

# GUIDANCE ON PROCURING AND APPLYING COMPOST



CompostWise



**King County**

Department of  
Natural Resources and Parks  
Solid Waste Division

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**What is compost?**  
 Compost is made from decomposed organic matter and is used as a plant fertilizer and a soil amendment.

## CompostWise’s Quick Guide

### King County’s Guidance on Procuring and Applying Compost

Using and applying compost improves many environmental impacts and outcomes, while supporting the health of the region’s organics waste stream, which is made up of yard, food and wood waste collected from King County households and businesses, and supporting other regional jurisdictions to do the same. This guide shows how to use compost to grow healthier landscapes, while conserving resources and improving the environment. Along with King County’s [Universal Compost Contract](#) and CompostWise technical assistance program, it makes it easy for regional public agencies to buy compost and soil mixes made from locally recycled yard and food waste.

### COMPOST BENEFITS FOR YOUR PROGRAM

Using compost on public projects helps achieve key King County’s priorities:

- Composting reduces greenhouse gases and helps King County reach its Strategic Climate Action Plan goals.
- Compost grows healthy plants, cutting use of pesticides that can contaminate surface waters.
- Compost keeps soil loose, improves stormwater infiltration, and removes many pollutants from runoff.
- Compost can help prevent soil erosion and compaction.
- Compost creates healthy soils and increases access to healthy soils which can align with equity and social justice goals.
- Composting keeps organic waste out of the landfill, helping King County achieve its Zero Waste of Resources by 2030 goal.

### Use of compost also makes landscape installations and maintenance easier and less expensive:

- Compost stimulates healthy plant growth.
- Compost helps plants thrive with less frequent watering and makes landscapes more drought resistant.
- Compost reduces maintenance, fertilizer and pesticide needs.
- Compost improves plant survival in low-maintenance and naturalized projects.



### COMMON COMPOST USES AND BENEFITS

Application	How to Use	Specific Benefits
<b>Amend soil in new landscape and turf plantings</b>	<ul style="list-style-type: none"> <li>Mix 1.75–3 inches of compost into the top 8 inches of site soil,</li> <li>OR import a topsoil mix containing 20-33% compost.</li> <li>To determine how much compost is needed for a project, use the Compost and Topsoil Calculator on <a href="#">page 6</a> or <a href="#">Use King County's Online Compost and Soil Calculator</a>.</li> </ul>	<ul style="list-style-type: none"> <li>Loosens soil for healthy root growth and plant establishment.</li> <li>Supplies quick and slow release nutrients.</li> <li>Reduces irrigation needs.</li> <li>Improves infiltration and drainage.</li> <li>Reduces plant diseases</li> </ul>
<b>Mulch new and established planting areas</b>	<ul style="list-style-type: none"> <li>Spread 1–3 inches of compost around plants and on bare ground.</li> <li>OR use a mix of compost with ground bark or wood around trees and shrubs, for longer lasting weed control and compaction prevention.</li> <li>Calculate how much mulch is needed to cover an area using the formula on <a href="#">page 6</a></li> </ul>	<ul style="list-style-type: none"> <li>Reduces irrigation needs 50% or more.</li> <li>Smothers sprouting weeds, and makes others easy to pull.</li> <li>Supplies quick and slow release nutrients for healthy growth.</li> <li>Reduces plant disease spread.</li> <li>Prevents runoff and erosion.</li> <li>Looks uniform.</li> </ul>
<b>Top-dress established turf</b>	<ul style="list-style-type: none"> <li>Spread ¼ inch of finely screened compost to invigorate old lawns. Up to ½ inch can be applied after core aerating.</li> <li>OR use a mix of compost and coarse sand to improve high use areas on athletic fields and event lawns.</li> <li>Apply ¼ inch as cover when overseeding.</li> </ul>	<ul style="list-style-type: none"> <li>Supplies nutrients and beneficial soil life to rejuvenate depleted turf.</li> <li>Improves moisture and nutrient storage, reducing irrigation and fertilizer needs.</li> <li>Provides seed cover and nutrients for over-seeding.</li> <li>Makes soil looser and more absorbent.</li> </ul>
<b>Bioretention and stormwater infiltration BMPs</b>	<ul style="list-style-type: none"> <li>Mix 35–40% compost by volume with specified aggregate for bioretention soil media.</li> <li>Amend vegetated filter strips with 2 inches of compost when organic matter is less than 1%.</li> <li>Washington's Department of Ecology does not allow the use of manure and biosolids as a compost feedstock for the following applications: Bioretention, Rain Gardens, Stormwater Treatment Wetlands, Biofiltration Swales (Bioswale in KC), and Compost Amended Vegetated Filter Strips.</li> <li>For these compost applications, follow the requirements detailed in Chapter 5 of the <a href="#">Stormwater Management Manual for Western Washington</a>.*</li> </ul>	<ul style="list-style-type: none"> <li>Reduces stormwater runoff.</li> <li>Filters some pollutants from runoff.</li> <li>Helps establish plant canopy that sustains and protects the BMP.</li> </ul> <p><i>*The Stormwater Management Manual for Western Washington is superseded by local guidance. Be sure to refer to your local jurisdiction's stormwater manual.</i></p>
<b>Erosion control BMPs</b>	<ul style="list-style-type: none"> <li>Mulch 2–3 inches deep to stop runoff and erosion of bare soil, and aid erosion control seeding.</li> <li>Use compost-filled filter-socks to slow and filter surface and concentrated flows.**</li> <li>Compost berms reduce and filter runoff around construction site perimeters.**</li> <li>Calculate mulch needed to cover an area using the formula on <a href="#">page 6</a>.</li> <li>See more information starting on <a href="#">page 17</a>.</li> </ul>	<ul style="list-style-type: none"> <li>Reduces storm runoff peaks and improves infiltration.</li> <li>Removes sediment, metals, pathogens, hydrocarbons and other contaminants from runoff.</li> <li>Compost can be reused on site to amend planting areas post-construction.</li> </ul> <p>** Filter berms and socks require a special coarse grade of compost.</p>

### WHAT COMPOST AND TOPSOIL PRODUCTS ARE BEST FOR EACH USE?

These compost grades and amended soil mixes are available to King County agencies through the Universal Compost Contract. The composts have a set price of \$22 per cubic yard. Prices for blends varies.

Product	Ingredients	Amending Soil		Mulching		Other
		Planting Beds	Lawns	Garden Beds	Shrubs-Trees-Roadside	
<b>Fine Compost</b>	Compost – 100% < 7/16" 75-100% < 1/4"	X	X	X	X	Bioretention, Erosion Control Mulch
<b>Medium Compost</b>	Compost – 100% < 1" 70-85% < 1/4"	Clay Soils	Clay Soils	X	X	Erosion Control Mulch
<b>Coarse Compost</b>	Compost – 100% < 2" 80-100% < 1" 40-60% < 1/4"			X	X	Erosion Control Mulch
<b>Planting Soil</b>	66% Sandy Loam 33% Compost	X	Low traffic lawns			
<b>Winter Mix</b>	50% Sandy Loam 25% Compost 25% Sand	For rapid drainage	Moderate traffic lawns			
<b>Bioretention / Turf Mix</b>	60% Sand 40% Compost		Sports and event lawns			Bioretention, Topdressing turf
<b>2-Way Topsoil</b>	66% Compost 33% Sand	X				Raised Planters
<b>Landscape Mulch</b>	50% Compost 25% Bark 25% Aged Wood Chip			X	X	
<b>Pro-Mulch</b>	50% Compost 50% Aged Wood Chip			X	X	
<b>Potting Soil</b>	Compost, Fir Bark, Pumice, Coir & Fertilizer	X				Containers and Raised Planters



## CALCULATE HOW MUCH COMPOST OR SOIL MIX IS NEEDED TO COVER AN AREA TO A SPECIFIED DEPTH

Use this formula to determine how much compost or soil mix is needed to cover an area **when you know what depth is needed**. Projects on newly cleared and graded areas need to be amended in compliance with King County’s Post Construction Soil Standard ([KCC 16.82](#)), using the online [Compost and Topsoil Calculator](#). Other projects can also use this calculator to determine the correct amount of compost. Pre-approved rates are 3 inches of compost to amend planting beds, and 1.75 inches to amend turf areas. Using the online calculator and test results for the soil and compost may allow reduced rates.

<p><b>Formula to calculate compost or soil needed to cover an area at pre-determined depth:</b></p> <p>_____ (Enter Inches of compost to apply)</p> <p>X 3.1</p> <p>= _____ yards compost needed per 1,000 sq. feet</p> <p>X _____ (enter X 1,000s square feet to cover)</p> <p>= _____ yards of compost needed</p>	<p><b>Example:</b> To cover <b>3,000 square feet 3 inches</b> deep:</p> <p><u>  3  </u> (Enter Inches of compost to apply)</p> <p>X 3.1</p> <p>= <u>  93  </u> yards compost needed per 1,000 sq. feet</p> <p>X <u>  3  </u> (enter X 1,000s square feet to cover)*</p> <p>= <u> 279 </u> yards of compost needed</p> <p><i>* One acre = 43,560 sq. feet, so use 43.5 (X 1,000)</i></p>
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## USING THE KING COUNTY UNIVERSAL COMPOST CONTRACT TO PURCHASE AND APPLY COMPOST

Information regarding the universal compost contract, including specifications and pricing, can be found [here](#). There is an option to enter the site as a guest.

### Authorization for orders:

- Any King County agency can use this universal compost contract.
  - The agency can contact the vendor directly and reference the CPA when purchasing.
    - CPA Number: 6155029
    - Vendor Contact: Chris Cunningham at [chrisc@cgcompost.com](mailto:chrisc@cgcompost.com)
  - OR the agency can reach out to the CompostWise Program to facilitate the purchase.
    - Contact email: [compost@kingcounty.gov](mailto:compost@kingcounty.gov)
- Any regional public agency can piggyback off of this contract.
  - The jurisdiction must have a [cooperative purchasing agreement](#) with King County in place.
  - If there is a cooperative purchasing agreement in place, the jurisdiction can reach out directly to the vendor to piggyback off the contract.
    - Vendor contact: Chris Cunningham at [chrisc@cgcompost.com](mailto:chrisc@cgcompost.com)

### Deliveries:

- Compost and blended products purchased using the Universal Contract may be picked up at one of the vendors sales yards located throughout the County, or scheduled for delivery by the truckload or for application by blower truck.
- Truckload deliveries range from 1 cubic yard mesh bags to 20-yard dumping trailers.
- Blower trucks can be used to economically apply compost or mixes in hard to reach areas including slopes, narrow and enclosed areas.

Reach out to King County’s CompostWise Program at [compost@kingcounty.gov](mailto:compost@kingcounty.gov)

## HOW USING COMPOST HELPS MEET PROJECT ENVIRONMENTAL GOALS

- Recycled Content:** The compost purchased through King County’s Universal Compost Contract is made from 100% recycled organic wastes: Landscape waste, post-consumer food waste, and land clearing debris. This helps King County achieve its Zero Waste of Resources goal by 2030, and may help a project to meet LEED **MR 4** – Recycled Materials
- Local Materials:** 100% of the materials used to make compost purchased through King County’s Universal Compost Contract originates in King, Snohomish and Pierce Counties. Topsoil mixes are made using naturally occurring loams reclaimed from local development projects. This may help a project meet LEED **MR 5** – Regional Materials
- Greenhouse Gases:** The composter that supplies King County’s Universal Compost Contract receives credits for reducing carbon emissions by diverting organic wastes from landfills. Organic materials decompose anaerobically when buried in landfills, producing high quantities of methane—which is a greenhouse gas 30 times more potent than carbon dioxide. Aerobic composting processes prevent conditions that produce methane. Much of the carbon is fixed in the compost, and ultimately sequestered by binding with soil particles or becoming part of woody plant tissues. At this time, additional carbon credits are not available to users of finished compost, except for agricultural applications.



## FREQUENTLY ASKED QUESTIONS

1. How can we assure that compost meets contracted specifications and is free of contaminants?
2. Is it possible to use too much compost?
3. What can be done about smelly compost?
4. Why are biosolids limited as a percentage of approved compost?
5. Should tree planting pits be amended with compost?
6. Is compost the same as humus?
7. Is phosphorus runoff a problem where compost is used to amend soils?

### 1. How can we assure that compost meets contracted specifications and is free of contaminants?

Any compost supplier must provide a copy of test results showing that a sample of compost tested within the past 60 days meets the Universal Contract requirements, (See [page 15](#) and [16](#) for examples of test results) include the following:

- The King Co. Universal Contract Compost Specifications Checklist** (See [page 14.](#)) provides a convenient form to compare submitted compost test results to contract requirements.
- Washington Department of Ecology regulations assure basic public health standards for compost.** WAC 173-350-220 Composting Facilities operating standards require that compost meet the parameters in Table 220-B (at right), before it can be sold (See example test result on [page 16](#)).
- Extensive testing shows pesticides, hydrocarbons, volatile organic compounds and other complex contaminants** degrade or are diluted to safe levels in large scale, aerated composting systems. Projects in sensitive areas, such as remediation sites, may require additional testing to ensure imported compost or soils meet Model Toxics Control Act (MTCA) standards. Purchasing for such projects should be managed by an environmental specialist.
- Plant pathogens and weed seeds are destroyed by the extended hot composting processes used at permitted composting facilities in compliance with WAC 173-350-220 requirements.** Yet weed seeds can blow into stored compost piles after hot composting. If compost is clearly contaminated with weed seeds, the vendor should remove it from the project site. However, it may be difficult to determine whether weed seed has blown in prior to delivery or at the project site. Plant pathogens are generally controlled by the diverse soil life community that thrives on compost.

Table 220-B

### Testing Parameters

Metals and other testing parameters	Limit (mg/kg dry weight), unless otherwise specified
Arsenic	≤ 20 ppm
Cadmium	≤ 10 ppm
Copper	≤ 750 ppm
Lead	≤ 150 ppm
Mercury	≤ 8 ppm
Molybdenum	≤ 9 ppm
Nickel	≤ 210 ppm
Selenium	≤ 18 ppm
Zinc	≤ 1400 ppm
Physical contaminants	≤ 1 percent by weight total, not to exceed .25 percent film plastic by weight
Sharps	0
pH	5 - 10 (range)
Biological stability	Moderately unstable to very stable
Fecal coliform	< 1,000 Most Probable Number per gram of total solids (dry weight)
OR	
Salmonella	< 3 Most Probable Number per 4 grams of total solids (dry weight)

- Plastics and other inert materials (glass, nails, fabric) should only be present at very low levels in compost, in compliance with WAC 173-350-220.** Film plastics are highly visible in compost, and some may be apparent even at the specified level of under 0.1%. If compost is clearly contaminated with glass, nails or high concentrations of plastic, the Universal Contract vendor can be compelled to clean up or remove it from the project site
- For applications that do not allow manure and biosolids as feedstocks, the supplier will need to provide a certification from the supplier that these are not contained in the compost.

### HOW TO DETERMINE COMPOST QUALITY

	Good	Not Good
Look	Dark brown or black (Whitish coating on some particles is acceptable bacterial growth)	Light colored sawdust or shavings visible Large percentage of sand or gravel visible Orange or yellow fungal growth
	Original plant parts not visible	Undecomposed plant parts distinguishable
	Minimal inorganic contaminants	High amount of rigid or plastic film Visible glass, nails or ceramics
Smell	Little or no odor	Rotten egg/sulfur smell
	Earthy smell	Ammonia odor
	Slightly fruity	Strong barnyard odor
Feel	Particles mostly soft	Gritty/sandy or dusty
	Clumps easy to break apart in hands	Greasy
	Squeezed handful falls apart when tapped with finger	Wet to point where squeezing a handful leaves hand wet, or water drops emerge between fingers

2. **Is it possible to use too much compost?** Yes, adding too much compost to the soil, or too deeply, can impair drainage, inhibit plant growth, and cause excessive soil settling. To prevent these problems, amendment or imported compost/topsoil mixes should mostly be limited to the top 8–12 inches. Only amend soils below 12 inches if needed to break up compaction and organic content is below 5%. In the top 12 inches, limit organic matter content to below 10% in loamy or fine (silty or clayey) soil. It is safe to start at a slightly higher level in gravelly-sandy soils common throughout King County, because organic matter oxidizes rapidly in them.
3. **What can be done about smelly compost?** Freshly delivered compost often has a mild “farm” odor, which some people find objectionable. This is normal, and spreading and/or tilling the compost into the soil should make the odor dissipate within 24 hours. Stronger, sulfurous (rotten egg) or ammonia smells indicate that the compost is not mature or too wet.
4. **Why are biosolids and manure limited as a percentage of approved compost?** Specifying the percentage of biosolids or manure provides the compost with the correct ratios for the composting process to work and to produce high quality product. Biosolids and animal manures are different from other compost ingredients in that they are usually more wet and higher in nutrients. Because of this, they are difficult to compost on their own and must be mixed with other materials to achieve the optimal conditions. Woody materials, such as wood chips, sawdust, or yard clippings, are drier than biosolids and manure, and add physical structure to the compost mix, creating pathways for air to flow through the materials as they compost. Woody materials are the carbon source while biosolids or manure (like food waste) are the nitrogen source, so mixing them together in certain percentages creates the right ratio of carbon to nitrogen.



During the composting process, the microbes use the nutrients in the biosolids to help them break down the carbon in the woody materials. The finished compost will contain the majority of the nitrogen and phosphorus in organic forms that soil microbes mineralize, providing slow release nutrients for plants to use over time.

Stormwater Best Management Practices differ from general landscaping in that flows are collected and concentrated from a broad area into a confined structure or area, causing both increased soil saturation conditions and increased leaching that would not typically occur in compost amended soils. Biosolids and manure have potential to contain more nutrients and trace metals (such as zinc and copper than yard and food waste. Consequently, Ecology's Stormwater Management Manual for Western Washington and The King County Surface Water Design Manual have several BMPs do not allow any biosolids or manure as compost feedstocks.

5. **Should tree planting pits be amended with compost?** Compost should be used to amend wide, shallow (less than 12 inches) areas to encourage root spread. If trees are planted in small cutouts surrounded by pavement or compacted soil that is not going to be cultivated beyond the planting hole, it is best to plant in the soil that is present after loosening as widely as practical, and then use compost as a 3 to 4 inches mulch extending several feet from the tree stem. Amending a small planting hole with lots of compost can create drainage problems and limit roots from spreading. Do not put compost under heavy root balls of large tree or shrub transplants, because they may settle and leave the plant crown buried and susceptible to rot.
6. **Is compost the same as humus?** The term humus is often inappropriately used to describe compost or rich soil. Humus generally refers to very small particles of well-decomposed organic matter that are stable in the soil for long periods of time, and play an important role in making nutrients available to plants. Compost appears to contain a few to several percent humus, increasing as the compost ages. It is not possible to buy pure humus.
7. **Is phosphorus runoff a problem where compost is used to amend soils?** Compost is a good source of phosphorus for plants. When compost is mixed into loamy soils that contain silt and clay, phosphorus is gradually released and binds to fine soil particles where plants can access it when required for growth. However when compost is blended with coarse sand to make "Bioretention" mixes designed to rapidly infiltrate and filter stormwater, phosphorus may leach through the system, since sand has little capacity to hold nutrients. Where drainage from these facilities discharges within a quarter mile to [sensitive lakes](#) (e.g. Lake Sammamish and small lakes in Bellevue) without contact with native soil that can absorb it, Washington Department of Ecology limits the use of compost for this application. Currently different jurisdictions have varied approaches to what mixes can be used for stormwater filtration in these situations. More recently on Ecology's radar is nutrient loading to Puget Sound. This may result in further restrictions in the future.

## Extended Resources for Using Compost

### CALCULATE HOW MUCH COMPOST OR SOIL MIX IS NEEDED TO AMEND A NEWLY CLEARED PROJECT AREA FOLLOWING KING COUNTY'S POST CONSTRUCTION SOIL STANDARD (KCC 16.82)

King County's Post Construction Soil Standard ([KCC 16.82](#)) requires that in areas that have been cleared and graded, soil moisture storage capacity must be restored using compost-amended soils. Restored soils must have 8-13% organic matter content in the top 8 inches, plus loosened subsoil below. The requirement applies to all areas that are not covered by buildings, pavement or stormwater facilities.

#### RESTORING SOIL CAN BE ACCOMPLISHED BY ONE OF THREE METHODS:

**Method 1: Amend the soil in planting beds with 3 inches of compost or for turf with 1.75 inches of compost mixed into the top 8 inches of site topsoil.** This should provide approximately 12 inches of loose amended soil. For this method, use the Calculator for Method 1a for planting beds or Method 1b for turf, below.

**Method 2: Import a minimum of 8 inches of topsoil that contains 8-13% organic matter, and loosen the subgrade 4 inches deep prior to placement.** A soil mix may need to include 20-35% compost to meet the 8-13% organic matter content, because compost is lighter than soil and contains some minerals. Compost suppliers can provide test data showing the organic matter content of soil mixes. For this method, use the Calculator for Method 2, below.

**Method 3: Amend the soil with compost at a custom rate based on testing of soil and compost density and organic content.** The testing required is inexpensive, and may result in a significant reduction of the compost required. To choose Method 3, use the online King County [Compost and Topsoil calculator](#).

#### CALCULATOR FOR METHOD 1a - Planting Beds: Amend existing soil in-place with 3 inches of compost

Enter combined square footage of areas, in 1,000s of square feet (example: for 4,500 sq. ft., enter 4.5)

Multiply square footage by 9.3 and enter in box A

Amount of **compost** needed for these areas:

$$\begin{array}{r} \text{_____} \\ \times 9.3 \\ \hline \boxed{\phantom{000}} \text{ A} \end{array}$$

#### CALCULATOR FOR METHOD 1b - Turf: Amend existing soil in-place with 1.75 inches of compost

Enter combined square footage of lettered areas in 1,000s of square feet (example: for 4,500 sq. ft., enter 4.5)

Multiply square footage by 25 and enter in box B

Amount of **topsoil** needed for these areas:

$$\begin{array}{r} \text{_____} \\ \times 25 \\ \hline \boxed{\phantom{000}} \text{ B} \end{array}$$

#### CALCULATOR FOR METHOD 2 - Import a minimum of 8 inches of topsoil containing 8-13% organic matter

Enter combined square footage of lettered areas in 1,000s of square feet (example: for 4,500 sq. ft., enter 4.5)

Multiply square footage by 5.4 and enter in box C

Amount of **topsoil** needed for these areas:

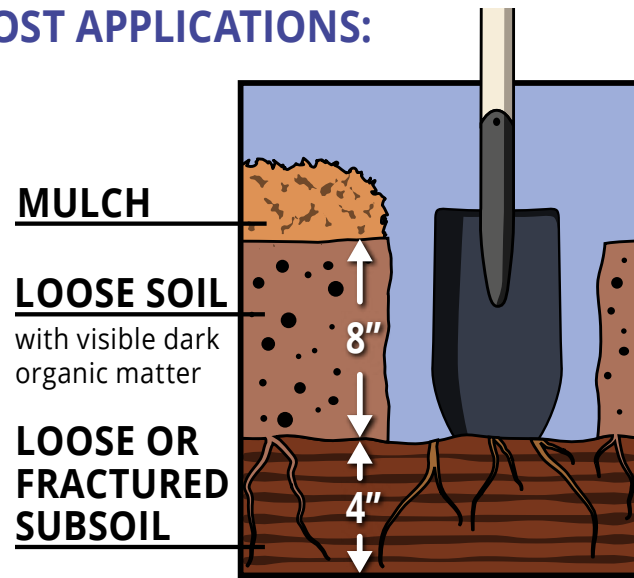
$$\begin{array}{r} \text{_____} \\ \times 5.4 \\ \hline \boxed{\phantom{000}} \text{ C} \end{array}$$

#### ONLINE CALCULATOR FOR METHOD 3 - Amend the Soil With Compost at a Custom Rate Based on Testing of Soil and Compost

**SPECIFICATION DETAILS FOR COMPOST APPLICATIONS:**

**Import Topsoil**

1. Rip or till compacted subsoil at least 4 inches deep, so roots and water can penetrate.
2. Place 8 inches of compost-amended topsoil on scarified subsoil.
3. Lightly compact using approved method to firm soil and prevent excessive settling.
4. Rake to smooth.



**Amending Existing Site Soil**

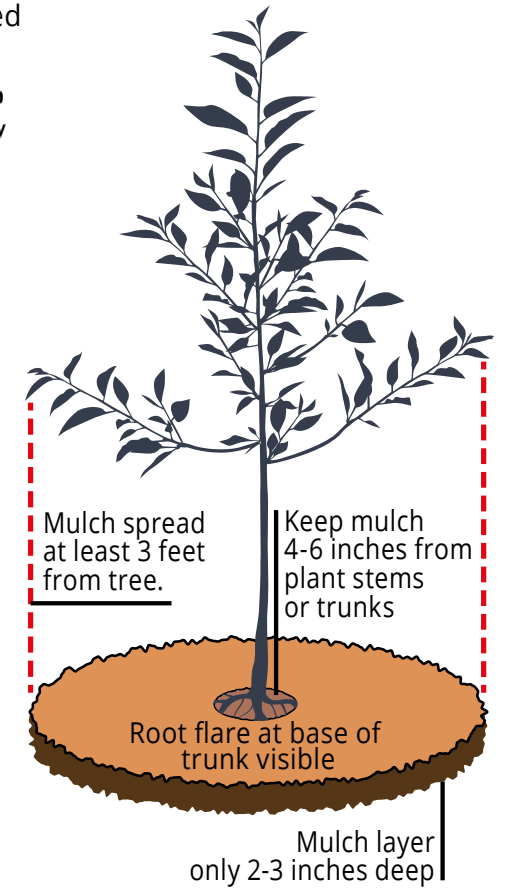
1. Rip or plow compacted subsoil 8 inches deep.
2. Place specified depth of compost on loose, dry soil.
3. Rototill one or more passes to mix compost into dry soil.
4. Lightly compact using approved method to firm soil and prevent excessive settling.
5. Rake to smooth.

**Profile Rebuilding for Poor Compacted Soils**

1. Place 2-4 inches of compost on loose, dry soil.
2. Rip or plow compacted subsoil 12-18 inches deep.
3. Or use backhoe to pick up 12-18 inches deep scoops of soil
4. Place additional 1-3 inches of compost on loose, dry soil.
5. Rototill one or more passes to thoroughly mix compost into dry soil.
6. Lightly compact using approved method to firm soil and prevent excessive settling.

**Amending Tree Planting Pits**

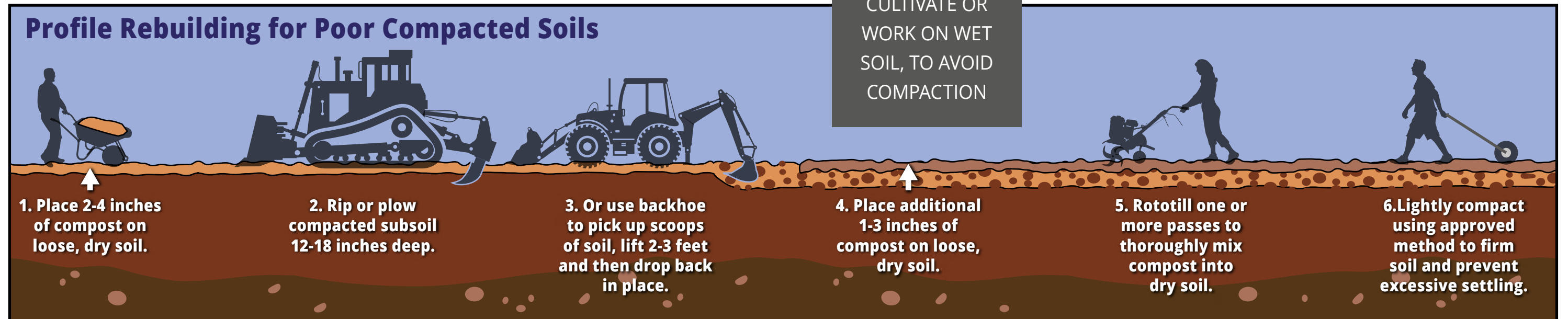
1. Prepare soil in an area at least 100-square feet, as illustrated in the graphic on page 12 and in "Profile Rebuilding for Poor Compacted Soils" on page 12 and 13.
2. Excavate hole in amended soil large enough to view and spread roots when tree is placed.
3. Make a firm mound of unamended native or imported soil to position top of tree root ball 1 inch above surrounding finished grade to allow for mulch.
4. Place tree and remove wrappings, fabric containers or ties, to extent possible while keeping root ball intact. Wire cages may be left in place.
5. Cut, or loosen and spread any circling roots, to direct growth away from the tree trunk. Shave root mats from sides of root ball to expose soil and root ends.
6. Place amended or imported soil around roots. Firm soil by walking on it, then water to thoroughly moisten boot ball and surrounding soil.



**Mulching**

1. Grub out weeds or grasses from area to be mulched.
2. Spread 1-3 inches of compost on entire planting bed, or in rings extending at least 3 feet from trunk of individual trees. When applying thicker than 2 inches, use coarse grade compost, or a mix of compost with bark or wood chip.
3. Keep mulch 4-6 inches from plant stems or trunks.

**NOTE: DO NOT CULTIVATE OR WORK ON WET SOIL, TO AVOID COMPACTION**



Compost Test Results Submittal Checklist			Check Pass or Fail
	General Compost	Bioretention Compost	
<b>pH</b>		6.0-8.5	
<b>Physical Contaminants<sup>1</sup></b>		<1%	
	Plastic film	<0.1%	
<b>Organic Matter<sup>2</sup></b>		>40%	
<b>Maturity<sup>3</sup></b>		>80%	
<b>Stabiity<sup>4</sup></b>		<7 mg CO <sub>2</sub> /g OM/day	
<b>Soluble Salts (EC)</b>		<4.0 mmhos/cm	
<b>Additional WAC 173-350 Requirements</b>			
Metals: As, Cd, Cu, Hg, Mo, Pb, Se, Zn		Pass WAC limits	
Pathogens: Fecal coliform OR Salmonella		Pass WAC limits	
<b>Fine Compost</b>			
Passing 1" sieve		99-100%	
Passing 5/8" sieve		85-100%	
Passing 1/4" sieve		75-100%	
Maximum length		4"	
Carbon:Nitrogen <sup>5</sup>		<25:1	
<b>Medium Compost</b>			
Passing 1" sieve		99%	
Passing 5/8" sieve		85-100%	
Passing 1/4" sieve		70-85%	
Maximum length		4"	
Carbon:Nitrogen		18-35:1	
<b>Coarse Compost</b>			
Passing 2" sieve		99%	
Passing 1" sieve		99-100%	
Passing 5/8" sieve		70-100%	
Passing 1/4" sieve		40-60%	
Maximum length		6"	
Carbon:Nitrogen		25-35:1	
<b>Feedstocks</b>			
Yard debris, crop residue or clean wood	>65%	>65%	
Post-consumer food waste OR biosolids	<35% OR <50%	<35% food, 0% biosolids	
King County origin	>51%	>51%	

1. Physical Contaminants limited to <1% by weight (combined) include textiles, metal, glass, ceramics, solid and film plastic. Plastic film is further limited to 0.1% because due to its lighter weight small amounts are highly visible.  
 2. Organic Content of dry compost is usually 40-65% by weight. A small volume of denser minerals are 35-60%.  
 3. Maturity compares germination and vigor of seedlings irrigated vs compost extract to seedlings in distilled water.  
 4. Stability indicates if compost is actively decomposing. Ratings of "moderately unstable" or "stable" are acceptable. "Unstabel" compost can create malodors or inhibit plant growth, and is not acceptable.  
 5. Carbon:Nitrogen is the ratio of undecomposed wood to succulent material that may be undecomposed.  
**All tests must be conducted by a Seal of Testing Assurance (STA) certified laboratory, using Testing Methods for Examination of Composting and Compost (TMECC).**

**Note:** Compost suppliers may provide test results in different formats. However all can provide reports with the information highlighted on these pages, upon request.



Phone: 206-679-7615

Product Name: \_\_\_\_\_  
 Sample Date: 25-Aug-20  
 Laboratory ID: C20-824

### COMPOST TECHNICAL DATA SHEET

Laboratory: **SOILTEST farm consultants**; 2925 Driggs Dr.; Moses Lake, WA 98837; tel. 509-765-1622 fax. 509-765-0314

The labels on this test result identify the corresponding section of the Compost Test Results Submittal Checklist on page 14.

- Corresponds to Organic Matter.
- Corresponds to pH.
- Corresponds to Stability
- Corresponds to Maturity
- Corresponds to Pathogens: Fecal coliform OR Salmonella
- Corresponds to Metals: As, Cd, Cu, Hg, Mo, Pb, Se, Zn

Compost Parameters	Reported as (units of measure)	Test Results	Test Results
Plant Nutrients:	%, weight basis	%, wet weight basis	%, dry weight basis
Nitrogen	Total N	Not Reported	Not Reported
Phosphorus	P <sub>2</sub> O <sub>5</sub>	Not Reported	Not Reported
Potassium	K <sub>2</sub> O	Not Reported	Not Reported
Calcium	Ca	Not Reported	Not Reported
Magnesium	Mg	Not Reported	Not Reported
Moisture Content	%, wet weight basis	24.4	
Organic Matter Content	%, dry weight basis	47.4	
Corresponds to pH.	pH units	7.4	
Soluble Salts (electrical conductivity EC <sub>5</sub> )	dS/m (mmhos/cm)	3.06	
Particle Size	% < 9.5 mm (3/8 in.), dw basis	91.1	
Stability Indicator (respirometry)		Stability Rating	
CO <sub>2</sub> Evolution	mg CO <sub>2</sub> -C/g OM/day	2.5	Stable
	mg CO <sub>2</sub> -C/g TS/day	2.3	
Maturity Indicator (bioassay)			
Percent Emergence	average % of control	100	
Relative Seedling Vigor	average % of control	95	
Corresponds to Pathogens: Fecal coliform OR Salmonella	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.32(a)	Pass	Salmonella
Trace Metals	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.13, Tables 1 and 3.	Pass	As,Cd,Cr,Cu,Pb,Hg, Mo,Ni,Se,Zn

Participants in the US Composting Council's Seal of Testing Assurance Program have shown the commitment to test their compost products on a prescribed basis and provide this data, along with compost end use instructions, as a means to better serve the needs of their compost customers.

Date Received: 26-Aug-20 Date Reported: 7-Sep-20  
 Laboratory QA/QC: Brent Thyssen, CPSSC brent@soiltestlab.com www.soiltestlab.com



The labels on this test result identify the corresponding section of the Compost Test Results Submittal Checklist on page 14.

Corresponds to Fine, Medium and Coarse Compost.



Corresponds to pH.

Corresponds to Physical Contaminants.

Corresponds to Organic Matter.

Corresponds to Soluble Salts.

Corresponds to Maturity.

 		<b>US COMPOSTING COUNCIL</b> <small>United States of America</small>		<b>Washington State Department of Transportation</b>		
		<i>Product Identification:</i>				
		Date Sampled/Received: 26-Aug-20				
<b>Compost Technical Data Sheet for Washington State DOT Projects</b>						
LABORATORY:		Soiltest Farm Consultants 2925 Driggs Dr, Moses Lake, Wa. 98837 509-765-1622				
Compost Parameters		Specification Requirements			Test Results	
		% dry weight passing through			% dry weight passing	
<b>Size Classification</b>		<b>Sieve Size</b>	<b>Fine</b>	<b>Medium</b>	<b>Coarse</b>	<b>Sieve Size</b>
TMECC 02.02-B		2"			100	2"
		1"	99-100	100	80 - 100	1"
		3/4"			70 - 100	3/4"
		5/8"	90-100	85-100		5/8"
		1/4"	75-100	70 - 85	40 - 60	1/4"
						<b>100</b>
						<b>100</b>
						<b>100</b>
						<b>84</b>
<b>Maximum Particle Length =</b>		4"		6"		<b>Pass</b>
<b>Carbon to Nitrogen Ratio (C:N)</b>		18:1 - 35:1		25:1 - 35:1		<b>13</b>
Total Carbon TMECC 04.01A						27.1
Total Nitrogen TMECC 04.02D						2.06
<b>pH</b>		6.0 min. and 8.5 max.			<b>7.4</b>	
TMECC 04.11-A 1:5 slurry						
<b>Physical Contaminants</b>		less than 0.5			<b>0.1</b>	
TMECC 03.08-A % dry weight basis						
<b>Organic Matter Content</b>		40 min.			<b>47.4</b>	
TMECC 05.07 A Loss-on-Ignition % dry weight basis						
<b>Soluble Salts</b>		4.0 max.			<b>3.1</b>	
TMECC 04.10-A 1:5 Slurry dS/m (mmohs/cm)						
<b>Maturity Indicator</b>		Germination: 80% or greater			<b>Germination: 100</b>	
TMECC 05.05 A Cucumber Bioassay % average of control		Vigor: 80% or greater			<b>Vigor: 95</b>	
<b>Stability Indicator</b>		7 or below mg CO <sub>2</sub> -C/g OM/day			<b>2.5</b>	
TMECC 05.08-B Carbon Dioxide Evolution Rate						
<i>"This compost product has been sampled and tested by the Seal of Testing Assurance Program of the United States Composting Council (USCC), using certain methods from the Test Methods for the Examination of Compost and Composting Manual. Test results are available upon request by contacting the compost producer (address at top of page). The USCC makes no warranties regarding this product or its content, quality, or suitability for any particular use."</i>						
Laboratory Number: C20-824		Date Reported: 9/7/2020				
Analyst: Brent Thyssen, CPSSc		<a href="mailto:brent@soiltestlab.com">brent@soiltestlab.com</a>				

## COMPOST-BASED EROSION CONTROLS

### Compost-Based Erosion Controls Approved on USEPA Menu

#### Compost Filter Socks Replace:

- Bio bags
- Waddles / fiber rolls
- Ditch Checks
- Storm drain inserts
- Reinforced silt fence

#### Seed Injected Blankets Replace:

- Hydroseeding
- Hydroseeding with straw mulch
- Bonded fiber matrix

#### Compost Berms Replace:

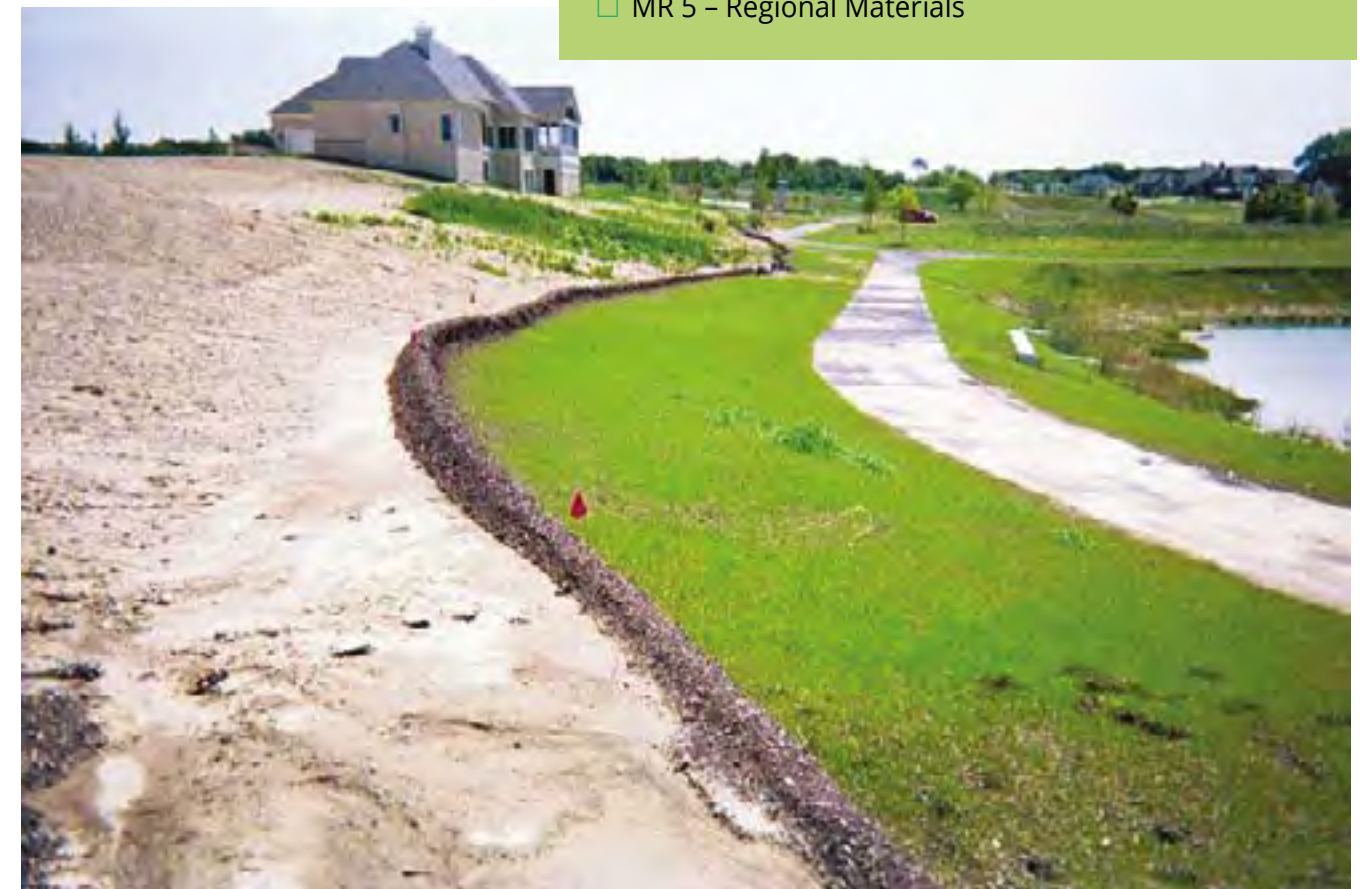
- Silt Fence
- Straw bales
- Waddles / fiber rolls
- Other synthetic barriers

#### Compost Blankets Replace:

- Jute netting / blankets
- Wood fiber blankets
- Straw mulch / blankets
- Coconut Fiber blankets / netting
- Plastic netting / mesh
- Synthetic fiber with netting
- Bonded synthetic fibers

#### LEED Credits from Compost Based Erosion Controls:

- Prerequisite 1 – Construction Activity Pollution Prevention
- SS 6.1 – Stormwater Quantity
- SS 6.2 – Stormwater Quality
- MR 4 – Recycled Materials
- MR 5 – Regional Materials



**D.2.1.3.5 COMPOST BERMS**

Code: COBE Symbol:

**Purpose**

1. Compost berms are an option to meet the requirements of perimeter protection.
2. Compost berms may reduce the transport of sediment from a construction site by providing a temporary physical barrier to sediment and reducing the runoff velocities of overland flow
3. Compost berms trap sediment by filtering water passing through the berm and allowing water to pond, creating a settling area for solids behind the berm.
4. Organic materials in the compost can also reduce concentrations of metals and petroleum hydrocarbons from construction runoff.
5. Due to the increase in phosphorous seen in the effluent data from compost berms, they should be used with some cautions in areas that drain to phosphorus sensitive water bodies, and should only be used in Sensitive Lake watersheds, such as Lake Sammamish, with the approval from the County or the local jurisdiction.

**Conditions of Use**

1. Compost berms may be used in most areas requiring sediment or erosion control where runoff is in the form of sheet flow or in areas where silt fence is normally considered acceptable. Compost berms may be used in areas where migration of aquatic life such as turtles and salamanders are impeded by the use of silt fence.
2. Compost berms are not intended to treat concentrated flows, nor are they intended to treat substantial amounts of overland flow. Any concentrated flows must be conveyed via a drainage system to a sediment pond or trap. For purposes of long-term sediment control objectives, berms may be seeded at the time of installation to create an additional vegetated filtering component.

Slope	Slope	Maximum Slope Length or Berm Spacing (linear feet)	Berm Size Required (height x base width)
0% - 2%	Flatter than 50:1	250	1 ft x 2 ft
2% - 10%	50:1 – 10:1	125	1 ft x 2 ft
10% - 20%	10:1 – 5:1	100	1 ft x 2 ft
20% - 33%	5:1 – 3:1	75	1 ft x 2 ft

**Design and Installation Specifications**

1. Compost berms shall be applied using a pneumatic blower device or equivalent, to produce a uniform cross-section and berm density.
2. Compost berms shall be triangular in cross-section. The ratio of base to height dimensions shall be 2:1.
3. The minimum size of a compost berm is a 2-foot base with a 1-foot height.
4. Compost berms shall be sized and spaced as indicated in the table below.
5. Compost shall meet criteria in Reference 11-C of the of King County’s Surface Water Design Manual except for the particle size distribution (see Bullet 8).
6. Compost shall be obtained from a supplier meeting the requirements in Reference 11-C.
7. Compost particle size distribution shall be as follows: 99% passing a 1-inch sieve, 90% passing a 3/4 inch sieve and a minimum of 70% greater than the 3/8 inch sieve. A total of 98% shall not exceed 3 inches in length.
8. Berms shall be placed on level contours to assist in dissipating flow into sheet flow rather than concentrated flows. Berms shall not be constructed to concentrate runoff or channel water. Sheet flow of water shall be perpendicular to the berm at impact. No concentrated flow shall be directed towards compost berms.
9. Where possible, berms shall be placed 5 feet or more from the toe of slopes to allow space for sediment deposition and collection.
10. In order to prevent water from flowing around the ends of the berms, the ends of the berm shall be constructed pointing upslope, so the ends are at a higher elevation than the rest of the berm.
11. A compost blanket extending 10–15 feet above the berm is recommended where the surface above the berm is rutted or uneven, to reduce concentrated flow and promote sheet flow into the berm.

**Maintenance Standards**

1. Compost berms shall be regularly inspected to make sure they retain their shape and allow adequate flow-through of stormwater.
2. When construction is completed on site, the berms shall be dispersed for incorporation into the soil or left on top of the site for final seeding to occur.
3. Any damage to berms must be repaired immediately. Damage includes flattening, compacting, rills, eroded areas due to overtopping.
4. If concentrated flows are evident uphill of the berm, the flows must be intercepted and conveyed to a sediment trap or pond.
5. The uphill side of the berm shall be inspected for signs of the berm clogging and acting as a barrier to flows and causing channelization of flows parallel to the berm. If this occurs, replace the berm or remove the trapped sediment.
6. Sediment that collects behind the berm must be removed when the sediment is more than 6 inches deep.



### D.2.1.3.6 COMPOST SOCKS

Code: COSO Symbol:

#### Purpose

1. Compost socks reduce the transport of sediment from a construction site by providing a temporary physical barrier to sediment-laden water and reducing the runoff velocities of overland flow.
2. Compost socks trap sediment by filtering water that passes through the sock and allows water to pond behind the sock, creating a settling area for solids.
3. Organic materials in the compost also may reduce metal and petroleum hydrocarbon concentrations in construction runoff.
4. Compost socks function similarly to compost berms; however, because the compost is contained in a mesh tube, they are appropriate for both concentrated flow and sheet flow.
5. Compost socks may be used to channel concentrated flow on hard surfaces.

#### Conditions of Use

1. Compost socks may be used in areas requiring sediment or erosion control where runoff is in the form of sheet flow or in areas that silt fence is normally considered acceptable. Compost socks may also be used in sensitive environmental areas where migration of aquatic life, including turtles, salamanders and other aquatic life may be impeded by the used of silt fence.
2. Compost socks are not intended to treat substantial amounts of overland flow. However, compost socks may be subjected to some ponding and concentrated flows. If intended primarily as a filtration device, the socks should be sized and placed so that flows do not overtop the socks.
3. For purposes of long-term sediment control objectives, compost socks may be seeded at the time of installation to create an additional vegetated filtering component.

#### Design and Installation Specifications

1. Compost socks shall be produced using a pneumatic blower hose or equivalent to fill a mesh tube with compost to create a uniform cross-section and berm density.
2. Socks shall be filled so they are firmly packed yet flexible. Upon initial filling, the socks shall be filled to have a round cross-section. Once placed on the ground, it is recommended to apply weight to the sock to improve contact with the underlying surface. This may cause the sock to assume an oval shape.
3. Compost socks shall be a minimum of 8 inches in diameter. Larger diameter socks are recommended for areas where ponding is expected behind the sock.
4. Compost socks shall not be used on slopes greater than 2H:1V.
5. Compost shall meet criteria in Reference 11-C of the SWDM, except for the particle size distribution (see Bullet 7).
6. Compost shall be obtained from a supplier meeting the requirements in Reference 11-C.
7. Compost particle size distribution shall be as follows: 99% passing a 1 inch sieve, 90% passing a 3/4 inch sieve and a minimum of 70% greater than the 3/8 inch sieve. A total of 98% shall not exceed 3 inches in length.
8. In order to prevent water from flowing around the ends of compost socks, the ends must be pointed upslope so the ends of the socks are at a higher elevation than the remainder of the sock.

#### Maintenance Standards

1. Compost socks shall be regularly inspected to make sure the mesh tube remains undamaged, the socks retain their shape, and allow adequate flow through of surface water. If the mesh tube is torn, it shall be repaired using twine, zip-ties, or wire. Large sections of damaged socks must be replaced. Any damage must be repaired immediately upon discovery of damage.
2. When the sock is no longer needed, the socks shall be cut open and the compost dispersed to be incorporated into the soil or left on top of the soil for final seeding to occur. The mesh material must be disposed of properly as solid waste. If spills of oil, antifreeze, hydraulic fluid, or other equipment fluids have occurred that have saturated the sock, the compost must be disposed of properly as a waste. Sediment must be removed when sediment accumulations are within 3 inches of the top of the sock.



#### Compost Socks & Berms Advantages Over Silt Fence

- No trenching required. Easy to place anywhere.
- Superior sediment filtration, without clogging.
- Trap nutrients and chemical contaminants.
- High flow-through rates reduce wash-outs.
- Wildlife friendly.
- Minimal disposal costs. Biodegradable sock option.
- Compost reusable on-site as soil amendment to comply with Soil Quality and Depth BMP.



### D.2.1.2.2 MULCHING

Code: MU Symbol:

#### Purpose

1. The purpose of mulching soils is to provide immediate temporary protection from erosion.
2. Mulch also enhances plant establishment by conserving moisture, holding fertilizer, seed, and topsoil in place, and moderating soil temperatures.
3. There is an enormous variety of mulches that may be used. Only the most common types are discussed in this section.

#### Conditions of Use

As a temporary cover measure, mulch should be used:

1. On disturbed areas that require cover measures for less than 30 days
2. As a cover for seed during the wet season and during the hot summer months
3. During the wet season on slopes steeper than 3H:1V with more than 10 feet of vertical relief.

#### Design and Installation Specifications

For mulch materials, application rates, and specifications, see Table D.2.1.2.A. *Note: Thicknesses may be increased for disturbed areas in or near critical areas or other areas highly susceptible to erosion.*

#### Maintenance Standards

1. 2. The thickness of the cover must be maintained.

Any areas that experience erosion shall be remulched and/or protected with a net or blanket. If the erosion problem is drainage related, then the drainage problem shall be assessed and alternate drainage such as interceptor swales may be needed to fix the problem and the eroded area remulched.



**Compost Blanket Advantages vs. Fiber Blankets:**

- Can be blown onto up to 1:1 slopes.
- Easy to apply on rough or uneven terrain.
- Low installation cost.
- Absorb large volume of water before runoff.
- Speed seed germination and plant growth.
- 100% ground contact provides superior soil protection and runoff filtration.
- Compost used to meet Soil Quality & Depth BMP.
- Traps and degrades chemicals and nutrients.
- 100% recycled material.

TABLE D.2.1.2.A. MULCH STANDARDS AND GUIDELINES			
Mulch Material	Quality Standards	Application Rates	Remarks
Compost	No visible water or dust during handling. Must be purchased from supplier with Solid Waste Handling Permit.	2" thick min.; approx. 100 tons per acre (approx. 1.5 cubic feet per square yard)	More effective control can be obtained by increasing thickness to 3" (2.25 cubic feet per square yard). Excellent mulch for protecting final grades until landscaping because it can be directly seeded or tilled into soil as an amendment. Compost may not be used in Sensitive Lake basins unless analysis of the compost shows no phosphorous release.

### RESOURCES

**King County CompostWise Program** develops and supports regional markets for materials and products made from organic waste. Through its technical assistance program and resources, it helps regional public agencies purchase and apply food and yard waste compost. For more information on composting in King County, check out "[Compost More. Waste Less.](http://kingcounty.gov/compostwise)" [kingcounty.gov/compostwise](http://kingcounty.gov/compostwise)

**King County Loop Biosolids** manages the distribution and use of Loop®, the name for the nutrient-rich organic biosolids product created by recycling the poop in the County's wastewater. [www.kingcounty.gov/services/environment/wastewater/resource-recovery/loop-biosolids.aspx](http://www.kingcounty.gov/services/environment/wastewater/resource-recovery/loop-biosolids.aspx)

**Washington Organic Recycling Council** supports—via education, research, and advocacy—public and private efforts to reclaim, reuse, and recycle organic materials, process organic materials in an environmentally and economically sustainable manner, and promote beneficial end uses. [www.compostwashington.org](http://www.compostwashington.org)

**U.S. Composting Council** advances compost manufacturing, compost utilization, and organics recycling to benefit our members, society, and the environment. [www.compostingcouncil.org](http://www.compostingcouncil.org)



**Do you have further questions on compost?**  
Reach out to King County's CompostWise Program at [compost@kingcounty.gov](mailto:compost@kingcounty.gov).



Alternative Formats On Request  
206-477-4466 • TTY Relay: 711

CompostWise



GUIDANCE ON PROCURING  
AND APPLYING COMPOST



**King County**

Department of  
Natural Resources and Parks  
**Solid Waste Division**