PENNSTATE

(814) 863-0841 Fax (814) 863-4540
Agricultural Analytical Services Laboratory
The Pennsylvania State University
University Park PA 16802
www.aasl.psu.edu

ANALYSIS FOR:	ADDITIONAL COPY TO:
Tom Tharp St. Louis Composting 39 Old Elam Ave. Valley Park MO 63088	

LAB ID	SAMPLE ID	SAMPLE TYPE	DATE SAMPLED	DATE RECEIVED	DATE COMPLETED
SM04526	IN4	Intensive	9/12/2012	9/14/2012	10/8/2012

Green Roof Media Analysis

Results on dry weight basis unless specified otherwise

Analysis	Units	Result	FLL Guidelines for Intensive Sites[1]
Particle Size Distribution (See accompanying report)			
≤ 0.05 mm *(Fll reference value based on < 0.06 mm)*	mass %	5.1	≤ 20
Denisty Measurements			
Bulk Density (dry weight basis)	g/cm^3	0.83	—
Bulk Density (dry weight basis)	lb/ft^3	51.99	—
Bulk Density (at max. water-holding capacity)	g/cm^3	1.18	—
Bulk Density (at max. water-holding capacity)	lb/ft^3	73.44	—
Water/Air Measurements			
Moisture	mass %	11.3	—
Total Pore Volume[2]	Vol. %	51.0	—
Maximum water-holding Capacity	Vol. %	35.2	45 - 65
Air-Filled Porosity (at max water-holding capacity)	Vol. %	15.8	≥ 10
Water permeability (saturated hydraulic conductivity)	cm/s	0.044	0.0005 - 0.05
Water permeability (saturated hydraulic conductivity)	in/min	1.04	0.0118 - 1.18
pH and Salt Content			
pH ($CaCl_2$)		7.5	6.0 - 8.5
Soluble salts (water, 1:10, m:v)	mmhos/cm	0.09	—
Soluble salts (water, 1:10, m:v)	g (KCl)/L	0.46	≤ 2.5
Organic Measurements			
Organic matter content	mass %	4.8	—
Organic matter content	g/L	40.0	≤ 90
Nutrients			
Phosphorus, P_20_5 (CAL)	mg/L	129.0	≤ 200
Potassium, K_2O (CAL)	mg/L	466.3	≤ 700
Magnesium, Mg (CaCl2)	mg/L	92.0	≤ 200
Nitrate + Ammonium (CaCl2)	mg/L	13.3	≤ 80

GR01A: iNTENSIVE

[1] *Forschungsgesellschaft Landschaftsentiwicklung Landschaftsbau (FLL). 2008. Guidelines for the Planning Execution and Upkeep of Green-Roof Sites*

[2] *Total pore volume determined using measured particle density instead of assumed particle density as specified in FLL*

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Green Roof Media
Particle Size Distribution

Particle Size Analysis		Sum of particles less than size specified			
Diameter -mm-	%	Diameter -mm-	Diameter -in-	Sieve size	% sum of particles
< 0.002	2.0	< 0.002	---	---	2.0
0.002-0.05	3.2	< 0.05	---	---	5.1
0.05-0.25	9.8	< 0.25	0.0098	60 mesh	15.0
0.25-1.0	16.7	< 1.0	0.0394	18 mesh	31.6
1.0-2.0	19.3	< 2.0	0.0787	10 mesh	50.9
2.0-3.2	12.6	< 3.2	0.125	1/8 inch	63.5
3.2-6.3	25.8	< 6.3	0.250	1/4 inch	89.4
6.3-9.5	8.1	< 9.5	0.375	3/8 inch	97.5
9.5-12.5	2.5	< 12.5	0.500	1/2 inch	100.0
> 12.5	0.0				

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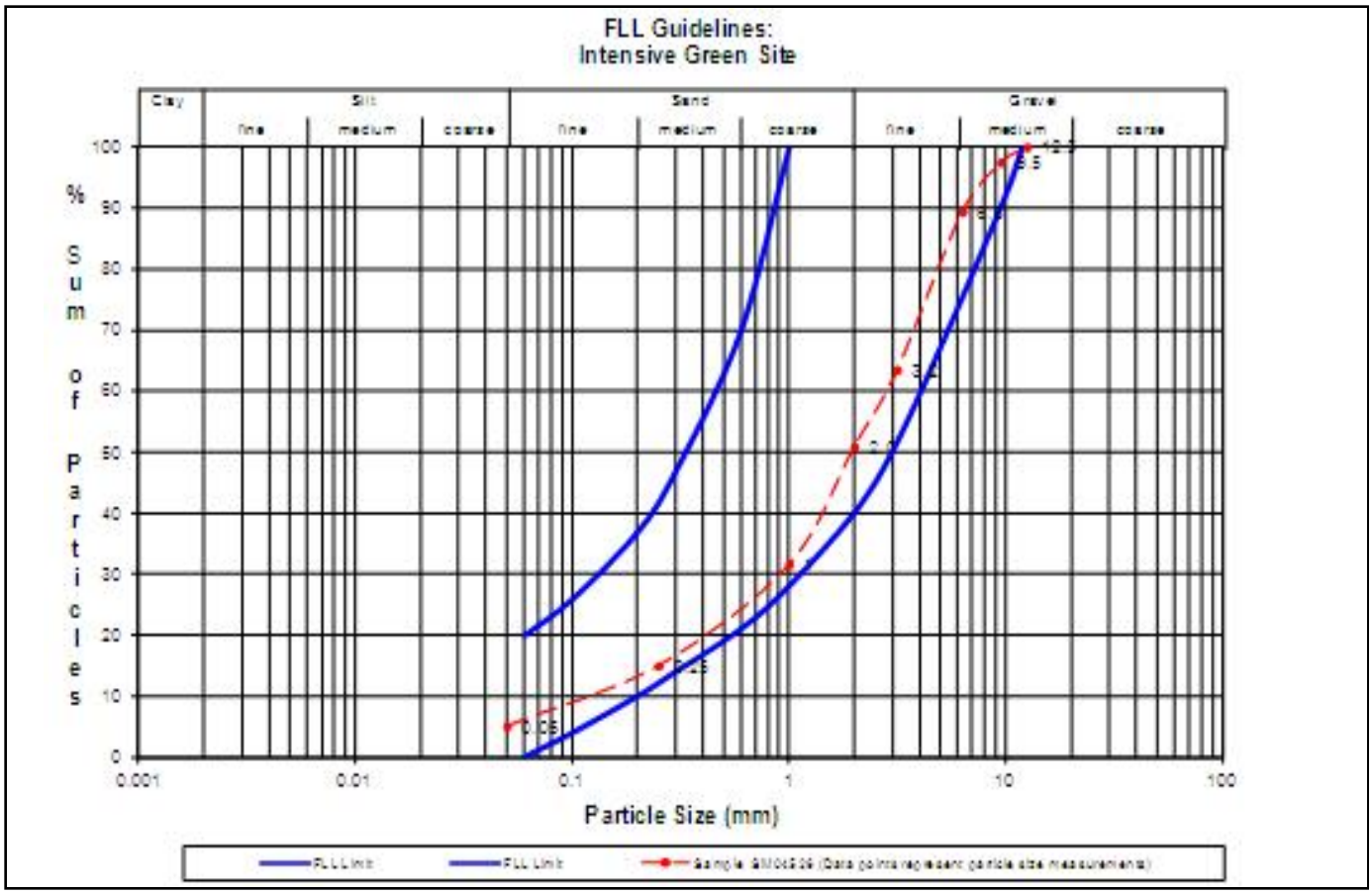
Green Roof Media

FLL[1] Particle Size Distribution Graph for Intensive Systems



[1]*Forschungsgesellschaft Landschaftsentwicklung Landschaftsbau (FLL). 2008. Guidelines for the Planning Execution and Upkeep of Green-Roof Sites*

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Calcium Carbonate Equivalence (CCE)[1]

Analysis	Units	Result
Solids	%	88.72
CCE (dry weight basis)	%	3.10
CCE (as received basis)	%	2.75

[1]ASTM C25

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Cation Exchange Capacity (CEC)[1]

Lab ID	Units	Result
SM04526	meq/100 g (cmol/kg)	11.71

[1]EPA Method 9081 (Sodium Acetate)

CANNONDESIGN

SUBMITTAL IDENTIFICATION SHEET

To be completed by Contractor/CM

WEBSTER UNIVERSITY ISB
PROJECT NAME

8274 BIG BEND BLVD
ADDRESS

NUMBER

WEBSTER UNIVERSITY
OWNER

CANNON DESIGN
ARCHITECT / ENGINEER

Joe Voypick
SUBMITTED BY

329500-001
CONTRACTOR / CM SUBMITTAL NO.

CANNON DESIGN SUBMITTAL NO.

DRAWING / DETAIL REFERENCE

329500
SPECIFICATION SECTION / PARAGRAPH

LanDesign
MANUFACTURER / SUPPLIER

ITEM / PRODUCT ID

REQUIRED DATE

PRIORITY

◯ CRITICAL

ITEM BEING SUBMITTED (check only one)

◯ Shop Drawings
◯ Samples
(_____ copies)
◯ LEED Submittal
◯ Certification / Qualifications
◯ Record Documents
◉ Product Data
◯ Coordination Drawing
◯ Calculations
◯ Schedules
◯ O&M Manuals
◯ Other _____

ITEM BEING SUBMITTED FOR (check only one)

◉ Action ◯ Information Only ◯ Record

REMARKS OR DEVIATIONS

CONTRACTOR / CM CERTIFICATION
(SUBMITTALS NOT CERTIFIED WILL BE RETURNED WITHOUT REVIEW)

PARIC

PARIC CORPORATION
SUBMITTAL STAMP

THIS SHOP DRAWING HAS BEEN REVIEWED BY PARIC CORPORATION

Subcontractor remains responsible for dimensions, quantities, coordination with other trades and compliance with contract documents.

By:
Devin D. Gates

Joe Voypick
REVIEWED BY

12/6/16
DATE

To be completed by Reviewer

32 9500-001
CANNON DESIGN SUBMITTAL NUMBER

12/7/16
RECEIVED DATE

◉ A. No Exceptions Taken
No further review of submittal is required.

◯ B. Make Corrections Noted
Incorporate corrections in work; resubmission is not required.

◯ C. Revise and Resubmit
Revise as noted, and resubmit for review.

◯ D. Rejected
Submittal is not in compliance with Contract Documents; provide new submittal.

◯ E. For Record / Information Only
Submittal was reviewed for Record / Information purposes only.

◯ F. Not Required for Review
Submittal is not required by Contract Documents and has not been reviewed.

Review is for conformance with the design concept of this project and for general compliance with contract documents. Contractor is responsible for quantities, dimensions and compliance with contract documents and for information that pertains to fabrication processes, construction techniques and coordination of this work with all trades which will be affected thereby. This review is null and void if submittal deviates from contract documents and does not indicate or note deviations.

A/E COMMENTS ◯ See attached sheet(s) for additional comments

Please also have this reviewed by the structural engineer to ensure the weight data is in line with the designed loads for the building.

REVIEWED BY

DATE

77 Westport Plaza
Suite 250
St. Louis, MO 63146

TRANSMITTAL

No. 15051-0379

Paric Corporation

PROJECT: 15051-Webster University Interdisciplinary Science Building

DATE: 12/06/2016

TO: Cannon Design
1100 Clark Ave
St Louis MO 63102

Fax;
314-241-2203

RE: Green Roof Media Product Data

ATTN: Kelvin Patel

JOB: 15051

WE ARE SENDING:	SUBMITTED FOR:	ACTION TAKEN:
☐ Shop Drawings	☑ Approval	☐ Approved as Submitted
☐ Letter	☐ Your Use	☐ Approved as Noted
☐ Prints	☐ As Requested	☐ Returned After Loan
☐ Change Order	☐ Review and Comment	☐ Resubmit
☐ Plans		☐ Submit
☐ Samples	**SENT VIA:**	☐ Returned
☐ Specifications	☐ Attached	☐ Returned for Corrections
☑ Other: Product Dat	☐ Separate Cover Via:	☐ Due Date:

Item	*Package*	*Code*	*Rev.*	*Copies*	*Date*	*Description*	*Status*
Submittal		329500-001	1		12/06/2016	Green Roof Media Product Data	Submitted

NOTES:

CC:

Signed: _____

Devin Gates

COVER PAGE

SM04526