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Submittal Data Sheet

Submittal #: 6

Submission #: 4

Date: 6/10/2015

Project Name: Barton BRO (1449) Bridge Replacement

Owner: Town of Barton, VT

Engineer: VTrans

Contractor: J.P. Sicard Inc.

Item Number(s): 540.10, 900.640

Supplier: J.P. Carrara

Description of Item: Fabrication Drawings: Pre-Cast Abutments, NEXT Beams and Approach Slabs

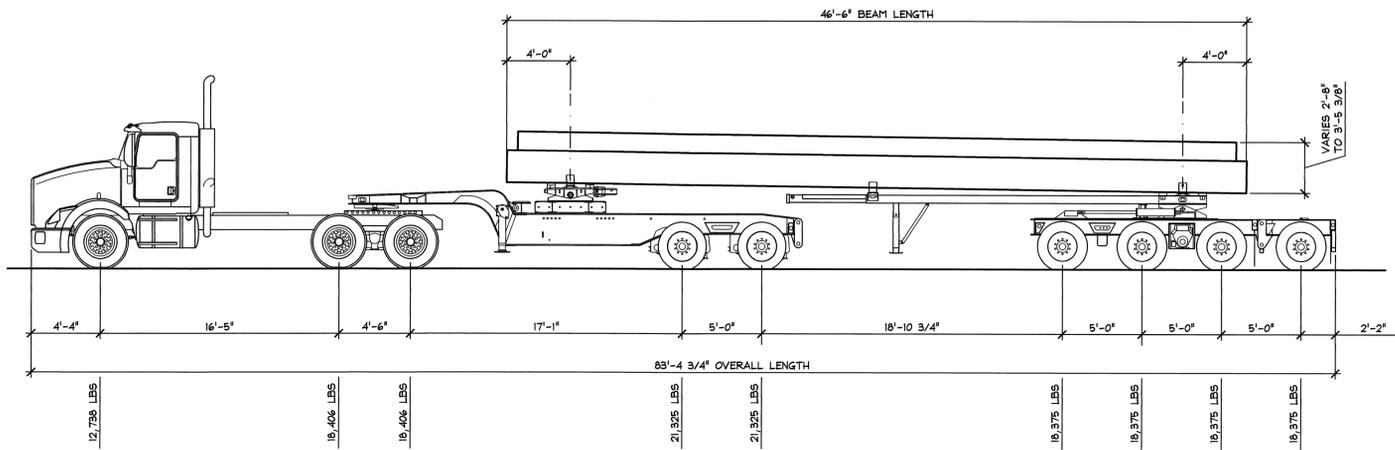
Substitution: NO

Engineers Review Comments: _____

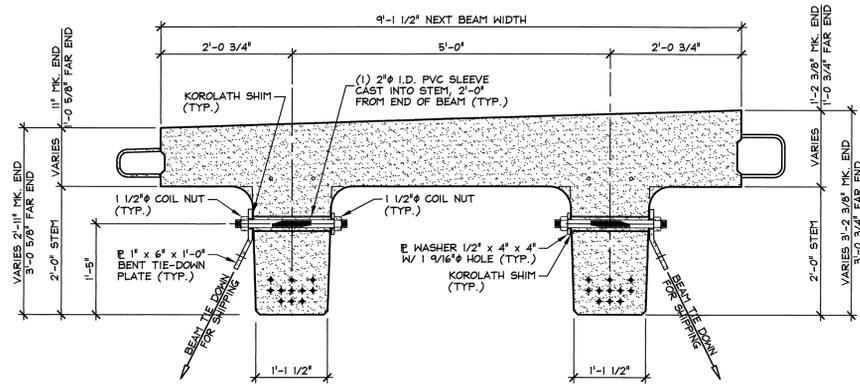
Submitted By: Brad Drake

Title: Project Manager

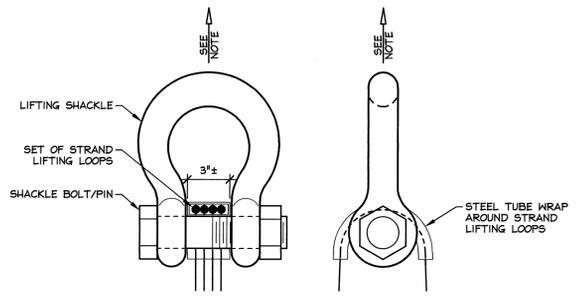
Company: JP Sicard Inc



SHIPPING ELEVATION
3/16" = 1'-0"



MODIFIED NEXT BEAM 32D HOLD-DOWN
DETAIL FOR SHIPPING
3/4" = 1'-0"



LIFTING SHACKLE DETAILS
N.T.S.

ABUTMENT & APPROACH SLAB GENERAL NOTES

- MIN. CONCRETE STRENGTH AT 28 DAYS SHALL BE 5,000 PSI.
- MIN. CONCRETE STRENGTH AT STRESS TRANSFER SHALL BE 3,500 PSI (UNLESS NOTED OTHERWISE).
- REINFORCING STEEL SHALL BE GR-60, ASTM A-615 (AASHTO M31) LEVEL I (BLACK STEEL) (UNLESS NOTED OTHERWISE).
- THE TOP OF ABUTMENTS SHALL RECEIVE A 1/4" RAKED AMPLITUDE FINISH (UNLESS NOTED OTHERWISE). THE TOP OF ABUTMENT CHEEKWALLS SHALL RECEIVE A SMOOTH FLOAT FINISH (UNLESS NOTED OTHERWISE).
- SHEAR KEY SURFACES SHALL HAVE 1/8" COURSE AGGREGATE EXPOSED.
- PRECAST CONCRETE UNITS SHALL BE HANDLED AND ERECTED USING THE LIFTING INSERTS ONLY. THE MINIMUM SLING ANGLE FROM THE HORIZONTAL SHALL BE 60°. NON-PRESTRESSED UNITS SHALL BE STORED & TRANSPORTED WITH TIMBER SUPPORTS AT 5th POINTS, 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:
APPROACH SL : J.P.C. BRIDGE MIX #44BMSCC (APPROVED 4-2-2015)
ABUTMENT : J.P.C. BRIDGE MIX #44B-NO DCI (APPROVED 3-21-2015)
- 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 RIGID INSULATION AND POLY WILL BE PLACED OVER THE UNIT. NATURAL CURE WITH NO EXTERNAL HEAT APPLIED.
- ABUTMENT POST-TENSIONING SEQUENCE:
A. ERECT PRECAST ABUTMENTS AND INSTALL TRANSVERSE STRANDS.
B. APPLY EPOXY BONDING COMPOUND TO MATCH CAST FACES OF VERTICAL CONSTRUCTION JOINT.
C. TENSION STRANDS TO 3K TO REMOVE SAG.
D. CHECK ALIGNMENT OF PRECAST ELEMENTS.
E. POST TENSION TENDONS TO 32,000 LBS.

NEXT BEAM GENERAL NOTES

- MIN. CONCRETE STRENGTH AT 28 DAYS SHALL BE 6,000 PSI.
- MIN. CONCRETE STRENGTH AT STRESS TRANSFER SHALL BE 4,000 PSI.
- REINFORCING STEEL SHALL BE GR-60, ASTM A-615 (AASHTO M31) LEVEL II (DUAL COATED).
- 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 NEXT BEAM STEMS (UNLESS NOTED OTHERWISE) AND COATED WITH TWO PART EPOXY PAINT SYSTEM.
- ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4" (UNLESS NOTED OTHERWISE).
- THE TOP OF BEAMS SHALL RECEIVE A SMOOTH SCREED FINISH (UNLESS NOTED OTHERWISE).
- SHEAR KEY SURFACES SHALL BE SAND BLASTED CLEAN.
- 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 WITHIN 2'-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 #430M-NO DCI (SUBMITTED 3-21-2015)
- 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 50°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. EACH CHART SHALL BE MARKED WITH THE CASTING DATED 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 PCI SPECIFIED LIMITS.
- CONTRACTOR 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.
- MANUFACTURING TOLERANCES SHALL COMPLY WITH PCI MNL-116. SINCE PRESTRESSED PRODUCT CAMBER IS A RESULT OF REQUIRED DESIGN LOADS AND SPAN LENGTH, CAMBER TOLERANCES SHALL NOT APPLY.

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:
$$\Delta = \frac{PL}{AE} = \frac{(44,000 - 3,000) \times 252.00 \times 12}{0.217 \times 28,600,000} = 19.977'$$

THEREFORE: (TOLERANCES ± 5%)
Δ UPPER LIMIT = 1.05 x 19.977' = 20.98' = 21'
Δ LOWER LIMIT = 0.95 x 19.977' = 18.98' = 19'

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

TOTAL TENSIONING FORCE = 44,000 + 1,026 = 45,026 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 MNL-116 5.3.11.3.

STRAND TENSIONING PROCEDURE:

- PULL EACH STRAND INITIALLY TO 3,000* LBS. AND MARK STRAND.
- THEN PULL EACH STRAND TO A TOTAL TENSION OF 45,026* LBS. AND MEASURE ELONGATION AFTER SEATING. IT MUST BE BETWEEN 19" AND 21".

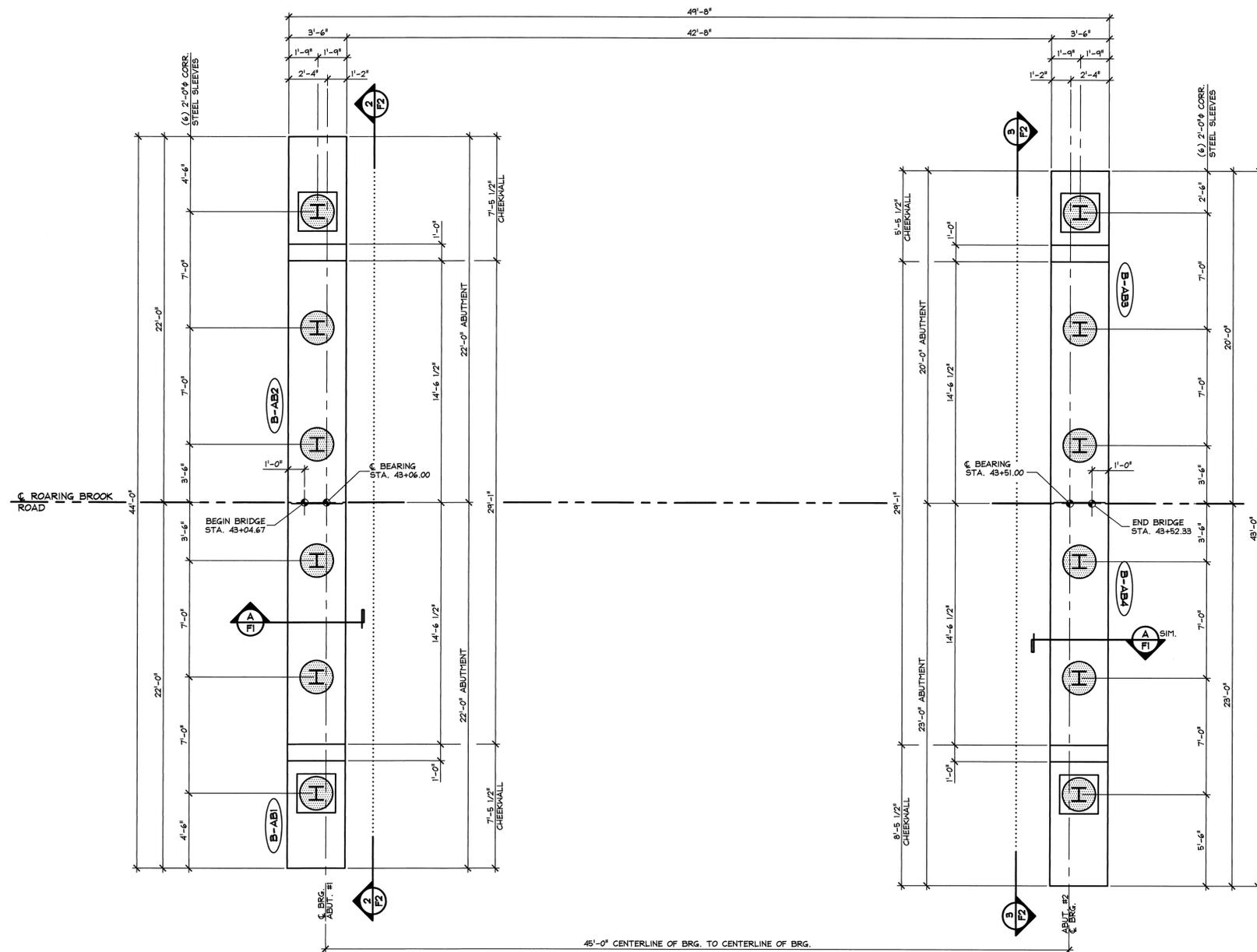
* NOTE: FORCES READ ON STRESSING JACK GAUGES MUST BE MADE TO CORRESPOND TO ABOVE VALUES BASED ON CALIBRATION DATA FOR SPECIFIC JACK USED.

- 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.

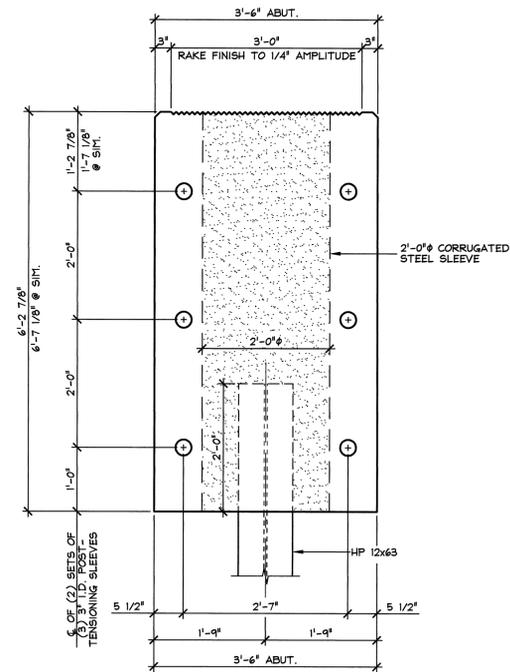
DESIGN LIVE LOAD: HL-93

5/28/2015 REVISED AS NOTED T.D.

APPROVAL STAMP:	J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer 2484 GAGE ST., MIDDLEBURY, VERMONT 05753 Phone: (802)388-6361 Fax: (802)388-9010	J.P. Sicard CONTRACTOR BARTON, VERMONT
	STATE OF VERMONT AGENCY OF TRANSPORTATION COUNTY OF ORLEANS	DATE: FEB. 25, 2015 SCALE: NOTED
	TOWN OF BARTON ROARING BROOK ROAD TH #2, RURAL MINOR COLLECTOR BRIDGE NO.: 8 PROJECT NO.: BRO 1449(31)	CHKD: DFTM: T.D. JOB NO: 23462-015
	COVER SHEET	DWG. NO: C1

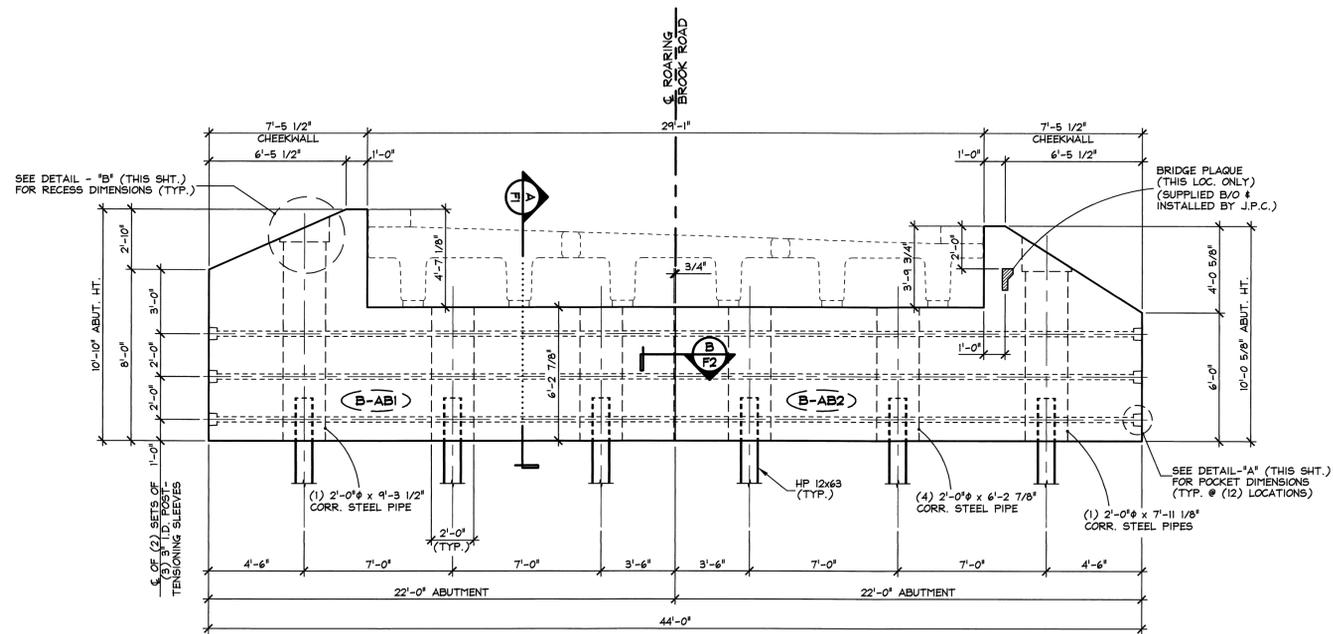


1 PRECAST ABUTMENT LAYOUT
 1/4" = 1'-0"

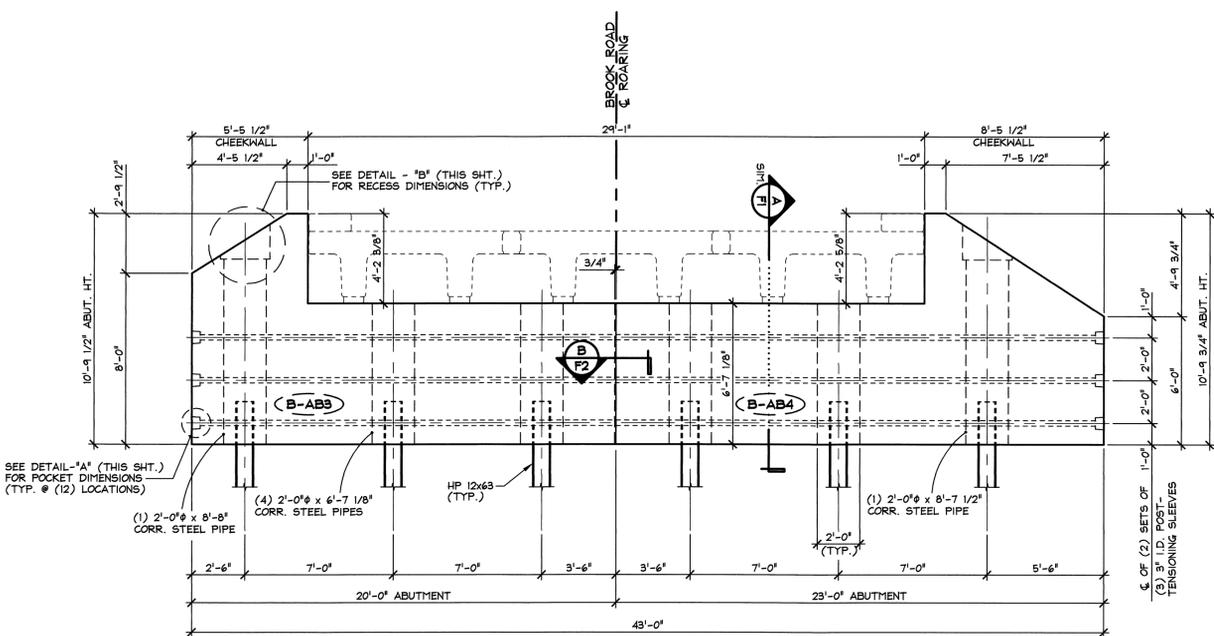
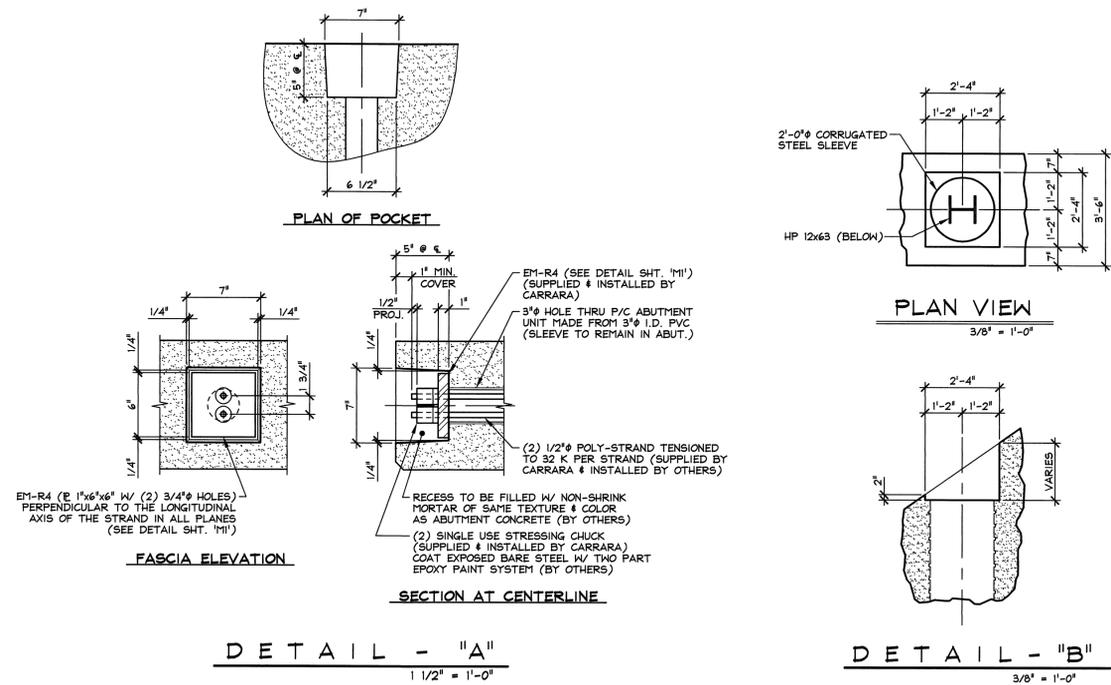


A ABUTMENT SECTION
 3/4" = 1'-0"

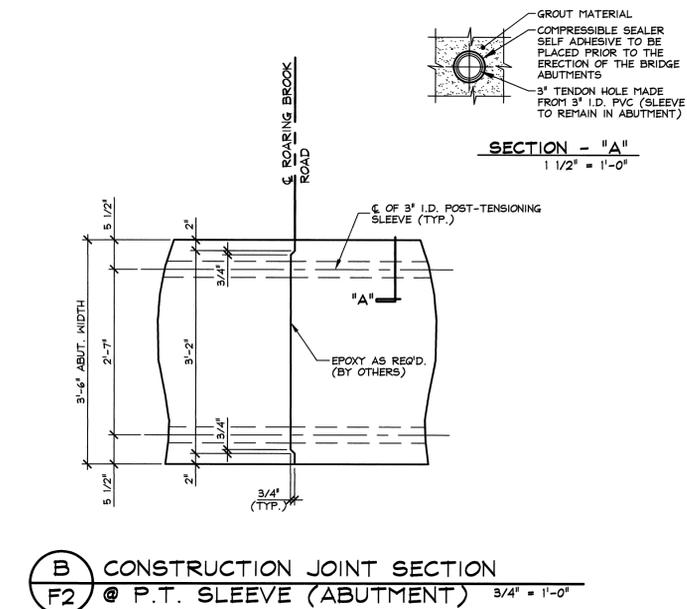
APPROVAL STAMP:	J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer <small>2464 CASE ST., MIDDLEBURY, VERMONT 05753 Phone: (802)388-6361 Fax: (802)388-9010</small>		J.P. Sicard CONTRACTOR BARTON, VERMONT	
	STATE OF VERMONT AGENCY OF TRANSPORTATION COUNTY OF ORLEANS		DATE: FEB. 25, 2015	SCALE: NOTED
	TOWN OF BARTON ROARING BROOK ROAD TH #2, RURAL MINOR COLLECTOR BRIDGE NO.: 8 PROJECT NO.: BRO 1449(31)		CHKD:	DFTM: T.D.
	PRECAST ABUTMENT LAYOUT		JOB NO: 23462-015	DWG. NO: F1



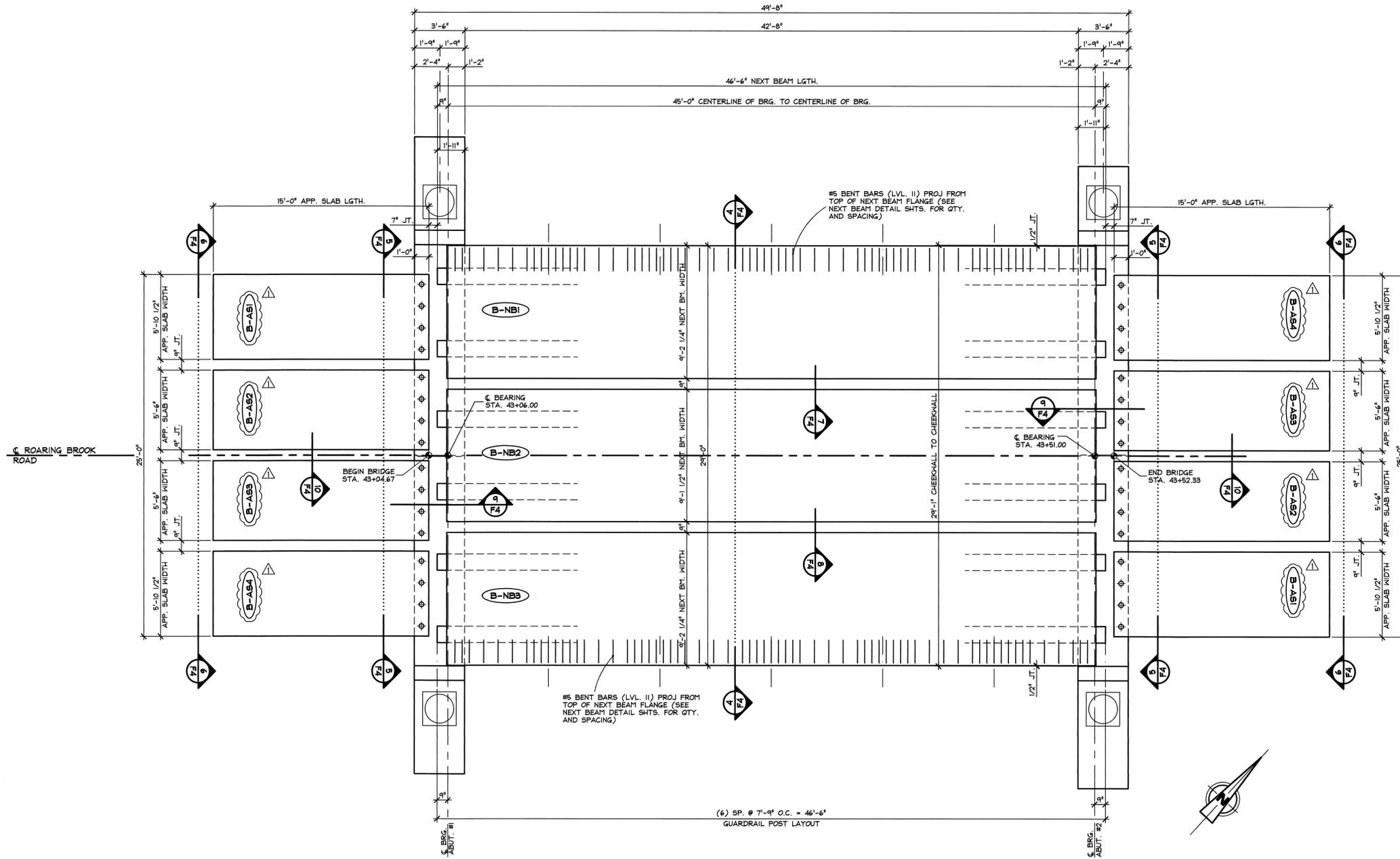
2 PRECAST ABUTMENT #1 ELEVATION
F2 1/4" = 1'-0"



3 PRECAST ABUTMENT #2 ELEVATION
F2 1/4" = 1'-0"



APPROVAL STAMP:	J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer 2464 OISE ST., MIDDLEBURY, VERMONT 05753 Phone: (802)388-6361 Fax: (802)388-9010		J.P. Sicard CONTRACTOR BARTON, VERMONT
	STATE OF VERMONT AGENCY OF TRANSPORTATION COUNTY OF ORLEANS		DATE: FEB. 25, 2015
	TOWN OF BARTON ROARING BROOK ROAD TH #2, RURAL MINOR COLLECTOR BRIDGE NO.: 8 PROJECT NO.: BRO 1449(31)		SCALE: NOTED
	PRECAST ABUTMENT ELEVATIONS & DETAILS		CHKD: DFTM: T.D. JOB NO: 23462-015
			DWG. NO: F2

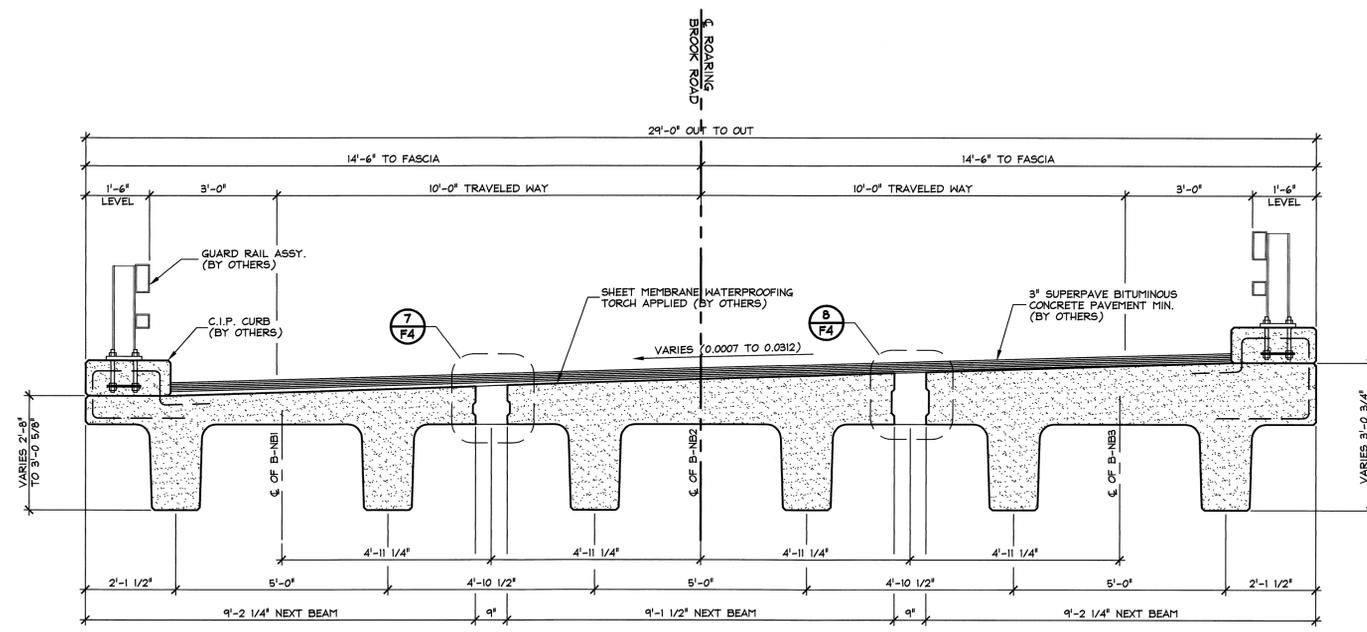


1 PRESTRESSED NEXT BEAM & APPROACH SLAB LAYOUT
 F3 1/4" = 1'-0"

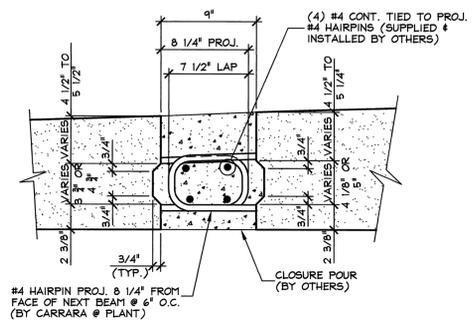
5/28/2015 REVISED AS NOTED T.D.

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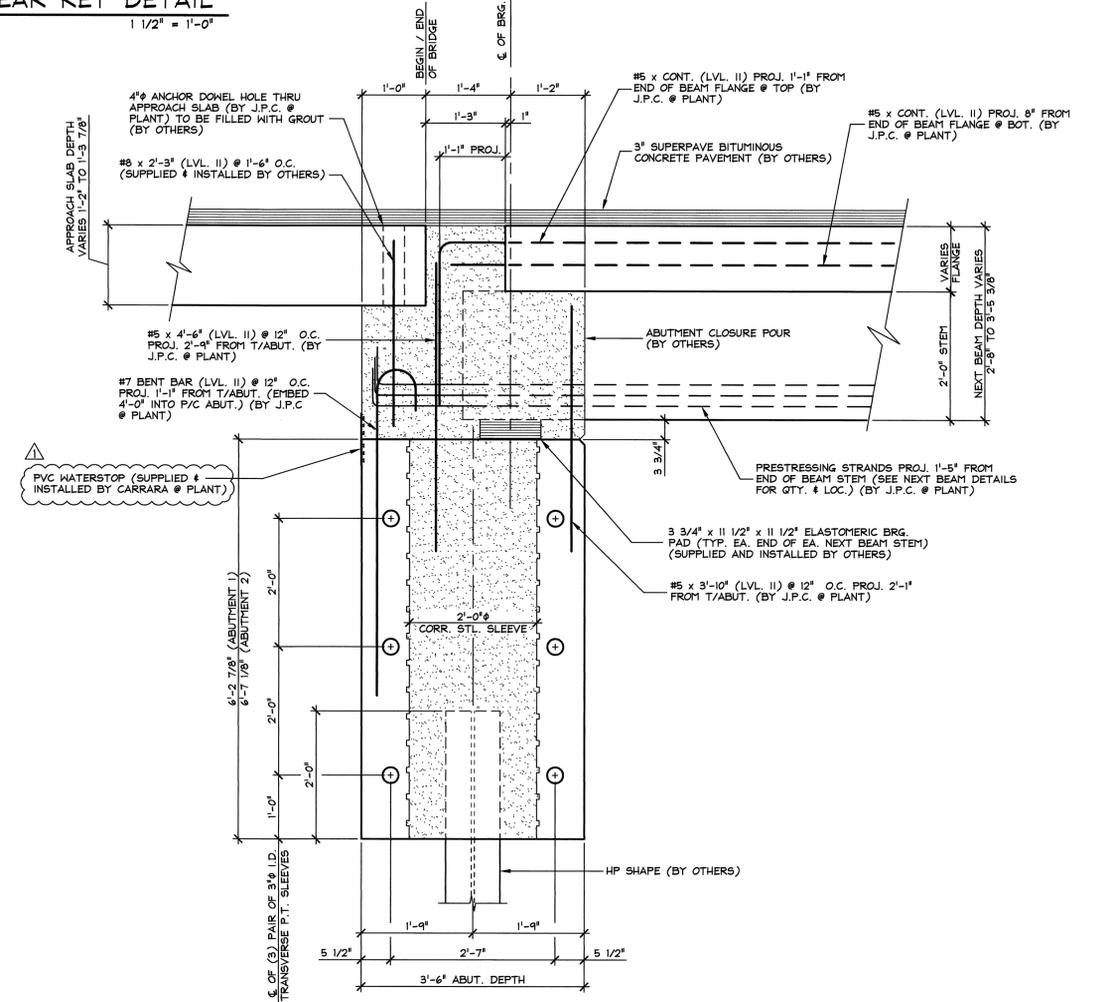
J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer 244 GSE STR., MIDDLEBURY, VERMONT 05753 Phone: (802)388-6361 Fax: (802)388-9010		J.P. Sicard CONTRACTOR BARTON, VERMONT	
STATE OF VERMONT AGENCY OF TRANSPORTATION COUNTY OF ORLEANS		DATE: FEB. 25, 2015	
TOWN OF BARTON ROARING BROOK ROAD TH #2, RURAL MINOR COLLECTOR BRIDGE NO.: 8 PROJECT NO.: BRO 1449(31)		SCALE: NOTED	CHKD: DFTM: T.D.
PRECAST NEXT BEAM & APPROACH SLAB LAYOUT		JOB NO: 23462-015	DWG. NO: F3



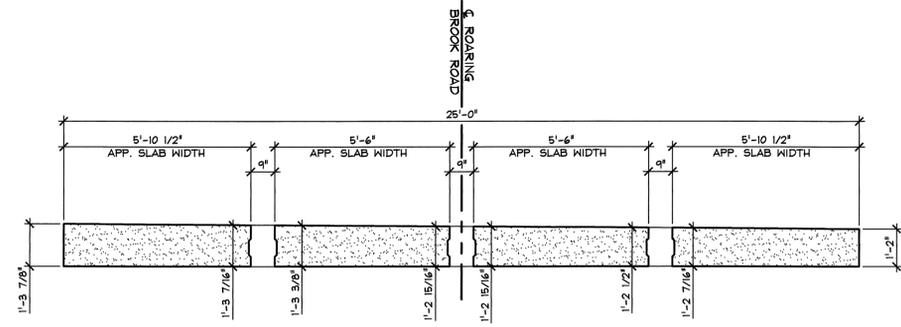
4 TRANSVERSE SECTION THRU NEXT BEAMS
F4 1/2" = 1'-0"



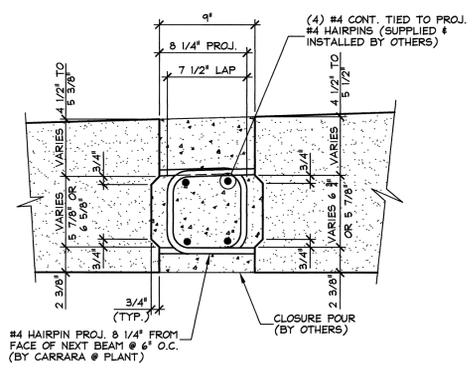
7 SHEAR KEY DETAIL
F4 1 1/2" = 1'-0"



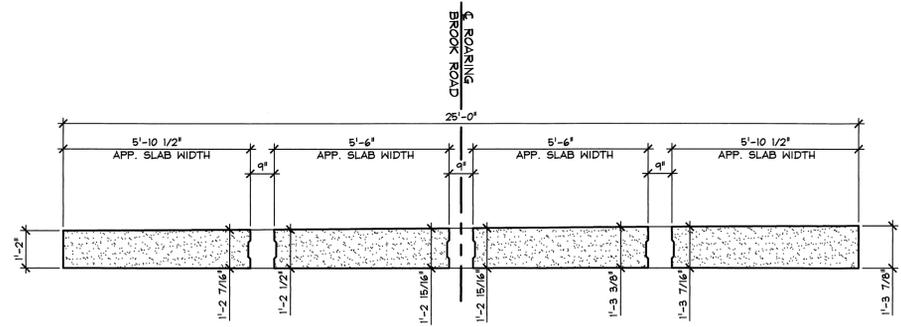
9 ABUTMENT SECTION
F4 3/4" = 1'-0"



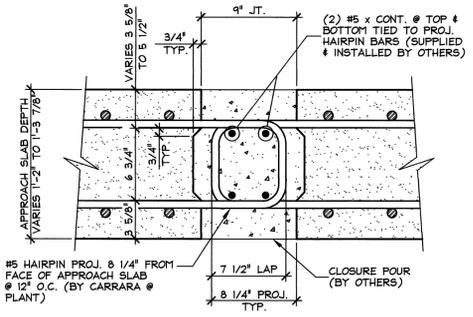
5 SECTION AT APPROACH SLABS
F4 (ABUT. #1 & ABUT. #2) 3/8" = 1'-0"



8 SHEAR KEY DETAIL
F4 1 1/2" = 1'-0"



6 SECTION AT APPROACH SLABS
F4 (ABUT. #1 & ABUT. #2) 3/8" = 1'-0"

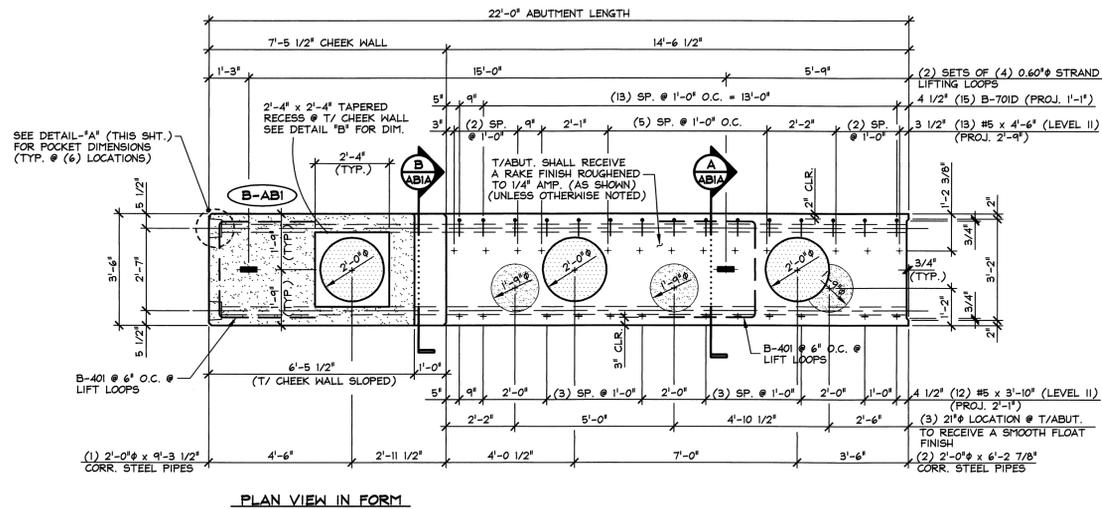


10 APPROACH SLAB CLOSURE POUR
F4 1 1/2" = 1'-0"

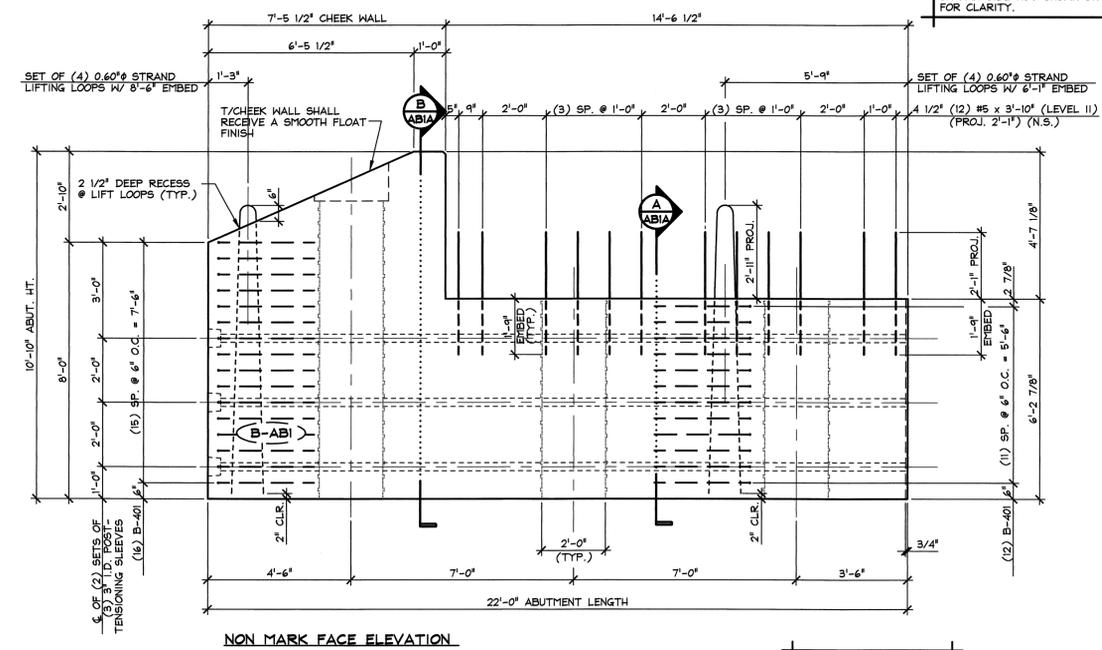
5/28/2015 REVISED AS NOTED T.D.

APPROVAL STAMP:

J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer 2444 OSE STR., MIDDLEBURY, VERMONT 05753 Phone: (802)388-6361 Fax: (802)388-9010		J.P. Sicard CONTRACTOR BARTON, VERMONT	
STATE OF VERMONT AGENCY OF TRANSPORTATION COUNTY OF ORLEANS		DATE: FEB. 25, 2015	
TOWN OF BARTON ROARING BROOK ROAD TH #2, RURAL MINOR COLLECTOR BRIDGE NO.: 8 PROJECT NO.: BRO 1449(31)		SCALE: NOTED	CHKD: DFTM: T.D.
SECTIONS AND DETAILS		JOB NO: 23462-015	DWG. NO: F4



PLAN VIEW IN FORM

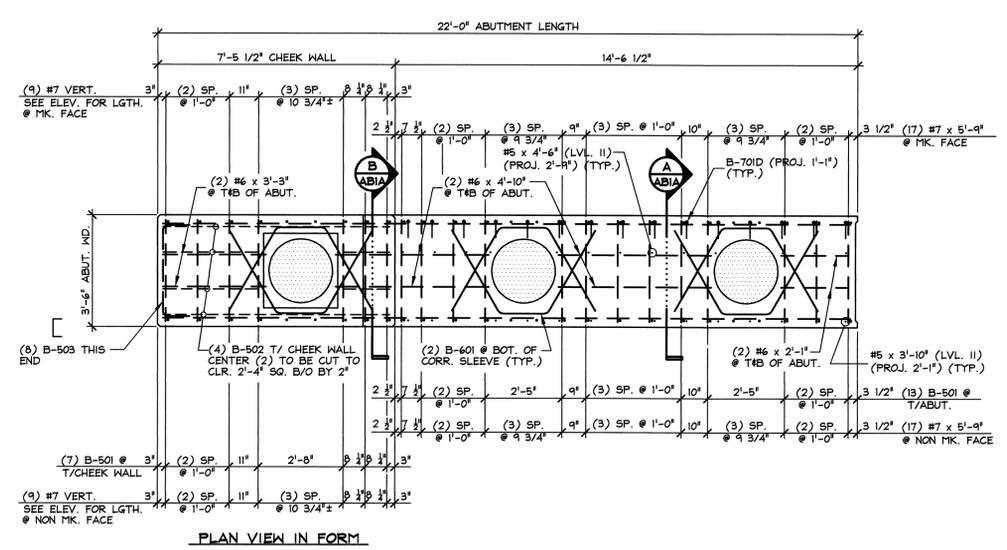


NON MARK FACE ELEVATION

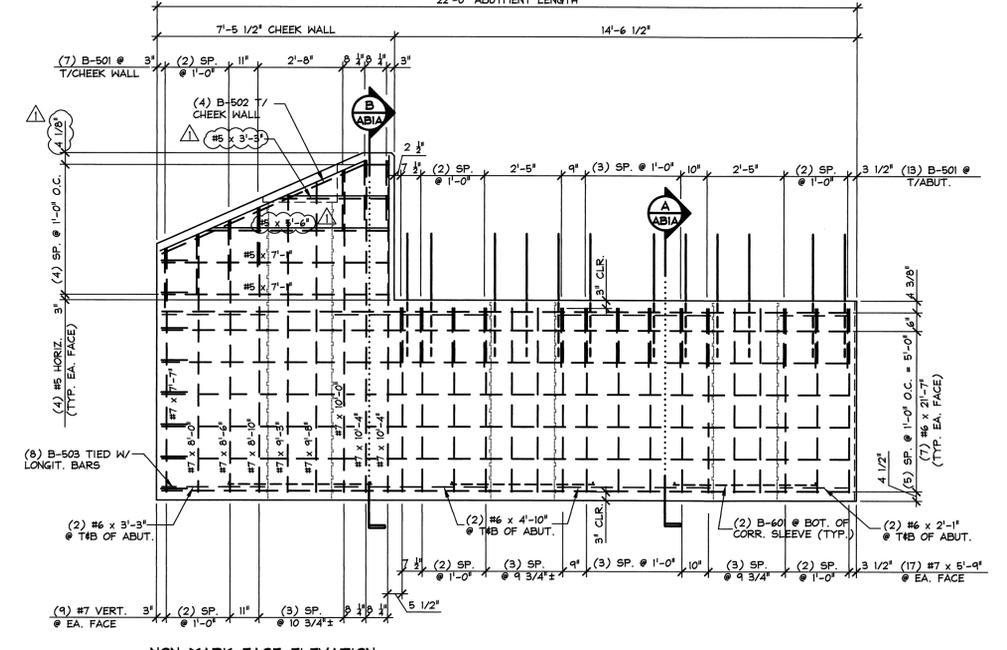
1 ABUTMENT DIMENSIONAL DETAILS
3/8" = 1'-0"

SHOP NOTE:
28 DAYS = 5,000 PSI
RELEASE = 5,000 PSI

MIX DESIGN:
MIX NO. 425M-NO DCI
APPROVED 3-21-2015

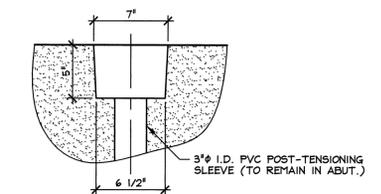


PLAN VIEW IN FORM

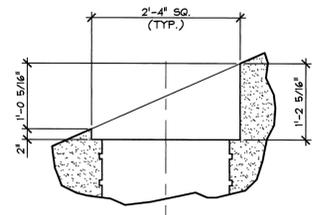


NON MARK FACE ELEVATION

2 ABUTMENT REINFORCING DETAILS
3/8" = 1'-0"



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



DETAIL - "B"
3/4" = 1'-0"

SHOP NOTE:
ALL EDGES OF ABUTMENT SHALL RECEIVE A 1" CHAMFER (U.N.O.)

MARK: B-ABI QTY.: 1 WT.: 37.33 T VOL.: 18.21 cy

MATERIAL LIST / ABUTMENT			
ITEM	MARK	DESCRIPTION	QTY.
1	B-401	#4 BENT BAR (LEVEL 1)	28
2	B-501	#5 BENT BAR (LEVEL 1)	20
3	B-502	#5 BENT BAR (LEVEL 1)	4
4	B-503	#5 BENT BAR (LEVEL 1)	8
5	B-601	#6 BENT BAR (LEVEL 1)	6
6	B-701D	#5 BENT BAR (LEVEL II, DUAL COATED)	15
7		#5 x 3'-10" (LEVEL II, DUAL COATED)	12
8		#5 x 4'-6" (LEVEL II, DUAL COATED)	13
9		#5 x 3'-3" (LEVEL I) ⚠	2
10		#5 x 5'-6" (LEVEL I) ⚠	2
11		#5 x 7'-1" (LEVEL I)	4
12		#6 x 2'-1" (LEVEL I)	4
13		#6 x 3'-3" (LEVEL I)	4
14		#6 x 4'-10" (LEVEL I)	8
15		#6 x 2'-7" (LEVEL I)	14
16		#7 x 5'-4" (LEVEL I)	34
17		#7 x 7'-7" (LEVEL I)	2
18		#7 x 8'-0" (LEVEL I)	2
19		#7 x 8'-6" (LEVEL I)	2
20		#7 x 8'-10" (LEVEL I)	2
21		#7 x 10'-0" (LEVEL I)	2
22		#7 x 10'-4" (LEVEL I)	4
23		#7 x 9'-3" (LEVEL I)	2
24		#7 x 9'-8" (LEVEL I)	2
25		SET OF (4) 0.60" STRAND LIFTING LOOPS	2
26		2'-0" x 6'-2 7/8" CORRUGATED STEEL PIPE (GALV.)	2
27		2'-0" x 9'-3 1/2" CORRUGATED STEEL PIPE (GALV.)	1

5/28/2015 REVISED AS NOTED T.D.

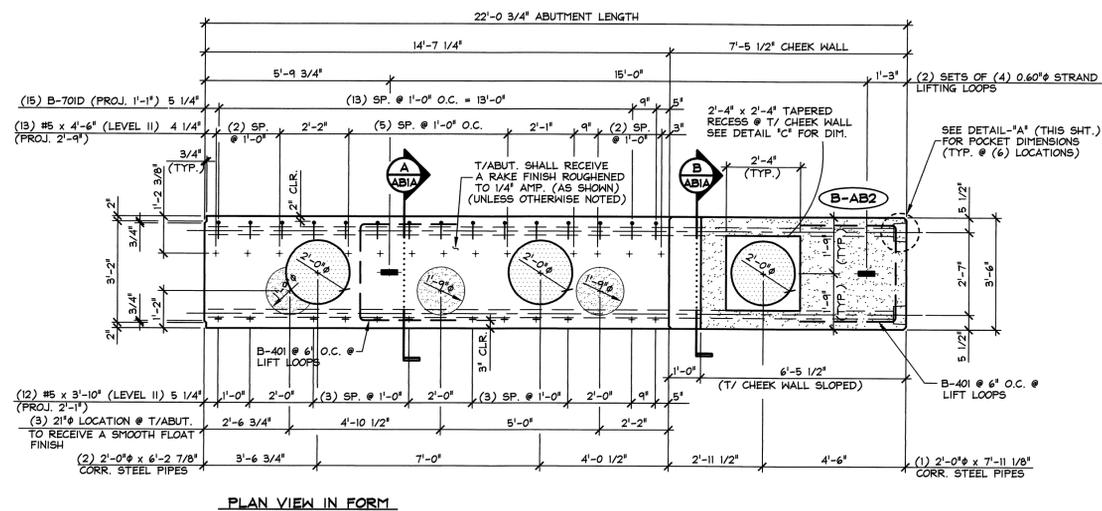
APPROVAL STAMP:

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

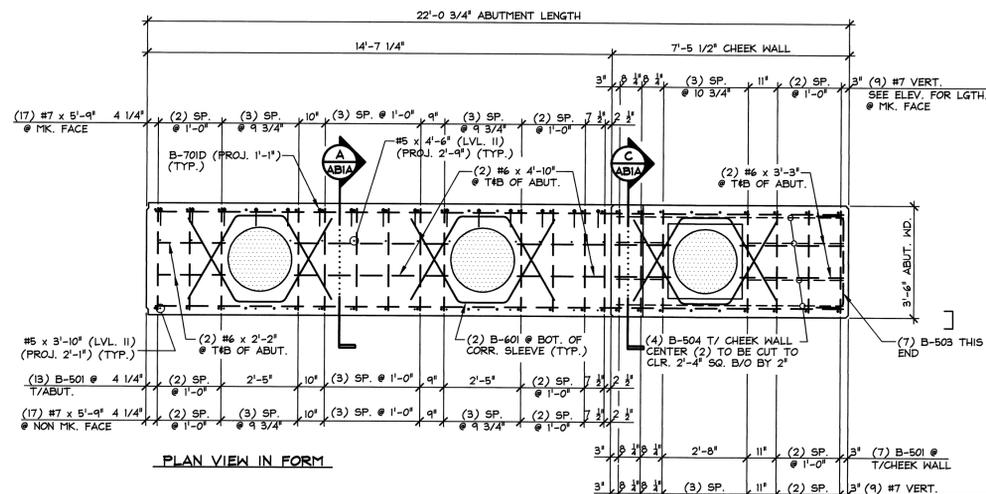
STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF ORLEANS

TOWN OF BARTON
ROARING BROOK ROAD TH #2, RURAL MINOR COLLECTOR
BRIDGE NO.: 8 PROJECT NO.: BRO 1449(31)

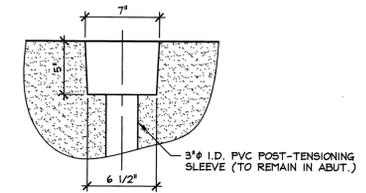
DATE: FEB. 25, 2015
SCALE: NOTED
CHKD: DFTM: T.D.
JOB NO: 23462-015
DWG. NO: **ABI**



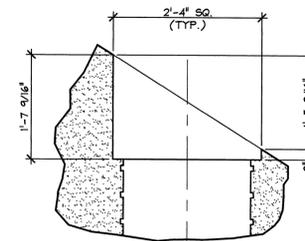
PLAN VIEW IN FORM



PLAN VIEW IN FORM

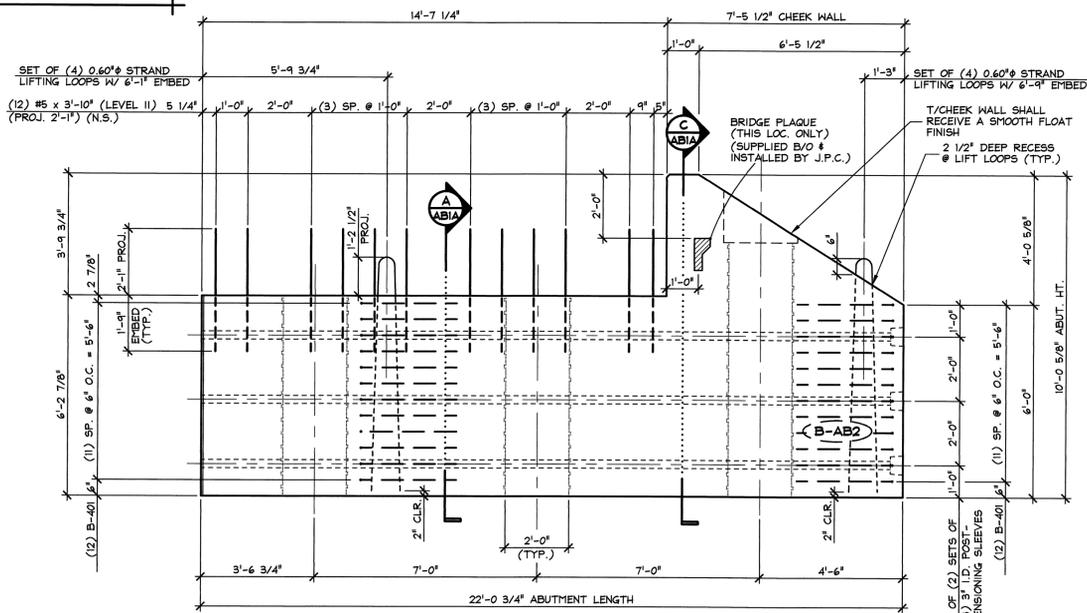


DETAIL - "A"
1 1/2" = 1'-0"

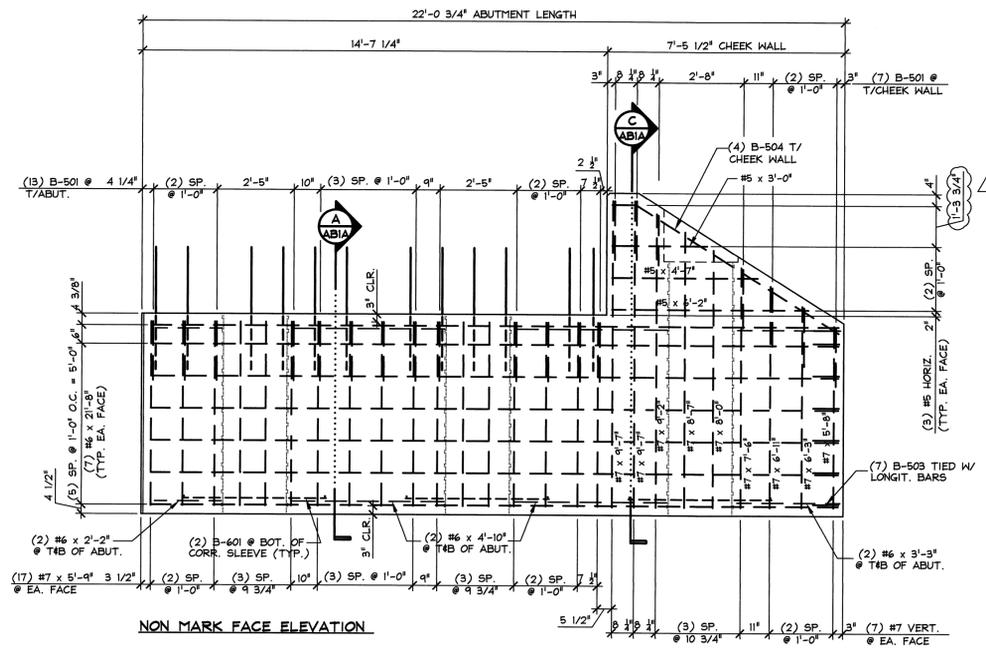


DETAIL - "C"
3/4" = 1'-0"

SHOP NOTE: B-70ID & #5 PROJ. 2'-9" ON FAR SIDE NOT SHOWN ON THIS VIEW FOR CLARITY.



NON MARK FACE ELEVATION



NON MARK FACE ELEVATION

SHOP NOTE:
ALL EDGES OF ABUTMENT SHALL RECEIVE A 1" CHAMFER (U.N.O.)

MATERIAL LIST / ABUTMENT			
ITEM	MARK	DESCRIPTION	QTY.
1	B-401	#4 BENT BAR (LEVEL 1)	24
2	B-501	#5 BENT BAR (LEVEL 1)	20
3	B-504	#5 BENT BAR (LEVEL 1)	4
4	B-503	#5 BENT BAR (LEVEL 1)	7
5	B-601	#6 BENT BAR (LEVEL 1)	6
6	B-70ID	#5 BENT BAR (LEVEL II, DUAL COATED)	15
7		#5 x 3'-10" (LEVEL II, DUAL COATED)	12
8		#5 x 4'-6" (LEVEL II, DUAL COATED)	13
9		#5 x 3'-0" (LEVEL I)	2
10		#5 x 4'-7" (LEVEL I)	2
11		#5 x 6'-2" (LEVEL I)	2
12		#6 x 2'-2" (LEVEL I)	4
13		#6 x 3'-3" (LEVEL I)	4
14		#6 x 4'-10" (LEVEL I)	8
15		#6 x 2'-8" (LEVEL I)	14
16		#7 x 5'-9" (LEVEL I)	34
17		#7 x 5'-8" (LEVEL I)	2
18		#7 x 6'-3" (LEVEL I)	2
19		#7 x 6'-11" (LEVEL I)	2
20		#7 x 7'-6" (LEVEL I)	2
21		#7 x 9'-2" (LEVEL I)	2
22		#7 x 9'-7" (LEVEL I)	4
23		#7 x 8'-7" (LEVEL I)	2
24		#7 x 8'-0" (LEVEL I)	2
25		SET OF (4) 0.60" STRAND LIFTING LOOPS	2
26		2'-0" x 6'-2 7/8" CORRUGATED STEEL PIPE (GALV.)	2
27		2'-0" x 7'-11 1/8" CORRUGATED STEEL PIPE (GALV.)	1

1 ABUTMENT DIMENSIONAL DETAILS
3/8" = 1'-0"

SHOP NOTE:
28 DAYS = 5,000 PSI
RELEASE = 5,000 PSI

MIX DESIGN:
MIX NO. 425M-NO DCI
APPROVED 3-21-2015

2 ABUTMENT REINFORCING DETAILS
3/8" = 1'-0"

5/28/2015 REVISED AS NOTED T.D.

APPROVAL STAMP:

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2444 OASE STR., MOULDERBURY, VERMONT 05753 Phone: (802)388-6361 Fax: (802)388-9010

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF ORLEANS

DATE: FEB. 25, 2015

SCALE: NOTED

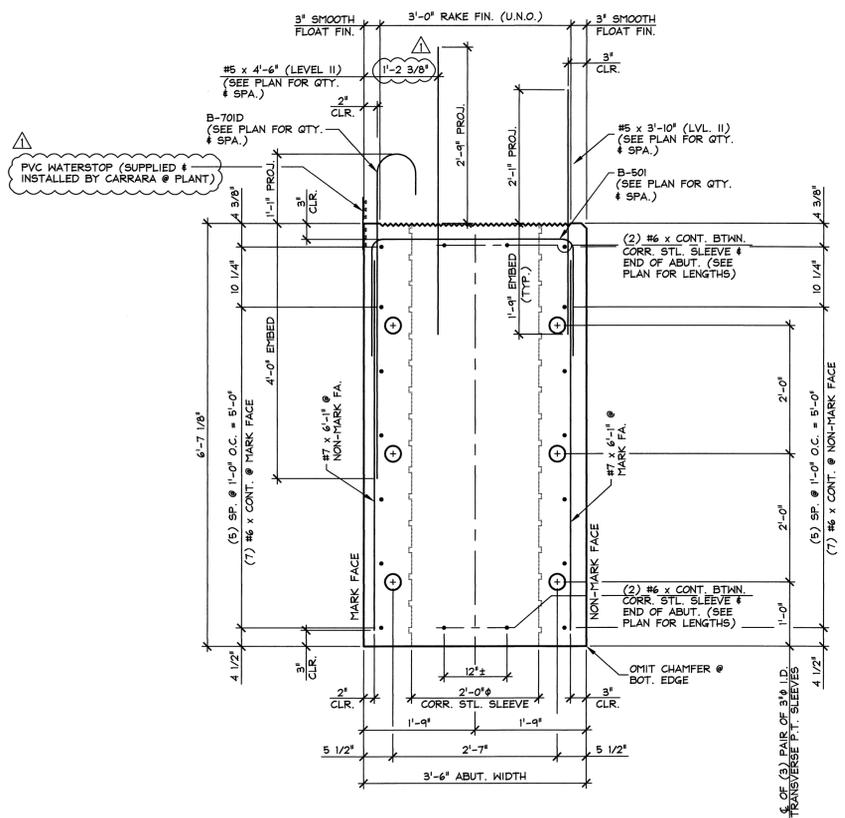
TOWN OF BARTON
ROARING BROOK ROAD TH #2, RURAL MINOR COLLECTOR
BRIDGE NO.: 8 PROJECT NO.: BRO 1449(31)

CHKD: DFTM: T.D.

JOB NO: 23462-015

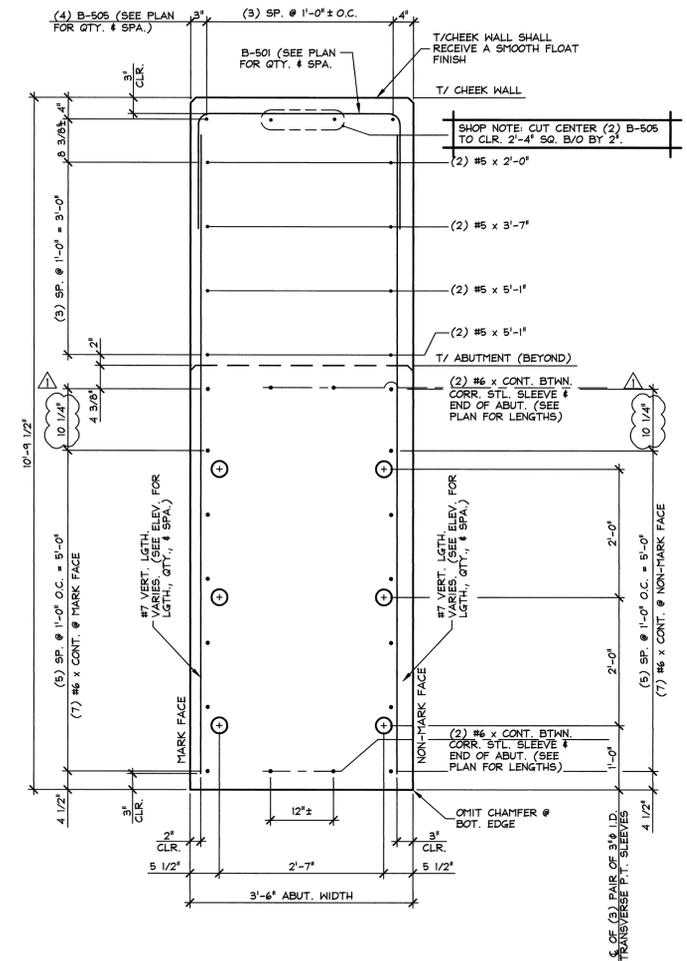
PRECAST ABUTMENT DETAILS

DWG. NO: AB2



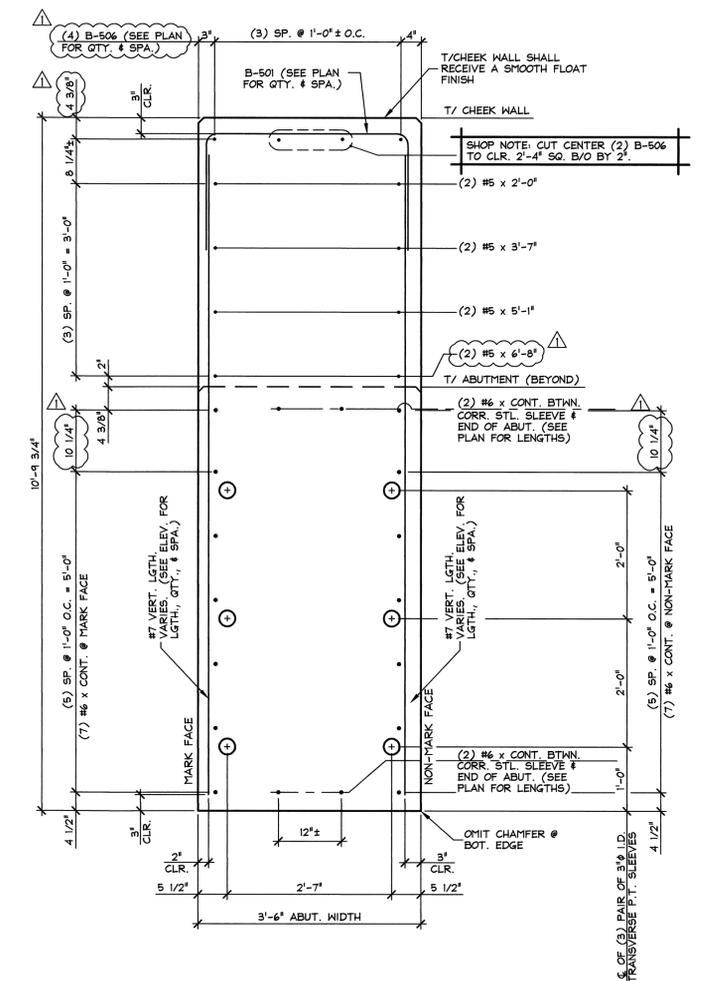
A ABUTMENT SECTION
 AB3A (B-AB3 & B-AB4) 3/4" = 1'-0"

SHOP NOTE:
 ALL EDGES OF ABUTMENT SHALL
 RECEIVE A 1" CHAMFER (U.N.O.)



B ABUTMENT SECTION
 AB3A (B-AB3) 3/4" = 1'-0"

SHOP NOTE:
 ALL EDGES OF ABUTMENT SHALL
 RECEIVE A 1" CHAMFER (U.N.O.)

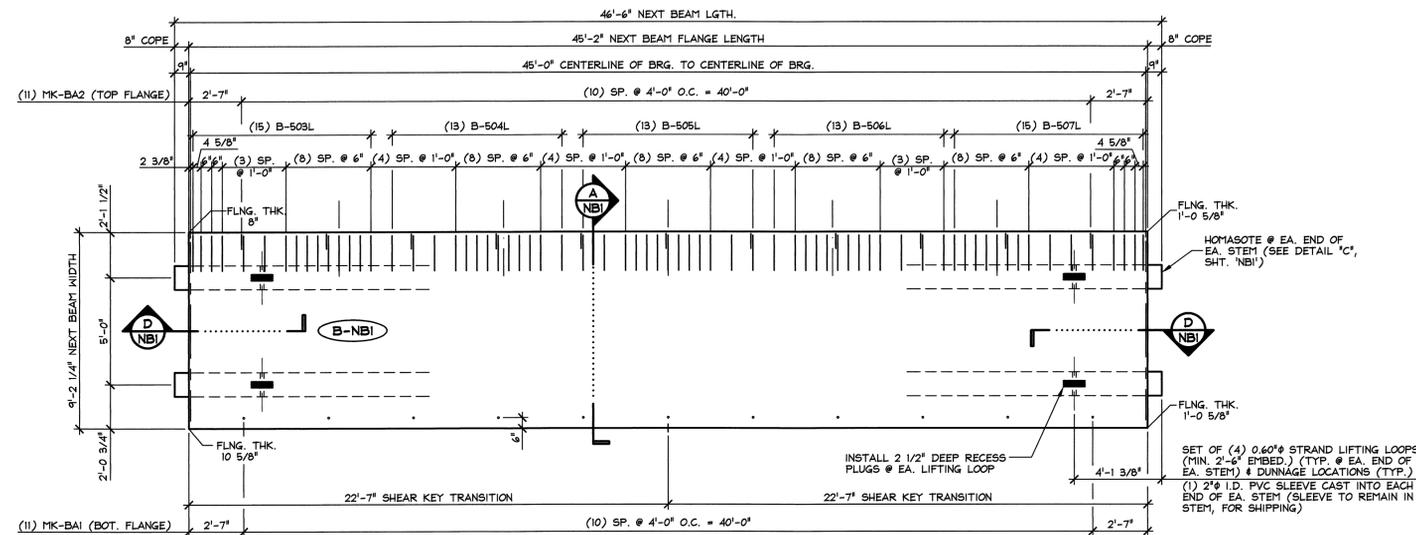


C ABUTMENT SECTION
 AB3A (B-AB4) 3/4" = 1'-0"

SHOP NOTE:
 ALL EDGES OF ABUTMENT SHALL
 RECEIVE A 1" CHAMFER (U.N.O.)

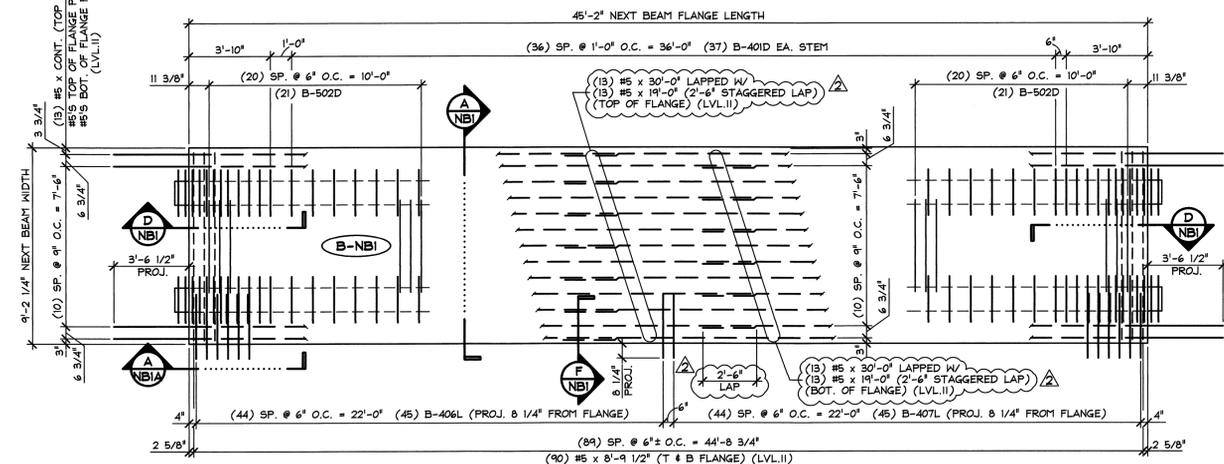
5/28/2015 REVISED AS NOTED T.D.

APPROVAL STAMP:	J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer <small>244 CASE ST., MIDDLEBURY, VERMONT 05753 Phone: (802)388-6361 Fax: (802)388-9010</small>	
	STATE OF VERMONT AGENCY OF TRANSPORTATION COUNTY OF ORLEANS	DATE: FEB. 25, 2015
	TOWN OF BARTON ROARING BROOK ROAD TH #2, RURAL MINOR COLLECTOR BRIDGE NO.: 8 PROJECT NO.: BRO 1449(31)	SCALE: NOTED CHKD: DFTM: T.D. JOB NO: 23462-015
	PRECAST ABUTMENT SECTIONS	DWG. NO: AB3A

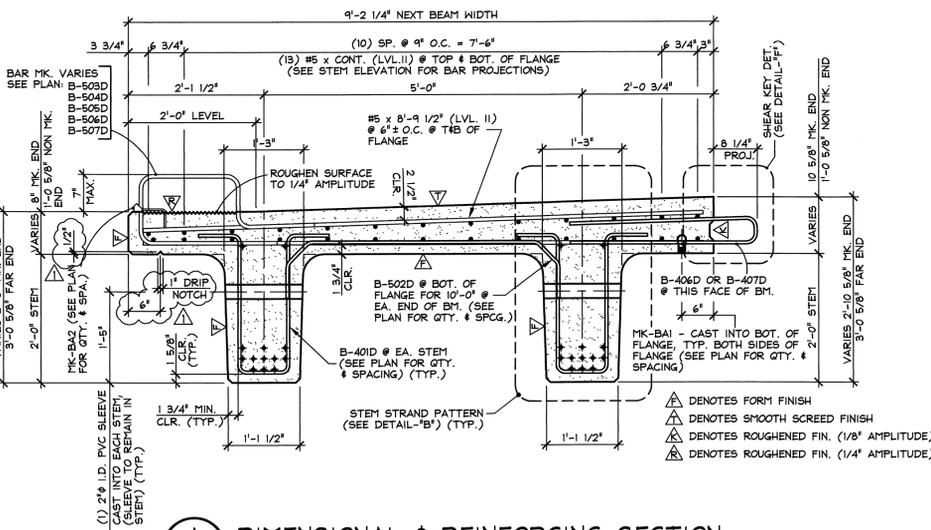


1 DIMENSIONAL PLAN VIEW IN FORM
NBI
1/4" = 1'-0"

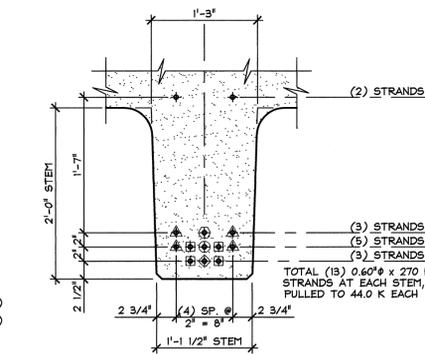
SHOP NOTE: SEE DWG. NBI-A FOR SHEAR KEY ELEVATIONS



2 REINFORCING PLAN VIEW IN FORM
NBI
1/4" = 1'-0"

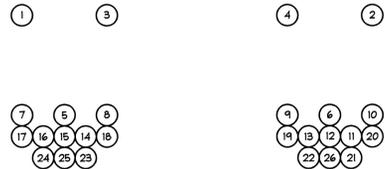


A DIMENSIONAL & REINFORCING SECTION
NBI
3/4" = 1'-0"



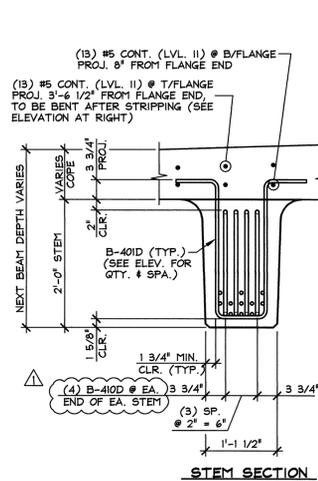
B STEM STRAND PATTERN
NBI
1" = 1'-0"

DETENSIONING SCHEDULE
N.T.S.

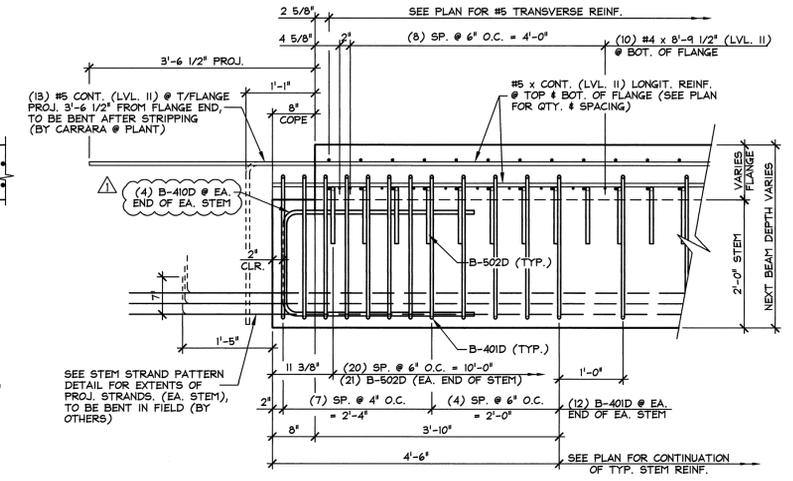


PRESTRESSING NOTATIONS

- ▲ DENOTES STRAIGHT STRANDS TO BE DEBONDED 6" FROM EA. END OF EA. STEM
- ⊕ DENOTES FULLY BONDED STRAIGHT STRANDS EXTENDED 2'-0" FROM EA. END OF EA. STEM
- ⊙ DENOTES STRAIGHT STRANDS TO BE DEBONDED 8'-0" FROM EA. END OF EA. STEM
- ⊖ DENOTES STRAIGHT STRANDS TO BE DEBONDED 4'-0" FROM EA. END OF EA. STEM
- ⊕ DENOTES FULLY BONDED STRAIGHT STRANDS TO BE CUT FLUSH W/ EA. END OF EA. STEM



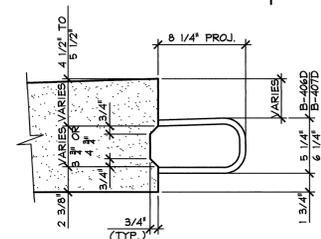
STEM SECTION



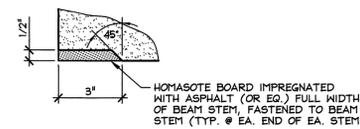
STEM ELEVATION ALONG C-C OF STEM

D END BLOCK STEM REINFORCING DETAILS
NBI
3/4" = 1'-0"

SHOP NOTE: SEE SHEAR KEY ELEVATION SHT. NBI-A FOR FURTHER DIMENSIONS & BENT BAR LAYOUT



F SHEAR KEY DETAIL
NBI
1 1/2" = 1'-0"



C HOMASOTE DETAIL
NBI
3" = 1'-0"

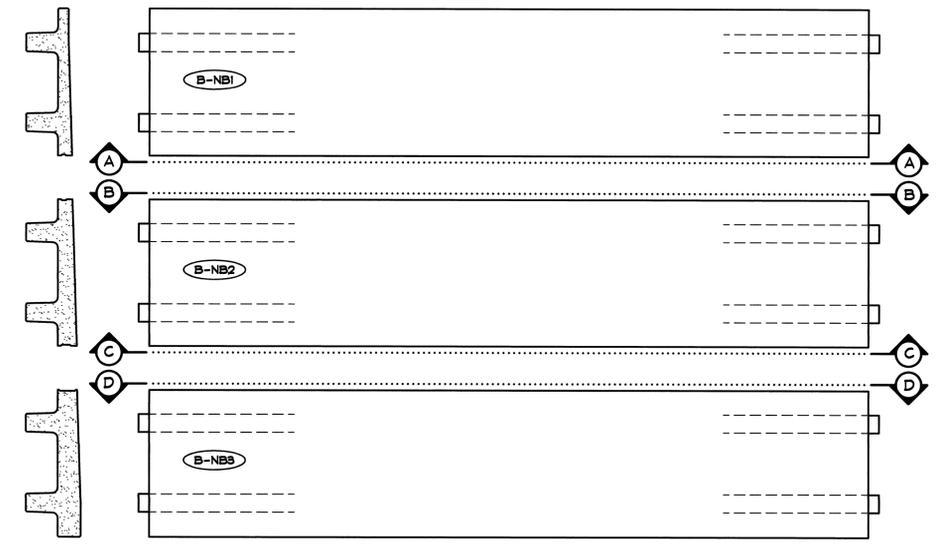
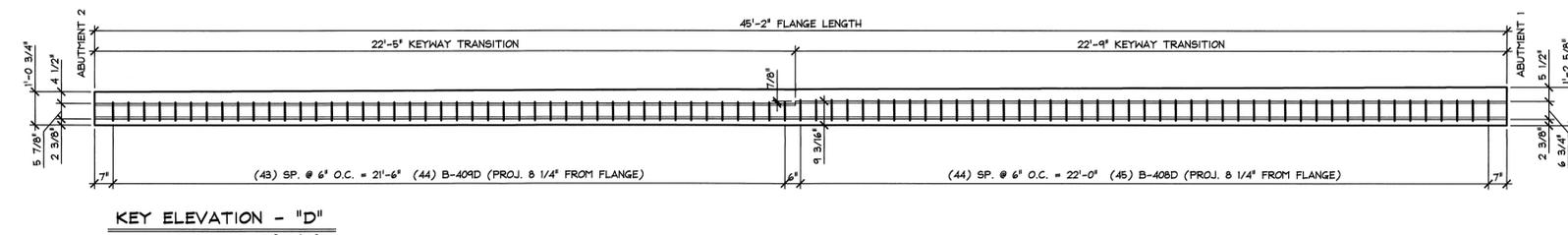
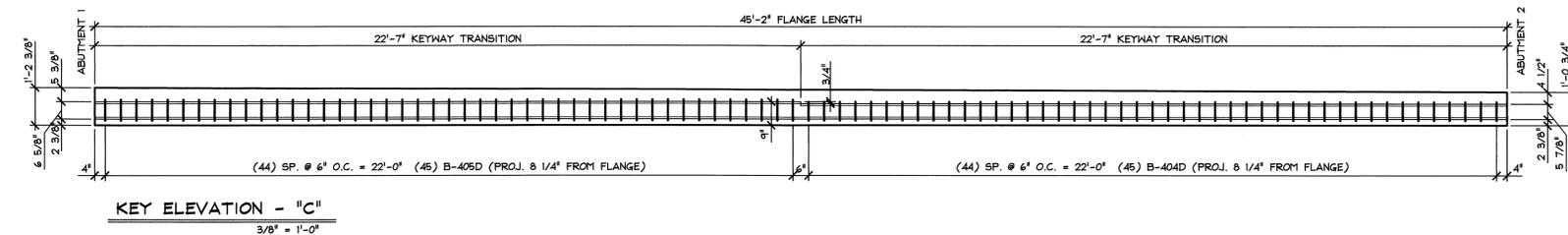
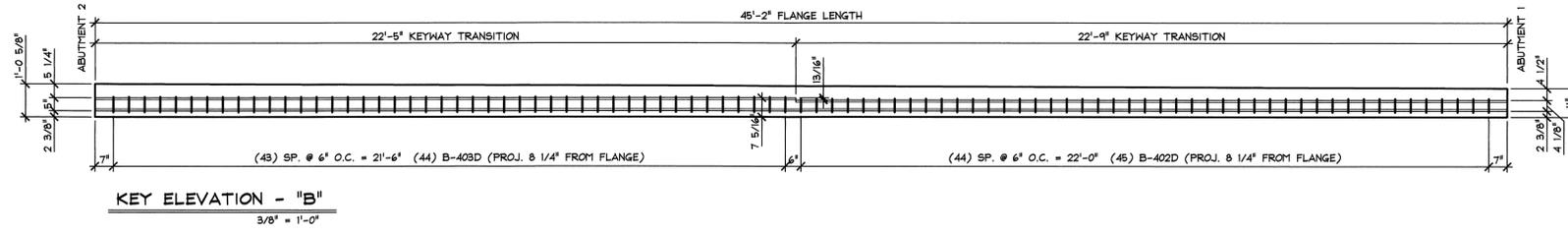
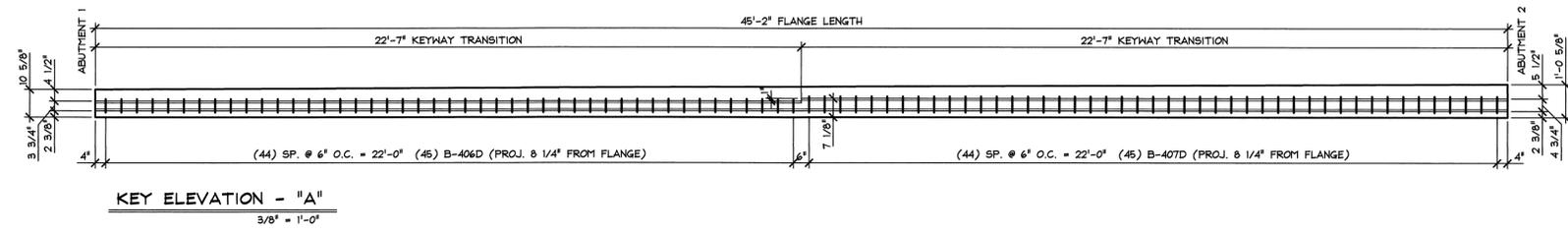
APPROVAL STAMP:

6/9/2015 REVISED AS NOTED T.D.
5/28/2015 REVISED AS NOTED T.D.

J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer 244 ONE STR. MIDDLEBURY, VERMONT 05753 Phone: (802)388-6361 Fax: (802)388-9010		J.P. Sicard CONTRACTOR BARTON, VERMONT	
STATE OF VERMONT AGENCY OF TRANSPORTATION COUNTY OF ORLEANS		DATE: FEB. 25, 2015	
TOWN OF BARTON ROARING BROOK ROAD TH #2, RURAL MINOR COLLECTOR BRIDGE NO.: 8 PROJECT NO.: BRO 1449(31)		SCALE: NOTED	
PRESTRESSED NEXT BEAM DETAILS		CHKD: - DFTM: T.D. JOB NO: 23462-015	
		DWG. NO: NBI	

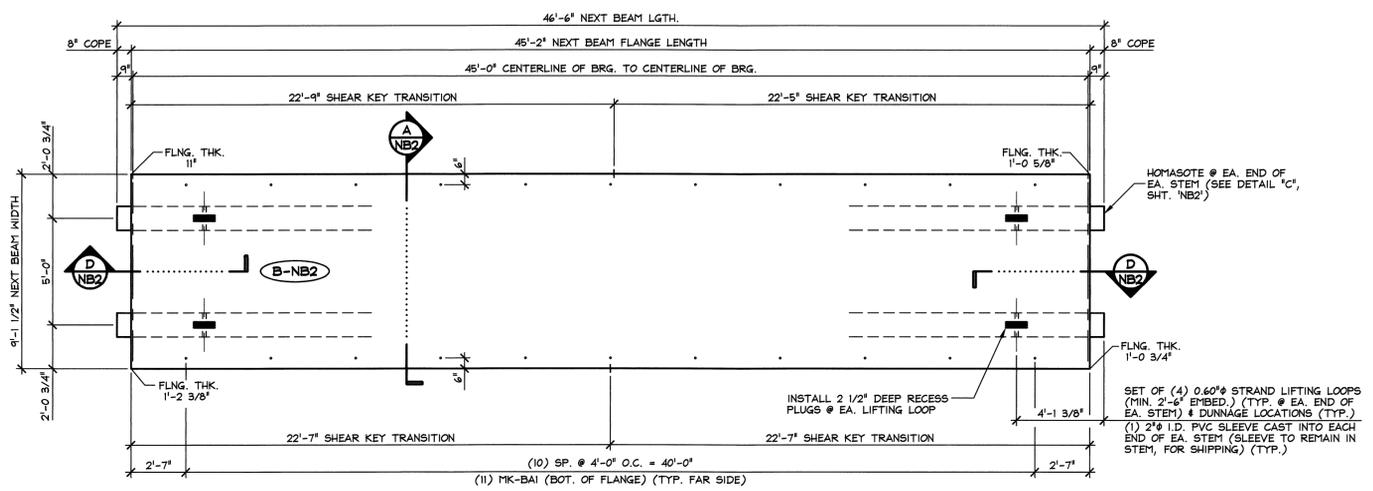
MARK: B-NBI QTY.: 1 WT.: 44.87 T VOL.: 22.15 cy

MATERIAL LIST / NEXT BEAM			
ITEM	MARK	DESCRIPTION	QTY.
1	MK-BA1	3/4" F42 FERRULE INSERT (GALV.)	11
2	MK-BA2	DAYTON C-24 TYPE 4-APR DECK FORM HANGER (GALV.)	11
3			
4	B-40ID	#4 BENT BAR (LEVEL II, DUAL COATED)	122
5	B-406D	#4 BENT BAR (LEVEL II, DUAL COATED)	45
6	B-407D	#4 BENT BAR (LEVEL II, DUAL COATED)	45
7	B-40D	#4 BENT BAR (LEVEL II, DUAL COATED)	16
8	B-502D	#5 BENT BAR (LEVEL II, DUAL COATED)	42
9	B-503D	#5 BENT BAR (LEVEL II, DUAL COATED)	15
10	B-504D	#5 BENT BAR (LEVEL II, DUAL COATED)	13
11	B-505D	#5 BENT BAR (LEVEL II, DUAL COATED)	13
12	B-506D	#5 BENT BAR (LEVEL II, DUAL COATED)	13
13	B-507D	#5 BENT BAR (LEVEL II, DUAL COATED)	15
14		#4 x 8'-9 1/2" (LEVEL II, DUAL COATED)	20
15		#5 x 8'-9 1/2" (LEVEL II, DUAL COATED)	180
16		#5 x 40'-0" (LEVEL II, DUAL COATED)	13
17		#5 x 14'-0" (LEVEL II, DUAL COATED)	13
18		#5 x 30'-0" (LEVEL II, DUAL COATED)	13
19		#5 x 19'-0" (LEVEL II, DUAL COATED)	13
20		SET OF (4) 0.60" STRAND LIFTING LOOPS	4



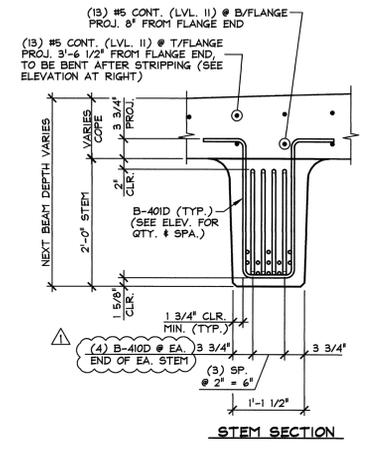
SCHEMATIC PLAN VIEW OF NEXT BEAMS
N.T.S.

APPROVAL STAMP:	J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer <small>244 GLE ST., MIDDLEBURY, VERMONT 05753 Phone: (802)388-6361 Fax: (802)388-9010</small>		J.P. Sicard CONTRACTOR BARTON, VERMONT	
	STATE OF VERMONT AGENCY OF TRANSPORTATION COUNTY OF ORLEANS		DATE: FEB. 25, 2015	
	TOWN OF BARTON ROARING BROOK ROAD TH #2, RURAL MINOR COLLECTOR BRIDGE NO.: 8 PROJECT NO.: BRO 1449(31)		SCALE: NOTED	CHKD: DFTM: T.D.
	SHEAR KEY ELEVATIONS		JOB NO: 23462-015 DWG. NO: NB1A	

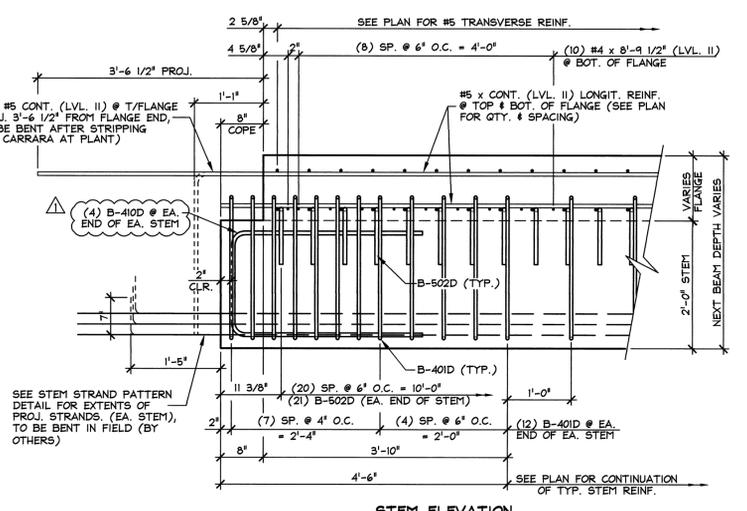


1 DIMENSIONAL PLAN VIEW IN FORM
NB2
1/4" = 1'-0"

SHOP NOTE: SEE DWG. NBIA FOR SHEAR KEY ELEVATIONS

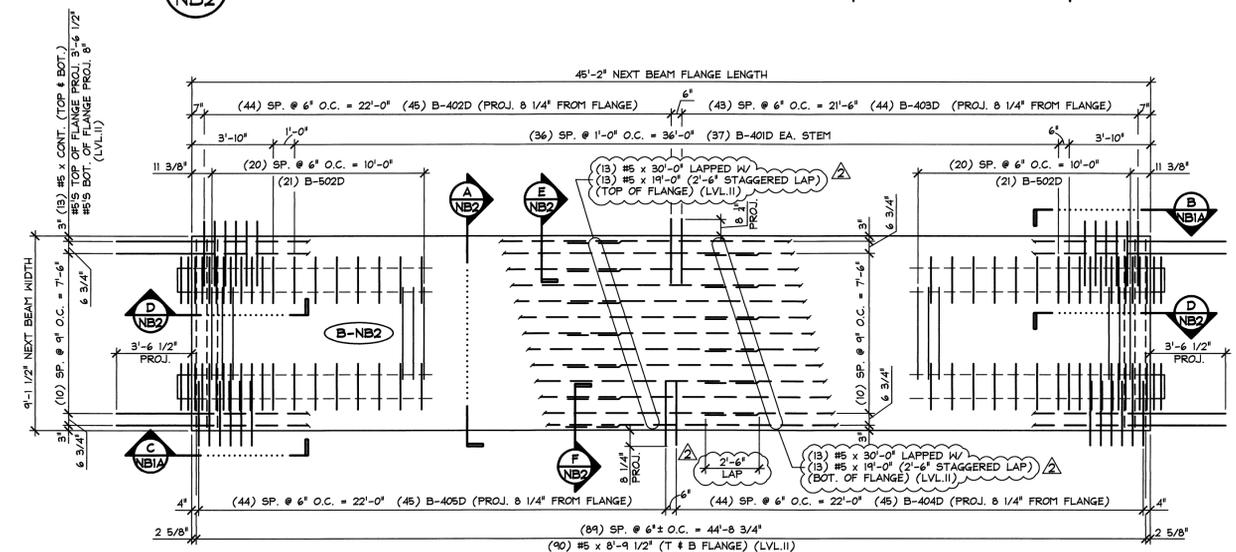


STEM SECTION

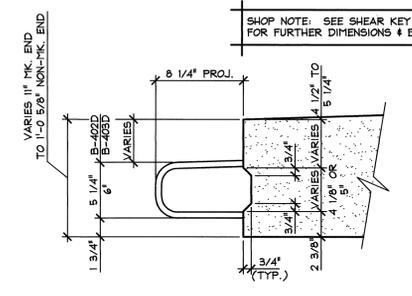


STEM ELEVATION ALONG C OF STEM

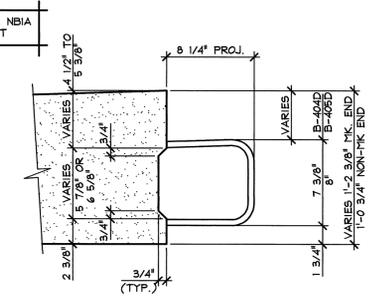
D END BLOCK STEM REINFORCING DETAILS
NB2
3/4" = 1'-0"



2 REINFORCING PLAN VIEW IN FORM
NB2
1/4" = 1'-0"



E SHEAR KEY DETAIL
NB2
1 1/2" = 1'-0"

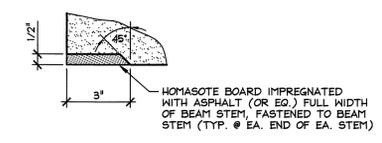


F SHEAR KEY DETAIL
NB2
1 1/2" = 1'-0"

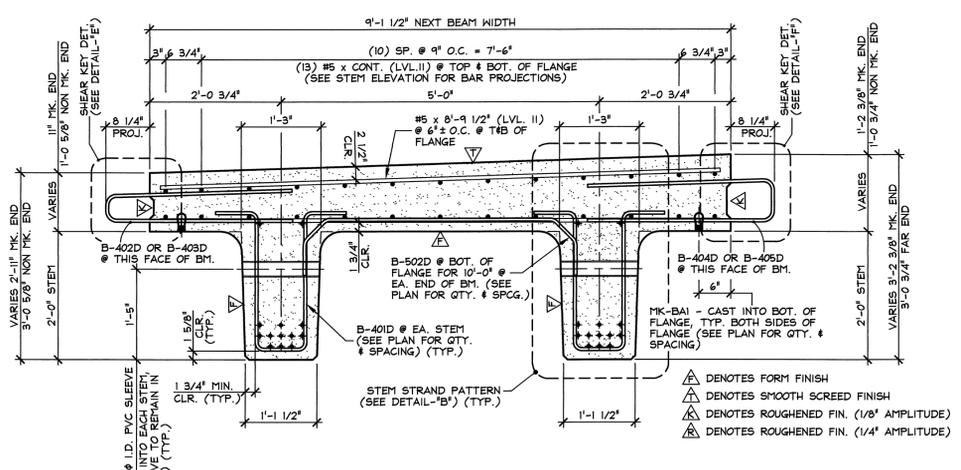
1 3 4 2

7 5 6 9 6 10 19 13 12 11 20 24 25 23 22 26 21

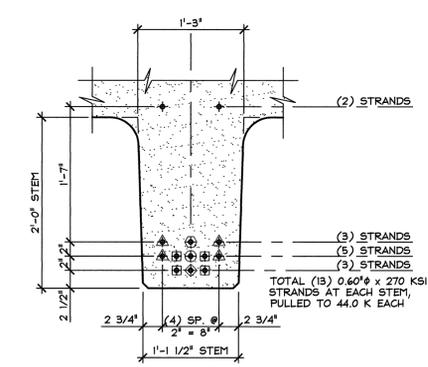
DETENSIONING SCHEDULE
N.T.S.



C HOMASOTE DETAIL
NB2
3" = 1'-0"



A DIMENSIONAL & REINFORCING SECTION
NB2
3/4" = 1'-0"



B STEM STRAND PATTERN
NB2
1" = 1'-0"

- PRESTRESSING NOTATIONS**
- ▲ DENOTES STRAIGHT STRANDS TO BE DEBONDED 6" FROM EA. END OF EA. STEM
 - ◆ DENOTES FULLY BONDED STRAIGHT STRANDS EXTENDED 2'-0" FROM EA. END OF EA. STEM
 - ⊕ DENOTES STRAIGHT STRANDS TO BE DEBONDED 8'-0" FROM EA. END OF EA. STEM
 - ⊖ DENOTES STRAIGHT STRANDS TO BE DEBONDED 4'-0" FROM EA. END OF EA. STEM
 - ⊕ DENOTES STRAIGHT STRANDS TO BE DEBONDED 2'-0" FROM EA. END OF EA. STEM
 - ◆ DENOTES FULLY BONDED STRAIGHT STRANDS TO BE CUT FLUSH W/ EA. END OF EA. STEM

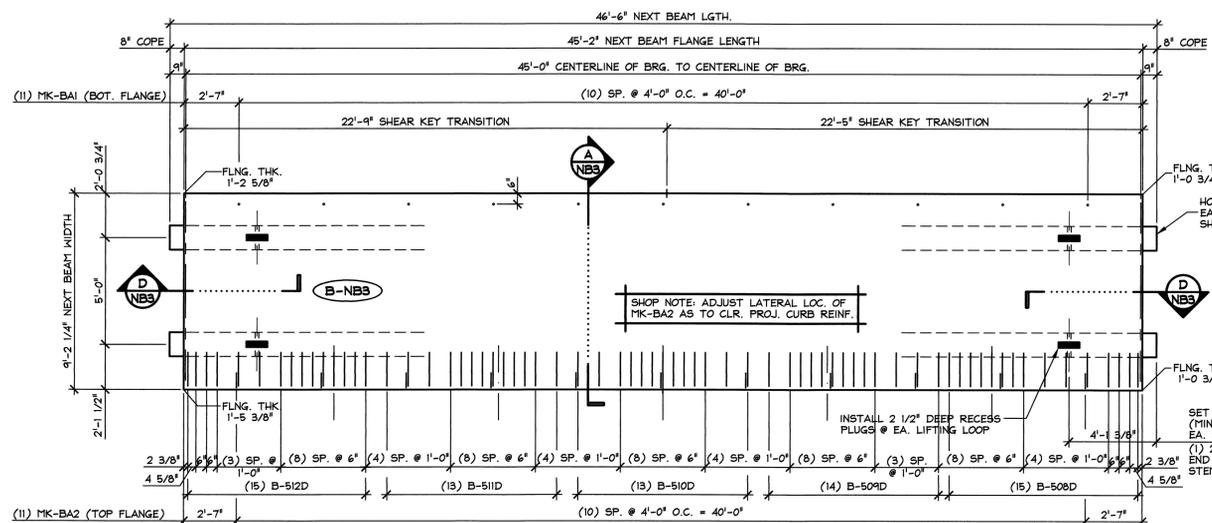
APPROVAL STAMP:

6/9/2015 REVISED AS NOTED T.D.
5/28/2015 REVISED AS NOTED T.D.

J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer 2464 GAGE ST., MIDDLEBURY, VERMONT 05753 Phone: (802)388-6361 Fax: (802)388-9010		J.P. Sicard CONTRACTOR BARTON, VERMONT	
STATE OF VERMONT AGENCY OF TRANSPORTATION COUNTY OF ORLEANS		DATE: FEB. 25, 2015 SCALE: NOTED	
TOWN OF BARTON ROARING BROOK ROAD TH #2, RURAL MINOR COLLECTOR BRIDGE NO.: 8 PROJECT NO.: BRO 1449(31)		CHKD: - DFTM: T.D. JOB NO: 23462-015	
PRESTRESSED NEXT BEAM DETAILS		DWG. NO: NB2	

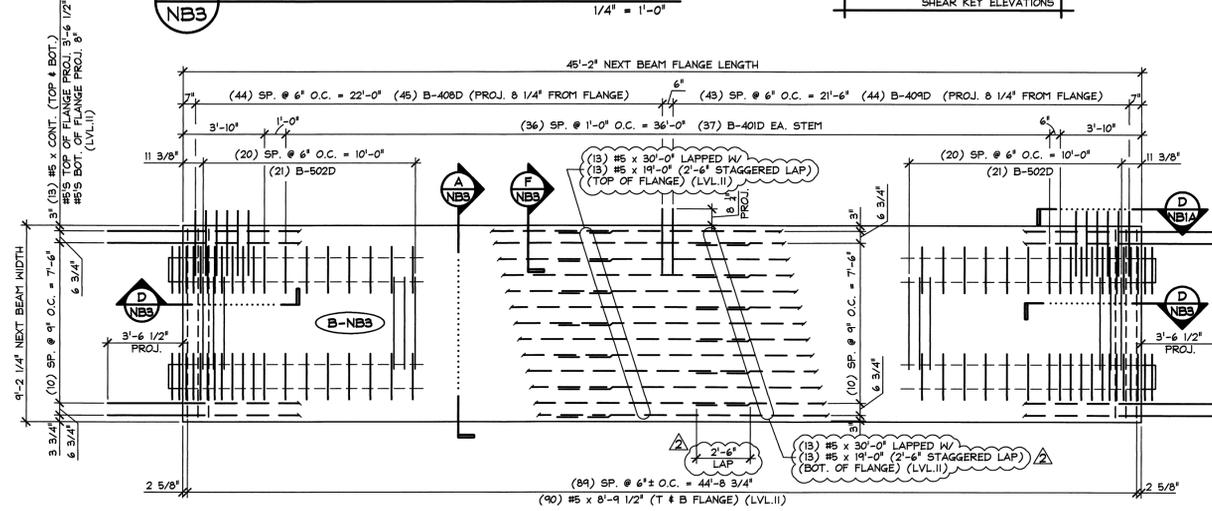
MARK: B-NB2 QTY.: 1 WT.: 49.36 T VOL.: 24.38 cy

MATERIAL LIST / NEXT BEAM			
ITEM	MARK	DESCRIPTION	QTY.
1	MK-BAI	3/4" F42 FERRULE INSERT (GALV.)	22
2	B-401D	#4 BENT BAR (LEVEL II, DUAL COATED)	122
3	B-402D	#4 BENT BAR (LEVEL II, DUAL COATED)	45
4	B-403D	#4 BENT BAR (LEVEL II, DUAL COATED)	44
5	B-404D	#4 BENT BAR (LEVEL II, DUAL COATED)	45
6	B-405D	#4 BENT BAR (LEVEL II, DUAL COATED)	45
7	B-410D	#4 BENT BAR (LEVEL II, DUAL COATED)	16
8	B-502D	#5 BENT BAR (LEVEL II, DUAL COATED)	42
9		#4 x 8'-9 1/2" (LEVEL II, DUAL COATED)	20
10		#5 x 8'-9 1/2" (LEVEL II, DUAL COATED)	180
11		#5 x 40'-0" (LEVEL II, DUAL COATED)	15
12		#5 x 14'-9" (LEVEL II, DUAL COATED)	15
13		#5 x 30'-0" (LEVEL II, DUAL COATED)	13
14		#5 x 19'-0" (LEVEL II, DUAL COATED)	13
15		SET OF (4) 0.60" STRAND LIFTING LOOPS	4

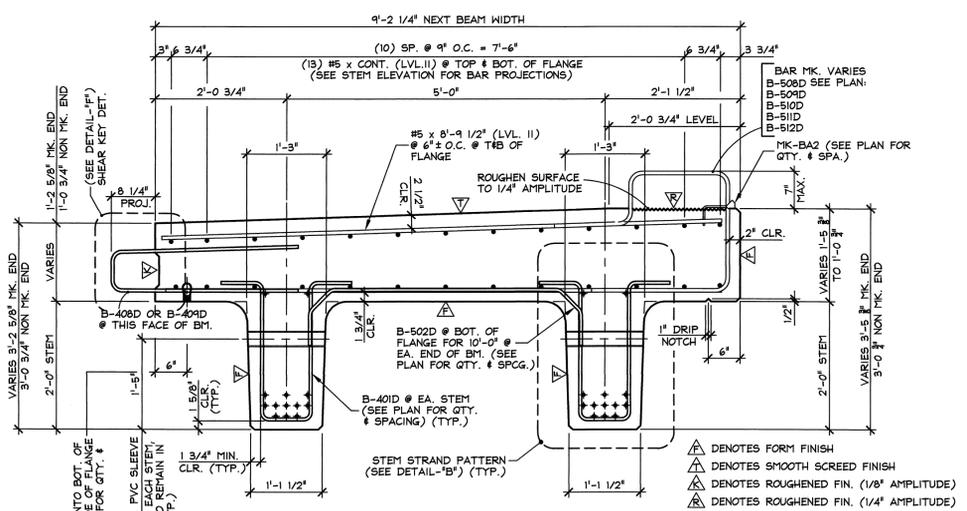


1 DIMENSIONAL PLAN VIEW IN FORM
NB3
1/4" = 1'-0"

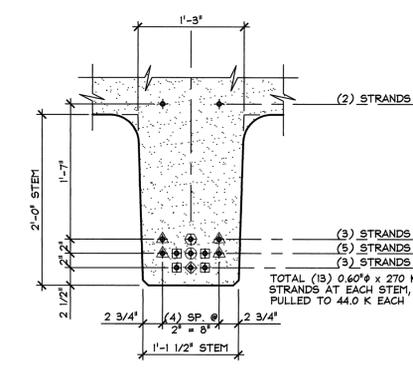
SHOP NOTE: SEE DWG. NBIA FOR SHEAR KEY ELEVATIONS



2 REINFORCING PLAN VIEW IN FORM
NB3
1/4" = 1'-0"



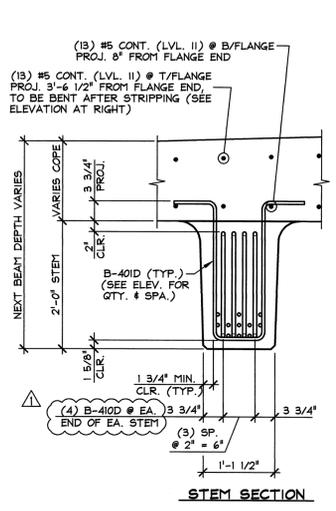
A DIMENSIONAL & REINFORCING SECTION
NB3
3/4" = 1'-0"



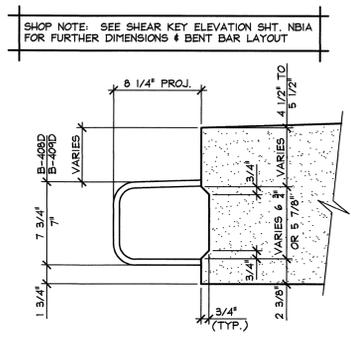
B STEM STRAND PATTERN
NB3
1" = 1'-0"

DETENSIONING SCHEDULE
N.T.S.

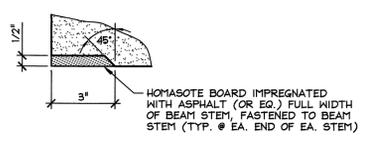
- PRESTRESSING NOTATIONS**
- ▲ DENOTES STRAIGHT STRANDS TO BE DEBONDED 6" FROM EA. END OF EA. STEM
 - ⊕ DENOTES FULLY BONDED STRAIGHT STRANDS EXTENDED 2'-0" FROM EA. END OF EA. STEM
 - ⊖ DENOTES STRAIGHT STRANDS TO BE DEBONDED 9'-0" FROM EA. END OF EA. STEM
 - ⊙ DENOTES STRAIGHT STRANDS TO BE DEBONDED 4'-0" FROM EA. END OF EA. STEM
 - ⊕ DENOTES STRAIGHT STRANDS TO BE DEBONDED 2'-0" FROM EA. END OF EA. STEM
 - ⊖ DENOTES FULLY BONDED STRAIGHT STRANDS TO BE CUT FLUSH W/ EA. END OF EA. STEM



D END BLOCK STEM REINFORCING DETAILS
NB3
3/4" = 1'-0"



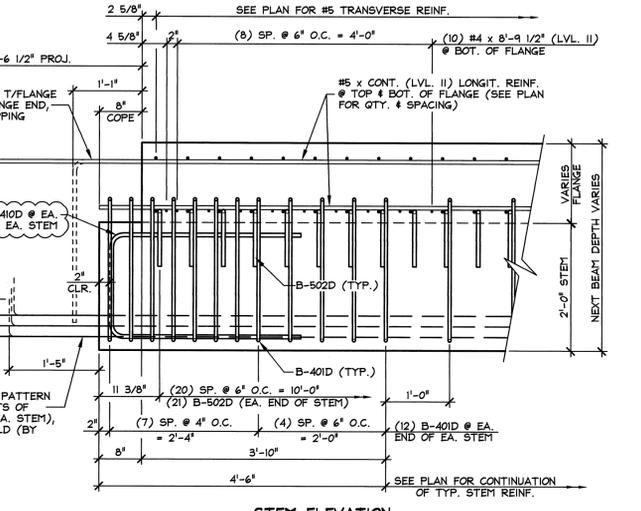
F SHEAR KEY DETAIL
NB3
1 1/2" = 1'-0"



C HOMASOTE DETAIL
NB3
3" = 1'-0"

6/9/2015 REVISED AS NOTED T.D.
5/28/2015 REVISED AS NOTED T.D.

APPROVAL STAMP:



STEM ELEVATION ALONG C-C OF STEM

MARK: B-NB3 QTY.: 1 WT.: 54.39 T VOL.: 26.86 cy

MATERIAL LIST / NEXT BEAM			
ITEM	MARK	DESCRIPTION	QTY.
1	MK-BA1	3/4" F42 FERRULE INSERT (GALV.)	11
2	MK-BA2	DAYTON C-24 TYPE 4-APR DECK FORM HANGER (GALV.)	11
3			
4	B-401D	#4 BENT BAR (LEVEL II, DUAL COATED)	122
5	B-408D	#4 BENT BAR (LEVEL II, DUAL COATED)	45
6	B-409D	#4 BENT BAR (LEVEL II, DUAL COATED)	44
7	B-410D	#4 BENT BAR (LEVEL II, DUAL COATED)	16
8	B-502D	#5 BENT BAR (LEVEL II, DUAL COATED)	42
9	B-508D	#5 BENT BAR (LEVEL II, DUAL COATED)	15
10	B-509D	#5 BENT BAR (LEVEL II, DUAL COATED)	14
11	B-510D	#5 BENT BAR (LEVEL II, DUAL COATED)	13
12	B-511D	#5 BENT BAR (LEVEL II, DUAL COATED)	13
13	B-512D	#5 BENT BAR (LEVEL II, DUAL COATED)	15
14		#4 x 8'-9 1/2" (LEVEL II, DUAL COATED)	20
15		#5 x 8'-9 1/2" (LEVEL II, DUAL COATED)	180
16		#5 x 40'-0" (LEVEL II, DUAL COATED)	13
17		#5 x 14'-9" (LEVEL II, DUAL COATED)	13
18		#5 x 30'-0" (LEVEL II, DUAL COATED)	13
19		#5 x 19'-0" (LEVEL II, DUAL COATED)	13
20		SET OF (4) 0.60" STRAND LIFTING LOOPS	4

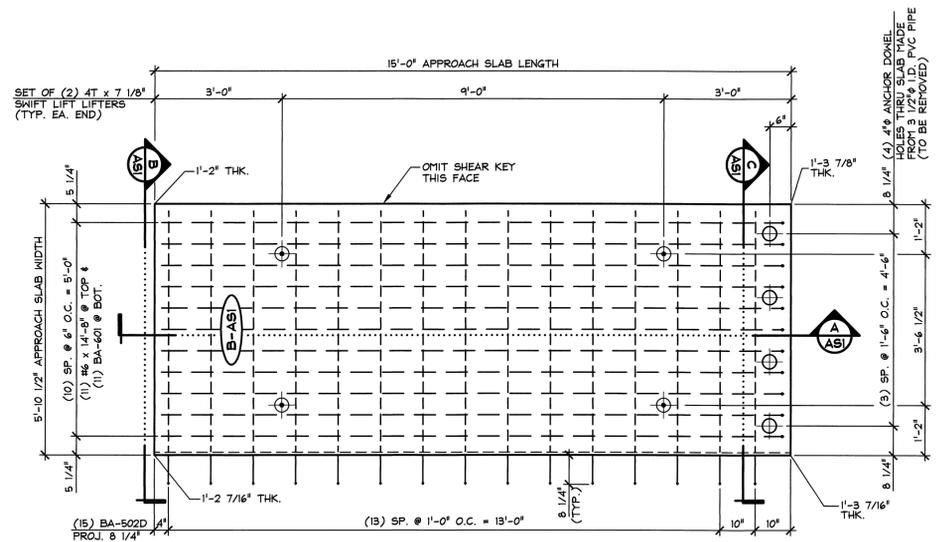
J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
244 ONE SR., MIDDLEBURY, VERMONT 05753 Phone: (802)388-6361 Fax: (802)388-9010

J.P. Sicard
CONTRACTOR
BARTON, VERMONT

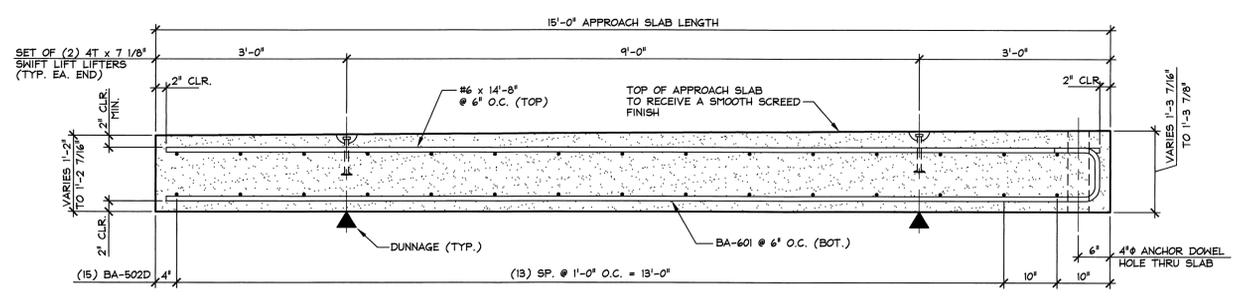
STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF ORLEANS

TOWN OF BARTON
ROARING BROOK ROAD TH #2, RURAL MINOR COLLECTOR
BRIDGE NO.: 8 PROJECT NO.: BRO 1449(31)

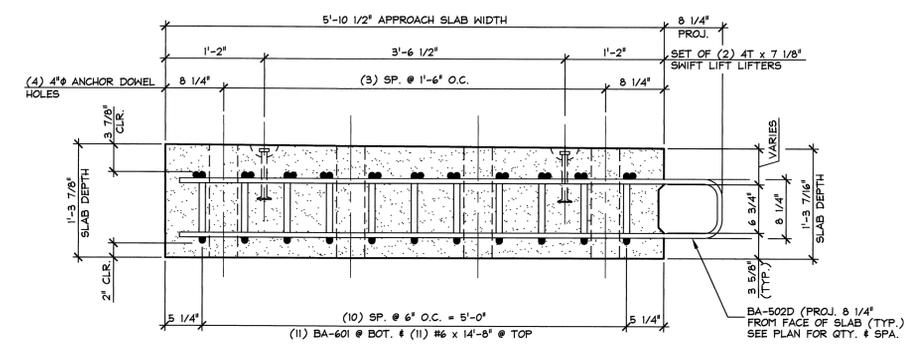
DATE: FEB. 25, 2015
SCALE: NOTED
CHKD: - DFTM: T.D.
JOB NO: 23462-015
DWG. NO: NB3



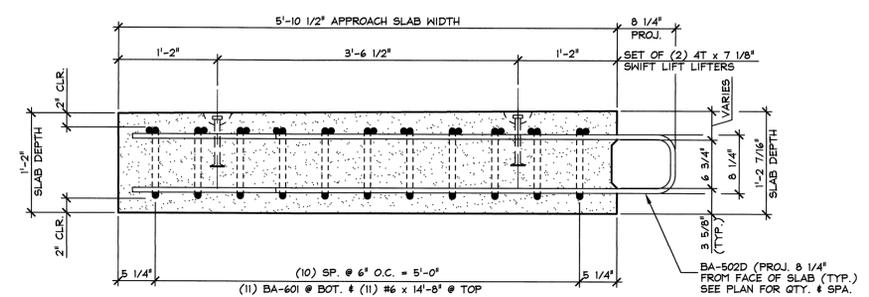
1 PLAN VIEW IN FORM
 ASI
 1/2" = 1'-0"



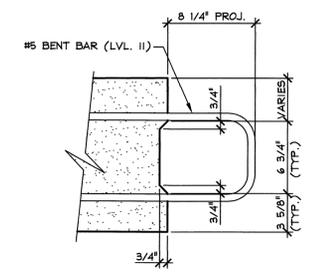
A LONGITUDINAL SECTION
 ASI
 3/4" = 1'-0"



C SECTION
 ASI
 1" = 1'-0"



B SECTION
 ASI
 1" = 1'-0"



SHEAR KEY DETAIL
 1 1/2" = 1'-0"

MARK:	B-ASI	QTY.:	2	WT.:	8.26 T	VOL.:	4.08 cy
MATERIAL LIST / APPROACH SLAB							
ITEM	MARK	DESCRIPTION				QTY.	
1							
2	BA-502D	#5 BENT BAR (LEVEL II, DUAL COATED)				15	
3	BA-601	#6 BENT BAR (LEVEL I)				11	
4							
5							
6		#6 x 14'-8" (LEVEL I)				11	
7							
8							
9							
10							
11							
12							
13							
14		DAYTON 4T x 7 1/8" SWIFT LIFT (DOMESTIC)				4	
15							

5/28/2015 REVISED AS NOTED T.D.

APPROVAL STAMP:

J.P. CARRARA & SONS INC.
 Precast & Prestress Manufacturer
 2464 OISE STR., MIDDLEBURY, VERMONT 05753 Phone: (802)388-6361 Fax: (802)388-9010

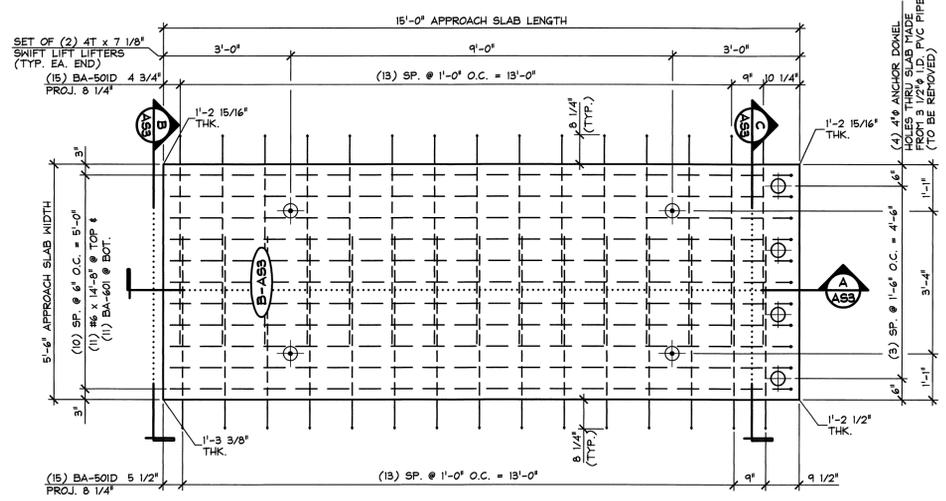
J.P. Sicard
 CONTRACTOR
 BARTON, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
 COUNTY OF ORLEANS

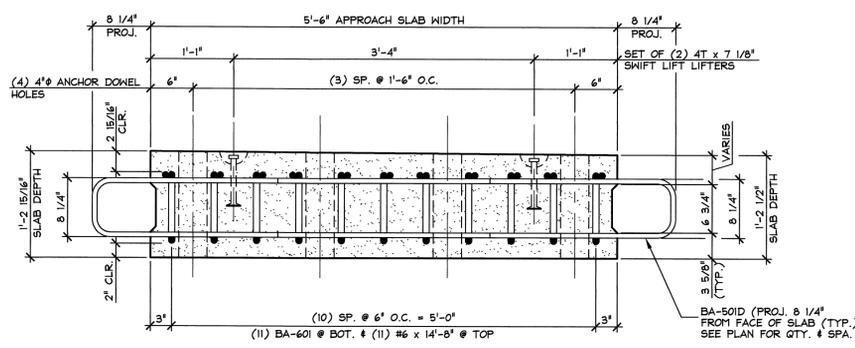
TOWN OF BARTON
 ROARING BROOK ROAD TH #2, RURAL MINOR COLLECTOR
 BRIDGE NO.: 8 PROJECT NO.: BRO 1449(31)

DATE: FEB. 25, 2015
 SCALE: NOTED
 CHKD: DFTM: T.D.
 JOB NO: 23462-015
 DWG. NO: ASI

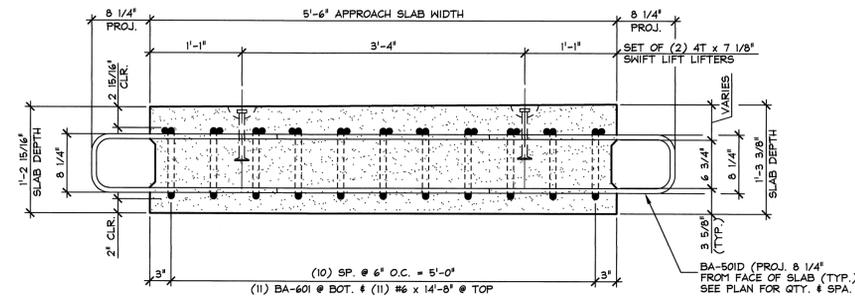
APPROACH SLAB DETAILS



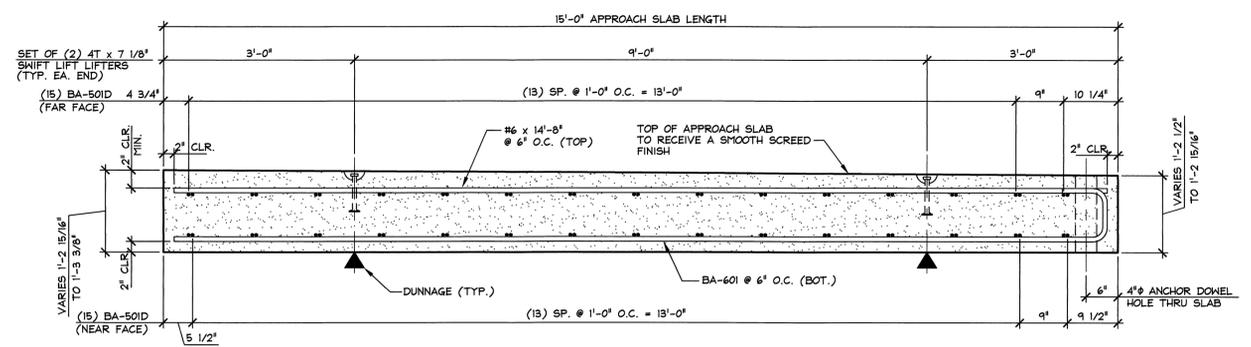
1 PLAN VIEW IN FORM
AS3 1/2" = 1'-0"



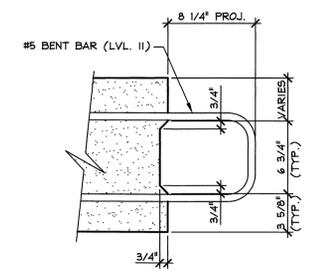
C SECTION
AS2 1" = 1'-0"



B SECTION
AS2 1" = 1'-0"



A LONGITUDINAL SECTION
AS3 3/4" = 1'-0"

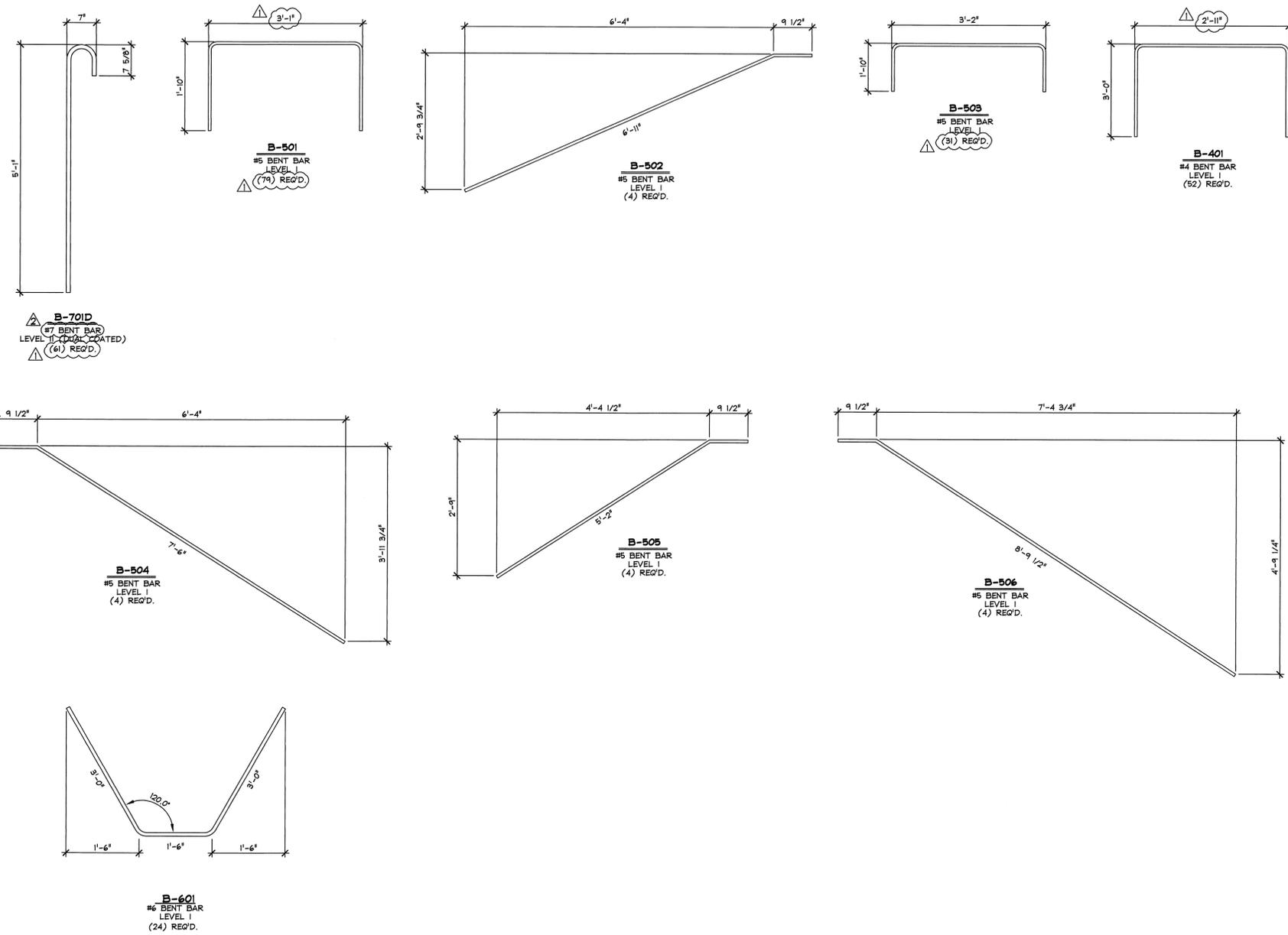


SHEAR KEY DETAIL
1 1/2" = 1'-0"

MARK: B-AS3 QTY.: 2 WT.: 7.73 T VOL.: 3.82 cy			
MATERIAL LIST / APPROACH SLAB			
ITEM	MARK	DESCRIPTION	QTY.
1			
2	BA-501D	#5 BENT BAR (LEVEL II, DUAL COATED)	30
3	BA-601	#6 BENT BAR (LEVEL I)	11
4			
5			
6		#6 x 14'-8" (LEVEL I)	11
7			
8			
9			
10			
11			
12			
13			
14		DAYTON 4T x 7 1/8" SWIFT LIFT (DOMESTIC)	4
15			

5/28/2015 REVISED AS NOTED T.D.

APPROVAL STAMP:	J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer 2464 OISE STR., MIDDLEBURY, VERMONT 05753 Phone: (802)388-6361 Fax: (802)388-9010		J.P. Sicard CONTRACTOR BARTON, VERMONT
	STATE OF VERMONT AGENCY OF TRANSPORTATION COUNTY OF ORLEANS		DATE: FEB. 25, 2015 SCALE: NOTED
	TOWN OF BARTON ROARING BROOK ROAD TH #2, RURAL MINOR COLLECTOR BRIDGE NO.: 8 PROJECT NO.: BRO 1449(31)		CHKD: DFTM: T.D. JOB NO: 23462-015
	APPROACH SLAB DETAILS		DWG. NO: AS3



MISCELLANEOUS MATERIALS				
ITEM	MARK	QTY.	DESCRIPTION	REMARKS
1	B-401	52	#4 BENT BAR (LEVEL 1)	
2	B-501	74	#5 BENT BAR (LEVEL 1)	
3	B-502	4	#5 BENT BAR (LEVEL 1)	
4	B-503	31	#5 BENT BAR (LEVEL 1)	
5	B-504	4	#5 BENT BAR (LEVEL 1)	
6	B-505	4	#5 BENT BAR (LEVEL 1)	
7	B-506	4	#5 BENT BAR (LEVEL 1)	
8	B-601	24	#6 BENT BAR (LEVEL 1)	
9	B-701D	61	#7 BENT BAR (LEVEL II, DUAL COATED)	(+1 SAMPLE) Δ
10				
11		46	#5 x 3'-10" (LEVEL II, DUAL COATED)	
12		52	#5 x 4'-6" (LEVEL II, DUAL COATED)	
13				
14		4	#5 x 2'-0" (LEVEL I)	
15		4	#5 x 3'-7" (LEVEL I)	
16		2	#5 x 3'-3" (LEVEL I)	
17		2	#5 x 3'-0" (LEVEL I)	Δ
18		2	#5 x 4'-7" (LEVEL I)	
19		6	#5 x 5'-1" (LEVEL I)	
20		2	#5 x 5'-6" (LEVEL I)	Δ
21		2	#5 x 6'-2" (LEVEL I)	
22		2	#5 x 6'-8" (LEVEL I)	
23		4	#5 x 7'-1" (LEVEL I)	
24				
25		4	#6 x 1'-3" (LEVEL I)	
26		8	#6 x 2'-1" (LEVEL I)	
27		8	#6 x 2'-2" (LEVEL I)	
28		8	#6 x 3'-3" (LEVEL I)	
29		4	#6 x 4'-3" (LEVEL I)	Δ
30		32	#6 x 4'-10" (LEVEL I)	
31		14	#6 x 19'-7" (LEVEL I)	
32		14	#6 x 21'-7" (LEVEL I)	
33		14	#6 x 21'-8" (LEVEL I)	
34		12	#6 x 22'-7" (LEVEL I)	
35		2	#6 x 21'-11" (LEVEL I)	
36				
37		60	#7 x 5'-9" (LEVEL I)	
38		60	#7 x 6'-1" (LEVEL I)	
39		4	#7 x 5'-8" (LEVEL I)	
40		2	#7 x 6'-3" (LEVEL I)	
41		2	#7 x 7'-8" (LEVEL I)	
42		4	#7 x 7'-7" (LEVEL I)	
43		4	#7 x 6'-11" (LEVEL I)	
44		2	#7 x 6'-4" (LEVEL I)	
45		2	#7 x 7'-6" (LEVEL I)	
46		2	#7 x 8'-2" (LEVEL I)	
47		2	#7 x 8'-3" (LEVEL I)	
48		4	#7 x 8'-0" (LEVEL I)	
49		2	#7 x 8'-6" (LEVEL I)	
50		2	#7 x 8'-7" (LEVEL I)	
51		4	#7 x 8'-9" (LEVEL I)	
52		2	#7 x 8'-10" (LEVEL I)	
53		2	#7 x 9'-3" (LEVEL I)	
54		2	#7 x 9'-2" (LEVEL I)	
55		4	#7 x 9'-4" (LEVEL I)	
56		4	#7 x 9'-7" (LEVEL I)	
57		2	#7 x 9'-8" (LEVEL I)	
58		4	#7 x 9'-11" (LEVEL I)	
59		4	#7 x 10'-3" (LEVEL I)	
60		8	#7 x 10'-4" (LEVEL I)	
61		2	#7 x 10'-0" (LEVEL I)	
62				
63		4	2'-0" x 6'-2 7/8" CORRUGATED STEEL PIPE (GALV.)	
64		4	2'-0" x 6'-7 1/8" CORRUGATED STEEL PIPE (GALV.)	
65		1	2'-0" x 9'-3 1/2" CORRUGATED STEEL PIPE (GALV.)	
25		1	2'-0" x 7'-11 1/8" CORRUGATED STEEL PIPE (GALV.)	
25		1	2'-0" x 8'-8" CORRUGATED STEEL PIPE (GALV.)	
25		1	2'-0" x 8'-7 1/2" CORRUGATED STEEL PIPE (GALV.)	
25		8	SET OF (4) 0.60" STRAND LIFTING LOOPS	

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J.P. Siard
CONTRACTOR
BARTON, VERMONT

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PRECAST ABUTMENT MATERIAL LIST

6/9/2015 REVISED AS NOTED T.D.
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