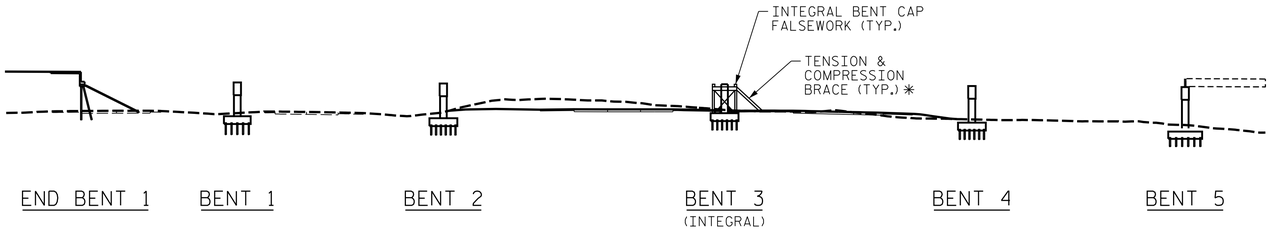
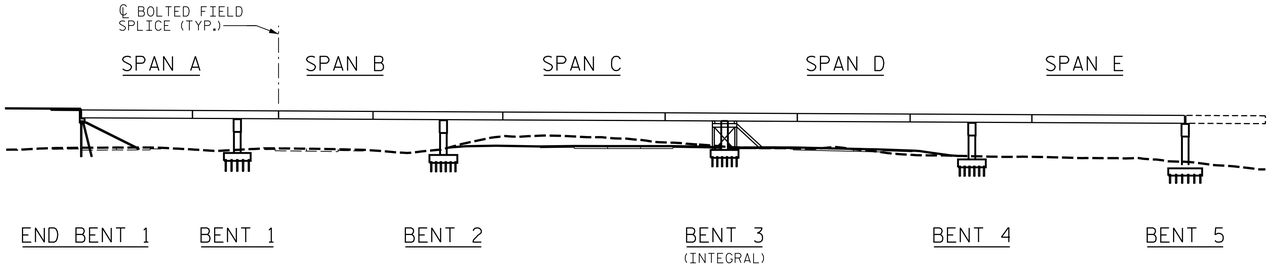


STAGE 1

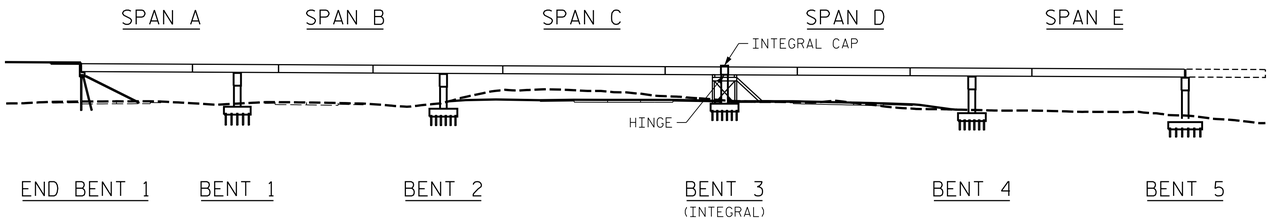
1. CONSTRUCT END BENT 1, BENTS 1, 2, 4 & 5 BEFORE STAGE 2.
2. CONSTRUCT FOOTING AND COLUMN FOR BENT 3.
3. ERECT FALSEWORK FOR BENT 3.

* = PROVIDE BRACING TO RESTRAIN THE SUPERSTRUCTURE AT THE TOP OF BENT 3 AFTER THE COLUMNS ARE CONSTRUCTED. BRACING TO REMAIN IN PLACE UNTIL INTEGRAL BENT CAP CONSTRUCTION IS COMPLETE.



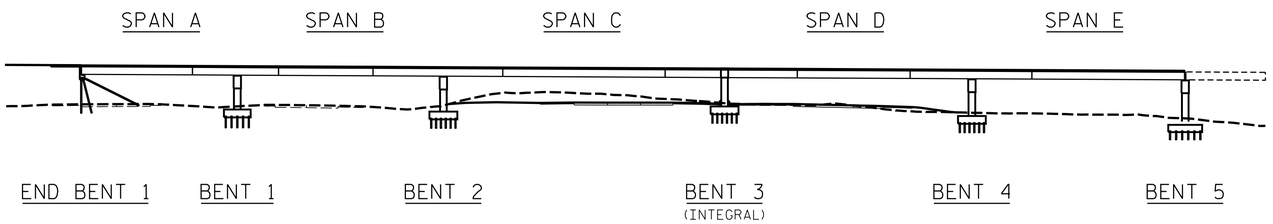
STAGE 2

1. ERECT ALL STRUCTURAL STEEL FOR SPANS A THRU E. GIRDERS SHALL BE SET IN THE PROPOER POSITION TAKING INTO ACCOUNT THE ANTICIPATED DEAD LOAD DEFLECTION.
2. INSTALL HIGH STRENGTH BOLTS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.



STAGE 3

1. CONSTRUCT INTEGRAL BENT CAP (SEE INTEGRAL BENT CAP CONSTRUCTION SEQUENCE NOTES).



STAGE 4

1. REMOVE INTEGRAL BENT CAP FALSEWORK (SEE INTEGRAL BENT CONSTRUCTION SEQUENCE NOTES).
2. CONSTRUCT REMAINING PORTIONS OF SPANS A THRU E.

INTEGRAL BENT CONSTRUCTION SEQUENCE

THIS BRIDGE IS DESIGNED FOR THE CONSTRUCTION SEQUENCE SHOWN. IF THE CONTRACTOR USES AN ALTERNATE DESIGN FOR POST-TENSIONING TENDONS AS ALLOWED BY THE SPECIAL PROVISION, THEN THE CONTRACTOR BECOMES RESPONSIBLE FOR CHANGES TO THE CONSTRUCTION SEQUENCE. THE REVISED CONSTRUCTION SEQUENCE SHALL BE SUBMITTED FOR APPROVAL WITH THE ALTERNATE POST-TENSIONING DESIGN. THE FOLLOWING CONSTRUCTION SEQUENCE SHALL APPLY UNLESS OTHERWISE APPROVED IN WRITING BY THE ENGINEER.

1. CONSTRUCT FOOTING AND COLUMN IN ACCORDANCE WITH THE PLANS.
2. ERECT INTEGRAL BENT CAP FALSEWORK. FALSEWORK SHALL SUPPORT GIRDERS ON BOTH SIDES OF INTEGRAL CAP. GIRDER SUPPORT SHALL BE WITHIN 10'-0" OF CENTERLINE BENT. PROVIDE BEARING STIFFENERS IN THE GIRDERS AS NECESSARY.
3. ERECT ALL STRUCTURAL STEEL IN SPANS A THRU E. SEE "GIRDER ERECTION DETAILS" SHEETS. STRUCTURAL STEEL SHALL BE SUPPORTED BY TEMPORARY FALSEWORK AT BENT 3.
4. WHEN FOOTING AND COLUMN CONCRETE HAS ATTAINED THE SPECIFIED COMPRESSIVE STRENGTH VALUE (f'c), CONSTRUCT INTEGRAL CAP, INCLUDING POST-TENSIONING DUCTS. GROUT TUBES AND ANCHORAGES REQUIRED FOR CAP, IN ACCORDANCE WITH THE PLANS.
5. WHEN CAP CONCRETE HAS ATTAINED THE SPECIFIED INITIAL COMPRESSIVE STRENGTH VALUE (f'ci) INSTALL POST-TENSIONING TENDONS IN THE CAP (T1-T11) AND TENSION IN THE ORDER SHOWN BELOW.
6. WHEN TENSIONING OF THE CAP TENDONS (T1-T11) IS COMPLETE, TENDONS SHALL BE GROUTED AND ANCHORAGES SHALL BE PROTECTED. SEE POST-TENSIONING SPECIAL PROVISION FOR PROTECTION OF END ANCHORAGES.
7. REMOVE FALSEWORK AFTER COMPLETION OF INTEGRAL CAPS FOR BENT 3.
8. CAST DECK & RAILS AS SPECIFIED IN THE SUPERSTRUCTURE PLANS.

POST-TENSIONING DATA

CONCRETE
- CAP, HINGE & UPPER PORTION OF COLUMN
  - STRENGTH AT 28 DAYS (f'c) = 6 KSI
  - STRENGTH AT POST-TENSIONING (f'ci) = 4.5 KSI
- FOOTING AND LOWER PORTION OF COLUMN = 4.5 KSI (CLASS AA)
  - STRENGTH AT 28 DAYS (f'c)

TENDONS IN BENT CAP 3
- T1 THRU T7: 19-0.6" DIA., GRADE 270, SEVEN WIRE, LOW-RELAXATION STRANDS PER TENDON
- T8 THRU 11: 7-0.6" DIA., GRADE 270, SEVEN WIRE, LOW-RELAXATION STRANDS PER TENDON

FRICTION (U)	= 0.20
WOBBLE (K)	= 0.0002/FT
ANCHOR SET	= 0.25"
MODULUS OF ELASTICITY (Es)	= 28,500 KSI
JACKING STRESS BEFORE ANCHOR SET (ALL TENDONS)	= 205 KSI

DUCTS
- T1 THRU T7: MINIMUM 4½" NOMINAL DIAMETER GALVANIZED RIGID OR SEMI-RIGID DUCTS
- T8 THRU 11: MINIMUM 2¾" NOMINAL DIAMETER GALVANIZED RIGID OR SEMI-RIGID DUCTS

TENDON STRESSING DATA

TENDON	STRESSING SEQUENCE	JACKING FORCE BEFORE ANCHOR SET	ELONGATION BEFORE ANCHOR SET	ELONGATION AFTER ANCHOR SET
		KIPS	IN.	IN.
T1	10	845	3.11	2.86
T2	4	845	3.11	2.86
T3	5	845	3.11	2.86
T4	11	845	3.11	2.86
T5	2	845	2.98	2.73
T6	1	845	2.98	2.73
T7	3	845	2.98	2.73
T8	8	311	3.11	2.86
T9	6	311	3.11	2.86
T10	7	311	3.11	2.86
T11	9	311	3.11	2.86

TENDON STRESSING NOTES

ALL CAP TENDONS (T1-T11) SHALL BE STRESSED FROM THE SAME END.

DURING STRESSING NO PERSONS SHALL BE DIRECTLY BEHIND EITHER TENDON END.

INTEGRAL BENT NOTES (BENT 3)

NO CONCRETE SHALL BE PLACED IN ANY PORTION OF THE BENT UNTIL REVIEW OF THE POST-TENSIONING SYSTEM SUBMITTED BY THE CONTRACTOR HAS BEEN COMPLETED.

POST-TENSIONING BEARING PLATES FOR CAP TENDONS (T1 THRU T11) SHALL BE FABRICATED OF HOT-ROLLED STEEL CONFORMING TO ASTM A588 AND APPROVED BY THE ENGINEER. BEARING PLATES SHALL FIT FLAT AGAINST THE GIRDER WEB AND RECEIVE AN ANSI 500 FINISH ON THE SURFACE IN CONTACT WITH THE WEB. CENTERLINE OF THE TENDONS IS TO BE NORMAL TO OUTSIDE FACE OF BEARING PLATE.

POST-TENSIONING ANCHORAGE DETAILS SHALL BE DETERMINED BY THE POST-TENSIONING MATERIALS SUPPLIER. DETAILS SHALL BE SHOWN ON THE SHOP DRAWINGS AND SUBMITTED TO THE ENGINEER FOR APPROVAL. THE ANCHORAGE SYSTEM AND LENGTH OF PROJECTING PRESTRESSING STEEL AT THE DEAD END ANCHORAGES SHALL PERMIT JACKING WITH THE SAME JACKING EQUIPMENT USED ON THE LIVE END. SEE SPECIAL PROVISION FOR POST-TENSIONING TENDONS.

BAR REINFORCEMENT INTERFERING WITH DUCT ALIGNMENT SHALL BE ADJUSTED AS APPROVED BY THE ENGINEER.

SPECIAL CARE SHALL BE TAKEN TO ENSURE PROPER CONSOLIDATION OF CONCRETE UNDER THE TOP FLANGE OF THE GIRDERS DURING PLACEMENT OF CONCRETE FOR INTEGRAL CAPS AND ANCHORAGE ENCASEMENTS TO ELIMINATE FORMATION OF VOIDS BENEATH TOP FLANGE.

AFTER CASTING CAP BUT PRIOR TO TENSIONING OF THE CAP, THE ENGINEER SHALL THOROUGHLY INSPECT THE INTERFACE BETWEEN THE GIRDER FLANGES AND CONCRETE TO LOCATE ANY VOIDS DUE TO INCOMPLETE CONSOLIDATION DURING PLACEMENT OF CONCRETE. IF VOIDS ARE DETECTED OR AS DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL REMOVE A SUFFICIENT VOLUME OF CONCRETE AND REPLACE WITH NON-SHRINK GROUT.

ENCASEMENT OF THE POST-TENSIONING ANCHORAGES SHALL BE SUBJECT TO THE SAME INSPECTION AND REPAIR CRITERIA AS SPECIFIED FOR THE CAP ABOVE.

TOP SURFACE OF THE CAP SHALL BE INTENTIONALLY ROUGHENED WITH A WIRE BRUSH WHEN CAST AND THOROUGHLY CLEANED PRIOR TO PLACING DECK CONCRETE.

THE DUCTS AND STRANDS SHALL BE FREE OF DIRT, LOOSE RUST AND OTHER DELETERIOUS SUBSTANCE BEFORE INSTALLING TENDONS. POST TENSIONING DUCTS SHALL BE FILLED WITH GROUT AFTER STRESSING HAS BEEN COMPLETED. SEE SPECIAL PROVISION FOR POST-TENSIONING TENDONS.

CONTRACTOR SHALL SUBMIT DESIGN AND DRAWINGS OF FALSEWORK AND ERECTION PROCEDURES TO THE ENGINEER FOR APPROVAL. SEE SPECIAL PROVISION FOR POST-TENSIONING TENDONS.

THERE IS NO PAYMENT FOR THE FALSEWORK AS THE FALSEWORK IS CONSIDERED INCIDENTAL TO THE CONSTRUCTION OF BENT 3.

PROJECT NO. U-2579AB

FORSYTH COUNTY

STATION: 60+66.06 -Y15FLYAC-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SCHEMATIC SEQUENCE OF CONSTRUCTION AND NOTES INTEGRAL BENT 3

NORTH CAROLINA PROFESSIONAL SEAL 29589 ENGINEER DOMENIC A. COLETTI

Domenic A. Coletti 10/15/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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N.C.B.E.L.S. License Number: F-0116

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S04-100
1	--	--	3	--	--	TOTAL SHEETS
2	--	--	4	--	--	144

DES BY:	S. JING	DATE :	11/19
DES CHK:	J. CABABE	DATE :	11/19
DWG BY:	B. PETERSON	DATE :	11/19
CHK BY:	J. CABABE	DATE :	11/19

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