

GENERAL

- 1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE VERMONT AGENCY OF TRANSPORTATION 2011 STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE 2012 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, AND THEIR LATEST REVISIONS.
- 2. ON-SITE WORK SHALL NOT OCCUR DURING THE PERIOD FROM DECEMBER 1st to APRIL 1st. THE BRIDGE SHALL NOT BE CLOSED TO TRAFFIC PRIOR TO JUNE 20, AS PER THE PROJECT SPECIAL PROVISIONS.
- 3. ALL PRECAST CONCRETE ELEMENTS TO BE FABRICATED TO THE SPECIFIED DIMENSIONS WITHIN THE TOLERANCES DICTATED IN THE PRECAST/PRESTRESSED CONCRETE INSTITUTE TOLERANCE MANUAL FOR PRECAST AND PRESTRESSED CONCRETE CONSTRUCTION, MNL 135-00, AND ITS LATEST REVISIONS.
- 4. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL, AND ARE GIVEN AT 68 DEGREES FAHRENHEIT, UNLESS NOTED OTHERWISE.
- 5. NO ADJUSTMENTS TO THE BITUMINOUS WEARING SURFACE ON THE BRIDGE SHALL BE MADE TO ACCOUNT FOR THE DIFFERENCE BETWEEN BEAM CAMBER AND THE THEORETICAL ROADWAY PROFILE. THE WEARING SURFACE SHALL BE SHIMMED TRANSVERSELY AS NECESSARY TO ACCOUNT FOR POTENTIAL DIFFERENTIAL CAMBER OF THE ADJACENT BEAMS.
- 6. NO SUBSTITUTION FOR PRECAST CONCRETE WILL BE PERMITTED.

TRAFFIC CONTROL

- 7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING THE SITE SPECIFIC TRAFFIC CONTROL PACKAGE IDENTIFYING CONSTRUCTION ACTIVITIES BEFORE, DURING, AND AFTER THE BRIDGE CLOSURE PERIOD. THE CONTRACTOR SHALL SUBMIT A DETAILED TRAFFIC CONTROL PLAN TO THE RESIDENT ENGINEER FOR ALL STAGES OF CONSTRUCTION, FOR APPROVAL PER SUBSECTION 106.03. ALL COSTS SHALL BE INCLUDED IN ITEM 900.645 "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)". SEE SPECIAL PROVISIONS.
- 8. ALL SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MUTCD. WHERE CONFLICTS EXIST, THE MUTCD SHALL GOVERN. FOR ADDITIONAL SIGNING INSTRUCTIONS SEE THE SERIES OF THE STANDARDS.
- 9. ALL ITEMS REQUIRED TO IMPLEMENT THE CONTRACTOR'S TRAFFIC CONTROL PLAN WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED INCLUDED IN THE BID PRICE FOR ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)

EARTHWORK

- 10. PORTIONS OF THE ABUTMENTS FROM THE EXISTING, FAILED STRUCTURE SHALL BE REMOVED UNDER ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE". THIS WORK SHALL INCLUDE REMOVAL OF ANY PORTIONS OF THE EXISTING ABUTMENTS THAT FALL OUTSIDE THE LIMITS OF STRUCTURE EXCAVATION OR UNCLASSIFIED CHANNEL EXCAVATION.
- 11. BEDROCK IS PRESENT AT SHALLOW DEPTHS AT ABUTMENT 2, PARTICULARLY VW 3. ANY BEDROCK ENCOUNTERED WITHIN 1 FT OF THE BOTTOM OF THE ABUTMENT 2 SUBSTRUCTURE UNITS, INCLUDING THE WINGWALLS, SHALL BE REMOVED. THIS SHALL BE PAID FOR UNDER ITEM 203.16, "SOLID ROCK EXCAVATION".
- 12. REMOVAL OF THE CMP AT STATION 370+82.00 - 371+25 LT SHALL BE PAID FOR UNDER ITEM 204.20, "TRENCH EXCAVATION OF EARTH".
- 13. THE "STONE FILL, TYPE IV" UNDER THE BRIDGE AS SHOWN IN THE PLANS SHALL BE PLACED BEFORE THE NEW BEAMS ARE SET.

CONCRETE

- 14. WATER-REPLELLENT, SILANE SHALL BE FURNISHED IN ACCORDANCE WITH SECTION 514. SILANE SHALL BE SHOP APPLIED TO ALL EXPOSED CONCRETE ON THE BRIDGE SUPERSTRUCTURE AND SUBSTRUCTURE, WITH THE EXCEPTION OF THE BOTTOM OF THE PRECAST NEXT BEAMS BETWEEN THE DRIP NOTCHES. PAYMENT FOR SILANE WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE APPROPRIATE PRECAST ITEM.
- 15. ALL CONCRETE PLACED INTEGRALLY WITH THE SUPERSTRUCTURE SHALL BE ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)". ALL PRECAST SUBSTRUCTURE AND APPROACH SLAB CONCRETE SHALL MEET THE REQUIREMENTS OF SECTION 540 - PRECAST CONCRETE.
- 16. ALL REINFORCING STEEL SHALL BE DETAILED AND FABRICATED USING PROCEDURES AND TOLERANCES IN ACCORDANCE WITH APPLICABLE PUBLICATIONS OF THE "CONCRETE REINFORCING STEEL INSTITUTE".
- 17. ALL REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF ITEM 507.12, "REINFORCING STEEL, LEVEL II".
- 18. MINIMUM CLEAR COVER FOR REINFORCING STEEL SHALL BE AS FOLLOWS:
 ALONG BACK FACES OF WALLS AGAINST EARTH 2 INCH
 ALONG TOP SURFACE OF DECK SLAB: 2 INCH
 ALONG BOTTOM SURFACE OF DECK SLAB: 1.75 INCH
 ELSEWHERE UNLESS OTHERWISE INDICATED: 3 INCH

PRECAST ABUTMENTS AND POST-TENSIONING

- 19. THE UNIT PRICE FOR EACH PRECAST ABUTMENT SHALL INCLUDE THE ASSOCIATED WINGWALLS AND ALL LABOR AND MATERIALS TO CONNECT WINGWALLS TO THE PILE CAPS. THIS WORK SHALL BE PAID FOR UNDER ITEM 540.10, "PRECAST CONCRETE STRUCTURE (ABUTMENT #1) AND/OR "PRECAST CONCRETE STRUCTURE (ABUTMENT #2)" AS APPROPRIATE.

- 20. IF VERTICAL CONSTRUCTION JOINTS ARE REQUIRED BY THE CONTRACTOR FOR SHIPMENT OF THE ABUTMENTS, THEN THE SECTIONS SHALL BE KEYED AND MATCH CAST. A JOINT DETAIL SHALL BE SHOWN ON THE FABRICATION DRAWINGS.
- 21. POST-TENSIONING AND ASSOCIATED ITEMS ARE ONLY REQUIRED IF THE PILE CAP IS CONSTRUCTED OF MORE THAN ONE UNIT. ANY POST-TENSIONING STRANDS AND CONDUIT SHALL ADHERE TO THE REQUIREMENTS OF SECTION 510 - PRESTRESSED CONCRETE. GALVANIZED ANCHOR ASSEMBLIES, CONDUIT, AND POST-TENSIONING STRANDS SHALL BE INCLUDED UNDER ITEM 540.10, "PRECAST CONCRETE STRUCTURE (ABUTMENT #1) AND/OR "PRECAST CONCRETE STRUCTURE (ABUTMENT #2)" AS APPROPRIATE. POST-TENSIONING STRANDS SHALL BE COVERED WITH SEAMLESS POLYPROPYLENE SHEATH (WITH CORROSION INHIBITOR GREASE BETWEEN SHEATH AND STRAND) FOR THE LENGTH OF THE STRAND, EXCEPT AT ANCHORAGE LOCATIONS.
- 22. GALVANIZE ANCHOR ASSEMBLIES AFTER FABRICATION ACCORDING TO AASHTO M232/M 232.
- 23. DESIGN VALUES
 a. CONCRETE COMPRESSIVE STRENGTH: f'c = 5000 PSI.
 b. POST-TENSIONING STRANDS: 0.5 INCH DIAMETER, 270 KSI, LOW RELAXATION 7-WIRE STRANDS.
 c. ASSUMED MODULUS OF ELASTICITY IS 28,500 KSI.
 d. THERE SHALL BE 2 STRANDS PER CONDUIT.
 e. THE JACKING FORCE PER STRAND = 32 KIPS
- 24. THE CONCRETE FOR THE ABUTMENT #1 AND ABUTMENT #2 PILE CAPS SHALL MEET THE REQUIREMENTS OF SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET).
- 25. THE CORRUGATED STEEL PIPE SHALL MEET THE REQUIREMENTS OF SUBSECTION 711.01. ALL COSTS ASSOCIATED WITH PLACING THE CORRUGATED STEEL PIPE SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 540.10, "PRECAST CONCRETE STRUCTURE (ABUTMENT #1)" AND ITEM 540.10, "PRECAST CONCRETE STRUCTURE (ABUTMENT #2)".
- 26. PROPOSED SEQUENCE OF CONSTRUCTION
 a. PREPARE AND GRADE FOUNDATION TO REQUIRED ELEVATION.
 b. DRIVE PILES.
 c. PLACE PRECAST ABUTMENT AND INSTALL TRANSVERSE STRANDS (IF MORE THAN ONE UNIT).
 d. APPLY EPOXY TO MATCH CAST FACES OF VERTICAL CONSTRUCTION JOINT.
 e. USE A CALIBRATED JACK TO TENSION TO 3 KIPS TO REMOVE SAG IN STRANDS.
 f. CHECK ALIGNMENT OF PILE CAP ELEMENTS.
 g. STRESS POST-TENSIONING STRANDS USING A CALIBRATED JACK OPERATED BY QUALIFIED PERSONNEL WHO HAVE PREVIOUS EXPERIENCE IN POST-TENSIONING.
 h. FILL PILE CAPS WITH ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)".
 i. PLACE PRECAST WINGWALLS AND GROUT SPLICE CONNECTORS.
 j. BACKFILL MAY BE COMPLETED AFTER SPLICE CONNECTOR GROUT HAS REACHED 85% OF 5,000 PSI.
- 27. ALTERNATE SEQUENCE OF CONSTRUCTION MAY BE SUBMITTED TO THE VTRANS PROJECT MANAGER FOR APPROVAL.

NEXT BEAMS

28. NEXT BEAMS ARE A NON-PROPRIETARY SHAPE DEVELOPED BY PCINORTHEAST (PCINE). STANDARDIZED SECTION PROPERTIES AND DETAILS MAY BE FOUND AT <http://www.pcine.org>

- 29. DESIGN VALUES
 a. CONCRETE COMPRESSIVE STRENGTH: f'c = 10,000 PSI.
 b. CONCRETE COMPRESSIVE STRENGTH AT RELEASE: f'd = 8,000 PSI
 c. PRESTRESSING STRANDS: 0.6 INCH DIAMETER, 270 KSI, LOW-RELAXATION 7-WIRE STRANDS
 d. ASSUMED MODULUS OF ELASTICITY = 28,500 KSI.
 e. PRESTRESSING STRANDS SHALL EACH BE PULLED TO A NET TENSION OF 44.0 KIPS AFTER ACCOUNTING FOR CHUCK SLIPPAGE.
 f. SERVICE LOADS

MEMBER MOMENT	1,470 K-FT
SUPERIMPOSED DEAD LOAD MOMENT	508 K-FT
LIVE LOAD AND IMPACT MOMENT	1,520 K-FT
DEAD LOAD REACTION/END	98 KIPS
LIVE LOAD AND IMPACT REACTION/END	108 KIPS
TOTAL REACTION/END	206 KIPS
CAMBER AT RELEASE	1 11/16 INCHES
FINAL CAMBER	1 7/16 INCHES

- 30. FORMING FOR ENDS OF FLANGES ALONG LONGITUDINAL CLOSURE POURS MAY BE TREATED WITH CONCRETE SURFACE RETARDER, OR SIMILAR, TO PROVIDE A ROUGHENED SURFACE; AND SHALL BE POWER WASHED WITH WATER PRIOR TO ERECTION OF THE BEAMS.
- 31. FILL THE FLANGES TO FLANGE CONNECTION WITH ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)".
- 32. 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 BE ATTACHED TO ANY PREFABRICATED SUPERSTRUCTURE ELEMENT BY DRILLING OR SIMILAR MEANS.

- 33. THE FABRICATOR MAY ALTER THE DESIGN AS DETAILED IN THESE PLANS TO ACCOMMODATE THEIR SPECIFIC OPERATION. THIS ALTERATION SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER, LICENSED IN THE STATE OF VERMONT, TO MEET THE SPECIFIED CRITERIA, AND SHALL BE SUBMITTED TO THE VTRANS PROJECT MANAGER FOR APPROVAL.
- 34. PROPOSED SEQUENCE OF CONSTRUCTION
 a. LAY OUT WORKING LINES THE ENTIRE WIDTH OF THE BRIDGE ALONG CENTERLINE OF BEARING, MEASURED FROM A SINGLE WORKING POINT. THE WORKING LINES SHALL BE BASED ON THE NOMINAL BEAM WIDTHS.
 b. VERIFY THE BEAM SEAT ELEVATIONS AND TAKE CORRECTIVE ACTION IF NECESSARY.
 c. INSTALL BEARINGS
 d. ERECT THE BEAMS TO FIT WITHIN THE WORKING LINES.
 e. ADJUST FASCIA BEAM TO FIT SNUG AGAINST 1/2" CORK ON INTERIOR OF CHEEK WALL.
 f. CONSTRUCT FORMS FOR THE FLANGE AND CURTAIN WALL CONNECTION POURS.
 g. GROUT CONNECTIONS BETWEEN BEAM FLANGES AND CURE.
 h. BACKFILL AND PREPARE GRADE FOR APPROACH SLABS.
 i. COMPLETE BEAM-END CLOSURE POUR TO BOTTOM OF DECK ALLOWING FOR APPROACH SLAB BRACKET.
 j. COMPLETE PLACEMENT OF BACKFILL AND PLACE APPROACH SLAB.
 k. GROUT REBAR DOWELS IN APPROACH SLAB.
 l. COMPLETE LONGITUDINAL CLOSURE POURS OF APPROACH SLAB.
 m. COMPLETE BEAM-END CLOSURE POUR TO TOP OF DECK AND APPROACH SLABS.
- 35. ALTERNATE SEQUENCE OF CONSTRUCTION MAY BE SUBMITTED TO THE VTRANS PROJECT MANAGER FOR APPROVAL.

H-PILES

- 36. THE PILES SHALL BE HP 12 X 74 AT ABUTMENT 1 AND HP 10 X 57 AT ABUTMENT 2.
- 37. TO PREVENT DAMAGE TO THE PILES, PILE SHOES ARE REQUIRED FOR DRIVEN PILES AND SHALL CONFORM TO SUBSECTION 505.04 (f).
- 38. THE PILES AT ABUTMENT 1 SHALL BE DRIVEN TO A NOMINAL AXIAL PILE DRIVING RESISTANCE (RNDR) OF 402 KIPS OR REFUSAL, PROVIDED A MINIMUM PENETRATION OF 20 FEET BELOW THE BOTTOM OF PILE CAP HAS BEEN ACHIEVED.
- 39. THE PILE LOCATIONS AT ABUTMENT 2 SHALL BE PRE-EXCAVATED THREE (3) FEET INTO COMPETENT BEDROCK. THE MINIMUM REQUIRED PILE LENGTH IS 10 FEET. IF COMPETENT BEDROCK IS ENCOUNTERED SHALLOWER THAN 7 FEET BELOW THE PILE CAP, PRE-EXCAVATION TO A MINIMUM DEPTH OF 10 FEET BELOW THE PILE CAP IS REQUIRED. PRE-EXCAVATED HOLES SHALL BE 20 INCHES IN DIAMETER AT ABUTMENT 2.
- 40. A MINIMUM OF TWO DYNAMIC PILE TESTS SHALL BE CONDUCTED ON PILES AT ABUTMENT 1. THIS SHALL BE PAID FOR UNDER ITEM 505.45, "DYNAMIC PILE LOADING TEST". NO LOAD TESTING IS REQUIRED AT ABUTMENT 2.
- 41. THE TOPS OF THE PILES AFTER DRIVING OR PLACEMENT SHALL NOT VARY FROM THE POSITION SHOWN ON THE PLANS BY MORE THAN 3 INCHES. THE PILE ORIENTATION SHALL NOT VARY BY MORE THAN 5 DEGREES. THE CONTRACTOR SHALL DEMONSTRATE HOW THE TOLERANCES WILL BE MET TO THE SATISFACTION OF THE ENGINEER. THESE MEASURES SHALL BE DEMONSTRATED IN A SUBMITTAL TO BE ACCEPTED BEFORE PILE DRIVING COMMENCES.
- 42. FOR ESTIMATING PURPOSES, THE PILE TIP ELEVATIONS WERE ASSUMED AS SHOWN ON THE BORING LOGS. THE ACTUAL IN PLACE LENGTHS MAY VARY.
- 43. PAYMENT FOR PRE-EXCAVATION SHALL BE MADE UNDER ITEM 900.640, "SPECIAL PROVISION (PRE-EXCAVATION OF INTEGRAL ABUTMENTS PILES, EARTH) OR ITEM 900.640, "SPECIAL PROVISION (PRE-EXCAVATION OF INTEGRAL ABUTMENTS PILES, ROCK)". THE ENTIRE PRE-EXCAVATED HOLE SHALL BE BACKFILLED WITH SAND AFTER THE PILE IS SET. SAND SHALL CONFORM TO THE REQUIREMENTS OF SUBSECTION 703.03. REFER TO THE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.

MISCELLANEOUS

- 44. A TEMPORARY BRIDGE IS IN PLACE. REMOVAL OF THIS TEMPORARY BRIDGE SHALL BE PAID FOR UNDER SPECIAL PROVISION ITEM 900.645 (REMOVAL OF TEMPORARY BRIDGE AND APPROACHES). THE TEMPORARY BRIDGE IS THE PROPERTY OF VTRANS AND SHALL BE RETURNED TO THE VTRANS MAINTENANCE FACILITY IN SPRINGFIELD, VT. CONTACT HOBERT GATES AT (802) 524-5926 TO MAKE NECESSARY ARRANGEMENTS AS PER THE SPECIAL PROVISIONS.
- 45. SIX TO TWELVE (6-12) STONES, MEETING THE REQUIREMENTS OF SUBSECTION 706.04(D), SHALL BE PROVIDED FOR PLACEMENT IN THE RIVER UPSTREAM AND DOWNSTREAM OF THE BRIDGE. THEY SHALL BE EMBEDDED APPROXIMATELY TWO-FEET (2-FT.) INTO THE STREAMBED AS DIRECTED BY THE RESIDENT ENGINEER. THIS WORK SHALL BE PAID FOR UNDER ITEM 613.13, "STONE FILL, TYPE IV".
- 46. AN EXISTING CONDITIONS LAYOUT HAS BEEN ADDED TO THE PLAN SET FOR THE USE OF THE CONTRACTOR IN PREPARING SUBMITTALS.

PROJECT NAME:	BARNARD	PLOT DATE:	11-SEP-2013
PROJECT NUMBER:	ER BRF 0241(39)	DRAWN BY:	W. LAMMER
FILE NAME:	sl0c410gen.dgn	CHECKED BY:	J. SALVATORI
PROJECT LEADER:	K. HIGGINS	SHEET	4 OF 39
DESIGNED BY:	W. LAMMER		
GENERAL NOTES			