

# CDOT DRAINAGE DESIGN MANUAL CONTROL MEASURE APPROVAL PROCESS

**Draft**

*prepared for*

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## 1.0 INTRODUCTION

PWQ CMs falling under the SAP categories of Retention Pond; PWQ Constructed Wetland; PWQ Inlet/Vault; and Porous Surface are only permitted with approval. PWQ CMs falling under the SAP category of Infiltration Facility that require approval include treatment swale, bioretention, porous landscape detention (PLD), biofiltration swale, and bioslope as shown in Table 1 below. These control measures may be used in limited circumstances with approval.

## 2.0 APPROVAL REQUIREMENTS

There are two general types of approvals, Region approval and Mitigation Pool Committee (MPC) approval. Region approval requires the approval of the Region Hydraulic Engineer, the Region Water Quality Specialist, and the Region Maintenance Superintendent. MPC approval requires the approval of the MPC in addition to Region approval. Region approval must be submitted to the MPC prior to the MPC granting approval. Approvals are more likely to be granted when a local agency has agreed to be responsible for completing maintenance operations on a regularly-scheduled basis via an IGA. The types of CMs requiring approval, their SAP category, and the type of approval required are shown in Table 1.

**Table 1. Control Measures Requiring Approval**

| <b>PWQ Control Measures</b> | <b>SAP Category</b>     | <b>SAP Abb.</b> | <b>Type of Approval</b> | <b>Typical Permit Design Standard</b> |
|-----------------------------|-------------------------|-----------------|-------------------------|---------------------------------------|
| Proprietary Structure       | PWQ Inlet/Vault         | IV              | Region                  | TSS                                   |
| Treatment Swale             | Infiltration Facility   | TS              | Region                  | Infiltration                          |
| Bioretention                | Infiltration Facility   | IF              | Region/MPC              | Infiltration                          |
| Porous Landscape Detention  | Infiltration Facility   | IF              | Region/MPC              | Infiltration                          |
| Bioslope                    | Infiltration Facility   | IF              | Region/MPC              | Infiltration                          |
| Biofiltration swale         | Infiltration Facility   | IF              | Region/MPC              | Infiltration                          |
| Constructed Wetlands        | PWQ Constructed Wetland | CW              | Region                  | WQCV                                  |
| Permeable Pavement          | Porous Surface          | PS              | Region/MPC              | Infiltration                          |
| Retention Pond              | Retention Pond          | RP              | Region/MPC              | WQCV                                  |
| New Technologies            | varies                  | N/A             | Region/MPC              | Varies                                |
| Treatment Trains            | varies                  | N/A             | Region/MPC              | Varies                                |

Detailed design of these types of CMs must be included in the approval request as described under each of the specific CM headings below. The design must clearly meet one of the three MS4 permit designed standards.

### 2.1 PROPRIETARY STRUCTURE

Region approval is required to construct a proprietary structure. The proprietary structure must have been tested and approved by programs from New Jersey or Washington in accordance with the Drainage Design Manual. An approval request must be submitted to the Region that indicates who will maintain the CM, a local agency or CDOT. Maintenance by a local agency is preferred and more likely to receive

approval. If a local agency will maintain the CM, an IGA must be in place for the approval to be granted. Regardless of who will maintain the CM, an easement or other legal means for CDOT to access the CM must also be in place. If CDOT will be maintaining the facility a cost-benefit analysis must be performed. The operation and maintenance manual must specify the type of filter(s) required, where they can be obtained, the approximate cost per filter, and the frequency for inspection and replacement. The approval must be signed by a Maintenance Superintendent, the Hydraulic Engineer, and the Water Quality Specialist.

## 2.2 TREATMENT SWALE/BIORETENTION/PLD/BIOSLOPES/BIOFILTRATION SWALE

Region and MPC approvals are required to construct treatment swales, bioretention, porous landscape detention, bioslopes, or biofiltration swales. An approval request must be submitted to the Region that indicates who will maintain the CM, a local agency or CDOT. Maintenance by a local agency is preferred and more likely to receive approval. If a local agency will maintain the CM, an IGA must be in place for the approval to be granted. Regardless of who will maintain the CM, an easement or other legal means for CDOT to access the CM must also be in place. If CDOT will be maintaining the facility a cost-benefit analysis must be performed. Regardless of who maintains the CM, the approval request must include detailed calculations clearly showing that the design meets one of the MS4 permit design standards and was developed using good engineering, hydrologic, and pollution control practices. The design must be detailed enough that the Region Hydraulic Engineer can evaluate the suitability of the design. Region approval requires acceptance by a Maintenance Superintendent, the Hydraulic Engineer, and the Water Quality Specialist. Once Region approval is received, it must be submitted to the MPC for final review and acceptance. The approval request submitted to the MPC must include the Region approval.

## 2.3 CONSTRUCTED WETLANDS

Region approval is required to install a constructed wetland. An approval request must be submitted to the Region that indicates who will maintain the CM, a local agency or CDOT. Maintenance by a local agency is preferred and more likely to receive approval. If a local agency will maintain the CM, an IGA must be in place for the approval to be granted. Regardless of who will maintain the CM, an easement or other legal means for CDOT to access the CM must also be in place. If CDOT will be maintaining the facility a cost-benefit analysis must be performed. Regardless of who maintains the CM, the approval request must include detailed calculations clearly showing that the design meets one of the MS4 permit design standards and was developed using good engineering, hydrologic, and pollution control practices. The design must be detailed enough that the Region Hydraulic Engineer can evaluate the suitability of the design. The approval request must demonstrate that the proposed wetlands will not be used for wetland mitigation and that the CM is not located in a water of the state. Region approval requires acceptance by a Maintenance Superintendent, the Hydraulic Engineer, and the Water Quality Specialist.

## 2.4 PERMEABLE PAVEMENT SYSTEMS

Region and MPC approvals are required to construct a permeable pavement system. An approval request must be submitted to the Region that indicates who will maintain the CM, a local agency or CDOT. Maintenance by a local agency is preferred and more likely to receive approval. If a local agency will maintain the CM, an IGA must be in place for the approval to be granted. Regardless of who will

maintain the CM, an easement or other legal means for CDOT to access the CM must also be in place. If CDOT will be maintaining the facility a cost-benefit analysis must be performed. Regardless of who maintains the CM, the approval request must include detailed calculations clearly showing that the design meets one of the MS4 permit design standards and was developed using good engineering, hydrologic, and pollution control practices. The design must be detailed enough that the Region Hydraulic Engineer can evaluate the suitability of the design. Region approval requires acceptance by a Maintenance Superintendent, the Hydraulic Engineer, and the Water Quality Specialist. Once Region approval is received, it must be submitted to the MPC for final review and acceptance. The approval request submitted to the MPC must include the Region approval.

## 2.5 RETENTION PONDS

Region and MPC approvals are required to construct a retention pond. An approval request must be submitted to the Region that indicates who will maintain the CM, a local agency or CDOT. Maintenance by a local agency is preferred and more likely to receive approval. If a local agency will maintain the CM, an IGA must be in place for the approval to be granted. Regardless of who will maintain the CM, an easement or other legal means for CDOT to access the CM must also be in place. If CDOT will be maintaining the facility a cost-benefit analysis must be performed. Regardless of who maintains the CM, the approval request must include detailed calculations clearly showing that the design meets one of the MS4 permit design standards and was developed using good engineering, hydrologic, and pollution control practices. The approval request must also include documentation that the facility has an augmentation plan or water right. The design must be detailed enough that the Region Hydraulic Engineer can evaluate the suitability of the design. Region approval requires acceptance by a Maintenance Superintendent, the Hydraulic Engineer, and the Water Quality Specialist. Once Region approval is received, it must be submitted to the MPC for final review and acceptance. The approval request submitted to the MPC must include the Region approval.

## 2.6 NEW AND INNOVATIVE TECHNOLOGIES

Region and MPC approvals are required to construct new or innovative technologies. These types of CMs must be approved through a pilot process. An approval request must be submitted to the Region that indicates who will maintain the CM, a local agency or CDOT. Maintenance by a local agency is preferred and more likely to receive approval. If a local agency will maintain the CM, an IGA must be in place for the approval to be granted. Regardless of who will maintain the CM, an easement or other legal means for CDOT to access the CM must also be in place. If CDOT will be maintaining the facility a cost-benefit analysis must be performed. Regardless of who maintains the CM, the approval request must include detailed calculations clearly showing that the design meets one of the MS4 permit design standards and was developed using good engineering, hydrologic, and pollution control practices. The design must be detailed enough that the Region Hydraulic Engineer can evaluate the suitability of the design.

The project team must also agree to prepare a report at the end of design and construction that documents whether the design and installation met expectations and whether there were unforeseen costs. A program to track the performance of the CM as well as maintenance requirements for the first several years must be established, reviewed, and accepted. All of the records from this program must be submitted to the PWQ Program Manager for evaluation by the MPC so that a decision can be made on future use of the technology. Region approval requires acceptance by a Maintenance Superintendent, the

Hydraulic Engineer, and the Water Quality Specialist. Once Region approval is received, it must be submitted to the MPC for final review and acceptance. The approval request submitted to the MPC must include the Region approval.

## 2.7 TREATMENT TRAINS

Region and MPC approvals are required to construct treatment trains that are designed to meet one of the MS4 permit design standards by combining multiple individual CMs in series. An approval request must be submitted to the Region that indicates who will maintain the CM, a local agency or CDOT. Maintenance by a local agency is preferred and more likely to receive approval. If a local agency will maintain the CM, an IGA must be in place for the approval to be granted. Regardless of who will maintain the CM, an easement or other legal means for CDOT to access the CM must also be in place. If CDOT will be maintaining the facility a cost-benefit analysis must be performed. Regardless of who maintains the CM, the approval request must include detailed calculations clearly showing that the design meets one of the MS4 permit design standards and was developed using good engineering, hydrologic, and pollution control practices. The design must be detailed enough that the Region Hydraulic Engineer can evaluate the suitability of the design. Region approval requires acceptance by a Maintenance Superintendent, the Hydraulic Engineer, and the Water Quality Specialist. Once Region approval is received, it must be submitted to the MPC for final review and acceptance. The approval request submitted to the MPC must include the Region approval.