

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2001, AND ITS LATEST REVISIONS, AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SEVENTEENTH EDITION AND ITS LATEST REVISIONS.
2. BRIDGE IS DESIGNED FOR MS 22.5 LIVE LOAD WITH NO ALLOWANCE FOR FUTURE PAVEMENT.
3. IN-STREAM CONSTRUCTION SHALL BE RESTRICTED TO JUNE 1 TO OCTOBER 1, UNLESS THE CONTRACTOR OBTAINS WRITTEN PERMISSION FROM THE AGENCY OF NATURAL RESOURCES TO DO WORK OUTSIDE OF THAT TIME FRAME.
4. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT SILTATION OR POLLUTION, ESPECIALLY THE DISCHARGE OF RAW CONCRETE, INTO THE OTTER CREEK.
5. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 20 DEGREES C UNLESS OTHERWISE NOTED.
6. BRIDGE RAILING AND HEAVY DUTY STEEL BEAM GUARD RAIL W/ WOOD POSTS SHALL BE WEATHERING STEEL. (SEE NOTE 4 ON STD. DWG. SB-R6-82.) THE HANDRAIL ON THE BRIDGE SHALL BE COLOR GALVANIZED OR PAINTED IN ACCORDANCE WITH SECTION 513 OF THE VT STANDARD SPECIFICATIONS (USE COLOR CHIP 50059) BROWN (TO MATCH WEATHERING STEEL). THE COLOR GALVANIZING WILL BE PAID FOR UNDER THE ITEM 525.43, "BRIDGE RAILING, HDSEB/FASCIA MOUNTED/HANDRAIL (MOD)."
7. THE STONE FILL, TYPE IV SHALL BE PLACED IN FRONT OF THE ABUTMENTS BEFORE THE PRESTRESS UNITS ARE PLACED.
8. PAYMENT FOR REMOVAL OF PORTIONS OF THE EXISTING ABUTMENT NO. 1 AND WINGWALLS 1 AND 2 TO THE ELEVATIONS INDICATED ON THE PLANS SHALL BE PAID FOR UNDER THE ITEM 529.25, "REMOVAL OF CONCRETE OR MASONRY."
9. THE EXISTING WINGWALLS AND ABUTMENT AT ABUTMENT NO. 2 SHALL BE REMOVED UNDER THE ITEMS, "COFFERDAM EXCAVATION, ROCK" AND "UNCLASSIFIED CHANNEL EXCAVATION". THOSE PORTIONS OF THE EXISTING ABUTMENT NO.2 AND WINGWALLS NOT REMOVED UNDER THOSE ITEMS SHALL BE REMOVED AND THE WORK WILL BE INCIDENTAL TO THE ITEM "PARTIAL REMOVAL OF STRUCTURE (MOD)".
10. a) ITEM, 529.20, "PARTIAL REMOVAL OF STRUCTURE (MOD)" INCLUDES THE REMOVAL OF THE "MABEY" BRIDGE AND THE REMOVAL OF THE EXISTING TIMBER BACKWALLS AND WINGWALLS AT ABUTMENT NO. 1.  
b) THE CONTRACTOR SHALL COORDINATE THE REMOVAL OF THE BRIDGE, BY CONTACTING DAVE LATHROP, DTA #3 AT LEAST TWO WEEKS PRIOR TO THE DATE THAT THE CONTRACTOR WISHES TO REMOVE THE "MABEY" BRIDGE." DAVE LATHROP CAN BE CONTACTED AT (802) 766-0029. THE "MABEY" BRIDGE SHALL BE DISMANTLED AND DELIVERED TO THE DISTRICT GARAGE IN MENDON. SEE SPECIAL PROVISIONS.  
c) THE EXISTING CONCRETE BARRIER RAILS SHALL BE REMOVED AND DELIVERED TO THE DISTRICT GARAGE IN MENDON. THE CONTRACTOR SHALL CONTACT DAVE LATHROP, DTA #3 PRIOR TO DELIVERING THE BARRIER RAILS TO MENDON. THIS WORK SHALL BE INCIDENTAL TO THE ITEM "PARTIAL REMOVAL OF STRUCTURE (MOD)."
11. A WATER QUALITY AND QUANTITY TEST WILL BE PERFORMED AT THE WELL LOCATED AT STA 2+989 RT AND STA 2+995 LT PRIOR TO AND IMMEDIATELY AFTER CONSTRUCTION. THIS WORK WILL BE PERFORMED BY AGENCY STAFF AND/OR DESIGNERS.
12. THE CONTRACTOR SHALL AVOID DISTURBING THE PROPERTY BEHIND THE (PDF) FENCING LOCATED BETWEEN STATIONS 3+013 LT TO 3+016 LT. THIS AREA INCLUDES THE HOME'S GAS LINE, SEPTIC SYSTEM AND WOOD FENCE. ANY DAMAGE THAT OCCURS TO THIS AREA WILL BE FIXED AND THE CONTRACTOR WILL PAY FOR THE DAMAGES.
13. NOT USED.
14. THE KEY IN CONCRETE CONSTRUCTION JOINTS SHALL BE MONOLITHIC AND CONTINUOUS FOR THE FULL LENGTH OF THE JOINT, ANY UPWARD KEY SHALL BE PLACED INTEGRALLY WITH THE CONCRETE BELOW THE JOINT.
15. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 25 mm BY 25 mm.
16. JOINTS AND SCORE MARKS IN CONCRETE SHALL BE CONSTRUCTED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
17. ALL REINFORCING STEEL SHALL BE DETAILED AND FABRICATED USING PROCEDURES AND TOLERANCES IN ACCORDANCE WITH APPLICABLE PUBLICATIONS OF THE CONCRETE REINFORCING STEEL INSTITUTE (CRSI).
18. REINFORCING PLACEMENT TOLERANCES SHALL BE:  
SPACING +/- 25 mm  
CLEARANCE +/- 5 mm

**CONCRETE**

19. MINIMUM COVER FOR REINFORCING STEEL SHALL BE 50 mm ALONG THE BACK FACES OF WALLS AGAINST EARTH, 40 mm ALONG THE BOTTOM SURFACE OF THE DECK AND 80 mm ELSEWHERE, UNLESS OTHERWISE NOTED.
20. SURFACES OF BRIDGE SEATS UNDER THE BEARING DEVICES SHALL BE LEVEL.
21. WATER REPELLENT SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES (INCLUDING THOSE PORTIONS OF THE EXISTING ABUTMENT NO. 1 THAT REMAIN EXPOSED) EXCEPT THE UNDERSIDE OF THE PRESTRESSED MEMBERS BETWEEN THE DRIP BEADS.
22. a) SETTLEMENT OF THE SUBSTRUCTURE AT ABUTMENT NO.2 MAY OCCUR DURING CONSTRUCTION OF THE PROJECT. THE CONTRACTOR AND RESIDENT ENGINEER SHALL PROFILE THE ABUTMENT SEATS AT ABUTMENT NO. 2 AFTER THE SUBSTRUCTURE IS POURED AND PRIOR TO SETTING THE BOX BEAMS.  
b) NO CONCRETE IN THE ABUTMENTS OR WINGWALLS SHALL BE PLACED ABOVE THE BRIDGE SEAT ELEVATIONS UNTIL THE BOX BEAMS HAVE BEEN PROFILED AND THE FINISHED GRADE OF THE DECK HAS BEEN DETERMINED. THE FINISHED GRADE MAY REQUIRE ADJUSTMENT DUE TO THE SETTLEMENT THAT MAY OCCUR AFTER THE SUPERSTRUCTURE IS PLACED ON THE ABUTMENTS. PRIOR TO ESTABLISHING THE FINISHED GRADE, THE RESIDENT ENGINEER SHALL CONTRACT THE STRUCTURES SECTION.
23. ALL SUBSTRUCTURE CONCRETE SHALL BE CONCRETE, HIGH PERFORMANCE CLASS B UNLESS OTHERWISE NOTED.
24. THE DECK OVERLAY AND CURBS SHALL BE CONCRETE, HIGH PERFORMANCE CLASS AA.
25. TOWN HIGHWAY 60 WILL BE CLOSED TO THROUGH TRAFFIC DURING CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE TOWN A MINIMUM OF TWO (2) WEEKS PRIOR TO CLOSING THE ROAD.
26. THE TOWN OF WALLINGFORD WILL BE RESPONSIBLE FOR INSTALLING DETOUR SIGNS FOR THE CLOSURE OF THE BRIDGE. ALL ON PROJECT SIGNING AS SHOWN ON SHEET 11 WILL BE THE RESPONSIBILITY OF THE CONTRACTOR. THIS WORK SHALL BE PAID FOR UNDER THE ITEM 641.10, "TRAFFIC CONTROL."
27. ACCESS TO DRIVES WITHIN THE PROJECT LIMITS SHALL BE MAINTAINED. WHEN THE CONTRACTOR MUST TEMPORARILY RESTRICT ACCESS TO THE DRIVES, NOTICE TO THE PROPERTY OWNERS SHALL BE GIVEN IN ADVANCE BY THE CONTRACTOR. THIS WORK SHALL BE PAID FOR UNDER ITEM 641.10 "TRAFFIC CONTROL".
28. THE CONSTRUCTION AND MATERIALS FOR THE ACCESS RAMP SUPERSTRUCTURE AT STA 3+015 RT SHALL BE PAID FOR AS ITEM 522.25, "STRUCTURAL LUMBER AND TIMBER-TREATED." THE MATERIAL FOR THE (32 x 152) (NOMINAL) TREATED RADIUS EDGED DECKING AND (50 x 152) (NOMINAL) TIMBER SHALL BE SOUTHERN YELLOW PINE.
29. THE PRESTRESSED UNITS SHALL BE OVERLAID WITH CONCRETE HIGH PERFORMANCE, CLASS AA. THE OVERLAY IS DESIGNED TO BE A MINIMUM OF 190mm THICK AT THE ENDS OF THE SPAN AT THE CENTERLINE. THE CONCRETE IS TO BE POURED WITH A MAXIMUM POUR DURATION OF EIGHT HOURS. IF CIRCUMSTANCES BEYOND THE CONTRACTOR'S CONTROL PREVENT THIS FROM BEING ACCOMPLISHED, A CONSTRUCTION JOINT SHALL BE USED. A NINETY-SIX HOUR DELAY BETWEEN THE COMPLETION OF ONE DAY'S POUR AND THE BEGINNING OF ANY OTHER POUR SHALL ALSO BE OBSERVED.
30. THE FABRICATOR MAY, WITH THE APPROVAL OF THE STRUCTURES ENGINEER, ALTER THE DESIGN, AS DETAILED, TO MEET THE PLANT'S PRESTRESSING OPERATION AND MATERIAL REQUIREMENTS. AN ALTERNATE STRAND CONFIGURATION MAY BE SUBMITTED FOR APPROVAL PROVIDED THAT THE DESIGN IS STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF VERMONT AND THAT THE DESIGN MEETS ALL THE APPLICABLE DESIGN CRITERIA, LOADINGS AND CODES.
31. PRESTRESSED, PRECAST MEMBERS SHALL:  
A. CONFORM TO SECTION 510A "PRESTRESSED CONCRETE".  
B. BE 690 X 1220 BOX BEAMS  
C. HAVE THE ENDS OF THE STRANDS RECESSED AND GROUTED AS PER STANDARD PRACTICE  
D. CONTAIN VOIDS WHICH ARE CONTINUOUS EXCEPT AS SHOWN IN THE PLAN DETAIL  
E. HAVE VOID DRAINS AT EACH END OF EACH VOID. THE VOID DRAINS SHALL BE 20 mm DIAMETER, NON-FERROUS, AND SHALL BE CLEANED AFTER ERECTION  
F. USE CONCRETE WITH  $f'c = 42$  MPa AND  $f_c = 30$  MPa  
G. CONTAIN PRESTRESSING STRANDS WHICH ARE 15.24 mm DIAMETER, 1860 MPa, LO RELAXATION STRANDS PULLED TO 75 % OF THEIR YIELD.  
H. BE DESIGNED FOR AN AASHTO MS 22.5 LIVE LOAD.  
I. HAVE THE TOP SURFACE RAKED TO UNIFORM ROUGHNESS WITH AN AVERAGE AMPLITUDE OF 6 mm.
32. THE 13 mm DIAMETER TRANSVERSE TENDONS SHALL BE POLYSTRAND OR EQUIVALENT. THE 19 mm PLATE SHALL CONFORM TO AASHTO M270/M270M GR 345. THE 19 mm PLATE, AND THE CHUCKS SHALL BE GALVANIZED AFTER FABRICATION, ACCORDING TO AASHTO M232/M232M. ALL WORK COVERED IN THIS NOTE SHALL BE INCLUDED IN THE UNIT BID PRICE FOR "PRESTRESSED CONCRETE BOX BEAM (690 X 1220)."

**PRESTRESSED CONCRETE**

33. THE JOINTS BETWEEN THE VOIDED SLABS SHALL BE FILLED WITH MORTAR, TYPE IV, IN ACCORDANCE WITH SECTION 510.13(A). THIS WORK WILL BE PAID FOR UNDER THE ITEM 510.24, "GROUTING SHEAR KEYS."
34. THE TRANSVERSE STRANDS SHALL BE INSTALLED PRIOR TO THE PLACEMENT OF THE MORTAR AND CASTING OF THE CONCRETE, HIGH PERFORMANCE CLASS AA.
35. MATERIALS, LABOR AND EQUIPMENT FOR ALL GROUTING AND FOR THE COLD FOURED JOINT FILLER SHALL BE INCLUDED IN THE UNIT PRICE FOR THE ITEM "PRESTRESSED CONCRETE BOX BEAM (690 X 1220)." THE GROUT SHALL CONFORM TO MORTAR, TYPE IV.
36. a) THE BEARINGS SHALL BE PAID FOR UNDER THE ITEM, 531.10, "BEARING DEVICE ASSEMBLY (ELASTOMERIC)."  
b) THE BOX BEAMS SHALL SIT SOLIDLY ON ALL OF THE BEARINGS. OCCASIONALLY, TOLERANCES IN THE CONSTRUCTION OF THE BRIDGE SEAT OR PRECAST BEAMS WILL CAUSE THE BEAMS TO BEAR ON ONLY 3. THE CONTRACTOR SHALL HAVE ONSITE A QUANTITY OF ACCEPTABLE SHIMS OF VARIOUS THICKNESSES THAT MAY BE USED TO SHIM THE BEARINGS. THE COST OF THE SHIMS SHALL BE INCIDENTAL TO THE ITEM 531.10.
37. SERVICE LOADS 690 X 1220  
MEMBER MOMENT 617 kN-m  
DECK MOMENT 252 kN-m  
SUPERIMPOSED DEAD LOAD MOMENT 81 kN-m  
LIVE LOAD & IMPACT MOMENT 721 kN-m  
TOTAL DEAD LOAD REACTION 222 kN  
LIVE LOAD & IMPACT REACTION 151 kN  
TOTAL REACTION 373 kN  
FINAL CAMBER 17 mm
38. THE CONTRACTOR SHALL GIVE THE VAOT MATERIALS AND RESEARCH SECTION TWO WEEKS NOTICE PRIOR TO THE PRESTRESS FABRICATOR CONSTRUCTING THE UNITS.
39. **SEQUENCE OF CONSTRUCTION FOR PRESTRESSED VOIDED BOX BEAMS**  
(A) Layout Working Lines  
\* Lay out working lines for the bridge's entire width on the beam seat. Measure all working lines from a common working point.  
\* The working lines are to be based on the nominal beam widths.  
(B) Verify Beam Seat Elevations  
\* Take elevations at beam seats.  
\* If seats are high, grind to correct elevations.  
\* If seats are low, add shims.  
\* Locate and drill 65 dia holes for anchor bolts.  
\* Install bearings.  
(C) Erect Beams  
\* Beams shall be placed to fit within the working lines.  
\* As work progresses, install hardwood wedges between adjacent beams to maintain proper joint opening (a minimum of one wedge at each lateral tie).  
\* Place anchor bolts.  
\* Grout anchor bolts in abutment.  
(D) Install Backer Rod  
\* Filler shall be placed below the key's bottom as shown on the Plans.  
(E) Install Transverse Ties  
\* A seamless polypropylene sheath shall cover ties (with corrosion inhibitor grease between sheath and strand).  
\* Feed ties through ducts.  
\* Verify that hardwood wedges are in place as required to prevent slippage of beams.  
\* Using calibrated jack, post-tension ties to approximately 22.2 kN to remove sag in the tie and to seat the chuck.  
(F) Grout Shear Keys  
\* Clean joint with an oil free air-blast immediately before grout placement. Then verify that the backer rod is still in place.  
\* Additional joint preparation and grout placement shall be per manufacturer's recommendations.  
\* Carefully rod joints to eliminate any possibility of voids.  
(G) Post-Tension Transverse Ties  
\* Grout shall attain a minimum compressive strength of 10.3 MPa, based on the manufacturer's recommendations, prior to stressing.  
\* Using a calibrated jack operated by qualified personnel, post-tension ties to 133.5 kN.  
(H) End Details  
\* Grout Anchor Bolt Ends at the Fixed Ends at Bridge Seats and Place Cold Poured Joint Sealer at Expansion End  
\* Before grout cures, place washer plate and install hold down nuts.  
-Fixed end, nut tightened  
-Expansion end, nut hand tightened and loosened by 1/2 turn.  
\* Grout over nut and bolt on fixed end, place cold poured joint sealer over nut and bolt on expansion end.  
(I) Finish Work  
\* Remove wedges, and patch deck and fascia beams at transverse ties.  
\* The contractor shall keep the prestressed units saturated with water for twelve hours prior to placement of the overlay.  
\* Remove any freestanding water immediately before concrete overlay placement.  
\* Place overlay.

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