

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE VERMONT AGENCY OF TRANSPORTATION 2011 STANDARD SPECIFICATIONS FOR CONSTRUCTION, 2012 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, AND THEIR LATEST REVISIONS.
2. ON-SITE WORK SHALL NOT OCCUR BETWEEN DECEMBER 1ST AND MARCH 23ST AS PER THE PROJECT SPECIAL PROVISIONS. DEPLOYMENT OF THE SMART WORK ZONE COMPONENTS MAY BE INITIATED PRIOR TO MARCH 23RD.
3. THE CONTRACTOR WILL BE ALLOWED TO CLOSE EACH BRIDGE FOR ONE WEEKEND (TWO CONSECUTIVE DAYS), BEGINNING ON A FRIDAY AT 6PM AND ENDING THE FOLLOWING MONDAY AT 6 AM, TO PERFORM REPLACEMENT OF THE EXISTING SUPERSTRUCTURE. DURING EACH BRIDGE CLOSURE PERIOD (BCP) THE CONTRACTOR WILL BE ALLOWED TO WORK 24 HOURS PER DAY. APPROVED CLOSURE DATES AND FURTHER INFORMATION & REQUIREMENTS ARE IDENTIFIED IN THE PROJECT SPECIAL PROVISIONS.
4. FOR INFORMATION REGARDING UTILITIES, SEE THE PROJECT SPECIAL PROVISIONS.
5. ALL DIMENSIONS SHOWN IN THE PLANS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68 DEGREES FAHRENHEIT, UNLESS NOTED OTHERWISE
6. ALL PRECAST CONCRETE ELEMENTS ARE 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.
7. THE CONTRACTOR IS RESPONSIBLE FOR MAINTANANCE OF THE BRIDGES AND APPROACHES TO THE SATISFACTION OF THE ENGINEER ONCE THEY BEGIN ANY DEMOLITION/DECONSTRUCTION OF THE EXISTING BRIDGE OR ITS COMPONENTS PRIOR TO THE BRIDGE CLOSURE PERIOD. EXAMPLES OF SUCH ACTIVITIES INLCUDE, BUT ARE NOT LIMITED TO SAWCUTTING, PAVEMENT REMOVAL, AND EXCAVATION OF THE EXISTING ROADWAY SUBBASE.
8. ORIGINAL GROUND ELEVATIONS ARE BASED ON LIDAR DATA SUPPLEMENTED BY GROUND SURVEY ON AND BELOW THE EXISTING BRIDGES. THE CONTRACTOR SHALL VERIFY ALL EXISTING ELEVATIONS AND NOTIFY THE RESIDENT ENGINEER OF ANY DISCREPANCIES.

EARTHWORK AND RELATED ITEMS

9. REMOVAL OF THE EXISTING SUPERSTRUCTURES SHALL BE PAID FOR UNDER ITEM 529.20 "PARTIAL REMOVAL OF STRUCTURE (SUPERTRUCTURE 43S)" OR ITEM 529.20 "PARTIAL REMOVAL OF STRUCTURE (SUPERTRUCTURE 43N)" AS APPLICABLE.
10. REMOVAL OF THE EXISTING SUBSTRUCTURES TO THE ELEVATIONS SPECIFIED IN THE PLANS SHALL BE PAID FOR UNDER ITEM 529.20 "PARTIAL REMOVAL OF STRUCTURE (SUBSTRUCTURE 43S)" OR ITEM 529.20 "PARTIAL REMOVAL OF STRUCTURE (SUBSTRUCTURE 43N)" AS APPLICABLE.
11. THE COST OF BEDROCK EXCAVATION SHALL BE PAID UNDER ITEM 204.25, "STRUCTURE EXCAVATION". ALL OVERBREAKAGE SHALL BE REPLACED WITH "CONCRETE, CLASS C". A MAXIMUM OF 6 INCHES AVERAGE OVERBREAKAGE DEPTH SHALL BE PAID FOR. ANY ADDITIONAL BEDROCK EXCAVATION OR CONCRETE SHALL BE AT THE CONTRACTOR'S EXPENSE. REFER TO "TYPICAL EARTHWORK SECTION FOR ABUTMENT ON SPREAD FOOTING" ON SHEET "TYPICAL SECTIONS 2".

STRUCTURAL STEEL

12. THE EXISTING STRUCTURAL STEEL IS PAINTED WITH A MATERIAL THAT MAY CONTAIN LEAD. THE CONTRACTOR SHALL FOLLOW ALL APPLICABLE REGULATIONS WHEN HANDLING AND WORKING WITH THIS STEEL. THE REMOVED STRUCTURAL STEEL IS THE PROPERTY OF THE CONTRACTOR. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE STATE, ITS OFFICERS, AND EMPLOYEES HARMLESS CONCERNING THE CONTRACTOR'S USE OR DISPOSITION OF THE REMOVED EXISTING STRUCTURAL STEEL.
13. THE BOTTOM FLANGE OF THE GIRDERS FOR BRIDGE 43N SHALL CONFORM TO ASTM A709 GRADE HPS 70W AND SHALL BE PAID UNDER SPECIAL PROVISION (STRUCTURAL STEEL, PLATE GIRDER, GRADE HPS 70W). ALL OTHER STRUCTURAL STEEL SHALL CONFORM TO AASHTO M270/M270M GRADE 50W AND SHALL BE PAID FOR UNDER ITEM 506.55, "STRUCTURAL STEEL (PLATE GIRDER)".
14. STRUCTURAL STEEL MEMBERS DESIGNATED "CVN" IN THE PLANS SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH SUBSECTION 714.01 OF THE STANDARD SPECIFICATIONS.

15. ALL FIELD CONNECTIONS SHALL BE MADE USING 7/8 INCH DIAMETER HIGH-STRENGTH BOLTS. UNLESS OTHERWISE NOTED, HOLE DIAMETER SHALL BE 15/16 INCH. ANY CONNECTIONS NOT DESIGNATED SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE PROJECT MANAGER FOR APPROVAL.
16. AFTER THE GIRDERS HAVE BEEN ERECTED, ELEVATIONS SHALL BE TAKEN ALONG THE TOP OF THE GIRDERS AS DIRECTED BY THE RESIDENT ENGINEER, FOR USE IN DETERMINING HEIGHT OF DECK PANEL BEDDING STRIPS. AFTER THE DECK PANELS HAVE BEEN SET AND BEFORE THE GROUT BED IS PLACED, THE CONTRACTOR SHALL RE-PROFILE THE TOP FLANGES OF THE GIRDERS AS DIRECTED BY THE RESIDENT ENGINEER, FOR USE IN DETERMINING SCREED RAIL ELEVATIONS AND CHAIR HEIGHTS FOR REINFORCING STEEL.
17. FLEMING BRACKETS OR SIMILAR FALSEWORK SHALL BE PLACED AT A MAXIMUM SPACING OF 4 FEET. THE BRACKETS SHALL BEAR NEAR THE BOTTOM FLANGE AND IN NO CASE SHALL THEY BEAR ABOVE THE BOTTOM QUARTER OF THE WEB. THE DESIGN OF FALSEWORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
18. ANY BOLT HOLES IN THE WEBS OF FASCIA GIRDERS NOT OTHERWISE FILLED SHALL BE FILLED WITH BUTTON HEAD OR HEX HEAD BOLTS. THE BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH SUBSECTION 506.19 OF THE STANDARD SPECIFICATIONS.
19. GIRDER WEBS AND DIAPHRAGMS SHALL BE PLUMB IN FINAL POSITION. GIRDER ENDS SHALL BE VERTICAL IN FINAL POSITION.
20. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING THE BEARING STIFFENERS FOR THE LATERAL SLIDE SUPPORT.

CONCRETE

21. SUBSTRUCTURE CONCRETE SHALL BE HIGH PERFORMANCE CLASS B AND SHALL BE PAID FOR UNDER ITEM 501.34, "CONCRETE, HIGH PERFORMANCE CLASS B".
22. DECK (INCLUDING CURTAIN WALLS AND APPROACH SLAB BRACKETS) AND CURB CONCRETE SHALL BE HIGH PERFORMANCE CLASS A AND SHALL BE PAID FOR UNDER ITEM 501.33, "CONCRETE, HIGH PERFORMANCE CLASS A".
23. APPROACH SLABS SHALL BE PRECAST CONCRETE PAID FOR UNDER ITEM 900.645, (SPECIAL PROVISION CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE)(APPROACH SLAB #1)- (APPROACH SLAB #4) AS APPROPRIATE.
24. CONCRETE FOR SUBFOOTING SHALL BE PAID FOR UNDER ITEM 541.30, "CONCRETE, CLASS C". PAYMENT FOR SUBFOOTING CONCRETE WILL BE MADE ONLY FOR CONCRETE WITHIN THE LIMITS FOR SUBFOOTING SHOWN ON THE PLANS.
25. CONCRETE FOR THE PREFABRICATED APPROACH SLAB CLOSURE POURS SHALL MEET THE REQUIREMENTS OF ITEM 900.608 "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)".
26. SURFACES OF BRIDGE SEATS UNDER BEARING DEVICES SHALL BE LEVEL. ALL OTHER AREAS OF BRIDGE SEATS SHALL BE SLOPED 1/2 INCH PER FOOT TOWARDS MIDSPAN. THE ENTIRE BRIDGE SEAT SURFACE SHALL BE GIVEN A FLOAT FINISH.
27. CONCRETE PORTIONS OF ABUTMENTS AND WINGWALLS ABOVE ADJACENT BRIDGE SEAT ELEVATIONS SHALL NOT BE PLACED UNTIL FINISH GRADES HAVE BEEN DETERMINED BY THE RESIDENT ENGINEER.
28. THE DECK IS TO BE Poured IN ONE CONTINUOUS POUR WITH A MAXIMUM DURATION OF EIGHT HOURS. IF CIRCUMSTANCES BEYOND THE CONTRACTOR'S CONTROL PREVENT THIS FROM BEING ACCOMPLISHED, A TRANSVERSE CONSTRUCTION JOINT SHALL BE USED BETWEEN ADJACENT POURS. A MINIMUM 96 HOUR DELAY BETWEEN ADJACENT POURS SHALL BE OBSERVED.
29. THE MINIMUM APPROACH SLAB JOINT DESIGN STRENGTH IS 4,000 PSI, WHICH SHALL BE OBTAINED PRIOR TO LOADING THE APPROACH SLABS. (REFER TO SPECIAL PROVISIONS)
30. CORRUGATED POST-TENSIONING DUCTS IN THE PRECAST APPROACH SLABS FOR 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 900.645, "SPECIAL PROVISION, (CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE)" CONTRACT ITEM AS APPROPRIATE.
31. GROUT USED TO FILL CORRUGATED POST-TENSIONING DUCTS IN THE PRECAST APPROACH SLABS FOR DOWEL CONNECTIONS SHALL BE MORTAR, TYPE IV IN

ACCORDANCE WITH SECTION 540 – PRECAST CONCRETE. ALL COSTS ASSOCIATED WITH PROVIDING AND PLACING GROUT FOR APPROACH SLAB DOWEL CONNECTIONS SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 900.645, SPECIAL PROVISION (CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE)(APPROACH SLAB #1)- (APPROACH SLAB #4) AS APPROPRIATE.

32. WATER REPELLENT, SILANE SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES, EXCEPT THE UNDERSIDE OF THE DECK BETWEEN DRIP NOTCHES.
33. JOINTS AND SCORE MARKS IN CONCRETE SHALL BE CONSTRUCTED AS SHOWN IN THE PLANS OR AS DIRECTED BY THE RESIDENT ENGINEER.
34. THE KEY IN CONCRETE CONSTRUCTION JOINTS SHALL BE MONOLITHIC AND CONTINUOUS FOR THE FULL LENGTH OF THE JOINT.
35. ALL REINFORCING STEEL IN THE CAST IN PLACE CONCRETE DECK, BACKWALL, AND WINGWALLS ABOVE THE HORIZONTAL CONSTRUCTION JOINT SHALL MEET THE REQUIREMENTS FOR LEVEL III CORROSION RESISTANCE, AND BE PAID FOR UNDER ITEM 507.13, "REINFORCING STEEL, LEVEL III".
36. ALL REINFORCING STEEL IN THE BRIDGE RAILING SHALL MEET THE REQUIREMENTS FOR LEVEL III CORROSION RESISTANCE, AND BE INCLUDED IN THE UNIT PRICE FOR ITEM 525.70, "BRIDGE RAILING, CONCRETE F-SHAPE".
37. ALL REINFORCING STEEL IN THE PRECAST PRESTRESSED DECK PANELS SHALL MEET THE REQUIREMENTS FOR LEVEL III CORROSION RESISTANCE, AND BE INCLUDED IN THE UNIT PRICE FOR ITEM 900.670, SPECIAL PROVISION (PRECAST PRESTRESSED CONCRETE DECK PANEL)(3 1/2").
38. ALL REINFORCING STEEL IN THE PRECAST APPROACH SLABS SHALL MEET THE REQUIREMENTS OF LEVEL II CORROSION RESISTANCE OR HIGHER, AND BE INCLUDED IN THE UNIT PRICE FOR ITEM 900.645, SPECIAL PROVISION (CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE)(APPROACH SLAB #1)- (APPROACH SLAB #4) AS APPROPRIATE.
39. ALL REINFORCING STEEL IN THE ABUTMENT FOOTINGS, STEM, WINGWALLS BELOW THE HORIZONTAL CONSTRUCTION JOINT, AND THE INDEPENDENT RETAINING WALLS SHALL MEET THE REQUIREMENTS FOR LEVEL I CORROSION RESISTANCE, AND BE PAID FOR UNDER ITEM 507.11, "REINFORCING STEEL, LEVEL I".
40. CUTTING AND REPAIRING DAMAGED AREAS OF COATED REINFORCING STEEL SHALL BE PERFORMED IN ACCORDANCE WITH SUBSECTION 507.04 OF THE STANDARD SPECIFICATIONS.
41. MINIMUM COVER FOR REINFORCING STEEL SHALL BE AS INDICATED IN THE PLANS.
42. REINFORCING STEEL PLACEMENT TOLERANCES SHALL BE:
SPACING: +/- 1 INCH
CLEARANCE: +/- 1/4 INCH

PRECAST PRESTRESSED DECK PANELS

43. DESIGN VALUES:
 - a. CONCRETE COMPRESSIVE STRENGTH: f_c = 5 KSI
 - b. CONCRETE COMPRESSIVE STRENGTH AT RELEASE: f_{ci} = 4 KSI
 - c. PRESTRESSING STRANDS: 0.375 INCH DIAMETER, 270 KSI, LOW-RELAXATION 7-WIRE STRANDS
 - d. JACKING FORCE PER PRESTRESSING STRAND = 17.2 KIPS
 - e. ASSUMED MODULUS OF ELASTICITY FOR THE STRAND IS 28,500 KSI.
44. BEDDING STRIPS ACTING AS TEMPORARY SUPPORTS FOR THE PANELS SHALL BE CUT TO THE REQUIRED HEIGHT AFTER THE GIRDERS HAVE BEEN ERECTED AND PROFILED.
45. THE MINIMUM HEIGHT OF THE BEDDING STRIPS IS 1". IF THIS CANNOT BE MET, THE PROFILE GRADE MUST BE ADJUSTED.
46. BEDDING STRIPS SHALL BE HIGH-DENSITY EXTRUDED POLYSTYRENE WITH A MINIMUM COMPRESSIVE STRENGTH OF 60 PSI MEETING THE REQUIREMENTS OF SUBSECTION 735.01.
47. BEDDING STRIPS SHALL BE ATTACHED TO THE TOP FLANGE OF THE GIRDERS WITH AN APPROVED HIGH STRENGTH ADHESIVE. THE ADHESIVE SHALL BE ALLOWED TO CURE PER THE MANUFACTURER'S INSTRUCTIONS BEFORE SETTING PANELS.
48. TEMPORARY BRACING BETWEEN PANELS SHALL BE PROVIDED AS REQUIRED TO PREVENT PANEL MOVEMENT TRANSVERSE TO THE GIRDERS.
49. PANELS SHALL NOT BE USED TO SUPPORT HEAVY LOADS UNTIL THE FULL DECK IS CAST AND CURED.
50. THE GROUT BED SUPPORTING THE PANELS SHALL BE ALLOWED TO CURE FOR A MINIMUM OF 3 DAYS PRIOR TO PLACING THE CONCRETE DECK.

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