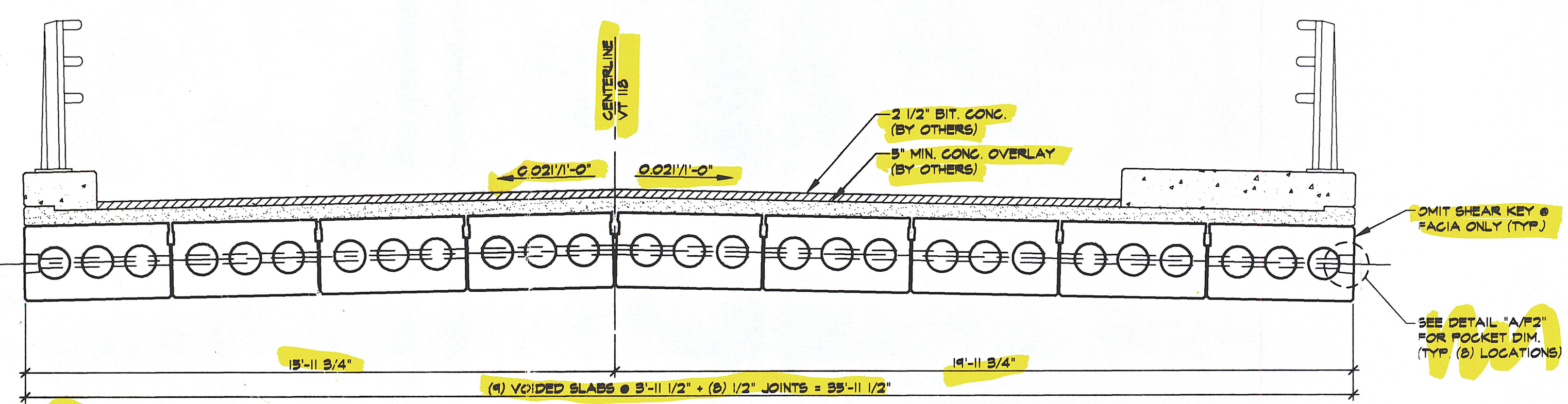


**1 BRIDGE BEAM LAYOUT**  
1/4" = 1'-0"

DESIGN LOAD: HS-25



**2 TRANSVERSE SECTION**  
3/8" = 1'-0"

**GENERAL NOTES**

- MIN. CONCRETE STRENGTH AT 28 DAYS SHALL BE 6500 PSI
  - MIN CONCRETE STRENGTH AT STRESS TRANSFER SHALL BE 5000 PSI.
  - REINFORCING STEEL SHALL BE GR-60, ASTM A-615 (AASHTO M61) AND SHALL BE EPOXY COATED.
  - PRESTRESSING STRANDS SHALL CONFORM TO ASTM A-416 (AASHTO M208) AND SHALL CONSIST OF 270 KSI (0.600") 7 WIRE LOW RELAXATION STRANDS.
  - PRESTRESSING STRANDS SHALL EACH BE PULLED TO HAVE A NET TENSION OF 44.0K OR 22.0K (AS SHOWN ON DRAWINGS) AFTER ACCOUNTING FOR CHUCK SLIPPAGE. TENSION SHALL BE VERIFIED BY MEASURING STRAND ELONGATION. SEE EXAMPLE ELONGATION CALCULATION AND TENSIONING PROCEDURE, THIS SHEET.
  - ENDS OF PRESTRESSING STRANDS SHALL BE RECESSED AND GROUTED FLUSH.
  - BEARINGS PADS SHALL CONFORM TO VERMONT SPEC. TS1.05.
  - ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4".
  - THE TOPS OF THE BEAMS SHALL RECEIVE A TRANSVERSE RAKE FINISH ROUGHEN TO 1/4" AMPLITUDE.
  - BEAMS SHALL BE HANDLED AND ERECTED USING THE LIFTING LOOPS ONLY. THE MINIMUM SLING ANGLE FROM THE HORIZONTAL SHALL BE 60°. BEAMS SHALL BE STORED AND TRANSPORTED WITH TIMBER SUPPORTS WITHIN 6" OF THE BEAM ENDS, UNLESS APPROVED BY J.P. CARRARA & SONS INC.
  - MATERIAL SPECIFICATION AND MIX DESIGN SHALL CONFORM TO VERMONT SPEC. PS10.02 AND PS10.05 RESPECTIVELY.
- DESIGN MIX:  
 165 LBS. TYPE III CEMENT - GLENS FALLS CEMENT  
 1245 LBS. FINE AGGREGATE  
 1675 LBS. COARSE AGGREGATE  
 55 GAL. WATER - 242 LBS.  
 6% (1%) AIR CONTENT ( 5.5 OZ. DAREX II ) ADJUST AS REQUIRED  
 26 OZ. WEDA-14 PER 100 LBS. CEMENT, MAX. 7" SLUMP  
 2 OZ. DERACEM 65 PER 100 LBS. CEMENT
- QUALITY CONTROL PROCEDURES ARE IN ACCORDANCE WITH PCI REQUIREMENTS. J.P. CARRARA & SONS INC. IS A PCI CERTIFIED PLANT.
  - THE VERMONT AGENCY OF TRANSPORTATION WILL BE NOTIFIED IN A TIMELY MANNER SO THAT ALL PRECAST OPERATIONS MAY BE WITNESSED (IF APPLICABLE).
  - THE VOIDS MUST BE VENTED DURING CURING PERIOD.
  - CURING METHOD: AS SOON AS THE TOP OF THE BEAM IS FINISHED, A COVER OF POLY AND A LAYER OF HOMOSOTE (OR BLUE BOARD) WILL BE PLACED OVER THE BEAM. THE DESIRED CURING TEMPERATURE RANGE SHALL NOT DROP BELOW TO DEGREES F. THE TEMPERATURE SHALL BE RECORDED BY AUTOMATIC SENSOR AFFAIRY AND WILL CONTINUE UNTIL RELEASE STRENGTH IS ACHIEVED (NATURAL CURE WITH NO EXTERNAL HEAT APPLIED). EACH CHART SHALL BE MARKED.

**EXAMPLE STRAND ELONGATION CALCULATION AND TENSIONING**  
(NOT TO BE USED FOR CONSTRUCTION)

SIZE & GRADE: 0.600" 270 KSI  
 AREA: 0.215 IN<sup>2</sup>  
 TENSION: 44,000 LB EACH STRAND  
 GRIP TO GRIP: 142'-4 3/4" = 142.813'  
 E<sub>s</sub> = 28,600,000 PSI (ASSUMED FOR THESE CALCULATIONS. VALUE TO BE OBTAINED FOR STRAND SPOOL ACTUALLY USED).

EXAMPLE:  

$$\Delta = \frac{PL}{AE} = \frac{(44,000 - 3,000) \times 142.813 \times 12}{0.215 \times 28,600,000} = 15.48"$$
 TOLERANCES: ± 5%  
 THEREFORE Δ UPPER LIMIT = 1.05 × 15.48" = 16.20" = 16 9/16"  
 Δ LOWER LIMIT = 0.95 × 15.48" = 14.69" = 14 5/8"  
 EXTRA FORCE REQUIRED TO COMPENSATE FOR 1/2" CHUCK SLIPPAGE  

$$\Delta P = \frac{0.5 \times 41,000}{15.48} = 1350 \text{ LB}$$
 TOTAL TENSIONING FORCE = 44,000 + 1350 = 45,350 LB

**STRAND TENSIONING PROCEDURE:**

- FULL EACH STRAND INITIALLY TO 3000\* LB AND MARK STRAND.
  - THEN PULL EACH STRAND TO A TOTAL TENSION OF 45,350\* LB AND MEASURE ELONGATION AFTER SEATING. IT MUST BE BETWEEN 14 5/8" & 16 9/16"
- \*NOTE: FORCES READ ON STRESSING JACK GAUGES MUST BE MADE TO CORRESPOND TO ABOVE VALUES BASED ON CALIBRATION DATA FOR SPECIFIC JACK USED.

**STRUCTURES COPY.**

RECEIVED  
 OK'D BY: *[Signature]* OK'D BY: \_\_\_\_\_  
 SEP 15 1997  
 RESUBMITTED BY: *[Signature]* AS NOTED  
 BY: *[Signature]* 9/23/97

F:\vt-brn-dwg\wont-f1 Thu Sep 11 15:05:10 1997

NO.	DATE	REVISION

**STATE OF VERMONT**  
**AGENCY OF TRANSPORTATION**

DRAWN: B.M. LOPEZ  
 DESIGNED: \_\_\_\_\_  
 CHECKED: \_\_\_\_\_  
 APPROVED: \_\_\_\_\_

**J.P. CARRARA & SONS INC.**  
 Precast & Prestress Manufacturer  
 RTE. 116, WOODSBURY, VERMONT 05753  
 Phone: (802) 388-8361  
 Fax: (802) 388-9010

Double-Tees    Hollow-Core Plank    Flat Panels

**WINCO, INC.**  
 P.O. BOX 339  
 SWANTON, VT 05488

Project Name:  
**TOWN OF MONTGOMERY**  
**BRIDGE #15**  
**VT 118 OVER THE TROUT RIVER**  
**SUPPERSTRUCTURE DETAILS**

SCALE: NOTED  
 JOB #: 23050-97  
 DATE: 9-5-97  
 SHEET #: F1

Doc# F1