

ABUTMENT & APPROACH SLAB GENERAL NOTES

- MIN. CONCRETE STRENGTH AT 28 DAYS SHALL BE 5000 PSI.
- MIN. CONCRETE STRENGTH AT STRIPPING SHALL BE 4000 PSI (UNLESS NOTED OTHERWISE).
- REINFORCING STEEL SHALL BE GR-60, ASTM A-615 (AASHTO M3) LEVEL II (DUAL COATED) (ASTM A-1055) OR LEVEL III (EPOXY) STEEL, (AS NOTED ON SHOP DRAWINGS).
- THE TOP OF PRECAST CONCRETE UNITS SHALL RECEIVE A SMOOTH FLOAT FINISH (UNLESS NOTED OTHERWISE).
- SHEAR KEY SURFACES SHALL BE SAND BLASTED CLEAN. REINFORCING STEEL PROJECTING FROM APPROACH SLABS WILL BE COVERED DURING SAND BLASTING SO THAT COATING IS NOT DAMAGED.
- APPROACH SLABS SHALL BE HANDLED AND ERECTED USING THE LIFTING INSERTS ONLY. THE MINIMUM SLING ANGLE FROM THE HORIZONTAL SHALL BE 60°. APPROACH SLABS SHALL BE STORED & TRANSPORTED WITH TIMBER SUPPORTS AT 5ft POINTS, UNLESS APPROVED BY J.P. CARRARA & SONS, INC.
- 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 'C1'. VERTICAL FORCES ONLY SHALL BE APPLIED TO THE LIFTING LOOPS. ABUTMENTS SHALL BE STORED & TRANSPORTED WITH TIMBER SUPPORTS AT 5ft 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. PS1002 AND PS1005 RESPECTIVELY.

DESIGN MIX:
 APPROACH SLABS: J.P.C. BRIDGE MIX #445M5CC
 ABUTMENTS: J.P.C. BRIDGE MIX #445M5CC
- 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 CURING WITH NO EXTERNAL HEAT APPLIED. CURING SHALL CONTINUE UNTIL STRIPPING STRENGTH HAS BEEN ACHIEVED.

NEXT BEAM GENERAL NOTES

- MIN. CONCRETE STRENGTH AT 28 DAYS SHALL BE 10000 PSI.
- MIN. CONCRETE STRENGTH AT STRESS TRANSFER SHALL BE 8000 PSI.
- REINFORCING STEEL SHALL BE GR-60, ASTM A-615 (AASHTO M3) LEVEL II (DUAL COATED).
- PRESTRESSING STRANDS SHALL CONFORM TO ASTM A-416 (AASHTO M228) AND SHALL CONSIST OF 0.60" x 210 KSI 7-WIRE LOW RELAXATION STRANDS.
- PRESTRESSING STRANDS SHALL EACH BE PULLED TO HAVE A NET TENSION OF 4420 LBS 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 NEXT BEAM STEMS (UNLESS NOTED OTHERWISE) AND COATED WITH TWO PART EPOXY PAINT SYSTEM.
- ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4".
- THE TOP OF BEAMS SHALL RECEIVE A SMOOTH SCREED (UNLESS NOTED OTHERWISE).
- SHEAR KEY SURFACES SHALL BE SAND BLASTED TO 1/8" AMPLITUDE.
- BEAMS SHALL BE HANDLED AND ERECTED USING THE LIFTING LOOPS ONLY. RIGGING SHALL BE CONFIGURED SUCH THAT EQUAL AND VERTICAL FORCES ARE APPLIED TO EACH OF THE TWO LIFTING LOOPS AT EACH END OF THE BEAM. THE PINS OF THE SHACKLES SHALL BE PLACED THROUGH THE LIFTING LOOPS. SEE DETAIL, THIS SHEET. BEAMS SHALL BE STORED AND TRANSPORTED WITH TIMBER SUPPORTS. TIMBER SUPPORTS SHALL BE PLACED WITHIN CLOSE PROXIMITY TO THE SHIPPING SLEEVE LOCATION AS SHOWN BELOW, UNLESS APPROVED BY J.P. CARRARA & SONS, INC.
- MATERIAL SPECIFICATION AND MIX DESIGN SHALL CONFORM TO VERMONT SPEC. PS1002 AND PS1005 RESPECTIVELY.

DESIGN MIX: J.P.C.
 NEXT BEAM MIX #430M WITH 5 GALLONS OF CORROSION INHIBITOR
- 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 BEAM IS FINISHED A COVER OF INSULATED POLY. THE DESIRED CURING TEMPERATURE RANGE SHALL NOT DROP BELOW 10°. 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 DATES AND LOCATION OF THE RECORDER. IF NECESSARY TO MAINTAIN CASTING BED TEMPERATURE PRIOR TO CONCRETE PLACEMENT OR TO ACCELERATE EARLY AGE STRENGTH GAIN, EXTERNAL RADIANT HEAT MAY BE EMPLOYED VIA HOT WATER DUCTS BENEATH AND WITHIN THE PERIPHERY OF THE CASTING BED. MAXIMUM CURING TEMPERATURE SHALL NOT EXCEED 150°F.
- CONTRACTOR SHALL PROVIDE APPROPRIATE FIELD WATERPROOFING TO GROUDED AND/OR EPOXYED SHEAR KEYS. J.P. CARRARA & SONS, INC. SHALL NOT BE HELD LIABLE FOR PROBLEMS ASSOCIATED WITH MOISTURE INFILTRATING GROUDED AND/OR EPOXYED SHEAR KEYS.

SHEAR KEY SURFACES SHALL HAVE 1/8" COARSE AGGREGATE EXPOSED WITH A PROFILE SIMILAR TO ICRI ROUGHNESS PLAQUE CSP #7 COPYRIGHT 1997.

CONTRACTOR SHALL PROVIDE APPROPRIATE FIELD WATERPROOFING TO GROUDED AND/OR EPOXYED SHEAR KEYS. J.P. CARRARA & SONS, INC. SHALL NOT BE HELD LIABLE FOR PROBLEMS ASSOCIATED WITH MOISTURE INFILTRATING GROUDED AND/OR EPOXYED SHEAR KEYS.

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

SIZE & GRADE: 0.60" x 210 KSI
 AREA: 0.211 IN²
 TENSION: 44,000 LB. EACH STRAND
 GRIP-TO-GRIP: 292'-0" = 292.00'
 Es = 28,500,000 PSI (ASSUMED FOR THESE CALCULATIONS, VALUE TO BE OBTAINED FOR STRAND SPEC. ACTUALLY USED)

EXAMPLE:

$$\Delta = \frac{P_e}{AE} = \frac{44,000 - 3,000}{0.211 \times 28,500,000} = 20.041'$$

$$\Delta_{UPPER} = 1.05 \times 20.041' = 21.05' = 21'$$

$$\Delta_{LOWER} = 0.95 \times 20.041' = 19.04' = 19'$$
 EXTRA FORCE REQUIRED TO COMPENSATE FOR 1/2" CHUCK SLIPPAGE:

$$\Delta P = .05 \times 44,000 = 2,200 \text{ LBS.}$$
 TOTAL TENSIONING FORCE = 44,000 + 2,200 = 46,200 LBS.

ADDITIONALLY, INCREASED ELONGATION AND THE CORRESPONDING FORCE DUE TO FORM SHORTENING SHALL BE ACCOUNTED FOR IN THE CALCULATIONS USED FOR CONSTRUCTION PER PROVISION PCI M116 5.3.1.3.

STRAND TENSIONING PROCEDURE:

- PULL EACH STRAND INITIALLY TO 3,000* LBS. AND MARK STRAND.
- THEN PULL EACH STRAND TO A TOTAL TENSION OF 45,025* 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 STRESSING JACK USED.
- STRANDS IN BOTTOM TWO ROWS SHALL BE RE-PULLED TO VERIFY SHORTENING EFFECT OF SELF STRESSING BED. RE-PULL FORCE SHALL NOT INCLUDE OVER-PULL FOR SHORTENING.

DRAWING INDEX

SHT. #	DRAWING TITLE	REV. #	REV. DATE
C1	COVER SHEET	2	04-03-15
F1	PRECAST ABUTMENT APPROACH SLAB & NEXT BEAM LAYOUT	2	04-03-15
F2	PRECAST ABUTMENT # 1 ELEVATION & SECTIONS	2	04-03-15
F3	PRECAST ABUTMENT # 2 ELEVATION	2	04-03-15
F4	TRANSVERSE SECTIONS & DETAILS	2	04-03-15
AB1	PRECAST ABUTMENT PLANS & SECTION	2	04-03-15
AB2	PRECAST ABUTMENT # 1 DETAILS	2	04-03-15
AB3	PRECAST ABUTMENT # 2 DETAILS	2	04-03-15
AB4	PRECAST ABUTMENT # 3 DETAILS	2	04-03-15
AB5	PRECAST ABUTMENT # 4 DETAILS	2	04-03-15
AS1	PRECAST APPROACH SLAB DETAILS	2	04-03-15
AS2	PRECAST APPROACH SLAB DETAILS	2	04-03-15
AS3	PRECAST APPROACH SLAB DETAILS	2	04-03-15
NB1A	PRESTRESSED NEXT BEAM DETAILS	2	04-03-15
NB1B	PRESTRESSED NEXT BEAM DETAILS	2	04-03-15
NB1C	PRESTRESSED NEXT BEAM DETAILS	2	04-03-15
NB1D	PRESTRESSED NEXT BEAM DETAILS	2	04-03-15
NB2A	PRESTRESSED NEXT BEAM DETAILS	2	04-03-15
NB2B	PRESTRESSED NEXT BEAM DETAILS	2	04-03-15
NB2C	PRESTRESSED NEXT BEAM DETAILS	2	04-03-15
NB3A	PRESTRESSED NEXT BEAM DETAILS	2	04-03-15
NB3B	PRESTRESSED NEXT BEAM DETAILS	2	04-03-15
NB3C	PRESTRESSED NEXT BEAM DETAILS	2	04-03-15
NB3D	PRESTRESSED NEXT BEAM DETAILS	2	04-03-15
M1	MATERIALS LIST	2	04-03-15
M2	MATERIALS LIST	2	04-03-15
M3	MATERIALS LIST	2	04-03-15

DESIGN LIVE LOAD: HL-93

Vermont Agency of Transportation
RECEIVED
 CK'D BY: _____ OK'D BY: _____
 April 6, 2015
 RESUBMIT No. _____ Approved AsNoted
 BY Rob Young DATE 04/13/2015

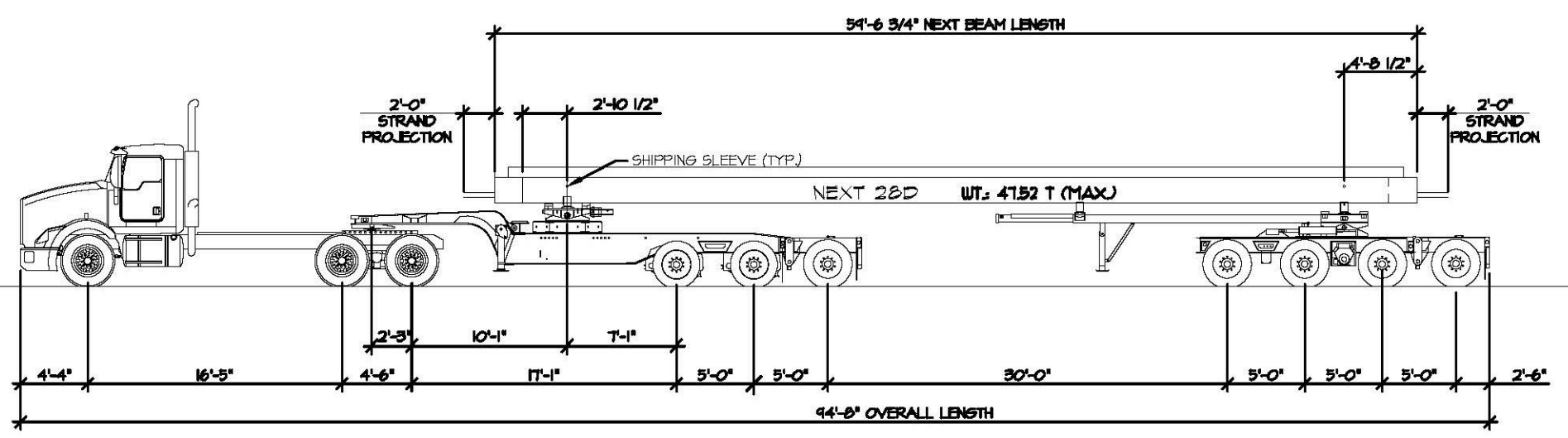
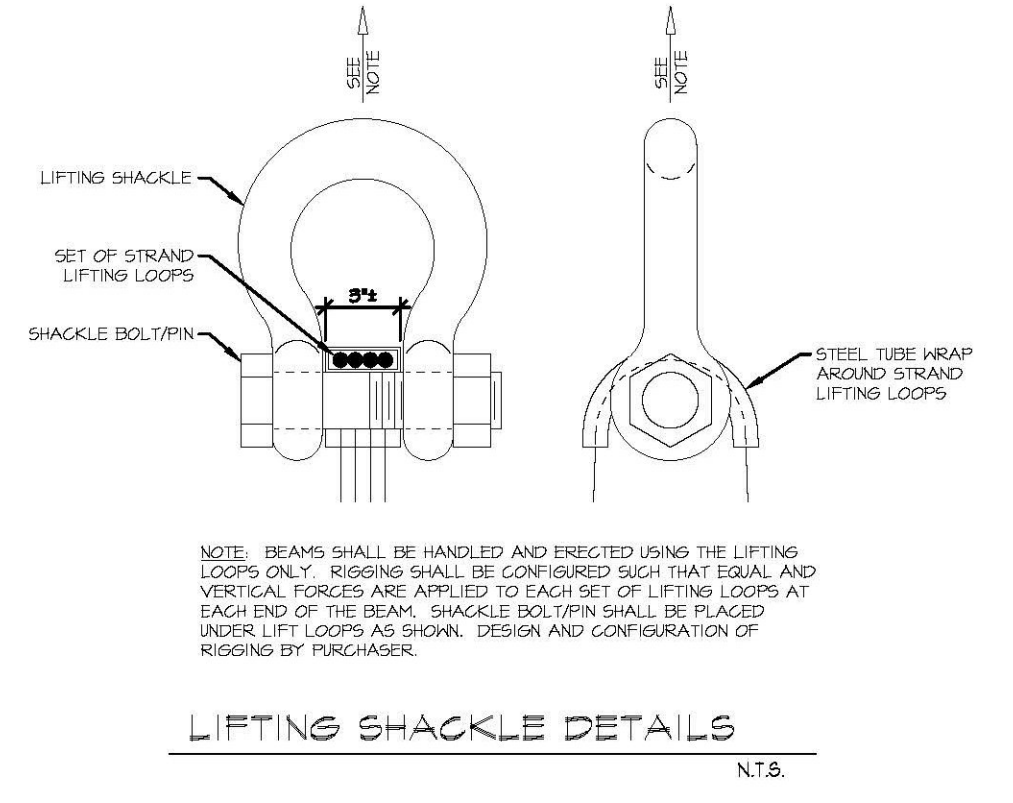
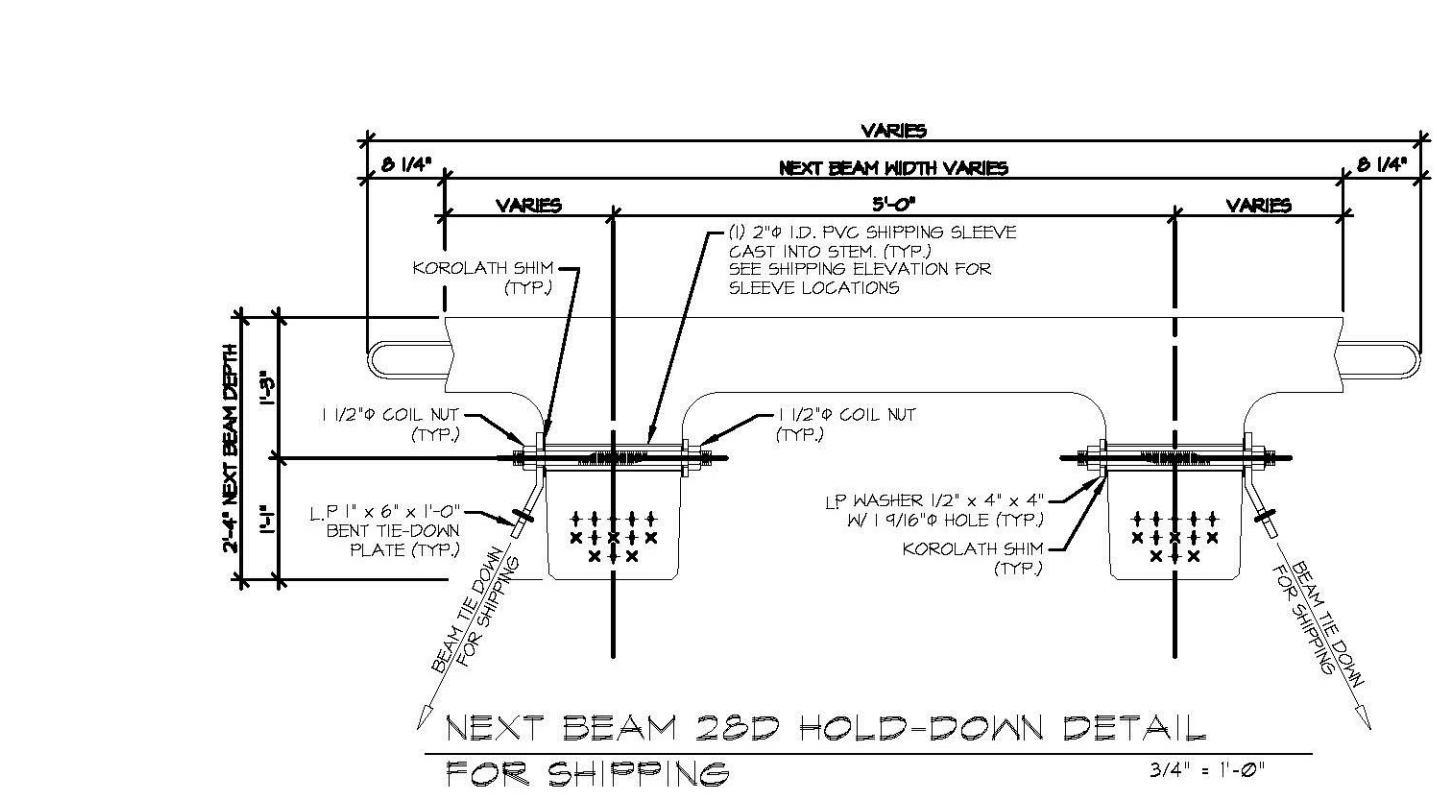
SHOP DRAWING REVIEW

REVIEWED AS REQUIRED BY THE CONSTRUCTION CONTRACT DOCUMENTS AND APPROVED, BUT ONLY FOR CONFORMANCE TO THE DESIGN CONCEPT OF THE WORK, AND SUBJECT TO FURTHER LIMITATIONS AND REQUIREMENTS CONTAINED IN THE CONSTRUCTION CONTRACT DOCUMENTS.

REJECTED REVISE AND RESUBMIT APPROVED AS NOTED

CORRECTIONS OR COMMENTS MADE ON THE SHOP DRAWINGS DURING THIS REVIEW DO NOT RELIEVE CONTRACTOR FROM COMPLIANCE WITH REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS. THIS CHECKS ONLY FOR REVIEW OF GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND GENERAL COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING AND CORRELATING ALL QUANTITIES AND DIMENSIONS, SELECTING FABRICATION PROCESSES AND TECHNIQUES OF CONSTRUCTION, COORDINATING THEIR WORK WITH THAT OF ALL OTHER TRADES AND PERFORMING THEIR WORK IN A SAFE AND SATISFACTORY MANNER.

Reviewed by: **SRB**
 Date: **04/10/2015**



SHIPPING ELEVATION

01-22-15 REVISED

APPROVAL STAMP:	J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer 284 ONE ST. WOODBURY, VERMONT 05653 Phone: (802)388-6361 Fax: (802)388-9010	T. BUCK CONSTRUCTION, INC CONTRACTOR AUBURN, MAINE
STATE OF VERMONT AGENCY OF TRANSPORTATION COUNTY OF CALEDONIA	DATE: MAR 26, 2015	SCALE: NOTED
TOWN OF BURKE VERMONT ROUTE 114 BRIDGE NO.: 15 PROJECT NO.: BRP 0269(15)	CHKD: -- DFTM: JDC	JOB NO: 23454-015
COVER SHEET	DWG. NO: C1	