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MASTEP Technology Review

Technology Name: Filterra Stormwater Bioretention Filtration System

Studies Reviewed: Yu, Shaw L and Richard L Stanford. 2006. Field Evaluation of the Filterra Stormwater Bioretention Filtration System. University of Virginia, Department of Civil Engineering.

Stanford, Richard. 2007. Additional Field Testing and Statistical Analysis of the Filterra Stormwater Bioretention Filtration System. ATR Associates, Strasburg VA.

Geosyntec Consultants 2006. Summary and Analysis of Filterra Lab-Scale Sil-Co-Sil Treatment Study.

Date: December 30, 2008

Reviewer: Sarah Titus, Jerry Schoen

Rating: 2

Brief rationale for rating:

Rating is primarily based on the Yu study, with some consideration of the addendum and the lab report. The field study was generally well run but fell short on the number of qualifying events once events with less than the 0.1" minimum required precipitation were removed. They sampled just under the minimum 15" of precipitation and fell far short on sampling 50% of the annual rainfall. In addition there was no analysis of PSD and TSS influent concentrations were much lower than the recommended 100-300mg/L range with a mean of 22.5. The addendum report analyzed combined results from the field study and an additional study which conducted 7 simulated rainfall events. Differences in methods and documentation are sufficient that these are better evaluated separately.

TARP Requirements Not Met*:

- TSS influent concentrations were much lower than the recommended levels.
- No documentation of a Quality Assurance Project Plan
- PSD was not analyzed in the field study.
- Too few qualifying events
- Captured just under the 15" rainfall minimum
- Captured much less than the required 50% of the annual rainfall

Other Comments

- Influent PSD analysis was conducted for the simulated events (d50 of 50 microns). Sil-Co-Sil used for the Geosyntec study had d50 of 19 microns.
- Estimated TSS removal for the combined field and simulated event studies was reported as 82%.
- Field study and simulated events both conducted with low influent TSS concentrations: 8 – 260 mg/l.
- TP removal for the simulated events was reported as 68.3%
- Field study generated 33.2% Copper and 39.5% TKN removal efficiency

* Criteria also based on NJDEP laboratory testing guidelines.