

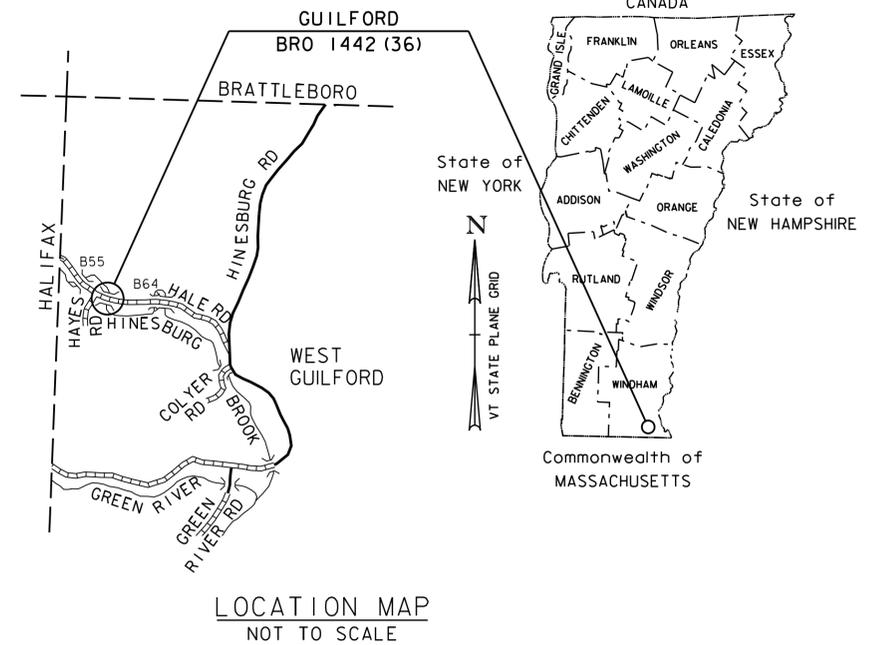
STATE OF VERMONT  
 AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT  
 BRIDGE PROJECT

TOWN OF GUILFORD  
 COUNTY OF WINDHAM

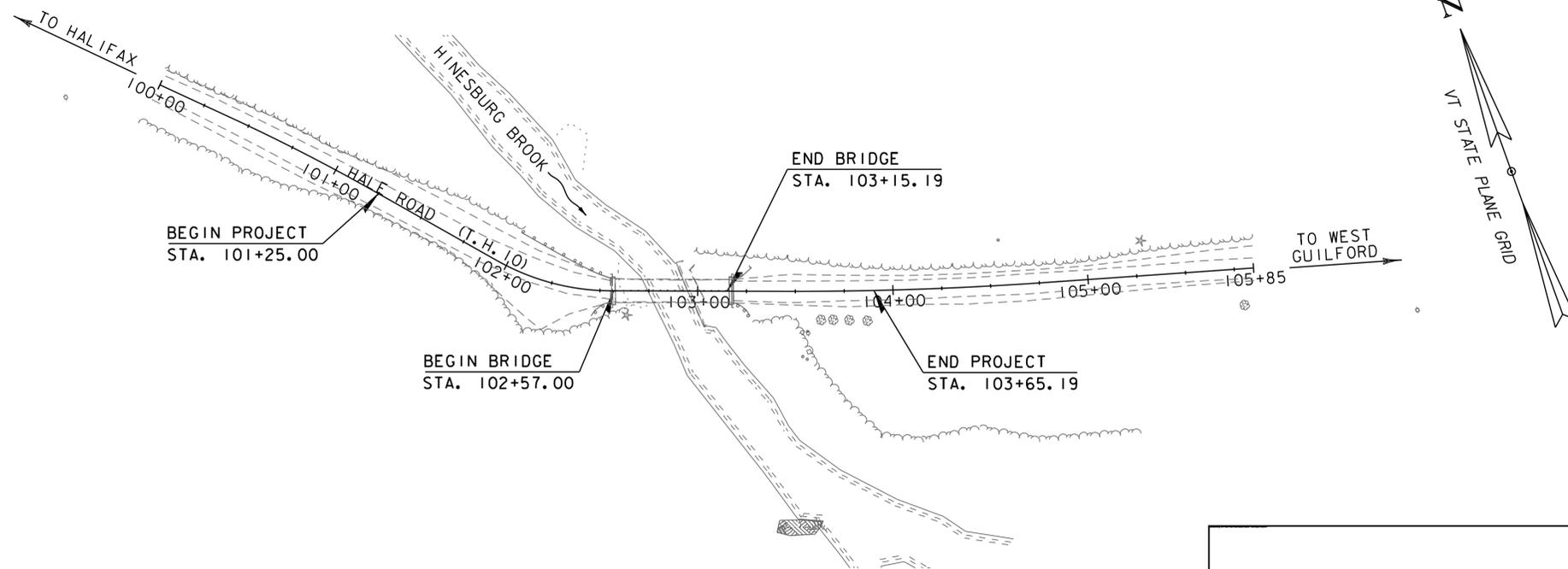
ROUTE: T.H. 10, CLASS III (LOCAL ROAD), BRIDGE NO. 65



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)



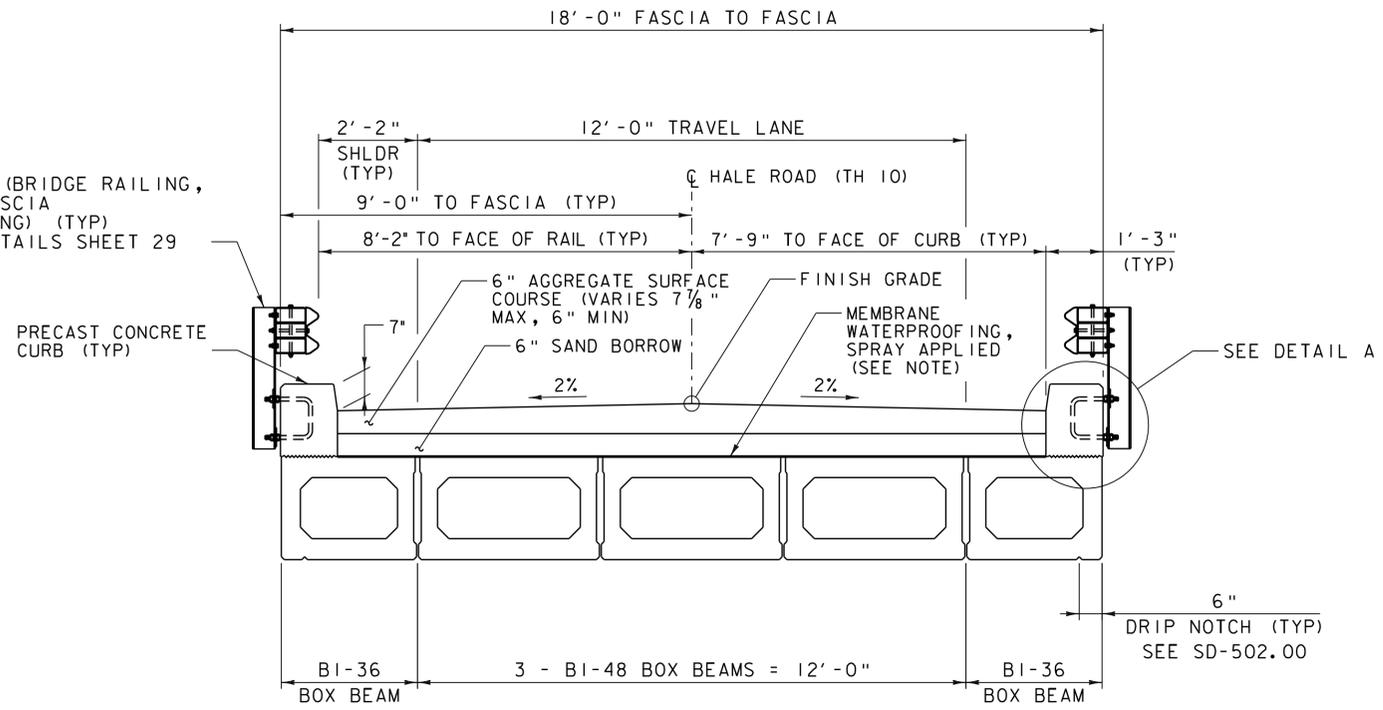
DIRECTOR OF PROGRAM DEVELOPMENT	APPROVED _____ DATE _____
PROJECT MANAGER : TODD A. SUMNER, P.E.	
PROJECT NAME : GUILFORD	
PROJECT NUMBER : BRO 1442 (36)	
SHEET 1 OF 42 SHEETS	



INDEX OF SHEETS						FINAL HYDRAULIC REPORT																		
<b>PLAN SHEETS</b>						<b>STANDARDS LIST</b>						<b>HYDROLOGIC DATA</b>						<b>PROPOSED STRUCTURE</b>						
1	TITLE SHEET					E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	08-08-1995					Date: 7/02/2013						STRUCTURE TYPE: <u>Single span voided slab bridge</u>					
2	PRELIMINARY INFORMATION SHEET					E-164	SQUARE STEEL SIGN POST	06-08-2009					DRAINAGE AREA : <u>2.75 sq. mi.</u>						CLEAR SPAN(NORMAL TO STREAM): <u>45 ft</u>					
3	TYPICAL BRIDGE SECTION					G-1	STEEL BEAM GUARDRAIL DETAILS (POST, DELINEATOR, TYPICALS)	01-03-2000					CHARACTER OF TERRAIN : <u>Hilly to mountainous, mostly forested</u>						VERTICAL CLEARANCE ABOVE STREAMBED: <u>10.8 ft</u>					
4	TYP EARTHWORK AND ROADWAY SECTIONS					G1-D	STEEL BEAM GUARDRAIL DETAILS (END TERMINAL, ANCHOR, MEDIAN)	01-03-2000					STREAM CHARACTERISTICS : <u>Stable, Moderately entrenched, Moderately Sinuous</u>						WATERWAY OF FULL OPENING: <u>270 sf</u>					
5 - 6	PROJECT NOTES					S-367B	GUARDRAIL APPROACH SECTION, GALVANIZED HD STEEL BEAM	05-24-2012					NATURE OF STREAMBED : <u>Gravel and cobbles</u>						WATER SURFACE ELEVATIONS AT:					
7 - 8	QUANTITY SHEETS					T-1	TRAFFIC CONTROL GENERAL NOTES	08-06-2012					PEAK FLOW DATA						IS THE ROADWAY OVERTOPPED BELOW Q100: <u>No</u>					
9	CONVENTIONAL SYMBOLOGY SHEET					T-10	CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING	08-06-2012					Q 2.33 = <u>150 cfs</u> Q 50 = <u>700 cfs</u>						FREQUENCY: <u>Above Q100</u>					
10	TIE SHEET					T-30	CONSTRUCTION SIGN DETAILS	08-06-2012					Q 10 = <u>380 cfs</u> Q 100 = <u>800 cfs</u>						RELIEF ELEVATION: <u>1064.8</u>					
11	LAYOUT SHEET					T-35	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS	08-06-2012					Q 25 = <u>525 cfs</u> Q 500 = <u>1,040 cfs</u>						DISCHARGE OVER ROAD @Q100: <u>0 cfs</u>					
12	PROFILE												DATE OF FLOOD OF RECORD: <u>1927</u>						AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: <u>1061.6 ft</u>					
13	TRAFFIC CONTROL PLAN												ESTIMATED DISCHARGE: <u>Unknown</u>						VERTICAL CLEARANCE: <u>@ Q25 = 4.8 ft</u>					
14	TRAFFIC SIGN SHEET												WATER SURFACE ELEV.: <u>Unknown</u>						SCOUR: <u>Contraction Scour = 0.5 ft (Q100), 0.5 ft (Q500)</u>					
15	TRAFFIC SIGN SUMMARY SHEET												NATURAL STREAM VELOCITY: <u>@ Q25 = 14.3 ft/s</u>						Abutment Scour - <u>n/a (abutments located outside of flow area)</u>					
16	BORING INFORMATION SHEET												ICE CONDITIONS : <u>Moderate</u>						REQUIRED CHANNEL PROTECTION: <u>Stone Fill, Type III</u>					
17 - 18	BORING LOGS												DEBRIS: <u>Moderate</u>						<b>PERMIT INFORMATION</b>					
19	PLAN AND ELEVATION												DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? <u>Yes</u>						AVERAGE DAILY FLOW: <u>10 cfs</u> DEPTH OR ELEVATION:					
20	FRAMING PLAN												IS ORDINARY RISE RAPID? <u>Yes</u>						ORDINARY LOW WATER: <u>1.0 cfs</u> Depth = <u>0.1 ft</u>					
21 - 22	BOX BEAM DETAILS												IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? <u>No</u>						ORDINARY HIGH WATER: <u>60 cfs</u> Depth = <u>1.1 ft</u>					
23	BEARING DETAILS												IF YES, DESCRIBE: _____						<b>TEMPORARY BRIDGE REQUIREMENTS</b>					
24	ABUTMENT PLAN & ELEVATION												WATERSHED STORAGE: <u>&lt; 1 %</u> HEADWATERS: _____						STRUCTURE TYPE: <u>No temporary bridge required.</u>					
25	ABUTMENT REINFORCING												UNIFORM: <u>X</u>						CLEAR SPAN (NORMAL TO STREAM): _____					
26	WINGWALL DETAILS												IMMEDIATELY ABOVE SITE: _____						VERTICAL CLEARANCE ABOVE STREAMBED: _____					
27	RETAINING WALL DETAILS												<b>EXISTING STRUCTURE INFORMATION</b>						WATERWAY AREA OF FULL OPENING: _____					
28	BRIDGE RAIL LAYOUT												STRUCTURE TYPE: <u>Single span, rolled steel beam supported by concrete stub abutments</u>						<b>ADDITIONAL INFORMATION</b>					
29	BRIDGE RAIL DETAILS												YEAR BUILT: <u>Built 1939, reconstructed in 1966</u>						_____					
30 - 32	ROADWAY CROSS SECTIONS												CLEAR SPAN(NORMAL TO STREAM): <u>34' (measured from stone retaining wall)</u>						_____					
33 - 36	CHANNEL CROSS SECTIONS												VERTICAL CLEARANCE ABOVE STREAMBED: <u>11.7 ft</u>						_____					
37	EPSC NARRATIVE												WATERWAY OF FULL OPENING: <u>265 sf</u>						_____					
38	EPSC EXISTING CONDITIONS PLAN												DISPOSITION OF STRUCTURE: <u>Remove and replace with a new bridge</u>						_____					
39	EPSC CONSTRUCTION CONDITIONS PLAN												TYPE OF MATERIAL UNDER SUBSTRUCTURE: <u>See boring information</u>						_____					
40	EPSC FINAL CONDITIONS PLAN												WATER SURFACE ELEVATIONS AT:						_____					
41 - 42	EROSION CONTROL DETAILS												Q2.33 = <u>1055.0 ft</u> VELOCITY = <u>7.4 ft/s</u>						_____					
													Q10 = <u>1056.2 ft</u> " <u>9.5 ft/s</u>						_____					
													Q25 = <u>1056.8 ft</u> " <u>10.2 ft/s</u>						_____					
													Q50 = <u>1057.3 ft</u> " <u>11.1 ft/s</u>						_____					
													Q100 = <u>1057.9 ft</u> " <u>11.7 ft/s</u>						_____					
													LONG TERM STREAMBED CHANGES: <u>None noted</u>						_____					
													IS THE ROADWAY OVERTOPPED BELOW Q100: <u>No</u>						_____					
													FREQUENCY: <u>Above Q100</u>						_____					
													RELIEF ELEVATION: <u>1064.5 ft</u>						_____					
													DISCHARGE OVER ROAD @Q100: <u>0 cfs</u>						_____					
													<b>UPSTREAM STRUCTURE</b>						_____					
													TOWN: <u>Guilford</u> DISTANCE: <u>1,000 ft</u>						_____					
													HIGHWAY #: <u>T.H. 10</u> STRUCTURE #: <u>55</u>						_____					
													CLEAR SPAN: <u>25 ft</u> CLEAR HEIGHT: _____						_____					
													YEAR BUILT: <u>1966</u> FULL WATERWAY: _____						_____					
													STRUCTURE TYPE: <u>Steel stringer with bituminous wearing surface</u>						_____					
													<b>DOWNSTREAM STRUCTURE</b>						_____					
													TOWN: <u>Guilford</u> DISTANCE: <u>1,690 ft</u>						_____					
													HIGHWAY #: <u>T.H. 10</u> STRUCTURE #: <u>64</u>						_____					
													CLEAR SPAN: <u>55 ft</u> CLEAR HEIGHT: _____						_____					
													YEAR BUILT: <u>1964</u> FULL WATERWAY: _____						_____					
													STRUCTURE TYPE: <u>Steel stringer with bituminous wearing surface</u>						_____					
													<b>LRFR LOAD RATING FACTORS</b>						_____					
													LOADING LEVELS						_____					
													INVENTORY						_____					
													POSTING						_____					
													OPERATING						_____					
													COMMENTS:						_____					
													* SEE PROJECT NOTES						_____					
													<b>PILE DRIVING AND TESTING REQUIREMENTS</b>						_____					
													1. NOMINAL PILE DRIVING CAPACITY						_____					
													2. PILE TEST RESISTANCE FACTOR						_____					
													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.						_____					
													<b>TRAFFIC DATA</b>						_____					
													YEAR						_____					
													ADT						_____					
													DHV						_____					
													% D						_____					
													% T						_____					
													ADTT						_____					
													20 year ESAL for flexible pavement from 2012 to 2032 : <u>19000</u>						_____					
													40 year ESAL for flexible pavement from 2012 to 2052 : <u>38000</u>						_____					
													Design Speed : <u>25 mph</u>						_____					
													<b>AS BUILT "REBAR" DETAIL</b>						_____					
													LEVEL I						_____					
													LEVEL II						_____					
													LEVEL III						_____					
													TYPE:						_____					
													GRADE:						_____					
													PROJECT NAME: <b>GUILFORD</b>						_____					
													PROJECT NUMBER: <b>BRO 1442(36)</b>						_____					
													FILE NAME: <b>z10j062pi.dgn</b>						PLOT DATE: <u>9/11/2013</u>					
													PROJECT LEADER: <b>S.E. BURBANK</b>						DRAWN BY: <b>D.A. GINGRAS</b>					
													DESIGNED BY: <b>A.J. GOUDREAU</b>						CHECKED BY: <b>S.E. BURBANK</b>					
													<b>PRELIMINARY INFORMATION SHEET</b>						SHEET <u>2</u> OF <u>42</u>					

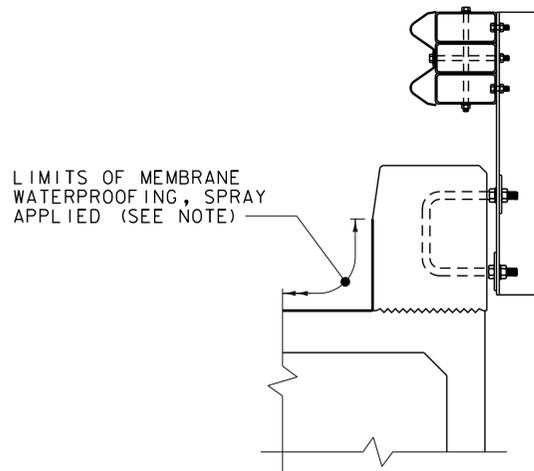


SPECIAL PROVISION (BRIDGE RAILING,  
GALVANIZED HDSB/FASCIA  
MOUNTED/STEEL TUBING) (TYP)  
SEE BRIDGE RAIL DETAILS SHEET 29



TYPICAL BRIDGE SECTION

SCALE 1/2" = 1'-0"



DETAIL A

SCALE 1" = 1'-0"

NOTE:

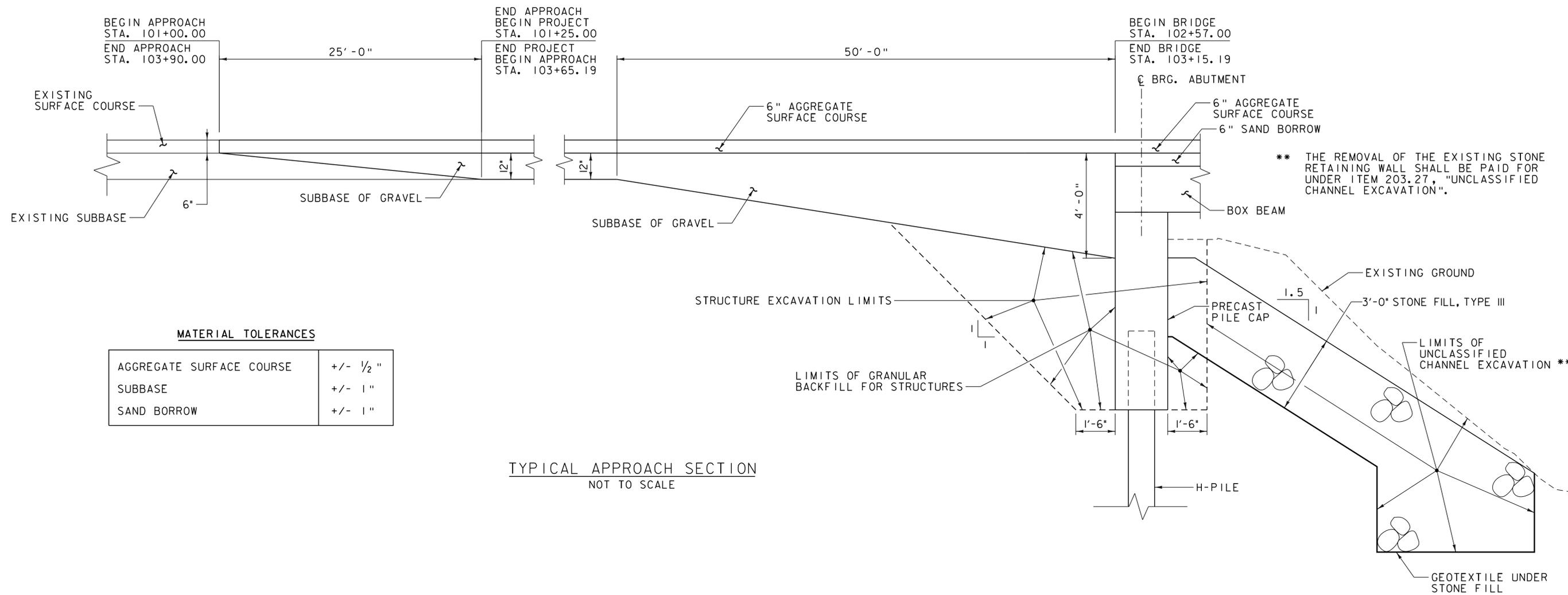
ITEM 520.10, "MEMBRANE WATERPROOFING, SPRAY APPLIED" SHALL BE APPLIED TO THE BRIDGE DECK AS PER THE MANUFACTURER'S INSTRUCTIONS AND SHALL INCLUDE A REINFORCEMENT SCRIM COAT OVER GROUTED SHEAR KEYS.

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: 10/2/2013  
DRAWN BY: E.A. FIALA  
CHECKED BY: S.E. BURBANK  
SHEET 3 OF 42

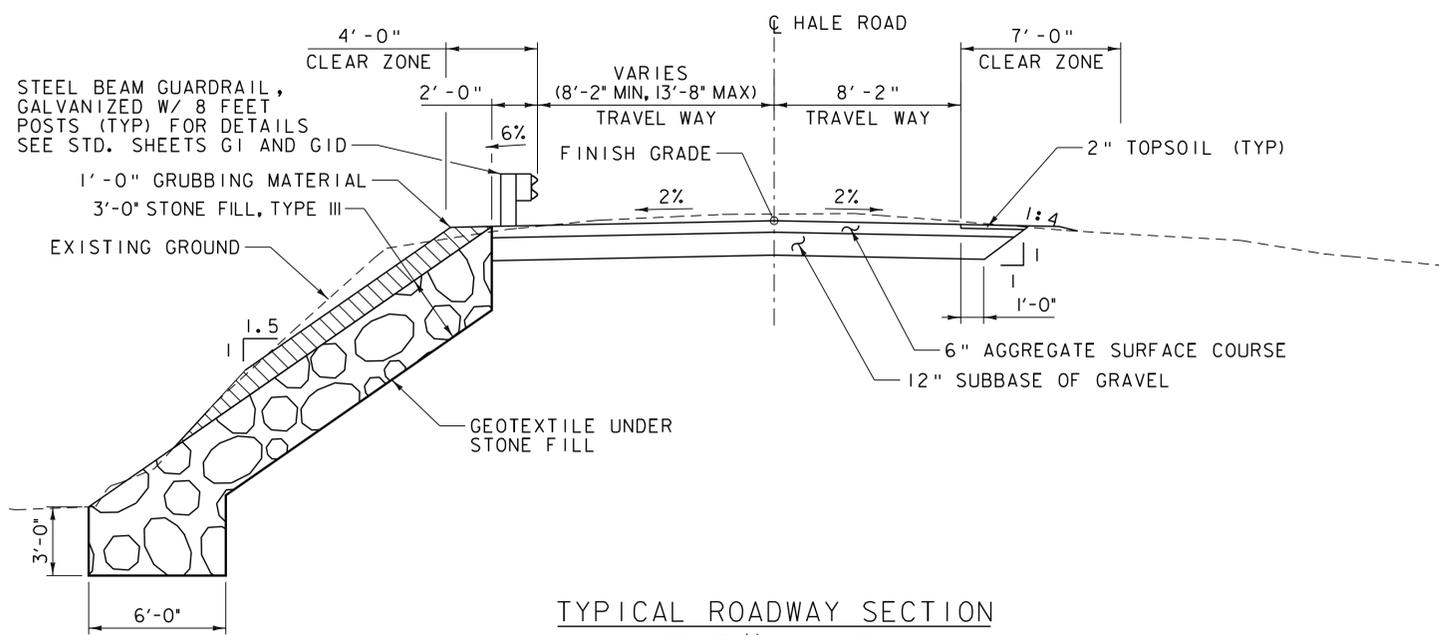




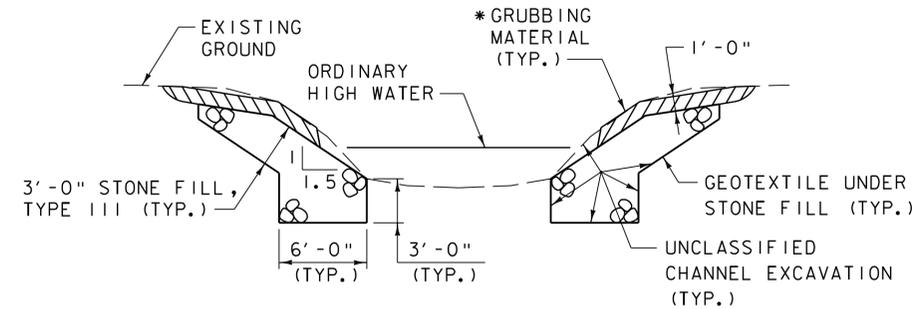
**MATERIAL TOLERANCES**

AGGREGATE SURFACE COURSE	+/- 1/2"
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.

PROJECT NAME:	GUILFORD
PROJECT NUMBER:	BR01442(36)
FILE NAME:	z10j064typ.dgn
PROJECT LEADER:	S.E. BURBANK
DESIGNED BY:	E.A. FIALA
TYP EARTHWORK AND ROADWAY SECTIONS	
PLOT DATE:	10/2/2013
DRAWN BY:	E.A. FIALA
CHECKED BY:	S.E. BURBANK
SHEET	4 OF 42



## PROJECT NOTES

### GENERAL

- 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.
- 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.
- THE BRIDGE IS DESIGNED FOR HL-93 LIVE LOAD WITH A 7 INCH ALLOWANCE FOR FUTURE AGGREGATE SURFACE COURSE.
- 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.
- ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68 DEGREES FAHRENHEIT UNLESS NOTED OTHERWISE.
- 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.
- 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 IDENMIFY AND HOLD THE STATE, ITS OFFICERS, AND EMPLOYEES HARMLESS CONCERNING THE CONTRACTOR'S USE OR DISPOSITION OF THE REMOVED EXISTING STRUCTURAL STEEL.
- 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.
- NO SUBSTITUTION FOR PRECAST CONCRETE WILL BE PERMITTED.

### EARTHWORK AND RELATED ITEMS

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

### TRAFFIC MAINTENANCE DURING CONSTRUCTION

- THE CONTACTOR SHALL IMPLEMENT THE ROAD CLOSURE, AS SHOWN ON THE PLANS.
- THE CONTRACTOR SHALL NOTIFY THE TOWN A MINIMUM OF TWO (2) WEEKS PRIOR TO CLOSING THE ROAD.
- 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".
- THE DETOUR FOR THE BRIDGE CLOSURE IS THE RESPONSIBILITY OF THE TOWN.
- 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.

- 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

- 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.
- ALL REINFORCING STEEL SHALL BE DETAILED AND FABRICATED USING PROCEDURES AND TOLERANCES IN ACCORDANCE WITH APPLICABLE PUBLICATIONS OF THE CONCRETE REINFORCING STEEL INSTITUTE (CRSI).
- ALL PRECAST SUBSTRUCTURE CONCRETE SHALL MEET THE REQUIREMENTS OF SECTION 540-PRECAST CONCRETE.
- 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.
- THE COST FOR THE PRECAST CONCRETE CURBS SHALL BE INCLUDED IN ITEM 510.21, "PRESTRESSED CONCRETE BOX BEAMS (B1-36)". THE CURBS SHALL BE CAST AT THE FABRICATION PLANT FOR THE BOX BEAMS IN ACCORDANCE WITH SECTION 540.

### PRECAST ABUTMENTS AND POST-TENSIONING

- 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.
- 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.
- GALVANIZE ANCHOR ASSEMBLIES AFTER FABRICATION ACCORDING TO AASHTO M23 2M/M 232.
- DESIGN VALUES
  - CONCRETE COMPRESSIVE STRENGTH:  $f'c = 5000$  PSI.
  - POST-TENSIONING STRANDS: 0.5 INCH DIAMETER, 270 KSI, LOW RELAXATION 7-WIRE STRANDS.
  - ASSUMED MODULUS OF ELASTICITY IS 28500 KSI.
  - THERE SHALL BE 2 STRANDS PER CONDUIT.
  - THE JACKING FORCE PER STRAND = 32 KIPS.
- 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)".
- PROPOSED SEQUENCE OF CONSTRUCTION:
  - PREPARE AND GRADE FOUNDATION TO REQUIRED ELEVATION.
  - DRIVE PILES.
  - PLACE PRECAST ABUTMENTS AND INSTALL TRANSVERSE STRANDS (IF MORE THAN ONE UNIT).
  - APPLY EPOXY TO MATCH CAST FACES OF VERTICAL CONSTRUCTION JOINT.
  - USE A CALIBRATED JACK TO TENSION TO 3 KIPS TO REMOVE SAG IN STRANDS.
  - CHECK ALIGNMENT OF PILE CAP ELEMENTS.
  - STRESS POST-TENSIONING STRANDS USING A CALIBRATED JACK OPERATED BY QUALIFIED PERSONNEL WHO HAVE PREVIOUS EXPERIENCE IN POST-TENSIONING.
  - FILL PILE CAVITIES WITH ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)(FPQ)".
  - PLACE PRECAST WINGWALLS AND GROUT SPLICE CONNECTORS.
  - BACKFILL MAY BE COMPLETE AFTER SPLICE CONNECTOR GROUT HAS REACHED 85% OF 5,000 PSI.
- ALTERNATE SEQUENCE OF CONSTRUCTION MAY BE SUBMITTED FOR APPROVAL BY THE PROJECT MANAGER.

### PRESTRESSED BOX BEAMS

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

- DESIGN VALUES
  - CONCRETE:  $f'c = 6.0$  KSI AND  $f'ci = 4.8$  KSI
  - LIVE LOAD: AASHTO HL-93
  - PRESTRESSING STRANDS: 0.6" DIAMETER, 270 KSI, LOW-RELAXATION 7-WIRE STRANDS PULLED TO 75% OF THEIR ULTIMATE TENSILE STRENGTH.
  - POST-TENSIONING STRANDS: 0.6" DIAMETER, 270 KSI, LOW-RELAXATION 7-WIRE STRANDS.
  - THE ASSUMED MODULUS OF ELASTICITY FOR THE STRAND IS 28,500 KSI.
  - THERE SHALL BE (1) STRAND PER TRANSVERSE TIE AT THE END DIAPHRAGM LOCATIONS AND (2) STRANDS PER TRANSVERSE TIE AT THE CENTER DIAPHRAGM.
  - 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.
  - 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
- 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.
- THE PRECASTER SHALL SANDBLAST SHEAR KEY FACES PRIOR TO DELIVERY.
- 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.
- 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

- LAYOUT WORKING LINES:
  - LAYOUT WORKING LINES FOR THE ENTIRE BRIDGE WIDTH ON THE BEAM SEAT.
  - MEASURE ALL WORKING LINES FROM A COMMON WORKING POINT.
  - BASE THE WORKING LINES ON THE NOMINAL BEAM WIDTHS.
- VERIFY BEAM SEAT ELEVATIONS:
  - MEASURE ELEVATIONS AT BEAM SEATS.
  - IF SEATS ARE HIGH OR LOW, TAKE CORRECTIVE ACTION.
  - INSTALL BEARINGS.
- ERECT BEAMS:
  - PLACE BEAMS TO FIT WITHIN THE WORKING LINES.
  - AS WORK PROGRESSES, INSTALL HARDWOOD WEDGES BETWEEN ADJACENT BEAMS TO MAINTAIN PROPER JOINT OPENING (A MINIMUM OF ONE WEDGE AT EACH TRANSVERSE TENDON).
  - DRILL ANCHOR BOLT HOLES
  - PLACE ANCHOR BOLTS.
- INSTALL BACKER ROD: PLACE FILLER BELOW THE KEYWAY BOTTOM, AS SHOWN ON THE PLANS.
- INSTALL TRANSVERSE TENDONS:
  - FEED TENDONS THROUGH DUCTS.
  - VERIFY THAT HARDWOOD WEDGES ARE IN PLACE AS REQUIRED TO PREVENT SLIPPAGE OF BEAMS.
  - USING A CALIBRATED JACK, POST-TENSION TENDONS TO APPROXIMATELY 5 KIPS TO REMOVE SAG IN THE TENDON AND TO SEAT THE CHUCK.
- GROUT SHEAR KEYS:
  - CLEAN JOINTS WITH AN OIL FREE AIR-BLAST IMMEDIATELY BEFORE GROUT PLACEMENT. VERIFY THAT THE BACKER ROD IS STILL IN PLACE.
  - FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR ADDITIONAL JOINT PREPARATION AND GROUT PLACEMENT.
  - CAREFULLY ROD JOINTS TO ELIMINATE ANY POSSIBILITY OF VOIDS.

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: 10/3/2013  
DRAWN BY: E.A FIALA  
CHECKED BY: S.E. BURBANK  
SHEET 5 OF 42

**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 MINIMUM 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.



PROJECT NAME: GUILFORD	
PROJECT NUMBER: BRO 1442(3)	
FILE NAME: z10j064pn.dgn	PLOT DATE: 10/3/2013
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A FIALA
DESIGNED BY: J.T. KLEIN	CHECKED BY: S.E. BURBANK
PROJECT NOTES (2 OF 2)	SHEET 6 OF 42

# QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
						ROADWAY	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
						1				1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10				
						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				

PROJECT NAME:	<b>GUILFORD</b>
PROJECT NUMBER:	<b>BRO 1442(36)</b>
FILE NAME: z10J064qs.dgn	PLOT DATE: 10/01/2013
PROJECT LEADER: S.E. BURBANK	DRAWN BY: A.J. GOUDREAU
DESIGNED BY: S.E. BURBANK	CHECKED BY: E.B. PARIZO
QUANTITY SHEET #1	SHEET 7 OF 42



# QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
							ROADWAY	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
								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 CONCRETE, 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				

PROJECT NAME: **GUILFORD**  
 PROJECT NUMBER: **BRO 1442(36)**  
 FILE NAME: z10J064qs.dgn PLOT DATE: 10/01/2013  
 PROJECT LEADER: S.E. BURBANK DRAWN BY: A.J. GOUDREAU  
 DESIGNED BY: S.E. BURBANK CHECKED BY: E.B. PARIZO  
 QUANTITY SHEET #2 SHEET 8 OF 42





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) SOUTHWEST OF UTILITY POLE #17 AND APPROXIMATELY 183 FT (55.8 M) SOUTHWEST 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

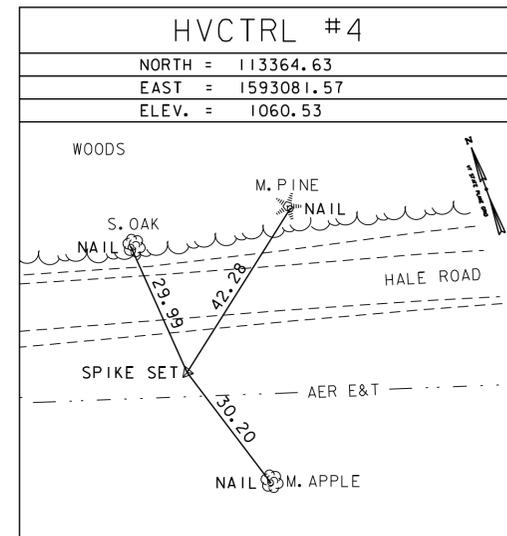
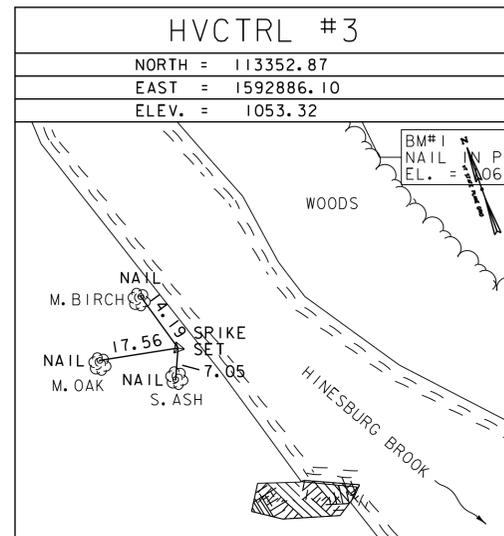
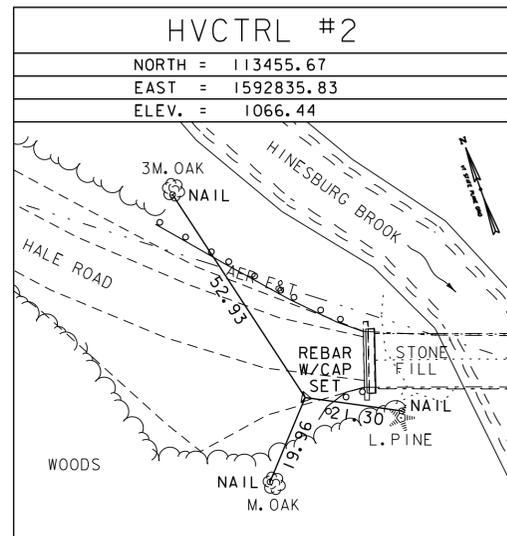
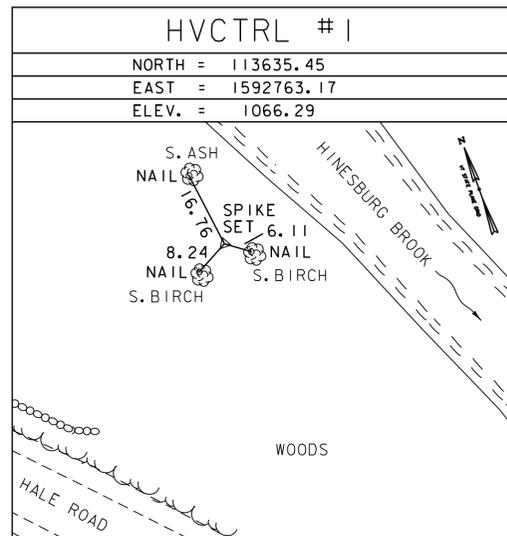
STATION MARK IS SET IN EDGE OF PAVEMENT EAST OF THE INTERSECTION OF HINESBURG ROAD (T.H.2) AND HALE ROAD (T.H.10). ELEVATION TRANSFERRED FROM NEARBY USGS DISK STAMPED "USGS 25 REM 1942 934".

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

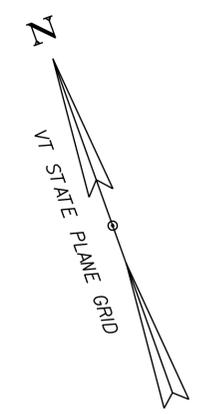


\* Main Traverse Completed 11/18/10 by T.J.Gaudet & B.M.Klinefelter

DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (07)



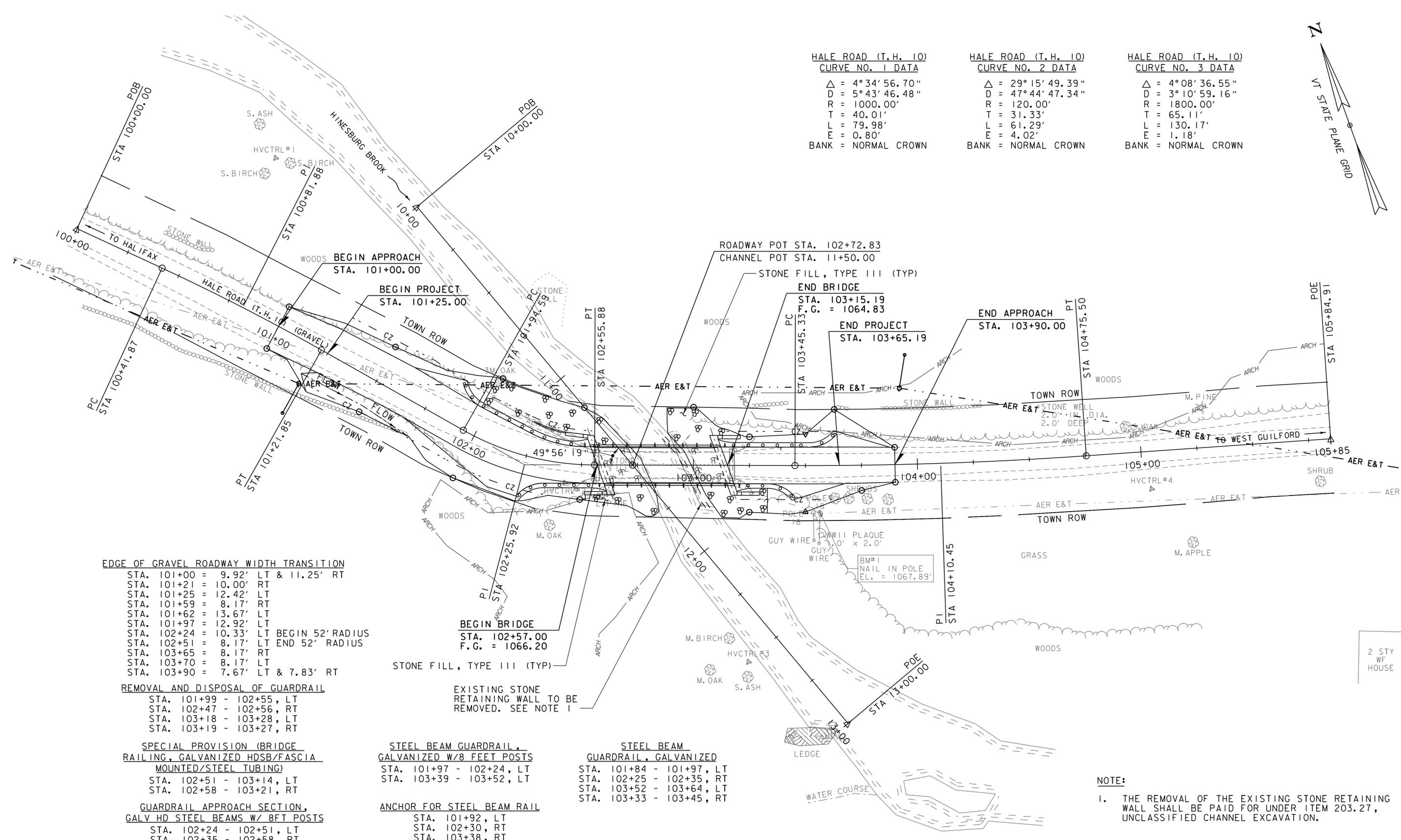
PROJECT NAME: GUILFORD	
PROJECT NUMBER: BRO 1442(36)	
FILE NAME: z10j064t1.dgn	PLOT DATE: 10/2/2013
PROJECT LEADER: S.E. BURBANK	DRAWN BY: B.M. KLINEFELTER
DESIGNED BY: B.M. KLINEFELTER	CHECKED BY: S.E. BURBANK
TIE SHEET	SHEET 10 OF 42



HALE ROAD (T.H. 10)  
 CURVE NO. 1 DATA  
 $\Delta = 4^{\circ}34'56.70''$   
 $D = 5^{\circ}43'46.48''$   
 $R = 1000.00'$   
 $T = 40.01'$   
 $L = 79.98'$   
 $E = 0.80'$   
 BANK = NORMAL CROWN

HALE ROAD (T.H. 10)  
 CURVE NO. 2 DATA  
 $\Delta = 29^{\circ}15'49.39''$   
 $D = 47^{\circ}44'47.34''$   
 $R = 120.00'$   
 $T = 31.33'$   
 $L = 61.29'$   
 $E = 4.02'$   
 BANK = NORMAL CROWN

HALE ROAD (T.H. 10)  
 CURVE NO. 3 DATA  
 $\Delta = 4^{\circ}08'36.55''$   
 $D = 3^{\circ}10'59.16''$   
 $R = 1800.00'$   
 $T = 65.11'$   
 $L = 130.17'$   
 $E = 1.18'$   
 BANK = NORMAL CROWN



**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

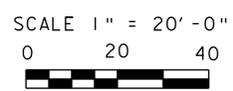
**SPECIAL PROVISION (RETAINING WALL)**  
 STA. 102+24 - 102+41, LT

**BEGIN BRIDGE**  
 STA. 102+57.00  
 F.G. = 1066.20

**STEEL BEAM GUARDRAIL, GALVANIZED W/8 FEET POSTS**  
 STA. 101+97 - 102+24, LT  
 STA. 103+39 - 103+52, LT

**ANCHOR FOR STEEL BEAM RAIL**  
 STA. 101+92, LT  
 STA. 102+30, RT  
 STA. 103+38, RT  
 STA. 103+57, LT

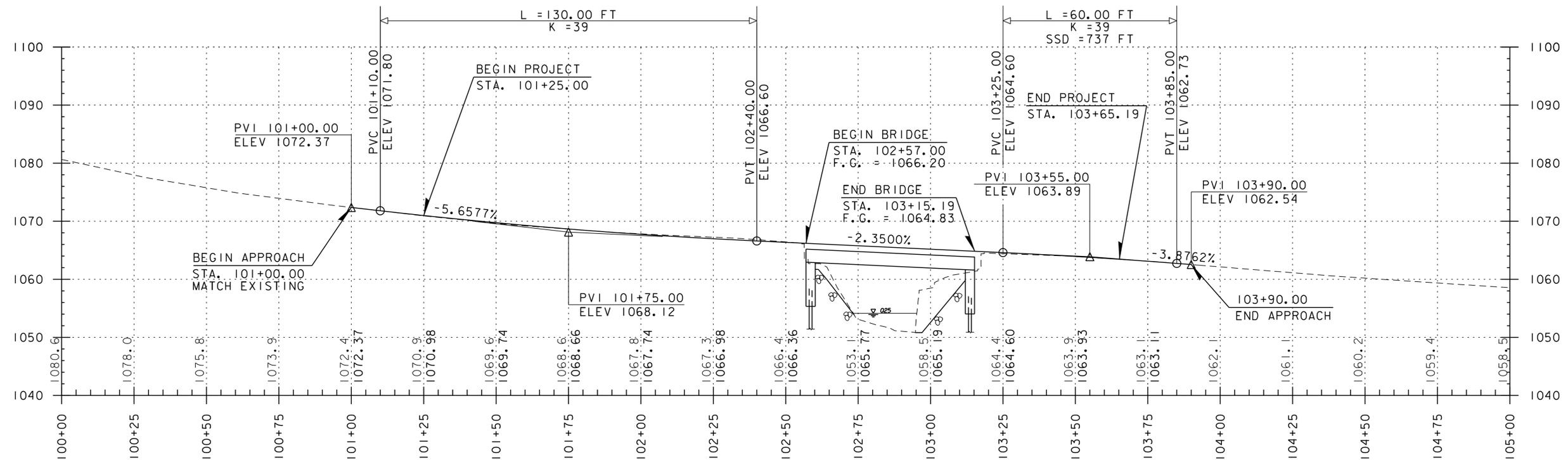
**STEEL BEAM GUARDRAIL, GALVANIZED**  
 STA. 101+84 - 101+97, LT  
 STA. 102+25 - 102+35, RT  
 STA. 103+52 - 103+64, LT  
 STA. 103+33 - 103+45, RT



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

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



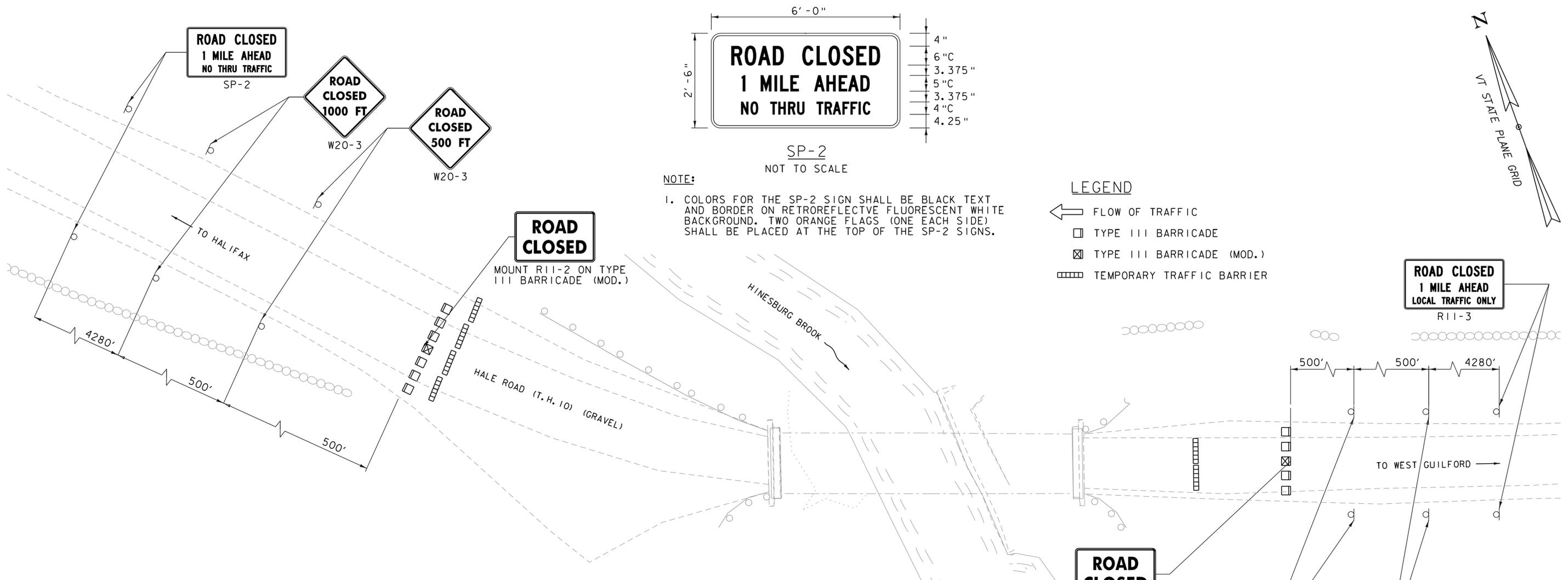


TH 10 PROFILE  
 SCALE 1" = 20' HORIZONTAL  
 1" = 10' VERTICAL

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.

PROJECT NAME:	GUILFORD
PROJECT NUMBER:	BRO 1442(36)
FILE NAME:	z10j064pro.dgn
PROJECT LEADER:	S.E. BURBANK
DESIGNED BY:	E.A. FIALA
PROFILE	
PLOT DATE:	10/2/2013
DRAWN BY:	E.A. FIALA
CHECKED BY:	S.E. BURBANK
SHEET	12 OF 42





SP-2  
NOT TO SCALE

NOTE:  
1. COLORS FOR THE SP-2 SIGN SHALL BE BLACK TEXT AND BORDER ON RETROREFLECTIVE FLUORESCENT WHITE BACKGROUND. TWO ORANGE FLAGS (ONE EACH SIDE) SHALL BE PLACED AT THE TOP OF THE SP-2 SIGNS.

- LEGEND
- ← FLOW OF TRAFFIC
  - TYPE III BARRICADE
  - ⊠ TYPE III BARRICADE (MOD.)
  - ▤ TEMPORARY TRAFFIC BARRIER

TRAFFIC CONTROL PLAN -  
ROAD CLOSED TO TRAFFIC  
NOT TO SCALE

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

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

FILE NAME: z10j064tcp.dgn  
PROJECT LEADER: S.E. BURBANK  
DESIGNED BY: E.A. FIALA  
TRAFFIC CONTROL PLAN

PLOT DATE: 10/2/2013  
DRAWN BY: E.A. FIALA  
CHECKED BY: S.E. BURBANK  
SHEET 13 OF 42

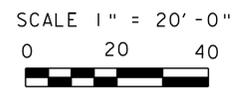
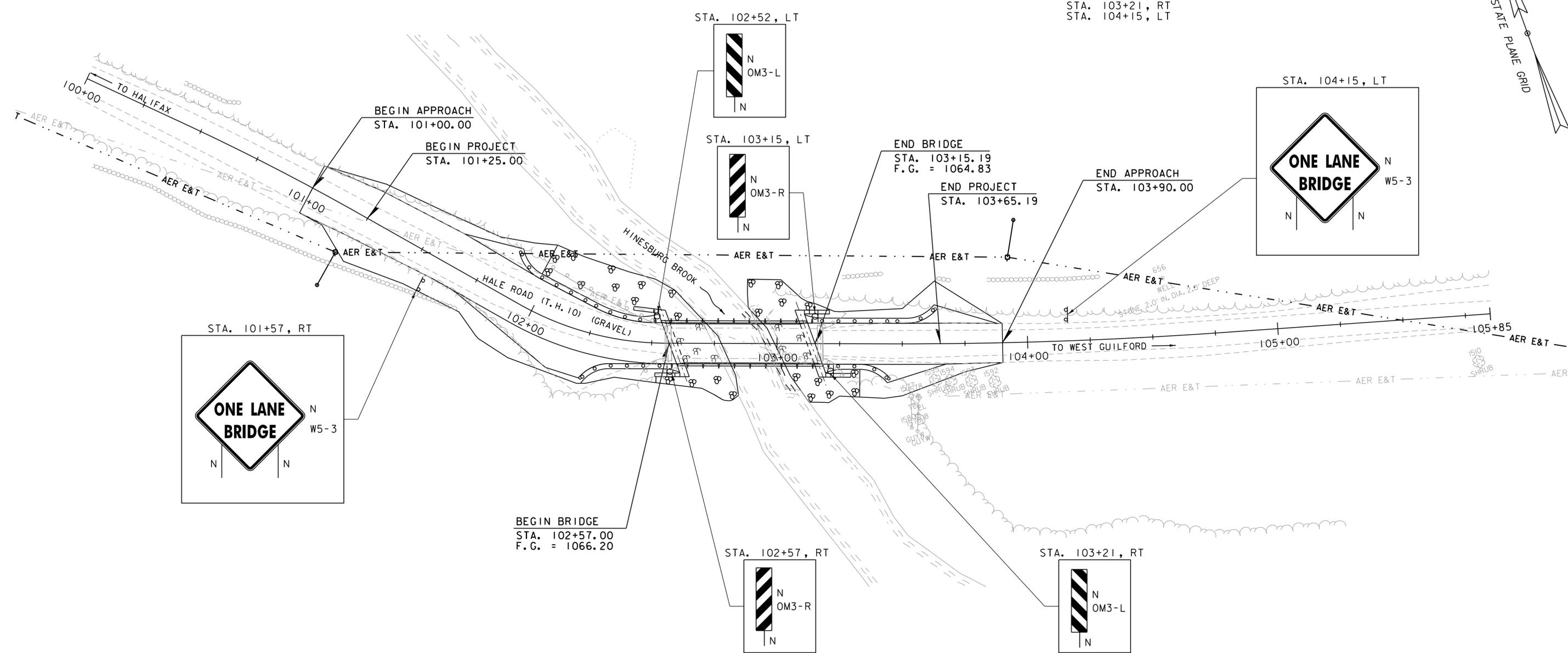
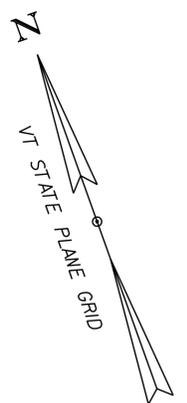


SIGNING LEGEND

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



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





**SOIL CLASSIFICATION**

**AASHTO**

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

**ROCK QUALITY DESIGNATION**

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

**SHEAR STRENGTH**

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

**CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY**

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

**COMMONLY USED SYMBOLS**

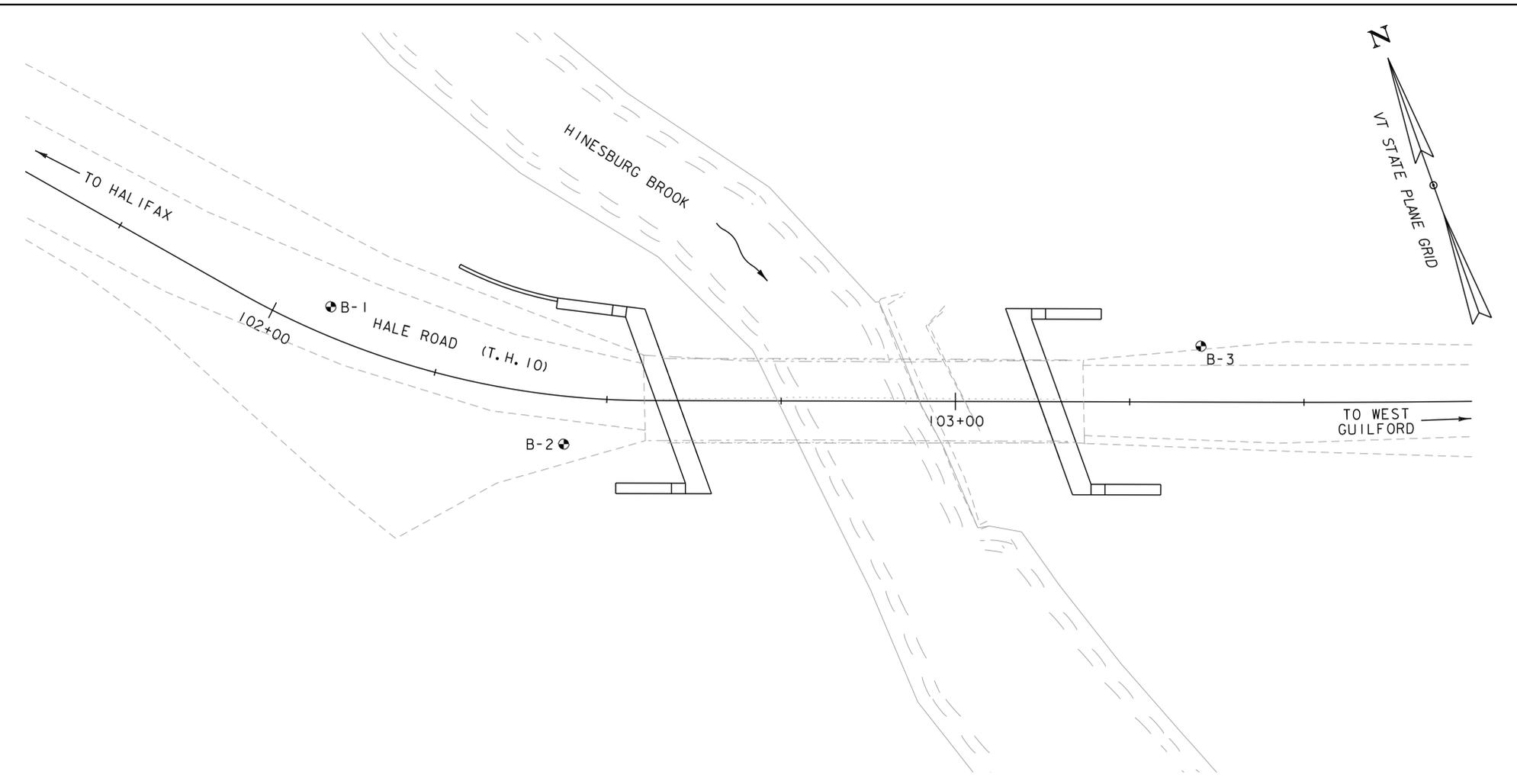
- ▼ Water Elevation
- ⊕ Standard Penetration Boring
- ⊗ Auger Boring
- ⊙ Rod Sounding
- S Sample
- N Standard Penetration Test
- Blow Count Per Foot For:
- 2" O.D. Sampler
- 1 3/8" I.D. Sampler
- Hammer Weight Of 140 Lbs.
- Hammer Fall Of 30"
- VS Field Vane Shear Test
- US Undisturbed Soil Sample
- B Blast
- DC Diamond Core
- MD Mud Drill
- WA Wash Ahead
- HSA Hollow Stem Auger
- AX Core Size 1 1/8"
- BX Core Size 1 3/8"
- NX Core Size 2 1/8"
- M Double Tube Core Barrel Used
- LL Liquid Limit
- PL Plastic Limit
- PI Plasticity Index
- NP Non Plastic
- w Moisture Content (Dry Wgt. Basis)
- D Dry
- M Moist
- MTW Moist To Wet
- W Wet
- Sat Saturated
- Bo Boulder
- Gr Gravel
- Sa Sand
- Si Silt
- Cl Clay
- HP Hardpan
- Le Ledge
- NLTD No Ledge To Depth
- CNPF Can Not Penetrate Further
- TLOB Top of Ledge Or Boulder
- NR No Recovery
- Rec. Recovery
- 1/2 Rec. Percent Recovery
- ROD 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
gr'y	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 > 0.075" (#10 sieve).
- SAND - Particles of rock < 0.075" (#10 sieve) and > 0.0025" (#200 sieve).
- SLT - Soil < 0.0025" (#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"

**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.



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

VT Trans		STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG		Boring No.: B-1		
		Guilford Bridge Replacement 23285.1000.32000		Page No.: 1 of 1		Pin No.: BRO 1442(36)		
Boring Crew: S. Clavette, S. Johnston		Casing Sampler		Groundwater Observations				
Date Started: 11/22/11 Date Finished: 12/05/11		Type: WASH BORE SS		Date	Depth (ft)	Notes		
VTSPG NAD83: N 113488.19 ft E 1592811.68 ft		I.D.: 4 in 1.25 in		11/22/11	14.0	casing at 12 feet		
Station: 102+07.50 Offset: 4L		Hammer Wt: 300 lb 140 lb						
Ground Elevation: 1067.5 ft		Hammer Fall: 30 in 30 in						
		Hammer/Rod Type: Safety						
		Rig: B53 Mobile C <sub>r</sub> = 1						
Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)		Blows/ft (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0-4.3	x x x	(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)				
4.3-5.7	x x x	(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
5.7-6.1	x x x	(Granular FILL), becomes compact, Rec. = 0.6 ft		24-23-14-10 (37)				
6.1-7.5	x x x	(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)				
7.5-8.9	x x x	(Fine Grained FILL), Similar Soil, Rec. = 1.2 ft		11-16-16-19 (32)				
8.9-10.3	x x x	(Fine Grained FILL), SILT, Some f. Sand, compact, light brown, moist, Rec. = 0.9 ft		32-20-22-23 (42)				
10.3-11.7	x x x	(Fine Grained FILL), becomes very compact, Rec. = 1.3 ft		20-24-33-50/4* (57)				
11.7-13.1	x x x	(SM), f.m.c. SAND, Some Silt, little f.c. gravel, compact, light brown, moist, Rec. = 1.0 ft		16-23-20-43 (43)				
13.1-14.5	x x x	(SM), becomes very compact, Rec. = 1.2 ft		13-50-50/5* (>100)				
14.5-15.9	x x x	(ML)		38-32-39-43 (71)				
15.9-17.3	x x x	(ML), SILT, Some f. Sand, very compact, brown, wet, Rec. = 1.0 ft		60-57-59-53 (>100)				
17.3-18.7	x x x	(Completely Weathered Bedrock)						
18.7-20.1	x x x	(Completely Weathered Bedrock), f.m.c. SAND, little silt, little f. gravel, very compact, brown/black/gray, moist, Rec. = 1.2 ft						
Hole stopped @ 32.0 ft Boring backfilled with cuttings and bituminous cold patch.								

2010 COPY 23285 GUILFORD BORINGS CHA STYLE.GPJ VERMONT AOT.GDT 7/12/12

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<sub>r</sub> 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.

VT Trans		STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG		Boring No.: B-2				
		Guilford Bridge Replacement 23285.1000.32000		Page No.: 1 of 2		Pin No.: BRO 1442(36)				
Boring Crew: S. Clavette, K. Owens		Casing Sampler		Groundwater Observations						
Date Started: 11/17/11 Date Finished: 11/22/11		Type: WASH BORE SS		Date	Depth (ft)	Notes				
VTSPG NAD83: N 113456.89 ft E 1592837.58 ft		I.D.: 4 in 1.25 in		11/17/11	14.6	casing at 14 feet				
Station: 102+43.50 Offset: 7R		Hammer Wt: 300 lb 140 lb								
Ground Elevation: 1066.5 ft		Hammer Fall: 30 in 30 in								
		Hammer/Rod Type: Safety								
		Rig: B53 Mobile C <sub>r</sub> = 1								
Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)		Run (Dip deg)	Core Rec. % (RCD %)	Blows/ft (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0-0.9	x x x	(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)				
0.9-1.8	x x x	(Granular FILL), becomes loose, Rec. = 1.0 ft				7-4-4-8 (8)				
1.8-2.7	x x x	(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)				
2.7-3.6	x x x	(Fine Grained FILL), Similar Soil, Rec. = 1.4 ft				6-6-7-9 (13)				
3.6-4.5	x x x	(Fine Grained FILL), Similar Soil, Rec. = 1.2 ft				2-4-7-13 (11)				
4.5-5.4	x x x	(SM), f.m.c. SAND, little silt, trace f. gravel, medium compact, brown, moist, Rec. = 0.4 ft				29-44-27-25 (71)				
5.4-6.3	x x x	No Recovery, Rec. = 0.0 ft, 12.0 ft - 14.0 ft				29-34-32-29 (66)				
6.3-7.2	x x x	(SM), f.m.c. SAND, little silt, compact, brown, wet, Rec. = 1.0 ft				14-19-23-31 (42)	24.4	1.8	16.3	81.9
7.2-8.1	x x x	(ML), SILT, little f. sand, trace f. gravel, compact, brown, wet, Rec. = 1.0 ft				35-37-50/5* (>100)				
8.1-9.0	x x x	(ML), becomes very compact, Rec. = 1.0 ft				26-47-50/4* (>100)				
9.0-9.9	x x x	(ML), Similar Soil, Rec. = 0.9 ft				19-25-25-30 (50)				
9.9-10.8	x x x	(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)				
10.8-11.7	x x x	(Completely Weathered Bedrock)								
11.7-12.6	x x x	(Completely Weathered Bedrock), SILT, Some f.m.c. Sand, trace f.c. gravel, very compact, brown/black/orange, moist, Rec. = 0.7 ft								

BOTTOM OF PILE CAP  
EL = 1055.33

2010 COPY 23285 GUILFORD BORINGS CHA STYLE.GPJ VERMONT AOT.GDT 7/12/12

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<sub>r</sub> 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.

VT Trans		STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG		Boring No.: B-2				
		Guilford Bridge Replacement 23285.1000.32000		Page No.: 2 of 2		Pin No.: BRO 1442(36)				
Boring Crew: S. Clavette, K. Owens		Casing Sampler		Groundwater Observations						
Date Started: 11/17/11 Date Finished: 11/22/11		Type: WASH BORE SS		Date	Depth (ft)	Notes				
VTSPG NAD83: N 113456.89 ft E 1592837.58 ft		I.D.: 4 in 1.25 in		11/17/11	14.6	casing at 14 feet				
Station: 102+43.50 Offset: 7R		Hammer Wt: 300 lb 140 lb								
Ground Elevation: 1066.5 ft		Hammer Fall: 30 in 30 in								
		Hammer/Rod Type: Safety								
		Rig: B53 Mobile C <sub>r</sub> = 1								
Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)		Run (Dip deg)	Core Rec. % (RCD %)	Blows/ft (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0-35.5	x x x	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)					
40.5-42.0	x x x	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)					
42.0-48.8	x x x	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)					
48.8-53.4	x x x	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.										

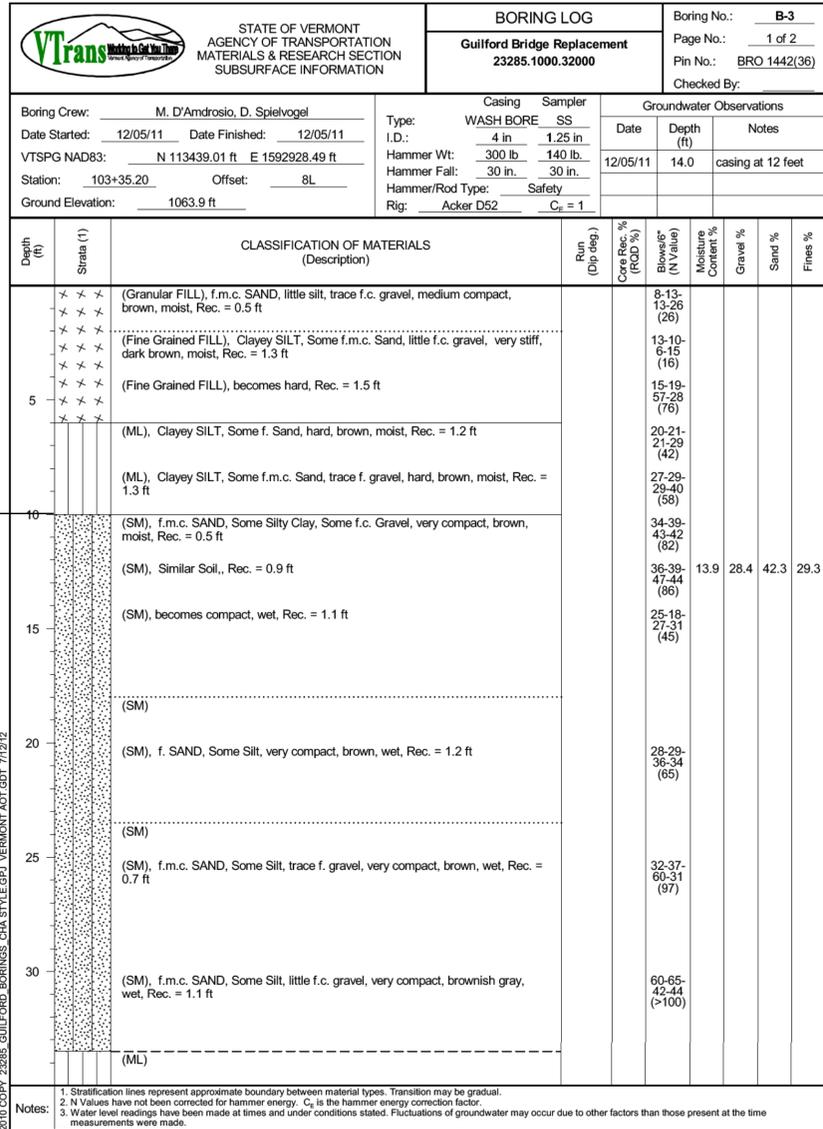
ESTIMATED PILE TIP

2010 COPY 23285 GUILFORD BORINGS CHA STYLE.GPJ VERMONT AOT.GDT 7/12/12

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<sub>r</sub> 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.

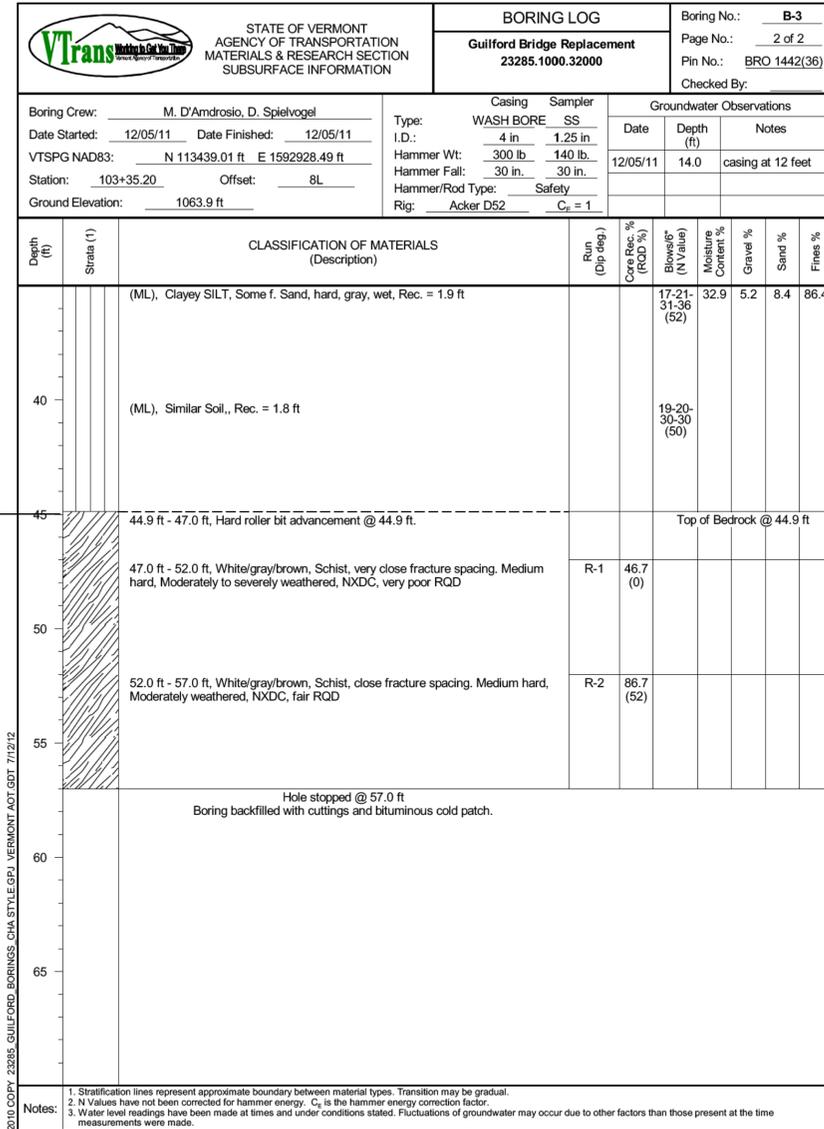
PROJECT NAME: GUILFORD  
 PROJECT NUMBER: BRO 1442(36)  
 FILE NAME: z10j064borlogs.dgn  
 PROJECT LEADER: S.E. BURBANK  
 DESIGNED BY: VTRANS  
 BORING LOGS (1 OF 2)  
 PLOT DATE: 10/2/2013  
 DRAWN BY: E.A. FIALA  
 CHECKED BY: S.E. BURBANK  
 SHEET 17 OF 42





BOTTOM OF PILE CAP  
EL = 1054.03

ESTIMATED PILE TIP

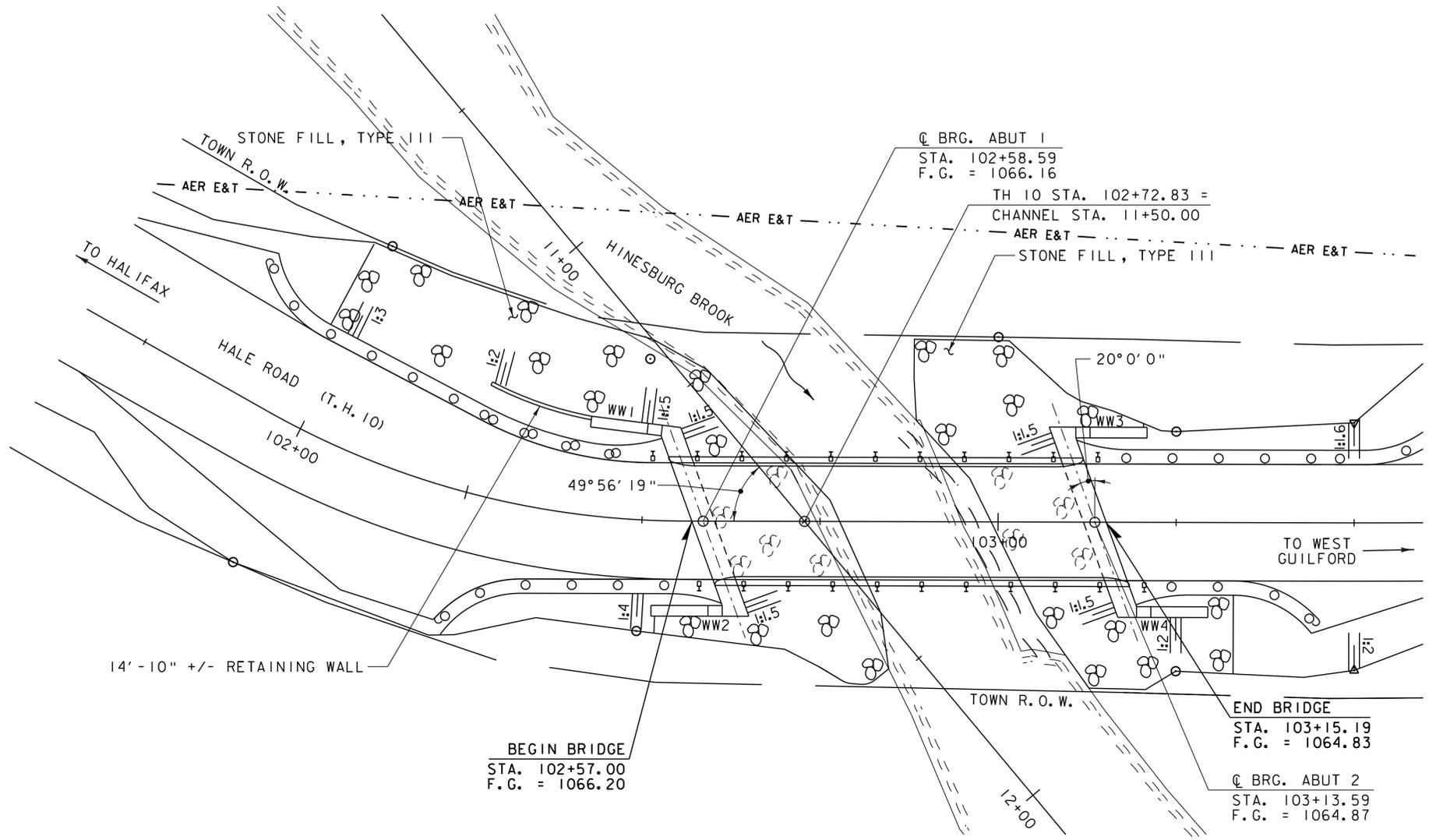
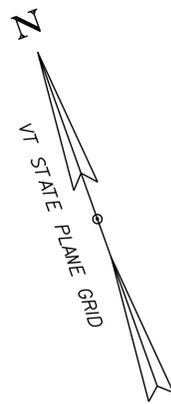


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 PROJECT NUMBER: BRO 1442(36)

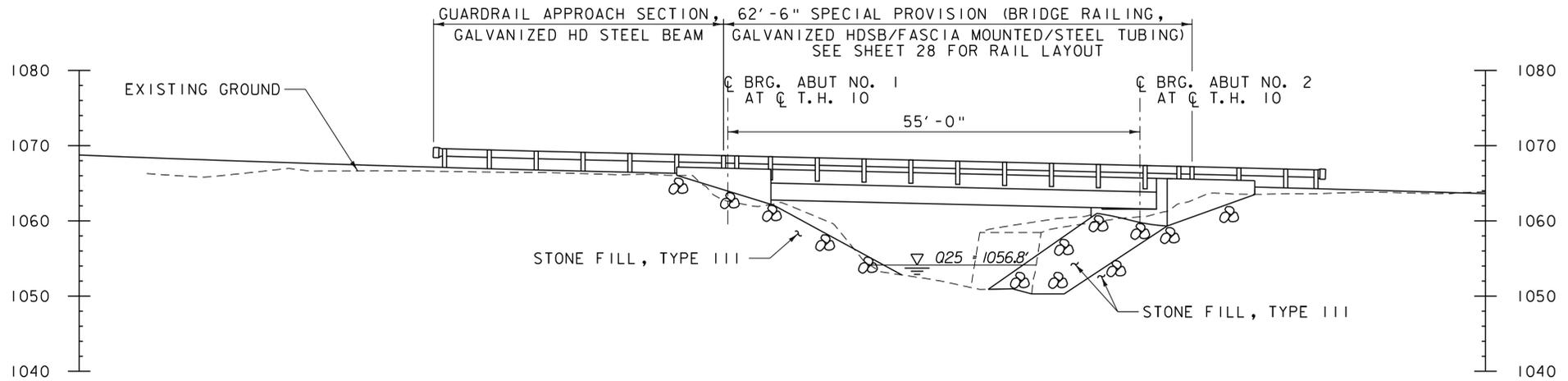
FILE NAME: z10j064borlogs.dgn  
 PROJECT LEADER: S.E. BURBANK  
 DESIGNED BY: VTRANS  
 BORING LOGS (2 OF 2)

PLOT DATE: 10/2/2013  
 DRAWN BY: E.A. FIALA  
 CHECKED BY: S.E. BURBANK  
 SHEET 18 OF 42





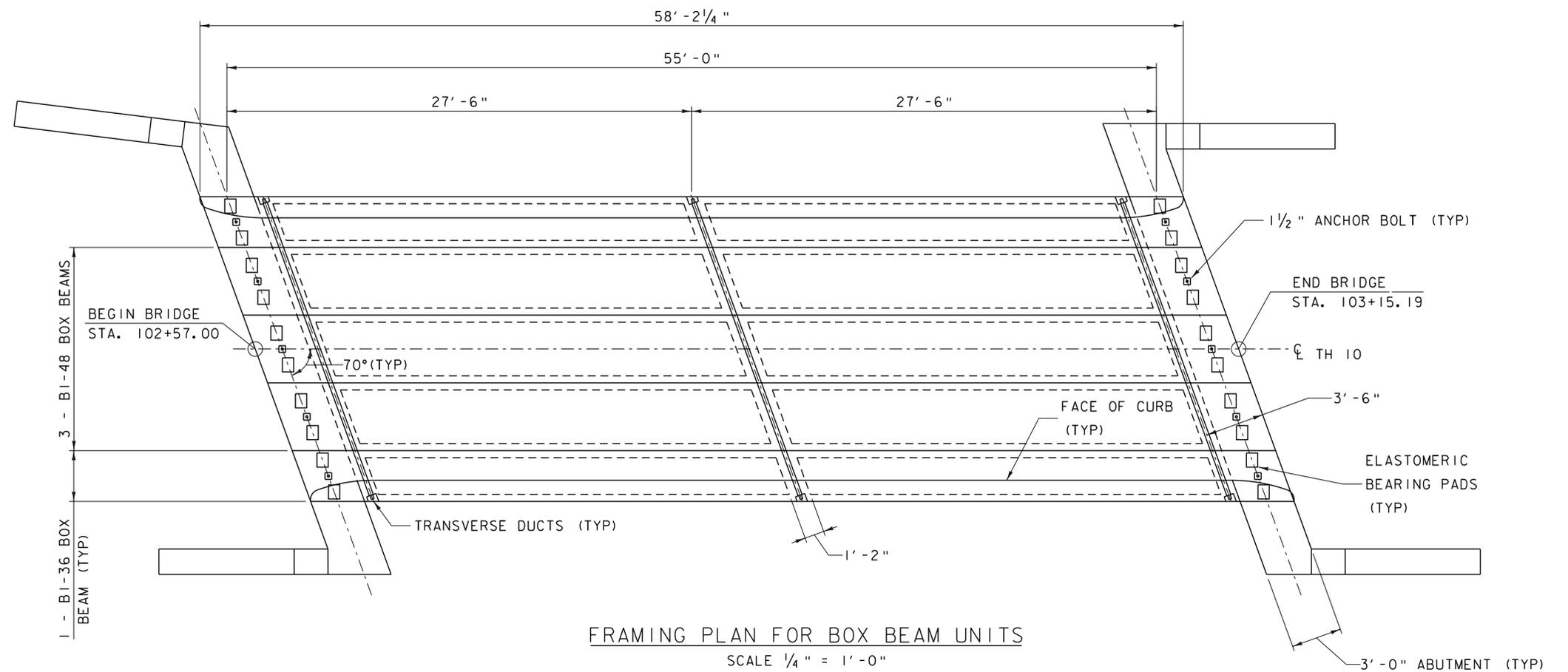
**PLAN**  
SCALE 1" = 10'-0"  
10 0 10



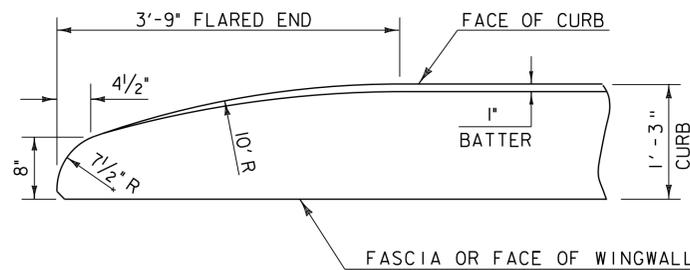
**ELEVATION**  
SCALE 1" = 10'-0"  
10 0 10

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





FRAMING PLAN FOR BOX BEAM UNITS  
SCALE 1/4" = 1'-0"

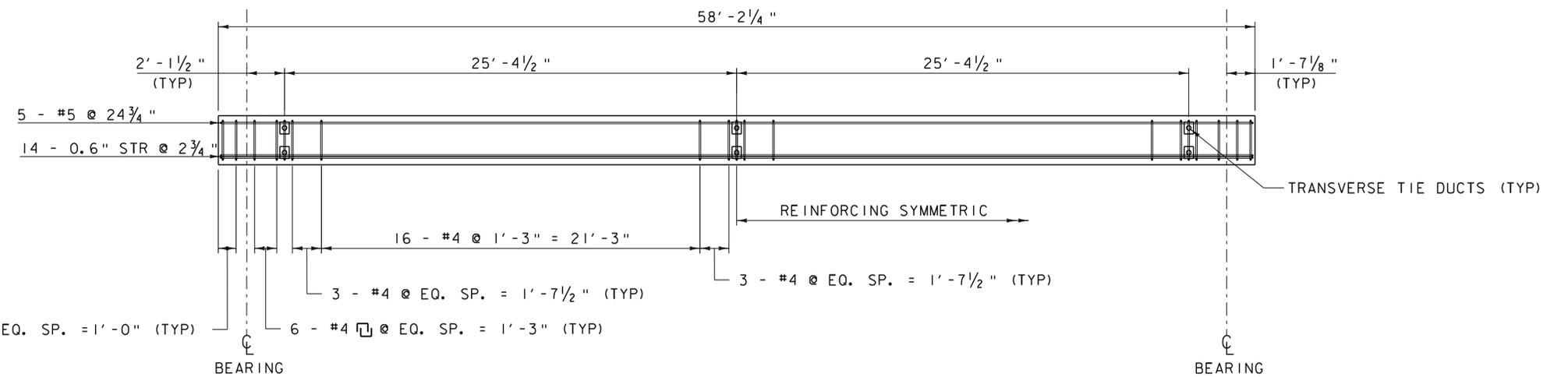


FLARED END DETAIL FOR 1'-3" CURB

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.



ELEVATION VIEW FOR BOX BEAM UNITS  
SCALE 1/4" = 1'-0"

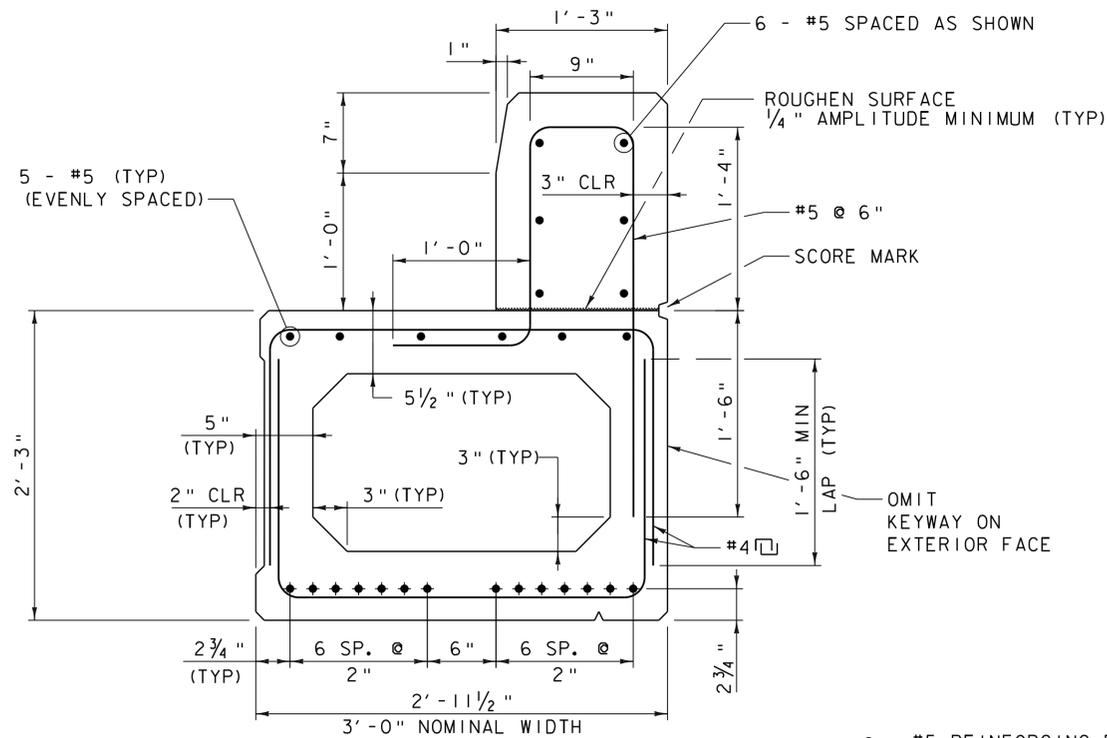
- NOTES:**
1. SEE END AND INTERMEDIATE DIAGRAM REINFORCING DETAILS FOR BEAM STIRRUP SPACING AND LAYOUT.
  2. CURB NOT SHOWN FOR CLARITY

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

FILE NAME: z10j064sup.dgn  
PROJECT LEADER: S.E. BURBANK  
DESIGNED BY: G.H. NEAL  
FRAMING PLAN

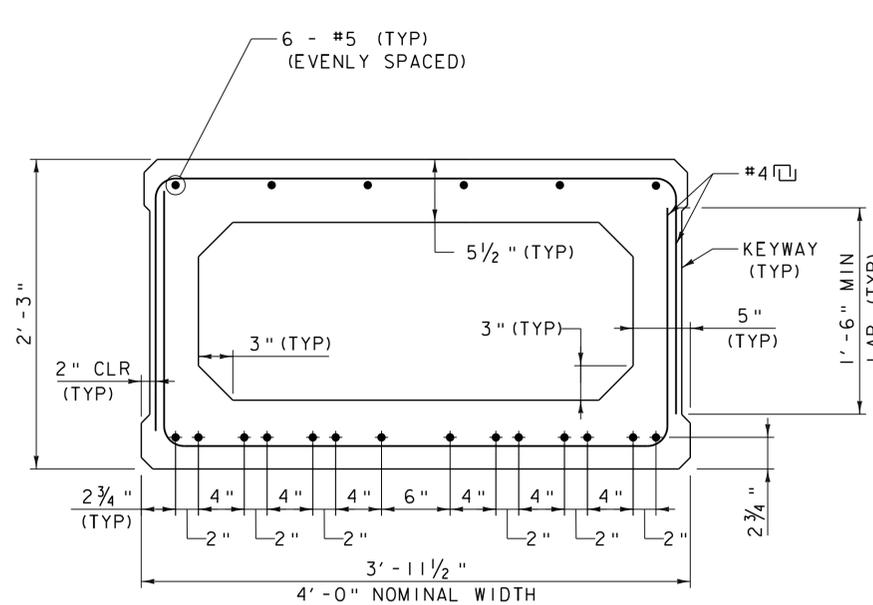
PLOT DATE: 10/2/2013  
DRAWN BY: J.L. LEMIEUX  
CHECKED BY: A.F. PREZIOSO  
SHEET 20 OF 42



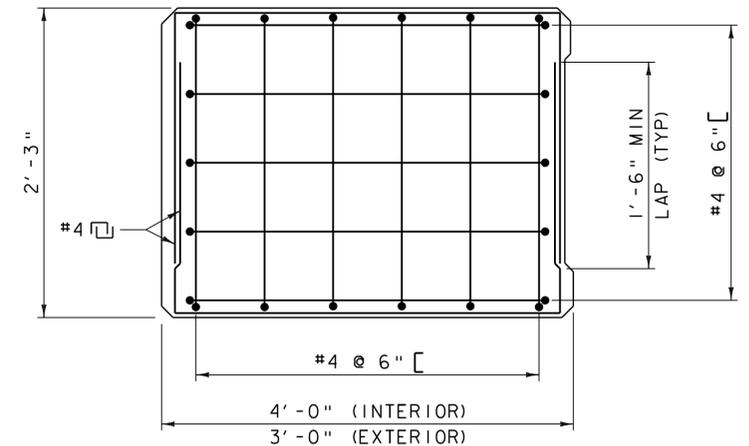


PRESTRESSED CONCRETE BOX BEAM  
B1-36  
EXTERIOR  
SCALE 1 1/2" = 1'-0"

- - #5 REINFORCING BAR
- ◆ - 0.6" DIA. STRAND



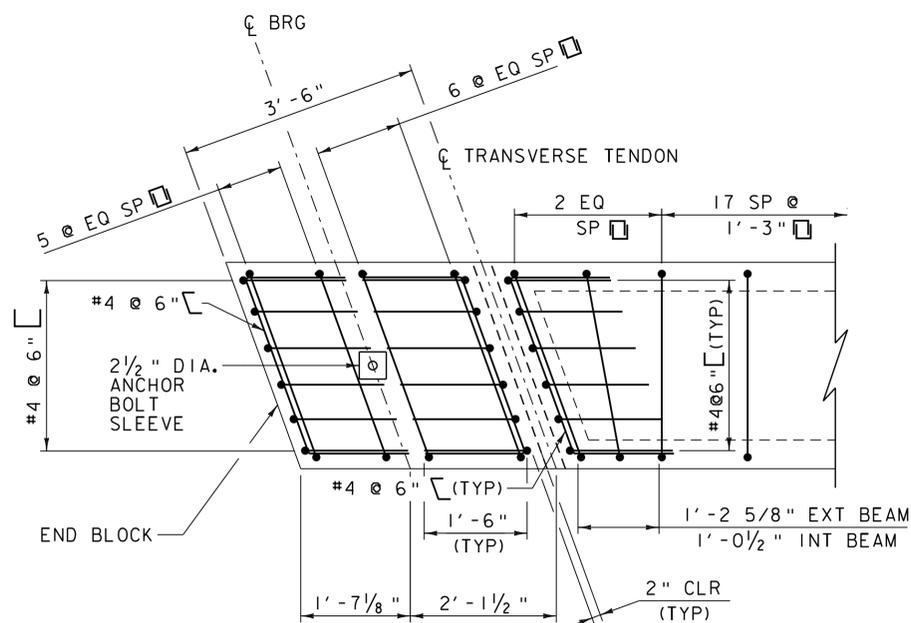
PRESTRESSED CONCRETE BOX BEAM  
B1-48  
INTERIOR  
SCALE 1 1/2" = 1'-0"



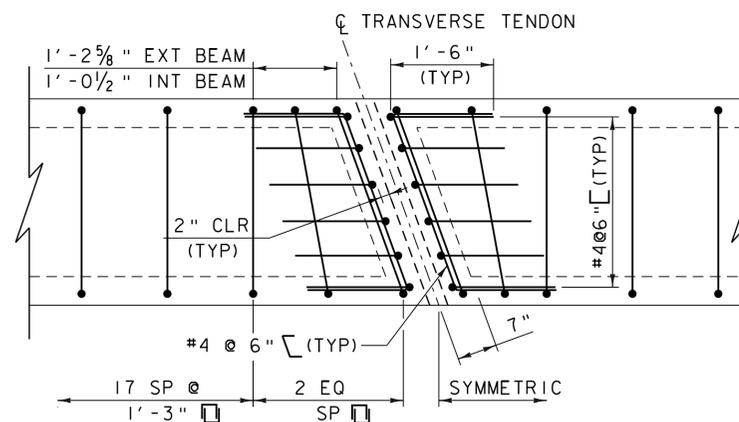
END BLOCK REINFORCING  
(INTERIOR & EXTERIOR)  
SCALE 1 1/2" = 1'-0"

**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.



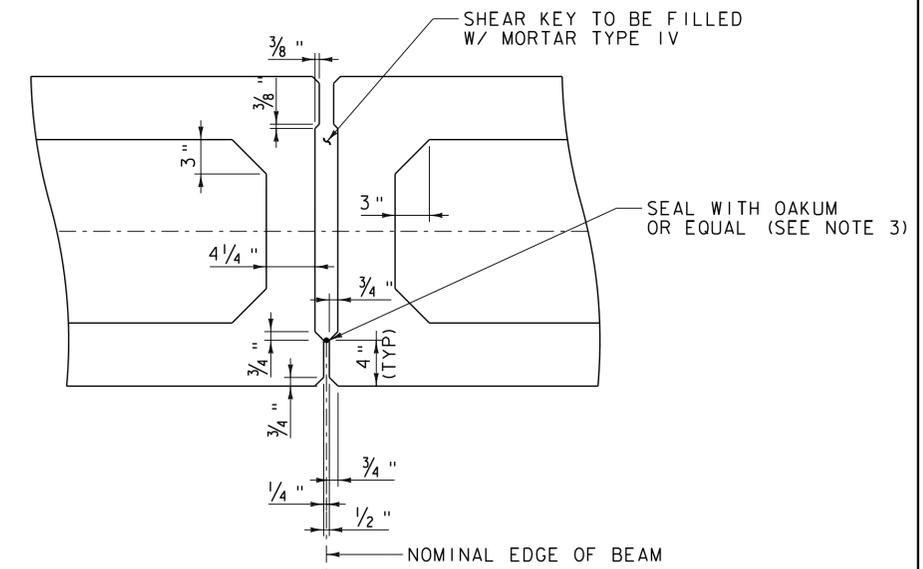
NOTE: EXTERIOR BEAM SHOWN, INTERIOR SIMILAR  
END DIAPHRAGM REINFORCING  
SCALE 3/4" = 1'-0"



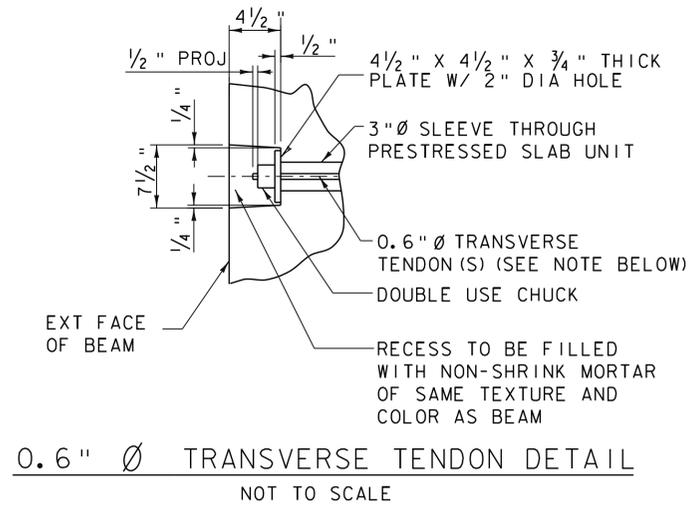
NOTE: EXTERIOR BEAM SHOWN, INTERIOR SIMILAR  
INTERMEDIATE DIAPHRAGM REINFORCING  
SCALE 3/4" = 1'-0"

**NOTES:**

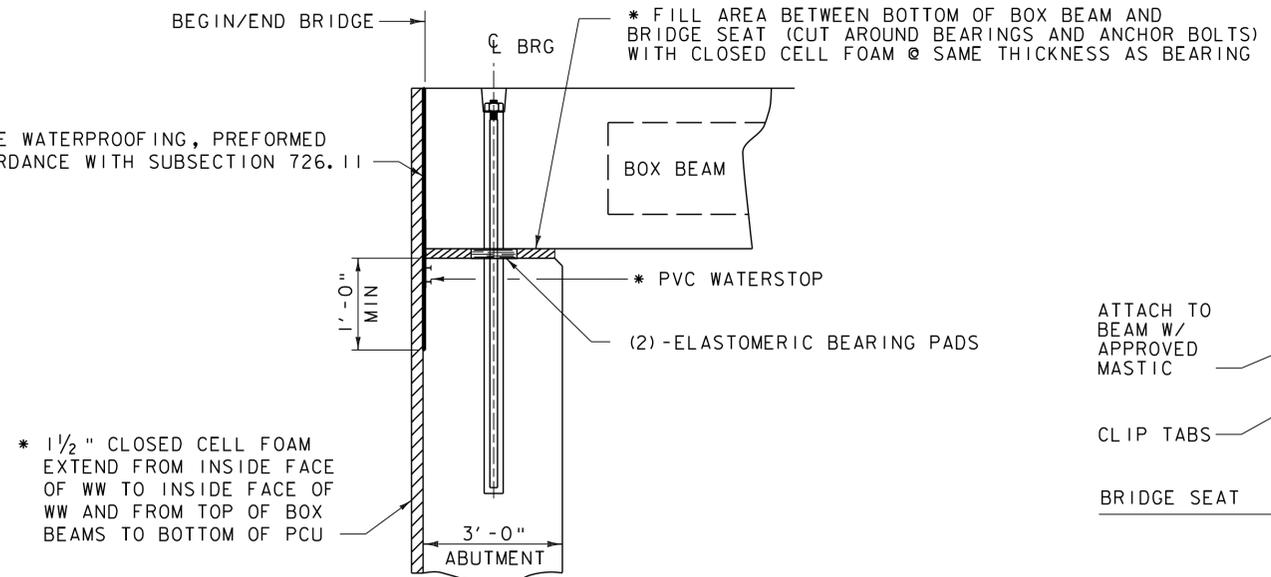
1. VOID DRAINS ARE REQUIRED FOR ALL BOX BEAMS. VOID DRAINS SHALL BE COMPRISED OF 3/4" NON-FERROUS DRAIN MATERIAL. THE CONTRACTOR SHALL CLEAN THE VOID DRAINS AFTER ERECTION.
2. ALL REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF SECTION 507, LEVEL 11.
3. INSTALL OAKUM AFTER UNITS HAVE BEEN PLACED.



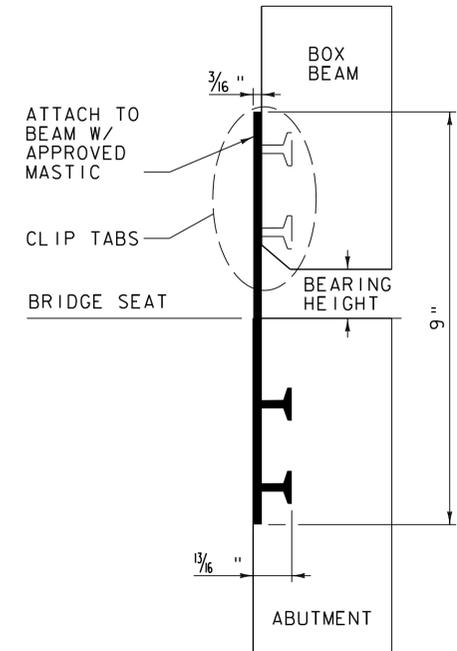
SHEAR KEY DETAIL  
FOR BOX BEAM  
SCALE 1 1/2" = 1'-0"



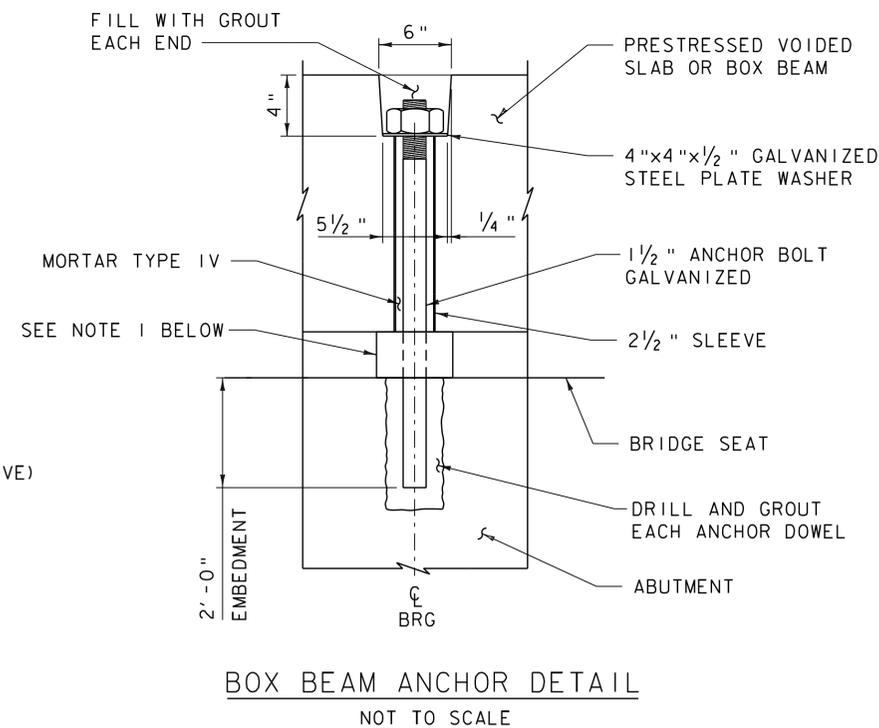
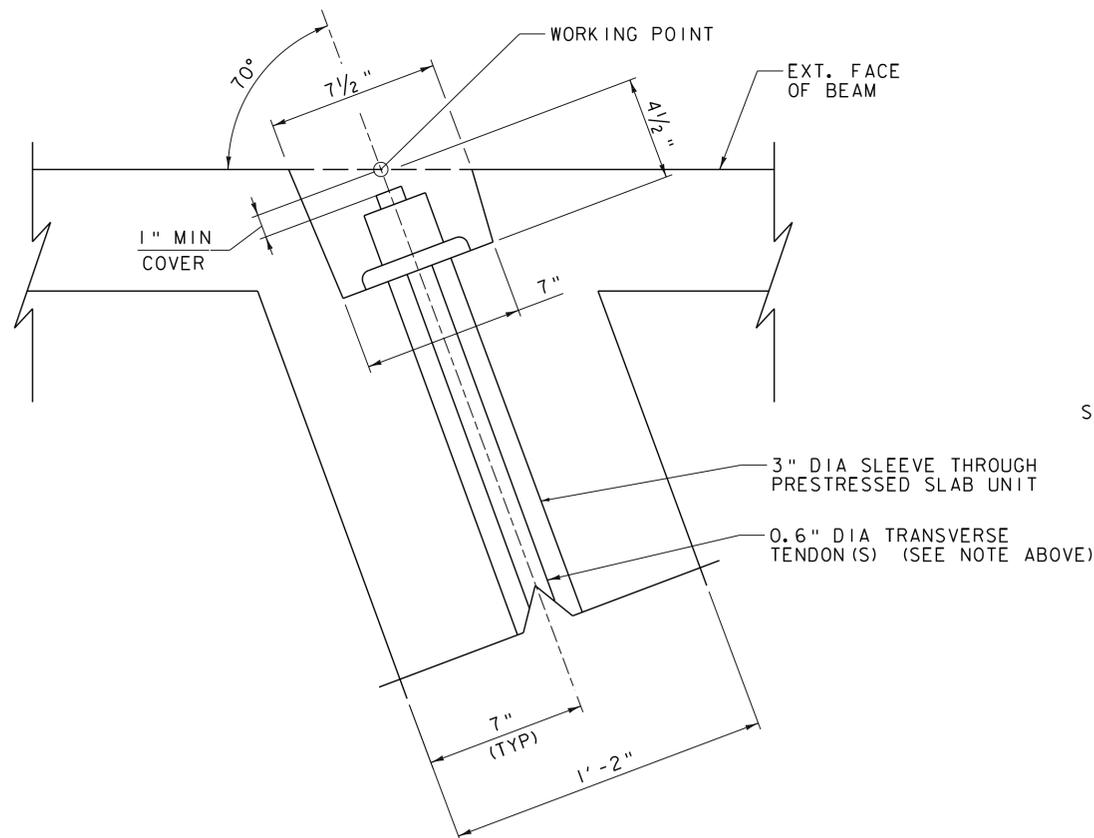
\* TRANSVERSE TIES SHALL BE COVERED BY SEAMLESS POLYPROPYLENE SHEATH (WITH CORROSION INHIBITER GREASE BETWEEN SHEATH AND STRAND) FOR THE LENGTH OF STRAND, EXCEPT AT ANCHORAGE LOCATIONS. EACH TIE IS COMPRISED OF A SINGULAR OR MULTIPLE STRAND TENDON. EACH TRANSVERSE STRAND SHALL BE TENSIONED TO 47 KIPS. 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)"



NOTE: PVC WATERSTOP SHALL BE ONE CONTINUOUS STRIP.



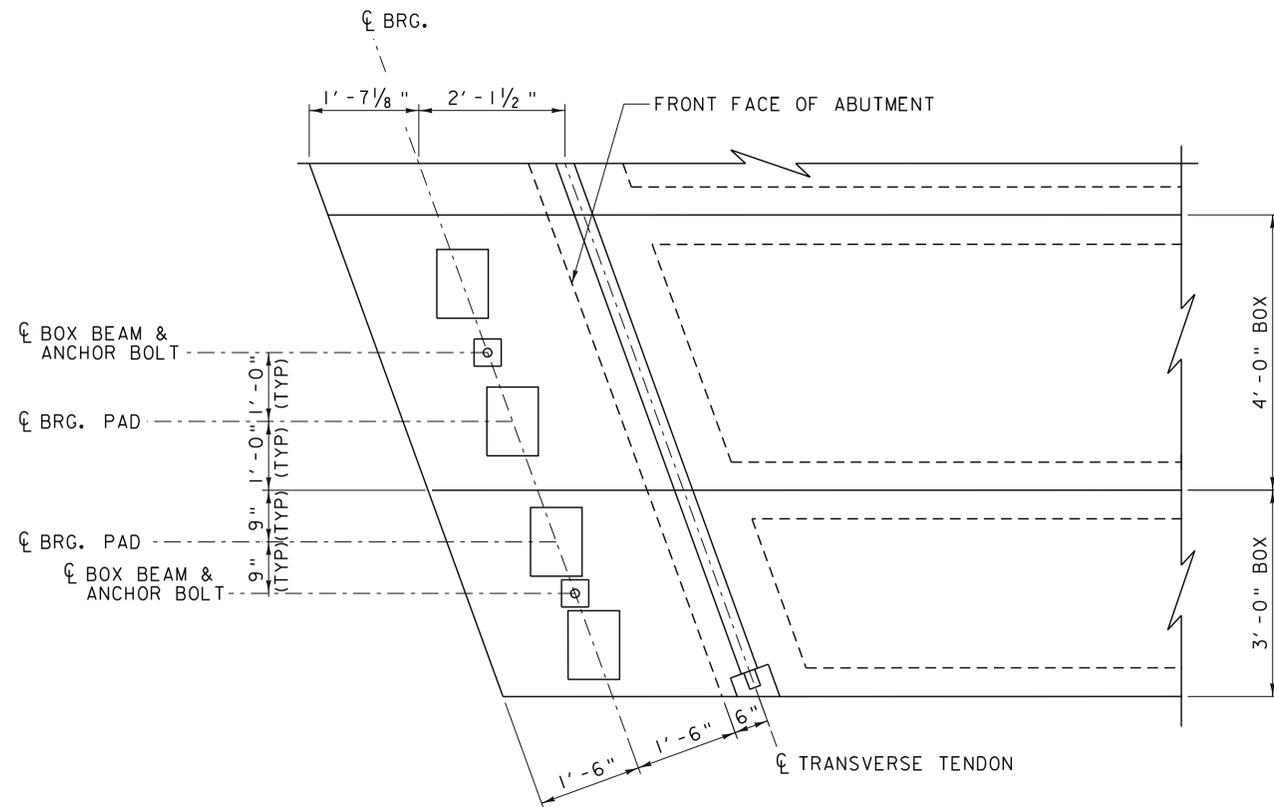
- CONTRACTOR SHALL SUPPLY A SELF ADHESIVE COMPRESSIBLE SEALER BETWEEN THE BOTTOM OF THE UNITS AND THE BRIDGE SEAT. THIS COMPRESSIBLE SEALER SHALL SURROUND THE 2 1/2" DIA SLEEVE IN THE UNIT. THE PURPOSE OF THE SEALER IS TO FACILITATE PLACEMENT OF THE GROUT AROUND THE ANCHOR BOLTS.
- GROUT ANCHOR BOLTS 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  
PROJECT LEADER: S.E. BURBANK  
DESIGNED BY: G.H. NEAL  
BOX BEAM DETAILS (2 OF 2)

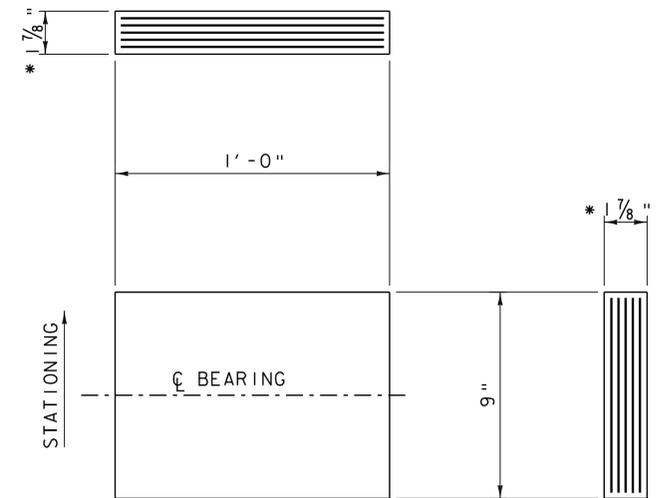
PLOT DATE: 10/2/2013  
DRAWN BY: J.L. LEMIEUX  
CHECKED BY: A.F. PREZIOSO  
SHEET 22 OF 42



NOTE: CURB NOT SHOWN FOR CLARITY

**BEARING PLACEMENT PLAN**

SCALE 3/4" = 1'-0"



**ELASTOMERIC BEARING DETAIL**

SCALE 3" = 1'-0"

- \* 2 - 1/4" EXTERIOR LAYERS OF ELASTOMER
- 2 - 1/2" INTERIOR LAYERS OF ELASTOMER
- 3 - 1/8" 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 1/2" PLATE (MINIMUM). PAYMENT FOR DRILLING AND GROUTING OF ANCHOR BOLTS SHALL BE INCLUDED IN THE BID PRICE FOR CONTRACT ITEM 531.17, "BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMER 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 1/4" 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 ELASTOMER, 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 - 1/4"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 ELASTOMER PAD".

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

FILE NAME: z10j064deck.dgn  
PROJECT LEADER: S.E. BURBANK  
DESIGNED BY: G.H. NEAL  
BEARING DETAILS

PLOT DATE: 10/2/2013  
DRAWN BY: J.L. LEMIEUX  
CHECKED BY: A.F. PREZIOSO  
SHEET 23 OF 42

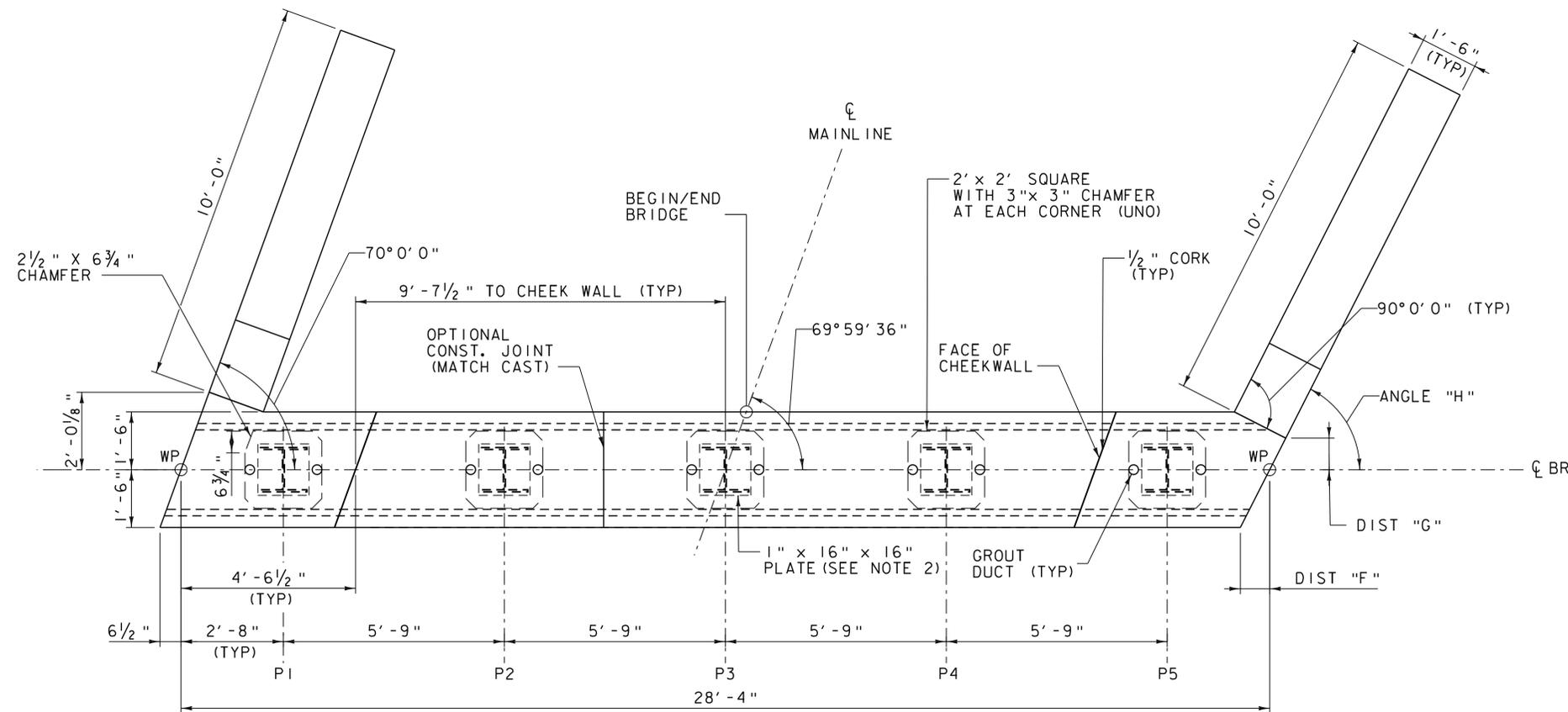


PCU I ELEVATIONS

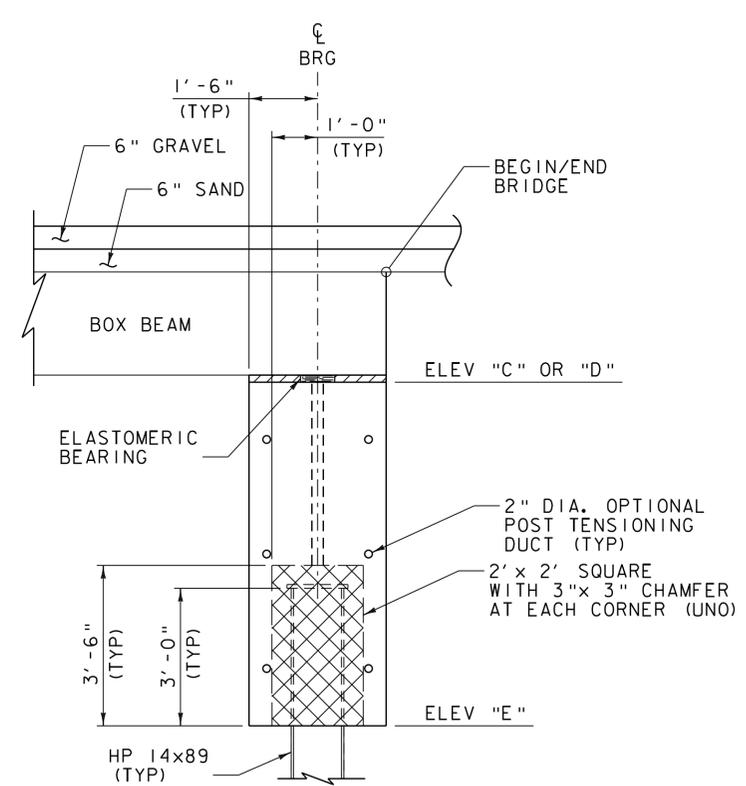
	AB1	AB2
ELEV "A"	1066.50	1065.36
ELEV "B"	1066.65	1065.20
ELEV "C"	1062.67	1061.53
ELEV "D"	1062.83	1061.38
ELEV "E"	1055.33	1054.03
DIST "F"	9 3/16 "	6 7/16 "
DIST "G"	9 1/16 "	11 1/16 "
ANGLE "H"	63°	70°

LEGEND

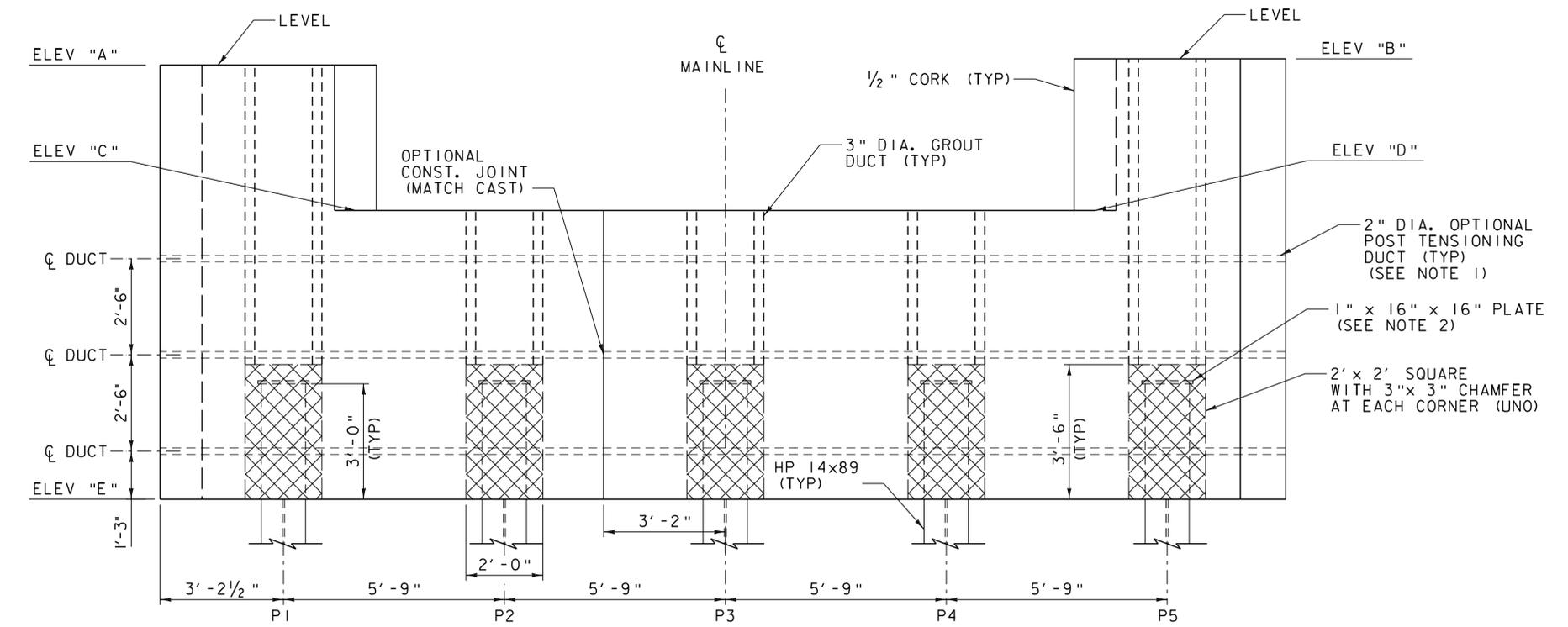
 SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)



PCU I PLAN  
SCALE 1/2" = 1'-0"



PCU I TYPICAL  
SCALE 1/2" = 1'-0"

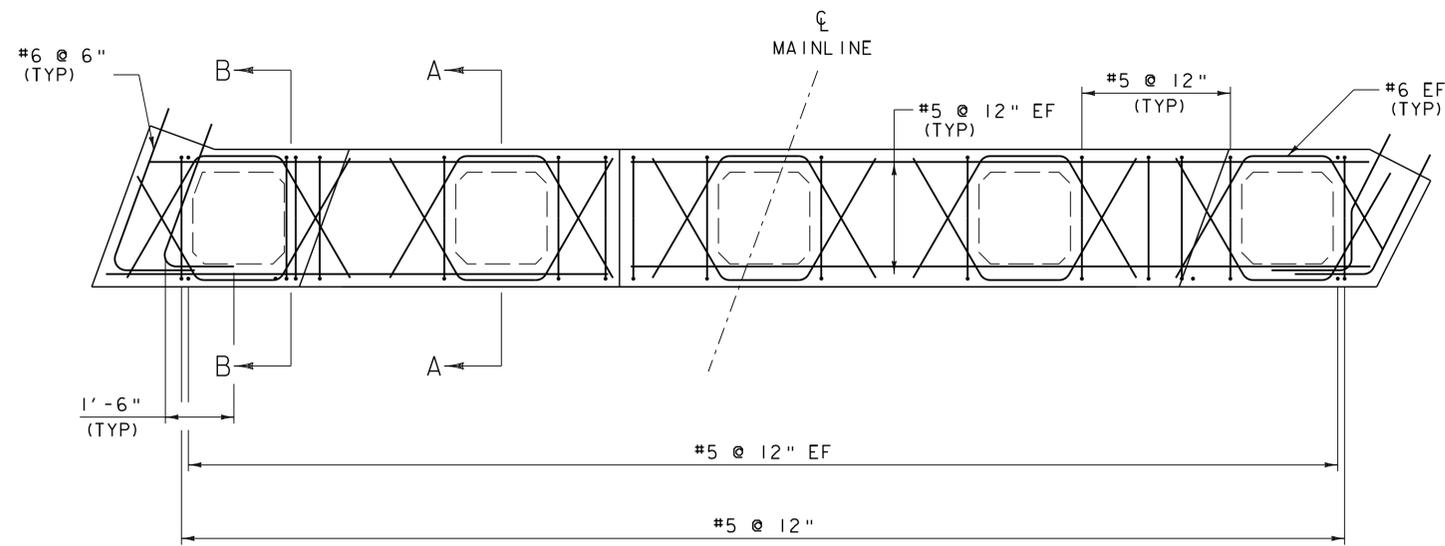


PCU I ELEVATION  
SCALE 1/2" = 1'-0"

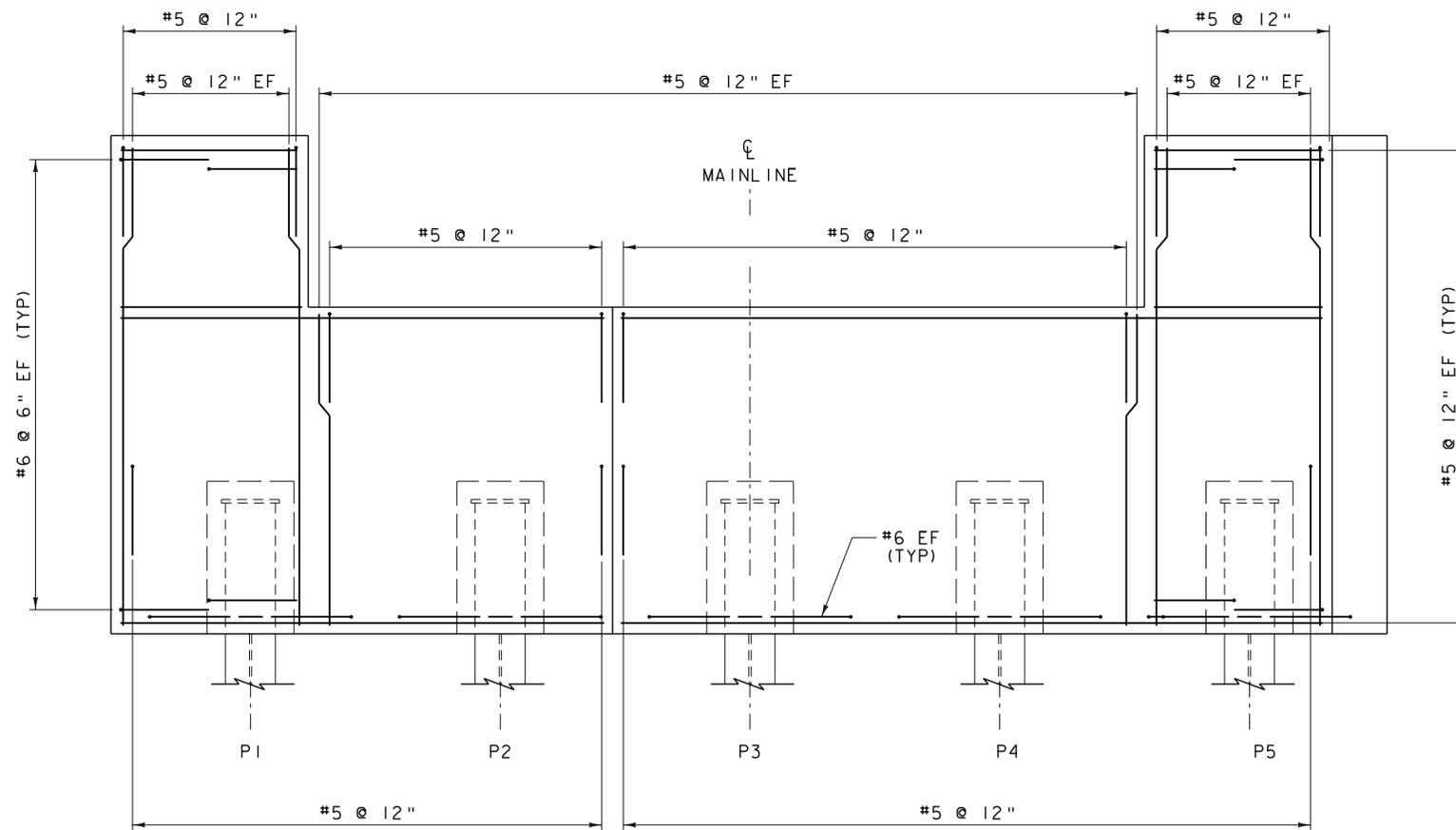
- NOTES:
1. POST TENSIONING AND ASSOCIATED ITEMS ONLY REQUIRED IF PILE CAP IS CONSTRUCTED OF MORE THAN ONE UNIT.
  2. ONCE PILES HAVE BEEN CUT TO THEIR FINAL ELEVATIONS, 1" X 16" X 16" STEEL PLATES SHALL BE WELDED TO THE TOP OF THE PILES. PAYMENT FOR THE PLATES SHALL BE INCIDENTAL TO ITEM 505.18, "STEEL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

PROJECT NAME:	GUILFORD
PROJECT NUMBER:	BRO 1442(36)
FILE NAME:	z10j064sub.dgn
PROJECT LEADER:	S.E. BURBANK
DESIGNED BY:	G.H. NEAL
ABUTMENT PLAN & ELEVATION	
PLOT DATE:	10/2/2013
DRAWN BY:	A.J. GOUDREAU
CHECKED BY:	J.T. KLEIN
SHEET	24 OF 42

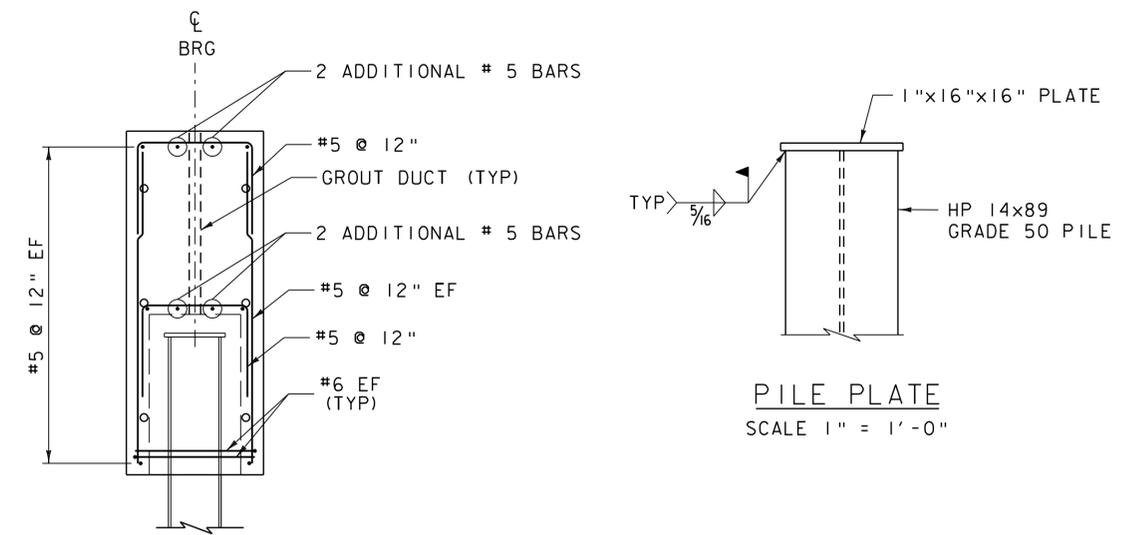




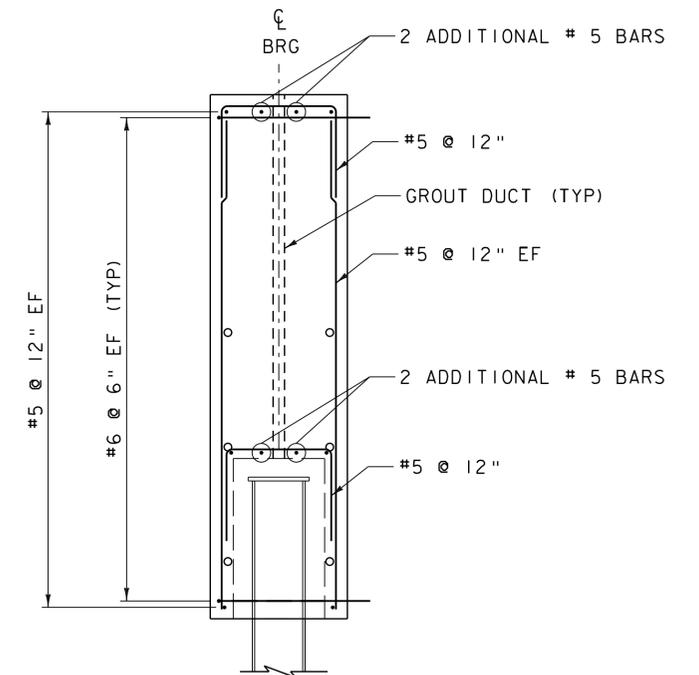
PCU I REINFORCING PLAN  
SCALE 1/2" = 1'-0"



PCU I REINFORCING ELEVATION  
SCALE 1/2" = 1'-0"



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



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

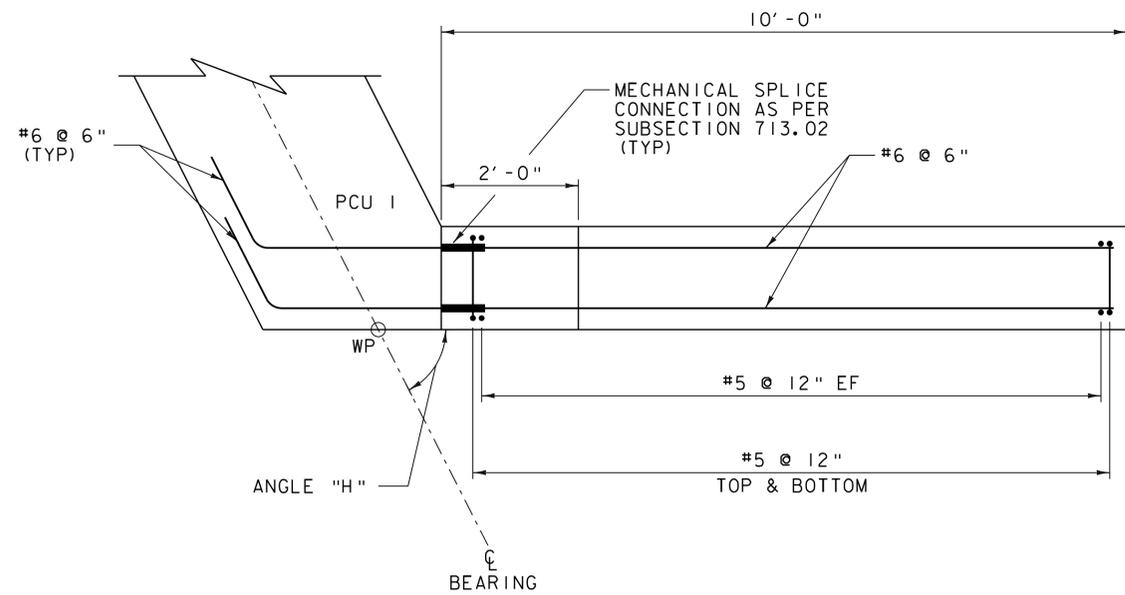
**NOTE:**

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

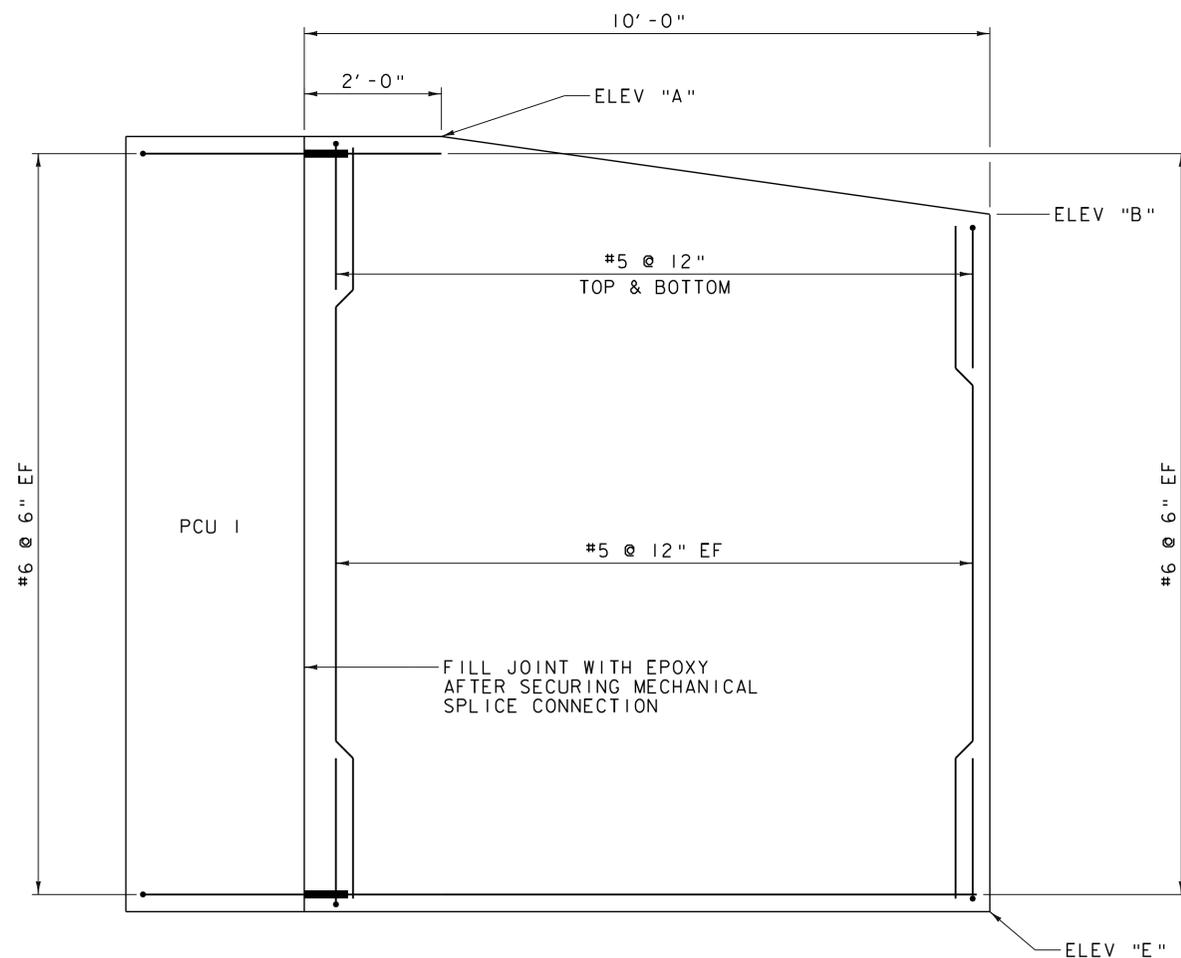
PROJECT NAME: GUILFORD  
PROJECT NUMBER: BRO 1442(36)

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

PLOT DATE: 10/2/2013  
DRAWN BY: A.J. GOUDREAU  
CHECKED BY: J.T. KLEIN  
SHEET 25 OF 42



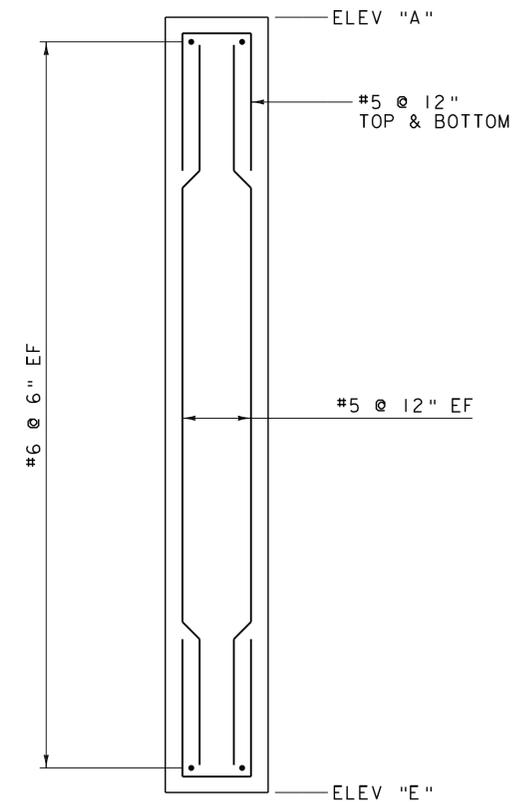
PCU 2 PLAN  
SCALE 3/4" = 1'-0"



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.

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

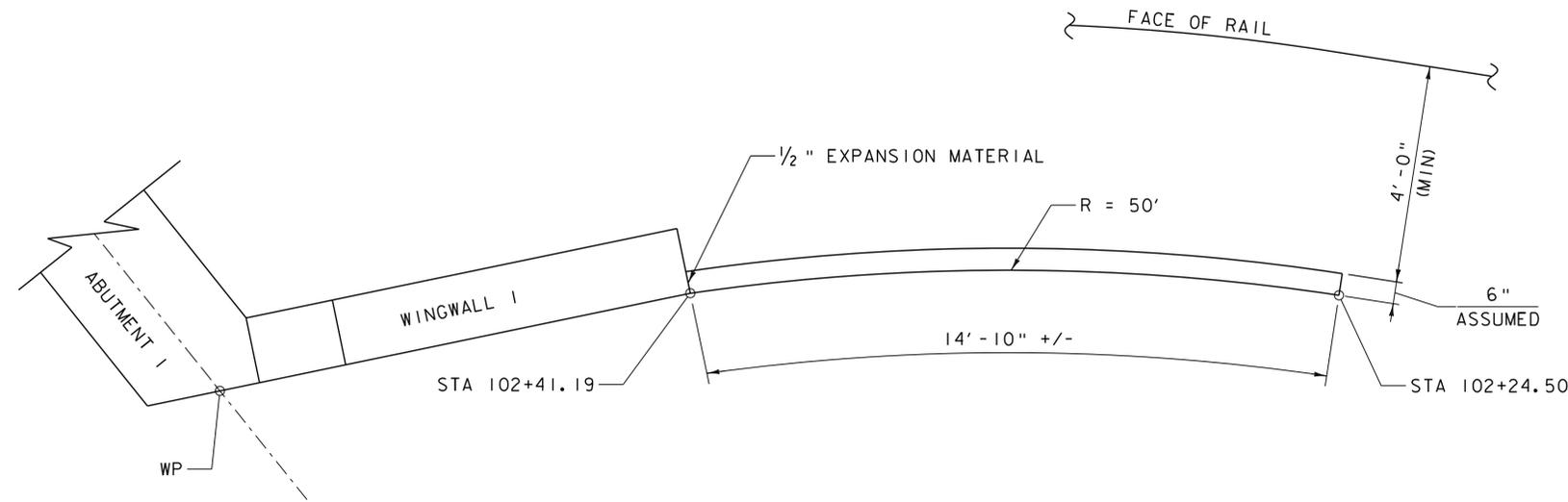
FILE NAME: z10j064sub.dgn  
 PROJECT LEADER: S.E. BURBANK  
 DESIGNED BY: G.H. NEAL  
 WINGWALL DETAILS

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



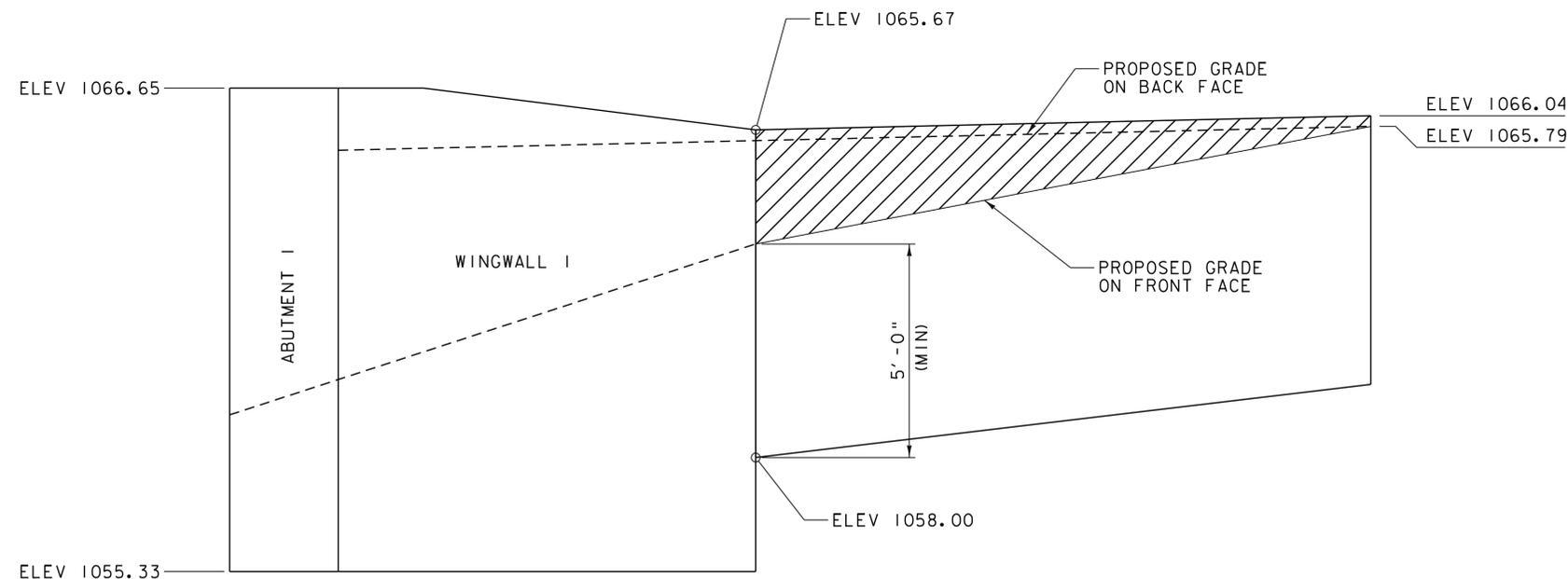
**NOTE:**

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**

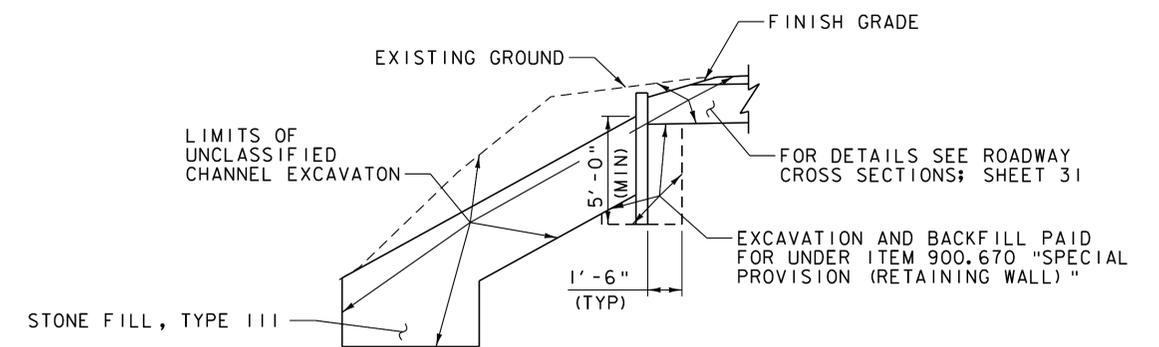
SCALE 1/2" = 1'-0"



**RETAINING WALL ELEVATION VIEW**

SCALE 1/2" = 1'-0"

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



**RETAINING WALL EXCAVATION DETAIL**

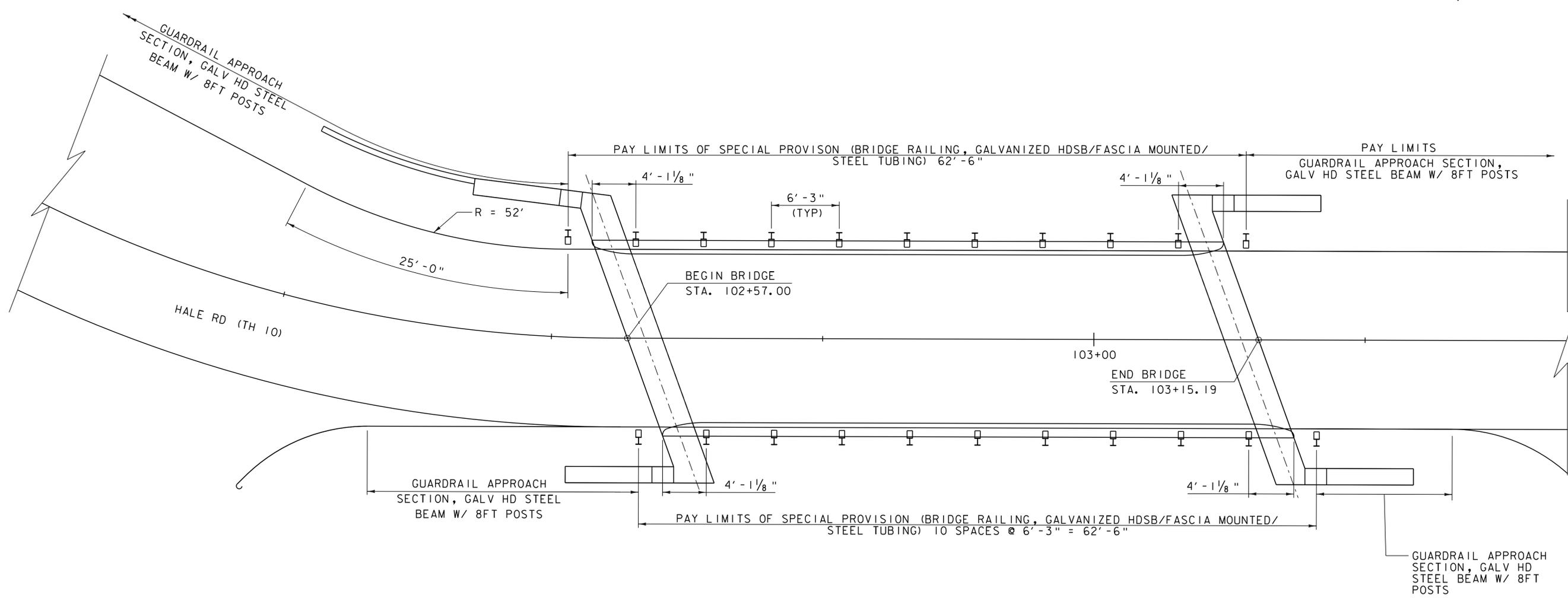
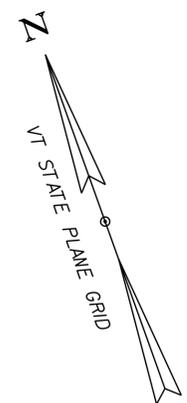
NOT TO SCALE

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

FILE NAME: z10j064sub.dgn  
PROJECT LEADER: S.E. BURBANK  
DESIGNED BY: A.J. GOUDREAU  
RETAINING WALL DETAILS

PLOT DATE: 10/2/2013  
DRAWN BY: A.J. GOUDREAU  
CHECKED BY: S.E. BURBANK  
SHEET 27 OF 42

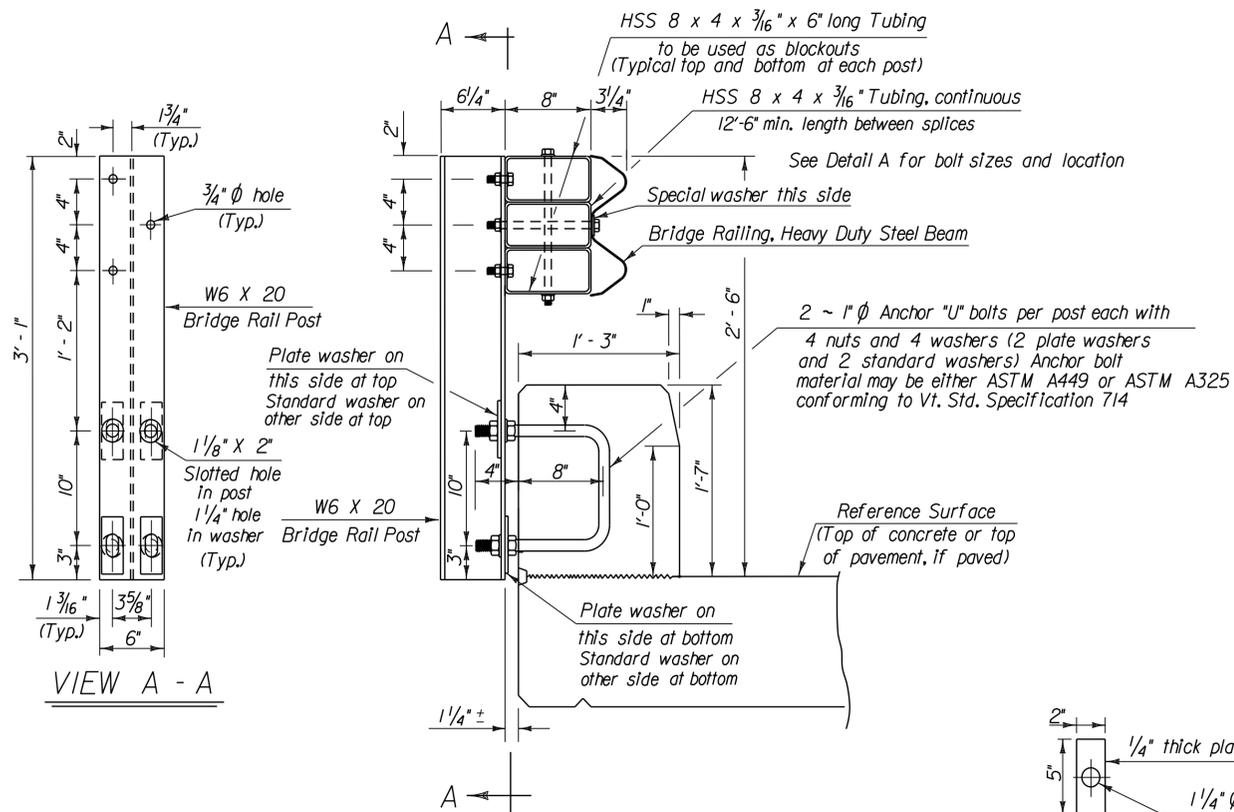




BRIDGE RAIL LAYOUT  
NOT TO SCALE

PROJECT NAME:	GUILFORD	PLOT DATE:	10/2/2013
PROJECT NUMBER:	BRO 1442(36)	DRAWN BY:	E.A. FIALA
FILE NAME:	z10j064brail.dgn	DESIGNED BY:	E.A. FIALA
PROJECT LEADER:	S.E. BURBANK	CHECKED BY:	S.E. BURBANK
BRIDGE RAIL LAYOUT		SHEET	28 OF 42





FASCIA MOUNTED WITH CURB

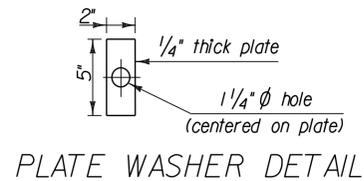
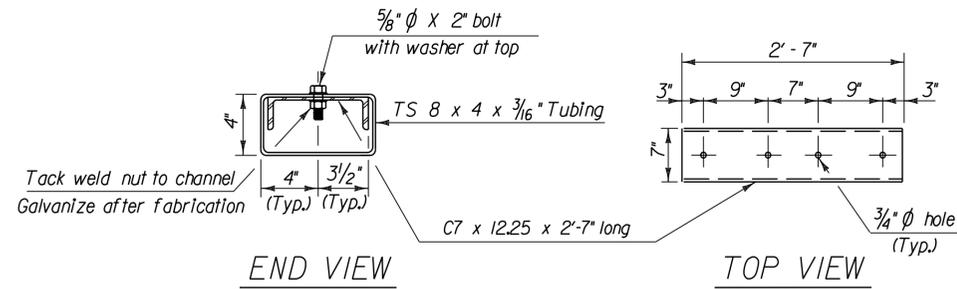
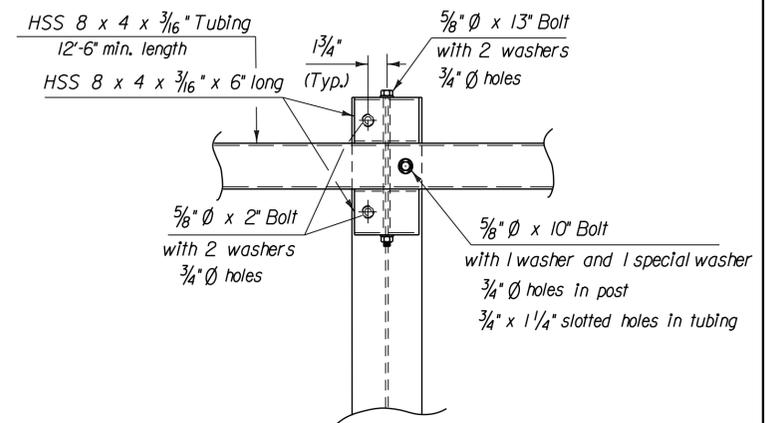


PLATE WASHER DETAIL



SPLICE BAR DETAILS

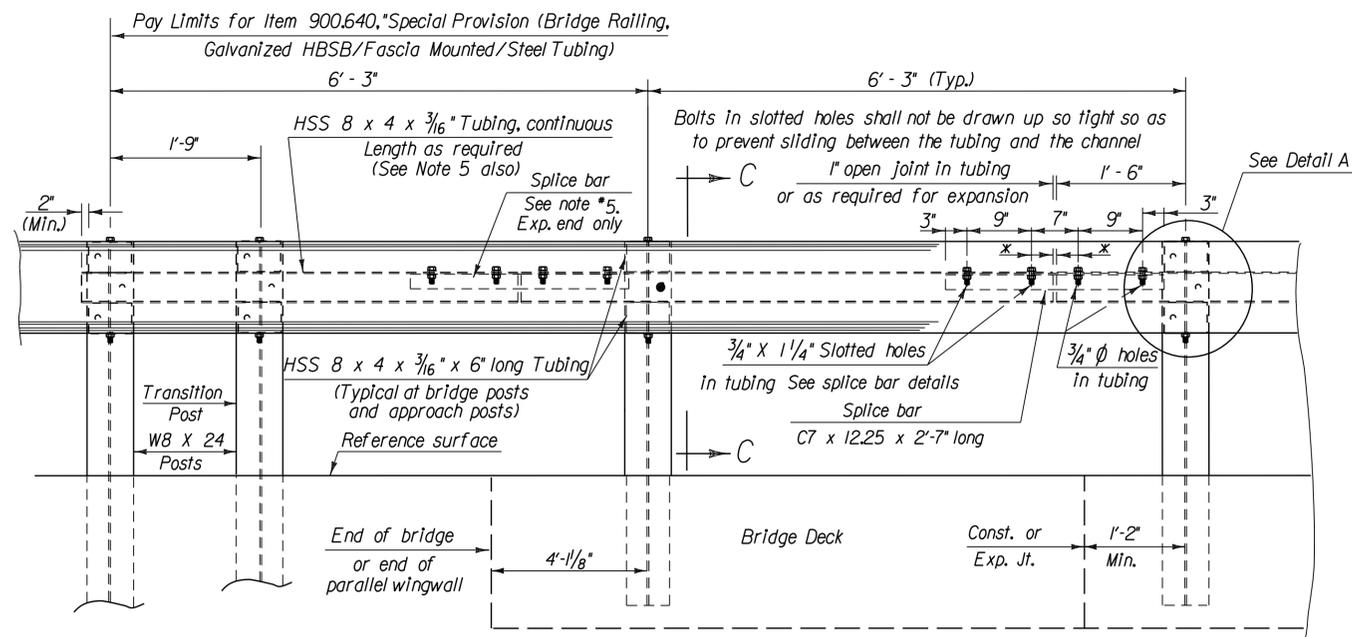


DETAIL A

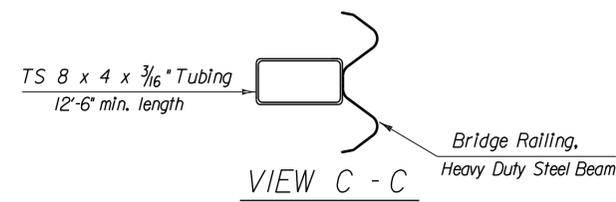
Steel Beam Guard Rail Not Shown

NOTES

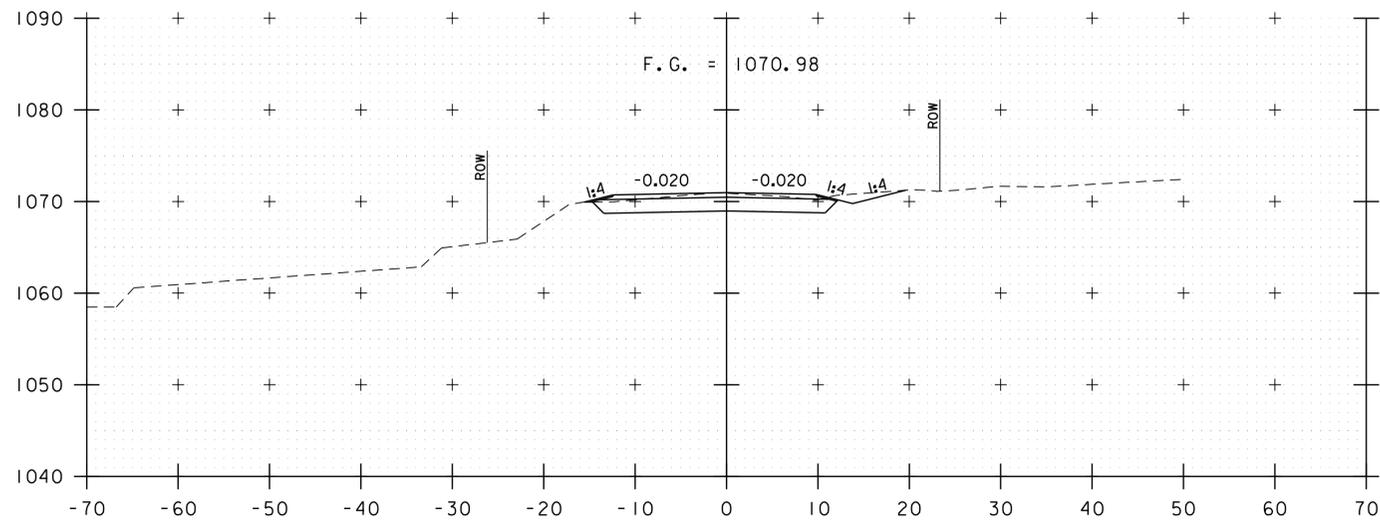
1. ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 525.
2. PRIOR TO GALVANIZING THE ASSEMBLED POST, GRIND ALL EDGES TO A MINIMUM RADIUS OF 1/16".
3. ALL POSTS SHALL BE SET NORMAL TO GRADE.
4. SPLICES FOR THE STEEL BEAM GUARDRAIL SHALL LAP IN THE DIRECTION OF TRAFFIC.
5. A RAILING JOINT SPLICE SHALL BE 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.



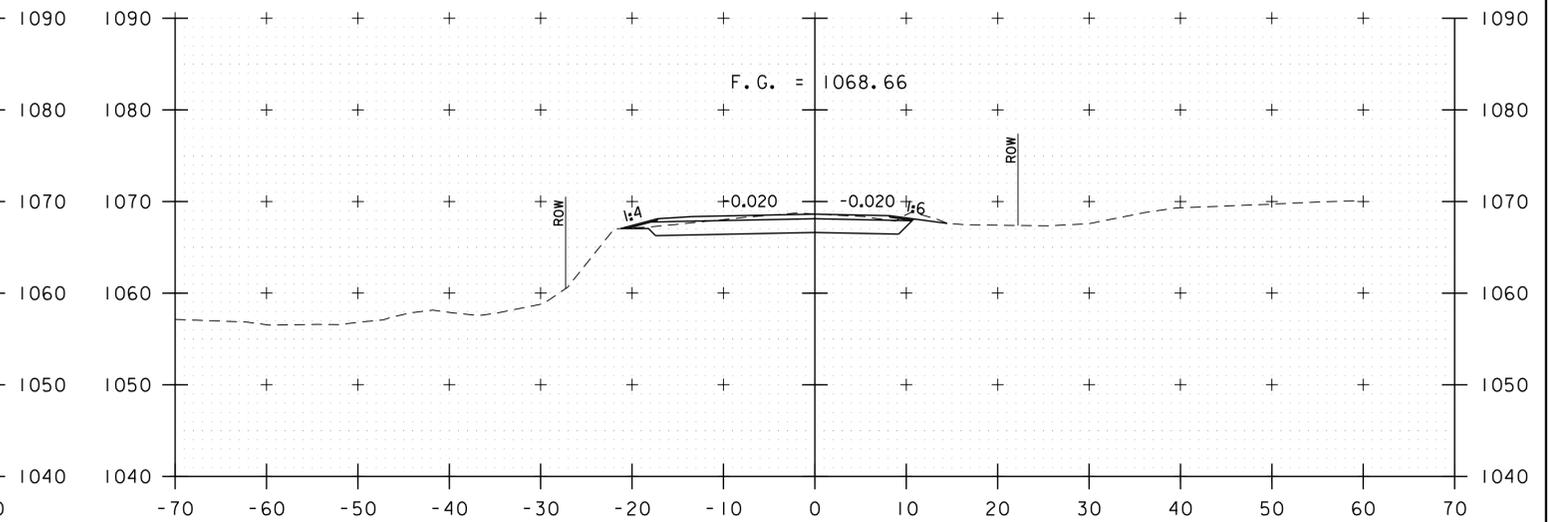
RAILING ELEVATION VIEW  
(SHOWN LOOKING FROM Q WITHOUT CURB)



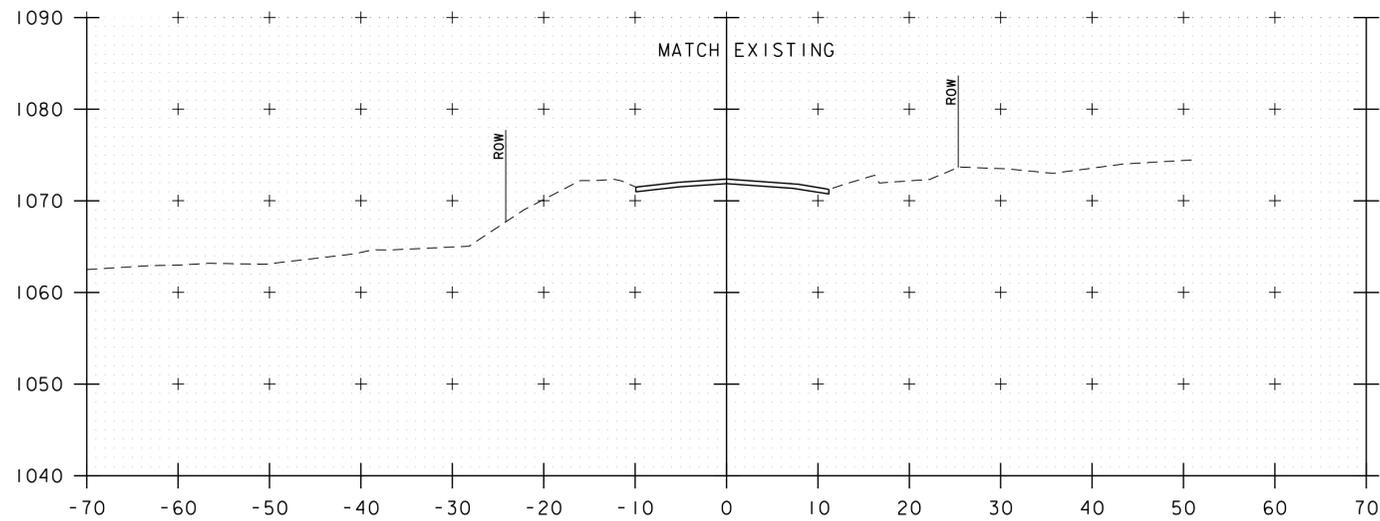
VIEW C - C



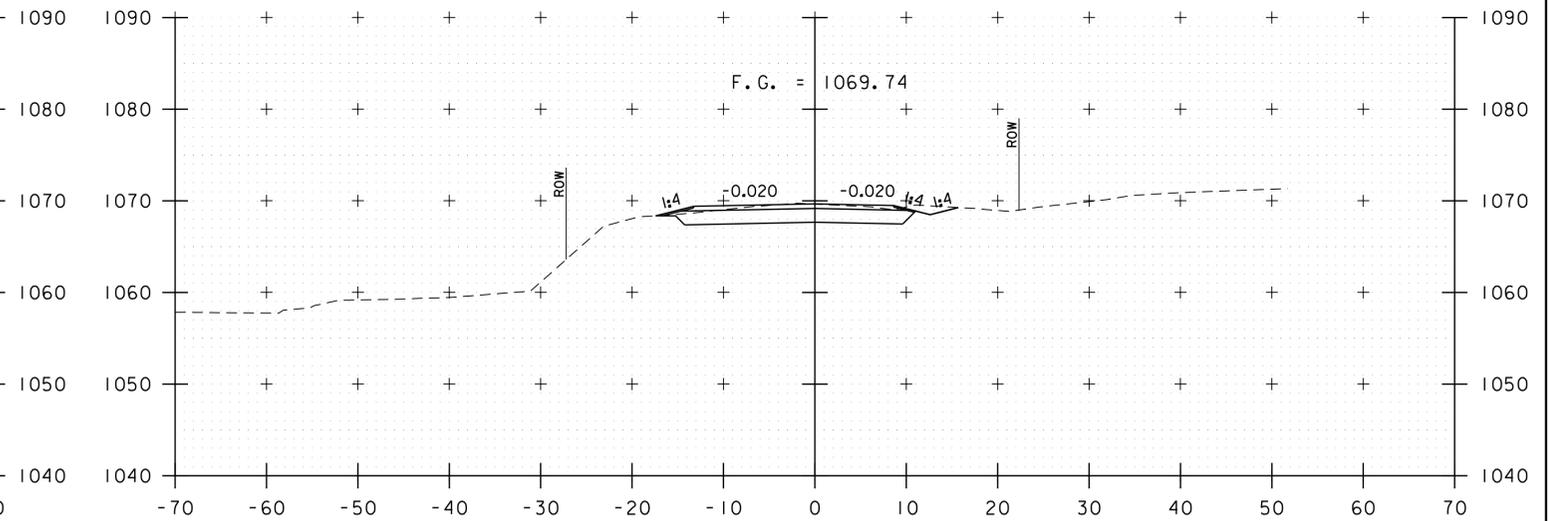
101+25  
BEGIN PROJECT



101+75



101+00  
BEGIN APPROACH



101+50

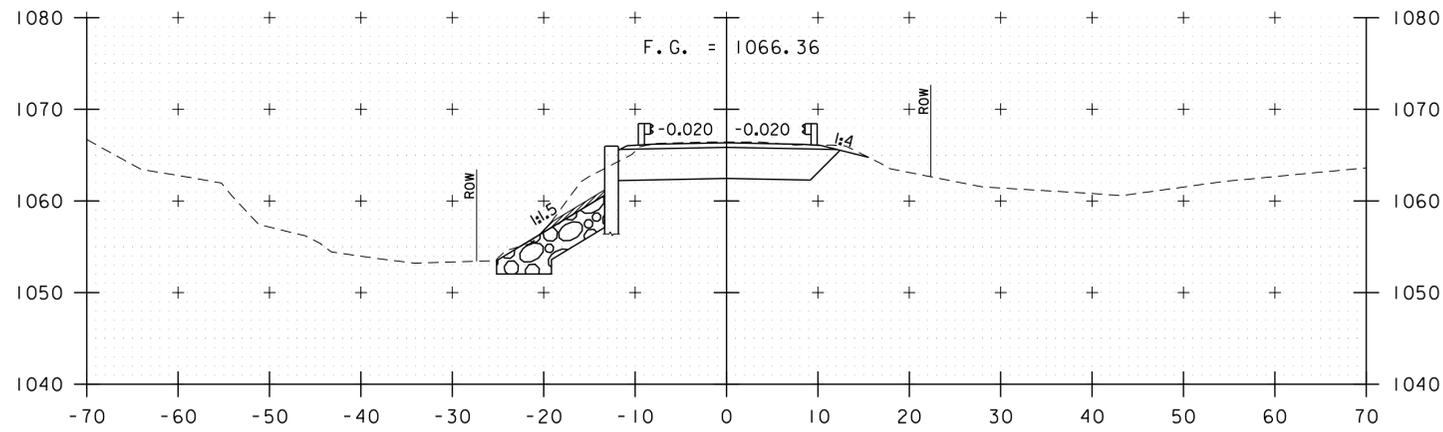
ROADWAY CROSS SECTIONS  
SCALE 1" = 10' - 0"  
STA. 101+00 TO STA. 101+75



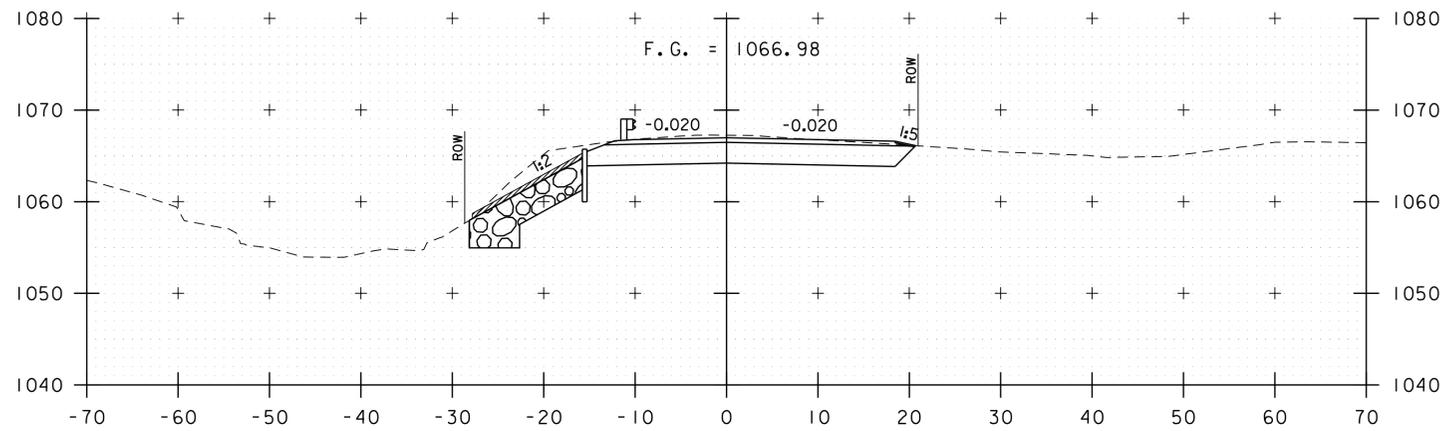
PROJECT NAME: GUILFORD  
PROJECT NUMBER: BRO 1442(36)

FILE NAME: z10j064xsl.dgn  
PROJECT LEADER: S.E. BURBANK  
DESIGNED BY: E.A. FIALA  
ROADWAY CROSS SECTIONS (1 OF 3)

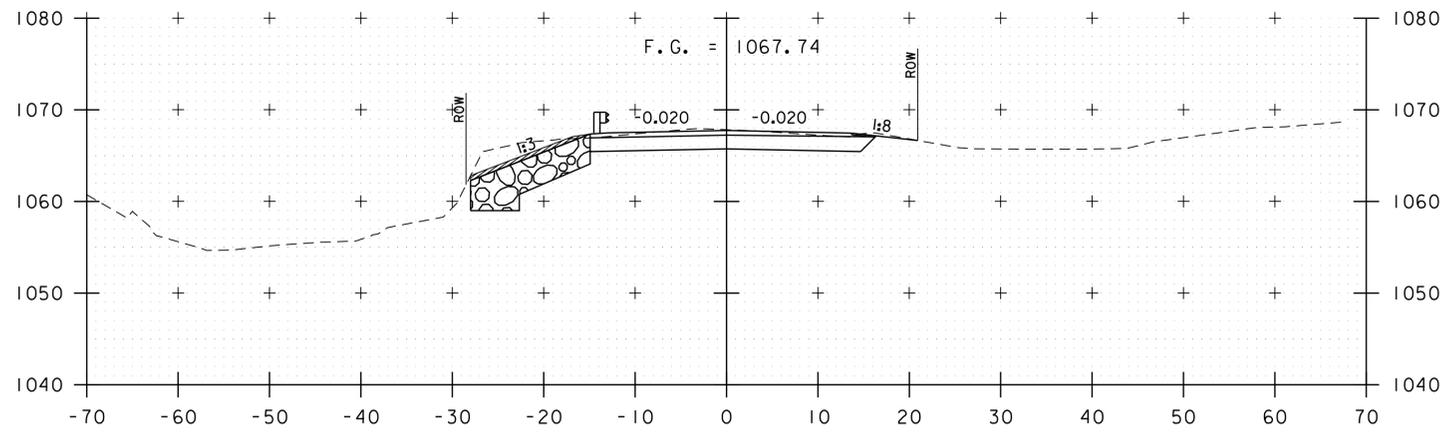
PLOT DATE: 10/2/2013  
DRAWN BY: E.A. FIALA  
CHECKED BY: S.E. BURBANK  
SHEET 30 OF 42



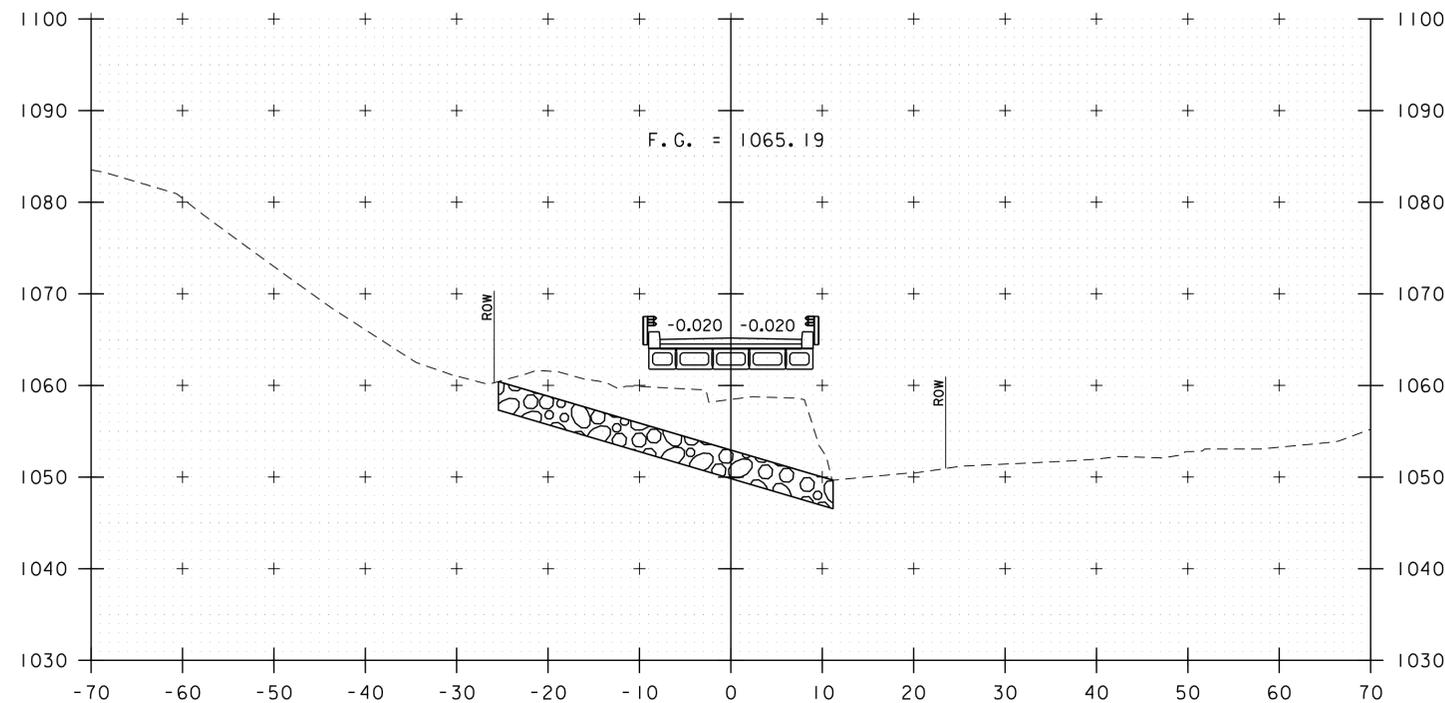
102+50



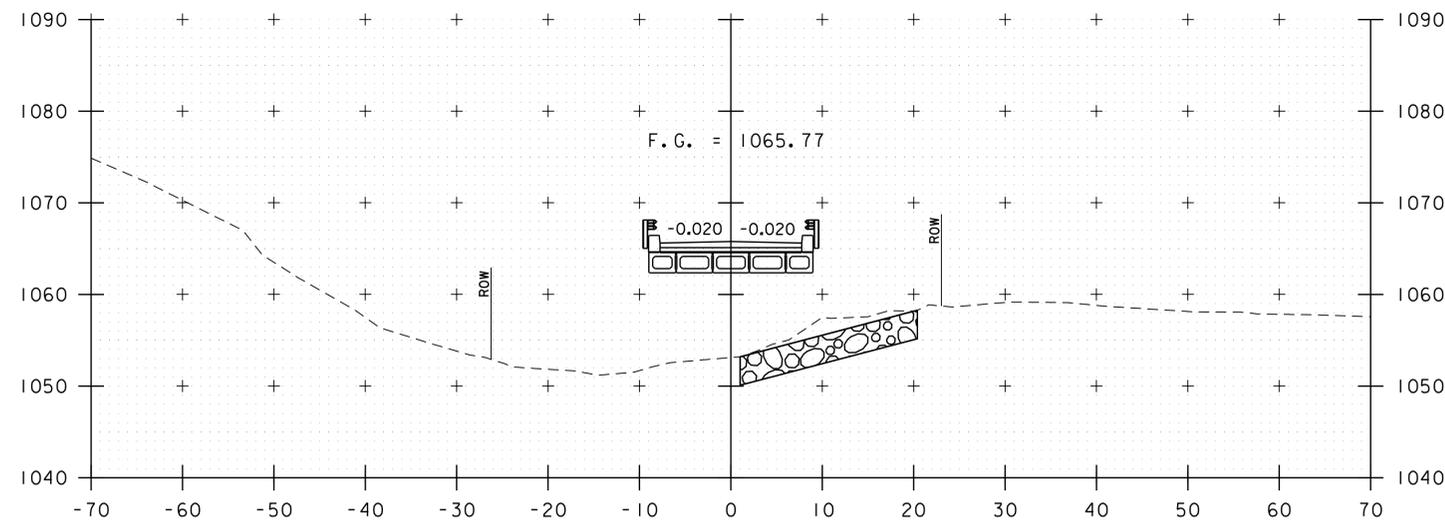
102+25



102+00



103+00



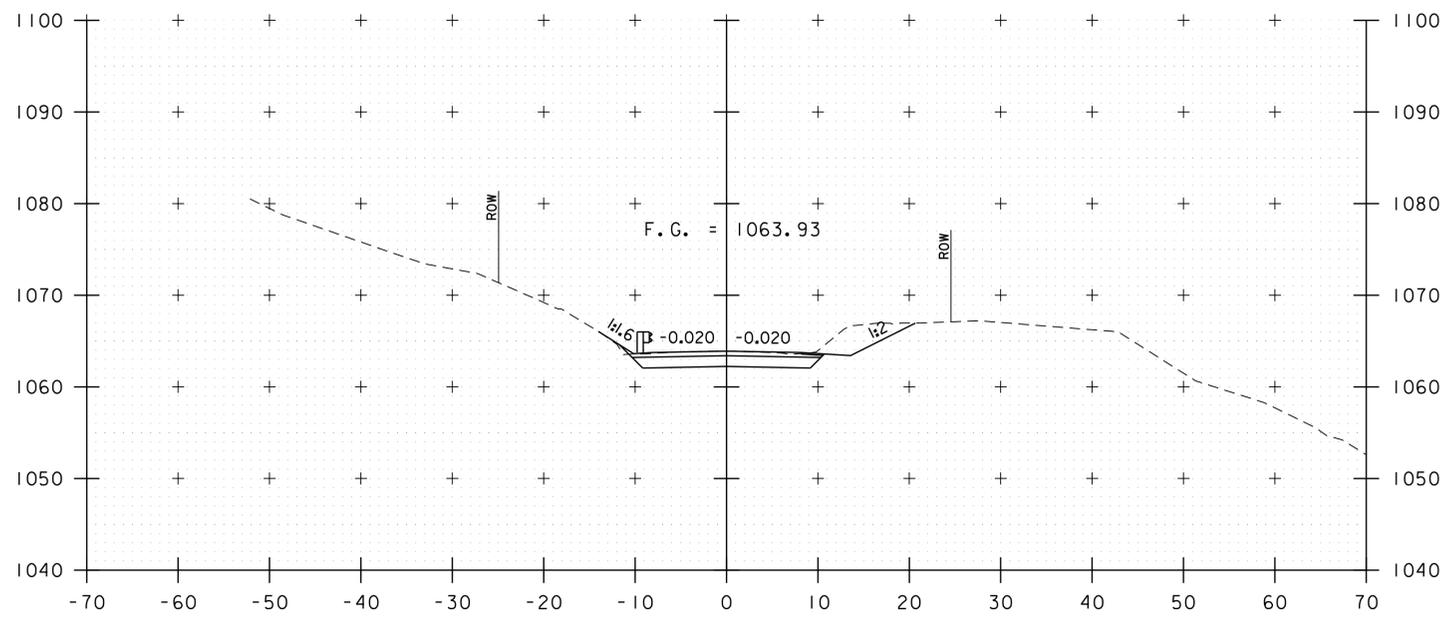
102+75

BEGIN BRIDGE  
STA 102+57.00

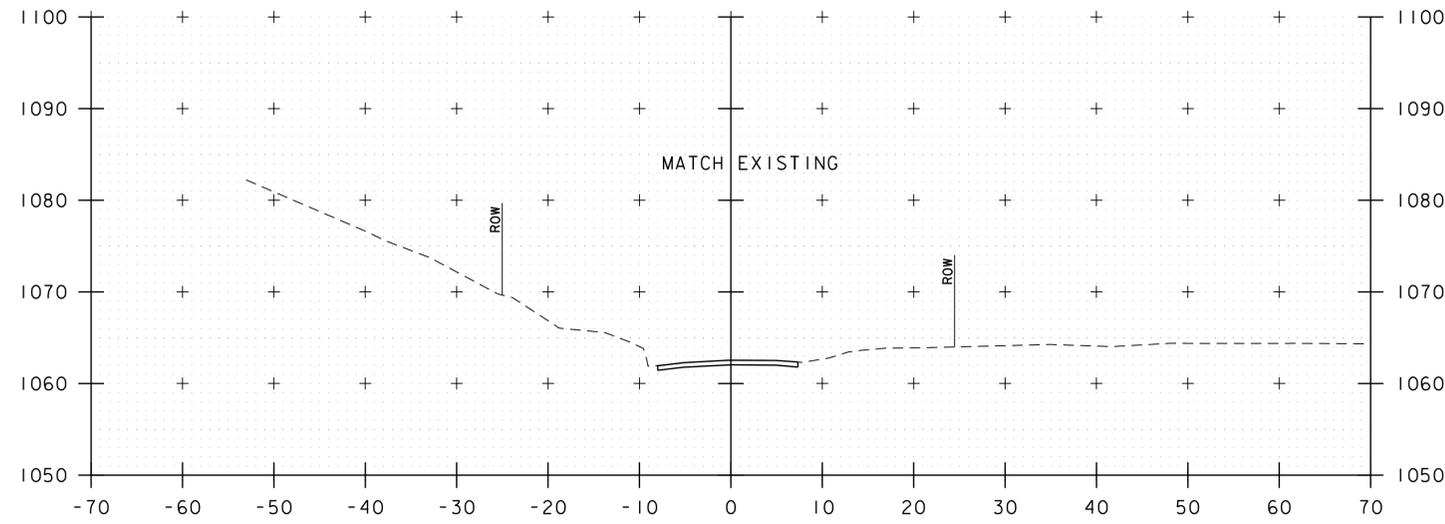
ROADWAY CROSS SECTIONS  
SCALE 1"=10'-0"  
STA. 102+00 TO STA. 103+00



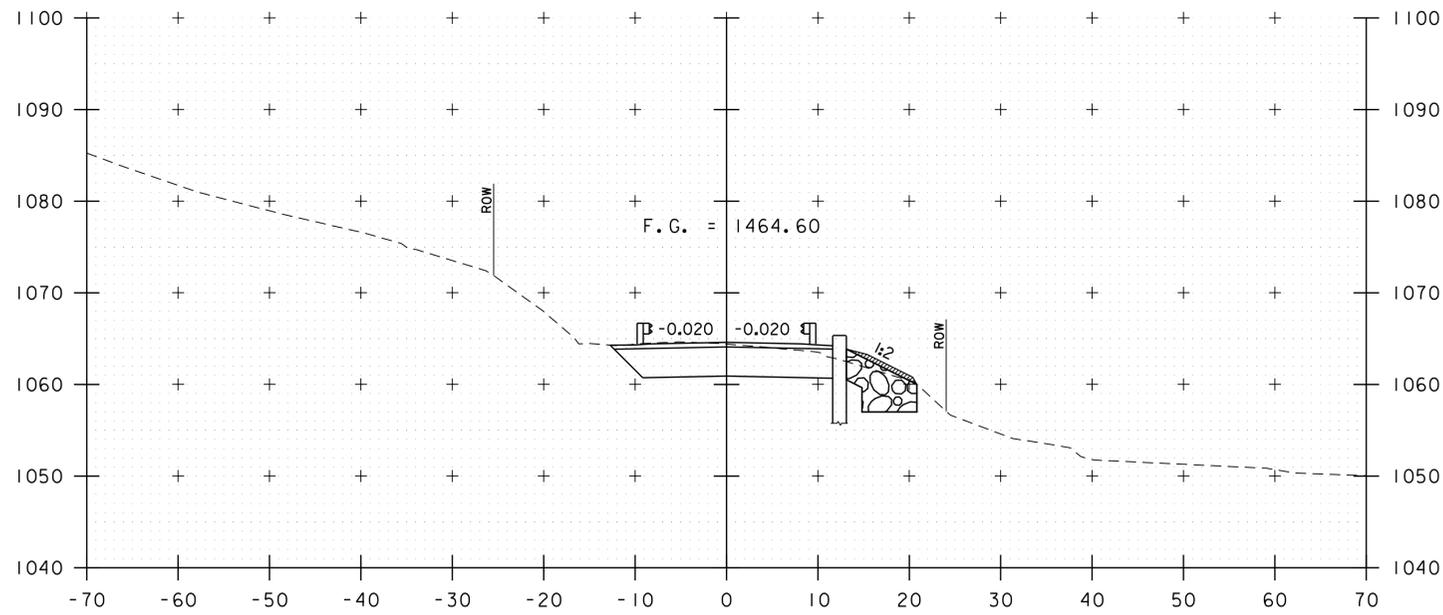
PROJECT NAME: GUILFORD	PLOT DATE: 10/2/2013
PROJECT NUMBER: BRO 1442(36)	DRAWN BY: E.A. FIALA
FILE NAME: z10j064xsl.dgn	CHECKED BY: S.E. BURBANK
PROJECT LEADER: S.E. BURBANK	SHEET 31 OF 42
DESIGNED BY: E.A. FIALA	
ROADWAY CROSS SECTIONS (2 OF 3)	



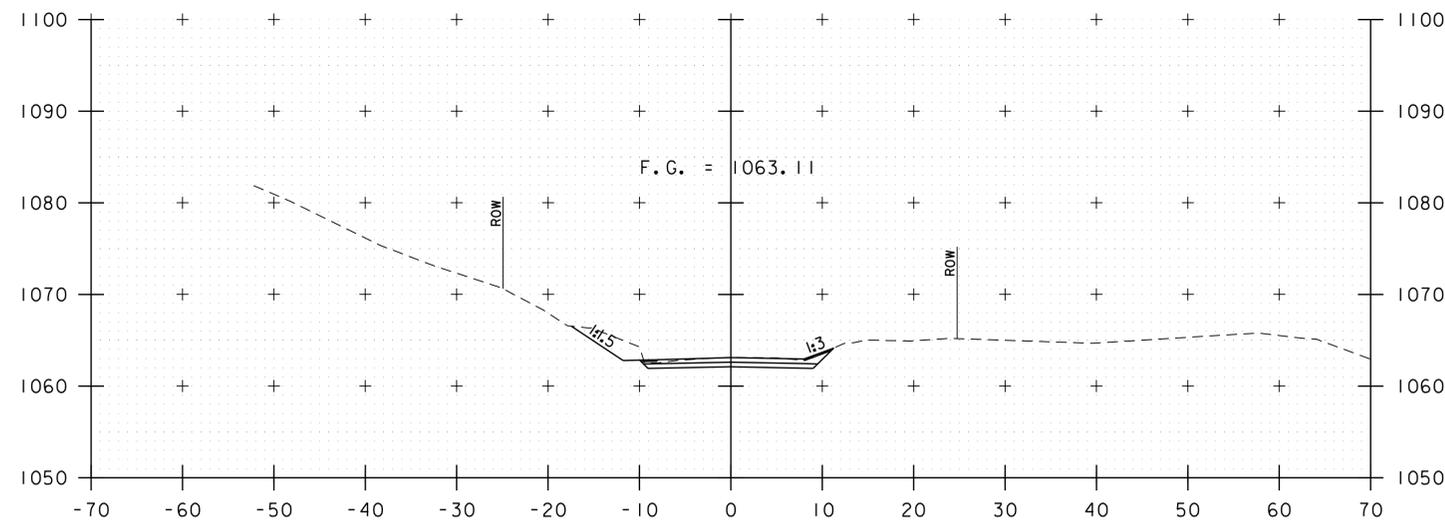
103+50



103+90  
END APPROACH  
STA 103+90.00



103+25  
END BRIDGE  
STA 103+15.19

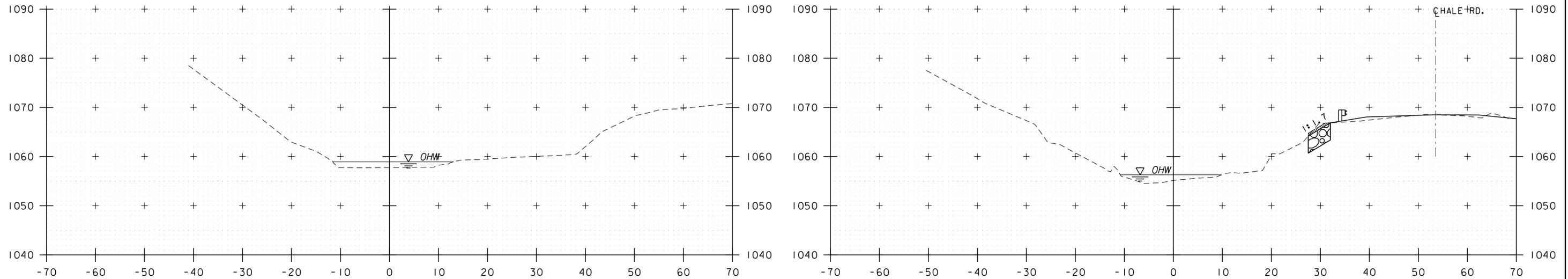


103+75  
END PROJECT  
STA 103+65.19

ROADWAY CROSS SECTIONS  
SCALE 1"=10'-0"  
STA. 103+25 TO STA. 103+90



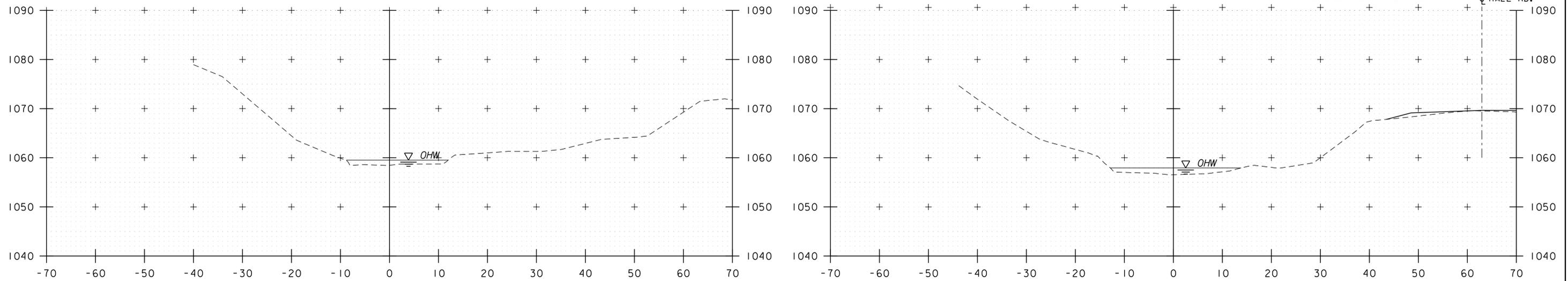
PROJECT NAME: GUILFORD	
PROJECT NUMBER: BRO 1442(36)	
FILE NAME: z10j064xsl.dgn	PLOT DATE: 10/2/2013
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
ROADWAY CROSS SECTIONS (3 OF 3)	SHEET 32 OF 42



10+25

10+75

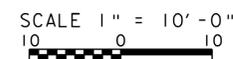
STA. 10+81, RT  
 BEGIN UNCLASSIFIED CHANNEL EXCAVATION  
 GEOTEXTILE UNDER STONE FILL  
 STONE FILL, TYPE III  
 GRUBBING MATERIAL



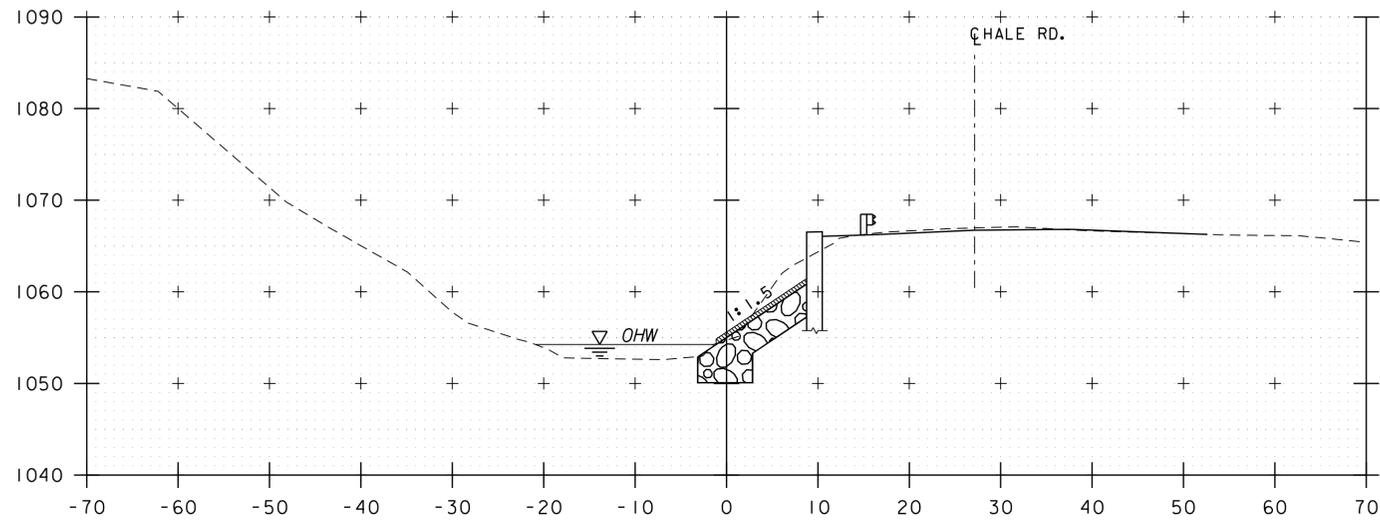
10+00

10+50

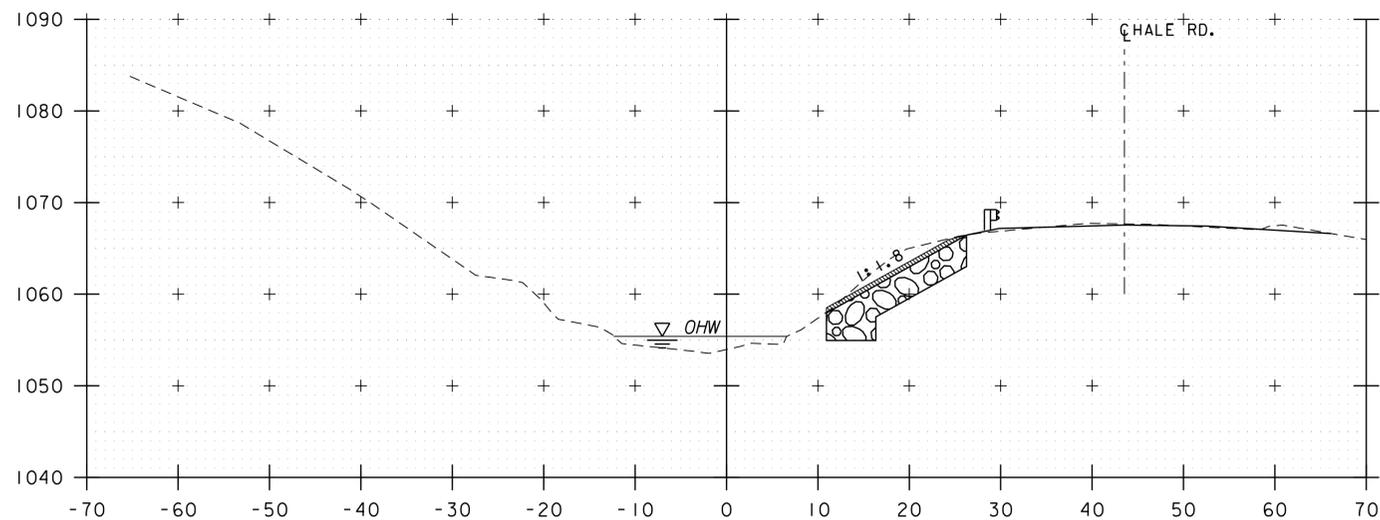
CHANNEL CROSS SECTIONS  
 STA. 10+00 - 10+75



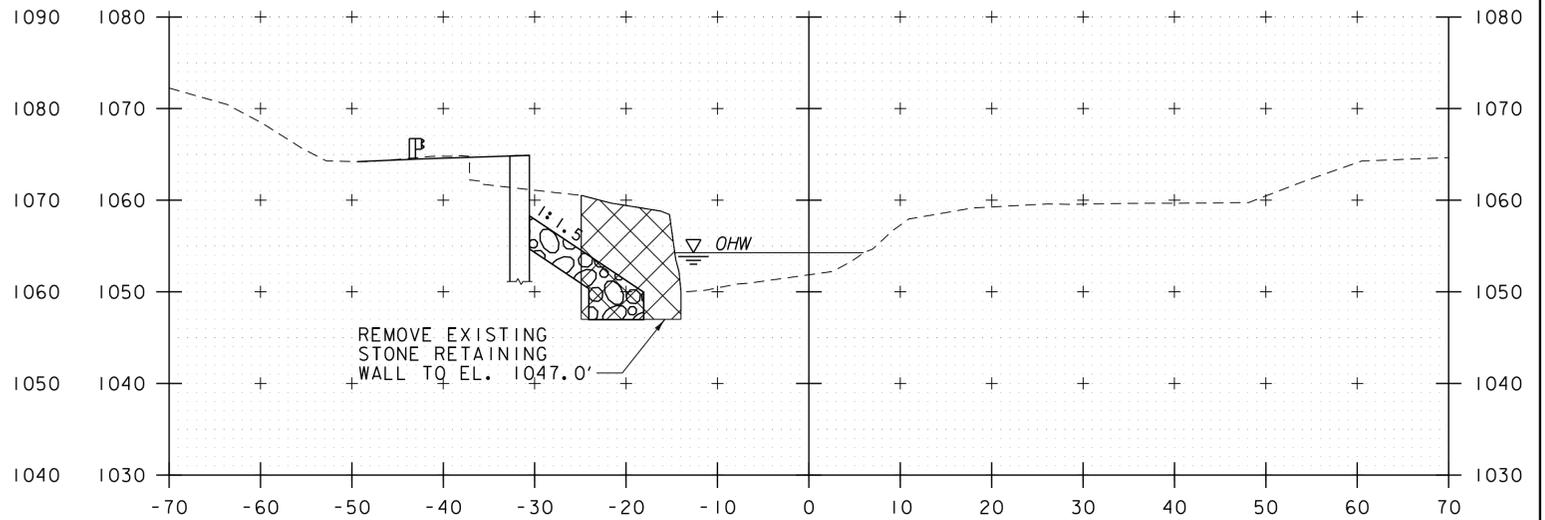
PROJECT NAME: GUILFORD	PLOT DATE: 10/2/2013
PROJECT NUMBER: BRO 1442(36)	DRAWN BY: E.A. FIALA
FILE NAME: z10j064xsl.dgn	CHECKED BY: S.E. BURBANK
PROJECT LEADER: S.E. BURBANK	SHEET 33 OF 42
DESIGNED BY: E.A. FIALA	
CHANNEL CROSS SECTIONS (1 OF 4)	



11+25



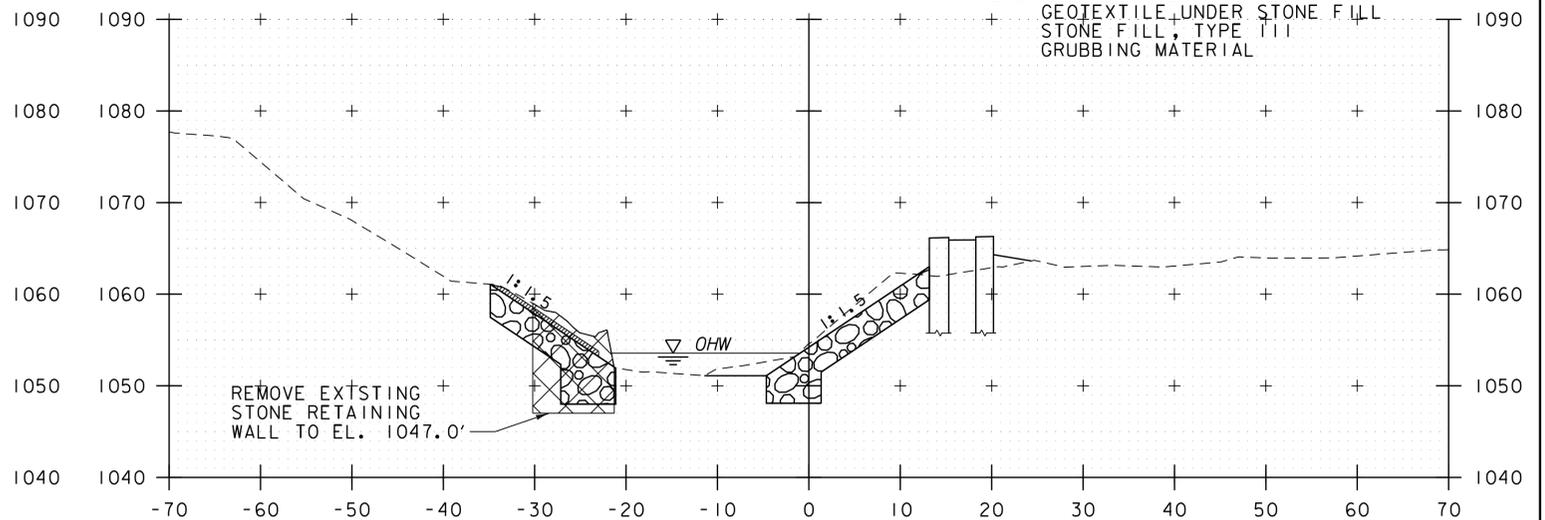
11+00



STA. 11+56, LT  
END GRUBBING MATERIAL

11+75

STA. 11+63, RT  
BEGIN 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

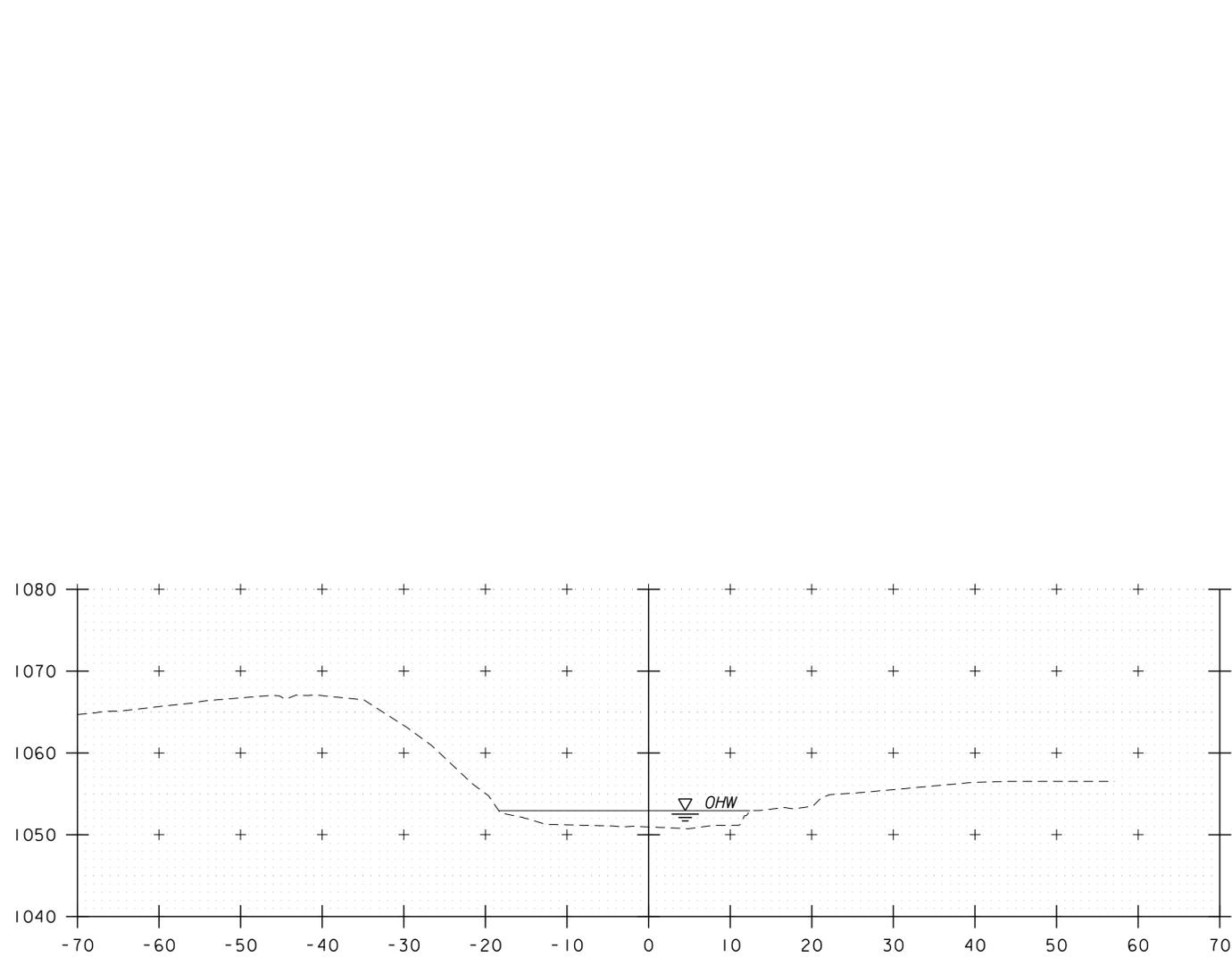
SCALE 1" = 10'-0"  
10 0 10



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

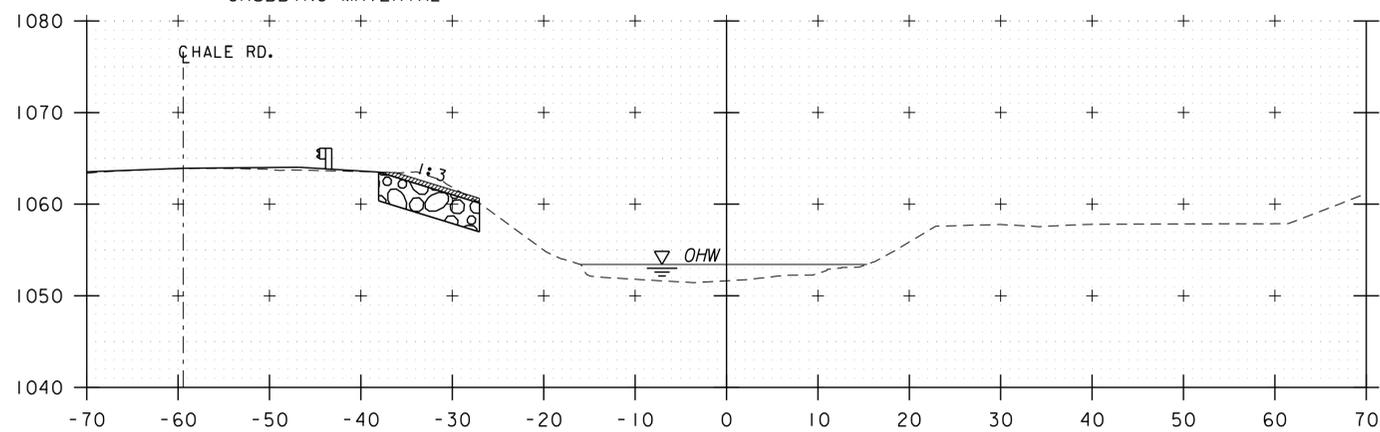
FILE NAME: z10j064xsl.dgn  
PROJECT LEADER: S.E. BURBANK  
DESIGNED BY: E.A. FIALA  
CHANNEL CROSS SECTIONS (2 OF 4)

PLOT DATE: 10/2/2013  
DRAWN BY: E.A. FIALA  
CHECKED BY: S.E. BURBANK  
SHEET 34 OF 42



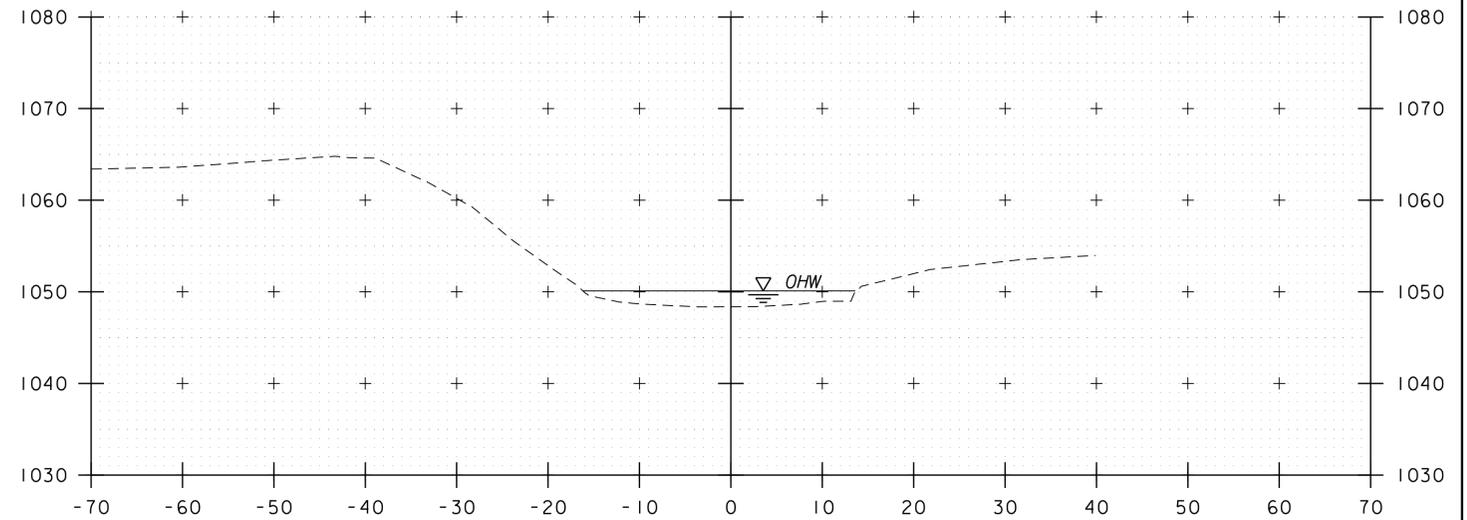
STA. 11+86, LT  
 END UNCLASSIFIED CHANNEL EXCAVATION  
 GEOTEXTILE UNDER STONE FILL  
 STONE FILL, TYPE III  
 GRUBBING MATERIAL

12+25

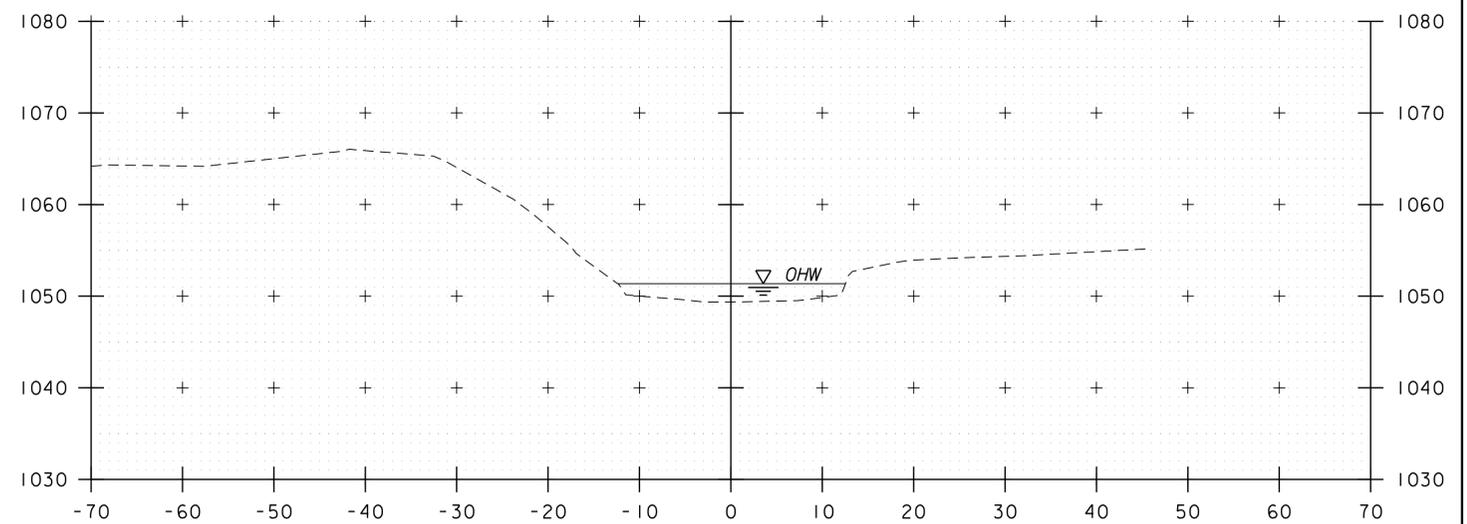


STA. 11+86, LT  
 BEGIN GRUBBING MATERIAL

12+00

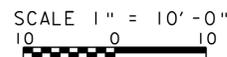


12+75



12+50

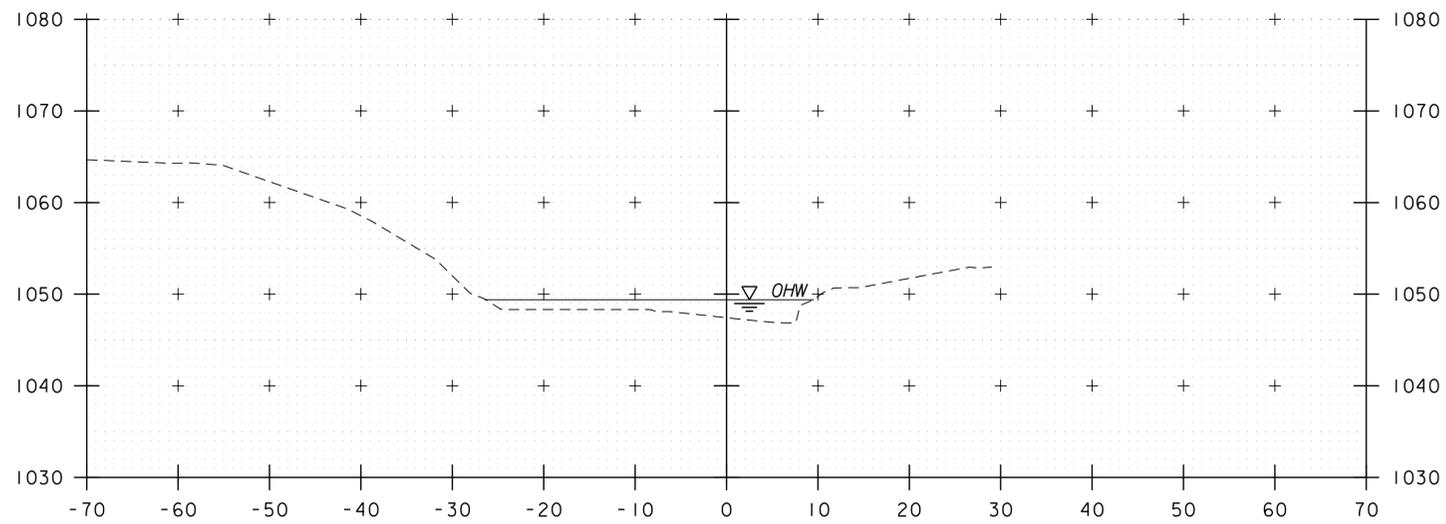
CHANNEL CROSS SECTIONS  
 STA. 12+00 - STA. 12+75



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

FILE NAME: z10j064xsl.dgn  
 PROJECT LEADER: S.E. BURBANK  
 DESIGNED BY: E.A. FIALA  
 CHANNEL CROSS SECTIONS (3 OF 4)

PLOT DATE: 10/2/2013  
 DRAWN BY: E.A. FIALA  
 CHECKED BY: S.E. BURBANK  
 SHEET 35 OF 42



13+00

CHANNEL CROSS SECTIONS  
 STA. 13+00 - STA. 13+00

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



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

# 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 EROSION 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

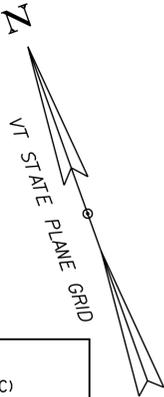
### 1.5.2 OFF-SITE ACTIVITIES

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.

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

FILE NAME: z10j064ero\_Narrative.dgn  
PROJECT LEADER: S.E. BURBANK  
DESIGNED BY: E.A. FIALA  
EPSC NARRATIVE

PLOT DATE: 10/2/2013  
DRAWN BY: E.A. FIALA  
CHECKED BY: S.E. BURBANK  
SHEET 37 OF 42



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

**MCMILLEN, JOHN R.  
 & LOTZ, KAREN E.**

**BALSLEY, TANYA L.**

**HAYES, JOY**

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

**BEGIN BRIDGE**  
 STA. 102+57.00  
 F.G. = 1066.20

**ROADWAY POT STA. 102+72.83  
 CHANNEL POT STA. 11+50.00**

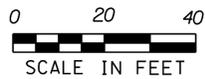
**END BRIDGE**  
 STA. 103+15.19  
 F.G. = 1064.83

**END PROJECT**  
 STA. 103+65.19

**END APPROACH**  
 STA. 103+90.00

**ROSSI, ELIZABETH M.  
 & ROSSI, PAUL J.  
 & ROSSI, PETER J.**

2 STY  
 WF  
 HOUSE



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

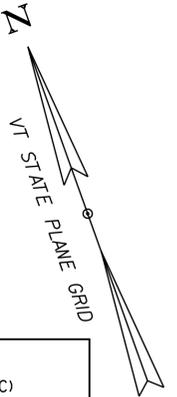
FILE NAME: z10j064bdr\_ero.dgn  
 PROJECT LEADER: S.E. BURBANK  
 DESIGNED BY: S.E. BURBANK  
 EPSC EXISTING CONDITIONS PLAN

PLOT DATE: 10/2/2013  
 DRAWN BY: E.A. FIALA  
 CHECKED BY: S.E. BURBANK  
 SHEET 38 OF 42

**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

**BEGIN BRIDGE**  
 STA. 102+57.00  
 F.G. = 1066.20  
 STONE FILL, TYPE III (TYP)

**ROADWAY POT STA. 102+72.83**  
**CHANNEL POT STA. 11+50.00**  
 STONE FILL, TYPE III (TYP)  
**END BRIDGE**  
 STA. 103+15.19  
 F.G. = 1064.83

**END APPROACH**  
 STA. 103+90.00

**END PROJECT**  
 STA. 103+65.19

**BEGIN APPROACH**  
 STA. 101+00.00

**BEGIN PROJECT**  
 STA. 101+25.00



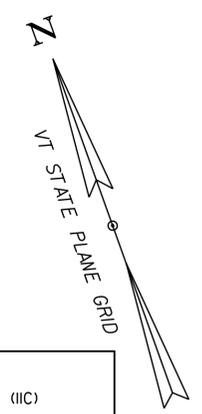
**NOTE:** SEE EROSION CONTROL DETAILS FOR SYMBOLOGY.

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

**FILE NAME:** z10j064bdr\_ero.dgn  
**PROJECT LEADER:** S.E. BURBANK  
**DESIGNED BY:** S.E. BURBANK  
**EPSC CONSTRUCTION CONDITIONS PLAN**

**PLOT DATE:** 10/2/2013  
**DRAWN BY:** E.A. FIALA  
**CHECKED BY:** S.E. BURBANK  
**SHEET 39 OF 42**





**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

**BEGIN BRIDGE**  
 STA. 102+57.00  
 F.G. = 1066.20  
 STONE FILL, TYPE III (TYP)

**ROADWAY POT STA. 102+72.83**  
**CHANNEL POT STA. 11+50.00**  
 STONE FILL, TYPE III (TYP)  
**END BRIDGE**  
 STA. 103+15.19  
 F.G. = 1064.83

**END APPROACH**  
 STA. 103+90.00

**END PROJECT**  
 STA. 103+65.19

**BEGIN APPROACH**  
 STA. 101+00.00

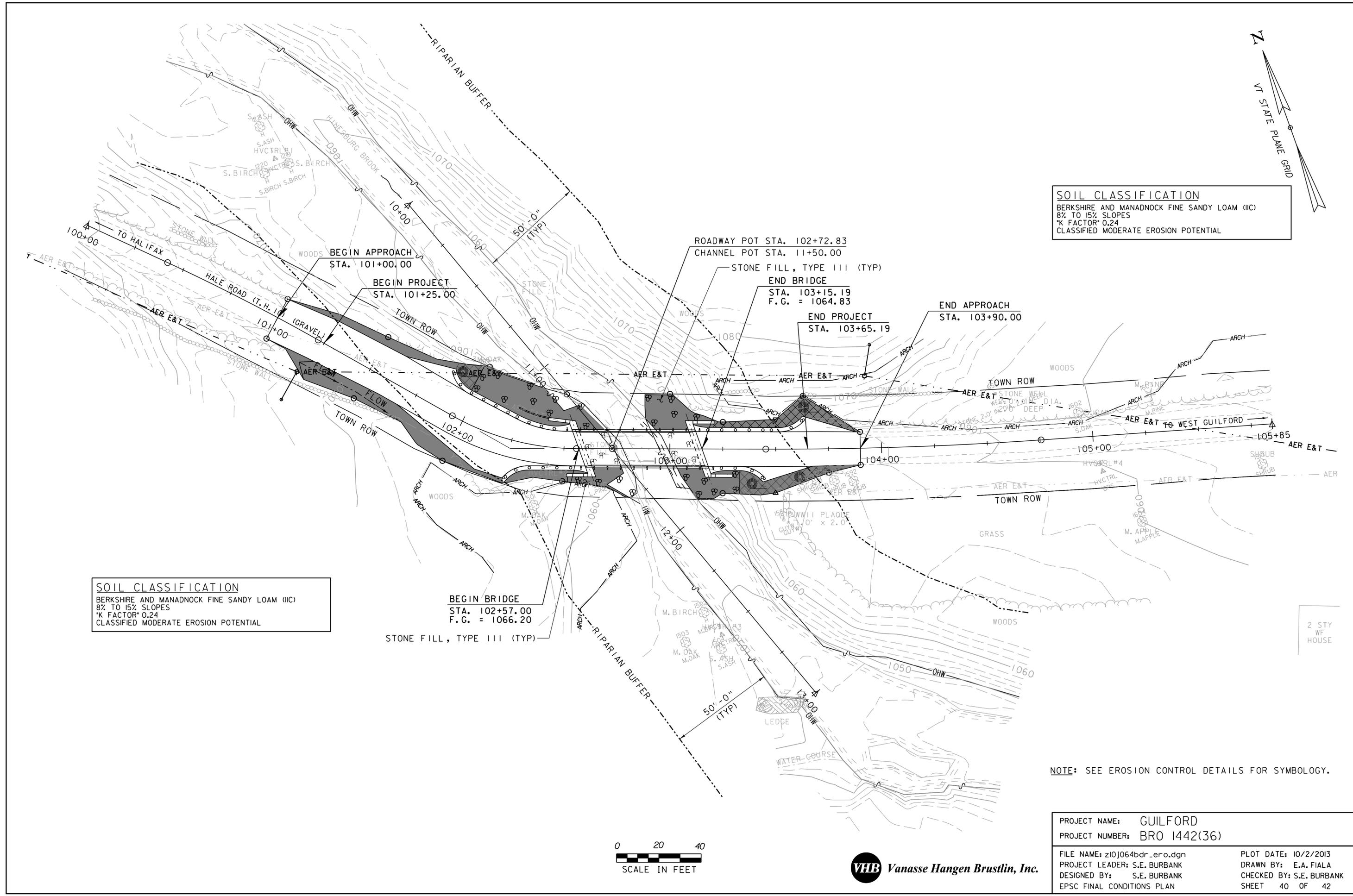
**BEGIN PROJECT**  
 STA. 101+25.00

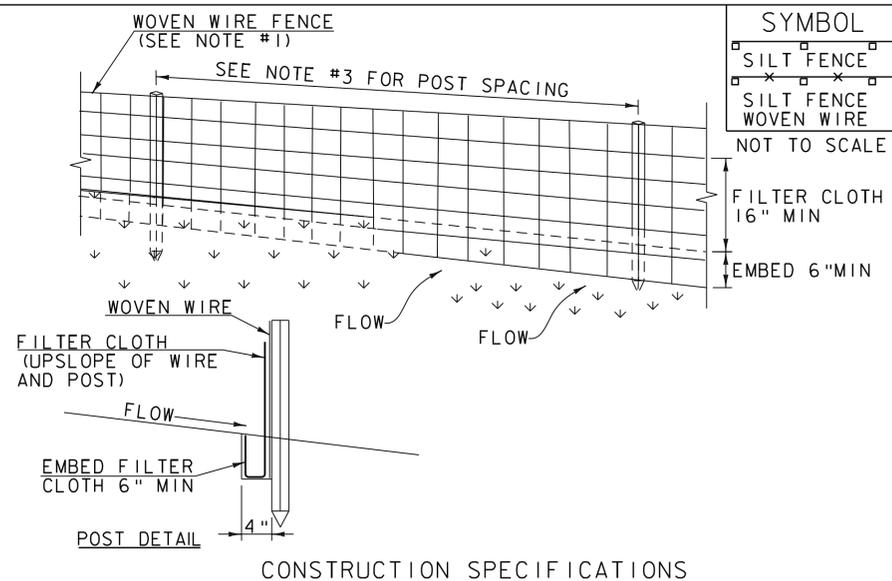
**NOTE:** SEE EROSION CONTROL DETAILS FOR SYMBOLOLOGY.

<b>PROJECT NAME:</b> GUILFORD	
<b>PROJECT NUMBER:</b> BRO 1442(36)	
<b>FILE NAME:</b> z10j064bdr_ero.dgn	<b>PLOT DATE:</b> 10/2/2013
<b>PROJECT LEADER:</b> S.E. BURBANK	<b>DRAWN BY:</b> E.A. FIALA
<b>DESIGNED BY:</b> S.E. BURBANK	<b>CHECKED BY:</b> S.E. BURBANK
<b>EPSC FINAL CONDITIONS PLAN</b>	<b>SHEET 40 OF 42</b>



2 STY  
WF  
HOUSE





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, MIRAF1100X, STABILINKA T140N OR APPROVED EQUIVALENT.
3. POST SPACING FOR WIRE-BACKED FENCE SHALL BE 10' MAXIMUM. FOR FILTER-CLOTH FENCE, WHEN ELONGATION IS >50%, POST SPACING SHALL NOT EXCEED 4' AND WHEN ELONGATION IS <50%, POST SPACING SHALL NOT EXCEED 6'.
4. WOVEN WIRE FENCE IS TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES. FILTER CLOTH IS TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY 6" AND FOLDED.
6. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN SEDIMENT REACHES HALF OF FABRIC HEIGHT.

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

### SILT FENCE

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

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 AND AS SHOWN IN THE PLANS FOR GEOTEXTILE FOR SILT FENCE (PAY ITEM 649.5) OR GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED (PAY ITEM 649.5I5).

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

VAOT RURAL AREA MIX					
% WEIGHT	LBS/AC		NAME	GERM %	PURITY %
	BROADCAST	HYDROSEED			
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					
% WEIGHT	LBS/AC		NAME	GERM %	PURITY %
	BROADCAST	HYDROSEED			
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

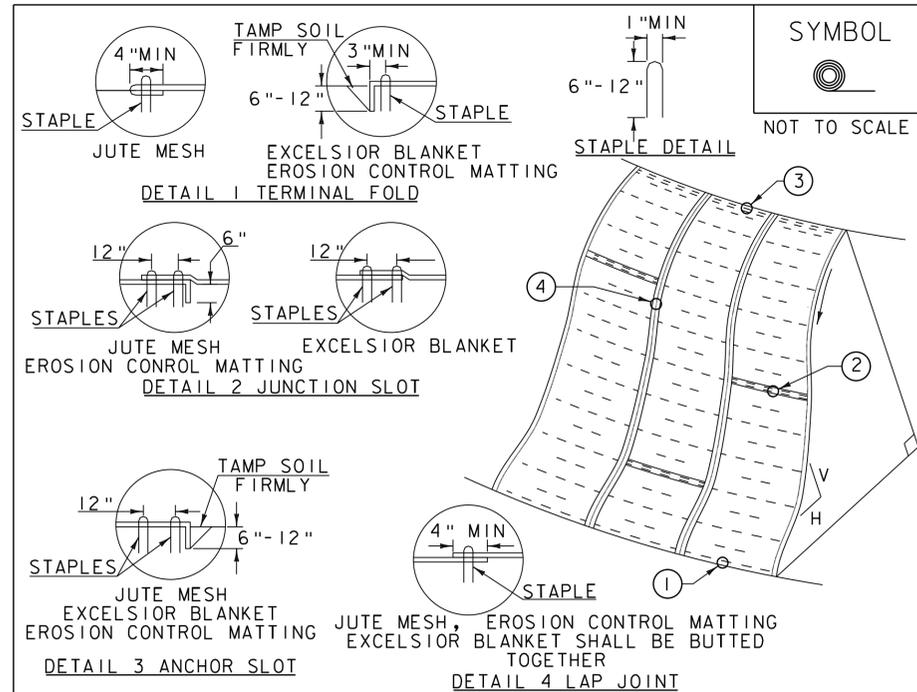
### CONSTRUCTION GUIDANCE

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



### 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

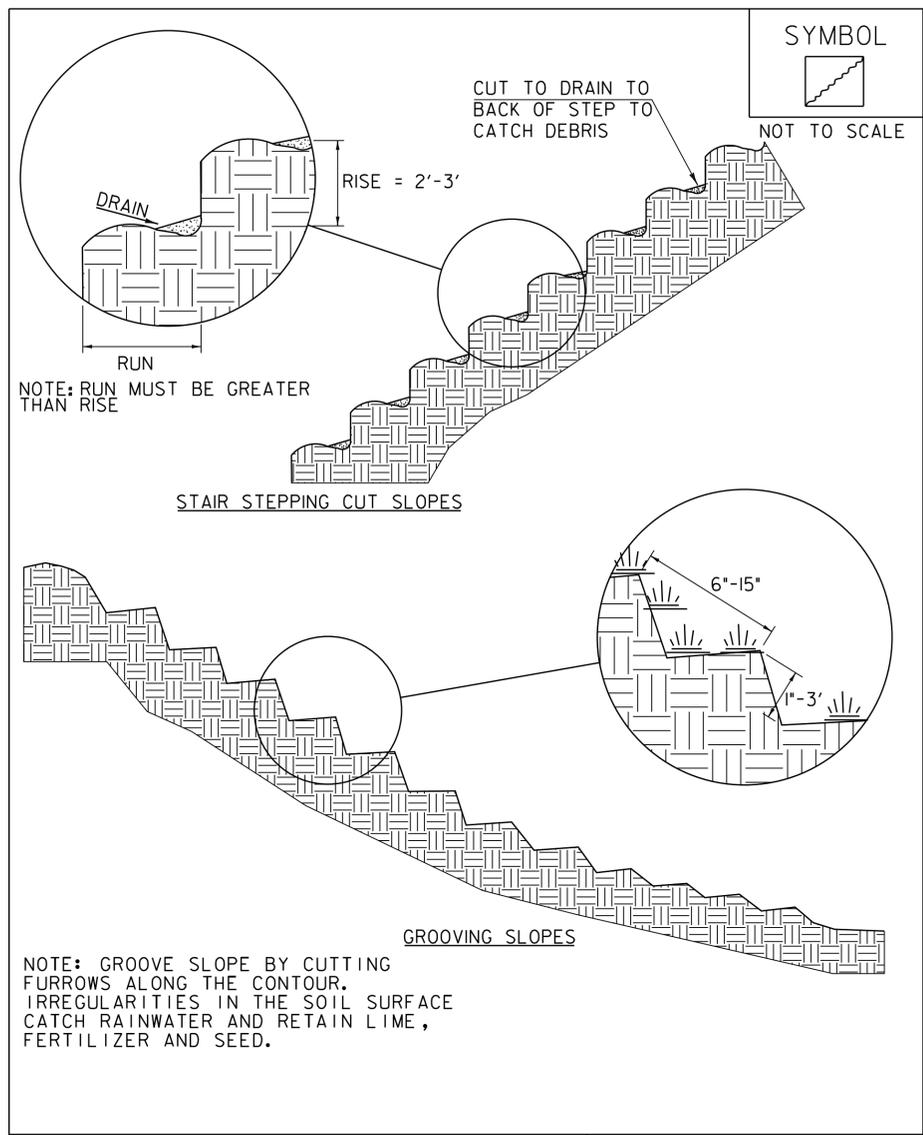
NOTES:  
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006-" FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.  
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 AND AS SHOWN IN THE PLANS FOR TEMPORARY EROSION MATTING (PAY ITEM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

REVISIONS	
APRIL 16, 2007	JMF
JANUARY 13, 2009	WHF

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



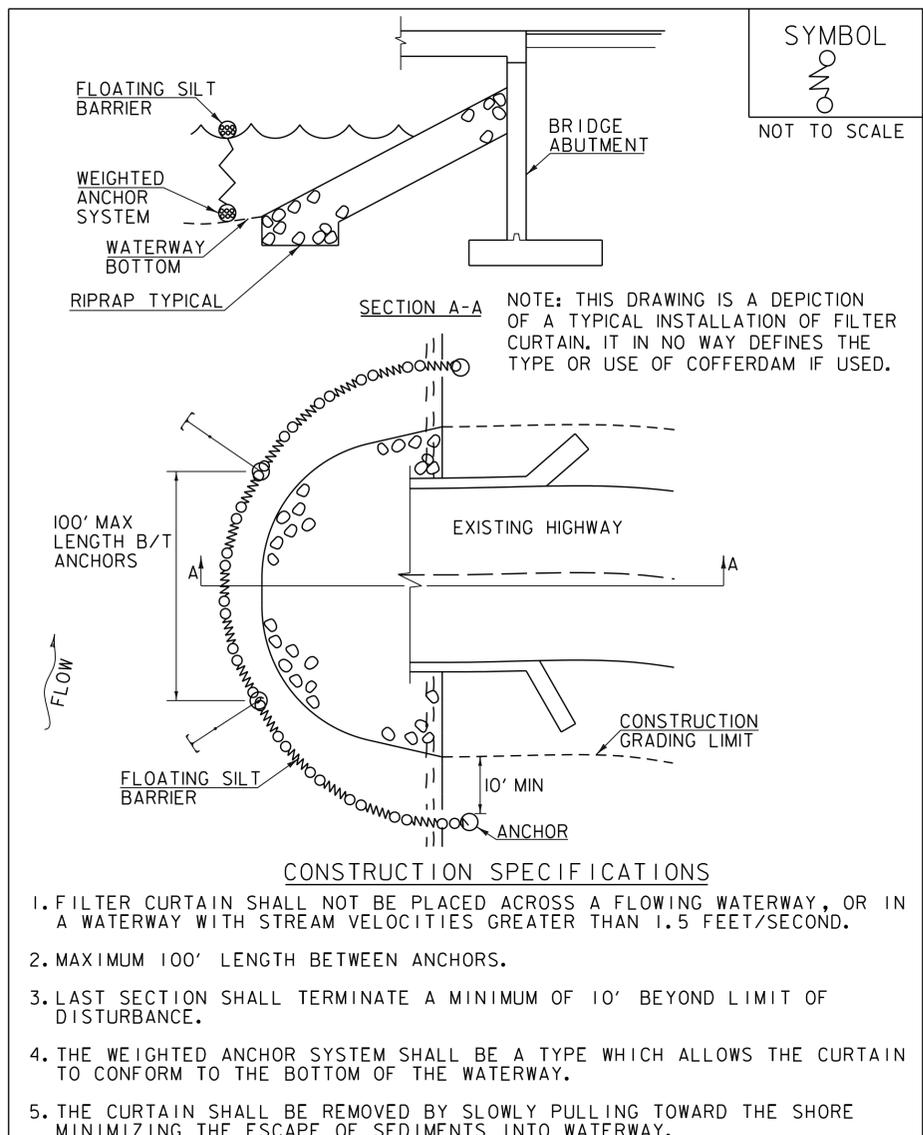
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC  
ORIGINALLY DEVELOPED BY USDA-NRCS  
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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

**SURFACE ROUGHENING**



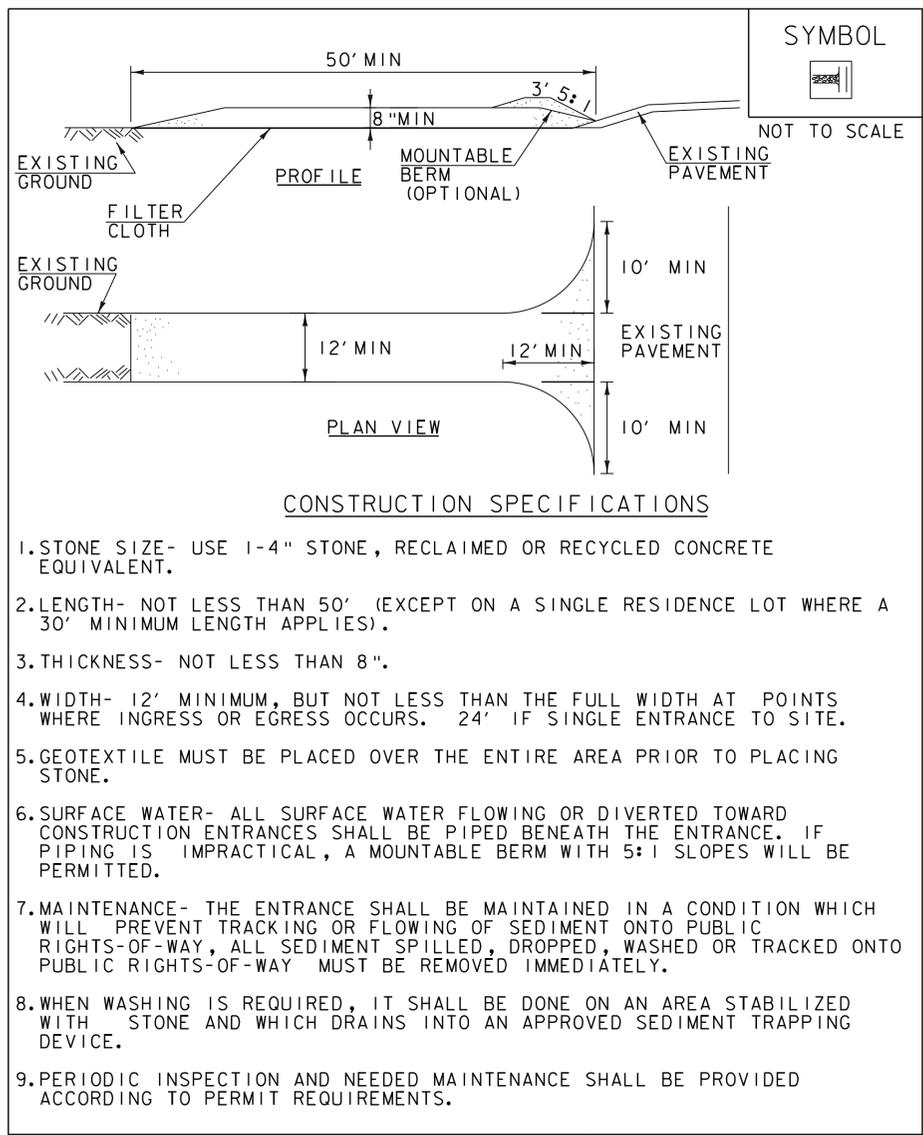
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC  
ORIGINALLY DEVELOPED BY USDA-NRCS  
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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 FOR GEOTEXTILE FOR FILTER CURTAIN (PAY  
ITEM 649.6).

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

**FILTER CURTAIN**



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

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

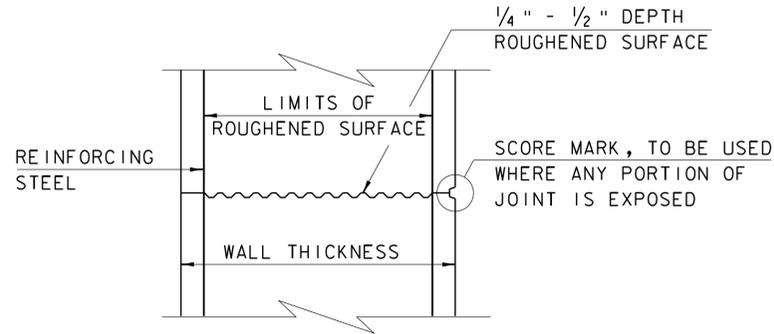
**STABILIZED CONSTRUCTION ENTRANCE**

PROJECT NAME: GUILFORD	PLOT DATE: 10/2/2013
PROJECT NUMBER: BRO 1442(36)	DRAWN BY: K.D. WENTWORTH
FILE NAME: z10j064details_ero.dgn	DESIGNED BY: VTRANS
PROJECT LEADER: S.E. BURBANK	CHECKED BY: S.E. BURBANK
EROSION CONTROL DETAILS (2 OF 2)	SHEET 42 OF 42



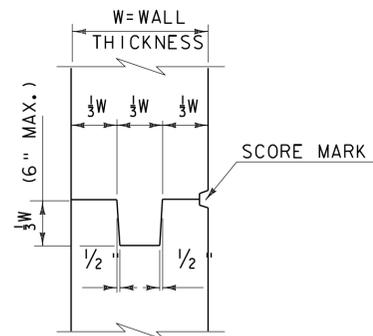
**CONCRETE GENERAL NOTES**

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

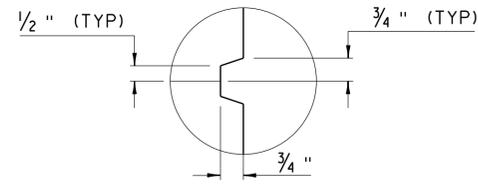


**TYPICAL HORIZONTAL CONSTRUCTION JOINT**  
(NOT TO SCALE)

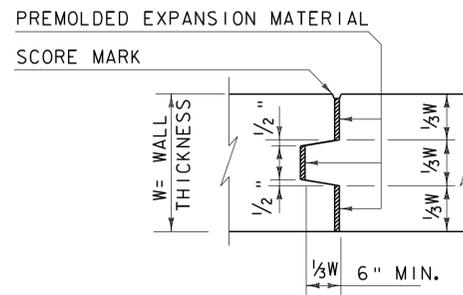
- THE SURFACE OF THE CONCRETE CONSTRUCTION JOINTS SHALL BE CLEANED AND FREE OF LAITANCE.
- IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.



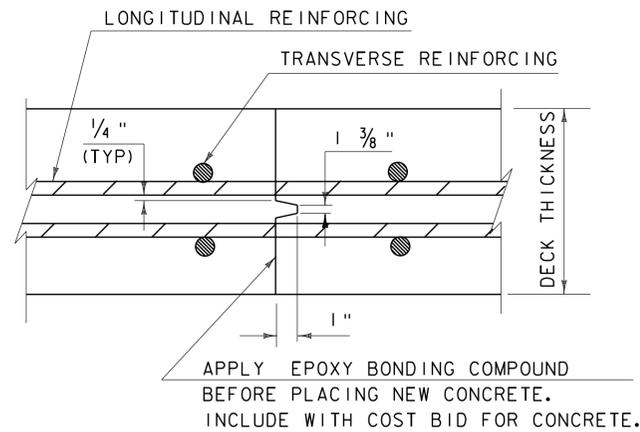
**TYPICAL CONCRETE CONSTRUCTION JOINT**  
(NOT TO SCALE)



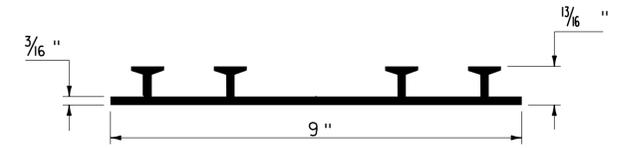
**SCORE MARK DETAIL**  
(NOT TO SCALE)



**TYPICAL CONCRETE EXPANSION JOINT**  
(NOT TO SCALE)



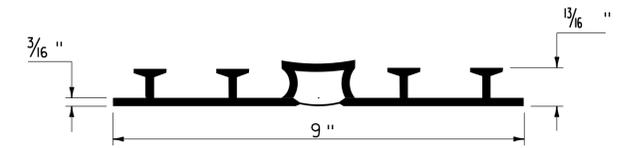
**TRANSVERSE BRIDGE SLAB CONSTRUCTION JOINT DETAILS**  
(NOT TO SCALE)



**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.

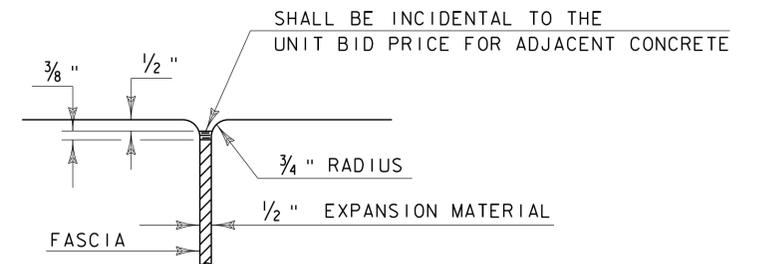
OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



**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.

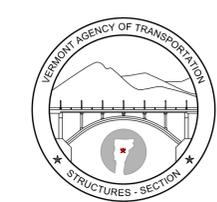
OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



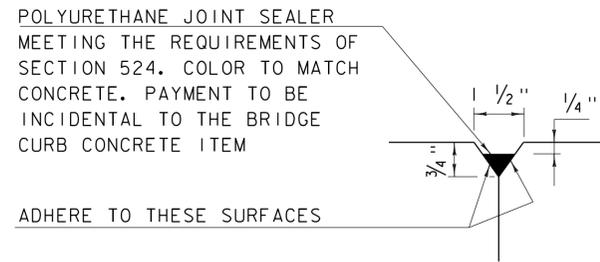
**JOINT BETWEEN FASCIA AND WINGWALL**  
(NOT TO SCALE)

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

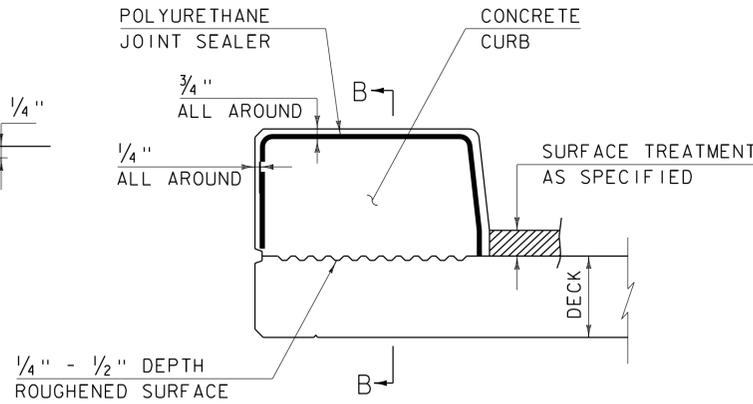
**CONCRETE  
DETAILS AND NOTES**



**STRUCTURES  
DETAIL  
SD-5 01.00**

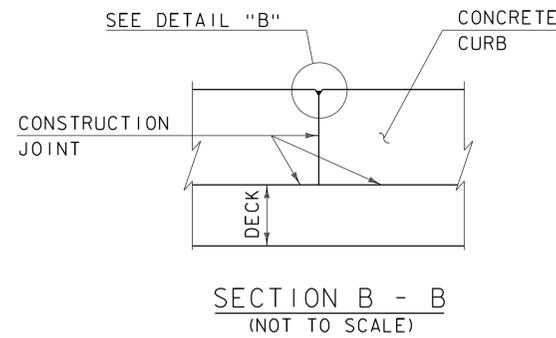


DETAIL "B"  
(NOT TO SCALE)

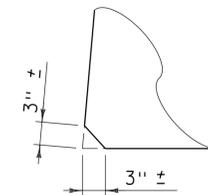


CONCRETE CURB JOINT SECTION  
(NOT TO SCALE)

1. SEE TYPICAL HORIZONTAL CONSTRUCTION JOINT DETAIL FOR ADDITIONAL INFORMATION



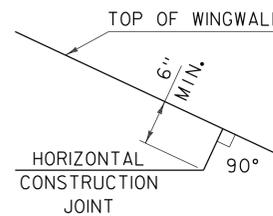
SECTION B - B  
(NOT TO SCALE)



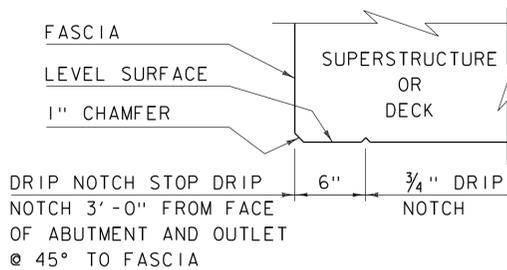
ACUTE ANGLE  
CLIP DETAIL  
(NOT TO SCALE)

CONCRETE CURB JOINT NOTES

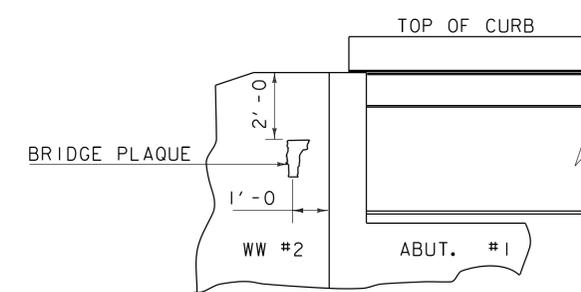
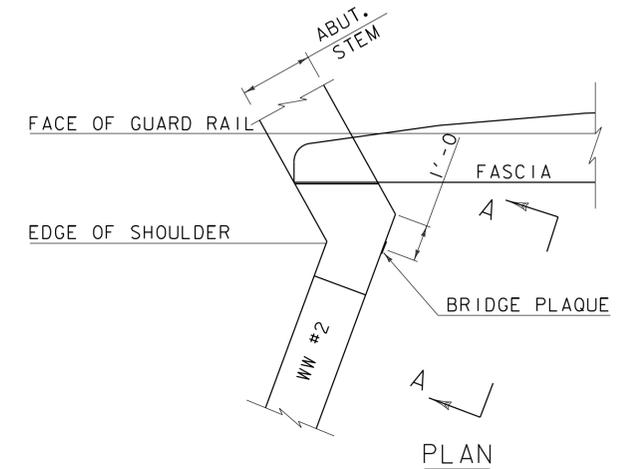
1. CONCRETE CURBS MAY BE PLACED IN ONE CONTINUOUS OPERATION IF AN APPROVED SHRINKAGE REDUCING ADMIXTURE LISTED IN THE SPECIAL PROVISIONS IS USED WITH THE CONCRETE MIX DESIGN. PAYMENT FOR THE SHRINKAGE REDUCING ADMIXTURE WILL BE INCIDENTAL TO THE BRIDGE CURB CONCRETE ITEM.
2. IF THE CONTRACTOR CHOOSES 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



STRUCTURES  
DETAIL  
SD-502.00