

# **Guidelines for Preparing the Operations and Maintenance Manual**

## **Overview**

Pueblo County requires that an Operation and Maintenance (O & M) Manual be submitted for all private development and County-administered projects that contain a Permanent Stormwater Control Measure (PSCM) on the site. We can provide a template for your use in developing the O&M Manual. However, it is not all-inclusive. The engineer shall determine what is pertinent to the site, what should be changed, removed, or added. The final manual shall include a plan(s) that consist(s) of 11"x17" plan sheets – including all the necessary information for long-term maintenance of the site and shall generally conform to the guidelines that follow. Graphical elements included on the sheet(s) are to reflect As-Built Record Drawing information associated with the completed project. The O&M Manual and all appendixes will be recorded with the Pueblo County Clerk and Recorder at the owner's expense. It is imperative that the owner be aware of what is included in the submitted and subsequently recorded O&M Manual and Appendixes.

The following shall be used to *guide* the development of the O&M Manual and the incorporated plan(s). *Some items may not apply to all projects, and any unique features may warrant inclusion of additional information if pertinent to the anticipated maintenance of the site. If a stormwater management facility or water quality control feature is used that is not covered in the O & M template, you shall include spec sheets, maintenance guidelines, failure guidelines, etc. Add additional sections and appendixes to this O & M Manual as necessary. Update Table of Contents prior to submittal.*

## **Contents of Operation and Maintenance Manual**

### **Section 1: Description of Stormwater Facilities**

- Describe the stormwater facility in this section.

#### **Section 1.1: General Site Description**

- Describe the general location of the site. For example, list the address, legal description, acreage, zoning, etc.

#### **Section 1.2: General Stormwater Management Description**

- List how all on-site stormwater is conveyed

#### **Section 1.3: Stormwater Facilities Site Plan**

- Verify the appendix location is correct

#### **Section 1.4: On-Site Stormwater Management Facilities**

- List the different facilities for the site and where they are located. If a stormwater management facility or water quality control feature is used that is not covered in the O & M template, you shall include spec sheets, maintenance guidelines, failure guidelines, etc. Add additional sections and appendixes to this O & M Manual as necessary

### **Section 2: Stormwater Management Facility Operations and Maintenance (O&M) Manual**

#### **Section 2.1: Compliance with Stormwater Facility Maintenance Requirements**

- A maintenance agreement template is located in Appendix A. Replace the template with a signed and notarized agreement.

Section 2.2: Inspection & Maintenance – Annual Reporting

- Verify the appendix location is correct
- Ensure the owner understands the reporting requirements and frequency

Section 2.3: Preventative Measures to Reduce Maintenance Costs

- Review the section. Modify information as needed.

Section 2.4: Access and Easements

- Verify the appendix location is correct

Section 2.5 thru 2.8

- Review the section. Modify information as needed.

**Section 3: Standard Operating Procedures for Inspection and Maintenance for Detention Basins (PSCMs)**

- Review the section and add additional information as needed. Verify the appendixes locations are correct.

**Appendix A: Stormwater Facility Maintenance Agreement(s)**

- Remove reference to template
- Insert signed and notarized agreement(s)

**Appendix B: PSCM Owner Inspection Checklist and Maintenance Reporting Form**

- The form shall be reviewed and submitted by the property owner or property manager to PCPW prior to April 1<sup>st</sup> of each year.

**Appendix C: Maintenance Site Plan**

- Change the appendix name to reflect the sheet name
- Include the following information on the

**Contents of Maintenance Site Plan**

Project Information

1. General Information
  - a. Property Owner - Including contact number
  - b. Design Engineer- Including contact number
2. Hydraulic Information
  - a. Flow Rates – All applicable flow rates should be listed, e.g. base flow, design flow, any storm flows that were evaluated, etc. Detention facilities should include inflow and outflow rates.
  - b. Facility Description – Include additional design information for the facility, including volumes, water surface elevations, and surface types for forebays and micropools. *If a stormwater management facility or water quality control feature is used that is not covered in the O & M template, include spec sheets, maintenance guidelines, failure guidelines, etc.*
  - c. Outlet Type
  - d. WQCV Drain Time

3. Miscellaneous Information
  - a. Project Survey Information – Include survey control information and at least one on-site “Maintenance Control Point” established during construction for use during maintenance activities.
  - b. Seed Mix – to be used to assist in revegetation both during construction and after establishment of PSCM
  - c. Mow area – include area in acres and description of mow limits. This will assist the property owners/maintenance crews to know what the limits are, where to mow and not mow
  - d. Long Term Monitoring Requirements – If applicable, list monitoring requirements such as 404 Permit Reports or any other required monitoring. *If a stormwater management facility or water quality control feature is used that is not covered in the O & M template, include how and when to monitor the feature.*

#### Site Plan

1. Vicinity Map
2. Plan View – All major features of the facility should be labeled, including but not limited to the following:
  - a. Trickle Channel
  - b. Forebay, longest reach distance required from access road
  - c. Micropool, longest reach distance required from access road
  - d. Entrance Structure
  - e. Outlet Structure
  - f. Pumps
  - g. Any additional features note noted above
3. Special maintenance related information should be identified if applicable:
  - a. Maintenance Control Point location and elevation
  - b. Maintenance entrance / access road / gates / turnarounds – List applicable information such as road material, width, maximum grade, etc.
  - c. Power source
  - d. Weight-restricted areas
  - e. Wetland or natural areas to avoid
4. Hydraulic Profile
  - a. Major features
  - b. Permanent pool elevations
  - c. Other applicable water surface elevations
  - d. Flow direction
  - e. Shading identifying forebay and micropool sediment removal zones

#### Details

1. These should be relevant to the PSCM/BMP on site – Extended Detention Basin (EPSCM), Rain Garden/Porous Landscape Detention (PLD), Sand Filter Basin, etc.
  - a. Trickle Channel Section
  - b. Maintenance Road/Access
  - c. Inlet Structure(s)
  - d. Forebay Release Structure
  - e. Outlet Structure

### ***Submittal Requirements***

The Engineer shall submit:

- O & M Manual to include, but not limited to:
  - Stormwater Facility Maintenance Agreement(s)
  - PSCM Owner Inspection Checklist and Maintenance Reporting Form
  - Maintenance Site Plan (11"x17") Maintenance Site Plan

Any comments from PCPW shall be addressed by the Engineer until approval has been granted by the County. Once approval has been granted, the final submittal shall include:

- A complete O & M Manual to include, but not limited to:
  - Stormwater Facility Maintenance Agreement(s) – signed and notarized
  - PSCM Owner Inspection Checklist and Maintenance Reporting Form
  - Maintenance Site Plan (11"x17")
- As-Built Record Drawings of the site
- Flash Drive containing PDF of the complete O&M Manual and as-built Record Drawings. Information can be emailed to [stormwater@pueblocounty.us](mailto:stormwater@pueblocounty.us) in lieu of flash drive.