

ATLANTIC TESTING LABORATORIES

PERMEABILITY ON GRANULAR SOIL TEST REPORT UT3510SL-06-02-11

ASTM D 2434 (using a rigid wall permeameter)

					PRO		ORMATION	1	-		
CLIENT: Norlite Corporation PROJECT: Laboratory Soils Analysis						DATE : Febru DELIVERED BY: Clien DATE DELIVERED: Febru		February 16, 2011 Client February 7, 2011			
ATL Samp Samp Maxin Samp	Sample ble Loca num Pa ble Clas	No.: ation article ssifica	: e Size: ation:	UT3510S06 Norlite Corpor #4 Norlite Lightw	SAMI ation - Sto eight Aggr	PLE IDEN ckpile egate Gec	TIFICATIOI	N Client Identifica Sample Depth Oversize Mate Iend (100% 88/	ation: : rial (%): 12)	Not Available Not Available Not Applicable	
Diameter (cm): 10.160 Area (cm²): 81.070 Effective Length (cm): 11.370 Sample Length (cm): 17.526 Sample Weight (lbs): 4.900 Moisture Content (%): 55.8 Permeant Liquid:Water				SAMPLE INFORMATION Minimum Index Density (pcf): Maximum Index Density (pcf): Relative Density: Maximum Dry Unit Weight (pcf): Dry Unit Weight (pcf): Percent Compaction (pcf): Void Ratio:			Not / Not / Not / Not / Not /	Not Applicable Not Applicable Not Applicable Ot Available 62.6 Not Applicable Not Applicable			
					÷	TEST D	ΔΤΔ				
Test No.	M h		neters h ₂	Head, h(cm)	Q(cm ³)	t(sec)	Q/At	h/L	Temp (°C)	Corrected k(cm/sec)	
2 3	24. 26.	.4	18.2 19.6	<u>6.2</u> 6.6	98 101	15 15 15	0.0806	0.5453 0.5805	16.0 15.5	$\frac{1.6 \times 10^{-1}}{1.6 \times 10^{-1}}$	
Avera	Average Corrected k(cm/sec):1.6 x 10 ⁻¹ Project Specifications min k(cm/sec):										
Velocity (Q/At) 2 8 8	.40E-02 .20E-02 .00E-02					vs. HYDR	AULIC GR	ADIENT			
7	.60E-02 0.	.48	~	0.5	0.52	Hydrauli	0.54 c Gradient (h/	0.56 /L)		0.58	0.6

REMARKS

At the request of the client, this sample was immersed in water for approximately 96 hours prior to testing. The saturation water was decanted over a #200 sieve prior to placing the sample into the test mold.

Date:

Reviewed by:	_ Salas	mippe	
	10 0	7 -110	

2/16/1



ATLANTIC TESTING LABORATORIES

PERMEABILITY ON GRANULAR SOIL TEST REPORT UT3510SL-07-02-11

ASTM D 2434 (using a rigid wall permeameter)

PROJECT INFORMATION

CLIENT:	
PROJECT:	

Norlite Corporation Laboratory Soils Analysis

February 16, 2011 DATE : Client **DELIVERED BY:** February 7, 2011 DATE DELIVERED:

		ATION	
ATL Sample No.:	UT3510S07	Client Identification:	Not Available
Sample Location:	Norltie Corporation - Stockpile	Sample Depth:	Not Available
Maximum Particle Size:	1/2"	Oversize Material (%):	Not Applicable
Sample Classification:	Norlite Lightweight Aggregate Geotech	nnical Blend (50% 88/12, 50% 3	/4)

SAMDIE IDENTIFICATION

Diameter (cm):
Area (cm ²):
Effective Length (cm):
Sample Length (cm):
Sample Weight (lbs):
Moisture Content (%):
Permeant Liquid:

22.860 410.400 24.200 30.480 30.850 38.3 Water

SAMPLE INFORMATION

Minimum Index Density (pcf): Maximum Index Density (pcf): **Relative Density:** Maximum Dry Unit Weight (pcf): Dry Unit Weight (pcf): Percent Compaction (pcf): Void Ratio:

Not Applicable	
Not Applicable	
Not Applicable	
Not Available	
50.5	
Not Applicable	
Not Applicable	

TEST DATA

Test	Manor	neters	Head,					Temp	Corrected
No.	h ₁	H₂	h(cm)	Q(cm ³)	t(sec)	Q/At	h/L	(°C)	k(cm/sec)
1	15.7	15.0	0.7	109	15	0.0177	0.0289	19.0	6.3 x 10 ⁻¹
2	15.7	15.0	0.7	112	15	0.0182	0.0289	18.5	6.5 x 10 ⁻¹
3	15.7	15.0	0.7	114	15	0.0185	0.0289	18.5	6.6 x 10 ⁻¹
4	18.0	17.3	0.7	149	15	0.0242	0.0289	18.0	8.8 x 10 ⁻¹
5	18.0	17.3	0.7	150	15	0.0244	0.0289	17.5	9.0 x 10 ⁻¹
6	18.0	17.3	0.7	148	15	0.0240	0.0289	17.0	8.9 x 10 ⁻¹
7	21.4	20.3	1.1	187	15	0.0304	0.0455	15.5	7.5×10^{-1}
8	21.4	20.3	1.1	187	15	0.0304	0.0455	14.5	7.7 x 10 ⁻¹
9	21.4	20.3	1.1	186	15	0.0302	0.0455	14.0	7.7 x 10 ⁻¹

Average Corrected k(cm/sec): 7.7×10^{-1}

Project Specifications min k(cm/sec):

REMARKS

At the request of the client, this sample was immersed in water for approximately 100 hours prior to testing. The saturation water was decanted over a #200 sieve prior to placing the sample into the test mold.

Reviewed by: Date:

2/16/1



ATLANTIC TESTING LABORATORIES

PERMEABILITY ON GRANULAR SOIL TEST REPORT UT3510SL-08-02-11

ASTM D 2434 (using a rigid wall permeameter)

PROJECT INFORMATION

CLIENT:	Norlite Corporation	DATE :	February 16, 201
PROJECT:	Laboratory Soils Analysis	DELIVERED BY:	Client
		DATE DELIVERED:	February 7, 2011

SAMPLE IDENTIFICATION				
ATL Sample No.:	UT3510S08	Client Identification:	Not Available	
Sample Location:	Norltie Corporation - Stockpile	Sample Depth:	Not Available	
Maximum Particle Size:	1/2"	Oversize Material (%):	Not Applicable	
Sample Classification:	Norlite Lightweight Aggregate Geotechnical	Blend (100% 3/4)		

Diameter (cm):
Area (cm ²):
Effective Length (cm):
Sample Length (cm):
Sample Weight (lbs):
Moisture Content (%):
Permeant Liquid:

22.860 410.400 24.200 30.480 25.000 32.0 Water

SAMPLE INFORMATION

Minimum Index Density (pcf):
Maximum Index Density (pcf):
Relative Density:
Maximum Dry Unit Weight (pcf):
Dry Unit Weight (pcf):
Percent Compaction (pcf):
Void Ratio:

Not Applicable
Not Applicable
Not Applicable
Not Available
42.9
Not Applicable
Not Applicable

2011

TEST DATA

Test	Manometers		Head,					Temp	Corrected
No.	h ₁	H₂	h(cm)	Q(cm ³)	t(sec)	Q/At	h/L	(°C)	k(cm/sec)
1	16.8	16.7	0.1	145	15	0.0236	0.0041	16.5	6.3
2	16.8	16.7	0.1	150	15	0.0244	0.0041	15.5	6.7
3	16.8	16.7	0.1	144	15	0.0234	0.0041	15.5	6.4
4	18.3	18.2	0.1	170	15	0.0276	0.0041	15.0	7.6
5	18.3	18.2	0.1	178	15	0.0289	0.0041	14.5	8.1
6	18.3	18.2	0.1	172	15	0.0279	0.0041	14.5	7.8
7	19.5	19.4	0.1	192	15	0.0312	0.0041	14.0	8.9
8	19.5	19.4	0.1	198	15	0.0322	0.0041	13.5	9.3
9	19.5	19.4	0.1	189	15	0.0307	0.0041	13.0	9.0

Average Corrected k(cm/sec):

7.8

Project Specifications min k(cm/sec):

Date:

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REMARKS

At the request of the client, this sample was immersed in water for approximately 97 hours prior to testing. The saturation water was decanted over a #200 sieve prior to placing the sample into the test mold.

Reviewed by: