

# Water Quality Report Outline

The intent of this guide is not to limit the data to only the items listed, but to establish a minimum requirement consistent with required water quality design and reporting procedures. If circumstances are such that a water quality feature is sized by other than normal procedures, or if the size of the feature is governed by factors other than hydrologic or hydraulic factors, a narrative summary detailing the design basis shall appear in the Water Quality Report.

This outline includes a discussion of what should be completed for the FIR submittal. FIR reports should include, at a minimum, a discussion of how each item in the outline will be addressed in the FOR submittal.

## 1.0 Table of Contents

This section should be completed in the FIR report.

## 2.0 Introduction: Description of Project

This section should be completed in the FIR report.

- 2.1 **Geographic location:** Provide the name of the receiving water, the water's WBID number (per the CDPHE), distance to receiving water, and outfall location(s). Include a **project location map** that shows project location, project extent, state highway number, major road names, geographic reference (county/ town), north arrow, name(s) of receiving waters, locations of existing and proposed outfalls, and jurisdictional MS4 boundaries. USGS quad maps can be used to determine the receiving water and the WBID number can be found via an interactive GIS map at <http://cdphe.maps.arcgis.com/home/webmap/viewer.html?webmap=09478d4370d54c488530c5aff9ceed0>. CDOT's MS4 boundary area and outfalls are in a GIS database that can be found at: <http://cdot.maps.arcgis.com/home/webmap/viewer.html?webmap=3f0e1cd27e084239881dca18856400ce>. This information is located under the Environmental Water Quality category which can be accessed by clicking on Content near the top of the page.
- 2.2 **Proposed project:** Describe the type of project (ex. new bridge, widening, full-depth replacement, turn lanes, etc.), project limits (including mileposts), and offsite and onsite flows in the project. Include the area of disturbance in acres; area required to be treated; area not treated; and area treated in addition to the area required to be treated. Include any unusual information that is specific to the project. The **project location map** should include locations of these items.

## 3.0 Discussion of MS4-PWQ Requirements

Describe which MS4 jurisdictions are located within the project site, which jurisdictional MS4 applies, and the resulting design objectives. If a local jurisdiction MS4 applies, objectives may include items such as flood control or full-spectrum detention. Discuss those aspects, as necessary. If the receiving water is on the 303(d) list, include the pollutant for which the water is impaired. This section should be completed in the FIR report.

## 4.0 Permanent Water Quality Control Measures (CMs)

See each subsection below for a description of what should be included with the FIR submittal. The following are practices for documentation of the PWQ design and analysis:

- Calculations, analysis, and all related information used in developing conclusions and recommendations related to the CDOT PWQ requirements, including alternatives, omissions, and locations shall be compiled in the Water Quality Report. All assumptions and criteria related decisions shall be documented.

- Design decisions shall be documented and based on sound engineering principles and optimal maintenance access/safety/mechanical cleaning ability.
  - All related references shall be cited in the text, and provided in the report.
  - Data and information shall be documented through all stages of the project as to provide successors with all information.
  - Documentation shall be organized to lead the reader logically from the project scoping, background and resulting water quality impacts; through the alternatives, calculations and reasons for decisions; to final design, maps, and tables showing how the design meets CDOT's PWQ requirements.
- 4.1 Existing Water Quality CMs: Describe any existing CMs that will be abandoned, reconfigured, or incorporated into a new design. Include a table and locations of any drainage inlets or outlets that will be abandoned, removed, changed or added. This discussion should be completed in the FIR report.
  - 4.2 PWQ CM Alternatives: Describe what types of CMs were considered for the project, the advantages and disadvantages of each, and how each meets PWQ requirements. A description of the alternatives should be included in the FIR report, but can be general in nature.
  - 4.3 Recommended CMs: Describe the recommended CMs and why they were chosen. Note which MS4 permit design standards are being met, and whether there are any related right-of-way (ROW) needs or concerns. This section can be completed with the FOR submittal.
  - 4.4 Exhibit Map: Develop an exhibit map including the items listed below. A preliminary PWQ Map, or separate maps and/or exhibits that follow the template below should be included in the FIR report. In addition to the items listed below, include a table in the narrative for this map that is similar to the table discussed in item 6, but also includes the pervious area that drains to each CM. The pervious area will be included in CDOT's GIS coverage of what is treated as required by the MS4 permit.
    1. Delineate the drainage basin tributary to each PWQ CM with a colored, solid-filled or hatch pattern. Provide different colors for each tributary basin where there are multiple CMs. These basins may include several subbasins from the Hydraulic Design Report.
    2. Label each water quality basin with the typical basin designation circle label. Include within the circle the water quality basin ID, the basin area, and the impervious area with that basin. Provide a legend to describe the basin designation label.
    3. Label the proposed PWQ CM serving each water quality basin. Ensure that the location of the CM matches the locations in the construction drawings.
    4. Show flow direction arrows.
    5. Delineate the disturbed area for the project.
    6. Develop a table with six column headings. The column headings will be Basin Color, Basin ID, Total Basin Area, Type of PWQ CM, Required Area to be Treated, Actual Area Treated, and Comments. Provide the sum of the Required Area to be Treated and the sum of the Actual Area Treated at the bottom. **Note that the required area to be treated is all new impervious area within each water quality basin. The required area to be treated will only extend to the limits of disturbance.** CDOT prefers to treat as much impervious area as is feasible within project limits. CMs should be sized for whatever flows reach them, regardless of whether these flows originate in within the project area.
    7. In the comments column, note whether treated areas are on-site or off-site. If treated areas are off-site, note whether these areas are within CDOT ROW or are owned by others.

8. If the required area to be treated is less than the actual area treated, provide a note on the Exhibit Map describing why flows from required area could not be treated. If some area treated is existing pavement, rather than new pavement, note the area treated.

## 5.0 Maintenance and Operation

This section can be completed with the FOR submittal.

### 5.1 Narrative description of the facility:

*Example:* Extended detention basin with a single cell outlet structure with an orifice plate, designed for a 40-hour drain time. Three RCP inlets drain into the EDB, which has a concrete-bottom forebay with grouted riprap berm. The forebay is designed to drain within 5 minutes and keep large floatable/debris out of the main basin.

### 5.2 Narrative description of how to access the facility:

*Example:* Maintenance access is provided off I-25 southbound before guardrail or take ramp from southbound I-25 to westbound Speer. Parking is from the shoulder.

### 5.3 Narrative description of required maintenance:

*Example:*

- Mow basin to keep vegetation controlled so water can continue to flow unhindered. Remove vegetation offsite to prevent grates and orifice plates from clogging.
- Clean trash rack/grates of debris and dispose of offsite.
- Clear orifice plate holes so water will flow through them.
- Remove sediment from basin when it reaches lowest orifice hole or blocks the forebay outlet pipe. Use hand shovels, bob cats/skid steers. Remove sediment from the site.
- Re-seed as necessary to prevent erosion.
- Provide additional erosion control items as necessary.
- Tighten/replace trash rack bolts and screens as necessary to keep structure in working order.

### 5.4 Documentation of commitments

Provide documentation of commitments from the responsible agency (i.e., IGAs, MOU, etc.) or owner to maintain the PWQ CM. This information is not be required to be included in the FOR submittal, but should be included if available.

## 6.0 Attachments

Attachment 1: MS4 Inventory Questionnaire Form; the form must be signed and dated by the hydraulic design engineer. **This form and the Exhibit Map will be submitted to the CDPHE and must meet specific requirements.**

Attachment 2: Hydraulics and Permanent Water Quality Sheets from the final plan set. An FIR plan set for hydraulics and PWQ CM design should be provided in the FIR submittal.

Attachment 3: Maintenance IGAs related to the project, signed and dated

Attachment 4: PWQ CM Required Plan Information Checklists, as applicable for the proposed CMs

Attachment 5: Operation & Maintenance Plan