

LETTER OF TRANSMITTAL

TRANSMITTAL # 3

J.P. CARRARA & SONS, INC.

2464 CASE ST
MIDDLEBURY, VT 05753
T: 802.388.6363
F: 802.388.9010

DATE: 3.26.15	JOB # 23454-014
ATTN: Brian Emmons/T.Buck Construction Inc.	
RE: Burke, VT BRF 0269 (13)	

We are sending you:

Shop Drawings	<input checked="" type="checkbox"/>	Change Order	<input type="checkbox"/>	Copy of Letter	<input type="checkbox"/>
Plans	<input type="checkbox"/>	Attached	<input checked="" type="checkbox"/>	Separate Cover	<input type="checkbox"/>
Prints	<input type="checkbox"/>	Specifications	<input checked="" type="checkbox"/>	(Via) _____	
Samples	<input type="checkbox"/>	Other:	<input type="checkbox"/>		

Copies	Date	Qty.	Description
1	3.26.15	1	Shop Drawings Submitted for Approval
1	3.26.15	2	Approved Concrete Mix Designs (7 Pages)
1	3.26.15	1	Burke Lifting Calculations

These are transmitted as checked below:

For approval	<input checked="" type="checkbox"/>	Approved as submitted	<input type="checkbox"/>	Submit	<input checked="" type="checkbox"/>
For your use	<input type="checkbox"/>	Approved as noted	<input type="checkbox"/>	Resubmit	<input type="checkbox"/>
As requested	<input type="checkbox"/>	Returned /Notation	<input type="checkbox"/>	Return	<input type="checkbox"/>
For review	<input type="checkbox"/>	Loaned Prints/Returned	<input type="checkbox"/>	Other	<input type="checkbox"/>

Remarks:

Please see attached Burke shop drawings for approval.

Please consider an expeditious review of components requiring LVL II reinforcement (Dual Coated / Z Bar) as there is currently a one month production lead time on Zbar/Rebar products.

Specification subsections 510.04(b)(7) and 540.04(b)(7) allow for the use of the previously submitted mixes in lieu of submitting additional mix designs. **Previously approved mix designs are being resubmitted as requested for Burke precast concrete components and demonstrate updated aggregate properties with NO OTHER CHANGES TO PREVIOUSLY SUBMITTED/CURRENTLY APPROVED MIX DESIGNS.**

Copy to: _____ Signed:  _____
Joe Gallese-PM

If enclosures are not as noted, please notify us immediately.

ABUTMENT & APPROACH SLAB GENERAL NOTES

- MIN. CONCRETE STRENGTH AT 28 DAYS SHALL BE 5,000 PSI.
- MIN. CONCRETE STRENGTH AT STRIPPING SHALL BE 4,000 PSI (UNLESS NOTED OTHERWISE).
- REINFORCING STEEL SHALL BE GR-60, ASTM A-615 (AASHTO M3) LEVEL II (DUAL COATED) (ASTM A-1055) OR LEVEL I (BLACK 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 5th 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 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. PS10.02 AND PS10.05 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 CURE 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 10,000 PSI.
- MIN. CONCRETE STRENGTH AT STRESS TRANSFER SHALL BE 8,000 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 M203) AND SHALL CONSIST OF 0.60"Ø x 270 KSI 7-WIRE LOW RELAXATION STRANDS.
- PRESTRESSING STRANDS SHALL EACH BE PULLED TO HAVE A NET TENSION OF 44,000 LB 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.
- 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. PS10.02 AND PS10.05 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°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.
- OWNER SHALL PROVIDE APPROPRIATE WATERPROOFING TO GROUTED AND/OR EPOXYED SHEAR KEYS. J.P. CARRARA & SONS, INC. SHALL NOT BE HELD LIABLE FOR PROBLEMS ASSOCIATED WITH MOISTURE INFILTRATING GROUTED AND/OR EPOXYED SHEAR KEYS.

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

SIZE & GRADE: 0.60"Ø x 270 KSI
AREA: 0.21 IN²
TENSION: 44,000 LB. EACH STRAND
GRIP-TO-GRIP: 252'-0" = 252.00'
Es = 29,500,000 PSI (ASSUMED FOR THESE CALCULATIONS; VALUE TO BE OBTAINED FOR STRAND SPOOL ACTUALLY USED)

EXAMPLE:
$$\Delta = \frac{PL}{AE} = \frac{(44,000 - 3,000) \times 252.00 \times 12}{0.21 \times 29,500,000} = 20.041'$$

THEREFORE, (TOLERANCES ± 5%)
 Δ UPPER LIMIT = 1.05 x 20.041' = 21.05" = 21"
 Δ LOWER LIMIT = 0.95 x 20.041' = 19.04" = 19"

EXTRA FORCE REQUIRED TO COMPENSATE FOR 1/2" CHUCK SLIPPAGE:
$$\Delta P = \frac{0.5 \times 41,000}{20.041} = 1,023 \text{ LBS.}$$

TOTAL TENSIONING FORCE = 44,000 + 1,023 = 45,023 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.

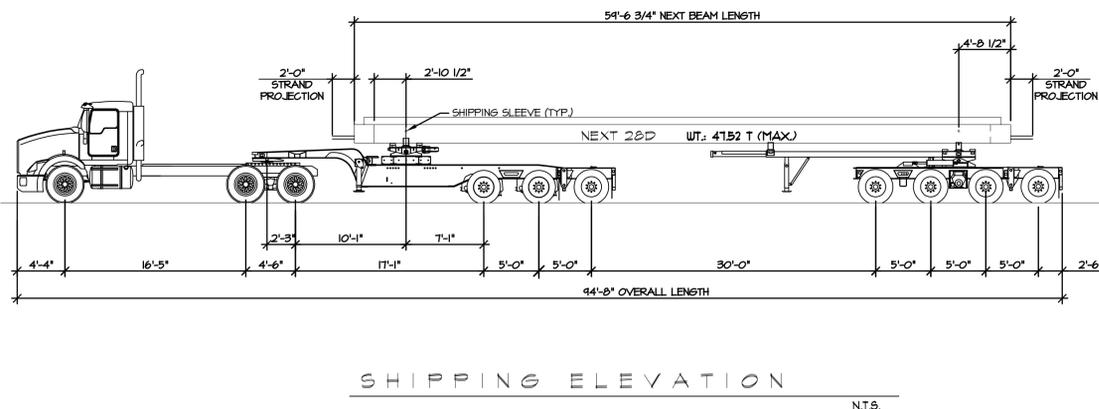
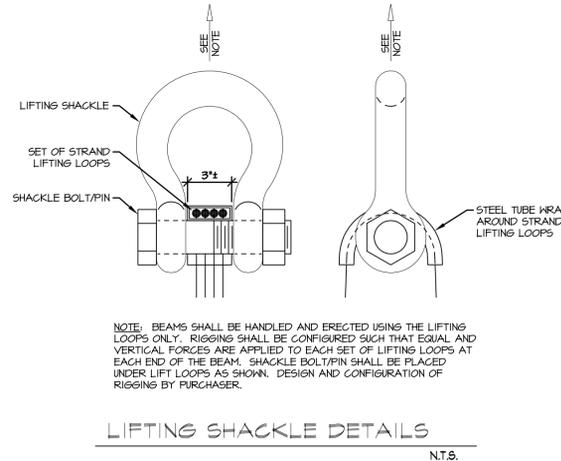
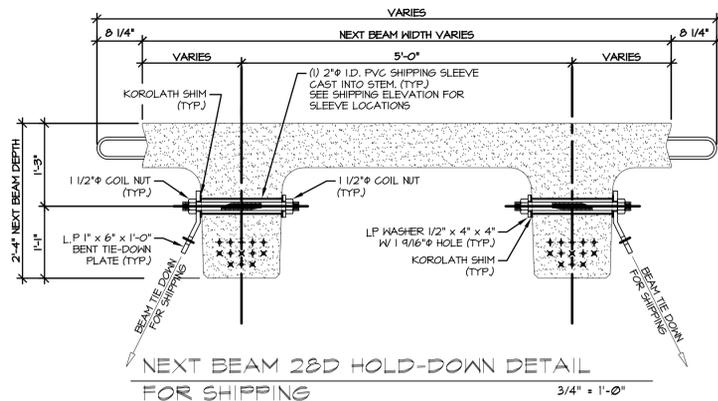
STRAND TENSIONING PROCEDURE:

- PULL EACH STRAND INITIALLY TO 3,000* LBS. AND MARK STRAND.
 - THEN PULL EACH STRAND TO A TOTAL TENSION OF 45,023* 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.

DRAWING INDEX

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

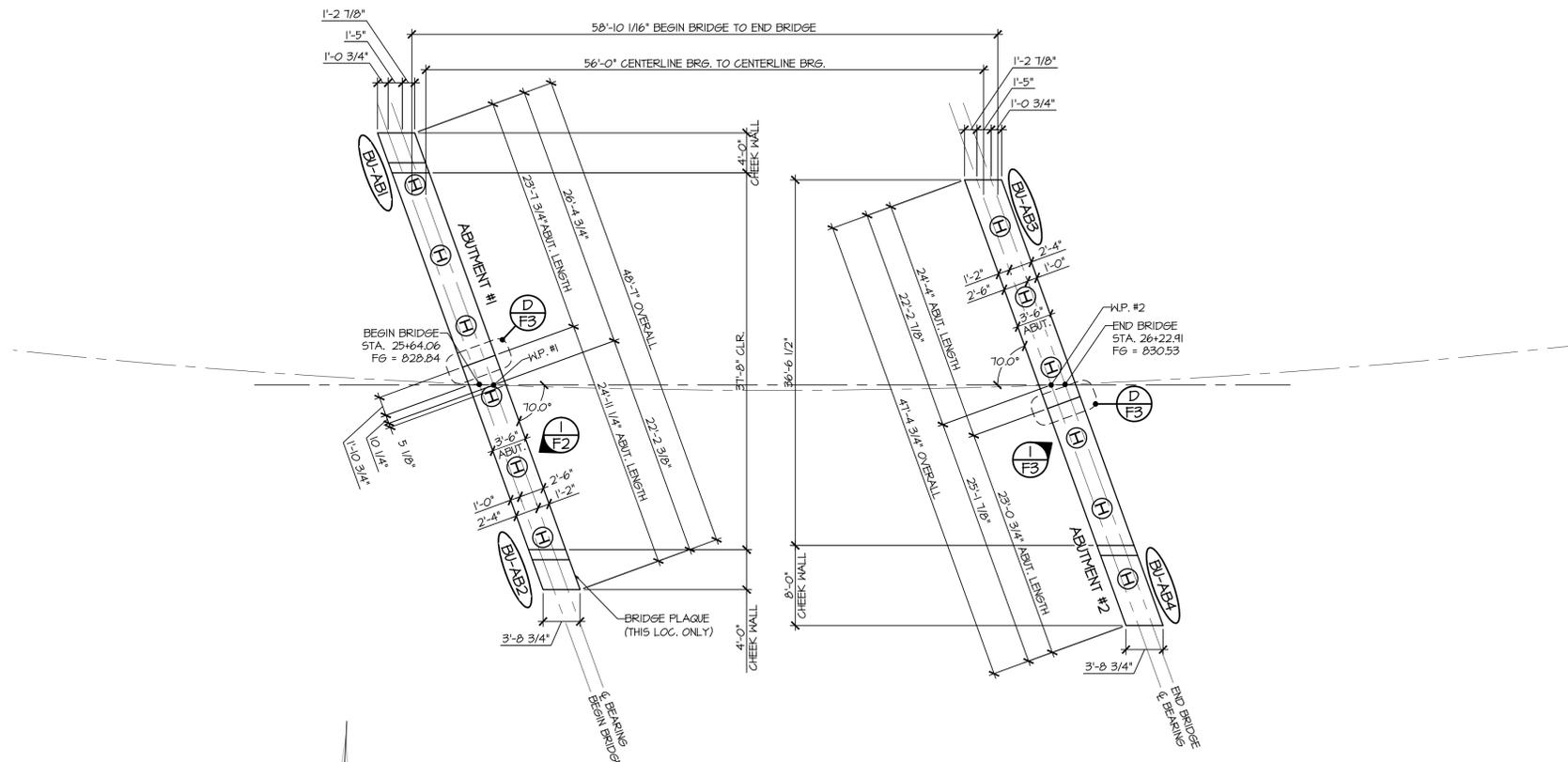
DESIGN LIVE LOAD: HL-93



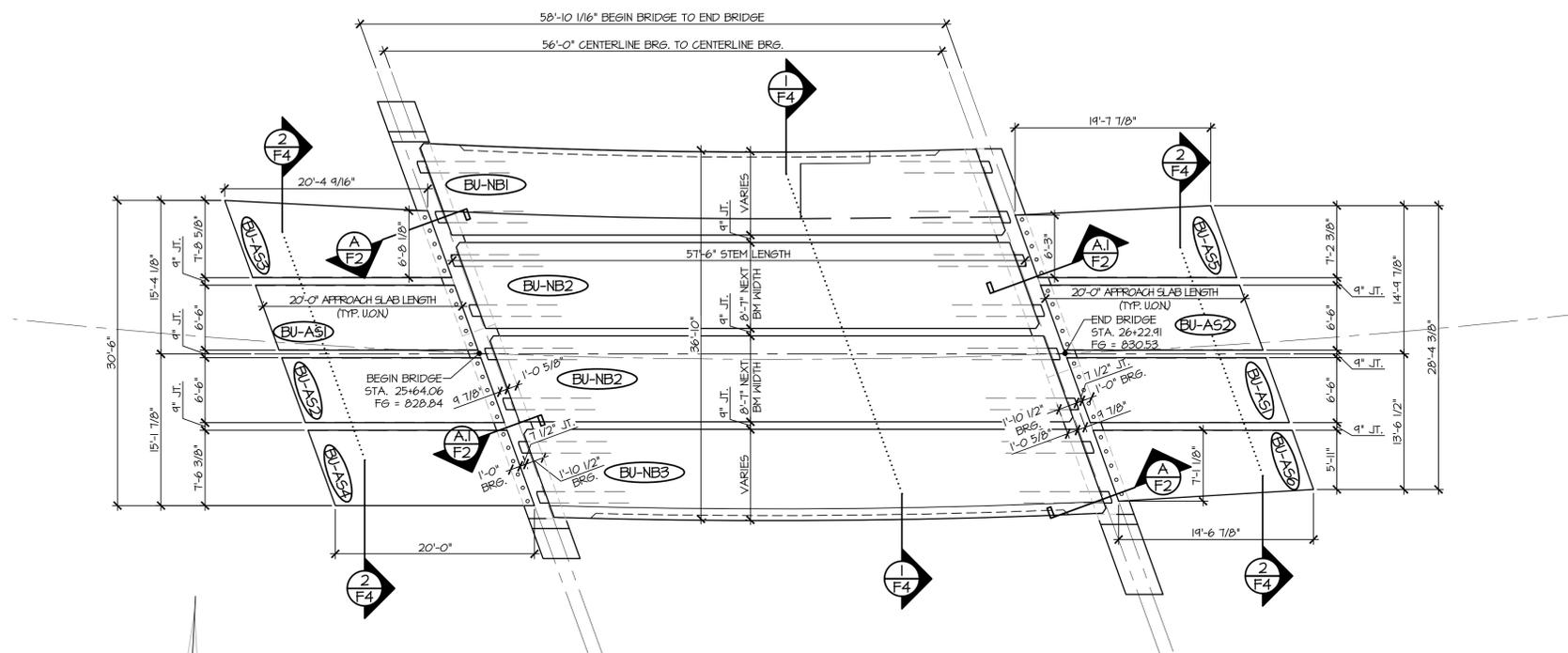
01-22-15 REVISED

APPROVAL STAMP:

J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer 2464 GAGE STR., WOODBURY, VERMONT 05753 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.: 13 PROJECT NO.: BRP 0269(13)		CHKD: --	DFTM: JDC
		JOB NO: 23454-015	
COVER SHEET		DWG. NO:	C1



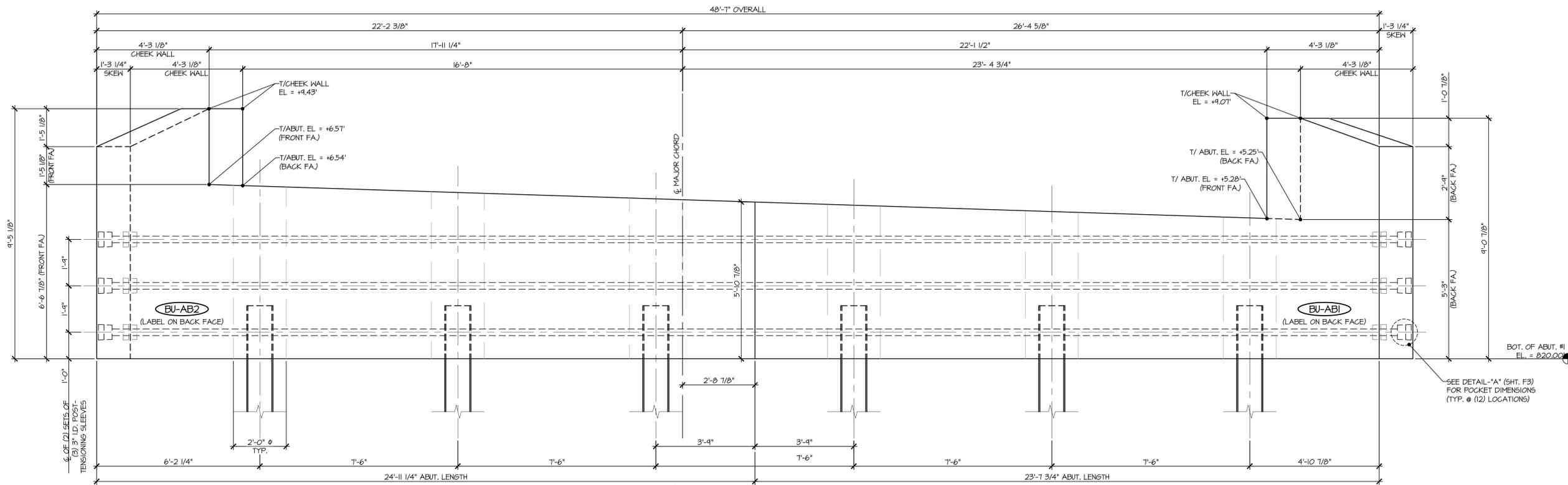
1
FI PRECAST CONCRETE ABUTMENT
1/8" = 1'-0"



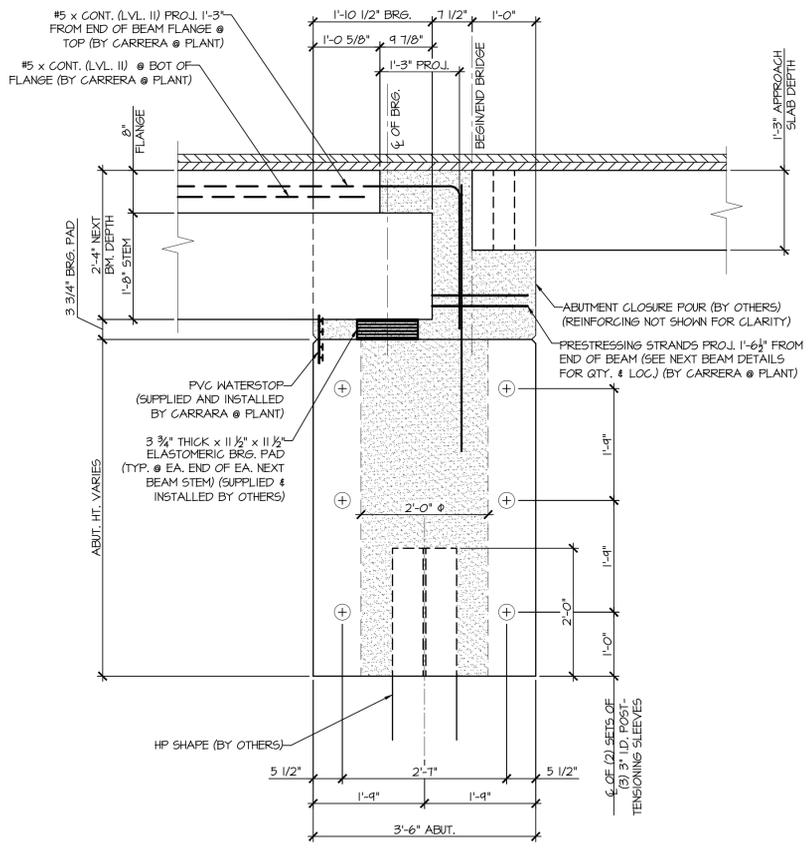
2
FI PRECAST APPROACH SLAB & NEXT BEAM LAYOUT
1/8" = 1'-0"

APPROVAL STAMP:

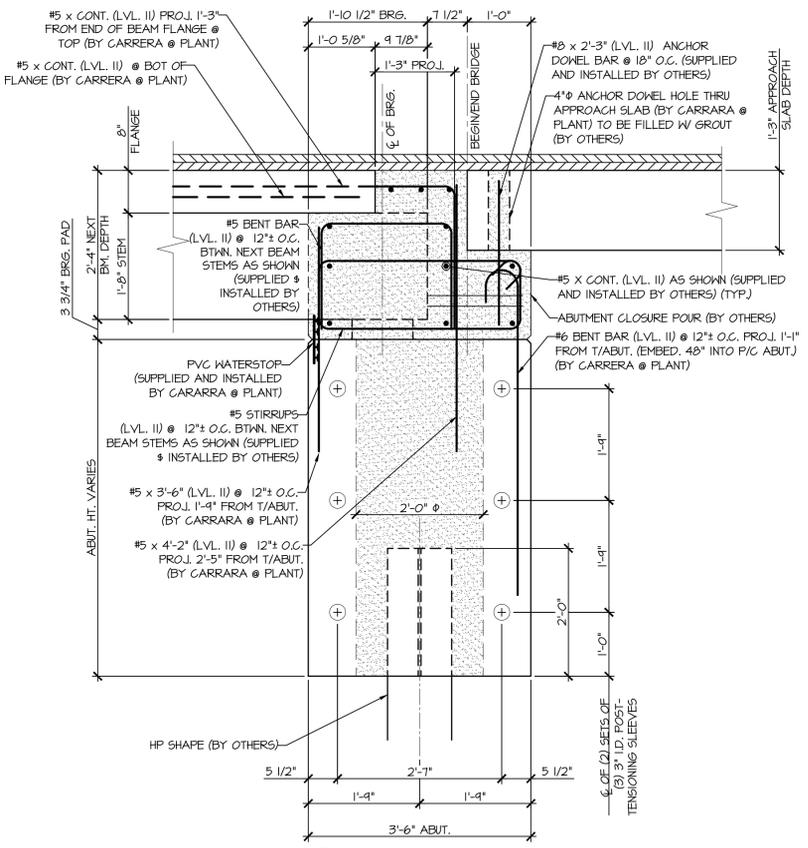
J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer <small>2464 CAGE STR., MOULBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010</small>		T. BUCK CONSTRUCTION, INC. CONTRACTOR AUBURN, MAINE	
STATE OF VERMONT AGENCY OF TRANSPORTATION COUNTY OF CALEDONIA		DATE: MAR. 26, 2015 SCALE: NOTED	
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PRECAST ABUTMENT APPROACH SLAB & NEXT BEAM LAYOUT		JOB NO: 23454-015	DWG. NO: FI



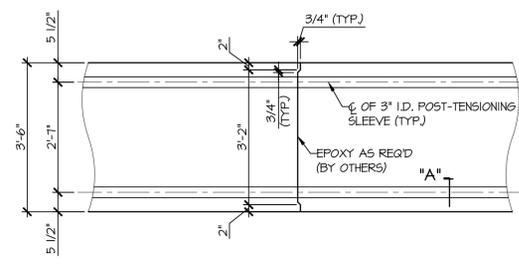
1
F2 ABUTMENT #1 ELEVATION
1/2" = 1'-0"



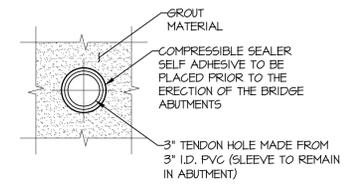
A
F2 BEARING SECTION
3/4" = 1'-0"
NEXT BEAM STEM BEARING



A.1
F2 BEARING SECTION
3/4" = 1'-0"
BETWEEN NEXT BEAM STEM BEARING

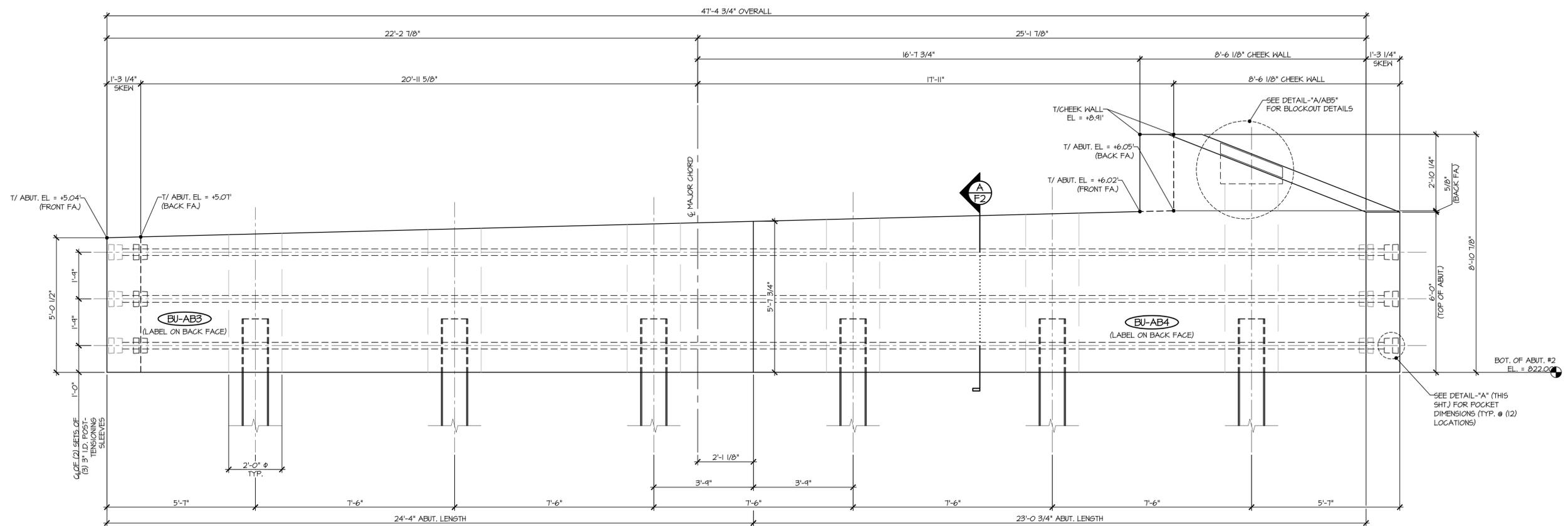


B
F2 MATCH CAST SECTION @
P.T. SLEEVE 1/2" = 1'-0"

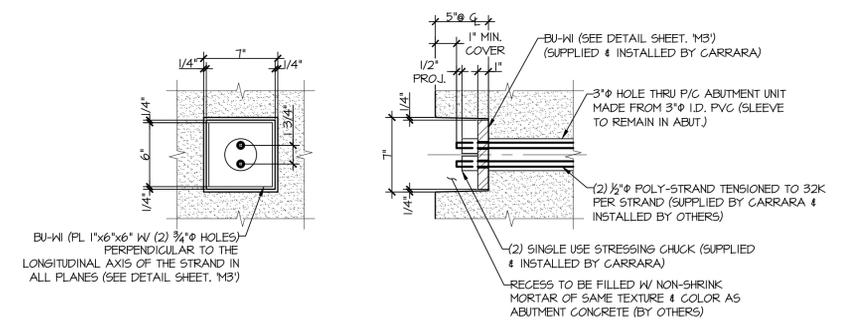
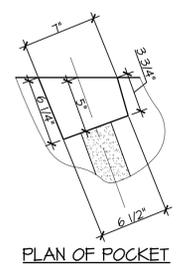


SECTION - "A"
1/2" = 1'-0"

APPROVAL STAMP:	J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer 264 CASE STR., MOULBURY, VERMONT 05753 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
TOWN OF BURKE VERMONT ROUTE 114		SCALE: NOTED
BRIDGE NO.: 13 PROJECT NO.: BRF 0269(13)		CHKD: DFTM: JDK
PRECAST ABUTMENT #1 ELEVATION & SECTIONS		JOB NO: 23454-015
		DWG. NO: F2

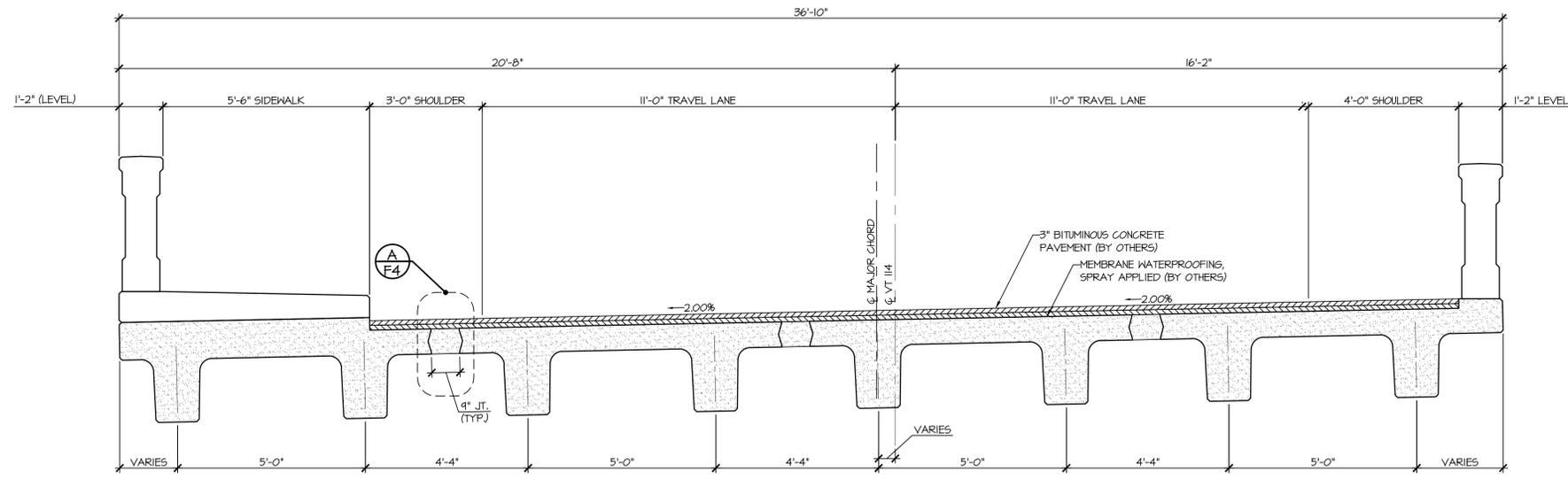


1 ABUTMENT 2 ELEVATION
F3
 1/2" = 1'-0"

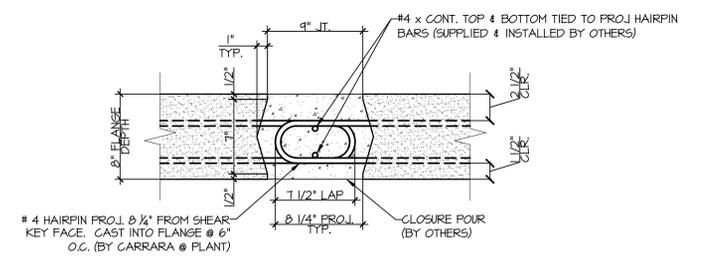


ABUTMENT ELEVATION
 SECTION AT CENTERLINE
DETAIL - "A"
 1/2" = 1'-0"

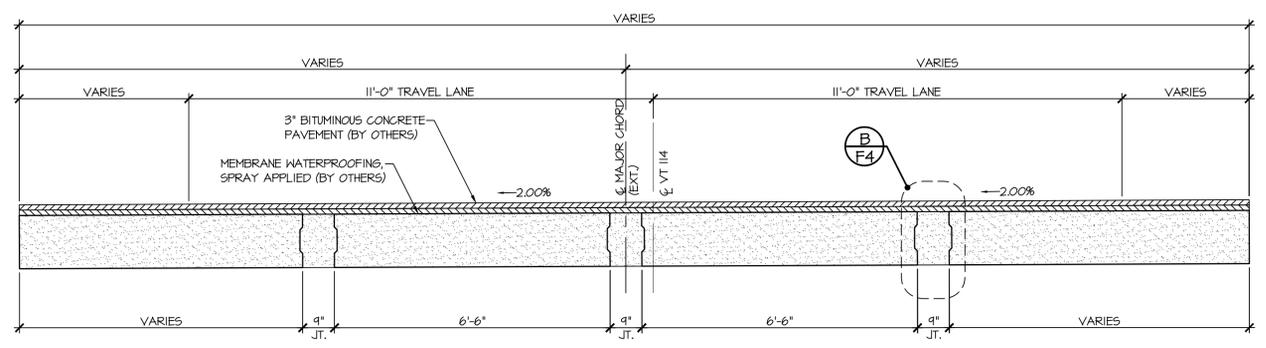
APPROVAL STAMP:	J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer 2464 CASE STR., MOORESBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010		T. BUCK CONSTRUCTION, INC. CONTRACTOR AUBURN, MAINE	
	STATE OF VERMONT AGENCY OF TRANSPORTATION COUNTY OF CALEDONIA		DATE: MAR. 26, 2015	SCALE: NOTED
	TOWN OF BURKE VERMONT ROUTE 114 BRIDGE NO.: 13 PROJECT NO.: BRF 0269(13)		CHKD: _____	DFTM: JDK
	PRECAST ABUTMENT # 2 ELEVATION		JOB NO: 23454-015	DWG. NO: F3



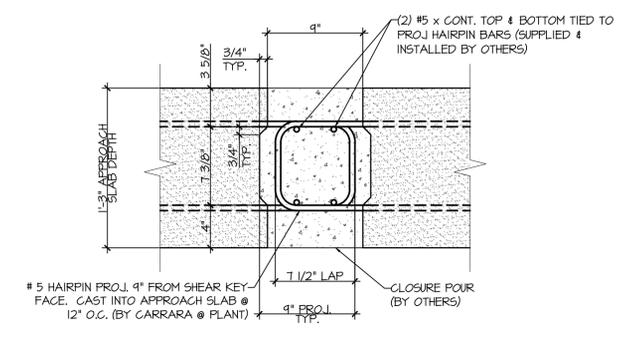
1
F4 NEXT BEAM TRANSVERSE SECTION
1/2" = 1'-0"



A
F4 NEXT BEAM CLOSURE POUR
1/2" = 1'-0"

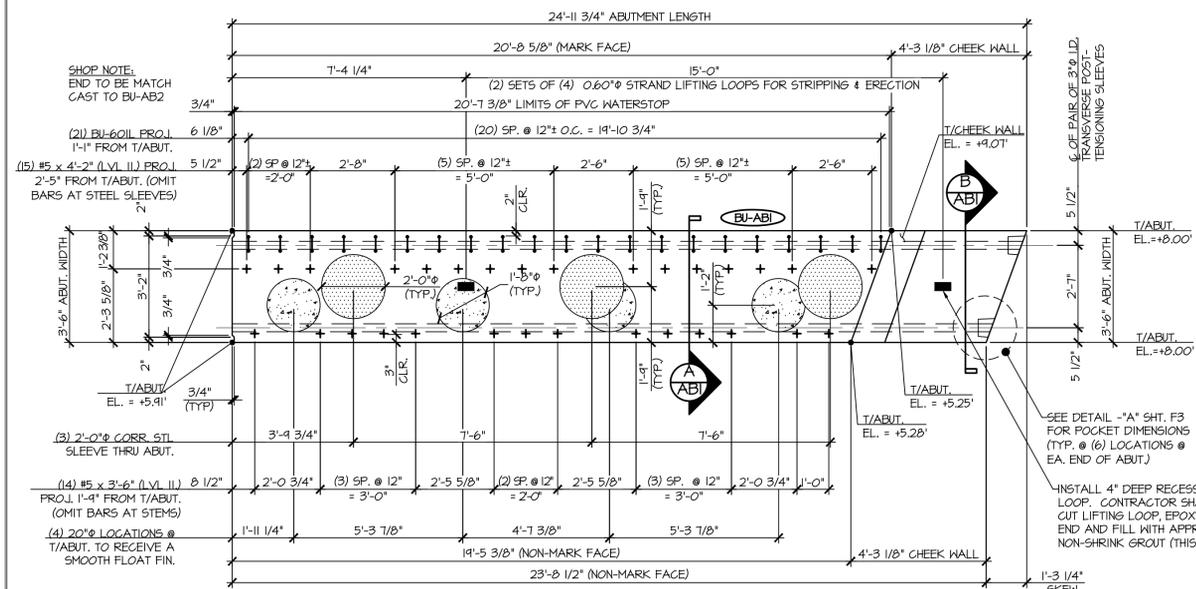


2
F4 APPROACH SLAB TRANSVERSE SECTION
1/2" = 1'-0"

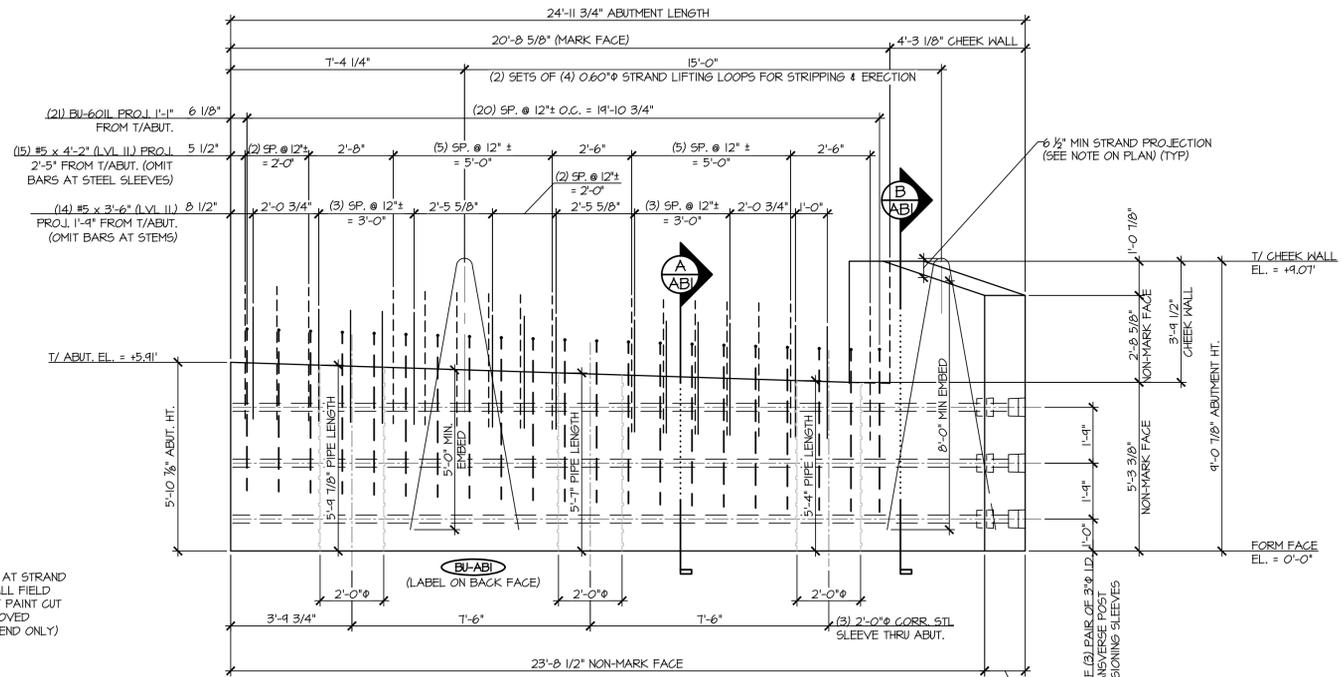


B
F4 APPROACH SLAB CLOSURE POUR
1/2" = 1'-0"

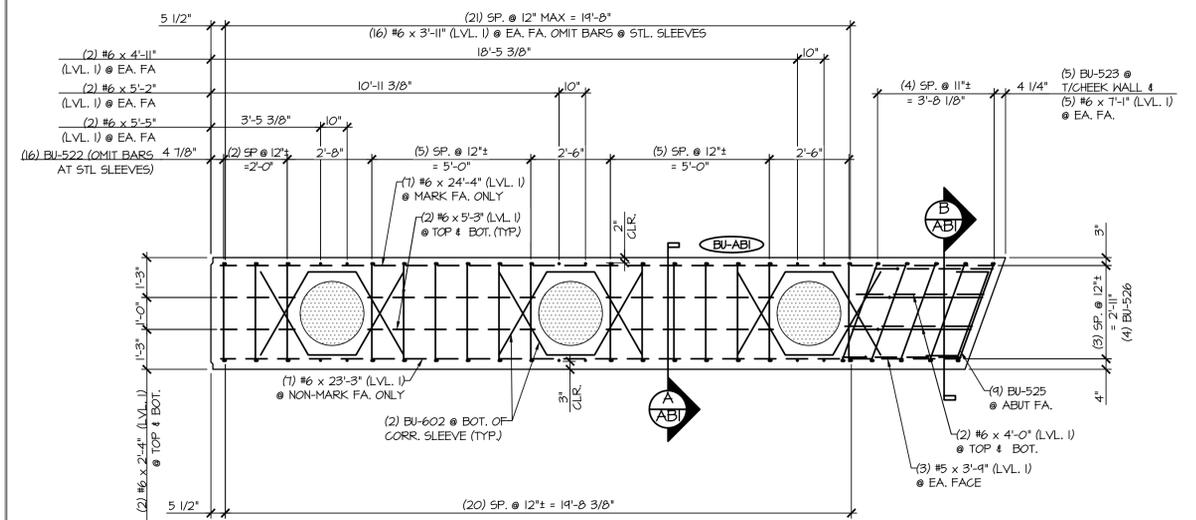
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	TOWN OF BURKE VERMONT ROUTE 114 BRIDGE NO.: 13 PROJECT NO.: BRF 0269(13)		CHKD: DFTM: JDK	JOB NO: 23454-015
	TRANSVERSE SECTIONS & DETAILS		DWG. NO: F4	



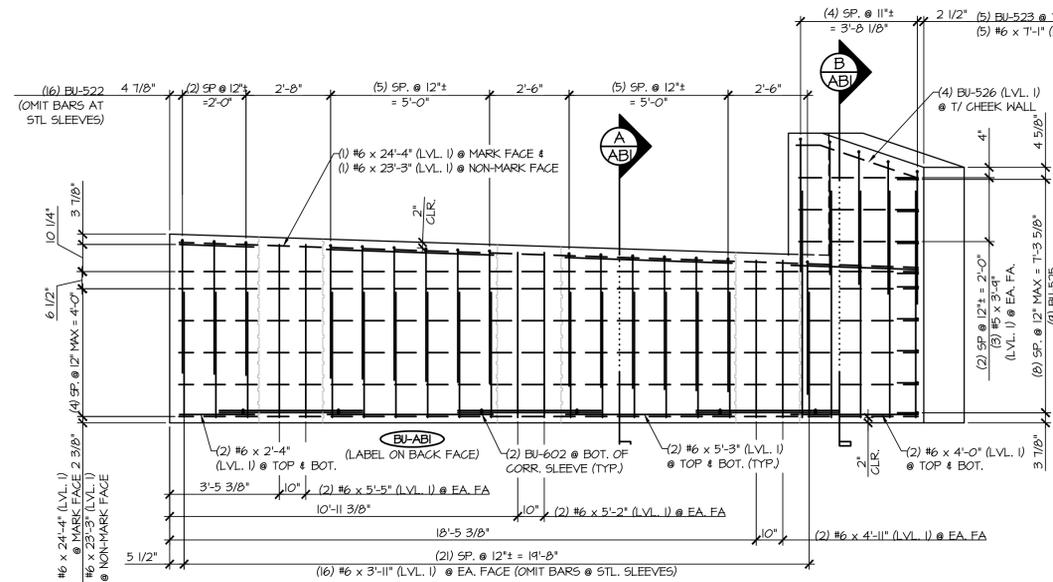
1 ABUTMENT DIMENSIONAL PLAN VIEW IN FORM
 3/8" = 1'-0"



2 ABUTMENT DIMENSIONAL NON-MARK FACE ELEVATION
 3/8" = 1'-0"



3 ABUTMENT REINFORCING PLAN VIEW IN FORM
 3/8" = 1'-0"



4 ABUTMENT REINFORCING NON-MARK FACE ELEVATION
 3/8" = 1'-0"

MATERIAL LIST / ABUTMENT			
ITEM	MARK	DESCRIPTION	QTY.
1	BU-522	#5 BENT BAR (LEVEL I)	16
2	BU-523	#5 BENT BAR (LEVEL I)	5
3	BU-525	#5 BENT BAR (LEVEL I)	9
4	BU-526	#5 BENT BAR (LEVEL I)	4
5		#5 x 3'-6" (LEVEL II, DUAL COATED)	14
6		#5 x 4'-2" (LEVEL II, DUAL COATED)	15
7		#5 x 3'-9" (LEVEL I)	6
8	BU-601L	#6 BENT BAR (LEVEL II, DUAL COATED)	21
9	BU-602	#6 BENT BAR (LEVEL I)	6
10		#6 x 2'-4" (LEVEL I)	4
11		#6 x 3'-11" (LEVEL I)	32
12		#6 x 4'-0" (LEVEL I)	4
13		#6 x 4'-11" (LEVEL I)	4
14		#6 x 5'-2" (LEVEL I)	4
15		#6 x 5'-3" (LEVEL I)	8
16		#6 x 5'-5" (LEVEL I)	4
17		#6 x 7'-1" (LEVEL I)	10
18		#6 x 23'-3" (LEVEL I)	7
19		#6 x 24'-4" (LEVEL I)	7
20		2'-0" x 5'-4" CORR. STL. PIPE (GALV.)	1
21		2'-0" x 5'-7" CORR. STL. PIPE (GALV.)	1
22		2'-0" x 5'-9 1/8" CORR. STL. PIPE (GALV.)	1
23		SET OF (4) 0.60"Ø x 270 KSI STRAND LIFTING LOOPS	2

APPROVAL STAMP:

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

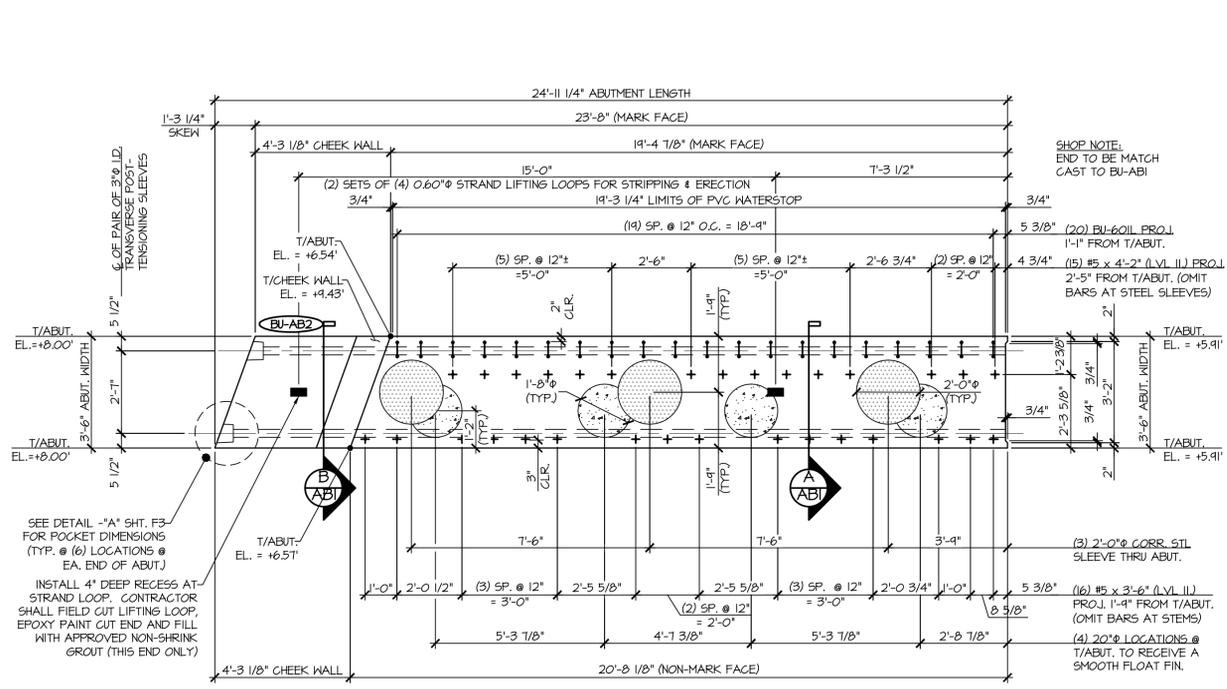
T. BUCK CONSTRUCTION, INC.
 CONTRACTOR
 AUBURN, MAINE

STATE OF VERMONT AGENCY OF TRANSPORTATION
 COUNTY OF CALEDONIA

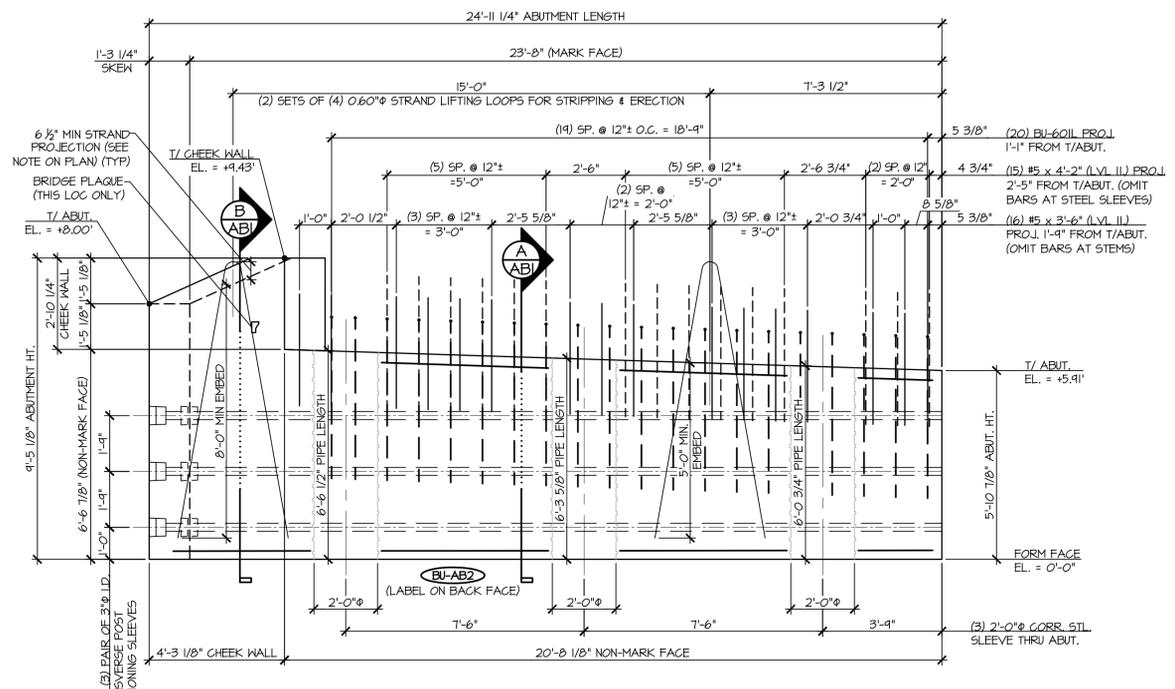
TOWN OF BURKE
 VERMONT ROUTE 114
 BRIDGE NO.: 13 PROJECT NO.: BRF 0269(13)

DATE: MAR. 26, 2015
 SCALE: NOTED
 CHKD: DFTM: JDK
 JOB NO: 23454-015
 DWG. NO: AB2

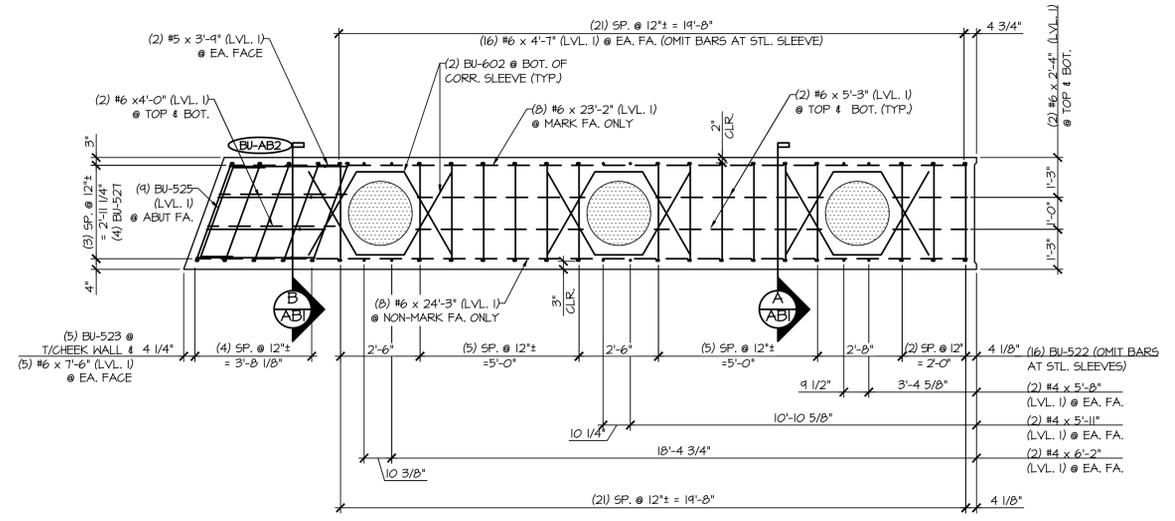
PRECAST ABUTMENT #1 DETAILS



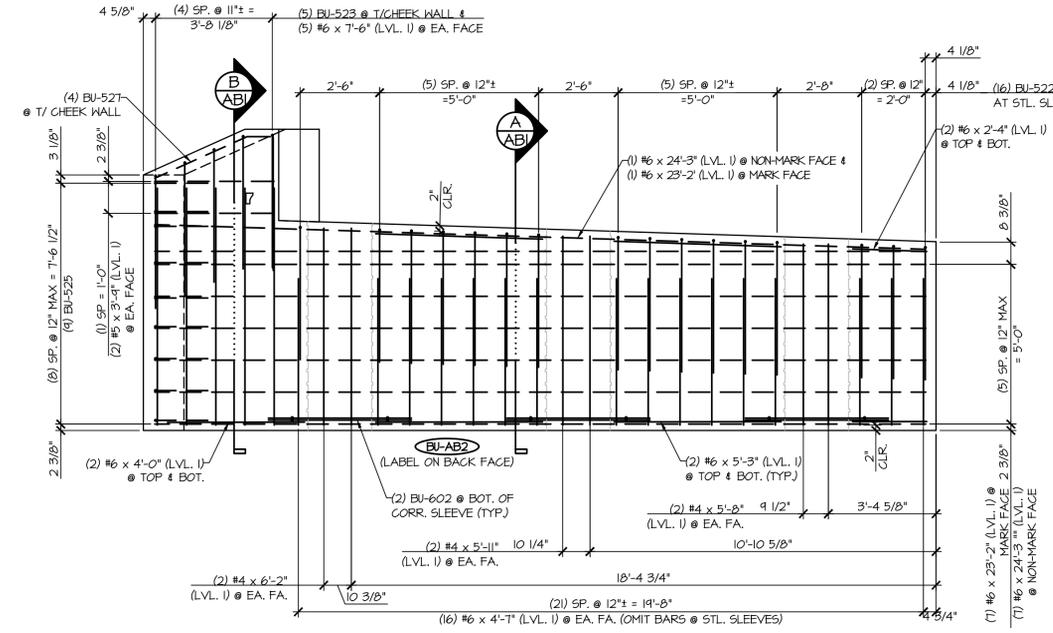
1 ABUTMENT DIMENSIONAL PLAN VIEW IN FORM AB3 3/8" = 1'-0"



2 ABUTMENT DIMENSIONAL NON-MARK FACE ELEVATION AB3 3/8" = 1'-0"



2 ABUTMENT REINFORCING PLAN VIEW IN FORM AB2 3/8" = 1'-0"



4 ABUTMENT REINFORCING NON-MARK FACE ELEVATION AB2 3/8" = 1'-0"

MARK: BU-AB2	QTY: 1	WT: 38.17T	VOL: 18.85 CY
MATERIAL LIST / ABUTMENT			
ITEM	MARK	DESCRIPTION	QTY.
1	BU-522	#5 BENT BAR (LEVEL I)	16
2	BU-523	#5 BENT BAR (LEVEL I)	5
3	BU-525	#5 BENT BAR (LEVEL I)	4
4	BU-527	#5 BENT BAR (LEVEL I)	4
5		#5 x 3'-6" (LEVEL II, DUAL COATED)	16
6		#5 x 4'-2" (LEVEL II, DUAL COATED)	15
7		#5 x 3'-4" (LEVEL I)	4
8	BU-601L	#6 BENT BAR (LEVEL II, DUAL COATED)	20
9	BU-602	#6 BENT BAR (LEVEL I)	6
10		#6 x 2'-4" (LEVEL I)	4
11		#6 x 4'-0" (LEVEL I)	4
12		#6 x 4'-7" (LEVEL I)	32
13		#6 x 5'-3" (LEVEL I)	8
14		#6 x 5'-8" (LEVEL I)	4
15		#6 x 5'-11" (LEVEL I)	4
16		#6 x 6'-2" (LEVEL I)	4
17		#6 x 7'-6" (LEVEL I)	10
18		#6 x 23'-2" (LEVEL I)	8
19		#6 x 24'-3" (LEVEL I)	8
20		2'-0" x 6'-0 3/4" CORR. STL. PIPE (GALV.)	1
21		2'-0" x 6'-3 3/8" CORR. STL. PIPE (GALV.)	1
22		2'-0" x 6'-6 1/2" CORR. STL. PIPE (GALV.)	1
23		SET OF (4) 0.60" x 270 KSI STRAND LIFTING LOOPS	2

APPROVAL STAMP:

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

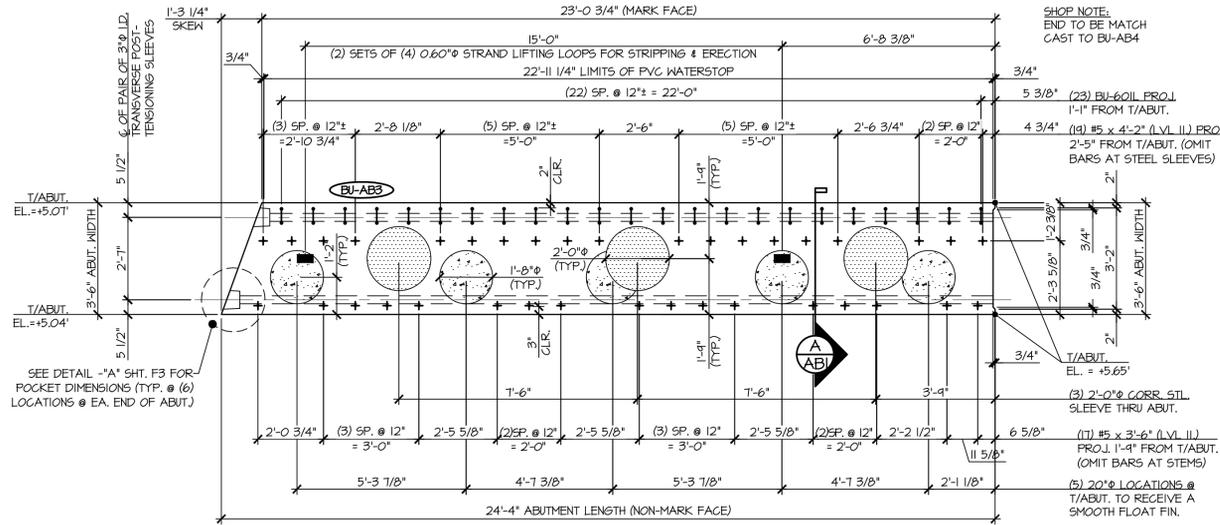
T. BUCK CONSTRUCTION, INC.
 CONTRACTOR
 AUBURN, MAINE

STATE OF VERMONT AGENCY OF TRANSPORTATION
 COUNTY OF CALEDONIA

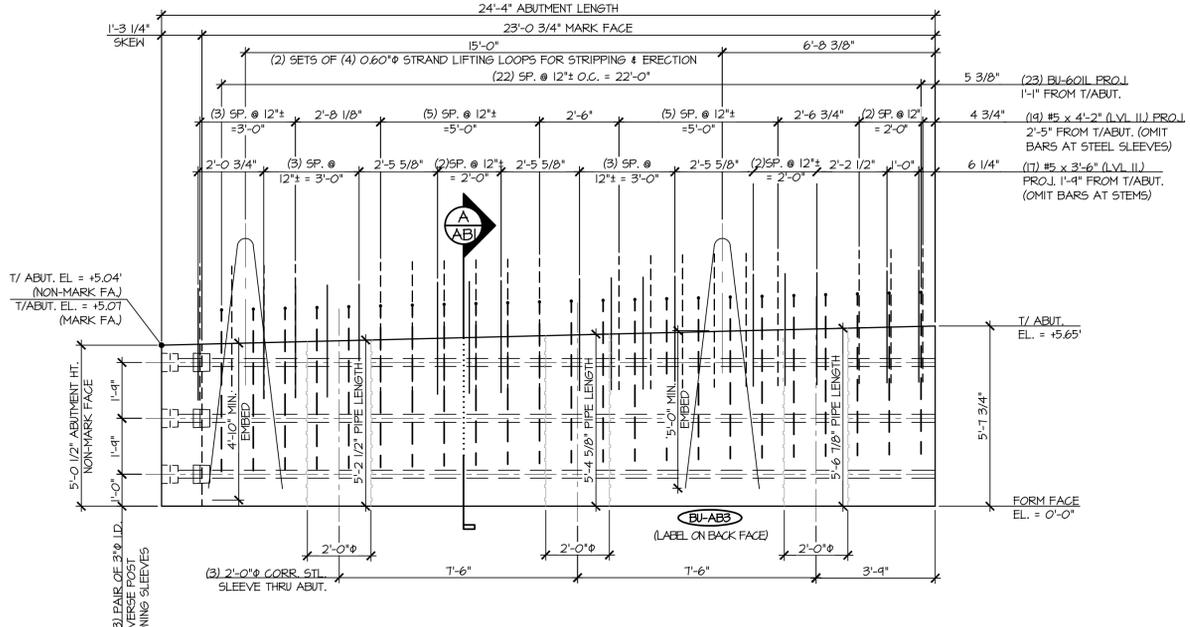
TOWN OF BURKE
 VERMONT ROUTE 114
 BRIDGE NO.: 13 PROJECT NO.: BRF 0269(13)

DATE: MAR. 26, 2015
 SCALE: NOTED
 CHKD: DFTM: JDK
 JOB NO: 23454-015

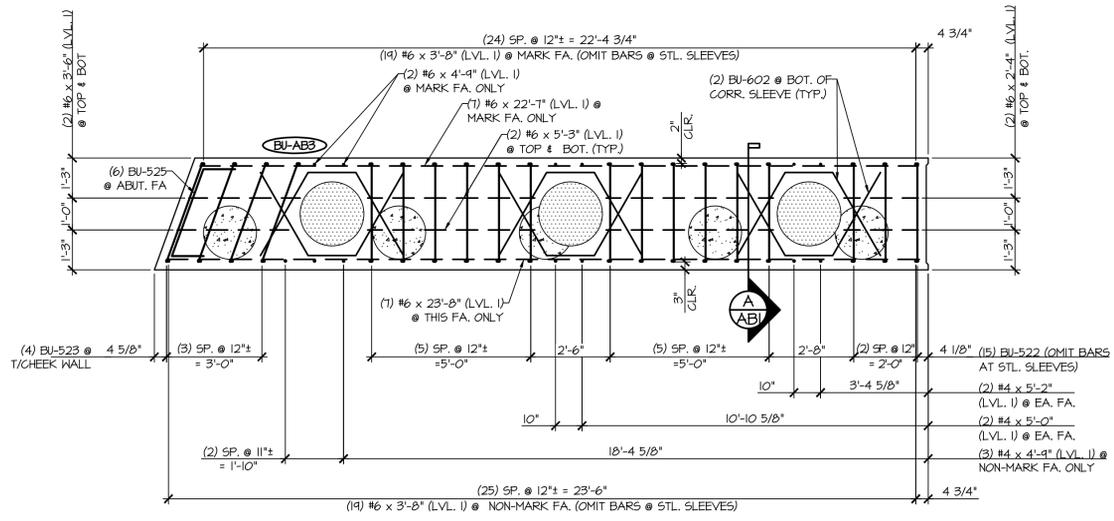
PRECAST ABUTMENT #2 DETAILS DWG. NO: AB3



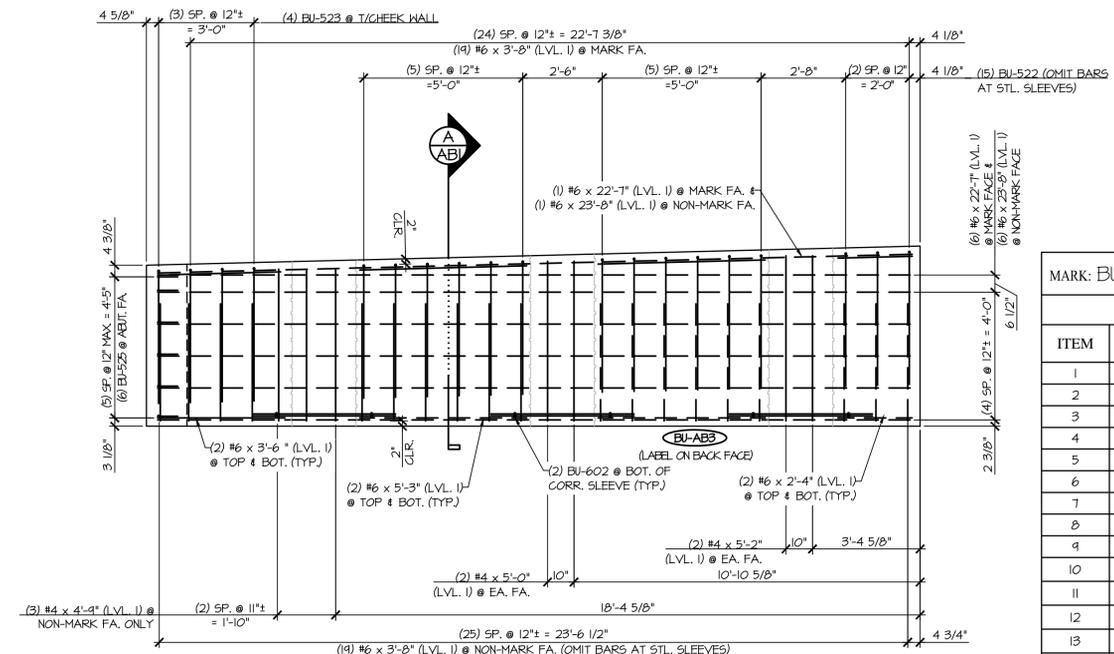
1 ABUTMENT DIMENSIONAL PLAN VIEW IN FORM
3/8" = 1'-0"



2 ABUTMENT DIMENSIONAL NON-MARK FACE ELEVATION
3/8" = 1'-0"



3 ABUTMENT REINFORCING PLAN VIEW IN FORM
3/8" = 1'-0"



4 ABUTMENT REINFORCING NON-MARK FACE ELEVATION
3/8" = 1'-0"

MATERIAL LIST / ABUTMENT			
ITEM	MARK	DESCRIPTION	QTY.
1	BU-522	#5 BENT BAR (LEVEL I)	15
2	BU-523	#5 BENT BAR (LEVEL I)	4
3	BU-525	#5 BENT BAR (LEVEL I)	6
4		#5 x 3'-6" (LEVEL II, DUAL COATED)	17
5		#5 x 4'-2" (LEVEL II, DUAL COATED)	19
6	BU-60IL	#6 BENT BAR (LEVEL II, DUAL COATED)	23
7	BU-602	#6 BENT BAR (LEVEL I)	6
8		#6 x 2'-4" (LEVEL I)	4
9		#6 x 3'-8" (LEVEL I)	38
10		#6 x 4'-9" (LEVEL I)	5
11		#6 x 5'-0" (LEVEL I)	4
12		#6 x 5'-2" (LEVEL I)	4
13		#6 x 5'-3" (LEVEL I)	8
14		#6 x 22'-7" (LEVEL I)	7
15		#6 x 23'-8" (LEVEL I)	7
16		2'-0" x 5'-2 1/2" CORR. STL. PIPE (GALV)	1
17		2'-0" x 5'-4 3/8" CORR. STL. PIPE (GALV)	1
18		2'-0" x 5'-6 7/8" CORR. STL. PIPE (GALV)	1
19		SET OF (4) 0.60"Ø x 270 KSI STRAND LIFTING LOOPS	2

APPROVAL STAMP:

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

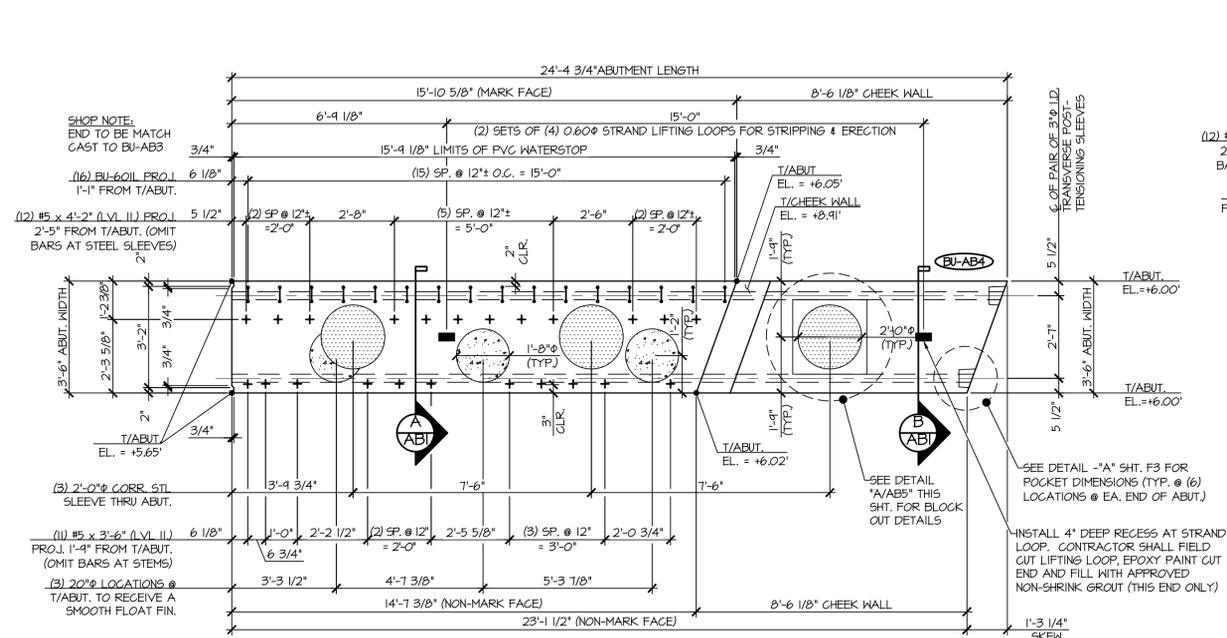
T. BUCK CONSTRUCTION, INC.
CONTRACTOR
AUBURN, MAINE

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF CALEDONIA

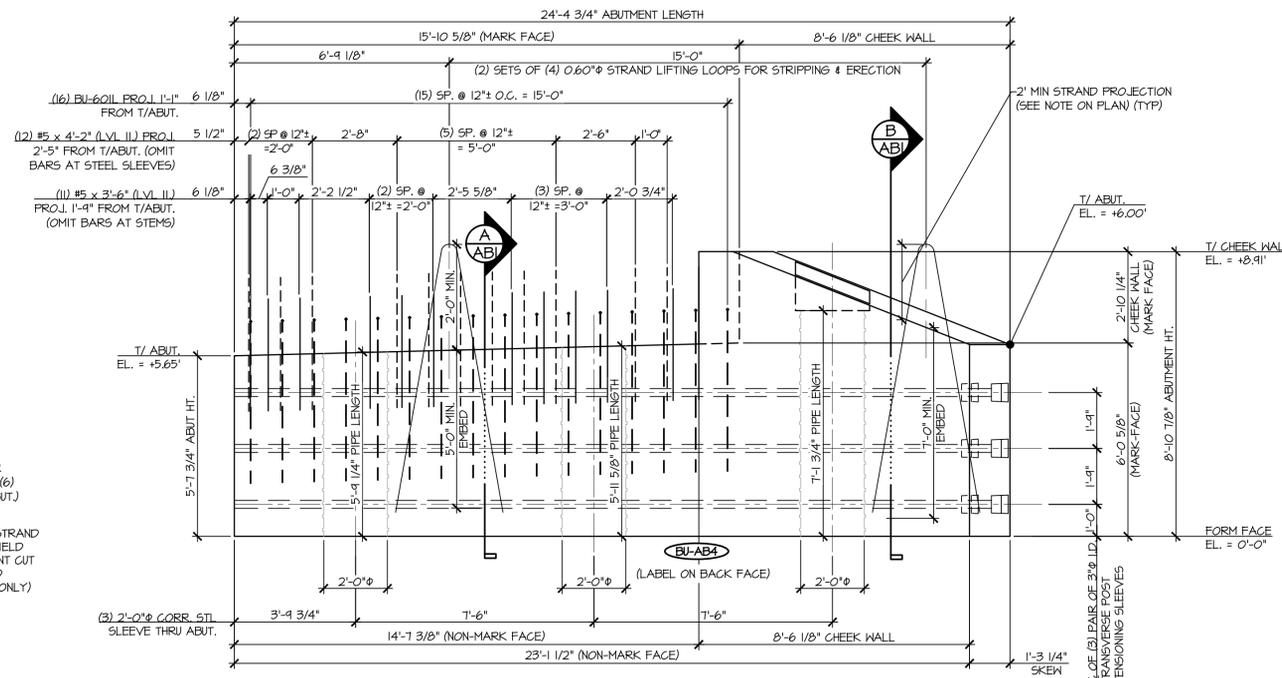
TOWN OF BURKE
VERMONT ROUTE 114
BRIDGE NO.: 13 PROJECT NO.: BRF 0269(13)

DATE: MAR. 26, 2015
SCALE: NOTED
CHKD: DFTM: JDK
JOB NO: 23454-015
DWG. NO: AB4

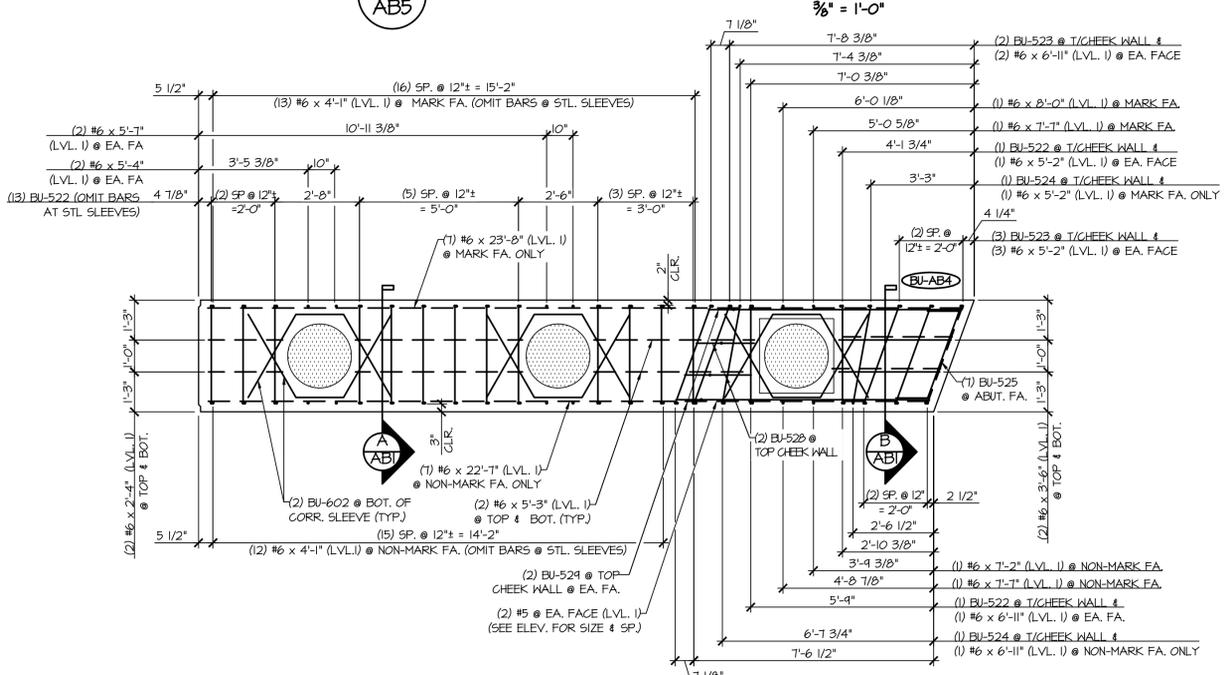
PRECAST ABUTMENT #3 DETAILS



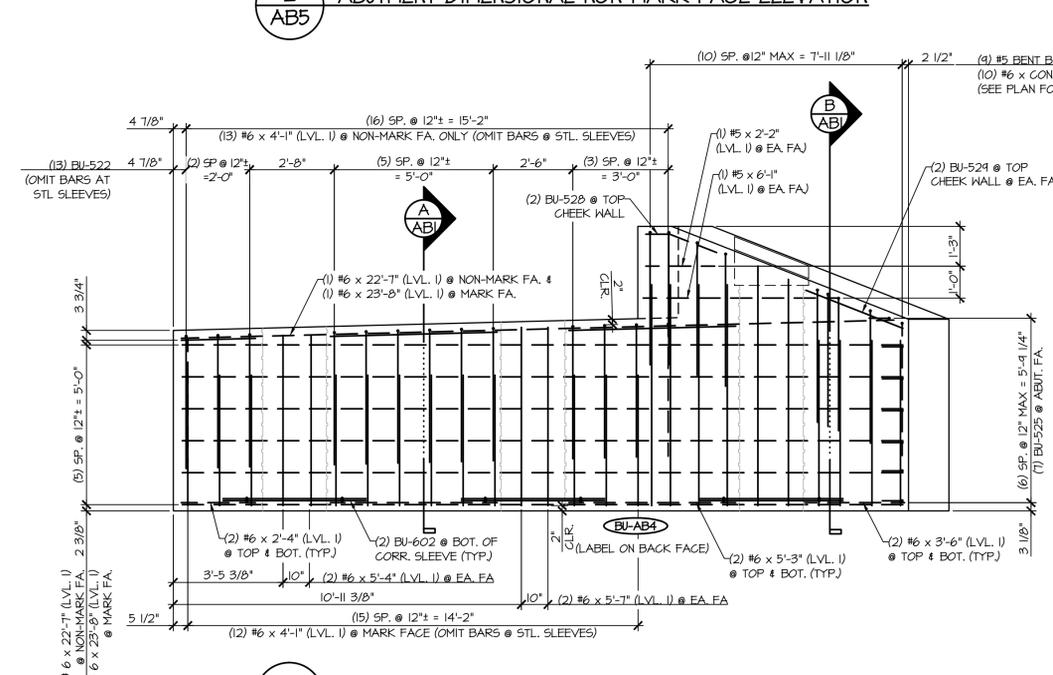
1 ABUTMENT DIMENSIONAL PLAN VIEW IN FORM
 $\frac{3}{8}'' = 1'-0''$



2 ABUTMENT DIMENSIONAL NON-MARK FACE ELEVATION
 $\frac{3}{8}'' = 1'-0''$

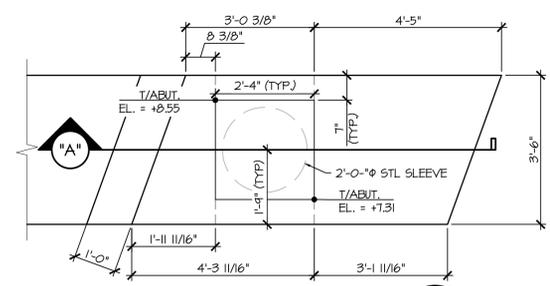


3 ABUTMENT REINFORCING PLAN VIEW IN FORM
 $\frac{3}{8}'' = 1'-0''$

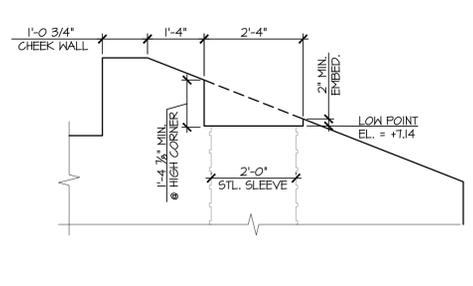


4 ABUTMENT REINFORCING NON-MARK FACE ELEVATION
 $\frac{3}{8}'' = 1'-0''$

MARK: BU-AB4	QTY: 1	WT: 35,82T	VOL: 17.69 CY
MATERIAL LIST / ABUTMENT			
ITEM	MARK	DESCRIPTION	QTY.
1	BU-522	#5 BENT BAR (LEVEL I)	15
2	BU-523	#5 BENT BAR (LEVEL I)	5
3	BU-524	#5 BENT BAR (LEVEL I)	2
4	BU-525	#5 BENT BAR (LEVEL I)	7
5	BU-526	#5 BENT BAR (LEVEL I)	2
6	BU-524	#5 BENT BAR (LEVEL I)	2
7		#5 x 2'-2" (LEVEL II)	2
8		#5 x 3'-6" (LEVEL II, DUAL COATED)	11
9		#5 x 4'-2" (LEVEL II, DUAL COATED)	12
10		#5 x 6'-1" (LEVEL I)	2
11	BU-601L	#6 BENT BAR (LEVEL II, DUAL COATED)	16
12	BU-602	#6 BENT BAR (LEVEL I)	6
13		#6 x 2'-4" (LEVEL I)	4
14		#6 x 3'-6" (LEVEL I)	4
15		#6 x 4'-1" (LEVEL I)	25
16		#6 x 5'-2" (LEVEL I)	4
17		#6 x 5'-3" (LEVEL I)	8
18		#6 x 5'-4" (LEVEL I)	4
19		#6 x 5'-7" (LEVEL I)	4
20		#6 x 6'-1" (LEVEL I)	7
21		#6 x 7'-2" (LEVEL I)	1
22		#6 x 7'-7" (LEVEL I)	2
23		#6 x 8'-0" (LEVEL I)	1
24		#6 x 22'-7" (LEVEL I)	7
25		#6 x 23'-8" (LEVEL I)	7
26		2'-0" x 5'-4 1/4" CORR. STL. PIPE (GALV)	1
27		2'-0" x 5'-11 3/8" CORR. STL. PIPE (GALV)	1
28		2'-0" x 7'-1 3/4" CORR. STL. PIPE (GALV)	1
29		SET OF 4 0.60" x 270 KSI STRAND LIFTING LOOPS	2



A BLOCK OUT DETAILS
 $\frac{1}{2}'' = 1'-0''$



SECTION 'A'

APPROVAL STAMP:

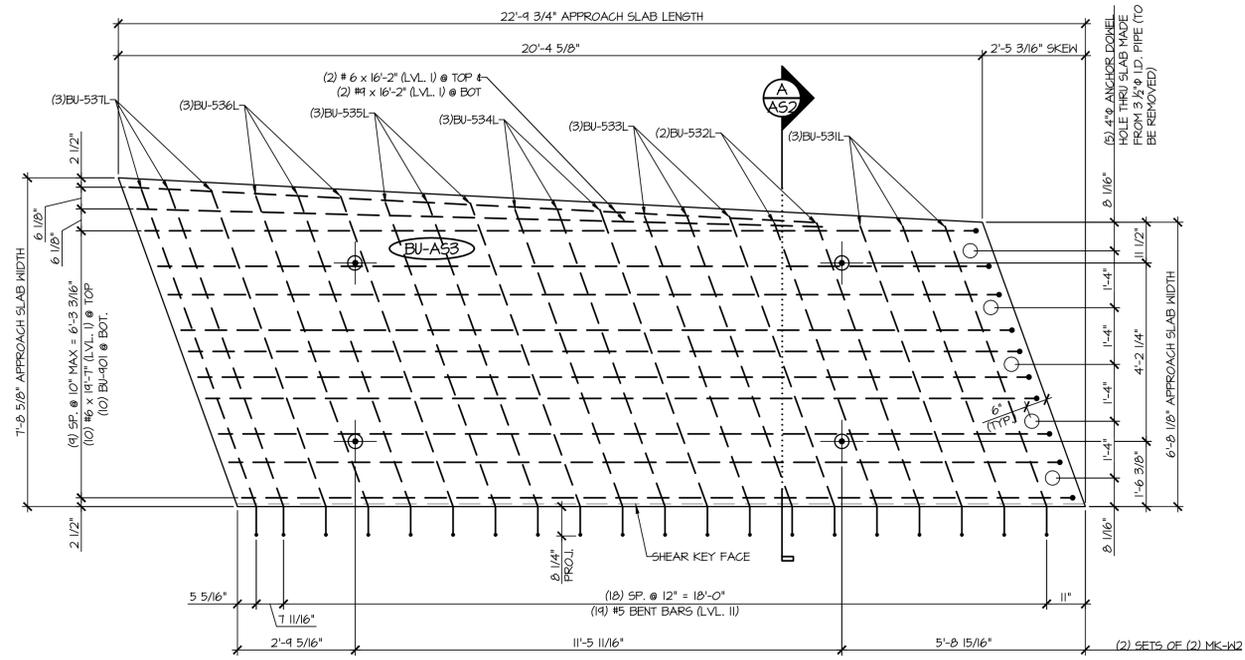
J.P. CARRARA & SONS INC.
 Precast & Prestress Manufacturer
 2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone: (802)388-6361 Fax: (802)388-9010

T. BUCK CONSTRUCTION, INC.
 CONTRACTOR
 AUBURN, MAINE

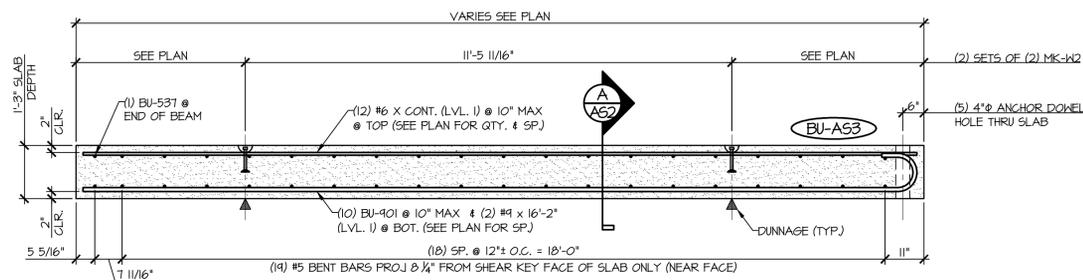
STATE OF VERMONT AGENCY OF TRANSPORTATION
 COUNTY OF CALEDONIA

TOWN OF BURKE
 VERMONT ROUTE 114
 BRIDGE NO.: 13 PROJECT NO.: BRF 0269(13)

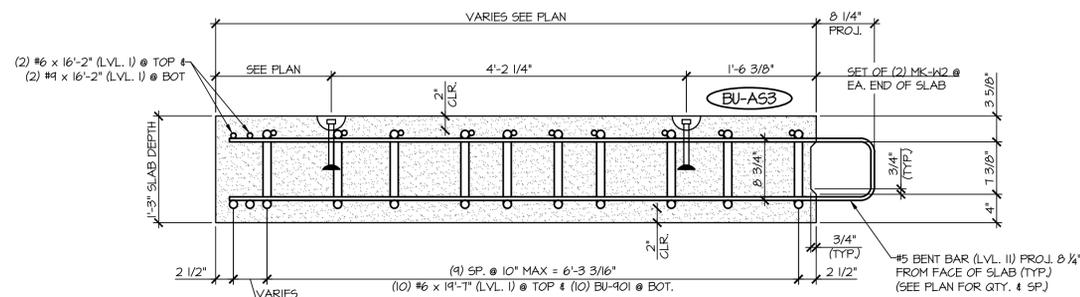
DATE: MAR. 26, 2015
 SCALE: NOTED
 CHKD: DFTM: JDK
 JOB NO: 23454-015
 DWG. NO: AB5



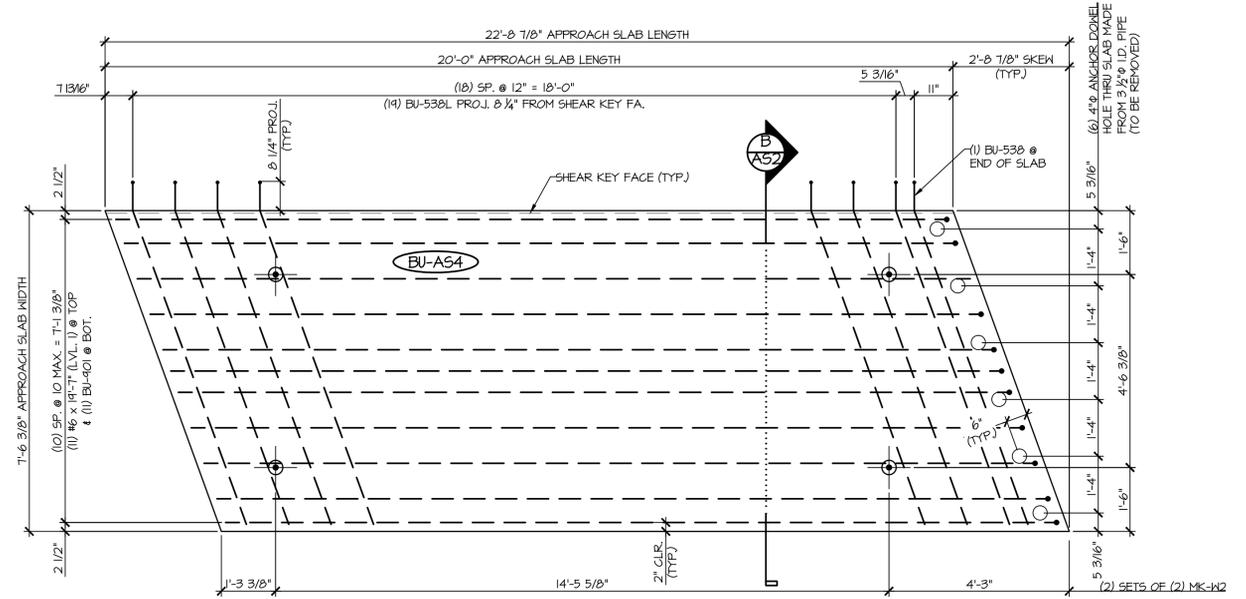
1 PLAN VIEW IN FORM
AS2 1/2\" = 1'-0\"



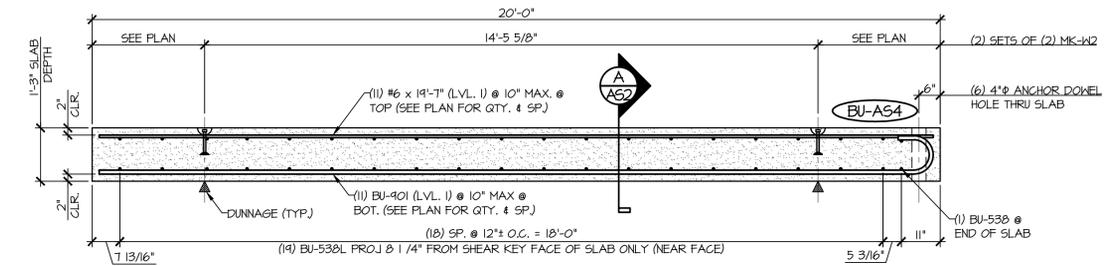
2 LONGITUDINAL SECTION
AS2 1/2\" = 1'-0\"



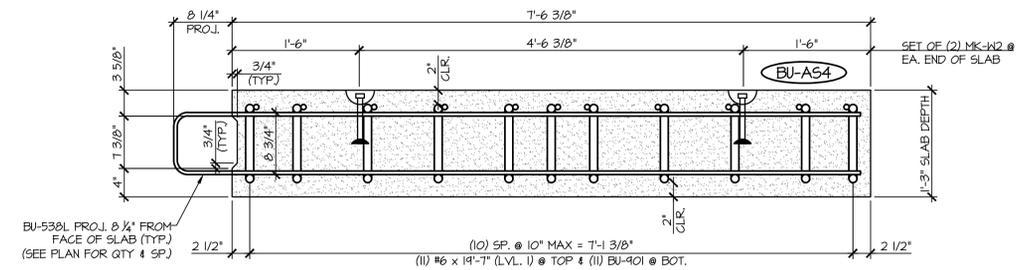
A APPROACH SLAB SECTION
AS2 1\" = 1'-0\"



3 PLAN VIEW IN FORM
AS2 1/2\" = 1'-0\"



4 LONGITUDINAL SECTION
AS2 1/2\" = 1'-0\"

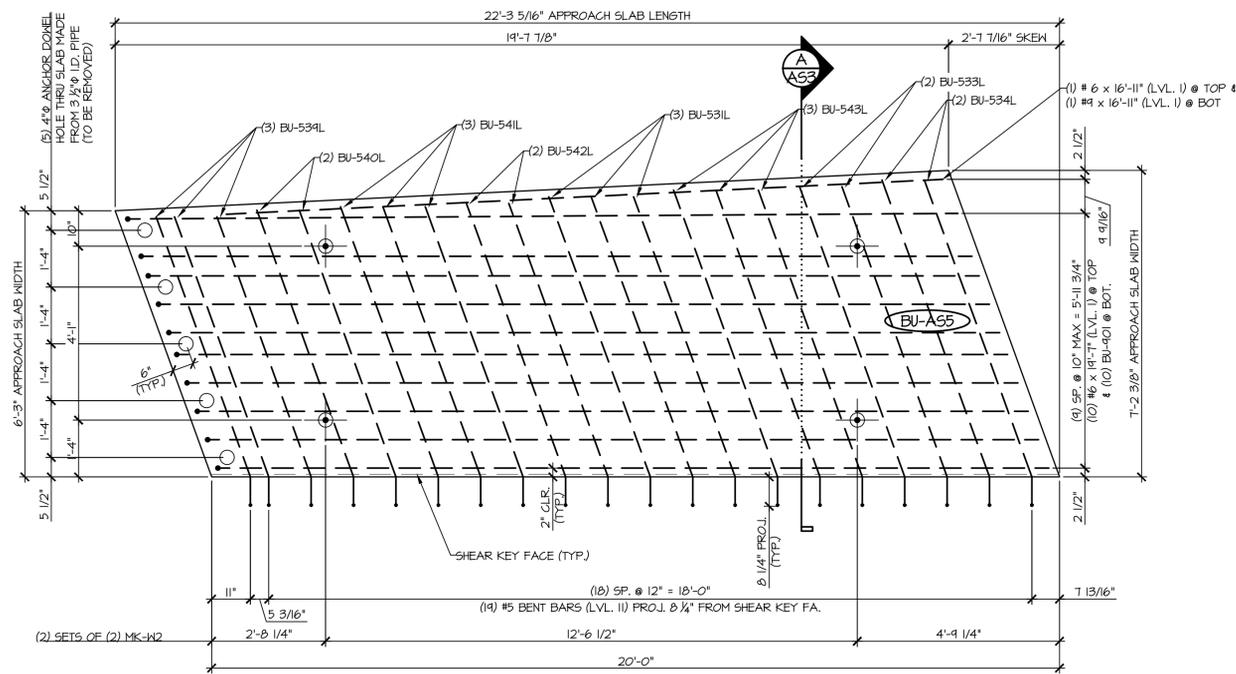


B APPROACH SLAB SECTION
AS2 1\" = 1'-0\"

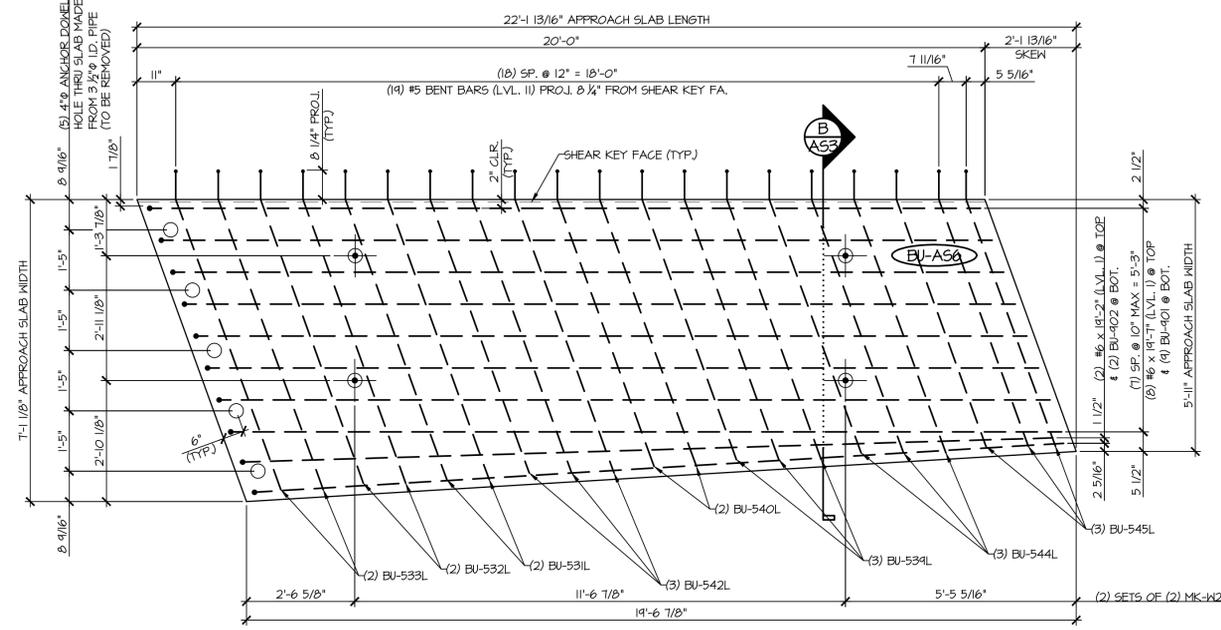
MARK: BU-A53	QTY.: 1	WT: 13.45T	VOL: 6.64 CY
MATERIAL LIST / APPROACH SLAB			
ITEM	MARK	DESCRIPTION	QTY.
1	BU-531L	#5 BENT BAR (LEVEL II, DUAL COATED)	3
2	BU-532L	#5 BENT BAR (LEVEL II, DUAL COATED)	2
3	BU-533L	#5 BENT BAR (LEVEL II, DUAL COATED)	3
4	BU-534L	#5 BENT BAR (LEVEL II, DUAL COATED)	3
5	BU-535L	#5 BENT BAR (LEVEL II, DUAL COATED)	3
6	BU-536L	#5 BENT BAR (LEVEL II, DUAL COATED)	3
7	BU-537L	#5 BENT BAR (LEVEL II, DUAL COATED)	3
8		#6 x 19'-7\" (LEVEL I)	10
9		#6 x 16'-2\" (LEVEL I)	2
10	BU-901	#4 BENT BAR (LEVEL I)	10
11		#4 x 16'-2\" (LEVEL I)	2
12	MK-W2	4T x 7 1/8\" SWIFT LIFT LIFTER	4

MARK: BU-A54	QTY.: 1	WT: 14.07T	VOL: 6.95 CY
MATERIAL LIST / APPROACH SLAB			
ITEM	MARK	DESCRIPTION	QTY.
1	BU-538	#5 BENT BAR (LEVEL II, DUAL COATED)	20
2		#6 x 19'-7\" (LEVEL I)	11
3	BU-901	#4 BENT BAR (LEVEL I)	11
4	MK-W2	4T x 7 1/8\" SWIFT LIFT LIFTER	4

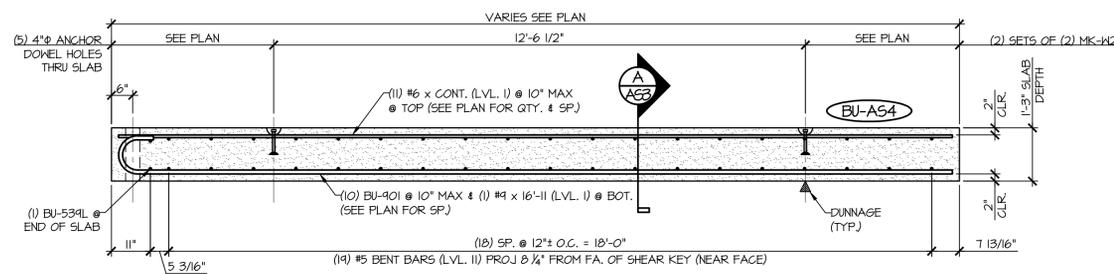
APPROVAL STAMP:	J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer 264 CREE STR., MOULBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010		T. BUCK CONSTRUCTION, INC. CONTRACTOR AUBURN, MAINE	
	STATE OF VERMONT AGENCY OF TRANSPORTATION COUNTY OF CALEDONIA		DATE: MAR. 26, 2015	SCALE: NOTED
	TOWN OF BURKE VERMONT ROUTE 114 BRIDGE NO.: 13 PROJECT NO.: BRF 0269(13)		CHKD: _____	DFTM: JDK
	PRECAST APPROACH SLAB DETAILS		JOB NO: 23454-015	DWG. NO: AS2



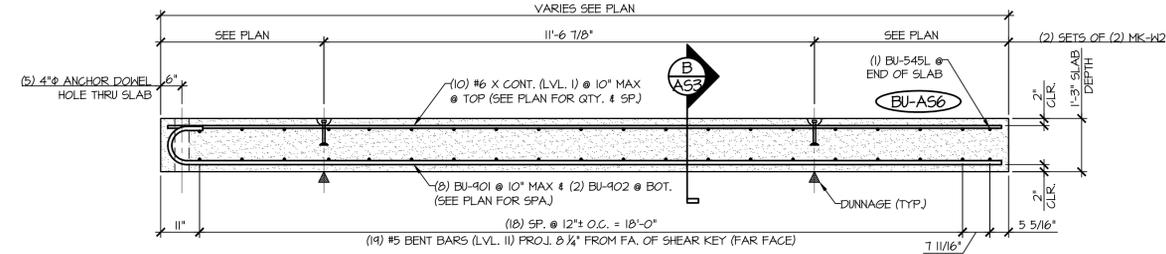
1 PLAN VIEW IN FORM
AS3
1/2" = 1'-0"



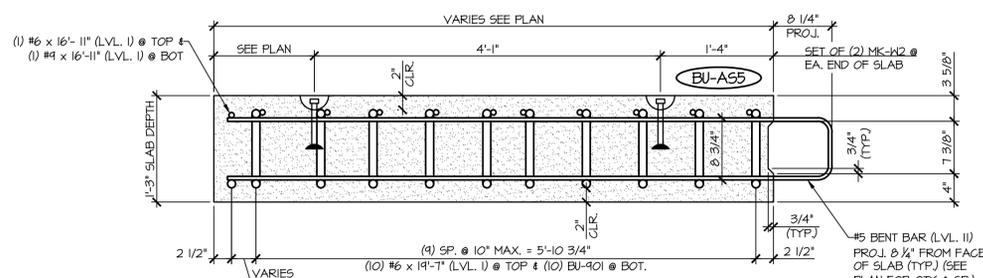
3 PLAN VIEW IN FORM
AS3
1/2" = 1'-0"



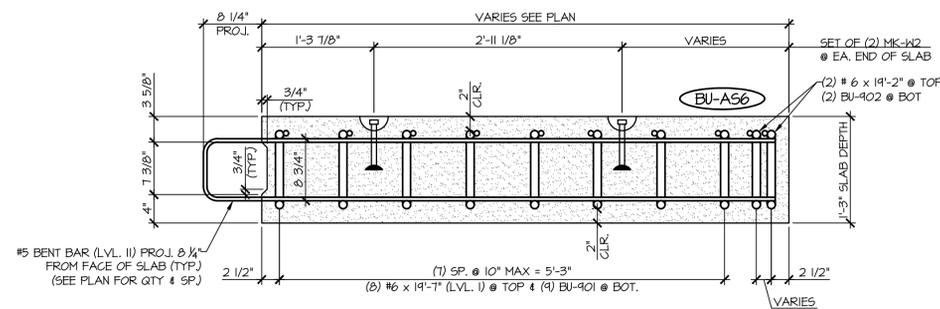
2 LONGITUDINAL SECTION
AS3
1/2" = 1'-0"



4 LONGITUDINAL SECTION
AS3
1/2" = 1'-0"



A APPROACH SLAB SECTION
AS3
1" = 1'-0"



B APPROACH SLAB SECTION
AS3
1" = 1'-0"

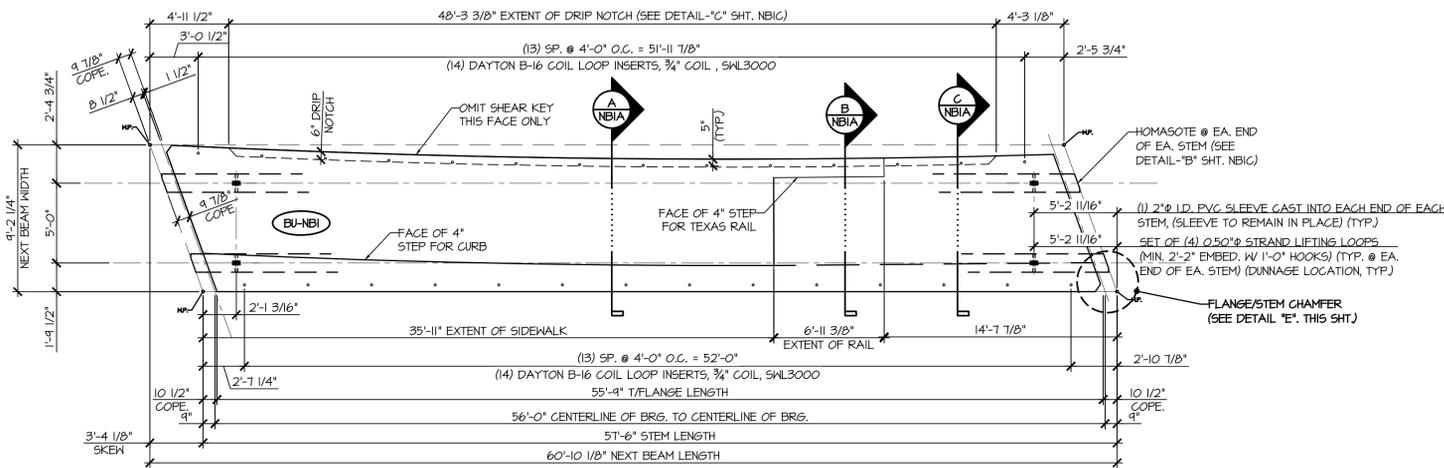
MARK: BU-A55	QTY.: 1	WT: 12.56T	VOL: 6.20 CY
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MATERIAL LIST / APPROACH SLAB			
ITEM	MARK	DESCRIPTION	QTY.
1	BU-531L	#5 BENT BAR (LEVEL II, DUAL COATED)	3
2	BU-533L	#5 BENT BAR (LEVEL II, DUAL COATED)	2
3	BU-534L	#5 BENT BAR (LEVEL II, DUAL COATED)	2
4	BU-534L	#5 BENT BAR (LEVEL II, DUAL COATED)	3
5	BU-540L	#5 BENT BAR (LEVEL II, DUAL COATED)	2
6	BU-541L	#5 BENT BAR (LEVEL II, DUAL COATED)	3
7	BU-542L	#5 BENT BAR (LEVEL II, DUAL COATED)	2
8	BU-543L	#5 BENT BAR (LEVEL II, DUAL COATED)	3
9		#6 x 16'-11" (LEVEL I)	1
10		#6 x 14'-7" (LEVEL I)	10
11	BU-901	#9 BENT BAR (LEVEL I)	10
12	BU-902	#9 BENT BAR (LEVEL I)	1
13	MK-W2	4T x 7 1/2" SWIFT LIFT LIFTER	4

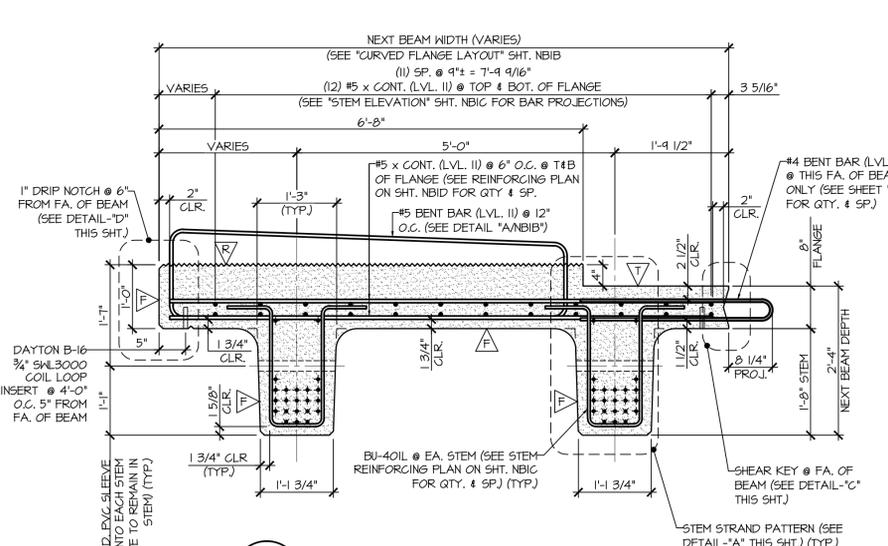
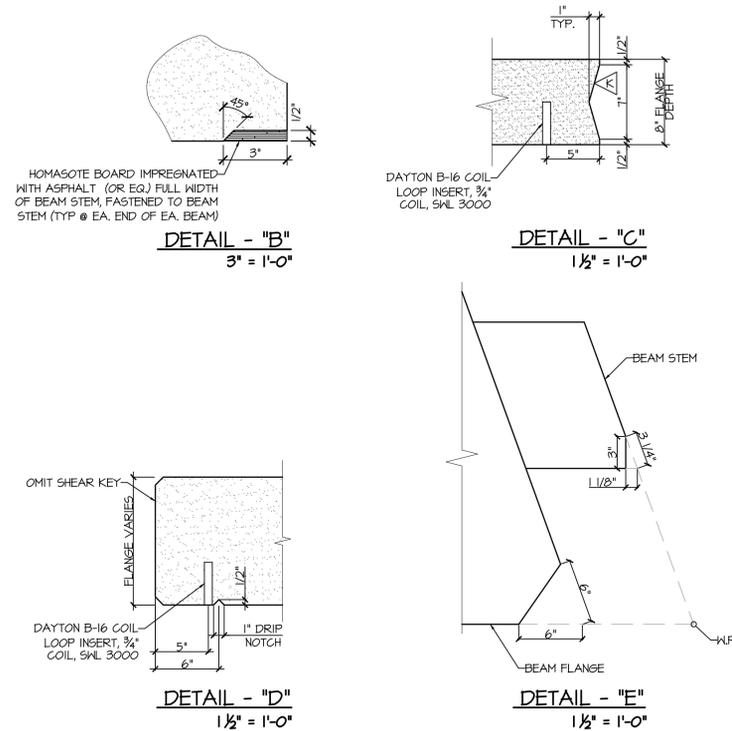
MARK: BU-A56	QTY.: 1	WT: 12.15T	VOL: 6.00 CY
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MATERIAL LIST / APPROACH SLAB			
ITEM	MARK	DESCRIPTION	QTY.
1	BU-531L	#5 BENT BAR (LEVEL II, DUAL COATED)	2
2	BU-532L	#5 BENT BAR (LEVEL II, DUAL COATED)	2
3	BU-533L	#5 BENT BAR (LEVEL II, DUAL COATED)	2
4	BU-534L	#5 BENT BAR (LEVEL II, DUAL COATED)	3
5	BU-540L	#5 BENT BAR (LEVEL II, DUAL COATED)	2
6	BU-542L	#5 BENT BAR (LEVEL II, DUAL COATED)	3
7	BU-544L	#5 BENT BAR (LEVEL II, DUAL COATED)	3
8	BU-545L	#5 BENT BAR (LEVEL II, DUAL COATED)	2
9		#6 x 14'-2" (LEVEL I)	2
10		#6 x 14'-7" (LEVEL I)	8
11	BU-901	#9 BENT BAR (LEVEL I)	8
12	BU-902	#9 BENT BAR (LEVEL I)	2
14	MK-W2	4T x 7 1/2" SWIFT LIFT LIFTER	4

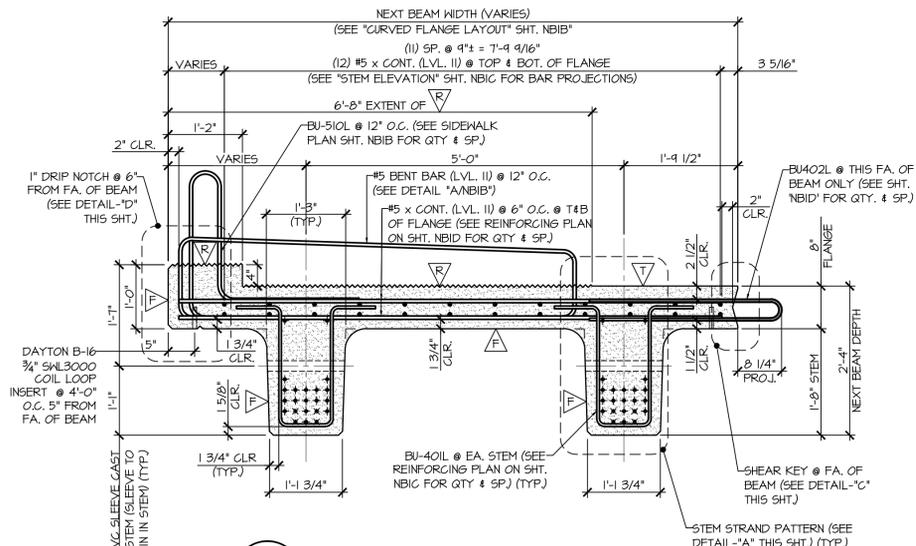
APPROVAL STAMP:	J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer 264 CASE STR., MOULBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010		T. BUCK CONSTRUCTION, INC. CONTRACTOR AUBURN, MAINE	
	STATE OF VERMONT AGENCY OF TRANSPORTATION COUNTY OF CALEDONIA		DATE: MAR. 26, 2015	SCALE: NOTED
	TOWN OF BURKE VERMONT ROUTE 114 BRIDGE NO.: 13 PROJECT NO.: BRF 0269(13)		CHKD: DFTM: JDK	JOB NO: 23454-015
	PRECAST APPROACH SLAB DETAILS		DWG. NO: AS3	



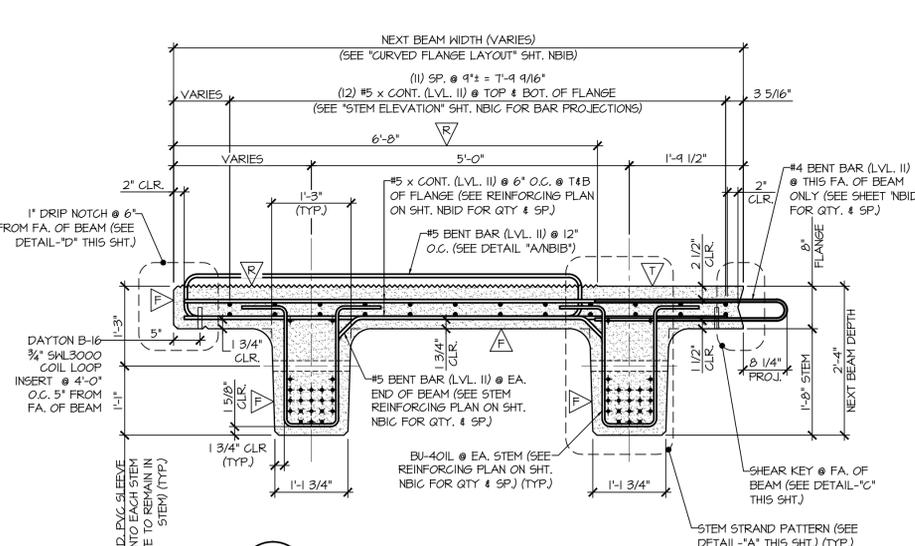
I DIMENSIONAL PLAN VIEW IN FORM
 NBIA 3/8" = 1'-0"
 - SEE DETAIL "1/NBIB" FOR SIDEWALK, DRIVEWAY & RAILING LAYOUT & REINFORCEMENT DETAILS
 - SEE DETAIL "2/NBIB" FOR CURVED FLANGE LAYOUT



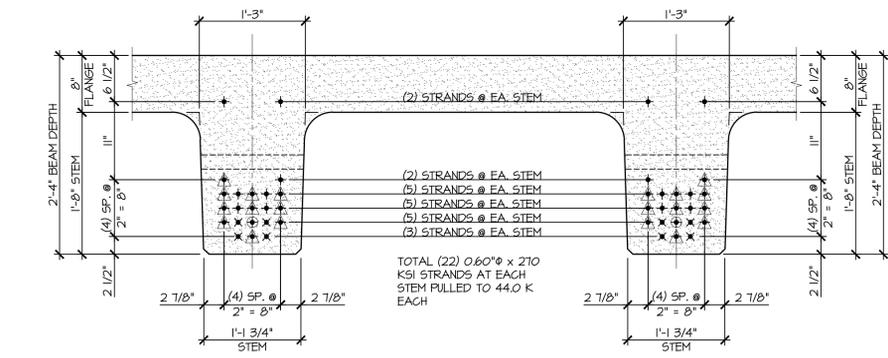
A DIMENSIONAL & REINFORCING SECTION
 NBIA 3/4" = 1'-0"
 - SEE SHEET NBIC FOR END BLOCK REINFORCING DETAILS



B DIMENSIONAL & REINFORCING SECTION
 NBIA 3/4" = 1'-0"
 - SEE SHEET NBIC FOR END BLOCK REINFORCING DETAILS



C DIMENSIONAL & REINFORCING SECTION
 NBIA 3/4" = 1'-0"
 - SEE SHEET NBIC FOR END BLOCK REINFORCING DETAILS



DETAIL - "A" (STEM STRAND PATTERN)
 1" = 1'-0"

PRESTRESSING NOTATIONS
 + DENOTES STRAIGHT STRAND TO BE CUT FLUSH WITH EA. END OF EA. STEM
 x DENOTES STRAIGHT STRAND TO EXTEND 2'-0" FROM EA. END OF EA. STEM
 ⊕ DENOTES STRAIGHT STRANDS TO BE DEBONDED 2'-0" FROM EA. END OF EA. STEM
 ⊖ DENOTES STRAIGHT STRANDS TO BE DEBONDED 0'-6" FROM EA. END OF EA. STEM

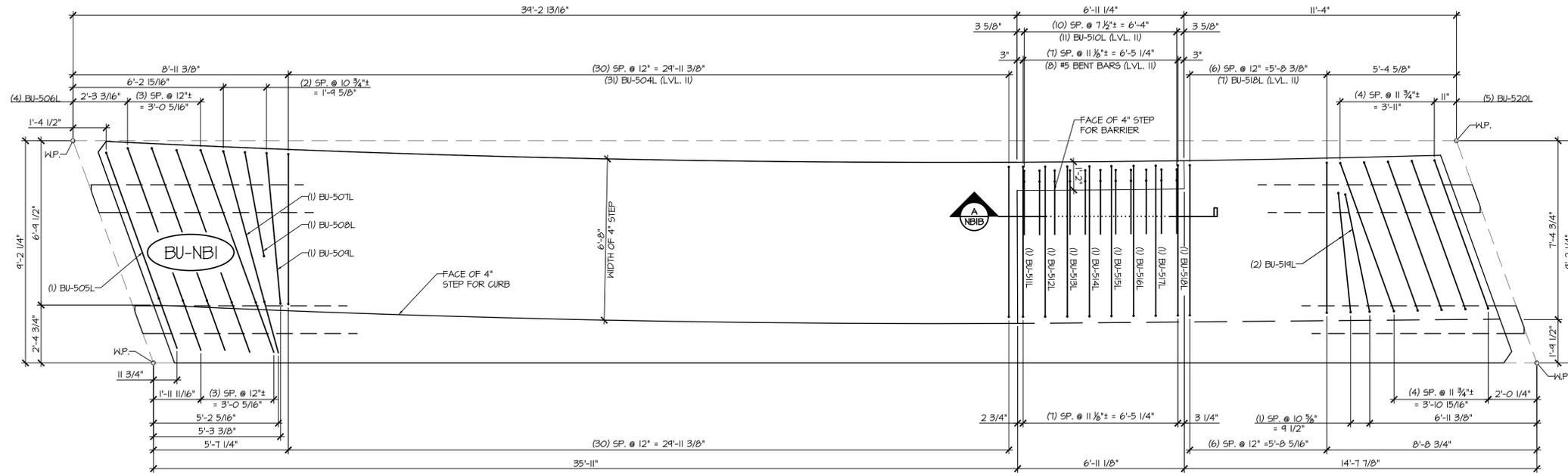
DETENSIONING SCHEDULE
 N.T.S.

①	③	④	②
⑤	⑦	⑧	⑥
⑨	⑪	⑫	⑩
⑬	⑭	⑮	⑯
⑰	⑱	⑲	⑳
㉑	㉒	㉓	㉔
㉕	㉖	㉗	㉘
㉙	㉚	㉛	㉜
㉝	㉞	㉟	㊱

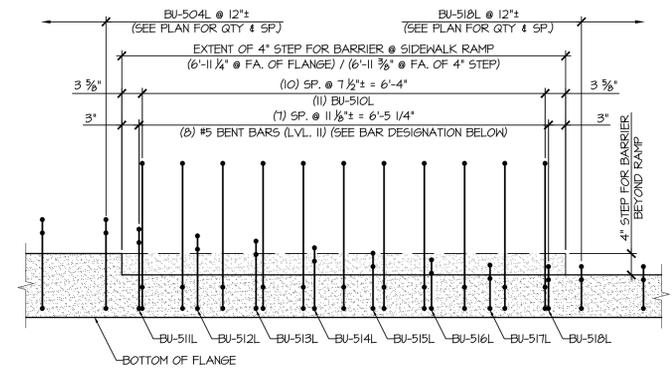
- △ DENOTES FORM FINISH
- △ DENOTES SMOOTH SCREED FINISH
- △ DENOTES ROUGHENED FINISH (1/8" AMPLITUDE)
- △ DENOTES ROUGHENED FINISH (1/2" RAKE)

MARK: BU-NBI	QTY.: 1	WT: 47.52 T	VOL: 23.47 CY
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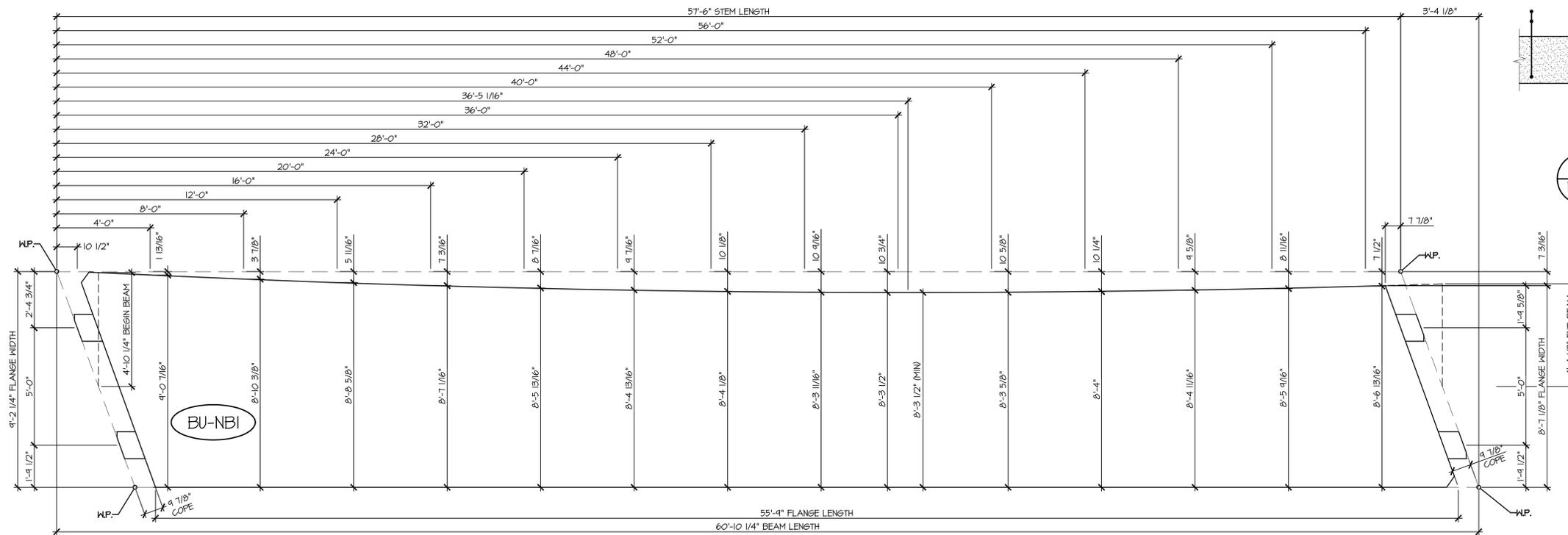
APPROVAL STAMP:	J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer 264 CASE STR., MOULBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010	T. BUCK CONSTRUCTION, INC. CONTRACTOR AUBURN, MAINE
	STATE OF VERMONT AGENCY OF TRANSPORTATION COUNTY OF CALEDONIA	DATE: MAR. 26, 2015
	TOWN OF BURKE VERMONT ROUTE 114 BRIDGE NO.: 13 PROJECT NO.: BRF 0269(13)	SCALE: NOTED
	PRESTRESSED NEXT BEAM DETAILS	CHKD: DFTM: JDK JOB NO: 23454-015 DWG. NO: NBIA



1 NBIB SIDEWALK REINFORCING PLAN VIEW IN FORM
 3/8" = 1'-0"
 - SEE SHEET NBIC FOR STEM REINFORCING AT BEAM ENDS
 - SEE SHEET NBID FOR FLANGE REINFORCING AT BEAM END

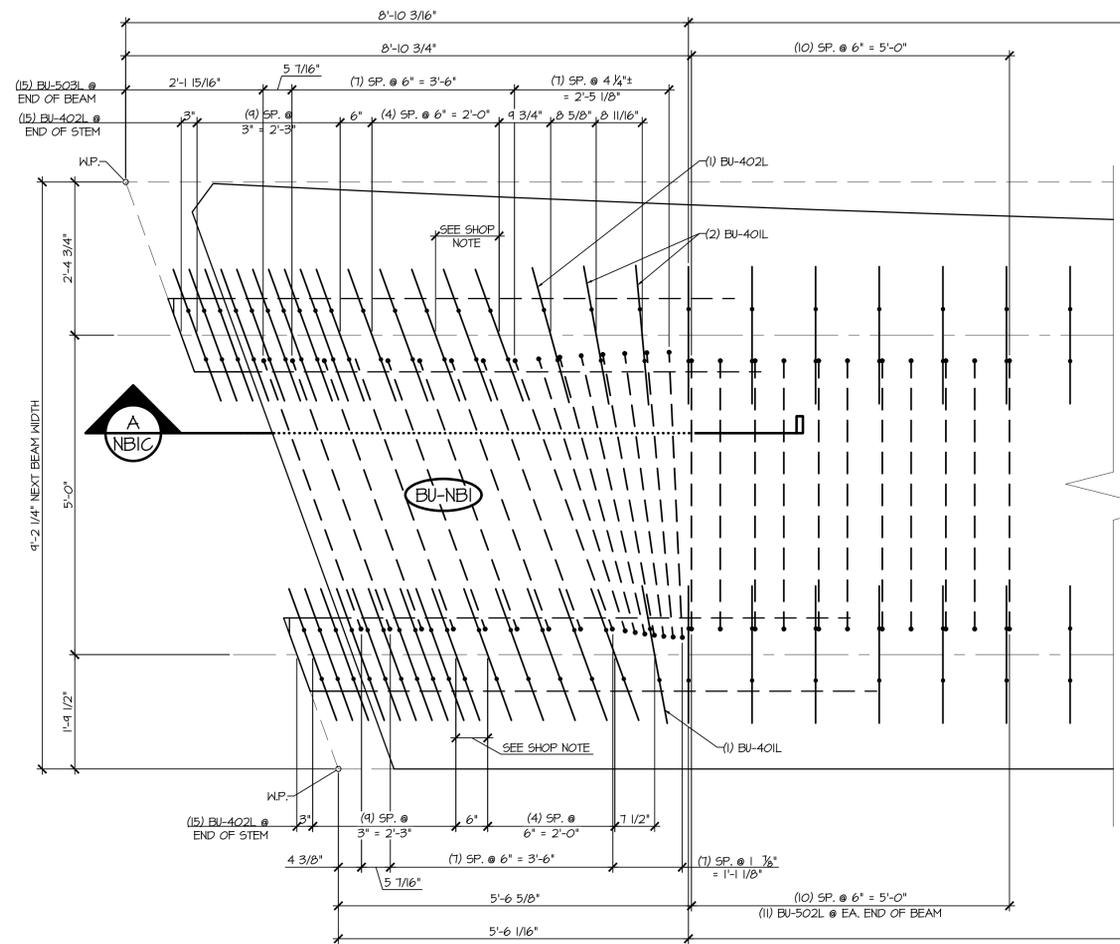


A NBIB SIDEWALK TRANSITION REINFORCING SECTION
 3/4" = 1'-0"



2 NBIB CURVED FLANGE LAYOUT
 3/8" = 1'-0"

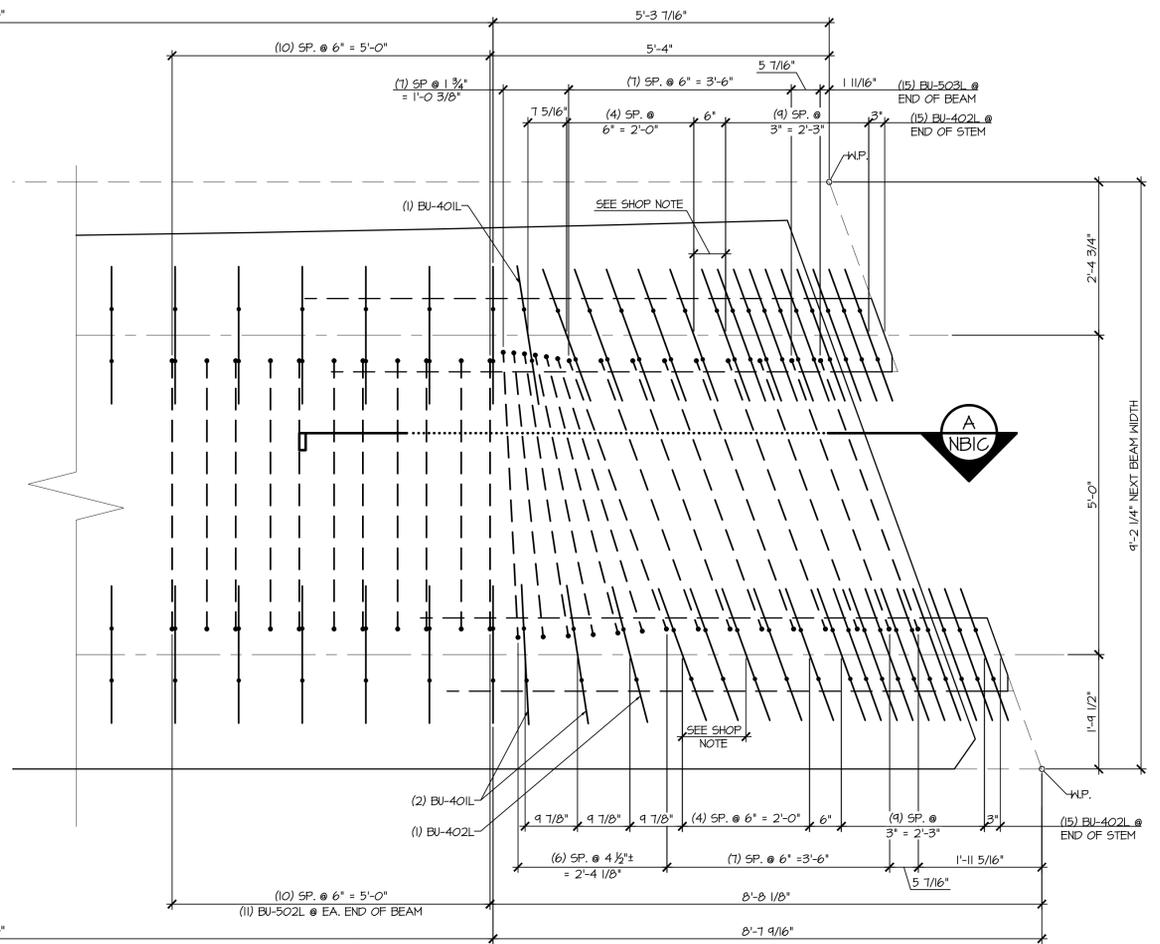
APPROVAL STAMP:	J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer 2464 ONE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010		T. BUCK CONSTRUCTION, INC. CONTRACTOR AUBURN, MAINE	
	STATE OF VERMONT AGENCY OF TRANSPORTATION COUNTY OF CALEDONIA		DATE: MAR. 26, 2015	SCALE: NOTED
	TOWN OF BURKE VERMONT ROUTE 114 BRIDGE NO.: 13 PROJECT NO.: BRF 0269(13)		CHKD: DFTM: JDC	JOB NO: 23454-015
	PRESTRESSED NEXT BEAM DETAILS		DWG. NO: NBIB	



1 STEM REINFORCING PLAN VIEW IN FORM
NBIC $\frac{3}{4}'' = 1'-0''$

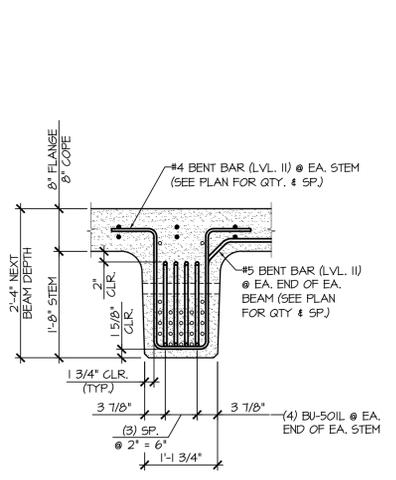
- LONGITUDINAL REINFORCING NOT SHOWN FOR CLARITY
- SEE SHEET NBID FOR REINFORCING PLAN
- SEE SHEET NBID FOR SIDEWALK REINFORCING PLAN
- SEE SHEET NBID FOR FLANGE REINFORCING AT BEAM END

SHOP NOTE
- STIRRUP SPACING TO BE ADJUSTED TO ALLOW FOR 2" PVC SLEEVE

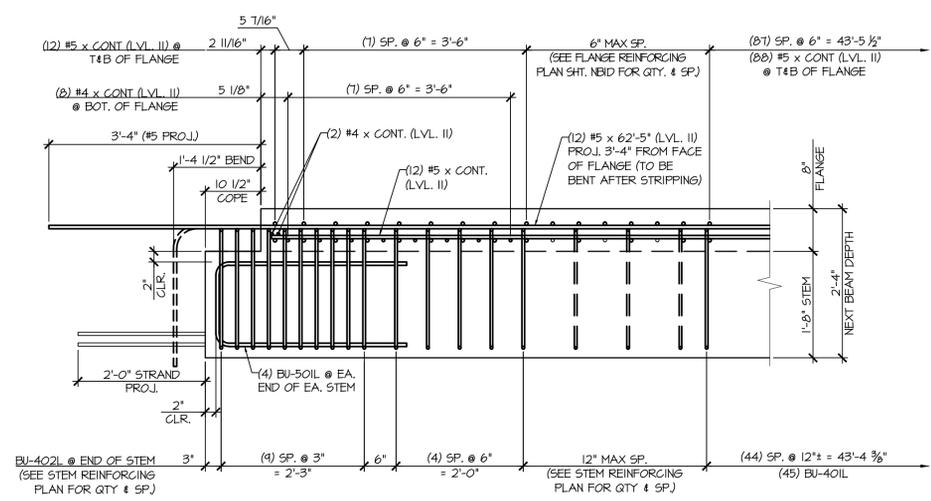


2 STEM REINFORCING PLAN VIEW IN FORM
NBIC $\frac{3}{4}'' = 1'-0''$

- LONGITUDINAL REINFORCING NOT SHOWN FOR CLARITY
- SEE SHEET NBID FOR REINFORCING PLAN
- SEE SHEET NBID FOR SIDEWALK REINFORCING PLAN
- SEE SHEET NBID FOR FLANGE REINFORCING AT BEAM END



STEM SECTION



STEM ELEVATION

A END BLOCK STEM REINFORCING DETAILS
NBIC $\frac{3}{4}'' = 1'-0''$

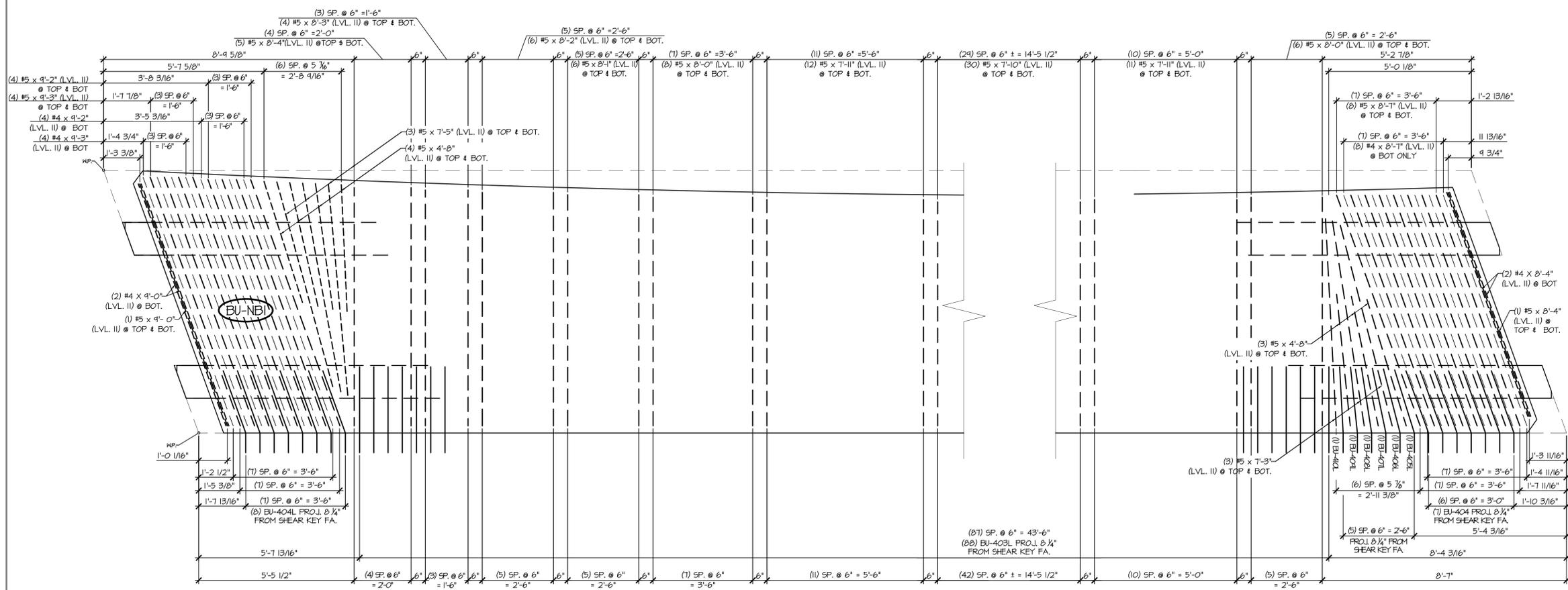
APPROVAL STAMP:

J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer <small>264 CASE STR., MOULBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010</small>	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.: 13 PROJECT NO.: BRF 0269(13)	CHKD: DFTM: JDK JOB NO: 23454-015	
PRESTRESSED NEXT BEAM DETAILS		DWG. NO: NBIC

MARK: BU-NBI	QTY.:	WT: 47.52T	VOL: 23.47CY
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MATERIAL LIST / ABUTMENT

ITEM	MARK	DESCRIPTION	QTY.
1	BU-401L	#4 BENT BAR (LEVEL II, DUAL COATED)	96
2	BU-402L	#4 BENT BAR (LEVEL II, DUAL COATED)	62
3	BU-403L	#4 BENT BAR (LEVEL II, DUAL COATED)	88
4	BU-404L	#4 BENT BAR (LEVEL II, DUAL COATED)	15
5	BU-405L	#4 BENT BAR (LEVEL II, DUAL COATED)	1
6	BU-406L	#4 BENT BAR (LEVEL II, DUAL COATED)	1
7	BU-407L	#4 BENT BAR (LEVEL II, DUAL COATED)	1
8	BU-408L	#4 BENT BAR (LEVEL II, DUAL COATED)	1
9	BU-409L	#4 BENT BAR (LEVEL II, DUAL COATED)	1
10	BU-410L	#4 BENT BAR (LEVEL II, DUAL COATED)	1
11		#4 x 8'-4" (LEVEL II, DUAL COATED)	2
12		#4 x 8'-7" (LEVEL II, DUAL COATED)	8
13		#4 x 9'-0" (LEVEL II, DUAL COATED)	2
14		#4 x 9'-2" (LEVEL II, DUAL COATED)	4
15		#4 x 9'-3" (LEVEL II, DUAL COATED)	4
16	BU-501L	#5 BENT BAR (LEVEL II, DUAL COATED)	16
17	BU-502L	#5 BENT BAR (LEVEL II, DUAL COATED)	22
18	B-503L	#5 BENT BAR (LEVEL II, DUAL COATED)	30
19	BU-504L	#5 BENT BAR (LEVEL II, DUAL COATED)	31
20	BU-505L	#5 BENT BAR (LEVEL II, DUAL COATED)	1
21	BU-506L	#5 BENT BAR (LEVEL II, DUAL COATED)	4
22	BU-507L	#5 BENT BAR (LEVEL II, DUAL COATED)	1
23	BU-508L	#5 BENT BAR (LEVEL II, DUAL COATED)	1
24	BU-509L	#5 BENT BAR (LEVEL II, DUAL COATED)	1
25	BU-510L	#5 BENT BAR (LEVEL II, DUAL COATED)	11
26	BU-511L	#5 BENT BAR (LEVEL II, DUAL COATED)	1
27	BU-512L	#5 BENT BAR (LEVEL II, DUAL COATED)	1
28	BU-513L	#5 BENT BAR (LEVEL II, DUAL COATED)	1
29	BU-514L	#5 BENT BAR (LEVEL II, DUAL COATED)	1
30	BU-515L	#5 BENT BAR (LEVEL II, DUAL COATED)	1
31	BU-516L	#5 BENT BAR (LEVEL II, DUAL COATED)	1
32	BU-517L	#5 BENT BAR (LEVEL II, DUAL COATED)	1
33	BU-518L	#5 BENT BAR (LEVEL II, DUAL COATED)	8
34	BU-519L	#5 BENT BAR (LEVEL II, DUAL COATED)	2
35	BU-520L	#5 BENT BAR (LEVEL II, DUAL COATED)	5
36		#5 x 4'-8" (LEVEL II, DUAL COATED)	14
37		#5 x 7'-3" (LEVEL II, DUAL COATED)	6
38		#5 x 7'-5" (LEVEL II, DUAL COATED)	6
39		#5 x 7'-10" (LEVEL II, DUAL COATED)	60
40		#5 x 7'-11" (LEVEL II, DUAL COATED)	46
41		#5 x 8'-0" (LEVEL II, DUAL COATED)	28
42		#5 x 8'-1" (LEVEL II, DUAL COATED)	12
43		#5 x 8'-2" (LEVEL II, DUAL COATED)	12
44		#5 x 8'-3" (LEVEL II, DUAL COATED)	8
45		#5 x 8'-4" (LEVEL II, DUAL COATED)	12
46		#5 x 8'-7" (LEVEL II, DUAL COATED)	16
47		#5 x 9'-0" (LEVEL II, DUAL COATED)	2
48		#5 x 9'-2" (LEVEL II, DUAL COATED)	8
49		#5 x 9'-3" (LEVEL II, DUAL COATED)	8
50		#5 x 55'-5" (40'-0" + 17'-5" W/ (1) 2'-0" STAGGERED LAP) (LEVEL II, DUAL COATED)	12
51		#5 x 62'-5" (40'-0" + 24'-5" W/ (1) 2'-0" STAGGERED LAP) (LEVEL II, DUAL COATED)	12
52		SET OF (4) 0.50"Ø x 270 KSI STRAND LIFTING LOOPS	4
53		DAYTON B-16 COIL LOOP INSERTS, 3/4" COIL, SML 3000	28

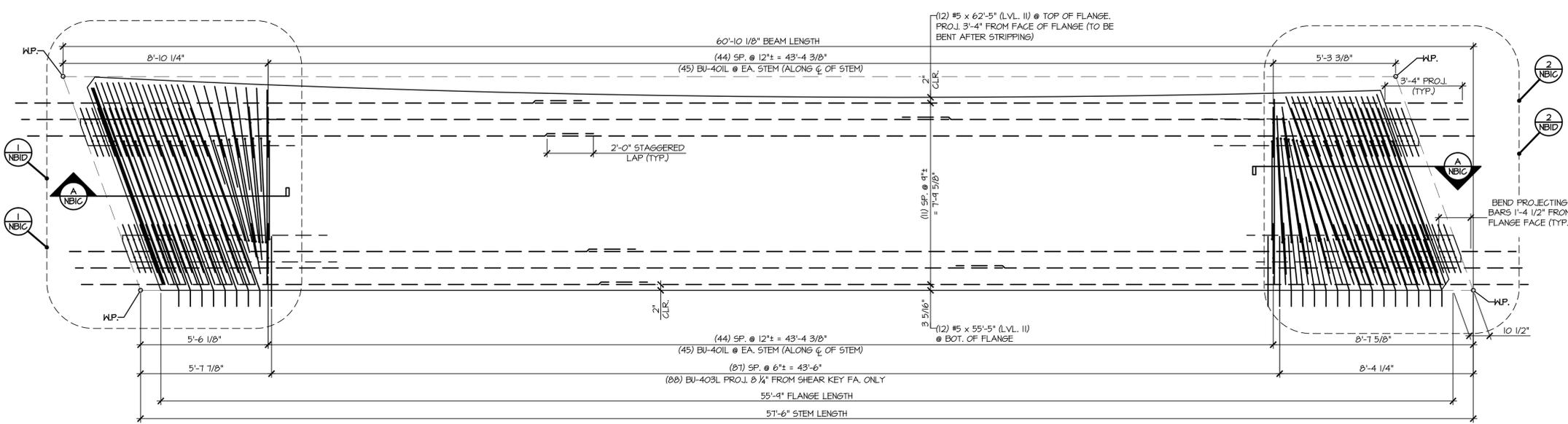


1 NBID FLANGE REINFORCING PLAN VIEW IN FORM
1/2" = 1'-0"

- LONGITUDINAL REINFORCING NOT SHOWN FOR CLARITY
- SEE SHEET NBIB FOR SIDEWALK REINFORCING PLAN
- SEE SHEET NBID FOR STEM REINFORCING AT BEAM END

2 NBID FLANGE REINFORCING PLAN VIEW IN FORM
1/2" = 1'-0"

- LONGITUDINAL REINFORCING NOT SHOWN FOR CLARITY
- SEE SHEET NBIB FOR SIDEWALK REINFORCING PLAN
- SEE SHEET NBID FOR STEM REINFORCING AT BEAM END

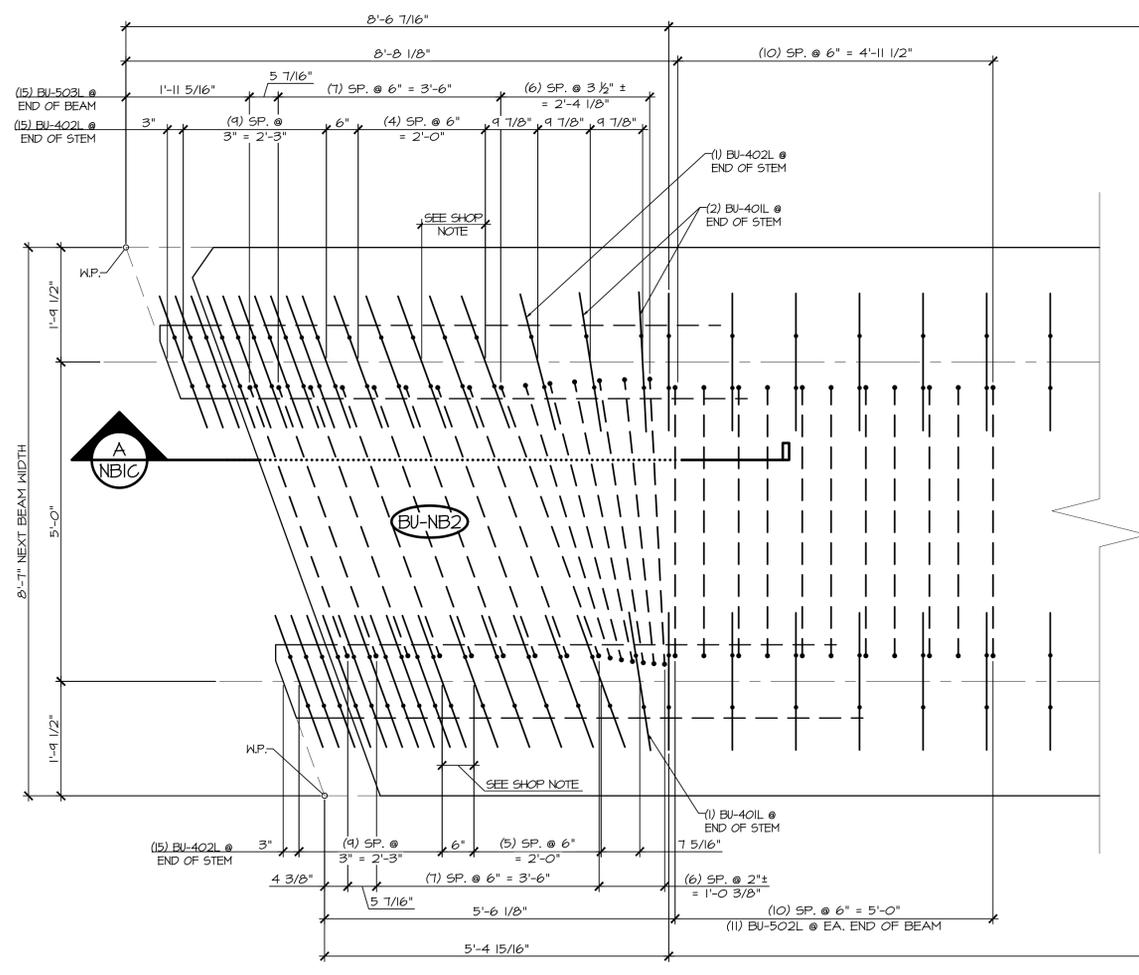


3 NBID REINFORCING PLAN VIEW IN FORM
3/8" = 1'-0"

- SEE DETAIL "NBIB" FOR SIDEWALK, DRIVEWAY & RAILING LAYOUT & REINFORCEMENT DETAILS
- SEE SHT. "NBIC" FOR STEM REINFORCEMENT DETAILS
- SEE SHT. "NBID" FOR FLANGE REINFORCEMENT DETAILS

APPROVAL STAMP:

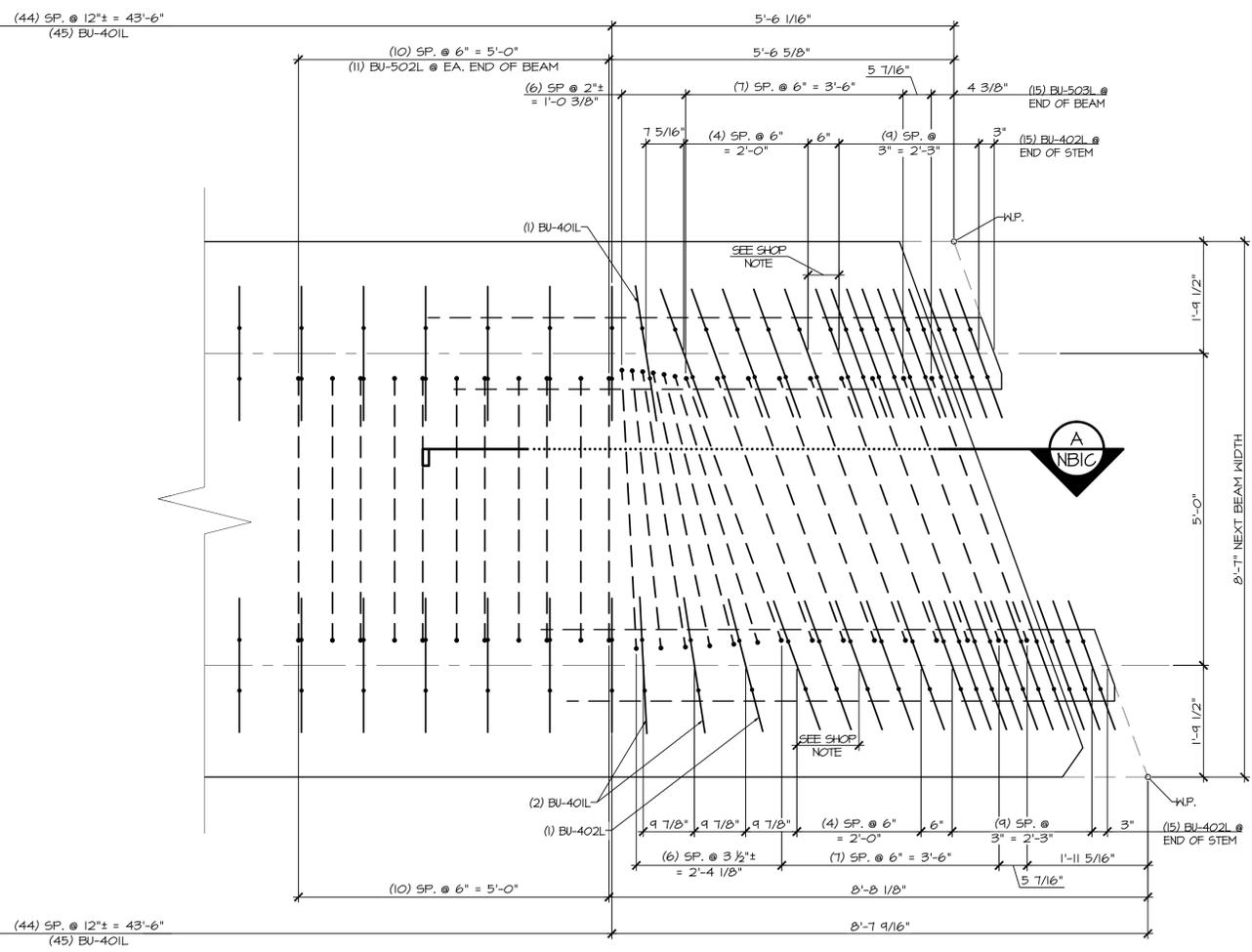
J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer <small>264 CASE STR., MOULBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010</small>	T. BUCK CONSTRUCTION, INC. CONTRACTOR AUBURN, MAINE	
	STATE OF VERMONT AGENCY OF TRANSPORTATION COUNTY OF CALEDONIA	DATE: MAR. 26, 2015 SCALE: NOTED
TOWN OF BURKE VERMONT ROUTE 114 BRIDGE NO.: 13 PROJECT NO.: BRF 0269(13)	CHKD:	DFTM: JDK
PRESTRESSED NEXT BEAM DETAILS	JOB NO: 23454-015 DWG. NO: NBID	



1 STEM REINFORCING PLAN VIEW IN FORM
NB2B $\frac{3}{4}'' = 1'-0''$

- LONGITUDINAL REINFORCING NOT SHOWN FOR CLARITY
- SEE SHEET NB2C FOR REINFORCING PLAN
- SEE SHEET NB2C FOR FLANGE REINFORCING AT BEAM END

SHOP NOTE
- STIRRUP SPACING TO BE ADJUSTED TO ALLOW FOR 2" PVC SLEEVE



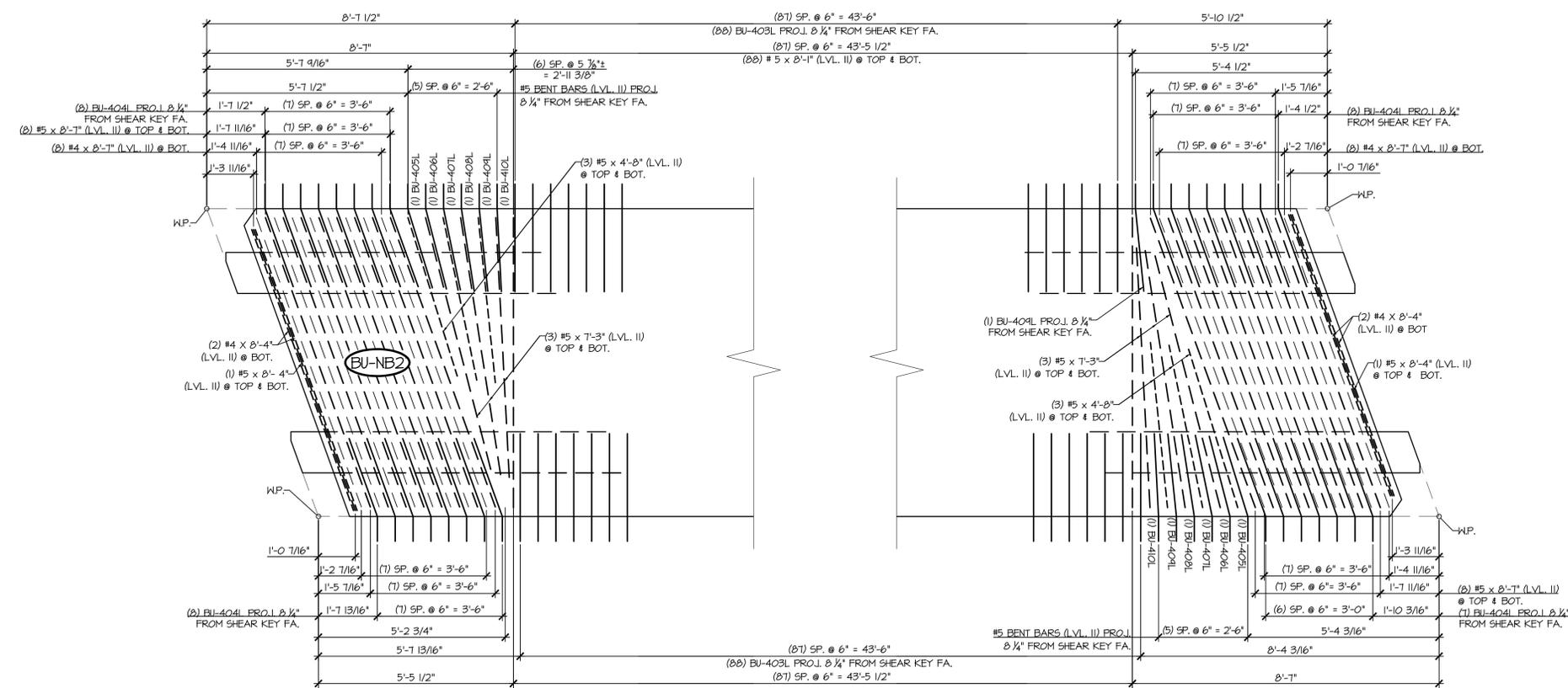
2 STEM REINFORCING PLAN VIEW IN FORM
NB2B $\frac{3}{4}'' = 1'-0''$

- LONGITUDINAL REINFORCING NOT SHOWN FOR CLARITY
- SEE SHEET NB2C FOR REINFORCING PLAN
- SEE SHEET NB2C FOR FLANGE REINFORCING AT BEAM END

APPROVAL STAMP:	J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer 2464 CASE ST., MOOREBURGH, VERMONT 05753 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.: 13 PROJECT NO.: BRF 0269(13)		CHKD: DFTM: JDK	JOB NO: 23454-015
	PRESTRESSED NEXT BEAM DETAILS		DWG. NO: NB2B	

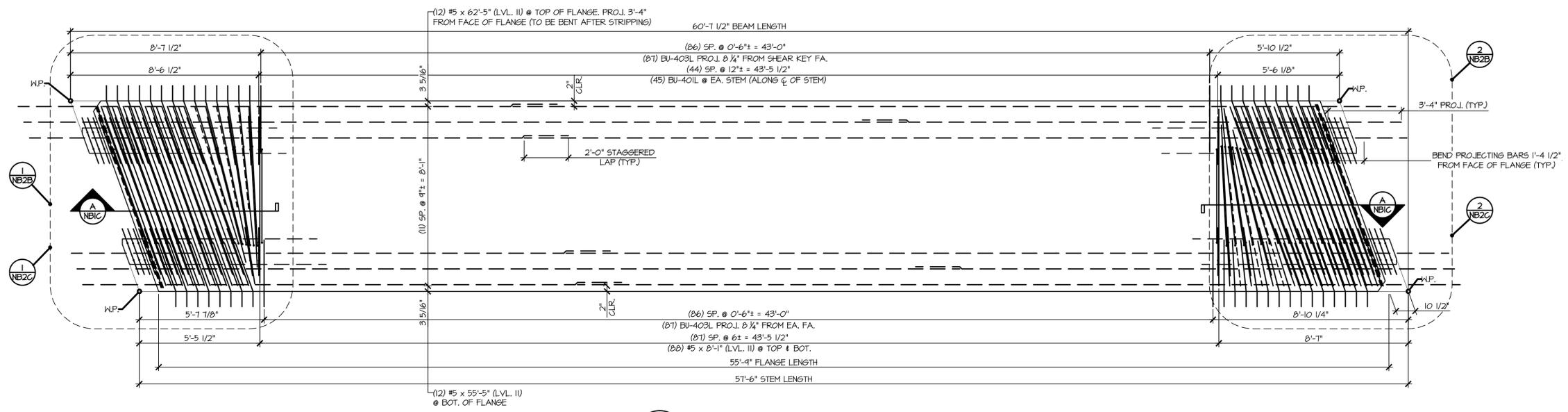
MARK: BU-NB2	QTY.: 2	WT: 41.34 T	VOL: 20.42 CY
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MATERIAL LIST / NEXT BEAM			
ITEM	MARK	DESCRIPTION	QTY.
1	BU-401L	#4 BENT BAR (LEVEL II, DUAL COATED)	46
2	BU-402L	#4 BENT BAR (LEVEL II, DUAL COATED)	62
3	BU-403L	#4 BENT BAR (LEVEL II, DUAL COATED)	176
4	BU-404L	#4 BENT BAR (LEVEL II, DUAL COATED)	31
5	BU-405L	#4 BENT BAR (LEVEL II, DUAL COATED)	2
6	BU-406L	#4 BENT BAR (LEVEL II, DUAL COATED)	2
7	BU-407L	#4 BENT BAR (LEVEL II, DUAL COATED)	2
8	BU-408L	#4 BENT BAR (LEVEL II, DUAL COATED)	2
9	BU-409L	#4 BENT BAR (LEVEL II, DUAL COATED)	3
10	BU-410L	#4 BENT BAR (LEVEL II, DUAL COATED)	2
11		#4 x 8'-4" (LEVEL II, DUAL COATED)	4
12		#4 x 8'-7" (LEVEL II, DUAL COATED)	16
13	BU-501L	#5 BENT BAR (LEVEL II, DUAL COATED)	16
14	BU-502L	#5 BENT BAR (LEVEL II, DUAL COATED)	22
15	BU-503L	#5 BENT BAR (LEVEL II, DUAL COATED)	30
16		#5 x 4'-8" (LEVEL II, DUAL COATED)	12
17		#5 x 7'-3" (LEVEL II, DUAL COATED)	12
18		#5 x 8'-1" (LEVEL II, DUAL COATED)	176
19		#5 x 8'-4" (LEVEL II, DUAL COATED)	4
20		#5 x 8'-7" (LEVEL II, DUAL COATED)	32
21		#5 x 55'-5" (40'-0" + 17'-5" W/ (1) 2'-0" STAGGERED LAP) (LEVEL II, DUAL COATED)	12
22		#5 x 62'-5" (40'-0" + 24'-5" W/ (1) 2'-0" STAGGERED LAP) (LEVEL II, DUAL COATED)	12
23		SET OF (4) 0.50"φ x 270 KSI STRAND LIFTING LOOPS	4
24		DAYTON B-16 COIL LOOP INERTS, 3/4" COIL, 5ML 3000	28



1 FLANGE REINFORCING PLAN VIEW IN FORM NB2C
 1/2" = 1'-0"
 - LONGITUDINAL REINFORCING NOT SHOWN FOR CLARITY
 - SEE SHEET NB2B FOR STEM REINFORCING AT BEAM END

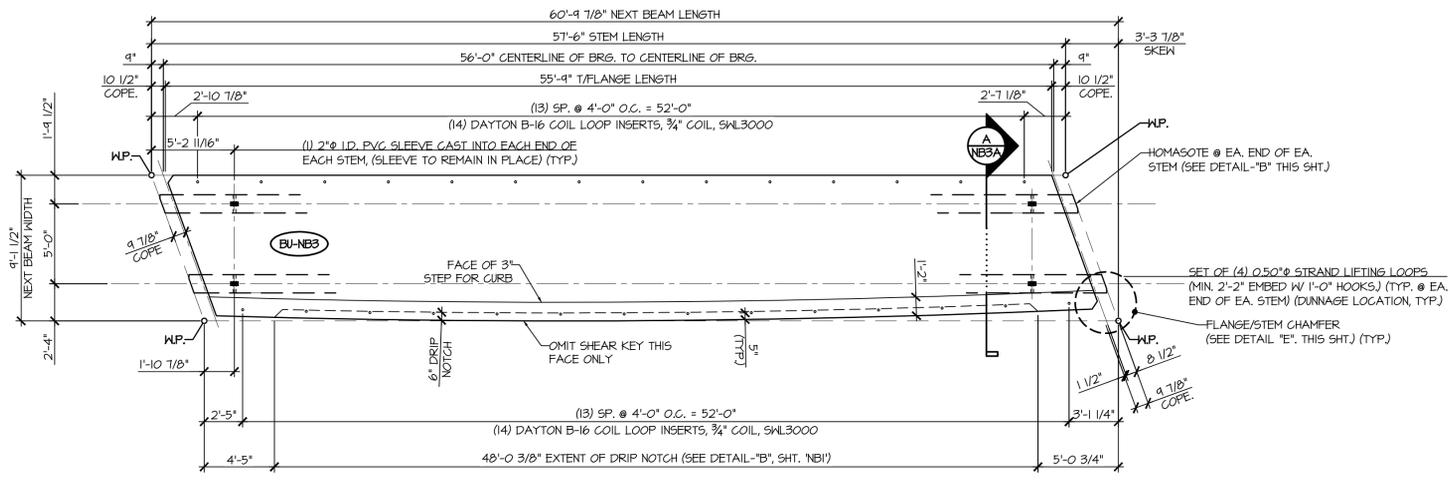
2 FLANGE REINFORCING PLAN VIEW IN FORM NB2C
 1/2" = 1'-0"
 - LONGITUDINAL REINFORCING NOT SHOWN FOR CLARITY
 - SEE SHEET NB2B FOR STEM REINFORCING AT BEAM END



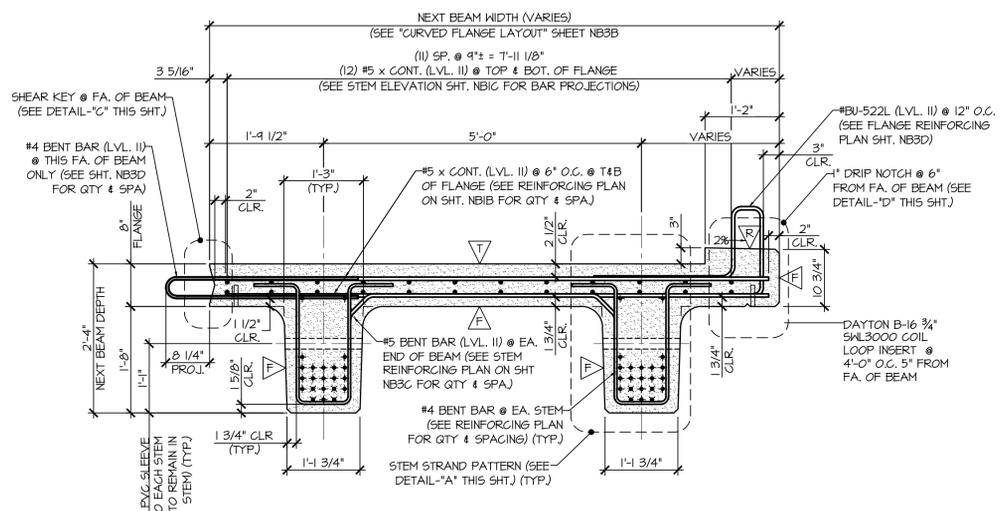
3 REINFORCING PLAN VIEW IN FORM NB2C
 3/16" = 1'-0"
 - SEE SHT. NB2B FOR STEM REINFORCEMENT AT BEAM ENDS
 - SEE '1/NB2C' FOR FLANGE REINFORCEMENT AT BEAM ENDS

APPROVAL STAMP:

J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer <small>2464 CASE STR., MOULBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010</small>		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.: 13 PROJECT NO.: BRF 0269(13)		CHKD: DFTM: JDK JOB NO: 23454-015	
PRESTRESSED NEXT BEAM DETAILS		DWG. NO: NB2C	



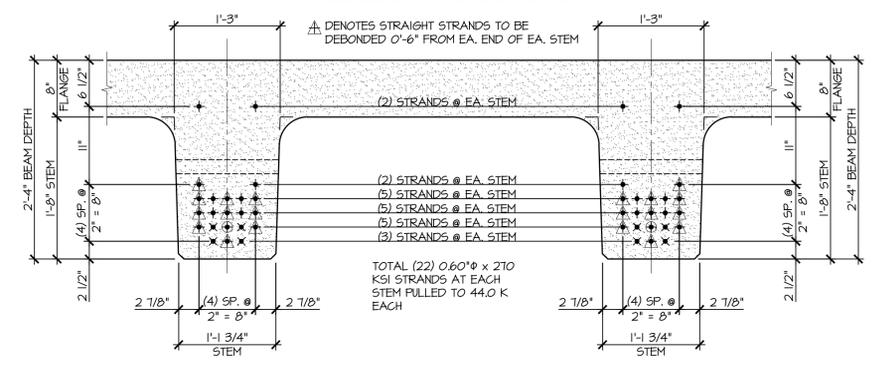
I
NB3A
DIMENSIONAL PLAN VIEW IN FORM
3/8" = 1'-0"



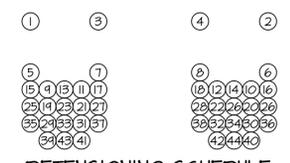
A
NB3A
DIMENSIONAL & REINFORCING SECTION
3/4" = 1'-0"

PRESTRESSING NOTATIONS

- + DENOTES STRAIGHT STRAND TO BE CUT FLUSH WITH EA. END OF EA. STEM
- X DENOTES STRAIGHT STRAND TO EXTEND 2'-0" FROM EA. END OF EA. STEM
- ⊕ DENOTES STRAIGHT STRANDS TO BE DEBONDED 2'-0" FROM EA. END OF EA. STEM
- △ DENOTES STRAIGHT STRANDS TO BE DEBONDED 0'-6" FROM EA. END OF EA. STEM

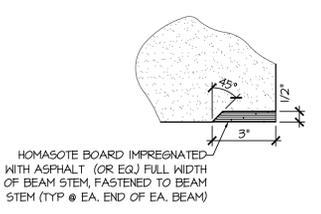


DETAIL - "A" (STEM STRAND PATTERN)
1" = 1'-0"

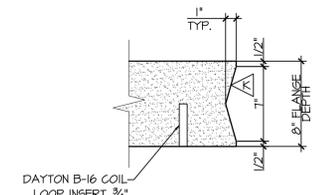


DETENSING SCHEDULE
N.T.S.

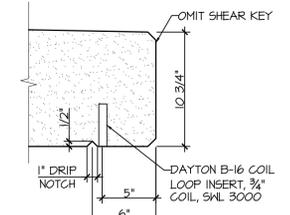
- △ DENOTES FORM FINISH
- △ DENOTES SMOOTH SCREED FINISH
- △ DENOTES ROUGHENED FINISH 1/8" AMPLITUDE
- △ DENOTES ROUGHENED FINISH 1/4" RAKE



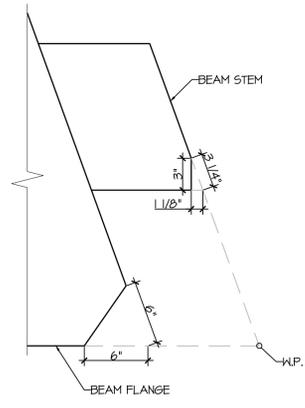
DETAIL - "B"
3" = 1'-0"



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



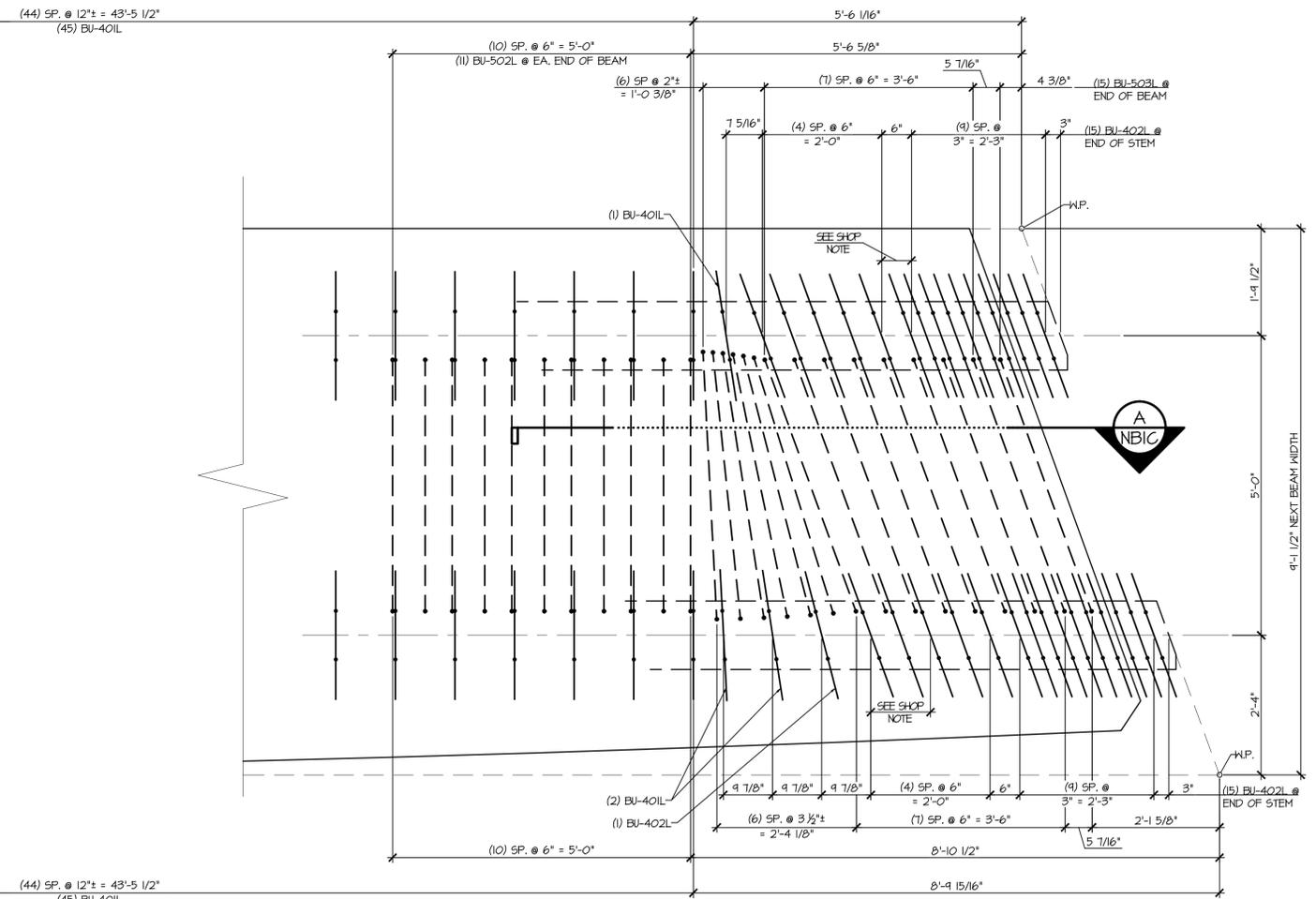
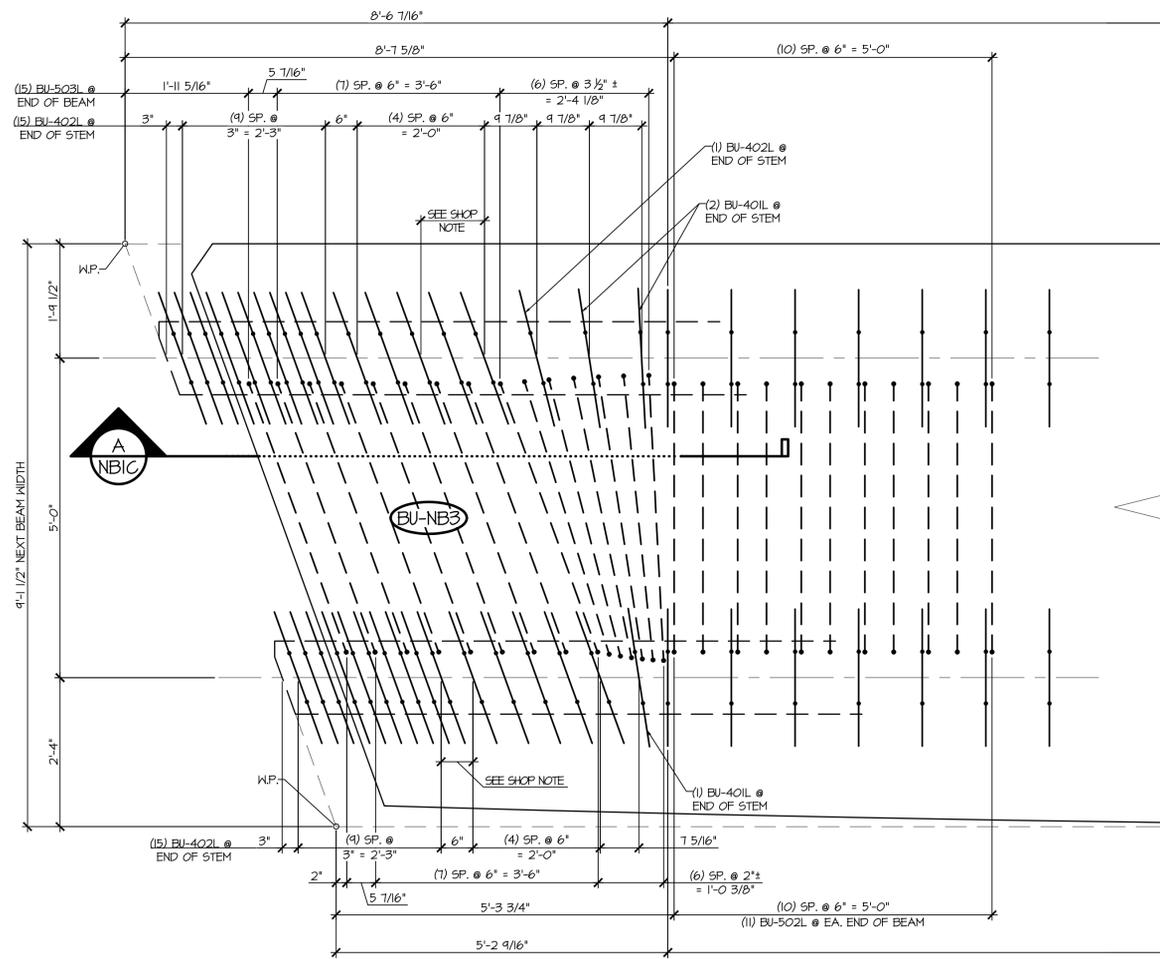
DETAIL - "D"
1 1/2" = 1'-0"



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

MARK: BU-NB3	QTY.: 1	WT: 43.11 T	VOL: 21.29 CY
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APPROVAL STAMP:	J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer 2464 CASE ST., MOULBURY, VERMONT 05753 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.: 13 PROJECT NO.: BRF 0269(13)		CHKD: _____	DFTM: JDC
	PRESTRESSED NEXT BEAM DETAILS		JOB NO: 23454-015	DWG. NO: NB3A



1
NB3C
STEM REINFORCING PLAN VIEW IN FORM
3/4\" = 1'-0\"

- LONGITUDINAL REINFORCING NOT SHOWN FOR CLARITY
- SEE SHEET NB3B FOR REINFORCING PLAN
- SEE SHEET NB3D FOR FLANGE REINFORCING AT BEAM END

SHOP NOTE
- STIRRUP SPACING TO BE ADJUSTED
TO ALLOW FOR 2\" PVC SLEEVE

2
NB3C
STEM REINFORCING PLAN VIEW IN FORM
3/4\" = 1'-0\"

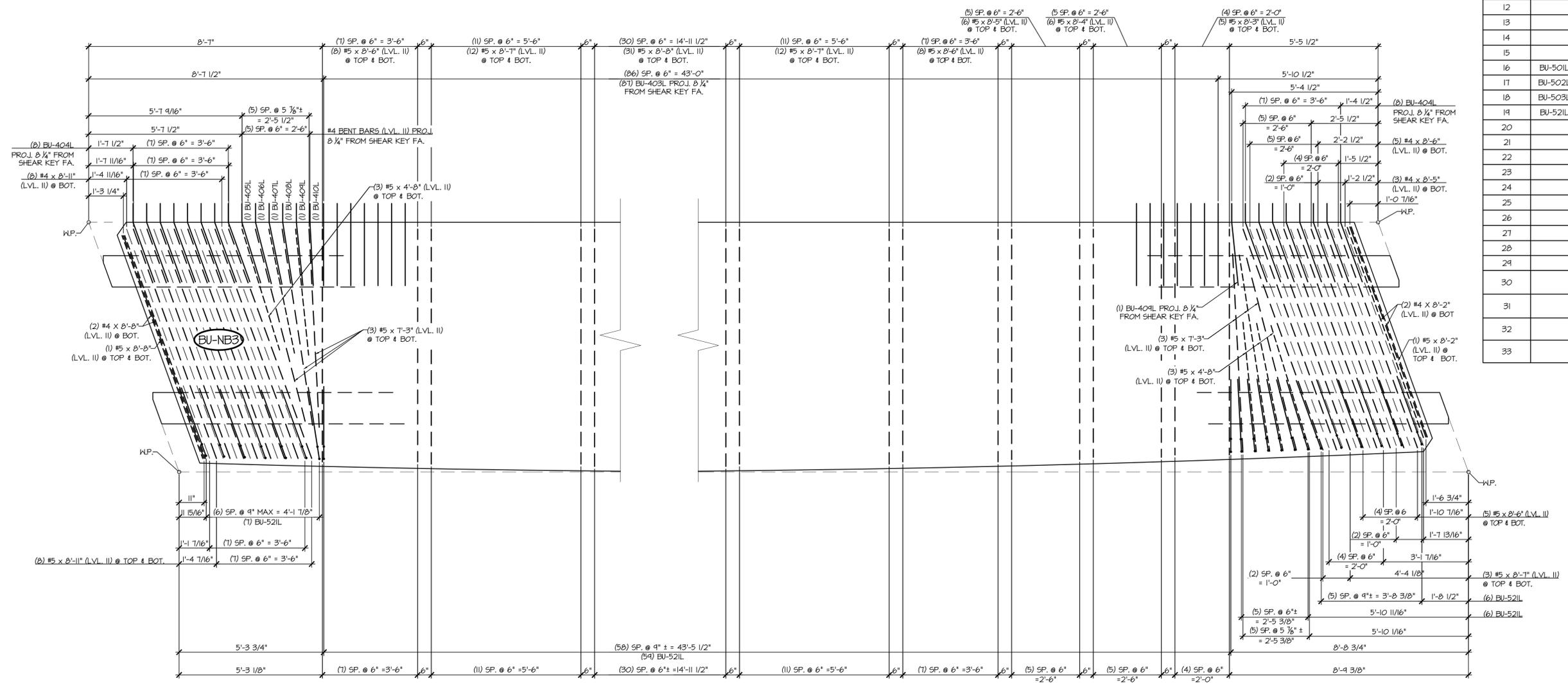
- LONGITUDINAL REINFORCING NOT SHOWN FOR CLARITY
- SEE SHEET NB3B FOR REINFORCING PLAN
- SEE SHEET NB3D FOR FLANGE REINFORCING AT BEAM END

APPROVAL STAMP:	J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer 2464 CASE STR., MIDDLEBURY, VERMONT 05753 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.: 13 PROJECT NO.: BRF 0269(13)		CHKD: _____	DFTM: JDK
	PRESTRESSED NEXT BEAM DETAILS		JOB NO: 23454-015	DWG. NO: NB3C

MARK: BU-NB3	QTY.: 1	WT: 43.11T	VOL: 21.29 CY
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MATERIAL LIST / NEXT BEAM

ITEM	MARK	DESCRIPTION	QTY.
1	BU-401L	#4 BENT BAR (LEVEL II, DUAL COATED)	46
2	BU-402L	#4 BENT BAR (LEVEL II, DUAL COATED)	62
3	BU-403L	#4 BENT BAR (LEVEL II, DUAL COATED)	81
4	BU-404L	#4 BENT BAR (LEVEL II, DUAL COATED)	16
5	BU-405L	#4 BENT BAR (LEVEL II, DUAL COATED)	1
6	BU-406L	#4 BENT BAR (LEVEL II, DUAL COATED)	1
7	BU-407L	#4 BENT BAR (LEVEL II, DUAL COATED)	1
8	BU-408L	#4 BENT BAR (LEVEL II, DUAL COATED)	1
9	BU-409L	#4 BENT BAR (LEVEL II, DUAL COATED)	2
10	BU-410L	#4 BENT BAR (LEVEL II, DUAL COATED)	1
11		#4 x 8'-2" (LEVEL II, DUAL COATED)	2
12		#4 x 8'-5" (LEVEL II, DUAL COATED)	3
13		#4 x 8'-6" (LEVEL II, DUAL COATED)	5
14		#4 x 8'-8" (LEVEL II, DUAL COATED)	2
15		#4 x 8'-11" (LEVEL II, DUAL COATED)	8
16	BU-501L	#5 BENT BAR (LEVEL II, DUAL COATED)	16
17	BU-502L	#5 BENT BAR (LEVEL II, DUAL COATED)	22
18	BU-503L	#5 BENT BAR (LEVEL II, DUAL COATED)	30
19	BU-521L	#5 BENT BAR (LEVEL II, DUAL COATED)	78
20		#5 x 4'-8" (LEVEL II, DUAL COATED)	12
21		#5 x 7'-3" (LEVEL II, DUAL COATED)	12
22		#5 x 8'-2" (LEVEL II, DUAL COATED)	2
23		#5 x 8'-3" (LEVEL II, DUAL COATED)	10
24		#5 x 8'-4" (LEVEL II, DUAL COATED)	12
25		#5 x 8'-5" (LEVEL II, DUAL COATED)	12
26		#5 x 8'-6" (LEVEL II, DUAL COATED)	42
27		#5 x 8'-7" (LEVEL II, DUAL COATED)	54
28		#5 x 8'-8" (LEVEL II, DUAL COATED)	64
29		#5 x 8'-11" (LEVEL II, DUAL COATED)	16
30		#5 x 55'-5" (40'-0" + 17'-5" W (1) 2'-0" STAGGERED LAP) (LEVEL II, DUAL COATED)	12
31		#5 x 62'-5" (40'-0" + 24'-5" W (1) 2'-0" STAGGERED LAP) (LEVEL II, DUAL COATED)	12
32		SET OF (4) 0.50" x 270 KSI STRAND LIFTING LOOPS	4
33		DAYTON B-16 COIL LOOP INSERTS, 3/4" COIL, SNL 3000	28



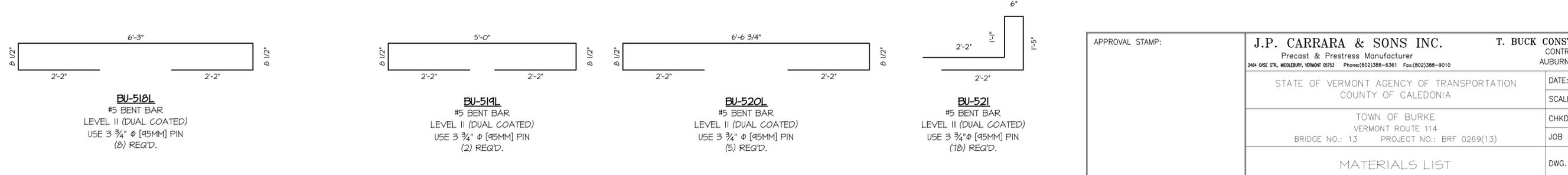
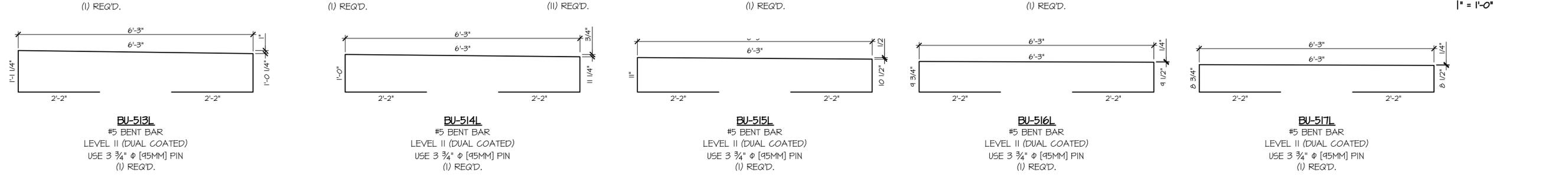
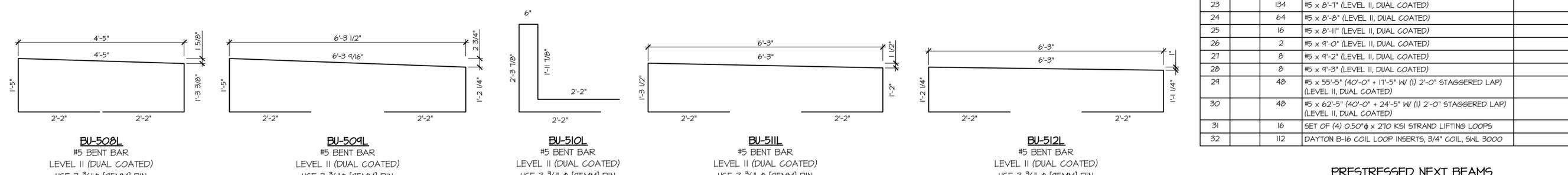
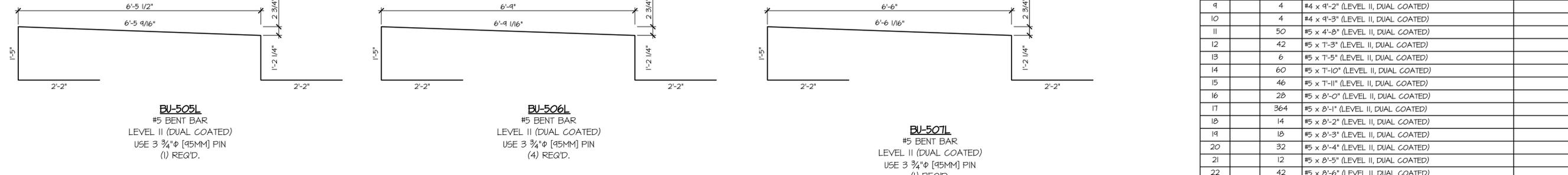
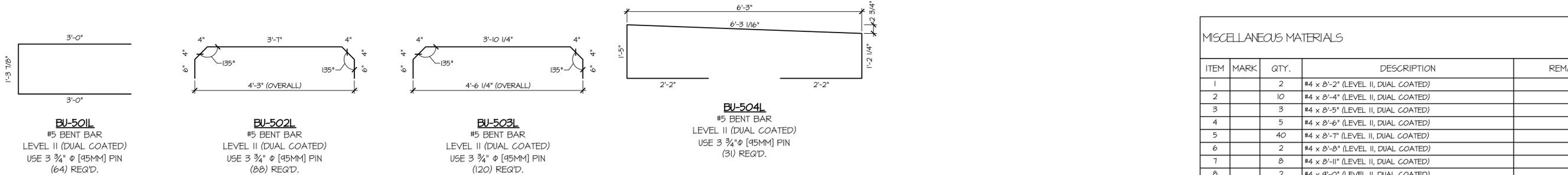
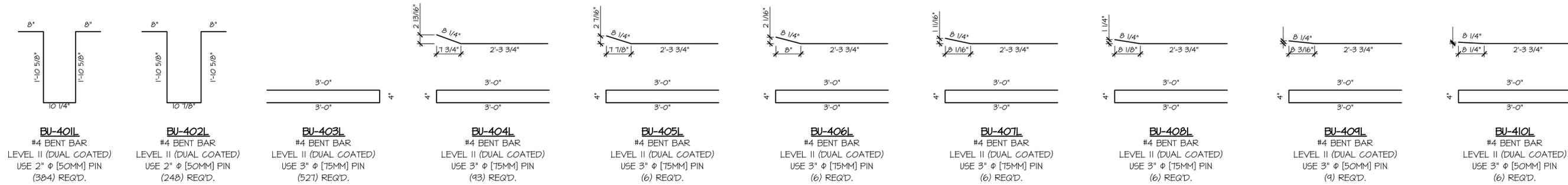
1 NB3D FLANGE REINFORCING PLAN VIEW IN FORM
1/2" = 1'-0"

- LONGITUDINAL REINFORCING NOT SHOWN FOR CLARITY
- SEE SHEET NB3B FOR REINFORCING PLAN
- SEE SHEET NB3C FOR STEM REINFORCING AT BEAM END

2 NB3D FLANGE REINFORCING PLAN VIEW IN FORM
1/2" = 1'-0"

- LONGITUDINAL REINFORCING NOT SHOWN FOR CLARITY
- SEE SHEET NB3B FOR REINFORCING PLAN
- SEE SHEET NB3C FOR STEM REINFORCING AT BEAM END

APPROVAL STAMP:	J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer 264 CASE ST., MIDDLEBURY, VERMONT 05753 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.: 13 PROJECT NO.: BRF 0269(13)	CHKD: DFTM: JDK	JOB NO: 23454-015
PRESTRESSED NEXT BEAM DETAILS	DWG. NO: NB3D	

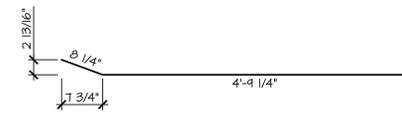


MISCELLANEOUS MATERIALS				
ITEM	MARK	QTY.	DESCRIPTION	REMARKS
1		2	#4 x 8'-2" (LEVEL II, DUAL COATED)	
2		10	#4 x 8'-4" (LEVEL II, DUAL COATED)	
3		3	#4 x 8'-5" (LEVEL II, DUAL COATED)	
4		5	#4 x 8'-6" (LEVEL II, DUAL COATED)	
5		40	#4 x 8'-7" (LEVEL II, DUAL COATED)	
6		2	#4 x 8'-8" (LEVEL II, DUAL COATED)	
7		8	#4 x 8'-11" (LEVEL II, DUAL COATED)	
8		2	#4 x 9'-0" (LEVEL II, DUAL COATED)	
9		4	#4 x 9'-2" (LEVEL II, DUAL COATED)	
10		4	#4 x 9'-3" (LEVEL II, DUAL COATED)	
11		50	#5 x 4'-8" (LEVEL II, DUAL COATED)	
12		42	#5 x 7'-3" (LEVEL II, DUAL COATED)	
13		6	#5 x 7'-5" (LEVEL II, DUAL COATED)	
14		60	#5 x 7'-10" (LEVEL II, DUAL COATED)	
15		46	#5 x 7'-11" (LEVEL II, DUAL COATED)	
16		28	#5 x 8'-0" (LEVEL II, DUAL COATED)	
17		364	#5 x 8'-1" (LEVEL II, DUAL COATED)	
18		14	#5 x 8'-2" (LEVEL II, DUAL COATED)	
19		18	#5 x 8'-3" (LEVEL II, DUAL COATED)	
20		32	#5 x 8'-4" (LEVEL II, DUAL COATED)	
21		12	#5 x 8'-5" (LEVEL II, DUAL COATED)	
22		42	#5 x 8'-6" (LEVEL II, DUAL COATED)	
23		134	#5 x 8'-7" (LEVEL II, DUAL COATED)	
24		64	#5 x 8'-8" (LEVEL II, DUAL COATED)	
25		16	#5 x 8'-11" (LEVEL II, DUAL COATED)	
26		2	#5 x 9'-0" (LEVEL II, DUAL COATED)	
27		8	#5 x 9'-2" (LEVEL II, DUAL COATED)	
28		8	#5 x 9'-3" (LEVEL II, DUAL COATED)	
29		48	#5 x 55'-5" (40'-0" + 17'-5" W/ (1) 2'-0" STAGGERED LAP) (LEVEL II, DUAL COATED)	
30		48	#5 x 62'-5" (40'-0" + 24'-5" W/ (1) 2'-0" STAGGERED LAP) (LEVEL II, DUAL COATED)	
31		16	SET OF (4) 0.50" ϕ x 210 KSI STRAND LIFTING LOOPS	
32		112	DAYTON B-16 COIL LOOP INSERTS, 3/4" COIL, SNL 3000	

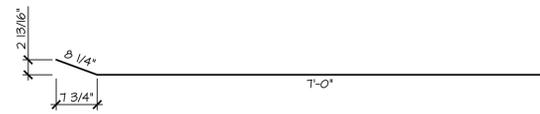
PRESTRESSED NEXT BEAMS
1" = 1'-0"

APPROVAL STAMP:	J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer 2464 CASE STR., MIDDLEBURY, VERMONT 05753 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	
	TOWN OF BURKE VERMONT ROUTE 114 BRIDGE NO.: 13 PROJECT NO.: BRF 0269(13)		SCALE: NOTED	CHKD: DFTM: JDK
	MATERIALS LIST		JOB NO: 23454-015	DWG. NO: M1

PRECAST NEXT BEAMS



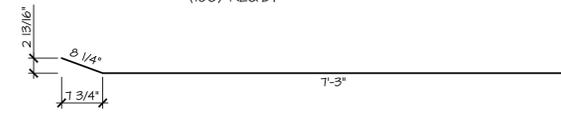
BU-530L
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 3 3/4"Ø PIN
(160) REQ'D.



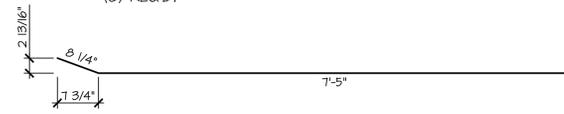
BU-531L
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 3 3/4"Ø PIN
(8) REQ'D.



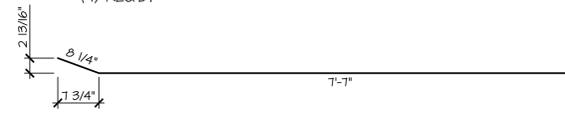
BU-532L
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 3 3/4"Ø PIN
(4) REQ'D.



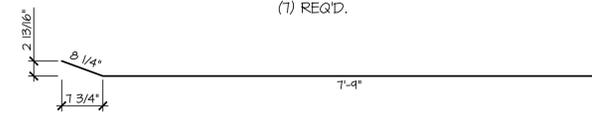
BU-533L
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 3 3/4"Ø PIN
(7) REQ'D.



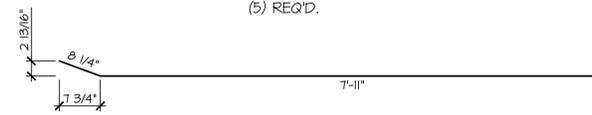
BU-534L
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 3 3/4"Ø PIN
(5) REQ'D.



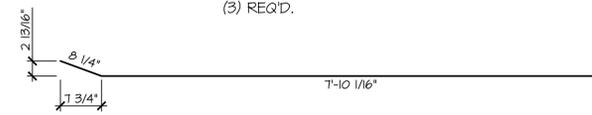
BU-535L
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 3 3/4"Ø PIN
(3) REQ'D.



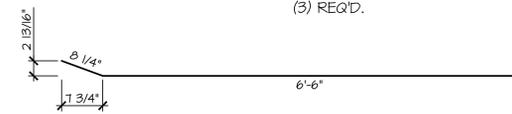
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#5 BENT BAR
LEVEL II (DUAL COATED)
USE 3 3/4"Ø PIN
(3) REQ'D.



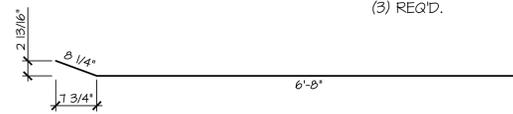
BU-537L
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 3 3/4"Ø PIN
(3) REQ'D.



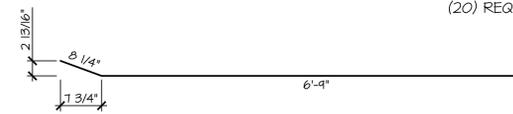
BU-538L
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 3 3/4"Ø PIN
(20) REQ'D.



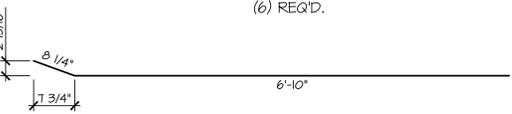
BU-539L
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 3 3/4"Ø PIN
(6) REQ'D.



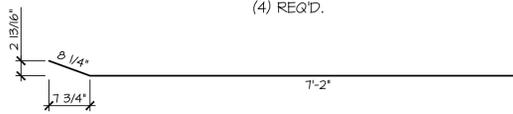
BU-540L
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 3 3/4"Ø PIN
(4) REQ'D.



BU-541L
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 3 3/4"Ø PIN
(3) REQ'D.



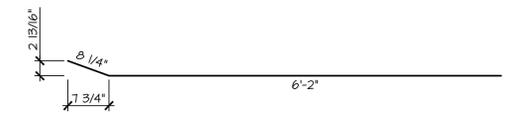
BU-542L
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 3 3/4"Ø PIN
(5) REQ'D.



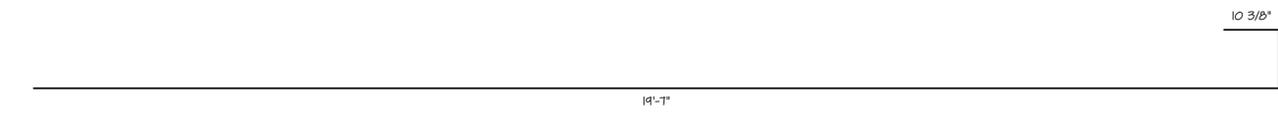
BU-543L
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 3 3/4"Ø PIN
(3) REQ'D.



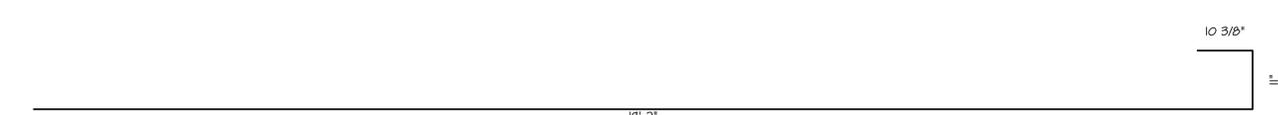
BU-544L
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 3 3/4"Ø PIN
(3) REQ'D.



BU-545L
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 3 3/4"Ø PIN
(2) REQ'D.



BU-901
#9 BENT BAR
LEVEL I
USE 6"Ø PIN
(19) REQ'D.



BU-902
#9 BENT BAR
LEVEL I
USE 6"Ø PIN
(2) REQ'D.

PRECAST APPROACH SLABS
1" = 1'-0"

MISCELLANEOUS MATERIALS

ITEM	MARK	QTY	DESCRIPTION	REMARKS
1		2	#6 x 16'-2" (LEVEL I)	
2		1	#6 x 16'-11" (LEVEL I)	
3		2	#6 x 19'-2" (LEVEL I)	
4		79	#6 x 19'-7" (LEVEL I)	
5		2	#9 x 16'-2" (LEVEL I)	
6		1	#4 x 16'-11" (LEVEL I)	
7		2	#4 x 19'-2" (LEVEL I)	
8	MK-K2	32	4T x 7 1/8" SWIFT LIFT LIFTER, DOMESTIC ORIGIN	

APPROVAL STAMP:

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

T. BUCK CONSTRUCTION, INC.
CONTRACTOR
AUBURN, MAINE

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF CALEDONIA

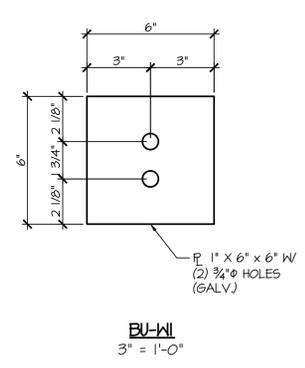
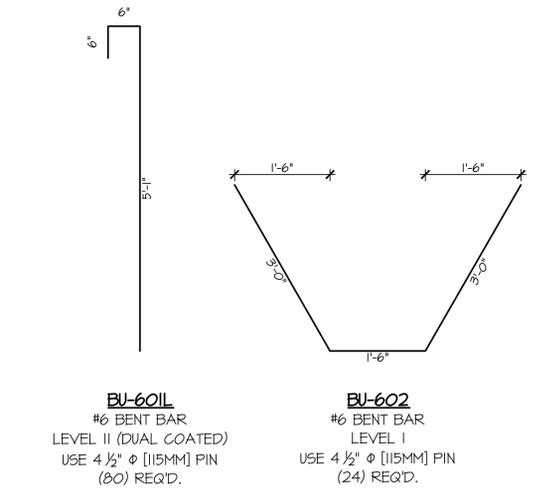
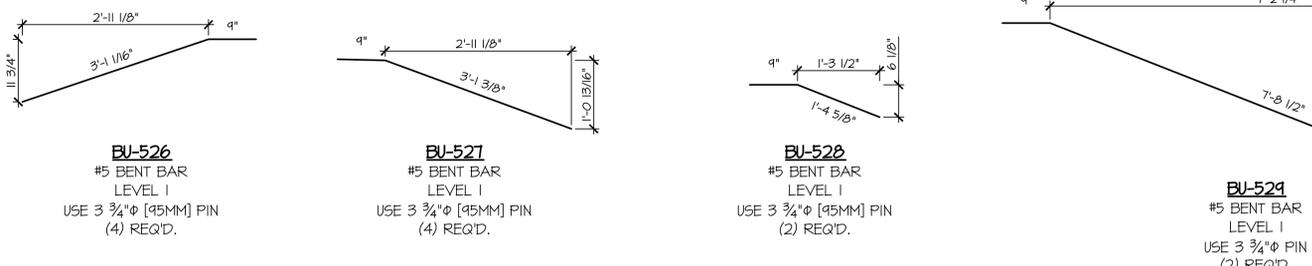
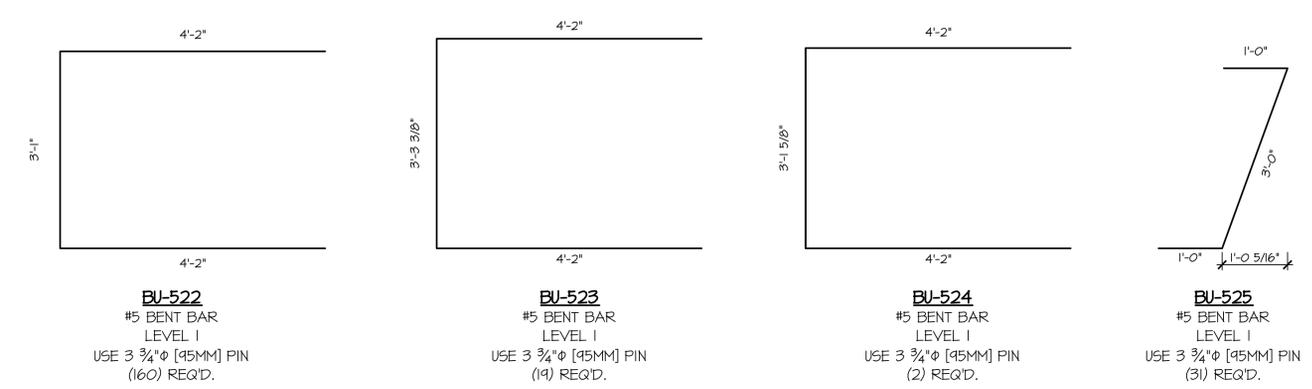
TOWN OF BURKE
VERMONT ROUTE 114
BRIDGE NO.: 13 PROJECT NO.: BRF 0269(13)

MATERIALS LIST

DATE: MAR. 26, 2015
SCALE: NOTED

CHKD: DFTM: JDK
JOB NO: 23454-015

DWG. NO: M2



PRECAST ABUTMENTS
1" = 1'-0"

MISCELLANEOUS MATERIALS				
ITEM	MARK	QTY.	DESCRIPTION	REMARKS
1		2	#5 x 2'-2" (LEVEL I)	
2		58	#5 x 3'-6" (LEVEL II, DUAL COATED)	
3		61	#5 x 4'-2" (LEVEL II, DUAL COATED)	
4		10	#5 x 3'-4" (LEVEL I)	
5		2	#5 x 6'-4" (LEVEL I)	
6		16	#6 x 2'-4" (LEVEL I)	
7		4	#6 x 3'-6" (LEVEL I)	
8		38	#6 x 3'-8" (LEVEL I)	
9		32	#6 x 3'-11" (LEVEL I)	
10		8	#6 x 4'-0" (LEVEL I)	
11		25	#6 x 4'-4" (LEVEL I)	
12		32	#6 x 4'-7" (LEVEL I)	
13		5	#6 x 4'-9" (LEVEL I)	
14		4	#6 x 4'-11" (LEVEL I)	
15		4	#6 x 5'-0" (LEVEL I)	
16		17	#6 x 5'-2" (LEVEL I)	
17		32	#6 x 5'-3" (LEVEL I)	
18		4	#6 x 5'-4" (LEVEL I)	
19		4	#6 x 5'-5" (LEVEL I)	
20		4	#6 x 5'-7" (LEVEL I)	
21		4	#6 x 5'-8" (LEVEL I)	
22		4	#6 x 5'-11" (LEVEL I)	
23		4	#6 x 6'-2" (LEVEL I)	
24		7	#6 x 6'-11" (LEVEL I)	
25		10	#6 x 7'-1" (LEVEL I)	
26		1	#6 x 7'-2" (LEVEL I)	
27		10	#6 x 7'-6" (LEVEL I)	
28		2	#6 x 7'-7" (LEVEL I)	
29		1	#6 x 8'-0" (LEVEL I)	
30		14	#6 x 22'-7" (LEVEL I)	
31		8	#6 x 23'-2" (LEVEL I)	
32		7	#6 x 23'-3" (LEVEL I)	
33		14	#6 x 23'-8" (LEVEL I)	
34		8	#6 x 24'-3" (LEVEL I)	
35		7	#6 x 24'-4" (LEVEL II, DUAL COATED)	
36		1	2'-0" x 5'-2 1/2" CORR. STL PIPE (GALV)	
37		1	2'-0" x 5'-4" CORR. STL PIPE (GALV)	
38		1	2'-0" x 5'-4 5/8" CORR. STL PIPE (GALV)	
39		1	2'-0" x 5'-6 7/8" CORR. STL PIPE (GALV)	
40		1	2'-0" x 5'-7" CORR. STL PIPE (GALV)	
41		1	2'-0" x 5'-9 1/4" CORR. STL PIPE (GALV)	
42		1	2'-0" x 5'-9 7/8" CORR. STL PIPE (GALV)	
43		1	2'-0" x 5'-11 5/8" CORR. STL PIPE (GALV)	
44		1	2'-0" x 6'-0 3/4" CORR. STL PIPE (GALV)	
45		1	2'-0" x 6'-3 5/8" CORR. STL PIPE (GALV)	
46		1	2'-0" x 6'-6 1/2" CORR. STL PIPE (GALV)	
47		1	2'-0" x 7'-1 3/4" CORR. STL PIPE (GALV)	
48		8	SET OF (4) 0.60" x 270 KSI STRAND LIFTING LOOPS	
49	BU-WI	24	PL. 1" x 6" x 6" W/ (2) 3/4" HOLES (GALV)	FOR ERECTION
50		24	1/2" x 50' POLY-STRAND	FOR ERECTION
51		48	1/2" SINGLE USE STRESSING CHUCK	FOR ERECTION
52		12	COMPRESSIBLE SEALER SELF ADHESIVE	FOR ERECTION

PRECAST ABUTMENTS

APPROVAL STAMP:	J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer 2464 CAGE STR., MIDDLEBURY, VERMONT 05753 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	
	TOWN OF BURKE VERMONT ROUTE 114 BRIDGE NO.: 13 PROJECT NO.: BRF 0269(13)		SCALE: NOTED	CHKD: DFTM: JDK
	MATERIALS LIST		JOB NO: 23454-015	DWG. NO: M3



J. P. CARRARA & SONS, INC
CONCRETE CONTRACTORS
ARCHITECTURAL / STRUCTURAL PRECAST CONTRACTORS

2464 Case Street
 MIDDLEBURY, VT 05753
 TEL (802) 388-6363
 FAX (802) 388-9010

CROWN POINT, NY 12928
 TEL (518) 597-3680

RT 7 SO.
 NO. CLARENDON, VT 05701
 TEL (802) 775-2301
 FAX (802) 775-1048

CONCRETE MIX DESIGN

DATE :	March 26, 2015			
PROJECT :	VAOT MIX APPROVAL	STATE:	VT	
ENGINEER :	_____			
CONTRACTOR :	_____			
CONCRETE SUPPLIER :	J.P. Carrara & Sons, Inc., Middlebury, VT			G _{s, SSD}
CEMENT SOURCE & TYPE :	Lafarge Type III			3.103
FLY ASH SOURCE & CLASS:	Headwaters Resources - Class F - Brayton Point			2.35
COARSE AGGREGATE(1):	J.P. Carrara & Sons, Inc., Middlebury, VT	P-stone (3/4")	ABS = 1.24%	2.58
FINE AGGREGATE :	J.P. Carrara & Sons, Inc., Middlebury, VT	JPC sand	ABS = 0.98%	2.613
AIR ENTRAINING AGENT :	Sika AEA-14			
RETARDING AGENT :	Sika Plastiment			
SELF-CONSOLIDATING ADMIX:	Sika Viscocrete 6100	HRWR + Superplasticizer		
CORROSION INHIBITOR:	W.R. Grace DCI	Minimum 30% Calcium Nitrite		
VISCOSITY MODIFIER:	Sika Stabilizer 4R	Not Required; Dosed on an as needed basis		

QUANTITIES PER CUBIC YARD

Identification # :	430M	w/ 5.0 gal DCI			Yield
Mix Description :	SCC Bridge - 10ksi design, 8ksi release				
SPECIFICATIONS REQUIREMENT,	56	Day Strength (psi)	10,000	900 # Total Cementious (CM)	
Lafarge Type III	(lbs)		720		3.72
Fly Ash, Class F	(lbs)		180	20% by weight of CM	1.23
P-stone (3/4")	(lbs)(SSD)		1440	54% by weight of total agg.	8.94
JPC sand	(lbs)(SSD)		1220	46% by weight of total agg.	7.48
WATER (gallons) : (Maximum Water =	30.3	Gal.+ DCI)	28.0		3.74
W/C RATIO (lbs/lb) : (Max W/C =	0.32	w/ DCI)	0.30		
Sika AEA-14	(2-20 range) (oz/yd ³)		9.0	7.0% + / -- 2.0%	1.35
Sika Plastiment	(2-6 range) (oz/cwt)		3.0		
Sika Viscocrete 6100	(7-11 range) (oz/cwt)		9.0	24" spread + / -- 4"	
W.R. Grace DCI	(gal/yd ³)		5.0	(84% accounted for as mix water)	0.56
Sika Stabilizer 4R	(0-7 range) (oz/cwt)		0.0	Not Required; Dosed on an as needed basis	

27.0

Mix Properties:

Mix Density (#/ft³)

141.7

Prepared By: _____

Benjamin L. Cota, Precast Production Engineer

Pours

		Pour Info					Release Breaks				28-Day Breaks	
Pour Date	Bed	Concrete	Mix	Concrete Temp	Unit Wgt	Slump/Spread	VSI	Air	Avg		Avg	
5/16/2013	250' Next Beam	49.5	430M	68 ° F	139.99 lbs	26"	0.5	6.8 %	9,350		11,320	
5/21/2013	270' BRIDGE	66.5	430M	73 ° F	141.80 lbs	26"	0.5	5.7 %	8,595		12,076	
5/24/2013	270' BRIDGE	65.5	430M	75 ° F	141.40 lbs	23"	0.0	6.4 %	9,649		11,778	
5/28/2013	250' Next Beam	77	430M	71 ° F	140.11 lbs	25"	0.0	6.9 %	8,197		10,544	
5/31/2013	270' BRIDGE	65.5	430M	77 ° F	141.71 lbs	26"	0.5	6.0 %	8,714		11,559	
6/5/2013	270' BRIDGE	65.5	430M	72 ° F	141.51 lbs	26"	0.0	5.5 %	8,495		11,148	
6/10/2013	270' BRIDGE	65	430M	73 ° F	141.00 lbs	25"	0.5	6.2 %	7,998		11,600	
6/14/2013	270' BRIDGE	65	430M	71 ° F	141.11 lbs	27"	0.5	6.1 %	10,445		11,770	
6/21/2013	250' Next Beam	77	430M	72 ° F	141.51 lbs	25"	0.0	5.8 %	8,595		10,590	
6/28/2013	270' BRIDGE	66.5	430M	80 ° F	141.10 lbs	26"	0.5	5.9 %	10,453		11,461	
3/7/2014	250' Next Beam	71.5	430M	66 ° F	142.11 lbs	23 1/2"	0.0	7.0 %	9,545		11,304	
3/20/2014	250' Next Beam	71.5	430M	66 ° F	144.52 lbs	22"	0.0	5.4 %	9,711		11,903	
3/31/2014	250' Next Beam	46	430M	72 ° F	142.92 lbs	26"	0.5	6.2 %	7,462		14,158	
4/4/2014	250' Next Beam	46	430M	74 ° F	144.52 lbs	26"	0.0	5.2 %	8,519		12,215	
4/7/2014	FLOATING FORM	8	430M	74 ° F	144.32 lbs	24"	0.0	5.5 %	5,359		10,327	
4/9/2014	FLOATING FORM	8.75	430M	70 ° F	142.92 lbs	22"	0.0	6.0 %	6,573		10,454	
4/11/2014	FLOATING FORM	8.75	430M	80 ° F	144.52 lbs	23"	0.5	5.4 %	9,540		12,102	
4/15/2014	FLOATING FORM	6	430M	72 ° F	143.32 lbs	26"	1.0	6.0 %	5,963		9,557	
5/22/2014	250' Next Beam	49	430M	75 ° F	142.80 lbs	23"	0.0	5.8 %	7,037		12,149	
5/23/2014	EAST WING WOOD	8.7	430M	72 ° F	142.60 lbs	24"	0.0	6.0 %	6,471		11,043	
5/30/2014	250' Next Beam	47.5	430M	70 ° F	143.21 lbs	24"	0.0	5.5 %	8,797		12,172	
6/9/2014	FLOATING FORM	4.4	430M	74 ° F	142.60 lbs	24"	0.0	5.9 %	6,643		10,102	
6/11/2014	FLOATING FORM	4.5	430M	70 ° F	143.81 lbs	24"	0.0	5.3 %	6,919		11,485	
6/12/2014	FLOATING FORM	4.5	430M	72 ° F	143.21 lbs	24"	0.0	5.5 %	5,318		11,506	
6/13/2014	FLOATING FORM	4.8	430M	73 ° F	142.00 lbs	26"	0.0	5.9 %	6,396		10,703	
7/23/2014	250' Next Beam	69.2	430M	82 ° F	142.80 lbs	27"	0.0	6.0 %	8,358		11,429	
7/31/2014	250' Next Beam	69.5	430M	76 ° F	139.17 lbs	26"	0.0	7.8 %	8,355		11,914	
12/11/2014	250' Next Beam	59.6	430M	63 ° F	140.38 lbs	24"	0.0	7.0 %	6,619		10,377	
28		SUM=1251.2		AVG=73 ° F	AVG=142.25 lbs	AVG=24.77		AVG=6.0 %	8,002		11,384	



J. P. CARRARA & SONS, INC
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NO. CLARENDON, VT 05701
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FAX (802) 775-1048

CONCRETE MIX DESIGN

DATE :	March 26, 2015			
PROJECT :	VAOT - Projects	STATE:	VT	
ENGINEER/ARCH :				
CONTRACTOR :				
CONCRETE SUPPLIER :	J.P. Carrara & Sons, Inc., Middlebury, VT			G_s, SSD
CEMENT SOURCE & TYPE :	Lafarge Type III			3.103
FLY ASH SOURCE & CLASS:	Headwaters Resources - Class F - Brayton Point			2.35
COARSE AGGREGATE(1):	J.P. Carrara & Sons, Inc., Middlebury, VT	P-stone (3/4")	ABS = 1.24%	2.58
FINE AGGREGATE :	J.P. Carrara & Sons, Inc., Middlebury, VT	JPC sand	ABS = 0.98%	2.613
AIR ENTRAINING AGENT :	Sika AEA-14			
RETARDING AGENT :	Sika Plastiment			
SELF-CONSOLIDATING ADMIX:	Sika Viscocrete 6100	HRWR + Superplasticizer		
VISCOSITY MODIFIER:	Sika Stabilizer 4R	Not Required; Dosed on an as needed basis		

QUANTITIES PER CUBIC YARD

Identification # : 445MSCC
Mix Description : Standard SCC - 5,000 & 6,000psi Design; 3,500 @ 18hrs

SPECIFICATIONS REQUIREMENT,	28	Day Strength (psi)	5ksi & 6ksi	750 # Total Cementious (CM)	Yield
Lafarge Type III	(lbs)		563		2.91
Fly Ash, Class F	(lbs)		188	25% by weight of CM	1.28
P-stone (3/4")	(lbs)(SSD)		1340	47% by weight of total agg.	8.32
JPC sand	(lbs)(SSD)		1520	53% by weight of total agg.	9.32
WATER (gallons) : (Maximum Water =	33.3 Gal.)		31.0		4.14
W/C RATIO (lbs/lb) : (Max W/C =	0.37)		0.34		
Sika AEA-14	(0-20 range) (oz/yd ³)		5.0	7.0% + / -- 2.0%	1.35
Sika Plastiment	(0-6 range) (oz/cwt)		1.0		
Sika Viscocrete 6100	(6-11 range) (oz/cwt)		8.8	24" spread + / -- 4"	
Sika Stabilizer 4R	(0-7 range) (oz/cwt)		0.0	Not Required; Dosed on an as needed basis	

27.3

Mix Properties:

Max unit wt (#/ft³)

141.6

Prepared By: Benjamin L. Cota
Benjamin L. Cota, Precast Production Engineer

Pours

Pour Info										Release Breaks			28-Day Breaks	
Pour Date	Pour Time	Bed	Concrete	Mix	Concrete Temp	Slump/Spread	Unit Wgt	VSI	Air	Avg	Avg	Avg	Avg	
9/17/2014	8:00 AM	WEST WING WOOD	4.1	445MSCC	69 ° F	23"	139.37 lbs	0.0	8.2 %	5,280	8,534			
9/10/2014	1:00 PM	WEST WING WOOD	7.4	445MSCC	76 ° F	26"	137.35 lbs	0.0	8.4 %	5,502	7,151			
9/8/2014	8:30 AM	WEST WING WOOD	11.6	445MSCC	78 ° F	25"	139.17 lbs	0.0	7.8 %	5,626	7,829			
9/5/2014	2:00 PM	WEST WING WOOD	8.7	445MSCC	86 ° F	23"	138.77 lbs	0.0	8.0 %	6,044	8,155			
9/4/2014	11:45 AM	WEST WING WOOD	8.7	445MSCC	79 ° F	23"	141.80 lbs	0.0	5.9 %	4,828	8,879			
9/3/2014	2:00 PM	WEST WING WOOD	13.6	445MSCC	85 ° F	25"	143.21 lbs	0.0	5.7 %	4,696	8,234			
9/2/2014	2:00 PM	WEST WING WOOD	13.6	445MSCC	84 ° F	26"	140.39 lbs	0.0	5.8 %	4,549	7,794			
8/26/2014	2:30 PM	WEST WING WOOD	11.5	445MSCC	81 ° F	24"	140.18 lbs	0.0	7.1 %	4,197	8,639			
8/25/2014	2:00 PM	WEST WING WOOD	11.5	445MSCC	83 ° F	24"	140.99 lbs	0.0	7.1 %	4,040	8,253			
8/22/2014	11:00 AM	WEST WING WOOD	5.5	445MSCC	75 ° F	25"	137.35 lbs	0.0	8.7 %	5,859	8,455			
8/21/2014	10:00 AM	WEST WING WOOD	5.5	445MSCC	73 ° F	25"	138.57 lbs	0.0	7.4 %	4,371	8,843			
8/20/2014	1:30 PM	WEST WING WOOD	11.8	445MSCC	74 ° F	26"	137.96 lbs	0.0	8.1 %	3,943	7,655			
8/20/2014	9:15 AM	VERTICAL ABUTMENT	12.5	445MSCC	76 ° F	27"	138.57 lbs	0.0	7.9 %	4,038	7,867			
8/19/2014	11:00 AM	WEST WING WOOD	11.85	445MSCC	75 ° F	25"	141.80 lbs	0.0	5.8 %	4,158	9,002			
8/14/2014	12:30 PM	VERTICAL ABUTMENT	16.25	445MSCC	76 ° F	25"	137.35 lbs	0.0	8.6 %	4,062	7,881			
8/8/2014	10:00 AM	VERTICAL ABUTMENT	17.5	445MSCC	74 ° F	26"	140.99 lbs	0.0	6.9 %	6,047	8,760			
8/5/2014	10:00 AM	VERTICAL ABUTMENT	14	445MSCC	78 ° F	26"	137.56 lbs	0.0	8.8 %	3,936	7,540			
8/5/2014	9:30 AM	EAST WING WOOD (NORTH)	10.3	445MSCC	75 ° F	26"	137.56 lbs	0.0	8.8 %	3,936	7,540			
8/1/2014	12:30 PM	FOOTING FORMS (WEST)	.75	445MSCC	78 ° F	26"	139.37 lbs	0.0	7.2 %	6,794	9,303			
7/31/2014	12:30 PM	WEST WING WOOD	.5	445MSCC	75 ° F	26"	139.98 lbs	0.0	6.6 %	5,302	8,702			
7/31/2014	12:30 PM	FOOTING FORMS (WEST)	8.2	445MSCC	72 ° F	20"	137.15 lbs	0.0	8.8 %	3,604	7,738			
7/30/2014	7:00 AM	VERTICAL ABUTMENT	15.8	445MSCC	71 ° F	26"	138.77 lbs	0.0	7.6 %	4,447	8,651			
7/25/2014	10:00 AM	VERTICAL ABUTMENT	10.85	445MSCC	75 ° F	26"	140.79 lbs	0.0	6.8 %	5,927	8,570			
7/15/2014	10:30 AM	VERTICAL ABUTMENT	24	445MSCC	76 ° F	25"	141.80 lbs	0.0	6.2 %	4,529	7,711			
7/11/2014	11:00 AM	VERTICAL ABUTMENT	13.75	445MSCC	75 ° F	22"	141.80 lbs	0.0	7.2 %	4,600	8,264			
7/9/2014	2:30 PM	VERTICAL ABUTMENT	16.7	445MSCC	75 ° F	24"	140.58 lbs	0.0	7.8 %	3,678	7,209			
			UM-265.5		AVG=77 ° F	AVG=24.81	AVG=139.59 lbs	AVG=0.05	AVG=7.1 %	4,768	8,198			



R&D	TECHNICAL SERVICE REQUEST	No.SR-
Requested By:	Ken Ferris	Priority: medium
Date Requested:	1/11/13	
Project Name:	JP Carrara 10,000psi Mix ID# 430M	
Products:	(2) 4"x8" Cylinders for Rapid Chloride Permeability Testing	

Reason for Testing/Impact on Business/Describe the problem:

Customer requests RCP evaluations on (2) 4"x8" cylinders. RCP results must be submitted and approved by the agency (MEDOT) prior to mix approval and prior to commencement of production.

Objectives. Testing requirements/materials/dosages:

Perform RCP testing on (2) 4"x8" cylinders. Minimum requirement per specification is 2000 coulombs. No requirement in regards to age of samples. Testing can began ASAP.

Sampling: Who sampled/where (location)/how/when:

Cylinders were fabricated by JP Carrara QC staff at their facility in Middlebury, VT on 12/19/12. Cylinders have achieved 28 day design (10k) in 7days.

Additional Information attached? Yes No

Please provide mix design info on final report.
Mix design enclosed



Author: S. Levitina

Dept: R&D

Date: 01/25/13

Attn: K. Sompura

Copy: K. Ferris

Technical Service Response	
Project: SR	Report: 13.007
REPORT FOR JP Carrara 10,000psi Mix ID# 430M RCP testing	

* without chemical part

1. General Part

1.1 Summary

Customer requests RCP evaluations on (2) 4"x8" cylinders. RCP results must be submitted and approved by the agency (MEDOT) prior to mix approval and prior to commencement of production

1.2 Objective

Run RCP testing as per ASTM C1202 three disks from each cylinder ASAP.

1.3 Conclusion

Both samples have overage Low permeability rate at 33 days

1.4 Materials and Methods

Two cylinders of the same mix received. Three discs per cylinder were tested according ASTM C1202 at 33 days.



Sika Corporation R&D



J. P. CARRARA & SONS, INC.
 CONCRETE CONTRACTORS
 ARCHITECTURAL / STRUCTURAL PRECAST CONTRACTORS

2444 East Street
 MIDDLEBURY, VT 05753
 TEL: (802) 288-4282
 FAX: (802) 288-9012

SPRINGFIELD, VT 05156
 TEL: (518) 597-3480

VT 0520
 80 GARLAND ST. SUITE 101
 TEL: (802) 778-0201
 FAX: (802) 778-1048

CONCRETE MIX DESIGN

DATE	January 10, 2012		
PROJECT	Marble Point Bridge, Ferrisburgh-Portland, Maine; NERR 1800	STATE:	ME
ENGINEER	SPM		
CONTRACTOR	SPM Constructors		
CONCRETE SUPPLIER	J.P. Carrara & Sons, Inc., Middlebury, VT		G _c , %:
CEMENT SOURCE & TYPE	Safagh Type II		3.09
CLY AGGREGATE & CLASS	Headwaters Resources - Class F - Brayton Point		2.27
COARSE AGGREGATE	J.P. Carrara & Sons, Inc., Middlebury, VT	Portland (34')	ABS = 1.08%, 2.581
FINE AGGREGATE	J.P. Carrara & Sons, Inc., Middlebury, VT	JPC sand	ABS = 1.16%, 2.556
ADJUTANTING AGENT	Sika ACA-14		
REWARDING AGENT	Sika Plastomers		
SELF-CONSOLIDATING ADMIX	Sika Viscocrete-8100		HRWR + Superplasticizer
CORROSION INHIBITOR	W.R. Grace DCI		Minimum 30% Calcium Nitrate
ADJUTANTING AGENT	Sika Stateline 4R		Not Required; Based on an as needed basis

QUANTITIES PER CUBIC YARD

Identifier #	480M	wt 5.5 gal DCI	
Mix Description	10% design, 7500 release		Yield
SPREADER REQUIREMENT	55	10,000	900 # Total Colloids (CM)
Label: Type II	(lb/cy)	726	3.75
Type: Class F	(lb/cy)	180	22% by weight of CM
Portland (34')	(lb/cySSD)	1440	84% by weight of total agg.
JPC sand	(lb/cySSD)	1220	80% by weight of total agg.
WATER Reducer - Minimum Water = 29 *	gal = (8.33)	27.2	3.80
W.C. Ratio (lb/cy) (Max W.C. = 0.27 w/ DCI)		0.29	
Sika ACA-14	(1.5% design) (100/cy)	0.0	0.0% * 1 = 1.0%
Sika Plastomers	(2.0% design) (100/cy)	3.5	
Sika Viscocrete-8100	(1.7% design) (100/cy)	8.5	25' spread * 1 = 3'
W.R. Grace DCI	(gal/cy)	5.5	(84% accounted for as mix water)
Sika Stateline 4R	(0% design) (100/cy)	0.0	Not Required; Based on an as needed basis

Mix Properties	Pwac Values:	Mix Design (W/C)
	40.1%	1.04

Total Batch Yield:	56	1.00 Wt	Shrink Flow	Visual Stability	Temperature	28d Strength**	7day Strength
02/19/2012*	1.0%	141.30	24"	0.0	89°	8,077 psi	16,160 psi

*Reference attached Batch Ticket for trial batch weights & plastic test results.

**Sealed cure as proposed for production; graph of ambient temperature within curing environment attached.

Prepared By: _____
 Benjamin L. Gola, Precast Production Engineer



2. Test Results

ID sample	33 days		
	Charge Passed (Coulombs)	Chloride Ion Penetrability (Average)	Chloride Ion Penetrability
Sample 1 top	1972	1780	Low
Sample 1 middle	1689		
Sample 1 bottom	1679		
Sample 2 top	2003	1894	Low
Sample 2 middle	1825		
Sample 2 bottom	1854		

ASTM C-1202 Specifications	
Charge Passed (Coulombs)	Chloride Ion Penetrability
>4000	High
2,000-4,000	Moderate
1,000-2,000	Low
100-1,000	Very Low
<100	Negligible

3. Hours 5h



R&D	TECHNICAL SERVICE REQUEST	No.SR-
Requested By:	Ken Ferris	Priority: medium
Date Requested:	11/8/13	
Project Name:	JP Carrara 5,000psi Mix ID# 445MSCC	
Products:	(3) 4"x8" Cylinders for Rapid Chloride Permeability Testing	

Reason for Testing/Impact on Business/Describe the problem:

Customer requests RCP evaluations on (3) 4"x8" cylinders. RCP results must be submitted and approved by the agency (VT DOT) prior to mix approval and prior to commencement of production.

Objectives. Testing requirements/materials/dosages:

Perform RCP testing on (3) 4"x8" cylinders. Maximum allowable per specification is 2000 coulombs. Tests can be performed any time after Dec 2 & prior to Dec 20th.

Sampling: Who sampled/where (location)/how/when:

Cylinders were fabricated by JP Carrara QC staff at their facility in Middlebury, VT on 10/25/13. Samples currently being moist cured in tank.

Additional Information attached? Yes No

Please provide mix design info on final report.
Mix design enclosed



Author: S. Levitina

Dept: R&D

Date: 12/06/13

Attn: K. Sompura

Copy: K. Ferris

Technical Service Response	
Project: SR	Report:13.132
REPORT FOR RCP testing for JP Carrara, VT DOT	

* without chemical part

1. General Part

1.1 Summary

Customer requests RCP evaluations on (3) 4"x8" cylinders. RCP results must be submitted and approved by the agency (VTDOT) prior to mix approval and prior to commencement of production.

1.2 Objective

Run RCP testing as per ASTM C1202 between age 38 and 56 days for one disk per cylinder.

1.3 Conclusion

Mix 455 MSCC samples have overage Low permeability rate at 41 days.

1.4 Materials and Methods

One set of three 4x8 cylinders received, marked 455 MSCC cast 10/25 samples # 1, #2, #3. Three discs (one per cylinder) were tested according ASTM C1202 at 41 days.



Sika Corporation R&D



J. P. CARRARA & SONS, INC
CONCRETE CONTRACTORS
ARCHITECTURAL - STRUCTURAL PRECAST CONTRACTORS

2454 Caro Street
 MIDDLEBURY, VT 05753
 TEL (802) 388-0383
 FAX (802) 388-9010

CROWN POINT, NY 12828
 TEL (518) 587-3880

RT 790,
 NO CLARENDON VT 05701
 TEL (802) 775-2301
 FAX (802) 775-1048

CONCRETE MIX DESIGN

DATE:	November 8, 2013		
PROJECT:	VAOT Mix Qualification	STATE:	VT
ENGINEER/ARCH:			
CONTRACTOR:			
CONCRETE SUPPLIER:	J.P. Carrara & Sons, Inc., Middlebury, VT	G _{s, sso}	
CEMENT SOURCE & TYPE:	Lafarge Type III	3.12	
FLY ASH SOURCE & CLASS:	Headwaters Resources - Class F - Grayton Point 2.36		
COARSE AGGREGATE(1):	J.P. Carrara & Sons, Inc., Middlebury, VT	P-stone (3/4")	2.586
FINE AGGREGATE:	J.P. Carrara & Sons, Inc., Middlebury, VT	JPC sand	2.594
AIR ENTRAINING AGENT:	Sika AEA-14		
RETARDING AGENT:	Sika Plastiment		
SELF-CONSOLIDATING ADMIX:	Sika Viscocrete 6100	HRWR + Superplasticizer	
VISCOSITY MODIFIER:	Sika Stabilizer 4R	Not Required; Dosed on an as needed basis	

QUANTITIES PER CUBIC YARD

IDENTIFICATION #:	J46M8CC			Yield
Mix Description:	Standard SCC - 5,000psi Design; 3,500 @ 24hrs			
SPECIFICATIONS REQUIREMENT	28	Dry Strength (psi)	5,000	750 # Total Cementitious (CM)
Lafarge Type III		(lbs)	563	2.88
Fly Ash Class F		(lbs)	188	25% by weight of CM
P-stone (3/4")		(lbs)(SSD)	1340	47% by weight of total agg.
JPC sand		(lbs)(SSD)	1520	53% by weight of total agg.
WATER (gallons) (Maximum Water =	33.3	Gal.)	30.5	4.07
W/C RATIO (lbs/lb) (Mix W/C =	0.37)	0.34	
Sika AEA-14	(0-20 range) (oz/yd ³)	5.0	7.0%	+/- = 2.0%
Sika Plastiment	(0-6 range) (oz/cwt)	2.0		
Sika Viscocrete 6100	(6-11 range) (oz/cwt)	9.5	24"	spread +/- = 4"
Sika Stabilizer 4R	(0-7 range) (oz/cwt)	0.0	Not Required; Dosed on an as needed basis	

27.3

Mix Properties:	Min Paste Volume	Paste G _s	Fly Ash Vol.	Sand/Agg Vol.	W/cement only	Max unit wt (lb/ft ³)
	35.1%	1.670	30.6%	53.1%	0.45	141.6

Prepared By: _____

Benjamin L. Cole, Precast Production Engineer



2. Test Results

455 MSCC	41 days		
	Charge Passed (Coulombs)	Chloride Ion Penetrability (Average)	Chloride Ion Penetrability
Sample#1 middle	1089	1049	Low
Sample#2 middle	1021		
Sample#3 middle	1037		

ASTM C-1202 Specifications	
Charge Passed (Coulombs)	Chloride Ion Penetrability
>4000	High
2,000-4,000	Moderate
1,000-2,000	Low
100-1,000	Very Low
<100	Negligible

3. Hours 3h

JP CARRARA & SONS, INC.

2464 Case Street ♦ Middlebury, VT 05753
 (P) 802-388-6363 ♦ (F) 802-388-9010
 www.jpcarrara.com

116617

PRECAST CONCRETE ♦ READY-MIX CONCRETE ♦ CONCRETE PUMPING ♦ SAND, STONE & GRAVEL

PLANT 02	TIME 12:46 PM	DATE 10/25/13	ACCOUNT 11247	JOB NUMBER 251110	TRUCK M48	DRIVER HENRY
CUSTOMER 11247 MIDDLEBURY PRECAST-NEED JOB #				DELIVERY ADDRESS / DIRECTIONS JOB 251110 DOOR 1		
PURCHASE ORDER 25110-013		DELIVERY LOCATION		DELIVERY LOCATION CODE 02	TAX 01	SLUMP 5.00 in
LOAD QTY 8.00 yd	PRODUCT 445MSCC	DESCRIPTION 7000 SELF COMPACTING RCP TEST BATCH	AMT ORDERED 8.00	AMT DELIVERED 8.00	UNIT PRICE	AMOUNT
NOTES - CONCRETE USE: <UNKNOWN>				140.91 #/ft ³ 6.4% 24" VSI = 0		
WATER ADDED AT CUSTOMER REQUEST (GALLONS):				63°		

LEAVE PLANT	ARRIVE JOB SITE	LEAVE JOB SITE	RETURN PLANT
-------------	-----------------	----------------	--------------

Time allowed for unloading is five minutes per yard or thirty minutes, whichever is longer. Additional time for unloading is subject to a Demurrage charge.

CAUTION: Freshly mixed concrete may cause skin irritation or chemical burns. Avoid direct contact where possible and wash exposed skin areas promptly with water.

When delivery is made inside the curb line, Customer agrees to accept full responsibility and assumes all risk for any and all damage caused to driveways, sidewalks, buildings, vehicles, lawns, trees, shrubs, utility wires, or any other items or property, real or personal located at the delivery site. Customer agrees to indemnify, defend and hold JP Carrara & Sons, Inc. harmless from and against any and all damage, loss, cost or expense relating to or arising from all such deliveries.

Additional water added to this concrete will reduce its strength. Any water added at the request of customer is done so at customer's own risk.

JP Carrara & Sons, Inc., having no control over the use of materials sold, shall not be held responsible for the quality of any finished products, unless otherwise contracted in writing.

All amounts due on account are payable net 30 days from the date of invoice. Interest in the amount of 1½% per month (18% per annum) shall be applied to any amounts unpaid within this period.

SUBTOTAL
DISCOUNT
TAX
TOTAL

Please SIGN HERE acknowledging receipt of materials and acceptance of the terms and conditions contained herein.

Truck M48	Driver 1033	User User1	Disp Ticket Num 3418	Ticket ID 116617	Time 12:46	Date 10/25
Load Size 8.00 CY	Mix Code 445MSCC	Returned	Qty	Mix Age	Seq Wt	Load ID 22514

Material	Design Qty	Required	Batched	% Var	% Moisture	Actual	Wat
3/4 STONE	1340 lb	10764 lb	10800 lb	0.33%	0.40% M		5 gl
SAND	1520 lb	23473 lb	23360 lb	-0.48%	3.80% M		55 gl
TYPE III	563.0 lb	4499.0 lb	4515.0 lb	0.36%			
FLYASH	188.0 lb	6031.0 lb	6010.0 lb	-0.35%			
AEA	5.00 oz	40.00 oz	40.00 oz	0.00%			
PLAST	1.00 /C	60.12 oz	60.00 oz	-0.20%			
6100	9.20 /C	553.10 oz	552.00 oz	-0.20%			
WATER	30.50 gl	185.24 gl	183.00 gl	-1.21%			183.00 gl

Actual Load	30943 lb	Num Batches:	2	Manual	12:46
Slump:	5.00 in	Design	0.339	Water/Cemen	0.339 T
		Water in	0.0 gl	Adjust Water:	0.0 gl /
		Design	244.0 gl	Actual	243.3 gl fo Add:
		Trim Water:	0.0 gl /	CY Note:	Manua

Load Completed Load Time: 8 : 01 ---Tares-----

February 19, 2015

Report No. 25.30620.001-2

Mr. Ben Cota
JP Carrara & Sons
2464 Case Street
Middlebury, VT 05753

Re: Aggregate Test Results

Gentlemen:

The following are test results of samples of aggregate as delivered to this laboratory on January 23, 2015.

1.	<u>Sample Description</u>	<u>Description</u>	<u>Source</u>
	<u>Sample No.</u>		
	C-36a	3/4" Stone	JP Carrara Middlebury, VT
	C-36b	Concrete Sand	JP Carrara Middlebury, VT

2. Washed Sieve Analysis (% passing by weight)

<u>Sieve Size (mm)</u>	<u>C-36a</u>	<u>C-36b</u>
3/4" (19.0)	100	
1/2 (12.5)	64	
3/8 (9.5)	37	100
#4 (4.75)	2	95
8 (2.36)	1	84
16 (1.18)	1	70
30 (.600)		49
50 (.300)		22
100 (.150)		8
200 (.075)	0.6	2.5
Fineness Modulus		2.73

3. Specific Gravity & Absorption (AASHTO T84, AASHTO T8%)

<u>Test</u>	<u>C-33a</u>	<u>C-33b</u>
Specific Gravity	2.580	2.613
Absorption (%)	1.24	0.98

Should you have any questions or require additional information, please do not hesitate to call.

Sincerely,



Kevin Caine
Laboratory Manager

KC/sjm

J.P. CARRARA & SONS, INC.
 2464 Case St.
 Middlebury, VT 05753
 Ph. 388-6363 Fax 388-9010

Fine Aggregate Sieve Analysis

Material Source: JPC Middlebury Concrete Sand **2.90** **Graph A** **Date:** 3/19/2015

if "other", note source:

Sieve Size	Cumulative Wt. Retained (g)	grams	Min =	500 grams	Select Applicable Specification:		Consecutive Sieve % Retention	Additional information pertinent to material sample:
					% Passing	high		
3/8"	0.0	0.0	0.0	100.0	100	0	ASTM C 566	
No. 4	55.0	4.8	95.2	95	100	4.8	sample wet weight, W: 1197.00	
No. 8	222.0	19.5	80.5	0	100	19.5	sample dry weight, D: 1139.00	
No. 16	406.0	35.6	64.4	50	80	30.8	total moisture, p: 5.09%	
No. 30	607.0	53.3	46.7	25	60	33.8	material absorption: 1.10%	
No. 50	893.0	78.4	21.6	10	30	42.8	surface moisture: 3.99%	
No. 100	1071.0	94.0	6.0	2	10	40.7		
No. 200	1118.0	98.2	1.8	0	100	19.8		
Pan	1139.0							
				FM Range		FM Variance, Base FM = 2.9		
FM =				2.86	2.6	2.7	3.1	

 Rev. 11/17/2014	SAMPLE TYPE:	RMS 905	DATE RECEIVED:	LAB NUMBER:
	VER	SAMPLE OF FINE AGGREGATE (ASR)		

CEMENT	FLY ASH	SLAG	SILICA
75.0%	25.0%	0.0%	0.0%

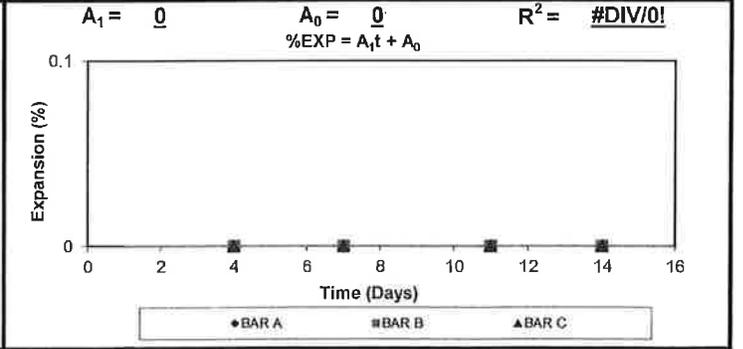
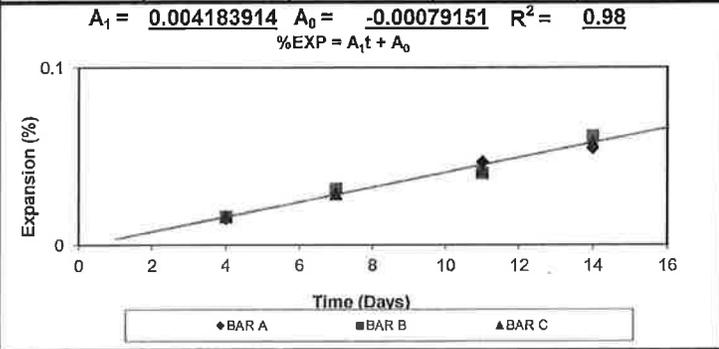
PLANT, LABORATORY, AGGREGATE, AND MITIGATION SOURCES

Plant:	JP CARRARA	Location:	MIDDLEBURY VT
Aggregate:	JP CARRARA	Location:	MIDDLEBURY VT
Cement:	LAFARGE	Location:	ST. CONSTANT, QC, CA
Fly Ash:	HEADWATERS RESOURCES	Location:	SOMERSET, MA
Slag:		Location:	
Silica Fume:		Location:	

INDEPENDENT LABORATORY		MASSDOT LABORATORY	
Laboratory:	ATC ASSOCIATES	Laboratory:	RESEARCH & MATERIALS
Date Sampled:	1/23/2015	Date Sampled:	
Sampler:	JP CARRARA	Sampler:	

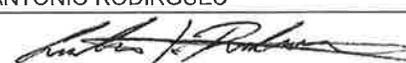
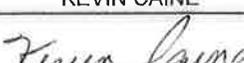
TIME (Days)	MORTAR BAR (UNIT OF LENGTH)				TIME (Days)	MORTAR BAR (UNIT OF LENGTH)			
	A	B	C	G		A	B	C	G
2	0.0883	0.0930	0.0850	10					
6	0.0898	0.0946	0.0866						
9	0.0913	0.0962	0.0879						
13	0.0930	0.0971	0.0892						
16	0.0938	0.0992	0.0908						

TIME (Days)	MORTAR BAR (%)				TIME (Days)	MORTAR BAR (%)			
	A	B	C	AVERAGE		A	B	C	AVERAGE
0					0				
4	0.015	0.016	0.016	0.02	4	0.000	0.000	0.000	0.00
7	0.030	0.032	0.029	0.03	7	0.000	0.000	0.000	0.00
11	0.047	0.041	0.042	0.04	11	0.000	0.000	0.000	0.00
14	0.055	0.061	0.058	0.06	14	0.000	0.000	0.000	0.00



PASS

MassDOT: Please fill in all cells highlighted in green.

Tested by:	ANTONIO RODRIGUES	Tested by:	
Signature:		Signature:	
Date:	2/20/15	Date:	
Reviewed by:	KEVIN CAINE	Reviewed by:	
Signature:		Signature:	
Date:	2/21/2015	Date:	
Comments:		Comments:	

Note: Pass/Fail determination is based on MassDOT's expansion criteria of 0.08% maximum expansion for metamorphic aggregate or 0.10% maximum expansion for all other aggregates. A "12 Point Linear Regression" of 4, 7, 11, and 14 days is used to determine reliability of results and to develop $\%Expansion = A_1t + A_0$ plot. Repeat AASHTO T303 (Modified) if r^2 value is less than 0.95.

2012



RMS 905
AASHTO T303
(Modified)

DATE RECEIVED:

LAB NUMBER:

CEMENT	FLY ASH	SLAG	SILICA
80.0%	20.0%	0.0%	0.0%

PLANT, LABORATORY, AGGREGATE, AND MITIGATION SOURCES

Plant:	J. P. CARRARA & SONS	Location:	MIDDLEBURY, VT
Laboratory:	ATC ASSOCIATES	Location:	AVON, MA
Aggregate:	J. P. CARRARA & SONS	Location:	MIDDLEBURY, VT
Cement:	LAFARGE	Location:	ST. CONSTANT, QC, CA
Fly Ash:	HEADWATERS RESOURCES	Location:	SOMERSET, MA
Slag:		Location:	
Silica Fume:		Location:	
Identification No.:		Year used:	2012
Date Sampled:	5/14/2012	Sampler:	CONTRACTOR

EXPANSION LENGTHS				% EXPANSION RESULTS					
TIME (Days)	MORTAR BAR (UNIT OF LENGTH)				TIME (Days)	MORTAR BAR (%)			
	A	B	C	G		A	B	C	AVERAGE
2	0.0916	0.1002	0.0925	10	0				
6	0.0921	0.1009	0.0933		4	0.005	0.007	0.008	0.01
9	0.0928	0.1014	0.0940		7	0.012	0.012	0.015	0.01
13	0.0938	0.1022	0.0948		11	0.022	0.020	0.023	0.02
16	0.0951	0.1037	0.0955		14	0.035	0.035	0.030	0.03

REGRESSION ANALYSIS

TIME (Days)	EXP. (%)	BEST FIT (%)	SSE	SST
4	0.005	0.006	4.494E-07	0.0001832
4	0.007	0.006	1.705E-06	0.0001337
4	0.008	0.006	5.298E-06	0.0001116
7	0.012	0.013	2.113E-06	4.357E-05
7	0.012	0.013	2.143E-06	4.37E-05
7	0.015	0.013	2.303E-06	1.317E-05
11	0.022	0.024	3.377E-06	1.095E-05
11	0.020	0.024	1.472E-05	1.716E-06
11	0.023	0.024	7.206E-07	1.847E-05
14	0.035	0.031	1.105E-05	0.0002621
14	0.035	0.031	1.086E-05	0.0002612
14	0.030	0.031	2.666E-06	0.0001262

$A_1 = 0.0025733$ $A_0 = -0.004668$ $R^2 = 0.95$

$\%EXP = A_1 t + A_0$

Time (Days)

● BAR A ■ BAR B ▲ BAR C

RESULTS

PASS

Note: Pass/Fail determination is based on MassDOT's expansion criteria of 0.08% maximum expansion for metamorphic aggregate or 0.10% maximum expansion for all other aggregates. A "12 Point Linear Regression" of 4, 7, 11, and 14 days is used to determine reliability of results and to develop $\%Expansion = A_1 t + A_0$ plot. Repeat AASHTO T303 (Modified) if r^2 value is less than 0.95.

Comments:

Tested by: ANTONIO RODRIGUES

Reviewed by: KEVIN CAINE

Signature: *Antonio Rodrigues*

Signature: *Kevin Caine*

Date: 6/11/2012

Date:

J.P. CARRARA & SONS, INC.
 2464 Case St.
 Middlebury, VT 05753
 Ph. 388-6363 Fax 388-9010

Coarse Aggregate Sieve Analysis

Material Source: **JPC Middlebury P - Stone (3/4)** **3/4** **Graph A** Date: **3/19/2015**

if "other", note source:

Material Quantity: **12.74** Lbs; minimum: **11.0**

Sieve Size	Cumulative Wt. Retained (#)	Cumulative % Retained	% Passing		Select Applicable Specification: VAOT	Select Size Designation 19.0mm (3/4")	Material evaluation performed by: M.C. B.C.
			low	high			
2"	0.00	0.0	100.0	100	ASTM C 566 additional information pertinent to material sample: sample wet weight, W: 13.03 sampe dry weight, D: 12.74 total moisture, p: 2.28% material absorption: 0.80% surface moisture: 1.48%		
1-1/2"	0.00	0.0	100.0	100			
1"	0.00	0.0	100.0	100			
3/4"	0.45	3.6	96.4	90			
1/2"	4.34	34.1	65.9	0			
3/8"	7.61	59.7	40.3	20			
No. 4	12.15	95.3	4.7	0			
No. 8	12.49	98.0	2.0	0			
No. 16	12.56	98.6	1.4	0			
PAN	12.74	100.0	0.0	0			

 <small>MassDOT Highway</small> <small>Rev. 11/17/2014</small>	SAMPLE TYPE: <h1 style="margin:0;">VER</h1>	RMS 905 SAMPLE OF COARSE AGGREGATE (ASR)	DATE RECEIVED:	LAB NUMBER:
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CEMENT	FLY ASH	SLAG	SILICA
75.0%	25.0%	0.0%	0.0%

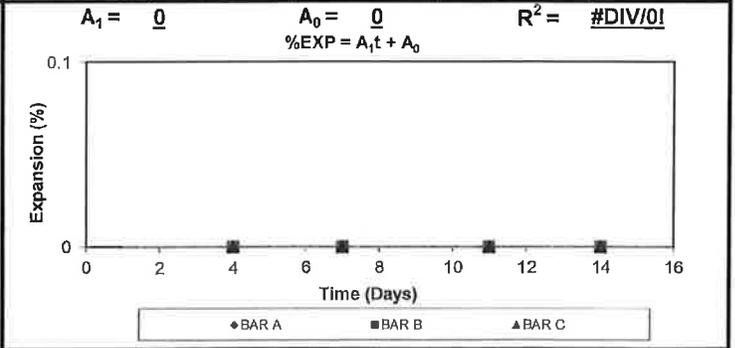
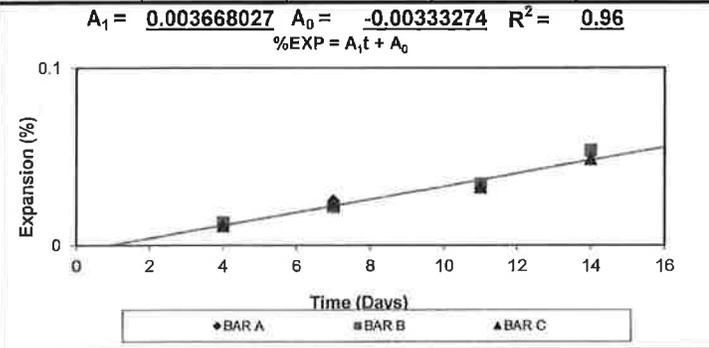
PLANT, LABORATORY, AGGREGATE, AND MITIGATION SOURCES

Plant:	JP CARRARA	Location:	MIDDLEBURY VT
Aggregate:	JP CARRARA	Location:	MIDDLEBURY VT
Cement:	LAFARGE	Location:	ST. CONSTANT, QC, CA
Fly Ash:	HEADWATERS RESOURCES	Location:	SOMERSET, MA
Slag:		Location:	
Silica Fume:		Location:	

INDEPENDENT LABORATORY	MASSDOT LABORATORY
Laboratory: ATC ASSOCIATES	Laboratory: RESEARCH & MATERIALS
Date Sampled: 1/23/2015	Date Sampled:
Sampler: JP CARRARA	Sampler:

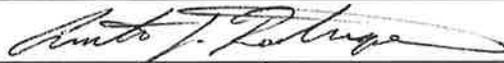
TIME (Days)	MORTAR BAR (UNIT OF LENGTH)				TIME (Days)	MORTAR BAR (UNIT OF LENGTH)			
	A	B	C	G		A	B	C	G
2	0.0835	0.0995	0.0918	10					
6	0.0846	0.1008	0.0929						
9	0.0860	0.1017	0.0942						
13	0.0869	0.1030	0.0951						
16	0.0887	0.1049	0.0967						

TIME (Days)	MORTAR BAR (%)				TIME (Days)	MORTAR BAR (%)			
	A	B	C	AVERAGE		A	B	C	AVERAGE
0					0				
4	0.011	0.013	0.011	0.01	4	0.000	0.000	0.000	0.00
7	0.025	0.022	0.024	0.02	7	0.000	0.000	0.000	0.00
11	0.034	0.035	0.033	0.03	11	0.000	0.000	0.000	0.00
14	0.052	0.053	0.049	0.05	14	0.000	0.000	0.000	0.00



PASS

MassDOT: Please fill in all cells highlighted in green.

Tested by: ANTONIO RODRIGUES Signature:  Date: 2/20/15 Reviewed by: KEVIN CAINE Signature:  Date: 2/21/2015 Comments:	Tested by: Signature: Date: Reviewed by: Signature: Date: Comments:
---	---

Note: Pass/Fail determination is based on MassDOT's expansion criteria of 0.08% maximum expansion for metamorphic aggregate or 0.10% maximum expansion for all other aggregates. A "12 Point Linear Regression" of 4, 7, 11, and 14 days is used to determine reliability of results and to develop %Expansion = A₁t + A₀ plot. Repeat AASHTO T303 (Modified) if r² value is less than 0.95.

2012		RMS 905 AASHTO T303 (Modified)	DATE RECEIVED:	LAB NUMBER:
		CEMENT	FLY ASH	SLAG

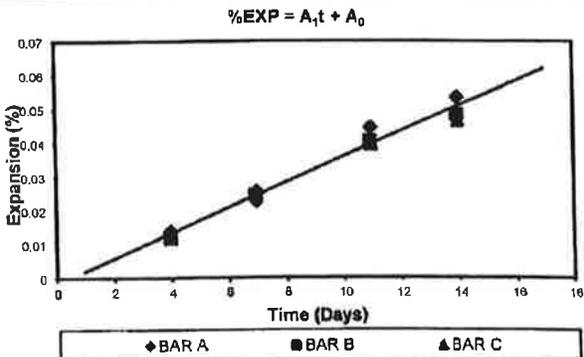
80.0%	20.0%	0.0%	0.0%
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PLANT, LABORATORY, AGGREGATE, AND MITIGATION SOURCES

Plant:	J. P. CARRARA & SONS	Location:	MIDDLEBURY, VT		
Laboratory:	ATC ASSOCIATES	Location:	AVON, MA		
Aggregate:	J. P. CARRARA & SONS	Location:	MIDDLEBURY, VT	Type:	COARSE
Cement:	LAFARGE	Location:	ST. CONSTANT, QC, CA	Type:	III
Fly Ash:	HEADWATERS RESOURCES	Location:	SOMERSET, MA	Type:	F
Slag:		Location:		Type:	
Silica Fume:		Location:			
Identification No.:		Year used:	2012		
Date Sampled:	5/14/2012	Sampler:	Contractor		

EXPANSION LENGTHS					% EXPANSION RESULTS				
TIME (Days)	MORTAR BAR (UNIT OF LENGTH)				TIME (Days)	MORTAR BAR (%)			
	A	B	C	G		A	B	C	AVERAGE
2	0.0975	0.0923	0.0768	10	0				
6	0.0989	0.0935	0.0781		4	0.014	0.012	0.013	0.01
9	0.0998	0.0948	0.0794		7	0.023	0.025	0.026	0.02
13	0.1020	0.0964	0.0808		11	0.045	0.041	0.040	0.04
16	0.1029	0.0972	0.0815		14	0.053	0.049	0.047	0.05

REGRESSION ANALYSIS

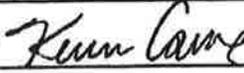
TIME (Days)	EXP. (%)	BEST FIT (%)	SSE	SST	$A_1 = 0.0037537 \quad A_0 = -0.001653 \quad R^2 = 0.97$		
4	0.014	0.013	2.531E-07	0.0003336	$\%EXP = A_1 t + A_0$ 		
4	0.012	0.013	2.165E-06	0.0004097			
4	0.013	0.013	2.123E-07	0.0003698			
7	0.023	0.025	3.404E-06	8.747E-05			
7	0.025	0.025	2.203E-08	5.416E-05			
7	0.026	0.025	1.39E-06	4.005E-05			
11	0.045	0.040	2.428E-05	0.0001546			
11	0.041	0.040	9.744E-07	7.216E-05			
11	0.040	0.040	3.277E-09	5.723E-05			
14	0.053	0.051	6.654E-06	0.0004557			
14	0.049	0.051	5.51E-06	0.0002697			
14	0.047	0.051	1.812E-05	0.0002106			

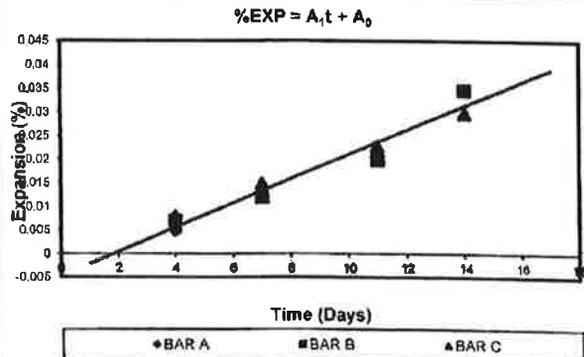
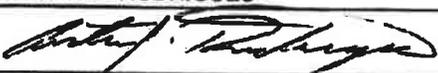
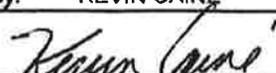
RESULTS

PASS

Note: Pass/Fail determination is based on MassDOT's expansion criteria of 0.08% maximum expansion for metamorphic aggregate or 0.10% maximum expansion for all other aggregates. A "12 Point Linear Regression" of 4, 7, 11, and 14 days is used to determine reliability of results and to develop $\%Expansion = A_1 t + A_0$ plot. Repeat AASHTO T303 (Modified) if r^2 value is less than 0.95.

Comments:

Tested by: Antonio Rodrigues	Reviewed by: Kevin Caine
Signature: 	Signature: 
Date: 5/16/2012	Date:

2012		RMS 905 AASHTO T303 (Modified)	DATE RECEIVED:		LAB NUMBER:				
CEMENT		FLY ASH		SLAG					
80.0%		20.0%		0.0%					
				SILICA					
				0.0%					
PLANT, LABORATORY, AGGREGATE, AND MITIGATION SOURCES									
Plant:	J. P. CARRARA & SONS		Location: MIDDLEBURY, VT						
Laboratory:	ATC ASSOCIATES		Location: AVON, MA						
Aggregate:	J. P. CARRARA & SONS		Location: MIDDLEBURY, VT		Type: FINE				
Cement:	LAFARGE		Location: ST. CONSTANT, QC, CA		Type: III				
Fly Ash:	HEADWATERS RESOURCES		Location: SOMERSET, MA		Type: F				
Slag:			Location:						
Silica Fume:			Location:						
Identification No.:			Year used: 2012						
Date Sampled:	5/14/2012		Sampler: CONTRACTOR						
EXPANSION LENGTHS				% EXPANSION RESULTS					
TIME (Days)	MORTAR BAR (UNIT OF LENGTH)				TIME (Days)	MORTAR BAR (%)			
	A	B	C	G		A	B	C	AVERAGE
2	0.0916	0.1002	0.0925	10	0				
6	0.0921	0.1009	0.0933		4	0.005	0.007	0.008	0.01
9	0.0928	0.1014	0.0940		7	0.012	0.012	0.015	0.01
13	0.0938	0.1022	0.0948		11	0.022	0.020	0.023	0.02
16	0.0951	0.1037	0.0955		14	0.035	0.035	0.030	0.03
REGRESSION ANALYSIS									
TIME (Days)	EXP. (%)	BEST FIT (%)	SSE	SST	$A_1 = 0.0025733$ $A_0 = -0.004668$ $R^2 = 0.95$				
4	0.005	0.006	4.494E-07	0.0001832					
4	0.007	0.006	1.705E-06	0.0001337					
4	0.008	0.006	5.298E-06	0.0001116					
7	0.012	0.013	2.113E-06	4.357E-05					
7	0.012	0.013	2.143E-06	4.37E-05					
7	0.015	0.013	2.303E-06	1.317E-05					
11	0.022	0.024	3.377E-06	1.095E-05					
11	0.020	0.024	1.472E-05	1.716E-06					
11	0.023	0.024	7.206E-07	1.847E-05					
14	0.035	0.031	1.105E-05	0.0002621					
14	0.035	0.031	1.086E-05	0.0002612					
14	0.030	0.031	2.666E-06	0.0001262					
RESULTS									
PASS									
<p>Note: Pass/Fail determination is based on MassDOT's expansion criteria of 0.08% maximum expansion for metamorphic aggregate or 0.10% maximum expansion for all other aggregates. A "12 Point Linear Regression" of 4, 7, 11, and 14 days is used to determine reliability of results and to develop %Expansion = $A_1 t + A_0$ plot. Repeat AASHTO T303 (Modified) if r^2 value is less than 0.95.</p>									
Comments:									
Tested by: ANTONIO RODRIGUES			Reviewed by: KEVIN CAINE						
Signature: 			Signature: 						
Date: 6/11/2012			Date:						

2012		RMS 905 AASHTO T303 (Modified)	DATE RECEIVED:	LAB NUMBER:
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CEMENT	FLY ASH	SLAG	SILICA
80.0%	20.0%	0.0%	0.0%

PLANT, LABORATORY, AGGREGATE, AND MITIGATION SOURCES

Plant:	J. P. CARRARA & SONS	Location:	MIDDLEBURY, VT		
Laboratory:	ATC ASSOCIATES	Location:	AVON, MA		
Aggregate:	J. P. CARRARA & SONS	Location:	MIDDLEBURY, VT	Type:	COARSE
Cement:	LAFARGE	Location:	ST. CONSTANT, QC, CA	Type:	III
Fly Ash:	HEADWATERS RESOURCES	Location:	SOMERSET, MA	Type:	F
Slag:		Location:		Type:	
Silica Fume:		Location:			
Identification No.:		Year used:	2012		
Date Sampled:	5/14/2012	Sampler:	Contractor		

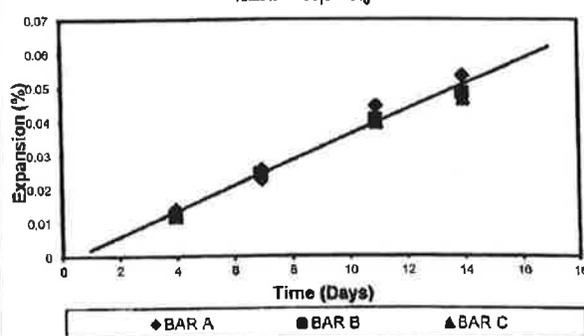
EXPANSION LENGTHS					% EXPANSION RESULTS				
TIME (Days)	MORTAR BAR (UNIT OF LENGTH)				TIME (Days)	MORTAR BAR (%)			
	A	B	C	G		A	B	C	AVERAGE
2	0.0975	0.0923	0.0768	10	0				
6	0.0989	0.0935	0.0781		4	0.014	0.012	0.013	0.01
9	0.0998	0.0948	0.0794		7	0.023	0.025	0.026	0.02
13	0.1020	0.0964	0.0808		11	0.045	0.041	0.040	0.04
16	0.1029	0.0972	0.0815		14	0.053	0.049	0.047	0.05

REGRESSION ANALYSIS

TIME (Days)	EXP. (%)	BEST FIT (%)	SSE	SST
4	0.014	0.013	2.531E-07	0.0003336
4	0.012	0.013	2.165E-06	0.0004097
4	0.013	0.013	2.123E-07	0.0003698
7	0.023	0.025	3.404E-06	8.747E-05
7	0.025	0.025	2.203E-08	5.416E-05
7	0.026	0.025	1.39E-06	4.005E-05
11	0.045	0.040	2.428E-05	0.0001546
11	0.041	0.040	9.744E-07	7.216E-05
11	0.040	0.040	3.277E-09	5.723E-05
14	0.053	0.051	6.654E-06	0.0004557
14	0.049	0.051	5.51E-08	0.0002697
14	0.047	0.051	1.812E-05	0.0002106

$A_1 = 0.0037537$ $A_0 = -0.001653$ $R^2 = 0.97$

$\%EXP = A_1t + A_0$



RESULTS

PASS

Note: Pass/Fail determination is based on MassDOT's expansion criteria of 0.08% maximum expansion for metamorphic aggregate or 0.10% maximum expansion for all other aggregates. A "12 Point Linear Regression" of 4, 7, 11, and 14 days is used to determine reliability of results and to develop %Expansion = $A_1t + A_0$ plot. Repeat AASHTO T303 (Modified) if r^2 value is less than 0.95.

Comments:

Tested by: Antonio Rodrigues	Reviewed by: Kevin Caine
Signature: 	Signature: 
Date: 5/18/2012	Date:



Specific Gravity 2015

Lafarge St. Constant, Quebec

Type III - 3.103

Tercem - 2.976



Cement Mill Test Report

Month of Issue: February 2015

Plant:	St-Constant, Quebec
Product:	Portland Cement Type III
Silo:	1 and 11
Manufactured:	December 2014

ASTM C 150-12 and AASHTO M 85-12 Standard Requirements

CHEMICAL REQUIREMENTS			PHYSICAL REQUIREMENTS		
	Spec limit	Test Result		Spec limit	Test Result
<i>Rapid Method, X-Ray (C 114)</i>			<i>Air content of mortar (%) (C 185)</i>		
SiO ₂ (%)	—	19,7		12 max	6
Al ₂ O ₃ (%)	—	4,8	<i>Blaine Fineness (m²/kg) (C 204)</i>		
Fe ₂ O ₃ (%)	—	2,3		—	563
CaO (%)	—	61,6	<i>Retained on a 45 µm sieve (%) (C 430)</i>		
MgO (%)	6.0 max	2,8		—	0,7
SO ₃ (%)	4.5 max	4,3	<i>Autoclave expansion (%) (C 151)*</i>		
Insoluble residue (%)*	0.75 max	0,63		0.80 max	0,06
Loss on Ignition @ 950°C (%)	3.0 max	2,4	<i>Compressive strength (PSI) (C 109)</i>		
CO ₂ (%)	—	1,4	1 day	1740 min	4190
CaCO ₃ In Limestone (%)		84,6	3 days	3480 min	5815
Limestone in cement (%)		3,8	28 days*	—	7320
Na ₂ O _{eq} (%)		0,91	<i>Time of setting (minutes)</i>		
<i>Potential Phase Composition (C 150)</i>			<i>Vicat Initial (C 191)</i>		
C ₃ S (%)	—	49		45 - 375	85
C ₂ S (%)	—	19	<i>Mortar Bar Expansion (%) (C 1038)*</i>		
C ₃ A (%)	15 max	9		0.02 max	0,007
C ₄ AF (%)	—	7			

* Current Production run not available - most recent provided.

We certify that the above described cement, at the time of shipment, meets the chemical and physical requirements of applicable VTAOT Specifications for Type III CEMENT;

ASTM C 150-12 & AASHTO M 85-12 STANDARD SPECIFICATIONS FOR TYPE III CEMENT;

For additional information on this cement test report, please contact our regional technical representative David Johns at (484) 695-5902.

Certified By:

Pascale Poulin

ECAN BU - St-Constant Plant
 1 ChemIn Lafarge, St-Constant
 Phone: 450-632-7750 #218

Pascale Poulin - Quality Coordinator
 February 15, 2015

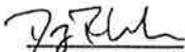
**ASTM C618 / AASHTO M295 Testing of
Brayton Point Fly Ash**

Sample Type: 3200-ton	Report Date: 2/19/2015
Sample Date: 12/10 - 1/8/15	MTRF ID: 78BP
Sample ID:	

Chemical Analysis	ASTM / AASHTO Limits		ASTM Test Method
	Class F	Class C	
Silicon Dioxide (SiO ₂)	58.75 %		
Aluminum Oxide (Al ₂ O ₃)	27.64 %		
Iron Oxide (Fe ₂ O ₃)	5.02 %		
Sum of Constituents	91.41 %	70.0% min 50.0% min	D4326
Sulfur Trioxide (SO ₃)	0.15 %	5.0% max 5.0% max	D4326
Calcium Oxide (CaO)	1.23 %		D4326
Magnesium Oxide (MgO)	1.04 %		
Sodium Oxide (Na ₂ O)	0.60 %		
Potassium Oxide (K ₂ O)	2.38 %		
Moisture	0.06 %	3.0% max 3.0% max	C311
Loss on Ignition	2.55 %	6.0% max 5.0% max 6.0% max 5.0% max	C311 AASHTO M295
Available Alkalies, as Na ₂ O When required by purchaser	0.92 %	not required 1.5% max 1.5% max	C311 AASHTO M295
Physical Analysis			
Fineness, % retained on #325	13.96 %	34% max 34% max	C311, C430
Strength Activity Index - 7 or 28 day requirement			C311, C109
7 day, % of control	88 %	75% min 75% min	
28 day, % of control	94 %	75% min 75% min	
Water Requirement, % control	96 %	105% max 105% max	
Autoclave Soundness	-0.02 %	0.8% max 0.8% max	C311, C151
Density	2.35		C604

The strength activity index is not to be considered a measure of the compressive strength of concrete containing the fly ash.

Headwaters Resources certifies that pursuant to current ASTM C618 protocol for testing, the test data listed herein was generated by applicable ASTM methods and meets the requirements of ASTM C618.


Doug Rhodes, CET
Facility Manager



Sika Corporation Construction

Date: July 11, 2011

Certificate of Compliance

JP Carrara and Sons Inc.
2464 Case Street
Middlebury, VT 05753

Re: Sika AEA-14

To: Mr. Ben Cota,

This is to certify that **Sika AEA-14** conforms to the current ASTM C 260 and AASHTO M-154 specifications.

Sika AEA-14 is manufactured under strict quality control conditions by Sika Corporation.

Sika AEA-14 exhibits the typical physical properties as stated in the current data sheet for this product found at Sika's website www.sikaconstruction.com when used as directed within the product's shelf life.

Always read the current applicable product data sheet, material safety data sheet and label prior to use.

NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SIKA SHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES OF ANY KIND. SIKA SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS.

Sincerely,

SIKA CORPORATION



David White
Technical Services Director

cc: Tom Zuppa-Sika Corporation



Sika Corporation, 201 Polito Avenue, Lyndhurst, NJ 07071
Tel: 800-933-7452, www.sikaconstruction.com

Innovation & Consistency | since 1910

Sika Corporation Construction

Date: July 11, 2011

Certificate of Compliance

JP Carrara and Sons Inc.
2464 Case Street
Middlebury, VT 05753

Re: **Plastiment**

To: Mr. Ben Cota,

This is to certify that **Plastiment** conforms to the current ASTM C 494 Types B & D and AASHTO M-194 Type B & D specifications.

Plastiment is manufactured under strict quality control conditions by Sika Corporation. **Plastiment** exhibits the typical physical properties as stated in the current data sheet for this product found at Sika's website www.sikaconstruction.com when used as directed within the product's shelf life. **Always read the current applicable product data sheet, material safety data sheet and label prior to use.**

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Sincerely,

SIKA CORPORATION



David White
Technical Services Director

cc: Tom Zuppa-Sika Corporation



Sika Corporation, 201 Polito Avenue, Lyndhurst, NJ 07071
Tel: 800-933-7452, www.sikaconstruction.com

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Sika Corporation Construction

Date: July 11, 2011

Certificate of Compliance

JP Carrara and Sons Inc.
2464 Case Street
Middlebury, VT 05753

Re: **Sika ViscoCrete 6100**

To: Mr. Ben Cota,

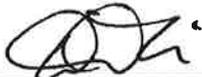
This is to certify that **Sika ViscoCrete 6100**, conforms to the current ASTM C 494 Types A and F and AASHTO M 194 Types A and F specifications.

Sika ViscoCrete 6100 is manufactured under strict quality control conditions by Sika Corporation. **Sika ViscoCrete 6100** exhibits the typical physical properties as stated in the current data sheet for this product found at Sika's website www.sikaconstruction.com when used as directed within the product's shelf life. **Always read the current applicable product data sheet, material safety data sheet and label prior to use.**

NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SIKA SHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES OF ANY KIND. SIKA SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS.

Sincerely,

SIKA CORPORATION



David White
Technical Services Director

cc: Tom Zuppa-Sika Corporation



Sika Corporation, 201 Polilo Avenue, Lyndhurst, NJ 07071
Tel: 800-933-7452, www.sikaconstruction.com

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Sika Corporation Construction

Date: July 11, 2011

Certificate of Compliance

JP Carrara and Sons Inc.
2464 Case Street
Middlebury, VT 05753

Re: **Sika Stabilizer 4R**

To: Mr. Ben Cota,

This is to certify that **Sika Stabilizer 4R** conforms to the current ASTM C 494 specification as a Type S admixture.

Sika Stabilizer 4R is manufactured under strict quality control conditions by Sika Corporation. **Sika Stabilizer 4R** exhibits the typical physical properties as stated in the current data sheet for this product found at Sika's website www.sikaconstruction.com when used as directed within the product's shelf life. **Always read the current applicable product data sheet, material safety data sheet and label prior to use.**

NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SIKA SHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES OF ANY KIND. SIKA SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS.

Sincerely,

SIKA CORPORATION



David White
Technical Services Director

cc: Tom Zuppa-Sika Corporation



Sika Corporation, 201 Polito Avenue, Lyndhurst, NJ 07071
Tel: 800-933-7452, www.sikaconstruction.com

Innovation & Consistency | since 1910

April 6, 2011

J P Carrara & Sons
2464 Case Street, Rte. 116
Middlebury, Vermont 05753

Project Name: All

This is to certify that DCI® is a corrosion inhibitor as manufactured and supplied by Grace Construction Products, W. R. Grace & Co.-Conn., is formulated to comply with Standard Specification for Chemical Admixtures for Concrete, ASTM C 494, Type C (AASHTO M 194, Type C). DCI is specifically formulated with a minimum of 30.2% calcium nitrite.

DCI does not contain calcium chloride or chloride containing compounds as a functional ingredient. Chloride ions may be present in trace amounts contributed from the process water used in the manufacturing.

GRACE



Denise White
Technical Service Support



BURKE BRIDGE

REV (1) 3/4/15 SEE STA 72.9 JPC # 23454-015

LIFT LOOP/LIFT INSERT DESIGN CALCULATIONS

(WORK W/ COVERED SHOP DWGS)

APPROACH SLAB

$f'_c = 5000 \text{ PSI}$ $f'_ci = 4000 \text{ PSI}$

WT OF HEAVIEST SLAB (SLAB 3) = $14.06^T = 28.12^K$

THERE ARE (4) LIFT POINTS

LOAD/LIFT POINT = $\frac{28.12^K}{4} = 7.03^K$

FROM ATTACHED PRODUCT LITERATURE, P28

USE 4" X 7 1/2" S.L. SWL (4:1 S.F.) = 8000 LB $> 7.03^K$, O.K.

(LOCATE APPROX. 1/4 POINTS EACH WAY; CUSTOM LIFTING PATTERN ON S.G.O.P. APPROACH SLABS.)

ABUTMENT

$f'_c = 5000 \text{ PSI}$ $f'_ci = 4000 \text{ PSI}$

WT OF HEAVIEST ABUTMENT (ABUTMENT 2) = 38.2^T
(SEE ABUTMENT SKETCHES, ATTACHED)

THERE ARE (2) LIFT LOOP LOCATIONS

SEE ATTACHED SKETCHES FOR LAYOUT OF LIFT LOOPS, MAX LOAD OF LIFT LOOP IS 45.9K (FOR ABUTMENT 2)

FROM ATTACHED PCI LITERATURE, TABLE 51.3

USE (4) 0.600" ϕ STANDARD LIFT LOOP, MIN EMBEDMENT

5'-0" SWL (4:1 S.F.) = $1.1 \times 41 = 45.1^K \approx 45.9^K$ O.K.

(W/ ACCEPT)

ALSO CHECK USING PCI FIGURE 6.15.7A CASE 6, ATTACHED

$$\phi P_2 = 0.85 \times 2.07 \sqrt{4000} (92) (48) / 1000 = 183012 \text{ LB}$$

= 183.6 ^k DISTANCE BETWEEN EDGES = 48" ABUTMENTS

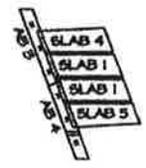
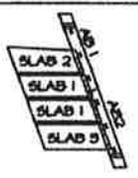
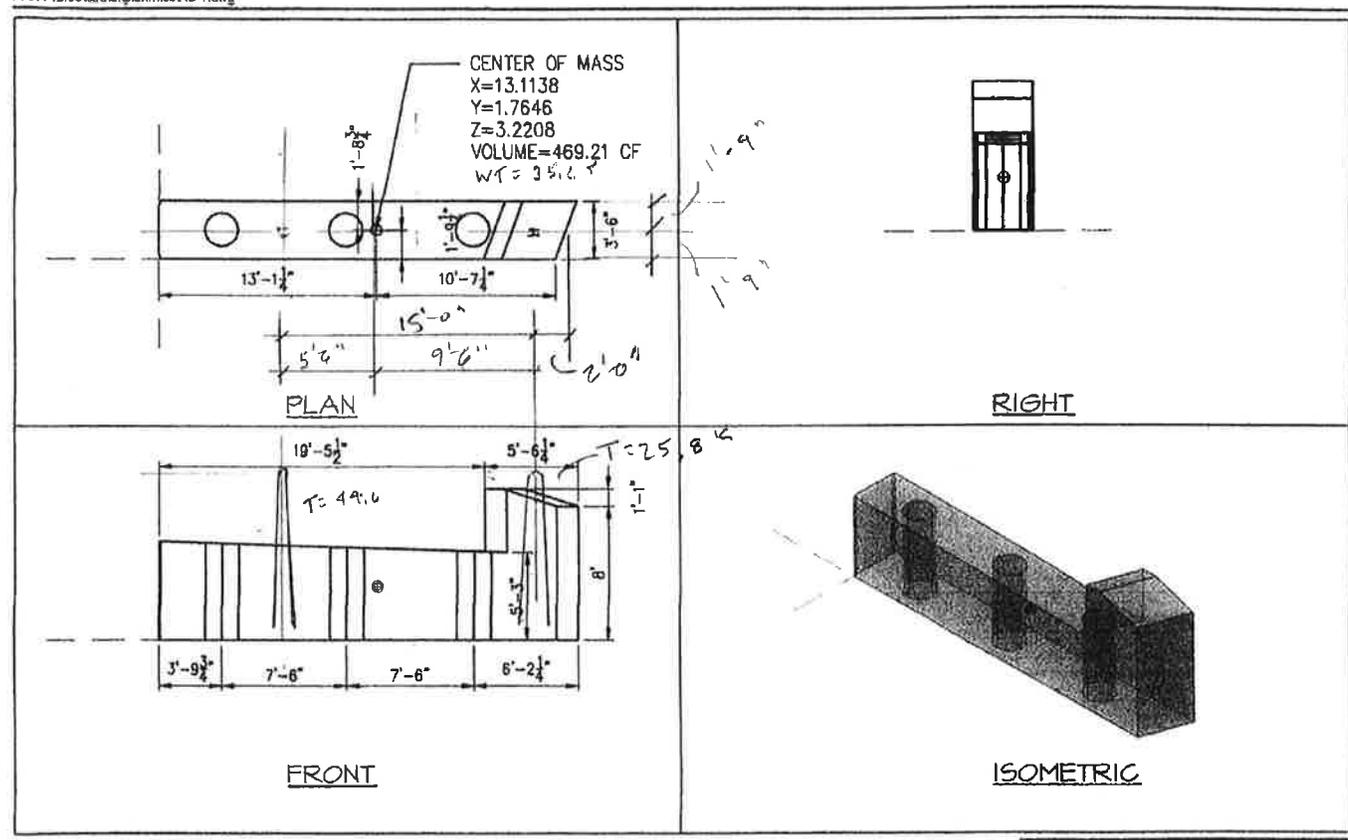
FOR C.F. 411

384; SEE SKETCH

$$SWL = 183012 / 4 = 45753 \approx 45.8 \text{ k} \text{ (WITH RESPECT)}$$

BURKE

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Vanasse Hangen Brustlin, Inc.

Feb 11, 2015

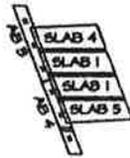
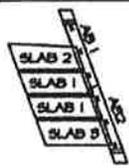
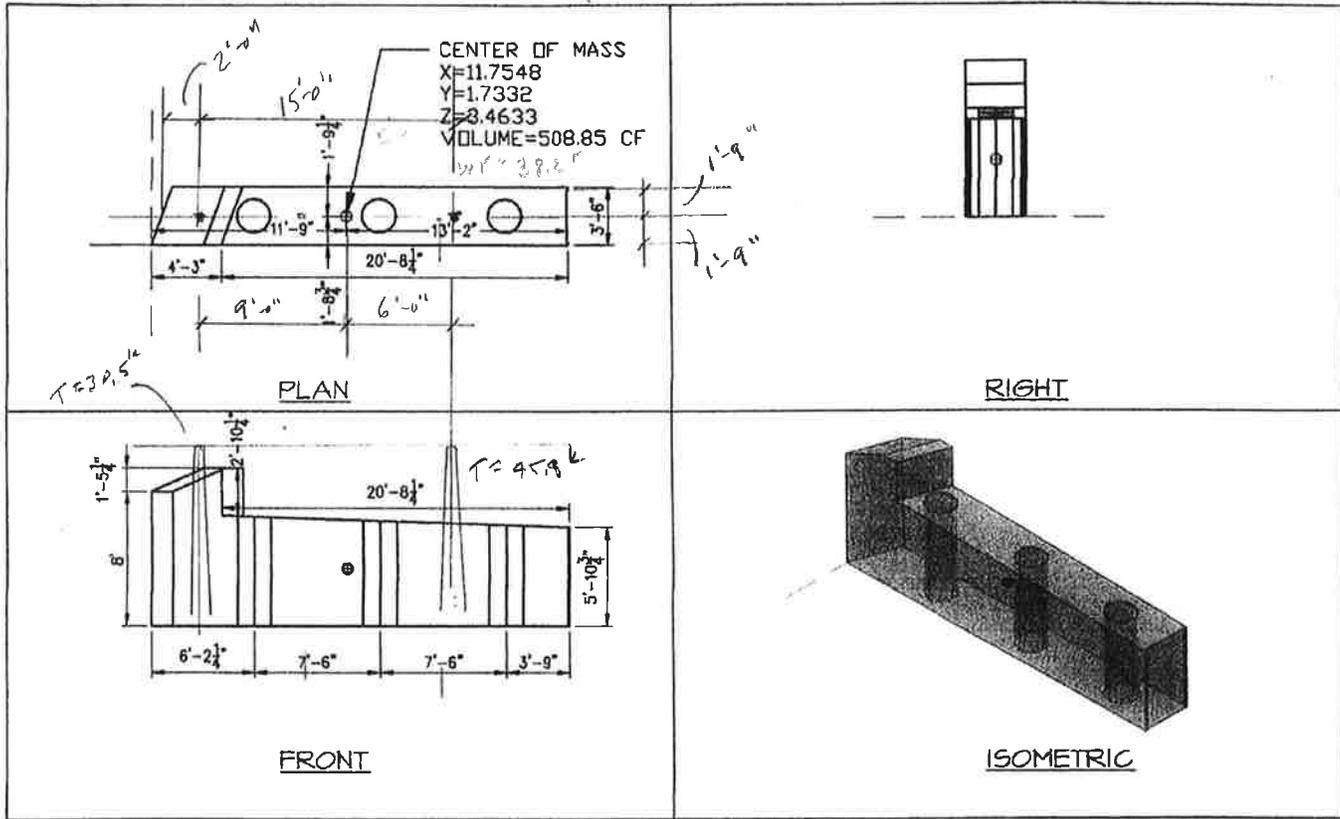
ABUTMENT 1
ROUTE 114
BURKE, VERMONT

USE (4) 0.600" ϕ x 270 KSI STRAIN LIFT LOOPS
MIN EMBED 5'-0" @ ABUT WALL & 9'-0" @ CHEEK WALL

$$\text{MAX LOAD ON LIFT LOOP} = \frac{9.5}{15.0} \times 35.7^{\uparrow} = 22.3^{\uparrow} \times 44.6^{\text{K}}$$

$$\text{LOAD ON OTHER LIFT LOOP} = 35.2 \times 2 - 44.6 = 25.8^{\text{K}}$$

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Vanasse Hangen Brustlin, Inc.

Feb 11, 2015

ABUTMENT 2
ROUTE 114
BURKE, VERMONT

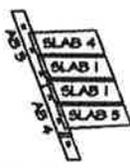
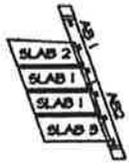
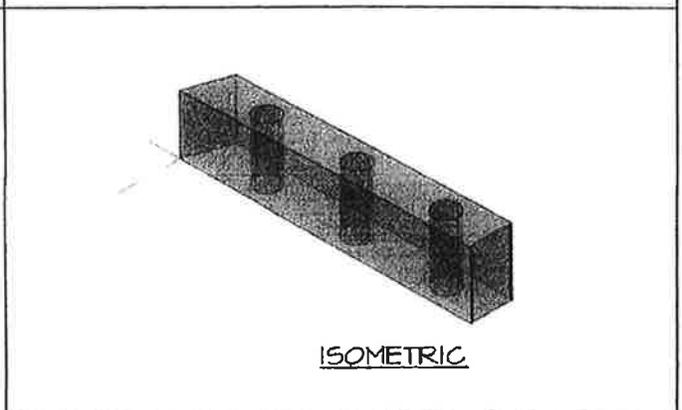
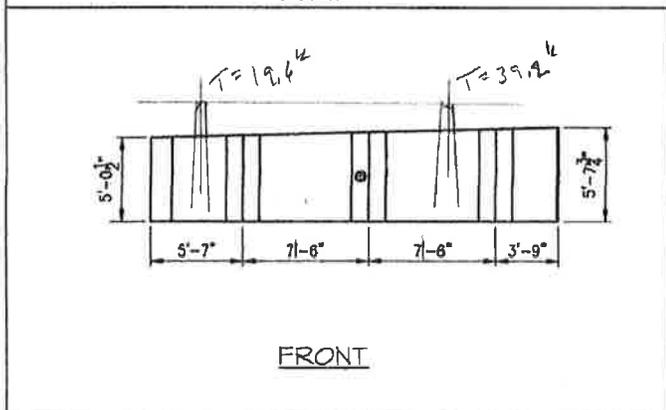
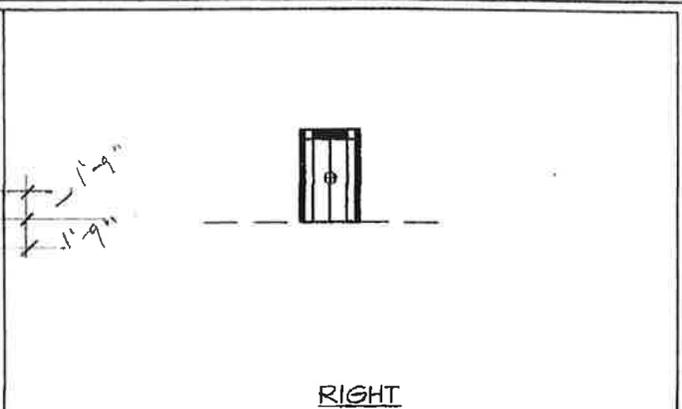
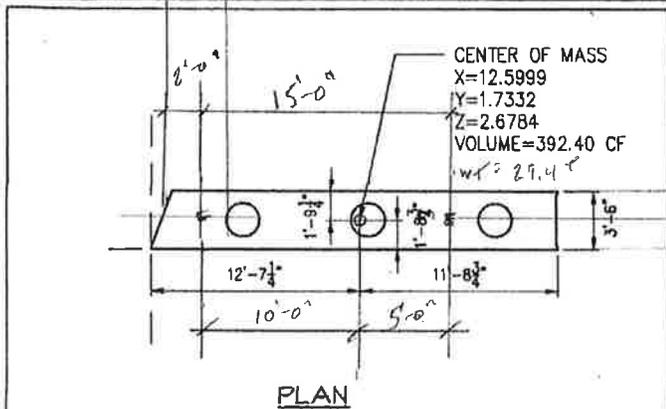
USE (A) 0.000" ϕ x 270 ksi STRAIN W/FF LOAN
MIN EMBLING 5'-0" @ ABUTMENT @ 9'-0"
@ CROSS WALL

MAX LOAN ON LIFT LOOP = $\frac{9.0}{15} \times 38.22 = 22.9$
= 45.9k

LOAN @ OTHER LIFT LOOP = $38.2 \times 2 = 76.4$
= 30.5k

4'-0" MIN
FOR 6" IS
W/PCI FIG
6.15.7A, 2A066

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Vanasse Hangen Brustlin, Inc.

Feb 11, 2015

ABUTMENT 3
 ROUTE 114
 BURKE, VERMONT

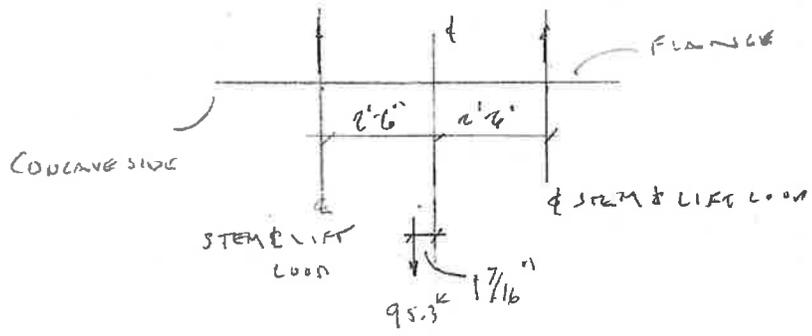
USE (4) 0.600" φ x 270 (min) STAINLESS LIFT LOOP
 MIN EMBED 5'-0" ±
 Max Load on lift loop = $\frac{10.0}{15.0} \times 29.4 \times 2 = 19.6$ k
 Load on other lift loop = $29.4 \times 2 - 39.2 = 19.6$ k

NEXT 28D BEAMS

$f'_c = 8000 \text{ PSI}$ $f'_{CL} = 6000 \text{ PSI}$
 10000 PSI 8000

HEAVIEST BM (W-NB1) WT = 95.3^k

SEE ATTACHED
 E-MAIL, SHIT B



MAX VERTICAL LOAD \rightarrow LIFT LOOP

$= \frac{2.5 + 0.11}{5.0} \left(\frac{95.3}{2} \right) = 24.9^k$; THERE ARE 4 LIFT LOOPS, 2 EACH END

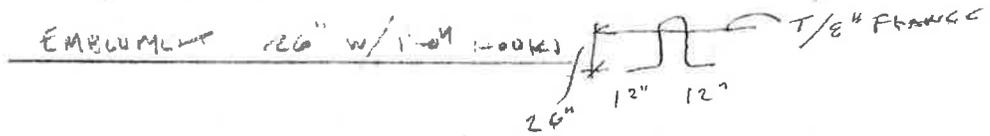
NOTE: THE CC OF THE BEAM IS ALSO OFFSET
 1-2 1/16" TOWARDS... AWAY FROM THE LONGITUDINAL
 CC OF THE BEAM. LIFT LOOPS EQUIDISTANT FROM
 THE LONGITUDINAL CC. LOCATION.

ASSUME A 60° BEND ANGLE WITH THE HORIZONTAL

DESIGN LOAD / LIFT LOAD = $\frac{24.9}{0.166} = 28.8^k$

FROM ATTACHED PCI LITERATURE, TABLE 5.2.3

USE #4 1/2" ϕ X 270 KSI STRAND LIFT LOOP MIN



EMBEDMENT $= 24 + 12 = 36 > 34^?$

SWL (4:1 S.F.) = $\frac{29 + 41}{2} = 35^k > 28.8^k$, OK, BY INTERPOLATED BETWEEN VERTICAL $\pm 45^\circ$ FULL

Ernie Brod

From: Mike Weigand
Sent: Friday, February 20, 2015 2:41 PM
To: Ernie Brod
Cc: Joe Gallese
Subject: Burke VT NEXT Beams - Wt & CGs
Attachments: Burke VT Bridge NEXT Beams - Wt & CGs.pdf

RE: Burke VT Bridge, JPC #23454-015

Hi Ernie,

I hope all is well. Attached is a preliminary layout of the NEXT 28D beams for the Burke VT bridge – please note that my markups are not to scale. I worked out the weights and CGs of the beams which are noted on the attached. The x offsets are from the centerline of the beams between the stems and the y offsets are from the centerline of the beams between the bearings.

To summarize:

<u>Beam:</u>	<u>Weight:</u>	<u>CGx(Transverse)</u>	<u>GCy(Longitudinal)</u>
Interior	82,467 lbs.	centered	centered
Convex Exterior	86,862 lbs.	Offset 2 9/16" toward fascia	Offset 1 3/16" toward Abut1
Concave Exterior	95,315 lbs.	Offset 1 7/16" toward fascia	Offset 1'2 15/16" toward Abut1

Please let me know if you need anything else to work out the lift loop design calculations for the beams.

Thank you!

Mike Weigand
J. P. Carrara & Sons, Inc.
2464 Case Street
Middlebury, VT 05753
802-388-6363 tel
802-388-9010 fax

ALSO CHECK USING PCI FIGURE 6.15.7A, CASE 3 ATTACHED

$$\phi P_c = \phi 2.67 \sqrt{f'_c} (x_1) (y_1 + 2d)$$

$f'_c = 8000 \text{ psi}$
 $f'_c = 6000 \text{ psi}$

$$\phi P_c = 0.85 \times 2.67 \sqrt{\frac{6000}{8000}} \left(\frac{131.75 \times 15}{2} \right) (0 + 2 \times 26)$$

$$= \frac{131.4 \times 15}{151.736} = \frac{131.4 \times 15}{151.7} = 151.7$$

FOR S.F. = 9:1

SWL =

$$\frac{131.4}{1} \times \frac{32.9 \text{ k}}{37.9 \text{ k}} > 28.8 \text{ k}, \text{ OK}$$

Swift Lift® System



10 9

Swift Lift® System

P-52 Swift Lift® Anchor Tensile and Shear Capacity

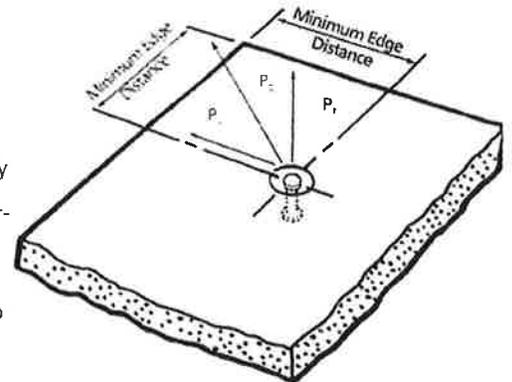
When anchors are used in the face of thin concrete elements

The following table lists the P-52 Swift Lift Anchors that are currently manufactured. Other sizes and lengths are available on special order. However, the sizes and lengths of anchors shown will handle the majority of flat precast concrete elements.

When the P-52 Swift Lift Anchor is properly embedded in normal weight concrete, the tabulated working loads are applicable for any direction of load. This applies even if the direction of load is parallel to the axis of the anchor, perpendicular to it or at any other angle.

Minimum distance between anchors is twice the minimum edge distance.

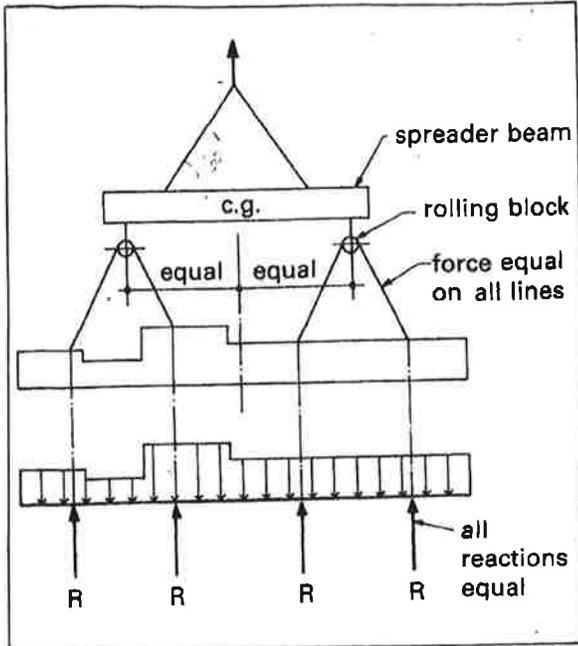
It is critical to remember that in order to obtain the safe working loads listed in the table below, the normal weight concrete must have obtained the minimum concrete strength shown, prior to initial load application.



Swift Lift Anchor Ton x Length	Safe Working Load	Minimum Concrete Strength	Minimum Edge Distance
1 ton x 2-5/8"	1,700 lbs.	3,500 psi	8"
1 ton x 3-3/8"	2,000 lbs.	2,200 psi	10"
1 ton x 4-3/8"	2,000 lbs.	1,600 psi	10"
1 ton x 8"	2,000 lbs.	1,600 psi	10"
1 ton x 9-1/2"	2,000 lbs.	1,600 psi	10"
2 ton x 2-3/4"	2,100 lbs.	3,500 psi	8"
2 ton x 3-3/8"	2,900 lbs.	3,500 psi	10"
2 ton x 5-1/2"	4,000 lbs.	1,600 psi	13"
2 ton x 6"	4,000 lbs.	1,600 psi	13"
2 ton x 6-3/4"	4,000 lbs.	1,600 psi	13"
2 ton x 11"	4,000 lbs.	1,600 psi	14"
4 ton x 3-3/4"	4,000 lbs.	3,500 psi	12"
4 ton x 4-1/4"	4,900 lbs.	3,500 psi	13"
4 ton x 4-3/4"	5,800 lbs.	3,500 psi	14"
4 ton x 5-1/2"	7,400 lbs.	3,500 psi	17"
4 ton x 5-3/4"	7,900 lbs.	3,500 psi	17"
4 ton x 7-1/8"	8,000 lbs.	1,800 psi	20"
4 ton x 9-1/2"	8,000 lbs.	1,600 psi	17"
4 ton x 14"	8,000 lbs.	1,600 psi	18"
4 ton x 19"	8,000 lbs.	1,600 psi	20"
8 ton x 4-3/4"	6,400 lbs.	3,500 psi	16"
8 ton x 6-3/4"	11,200 lbs.	3,500 psi	21"
8 ton x 10"	16,000 lbs.	3,500 psi	19"
8 ton x 13-3/8"	16,000 lbs.	1,600 psi	23"
8 ton x 26-3/4"	16,000 lbs.	1,600 psi	27"
20 ton x 10"	25,000 lbs.	3,500 psi	24"
20 ton x 19-3/4"	40,000 lbs.	3,500 psi	31"

Safe Working Loads provide a factor of safety of approximately 4 to 1 in normal weight concrete. Safe Working Load is based on anchor setback from face of concrete "X" dimension, as shown on page 26.

Fig. 5.2.10 Arrangement for equalizing lifting loads



lines equal. The member can then be analyzed as a beam with varying load supported by equal reactions.

The force in inclined lift lines can be determined from Fig. 5.2.7.

5.2.8 Handling devices

The most common lifting devices are prestressing strand or cable loops projecting from the concrete, threaded inserts, or special proprietary devices.

Since lifting devices are subject to dynamic loads, ductility of the material is part of the design requirement. Deformed reinforcing bars should not be used since the deformations result in stress concentrations from the shackle pin. Also, reinforcing bars are often hard-grade or re-rolled rail steel with little ductility and low impact strength at cold temperatures. Smooth bars of a known steel grade may be used if adequate embedment or mechanical anchorage is provided. The diameter must be such that localized failure will not occur by bearing on the shackle pin.

Prestressing strand is often used for lifting loops. The variables involved make it almost impossible to calculate a capacity which can be used for all situations. Generally, producers will establish standard criteria for use in handling the standard products manufactured by that plant. Table 5.2.3 is an example which has been used successfully.

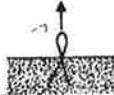
Reduced capacities for shorter embedment lengths may be suitable. In shallow products, providing a 90° bend can reduce the required embedment length significantly. Lightly rusted strand has better bond than bright strand.

The diameter of the bend of the loop should be at least 4 in. For smaller diameters, the loop capacities in Table 5.2.3 should be reduced to:

- 1 in. dia. — 70 %
- 2 in. dia. — 85 %
- 3 in. dia. — 90 %

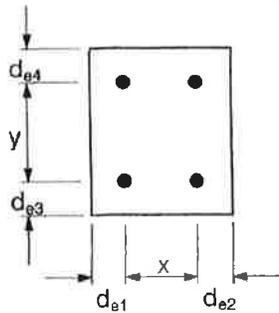
The angle of incline of lifting has little effect on the strand lifting loop capacity if the angle from the horizontal is more than about 20°. Typical handling methods are usually such that this angle is no less than 60°.

Table 5.2.3 Capacity of ½ in. diameter, 270 ksi strands used as lifting loops

Lifting angle	Embedment length (in.)	Single loop (kips)	Double loop (kips)	Triple loop (kips)
45 degrees 	16	5	8.5	11.5
	22	8	13	17.5
	28	10	18	23
	34	11	23	29
Vertical 	16	7.5	12.5	16.5
	22	11.5	19	24.5
	28	15.5	25.5	33
	34	16	32.5	41

1. These values are limited by slippage rather than strand strength, with a factor of safety of 4. For other strand diameters, multiply table values by 0.75 for 3/8 in. diameter, 0.85 for 7/16 in. diameter, and 1.1 for 0.6 in. diameter.
2. Minimum $f'_c = 3000$ psi.
3. Multiple strand loops must be fabricated to ensure equal force on each strand.

Figure 6.15.7A (continued) Design tensile strength for $h \geq h_{min}$, ϕP_{c1} —Case 6



x and y are the overall dimensions (width and length) of the stud group.

Case 6: Free edges on four adjacent sides

$$\phi P_{c1} = \phi 2.67 \lambda \sqrt{f'_c} (x_1)(y_1)$$

$$\phi = 0.85$$

where: x_1 and y_1 are the dimensions of the flat bottom of the part of the truncated pyramid.

For Case 6: $x_1 = x + d_{e1} + d_{e2}$ $y_1 = y + d_{e3} + d_{e4}$

Note: Table values are based on

$\lambda = 1.0$ and $f'_c = 5000$ psi;

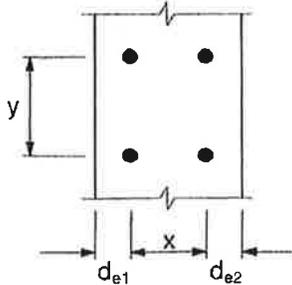
for different material properties, multiply table

values by $\lambda \sqrt{f'_c} / 5000$

ℓ_e in.	x_1 , in. y_1 , in.	Design tensile strength, ϕP_{c1} (kips)														
		2	4	6	8	10	12	14	16	18	20	22	24	26	28	30
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	1	1	2	3	3	4	5	5	6	7	7	8	9	9	9
	4	1	3	4	5	7	8	9	10	11	13	14	15	17	18	18
	6	2	4	6	8	9	11	13	15	17	19	21	23	25	27	27
	8	3	5	8	10	13	15	18	21	23	25	29	31	33	36	36
	10	3	7	9	13	16	19	23	25	29	32	35	39	42	45	45
	12	4	8	11	15	19	23	27	31	35	39	42	46	50	54	54
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	1	1	2	3	3	4	5	5	6	7	7	8	9	9	9
	4	1	3	4	5	7	8	9	10	11	13	14	15	17	18	18
	6	2	4	6	8	9	11	13	15	17	19	21	23	25	27	27
	8	3	5	8	10	13	15	18	21	23	25	28	31	33	36	36
	10	3	7	9	13	16	19	23	25	29	32	35	39	42	45	45
	12	4	8	11	15	19	23	27	31	35	39	42	46	50	54	54
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	1	1	2	3	3	4	5	5	6	7	7	8	9	9	9
	4	1	3	4	5	7	8	9	10	11	13	14	15	17	18	18
	6	2	4	6	8	9	11	13	15	17	19	21	23	25	27	27
	8	3	5	8	10	13	15	18	21	23	25	28	31	33	36	36
	10	3	7	9	13	16	19	23	25	29	32	35	39	42	45	45
	12	4	8	11	15	19	23	27	31	35	39	42	46	50	54	54
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	1	1	2	3	3	4	5	5	6	7	7	8	9	9	9
	4	1	3	4	5	7	8	9	10	11	13	14	15	17	18	18
	6	2	4	6	8	9	11	13	15	17	19	21	23	25	27	27
	8	3	5	8	10	13	15	18	21	23	25	28	31	33	36	36
	10	3	7	9	13	16	19	23	25	29	32	35	39	42	45	45
	12	4	8	11	15	19	23	27	31	35	39	42	46	50	54	54

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Figure 6.15.7A (continued) Design tensile strength for $h \geq h_{min}$, ϕP_{c1} —Case 3



x and y are the overall dimensions (width and length) of the stud group.

Case 3: Free edges on two opposite sides

$$\phi P_{c1} = \phi 2.67 \lambda \sqrt{f'_c} (x_1)(y_1 + 2\ell_e)$$

$$\phi = 0.85$$

where: x_1 and y_1 are the dimensions of the flat bottom of the part of the truncated pyramid.

$$\text{For Case 3: } x_1 = x + d_{e1} + d_{e2} \quad y_1 = y$$

Note: Table values are based on

$$\lambda = 1.0 \text{ and } f'_c = 5000 \text{ psi;}$$

for different material properties, multiply table values by $\lambda \sqrt{f'_c} / 5000$

e, in.	y ₁ , in.	x ₁ , in.	Design tensile strength, ϕP_{c1} (kips)														
			2	4	6	8	10	12	14	16	18	20	22	24	26	28	30
3	0		2	4	6	8	9	11	13	15	17	19	21	23	25	27	29
	2		3	5	8	10	13	15	18	21	23	25	28	31	33	36	39
	4		3	7	9	13	16	19	23	25	29	32	35	39	42	45	48
	6		4	8	11	15	19	23	27	31	35	39	42	46	50	54	58
	8		5	9	13	18	23	27	31	36	41	45	49	54	59	63	67
	10		5	10	15	21	25	31	36	41	46	51	57	61	67	72	77
	12		6	11	17	23	29	35	41	46	52	58	63	69	75	81	87
	14		7	13	19	25	32	39	45	51	58	64	71	77	83	90	96
4	0		3	5	8	10	13	15	18	21	23	25	28	31	33	36	39
	2		3	7	9	13	16	19	23	25	29	32	35	39	42	45	48
	4		4	8	11	15	19	23	27	31	35	39	42	46	50	54	58
	6		5	9	13	18	23	27	31	36	41	45	49	54	59	63	67
	8		5	10	15	21	25	31	36	41	46	51	57	61	67	72	77
	10		6	11	17	23	29	35	41	46	52	58	63	69	75	81	87
	12		7	13	19	25	32	39	45	51	58	64	71	77	83	90	96
	14		7	14	21	28	35	42	49	57	63	71	77	85	92	99	106
5	0		4	8	11	15	19	23	27	31	35	39	42	46	50	54	58
	2		5	9	13	18	23	27	31	36	41	45	49	54	59	63	67
	4		5	10	15	21	25	31	36	41	46	51	57	61	67	72	77
	6		6	11	17	23	29	35	41	46	52	58	63	69	75	81	87
	8		7	13	19	25	32	39	45	51	58	64	71	77	83	90	96
	10		7	14	21	28	35	42	49	57	63	71	77	85	92	99	106
	12		8	15	23	31	39	46	54	61	69	77	85	92	100	108	115
	14		9	17	25	33	42	50	59	67	75	83	92	100	109	117	125
6	0		5	10	15	21	25	31	36	41	46	51	57	61	67	72	77
	2		6	11	17	23	29	35	41	46	52	58	63	69	75	81	87
	4		7	13	19	25	32	39	45	51	58	64	71	77	83	90	96
	6		7	14	21	28	35	42	49	57	63	71	77	85	92	99	106
	8		8	15	23	31	39	46	54	61	69	77	85	92	100	108	115
	10		9	17	25	33	42	50	59	67	75	83	92	100	109	117	125
	12		9	18	27	36	45	54	63	72	81	90	99	108	117	125	135
	14		9	19	29	39	48	58	67	77	87	96	106	115	125	135	144
8	0		10	21	31	41	51	61	72	82	92	103	113	123	133	143	154
	2		10	21	31	41	51	61	72	82	92	103	113	123	133	143	154
	4		10	21	31	41	51	61	72	82	92	103	113	123	133	143	154
	6		10	21	31	41	51	61	72	82	92	103	113	123	133	143	154
	8		10	21	31	41	51	61	72	82	92	103	113	123	133	143	154
	10		10	21	31	41	51	61	72	82	92	103	113	123	133	143	154
	12		10	21	31	41	51	61	72	82	92	103	113	123	133	143	154
	14		10	21	31	41	51	61	72	82	92	103	113	123	133	143	154