

PROJECT NOTES

GENERAL

- ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2011, THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 6TH EDITION, AND THEIR LATEST REVISIONS.
- ALL PRECAST CONCRETE ELEMENTS SHALL 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 OR AS DIRECTED IN THE CONTRACT DOCUMENTS.
- ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL, AND ARE GIVEN AT 68 DEGREES FAHRENHEIT, UNLESS NOTED OTHERWISE.
- THE BRIDGE IS DESIGNED FOR HL-93 LIVE LOAD WITH A 3.0 INCH ALLOWANCE FOR FUTURE PAVEMENT.
- ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE", SHALL BE USED FOR THE REMOVAL AND DISPOSAL OF THE EXISTING BRIDGE SUPERSTRUCTURE, AND FOR ANY PORTION OF THE EXISTING ABUTMENTS THAT FALL OUTSIDE THE LIMITS OF STRUCTURE EXCAVATION OR UNCLASSIFIED CHANNEL EXCAVATION, INCLUDING THE REMOVAL OF THE PIER. ABUTMENTS ARE TO BE REMOVED TO THE ELEVATIONS SHOWN IN THE PLANS WITH A CLEAN CUT OR AS DIRECTED BY THE ENGINEER. PIER SHALL BE REMOVED TO A MINIMUM OF 2'-0" BELOW THE STREAMBED OR AS DIRECTED BY THE ENGINEER.
- CONTRACTOR SHALL EXERCISE EXTREME CARE WHEN EXCAVATING NEAR AND BACKFILLING IN THE VICINITY OF EXISTING UTILITIES, AND SHALL USE HAND EXCAVATION WHERE APPROPRIATE. CONTRACTOR SHALL REPAIR ANY DAMAGE INCURRED DURING CONSTRUCTION TO EXISTING UTILITIES SCHEDULED TO REMAIN, AT NO COST TO THE OWNER. ALL EXISTING PIPING AND STRUCTURES EXPOSED DURING CONSTRUCTION SHALL BE ADEQUATELY SUPPORTED, BRACED OR OTHERWISE PROTECTED DURING CONSTRUCTION ACTIVITIES. UNLESS OTHERWISE NOTED OR APPROVED BY THE ENGINEER, THE CONTRACTOR SHALL MAINTAIN ALL EXISTING UTILITIES IN SERVICE AT ALL TIMES. ALL UNDERGROUND UTILITIES SHALL BE RETAINED UNLESS OTHERWISE NOTED OR DIRECTED BY THE ENGINEER. CONTRACTOR SHALL CALL DIG SAFE AND VERIFY LOCATION OF UTILITIES AS SHOWN ON THE PLANS.
- 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 ERECTING THE SUPERSTRUCTURE. UNDER NO CIRCUMSTANCES SHALL A BRIDGE CLOSURE PERIOD BEGIN PRIOR TO HAVING AN ACCEPTED ERECTION PLAN.
- FOLLOWING CONSTRUCTION THE HIGHWAY EASEMENT ON PARCEL #4 WILL BE USED BY THE TOWN OF LUDLOW ONLY FOR THE MAINTENANCE AND THE REPLACEMENT OF PROJECT INSTALLATIONS. THE OWNERS OF PARCEL #4 MAY PERFORM LANDSCAPING IN THE HIGHWAY EASEMENT AREA FOLLOWING CONSTRUCTION.

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TRAFFIC CONTROL

- THE CONTRACTOR SHALL IMPLEMENT THE ROAD CLOSURE, TRAFFIC CONTROL, AND DETOUR AS SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND IMPLEMENTATION OF A SITE SPECIFIC TRAFFIC CONTROL PLAN FOR ANY STAGES OF CONSTRUCTION NOT SHOWN IN THE PLANS. THE PLAN SHALL CLEARLY DETAIL HOW TRAFFIC WILL BE MAINTAINED. THE PLAN SHALL SPECIFY ALL CONSTRUCTION ACTIVITIES REQUIRING ALTERNATING ONE WAY TRAFFIC, RELATE THOSE ACTIVITIES TO THE CONSTRUCTION SCHEDULE, AND SHOW APPROPRIATE TEMPORARY TRAFFIC CONTROL. THE CONTRACTOR SHALL SUBMIT DETAILED TRAFFIC CONTROL PLANS TO THE ENGINEER FOR APPROVAL PER SUBSECTION 105.03. ALL COSTS WILL BE INCLUDED IN ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)".
 - THE PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) WILL BE PAID FOR UNDER ITEM 641.15, "PORTABLE CHANGEABLE MESSAGE SIGN".
 - FULL ACCESS TO ALL DRIVES WITHIN THE PROJECT LIMITS SHALL BE MAINTAINED AT ALL TIMES. THIS WORK WILL BE CONSIDERED INCIDENTAL TO ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)".
 - UNLESS COVERED UNDER INDIVIDUAL PAY ITEMS OR NOTED OTHERWISE, ALL COSTS FOR WORK SHOWN ON THE TRAFFIC CONTROL SHEETS AND FOR TEMPORARY TRAFFIC CONTROL DEVICES WILL BE INCLUDED IN THE CONTRACT LUMP SUM PRICE FOR ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)". THIS INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING ITEMS:
 - RETROREFLECTIVE DRUMS
 - SIGNS
 - SIGN POSTS
 - INSTALLATION OF SIGNS AND SIGN POSTS
 - TEMPORARY TRAFFIC BARRIER
- TEMPORARY TRAFFIC BARRIER SHALL BE FURNISHED IN ACCORDANCE WITH SECTION 621. UNIFORM TRAFFIC OFFICERS AND FLAGGERS WILL BE PAID FOR SEPARATELY UNDER THE APPROPRIATE ITEM NUMBER.
- ALL SIGNS SHALL BE IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND THE "STANDARD HIGHWAY SIGNS AND MARKINGS" BOOK (SHSM) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION (FHWA).
 - INSTALLATION OF TEMPORARY TRAFFIC CONTROL SIGNS SHALL NOT BLOCK ANY EXISTING TRAFFIC CONTROL SIGN ASSEMBLIES. THE CONTRACTOR SHALL TRY TO MAINTAIN AT LEAST 200 FEET BETWEEN SIGN ASSEMBLIES.

EARTHWORK

- THE "STONE FILL, TYPE III" UNDER THE BRIDGE AS SHOWN IN THE PLANS SHALL BE PLACED BEFORE THE STEEL SUPERSTRUCTURE IS SET.
- TEMPORARY CONSTRUCTION FILLS WITHIN THE WATERCOURSE FOR ANY PURPOSE SHALL CONSIST OF CLEAN STONE FILL ONLY. SEE THE SPECIAL PROVISIONS FOR PERMIT INFORMATION. NO OTHER FILLING IN THE STREAM SHALL OCCUR WITHOUT THE APPROVAL OF THE STREAM ALTERATION ENGINEER.

CONCRETE AND REINFORCING STEEL

- ITEM 514.10, "WATER REPELLENT, SILANE", SHALL BE APPLIED TO ALL EXPOSED CONCRETE ON THE BRIDGE SUPERSTRUCTURE AND SUBSTRUCTURE, WITH THE EXCEPTION OF THE UNDERSIDE OF THE DECK BETWEEN DRIP NOTCHES. THE SUBSTRUCTURE SHALL RECEIVE A MINIMUM OF ONE COAT AND THE SUPERSTRUCTURE SHALL RECEIVE A MINIMUM OF TWO COATS OF WATER REPELLENT, SILANE.
- ALL FORM SUPPORTS AND FORM TIES THAT ARE TO REMAIN PERMANENTLY IN THE CONCRETE ABOVE THE BRIDGE SEAT SHALL BE GALVANIZED AND CONFORM TO SECTION 726 OF THE STANDARD SPECIFICATIONS. PAYMENT WILL BE CONSIDERED INCIDENTAL TO SUPERSTRUCTURE ITEMS.
- ALL RECESSED LIFTING POINTS SHALL BE FILLED WITH A TYPE IV MORTAR PER SUBSECTION 707.03 AND WILL BE CONSIDERED INCIDENTAL TO THE APPROPRIATE PRECAST ITEM.
- SIDEWALK CONCRETE WILL BE PAID FOR UNDER 501.33, "CONCRETE, HIGH PERFORMANCE CLASS A". UTILITY DUCTS AS SHOWN IN THE PLANS WILL BE CONSIDERED INCIDENTAL TO THE APPROPRIATE CONCRETE ITEM AND SHALL BE IN ACCORDANCE WITH SECTION 752.08.
- BRIDGE RAIL SHALL BE HIGH PERFORMANCE CLASS A CONCRETE AND WILL BE PAID UNDER ITEM 900.640, "SPECIAL PROVISION (BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION)(COATED BLACK)". THE EFFECTIVE CURE TIME OF THE BRIDGE RAIL MAY BE REDUCED TO A MINIMUM OF (7) SEVEN DAYS PROVIDED THAT THE CONCRETE HAS REACHED 85% OF THE DESIGN COMPRESSIVE STRENGTH (f'c). THE BRIDGE RAIL SHALL MEET ALL OTHER SPECIFICATIONS OF SECTION 501 OF THE STANDARD SPECIFICATIONS.
- 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: 3 INCH
 ALONG BOTTOM SURFACE OF DECK SLAB: 1 1/2 INCH
 ELSEWHERE UNLESS OTHERWISE NOTED: 3 INCH

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PRECAST ABUTMENTS AND POST-TENSIONING

- IF A VERTICAL CONSTRUCTION JOINT(S) IS REQUIRED BY THE CONTRACTOR FOR SHIPMENT OF THE ABUTMENTS SHALL BE KEYED AND MATCH CAST. A JOINT DETAIL SHALL BE SHOWN ON THE FABRICATION DRAWINGS. EACH JOINT SHALL NOT BE LOCATED CLOSER THAN 1'-0" AWAY FROM THE EDGE OF THE PILE CAVITY. NO LESS THAN TWO PILES SHALL SUPPORT EACH PRECAST ABUTMENT SECTION.
- EPOXY BONDING COMPOUND SHALL BE APPLIED TO ALL VERTICAL MATCH CAST CONSTRUCTION JOINTS. SEE AGENCY WEBSITE FOR LIST OF APPROVED EPOXY BONDING COMPOUNDS. PAYMENT FOR EPOXY WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE APPROPRIATE PRECAST ITEM.
- 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 WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE APPROPRIATE PRECAST ITEM. 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. ABUTMENTS SHALL BE POST-TENSIONED PRIOR TO FILLING THE VOIDS.
- POST-TENSIONING OF ABUTMENTS BELOW BRIDGE SEAT SHALL BE COMPLETED PRIOR TO POURING THE PILE CAVITY CLOSURE POUR.
- GALVANIZE ANCHOR ASSEMBLIES AFTER FABRICATION ACCORDING TO AASHTO M232M/M 232.
- ITEM 524.21, JOINT SEALER, POLYURETHANE, SHALL BE APPLIED TO THE OUTSIDE FAR FACE OF ALL VERTICAL MATCH CAST CONSTRUCTION JOINTS.
- ANCHOR BOLTS, LEVELING PLATE, NUTS AND WASHERS EXPANDABLE JOINT FILLER, AND ELASTOMERIC PADS WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE APPROPRIATE PRECAST ITEM.
- DESIGN VALUES
 A. CONCRETE COMPRESSIVE STRENGTH: f'c = 5,000 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. JACKING FORCE PER STRAND = 32 KIPS.

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- THE CORRUGATED STEEL PIPE SHALL MEET THE REQUIREMENTS OF SUBSECTION 711.01 AND SHALL BE GALVANIZED PER SUBSECTION 726.08 OF THE STANDARD SPECIFICATIONS. ALL COSTS ASSOCIATED WITH FURNISHING AND PLACING THE CORRUGATED STEEL PIPE WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE APPROPRIATE PRECAST ITEM.
- ALL ABUTMENT REINFORCING TO BE EPOXY COATED.

CAST IN PLACE BRIDGE DECK

- STRUCTURAL STEEL MEMBERS DESIGNATED "CVN" IN THE PLANS SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH SUBSECTION 714.01.
- ANY HOLES IN THE WEBS OF THE FASCIA BEAMS NOT OTHERWISE FILLED SHALL BE FILLED WITH BUTTON HEAD BOLTS. THESE BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH SUBSECTION 506.19.
- UNLESS OTHERWISE NOTED, ALL NEW STRUCTURAL STEEL SHALL CONFORM TO AASHTO M270/M270M GRADE 50 AND WILL BE PAID FOR UNDER ITEM 506.55, "STRUCTURAL STEEL PLATE GIRDER (FPQ)".
- STRUCTURAL STEEL SHALL BE METALLIZED IN ACCORDANCE WITH SECTION 726.09. METALLIZING WILL BE PAID FOR UNDER ITEM 900.645, "SPECIAL PROVISION (METALLIZING STRUCTURAL STEEL)". ALL WELDING TO THE STRUCTURAL STEEL SHALL BE COMPLETED PRIOR TO METALLIZING.
- AFTER SUPERSTRUCTURE STEEL ELEMENTS HAVE BEEN SET UP, AND BEFORE ANY FORMWORK OR OTHER LOADS ARE ADDED TO THE GIRDERS, ELEVATIONS ALONG THE TOP OF THE GIRDERS SHALL BE TAKEN FOR USE IN DETERMINING DECK FORMWORK ELEVATIONS.
- ENDS OF GIRDERS ARE TO BE VERTICAL IN FINAL POSITION.
- BEAM WEBS AND DIAPHRAGMS SHALL BE PLUMB IN FINAL POSITION.
- ANY CONNECTIONS NOT DETAILED ON THE PLANS SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE PROJECT MANAGER FOR APPROVAL.
- ADDITIONAL HEIGHT STUDS MAY BE REQUIRED SO THE HEADS OF ALL STUDS ARE LOCATED BETWEEN THE MATS OF REINFORCING.
- ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER HIGH STRENGTH BOLTS IN 15/16" DIAMETER HOLES, PER SECTION 506 UNLESS OTHERWISE NOTED.
- CIP DECK STRUCTURAL STEEL SHALL MEET THE REQUIREMENTS OF SECTION 506 OF THE STANDARD SPECIFICATIONS.
- CIP DECK SHALL MEET THE REQUIREMENTS OF "CONCRETE, HIGH PERFORMANCE CLASS A".
- UTILITY SUPPORTS ON THE BRIDGE WILL BE CONSIDERED INCIDENTAL TO ITEM 900.645, "SPECIAL PROVISION (WATER MAIN ON THE BRIDGE)(8)".
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CALDERWOOD ENGINEERING, ETC.
 STRUCTURAL ENGINEERING • DETAILING SERVICES
 222 RIVER RD. RICHMOND, ME 04357 PH/FX (207)737-2007/(207) 737-2008
 PREPARED FOR:
COLD RIVER BRIDGES, LLC
 CEE 16-16-COLD RIVER BRIDGES
 01-CS-LUDLOW

DATE	8/11	P.E. NUMBER	
BY		DATE	
DESIGN-DRAWN		REVISIONS 1	
CHECKED-REVIEWED		REVISIONS 2	
		REVISIONS 3	
		REVISIONS 4	
		FIELD CHANGES	

VE SUPER DESIGN
LUDLOW VT. BR# 025-1(42)
PROJECT NOTES (1 OF 2)

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