETERMINED AS DESCRIBED IN THE MASH PUBLICATION.
4. CHANNELIZING DEVICE SPACING ALONG A LONGITUDINAL DROP-OFF (TANGENT) SHALL BE AS FOLLOWS:

   TANGENT - CHANNELIZING DEVICES SHALL BE SPACED "2S" ("S" IS EQUAL TO THE POSTED SPEED LIMIT IN FEET) APART.
5. "LOW SHOULDER" (W8-9) AND "SHOULDER DROP-OFF SYMBOL" (W8-17) SIGNS, WHEN USED, SHOULD BEGIN PRIOR TO THE DROP-OFF CONDITION AND SHOULD BE REPEATED EVERY 1500 FEET.

OTHER STDS. REQUIRED: **T-1**

REVISIONS AND CORRECTIONS

AUG. 6, 2012 - ORIGINAL APPROVAL DATE

APPROVED

HIGHWAY SAFETY & DESIGN ENGINEER

DIRECTOR OF PROGRAM DEVELOPMENT

Mark D. Richter

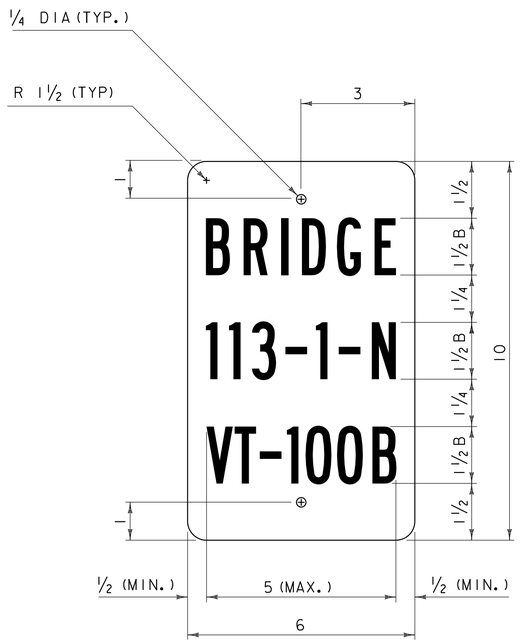
FEDERAL HIGHWAY ADMINISTRATION

CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS FOR PAVING

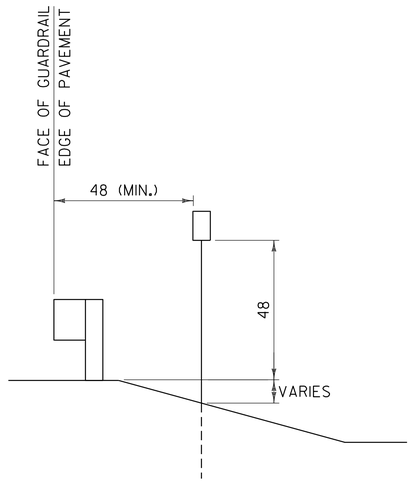
VERMONT AGENCY OF TRANSPORTATION

STANDARD

T-36



VD-701



VD-701 INSTALLATION DETAIL

GENERAL NOTES:

1. BRIDGE NUMBER PLAQUES ARE TO BE INSTALLED ALONG THE FEDERAL AID HIGHWAY SYSTEM INCLUDING ALL STATE HIGHWAYS AND TOWN HIGHWAYS ON THE FEDERAL AID HIGHWAY SYSTEM.
2. BRIDGE NUMBER PLAQUES SHALL BE LOCATED ON BOTH BRIDGE APPROACHES AT THE NEAREST VISIBLE LOCATION.
3. THE SIGN BASE MATERIAL SHALL BE 0.063 INCH FLAT SHEET ALUMINUM.
4. THE SIGN SHALL BE WHITE RETROREFLECTIVE LEGEND ON A GREEN RETROREFLECTIVE BACKGROUND, BOTH SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) M 268 ["AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) D 4956] TYPE III.
5. THE SECOND LINE OF TEXT INDICATES THE BRIDGE NUMBER. THE BRIDGE NUMBER CAN BE OBTAINED USING THE VERMONT AGENCY OF TRANSPORTATION (VAOT) ROUTE LOGS OR BY CONSULTING WITH THE VAOT STRUCTURES SECTION.
6. THE THIRD LINE OF TEXT INDICATES THE STATE ROUTE NUMBER. IN ALL CASES THIS WILL BE DEPICTED USING THE LETTER ABBREVIATION, FOLLOWED BY A HYPHEN, FOLLOWED BY THE ROUTE NUMBER. FOR EXAMPLE US ROUTE 2 WOULD BE IDENTIFIED USING US-2.
7. THE SECOND AND THIRD LINES OF TEXT SHALL BE CENTERED HORIZONTALLY AND SHALL BE AS DEFINED IN THE PLANS.
8. A SINGLE 14 GAGE, 1.75 INCH SQUARE STEEL POST AND 12 GAGE, TWO INCH SQUARE ANCHOR SHALL BE USED FOR INSTALLATION. THE ANCHOR SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.
9. ALL DIMENSIONS SHOWN IN INCHES.

OTHER STDS. REQUIRED: **T-45**

REVISIONS AND CORRECTIONS

APRIL 9, 2014 - ORIGINAL APPROVAL DATE

APPROVED

HIGHWAY SAFETY & DESIGN ENGINEER

DIRECTOR OF PROGRAM DEVELOPMENT

Mark D. Richter

FEDERAL HIGHWAY ADMINISTRATION

BRIDGE NUMBER PLAQUE

VERMONT AGENCY OF TRANSPORTATION

STANDARD

T-42

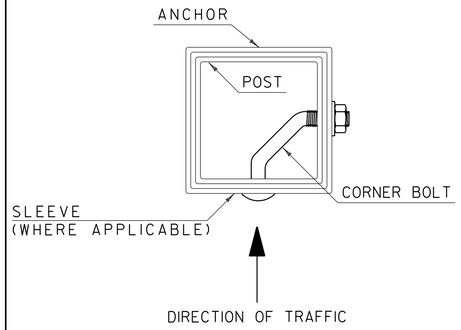
POST AND ANCHOR SELECTION CHART

POST SIZE (IN.)	POST THICKNESS (IN.)	POST WEIGHT (LBS/FT.)	POST GAGE	SECTION MODULUS (IN.³)	ONE POST SV	TWO POST SV	THREE POST SV	POSTS PERMITTED IN 8' PATH	ANCHOR SIZE (IN.)	ANCHOR GAGE	MINIMUM ANCHOR LENGTH
1.75	.083	1.88	14	0.222	45	90	135	TWO	2.00	12	30
2.00	.109	2.42	12	0.393	80	160	240	TWO	2.25	12	48
2.50	.109	3.35	12	0.673	137	274	411	ONE	3.00	7	48

NOTES:

1. ALL SIGN POSTS SHALL HAVE 7/16 INCH HOLES EVERY ONE INCH ON CENTER (ALL FOUR SIDES).
2. THE NUMBER OF SIGN POSTS PERMITTED WITHIN AN EIGHT FOOT PATH ASSUMES THAT THE SIGN ASSEMBLY IS NOT PROTECTED BY GUARDRAIL OR IS LOCATED WITHIN A GUARDRAIL'S DEFLECTION DISTANCE DETERMINED PER THE CURRENT "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) ROADSIDE DESIGN GUIDE. ADDITIONAL POSTS MAY BE INSTALLED USING SLIP BASES THAT MEET "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 OR THE AASHTO "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH). THE APPROPRIATE RESOURCE SHALL BE DETERMINED AS DESCRIBED IN THE MASH PUBLICATION.
3. TO USE THE SELECTION VALUE (SV) COLUMNS IN THE TABLE ABOVE, MULTIPLY A SIGN'S SURFACE AREA IN SQUARE FEET (H x L) BY THE SIGN'S HEIGHT IN FEET MEASURED FROM THE GROUND TO THE CENTROID OF THE SIGN ASSEMBLY (h). THIS RESULT MUST BE LESS THAN OR EQUAL TO THE CORRESPONDING SELECTION VALUE. NOTE THAT FOR SIGNS WITH MULTIPLE POSTS, THE LARGEST HEIGHT DIMENSION SHALL BE USED TO CALCULATE THE POST SELECTION VALUE.
4. THE DESIGN CRITERIA UTILIZED IN SIGN POST AND ANCHOR SELECTION IS AS FOLLOWS: WIND SPEED OF 70 MPH (10 YEAR MEAN RECURRENCE INTERVAL), WIND PRESSURE OF 19 PSF, STEEL MINIMUM YIELD OF 55,000 PSI, AND AN ALLOWABLE STRESS OF 1.4 (0.60 FY).

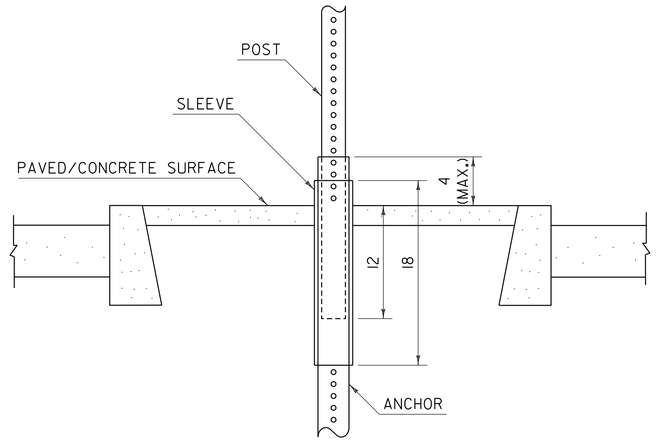
CORNER BOLT INSTALLATION DETAIL



NOTES:

1. CORNER BOLTS SHALL BE 5/16 INCH DIAMETER WITH 18 THREADS PER INCH AND DIMENSIONS SHALL BE DETERMINED BASED ON THE OUTERMOST DIMENSION OF THE SLEEVE, ANCHOR OR POST. THREAD EXPOSURE MUST EXCEED THE CORRESPONDING NUT WIDTH. THE CORNER BOLT AND CORRESPONDING HARDWARE SHALL BE ZINC PLATED, MEETING OR EXCEEDING THE REQUIREMENTS OF THE "AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) A307.

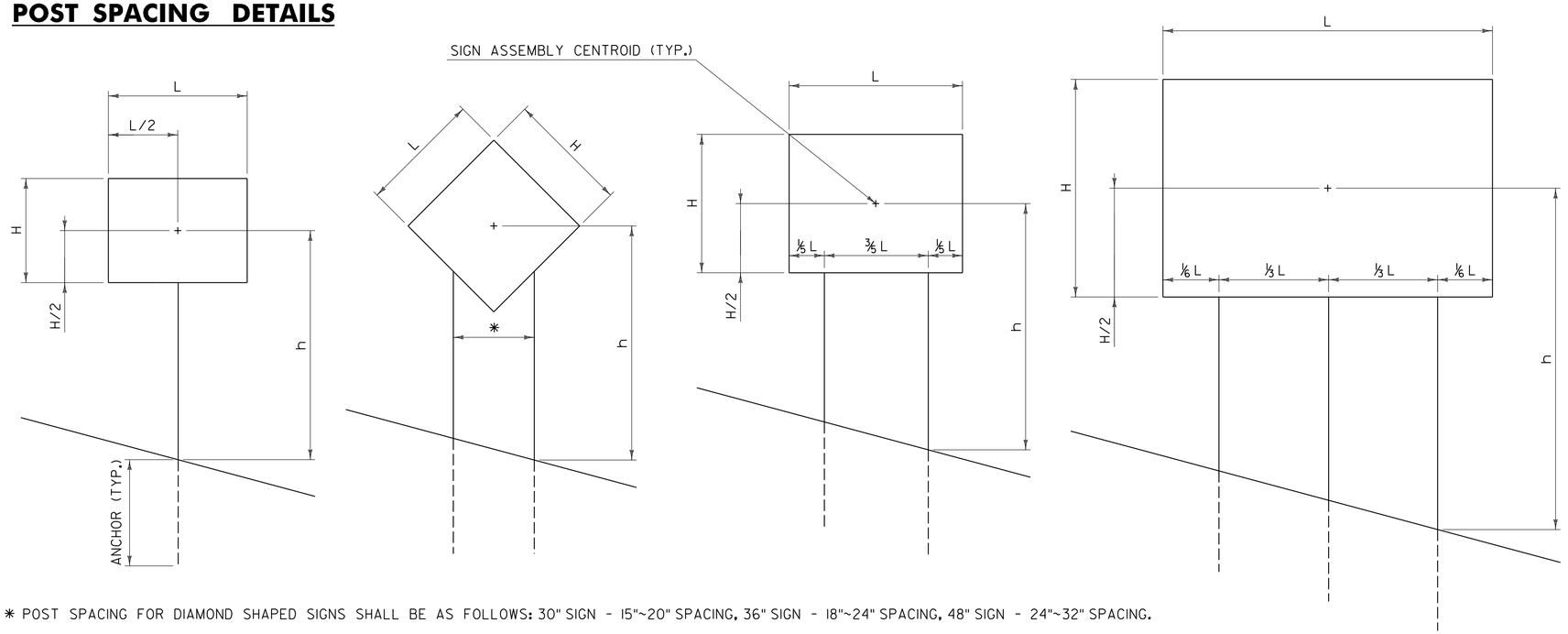
SLEEVE /ANCHOR INSTALLATION DETAIL



NOTES:

1. A SLEEVE SHALL BE INSTALLED FOR SIGN INSTALLATIONS IN CONCRETE OR PAVEMENT.
2. THE SLEEVE SHALL BE 18 INCHES MINIMUM IN LENGTH.
3. THREE INCH SLEEVES THAT DO NOT HAVE HOLES WILL REQUIRE THAT 7/16 INCH HOLES ARE DRILLED TO FACILITATE CONNECTIONS.
4. REFER TO CURRENT EDITION OF THE "VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION" FOR MATERIAL REQUIREMENTS.

POST SPACING DETAILS



* POST SPACING FOR DIAMOND SHAPED SIGNS SHALL BE AS FOLLOWS: 30" SIGN - 15"~20" SPACING, 36" SIGN - 18"~24" SPACING, 48" SIGN - 24"~32" SPACING.

GENERAL NOTES:

1. ALL SQUARE TUBE STEEL POSTS AND ANCHORS SHALL BE FORMED INTO A SIZE AND SHAPE IN SUCH A MANNER THAT NEITHER FLASH NOR WELD SHALL INTERFERE WITH THE TELESCOPING PROPERTIES, NOR DAMAGE THE GALVANIZING.
2. ANCHORS MAY BE DRIVEN OR SET INTO A DUG HOLE AND BACKFILLED. IF DRIVEN, A DRIVING CAP SHALL BE USED. THE DUG HOLE INSTALLATION METHOD SHALL BE UTILIZED IN AREAS WITH POOR SOIL CONDITIONS OR AS DIRECTED BY THE ENGINEER. BACKFILL SHALL BE COMPACTED AS DIRECTED BY THE ENGINEER.
3. THE TOPS OF SIGN POSTS SHALL BE AT OR NEAR THE TOP OF SIGN. THE POST SHALL NOT EXTEND ABOVE THE TOP OF SIGN.
4. SIGN POSTS SHALL BE INSTALLED A MINIMUM OF ONE FOOT BELOW GROUND, INSIDE THE ANCHOR. THE LENGTH OF ANCHOR EXPOSED ABOVE GROUND SHALL NOT EXCEED FOUR INCHES.
5. ALL DIMENSIONS SHOWN IN INCHES.

OTHER STDS. REQUIRED: **NONE**

REVISIONS AND CORRECTIONS

JAN. 2, 2013 - ORIGINAL APPROVAL DATE

APPROVED

HIGHWAY SAFETY & DESIGN ENGINEER

DIRECTOR OF PROGRAM DEVELOPMENT

Mark D. Richter

FEDERAL HIGHWAY ADMINISTRATION

SQUARE TUBE SIGN POST AND ANCHOR

VERMONT AGENCY OF TRANSPORTATION

STANDARD

T-45