Example Soil and Compost Specifications for Low Impact Development

Compost Standards for Bioretention Soil Mix: Western Washington

COMPOST FRACTION + AGGREGATE FRACTION = BIORETENTION SOIL MIX

COMPOST FRACTION

Parameter	Method	Acceptable Range
Feedstock composition		≥ 65% Type I Feedstock ≤ 35% Type III Feedstock Compost vendor must be STA Certified
pH	TMECC 04.11-A	6.0 – 8.5
Carbon : Nitrogen ratio	TOC – TMECC 04.01; TKN – TMECC 04.02D	25 carbon:1 nitrogen and up to 35:1 if using native plantings from Puget Sound lowlands region
Inert material	TMECC 03.08A	≤ 1%, 0% plastic
Organic content	TMECC 05.07A	40% - 65% by dry weight
Size gradations	TMECC 02.02-B	100% passing through 1" sieve
Maturity indicator	TMECC 05.05A	Germination > 80% Vigor > 80%
Stablility	TMECC 05.08B	≤ 7
Contaminant levels	WAC 173-350, Section 220	Table 220-B Testing Parameters
Moisture level		No visible free water or dust when handling
Soluble salt/ Electrical conductivity	TMECC 04.10-A	< 4 mmhos/cm

AGGREGATE FRACTION

Parameter	Method	Acceptable Range	
Aggregate gradation	ASTM D 422	Sieve Size	Percent Passing
		1 inch	100
		1 inch	100
		No. 4	95 - 100
		No.10	75 - 90
		No. 40	25 - 40
		No. 100	4 to 10
		No. 200	2 to 5
Coefficient of uniformity	ASTM D 422	≥ 4	

BIORETENTION SOIL MIX

Parameter	Method	Acceptable Range
Mix ratio (Aggregate : Compost)	N/A	60:40
Permeability rate	ASTM D 2434 – 2012 SWMMWW version	Initial rate < 12 inches per hour at 85% compaction. Long term > 1 inch per hour.
Organic matter content	ASTM D 2974 or TMECC 05.07A	4 - 8% (by dry weight)
Cation exchange capacity	EPA 9081	≥ 5 meq/100 g dry soil

Compost Standards for Bioretention Soil Mix: Eastern Washington*

COMPOST

Parameter	Method	Acceptable Range
Feedstock composition	WAC 173-350, Section 220	Type I, Type II, or Type III Feedstock Feedstock ≥ 65% Type I stock
pH	TMECC 04.11-A	5.5 - 8.0 or as appropriate to the plant palettes
Carbon : Nitrogen ratio		20:1 to 25:1 for most landscapes OR 30:1 to 35:1 where native restoration is part of landscape
Inert material		< 1% on a dry weight or volume basis
Organic content		≥ 45% by volume
Moisture content		30 - 50%
Contaminant levels	WAC 173-350, Section 220	Table 220-B Testing Parameters
Soluble salt/ Electrical conductivity		≤ 4 ohms cm to reduce the effect of salt accumulation

Compost Standards for Amending Soil

COMPOST

Parameter	Method	Acceptable Range
Carbon : Nitrogen ratio		25 carbon:1 nitrogen and up to 35:1 if using native plantings from Puget Sound lowlands region
Organic matter content		40% - 65% by dry weight

References

Specifications for compost, aggregate, and bioretention soil mix for Western Washington from:
2012 LID Technical Guidance Manual for Puget Sound. http://www.psp.wa.gov/downloads/LID/20121221_LIDmanual_FINAL_secure.pdf.

Specifications for compost for Eastern Washington from:
Yakima Regional Low Impact Development Stormwater Design Manual, September, 2011. http://www.yakimacounty.us/stormwater/documents/YakimaLID_100percent_Sept2011_webversion.pdf.

Specifications for compost for amending soil from:
Stormwater Manual for Western Washington, 2012. http://www.ecy.wa.gov/programs/wq/stormwater/manual.html.

*For additional specifications on bioretention soil mix for Eastern Washington, see the Yakima Regional Low Impact Development Stormwater Design Manual, September, 2011.

HERRERA

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