

INDEX OF SHEETS

FINAL HYDRAULIC REPORT

PLAN SHEETS

| | |
|-------|---------------------------------------------|
| 1 | TITLE SHEET |
| 2 | PRELIMINARY INFORMATION SHEET |
| 3-4 | TYPICAL SECTIONS - TYP 1-2 |
| 5 | GENERAL NOTES |
| 6-7 | BRIDGE AND ROADWAY QUANTITY SHEETS - QS 1-2 |
| 8 | CONVENTIONAL SYMBOLOLOGY LEGEND |
| 9 | TIE SHEET - TIE 1 |
| 10 | PLAN LAYOUT - LP1 |
| 11 | INTERSECTION GRADING PLAN - IGP 1 |
| 12 | PROFILE SHEET - RP 1 |
| 13 | TRAFFIC CONTROL SHEET - TCP 1 |
| 14 | TRAFFIC SIGNS AND LINES LAYOUT - TSL 1 |
| 15 | TRAFFIC SIGN SUMMARY SHEET - TSS 1 |
| 16 | BORING INFORMATION SHEET |
| 17-19 | BORING LOG SHEETS |
| 20 | PLAN AND ELEVATION SHEET |
| 21 | FRAMING PLAN & TYPICAL SECTION |
| 22-23 | NEXT BEAM DETAILS 1-2 |
| 24-25 | CURTAIN WALL DETAILS 1-2 |
| 26 | APPROACH SLABS & DETAILS |
| 27 | BEARING DETAILS |
| 28 | ABUTMENT 1 PLAN & ELEVATION |
| 29 | ABUTMENT 2 PLAN & ELEVATION |
| 30 | ABUTMENT SECTIONS & DETAILS |
| 31 | WINGWALL DETAILS |
| 32-34 | ROADWAY CROSS SECTIONS - RXS 1-3 |
| 35 | T.H. 1 CROSS SECTIONS - TXS 1 |
| 36-41 | CHANNEL CROSS SECTIONS - CXS 1-6 |
| 42 | EPSC NARRATIVE - ECN 1 |
| 43 | EPSC CONST. SITE PLAN - ECP 1 |
| 44-46 | EPSC DETAILS - ECD 1-3 |

STANDARDS LIST

| | | |
|--------|--------------------------------------------------------|------------|
| E-121 | STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD | 08-08-1995 |
| E-134 | BRIDGE NUMBER PLAQUE | 08-08-1995 |
| E-143 | REGULATORY SIGN DETAILS | 08-15-2004 |
| E-155 | WARNING SIGN DETAILS | 05-01-2004 |
| E-193 | PAVEMENT MARKING DETAILS | 08-18-1995 |
| G-18 | BOX BEAM GUARD RAIL | 06-01-1994 |
| F-1 | WOVEN WIRE FENCE WITH WOOD POSTS | 06-01-1994 |
| S-364A | BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM | 04-23-2012 |
| S-364B | GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM | 04-23-2012 |
| S-364C | GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM | 04-23-2012 |
| S-364D | GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM | 04-23-2012 |
| T-10 | CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING | 04-23-2012 |
| T-35 | CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS | 08-06-2012 |
| T-36 | CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS FOR PAVING | 08-06-2012 |
| T-45 | SQUARE TUBE SIGN POST AND ANCHOR | 08-06-2012 |

STRUCTURE DETAIL SHEETS

| | | |
|-----------|-----------------------------|------------|
| SD-516.10 | BRIDGE JOINT ASPHALTIC PLUG | 08-29-2011 |
| SD-502.00 | CONCRETE DETAILS AND NOTES | 10-10-2012 |

HYDROLOGIC DATA

Date: September 2013

DRAINAGE AREA : 17.9 sq. mi.
 CHARACTER OF TERRAIN : Hilly, mixture of meadow and woods, rural
 STREAM CHARACTERISTICS : Sinuous and incised
 NATURE OF STREAMBED : Alluvial, sand and gravel

PEAK FLOW DATA

| | | | |
|----------|----------|---------|----------|
| Q 2.33 = | 1000 cfs | Q 50 = | 2700 cfs |
| Q 10 = | 1600 cfs | Q 100 = | 3200 cfs |
| Q 25 = | 2200 cfs | Q 500 = | 4100 cfs |

DATE OF FLOOD OF RECORD : Unknown
 ESTIMATED DISCHARGE : Unknown
 WATER SURFACE ELEV. : Unknown
 NATURAL STREAM VELOCITY : @ Q25= 10.4 fps
 ICE CONDITIONS : Moderate
 DEBRIS : Moderate
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? No
 IS ORDINARY RISE RAPID? No
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No
 IF YES, DESCRIBE :

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

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE : Bailey Bridge
 YEAR BUILT : 1924, Bailey bridge installed between 2004 and 2006
 CLEAR SPAN(NORMAL TO STREAM) : 41'
 VERTICAL CLEARANCE ABOVE STREAMBED : ~12.5'
 WATERWAY OF FULL OPENING : 425 sq. ft.
 DISPOSITION OF STRUCTURE : Replace
 TYPE OF MATERIAL UNDER SUBSTRUCTURE : See borings

WATER SURFACE ELEVATIONS AT:

| | | | |
|---------|--------|------------|----------|
| Q2.33 = | 549.1' | VELOCITY = | 5.5 fps |
| Q10 = | 550.8' | " | 6.9 fps |
| Q25 = | 552.3' | " | 7.8 fps |
| Q50 = | 553.4' | " | 8.6 fps |
| Q100 = | 553.7' | " | 10.6 fps |

LONG TERM STREAMBED CHANGES : None noted

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: N/A
 RELIEF ELEVATION: 557.0'
 DISCHARGE OVER ROAD @Q100: N/A

UPSTREAM STRUCTURE

TOWN: Enosburg DISTANCE: 19,000'
 HIGHWAY #: TH 4 STRUCTURE #: 50
 CLEAR SPAN: 72' CLEAR HEIGHT:
 YEAR BUILT: 1918, reconstructed 1975 FULL WATERWAY:
 STRUCTURE TYPE: Rolled Beam

DOWNSTREAM STRUCTURE

TOWN: Enosburg DISTANCE: 18,900'
 HIGHWAY #: VT 108 STRUCTURE #: 48
 CLEAR SPAN: 74' CLEAR HEIGHT:
 YEAR BUILT: 1998 FULL WATERWAY:
 STRUCTURE TYPE: Welded Plate Girder

LRFR LOAD RATING FACTORS

| LOADING LEVELS | TRUCK | | | | | | |
|----------------|-------|------|------|--------|----------|----------|----------|
| | H-20 | H-93 | 3S2 | 6 AXLE | 3A. STR. | 4A. STR. | 5A. SEMI |
| TONNAGE | 20 | 36 | 36 | 66 | 30 | 34.5 | 38 |
| INVENTORY | 1.78 | 1.09 | | | | | |
| POSTING | | | | | | | |
| OPERATING | 2.81 | 1.41 | 1.48 | 0.98 | 1.25 | 1.13 | 1.24 |
| COMMENTS: | | | | | | | |

AS BUILT "REBAR" DETAIL

| LEVEL I | LEVEL II | LEVEL III |
|---------|----------|-----------|
| TYPE: | TYPE: | TYPE: |
| GRADE: | GRADE: | GRADE: |

* REFER TO MICROPILE FOUNDATION NOTES ON SHEET 5

TRAFFIC DATA

| YEAR | ADT | DHV | % D | % T | ADTT | |
|------|-----|-----|-----|-----|------|---------------------------------------------------------------|
| 2015 | 690 | 100 | 56 | 5.8 | 45 | 20 year ESAL for flexible pavement from 2015 to 2035 : 200000 |
| 2035 | 740 | 110 | 56 | 6.9 | 55 | 40 year ESAL for flexible pavement from 2015 to 2055 : 433000 |
| | | | | | | Design Speed : 50 mph |

PROPOSED STRUCTURE

STRUCTURE TYPE: NEXT Beam Bridge
 CLEAR SPAN(NORMAL TO STREAM): 65'
 VERTICAL CLEARANCE ABOVE STREAMBED: ~12'
 WATERWAY OF FULL OPENING: 590 sq. ft.

WATER SURFACE ELEVATIONS AT:

| | | | |
|---------|--------|-----------|----------|
| Q2.33 = | 549.0' | VELOCITY= | 5.4 fps |
| Q10 = | 550.6' | " | 6.7 fps |
| Q25 = | 552.1' | " | 7.5 fps] |
| Q50 = | 553.0' | " | 8.2 fps |
| Q100 = | 553.2' | " | 10.9 fps |

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: N/A
 RELIEF ELEVATION: 557.0'
 DISCHARGE OVER ROAD @Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 555.9'
 VERTICAL CLEARANCE: @ Q25 = 3.8'

SCOUR: 4' up to Q500

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW: 35 cfs DEPTH OR ELEVATION:
 ORDINARY LOW WATER: 20 cfs ~545.0'
 ORDINARY HIGH WATER: 430 cfs ~547.3'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: None required
 CLEAR SPAN (NORMAL TO STREAM):
 VERTICAL CLEARANCE ABOVE STREAMBED:
 WATERWAY AREA OF FULL OPENING:

ADDITIONAL INFORMATION

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN TRAFFIC ON AN OFF SITE DETOUR.
2. TRAFFIC SIGNALS ARE NOT NECESSARY.
3. SIDEWALKS ARE NOT NECESSARY

DESIGN VALUES

| | |
|------------------------------------------------------------|----------------------------------------------------|
| 1. DESIGN LIVE LOAD | HL-93 |
| 2. FUTURE PAVEMENT | d _p : --- |
| 3. DESIGN SPAN | L: 69.00 FT FT |
| 4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS) | Δ: --- |
| 5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX) | f _y : 270 KSI |
| 6. PRESTRESSED CONCRETE STRENGTH | f' _c : 8.0 KSI |
| 7. PRESTRESSED CONCRETE RELEASE STRENGTH | f' _{cr} : 6.0 KSI |
| 8. CONCRETE, HIGH PERFORMANCE CLASS AA | f' _c : |
| 9. CONCRETE, HIGH PERFORMANCE CLASS A | f' _c : |
| 10. CONCRETE, HIGH PERFORMANCE CLASS B | f' _c : |
| 11. CONCRETE, CLASS C | f' _c : |
| 12. REINFORCING STEEL | f _y : |
| 13. STRUCTURAL STEEL AASHTO M270 | f _y : --- |
| 14. SOIL UNIT WEIGHT | γ: 0.140 KCF |
| 15. NOMINAL BEARING RESISTANCE OF SOIL | q _n : 4.0 KSF |
| 16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD) | φ: |
| 17. NOMINAL BEARING RESISTANCE OF ROCK | q _n : |
| 18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD) | φ: |
| 19. NOMINAL AXIAL PILE RESISTANCE | q _p : |
| 20. PILE YIELD STRENGTH ASTM A572 | f _y : |
| 21. PILE SIZE | * --- |
| 22. EST. PILE LENGTH | L _p : |
| 23. PILE RESISTANCE FACTOR | φ: |
| 24. LATERAL PILE DEFLECTION | Δ: |
| 25. BASIC WIND SPEED | V _{3s} : |
| 26. MINIMUM GROUND SNOW LOAD | p _g : |
| 27. SEISMIC DATA | PGA: --- S _s : --- S ₁ : --- |

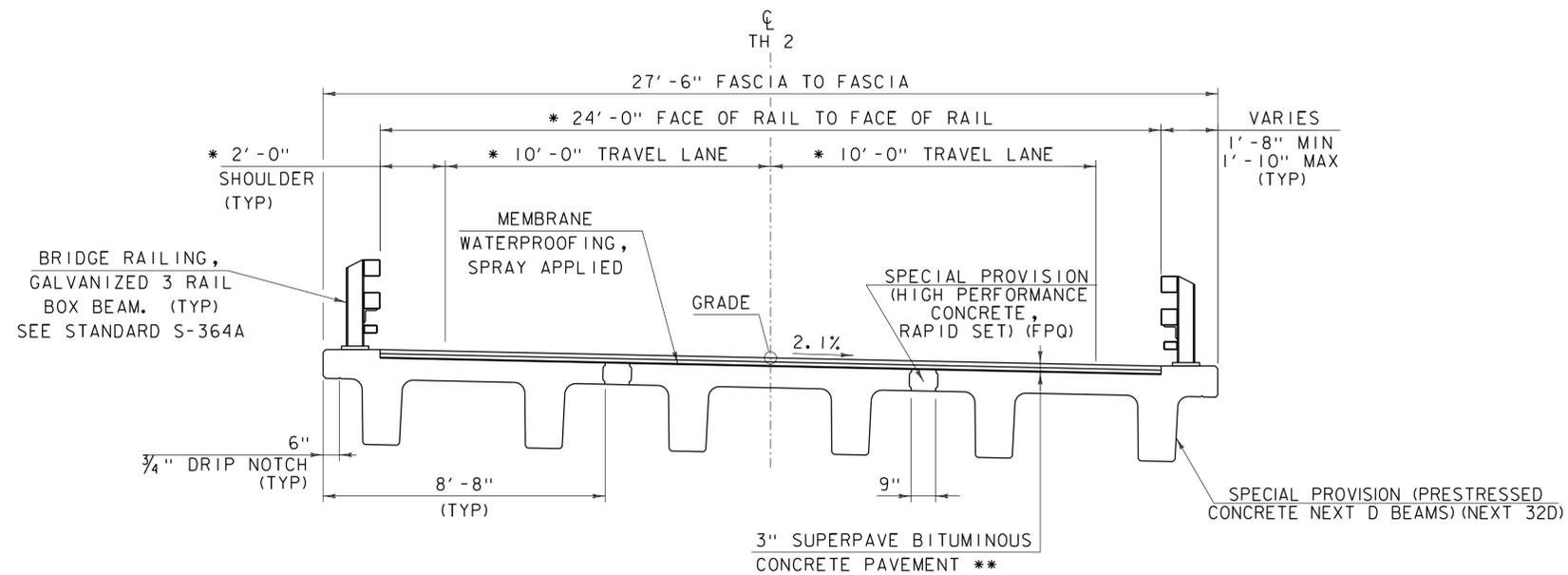
PROJECT NAME: ENOSBURG

PROJECT NUMBER: BRO 1448(40)

FILE NAME: z12j168_pi.xls PLOT DATE: 10/17/2013
 PROJECT LEADER: G. BOGUE DRAWN BY: L. BUXTON
 DESIGNED BY: G. BOGUE CHECKED BY: T. KNIGHT
 PRELIMINARY INFORMATION SHEET 1 SHEET 2 OF 46

TYPICAL SECTION GENERAL NOTES:

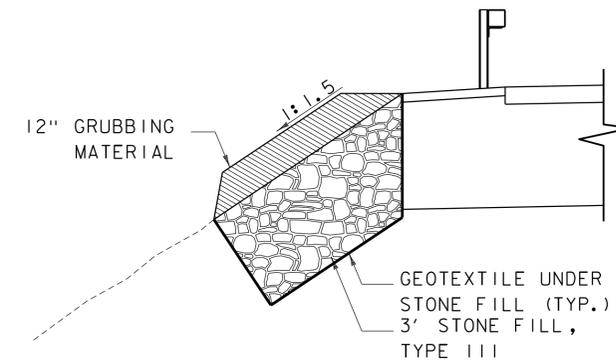
- EMULSIFIED ASPHALT SHALL BE APPLIED ON EXISTING PAVEMENT SURFACES, BETWEEN ALL COURSES OF PAVEMENT AND ON COLD PLANED SURFACES, AT THE RATE OF 0.025 GAL/SY OR AS DIRECTED BY THE ENGINEER. PAYMENT WILL BE MADE UNDER CONTRACT ITEM 900.683 SPECIAL PROVISION (EMULSIFIED ASPHALT) (RS-1H OR CRS 1-H).
- TEMPORARY EROSION MATTING SHALL BE INSTALLED ON ALL SLOPES BETWEEN 1:3 AND 1:1.6, TO STABILIZE THE SLOPE. SLOPES 1:1.5 SHALL USE TYPE III STONE SLOPE STABILIZATION PER DETAIL ON THIS SHEET.
- GRASS GROWING ADJACENT TO PAVEMENT OR THROUGH CRACKS IN THE PAVEMENT WHICH MAY HAMPER THE PLACEMENT OF NEW BITUMINOUS CONCRETE SHALL BE REMOVED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER. PAYMENT FOR THIS WORK WILL NOT BE MADE DIRECTLY, BUT WILL BE CONSIDERED INCIDENTAL TO ITEM 900.680 SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)
- EXISTING SHOULDER MATERIAL DEEMED UNSUITABLE BY THE ENGINEER SHALL BE EXCAVATED TO A DEPTH OF 3" OR AS DIRECTED BY THE ENGINEER AND PAID FOR AS ITEM 203.15 COMMON EXCAVATION. EXCAVATED SHOULDER MATERIAL SHALL BE REPLACED WITH ITEM 402.10 AGGREGATE SHOULDERS, IN PLACE.
- FOR PG BINDER REQUIREMENTS, SEE SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY).



* RADIAL DIMENSIONS
 ** 3" TYPE IVS (TWO 1 1/2" LIFTS)

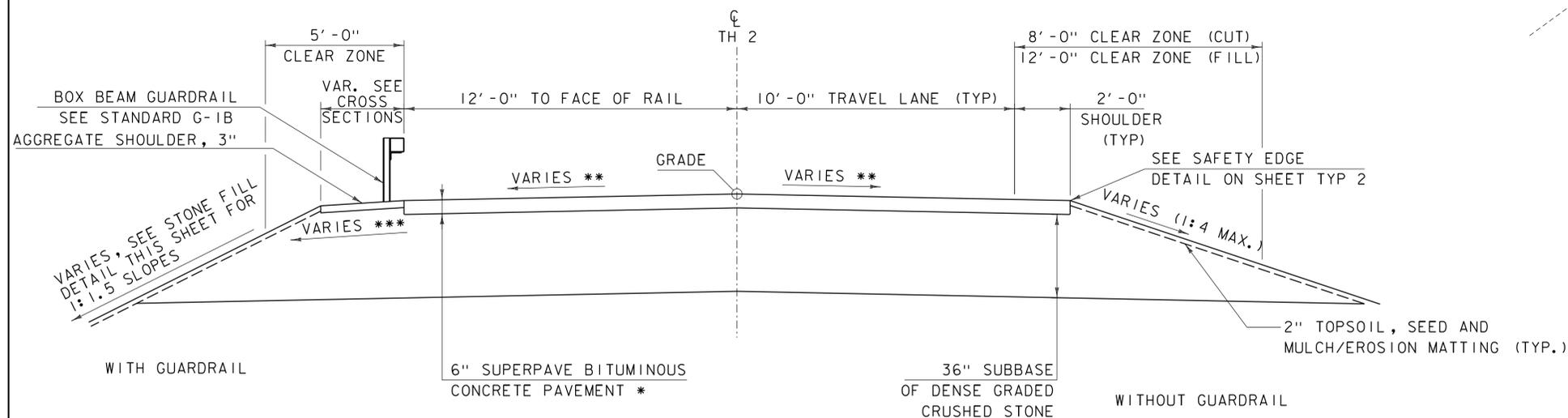
BRIDGE TYPICAL SECTION

SCALE 3/8" = 1'-0"



STONE FILL DETAIL

SCALE 3/8" = 1'-0"



ROADWAY APPROACH SECTION

SCALE 3/8" = 1'-0"

* 3" TYPE IVS (TWO 1 1/2" LIFTS) OVER
 3" TYPE IIS (ONE LIFT)

** SEE BANKING DIAGRAM ON SHEET RP 1 AND CROSS-SECTIONS FOR ROADWAY CROSS SLOPES

*** MAX. DIFFERENTIAL BETWEEN ROADWAY AND SHOULDER CROSS-SLOPE = 0.070

MATERIAL TOLERANCES

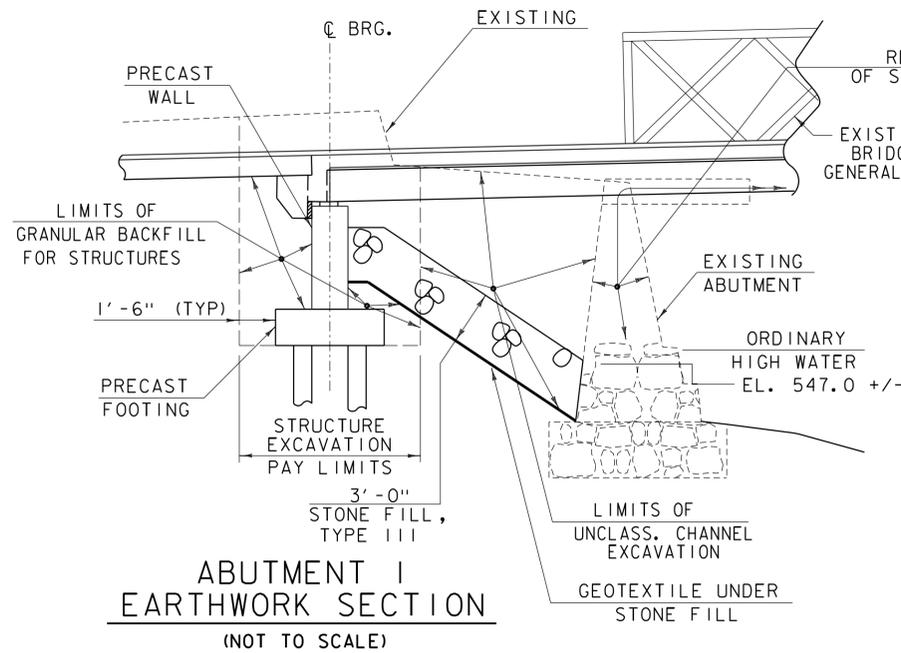
(IF USED ON PROJECT)

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

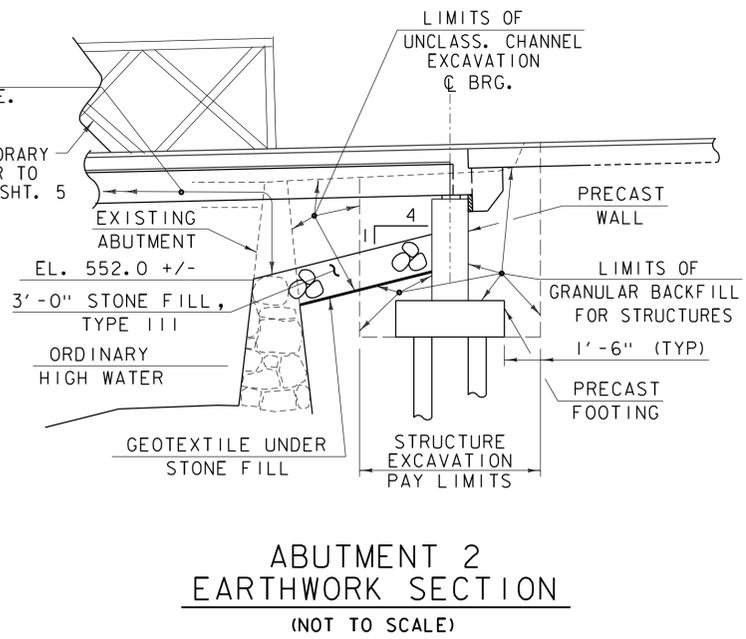
PROJECT NAME: ENOSBURG
 PROJECT NUMBER: BRO 1448(40)

FILE NAME: ...03 Typical Sections.dgn PLOT DATE: 10/4/2013
 PROJECT LEADER: G. BOGUE DRAWN BY: E. ALLING
 DESIGNED BY: G. GOYETTE CHECKED BY: G. GOYETTE
TYPICAL SECTIONS - TYP 1 SHEET 3 OF 46

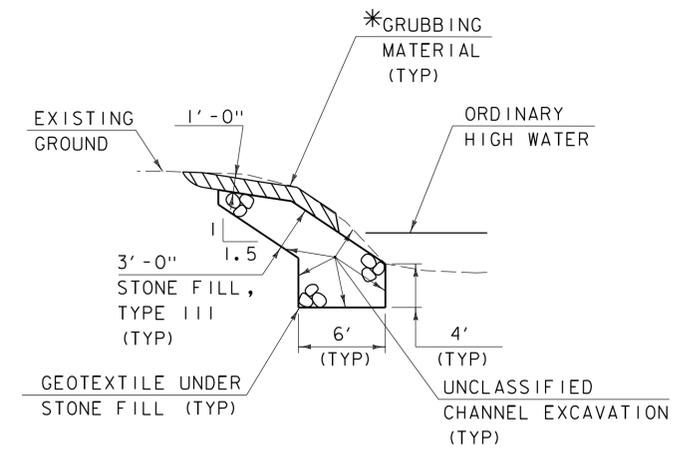




**ABUTMENT 1
EARTHWORK SECTION**
(NOT TO SCALE)

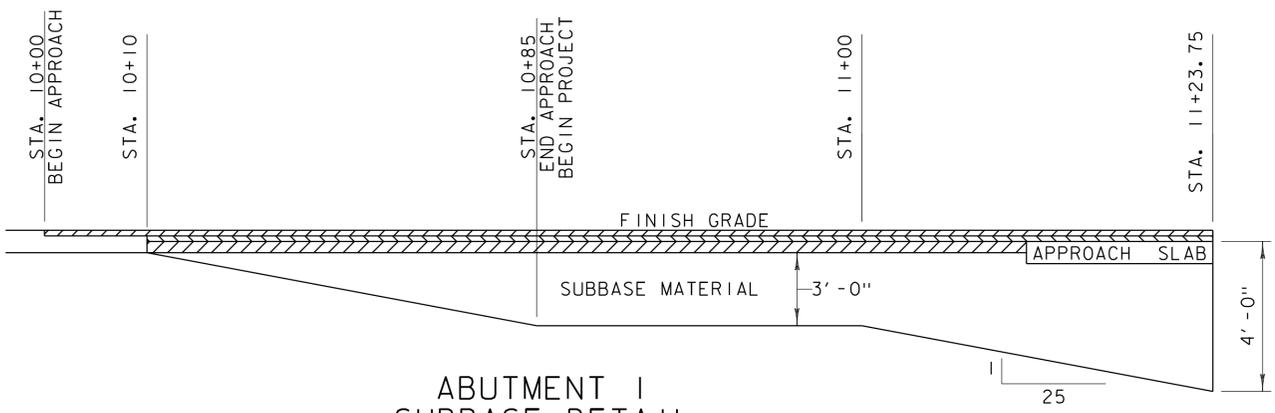


**ABUTMENT 2
EARTHWORK SECTION**
(NOT TO SCALE)

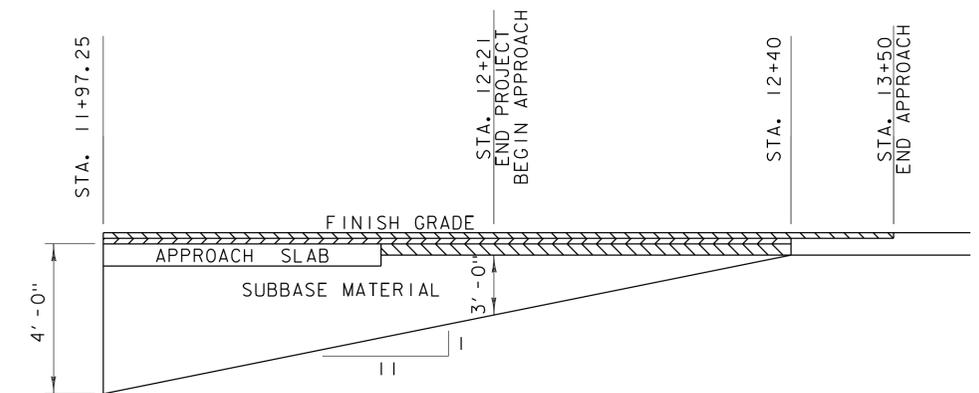


SOUTHBANK REVETMENT
(NOT TO SCALE)

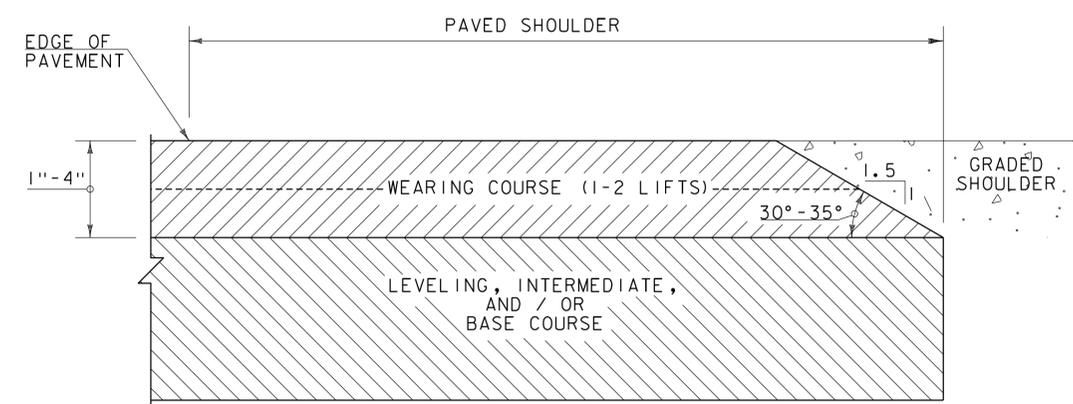
*GRUBBING MATERIAL SHALL NOT BE PLACED ON THE STONE FILL IN THE AREA UNDER THE BRIDGE. WHENEVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE, GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE.



**ABUTMENT 1
SUBBASE DETAIL**
(ELEVATION IN CUT AND FILL)
(NOT TO SCALE)

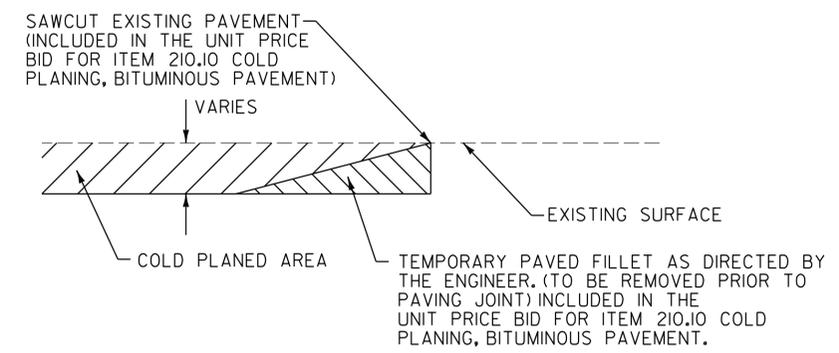


**ABUTMENT 2
SUBBASE DETAIL**
(ELEVATION IN CUT AND FILL)
(NOT TO SCALE)



SAFETY EDGE DETAIL
NOT TO SCALE

NOTE: LEVELING COURSE MAY INCLUDE THE "SAFETY EDGE" AT THE CONTRACTOR'S CHOICE.



DETAIL AT VERTICAL COLD PLANE JOINTS

NOTE: THIS DETAIL SHALL BE USED AT THE LOCATIONS SHOWN ABOVE AS DIRECTED BY THE ENGINEER.

| | |
|------------------------------------------|------------------------|
| PROJECT NAME: | ENOSBURG |
| PROJECT NUMBER: | BRO 1448(40) |
| FILE NAME: ...N04 Earthwork Sections.dgn | PLOT DATE: 10/4/2013 |
| PROJECT LEADER: G. BOGUE | DRAWN BY: E. ALLING |
| DESIGNED BY: G. GOYETTE | CHECKED BY: G. GOYETTE |
| EARTHWORK SECTIONS - TYP 2 | SHEET 4 OF 46 |



GENERAL

- 1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011, AND ITS LATEST REVISIONS, THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, DATED 2012, AND ITS LATEST REVISIONS.
- 2. THE BRIDGE IS DESIGNED FOR HL-93 LIVE LOAD.
- 3. THE TEMPORARY BRIDGE IS IN PLACE OVER THE EXISTING, FAILED STRUCTURE. REMOVAL OF THIS TEMPORARY BRIDGE SHALL BE PAID FOR UNDER ITEM 900.645, "SPECIAL PROVISION (REMOVAL OF TEMPORARY BRIDGE). THE TEMPORARY BRIDGE IS THE PROPERTY OF VTRANS AND SHALL BE RETURNED TO THE VTRANS MAINTENANCE FACILITY IN MIDDLESEX, VT. CONTACT HOBERT GATES AT (802) 595-0910 TO MAKE NECESSARY ARRANGEMENTS AS PER THE SPECIAL PROVISIONS.
- 4. ITEM 529.15 "REMOVAL OF STRUCTURE" SHALL BE USED FOR REMOVAL OF THE EXISTING STEEL BEAM AND CONCRETE DECK BRIDGE UNDER TEMPORARY BRIDGE INCLUDING THE SUPERSTRUCTURE, AND ANY PORTION OF THE ABUTMENTS TO THE DEPTH SHOWN ON SHEET 20.
- 5. ALL DIMENSIONS SHOWN IN THE PLANS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68 DEGREES FAHRENHEIT, UNLESS NOTED OTHERWISE.
- 6. THE "STONE FILL, TYPE III" UNDER THE BRIDGE AS SHOWN IN THE PLANS SHALL BE PLACED BEFORE THE NEW BEAMS ARE SET.
- 7. NO SUBSTITUTION FOR PRECAST CONCRETE WILL BE PERMITTED.
- 8. ITEM 520.10, "MEMBRANE WATERPROOFING, SPRAY APPLIED" SHALL BE APPLIED TO THE BRIDGE DECK AS PER THE MANUFACTURER'S INSTRUCTIONS AND EXTEND ONTO THE APPROACH SLABS TWO FEET BEYOND THE BEGIN BRIDGE/END OF BRIDGE.
- 9. THE CONTRACTOR IS RESPONSIBLE FOR DEVELOPING AND SUBMITTING EPSC PLAN IN ACCORDANCE WITH SECTION 105 OF THE STANDARD SPECIFICATIONS. THE PLAN SHALL INCLUDE ALL PROPOSED LIMITS OF DISTURBANCE ASSOCIATED WITH THE CONTRACTOR'S MEANS AND METHODS FOR COMPLETING THE WORK INCLUDING CONTRACTOR DESIGNED COMPONENTS SUCH AS THE ACCESS, WASTE, BORROW, STAGING AREAS AND DEWATERING. ANY WASTE, BORROW, STAGING AREAS AND HAUL ROADS MAY REQUIRE ADDITIONAL PERMITTING UNDER CONSTRUCTION GENERAL PERMIT 3-9020 (2006-AMENDED 2008), SECTION 1.6 AS "OFF-SITE SUPPORTING ACTIVITIES". IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE THESE SITES REVIEWED BY THE VTRANS ENVIRONMENTAL SECTION AND VTRANS RESIDENT ENGINEER AND TO OBTAIN ANY NECESSARY PERMITS FOR THE AREAS PRIOR TO THEIR USE.
- 10. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" x 1".
- 11. WATER REPELLENT, SILANE SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES, EXCEPT THE UNDERSIDE OF THE BRIDGE DECK BETWEEN THE DRIP NOTCHES.
- 12. THE EXISTING STRUCTURAL STEEL ON THIS PROJECT WAS PAINTED WITH A MATERIAL WHICH MAY CONTAIN LEAD. THE REMOVED STRUCTURAL STEEL IS THE PROPERTY OF THE CONTRACTOR. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE STATE, ITS OFFICERS AND EMPLOYEES HARMLESS CONCERNING THE CONTRACTOR'S USE OR DISPOSITION OF THE STRUCTURAL STEEL.

MICROPILE FOUNDATIONS

- 13. THE ABUTMENT 1 MICROPILES ARE DESIGNED TO SUPPORT A MAXIMUM STRENGTH LIMIT STATE AXIAL LOAD OF 230 KIPS PER PILE IN COMPRESSION AND 168 KIPS PER PILE IN TENSION.
- 14. THE ABUTMENT 2 MICROPILES ARE DESIGNED TO SUPPORT A MAXIMUM STRENGTH LIMIT STATE AXIAL LOAD OF 225 KIPS PER PILE IN COMPRESSION AND 168 KIPS PER PILE IN TENSION.
- 15. MINIMUM MICROPILE STEEL CASING THICKNESS = 0.408 INCHES
MINIMUM OUTSIDE DIAMETER OF MICROPILE CASING = 7 INCHES
MINIMUM UNCASSED DIAMETER = 6.184 INCHES
- 16. EXTEND CASING A MINIMUM OF 2 FEET BELOW TOP OF LEDGE; EXTEND UNCASSED PORTION OF MICROPILE A MINIMUM OF 12' AT ABUTMENT 1 AND 10' AT ABUTMENT 2 BELOW THE BOTTOM OF CASING.
- 17. ESTIMATED PILE LENGTH:
ABUTMENT 1: 26 FEET
ABUTMENT 2: VARIES 17 FEET TO 27 FEET
- 18. THE CONTRACTOR IS ADVISED THAT DIFFICULT DRILLING CONDITIONS ARE ANTICIPATED. THE CONTRACTOR SHALL MAKE PROVISIONS TO MAINTAIN THE TOLERANCES FOR LOCATION AND BATTER OF THE MICROPILES ESTABLISHED IN THE SPECIAL PROVISIONS AND AS NECESSARY TO ASSURE COMPATIBILITY WITH THE LOCATION OF THE PRECAST FOOTINGS.

PRECAST ABUTMENTS AND APPROACH SLAB

- 19. IF VERTICAL CONSTRUCTION JOINTS ARE REQUIRED BY THE CONTRACTOR FOR SHIPMENT OF THE ABUTMENTS, THEN THE SECTIONS SHALL BE KEYS. A JOINT DETAIL SHALL BE SHOWN ON THE FABRICATION DRAWINGS.
- 20. DESIGN VALUES:
CONCRETE COMPRESSIVE STRENGTH: F'c=5000 PSI
- 21. THE CONCRETE FOR THE ABUTMENT 1 AND ABUTMENT 2 PILE CAVITIES SHALL MEET THE REQUIREMENTS OF ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)".
- 22. THE CORRUGATED STEEL PIPE SHALL MEET THE REQUIREMENTS OF SUBSECTION 711.01. ALL COSTS ASSOCIATED WITH PLACING THE CORRUGATED STEEL PIPE WILL BE INCLUDED FOR PAYMENT UNDER THE APPROPRIATE 540.10 CONTRACT ITEM.
- 23. REINFORCING STEEL IN THE PRECAST SUBSTRUCTURES SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR UNCOATED LEVEL 1 REINFORCING STEEL AND WILL BE PAID FOR UNDER THE APPROPRIATE 540.10 CONTRACT ITEM.
- 24. REINFORCING STEEL IN THE APPROACH SLABS SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR LEVEL 11 REINFORCING STEEL AND WILL BE PAID FOR UNDER THE APPROPRIATE 540.10 CONTRACT ITEM.
- 25. ALL CLEAR COVER SHALL BE 2 INCHES UNLESS NOTED OTHERWISE.
- 26. MECHANICAL SPLICE CONNECTORS SHALL MEET THE REQUIREMENTS OF SUBSECTION 713.02 AND WILL BE INCLUDED FOR PAYMENT UNDER THE APPROPRIATE 540.10 CONTRACT ITEM.

NEXT D BEAMS

- 27. NEXT D BEAMS ARE A NON-PROPRIETARY SHAPE DEVELOPED BY PCI NORTHEAST (PCINE). STANDARDIZED SECTION PROPERTIES AND DETAILS MAY BE FOUND AT [HTTP://WWW.PCINE.ORG](http://www.pcine.org).

DESIGN VALUES:

CONCRETE COMPRESSIVE STRENGTH: F'c = 8,000 PSI.
 CONCRETE COMPRESSIVE STRENGTH AT RELEASE: F'CI = 6,000 PSI.
 PRESTRESSING STRANDS: 0.6 INCH DIAMETER, 270 KSI, LOW-RELAXATION 7-WIRE STRANDS.
 ASSUMED MODULUS OF ELASTICITY = 29,000 KSI
 THE JACKING FORCE PER STRAND = 44 KIPS.
 SERVICE LOADS PER UNIT

| | |
|-------------------------------|------------|
| MEMBER DEAD LOAD MOMENT | 902 K-FT |
| SUPERIMPOSED DEAD LOAD MOMENT | 246 K-FT |
| LIVE LOAD AND IMPACT MOMENT | 1,498 K-FT |
| DEAD LOAD REACTION | 67 KIPS |
| LIVE LOAD AND IMPACT REACTION | 95 KIPS |
| TOTAL REACTION | 162 KIPS |
| FINAL CAMBER | 3 INCHES |

- 28. ENDS OF FLANGES IN CONTACT WITH GROUT SHALL BE SANDBLASTED PRIOR TO DELIVERY AND POWER WASHED WITH WATER PRIOR TO ERECTION OF THE BEAMS. PAYMENT WILL BE CONSIDERED INCIDENTAL TO CONTRACT ITEM 900.640 SPECIAL PROVISION (PRESTRESSED CONCRETE NEXT D BEAMS) (NEXT 32D).
- 29. FILL FLANGE CONNECTION WITH SPECIAL PROVISION (HIGH PERFORMANCE, CONCRETE RAPID SET).
- 30. METHOD OF FORMING FLANGE CONNECTION SHALL BE DETERMINED BY THE CONTRACTOR. THE FORMS SHALL BE REMOVABLE AND ABLE TO ACCOMMODATE DIFFERENTIAL CAMBER. FORM SUPPORTS SHALL NOT PENETRATE THROUGH THE TOP OF POUR UNLESS APPROVED BY THE ENGINEER.
- 31. THE FABRICATOR MAY ALTER THE DESIGN AS DETAILED IN THESE PLANS TO ACCOMMODATE THEIR SPECIFIC OPERATION. THIS ALTERATION MUST BE DESIGNED BY A PROFESSIONAL ENGINEER, LICENSED IN THE STATE OF VERMONT TO MEET THE ABOVE CRITERIA AND SHALL BE APPROVED BY THE PROJECT MANAGER.
- 32. ALL SUPERSTRUCTURE REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR LEVEL 11 REINFORCING STEEL AND WILL BE PAID FOR UNDER CONTRACT ITEM 900.640 SPECIAL PROVISION (PRESTRESSED CONCRETE NEXT D BEAMS) (NEXT 32 D).

PROJECT NAME: ENOSBURG
 PROJECT NUMBER: BRO 1448(40)

FILE NAME: ...XX GeneralNotes.dgn PLOT DATE: 10/22/2013
 PROJECT LEADER: G. BOGUE DRAWN BY: L. BUXTON
 DESIGNED BY: T. KNIGHT CHECKED BY: G. BOGUE
GENERAL NOTES SHEET 5 OF 46



QUANTITY SHEET 1

| SUMMARY OF ESTIMATED QUANTITIES | | | | | | | | | | TOTALS | | DESCRIPTIONS | | | | DETAILED SUMMARY OF QUANTITIES | | | |
|---------------------------------|--|--|--|--|--|--|---------|-----------------|--------|-----------------|-------------|--------------|------|--------------------------------------------------------------|-------------|--------------------------------|------------|------|--------------------------------------------|
| | | | | | | | ROADWAY | EROSION CONTROL | BRIDGE | FULL C.E. ITEMS | GRAND TOTAL | FINAL | UNIT | ITEMS | ITEM NUMBER | ROUND | QUANTITIES | UNIT | ITEMS |
| | | | | | | | 1 | | | | 1 | | LS | CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS | 201.10 | | | | EARTHWORK SUMMARY |
| | | | | | | | 665 | | | | 665 | | CY | COMMON EXCAVATION | 203.15 | | 665 | CY | COMMON EXCAVATION (665*1.0) |
| | | | | | | | 35 | | | | 35 | | CY | SOLID ROCK EXCAVATION | 203.16 | | 150 | CY | UNCLASSIFIED CHANNEL EXCAVATION (200*0.75) |
| | | | | | | | | | 200 | | 200 | | CY | UNCLASSIFIED CHANNEL EXCAVATION | 203.27 | | 210 | CY | STRUCTURE EXCAVATION (280*0.75) |
| | | | | | | | 1 | | | | 1 | | CY | TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.) | 204.22 | | 1025 | CY | SUB TOTAL |
| | | | | | | | | | 280 | | 280 | | CY | STRUCTURE EXCAVATION | 204.25 | | 5 | CY | ROUNDING |
| | | | | | | | | | 130 | | 130 | | CY | GRANULAR BACKFILL FOR STRUCTURES | 204.30 | | 1030 | CY | TOTAL FILL AVAILABLE |
| | | | | | | | 1015 | | | | 1015 | | SY | COLD PLANING, BITUMINOUS PAVEMENT | 210.10 | | 40 | CY | TOTAL FACTORED FILL REQUIRED |
| | | | | | | | 505 | | | | 505 | | CY | SUBBASE OF DENSE GRADED CRUSHED STONE | 301.35 | | 990 | CY | TOTAL WASTE |
| | | | | | | | 25 | | | | 25 | | CY | AGGREGATE SHOULDERS, IN PLACE | 402.10 | | | | |
| | | | | | | | 1 | | | | 1 | | LU | PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.) | 406.50 | | | | |
| | | | | | | | | | 11 | | 11 | | GAL | WATER REPELLENT, SILANE | 514.10 | | | | |
| | | | | | | | | | 55 | | 55 | | LF | BRIDGE EXPANSION JOINT, ASPHALTIC PLUG | 516.10 | | | | |
| | | | | | | | | | 210 | | 210 | | SY | MEMBRANE WATERPROOFING, SPRAY APPLIED | 520.10 | | | | |
| | | | | | | | | | 52 | | 52 | | LF | JOINT SEALER, HOT POURED | 524.11 | | | | |
| | | | | | | | | | 152 | | 152 | | LF | BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM | 525.335 | | | | |
| | | | | | | | | | 1 | | 1 | | EACH | REMOVAL OF STRUCTURE (REMOVAL OF BRIDGE #48) | 529.15 | | | | |
| | | | | | | | | | 12 | | 12 | | EACH | BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD | 531.17 | | | | |
| | | | | | | | | | 1 | | 1 | | LS | PRECAST CONCRETE STRUCTURE (ABUTMENT #1) | 540.10 | | | | |
| | | | | | | | | | 1 | | 1 | | LS | PRECAST CONCRETE STRUCTURE (ABUTMENT #2) | 540.10 | | | | |
| | | | | | | | | | 1 | | 1 | | LS | PRECAST CONCRETE STRUCTURE (APPROACH SLAB #1) | 540.10 | | | | |
| | | | | | | | | | 1 | | 1 | | LS | PRECAST CONCRETE STRUCTURE (APPROACH SLAB #2) | 540.10 | | | | |
| | | | | | | | 0.5 | | | | 0.5 | | MGAL | DUST CONTROL WITH WATER | 609.10 | | | | |
| | | | | | | | 0.5 | | | | 0.5 | | TON | DUST AND ICE CONTROL WITH CALCIUM CHLORIDE | 609.15 | | | | |
| | | | | | | | | 200 | 330 | | 530 | | CY | STONE FILL, TYPE III | 613.12 | | | | |
| | | | | | | | 16 | | | | 16 | | LF | WOVEN WIRE FENCE WITH WOOD POSTS | 620.26 | | | | |
| | | | | | | | 2 | | | | 2 | | EACH | WOOD BRACE FOR WOVEN WIRE FENCE | 620.41 | | | | |
| | | | | | | | 16 | | | | 16 | | LF | REMOVAL OF EXISTING FENCE | 620.55 | | | | |
| | | | | | | | 212 | | | | 212 | | LF | BOX BEAM GUARDRAIL | 621.30 | | | | |
| | | | | | | | 4 | | | | 4 | | EACH | GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM | 621.725 | | | | |
| | | | | | | | 135 | | | | 135 | | LF | REMOVAL AND DISPOSAL OF GUARDRAIL | 621.80 | | | | |
| | | | | | | | | | | 1 | 1 | | LS | FIELD OFFICE, ENGINEERS | 631.10 | | | | |
| | | | | | | | | | | 1 | 1 | | LS | TESTING EQUIPMENT, CONCRETE | 631.16 | | | | |
| | | | | | | | | | | 1 | 1 | | LS | TESTING EQUIPMENT, BITUMINOUS | 631.17 | | | | |
| | | | | | | | | | | 3000 | 3000 | | DL | FIELD OFFICE TELEPHONE (N.A.B.I.) | 631.26 | | | | |
| | | | | | | | 1 | | | | 1 | | LS | MOBILIZATION/DEMobilIZATION | 635.11 | | | | |
| | | | | | | | 1 | | | | 1 | | LS | TRAFFIC CONTROL | 641.10 | | | | |
| | | | | | | | 2 | | | | 2 | | EACH | PORTABLE CHANGEABLE MESSAGE SIGN | 641.15 | | | | |
| | | | | | | | 550 | | | | 550 | | LF | 4 INCH YELLOW LINE | 646.21 | | | | |
| | | | | | | | 40 | | | | 40 | | LF | 24 INCH STOP BAR | 646.26 | | | | |

PROJECT NAME: ENOSBURG
 PROJECT NUMBER: BRO 1448(40)
 FILE NAME: ...\\xx Bridge Quantities.dgn PLOT DATE: 10/4/2013
 PROJECT LEADER: G. BOGUE DRAWN BY: E. ALLING
 DESIGNED BY: G. GOYETTE CHECKED BY: G. GOYETTE
BRIDGE AND ROADWAY QUANTITY SHEET - QS 1 SHEET 6 OF 46



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 |
| | | | | | | | | 300 | 330 | | 630 | | SY | GEOTEXTILE UNDER STONE FILL | 649.31 | | | | |
| | | | | | | | | 15 | | | 15 | | SY | GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED | 649.515 | | | | |
| | | | | | | | | 120 | | | 120 | | SY | GEOTEXTILE FOR FILTER CURTAIN | 649.61 | | | | |
| | | | | | | | | 10 | | | 10 | | LB | SEED | 651.15 | | | | |
| | | | | | | | | 10 | | | 10 | | LB | SEED, WINTER RYE | 651.17 | | | | |
| | | | | | | | | 50 | | | 50 | | LB | FERTILIZER | 651.18 | | | | |
| | | | | | | | | 0.5 | | | 0.5 | | TON | AGRICULTURAL LIMESTONE | 651.20 | | | | |
| | | | | | | | | 0.5 | | | 0.5 | | TON | HAY MULCH | 651.25 | | | | |
| | | | | | | | 65 | | | | 65 | | CY | TOPSOIL | 651.35 | | | | |
| | | | | | | | | | 230 | | 230 | | SY | GRUBBING MATERIAL | 651.40 | | | | |
| | | | | | | | | 1 | | | 1 | | LS | EPSC PLAN | 652.10 | | | | |
| | | | | | | | | 40 | | | 40 | | HR | MONITORING EPSC PLAN | 652.20 | | | | |
| | | | | | | | | 1 | | | 1 | | LU | MAINTENANCE OF EPSC PLAN (N.A.B.I.) | 652.30 | | | | |
| | | | | | | | | 530 | | | 530 | | SY | TEMPORARY EROSION MATTING | 653.20 | | | | |
| | | | | | | | | 40 | | | 40 | | CY | VEHICLE TRACKING PAD | 653.35 | | | | |
| | | | | | | | | 360 | | | 360 | | LF | BARRIER FENCE | 653.50 | | | | |
| | | | | | | | | 120 | | | 120 | | LF | PROJECT DEMARCATION FENCE | 653.55 | | | | |
| | | | | | | | 31 | | | | 31 | | SF | TRAFFIC SIGNS, TYPE A | 675.20 | | | | |
| | | | | | | | 72 | | | | 72 | | LF | SQUARE TUBE SIGN POST AND ANCHOR | 675.341 | | | | |
| | | | | | | | 2 | | | | 2 | | EACH | REMOVING SIGNS | 675.50 | | | | |
| | | | | | | | | | 10 | | 10 | | CY | SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)(FPQ) | 900.608 | | | | |
| | | | | | | | | | 10 | | 10 | | HR | SPECIAL PROVISION (UNEXPECTED OBSTRUCTION DRILLING) | 900.630 | | | | |
| | | | | | | | | | 270 | | 270 | | LF | SPECIAL PROVISION (MICROPILE, CASED)(7 INCHES) | 900.640 | | | | |
| | | | | | | | | | 220 | | 220 | | LF | SPECIAL PROVISION (MICROPILE, UNCASED)(6.18 INCHES) | 900.640 | | | | |
| | | | | | | | | | 215 | | 215 | | LF | SPECIAL PROVISION (PRESTRESSED CONCRETE NEXT D BEAMS)(NEXT 32 D) | 900.640 | | | | |
| | | | | | | | 1 | | | | 1 | | LS | SPECIAL PROVISION (CPM SCHEDULE) | 900.645 | | | | |
| | | | | | | | | | 1 | | 1 | | LS | SPECIAL PROVISION (FURNISHING EQUIPMENT FOR INSTALLING MICROPILES) | 900.645 | | | | |
| | | | | | | | | | 1 | | 1 | | LS | SPECIAL PROVISION (REMOVAL OF TEMPORARY BRIDGE) | 900.645 | | | | |
| | | | | | | | 1 | | | | 1 | | LU | SPECIAL PROVISION (INCENTIVE/DISINCENTIVE)(N.A.B.I.) | 900.650 | | | | |
| | | | | | | | 1 | | | | 1 | | LU | SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY)(N.A.B.I.) | 900.650 | | | | |
| | | | | | | | 1 | | | | 1 | | LU | SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT)(N.A.B.I.) | 900.650 | | | | |
| | | | | | | | 375 | | 50 | | 425 | | TON | SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY) | 900.680 | | | | |
| | | | | | | | 6 | | | | 6 | | CWT | SPECIAL PROVISION (EMULSIFIED ASPHALT)(RS-1H OR CRS-1H) | 900.683 | | | | |

**ITEM 900.680 SPEICAL PROVISION
(BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)**

235 TONS COLD PLANE AREAS (EST.)
64 TONS TYPE IIS (ROADWAY)
64 TONS TYPE IVS (ROADWAY)
14 TONS OVER APPROACH SLABS
33 TONS ON BRIDGE
15 TONS ROUND

425 TONS TOTAL



PROJECT NAME: ENOSBURG
PROJECT NUMBER: BRO 1448(40)

FILE NAME: ...\\xx Bridge Quantities.dgn PLOT DATE: 10/22/2013
PROJECT LEADER: G. BOGUE DRAWN BY: E. ALLING
DESIGNED BY: G. GOYETTE CHECKED BY: G. GOYETTE
BRIDGE AND ROADWAY QUANTITY SHEET - QS 2 SHEET 7 OF 46

GENERAL INFORMATION

SYMBOLGY LEGEND NOTE

THE SYMBOLGY ON THIS SHEET IS INTENDED TO COVER STANDARD CONVENTIONAL SYMBOLGY. THE SYMBOLGY IS USED FOR EXISTING & PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROJECT ANNOTATION, AS NOTED ON PROJECT PLAN SHEETS. THIS LEGEND SHEET COVERS THE BASICS. SYMBOLGY ON PLANS MAY VARY, PLAN ANNOTATIONS AND NOTES SHOULD BE USED TO CLARIFY AS NEEDED.

COMMON TOPOGRAPHIC POINT SYMBOLS

| POINT | CODE | DESCRIPTION |
|-------|--------|---------------------------|
| ⊕ | APL | BOUND APPARENT LOCATION |
| □ | BM | BENCH MARK |
| □ | BND | BOUND |
| ⊕ | CB | CATCH BASIN |
| ⊕ | COMB | COMBINATION POLE |
| ⊕ | DITHR | DROP INLET THROATED DNC |
| ⊕ | EL | ELECTRIC POWER POLE |
| ○ | FPOLE | FLAGPOLE |
| ○ | GASFIL | GAS FILLER |
| ○ | GP | GUIDE POST |
| × | GSO | GAS SHUT OFF |
| ○ | GUY | GUY POLE |
| ○ | GUYW | GUY WIRE |
| × | GV | GATE VALUE |
| ⊕ | H | TREE HARDWOOD |
| △ | HCTRL | CONTROL HORIZONTAL |
| △ | HVCTRL | CONTROL HORIZ. & VERTICAL |
| ◇ | HYD | HYDRANT |
| ● | IP | IRON PIN |
| ● | IPIPE | IRON PIPE |
| ⊕ | LI | LIGHT - STREET OR YARD |
| ⊕ | MB | MAILBOX |
| ○ | MH | MANHOLE (MH) |
| □ | MM | MILE MARKER |
| ● | PM | PARKING METER |
| □ | PMK | PROJECT MARKER |
| POST | POST | POST STONE/WOOD |
| RRSIG | RRSIG | RAILROAD SIGNAL |
| RRSL | RRSL | RAILROAD SWITCH LEVER |
| S | S | TREE SOFTWOOD |
| SAT | SAT | SATELLITE DISH |
| ⊕ | SHRUB | SHRUB |
| SIGN | SIGN | SIGN |
| STUMP | STUMP | STUMP |
| TEL | TEL | TELEPHONE POLE |
| TIE | TIE | TIE |
| TSIGN | TSIGN | SIGN W/DOUBLE POST |
| VCTRL | VCTRL | CONTROL VERTICAL |
| WELL | WELL | WELL |
| WSO | WSO | WATER SHUT OFF |

THESE ARE COMMON VAOT SURVEY POINT SYMBOLS FOR EXISTING FEATURES, ALSO USED FOR PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROPOSED ANNOTATION.

PROPOSED GEOMETRY CODES

| CODE | DESCRIPTION |
|------|-------------------------|
| PC | POINT OF CURVATURE |
| PI | POINT OF INTERSECTION |
| CC | CENTER OF CURVE |
| PT | POINT OF TANGENCY |
| PCC | POINT OF COMPOUND CURVE |
| PRC | POINT OF REVERSE CURVE |
| POB | POINT OF BEGINNING |
| POE | POINT OF ENDING |
| STA | STATION PREFIX |
| AH | AHEAD STATION SUFFIX |
| BK | BACK STATION SUFFIX |
| D | CURVE DEGREE OF (100FT) |
| R | CURVE RADUIS OF |
| T | CURVE TANGENT LENGTH |
| L | CURVE LENGTH OF |
| E | CURVE EXTERNAL DISTANCE |

UTILITY SYMBOLGY

UNDERGROUND UTILITIES

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

ABOVE GROUND UTILITIES (AERIAL)

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

PROJECT CONSTRUCTION SYMBOLGY

PROJECT DESIGN & LAYOUT SYMBOLGY

| | |
|--------|-----------------------|
| — CZ — | CLEAR ZONE |
| — | PLAN LAYOUT MATCHLINE |

PROJECT CONSTRUCTION FEATURES

| | |
|--------|----------------------------|
| △ | TOP OF CUT SLOPE |
| ○ | TOE OF FILL SLOPE |
| ⊗ | STONE FILL |
| — | BOTTOM OF DITCH |
| — | CULVERT PROPOSED |
| — | STRUCTURE SUBSURFACE |
| PDF | PROJECT DEMARCATION FENCE |
| BF | BARRIER FENCE |
| XXXXXX | TREE PROTECTION ZONE (TPZ) |
| //// | STRIPING LINE REMOVAL |
| ~~~~ | SHEET PILES |

CONVENTIONAL BOUNDARY SYMBOLGY

BOUNDARY LINES

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

EPSC LAYOUT PLAN SYMBOLGY

EPSC MEASURES

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

ENVIRONMENTAL RESOURCES

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

ARCHEOLOGICAL & HISTORIC

| | |
|-------------------|----------------------------|
| — ARCH — | ARCHEOLOGICAL BOUNDARY |
| — HISTORIC DIST — | HISTORIC DISTRICT BOUNDARY |
| — HISTORIC — | HISTORIC AREA |
| Ⓜ | HISTORIC STRUCTURE |

CONVENTIONAL TOPOGRAPHIC SYMBOLGY

EXISTING FEATURES

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

R. O. W. ABBREVIATIONS (CODES) & SYMBOLS

| POINT | CODE | DESCRIPTION |
|------------|--------------------------------|-------------|
| CH | CHANNEL EASEMENT | |
| CONST | CONSTRUCTION EASEMENT | |
| CUL | CULVERT EASEMENT | |
| D&C | DISCONNECT & CONNECT | |
| DIT | DITCH EASEMENT | |
| DR | DRAINAGE EASEMENT | |
| DRIVE | DRIVEWAY EASEMENT | |
| EC | EROSION CONTROL | |
| I&M | INSTALL & MAINTAIN EASEMENT | |
| LAND | LANDSCAPE EASEMENT | |
| SR | SLOPE RIGHT | |
| UE | UTILITY EASEMENT | |
| (P) | PERMANENT EASEMENT | |
| (T) | TEMPORARY EASEMENT | |
| ■ | BNDNS BOUND SET | |
| □ | BNDNS BOUND TO BE SET | |
| ● | IPNS IRON PIN SET | |
| ⊕ | IPNS IRON PIN TO BE SET | |
| ⊗ | CALC CALCULATED ROW POINT | |
| [DISTANCE] | DISTANCE CARRIED ON NEXT SHEET | |

PROJECT NAME: ENOSBURG
PROJECT NUMBER: BRO 1448(40)

FILE NAME: ...\\03 A Conv Symb Leg Sht.dgrPLOT DATE: 10/4/2013
PROJECT LEADER: G. BOGUE DRAWN BY: E. ALLING
DESIGNED BY: G. GOYETTE CHECKED BY: G. GOYETTE
CONVENTIONAL SYMBOLGY LEGEND SHEET 8 OF 46

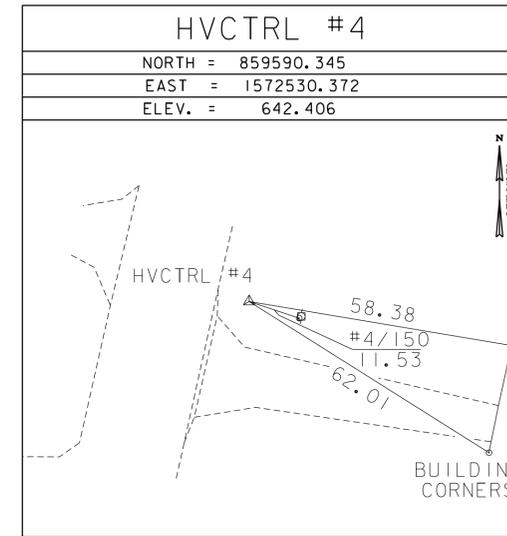
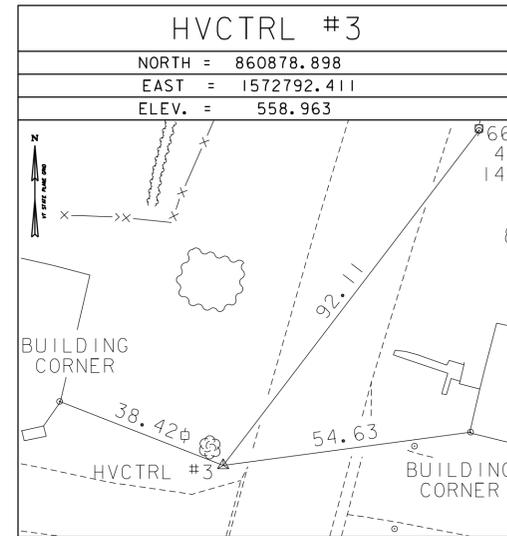
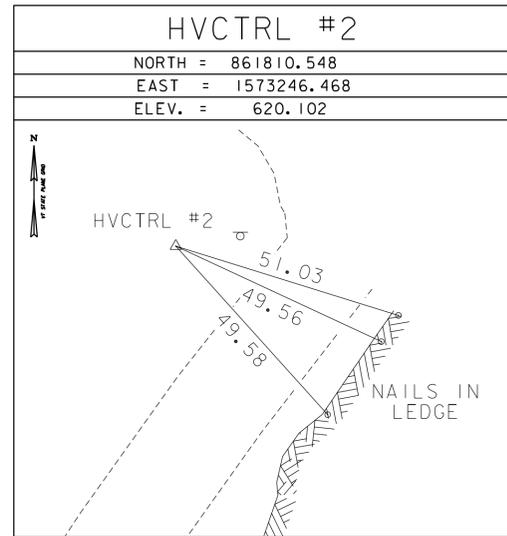
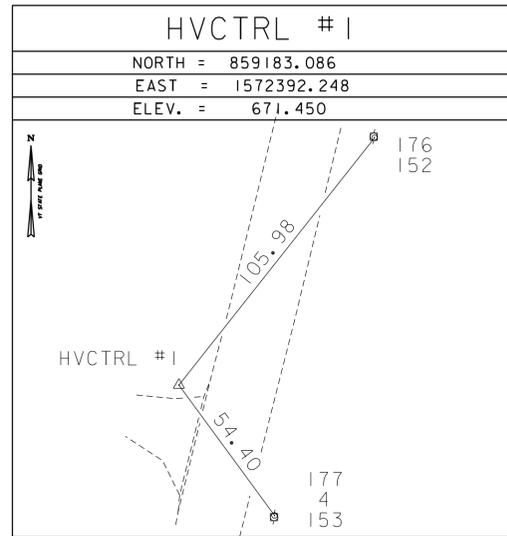


GPS CONTROL POINTS

GENERAL DESCRIPTION: TEMP1
 TO REACH FROM JUNCTION OF VT108 AND TH1 (TYLER BRANCH RD.) IN ENOSBURG PROCEED EAST ALONG TH1 FOR 2.1 MILES TO JUNCTION WITH TH2 (BOSTON POST RD.) AND TURN RIGHT ON TO TH2 PROCEED SOUTH FOR 0.4 MILE TO MARK (REBAR WITH PLASTIC CAP [VTAOT TRAV. PT] ON THE RIGHT ON THE NORTH EDGE OF GRAVEL DRIVE, 21' WEST OF CENTERLINE TH2, 15' NORTH FROM CENTERLINE GRAVEL DRIVE AND 54.7' NORTHWEST POLE #171/4/153.
 SEE HVCTRL #1 FOR COORDINATES

GENERAL DESCRIPTION: TEMP2
 TO REACH FROM JUNCTION OF VT108 AND TH1 (TYLER BRANCH RD.) IN ENOSBURG PROCEED EAST ALONG TH1 FOR 2.1 MILES TO JUNCTION WITH TH2 (BOSTON POST RD.) AND TURN LEFT AND PROCEED NORTH ALONG TH2 FOR 0.1 MILE TO MARK (REBAR WITH PLASTIC CAP [VTAOT TRAV. PT] ON THE LEFT IN A LAWN, 28' WEST OF CENTERLINE TH2, 32' SOUTH OF CENTERLINE GRAVEL DRIVE, 102' SOUTH OF POLE #5/4A AND 106' NORTHWEST POLE #3.
 SEE HVCTRL #2 FOR COORDINATES

TRAVERSE TIES



| |
|---------|
| NORTH = |
| EAST = |
| ELEV. = |

*MAIN TRAVERSE COMPLETED 4/11/2012 BY L. ORVIS P.C. & G. HITCHCOCK

ALIGNMENT TIES

| | |
|------------------------|--|
| POB (PC) = STA. 9+75.0 | |
| NORTH = 860997.471 | |
| EAST = 1572844.047 | |
| ELEV. = | |

| | |
|--------------------|--|
| PI = 12+00.00 | |
| NORTH = 861207.635 | |
| EAST = 1572925.173 | |
| ELEV. = | |

| | |
|---------------------|--|
| POE (PT) = 13+50.00 | |
| NORTH = 861406.403 | |
| EAST = 1573031.198 | |
| ELEV. = | |

| |
|---------|
| NORTH = |
| EAST = |
| ELEV. = |

| |
|---------|
| NORTH = |
| EAST = |
| ELEV. = |

COORDINATE SYSTEM
 NAME: US STATE PLANE 1983
 DATUM: NAD 1983(2007)
 ZONE: VERMONT 4400
 GEOID: GEOID09 (CONUS)
 VERTICAL: NAVD 88
 ADJUSTMENT: COMPASS

PROJECT NAME: ENOSBURG
 PROJECT NUMBER: BRO 1448(40)
 FILE NAME: ...Plot Files\...tie sheet.dgn PLOT DATE: 10/4/2013
 PROJECT LEADER: C. WILLIAMS DRAWN BY: R. BULLOCK
 DESIGNED BY: CHECKED BY:
TIE SHEET - TIE 1 SHEET 9 OF 46

ITEM 621.30 - BOX BEAM GUARDRAIL

STA. 9+60.5 - 10+90.3, RT.
 STA. 10+15.5 - 10+90.8, LT.
 STA. 12+28.5 - 12+31.4, LT.
 STA. 12+24.2 - 12+25.3, RT.

ITEM 621.80 - REMOVAL AND DISPOSAL OF GUARDRAIL

STA. 10+75.8 - 11+29.3, RT.
 STA. 11+01.5 - 11+29.7, LT.
 STA. 12+01.8 - 12+24.1, LT.
 STA. 12+02.2 - 12+21.3, RT.

ITEM 621.725 - GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM

STA. 10+90.8 - 11+22.7, LT.
 STA. 10+90.3 - 11+22.5, RT.
 STA. 11+98.3 - 12+28.5, LT.
 STA. 11+98.6 - 12+24.2, RT.

ITEM 613.12 - STONE FILL, TYPE III

STA. 11+07.1 - 11+46.7, LT.
 STA. 10+25.0 - 11+46.9, RT.
 STA. 11+82.0 - 12+28.4, RT.
 STA. 11+83.9 - 12+07.1, LT.

ITEM 649.31 - GEOTEXTILE UNDER STONE FILL

STA. 11+07.1 - 11+46.7, LT.
 STA. 10+25.0 - 11+46.9, RT.
 STA. 11+82.0 - 12+28.4, RT.
 STA. 11+83.9 - 12+07.1, LT.

ITEM 402.10 - ONE AGGREGATE SHOULDERS, IN PLACE

STA. 9+36.0 - 11+24.0, RT.
 STA. 10+21.0 - 11+24.0, LT.
 STA. 11+97.0 - 12+54.3, LT.
 STA. 11+97+0 - 12+30.0, RT.
 STA. 12+53.4 - 13+50.0, LT.
 STA. 12+76.0 - 13+50.0, RT.

ITEM 210.10 - COLD PLANING, BITUMINOUS PAVEMENT

STA. 10+00.0 - 10+10.0
 STA. 12+40.0 - 13+50.0

ITEM 620.55 - REMOVAL OF EXISTING FENCE

STA. 11+90.0 LT.

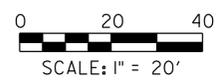
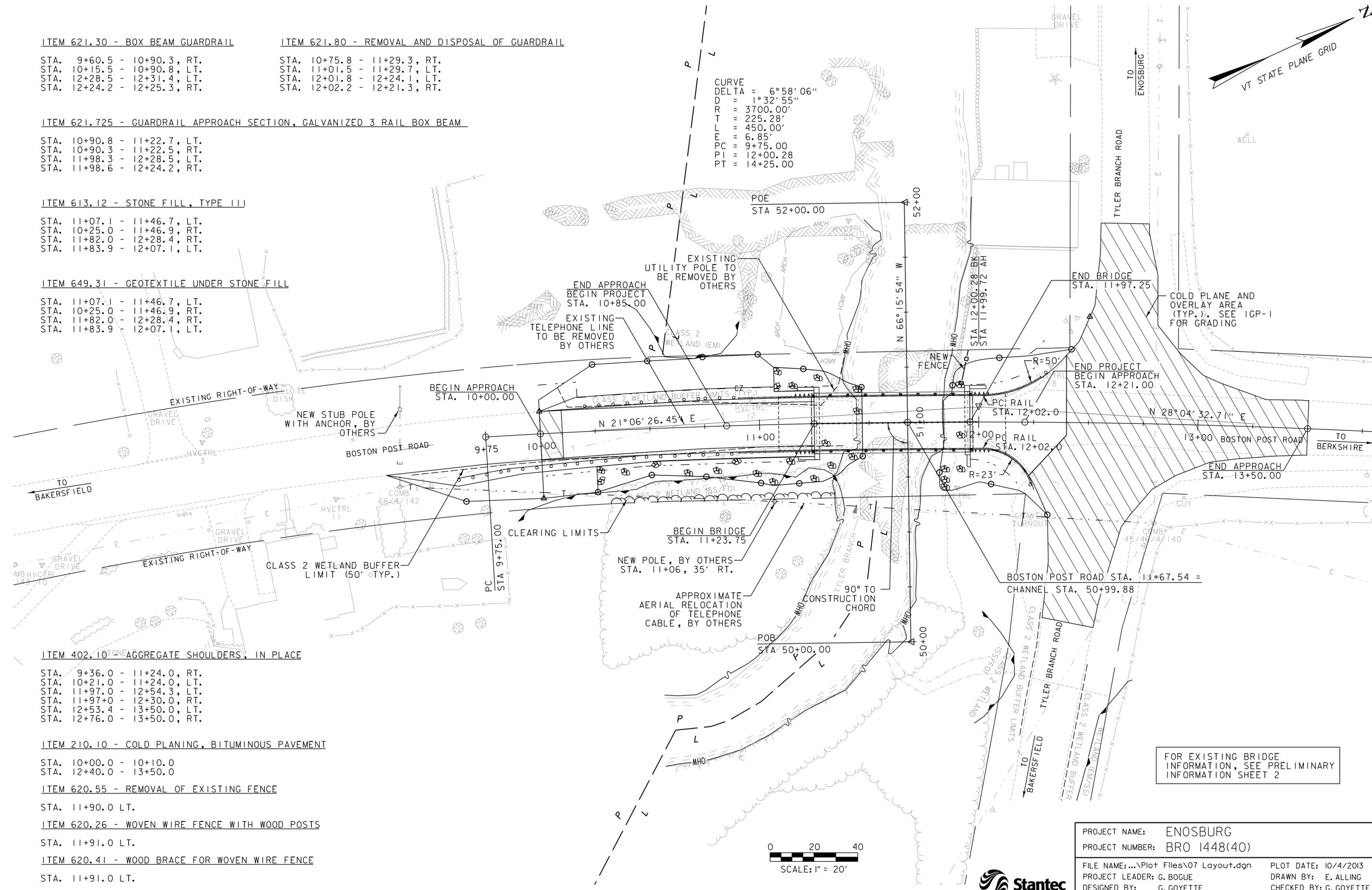
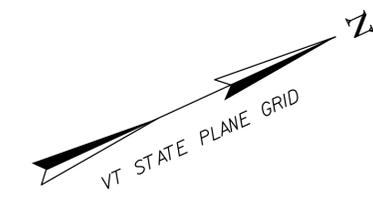
ITEM 620.26 - WOVEN WIRE FENCE WITH WOOD POSTS

STA. 11+91.0 LT.

ITEM 620.41 - WOOD BRACE FOR WOVEN WIRE FENCE

STA. 11+91.0 LT.

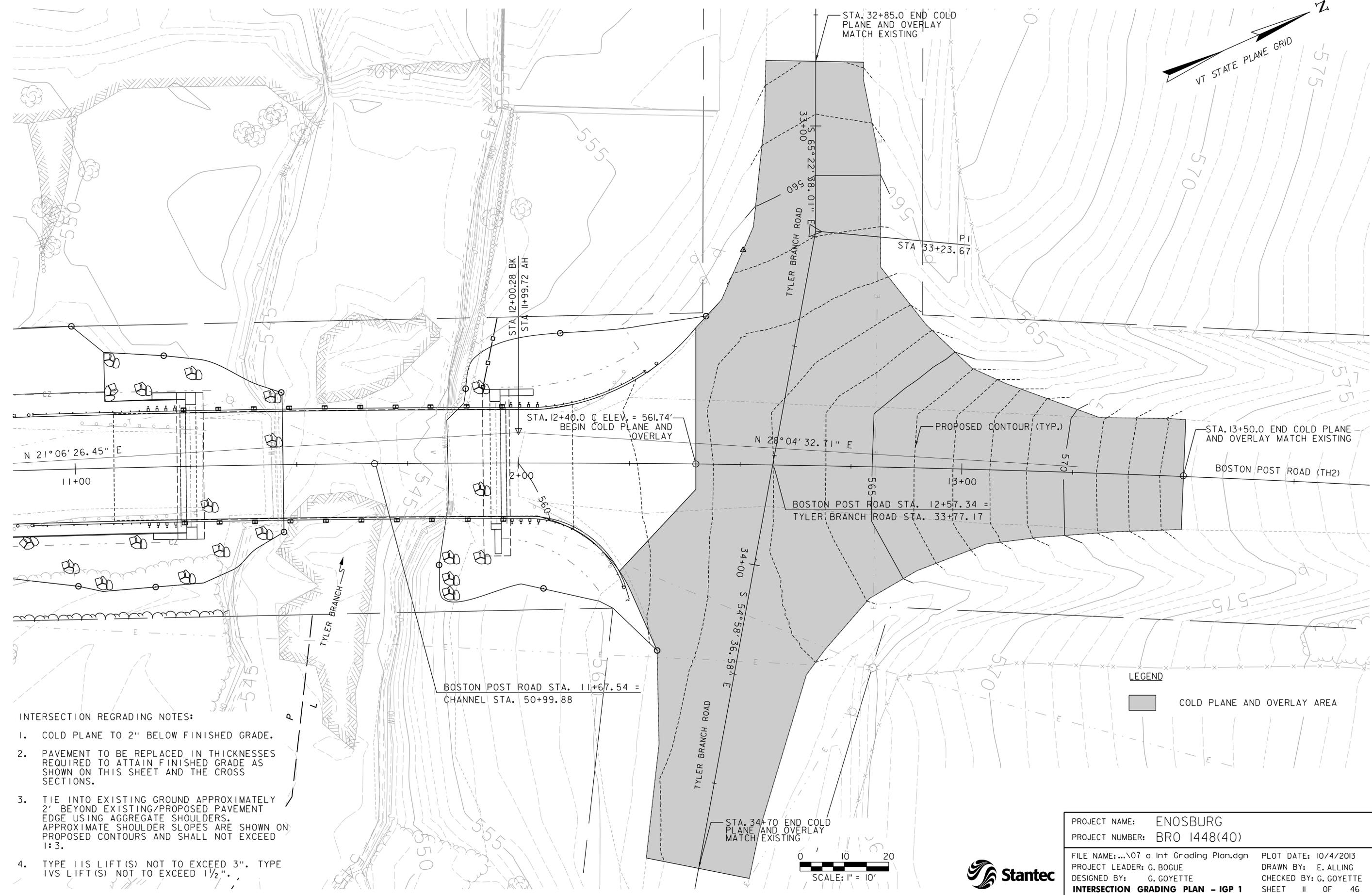
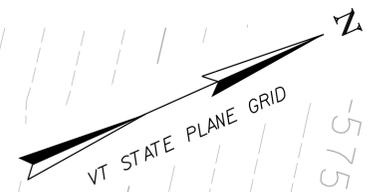
CURVE
 DELTA = 6°58'06"
 D = 1°32'55"
 R = 3700.00'
 T = 225.28'
 L = 450.00'
 E = 6.85'
 PC = 9+75.00
 PI = 12+00.28
 PT = 14+25.00



FOR EXISTING BRIDGE
 INFORMATION, SEE PRELIMINARY
 INFORMATION SHEET 2



| | | | | | |
|-----------------|--------------|---------------------------|-----------------------------|-------------|------------|
| PROJECT NAME: | ENOSBURG | FILE NAME: | ...Plot Files\07 Layout.dgn | PLOT DATE: | 10/4/2013 |
| PROJECT NUMBER: | BRO 1448(40) | PROJECT LEADER: | G. BOGUE | DRAWN BY: | E. ALLING |
| | | DESIGNED BY: | G. GOYETTE | CHECKED BY: | G. GOYETTE |
| | | LAYOUT PLAN - LP 1 | | SHEET | 10 OF 46 |

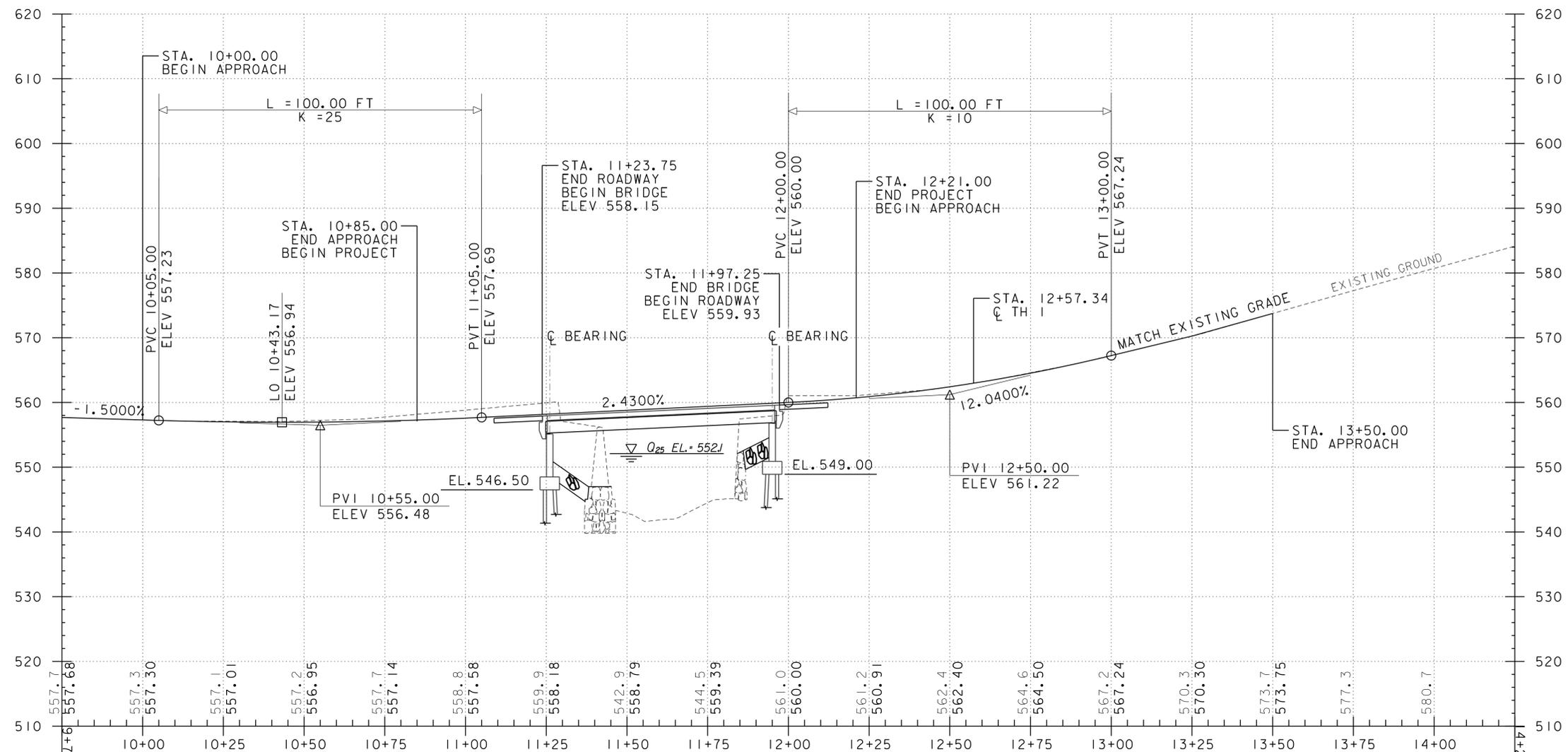


- INTERSECTION REGRADING NOTES:**
1. COLD PLANE TO 2" BELOW FINISHED GRADE.
 2. PAVEMENT TO BE REPLACED IN THICKNESSES REQUIRED TO ATTAIN FINISHED GRADE AS SHOWN ON THIS SHEET AND THE CROSS SECTIONS.
 3. TIE INTO EXISTING GROUND APPROXIMATELY 2' BEYOND EXISTING/PROPOSED PAVEMENT EDGE USING AGGREGATE SHOULDERS. APPROXIMATE SHOULDER SLOPES ARE SHOWN ON PROPOSED CONTOURS AND SHALL NOT EXCEED 1:3.
 4. TYPE IIS LIFT(S) NOT TO EXCEED 3". TYPE IVS LIFT(S) NOT TO EXCEED 1 1/2".

LEGEND
 COLD PLANE AND OVERLAY AREA

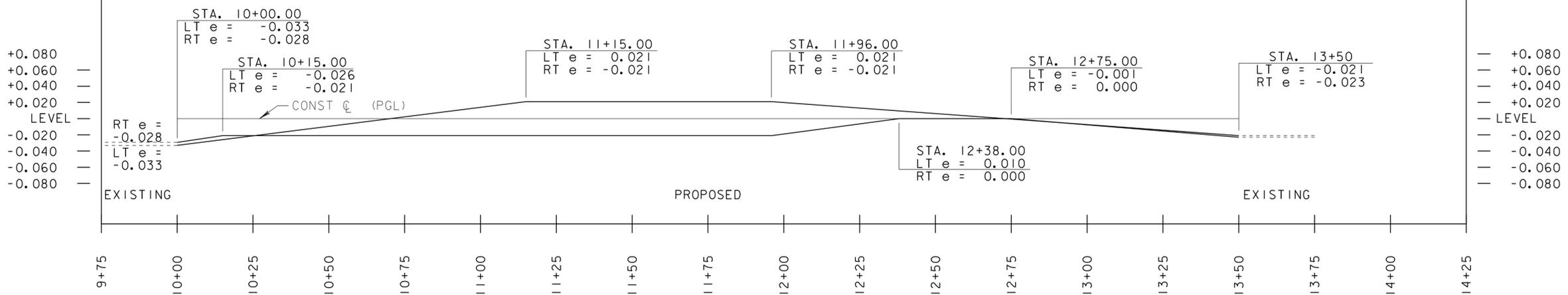
| | | | |
|-----------------|-------------------------------|-----------------------------------|----------------|
| PROJECT NAME: | ENOSBURG | PLOT DATE: | 10/4/2013 |
| PROJECT NUMBER: | BRO 1448(40) | DRAWN BY: | E. ALLING |
| FILE NAME: | ...N07 a Int Grading Plan.dgn | CHECKED BY: | G. GOYETTE |
| PROJECT LEADER: | G. BOGUE | INTERSECTION GRADING PLAN - IGP 1 | SHEET 11 OF 46 |
| DESIGNED BY: | G. GOYETTE | | |





BOSTON POST ROAD PROPOSED PROFILE

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



BOSTON POST ROAD SUPERELEVATION DIAGRAM

HORIZONTAL SCALE: 1' = 20' VERTICAL SCALE: N. T. S.

PROFILE NOTES:

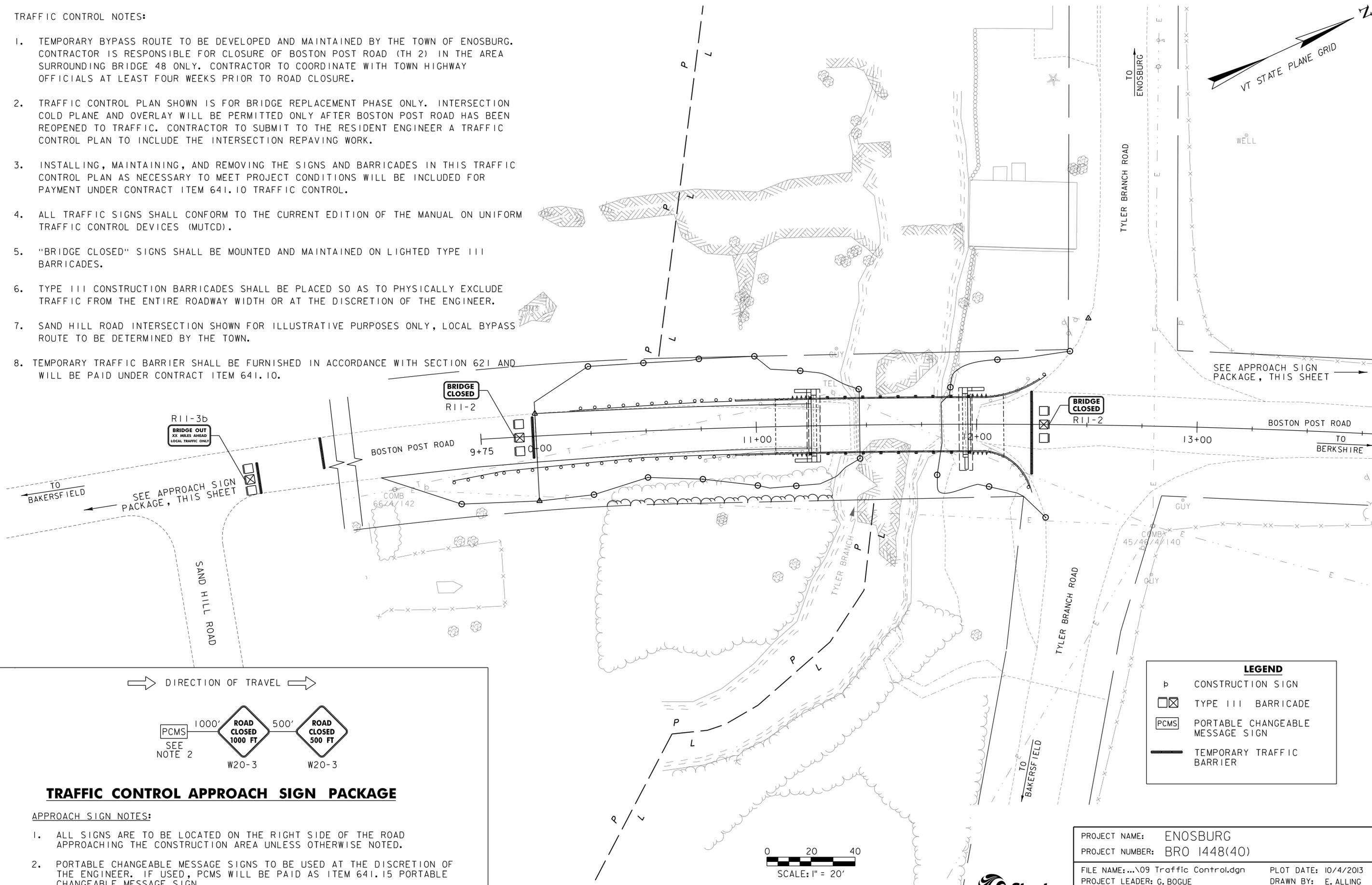
- EXISTING SURVEY INFORMATION SHOWN ON THE PLANS INCLUDES THE TEMPORARY BRIDGE
- GRADES SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG \bar{C}
- GRADES SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADE ALONG \bar{C}

| | | | |
|----------------------|------------------------------|--------------|------------|
| PROJECT NAME: | ENOSBURG | PLOT DATE: | 10/4/2013 |
| PROJECT NUMBER: | BRO 1448(40) | DRAWN BY: | E. ALLING |
| FILE NAME: | ...Plot Files\08 Profile.dgn | DESIGNED BY: | G. GOYETTE |
| PROJECT LEADER: | G. BOGUE | CHECKED BY: | G. GOYETTE |
| PROFILE SHEET - RP 1 | | SHEET | 12 OF 46 |

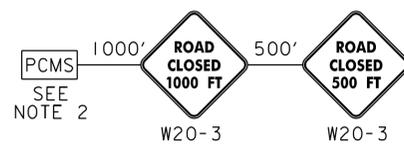


TRAFFIC CONTROL NOTES:

1. TEMPORARY BYPASS ROUTE TO BE DEVELOPED AND MAINTAINED BY THE TOWN OF ENOSBURG. CONTRACTOR IS RESPONSIBLE FOR CLOSURE OF BOSTON POST ROAD (TH 2) IN THE AREA SURROUNDING BRIDGE 48 ONLY. CONTRACTOR TO COORDINATE WITH TOWN HIGHWAY OFFICIALS AT LEAST FOUR WEEKS PRIOR TO ROAD CLOSURE.
2. TRAFFIC CONTROL PLAN SHOWN IS FOR BRIDGE REPLACEMENT PHASE ONLY. INTERSECTION COLD PLANE AND OVERLAY WILL BE PERMITTED ONLY AFTER BOSTON POST ROAD HAS BEEN REOPENED TO TRAFFIC. CONTRACTOR TO SUBMIT TO THE RESIDENT ENGINEER A TRAFFIC CONTROL PLAN TO INCLUDE THE INTERSECTION REPAVING WORK.
3. INSTALLING, MAINTAINING, AND REMOVING THE SIGNS AND BARRICADES IN THIS TRAFFIC CONTROL PLAN AS NECESSARY TO MEET PROJECT CONDITIONS WILL BE INCLUDED FOR PAYMENT UNDER CONTRACT ITEM 641.10 TRAFFIC CONTROL.
4. ALL TRAFFIC SIGNS SHALL CONFORM TO THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
5. "BRIDGE CLOSED" SIGNS SHALL BE MOUNTED AND MAINTAINED ON LIGHTED TYPE III BARRICADES.
6. TYPE III CONSTRUCTION BARRICADES SHALL BE PLACED SO AS TO PHYSICALLY EXCLUDE TRAFFIC FROM THE ENTIRE ROADWAY WIDTH OR AT THE DISCRETION OF THE ENGINEER.
7. SAND HILL ROAD INTERSECTION SHOWN FOR ILLUSTRATIVE PURPOSES ONLY, LOCAL BYPASS ROUTE TO BE DETERMINED BY THE TOWN.
8. TEMPORARY TRAFFIC BARRIER SHALL BE FURNISHED IN ACCORDANCE WITH SECTION 621 AND WILL BE PAID UNDER CONTRACT ITEM 641.10.



➔ DIRECTION OF TRAVEL ➔



TRAFFIC CONTROL APPROACH SIGN PACKAGE

APPROACH SIGN NOTES:

1. ALL SIGNS ARE TO BE LOCATED ON THE RIGHT SIDE OF THE ROAD APPROACHING THE CONSTRUCTION AREA UNLESS OTHERWISE NOTED.
2. PORTABLE CHANGEABLE MESSAGE SIGNS TO BE USED AT THE DISCRETION OF THE ENGINEER. IF USED, PCMS WILL BE PAID AS ITEM 641.15 PORTABLE CHANGEABLE MESSAGE SIGN.

| LEGEND | |
|--------|----------------------------------|
| | CONSTRUCTION SIGN |
| | TYPE III BARRICADE |
| | PORTABLE CHANGEABLE MESSAGE SIGN |
| | TEMPORARY TRAFFIC BARRIER |

| | |
|--------------------------------------|------------------------|
| PROJECT NAME: ENOSBURG | PLOT DATE: 10/4/2013 |
| PROJECT NUMBER: BRO 1448(40) | DRAWN BY: E. ALLING |
| FILE NAME: ...09 Traffic Control.dgn | CHECKED BY: G. GOYETTE |
| PROJECT LEADER: G. BOGUE | SHEET 13 OF 46 |
| DESIGNED BY: G. GOYETTE | |
| TRAFFIC CONTROL SHEET- TCP 1 | |



ITEM 646.21 - 4 INCH YELLOW LINE (DOUBLE CENTERLINE)

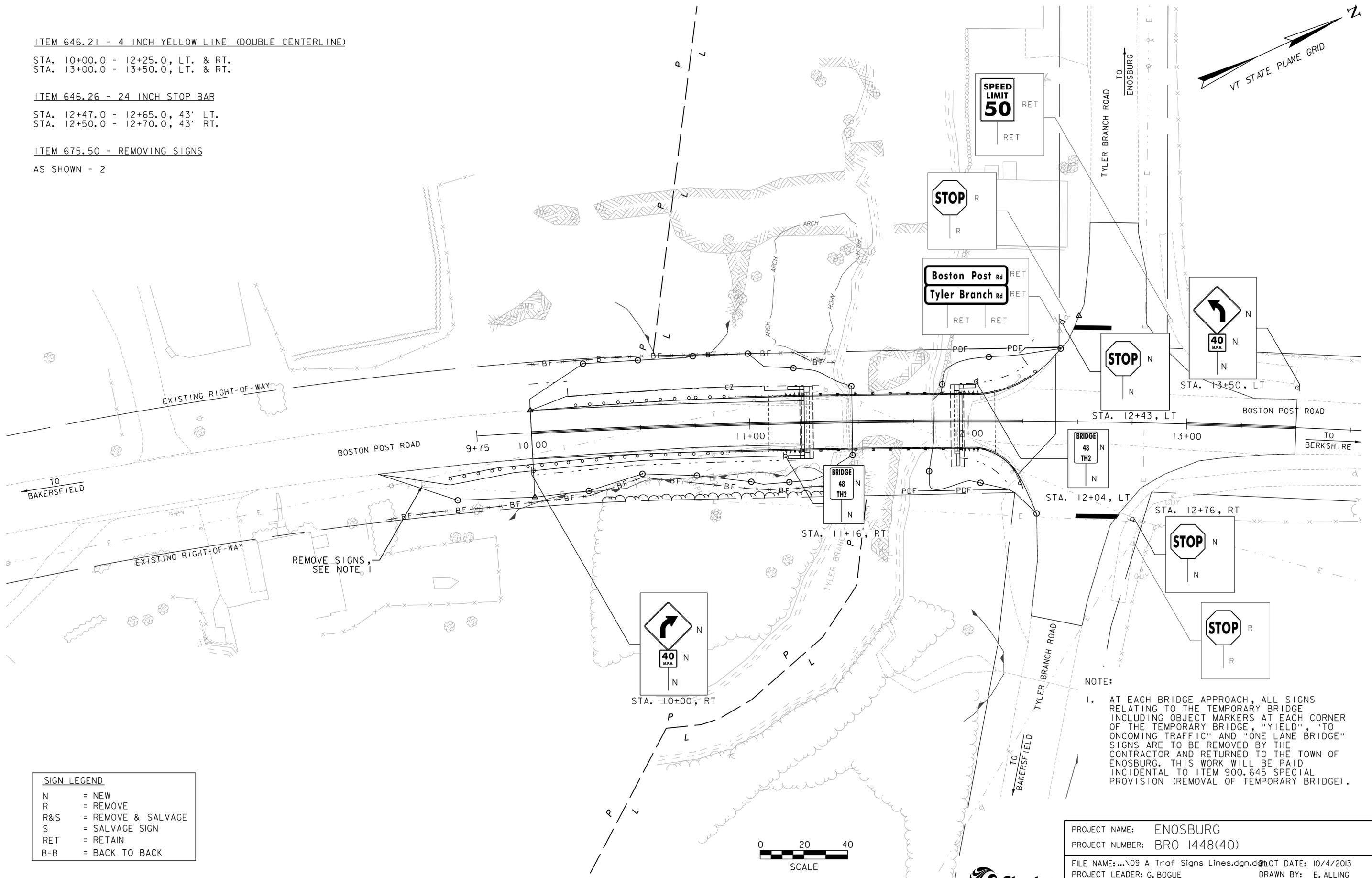
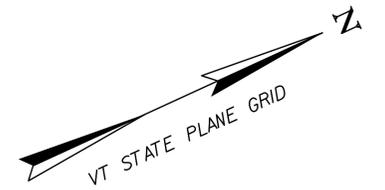
STA. 10+00.0 - 12+25.0, LT. & RT.
 STA. 13+00.0 - 13+50.0, LT. & RT.

ITEM 646.26 - 24 INCH STOP BAR

STA. 12+47.0 - 12+65.0, 43' LT.
 STA. 12+50.0 - 12+70.0, 43' RT.

ITEM 675.50 - REMOVING SIGNS

AS SHOWN - 2

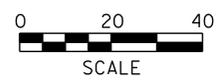


REMOVE SIGNS,
SEE NOTE 1

NOTE:

- AT EACH BRIDGE APPROACH, ALL SIGNS RELATING TO THE TEMPORARY BRIDGE INCLUDING OBJECT MARKERS AT EACH CORNER OF THE TEMPORARY BRIDGE, "YIELD", "TO ONCOMING TRAFFIC" AND "ONE LANE BRIDGE" SIGNS ARE TO BE REMOVED BY THE CONTRACTOR AND RETURNED TO THE TOWN OF ENOSBURG. THIS WORK WILL BE PAID INCIDENTAL TO ITEM 900.645 SPECIAL PROVISION (REMOVAL OF TEMPORARY BRIDGE).

| SIGN LEGEND | |
|-------------|--------------------|
| N | = NEW |
| R | = REMOVE |
| R&S | = REMOVE & SALVAGE |
| S | = SALVAGE SIGN |
| RET | = RETAIN |
| B-B | = BACK TO BACK |



PROJECT NAME: ENOSBURG
 PROJECT NUMBER: BRO 1448(40)
 FILE NAME: ...09 A Traf Signs Lines.dgn.d\10T DATE: 10/4/2013
 PROJECT LEADER: G. BOGUE DRAWN BY: E. ALLING
 DESIGNED BY: G. GOYETTE CHECKED BY: G. GOYETTE
TRAFFIC SIGNS AND LINES LAYOUT - TSL 1 SHEET 14 OF 46



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

SHEAR STRENGTH

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

CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

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

COMMONLY USED SYMBOLS

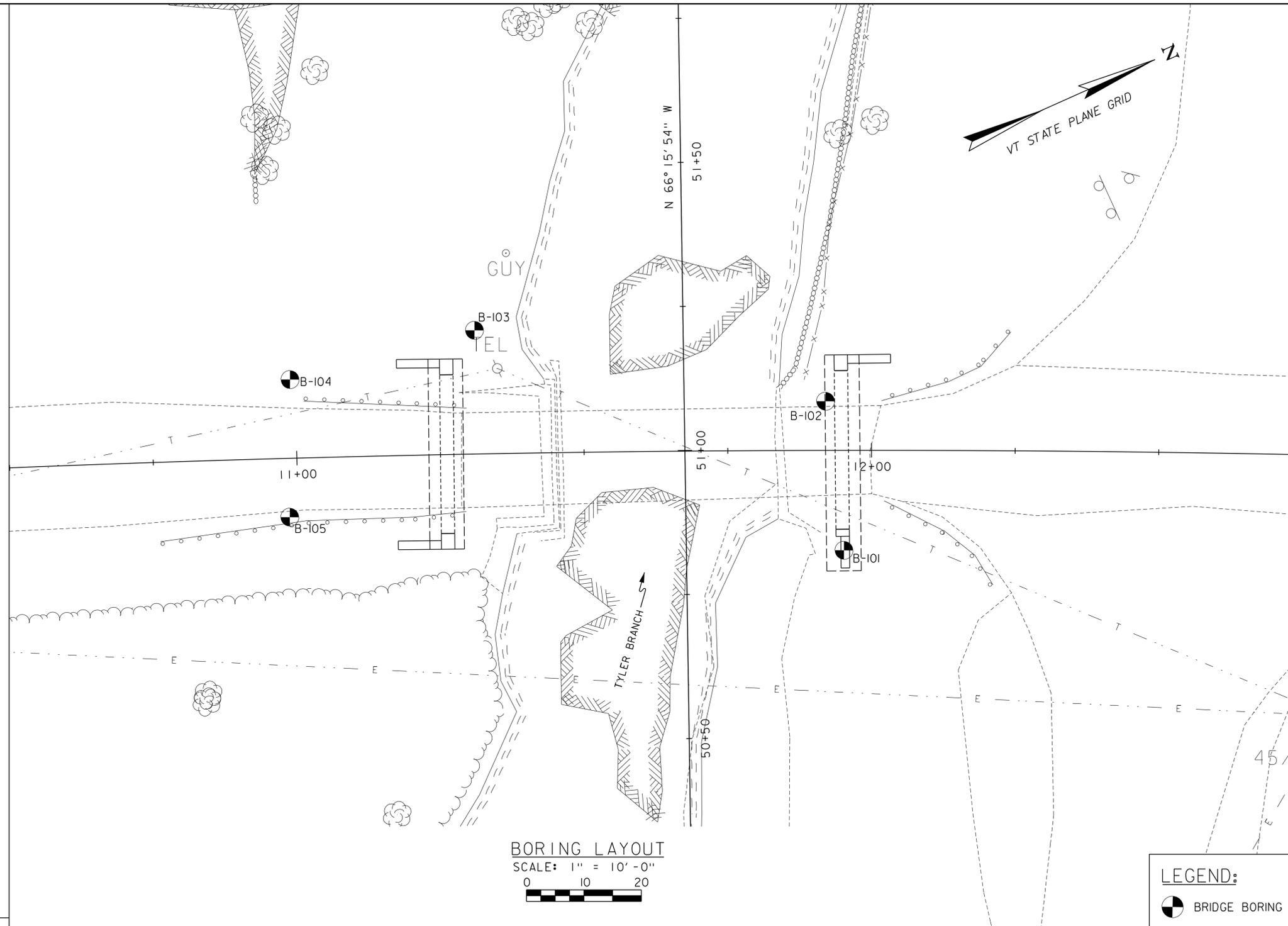
- ▼ Water Elevation
 - ⊕ Standard Penetration Boring
 - ⊕ Auger Boring
 - ⊙ Rod Sounding
 - S Sample
 - N Standard Penetration Test
 - Blow Count Per Foot For:
 - 2" O.D. Sampler
 - 1 3/8" I.D. Sampler
 - Hammer Weight Of 140 Lbs.
 - Hammer Fall Of 30"
 - VS Field Vane Shear Test
 - US Undisturbed Soil Sample
 - B Blast
 - DC Diamond Core
 - MD Mud Drill
 - WA Wash Ahead
 - HSA Hollow Stem Auger
 - AX Core Size 1 1/8"
 - BX Core Size 1 5/8"
 - NX Core Size 2 1/8"
 - M Double Tube Core Barrel Used
 - LL Liquid Limit
 - PL Plastic Limit
 - PI Plasticity Index
 - NP Non Plastic
 - w Moisture Content (Dry Wgt. Basis)
 - D Dry
 - M Moist
 - MTW Moist To Wet
 - W Wet
 - Sat Saturated
 - Bo Boulder
 - Gr Gravel
 - Sa Sand
 - Sl Silt
 - Cl Clay
 - HP Hardpan
 - Le Ledge
 - NLTD No Ledge To Depth
 - CNPF Can Not Penetrate Further
 - TLOB Top of Ledge Or Boulder
 - NR No Recovery
 - Rec. Recovery
 - %Rec. Percent Recovery
 - RQD Rock Quality Designation
 - CBR California Bearing Ratio
 - < Less Than
 - > Greater Than
 - R Refusal (N > 100)
 - VTSPG NAD83 - See Note 7
- | COLOR | | | |
|-------|--------|------|--------------|
| blk | Black | pnk | Pink |
| bl | Blue | pu | Purple |
| brn | Brown | rd | Red |
| dk | Dark | tn | Tan |
| gry | Gray | wh | White |
| gn | Green | yel | Yellow |
| lt | Light | mltc | Multicolored |
| or | Orange | | |

DEFINITIONS (AASHTO)

- BEDROCK (LEDGE)** - Rock in its native location of indefinite thickness.
- BOULDER** - A rock fragment with an average dimension > 12 inches.
- COBBLE** - Rock fragments with an average dimension between 3 and 12 inches.
- GRAVEL** - Rounded particles of rock < 3" and > 0.075" (#10 sieve).
- SAND** - Particles of rock < 0.075" (#10 sieve) and > 0.0025" (#200 sieve).
- SILT** - 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.

GENERAL NOTES

- The subsurface explorations shown herein were made between October and November 2012 by the Agency.
- Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
- Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.
- Engineering judgment was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgment by the Contractor.
- Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.
- Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.
- Northing and Easting coordinates are shown in Vermont State Plane Grid North American Datum 1983 in meters and survey feet.



LEGEND:
⊕ BRIDGE BORING

PROJECT NAME: ENOSBURG
PROJECT NUMBER: BRO 1448(40)

FILE NAME: ...Plot Files\xxx Bor_Plan.dgn PLOT DATE: 10/4/2013
PROJECT LEADER: G. BOGUE DRAWN BY: E. ALLING
DESIGNED BY: G. GOYETTE CHECKED BY: G. GOYETTE
BORING INFORMATION SHEET SHEET 16 OF 46



Boring Crew: GARROW, JUDKINS, WHITLOCK
 Date Started: 10/23/12 Date Finished: 10/23/12
 VTSPG NAD83: N 861193.20 ft E 1572945.10 ft
 Station: 11+95 Offset: 17.30
 Ground Elevation: 557.11 ft

Type: WB Casing 4 in I.D.: 4 in Sampler SS 1.5 in
 Hammer Wt: N.A. 140 lb. Hammer Fall: N.A. 30 in.
 Hammer/Rod Type: Auto/AWJ Rig: CME 55 TRACK $C_p = 1.46$

| Depth (ft) | Strata (1) | CLASSIFICATION OF MATERIALS (Description) | Run (Dip deg.) | Core Rec. % (ROD %) | Drill Rate minutes/ft | Groundwater Observations | | | | | | | | | | | | | | |
|------------|------------|-------------------------------------------------------------------------------------------------------------------------------|----------------|---------------------|-----------------------|--------------------------|------------|-------|--------------------|--------------------|----------|--------|---------|--|--|--|--|--|--|--|
| | | | | | | Date | Depth (ft) | Notes | Blows/6" (N Value) | Moisture Content % | Gravel % | Sand % | Fines % | | | | | | | |
| 5 | | A-2-4, GrSiSa, brn, Moist, Rec. = 0.8 ft | | | | 10/24/12 | 10.9 | | | | | | | | | | | | | |
| | | A-2-4, SiGrSa, brn, Moist, Rec. = 1.2 ft | | | | | | | | | | | | | | | | | | |
| 10 | | A-1-a, SaGr, gry-brn, Moist, Rec. = 1.6 ft, Lab Note: Rounded & Fractured Rocks were within sample. | | | | | | | | | | | | | | | | | | |
| | | Lab Note, Multiple types of large pieces of fractured rock (Cobbles), gry-yel, Moist | | | | | | | | | | | | | | | | | | |
| 15 | | 12.0 ft - 17.0 ft, Silvery-green, Quartz-muscovite-chlorite Schist, Moderately hard, Unweathered, NXMDC, RMR = 79; Good rock. | 1 (80) | 100 (90) | 5 | | | | | | | | | | | | | | | |
| | | Top of Bedrock @ 12.0 ft | | | | | | | | | | | | | | | | | | |
| | | Hole stopped @ 17.0 ft | | | | | | | | | | | | | | | | | | |
| | | Remarks: 1. Lost water at 7.0 ft. | | | | | | | | | | | | | | | | | | |
| | | 2' MIN. | | | | | | | | | | | | | | | | | | |

ABUT. 2
B.O.F =
EL. 549.00

APPROX. BOTTOM OF CASING

APPROX. BOTTOM OF PILE

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_p 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.

Boring Crew: GARROW, JUDKINS, WHITLOCK
 Date Started: 10/26/12 Date Finished: 10/26/12
 VTSPG NAD83: N 861201.10 ft E 1572920.30 ft
 Station: 11+92 Offset: -8.60
 Ground Elevation: 558.0 ft

Type: WB Casing 4 in I.D.: 4 in Sampler SS 1.5 in
 Hammer Wt: N.A. 140 lb. Hammer Fall: N.A. 30 in.
 Hammer/Rod Type: Auto/AWJ Rig: CME 55 TRACK $C_p = 1.46$

| Depth (ft) | Strata (1) | CLASSIFICATION OF MATERIALS (Description) | Run (Dip deg.) | Core Rec. % (ROD %) | Drill Rate minutes/ft | Groundwater Observations | | | | | | | | | | | | | | |
|------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------------|-----------------------|--------------------------|------------|-------|--------------------|--------------------|----------|--------|---------|--|--|--|--|--|--|--|
| | | | | | | Date | Depth (ft) | Notes | Blows/6" (N Value) | Moisture Content % | Gravel % | Sand % | Fines % | | | | | | | |
| 5 | | A-1-a, SaGr, brn-gry, Moist, Rec. = 1.1 ft, Lab Note: Broken Rock was within sample. | | | | | | | | | | | | | | | | | | |
| | | A-1-a, SaGr, gry, Dry, Rec. = 0.6 ft, Lab Note: Broken Rock was within sample. | | | | | | | | | | | | | | | | | | |
| 10 | | Field Note:, NXDC, Cobbles | | | | | | | | | | | | | | | | | | |
| | | Visual Description:, Broken Rock with silty sand, gry, Moist, Rec. = 0.2 ft, Material similar to 3-4.9 ft., Insufficient sample for testing. Field Note:, NXDC, Boulder | | | | | | | | | | | | | | | | | | |
| 15 | | A-1-b, SaGr, Dk/gry, Moist, Rec. = 0.8 ft, Lab Note: Broken Rock was within sample. | | | | | | | | | | | | | | | | | | |
| | | Field Note:, NXDC, Cobbles | | | | | | | | | | | | | | | | | | |
| 20 | | A-2-4, SaSiGr, gry, Moist, Rec. = 0.2 ft, Lab Note: Some Broken Rock was within sample. | | | | | | | | | | | | | | | | | | |
| | | Field Note:, NXDC | | | | | | | | | | | | | | | | | | |
| 25 | | 22.5 ft - 27.5 ft, Silvery-green, Quartz-muscovite-chlorite Schist, Moderately hard, NXMDC, Unweathered from 22.5-25.3 ft., Moderately Weathered from 25.3-25.9 ft., RMR = 72; Good rock. | 1 (80-90) | 82 (72) | 7 | | | | | | | | | | | | | | | |
| | | Top of Bedrock @ 22.5 ft | | | | | | | | | | | | | | | | | | |
| | | Hole stopped @ 27.5 ft | | | | | | | | | | | | | | | | | | |
| | | 10' MIN. | | | | | | | | | | | | | | | | | | |
| | | 2' MIN. | | | | | | | | | | | | | | | | | | |

ABUT. 2
B.O.F =
EL. 549.00

APPROX. BOTTOM OF CASING

APPROX. BOTTOM OF PILE

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_p 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.





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

BORING LOG

Boring No.: **B-103**
Page No.: 1 of 1
Pin No.: 12J168
Checked By: CAA

**ENOSBURG
BRO 1448(40)
TH-2 BR-48**

| | | | | | | | |
|---------------------------------------------|-------------------------|---------------------------|-----------------------|--------------------------|------------|-------|--|
| Boring Crew: GARROW, JUDKINS, WHITLOCK | | Casing | Sampler | Groundwater Observations | | | |
| Date Started: 10/23/12 | Date Finished: 10/23/12 | WB | SS | Date | Depth (ft) | Notes | |
| VTSPG NAD83: N 861150.60 ft E 1572883.70 ft | | I.D.: 4 in | 1.5 in | | | | |
| Station: 11+31 | Offset: -21.70 | Hammer Wt: N.A. | 140 lb. | | | | |
| Ground Elevation: 549.88 ft | | Hammer Fall: N.A. | 30 in. | | | | |
| | | Hammer/Rod Type: Auto/AWJ | | | | | |
| | | Rig: CME 55 TRACK | C _e = 1.46 | | | | |

| Depth (ft) | Strata (1) | CLASSIFICATION OF MATERIALS (Description) | Run (Dip deg.) | Core Rec. % (RQD %) | Drill Rate minutes/ft | Blows/ft (N Value) | Moisture Content % | Gravel % | Sand % | Fines % |
|------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------------|-----------------------|--------------------------|--------------------|----------|--------|---------|
| | | A-1-b, Sa, brn, Moist, Rec. = 0.8 ft | | | | WH-1-1-1 (2) | 17.3 | 18.2 | 64.0 | 17.8 |
| 5 | | A-1-b, SaGr, brn, Moist, Rec. = 0.6 ft | | | | 5-1-3-5 (4) | 15.1 | 53.7 | 32.4 | 13.9 |
| 10 | | Field Note: No Recovery | | | | (R) | | | | |
| 15 | | A-1-b, Gr, gry, Moist, Rec. = 0.1 ft, Lab Note: Broken Rock was within sample. | | | | R@2.5" | 7.8 | 71.1 | 10.8 | 18.1 |
| | | Field Note: Soft Broken Rock 13.2-14 ft., Possible top of bedrock. 14.0 ft - 19.0 ft, Silvery-green, Quartz-muscovite-chlorite Schist, Moderately hard, Unweathered, NXMDC, RMR = 76; Good rock. | 1 (80) | 96 (80) | 5 | Top of Bedrock @ 14.0 ft | | | | |
| | | Hole stopped @ 19.0 ft | | | | | | | | |

ABUT. 1
B.O.F =
EL. 546.50

APPROX.
BOTTOM OF
CASING

APPROX.
BOTTOM OF
PILE

BORING LOG 2 ENOSBURG BRO 1448(40) G.P.J. VERMONT AOT.GDT. 11/27/12

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_e is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.



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

BORING LOG

Boring No.: **B-104**
Page No.: 1 of 1
Pin No.: 12J168
Checked By: CAA

**ENOSBURG
BRO 1448(40)
TH-2 BR-48**

| | | | | | | | |
|---------------------------------------------|-------------------------|---------------------------|-----------------------|--------------------------|------------|-------|--|
| Boring Crew: GARROW, JUDKINS, WHITLOCK | | Casing | Sampler | Groundwater Observations | | | |
| Date Started: 10/24/12 | Date Finished: 10/24/12 | WB | SS | Date | Depth (ft) | Notes | |
| VTSPG NAD83: N 861117.90 ft E 1572878.10 ft | | I.D.: 4 in | 1.5 in | | | | |
| Station: 10+99 | Offset: -13.70 | Hammer Wt: N.A. | 140 lb. | | | | |
| Ground Elevation: 557.4 ft | | Hammer Fall: N.A. | 30 in. | | | | |
| | | Hammer/Rod Type: Auto/AWJ | | | | | |
| | | Rig: CME 55 TRACK | C _e = 1.46 | | | | |

| Depth (ft) | Strata (1) | CLASSIFICATION OF MATERIALS (Description) | Run (Dip deg.) | Core Rec. % (RQD %) | Drill Rate minutes/ft | Blows/ft (N Value) | Moisture Content % | Gravel % | Sand % | Fines % |
|------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------------|-----------------------|--------------------------|--------------------|----------|--------|---------|
| | | A-1-b, GrSa, Dk/brn, Moist, Rec. = 0.9 ft | | | | 1-2-3-4 (5) | 12.3 | 37.8 | 45.8 | 16.4 |
| 5 | | A-1-a, Gr, gry, Moist, Rec. = 0.8 ft, Lab Note: Sample was mostly Broken Rock. | | | | 8-9-R@0.0" (R) | 7.8 | 70.3 | 19.5 | 10.2 |
| 10 | | A-1-a, SaGr, gry, Moist, Rec. = 0.3 ft, Lab Note: Sample was mostly Broken Rock. | | | | 11-6-4-2 (10) | 7.7 | 72.2 | 20.2 | 7.6 |
| 15 | | A-2-4, SiSa, gry, Moist, Rec. = 0.2 ft, Lab Note: Broken Rock was within sample. | | | | R@2.5" | 18.3 | 15.5 | 53.1 | 31.4 |
| | | Field Note: 16.5 ft - 21.5 ft, Silvery-green, Quartz-muscovite-chlorite Schist, with quartz rich zones. Moderately hard, Unweathered, NXMDC, RMR = 62; Good rock. | 1 (80-90) | 90 (0) | 1 | Top of Bedrock @ 16.5 ft | | | | |
| | | 21.5 ft - 26.5 ft, Silvery-green, Quartz-muscovite-chlorite Schist, with quartz rich zones. Moderately hard, Unweathered, NXMDC, RMR = 72; Good rock. | 2 (80-90) | 90 (50) | 2 | | | | | |
| | | Hole stopped @ 26.5 ft | | | | | | | | |

BORING LOG 2 ENOSBURG BRO 1448(40) G.P.J. VERMONT AOT.GDT. 11/27/12

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_e is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.



PROJECT NAME: ENOSBURG
PROJECT NUMBER: BRO 1448(40)
FILE NAME: ... \Plo+ Files\..._A Bor_Log2.dgn PLOT DATE: 10/4/2013
PROJECT LEADER: G. BOGUE DRAWN BY: E. ALLING
DESIGNED BY: G. GOYETTE CHECKED BY: G. GOYETTE
BORING LOG 2 SHEET 18 OF 46



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

BORING LOG

**ENOSBURG
BRO 1448(40)
TH-2 BR-48**

Boring No.: **B-105**

Page No.: 1 of 1

Pin No.: 12J168

Checked By: CAA

Boring Crew: GARROW, JUDKINS, WHITLOCK
Date Started: 11/02/12 Date Finished: 11/02/12
VTSPG NAD83: N 861107.90 ft E 1572899.80 ft
Station: 10+98.5 Offset: 10.20
Ground Elevation: 558.19 ft

Casing: WB
Sampler: SS
I.D.: 4 in 1.5 in
Hammer Wt: N.A. 140 lb.
Hammer Fall: N.A. 30 in.
Hammer/Rod Type: Auto/AWJ
Rig: CME 55 TRACK $C_c = 1.46$

| Groundwater Observations | | |
|--------------------------|------------|-------|
| Date | Depth (ft) | Notes |
| | | |
| | | |
| | | |

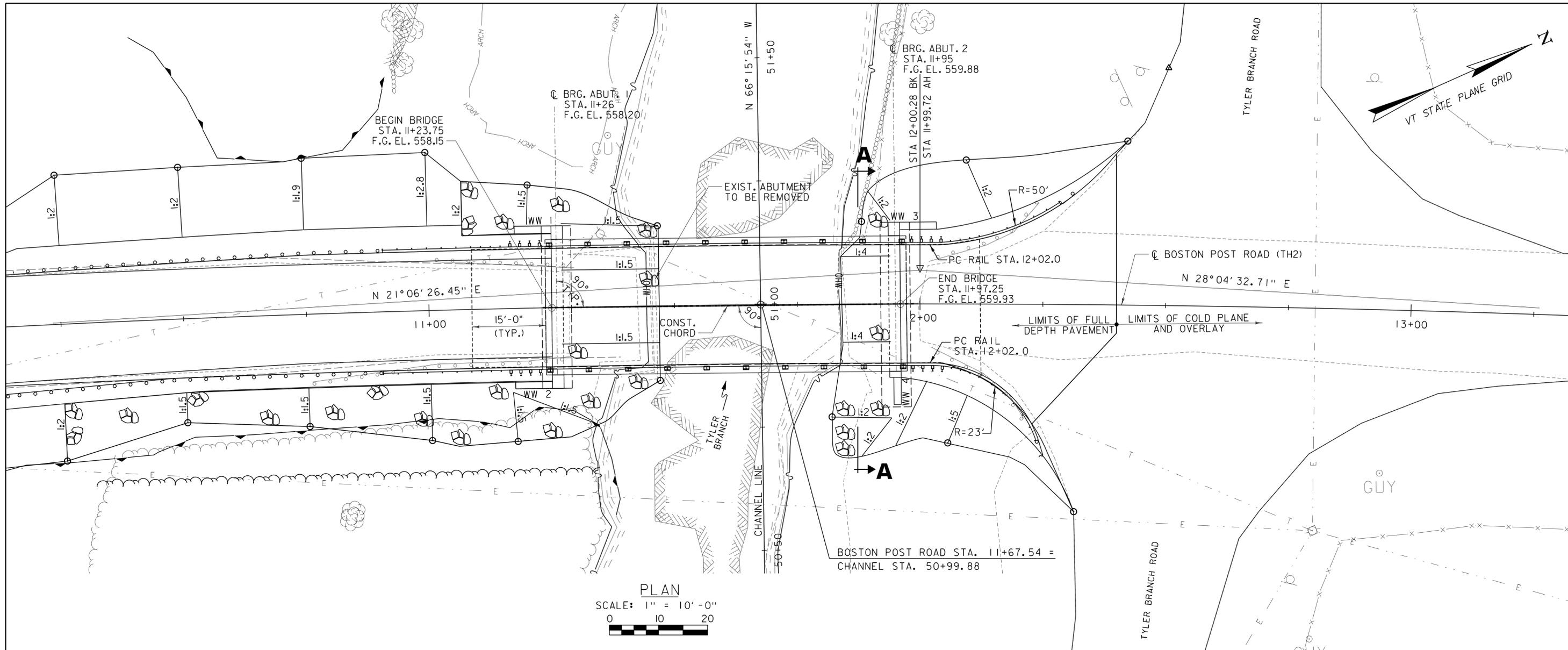
| Depth (ft) | Strata (1) | CLASSIFICATION OF MATERIALS (Description) | Run (Dip deg.) | Core Rec. % (RQD %) | Drill Rate minutes/ft | Blows/ft (N Value) | Moisture Content % | Gravel % | Sand % | Fines % |
|------------|------------|-------------------------------------------------------------------------------------------------------------------------------|----------------|---------------------|-----------------------|--------------------|--------------------|----------|--------|---------|
| | | Field Note: Asphalt Pavement | | | | | | | | |
| | | A-1-a, SaGr, brn, Moist, Rec. = 0.3 ft, Asphalt Pavement was within sample. | | | | 4-R (R) | 7.2 | 56.5 | 29.7 | 13.8 |
| | | A-4, GrSaSi, brn, Moist, Rec. = 1.1 ft | | | | 6-5-4-5 (9) | 15.9 | 27.1 | 31.1 | 41.8 |
| 5 | | Field Note: NXDC, Gravel | | | | | | | | |
| | | Visual Description: GrSaSi, brn, Moist, Rec. = 0.1 ft, Material similar to 2-4 ft., Insufficient sample for testing. | | | | 3-2-1-1 (3) | 13.8 | | | |
| 10 | | Field Note: NXDC, Gravel | | | | | | | | |
| | | A-1-b, SaGr, brn, Moist, Rec. = 0.8 ft | | | | 14-13-24-19 (37) | 11.1 | 53.1 | 32.1 | 14.8 |
| 15 | | Lab Note, NXDC, Gravel | | | | | | | | |
| | | A-1-b, SaGr, brn, Moist, Rec. = 0.5 ft, Lab Note: Broken Rock was within sample. | | | | 10-12-7-4 (19) | 9.5 | 49.8 | 33.2 | 17.0 |
| 20 | | 20.3 ft - 25.3 ft, Silvery-green, Quartz-muscovite-chlorite Schist, Moderately hard, Unweathered, NXMDC, RMR = 76; Good rock. | 1 (80-90) | 92 (76) | 3 | | | | | |
| | | | | | 3 | | | | | |
| | | | | | 2 | | | | | |
| | | | | | 3 | | | | | |
| | | | | | 3 | | | | | |
| 25 | | Hole stopped @ 25.3 ft | | | | | | | | |

BORING LOG 2 ENOSBURG BRO 1448(40).GPJ VERMONT AOT.GDT 11/27/12

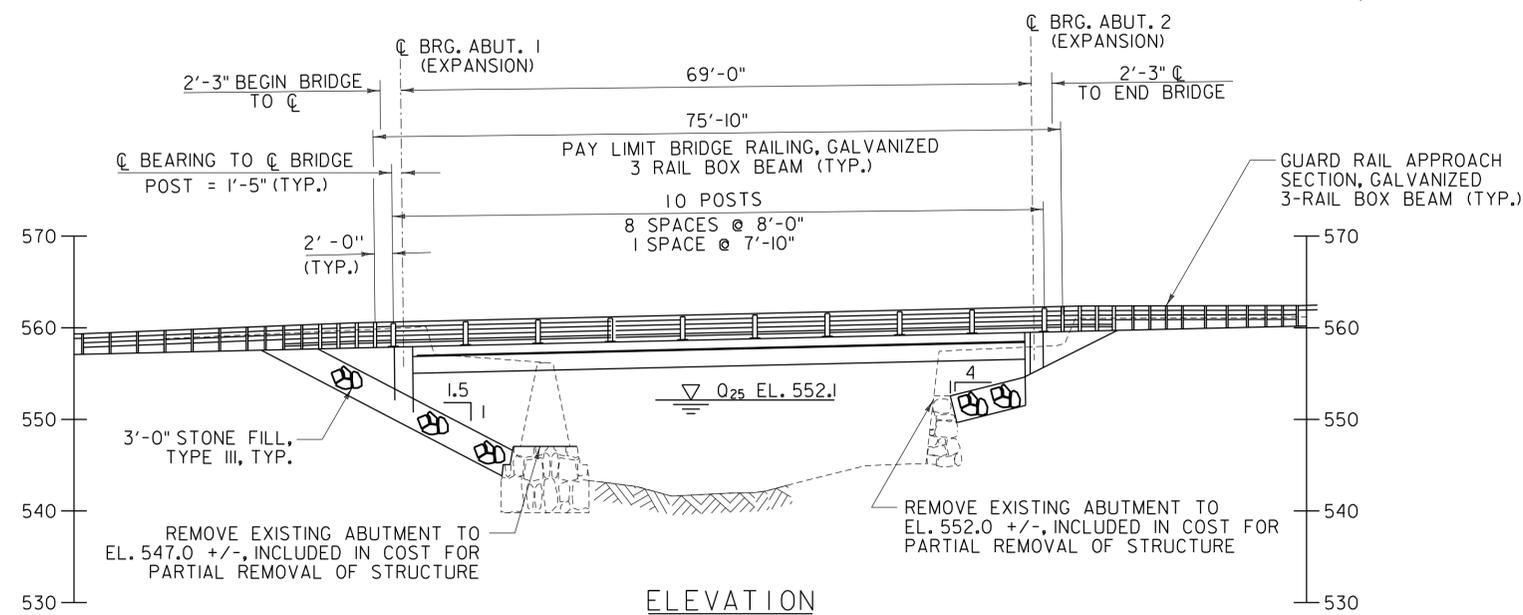
Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_c is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations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

PROJECT NAME: ENOSBURG
PROJECT NUMBER: BRO 1448(40)
FILE NAME: ... \Plot Files\...B Bor_Log3.dgn PLOT DATE: 10/4/2013
PROJECT LEADER: G. BOGUE DRAWN BY: E. ALLING
DESIGNED BY: G. GOYETTE CHECKED BY: G. GOYETTE
BORING LOG 3 SHEET 19 OF 46





PLAN
 SCALE: 1" = 10'-0"
 0 10 20

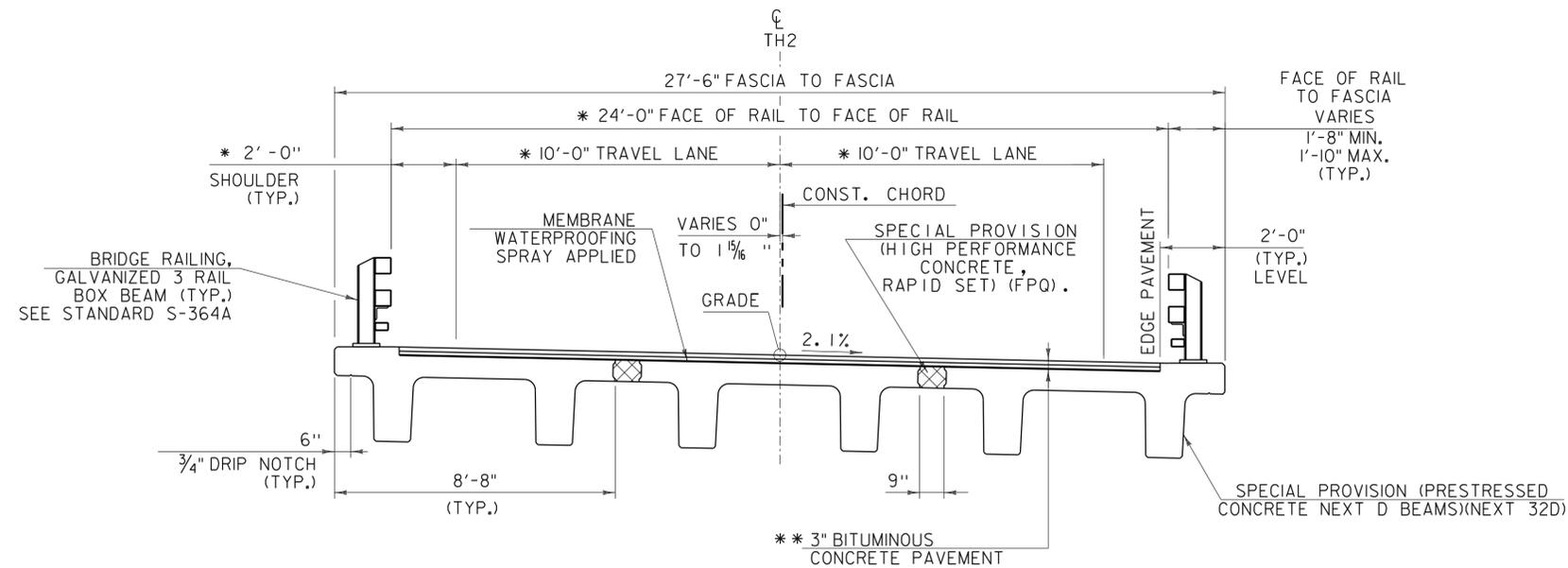


ELEVATION
 SCALE: 1" = 10'-0"
 0 10 20

NOTE:
 FOR APPROXIMATE LIMITS OF REMOVAL
 OF EXISTING WALL AT ABUTMENT 2, REFER
 TO VIEW A-A ON SHEET 29.

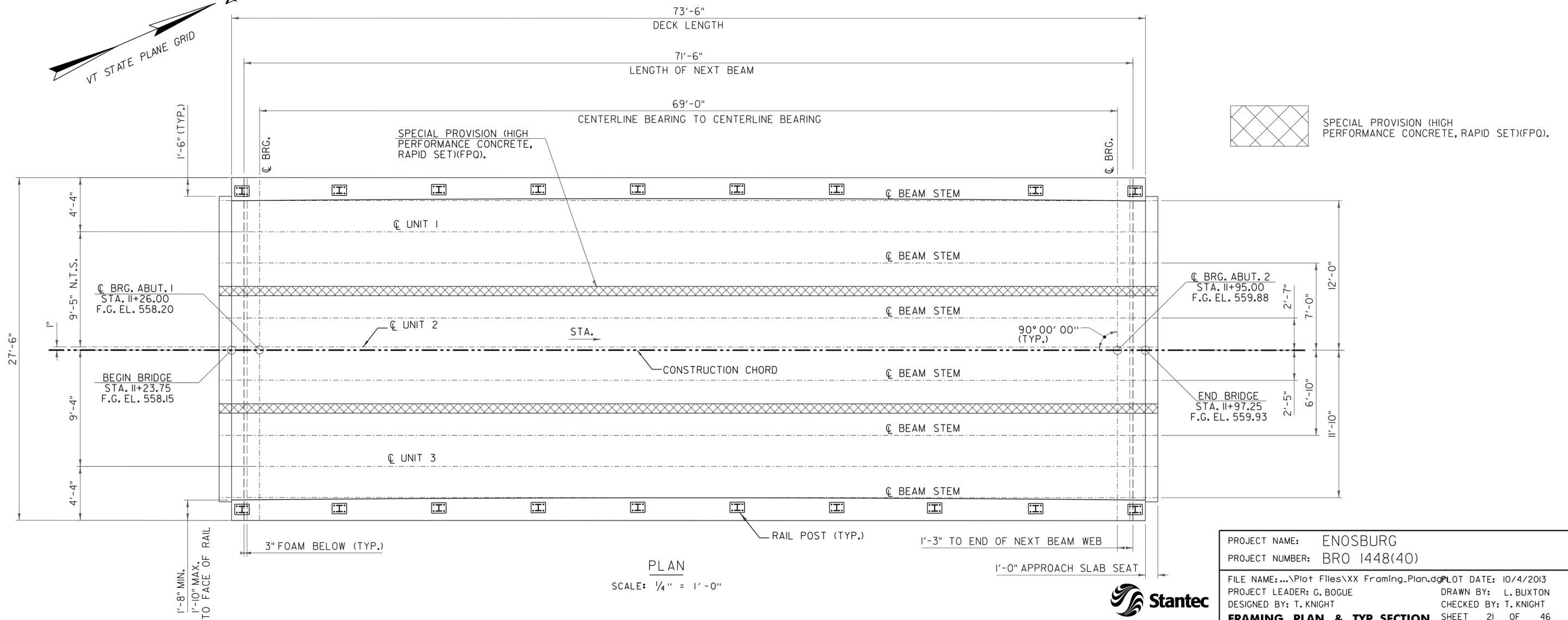
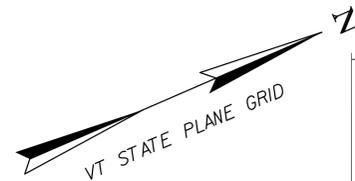
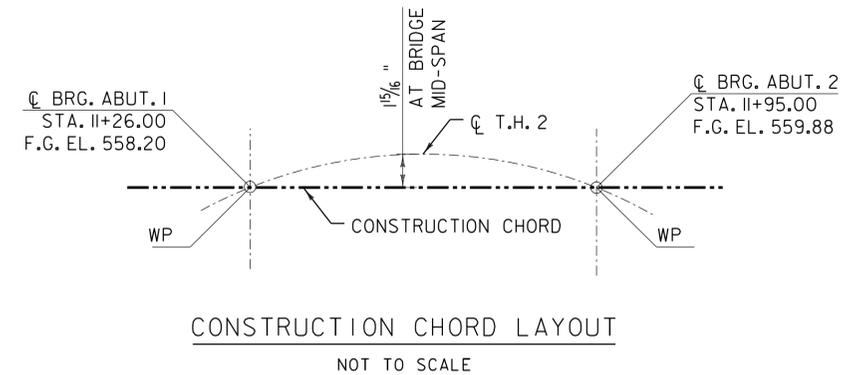
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|--------------------------------------------|------------------------|
| PROJECT NAME: | ENOSBURG |
| PROJECT NUMBER: | BRO 1448(40) |
| FILE NAME: ...Plot Files\... Plan_Elev.dgn | PLOT DATE: 10/4/2013 |
| PROJECT LEADER: G. BOGUE | DRAWN BY: E. ALLING |
| DESIGNED BY: G. GOYETTE | CHECKED BY: G. GOYETTE |
| PLAN AND ELEVATION SHEET | SHEET 20 OF 46 |





* RADIAL DIMENSIONS
 ** 3" TYPE IVS (TWO 1/2" LIFTS)

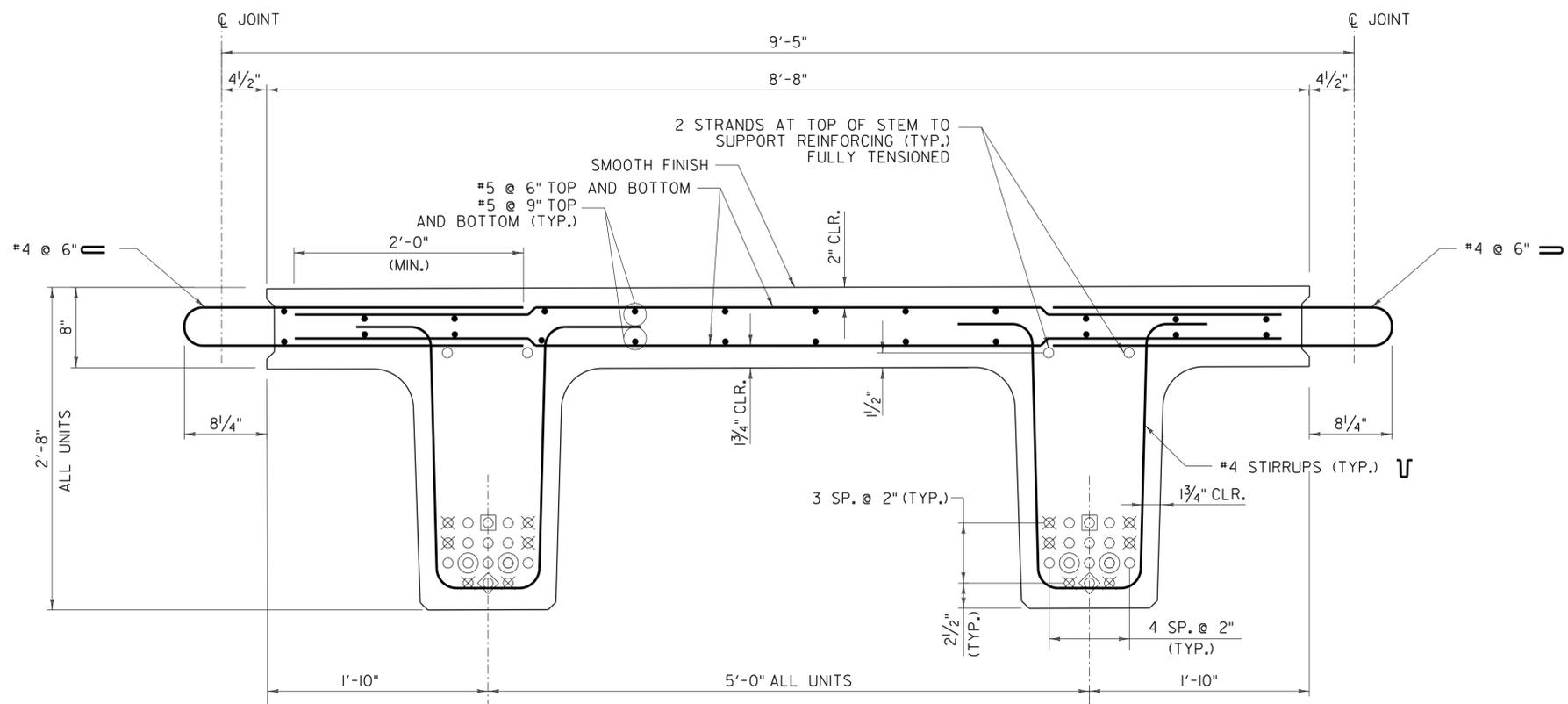
BRIDGE TYPICAL SECTION
 SCALE 3/8" = 1'-0"



FRAMING PLAN & TYP. SECTION
 SCALE: 1/4" = 1'-0"

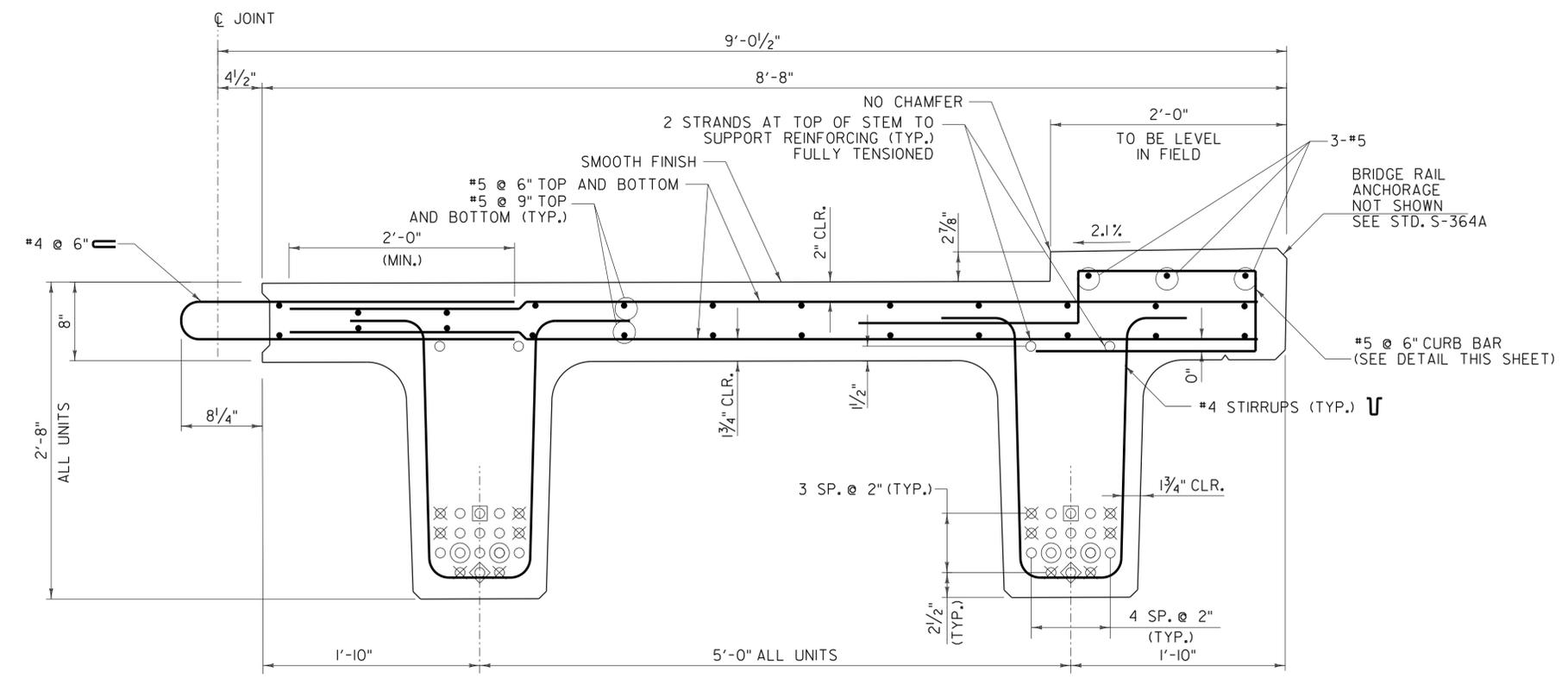
| | | | | | |
|----------------------------------------|--------------|-----------------|------------------------------------|-------------|-----------|
| PROJECT NAME: | ENOSBURG | FILE NAME: | ...Plot Files\XXX Framing_Plan.dgn | DATE: | 10/4/2013 |
| PROJECT NUMBER: | BRO 1448(40) | PROJECT LEADER: | G. BOGUE | DRAWN BY: | L. BUXTON |
| | | DESIGNED BY: | T. KNIGHT | CHECKED BY: | T. KNIGHT |
| FRAMING PLAN & TYP. SECTION | | | SHEET 21 OF 46 | | |





UNIT 2
 TYPICAL BEAM REINFORCING
 SCALE 1/2" = 1'-0"

- NOTES:
1. LEAVE SIX STRANDS 1'-6" LONG.
 2. REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR LEVEL II REINFORCING STEEL.

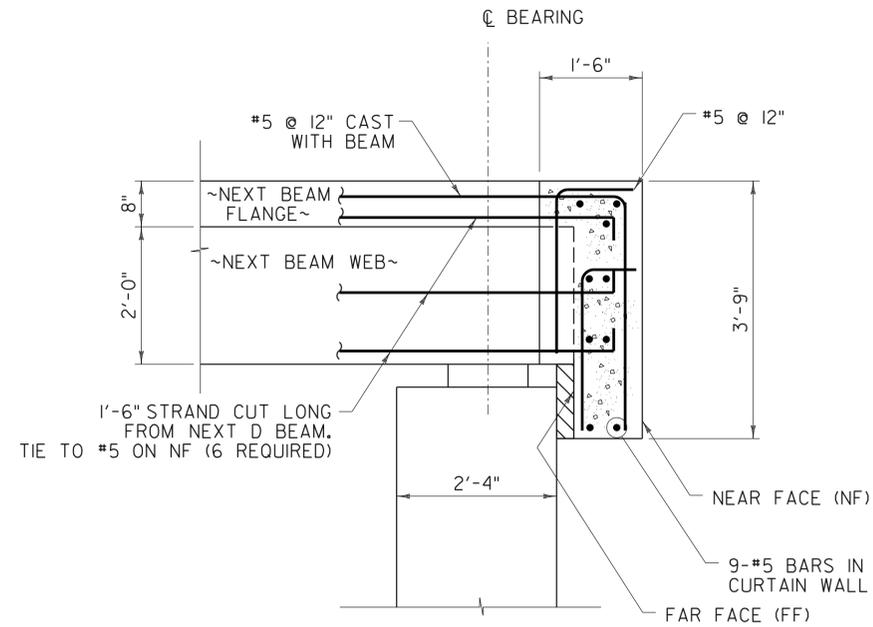


UNIT 3
 TYPICAL BEAM REINFORCING
 SCALE 1/2" = 1'-0"

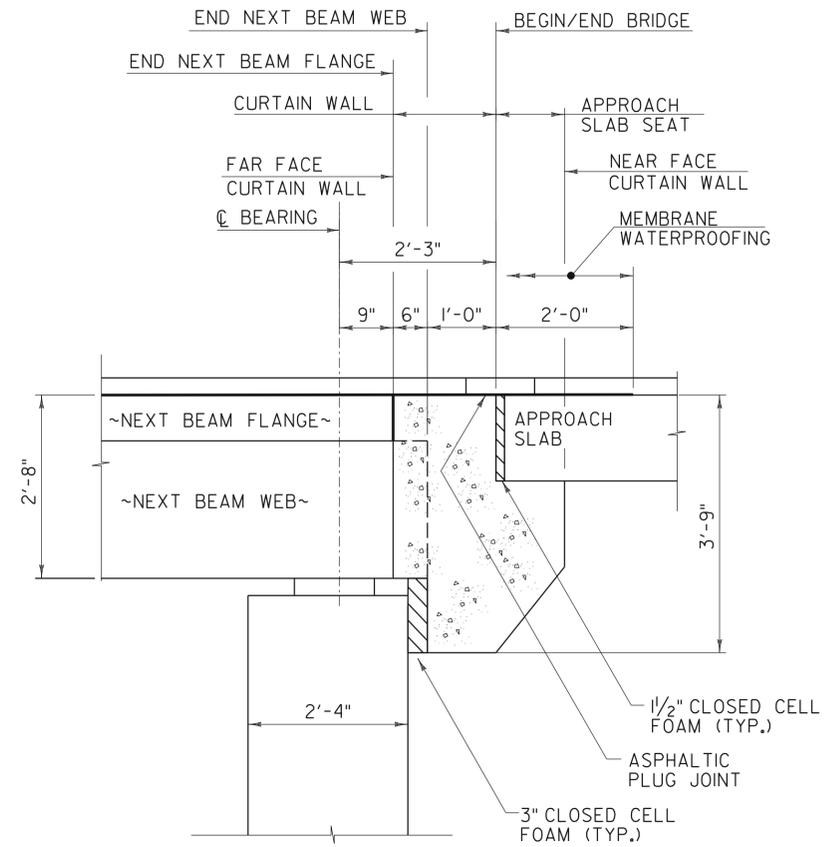
- NOTES:
1. LEAVE SIX STRANDS 1'-6" LONG.
 2. REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR LEVEL II REINFORCING STEEL.

| | | | |
|------------------------------|----------------------------|----------------|-----------|
| PROJECT NAME: | ENOSBURG | PLOT DATE: | 10/4/2013 |
| PROJECT NUMBER: | BRO 1448(40) | DRAWN BY: | L. BUXTON |
| FILE NAME: | ...XXX Next_Beam_Det_2.dgn | DESIGNED BY: | T. KNIGHT |
| PROJECT LEADER: | G. BOGUE | CHECKED BY: | T. KNIGHT |
| NEXT BEAM DETAILS - 2 | | SHEET 23 OF 46 | |

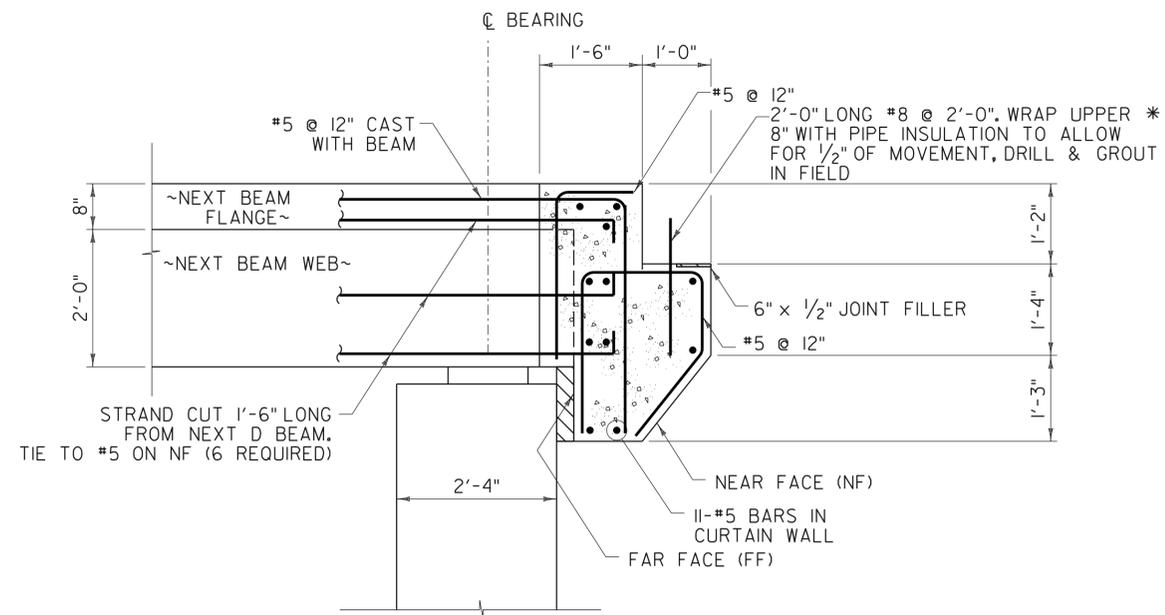




PRECAST CURTAIN WALL REINFORCING SECTION A-A
SCALE 3/4" = 1'-0"

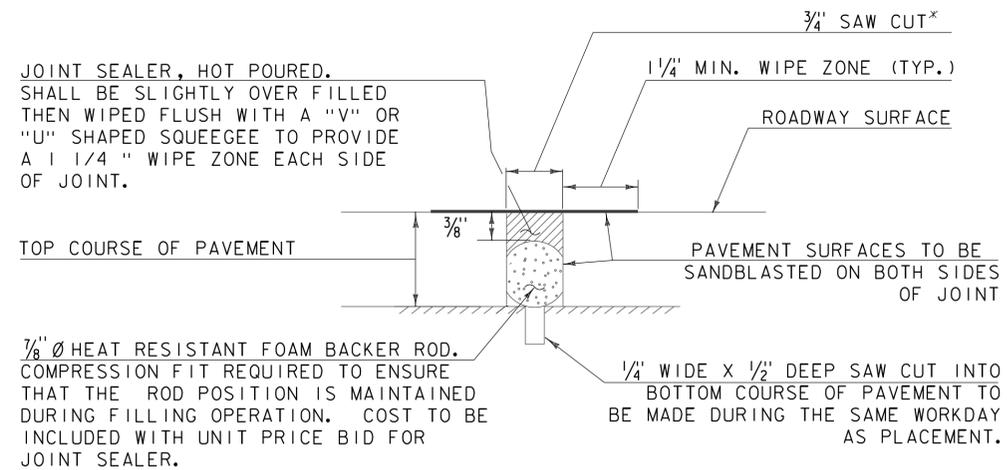


BRIDGE END DETAIL
SCALE 3/4" = 1'-0"



PRECAST CURTAIN WALL REINFORCING SECTION B-B
SCALE 3/4" = 1'-0"

* INCIDENTAL TO PRECAST ITEM



JOINT SEALER, HOT Poured.
SHALL BE SLIGHTLY OVER FILLED
THEN WIPED FLUSH WITH A "V" OR
"U" SHAPED SQUEEGEE TO PROVIDE
A 1 1/4" WIPE ZONE EACH SIDE
OF JOINT.

TOP COURSE OF PAVEMENT

PAVEMENT SURFACES TO BE
SANDBLASTED ON BOTH SIDES
OF JOINT

7/8" Ø HEAT RESISTANT FOAM BACKER ROD.
COMPRESSION FIT REQUIRED TO ENSURE
THAT THE ROD POSITION IS MAINTAINED
DURING FILLING OPERATION. COST TO BE
INCLUDED WITH UNIT PRICE BID FOR
JOINT SEALER.

NOTE: PLACE JOINT SEALER, HOT Poured AT THE BEGINNING OF APPROACH SLABS.

SAWED PAVEMENT JOINT DETAIL
N. T. S.

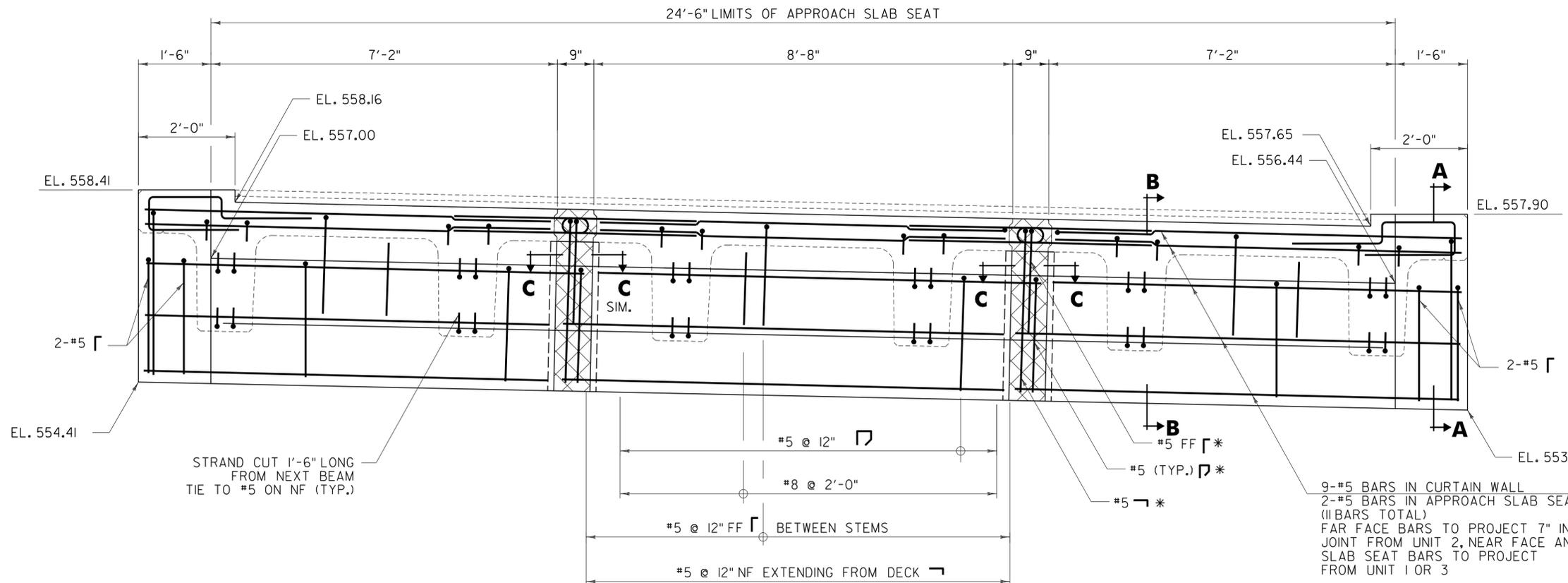
* JOINT IS TO BE LOCATED ACCURATELY BY STRING LINING, OR OTHER MEANS,
PRIOR TO PAVING, SO THAT THE SAW CUTS WILL BE MADE DIRECTLY OVER
THE END OF CONCRETE DECK. JOINT SHALL BE CUT DRY IN A SINGLE PASS
AND BE SEALED WITHIN 24 HOURS OR PRIOR TO EXPOSURE TO TRAFFIC.
JOINT SHALL BE CLEANED PRIOR TO APPLYING THE JOINT SEALER. FOR
LOCATION REQUIRED, REFER TO SHEET 26.

NOTE:
FOR LOCATIONS OF SECTIONS A-A AND B-B,
REFER TO SHEET 25.

PROJECT NAME: ENOSBURG
PROJECT NUMBER: BRO 1448(40)

FILE NAME: ...XXX Curtain.Wall.Det.Ldgn PLOT DATE: 10/4/2013
PROJECT LEADER: G. BOGUE DRAWN BY: L. BUXTON
DESIGNED BY: T. KNIGHT CHECKED BY: T. KNIGHT
CURTAIN WALL DETAILS - 1 SHEET 24 OF 46

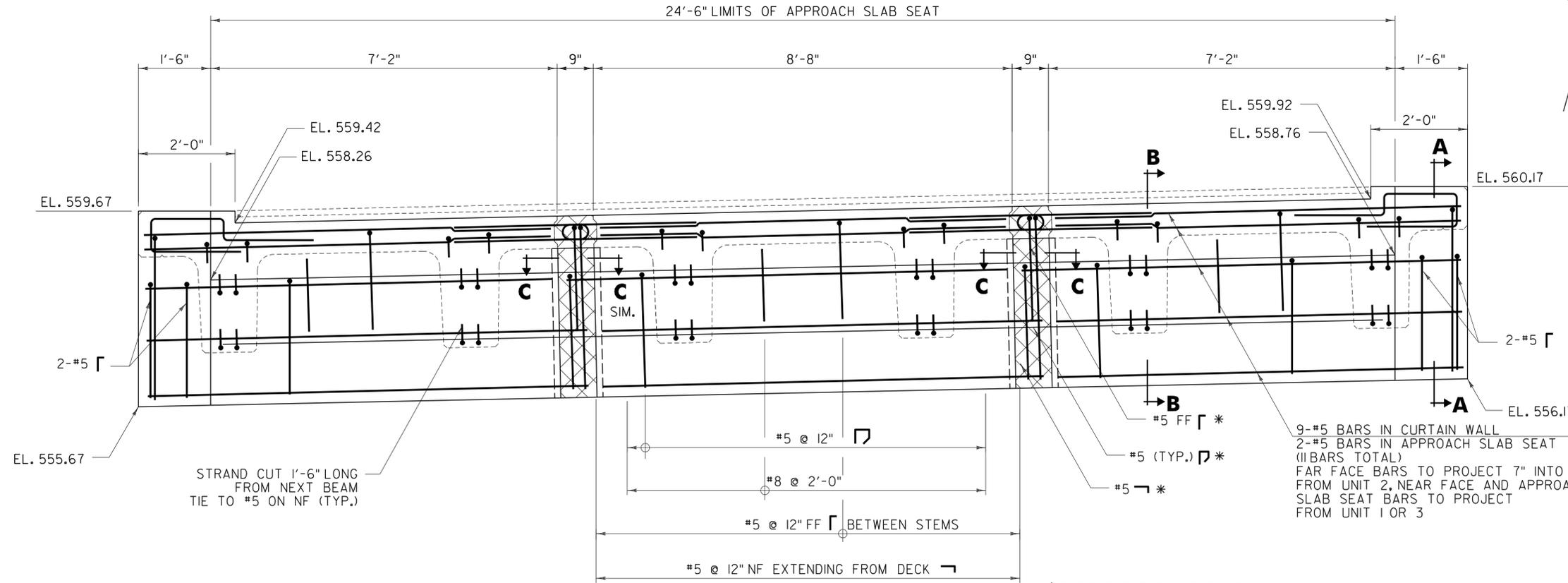




ABUTMENT 1 CURTAIN WALL ELEVATION

SCALE 3/4" = 1'-0"

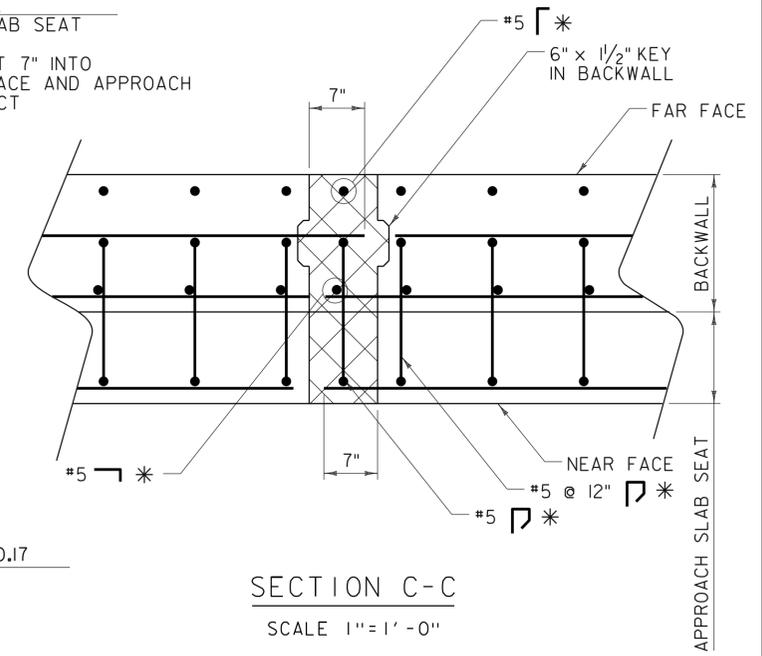
* BARS FOR CLOSURE POUR INDICENTAL TO PRECAST ITEM (TYP.)



ABUTMENT 2 CURTAIN WALL ELEVATION

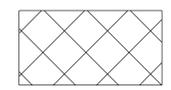
SCALE 3/4" = 1'-0"

* BARS FOR CLOSURE POUR INDICENTAL TO PRECAST ITEM (TYP.)



SECTION C-C

SCALE 1" = 1'-0"

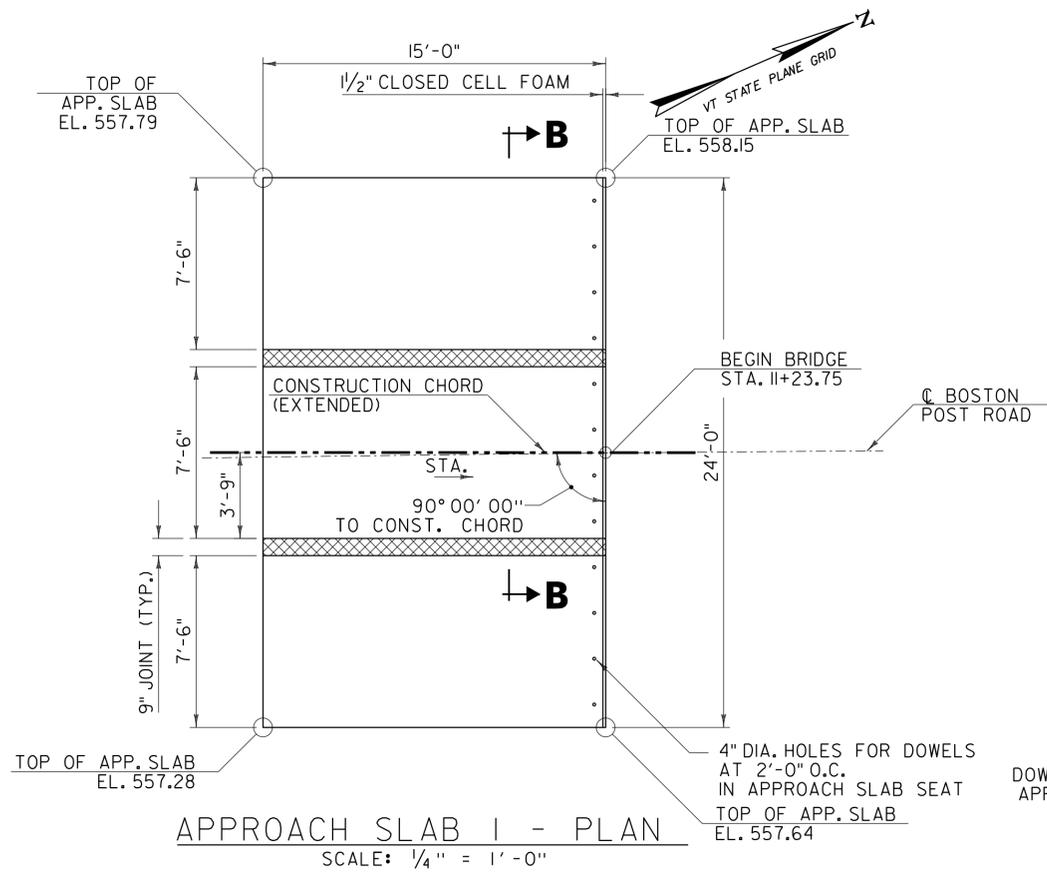


SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)(FPO).

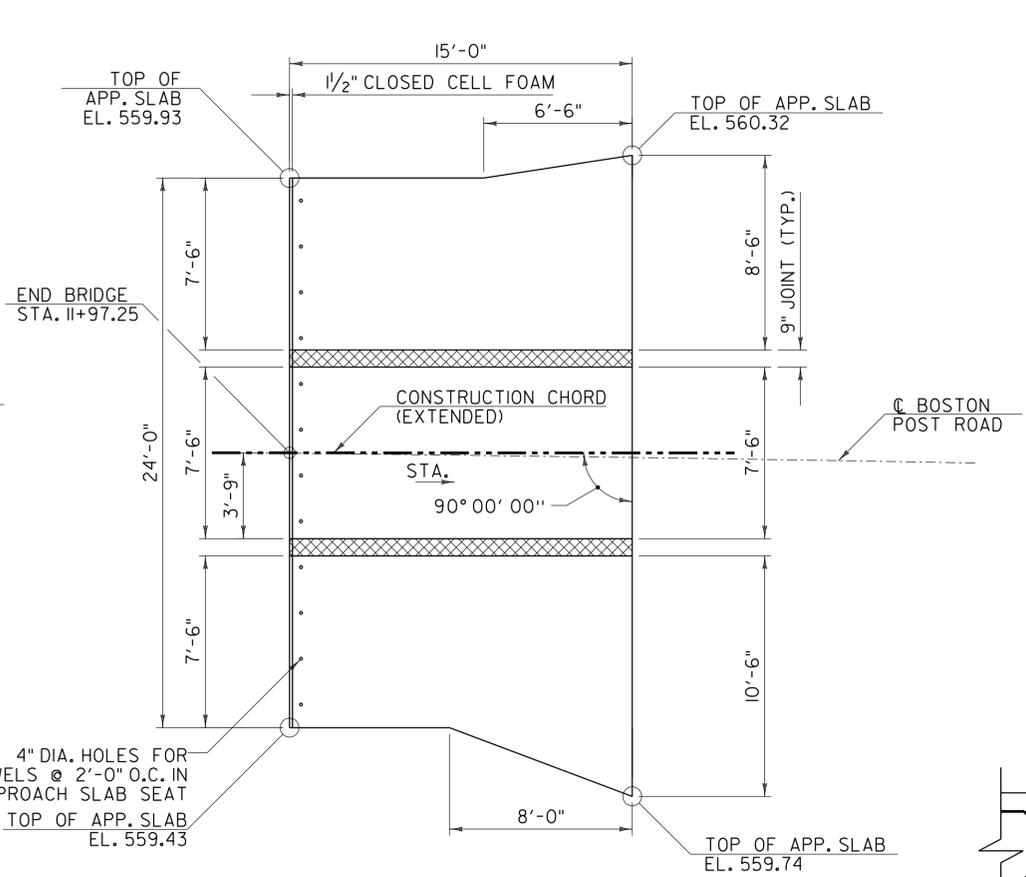
NOTE: FOR SECTIONS A-A AND B-B, REFER TO SHEET 24.

| | | | | | |
|---------------------------------|--------------|-----------------------------------------|----------------|-------------|-----------|
| PROJECT NAME: | ENOSBURG | FILE NAME: ...XX Curtain_Wall_Det_2.dgn | PLOT DATE: | 10/4/2013 | |
| PROJECT NUMBER: | BRO 1448(40) | PROJECT LEADER: | G. BOGUE | DRAWN BY: | L. BUXTON |
| | | DESIGNED BY: | T. KNIGHT | CHECKED BY: | T. KNIGHT |
| CURTAIN WALL DETAILS - 2 | | | SHEET 25 OF 46 | | |

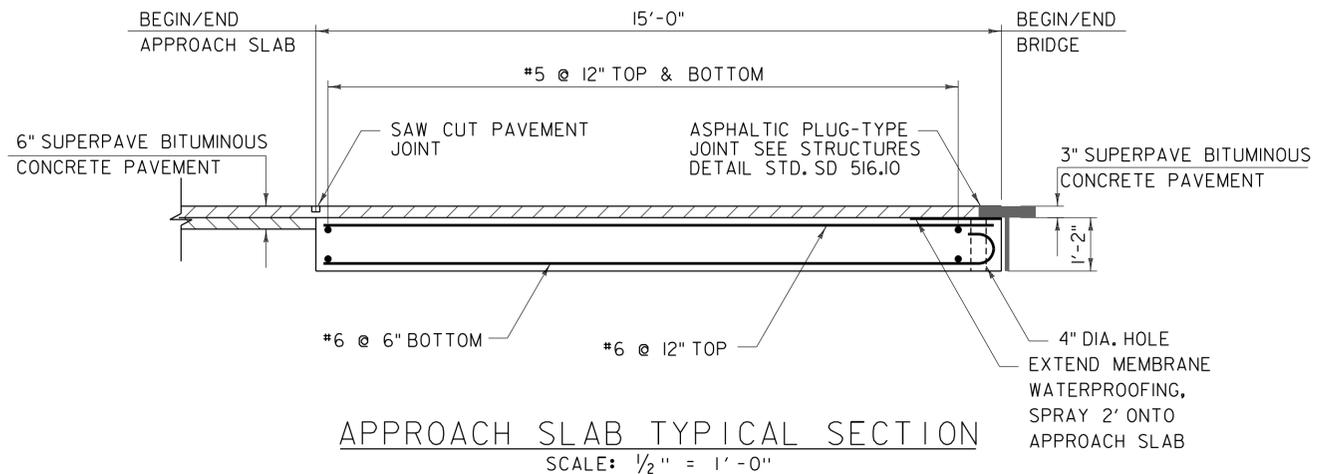
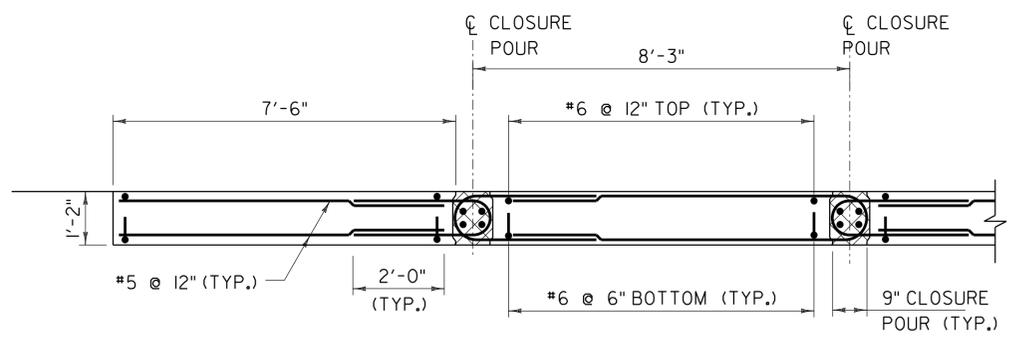
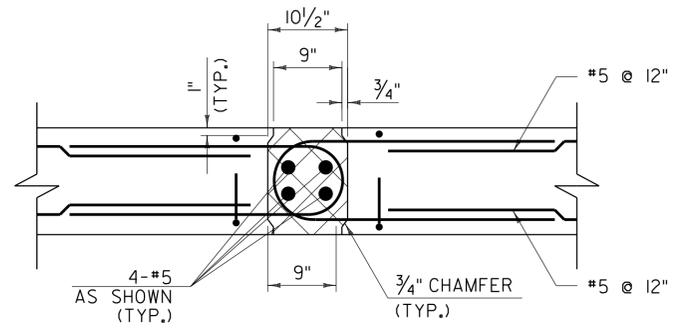
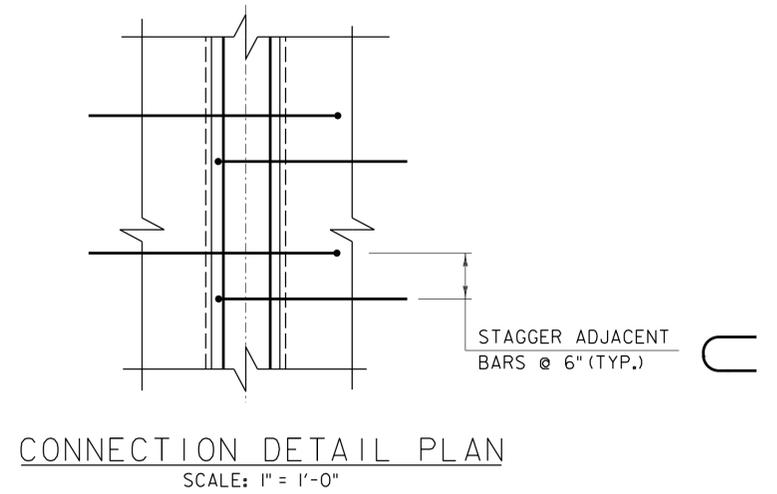




APPROACH SLAB 1 - PLAN
SCALE: 1/4" = 1'-0"



APPROACH SLAB 2 - PLAN
SCALE: 1/4" = 1'-0"

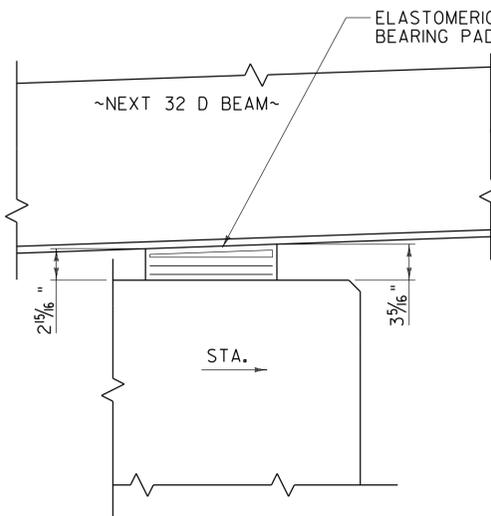
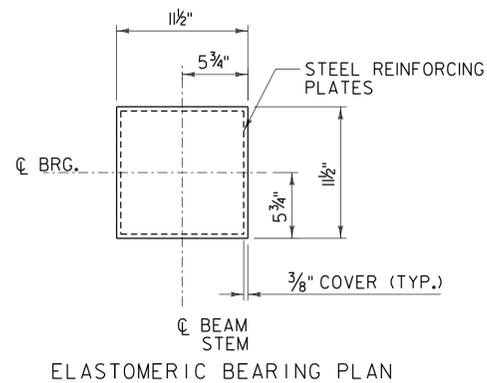


LEGEND:
[Cross-hatched box] SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)(FPO).

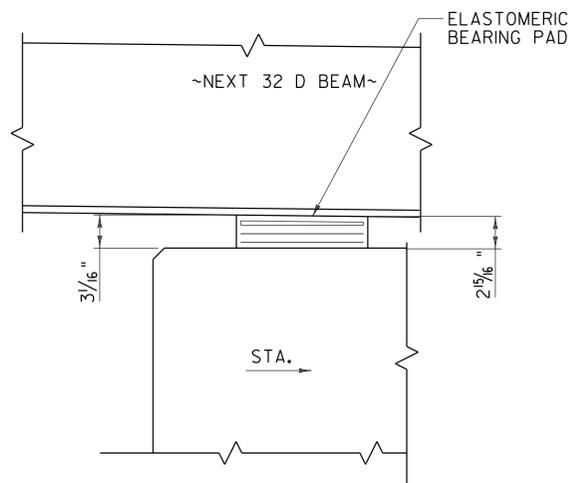
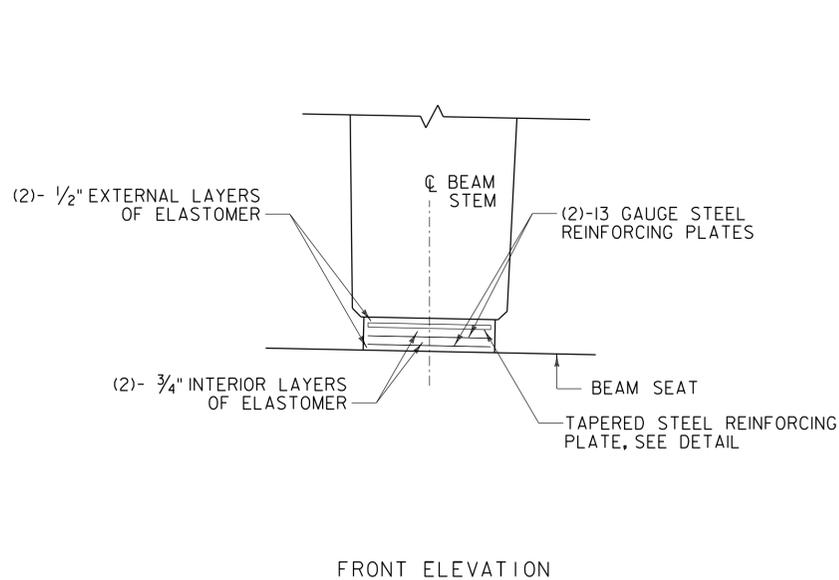
NOTE:
FOR SAWCUT PAVEMENT JOINT DETAIL REFER TO SHEET 24.

| | |
|----------------------------------------------|-----------------------|
| PROJECT NAME: | ENOSBURG |
| PROJECT NUMBER: | BRO 1448(40) |
| FILE NAME: ... \Plot Files\XXX App slabs.dgn | PLOT DATE: 10/17/2013 |
| PROJECT LEADER: G. BOGUE | DRAWN BY: L. BUXTON |
| DESIGNED BY: J. HUNGERFORD | CHECKED BY: T. KNIGHT |
| APPROACH SLABS & DETAILS | |
| SHEET 26 OF 46 | |





SIDE ELEVATION - ABUTMENT 1



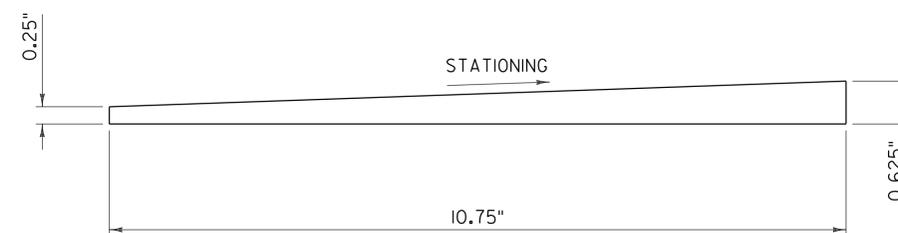
SIDE ELEVATION - ABUTMENT 2

ELASTOMERIC BEARING ASSEMBLY

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

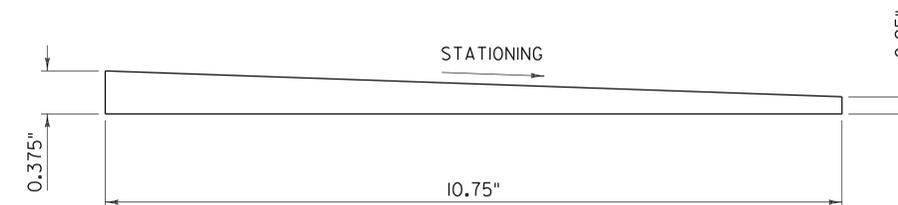
BEARING NOTES:

1. BEARINGS SHALL CONFORM TO THE APPLICABLE SUBSECTIONS OF STANDARD SPECIFICATIONS SECTIONS 531 AND 731.
2. 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 COATING, RUST AND MILL SCALE. THE PLATES SHALL BE FREE OF SHARP EDGES AND BURRS.
3. THE BEARINGS ARE DESIGNED SO THAT THE SUPERSTRUCTURE MAY BE ERECTED WHEN THE BEAM TEMPERATURE IS WITHIN THE RANGE OF 20 DEGREES F AND 70 DEGREES F WITHOUT ADJUSTING THE BEARINGS FOR TEMPERATURE. IF THE BEAM TEMPERATURE IS OUTSIDE THIS RANGE, THE BEARINGS SHALL BE RESET AS DIRECTED BY THE RESIDENT.
4. STEEL REINFORCED ELASTOMERIC BEARINGS WERE DESIGNED PER METHOD = A.
5. THE ELASTOMER WAS DESIGNED WITH A SHEAR MODULUS OF 152 PSI +/- 15%.
6. ABUTMENT 1 AND 2 BEARINGS
 - A. DESIGN DEAD LOAD REACTION = 35.80 KIPS/BEARING
 - B. DESIGN LIVE LOAD REACTION = 38.80 KIPS/BEARING (NO IMPACT)
 - C. ROTATION CAPACITY = 0.015 RADIANS
 - D. LONGITUDINAL DESIGN TRANSLATION = 0.5"
7. 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 SHALL BE VISIBLE AFTER THE BEARING IS INSTALLED.
8. THE ELASTOMER SHALL BE NEOPRENE MEETING THE REQUIREMENTS OF SUBSECTION 731.03.
9. BEARING DESIGN SHALL BE PER THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 5TH EDITION AND ITS LATEST REVISIONS.
10. ALTERNATE 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. THE CONTRACTOR IS ADVISED TO HAVE A MINIMUM OF 12- 1/4" x 12 1/2" x 12 1/2" GALVANIZED STEEL SHIMS AVAILABLE FOR USE FOR ELEVATION ADJUSTMENTS UPON THE SETTING OF THE SUPERSTRUCTURE UNITS. THE SHIMS SHALL BE FABRICATED ACCORDING TO SECTION 531 AND SHALL BE INCLUDED UNDER ITEM 531.17, "BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD".



ABUTMENT 1 STEEL REINFORCING PLATE DETAIL

NOT TO SCALE



ABUTMENT 2 STEEL REINFORCING PLATE DETAIL

NOT TO SCALE

PROJECT NAME: ENOSBURG
PROJECT NUMBER: BRO 1448(40)

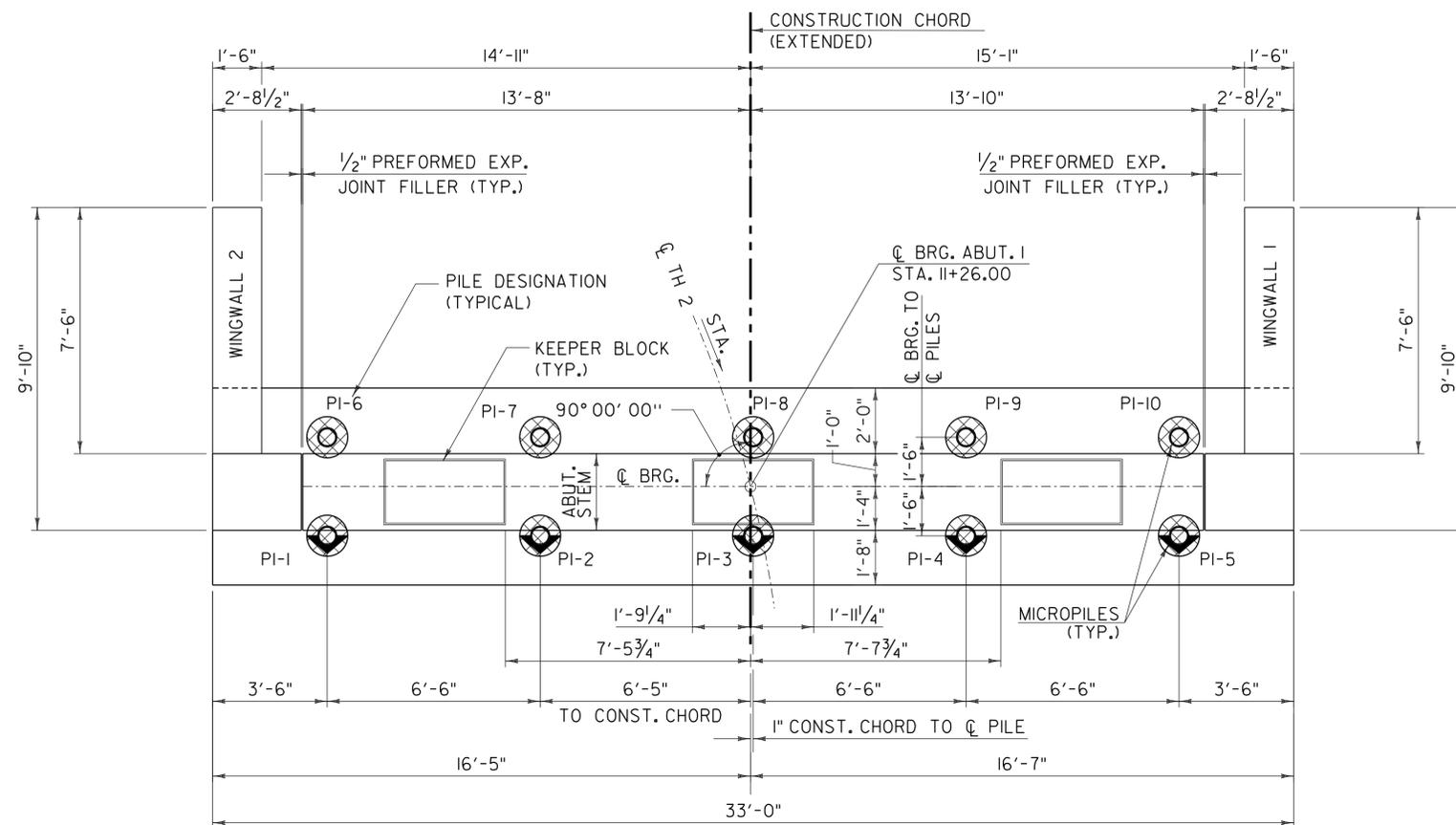
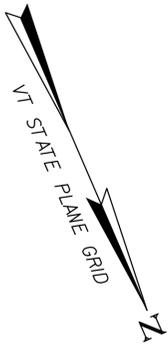
FILE NAME: ...XX Bearing_Dets.dgn
PROJECT LEADER: G. BOGUE
DESIGNED BY: T. KNIGHT

PLOT DATE: 10/4/2013
DRAWN BY: L. BUXTON
CHECKED BY: T. KNIGHT

BEARING DETAILS

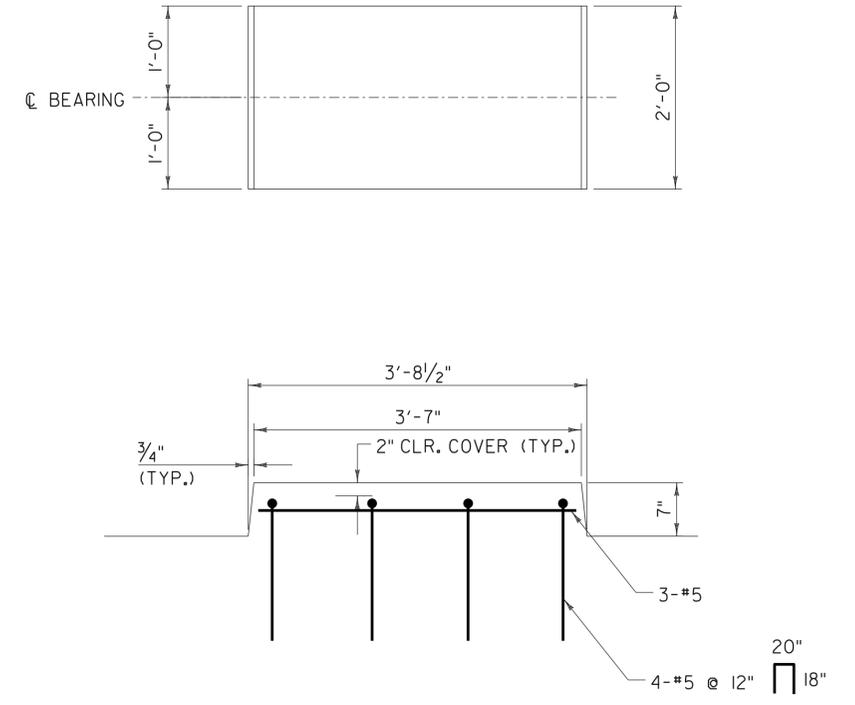
SHEET 27 OF 46



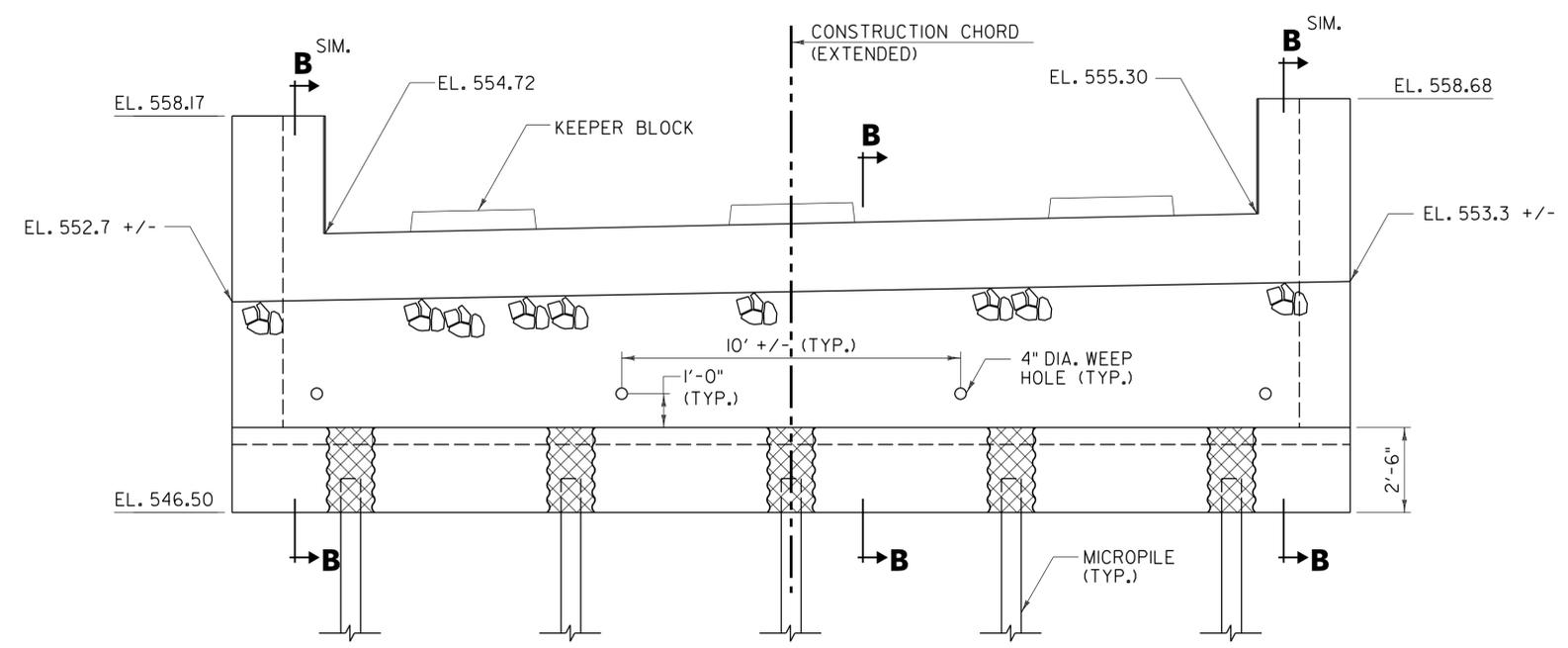


ABUTMENT I PLAN
SCALE 3/8" = 1'-0"

NOTE
 ○ INDICATES VERTICAL MICROPILE
 ⊙ INDICATES MICROPILE BATTERED 1 HORIZ. TO 10 VERT.



KEEPER BLOCK DETAIL
SCALE 1" = 1'-0"



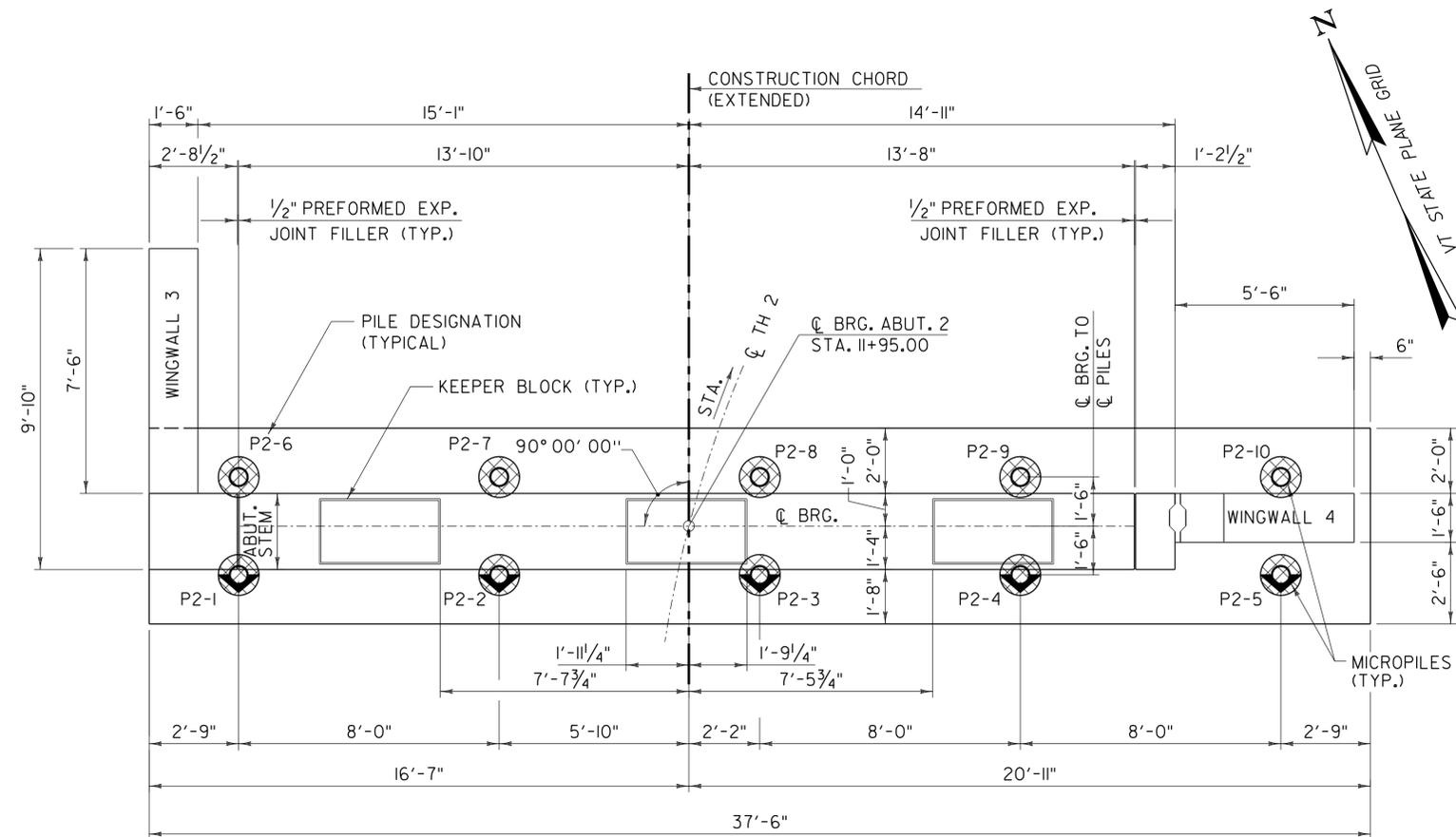
ABUTMENT I ELEVATION
SCALE 3/8" = 1'-0"

 SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)(FPO).

NOTE: FOR SECTION B-B, REFER TO SHEET 30.

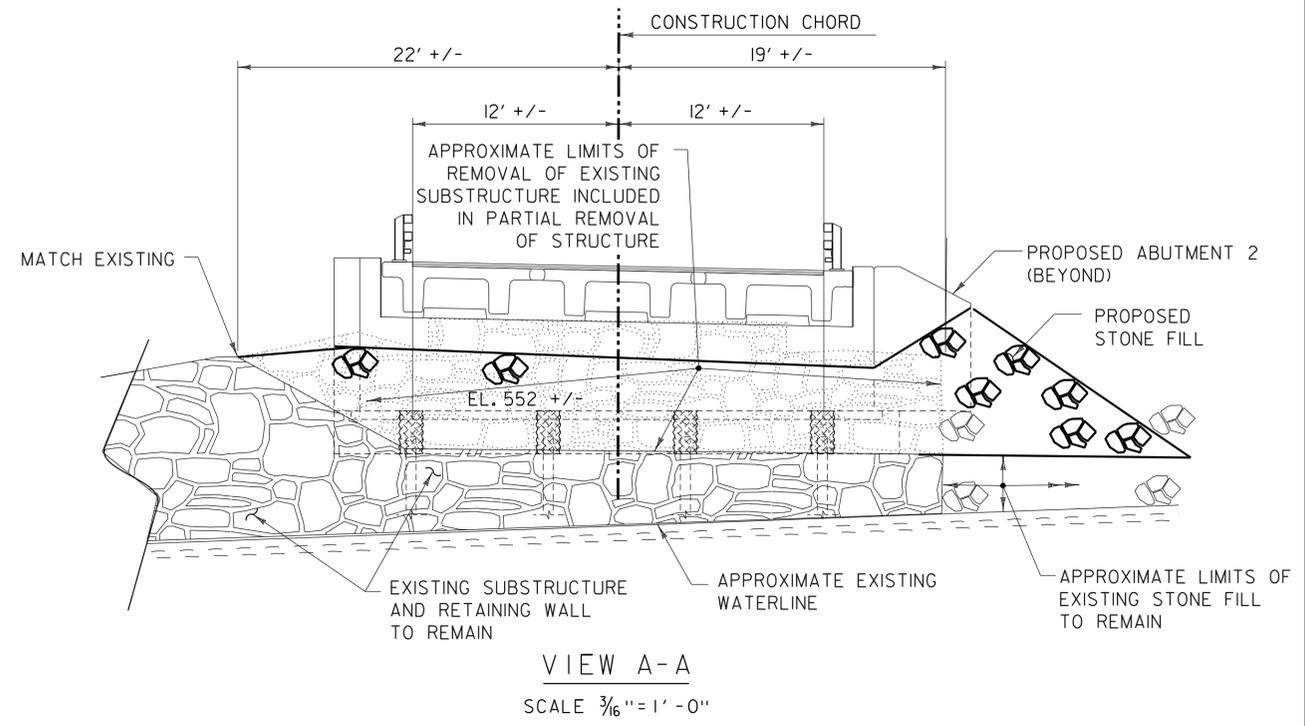
| | |
|----------------------------------------|-----------------------|
| PROJECT NAME: | ENOSBURG |
| PROJECT NUMBER: | BRO 1448(40) |
| FILE NAME: ...XX Abut 1Plan.Elev.dgn | PLOT DATE: 10/4/2013 |
| PROJECT LEADER: G. BOGUE | DRAWN BY: L. BUXTON |
| DESIGNED BY: T. KNIGHT | CHECKED BY: T. KNIGHT |
| ABUTMENT 1 PLAN & ELEVATION | |
| SHEET 28 OF 46 | |



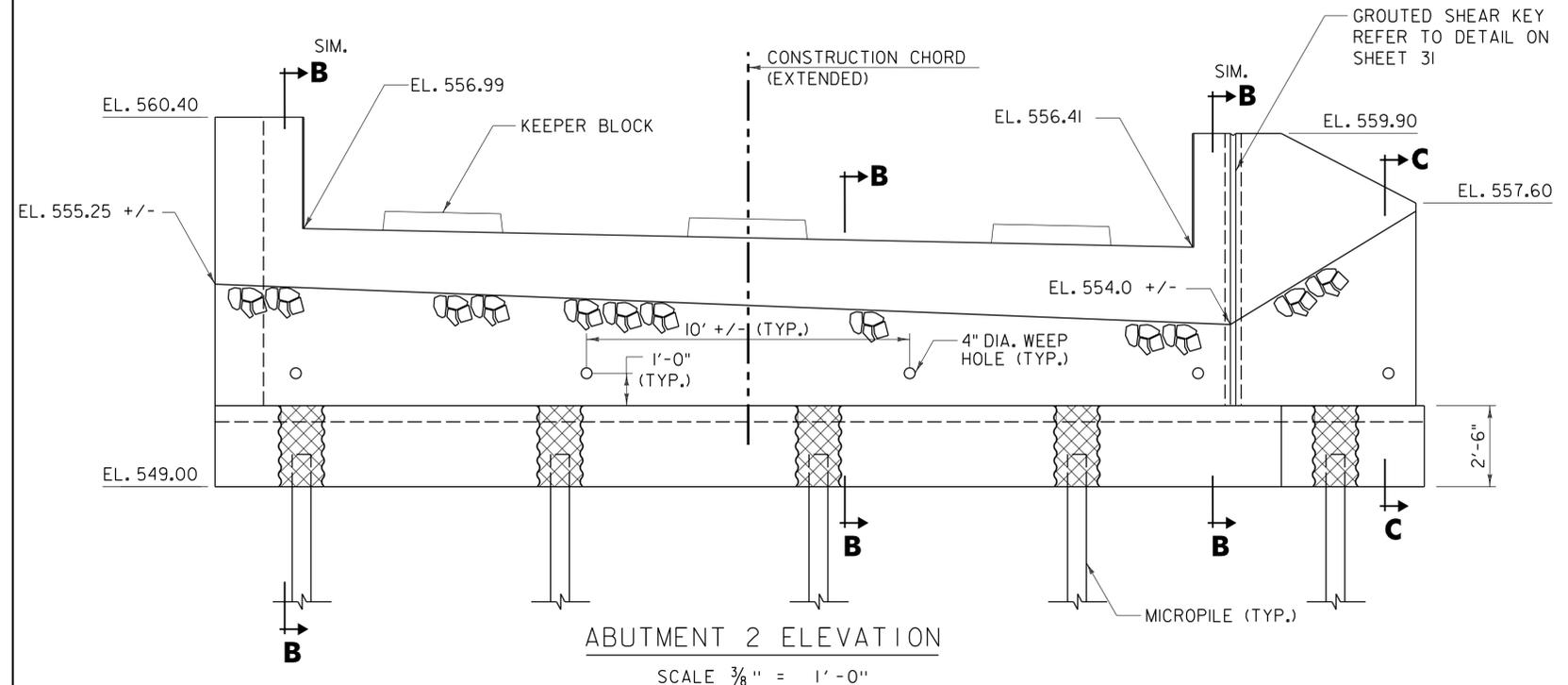


ABUTMENT 2 PLAN
SCALE 3/8" = 1' - 0"

NOTE
 ○ INDICATES VERTICAL MICROPILE
 ◐ INDICATES MICROPILE BATTERED 1 HORIZ. TO 10 VERT.



VIEW A-A
SCALE 3/16" = 1' - 0"



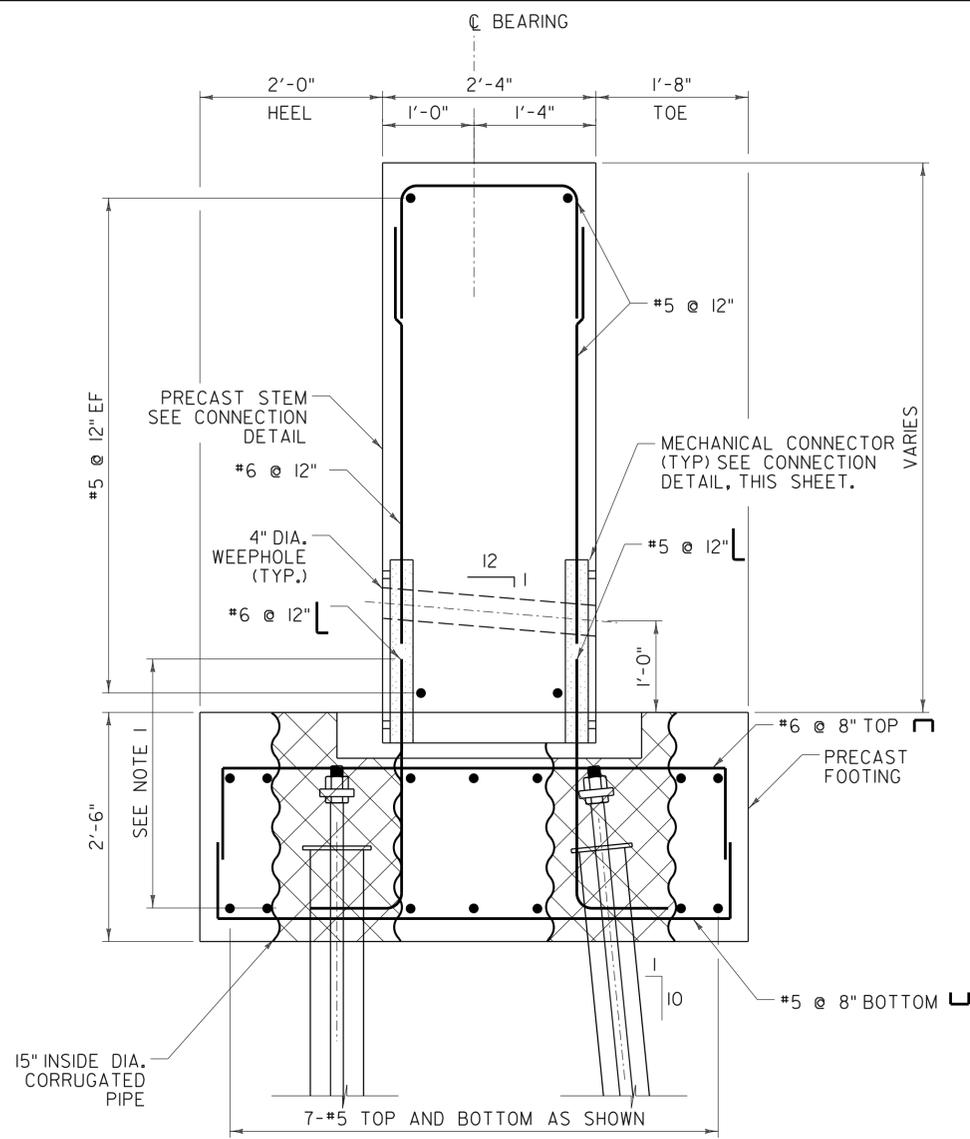
ABUTMENT 2 ELEVATION
SCALE 3/8" = 1' - 0"

 SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)(FPO).

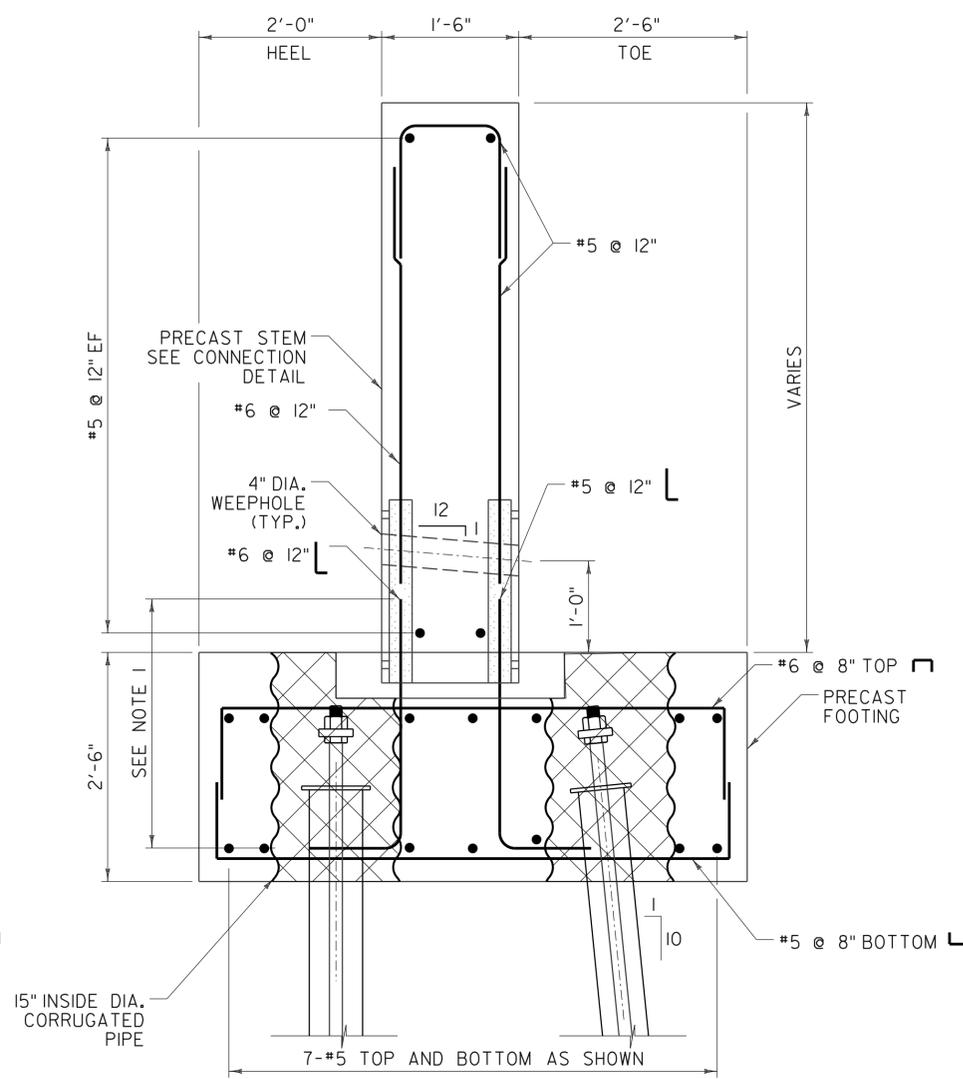
- NOTES:**
1. FOR KEEPER BLOCK DETAIL, REFER TO SHEET 28.
 2. FOR LOCATION OF VIEW A-A, REFER TO SHEET 20.
 3. FOR SECTION B-B, REFER TO SHEET 30.
 4. FOR SECTION C-C, REFER TO SHEET 30.

| | |
|-------------------------------------------------------|-----------------------|
| PROJECT NAME: | ENOSBURG |
| PROJECT NUMBER: | BRO 1448(40) |
| FILE NAME: ...XX Abut 2 Plan_Elev.dgn | PLOT DATE: 10/4/2013 |
| PROJECT LEADER: G. BOGUE | DRAWN BY: L. BUXTON |
| DESIGNED BY: T. KNIGHT | CHECKED BY: T. KNIGHT |
| ABUTMENT 2 PLAN & ELEVATION SHEET 29 OF 46 | |

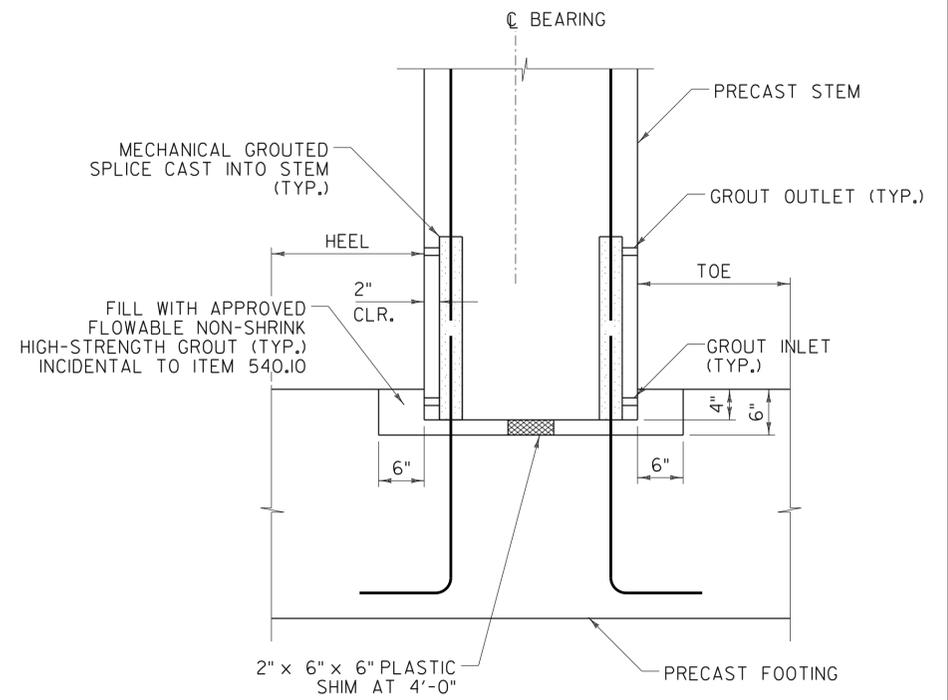




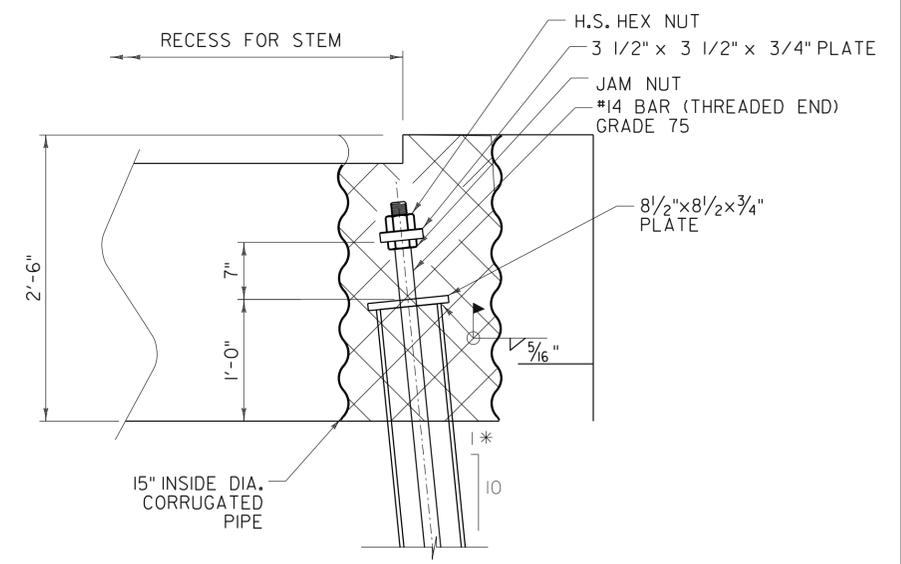
SECTION B-B
SCALE 1" = 1' - 0"



SECTION C-C
SCALE 1" = 1' - 0"

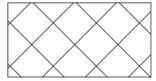


CONNECTION DETAIL
SCALE 1" = 1' - 0"



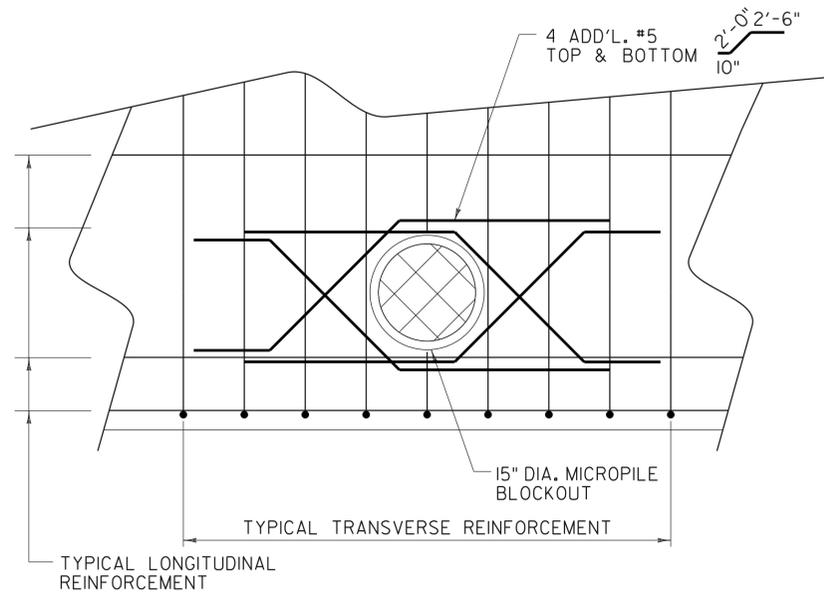
PILE CAP DETAIL
NOT TO SCALE

* FRONT PILES ONLY; REAR PILES ARE VERTICAL

 SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)(FPO).

NOTE:
FOR LOCATION OF SECTIONS B-B AND C-C
REFER TO SHEETS 28 & 29.

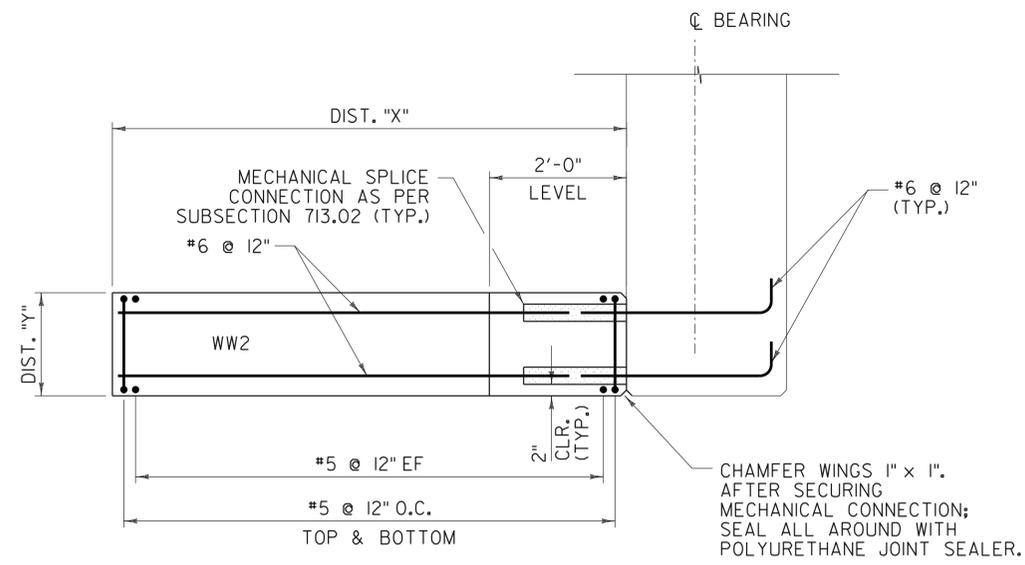
- NOTES:**
1. LEG LENGTH SHALL MEET THE REQUIREMENTS OF THE MECHANICAL CONNECTOR.
 2. THE CONNECTION FROM THE PRECAST STEM TO THE FOOTING SHALL BE INCLUDED IN THE FABRICATION DRAWINGS. THE MECHANICAL GROUDED CONNECTION SHALL MEET THE REQUIREMENTS OF ASTM 1034 AND SHALL HAVE A YIELD STRENGTH OF 125% OF THE REINFORCING STEEL YIELD STRENGTH.



ADDITIONAL REINFORCEMENT AT MICROPILE BLOCKOUT
NOT TO SCALE

| | | | |
|----------------------------------------|--------------|------------------------------------|-----------------------|
| PROJECT NAME: | ENOSBURG | FILE NAME: ...XX Abut.sect.det.dgn | PLOT DATE: 10/4/2013 |
| PROJECT NUMBER: | BRO 1448(40) | PROJECT LEADER: G. BOGUE | DRAWN BY: L. BUXTON |
| | | DESIGNED BY: T. KNIGHT | CHECKED BY: T. KNIGHT |
| ABUTMENT SECTIONS & DETAILS | | | SHEET 30 OF 46 |



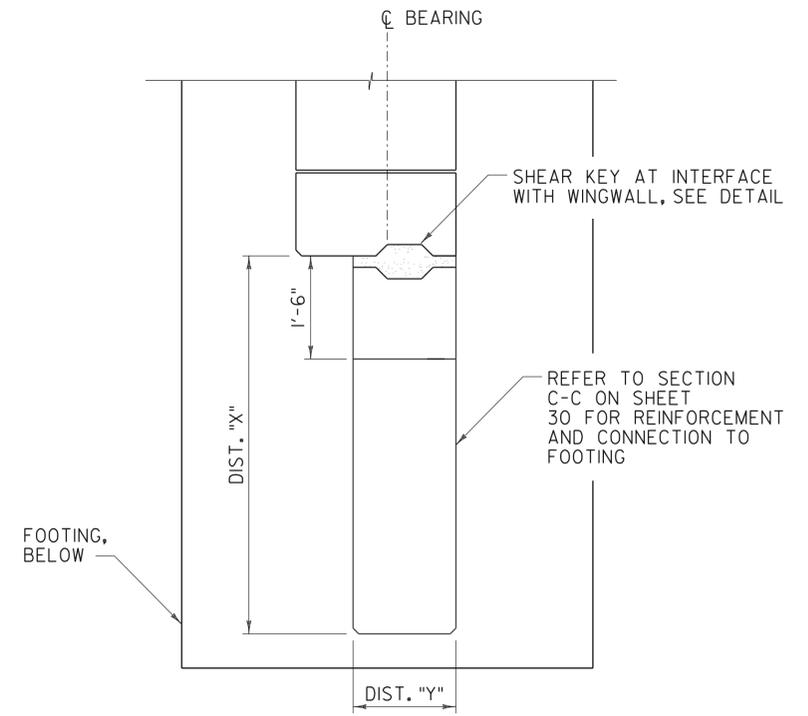


WINGWALLS NO. 1, 2 AND 3 PLAN

NOT TO SCALE

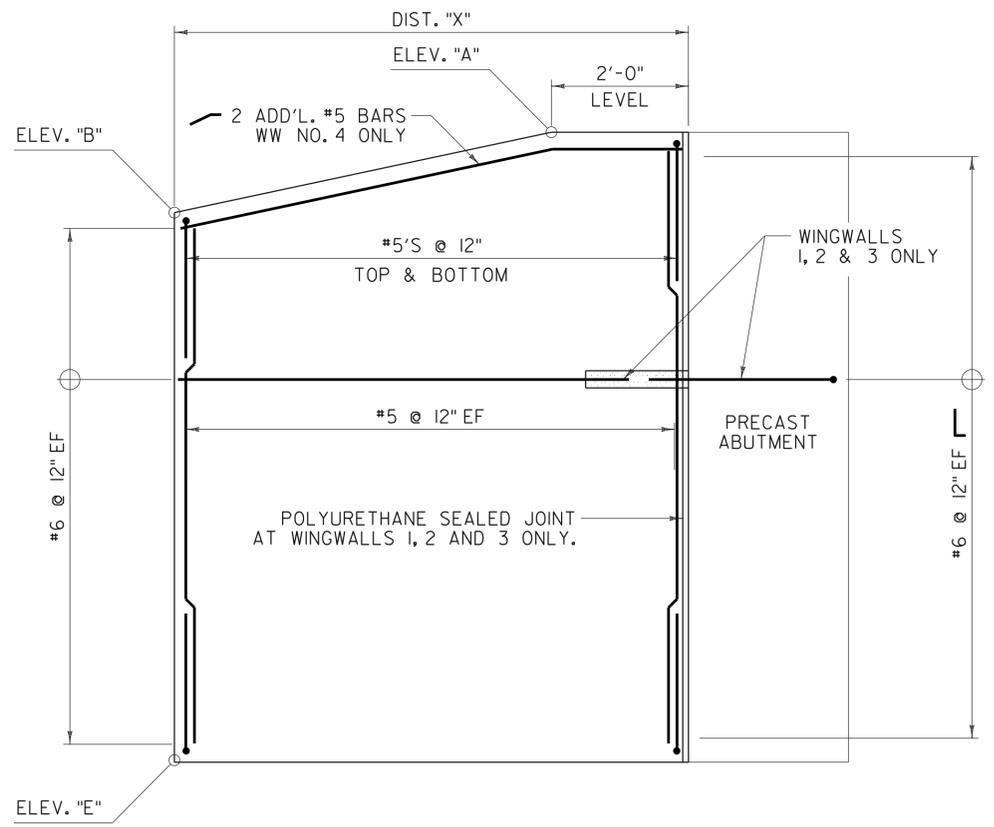
WINGWALL 2 SHOWN, OTHERS SIMILAR
FOOTING NOT SHOWN

| | WW1 | WW2 | WW3 | WW4 |
|-----------|--------|--------|--------|--------|
| ELEV. "A" | 558.68 | 558.17 | 560.40 | 559.90 |
| ELEV. "B" | 558.35 | 557.81 | 560.43 | 557.60 |
| ELEV. "E" | 549.00 | 549.00 | 551.50 | 551.50 |
| DIST. "X" | 7'-6" | 7'-6" | 7'-6" | 5'-6" |
| DIST. "Y" | 1-6" | 1-6" | 1-6" | 1-6" |



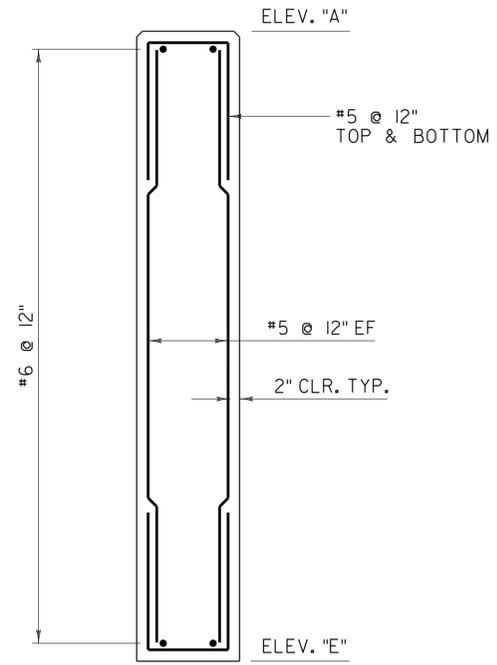
WINGWALLS NO. 4 PLAN

NOT TO SCALE



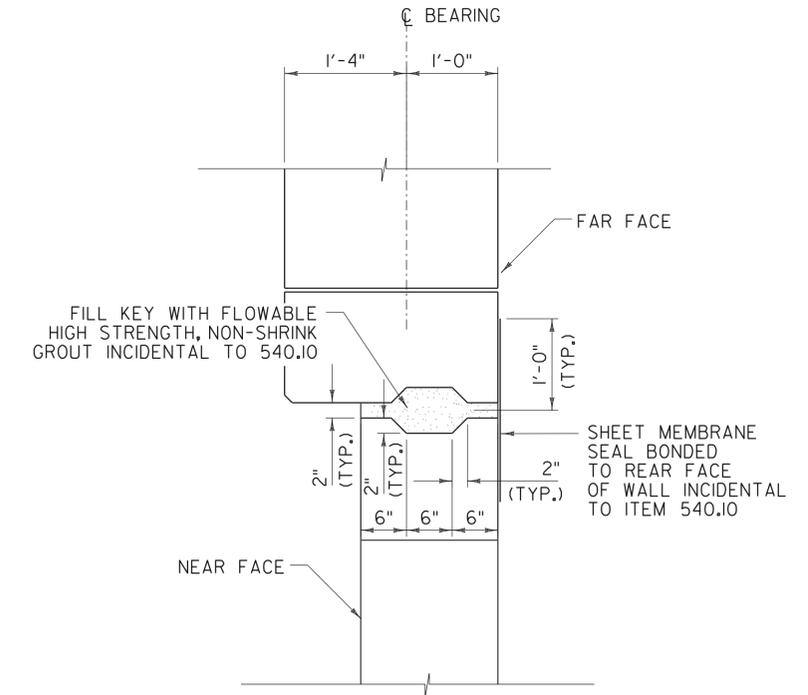
WINGWALL ELEVATION

NOT TO SCALE



WINGWALLS 1, 2 AND 3 TYPICAL

NOT TO SCALE



ABUTMENT/WINGWALL SHEAR KEY DETAIL

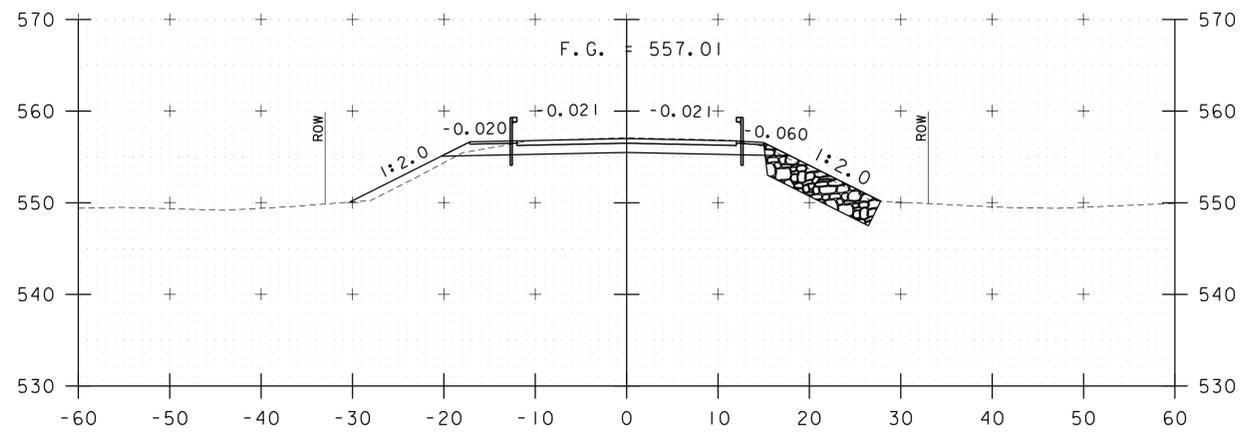
SCALE 1" = 1'-0"

NOTE:
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE

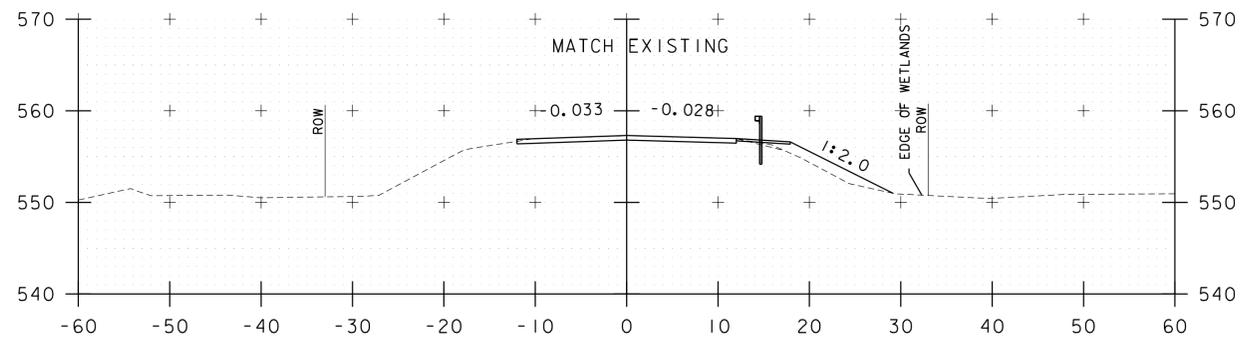
NOTES:
1. EPOXY SHALL BE INCIDENTAL TO THE PRECAST CONCRETE STRUCTURE.



| | | | |
|-------------------------|------------------------|----------------|-----------|
| PROJECT NAME: | ENOSBURG | PLOT DATE: | 10/4/2013 |
| PROJECT NUMBER: | BRO 1448(40) | DRAWN BY: | L. BUXTON |
| FILE NAME: | ...XX Wingwall Det.dgn | DESIGNED BY: | T. KNIGHT |
| PROJECT LEADER: | G. BOGUE | CHECKED BY: | T. KNIGHT |
| WINGWALL DETAILS | | SHEET 31 OF 46 | |

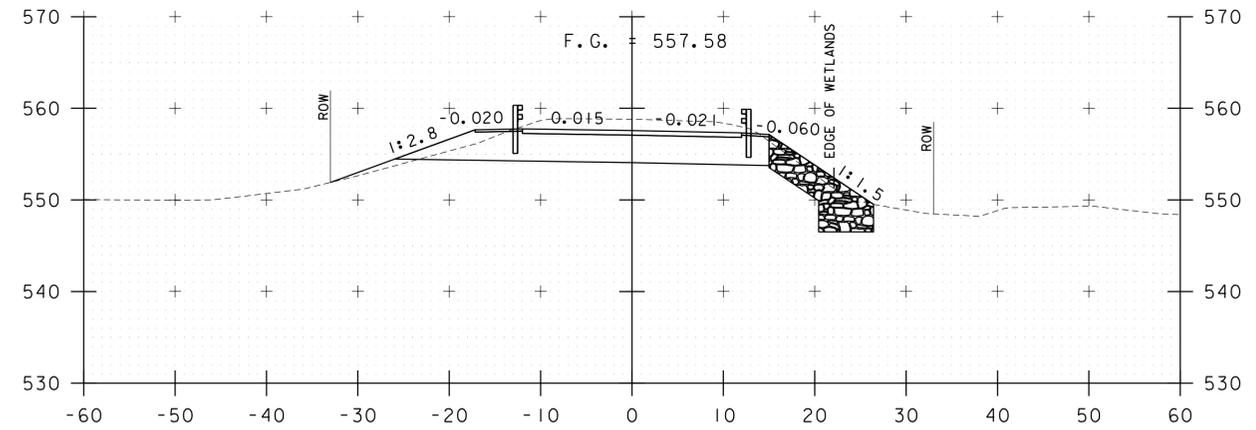


10+25



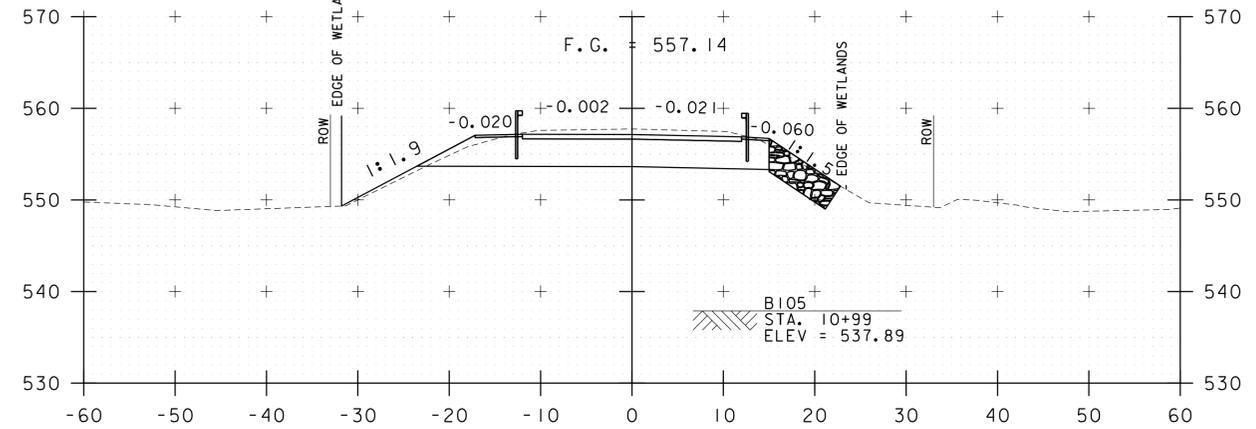
10+00
BEGIN APPROACH

9+75

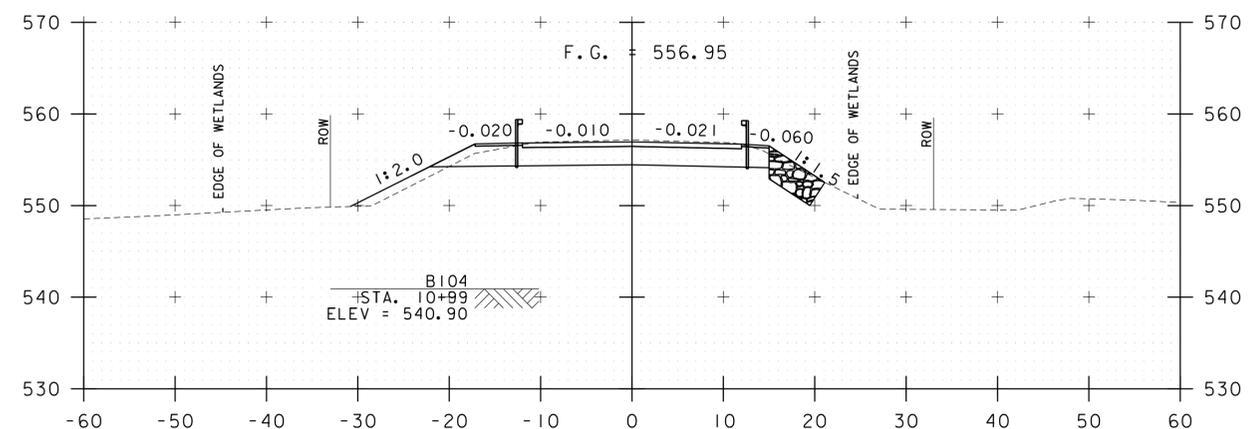


11+00

10+85
END APPROACH
BEGIN PROJECT

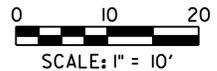


10+75



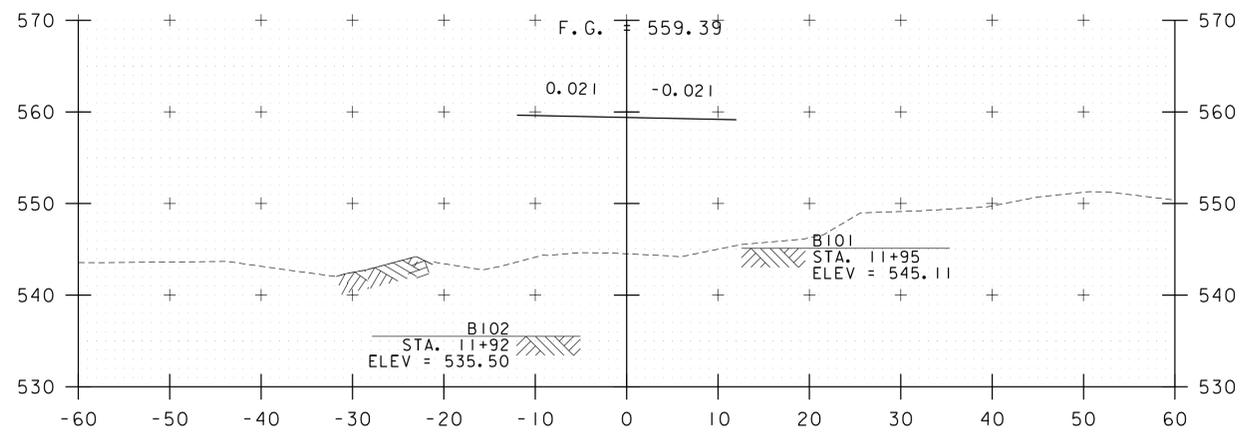
10+50

STA. 9+75 TO STA. 11+00

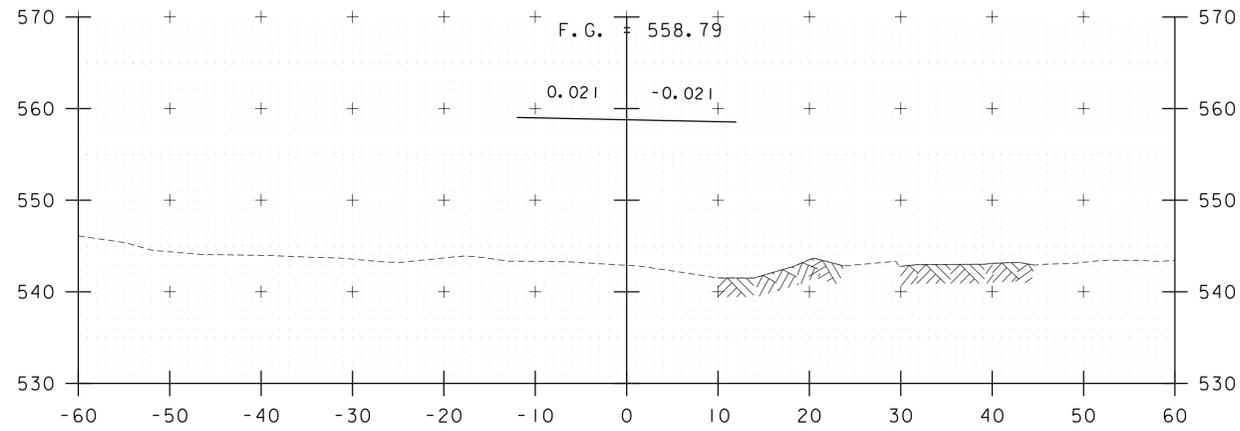


| | |
|---------------------------------------|------------------------|
| PROJECT NAME: ENOSBURG | PLOT DATE: 10/4/2013 |
| PROJECT NUMBER: BRO 1448(40) | DRAWN BY: E. ALLING |
| FILE NAME: ...N2 Cross Sections.dgn | CHECKED BY: G. GOYETTE |
| PROJECT LEADER: G. BOGUE | SHEET 32 OF 46 |
| DESIGNED BY: G. GOYETTE | |
| ROADWAY CROSS SECTIONS - RXS 1 | |

11+96
END BRIDGE

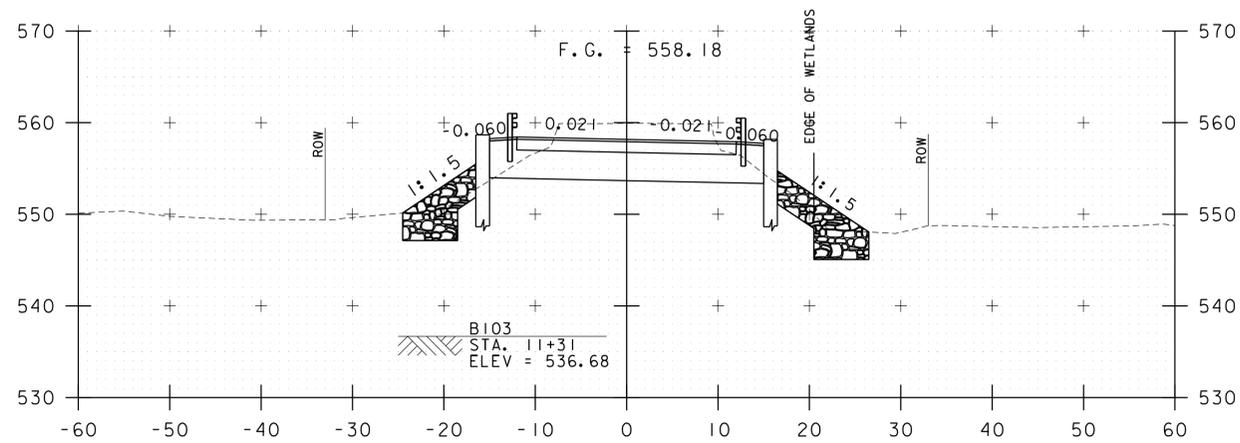


11+75

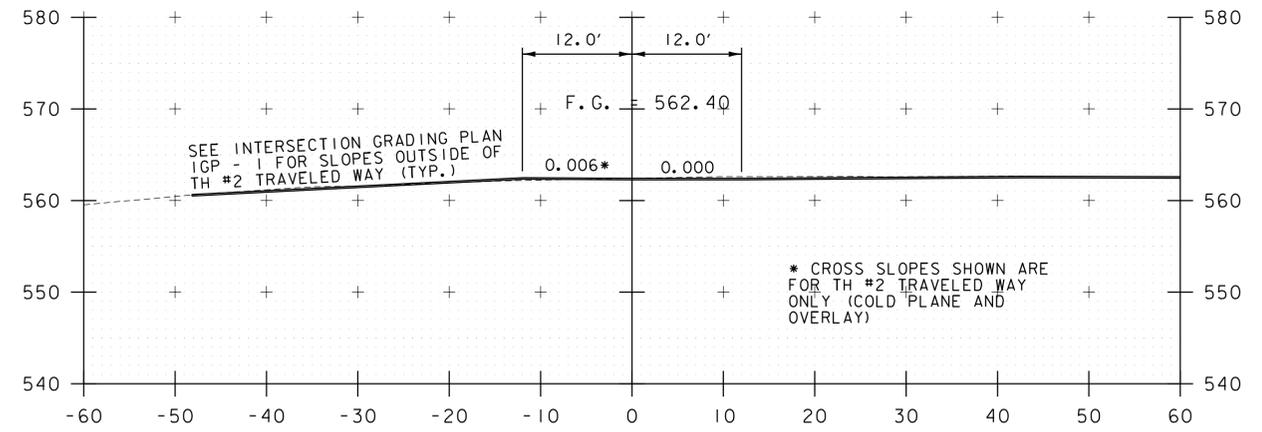


11+50

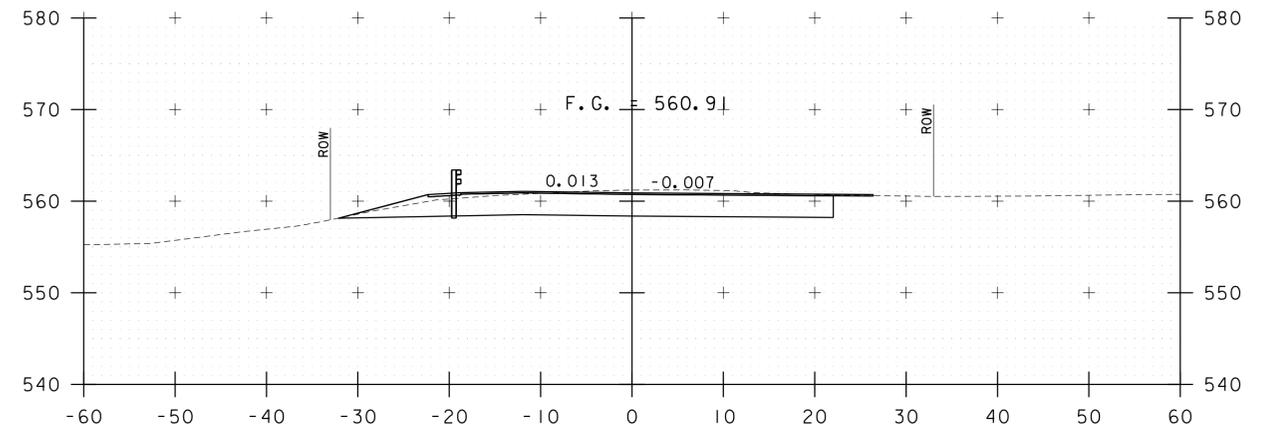
11+25
BEGIN BRIDGE



11+25

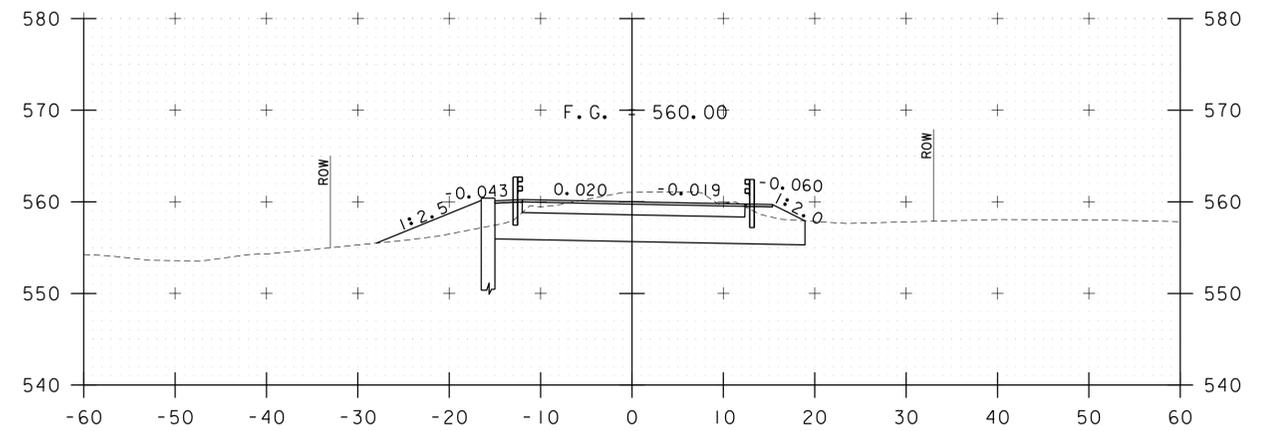


12+50



12+25

12+21
END PROJECT
BEGIN APPROACH



12+00

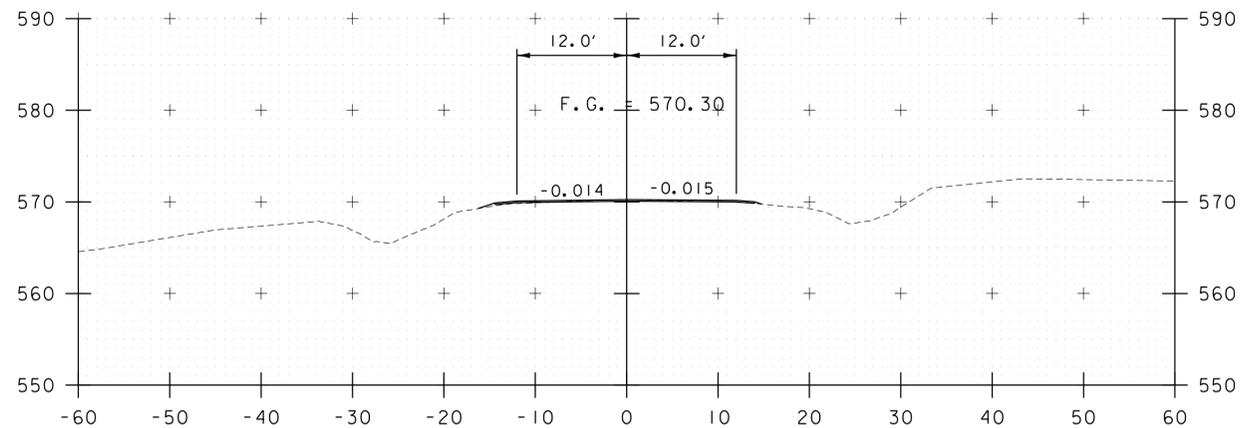
STA. 11+25 TO STA. 12+50



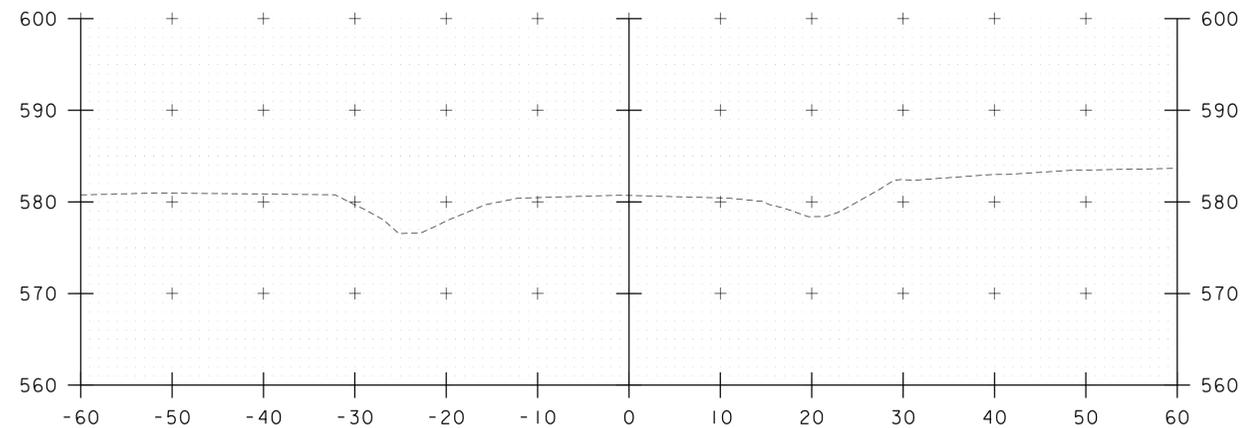
PROJECT NAME: ENOSBURG
PROJECT NUMBER: BRO 1448(40)

FILE NAME: ...N2 Cross Sections.dgn
PROJECT LEADER: G. BOGUE
DESIGNED BY: G. GOYETTE
ROADWAY CROSS SECTIONS - RXS 2

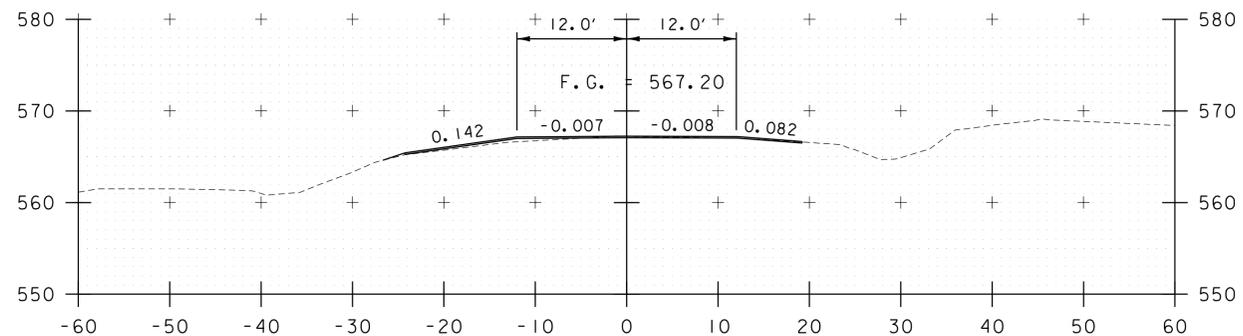
PLOT DATE: 10/4/2013
DRAWN BY: E. ALLING
CHECKED BY: G. GOYETTE
SHEET 33 OF 46



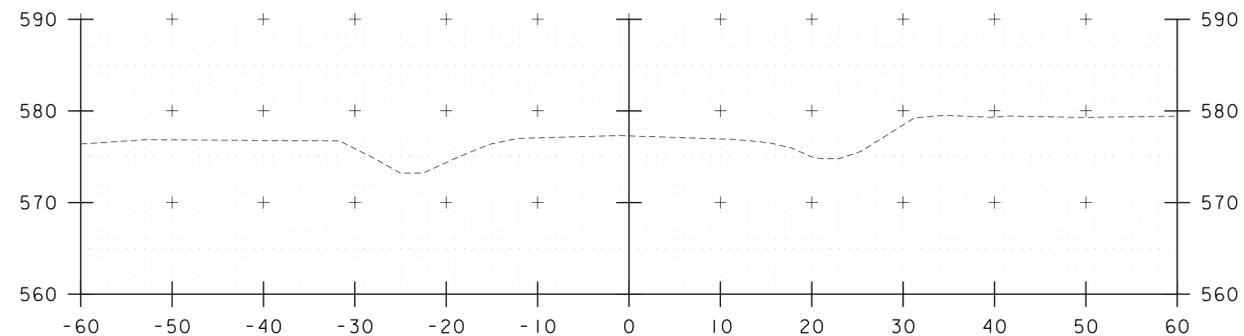
13+25



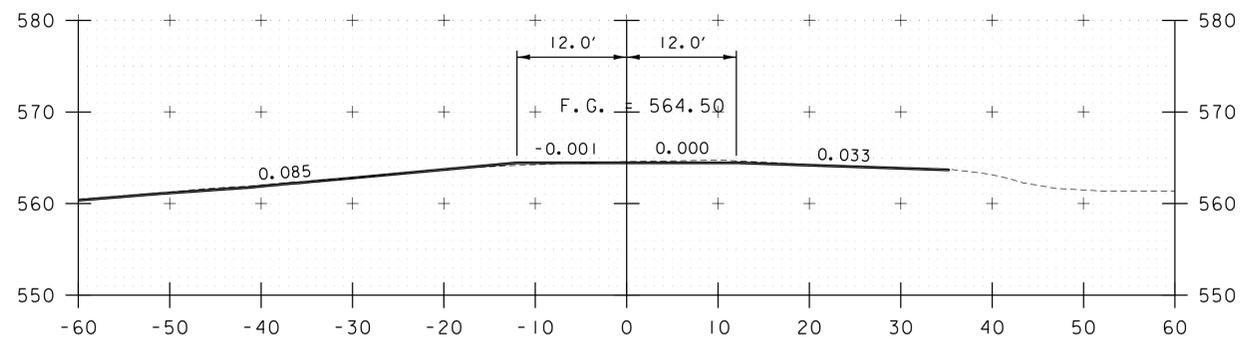
14+00



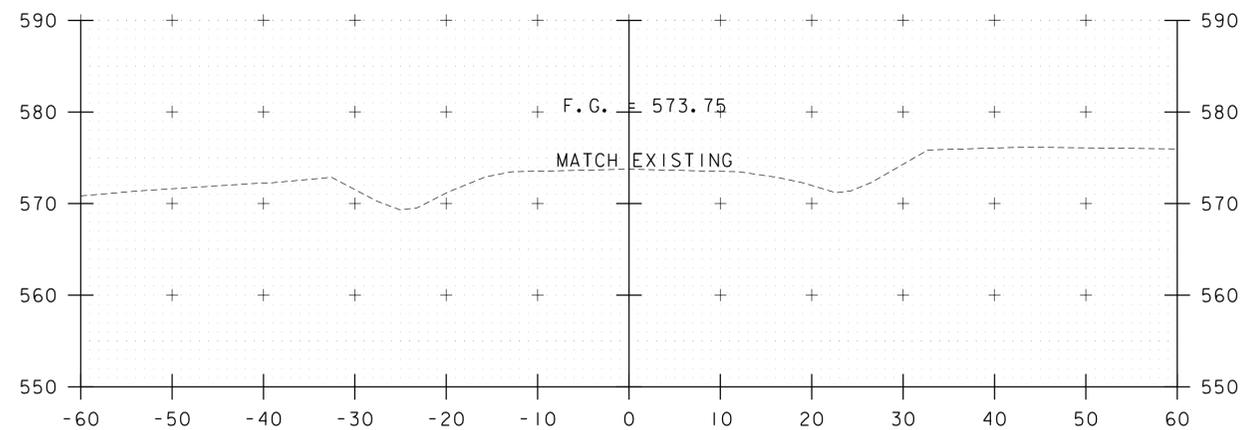
13+00



13+75



12+75



13+50
END APPROACH

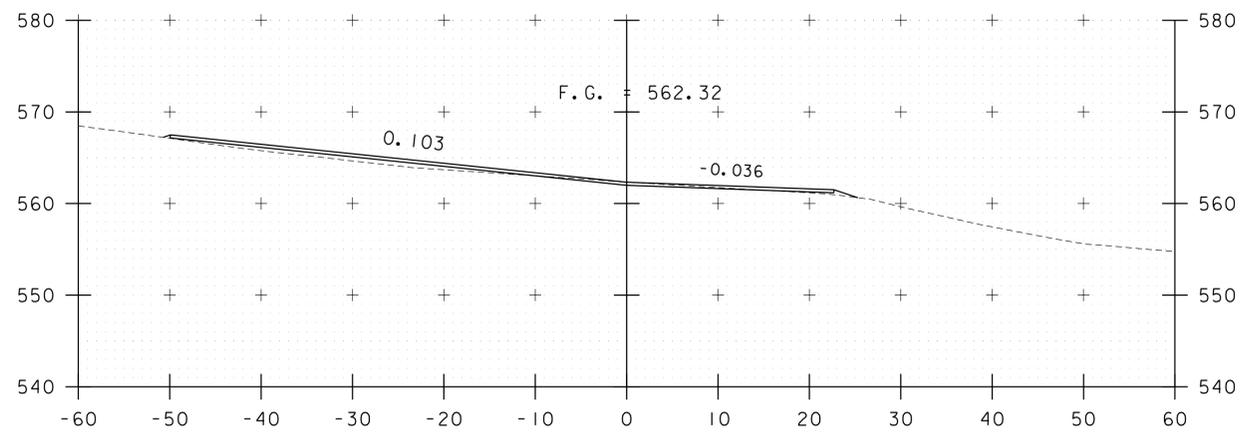
STA. 12+75 TO STA. 14+00



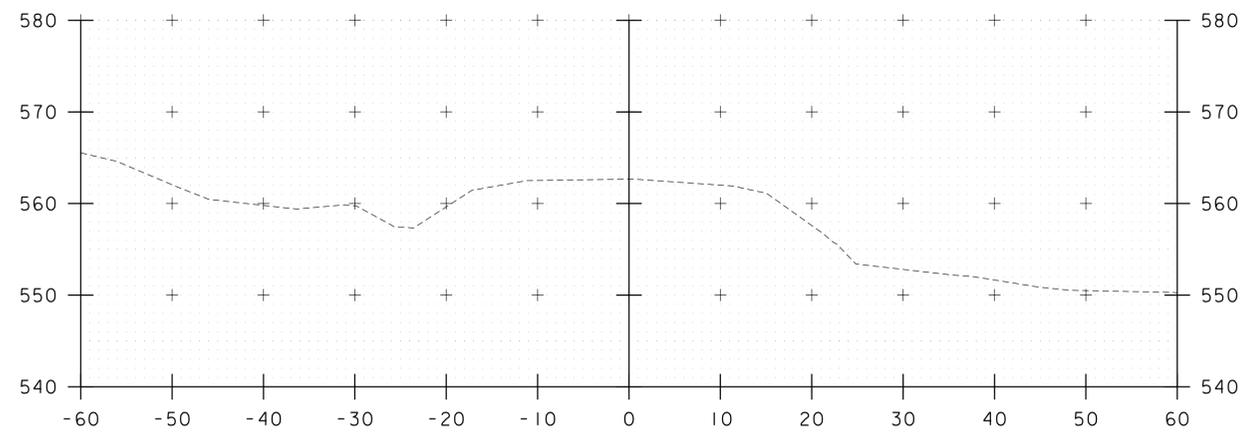
PROJECT NAME: ENOSBURG
PROJECT NUMBER: BRO 1448(40)

FILE NAME: ...N2 Cross Sections.dgn
PROJECT LEADER: G. BOGUE
DESIGNED BY: G. GOYETTE
ROADWAY CROSS SECTIONS - RXS 3

PLOT DATE: 10/4/2013
DRAWN BY: E. ALLING
CHECKED BY: G. GOYETTE
SHEET 34 OF 46

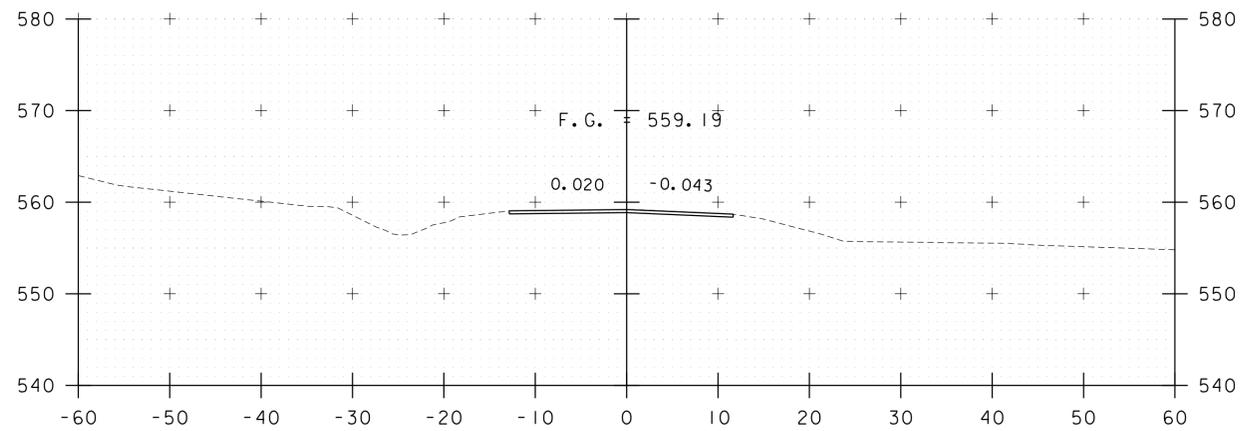


33+50



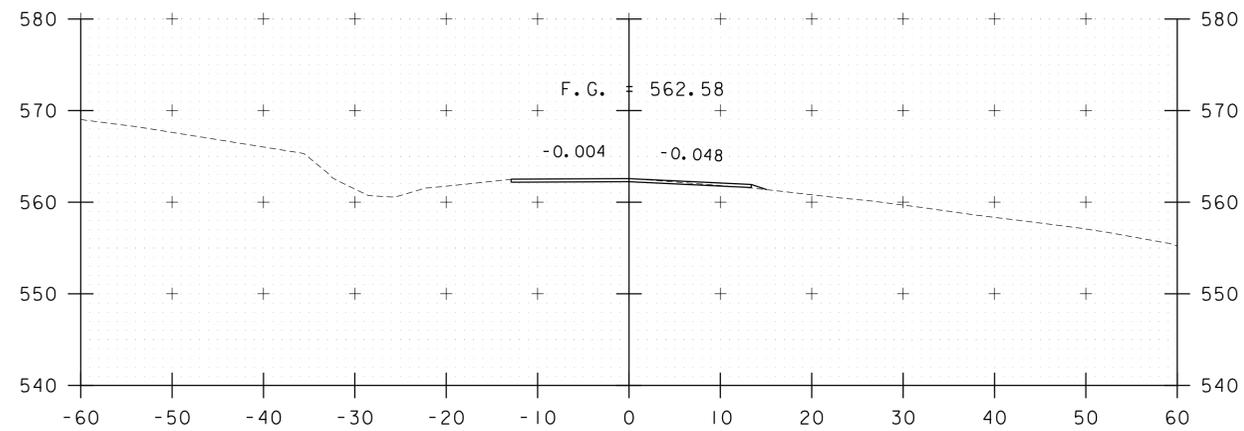
35+00

STA. 34+70
MATCH EXISTING

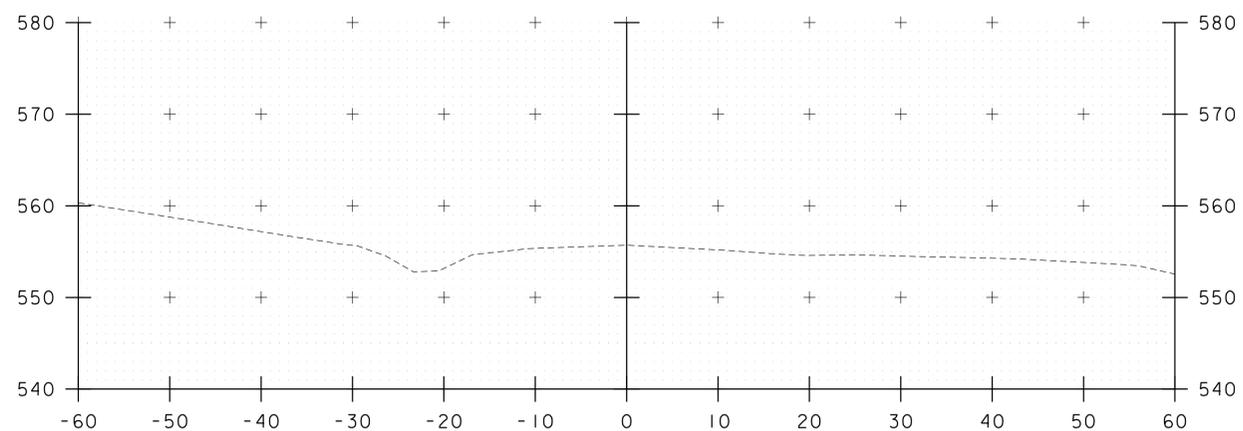


33+00

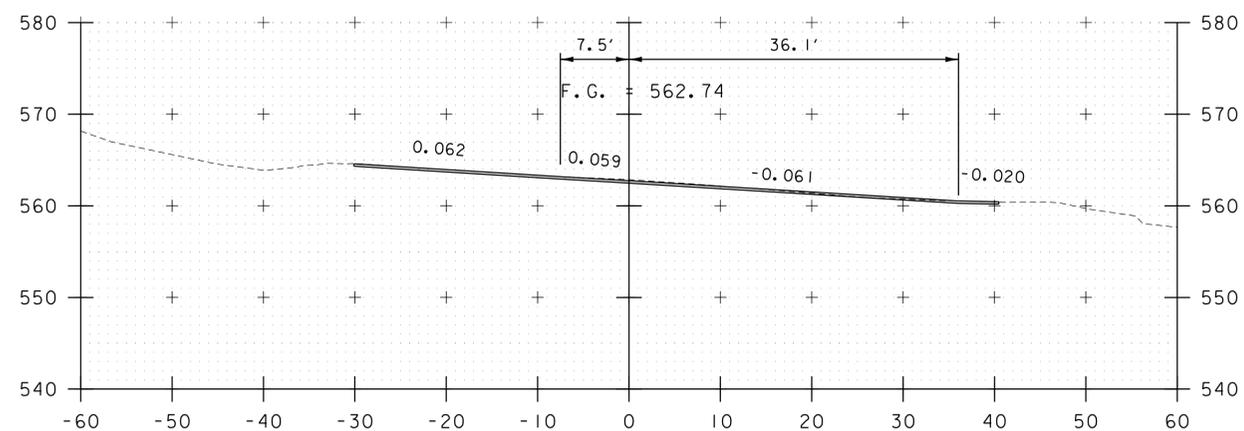
STA. 32+85
MATCH EXISTING



34+50

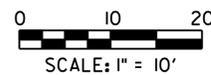


32+50



34+00

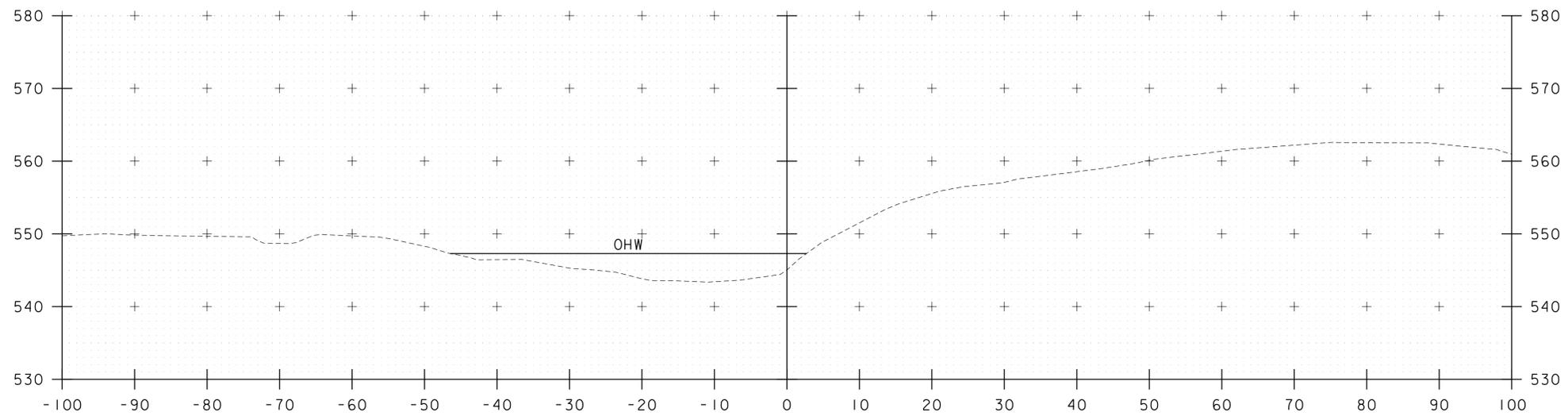
STA. 32+50 TO STA. 35+00



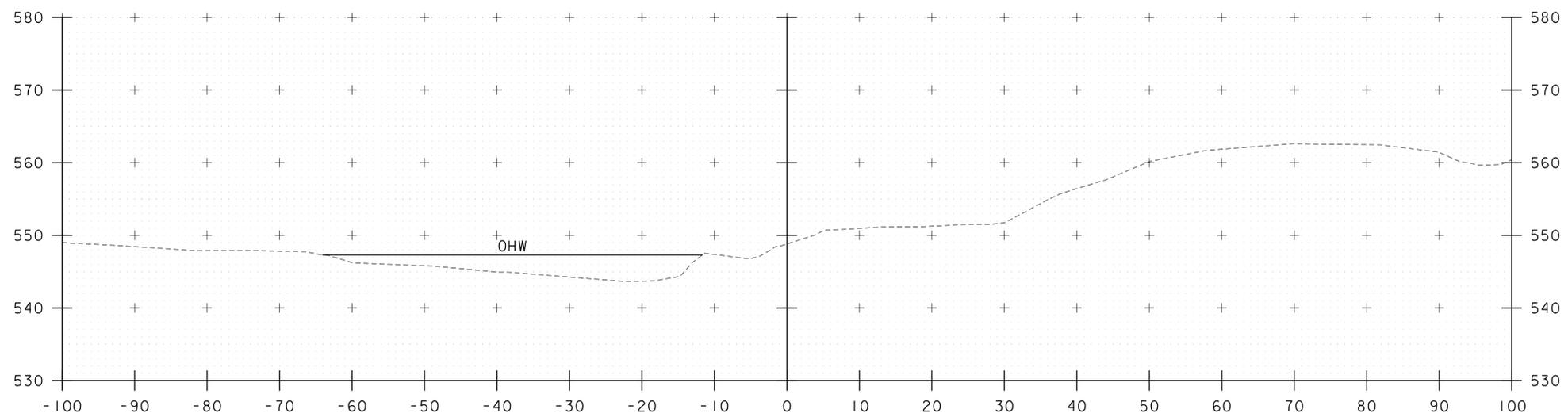
PROJECT NAME: ENOSBURG
PROJECT NUMBER: BRO 1448(40)

FILE NAME: ...N2 Cross Sections.dgn
PROJECT LEADER: G. BOGUE
DESIGNED BY: G. GOYETTE
T.H. 1 CROSS SECTIONS - TXS 1

PLOT DATE: 10/4/2013
DRAWN BY: E. ALLING
CHECKED BY: G. GOYETTE
SHEET 35 OF 46



50+25

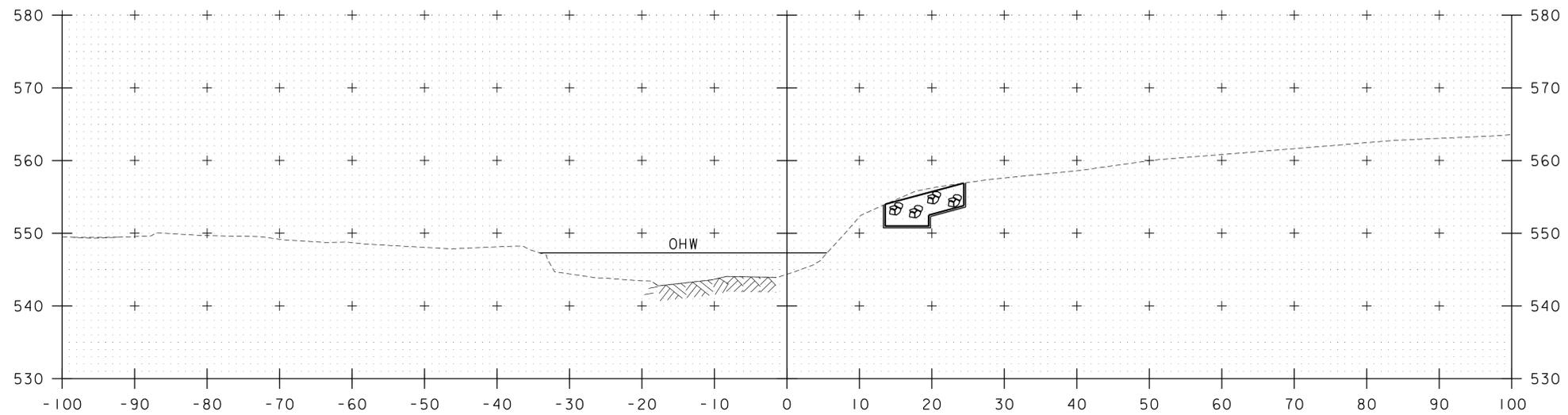


50+00

STA. 50+00 TO STA. 50+25

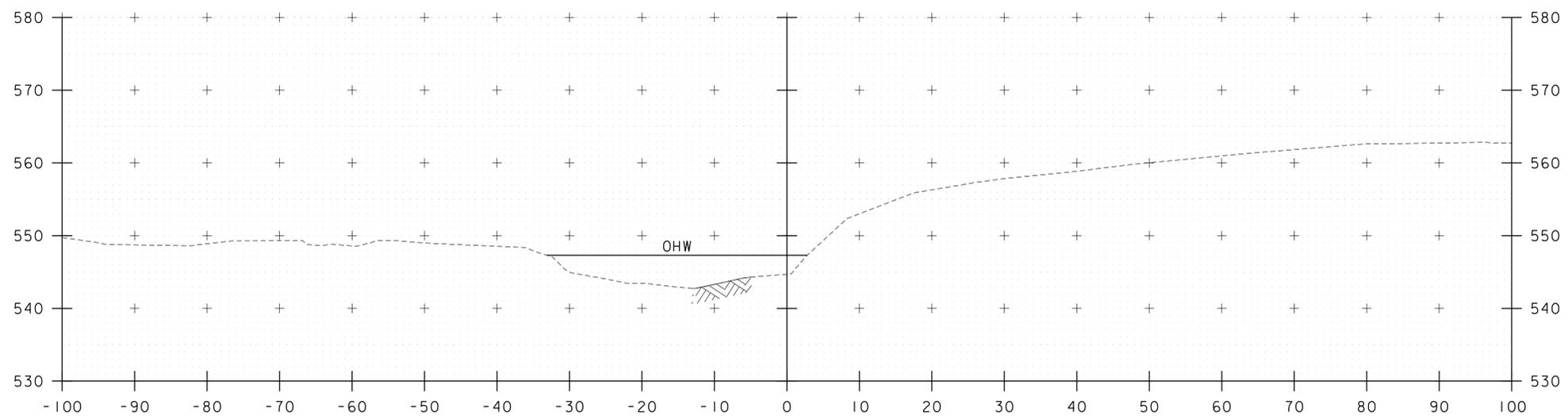


| | |
|--------------------------------------------|------------------------|
| PROJECT NAME: | ENOSBURG |
| PROJECT NUMBER: | BRO 1448(40) |
| FILE NAME: ...N3 ChannelCross Sections.dgn | DATE: 10/4/2013 |
| PROJECT LEADER: G. BOGUE | DRAWN BY: E. ALLING |
| DESIGNED BY: G. GOYETTE | CHECKED BY: G. GOYETTE |
| CHANNEL CROSS SECTIONS - CXS 1 | SHEET 36 OF 46 |



50+70

STA. 50+68 RT
 BEGIN UNCLASSIFIED CHANNEL EXCAVATION
 GEOTEXTILE UNDER STONE FILL
 STONE FILL, TYPE III
 GRUBBING MATERIAL

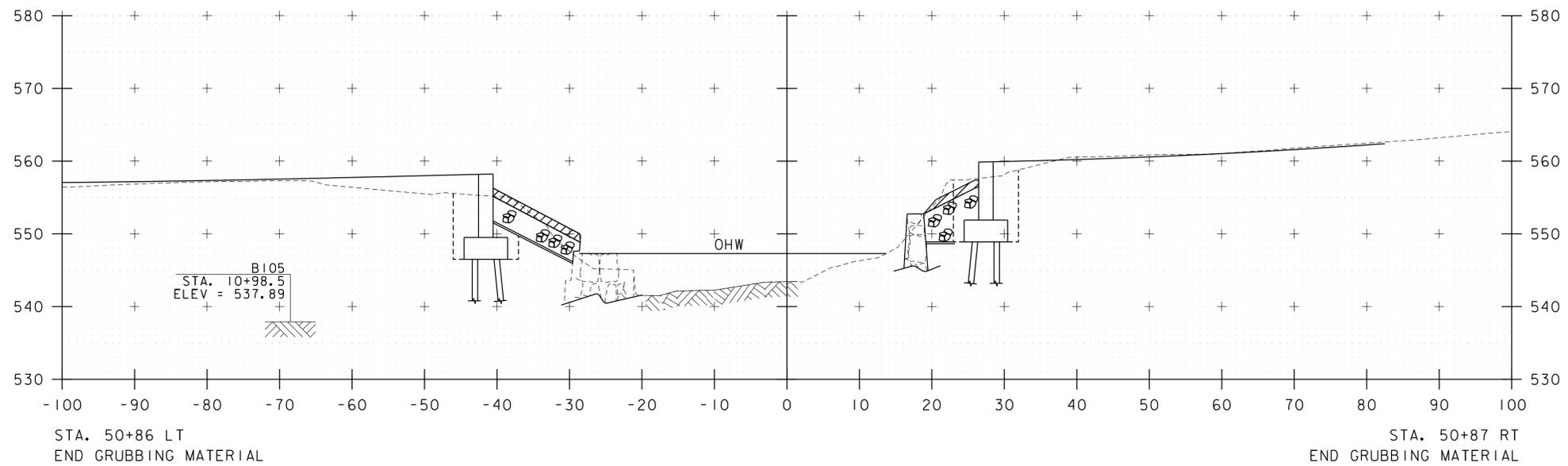


50+50

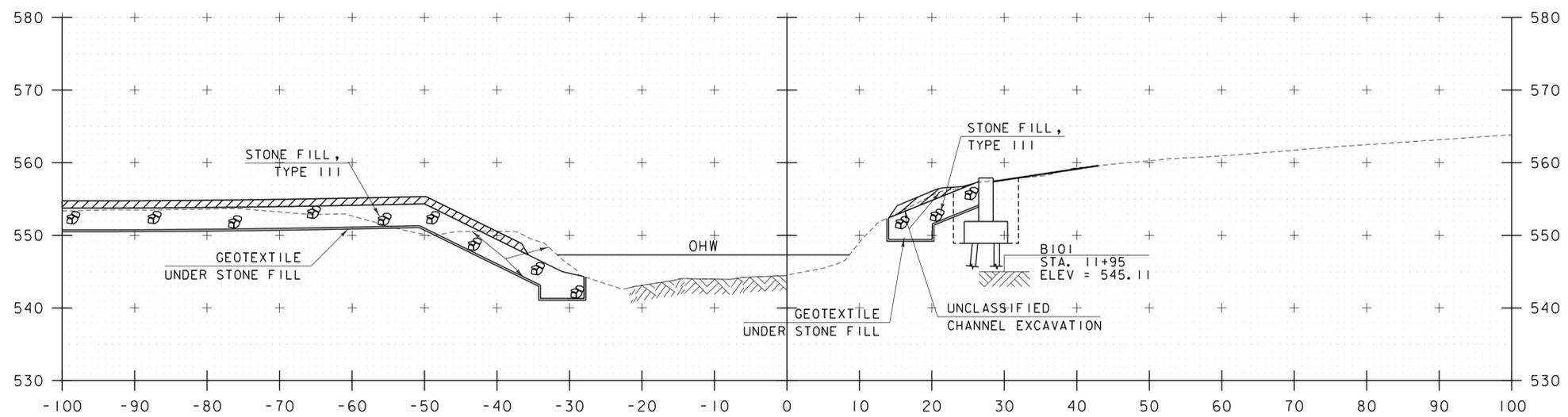
STA. 50+50 TO STA. 50+70



| | |
|--------------------------------------------|------------------------|
| PROJECT NAME: | ENOSBURG |
| PROJECT NUMBER: | BRO 1448(40) |
| FILE NAME: ...N3 ChannelCross Sections.dgn | LOT DATE: 10/4/2013 |
| PROJECT LEADER: G. BOGUE | DRAWN BY: E. ALLING |
| DESIGNED BY: G. GOYETTE | CHECKED BY: G. GOYETTE |
| CHANNEL CROSS SECTIONS - CXS 2 | SHEET 37 OF 46 |



50+86

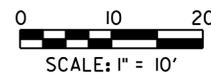


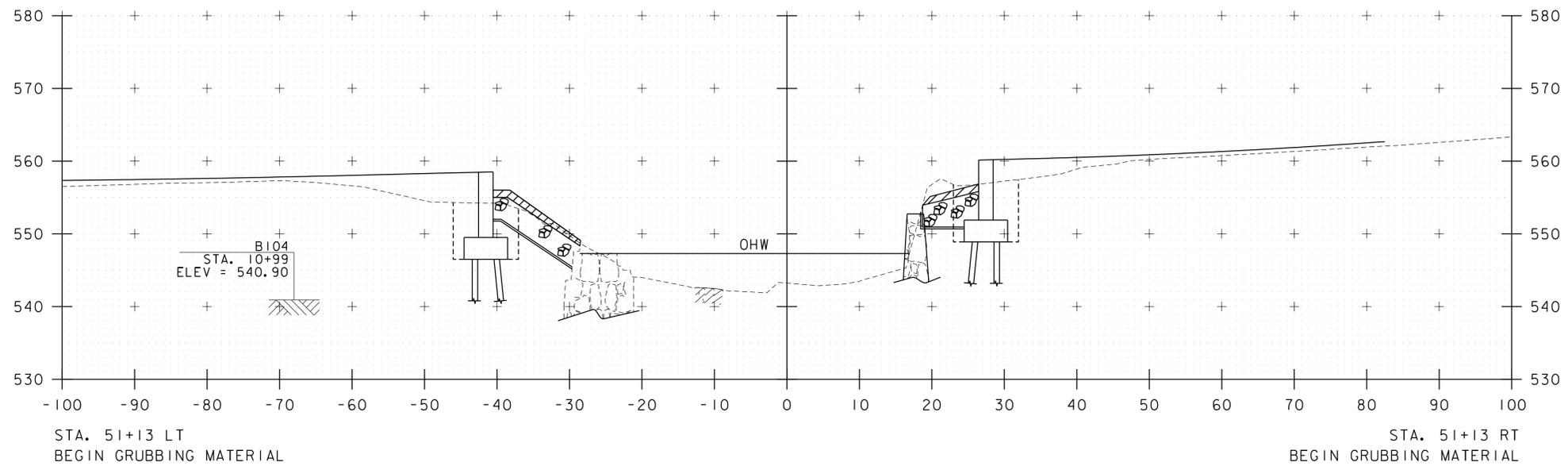
50+80

STA. 50+80 TO STA. 50+86

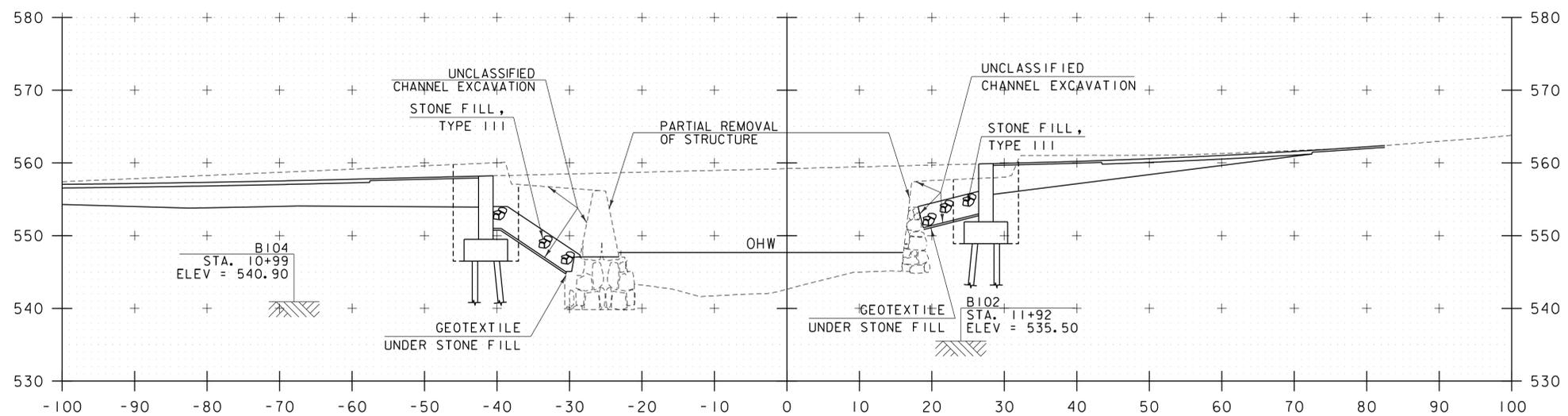
PROJECT NAME: ENOSBURG
PROJECT NUMBER: BRO 1448(40)

FILE NAME: ...N3 ChannelCross Sections.dg@LOT DATE: 10/4/2013
PROJECT LEADER: G. BOGUE DRAWN BY: E. ALLING
DESIGNED BY: G. GOYETTE CHECKED BY: G. GOYETTE
CHANNEL CROSS SECTIONS - CXS 3 SHEET 38 OF 46





51+14



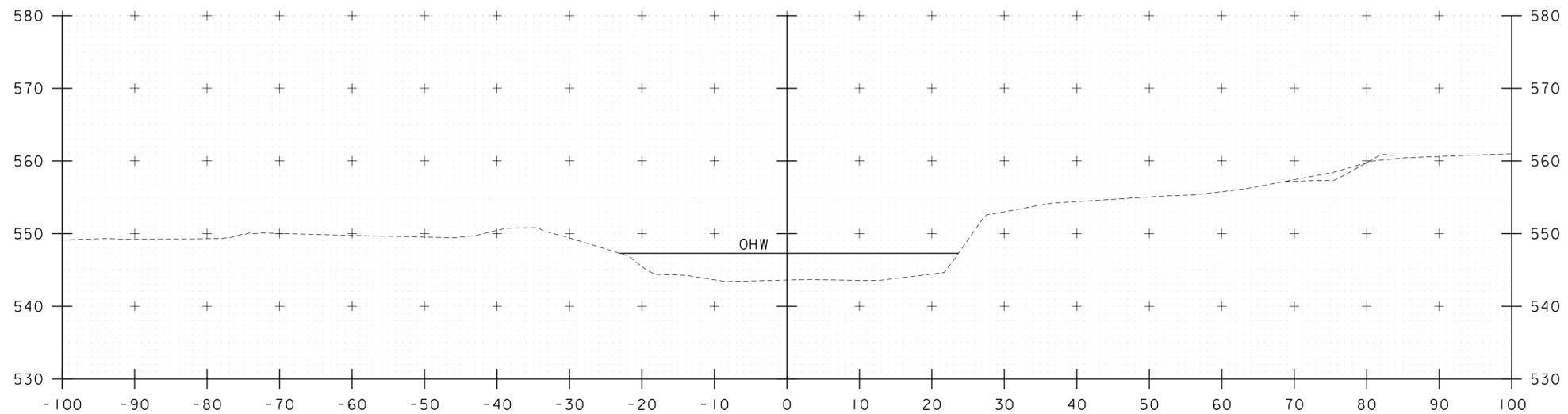
51+00

STA. 51+00 TO STA. 51+14

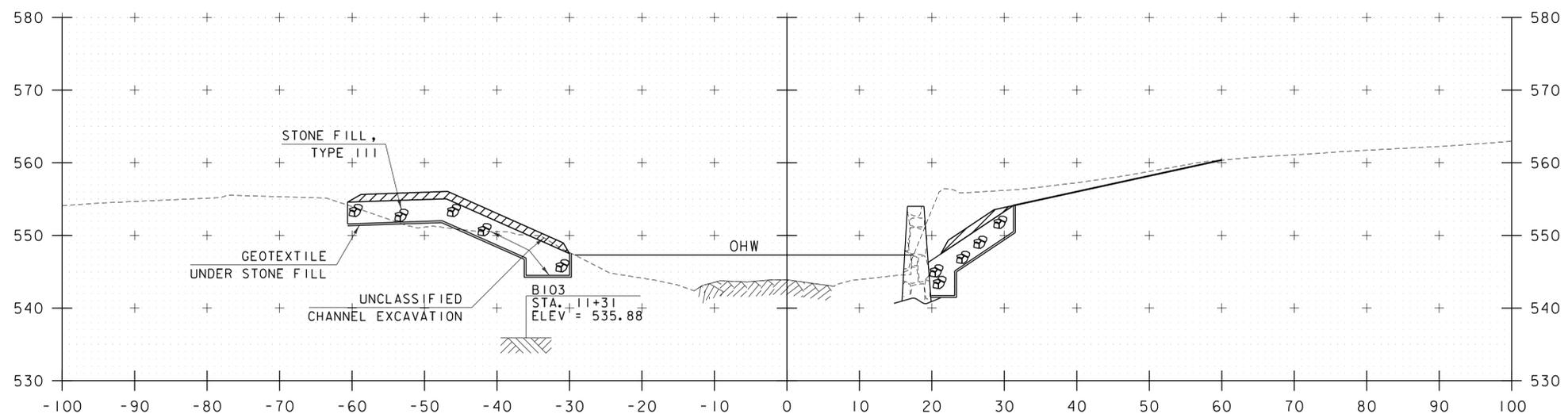
PROJECT NAME: ENOSBURG
PROJECT NUMBER: BRO 1448(40)

FILE NAME: ...N3 ChannelCross Sections.dgn LOT DATE: 10/4/2013
PROJECT LEADER: G. BOGUE DRAWN BY: E. ALLING
DESIGNED BY: G. GOYETTE CHECKED BY: G. GOYETTE
CHANNEL CROSS SECTIONS - CXS 4 SHEET 39 OF 46





51+50

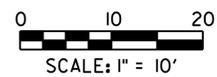


STA. 51+25 LT
 END UNCLASSIFIED CHANNEL EXCAVATION
 END STONE FILL, TYPE III
 END GEOTEXTILE UNDER STONE FILL
 END GRUBBING MATERIAL

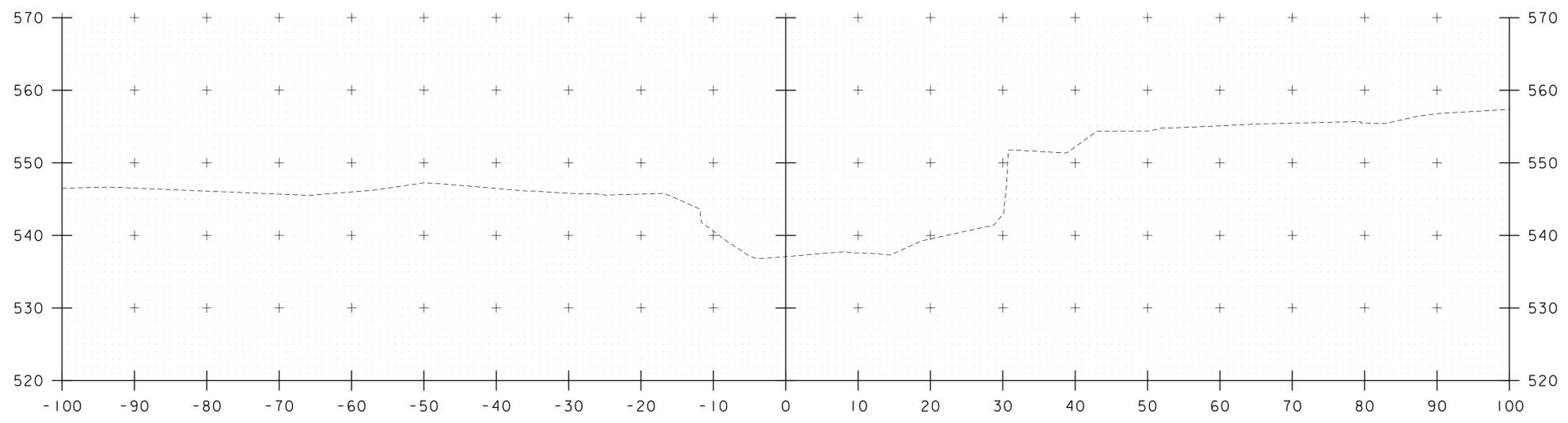
51+20

STA. 51+25 RT
 END UNCLASSIFIED CHANNEL EXCAVATION
 END STONE FILL, TYPE III
 END GEOTEXTILE UNDER STONE FILL
 END GRUBBING MATERIAL

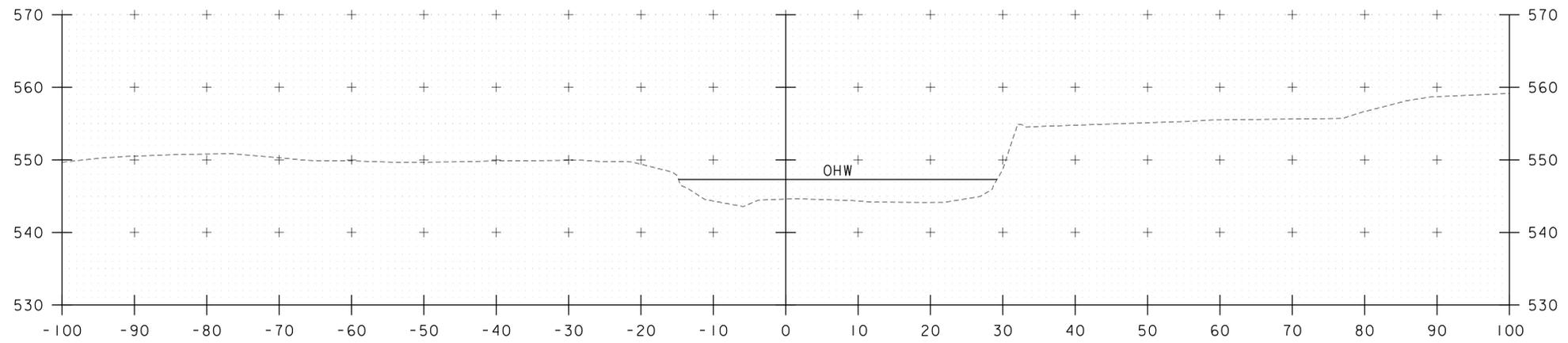
STA. 51+20 TO STA. 51+50



| | |
|--------------------------------------------|------------------------|
| PROJECT NAME: ENOSBURG | |
| PROJECT NUMBER: BRO 1448(40) | |
| FILE NAME: ...N3 ChannelCross Sections.dgn | LOT DATE: 10/4/2013 |
| PROJECT LEADER: G. BOGUE | DRAWN BY: E. ALLING |
| DESIGNED BY: G. GOYETTE | CHECKED BY: G. GOYETTE |
| CHANNEL CROSS SECTIONS - CXS 5 | SHEET 40 OF 46 |

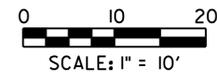


52+00



51+75

STA. 51+75 TO STA. 52+00



| | |
|--------------------------------------------|------------------------|
| PROJECT NAME: ENOSBURG | |
| PROJECT NUMBER: BRO 1448(40) | |
| FILE NAME: ...N3 ChannelCross Sections.dgn | LOT DATE: 10/4/2013 |
| PROJECT LEADER: G. BOGUE | DRAWN BY: E. ALLING |
| DESIGNED BY: G. GOYETTE | CHECKED BY: G. GOYETTE |
| CHANNEL CROSS SECTIONS - CXS 6 | SHEET 41 OF 46 |

EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REPLACEMENT OF BRIDGE #48, RELATED CHANNEL WORK AND INCIDENTALS. BRIDGE #48 WILL BE REPLACED WITH A PRECAST CONCRETE BRIDGE OVER TYLER BRANCH, ON NEW FOOTINGS ALONG THE SAME ALIGNMENT. BRIDGE #48 IS LOCATED IN THE TOWN OF ENOSBURG, BOSTON POST ROAD, AT THE INTERSECTION WITH TYLER BRANCH ROAD. THE LENGTH OF THE BRIDGE WILL BE INCREASED TO 73.5 FEET.

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 0.25 ACRES.

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

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY

THE TOPOGRAPHY OF THE AREA IS A SADDLE THAT IS MOSTLY OPEN GRASSED AREAS WITH SOME MEDIUM-SIZED TREES. BOSTON POST ROAD AND TYLER BRANCH ROAD ARE WITHIN THE PROJECT SITE. THERE ARE THREE ADJACENT HOUSES TO THE SITE, AND A FEW HOUSES UP SLOPE TO THE SOUTHWEST WITH GRASS AND TREE BUFFERS.

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

THE TYLER BRANCH IS THE ONLY WATER SOURCE ON THE PROJECT SITE. THE TYLER BRANCH IS CLASSIFIED AS STRAIGHT AND NARROW, WITH A CONFINED AND PARTIALLY ARMORED CHANNEL AT THE SITE. THE STREAM BED CONSISTS OF FINES, GRAVEL, COBBLES AND BOULDERS. DUE TO THE NATURE OF THE SURROUNDING TERRAIN THE PROJECT SITE COULD RECEIVE RUNOFF WATER FROM A FEW NEARBY SLOPES.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF OPEN GRASSED AREAS, HARDWOOD TREES AND UNDERGROWTH. THE IMPACT TO VEGETATION WILL BE LIMITED TO THE PROPOSED TOE OF SLOPE SHOWN ON THE PLANS. 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 COUNTY OF FRANKLIN, VERMONT. SOILS ON THE PROJECT SITE ARE PODUNK VARIANT SILT LOAM, "K FACTOR" = 0.32. THE SOIL IS CONSIDERED MODERATELY ERODIBLE DUE TO K-VALUE.

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: ARCHEOLOGICALLY SENSITIVE AREA IN SOUTHWEST QUADRANT AS SHOWN ON THE PLANS
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: TYLER BRANCH
WETLANDS: YES

1.3 RISK EVALUATION

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

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

THE EROSION CONTROL PLANS ARE MEANT AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. THE PRINCIPLES OUTLINED IN THIS NARRATIVE CONSIST OF APPLYING MEASURES THROUGHOUT CONSTRUCTION OF THE PROJECT IN ORDER TO MINIMIZE SEDIMENT TRANSPORT TO THE RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORM WATER CONTROLS AND OTHER POLLUTION PREVENTION PRACTICES. THEY HAVE BEEN PROPOSED BY THE DESIGNER AS A BASIS FOR PROTECTING RESOURCES AND WILL NEED TO BE BUILT UPON BASED ON THE SPECIFIC MEANS AND METHODS OF THE CONTRACTOR. REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR SPECIFIC GUIDANCE AND CONSTRUCTION DETAILING.

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

1.4.1 MARK SITE BOUNDARIES

SITE BOUNDARIES AND AREAS CONSTRUCTION EQUIPMENT CAN ACCESS SHALL BE DELINEATED.

PROJECT DEMARCATION FENCING (PDF) SHALL BE USED TO PHYSICALLY MARK SITE BOUNDARIES. BARRIER FENCE SHALL BE USED IN THE LOCATIONS SHOWN ON THE EPSC PLAN.

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.

WOVEN WIRE REINFORCED SILT FENCE AND FILTER CURTAINS OR OTHER APPROVED IN-STREAM SEDIMENT BARRIER SHALL BE USED IN THE LOCATIONS SHOWN 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.

THE PROJECT AREA IS RELATIVELY FLAT WITH MINIMAL OFF-SITE RUNOFF FLOWING THROUGH THE SITE. THEREFORE DIVERSION MEASURES WILL NOT BE NECESSARY.

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.

THERE ARE NO DITCHES WITHIN THE PROJECT LIMITS SO IT IS NOT ANTICIPATED THAT CHECK DAMS WILL BE USED.

1.4.7 CONSTRUCT PERMANENT CONTROLS

THERE ARE NO PERMANENT STORMWATER TREATMENT DEVICES TO BE INSTALLED 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. DEWATERING SITE TO BE REVIEWED AND APPROVED BY THE RESIDENT ENGINEER.

1.4.12 INSPECT YOUR SITE

INSPECT THE PROJECT SITE BASED ON SPECIAL PROVISION REQUIREMENTS.

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.

1.5.3 UPDATES

PROJECT NAME: ENOSBURG
PROJECT NUMBER: BRO 1448(40)

FILE NAME: ...\\08.A EPSC NARRATIVE.dgn PLOT DATE: 10/4/2013
PROJECT LEADER: G. BOGUE DRAWN BY: E. ALLING
DESIGNED BY: G. GOYETTE CHECKED BY: G. GOYETTE
EPSC NARRATIVE - ECN 1 SHEET 42 OF 46



ITEM 653.55 PROJECT DEMARCATION FENCE

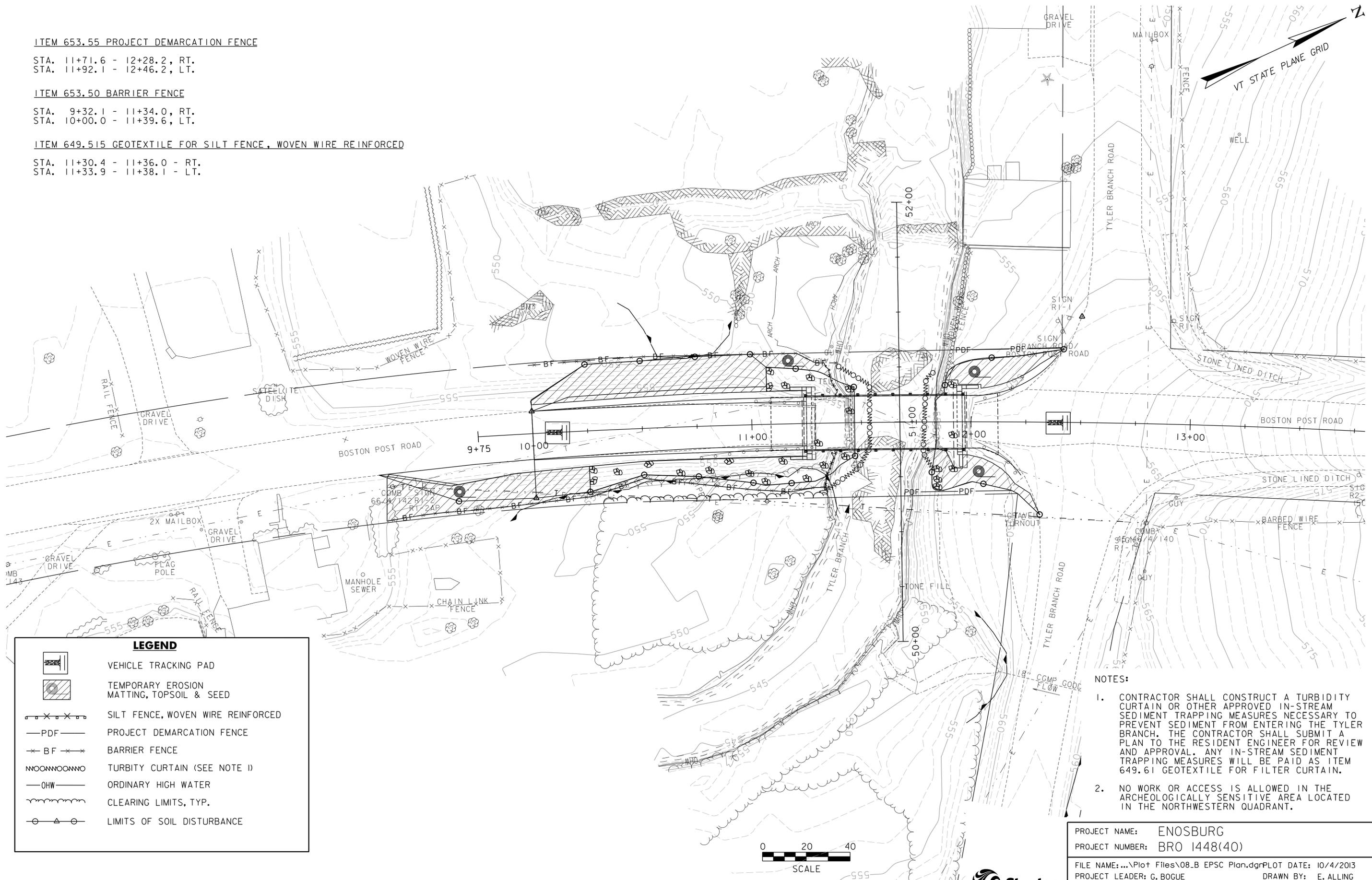
STA. 11+71.6 - 12+28.2, RT.
 STA. 11+92.1 - 12+46.2, LT.

ITEM 653.50 BARRIER FENCE

STA. 9+32.1 - 11+34.0, RT.
 STA. 10+00.0 - 11+39.6, LT.

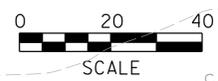
ITEM 649.515 GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED

STA. 11+30.4 - 11+36.0 - RT.
 STA. 11+33.9 - 11+38.1 - LT.



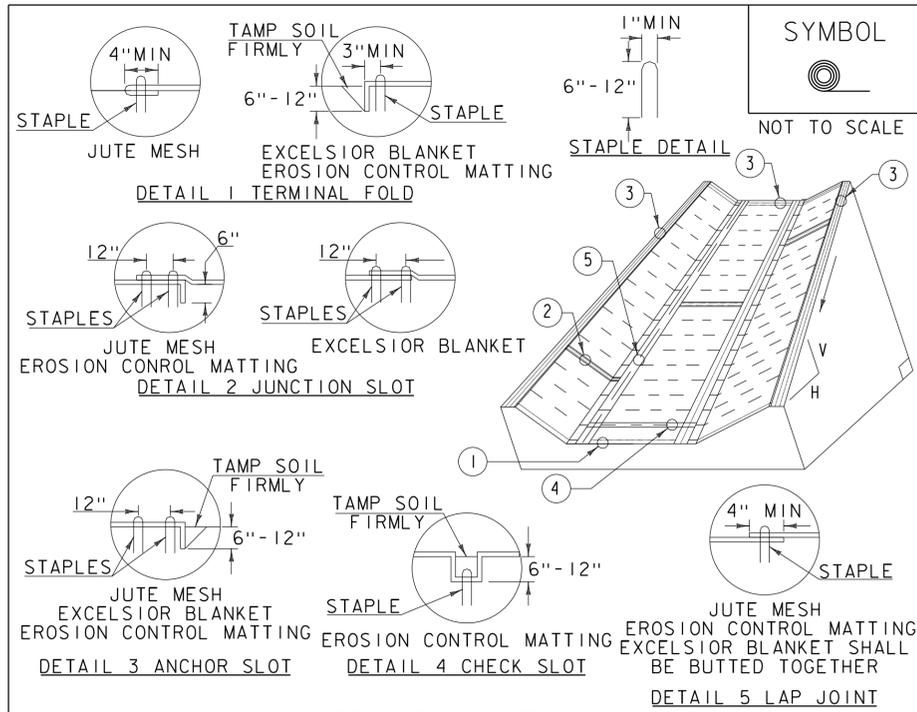
| LEGEND | |
|--------|-------------------------------------------|
| | VEHICLE TRACKING PAD |
| | TEMPORARY EROSION MATTING, TOPSOIL & SEED |
| | SILT FENCE, WOVEN WIRE REINFORCED |
| | PROJECT DEMARCATION FENCE |
| | BARRIER FENCE |
| | TURBIDITY CURTAIN (SEE NOTE 1) |
| | ORDINARY HIGH WATER |
| | CLEARING LIMITS, TYP. |
| | LIMITS OF SOIL DISTURBANCE |

- NOTES:**
- CONTRACTOR SHALL CONSTRUCT A TURBIDITY CURTAIN OR OTHER APPROVED IN-STREAM SEDIMENT TRAPPING MEASURES NECESSARY TO PREVENT SEDIMENT FROM ENTERING THE TYLER BRANCH. THE CONTRACTOR SHALL SUBMIT A PLAN TO THE RESIDENT ENGINEER FOR REVIEW AND APPROVAL. ANY IN-STREAM SEDIMENT TRAPPING MEASURES WILL BE PAID AS ITEM 649.61 GEOTEXTILE FOR FILTER CURTAIN.
 - NO WORK OR ACCESS IS ALLOWED IN THE ARCHEOLOGICALLY SENSITIVE AREA LOCATED IN THE NORTHWESTERN QUADRANT.



PROJECT NAME: ENOSBURG
 PROJECT NUMBER: BRO 1448(40)
 FILE NAME: ...Plot Files\08.B EPSC Plan.dgr PLOT DATE: 10/4/2013
 PROJECT LEADER: G. BOGUE DRAWN BY: E. ALLING
 DESIGNED BY: G. GOYETTE CHECKED BY: G. GOYETTE
EPSC CONST. SITE PLAN - ECP 1 SHEET 43 OF 46





CONSTRUCTION SPECIFICATIONS

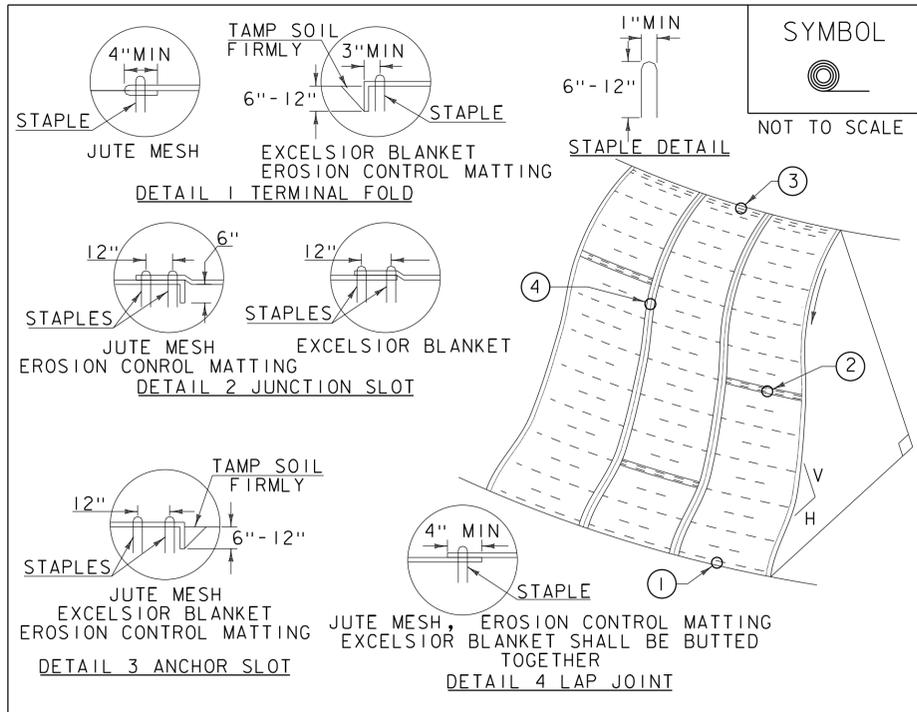
1. EROSION MATTING, CHECK SLOTS, SHALL BE SPACED IN DITCH CHANNEL SO THAT ONE OCCURS WITHIN EACH 50' ON SLOPES OF MORE THAN 4% AND LESS THAN 6%. ON SLOPES OF 6% OR MORE, THEY SHALL BE SPACED SO THAT ONE OCCURS WITHIN EACH 25'.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO 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) DITCH

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 | | |
|------------------|-----|--|
| MARCH 8, 2007 | JMF | |
| APRIL 16, 2007 | WHF | |
| JANUARY 13, 2009 | WHF | |



CONSTRUCTION SPECIFICATIONS

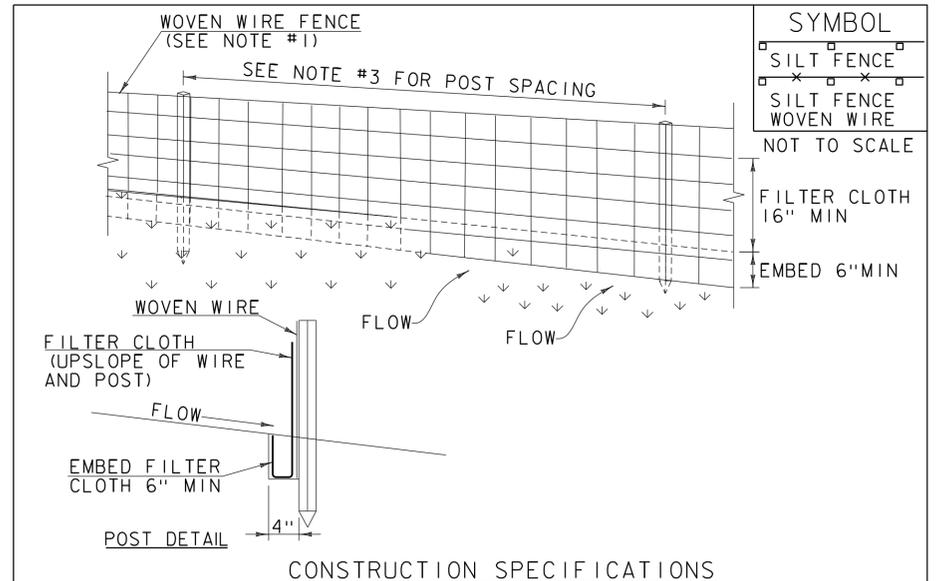
1. APPLY TO SLOPES GREATER THAN 3H:1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER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



CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE REINFORCED FENCE IS REQUIRED WITHIN 100' UPSLOPE OF RECEIVING WATERS WHEN THE PROJECT FALLS UNDER A CONSTRUCTION STORMWATER PERMIT. WOVEN WIRE SHALL BE A MIN. 14 GAUGE WITH A 6" MAX. MESH OPENING.
2. FILTER CLOTH SHALL BE EITHER FILTER X, 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 649.51) OR GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED (PAY ITEM 649.515).

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

PROJECT NAME: ENOSBURG
PROJECT NUMBER: BRO 1448(40)

FILE NAME: ...N08.C EPSC Details.dgn PLOT DATE: 10/4/2013
PROJECT LEADER: G. BOGUE DRAWN BY: E. ALLING
DESIGNED BY: G. GOYETTE CHECKED BY: G. GOYETTE
EROSION CONTROL DETAILS - ECD 1 SHEET 44 OF 46



| 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 |

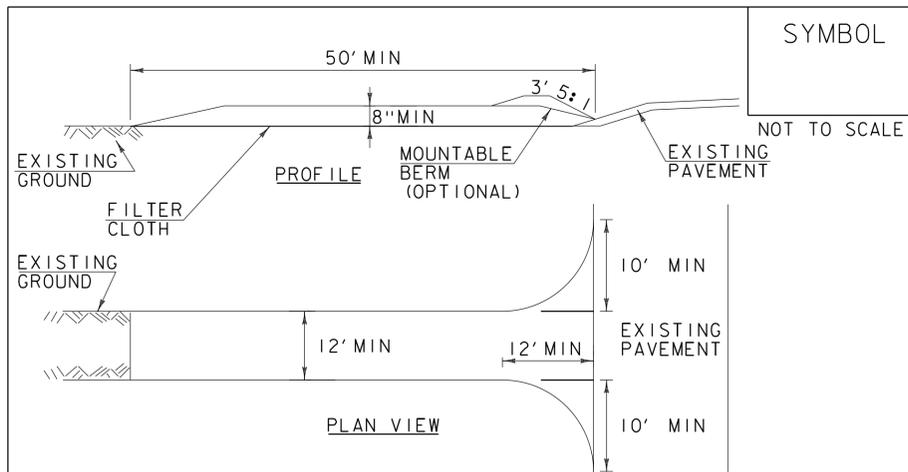
CONSTRUCTION GUIDANCE

- RURAL SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED UPLAND (NON WETLAND) AREAS DISTURBED BY THE CONTRACTOR.
- URBAN SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED LAWN AREAS DISTURBED BY THE CONTRACTOR.
- ALL SEED MIXTURES: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
- FERTILIZER AND LIMESTONE: SHALL FOLLOW RATES SHOWN ON PLAN OR AS DIRECTED BY THE ENGINEER
- 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.
- TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.
- 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
- 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

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

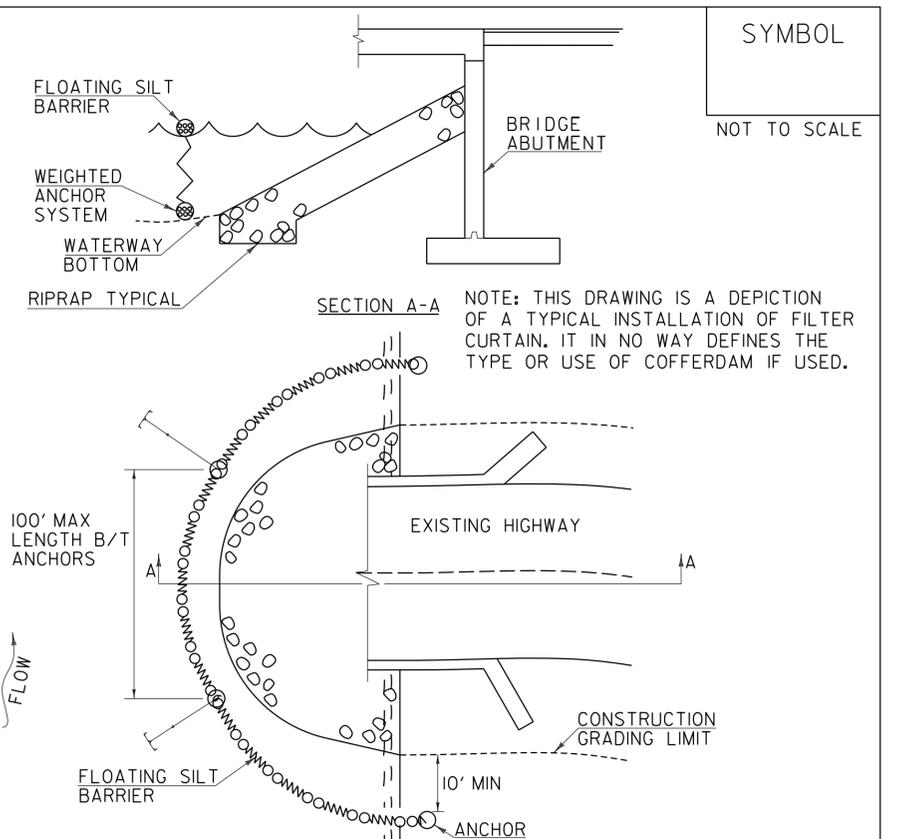
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

STABILIZED CONSTRUCTION ENTRANCE

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

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

| REVISIONS | |
|------------------|-----|
| MARCH 24, 2008 | WHF |
| JANUARY 13, 2009 | WHF |



CONSTRUCTION SPECIFICATIONS

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

FILTER CURTAIN

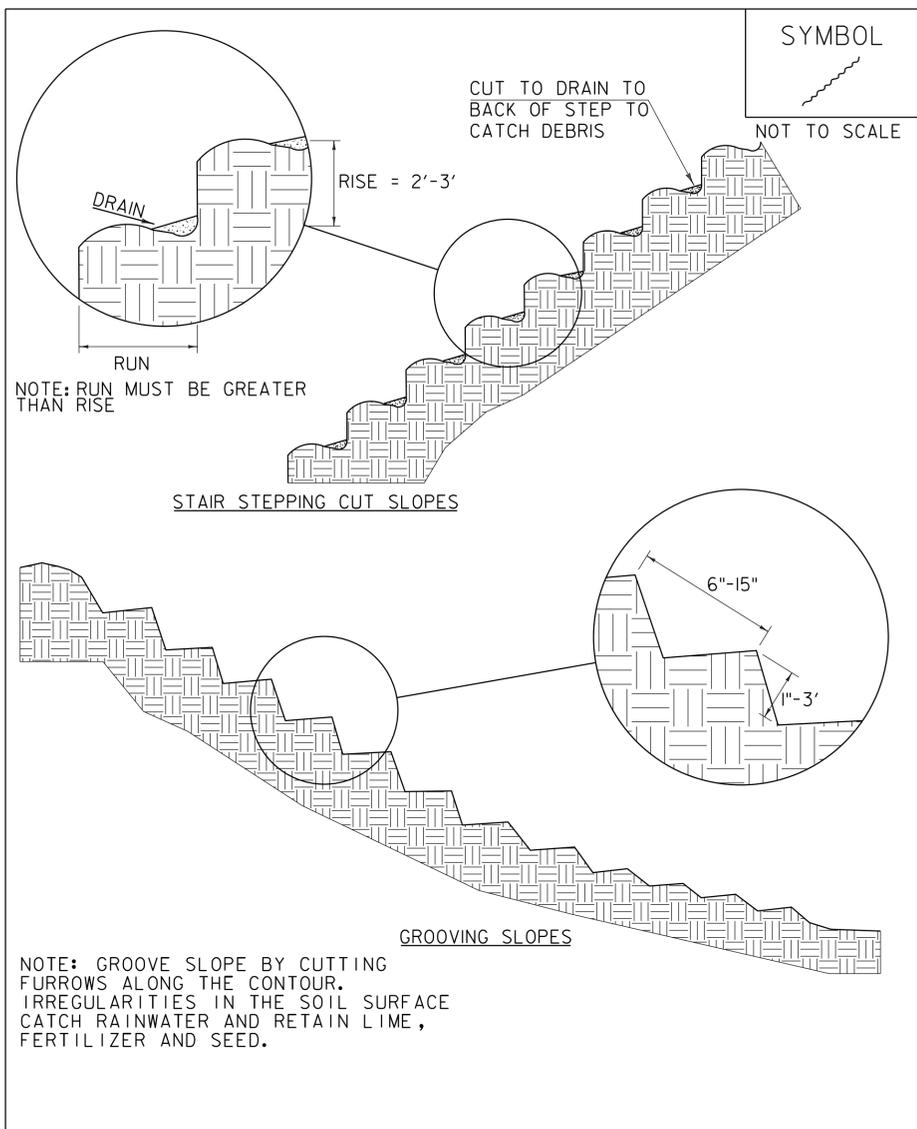
| REVISIONS | |
|-------------------|-----|
| APRIL 1, 2008 | WHF |
| JANUARY 13, 2009 | WHF |
| SEPTEMBER 4, 2009 | WHF |

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 FOR GEOTEXTILE FOR FILTER CURTAIN (PAY ITEM 649.6I).

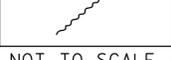
PROJECT NAME: ENOSBURG
PROJECT NUMBER: BRO 1448(40)

FILE NAME: ...N08.C EPSC Details.dgn PLOT DATE: 10/4/2013
PROJECT LEADER: G. BOGUE DRAWN BY: E. ALLING
DESIGNED BY: G. GOYETTE CHECKED BY: G. GOYETTE
EROSION CONTROL DETAILS - ECD 2 SHEET 45 OF 46





SYMBOL



NOT TO SCALE

NOTE: RUN MUST BE GREATER THAN RISE

STAIR STEPPING CUT SLOPES

GROOVING SLOPES

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

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

SURFACE ROUGHENING

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

| REVISIONS | |
|------------------|-----|
| APRIL 1, 2008 | WHF |
| JANUARY 13, 2009 | WHF |
| | |
| | |

THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT



| | |
|----------------------------------------|-------------------------|
| PROJECT NAME: ENOSBURG | PLOT DATE: 10/4/2013 |
| PROJECT NUMBER: BRO 1448(40) | DRAWN BY: E. ALLING |
| FILE NAME: ...\\08.C EPSC Details.dgn | CHECKED BY: G. GOYETTE |
| PROJECT LEADER: G. BOGUE | DESIGNED BY: G. GOYETTE |
| EROSION CONTROL DETAILS - ECD 3 | |
| SHEET 46 OF 46 | |

ASPHALTIC PLUG JOINT NOTES

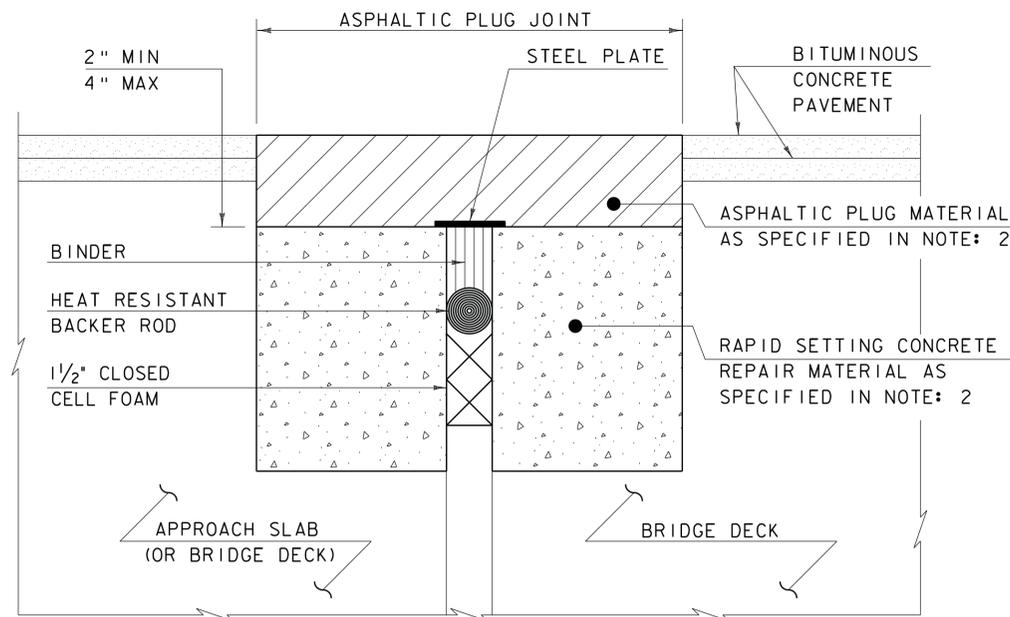
INSTALLATION:

1. LOCATE THE JOINT CENTRALLY OVER THE DECK OVERLAY EXPANSION GAP OR FIXED JOINT, MARKED OUT TO THE MANUFACTURER'S RECOMMENDED WIDTH.
2. REMOVE THE BITUMINOUS CONCRETE PAVEMENT FULL DEPTH AS SHOWN ON THE PLANS. THE PAVEMENT SHALL BE DRY AND SAW CUT TO THE LIMITS REQUIRED TO PLACE THE JOINT. A PNEUMATIC HAMMER AND CHISEL MAY BE USED ADJACENT TO THE CURB ONLY WHEN SAW CUTTING IS NOT POSSIBLE.
3. BLAST CLEAN THE JOINT AREA OF DEBRIS, ASPHALT AND SHEET MEMBRANE. THOROUGHLY DRY THE JOINT AREA WITH COMPRESSED AIR PRIOR TO APPLYING BINDER MATERIAL.
4. REPAIR MATERIAL GREATER THAN 4 INCHES FROM FINISHED GRADE WITH RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE MEETING THE REQUIREMENTS OF SUBSECTION 780.04.
5. PLACE PROPERLY SIZED HEAT RESISTANT BACKER ROD IN THE MOVEMENT GAP ALLOWING FOR 1" +/- OF BINDER ABOVE THE ROD.
6. HEAT AND PLACE THE BINDER MATERIAL AS RECOMMENDED BY THE MANUFACTURER.
7. PLACE 1/4" THICK BY 8" WIDE SECTIONS OF STEEL PLATE OVER THE CENTER OF THE MOVEMENT GAP. SECURE THE PLATES FROM MOVING BY INSERTING LOCATING PINS THROUGH THE PRE-STAMPED HOLES INTO BACKER ROD AND COVER WITH HOT BINDER. THE STEEL PLATES MAY BE OMITTED WHERE THE ENGINEER DETERMINES THAT THE APPROACH SLAB OR BRIDGE DECK WILL PROVIDE INADEQUATE SUPPORT AND WHERE VERTICAL MOVEMENT OF THE PLATES MIGHT OCCUR.
8. HEAT AND MIX THE BINDER MATERIAL AND AGGREGATE AS RECOMMENDED BY THE MANUFACTURER.
9. INSTALLATION OF MATERIAL, COMPACTION, AND TOP COATING SHALL BE AS RECOMMENDED BY THE MANUFACTURER.
10. IMMEDIATELY AFTER TOP COATING, CAST AN ANTI-SKID MATERIAL OVER THE JOINT TO REDUCE THE RISK OF TRACKING.
11. ONCE THE JOINT REACHES 82 DEG C (180 DEG F) +/-, WATER MAY BE USED TO EXPEDITE THE COOLING PROCESS.
12. PROTECT JOINT FROM TRAFFIC UNTIL THE MATERIAL HAS COOLED TO 51 DEG C (125 DEG F) +/-.

WEATHER LIMITATIONS

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

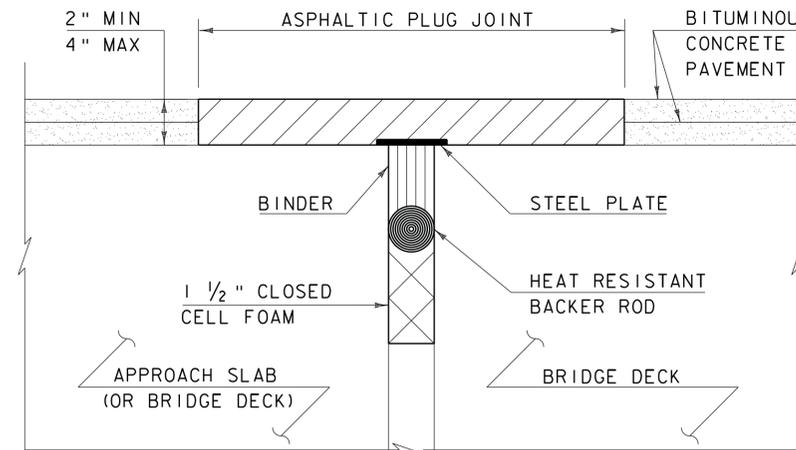
1. THE AMBIENT AIR TEMPERATURE IS AT LEAST 10 DEG C (50 DEG F) AND RISING.
2. THE ROAD SURFACE IS DRY.
3. WEATHER CONDITIONS OR OTHER CONDITIONS ARE FAVORABLE AND ARE EXPECTED TO REMAIN SO FOR THE PERFORMANCE OF SATISFACTORY WORK.



ASPHALTIC PLUG-JOINT DETAIL - REHAB

NOTES: (NOT TO SCALE)

1. THE CONTRACTOR SHALL REMOVE ALL ASPHALTIC PLUG JOINT MATERIAL AND DETERIORATED CONCRETE AS DIRECTED BY THE ENGINEER. REMOVAL OF THE FIRST 4 INCHES OF MATERIAL SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 516.10 BRIDGE EXPANSION JOINT, ASPHALTIC PLUG. ANY REMOVAL OF MATERIAL GREATER THAN 4 INCHES SHALL BE INCLUDED IN THE BID PRICE OF ITEM 580.20 RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE.
2. THE CONTRACTOR SHALL REPLACE REMOVED MATERIAL THAT IS LESS THAN 4" FROM FINISHED GRADE WITH ASPHALTIC PLUG JOINT MATERIAL MEETING THE REQUIREMENTS OF SUBSECTION 707.15. ALL REMOVED MATERIAL THAT IS GREATER THAN 4 INCHES FROM FINISHED GRADE SHALL BE REPLACED WITH RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE MEETING THE REQUIREMENTS OF SUBSECTION 780.04.
3. REINFORCING STEEL NOT SHOWN FOR CLARITY.

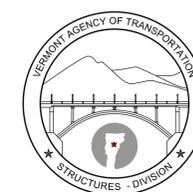


ASPHALTIC PLUG-JOINT DETAIL - NEW
(NOT TO SCALE)

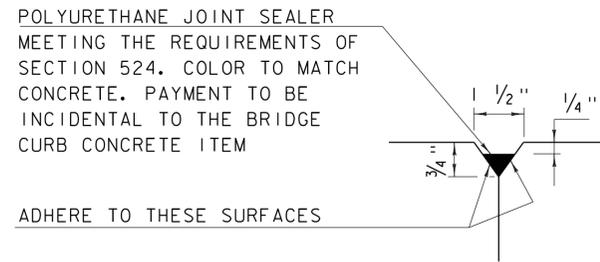
REVISIONS

| | |
|-------------|---------------------------------------------|
| MAY 7, 2010 | APPROVED FOR USE BY VAOT STRUCTURES SECTION |
| | |
| | |
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| | |

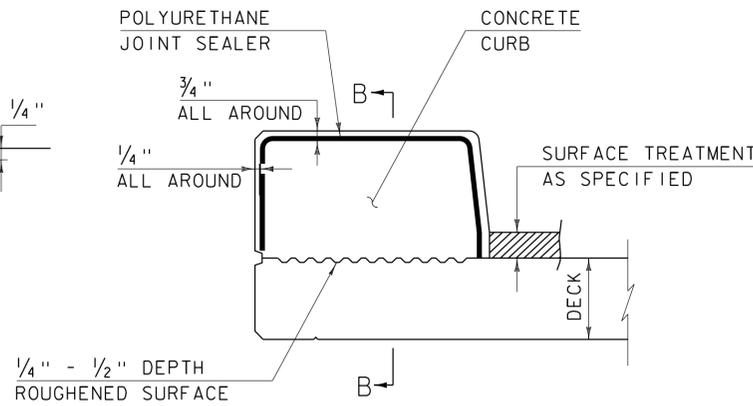
BRIDGE JOINT
ASPHALTIC PLUG



STRUCTURES
DETAIL
SD-516.10

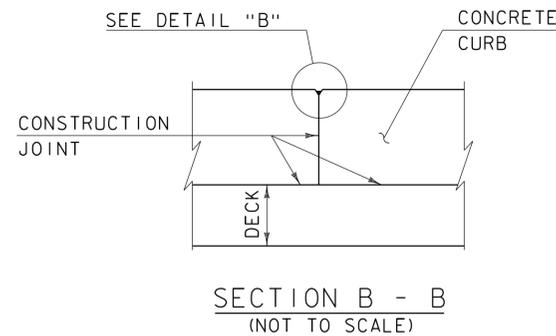


DETAIL "B"
(NOT TO SCALE)

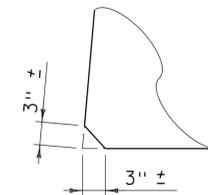


CONCRETE CURB JOINT SECTION
(NOT TO SCALE)

1. SEE TYPICAL HORIZONTAL CONSTRUCTION JOINT DETAIL FOR ADDITIONAL INFORMATION



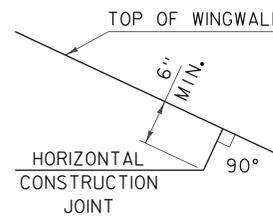
SECTION B - B
(NOT TO SCALE)



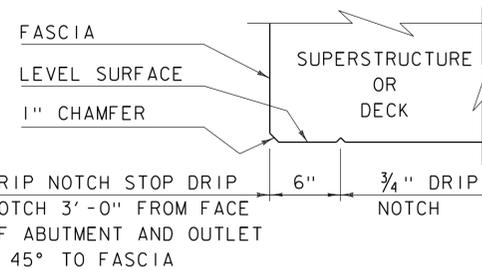
ACUTE ANGLE
CLIP DETAIL
(NOT TO SCALE)

CONCRETE CURB JOINT NOTES

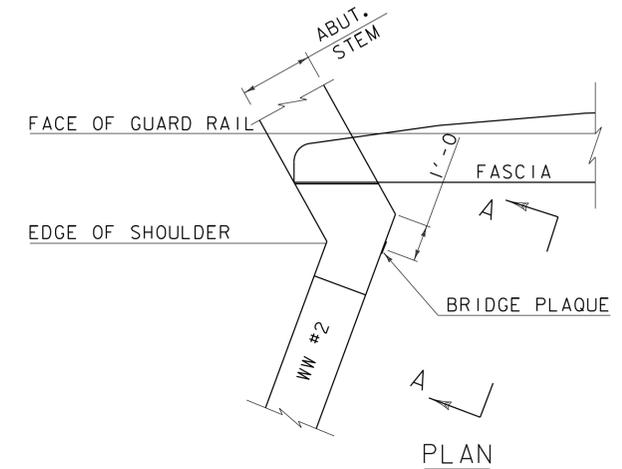
1. CONCRETE CURBS MAY BE PLACED IN ONE CONTINUOUS OPERATION IF AN APPROVED SHRINKAGE REDUCING ADMIXTURE LISTED IN THE SPECIAL PROVISIONS IS USED WITH THE CONCRETE MIX DESIGN. PAYMENT FOR THE SHRINKAGE REDUCING ADMIXTURE WILL BE INCIDENTAL TO THE BRIDGE CURB CONCRETE ITEM.
2. IF THE CONTRACTOR CHOOSES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



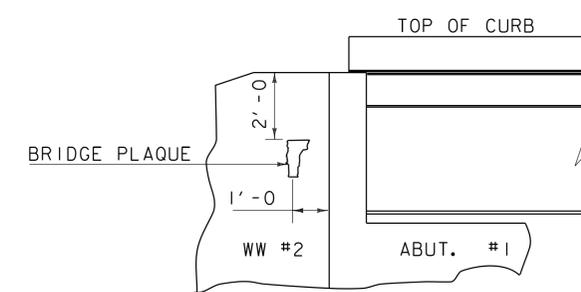
HORIZONTAL WINGWALL
CONSTRUCTION JOINT
(NOT TO SCALE)



DRIP NOTCH DETAIL
(NOT TO SCALE)



PLAN



VIEW "A - A"

BRIDGE PLAQUE
(NOT TO SCALE)

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

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

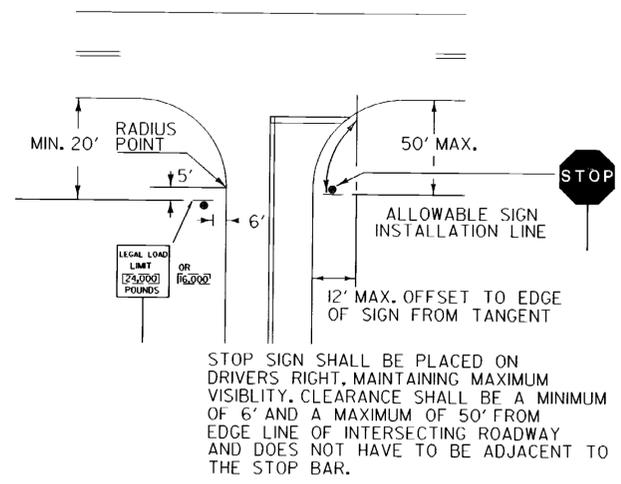
REVISIONS

| | |
|------------------|-----------------------------------------------------|
| MAY 7, 2010 | APPROVED FOR USE BY VAOT STRUCTURES SECTION |
| JUNE 4, 2010 | MODIFIED AND ADDED TWO DETAILS |
| OCTOBER 10, 2012 | MODIFIED HORZ. JOINT WINGWALL ADD 6" MIN. DIMENSION |
| | |
| | |
| | |
| | |

CONCRETE
DETAILS AND NOTES

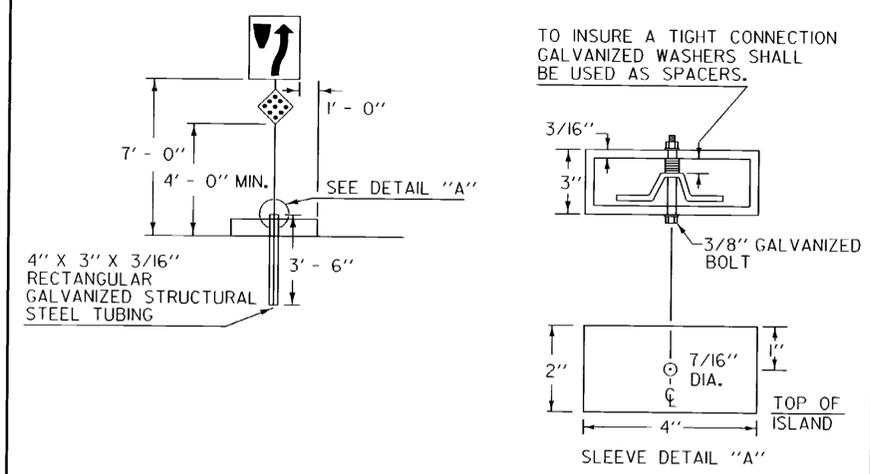


STRUCTURES
DETAIL
SD-502.00



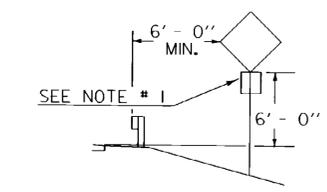
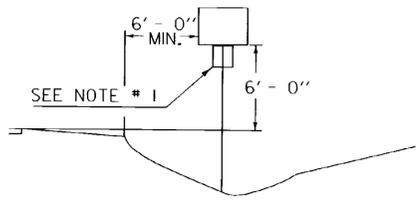
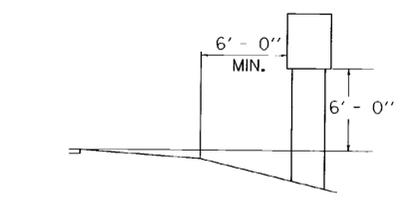
LEGAL LOAD LIMIT AND STOP SIGNS AT INTERSECTIONS WITH TOWN HIGHWAYS

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

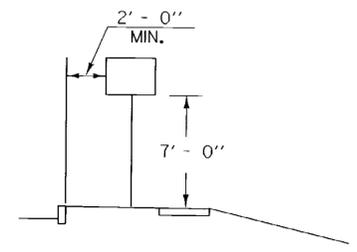
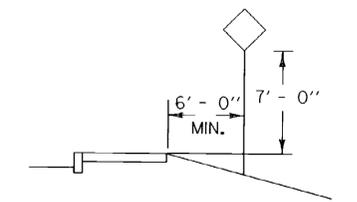


SIGNS ON MEDIAN ISLANDS IN THE LINE OF TRAFFIC

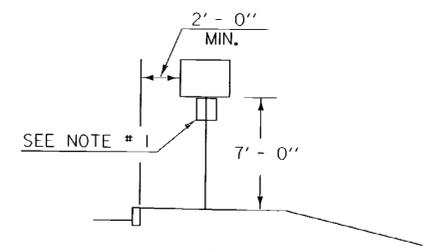
INCREASE VERTICAL CLEARANCE TO 7' IN AREAS OF FREQUENT ROADSIDE PARKING OR PEDESTRIAN ACTIVITY



RURAL



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



URBAN

NOTES:

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

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

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

REVISIONS AND CORRECTIONS
JAN. 23, 1995 - DATE OF ORIGINAL ISSUE
AUG. 08, 1995 - VARIOUS MINOR NOTE REVISIONS

APPROVED
Stephen D. MacArthur
DIRECTOR OF ENGINEERING
David A. Ross
TRAFFIC AND SAFETY ENGINEER

**STANDARD SIGN PLACEMENT
CONVENTIONAL ROAD**



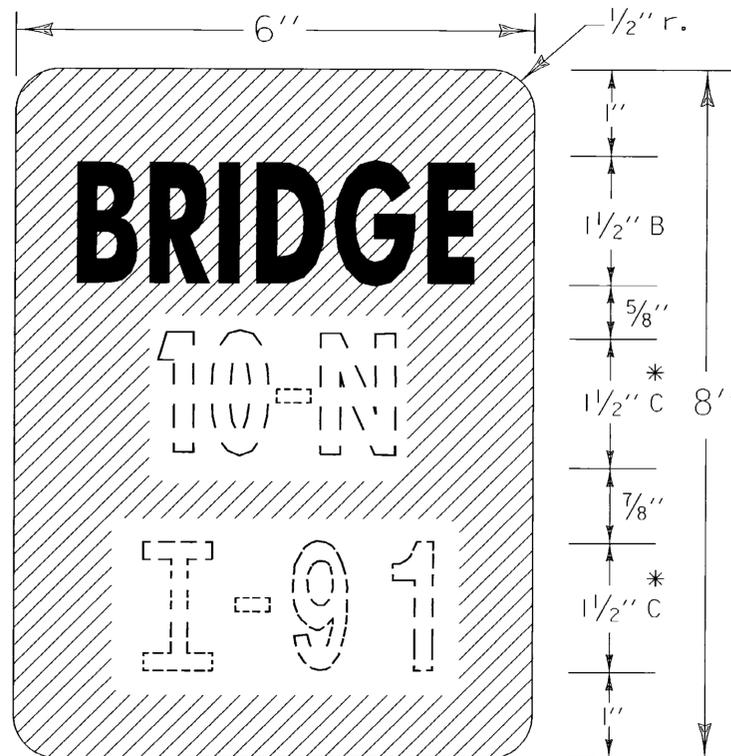
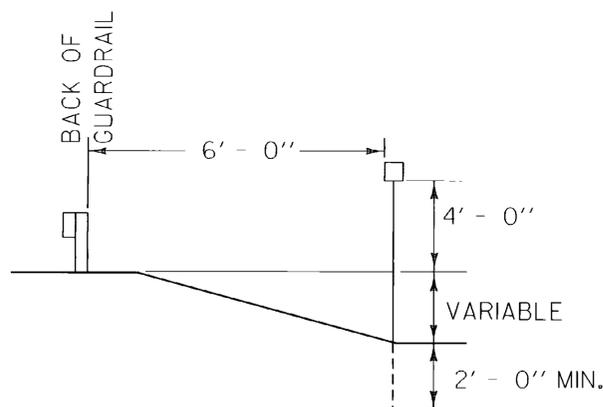
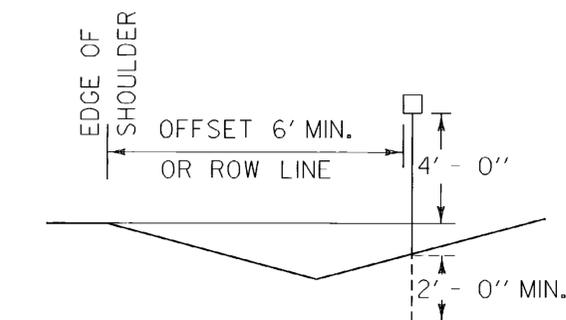
**STANDARD
E-121**

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

I-91
 ← 2" →

HYPHENATED WORD DETAIL

FOR EXAMPLE, ROUTE NUMBERS
 SHALL APPEAR AS: I-91, US5, VT22



VD-701

* OPTICALLY SPACE BRIDGE
 AND ROUTE NUMBERS.
 SERIES B LETTERS MAY
 BE USED TO MAINTAIN
 VISUAL INTEGRITY.

NOTES:

GENERAL:
 DOTTED LINES AND NUMERALS INDICATE TEXT THAT VARIES.

PAYMENT:
 BRIDGE PLAQUES SHALL BE PAID AS TRAFFIC SIGNS, TYPE 'A',
 AND POSTS PAID AS FLANGED CHANNEL STEEL SIGN POSTS.

MATERIAL:
 THE SIGN BASE MATERIAL SHALL BE 0.04" FLAT SHEET ALUMINUM.

COLORS:
 THE SIGN SHALL HAVE A REFLECTORIZED WHITE TEXT ON REFLECTORIZED
 GREEN BACKGROUND. THE COLORS SHALL CONFORM WITH THOSE FOUND
 IN STANDARD COLOR TOLERANCE CHARTS AS APPROVED BY THE U.S.
 DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

LETTERING:
 LETTERS AND DIGITS SHALL CONFORM WITH THE STANDARD ALPHABETS
 FOR HIGHWAY SIGNS AS PRINTED BY THE FEDERAL HIGHWAY ADMINISTRATION.

POSTS:
 FLANGED CHANNEL STEEL 2#/FT POSTS SHALL BE USED WHEN THE POST LENGTH
 EXCEEDS 7 FEET. FOR LENGTH OF 7 FEET OR LESS, A 1.12#/FT STEEL SIGN POST
 SHALL BE USED.

**OTHER STDS.
 REQUIRED:**

REVISIONS AND CORRECTIONS

DEC. 17, 1989 - DATE OF ORIGINAL ISSUE
 AUG. 08, 1995 - MISC NOTE REVISIONS

APPROVED

Gordon S. MacArthur
 DIRECTOR OF ENGINEERING

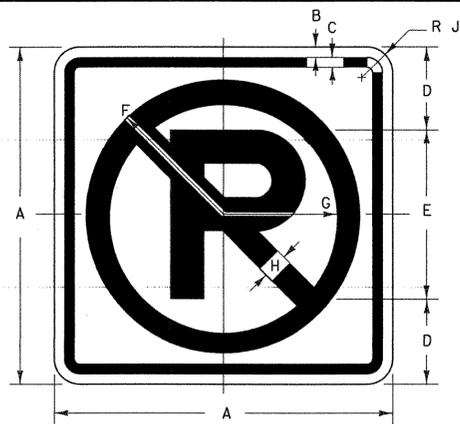
David A. Ross
 TRAFFIC AND SAFETY ENGINEER

BRIDGE NUMBER PLAQUE



STANDARD
 E-134

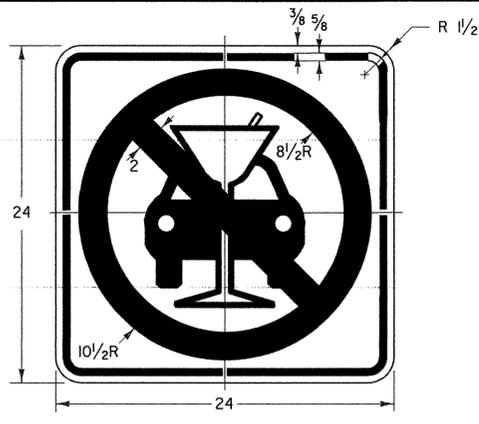
APPROVED FOR THIS PROJECT
 AND/OR DESIGN IMPLEMENTATION,
 FHWA FINAL APPROVAL PENDING.



R8-3A

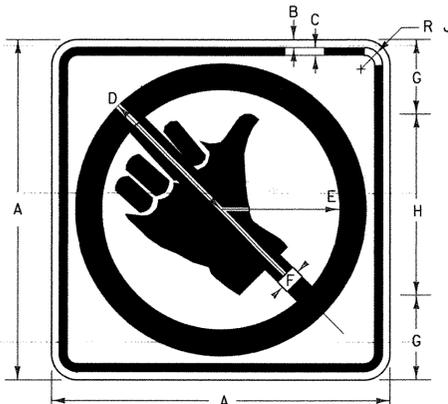
COLORS:
CIRCLE AND DIAGONAL - RED (RETROREFL)
SYMBOL AND BORDER - BLACK (NON - REFL)
BACKGROUND - WHITE (RETROREFL)

| SIGN | DIMENSIONS (INCHES) | | | | | | | | | |
|---------------------|-----------------------|-----|-------|----|--------|--------|--------|---|-------|--|
| | A | B | C | D | E | F | G | H | J | |
| URBAN MIN. AND STD. | 12 | 3/8 | 3/8 | 3 | 6E(M) | 4 7/8 | 3 7/8 | 1 | 1 1/2 | |
| RURAL MIN. AND STD. | 24 | 3/8 | 5/8 | 6 | 12E(M) | 10 1/2 | 8 1/2 | 2 | 1 1/2 | |
| EXPWY. | 36 | 5/8 | 7/8 | 9 | 18E(M) | 15 3/4 | 12 3/4 | 3 | 2 1/4 | |
| FWY. | 48 | 3/4 | 1 1/4 | 12 | 24E(M) | 21 | 17 | 4 | 3 | |



VR-654

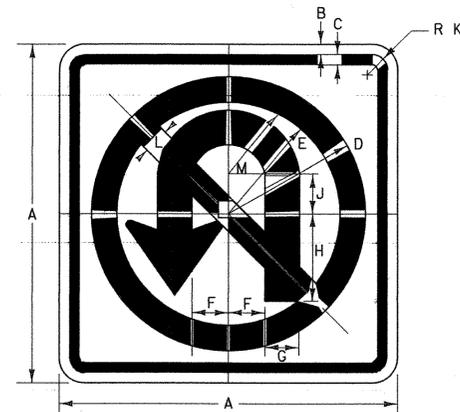
COLORS:
CIRCLE AND DIAGONAL - RED (RETROREFL)
SYMBOL AND BORDER - BLACK (NON - REFL)
BACKGROUND - WHITE (RETROREFL)



R9-4A

COLORS:
CIRCLE AND DIAGONAL - RED (RETROREFL)
SYMBOL AND BORDER - BLACK (NON - REFL)
BACKGROUND - WHITE (RETROREFL)

| SIGN | DIMENSIONS (INCHES) | | | | | | | | | |
|------|-----------------------|-----|-----|--------|-------|-------|-------|--------|-------|--|
| | A | B | C | D | E | F | G | H | J | |
| MIN. | 18 | 3/8 | 5/8 | 7 7/8 | 6 3/8 | 1 1/2 | 3 3/4 | 10 1/2 | 1 1/2 | |
| STD. | 24 | 3/8 | 5/8 | 10 1/2 | 8 1/2 | 2 | 5 | 14 | 1 1/2 | |

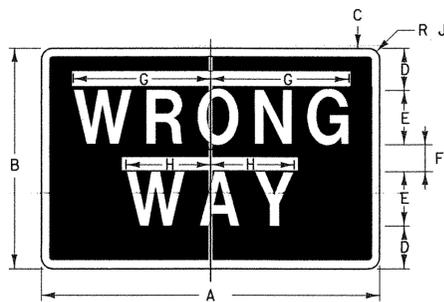
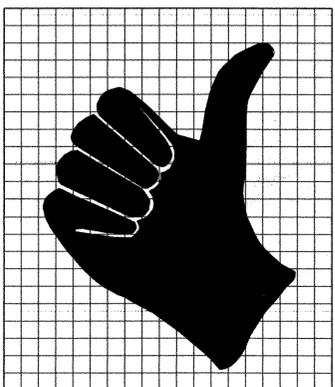
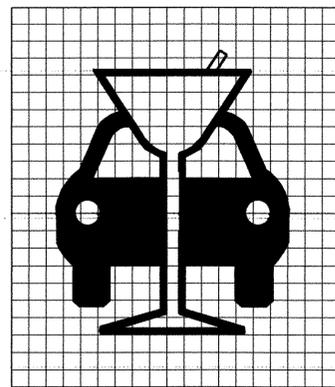


R3-4

SEE STANDARD E-151 FOR ARROW DETAIL

COLORS:
CIRCLE AND DIAGONAL - RED (RETROREFL)
ARROW AND BORDER - BLACK (NON - REFL)
BACKGROUND - WHITE (RETROREFL)

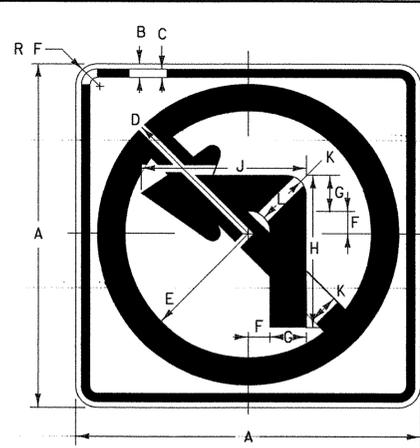
| SIGN | DIMENSIONS (INCHES) | | | | | | | | | | | | |
|---------------|-----------------------|-----|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|--|
| | A | B | C | D | E | F | G | H | J | K | L | M | |
| MIN. AND STD. | 24 | 3/8 | 5/8 | 10 1/2 | 8 1/2 | 2 1/2 | 2 1/2 | 6 | 2 1/4 | 1 1/2 | 2 | 5 | |
| SPECIAL | 30 | 1/2 | 3/4 | 13 1/8 | 10 5/8 | 3 1/8 | 3 1/8 | 7 1/2 | 2 1/8 | 1 7/8 | 2 1/2 | 6 1/4 | |
| EXPWY. | 36 | 5/8 | 7/8 | 15 3/4 | 12 3/4 | 3 3/4 | 3 3/4 | 9 | 3 3/8 | 2 1/4 | 3 | 7 1/2 | |
| SPECIAL | 48 | 3/4 | 1 1/4 | 21 | 17 | 5 | 5 | 12 | 4 1/2 | 3 | 4 | 10 | |



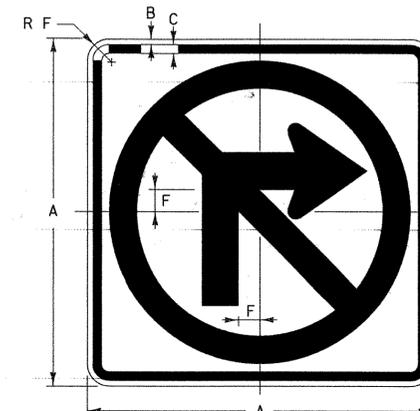
R5-1A

COLORS:
LEGEND - WHITE (RETROREFL)
BACKGROUND - RED (RETROREFL)

| SIGN | DIMENSIONS (INCHES) | | | | | | | | | |
|---------|-----------------------|----|-----|-------|----|---|---------|--------|-------|--|
| | A | B | C | D | E | F | G | H | J | |
| STD. | 36 | 24 | 3/4 | 4 1/2 | 6D | 3 | 13 5/16 | 8 1/16 | 1 1/2 | |
| SPECIAL | 42 | 30 | 7/8 | 5 | 8D | 4 | 17 3/4 | 10 3/4 | 1 7/8 | |



R3-2

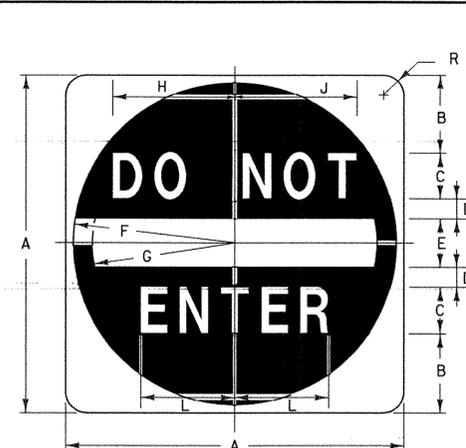


R3-1

NOTE
SEE STANDARD E-151 FOR ARROW DETAIL
USE SAME ARROW DETAIL FOR R3-1 AND R3-2

COLORS:
CIRCLE AND DIAGONAL - RED (RETROREFL)
ARROW AND BORDER - BLACK (NON - REFL)
BACKGROUND - WHITE (RETROREFL)

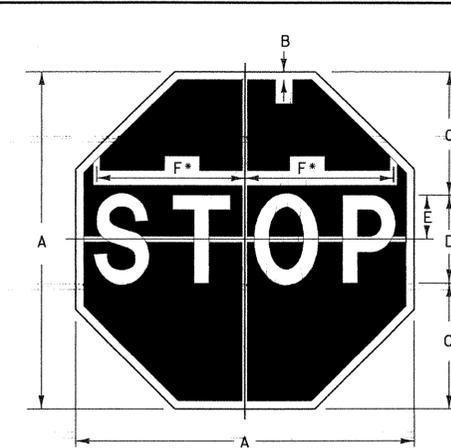
| SIGN | DIMENSIONS (INCHES) | | | | | | | | | | | | |
|---------------|-----------------------|-----|-------|--------|--------|-------|-------|--------|--------|-------|-------|--|--|
| | A | B | C | D | E | F | G | H | J | K | L | | |
| MIN. AND STD. | 24 | 3/8 | 5/8 | 10 1/2 | 8 1/2 | 1 1/2 | 2 1/2 | 10 1/2 | 11 1/2 | 2 | 1 1/2 | | |
| SPECIAL | 30 | 1/2 | 3/4 | 13 1/8 | 10 5/8 | 1 7/8 | 3 1/8 | 13 1/8 | 14 1/2 | 2 1/2 | 5/8 | | |
| EXPWY. | 36 | 5/8 | 7/8 | 15 3/4 | 12 3/4 | 2 1/4 | 3 3/4 | 15 3/4 | 17 1/4 | 3 | 3/4 | | |
| SPECIAL | 48 | 3/4 | 1 1/4 | 21 | 17 | 3 | 5 | 21 | 23 | 4 | 1 | | |



R5-1

COLORS:
SYMBOL - RED (RETROREFL)
LEGEND AND BACKGROUND - WHITE (RETROREFL)

| SIGN | DIMENSIONS (INCHES) | | | | | | | | | | | |
|---------------|-----------------------|-------|----|-------|---|--------|--------|--------|--------|-------|--------|--|
| | A | B | C | D | E | F | G | H | J | K | L | |
| MIN. AND STD. | 30 | 6 1/2 | 4D | 2 | 5 | 14 1/2 | 12 1/2 | 9 3/4 | 10 | 1 7/8 | 7 7/8 | |
| EXPWY. | 36 | 7 1/2 | 5D | 2 1/2 | 6 | 17 1/2 | 15 | 12 | 12 3/8 | 2 1/4 | 9 1/16 | |
| SPECIAL | 48 | 11 | 6D | 3 | 8 | 23 1/2 | 20 | 14 1/2 | 15 | 3 | 11 3/4 | |



R1-1

* REDUCE SPACING 40 %

COLORS:
LEGEND - WHITE (RETROREFL)
BACKGROUND - RED (RETROREFL)

| SIGN | DIMENSIONS (INCHES) | | | | | |
|---------|-----------------------|-------|----|-----|---|--------|
| | A | B | C | D | E | F |
| PATH | 18 | 3/8 | 6 | 6C | 3 | 7 3/4 |
| MIN. | 24 | 5/8 | 8 | 8C | 4 | 10 |
| STD. | 30 | 3/4 | 10 | 10C | 5 | 12 1/2 |
| EXPWY. | 36 | 7/8 | 12 | 12C | 6 | 15 |
| SPECIAL | 48 | 1 1/4 | 16 | 16C | 8 | 20 |

NOTES

DESIGN

LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE "STANDARD HIGHWAY SIGNS BOOK" AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION (FHWA). SEE STANDARD E-144 FOR ARROWHEAD DETAILS.

MATERIALS

THE SIGN BASE MATERIALS USED FOR REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

| | | |
|-----------|-----------|-----------|
| 12" X 12" | 24" X 24" | 36" X 24" |
| 18" X 18" | 30" X 18" | 36" X 36" |
| | 30" X 30" | 42" X 30" |
| | | 48" X 48" |
| | 0.060" | 0.080" |
| | | 0.100" |
| | | 0.125" |

REFLECTORIZATION

THE BACKGROUND RETROREFLECTIVE MATERIAL SHALL BE ASTM TYPE III OR TYPE VIII RETROREFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE BLACK PORTIONS OF SIGNS MAY BE LETTERING FILM OR SILK SCREENED.

COLORS

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL BE AS DETAILED FOR EACH SIGN. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY AASHTO AND APPROVED BY THE FHWA.

SPECIFICATIONS

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR CONSTRUCTION "TRAFFIC SIGNS".

OTHER STDS. E-144, E-151 REQUIRED:

REVISIONS AND CORRECTIONS

- OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
- SEPT. 20, 1995 - ADDED AND DELETED SIGN DETAILS, ADDED SIGN ID NUMBERS, MINOR NOTE REVISIONS.
- JUNE 15, 2004 - CHANGED REFLECTIVE SHEETING TO TYPE III OR TYPE VIII

APPROVED

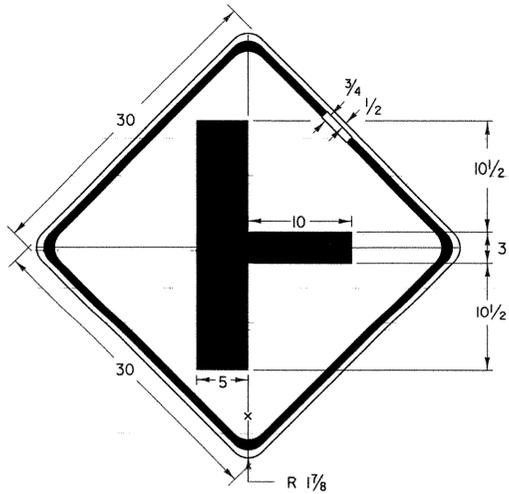
[Signature]
DIRECTOR OF PROGRAM DEVELOPMENT
[Signature]
TRAFFIC OPERATIONS ENGINEER
[Signature]
FEDERAL HIGHWAY ADMINISTRATION

**REGULATORY SIGN
DETAILS**

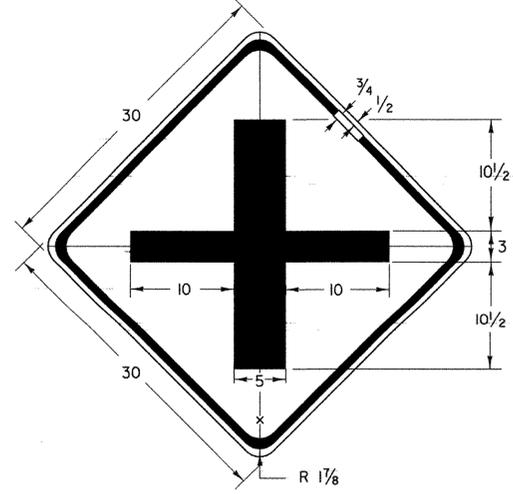


**STANDARD
E-143**

(ALL DIMENSIONS SHOWN IN INCHES EXCEPT WHERE NOTED)

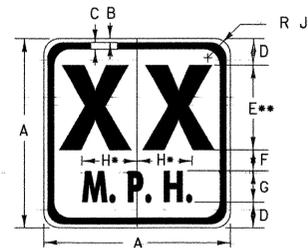


W2-2M



W2-1M

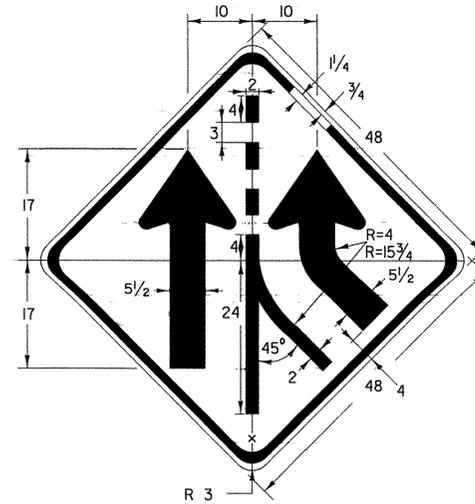
STATE ROUTE /MINOR TOWN HIGHWAY INTERSECTION SIGNS (TYP.)



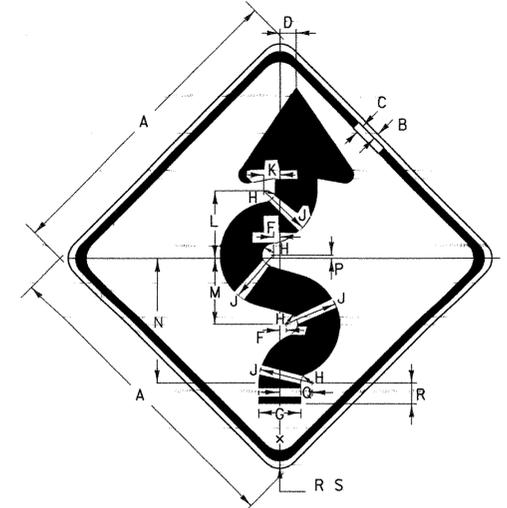
W13-1

- * INCREASE SPACING 100%
- ** OPTICALLY SPACE NUMERALS ABOUT VERTICAL CENTERLINE

| SIGN | DIMENSIONS (INCHES) | | | | | | | | |
|---------|---------------------|-----|-----|-------|-----|-------|----|--------|-------|
| | A | B | C | D | E | F | G | H | J |
| STD. | 18 | 3/8 | 5/8 | 2 1/2 | 8E | 2 | 3E | 5 5/16 | 1 1/2 |
| SPECIAL | 24 | 3/8 | 5/8 | 3 3/8 | 10E | 2 3/4 | 4E | 7 1/16 | 1 1/2 |

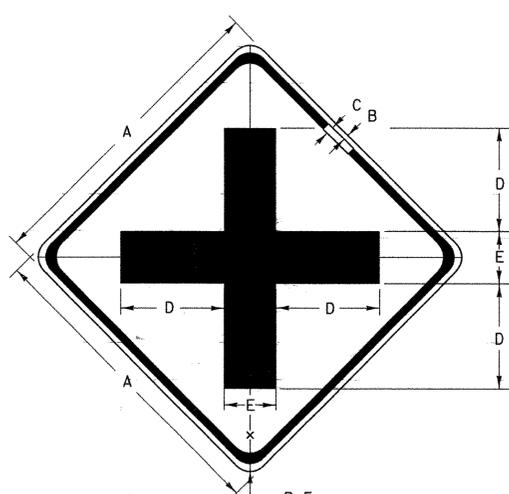


W4-3

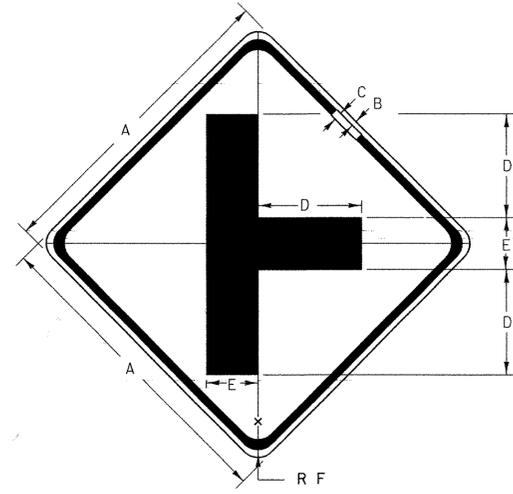


W1-5

| SIGN | DIMENSIONS (INCHES) | | | | | | | | | | | | | | | | |
|---------|---------------------|-----|-------|-------|--------|-----|-------|-------|-------|-------|--------|--------|--------|-----|-------|--------|-------|
| | A | B | C | D | E | F | G | H | J | K | L | M | N | P | Q | R | S |
| PATH | 18 | 3/8 | 5/8 | 1 | 9 5/8 | 3/8 | 2 1/2 | 5/8 | 3 | 1 | 4 | 4 | 8 5/8 | 1/4 | 2 | 1 1/4 | 1 1/2 |
| MIN. | 24 | 3/8 | 5/8 | 1 1/4 | 12 3/4 | 1/2 | 3 1/4 | 7/8 | 4 1/8 | 1 1/4 | 5 5/8 | 5 1/4 | 11 3/8 | 1/4 | 2 1/2 | 1 7/8 | 1 1/2 |
| STD. | 30 | 1/2 | 3/4 | 1 5/8 | 15 5/8 | 5/8 | 4 1/8 | 1 1/2 | 5 5/8 | 1 5/8 | 6 3/4 | 6 9/16 | 14 1/2 | 5/8 | 3 1/8 | 2 | 1 7/8 |
| EXPWY. | 36 | 5/8 | 7/8 | 1 7/8 | 19 1/8 | 3/4 | 4 1/8 | 1 5/8 | 6 3/8 | 1 7/8 | 7 3/8 | 7 7/8 | 17 1/8 | 3/8 | 3 3/4 | 2 9/16 | 2 1/4 |
| SPECIAL | 48 | 3/4 | 1 1/4 | 2 1/2 | 25 1/2 | 1 | 6 1/2 | 1 3/4 | 8 1/4 | 2 1/2 | 10 3/8 | 10 1/2 | 22 3/4 | 1/2 | 5 | 3 3/16 | 3 |



W2-1

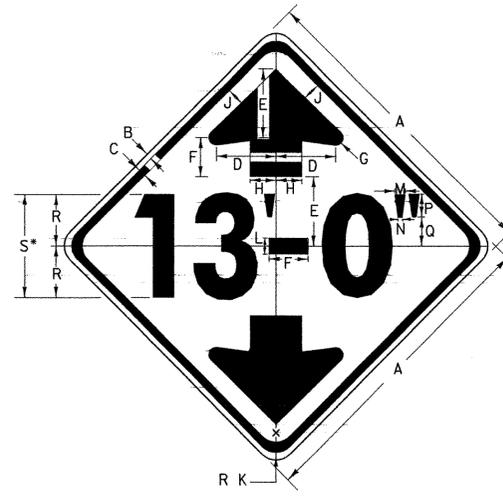


W2-2

| SIGN | DIMENSIONS (INCHES) | | | | | |
|---------|---------------------|-----|-------|----|---|-------|
| | A | B | C | D | E | F |
| PATH | 18 | 3/8 | 5/8 | 6 | 3 | 1 1/2 |
| MIN. | 24 | 3/8 | 5/8 | 8 | 4 | 1 1/2 |
| STD. | 30 | 1/2 | 3/4 | 10 | 5 | 1 7/8 |
| EXPWY. | 36 | 5/8 | 7/8 | 12 | 6 | 2 1/4 |
| SPECIAL | 48 | 3/4 | 1 1/4 | 16 | 8 | 3 |

| SIGN | DIMENSIONS (INCHES) | | | | | |
|---------|---------------------|-----|-------|----|---|-------|
| | A | B | C | D | E | F |
| PATH | 18 | 3/8 | 5/8 | 6 | 3 | 1 1/2 |
| MIN. | 24 | 3/8 | 5/8 | 8 | 4 | 1 1/2 |
| STD. | 30 | 1/2 | 3/4 | 10 | 5 | 1 7/8 |
| EXPWY. | 36 | 5/8 | 7/8 | 12 | 6 | 2 1/4 |
| SPECIAL | 48 | 3/4 | 1 1/4 | 16 | 8 | 3 |

STATE ROUTE /STATE ROUTE OR MAJOR TOWN HIGHWAY INTERSECTION SIGNS (TYP.)



W12-2

- * OPTICALLY SPACE VERTICAL CLEARANCE ABOUT VERTICAL CENTERLINE (WHERE 10" IS USED IN VERT. CLEARANCE, USE SERIES C NUMERALS)

| SIGN | DIMENSIONS (INCHES) | | | | | | | | | | | | | | | | |
|---------------|---------------------|-----|-------|-------|--------|-------|-------|-------|-------|--------|--------|-------|-------|--------|-------|-----|-----|
| | A | B | C | D | E | F | G | H | J | K | L | M | N | P | Q | R | S |
| MIN. | 30 | 1/2 | 3/4 | 5 3/4 | 6 5/8 | 3 3/4 | 3/4 | 2 1/2 | 1 1/8 | 1 9/16 | 1 | 7/16 | 2 1/4 | 3 5/16 | 5 | 10D | |
| STD. & EXPWY. | 36 | 5/8 | 7/8 | 6 7/8 | 8 | 4 1/2 | 1 | 3 | 2 | 2 1/4 | 1 1/8 | 1 1/4 | 1/2 | 2 3/4 | 4 | 6 | 12D |
| FWY. | 48 | 3/4 | 1 1/4 | 9 7/8 | 10 5/8 | 5 7/8 | 1 5/8 | 4 | 2 5/8 | 3 | 2 7/16 | 1 5/8 | 5/8 | 3 5/8 | 5 1/2 | 8 | 16D |

(ALL DIMENSIONS SHOWN IN INCHES EXCEPT WHERE NOTED)

NOTES

DESIGN

LETTERS, DIGITS, ARROWS, SYMBOLS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE "STANDARD HIGHWAY SIGNS BOOK" AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION (FHWA). SEE STANDARD SHEET E-151 FOR ARROWHEAD DETAILS.

MATERIALS

THE SIGN BASE MATERIALS USED FOR THE WARNING SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING, OF MINIMUM THICKNESS NOTED.

| FLAT SHEET ALUMINUM | 24"X24" | 30"X30" | 36"X36" | 48"X48" |
|---------------------|---------|---------|---------|---------|
| 0.060" | 0.080" | 0.100" | 0.125" | |

REFLECTORIZATION

THE BACKGROUND RETROREFLECTIVE MATERIAL SHALL BE ASTM TYPE III, TYPE VIII OR TYPE IX RETROREFLECTIVE SHEETING APPLIED TO THE ENTIRE SIGN.

THE TEXT, BORDER AND SYMBOLS SHALL BE LETTERING FILM OR SILK SCREENED.

COLORS

ALL THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT AND SYMBOLS ON RETROREFLECTORIZED YELLOW BACKGROUND UNLESS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY AASHTO AND APPROVED BY THE FHWA.

SPECIFICATIONS

WARNING SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR CONSTRUCTION "TRAFFIC SIGNS".

OTHER STDS. E-151 REQUIRED:

REVISIONS AND CORRECTIONS

AUG. 08, 1995 - DATE OF ORIGINAL ISSUE
MAY 01, 2004 - CHANGED REFLECTIVE SHEETING TO TYPE III
MINOR NOTE CHANGES

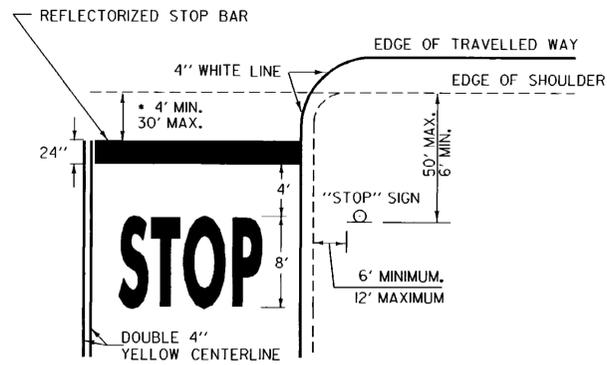
APPROVED

[Signature]
DIRECTOR OF PROGRAM DEVELOPMENT
[Signature]
TRAFFIC OPERATIONS ENGINEER
[Signature]
FEDERAL HIGHWAY ADMINISTRATION

**WARNING SIGN
DETAILS**

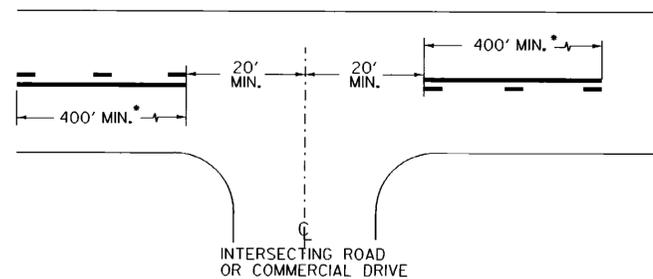


**STANDARD
E-155**



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

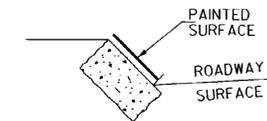
STOP BAR LAYOUT



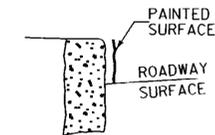
* THE SOLID LINE SHALL BE PAIRED WITH EITHER A SOLID OR DASHED LINE DEPENDING ON SIGHT DISTANCE AVAILABILITY IN THE OPPOSING DIRECTION. ADJUSTMENTS TO THE 40 FOOT CENTERLINE OPENING MAY BE MADE TO ACCOMMODATE SKEWED INTERSECTIONS.

- CENTERLINE BREAKS:
- AT ALL STATE HIGHWAYS AND TOWN HIGHWAYS, INCLUDING CLASS 4 TH'S, THAT HAVE STOP AND LEGAL LOAD LIMIT SIGNS INSTALLED
 - COMMERCIAL DRIVES:
 - WHERE A SEPERATE TURN LANE EXISTS ON THE MAIN LINE (LT. OR RT.)
 - SIGNIFICANT TRAFFIC VOLUMES EXISTS.
 - IF MOTORISTS NEED ASSISTANCE TO DEFINE ENTRANCE POINTS.

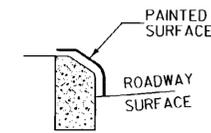
CENTERLINE LAYOUT



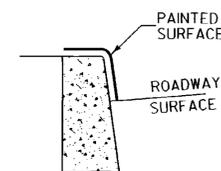
GRANITE SLOPE EDGING



VERTICAL GRANITE CURB

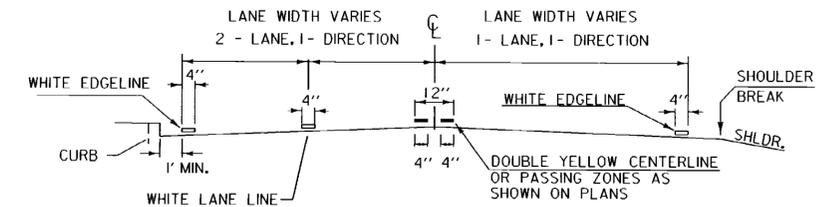


TYPE A (CONCRETE)

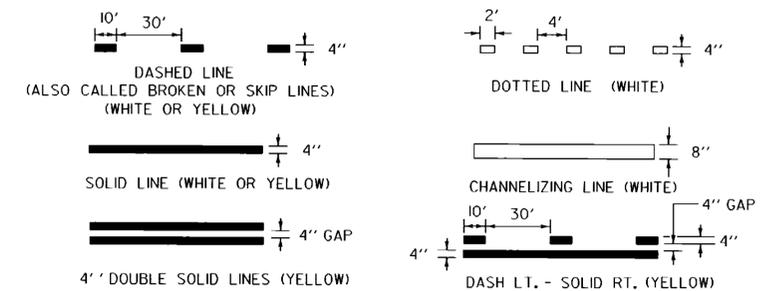


TYPE B (CONCRETE)

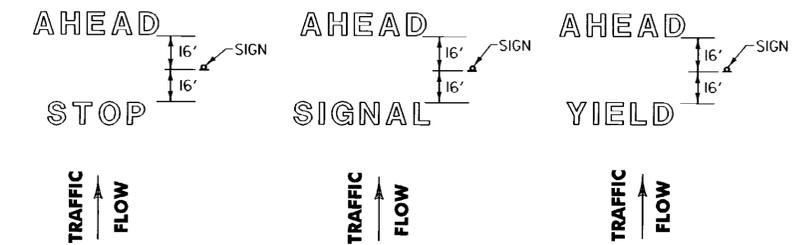
PAINTED CURB



PAVEMENT MARKING PLACEMENT DETAIL

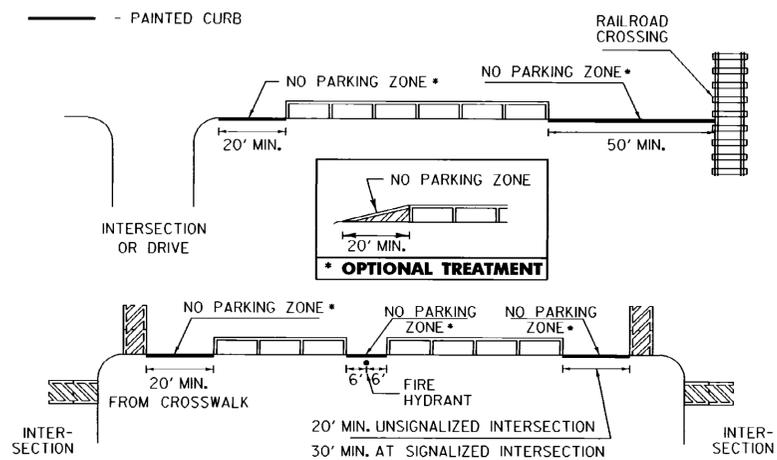


PAVEMENT MARKING LINE DETAILS

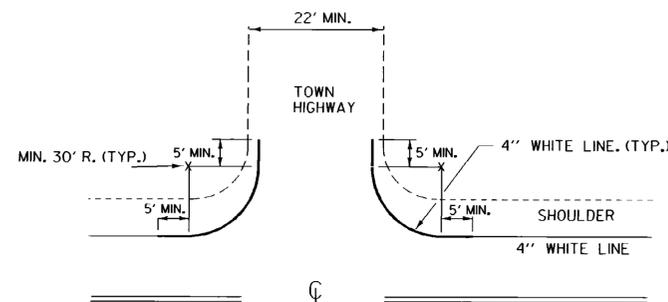


LETTER IN WORD MARKING SPACING DETAIL

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



NO PARKING LAYOUT DETAILS

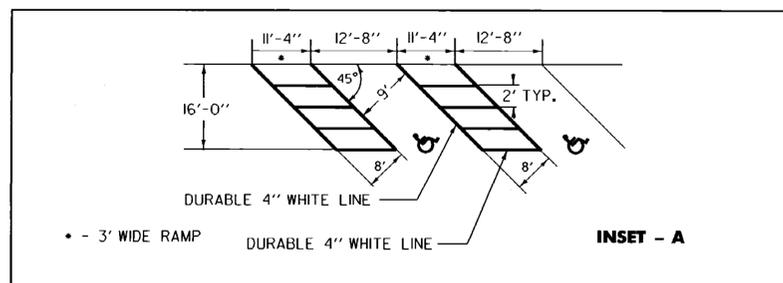


EDGE LINES SHALL BE APPLIED TO ALL STATE HIGHWAYS AND SHOULD BE MAINTAINED AT A CONSTANT DISTANCE FROM THE CENTERLINE UNLESS PAVEMENT WIDTH INCREASES TO ALLOW WIDER LANES.

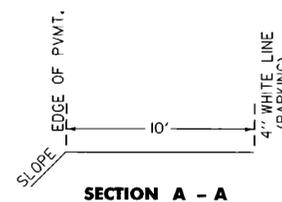
APPLY EDGE LINE AS DETAILED ON ALL PAVED CLASS 1 & CLASS 2 TOWN HIGHWAYS AND ANY CLASS 3 TOWN HIGHWAY 22 FEET OR MORE IN WIDTH.

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

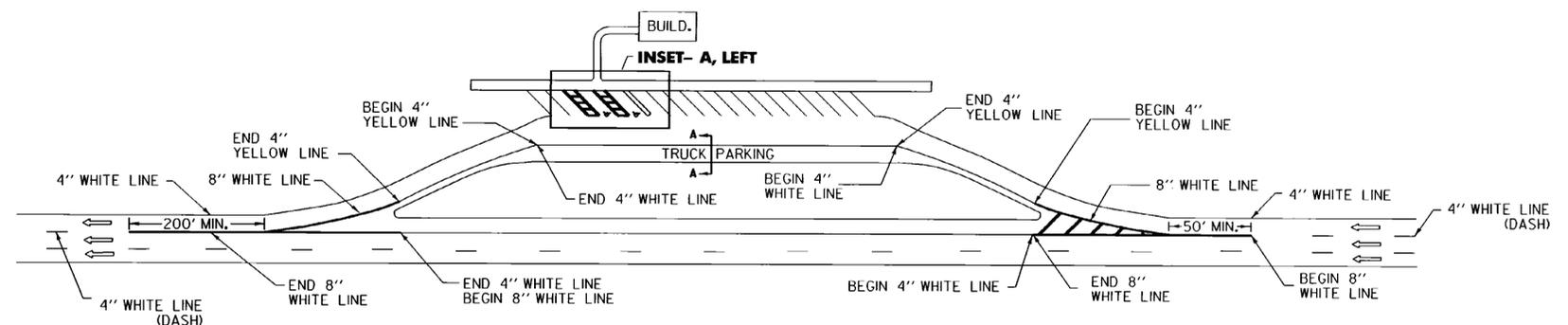
EDGE LINE LAYOUTS



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



TRUCK PARKING DETAIL



REST AREA PARKING DETAILS

THIS SHEET IS NOT TO SCALE

OTHER STDS. E - 191, E - 192 REQUIRED

REVISIONS AND CORRECTIONS

AUG. 18, 1995 - DATE OF ORIGINAL ISSUE

APPROVED

Sandra S. McCutchen
DIRECTOR OF ENGINEERING

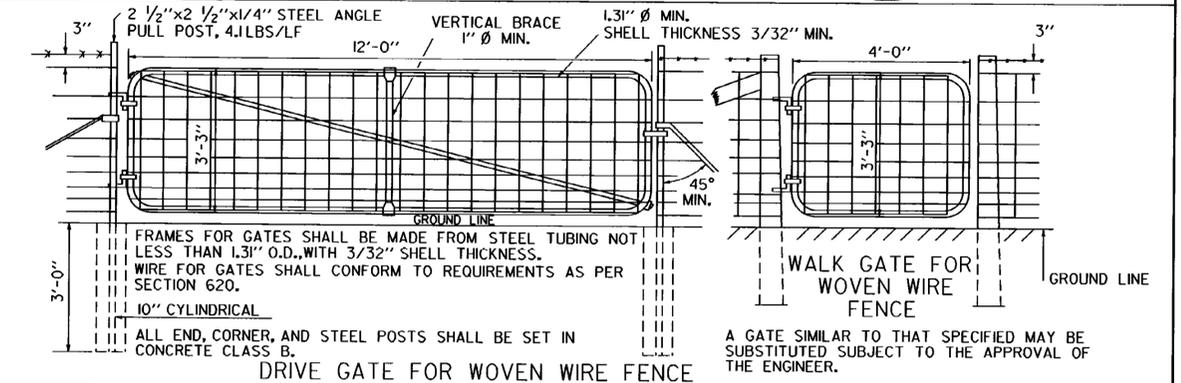
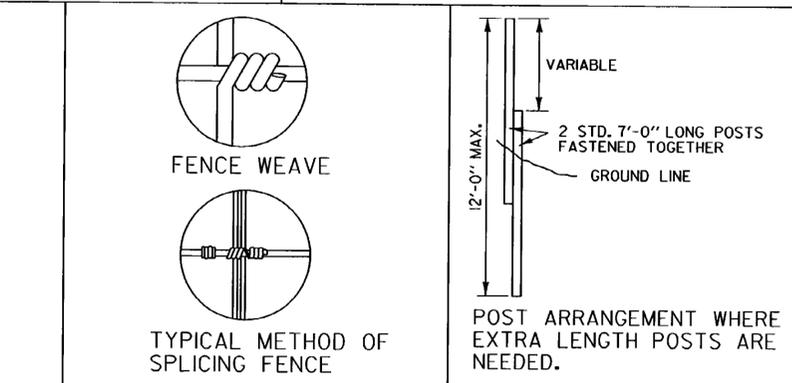
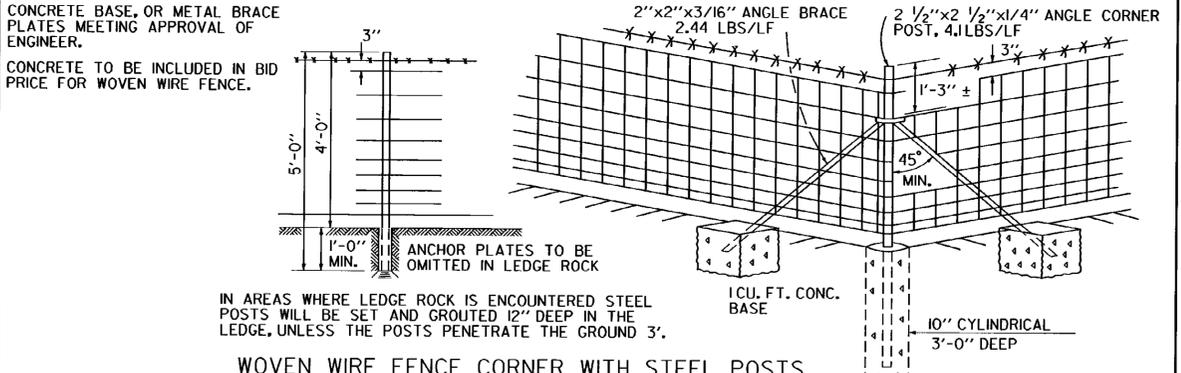
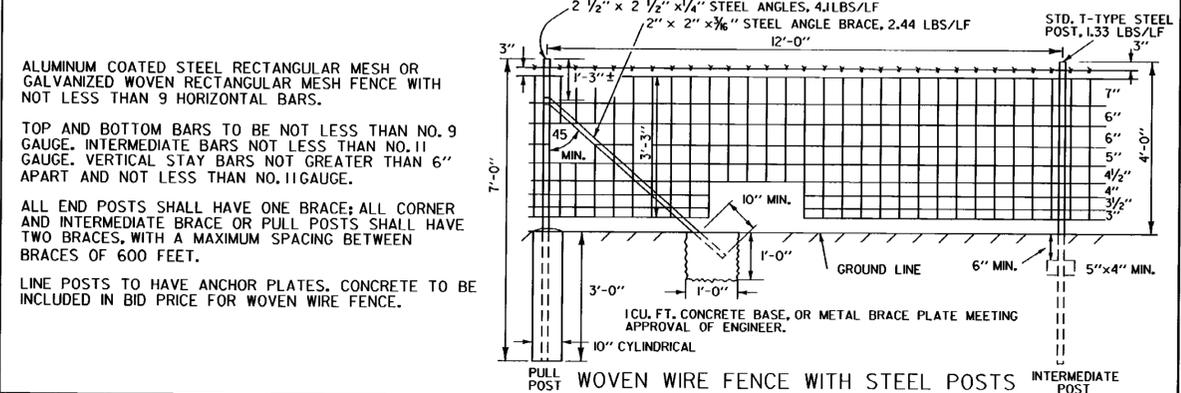
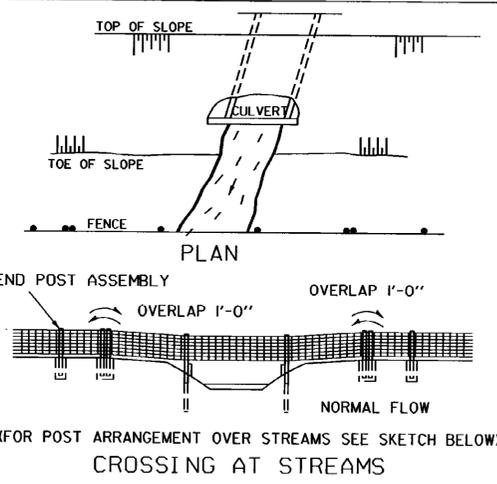
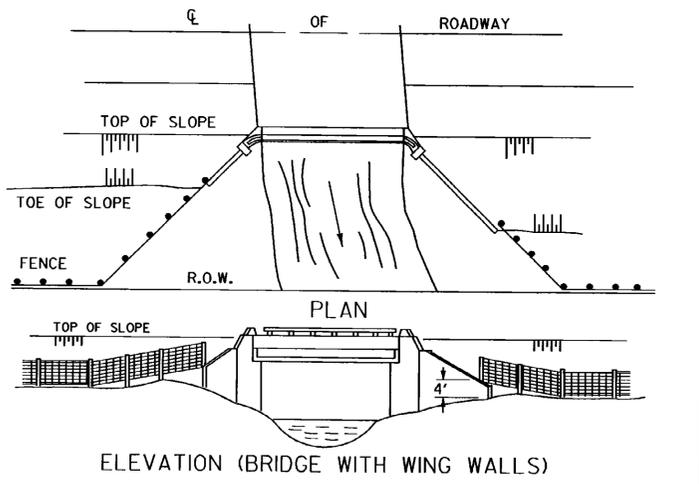
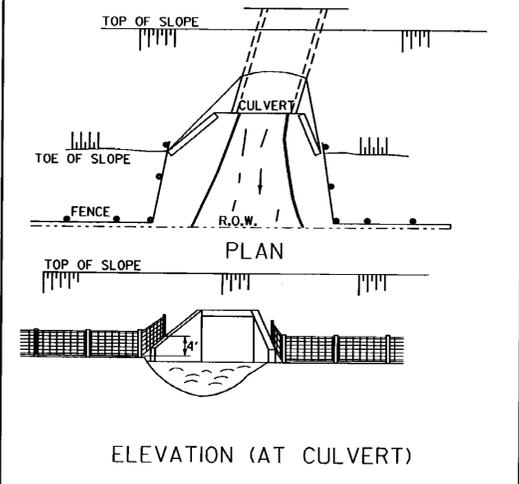
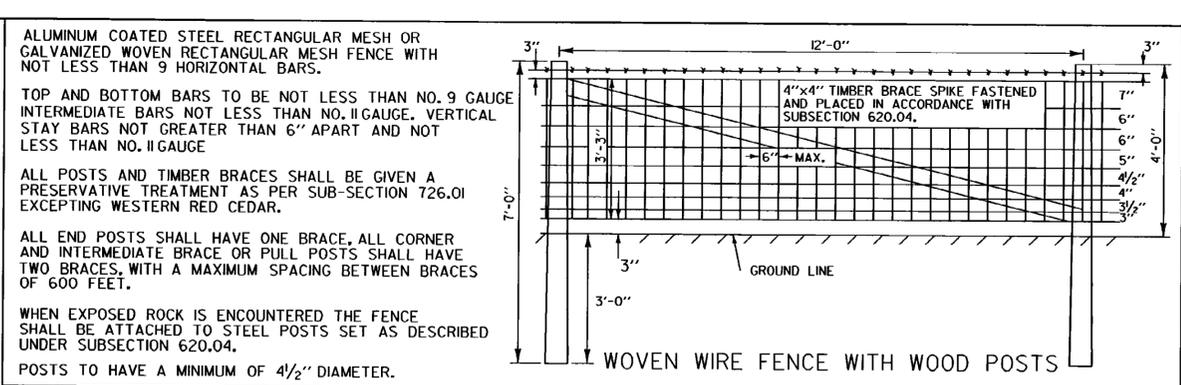
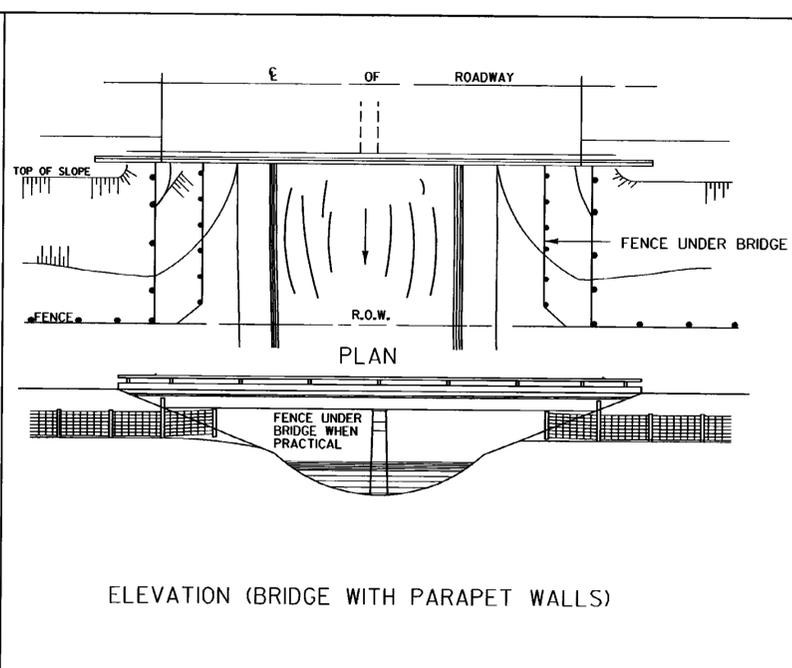
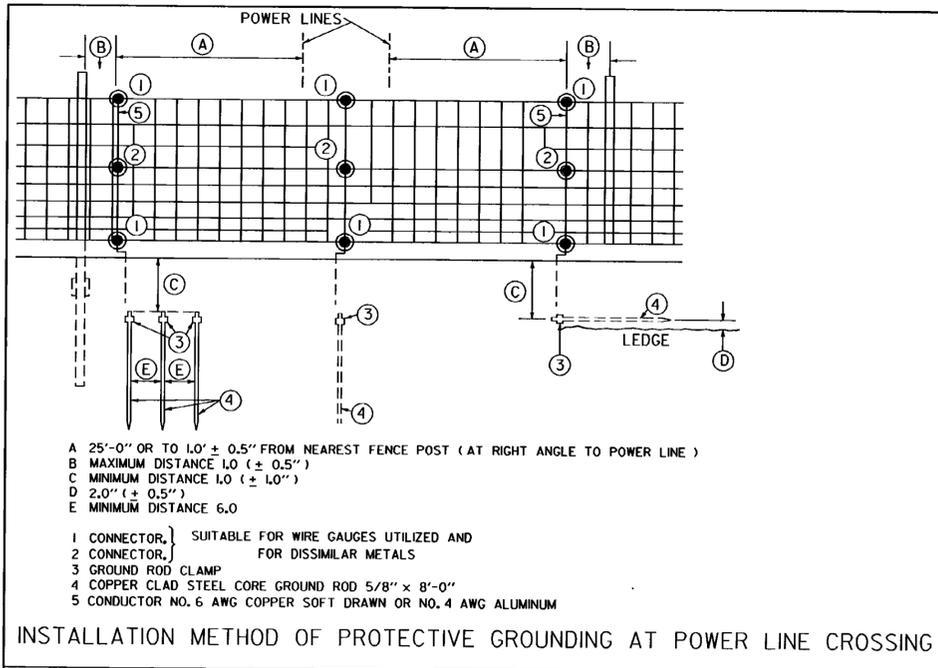
David A. Ross
TRAFFIC AND SAFETY ENGINEER

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

PAVEMENT MARKING DETAILS



STANDARD E-193



REVISIONS AND CORRECTIONS
 DEC. 8, 1971- ORIGINAL APPROVAL DATE
 JULY 21, 1976- GATE SUBSTITUTION NOTE ADDED
 DEC. 10, 1976- DIMENSIONS FOR STEEL POSTS AND BRACES ADDED
 JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.

APPROVED

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

Stephen S. MacArthur, P.E.
 DIRECTOR OF ENGINEERING

John M. Murphy, P.E.
 DESIGN ENGINEER

WOVEN WIRE FENCE WITH WOOD POSTS

WOVEN WIRE FENCE WITH STEEL POSTS

WOOD BRACE FOR WOVEN WIRE FENCE

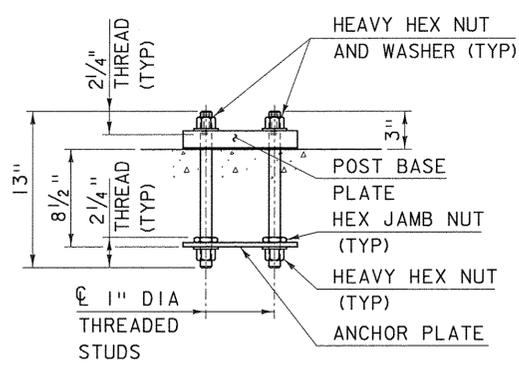
STEEL BRACE FOR WOVEN WIRE FENCE

DRIVE GATE FOR WOVEN WIRE FENCE

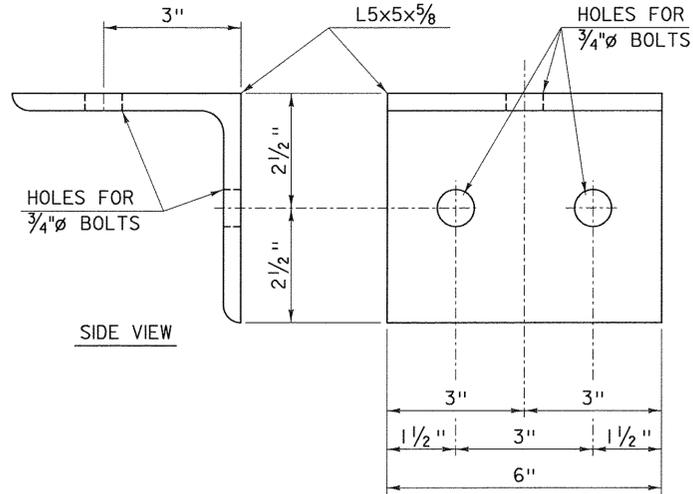
WALK GATE FOR WOVEN WIRE FENCE

VERMONT AGENCY OF TRANSPORTATION

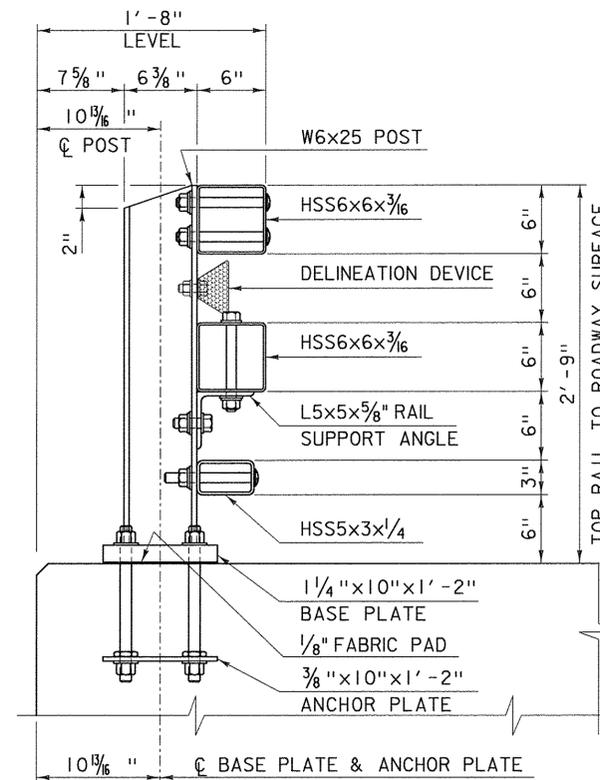
STANDARD F-1



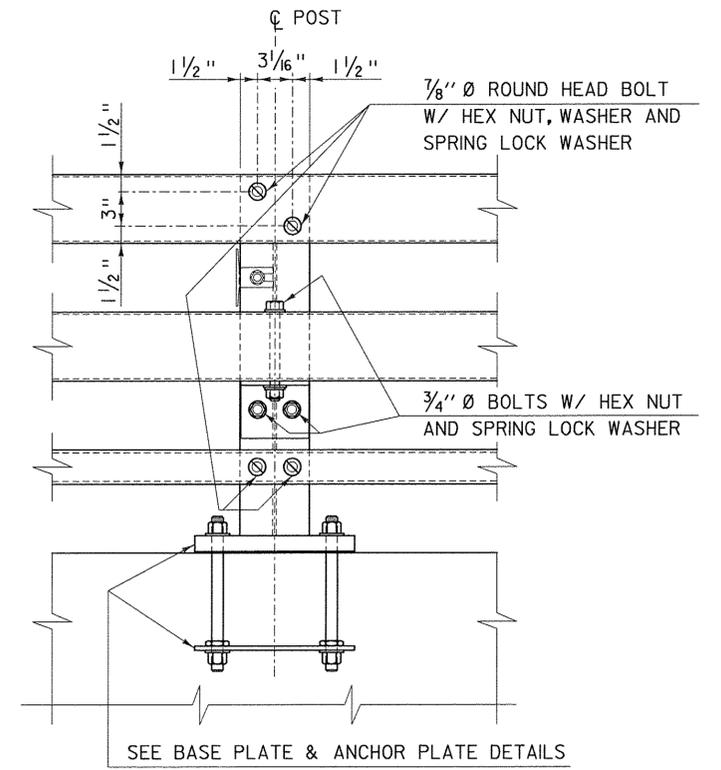
RAILING POST ANCHORAGE



ELEVATION VIEW
RAILING ANGLE DETAILS

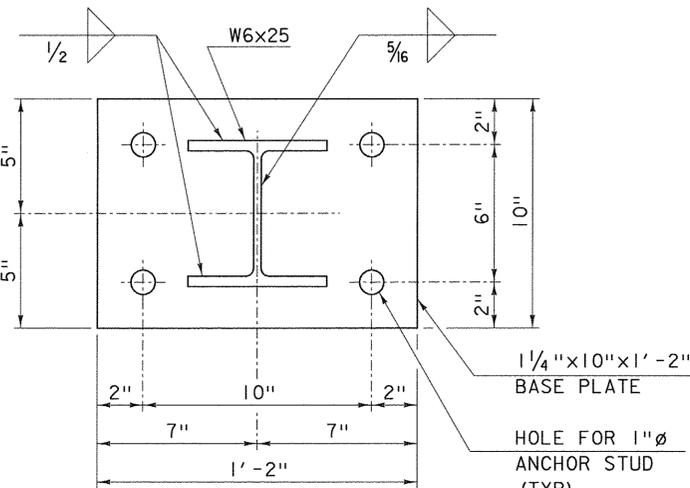


RAILING SECTION

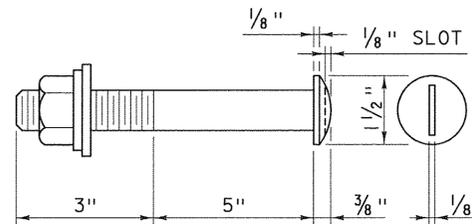


RAILING ELEVATION

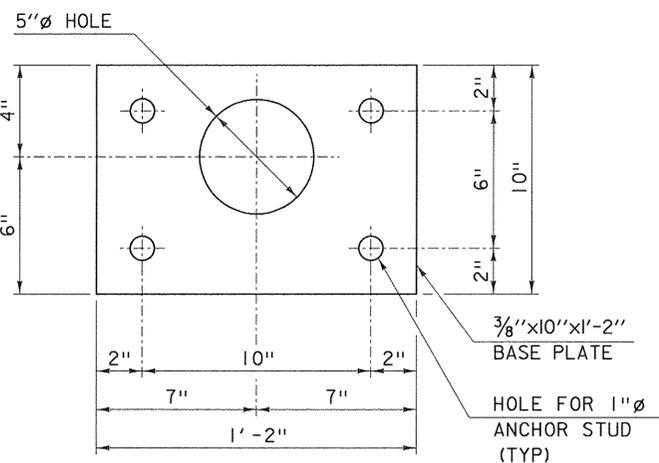
- NOTES:
1. ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 525.
 2. PRIOR TO GALVANIZING THE ASSEMBLED POST, GRIND ALL EDGES TO A MINIMUM RADIUS OF 1/16".
 3. ALL POSTS SHALL BE SET NORMAL TO GRADE. THE MAXIMUM CENTER TO CENTER SPACING OF BRIDGE RAIL POSTS IS 8'-3".
 4. SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO BRIDGE POSTS AND PREFERABLY TO AT LEAST 4 POSTS.
 5. RAIL TUBE EXPANSION JOINTS SHALL BE PROVIDED IN ANY RAIL BAY SPANNING THE END OF AN INTEGRAL ABUTMENT BRIDGE AND AT ALL SUPERSTRUCTURE EXPANSION JOINTS. EXPANSION JOINT WIDTH SHALL BE 4" @ 68°F AND WILL BE ADJUSTED IN THE FIELD BY THE ENGINEER FOR OTHER TEMPERATURES.
 6. HOLES IN RAILS FOR TUBE ATTACHMENT MAY BE FIELD-DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO INSTALLATION.
 7. BOLTS SHALL BE TORQUED SNUG TIGHT (APPROXIMATELY 100 FT-LB).
 8. SEE STANDARD DRAWING G-1B FOR DETAILS OF DELINEATORS. A DELINEATOR SHALL BE INSTALLED AT 30 FOOT SPACING OR THE NEAREST POST. WHITE IS TO BE INSTALLED ON THE DRIVER'S RIGHT. FOR ONE WAY BRIDGES, YELLOW IS TO BE INSTALLED ON THE DRIVER'S LEFT. PAYMENT SHALL BE INCIDENTAL TO OTHER ITEMS.
 9. ANY BENDING OF RAIL SHALL BE DONE AT THE FABRICATION PLANT ACCORDING TO A PROCEDURE PROVIDED BY THE FABRICATOR.
 10. THE MINIMUM DISTANCE FROM THE POST TO AN EXPANSION JOINT SHALL BE DETERMINED BY THE MINIMUM EDGE DISTANCE OF 5" FROM ANY ANCHOR STUD TO THE END OF THE SLAB, OR TO THE EXPANSION JOINT RECESS POUR, IF ONE IS USED.
 11. THIS RAILING MEETS THE REQUIREMENTS FOR A TL-4 SERVICE LEVEL.



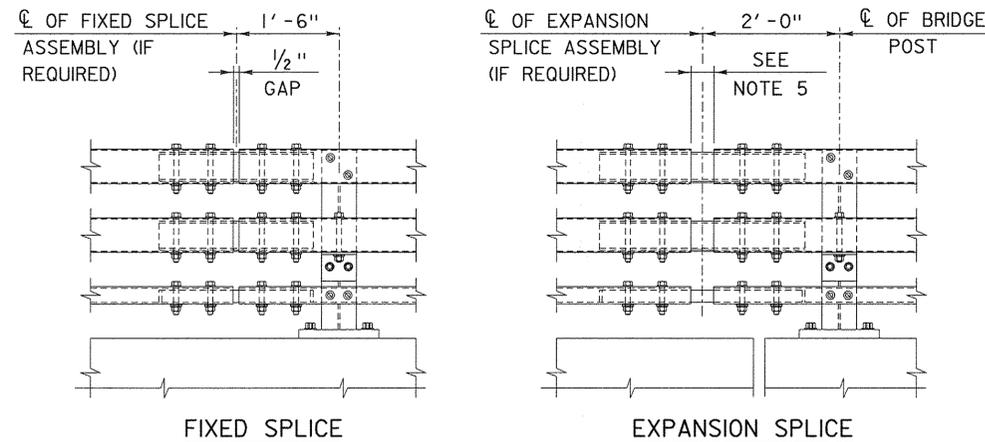
BASE PLATE DETAIL



ROUND HEAD BOLT DETAIL
A449 (TYPE 1)



ANCHOR PLATE DETAIL



RAILING SPLICE DETAIL ELEVATION

A RAILING EXPANSION SPLICE IS REQUIRED IN ANY POST SPACING THAT CONTAINS A SUPERSTRUCTURE EXPANSION JOINT

REVISIONS AND CORRECTIONS
AUGUST 9, 2010 - ORIGINAL APPROVAL
APRIL 23, 2012 - GENERAL UPDATE 2012

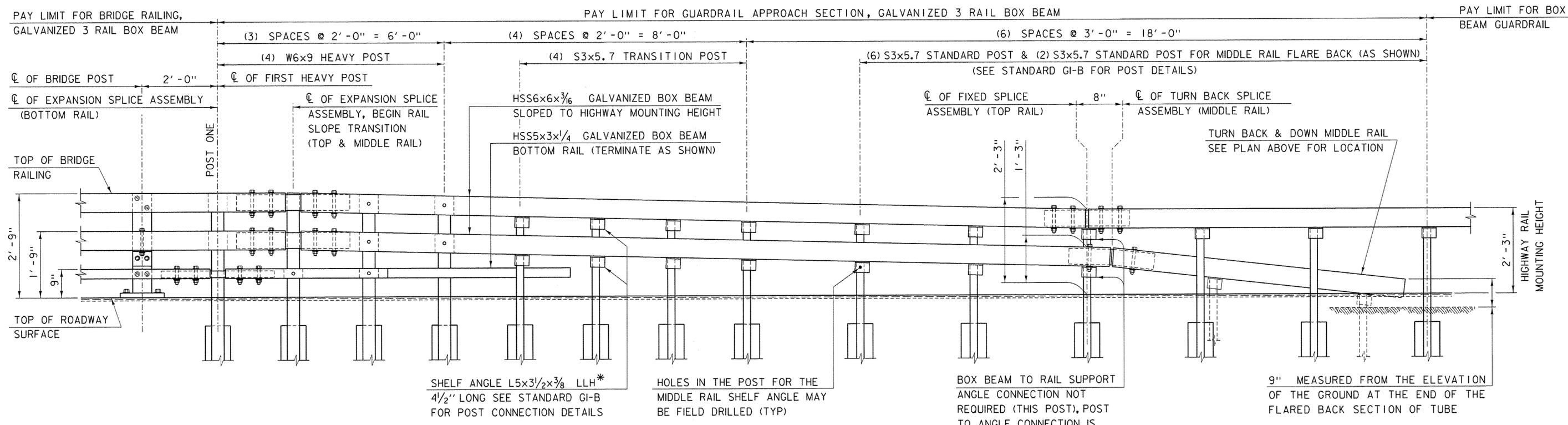
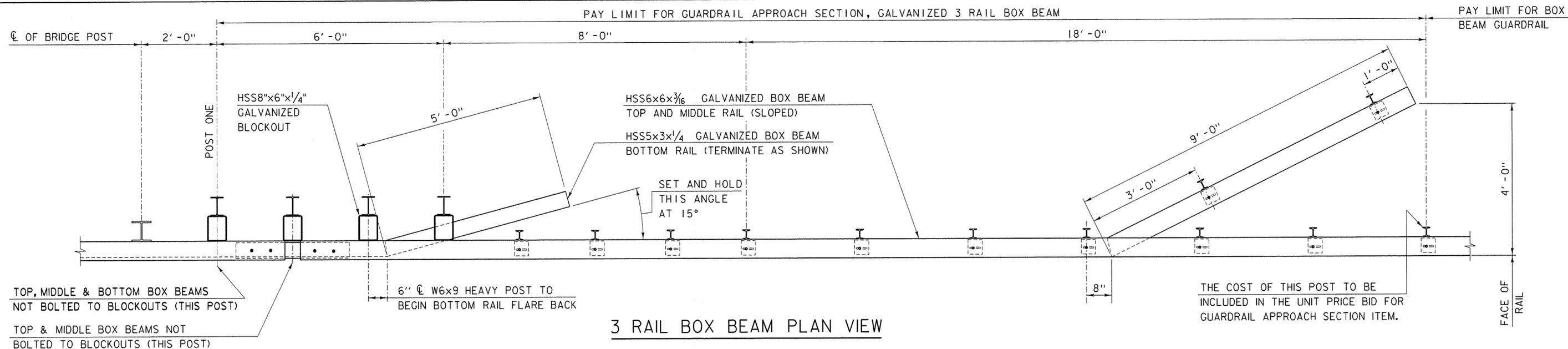
APPROVED
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BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM

OTHER STDS. REQUIRED: **G-1B, S-364C**



STANDARD S-364A



3 RAIL BOX BEAM ELEVATION

* LONG LEG HORIZONTAL

NOTES:

1. BOX BEAM TUBE AND STEEL POST MATERIALS, DIMENSION SIZES AND NOTES SHALL BE THE SAME AS THOSE OF THE BRIDGE RAIL, UNLESS OTHERWISE NOTED.

OTHER STDS. REQUIRED: G-1B, S-364A

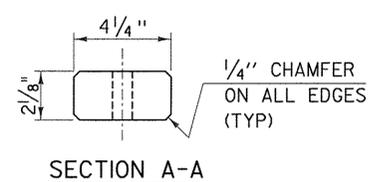
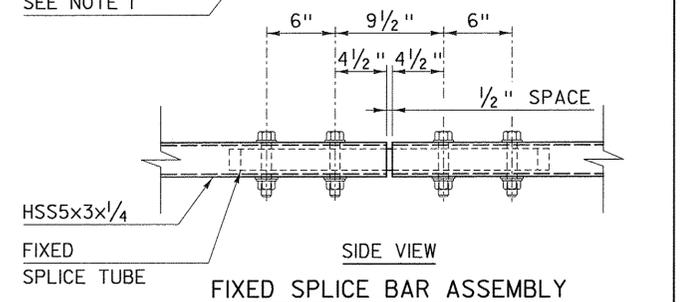
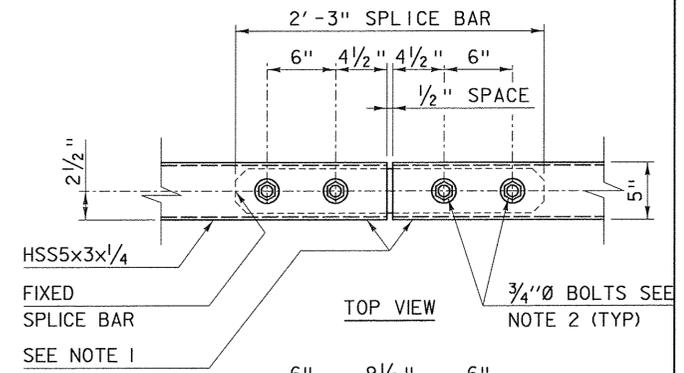
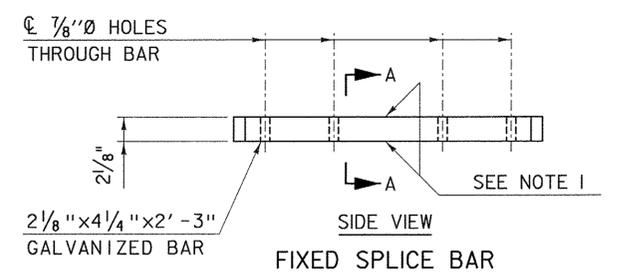
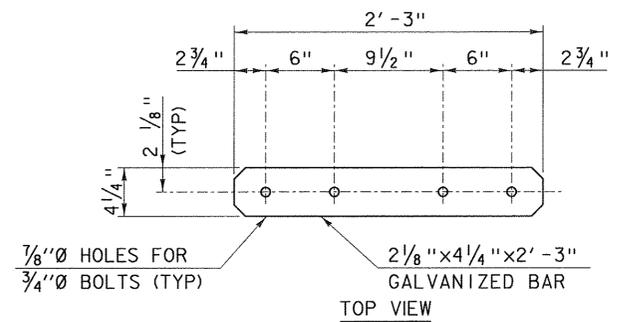
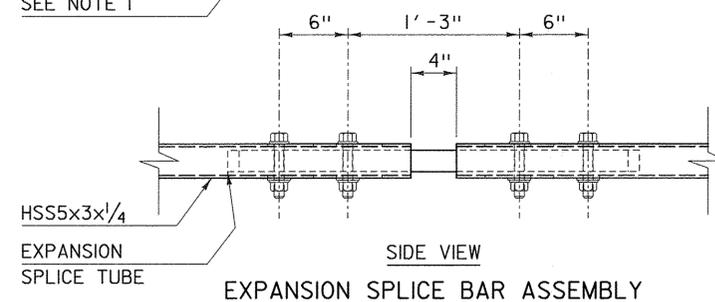
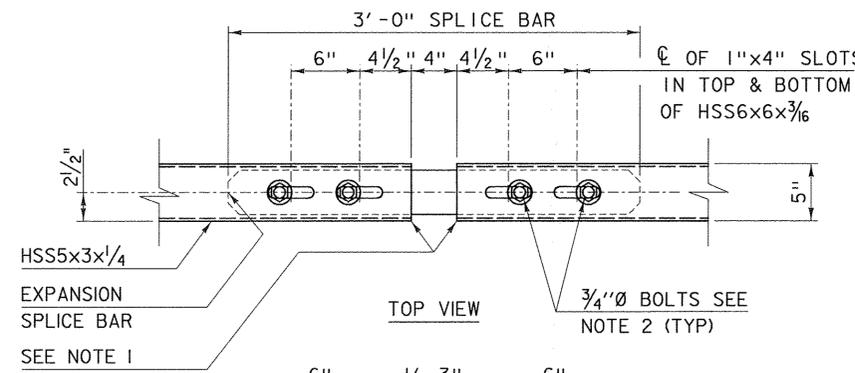
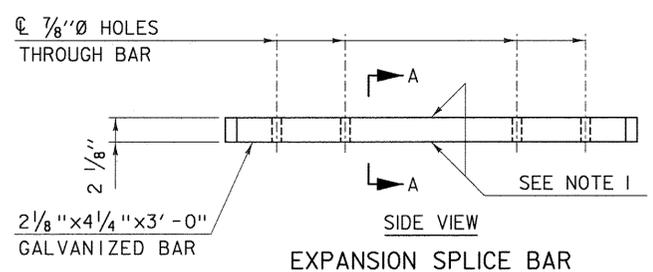
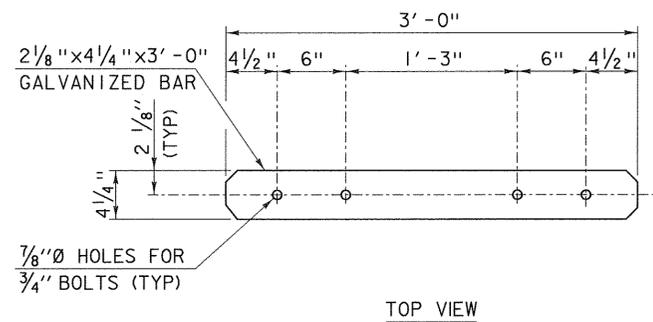
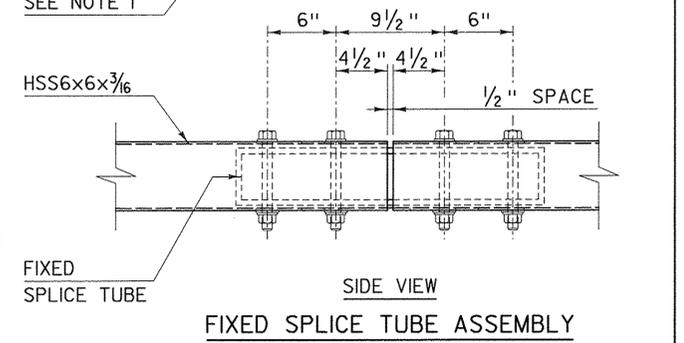
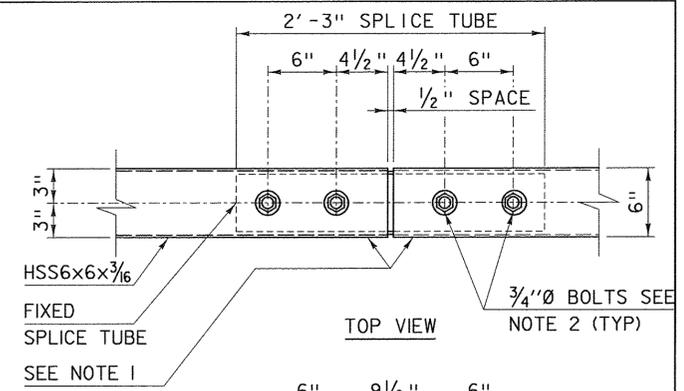
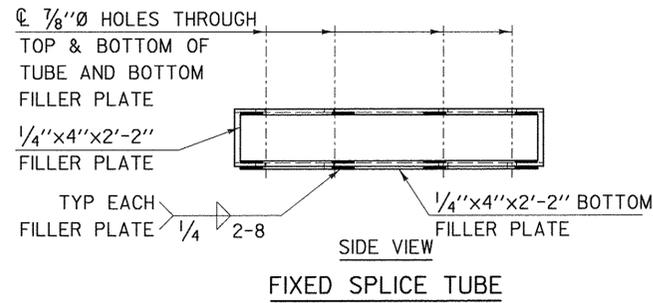
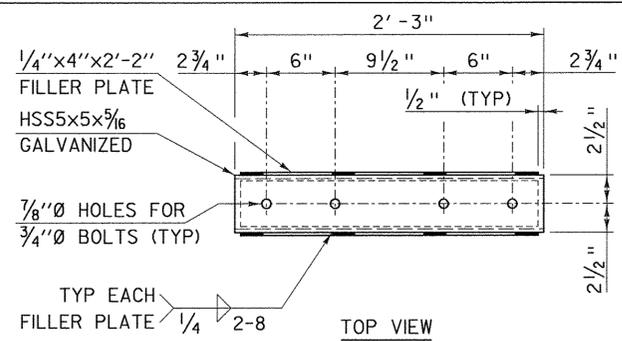
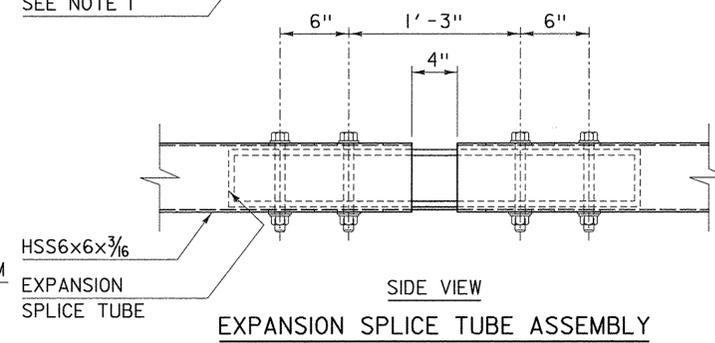
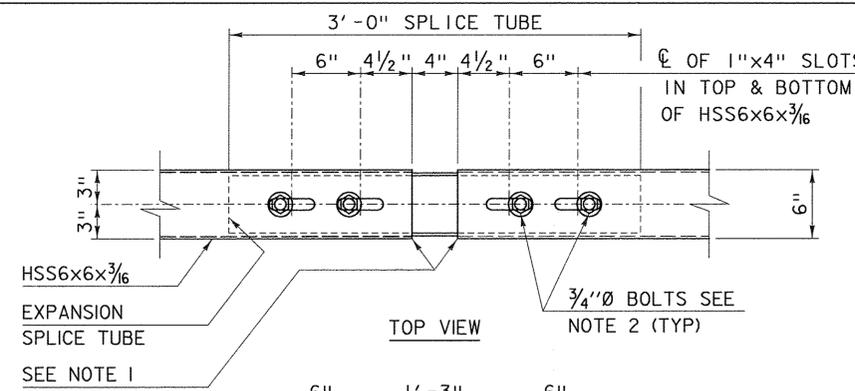
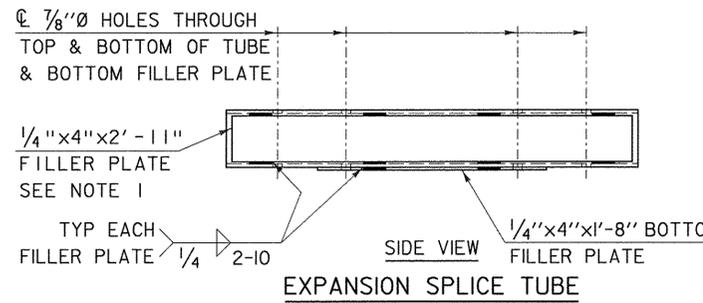
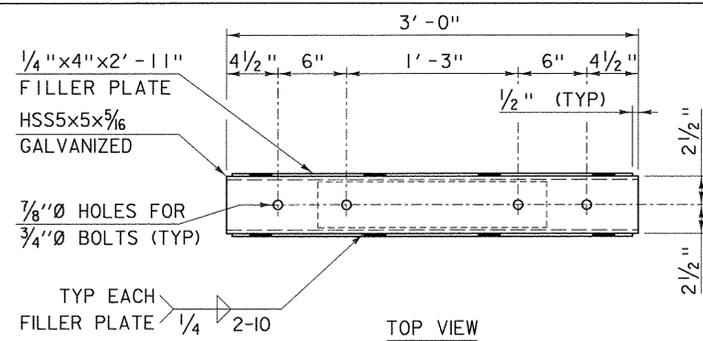
REVISIONS AND CORRECTIONS
 AUGUST 9, 2010 - ORIGINAL APPROVAL
 APRIL 23, 2012 - GENERAL UPDATE 2012

APPROVED
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GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM



STANDARD S-364B



NOTES:

1. PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE ADJOINING SURFACES OF THE BOX BEAM RAILS, SPLICE TUBES AND FILL PLATES.
2. FOUR (4) 3/4" DIAMETER FULLY THREADED BOLTS, 7 1/2" LONG WITH TWO (2) WASHERS AND A HEAVY HEX NUT ON EACH BOLT. NUT TO BE FINGER TIGHT AND THE FIRST THREAD BELOW THE NUT TO BE BURRED TO PREVENT DISLODGING. FOUR (4) BOLTS AT EACH SPLICE.

REVISIONS AND CORRECTIONS
AUGUST 9, 2010 - ORIGINAL APPROVAL
APRIL 23, 2012 - GENERAL UPDATE 2012

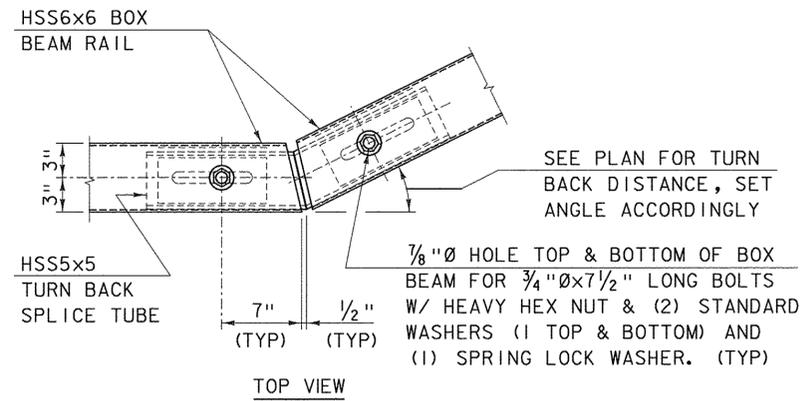
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GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM

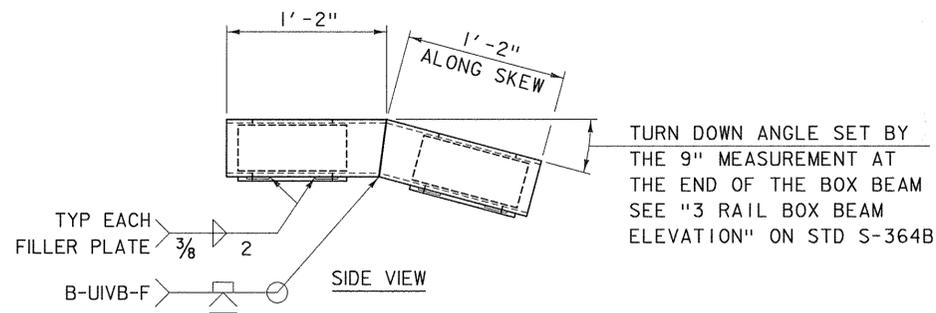
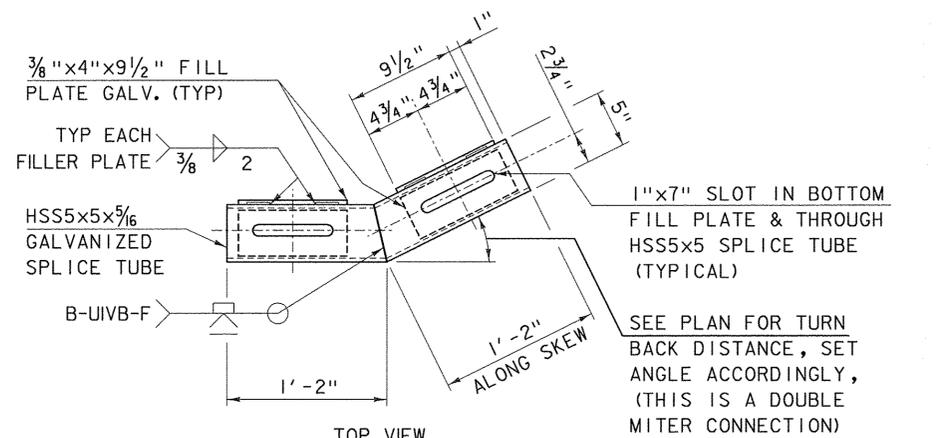
OTHER STDS. REQUIRED:



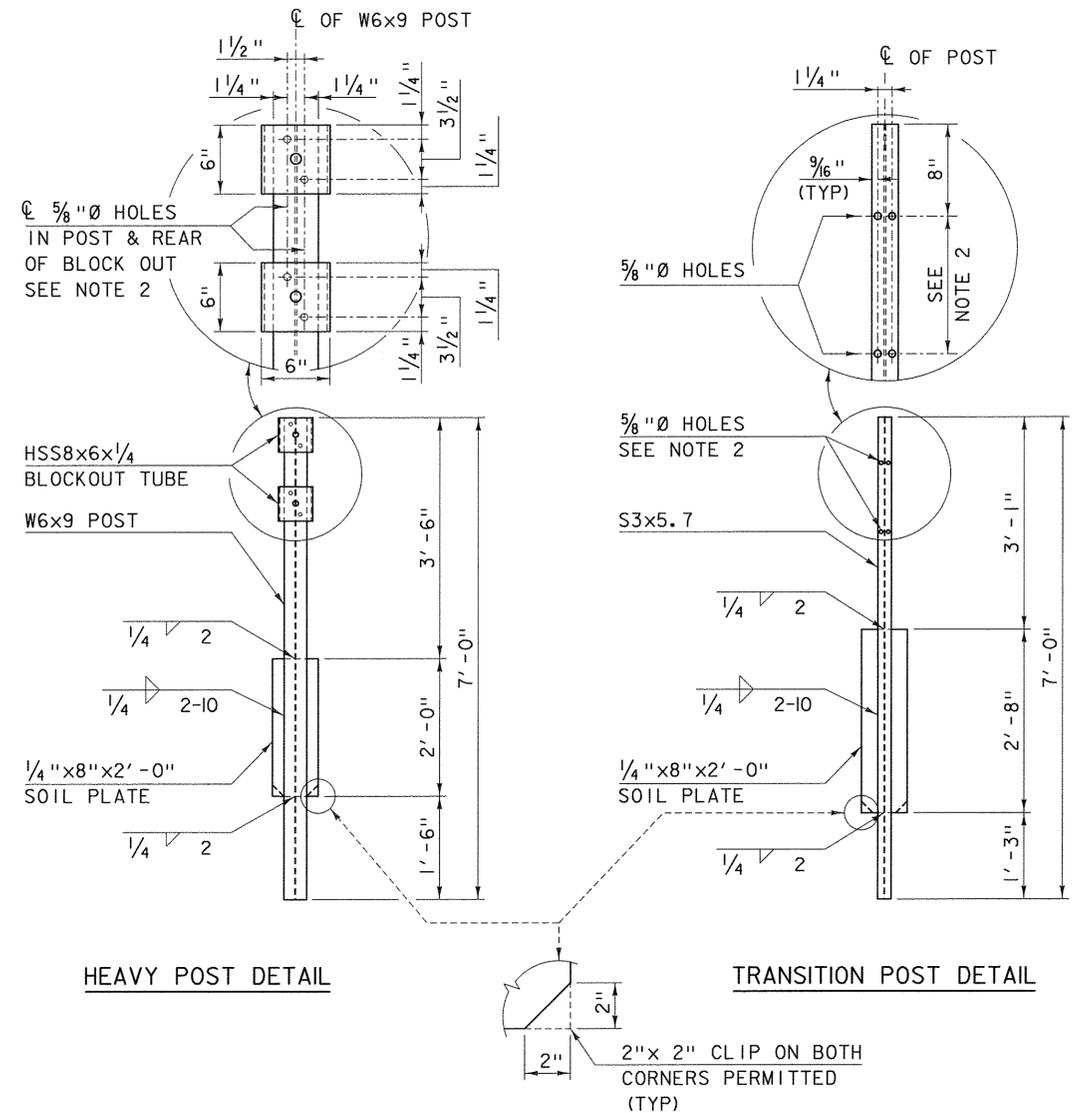
STANDARD S-364C



TURN BACK SPLICE TUBE ASSEMBLY



TURN BACK SPLICE TUBE DETAIL
TURN BACK & TURN DOWN TUBE JOINT



- NOTES:
- PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE ADJOINING SURFACES OF THE BOX BEAM RAILS, SPLICE TUBES AND FILL PLATES.
 - HOLES IN THE POST FOR THE LOWER RAIL MAY BE LOCATED AND DRILLED IN THE FIELD. IF SO, THE GALVANIZING SHALL BE REPAIRED IN ACCORDANCE WITH SPECIFICATION SECTION 525.

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS
AUGUST 9, 2010 - ORIGINAL APPROVAL
APRIL 23, 2012 - GENERAL UPDATE 2012

APPROVED

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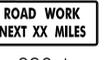
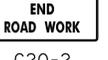
Mark D. Richter
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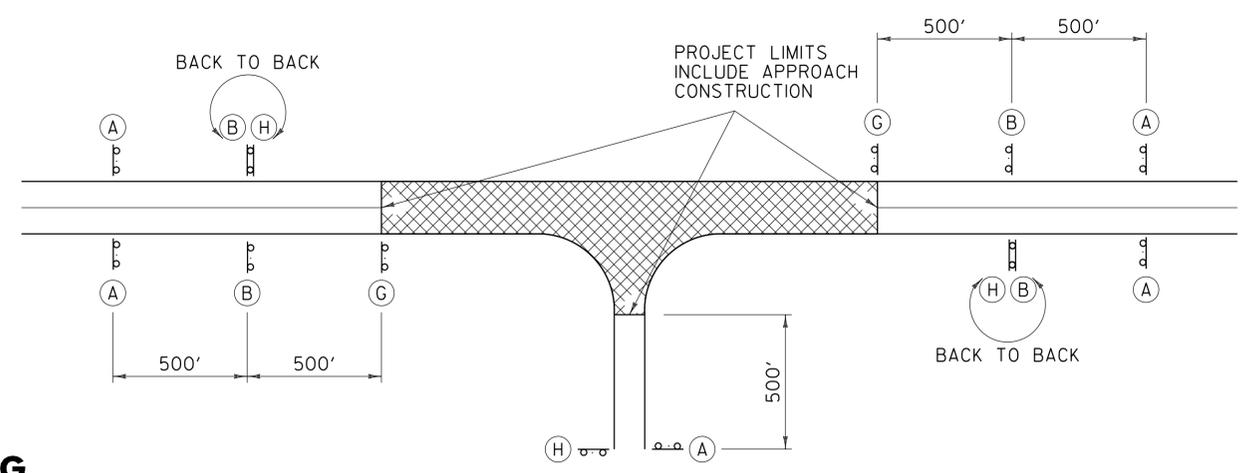
GUARDRAIL APPROACH
SECTION, GALVANIZED
3 RAIL BOX BEAM



STANDARD
S - 364D

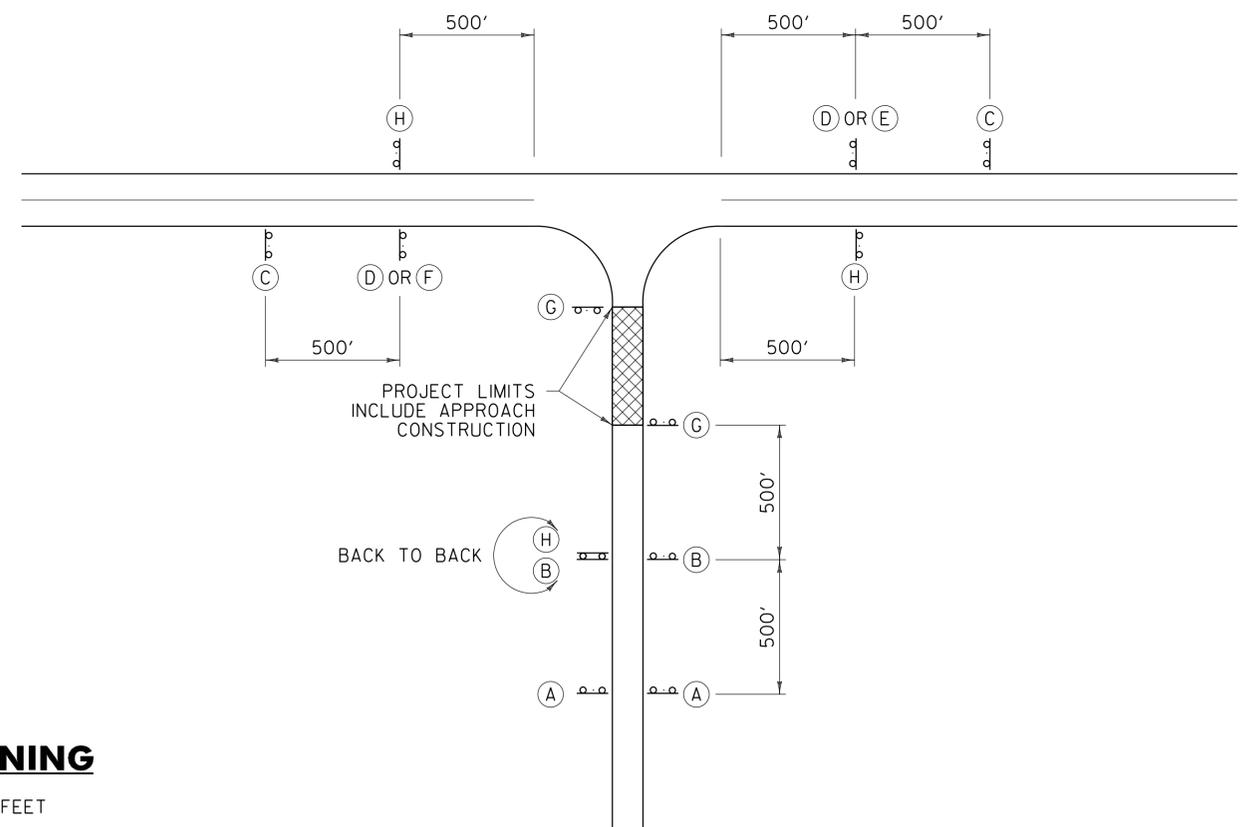
LEGEND

- (A)  ROAD WORK AHEAD
W20-1
- (B)  ROAD WORK 500 FT
W20-1
- (C)  SIDE ROAD WORK AHEAD
VC-869
- (D)  SIDE ROAD WORK 500 FT
VC-869
- (E)  SIDE ROAD WORK LEFT
VC-869
- (F)  SIDE ROAD WORK RIGHT
VC-869
- (G)  ROAD WORK NEXT XX MILES
G20-1
- (H)  END ROAD WORK
G20-2



TYPICAL APPROACH SIGNING

FIELD CONDITIONS MAY DICTATE THE ACTUAL PLACEMENT.



SIDE ROAD APPROACH SIGNING

TO BE USED WHEN CONSTRUCTION IS UP TO 1000 FEET FROM THE INTERSECTION. FIELD CONDITIONS MAY DICTATE THE ACTUAL PLACEMENT.

GENERAL NOTES:

1. SIGNS SHOWN ON THIS SHEET ARE INTENDED FOR USE IN PROVIDING ADVANCE WARNING AND INFORMATION ON CONSTRUCTION PROJECTS OVER WHICH TRAFFIC WILL BE MAINTAINED. WHEN ADDITIONAL APPROACH SIGNS OR OTHER TYPES OF ADVANCE SIGNING OR CONTROL ARE NECESSARY, THE PLANS AND/OR THE SPECIFICATIONS FOR THAT PROJECT WILL GIVE THE DETAILS OF THE SIGNS AND DEVICES REQUIRED. FOR ON-PROJECT CONSTRUCTION SIGNS, REFER TO APPROPRIATE STANDARD SHEETS.
2. THE "ROAD WORK NEXT XX MILES" SIGN (G20-1) SHALL BE INSTALLED IN ADVANCE OF TEMPORARY TRAFFIC CONTROL ZONES THAT ARE MORE THAN TWO MILES IN LENGTH OR AS DIRECTED BY THE ENGINEER. DISTANCES SHALL BE STATED TO THE NEAREST WHOLE MILE.
3. SIGNS SHALL BE LOCATED AS DETAILED ON THIS SHEET OR AS OTHERWISE SHOWN ON THE PLANS. THEY SHALL APPEAR AT EACH END OF THE HIGHWAY UNDER CONSTRUCTION AND ON ALL INTERSECTING PUBLIC HIGHWAYS. THE ENGINEER SHALL DETERMINE THE EXACT LOCATIONS.

OTHER STDS. REQUIRED: T-1, T-28

REVISIONS AND CORRECTIONS
AUG. 6, 2012 - ORIGINAL APPROVAL DATE

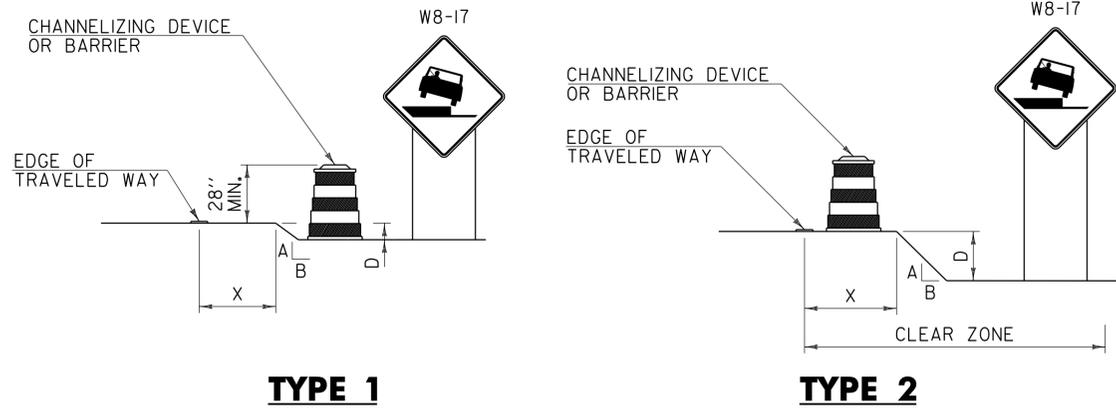
APPROVED
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HIGHWAY SAFETY & DESIGN ENGINEER
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DIRECTOR OF PROGRAM DEVELOPMENT
[Signature]
MARK D. RICHTER
FEDERAL HIGHWAY ADMINISTRATION

**CONVENTIONAL ROADS
CONSTRUCTION APPROACH
SIGNING**



STANDARD
T-10

DROP-OFF ADJACENT TO TRAVELED WAY



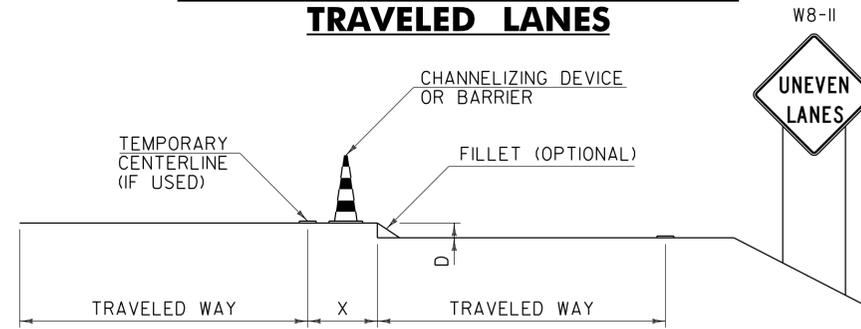
TYPE 1

TYPE 2

NOTES:

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

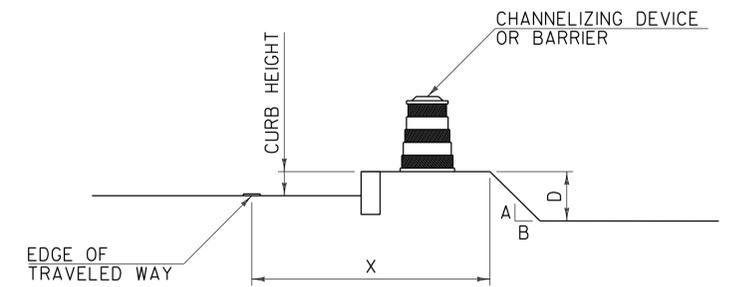
DROP-OFF BETWEEN ADJACENT TRAVELED LANES



NOTES:

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

DROP-OFF BEYOND SHOULDER OR CURB



NOTES:

1. USE CHART "A" FOR VERTICAL CURBS UNDER SIX INCHES, MOUNTABLE CURBS OR ROADWAYS WITH A POSTED SPEED ABOVE 40 MPH.
2. USE CHART "B" FOR VERTICAL CURBS SIX INCHES OR GREATER.

**CHART "A"
ALL SPEEDS WITH NO CURB
OR MOUNTABLE CURB**

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

NOTES:

1. THE MINIMUM CLEAR ZONE FOR FREEWAYS IS TO BE DETERMINED PER THE CURRENT AASHTO ROADSIDE DESIGN GUIDE. ALL OTHER HIGHWAYS WILL BE DETERMINED PER THE CURRENT "VERMONT STATE STANDARDS" BOOK.
2. CHANNELIZING DEVICES MAY BE USED INSTEAD OF BARRIER FOR SHORT TERM OPERATIONS.
3. ON BORDERLINE CONDITIONS, THE ENGINEER SHOULD DETERMINE WHICH TREATMENT IS ADEQUATE FOR THE EXISTING CONDITIONS.

**CHART "B"
40 MPH OR LESS WITH VERTICAL CURB**

| X (FEET) | DROP (D) (INCHES) | DEVICE REQUIRED |
|------------------|---------------------------|---------------------|
| 0-10' | LESS THAN OR EQUAL TO 12" | NONE |
| 0-10' | GREATER THAN 12" | CHANNELIZING DEVICE |
| GREATER THAN 10' | ANY | NONE |

GENERAL NOTES:

1. THESE CONDITIONS AND TREATMENTS ARE ONLY PART OF THE TRAFFIC CONTROL SYSTEM AND SHOULD BE USED IN ADDITION TO THE PROPER WORK ZONE SIGNING.
2. THE FOLLOWING ARE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) COMPLIANT CHANNELIZING DEVICES:
 - A. VERTICAL PANEL
 - B. TYPE I OR TYPE II BARRICADE
 - C. PLASTIC DRUM
 - D. CONE - WHERE APPLICABLE
 - E. TUBULAR MARKERS

IF CHANNELIZING DEVICES ARE REQUIRED TO STAY IN PLACE DURING NIGHTTIME HOURS, THEY SHALL BE STABILIZED WHILE UNATTENDED IN ACCORDANCE WITH THE MUTCD.
3. WHERE BARRIER IS NECESSARY, THE BARRIER SHALL BE TAPERED BEYOND THE CLEAR ZONE. WHEN THE BARRIER CANNOT BE TAPERED BEYOND THE CLEAR ZONE, A MUTCD COMPLIANT END TREATMENT SHALL BE USED. BARRIER AND END TREATMENT SHALL MEET "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 OR THE "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH). THE APPROPRIATE RESOURCE SHALL BE DETERMINED AS DESCRIBED IN THE MASH PUBLICATION.
4. CHANNELIZING DEVICE SPACING ALONG A LONGITUDINAL DROP-OFF (TANGENT) SHALL BE AS FOLLOWS:
 - TANGENT - CHANNELIZING DEVICES SHALL BE SPACED "2S" ("S" IS EQUAL TO THE POSTED SPEED LIMIT IN FEET) APART.
5. "LOW SHOULDER" (W8-9) AND "SHOULDER DROP-OFF SYMBOL" (W8-17) SIGNS, WHEN USED, SHOULD BEGIN PRIOR TO THE DROP-OFF CONDITION AND SHOULD BE REPEATED EVERY 1500 FEET.

OTHER STDS. REQUIRED: T-1

REVISIONS AND CORRECTIONS
AUG. 6, 2012 - ORIGINAL APPROVAL DATE

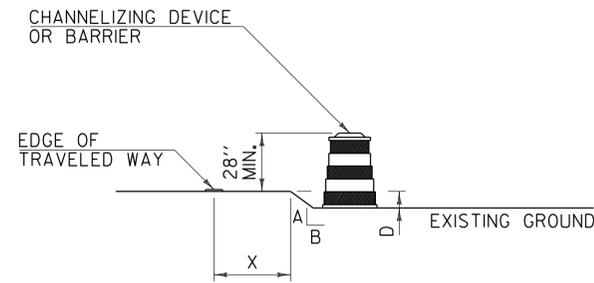
APPROVED
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HIGHWAY SAFETY & DESIGN ENGINEER
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DIRECTOR OF PROGRAM DEVELOPMENT
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**CONSTRUCTION ZONE
LONGITUDINAL DROP-OFFS**



**STANDARD
T-35**

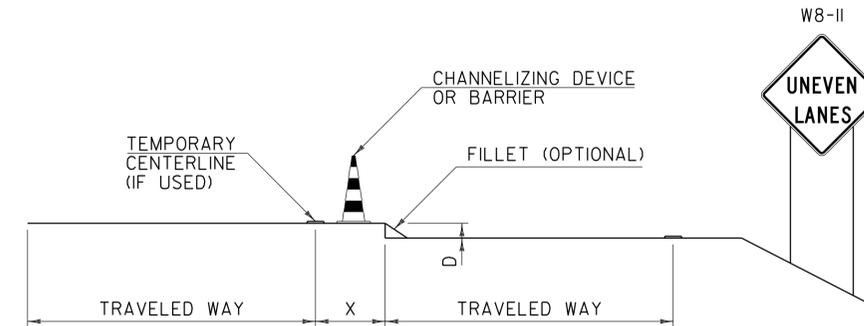
DROP-OFF ADJACENT TO TRAVELED WAY



NOTES:

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

DROP-OFF BETWEEN ADJACENT TRAVELED LANES



NOTES:

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

CHART "A" ALL SPEEDS WITH NO CURB

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

NOTE:

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

GENERAL NOTES:

1. THESE CONDITIONS AND TREATMENTS ARE ONLY PART OF THE TRAFFIC CONTROL SYSTEM AND SHOULD BE USED IN ADDITION TO THE PROPER WORK ZONE SIGNING.
2. THE FOLLOWING ARE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) COMPLIANT CHANNELIZING DEVICES:
 - A. VERTICAL PANEL
 - B. TYPE I OR TYPE II BARRICADE
 - C. PLASTIC DRUM
 - D. CONE - WHERE APPLICABLE
 - E. TUBULAR MARKERS

IF CHANNELIZING DEVICES ARE REQUIRED TO STAY IN PLACE DURING NIGHTTIME HOURS, THEY SHALL BE STABILIZED WHILE UNATTENDED IN ACCORDANCE WITH THE MUTCD.
3. WHERE BARRIER IS NECESSARY, THE BARRIER SHALL BE TAPERED BEYOND THE CLEAR ZONE. WHEN THE BARRIER CANNOT BE TAPERED BEYOND THE CLEAR ZONE, A MUTCD COMPLIANT END TREATMENT SHALL BE USED. BARRIER AND END TREATMENT SHALL MEET "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 OR THE "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH). THE APPROPRIATE RESOURCE SHALL BE DETERMINED AS DESCRIBED IN THE MASH PUBLICATION.
4. CHANNELIZING DEVICE SPACING ALONG A LONGITUDINAL DROP-OFF (TANGENT) SHALL BE AS FOLLOWS:

TANGENT - CHANNELIZING DEVICES SHALL BE SPACED "2S"
("S" IS EQUAL TO THE POSTED SPEED LIMIT IN FEET) APART.
5. "LOW SHOULDER" (W8-9) AND "SHOULDER DROP-OFF SYMBOL" (W8-17) SIGNS, WHEN USED, SHOULD BEGIN PRIOR TO THE DROP-OFF CONDITION AND SHOULD BE REPEATED EVERY 1500 FEET.

OTHER STDS. REQUIRED: T-1

REVISIONS AND CORRECTIONS
AUG. 6, 2012 - ORIGINAL APPROVAL DATE

APPROVED
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DIRECTOR OF PROGRAM DEVELOPMENT
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CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS FOR PAVING



STANDARD
T-36

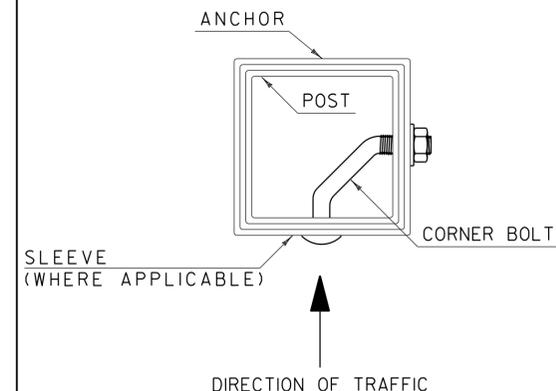
POST AND ANCHOR SELECTION CHART

| POST SIZE (IN.) | POST THICKNESS (IN.) | POST WEIGHT (LBS./FT.) | POST GAGE | SECTION MODULUS (IN. ³) | ONE POST SV | TWO POST SV | THREE POST SV | POSTS PERMITTED IN 8' PATH | ANCHOR SIZE (IN.) | ANCHOR GAGE | MINIMUM ANCHOR LENGTH |
|-----------------|----------------------|------------------------|-----------|-------------------------------------|-------------|-------------|---------------|----------------------------|-------------------|-------------|-----------------------|
| 1.75 | .083 | 1.88 | 14 | 0.222 | 45 | 90 | 135 | TWO | 2.00 | 12 | 30 |
| 2.00 | .109 | 2.42 | 12 | 0.393 | 80 | 160 | 240 | TWO | 2.25 | 12 | 48 |
| 2.50 | .109 | 3.35 | 12 | 0.673 | 137 | 274 | 411 | ONE | 3.00 | 7 | 48 |

NOTES:

- ALL SIGN POSTS SHALL HAVE $\frac{7}{16}$ INCH HOLES EVERY ONE INCH ON CENTER (ALL FOUR SIDES).
- THE NUMBER OF SIGN POSTS PERMITTED WITHIN AN EIGHT FOOT PATH ASSUMES THAT THE SIGN ASSEMBLY IS NOT PROTECTED BY GUARDRAIL OR IS LOCATED WITHIN A GUARDRAIL'S DEFLECTION DISTANCE DETERMINED PER THE CURRENT "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) ROADSIDE DESIGN GUIDE. ADDITIONAL POSTS MAY BE INSTALLED USING SLIP BASES THAT MEET "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 OR THE AASHTO "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH). THE APPROPRIATE RESOURCE SHALL BE DETERMINED AS DESCRIBED IN THE MASH PUBLICATION.
- TO USE THE SELECTION VALUE (SV) COLUMNS IN THE TABLE ABOVE, MULTIPLY A SIGN'S SURFACE AREA IN SQUARE FEET ($H \times L$) BY THE SIGN'S HEIGHT IN FEET MEASURED FROM THE GROUND TO THE CENTROID OF THE SIGN ASSEMBLY (h). THIS RESULT MUST BE LESS THAN OR EQUAL TO THE CORRESPONDING SELECTION VALUE. NOTE THAT FOR SIGNS WITH MULTIPLE POSTS, THE LARGEST HEIGHT DIMENSION SHALL BE USED TO CALCULATE THE POST SELECTION VALUE.
- THE DESIGN CRITERIA UTILIZED IN SIGN POST AND ANCHOR SELECTION IS AS FOLLOWS: WIND SPEED OF 70 MPH (10 YEAR MEAN RECURRENCE INTERVAL), WIND PRESSURE OF 19 PSF, STEEL MINIMUM YIELD OF 55,000 PSI, AND AN ALLOWABLE STRESS OF 1.4 (0.60 F_y).

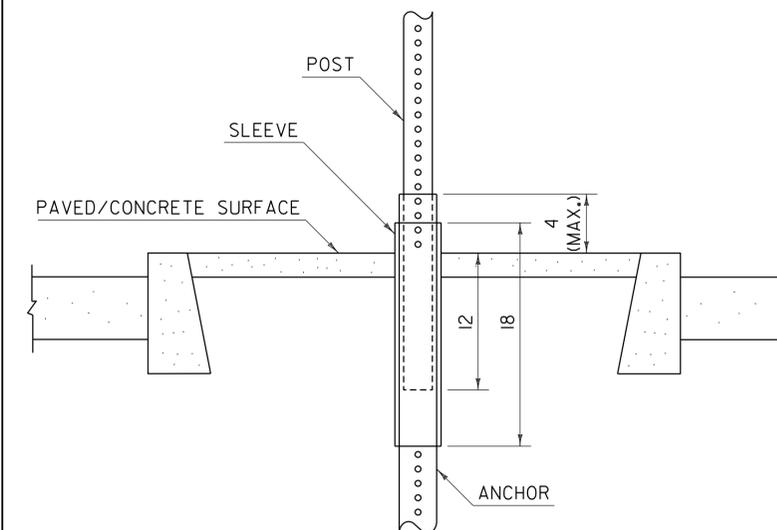
CORNER BOLT INSTALLATION DETAIL



NOTES:

- CORNER BOLTS SHALL BE $\frac{5}{16}$ INCH DIAMETER WITH 18 THREADS PER INCH AND DIMENSIONS SHALL BE DETERMINED BASED ON THE OUTERMOST DIMENSION OF THE SLEEVE, ANCHOR OR POST. THREAD EXPOSURE MUST EXCEED THE CORRESPONDING NUT WIDTH. THE CORNER BOLT AND CORRESPONDING HARDWARE SHALL BE ZINC PLATED, MEETING OR EXCEEDING THE REQUIREMENTS OF THE "AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) A307.

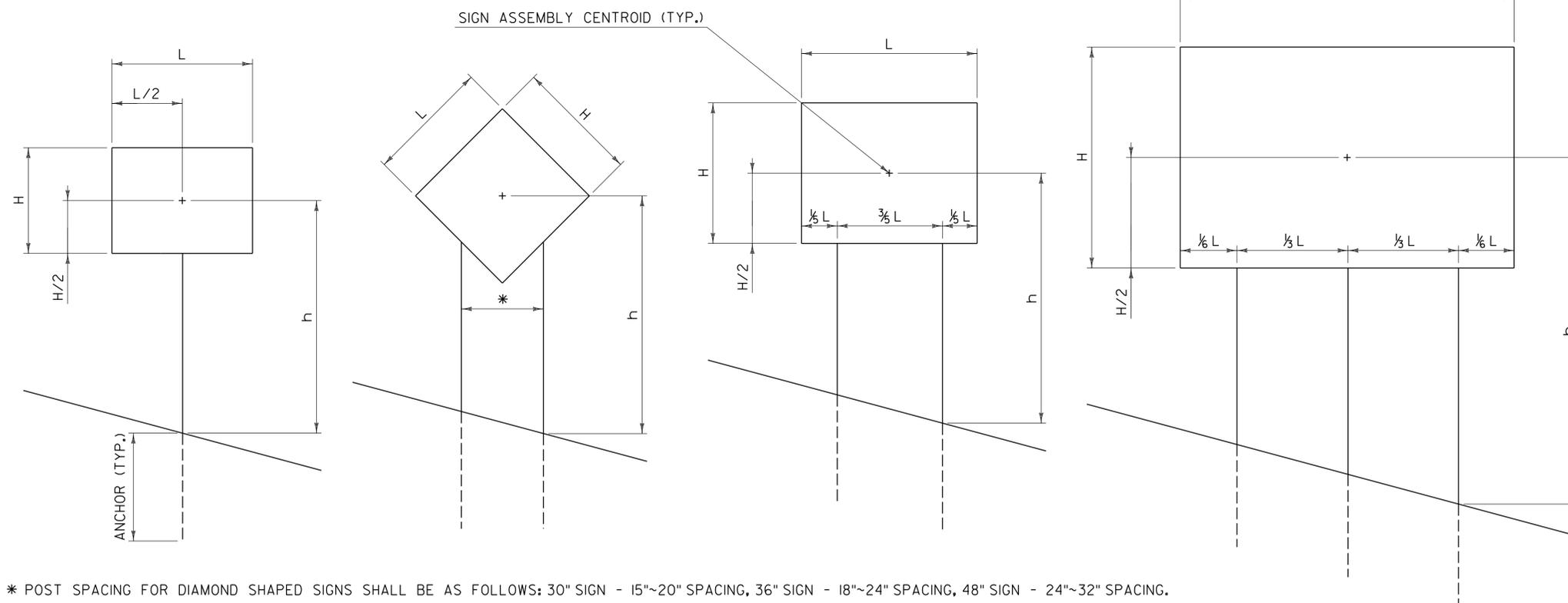
SLEEVE /ANCHOR INSTALLATION DETAIL



NOTES:

- A SLEEVE SHALL BE INSTALLED FOR SIGN INSTALLATIONS IN CONCRETE OR PAVEMENT.
- THE SLEEVE SHALL BE 18 INCHES MINIMUM IN LENGTH.
- THREE INCH SLEEVES THAT DO NOT HAVE HOLES WILL REQUIRE THAT $\frac{7}{16}$ INCH HOLES ARE DRILLED TO FACILITATE CONNECTIONS.
- REFER TO CURRENT EDITION OF THE "VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION" FOR MATERIAL REQUIREMENTS.

POST SPACING DETAILS



GENERAL NOTES:

- ALL SQUARE TUBE STEEL POSTS AND ANCHORS SHALL BE FORMED INTO A SIZE AND SHAPE IN SUCH A MANNER THAT NEITHER FLASH NOR WELD SHALL INTERFERE WITH THE TELESCOPING PROPERTIES, NOR DAMAGE THE GALVANIZING.
- ANCHORS MAY BE DRIVEN OR SET INTO A DUG HOLE AND BACKFILLED. IF DRIVEN, A DRIVING CAP SHALL BE USED. THE DUG HOLE INSTALLATION METHOD SHALL BE UTILIZED IN AREAS WITH POOR SOIL CONDITIONS OR AS DIRECTED BY THE ENGINEER. BACKFILL SHALL BE COMPACTED AS DIRECTED BY THE ENGINEER.
- THE TOPS OF SIGN POSTS SHALL BE AT OR NEAR THE TOP OF SIGN. THE POST SHALL NOT EXTEND ABOVE THE TOP OF SIGN.
- SIGN POSTS SHALL BE INSTALLED A MINIMUM OF ONE FOOT BELOW GROUND, INSIDE THE ANCHOR. THE LENGTH OF ANCHOR EXPOSED ABOVE GROUND SHALL NOT EXCEED FOUR INCHES.
- ALL DIMENSIONS SHOWN IN INCHES.

OTHER STDS. REQUIRED: NONE

REVISIONS AND CORRECTIONS
JAN. 2, 2013 - ORIGINAL APPROVAL DATE

APPROVED
[Signature]
HIGHWAY SAFETY & DESIGN ENGINEER
[Signature]
DIRECTOR OF PROGRAM DEVELOPMENT
[Signature]
MARK B. RICHTER
FEDERAL HIGHWAY ADMINISTRATION

SQUARE TUBE SIGN POST AND ANCHOR



STANDARD T-45