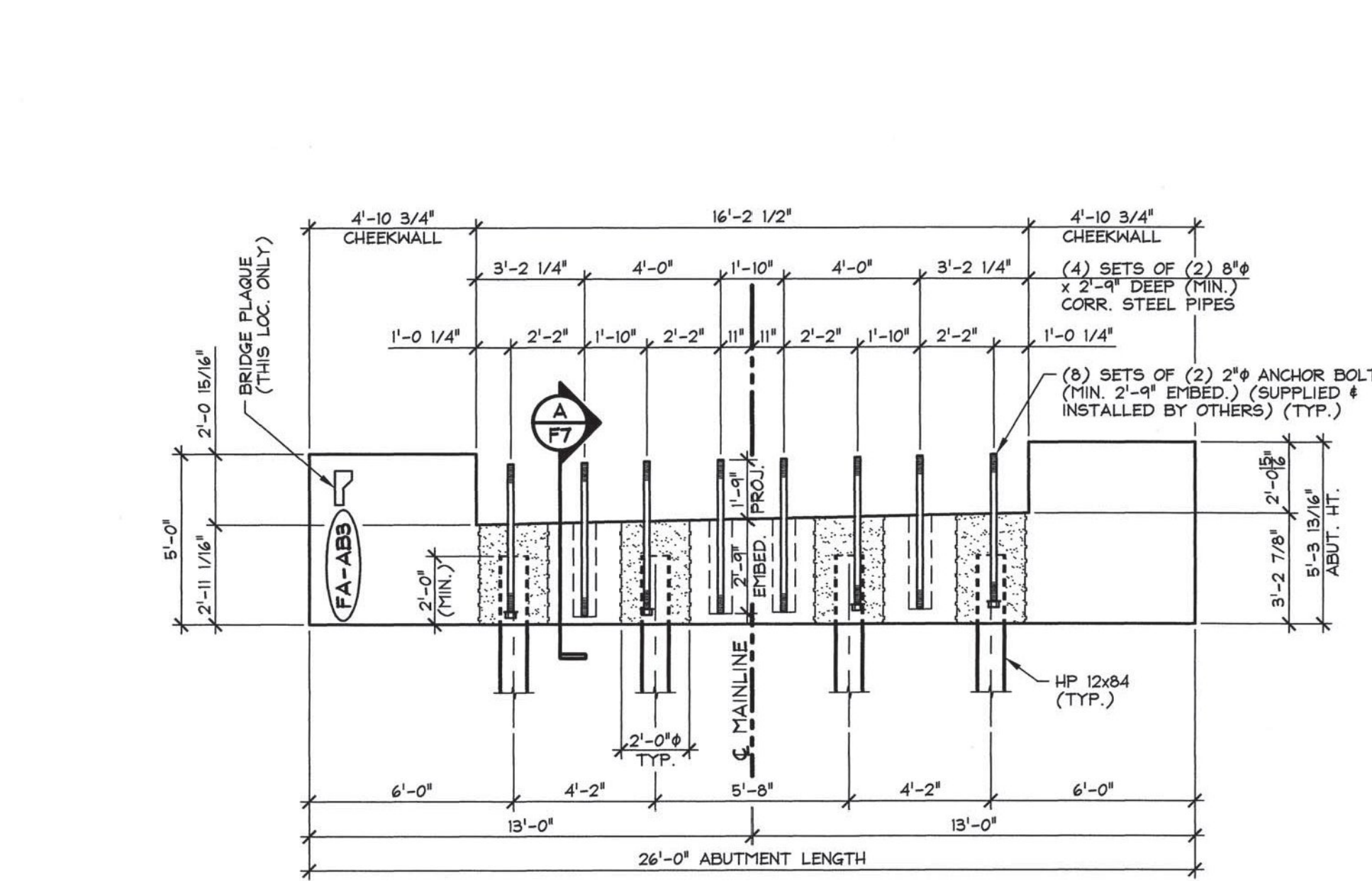
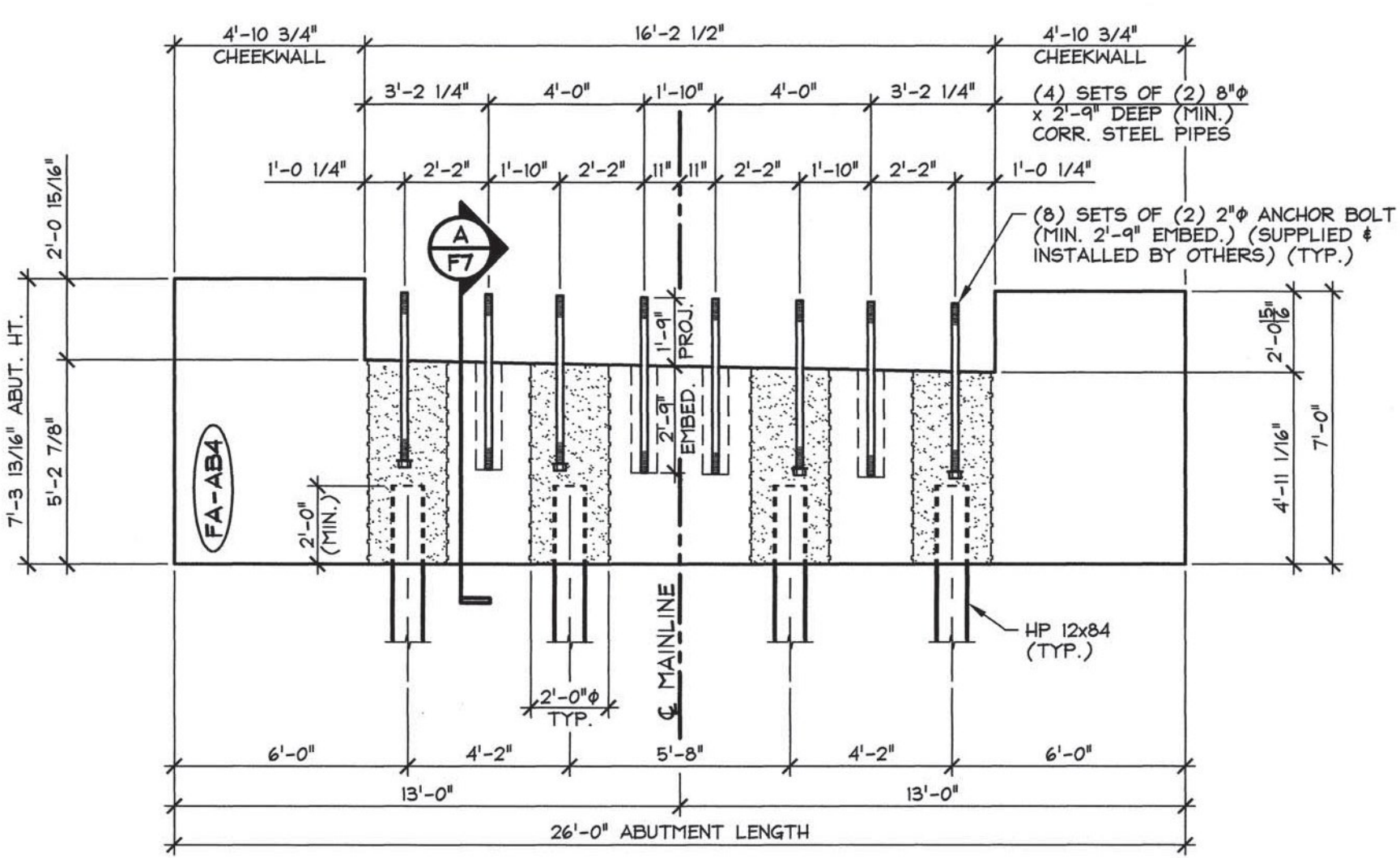


1 PRECAST ABUTMENT LAYOUT
 1/4" = 1'-0"



2 ABUTMENT #1 ELEVATION
 1/4" = 1'-0"



3 ABUTMENT #2 ELEVATION
 1/4" = 1'-0"

ABUTMENT GENERAL NOTES

- MIN. CONCRETE STRENGTH AT 28 DAYS SHALL BE 5,000 PSI.
- MIN. CONCRETE STRENGTH AT STRIPPING SHALL BE 3,500 PSI (UNLESS NOTED OTHERWISE).
- REINFORCING STEEL SHALL BE GR-60, ASTM A-615 (AASHTO M31) LEVEL 1 (EPOXY COATED) (ASTM A-775) (AS NOTED ON SHOP DRAWINGS).
- THE TOP OF ABUTMENTS SHALL RECEIVE A SMOOTH FLOAT FINISH (UNLESS NOTED OTHERWISE).
- ABUTMENTS SHALL BE HANDLED AND ERECTED USING THE LIFTING LOOPS ONLY. THE PINS OF THE SHACKLES SHALL BE PLACED THROUGH THE LIFTING LOOPS. SEE DETAIL, SHEET 'F7'. THE MINIMUM SLING ANGLE FROM THE HORIZONTAL SHALL BE 60°. ABUTMENTS SHALL BE STORED & TRANSPORTED WITH TIMBER SUPPORTS AT 5th POINTS, UNLESS APPROVED BY J.P. CARRARA & SONS, INC. ONCE ABUTMENTS HAVE BEEN ERECTED, CUT LIFTING LOOPS AT RECESS, EPOXY PAINT AND PATCH AS REQUIRED (BY OTHERS).
- MATERIAL SPECIFICATION AND MIX DESIGN SHALL CONFORM TO VERMONT SPEC. F510.02 AND F510.05 RESPECTIVELY.
 DESIGN MIX: J.P.C. BRIDGE MIX #46M5CC
- QUALITY CONTROL PROCEDURES ARE IN ACCORDANCE WITH PCI REQUIREMENTS. J.P. CARRARA & SONS, INC. IS A PCI CERTIFIED PLANT.
- CURING METHOD: AS SOON AS THE TOP OF PRECAST CONCRETE UNITS ARE FINISHED, A COVER OF POLY WILL BE PLACED OVER THE UNIT. NATURAL CURE WITH NO EXTERNAL HEAT APPLIED. CURING SHALL CONTINUE UNTIL STRIPPING STRENGTH HAS BEEN ACHIEVED.
- A TEMPLATE SHALL BE USED TO LAYOUT THE ANCHOR BOLTS SLEEVES IN ABUTMENTS. THE SAME TEMPLATE SHALL BE USED TO LAYOUT THE ANCHOR BOLT SLEEVES IN THE SOLID SLABS (REQUIRED PER NOTE 7, SHEET 5A/6A OF CONTRACT PLANS). ALL TEMPLATES SHALL BE CLEARLY MARKED TO IDENTIFY LOCATIONS AND ORIENTATION.

SOLID SLAB GENERAL NOTES

- MIN. CONCRETE STRENGTH AT 28 DAYS SHALL BE 5,000 PSI.
- MIN. CONCRETE STRENGTH AT STRESS TRANSFER SHALL BE 6,000 PSI.
- REINFORCING STEEL SHALL BE GR-60, ASTM A-615 (AASHTO M31) LEVEL 1 (EPOXY COATED) (ASTM A-775) (AS NOTED OTHERWISE).
- PRESTRESSING STRANDS SHALL CONFORM TO ASTM A-416 (AASHTO M203) AND SHALL CONSIST OF 0.60" x 270 KSI 7-WIRE LOW RELAXATION STRANDS.
- PRESTRESSING STRANDS SHALL EACH BE PULLED TO HAVE A NET TENSION OF 44.0 K 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 CUT FLUSH WITH END OF SOLID SLABS USING AN ABRASIVE WHEEL (UNLESS NOTED OTHERWISE) AND TWO PART EPOXY PAINTED.
- ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4" (UNLESS NOTED OTHERWISE).
- THE TOP OF SLABS SHALL RECEIVE A TURF DRAG FINISH AS SPECIFIED IN 501.16(d)(2) (UNLESS NOTED OTHERWISE).
- SHEAR KEY SURFACES SHALL BE SAND BLASTED CLEAN.
- SLABS SHALL BE HANDLED AND ERECTED USING THE LIFTING INSERTS ONLY. RIGGING SHALL BE CONFIGURED SUCH THAT EQUAL FORCES ARE APPLIED TO EACH OF THE TWO LIFTING INSERTS AT EACH END OF THE SLAB. THE MINIMUM SLING ANGLE FROM THE HORIZONTAL SHALL BE 60°. SLABS SHALL BE STORED AND TRANSPORTED WITH TIMBER SUPPORTS WITHIN 2'-0" OF THE SLAB ENDS, UNLESS APPROVED BY J.P. CARRARA & SONS, INC.
- MATERIAL SPECIFICATION AND MIX DESIGN SHALL CONFORM TO VERMONT SPEC. F510.02 AND F510.05 RESPECTIVELY.
 DESIGN MIX: J.P.C. BRIDGE MIX #426M1 (NO DCI)
- QUALITY CONTROL PROCEDURES ARE IN ACCORDANCE WITH PCI REQUIREMENTS. J.P. CARRARA & SONS, INC. IS A PCI CERTIFIED PLANT.
- CURING METHOD: AS SOON AS THE TOP OF SLAB IS FINISHED, A COVER OF RIGID INSULATION AND POLY WILL BE PLACED OVER THE UNITS. THE TEMPERATURE SHALL BE RECORDED BY AUTOMATIC SENSOR INSTRUMENTS ON GRAPH CHARTS, SPACED NOT MORE THAN 100' APART AND WILL CONTINUE UNTIL RELEASE STRENGTH IS ACHIEVED. EACH CHART SHALL BE MARKED WITH THE CASTING DATED AND LOCATION OF THE RECORDER. IF NECESSARY TO ACCELERATE EARLY AGE STRENGTH GAIN, LIVE STEAM MAY BE UTILIZED. ACCELERATED CURING PER PCI 116.16.4.9 REQUIREMENTS. CURING SHALL CONTINUE UNTIL RELEASE STRENGTH HAS BEEN ACHIEVED.
- TRANSVERSE POST-TENSIONING SEQUENCE:
 - ERECT SOLID SLABS, AND POST-TENSION TENDONS TO APPROXIMATELY 3,000 PSI.
 - GROUT SHEAR KEYS.
 - ONCE SHEAR KEY GROUT HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 1,500 PSI; POST TENSION TENDONS TO 47,000 LBS.
 - EXCESS TENDON LENGTH SHALL BE CUT USING AN ABRASIVE WHEEL.
 - APPLY TWO PART EPOXY TO EXPOSED TENDON AND CHUCK.
- OWNER SHALL PROVIDE APPROPRIATE WATERPROOFING TO GROUTED AND/OR EPOXIED SHEAR KEYS. J.P. CARRARA & SONS, INC. SHALL NOT BE HELD LIABLE FOR PROBLEMS ASSOCIATED WITH MOISTURE INFILTRATING GROUTED AND/OR EPOXIED SHEAR KEYS.
- A TEMPLATE SHALL BE USED TO LAYOUT THE ANCHOR BOLTS SLEEVES IN ABUTMENTS. THE SAME TEMPLATE SHALL BE USED TO LAYOUT THE ANCHOR BOLT SLEEVES IN THE SOLID SLABS (REQUIRED PER NOTE 7, SHEET 5A/6A OF CONTRACT PLANS). ALL TEMPLATES SHALL BE CLEARLY MARKED TO IDENTIFY LOCATIONS AND ORIENTATION.

EXAMPLE PRESTRESSING STRAND ELONGATION CALC. AND TENSIONING
 (NOT TO BE USED FOR CONSTRUCTION)

SIZE & GRADE: 0.60" x 270 KSI
 AREA: 0.217 in²
 TENSION: 44,000 LB. EACH STRAND
 GRIP-TO-GRIP: 252'-0" = 252.00'
 $E_s = 28,600,000$ PSI (ASSUMED FOR THESE CALCULATIONS; VALUE TO BE OBTAINED FOR STRAND SPOOL ACTUALLY USED)

EXAMPLE:
 $\Delta = \frac{P_L}{AE} = \frac{(44,000 - 3,000) \times 252.00 \times 12}{0.217 \times 28,600,000} = 19.977'$
 THEREFORE: (TOLERANCES $\pm 5\%$)
 Δ UPPER LIMIT = $1.05 \times 19.977' = 20.98' = 21'$
 Δ LOWER LIMIT = $0.95 \times 19.977' = 18.98' = 19'$

EXTRA FORCE REQUIRED TO COMPENSATE FOR 1/2" CHUCK SLIPPAGE:
 $\Delta P = \frac{0.5 \times 41,000}{19.977} = 1,026$ LBS.

TOTAL TENSIONING FORCE = 44,000 + 1,026 = 45,026 LBS.

STRAND TENSIONING PROCEDURE:

- PULL EACH STRAND INITIALLY TO 3,000+ LBS. AND MARK STRAND.
 - THEN PULL EACH STRAND TO A TOTAL TENSION OF 45,026+ LBS. AND MEASURE ELONGATION AFTER SEATING. IT MUST BE BETWEEN 19' AND 21'.
- *NOTE: FORCES READ ON STRESSING JACK GAUGES MUST BE MADE TO CORRESPOND TO ABOVE VALUES BASED ON CALIBRATION DATA FOR SPECIFIC JACK USED.

Vermont Agency of Transportation
RECEIVED
 CK'D BY RKJW OK'D BY RY
 February 12, 2015
 RESUBMIT No Approved
 BY RY DATE 02/12/2015

DESIGN LIVE LOAD: HL-93

2-10-15 REVISED PER VT AOT COMMENTS

APPROVAL STAMP:	J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer 2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone: (802)388-6361 Fax: (802)388-9010	A.L. St. ONGE CONTRACTOR MONTGOMERY, VERMONT
STATE OF VERMONT AGENCY OF TRANSPORTATION COUNTY OF FRANKLIN	DATE: NOV. 10, 2014 SCALE: NOTED	CHKD: B.C. DFTM: B.L. JOB NO: 23446-014
TOWN OF FAIRFIELD ELM BROOK ROAD, TOWN HIGHWAY 47 (CLASS 3) BRIDGE NO.: 46 PROJECT NO.: BRO 1448(41)	PRECAST ABUTMENT LAYOUT & ELEVATIONS DWG. NO: F5	