

TRC Environmental Corporation
 150 N. Patrick Blvd, Suite 180
 Brookfield, WI 53045-5854
 Main 262.879.1212 Fax 262.879.1220

Memorandum

To: Door County Soil and Water Conservation Department

From: TRC Environmental Corporation

Subject: Phyto-Trench, Phosphorous Adsorbing Aggregate Option

Date: 2/24/2015

Project No.: 223803

The TRC Team would like to provide you with an additional option to the phyto-treatment trench system. This add-on option will ensure further phosphorous reduction, if needed or desired to reach aggressive goals. This entails the use of phosphorous adsorbing aggregate in the lower portions of the trench system.

Depending on the type of phosphorous adsorbing aggregate selected and the quantity, the following table provide unit costs for some of the recommended materials.

Product Characteristics of Phosphorus Adsorptive Material

Product	Manufacture	Bulk Density (lbs/ft ³)	Website	Price per Pound
Sorbitive™ Media	Imbrium, MD	42 to 52	http://www.imbriumsystems.com	\$1.70 to \$2.25
ACT MX®	ESFILTER™, UT	54	http://www.esfilter.com	\$0.07 to \$0.09
Expanded Clay (Haydite)	Hydraulic Press Brick Company, IN	40 to 60	http://www.escsi.org/membermap.aspx	\$0.04 to \$0.05

For a period of one to three years after a gravel trench comes on line, orthophosphate will adsorb onto the gravel. Once the majority of gravel adsorption sites are used up, a larger amount of phosphorous will be passing to the phosphorus adsorbing aggregate.

After several years, the phosphorus adsorbing aggregate should be replaced to maximize its effectiveness. We estimate that replacement would occur sometime between four to six years after installation, depending on the type of phosphorous adsorbing aggregate selected.

Collecting data on phosphorus levels at the trench endpoints on a semi-annual basis will provide useful monitoring about if and when the phosphorous break-through occurs. If detected, plans can be made for replacement of the phosphorous adsorbing aggregate.