

NEXT D BEAMS

32. 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>.
33. DESIGN VALUES
- A. CONCRETE COMPRESSIVE STRENGTH: $f'c = 9,000$ PSI
 - B. CONCRETE COMPRESSIVE STRENGTH AT RELEASE: $f'ci = 7,000$ PSI
 - C. PRESTRESSING STRANDS: 0.6 INCH DIAMETER, 270 KSI, LOW-RELAXATION 7-WIRE STRANDS
 - D. ASSUMED MODULUS OF ELASTICITY = 28,500 KSI
 - E. THE JACKING FORCE PER STRAND = 47 KIPS
 - F. SERVICE LOADS
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| MEMBER MOMENT | 713 K-FT |
| NON-COMPOSITE SUPERIMPOSED DEAD LOAD MOMENT | 47 K-FT |
| COMPOSITE SUPERIMPOSED DEAD LOAD MOMENT | 219 K-FT |
| LIVE LOAD AND IMPACT MOMENT | 958 K-FT |
| DEAD LOAD REACTION | 63 KIPS |
| LIVE LOAD AND IMPACT REACTION | 92 KIPS |
| TOTAL REACTION | 155 KIPS |
| FINAL CAMBER AT ERECTION | 3/8 INCHES |
34. A RETARDING ADMIXTURE MAY BE PLACED ON THE FORMS FOR THE FLANGE KEYWAYS WHERE THE ENDS OF FLANGES ARE IN CONTACT WITH GROUT. THE FORMS FOR THE FLANGE ENDS SHALL THEN BE STRIPPED AND THE FLANGE ENDS POWER WASHED WITH WATER TO EXPOSE THE AGGREGATE DURING FABRICATION OF THE BEAMS. THE FLANGE ENDS SHALL BE POWER WASHED WITH WATER AGAIN PRIOR TO ERECTION OF THE BEAMS. THIS WORK WILL BE CONSIDERED INCIDENTAL TO CONTRACT ITEM 900.640 (PRESTRESSED CONCRETE NEXT D BEAMS).
35. FILL FLANGE CONNECTION WITH TYPE IV MORTAR ACCORDING TO SECTION 510. MORTAR SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 7000 PSI AND SHALL BE EXTENDED WITH AGGREGATE. ALL OTHER MATERIAL PROPERTIES SHALL REMAIN IN ACCORDANCE WITH SUBSECTION 707.03 (c). GROUTING SHALL BE PAID FOR UNDER ITEM 510.24, "GROUTING SHEAR KEYS". THE CONTRACTOR SHALL SUBMIT A MIX DESIGN FOR THIS ITEM FOR APPROVAL BY THE PROJECT MANAGER.
36. METHOD OF FORMING FLANGE CONNECTION SHALL BE DETERMINED BY THE CONTRACTOR. THE FORMS SHALL BE REMOVABLE AND ABLE TO ACCOMMODATE DIFFERENTIAL CAMBER. FORM SUPPORTS SHALL NOT PENETRATE THROUGH THE TOP OF POUR UNLESS APPROVED BY THE ENGINEER.
37. 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 REGISTERED IN THE STATE OF VERMONT TO MEET THE ABOVE CRITERIA AND SHALL BE APPROVED BY THE PROJECT MANAGER.
38. INTERIOR NEXT BEAMS AND CURTAIN WALLS SHALL BE PAID FOR AS ITEM 900.640 SPECIAL PROVISION (PRESTRESSED CONCRETE NEXT D BEAMS) (NEXT 28 D).
39. EXTERIOR NEXT BEAMS, CURTAIN WALLS, PRECAST CONCRETE FLARED OVERHANG, AND PRECAST CONCRETE PARAPET SHALL BE PAID FOR AS ITEM 900.640 SPECIAL PROVISION (PRESTRESSED CONCRETE NEXT D BEAMS) (NEXT 28 D) (FASCIA). GALVANIZED STEEL RAIL SHALL BE PAID FOR AS ITEM 900.640 SPECIAL PROVISION (BRIDGE RAILING, GALVANIZED STEEL TUBING) (COATED BLACK).
40. THE PRECAST CONCRETE PARAPETS AND THE PRECAST CONCRETE FLARED OVERHANG SHALL BE COMPLETED PRIOR TO ERECTION OF NEXT BEAMS. AT CONTRACTOR'S OPTION, THE PARAPETS AND OVERHANG MAY BE CAST ONTO THE BEAMS IN THE SHOP OR ON-SITE PRIOR TO ERECTION.
41. PRECAST CONCRETE PARAPET SHALL HAVE A RUBBED FINISH IN ACCORDANCE WITH SECTION 501.

42. PROPOSED SEQUENCE OF CONSTRUCTION
- A. LAYOUT 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 BEAM WIDTHS.
 - B. VERIFY THE BEAM SEAT ELEVATIONS AND TAKE CORRECTIVE ACTION IF NECESSARY.
 - C. BACKFILL AND PREPARE GRADE TO BOTTOM OF CURTAIN WALL.
 - D. INSTALL BEARINGS
 - E. ERECT THE BEAMS TO FIT WITHIN THE WORKING LINES AND CHEEKWALLS.
 - F. ADJUST FASCIA BEAM TO FIT SNUG AGAINST 1/2" CORK ON INTERIOR OF CHEEKWALL.
 - G. CONSTRUCT FORMS FOR THE FLANGE AND CURTAIN WALL CONNECTION POURS.
 - H. GROUT CONNECTIONS BETWEEN BEAM FLANGES AND CURTAIN WALLS AND CURE.
 - I. COMPLETE PLACEMENT OF BACKFILL AND PREPARE GRADE FOR APPROACH SLABS.
 - J. PLACE APPROACH SLABS
 - K. GROUT REBAR DOWELS IN APPROACH SLAB.
 - L. COMPLETE LONGITUDINAL CLOSURE POURS OF APPROACH SLAB.
43. ALTERNATE SEQUENCE OF CONSTRUCTION MAY BE SUBMITTED FOR APPROVAL BY THE PROJECT MANAGER.

H-PILES

44. TO PREVENT DAMAGE TO THE PILES, PILE SHOES ARE REQUIRED AND SHALL CONFORM TO SUBSECTION 505.04 (f).
45. ABUTMENT PILES
- A. THE PILES SHALL BE HP 14 X 89.
 - B. THE PILES SHALL BE DRIVEN TO REFUSAL IN BEDROCK. A NOMINAL PILE DRIVING RESISTANCE (RNDR) OF 300 KIPS IS REQUIRED BY DESIGN, PROVIDED A MINIMUM PENETRATION OF 25 FEET BELOW THE BOTTOM OF PILE CAP HAS BEEN ACHIEVED.
46. A MINIMUM OF THREE DYNAMIC TESTS ARE REQUIRED DURING PILE INSTALLATION. NO LESS THAN ONE DYNAMIC PILE TEST SHALL BE CONDUCTED AT EACH ABUTMENT. PAYMENT IS ITEM 505.45, "DYNAMIC PILE LOADING TEST".
47. 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.
48. FOR ESTIMATING PURPOSES, THE PILE TIP ELEVATIONS WERE ASSUMED AS SHOWN ON THE BORING LOGS. THE ACTUAL IN PLACE LENGTHS MAY VARY.

MISCELLANEOUS

49. ITEM 520.10, "SHEET 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.

BRIDGE RAILING, GALVANIZED STEEL TUBING (COATED BLACK)

50. ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 525.
51. PRIOR TO GALVANIZING THE ASSEMBLED POST, GRIND ALL EDGES TO A MINIMUM RADIUS OF 1/16".
52. ALL POSTS SHALL BE SET NORMAL TO GRADE.
53. SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO BRIDGE POSTS AND PREFERABLY TO AT LEAST 4 POSTS.
54. HOLES IN RAILS FOR TUBE ATTACHMENT MAY BE FIELD-DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO INSTALLATION.
55. BOLTS SHALL BE TORQUED SNUG TIGHT (APPROXIMATELY 100 FT-LB).
56. RAIL TUBES SHALL BE ATTACHED USING 3/4" FULL DIAMETER BODY ASTM A 449 (TYPE 1) ROUND HEAD BOLTS INSERTED THROUGH THE FACE OF THE TUBE.
57. SEE STANDARD DRAWING G-1 FOR DETAILS OF DELINEATORS. A DELINEATOR SHALL BE INSTALLED AT 30 FOOT SPACING OR THE NEAREST POST. WHITE IS TO BE INSTALLED ON THE DRIVER'S RIGHT. FOR ONE WAY BRIDGES, YELLOW IS TO BE INSTALLED ON THE DRIVER'S LEFT. PAYMENT FOR DELINEATORS SHALL BE INCIDENTAL TO OTHER ITEMS.



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PROJECT LEADER: G.S. GOODRICH	DRAWN BY: B.J. MASSE
DESIGNED BY: L.S. CHERVINCKY	CHECKED BY: G.S. GOODRICH
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