Colorado Department of Transportation

MS4 Construction Program Manual

Version 1.1

March 31st, 2017

COLORADO
Department of Transportation

COLORADO
Department of Transportation

COLORADO
Department of Transportation
Office of the Chief Engineer
4201 East Arkansas Ave, Suite 262
Denver, CO 80222

MEMORANDUM

TO: REGION TRANSPORTATION DIRECTORS, PROGRAM ENGINEERS, RESIDENT ENGINEERS, REGION ENVIRONMENTAL PROGRAM MANAGERS, MAINTENANCE SUPERINTENDENTS, HYDROLOGIC RESOURCES (HRED) SECTION, LANDSCAPE ARCHITECT SECTION, MS4 CONSTRUCTION PROGRAM MANAGER, AND OTHER CDOT PERSONNEL INVOLVED IN MS4 ACTIVITIES

FROM: JOSHUA LAIPPLY, CHIEF ENGINEER/DIRECTOR OF STORMWATER COMPLIANCE

DATE: APRIL 3, 2017

SUBJECT: CDOT MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) CONSTRUCTION PROGRAM MANUAL

This Chief Engineer Memorandum directs the execution of CDOT's MS4 Construction Program Manual (Manual) and associated implementation plan. The Manual contains the standard operating procedures (SOP) necessary to comply with the MS4 Permit (2015) and EPA Audit Corrective Actions and Recommendations. This also addresses EPA's request for CDOT to ensure consistency throughout CDOT. To date, the Manual describes the standard processes for Design-Bid-Build projects that should be used as a baseline for other contracting processes until SOPs can be developed for additional project delivery types.

CDOT's MS4 Construction Program Manual will be implemented statewide to ensure uniformity within CDOT and comply with Colorado Discharge Permit System-Stormwater Construction Permit (CDPS-SCP) within CDOT property.

The MS4 Construction Program Manual was developed by region delegates, who were appointed by the Region Transportation Directors, to describe the design, construction and monitoring processes needed to ensure compliance with the CDPS-SCP and MS4 Permit. Each SOP describes the responsibilities of each individual and the associated actions needed to maintain compliance. Following these SOPs will minimumize non-compliance, which CDOT is required to report to CDPHE per the MS4 Permit (2015).

As this effort will require training of CDOT personel, an implementation plan has been developed to outline the steps to be taken to ensure that all relevant staff are aware of actions needed to follow these SOPs and develop tools to better manage and monitor these processes.

Major changes to the Manual will not be allowed for one year (April 3, 2018); editorial changes and resolution of fatal flaws will be accomodated. This is to allow CDOT time to train staff, test the process, develop supporting tools and documents as needed. Over the next fiscal year, CDOT personnel with roles described in the Manual, will be provided training relating to their roles and responsiblities within the processes.

Region MS4 Construction Program Task Force members should be able to help answer questions. A support email has been set up to help assist with any questions concerning the MS4 Construction Program at **MS4_Construction@state.co.us** and a copy of CDOT's MS4 Construction Program Manual can be found at https://www.codot.gov/programs/environmental/water-quality/stormwater-programs.html. The implementaiton plan will be uploaded here as well when finalized.

All SOPs will be monitored by the MS4 Construction Program Manager in the Environmental Programs Branch and reported quarterly to the Director of Stormwater Compliance (Chief Engineer).

Future directives pertaining to CDPS-SCP and MS4 Permit compliance will be given via a *Director of Stormwater Compliance Memorandum*.

Thank you for your cooperation in assisting with CDOT's compliance with our MS4 Permits.

cc: Michael P. Lewis, Deputy Executive Director/COO
Kathy Young, Attorney General's Office
Gregg Carson, Attorney General's Office
Jerad Esquibel, Director of Project Support
Neil Lacey, Project Development
Christine Rees, Right of Way

COLORADO
Department of Transportation

MS4 Construction PDD

COLORADO
Department of Transportation

COLORADO
Department of Transportation

The MS4 Construction PDD is a Living Document and as such is subject to frequent changes.

Please ensure you have the most **Current Version**

COLORADO
Department of Transportation

COLORADO
Department of Transportation

Colorado Department of Transportation Municipal Separate Storm Sewer (MS4) Construction Program Program Description Document

March 31st, 2017

COLORADO
Department of Transportation

Table of Contents

1.0 CDOT Program Description Document Overview

Colorado Discharge Permit System (CDPS) Permit No. COS000005 (MS4 Permit), Part I.C.1 requires Colorado Department of Transportation (CDOT) to develop and maintain a program description document (PDD). "A 'PDD' describes how the permittee will meet the requirements of [the MS4] permit and includes a list of citations for documents and electronic record used to comply with the permit requirements; and an organization chart. PDD information must be maintained to reflect current implementation." (COS000005, Part I.C.1.) Instead of preparing one overarching MS4 Program PDD, CDOT developed individual PDDs for each of CDOT's seven MS4 program areas.

1. Construction Sites
2. Permanent Water Quality Management
3. Illicit Discharges
4. Industrial Facilities
5. Public Education and Outreach/ Public Involvement and Participation
6. Pollution Prevention and Good Housekeeping
7. Wet Weather Monitoring

This PDD describes how CDOT's MS4 Construction Program meets MS4 Permit requirements at Part I.E.1. CDOT's MS4 Construction Program provides oversight of covered construction activities (*see* Section 2.3 for the definition of "covered construction activities"), statewide.

The MS4 Construction PDD is a regulatory based program management tool the CDOT MS4 Construction Program Manager (MCPM) uses for internal management of the MS4 Construction Program and overall management of CDOT's MS4 Permit Program. The CDOT MS4 Construction PDD is a dynamic document that describes how CDOT administers and implements the MS4 Construction Program to meet MS4 Permit construction sites stormwater requirements.

1.1. MS4 Program Area

CDOT's MS4 Construction Program is implemented statewide due to the upcoming Colorado Discharge Permit System–Stormwater Construction Permit (CDPS-SCP) requirement for owner/operator certification.

1.2. PDD Updates and Additional Resources

CDOT's MS4 Construction PDD is a dynamic document that is reviewed at least annually, and updated as needed, as part of the Stormwater Environmental Management System (SWEMS) plan-do-check-act approach.

CDOT developed the *MS4 Construction Program Manual* to address critical design, field and programmatic standard operating procedures (SOPs) to meet MS4 Permit and other regulatory requirements for the construction program. The *MS4 Construction Program Manual* is a ready reference for CDOT MS4 Construction Program personnel making stormwater decisions.

Updates to the MS4 Construction PDD will be posted to the MS4 Construction Program website.[1] The MS4 Construction PDD Index tracks the revision history of each item.

[1] https://www.codot.gov/programs/environmental/water-quality/construction.html

CDOT MS4 Construction Program – PDD Update Documents

- ✓ *CDOT MS4 Construction Program Manual* SOP M2 MS4 Construction PDD Updates (posted when finalized) https://www.codot.gov/programs/environmental/water-quality/construction.html
- ✓ *CDOT MS4 Construction Program Manual*, SOP M3 *MS4 Construction Program Manual* Updates (posted when finalized) https://www.codot.gov/programs/environmental/water-quality/construction.html

2.0 MS4 Construction PDD

Section 2.0 describes the main programmatic elements to meet the Construction Sites PDD requirements detailed in the MS4 permit (COS000005, Part I.E.1.c.). Documents necessary to the execution of the MS4 Construction Program are identified by reference, including the document location, to minimize the frequency of updates to the MS4 Construction PDD. The majority of MS4 Construction Program documents central to program implementation are maintained on the MS4 Construction Program website.[2]

2.1. Introduction

The MS4 Construction Program is the most complex and highest risk of CDOT's seven MS4 Program Areas. The success and execution of the program is dependent upon numerous factors. Contractor education and compliance to CDOT specifications and Colorado Department of Public Health and Environment (CDPHE) regulations are the most critical elements in the program.

The purpose of this PDD is to develop and document programmatic information for CDOT management and state and federal agencies and third parties. This information provides the methodology and approach used by CDOT to maintain compliance with MS4 Construction Program requirements. This PDD is an overarching and dynamic document that identifies critical elements necessary to maintain regulatory compliance and protect water quality. An important element of this PDD is the identification of CDOT document of linkages to the overall Construction Program execution. Changes in guidance and/or specifications in one CDOT area may have a cascading effect on the overall program execution and training; therefore, linkage awareness and management is important to maintain compliance.

2.2. Program Operation Coverage

Refer to Section 1.1.

2.3. Applicable Projects

The MS4 Construction Program provides oversite for construction activities that meet established definitions in the MS4 Permit. The following definitions are from Part I.E.1 of CDOT's MS4 Permit.

> "Covered construction activities" are construction activities that result in a land disturbance of greater than or equal to one acre or that is less than one acre, but is part of a larger common plan of development or sale that would disturb, or has disturbed since March 2, 2001, one acre or more, unless excluded below or the disturbed areas have been finally stabilized. Covered construction activities include the land disturbing activity and all activities and materials associated with the construction project and located at or contiguous to the land disturbing activities.
>
> "Construction activities" include ground surface disturbing and associated activities, which include, but are not limited to, clearing, grading, excavation, demolition, installation of new

[2] https://www.codot.gov/programs/environmental/water-quality/construction.html

or improved haul roads and access roads, staging areas, stockpiling of fill materials, and borrow areas. Construction does not include routine maintenance to maintain the original line and grade, hydraulic capacity, or original purpose of the facility. Activities to conduct repairs that are not part of regular maintenance or that are for replacement are considered construction activities and are not considered routine maintenance. Repaving activities where underlying and/or surrounding soil is cleared, graded, or excavated as part of the repaving operation are construction activities. Construction activity occurs from initial ground breaking to final stabilization regardless of ownership of the construction activities.

According to the CDPS-SCP the following conditions constitute construction activity:

> "Construction activity" refers to ground surface disturbing activities, which include, but are not limited to, clearing, grading, excavation, demolition, installation of new or improved haul roads and access roads, staging areas, stockpiling of fill materials, and borrow areas. Construction does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of the facility.
>
> "Small construction activity" -Stormwater discharge associated with small construction activity means the discharge of stormwater from construction activities that result in land disturbance of equal to or greater than one acre and less than five acres. Small construction activity also includes the disturbance of less than one acre of total land area that is part of a larger common plan of development or sale, if the larger common plan will ultimately disturb equal to or greater than one and less than five acres.

The MS4 Construction Program oversees design-bid-build, design-build, property management projects, construction management/general contractor projects (CM/GC), and Maintenance projects requiring a CDPS-SCP. Design-bid-build projects are designed by CDOT design engineers and constructed by contractors via competitive bid. Design-build projects are designed and constructed by a selected team; often the construction contractor is the prime contractor who is teamed with a roadway designer. CM/GC is an innovative contact method in which a team composed of both the designer and contractor are involved with the overall roadway design and construction.

CDOT MS4 Construction Program – CDPS Stormwater Permits

- ✓ Colorado Discharge Permit System – Stormwater Discharge Permit (COR030000)
  https://www.colorado.gov/pacific/sites/default/files/cor030000%20permit.pdf
- ✓ Colorado Discharge Permit System – CDOT MS4 Permit (COS000005)
  https://www.codot.gov/programs/environmental/water-quality/documents/cdot-ms4-permit/view

2.4. Planning and Approval

Under the MS4 Permit, CDOT must require operators to develop and maintain stormwater management plans (SWMPs) that locate and identify all structural and non-structural control measures for the covered construction activities. A project's SWMP contains installation, implementation, and maintenance specifications or a reference to the document with installation, implementation, and maintenance specifications for all structural control measures. A narrative description of non-structural control measures is included in the SWMP. Attachment 1 – SWMP Design Checklist/SWMP Citations is a copy of CDOT's SWMP Design checklist.

Consistent with the *MS4 Construction Program Manual*, a project's SWMP Design is developed by a Certified SWMP Preparer (certification class under development) who is either a CDOT employee or contractor/consultant. CDOT will use experienced designers until the SWMP Preparer Certification is complete. The SWMP Design is limited to the content of the first four tabs in` the SWMP Notebook: SWMP

narrative, SWMP maps, specifications, and standard plans. The SWMP Design is always reviewed and approved by an independent certified CDOT SWMP Reviewer (certification class under development) and full-time CDOT employee. CDOT will use experienced personnel to peer review until the SWMP Reviewer Certification is complete. After approval, the Region Planning and Environmental Manager (RPEM), or designee, completes CDOT Form 128 and the SWMP Design is placed into documents for contractor bidding via advertisement.

After project award, the Contractor is responsible for the SWMP Notebook. The SWMP Notebook contains 20 sections (tabs) that provide the Transportation Erosion Control Supervisor (TECS), (*see* Section 2.8 for a discussion of the TECS certification) information necessary to maintain and modify control measures during construction. Major or minor changes to the SWMP Design, as determined by the CDOT Project Engineer, are addressed according to the *MS4 Construction Program Manual*, SOP C1 Major/Minor Modifications SWMP Design Modifications during Construction.

After the project's CDPS-SCP Inactivation Notice is accepted by the Colorado Department of Public Health and Environment, Water Quality Control Division (WQCD); the Region Water Pollution Control Manager (RWPCM) is responsible for storing the SWMP in a known and documented location or storing it electronically in the CDOT system for a minimum of three years, unless informed of a different time period by the WQCD.

CDOT MS4 Construction Program - Planning and Approval Documents

- ✓ CDOT Construction Manual, Subsection 208.1.2.1 Stormwater Management Plan https://www.codot.gov/business/designsupport/bulletins_manuals/cdot-construction-manual/section-200.pdf/view
- ✓ *CDOT MS4 Construction Program Manual*, SOP C1 Major/Minor SWMP Design Modifications During Construction https://www.codot.gov/programs/environmental/water-quality/construction.html
- ✓ *CDOT MS4 Construction Program Manual*, SOP C4 Long-term SWMP Retention https://www.codot.gov/programs/environmental/water-quality/construction.html
- ✓ *CDOT MS4 Construction Program Manual*, SOP D1 Updating CDOT's MS4 Citations and Construction Program Documents https://www.codot.gov/programs/environmental/water-quality/construction.html
- ✓ *CDOT MS4 Construction Program Manual*, SOP D2 Project Special Provisions and Details https://www.codot.gov/programs/environmental/water-quality/construction.html
- ✓ *CDOT MS4 Construction Program Manual*, SOP D4 Updating SWMP Templates, Site Map Standards, and SWMP Tabs https://www.codot.gov/programs/environmental/water-quality/construction.html
- ✓ *CDOT MS4 Construction Program Manual*, SOP D5 Project SWMP Design and Review https://www.codot.gov/programs/environmental/water-quality/construction.html
- ✓ *CDOT MS4 Construction Program Manual*, SOP D6 Cherry Creek Basin https://www.codot.gov/programs/environmental/water-quality/construction.html
- ✓ *CDOT SWMP Designer/Approver Training Manual (under development)*
- ✓ *CDOT SWMP Tabs. https://www.codot.gov/programs/environmental/water-quality/documents*
- ✓ *CDOT SWMP Template >1 Acre Impact* https://www.codot.gov/programs/environmental/landscape-architecture/swmp-template-1-acre-impact-1/view
- ✓ Standard Special Provisions modifying *CDOT 2011 Standard Specifications for Road and Bridge Construction*, Subsection 208.03.1. Stormwater Management Plan (SWMP) Administration https://www.codot.gov/business/designsupport/2011-construction-specifications/2011-Specs/standard-special-provisions/sections-200-500-revisions/208ec/view

2.5. Program Organizational Structure

CDOT's Chief Engineer (a.k.a. CDOT's Director of Stormwater Compliance) is the main signatory and holder of the MS4 Permit, and accountable for MS4 Permit compliance. The Hydrologic Resource (HR) Unit, within the Hydrologic Resource and Ecological Design (HRED) Section, is responsible for CDOT's overall MS4 Construction Program management and compliance under the direction of the MCPM. The MCPM reports to the HRED Section Manager and represents the Director of Stormwater Compliance within the

MS4 Construction Program. The Ecological Design (ED) Unit Lead also reports to the HRED Section Manager. Organizationally, within headquarters, the MCPM reports to the HRED Section Manager, who reports to the CDOT Environmental Programs Branch (EPB) Manager, who reports to Department of Transportation Development (DTD) Director, who reports to the Director of Stormwater Compliance.

The MCPM makes quarterly reports directly to the Director of Stormwater Compliance concerning the compliance status of the MS4 Construction Program, identified compliance risks, and additional resource needs to fully implement the MS4 Construction Stormwater Program in compliance with applicable MS4 Permit requirements, if needed.

Additionally, the HRED Section Manager and MCPM review the performance of the MS4 Construction Program annually. The HRED Section Manager determines, based on the annual review, if additional resources (staff, budget, training, etc.) must be sought to ensure ongoing MS4 permit compliance.

The CDOT-CDPHE Liaison provides a regulatory interface between CDOT and CDPHE. The Liaison is a CDOT employee, reporting directly to the Environmental Branch Manager, who offices at CDPHE and is a valuable resource in permit regulations and interpretation.

Direct implementation and administration of the MS4 Construction Program's conditions and compliance activities occurs within each of the five CDOT Regions (Regions 1, 2, 3, 4, and 5, Figure 1).

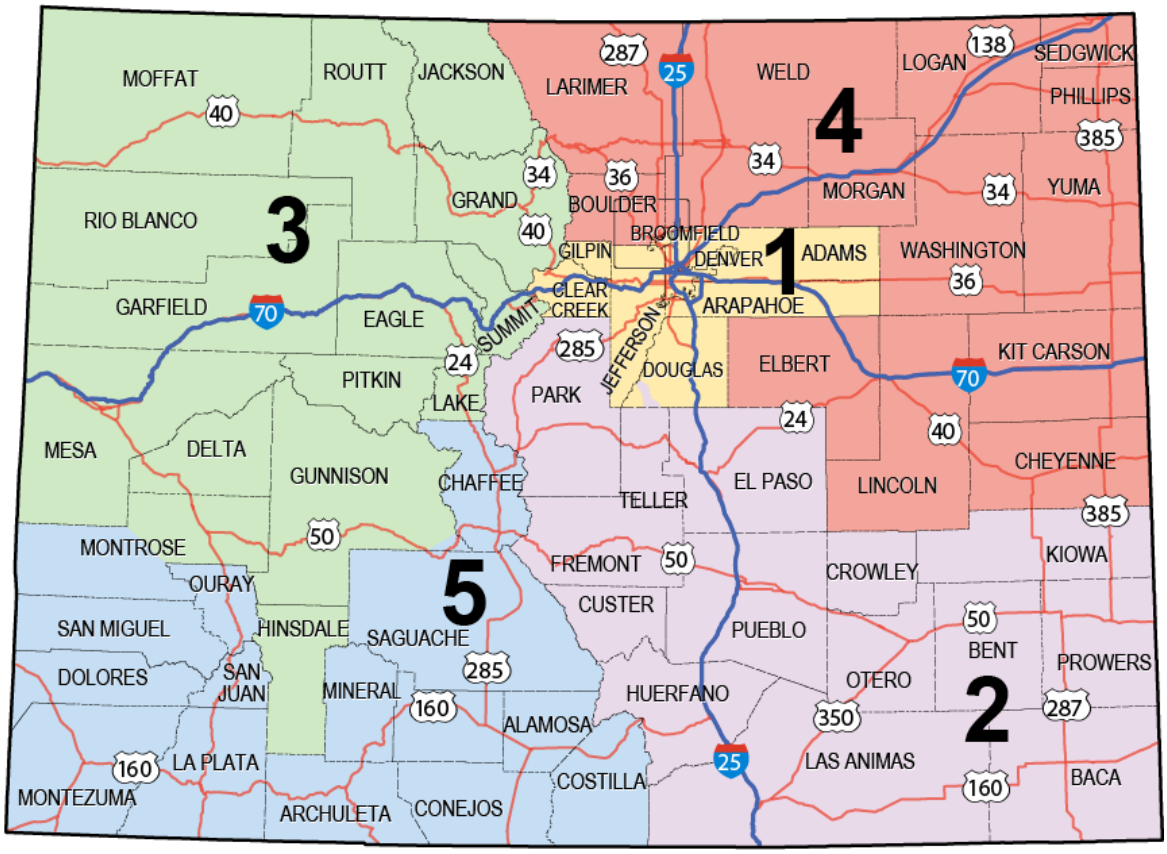


Figure 1. State of Colorado Map Depicting the Five CDOT Regions

RWPCMs, of which each Region has at least one, are responsible for implementing the MS4 Construction Program at the Region level. RWPCMs may coordinate with the MCPM and the HRED Section but do not report to the MCPM or HRED Section Manager. RWPCMs are part of CDOT's Region Environmental

Program. The Region Environmental Program chain-of-command is generally as follows; note that some Regions may have additional levels.

1. RWPCM
2. RPEM
3. Region Transportation Director (RTD)
4. Deputy Director/Chief Operating Officer with informational reports to the Chief Engineer/Director of Stormwater Compliance.

Table 1 is identifies the CDOT MS4 Construction Program Water Quality Team. An overall CDOT Organization Chart can be viewed at: https://www.codot.gov/about/CDOT-org-chart/view.

Table 1. CDOT MS4 Construction Program Water Quality Team (March 1, 2017)

Title	Name	Contact Information
Region 1 (Denver)		
Region Planning and Environmental Manager (RPEM)	Chuck Attardo	303.757.9929
Regional Water Pollution Control Manager (RWPCM)	Steve Mulqueen	303.757.9138
Regional Water Pollution Control Manager (RWPCM)	Brian Reiser	303.757.9270
Landscape Architect (LA)	Susie Hagie	303.757.9932
Region 2 (Colorado Springs)		
Region Planning and Environmental Manager (RPEM)	Robert Frei	719.546.5749
Regional Water Pollution Control Manager (RWPCM)	Open	
Region 3 (Grand Junction)		
Region Planning and Environmental Manager (RPEM)	Michael Vanderhoof	970.683.6251
Regional Water Pollution Control Manager (RWPCM)	Gary Spinuzzi	970.683.6254
Landscape Specialist (LS)	Jennifer Klaetsch	970.683.6223
Region 4 (Greeley)		
Region Planning and Environmental Manager (RPEM)	James Eussen	970.350.2167
Regional Water Pollution Control Manager (RWPCM)	Nicholaus Schipanski	970.350.2127
Regional Water Pollution Control Manger (RWPCM)	Leslie Modrick	970.350.2164
Region 5 (Durango)		
Regional Planning and Environmental Manager (RPEM)	Tony Cady	970.385.1430
Regional Water Pollution Control Manager (RWPCM)	Franchesca Mallonee	970.385.1425
Headquarters (Denver)		
Director of Stormwater Compliance (Chief Engineer)	Joshua Laipply	Available upon request
Hydrologic Resources and Ecological Design (HRED) Section Manager	Tom Boyce	303.512.4053
MS4 Construction Program Manager (MPCM)	Tripp Minges	303.757.9788
Ecological Design (ED) Unit Lead	Michael Banovich	303.757.9542
CDOT/CDPHE Liaison	Jean Cordova	303.692.3570
Landscape Specialist (LS)	Basil Ryer	303.757.9481
Landscape Specialist (LS)	Greg Fischer	303.757.9507
MS4 Construction Field Manager (MCFM)	Jeremiah Unger	303.513.3927

2.6. Regulatory Structure and Regulatory Mechanism

CDOT's MS4 Construction Program is governed by federal and state regulations/permits. CDOT uses contracts and specifications to integrate the MS4 Construction Program with project delivery.

CDOT is responsible for compliance with the MS4 Permit and oversight of Contractor compliance with the CDPS-SCP, when applicable.

CDOT MS4 Construction Program - CDPS Stormwater Permits

- ✓ Colorado Discharge Permit System – CDOT MS4 Permit (COS000005) https://www.codot.gov/programs/environmental/water-quality/documents/cdot-ms4-permit/view
- ✓ Colorado Discharge Permit System – Stormwater Discharge Permit (COR030000) https://www.colorado.gov/pacific/sites/default/files/cor030000%20permit.pdf

2.6.1. CDOT's Regulatory Mechanism

CDOT's regulatory mechanism to implement the MS4 Construction Program is the Standard Special Provision modifying CDOT's *2011 Standard Specifications for Road and Bridge Construction*, subsection 208.09 Failure to Perform Erosion Control[3] and *CDOT Construction Manual*, subsections 208.2.2.9 Corrective Action Response Log and 208.2.2.10 Enforcement of Regulatory Permits and Contract Requirements[4] (see also *CDOT MS4 Construction Program Manual*, SOP C3 MS4 Regulatory Authority, 208.09 Specification).

CDOT MS4 Construction Program - Regulatory Mechanism

- ✓ *CDOT Construction Manual*, Subsection 208.2.2.9 Corrective Action Response Log and 208.2.2.10 Enforcement of Regulatory Permits and Contract Requirements https://www.codot.gov/business/designsupport/bulletins_manuals/cdot-construction-manual/section-200.pdf/view
- ✓ *CDOT MS4 Construction Program Manual*, SOP C3 MS4 Regulatory Authority, 208.09 Specification https://www.codot.gov/programs/environmental/water-quality/construction.html
- ✓ Standard Special Provisions modifying *CDOT 2011 Standard Specifications for Road and Bridge Construction*, Subsection 208.09 Failure to Perform Erosion Control https://www.codot.gov/business/designsupport/2011-construction-specifications/2011-Specs/standard-special-provisions/sections-200-500-revisions/208ec/view

2.6.2. Specifications

Stormwater regulatory requirements are incorporated into CDOT Standard Specifications and within contract language. CDOT's MS4 Citations are the list of applicable standards and requirements on which MS4 project findings are based.

The MS4 Citations are CDOT Standard Specifications for Road and Bridge Construction Subsection 107.25 (Water Quality Control), and Sections 208 (Erosion Control), 213 (Mulching), and 216 (Soil Retention Covering); Standard Plans M-208-1 (Temporary Erosion Control) and M-216-1 (Soil Retention Covering); Project Special Provisions modifying 107.25, 208, 213, 216, M-208-1, and M-216-1; associated updates to the MS4 Construction Program Manual, and Inspection Forms 1176, 1177, and 1388.

[3] https://www.codot.gov/business/designsupport/2011-construction-specifications/2011-Specs/standard-special-provisions/sections-200-500-revisions/208ec/view
[4] https://www.codot.gov/business/designsupport/bulletins_manuals/cdot-construction-manual/section-200.pdf/view

CDOT MS4 Construction Program - MS4 Citation Documents

- ✓ 7 day inspection- CDOT Form 1176 https://www.codot.gov/library/forms/cdot1176.pdf
- ✓ Monthly inspection- CDOT Form 1177 https://www.codot.gov/library/forms/cdot1177.pdf
- ✓ Daily Inspection- CDOT Form 1388 https://www.codot.gov/library/forms/cdot1388.pdf
- ✓ Project Special Provisions modifying Standard Specifications 107.25, 208, 213, 216, M-208-1, and M-216-1 (specific to a project, maintained in the project's SWMP notebook)
- ✓ Standard Plan M-208-1 Temporary Erosion Control https://www.codot.gov/business/designsupport/standard-plans/2012-m-standards-plans/2012-m-standards-pdfs/10-temproary-erosion-control/m-208-1%20temp%20erosion%20control%20all
- ✓ Standard Plan M-216-1 Soil Retention Covering https://www.codot.gov/business/designsupport/standard-plans/2012-m-standards-plans/2012-m-standards-pdfs/m-216-1_soil_retention_covering/m-216-1_soil_retention_covering
- ✓ Standard Special Provision modifying *CDOT 2011 Standard Specifications for Road and Bridge Construction*, Subsection 107.25 Water Quality Control https://www.codot.gov/business/designsupport/2011-construction-specifications/2011-Specs/standard-special-provisions/section-100-revisions
- ✓ Standard Special Provision modifying *CDOT 2011 Standard Specifications for Road and Bridge Construction*, Section 208 Erosion Control https://www.codot.gov/business/designsupport/2011-construction-specifications/2011-Specs/standard-special-provisions/sections-200-500-revisions/208ec/view
- ✓ Standard Special Provision modifying *CDOT 2011 Standard Specifications for Road and Bridge Construction*, Section 213 Mulching https://www.codot.gov/business/designsupport/2011-construction-specifications/2011-Specs/standard-special-provisions/sections-200-500-revisions/213m/view
- ✓ Standard Special Provision modifying *CDOT 2011 Standard Specifications for Road and Bridge Construction*, Section 216 Soil Retention Covering https://www.codot.gov/business/designsupport/2011-construction-specifications/2011-Specs/standard-special-provisions/sections-200-500-revisions/216src/view

2.6.3. Exemptions

Not applicable

2.7. Control Measure Implementation and Procedures

The SWMP defines, among other things, site-specific control measures implemented to minimize the potential for pollutant sources to be mobilized in stormwater and conveyed to waters of the state, as stated in the current MS4 Permit control measures "are any best management practice (BMP) or other method used to prevent or reduce the discharge of pollutants to state waters." Control measure requirements at Part I.B. of the MS4 Permit apply to all control measures used by the MS4 Construction Program to achieve the effluent limits in this permit.

MS4 Permit, Part I.E.a.viii requires CDOT projects with a CDPS-SCP in the Cherry Creek Basin remain in compliance with MS4 Construction Program requirements and the Colorado Department of Public Health and Environment, Water Quality Control Division's (WQCD) Cherry Creek Basin Reservoir Control Regulation (5 CCR 1002-72). The SWMP Design must incorporate, as appropriate, "Construction BMPs" at 5 CCR 1002-72.7.2(b)(5). The *MS4 Construction Program Manual*, SOP C6 Cherry Creek Basin describes the process CDOT follows to maintain compliance with MS4 Construction Program requirements and 5 CCR 1002-72.

CDOT MS4 Construction Program - Control Measure Documents

- ✓ *CDOT Construction Manual*, Subsection 208.2.2 During Construction https://www.codot.gov/business/designsupport/bulletins_manuals/cdot-construction-manual/section-200.pdf/view
- ✓ *CDOT Construction Manual*, Subsection 208.2.3 After Construction https://www.codot.gov/business/designsupport/bulletins_manuals/cdot-construction-manual/section-200.pdf/view
- ✓ *CDOT MS4 Construction Program Manual*, Design and Construction SOPs https://www.codot.gov/programs/environmental/water-quality/construction.html
- ✓ CDOT Roadway Design Guide, Chapter 16 https://www.codot.gov/business/designsupport/bulletins_manuals/roadway-design-guide/dg05-ch-16-specifications.pdf/view
- ✓ Project Special Provisions modifying Standard Specifications 107.25, 208, 213, 216, M-208-1, and M-216-1 (specific to a project, maintained in the project's SWMP notebook)
- ✓ Standard Plan M-208-1 Temporary Erosion Control https://www.codot.gov/business/designsupport/standard-plans/2012-m-standards-plans/2012-m-standards-pdfs/10-temproary-erosion-control/m-208-1%20temp%20erosion%20control%20all
- ✓ Standard Plan M-216-1 Soil Retention Covering https://www.codot.gov/business/designsupport/standard-plans/2012-m-standards-plans/2012-m-standards-pdfs/m-216-1_soil_retention_covering/m-216-1_soil_retention_covering
- ✓ Standard Special Provision modifying *CDOT 2011 Standard Specifications for Road and Bridge Construction*, Subsection 107.25 Water Quality Control https://www.codot.gov/business/designsupport/2011-construction-specifications/2011-Specs/standard-special-provisions/section-100-revisions
- ✓ Standard Special Provision modifying *CDOT 2011 Standard Specifications for Road and Bridge Construction*, Section 208 Erosion Control https://www.codot.gov/business/designsupport/2011-construction-specifications/2011-Specs/standard-special-provisions/sections-200-500-revisions/208ec/view
- ✓ Standard Special Provision modifying *CDOT 2011 Standard Specifications for Road and Bridge Construction*, Section 213 Mulching https://www.codot.gov/business/designsupport/2011-construction-specifications/2011-Specs/standard-special-provisions/sections-200-500-revisions/213m/view
- ✓ Standard Special Provision modifying *CDOT 2011 Standard Specifications for Road and Bridge Construction*, Section 216 Soil Retention Covering https://www.codot.gov/business/designsupport/2011-construction-specifications/2011-Specs/standard-special-provisions/sections-200-500-revisions/216src/view
- ✓ Cherry Creek Reservoir Control Regulation (5 CCR 1003-72) https://www.sos.state.co.us/CCR/DisplayRule.do?action=ruleinfo&ruleId=2383&deptID=16&agencyID=132&deptName=Department%20of%20Public%20Health%20and%20Environment&agencyName=Water%20Quality%20Control%20Commission%20(1002%20Series)&seriesNum=5%20CCR%201002-72

2.8. Training and Certifications

The MS4 Permit has specific construction training requirements. MS4 Construction Program training provides important compliance information to CDOT environmental, engineering and maintenance staff and Contractors, consultants and the general public working. CDOT has for the MS4 Construction Program, 1 certification training program the TECS Certification and 2 additional certifications for design under development, the SWMP Preparer Certification and the SWMP Reviewer Certification Courses.

CDOT requires any Contractor performing construction to have a certified TECS on site to manage erosion and site conditions. The TECS Certification Program is managed by the MCPM and the MS4 Construction Field Manager (MCFM). TECS Class 1 focuses on planning, phasing, communication, SMWP maintenance and specification requirements. TECS Class 2 focuses on the field theory and function of hydrology and control measures. The TECS Certification requires passing an examination at the end of each class. Certificates are gives out by CDOT and logged into the Erosion and Sediment Control Assessment Notebook (ESCAN) software system for management purposes. A TECS Certification lasts 3-5 years, and then requires re-certification via continuing education classes and/or a refresher class.

The SWMP Preparer Certification Class (under development) is a two day class focused to design engineers and landscape architects. This certification is managed by the HRED Section, ED Unit. Like the TECS Certification Program, the SWMP Preparer Certification lasts three years with recertification via continuing education classes and/or a refresher class. Passing examinations is required to achieve certification.

The SWMP Reviewer Certification (under development) is focused on SWMP Reviewers to insure that MS4 SWMP Design standards and the SWMP Citations are being met for all projects requiring a CDPS-SCP.

The MCPM, ED Unit Lead, and HRED Section Lead evaluate MS4 Construction Program training needs on an annual basis or when significant changes are made to the program. MS4 Construction Program training events will be developed according to the *MS4 Construction Program Manual*, SOP M1 MS4 Construction Program Trainings.

Additional MS4 Construction Program training occurs during Routine Audits and RECATs as compliance assistance and in-field education. Compliance assistance and in-field education may be provided to Contractors by the RWPCM, MCPM, or MCFM. The RWPCMs will have annual trainings to insure compliance measures are met and uniformity throughout CDOT's 5 regions.

In-field and compliance assistance training includes, but not be limited to, information to operators of covered construction activities to ensure that each operator is aware of CDOT's MS4 Permit requirements, including controlling pollutants such as trash.

As required by the MS4 permit, CDOT is documenting the name and title of each individual trained, date of training, the type of training, and a list of topics covered in the training.

CDOT MS4 Construction Program - Training and Certification Documents

- ✓ *CDOT MS4 Construction Program Manual*, SOP D5 Project SWMP Design and Review https://www.codot.gov/programs/environmental/water-quality/construction.html
- ✓ *CDOT MS4 Construction Program Manual*, SOP M1 MS4 Construction Program Trainings https://www.codot.gov/programs/environmental/water-quality/construction.html
- ✓ *CDOT MS4 Construction Program Manual*, SOP M4 MS4 Compliance Monitoring https://www.codot.gov/programs/environmental/water-quality/construction.html
- ✓ *CDOT SWMP Designer/Approver Training Manual (under development)*
- ✓ CDOT Transportation Erosion Control Supervisor Certification (TECS) https://www.codot.gov/programs/environmental/water-quality/transportation-erosion-control-supervisor-certification

2.9. Program Compliance and Quality Assurance

Program compliance and quality assurance is a core function of the HRED Section function. The HRED Section has developed SWEMS that documents critical environmental management and quality assurance/quality control actions and processes. SWEMS is a process to ensure quality and continuing process improvement. SWEMS uses a basic Plan-Do-Check-Act process. All MS4 Programs are required to check or monitor the success of their programs based upon monitoring and performance metrics. The HRED Section Manager and the MCPM review and identify the need of MS4 Construction Program improvement and/or resource needs. The MCPM, additionally, makes quarterly reports to the Director of Stormwater Compliance, as needed.

The *MS4 Construction Program Manual* is designed around quality assurance components that include:

- Training requirements
- Internal auditing procedures to monitor compliance with the MS4 Construction Program
- Escalation Processes for internal non-compliance with the MS4 Construction Program

- Non-compliance reporting to the WQCD when internal escalation does not resolve the non-compliance

Region compliance to the *MS4 Construction Program Manual* procedures will be audited by the MCPM or designee. This provides a critical quality control function to the overall MS4 Construction Program and informs the Director of Stormwater Compliance where resources (i.e., staff, budget, training, etc.) should be allocated based on measured MS4 Permit compliance risks.

An independent, third party audit of the overall MS4 Construction Program is performed twice every MS4 Permit cycle. The results of the audit is provided to the HRED Section Leader and the MCPM to assess program success and opportunities for refinement.

CDOT MS4 Construction Program - Program Compliance and Quality Assurance

- ✓ *CDOT MS4 Construction Program Manual*, SOP M1 MS4 Construction Program Trainings https://www.codot.gov/programs/environmental/water-quality/construction.html
- ✓ *CDOT MS4 Construction Program Manual*, SOP M2 MS4 Construction PDD Updates https://www.codot.gov/programs/environmental/water-quality/construction.html
- ✓ *CDOT MS4 Construction Program Manual*, SOP M3 MS4 Construction Program Manual Updates https://www.codot.gov/programs/environmental/water-quality/construction.html
- ✓ *CDOT MS4 Construction Program Manual*, SOP M4 MS4 Compliance Monitoring https://www.codot.gov/programs/environmental/water-quality/construction.html
- ✓ *CDOT MS4 Construction Program Manual*, SOP M5 WQCD Contact/Inquiry https://www.codot.gov/programs/environmental/water-quality/construction.html
- ✓ *CDOT MS4 Construction Program Manual*, SOP M6 MS4 Construction Program Third Party Audit https://www.codot.gov/programs/environmental/water-quality/construction.html

2.10. Inspections/Audits

In the MS4 Construction Program, inspections are led by Contractors to evaluate compliance with the CDPS-SCP. Audits are led by CDOT to provide oversight of Contractor compliance with the CDPS-SCP and measure CDOT's compliance with the MS4 Permit. Audits are critical to any quality assurance plan and quality control function. Audits enable the MCPM to assess MS4 permit compliance and success metrics and to develop adaptive management as needed. This approach is consistent with SWEMS.

The following are the basic audits that will be performed by RWPCM and/or the MCPM or designee.

Routine Audits and RECATs - CDOT must conduct a Routine Audit or RECAT (Region Erosion Control Assessment Team) of CDOT projects covered by a CDPS-SCP at least once every 45 days during active construction, every 90 days during post-active construction, and at least once before final stabilization. The audit must assess control measures, pollutant sources, and discharge points, at a minimum. Routine Audits are led by RWPCMs, RECATs are led by the MCPM or MCFM at the RWPCM's request.

Findings from Routine Audits and RECATs are documented and entered into ESCAN (*see* Section 2.13). The Project Engineer issues CDOT Form 105 to the Contractor when corrective actions are required.

Winter conditions - Inspections are not required at sites where construction activities are temporarily halted, snow cover exists over the entire site for an extended period, and melting conditions posing a risk of surface erosion do not exist. This exclusion is applicable only during the period where melting conditions do not exist.

CDOT MS4 Construction Program - Inspection Documents

- ✓ *CDOT Construction Manual*, Subsection 208.2.1 Inspection Guidelines https://www.codot.gov/business/designsupport/bulletins_manuals/cdot-construction-manual/section-200.pdf/view
- ✓ Speed Memo- CDOT Form 105 https://www.codot.gov/library/forms/cdot0105.pdf/view
- ✓ 7 day Inspection- CDOT Form 1176 https://www.codot.gov/library/forms/cdot1176.pdf
- ✓ *CDOT MS4 Construction Program Manual*, SOP C2 Routine Audits and RECATs https://www.codot.gov/programs/environmental/water-quality/construction.html
- ✓ Standard Special Provisions modifying *CDOT 2011 Standard Specifications for Road and Bridge Construction*, Subsection 208.03.2. Erosion Control Inspections https://www.codot.gov/business/designsupport/2011-construction-specifications/2011-Specs/standard-special-provisions/sections-200-500-revisions/208ec/view

CDOT's compliance and enforcement process (described at subsection 208.09 of Standard Special Provisions modifying *CDOT 2011 Standard Specifications for Road and Bridge Construction and subsections*, and subsections 208.2.2.9 and 208.2.2.10 of the *CDOT Construction Manual and within the MS4 Construction Program Manual-C2 and C3*) is initiated when the Project Engineer issues a CDOT Form 105 requiring corrective actions to resolve findings from a Routine Audit or RECAT.

CDOT MS4 Construction Program – Compliance and Enforcement Documents

- ✓ *CDOT Construction Manual*, Subsection 208.2.2.10 Enforcement of Regulatory Permits and Contract Requirements https://www.codot.gov/business/designsupport/bulletins_manuals/cdot-construction-manual/section-200.pdf/view
- ✓ *CDOT Construction Manual*, Subsection 208.2.2.9 Corrective Action Response Log https://www.codot.gov/business/designsupport/bulletins_manuals/cdot-construction-manual/section-200.pdf/view
- ✓ Standard Special Provisions modifying *CDOT 2011 Standard Specifications for Road and Bridge Construction*, Subsection 208.09 Failure to Perform Erosion Control https://www.codot.gov/business/designsupport/2011-construction-specifications/2011-Specs/standard-special-provisions/sections-200-500-revisions/208ec/view

2.11. Tracking

Refer to Subsection 2.10 for MS4 Construction Program audits. All MS4 Construction Routine Audits, RECATs, and 208.09 process are tracked in ESCAN.

CDOT MS4 Construction Program – Tracking Documents

- ✓ CDOT Erosion and Sediment Control Notebook (ESCAN) – located on CDOT's internal computer network.

2.12. Documents

MS4 Construction Program paper and electronic documents, guidance manuals, forms, and spreadsheets (documents) are listed in Attachment 2 – MS4 Construction Program Documents Report. In addition, the following documents are updates or new documents since Attachment 2 – MS4 Construction Program Documents Report was developed.

- *CDOT MS4 Construction Program Manual (when finalized)* https://www.codot.gov/programs/environmental/water-quality/construction.html
- ESCAN
- Standard Special Provision modifying *CDOT 2011 Standard Specifications for Road and Bridge Construction*, Subsection 107.25 Water Quality

Control https://www.codot.gov/business/designsupport/2011-construction-specifications/2011-Specs/standard-special-provisions/section-100-revisions

- Standard Special Provision modifying *CDOT 2011 Standard Specifications for Road and Bridge Construction*, Section 208 Erosion Control https://www.codot.gov/business/designsupport/2011-construction-specifications/2011-Specs/standard-special-provisions/sections-200-500-revisions/208ec/view
- Standard Special Provision modifying *CDOT 2011 Standard Specifications for Road and Bridge Construction*, Section 213 Mulching https://www.codot.gov/business/designsupport/2011-construction-specifications/2011-Specs/standard-special-provisions/sections-200-500-revisions/213m/view
- Standard Special Provision modifying *CDOT 2011 Standard Specifications for Road and Bridge Construction*, Section 216 Soil Retention Covering https://www.codot.gov/business/designsupport/2011-construction-specifications/2011-Specs/standard-special-provisions/sections-200-500-revisions/216src/view

Documents generated by other CDOT groups or departments can affect the quality and reliability of MS4 Construction Program documents. A change in one document can have a cascading effect on other document's information and procedures. The MS4 Construction Program uses a Microsoft Access database to identify and track document linkages (Attachment 3 - MS4 Document Linkage Access Database Description and Use Instructions).

2.13. Recordkeeping

Recordkeeping is a core SWEMS function and the MS4 Permit identifies specific records that must be kept for each MS4 program area to demonstrate compliance with effluent limitations and recordkeeping requirements.

A project's CDOT-approved SWMP Design, and documentation of approval, are stored in ESCAN. SWMPs for active projects are maintained at the project site by the Contractor's TECS. All appropriate records, including CDOT Form 105s relating to stormwater, are stored within the SWMP's 20 tabs (see Section 2.7) and also in ESCAN. The SWMP is stored in a known and documented location by the RWPCM at the end of the construction project. The *MS4 Construction Program Manual* contains a procedure for SWMP storage after construction (SOP C4).

Routine Audits performed by RWPCMs and HQ led RECATS are stored in ESCAN. The *MS4 Construction Program Manual* contains procedures in managing this documentation within ESCAN once developed.

Recordkeeping at the Region level is accessed by the MCPM or MCFM via ESCAN for internal oversight and program compliance monitoring. ESCAN a software application being developed to track and report on all aspects of the MS4 Construction Program. The current version of ESCAN is a tool to monitor CDOT MS4 Construction Program compliance with findings from Routine Audits and RECATs and CDOT regulatory authority requirements. The output from ESCAN is monitored by the MCPM, or designee, and reports given to CDOT Executive Management. ESCAN is and will be the main compliance tool to monitor MS4 Construction Program performance.

CDOT MS4 Construction Program – Recordkeeping

- ✓ CDOT Erosion and Sediment Control Notebook (ESCAN under development)

2.14. Annual Reporting

The MS4 Permit contains annual reporting requirements specific to the MS4 Construction Program. CDOT prepares an annual system-wide report that is submitted to CDPHE by April 1 of each year, covering

January 1 through December 31 of the previous year. The MS4 Permit, Part I.I.1 lists MS4 Construction Program information CDOT must track and include in the annual report.

Records and information needed by the HRED Section for the Annual Report are obtained from ESCAN and/or the RWPCMs.

Electronic copies of MS4 Annual Reports are developed and stored with the HRED Section Manager.

CDOT MS4 Construction Program – Annual Reports

- ✓ CDOT Erosion and Sediment Control Notebook (ESCAN- under development)

2.15. Covered Construction Activities that Overlap Permit Areas of more than One MS4 Permittee

CDOT evaluates activities that overlap permit areas of more than one MS4 permittee on a project-by-project basis. This approach is necessary because CDOT projects may cross any of the CDPS-permitted Phase I and II MS4 areas, and all programs are implemented differently.

2.16. PDD Index

The PDD Index is the complete list of documents, materials, standard operating procedures, design standards, guidance documents, software, and other sources used to manage and implement the MS4 Construction Program. The PDD Index is maintained in a Microsoft Access database that contains the complete list of documents and linkages between documents (Attachment 2 – MS4 Construction Program Documents Report and Attachment 3 - MS4 Document Linkage Access Database Description and Use Instructions).

The purpose of the PDD Index is to identify reference documents used to drive the MS4 Construction Program and also identify documents that will be affected by informational or process changes. For example, a change in a CDOT specification can have a cascading effect on several document such as specific SOPs, training materials and construction manuals.

The MCPM, or designee, is responsible for monitoring and reacting to internal and external program documentation changes that can affect other documentation critical for MS4 compliance.

3.0 CDOT Construction PDD Requirements

Table 2 lists MS4 Permit-required PDD Content, annotated with CDOT documents and citations that achieve the specific requirement(s).

Table 2. MS4 Construction PDD Regulatory Requirements

MS4 Permit Citation	MS4 Permit-required PDD Content	MS4 Construction PDD Section or Subsection
Part I.C.1.a.	Current Control Measure Implementation and Procedures: The specific PDD content required by Parts I.D. and I.E. that describes how the requirements of Parts I.D. and I.E. are met.	Subsection 2.7
Part I.C.1.b.	Current Documents and Electronic Records: A list of citations for documents and electronic records used to comply with permit requirements. It is not required that the PDD repeat the information included in the cited documents. The PDD must include the names of the most recent version of the documents, source/author of the document, date of the document, and location(s) where the supporting documentation is maintained.	Subsection 2.12 and Attachment 2 – MS4 Construction Program Documents Report

MS4 Permit Citation	MS4 Permit-required PDD Content	MS4 Construction PDD Section or Subsection
Part I.C.1.c.	Current Organizational Chart: An organizational chart indicating responsibility over applicable departments by the legal contact.	Subsection 2.5
Part I.C.2.	The PDD must be available to the public at reasonable times during regular business hours and maintained in a format that can be submitted to the Division within 10 business days of a request.	CDOT MS4 Construction Program webpage
Part I.C.3.	Information in the PDD may be revised by the permittee at any time. The permittee must modify the PDD as changes occur to ensure the information is up to date.	Subsection 1.2
Part I.E.1.c.i.	Regulatory Mechanism: A list of the citation(s) and location(s) of the required elements of the regulatory mechanism, including a list of the associated program documents used to meet the regulatory mechanism requirements.	Subsection 2.6.1
Part I.E.1.c.ii.	Regulatory Mechanism Exemptions: A list of the citation(s) and location(s) of regulatory mechanism elements that allow for exemptions and the documented procedures that confirm that any exemptions, waivers, and variances comply with the permit.	Subsection 2.6.3
Part I.E.1.c.iii.	Control Measure Requirements: A list of citation(s) and location(s) of applicable documents that demonstrate that the permittee requires operators to meet the requirements in Part I.E.1.a.iii. A list of the citation(s) and location(s) of supporting documents, including any documents that provide control measure design considerations, criteria, or standards.	Subsection 2.7
Part I.E.1.c.iv.	SWMPs: (A) A list of citation(s) and location(s) of applicable documents that demonstrate that the permittee requires operators to develop, maintain, and modify SWMPs, including the citation(s) and location(s) of supporting documents. (B) A list of citation(s) and location(s) of applicable documents that demonstrate that the permittee conducts initial SWMP reviews, including the citation(s) and location(s) of supporting documents.	Subsection 2.4
Part I.E.1.c.v.	Permittee Site Inspection: A list of citation(s) and location(s) of applicable documents that demonstrate that the permittee has written procedures for conducting site inspections, including the citation(s) and location(s) of supporting documents that describe the following: (A) The process for determining, implementing, and documenting the inspection frequencies. (B) The process for inspection follow-up, including determining, implementing, and documenting the nature of the follow-up action.	Subsection 2.10
Part I.E.1.c.vi.	Enforcement Response: A list of citation(s) and location(s) of applicable documents that demonstrate that the permittee has written procedures for enforcement response. The document(s) must detail the types of escalating enforcement responses the permittee will take in response to common violations and time periods within which responses will take place, including as a minimum: (A) Construction commencing without SWMP review in accordance with I.E.3.a.v. (B) SWMPs not maintained and modified in accordance with the permittee's requirements. (C) Control measures not maintained in operational condition at time of permittee inspection, including sites that have temporarily shut down construction activities. (D) Uncorrected finding(s) from previous inspections. (E) Failure to implement a control measure for a pollutant source or inadequate control measure resulting in a discharge of pollutants from the covered construction site or to the MS4.	Subsection 2.10

MS4 Permit Citation	MS4 Permit-required PDD Content	MS4 Construction PDD Section or Subsection
Part I.E.1.c.vii.	Training: A list of citation(s) and location(s) of the training program and supporting documents.	Subsection 2.8
Part I.E.1.c.viii.	Cherry Creek Reservoir Drainage Basin Discharges: A list of citation(s) and location(s) of applicable documents that demonstrate that the permittee meets the additional requirements outlined in Cherry Creek Reservoir Control Regulation.	Subsection 2.7
Part I.E.1.c.ix.	For Covered Construction Activities that Overlap Permit Areas of more than One MS4 Permittee: A list of citation(s) and location(s) of applicable documents that demonstrate that the permittee meets all permit requirements in Part I.E.1.	Subsection 2.15

Stormwater Management Plan Citations

All SWMPS Must adhere to Good Engineering, hydraulic, and Pollution Control Practices

- Initial (Plans)
  - Limits of Construction (LOC)
  - Limits of Disturbance (LDA)
  - Flow Arrows
  - Protection Fencing (Wetlands, Exclusion Areas, Historic/Archeo/Paleo sites, Tree/Vegetation Protection, etc.)
  - Existing Conditions (Wetlands, trees to be removed, etc.)
  - Transect Locations (with pre-construction percent cover at each site)
  - State Waters (streams, ditches, lakes, etc.)
  - Perimeter Control, site fencing and inlet protection (Erosion logs, silt fence, aggregate bags etc.)
  - Vegetative buffers/Landforms
  - Vehicle Tracking pad (initial access to site)
- Interim Plans (*Everything on Initial plans plus*) **Base Maps** (interim maps will serve as SWMP Admin for Construction base maps, 30% gray scale of interim maps.
  - Topsoil stockpiles
  - Topsoil salvage locations (207)
  - Vehicle tracking pads/stabilized construction entrances (additional construction site access)
  - Concrete Washout Structures
  - Top of Cut
  - Toe of Fill
  - Temporary Berms
  - Ditch checks (with spacing requirements by gradient)

SLOPE OF DITCH	SPACING (feet on center)
>0 – 2 %	100
>2 – 3 %	50
>3 – 7 %	25
>7%	Temporary Rock Check Dams (Contact Region Hydraulic Engineer)

- Temporary seeding
- Temporary sediment basins
- Permanent water quality features that can be used (offline) during construction
- Dewatering
- Clean water/stream diversions/temporary stream crossings
- Temporary slope drains

♦ Permanent Stabilization Plans

- Limits of Construction (LOC)
- Limits of Disturbance (LDA)
- Flow Arrows
- Protection Fencing (Wetlands, Exclusion Areas, Tree/Vegetation Protection, etc.)
- Transect Locations (with pre-construction percent cover at each site)
- State Waters (streams, ditches, lakes, etc.)
- Perimeter Control devices (Erosion logs, silt fence, etc.)
- Vegetative buffers/Landform
- Soil Management Map (Amendment locations, areas to rip, drill seed, hydro seed, soil types {onsite/import}, etc.)
- Permanent Seeding
- Soil retention blankets (class), TRM (class), Spray on mulch blanket/BFM, mulch, crimp, tack
- Wetlands mitigation
- Permanent ditch checks/temporary ditch checks
- Permanent run downs
- Permanent water quality features

Attachment 2 – MS4 Construction Program Documents Report

Attachment 1 is list of documents tracked in the Microsoft Access database for MS4 Construction Program linkages and is in the gathering phase of the development process.

Documents Report

Thursday, January 05, 2017
12:10:37 PM

Document Name	Owner	Published Da	Version	Comment	Current	Succeeded By
CDOT Standard Plans M&S Standards (2012)	CDOT	July 2012	July 2012		☑	
CDOT Standard Specifications (2011)	CDOT	2011	2011		☑	
Colorado Discharge Permit System Stormwater Permit (CDPS-SCP)	CDOT	July 1, 2007	July 1, 2007	Doc No. COR030000	☑	
CDOT Approved Product List	CDOT				☑	
CDOT Erosion Control and Stormwater Quality Guide	CDOT	2002	July 2014		☑	
CDOT Form 1176	CDOT	July 2011	July 2011	Doc No. 1176 - Erosion and Sediment Control Field inspector's Report	☑	
CDOT Form 1388	CDOT	January 2009	January 2009	Doc No. 1388	☑	
SWMP Notebook	CDOT				☑	
Spill Prevention, Control, and Countermeasure Plan (SPCC)	CDOT				☑	
Sentate Bill 40	DOW	Oct 1990	Oct 1990	Doc No. SB 40	☑	
USACE 404	EPA			Doc No. 404	☑	
Dewatering Permit	CDPHE	July 21, 2008	July 21, 2008	Doc No. COG-070000	☑	
Corrective Action Response Log (CARL)\ECAT\RECAT	CDOT	2011	2011		☑	
Form 105 - Speed Memo	CDOT	May 2010	May 2010	Doc No. 105	☑	
Stop Work Order	CDOT				☑	

Page 1 of 8

Document Name	Owner	Published Da	Version	Comment	Current	Succeeded By
Rules for Prequalification, Debarment, Bidding and Work on Transportation, Road, Highway and Bridge Public Projects	CDOT				☑	
Biological Opinion	U.S. Fish & Wildlife Service				☑	
SWMP Notebook Tabs	CDOT	July 2012	July 2012		☑	
MS4 Permit	CDPHE	February 1, 2007		COS-000005	☑	
CDOT Utility Permits	CDOT	April 2015	April 2015	Doc No. 1233	☑	
CDOT Access Permits	CDOT			Doc No. 137	☑	
CDOT Consent Order	CDOT	Jan 1, 2009	Jan 1, 2009	Doc No. SC_08XXXX-X	☑	
CDOT Construction Manual	CDOT	2014	May 13, 2016		☑	
CDOT Form 266	CDOT	February 2015	February 2015	Doc No. 266 - Inspector's Progress Report	☑	
Form 103	CDOT	February 2015	February 2015	Doc No. 13 - Project Diary	☑	
National Pollutant Discharge Elimination System (NPDES) Permit	EPA			Doc No. ILR10	☑	
Form 1177	CDOT	February 2016	February 2016	Doc No. 1177	☑	
208.03(e) Weekly Meeting Log	CDOT			Doc No 208.03(e)	☑	
Environmental Pre-Con Sign-In - Certification of Understanding	CDOT				☑	
Photographs Documenting Existing Vegetation	CDOT				☑	

Document Name	Owner	Published Da	Version	Comment	Current	Succeeded By
Water Quality Permit Transfer to Maintenance Punchlist	CDOT				☑	
208.03.(d).(8) Calendar	CDOT			Doc No. 208.03.(d).(8)	☑	
CDOT Monthly Audit Report	CDOT	March 2009	March 2009	Doc No. MAR-AC-09	☑	
Method Statement for Containing Pollutant Byproducts	CDOT			Statement submitted to engineer per spec 107.25(b) 13.	☑	
Cleaning of all Vehicles and Equipment Statement				Revision to spec 107.25	☑	
Inspections and Maintenance Method Statement					☑	
Potential Pollutants List for CDOT Projects	CDOT				☑	
Request to Work Outside of Limits of Disturbance	GBM				☑	
Request to Seed Outside Seeding Season	GBM				☑	
Colorado Water Quality Control Division Notice of Termination Construction Stormwater Inactivation Notice	CDPHE	July 2009	July 2009		☑	
Nationwide Permit 14	U.S. Army Corps of Engineers	Mar 12, 2007	Mar 19,2012		☑	

Document Name	Owner	Published Da	Version	Comment	Current	Succeeded By
Weed Free Forage Act, Title 35, Article 27.5, CRS	Department of Agriculture Weed Free Forage Certification Program				☑	
Certificate of Compliance	CDOT				☑	
CDOT Erosion Control and Stormwater Quality Field Guide	CDOT				☑	
FHWA Form 1273	FHWA				☑	
Form 280 - EEO and Labor Compliance Verification	CDOT	July 10, 2002	April 22, 2003	Equal Employment Opportunity and Labor Complance Construction Bulletin	☑	
Transfer of Stormwater Permit to Contractor	CDOT	April 26, 2016	April 26, 2016	Transfer of Stormwater Permit to Contractor	☑	
Policy Memo 27, Construction Activity Stormwater Discharge Permit	CDOT		March 14, 2012		☑	
Revision of Section 107 Water Quality Control (Contractor Obtained Stormwater Permit)	CDOT	March 29, 2016	March 29, 2016	Replaced Section 107.25	☑	
Erosion Control and Stormwater Quality Field Guide	CDOT	2011	2011		☑	
Watershed Impact Memorandum				WIM-Project Number	☑	
CDOT NEPA Manual	CDOT	October 2014	Version 4	EA, EIS or Drainage Report	☑	
Field Inspection Review (FIR) Meeting Summary	CDOT			FIR-Project Number	☑	
Final Office Review (FOR) Meeting Summary	CDOT			FOR-Project Number	☑	

Page 4 of 8

Document Name	Owner	Published Da	Version	Comment	Current	Succeeded By
Contractor Pre-Construction Conference Meeting Agenda	CDOT	March 2016	March 2016	PRECON -Project Number	☑	
On-Site Review by Regional Environmental (Technical Memorandum)	CDOT			RECAT-Project Number	☑	
REACT Site Report	CDOT			POST-Project Number	☑	
CDPS Permit Deactivation Notificaiton	CDOT			DEACT-Project Number	☑	
CDOT Project Development Manual	CDOT	January 2013	May 13, 2016		☑	
CDOT Landscape Architecture Manual	CDOT	2014	2014		☑	
Combined Water Quality Specification					☑	
Project Special Provisions Revision of Section 208 PWQ	CDOT	October 31, 2013	October 31, 2013	Revision Section 208 Work Sheet: 2089pbmbs	☑	
Standard Special Provisions (Revisions to the Combined Water Quality Specifications)	CDOT	May 2, 2016	May 2, 2016	Revision Sections 107 and 208	☑	
CDOT Design-Build Manual	CDOT	2006	June 11, 2014		☑	
CDOT Project Development Manual: Section 3	CDOT				☑	
Water Quality Control Update No. 2	CDOT	April 2009	April 2009	Construction Bulletin	☑	
Permanent Water Quality Mitigation Pool	CDOT	June 2014	August 17, 2015	Construction Bulletin	☑	
Water Quality Permit Transfer to Maintenance Punch List	CDOT	April 16, 2013	April 16, 2013	Construction Bulletin	☑	
Permanent Water Quality Mitigation Pool Combination Projects	CDOT	September 2014	September 2014	Design Bulletin	☑	
Water Quality Update No. 3: Daily Inspections and Local Agency Projects	CDOT	April 9 , 2009	September 2009	Construction Bulletin	☑	

Document Name	Owner	Published Da	Version	Comment	Current	Succeeded By
Water Quality Control Update No. 4	CDOT	February 2011	February 2011	Construction Bulletin	☑	
Regional Contracts for Water Quality and Erosion Control	CDOT	June 2013	June 2013	Construction Bulletin	☑	
Seed Provision Now Retroactive	CDOT	January 2013	January 2013	Construction Bulletin	☑	
Soil Retention Covering	CDOT	July 2014	July 2015	Revision of CDOT Standar M-216-1 & Revised CDOT Standard M-208-1	☑	
Construction Project Specifications	CDOT	December 3, 2009	December 3, 2009		☑	
Memorandum to CDPHE: RECAT Technical Memorandum Clarification	CDOT				☑	
Environmental Clearance Revisions	CDOT	December 2014	December 2014		☑	
Form 128 (Environmental Clearance)	CDOT	April 2013	April 2013	CDOT Form #128a	☑	
L2 (Lead/Lag Metrics) Report	CDOT				☑	
Chief Engineer Report	CDOT				☑	
MAR Query	CDOT				☑	
MAR SAP Report Project List	CDOT				☑	
MAR SAP Report Stats	CDOT				☑	
CRS 43-2-135	State of Colorado				☑	
CDOT Responsibility Memo on CRS 43-2-135	State of Colorado				☑	
CDPHE-WQCD MS4 Construction Programs and CDOT Guidance	State of Colorado				☑	
State Statute CRS 43-2-135 Relationship to CDOT's Municipal Stormwater Permit	State of Colorado				☑	

Document Name	Owner	Published Da	Version	Comment	Current	Succeeded By
CDPHE-WQCC Cherry Creek Reservoir Control Regulations 5 CCR 1002-72	State of Colorado				☑	
CCBWQA Message Regarding 5 CCR 1002-72	State of Colorado				☑	
Chapter 16 Construction Specifications	CDOT	October 2005	October 2005		☑	
Implementation of the Water Quality Control Consent Order	CDOT	December 23, 2008		Construction Bulletin	☑	
Section 107 - Contractor Obtained Stormwater Construction Permit	CDOT	July 31,2014	July 31,2014	Revision of Section 107	☑	
CDOT Local Agency Manual	CDOT	Septmeber 2006	Septmeber 2006	Appendix A - Forms	☑	
Final Checklist - Plans, Specifications & Estimate	CDOT		September 16, 2002	Form 463	☑	
Cherry Creek Reservoir Control Regulation	Dept. of Public Health and Environment	November 6, 1985	January 1, 2010	5 CCR1002-72	☑	
Project Development Process	CDOT		January 21, 2016		☑	
Revision of Section 208 Erosion Control	CDOT	March 29,2016	March 29,2016		☑	
Safety Data Sheets	CDOT				☑	
Revision of Section 107 Water Quality Control (CDOT Obtained Stormwater Permit)	CDOT	March 29,2016	March 29,2016		☑	
Application For Transfer of Ownership For All Permits, Certifications and Authorizations	CDOT				☑	

Document Name	Owner	Published Da	Version	Comment	Current	Succeeded By
Revision of Sections 107 and 208 Water Quality Control Under One Acre of Disturbance	CDOT	March 29,2016	March 29,2016		☑	
Transporation Erosion Control Supervisor Certification (TECS)	CDOT				☑	
Revised Standard Plan M-208-1	CDOT	March 29,2016	March 29,2016		☑	
CDOT TECS Certification Class 2 Student Manual	CDOT	June 2014	Version 1.0		☑	
Revision of Section 213 Mulching	CDOT	January 31, 2013	January 31, 2013		☑	
Transportation Erosion Control Supervisor (TECS) Certification Program Toolbox	CDOT		Version 1.1		☑	
Transportation Erosion Control Supervisor (TECS) Cerification - Official Training Stormwater Management Plan (SWMP)	CDOT		Version 1.2		☑	
Revision of Section 216 Soil Retention Covering	CDOT	August 26, 2010			☑	
Revision of Section 213 Mulching	CDOT	January 31, 2013			☑	
Certification of Understanding	CDOT				☑	
CDOT Standard Specifications (2005)	CDOT	2005	2005		☐	CDOT Standard Specifications (2011)
CDOT Standard Plans M&S Standards (2006)	CDOT	2006	2006		☐	CDOT Standard Plans M&S Standards (2012)

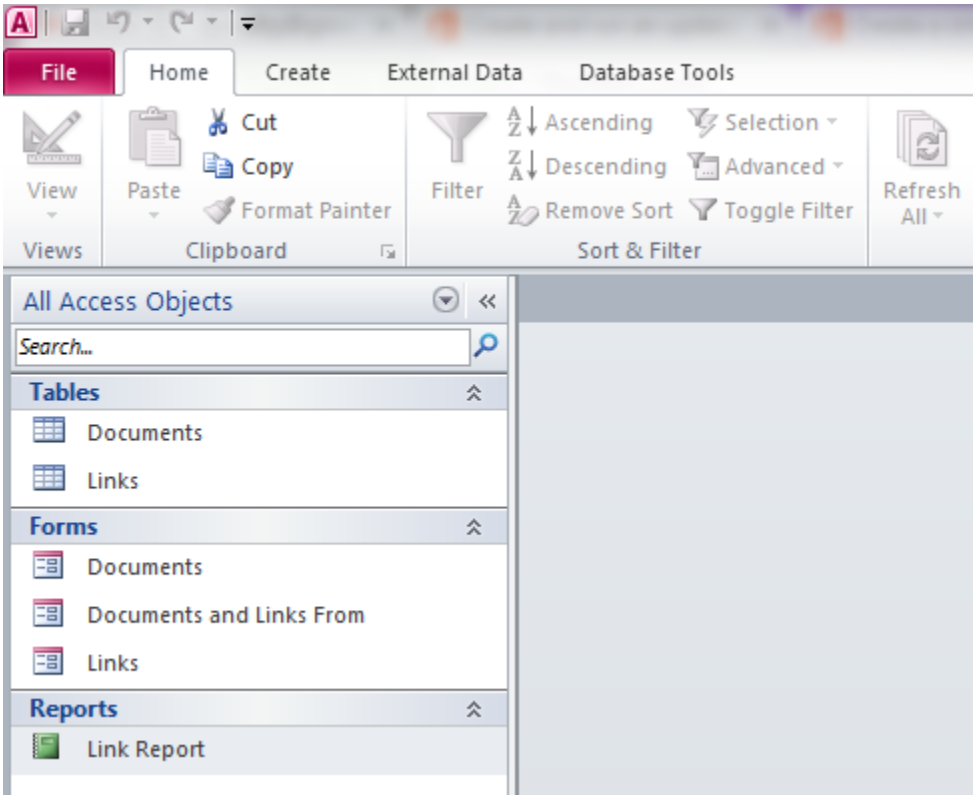
Page 8 of 8

Attachment 3 - MS4 Document Linkage Access Database Description and Use Instructions

This database is intended to track the relationship between the various documents that CDOT uses within the construction MS4 program. The intended use of the database is to determine which documents are affected by changes in other documents and flag them for potential updates.

Overview

The Access database is generally divided into three parts – Tables, Forms, and Reports. These can be seen on the left side of the page upon opening the database, and may be opened by double clicking on them:



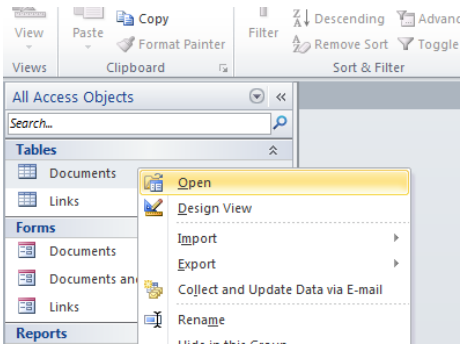
Tables is where the actual data is stored, in database format. You can review and edit the data, in columnar format by clicking on each table. See the Tables section for a description of the tables within the database.

Forms is where data can be input or reviewed and edited on a record-by-record basis. See the Forms section for a description of the forms within the database.

Reports contains several options to run reports on the data. See the reports section for a description of the reports within the database.

Tables

The Tables section can be used to view the raw database data. Although data can be entered and edited from this section, in general, it is preferable to enter data within forms (see the next section). The database is setup with two interrelated tables, *Documents* and *Links*. To view the data in either table, right click on the table name and select 'Open'.



Documents, contains a list of referenced documents. The data fields in this table include the document Owner, Version, Published Date, a flag to determine whether the document is current, and a succeeded by document id. A complete table description is included at the end of this document.

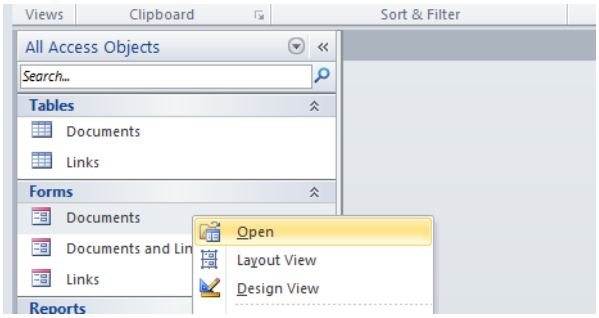
ID	Document Name	Owner	Published Date	Version	Comment	Current	SucceededI
1	CDOT Standard Plans M&S Standards (2012)	CDOT	July 2012	July 2012		☑	
2	CDOT Standard Specifications (2011)	CDOT	2011	2011		☑	
3	Colorado Discharge Permit System Stormwater P	CDOT	July 1, 2007	July 1, 2007	Doc No. COR030000	☑	
4	CDOT Approved Product List	CDOT				☑	
5	CDOT Erosion Control and Stormwater Quality Gu	CDOT	2002	July 2014		☑	
6	CDOT Form 1176	CDOT	July 2011	July 2011	Doc No. 1176 - Erosion ar	☑	
7	CDOT Form 1388	CDOT	January 2009	January 2009	Doc No. 1388	☑	
9	SWMP Notebook	CDOT				☑	
10	Spill Prevention, Control, and Countermeasure P	CDOT				☑	
11	Sentate Bill 40	DOW	Oct 1990	Oct 1990	Doc No. SB 40	☑	
12	USACE 404	EPA			Doc No. 404	☑	
13	Dewatering Permit	CDPHE	July 21, 2008	July 21, 2008	Doc No. COG-070000	☑	
14	Corrective Action Response Log (CARL)\ECAT\REC	CDOT	2011	2011		☑	
15	Form 105 - Speed Memo	CDOT	May 2010	May 2010	Doc No. 105	☑	

The second table, *Links*, tracks the relationships between the various documents in the Documents table. This table lists the ID (from the Documents table) for that each document is linked from and to, as well as the section and page for each link, both from and to. A complete table description is included at the end of this document.

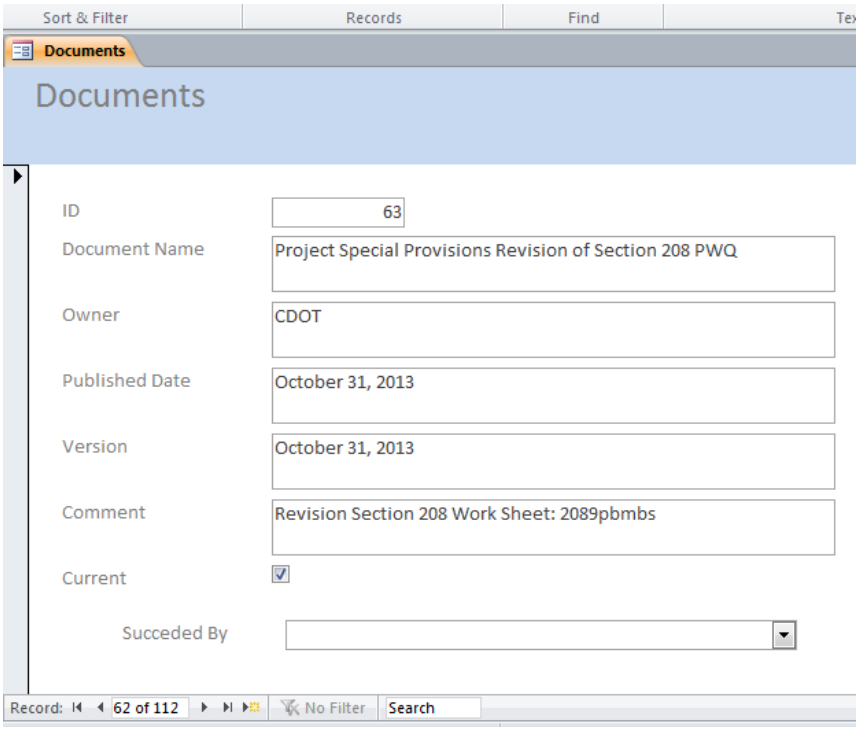
ID	LinkFromID	LinkFromSection	LinkFromPage	LinkToSection	LinkToPage	LinkToID	Click to Add
2	2	208.01	190	(CDPS-SCP) Applic	1	3	
3	2	208.02(a)	190			43	
4	2	208.02(a)	190			44	
5	2	208.02(j)	192			4	
6	2	208.03(c)	196	4.1	4-1	5	
7	2	208.03(c)(4)	196			6	
8	2	208.03(c)(5)	197			7	
9	2	208.03(c)(5)	197			9	
10	2	208.03(c)(14)	198			1	
11	2	208.03(c)(16)	198			10	
12	2	208.03-1(d)(9)	199			11	

Forms

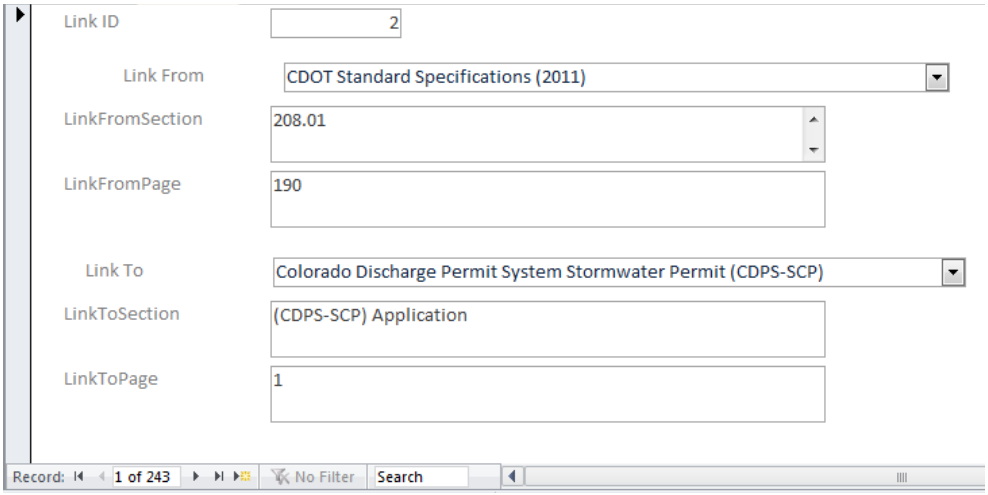
Forms allow the user to review the data on a record-by-record basis. There are three forms available within the database, as described below. To open a form, right click on the form in the object bar and select 'Open.'



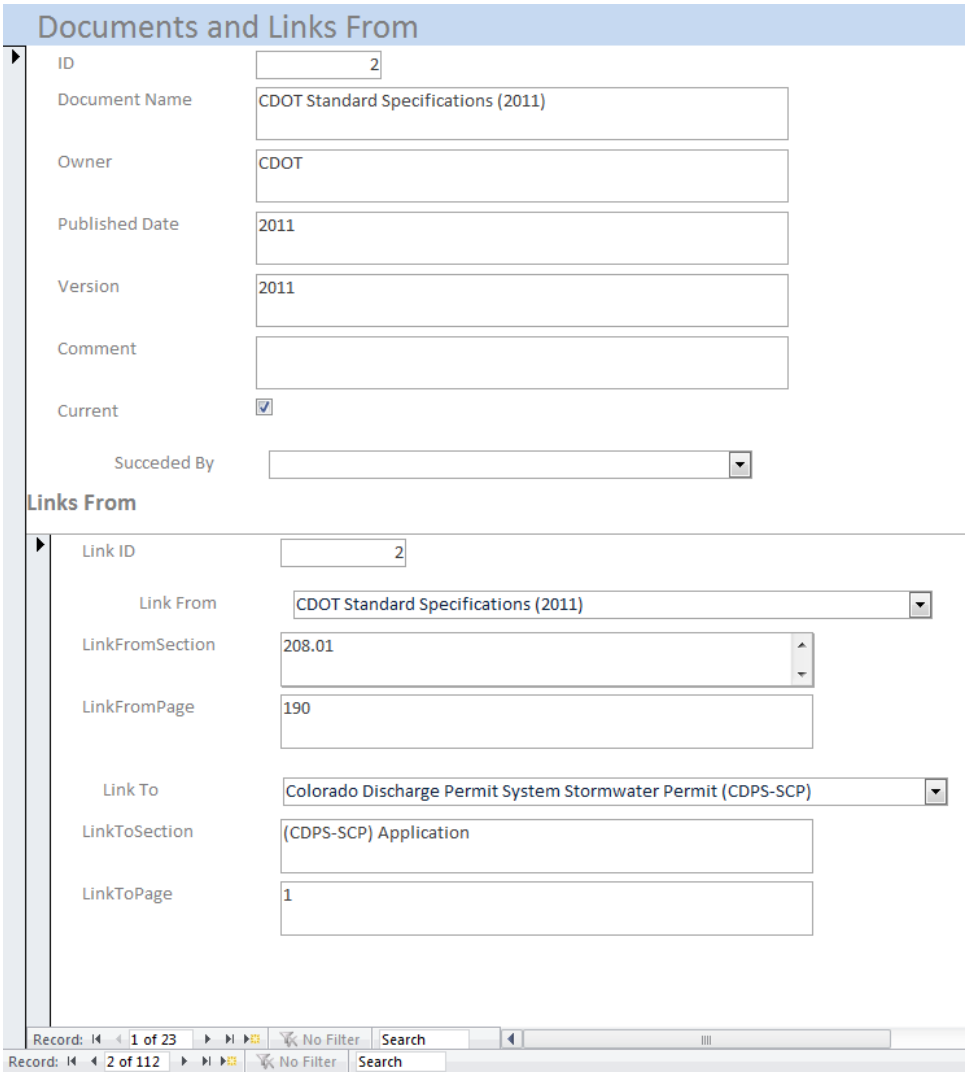
The *Documents* form allows the user to review and enter new documents into the database. The navigation bar on the bottom may be used to switch between existing documents, or create a new document. Access will automatically populate the Document ID – this should not be entered by the user. See the documents table description at the end of this document for a listing of the intended use of each data field.



The *Links* form enables the user to individually review the various links between documents. Like the Documents form, the user can navigate between links, or create a new link by using the navigation bar at the bottom. See the links table description at the end of this document for a listing of the intended use of each data field.

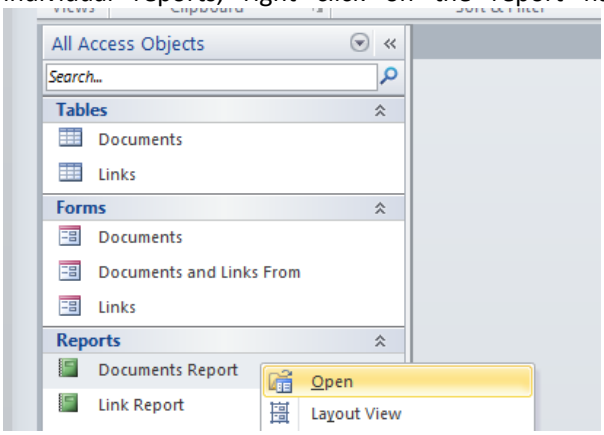


The *Documents and Links* form combines the two previous forms. This form enables the user to navigate through the documents and view the links from that particular document within a sub window.

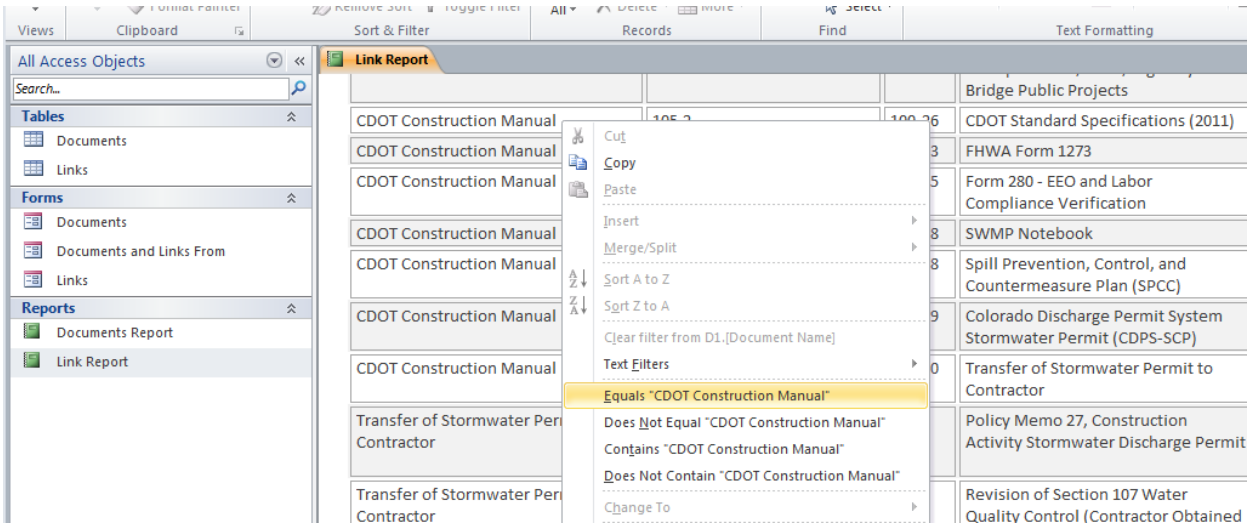


Reports

Two reports are available within the database – *Documents Report* and *Link Report*. To view the individual reports, right click on the report name in the object bar and select "Open."



The *Documents Report* lists the various documents and their associated information. The *Link Report* lists the links within the database. Both reports can be filtered by any field by right clicking on a field, and selecting the filter criteria. This is useful for limiting results to an individual document.



Reports, either filtered or unfiltered, may be printed by selecting File>Print from the navigation bar.

Data Field Description

The following tables summarize the data fields within the database and their intended use.

Documents Table Description

Field	Type	Description	Example
ID	Integer	Document ID – this is an internal ID number to Access to identify the record. The user should not enter this number, as it will auto-increment as records are added.	1
Document Name	Text	The name of the document	CDOT Erosion Control and Stormwater Quality Guide
Owner	Text	The organization responsible for publishing and updating the document	CDOT
Published Date	Text	The date, month, or year the document was published	July 2014
Version	Text	The Document version, often the same as the date	Version 8.0
Comment	Text	Any Comments regarding the document	Adopted 2012
Current	Logical	Should be checked if this is the most current version of the document	☑
SucceededID	Integer	The Document ID of the document which succeeded a non-current document	1

Links Table Description

Field	Type	Description	Example
ID	Integer	Link ID – this is an internal ID number to Access to identify the record. The user should not enter this number, as it will auto-increment as records are added. (required)	1
LinkFromID	Integer	The Document ID of the document the link is from	2
LinkFromSection	Text	The section number of the document the link originates from	208.09.01
LinkFromPage	Text	The page number of the document the link originates from	265
LinkToID	Text	The Document ID of the document the link is to (required)	3
LinkToSection	Text	The section number of the document the link is to	208.09.01
LinkToPage	Text	The page number of the document the link is to	265

COLORADO
Department of Transportation

Design- Bid- Build

COLORADO
Department of Transportation

COLORADO
Department of Transportation

Colorado Department of Transportation

MS4 Construction Program Manual
Design-Bid-Build Projects

March 31, 2017

Version 1.1

COLORADO
Department of Transportation

CONTENTS

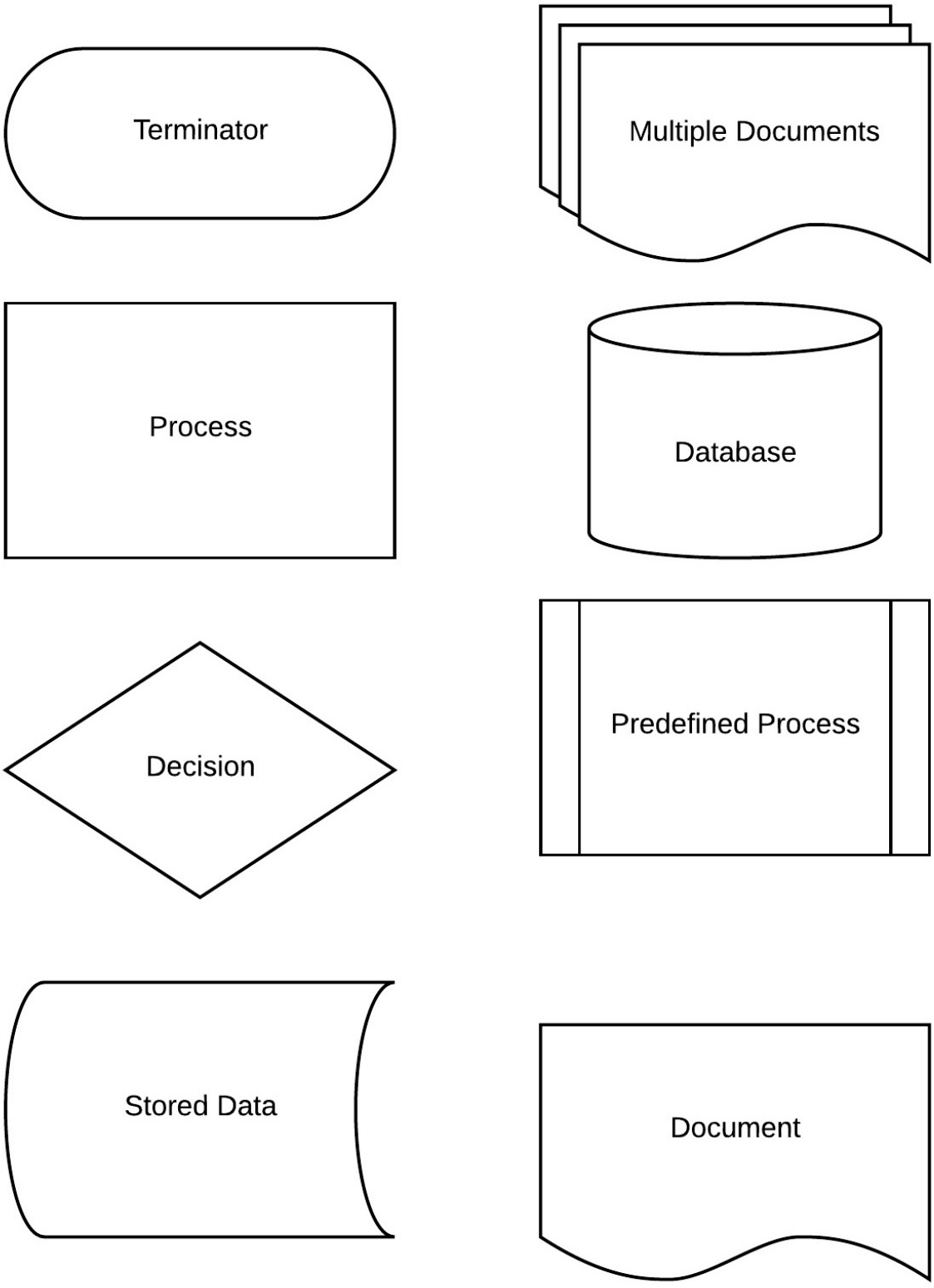
COLORADO
Department of Transportation

ACRONYM LIST

BMP	Best management practice
CADD	Computer Aided Drafting and Design
CDOT	Colorado Department of Transportation
CDPHE	Colorado Department of Public Health and Environment
CDPS-SCP	Colorado Discharge Permit System – Stormwater Construction Permit
DTD	Division of Transportation Development (CDOT)
ED	Ecological Design (CDOT Unit) in EPB
EPA	Environmental Protection Agency (U.S.)
EPB	Environmental Programs Branch (CDOT HQ)
ESCAN	Erosion and Sediment Control Assessment Notebook
FIR	Field inspection review (CDOT)
HRED	Hydrologic Resource and Ecological Design (CDOT Section) in EPB
LA	Landscape Architect
LS	Landscape Specialist
MCFM	MS4 Construction Field Manager (CDOT HQ)
MCPM	MS4 Construction Program Manager (CDOT HQ)
MS4	Municipal separate storm sewer system
MTCE	Maintenance program (CDOT)
NEPA	National Environmental Policy Act (42 U.S.C. §4321 et seq. [1969])
PDD	Program Description Document
RE	Resident Engineer (CDOT)
RECAT	Region Erosion Control Advisory Team (CDOT)
RPEM	Region Planning and Environmental Manager (CDOT)
RTD	Region Transportation Director (CDOT)
RWPCM	Region Water Pollution Control Manager (CDOT)
SOP	Standard Operating Procedure
SSU	Standards and Specifications Unit, Project Development Branch (CDOT HQ)
SWEMS	Stormwater Environmental Management System
SWMP	Stormwater Management Plan
WEX	Winter exclusion (“Winter Conditions” in the MS4 Permit)
WQCD	Water Quality Control Division (CDPHE)

COLORADO
Department of Transportation

MS4 CONSTRUCTION PROGRAM DIAGRAM KEY



All project types should follow the design-bid-build SOPs, as close as possible, until SOPs are developed for other project types (e.g., design-build, property management, MTCE, etc.).

1.0 INTRODUCTION TO DESIGN-BID-BUILD SOPs

Design-bid-build is the traditional project delivery method where the Colorado Department of Transportation (CDOT) either provides designs for the project or retains a designer to provide complete design services. CDOT then advertises and awards a separate construction contract based on the completed construction documents. In design-bid-build, CDOT owns the details of the design during construction and is, therefore, responsible for the cost of any errors or omissions encountered in construction. (CDOT Project Delivery Selection Workshop Summary, September 2014)

CDOT developed MS4 Construction Program standard operating procedures (SOPs) for design-bid-build projects through a collaborative effort among CDOT Headquarters and the five CDOT Regions. The five Region Transportation Directors (RTDs), at the direction of CDOT's Chief Engineer/Director of Stormwater Compliance, each appointed two delegates to sit on the MS4 Construction Program Task Force (Task Force). The Task Force consisted of five Region Water Pollution Control Managers (RWPCMs), one from each Region; two Region Hydraulic Engineers; one Professional Engineer II; and two Program Engineers. Task Force delegates were responsible for disseminating information to Region staff regarding SOP progress, consensus agreements and challenges, as well as bringing Region input and suggestions to the Task Force.

The Task Force worked under a Charter and direction from the Chief Engineer/Director of Stormwater Compliance. Specifically, the Chief Engineer/Director of Stormwater Compliance directed the Task Force to create MS4 Construction Program SOPs that meet seven Design Criteria (Design Criteria).

1) **Compliance** – Conforms to all State and Federal regulations, the MS4 Permit, the March 2015 EPA Audit and all CDOT Policy, Procedures, Processes and Specifications.
2) **Uniformity** – One set of SOP's for all MS4 processes throughout all Regions and HQ.
3) **Auditable/Trackable** – Performance measures which measure compliance with the MS4 Permit as well as conformance with the SOP's and documentation requirements that will allow auditing by HRED, CDPHE or EPA and give the measurements the ability to assess risk.
4) **Clear Defined Roles** –Ensure each person knows what they are responsible for in the process.
5) **Accountability** – Clear responsibilities for each role within the process.
6) **Escalation Process** – Taking up an internal chain of command to ensure compliance and accountability for any internal processes within the MS4 Program.
7) **User Friendly** – Processes cannot be overly complex. Simple, straight forward and efficient. Tools will be developed to simplify processes and increase efficiency.

The Task Force met six times between August 2016 and February 2017 to work through the MS4 Construction Program SOP processes. Before Workshop 1, the MS4 Construction Program Manager (MCPM) drafted a list of 45 potential design-bid-build SOPs; the foundation of each SOP is at least one MS4 Permit requirement or US Environmental Protection Agency (EPA) finding from the spring 2015 CDOT MS4 Permit inspection. The Task Force evaluated each SOP through

discussion, consensus, grouping, elimination and application of the Design Criteria. By the end of Workshop 6, the list had 16 design-bid-build SOPs (6 SWMP Design SOPs, 4 Construction SOPs and 6 MS4 Monitoring SOPs).

The Task Force has been renamed the MS4 Construction Program Committee (Committee). The Committee will meet annually, and as needed. The Committee is the owner of the *MS4 Construction Program Manual*.

1.1 INTENDED AUDIENCE, DESIGN-BID-BUILD SOPS

The intended audience for CDOT's design-bid-build SOPs is CDOT employees involved in all phases of the design-bid-build construction process. Table 1 presents the design-bid-build SOPs for which CDOT employees have defined roles and responsibilities. Note that the identified MS4 roles may delegate design-bid-build project responsibilities to individuals working under their guidance and direction. Delegation is a formal process requiring written documentation of the transference of responsibilities from the MS4 role to the designee. The designee must formally acknowledge acceptance of the designation.

Table 1. CDOT MS4 Roles for Each SOP

SOP #	*SOP Description*	*MS4 Roles*
Design (D)		
D1	*Updating CDOT's MS4 Citations and MS4 Construction Program Documents*	• *ED Unit Lead* • *HRED Section Manager* • *LA/LS* • *MCPM* • *RWPCM* • *SSU*
D2	*Project Special Provisions and Details*	• *ED Unit Lead* • *MCPM* • *RE* • *SSU* • *SWMP Preparer* • *SWMP Reviewer*
D3	*Control Measures for SWMP Design*	• *ED Unit Lead* • *HRED Section Manager* • *LA/LS* • *MCPM* • *RWPCM* • *SSU*
D4	*Updating SWMP Templates, Site Map Standards and SWMP Tabs*	• *ED Unit Lead* • *HRED Section Manager* • *MCPM* • *RWPCMs, SWMP Preparers, SWMP Reviewers and other CDOT Staff*
D5	*SWMP Design and Review*	• *ED Unit Lead* • *RE* • *RPEM* • *SWMP Preparer* • *SWMP Reviewer*
D6	*Cherry Creek Basin*	• *RE* • *SWMP Preparer*
Active and Post-Active Construction (C)		
C1	*Major/Minor SWMP Design Modifications during Construction*	• *Project Engineer* • *RWPCM* • *SWMP Reviewer*

SOP #	SOP Description	MS4 Roles
C2	Routine Audits and RECATs	• Maintenance • MCPM • Project Engineer • RWPCM
C3	MS4 Regulatory Authority, 208.09 Specification	• MCPM • Project Engineer • RE • RWPCM
C4	Long-term SWMP Retention	• RWPCM
MS4 Compliance Monitoring (M)		
M1	MS4 Construction Program Trainings	• ED Unit Lead • HRED Section Manager • MCPM • Trainer(s) • Training Owner
M2	MS4 Construction PDD Updates	• HRED Section Manager • MCPM
M3	MS4 Construction Program Manual Updates	• Chief Engineer/Director of Stormwater Compliance • HRED Section Manager • MCPM • RTD • Delegates
M4	MS4 Compliance Monitoring	• CDOT/CDPHE Liaison • Chief Engineer/Director of Stormwater Compliance • ED Unit Lead • HRED Section Manager • MS4 Personnel • RWPCM
M5	CDPHE-WQCD Contact/Inquiry	• CDOT/CDPHE Liaison • MCPM • RWPCM
M6	MS4 Construction Program Third Party Audit	• Chief Engineer/Director of Stormwater Compliance • HRED Section Manager • MCPM • RWPCM

1.2 REGULATORY BASIS

The regulatory basis for the design-bid-build SOPs is the MS4 Permit and findings from the EPA's spring 2015 inspection of CDOT's MS4 programs. Implementation of CDOT's MS4 Construction Program is statewide because of the upcoming Colorado Discharge Permit System-Stormwater Construction Permit (CDPS-SCP) requirement for owner/operator certification.

1.2.1 EPA AUDIT FINDINGS

The EPA led an inspection of CDOT compliance with MS4 Permit requirements from March 30, 2015 through April 2, 2015, accompanied by staff from the CDPHE - Water Quality Control Division (WQCD). At the time of the inspection CDOT was implementing the MS4 Permit (COS000005) that was effective beginning February 1, 2007 and, though initially set to expire on January 31, 2012, was administratively extended.

The CDOT Chief Engineer/Director of Stormwater Compliance on August 4, 2016 (in a Chief Engineer's Memo), identified repeated EPA findings that CDOT is inconsistent in applying and enforcing its MS4 Construction Program compliance requirements across CDOT Regions.

Inconsistent application of the MS4 Construction Program makes it difficult for CDOT to establish metrics to ensure regulatory compliance and identify as well as correct areas of noncompliance.

Table 2 presents the EPA audit findings applicable to the MS4 Construction Program (denoted "CS" [Construction Sites] or "PM" [Program Management] in EPA's inspection report) and design-bid-build SOPs developed in response to the finding.

Table 2. EPA Audit Findings and Relevant MS4 Construction Program, Design-bid-build Standard Operating Procedures

EPA Audit Finding Reference	*Finding Language*	*Relevant MS4 Construction Program SOP(s)*
1CS	The Green Book does not require stop work orders to be issued for discharges to state waters or other egregious non-compliance instances.	• MS4 Compliance Monitoring (M4) • MS4 Regulatory Authority (208.09 Specification) (C3) • Routine Audits and RECATs (C2)
2CS	CDOT failed to ensure compliance with the Construction General Permit, enforce according to the Green Book, and implement sanctions for chronic failures at design-bid projects.	• MS4 Compliance Monitoring (M4) • MS4 Regulatory Authority (208.09 Specification) (C3) • Routine Audits and RECATs (C2)
3CS	CDOT failed to follow the Green Book procedure for several construction sites across Regions by failing to issue and collect liquidated damages for corrective actions that went beyond 48 hours.	• MS4 Compliance Monitoring (M4) • MS4 Regulatory Authority (208.09 Specification) (C3) • Routine Audits and RECATs (C2)
4CS	CDOT has no formal mechanism to address chronic noncompliance by contractors as long as corrective actions occur within 48 hours.	• MS4 Compliance Monitoring (M4) • MS4 Regulatory Authority (208.09 Specification) (C3) • Routine Audits and RECATs (C2)
5CS	Contractors' failures to meet Construction General Permit and Green Book requirements were not identified by CDOT inspectors and a contractor Transportation Erosion Control Supervisor inspector during oversight inspections at CDOT construction sites.	• MS4 Compliance Monitoring (M4) • MS4 Regulatory Authority (208.09 Specification) (C3) • Routine Audits and RECATs (C2)
2PM	CDOT Headquarters and Regional staff are not consistently aware of the requirements in the Stormwater Management Programs, and the Stormwater Management Programs are not being consistently implemented.	• Cherry Creek Basin (D6) • Construction Stormwater Compliance Manual Updates (M3) • Control Measures for SWMP Design (D3) • Long-term SWMP Retention (C4) • Major/Minor SWMP Design Modifications during Construction (C1) • MS4 Compliance Monitoring (M4) • *MS4 Construction PDD* Updates (M2) • MS4 Construction Program Third Party Audit (M6) • MS4 Construction Program Trainings (M1) • MS4 Regulatory Authority (208.09 Specification) (C3) • Project Special Provisions and Details (D2) • Routine Audits and RECATs (C2) • SWMP Design and Review (D5) • Updating CDOT's MS4 Citations and MS4 Construction Program Documents (D1) • Updating SWMP Templates, Site Map Standards and SWMP Tabs (D4)

EPA Audit Finding Reference	*Finding Language*	*Relevant MS4 Construction Program SOP(s)*
3PM	CDOT has not ensured training for staff on requirements of the MS4 permit and associated CDOT programs.	• Cherry Creek Basin (D6) • Construction Stormwater Compliance Manual Updates (M3) • Control Measures for SWMP Design (D3) • Long-term SWMP Retention (C4) • Major/Minor SWMP Design Modifications during Construction (C1) • MS4 Compliance Monitoring (M4) • *MS4 Construction PDD* Updates (M2) • MS4 Construction Program Third Party Audit (M6) • MS4 Construction Program Trainings (M1) • MS4 Regulatory Authority (208.09 Specification) (C3) • Project Special Provisions and Details (D2) • Routine Audits and RECATs (C2) • SWMP Design and Review (D5) • Updating CDOT's MS4 Citations and MS4 Construction Program Documents (D1) • Updating SWMP Templates, Site Map Standards and SWMP Tabs (D4)

PM = Program Management
CS = Construction Sites

1.2.2 MS4 PERMIT

CDOT's current MS4 Permit (CDPS No. COS000005) was issued on July 28, 2015, approximately 3 months after the EPA inspection. The MS4 Permit contains specific regulatory requirements for CDOT MS4 Programs, including CDOT's MS4 Construction Program. The MS4 Construction Program is the most complex of CDOT's MS4 program areas because implementation is statewide and construction activities expose CDOT to the most regulatory and environmental risks. Table 3 identifies significant MS4 Permit requirements applicable to the MS4 Construction Program and the SOPs with processes to meet the requirements.

Table 3. MS4 Permit Construction Program Requirements and Relevant MS4 Construction Program, Design-bid-build Standard Operating Procedures (sorted by MS4 Permit Requirement)

MS4 Permit Requirement	*MS4 Permit Page(s)*	*Relevant SOP(s)*
Part I.B. CONTROL MEASURES	7	• Updating CDOT's MS4 Citations and MS4 Construction Program Documents (D1) • Project Special Provisions and Details (D2) • Control Measures for SWMP Design (D3)
Part I.C. DOCUMENTATION	7-8	• *MS4 Construction PDD* Updates (M2)
Part I.E.1.a.	10-12	• Updating CDOT's MS4 Citations and MS4 Construction Program Documents (D1) • Project Special Provisions and Details (D2) • Control Measures for SWMP Design (D3)
Part I.E.1.a.i. Regulatory Mechanism	10	• MS4 Regulatory Authority, 208.09 Specification (C3)
Part I.E.1.a.iv(A)	12	• Major/Minor SWMP Design Modifications during Construction (C1)

MS4 Permit Requirement	*MS4 Permit Page(s)*	*Relevant SOP(s)*
Part I.E.1.a.iv(B) Initial SWMP Review	12	• SWMP Design and Review (D5)
Part I.E.1.a.iv. Stormwater Management Plans (SWMPs)	12	• Updating SWMP Templates, Site Map Standards and SWMP Tabs (D4) • SWMP Design and Review (D5)
Part I.E.1.a.v(B)	12-15	• Routine Audits and RECATs (C2)
Part I.E.1.a.vi. Enforcement Response	15	• MS4 Regulatory Authority (208.09 Specification) (C3)
Part I.E.1.a.vii Training	15	• Routine Audits and RECATs (C2)
Part I.E.1.a.vii. Training	15	• MS4 Construction Program Trainings (M1)
Part I.E.1.a.viii. Cherry Creek Reservoir Drainage Basin Discharges	16	• Cherry Creek Basin (D6)
Part I.E.1.b. Recordkeeping	16	• SWMP Design and Review (D5) • Routine Audits and RECATs (C2)
Part I.E.1.b.iv. Recordkeeping	16	• SWMP Design and Review (D5) • Long-term SWMP Retention (C4)
Part I.E.1.b.vii. Training [Recordkeeping]	17	• MS4 Construction Program Trainings (M1)
Part I.E.1.c. PDD	17	• SWMP Design and Review (D5)
Part I.E.1.c. PDD	17-18	• *MS4 Construction PDD* Updates (M2) • Construction Stormwater Compliance Manual Updates (M3)
Part I.E.1.c.iv(A)	18	• Major/Minor SWMP Design Modifications during Construction (C1)
Part I.E.c.	17-18	• Updating CDOT's MS4 Citations and MS4 Construction Program Documents (D1) • Project Special Provisions and Details (D2)
Part I.K.2. Retention of Records	61-62	• Long-term SWMP Retention (C4)

The CDPHE-WQCD Contact/Inquiry (SOP M5) does not respond to EPA inspection findings or MS4 Permit requirements; however, CDOT includes this SOP to streamline communication with the WQCD and ensure that information from these communications is distributed throughout CDOT to implement a uniform MS4 Construction Program.

1.3 CDPS COMPLIANCE ASSURANCE

CDOT relies on a hierarchy of inspections, audits and monitoring to ensure compliance with the CDPS-SCP, MS4 Permit and the MS4 Construction Program (Figure 1). Contractors first inspect their construction projects for compliance with the CDPS-SCP. CDOT then conducts Routine Audits and RECATs to confirm that Contractors implement CDPS-SCP requirements and document compliance with the MS4 Permit (SOP C2). For the third step, CDOT MS4 Compliance Monitoring events evaluate the performance of Region and Headquarters CDOT employees with MS4 Construction Program roles and responsibilities (SOP M4). The final CDPS compliance assurance step is a third party audit of CDOT's MS4 Construction Program (SOP M6). Third party audits occur at least twice during each MS4 Permit cycle.

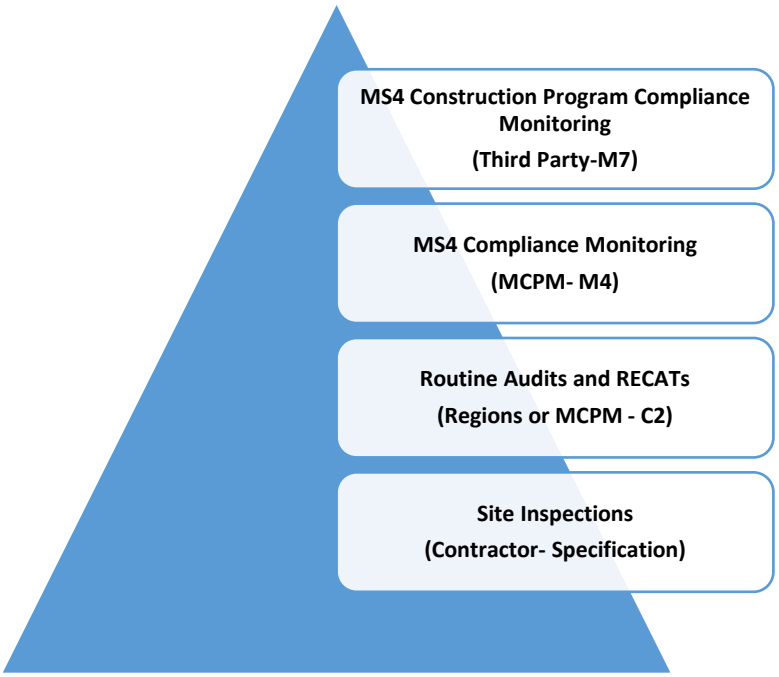


Figure 1. Hierarchy of MS4 Construction Program Inspections, Audits and Monitoring Events

Part II.A.4. of the MS4 Permit requires self-reporting to the WQCD when CDOT does not comply with or will not be able to comply with any MS4 Permit limitations, standards or permit requirements. CDOT is responsible for effectively implementing the MS4 Construction Program and intends to resolve MS4 Permit noncompliance internally. CDOT will report noncompliance to the WQCD only when CDOT's internal process fails to resolve the issue. The MS4 Compliance Monitoring SOP (SOP M4) establishes CDOT's internal escalation processes for Region Engineering, Region Environmental, HRED and Maintenance.

The escalation processes set forth in the MS4 Compliance Monitoring SOP (SOP M4) are designed around a 1-month time frame to give CDOT the time and space to resolve noncompliance successfully and avoid chronic noncompliance by the same CDOT employee. CDOT anticipates that most MS4 Permit issues will be resolved internally without requiring the Chief Engineer/Director of Stormwater Compliance to report noncompliance to the WQCD.

In the event that CDOT cannot successfully resolve noncompliance internally, the MCPM and CDOT/CDPHE Liaison draft a report of noncompliance for signature by the Chief Engineer/Director of Stormwater Compliance and delivery to the WQCD.

1.4 ESCAN

ESCAN is the Stormwater Environmental Management System (SWEMS) for the CDOT MS4 Construction Program. ESCAN, a proprietary software package, tracks and records all actions taken by CDOT to remain in compliance with construction program requirements in the MS4 Permit. ESCAN is currently in development to expand its functions to cover all *MS4 Construction Program Manual* SOPs; each SOP identifies specific information that must be recorded and tracked in ESCAN.

CDOT employees are responsible for only entering accurate and true information to ESCAN. Intentionally entering false or inaccurate project information to ESCAN results in immediate

escalation to the third step of the appropriate escalation path established in SOP M4 (i.e., RTD [Region Environmental]; PE III/RTD [Region Engineering]; Environmental Program Branch [EPB] Manager and DTD Director [HRED and Headquarters]; or Superintendent/RTD [Maintenance]).

1.5 SUMMARY

CDOT developed the *MS4 Construction Program Manual* to address critical field and programmatic SOPs to meet MS4 Permit, as well as EPA requirements for the construction program. The *MS4 Construction Program Manual* is a ready reference for CDOT MS4 personnel to understand roles and responsibilities for all aspects of the MS4 Construction Program.

When creating the design-bid-build SOPs, the Task Force was encouraged to apply processes already used during project development (e.g., SWMP design), construction and post-active construction with the goal of unifying these processes across the five Regions. To this end, the SOPs do not rewrite or change established CDOT processes (e.g., the roles of the Standards and Specifications Unit [SSU] and the Project Development Advisory Committee [PDAC] in changing specifications), rather the SOPs build MS4 Construction Program oversite steps around these formal processes to ensure that CDOT remains in compliance with the MS4 Permit. The MS4 Monitoring SOPs are new to CDOT and are necessary to self-identify program changes and corrections when MS4 Permit compliance risks are identified.

CDOT's *MS4 Construction Program Manual* is a dynamic document that is reviewed at least annually, and updated as needed. The *MS4 Construction Program Manual* is part of the SWEMS plan-do-check-act approach.

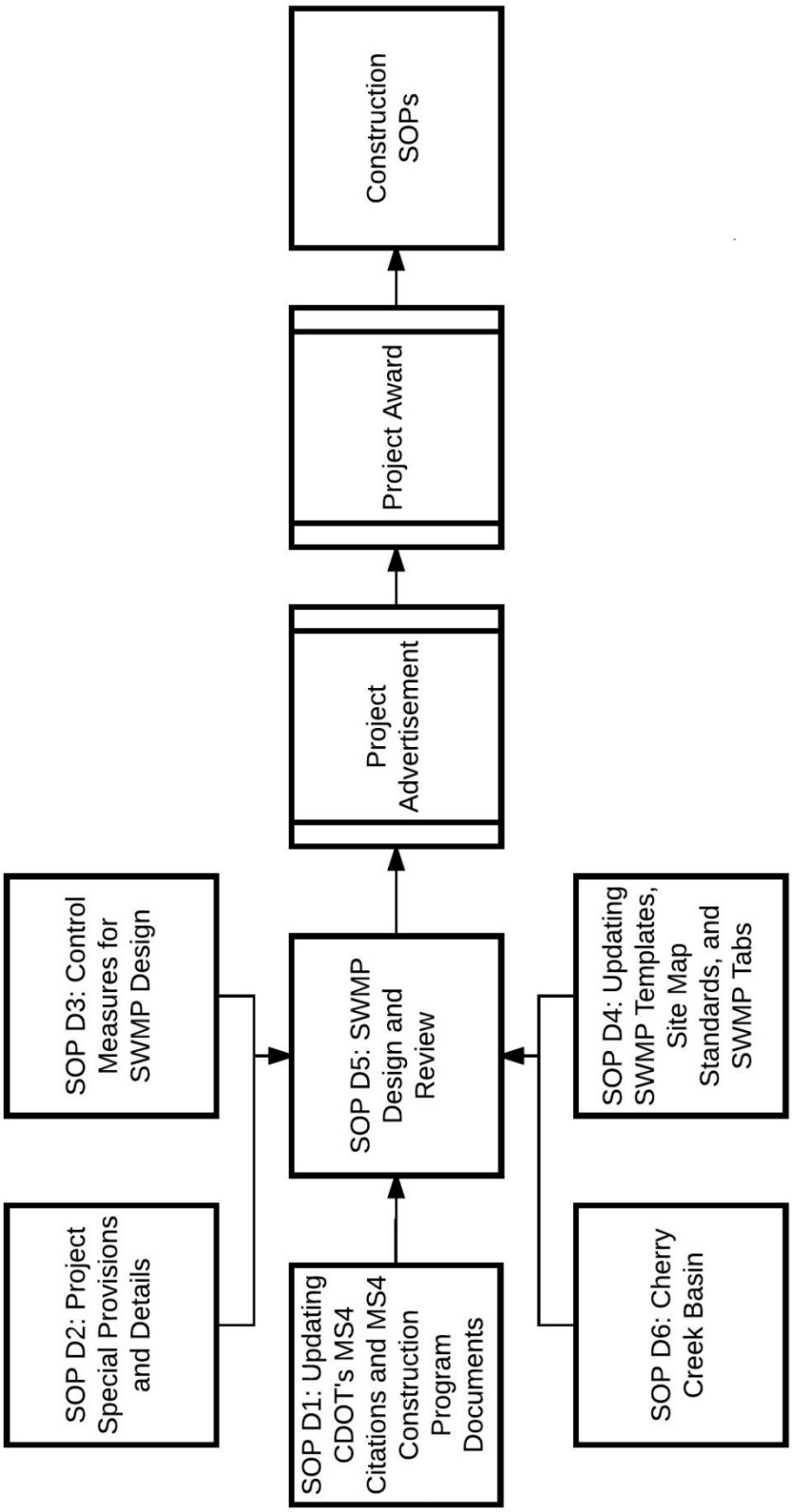
2.0 DESIGN SOPs

The MS4 Construction Program Task Force, with input from the MS4 Construction Program Manager (MCPM) and the Ecological Design (ED) Unit Lead, created the following six Design (D) standard operating procedures (SOPs) to address the SWMP Design phase of design-bid-build projects.

1. Updating CDOT's MS4 Citations and MS4 Construction Program Documents (Standard Operating Procedure D1)
2. Project Special Provisions and Details (Standard Operating Procedure D2)
3. Control Measures for SWMP Design (Standard Operating Procedure D3)
4. Updating SWMP Templates, Site Map Standards and SWMP Tabs (Standard Operating Procedure D4)
5. Project SWMP Design and Review (Standard Operating Procedure D5)
6. Cherry Creek Basin (Standard Operating Procedure D6)

The Design SOPs are effective beginning with project initiation and are applicable up to the project's Award Date. Key staff on design phase SOPs are SWMP Preparers, SWMP Reviewers, the ED Unit Lead, CDOT/CDPHE Liaison, MS4 Construction Program Manager (MCPM), MS4 Construction Field Manager (MCFM), HRED Section Manager, Region Water Pollution Control Managers (RWPCMs), Resident Engineers (REs), Landscape Architects (LAs) and Landscape Specialists (LSs).

MS4 Construction Program SWMP Design Process Flowcharts



UPDATING CDOT'S MS4 CITATIONS AND MS4 CONSTRUCTION PROGRAM DOCUMENTS (STANDARD OPERATING PROCEDURE D1)

Revision Number: 1.1
Date Issued/Revised: 3/31/2017
PDD Version Number: 1.1

1.0 Overview and MS4 Approach

CDOT strives to achieve statewide uniformity in using and applying Standard Specifications. Frequent changes to Standard Specifications and differences in specification dates from one project to another lead to misinterpretation, inconsistent enforcement and potential noncompliance with the MS4 Construction Program.

This standard operating procedure (SOP) describes the process to add, modify, or remove a CDOT MS4 Citation or MS4 Construction Program document. For the purposes of the MS4 Construction Program, the MS4 Citations are the list of applicable standards and requirements on which MS4 project findings are based. The MS4 Citations are CDOT *Standard Specifications for Road and Bridge Construction* (*Standard Specifications*) Sections 208 (Erosion Control), 213 (Mulching) and 216 (Soil Retention Covering) and Subsection 107.25 (Water Quality Control); Standard Plans M-208-1 (Temporary Erosion Control) and M-216-1 (Soil Retention Covering); and associated updates to MS4 Construction Program documents (sections of the *CDOT Construction Manual*, Forms 1176, 1177 and 1388).

The MS4 Citations are used on projects to identify findings during CDOT Routine Audits and RECATs on Colorado Discharge Permit System–Stormwater Construction Permit (CDPS-SCP) projects.

2.0 Regulatory Criteria

- MS4 Permit, Part I.B. Control Measures, page 7
- MS4 Permit, Part I.E.1.a., pages 10–12
- MS4 Permit, Part I.E.c., pages 17–18
- EPA Audit, 2PM
- EPA Audit, 3PM

3.0 MS4 Roles and Responsibilities

Section 3.0 is an overview of SOP responsibilities when a change to the MS4 Citations or MS4 Construction Program documents is being considered. The process and methods are listed in Section 4.0.

- **Ecological Design (ED) Unit Lead** is responsible for working with the Hydrologic Resource and Ecological Design (HRED) Section Manager, MS4 Construction

Program Manager (MCPM), MS4 Citations Planning Meeting participants and Task Force members to draft, submit and champion proposed changes to MS4 Citations and/or MS4 Construction Program documents through formal CDOT approval.

- **Hydrologic Resources and Ecological Design (HRED) Section Manager** works with the MCPM and ED Unit Lead to develop a risk and resource analysis, assigns a priority to proposed MS4 Citation and/or MS4 Construction Program document change(s), is invited to the MS4 Citations Planning Meeting and announces any MS4 Citation and/or MS4 Construction Program document change(s) in an Environmental Bulletin.
- **Landscape Architects (LAs)/Landscape Specialists (LSs)** may initiate MS4 Citation and/or MS4 Construction Program document change(s) and are invited to the MS4 Citations Planning Meeting(s).
- **MS4 Construction Program Manager (MCPM)** works with the HRED Section Manager and ED Unit Lead to develop a risk and resource analysis. The MCPM may participate in the MS4 Citations Planning Meeting or Task Force and may champion proposed changes to MS4 Citations and/or MS4 Construction Program documents through formal CDOT approval.
- **Region Water Pollution Control Managers (RWPCMs)** may initiate MS4 Citation and/or MS4 Construction Program document change(s) and are invited to the MS4 Citations Planning Meetings.

4.0 Methods/Procedures

1. **HRED Section Manager** issues an Environmental Bulletin with the date of the annual Fall MS4 Citations Planning Meeting, at least three months in advance.
2. Proposed MS4 Citation and MS4 Construction Program Document changes are drafted on the MS4 Citations and MS4 Construction Program Document Change Request Form (*under development*) and delivered to the **ED Unit Lead** and **MCPM** at least one month before the annual fall MS4 Citations Planning Meeting. Anyone may initiate an MS4 Citation change discussion; however, proposed changes initiated outside CDOT require a CDOT champion.
3. The **HRED Section Manager, ED Unit Lead and MCPM** evaluate regulatory risk, estimate CDOT resources affected and assign a priority to the proposed change(s) to guide the **ED Unit Lead**'s facilitation of the MS4 Citation Review Meeting.
    a. The outcome of this meeting is documented on the MS4 Citations and MS4 Construction Program Document Change Request Form (*under development*).
    b. High priority changes are addressed outside of the MS4 Citations Planning Meeting with review by the **MCPM**, **RWPCMs** and **LAs/LSs**.
    c. Lower priority changes are bundled and released with other lower priority MS4 Citation changes for discussion at the annual fall MS4 Citations Planning Meeting.

4. The **ED Unit Lead**, or designee, hosts the annual fall MS4 Citations Planning Meeting to discuss proposed change(s) to the MS4 Citations and develop an implementation plan.
    a. Relevant MS4 Personnel are invited to the MS4 Citations Planning Meeting.
    b. Discussion items are listed in SOP D1, Attachment 1 (MS4 Citations and MS4 Construction Program Document Change Request Form [*under development*]) and include resource requirements and regulatory risk.
    c. The implementation plan for MS4 Citation changes will identify Task Force members and the level of input requested by each Task Force member and a schedule to implement the change(s).
5. The **ED Unit Lead**, or designee, documents the implementation plan on the MS4 Citations and MS4 Construction Program Document Change Request Form (*under development*).
6. The **ED Unit Lead**, or designee, convenes the Task Force to gain consensus on revisions according to the implementation plan.
    a. The **MCPM** takes unresolved issue(s) to the **Chief Engineer/Director of Stormwater Compliance** for a final decision if a consensus is not reached.
7. The **ED Unit Lead**, or designee, drafts changes to the MS4 Citation (CDOT Form 1215) and/or MS4 Construction Program documents.
8. The **Task Force** approves the draft changes for official submittal.
9. The **ED Unit Lead** submits the approved draft changes to the owner of the document. (e.g., CDOT Form 1215 is submitted to SSU).
10. The **MCPM** and **ED Unit Lead** may champion MS4 Citation and/or MS4 Construction Program document changes through CDOT's established approval process (e.g., SSU/Project Development Advisory Committee [PDAC]) and report progress to the Task Force.
11. The **HRED Section Manager** announces all approved changes to MS4 Citations and/or MS4 Construction Program documents in a CDOT Environmental Bulletin.
12. The **MCPM**, or designee, revises the CDOT *MS4 Construction Program Manual* (*see* SOP M3), the MS4 Construction Program Description Document (PDD) (*see* SOP M2) and other MS4 Construction Program documents.

5.0 Documentation and Reporting Requirements

- CDOT Submittal of New Specification or Specification Change (CDOT Form 1215) https://www.codot.gov/library/forms/word-forms/cdot1215.doc/view
- MS4 Citations and MS4 Construction Program Document Change Request Form (*under development*)
- Revised MS4 Citations must be updated in ESCAN.

6.0 MS4 Training Requirements

- None at this time.

7.0 References to Existing Source Documents

- *CDOT Construction Manual*, Subsection 107.25 Water Quality Control and Sections 208 Erosion Control, 213 Mulching and 216 Soil Retention Covering https://www.codot.gov/business/designsupport/bulletins_manuals/cdot-construction-manual
- CDOT Form 1176 – Stormwater Field Inspection Report - Post Construction, Environmental https://www.codot.gov/library/forms/cdot1177.pdf/view
- CDOT Form 1177 – Stormwater Field Inspection Report - Active Construction, Environmental https://www.codot.gov/library/forms/cdot1176.pdf/view
- CDOT Form 1388 - Daily Stormwater Log, Environmental https://www.codot.gov/library/forms/cdot1388.pdf/view
- CDOT *MS4 Construction Program Description Document* https://www.codot.gov/programs/environmental/water-quality/documents/cdot-ms4-construction-program-program-description-document.pdf
- *CDOT Project Development Manual*, Subsection 3.17 Water Quality https://www.codot.gov/business/designsupport/bulletins_manuals/project-development-manual/07-pdm-sect-3-environmental-final.pdf/view
- CDOT *Roadway Design Guide*, Chapter 16 Construction Specifications https://www.codot.gov/business/designsupport/bulletins_manuals/roadway-design-guide/dg05-ch-16-specifications.pdf/view
- *CDOT Standard Specifications for Road and Bridge Construction*, Subsection 107.25 Water Quality Control and Sections 208 Erosion Control, 213 Mulching and 216 Soil Retention Covering https://www.codot.gov/business/designsupport/2011-construction-specifications/2011-Specs
- Standard Plan M-208-1, Temporary Erosion Control https://www.codot.gov/business/designsupport/standard-plans/2012-m-standards-plans
- Standard Plan M-216-1, Soil Retention Covering https://www.codot.gov/business/designsupport/standard-plans/2012-m-standards-plans

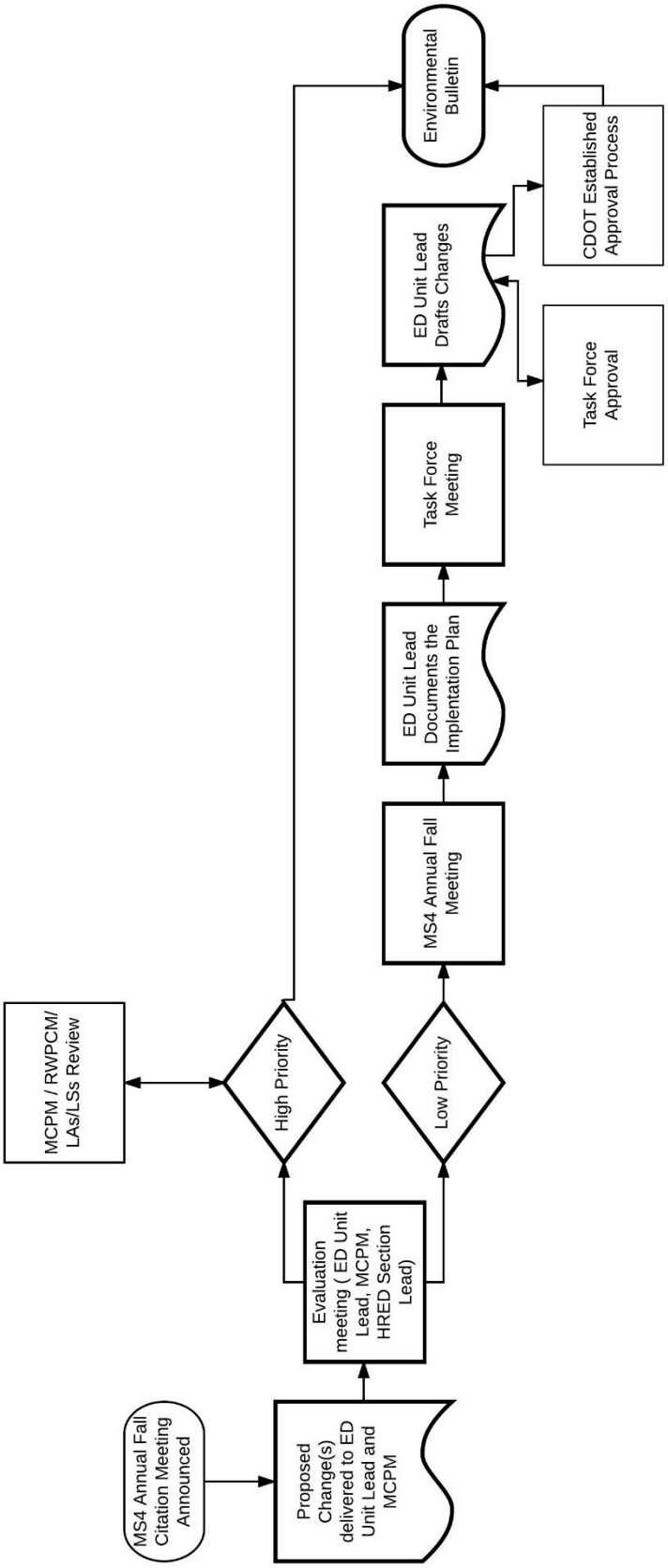
8.0 Attachments

- SOP D1, Attachment 1 is the process flowchart for updating CDOT's MS4 Citations.
- SOP D1, Attachment 2 MS4 Citations and MS4 Construction Program Document Change Request Form (*under development*)

9.0 SOP D1 Revision History

March 31, 2017 – Minor editorial changes by the MCPM

SOP D1, Attachment 1 – Updating CDOT's MS4 Citations and MS4 Construction Program Documents Process Flowchart



SOP D1, Attachment 2 – MS4 Citations and MS4 Construction Program Document Change Request Form (DRAFT)

	MS4 Citation and MS4 Program Document Change Request Form		
A	Discussion Item(s):	Rational:	
	Contact Info		Check all That Apply
	Requesting Party		
	Email		
	Phone		MS4 Citation ☐ MS4 Program ☐ MS4 Standard SWMP Template ☐
	Address		
	Requesting Party Signature		
B	Risk Assessment		
	Resource Needs	PDD Link Updates	Risk Assessment

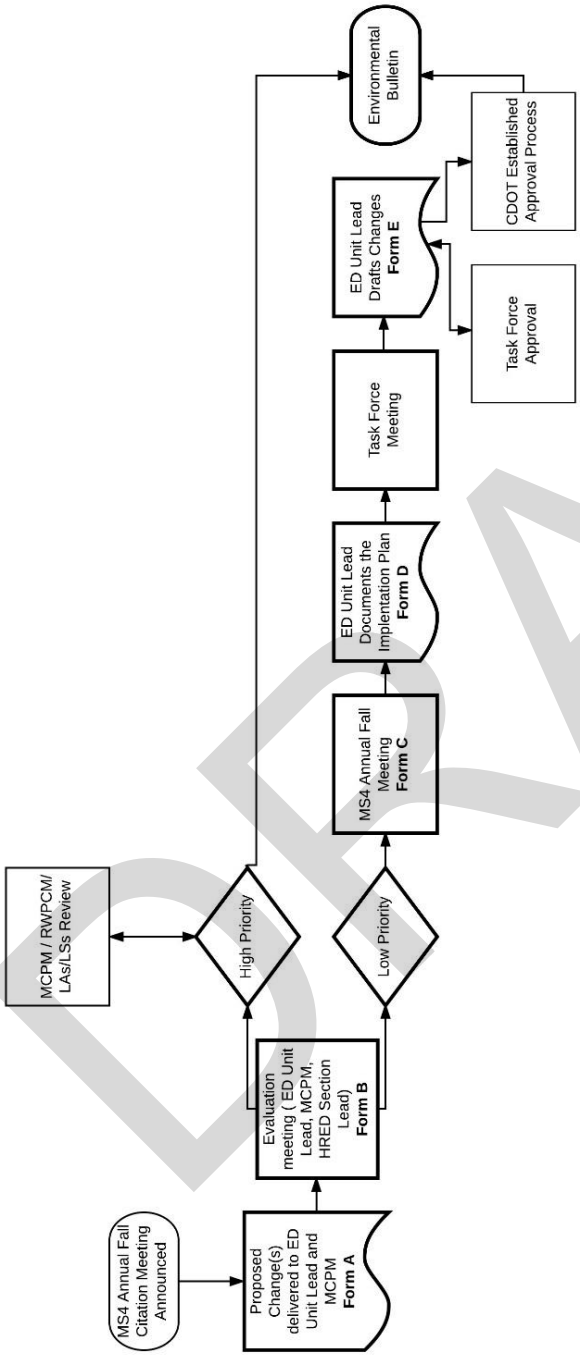
			Priority based on Risk Assessment High Priority ☐ Low Priority ☐
	Meeting Check Sheet		
C	What is the determined level of risk to CDOTS MS4 Construction program?		
	Are there other Technological Support's not assessed in order to improve the control measure?		
	What is the appropriate time frame for the MS4 Citation change?		
	Are there other related MS4 Citations that need to be updated and bundled for release? If so, what are the related MS4 Citations?		
	Are there other impacts associated with the changes that will impact the CDOT *MS4 Construction Program Manual*, trainings, The Erosion and Sediment Control Assessment Notebook (ESCAN), etc.?		
	Identify other resources (i.e. staff, time, budget) required to bring the MS4 Construction Program current with the proposed MS4 Citation change?		
	Identify any scheduling constraints?		

	How many estimated meetings are needed to finalize the proposed change(s)			
	Which subject matter experts need to be involved?			
	What is the level of Region and Headquarters input to ensure an appropriate recommendation and buy-in, and how will input be obtained?			
	What is the proposed release date?			
	Are there any release date impacts?			
	What level of participation and review do individual meeting participants request in the MS4 Citation change process?			
D	Implementation Plan			
	Attendees	R1		
		R2		
		R3		
		R4		
		R5		
		HQ		

	How many meetings are required to finalize the proposed change(s)?		
	Due date		
	Release date		
	Facilitators	Yes ☐ No ☐	If yes, Who?
	Discussion items		
Final Changes Recommended by the Task Force			
E	Change	Rational	

F	Updates to the Task Force made by MCPM and ED Unit Lead	
	Date	Update
G	Final Outcome	

D1


MS4 Annual Fall Citation Meeting Announced
Proposed Change(s) delivered to ED Unit Lead and MCPM **Form A**
Evaluation meeting (ED Unit Lead, MCPM, HRED Section Lead) **Form B**
MCPM / RWPCM/ LAs/LSs Review
High Priority
Low Priority
MS4 Annual Fall Meeting **Form C**
ED Unit Lead Documents the Implentation Plan **Form D**
Task Force Meeting
ED Unit Lead Drafts Changes **Form E**
Task Force Approval
CDOT Established Approval Process
Environmental Bulletin

PROJECT SPECIAL PROVISIONS AND DETAILS (STANDARD OPERATING PROCEDURE D2)

Revision Number: 1.1
Date Issued/Revised: 3/31/2017
PDD Version Number: 1.1

1.0 Overview and MS4 Approach

This standard operating procedure (SOP) ensures that project-specific changes to CDOT's MS4 Citations are compliant with the MS4 Construction Program and the Colorado Discharge Permit System–Stormwater Construction Permit (CDPS-SCP) and are entered into the ESCAN (*when developed*) for recording project findings based off of MS4 Citations.

This SOP establishes a statewide uniform approach to ensure all MS4 Citation-based Project Special Provisions are reviewed by CDOT's Standards and Specifications Unit (SSU) before the project's Award Date. Section 2.23 of CDOT's *Project Development Manual* describes the established Project Special Provision approval process.

SOP D2 does not modify this established process but adds MS4 Construction Program oversite to evaluate MS4 Citation Project Special Provisions for consistency with the MS4 Construction Program before the SSU's acceptance. Specifically, SSU must consult with the MS4 Construction Program Manager (MCPM) concerning compliance with the MS4 Construction Program and CDPS-SCP and the Ecological Design (ED) Unit Lead regarding industry standards and constructability. The MCPM, or designee, enters MS4 Citation Project Special Provisions into ESCAN, after acceptance by the SSU, to update the list of citations for a specific project.

Instead of using SOP D2 to modify the MS4 Citations on a project-by-project basis, the MS4 Construction Program intends that, when possible, SOP D1 is followed to formally modify MS4 Citations that are not working in the field or are difficult to audit.

2.0 Regulatory Criteria

- CDOT MS4 Permit (COS000005), Part I.B. Control Measures, page 7
- CDOT MS4 Permit (COS000005), Part I.E.1.a.iii, pages 10–12
- CDOT MS4 Permit (COS000005), Part I.E.c., pages 17–18
- CDPS-SCP (COR-030000), Part I.D.2., page 10
- EPA Audit, 2PM
- EPA Audit, 3PM

3.0 MS4 Roles and Responsibilities

Section 3.0 is an overview of MS4 roles and responsibilities for reviewing and approving MS4 Citation Project Special Provisions. The process and methods are listed in Section 4.0.

- **Ecological Design (ED) Unit Lead**, or designee, evaluates MS4 Citation Project Special Provisions for industry standards and constructability.
- **MS4 Construction Program Manager (MCPM)**, or designee, reviews MS4 Citation Project Special Provisions for compliance with CDPS-SCP and alignment with the MS4 Construction Program, including the Design Criteria. The MCPM, or designee, enters MS4 Citation Project Special Provisions into ESCAN to update the project's list of citations.
- **Resident Engineer (RE)**, or designee, prepares and delivers Project Special Provisions, including MS4 Citation Project Special Provisions, to the SSU for review and approval. The RE, or designee, verifies that Project Special Provisions are completed accurately (*CDOT Project Development Manual*, Subsection 2.23.03).
- **Standards and Specifications Unit (SSU)** reviews and approves Project Special Provisions (*CDOT Project Development Manual*, Subsection 2.23.03). The SSU approves MS4 Citation Project Special Provisions after consulting with the MCPM and ED Unit Lead regarding conformance with the MS4 Construction Program, including CDPS permits and industry constructability.
- **SWMP Preparer**, or designee, packages all Project Special Provisions, including MS4 Citation Project Special Provisions, with the project's SWMP Design.

4.0 Methods/Procedures

The Methods/Procedures for each project ensure that MS4 Citations in ESCAN are accurate for each project.

The RE, or designee, submits Project Special Provisions to the **SSU** for approval (*CDOT Project Development Manual*, Subsection 2.23.03). The Methods/Procedures for SOP D2 only address Project Special Provisions that modify MS4 Citations.

1. The **SSU** consults with the **MCPM**, or designee, regarding MS4 Citation Project Special Provision compliance with the MS4 Construction Program, the CDPS-SCP and the **ED Unit Lead**, or designee, for industry standards and constructability.
2. The **SSU** allows or disallows the MS4 Citation Project Special Provision.
    a. Approval is assumed if the **RE** does not receive a denial, request for additional information, or a change request within two weeks of submitting the MS4 Citation Project Special Provision to **SSU**.
3. The **SWMP Preparer**, or designee, packages approved MS4 Citation Project Special Provisions with the project's SWMP Design.
4. ESCAN (*when developed*) notifies the **MCPM** of MS4 Citation Project Special Provisions in the project's approved SWMP Design.
5. The **MCPM**, or designee, adds MS4 Citation Project Special Provisions to ESCAN (*when developed*) as a project citation that will be referenced in findings from Routine Audits (SOP C2 – MS4 Construction Program Routine Audits).

5.0 Documentation and Reporting Requirements

- Approved MS4 Citation Project Special Provision.

6.0 MS4 Training Requirements

- Not applicable.

7.0 References to Existing Source Documents

- *CDOT Construction Manual*, Subsection 107.25 Water Quality Control and Sections 208 Erosion Control, 213 Mulching and 216 Soil Retention Covering https://www.codot.gov/business/designsupport/bulletins_manuals/cdot-construction-manual
- CDOT *MS4 Construction Program Description Document* https://www.codot.gov/programs/environmental/water-quality/documents/cdot-ms4-construction-program-program-description-document.pdf
- CDOT Procedural Directive 513.1 "Construction Project Specifications" https://www.codot.gov/business/designsupport/2011-construction-specifications/2011-Specs/specs-changes-under-consideration/pd-513-1-review/view
- CDOT Procedural Directive 513.2 "Construction Project Standard Plans" http://intranet.dot.state.co.us/resources/policy-procedure/documents/0513-2/view
- CDOT Project Development Manual, Subsection 2.23 Special Provisions https://www.codot.gov/business/designsupport/bulletins_manuals/project-development-manual/section-2-project-development-process/view
- CDOT *Roadway Design Guide*, Chapter 16 Construction Specifications https://www.codot.gov/business/designsupport/bulletins_manuals/roadway-design-guide/dg05-ch-16-specifications.pdf/view
- CDOT *Standard Specifications for Road and Bridge Construction*, Subsection 107.25 Water Quality Control and Sections 208 Erosion Control, 213 Mulching and 216 Soil Retention Covering https://www.codot.gov/business/designsupport/2011-construction-specifications/2011-Specs
- Standard Plan M-208-1, Temporary Erosion Control https://www.codot.gov/business/designsupport/standard-plans/2012-m-standards-plans
- Standard Plan M-216-1, Soil Retention Covering https://www.codot.gov/business/designsupport/standard-plans/2012-m-standards-plans

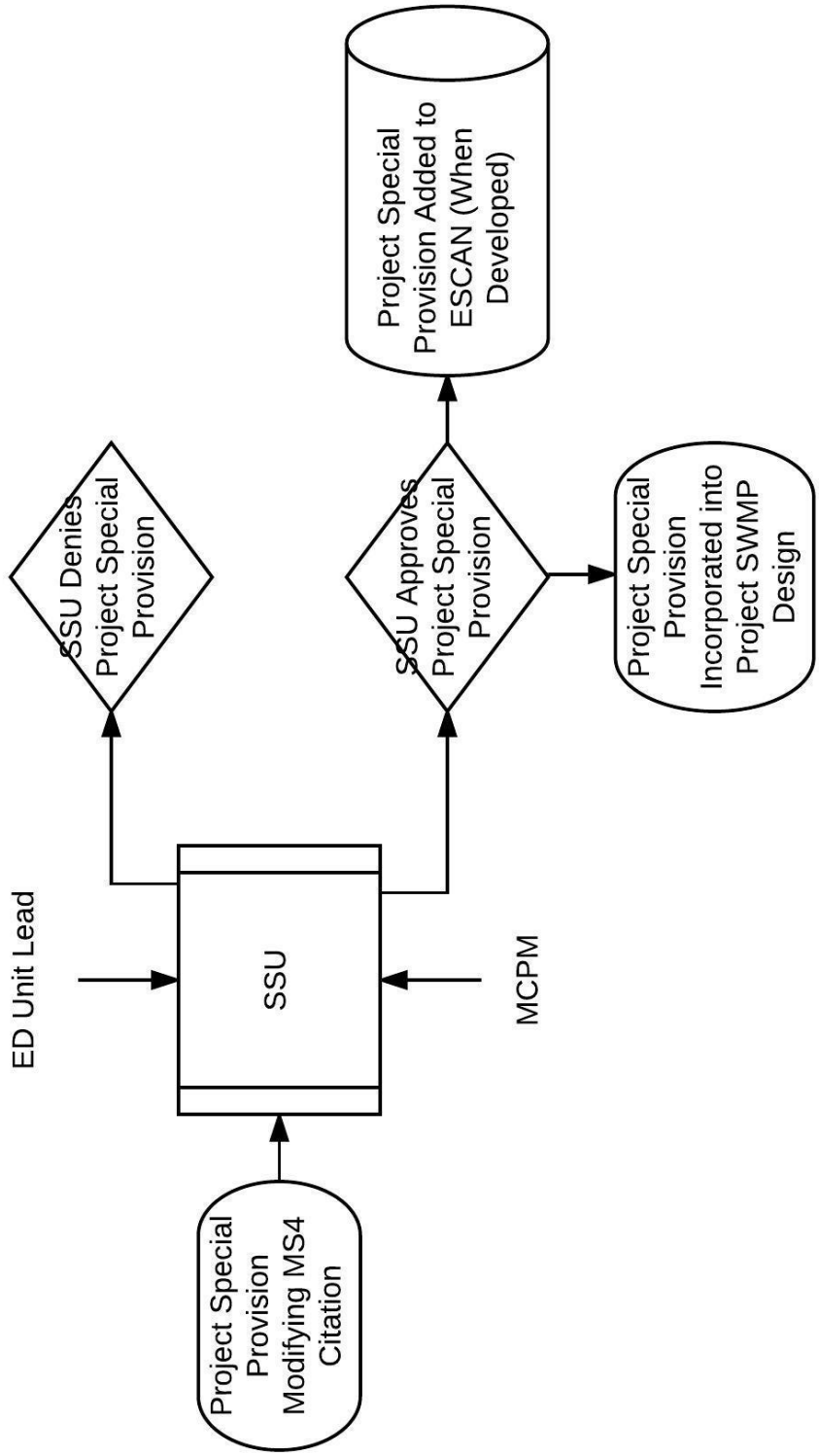
8.0 Attachments

- SOP D2, Attachment 1 is the CDOT MS4 Construction Program Project Special Provisions and Details process flowchart.

9.0 SOP D2 Revision History

March 31, 2017 – Minor editorial changes by the MCPM

SOP D2, Attachment 1 – CDOT MS4 Construction Program Project Special Provisions and Details Process Flowchart



CONTROL MEASURES FOR SWMP DESIGN (STANDARD OPERATING PROCEDURE D3)

Revision Number: 1.1
Date Issued/Revised: 3/31/2017
PDD Version Number: 1.1

1.0 Overview and MS4 Approach

Standard Plans (M Standards) Temporary Erosion Control (M-208-1) and Soil Retention Covering (M-216-1) and non-structural control measures in CDOT's MS4 Citations are the pool of control measures available for stormwater management plan (SWMP) design.

This standard operating procedure (SOP) describes the process for adding or removing temporary erosion and sediment control measures available to SWMP Preparers. This SOP ensures that M-208-1, M-216-1 and MS4 Citation non-structural control measures used for SWMP design reflect current and best industry practices. Following this SOP results in SWMP Preparers using effective and technologically up-to-date temporary control measures in SWMPs designed for projects with a Colorado Discharge Permit System–Stormwater Construction Permit (CDPS-SCP).

2.0 Regulatory Criteria

- CDOT MS4 Permit (COS000005), Part I.B. Control Measures, page 7
- CDOT MS4 Permit (COS000005), Part I.E.1.a.iii Control Measure Requirements, pages 11 and 12
- EPA Audit, 2PM
- EPA Audit, 3PM

3.0 MS4 Roles and Responsibilities

Section 3.0 is an overview of MS4 roles and responsibilities for changing the list of control measures available to SWMP Preparers. The process and methods are listed in Section 4.0.

- **Ecological Design (ED) Unit Lead** works with the Hydrologic Resource and Ecological Design (HRED) Section Manager, MS4 Construction Program Manager (MCPM), MS4 Citations Planning Meeting participants and Task Force members to draft, submit and champion proposed changes to temporary erosion and sediment control measures through formal CDOT approval.
- **Hydrologic Resources and Ecological Design (HRED) Section Manager** works with the MCPM and ED Unit Lead to develop a risk and resource analysis, assigns a priority to proposed changes to temporary erosion and sediment control measures, is invited to the MS4 Citations Planning Meeting and announces any

temporary erosion and sediment control measures changes in an Environmental Bulletin.

- **Landscape Architects (LAs)/Landscape Specialists (LSs)** may initiate changes to temporary erosion and sediment control measures and are invited to the MS4 Citations Planning Meeting(s).
- **MS4 Construction Program Manager (MCPM)** works with the HRED Section Manager and ED Unit Lead to develop a risk and resource analysis. The MCPM may participate in the MS4 Citations Planning Meeting or Task Force and may champion proposed changes to temporary erosion and sediment control measures through formal CDOT approval.
- **Region Water Pollution Control Managers (RWPCMs)** may initiate changes to temporary erosion and sediment control measures and are invited to MS4 Citations Planning Meetings.

4.0 Methods/Procedures

This SOP updates the list of temporary erosion and sediment control measures available for use in CDOT SWMP Designs by adding new control measure(s) or removing control measures no longer relevant or in use. The methods/procedures for updating the list of temporary erosion and sediment control measures follows Section 4.0 Methods/Procedures in SOP D1.

5.0 Documentation and Reporting Requirements

- CDOT Submittal of New Specification or Specification Change (CDOT Form 1215) https://www.codot.gov/library/forms/word-forms/cdot1215.doc/view

6.0 MS4 Training Requirements

- None at this time

7.0 References to Existing Source Documents

- *CDOT MS4 Construction Program Manual*, SOP D1 Updating CDOT's MS4 Citations
- CDOT *MS4 Construction Program Description Document* https://www.codot.gov/programs/environmental/water-quality/documents/cdot-ms4-construction-program-program-description-document.pdf
- *CDOT Standard Specifications for Road and Bridge Construction*, Subsection 107.25 Water Quality Control and Sections 208 Erosion Control, 213 Mulching and 216 Soil Retention Covering https://www.codot.gov/business/designsupport/2011-construction-specifications/2011-Specs
- Standard Plan M-208-1, Temporary Erosion Control https://www.codot.gov/business/designsupport/standard-plans/2012-m-standards-plans

- Standard Plan M-216-1, Soil Retention Covering
  https://www.codot.gov/business/designsupport/standard-plans/2012-m-standards-plans

8.0 Attachments

- Refer to SOP D1, Attachment 1

9.0 SOP D3 Revision History

March 31, 2017 – Minor editorial changes by the MCPM

UPDATING SWMP TEMPLATES, SITE MAP STANDARDS AND SWMP TABS (STANDARD OPERATING PROCEDURE D4)

Revision Number: 1.1
Date Issued/Revised: 3/31/2017
PDD Version Number: 1.1

1.0 Overview and MS4 Approach

CDOT's standard operating procedure (SOP) for updating the stormwater management plan (SWMP) narrative templates, SWMP map standards and symbology and SWMP tabs, collectively the standard SWMP templates, describe the following:

- how to request a change to standard SWMP templates,
- how standard SWMP template change requests are processed,
- how standard SWMP template change requests are approved and
- how SWMP Preparers are notified of new standard SWMP templates.

This SOP applies to the standard SWMP templates used for projects with a Colorado Discharge Permit System–Stormwater Construction Permit (CDPS-SCP).

Approved changes to the standard SWMP templates apply to CDOT construction project SWMPs initiated on or after the effective date of the standard SWMP template change.

2.0 Regulatory Criteria

- CDOT MS4 Permit (COS000005), Part I.E.1.a.iv. Stormwater Management Plans (SWMPs), Page 12
- EPA Audit, 2PM
- EPA Audit, 3PM

3.0 MS4 Roles and Responsibilities

Section 3.0 is an overview of MS4 roles and responsibilities when updating CDOT's standard SWMP templates. The process and methods are listed in Section 4.0.

- **Computer Aided Drafting and Design (CADD) Office** approves and implements changes to SWMP map standards.
- **Ecological Design (ED) Unit Lead** works with the Hydrologic Resource and Ecological Design (HRED) Section Manager, MS4 Construction Program Manager (MCPM), MS4 Citations Planning Meeting participants and Task Force members to draft, submit and champion proposed changes to standard SWMP templates through formal CDOT approval.
- **Hydrologic Resources and Ecological Design (HRED) Section Manager** works with the MCPM and ED Unit Lead to develop a risk and resource analysis, assigns a priority to proposed standard SWMP template change(s), is invited to the MS4

Citations Planning Meeting and announces any standard SWMP template changes in an Environmental Bulletin.

- **Landscape Architects (LAs)/Landscape Specialists (LSs)** may initiate any standard SWMP template changes and are invited to the MS4 Citations Planning Meeting(s).
- **MS4 Construction Program Manager (MCPM)** works with the HRED Section Manager and ED Unit Lead to develop a risk and resource analysis. The MCPM may act as a participant in the MS4 Citations Planning Meeting or Task Force and may champion proposed standard SWMP template changes through formal CDOT approval.
- **Region Water Pollution Control Managers (RWPCMs)**, **SWMP Preparers**, **SWMP Reviewers** and other CDOT Staff may initiate any standard SWMP template changes and are invited to the MS4 Citations Planning Meetings.

4.0 Methods/Procedures

The MS4 Construction Program uses two tracks to evaluate proposed changes to the standard SWMP templates. Track 1 is used for proposed changes to the SWMP narrative template or SWMP notebook tabs. Track 2 is used for proposed changes to the SWMP map standards.

Track 1 – SWMP Narrative Template and SWMP Notebook Tabs

The methods/procedures for approving changes to the SWMP narrative template or SWMP notebook tabs follows Section 4.0 Methods/Procedures in SOP D1.

Track 2 – SWMP Map Standards

1. The proposed change(s) to SWMP map standards follow steps 1 through 8 of Section 4.0 Methods/Procedures in SOP D1.
2. The **ED Unit Lead**, or designee, forwards the proposed change(s) to the SWMP map standards to CDOT's CADD Office.
    a. The CADD Office follows CDOT's established process for approving and implementing changes to SWMP map standards.
    b. The CADD Office updates MicroStation and pdf versions with the change(s) to the SWMP map standard.
3. The **HRED Section Manager** announces the change(s) in a CDOT Environmental Bulletin.

5.0 Documentation and Reporting Requirements

- Changes to CDOT's standard SWMP templates are recorded in ESCAN (*when developed*) and published on the CDOT Landscape Architecture website.
- Changes to the SWMP site map standards are uploaded to MicroStation.

6.0 MS4 Training Requirements

- None at this time.

7.0 References to Existing Source Documents

- CDOT *MS4 Construction Program Description Document* https://www.codot.gov/programs/environmental/water-quality/documents/cdot-ms4-construction-program-program-description-document.pdf
- CDOT SWMP Template >1 Acre Impact https://www.codot.gov/programs/environmental/landscape-architecture/swmp-template-1-acre-impact-1/view

8.0 Attachments

- Refer to SOP D1, Attachment 1 for Track 1. Track 2 adds the step of forwarding proposed change(s) to the SWMP map standards to CDOT's CADD Office for approval and implementation.

9.0 SOP D4 Revision History

March 31, 2017 – Minor editorial changes by the MCPM

PROJECT SWMP DESIGN AND REVIEW (STANDARD OPERATING PROCEDURE D5)

Revision Number: 1.1
Date Issued/Revised: 3/31/2017
PDD Version Number: 1.1

1.0 Overview and MS4 Approach

This standard operating procedure (SOP) addresses preparing and reviewing a project's SWMP Design before the Award Date. The SWMP Design consists of project narratives (SWMP Design Tab 1), SWMP maps (SWMP Design Tab 2), specifications (SWMP Design Tab 3, Standard Specifications and Project Special Provisions), M-standards (SWMP Design Tab 4) and photographs documenting existing vegetation (SWMP Design Tab 17). The project's SWMP Design is one of many items that must be reviewed and accepted before the CDOT Region Planning and Environmental Manager (RPEM) signs CDOT Form 128-NEPA Determination/Project Certification and the project bid package is released for advertisement. The project's SWMP Design is provided to the Contractor on the project's Award Date.

This SOP is applicable to all CDOT projects with a Colorado Discharge Permit System–Stormwater Construction Permit (CDPS-SCP). CDOT must keep a copy of the reviewed and accepted project SWMP Design (MS4 Permit, Part I.E.1.b.iv.) and document CDOT's review and acceptance of the project's SWMP Design. The Major/Minor SWMP Modifications SOP (SOP C1) governs the process of revising the project's SWMP Design after the Award Date.

2.0 Regulatory Criteria

- CDOT MS4 Permit (COS000005), Part I.B.1. Good Engineering, Hydrologic and Pollution Control Practices, page 7
- CDOT MS4 Permit (COS000005), Part I.E.1.a.iv Stormwater Management Plans (SWMPs), page 12
- CDOT MS4 Permit (COS000005), Part I.E.1.a.iv(B) Initial SWMP Review, page 12
- CDOT MS4 Permit (COS000005), Part I.E.1.b. Recordkeeping, page 16
- CDOT MS4 Permit (COS000005), Part I.E.1.c. PDD, page 17
- CDPS-SCP (COR030000), Part I.B – Stormwater Management Plan – General Requirements, pages 6 and 7
- CDPS-SCP (COR030000), Part I.C – Stormwater Management Plan – Contents, pages 7–10
- EPA Audit, 2PM
- EPA Audit, 3PM

3.0 CDOT Roles and Responsibilities

Section 3.0 is an overview of MS4 roles and responsibilities for preparing, reviewing and approving a project's SWMP Design. The process and methods are listed in Section 4.0.

- **Ecological Design (ED) Unit Lead**, or designee, is the Training Owner of the SWMP Preparer and SWMP Reviewer certification courses. The ED Unit Lead, or designee, maintains a database of MS4 Construction Program design criteria for project SWMP Designs (ESCAN, *when developed*).
- **Region Planning and Environmental Manager (RPEM)** coordinates with the Resident Engineer (RE) to appoint a SWMP Reviewer by the project's field inspection review (FIR). The RPEM works with the SWMP Preparer to modify the SWMP review schedule (if needed), documents SWMP Design acceptance on CDOT Form 128 and signs CDOT Form 128 when environmental clearances are complete.
- **Resident Engineer (RE)**, or designee, coordinates with the RPEM to appoint a SWMP Reviewer by the project's FIR. The RE is responsible for verifying that a CDPS-SCP project has an approved SWMP Design before CDOT Form 128 is signed by the RPEM.
- **SWMP Preparer** holds a valid CDOT SWMP Preparer certification. The SWMP Preparer is responsible for a project's SWMP Design before the Award Date.
- **SWMP Reviewer** is a full-time CDOT employee, preferably a Region Environmental staff, who holds a valid CDOT SWMP Reviewer certification. SWMP Reviewers review and approve project SWMP Designs for CDPS-SCP projects. A SWMP Reviewer may not review a SWMP Design for which they were the SWMP Preparer.

4.0 Methods/Procedures

1. The **SWMP Preparer** must hold a valid CDOT SWMP Preparer certification throughout the design process (*when developed*).
2. The **SWMP Preparer**, or designee, prepares the project's SWMP Design according to Section 3.15 of the *CDOT Project Development Manual* and MS4 Construction Program SWMP Citations (available in the *MS4 Construction Program Development Document*).
    a. The **SWMP Preparer**, or designee, packages approved MS4 Citation Project Special Provisions with the project's SWMP Design.
    b. The **SWMP Preparer** records their name and certification number in ESCAN (*when developed*).
3. The **RPEM** and the **RE** coordinate and appoint a **SWMP Reviewer** by FIR.
    a. The **SWMP Reviewer** must hold a valid CDOT SWMP Reviewer certification (*when developed*).
4. The **SWMP Preparer** notifies the appointed SWMP Reviewer and RPEM that the SWMP Design is ready for review.
5. The **SWMP Reviewer** has 14 calendar days to approve the project's SWMP Design. The **RPEM** and **SWMP Preparer** must mutually agree to extend the SWMP review beyond 14 calendar days.

6. Upon approval, the **SWMP Reviewer** uploads the final SWMP Design used in the bid package to ESCAN (*when developed*).
    a. The **SWMP Reviewer** records their name and certification number in ESCAN (*when developed*).
7. The appointed **SWMP Reviewer** notifies the **RPEM** in writing that CDOT Form 128 requirements pertaining to SWMP Design review have been met.
8. Subsequent changes to the final SWMP Design used in the bid package must be re-approved by the appointed **SWMP Reviewer**.

5.0 Documentation and Reporting Requirements

- The SWMP Reviewer's name and CDOT certification number must be recorded on the SWMP's cover page and tracked in ESCAN (*when developed*)
- A copy of the final SWMP Design used in the bid package is stored in ESCAN (*when developed*)
- Completed CDOT Form 128 (NEPA Determination/Project Certification)

6.0 MS4 Training Requirements

- CDOT SWMP Preparer Certification (*when developed*)
- CDOT SWMP Reviewer Training Course (*under development*)

7.0 References to Existing Source Documents

- CDOT Form 128 (Categorical Exclusion Determination)
  https://www.codot.gov/library/forms/cdot0128.pdf
- CDOT *MS4 Construction Program Description Document*
  https://www.codot.gov/programs/environmental/water-quality/documents/cdot-ms4-construction-program-program-description-document.pdf
- *CDOT Project Development Manual*, Subsection 2.11 Hydraulic Design (Erosion Control and Stormwater)
  https://www.codot.gov/business/designsupport/bulletins_manuals/project-development-manual/06-pdm-sect-2-project-development-process.pdf/at_download/file
- *CDOT Project Development Manual*, Subsection 3.15 Stormwater Management Plans (SWMP)
  https://www.codot.gov/business/designsupport/bulletins_manuals/project-development-manual/07-pdm-sect-3-environmental-final.pdf/view
- *CDOT ProjectWise Reference Manual*
  https://www.codot.gov/business/designsupport/cadd/projectwise-reference-manual/view
- *CDOT SWMP Preparer/Approver Training Manual* (*under development*)
- CDOT SWMP Template >1 Acre Impact
  https://www.codot.gov/programs/environmental/landscape-architecture/swmp-template-1-acre-impact-1/view

- New ProjectWise Project Folder Structure Announcement
  https://www.codot.gov/business/designsupport/cadd/pw-new-folder-structure/view

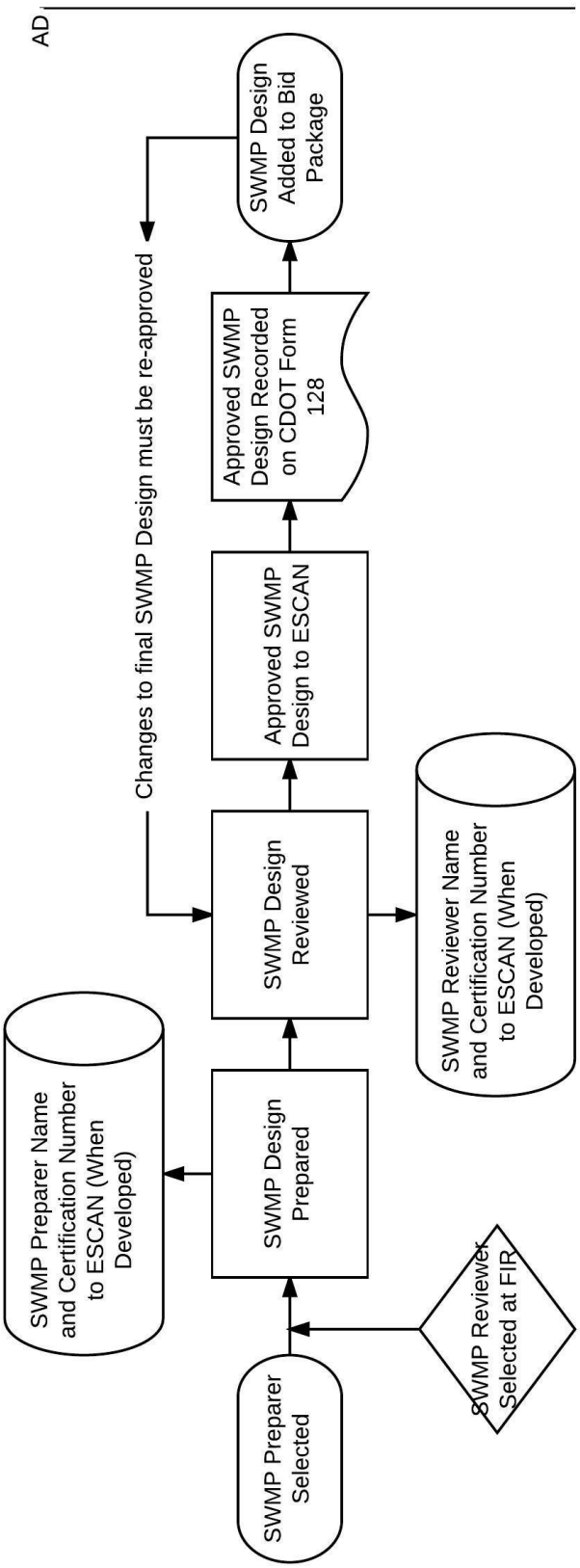
8.0 Attachments

- SOP D5, Attachment 1 for the SWMP Design and review process flowchart

9.0 SOP D5 Revision History

March 31, 2017 – Minor editorial changes by the MCPM, moved the list of SWMP citations to the *MS4 Construction Program Description Document*.

SOP D5, Attachment 1: SWMP Design and Review Process Flowchart



CHERRY CREEK BASIN (STANDARD OPERATING PROCEDURE D6)

Revision Number: 1.1
Date Issued/Revised: 3/31/2017
PDD Version Number: 1.1

1.0 Overview and MS4 Approach

This standard operating procedure (SOP) outlines how a CDOT project with a Colorado Discharge Permit System–Stormwater Construction Permit (CDPS-SCP) in the Cherry Creek Basin remains in compliance with MS4 Construction Program requirements and the CDPHE- Water Quality Control Division's (WQCD) Cherry Creek Basin Reservoir Control Regulation (5 CCR 1002-72). The Cherry Creek Basin Reservoir Control Regulation implements activities to reduce inflow total phosphorus concentrations to Cherry Creek Reservoir, including non-point source control measures.

5 CCR 1002-72 defines the Cherry Creek Watershed as:

> "all lands that drain into the following: (a) the main stem of Cherry Creek, from the source of East and West Cherry Creek to the inlet of Cherry Creek Reservoir (Segment 1), including alluvial groundwater; (b) Cherry Creek Reservoir (Segment 2), including alluvial groundwater; (c) all tributaries to Cherry Creek, including wetlands and alluvial groundwater, from the sources of East and West Cherry Creeks (parts of Segment 4), and (d) all lakes and reservoirs in the Cherry Creek Reservoir watershed (Segment 5, in part) as described in the Classifications and Numeric Standards - South Platte River Watershed, Regulation #38 (5 CCR 1002-38)."

Cherry Creek Basin Water Quality Authority (Authority) is tasked with preserving water quality in Cherry Creek and Cherry Creek Reservoir through the reduction of phosphates in the watershed. The Authority Board consists of representatives from two counties, eight cities, special districts that provide water and wastewater treatment in the basin and seven public representatives appointed by the Governor of Colorado.

CDPS-SCP projects located in or draining to the Cherry Creek Basin are responsible for complying with the MS4 Construction Program as well as additional Cherry Creek Basin requirements discussed below.

2.0 Regulatory Criteria

- CDOT MS4 Permit (COR000005), Part I.E.1.a.viii. Cherry Creek Reservoir Drainage Basin Discharges, page 16
- 5 CCR 1002-72 Cherry Creek Reservoir Control Regulation
- EPA Audit, 2PM
- EPA Audit, 3PM

3.0 MS4 Roles and Responsibilities

Section 3.0 is an overview of MS4 roles and responsibilities for CDOT CDPS-SCP projects in the Cherry Creek Reservoir watershed. The process and methods are listed in Section 4.0.

- **Resident Engineer (RE)**, or designee, forwards the project's SWMP Design to the Authority and works with the Authority and SWMP Preparer to resolve all Authority comments on the SWMP Design.
- **SWMP Preparer** develops the SWMP Design, forwards the SWMP Design to the RE or designee and works with the RE to resolve Authority comments on the SWMP Design.

4.0 Methods/Procedures

SOP D6 adds additional steps to SOP D5 – SWMP Design when a new CDOT project is covered under the CDPS-SCP and is located within or drains to the Cherry Creek Basin.

SWMP Design, Review and Approval

1. At the project scoping meeting the **RE**, or designee, determines whether or not a project or a portion of a project with a CDPS-SCP is within the Cherry Creek Basin.
    a. If yes,
        - The **RE**, or designee, communicates with the SWMP Preparer that the project is in the Cherry Creek Basin and the SWMP Design must comply with 5 CCR 1002-72.7.2.
        - The **RE**, or designee, notifies the Authority that a project is in the Cherry Creek Reservoir watershed.
    b. If no, SWMP Design proceeds according to SOP D5.
2. The **SWMP Preparer** follows SOP D5 and includes, where appropriate, construction control measures (CMs) at 5 CCR 1002-72.7.2(b)(5).
3. The **SWMP Preparer** delivers the SWMP Design to the **RE**, or designee.
4. The **RE**, or designee, forwards the SWMP Design to the Authority.
5. The Authority reviews the SWMP Design for conformance with 5 CCR 1002-72.7.2(b)(5) and provides comments to the **RE**.
6. The **RE** reviews the Authority's comments with the **SWMP Preparer**.
    a. The **RE** discusses alternatives with Authority before the **SWMP Preparer** revises the SWMP Design.
    b. The **SWMP Preparer** revises the SWMP Design.
7. The **RE** delivers the revised SWMP Design, which incorporates the Authority's comments, to the SWMP Reviewer.

5.0 Documentation and Reporting Requirements

- Letters of concurrence from the Authority must be stored in the project's file and uploaded to ESCAN.

6.0 MS4 Training Requirements

- Not applicable.

7.0 References to Existing Source Documents

- 5 CCR 1002-72 Cherry Creek Reservoir Control Regulation http://www.sos.state.co.us/CCR/GenerateRulePdf.do?ruleVersionId=4895&fileName=5%20CCR%201002-72
- CDOT *MS4 Construction Program Description Document* https://www.codot.gov/programs/environmental/water-quality/documents/cdot-ms4-construction-program-program-description-document.pdf

8.0 Attachments

- None at this time.

9.0 SOP D6 Revision History

March 31, 2017 – Minor editorial changes by the MCPM

3.0 MS4 CONSTRUCTION SOPS

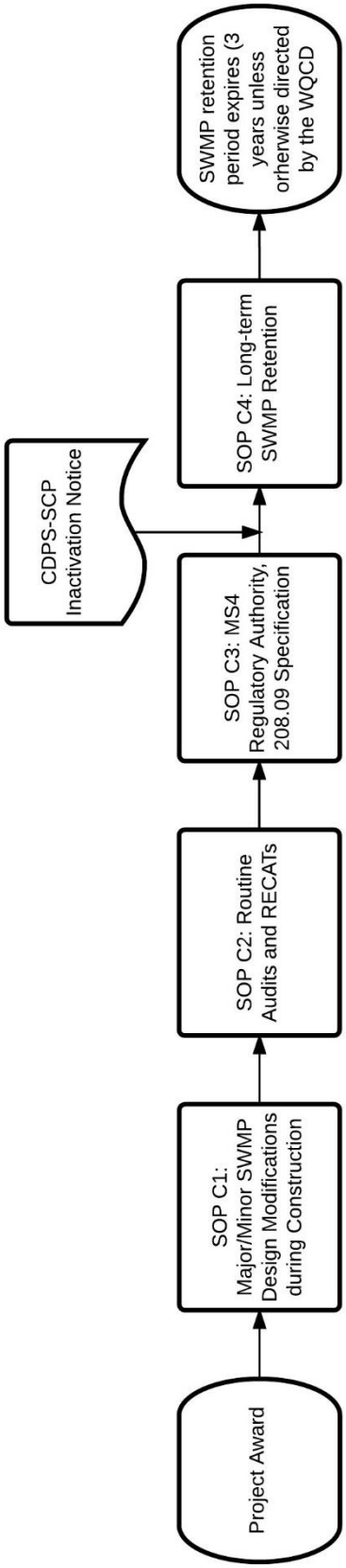
The MS4 Construction Program Task Force approved the following four MS4 construction standard operating procedures (SOPs) for design-bid-build projects:

1. Major/Minor SWMP Design Modifications during Construction (Standard Operating Procedure C1)
2. Routine Audits and RECATs (Standard Operating Procedure C2)
3. MS4 Regulatory Authority, 208.09 Specification (Standard Operating Procedure C3)
4. Long-term SWMP Retention (Standard Operating Procedure C4).

MS4 construction SOPs C1, C2 and C3 are effective from the project's Award Date through termination of the project's Colorado Discharge Permit System – Stormwater Construction Permit (CDPS-SCP, COR030000). SOP C4 ensures that the project's SWMP notebook is accessible for three years after CDPS-SCP termination, unless otherwise notified by the CDPHE-Water Quality Control Division (WQCD).

CDOT Project Engineers and Region Water Pollution Control Managers (RWPCMs) are key staff on all construction phase SOPs. A CDOT SWMP Reviewer may be involved if major modifications are made to the project's SWMP Design after the project's Award Date (SOP C1).

MS4 Construction Program Active and Post-Active Construction Process Flowcharts



MAJOR/MINOR SWMP DESIGN MODIFICATIONS DURING CONSTRUCTION (STANDARD OPERATING PROCEDURE C1)

Revision Number: 1.1
Date Issued/Revised: 3/31/2017
PDD Version Number: 1.1

1.0 Overview and MS4 Approach

The MS4 Permit (Part I.E.1.a.iv(A)) requires CDOT to "develop and implement procedures to address modifications to SWMPs including how minor and major modifications are defined and reviewed."

This standard operating procedure (SOP) addresses modifications to the SWMP Design after a project's Award Date. The SWMP Design consists of project narratives (SWMP Design Tab 1), SWMP maps (SWMP Design Tab 2), specifications (SWMP Design Tab 3, Standard Specifications and Project Special Provisions), M-standards (SWMP Design Tab 4) and photographs documenting existing vegetation (SWMP Design Tab 17). Major modifications to the SWMP Design trigger re-review and re-approval by a CDOT-certified SWMP Reviewer. Minor modifications to the SWMP Design can be updated when approved by the Project Engineer.

All modifications must be noted in the SWMP at the time the change occurs in site conditions. Before the Award Date, SWMP Design modifications are addressed through SOP D5 – SWMP Design.

2.0 Regulatory Criteria

- CDPS-SCP (COR-030000), Part I.D.5.c. and d., page 11 and 12
- MS4 Permit (COS000005), Part I.E.1.a.iv(A), page 12
- MS4 Permit (COS000005), Part I.E.1.c.iv(A), page 18
- EPA Audit, 2PM
- EPA Audit, 3PM

3.0 MS4 Roles and Responsibilities

Section 3.0 is an overview of MS4 roles and responsibilities to address major and minor SWMP Design modifications during construction. The process and methods are listed in Section 4.0.

- **Project Engineers** determine whether SWMP Design modifications are major or minor. Project Engineers approve minor modifications to the SWMP Design and submit major SWMP Design modifications to the SWMP Reviewer-of-Record. The Project Engineer issues a CDOT Form 105 to the Contractor when minor or major modifications to the SWMP Design are approved.

- **Region Water Pollution Control Managers (RWPCMs)** may serve as consultants to Project Engineers reviewing minor modifications to project SWMP Designs. RWPCMs may assist with deciding whether SWMP Design modifications are major or minor changes.
- **SWMP Reviewer-of-Record** is a full-time CDOT employee, preferably a Region Environmental staff, who holds a valid CDOT SWMP Reviewer certification. The SWMP Reviewer-of-Record reviews and approves major modifications to the SWMP Design after a project's Award Date and accepts full responsibility for the SWMP Design, including the original SWMP Design and modification. The SWMP Reviewer-of-Record may be the full-time CDOT employee that approved the pre-Award Date SWMP Design or may be a different full-time CDOT employee, if the initial SWMP Reviewer is not available.

4.0 Methods/Procedures

The following methods/procedures are followed when the SWMP Design is modified after the Award Date. SWMP Design modifications are either major or minor. The **Project Engineer** is responsible for determining if the modification to the project's SWMP Design is major or minor. The **RWPCM** and the Region's CDOT-certified **SWMP Reviewer-of-Record** may consult on the modification review, if needed.

A major modification is a change to the intent of the project's SWMP Design, an amendment to the Colorado Discharge Permit System – Stormwater Construction Permit (CDPS-SCP), or a significant change to existing control measures. Examples include but are not limited to the following:

- Major substitutions or eliminations of control measures in the project's CDOT-approved SWMP Design,
- Additional environmental impacts not defined in the project's SWMP Design,
- Significant increases to the limits of disturbance, or
- Expansion of the construction site boundary (this will trigger a CDPS-SCP amendment and may trigger the National Environmental Policy Act [NEPA]).

A minor modification is any change to the project's SWMP Design or existing control measures that does not qualify as a major modification.

Major SWMP Modification

1. The **Project Engineer** forwards the major modification to the project SWMP Design to the **SWMP Reviewer-of-Record**.
2. The **SWMP Reviewer-of-Record** reviews SWMP Design in accordance with CDOT's SWMP Citations (available in the *MS4 Construction Program Development Document*).
3. The CDOT-certified **SWMP Reviewer-of-Record** may approve the major modification, return a change request to the Project Engineer, not respond, or reject the modification.

a. If approved, the **Project Engineer** issues a CDOT Form 105 approving the modification (*CDOT Construction Manual*, Subsection 208.2.2).

b. If a change request is issued or the modification is not approved, the **Project Engineer** will work with the **SWMP Reviewer-of-Record** until the modification is approved and the **Project Engineer** issues a CDOT Form 105 approving the modification (*CDOT Construction Manual*, Subsection 208.2.2).

c. The **Project Engineer** issues a CDOT Form 105 approving the modification if the **SWMP Reviewer-of-Record** does not respond within seven calendar days from when the **Project Engineer** submitted the SWMP modification to the **SWMP Reviewer-of-Record**.

Minor SWMP Modification

1. The **Project Engineer** reviews the requested minor modification to the project SWMP Design and may consult with the **RWPCM** (*CDOT Construction Manual*, Section 208.2.2).
2. The **Project Engineer** issues a Form 105 when the minor modification(s) to the project SWMP Design is approved (*CDOT Construction Manual*, Section 208.2.2.)

All modifications must be noted in the SWMP at the time the change occurs in site conditions.

5.0 Documentation and Reporting Requirements

- Documentation of project SWMP Design modifications must be in accordance with Subsection 208.2.2 of the CDOT Construction Manual.
- ESCAN (*when developed*) will capture communication between Project Engineers and SWMP Reviewers.

6.0 MS4 Training Requirements

- CDOT's SWMP Reviewer Training Certification course (*under development*).

7.0 References to Existing Source Documents

- *CDOT Construction Manual*, Subsection 107.25 Water Quality Control and Sections 208 Erosion Control, 213 Mulching and 216 Soil Retention Covering https://www.codot.gov/business/designsupport/bulletins_manuals/cdot-construction-manual
- *CDOT MS4 Construction Program Manual*, SOP D5 – SWMP Design and Review

- CDOT *MS4 Construction Program Description Document* https://www.codot.gov/programs/environmental/water-quality/documents/cdot-ms4-construction-program-program-description-document.pdf
- *CDOT Standard Specifications for Road and Bridge Construction*, Subsection 107.25 Water Quality Control and Sections 208 Erosion Control, 213 Mulching and 216 Soil Retention Covering https://www.codot.gov/business/designsupport/2011-construction-specifications/2011-Specs/2011-specs-book
- Standard Plan M-208-1, Temporary Erosion Control https://www.codot.gov/business/designsupport/standard-plans/2012-m-standards-plans
- Standard Plan M-216-1, Soil Retention Covering https://www.codot.gov/business/designsupport/standard-plans/2012-m-standards-plans

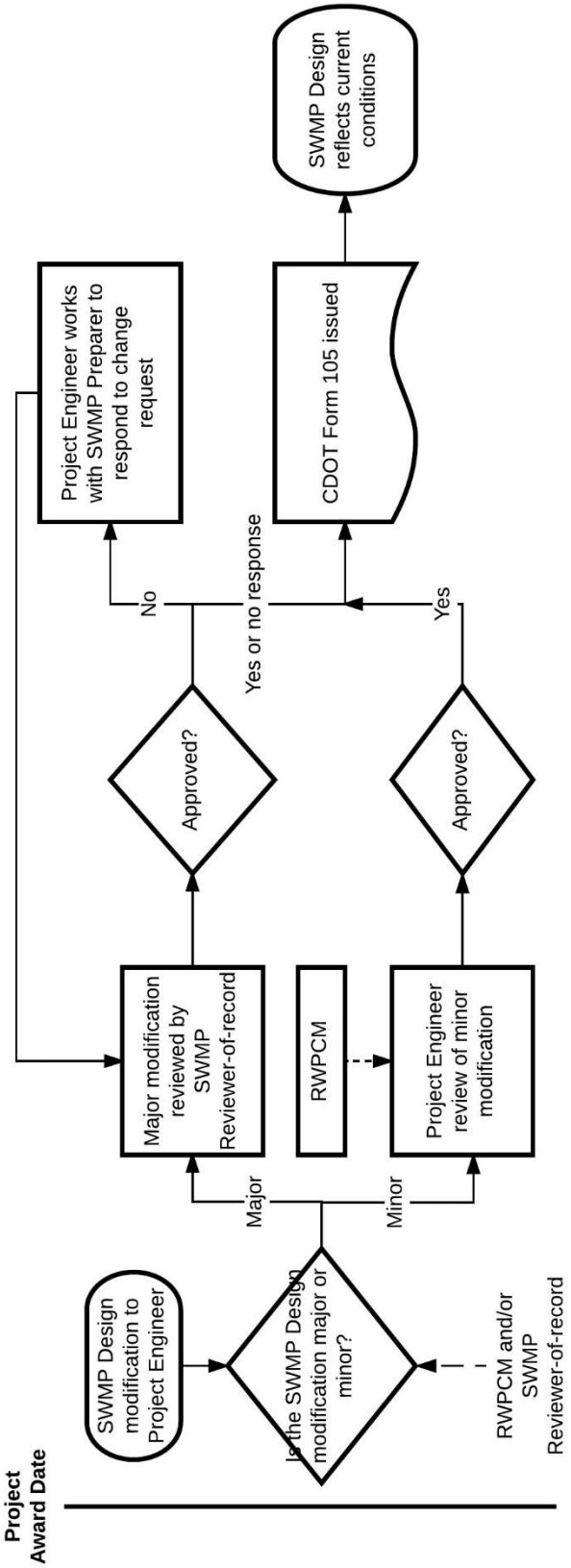
8.0 Attachments

- SOP C1, Attachment 1 is the process flowchart for major and minor SWMP Design modifications during construction.

9.0 SOP C1 Revision History

March 31, 2017 – Minor editorial changes by the MCPM, moved the list of SWMP citations to the *MS4 Construction Program Description Document*.

SOP C1, Attachment 1 – Major/Minor SWMP Design Modifications During Construction Process Flowchart



C1

ROUTINE AUDITS AND RECATS (STANDARD OPERATING PROCEDURE C2)

Revision Number: 1.1
Date Issued/Revised: 3/31/2017
PDD Version Number: 1.1

1.0 Overview and MS4 Approach

MS4 Permit-required Routine Audits document Contractors' adherence to Colorado Discharge Permit System–Stormwater Construction Permit (CDPS-SCP) requirements and CDOT specifications. This standard operating procedure (SOP) sets forth the process CDOT will use to schedule, conduct and document Routine Audits of CDOT projects covered by a CDPS-SCP at least once every 45 days during active construction, every 90 days during post-active construction and at least once before final stabilization (MS4 Permit, Part I.E.1.a.v(B)). Region Water Pollution Control Managers (RWPCMs) conduct Routine Audits. The MS4 Construction Program Manager (MCPM), or designee, may participate in Routine Audits at the RWPCM's invitation. Headquarters-led Routine Audits are referred to as RECATs.

Contractor site inspections to document compliance with the CDPS-SCP are the first step in the stormwater compliance hierarchy (Figure 1). Routine Audits and RECATs are the second step on the hierarchy of MS4 Construction Program oversight events.

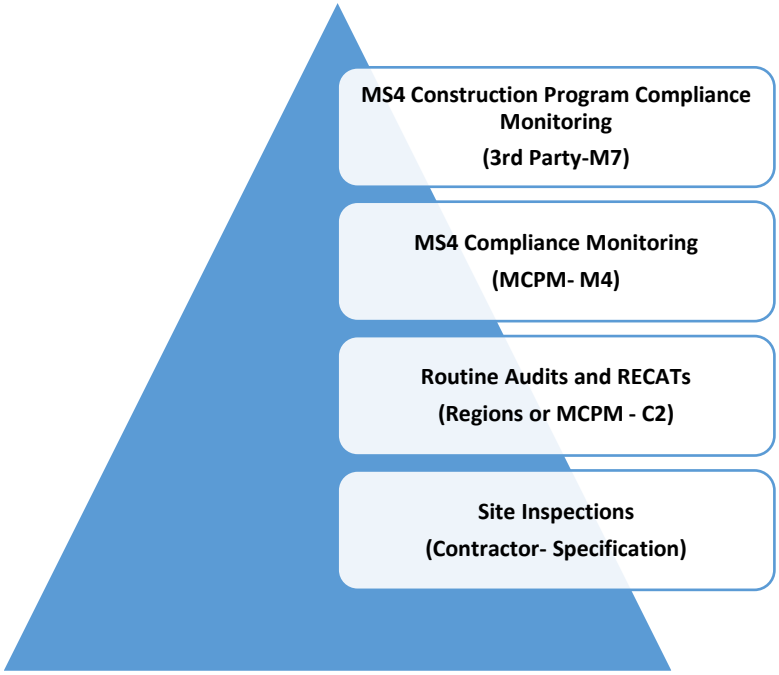


Figure 1. Hierarchy of MS4 Construction Program Inspections, Audits and Monitoring Events

This SOP is initiated when a Routine Audit, or RECAT, of project with a CDPS-SCP is scheduled and ends when the Routine Audit or RECAT report is submitted in ESCAN. Complying with enforcing Routine Audit and RECAT findings are addressed according to SOP C3–MS4 Regulatory Authority (208.09 Specification).

2.0 Regulatory Criteria

- CDPHE MS4 Permit (COS000005), Part I.E.1.a.v(B), pages 12–15
- CDPHE MS4 Permit (COS000005), Part I.E.1.a.vii Training, page 15
- CDPHE MS4 Permit (COS000005), Part I.E.1.b. Recordkeeping, pages 16–17
- EPA Audit, 2PM
- EPA Audit, 3PM
- EPA Audit, 1CS
- EPA Audit, 2CS
- EPA Audit, 3CS
- EPA Audit, 4CS
- EPA Audit, 5CS

3.0 MS4 Roles and Responsibilities

Section 3.0 is an overview of MS4 roles and responsibilities for Routine Audits and RECATs. The process and methods are listed in Section 4.0.

- **MS4 Construction Program Manager (MCPM)**, or designee, is responsible for coordinating and participating in Routine Audits when invited by RWPCMs.
- **Maintenance (MTCE)** should be added when the MTCE process is developed and added to the SOP.
- **Project Engineer** is CDOT's MS4 regulatory authority to the Contractor. The Project Engineer issues CDOT Form 105, associated with water quality, to address Routine Audit findings entered into ESCAN and approve the Contractor's corrective actions.
- **Region Water Pollution Control Managers (RWPCMs)** are responsible for conducting Routine Audits for all projects covered by a CDPS-SCP, in their Region, at least once every 45 days during active construction, every 90 days during post-active construction and at least once before final stabilization. The RWPCM is responsible for submitting Routine Audit findings to ESCAN.

4.0 Methods/Procedures

RWPCMs have primary responsibility for scheduling, conducting and documenting Routine Audits of CDOT projects covered by a CDPS-SCP. CDOT is obligated by the MS4 Permit to conduct Routine Audits until the CDPS-SCP is inactivated by the WQCD. The RWPCM Routine Audit process is Track 1.

- A Routine Audit (45-day) may count as a CDPS-SCP 7 day inspection if all CDPS-SCP requirements are met.
- A Routine Audit (90 day) may count as a CDPS-SCP inspection if all requirements from CDPS-SCP are met; however, the 30-day inspections required by CDPS-SCP must still be conducted.

Track 2 is the process when the RWPCM invites the MCPM, or designee, to lead a RECAT. Track 3 includes maintenance-led post-active construction audits (*when developed*).

Track 1 – Routine Audits

1. The **RWPCM** schedules Routine Audits of all CDOT projects holding a CDPS-SCP in their Region.
    a. Routine Audits of projects in the active construction phase must be conducted at least once every 45 days.
    b. Routine Audits of projects in the post-active construction phase must be conducted at least once every 90 days.
    c. All CDPS-SCP project must be audited at least once before final stabilization.
2. The **RWPCM** is responsible for determining if there is a winter exclusion (WEX or winter conditions), as defined in Part I.E.1.a.v(A) of the MS4 Permit. The WEX must be documented as part of the Routine Audit.
3. The **RWPCM** notifies the **Project Engineer** of the date and time of the Routine Audit with enough advance notice for the **Project Engineer** to notify the Contractor in accordance with *Standard Specifications*, Subsection 208.03.
4. The **RWPCM** reviews findings from the previous Routine Audit report and is prepared to check corrective actions during the scheduled Routine Audit.
5. The **RWPCM** meets with required attendees, as per *Standard Specifications*, Subsection 208.03.
    a. The **Project Engineer** is responsible for ensuring that all required parties, as noted in *Standard Specifications*, Subsection 208.03.c.1(4), attend the Routine Audit.
6. The **RWPCM** conducts an administrative review of the SWMP against Section 208.03(d)1 of *Standard Specification*s and the MS4 Permit.
    a. During the first audit on a new project, the **RWPCM** reviews the entire SWMP notebook and verifies that the tab sections contain the necessary documents and the documents reflect current practices on the site.
        - The SWMP must contain the information identified on the SWMP Review checklist, at a minimum (*under development*).
    b. After the first audit, the **RWPCM** reviews, at a minimum,
        - the site map,
        - the calendar,

- CDOT Form 1176 (Stormwater Field Inspection Report and Weekly Meeting Notes – Active Construction) records since the last Routine Audit,
- water quality related Form 105s (e.g., initiation of a 208.09 process [C3] or approval of SWMP Design modifications [C1]) issued by the Project Engineer since the last Routine Audit and
- any SWMP tabs where changes may have occurred since the last Routine Audit (e.g., non-standard control measures added or additional potential pollutants).

c. The **RWPCM** records all SWMP sections reviewed and all SWMP administrative findings in ESCAN.

7. The **RWPCM** conducts the field review to evaluate for any situations that are in noncompliance with the MS4 Citations (CDPS-SCP; Subsection 107.25 and Sections 208, 213, 216 of CDOT *Standard Specifications*; and Standard Plans M-208-1 and M-216-1).

   a. The **RWPCM** assesses the items required by Part I.E.1.a.iii of the MS4 Permit during the field review.

   b. The **RWPCM** documents findings, severe findings and compliance-assistance opportunities (Section 5.0 Definitions) during the site walk. Field findings and severe findings are photographed and documented.

      Findings are used to:

      - Return the Contractor to compliance;
      - Provide a feedback loop to inform the **RPEM/SWMP Reviewer** about underperforming control measures and SWMP strategies; and
      - Note noncompliance with CDOT's MS4 Construction Program (e.g., *Standard Specifications*, Subsection 208.09 not followed, missed audit, missed findings, etc.).

8. The **RWPCM** conducts a close-out meeting with the Contractor SWMP Administrator to review findings and compliance-assistance opportunities.

   a. The **RWPCM** is recommended to meet with the **Project Engineer** and Superintendent, or their Approved Designees.

9. The **RWPCM** notifies the **Project Engineer** of any severe findings or other issues relating to *Standard Specifications*, Subsection 208.09.

10. The **RWPCM** enters administrative and site-walk findings and compliance-assistance justification into ESCAN (*when developed*)

    a. The **RWPCM** records a finding for non-compliant observations that that received compliance assistance on previous audits.

    b. The **RWPCM** documents findings from the current Routine Audit that were identified on the previous Routine Audit report to track chronic findings.

    c. When a finding identified during a Routine Audit is corrected during the same Routine Audit, the **RWPCM** records the findings and corrective actions in the ESCAN report.

d. The **RWPCM** must sync with the server by midnight on the last day of the Routine Audit, or within 24 hours with written justification to the MCPM by the RWPCM.

Track 2 – RECATs

1. The **RWPCM** voluntarily requests a RECAT by contacting the **MCPM** or designee.
2. The **RWPCM** and the **MCPM**, or designee, reach a consensus on the project location, date and time of the RECAT.
3. The **RWPCM** notifies the **Project Engineer** of the date and time of the RECAT.
4. The **RWPCM** leads an informal briefing to the **MCPM**, or designee, before the RECAT to provide project background information.
5. The **RWPCM** and **MCPM**, or designee, decide who will lead and document the RECAT (**Lead Auditor**).
6. The **Lead Auditor** conducts the audit according to Track 1–Routine Audits, steps 1 through 8.
7. The **Lead Auditor** is responsible for entering RECAT findings into ESCAN according to Track 1 – Routine Audits, Step 10.
8. The **RWPCM** and **MCPM**, or designee, hold an informal debriefing after the RECAT is finished.
    a. At a minimum, the debriefing covers what went well during the RECAT, areas for improvement and different interpretations of findings.

Track 3 – MTCE-led Post-Active Construction Audits

1. *To be developed*

5.0 Documentation and Reporting Requirements

- Routine Audit/RECAT reporting occurs through ESCAN and can contain documentation such as field notes, digital photography and other information collected during the Routine Audit/RECAT

6.0 MS4 Training Requirements

- CDOT's MS4 Auditor consistency training (*under development*)
- CDOT's MS4 Auditor new hire training (*under development*)

7.0 References to Existing Source Documents

- CDOT Form 1176 – Stormwater Field Inspection Report and Weekly Meeting Notes – Active Construction https://www.codot.gov/library/forms/cdot1176.pdf
- *CDOT MS4 Construction Program Manual*, SOP C2 – MS4 Construction Program Routine Audits
- CDOT *MS4 Construction Program Description Document* https://www.codot.gov/programs/environmental/water-quality/documents/cdot-ms4-construction-program-program-description-document.pdf
- CDOT SWMP Notebook Tabs https://www.codot.gov/programs/environmental/water-quality/documents/swmp-notebook-tabs

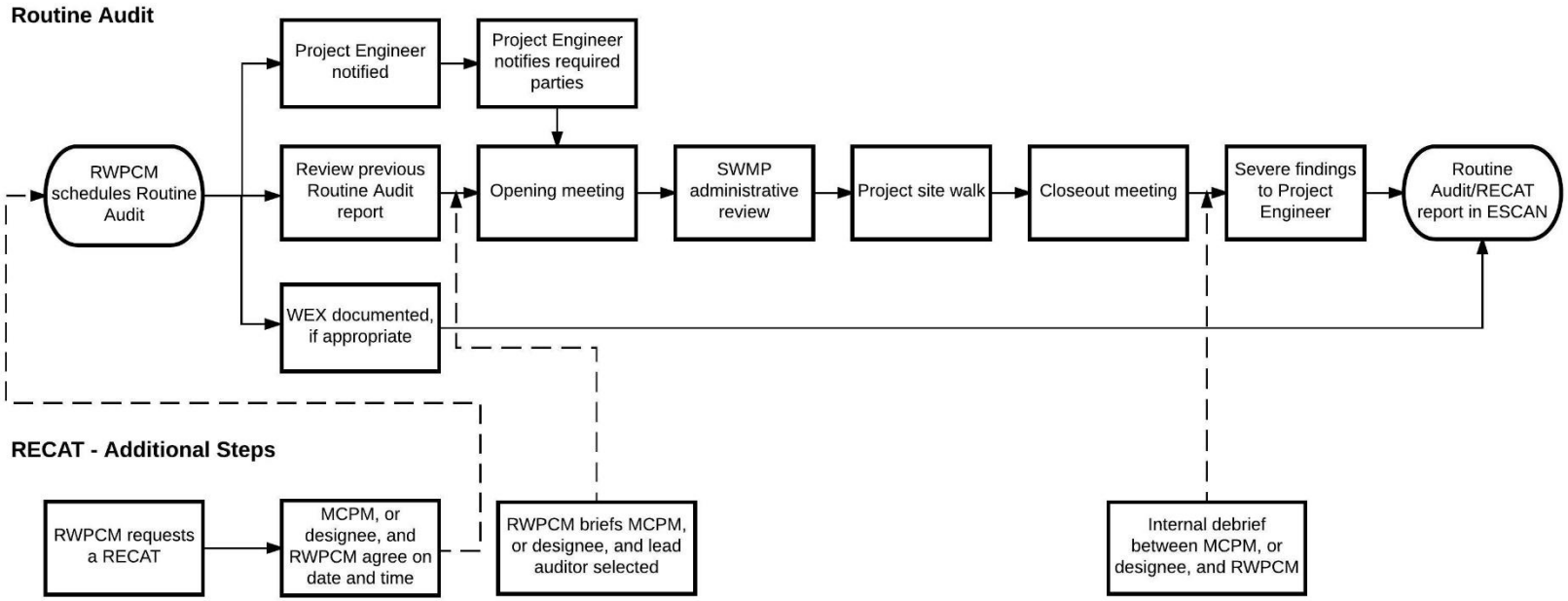
8.0 Attachments

- SOP C2, Attachment 1 is the process flowchart for Routine Audits and RECATs

9.0 SOP C2 Revision History

March 31, 2017 – Minor editorial changes by the MCPM

SOP C2, Attachment 1 – Routine Audits and RECATs Process Flowchart



MS4 Regulatory Authority, 208.09 Specification (Standard Operating Procedure C3)

Revision Number: 1.1
Date Issued/Revised: 3/31/2017
PDD Version Number: 1.1

1.0 Overview and MS4 Approach

Subsection 208.09 of CDOT's *Standard Specifications* (Subsection 208.09 or 208.09 Specification) is CDOT's Regulatory Mechanism to implement and enforce the MS4 Permit's construction program requirements. The 208.09 Specification states:

> "[f]ailure to implement the [SWMP] is a violation of the CDPS – SCP and CDOT specifications. CDOT is obligated to implement enforcement mechanisms in accordance with CDOT's MS4 Permit COS000005 for Stormwater Management and erosion control Best Management Practices [Control Measures]. Penalties may be assessed to the Contractor by the appropriate agencies. Penalties will be assessed by [CDOT] as liquidated damages for failure to meet the [MS4] Permit. All fines assessed to [CDOT] for the Contractor's failure to perform erosion control will be deducted from moneys due the Contractor in accordance with subsection 107.25(c) 2." (*Standard Specifications*, Subsection 208.09)

This standard operating procedure (SOP) sets forth CDOT's compliance and enforcement process that is initiated when the Project Engineer issues a Form 105 notifying the Contractor of failure(s) to perform erosion control. Specifically, the Contractor is subject to liquidated damages for incidents of failure to perform erosion control required by the Contract. Liquidated damages will be applied for failure to comply with the Colorado Discharge Permit System–Stormwater Construction Permit (CDPS-SCP) and CDOT specifications concerning MS4 Citations. The current enforcement and escalation process is published in Subsection 208.09 of the 2016 *Standard Specifications for Road and Bridge Construction* (*Standard Specifications*).

The 208.09 Specification will be updated to reflect MS4 Permit requirements pertaining to chronic and recalcitrant violators of control measure requirements, as well as severe findings (COS000005, Part I.E.1.vi.).

2.0 Regulatory Criteria

- CDOT MS4 Permit (COS000005), Part I.E.1.a.i. Regulatory Mechanism, page 10
- CDOT MS4 Permit (COS000005), Part I.E.1.a.vi. Enforcement Response, page 15
- EPA Audit, 2PM
- EPA Audit, 3PM
- EPA Audit, 1CS
- EPA Audit, 2CS

- EPA Audit, 3CS
- EPA Audit, 4CS
- EPA Audit, 5CS

3.0 MS4 Roles and Responsibilities

Section 3.0 is an overview of MS4 roles and responsibilities pertaining to CDOT's MS4 regulatory mechanism. The process and methods are listed in Section 4.0.

- **MS4 Construction Program Manager (MCPM)**, or designee, may lead RECATs and enter findings into ESCAN at the invitation of Region Water Pollution Control Managers (RWPCMs).
- **Project Engineers** issue Form 105s notifying Contractors of each incident of failure to perform erosion control; track the Contractor's progress toward resolving all Form 105 incidents; and are responsible for implementing Subsection 208.09 when the Contractor is not responsive.
- **Region Water Pollution Control Managers (RWPCMs)** identify failures to perform erosion control during Routine Audits, notify the Project Engineer of any severe findings or other issues relating to Subsection 208.09 and enter findings into ESCAN. RWPCMs audit to ensure the Subsection 208.09 process is followed and all Form 105s pertaining to water quality are in the SWMP (SOP C2) and ESCAN (*when developed*).
- **Resident Engineer (RE)** works with the Project Engineer, SWMP Administrator and Superintendent, as needed, to resolve disagreements over suggested corrective actions or the Contractor's failure to implement the corrective action plan.

4.0 Methods/Procedures

CDOT's MS4 Construction Program Regulatory Mechanism is Subsection 208.09 (Failure to Perform Erosion Control) of the *Standard Specifications*, in conjunction with the *CDOT Construction Manual*. Specification 208.09 must be followed when failure to perform erosion control is observed at a project with a CDPS-SCP.

The Chief Engineer's Memorandum (SOP C3, Attachment 1), which is dated March 28, 2016 and titled *EPA Audit Finding – Compliance with Specification 208.09 Failure to Perform Erosion Control,* gives further direction in regards to implementing CDOT's MS4 Construction Program Regulatory Mechanism and emphasizes that the 208.09 Specification process must be followed and recorded in ESCAN.

5.0 Documentation and Reporting Requirements

- ESCAN will be used to document all CDOT Form 105s associated with water quality, track the process of liquidated damages and track Stop Work Orders issued in accordance with the 208.09 Specification.

- Paper copies of all CDOT Form 105s associated with water quality must be stored in the project's SWMP notebook.

6.0 MS4 Training Requirements

- None identified

7.0 References to Existing Source Documents

- *CDOT 2016 Standard Specifications for Road and Bridge Construction*, Section 105 (Control of Work), Subsection 105.01 (Authority of the Engineer) https://www.codot.gov/business/designsupport/2011-construction-specifications/2011-Specs/standard-special-provisions/section-100-revisions/105cd/view
- *CDOT 2016 Standard Specifications for Road and Bridge Construction*, Subsection 208.09 https://www.codot.gov/business/designsupport/2011-construction-specifications/2011-Specs/standard-special-provisions/sections-200-500-revisions/208ec/at_download/file
- *CDOT Construction Manual*, Subsection 208.2.2(10) and subsequent flowchart https://www.codot.gov/business/designsupport/bulletins_manuals/cdot-construction-manual/cdot-construction-manual.pdf/at_download/file
- CDOT *MS4 Construction Program Description Document* https://www.codot.gov/programs/environmental/water-quality/documents/cdot-ms4-construction-program-program-description-document.pdf
- ESCAN documentation (*under development*)

8.0 Attachments

- SOP C3, Attachment 1: Chief Engineer Memorandum (March 28, 2016)

9.0 SOP C3 Revision History

March 31, 2017 – Minor editorial changes by the MCPM

SOP C3, Attachment 1 – Chief Engineer Memorandum (March 28, 2016)

COLORADO
Department of Transportation
Office of the Chief Engineer

MEMORANDUM

DATE: MARCH 28, 2016

TO: REGION TRANSPORTATION DIRECTORS, PROGRAM ENGINEERS, RESIDENT ENGINEERS, REGION ENVIRONMENTAL PROGRAM ENGINEERS

FROM: JOSHUA LAIPPLY, P.E. CHIEF ENGINEER

SUBJECT: EPA AUDIT FINDING - COMPLIANCE WITH SPECIFICATION 208.09 FAILURE TO PERFORM EROSION CONTROL

This Chief Engineer Memorandum is being issued to announce stormwater management process changes initiated by the findings of the March 2015 Environmental Protection Agency (EPA) Audit. A Construction Bulletin will be issued under separate cover to provide more detailed information to address these EPA Audit Findings and achieve program compliance.

The EPA conducted an inspection of the CDOT Municipal Separate Storm Sewer System (MS4) Stormwater Permit March 30 - April 2, 2015. The inspection was part of EPA's "Municipal Infrastructure National Enforcement Initiative". The inspection included a statewide documentation review of the program and field inspections of applicable program areas.

The inspection report was delivered to CDOT by EPA on September 30, 2015. CDOT has reviewed the findings and, in early December 2015, provided preliminary responses back to EPA addressing the findings and implementing corrective action. Attached is Appendix C of the EPA Audit Report which contains those findings relevant to CDOT's Regulatory Authority and CDOT's responses.

While CDOT's responses to the EPA are preliminary, we are actively pursuing the Corrective Actions/Recommendations stipulated by the EPA to document compliance throughout our program. It is our hope that by moving forward on addressing these corrective actions we can get our program in compliance that much sooner. The one finding and specific change I would like to address in this memorandum is EPA's finding 3C5 (2nd page of Appendix C attachment) relating to CDOT's Regulatory Authority described in the specification - 208.09 Failure to Perform Erosion Control. More specifically, the failure to implement the stipulations of issuing Liquidated Damages and Stop Work Orders as outlined in subsection 105.01. This specification applies to all projects regardless of type of contracting mechanism.

As documented in ESCAN, the percentage of findings corrected within the 48 hour timeframe is reported in the Department's Lead Lag performance measure report. The ESCAN report indicates that CDOT is not achieving the stated goals regarding water quality erosion and sediment control inspections. This metric is viewed by CDOT executive management as instrumental to the performance success of the permit compliance and avoidance of project stop work orders or fines which affect project schedule and costs.

Here is where I need your assistance in ensuring that CDOT properly administers erosion control on all CDOT projects and remains in compliance on this issue:

- Understand and follow the specification as this is our Regulatory Authority. Therefore, compliance with subsection 208.09 is commensurate with compliance with the Construction Program in accordance with the MS4 permit.
- The new specification changes "may" to "will" with respect to the CDOT Project Engineer issuing 105's, LD's and Stop Work Orders. Note the new escalation procedure stated in the new specification (to be included in all projects with AD on or after 4/21/16) if the contractor fails to address the Finding.

- Please note that with the issuance of the revised subsection 208.09 specification there will be two different versions of this specification in use within CDOT this 2016 construction season (one for projects advertised before April 21st and one for projects advertised on or after 4/21/2016).

- For current projects advertised before 4/21/16 the EPA Finding 1CS (Appendix C) noted that CDOT was not following the specification in issuing stop work orders after the corrections were not completed within 48 hours and/or discharges into state waters. Revised language in the new specification subsection 208.09 changes from "may issue the stop work" to "will issue the stop work order". Based on the EPA Audit, Project Engineers need to therefore interpret the "may" as "will" and shall issue liquated damages and/or stop work orders and require the Contractor to submit a corrective action plan per 208.09. Documenting your decisions/actions can make the difference in demonstrating meeting compliance for those challenging times where the Contractor is doing their best to address the situation. For any assistance, contact your Region Water Quality Pollution Control Manager.

- ESCAN is the CDOT computer application used to track thousands of Headquarters and Region inspections that are required by CDPHE, CDOT Construction Manual, and Specifications. ESCAN reporting is important because CDOT depends on these queries as proof of compliance and assurance that we are following our procedures.

- If Headquarters or Region inspections resulting in corrective actions are not reported in the ESCAN tool- Corrective Action Response Log (CARL), the report will show the finding as not completed within the 48-hour period, even if the Project Engineer and the Contractor have come to an agreement about the fix.

- Note that the ESCAN is currently being updated to include the new Deferment process which has been written into the new 208.09. The Deferment process allows for a period of time (to be determined by PE, RWPCM and Contractor) that penalties will be suspended, temporarily, for extraordinary circumstances where it is impossible to meet the 48-hour deadline. Until the updated version is released, continue to use, within the existing version of ESCAN, the interim option to extend the final completion date for approved exempted Findings that are justified in requiring more than 48 hours of time to complete.

- It is important that the Project Engineer uses ESCAN to track the CDOT Form 105's associated with compliance to the MS4 process and stormwater related Form 105's. This importance is based on how CDOT tracks compliance on project sites and the need for this information to be readily accessible within the ESCAN software to determine our Lead/Lag performance measures, the required CDPHE Annual report, compliance within CDOT MS4 Program and the ability to flag those projects that are out of compliance and address internally in a timely manner.

- Several of the audit findings will be handled in upcoming training classes to be developed and delivered by the Environmental Programs Branch.

Thank you all in advance in assisting with these important compliance issues. More information will be forthcoming related to addressing the EPA Audit findings. Know that this information is important and we need everyone to do his or her part by following the specifications and the process to keep the program in compliance. Please share this Memorandum with all of your design and construction staff and also consultants working on CDOT projects.

Attachment
Appendix C of the EPA Audit Report

LONG-TERM SWMP RETENTION (STANDARD OPERATING PROCEDURE C4)

Revision Number: 1.1
Date Issued/Revised: 3/31/2017
PDD Version Number: 1.1

1.0 Overview and MS4 Approach

The standard operating procedure (SOP) for long-term SWMP retention sets forth consistent and uniform direction for retaining SWMPs by Region Water Pollution Control Managers (RWPCMs). This SOP is initiated when construction site's Colorado Discharge Permit System–Stormwater Construction Permit (CDPS-SCP) Inactivation Notice is accepted by the CDPHE - Water Quality Control Division (WQCD).

The Long-term SWMP Retention SOP ensures that RWPCMs can efficiently retrieve SWMPs (paper or electronic) for inactivated construction projects to respond to a records request by the WQCD, the US Environmental Protection Agency (EPA), the MS4 Construction Program Manager (MCPM), or designee.

This SOP is initiated when CDOT submits the CDPS-SCP Inactivation Notice to the WQCD. This SOP remains in effect for at least three years from the signature date on the Inactivation Notice accepted by the WQCD, unless the WQCD extends the retention period. After the three-year period, the SWMP no longer needs to be retained by the RWPCM.

2.0 Regulatory Criteria

- CDPS MS4 Permit (COS000005), Part I.E.1.b.iv., page 12
- CDPS MS4 Permit (COS000005), Part I.K.2. Retention of Records, pages 61–62
- CDPS-SCP (COS0300000), Part F.2. Retention of Records, page 16
- EPA Audit, 2PM
- EPA Audit, 3PM

3.0 MS4 Roles and Responsibilities

Section 3.0 is an overview of MS4 roles and responsibilities for long-term retention of project SWMPs. The process and methods are listed in Section 4.0.

- **Region Water Pollution Control Managers (RWPCMs)** are responsible for storing SWMPs for CDPS-SCP terminated CDOT construction projects and retrieving them in response to a records request by the WQCD, the EPA, the MCPM, or designee.

4.0 Methods/Procedures

1. The **RWPCM** obtains the project's final SWMP notebook (paper or electronic).
2. The Permittee, CDOT or the Contractor, submits a complete and signed CDPS-SCP Inactivation Notice to the WQCD.
3. The **RWPCM**, or designee, documents the discard date for the SWMP as 3 years from the date the CDPS-SCP is inactivated by the WQCD. The discard date is tracked in ESCAN (*when developed*).
4. The **RWPCM** stores the SWMP in an accessible location known by the RWPCM where they can retrieve documents during the 3-year storage period.
   a. SWMPs can be stored in paper or electronic format.
   b. The discard date will be updated if the WQCD requests a storage extension.
5. The **RWPCM** will make the SWMP available for review within the time specified if the SWMP is requested for auditing by the WQCD, EPA, the MCPM, or designee.

5.0 Documentation and Reporting Requirements

An electronic spreadsheet (ESCAN, *when developed*) will be used by the RWPCM to record at least the following items:

- Documenter's name
- CDPS-SCP project name and permit number
- CDOT project name, project number and subaccount number
- CDPS-SCP Inactivation Notice signature date on the version accepted by the WQCD
- SWMP discard date
- Date the SWMP(s) was placed in storage
- The SWMP(s) storage location
- The date the SWMP(s) was discarded
- WQCD storage extension date (if needed).

6.0 MS4 Training Requirements

- None at this time.

7.0 References to Existing Source Documents

- CDOT *MS4 Construction Program Description Document*
  https://www.codot.gov/programs/environmental/water-quality/documents/cdot-ms4-construction-program-program-description-document.pdf

8.0 Attachments

- None at this time.

9.0 SOP C4 Revision History

March 31, 2017 – Minor editorial changes by the MCPM

4.0 MS4 MONITORING PROCEDURES

The overall goal of the *MS4 Construction Program Manual* is to improve the MS4 Construction Program's regulatory compliance and water quality protection through using a consistent methodology and procedure for all CDOT Regions during design and active construction. CDOT MS4 personnel are further informed, through the MS4 Compliance Monitoring standard operating procedures (SOPs), of the processes and steps that the MS4 Construction Program Manager (MCPM), or designee, will follow to measure compliance with the MS4 Construction Program and the escalation processes available to resolve noncompliance. The *MS4 Construction Program Manual* will allow the Program to meet the requirements established in the MS4 Permit and the EPA Audit Findings.

The MS4 Construction Program includes the following six MS4 monitoring SOPs:

1. MS4 Construction Program Trainings (Standard Operating Procedure M1)
2. *MS4 Construction PDD* Updates (Standard Operating Procedure M2)
3. *MS4 Construction Program Manual* Updates (Standard Operating Procedure M3)
4. MS4 Compliance Monitoring (Standard Operating Procedure M4)
5. WQCD Contact/Inquiry (Standard Operating Procedure M5)
6. MS4 Construction Program Third-Party Audit (Standard Operating Procedure M6)

Key staff responsible for implementing the MS4 Monitoring SOPs are the CDOT/CDPHE Liaison, Hydrologic Resource and Ecological Design (HRED) Section Manager, the MCPM and the Ecological Design (ED) Unit Lead. However, these staff are also evaluated during MS4 Compliance Monitoring (SOP M4) and third-party audits (SOP M6).

MS4 Construction Program Trainings (Standard Operating Procedure M1)

Revision Number: 1.1
Date Issued/Revised: 3/31/2017
PDD Version Number: 1.1

1.0 Overview and MS4 Approach

The MS4 Construction Program Trainings standard operating procedure (SOP) ensures the following:

- CDOT has a uniform approach to developing and implementing trainings that pertain to the MS4 Construction Program
- CDOT remains in compliance with MS4 Permit training requirements that pertain to stormwater control at construction sites with a Colorado Discharge Permit System–Stormwater Construction Permit (CDPS-SCP)
- CDOT maintains personnel and Contractor training records to demonstrate compliance with MS4 Permit requirements
- CDOT personnel keep up-to-date on MS4 Construction Program improvements.

Examples of actions that could trigger MS4 Construction Program Trainings include changes to the MS4 Permit language, revisions to the CDPS-SCP, knowledge gaps identified during MS4 compliance monitoring (SOP M4), revisions to CDOT Standards and Specifications, regulatory agency inspection/audit reports, compliance-assistance needs identified during CDOT Routine Audits, or changes to the MS4 Construction Program Description Document (PDD).

All MS4 Construction Program Trainings, both formal and informal, must be documented in ESCAN (*when developed*) with at least the participants' names, topics and dates. Documentation is critical for CDOT to demonstrate compliance with MS4 training requirements.

2.0 Regulatory Criteria

- CDOT MS4 Permit (COS000005), Part I.E.1.a.vii. Training, page 15
- CDOT MS4 Permit (COS000005), Part I.E.1.b.vii. Training [Recordkeeping], page 17
- EPA Audit, 2PM
- EPA Audit, 3PM

3.0 MS4 Roles and Responsibilities

Section 3.0 is an overview of MS4 roles and responsibilities for MS4 Construction Program trainings. The process and methods are listed in Section 4.0.

- **Ecological Design (ED) Unit Lead** may identify gaps in existing MS4 Construction Program training curriculum and participates in discussions about proposed trainings.
- **Hydrologic Resources and Ecological Design (HRED) Section Manager** (Training Leader) is responsible for making sure available training courses meet MS4 Construction Program requirements.
- **MS4 Construction Program Manager (MCPM)** oversees the MS4 Construction Program trainings for technical accuracy and uniformity across the program, ensures that CDOT staff and Contractors with MS4 Construction Program roles and responsibilities receive training and documents all MS4 Construction Program trainings in ESCAN.
- **Trainer(s)** is (are) subject-matter expert(s) who teach MS4 Construction Program training courses. The Trainer(s) may be CDOT employees or contractors.
- **Training Owner** is primarily responsible for developing, marketing and implementing an MS4 Construction Program training for new and current CDOT personnel with MS4 Construction Program responsibilities, as well as the CDPS-SCP project operators. The Training Owner must keep the MS4 Construction Program training current with MS4 Construction Program requirements and within the training scope approved by the HRED Section Manager.

4.0 Methods/Procedures

1. The **Training Owner** develops a conceptual approach for the proposed MS4 Construction Program training course, including an outline, prerequisites for course participation and target audience.
2. The **Training Owner** presents the proposed training course to the **MCPM**, **ED Unit Lead** and **HRED Section Manager** with an emphasis on purpose (i.e., identified MS4 Permit compliance risk), intended audience, delivery approach (e.g., in person and webinar), estimated cost, funding source(s) and schedule.
    a. The **HRED Section Manager** evaluates urgency with the HRED Risk Assessment Chart.
    b. The **HRED Section Manager** must issue written approval before resources are programmed for training course development.
3. If approved, the **Training Owner** proceeds with course development, including supporting materials and training documentation (i.e., updating the training and certification database).
4. The **Training Owner** submits the draft training course to the **HRED Section Manager** and the **MCPM** for review and approval.
    a. The **HRED Section Manager** approves the draft training course or requires additional changes.
5. The **Training Owner** submits the final training course, including supporting materials and training documentation, to the **HRED Section Manager** and **MCPM** for final review and approval.
    a. The **HRED Section Manager** approves the final training course or requires additional changes.
6. If approved, the training course is scheduled by the **Training Owner** and the **Training Owner** selects the Trainer(s) to lead the training course.

   a. The **Training Owner** markets the training course to CDOT staff, contractors and consultants.
7. The responsibilities of the **Trainer(s)** include teaching the training course, documenting participants, administering and grading the certification exam (if required) and collecting feedback from participants.
   a. The **Training Owner** and **Trainer(s)** must implement the course submitted and approved by the **HRED Section Manager**.
8. The **Training Owner** documents participation rosters and information regarding personnel who have obtained certifications in ESCAN (*when developed*).
9. The **Training Owner** reviews participant feedback and adapts subsequent courses, if appropriate.
   a. The **HRED Section Manager** must re-approve the training course if revisions deviate from the approved training course.
10. The **MCPM**, or designee, updates the *MS4 Construction PDD* as needed.
11. The **Training Owner** and the **MCPM** periodically meet to review course content and goals.

5.0 Documentation and Reporting Requirements

- CDOT will use ESCAN (*when developed*) to record the name and title of each individual trained, date of training, the type of training and a list of topics covered (COS000005, Part I.E.1.b.vii.).
- CDOT will keep MS4 Construction Program training records for at least three years following each training event (MS4 Permit, Part I.K.2).

6.0 MS4 Training Requirements

- None at this time.

7.0 References to Existing Source Documents

- Appendix D, HRED Training Program, Standard Operating Procedure (HRED Training SOP 1)
- *CDOT MS4 Construction Program Manual*, SOP M4–MS4 Compliance Monitoring
- CDOT *MS4 Construction Program Description Document* https://www.codot.gov/programs/environmental/water-quality/documents/cdot-ms4-construction-program-program-description-document.pdf
- HRED Course Development Document (*under development*)
- HRED Risk Assessment Chart
- HRED Training Schedule (*under development*)

8.0 Attachments

- SOP M1, Attachment 1 is the process flowchart for MS4 Construction Program Trainings.
- SOP M1, Attachment 2 is the draft training course proposal form.

9.0 SOP M1 Revision History

March 31, 2017 – Minor editorial changes by the MCPM

SOP M1, Attachment 1 – MS4 Construction Program Trainings Process Flowchart

SOP M1, Attachment 2 – Training Course Proposal Form (DRAFT)

Training Course Proposal					
Proposer:		Date:		Course Title:	
Purpose					
Resource Needs				Priority	
				High ☐ Medium ☐ Low ☐	
Expected Development Time					
Will CDOT Charge for this Training?	Yes ☐ No ☐	If Yes, what is the anticipated charge per attendee?			
Anticipated Release Date?					
What additional Resources will be needed once the Course is developed?					
MCPM Comments					
HRED Section Manager Signature _____					

MS4 CONSTRUCTION PDD UPDATES (STANDARD OPERATING PROCEDURE M2)

Revision Number: 1.1
Date Issued/Revised: 3/31/2017
PDD Version Number: 1.1

1.0 Overview and MS4 Approach

The MS4 Construction Program Description Document (PDD) is an MS4 Permit recordkeeping requirement. The PDD must include citations and locations of the following CDOT MS4 Construction Program elements, at a minimum:

- Regulatory mechanism for the MS4 Construction Program
- Exemptions from the regulatory mechanism
- Control Measure requirements
- SWMP development, review, implementation and maintenance requirements
- Written procedures for conducting site inspections
- Written procedures for enforcement response
- Training programs and supporting documents
- Requirements to meet the Cherry Creek Reservoir Control Regulation
- Requirements pertaining to covered construction activities that overlap permit areas of more than one MS4 permittee.

This standard operating procedure (SOP) describes the process used by the MS4 Construction Program Manager (MCPM) to update the *MS4 Construction PDD* and linkage documents such as training materials, guidance documents and CDOT's MS4 Citations.

Potential *MS4 Construction PDD* update triggers include the following:

- More than one year has passed since the last PDD update
- Training program updates
- MS4 Construction Program-related document changes
- Updates to the MS4 Citations or control measure requirements
- Changes to state or federal regulations
- MS4 Permit modifications
- Revisions to CDOT's *MS4 Construction Program Manual*.

The *MS4 Construction PDD* is a high-risk MS4 Permit recordkeeping requirement that must always be current to the MS4 Construction Program. The PDD is not submitted to the CDPHE- Water Quality Control Division (WQCD) unless requested, but the WQCD may request the PDD at any time on or after March 1, 2017 and will expect it to be complete and accurate on delivery.

2.0 Regulatory Criteria

- CDOT MS4 Permit (COS000005), Part I.C. DOCUMENTATION, pages 7–8

- CDOT MS4 Permit (COS000005), Part I.E.1.c. PDD, pages 17–18
- EPA Audit, 2PM
- EPA Audit, 3PM

3.0 MS4 Roles and Responsibilities

Section 3.0 is an overview of MS4 roles and responsibilities for updating the *MS4 Construction PDD*. The process and methods are listed in Section 4.0.

- **Hydrologic Resource and Ecological Design (HRED) Section Manager** conducts a risk analysis of any proposed updates to the *MS4 Construction PDD* or linkage documents.
- **MS4 Construction Program Manager (MCPM)**, or designee, is responsible for checking all *MS4 Construction PDD* citations and document locations at least once each year and when made aware of a change to a document linked to the PDD.

4.0 Methods/Procedures

The SOP process below is followed when the MCPM is notified of a pending change to a document linked to the PDD.

1. The **MCPM** is notified that a change to an MS4 Construction Program document. The current list of MS4 Construction Program documents is available in the *MS4 Construction PDD*.
2. The **MCPM**, or designee, conducts an investigation and compiles a list of all related documents (e.g., SOPs, manuals and trainings) that need to be updated when the PDD linkage document is updated.
3. The **MCPM** and the **HRED Section Manager** review the MS4 Construction Program's list of related documents for completeness and conduct a resource check and a risk-based analysis. The resource check and risk-based analysis include but are not limited to the following questions:
    - What is the regulatory risk to the MS4 Construction Program from making the change or not making the change?
    - What is the estimated level of resources (e.g., staff, money and time) that will be needed to change the *MS4 Construction PDD* and linked documents and how many parts of the MS4 Construction Program will be affected?
    - What other *MS4 Construction PDD* changes are in discussion and how does this change compare to and affect other changes in consideration (i.e., level of risk and resources required)?
    - Is the *MS4 Construction PDD* change high-risk or low-risk?
        - Documents linked to high-risk PDD updates are revised as soon as possible.
        - Documents linked to low-risk PDD updates are bundled and revised with other low-risk PDD updates.
4. The **HRED Section Manager** discusses the level of risk and required resources with the appropriate parties before the changes are implemented and the *MS4 Construction PDD* is changed.

5. The **MCPM**, or designee, assigns responsibilities and deadlines for updating the *MS4 Construction PDD* and document linked to the change.
6. The **MCPM**, or designee, uses ESCAN (*when developed*) to record the results of the linkage document investigation, the risk-based analysis, the resource check and all related documents that were changed.
7. The **HRED Section Manager** issues a targeted Environmental Bulletin to inform end users of the update to the *MS4 Construction PDD*.

5.0 Documentation and Reporting Requirements

- PDD updates will be tracked in CDOT's ESCAN system (*when developed*).
- Archived versions of the PDD will be stored in ESCAN.

6.0 MS4 Training Requirements

- None at this time.

7.0 References to Existing Source Documents

- CDOT *MS4 Construction Program Description Document* https://www.codot.gov/programs/environmental/water-quality/documents/cdot-ms4-construction-program-program-description-document.pdf

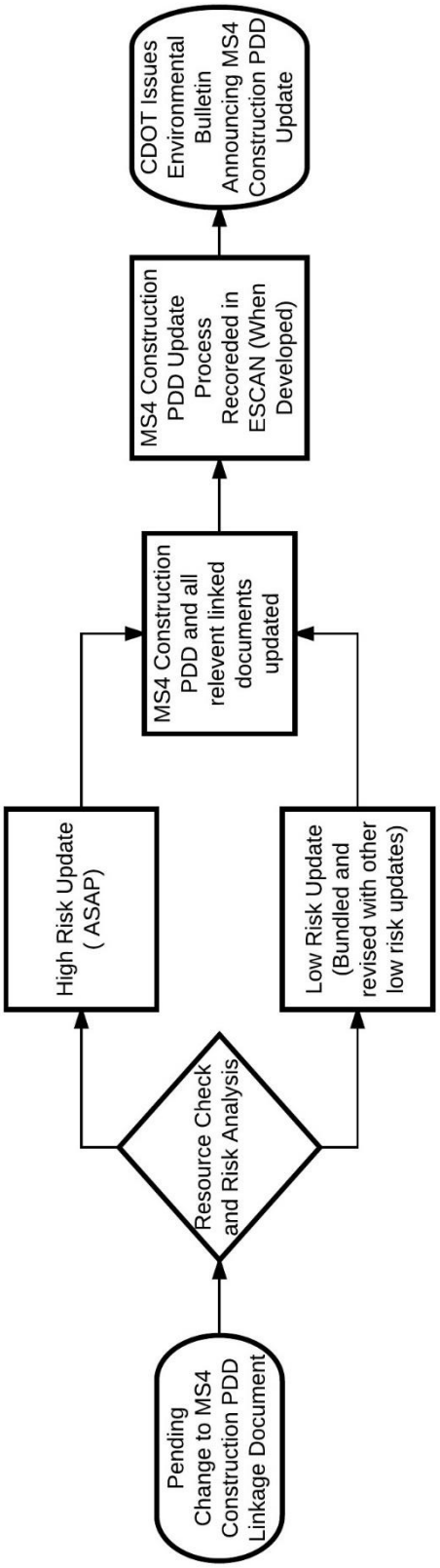
8.0 Attachments

- SOP M2, Attachment 1 is the process flowchart for updating the *MS4 Construction PDD*.

9.0 SOP M2 Revision History

March 31, 2017 – Minor editorial changes by the MCPM

SOP M2, Attachment 1 – *MS4 Construction PDD* Updates Process Flowchart



MS4 CONSTRUCTION PROGRAM MANUAL UPDATES (STANDARD OPERATING PROCEDURE M3)

Revision Number: 1.1
Date Issued/Revised: 3/31/2017
PDD Version Number: 1.1

1.0 Overview and MS4 Approach

The *MS4 Construction Program Manual*, prepared for CDOT's Chief Engineer/Director of Stormwater Compliance, is CDOT's direction to staff regarding compliance with MS4 Permit requirements applicable to CDOT projects with a Colorado Discharge Permit System–Stormwater Construction Permit (CDPS-SCP). The MS4 Construction Program Committee (Committee) is responsible for updating the *MS4 Construction Program Manual*. The Committee includes two delegates from each of CDOT's 5 Regions and the MS4 Construction Program Manager (MCPM). The MCPM's main role is to represent the Chief Engineer/Director of Stormwater Compliance and ensure that changes to the *MS4 Construction Program Manual* meet the Chief Engineer/Director of Stormwater Compliance Design Criteria (SOP M3, Attachment 1).

Standard operating procedure (SOP) M3 outlines the process to update CDOT's *MS4 Construction Program Manual* over time. The intent is for CDOT Regions to retain their voice in *MS4 Construction Program Manual*, implement a uniform MS4 Construction Program and identify and resolve risks to the MS4 Construction Program which will prevent self-reporting noncompliance to the CDPHE-Water Quality Control Division (WQCD).

2.0 Regulatory Criteria

- CDOT MS4 Permit (COS000005), Part I.E.1.c. PDD, pages 17–18
- EPA Audit, 2PM
- EPA Audit, 3PM

3.0 MS4 Roles and Responsibilities

Section 3.0 is an overview of MS4 roles and responsibilities for updating the *MS4 Construction Program Manual*. The process and methods are listed in Section 4.0.

- **Chief Engineer/Director of Stormwater Compliance** has the final approval on proposed process changes to the *MS4 Construction Program Manual*.
- **Delegates** represent the Regions on the MS4 Construction Program Committee. Delegates provide varying degrees of input and feedback to *MS4 Construction Program Manual* changes. Region change requests must be presented through their Delegates and Delegates communicate with Region stakeholders.

- **Hydrologic Resource and Ecological Design (HRED) Section Manager** issues an Environmental Bulletin when the *MS4 Construction Program Manual* is revised.
- **MS4 Construction Program Manager (MCPM)**, or designee, coordinates with Task Force Delegates to make ongoing changes to the *MS4 Construction Program Manual*. The MCPM represents the Chief Engineer/Director of Stormwater Compliance and Headquarters on the Committee. The MCPM is the editor of the *MS4 Construction Program Manual*. Headquarters change requests must be presented through MCPM.
- **Region Transportation Director (RTD)** is responsible for choosing two Delegates to represent their Region on the Committee.

4.0 Methods/Procedures

SOP M3 has two tracks for updating CDOT's *MS4 Construction Program Manual*. Track 1 is used to resolve editorial, referential, or other non-process issues. Track 2 is followed when SOP processes will be changed.

Track 1 –SOP change, Non-process

1. Non-process changes (e.g., editorial, referential, or other non-process issues) are identified by the **MCPM** or submitted to the **MCPM** electronically by **Delegates**.
2. The **MCPM** updates the relevant section(s) of the *MS4 Construction Program Manual* and sends the section(s) to **Delegates** for review.
3. The **Delegates** have two weeks to review non-process changes to the *MS4 Construction Program Manual*.
    a. The **MCPM**, or designee, will compile and incorporate comments submitted by **Delegates**.
    b. If the **MCPM** receives no comments by the 2-week deadline, the non-process changes are approved.
4. The **MCPM**, or designee, revises the *MS4 Construction Program Manual*.
5. The **MCPM**, or designee, updates the MS4 Construction Program Description Document (PDD) to incorporate the date of the revised *MS4 Construction Program Manual*.
6. The **HRED Section Manager** issues an Environmental Bulletin to notify end users of the change(s).

Track 2 – SOP Change, Process

Changes to *MS4 Construction Program Manual* processes must be reviewed and discussed by the **Delegates** at the annual MS4 Construction Program Committee meeting.

1. The **MCPM** schedules the annual MS4 Construction Program Committee meeting to consider process changes to the *MS4 Construction Program Manual*.
    a. The **Delegates** may need to have additional meetings throughout the year to address emergency circumstances or actions that may expose the MS4 Construction Program to a high level of risk.
2. The **MCPM** announces the annual MS4 Construction Program Committee meeting and invites **Delegates** to submit *MS4 Construction Program Manual* change

requests. Change requests must be submitted at least one month prior to the annual MS4 Construction Program Committee meeting.

3. The **MCPM** compiles the change requests and works with the **HRED Section Manager** to evaluate each according to budget requirements, compliance risk, consistency with the Chief Engineer/Director of Stormwater Compliance Design Criteria, related MS4 Construction Program updates (e.g., trainings, guidance documents and forms) and the time needed for implementation.
    a. The annual MS4 Construction Program Committee meeting may be canceled if no changes are proposed.
    b. The **MCPM** informs the **Chief Engineer/Director of Stormwater Compliance** of changes to the *MS4 Construction Program Manual* on an as-needed basis.
4. The **MCPM** discusses change requests with **Delegates** during the annual meeting or via other means if the change request must be reviewed before the next annual meeting.
    a. **Delegates** discuss change requests and gain consensus.
    b. **Delegates** are responsible for communicating consensus agreements to their constituents and notifying the **MCPM** of potential fatal flaws within a time period established at the annual meeting.
5. The **MCPM**, or designee, updates the *MS4 Construction Program Manual* to reflect the consensus agreements.
6. The **MCPM** submits the revised *MS4 Construction Program Manual* section(s) to the **Chief Engineer/Director of Stormwater Compliance** for final approval or change requests.
7. The **MCPM**, or designee, updates the *MS4 Construction PDD* to incorporate the date of the revised *MS4 Construction Program Manual*.
8. The **HRED Section Manager** announces the *MS4 Construction Program Manual* update in an Environmental Bulletin.

5.0 Documentation and Reporting Requirements

- Updates to the *MS4 Construction Program Manual* are tracked in ESCAN (*when developed*). The current version will be recorded in ESCAN.
- Environmental Bulletin announcing the annual MS4 Construction Program Committee meeting.

6.0 MS4 Program Elements

- Not applicable.

7.0 References to Existing Source Documents

- CDOT *MS4 Construction Program Description Document*
  https://www.codot.gov/programs/environmental/water-quality/documents/cdot-ms4-construction-program-program-description-document.pdf

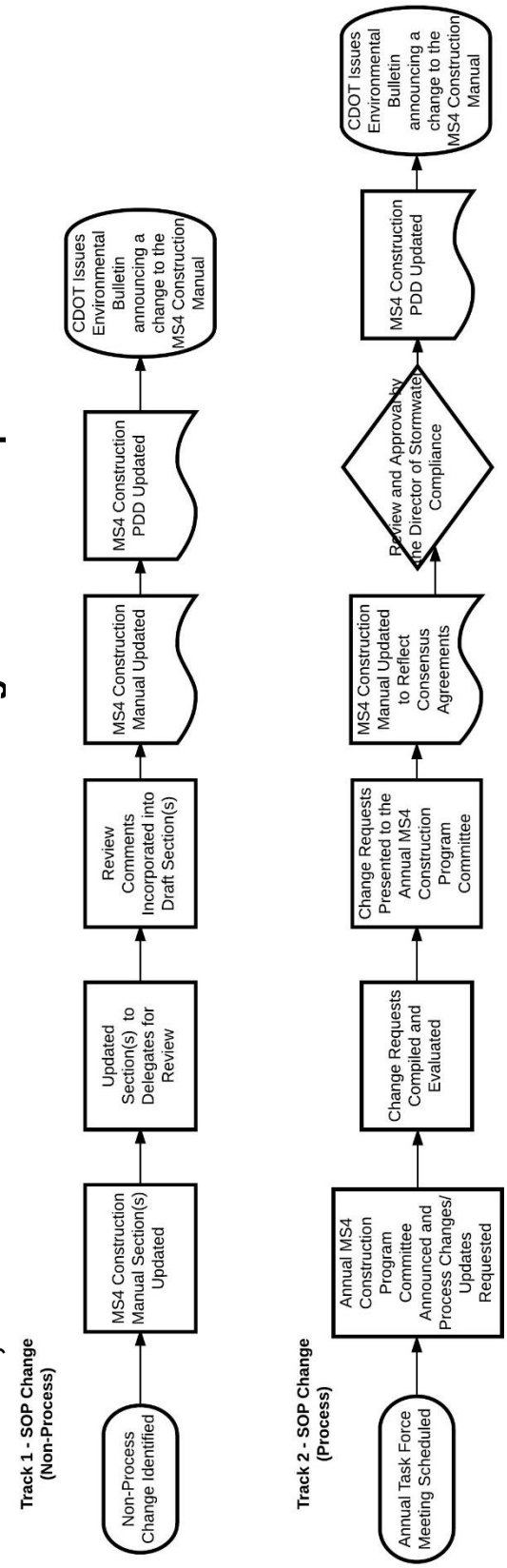
8.0 Attachments

- SOP M3, Attachment 1 is the process flowchart for updates to the *MS4 Construction Program Manual*.

9.0 SOP M3 Revision History

March 31, 2017 – Minor editorial changes by the MCPM

SOP M3, Attachment 1 – *MS4 Construction Program Manual* Updates



MS4 Compliance Monitoring (Standard Operating Procedure M4)

Revision Number: 1.1
Date Issued/Revised: 3/31/2017
PDD Version Number: 1.1

1.0 Overview and MS4 Approach

The MS4 Construction Program Manager (MCPM) is the Chief Engineer/Director of Stormwater Compliance's authorized representative to implement and monitor the MS4 Construction Program. The MCPM is responsible for monitoring all aspects of CDOT's MS4 Construction Program, including MS4 personnel and associated documentation. MS4 Compliance Monitoring informs the Chief Engineer/Director of Stormwater Compliance about CDOT's overall compliance with the MS4 Permit and identifies MS4 Construction Program areas that need additional attention, resources and/or training.

The MS4 Compliance Monitoring standard operating procedure (SOP) is the process the MCPM, or designee, uses to conduct MS4 Construction Program self-monitoring activities, record observations and respond to MS4 Construction Program non-compliance, including escalation processes by functional work group (i.e., Region Engineering, Region Environmental, Hydrologic Resource and Ecological Design [HRED] and Maintenance [MTCE]).

The following guidelines pertain to all MS4 Compliance Monitoring events.

- MS4 Compliance Monitoring evaluates implementation of the *MS4 Construction Program Manual* relative to MS4 Roles and Responsibilities and methods/ procedures identified in each SOP and compliance with the MS4 Permit.
- MS4 Compliance Monitoring will, when practical, schedule evaluations of construction SOPs during the active construction season; design and non-project SOPs will be monitored during the winter or off-season.
- MS4 compliance monitoring is used to evaluate and foster consistency in MS4 Construction Program implementation across CDOT, including MS4 Permit requirements, as well as incorporate lessons learned throughout CDOT's MS4 Construction Program.
- MS4 Compliance Monitoring evaluation materials (e.g., evaluation checklists and cheat sheets) will be housed in ESCAN (*when developed*). CDOT intends for MS4 Compliance Monitoring to be transparent and educational.
- MS4 Compliance Monitoring is reported to CDOT's Chief Engineer/Director of Stormwater Compliance annually with quarterly meetings discussing any relevant issues.

MS4 Compliance Monitoring is the third step in the hierarchy of MS4 Construction Program oversight events (Figure 1). Third-party audits of the MS4 Construction Program are addressed in SOP M6.

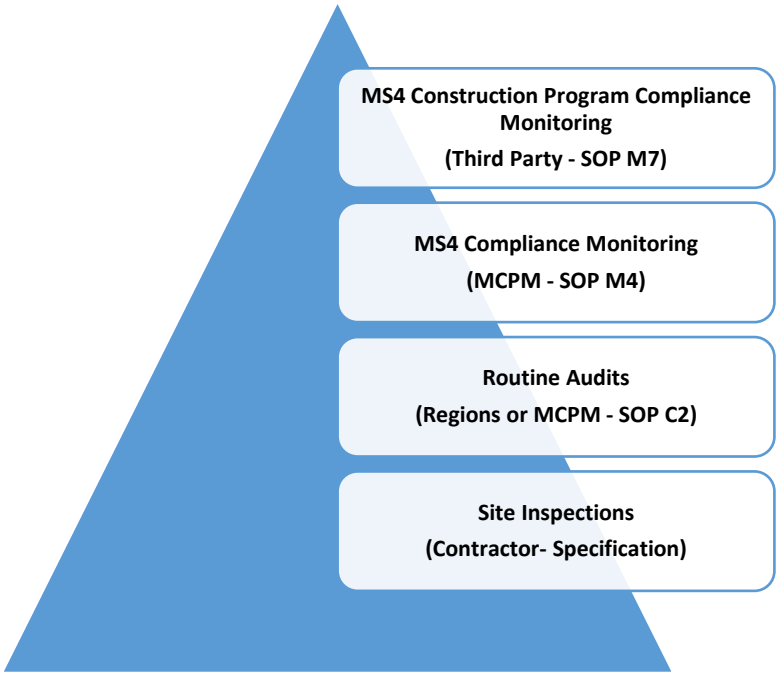


Figure 1. The Hierarchy of MS4 Construction Program Inspections, Audits and Monitoring Events

This SOP includes the following two components:

- **MS4 Compliance Monitoring** evaluates implementation of the *MS4 Construction Program Manual* by CDOT Regions and the HRED Section. MS4 Compliance Monitoring, conducted in person or through ESCAN, verifies that MS4 roles, responsibilities, methods and procedures are followed. MS4 Compliance Monitoring provides compliance assistance or requires compliance actions to resolve non-compliance issues with the CDOT MS4 Construction Program and identifies training needs. MS4 Compliance Monitoring also keeps the Chief Engineer/Director of Stormwater Compliance informed about compliance with the MS4 Construction Program and overall regulatory risk; and improves the MS4 Construction Program by sharing lessons learned across the state and resolving systemic issues.
- **Escalation processes** provide the opportunity and time for CDOT to internally resolve MS4 Construction Program compliance issues and avoid immediate self-reporting of MS4 Permit noncompliance to the CDPHE-Water Quality Control Division (WQCD). Compliance actions emphasize communication and training over escalating the issue to immediate supervisors and above. Escalation processes, however, are invoked when a pattern of noncompliance is documented.

MS4 Compliance Monitoring events are scheduled to allow time to oversee all aspects of the MS4 Construction Program, including SWMP Design and approval, active and post-active construction, project termination and MS4 Monitoring processes.

2.0 Regulatory Criteria

- CDPHE MS4 Permit (COS000005), Part I.E.1, pages 9–17
- CDPHE MS4 Permit (COS000005), Part I.I.1, pages 52–54
- EPA Audit, 2PM
- EPA Audit, 3PM
- EPA Audit, 1CS
- EPA Audit, 2CS
- EPA Audit, 3CS
- EPA Audit, 4CS
- EPA Audit, 5CS

3.0 MS4 Roles and Responsibilities

Section 3.0 is an overview of MS4 roles and responsibilities in MS4 Compliance Monitoring. The process and methods are listed in Section 4.0.

- **Chief Engineer/Director of Stormwater Compliance** is the authority responsible for CDOT's MS4 Construction Program.
- **Hydrologic Resource and Ecological Design (HRED) Section Manager** works with the MCPM to identify MS4 Compliance Monitoring targets, metrics and goals.
- **MS4 Construction Program Manager (MCPM)** is the Chief Engineer/Director of Stormwater Compliance's authorized representative to implement and monitor the MS4 Construction Program. The MCPM, or designee, schedules and conducts annual MS4 Compliance Monitoring at CDOT Headquarters and Regions, either in person or through ESCAN (*when developed*).
- **MS4 Personnel** have MS4 Construction Program roles and responsibilities defined in the *MS4 Construction Program Manual*.
- **Region Water Pollution Control Managers (RWPCMs)** represent the Regions during MS4 Compliance Monitoring.

4.0 Methods/Procedures

The intent of the first four steps is to align MS4 Compliance Monitoring with CDOT goals, MS4 Permit compliance and recognized regulatory risk. The remaining steps (Steps 5--7) are conducted throughout the year to track and report MS4 Permit compliance and make adjustments when needed. MS4 Compliance Monitoring will focus on the current needs of the MS4 Construction Program to improve water quality, MS4 Permit familiarity and uniform implementation of the MS4 Construction Program.

Track 1 (Planning)

1. The **MCPM** and the **HRED Section Manager** meet at the beginning of each calendar year to develop MS4 Compliance Monitoring targets, goals and metrics for upcoming monitoring events.
2. The **MCPM**, or designee, and the **HRED Section Manager** have the option to focus on overall implementation of the *MS4 Construction Program Manual* or, on

an annual basis, may choose to focus on specific SOPs to reduce CDOT's regulatory risk and/or improve uniformity of implementation.

3. The **MCPM**, or designee, develops MS4 Compliance Monitoring agenda, schedule and evaluation materials, including checklists where needed.
4. The **MCPM**, or designee, distributes the year's monitoring plan through an Environmental Bulletin, if necessary.
5. The **MCPM** conducts a quarterly meeting with the **Chief Engineer/Director of Stormwater Compliance** (unless otherwise directed) that highlights MS4 compliance actions and CDOT's exposure to regulatory risk.
6. The **MCPM**, or designee, presents lessons learned during MS4 Compliance Monitoring to the MS4 Construction Program Committee. Lessons learned may include SOPs to be evaluated, changes to MS4 Citations, direction from the Chief Engineer/Director of Stormwater Compliance to resolve concerns from quarterly status meetings and/or opportunities for focused trainings.

Track 2 (Field Reviews)

Track 2 is written for field review of MS4 Personnel by the MCPM, or designee.

1. The **MCPM**, or designee, contacts the RWPCM at least one month before the proposed MS4 Compliance Monitoring event, unless another time frame is mutually determined to obtain the RWPCM's 45-day Routine Audit schedule.
2. The **MCPM**, or designee, obtains project descriptions from ESCAN or the RWPCM for all projects on the 45-day Routine Audit schedule, including current phase of construction, type of contract mechanism, location, subaccount number and Contractor.
3. The **MCPM** selects a minimum of three projects per RWPCM from the 45-day Routine Audit schedule that will be part of the MS4 Compliance Monitoring event. The number of projects may increase depending on the types and complexity of projects in the Region.
4. The **MCPM** notifies the RWPCM of the three or more projects selected for the MS4 Compliance Monitoring event and confirms the dates of Routine Audits at these projects.
    a. For Regions with more than one RWPCM, the **MCPM**, or designee, will select three or more projects for each RWPCM and coordinate the schedule with each RWPCM.
5. The **MCPM**, or designee, conducts the MS4 Compliance Monitoring event according to the schedule.
    a. MS4 compliance actions are documented failures to implement one or more aspects of the MS4 Construction Program. MS4 compliance actions are classified as compliance assistance, findings, or severe findings (*see* Section 6.0).
6. The **MCPM,** or designee, conducts a debriefing meeting at the end of each MS4 Compliance Monitoring event with the **MS4 Personnel** involved in the MS4 Compliance Monitoring event. The debriefing meeting will discuss strengths, areas for improvement and related findings.

7. The **MCPM**, or designee, will prepare a written report that lists compliance assistance, findings, severe findings and any additional notes from the MS4 Compliance Monitoring event.
    a. The **MCPM**, or designee, enters the report into ESCAN (*when developed*) before midnight of each field audit. Under extenuating circumstances, the report can be entered into ESCAN within 24 hours of the completion of each field audit.
8. The **MCPM** tracks the implementation of compliance actions and escalation processes resulting from each MS4 Compliance Monitoring–Field Reviews event.

Track 3 (Documentation)

1. The **MCPM**, or designee, requests MS4 Construction Program documents from **RWPCMs** to prepare case studies related to the MS4 Construction Program or evaluate specific required MS4 Construction Program documents.
2. The **MCPM**, or designee, prepares a written report of the case study or other documentation review that lists items for compliance assistance, findings and severe findings, as applicable (Section 6.0).
3. The **MCPM**, or designee, reviews the written report with the RWPCM and/or other staff whose documentation responsibilities were evaluated.
4. The **MCPM** tracks the implementation of compliance actions and escalation processes that result from each MS4 Compliance Monitoring–Documentation Review event (ESCAN, *when developed*).

Track 4 (ESCAN)

ESCAN (*when developed*) continuously monitors procedures and processes defined within the MS4 Construction Program.

1. ESCAN automatically reports process discrepancies to the **MCPM**.
2. The ESCAN report triggers an investigation by the **MCPM**, or designee, to determine if a compliance action is needed. MS4 compliance actions can be classified as compliance assistance, findings, or severe findings (*see* Section 6.0).
3. The **MCPM**, or designee, documents the compliance action in ESCAN.
4. The **MCPM** tracks the implementation of compliance actions and escalation processes that result from each MS4 Compliance Monitoring–ESCAN triggered event.

See timeline for MS4 escalation processes in Section 6.0.

5.0 Documentation and Reporting Requirements

- ESCAN (*when developed*) will track Region MS4 compliance monitoring events
- Annual report.

6.0 MS4 Escalation Processes

The general framework for MS4 Construction Program escalation is:

1. **Compliance Assistance**. The first two instances of an MS4 compliance action by a specific individual receive compliance assistance for that procedure, unless the compliance action is a severe finding.
    a. The form of compliance assistance for MS4 compliance actions depends on whether or not the issue can be fixed.
        i. Fixable actions can be resolved through compliance assistance (e.g., missed signature).
        ii. Non-fixable actions receive informal or formal training and a written statement of assurance (e.g., missed scheduled milestone).
2. **Oversight/Monitoring Finding**. After two unsuccessful rounds of compliance assistance the noncompliance is elevated to an oversight/monitoring finding for that individual and procedure.
    a. The **MCPM**, or designee, launches an investigation on an as-needed basis to determine the causes of noncompliance.
    b. The **MCPM** and the individual discuss the oversight/monitoring finding and compliance action. The individual has up to 7 days to successfully implement the compliance action or provide a signed statement of understanding.
    c. If the oversight/monitoring finding is not corrected, the process is escalated to the next level (Table 4) until either the finding is corrected or the Chief Engineer/Director of Stormwater Compliance reports the noncompliance to the WQCD.
    d. Disagreements over the sufficiency of the compliance action will be heard by the MS4 Construction Program Task Force at Level 3 on Table 4.

Table 4. MS4 Construction Program Escalation Processes by CDOT Functional Workgroup

Escalation Level	*Region Environmental*	*Region Engineering*	*HRED and Headquarters Staff*	*Maintenance*
Level 1 (day 7 deadline)	RWPCMs, SWMP Reviewers	Project Engineer, SWMP Preparer	MCPM, MCFM, ED Unit Lead, CDOT/CDPHE Liaison, HRED Section Manager	TMI, TMII, TMIII
Level 2 (day 14 deadline)	RPEM	Resident Engineer (RE)	HRED Section Manager	Labor, Trades and Crafts Operations
Level 3 (day 21 deadline)	Region Transportation Director (RTD)	PE III/RTD	Environmental Program Branch (EPB) Manager and Division of Transportation Development (DTD) Director	Superintendent/ RTD/Director of Maintenance/ Director of Highway Maintenance
Level 4 (day 28 deadline)	Chief Engineer/Director of Stormwater Compliance	Chief Engineer/Director of Stormwater Compliance	Chief Engineer/Director of Stormwater Compliance	Chief Engineer/Co-operating officer/Director of Stormwater Compliance
Level 5 (day 29)	Chief Engineer/Director of Stormwater Compliance reports to WQCD	Chief Engineer/Director of Stormwater Compliance reports to WQCD	Chief Engineer/Director of Stormwater Compliance reports to WQCD	Chief Engineer/Director of Stormwater Compliance reports to WQCD

3. **Severe Oversight/Monitoring Finding**. A severe finding immediately triggers escalation to the third level of the escalation process for the appropriate functional workgroup (e.g., Region Environmental, Region Engineering, HRED and Headquarters Staff and Maintenance escalation processes), depending on which role in which functional workgroup is accountable for the severe finding. Severe oversight/monitoring findings include but are not limited to the following:
    - False reporting,
    - Two oversight/monitoring findings on the same SOP by the same individual, or
    - Refusal to implement the MS4 Construction Program.
4. The **MCPM**, or designee, records notes in ESCAN when the MS4 compliance action is closed.

7.0 References to Existing Source Documents

- CDOT *MS4 Construction Program Description Document* https://www.codot.gov/programs/environmental/water-quality/documents/cdot-ms4-construction-program-program-description-document.pdf

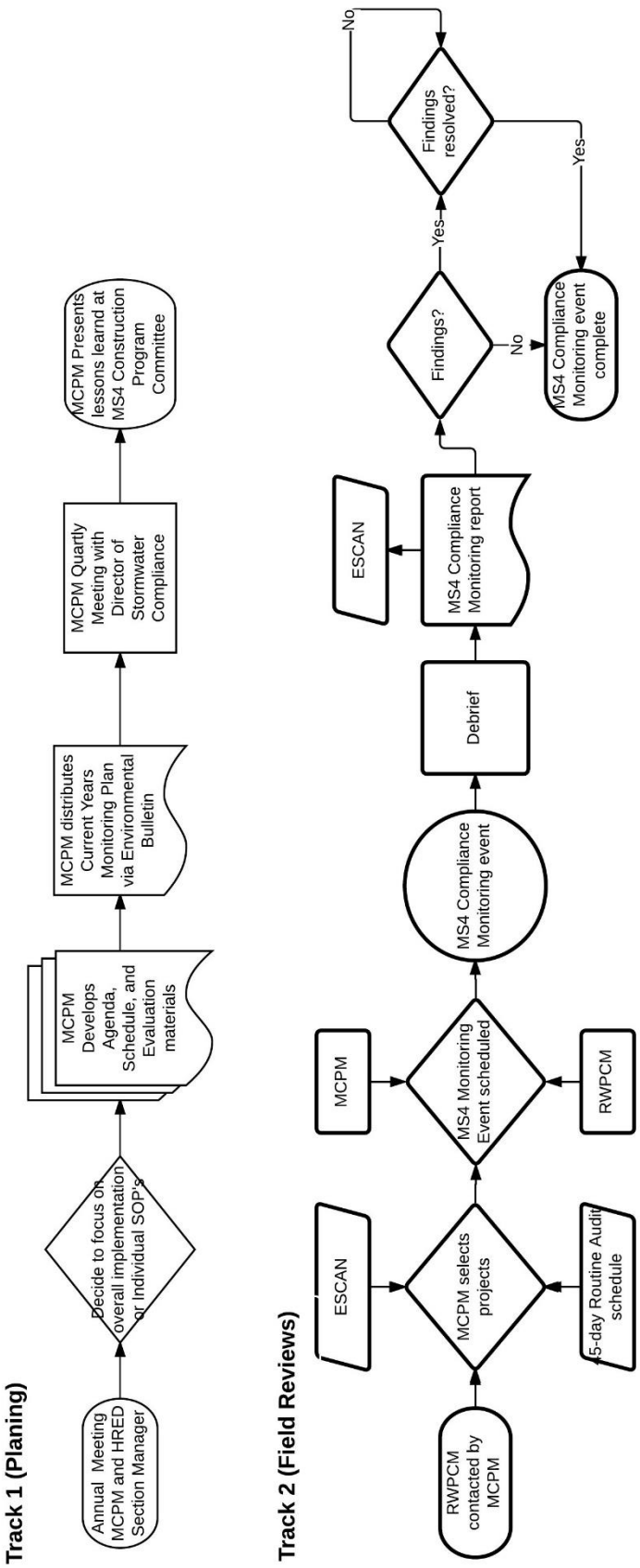
8.0 Attachments

- SOP M4, Attachment 1 is the process flowchart for MS4 Compliance Monitoring.

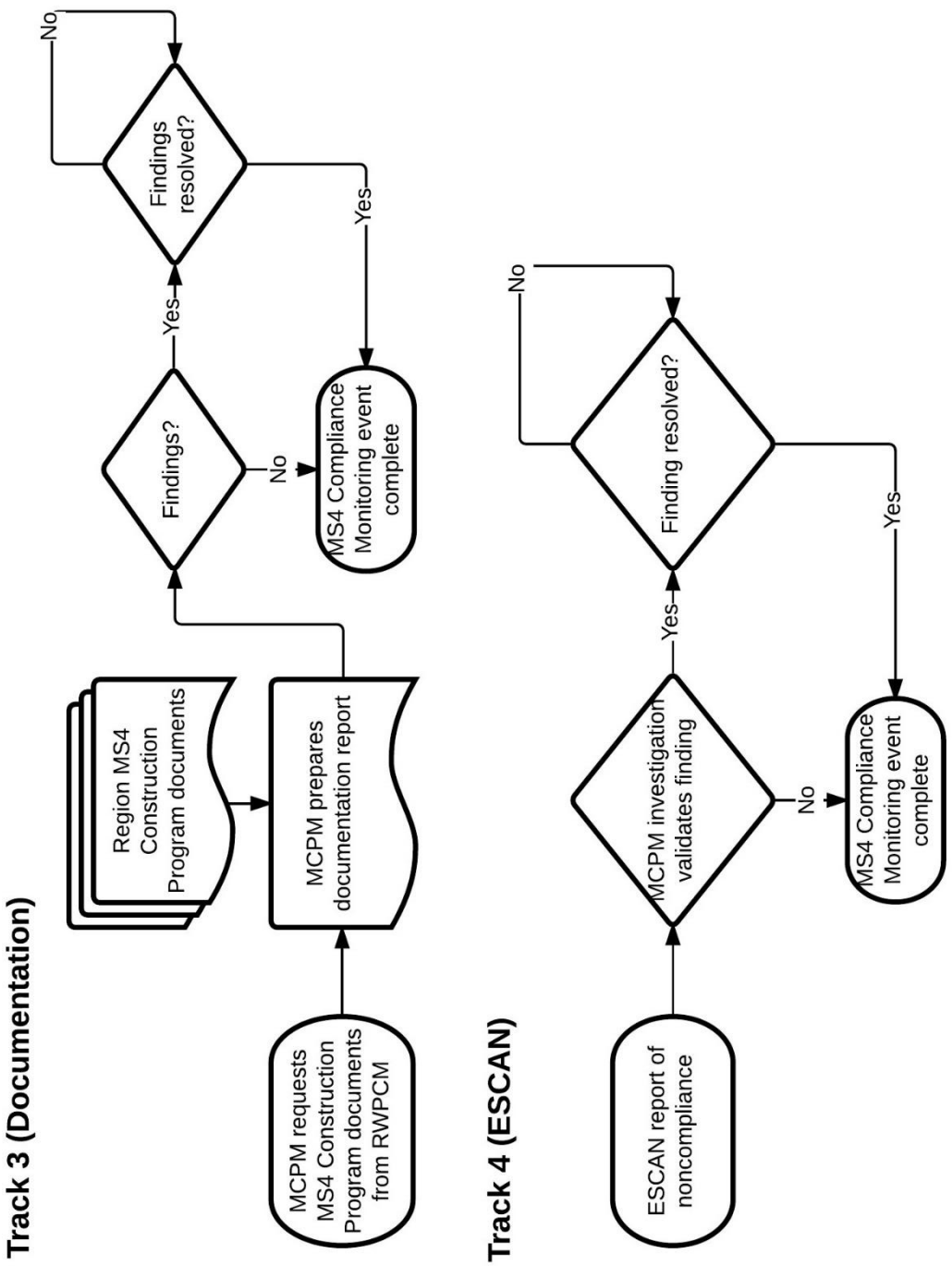
9.0 SOP M4 Revision History

March 31, 2017 – Minor editorial changes by the MCPM

SOP M4, Attachment 1 – MS4 Compliance Monitoring Process Flowchart



SOP M4, Attachment 1 – MS4 Compliance Monitoring Process Flowchart (continued)



CDPHE-WQCD CONTACT/INQUIRY (STANDARD OPERATING PROCEDURE M5)

Revision Number: 1.1
Date Issued/Revised: 3/31/2017
PDD Version Number: 1.1

1.0 Overview and MS4 Approach

The CDPHE-Water Quality Control Division (WQCD) is authorized by the US Environmental Protection Agency (EPA) to administer the National Pollutant Discharge Elimination System permit program as the Colorado Discharge Permit System (CDPS). As such, CDOT may have regulatory questions for the WQCD that range from project-specific questions to broader programmatic questions. This standard operating procedure (SOP) establishes a process whereby the CDOT/CDPHE Liaison communicates MS4 Permit or Colorado Discharge Permit System–Stormwater Construction Permit (CDPS-SCP) questions to the appropriate WQCD staff and then disseminates the response to CDOT Headquarters and Region Water Quality Staff.

SOP M5 addresses a compliance risk that arises when different MS4 Personnel receive different interpretations of MS4 Construction Program requirements from the WQCD. To avoid this and ensure MS4 Construction Program uniformity, statewide, the CDOT/CDPHE Liaison is CDOT's designated point of contact for communication with the WQCD. With a single point of contact, CDOT-wide regulatory questions will be recognized, addressed and communicated to MS4 Personnel.

2.0 Regulatory Criteria

Not applicable.

3.0 Roles and Responsibilities

Section 3.0 is an overview of MS4 roles and responsibilities for communicating with the WQCD. The process and methods are listed in Section 4.0.

- **CDOT/CDPHE Liaison** is responsible for contacting the WQCD with small and large impact questions that cannot be resolved internally and sharing responses to Region Water Pollution Control Managers (RWPCMs) and other Region water quality staff.
- **MS4 Construction Program Manager (MCPM)** is responsible for updating the MS4 Construction Program, as needed, when communication with the WQCD identifies a change in policy or interpretation of an MS4 Permit or CDPS-SCP requirement.
- **MS4 Personnel** have MS4 Construction Program roles and responsibilities defined in the *MS4 Construction Program Manual*.

4.0 Methods/Procedures

Large impact questions have potential implications for stormwater management across multiple CDOT construction sites, CDOT Regions, or CDOT's MS4 Construction Program. Large impacts can affect water quality standards and compliance actions.

Small impact questions are project-specific MS4 Permit or CDPS-SCP questions with minimal or no regulatory exposure.

Track 1 (Large Impact Questions)

1. **MS4 Personnel** submit large impact questions to the **CDOT/CDPHE Liaison** and send copies of the questions to the **MCPM**.
    a. The **HRED Section Manager**, **MCPM and CDOT/CDPHE Liaison** will attempt to answer the question internally.
2. The **CDOT/CDPHE Liaison** submits large impact questions to the WQCD electronically, if the question cannot be resolved internally.
3. The **CDOT/CDPHE Liaison** obtains a written response from the WQCD and shares it with the MCPM and the individual(s) who posed the question.
    a. WQCD responses that impact the MS4 Construction Program will be published on ESCAN with notification given to relevant staff (*when developed*).
4. The **CDOT/CDPHE Liaison** and the **MCPM** will periodically review large impact questions and WQCD responses to ensure that the MS4 Construction Program is current and implemented consistently across the Regions.

Track 2 (Small Impact Questions)

1. **MS4 Personnel** may contact CDPHE directly with a small impact question, if an immediate response is needed.
2. **MS4 Personnel** must brief the **MCPM** and **CDOT/CDPHE Liaison** after a response is received from the WQCD.
3. The **CDOT/CDPHE Liaison** will disseminate pertinent information to applicable MS4 Personnel.

5.0 Documentation and Reporting Requirements

- Large impact question written responses from the WQCD.

6.0 MS4 Training Requirements

- None at this time.

7.0 References to Existing Source Documents

- CDOT *MS4 Construction Program Description Document* https://www.codot.gov/programs/environmental/water-quality/documents/cdot-ms4-construction-program-program-description-document.pdf

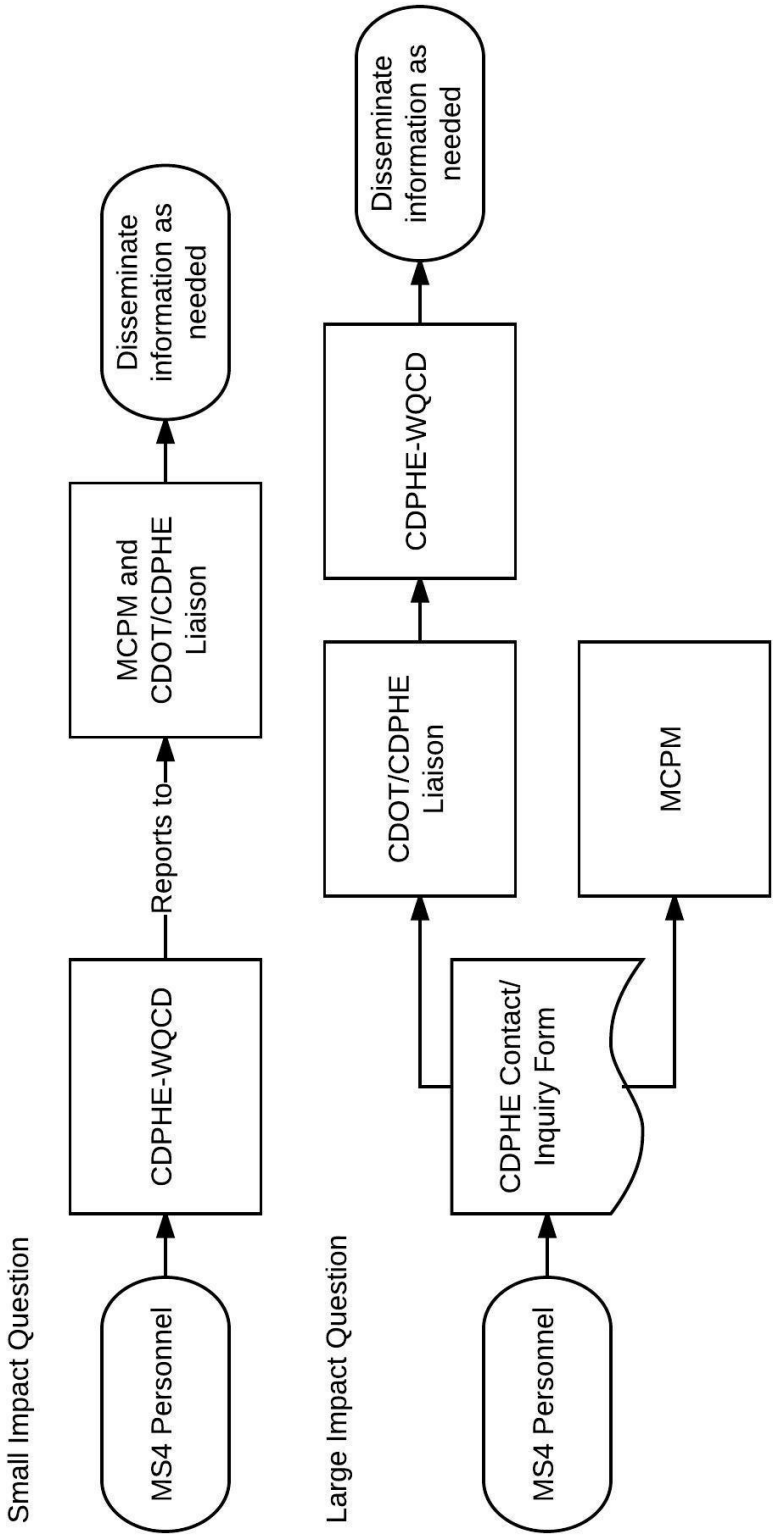
8.0 Attachments

- SOP M5, Attachment 1 is the process flowchart for WQCD Contact/Inquiry.

9.0 SOP M5 Revision History

March 31, 2017 – Minor editorial changes by the MCPM

SOP M5, Attachment 1 – WQCD Contact/Inquiry Process Flowchart



MS4 Construction Program Third-Party Audit (Standard Operating Procedure M6)

Revision Number: 1.1
Date Issued/Revised: 3/31/2017
PDD Version Number: 1.1

1.0 Overview and MS4 Approach

The MS4 Construction Program will be audited by a third party at least twice during each MS4 Permit cycle unless a regulatory agency inspection for MS4 Permit compliance is announced. The third-party audit may be conducted by CDOT's internal auditing department or a Contractor. CDOT will count regulatory audits by CDPHE- Water Quality Control Division (WQCD), or the US Environmental Protection Agency (EPA) as third-party audits for scheduling purposes.

Third-party audits are the final step in the hierarchy of MS4 Construction Program oversight events (Figure 1). Third-party audits will review MS4 Construction Program documentation and case studies, interview Headquarters and Region staff and attend Routine Audits led by the Region Water Pollution Control Manager (RWPCM) or monitoring events led by the MS4 Construction Program Manager (MCPM), or designee. Third-party audit reports will be made available for review by CDOT Headquarters and Region staff.

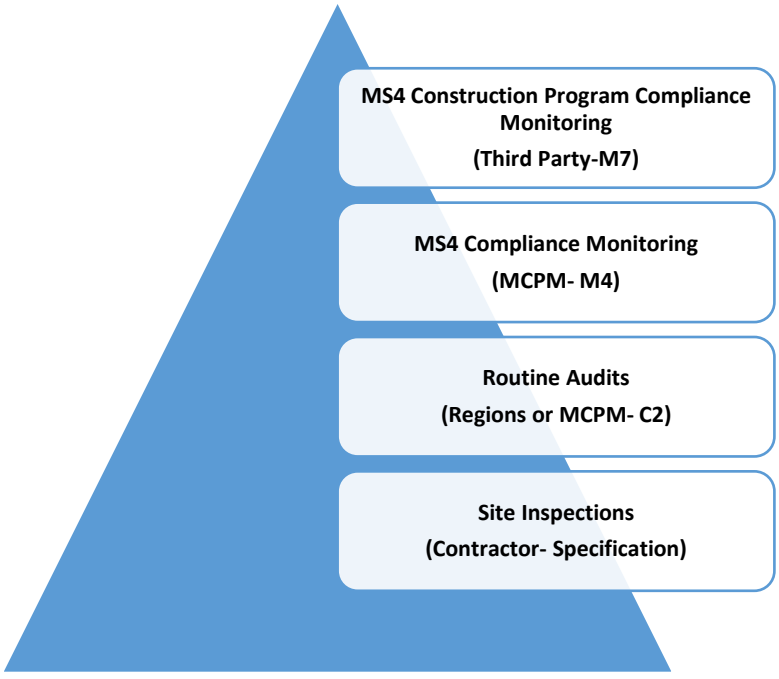


Figure 1. Hierarchy of MS4 Construction Program Inspections, Audits and Monitoring Events

2.0 Regulatory Criteria

- EPA Audit, 2PM
- EPA Audit, 3PM

3.0 MS4 Roles and Responsibilities

Section 3.0 is an overview of MS4 roles and responsibilities pertaining to third-party audits of the MS4 Construction Program. The process and methods are listed in Section 4.0.

- The **Chief Engineer/Director of Stormwater Compliance** reviews third-party audit and compliance action reports to provide further input.
- The **Hydrologic Resource and Ecological Design (HRED) Section Manager** selects the third-party auditor, schedules the audit and notifies required staff about the audit. The HRED Section Manager is accountable for resolving findings identified during the third-party audit.
- The **MCPM**, or designee, coordinates with the third-party auditor; provides access to files, documentation and personnel; and responds to questions about the MS4 Construction Program. The MCPM works with the HRED Section Manager to resolve findings and implement change(s).
- **RWPCMs** represent the Regions during third-party audits.

4.0 Methods/Procedures

1. The **HRED Section Manager** will schedule two third-party audits during each MS4 Permit cycle, unless an MS4 Permit inspection by a regulatory agency is announced. The regulatory agency inspection is counted as a third-party audit.
2. The **HRED Section Manager** and **MCPM** discuss the general timing of the third-party audit and whether the audit will be conducted by a Contractor or CDOT's Audit Division.
3. The **HRED Section Manager** provides the auditor with the requested documents.
4. The auditor provides the **HRED Section Manager** with a list of MS4 Construction Program roles and processes that will be evaluated.
5. The **HRED Section Manager** notifies relevant MS4 Personnel of the third-party audit.
6. The auditor conducts the audit according to their framework and scope. The third-party audit, at a minimum, includes compliance items and documentation identified in the *MS4 Construction Program Manual*.
7. The auditor convenes a closing meeting to discuss preliminary audit findings with the **HRED Section Manager**, **MCPM**, **MS4 Construction Field Manager (MCFM)** and relevant **MS4 Personnel**.
8. The auditor submits a written report to the **HRED Section Manager**.
9. The **HRED Section Manager** meets with the **MCPM** to assign a level of risk to findings in the audit report and develop a risk-based compliance action plan.
10. The **HRED Section Manager** and the **MCPM** will present the third-party audit report and compliance action plan to the **Chief Engineer/Director of Stormwater Compliance** for additional input.

11. The **MCPM** sets a schedule for implementing the compliance action plan, documents compliance actions in ESCAN and periodically reports compliance action progress to the **HRED Section Manager** and **Chief Engineer/Director of Stormwater Compliance**.

5.0 Documentation and Reporting Requirements

- The third-party auditor will prepare a written report that will be stored in ESCAN.
- The HRED Section Manager will compile a third-party audit response report and compliance action plan that will be stored in ESCAN.

6.0 MS4 Training Requirements

- None at this time

7.0 References to Existing Source Documents

- CDOT *MS4 Construction Program Description Document* https://www.codot.gov/programs/environmental/water-quality/documents/cdot-ms4-construction-program-program-description-document.pdf

8.0 Attachments

- None at this time.

9.0 SOP M6 Revision History

March 31, 2017 – Minor editorial changes by the MCPM

5.0 DEFINITIONS

Audits are conducted by CDOT to measure compliance with the MS4 Permit. Routine Audits are conducted every 45 days at active construction sites and every 90 days at post-active construction sites.

Award Date is the date the contract for the CDOT construction project is awarded to a Contractor.

CDOT Standard Specifications refers to CDOT's *Standard Specifications for Road and Bridge Construction* which contains the provisions and requirements that control construction on CDOT construction projects.

Cherry Creek Basin Water Quality Authority is the group responsible for enforcing the CDPHE's Regulation 72 within the Cherry Creek Drainage Basin.

Cherry Creek Drainage Basin is the area of land that drains to Cherry Creek. This area is regulated by CDPHE Regulation 72. The basin extends from Denver south through Monument and spans CDOT Region 1 and crosses slightly into Region 2. A map of the basin can be found online. (http://www.cherrycreekbasin.org/about-us/maps/)

Chief Engineer is CDOT's Director of Stormwater Compliance (*see* Director of Stormwater Compliance).

Chief Engineer/Director of Stormwater Compliance Design Criteria are seven basic standards for designing the MS4 Construction Program: compliance, uniformity, clear defined roles, accountability, escalation process, auditable and user friendly.

Chronic Finding/Chronic Noncompliance is a systematic problem in which there are continual and ongoing findings on the same issue or same project.

Compliance Action is a documented failure to implement one or more aspects of the MS4 Construction Program.

Compliance Assistance may be used to address low-risk issues of observed noncompliance during a Routine Audit or MS4 monitoring event. A determination of "low risk" to justify compliance assistance, must be documented in the Routine Audit or MS4 monitoring report. The "low risk" determination is based on risk factors, including that it is the first observed instance of the specific noncompliance at the construction site, the noncompliance will not result in a discharge, the noncompliance does not impair the effectiveness of the control measure or the MS4 Construction Program, or other documented low risk factors.

Control Measures are any best management practices (BMPs) or other methods used to prevent or reduce the discharge of pollutants to state waters as defined in Part I.B. of CDOT's MS4 Permit.

Delegates, two per Region, are appointed by the Region Transportation Director (RTD) to sit on the MS4 Construction Program Committee. Delegates represent their Region, are responsible for communicating MS4 Construction Program changes to their Region and present MS4 Construction Program change requests from their Region to the MS4 Construction Program Committee.

Designee is an appointed individual who works under the direction and guidance of a designated MS4 role. The designee must document acceptance of the role (ESCAN, *when developed*) and is fully responsible for the associated responsibilities.

Director of Stormwater Compliance (CDOT's Chief Engineer) "shall, at all times, 1) have the authority to direct all levels of employees within each CDOT region to perform actions necessary to achieve and maintain compliance with the MS4 Permit, 2) have the authority to impose sanctions against [a] Contractor and to initiate or direct disciplinary actions against any Regional Transportation Director, CDOT engineer, or other region employee for continued or reoccurring noncompliance with the Permit and 3) is able to direct the development and implementation of functional stormwater management systems at CDOT construction projects, which include, but are not limited to, the development of site-specific SWMPs that prescribe functional [best management practices] BMPs for all phases of construction activities and the implementation of functional erosion and sediment control practices that are installed and maintained to form a system/series of pollutant control BMPs at each site" (CDOT Compliance Order on Consent).

ESCAN, the Erosion and Sediment Control Assessment Notebook, is a proprietary software package developed by CDOT to track MS4 Construction Program activities, documents, certifications, compliance actions and other MS4 Construction Program information. ESCAN is accessible through the CDOT computer network to staff and Contractors who have been granted access by the MCPM. ESCAN is being developed into CDOT's stormwater environmental management system (SWEMS) for all CDOT MS4 program areas.

Environmental Bulletin is issued by the Hydrologic Resource and Ecological Design (HRED) Section Lead to disseminate information to stakeholder groups critical to CDOT's mission of MS4 Permit compliance, regulatory audits and MCPM monitoring activities.

Exemptions to CDOT's Regulatory Mechanism are construction projects that may not be subject to the 208.09 Specification's escalation process for failure(s) to perform erosion and sediment control. Examples include projects that do not have a Project Engineer onsite or where the 208.09 Specification was written out of the contract, which can occur with design-build projects and other projects that are not design-bid-build.

Final Stabilization is "the condition reached when all ground surface disturbing activities at the site have been completed and uniform vegetative cover has been established with an individual plant density of at least 70 percent of pre-disturbance levels, or equivalent permanent, physical erosion reduction methods have been employed" (MS4 Permit, Part I.E.1).

Finding is a situation upon inspection that is in noncompliance with the MS4 Citations or MS4 Construction Program.

Form 105 is official written communication between the Project Engineer and the Contractor regarding the quality and acceptability of materials furnished, work performed and the rate of progress of the work; all interpretation of the plans and specifications; and the acceptable fulfillment of the Contract (*CDOT Standard Specifications*, Section 105.01).

Inactivation Notice is a CDPHE form submitted to the WQCD when a site has been finally stabilized in accordance with the SWMP (CDPS-SCP, Part A.6.). The Inactivation Notice may be referred to as the Notice of Termination (NOT) and is filed on CDPHE's *Colorado Water Quality Control Division Termination Application*.

Inadequate Control Measure (a) is a "control measure [that] is not designed, implemented, or operating in accordance with the requirements of the permit, including the specific requirements in each program area in [MS4 Permit] Part I.E or other requirements and implemented and maintained to operate in accordance with the design" (MS4 Permit, Part I.B.3).

Inadequate Control Measure (b) is a control measure not designed, implemented, or operating in accordance with CDOT's MS4 Citations.

Initial Phase in SWMP Design specifies stormwater control measures that will be installed prior to any land disturbances on the site. Control measures are designed using the existing topography of the site.

Inspections are conducted by the Contractor to document project findings pertaining to the Colorado Discharge Permit System–Stormwater Construction Permit (CDPS-SCP) during daily, 7-day, or post-storm inspection.

Large Impact Question is question from CDOT to the CDPHE-Water Quality Control Division (WQCD) with potential implications for stormwater management across multiple CDOT construction sites, CDOT Regions, or CDOT's MS4 Construction Program. Large impacts are those that can affect water quality standards and compliance actions.

Major Modification is a post-Award-Date change to the intent of the approved SWMP Design or amendment to the Colorado Discharge Permit System–Stormwater Construction Permit (CDPS-SCP) or existing control measures with enough significance that the modification must be reviewed and approved by a SWMP Reviewer. Examples of major modifications include: significant change to limits of disturbance; changes to the intent of drainage design, including major substitution or elimination of control measures; additional environmental impacts not defined in the SWMP; or changed construction site boundary (may trigger the National Environmental Policy Act [NEPA] or approval by the CDPHE-Water Quality Control Division [WQCD]).

Minor Modification is any change to the approved SWMP Design or existing control measures that does not qualify as a major modification.

Monitoring includes of MS4 Compliance Monitoring events directed by the MS4 Construction Stormwater Manager (MCPM) or third-party audits of CDOT's MS4 Construction Program.

MS4 Citations are the list of applicable standards and requirements on which MS4 project findings are based. The MS4 Citations are CDOT *Standard Specifications for Road and Bridge Construction* (*Standard Specifications*) Subsection 107.25 (Water Quality Control) and Sections 208 (Erosion Control), 213 (Mulching) and 216 (Soil Retention Covering); Standard Plans M-208-1 (Temporary Erosion Control) and M-216-1 (Soil Retention Covering).

MS4 Citations Planning Meeting is convened annually, in the fall if possible, hosted by the ED Unit Lead to discuss the proposed change(s) to the MS4 Citations and MS4 Construction Program documents (SOP D1), control measures for SWMP design (SOP D3) and standard SWMP templates (SOP D4). Relevant MS4 Personnel attend the MS4 Citations Planning Meeting.

MS4 Construction Program Committee (Committee), formerly the MS4 Construction Program Task Force, consists of two Region Transportation Director-appointed Delegates from each Region and the MS4 Construction Program Manager (MCPM). The Committee meets annually and as needed. The Committee is the owner of the *MS4 Construction Program Manual*.

MS4 Construction Program Documents may include sections of the *CDOT Construction Manual* and CDOT Forms 1176, 1177 and 1388.

MS4 Construction Field Manager (MCFM) assists the MS4 Construction Program Manager (MCPM) with implementation of the MS4 Construction Program, including training and compliance monitoring. The MCFM reports to the MCPM and sits at CDOT Headquarters.

Definitions

MS4 Construction Program Manager (MCPM) is the Chief Engineer/Director of Stormwater Compliance's designated representative to implement and administer CDOT's MS4 Construction Program. The MCPM is accountable for statewide MS4 Construction Program compliance. The MCPM reports to the Hydrologic Resource and Ecological Design (HRED) Section Manager and sits at CDOT Headquarters.

MS4 Personnel have MS4 Construction Program roles and responsibilities defined in the *MS4 Construction Program Manual*.

Non-standard specifications are instructions for installing and maintaining a control measure, post-Award-Date, that does not have a miscellaneous standard (M-standard) and/or is not described in a formal specification in CDOT's *Standard Specifications for Road and Bridge Construction*.

Non-structural control measures are institutional, educational, or pollution prevention practices designed to limit the amount of stormwater runoff or pollutants that are generated by a construction project. Examples include surface roughening, topography (i.e., landform), grading practices, soil retention blankets, temporary seeding, mulch, vegetative buffers, soil binders and tackifiers.

Project Engineer is defined in *Standard Specifications*, Subsection 101.51. Project Engineer is synonymous with Construction Engineer.

Project Special Provisions are pre-Award Date additions and revisions to CDOT's Standard Specifications covering conditions specific to an individual project. (*Standard Specifications for Road and Bridge Construction*, 101.72)

Recalcitrant Violator (a) has an uncooperative or resistant attitude, instances of bad faith, willful negligence or misrepresentation or unwillingness to adhere to contract water quality standards.

Recalcitrant Violator (b) is unwilling to adhere to contract water quality standards or stubbornness to follow the contract with the intent of saving money/ time by avoiding or failing to proactively implement Control Measures.

Recalcitrant Violation is an instance of noncompliance in which CDOT and the contractor agree upon the noncompliance finding and where the contractor does not provide corrective actions to the finding per 208.09.

RECATs are conducted by the MS4 Construction Program Manager (MCPM) or designee, at the invitation of the Region Water Pollution Control Manager (RWPCM), to oversee Contractor compliance with the Colorado Discharge Permit System–Stormwater Construction Permit (CDPS-SCP). Routine Audit findings document the projects strengths and/or weaknesses related to MS4 Construction Program compliance. A RECAT can be counted as a Routine Audit.

Regulatory Mechanism is the mechanism that allows CDOT to implement and enforce the requirements of the MS4 Permit pertaining to the Construction Program (COS000005, Part I.E.1.a.i.). CDOT's Regulatory Mechanism is described in Section 208.09 of CDOT's *Standard Specifications*.

Routine Audits are conducted by Region Water Pollution Control Managers (RWPCMs) to oversee Contractor compliance with the Colorado Discharge Permit System–Stormwater Construction Permit (CDPS-SCP). Routine Audit findings document the projects strengths and/or weaknesses related to MS4 Construction Program compliance.

Severe Finding has a high probability of resulting in a discharge outside the project's limits of construction or to waters of the state, examples include a discharge or potential off-site discharge, lack of control measure redundancy, or lack of tracking controls.

Small impact question is question from CDOT to the CDPHE- Water Quality Control Division (WQCD) about a project-specific MS4 Permit or Colorado Discharge Permit System–Stormwater Construction Permit (CDPS-SCP) question with minimal or no regulatory exposure.

Standards and Specifications Engineer is an engineer within the Project Development Branch, Standards and Specifications Unit (SSU) responsible for coordinating, preparing, revising, implementing, reproducing, distributing and maintaining project details and specifications.

Statement of Assurance is a document prepared as part of compliance assistance to resolve an MS4 compliance action. The Statement of Assurance acknowledges that the CDOT employee has received training to avoid future occurrences of the MS4 compliance action. The Statement of Assurance is a satisfactory compliance action to compliance assistance.

Statement of Understanding is a signed document acknowledging the individual's role in the noncompliance and understands the process to be followed to avoid future findings for the same issue. The individual commits to implementing the process and understands that the next instance of the same finding will be escalated to next level (SOP M4, Table 4). The Statement of Understanding is a satisfactory compliance action to an oversight/monitoring finding.

Structural control measure is a physical device typically designed and constructed to trap or filter pollutants from runoff, or reduce runoff velocities. Standard Plans M-208-1 and M-216-1, for example, identify temporary, structural control measures for erosion and sediment control.

SWMP is the entire stormwater management plan, including the project's SWMP Design prepared by CDOT prior to project advertisement. The SWMP is a living document that must be maintained to reflect current site conditions on a Colorado Discharge Permit System–Stormwater Construction Permit (CDPS-SCP) project.

SWMP Design consists of project narratives, SWMP maps (initial, interim and permanent), specifications (standard and project specials), miscellaneous standards (M-standards) and photographs documenting existing vegetation. The SWMP Design is completed and approved prior to a project's advertisement date.

SWMP Discard Date is 3 years from the signature date on the Colorado Discharge Permit System–Stormwater Construction (CDPS-SCP) Inactivation Notice submitted to and accepted by the CDPHE-Water Quality Control Division (WQCD).

SWMP Plan Sheets, SWMP tab 1, include the notes, narratives and the tabulation of SWMP quantities.

SWMP Preparer is a Contractor or full-time CDOT employee who has successfully completed the CDOT's SWMP Preparer course and meets the certification requirements. The SWMP Preparers may delegate the SWMP Design provided the work is done under a SWMP Designer's guidance and direction.

SWMP Reviewer is a full-time CDOT employee, preferably a Region Environmental staff, who holds a valid CDOT SWMP Reviewer certification. SWMP Reviewers review and approve project SWMP Designs for CDPS-SCP projects. A SWMP Reviewer may not review a SWMP Design for which they were the SWMP Preparer.

SWMP Reviewer-of-Record reviews and approves major modifications to the SWMP Design after a project's Award Date and accepts full responsibility for the SWMP Design, including the original SWMP Design and modification. The SWMP Reviewer-of-Record may be the full-time CDOT employee that approved the pre-Award Date SWMP Design or may be a different full-time CDOT employee, if the initial SWMP Reviewer is not available.

SWMP Site Maps show the entire site and identify construction site boundaries; all areas of ground disturbance; areas of cut and fill; areas used for storage of building materials, equipment, soil, or waste; locations of dedicated asphalt or concrete batch plants; locations of all structural control measures; locations of all non-structural control measures, as applicable; and locations of springs, streams, wetlands and other surface waters (CDPS-SCP, Part I.C.2). See also *Standard Specifications*, Subsection 208.03(d)1(2).

SWMP tabs are dividers in the SWMP according to Subsection 208.03(d) of CDOT's *Standard Specifications*.

Training Owner is a CDOT employee who develops, markets and implements one or more MS4 Construction Program trainings for existing and newly hired CDOT personnel and operators of Colorado Discharge Permit System–Stormwater Construction (CDPS-SCP) projects.

Winter Exclusions or Winter Conditions. Inspections are not required at sites where construction activities are temporarily halted, snow cover exists over the entire site for an extended period and melting conditions posing a risk of surface erosion do not exist. This exclusion is applicable only during the period where melting conditions do not exist. The following information must be documented for this exclusion: dates when snow cover occurred, date when construction activities ceased and date melting conditions began. (COS000005, Part I.E.1.a.v.A.)

COLORADO
Department of Transportation

Design – Build

Under Development

COLORADO
Department of Transportation

COLORADO
Department of Transportation

MTCE Projects (CDPS-SCP)

Under Development

COLORADO
Department of Transportation

COLORADO
Department of Transportation

Property Management

Under Development

COLORADO
Department of Transportation