PO Box 2620
Ballston Spa, NY 12020
Ph : 518 885-0060

Letter of Transmittal

To: Chris Williams
VTRANS
61 VALLEY VIEW
MENDON, VT 05701
Ph: (802)786-3812 Fax: (802)786-3810

Transmittal #: 13
Date: 4/21/2015
Job: M117 VTRANS CASTLETON BRF 015-2(10)

Subject: Submittal

WE ARE SENDING YOU ☑ Attached ☐ Under separate cover via the following items:

☑ Shop drawings ☐ Prints ☐ Plans ☐ Samples
☐ Copy of letter ☐ Change order ☐ Specifications ☑ Submittal

Document Type	Copies	Date	No.	Description
Submittal	1		900.640-10 Rev 0	Material Spec & Design for Abutments / Wingwall & Approach

THESE ARE TRANSMITTED as checked below:

☑ For approval ☐ Approved as submitted ☐ Resubmit ___ copies for approval
☑ For your use ☐ Approved as noted ☐ Submit ___ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return ___ corrected prints
☑ For review and comment ☐ Other
☐ FOR BIDS DUE ☐ PRINTS RETURNED AFTER LOAN TO US

Remarks: PLease see additional submittal for the Pre-Cast from our supplier J P Carrara.

Copy To: Jennifer Fitch (VTRANS), KEVIN TURE (W.M. SCHULTZ CONSTRUCTION)

From: MIKE GARN (W.M. SCHULTZ CONSTRUCTION **Signature:**

If enclosures are not as noted, kindly notify us at once.

PO Box 2620
Ballston Spa, NY 12020
Ph : 518 885-0060

Submittal

Job: M117
VTRANS CASTLETON BRF 015-2(10)
Castleton BRF 015-2
Route 30
Castleton, VT

Spec Section No: 900.640
Submittal No: 10
Revision No: 0
Sent Date: 4/21/2015

Spec Section Title:

Submittal Title: Material Spec & Design for Abutments / Wingwall & Approach

Contractor:
W.M. Schultz Construction, Inc

Contractor's Stamp

SCHULTZ CONSTRUCTION, INC.
CONTRACT NO. BRF 015-2(10)
SUBMITTAL TITLE Material Spec
ITEM & SECT. NO. 900.640
LOCATION OF WORK VT RT 30
SUB NO. 10 DATE 4/21/15
REVIEWED BY MG

VTRANS
Chris Williams

Architect's Stamp

Engineer's Stamp

LETTER OF TRANSMITTAL

TRANSMITTAL # 4

J.P. CARRARA & SONS, INC.
2464 CASE ST
MIDDLEBURY, VT 05753
T: 802.388.6363
F: 802.388.9010

DATE:	4.21.15	**JOB #**	23456-015
ATTN:	Kevin Ture/Mike Garn		
RE:	Castleton Bridge/BRF015-2(10)		

We are sending you:

Shop Drawings		Change Order		Copy of Letter	
Plans		Attached	x	Separate Cover	
Prints		Specifications		(Via)	
Samples		Other:	RFI 2		

Copies	*Date*	*Qty.*	*Description*
1	4.21.15	1	(3) Mix Designs

These are transmitted as checked below:

For approval	x	Approved as submitted		Submit	
For your use		Approved as noted		Resubmit	
As requested		Returned /Notation		Return	
For review	x	Loaned Prints/Returned		Other	

Remarks:

An error submitted on J.P. Carrara & Sons, INC. shop drawings has been discovered. On Sheet C1/Abutment,Wingwall & Approach Slab General Notes/#9 Material Specificaiton & Mix Designs - the Abutment mix design is misrepresented as 445MSCC as it should be 425M - NO DCI. Please see (3) mix designs attached to this letter of transmittal.

Copy to:

Signed: Joe Gallese-PM

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

PRECAST / READY-MIX CONCRETE

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 21, 2015					
PROJECT :	VAOT Mix Design Submittal - 2015			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			
VISCOSITY MODIFIER:	Sika Stabilizer 4R		Not Required; Dosed as needed			

QUANTITIES PER CUBIC YARD

Identification # : 425M-NoDCI

Mix Description : SCC Bridge - 7,000psi Max Design Strength - 4,800psi Release

								Yield
SPECIFICATIONS REQUIREMENT,	28	Day Strength (psi)	7,000	800 # Total Cementious (CM)				
Lafarge Type III		(lbs)	600					3.10
Fly Ash, Class F		(lbs)	200	25% by weight of CM				1.36
P-stone (3/4")		(lbs)(SSD)	1400	51% by weight of total agg.				8.70
JPC sand		(lbs)(SSD)	1360	49% by weight of total agg.				8.34
WATER (gallons) : (Maximum Water =	32.6	gal.+ CI)	31.0					4.14
W/C RATIO (lbs/lb) : (Max W/C =	0.34	)	0.32					
Sika AEA-14	(2-20 range)	(oz/yd^3)	6.0	7.0%	+ / --	2.0%		1.35
Sika Plastiment	(0-6 range)	(oz/cwt)	2.0					
Sika Viscocrete 6100	(7-11 range)	(oz/cwt)	9.2	24"	spread	+ / --	4"	
Sika Stabilizer 4R	(0-7 range)	(oz/cwt)	0.0	Not Required; Dosed as needed				
								27.0

Mix Properties: Max Unit Wt. (#/ft^3) 141.5

Prepared By:

Benjamin L. Cota, Precast Production Engineer

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

TRIAL BATCH REPORT

Project: 800# STP Deck Panel Mix Qualification **Date:** February 9, 2011

Batch Size: 1.25 cubic feet
0.0456
CF = 8

% Moisture, Fine Aggregate:	5.50%	3.49
% Moisture, Intermediate Agg:	0.00%	0.00
% Moisture, Coarse Aggregate:	1.50%	0.96
Total Free Moisture in Aggregate, Lbs:		4.44

Material Quantities:

	Wt., Lbs	Kg	Add 1	Add 2	Notes		
Lafarge Type III	27.37	12.41					
Fly Ash, Class F	9.12	4.14					
P-stone (3/4")	64.82	29.40					
JPC sand	66.89	30.34					
Water, Lbs	5.82	2.64	0.50		Total =	6.32	Lbs
	Vol., oz	mL			w/c =	0.321	
Sika AEA-14	0.36	10.79			doseage =	1.00	oz/cwt
Sika Plastiment	1.09	32.37			doseage =	3.00	oz/cwt
Sika Viscocrete 6100	2.74	80.94			doseage =	7.50	oz/cwt
W.R. Grace DCI	17.52	517.99			0.96 Lbs of Water		
Sika Stabilizer 4R							

Test Results:

	Test 1	Test 2	Test 3	Notes
Ambient Temperature, °F:	52			
Concrete Temperature, °F:			63	
Unit Weight, #/FT^3:	135.8	135.2	141.4	
Yield, FT^3:	1.30	1.30	1.24	
Air Content, %	8.8		5.6	
Slump/Spread, in			25	

Strength:

	1	2	3	4	Average	Notes
16 hr						
20 hr						
24 hr	5849	6048			5949	
3 day						
7 day	9589	9868			9729	
14 day						
28 day	10464	10783			10624	
56 day						

Prepared By:

Benjamin L. Cota, Precast Production Engineer

425M

ATC Associates Inc.
3 Terri Lane
Burlington, New Jersey 08016
tel. 609-386-8800 • fax 609-386-7951

ASTM C-1202-10 / AASHTO T-277
Electrical Indication of Concrete's Ability to Resist Chloride Ion Penetration

Client: J.P. Carrara & Sons, Inc. **Report No.:** CP-2
Project: MassDOT Mix Qualification **ATC Ref. No:** 68.30620.0001
Date Cast: February 9, 2011
Engineer:

Core/Cylinder ID Number	Age (Days)	Charge Passed, (Coulombs)	Chloride Permeability
800M-A/JCP-2A	56	1235	Low
800M-B/JCP-2B	56	1424	Low

CHLORIDE PERMEABILITY ON CHARGE PASSED

Charge Passes (Coulombs)	Chloride Permeability	Typical of:
>4,000	High	High Water Cement Ratio
2,000 - 4,000	Moderate	Mod. Water Cement Ratio
1,000 - 2,000	Low	Low Water Cement Ratio
100 - 1,000	Very Low	Latex Modified Concrete
<100	Negligible	Polymer Concrete

Date Received in Laboratory: March 23, 2011
Date Tested: April 6, 2011
Type of Concrete: High Performance Concrete (HPC)
Location Represented by Core/Cylinder: Mix Qualification
Location of Specimen Within Core/Cylinder: Top 2" of Cylinder
Curing History of Samples: Natural Cured by Client. Delivered to Lab Moist.
Unusual Specimen Preparation:
Comments:
Acceptance Criteria per Client: 2,000 Maximum Coulombs

Very Truly Yours,

ATC Associates, Inc.

William J. Carty
Manager, CQC/CMT

Pours

Pour Info							Release Breaks			28-Day Breaks
Pour Date	Bed	Concrete	Mix	Concrete Temp	Unit Wgt	Slump/Spread	VSI	Air	Avg	Avg
10/16/2013	189' BRIDGE	27.5	425M-noDCI	70 ° F	138.71 lbs	25"	0.0	7.8 %	5,003	8,255
10/21/2013	189' BRIDGE	27.5	425M-noDCI	65 ° F	138.10 lbs	28"	1.0	7.6 %	4,385	7,597
10/24/2013	189' BRIDGE	27.5	425M-noDCI	58 ° F	140.91 lbs	26"	0.5	6.2 %	4,424	8,812
11/12/2013	120' FLAT SLAB	6.8	425M-noDCI	63 ° F	142.33 lbs	26"	0.5	5.5 %	4,683	9,095
12/19/2013	EAST WING WOOD	7.6	425M-noDCI	65 ° F	142.66 lbs	20"	0.0	5.0 %	4,610	8,674
12/20/2013	EAST WING WOOD	7.6	425M-noDCI	70 ° F	142.72 lbs	20"	0.5	5.0 %	7,730	9,272
12/23/2013	EAST WING WOOD	7.6	425M-noDCI	54 ° F	138.66 lbs	20"	0.5	7.8 %	5,660	7,239
12/26/2013	EAST WING WOOD	7.6	425M-noDCI	59 ° F	141.03 lbs	21"	0.5	6.0 %	4,578	8,178
12/27/2013	EAST WING WOOD	7.6	425M-noDCI	60 ° F	138.73 lbs	16"	0.0	7.8 %	6,828	8,437
1/8/2014	EAST WING WOOD	7.6	425M-noDCI	64 ° F	140.11 lbs	23"	0.5	5.5 %	4,530	8,841
1/9/2014	EAST WING WOOD	7.6	425M-noDCI	60 ° F	142.72 lbs	20"	0.0	5.0 %	5,162	8,920
1/10/2014	EAST WING WOOD	7.6	425M-noDCI	60 ° F	142.31 lbs	18"	0.0	5.5 %	7,402	9,275
1/13/2014	EAST WING WOOD	7.6	425M-noDCI	65 ° F	142.52 lbs	19"	0.5	5.5 %	4,810	7,631
1/14/2014	EAST WING WOOD	7.6	425M-noDCI	63 ° F	137.90 lbs	25"	0.5	7.6 %	4,374	7,240
1/15/2014	EAST WING WOOD	7.6	425M-noDCI	61 ° F	139.71 lbs	22"	0.5	6.6 %	4,386	6,852
1/16/2014	EAST WING WOOD	7.6	425M-noDCI	62 ° F	142.44 lbs	22"	0.0	5.6 %	4,563	7,089
3/24/2014	270' BRIDGE	35.6	425M-noDCI	62 ° F	139.11 lbs	20"	0.5	5.7 %	4,417	9,786
6/3/2014	189' BRIDGE	25	425M-noDCI	75 ° F	141.19 lbs	25"	0.5	6.5 %	4,547	9,461
6/5/2014	189' BRIDGE	25	425M-noDCI	70 ° F	144.02 lbs	25"	0.0	4.9 %	4,607	9,232
6/7/2014	189' BRIDGE	25	425M-noDCI	70 ° F	140.19 lbs	26"	0.0	6.8 %	6,073	8,736
6/10/2014	189' BRIDGE	25	425M-noDCI	70 ° F	141.59 lbs	23"	0.0	6.2 %	5,125	9,105
6/12/2014	189' BRIDGE	25	425M-noDCI	72 ° F	141.59 lbs	26"	0.0	6.2 %	5,510	9,632
6/14/2014	189' BRIDGE	25	425M-noDCI	67 ° F	140.74 lbs	26"	0.5	6.5 %	6,200	9,167
6/17/2014	189' BRIDGE	18.5	425M-noDCI	73 ° F	141.60 lbs	24"	0.0	6.8 %	5,097	8,631
6/30/2014	189' BRIDGE	19.2	425M-noDCI	76 ° F	140.79 lbs	24"	0.0	6.4 %	6,401	7,944
7/18/2014	189' BRIDGE	35.7	425M-noDCI	75 ° F	142.20 lbs	23"	0.0	6.0 %	6,831	9,111
10/9/2014	34DT 6' STEM	56	425M-noDCI	70 ° F	142.20 lbs	26"	0.0	5.5 %	5,508	9,214
10/13/2014	34DT 6' STEM	44.5	425M-noDCI	65 ° F	141.59 lbs	26"	0.0	6.2 %	4,080	8,247
28		SUM=540		AVG=66 ° F	AVG=141.01 lbs	AVG=23.04		AVG=6.2 %	5,268	8,560

PRECAST / READY-MIX CONCRETE

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) 775-1046

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

								Yield
SPECIFICATIONS REQUIREMENT,	28	Day Strength (psi)	5ksi & 6ksi	750 # Total Cementious (CM)				
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/yd3)	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 (#/ft^3) 141.6

Prepared By: Benjamin L. Cota, Precast Production Engineer

Approved by James Wald, VAOT Composite Materials Engineer 4/2/15

PRECAST / READY-MIX CONCRETE

J. P. CARRARA & SONS, INC

CONCRETE CONTRACTORS

ARCHITECTURAL / STRUCTURAL PRECAST CONTRACTORS

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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

Mix Description : SCC Bridge - 10ksi design, 8ksi release

							Yield
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 (#/ft^3) 141.7

Approved by James Wild, VAOT Composite Materials Engineer 4/2/15

Prepared By: Benjamin L. Cota, Precast Production Engineer