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. ALL PRECAST/PRESTRESSED CONCRETE ELEMENTS SHALL BE FABRICATED TO THE SPECIFIED DIMENSIONS AND ERECTED IN THE SPECIFIED LOCATIONS, ALL WITHIN TOLERANCES DEFINED ON THE PLANS AND IN THE PRECAST/PRESTRESSED CONCRETE INSTITUTE TOLERANCE MANUAL FOR PRECAST AND PRESTRESSED CONCRETE CONSTRUCTION, MNL 135-00, AND ITS LATEST REVISIONS.

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

4. THE WEARING SURFACE SHALL BE SHIMMED TRANSVERSELY AS NECESSARY TO ACCOUNT FOR DIFFERENTIAL CAMBER OF THE ADJACENT PRESTRESSED SLABS.

TRAFFIC CONTROL

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING A 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 PROJECT MANAGER FOR ALL STAGES OF CONSTRUCTION, FOR APPROVAL PER SUBSECTION 105.03. ALL COSTS SHALL BE INCLUDED IN ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE) (BRF 0281(25))". SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.

6. 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)(BRF 0281(25))".

7. THE CONTRACTOR IS NOT RESPONSIBLE FOR THE OFF-SITE DETOUR. THE CONTRACTOR SHALL NOTIFY THE TOWN A MINIMUM OF TWO WEEKS IN ADVANCE OF THE BRIDGE CLOSURE PERIOD.

8. ALL SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MUTCD. FOR ADDITIONAL SIGNING INSTRUCTIONS SEE THE T SERIES OF THE STANDARDS. WHERE CONFLICTS EXIST, THE MUTCD SHALL GOVERN.

EARTHWORK

9. REMOVAL OF THE EXISTING STRUCTURE SHALL BE PAID FOR UNDER ITEM 529.15, "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.

10. THE "STONE FILL, TYPE III" UNDER THE BRIDGE AS SHOWN IN THE PLANS SHALL BE PLACED BEFORE THE PRESTRESSED SLABS ARE SET.

CONCRETE AND REINFORCING STEEL

11. TEST BARS SHALL BE PROVIDED IN ACCORDANCE WITH THE "VERMONT AGENCY OF TRANSPORTATION MATERIAL SAMPLING MANUAL" AVAILABLE ON THE AGENCY WEBSITE. A MINIMUM OF TWO TEST SECTIONS ARE REQUIRED FOR EACH SIZE, BRAND, AND GRADE OR TYPE OF REINFORCING. SEE THE MANUAL FOR ACCEPTABLE DIMENSIONS OF TEST SECTIONS. ALL COSTS ASSOCIATED WITH PROVIDING BARS FOR TESTING SHALL BE INCLUDED IN THE BID PRICE FOR EACH 540.10, 900.640, "SPECIAL PROVISION, (PRESTRESSED CONCRETE SOLID SLABS)(15" x 48")", AND 900.645, "SPECIAL PROVISION, (CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE)" CONTRACT ITEM AS APPROPRIATE.

12. WATER REPELLENT, SILANE SHALL BE FURNISHED IN ACCORDANCE WITH SECTION 514 AND SHALL BE APPLIED TO ALL EXPOSED CONCRETE ON THE BRIDGE SUPERSTRUCTURE AND SUBSTRUCTURE, WITH THE EXCEPTION OF THE BOTTOM OF THE SLABS BETWEEN THE DRIP NOTCHES. ALL COSTS ASSOCIATED WITH APPLYING SILANE SHALL BE INCLUDED IN THE BID PRICE FOR EACH 540.10, 900.640, "SPECIAL PROVISION, (PRESTRESSED CONCRETE SOLID SLABS)(15" x 48")", AND 900.645, "SPECIAL PROVISION, (CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE)" CONTRACT ITEM AS APPROPRIATE.

13. CONCRETE FOR APPROACH SLAB CLOSURE POURS AND ABUTMENT PILE CAVITIES SHALL MEET THE REQUIREMENTS OF ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)(FPQ)".

14. GROUT FOR SHEAR KEYS BETWEEN THE PRESTRESSED SLABS SHALL BE MORTAR, TYPE IV IN ACCORDANCE WITH SECTION 510 – PRESTRESSED CONCRETE. GROUT FOR ANCHOR BOLTS SHALL BE MORTAR, TYPE IV IN ACCORDANCE WITH SECTION 531 – BRIDGE BEARING DEVICES. THE CONTRACTOR SHALL SUBMIT A GROUTING PROCEDURE PROPOSAL TO THE ENGINEER, INCLUDING A PREMIX NAME BRAND FOR APPROVAL.

15. ALL REINFORCING STEEL SHALL BE DETAILED AND FABRICATED USING PROCEDURES AND TOLERANCES IN ACCORDANCE WITH APPLICABLE PUBLICATIONS OF THE "CONCRETE REINFORCING STEEL INSTITUTE".

16. ALL REINFORCING STEEL IN THE PRESTRESSED SLABS, APPROACH SLABS, APPROACH SLAB CLOSURE POURS, AND ABUTMENTS & WINGWALLS ABOVE THE BRIDGE SEAT SHALL MEET THE REQUIREMENTS FOR LEVEL II CORROSION RESISTANCE IN ACCORDANCE WITH SECTION 507.

17. REINFORCING STEEL IN THE ABUTMENTS & WINGWALLS BELOW THE BRIDGE SEAT SHALL MEET THE REQUIREMENTS FOR LEVEL I CORROSION RESISTANCE IN ACCORDANCE WITH SECTION 507.

18. ALL COSTS ASSOCIATED WITH THE APPROACH SLAB CLOSURE POUR REINFORCING SHALL BE INCLUDED IN THE BID PRICE FOR EACH 540.10 AND 900.645, "SPECIAL PROVISION, (CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE)" CONTRACT ITEM AS APPROPRIATE.

19. CORRUGATED STEEL PIPES IN THE PRECAST ABUTMENTS FOR PILE CAVITIES AND ANCHOR BOLT CAVITIES SHALL MEET THE REQUIREMENTS OF SUBSECTION 711.01, BE COATED IN ACCORDANCE WITH AASHTO M 218, AND BE TYPE 1. ALL COSTS ASSOCIATED WITH PLACING THE CORRUGATED STEEL PIPES SHALL BE INCLUDED IN THE BID PRICE FOR EACH 540.10 AND 900.645, "SPECIAL PROVISION, (CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE)" CONTRACT ITEM AS APPROPRIATE.

20. CORRUGATED POST-TENSIONING DUCTS IN THE PRESTRESSED SLABS AND PRECAST APPROACH SLABS FOR ANCHOR BOLT AND DOWEL CONNECTIONS SHALL BE CONSTRUCTED FROM EITHER POLYETHYLENE OR POLYPROPYLENE. THE DUCT SHALL HAVE A MINIMUM MATERIAL THICKNESS OF 0.080 IN. +/- 0.010 IN. AND SHALL HAVE A WHITE COATING ON THE OUTSIDE OR SHALL BE OF WHITE MATERIAL WITH ULTRAVIOLET STABILIZERS ADDED. POLYETHYLENE DUCT SHALL BE FABRICATED FROM RESINS MEETING OR EXCEEDING THE REQUIREMENTS OF ASTM D 3350 WITH A CELL CLASSIFICATION OF 345464A. POLY PROPYLENE DUCT SHALL BE FABRICATED FROM RESINS MEETING OR EXCEEDING THE REQUIREMENTS OF ASTM D 4101 WITH A CELL CLASSIFICATION RANGE OF PP0340B44544 TO PP0340B65884. ALL COSTS ASSOCIATED WITH PLACING THE DUCTS SHALL BE INCLUDED IN THE BID PRICE FOR EACH 540.10, 900.640, "SPECIAL PROVISION, (PRESTRESSED CONCRETE SOLID SLABS)(15" x 48")", AND 900.645, "SPECIAL PROVISION, (CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE)" CONTRACT ITEM AS APPROPRIATE.

PRECAST ABUTMENTS AND APPROACH SLABS

21. CONCRETE COMPRESSIVE STRENGTH: f'c = 5 KSI.

22. PROPOSED SEQUENCE OF SUBSTRUCTURE CONSTRUCTION:
    a. PREPARE AND GRADE FOUNDATION TO REQUIRED ELEVATION.
    b. DRIVE PILES.
    c. PLACE PRECAST ABUTMENTS.
    d. INSTALL ANCHOR BOLTS AND SECURE IN FINAL POSITION.
    e. FILL ABUTMENT PILE CAVITIES WITH ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)(FPQ)".
    f. GROUT ANCHOR BOLTS IN ABUTMENT ANCHOR BOLT CAVITIES.
    g. THE PILE CAVITY CONCRETE SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 3.5 KSI BEFORE ABUTMENT BACKFILL IS PLACED AND PRESTRESSED SLABS ARE ERECTED.

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

PRESTRESSED SOLID SLABS

24. DESIGN VALUES:
    a. CONCRETE COMPRESSIVE STRENGTH: f'c = 8 KSI
    b. CONCRETE COMPRESSIVE STRENGTH AT RELEASE: f'ci = 6 KSI
    c. PRESTRESSING STRANDS: 0.6 INCH DIAMETER, 270 KSI, LOW-RELAXATION 7-WIRE STRANDS
    d. JACKING FORCE PER PRESTRESSING STRAND = 44 KIPS
    e. POST-TENSIONING STRANDS: 0.6 INCH DIAMETER, 270 KSI, LOW RELAXATION 7-WIRE STRANDS.
    f. JACKING FORCE PER POST-TENSIONING STRAND = 47 KIPS
    g. THERE SHALL BE 2 STRANDS PER POST-TENSIONING DUCT.
    h. ASSUMED MODULUS OF ELASTICITY FOR THE STRAND IS 28,500 KSI.

25. DUE TO STABILITY CONCERNS AT THE ABUTMENTS DURING THE ERECTION OF THE SUPERSTRUCTURE, THE CONTRACTOR SHALL SUBMIT THE ERECTION PLAN A MINIMUM OF 30 WORKING DAYS PRIOR TO THE BRIDGE CLOSURE PERIOD. UNDER NO CIRCUMSTANCES SHALL A BRIDGE CLOSURE PERIOD BEGIN PRIOR TO HAVING AN ACCEPTED ERECTION PLAN.

26. THE METHOD OF FORMING FOR SUBSEQUENT POURS AFTER PLACING PRECAST/PRESTRESSED SUPERSTRUCTURE UNITS SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR IS ENCOURAGED TO WORK WITH THE FABRICATOR IF ADDITIONAL SUPPORTS MAY BE REQUIRED. IN NO CASE SHALL THE CONTRACTOR ATTACH ADDITIONAL FORM OR SCREED SUPPORTS BY DRILLING OR SIMILAR MEANS INTO ANY PRECAST/PRESTRESSED SUPERSTRUCTURE UNIT.

27. ALL POST-TENSIONING STRAND SHALL CONFORM TO THE REQUIREMENTS OF SECTION 510 – PRESTRESSED CONCRETE. PAYMENT FOR GALVANIZED ANCHOR ASSEMBLIES, DUCTS, AND POST-TENSIONING STRANDS SHALL BE INCLUDED UNDER ITEM 900.640, "SPECIAL PROVISION, (PRESTRESSED CONCRETE SOLID SLABS)(15" x 48")".

28. PROPOSED SEQUENCE OF SUPERSTRUCTURE 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 PRESTRESSED SLAB WIDTHS.
    b. PREPARE GRADE FOR APPROACH SLABS.
    c. VERIFY THE BRIDGE SEAT ELEVATIONS AND TAKE CORRECTIVE ACTION IF NECESSARY.
    d. POWER WASH ALL SURFACES THAT WILL BE IN CONTACT WITH GROUT.
    e. INSTALL BEARINGS.
    f. ERECT THE PRESTRESSED SLABS TO FIT WITHIN THE WORKING LINES.
    g. ADJUST THE EXTERIOR SLAB SO THAT THE FASCIA FITS SNUG AGAINST THE CORK ON INTERIOR OF CHEEK WALL.
    h. INSTALL HARDWOOD WEDGES BETWEEN ADJACENT SLABS TO MAINTAIN PROPER JOINT OPENING (A MINIMUM OF ONE WEDGE AT EACH TRANSVERSE POST-TENSIONING LOCATION).
    i. INSTALL BACKER ROD BELOW THE BOTTOM OF THE KEYWAY.
    j. INSTALL POST-TENSIONING STRANDS AND TENSION TO 3 KIPS TO REMOVE SAG AND SEAT CHUCK.
    k. INSTALL PRECAST APPROACH SLABS.
    l. PUMP GROUT FROM LOW ENDS OF BRIDGE SEAT THROUGH ANCHOR BOLT DUCTS CLOSEST TO EACH FASCIA TO FILL VOID BETWEEN BRIDGE SEAT AND BOTTOM OF PRESTRESSED SLABS AND APPROACH SLABS. PUMP GROUT UNTIL ALL ANCHOR BOLT DUCTS AND APPROACH SLAB DOWEL DUCTS ARE FULL.
    m. INSTALL ANCHOR PLATES, WASHERS AND NUTS FOR ANCHOR BOLTS.
    n. GROUT SHEAR KEYS.
    o. FULLY TENSION TRANSVERSE TENDONS PER SUBSECTION 510.14.
    p. INSTALL APPROACH SLAB CLOSURE POUR REINFORCING AND COMPLETE CLOSURE POUR.

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

H-PILES

30. THE PILES SHALL BE HP 12x84.

31. TO PREVENT DAMAGE TO THE PILES, PILE SHOES ARE REQUIRED AND SHALL CONFORM TO SUBSECTION 505.04 (f).

32. THE PILES SHALL BE DRIVEN TO A NOMINAL AXIAL RESISTANCE OF 290 KIPS AND EMBEDDED A MINIMUM OF 20 FEET BELOW THE PILE CAP.

33. A MINIMUM OF ONE DYNAMIC PILE LOADING TEST SHALL BE PERFORMED PER ABUTMENT.

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

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

MISCELLANEOUS

36. 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. IF TRAFFIC WILL BE DRIVING DIRECTLY ON THE MEMBRANE SURFACE, AN AGGREGATE WEARING SURFACE SHALL BE ADHERED TO THE TOP MEMBRANE COAT PER THE SPECIFICATIONS.

37. EMULSIFIED ASPHALT SHALL BE APPLIED TO ALL COLD PLANED SURFACES AT A RATE OF 0.080 GAL/SY AND BETWEEN EACH LIFT OF PAVEMENT AT A RATE OF 0.040 GAL/SY.

38. EXISTING CONDITIONS SHEET HAS BEEN INCLUDED FOR THE CONTRACTOR TO USE FOR SUBMITTALS.

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PROJECT NUMBER: BRF 0281(25)	
FILE NAME: s12j156gen.dgn	PLOT DATE: 11-SEP-2014
PROJECT LEADER: R. YOUNG	DRAWN BY: R. KLINEFELTER
DESIGNED BY: R. KLINEFELTER	CHECKED BY: J. SALVATORI
GENERAL NOTES	SHEET 8 OF 69