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Erosion Control Alternatives Cost Calculator



This Cost Calculator is designed to help landscaping and construction companies estimate the cost of using environmentally beneficial compost filter berms or compost filter socks for erosion control, rather than conventional silt fences. The Cost Calculator demonstrates that environmentally preferable erosion control methods are very cost competitive for all project sizes and durations, and that they offer significant savings for projects that run for more than a few months.

Based on the size and duration of the project, the Cost Calculator tab estimates cost for the three most common erosion control methods (compost filter berms, compost filter socks, and silt fences). To use the Cost Calculator, enter the linear feet of erosion control that you need, the estimated duration of the project for which you need erosion control, and whether or not you will be removing the compost after the project into the blue "Input" boxes at the top of the worksheet. This is the only information that you need to provide to use the calculator. There is no disposal cost for compost filter berms because the compost does not require disposal. For compost filter socks, there is no disposal cost for the compost, but the mesh sock itself does need to be disposed of in most cases.

In the Cost Data tab, EPA provides national averages of costs for each of the erosion control options. Cost data collected from sources dated before 2006 are adjusted for inflation. If you prefer, you can substitute your own cost data into the green cells. If you have a single cost estimate instead of a range, input it in both the Low Cost Estimate and High Cost Estimate cells.

The EHS Benefits tab provides a summary of the environmental, health and safety benefits of using compost filter berms or compost filter socks instead of silt fences.

The Materials and Installation Cost tab lists all the data and sources used to develop an initial cost for the three methods of erosion control. If the source estimates a range of costs, the low value in the range was entered into the "Low Estimates" field and the high value in the range was entered into the "High Estimates" field. If the source provides a single point estimate, that estimate was entered into both the "Low Estimate" and "High Estimate" fields.

Note that this Cost Calculator does not address costs associated with any local requirements concerning the use of silt fencing. Certain localities, including parts of Massachusetts and Pennsylvania, require silt fencing to be installed in combination with straw bales or chain link fences, to improve their strength. In the Southwest, many consumers purchase higher grade silt fencing that is more resistant to intense sunlight. In these areas, silt fencing costs are significantly higher than the costs displayed in this calculator.

Please direct any questions or comments on this cost calculator to: Jean Schwab, U.S. EPA GreenScapes Program Manager, schwab.jean@epa.gov or 703-308-8669.



Erosion Control Alternatives Cost Calculator



Input

Lenth of Erosion Control (Linear Feet)	400
Duration of Project (Months)	6
Would Compost be Removed from Site? (usually not required)	no

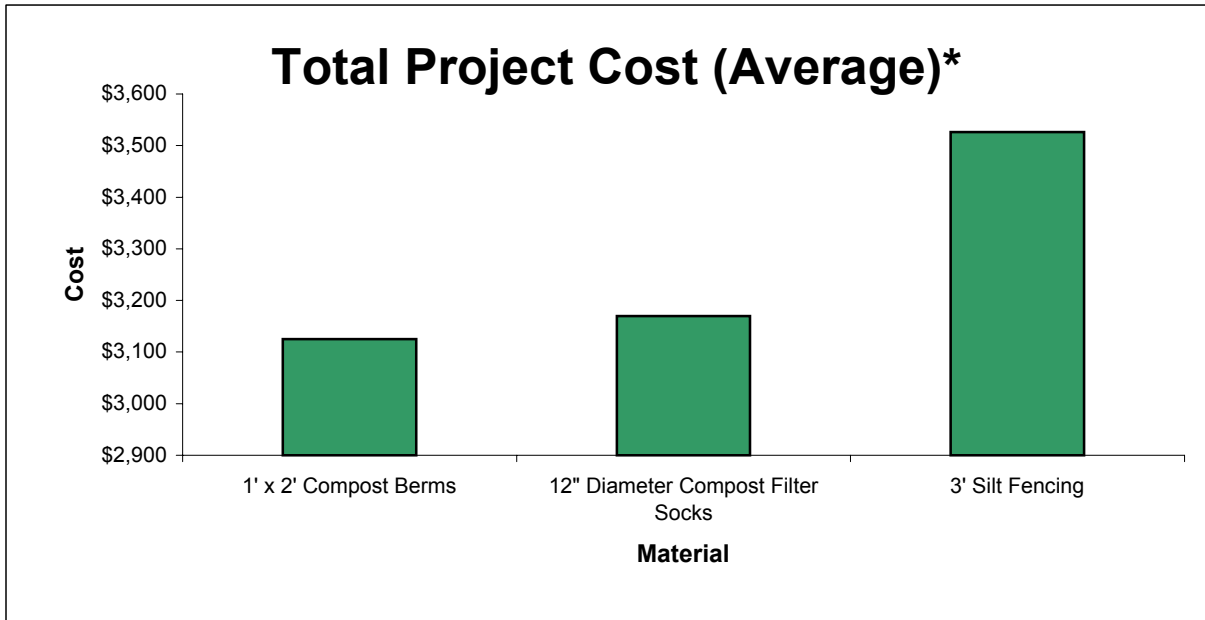
1' x 2' Compost Berms	Low Cost Estimate	High Cost Estimate
Materials and Installation Cost	\$1,044	\$1,260
Regular Inspection and Sediment Removal Cost	\$1,800	\$1,800
Repair and Replacement Cost	\$157	\$189
Compost Removal Cost	\$0	\$0
Total Cost	\$3,001	\$3,249

12" Diameter Compost Filter Socks	Low Cost Estimate	High Cost Estimate
Materials and Installation Cost	\$1,200	\$1,400
Regular Inspection and Sediment Removal Cost	\$1,800	\$1,800
Repair and Replacement Cost	\$54	\$54
Sock Removal and Disposal Cost	\$16	\$16
Compost Removal Cost	\$0	\$0
Total Cost	\$3,070	\$3,270

3' Silt Fencing	Low Cost Estimate	High Cost Estimate
Materials and Installation Cost	\$836	\$1,156
Regular Inspection and Sediment Removal Cost	\$1,800	\$1,800
Repair and Replacement Cost	\$418	\$578
Removal and Disposal Cost	\$144	\$321
Total Cost	\$3,198	\$3,855

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Erosion Control Cost Graph



*This graph is generated using the average of the high and low cost estimates for each material.

Averages of Highs and Lows

Berms	\$3,125
Socks	\$3,170
Fences	\$3,527

Erosion Control Alternatives Cost Data



1' x 2' Compost Berms	Units	Low Cost Estimate	High Cost Estimate	Sources	Comments
Materials and Installation Cost	\$/Lin. Ft.	\$2.61	\$3.15	See additional "Materials and Installation Cost" worksheet.	These values reflect averages of many data sources.
Inspection Cost (Projects < 1200 LF)	\$/Month	\$300.00	\$300.00	Rob Carrothers. Soil Tek of Mid America, Inc. Personal communication August 4, 2006	
Inspection Cost (Projects 1200-4999 LF)	\$/Month	\$400.00	\$400.00	Rob Carrothers. Soil Tek of Mid America, Inc. Personal communication August 4, 2006	
Inspection Cost (Projects 5000+ LF)	\$/Month	\$550.00	\$550.00	Rob Carrothers. Soil Tek of Mid America, Inc. Personal communication August 4, 2006	
Repair and Replacement Cost	% of Initial Cost/Year	30%	30%	Rob Carrothers. Soil Tek of Mid America, Inc. Personal communication August 4, 2006	Mr. Carrothers stated that he expects to pay 30% of the installation cost per year for maintenance and repair.
Compost Removal Cost	\$/Lin. Ft.	\$0.06	\$0.06	Data provided by Jason Giles. Rexius, Inc. August 3, 2006.	Mr. Giles stated that the average wage is \$35/hour and 1 worker can remove 600 linear feet in 1 hour.

12" Diameter Compost Filter Socks	Units	Low Cost Estimate	High Cost Estimate	Sources	Comments
Materials and Installation Cost	\$/Lin. Ft.	\$3.00	\$3.50	See additional "Materials and Installation Cost" worksheet.	These values reflect averages of many data sources.
Inspection Cost (Projects < 1200 LF)	\$/Month	\$300.00	\$300.00	Rob Carrothers. Soil Tek of Mid America, Inc. Personal communication August 4, 2006	
Inspection Cost (Projects 1200-4999 LF)	\$/Month	\$400.00	\$400.00	Rob Carrothers. Soil Tek of Mid America, Inc. Personal communication August 4, 2006	
Inspection Cost (Projects 5000+ LF)	\$/Month	\$550.00	\$550.00	Rob Carrothers. Soil Tek of Mid America, Inc. Personal communication August 4, 2006	
Repair and Replacement Cost	\$/Lin. Ft./Year	\$0.27	\$0.27	Data provided by Jared Taylor, Denbow Transport Ltd. July 31, 2006.	This cost was given in CAD/linear meter/6 months and was converted into USD/linear foot/year.
Sock Removal Cost	\$/Lin. Ft.	\$0.04	\$0.04	Data provided by Rod Tyler. Filtrexx International, LLC. July 27, 2006.	Mr. Tyler stated that each 27' sock could be removed in 2 minutes. A \$35/hour cost for labor was used.
Compost Removal Cost	\$/Lin. Ft.	\$0.06	\$0.06	Data provided by Rod Tyler. Filtrexx International, LLC. July 27, 2006.	Mr. Tyler stated that the cost of removal of a compost sock would be equal to that of a compost berm once the sock was removed.

3' Silt Fencing	Units	Low Cost Estimate	High Cost Estimate	Sources	Comments
Materials and Installation Cost	\$/Lin. Ft.	\$2.09	\$2.89	See additional "Materials and Installation Cost" worksheet.	These values reflect averages of many data sources.
Inspection Cost (Projects < 1200 LF)	\$/Month	\$300.00	\$300.00	Rob Carrothers. Soil Tek of Mid America, Inc. Personal communication August 4, 2006	
Inspection Cost (Projects 1200-4999 LF)	\$/Month	\$400.00	\$400.00	Rob Carrothers. Soil Tek of Mid America, Inc. Personal communication August 4, 2006	
Inspection Cost (Projects 5000+ LF)	\$/Month	\$550.00	\$550.00	Rob Carrothers. Soil Tek of Mid America, Inc. Personal communication August 4, 2006	
Repair and Replacement Cost	% of Initial Cost/Year	100%	100%	Lake, Donald W. "Appendix C Cost Analysis of Erosion and Sediment Control Practices." New York State Soil and Water Conservation Committee. Aug. 2005. < http://www.westchestergov.com/planningdocs/NYS%20Erosion%20Sediment%20Control%20Appendix%20C%20Cost%20Analysis.pdf >	This cost was verified by Rod Tyler, Filtrexx International, LLC. And Rob Carrothers, Soil Tech.
Removal and Disposal Cost	\$/Lin. Ft.	\$0.36	\$0.80	Low: Data provided by Jason Giles. Rexius, Inc. August 3, 2006. High: Tyler, Rod. "Controlling Erosion With Compost." Filtrexx. 2004 < http://syfrec.ifas.ufl.edu/compost/training/cd/050504/FORCE%205-04%20-%20Tyler.pdf >.	The high cost estimate comes from an EPA presentation which includes data indicating that removal for silt fences is \$0.50 per linear foot and disposal is \$0.25 per linear foot. These two values were summed for total removal and disposal cost per linear foot.

Inflation Adjustment Table	
One Dollar in...	Equals this many 2006 Dollars
2004	\$1.07
2005	\$1.04

Source: CPI Inflation Calculator. <<http://data.bls.gov/cgi-bin/cpicalc.pl>>



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Compost Berms			
Low Estimates	High Estimates	Sources	Comments
\$/LF	\$/LF		
\$2.12	\$2.12	Tyler, Rod, Stinson, Bill, and King, Wayne. "Erosion Control and Environmental Uses For Compost." Matrixx Organics Company. 4 April 2000 < http://www.p2pays.org/ref/11/10295.pdf >	Report states that materials cost \$0.80 per linear foot and installation costs \$1.00 per linear foot.
\$1.98	\$3.12	"Compost Filter Berms." EPA - Stormwater Menu of BMPs. U.S. Environmental Protection Agency. 22 May 2006 < http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=browse&Rbutton=detail&bmp=119 >.	
\$4.20	\$4.20	"National Management Measures to Control Nonpoint Source Pollution from Urban Areas." U.S. Environmental Protection Agency. Nov. 2005 < http://www.epa.gov/nps/urbanmm/pdf/urban_ch08.pdf >	
\$2.28	\$3.42	Keating, Janis. "Compost Coverage." Erosion Control Compost Coverage. Forester Communications, Inc. June 2001 < http://www.filtrexx.com/downloads/Compost%20Coverage.pdf >.	
\$2.68	\$3.21	Tyler, Rod, Stinson, Bill, and King, Wayne. "Erosion Control and Environmental Uses For Compost." Matrixx Organics Company. 4 April 2000 < http://www.p2pays.org/ref/11/10295.pdf > Alexander, Ron, Tyler, Rod, and Goldstein, Nora. "Increasing Dollar Value for Compost Products." Biocycle. Oct. 2004 < http://www.environmental-expert.com/resultteacharticle4.asp?cid=6042&code=4162 >.	This report states that one cubic yard of compost forms 20 linear feet of a filter berm. The report states that a cubic yard of compost installed as erosion control costs \$50-\$60 installed. This number was divided by 20 linear feet to extract the cost per linear foot.
\$3.00	\$3.00	Data provided by Ed Severance, Northeast Environmental Solutions. July 27, 2006.	
\$2.00	\$3.00	Saiz, Paul. Gold Leaf Group (landscaping contractor). Personal communication, July 20, 2006.	Mr. Saiz stated that the materials and installation cost for 1' x 2' berms is between \$2-3.
\$2.61	\$3.15	Average	

Compost Socks			
Low Estimates	High Estimates	Sources	Comments
\$/LF	\$/LF		
\$2.00	\$4.00	"Storm Water Virtual Trade Show Filtrexx SiltSoxx." EPA NE: Storm Water - Filtrexx SiltSoxx. U.S. Environmental Protection Agency. 3 March 2006. < http://www.epa.gov/NE/assistance/ceitts/stormwater/techs/filtrexxsiltsoxx.html >	
\$3.83	\$3.83	Data provided by Barrie Cogburn, Texas Department of Transportation. July 28, 2006.	
\$3.00	\$3.00	Data provided by Ed Severance, Northeast Environmental Solutions. July 27, 2006.	
\$2.18	\$2.69	Alexander, Ron, Tyler, Rod, and Goldstein, Nora. "Increasing Dollar Value for Compost Products." Biocycle. Oct. 2004 < http://www.environmental-expert.com/resultteacharticle4.asp?cid=6042&code=4162 >.	This article states that every 27 feet of compost sock contains one cubic yard of compost, which costs \$55-68.
\$4.00	\$4.00	Saiz, Paul. Gold Leaf Group (landscaping contractor). Personal communication, July 20, 2006.	Mr. Saiz stated that he installs 8" socks for \$2/lf, 12" socks for \$4/lf, and \$6/lf for 18" socks.
\$3.00	\$3.50	Average	

Silt Fencing		Low Estimates	High Estimates	Sources	Comments
		\$/LF	\$/LF		
		\$1.14	\$3.99	McCoy, Scott, and Cogburn, Barrie. "Texas Makes Inroads With Highway Use of Compost." <i>Biocycle: Journal of Composting and Recycling</i> 21 Feb. 2001 < http://www.tceq.org/assets/public/assistance/compost/texas_compost_on_highway.pdf >	
		\$1.50	\$2.50	Data provided by Jason Giles, Rexius, Inc. August 3, 2006.	
		\$3.66	\$4.88	Alexander, Ron. "Compost Markets Grow With Environmental Applications." <i>Biocycle</i> April 1999 < http://www.biocycle.net/BCArticles/1999/99044 >	
		\$2.14	\$2.68	Alexander, Ron, Tyler, Rod, and Goldstein, Nora. "Increasing Dollar Value for Compost Products." <i>Biocycle</i> , Oct. 2004 < http://www.environmental-expert.com/resulteacharticle4.asp?cid=6042&codi=4162 >.	
		\$2.14	\$2.14	Tyler, Rod. "Controlling Erosion With Compost." <i>Filtrexx</i> . 2004 < swfrec.ifas.ufl.edu/compost/training/cd/050504/FORCE%205-5-04%20-%20Tyler.pdf >.	
		\$2.34	\$2.34	Data provided by Barrie Cogburn, Texas Department of Transportation. July 28, 2006.	
		\$1.71	\$1.71	Tyler, Rod. "Compost Filter Berms and Blankets Take on the Silt Fence." <i>Biocycle</i> . Jan. 2001 < http://www.tceq.state.tx.us/assets/public/assistance/compost/compost_silt_fence.pdf >.	
		\$2.09	\$2.89	Average	

Inflation Adjustment Table	
One Dollar in...	Equals this many 2006
1998	\$1.24
1999	\$1.22
2000	\$1.18
2001	\$1.14
2002	\$1.13
2003	\$1.10
2004	\$1.07
2005	\$1.04

Source: *CPI Inflation Calculator*. <<http://data.bls.gov/cgi-bin/cpicalc.pl>>

Erosion Control Alternatives Environmental, Health and Safety Benefits

Using compost filter berms or compost filter socks instead of silt fences:

Reduces runoff and nonpoint source pollution because compost-containing erosion control products are more effective in reducing runoff volume and contamination. Compost-based erosion control methods remove an equal or greater volume of sediment from stormwater compared to silt fences. Moreover, using compost berms and socks improves downstream water quality by trapping and filtering pollutants found in stormwater (e.g., nitrogen and phosphorous from fertilizers, fuels and motor oil, herbicide and pesticide residues, and heavy metals).

Conserves water because compost-based products retains large quantities of water. Thus, reusing erosion control compost in the site's landscaping can reduce irrigation required at the site.

Improves soil quality and retards erosion because compost erosion control products retain large volumes of water and are therefore more effective in retarding erosion than silt fences. Also, compost improves soil structure and nutrient content, which reduces the need for chemical fertilizers.

Improves groundwater recharge because compost berms and socks retain water which ultimately percolates down to the water table.

Conserves fossil fuels because silt fences are typically made from virgin plastic, a petroleum-based product.

Reduces waste/demand for landfill space because unlike silt fences, compost beams do not have to be removed and discarded after use, and socks containing compost produce less waste than silt fences.

Reuses waste materials because compost is made from leaves, grass and other yard waste that would otherwise end up in a landfill. Reusing this material reduces pressure to build more landfills. Where waste is incinerated, reusing yard waste avoids energy used to incinerate wastes, and avoids air emissions from incineration.

Supports wildlife habitat because compost berms and socks allow animals to traverse land, whereas silt fences can impede wildlife movement. Also, if the compost is used as topsoil after project completion, the site may be better able to provide suitable wildlife habitat, and it may be better able to provide that habitat sooner.

Supports local ecology because if the compost is reused as topsoil after project completion, the site will be more easily vegetated.



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