Town of Greenwich
Department of Public Works – Engineering Division
Town Hall – 101 Field Point Road, Greenwich, CT 06830
Phone 203-622-7767 – Fax 203-622-7747

Bioretention Soil Mix Information

Any vendor that can provide the 90% blended engineered media as described in *Appendix G* of the *Town of Greenwich Drainage Manual February 2014 as amended* can be used. Based on the Bioretention Certification Sign-offs (Form SC-104) received from site inspection engineers, the following three vendors have shown they can supply the required 90% blended engineered media. Even though the three vendors listed below have shown they can supply the 90% blended engineered media, all testing of the material as per *Appendix G* of the *Town of Greenwich Drainage Manual February 2014 as amended* is still required from the three vendors as well as all other vendors.

Carriere Materials, LLC
95 Glen Ave
Port Chester, NY 10573
Phone: (914) 939-4884
Contact: Bill Carriere

Holliston Sand (Slater Farms)
P.O. Box 1168
Slatersville, RI 02876
Phone: (401) 766-5010

Grillo Services, LLC
1183 Oronoque Road
Milford, CT 06461
Phone: (203) 877-5070
Email: info@grilloservices.com
Website: grilloservices.com

Naturcycle – Yard
17 Canoe Hill Road
Millbrook, NY 12545
Phone: (315) 707-8955
Website: www.naturcycle.com

Greenwich Rain Gardens, LLC
10 Sherwood Ave
Greenwich, CT 06831
Cell Phone: (203) 496-5368
Office Phone: (203) 340-2168

The bioretention soil shall generally consist of a 90% blended engineered media and 10% organics, a 9:1 ratio by volume. All projects that are using the 90% blended engineered media must have the material tested by a testing lab.

The 90% blended engineered media testing must use the necessary sieve sizes to show that all the required percentages for the particle diameters meet the following particle size distribution:

Name	Particle Diameter	Recommendation (by weight)
Fine Gravel	2.0 – 3.4 mm	Not more than 10% of the total particles in this range, including a maximum of 3% fine gravel (preferably none)
Very coarse sand	1.0 – 2.0 mm	
Coarse sand	0.5 – 1.0 mm	Minimum of 60% of the particles must fall in this range
Medium sand	0.25 – 0.50 mm	
Fine sand	0.15 – 0.25 mm	Not more than 20% of t he particles may fall within this range
Very Fine Sand	0.05 – 0.15 mm	Not more than 5%
Silt	0.002 – 0.05 mm	Not more than 5%
Clay	less than 0.002 mm	Not more than 3%
Total Fines	Very fine sand + silt + clay	Less than or equal to 10%

This blended engineered media essentially follows the U.S. Golf Association specification for putting green soils and can be obtained from most sand and gravel operators that supply golf courses. The key

to the proper function and longevity of the blended engineered media is keeping the slit and clay content below 5% and 3% respectively.

The 10% organics can be leaf compost or peat moss. The organic sources can be from municipal leaf composting facilities or commercially available sources of peat. *Compost using municipal sludge should not be used as it is highly contaminated with nutrients and heavy metals and will export nutrients.*

After the 90% blended engineered media and the 10% organics have been mixed a sample must have one of the following phosphorous tests completed:

- P-Index (Phosphorous Index) of 0 – 30 or a Total Phosphorous of 0 – 23mg/kg

The results of the particle size distribution test for the 90% blended engineered media must be given to the Project Engineer for review and approval before the material is purchased. Copies of the phosphorous test shall also be given to the Project Engineer as both test results must be included with the Bioretention Certification Sign-off (Form SC-104) to obtain a Certificate of Occupancy. The following table shows the particle diameter in millimeters and the corresponding sieve mesh designation.

Particle Size Conversion Table

Sieve Designation		Nominal Sieve Opening		
Standard	*Mesh*	*inches*	*mm*	*Microns*
4.76 mm	No. 4	0.187	4.76	4760
4.00 mm	No. 5	0.157	4.00	4000
3.36 mm	No. 6	0.132	3.36	3360
2.83 mm	No. 7	0.111	2.83	2830
2.38 mm	No. 8	0.0937	2.38	2380
2.00 mm	No. 10	0.0787	2.00	2000
1.68 mm	No. 12	0.0661	1.68	1680
1.41 mm	No. 14	0.0555	1.41	1410
1.19 mm	No. 16	0.0469	1.19	1190
1.00 mm	No. 18	0.0394	1.00	1000
0.841 mm	No. 20	0.0331	0.841	841
0.707 mm	No. 25	0.0278	0.707	707
0.595 mm	No. 30	0.0234	0.595	595
0.500 mm	No. 35	0.0197	0.500	500
0.420 mm	No. 40	0.0165	0.420	420
0.354 mm	No. 45	0.0139	0.354	354
0.297 mm	No. 50	0.0117	0.297	297
0.250 mm	No. 60	0.0098	0.250	250
0.210 mm	No. 70	0.0083	0.210	210
0.177 mm	No. 80	0.0070	0.177	177
0.149 mm	No. 100	0.0059	0.149	149
0.125 mm	No. 120	0.0049	0.125	125
0.105 mm	No. 140	0.0041	0.105	105
0.088 mm	No. 170	0.0035	0.088	88
0.074 mm	No. 200	0.0029	0.074	74
0.063 mm	No. 230	0.0025	0.063	63
0.053 mm	No. 270	0.0021	0.053	53