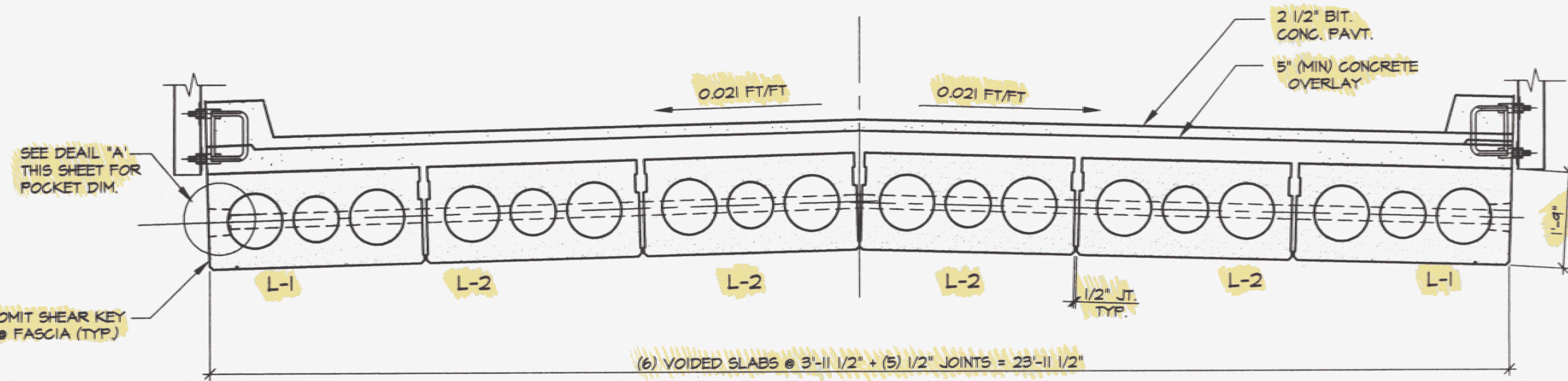


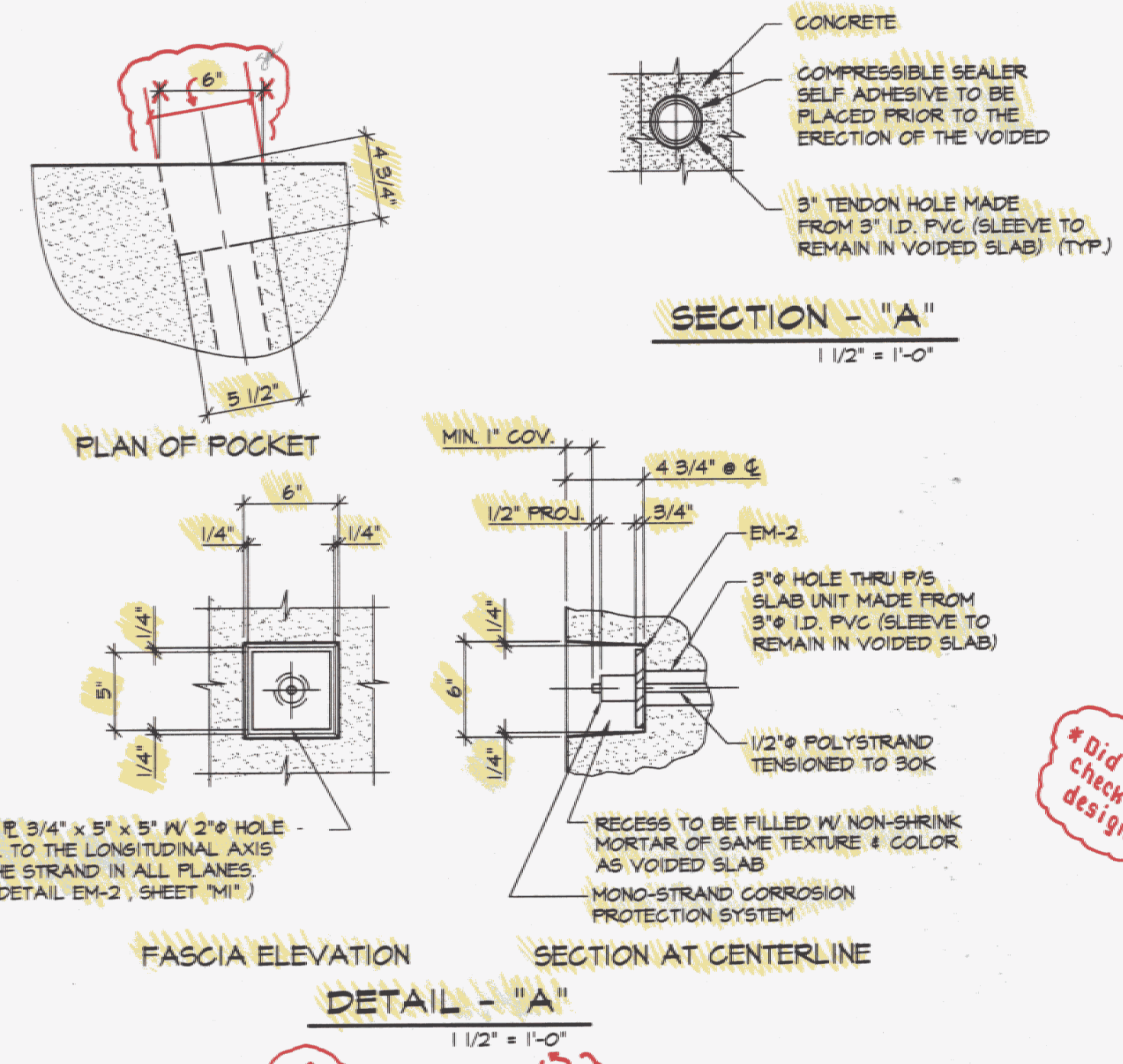
1 PRESTRESSED VOIDED SLAB LAYOUT
1/4" = 1'-0"

DESIGN LOADS HS 25



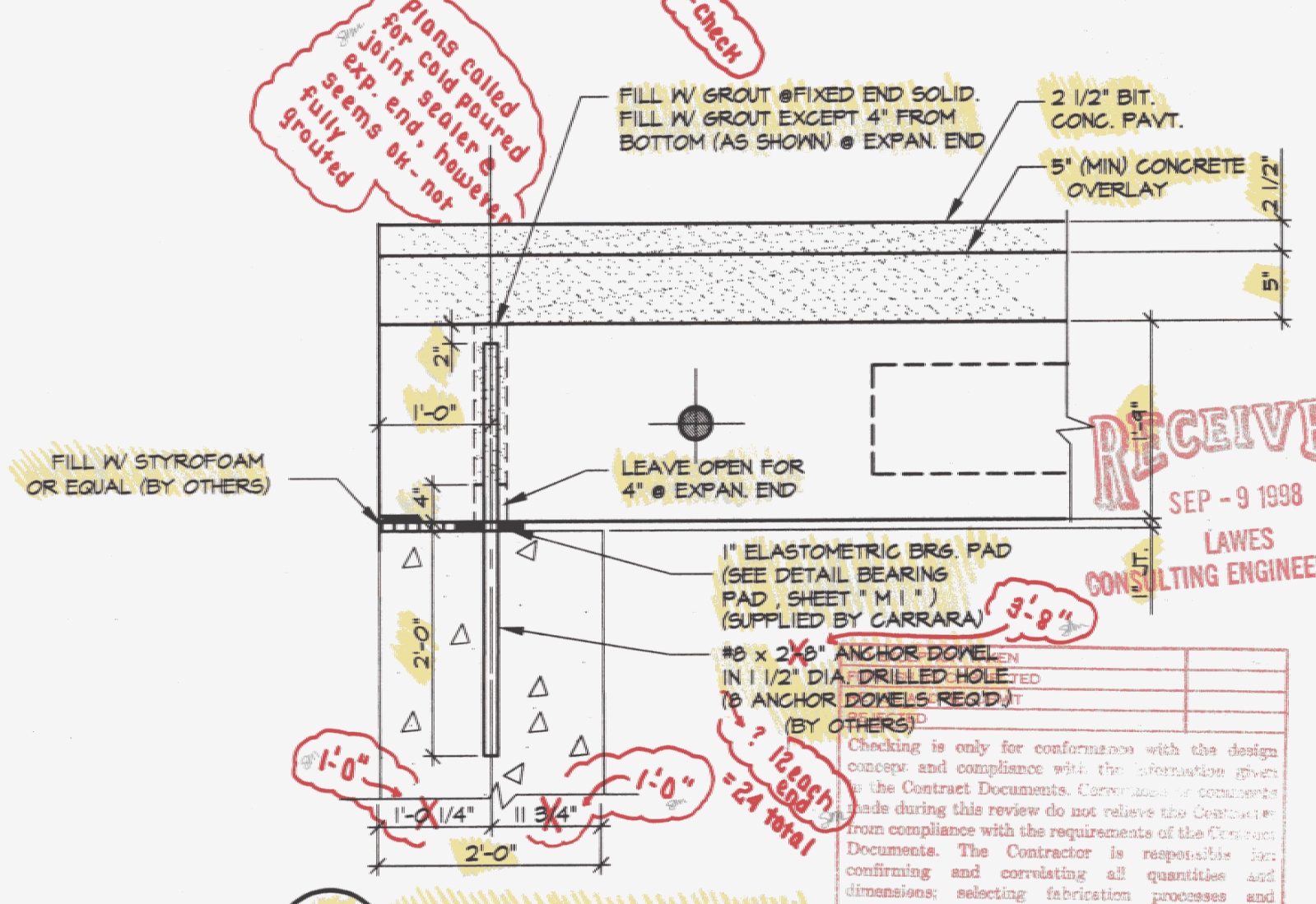
2 TRANSVERSE SECTION
1/2" = 1'-0"

Structures Section
Copy
- Do Not
Throw Away !!



SECTION - "A"
1/2" = 1'-0"

DETAIL - "A"
1/2" = 1'-0"



A SECTION @ BEARING
3/4" = 1'-0"

B SHEAR KEY SECTION
1/2" = 1'-0"

- ### GENERAL NOTES
- MIN. CONCRETE STRENGTH AT 28 DAYS SHALL BE 5000 PSI.
 - MIN CONCRETE STRENGTH AT STRESS TRANSFER SHALL BE 4000 PSI.
 - REINFORCING STEEL SHALL BE #6-60, ASTM A-615 (AASHTO M61) EPOXY COATED.
 - PRESTRESSING STRANDS SHALL CONFORM TO ASTM A-416 (AASHTO M209) AND SHALL CONSIST OF 1/2" x 270 KSI 7 WIRE LOW RELAXATION STRANDS.
 - PRESTRESSING STRANDS SHALL EACH BE PULLED TO HAVE A NET TENSION OF 31.0K (UN) 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 AND EPOXY PAINTED.
 - BEARING PADS SHALL CONFORM TO VERMONT SPEC. 791.09.
 - ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4".
 - TOP SURFACE OF EACH UNIT SHALL BE RAKED TO A UNIFORM ROUGHNESS WITH AN AVERAGE AMPLITUDE OF 1/4".
 - 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'-0" 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: J.P.C. BRIDGE MIX #480A
 675 LBS. TYPE III CEMENT - GLENS FALLS CEMENT
 100 LBS. FLY ASH TYPE-F
 1150 LBS. FINE AGGREGATE
 180 LBS. COARSE AGGREGATE
 31 GAL. WATER - 25# LBS.
 6% (18) AIR CONTENT (5.5 OZ. DAREX II) ADJUST AS REQUIRED
 24 OZ. WDA-H PER 100 LBS. CEMENT, MAX. T' SLUMP
 2 OZ. DARATARD-1 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.
 - 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 INSTRUMENTS ON GRAPH CHARTS, SPACED NOT MORE THAN 100' APART AND WILL CONTINUE UNTIL RELEASE STRENGTH IS ACHIEVED (NATURAL CURE WITH NO EXTERNAL HEAT APPLIED). EACH CHART SHALL BE MARKED.
 - TRANSVERSE POST-TENSIONING SEQUENCE (FOR EACH STAGE):
 A. ONCE BEAMS ARE ERECTED, POST TENSION TENDONS TO APPROXIMATELY 5,000 LBS.
 B. GROUT SHEAR KEYS (BY OTHERS)
 C. ONCE SHEAR KEY GROUT HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI, POST-TENSION TENDONS TO 30,000 LBS.

* Did not check mix design

Plans called for hole poured with joint sealer & grout. Spans ok - not grouted

RECEIVED
SEP - 9 1998
LAWES CONSULTING ENGINEERS, INC.

EXAMPLE PRESTRESSING STRAND ELONGATION CALC. AND TENSIONING

(NOT TO BE USED FOR CONSTRUCTION)

SIZE & GRADE: 0.800" x 270 KSI
 AREA: 0.215 IN²
 TENSION: 44,000 LB EACH STRAND
 GRIP TO GRIP: 142'-4 3/4" = 142.815'
 Es = 28,600,000 PSI (ASSUMED FOR THESE CALCULATIONS. VALUE TO BE OBTAINED FOR STRAND SPOOL ACTUALLY USED)

EXAMPLE:

$$\Delta = \frac{FL}{AE} = \frac{(44,000 - 3,000) \times 142.815 \times 12}{0.215 \times 28,600,000} = 15.43"$$
 TOLERANCES: ± 5%
 THEREFORE

$$\Delta \text{ UPPER LIMIT} = 1.05 \times 15.43" = 16.20" = 16 \frac{3}{16}"$$

$$\Delta \text{ LOWER LIMIT} = 0.95 \times 15.43" = 14.65" = 14 \frac{5}{8}"$$
 EXTRA FORCE REQUIRED TO COMPENSATE FOR 1/2" CHUCK SLIPPAGE.

$$\Delta P = 0.5 \times \frac{41,000}{15.43} = 1330 \text{ LB}$$
 TOTAL TENSIONING FORCE = 44,000 + 1330 = 45,330 LB

* Adjust for correct strand & tension

* Example only!! - not true for design/const

STRAND TENSIONING PROCEDURE:

- PULL EACH STRAND INITIALLY TO 3,000 LB AND MARK STRAND.
 - THEN PULL EACH STRAND TO A TOTAL TENSION OF 45,330 LB AND MEASURE ELONGATION AFTER SEATING. IT MUST BE BETWEEN 14 5/8" & 16 3/16"
- * NOTE: FORCES READ ON STRESSING JACK GAUGES MUST BE MADE TO CORRESPOND TO ABOVE VALUES BASED ON CALIBRATION DATA FOR SPECIFIC JACK USED.

* Adjust accordingly

RECEIVED
 OK'D BY PMT OK'D BY SLM
 SEP 16 1998
 RESUBMIT APPROVED AS NOTED
 BY JBM/PMT DATE 9-18-98

STATE OF VERMONT
 AGENCY OF
 TRANSPORTATION

DRAWN: S. PETROSYAN
 DESIGNED:
 CHECKED:
 APPROVED:

J.P. CARRARA & SONS INC.
 Precast & Prestress Manufacturer
 RTE. 116, MIDDLEBURY, VERMONT 05753
 Phone: (802) 388-6361 Fax: (802) 388-9010

Contractor Name:
WINTerset, INC.
 BOX 968
 LYNDONVILLE, VT 05851

Project Name:
**TOWN OF LOWELL
 ROUTE TH2 BRIDGE # 9
 TOWN OF LOWELL, VT**

SCALE: NOTED
 JOB #: 23065-48
 DATE: 8-9-98
 SHEET #: F1

| NO. | DATE | REVISION |
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