STATE OF VERMONT
AGENCY OF TRANSPORTATION

RECORD PLANS

CONTRACTOR: RENAUD BROTHERS, INC. - VERNON, VT

RESIDENT ENGINEER: FRED ROSS

CONSTRUCTION BEGAN: APRIL 1, 2014

CONSTRUCTION COMPLETE: OCTOBER 15, 2014

RECOkD PLANS BY: FRED ROSS & JENNA HYDE

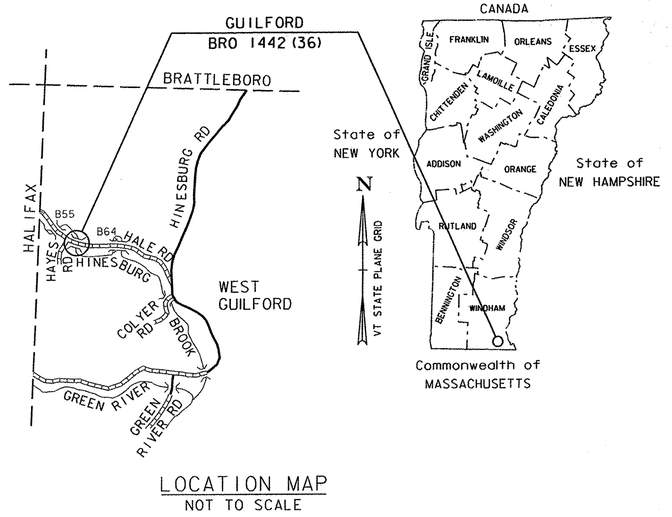
I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.

BY _____ RESIDENT ENGINEER
FOR FRED ROSS

DATE 2/1/16

NOTE: Any further information concerning final quantities, amounts or other details relative to this project may be found at Central Files in the electronic archives.

PROPOSED IMPROVEMENT
BRIDGE PROJECT
TOWN OF GUILFORD
COUNTY OF WINDHAM
ROUTE: T.H. 10, CLASS III (LOCAL ROAD), BRIDGE NO. 65

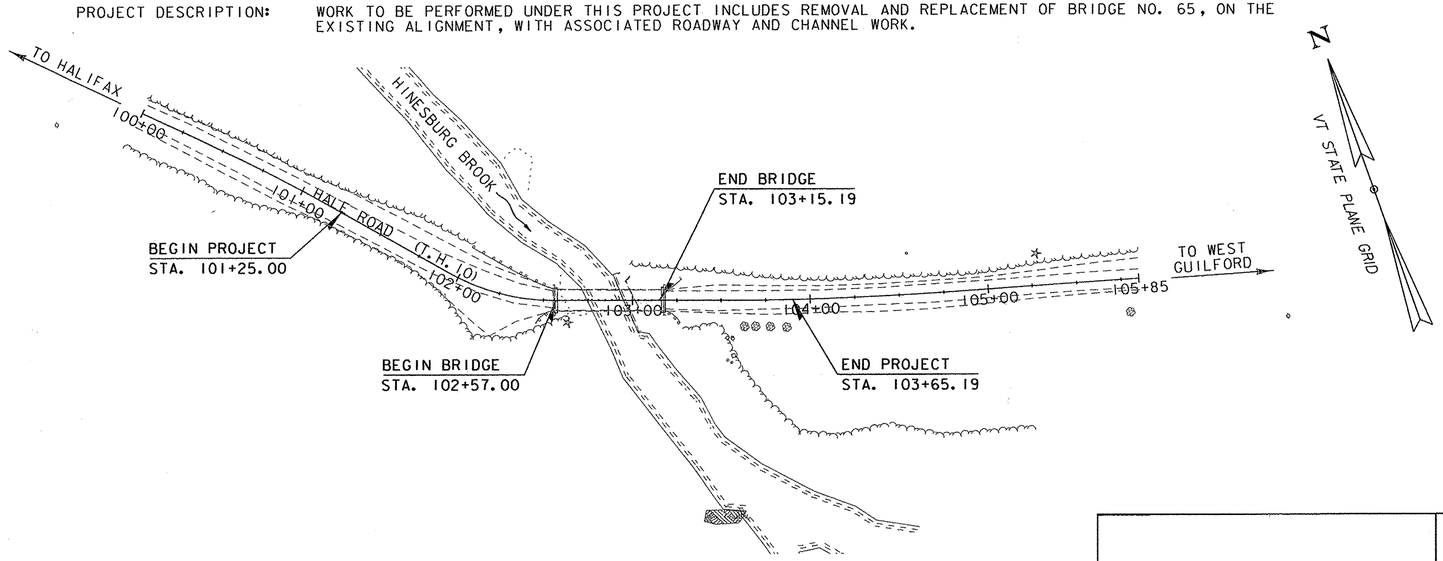


LOCATION MAP
NOT TO SCALE

PROJECT LOCATION: LOCATED IN THE COUNTY OF WINDHAM, TOWN OF GUILFORD, ON HALE ROAD (T.H. 10); BRIDGE NO. 65 OVER HINESBURG BROOK, APPROXIMATELY 0.90 MILES NORTHWESTERLY OF THE INTERSECTION OF HINESBURG ROAD (T.H. 2) AND HALE ROAD (T.H. 10).

LENGTH OF ROADWAY: 182.00 FEET
LENGTH OF BRIDGE: 58.19 FEET
LENGTH OF PROJECT: 240.19 FEET

PROJECT DESCRIPTION: WORK TO BE PERFORMED UNDER THIS PROJECT INCLUDES REMOVAL AND REPLACEMENT OF BRIDGE NO. 65, ON THE EXISTING ALIGNMENT, WITH ASSOCIATED ROADWAY AND CHANNEL WORK.



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 : VHB
SURVEYED DATE : NOV 2010

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83 (07)

STATE OF VERMONT
SCOTT E. BUSHEY
10-02-2013
No. 7686
Structural
REGISTERED PROFESSIONAL ENGINEER

VHB Vanasse Hangen Brustlin, Inc.

DIRECTOR OF PROGRAM DEVELOPMENT
APPROVED Keir A Klasel DATE 10/4/13

PROJECT MANAGER : TODD A. SUMNER, P.E.

PROJECT NAME : GUILFORD
PROJECT NUMBER : BRO 1442 (36)

SHEET 1 OF 42 SHEETS

VHB 57427

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version 11.06.15

LRFD

INDEX OF SHEETS

PLAN SHEETS

STANDARDS LIST

STRUCTURES DETAILS

VHB *Vanasse Hangen Brustlin, Inc.*

AS BUILT "REBAR" DETAIL		
LEVEL I	LEVEL II	LEVEL III
TYPE:	TYPE:	TYPE:
GRADE:	GRADE:	GRADE:

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT	
2012	80	10	58	7.2	5	20 year ESAL for flexible pavement from 2012 to 2032 : 19000
2032	85	10	58	8.8	5	40 year ESAL for flexible pavement from 2012 to 2052 : 38000
						Design Speed : 25 mph

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: 7/02/2013

DRAINAGE AREA : 2.75 sq. mi.
CHARACTER OF TERRAIN : Hilly to mountainous, mostly forested
STREAM CHARACTERISTICS : Stable, Moderately entrenched, Moderately Sinuous
NATURE OF STREAMBED : Gravel and cobbles

PEAK FLOW DATA

Q 2.33 =	150 cfs	Q 50 =	700 cfs
Q 10 =	380 cfs	Q 100 =	800 cfs
Q 25 =	525 cfs	Q 500 =	1,040 cfs

DATE OF FLOOD OF RECORD : 1927
ESTIMATED DISCHARGE: Unknown
WATER SURFACE ELEV.: Unknown
NATURAL STREAM VELOCITY : @ Q25 = 14.3 ft/s
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: Single span, rolled steel beam supported by concrete stub abutments
YEAR BUILT: Built 1939, reconstructed in 1966
CLEAR SPAN(NORMAL TO STREAM): 34' (measured from stone retaining wall)
VERTICAL CLEARANCE ABOVE STREAMBED: 11.7 ft
WATERWAY OF FULL OPENING: 265 sf
DISPOSITION OF STRUCTURE: Remove and replace with a new bridge
TYPE OF MATERIAL UNDER SUBSTRUCTURE: See boring information

WATER SURFACE ELEVATIONS AT:

Q2.33 =	1055.0 ft	VELOCITY =	7.4 ft/s
Q10 =	1056.2 ft	"	9.5 ft/s
Q25 =	1056.8 ft	"	10.2 ft/s
Q50 =	1057.3 ft	"	11.1 ft/s
Q100 =	1057.9 ft	"	11.7 ft/s

LONG TERM STREAMBED CHANGES: None noted

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: Above Q100
RELIEF ELEVATION: 1064.5 ft
DISCHARGE OVER ROAD @Q100: 0 cfs

UPSTREAM STRUCTURE

TOWN: Guilford — DISTANCE: 1,000 ft
HIGHWAY # : T.H. 10 — STRUCTURE #: 55
CLEAR SPAN: 25 ft — CLEAR HEIGHT:
YEAR BUILT: 1966 — FULL WATERWAY:
STRUCTURE TYPE: Steel stringer with bituminous wearing surface

DOWNSTREAM STRUCTURE

TOWN: Guilford — DISTANCE: 1,690 ft
HIGHWAY # : T.H. 10 — STRUCTURE #: 64
CLEAR SPAN: 55 ft — CLEAR HEIGHT:
YEAR BUILT: 1964 — FULL WATERWAY:
STRUCTURE TYPE: Steel stringer with bituminous wearing surface

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A STR.	4A STR.	5A SEMI
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY	2.31	1.49					
POSTING							
OPERATING	3.00	1.93	2.26	1.30	1.69	1.53	1.80
COMMENTS:							

* SEE PROJECT NOTES

PILE DRIVING AND TESTING REQUIREMENTS

1. NOMINAL PILE DRIVING CAPACITY	Rndr:	*
2. PILE TEST RESISTANCE FACTOR	ϕ:	0.65
3. MAXIMUM PILE TIP ELEVATION		*

4. A MINIMUM OF 3 DYNAMIC TESTS SHALL BE PERFORMED DURING INSTALLATION. NO LESS THAN 1 TEST SHOULD BE PERFORMED AT EACH ABUTMENT. THE REMAINING PILES SHOULD BE CALIBRATED BY WAVE EQUATION ANALYSIS.

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span voided slab bridge

CLEAR SPAN(NORMAL TO STREAM): 45 ft
VERTICAL CLEARANCE ABOVE STREAMBED: 10.8 ft
WATERWAY OF FULL OPENING: 270 sf

WATER SURFACE ELEVATIONS AT:

Q2.33 =	1055.0 ft	VELOCITY=	7.4 ft/s
Q10 =	1056.2 ft	"	9.5 ft/s
Q25 =	1056.8 ft	"	10.5 ft/s
Q50 =	1057.3 ft	"	11.5 ft/s
Q100 =	1057.7 ft	"	11.9 ft/s

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: Above Q100
RELIEF ELEVATION: 1064.8
DISCHARGE OVER ROAD @Q100: 0 cfs

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 1061.6 ft
VERTICAL CLEARANCE: @ Q25 = 4.8 ft

SCOUR: Contraction Scour = 0.5 ft (Q100), 0.5 ft (Q500)
Abutment Scour - n/a (abutments located outside of flow area)
REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW:	10 cfs	DEPTH OR ELEVATION:
ORDINARY LOW WATER:	1.0 cfs	Depth = 0.1 ft
ORDINARY HIGH WATER:	60 cfs	Depth = 1.1 ft

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: No temporary bridge required.
CLEAR SPAN (NORMAL TO STREAM):
VERTICAL CLEARANCE ABOVE STREAMBED:
WATERWAY AREA OF FULL OPENING:

ADDITIONAL INFORMATION

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:	7.0 INCH
3. DESIGN SPAN	L:	55.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	SEE NOTES
5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX)	f_y:	270 KSI
6. PRESTRESSED CONCRETE STRENGTH	f'_c:	6.0 KSI
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'_{ci}:	4.8 KSI
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f'_c:	---
9. CONCRETE, HIGH PERFORMANCE CLASS A	f'_c:	---
10. CONCRETE, HIGH PERFORMANCE CLASS B	f'_c:	---
11. CONCRETE, CLASS C	f'_c:	---
12. REINFORCING STEEL	f_y:	60 KSI
13. STRUCTURAL STEEL AASHTO M270	f_y:	---
14. SOIL UNIT WEIGHT	γ:	0.140 KCF
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:	10.0 KSF
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
19. NOMINAL AXIAL PILE RESISTANCE	q_p:	---
20. PILE YIELD STRENGTH ASTM A572	f_y:	50 KSI
21. PILE SIZE		HP 14X 89
22. EST. AVG PILE LENGTH	L_p:	34.0 ft
23. PILE RESISTANCE FACTOR	ϕ:	---
24. LATERAL PILE DEFLECTION	Δ:	---
25. BASIC WIND SPEED	V_{3s}:	---
26. MINIMUM GROUND SNOW LOAD	p_g:	---
27. SEISMIC DATA PGA: ---	S_s:	---
	S_1:	---

PROJECT NAME: **GUILFORD**
PROJECT NUMBER: **BRO 1442(36)**

FILE NAME: **z10j062pi.dgn** — PLOT DATE: 9/11/2013
PROJECT LEADER: **S.E. BURBANK** — DRAWN BY: **D.A. GINGRAS**
DESIGNED BY: **A.J. GOUDREAU** — CHECKED BY: **S.E. BURBANK**
PRELIMINARY INFORMATION SHEET — SHEET 2 OF 42

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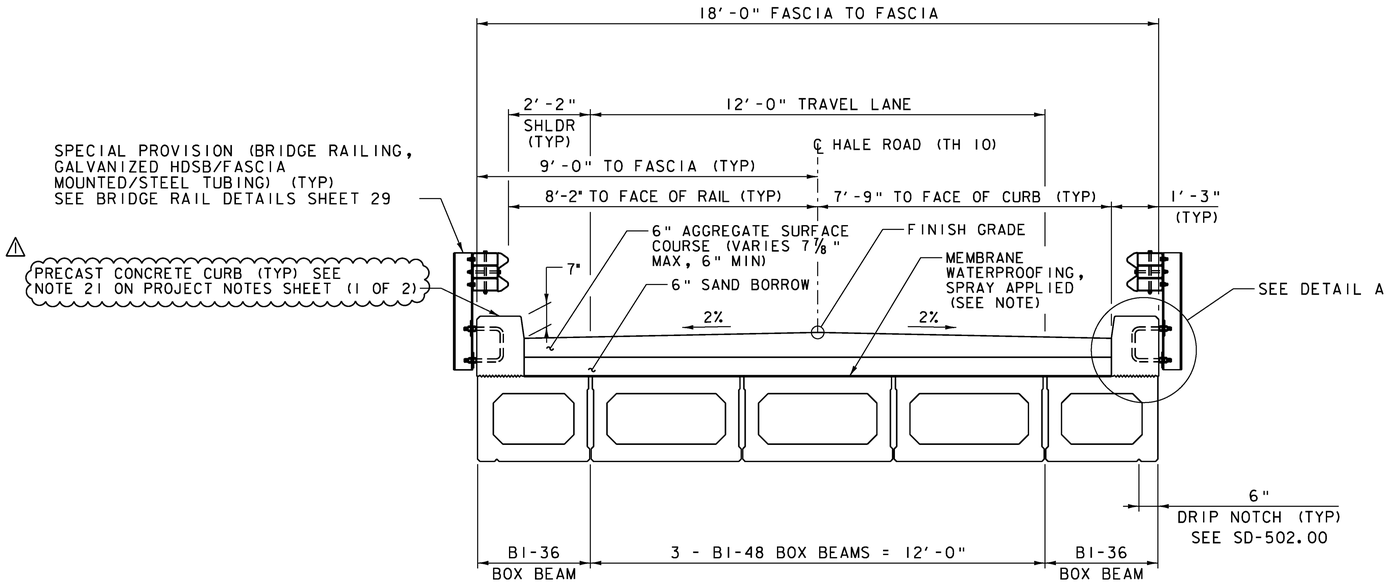
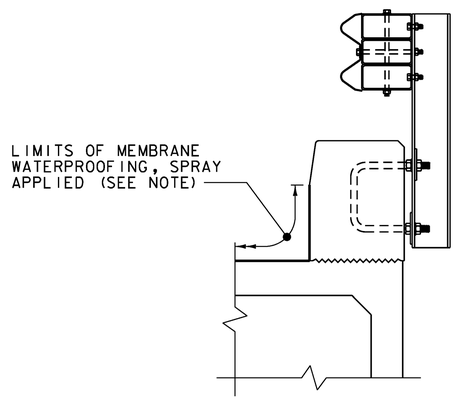


TYPICAL BRIDGE SECTION

SCALE 1/2"=1'-0"



DETAIL A

SCALE 1" = 1'-0"

NOTE:

ITEM 520.10, "MEMBRANE WATERPROOFING, SPRAY APPLIED" SHALL BE APPLIED TO THE BRIDGE DECK AS PER THE MANUFACTURER'S INSTRUCTIONS AND SHALL INCLUDE A REINFORCEMENT SCRIM COAT OVER GROUTED SHEAR KEYS.

REVISION	DESCRIPTION	DATE
⚠	PRECAST CONCRETE CURB	12/3/2013

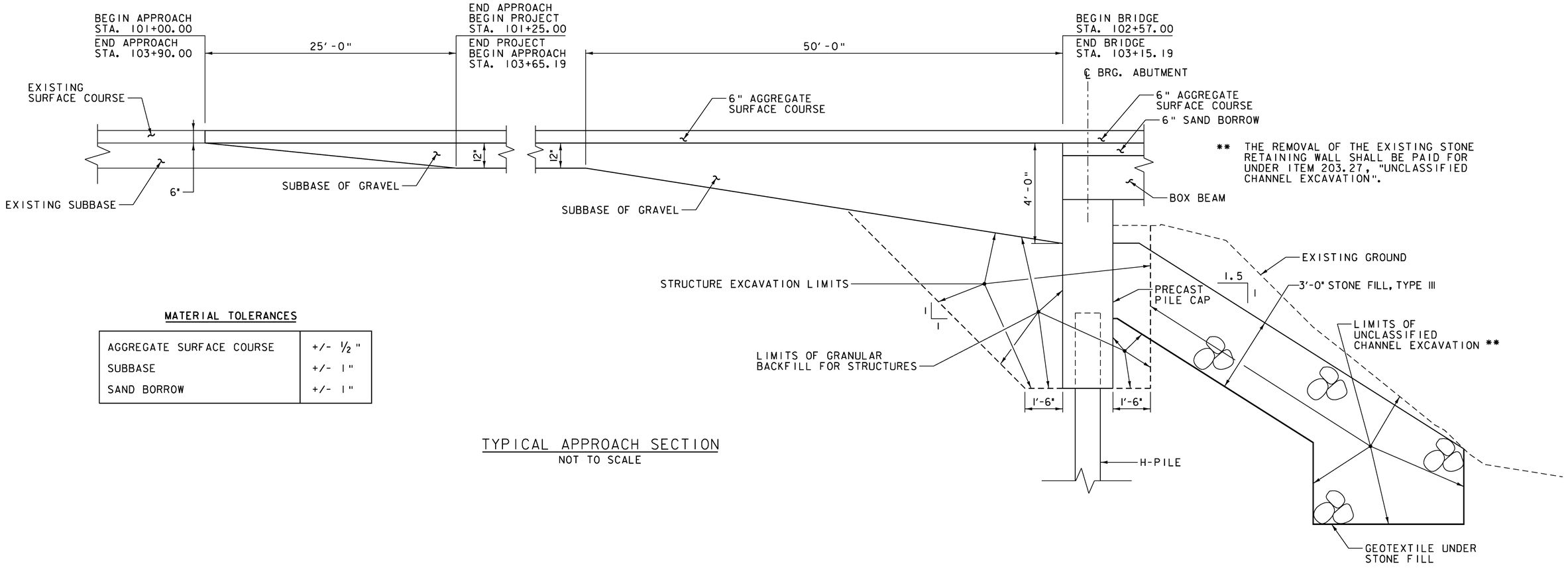
PROJECT NAME: GUILFORD

PROJECT NUMBER: BRO 1442(36)

FILE NAME: z10J064typ.dgn
PROJECT LEADER: S.E. BURBANK
DESIGNED BY: E.A. FIALA
TYPICAL BRIDGE SECTION

PLOT DATE: 12/3/2013
DRAWN BY: E.A. FIALA
CHECKED BY: S.E. BURBANK
SHEET 3 OF 42

VHB Vanasse Hangen Brustlin, Inc.

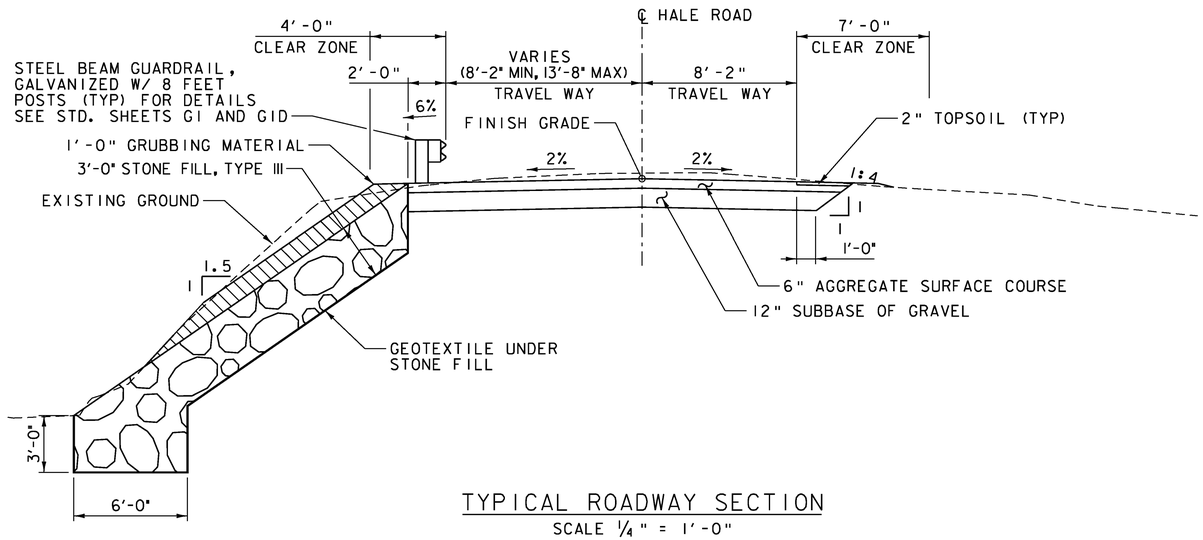


MATERIAL TOLERANCES

AGGREGATE SURFACE COURSE	+/- ½"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"

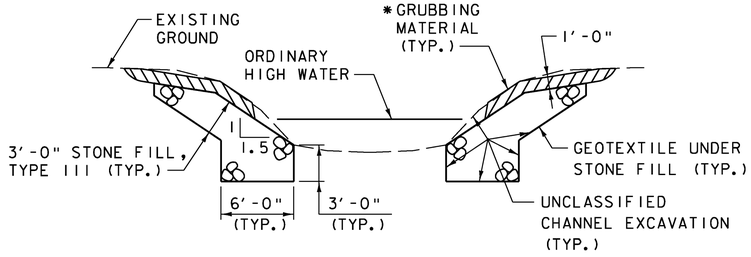
TYPICAL APPROACH SECTION

NOT TO SCALE



TYPICAL ROADWAY SECTION

SCALE 1/4" = 1'-0"



TYPICAL CHANNEL SECTION

(NOT TO SCALE)

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

Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	GUILFORD
PROJECT NUMBER:	BR01442(36)
FILE NAME: z101064typ.dgn	PLOT DATE: 10/2/2013
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
TYP EARTHWORK AND ROADWAY SECTIONS	SHEET 4 OF 42

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PROJECT NOTES

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2011, AND ITS LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 6TH EDITION, AND ITS LATEST REVISIONS.

2. ALL PRECAST CONCRETE ELEMENTS TO BE FABRICATED TO THE SPECIFIED DIMENSIONS WITHIN THE TOLERANCES DICTATED IN THE PRECAST/PRESTRESSED CONCRETE INSTITUTE TOLERANCE MANUAL FOR PRECAST AND PRESTRESSED CONCRETE CONSTRUCTION, MNL 135-00, AND ITS LATEST REVISIONS.

3. THE BRIDGE IS DESIGNED FOR HL-93 LIVE LOAD WITH A 7 INCH ALLOWANCE FOR FUTURE AGGREGATE SURFACE COURSE.

4. ALL WORK AND ANY ASSOCIATED ACTIVITY ON THIS PROJECT SHALL BE PERFORMED WITHIN THE EXISTING RIGHT-OF-WAY LIMITS UNLESS OTHERWISE DESIGNATED BY THE TOWN OR NEGOTIATED BY THE CONTRACTOR WITH APPROPRIATE LANDOWNERS.

5. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68 DEGREES FAHRENHEIT UNLESS NOTED OTHERWISE.

6. ITEM 529.15 "REMOVAL OF STRUCTURE" IS FOR THE COMPLETE REMOVAL AND DISPOSAL OF THE EXISTING BRIDGE SUBSTRUCTURE AND SUPERSTRUCTURE, INCLUDING ALL BRIDGE RAIL, BEARINGS, AND ANCHOR BOLTS, WHERE THE REMOVAL IS OUTSIDE OF THE AREAS COVERED BY ANY OF THE EXCAVATION ITEMS.

7. THE EXISTING BRIDGE CONTAINS STRUCTURAL STEEL. THE STRUCTURAL STEEL MAY BE 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 IDEMNIFY AND HOLD THE STATE, ITS OFFICERS, AND EMPLOYEES HARMLESS CONCERNING THE CONTRACTOR'S USE OR DISPOSITION OF THE REMOVED EXISTING STRUCTURAL STEEL.

8. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL BURIED AND AERIAL UTILITIES AND POLES PRIOR TO STARTING WORK. SOME UTILITIES HAVE BEEN RELOCATED DURING THE PREPARATION OF THE PLANS AND THE CONTRACTOR WILL NEED TO COORDINATE WITH ALL UTILITY OWNERS TO CONFIRM ACTUAL LOCATION PRIOR TO CONSTRUCTION. SEE THE UTILITY SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

9. NO SUBSTITUTION FOR PRECAST CONCRETE WILL BE PERMITTED.

EARTHWORK AND RELATED ITEMS

10. STONE FILL, TYPE III SHALL BE PLACED IN FRONT OF THE ABUTMENTS BEFORE THE NEW BEAMS ARE SET.

TRAFFIC MAINTENANCE DURING CONSTRUCTION

11. THE CONTACTOR SHALL IMPLEMENT THE ROAD CLOSURE, AS SHOWN ON THE PLANS.

12. THE CONTRACTOR SHALL NOTIFY THE TOWN A MINIMUM OF TWO (2) WEEKS PRIOR TO CLOSING THE ROAD.

13. FULL ACCESS TO ALL SIDE ROADS AND DRIVES WITHIN THE PROJECT LIMITS SHALL BE MAINTAINED AT ALL TIMES. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 641.10, "TRAFFIC CONTROL".

14. THE DETOUR FOR THE BRIDGE CLOSURE IS THE RESPONSIBILITY OF THE TOWN.

15. UNLESS COVERED UNDER INDIVIDUAL PAY ITEMS OR NOTED OTHERWISE, ALL COSTS FOR TEMPORARY TRAFFIC CONTROL DEVICES WILL BE CONSIDERED TO BE INCLUDED IN THE CONTRACT LUMP SUM PRICE FOR TRAFFIC CONTROL, ITEM 641.10, "TRAFFIC CONTROL". THIS INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING ITEMS:

    TEMPORARY TRAFFIC BARRIERS
    RETROREFLECTIVE DRUMS
    TYPE III BARRICADES
    SIGNS
    SIGN POSTS

    TEMPORARY TRAFFIC BARRIER SHALL BE FURNISHED IN ACCORDANCE WITH SECTION 621.

16. ALL SIGNS SHALL BE IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND THE "STANDARD HIGHWAY SIGNS AND MARKINGS" BOOK (SHSM) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION (FHWA).

CONCRETE

17. ITEM 514.10, "WATER REPELLENT, SILANE" SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES ON THE BRIDGE SUPERSTRUCTURE AND SUBSTRUCTURE, WITH THE EXCEPTION OF THE UNDERSIDE OF THE BOX BEAMS BETWEEN THE DRIP NOTCHES.

18. ALL REINFORCING STEEL SHALL BE DETAILED AND FABRICATED USING PROCEDURES AND TOLERANCES IN ACCORDANCE WITH APPLICABLE PUBLICATIONS OF THE CONCRETE REINFORCING STEEL INSTITUTE (CRSI).

19. ALL PRECAST SUBSTRUCTURE CONCRETE SHALL MEET THE REQUIREMENTS OF SECTION 540-PRECAST CONCRETE.

20. ALL REINFORCEMENT IN THE PILE CAP AND WINGWALLS SHALL BE REINFORCING STEEL, LEVEL I IN ACCORDANCE WITH SECTION 507. ALL REINFORCING STEEL IN THE BOX BEAMS SHALL BE REINFORCING STEEL, LEVEL II IN ACCORDANCE WITH SECTION 507. PAYMENT FOR REINFORCING STEEL WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE APPROPRIATE SECTION 510 OR 540 CONTRACT ITEM.

21. THE COST FOR THE PRECAST CONCRETE CURBS SHALL BE INCLUDED IN ITEM 510.21, "PRESTRESSED CONCRETE BOX BEAMS (BI-36)". THE CURBS SHALL BE CAST AT THE FABRICATION PLANT FOR THE BOX BEAMS IN ACCORDANCE WITH SECTION 540.

PRECAST ABUTMENTS AND POST-TENSIONING

22. IF VERTICAL CONSTRUCTION JOINTS ARE REQUIRED BY THE CONTRACTOR FOR SHIPMENT OF THE ABUTMENTS, THEN THE SECTIONS SHALL BE KEYED AND MATCH CAST. A JOINT DETAIL SHALL BE SHOWN ON THE FABRICATION DRAWINGS.

23. POST-TENSIONING AND ASSOCIATED ITEMS ARE ONLY REQUIRED IF THE PILE CAP IS CONSTRUCTED OF MORE THAN ONE UNIT. ANY POST-TENSIONING STRANDS AND CONDUIT SHALL ADHERE TO THE REQUIREMENTS OF SECTION 510 - PRESTRESSED CONCRETE. GALVANIZED ANCHOR ASSEMBLIES, CONDUIT, AND POST-TENSIONING STRANDS SHALL BE INCLUDED UNDER ITEM 540.10, "PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 1)" OR "PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 2)" AS APPROPRIATE. POST-TENSIONING STRANDS SHALL BE COVERED WITH SEAMLESS POLYPROPYLENE SHEATH (WITH CORROSION INHIBITOR GREASE BETWEEN SHEATH AND STRAND) FOR THE LENGTH OF THE STRAND, EXCEPT AT ANCHORAGE LOCATIONS.

24. GALVANIZE ANCHOR ASSEMBLIES AFTER FABRICATION ACCORDING TO AASHTO M23 2M/M 232.

25. DESIGN VALUES
    A. CONCRETE COMPRESSIVE STRENGTH: f'c =5000 PSI.
    B. POST-TENSIONING STRANDS: 0.5 INCH DIAMETER, 270 KSI, LOW RELAXATION 7-WIRE STRANDS.
    C. ASSUMED MODULUS OF ELASTICITY IS 28500 KSI.
    D. THERE SHALL BE 2 STRANDS PER CONDUIT.
    E. THE JACKING FORCE PER STRAND = 32 KIPS.

26. THE CONCRETE FOR THE ABUTMENT NO. 1 AND ABUTMENT NO. 2 PILE CAVITIES SHALL MEET THE REQUIREMENTS OF ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)(FPQ)".

27. PROPOSED SEQUENCE OF CONSTRUCTION:
    A. PREPARE AND GRADE FOUNDATION TO REQUIRED ELEVATION.
    B. DRIVE PILES.
    C. PLACE PRECAST ABUTMENTS AND INSTALL TRANSVERSE STRANDS (IF MORE THAN ONE UNIT).
    D. APPLY EPOXY TO MATCH CAST FACES OF VERTICAL CONSTRUCTION JOINT.
    E. USE A CALIBRATED JACK TO TENSION TO 3 KIPS TO REMOVE SAG IN STRANDS.
    F. CHECK ALIGNMENT OF PILE CAP ELEMENTS.
    G. STRESS POST-TENSIONING STRANDS USING A CALIBRATED JACK OPERATED BY QUALIFIED PERSONNEL WHO HAVE PREVIOUS EXPERIENCE IN POST-TENSIONING.
    H. FILL PILE CAVITIES WITH ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)(FPQ)".
    I. PLACE PRECAST WINGWALLS AND GROUT SPLICE CONNECTORS.
    J. BACKFILL MAY BE COMPLETE AFTER SPLICE CONNECTOR GROUT HAS REACHED 85% OF 5,000 PSI.

28. ALTERNATE SEQUENCE OF CONSTRUCTION MAY BE SUBMITTED FOR APPROVAL BY THE PROJECT MANAGER.

PRESTRESSED BOX BEAMS

⚠

29. ITEM 510.21 "PRESTRESSED CONCRETE BOX BEAMS" SHALL:
    A. CONFORM TO SECTION 510 "PRESTRESSED CONCRETE".
    B. HAVE THE ENDS OF THE STRANDS RECESSED AND GROUTED ACCORDING TO STANDARD PRACTICE.
    C. INCLUDE COLD POURED JOINT FILLER, AND TRANSVERSE TENDONS.
    D. GALVANIZE TRANSVERSE TENDON PLATES AND CHUCKS AFTER FABRICATION ACCORDING TO AASHTO M 232M/M 232.

30. ITEM 510.24 "GROUTING SHEAR KEYS": FILL THE JOINTS BETWEEN THE BEAMS WITH MORTAR, TYPE IV, AS SPECIFIED IN SUBSECTION 510.13.

PRESTRESSED BOX BEAMS (CONT.)

31. DESIGN VALUES
    A. CONCRETE: f'c = 6.0 KSI AND f'ci = 4.8 KSI
    B. LIVE LOAD: AASHTO HL-93
    C. PRESTRESSING STRANDS: 0.6" DIAMETER, 270 KSI, LOW-RELAXATION 7-WIRE STRANDS PULLED TO 75% OF THEIR ULTIMATE TENSILE STRENGTH.
    D. POST-TENSIONING STRANDS: 0.6" DIAMETER, 270 KSI, LOW-RELAXATION 7-WIRE STRANDS.
    E. THE ASSUMED MODULUS OF ELASTICITY FOR THE STRAND IS 28,500 KSI.
    F. THERE SHALL BE (1) STRAND PER TRANSVERSE TIE AT THE END DIAPHRAGM LOCATIONS AND (2) STRANDS PER TRANSVERSE TIE AT THE CENTER DIAPHRAGM.
    G. TRANSVERSE TENDONS SHALL BE COVERED BY SEAMLESS POLYPROPYLENE SHEATH (WITH CORROSIVE INHIBITOR GREASE BETWEEN SHEATH AND STRAND) FOR THE LENGTH OF THE STRAND. TIES SHALL BE TENSIONED TO 47 KIPS FOR EACH 0.6" DIAMETER STRAND.
    H. SERVICE LOADS

	EXTERIOR		INTERIOR	
MEMBER MOMENT	228.4	K-FT	283.5	K-FT
SUPERIMPOSED DEAD LOAD MOMENT	241.3	K-FT	241.3	K-FT
LIVE LOAD & IMPACT MOMENT	284.6	K-FT	287.7	K-FT
DEAD LOAD REACTION	35.8	K	40.5	K
LIVE LOAD & IMPACT REACTION	45.8	K	44.1	K
TOTAL REACTION	81.6	K	84.6	K
RELEASE CAMBER	1.05	IN	0.70	IN
FINAL CAMBER	1.28	IN	0.78	IN

32. THE FABRICATOR MAY, WITH THE APPROVAL OF THE ENGINEER, ALTER THE DESIGN AS DETAILED TO MEET THE PLANT'S PRESTRESSING OPERATION AND MATERIAL REQUIREMENTS. ALTERNATE STRAND, TRANSVERSE TIE AND CROSS-SLOPE CONFIGURATIONS MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL. ANY DESIGN CHANGES SHALL MEET ALL OF THE APPLICABLE DESIGN CRITERIA, LOADINGS AND CODES; AND SHALL BE STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF VERMONT.

33. THE PRECASTER SHALL SANDBLAST SHEAR KEY FACES PRIOR TO DELIVERY.

34. THE CONTRACTOR IS RESPONSIBLE FOR DESIGN OF ALL LIFTING POINTS, POST TENSIONING ELEMENTS IN THE ANCHORAGE ZONE AND ADDITIONAL REINFORCEMENT IN THE ANCHORAGE ZONE (REQUIRED FOR SPLITTING, BURSTING SPALLING, ETC.) INCLUDING THE LOCAL ZONE (REGION IMMEDIATELY SURROUNDING THE POST TENSIONING DEVICE). THE CONTRACTOR IS RESPONSIBLE FOR CONSIDERATION OF ADDITIONAL STRESSES DUE TO HANDLING. DESIGN MUST CONFORM TO AASHTO LRFD SPECIFICATIONS.

35. ANCHORING ASSEMBLIES, CONDUITS, GROUT FOR THE CONDUIT, MECHANICAL CONNECTORS, AND POST TENSIONING STRANDS SHALL BE INCLUDED IN ITEM 510.21, "PRESTRESSED CONCRETE BOX BEAMS".

PROPOSED CONSTRUCTION SEQUENCE FOR PRESTRESSED BOX BEAMS

36. LAYOUT WORKING LINES:
    A. LAYOUT WORKING LINES FOR THE ENTIRE BRIDGE WIDTH ON THE BEAM SEAT.
    B. MEASURE ALL WORKING LINES FROM A COMMON WORKING POINT.
    C. BASE THE WORKING LINES ON THE NOMINAL BEAM WIDTHS.

37. VERIFY BEAM SEAT ELEVATIONS:
    A. MEASURE ELEVATIONS AT BEAM SEATS.
    B. IF SEATS ARE HIGH OR LOW, TAKE CORRECTIVE ACTION.
    C. INSTALL BEARINGS.

38. ERECT BEAMS:
    A. PLACE BEAMS TO FIT WITHIN THE WORKING LINES.
    B. AS WORK PROGRESSES, INSTALL HARDWOOD WEDGES BETWEEN ADJACENT BEAMS TO MAINTAIN PROPER JOINT OPENING (A MINIMUM OF ONE WEDGE AT EACH TRANSVERSE TENDON).
    C. DRILL ANCHOR BOLT HOLES
    D. PLACE ANCHOR BOLTS.

39. INSTALL BACKER ROD: PLACE FILLER BELOW THE KEYWAY BOTTOM, AS SHOWN ON THE PLANS.

40. INSTALL TRANSVERSE TENDONS:
    A. FEED TENDONS THROUGH DUCTS.
    B. VERIFY THAT HARDWOOD WEDGES ARE IN PLACE AS REQUIRED TO PREVENT SLIPPAGE OF BEAMS.
    C. USING A CALIBRATED JACK, POST-TENSION TENDONS TO APPROXIMATELY 5 KIPS TO REMOVE SAG IN THE TENDON AND TO SEAT THE CHUCK.

41. GROUT SHEAR KEYS:
    A. CLEAN JOINTS WITH AN OIL FREE AIR-BLAST IMMEDIATELY BEFORE GROUT PLACEMENT. VERIFY THAT THE BACKER ROD IS STILL IN PLACE.
    B. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR ADDITIONAL JOINT PREPARATION AND GROUT PLACEMENT.
    C. CAREFULLY ROD JOINTS TO ELIMINATE ANY POSSIBILITY OF VOIDS.

REVISION	DESCRIPTION	DATE
⚠	REVISED NOTE 29D	12/3/2013

PROJECT NAME: GUILFORD
PROJECT NUMBER: BRO 1442(3)

FILE NAME: z10J064pn.dgn
PROJECT LEADER: S.E. BURBANK
DESIGNED BY: J.T. KLEIN
PROJECT NOTES (1 OF 2)

PLOT DATE: 12/3/2013
DRAWN BY: E.A FIALA
CHECKED BY: S.E. BURBANK

VHB Vanasse Hangen Brustlin, Inc.

PROJECT NOTES (CONT.)

42. POST-TENSION TRANSVERSE TENDONS:
    A. GROUT SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI, BASED ON THE MANUFACTURER'S RECOMMENDATIONS, PRIOR TO STRESSING. THE GROUT NEED NOT BE CURED FOR THREE DAYS PRIOR TO THE COMMENCING OF POST-TENSIONING.
    B. PROVIDE APPROPRIATE CUBE MOLDS AS DESCRIBED IN AASHTO T106 FOR 3 SETS OF 3 DAY CUBES, 3 SETS OF 28 DAY CUBES AND A MINIMUM OF 3 MORE CUBES TO TEST FOR THE 3000 PSI MINIMUM COMPRESSIVE STRENGTH.
    C. POST-TENSION TENDONS TO 47 KIPS EACH USING A CALIBRATED JACK OPERATED BY QUALIFIED PERSONNEL. BEGIN WITH TENDONS AT END AND WORK SYMMETRICALLY TOWARDS MID-SPAN FROM EACH END.

43. END DETAILS:
    A. GROUT ANCHOR BOLTS INTO THE SLEEVES IN THE PRE-STRESSED UNITS, BEFORE THE GROUT CURES, PLACE THE WASHER PLATE, AND INSTALL THE NUT ON TOP AND TIGHTEN.
    B. GROUT OVER THE NUT AND BOLT IN THE ANCHOR BOLT BLOCK OUTS.

44. FINISH WORK: REMOVE WEDGES, AND PATCH SURFACE AND FASCIA BEAMS AT TRANSVERSE TENDONS.

H-PILES

45. THE PILES SHALL BE HP 14x89.

46. PILES SHALL BE DRIVEN TO REFUSAL IN BEDROCK. A NOMINAL PILE DRIVING RESISTANCE (RNDR) OF 332 KIPS IS REQUIRED BY DESIGN, PROVIDED A MINIMUM PENETRATION OF 25 FEET BELOW THE BOTTOM OF PILE CAP HAS BEEN ACHIEVED. TO PREVENT DAMAGE TO THE PILES, PILE SHOES ARE REQUIRED AND SHALL CONFORM TO SUBSECTION 505.04(f).

47. A MININMUM OF THREE DYNAMIC TESTS ARE REQUIRED DURING PILE INSTALLATION. NO LESS THAN ONE DYNAMIC PILE TEST SHALL BE CONDUCTED AT EACH ABUTMENT. PAYMENT WILL BE MADE UNDER ITEM 505.45, "DYNAMIC PILE LOADING TEST".

48. THE TOPS OF THE PILES AFTER DRIVING SHALL NOT VARY FROM THE POSITION SHOWN ON THE PLANS BY MORE THAN 3 INCHES. THE PILE ORIENTATION SHALL NOT VARY BY MORE THAN 5 DEGREES. THE CONTRACTOR SHALL DEMONSTRATE TO THE SATISFACTION OF THE ENGINEER HOW THE TOLERANCES WILL BE MET. THESE MEASURES SHALL BE DEMONSTRATED IN A SUBMITTAL TO BE ACCEPTED BEFORE PILE DRIVING COMMENCES.

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

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES

ROADWAY	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND
1				1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10	
500				500		CY	COMMON EXCAVATION	203.15	
		520		520		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27	
		20		20		CY	SAND BORROW	203.31	
1				1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22	
		200		200		CY	STRUCTURE EXCAVATION	204.25	
		150		150		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30	
280				280		CY	SUBBASE OF GRAVEL	301.15	
100		20		120		CY	AGGREGATE SURFACE COURSE	401.10	
		1		1		LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10	
		335		335		LF	STEEL PILING, HP 14 X 89	505.18	
		4		4		EACH	DYNAMIC PILE LOADING TEST	505.45	
		117		117		LF	PRESTRESSED CONCRETE BOX BEAMS (27" X 36")	510.21	
		175		175		LF	PRESTRESSED CONCRETE BOX BEAMS (27" X 48")	510.21	
		233		233		LF	GROUTING SHEAR KEYS	510.24	
		9		9		GAL	WATER REPELLENT, SILANE	514.10	
		101		101		SY	MEMBRANE WATERPROOFING, SPRAY APPLIED	520.10	
		84		84		SY	REMOVAL OF BRIDGE PAVEMENT	529.10	
		1		1		EACH	REMOVAL OF STRUCTURE (756 SF - EST.)	529.15	
		20		20		EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17	
		1		1		LS	PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 1)	540.10	
		1		1		LS	PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 2)	540.10	
0.1				0.1		MGAL	DUST CONTROL WITH WATER	609.10	
		400		400		CY	STONE FILL, TYPE III	613.12	
58				58		LF	STEEL BEAM GUARDRAIL, GALVANIZED	621.20	
38				38		LF	STEEL BEAM GUARDRAIL, GALVANIZED W/8 FEET POSTS	621.205	
4				4		EACH	ANCHOR FOR STEEL BEAM RAIL	621.60	
4				4		EACH	GUARDRAIL APPROACH SECTION, GALV HD STEEL BEAM W/ 8FT POSTS	621.738	
87				87		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80	
40				40		HR	FLAGGERS	630.15	
			1	1		LS	FIELD OFFICE, ENGINEERS	631.10	
			1	1		LS	TESTING EQUIPMENT, CONCRETE	631.16	
			3000	3000		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26	
1				1		LS	MOBILIZATION/DEMOBILIZATION	635.11	
1				1		LS	TRAFFIC CONTROL	641.10	
		540		540		SY	GEOTEXTILE UNDER STONE FILL	649.31	
	60			60		SY	GEOTEXTILE FOR SILT FENCE	649.51	
	90			90		SY	GEOTEXTILE FOR FILTER CURTAIN	649.61	
	4			4		LB	SEED	651.15	
	45			45		LB	FERTILIZER	651.18	

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS
		EARTHWORKS SUMMARY
		FILL AVAILABLE
500	CY	COMMON EXCAVATION (500 CY * 1.00)
390	CY	UNCLASSIFIED CHANNEL EXCAVATION (520 CY * 0.75)
150	CY	STRUCTURE EXCAVATION (200 CY * 0.75)
1040	CY	SUBTOTAL
0	CY	ROUNDING
1040	CY	TOTAL
1040	CY	FILL AVAILABLE
0	CY	FILL REQUIRED
20	CY	BORROW
1020	CY	WASTE
		COMMON EXCAVATION
500	CY	MAINLINE
0	CY	ROUNDING
500	CY	TOTAL
		SUBBASE OF GRAVEL
280	CY	MAINLINE
0	CY	ROUNDING
280	CY	TOTAL

Vanasse Hangen Brustlin, Inc.

PROJECT NAME: GUILFORD
PROJECT NUMBER: BRO 1442(36)

FILE NAME: z10J064qs.dgn
PROJECT LEADER: S.E. BURBANK
DESIGNED BY: S.E. BURBANK
QUANTITY SHEET #1

PLOT DATE: 10/01/2013
DRAWN BY: A.J. GOUDREAU
CHECKED BY: E.B. PARIZO
SHEET 7 OF 42

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES

ROADWAY	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND
	0.2			0.2		TON	AGRICULTURAL LIMESTONE	651.20	
	0.2			0.2		TON	HAY MULCH	651.25	
	12			12		CY	TOPSOIL	651.35	
	275			275		SY	GRUBBING MATERIAL	651.40	
	1			1		LS	EPSC PLAN	652.10	
	80			80		HR	MONITORING EPSC PLAN	652.20	
	1			1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30	
	100			100		SY	TEMPORARY EROSION MATTING	653.20	
	30			30		CY	VEHICLE TRACKING PAD	653.35	
	180			180		LF	BARRIER FENCE	653.50	
	315			315		LF	PROJECT DEMARCATION FENCE	653.55	
30				30		SF	TRAFFIC SIGNS, TYPE A	675.20	
120				120		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341	
		6		6		CY	SPECIAL PROVISION (HIGH PERFORMANCE CONRETE, RAPID SET)(FPQ)	900.608	
		125		125		LF	SPECIAL PROVISION (BRIDGE RAILING, GALVANIZED HDSB/FASCIA MOUNTED/STEEL TUBING)	900.640	
		1		1		LU	SPECIAL PROVISION (INCENTIVE/DISINCENTIVE) (N.A.B.I.)	900.650	
		25		25		SF	SPECIAL PROVISION (RETAINING WALL)	900.670	

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS

Vanasse Hangen Brustlin, Inc.

PROJECT NAME: GUILFORD
PROJECT NUMBER: BRO 1442(36)

FILE NAME: z10J064qs.dgn
PROJECT LEADER: S.E. BURBANK
DESIGNED BY: S.E. BURBANK
QUANTITY SHEET #2

PLOT DATE: 10/01/2013
DRAWN BY: A.J. GOUDREAU
CHECKED BY: E.B. PARIZO
SHEET 8 OF 42

VHB 57427

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
	I&M	INSTALL & MAINTAIN EASEMENT
	LAND	LANDSCAPE EASEMENT
	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	CALCULATED ROW POINT
[DISTANCE]		DISTANCE 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 — PDF — PROJECT DEMARCATION FENCE
- BF — 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 — 6F PROPERTY BOUNDARY
- 4F — 4F — 4F PROPERTY BOUNDARY
- HAZ — HAZ — HAZARDOUS WASTE

EPSC LAYOUT PLAN SYMBOLOGY

EPSC MEASURES

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

ENVIRONMENTAL RESOURCES

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

ARCHEOLOGICAL & HISTORIC

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

CONVENTIONAL TOPOGRAPHIC SYMBOLOGY

EXISTING FEATURES

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

VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME: GUILFORD
PROJECT NUMBER: BRO 1442(36)

FILE NAME: z10J064Legend_Sheet.dgn
PROJECT LEADER: S.E. BURBANK
DESIGNED BY: VTRANS
CONVENTIONAL SYMBOLOGY SHEET

PLOT DATE: 10/2/2013
DRAWN BY: C.L. CILLEY
CHECKED BY: S.E. BURBANK
SHEET 9 OF 42

VHB 57427

GPS CONTROL POINTS

HVCTRL #5

SPIKE SET

NORTH = 113221.63
EAST = 1593373.11
ELEV. = 1043.36

GENERAL LOCATION WEST GUILFORD, VERMONT. TO REACH FROM THE INTERSECTION OF U.S. ROUTE 5 AND GUILFORD CENTER ROAD (T.H. 1) IN GUILFORD, PROCEED SOUTHWEST ALONG GUILFORD CENTER ROAD (T.H. 1) FOR 3.7 MI (6.0 KM) TO GUILFORD CENTER. FROM GUILFORD CENTER PROCEED WEST ALONG CARPENTER HILL ROAD (T.H. 18) FOR 2.2 MI (3.5 KM) TO THE INTERSECTION WITH HINESBURG ROAD (T.H. 2) IN WEST GUILFORD. PROCEED NORTHWEST ON HINESBURG ROAD (T.H. 2) FOR 0.3 MI (0.5 KM). BEAR LEFT ONTO HALE ROAD (T.H. 10) AND PROCEED FOR APPROXIMATELY 0.9 MI (1.4 KM). THE MARK IS SET IN A LAWN APPROXIMATELY 73 FT (22.3 M) SOUTHWEST OF THE CENTERLINE OF HALE ROAD, APPROXIMATELY 163 FT (49.7 M) SOUTHEAST OF UTILITY POLE #17 AND APPROXIMATELY 183 FT (55.8 M) SOUTHEAST OF THE NORTHEAST CORNER OF A 2 STORY WOOD FRAME HOUSE.

VCTRL #100

MAG NAIL SET

NORTH = 111846.61
EAST = 1596492.50
ELEV. = 943.43

STATION MARK IS SET IN EDGE OF PAVEMENT EAST OF THE INTERSECTION OF HINESBURG ROAD (T.H. 2) AND HALE ROAD (T.H. 10). ELEVATION TRANSFERRED FROM NEARBY USGS DISK STAMPED "USGS 25 REM 1942 934".

REFERENCE INFORMATION FOR USGS 25 REM:

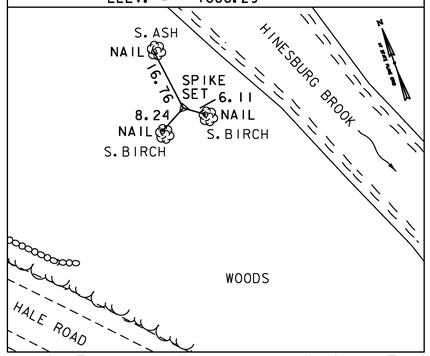
GENERAL LOCATION, GUILFORD, VT. IN VILLAGE OF HINESBURG (WEST GUILFORD), 31 FT (9.4 M) WEST OF ROAD, 16 FT (4.9 M) EAST OF FOOT PATH, 50 FT (15.2 M) WEST OF NORTHWEST CORNER OF CORNER BLACKSMITH SHOP, 220 FT (67.1 M) FROM ROAD FORK, IN ROCK LEDGE.

APPROX. LATITUDE: 42°48'24" N
APPROX. LONGITUDE: 72°39'49" W
ELEVATION: 933.477 FT

TRAVERSE TIES

HVCTRL #1

NORTH = 113635.45
EAST = 1592763.17
ELEV. = 1066.29



HVCTRL #2

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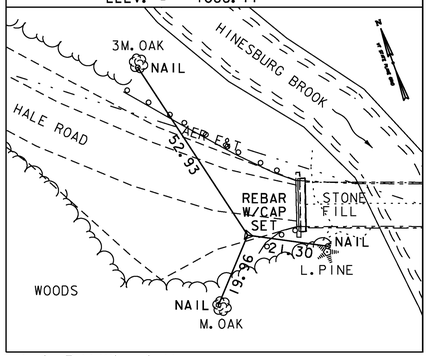
EAST = 1592835.83
ELEV. = 1066.44



HVCTRL #3

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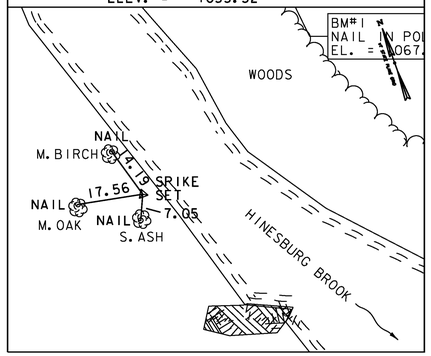
EAST = 1592886.10
ELEV. = 1053.32



HVCTRL #4

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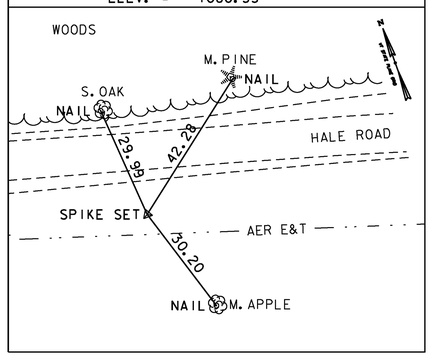
EAST = 1593081.57
ELEV. = 1060.53



• Main Traverse Completed 11/18/10 by T.J.Gaudet & B.M.Klinefelter

DATUM

VERTICAL NAVD 88
HORIZONTAL NAD 83 (07)

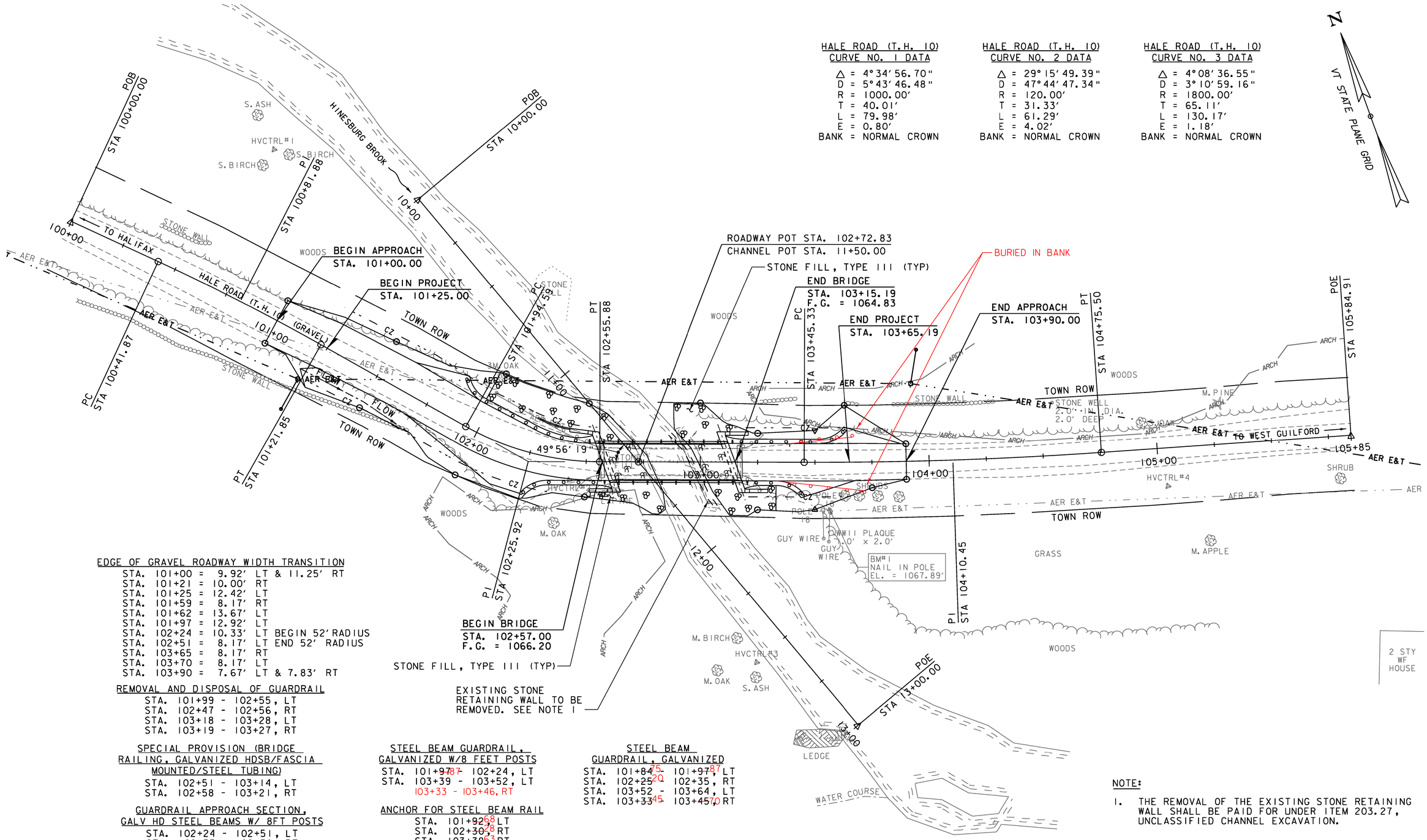
VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME: GUILFORD
PROJECT NUMBER: BRO 1442(36)

FILE NAME: z10J064t1.dgn
PROJECT LEADER: S.E. BURBANK
DESIGNED BY: B.M. KLINEFELTER
TIE SHEET

PLOT DATE: 10/2/2013
DRAWN BY: B.M. KLINEFELTER
CHECKED BY: S.E. BURBANK
SHEET 10 OF 42

VHB 57427



EDGE OF GRAVEL ROADWAY WIDTH TRANSITION

STA. 101+00 = 9.92′ LT & 11.25′ RT
STA. 101+21 = 10.00′ RT
STA. 101+25 = 12.42′ LT
STA. 101+59 = 8.17′ RT
STA. 101+62 = 13.67′ LT
STA. 101+97 = 12.92′ LT
STA. 102+24 = 10.33′ LT BEGIN 52′ RADIUS
STA. 102+51 = 8.17′ LT END 52′ RADIUS
STA. 103+65 = 8.17′ RT
STA. 103+70 = 8.17′ LT
STA. 103+90 = 7.67′ LT & 7.83′ RT

REMOVAL AND DISPOSAL OF GUARDRAIL

STA. 101+99 - 102+55, LT
STA. 102+47 - 102+56, RT
STA. 103+18 - 103+28, LT
STA. 103+19 - 103+27, RT

SPECIAL PROVISION (BRIDGE RAILING, GALVANIZED HDSB/FASCIA MOUNTED/STEEL TUBING)

STA. 102+51 - 103+14, LT
STA. 102+58 - 103+21, RT

GUARDRAIL APPROACH SECTION, GALV HD STEEL BEAMS W/ 8FT POSTS

STA. 102+24 - 102+51, LT
STA. 102+35 - 102+58, RT
STA. 103+14 - 103+39, LT
STA. 103+21 - 103+33, RT

SPECIAL PROVISION (RETAINING WALL)

STA. 102+24 - 102+41, LT

STEEL BEAM GUARDRAIL, GALVANIZED W/8 FEET POSTS

STA. 101+~~97~~87 - 102+24, LT
STA. 103+39 - 103+52, LT
103+33 - 103+46, RT

ANCHOR FOR STEEL BEAM RAIL

STA. 101+~~92~~68 LT
STA. 102+~~30~~28 RT
STA. 103+~~38~~63 RT
STA. 103+57, LT

STEEL BEAM GUARDRAIL, GALVANIZED

STA. 101+~~84~~75 - 101+~~97~~87, LT
STA. 102+~~25~~20 - 102+35, RT
STA. 103+52 - 103+64, LT
STA. 103+~~33~~45 - 103+~~45~~70 RT

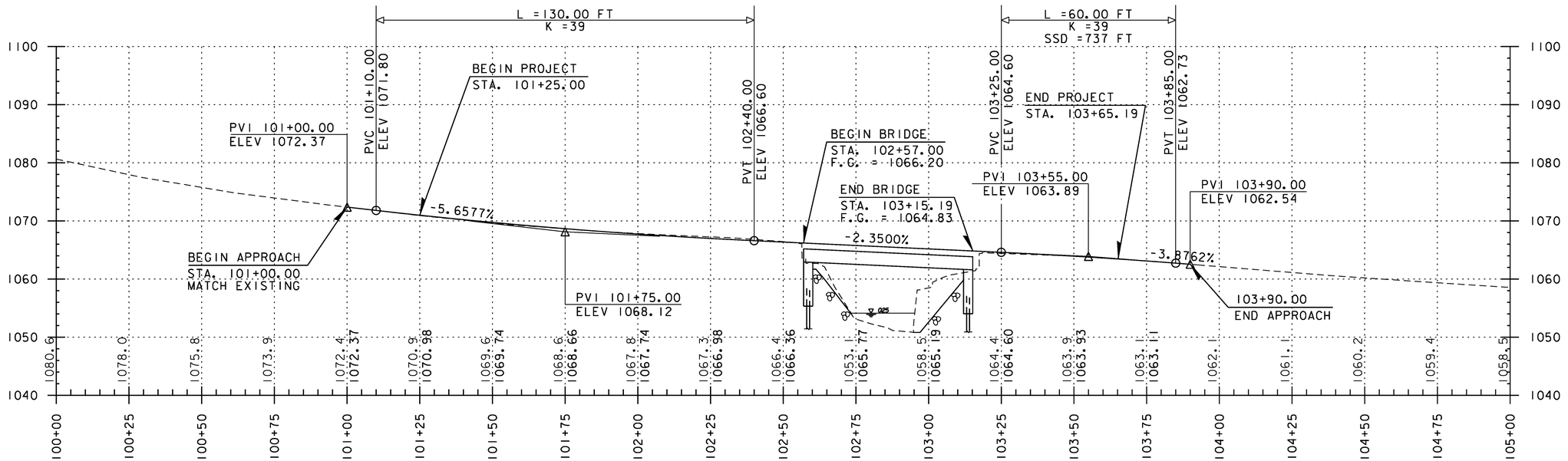
SCALE 1" = 20′-0"
0 20 40

NOTE:

1. THE REMOVAL OF THE EXISTING STONE RETAINING WALL SHALL BE PAID FOR UNDER ITEM 203.27, UNCLASSIFIED CHANNEL EXCAVATION.

VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	GUILFORD
PROJECT NUMBER:	BRO 1442(36)
FILE NAME: z10j064bdr_nul.dgn	PLOT DATE: 10/2/2013
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
LAYOUT SHEET	SHEET 11 OF 42



TH 10 PROFILE

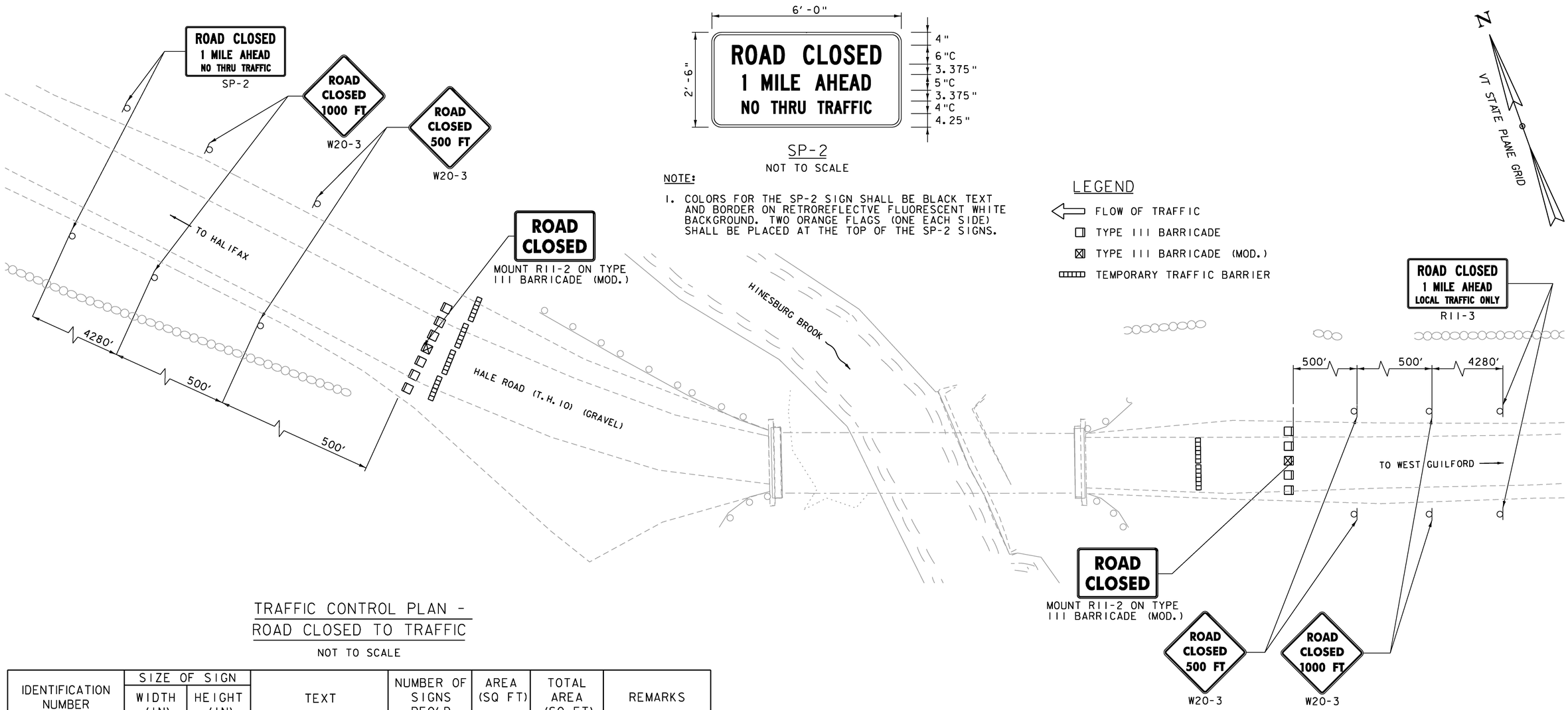
SCALE 1" = 20' HORIZONTAL
1" = 10' VERTICAL

THE GRADES SHOWN TO THE NEAREST TENTH ARE THE ORIGINAL GROUND ELEVATIONS ALONG THE PROPOSED ALIGNMENT. THE GRADES SHOWN TO THE NEAREST HUNDREDTH ARE THE PROPOSED GRADES FOR THE NEW ALIGNMENT.

VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	GUILFORD
PROJECT NUMBER:	BRO 1442(36)
FILE NAME: z10J064pro.dgn	PLOT DATE: 10/2/2013
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
PROFILE	SHEET 12 OF 42

VHB 57427



TRAFFIC CONTROL PLAN - ROAD CLOSED TO TRAFFIC

NOT TO SCALE

IDENTIFICATION NUMBER	SIZE OF SIGN WIDTH (IN)	SIZE OF SIGN HEIGHT (IN)	TEXT	NUMBER OF SIGNS REQ'D	AREA (SQ FT)	TOTAL AREA (SQ FT)	REMARKS
R11-2	48	30	ROAD CLOSED	2	10.00	20.00	MOUNT ON TYPE III BARRICADE (MOD.)
W20-3	36	36	ROAD CLOSED 500 FT	4	9.00	36.00	MOUNT ON TWO POSTS
W20-3	36	36	ROAD CLOSED 1000 FT	4	9.00	36.00	MOUNT ON TWO POSTS
SP-2	60	30	ROAD CLOSED 1 MILE AHEAD NO THRU TRAFFIC	4	12.50	50.00	MOUNT ON TWO POSTS

NOTES:

1. THE NUMBER OF TYPE III BARRICADES AND OTHER TRAFFIC CONTROL DEVICES SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ACTUAL NUMBER REQUIRED ARE TO BE DETERMINED BASED ON INDIVIDUAL ROADWAY CLOSURE REQUIREMENTS.
2. ALL SIGNS SHALL BE LOCATED SO THEY ARE VISIBLE AND ABLE TO BE READ BY THE TRAVELING PUBLIC. SIGNS SHALL BE INSTALLED SO AS NOT TO OBSTRUCT EXISTING SIGNS.
3. ALL SIGNS SHALL BE IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND THE "STANDARD HIGHWAY SIGNS AND MARKINGS" BOOK (SHSM) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION (FHWA).
4. SIGNS SHALL BE ERECTED BEFORE THE START OF ANY WORK AND SHALL BE COVERED UNTIL WORK COMMENCES, AND UPON COMPLETION OF THE WORK. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER. SIGNS SHALL BE REMOVED UPON COMPLETION OF THE WORK AT THE DISCRETION OF THE ENGINEER.
5. WHERE SIGN INSTALLATIONS ARE NOT PROTECTED BY GUARDRAIL OR OTHER APPROVED TRAFFIC BARRIERS, ALL SIGN STANDS AND POST INSTALLATIONS SHALL BE "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 COMPLIANT. NO SIGN POSTS SHALL EXTEND OVER THE TOP OF THE SIGN INSTALLED ON SAID POST(S). WHEN ANCHORS ARE INSTALLED STUB SHALL NOT BE GREATER THAN FOUR INCHES ABOVE EXISTING GROUND.

VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME: GUILFORD	
PROJECT NUMBER: BRO 1442(36)	
FILE NAME: z10j064tcp.dgn	PLOT DATE: 10/2/2013
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
TRAFFIC CONTROL PLAN	SHEET 13 OF 42

SIGNING LEGEND

N = NEW
R = REMOVE
RET = RETAIN
S = SALVAGE

TRAFFIC SIGNS, TYPE A

STA. 101+57, RT
STA. 102+52, LT
STA. 102+57, RT
STA. 103+15, LT
STA. 103+21, RT
STA. 104+15, LT

SCALE 1" = 20'-0"
0 20 40

Vanasse Hangen Brustlin, Inc.

PROJECT NAME: GUILFORD	
PROJECT NUMBER: BRO 1442(36)	
FILE NAME: z10j064tcp.dgn	PLOT DATE: 10/2/2013
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
TRAFFIC SIGN SHEET	SHEET 14 OF 42

VHB 57427

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET

MILE MARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS EA	WIDTH (IN)	HEIGHT (IN)	NEW & SALVAGED SIGNS "A"	"B"	SALV SIGN	SALV TIS	EXIST POST RETAIN	SALVAGE	NEW SIGN POSTS NO. OF POSTS	FLANGED CHANNEL LB/FT 1.12	2.0	3.0	SQUARE STEEL (IN) LB/FT 1.75 1.88	2.0 2.42	2.5 3.35	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (IN) LB/FT 3.0 1.3	4.0 1.7	4.0 MOD 1.7	FOUNDATION	TUBULAR STEEL Ø (IN) LB/FT 3.0 7.6	3.5 9.0	4.0 10.8	5.0 14.6	W-SHAPE STEEL FTG. SIZE 24"	30"	WEIGHT	POST SIZE	SIGN FRAME REQUIRED	REMARKS	SIGN DETAIL DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
											OPTION ITEMS																											
HALE RD (T.H. 10)																																					
101+57, RT 104+15, LT	ONE LANE BRIDGE	2	36	36	18.00						4					X																		W5-3 SIGN SHALL BE FLUORESCENT YELLOW		SHSM
102+52, LT 103+21, RT		2	12	36	6.00						2					X																		OM3-L		SHSM
102+57, RT 103+15, LT		2	12	36	6.00						2					X																		OM3-R		SHSM
FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE VTRANS "SIGN POST DESIGN GUIDELINE."											FT	FT	FT	FT	FT 120	FT		EA	LB	LB	LB		LB	LB	LB	LB									
	TOTALS				SF 30.0	SF	EA.	SF			FT			FT 120					LB			EA.	LB				EA.	EA.	LB						

VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	GUILFORD
PROJECT NUMBER:	BRO 1442(36)
FILE NAME: z10J064tcp.dgn	PLOT DATE: 10/2/2013
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
TRAFFIC SIGN SUMMARY SHEET	SHEET 15 OF 42

SOIL CLASSIFICATION

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

ROCK QUALITY DESIGNATION

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

SHEAR STRENGTH

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

CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

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

COMMONLY USED SYMBOLS

▼	Water Elevation
⊗	Standard Penetration Boring
⊕	Auger Boring
⊙	Rod Sounding
S	Sample
N	Standard Penetration Test Blow Count Per Foot For: 2" O.D. Sampler 1 3/8" I.D. Sampler Hammer Weight Of 140 Lbs. Hammer Fall Of 30"
VS	Field Vane Shear Test
US	Undisturbed Soil Sample
B	Blast
DC	Diamond Core
MD	Mud Drill
WA	Wash Ahead
HSA	Hollow Stem Auger
AX	Core Size 1 1/8"
BX	Core Size 1 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		

DEFINITIONS (AASHTO)

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

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

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

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

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

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

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

VARVED - Alternate layers of silt and clay.

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

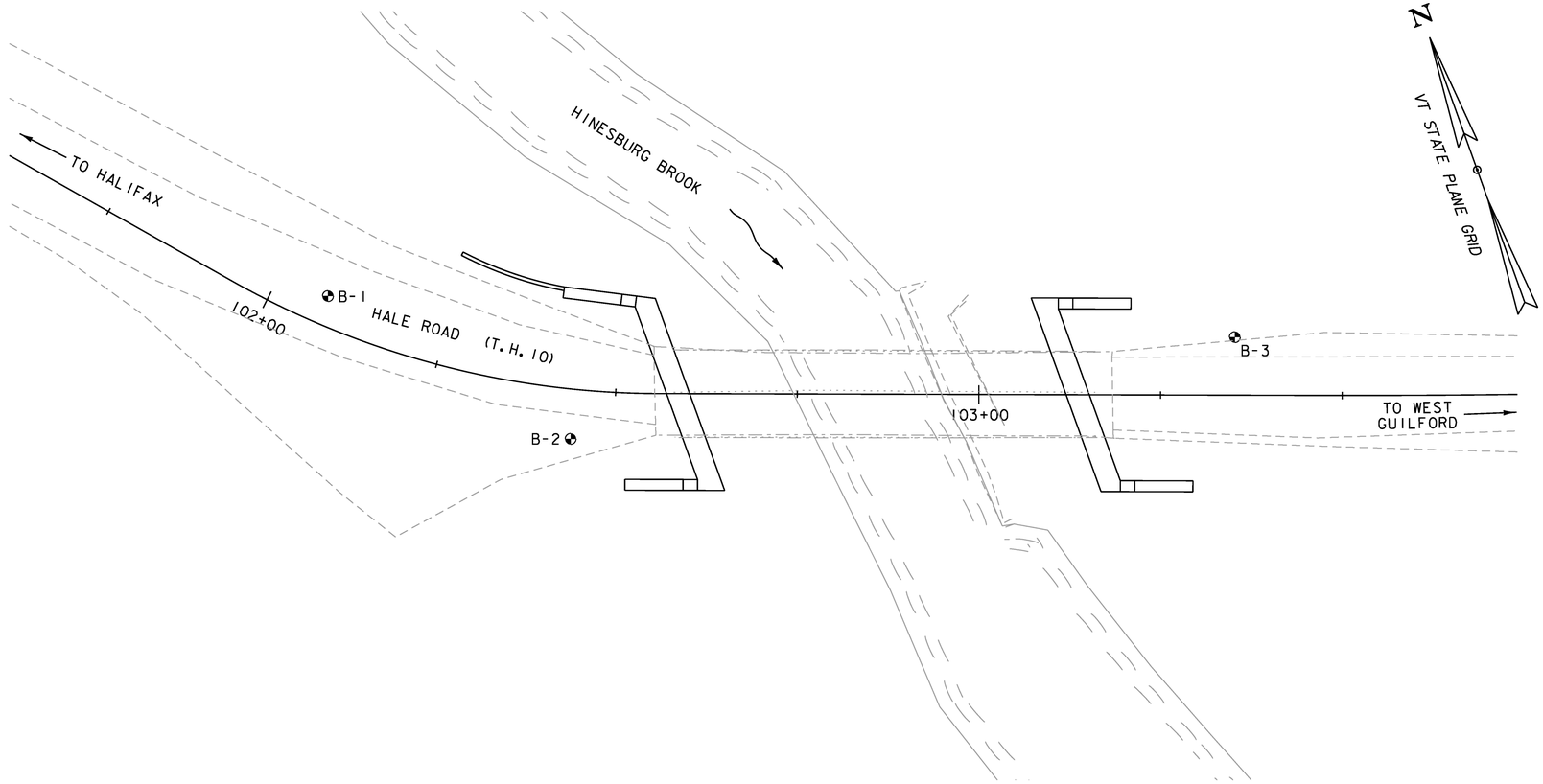
MUCK - Soft organic soil (containing > 10% organic material.

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

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

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

DIP - Inclination of bed with a horizontal plane.



BORING LAYOUT

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

BORING CHART

HOLE NO.	SURV. STATION	OFFSET	GROUND ELEV.	ELEV. TLOB
B-1	102+07.50	4.0 LT	1067.5	N/A
B-2	102+43.50	7.0 RT	1066.5	1031.0
B-3	103+35.20	8.0 LT	1063.9	1019.0

GENERAL NOTES

1. The subsurface explorations shown herein were made between 11/17/2011 and 12/5/2011 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.

Vanasse Hangen Brustlin, Inc.

PROJECT NAME: GUILFORD
PROJECT NUMBER: BRO 1442(36)

FILE NAME: z10j064bor.dgn
PROJECT LEADER: S.E. BURBANK
DESIGNED BY: A.J. GOUDREAU
BORING INFORMATION SHEET

PLOT DATE: 10/2/2013
DRAWN BY: B.M. KLINEFELTER
CHECKED BY: S.E. BURBANK
SHEET 16 OF 42

VHB 57427

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

BORING LOG

Guilford Bridge Replacement
23285.1000.32000

Boring No.: **B-1**
Page No.: 1 of 1
Pin No.: BRO 1442(36)
Checked By:

Boring Crew: S. Clavette, S. Johnston
Date Started: 11/22/11 Date Finished: 12/05/11
VTSPG NAD83: N 113488.19 ft E 1592811.68 ft
Station: 102+07.50 Offset: 4L
Ground Elevation: 1067.5 ft

	Casing	Sampler
Type:	WASH BORE	SS
I.D.:	4 in	1.25 in
Hammer Wt:	300 lb	140 lb.
Hammer Fall:	30 in.	30 in.
Hammer/Rod Type:	Safety	
Rig:	B53 Mobile	C_E = 1

Groundwater Observations		
Date	Depth (ft)	Notes
11/22/11	14.0	casing at 12 feet

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		(Granular FILL), f.m.c. SAND, Some Silt, little f.c. gravel, very compact, brown, moist, Rec. = 1.3 ft	25-32-42-40 (74)				
		(Granular FILL), f.m.c. SAND, And f.c. Gravel, trace silt medium compact, Rec. = 1.4 ft	31-18-12-9 (30)	5.4	41.5	50.3	8.2
5		(Granular FILL), becomes compact, Rec. = 0.6 ft	24-23-14-10 (37)				
		(Fine Grained FILL), Clayey SILT, Some f.m.c. Sand, little f. gravel, hard, brownish gray, moist, Rec. = 1.2 ft	10-10-9-14 (19)				
		(Fine Grained FILL), Similar Soil, Rec. = 1.2 ft	11-16-16-19 (32)				
10		(Fine Grained FILL), SILT, Some f. Sand, compact, light brown, moist, Rec. = 0.9 ft	32-20-22-23 (42)				
		(Fine Grained FILL), becomes very compact, Rec. = 1.3 ft	20-24-33-50/4" (57)				
15		(SM), f.m.c. SAND, Some Silt, little f.c. gravel, compact, light brown, moist, Rec. = 1.0 ft	16-23-20-43 (43)				
20		(SM), becomes very compact, Rec. = 1.2 ft	13-50-50/5" (>100)				
		(ML)					
25		(ML), SILT, Some f. Sand, very compact, brown, wet, Rec. = 1.0 ft	38-32-39-43 (71)				
		(Completely Weathered Bedrock)					
30		(Completely Weathered Bedrock), f.m.c. SAND, little silt, little f. gravel, very compact, brown/black/gray, moist, Rec. = 1.2 ft	60-57-59-63 (>100)				
		Hole stopped @ 32.0 ft Boring backfilled with cuttings and bituminous cold patch.					

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

2010.COPY 23285_GUILFORD_BORINGS_CHA STYLE.GPJ VERMONT AOT.GDT 7/12/12

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

BORING LOG

Guilford Bridge Replacement
23285.1000.32000

Boring No.: **B-2**
Page No.: 1 of 2
Pin No.: BRO 1442(36)
Checked By:

Boring Crew: S. Clavette, K. Owens
Date Started: 11/17/11 Date Finished: 11/22/11
VTSPG NAD83: N 113456.89 ft E 1592837.58 ft
Station: 102+43.50 Offset: 7R
Ground Elevation: 1066.5 ft

	Casing	Sampler
Type:	WASH BORE	SS
I.D.:	4 in	1.25 in
Hammer Wt:	300 lb	140 lb.
Hammer Fall:	30 in.	30 in.
Hammer/Rod Type:	Safety	
Rig:	B53 Mobile	C_E = 1

Groundwater Observations		
Date	Depth (ft)	Notes
11/17/11	14.6	casing at 14 feet

BOTTOM OF PILE CAP
EL = 1055.33

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		(Granular FILL), f.m.c. SAND, Some f.c. Gravel,trace silt, medium compact, brown, moist, Rec. = 0.9 ft			12-11-11-9 (22)				
		(Granular FILL), becomes loose, Rec. = 1.0 ft			7-4-4-8 (8)				
5		(Fine Grained FILL), Clayey SILT, little f.m.c. sand, trace f.c. gravel, trace organics, medium compact, brown, moist, Rec. = 1.4 ft			4-6-6-6 (12)				
		(Fine Grained FILL), Similar Soil, Rec. = 1.4 ft			6-6-7-9 (13)				
		(Fine Grained FILL), Similar Soil, Rec. = 1.2 ft			2-4-7-13 (11)				
10		(SM), f.m.c. SAND, little silt, trace f. gravel, medium compact, brown, moist			29-44-27-25 (71)				
		(SM), f.m.c. SAND, Some f.c. Gravel, little silt, very compact, grayish brown, moist, Rec. = 0.4 ft			29-34-32-29 (66)				
		No Recovery, Rec. = 0.0 ft, 12.0 ft - 14.0 ft			14-19-23-31 (42)				
15		(SM), f.m.c. SAND,little silt, compact, brown, wet, Rec. = 1.0 ft			35-37-50/5" (>100)	24.4	1.8	16.3	81.9
		(ML), SILT, little f. sand, trace f. gravel, compact, brown, wet							
		(ML), becomes very compact, Rec. = 1.0 ft			26-47-50/4" (>100)				
20		(ML), Similar Soil, Rec. = 0.9 ft			19-25-25-30 (50)				
		(ML), SILT, trace f.m.c. sand, very compact, brown, wet, Rec. = 0.6 ft, Strata change based on change in drilling.			31-92-58 (>100)				
25		(Completely Weathered Bedrock)							
30		(Completely Weathered Bedrock), SILT, Some f.m.c. Sand,trace f.c. gravel, very compact, brown/black/orange, moist, Rec. = 0.7 ft							

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

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

BORING LOG

Guilford Bridge Replacement
23285.1000.32000

Boring No.: **B-2**
Page No.: 2 of 2
Pin No.: BRO 1442(36)
Checked By:

Boring Crew: S. Clavette, K. Owens
Date Started: 11/17/11 Date Finished: 11/22/11
VTSPG NAD83: N 113456.89 ft E 1592837.58 ft
Station: 102+43.50 Offset: 7R
Ground Elevation: 1066.5 ft

	Casing	Sampler
Type:	WASH BORE	SS
I.D.:	4 in	1.25 in
Hammer Wt:	300 lb	140 lb.
Hammer Fall:	30 in.	30 in.
Hammer/Rod Type:	Safety	
Rig:	B53 Mobile	C_E = 1

Groundwater Observations		
Date	Depth (ft)	Notes
11/17/11	14.6	casing at 14 feet

ESTIMATED PILE TIP

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		35.5 ft - 40.5 ft, White/gray/brown, Schist, very close fracture spacing. Medium hard, Moderately to severely weathered, NXDC, very poor RQD	R-1	36 (0)	Top of Bedrock @ 35.5 ft				
40		40.5 ft - 42.0 ft, White/gray/brown, Schist, very close fracture spacing. Medium hard, Moderately to severely weathered, NXDC, very poor RQD	R-2	53 (0)					
		42.0 ft - 48.8 ft, White/gray/brown, Schist, close fracture spacing. Medium hard, Moderately weathered, NXDC, poor RQD	R-3	54 (43.4)					
45									
50		48.8 ft - 53.4 ft, White/gray/brown, Schist, close fracture spacing. Medium hard, Moderately weathered, NXDC, poor RQD	R-4	72 (46.7)					
		Hole stopped @ 53.4 ft Boring backfilled with cuttings and bituminous cold patch.							
55									
60									
65									

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

2010.COPY 23285_GUILFORD_BORINGS_CHA STYLE.GPJ VERMONT AOT.GDT 7/12/12

Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	GUILFORD
PROJECT NUMBER:	BRO 1442(36)
FILE NAME: z10J064borlogs.dgn	PLOT DATE: 10/2/2013
PROJECT LEADER: S.E BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: VTRANS	CHECKED BY: S.E. BURBANK
BORING LOGS (1 OF 2)	SHEET 17 OF 42

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

BORING LOG

Guilford Bridge Replacement
23285.1000.32000

Boring No.: **B-3**
Page No.: 1 of 2
Pin No.: BRO 1442(36)
Checked By:

Boring Crew: M. D'Amdrosio, D. Spielvogel
Date Started: 12/05/11 Date Finished: 12/05/11
VTSPG NAD83: N 113439.01 ft E 1592928.49 ft
Station: 103+35.20 Offset: 8L
Ground Elevation: 1063.9 ft

	Casing	Sampler
Type:	WASH BORE	SS
I.D.:	4 in	1.25 in
Hammer Wt:	300 lb	140 lb.
Hammer Fall:	30 in.	30 in.
Hammer/Rod Type:	Safety	
Rig:	Acker D52	C_E = 1

Groundwater Observations

Date	Depth (ft)	Notes
12/05/11	14.0	casing at 12 feet

BOTTOM OF PILE CAP
EL = 1054.03

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		(Granular FILL), f.m.c. SAND, little silt, trace f.c. gravel, medium compact, brown, moist, Rec. = 0.5 ft			8-13-13-26 (26)				
		(Fine Grained FILL), Clayey SILT, Some f.m.c. Sand, little f.c. gravel, very stiff, dark brown, moist, Rec. = 1.3 ft			13-10-6-15 (16)				
5		(Fine Grained FILL), becomes hard, Rec. = 1.5 ft			15-19-57-28 (76)				
		(ML), Clayey SILT, Some f. Sand, hard, brown, moist, Rec. = 1.2 ft			20-21-21-29 (42)				
		(ML), Clayey SILT, Some f.m.c. Sand, trace f. gravel, hard, brown, moist, Rec. = 1.3 ft			27-29-29-40 (58)				
10		(SM), f.m.c. SAND, Some Silty Clay, Some f.c. Gravel, very compact, brown, moist, Rec. = 0.5 ft			34-39-43-42 (82)				
		(SM), Similar Soil,, Rec. = 0.9 ft			36-39-47-44 (86)	13.9	28.4	42.3	29.3
15		(SM), becomes compact, wet, Rec. = 1.1 ft			25-18-27-31 (45)				
		(SM)							
20		(SM), f. SAND, Some Silt, very compact, brown, wet, Rec. = 1.2 ft			28-29-36-34 (65)				
		(SM)							
25		(SM), f.m.c. SAND, Some Silt, trace f. gravel, very compact, brown, wet, Rec. = 0.7 ft			32-37-60-31 (97)				
30		(SM), f.m.c. SAND, Some Silt, little f.c. gravel, very compact, brownish gray, wet, Rec. = 1.1 ft			60-65-42-44 (>100)				
		(ML)							

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

2010 COPY 23285_GUILFORD_BORINGS_CHA STYLE.GPJ VERMONT AOT.GDT 7/12/12

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

BORING LOG

Guilford Bridge Replacement
23285.1000.32000

Boring No.: **B-3**
Page No.: 2 of 2
Pin No.: BRO 1442(36)
Checked By:

Boring Crew: M. D'Amdrosio, D. Spielvogel
Date Started: 12/05/11 Date Finished: 12/05/11
VTSPG NAD83: N 113439.01 ft E 1592928.49 ft
Station: 103+35.20 Offset: 8L
Ground Elevation: 1063.9 ft

	Casing	Sampler
Type:	WASH BORE	SS
I.D.:	4 in	1.25 in
Hammer Wt:	300 lb	140 lb.
Hammer Fall:	30 in.	30 in.
Hammer/Rod Type:	Safety	
Rig:	Acker D52	C_E = 1

Groundwater Observations

Date	Depth (ft)	Notes
12/05/11	14.0	casing at 12 feet

ESTIMATED PILE TIP

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		(ML), Clayey SILT, Some f. Sand, hard, gray, wet, Rec. = 1.9 ft			17-21-31-36 (52)	32.9	5.2	8.4	86.4
40		(ML), Similar Soil,, Rec. = 1.8 ft			19-20-30-30 (50)				
45		44.9 ft - 47.0 ft, Hard roller bit advancement @ 44.9 ft.			Top of Bedrock @ 44.9 ft				
		47.0 ft - 52.0 ft, White/gray/brown, Schist, very close fracture spacing. Medium hard, Moderately to severely weathered, NXDC, very poor RQD	R-1	46.7 (0)					
50		52.0 ft - 57.0 ft, White/gray/brown, Schist, close fracture spacing. Medium hard, Moderately weathered, NXDC, fair RQD	R-2	86.7 (52)					
55		Hole stopped @ 57.0 ft Boring backfilled with cuttings and bituminous cold patch.							
60									
65									

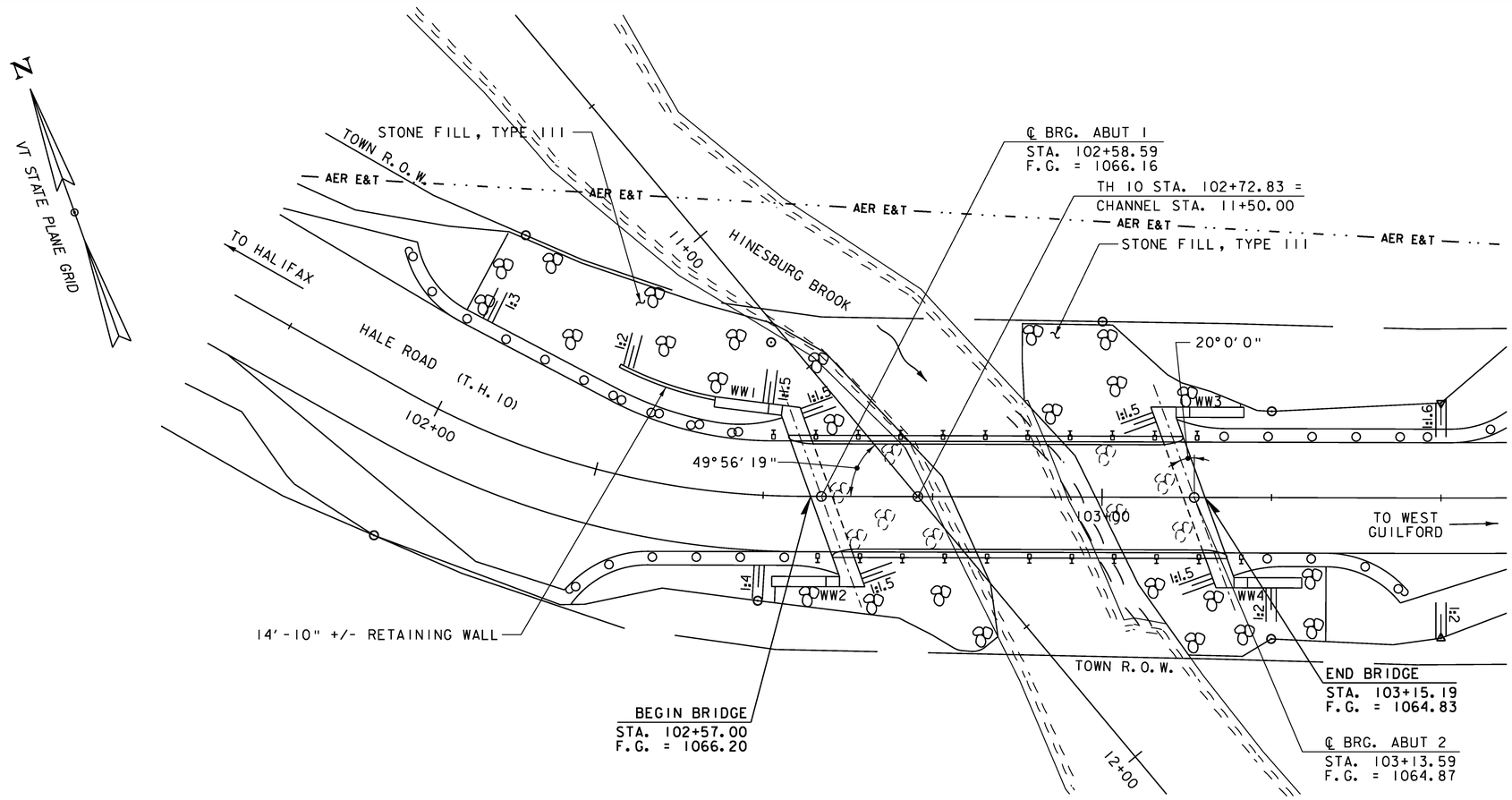
Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_E is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations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

2010 COPY 23285_GUILFORD_BORINGS_CHA STYLE.GPJ VERMONT AOT.GDT 7/12/12

Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	GUILFORD
PROJECT NUMBER:	BRO 1442(36)
FILE NAME: z10j064borlogs.dgn	PLOT DATE: 10/2/2013
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: VTRANS	CHECKED BY: S.E. BURBANK
BORING LOGS (2 OF 2)	SHEET 18 OF 42

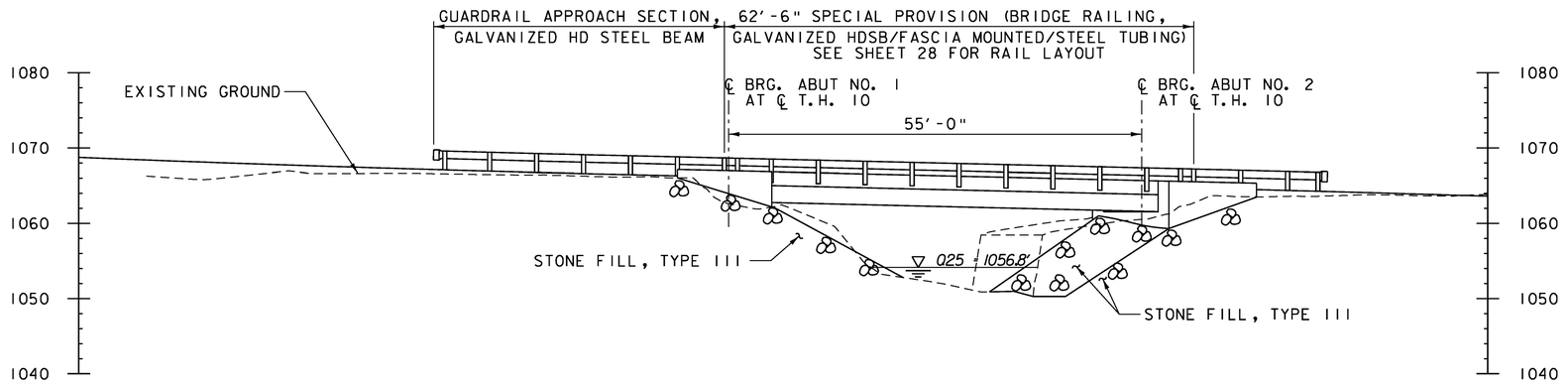
VHB 57427



PLAN

SCALE 1" = 10'-0"

10 0 10



ELEVATION

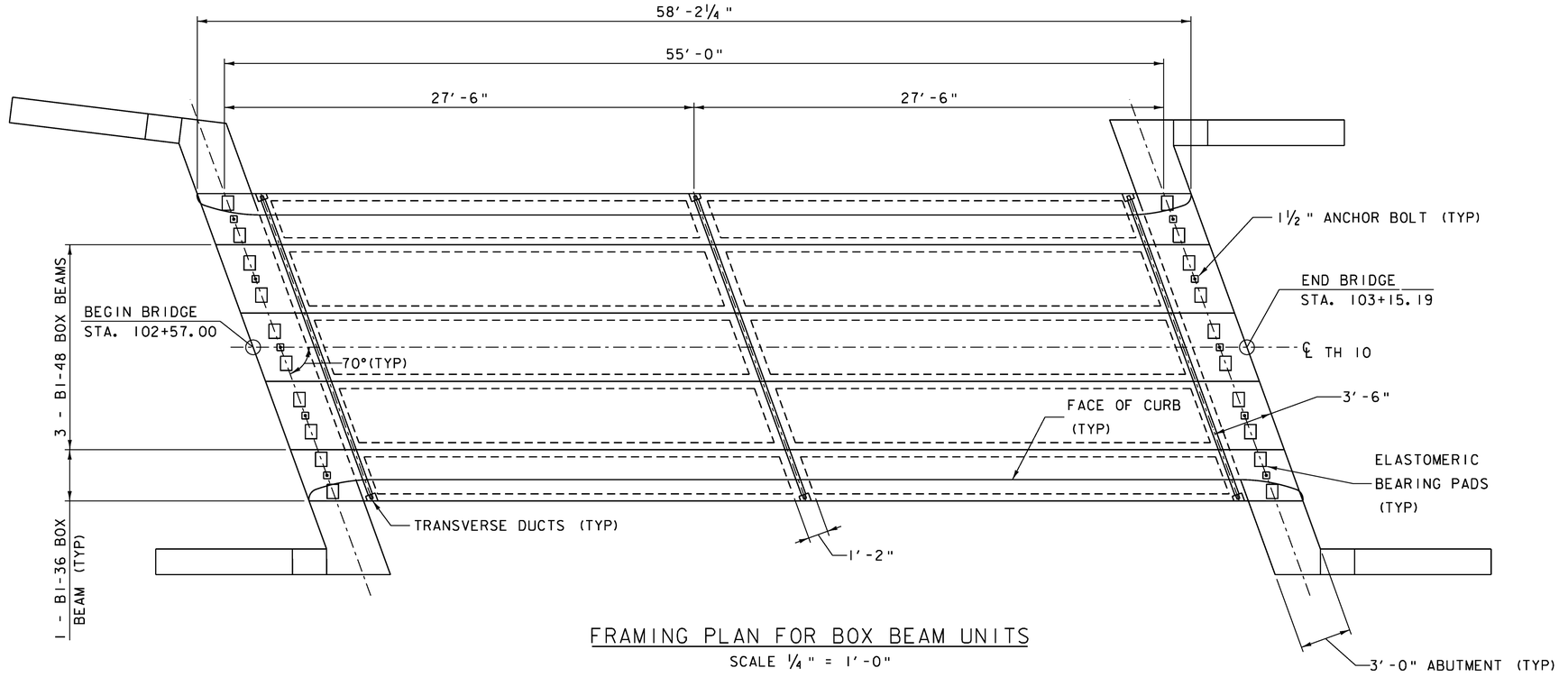
SCALE 1" = 10'-0"

10 0 10

Vanasse Hangen Brustlin, Inc.

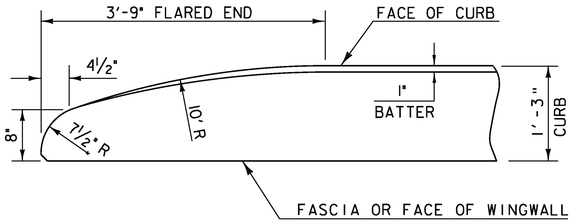
PROJECT NAME:	GUILFORD
PROJECT NUMBER:	BRO 1442(36)
FILE NAME: z10J064pe.dgn	PLOT DATE: 10/2/2013
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
PLAN AND ELEVATION	SHEET 19 OF 42

VHB 57427



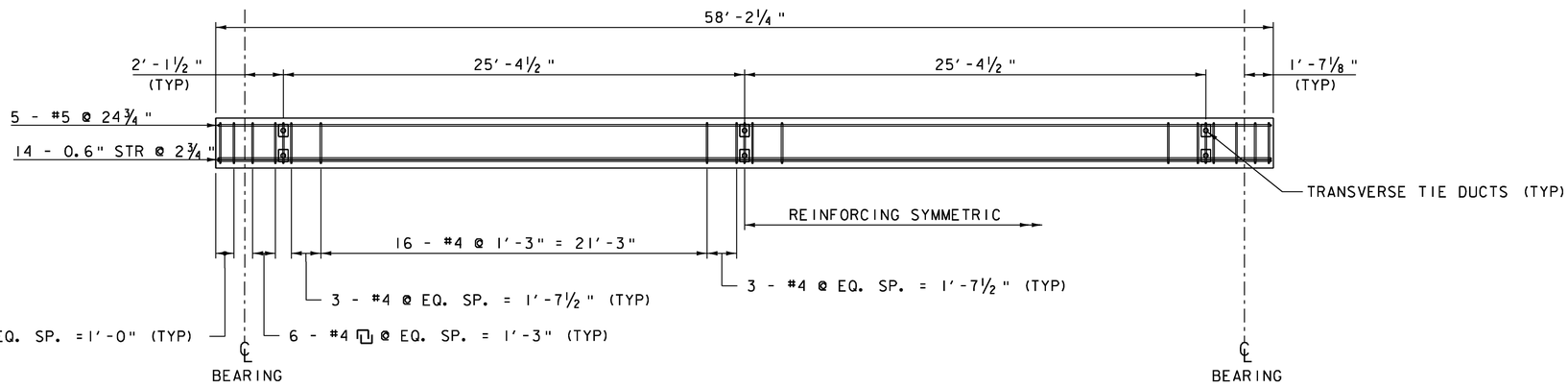
FRAMING PLAN FOR BOX BEAM UNITS

SCALE ¼" = 1′-0"



FLARED END DETAIL FOR 1′-3" CURB

CURB REINFORCING STIRRUP BARS SHALL BE TURNED AS REQUIRED TO FIT FLARED ENDS.



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

NOTES:
1. SEE END AND INTERMEDIATE DIAGRAM REINFORCING DETAILS FOR BEAM STIRRUP SPACING AND LAYOUT.
2. CURB NOT SHOWN FOR CLARITY

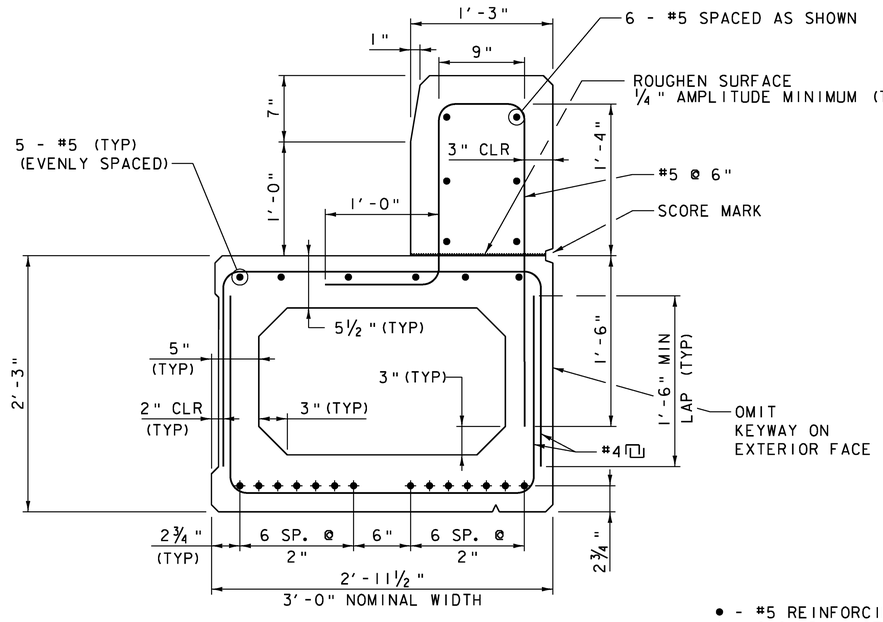
ELEVATION VIEW FOR BOX BEAM UNITS

SCALE ¼" = 1′-0"

VHB Vanasse Hangen Brustlin, Inc.

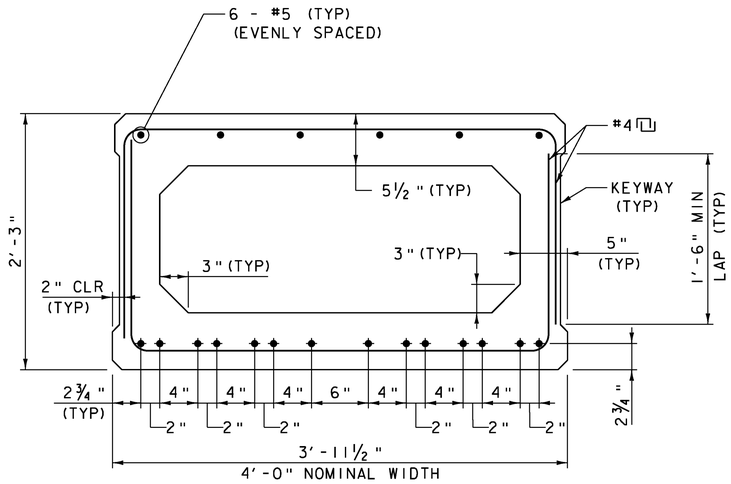
PROJECT NAME: GUILFORD	
PROJECT NUMBER: BRO 1442(36)	
FILE NAME: z10J064sup.dgn	PLOT DATE: 10/2/2013
PROJECT LEADER: S.E. BURBANK	DRAWN BY: J.L. LEMIEUX
DESIGNED BY: G.H. NEAL	CHECKED BY: A.F. PREZIOSO
FRAMING PLAN	SHEET 20 OF 42

VHB 57427

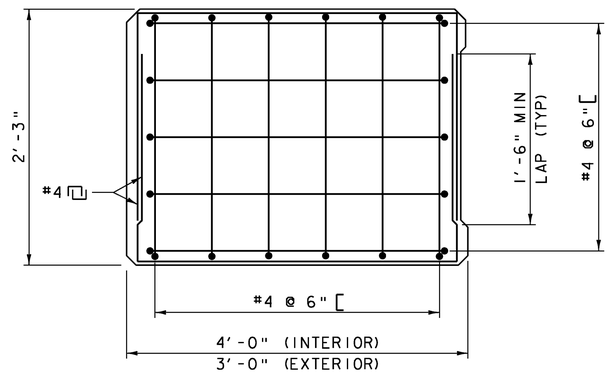


● - #5 REINFORCING BAR
✦ - 0.6" DIA. STRAND

PRESTRESSED CONCRETE BOX BEAM
BI-36
EXTERIOR
SCALE 1 1/2" = 1'-0"

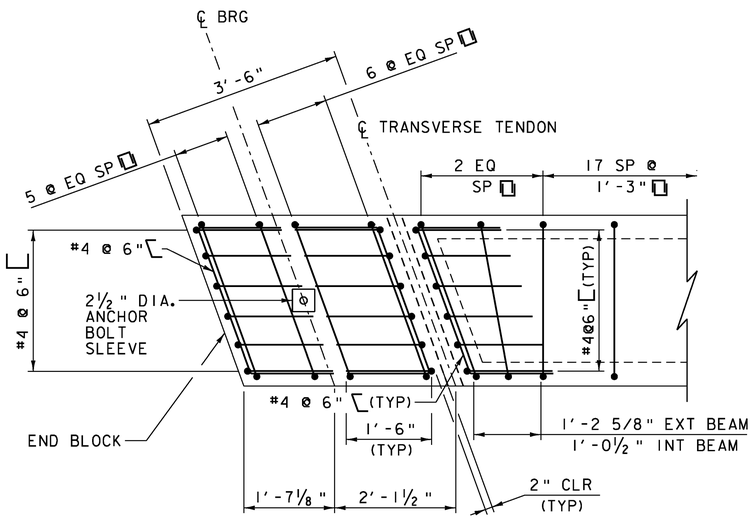


PRESTRESSED CONCRETE BOX BEAM
BI-48
INTERIOR
SCALE 1 1/2" = 1'-0"



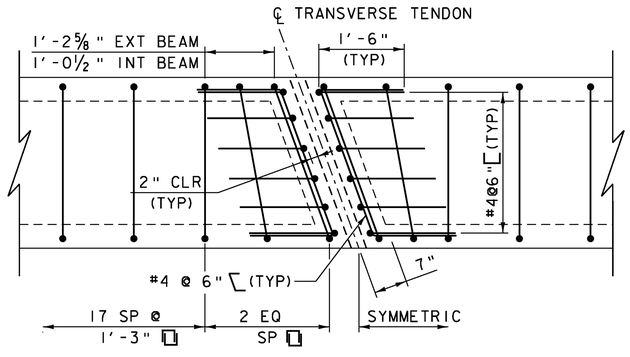
END BLOCK REINFORCING
(INTERIOR & EXTERIOR)
SCALE 1 1/2" = 1'-0"

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



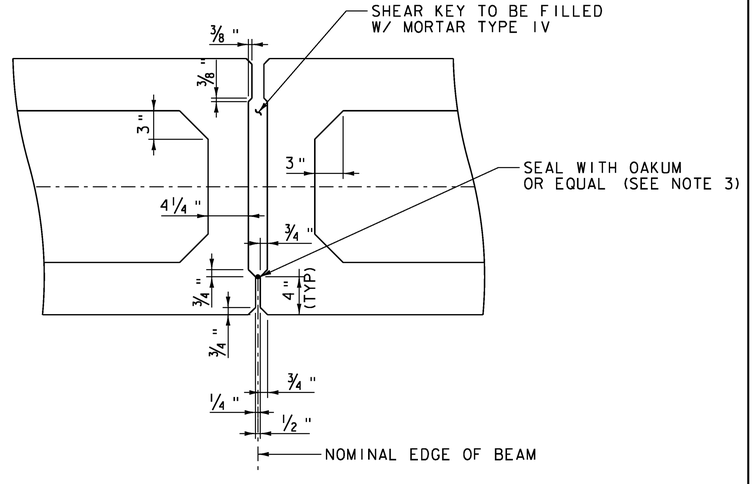
NOTE: EXTERIOR BEAM SHOWN, INTERIOR SIMILAR

END DIAPHRAGM REINFORCING
SCALE 3/4" = 1'-0"



NOTE: EXTERIOR BEAM SHOWN, INTERIOR SIMILAR

INTERMEDIATE DIAPHRAGM REINFORCING
SCALE 3/4" = 1'-0"



SHEAR KEY DETAIL
FOR BOX BEAM
SCALE 1 1/2" = 1'-0"

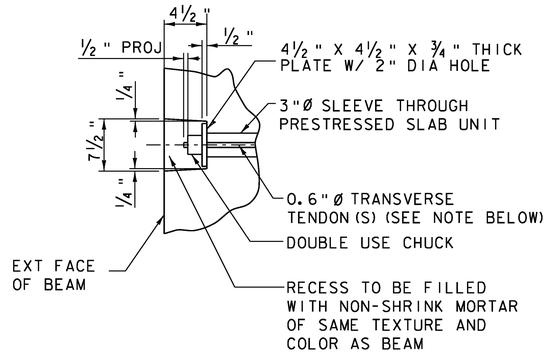
NOTES:

1. VOID DRAINS ARE REQUIRED FOR ALL BOX BEAMS. VOID DRAINS SHALL BE COMPRISED OF 3/4" NON-FERROUS DRAIN MATERIAL. THE CONTRACTOR SHALL CLEAN THE VOID DRAINS AFTER ERECTION.
2. ALL REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF SECTION 507, LEVEL II.
3. INSTALL OAKUM AFTER UNITS HAVE BEEN PLACED.

Vanasse Hangen Brustlin, Inc.

PROJECT NAME: GUILFORD	
PROJECT NUMBER: BRO 1442(36)	
FILE NAME: z10j064sup2.dgn	PLOT DATE: 10/2/2013
PROJECT LEADER: S.E. BURBANK	DRAWN BY: J.L. LEMIEUX
DESIGNED BY: G. H. NEAL	CHECKED BY: A. F. PREZIOSO
BOX BEAM DETAILS (1 OF 2)	SHEET 21 OF 42

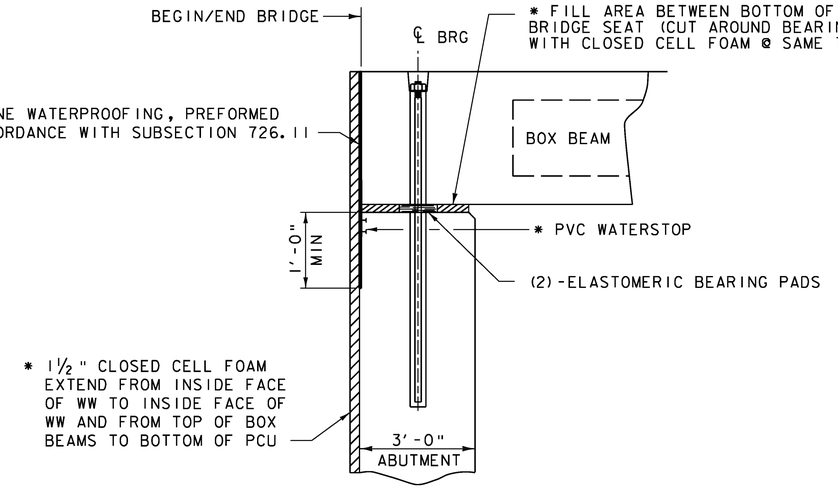
VHB 57427



0.6" Ø TRANSVERSE TENDON DETAIL

NOT TO SCALE

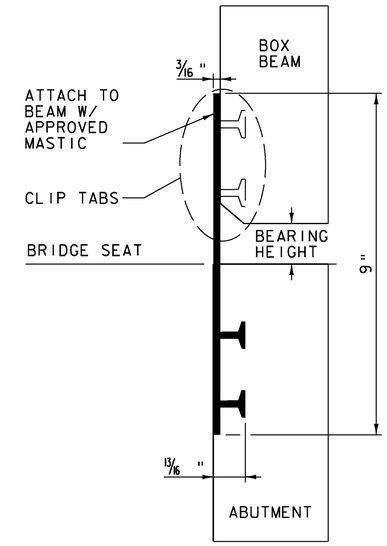
* TRANSVERSE TIES SHALL BE COVERED BY SEAMLESS POLYPROPYLENE SHEATH (WITH CORROSION INHIBITER GREASE BETWEEN SHEATH AND STRAND) FOR THE LENGTH OF STRAND, EXCEPT AT ANCHORAGE LOCATIONS. EACH TIE IS COMPRISED OF A SINGULAR OR MULTIPLE STRAND TENDON. EACH TRANSVERSE STRAND SHALL BE TENSIONED TO 47 KIPS. TENDONS SHALL CONSIST OF 1 STRAND TOP AND BOTTOM AT END DIAPHRAGM LOCATIONS AND 2 STRANDS TOP AND BOTTOM AT THE INTERMEDIATE DIAPHRAGM LOCATION. REFER TO THE PRESTRESSED BOX BEAM NOTES FOR STRAND MATERIAL PROPERTIES.



* THESE ITEMS SHALL BE INCIDENTAL TO THE APPROPRIATE PRECAST CONCRETE ITEM 540.10 "PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 1)" OR "PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 2)"

BOX BEAM
BRIDGE END DETAIL/NO APPROACH SLAB

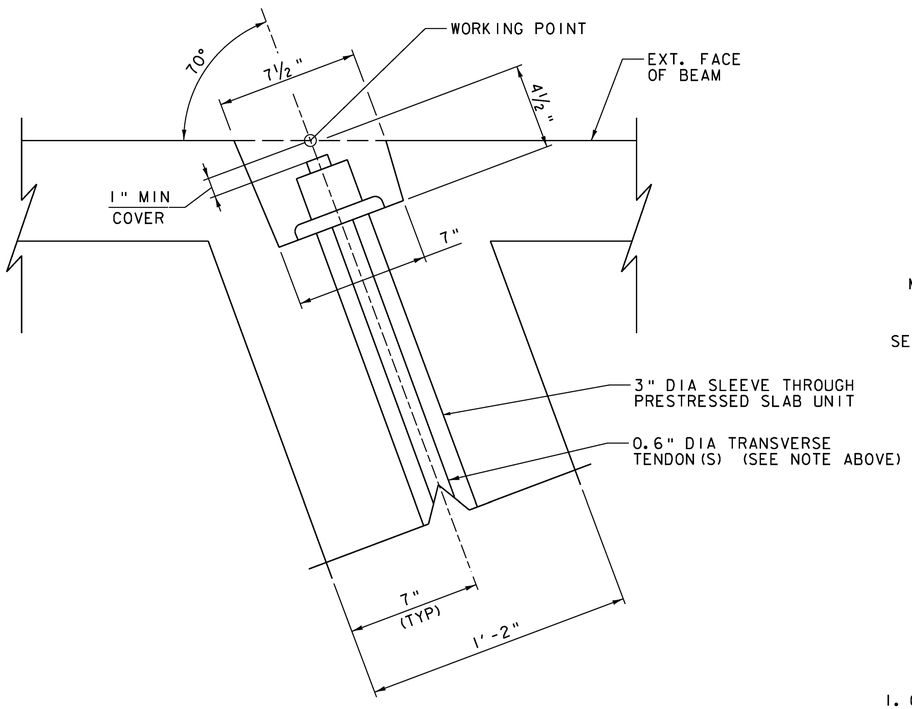
NOT TO SCALE



NOTE: PVC WATERSTOP SHALL BE ONE CONTINUOUS STRIP.

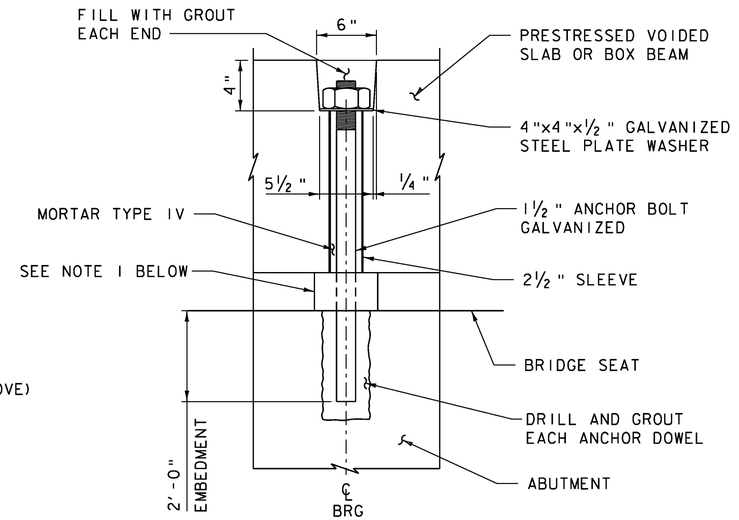
PVC WATERSTOP DETAIL

NOT TO SCALE



PLAN OF TRANSVERSE POST TENSIONING POCKET

NOT TO SCALE



BOX BEAM ANCHOR DETAIL

NOT TO SCALE

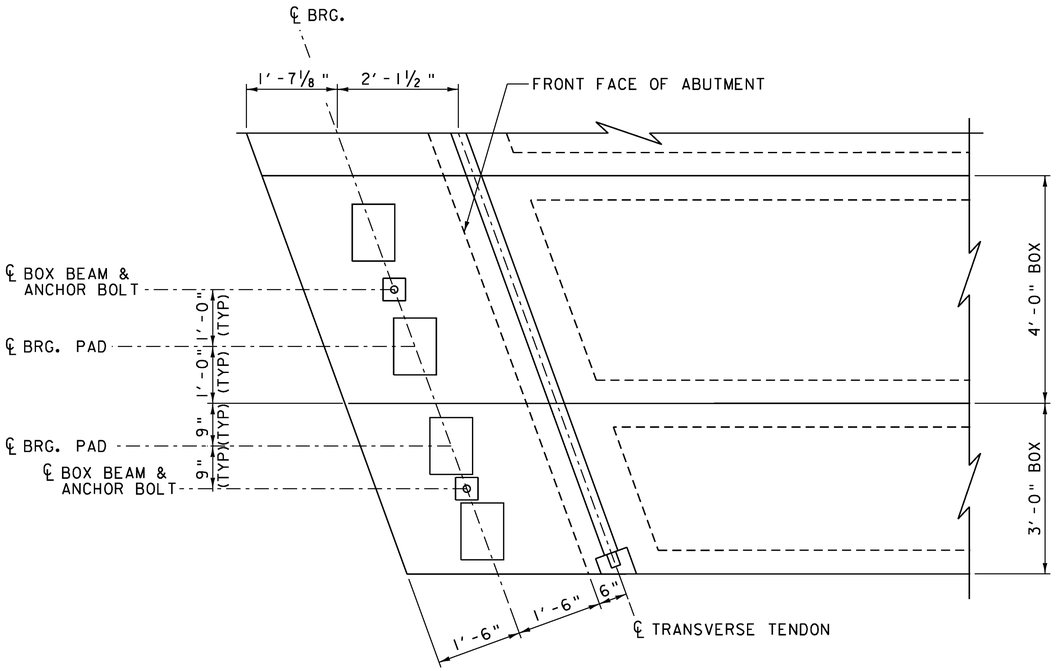
1. CONTRACTOR SHALL SUPPLY A SELF ADHESIVE COMPRESSIBLE SEALER BETWEEN THE BOTTOM OF THE UNITS AND THE BRIDGE SEAT. THIS COMPRESSIBLE SEALER SHALL SURROUND THE 2½" DIA SLEEVE IN THE UNIT. THE PURPOSE OF THE SEALER IS TO FACILITATE PLACEMENT OF THE GROUT AROUND THE ANCHOR BOLTS.

2. GROUT ANCHOR BOLTS INTO THE SLEEVES. BEFORE THE GROUT CURES, PLACE THE WASHER PLATE AND INSTALL THE NUT ON TOP AND TIGHTEN.

VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME: GUILFORD	
PROJECT NUMBER: BRO 1442(36)	
FILE NAME: z10j064sup3.dgn	PLOT DATE: 10/2/2013
PROJECT LEADER: S.E. BURBANK	DRAWN BY: J.L. LEMIEUX
DESIGNED BY: G.H. NEAL	CHECKED BY: A.F. PREZIOSO
BOX BEAM DETAILS (2 OF 2)	SHEET 22 OF 42

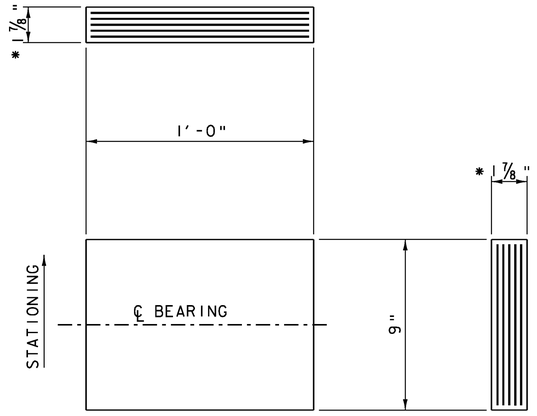
VHB 57427



NOTE: CURB NOT SHOWN FOR CLARITY

BEARING PLACEMENT PLAN

SCALE ¾" = 1'-0"



ELASTOMERIC BEARING DETAIL

SCALE 3" = 1'-0"

* 2 - ¼" EXTERIOR LAYERS OF ELASTOMER
  2 - ½" INTERIOR LAYERS OF ELASTOMER
  3 - ⅛" STEEL REINFORCING PLATES

ELASTOMERIC BEARING NOTES:

1. BEARINGS SHALL CONFORM TO THE APPLICABLE SUBSECTIONS OF SECTIONS 531 AND 731.
2. THE BEARINGS, INCLUDING ANCHOR BOLTS, DRILLING AND GROUTING, WASHERS AND NUTS SHALL BE PAID FOR UNDER THE ITEM 531.17 "BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMER PAD."
3. ALL PLATES, NUTS, WASHERS AND ANCHOR BOLTS SHALL BE GALVANIZED OR METALIZED AS PER SUBSECTIONS 726.08 AND 726.09. AREAS OF GALVANIZING OR METALIZING DAMAGED BY FIELD WELDING OR HANDLING SHALL BE REPAIRED IN CONFORMANCE WITH SUBSECTIONS 726.08 AND 726.09.
4. ALL WASHERS SHALL BE ½" PLATE (MINIMUM). PAYMENT FOR DRILLING AND GROUTING OF ANCHOR BOLTS SHALL BE INCLUDED IN THE BID PRICE FOR CONTRACT ITM 531.17, "BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD".
5. ALL REINFORCEMENT BETWEEN LAYERS OF ELASTOMER SHALL BE STEEL, MEETING THE REQUIREMENTS OF SUBSECTION 714.02. ALL INTERNAL STEEL PLATES SHALL BE SAND BLASTED AND FREE OF COATINGS, RUST AND MILL SCALE. THE PLATES SHALL BE FREE OF SHARP EDGES AND BURRS.
6. ANCHOR BOLTS SHALL BE ASTM F1554, GRADE 105 AND MEET THE REQUIREMENTS OF SUBSECTION 714.08.
7. STEEL REINFORCED ELASTOMERIC BEARINGS SHALL HAVE A MINIMUM ¼" EDGE SEAL OF ELASTOMER INTEGRAL WITH BEARING OVER ALL INTERNAL PLATES.
8. THE CONCRETE UNDER THE BEARING DEVICE SHALL BE LEVEL IN THE LONGITUDINAL DIRECTION.
9. ALL DESIGNS DONE FOR THE BEARINGS SHALL BE PER THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 6TH EDITION AND ITS LATEST REVISIONS.
10. ALTERNATIVE CONFIGURATIONS FOR BEARINGS MAY BE SUBMITTED FOR APPROVAL. ANY ALTERNATE SUBMITTED SHALL BE DESIGNED AND CERTIFIED TO MEET THE DESIGN LOADS AND CRITERIA SHOWN ON THE PLANS.
11. ALL BEARINGS SHALL BE MARKED PRIOR TO SHIPPING. THE MARKS SHALL INCLUDE THE BEARING LOCATION ON THE BRIDGE, AND A DIRECTION ARROW THAT POINTS UP-STATION. ALL MARKS SHALL BE PERMANENT AND BE VISIBLE AFTER THE BEARING IS INSTALLED.
12. BRIDGE SEAT ELEVATIONS MAY BE REVISED TO ACCOMMODATE AN ALTERNATIVE CONFIGURATION.
13. ALL MATERIALS AND FABRICATION SHALL BE PER AASHTO LRFD SECTION 14.7 AND AASHTO MATERIAL SPECIFICATION M251.

    ELASTOMER SHALL BE NEOPRENE OR NATURAL VIRGIN RUBBER.

    DESIGN CRITERIA: (AASHTO METHOD "A")

    A) TEMPERATURE RANGE: 80° F

    B) 50 DUROMETER ELASTOMETER, LOW TEMPERATURE ZONE D, GRADE 4
    G = 100 PSI +/- 15%

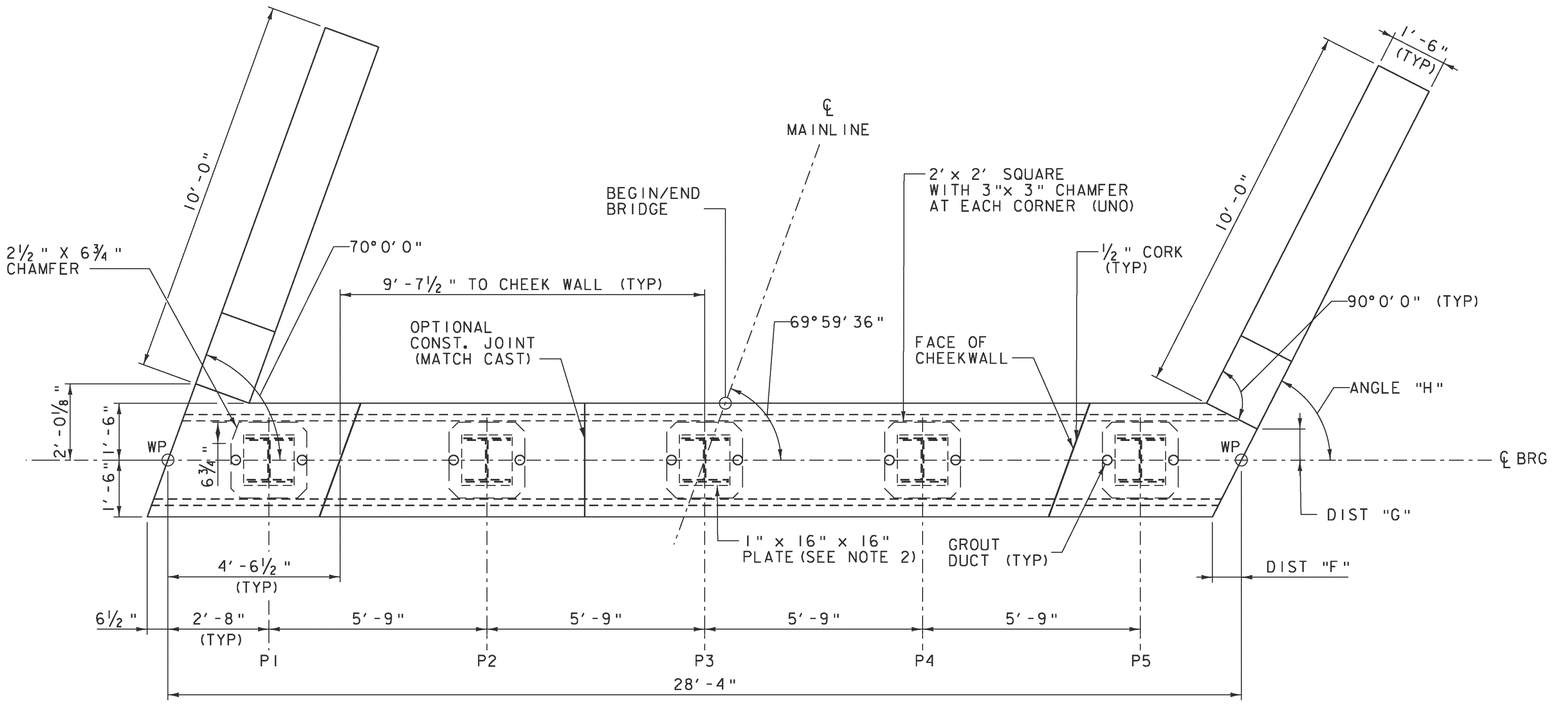
    C) MAXIMUM BEARING STRESS: 419 PSI

    D) DESIGN ROTATION: 0.018 RAD.

    E) MAX. REACTION/BEARING:
    DEAD LOAD: 20.3 KIPS
    LIVE LOAD: 22.9 KIPS (WITH IMPACT)
14. THE CONTRACTOR IS ADVISED TO HAVE A MINIMUM OF 20 - ¼"x10"x1'-1" GALVANIZED STEEL SHIMS AVAILABLE FOR USE FOR ELEVATION ADJUSTMENTS UPON THE SETTING OF THE SUPERSTRUCTURE UNITS. THE SHIMS SHALL BE FABRICATED ACCORDING TO SECTION 531 AND SHALL BE INCLUDED UNDER ITEM 531.17, "BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD".

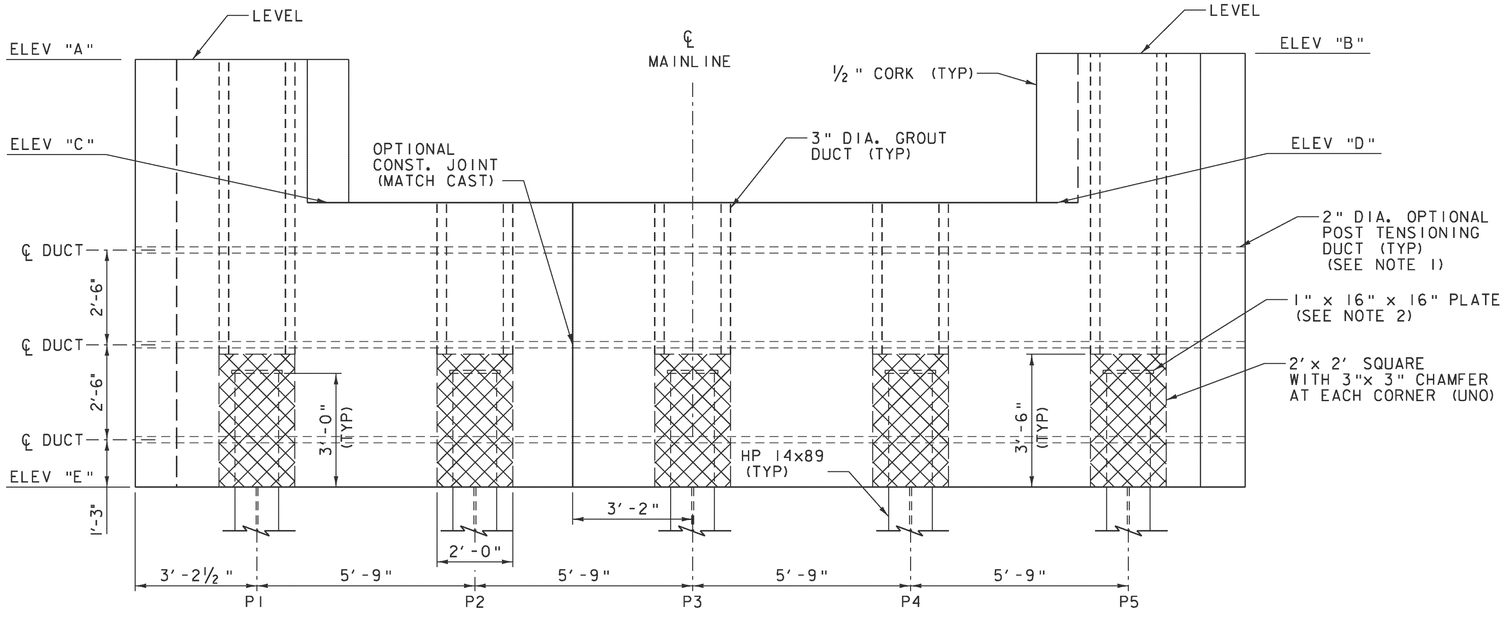
VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME: GUILFORD	
PROJECT NUMBER: BRO 1442(36)	
FILE NAME: z10j064deck.dgn	PLOT DATE: 10/2/2013
PROJECT LEADER: S.E. BURBANK	DRAWN BY: J.L. LEMIEUX
DESIGNED BY: G.H. NEAL	CHECKED BY: A.F. PREZIOSO
BEARING DETAILS	SHEET 23 OF 42



PCU I PLAN

SCALE ½" = 1'-0



PCU I ELEVATION

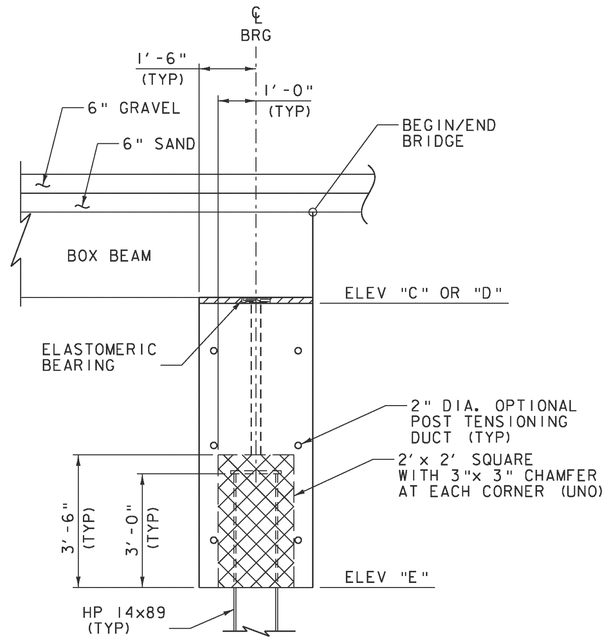
SCALE ½" = 1'-0

PCU I ELEVATIONS

	AB1	AB2
ELEV "A"	1066.50	1065.36
ELEV "B"	1066.65	1065.20
ELEV "C"	1062.67	1061.53
ELEV "D"	1062.83	1061.38
ELEV "E"	1055.33	1054.03
DIST "F"	9 3/16"	6 9/16"
DIST "G"	9 13/16"	11 13/16"
ANGLE "H"	63°	70°

LEGEND

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



PCU I TYPICAL

SCALE ½" = 1'-0

NOTES:

1. POST TENSIONING AND ASSOCIATED ITEMS ONLY REQUIRED IF PILE CAP IS CONSTRUCTED OF MORE THAN ONE UNIT.
2. ONCE PILES HAVE BEEN CUT TO THEIR FINAL ELEVATIONS, 1" X 16" X 16" STEEL PLATES SHALL BE WELDED TO THE TOP OF THE PILES. PAYMENT FOR THE PLATES SHALL BE INCIDENTAL TO ITEM 505.18, "STEEL PILING, HP 14X89".

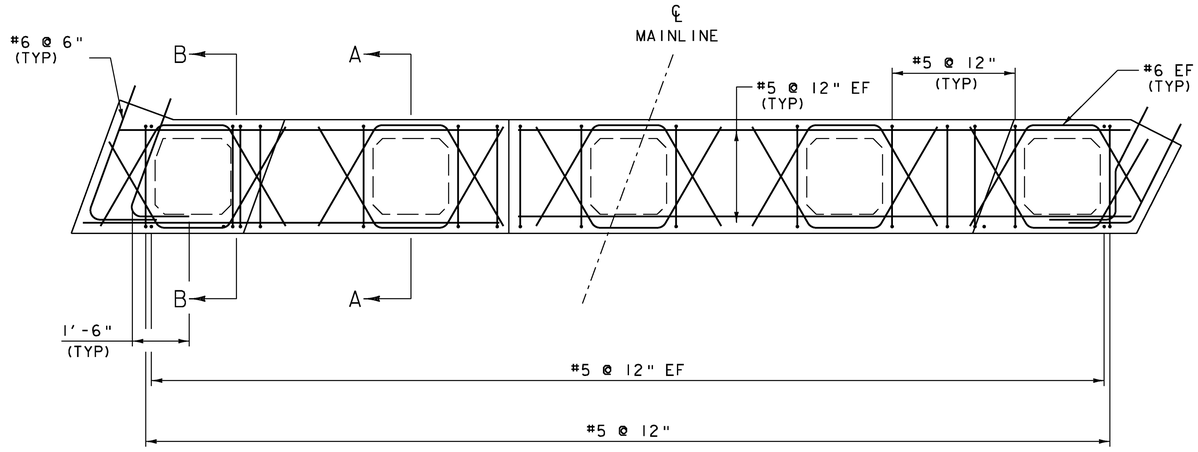
PROJECT NAME: GUILFORD
PROJECT NUMBER: BRO 1442(36)

FILE NAME: z101064sub.dgn
PROJECT LEADER: S.E. BURBANK
DESIGNED BY: G.H. NEAL
ABUTMENT PLAN & ELEVAATION

PLOT DATE: 10/2/2013
DRAWN BY: A.J. GOUDREAU
CHECKED BY: J.T. KLEIN
SHEET 24 OF 42

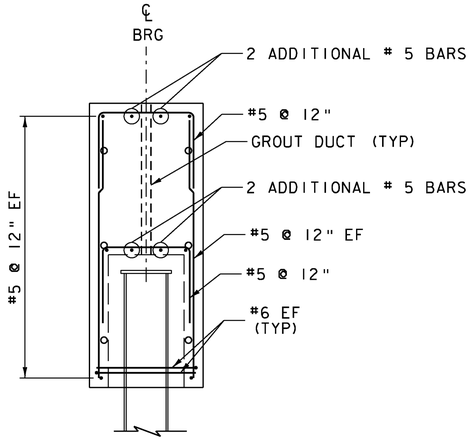
VHB Vanasse Hangen Brustlin, Inc.

VHB 57427



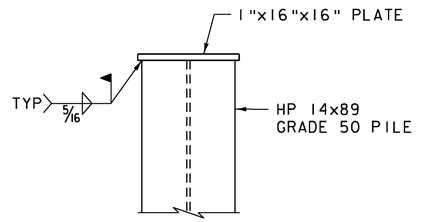
PCU 1 REINFORCING PLAN

SCALE ½" = 1'-0



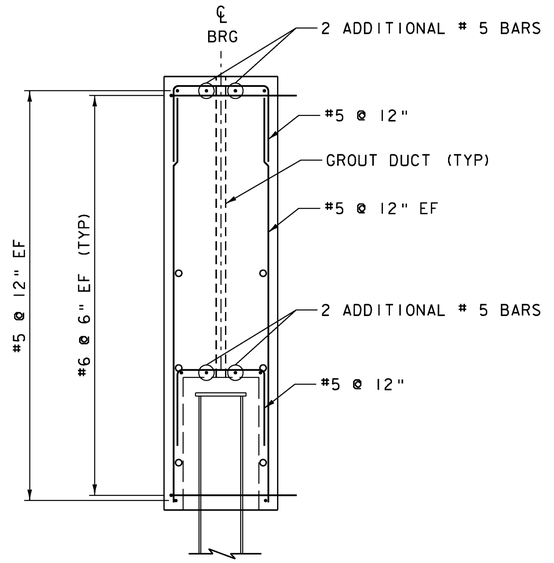
SECTION A-A

SCALE ½" = 1'-0



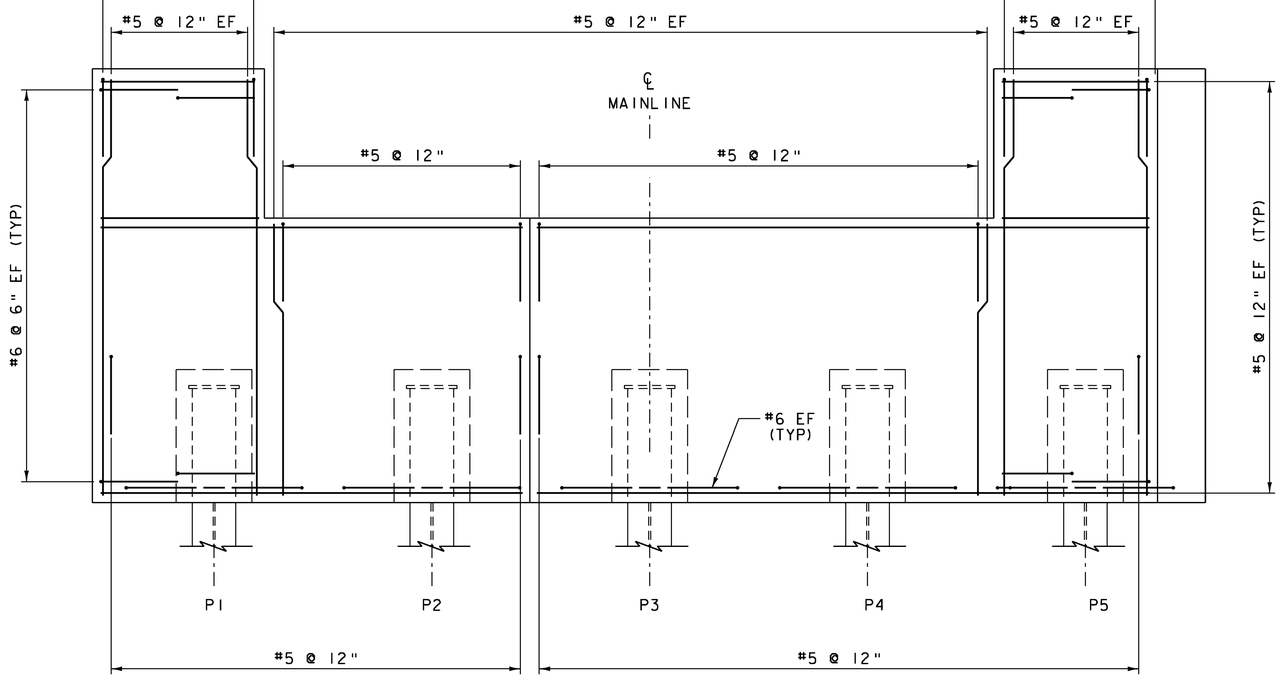
PILE PLATE

SCALE 1" = 1'-0"



SECTION B-B

SCALE ½" = 1'-0



PCU 1 REINFORCING ELEVATION

SCALE ½" = 1'-0

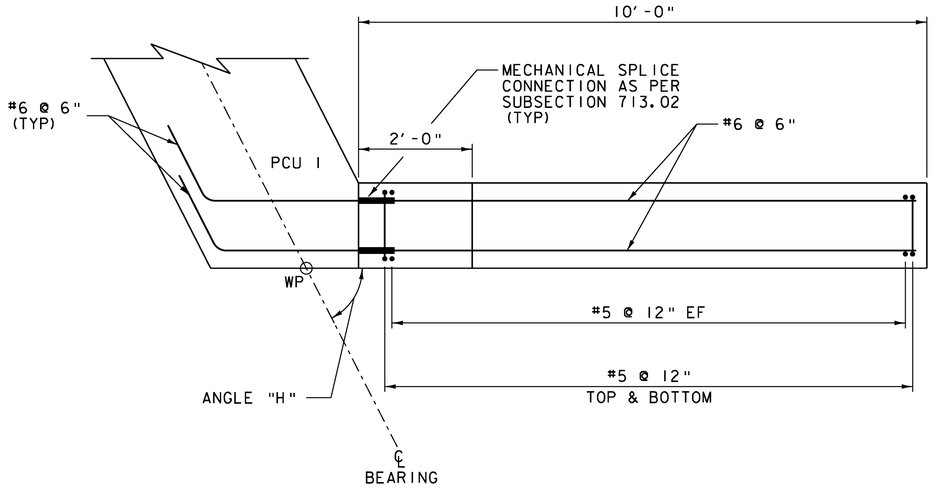
NOTE:

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

Vanasse Hangen Brustlin, Inc.

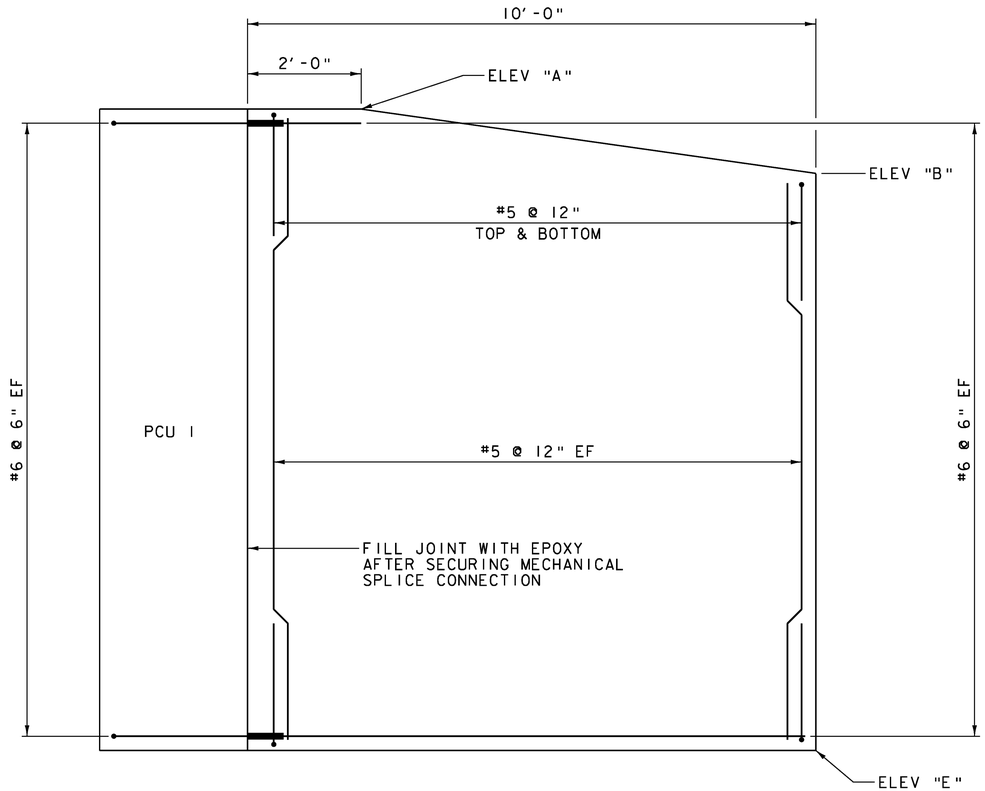
PROJECT NAME: GUILFORD	
PROJECT NUMBER: BRO 1442(36)	
FILE NAME: z10j064sub.dgn	PLOT DATE: 10/2/2013
PROJECT LEADER: S.E. BURBANK	DRAWN BY: A.J. GOUDREAU
DESIGNED BY: G.H. NEAL	CHECKED BY: J.T.KLEIN
ABUTMENT REINFORCING	SHEET 25 OF 42

VHB 57427



PCU 2 PLAN

SCALE 3/4" = 1'-0

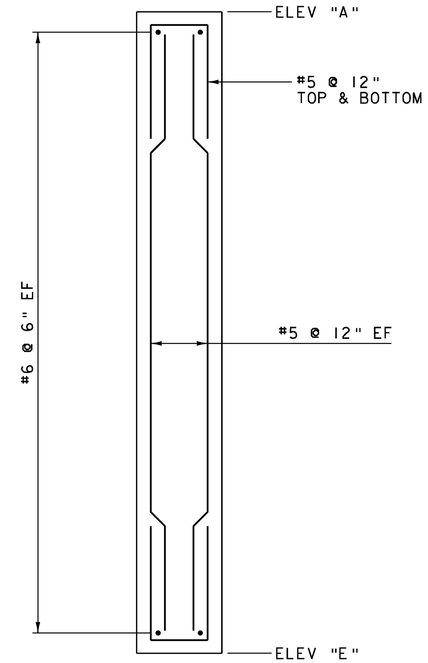


PCU 2 ELEVATION

SCALE 3/4" = 1'-0

PCU 2 ELEVATIONS

	WW1 (NW)	WW2 (SW)	WW3 (NE)	WW4 (SE)
ELEV "A"	1066.65	1066.50	1065.36	1065.20
ELEV "B"	1065.67	1065.40	1063.78	1063.56
ELEV "E"	1055.33	1055.33	1054.03	1054.03
ANGLE "H"	63°	110°	110°	70°



PCU 2 TYPICAL

SCALE 3/4" = 1'-0

NOTE:

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

Vanasse Hangen Brustlin, Inc.

PROJECT NAME: GUILFORD
PROJECT NUMBER: BRO 1442(36)

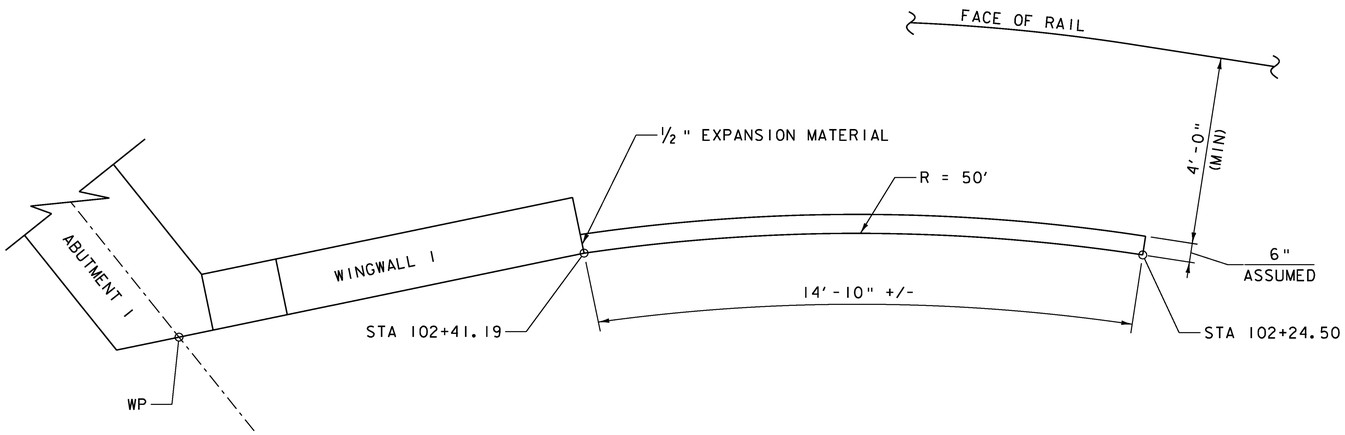
FILE NAME: z10j064sub.dgn
PROJECT LEADER: S.E. BURBANK
DESIGNED BY: G.H. NEAL
WINGWALL DETAILS

PLOT DATE: 10/2/2013
DRAWN BY: A.J. GOUDREAU
CHECKED BY: J.T. KLEIN
SHEET 26 OF 42

VHB 57427

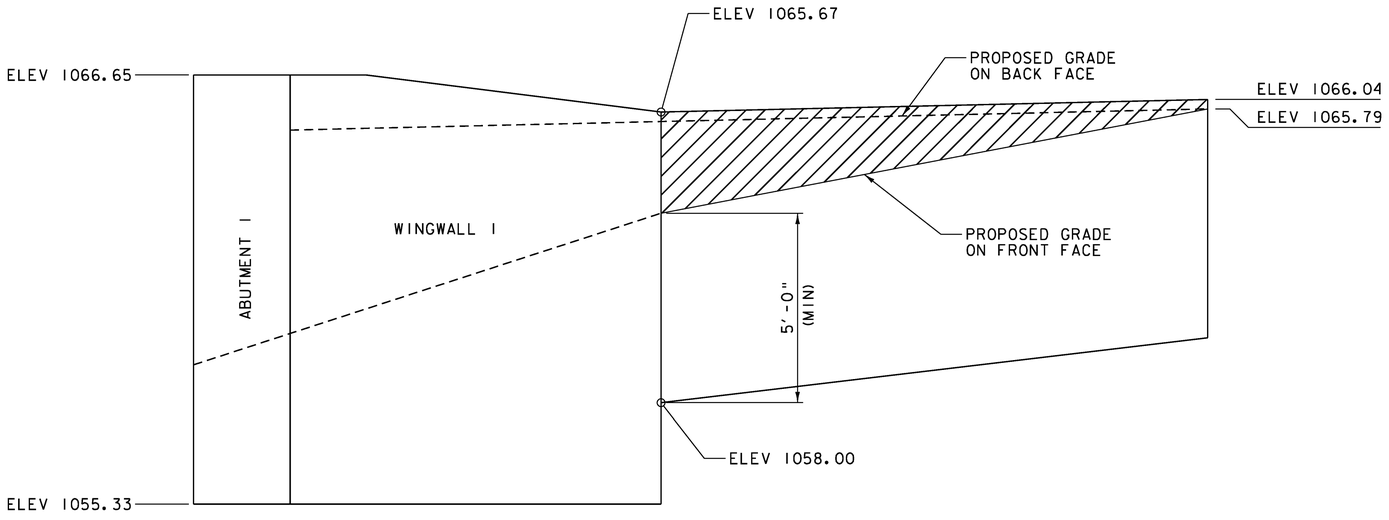
NOTE:

1. THE WALL SHALL BE PAID FOR UNDER ITEM 900.670 "SPECIAL PROVISION (RETAINING WALL)". SEE THE SPECIAL PROVISIONS FOR INFORMATION AND REQUIREMENTS.



RETAINING WALL PLAN VIEW

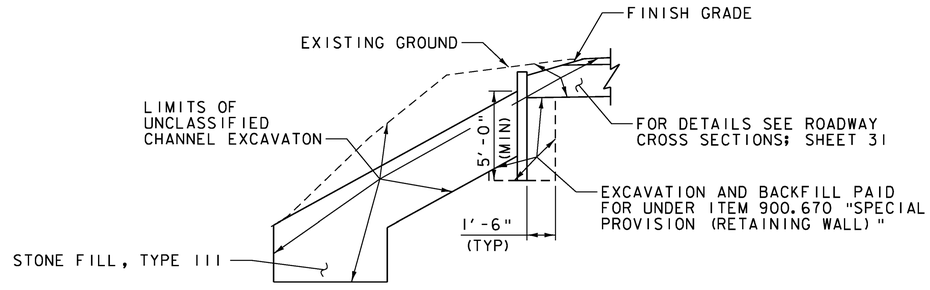
SCALE ½ " = 1'-0"



PAY LIMITS OF ITEM 900.670 "SPECIAL PROVISION (RETAINING WALL)"

RETAINING WALL ELEVATION VIEW

SCALE ½ " = 1'-0"

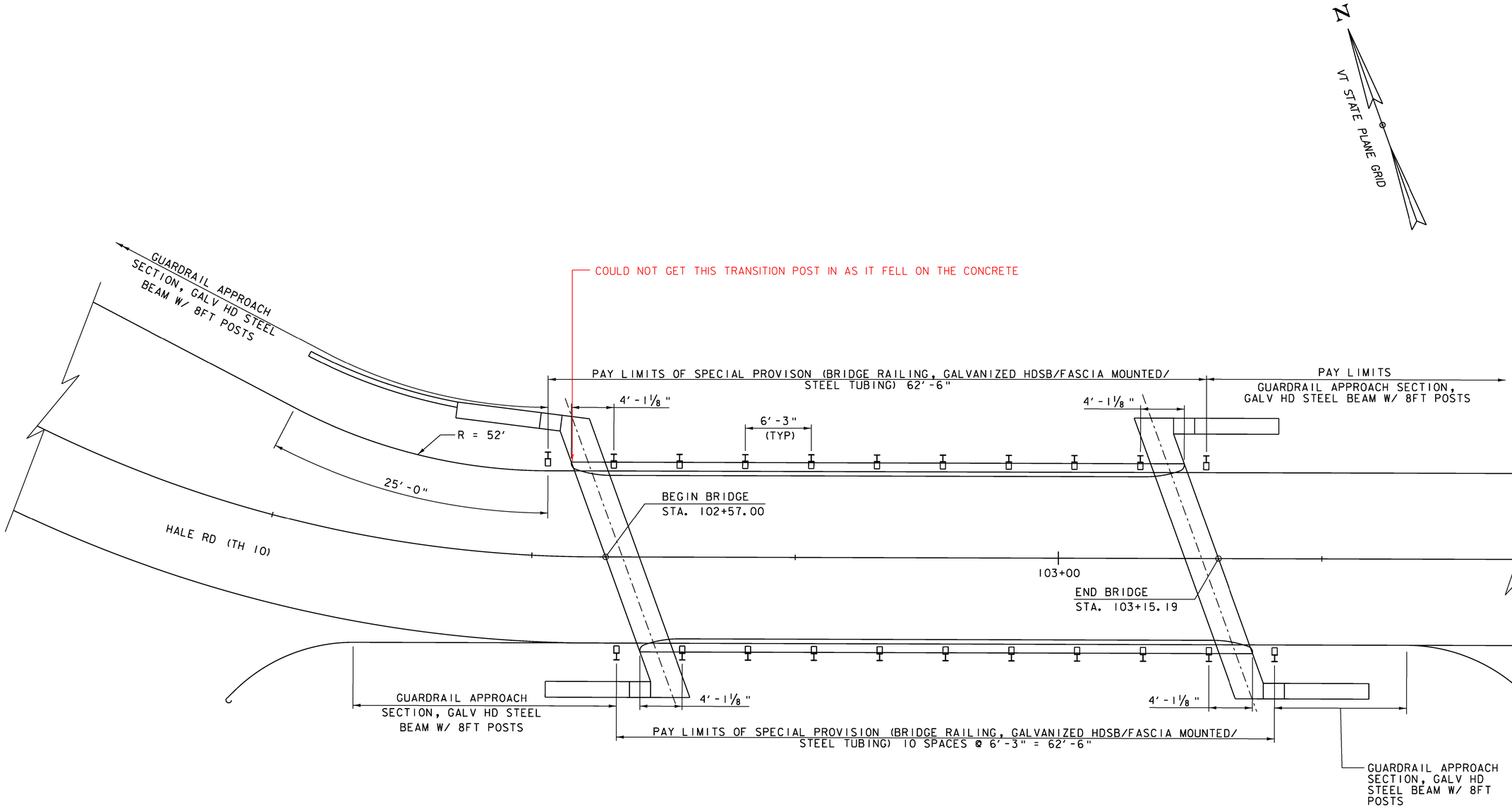


RETAINING WALL EXCAVATION DETAIL

NOT TO SCALE

VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME: GUILFORD	
PROJECT NUMBER: BRO 1442(36)	
FILE NAME: z10j064sub.dgn	PLOT DATE: 10/2/2013
PROJECT LEADER: S.E. BURBANK	DRAWN BY: A.J. GOUDREAU
DESIGNED BY: A.J. GOUDREAU	CHECKED BY: S.E. BURBANK
RETAINING WALL DETAILS	SHEET 27 OF 42

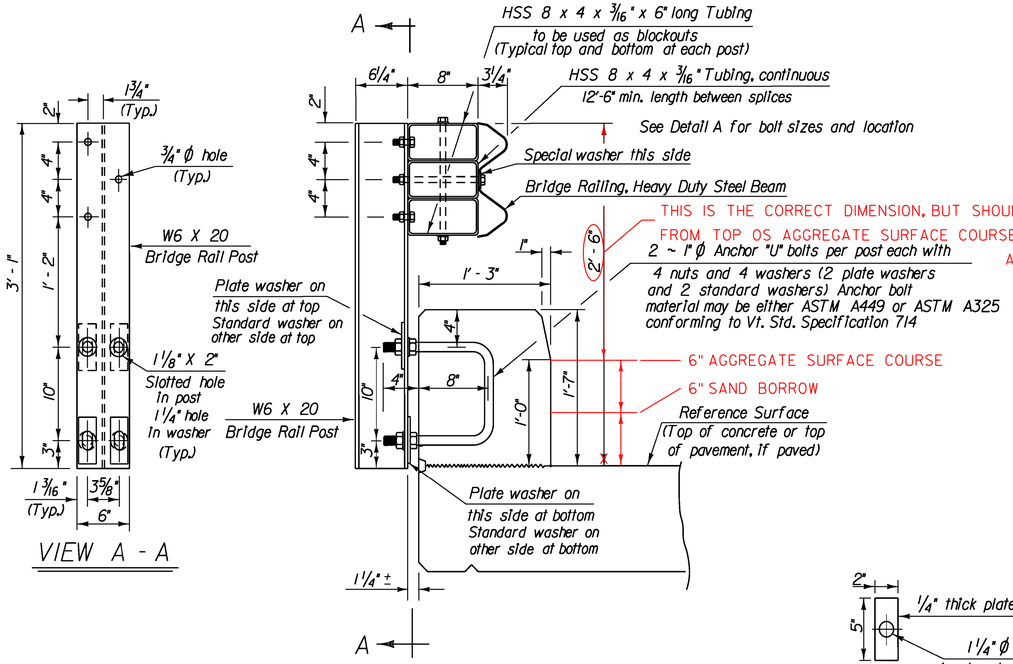


BRIDGE RAIL LAYOUT

NOT TO SCALE

Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	GUILFORD
PROJECT NUMBER:	BRO 1442(36)
FILE NAME: z10J064brail.dgn	PLOT DATE: 10/2/2013
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
BRIDGE RAIL LAYOUT	SHEET 28 OF 42



FASCIA MOUNTED WITH CURB

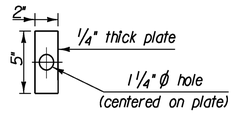
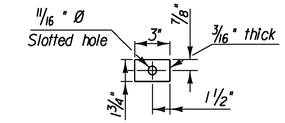
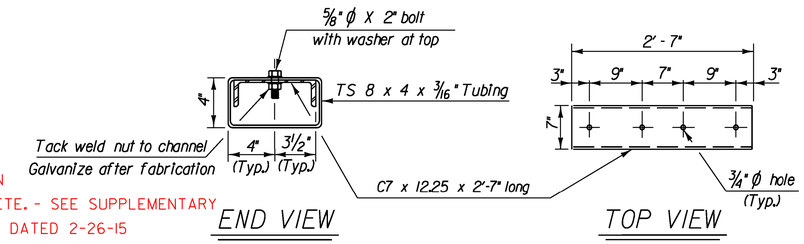


PLATE WASHER DETAIL



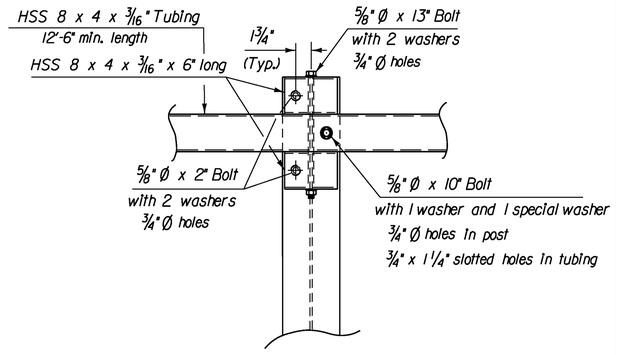
SPECIAL WASHER DETAIL



END VIEW

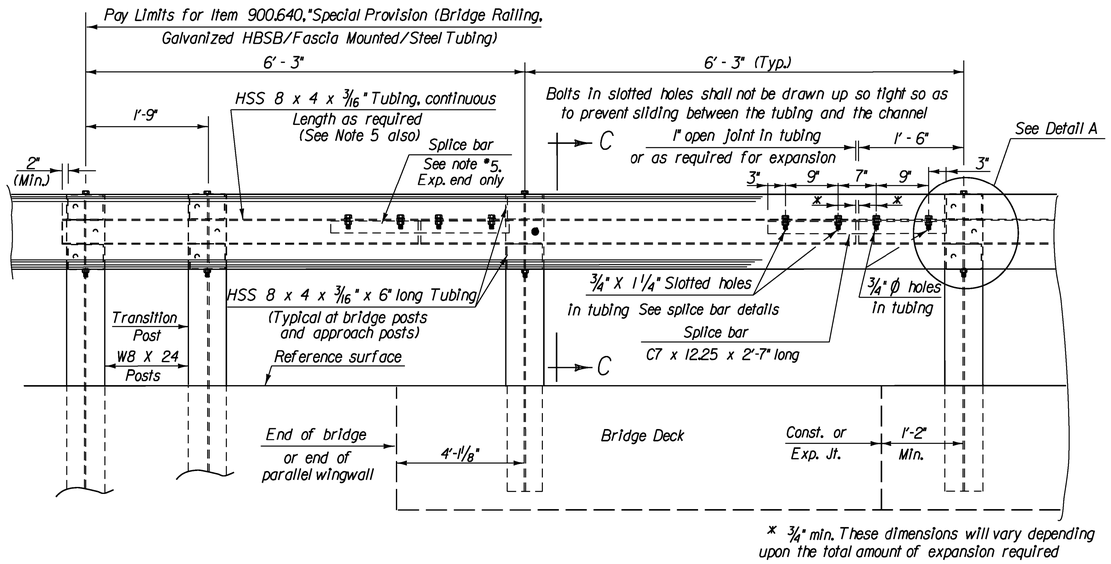
TOP VIEW

SPLICE BAR DETAILS

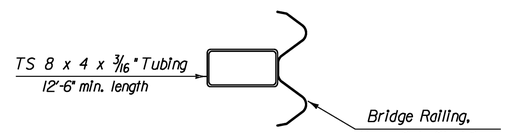


DETAIL A

Steel Beam Guard Rail Not Shown



RAILING ELEVATION VIEW
(SHOWN LOOKING FROM ℄ WITHOUT CURB)



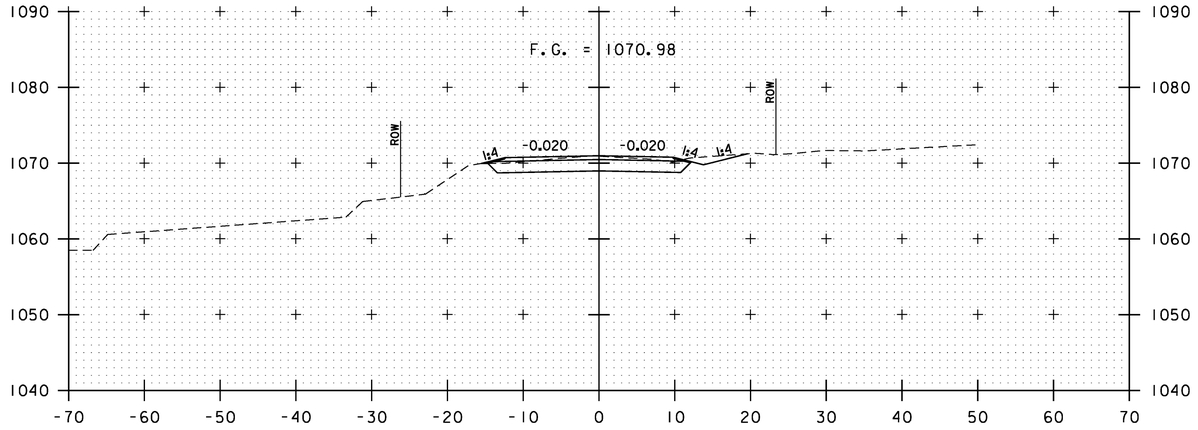
VIEW C - C

NOTES

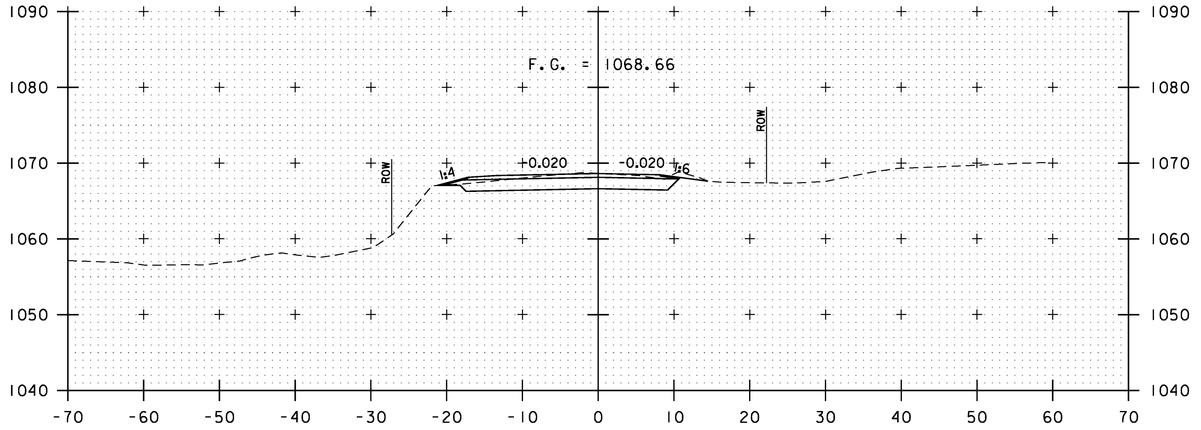
1. ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 525.
2. PRIOR TO GALVANIZING THE ASSEMBLED POST, GRIND ALL EDGES TO A MINIMUM RADIUS OF 1/16".
3. ALL POSTS SHALL BE SET NORMAL TO GRADE.
4. SPLICES FOR THE STEEL BEAM GUARDRAIL SHALL LAP IN THE DIRECTION OF TRAFFIC.
5. A RAILING JOINT SPLICE SHALL BE PROVIDED IN ANY RAIL BAY SPANNING THE END OF AN INTEGRAL ABUTMENT BRIDGE AND AT ALL SUPERSTRUCTURE EXPANSION JOINTS.
6. SEE STANDARD DRAWING G-1 FOR DETAILS OF DELINEATORS. A DELINEATOR SHALL BE LOCATED AT EVERY FIFTH POST. WHITE IS TO BE INSTALLED ON THE DRIVER'S RIGHT. FOR ONE WAY BRIDGES, YELLOW IS TO BE INSTALLED ON THE DRIVER'S LEFT.
7. FOR RADII LESS THAN 950 FEET, HSS 8x4 TUBES SHALL BE SHOP BENT TO FIT THE APPLICABLE CURVE.
8. HOLES IN RAIL FOR RAIL TUBE ATTACHMENT MAY BE FIELD DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO INSTALLATION.
9. SEE STANDARD G-1 AND G-1d FOR ADDITIONAL DETAILS CONCERNING GUARDRAIL.

VHB Vanasse Hangen Brustlin, Inc.

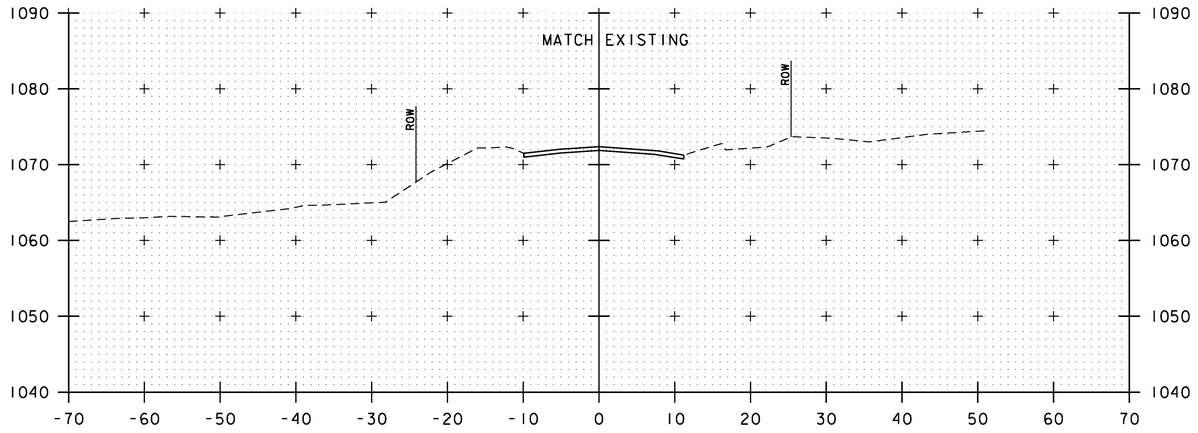
PROJECT NAME: GUILFORD	
PROJECT NUMBER: BRO 1442(36)	
FILE NAME: z10J064brail.dgn	PLOT DATE: 10/2/2013
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: VTRANS/VHB	CHECKED BY: S.E. BURBANK
BRIDGE RAIL DETAILS	SHEET 29 OF 42



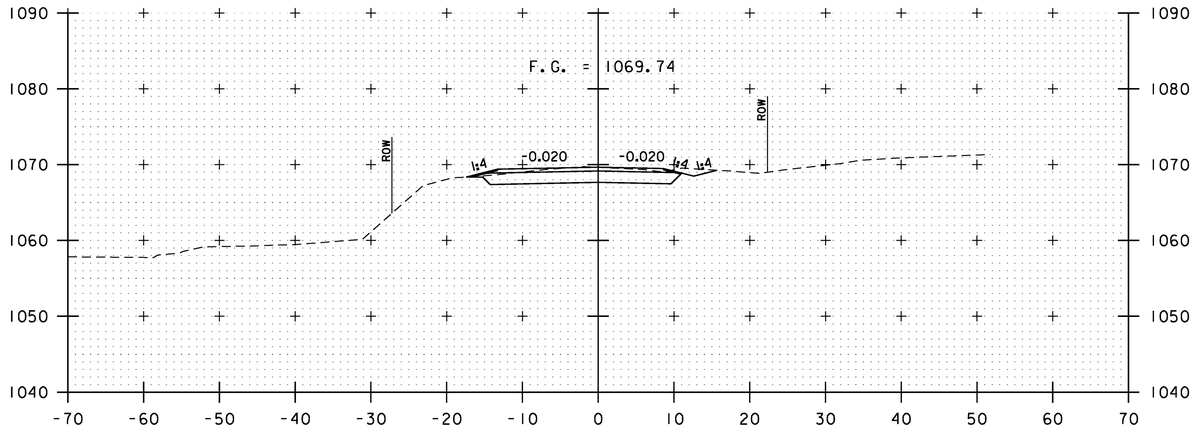
101+25
BEGIN PROJECT



101+75



101+00
BEGIN APPROACH



101+50

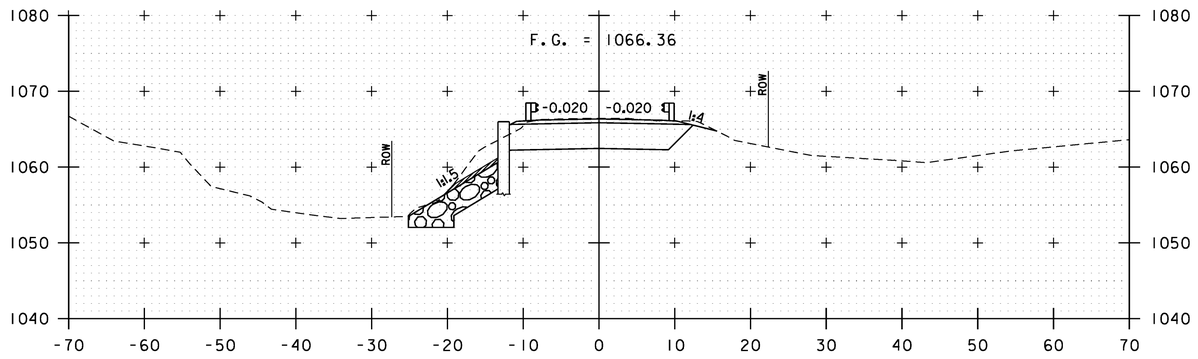
ROADWAY CROSS SECTIONS

SCALE 1"=10'-0"

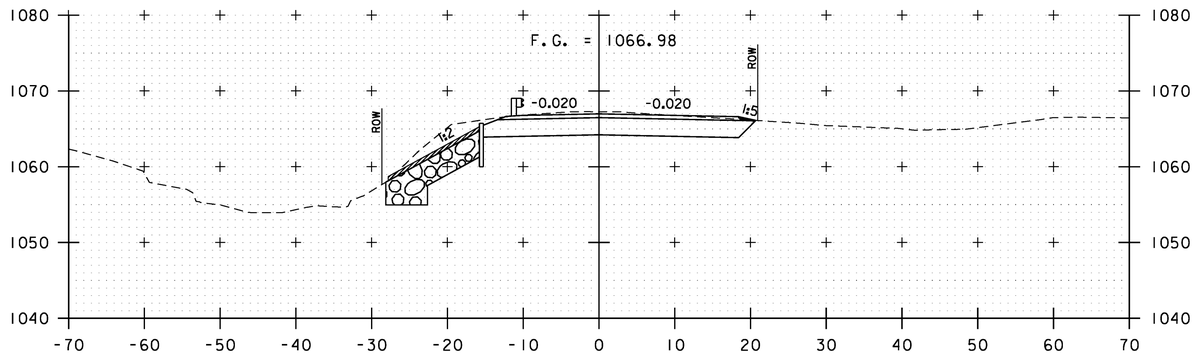
STA. 101+00 TO STA. 101+75

Vanasse Hangen Brustlin, Inc.

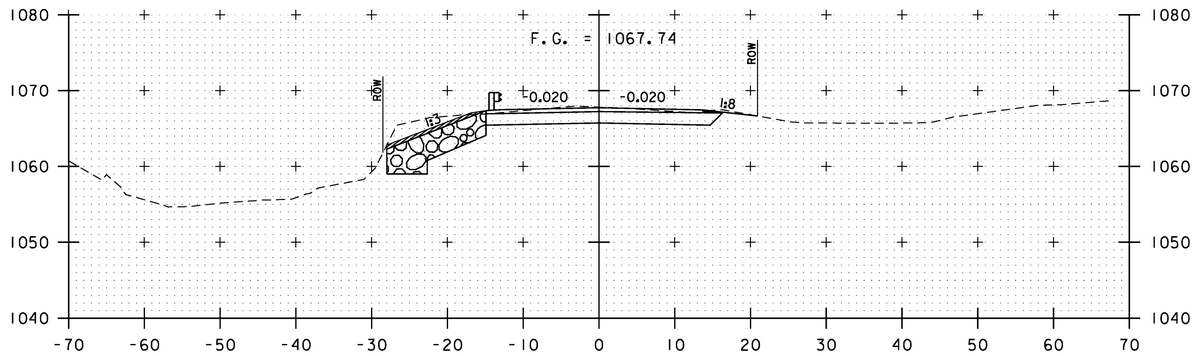
PROJECT NAME:	GUILFORD
PROJECT NUMBER:	BRO 1442(36)
FILE NAME: z101064xsl.dgn	PLOT DATE: 10/2/2013
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
ROADWAY CROSS SECTIONS (1 OF 3)	SHEET 30 OF 42



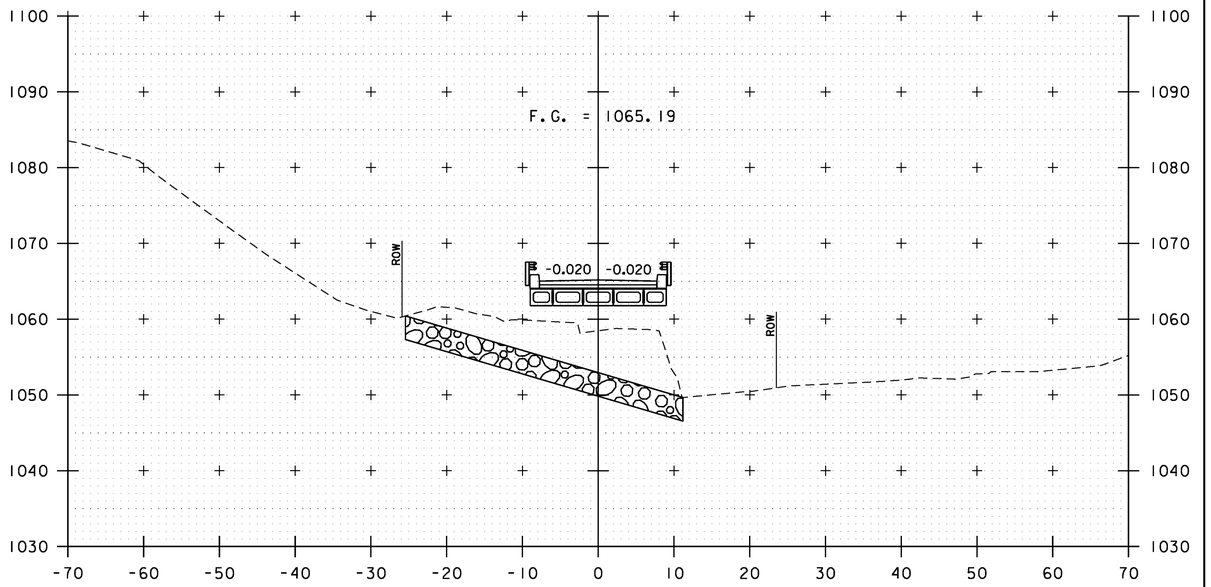
102+50



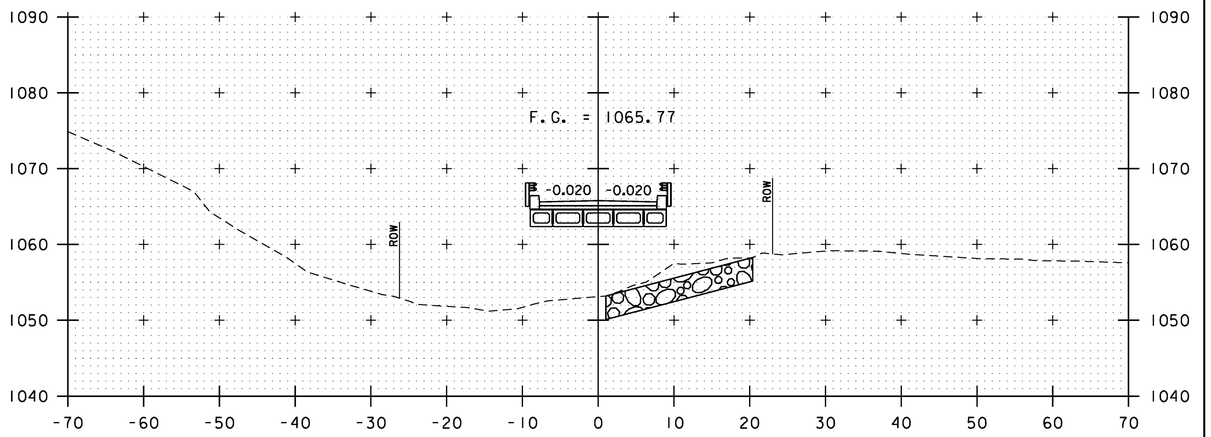
102+25



102+00



103+00



102+75
BEGIN BRIDGE
STA 102+57.00

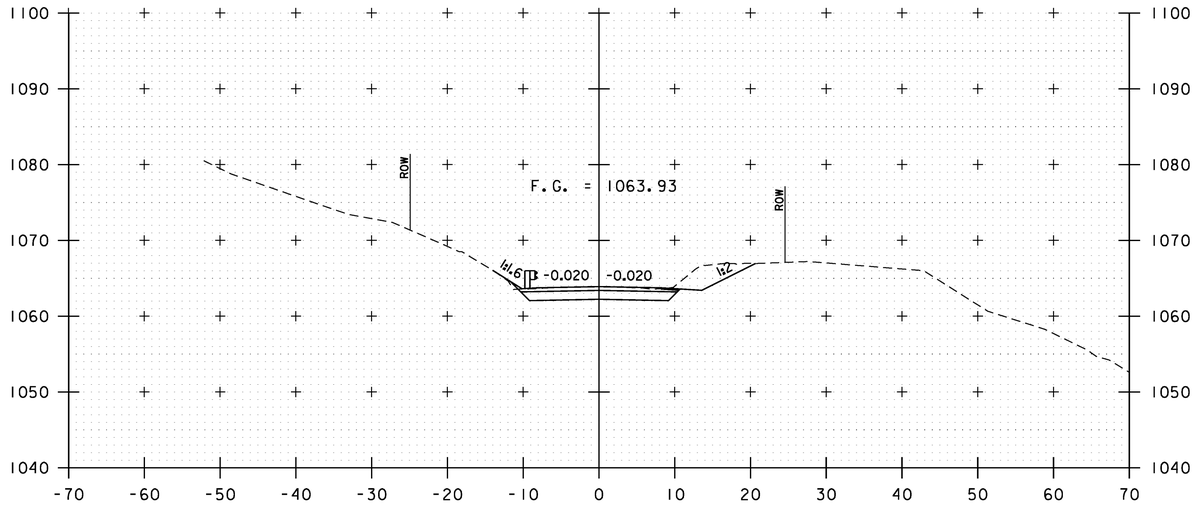
ROADWAY CROSS SECTIONS

SCALE 1"=10'-0"

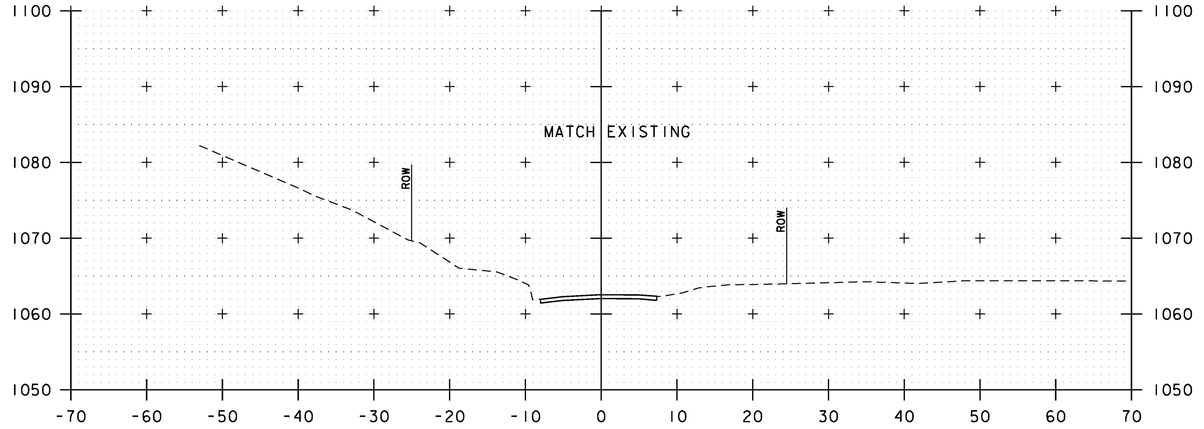
STA. 102+00 TO STA. 103+00

Vanasse Hangen Brustlin, Inc.

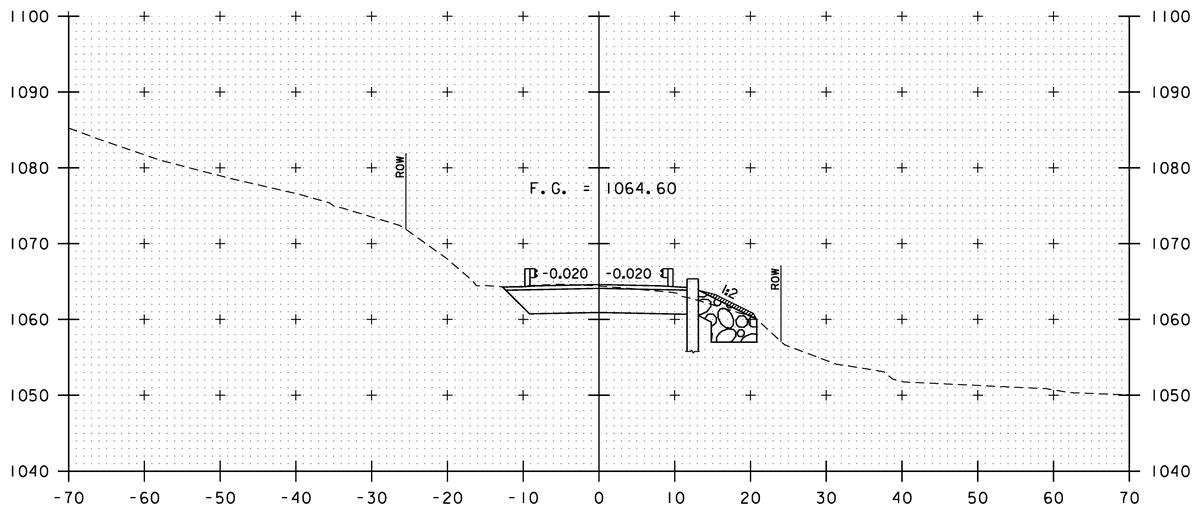
PROJECT NAME:	GUILFORD
PROJECT NUMBER:	BRO 1442(36)
FILE NAME: z10j064xsl.dgn	PLOT DATE: 10/2/2013
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
ROADWAY CROSS SECTIONS (2 OF 3)	SHEET 31 OF 42



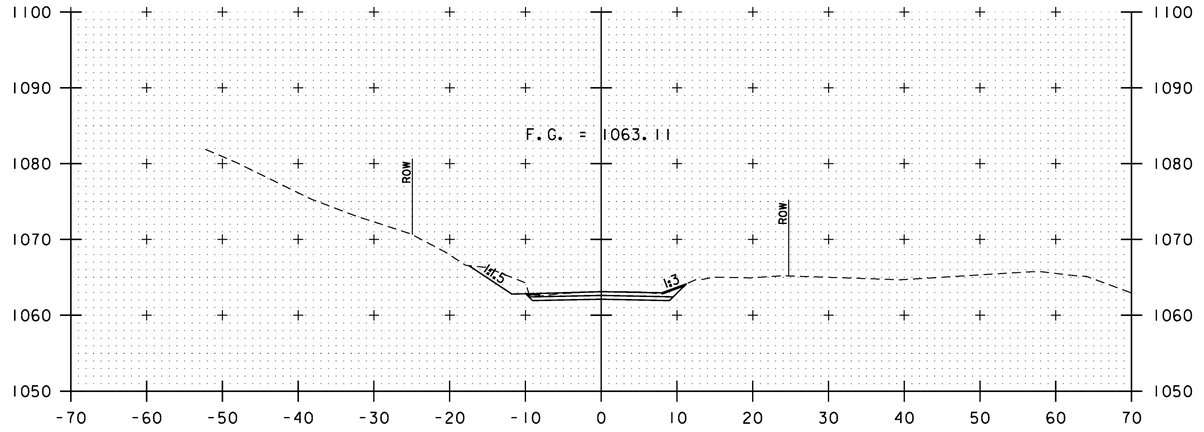
103+50



103+90
END APPROACH
STA 103+90.00



103+25
END BRIDGE
STA 103+15.19



103+75
END PROJECT
STA 103+65.19

ROADWAY CROSS SECTIONS

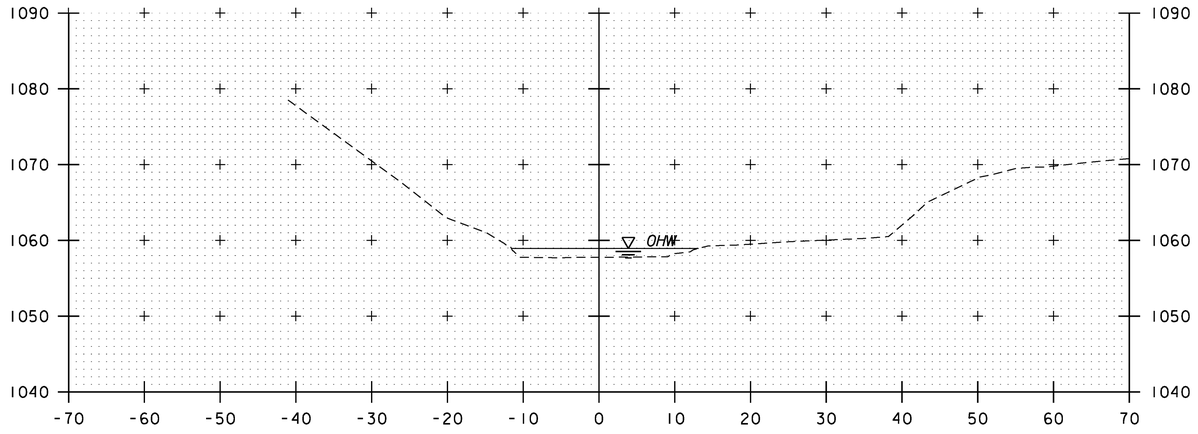
SCALE 1"=10'-0"

STA. 103+25 TO STA. 103+90

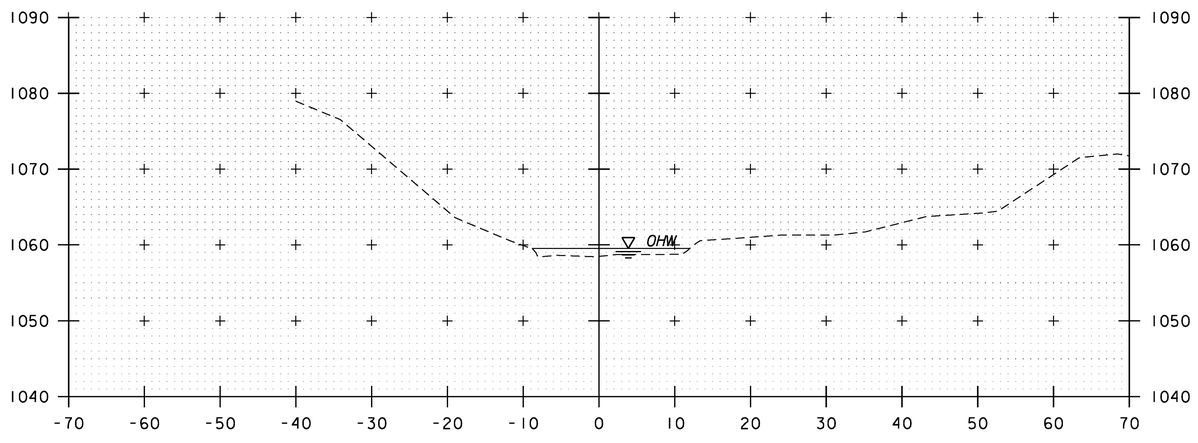
Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	GUILFORD
PROJECT NUMBER:	BRO 1442(36)
FILE NAME: z10J064xsl.dgn	PLOT DATE: 10/8/2013
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
ROADWAY CROSS SECTONS (3 OF 3)	SHEET 32 OF 42

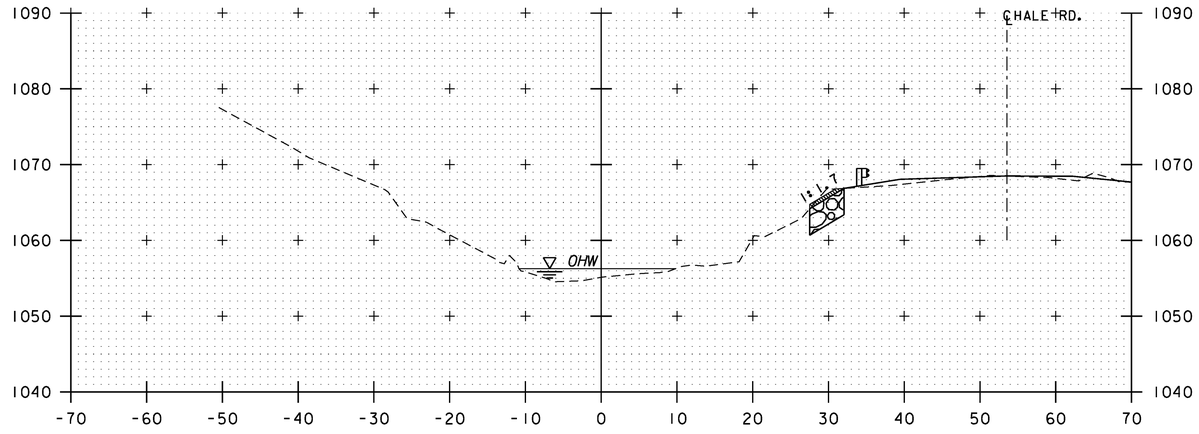
VHB 57427



10+25

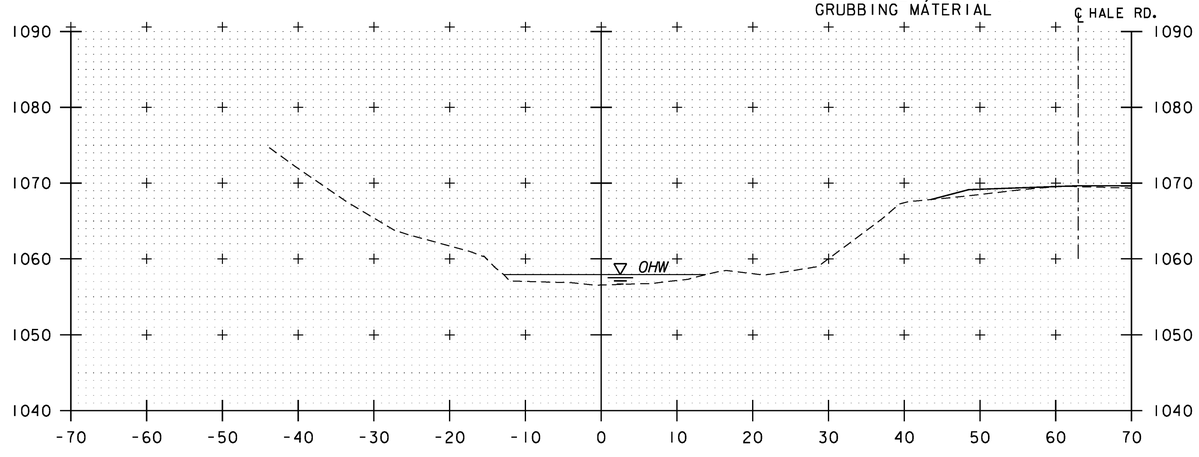


10+00



10+75

STA. 10+81, RT
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE III
GRUBBING MATERIAL



10+50

CHANNEL CROSS SECTIONS

STA. 10+00 - 10+75

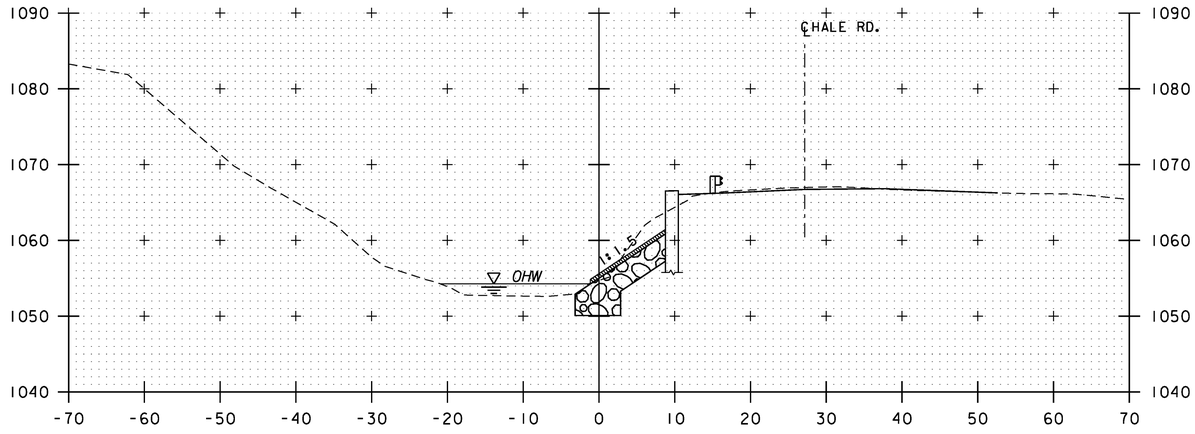
SCALE 1" = 10'-0"

10 0 10

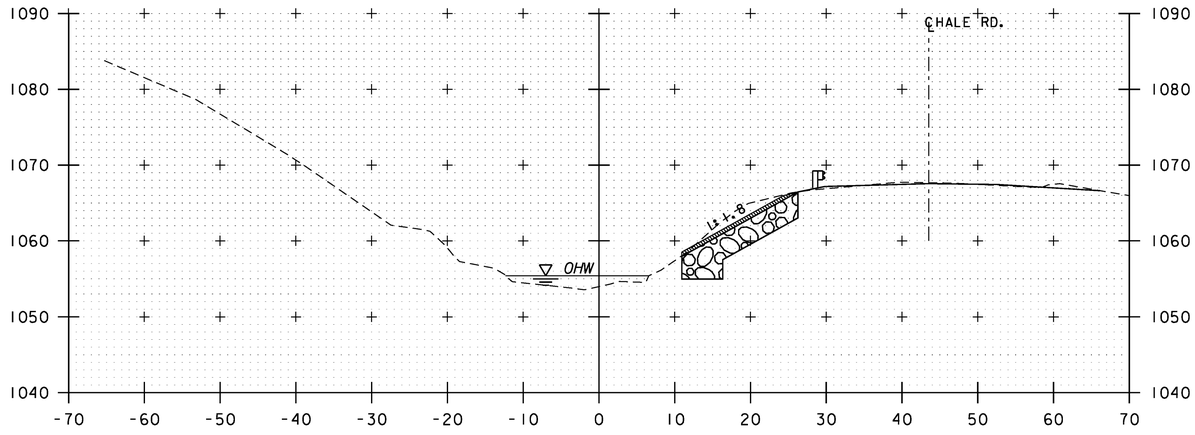
VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	GUILFORD
PROJECT NUMBER:	BRO 1442(36)
FILE NAME: z10j064xsl.dgn	PLOT DATE: 10/2/2013
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
CHANNEL CROSS SECTIONS (1 OF 4)	SHEET 33 OF 42

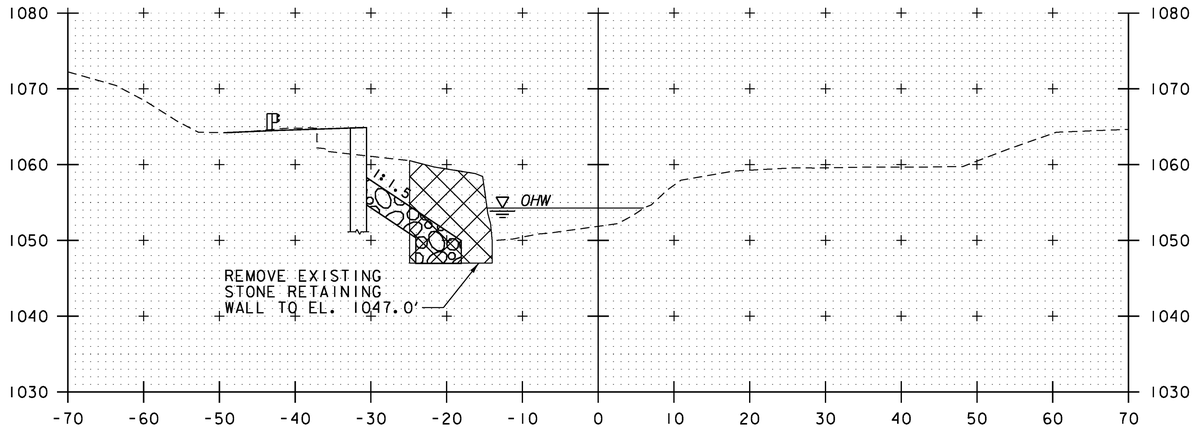
VHB 57427



11+25



11+00

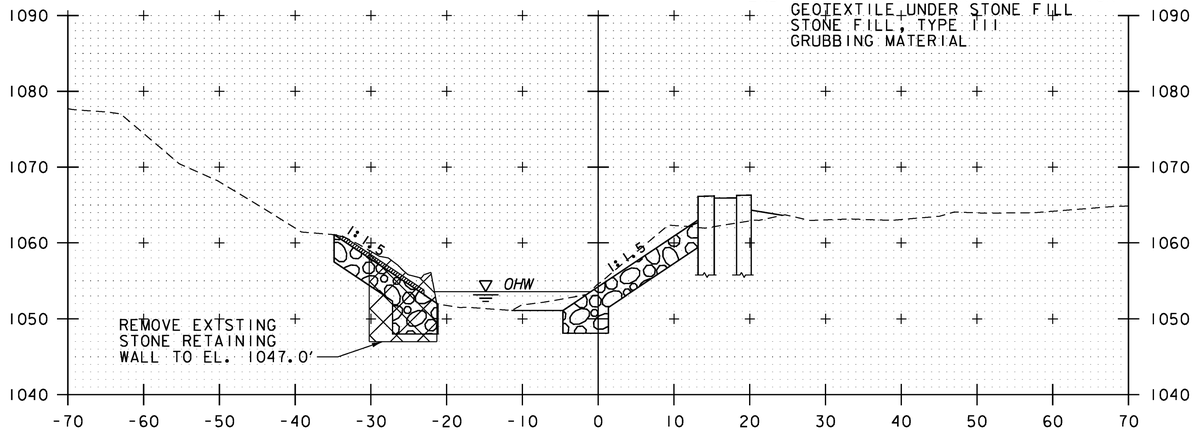


STA. 11+56, LT
END GRUBBING MATERIAL

11+75

STA. 11+63, RT
BEGIN GRUBBING MATERIAL

STA. 11+73, RT
END UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE III
GRUBBING MATERIAL



STA. 11+40, LT
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE III
GRUBBING MATERIAL

11+50

STA. 11+33, RT
END GRUBBING MATERIAL

CHANNEL CROSS SECTIONS

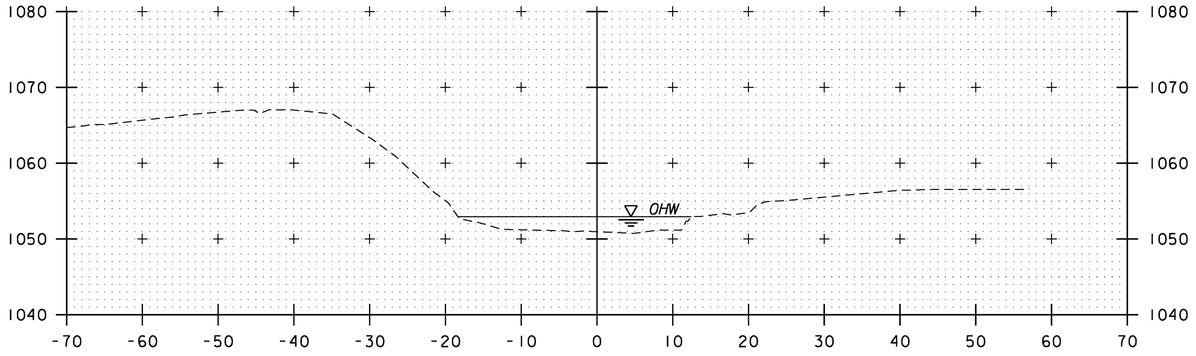
STA. 11+00 - STA. 11+75

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

VHB Vanasse Hangen Brustlin, Inc.

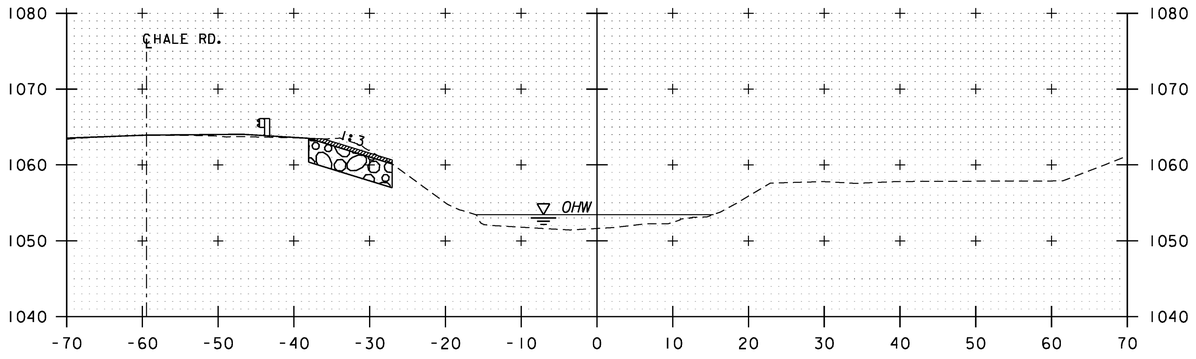
PROJECT NAME:	GUILFORD
PROJECT NUMBER:	BRO 1442(36)
FILE NAME: z10j064xsl.dgn	PLOT DATE: 10/2/2013
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
CHANNEL CROSS SECTIONS (2 OF 4)	SHEET 34 OF 42

VHB 57427



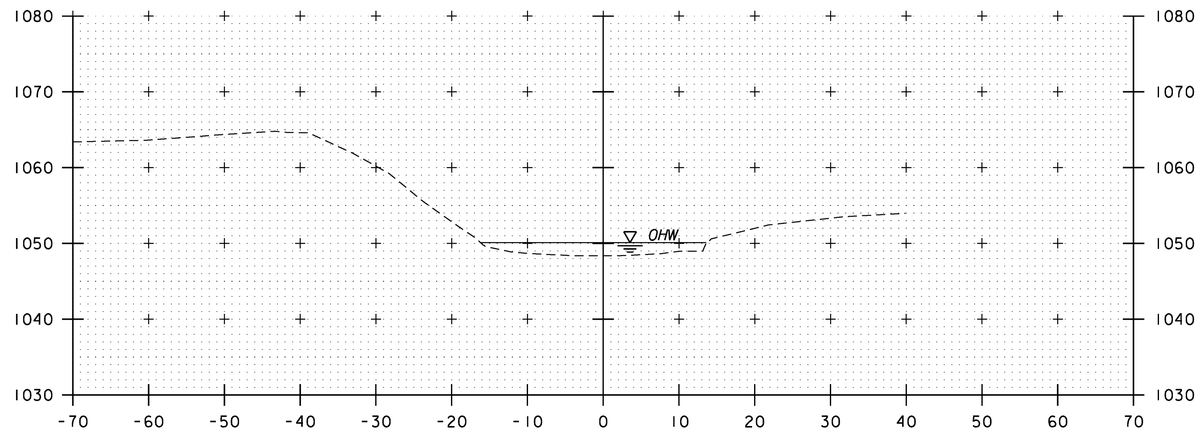
12+25

STA. 11+86, LT
END UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE III
GRUBBING MATERIAL

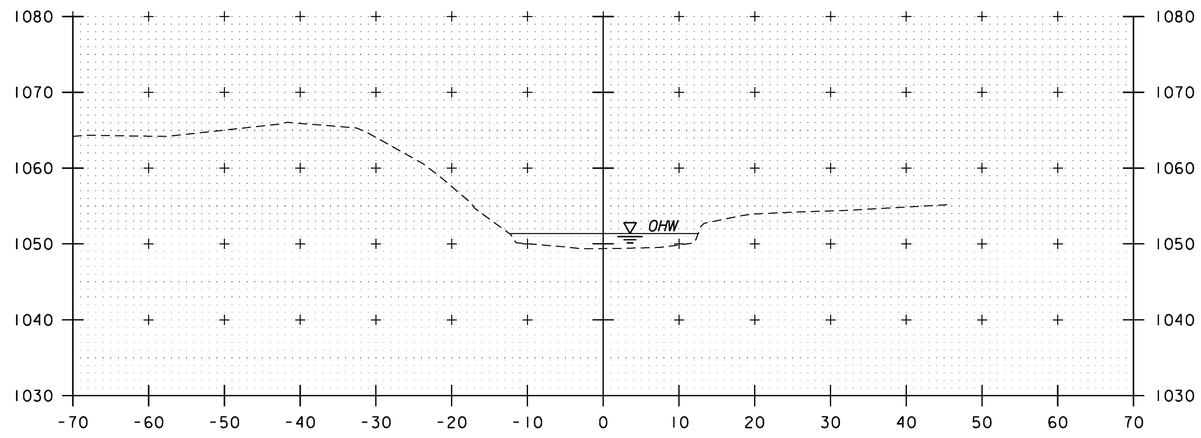


12+00

STA. 11+86, LT
BEGIN GRUBBING MATERIAL



12+75



12+50

CHANNEL CROSS SECTIONS

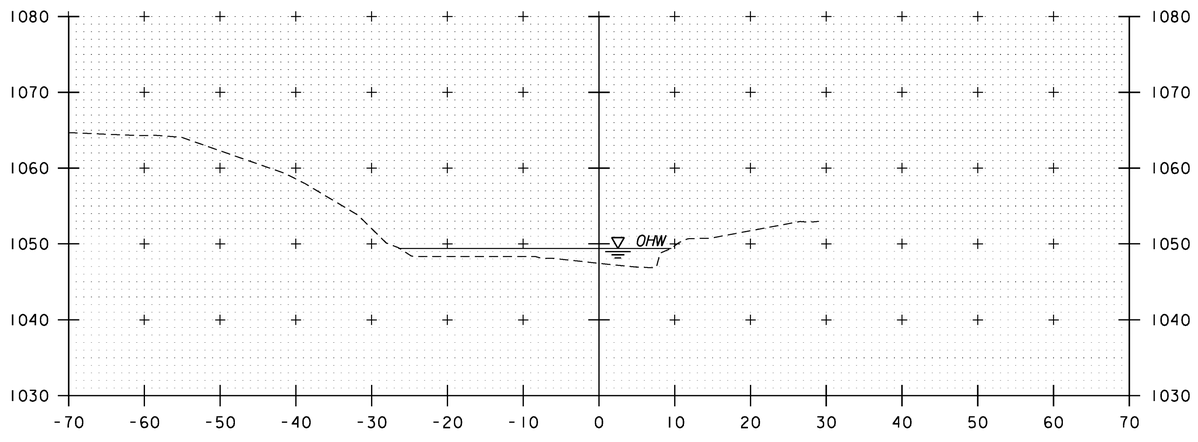
STA. 12+00 - STA. 12+75

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

Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	GUILFORD
PROJECT NUMBER:	BRO 1442(36)
FILE NAME: z10j064xsl.dgn	PLOT DATE: 10/2/2013
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
CHANNEL CROSS SECTIONS (3 OF 4)	SHEET 35 OF 42

VHB 57427



13+00

CHANNEL CROSS SECTIONS

STA. 13+00 - STA. 13+00

SCALE 1" = 10'-0"

10 0 10

Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	GUILFORD
PROJECT NUMBER:	BRO 1442(36)
FILE NAME: z10j064xsl.dgn	PLOT DATE: 10/2/2013
PROJECT LEADER: S.E BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
CHANNEL CROSS SECTIONS (4 OF 4)	SHEET 36 OF 42

EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REMOVAL AND REPLACEMENT OF THE EXISTING STEEL SUPERSTRUCTURE AND CONCRETE ABUTMENTS, AND A STONE RETAINING WALL WITH RELATED APPROACH AND CHANNEL WORK. DURING CONSTRUCTION, THE BRIDGE WILL BE CLOSED AND TRAFFIC WILL BE DETOURED ON LOCAL ROADS. THIS PROJECT IS LOCATED ON HALE ROAD, A LOCAL ROAD LOCATED WEST OF HINESBURG ROAD OVER HINESBURG BROOK IN THE TOWN OF GUILFORD. THE EXISTING BRIDGE IS APPROXIMATELY 63 FEET LONG AND HAS A 10 FOOT WIDE DECK. THE EXISTING SUBSTRUCTURE CONSISTS OF CONCRETE STUB ABUTMENTS AND WINGWALLS AND A STONE RETAINING WALL.

THE BRIDGE REPLACEMENT INCLUDES THE REMOVAL OF THE EXISTING STRUCTURE IN ITS ENTIRETY AND THE CONSTRUCTION OF A NEW 58 FOOT SINGLE SPAN BRIDGE WITH PRECAST CONCRETE BOX BEAMS TO CREATE A NEW BRIDGE WIDTH OF 18 FEET. NEW CONCRETE ABUTMENTS AND WINGWALLS WILL BE CONSTRUCTED ALONG WITH ASSOCIATED APPROACH WORK AND NEW GUARDRAIL.

NOTE: AREA OF DISTURBANCE INCLUDES LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT AREA, AS WELL AS WASTE, BORROW AND STAGING AREAS, AND OTHER EARTH DISTURBING ACTIVITIES WITHIN OR DIRECTLY ADJACENT TO THE PROJECT LIMITS AS SHOWN ON THE ATTACHED EPSC PLAN.

TOTAL AREA OF DISTURBANCE AS SHOWN ON THE ATTACHED EPSC PLAN IS APPROXIMATELY 0.20 ACRES.

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

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY
THE ROAD IN THIS PROJECT AREA IS LOCATED IN AN AREA WITH STEEP BANKS TRANSITIONING INTO A FLAT RESIDENTIAL PARCEL, WITH A LOW POINT WHERE THE BRIDGE IS LOCATED. THERE IS LIMITED RESIDENTIAL DEVELOPMENT LOCATED IN THIS RURAL AREA. HAYES ROAD IS LOCATED NORTHWEST OF THE BRIDGE LOCATION.

1.2.2 DRAINAGE, WATERWAYS, BODIES OF WATER, AND PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES
THE SITE OF THE BRIDGE IS LOCATED IN THE LOWER CONNECTICUT WATERSHED BASIN AND WATERS IN THE AREA DRAIN INTO THE CONNECTICUT RIVER. HINESBURG BROOK IS ONE PERENNIAL STREAM DELINEATED IN THE PROJECT AREA THAT RUNS NORTH TO SOUTH AND PASSES UNDER HALE ROAD. HINESBURG BROOK IS CONSIDERED CLASS B WATER UNDER THE VERMONT WATER QUALITY STANDARDS. THERE IS A WETLAND LOCATED ON THE SOUTH SIDE OF HALE ROAD AND WEST OF HINESBURG BROOK THAT RECEIVES HYDROLOGY FROM UPGRADIENT SLOPES LOCATED TO THE WEST. THIS WETLAND IS CONSIDERED A CLASS II WETLAND, WITH WOODY VEGETATION PRESENT, AND IS LOCATED ADJACENT TO AN INTERMITTENT STREAM THAT DRAINS TO HINESBURG BROOK AND IS POSSIBLY GREATER THAN 0.5 ACRES. THE WETLAND IS OUTSIDE OF THE PROJECT LIMITS.

1.2.3 VEGETATION
SOUTH OF BRIDGE NO. 65, THE WESTERN BANK IS DENSELY FORESTED AND GENTLY SLOPING AND THE EASTERN BANK IS STEEP BEFORE TRANSITIONING INTO A FLAT RESIDENTIAL PARCEL. NORTH OF HALE ROAD, THE WESTERN BANK IS DENSELY VEGETATED AND FLAT BEFORE TRANSITIONING TO A STEEP SLOPE THAT EXTENDS UPWARD TO HALE ROAD. THE EASTERN BANK IS UNDEVELOPED AND STEEP. THE AREA'S VEGETATION GENERALLY CONSISTS OF HEMLOCK NORTHERN HARDWOOD FOREST. UPON PROJECT COMPLETION, THE CHANNEL WILL BE ARMORED WITH STONE FILL TYPE III AS SPECIFIED ON THE PLANS. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES.

1.2.4 SOILS
ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE TOWN OF GUILFORD, VERMONT. SOILS ON THE PROJECT SITE ARE BERKSHIRE AND MONADNOCK, FINE SANDY LOAMS, VERY STONY, 8% TO 15% SLOPES, "K FACTOR" = 0.24. THE SOIL IS MODERATELY 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: YES
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: HINESBURG BROOK
WETLANDS: THERE IS ONE WETLAND LOCATED ON THE SOUTH SIDE OF HALE ROAD AND WEST OF HINESBURG BROOK, THE WETLAND RECEIVES HYDROLOGY FROM UPGRADIENT SLOPES LOCATED TO THE WEST. IT IS CONSIDERED A CLASS II WETLAND AND DRAINS INTO HINESBURG BROOK.

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 USED TO PHYSICALLY MARK SITE BOUNDARIES.

BARRIER FENCE (BF) SHALL BE USED TO PHYSICALLY MARK ARCHEOLOGICAL AREAS.

1.4.2 LIMIT DISTURBANCE AREA
PREVENTING INITIAL SOIL EROSION BY MINIMIZING THE EXPOSED AREA IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. EARTH DISTURBANCE CAN BE MINIMIZED THROUGH CONSTRUCTION PHASING BY ONLY OPENING UP EARTH AS NECESSARY. THIS CAN LIMIT THE AREA THAT WILL BE DISTURBED AND EXPOSED TO EROSION. EMPLOY TEMPORARY CONSTRUCTION STABILIZATION PRACTICES IN INCREMENTAL STAGES AS PHASES CHANGE. FOR PROJECTS WHICH FALL UNDER THE CONSTRUCTION GENERAL PERMIT, ONLY THE ACREAGE LISTED ON THE PERMIT AUTHORIZATION MAY BE EXPOSED AT ANY GIVEN TIME.

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

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

STABILIZED CONSTRUCTION ENTRANCES SHALL 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 WORK.

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

FILTER CURTAIN SHALL BE INSTALLED WHERE WORK MUST TAKE PLACE WITHIN THE LIMITS OF HINESBURG BROOK AS PROPOSED ON THE EPSC PLAN.

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

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.

CHECK STRUCTURES ARE NOT ANTICIPATED FOR THIS PROJECT.

1.4.7 CONSTRUCT PERMANENT CONTROLS
PERMANENT STORMWATER TREATMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH PERMIT CONDITIONS.

PERMANENT EROSION CONTROL STRUCTURES ARE NOT ANTICIPATED FOR THIS PROJECT.

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

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

THE FORECAST OF RAINFALL EVENTS SHALL TRIGGER IMMEDIATE PROTECTION OF EXPOSED SOILS.

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

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

SEED, MULCH, FERTILIZER AND LIME SHALL BE USED TO ESTABLISH PERMANENT VEGETATION. FOR SLOPES STEEPER THAN 1:3, BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED INSTEAD OF MULCH.

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

TREATMENT OF DEWATERING ACTIVITIES ARE NOT ANTICIPATED FOR THIS PROJECT.

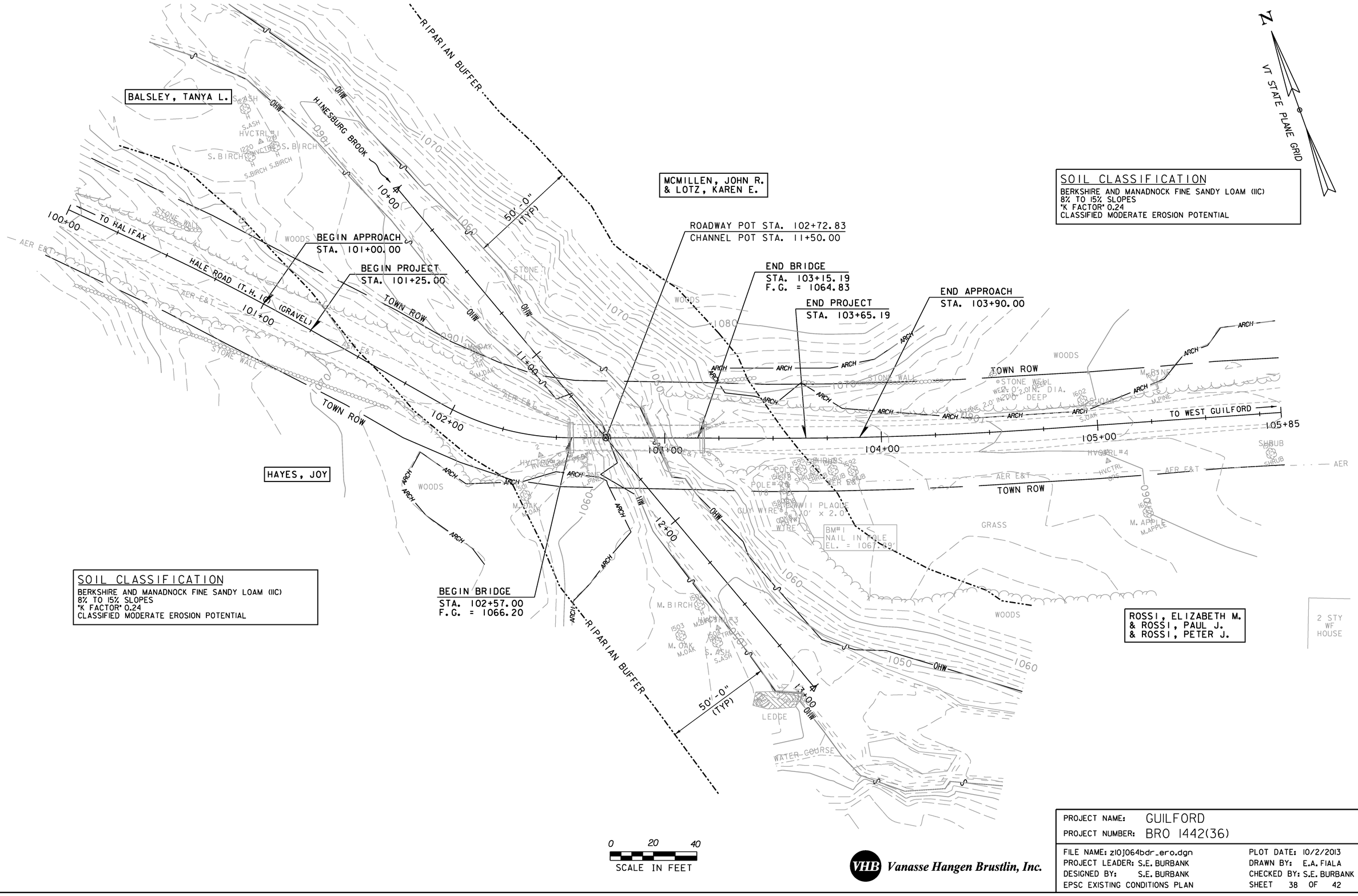
1.4.12 INSPECT YOUR SITE
INSPECT THE PROJECT SITE BASED ON SPECIAL PROVISION REQUIREMENTS OR CONSTRUCTION GENERAL PERMIT AUTHORIZATION STIPULATIONS.

1.5 SEQUENCE AND STAGING

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

1.5.1 CONSTRUCTION SEQUENCE

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


N
VT STATE PLANE GRID
RIPARIAN BUFFER
BALSLEY, TANYA L.
MCMILLEN, JOHN R.
& LOTZ, KAREN E.
HAYES, JOY
ROSSI, ELIZABETH M.
& ROSSI, PAUL J.
& ROSSI, PETER J.
2 STY WF HOUSE
HINESBURG BROOK
TO HALIFAX
HALE ROAD (T.H. 10) (GRAVEL)
TOWN ROW
TO WEST GUILFORD
50'-0" (TYP)
BEGIN APPROACH
STA. 101+00.00
BEGIN PROJECT
STA. 101+25.00
ROADWAY POT STA. 102+72.83
CHANNEL POT STA. 11+50.00
END BRIDGE
STA. 103+15.19
F.G. = 1064.83
END PROJECT
STA. 103+65.19
END APPROACH
STA. 103+90.00
BEGIN BRIDGE
STA. 102+57.00
F.G. = 1066.20
BM#1
NAIL IN POLE
EL. = 1067.39'
WWII PLAQUE
2.0' x 2.0'
STONE WELL
WEL: 0'-2.0" IN DIA.
2.0' DEEP
STONE FILL
LEDGE
WATER COURSE
GRASS
WOODS
SHRUBS
ARCH
OHW
IW
100+00
101+00
102+00
103+00
104+00
105+00
105+85
11+00
12+00
13+00
1050
1060
1070
1080
1090
SOIL CLASSIFICATION
BERKSHIRE AND MANADNOCK FINE SANDY LOAM (IIC)
8% TO 15% SLOPES
"K FACTOR" 0.24
CLASSIFIED MODERATE EROSION POTENTIAL
SOIL CLASSIFICATION
BERKSHIRE AND MANADNOCK FINE SANDY LOAM (IIC)
8% TO 15% SLOPES
"K FACTOR" 0.24
CLASSIFIED MODERATE EROSION POTENTIAL
0 20 40
SCALE IN FEET
VHB Vanasse Hangen Brustlin, Inc.
PROJECT NAME: GUILFORD
PROJECT NUMBER: BRO 1442(36)
FILE NAME: z10J064bdr_ero.dgn
PROJECT LEADER: S.E. BURBANK
DESIGNED BY: S.E. BURBANK
EPSC EXISTING CONDITIONS PLAN
PLOT DATE: 10/2/2013
DRAWN BY: E.A. FIALA
CHECKED BY: S.E. BURBANK
SHEET 38 OF 42

VHB 57427

NOTES:

1. THESE PLANS SHOW A CONCEPTUAL EROSION CONTROL PLAN, THE CONTRACTOR MUST SUBMIT A TEMPORARY EROSION CONTROL PLAN FOR APPROVAL. THE CONTRACTOR MAY RELOCATE TEMPORARY MEASURES TO IMPROVE EROSION CONTROL WITH APPROVAL OF THE RESIDENT ENGINEER.
2. SILT FENCE SHALL NOT BE INSTALLED ACROSS CONTOURS.
3. THE CONTRACTOR SHALL USE OTHER TEMPORARY EROSION CONTROL MEASURES AS NECESSITATED BY THE SEQUENCE OF CONSTRUCTION OR AS DIRECTED BY THE RESIDENT ENGINEER.
4. REFER TO TEMPORARY EROSION CONTROL DETAIL SHEETS FOR ADDITIONAL DETAILS.
5. WHERE LEDGE IS EXPOSED, GRAVEL BAGS MAY BE USED INSTEAD OF FILTER CURTAIN. PAYMENT FOR GRAVEL BAGS WOULD BE INCLUDED FOR PAYMENT UNDER THE UNIT PRICE BID FOR ITEM 649.61 "GEOTEXTILE FOR FILTER CURTAIN".

SOIL CLASSIFICATION
BERKSHIRE AND MANADNOCK FINE SANDY LOAM (IIC)
8% TO 15% SLOPES
"K FACTOR" 0.24
CLASSIFIED MODERATE EROSION POTENTIAL

SOIL CLASSIFICATION
BERKSHIRE AND MANADNOCK FINE SANDY LOAM (IIC)
8% TO 15% SLOPES
"K FACTOR" 0.24
CLASSIFIED MODERATE EROSION POTENTIAL

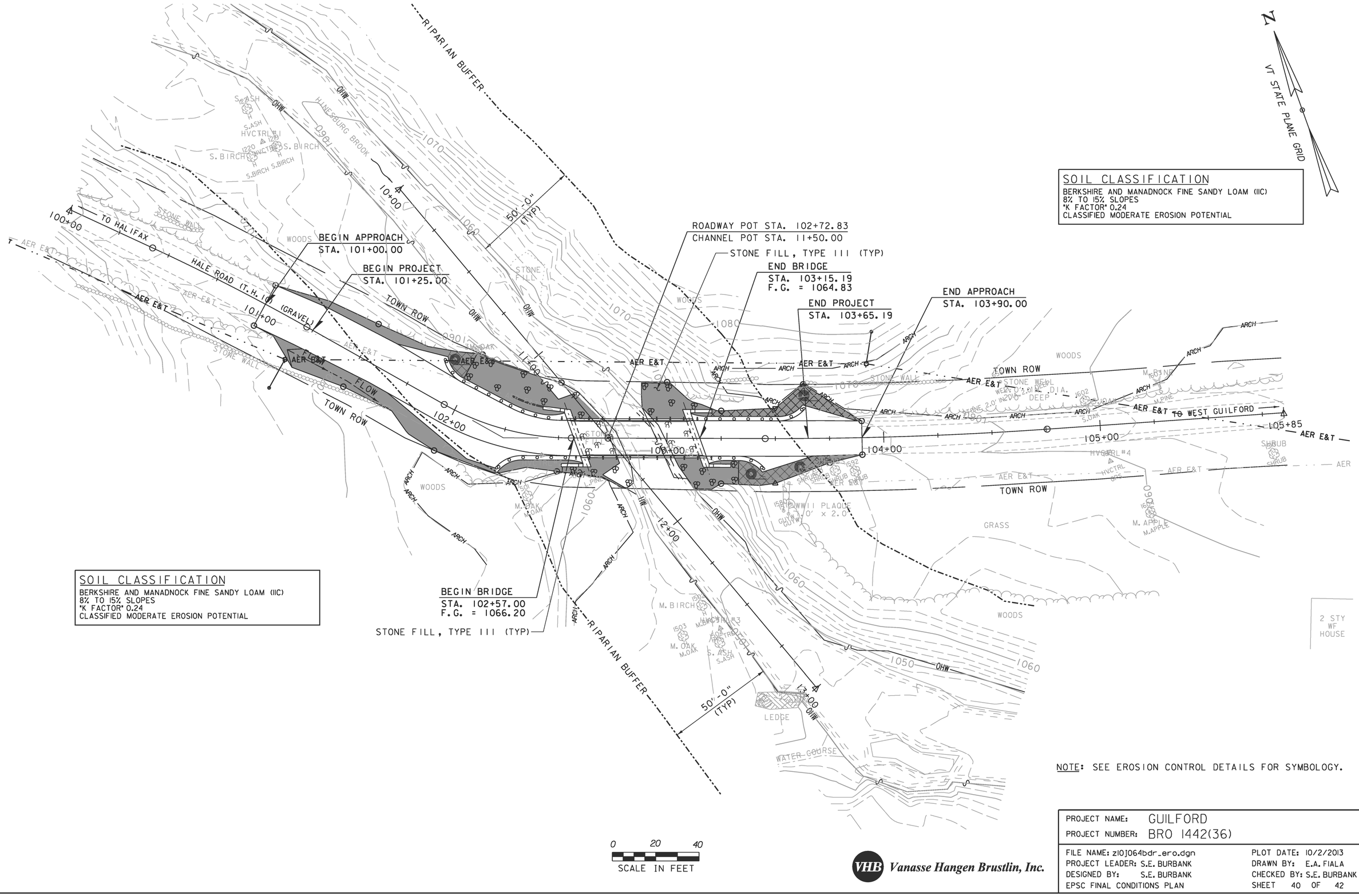
NOTE: SEE EROSION CONTROL DETAILS FOR SYMBOLOGY.

0 20 40
SCALE IN FEET

VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME: GUILFORD	
PROJECT NUMBER: BRO 1442(36)	
FILE NAME: z10j064bdr_ero.dgn	PLOT DATE: 10/2/2013
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: S.E. BURBANK	CHECKED BY: S.E. BURBANK
EPSC CONSTRUCTION CONDITIONS PLAN	SHEET 39 OF 42

VHB 57427



SOIL CLASSIFICATION
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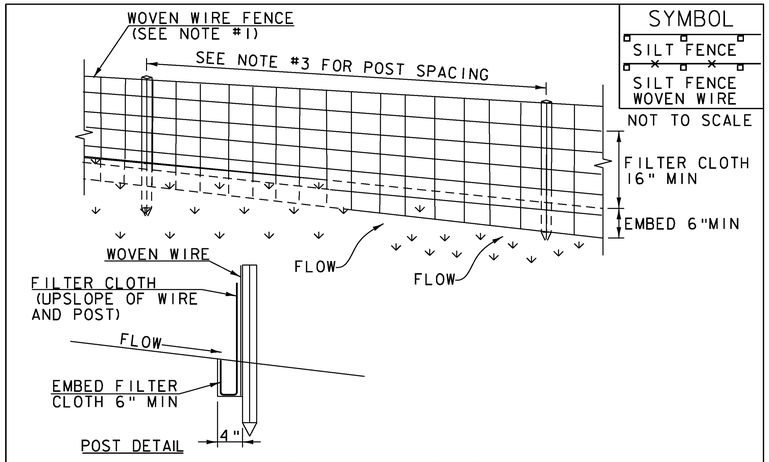
8% TO 15% SLOPES
"K FACTOR" 0.24
CLASSIFIED MODERATE EROSION POTENTIAL

NOTE: SEE EROSION CONTROL DETAILS FOR SYMBOLOGY.

VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	GUILFORD
PROJECT NUMBER:	BRO 1442(36)
FILE NAME: z10J064bdr_ero.dgn	PLOT DATE: 10/2/2013
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: S.E. BURBANK	CHECKED BY: S.E. BURBANK
EPSC FINAL CONDITIONS PLAN	SHEET 40 OF 42



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

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*

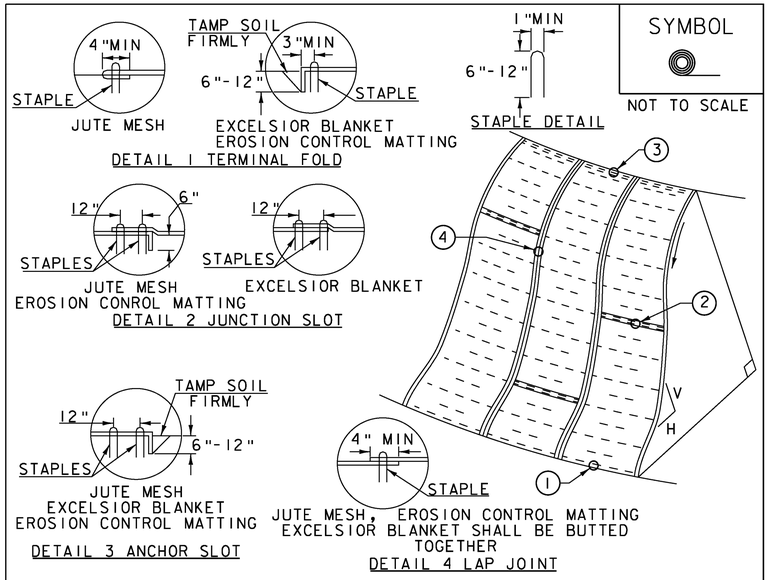
CONSTRUCTION GUIDANCE

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

REVISIONS	
JUNE 23, 2009	WHF
JANUARY 15, 2010	WHF
FEBRUARY 16, 2011	WHF



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

VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME: GUILFORD
PROJECT NUMBER: BRO 1442(36)

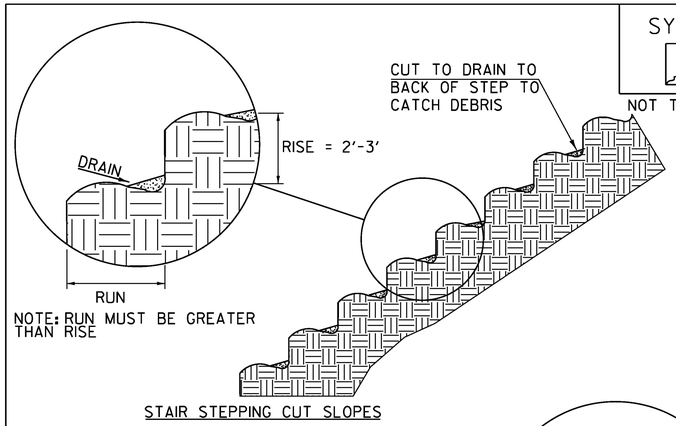
FILE NAME: z10J064details ero.dgn
PROJECT LEADER: S.E. BURBANK
DESIGNED BY: VTRANS
EROSION CONTROL DETAILS (1 OF 2)

PLOT DATE: 10/2/2013
DRAWN BY: K.D. WENTWORTH
CHECKED BY: S.E. BURBANK
SHEET 41 OF 42

VHB 57427

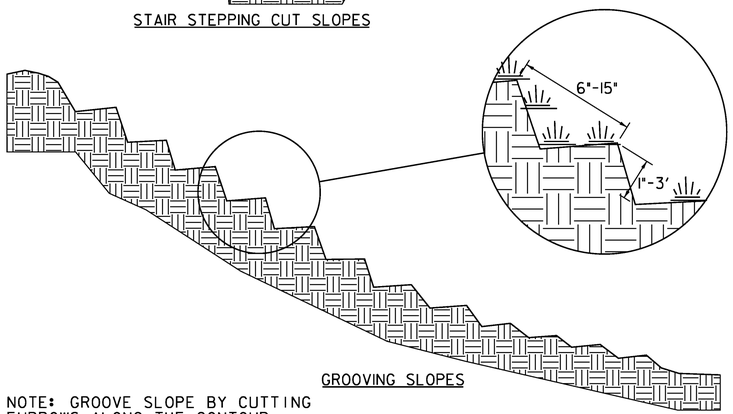
SYMBOL

NOT TO SCALE



NOTE: RUN MUST BE GREATER THAN RISE

STAIR STEPPING CUT SLOPES



GROOVING SLOPES

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

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

SURFACE ROUGHENING

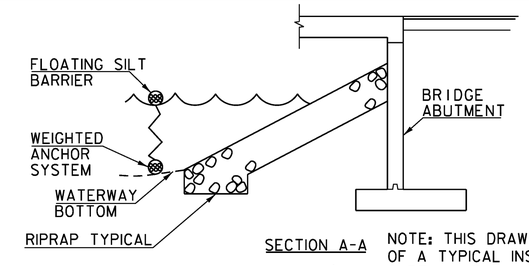
NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT

REVISIONS	
APRIL 1, 2008	WHF
JANUARY 13, 2009	WHF

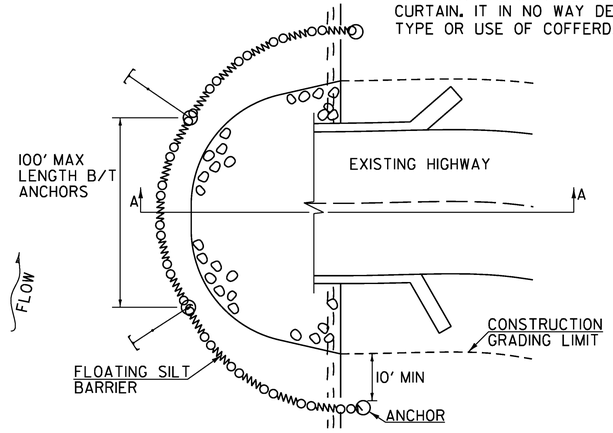
SYMBOL

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.

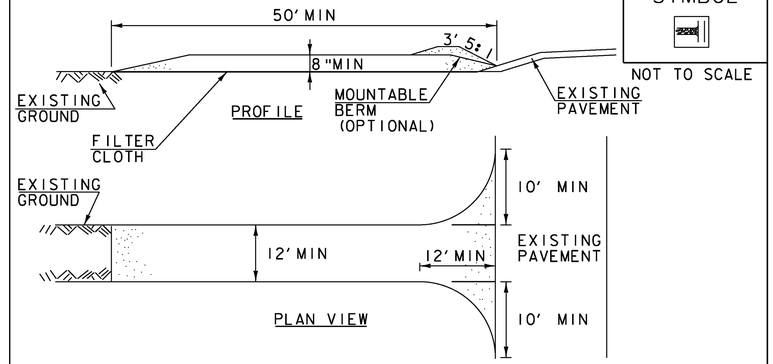
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 FOR GEOTEXTILE FOR FILTER CURTAIN (PAY ITEM 649.61).

FILTER CURTAIN

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

SYMBOL

NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

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

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

STABILIZED CONSTRUCTION ENTRANCE

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

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

REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF

VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME: GUILFORD
PROJECT NUMBER: BRO 1442(36)

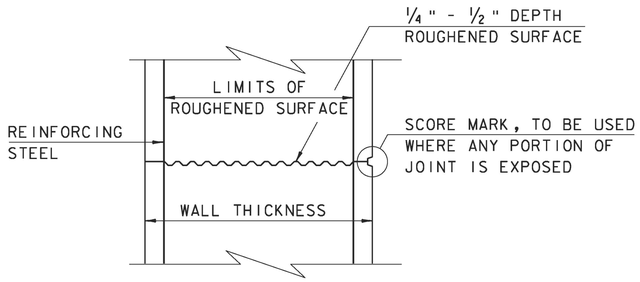
FILE NAME: z10j064details ero.dgn
PROJECT LEADER: S.E. BURBANK
DESIGNED BY: VTRANS
EROSION CONTROL DETAILS (2 OF 2)

PLOT DATE: 10/2/2013
DRAWN BY: K.D. WENTWORTH
CHECKED BY: S.E. BURBANK
SHEET 42 OF 42

VHB 57427

CONCRETE GENERAL NOTES

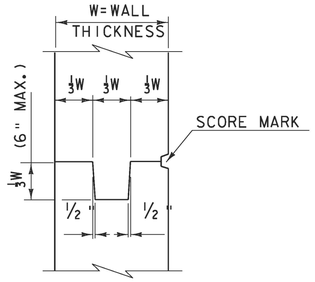
1. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" x 1"



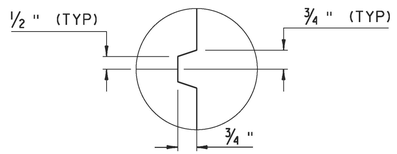
TYPICAL HORIZONTAL CONSTRUCTION JOINT
(NOT TO SCALE)

1. THE SURFACE OF THE CONCRETE CONSTRUCTION JOINTS SHALL BE CLEANED AND FREE OF LAITANCE.

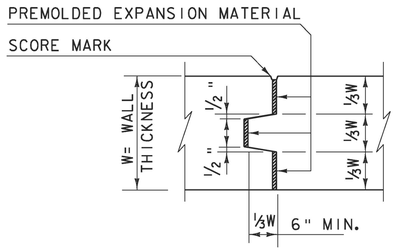
2. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.



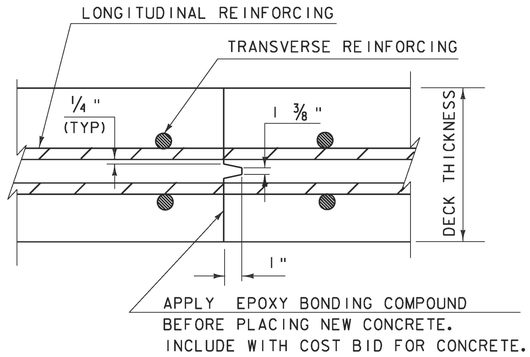
TYPICAL CONCRETE CONSTRUCTION JOINT
(NOT TO SCALE)



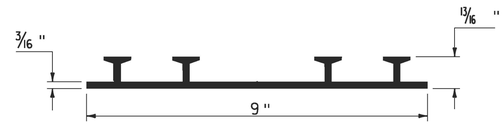
SCORE MARK DETAIL
(NOT TO SCALE)



TYPICAL CONCRETE EXPANSION JOINT
(NOT TO SCALE)



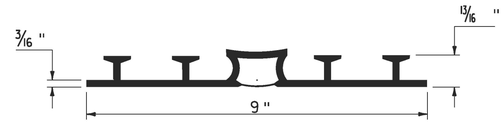
TRANSVERSE BRIDGE SLAB CONSTRUCTION JOINT DETAILS
(NOT TO SCALE)



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.

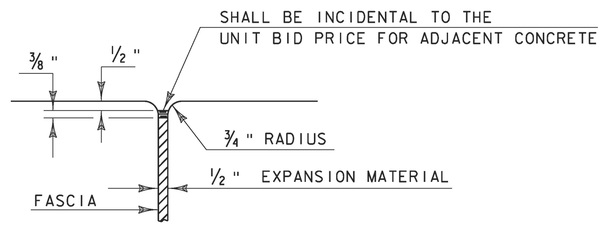
OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



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.



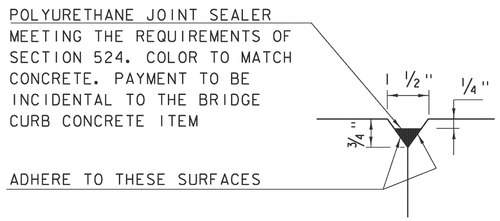
JOINT BETWEEN FASCIA AND WINGWALL
(NOT TO SCALE)

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION

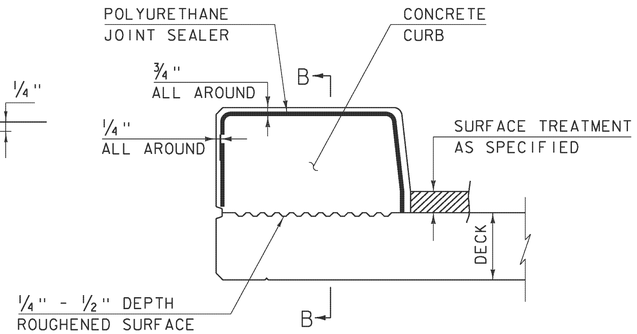
CONCRETE DETAILS AND NOTES

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

STRUCTURES DETAIL SD-501.00

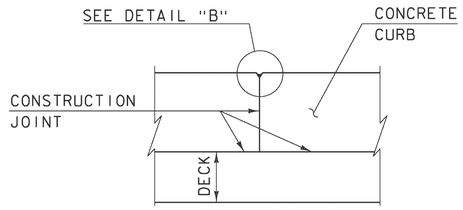


DETAIL "B"
(NOT TO SCALE)

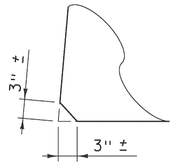


CONCRETE CURB JOINT SECTION
(NOT TO SCALE)

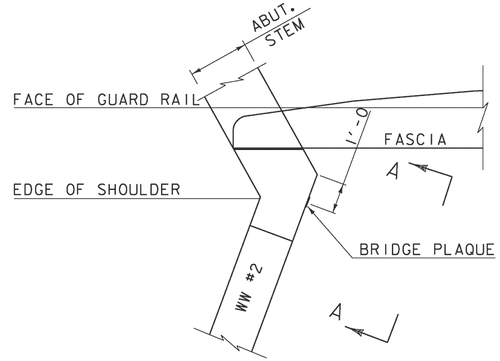
1. SEE TYPICAL HORIZONTAL CONSTRUCTION JOINT DETAIL FOR ADDITIONAL INFORMATION



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.

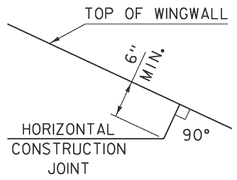
2. IF THE CONTRACTOR CHOOSES NOT TO USE AN APPROVED SHRINKAGE REDUCING ADMIXTURE, THE CURBS SHALL BE CONSTRUCTED WITH CONSTRUCTION JOINTS SPACED AT A MAXIMUM OF 15'-0" CENTER TO CENTER AND 2'-0" MINIMUM FROM THE CENTER OF NEAREST BRIDGE RAILING POST.

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.

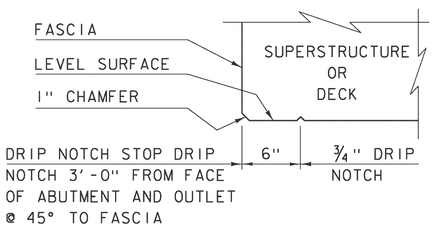
4. WHEN CURB JOINTS ARE USED THE CURBS SHALL BE PLACED IN ALTERNATE SECTIONS WITH A MINIMUM OF 48 HOUR DELAY BETWEEN ADJACENT PLACEMENTS.

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.

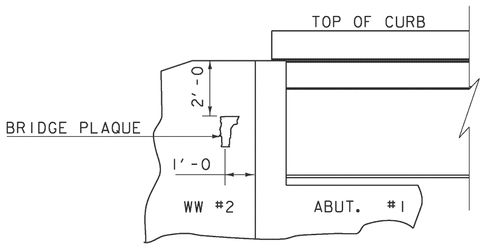
6. THE JOINT SPACING AND DETAILS SHOWN SHALL APPLY TO SIDEWALKS WHEN SHOWN IN THE PLANS.



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

REVISIONS		
REV.	DESCRIPTION	DATE
A	SUBMITTAL	3/25/14

IN ACCORDANCE WITH CONTRACT PLAN SHEET 23 OF 42, 10/2013.

GENERAL NOTES

1. ALL BEARINGS SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS, SECTIONS 531 AND 731, UNLESS NOTED OTHERWISE.

2. MATERIALS:
   ELASTOMER.....50 ± 5 DURO NATURAL, GRADE 4

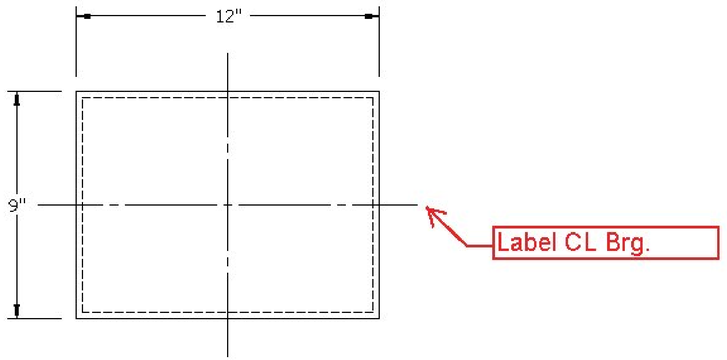
   CARBON STEEL SHIMS.....ASTM A1011, GR. 40
   (10 GA. IN LIEU OF 1/8" DUE TO AVAILABILITY)

3. TOLERANCES:
   LAMINATED PADS:
   - VERTICAL.....-0, +1/4"
   - HORIZONTAL.....-0, +1/4"
   - THICKNESS OF LAYERS.....±1/8"
   - PARALLELISM TOP.....0.005 rad
   - PARALLELISM SIDES.....1/4"
   - EDGE COVER.....-0, +1/8"

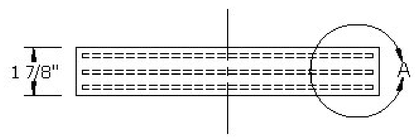
4. MARKINGS:
   EACH BEARING SHALL BE PERMANENTLY MARKED IN A LOCATION THAT IS VISIBLE WHEN THE DEVICE IS INSTALLED IN THE COMPLETED STRUCTURE. MARKING SHALL BE SEP STANDARD:
   - CONTRACT/ORDER #
   - LOT#
   - BEARING ID # (MK. #)
   - LOCATION/BRIDGE #
   - ELASTOMER TYPE AND GRADE
   - ORIENTATION (WHERE APPLICABLE)

5. TESTING: IN ACCORDANCE WITH THE VERMONT AOT SPECIFICATIONS.
   DESIGN METHOD A

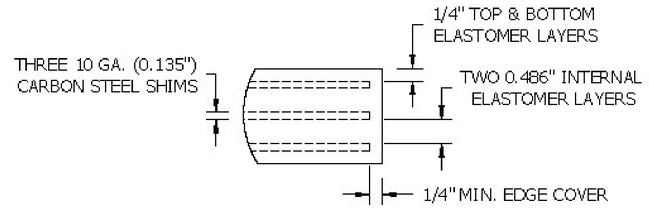
6. REPRESENTATIVE
   CUSTOMER SERVICE: STEVE BOWMAN.....903-677-4318
   TECHNICAL: MIKE SPELLMAN.....903-677-4342



PLAN VIEW



ELEVATION VIEW



DETAIL A

MK.02
LAMINATED BEARING PADS
ITEM 531.17
@ GUILFORD, BRO 1442(36)

(20) REQ'D

DL: 20.3 kips
LL: 22.9 kips (WITH IMPACT)

SHOP DRAWING REVIEW

☐ REVIEWED AS REQUIRED BY THE CONSTRUCTION CONTRACT DOCUMENTS AND APPROVED, BUT ONLY FOR CONFORMANCE TO THE DESIGN CONCEPT OF THE WORK, AND SUBJECT TO FURTHER LIMITATIONS AND REQUIREMENTS CONTAINED IN THE CONSTRUCTION CONTRACT DOCUMENTS.

☐ REJECTED ☐ REVISE AND RESUBMIT ☒ FURNISH AS CORRECTED

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VHB *Vanasse Hangen Brustlin, Inc.*
7056 US Route 7
North Ferrisburgh, VT 05473
802.425.7788

Job Number: 57427.00
Reviewed By: E.A. FIALA
Date: 04-15-2014

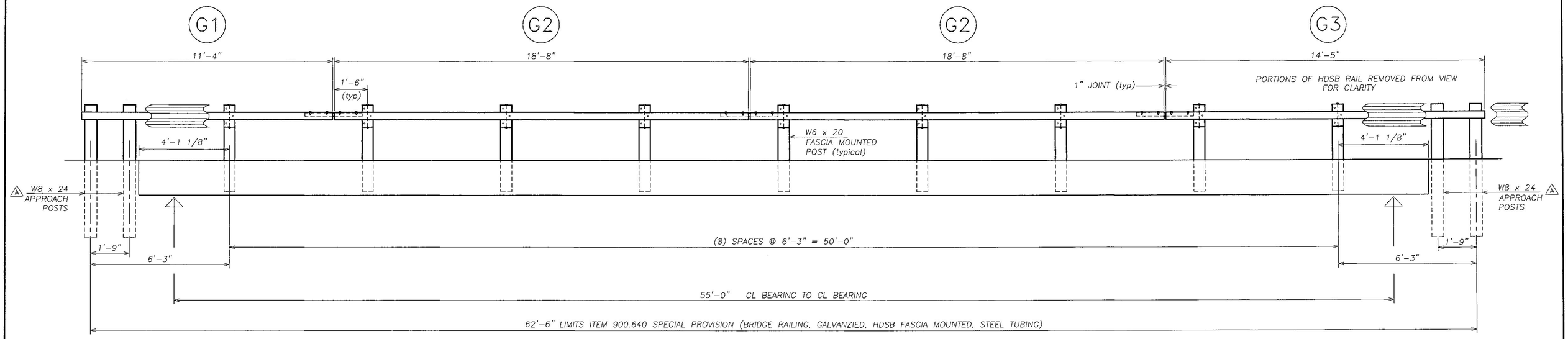
Seismic Energy Products, Inc.
STRUCTURAL BEARINGS FOR BRIDGES & BUILDINGS
ATHENS, TX PHONE: 903-675-8571

BEARING ASSY FOR:
STATE OF VERMONT AGENCY OF TRANSPORTATION

PROJECT NAME: GUILFORD
PROJECT NO.: BRO 1442(36)

CONTRACTOR: RENAUD BROS

DRAWN CWILLIAMS	DATE 2/11/13	PO # S. QTE
CHECKED .	DATE .	SO NO. & ST. 58878 VT
REVIEWED MSPELLMAN	DATE 3/25/14	SHEET 1 OF 1



TYPICAL ELEVATION – LOOKING AT FACE OF RAIL FROM CENTERLINE OF ROADWAY

BOTH SIDES TYPICAL

Vermont Agency of Transportation

RECEIVED

Guilford Bridge Rail-APPROVED.pdf

CK'D BY MJC OK'D BY TAS

April 14, 2014

RESUBMIT No Approved

BY M. J. Chenette DATE 04/24/2014

SHOP DRAWING REVIEW

☒ REVIEWED AS REQUIRED BY THE CONSTRUCTION CONTRACT DOCUMENTS AND APPROVED, BUT ONLY FOR CONFORMANCE TO THE DESIGN CONCEPT OF THE WORK, AND SUBJECT TO FURTHER LIMITATIONS AND REQUIREMENTS CONTAINED IN THE CONSTRUCTION CONTRACT DOCUMENTS.

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VHB *Vanasse Hangen Brustlin, Inc.*
7056 US Route 7
North Ferrisburgh, VT 05473
802.425.7788

Job Number: 57427.00
Reviewed By: E.A.FIALA
Date: 04-22-2014

⚠ BILL OF MATERIAL

Qty	mk	Description	Spec.
18		W6x20 FASCIA MOUNTED POST 3'-1.000" OAL (GLV)	A572 gr 50
8		W8x24 TRANSITION POST x 6 FT LONG (GLV)	A572 gr 50
52		TUBE BLOCK HSS 8 x 4 x 3/16 x 6.000" LG (GLV)	A500 gr B
10		HDSB W-BEAM PANEL 10 GA 12'-6" LG X 6'-3" SP (GALV)	M180 B2
6		SPLICE CHANNEL C7 X 12.25 x 2'-7.000" w/ (4) TACKWELDED HEX NUTS (GALV)	A572 gr 50
2	G1	TUBULAR STEEL RAIL (GLV) HSS 8 x 4 x 3/16 x 11'-4.000" OAL	A500 gr B
4	G2	TUBULAR STEEL RAIL (GLV) HSS 8 x 4 x 3/16 x 18'-8.000" OAL	A500 gr B
2	G3	TUBULAR STEEL RAIL (GLV) HSS 8 x 4 x 3/16 x 14'-5.000" OAL	A500 gr B
26		RECTANGULAR WASHER 0.1875" x 1.75" x 3.00" (GLV)	A572 GR 50
36		U-SHAPED ANCHOR STUD 1" DIA 10" x 12"	A449
72		PLATE WASHER 0.25" x 2" x 5" w/ 1.25" DIA CENTER HOLE	A572 GR 50
144		HEX NUT (HI STR) 1"	A563 DH
72		ROUND WASHER (SAE) 1"	F436
26		HEX HEAD BOLT 5/8" DIA x 13" LG HDG	A325
26		HEX HEAD BOLT 5/8" DIA x 10" LG HDG	A325
76		HEX HEAD BOLT 5/8" DIA x 2" LG HDG	A325
104		HEX NUT 5/8" HDG	A563 DH
206		ROUND WASHER SMALL FLAT 5/8" HDG	F436
80		PANEL SPLICE BOLT 5/8" x 1.25" HDG	A307
80		DOUBLE RECESS. NUT 5/8" HDG	A563 A

No.	Remarks	Date
A	CORRECTED TRANSITION POSTS / GEN NOTES	3/10/14
0	Initial submittal	03-03-14

REVISIONS

HIGHWAY SAFETY CORP
GLASTONBURY, CT
860-633-9445

900.640 SPECIAL PROVISION (BRIDGE RAILING GALVANIZED, HDSB FASCIA MOUNTED/STEEL TUBING)

TOWN OF GUILFORD, VT – WINDHAM COUNTY
RT TH10 BRIDGE 65 – BRO 1442(36)

AISC CERTIFIED FABRICATOR

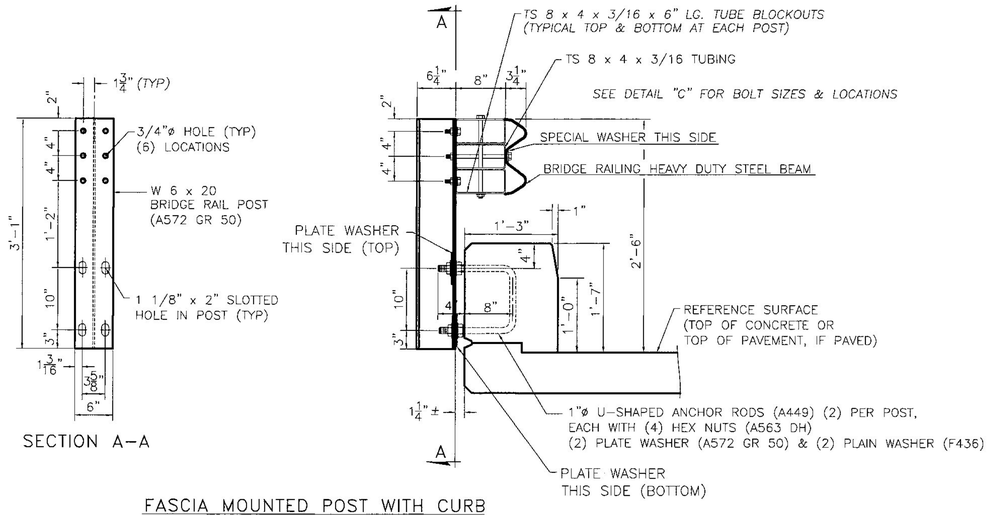
HSC JOB NO. 1977

SHEET NO. 1 of 2

GENERAL CONTRACTOR

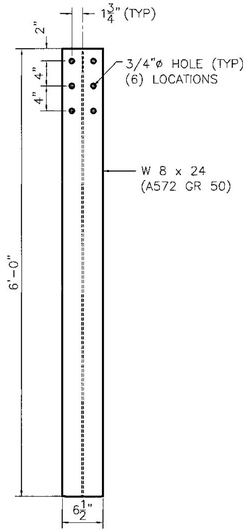
SUB CONTRACTOR LAFAYETTE

DRAWN PAR | CHECKED | DATE 03-03-14 | SCALE NONE | SIZE D



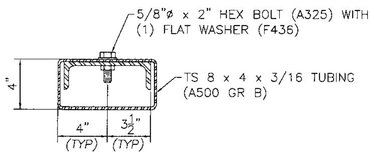
FASCIA MOUNTED POST WITH CURB

W6x20 (A572 GR 50)



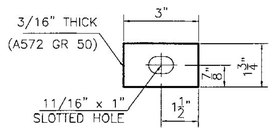
NOTES

1. ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 525
2. PRIOR TO GALVANIZING THE ASSEMBLED POST, GRIND ALL EDGES TO A MINIMUM 1/16" RADIUS
3. ALL POSTS SHALL BE SET NORMAL TO GRADE
4. SPLICES FOR THE STEEL BEAM GUARDRAIL SHALL LAP IN THE DIRECTION OF TRAFFIC
5. A RAILING JOINT SPLICE SHALL BE PROVIDED IN ANY RAIL BAY SPANNING THE END OF AN INTEGRAL ABUTMENT BRIDGE AND AT ALL SUPERSTRUCTURE EXPANSION JOINTS
6. (A) SEE VAOT STANDARD DRAWING G-1 FOR DETAILS OF DELINEATORS. A DELINEATOR SHALL BE INSTALLED AT 30 FT SPACING OR THE NEAREST POST. WHITE IS TO BE INSTALLED ON THE DRIVERS RIGHT. FOR THIS ONE WAY BRIDGE, YELLOW IS TO BE INSTALLED ON THE DRIVERS LEFT
7. FOR RADII LESS THAN 950 FEET, HSS 8 X 4 TUBES SHALL BE SHOP BENT TO FIT THE APPLICABLE CURVE
8. HOLES IN THE RAIL FOR TUBE ATTACHEMENT MAY BE FIELD DRILLED. FIELD DRILLED HOLES SHALL BE COATED WITH IN APPROVED ZINC RICH PAINT PRIOR TO INSTALLATION
9. SEE STANDARD G-1 AND G-1d FOR ADDITIONAL DETAILS CONCERNING GUARDRAIL.



PARTIAL SECTION B-B

SHOWING TUBE & SPLICE ONLY



SPECIAL WASHER DETAIL

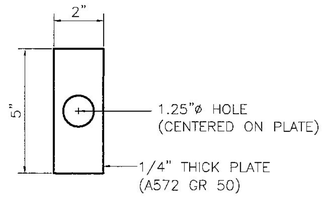
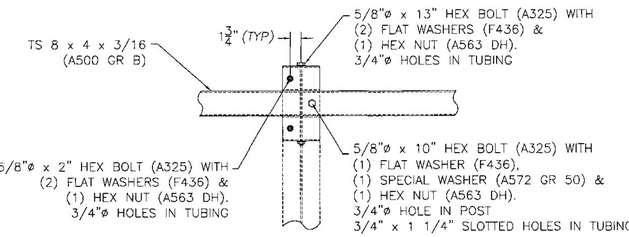


PLATE WASHER DETAIL

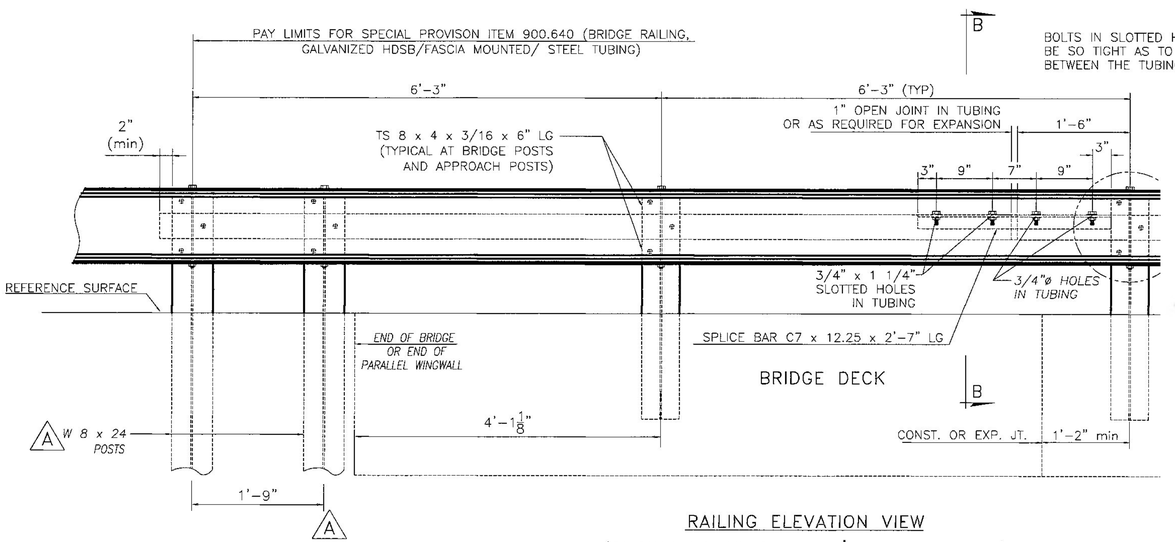
A TRANSITION POST

W8x24 (A572 GR 50)



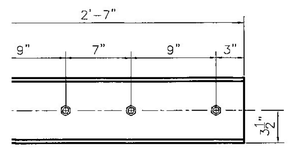
DETAIL "C"

STEEL BEAM GUARD RAIL NOT SHOWN



RAILING ELEVATION VIEW

(SHOWN LOOKING FROM ℄ WITHOUT CURB)



3/4"ø HOLE IN CHANNEL

TACKWELD 5/8" HEX NUT (A563 DH).
CLEAN THREADS AFTER GALV. (TYP)

E BAR DETAIL

SHOP DRAWING REVIEW

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802.425.7788

Job Number 57427.00
Reviewed By: E.A.FIALA
Date: 04-22-2014

HIGHWAY SAFETY CORP
GLASTONBURY, CT
860-633-9445

900.640 SPECIAL PROVISION (BRIDGE RAILING GALVANIZED, HDSB FASCIA MOUNTED/STEEL TUBING)

TOWN OF GUILFORD, VT – WINDHAM COUNTY
RT TH10 BRIDGE 65 – BRO 1442(36)

CERTIFIED FABRICATOR

HSC JOB NO. 1977

SHEET NO. 2 of 2

GENERAL CONTRACTOR

SUB CONTRACTOR LAFAYETTE

DRAWN	CHECKED	DATE	SCALE	SIZE
PAR		03-03-14	NONE	D

R.I.B. RENAUD BROS. INC.
STEEL SALES & FABRICATION
VERNON VT. USA

283 FT. BRIDGMAN RD. VERNON VT., 05354
PH. (802)257-7383 FAX (802)257-7308

WELDING PROCEDURE

NO. RB-GW-001

DATE: 4/8/2014	PROJECT NAME: GUILFORD
BY: A. DUNKLEE	PROJECT NO. BRO 1442(36)
AWS CODE:	PQR REF. NO: N/A

MATERIAL SPECIFICATION:	ASTM 709 GR. 36-50
WELDING PROCESS:	SMAW
MANUAL, SEMI-AUTOMATIC OR AUTOMATIC:	MANUAL
WELDING POSITION:	1G
FILLER METAL SPECIFICATION:	ANSI/AWS A5.1-A5.5
FILLER METAL CLASSIFICATION:	E7018
FLUX:	N/A
SHIELDING GAS:	N/A
FLOW RATE:	N/A
SINGLE OR MULTIPLE PASS:	MULTIPLE
SINGLE OR MULTIPLE ARC:	SINGLE
WELDING CURRENT:	DC
WELDING POLARITY:	ELECTRODE POSITIVE
WELDING PROGRESSION:	N/A
ROOT TREATMENT:	REMOVE ALL IMPURITIES & GALV.
PREHEAT & INTERPASS TEMPERATURE:	$\geq 1\frac{1}{2}$"=70°F $1\frac{1}{2}$"-$2\frac{1}{2}$"=150°F OVER $2\frac{1}{2}$"=225°F
POSTHEAT TREATMENT:	N/A
HEAT INPUT:	MIN: N/A MAX: N/A
ELECTRODE STICKOUT:	N/A

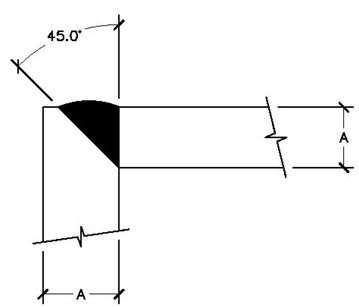
Vermont Agency of Transportation
RECEIVED
CK'D BY MJC OK'D BY JWC
May 30, 2014
RESUBMIT No Approved
BY M. J. Chenette DATE 06/05/2014

APPROVAL STAMP

PASS NO.	ELECTRODE SIZE:	WELDING CURRENT AMPS	WELDING CURRENT VOLTS	TRAVEL SPEED
AS REQ.	3/32"	70-110		ADJUST AS REQ.
	1/8"	70-170		

NOTES:
MIN. WELD SIZE- 5/16"
GRIND ALL BURRS, ENSURE FLUSH POINT FIT.
PILE GRADE: A572-50

JOINT DETAIL: HP14X89 PILE POINT



A- VARIES (ADJUST PREHEAT TEMP AS REQ.)

R.I.B. RENAUD BROS. INC.
STEEL SALES & FABRICATION
VERNON VT. USA

283 FT. BRIDGMAN RD. VERNON VT., 05354
PH. (802)257-7383 FAX (802)257-7308

WELDING PROCEDURE

NO. RB-FW-001

SHEET: 2 OF 4

DATE: 4/8/2014	PROJECT NAME: GUILFORD
BY: A. DUNKLEE	PROJECT NO. BRO 1442(36)
AWS CODE:	PQR REF. NO: N/A

MATERIAL SPECIFICATION:	ASTM 572 GR. 50
WELDING PROCESS:	SMAW
MANUAL, SEMI-AUTOMATIC OR AUTOMATIC:	MANUAL
WELDING POSITION:	ALL
FILLER METAL SPECIFICATION:	ANSI/AWS A5.1-A5.5
FILLER METAL CLASSIFICATION:	E7018
FLUX:	N/A
SHIELDING GAS:	N/A
SINGLE OR MULTIPLE PASS:	MULTIPLE
SINGLE OR MULTIPLE ARC:	SINGLE
WELDING CURRENT:	DC
WELDING POLARITY:	ELECTRODE POSITIVE
WELDING PROGRESSION:	N/A
ROOT TREATMENT:	REMOVE ALL IMPURITIES & GALV.
PREHEAT & INTERPASS TEMPERATURE:	$\geq 1\frac{1}{2}$"=70°F $1\frac{1}{2}$"-$2\frac{1}{2}$"=150°F OVER $2\frac{1}{2}$"=225°F
POSTHEAT TREATMENT:	N/A
HEAT INPUT:	MIN: N/A MAX: N/A
ELECTRODE STICKOUT:	N/A

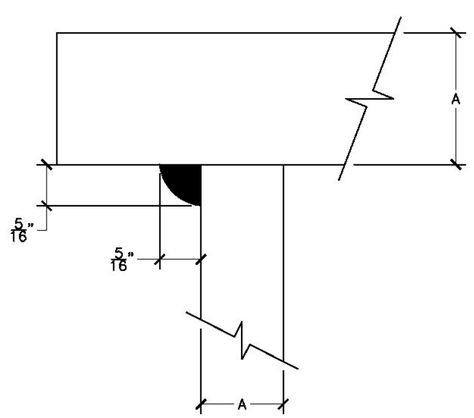
Vermont Agency of Transportation
RECEIVED
CK'D BY MJC OK'D BY JWC
May 30, 2014
RESUBMIT No Approved
BY M. J. Chenette DATE 06/05/2014

APPROVAL STAMP

PASS NO.	ELECTRODE SIZE:	WELDING CURRENT AMPS	WELDING CURRENT VOLTS	TRAVEL SPEED
AS REQ.	3/32"	70-110		ADJUST AS REQ.
	1/8"	70-170		

NOTES:
ALL MATERIAL TO BE A572 GR. 50
PILE CAP SIZE: 1"X14"X14"
GRIND SURFACES FLAT AND SMOOTH PRIOR TO WELDING

JOINT DETAIL: HP 14X89 PILE CAP



A- VARIES (ADJUST PREHEAT TEMP AS REQ.)

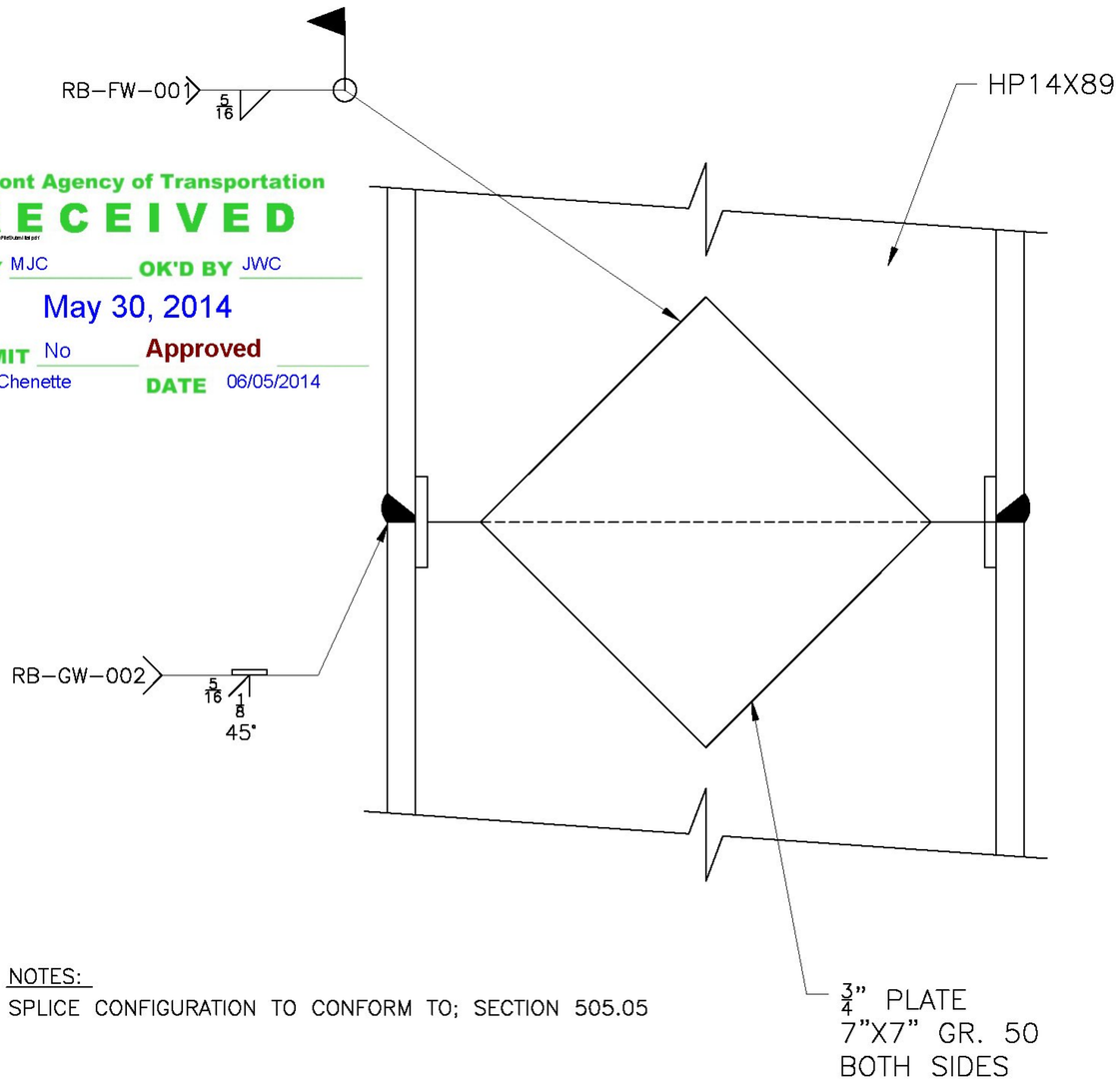
R.I.B. RENAUD BROS. INC.
STEEL SALES & FABRICATION
VERNON VT. USA
283 FT. BRIDGMAN RD. VERNON VT., 05354
PH. (802)257-7383 FAX (802)257-7308

WELDING PROCEDURE

NO. SPLICE DETAIL

SHEET: 3 OF 4

DATE: 4/8/2014	PROJECT NAME: GUILFORD
BY: A. DUNKLEE	PROJECT NO. BRO 1442(36)
AWS CODE:	PQR REF. NO: N/A



NOTES:
SPLICE CONFIGURATION TO CONFORM TO; SECTION 505.05

R.B. RENAUD BROS. INC.
STEEL SALES & FABRICATION
VERNON VT. USA

283 FT. BRIDGMAN RD. VERNON VT., 05354
PH. (802)257-7383 FAX (802)257-7308

WELDING PROCEDURE

NO. RB-GW-002

SHEET: 4 OF 4

DATE: 4/8/2014	PROJECT NAME: GUILFORD
BY: A. DUNKLEE	PROJECT NO. BRO 1442(36)
AWS CODE:	PQR REF. NO: N/A

MATERIAL SPECIFICATION:	ASTM 572 GR. 50
WELDING PROCESS:	SMAW
MANUAL, SEMI-AUTOMATIC OR AUTOMATIC:	MANUAL
WELDING POSITION:	2G
FILLER METAL SPECIFICATION:	ANSI/AWS A5.1-A5.5
FILLER METAL CLASSIFICATION:	E7018
FLUX:	N/A
SHIELDING GAS:	N/A
FLOW RATE:	N/A
SINGLE OR MULTIPLE PASS:	MULTIPLE
SINGLE OR MULTIPLE ARC:	SINGLE
WELDING CURRENT:	DC
WELDING POLARITY:	ELECTRODE POSITIVE
WELDING PROGRESSION:	N/A
ROOT TREATMENT:	REMOVE ALL IMPURITIES & GALV.
PREHEAT & INTERPASS TEMPERATURE:	$\geq 1\frac{1}{2}$"=70°F $1\frac{1}{2}$"-$2\frac{1}{2}$"=150°F OVER $2\frac{1}{2}$"=225°F
POSTHEAT TREATMENT:	N/A
HEAT INPUT:	MIN: N/A MAX: N/A
ELECTRODE STICKOUT:	N/A

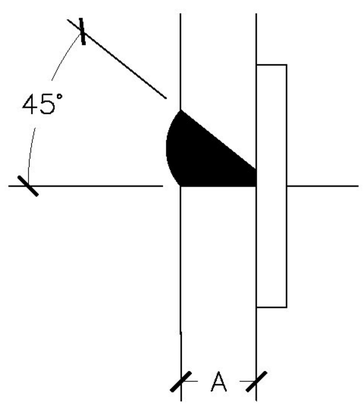
Vermont Agency of Transportation
RECEIVED
CK'D BY MJC OK'D BY JWC
May 30, 2014
RESUBMIT No Approved
BY M. J. Chenette DATE 06/05/2014

APPROVAL STAMP

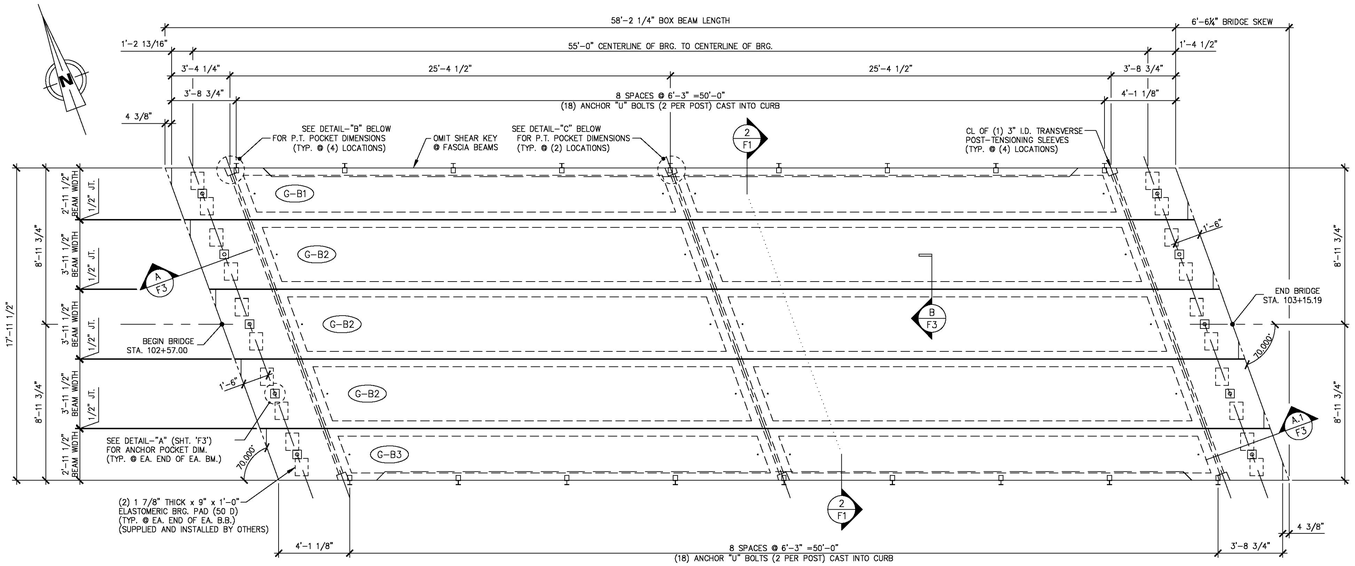
PASS NO.	ELECTRODE SIZE:	WELDING CURRENT AMPS	WELDING CURRENT VOLTS	TRAVEL SPEED
AS REQ.	3/32"	70-110		ADJUST AS REQ.
	1/8"	70-170		

NOTES:
ALL MATERIAL TO BE A572 GR. 50
ROOT OPENING- 1/8" MIN.
1/4"X2" BACKING STRIP

JOINT DETAIL: HP 14X89 PILE SPLICE



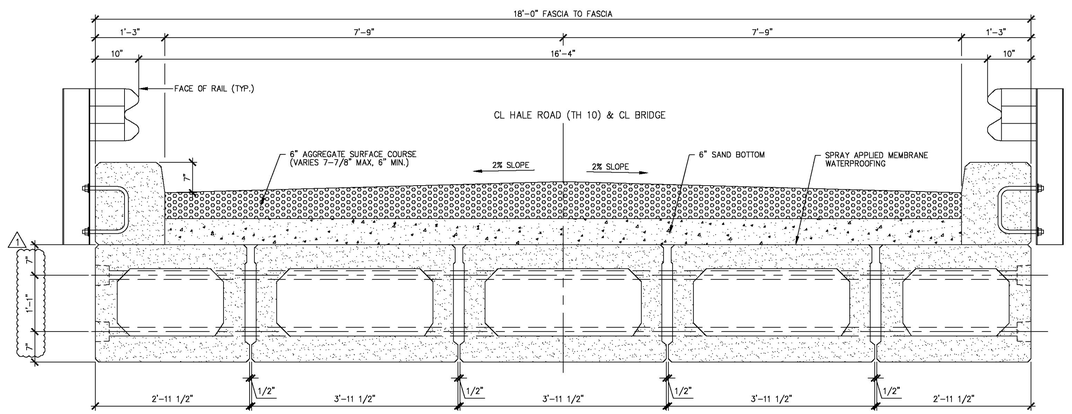
A- VARIES (ADJUST PREHEAT TEMP AS REQ.)



1 / F1 PRESTRESSED BOX BEAM LAYOUT

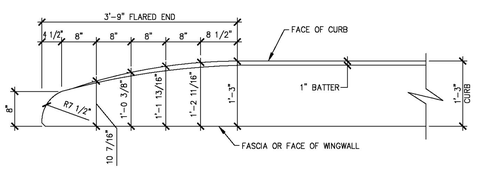
1/4" = 1'-0"

DESIGN LIVE LOAD: HL-93



2 / F2 APPROACH SLAB TRANSVERSE SECTION

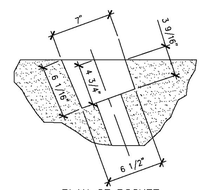
3/4" = 1'-0"



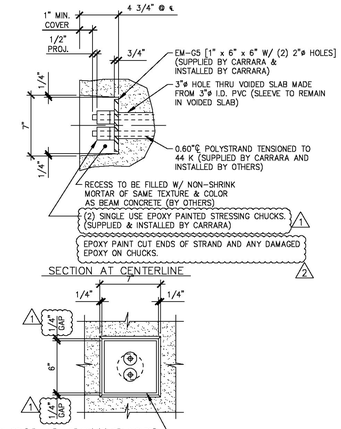
CURB REINFORCING STIRRUP BARS SHALL BE TURNED AS REQUIRED TO FIT FLARED ENDS

FLARED END DETAIL FOR 1'-3" CURB

3/4" = 1'-0"



PLAN OF POCKET

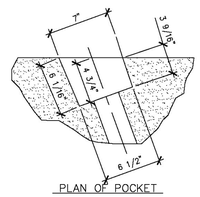


SECTION AT CENTERLINE

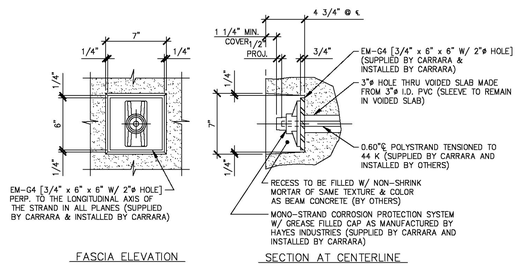
FASCIA ELEVATION

DETAIL – "C"

1 1/2" = 1'-0"



PLAN OF POCKET



FASCIA ELEVATION

SECTION AT CENTERLINE

DETAIL – "B"

1 1/2" = 1'-0"

GENERAL NOTES

1. MIN. CONCRETE STRENGTH AT 28 DAYS SHALL BE 6,000 PSI.
2. MIN. CONCRETE STRENGTH AT STRESS TRANSFER SHALL BE 4,800 PSI.
3. REINFORCING STEEL SHALL BE GR-60, ASTM A-615 (AASHTO M31) AND SHALL BE BLACK BAR WITH THE EXCEPTION OF REINFORCEMENT IN BOX BEAMS AND CURBS WHICH SHALL BE LEVEL II – DUAL COATED
4. PRESTRESSING STRANDS SHALL CONFORM TO ASTM A-416 (AASHTO M203) AND SHALL CONSIST OF 0.60"ø x 270 KSI 7-WIRE LOW RELAXATION STRANDS.
5. PRESTRESSING STRANDS SHALL EACH BE PULLED TO HAVE A NET TENSION OF 44.0 K AFTER ACCOUNTING FOR CHUCK SLIPPAGE. TENSION SHALL BE VERIFIED BY MEASURING STRAND ELONGATION. (SEE EXAMPLE ELONGATION CALCULATION AND TENSIONING PROCEDURE, THIS SHEET.)
6. ENDS OF PRESTRESSING STRANDS SHALL BE RECESSED 3/4" AND PATCHED WITH AN APPROVED GROUT.
7. ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4".
8. THE TOP OF BEAMS SHALL RECEIVE A SMOOTH FLOAT FINISH, U.N.O.
9. SHEAR KEY SURFACES SHALL BE SAND BLASTED CLEAN.
10. BEAMS SHALL BE HANDLED AND ERECTED USING THE LIFTING LOOPS ONLY. THE PINS OF THE SHACKLES SHALL BE PLACED THOUGH THE LIFTING LOOPS. SEE DETAIL, SHEET "F3". BEAMS SHALL BE STORED AND TRANSPORTED WITH TIMBER SUPPORTS WITHIN 2'-0" OF THE BEAM ENDS, UNLESS APPROVED BY J.P. CARRARA & SONS, INC.
11. MATERIAL SPECIFICATION AND MIX DESIGN SHALL CONFORM TO VERMONT SPEC. P.540.05 2
    DESIGN MIX : J.P.C. BRIDGE MIX #425M (NO DCI)
12. QUALITY CONTROL PROCEDURES ARE IN ACCORDANCE WITH PCI REQUIREMENTS. J.P. CARRARA & SONS, INC. IS A PCI CERTIFIED PLANT.
13. CURING METHOD: AS SOON AS THE TOP OF BEAM IS FINISHED, A COVER OF POLY AND A LAYER OF HOMOSOTE (OR BLUE BOARD) WILL BE PLACED OVER THE BEAM. THE DESIRED CURING TEMPERATURE RANGE SHALL NOT DROP BELOW 70°F. THE TEMPERATURE SHALL BE RECORDED BY AUTOMATIC SENSOR INSTRUMENTS ON GRAPH CHARTS, SPACED NOT MORE THAN 100' APART AND WILL CONTINUE UNTIL RELEASE STRENGTH IS ACHIEVED, (NATURAL CURE WITH NO EXTERNAL HEAT APPLIED). EACH CHART SHALL BE MARKED.
14. TRANSVERSE POST-TENSTIONING SEQUENCE:
    A. ERECT BOX BEAMS, AND POST-TENSION TENDONS TO APPROXIMATELY 5,000 LBS.
    B. GROUT SHEAR KEYS.
    C. ONCE SHEAR KEY GROUT HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 1,500 PSI; POST-TENSION TENDONS TO 44,000 LBS. FOR EACH 0.60"ø STRAND.

EXAMPLE PRESTRESSING STRAND ELONGATION CALC. AND TENSIONING

(NOT TO BE USED FOR CONSTRUCTION)

SIZE & GRADE: 0.60" DIA. x 270 KSI
AREA: 0.217 IN^2
TENSION: 44,000 LB. EACH STRANDS
GRIP-TO-GRIP: 192'-9 3/4" = 192.813'
Es = 28,600,000 PSI (ASSUMED FOR THESE CALCULATIONS; VALUE TO BE OBTAINED FOR STRAND SPOOL ACTUALLY USED)

EXAMPLE:

$$\Delta = \frac{PL}{AE} = \frac{(44{,}000 - 3{,}000) \times 192.813 \times 12}{0.217 \times 28{,}600{,}000} = 15.29"$$

THEREFORE: (TOLERANCES ∈ 5%)
Δ UPPER LIMIT = 1.05 x 15.29" = 16.05" = 16 1/16"
Δ LOWER LIMIT = 0.95 x 15.29" = 14.53" = 14 1/2"

EXTRA FORCE REQUIRED TO COMPENSATE FOR 1/2" CHUCK SLIPPAGE:

$$\Delta P = \frac{0.5 \times 41{,}000}{15.29} = 1{,}340 \text{ LBS.}$$

TOTAL TENSIONING FORCE = 44,000 + 1,340 = 45,340 LBS.

STRAND TENSIONING PROCEDURE:

1. PULL EACH STRAND INITIALLY TO 3,000* LBS. AND MARK STRAND.
2. THEN PULL EACH STRAND TO A TOTAL TENSION OF 45,340* LBS. AND MEASURE ELONGATION AFTER SEATING. IT MUST BE BETWEEN 14 1/2" & 16 1/16".

* NOTE: FORCES READ ON STRESSING JACK GAUGES MUST BE MADE TO CORRESPOND TO ABOVE VALUES BASED ON CALIBRATION DATA FOR SPECIFIC JACK USED.

SHOP DRAWING REVIEW

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VHB *Vanasse Hangen Brustlin, Inc.*
7056 US Route 7
North Ferrisburgh, VT 05473
802.425.7788

Job Number: 57427.00
Reviewed By: S.E. Burbank
Date: 06/19/2014

Vermont Agency of Transportation

RECEIVED

Outlined BRO 1442 (26) - Precast Submittal 003.pdf

CK'D BY MJC OK'D BY TAS

June 18, 2014

RESUBMIT No Approved

BY M. J. Chenette DATE 06/19/2014

Eriksson technologies
813.989.3317
TAMPA, FL LRFD.COM

1 4-7-14 REVISED AS NOTED
2 5-6-14 REVISED AS NOTED

APPROVAL STAMP:

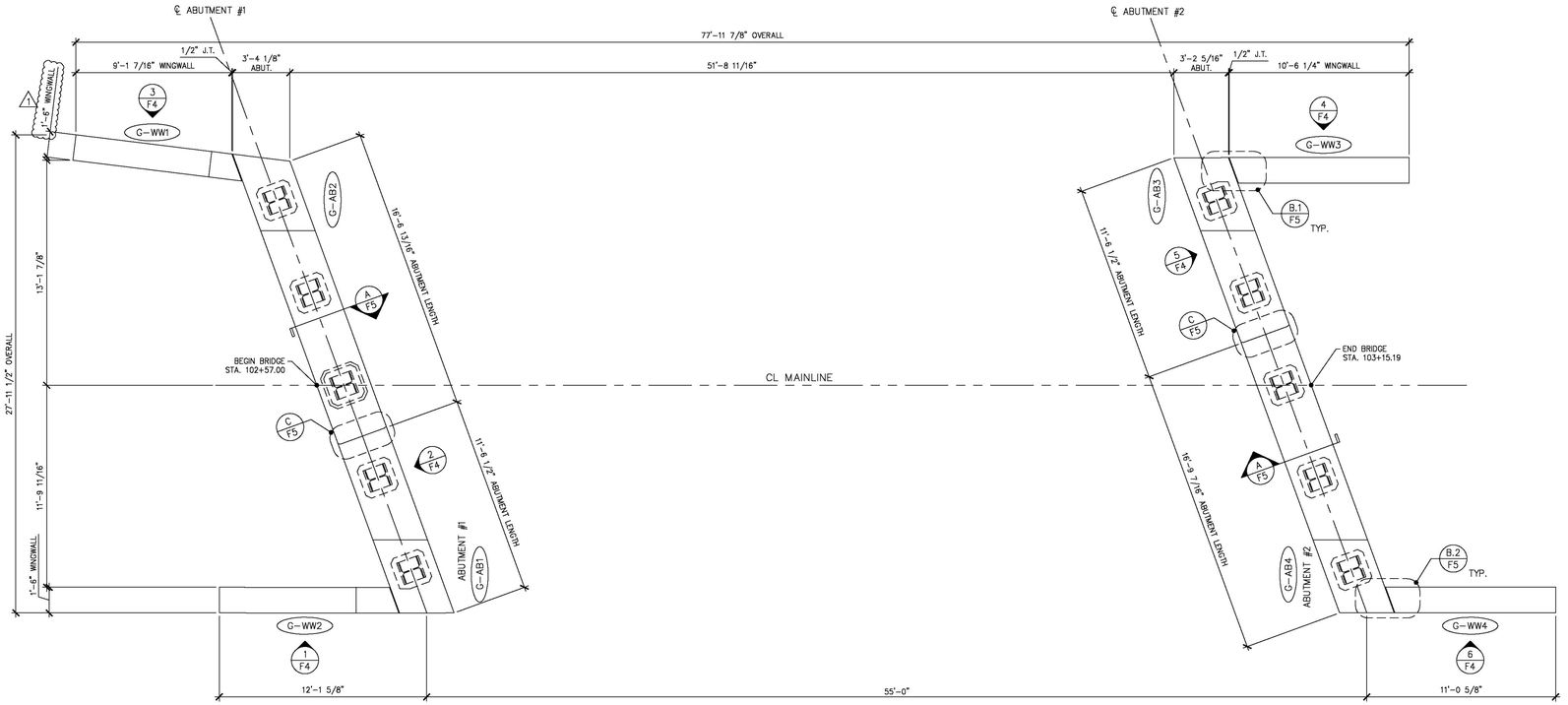
J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer N.T.S.
2464 CAGE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDHAM

TOWN OF GUILFORD
ROUTE NO. T.H.10, CLASS III (LOCAL ROAD)
BRIDGE NO.: 65 PROJECT NO.: BRO 1442 (36)

SUPERSTRUCTURE PLANS

DATE: MAR. 04, 2014
SCALE: NOTED
CHKD: JJ/KLT DFTM:AAT/RWS
JOB NO: 23420-014
DWG. NO: F1



1/F2 PRECAST CONCRETE ABUTMENT & WING WALL LAYOUT

1/4" = 1'-0"

ABUTMENT & WING WALL GENERAL NOTES

1. MIN. CONCRETE STRENGTH AT 28 DAYS SHALL BE 5,000 PSI.
2. MIN. CONCRETE STRENGTH AT STRESS TRANSFER SHALL BE 3,500 PSI.
3. REINFORCING STEEL SHALL BE GR-60, ASTM A-615 (AASHTO M31).
4. THE TOP OF ABUTMENTS SHALL RECEIVE A SMOOTH FLOAT FINISH. △1
5. All EDGES OF ABUTMENT SHALL RECEIVE A 1" CHAMFER (U.N.O.) △1
6. THE TOP OF WING WALLS SHALL RECEIVE A SMOOTH FLOAT FINISH (UNLESS NOTED OTHERWISE).
7. SHEAR KEY SURFACES SHALL BE BLASTED CLEAN.
8. PRECAST CONCRETE UNITS SHALL BE HANDLED AND ERECTED USING THE LIFTING INSERTS ONLY. THE MINIMUM SLING ANGLE FROM THE HORIZONTAL SHALL BE 60°. NON-PRESTRESSED UNITS SHALL BE STORED & TRANSPORTED WITH TIMBER SUPPORTS AT 5th POINTS, UNLESS APPROVED BY J.P. CARRARA & SONS, INC.
9. MATERIAL SPECIFICATION AND MIX DESIGN SHALL CONFORM TO VERMONT SPEC. P540.05. △2

   DESIGN MIX:
   - WING WALLS: J.P.C. BRIDGE MIX #445M5CC
   - ABUTMENTS: J.P.C. BRIDGE MIX #445M5CC
10. QUALITY CONTROL PROCEDURES ARE IN ACCORDANCE WITH PCI REQUIREMENTS. J.P. CARRARA & SONS, INC. IS A PCI CERTIFIED PLANT.
11. CURING METHOD: AS SOON AS THE TOP OF PRECAST CONCRETE UNITS ARE FINISHED, A COVER OF RIGID INSULATION AND POLY WILL BE PLACED OVER THE UNIT. NATURAL CURE WITH NO EXTERNAL HEAT APPLIED.
12. ABUTMENT POST-TENSIONING SEQUENCE:
    - A. ERECT PRECAST CONCRETE ABUTMENTS, AND POST-TENSION CENTER TENDON TO APPROXIMATELY 3,000 LBS.
    - B. GROUT SHEAR KEY.
    - C. ONCE SHEAR KEY GROUT HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 1,500 PSI; POST-TENSION TENDONS TO 32,000 LBS. △2

Vermont Agency of Transportation

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CK'D BY MJC OK'D BY TAS

June 18, 2014

RESUBMIT No Approved

BY M. J. Chenette DATE 06/19/2014

SHOP DRAWING REVIEW

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Vanasse Hangen Brustlin, Inc.
7056 US Route 7
North Ferrisburgh, VT 05473
802.425.7788

Job Number: 57427.00
Reviewed By: S.E. Burbank
Date: 06/19/2014

△1 4-7-14 REVISED AS NOTED
△2 5-6-14 REVISED AS NOTED

APPROVAL STAMP:

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer N.T.S.
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDHAM

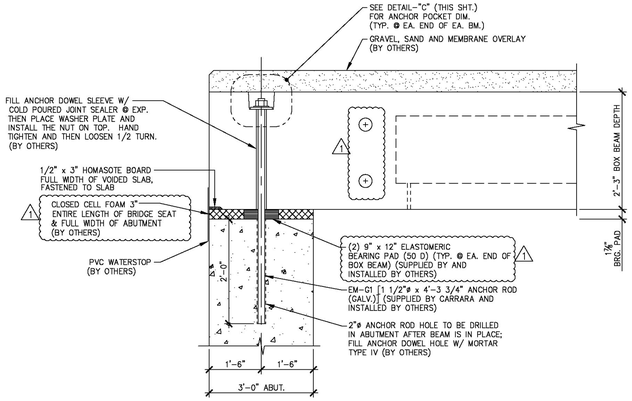
TOWN OF GUILFORD
ROUTE NO. T.H.10, CLASS III (LOCAL ROAD)
BRIDGE NO.: 65 PROJECT NO.: BRO 1442 (36)

SUBSTRUCTURE PLANS

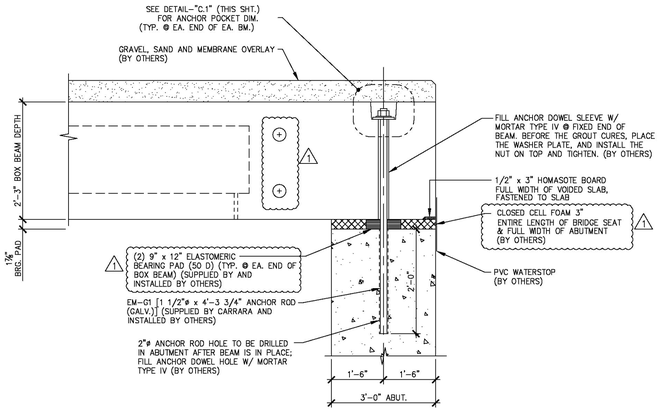
DATE: MAR. 04, 2014
SCALE: NOTED
CHKD: JJ/KLT DFTM:AAT/RWS
JOB NO: 23420-014
DWG. NO: F2

Eriksson technologies
813.989.3317
TAMPA, FL LRFD.COM

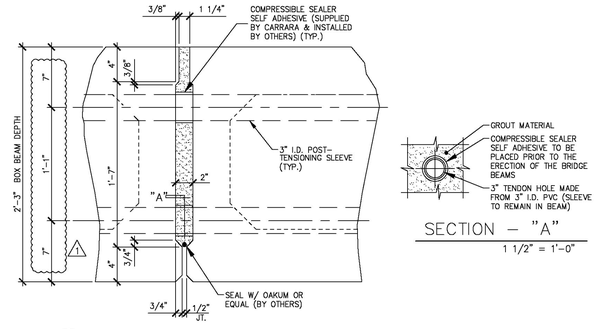
S:\Engineering Services\Carrara\14001 - Guilford Bridge 65\Production Drawings\AutoCAD Files\144236-F1.dwg, 5/6/2014 4:44:16 PM, DWG To PDF.pc3



A F2 BEARING SECTION (EXP. END) 3/4" = 1'–0"



A.1 F2 BEARING SECTION (FIXED END) 3/4" = 1'–0"



SECTION – "A" 1 1/2" = 1'–0"

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

Vermont Agency of Transportation

RECEIVED

Guilford BRO 1442 (16) - Precast Submittal 003.pdf

CK'D BY MJC OK'D BY TAS

June 18, 2014

RESUBMIT No Approved

BY M. J. Chenette DATE 06/19/2014

SHOP DRAWING REVIEW

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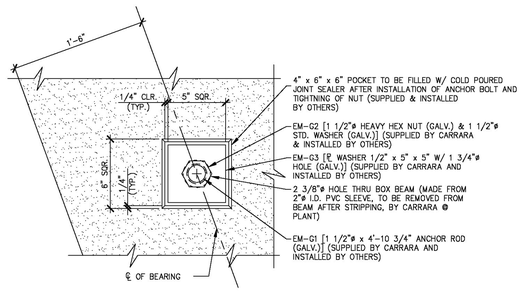
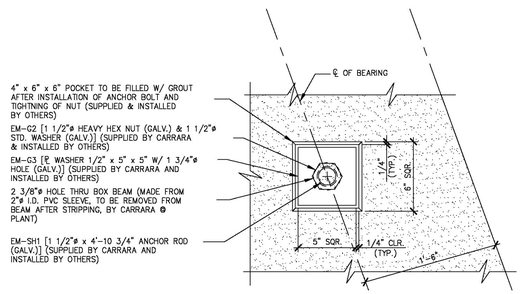
VHB Vanasse Hangen Brustlin, Inc. 7056 US Route 7, North Ferrisburgh, VT 05473 802.425.7788

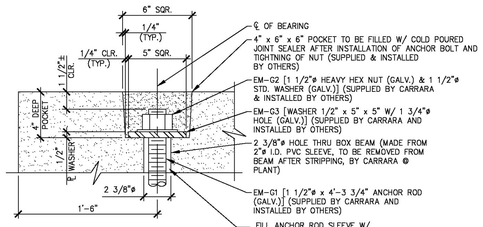
Job Number: 57427.00 Reviewed By: S.E. Burbank Date: 06/19/2014



PLAN @ BEAM ℄

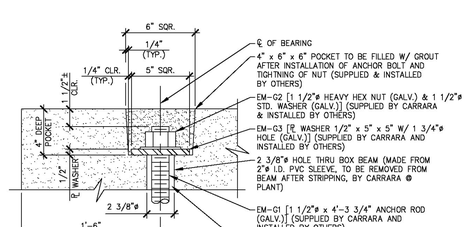


PLAN @ BEAM ℄



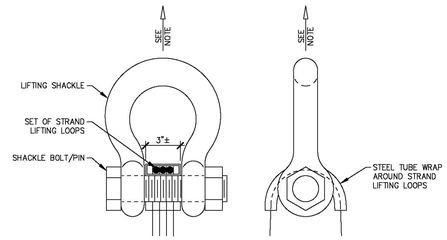
SECTION @ BEAM ℄

DETAIL – "C" 2" = 1'–0"



SECTION @ BEAM ℄

DETAIL – "C.1" 2" = 1'–0"



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

LIFTING SHACKLE DETAILS

⚠1 NOTE -DUNNAGE SHALL BE PLACED UNDER BEAMS AT LOCATION OF LIFT LOOPS FOR STORAGE & SHIPPING.

⚠1 4–7–14 REVISED AS NOTED

APPROVAL STAMP:

J.P. CARRARA & SONS INC.

Precast & Prestress Manufacturer N.T.S.

2464 DIKE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388–6361 Fax:(802)388–9010

STATE OF VERMONT AGENCY OF TRANSPORTATION COUNTY OF WINDHAM	DATE: MAR. 04, 2014 SCALE: NOTED
TOWN OF GUILFORD ROUTE NO. T.H.10, CLASS III (LOCAL ROAD) BRIDGE NO.: 65 PROJECT NO.: BRO 1442 (36)	CHKD: JJJ/KLT DFTM:AAT/RWS JOB NO: 23420–014
SUPERSTRUCTURE PLANS	DWG. NO: F3

Eriksson technologies 813.989.3317 TAMPA, FL LRFD.COM

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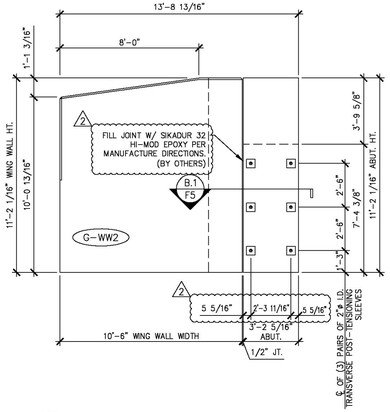
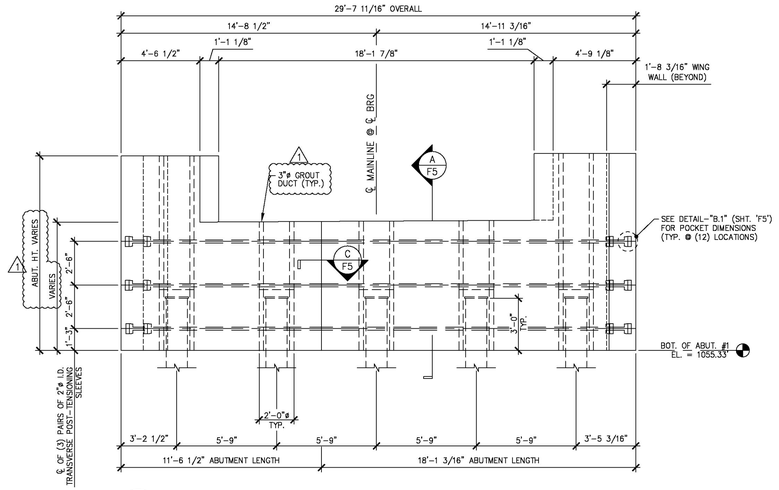
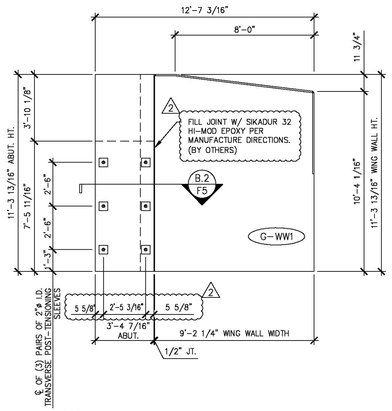


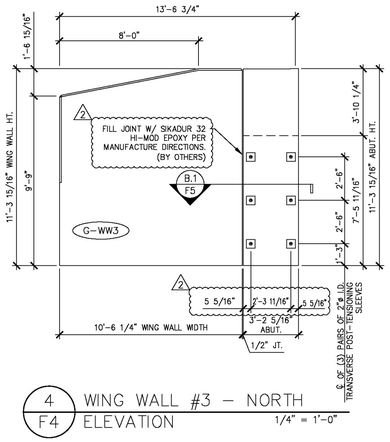
1 F4 WING WALL #2 – SOUTH ELEVATION 1/4" = 1'-0"



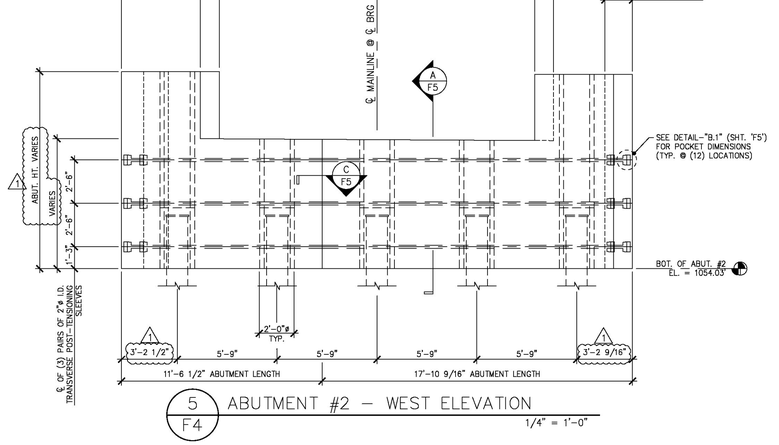
2 F4 ABUTMENT #1 – EAST ELEVATION 1/4" = 1'-0"



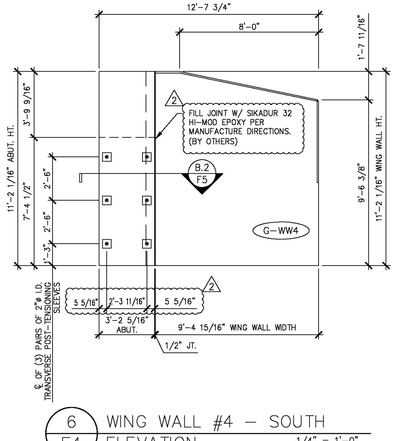
3 F4 WING WALL #1 – NORTH ELEVATION 1/4" = 1'-0"



4 F4 WING WALL #3 – NORTH ELEVATION 1/4" = 1'-0"



5 F4 ABUTMENT #2 – WEST ELEVATION 1/4" = 1'-0"



6 F4 WING WALL #4 – SOUTH ELEVATION 1/4" = 1'-0"

Vermont Agency of Transportation

RECEIVED

Guilford BRO 1442 (36) - Precast Submittal 003.pdf

CK'D BY MJC OK'D BY TAS

June 18, 2014

RESUBMIT No Approved

BY M. J. Chenette DATE 06/19/2014

SHOP DRAWING REVIEW

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VHB *Vanasse Hangen Brustlin, Inc.*
7056 US Route 7
North Ferrisburgh, VT 05473
802.425.7788

Job Number 57427.00
Reviewed By: S.E. Burbank
Date: 06/19/2014

Eriksson technologies
813.989.3317
TAMPA, FL LRFD.COM

1 4-7-14 REVISED AS NOTED
2 5-6-14 REVISED AS NOTED

APPROVAL STAMP:

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer N.T.S.
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDHAM

TOWN OF GUILFORD
ROUTE NO. T.H.10, CLASS III (LOCAL ROAD)
BRIDGE NO.: 65 PROJECT NO.: BRO 1442 (36)

ABUTMENT ELEVATIONS

DATE: MAR. 04, 2014
SCALE: NOTED
CHKD: JJJ/KLT DFTM:AAT/RWS
JOB NO: 23420-014
DWG. NO: F4

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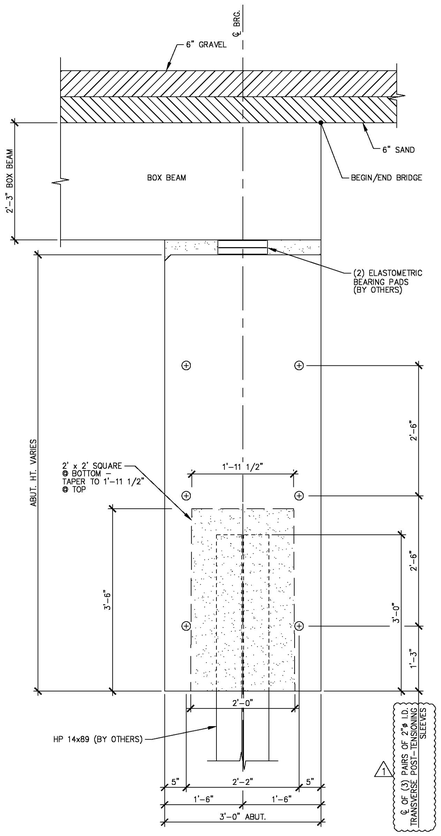
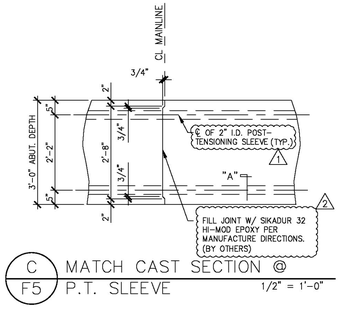
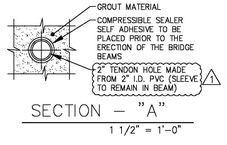


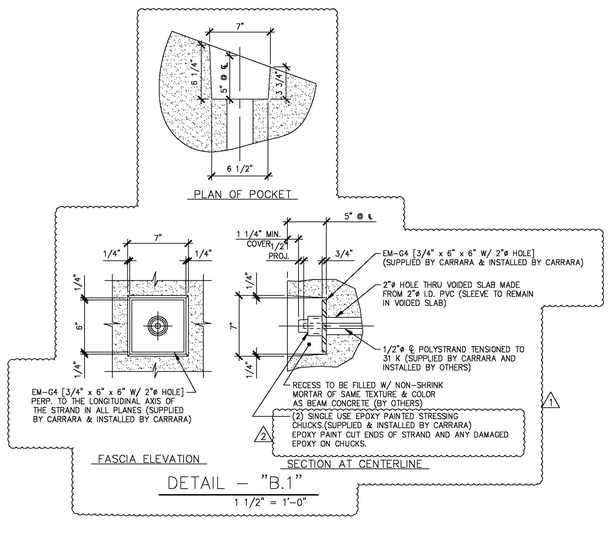
A F5 BEARING SECTION
NEXT BEAM STEM BEARING 3/4" = 1'-0"



C F5 MATCH CAST SECTION @ P.T. SLEEVE
1/2" = 1'-0"



SECTION — "A"
1 1/2" = 1'-0"



DETAIL — "B.1"
1 1/2" = 1'-0"

Vermont Agency of Transportation
RECEIVED
Guilford BRO 1442 (36) - Precast Submittal 003.pdf

CK'D BY MJC OK'D BY TAS

June 18, 2014

RESUBMIT No Approved

BY M. J. Chenette DATE 06/19/2014

SHOP DRAWING REVIEW

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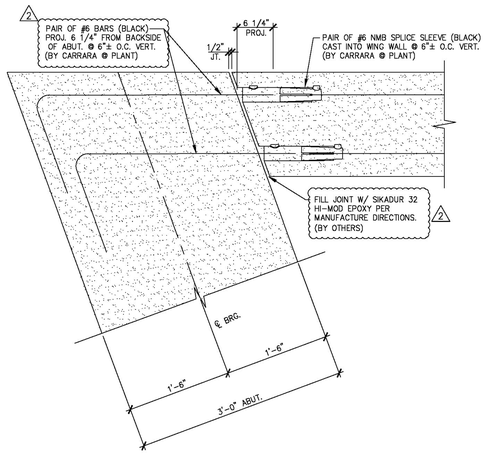
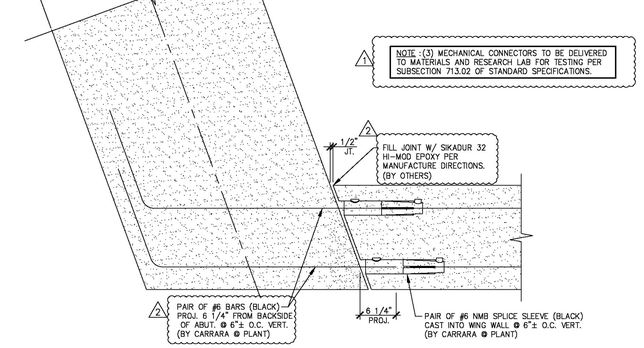
VHB Vanasse Hangen Brustlin, Inc.
7056 US Route 7
North Ferrisburgh, VT 05473
802.425.7788

Job Number: 57427.00
Reviewed By: S.E. Burbank
Date: 06/19/2014



B.1 F5 WING WALL CONNECTION DETAIL
1" = 1'-0"



B.2 F5 WING WALL CONNECTION DETAIL
1" = 1'-0"

1 4-7-14 REVISED AS NOTED
2 5-6-14 REVISED AS NOTED

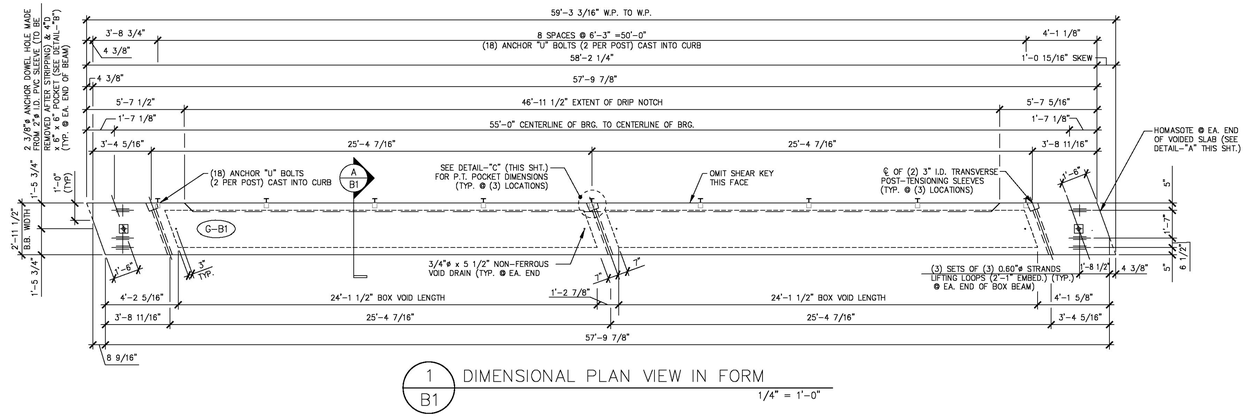
APPROVAL STAMP:

Eriksson technologies
813.989.3317
TAMPA, FL LRFD.COM

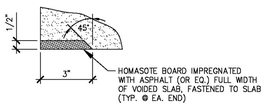
J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer N.T.S.
2464 OAKE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

STATE OF VERMONT AGENCY OF TRANSPORTATION COUNTY OF WINDHAM	DATE: MAR. 04, 2014 SCALE: NOTED
TOWN OF GUILFORD ROUTE NO. T.H.10, CLASS III (LOCAL ROAD) BRIDGE NO.: 65 PROJECT NO.: BRO 1442 (36)	CHKD: JJJ/KLT DFTM:AAT/RWS JOB NO: 23420-014
ABUTMENT DETAILS	DWG. NO: F5

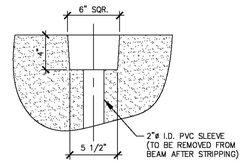
S:\Engineering Services\Carrara\14001 - Guilford Bridge 65\Production Drawings\AutoCAD Files\144236-F1.dwg, 5/6/2014 4:44:17 PM, DWG To PDF.pc3



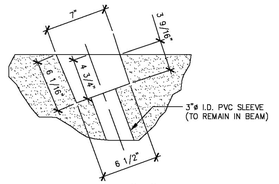
1/B1 DIMENSIONAL PLAN VIEW IN FORM
1/4" = 1'-0"



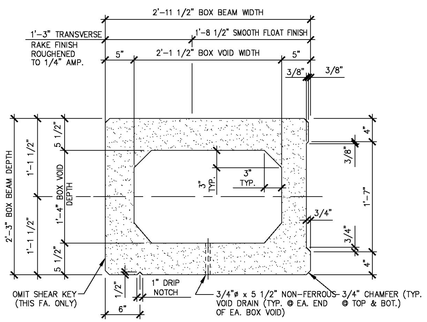
DETAIL – "A"
3" = 1'-0"



DETAIL – "B"
1 1/2" = 1'-0"



DETAIL – "C"
1 1/2" = 1'-0"



A/B1 DIMENSIONAL SECTION
1" = 1'-0"

Vermont Agency of Transportation

RECEIVED

Guilford BRO 1442 (36) - Precast Submittal 003.pdf

CK'D BY MJC OK'D BY TAS

June 18, 2014

RESUBMIT No Approved

BY M. J. Chenette DATE 06/19/2014

SHOP DRAWING REVIEW

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VHB *Vanasse Hangen Brustlin, Inc.*
7056 US Route 7
North Ferrisburgh, VT 05473
802.425.7788

Job Number: 57427.00
Reviewed By: S.E. Burbank
Date: 06/19/2014

SHOP NOTE:
SEE SHEET "B1A" FOR REINFORCING DETAILS.

MARK: G-B1	QTY.: 1	WT.: 26.71 T	VOL.: 13.19 cy

MATERIAL LIST / BEAM

ITEM	MARK	DESCRIPTION	QTY./BEAM G-B1	
1				
2				
3				
4				
5				
6				
7		3/4"ø x 5 1/2" NON-FERROUS VOID DRAIN	4	
8		2'-2" x 1'-4 1/2" x 24'-1 1/2" BOX VOID	2	
9		SET OF (3) 0.60"ø STRAND LIFTING LOOPS	6	
10				

APPROVAL STAMP:

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer N.T.S.
2464 OGE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDHAM

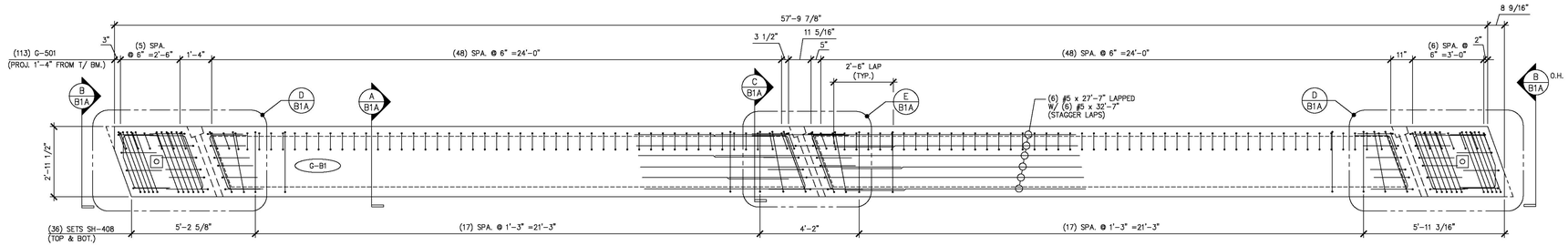
TOWN OF GUILFORD
ROUTE NO. T.H.10, CLASS III (LOCAL ROAD)
BRIDGE NO.: 65 PROJECT NO.: BRO 1442 (36)

PRESTRESSED BOX BEAM DIMENSIONAL DETAILS

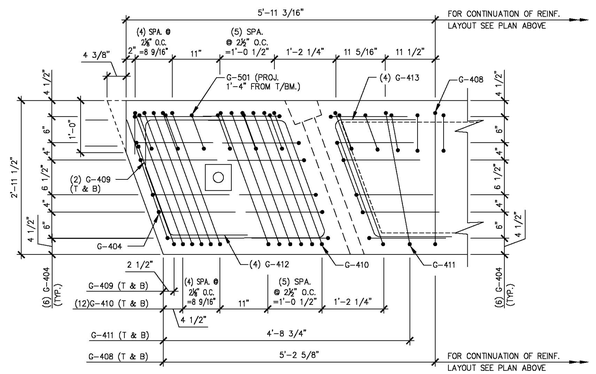
DATE: MAR. 04, 2014
SCALE: NOTED
CHKD: JJ/KLT DFTM:AAT/RWS
JOB NO: 23420-014
DWG. NO: B1

Eriksson technologies
813.989.3317
TAMPA, FL LRFD.COM

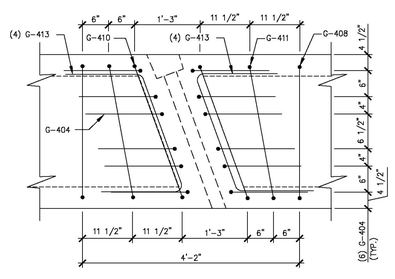
S:\Engineering Services\Carrara\14001 - Guilford Bridge 65\Production Drawings\AutoCAD Files\144236-B1.dwg, 5/6/2014 4:44:20 PM, DWG to PDF.pc3



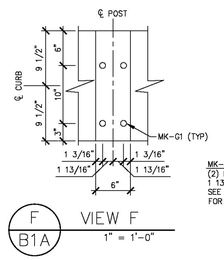
1 / B1A REINFORCING PLAN VIEW IN FORM
3/8" = 1'-0"



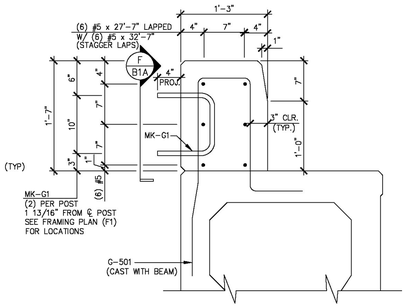
D / B1A END BLOCK REINFORCING PLAN
3/4" = 1'-0"



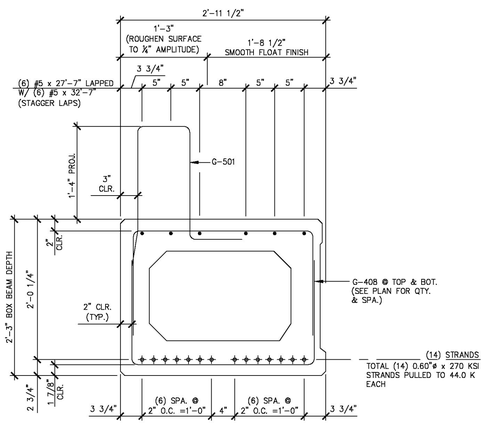
E / B1A P.T. DIAPHRAGM REINFORCING PLAN
3/4" = 1'-0"



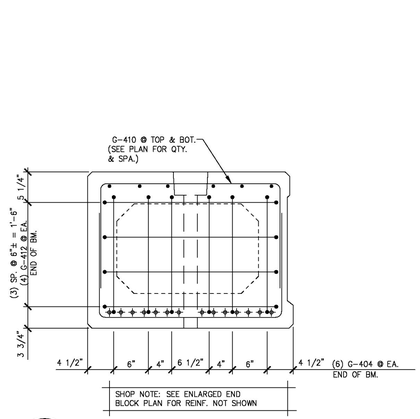
F / B1A VIEW F
1" = 1'-0"



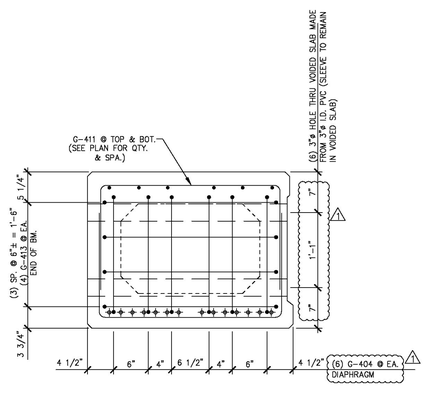
SECONDARY POUR DETAIL
1" = 1'-0"



A / B1A REINFORCING SECTION
1" = 1'-0"



B / B1A END BLOCK REINF. SECTION
1" = 1'-0"



C / B1A P.T. DIAPHRAGM REINF. SECTION
1" = 1'-0"

DETENSIONING SCHEDULE

N.T.S.

1	3	5	7	9	11	13	14	12	10	8	6	4	2

Vermont Agency of Transportation
RECEIVED
CK'D BY MJC OK'D BY TAS
June 18, 2014
RESUBMIT No Approved
BY M. J. Chenette DATE 06/19/2014

SHOP DRAWING REVIEW

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VHB *Vanasse Hangen Brustlin, Inc.*
7056 US Route 7
North Ferrisburgh, VT 05473
802.425.7788

Job Number 57427.00
Reviewed By: S.E. Burbank
Date 06/19/2014

MARK:	G-B1	QTY.:	1

MATERIAL LIST / BEAM

ITEM	MARK	DESCRIPTION	QTY.
1	G-404	#4 BENT BAR (LEVEL II – DUAL COATED)	48
2	G-408	#4 BENT BAR (LEVEL II – DUAL COATED)	72
3	G-409	#4 BENT BAR (LEVEL II – DUAL COATED)	4
4	G-410	#4 BENT BAR (LEVEL II – DUAL COATED)	52
5	G-411	#4 BENT BAR (LEVEL II – DUAL COATED)	8
6	G-412	#4 BENT BAR (LEVEL II – DUAL COATED)	8
7	G-413	#4 BENT BAR (LEVEL II – DUAL COATED)	24
8	G-501	#5 BENT BAR (LEVEL II – DUAL COATED)	113
9			
10			
11			
12			
13			
14			
15			
16		#5 x 27'-7" (LEVEL II – DUAL COATED)	12
17		#5 x 32'-7" (LEVEL II – DUAL COATED)	12
18			
19			
20			
21			
22	MK-G1	1"ø ANCHOR "U" BOLTS (SUPPLIED BY OTHERS)	18
23			
24			
25			

⚠ 4-7-14 REVISED AS NOTED

APPROVAL STAMP:

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer N.T.S.
2464 DGE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDHAM

TOWN OF GUILFORD
ROUTE NO. T.H.10, CLASS III (LOCAL ROAD)
BRIDGE NO.: 65 PROJECT NO.: BRO 1442 (36)

PRESTRESSED BOX BEAM
REINFORCING DETAILS

DATE: MAR. 04, 2014
SCALE: NOTED
CHKD: JJ/KLT DFTM:AAT/RWS
JOB NO: 23420-014
DWG. NO: B1A

Eriksson technologies
813.989.3317
TAMPA, FL LRFD.COM

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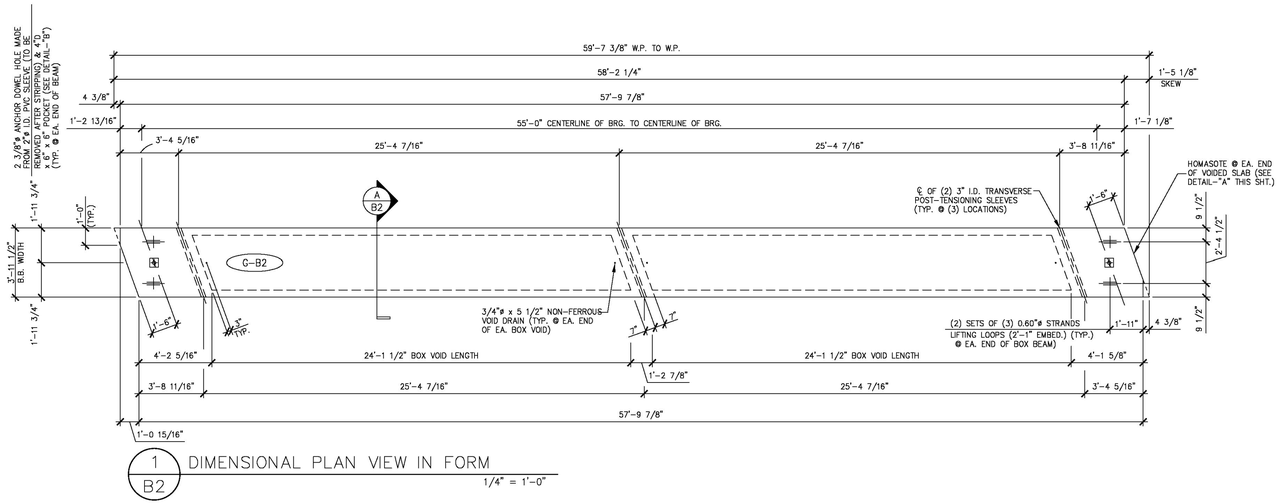
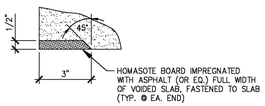


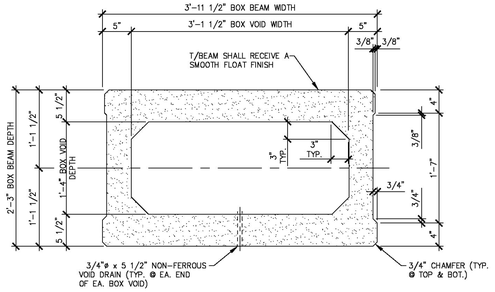
1 / B2 DIMENSIONAL PLAN VIEW IN FORM

1/4" = 1'-0"



DETAIL – "A"

3" = 1'-0"



A / B2 DIMENSIONAL SECTION

1" = 1'-0"

SHOP NOTE:
SEE SHEET "B2A" FOR REINFORCING DETAILS.

MARK: G-B2	QTY.: 3	WT.: 23.64 T	VOL.: 11.68 cy

MATERIAL LIST / BEAM

ITEM	MARK	DESCRIPTION	QTY./BEAM SH-B2	
1				
2				
3				
4				
5				
6				
7		3/4"ø x 5 1/2" NON-FERROUS VOID DRAIN	4	
8		2'-2" x 1'-4 1/2" x 24'-1 1/2" BOX VOID	2	
9		SET OF (3) 0.60"ø STRAND LIFTING LOOPS	4	
10				

Vermont Agency of Transportation

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Job Number 57427.00
Reviewed By: S.E. Burbank
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APPROVAL STAMP:

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Precast & Prestress Manufacturer N.T.S.
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COUNTY OF WINDHAM

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ROUTE NO. T.H.10, CLASS III (LOCAL ROAD)
BRIDGE NO.: 65 PROJECT NO.: BRO 1442 (36)

PRESTRESSED BOX BEAM DIMENSIONAL DETAILS

DATE: MAR. 04, 2014
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CHKD: JJJ/KLT DFTM:AAT/RWS
JOB NO: 23420-014
DWG. NO: B2

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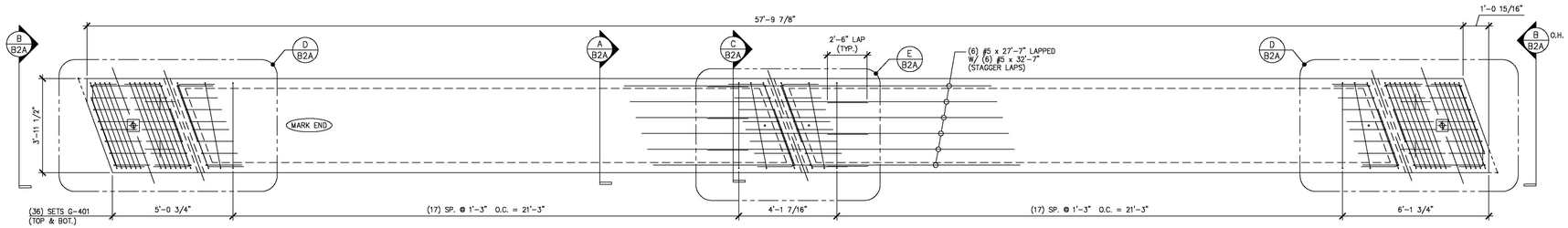
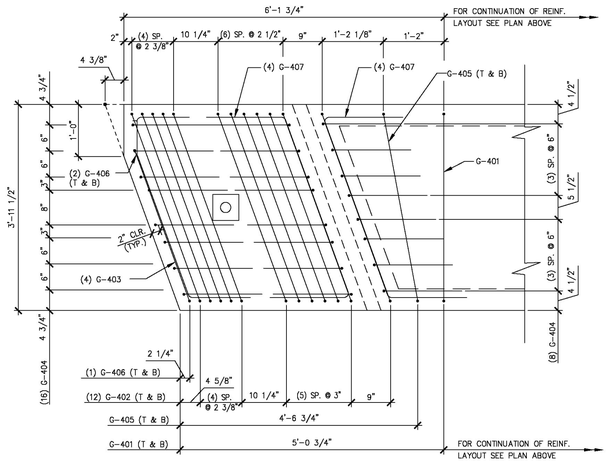


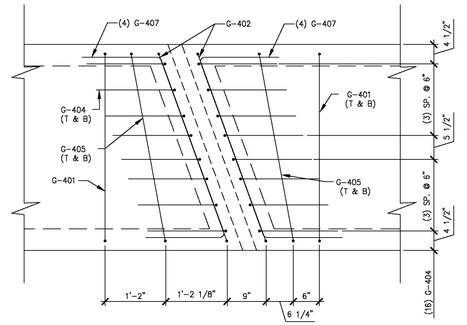
1 / B2 REINFORCING PLAN VIEW IN FORM

1/4" = 1'-0"



D / B2A END BLOCK REINFORCING PLAN

3/4" = 1'-0"



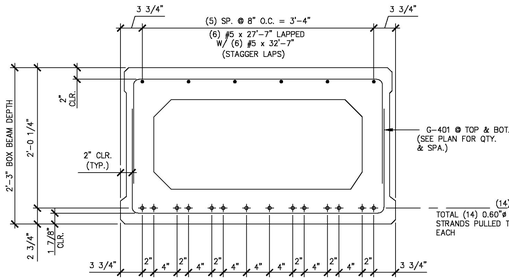
E / B2A P.T. DIAPHRAGM REINFORCING PLAN

3/4" = 1'-0"

1 3 5 7 9 11 13 — 14 12 10 8 6 4 2

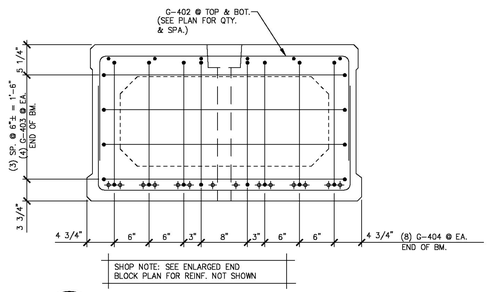
DETENSIONING SCHEDULE

N.T.S.



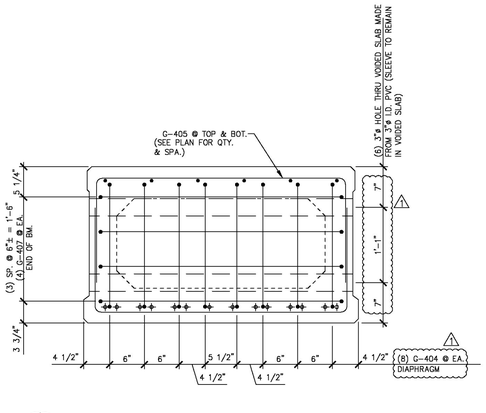
A / B2A REINFORCING SECTION

1" = 1'-0"



B / B2A END BLOCK REINF. SECTION

1" = 1'-0"



C / B2A P.T. DIAPHRAGM REINF. SECTION

1" = 1'-0"

MARK: G-B2	QTY.: 3

MATERIAL LIST / BEAM

ITEM	MARK	DESCRIPTION	QTY.
1	G-401	#4 BENT BAR (LEVEL II – DUAL COATED)	72
2	G-402	#4 BENT BAR (LEVEL II – DUAL COATED)	52
3	G-403	#4 BENT BAR (LEVEL II – DUAL COATED)	8
4	G-404	#4 BENT BAR (LEVEL II – DUAL COATED)	64
5	G-405	#4 BENT BAR (LEVEL II – DUAL COATED)	8
6	G-406	#4 BENT BAR (LEVEL II – DUAL COATED)	4
7	G-407	#4 BENT BAR (LEVEL II – DUAL COATED)	24
8			
9			
10			
11			
12			
13			
14			
15			
16		#5 x 27'-7" (LEVEL II – DUAL COATED)	6
17		#5 x 32'-7" (LEVEL II – DUAL COATED)	6
18			
19			
20			
21			
22			
23			
24			
25			

Vermont Agency of Transportation

RECEIVED

Guilford BRO 1442 (36) - Precast Submittal 003.pdf

CK'D BY MJC OK'D BY TAS

June 18, 2014

RESUBMIT No Approved

BY M. J. Chenette DATE 06/19/2014

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VHB Vanasse Hangen Brustlin, Inc. 7056 US Route 7 North Ferrisburgh, VT 05473 802.425.7788

Job Number: 57427.00
Reviewed By: S.E. Burbank
Date: 06/19/2014

⚠ 4-7-14 REVISED AS NOTED

APPROVAL STAMP:

J.P. CARRARA & SONS INC.

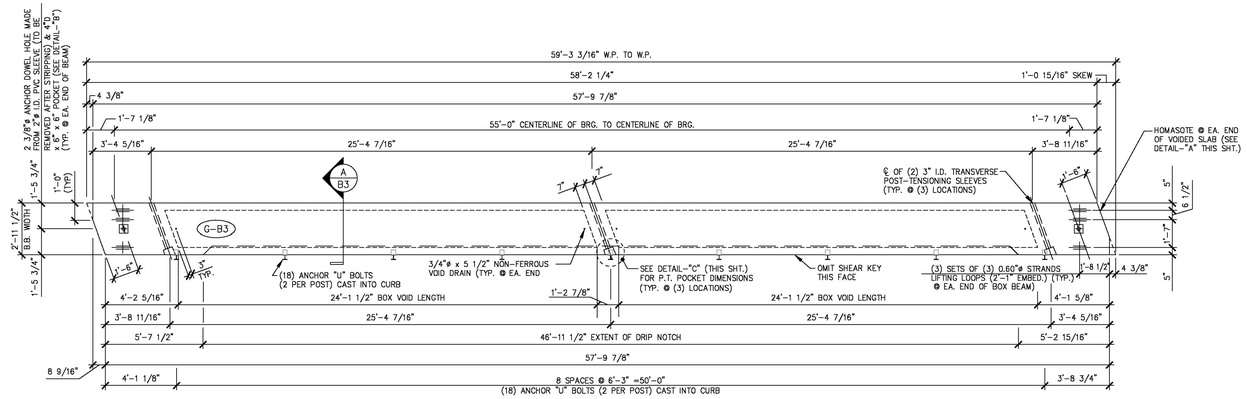
Precast & Prestress Manufacturer N.T.S.

2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

STATE OF VERMONT AGENCY OF TRANSPORTATION COUNTY OF WINDHAM	DATE: MAR. 04, 2014 SCALE: NOTED
TOWN OF GUILFORD ROUTE NO. T.H.10, CLASS III (LOCAL ROAD) BRIDGE NO.: 65 PROJECT NO.: BRO 1442 (36)	CHKD: JJJ/KLT DFTM:AAT/RWS JOB NO: 23420-014
PRESTRESSED BOX BEAM REINFORCING DETAILS	DWG. NO: B2A

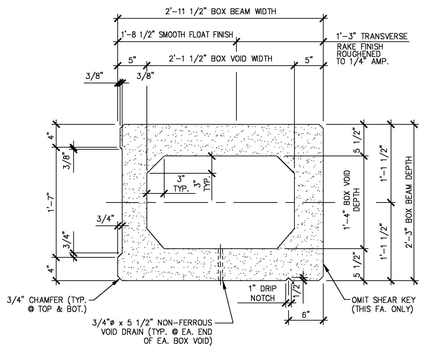
Eriksson technologies 813.989.3317 TAMPA, FL LRFD.COM

S:\Engineering Services\Carrara\14001 - Guilford Bridge 65\Production Drawings\AutoCAD Files\144236 B2a.dwg, 5/6/2014 4:44:28 PM, DWG To PDF.pc3



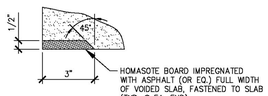
1 / B3 DIMENSIONAL PLAN VIEW IN FORM

1/4" = 1'-0"



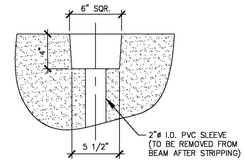
A / B3 DIMENSIONAL SECTION

1" = 1'-0"



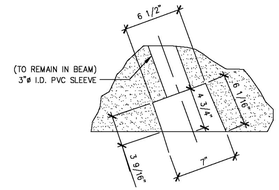
DETAIL – "A"

3" = 1'-0"



DETAIL – "B"

1 1/2" = 1'-0"



DETAIL – "C"

1 1/2" = 1'-0"

SHOP NOTE:
SEE SHEET "B3A" FOR REINFORCING DETAILS.

MARK: G-B3	QTY.: 1	WT.: 26.71 T	VOL.: 13.19 cy

MATERIAL LIST / BEAM

ITEM	MARK	DESCRIPTION	QTY./BEAM G-B1	
1				
2				
3				
4				
5				
6				
7		3/4"ø x 5 1/2" NON-FERROUS VOID DRAIN	4	
8		2'-2" x 1'-4 1/2" x 24'-1 1/2" BOX VOID	2	
9		SET OF (3) 0.60"ø STRAND LIFTING LOOPS	6	
10				

Vermont Agency of Transportation

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Guilford BR G 1442 (36) - Precast Submittal 003.pdf

CK'D BY MJC OK'D BY TAS

June 18, 2014

RESUBMIT No Approved

BY M. J. Chenette DATE 06/19/2014

SHOP DRAWING REVIEW

☒ REVIEWED AS REQUIRED BY THE CONSTRUCTION CONTRACT DOCUMENTS AND APPROVED, BUT ONLY FOR CONFORMANCE TO THE DESIGN CONCEPT OF THE WORK, AND SUBJECT TO FURTHER LIMITATIONS AND REQUIREMENTS CONTAINED IN THE CONSTRUCTION CONTRACT DOCUMENTS.

☐ REJECTED ☐ REVISE AND RESUBMIT ☐ FURNISH AS CORRECTED

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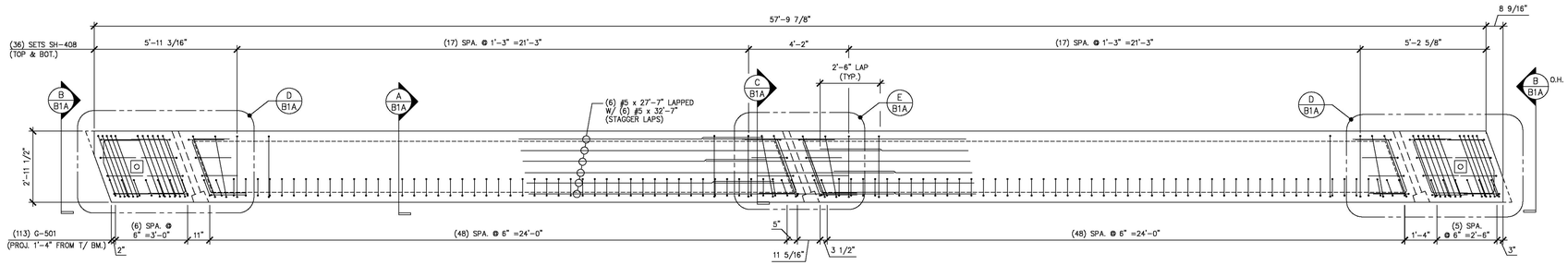
STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDHAM

TOWN OF GUILFORD
ROUTE NO. T.H.10, CLASS III (LOCAL ROAD)
BRIDGE NO.: 65 PROJECT NO.: BRO 1442 (36)

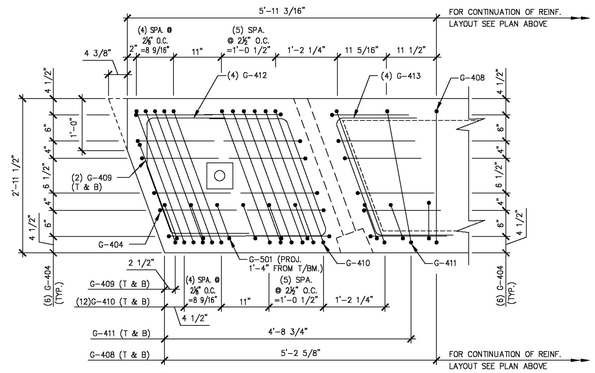
PRESTRESSED BOX BEAM
DIMENSIONAL DETAILS

DATE: MAR. 04, 2014
SCALE: NOTED
CHKD: JJJ/KLT DFTM:AAT/RWS
JOB NO: 23420-014
DWG. NO: B3



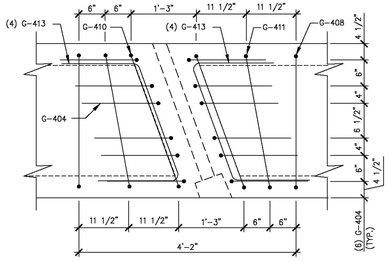
1 B3A REINFORCING PLAN VIEW IN FORM

3/8" = 1'-0"



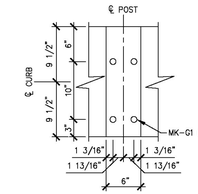
D B3A END BLOCK REINFORCING PLAN

3/4" = 1'-0"



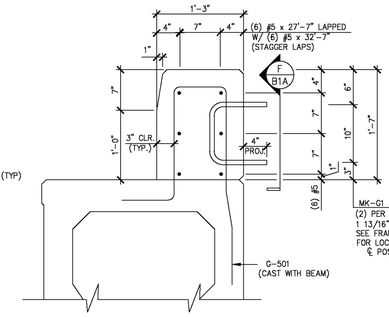
E B3A P.T. DIAPHRAGM REINFORCING PLAN

3/4" = 1'-0"



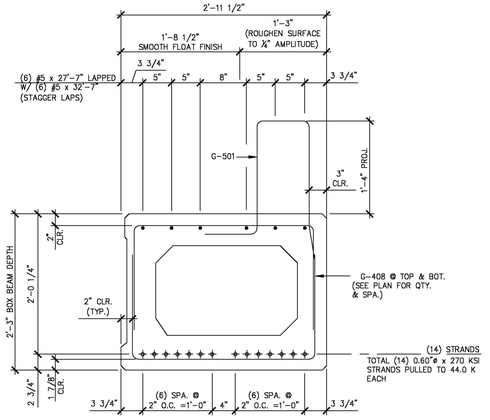
F B1A VIEW F

1" = 1'-0"



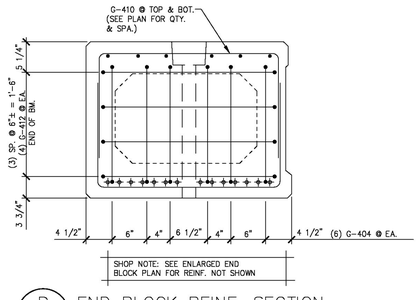
SECONDARY POUR DETAIL

1" = 1'-0"



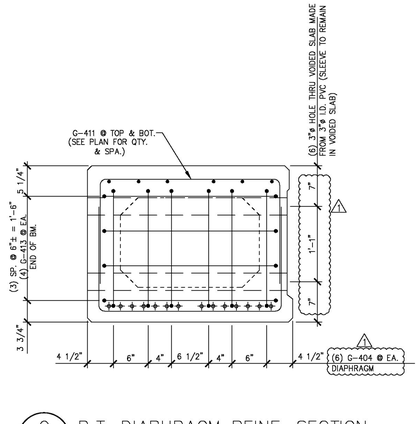
A B3A REINFORCING SECTION

1" = 1'-0"



B B3A END BLOCK REINF. SECTION

1" = 1'-0"



C B3A P.T. DIAPHRAGM REINF. SECTION

1" = 1'-0"

(1)(3)(5)(7)(9)(11)(13) (14)(12)(10)(8)(6)(4)(2)

DETENSIONING SCHEDULE

N.T.S.

Vermont Agency of Transportation

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Guilford BRO 1442 (36) - Precast Submittal 003.pdf

CK'D BY MJC OK'D BY TAS

June 18, 2014

RESUBMIT No Approved

BY M. J. Chenette DATE 06/19/2014

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Vanasse Hangen Brustlin, Inc.
7056 US Route 7
North Ferrisburgh, VT 05473
802.425.7798

Job Number: 57427.00
Reviewed By: S.E. Burbank
Date: 06/19/2014

MARK:	G-B3	QTY.:	1

MATERIAL LIST / BEAM

ITEM	MARK	DESCRIPTION	QTY.
1	G-404	#4 BENT BAR (LEVEL II DUAL COATED)	48
2	G-408	#4 BENT BAR (LEVEL II DUAL COATED)	72
3	G-409	#4 BENT BAR (LEVEL II DUAL COATED)	4
4	G-410	#4 BENT BAR (LEVEL II DUAL COATED)	52
5	G-411	#4 BENT BAR (LEVEL II DUAL COATED)	8
6	G-412	#4 BENT BAR (LEVEL II DUAL COATED)	8
7	G-413	#4 BENT BAR (LEVEL II DUAL COATED)	24
8	G-501	#5 BENT BAR (LEVEL II DUAL COATED)	113
9			
10			
11			
12			
13			
14			
15			
16		#5 x 27'-7" (LEVEL II DUAL COATED)	12
17		#5 x 32'-7" (LEVEL II DUAL COATED)	12
18			
19			
20			
21			
22	MK-G1	1"ø ANCHOR "U" BOLTS (SUPPLIED BY OTHERS)	18
23			
24			
25			

⚠ 4-7-14 REVISED AS NOTED

APPROVAL STAMP:

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer N.T.S.
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDHAM

TOWN OF GUILFORD
ROUTE NO. T.H.10, CLASS III (LOCAL ROAD)
BRIDGE NO.: 65 PROJECT NO.: BRO 1442 (36)

PRESTRESSED BOX BEAM
REINFORCING DETAILS

DATE: MAR. 04, 2014
SCALE: NOTED
CHKD: JJ/KLT DFTM:AAT/RWS
JOB NO: 23420-014
DWG. NO: B3A

Eriksson technologies
813.989.3317
TAMPA, FL LRFD.COM

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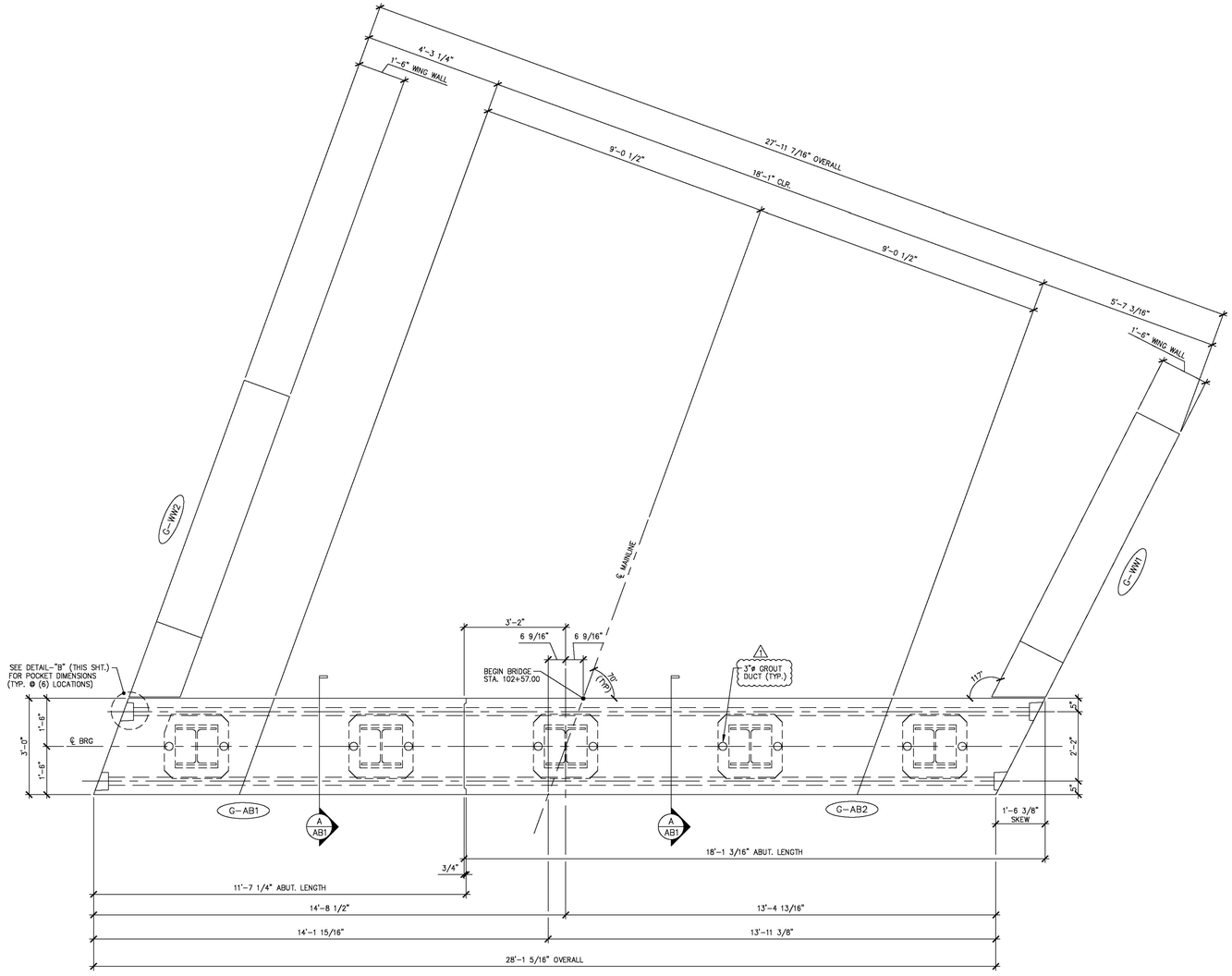
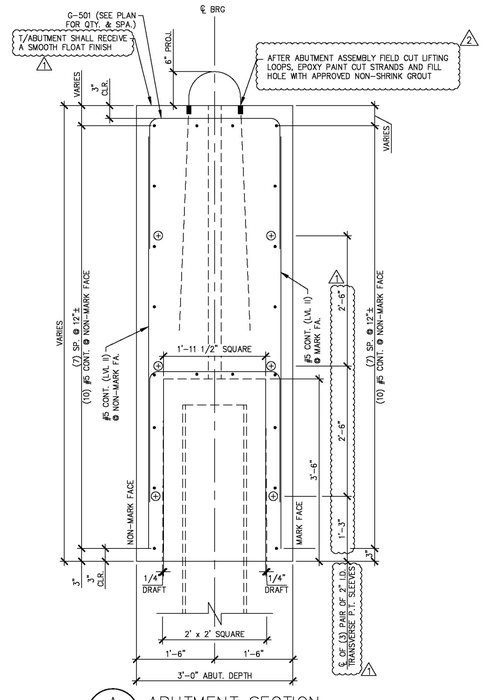
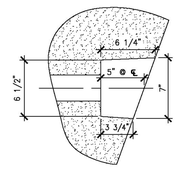


1 / AB1 ABUTMENT ASSEMBLY PLAN
1/4" = 1'-0"



A / AB1 ABUTMENT SECTION
1/4" = 1'-0"



DETAIL – "B"
1 1/2" = 1'-0"

Vermont Agency of Transportation
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Guilford BRO 1442 (36) - Precast Submittal 003.pdf
CK'D BY MJC OK'D BY TAS
June 18, 2014
RESUBMIT No Approved
BY M. J. Chenette DATE 06/19/2014

SHOP DRAWING REVIEW

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COUNTY OF WINDHAM

TOWN OF GUILFORD
ROUTE NO. T.H.10, CLASS III (LOCAL ROAD)
BRIDGE NO.: 65 PROJECT NO.: BRO 1442 (36)

PRECAST ABUTMENT DETAILS

DATE: MAR. 04, 2014
SCALE: NOTED
CHKD: JJ/KLT DFTM:AAT/RWS
JOB NO: 23420-014
DWG. NO: AB1

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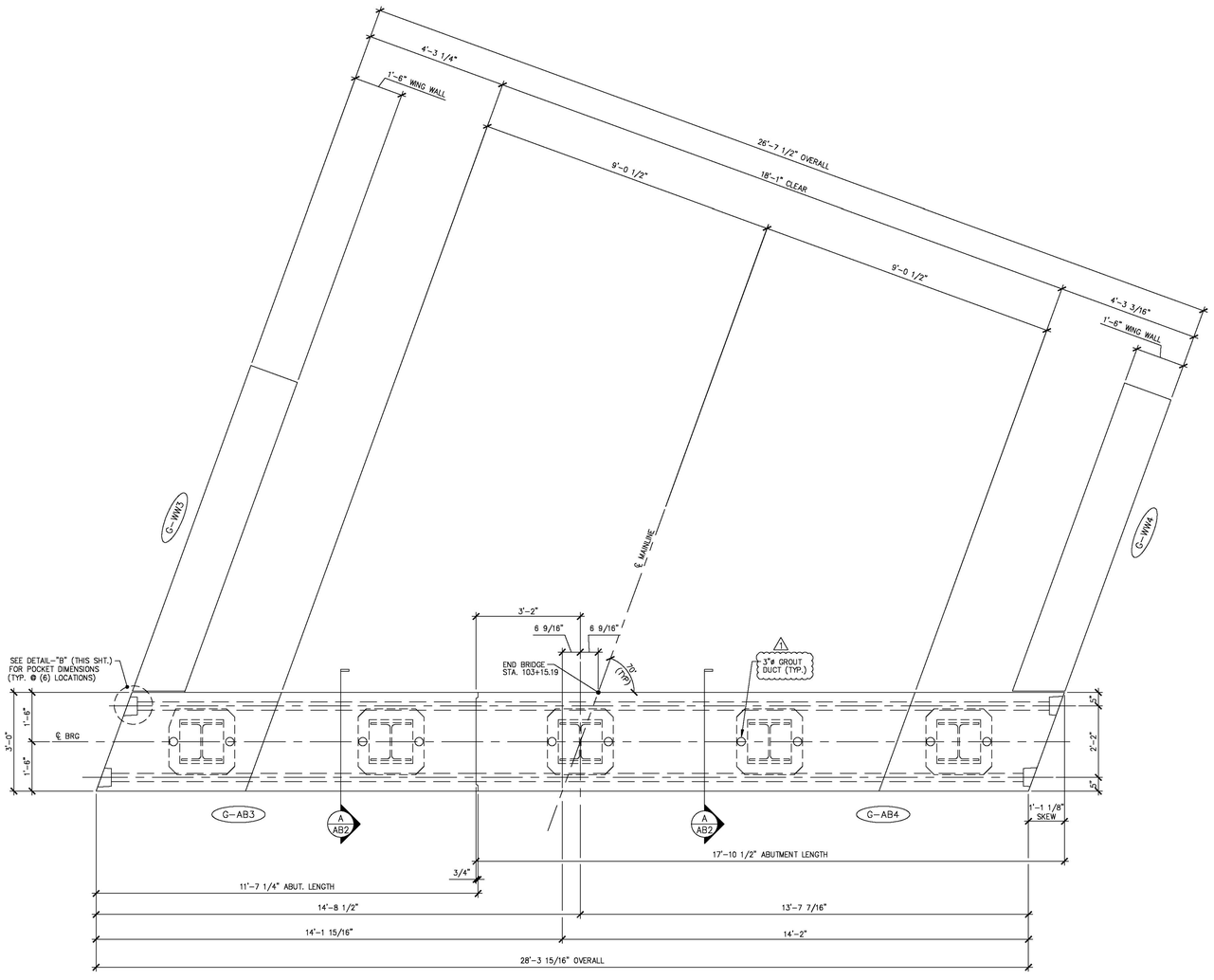
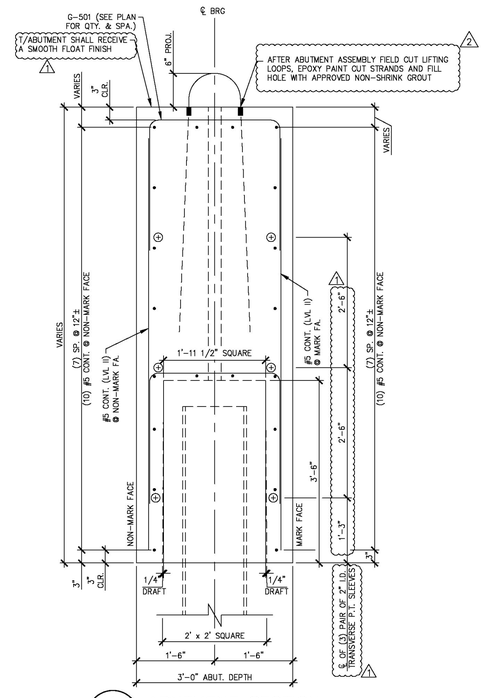


1 / AB2 ABUTMENT ASSEMBLY PLAN
1/4" = 1'-0"



A / AB2 ABUTMENT SECTION
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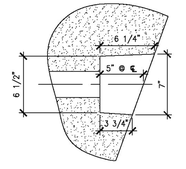

DETAIL – "B"
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COUNTY OF WINDHAM

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PRECAST ABUTMENT DETAILS

DATE: MAR. 04, 2014
SCALE: NOTED
CHKD: JJ/KLT | DFTM:AAT/RWS
JOB NO: 23420-014
DWG. NO: AB2

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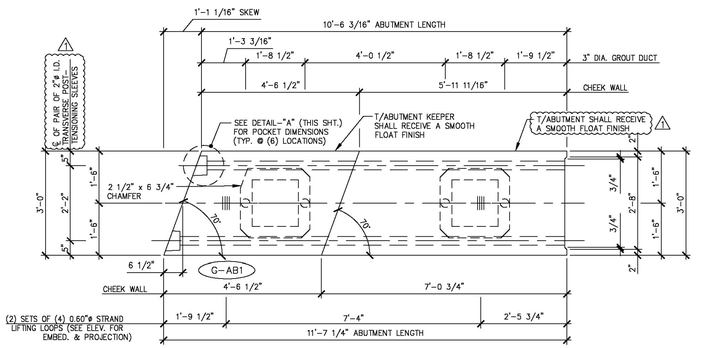
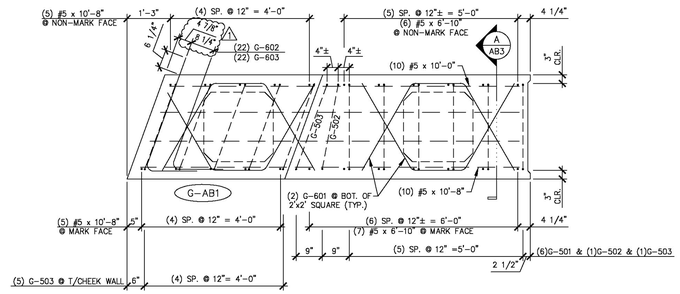


1 AB3 ABUTMENT DIMENSIONAL PLAN VIEW IN FORM

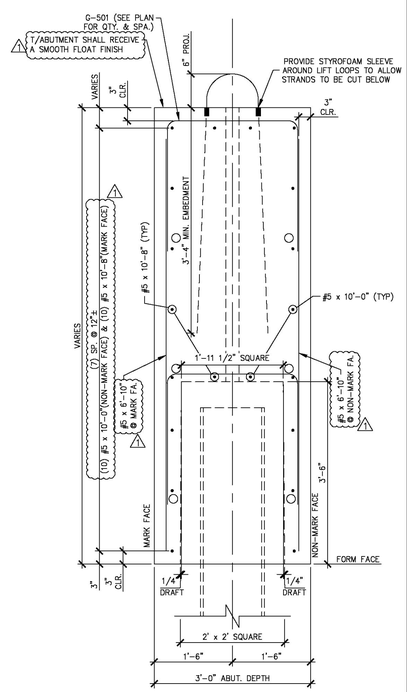
1/2" = 1'-0"

2 NOTE: PILE VOIDS TO BE FORMED WITH REMOVABLE FORMWORK.



3 AB3 ABUTMENT REINFORCING PLAN VIEW IN FORM

1/2" = 1'-0"



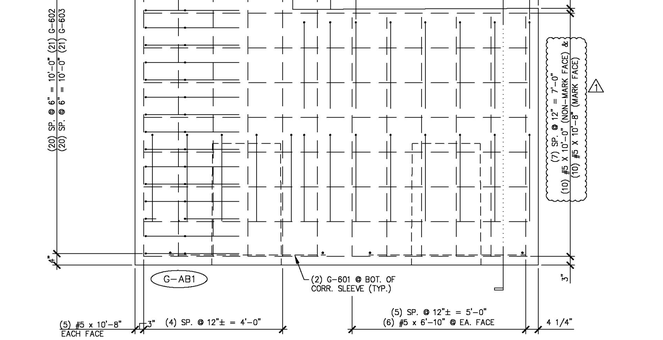
A AB3 ABUTMENT SECTION

3/4" = 1'-0"

2 AB3 ABUTMENT DIMENSIONAL MARK FACE ELEVATION

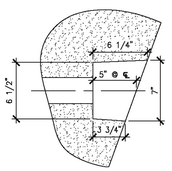
1/2" = 1'-0"

SHOP NOTE:
ALL EDGES OF ABUTMENT SHALL RECEIVE A 1" CHAMFER (U.N.O.)



4 AB3 ABUTMENT REINFORCING MARK FACE ELEVATION

1/2" = 1'-0"



DETAIL - "A"

1 1/2" = 1'-0"

MARK:	G-AB1	QTY.:	1	WT.:	20.03 T	VOL.:	9.90 cy

MATERIAL LIST / ABUTMENT

ITEM	MARK	DESCRIPTION	QTY.
1	G-501	#5 BENT BAR	12
2	G-502	#5 BENT BAR	2
3	G-503	#5 BENT BAR	12
4		#5 x 4'-0"	10
5		#5 x 6'-10"	12
6		#5 x 10'-0"	10
7		#5 x 10'-8"	20
8			
9	G-601	#6 BENT BAR	4
10	G-602	#6 BENT BAR	22
11	G-603	#6 BENT BAR	22
12			
13			
14			
15			
16			
17			
18		SET OF (4) 0.60"ø x 270 KSI STRAND LIFTING LOOPS	2
19			
20			

Vermont Agency of Transportation

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CK'D BY MJC OK'D BY TAS

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VHB Vanasse Hangen Brustlin, Inc.
7056 US Route 7
North Ferrisburgh, VT 05473
802.425.7788

Job Number: 57427.00
Reviewed By: S.E. Burbank
Date: 06/19/2014

1 4-7-14 REVISED AS NOTED

2 5-6-14 REVISED AS NOTED

APPROVAL STAMP:

Eriksson technologies
813.989.3317
TAMPA, FL LRFD.COM

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer N.T.S.
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

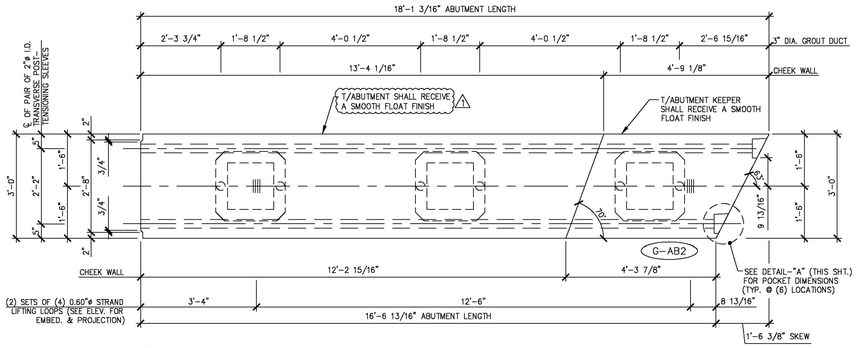
STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDHAM

TOWN OF GUILFORD
ROUTE NO. T.H.10, CLASS III (LOCAL ROAD)
BRIDGE NO.: 65 PROJECT NO.: BRO 1442 (36)

PRECAST ABUTMENT DETAILS

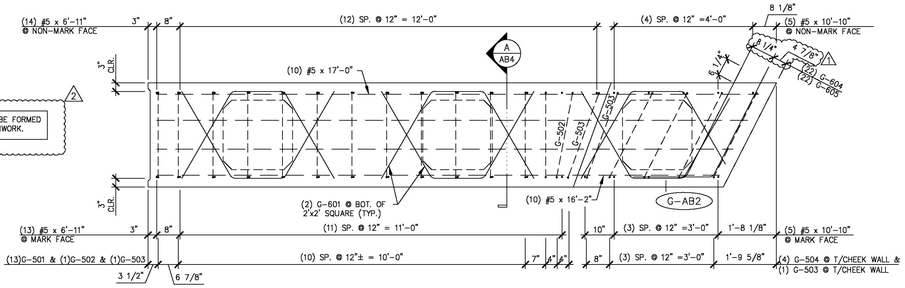
DATE: MAR. 04, 2014
SCALE: NOTED
CHKD: JJ/KLT DFTM:AAT/RWS
JOB NO: 23420-014
DWG. NO: AB3

S:\Engineering Services\Carrara\14001 - Guilford Bridge 65\Production Drawings\AutoCAD Files\144236 AB.dwg, 5/6/2014 4:44:38 PM, DWG To PDF.pc3



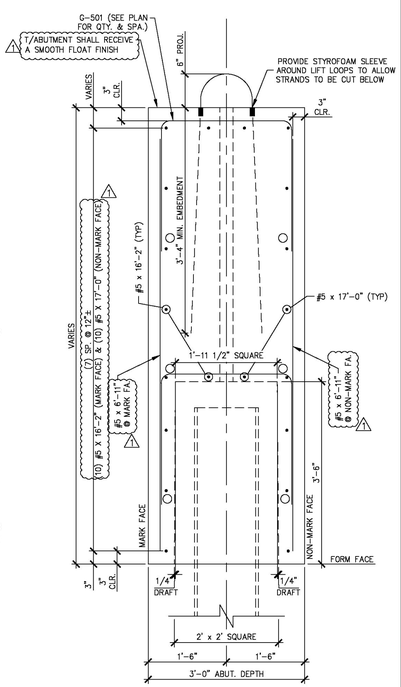
1 AB4 ABUTMENT DIMENSIONAL PLAN VIEW IN FORM

1/2" = 1'-0"



3 AB4 ABUTMENT REINFORCING PLAN VIEW IN FORM

1/2" = 1'-0"



A AB4 ABUTMENT SECTION

3/4" = 1'-0"

2 AB4 ABUTMENT DIMENSIONAL MARK FACE ELEVATION

1/2" = 1'-0"

4 AB4 ABUTMENT REINFORCING MARK FACE ELEVATION

1/2" = 1'-0"

MARK: G-AB2	QTY.: 1	WT.: 30.02 T	VOL.: 14.83 cy

MATERIAL LIST / ABUTMENT

ITEM	MARK	DESCRIPTION	QTY.
1	G-501	#5 BENT BAR	26
2	G-502	#5 BENT BAR	2
3	G-503	#5 BENT BAR	4
4	G-504	#5 BENT BAR	8
5		#5 x 5'-4"	10
6		#5 x 6'-11"	27
7		#5 x 10'-10"	10
8		#5 x 16'-2"	10
9		#5 x 17'-0"	10
10			
11	G-601	#6 BENT BAR	6
12	G-604	#6 BENT BAR	22
13	G-605	#6 BENT BAR	22
14			
15			
16			
17			
18		SET OF (4) 0.60"ø x 270 KSI STRAND LIFTING LOOPS	2
19			
20			

SHOP NOTE:
ALL EDGES OF ABUTMENT SHALL RECEIVE A 1" CHAMFER (U.N.O.)

Vermont Agency of Transportation

RECEIVED

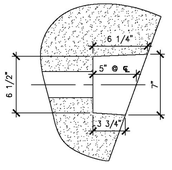
Guilford BRO 1442 (36) - Precast Submittal 003.pdf

CK'D BY MJC OK'D BY TAS

June 18, 2014

RESUBMIT No Approved

BY M. J. Chenette DATE 06/19/2014



DETAIL – "A"

1 1/2" = 1'-0"

SHOP DRAWING REVIEW

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VHB Vanasse Hangen Brustlin, Inc. 7056 US Route 7 North Ferrisburgh, VT 05473 802.425.7788

Job Number: 57427.00
Reviewed By: S.E. Burbank
Date: 06/19/2014

Eriksson technologies 813.989.3317 TAMPA, FL LRFD.COM

△1 4-7-14 REVISED AS NOTED
△2 5-6-14 REVISED AS NOTED

APPROVAL STAMP:

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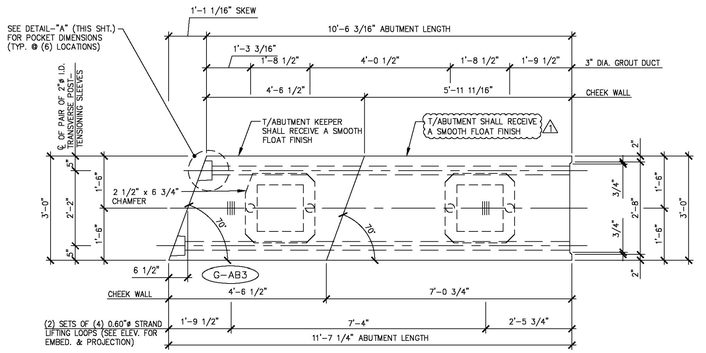
STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDHAM

TOWN OF GUILFORD
ROUTE NO. T.H.10, CLASS III (LOCAL ROAD)
BRIDGE NO.: 65 PROJECT NO.: BRO 1442 (36)

PRECAST ABUTMENT DETAILS

DATE: MAR. 04, 2014
SCALE: NOTED
CHKD: JJ/KLT DFTM:AAT/RWS
JOB NO: 23420-014
DWG. NO: AB4

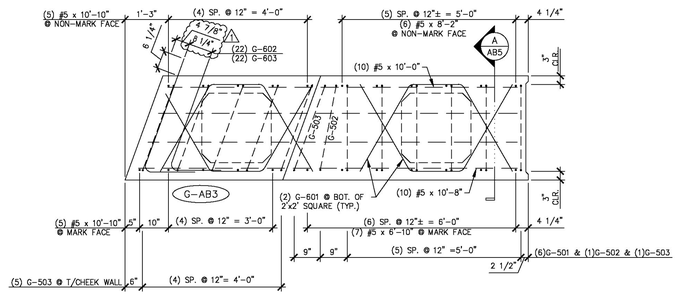
S:\Engineering Services\Carrara\14001 - Guilford Bridge 65\Production Drawings\AutoCAD Files\144236 AB.dwg, 5/6/2014 4:44:38 PM, DWG To PDF.pc3



1 AB5 ABUTMENT DIMENSIONAL PLAN VIEW IN FORM

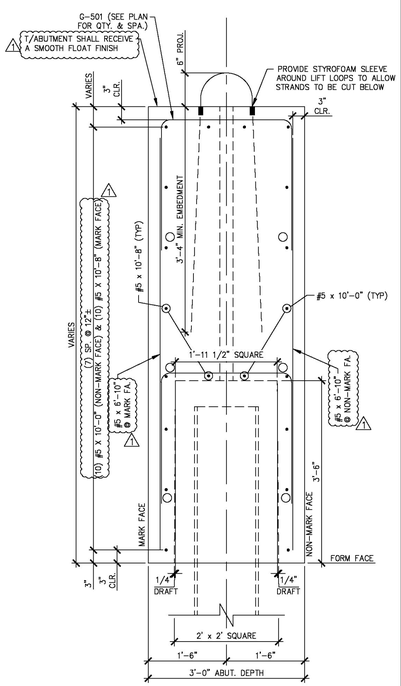
1/2" = 1'-0"

2 NOTE: PILE VOIDS TO BE FORMED WITH REMOVABLE FORMWORK.



3 AB5 ABUTMENT REINFORCING PLAN VIEW IN FORM

1/2" = 1'-0"



A AB5 ABUTMENT SECTION

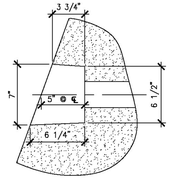
3/4" = 1'-0"

2 AB5 ABUTMENT DIMENSIONAL MARK FACE ELEVATION

1/2" = 1'-0"

4 AB5 ABUTMENT REINFORCING MARK FACE ELEVATION

1/2" = 1'-0"



DETAIL – "A"

1 1/2" = 1'-0"

SHOP NOTE:
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Vermont Agency of Transportation

RECEIVED

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CK'D BY MJC OK'D BY TAS

June 18, 2014

RESUBMIT No Approved

BY M. J. Chenette DATE 06/19/2014

SHOP DRAWING REVIEW

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Vanasse Hangen Brustlin, Inc.
7056 US Route 7
North Ferrisburgh, VT 05473
802.425.7788

Job Number 57427.00
Reviewed By: S.E. Burbank
Date: 06/19/2014

MARK: G-AB3	QTY.: 1	WT.: 20.35 T	VOL.: 10.05 cy

MATERIAL LIST / ABUTMENT

ITEM	MARK	DESCRIPTION	QTY.
1	G-501	#5 BENT BAR	12
2	G-502	#5 BENT BAR	2
3	G-503	#5 BENT BAR	12
4		#5 x 4'-0"	10
5		#5 x 6'-10"	12
6		#5 x 10'-0"	10
7		#5 x 10'-8"	10
8		#5 x 10'-10"	10
9			
10	G-601	#6 BENT BAR	4
11	G-602	#6 BENT BAR	22
12	G-603	#6 BENT BAR	22
13			
14			
15			
16			
17			
18		SET OF (4) 0.60"ø x 270 KSI STRAND LIFTING LOOPS	2
19			
20			

1 4-7-14 REVISED AS NOTED

2 5-6-14 REVISED AS NOTED

APPROVAL STAMP:

Eriksson technologies
813.989.3317
TAMPA, FL LRFD.COM

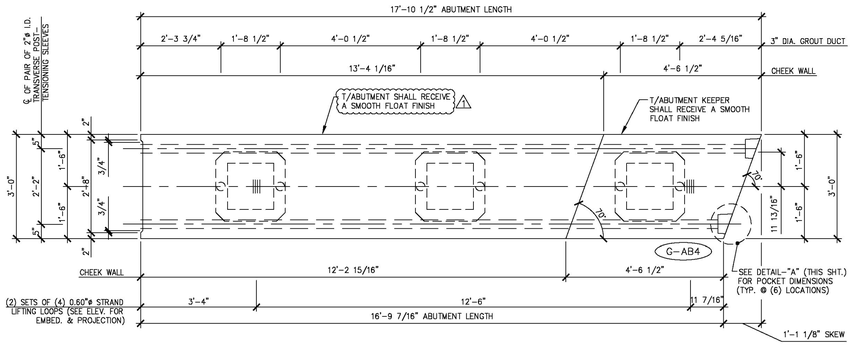
J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer N.T.S.
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDHAM

TOWN OF GUILFORD
ROUTE NO. T.H.10, CLASS III (LOCAL ROAD)
BRIDGE NO.: 65 PROJECT NO.: BRO 1442 (36)

PRECAST ABUTMENT DETAILS

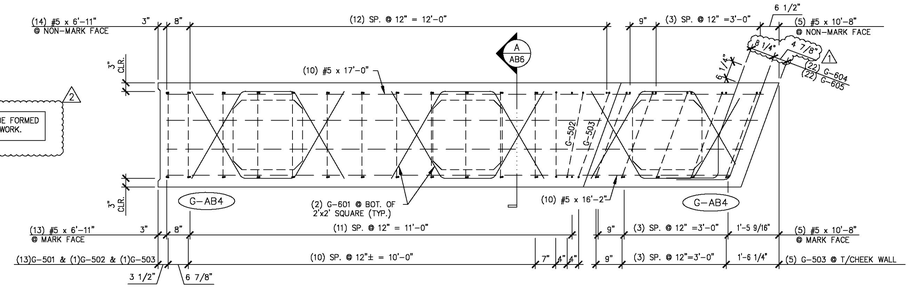
DATE: MAR. 04, 2014
SCALE: NOTED
CHKD: JJ/KLT DFTM:AAT/RWS
JOB NO: 23420-014
DWG. NO: AB5



1 / AB6 ABUTMENT DIMENSIONAL PLAN VIEW IN FORM

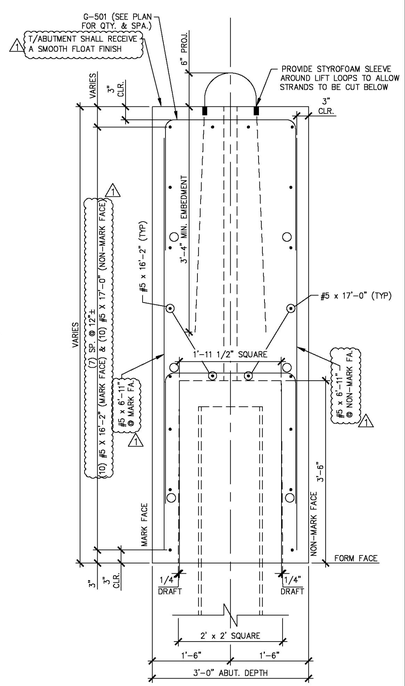
1/2" = 1'-0"

NOTE: PILE VOIDS TO BE FORMED WITH REMOVABLE FORMWORK.



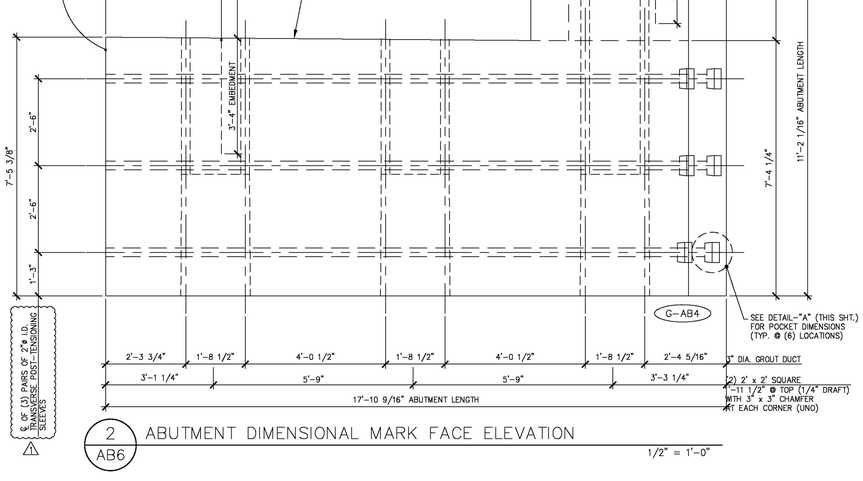
3 / AB6 ABUTMENT REINFORCING PLAN VIEW IN FORM

1/2" = 1'-0"



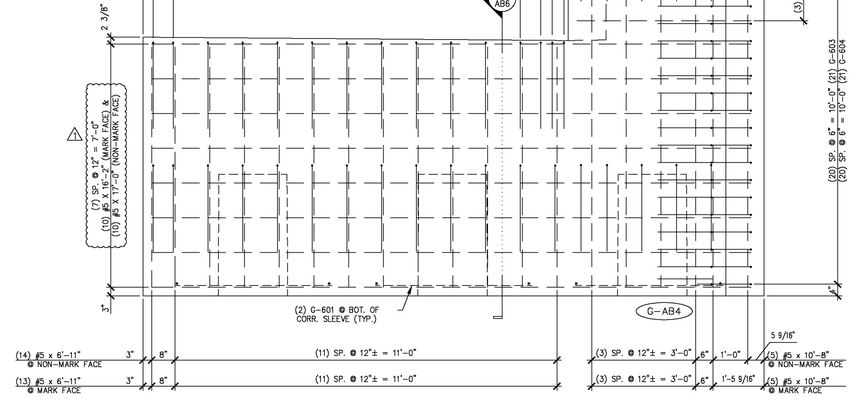
A / AB6 ABUTMENT SECTION

3/4" = 1'-0"



2 / AB6 ABUTMENT DIMENSIONAL MARK FACE ELEVATION

1/2" = 1'-0"



4 / AB6 ABUTMENT REINFORCING MARK FACE ELEVATION

1/2" = 1'-0"

MARK: G-AB4	QTY.: 1	WT.: 29.82 T	VOL.: 14.73 cy

MATERIAL LIST / ABUTMENT

ITEM	MARK	DESCRIPTION	QTY.
1	G-501	#5 BENT BAR	26
2	G-502	#5 BENT BAR	2
3	G-503	#5 BENT BAR	12
4		#5 x 3'-7"	10
5		#5 x 6'-11"	27
6		#5 x 10'-8"	10
7		#5 x 16'-2"	10
8		#5 x 17'-0"	10
9			
10			
11	G-601	#6 BENT BAR	6
12	G-604	#6 BENT BAR	22
13	G-605	#6 BENT BAR	22
14			
15			
16			
17			
18		SET OF (4) 0.60"ø x 270 KSI STRAND LIFTING LOOPS	2
19			
20			

SHOP NOTE:
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Vermont Agency of Transportation
RECEIVED
Guilford BRO 1442 (36) - Precast Submittal 003.pdf
CK'D BY MJC OK'D BY TAS
June 18, 2014
RESUBMIT No Approved
BY M. J. Chenette DATE 06/19/2014

SHOP DRAWING REVIEW

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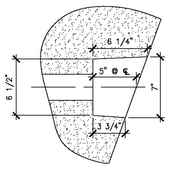
7056 US Route 7
North Ferrisburgh, VT 05473
802.425.7788

Job Number: 57427.00
Reviewed By: S.E. Burbank
Date: 06/19/2014



DETAIL – "A"

1 1/2" = 1'-0"

1 4-7-14 REVISED AS NOTED
2 5-6-14 REVISED AS NOTED

APPROVAL STAMP:

Eriksson technologies
813.989.3317
TAMPA, FL LRFD.COM

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STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDHAM

TOWN OF GUILFORD
ROUTE NO. T.H.10, CLASS III (LOCAL ROAD)
BRIDGE NO.: 65 PROJECT NO.: BRO 1442 (36)

PRECAST ABUTMENT DETAILS

DATE: MAR. 04, 2014
SCALE: NOTED
CHKD: JJ/KLT DFTM:AAT/RWS
JOB NO: 23420-014
DWG. NO: AB6

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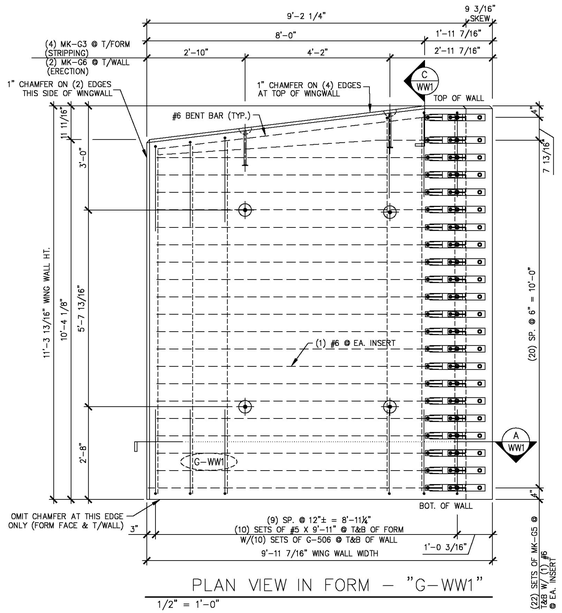
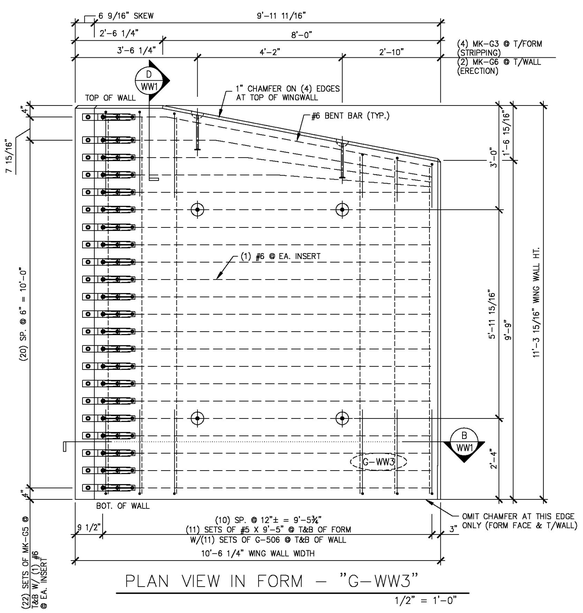


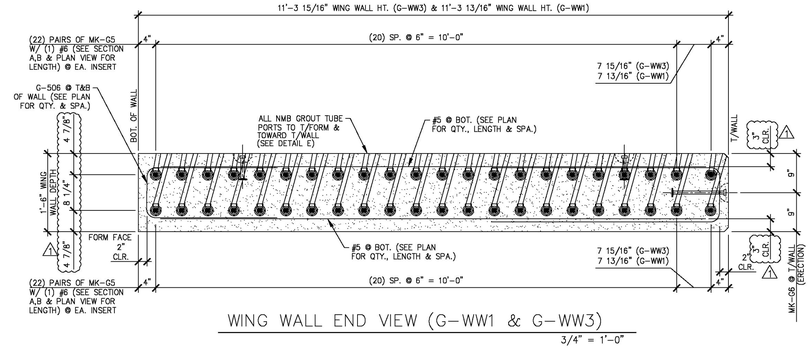
PLAN VIEW IN FORM – "G-WW1"

1/2" = 1'-0"



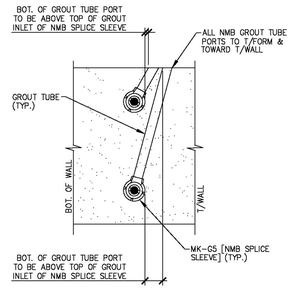
PLAN VIEW IN FORM – "G-WW3"

1/2" = 1'-0"



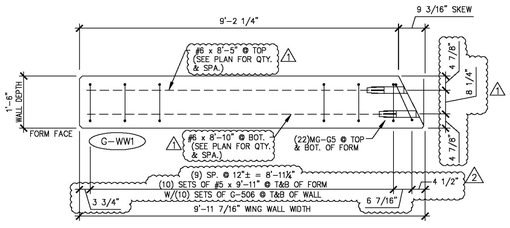
WING WALL END VIEW (G-WW1 & G-WW3)

3/4" = 1'-0"



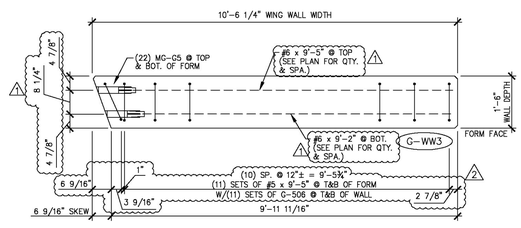
DETAIL – "E"

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



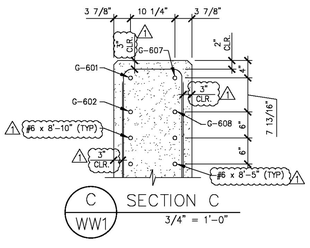
A WW1 G-WW1 SECTION

1/2" = 1'-0"



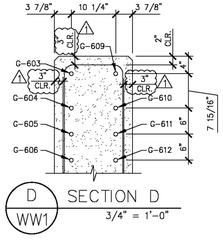
B WW1 G-WW3 SECTION

1/2" = 1'-0"



C WW1 SECTION C

3/4" = 1'-0"



D WW1 SECTION D

3/4" = 1'-0"

SHOP NOTE:
ALL EDGES OF WING WALLS, FORM FACE & T/WALL FACE, SHALL RECEIVE A 1" CHAMFER (UNLESS NOTED OTHERWISE)

MARK:	G-WW1	QTY.: 1	WT.: 11.81 T	VOL.: 5.84 cy
MARK:	G-WW3	QTY.: 1	WT.: 12.39 T	VOL.: 6.12 cy

MATERIAL LIST / WING WALL

ITEM	MARK	DESCRIPTION	QTY./WING WALL G-WW1	QTY./WING WALL G-WW3
1	G-506	#5 BENT BAR	1 22	24
2	G-601	#6 BENT BAR	1	0
3	G-602	#6 BENT BAR	1	0
4	G-603	#6 BENT BAR	0	1
5	G-604	#6 BENT BAR	0	1
6	G-605	#6 BENT BAR	0	1
7	G-606	#6 BENT BAR	0	1
8	G-607	#6 BENT BAR	1	0
9	G-608	#6 BENT BAR	1	0
10	G-609	#6 BENT BAR	0	1
11	G-610	#6 BENT BAR	0	1
12	G-611	#6 BENT BAR	0	1
13	G-612	#6 BENT BAR	0	1
14				
15		#5 x 9'-5"	0	1 24
16		#5 x 9'-11"	1 22	0
17				
18		#6 x 8'-5" 1	20	0
19		#6 x 8'-10"	20	0
20		#6 x 9'-2"	0	18
21		#6 x 9'-5"	0	18
22				
23				
24				
25	MK-G3	4T x 9 1/2" SWFT LIFT LIFTER	4	4
26	MK-G5	NMB SPLICE SLEEVE 6U-X(PG)	44	44
27	MK-G6	20T x 19 3/4" SWFT LIFT LIFTER	2	2

1 4-7-14 REVISED AS NOTED
2 5-6-14 REVISED AS NOTED

Vermont Agency of Transportation

RECEIVED

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CK'D BY MJC OK'D BY TAS

June 18, 2014

RESUBMIT No Approved

BY M. J. Chenette DATE 06/19/2014

SHOP DRAWING REVIEW

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VHB *Vanasse Hangen Brustlin, Inc.* 7056 US Route 7 North Ferrisburgh, VT 05473 802.425.7788

Job Number: 57427.00
Reviewed By: S.E. Burbank
Date: 06/19/2014

APPROVAL STAMP:

Eriksson technologies 813.989.3317 TAMPA, FL LRFD.COM

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer N.T.S.
2464 OAKE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

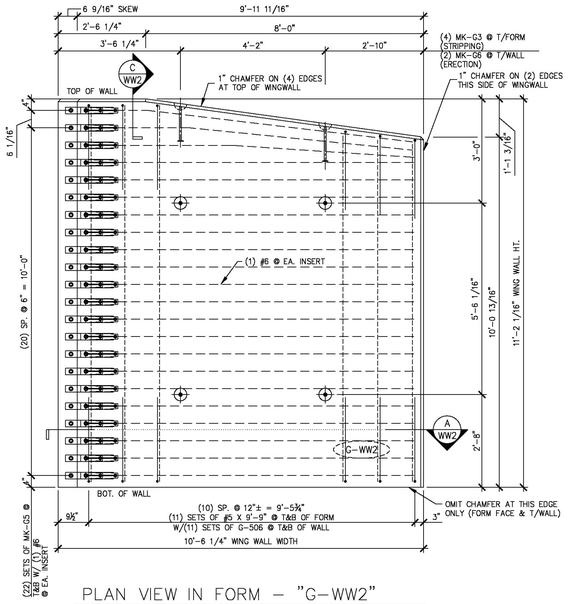
STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDHAM

TOWN OF GUILFORD
ROUTE NO. T.H.10, CLASS III (LOCAL ROAD)
BRIDGE NO.: 65 PROJECT NO.: BRO 1442 (36)

PRECAST WING WALL DETAILS

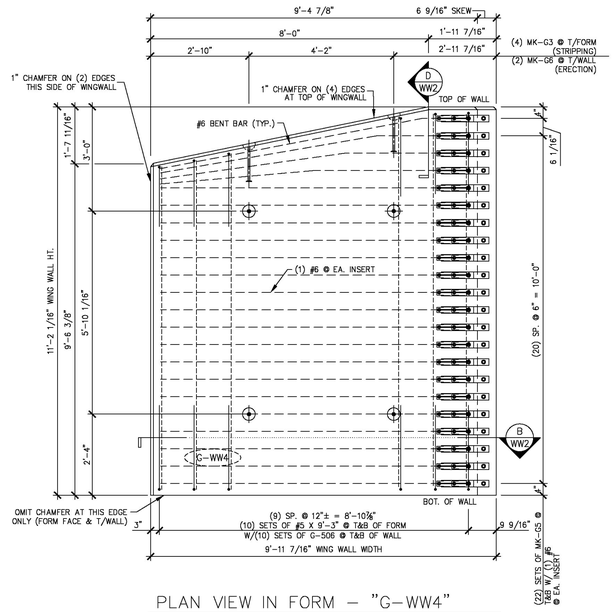
DATE: MAR. 04, 2014
SCALE: NOTED
CHKD: JJJ/KLT DFTM:AAT/RWS
JOB NO: 23420-014
DWG. NO: WW1

S:\Engineering Services\Carrara\134001 - Guilford Bridge 65\Production Drawings\AutoCAD Files\134236-WW1.dwg, 5/6/2014 4:44:42 PM, DWG To PDF.pc3



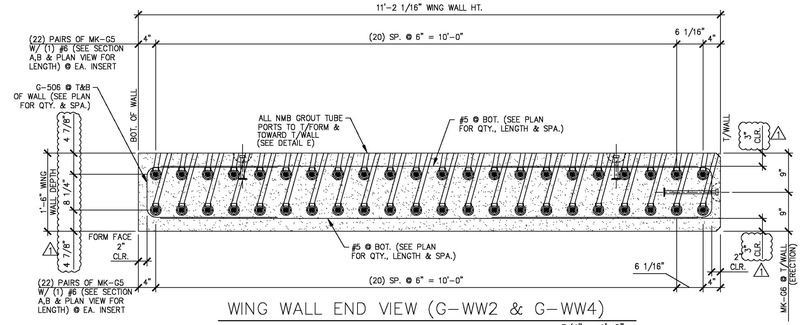
PLAN VIEW IN FORM – "G–WW2"

1/2" = 1'-0"



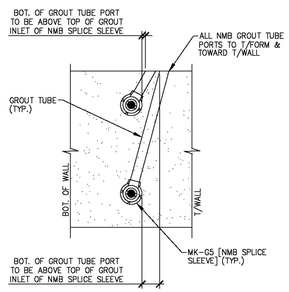
PLAN VIEW IN FORM – "G–WW4"

1/2" = 1'-0"



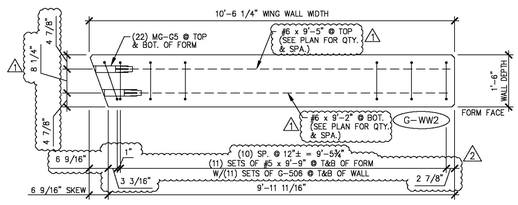
WING WALL END VIEW (G–WW2 & G–WW4)

3/4" = 1'-0"



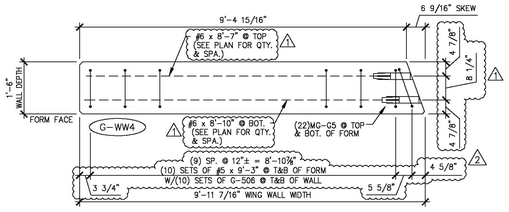
DETAIL – "E"

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



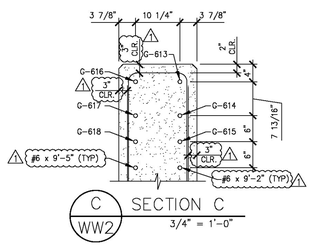
A WW2 G–WW2 SECTION

1/2" = 1'-0"



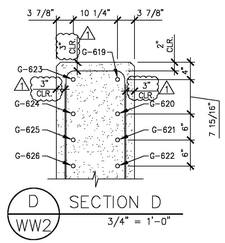
B WW2 G–WW4 SECTION

1/2" = 1'-0"



C WW2 SECTION C

3/4" = 1'-0"



D WW2 SECTION D

3/4" = 1'-0"

Vermont Agency of Transportation

RECEIVED

Outland BRO 1442 (36) - Precast Submittal 003.pdf

CK'D BY MJC **OK'D BY** TAS

June 18, 2014

RESUBMIT No **Approved**

BY M. J. Chenette **DATE** 06/19/2014

SHOP DRAWING REVIEW

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VHB *Vanasse Hangen Brustlin, Inc.*
7056 US Route 7
North Ferrisburgh, VT 05473
802.425.7788

Job Number 57427.00
Reviewed By: S.E. Burbank
Date: 06/19/2014

SHOP NOTE:
ALL EDGES OF WING WALLS, FORM FACE & T/WALL FACE, SHALL RECEIVE A 1" CHAMFER (UNLESS NOTED OTHERWSE)

MARK:	G–WW2	QTY.: 1	WT.: 12.42 T	VOL.: 6.13 cy
MARK:	G–WW4	QTY.: 1	WT.: 11.49 T	VOL.: 5.68 cy

MATERIAL LIST / WING WALL

ITEM	MARK	DESCRIPTION	QTY./WING WALL G–WW2	QTY./WING WALL G–WW4
1	G–506	#5 BENT BAR	△1 24	22
2	G–613	#6 BENT BAR	1	0
3	G–614	#6 BENT BAR	1	0
4	G–615	#6 BENT BAR	1	0
5	G–616	#6 BENT BAR	1	0
6	G–617	#6 BENT BAR	1	0
7	G–618	#6 BENT BAR	1	0
8	G–619	#6 BENT BAR	0	1
9	G–620	#6 BENT BAR	0	1
10	G–621	#6 BENT BAR	0	1
11	G–622	#6 BENT BAR	0	1
12	G–623	#6 BENT BAR	0	1
13	G–624	#6 BENT BAR	0	1
14	G–625	#6 BENT BAR	0	1
15	G–626	#6 BENT BAR	0	1
16				
17		#5 x 9'-3"	0	△1 22
18		#5 x 9'-9"	△1 24	0
19				
20				
21				
22		#6 x 8'-7" △1	0	18
23		#6 x 8'-10"	0	18
24		#6 x 9'-2"	19	0
25		#6 x 9'-5"	19	0
26				
27	MK–G3	4T x 9 1/2" SWFT LIFT LIFTER	4	4
28	MK–G5	NMB SPLICE SLEEVE 6U–X(PG)	44	44
29	MK–G6	20T x 19 3/4" SWFT LIFT LIFTER	2	2

△1 4–7–14 REVISED AS NOTED
△2 5–6–14 REVISED AS NOTED

APPROVAL STAMP:

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer N.T.S.
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388–6361 Fax:(802)388–9010

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDHAM

TOWN OF GUILFORD
ROUTE NO. T.H.10, CLASS III (LOCAL ROAD)
BRIDGE NO.: 65 PROJECT NO.: BRO 1442 (36)

PRECAST WING WALL DETAILS

DATE: MAR. 04, 2014
SCALE: NOTED
CHKD: JLJ/KLT DFTM:AAT/RWS
JOB NO: 23420–014
DWG. NO: WW2

Eriksson technologies
813.989.3317
TAMPA, FL LRFD.COM

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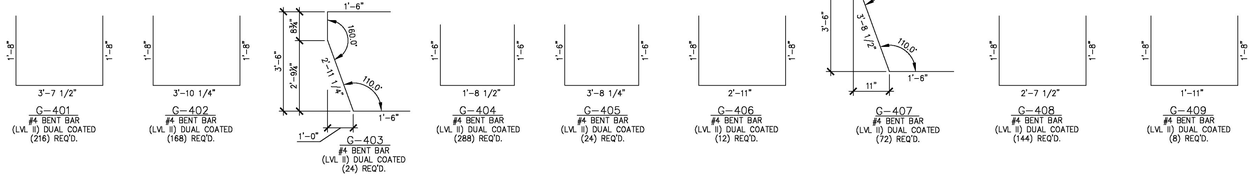
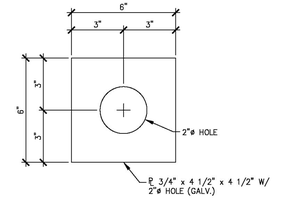
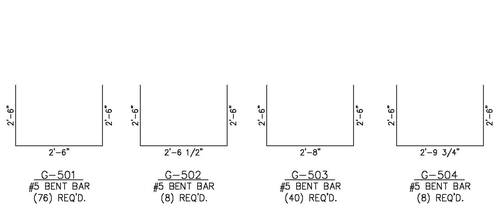
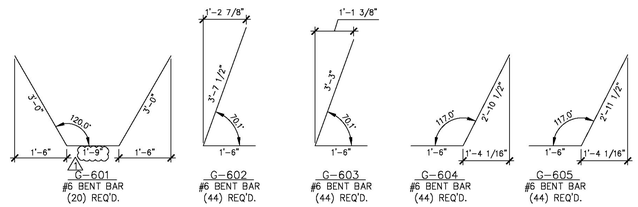


PRESTRESSED BOX BEAMS

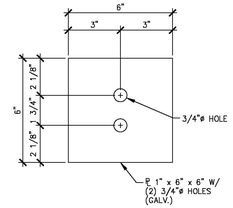


E M – G 4
3" = 1'-0"





PRECAST ABUTMENTS



E M – G 5
3" = 1'-0"

MISCELLANEOUS MATERIALS

ITEM	MARK	QTY.	DESCRIPTION	REMARKS	
1		42	#5 x 27'-7" ((LEVEL II) DUAL COATED)		PRESTRESSED BOX BEAMS
2		42	#5 x 32'-7" ((LEVEL II) DUAL COATED)		
3					
4	MK-G1	36	1"ø GUARD RAIL ANCHOR "U" BOLTS W/ (4)NUTS, (4)WASHERS (SUPPLIED BY OTHERS)	ASTM A449 OR 4325 (GALV.)	
5					
6		20	SET OF (3) 0.60"ø x 270 KSI STRAND LIFTING LOOPS		
7					
8					
9	EM-G1	10	1 1/2"ø x 4'-10 3/4" ANCHOR ROD (GALV.)	FOR ERECTION	
10	EM-G2	10	1 1/2"ø HEAVY HEX NUT (GALV.) & 1 1/2"ø STD. WASHER (GALV.)	FOR ERECTION	
11	EM-G3	10	1/2" x 5" x 5" W/ 1 3/4"ø HOLE (GALV.)	FOR ERECTION	
12	EM-G4	8	3/4" x 6" x 6" W/ 2"ø HOLE (GALV.)	FOR ERECTION; SEE DETAIL THIS SHEET	
13	EM-G5	4	1" x 6" x 6" W/ (2) 3/4"ø HOLES (GALV.)	FOR ERECTION; SEE DETAIL THIS SHEET	
14		8	0.6"ø x 26'-0" POLY-STRAND	FOR ERECTION	
15					PRECAST ABUTMENTS
16		20	#5 x 3'-7"		
17		20	#5 x 4'-0"		
18		24	#5 x 6'-10"		
19		54	#5 x 6'-11"		
20		20	#5 x 10'-0"		
21		42	#5 x 10'-8"		
22		20	#5 x 10'-10"		
23		20	#5 x 17'-0"		
24					
25		8	SET OF (4) 0.60"ø x 270 KSI STRAND LIFTING LOOPS		
26					
27	EM-G4	12	3/4" x 6" x 6" W/ 2"ø HOLE (GALV.) ⚠1	FOR ERECTION; SEE DETAIL THIS SHEET	
28		24	0.5"ø x 34'-0" POLY-STRAND	FOR ERECTION	
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					

Vermont Agency of Transportation
RECEIVED
Guilford BRO 1442 CKD - Precast Submittal 003.pdf
CK'D BY MJC OK'D BY TAS
June 18, 2014
RESUBMIT No Approved
BY M. J. Chenette DATE 06/19/2014

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7056 US Route 7
North Ferrisburgh, VT 05473
802.425.7788

Job Number: 57427.00
Reviewed By: S.E. Burbank
Date: 06/19/2014

⚠1 4-7-14 REVISED AS NOTED

APPROVAL STAMP:

J.P. CARRARA & SONS INC.
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2464 CAGE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDHAM

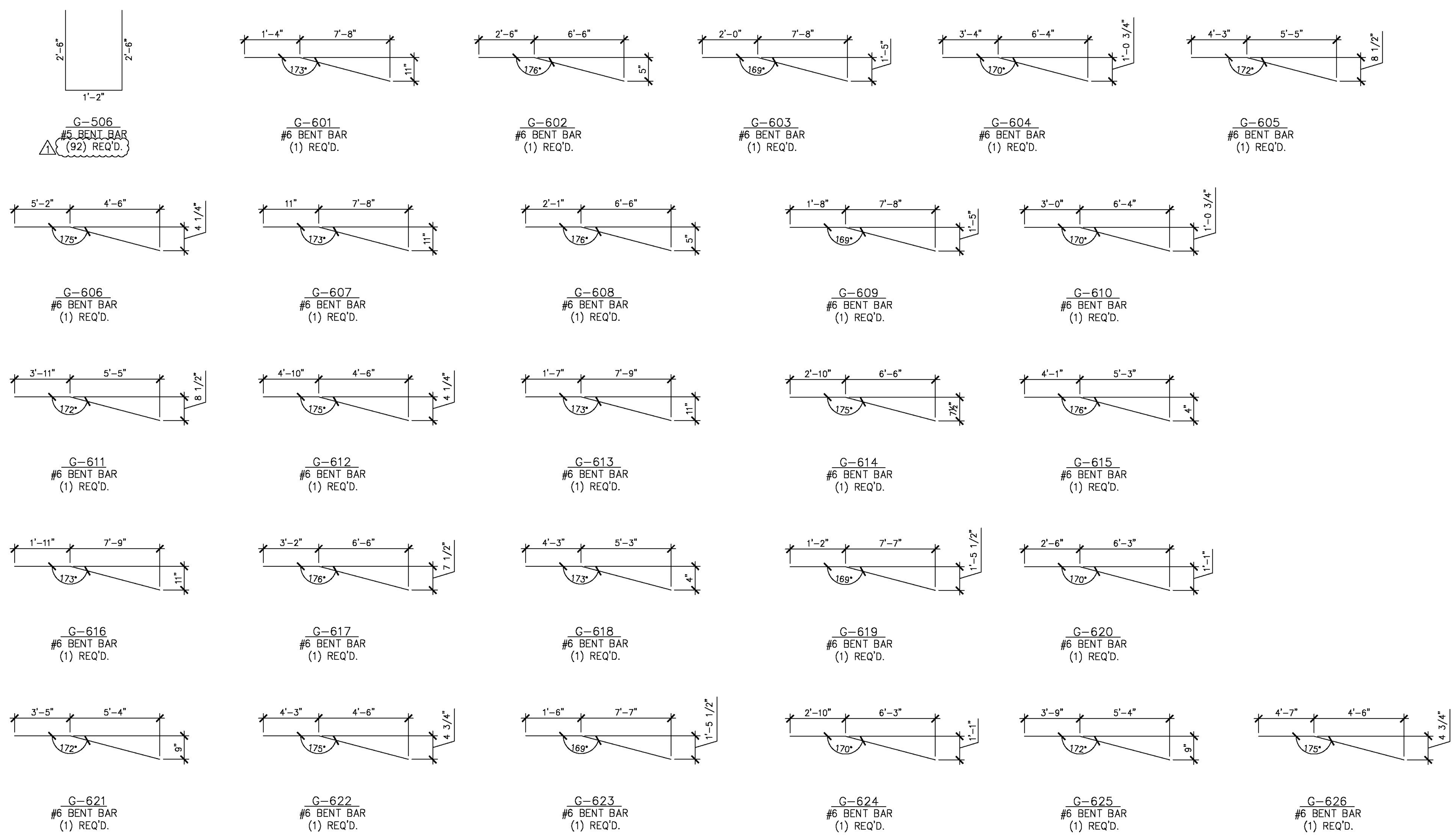
TOWN OF GUILFORD
ROUTE NO. T.H.10, CLASS III (LOCAL ROAD)
BRIDGE NO.: 65 PROJECT NO.: BRO 1442 (36)

MATERIALS LIST

DATE: MAR. 04, 2014
SCALE: NOTED
CHKD: JJ/KLT DFTM:AAT/RWS
JOB NO: 23420-014
DWG. NO: M1

Eriksson technologies
813.989.3317
TAMPA, FL LRFD.COM

S:\Engineering Services\Carrara\140401 - Guilford Bridge 65\Production Drawings\AutoCAD Files\144236-M1.dwg, 5/6/2014 4:44:46 PM, DWG To PDF.pc3



PRECAST WINGWALLS

MISCELLANEOUS MATERIALS

ITEM	MARK	QTY.	DESCRIPTION	REMARKS
1		22	#5 x 9'-3"	
2		24	#5 x 9'-5"	
3		24	#5 x 9'-9"	
4		22	#5 x 9'-11"	
5				
6				
7		20	#6 x 8'-5"	
8		18	#6 x 8'-7"	
9		38	#6 x 8'-10"	
10		37	#6 x 9'-2"	
11		37	#6 x 9'-5"	
12				
13				
14				
15				
16				
17	MK-G3	16	4T x 9 1/2" SWIFT LIFT LIFTER	
18	MK-G5	176	NMB SPLICE SLEEVE 6U-X(PG)	ORDER (3) EXTRA FOR TESTING - TOTAL (179)
19	MK-G6	8	20T x 19 3/4" SWIFT LIFT LIFTER	
20				
21				
22				

PRECAST WING WALLS

Vermont Agency of Transportation
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BY M. J. Chenette DATE 06/19/2014

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COUNTY OF WINDHAM

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MATERIALS LIST

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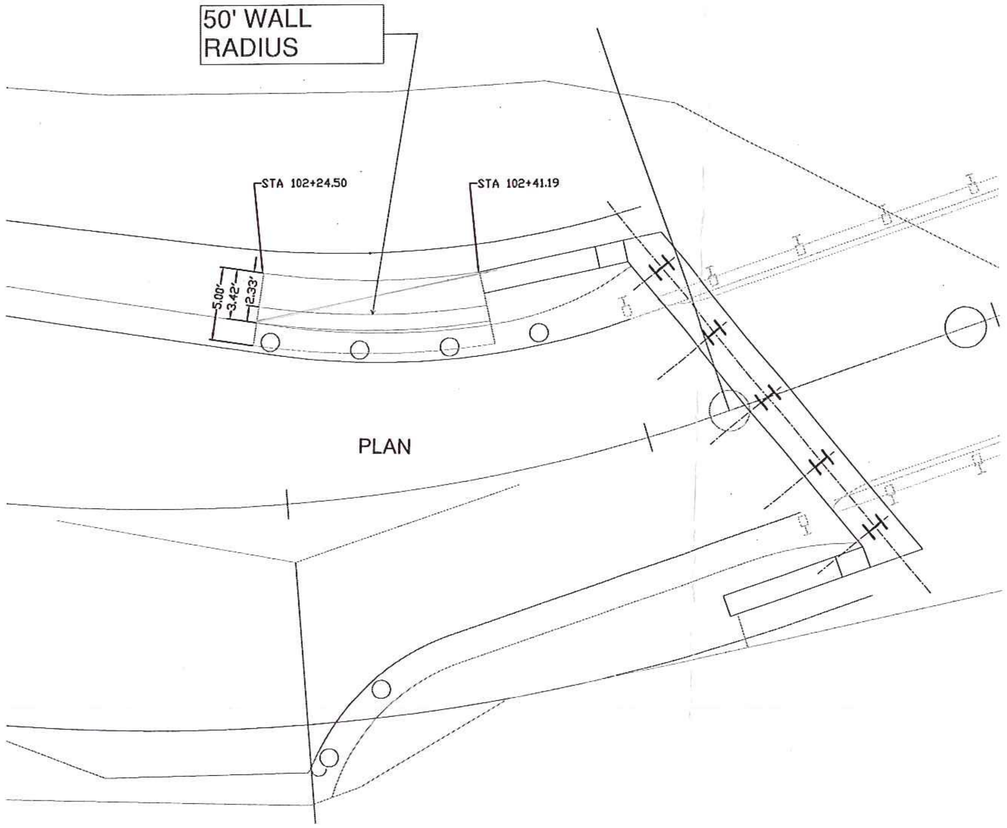
SCALE: NOTED
CHKD: JJJ/KLT DFTM:AAT/RWS
JOB NO: 23420-014
DWG. NO: M2

Eriksson technologies 813.989.3317 TAMPA, FL LRFD.COM



PLAN

Vermont Agency of Transportation

RECEIVED

Retaining Wall 003.pdf

CK'D BY MJC OK'D BY TAS

August 25, 2014

RESUBMIT No **Approved**

BY M. J. Chenette DATE 08/27/2014

REV. NO.	DATE:
1	??/??/??

BRENAUD BROS. INC.
283 Ft. Bridgman Rd. Vernon Vt., 05354
PH. (802) 257-7585 FAX. (802) 257-7508

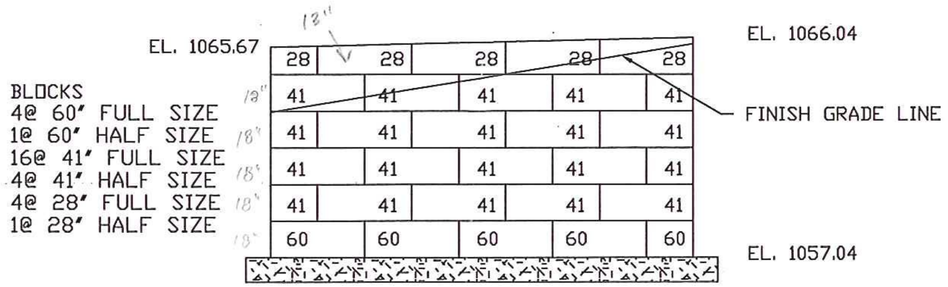
SHEET NAME: RETAINING WALL PLAN

PROJECT NAME: GUILFORD BRO

PROJECT NO: 1442 (36)

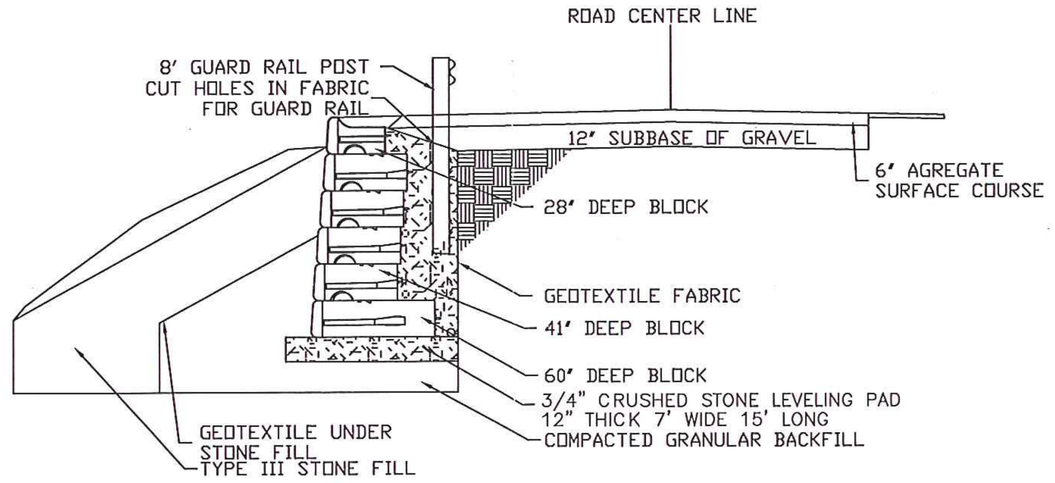
SHEET NO. 1 OF 8

DRAWN BY: CDE | CHK'D BY: | DATE: 07/21/2014



ELEVATION

6
57.104
1055.33
1.71
1'8 1/2"



SECTION
STA 102+31

NOTES:
1. ALL BLOCKS ARE REDI ROCK LIME STONE FINISHED BLOCKS.

Vermont Agency of Transportation
RECEIVED
Retaining Wall 003.pdf

CK'D BY MJC OK'D BY TAS

August 25, 2014

RESUBMIT No **Approved**

BY M. J. Chenette DATE 08/27/2014

REV. NO.	DATE:
1	??/??/??

RENAUD BROS. INC.
283 FT. BROWN RD. VERNON VT., 05354
PH. (802) 257-7583 FAX. (802) 257-7508

SHEET NAME: RETAINING WALL ELEVATION AND SECTION
PROJECT NAME: GUILFORD BRO
PROJECT NO: 1442 (36)
SHEET NO. 2 OF 8
DRAWN BY: CDE
CHK'D BY:
DATE: 07/21/2014