

NEXT D BEAMS

45. NEXT D BEAMS ARE A NON-PROPRIETARY SHAPE DEVELOPED BY PCI NORTHEAST (PCINE). STANDARDIZED SECTION PROPERTIES AND DETAILS MAY BE FOUND AT <http://www.pcine.org>.
46. DESIGN VALUES
- a. CONCRETE COMPRESSIVE STRENGTH: $f_c = 10,000$ PSI.
 - b. CONCRETE COMPRESSIVE STRENGTH AT RELEASE: $f_{ci} = 8,000$ 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 HAVE A NET TENSION OF 44.0 KIPS AFTER ACCOUNTING FOR CHUCK SLIPPAGE.
 - f. SERVICE LOADS
- | | |
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| MEMBER MOMENT | 1125.1 K-FT |
| SUPERIMPOSED DEAD LOAD MOMENT | 514.8 K-FT |
| LIVE LOAD AND IMPACT MOMENT | 1837.2 K-FT |
| DEAD LOAD REACTION | 89.1 KIPS |
| LIVE LOAD AND IMPACT REACTION | 107.4 KIPS |
| TOTAL REACTION | 136 KIPS |
| CAMBER AT RELEASE | 1 5/8 INCHES |
| FINAL CAMBER | 2 1/4 INCHES |
47. THE FABRICATOR SHALL PROVIDE A CALCULATED CAMBER ESTIMATE FOR THE NEXT D BEAMS AT RELEASE, ERECTION, AND FINAL CONDITIONS PRIOR TO ANY SUPERIMPOSED LOADING OF THE BEAM. MINOR ADJUSTMENTS TO THE BRIDGE SEAT ELEVATIONS MAY BE REQUIRED DURING THE FABRICATION REVIEW PROCESS BASED OFF OF THESE VALUES. ALL WORK ASSOCIATED WITH PROVIDING AN ESTIMATED CAMBER ALONG WITH ANY ADJUSTMENTS TO THE BRIDGE SEAT ELEVATIONS WILL CONSIDERED INCIDENTAL TO ITEM 900.640 "SPECIAL PROVISION (PRESTRESSED NEXT D BEAMS)(NEXT 36D)" AND THE APPROPRIATE ABUTMENT PAY ITEM.
48. DUE TO STABILITY CONCERNS AT THE ABUTMENTS DURING THE ERECTION OF THE SUPERSTRUCTURE, THE CONTRACTOR SHALL SUBMIT THE ERECTION PLAN A MINIMUM OF 30 CALENDAR DAYS PRIOR TO THE BRIDGE CLOSURE PERIOD. UNDER NO CIRCUMSTANCES SHALL A BRIDGE CLOSURE PERIOD BEGIN PRIOR TO HAVING AN ACCPETED ERECTION PLAN.
49. THE FABRICATOR MAY ALTER THE DESIGN AS DETAILED IN THE PLANS TO ACCOMMODATE THEIR SPECIFIC OPERATION. THIS ALTERATION SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER LICENSED IN STATE OF VERMONT TO MEET SPECIFIED CRITERIA AND SHALL BE APPROVED BY THE PROJECT MANAGER.

~~PREFABRICATED BRIDGE UNITS (PBU)~~

- ~~50. PREFABRICATED BRIDGE UNITS ARE A NON-PROPRIETARY PRODUCT.~~
- ~~51. STRUCTURAL STEEL MEMBERS DESIGNATED "CVN" IN THE PLANS SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH SUBSECTION 714.01~~
- ~~52. 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.~~
- ~~53. ANY CONNECTIONS NOT DETAILED ON THE PLANS SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE PROJECT MANAGER FOR APPROVAL.~~
- ~~54. ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER HIGH STRENGTH BOLTS IN 15/16" DIAMETER HOLES, PER SECTION 506 UNLESS OTHERWISE NOTED.~~
- ~~55. FLEMING BRACKETS OR SIMILAR FALSE WORK 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 WEB.~~
- ~~56. AFTER THE SUPERSTRUCTURE STEEL HAS BEEN ERECTED AT THE DECK CASTING SITE, AND BEFORE ANY FORMWORK OR OTHER LOADS ARE ADDED TO THE GIRDERS, BEAM PROFILES SHALL BE TAKEN AS DIRECTED BY THE RESIDENT ENGINEER FOR USE IN DETERMINING DECK FORMWORK ELEVATIONS.~~
- ~~57. DURING THE FABRICATION OF THE PBU'S THE CONTRACTOR SHALL LOAD THE UNITS EVENLY TO MINIMIZE DIFFERENTIAL CAMBER BETWEEN UNITS.~~
- ~~58. BEAM WEBS AND CROSS FRAMES SHALL BE PLUMB IN FINAL POSITION.~~
- ~~59. PBU DECKS SHALL MEET THE REQUIREMENTS OF "CONCRETE, HIGH PERFORMANCE CLASS A" AND WILL BE PAID FOR UNDER BID ITEM "900.640 SPECIAL PROVISION (PREFABRICATED BRIDGE UNIT SUPERSTRUCTURE)(FPQ)".~~
- ~~60. PBU STRUCTURAL STEEL SHALL MEET THE REQUIREMENTS OF SECTION 506 OF THE STANDARD SPECIFICATIONS.~~
- ~~61. ALL CORNERS AND EDGES OF THE STRUCTURAL STEEL SHALL BE GROUND TO A 1/16 INCH RADIUS PRIOR TO GALVANIZING OR METALLIZING.~~

- ~~62. ALL WELDING TO THE STRUCTURAL STEEL SHALL BE COMPLETED PRIOR TO GALVANIZING OR METALLIZING.~~
- ~~63. DUE TO STABILITY CONCERNS AT THE ABUTMENTS DURING THE ERECTION OF THE SUPERSTRUCTURE, THE CONTRACTOR SHALL SUBMIT THE ERECTION PLAN A MINIMUM OF 30 CALENDAR DAYS PRIOR TO THE BRIDGE CLOSURE PERIOD. UNDER NO CIRCUMSTANCES SHALL A BRIDGE CLOSURE PERIOD BEGIN PRIOR TO HAVING AN ACCPETED ERECTION PLAN~~
- ~~64. 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 STATE OF VERMONT TO MEET SPECIFIED CRITERIA AND SHALL BE APPROVED BY THE PROJECT MANAGER~~

APPROACH SLAB AND SUPERSTRUCTURE LONGITUDINAL CLOSURE POURS

65. THE CONCRETE EDGES ALONG THE LONGITUDINAL CLOSURE POURS SHALL BE TREATED TO PROVIDE A ROUGHENED/ EXPOSED AGGREGATE SURFACE. THAT AMPLITUDE OF THE EXPOSED AGGREGATE SHALL BE A MINIMUM OF 1/8" AND BE COMPLETED PRIOR TO ERECTION OF THE BEAMS. THE FABRICATOR SHALL INDICATE THE METHOD USED TO ACHIEVE THIS PROFILE ON THE FABRICATION DRAWINGS AND METHOD USED TO PROTECT THE REINFORCING STEEL.
66. THE CONCRETE FOR LONGITUDINAL CLOSURE POURS SHALL BE ITEM 900.608 "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)" AND WILL BE PAID UNDER ITEM 900.608 "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)" FOR THE APPROPRIATE SUPERSTRUCTURE ALTERNATE. SEE SPECIAL PROVISIONS FOR REQUIREMENTS.
67. THE LONGITUDINAL CLOSURE POUR CONCRETE SHALL OBTAIN A STRENGTH OF 4,000 PSI PRIOR TO ANY VEHICULAR LOADING.

ABUTMENT CLOSURE/END DIAPHRAGM

68. THE CONCRETE FOR THE ABUTMENT CLOSURE POUR SHALL BE 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)" AND WILL BE PAID UNDER ITEM 900.608 "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)" FOR THE APPROPRIATE SUPERSTRUCTURE ALTERNATE. SEE SPECIAL PROVISIONS FOR REQUIREMENTS.
69. AFTER THE CONCRETE HAS BEEN PLACED AND THE FINISHING OPERATIONS CONCLUDED IT SHALL NOT BE WALKED ON OR DISTURBED IN ANY MANNER, INCLUDING THE REMOVAL OF FORMS FOR 12 HOURS.
70. THE END DIAPHRAGM CLOSURE POUR CONCRETE SHALL OBTAIN A STRENGTH OF 4,000 PSI PRIOR TO ANY VEHICULAR LOADING.

APPROACH SLABS

71. APPROACH SLAB CONCRETE STRENGTH: $f_c = 5,000$ PSI.
72. 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. POLYPROPYLENE DUCT SHALL BE FABRICATED FROM RESINS MEETING OR EXCEEDING THE REQUIREMENTS OF ASTM D 4101 WITH A CELL CLASSIFICATION RANGE OF PP0340B44544 TO PP340B65884. ALL COSTS ASSOCIATED WITH PLACING THE DUCTS WILL BE INCLUDED IN THE BID PRICE FOR THE APPROPRIATE PRECAST APPROACH SLAB OPTION.
73. GROUT USED TO FILL DOWEL 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 THE APPROACH SLAB DOWEL CONNECTIONS WILL BE INCLUDED IN THE BID PRICE FOR THE APPROPRIATE PRECAST APPROACH SLAB OPTION.

H-PILES

74. THE PILES SHALL BE HP 12X63.
75. TO PREVENT DAMAGE TO THE PILES, PILE SHOES ARE REQUIRED AND SHALL CONFORM TO SUBSECTION 505.04 (f).

76. PILES SHALL BE DRIVEN TO A MINIMUM OF 18 FEET BELOW THE PILE CAP ELEVATION WITH NO EMBEDMENT INTO ROCK. IF COMPETENT BEDROCK IS ENCOUNTERED SHALLOWER THAN 18 FEET BELOW THE BOTTOM OF THE PILE CAP, PRE-EXCAVATION OF THE INTEGRAL ABUTMENT PILES IS REQUIRED WITH A MINIMUM PILE LENGTH OF 13 FEET BELOW THE PILE CAP AND A MINIMUM EMBEDMENT OF 3 FEET INTO COMPETENT BEDROCK.
77. PAYMENT FOR PRE-EXCAVATION OF PILES WILL BE PAID FOR 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)" AS APPROPRIATE.
78. PRE-EXCAVATION OF PILES WILL BE REQUIRED FOR ABUTMENT TWO. IT IS NOT ANTICIPATED THAT PRE-EXCAVATION OF PILES WILL BE REQUIRED FOR ABUTMENT ONE. THE CONTRACTOR MAY PRE-EXCAVATE THE PILE LOCATIONS FOR ABUTMENT ONE PER THE REQUIREMENTS OF 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)" AS APPROPRIATE. ALL PRE-EXCAVATION OF PILES FOR ABUTMENT ONE WILL BE INCLUDED IN THE UNIT PRICE FOR ITEM 504.10 "FURNISHING EQUIPMENT FOR DRIVING PILING."
79. THE CONTRACTOR MAY PRE-EXCAVATE AND DRIVE THE PILES IN THE 14 DAY PERIOD PRIOR TO THE BRIDGE CLOSURE PERIOD. THIS WORK SHALL BE DONE DURING DAILY LANE CLOSURES.
80. PILES THAT ARE PRE-EXCAVATED TO THE MINIMUM EMBEDMENT INTO COMPETENT BEDROCK SHALL BE SEATED ON BEDROCK IN A METHOD APPROVED BY THE ENGINEER. ALL OTHER PILES SHALL BE DRIVEN TO A NOMINAL PILE DRIVING RESISTANCE (R_{dr}) OF 310 KIPS.
81. A MINIMUM OF TWO DYNAMIC PILE TESTS SHALL BE CONDUCTED AT ABUTMENT ONE. PAYMENT WILL BE MADE UNDER ITEM 505.45, "DYNAMIC PILE LOADING TEST". ITEM 505.45, "DYNAMIC PILE LOADING TEST" MAY BE WAIVED AT THE APPROVAL OF THE ENGINEER IF THE ABUTMENT PILES ARE PRE-EXCAVATED TO THE MINIMUM EMBEDMENT INTO COMPETENT BEDROCK.
82. ALL PRE-EXCAVATED HOLES SHALL BE A MINIMUM OF 23 INCHES IN DIAMETER. THE ENTIRE PRE-EXCAVATED HOLE SHALL BE BACKFILLED WITH SAND. SAND SHALL CONFORM TO THE REQUIREMENTS OF SUBSECTION 703.03. REFER TO THE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.
83. FOR ESTIMATING PURPOSES, THE PILE TIP ELEVATIONS WERE ASSUMED AS SHOWN ON THE BORING LOGS. THE ACTUAL IN PLACE LENGTHS MAY VARY.
84. THE TOPS OF THE PILES 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 PLACEMENT COMMENCES.

MISCELLANEOUS

85. EPSC EXISTING CONDITIONS SHEET AND EPSC PLAN SHEET HAVE BEEN INCLUDED AS A REFERENCE FOR SUBMITTALS.
86. ITEM 404.65 "EMULSIFIED ASPHALT" IS TO BE APPLIED AT A RATE OF 0.080 GAL/SY BETWEEN SUCCESSIVE COURSES OF PAVEMENT AND ON ALL COLD PLANED SURFACES OR AS DIRECTED BY THE ENGINEER.
87. THE RELOCATION AND PLACEMENT OF THE STONEWALL OFF OF WING WALL THREE SHALL BE DONE TO THE SATISFACTION OF THE PROPERTY OWNER. PAYMENT FOR THIS WORK WILL BE INCLUDED IN THE UNIT PRICE FOR ITEM 900.645, "SPECIAL PROVISION (REMOVE AND RELOCATE EXISTING STONE WALL)"
88. 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 2 FEET BEYOND THE BEGIN BRIDGE/END OF BRIDGE.

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PROJECT LEADER:	K. HIGGINS	SHEET	4 OF 59
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PROJECT NOTES	2		