

Imported Backfill Data Report



TILCON NEW YORK INC.

9 Entin Road
Parsippany, NJ 07054
973-366-7741 www.tilconny.com

August 13, 2018

Lage Industries Corporation
9814 Ditmas Ave
Brooklyn, NY 11236

Attn: Daniel Lage

Dear Mr. Lage:

Tilcon, New York, Inc., Clinton Point is a New York State Department of Transportation (N.Y.S.D.O.T) approved material source. Our Clinton Point Quarry, supplies 100% virgin dolomite that is quarried and processed to finished sizes. Material shipped from our Clinton Point facility and sold through our Port Washington Terminal is clean and free of contaminants prior to loading. The Clinton Point Source (N.Y.S.D.O.T. #8-9R) was approved under test 16AR88 and the letter to this effect is attached.

This source and product also comply with all properties required of ASTM C-33, 57/67 and #8.

Also attached, please find typical gradation, test results confirming source quality, results for C1260 and C295. This mineral source, dolomite, is considered to be generally non-reactive and stable with alkalis, etc.

If you have any questions or require additional information, please contact me at kchristodoulou@tilconny.com

Very truly yours,
TILCON NEW YORK, INC.

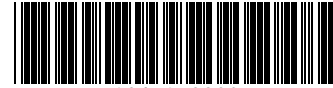
Konstantina Christodoulou

Konstantina Christodoulou
Quality Control Department



Quality Test Report

Plant 060_00210-Clinton Point Aggregate
Product ASTM 57/67-Blend
Specification ASTM 57/67 Blend



1845172233

Sample Information

Sample No 1845172233
Date Sampled 08/09/2018 14:55

Split Sample ☐
Resample ☐

Sampled By Rick Grunwald
Type
Method Belt Sampling Device
Location Dock
Process

Test Note
BlendInfo:
57's - 90%
8's - 10%

Gradation Results

Date Completed 08/09/2018 14:55

Tested By Rick Grunwald

Unit Moist Mass Dry Mass Wash Mass Moisture % Wash Loss % Procedure
g 10245.00

Sieve	Mass Retained	Cum Mass Retained	Ind % Retained	% Retained	% Passing	Target	Specification	Comment
1 1/2" (37.5mm)	0.00	0.00	0.0	0.0	100.0	100-100\100	100-100	
1" (25mm)	0.00	0.00	0.0	0.0	100.0	100-100\100	100-100	
3/4" (19mm)	775.00	775.00	7.6	7.6	92.4	90.9-97.1\94	90-100	
1/2" (12.5mm)	4430.00	5205.00	43.2	50.8	49.2	43.9-59.5\51.7	25-60	
3/8" (9.5mm)	2230.00	7435.00	21.8	72.6	27.4	22.1-37.6\29.9	20-55	
#4 (4.75mm)	2535.00	9970.00	24.7	97.3	2.7	2.2-9.5\5.8	0-10	
#8 (2.36mm)	200.00	10170.00	2.0	99.3	0.7	0.5-3.2\1.8	0-5	
Pan	80.00	10250.00	0.73	100.00	0.00			



Plant: Clinton Point Aggregate
Date Created: 07/5/2018
Date Modified: 07/5/2018
Name: Clinton Point ASTM#8
Description:

Sieve/Test	Spec	Result	812-# 8
Bin			
Price		0	0
% Product		0	0
TPH		0	0
% Gate			0
3/4" (19mm)			100.0
1/2" (12.5mm)	100-100		100.0
3/8" (9.5mm)	85-100		89.9
1/4" (6.3mm)			48.3
#4 (4.75mm)	10-30		22.7
#8 (2.36mm)	0-10		3.8
#16 (1.18mm)	0-5		1.5
#200 (75µm)	0-1		0.4

**NEW YORK STATE
DEPARTMENT OF TRANSPORTATION
MATERIALS BUREAU
COARSE AGGREGATE ANALYSIS FOR 703-02 PHYSICAL REQUIREMENTS**

SOURCE #: **8- 9R** TEST #: **16AR 88** BR3a SERIAL #: **187839** SM LAB #: **16078494**

Tilcon New York, Inc.
Clinton Point, NY

On 02/16/17 results of tests on material represented by sample 187839 were evaluated

Material meets specifications for Item 703-02. Consult friction aggregate requirements for approved use.

Test results listed below represent this sample only. Results may not be appropriate for designing mixes.

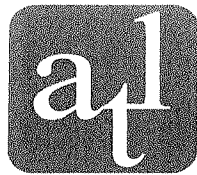
REMARKS:

NYS DOT Sizes	No. 2	No. 1	No. 1A
10 Cycle MgSO ₄		2.1	
25 Cycle 3% freeze -thaw			
UCVC		51	

% Non-carbonate		0	
% Insoluble residue			
L.A. Abrasion			

Bulk Specific Gravity SSD	2.81		
Bulk Specific Gravity	2.799		
Apparent Specific Gravity	2.830		
Absorption	0.4		

COMPOSITION (Size No.)	%	COMPOSITION (Size No. 1)	%
		Dolomite (Med Gray)	79.4
		Dolomite (Dark Gray)	16
		Dolomite (Tan)	4.6



ATLANTIC TESTING LABORATORIES

Albany
22 Corporate Drive
Clifton Park, NY 12065
518/383-9144 (T)
518/383-9166 (F)

WBE certified company

June 27, 2017

Callanan Industries, Inc.
1245 Kings Road
Schenectady, New York 12303

Attn: Ms. Cindy LaFleur

E/mail: clafleur@callanan.com

Re: Laboratory Test Results
Aggregate Testing
CPQ-8-9R
ATL Report No. AT066SL-139-05-17(revised)

Ladies/Gentlemen:

On May 11, 2017, your representative delivered one sample of crushed stone, (ATL Sample No. AT066S139), from the Clinton Point Quarry, to our Clifton Park, New York, facility for testing. A Resistance of Coarse Aggregates to Freezing and Thawing in accordance with NYSDOT Method 703-08P,G, a 10 Cycle Magnesium Sulfate Soundness in accordance with NYSDOT 703-07P,G, and a Los Angeles Abrasion in accordance with ASTM C 131 were performed on this sample. The laboratory test results follow.

10 CYCLE MAGNESIUM SULFATE SOUNDNESS

NYSDOT 703-07 P,G

Clinton Point Quarry - #2 & #1 Blend

ATL Sample No.	Sieve Fraction	Initial Weight (g)	Final Weight (g)
AT066S139	1" – 3/4"	1506.3	1479.1
	3/4" – 1/2"	1002.7	979.7
Totals:		2509.0	2458.8
NYSDOT Specification: <18%		Loss: 2.0%	

LOS ANGELES ABRASION

ASTM C 131

Clinton Point Quarry - #2 & #1 Blend

ATL Sample No.	Source	Type	Nominal Maximum Size	Grading	Percent Loss (%)	Project Specifications (%)
AT066S139	Clinton Point	# 2 Stone	1.0 inch	B	18	≤ 35

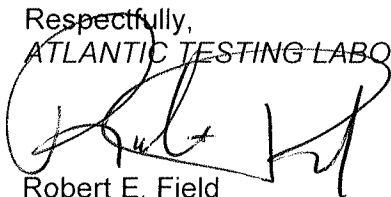
25-Cycle Freeze Thaw
NYSDOT 703-08P,G
Clinton Point Quarry - #2 & #1 Blend

ATL Sample No.	Sieve Fraction	Initial Weight (g)	Final Weight (g)	Mass Loss (g)	Loss (%)
AT066S139	1" – 3/4"	1512.0	1495.4	16.6	1.1
	3/4" – 1/2"	1007.1	984.9	22.2	2.2
Totals:		2519.1	2480.3	38.8	
NYSDOT Specification: <20%		Total Sample Loss: 1.5%			

This report was revised to include the Freeze Thaw test results.

Please contact our office should you have any questions or if we may be of further service.

Respectfully,
ATLANTIC TESTING LABORATORIES, Limited



Robert E. Field
Laboratory Manager
bfield@atlantictesting.com

REF/rf

Cc: Colleen Vanpatten

Callanan Industries

cvanpatten@callanan.com



3348 Route 208, Campbell Hall, NY 10916
Phone: 845-496-1600 Fax: 845-496-1398
Fort Myers, FL Harpursville, NY
West Stockbridge, MA

Client:	Tilcon New York Inc.	Project:	Quality Control
Item:	Stone (Lvl 5 Shot North West 8-9R)	Project #:	140614
Source:	Clinton Point Quarry	Lab No.:	17-1082D
Date Sampled:	8/15/2017	Sampled By:	Tilcon New York
Date Tested:	8/30/2017-9/29/2017	Tested By:	Scott Starsiak

POTENTIAL ALKALI REACTIVITY OF AGGREGATES (MORTAR BAR METHOD)

Test Method: ASTM C1260

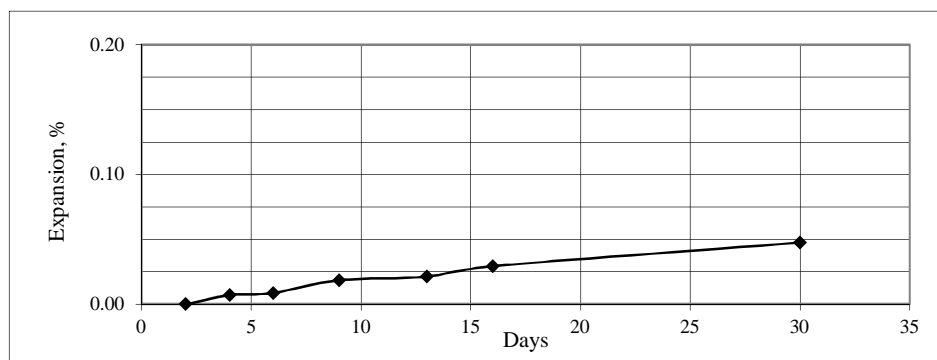
Aggregate: Clinton Point Coarse Aggregate

Cement: Lehigh Cement Type I/II

Water/cement ratio: 0.47

		Percent Expansion				
Specimen No.		A	B	C	D	Average
Age, days*	2	0.000	0.000	0.000	0.000	0.00
	4	0.005	0.007	0.009	0.007	0.01
	6	0.008	0.009	0.011	0.007	0.01
	9	0.019	0.019	0.018	0.018	0.02
	13	0.019	0.022	0.022	0.022	0.02
	16	0.029	0.029	0.030	0.029	0.03
	30	0.045	0.050	0.047	0.048	0.05

*Reading at 2 days is the 'zero' (reference) reading.



Expansion is given in percent of initial length.

Expansion of less than 0.10% at 16 days is considered to indicate innocuous behavior in most cases, expansion of more than 0.20% at 16 days indicates potentially deleterious expansion, and values of 0.10% to 0.20% may or may not indicate potentially deleterious expansion. Some granitic gneisses and metabasalts may exhibit deleterious expansion even if their expansion is less than 0.10% in this test.

Emily J. Rodriguez

Report reviewed by

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CONTINENTAL PLACER INC.

11 Winners Circle • Albany, New York 12205
(518) 458-9203 *fax* (518) 458-9206
www.continentalplacer.com

ASTM C-295 PETROGRAPHIC EXAMINATION OF AGGREGATE FOR CONCRETE

Petrographic Investigation

ASTM C-295 methodology

Sample Description: One sample bag of stone consisting of AASHTO # 57 crushed stone aggregate material from a single quarry source

Sample Location: Tilcon NY, Clinton Point Quarry (NY), sample delivered by Cindy Lafleur of Tilcon., on 11/25/2013.

Geologic Formation: Wappinger Group, Briarcliff and Pine Plains Formations;
Cambro-Ordovician age; Dolomite, Arenaceous Dolomite.

Material Sizes: AASHTO # 57, #67, #8 stone (3/4", 1/2", 1/4" size),

Examined by: Jeffrey Slade, Senior Geologist, Continental Placer Inc.
Examined 12/2/2013

The material that was examined from the Tilcon NY, Clinton Point Quarry operation consist of crushed stone aggregate from a single quarry source. The stone sizes examined correspond with those used for coarse aggregate in Portland Cement Concrete. The petrographic examination of this sample was conducted in accordance with ASTM C-295 methodology. ASTM C-295 is not a specific physical testing procedure but a standard guideline for petrographic examination of aggregates for concrete and covers a wide range of potential quality issues. It is common practice to have some specifications applied or reason for completing a petrographic examination of a stone sample. A good example of this type of specification, as applied to a petrographic examination, is the NYSDOT specification that a crushed stone sample shall not have greater than 5 percent shale. In most cases where a petrographic examination is being completed some deleterious substance (shale, weathered particle, clay lumps, etc.) is being looked for in the sample under investigation. A "typical" industry based specification of recognized potentially deleterious minerals (with regards to ASR) has been utilized in Table 2.

The rock types present from the Clinton Point Quarry sample, along with their respective mineralogy, grain size, color, particle shape, and any potentially deleterious materials (as typically noted under ASTM C-295) are listed below. The actual tabulated results are shown in Table 1.

ROCK DESCRIPTION:

The sample consisted of one primary rock type with three minor lithologic or compositional variations. The primary rock type, which makes up the bulk of the sample, is a fine to medium grained, medium gray, dolomite. Due to the uniform fine grained texture of the material individual grains are very difficult to see unless observed under a petrographic microscope. The stone color is very uniform and typically ranges from medium light gray (N6) to a medium bluish gray (5B 5/1) on the Munsell color classification. Some of the material exhibits a mottled or curdled appearance, which is very common in recrystallized dolomitic rock types. A small percentage (1-3%) of the material was noted as having a slight yellowish gray (5YR 8/1) color. As noted above, the primary rock type is dolomite, but this can be further divided into three lithologic varieties, the approximate modal percent of each in this sample is listed in parenthesis: cryptocrystalline (very fine grained), light gray dolomite (9-10%), arenaceous (sandy) dolomite (10-11%), fine to medium grained, medium gray dolomite (80%). The overall texture and composition of the dolomite is very consistent. Examination of the arenaceous dolomite under 10X magnification of a microscope shows the presence of rounded to sub-rounded quartz grains. In some of the medium grained dolomite particles examined, secondary calcite was noted as small birds-eyes features in the rock. The primary interstitial cementing agent observed was dolomitic cement (no calcite). The sample material showed no reaction to dilute acid (1.0 N HCl) on a fresh face. The only reaction to the acid was when the rock was powdered or scratched which is typical of dolomite. The process of dolomitization, transforms by replacement and recrystallization, limestone (calcium carbonate) into dolomite (magnesium carbonate). This process does not always occur completely and commonly leaves limestone, dolomitic limestone, and dolomite in the same rock mass at quarries. This is obviously not the case with the material from Clinton Point, as all the material observed in this sample is completely recrystallized dolomite (NO dolomitic limestone). The rock is well cemented and indurated with no friable or unsound particle noted in the samples. Another common trait of dolomites is the presence of vugs, porosity, or mineral filled cavities, formed within the rock when the process of dolomitization takes place. No vugs, mineral filled, or porous material was noted in the sample. The particle shape observed, of the crushed stone sample, was overall cubical with a very low percentage of flat or elongate particles (less than 1 % by point count). Examination of the crushed faces on the particles shows that breaks both along mineral grain boundaries and across mineral grains are present. The rock sample when washed or wetted has a very low rate of absorption. The primary observed mineral constituents are dolomite, detrital quartz and also a trace amount of calcite noted in some fragments. The calcite present, was noted as thin vein material and coat along fractures. No weathered, punky or unsound particles were noted in the sample. No deleterious coatings, clay minerals, organic impurities, or excessive amount of fines were noted in the sample. No chert, jasper, or other amorphous forms of silica were noted in the sample. The mineral pyrite was noted in very trace amounts on several of the grains.

Table 1
Calculation of Results
For
ASTM C-295 Petrographic Analyses
Tilcon NY, Clinton Point Quarry Sample

Rock Types Present	3/4" size		1/2"-3/8" size		3/8"-1/4" size	
	# of Particles	Percentage	# of Particles	Percentage	# of Particles	Percentage
Dolomite, light gray, cryptocrystalline	27	8.3%	33	9.8%	28	8.7%
Arenaceous Dolomite, medium gray	38	11.6%	39	11.6%	31	9.7%
Dolomite, medium gray, fine to medium grained	262	80.1%	264	78.6%	261	81.6%
TOTALS	327	100%	336	100%	320	100%

Deleterious particle noted in Sample.

Size Fraction	Shale Particles	Weathered Particles	Chert or Jasper	Clay Minerals
3/4"	0	2%	0	0
1/2" - 3/8"	0	0	0	0
3/8" - 1/4"	0	0	0	0

Table 2
Potentially Reactive Deleterious Materials (ASR) Present

Material / Mineral	Percent Present in Sample	Specification ("typical")
Chert	0%	<8%
Metaquartzite	0%	<8%
Glassy Igneous Rock	0%	<3%
Tridymite or Cristobolite	0%	<1%
Strained Quartz	3-5% *	<20%

*Present as fine sand grains in arenaceous dolomite.

General Discussion:

The crushed stone aggregate sample consisting of dolomite, from the Tilcon NY, Clinton Point Quarry, has a very uniform texture and composition and is well suited for use in Portland cement concrete. No deleterious materials were noted in the sample. No reactive silica or clay minerals were noted in the sample meaning that the material should be considered having a low potential for issues related to alkali silica reactivity. The material exhibits an excellent cubical particle

shape when crushed, which is also a desirable characteristic for any stone being considered for use in Portland Cement Concrete. With regards to alkali carbonate reactivity (ACR) it is difficult to determine if an aggregate material is potentially reactive by conducting just a petrographic examination (ASTM C-295). Obviously carbonate rock types such as dolomite and arenaceous dolomite do have a higher inherent potential for ACR than silicate rich rocks. An accepted screening test that can be utilized for ACR was developed by John Rogers in the late 1980's and the procedure is from CSA A23.2-26A. This test procedure is also discussed on the U.S. Department of Transportation, Federal Highway Administration website at: <http://www.fhwa.dot.gov/pavement/concrete/asr/hif09001/03.cfm>. This test involves the determination of the lime (CaO), magnesia (MgO) and alumina (Al_2O_3) content of the rock, and determining where the composition of the rock falls on a plot of CaO/MgO ratio versus the Al_2O_3 content. Based on the chemical composition for the rock sample for the Clinton Point Quarry determined by XRF chemical oxide results conducted by The Mineral Lab, Inc.:

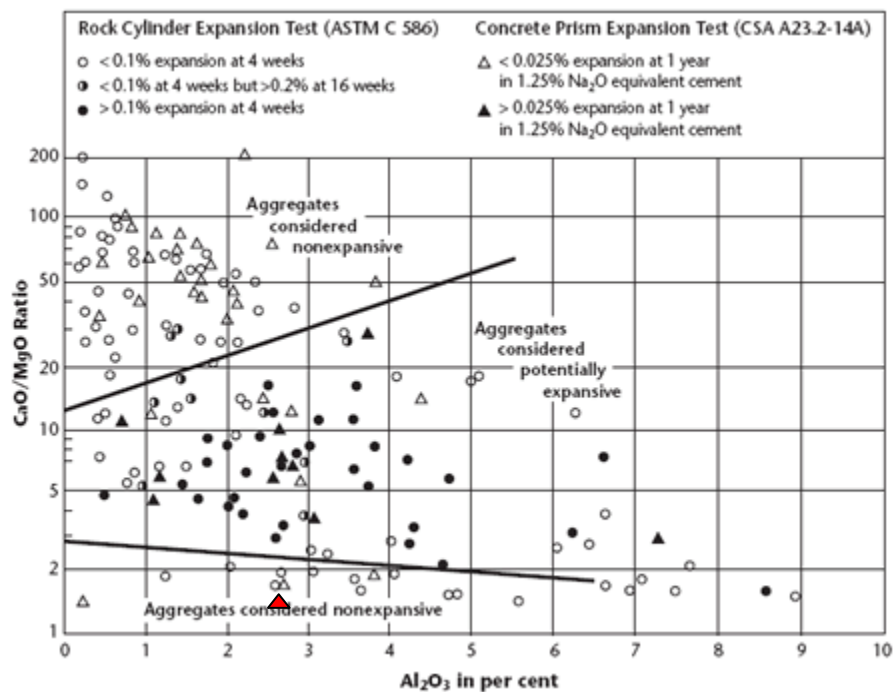
CaO = 30.3%

MgO = 19.8%

Al_2O_3 = 2.31%

CaO / MgO = 1.53

Table 3: CaO/MgO vs. Al_2O_3 Plot from CSA A23.2-26A



▲ Plotted location for Clinton Point Quarry Dolomite Sample

As can be seen from the plotted location of the chemical data from the Clinton Point quarry dolomite sample, the material plots in the “Aggregates considered non-expansive” portion of the graph, and therefore should be considered to have a low potential for ACR.

Sample Examined By:

A handwritten signature in black ink, reading "Jeffrey Slade". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Jeffrey Slade
Senior Geologist
CPI
Reported 12/4/2013