



## Clark County 2015 Stormwater Manual Implementation Summary of Procedure

This procedure statement documents discussions and decisions from Environmental Services, Community Development, Public Works and Prosecuting Attorney's office. Implementation of new stormwater regulations require staff to work through specific details of the regulations with applicants. The purpose is to ensure consistent application of county requirements. These procedure statements document decisions for future reference and will be kept on the [ClarkNet web page](#) (Environmental Services).

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**Procedure statement #2015-006 – April 12, 2016**

### **Emerging Technology Approval – Compost Amended Biofiltration Swale**

The CABS is a stormwater treatment BMP developed by Washington State Department of Transportation (WSDOT) and has been evaluated with approved protocols and requirements of the Washington State Department of Ecology (DOE) Technology Assessment Protocol (TAPE). The CABS has a Washington State Department of Ecology General Use Level Designation (GULD) for Basic Treatment (total suspended solids), a GULD for Enhanced Treatment (dissolved metals). The CABS has a Conditional Use Level Designation (CULD) for oil treatment. CABS is included in the WSDOT 2014 Highway Runoff Manual and is a top choice in WSDOT's BMP hierarchy.

See attached staff report for approved documentation.

# CLARK COUNTY

## Emerging Technology BMP Approval Request

**DATE:** April 4, 2016

**REQUESTED ACTION:** Add the Washington State Department of Transportation compost amended biofiltration swale (CABS) best management practice (BMP) to the list of emerging technology stormwater treatment BMPs accepted by the Clark County.

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### BACKGROUND

Section 3.4.7.2 of the Clark County Stormwater Manual (Book 1, page 140) allows for the Responsible Official to include the use of emerging technology Best Management Practices (BMPs) in Clark County that are not currently listed in the Clark County Stormwater Manual. The Department of Environmental Services and Public Works designed a process to review petitions to include emerging technology BMPs. The process calls for an Emerging Technology BMP review team to evaluate each petitioned emerging technology BMP and make its recommendations to the Responsible Official of Clark County on acceptance and any restrictions on its use.

The Emerging Technology BMP review team includes:

Clean Water Division:	Rod Swanson, Jeff Schnabel, and Chad Hoxeng
Public Works Road Operations Division:	Scott Wilson and Brandon Pilot
Public Works Design Section:	Ken Lader
Public Works Development Engineering Division:	Ali Safayi

Clark County received its first petitioned emerging technology BMP from Erik Larsen, P.E. at Gateway National Corporation. The petitioned emerging technology BMP is a compost amended biofiltration swale (CABS). The CABS is a modification of the long established biofiltration swale, where an additional compost amendment blanket that enhances plant cover, soil structure, infiltration rates, and increases pollution removal capabilities.

The CABS is a stormwater treatment BMP developed by Washington State Department of Transportation (WSDOT) and has been evaluated with approved protocols and requirements of the Washington State Department of Ecology (DOE) Technology Assessment Protocol (TAPE). The CABS has a Washington State Department of Ecology General Use Level Designation (GULD) for Basic Treatment (total suspended solids), a GULD for Enhanced Treatment (dissolved metals). The CABS has a Conditional Use Level Designation (CULD) for oil treatment. CABS is included in the WSDOT 2014 Highway Runoff Manual and is a top choice in WSDOT's BMP hierarchy.

### SUBMITTAL ATTACHMENTS

1. Petition LTR\_Emerging TechnologyCABS.pdf

This is the petition letter from Erik Larsen, P. E. sent March 8<sup>th</sup>, 2016. Included in this document is the description of CABS, use of CABS by WSDOT, approvals for CABS

from DOE, and addresses information the Responsible Official may consider as stated in section 3.4.7.2 of the Clark County Stormwater Manual.

2. CABS GULD General Use Enhanced. pdf  
GULD approval from DOE dated August 2013.
3. CABS maintenance WSDOT 2014 Highway Runoff Manual.pdf  
Maintenance standards for biofiltration swale Page 5-238-239 from the WSDOT 2014 Highway Runoff Manual. Ecology's Conditions of Use in the GULD/CULD state to design, install, operate, and maintain the compost-amended biofiltration swale to comply with the 2011 HRM and to follow any post publication updates to the HRM, the most current 2014 HRM (attached) is the correct one to use according to Ecology.
4. CABS LID RT04\_WSDOT 2014 Highway Runoff Manual.pdf  
Design criteria for biofiltration swale Page 5-46-58 from the WSDOT 2014 Highway Runoff Manual.
5. Compost-Amended Biofiltration Swale Evaluation\_WA-RD 793.1\_WSDOT Research Report.pdf  
Compost-Amended Biofiltration Swale Evaluation WSDOT publication number WA-RD-793.1. This document is a technical evaluation report on the compost-amended biofiltration swale, prepared by Herrera and based on results of the monitoring described above. The goal of this report is to demonstrate satisfactory performance of the compost-amended biofiltration swale for issuance of a GULD for basic, enhanced (dissolved metals removal) and oil treatment.

#### **EMERGING TECHNOLOGICAL BMP REVIEW TEAM CONCLUSION**

The Emerging Technology BMP review team assessed the following Clark County Stormwater Manual approval criteria to include CABS as an acceptable emerging technology:

Equivalence with the most current *Stormwater Management Manual for Western Washington* – Washington State Department of Ecology approval level:

- Ecology awarded a GULD for basic treatment (total suspended solids), and a GULD for enhanced treatment (dissolved metals). The CABS has a CULD for oil treatment.

Cost of maintenance – information describing the nature and frequency of maintenance actions and materials costs to predict maintenance costs, knowledge to maintain BMP, and capital costs for maintenance equipment:

- CABS have lower maintenance requirements and longer life expected than basic bioretention.
- WSDOT gives CABS an expected life up to 20 years.
- The CABS has been shown to improve vegetation growth, to increase plant mass of planted species, and to control the establishment of weeds which reduces and extends maintenance needs and cycles.
- Capital costs are low to moderate, and operations and maintenance are low to moderate.
- A maintenance defects table was provided that can be integrated into MMS.

Ease of access – degree of need for confined space entry. Equipment required to perform maintenance:

- Access is easy, no confined space entry is required, and only basic equipment is needed for maintenance and mowing.

Worker safety – the BMP’s typical location (e.g. street, tract, etc.), weights of components or materials to be lifted, and confined space concerns:

- The facility is an above ground surface facility. No worker safety issues are expected, if adequate access (e.g. for mowing) is provided to the facility.

Long-term serviceability – demonstrated track record of the manufacturer. Ramifications if the manufacturer goes out of business. The use of the BMP regionally or nationally:

- The CABS is a BMP initiated by WSDOT as a sustainable practice which is not proprietary and where all materials are readily available and can be installed and maintained similar to a biofiltration swale. Current published design life is up to 20 years and may be shown to be more with continuing monitoring and testing currently being conducted by WSDOT.

Sole source availability – replacement parts and media are available from more than one source:

- The CABS is not proprietary. Materials are soil, compost, and plantings, all readily available from multiple sources.

### EMERGING TECHNOLOGICAL BMP REVIEW TEAM RECOMENDATION

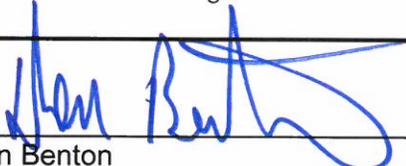
The Emerging Technology BMP review team recommends the use of CABS for stormwater treatment BMP under the following conditions:

- CABS need to meet Clark County design criteria for a biofiltration swale
- CABS cannot be less than 100 feet long
- CABS must be placed up stream of any stormwater detention or stormwater retention BMP
- No stormwater detention or stormwater retention BMP can discharge to CABS
- CABS cannot discharge runoff to phosphorous limited waterways
- Clark County will not consider CABS to be an LID best management practice

### DISTRIBUTION

County staff will post all staff reports to Clean Water Division Stormwater Code and Manual webpage under “Acceptable Emerging Technology Best Management Practices (BMPs)”.

<https://www.clark.wa.gov/environmental-services/stormwater-code-and-manual>



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Environmental Services Director



Dean Boening  
Clean Water Division Manager

APPROVED:   
Heath Henderson, P.E.  
Public Works Director

APPROVED:   
Mark McCauley  
Acting County Manager

DATE: 4/18/16

DATE: 4/20/16