

# **2023 ANNUAL REPORT**

## **APDES Permit No. AKS-052558**

**Submitted by:**  
Municipality of Anchorage



Alaska Department of Transportation and Public Facilities



**Prepared for:**  
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- H1 2023 Stormwater Outfall Monitoring Report

**Acronyms**

ACGP	Alaska Construction General Permit
ADEC	Alaska Department of Environmental Conservation
ADNR	Alaska Department of Natural Resources
AK-CESL	Certified Erosion and Sediment Control Lead
AMC	Anchorage Municipal Code
APDES	Alaska Pollutant Discharge Elimination System
ARDSA	Anchorage Road and Drainage Service Area
AWC	Anchorage Waterways Council
BMP	Best Management Practice
CBERRRSA	Chugiak Birchwood Eagle River Rural Road Service Area
CGP	Construction General Permit
CO	Certificate of Occupancy
CR	DOT&PF Central Region
DCM	Design Criteria Manual
D&ES	DOT&PF Statewide Design & Engineering Services
DOT&PF	Alaska Department of Transportation and Public Facilities
EPA	Environmental Protection Agency
ESCP	Erosion Sediment Control Plan
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
GIS	Geographic Information System
GPS	Global Positioning System
GRSA	Girdwood Road Service Area
HMCP	Hazardous Material Control Plan
HGDB	Hydrogeodatabase
IPM	DOT&PF Integrated Pest Management Plan
LID	Low Impact Development
M&O	DOT&PF Central Region Division Maintenance and Operation
MASS	Municipality of Anchorage Standard Specifications
MEP	Maximum Extent Practicable
MOA	Municipality of Anchorage

MS4	Municipal Separate Storm Sewer System
MS4GDB	MS4 Geodatabase
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
O&M	Operations and Maintenance
OGS	Oil and Grit or Oil and Grease Separator
PS&E	Plans, Specification, and Estimate
QA	Quality Assurance
QAP	Quality Assurance Plan
ROW	Municipal Rights of Way
SEO	DOT&PF Statewide Environmental Office
SOP	Standard Operating Procedures
SPCC	Spill Prevention, Control, and Countermeasure
SSAC	DOT&PF Standard Specification for Airport Construction
SSHC	DOT&PF Standard Specification for Highway Construction
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
SWTPRGM	Storm Water Treatment Plan Review Guidance Manual
TMDL	Total Maximum Daily Loads
WMS	Watershed Management Services

## Introduction

The Municipality of Anchorage (MOA) and the State of Alaska Department of Transportation and Public Facilities (DOT&PF), submit this report in fulfillment of the annual reporting requirements of Alaska Pollutant Discharge Elimination System (APDES) Permit No. AKS052558, “*Authorization to Discharge Under the National Pollutant Discharge Elimination System*” (Permit), effective date August 1, 2020. This report satisfies the criteria set forth in Permit Section 4.4 and is organized by program to demonstrate compliance with the *Storm Water Management Plan* developed to meet the requirements laid out in Permit Section 2. Documents produced in compliance with this report are included in associated Appendices A through I.

The permittees’ responsibilities are both joint and individual; they are laid out in their Inter-jurisdictional Agreement which describes their respective roles and responsibilities related to this Permit. Coordination between groups within the permittees’ organizations is laid out in their Program Coordination Plans.

Responsibilities for certain requirements have been shared with the Anchorage Waterways Council (AWC). The delegated activities are in the areas of Public Education for General Audiences located in Permit Part 3.6, and program evaluation of Animal Facilities, located in Part 3.3.3.

## 1. Program Organization

### 1.1 Storm Water Management Plan

The actions and activities of the Anchorage Municipal Separate Storm Sewer System (MS4) program have been documented in its Storm Water Management Plan (SWMP). The SWMP is intended to reduce the discharge of pollutants from the MS4 into receiving waters to the maximum extent practicable (MEP). The permittees have identified the prescribed best management practices (BMP), including control measures, system design, engineering methods, and other provisions appropriate to the control and minimization of pollutants, and addressing the Permit requirements as described in Sections 3 and 4 of the Permit.

The annual report documents the compliance measures taken during the year in fulfillment of the SWMP. Both documents are consistent with Sections 3 and 4 of the Permit. Activities are identified in the appropriate program summaries along with results of information collected, summaries of activities, appendix references, and web links to associated supporting materials. Also, in each program section are self-assessments of performance and summaries of planned activities for future reporting cycles.

The SWMP was updated for the fourth permit term and provided in the 2020 Annual Report. It was reviewed in 2023 for consistency with progress in compliance activities. Program activities are taking place as planned. There are no changes to the SWMP.

### Program Effectiveness

The February reporting date for the 2023 Annual Report falls mid-way through the fourth year of the permit, running from August 1, 2023 through July 31, 2024. The annual report presents the work the Permittees accomplished during the calendar year.

Each of the monitoring program reports presented with this submittal provides a detailed presentation of results from the current monitoring year. These reports indicate what follow-up actions are indicated from the program findings.

The Quality Assurance Plan (QAP) was updated in the first year of the Permit term to reflect changes in program activities.



Pollutant load allocations, in the form of total maximum daily loads (TMDL), are assigned by the state to several creeks and lakes in Anchorage based on the State’s *Primary Use* designation as drinking water sources. Dry and wet weather screening provided indicators of bacterial impacts from stormwater to the identified receiving systems. Wet weather bacteria continue to be occasionally high at some outfalls. To address the sources of most bacteria, the permittees are continuing to provide public education about pet waste management with the ‘Scoop the Poop’ message. They are also continuing to participate in efforts to manage waterfowl population impacts.

Dry weather screening identified one outfall with test levels requiring further investigation for both fecal coliform and surfactant. Investigators performed sampling on multiple days throughout the drainage area connected with the outfall and determined the two pollutants were not from one source, but rather two or more unrelated sources. The surfactant appeared to be the result of vehicle washing outside of designated wash bays. Municipal Watershed Management Services (WMS) intends to notify the commercial businesses causing the problem in the spring/summer of 2024 and educate them about the impact of soap on the receiving system. The fecal coliform was not traced to a single source; it appeared to be related to non-point sources and potential homeless activities in the area. Both pollutants will be monitored next year for additional follow-up needs.

Street sweeping assessment activities were continued annually to assist with improving sweeping operations. The real-time assessment provides qualitative feedback to help operators adjust practices for the development of a visually clean standard.

The operations of the storm sewer system were implemented by primary coordinating groups. Coordination is managed through agreements between WMS and each of the participating MS4 operators; these plans were updated as operations changed and for the new permit term. The DOT&PF Central Region Maintenance and Operation (M&O) operators have provided 2023 MS4 Summaries for their areas of permit compliance. They are provided in Appendix A1.

**Program Resources**

The permittees have broken their program costs into two functional categories: Maintenance & Operations and Program Management/Project Administration. The maintenance costs are summarized from the program breakdowns contained in the MS4 Summaries. The 2023 costs from DOT&PF, Anchorage Road and Drainage Service Area (ARDSA), Chugiak Birchwood Rural Road Service Area (CBRRSA), and Girdwood Road Service Area (GRSA) are presented in Table 1.1.

**1: Table 1.1 – 2023 SWMP Program Costs**

	DOT&PF	ARDSA	CBERRSA	GRSA	Total
Maintenance & Operations	\$2.6M	\$2.15M	\$0.69M	\$0.061M	\$5.5M
Program Management/ Administration	\$0.38M	\$0.8M	-	-	\$1.18M
<b>Total</b>	<b>\$3.0M</b>	<b>\$2.95M</b>	<b>\$0.69M</b>	<b>\$0.061M</b>	<b>\$6.7M</b>

## 1.2 Watershed Planning

The permittees have two existing watershed plans. The *Little Campbell Creek Watershed Plan* and the *Chester Creek Watershed Plan* were developed under the guidance of working groups composed of diverse agency interests and supported by staff from WMS, the U.S. Fish and Wildlife Service, and the Anchorage Waterways Council.

The permittees completed a scoping document for a Campbell Creek watershed plan in the third term. The scoping document identified whether activities carried out in the watershed are beneficial in accomplishing site-based low-impact development (LID) practices and recommended future actions to obtain identified goals. The scoping document identified Campbell Creek for the development of a watershed plan, and it is currently under development.

Prior to the end of the permit term, a scoping document will be completed considering the benefits of existing watershed plans toward accomplishing site-based LID practices. It will also identify and guide the direction for additional watershed plans.

## 2 Construction Site Management

### 2.1 Regulatory Mechanism and Standards

*DOT&PF Projects:* The DOT&PF Statewide Design & Engineering Services' (D&ES) mission is to provide technical services to DOT&PF and other state and federal agencies. They develop, publish, and manage standard construction contract specifications, standard modifications for highways, and statewide special provisions for highways and airports, as well as coordinate with and advise others in the development and use of specifications for buildings, marine highways, and harbors. The DOT&PF Chief Engineer issues directives informing DOT&PF staff of new specifications, manuals, and other standards to administer DOT&PF projects.

In 2023, the DOT&PF Chief Engineer issued one stormwater-related directive to the DOT&PF regions updating construction special provisions ASP-9 and HSP20-5 on February 10, 2023, regarding the use of SWPPPTrack. A copy of the directive and the updated specifications can be found in Appendix B4.

- April 18, 2023, Chief Engineers Directive: Statewide Airport Special Provision ASP-9A, and Statewide Highway Special Provision HSP20-5A. This directive provides a payment method update to the 2022 special provisions, ASP-9 & HSP20-5, for the Standard Specification for Airport Construction (SSAC) Specification P-641 and Standard Specification for Highway Construction (SSHC) Specification 641 authorizing the electronic administration of Storm Water Pollution Protection Plans (SWPPP) using the SWPPPTrack program. It is to be applied according to regional discretion.

### Ordinance and/or Regulatory Mechanism

DOT&PF regulates stormwater management of their highway, aviation, and public facility construction projects through its Statewide and Regional Standard Specifications:

- Section 641 Erosion, Sediment and Pollution Control for Highway Construction
- Item P-641 Erosion, Sediment and Pollution Control for Airport Construction
- Section 01 57 10 Erosion, Sediment, and Pollution Control for Statewide Public Facilities Construction

DOT&PF reviews and may update these standard specifications every two years; they are part of the biennial statewide standard specification re-publication. Regional special specification modifications are developed on a project-specific basis. DOT&PF reviews the DOT&PF SWPPP construction forms each year and updates and/or modifies individual forms, as necessary.

In 2021, these Erosion, Sediment, and Pollution Control specifications were revised to reflect the regulatory changes brought forth by the Alaska Department of Environmental Conservation (ADEC) reissuing the Alaska Construction General Permit (ACGP) in 2021.

- The final version of the 641 Specification for Highway Construction was accepted by the Federal Highway Administration (FHWA) and made ready for use by the September 27, 2021, Chief Engineer's Directive.
- The final version of the P-641 Specification for Airport Construction was accepted by the FAA and made ready for use by the December 22, 2021, Chief Engineer's Directive.
- The final version of the 01 57 10 Specification for DOT&PF Public Facility Construction was accepted and made ready for use on November 15, 2021.

In 2023, DOT&PF updated the:

- Liquidated Damage Table in their 641 Specification for Highway Construction, 641 Specification for Airport Construction, and 01 57 10 Specification for DOT&PF Public Facility Construction.
- DOT&PF updated the Erosion, Sediment Control Liquidated Damages Table in their standard construction forms 25D-146H (for Highway projects), 25D-146F (for Statewide Public Facilities projects), and 25D-146A (for Aviation projects).

The Standard Specification Section 641, Item P-641, Section 01 57 10, and the DOT&PF SWPPP construction forms are construction contract requirements used to document permit compliance. DOT&PF personnel enforce the stormwater specifications on each construction project.

DOT&PF Central Region Construction provides guidance on contract stormwater administration to its project staff through three mechanisms:

- The Alaska Construction Manual, Chapter 3.11, 9.9, 9.10 and 9.17;
- DOT&PF Chief Engineer's directives; and
- Having stormwater specialists dedicated solely to stormwater guidance and education.

These three mechanisms are required to be used on all DOT&PF highway, aviation, and public facility construction projects; they outline the procedures for implementing and monitoring construction SWPPPs.

The latest edition of the Alaska Construction Manual became effective on March 10, 2023. Minor modifications concerning stormwater were made to the Alaska Construction Manual in February of 2021 in sections 3.11 and 9.9. The Alaska Construction Manual link is:

[https://dot.alaska.gov/stwddes/dcsconst/assets/pdf/constman/2023/acm\\_all.pdf](https://dot.alaska.gov/stwddes/dcsconst/assets/pdf/constman/2023/acm_all.pdf)

Highway Standard Modification for Section 641 for Highways Erosion, Sedimentation, and Pollution Control (identified as Standard Modification HSM20-38) link is:

[https://dot.alaska.gov/stwddes/dcspecs/assets/pdf/hwyspecs/stdmods/stdmods\\_eng\\_20.pdf](https://dot.alaska.gov/stwddes/dcspecs/assets/pdf/hwyspecs/stdmods/stdmods_eng_20.pdf)

Aviation Standard Specification for Section P-641 for Airports Erosion, Sedimentation, and Pollution Control link is:

<https://dot.alaska.gov/stwddes/dcsspecs/airportspecifications.shtml> (Click on "Miscellaneous," then on the "P-641: Erosion, Sediment, a Pollution Control" link)

Links for Section 01 57 10 for Public Facility Construction are not currently available.

DOT&PF Construction SWPPP Forms link is:

<https://dot.alaska.gov/stwddes/dcsconst/index.shtml> (under the Forms heading, Construction Forms bullet)

DOT&PF Chief Engineer's Directives link is:

<https://dot.alaska.gov/stwddes/dcspubs/directives.shtml>

*Private Development:* The MOA regulates stormwater management at private construction sites through Anchorage Municipal Code (AMC) Title 21. It can be found in AMC 21.07.04.E. This code is available at:

[https://www.municode.com/library/ak/anchorage/codes/code\\_of\\_ordinances?nodet=TIT21LAUSP\\_LNECOFFJA12014\\_CH21.07DEDESTNECOFFJA12014\\_21.07.040DRSTWATRERCOPRD](https://www.municode.com/library/ak/anchorage/codes/code_of_ordinances?nodet=TIT21LAUSP_LNECOFFJA12014_CH21.07DEDESTNECOFFJA12014_21.07.040DRSTWATRERCOPRD)

*Municipal Projects:* The MOA regulates stormwater management during the construction of its own (public) projects through Municipality of Anchorage Standard Specifications (MASS), Division 20 (MASS Section 20.02). These standard specifications are periodically updated and contractually enforced. A link to the MASS is found at:

[https://www.muni.org/Departments/project\\_management/Pages/MASS.aspx](https://www.muni.org/Departments/project_management/Pages/MASS.aspx)

## **Construction Storm Water Manual**

*DOT&PF Projects:* Use of the SWPPP Guide and other related materials is directed by the DOT&PF Chief Engineer. These materials are available for download on a dedicated Storm Water and Water Quality webpage managed and maintained by the DOT&PF Statewide Environmental Office (SEO).

DOT&PF revised its SWPPP Guide in March of 2021 to reflect changes made in the 2021 Alaska Construction General Permit. The SWPPP Guide, 2017 Edition was made an official reference document and authorized for use on March 31, 2017, after receiving approval from the FHWA and FAA. The SEO will be updating the BMP Details in January 2024 for BMP-09.00 Excavation Dewatering and BMP 56.00 Tackifier.

DOT&PF Statewide Environmental Office Storm Water and Water Quality Website link is:

<https://dot.alaska.gov/stwddes/desenviron/resources/stormwater.shtml>

The Alaska SWPPP Guide, 2021 Edition (entire guide with appendices) link is:

<https://dot.alaska.gov/stwddes/desenviron/resources/stormwater.shtml> (under the Construction Storm Water Resources heading, Storm Water Pollution Prevention Guide (SWPPP) Guide bullet)

*Private and Municipal Projects:* The MOA updated its Storm Water Plan Review and Treatment Guidance Manual (SWTPRGM) to reflect the current regulatory program based on the APDES permit and the current ACGP. It is incorporated as Volume 2 of the Anchorage Stormwater Manual recently adopted by the Anchorage Assembly. It is available at:

[https://anchoragewatershed.com/Documents/DCM/ASM\\_Volume2\\_Final\\_December2017.pdf](https://anchoragewatershed.com/Documents/DCM/ASM_Volume2_Final_December2017.pdf)

## 2.2 Plan Review and Approval

DOT&PF Projects: Sometimes, DOT&PF takes two or more projects and combines them into a single Construction Contract. DOT&PF normally files one Notice of Intent (NOI) per Construction Contract unless the projects are disconnected from each other and have vastly different site conditions/SWPPP requirements. DOT&PF will report on the number of active or carryover Construction Contracts or NOIs filed with the ADEC. These DOT&PF contracts/NOIs are hereafter known as projects in this report.

Below is a list of DOT&PF Construction Contracts/NOIs that have multiple projects:

DOT&PF 2022 Carry Over Construction Contracts with Multiple Projects and one NOI:

1. Project No. CFAPT00498 – ANC Taxiways K, G1 and J Improvements, and Project No. CFAPT00450 – ANC FAA Taxi Lane Pavement Debilitation
2. Project No. CFHWY00213 – Seward Highway: MP 75-90 Road & Bridge Rehabilitation – Phase II Project No. CFWHY00308 – Portage Curve Multimodal Connector
3. Project No. CFHWY00646 – Eagle River Loop Ped Undercrossing Nov 2018 EQ PR, and Project No. CFHWY00734 – Eagle River Loop Storm Drain Nov 2018 EQ PR, and Project No. CFHWY00786 – Briggs Bridge
4. Project No. CFHWY00132 – Minnesota Dr: Tudor to 15<sup>th</sup> Ave. Pavement Preservation, and Project No. CFHWY00366 – HSIP: Anchorage Pedestrian Lighting, Ph II

Twelve (12) projects (i.e., Construction Contracts) were carried over from the 2022 construction season in the Municipality of Anchorage MS4 permit area. During 2023, DOT&PF reviewed and approved SWPPPs for four (4) projects eligible to discharge construction stormwater under the requirements of the 2021 ACGP within the MS4 permit area. All four projects filed for and received an NOI. All 16 projects were contracted and administered by DOT&PF. A list of these 16 projects is provided in Appendix B1.

Since 2011, DOT&PF Central Region (CR) has maintained a renewable term contract with STANTEC, Inc. to perform Quality Assurance (QA) document review for required Specification Section 641, Item P-641, and Specification Section 01 57 10 prior to project certification and field implementation. In 2016, DOT&PF Statewide Public Facilities began using the services provided by STANTEC Inc. QA review is performed by the Water and Wastewater group within STANTEC for all projects requesting the service. On average, between 40 and 50 DOT&PF CR Construction and Statewide Public Facilities projects with an NOI take advantage of this service.

Before projects apply for an NOI, STANTEC reviews the initial SWPPP and provides comments for the project to incorporate, considering all pertinent environmental permits. During construction, STANTEC reviews the project-site inspection reports prior to certification, including all other documentation generated by the inspection, and provides comments to edit and correct documentation with the intent of preventing any permit non-compliance caused by paperwork errors. DOT&PF CR Construction and Statewide Public Facilities will continue using this QA contract for the foreseeable future and have no plans to terminate the service.

The DOT&PF Pre-Construction Manual requires Erosion and Sediment Control Plans (ESCP) to be developed for each project owned, designed, or administered by the DOT&PF. The DOT&PF assigns design and environmental staff, and the DOT&PF CR Storm Water Specialist to review the ESCP.

The review process for highway projects is as follows:

- The ESCP writer creates a project specific ESCP at the Pre-Plans, Specification, and Estimate (PS&E) phase.

- Individuals submit their written comments to the Design Project Manager or give the ESCP writer red-lined edits of the ESCP.
- The ESCP writer can discuss comments or the red-lined edits with the individual who wrote the comments. DOT&PF enters a response to all comments.
- The Design Project Manager checks and verifies that the ESCP review comments are incorporated at the time bid documents receive FHWA project certification. FHWA requires DOT&PF certification stating that the PS&E is complete and has been developed in accordance with applicable design standards and the Title 23 USC responsibilities assumed by DOT&PF in the Stewardship and Oversight Agreement dated December 21, 2012.
- The Design Project Manager files the ESCP comments after certification.

The review process for aviation projects is as follows:

- The ESCP writer creates a project-specific ESCP at the Plans-in-Hand phase.
- Individuals enter their review comments into the Design Review Comment web page or give the ESCP writer red-lined edits of the ESCP.
- ESCP writer may discuss comments or the red-lined edits with the individual who wrote the comments. DOT&PF enters all comment responses on the comment web page.
- Individuals review the Revised ESCP at the Pre-PS&E phase.
- Individuals review the Pre-PS&E ESCP and follow the same process as the Plans-in-Hand ESCP.
- The DOT&PF Design Project Manager checks and verifies the ESCP review comments are incorporated at the time bid documents receive FAA project certification. The FAA requires DOT&PF Certifications stating that they will comply/have complied with statutory and FAA-imposed administrative requirements.
- The Design Project Manager files the ESCP comments after certification.

In addition, on larger projects, a separate ESCP-focused meeting occurs after the Pre-PS&E review. This meeting discusses the ESCP comments from above and project-specific stormwater issues. The Design Project Manager follows the same process as described above to check and verify ESCP review comments and then files the comments after certification.

DOT&PF is a co-operator on projects with the Construction Contractor performing the work. After construction activities begin, most DOT&PF projects with an active NOI are subject to a documentation audit and field review performed by a CR Storm Water Specialist. After the initial SWPPP Documentation audit and field review are completed, the projects are usually visited monthly to perform an informal check on documentation and field conditions. Up until June 2022, this review is based on the Environmental Protection Agency (EPA) Appendix R National Pollutant Discharge Elimination System (NPDES) Industrial Storm Water Investigation and Case Development Worksheet. After June 2022, the review is based on the ADEC Inspection Checklist – Construction General Permit AKR10. Seven (7) projects operating within the MS4 permit area participated in a documentation and field review prior to 2023. Five (5) projects operating within the MS4 permit area participated in this documentation and field audit in 2023:

1. CFHWY00132 – Minnesota Dr: Tudor to 15<sup>th</sup> Ave. Pavement Preservation: June 5, 2023
2. CFHWY00551 – Anchorage Area Drainage Improvements FY2019: June 14, 2023
3. CFHWY00406 – Muldoon Road – Debarr Rd to E. 36<sup>th</sup> Ave. Pavement Preservation: June 22, 2023
4. CHHWY00568 – AMATS: Hiland Rd MP 0 to 3.2 Pavement Preservation: August 31, 2023
5. CFAPT00465 ANC Taxiway Z West Improvements: October 6, 2023

Private and Municipal Projects: The WMS continues to review construction SWPPPs for projects conducting ground disturbance greater than 10,000 square feet. The types of projects reviewed include any work requiring a building permit, utility work, new subdivisions, and road projects.

In 2023, WMS reviewed and approved approximately 246 residential permits, 65 commercial buildings, and several commercial and government building additions. WMS also conducted SWPPP reviews of 24 Municipal Projects. The Municipal Development Services Division computer-based building permit administration system continues to track and document plan reviews and approvals in 2023. It also handles documentation for Construction Site Inspections and Enforcement.

### **2.2.1 Inspection and Enforcement Tracking**

DOT&PF Projects: A summary of inspection activities shows that DOT&PF conducted 302 site inspections on 16 projects within the MS4 permit area in 2023. DOT&PF performed:

- 231 site inspections on eleven (11) highway projects ranging from major highway realignment to repaving arterial roads, and permanent 2018 earthquake repairs.
- 71 site inspections on five (5) aviation projects at the Ted Stevens Anchorage International Airport that include major taxiway and taxi lane reconstruction and facility support projects.

For each of these inspections, DOT&PF reviewed the SWPPP or other site documentation and performed a physical inspection of the site to confirm there were no illicit discharges or incidents of permit noncompliance. After each visit, DOT&PF prepared an inspection report and included the report in the SWPPP. Any required corrections were given to the site representative. In 2023, no stop work orders were issued to any DOT&PF construction project within the MS4 permit area. The records for site inspections along with associated compliance follow-up are available for review at individual project offices.

Private and Municipal Projects: A summary of inspection activities reveals that 155 commercial site inspections and 276 residential site inspections were conducted during 2023, including 16 construction-related inspections from the illicit discharge reporting website located at:

<https://www.muni.org/Departments/OCPD/development-services/report-problem/Pages/default.aspx>

For each of these inspections, the SWPPP or other site documentation was reviewed, and a physical inspection of the site was performed to confirm there were no illicit discharges. After the visit, an inspection report of findings and any required corrections were given to the site representative. Where corrections were indicated, a re-inspection was scheduled to confirm compliance. When compliance isn't achieved within the specified period, a stop work order is issued until compliance is achieved. In 2023, no stop work orders were given. The records for site inspections along with associated compliance follow-up are available for review at WMS.

### **2.2.2 Enforcement Response Policy**

DOT&PF Projects: DOT&PF's Enforcement Response Policy is contained in the following documents:

- Alaska Construction Manual, 2020 Edition, Chapter 9.9 SWPPP & HMCP Implementation and Monitoring, the most current edition is dated February 16, 2021
- Standard Specification Item 641 Erosion, Sediment, and Pollution Control for Highway Construction (identified as Standard Modification HSM20-38), the most current edition is dated December 31, 2021

- Item P-641 for Erosion Sediment and Pollution Control Airport Construction, most current edition is dated December 31, 2021
- Standard Specification Item 01 57 10 Erosion, Sediment, and Pollution Control for Public Facilities Construction, most current edition is dated November 15, 2021

The Alaska Construction Manual spells out the inspector qualifications and duties, non-compliance reporting, and monitoring paperwork. The standard specifications provide project and administration requirements relating to the control of erosion, sedimentation, and the discharge of pollutants. The work must follow applicable local, state, and federal requirements, including the CGP and the MS4 Permit. DOT&PF personnel contractually enforce the stormwater specifications on each construction project.

These specifications authorize DOT&PF personnel to verbally warn and provide written notices to the construction project after each inspection. The SWPPP Construction Inspection Report and the Corrective Action Log document the timely maintenance or corrective actions required.

DOT&PF revised Section 641 Statewide and Regional Highway Specifications and Item P-641 Statewide and Regional Aviation Specifications in 2019, because of an initiative implemented by the DOT&PF Statewide Design and Engineering Services Office to review all DOT&PF manuals biennially and revise them as needed.

DOT&PF has revised Specification 641, Item P-641, and Section 01 57 10 - the Statewide and Regional Highway, Aviation, and Public Facility Specifications respectively, to conform with the reissuance of the CGP in 2021. Specification 641 received final approval in September 2021. Item P-641 received final approval in December 2021. Section 01 57 10 received final approval in November 2021.

Escalation enforcement measures include:

- Orally suspending the work if the suspension is to protect workers, the public, or the environment from imminent harm
- Written suspension of work explaining the defects, reasons, corrective actions, and time allowed to complete the corrective actions.
- Withhold monies from the construction contractor until corrective action is completed.
- Assessing damages or equitable adjustments against the contract amount
- Employing others to perform corrective actions and deduct the costs from the contract amount.
- Alaska Construction Manual link is:

<https://dot.alaska.gov/stwddes/dcsconst/constructionmanual.shtml>

- Highway Standard Modification for Section 641 for Highways Erosion, Sedimentation, and Pollution Control (identified as Standard Modification HSM20-38) link is:

[https://dot.alaska.gov/stwddes/dcspsecs/assets/pdf/hwyspecs/stdmods/stdmods\\_eng\\_20.pdf](https://dot.alaska.gov/stwddes/dcspsecs/assets/pdf/hwyspecs/stdmods/stdmods_eng_20.pdf)

- Aviation Standard Specification for Section P-641 for Airports Erosion, Sedimentation, and Pollution Control link is:

<https://dot.alaska.gov/stwddes/dcspsecs/airportspecifications.shtml> (Click on "Miscellaneous," then on the "P-641: Erosion, Sediment, a Pollution Control" link)



- Links for Section 01 57 10 for Public Facility Construction are not currently available.

Private and MOA Projects: The MOA updated its escalating enforcement policy for the fourth permit term. It was provided with the 2020 Annual Report.

### 2.2.3 Construction General Permit Violation Referrals

DOT&PF Projects: DOT&PF Erosion and Sediment Control Advisors provide guidance to project staff on reporting noncompliance in the Alaska Construction Manual, Chapter 9.9. In 2023, DOT&PF had one (1) non-compliant stormwater discharge to report to ADEC within the MOA.

- Project No. CFHWY00213 – Seward Highway: MP 75-90 Road & Bridge Rehabilitation – Phase II / Project No. CFWHY00308 – Portage Curve Multimodal Connector. These projects had a non-allowable discharge on October 31, 2023, see Appendix B2 for a copy of the discharge report. The project Tracking No. is AKR10GM40.

ADEC visited two (2) DOT&PF projects located in the MS4 permit area for CGP compliance inspections in 2023. The findings of these inspections did not result in any notices of violation being issued to the DOT&PF. See Appendix B3 for a copy of these reports.

- Project No. CFHWY00414 – HSIP: Seward Highway Rockfall Mitigation was visited by ADEC for a compliance inspection on June 1, 2023. The project NOI Tracking No. is AKR10GI51.
- Project No. CFHWY00132 – Minnesota Drive: Tudor to 15<sup>th</sup> Avenue Pavement Preservation and Project No. CFHWY00366 – HSIP: Anchorage Pedestrian Lighting was visited by ADEC for a compliance inspection on June 13, 2023. The project NOI Tracking No. is AKR10H03W.

Private and MOA Projects: The Permit requires the MOA to report to ADEC when they find projects that failed to comply with the CGP prior to breaking ground. In 2023, MOA did not file any reports of non-compliance to the ADEC.

## 2.3 Construction Program Education and Training

During the second term of the permit, an agreement was reached by agencies and interest groups for a standardized training course targeted at construction site owners and operators and their key personnel. In 2012, the Memorandum of Understanding to establish Certified Erosion and Sediment Control Leads in Alaska (AK-CESCL) was updated by eight governing members comprised of the ADEC, the Alaska Department of Natural Resources (ADNR), the DOT&PF, the Alaska Railroad Corporation, the Associated General Contractors, the MOA, the US Army Corp of Engineers, and the Associated Builders and Contractors of Alaska. The original agreement, training requirements, and course elements for the AK-CESCL program were provided in the 2010 Annual Report. The updated agreement, provided in the 2013 Annual Report, made some minor revisions to clarify the procedures of the training program. In 2015, the Alaska Storm Water Steering Committee approved a one-day eight-hour Refresher Course to satisfy the AK-CESCL renewal requirements. In 2017, the agreement was updated to continue the program as laid out in the 2012 amendment. It was provided in the corresponding annual report.

The refresher course is a summary of the two-day initial AK-CESCL class. To be eligible to take this training, you must have an active AK-CESCL number and have taken the two-day (16-hour) class or refresher class within the last three years. It thoroughly examines erosion and sediment pollution control concepts and design procedures as they apply to construction projects. The refresher course is a training and certification program to comply with the ACGP and the MOA's SWTPRGM. The refresher course stresses risk management, reviews proper best management practices, and provides guidance. Upon

passing the 8-hour refresher course, the applicant is granted an AK-CESCL certificate. Applicants not passing the (8-hour) refresher course are required to retake the two-day (16-hour) class.

In 2020, due to COVID-19, current holders of CESCL cards were given a one-year extension by the Steering Committee to accommodate the unavailability of in-person training. In 2021, the group developed online training. Ongoing training is additionally available through Alaska General Contractors and Alaska Safety Alliance.

Agencies met during 2023 to discuss training needs and the program was updated and recertified in 2023.

For DOT&PF: DOT&PF participated in the following trainings:

- AK-CESCL Certification and AK-CESCL Recertification Courses: The DOT&PF CR Construction section sponsored two (2) AK-CESCL Certification classes, one (1) online and one (1) in-person, and three (3) AK-CESCL Recertification classes on-line in 2023. The classes were taught by the DOT&PF CR Storm Water Specialist, Joshua James. AK-CESCL instruction sponsored by DOT&PF is primarily for internal staff, but certification classes are also made available free of charge to all State of Alaska agency staff, as well as federal, borough, local, and tribal government staff. A total of 75 certifications were issued from the 2023 classes; 58 certifications were issued to DOT&PF staff and 17 certifications were issued to non-DOT&PF individuals.
- International Erosion Control Association 2023 Annual Conference and Expo (IECA 2023 AC&E): DOT&PF enrolled regional stormwater specialist Joshua James in the IECA 2023 AC&E to further his knowledge and training as a Storm Water Specialist. The event took place in Kansas City, MO on February 5-8, 2023. The event is the largest stormwater event and exposition in the world and attracts participants from around the globe. The four-day event has had over 220 technical and training sessions taught by industry experts.
- Spring Fling: DOT&PF CR Construction Section holds an annual 16-hour training event for their entire construction staff. This training includes updates on preferred BMPs, control measures, innovative approaches, regulation changes, permit updates, and policy or standards updates. DOT&PF held Spring Fling in person on April 4-5, 2023. The event lasted eight hours each day.
- 2023 Watershed Update/APDES Annual Meeting: March 9, 2023. This half-day meeting reviewed the findings of monitoring, assessments, mapping, and new programs associated with the permit.

For the MOA: The MOA conducted or participated in the following training:

- 2023 Watershed Update/APDES Annual Meeting: March 9, 2023. This half-day meeting reviewed the findings of monitoring, assessments, mapping, and new programs associated with the permit. It was attended by members of MOA, DOT&PF, and the private sector.
- AK-CESCL Recertification Course, March 31, 2021, 8-hour course conducted by Creative Courses. It was attended by 30 municipal staff. Other staff, not meeting qualifications for recertification attended the full training course conducted by Alaska General Contractors. Their certification is good until the spring of 2024.

- WMS has identified an inventory of videos covering relevant topics related to stormwater management. They range from regulatory practice to updated technical practice and current events. A list of the videos is available on the MOA Stormwater YouTube Channel:

[https://www.youtube.com/channel/UCdr0yQY12\\_mDVHTMaRVBFVw](https://www.youtube.com/channel/UCdr0yQY12_mDVHTMaRVBFVw)

### 3 Storm Water Management for Areas of New and Redevelopment

#### 3.1 Regulatory Mechanisms and Standards

##### 3.1.1 Ordinance and/or Regulatory Mechanism

DOT&PF Projects: DOT&PF regulates project development through the Alaska Highway Preconstruction Manual and Alaska Aviation Preconstruction Manual. Both manuals require DOT&PF to comply with local ordinances, therefore, all projects within the MOA follow the Municipal Design Criteria Manual (DCM).

Alaska Highway Preconstruction Manual link:

<https://dot.alaska.gov/stwddes/dcsprecon/preconmanual.shtml>

Alaska Aviation Preconstruction Manual link:

<https://dot.alaska.gov/stwddes/dcsprecon/> (under the Airport heading)

MOA Projects: The MOA regulates permanent stormwater controls on its projects through the Municipal DCM. The DCM has been updated by a committee of local community experts to guide better drainage management and to reflect the goals of Permit Section 3.1.2.

Private Projects: The MOA regulates private sector permanent stormwater controls through Anchorage Municipal Code Title 21, which refers to the DCM for policy and technical details. The DCM is discussed in the following section.

##### 3.1.2 Storm Water Design Criteria Manual

DOT&PF Projects: Effective August 1, 2016, it is the policy of DOT&PF CR to apply the guidance contained within the latest approved version of the MOA *Anchorage Stormwater Manual* to projects located within the boundaries of the MOA. This policy was revised on May 9, 2018, to include relevant information specific to DOT&PF CR. The latest version of this policy, effective August 28, 2018, applies the guidance contained within version 1.0 of the MOA, *Anchorage Stormwater Manual, Volume 1* dated December 2017 to projects located within the boundaries of the MOA, with several exceptions laid out in the policy provided in the 2018 annual report.

Private and MOA Projects: The MOA establishes design criteria for permanent stormwater controls through Chapter 2 of its DCM, which is referenced from AMC Title 21. *Volume I, Management and Design Criteria*, of the manual provides guidance for new development. This manual has been updated to reflect current regulations and stormwater management practices. It may be found on the WMS website at <https://anchoragewatershed.com/>.

The DCM was revised in Term III to incorporate current Permit requirements. The manual is now in full force for all development.

## 3.2 Green Infrastructure/LID Strategy and Demonstration Projects

### 3.2.1 LID Incentives Strategy

Incentives for the use of LID are established for the MOA by the DCM and stormwater manuals. They include:

- **20% Area Allowance:** This provision allows runoff from up to 20% of a site to be untreated provided an equivalent volume of water is treated from somewhere else on the site using Green Infrastructure techniques. This provision is helpful for areas with unique grading challenges or roadway projects with super-elevated curves.
- **Utilizing Landscape:** Provisions and design criteria are provided for incorporating stormwater treatment facilities into site landscaping and grading. This helps maximize the utilization of space on a site.
- **Detention and Downstream Analysis Modification:** The detention and downstream analysis requirements have been modified to allow more flexibility in designing on-site stormwater controls. Designers can now choose from two options to meet these requirements. The first option remains the same as what was in the old criteria, where designers provide on-site detention and ensure that there is adequate capacity in the receiving system. The second option offers a pathway for increased on-site detention with no analysis of downstream capacity.
- **Local Criteria for Storm Water Controls:** The new DCM offers detailed design criteria for a menu of stormwater “tools” that have been tailored to Anchorage’s site-specific development challenges. These criteria demonstrate how to incorporate green infrastructure efficiently, even on challenging sites.
- **Streamlined Reporting Requirements:** The new DCM has streamlined and simplified drainage reporting requirements. For small and mid-size projects, full drainage reports have been replaced with drainage certification forms to help guide the designer through necessary considerations. For large projects, the report format has been updated and simplified.
- **Alternative Compliance:** The new DCM offers a pathway forward for projects that may have a difficult time incorporating Green Infrastructure based on other conflicting municipal requirements. The Alternative Compliance route may waive conflicting requirements to encourage the use of Green Infrastructure at the discretion of the MOA.

Additionally, the MOA continues to encourage residential rain gardens and LID projects. This program encourages all types of vegetated LID techniques. Incentive support includes but is not limited to, technical guidance, manuals, brochures, websites, tours, hands-on workshops, private consultations, ongoing classroom support for school projects, and ongoing maintenance for public rain gardens.

### 3.2.2 LID/Green Infrastructure Projects

The DOT&PF and the MOA, collectively, must construct four projects or evaluate existing projects as required by Part 3.2.3 of the Permit for incorporation of LID.

*DOT&PF Projects:* DOT&PF CR Design Section has identified two potential projects currently in the construction phase for future LID evaluations: 1) AMATS: O’Malley Rd Reconstruction: Phase II, Livingston-Hillside; and 2) Dowling Rd/Seward Hwy Interchange Reconstruction.

Municipal Projects: In 2023, the Municipality of Anchorage implemented green infrastructure on two public projects. The W. 30<sup>th</sup> and North Star Street upgrade project installed grass swales alongside the multi-use pathway to treat stormwater before it is discharged to the storm drain system. The Image Drive/Reflection Lake project Phase II reconstructed approximately 200 feet of stream channel for Reflection Lake Creek and replaced two 75-foot culverts under Reflection Drive. The stream channel reconstruction included new streambed substrate and bedding materials and utilized salvaged vegetative materials along the creek bed. Extensive landscaping and trail construction was completed between private property and the upper stream banks to provide natural stormwater treatment through green infrastructure.

During the past year, several subdivisions also incorporated LID/Green Infrastructure measures in road and drainage infrastructure to reduce stormwater runoff. These include:

- Equestrian Heights – Infiltration Trenches, Vegetated Swales
- Irene Heights – Vegetated Filter Strip, Vegetated Swales
- Jaamly Estates – Vegetated Swales, Vegetated Buffers
- Basecamp 907 – Infiltration Gallery, Soakaway Pits
- Bri Estates – Infiltration Trench, Vegetated Swales

### 3.2.2.1 LID Evaluation

The Permittees are required to quantitatively evaluate the effectiveness of select LIDs by the fourth year of the Permit. This requirement is met through evaluating new projects or revisiting projects constructed in the second and third terms of the permit. The report in Appendix C1 is an interim report on the effectiveness of recently constructed systems. A follow-up report will be provided in 2024.

Criteria for LID application will be revised based on the findings of the evaluation by the end of the fifth year.

### 3.3 Permanent Storm Water Controls Plan Review and Approval

DOT&PF Projects: DOT&PF continues to review all projects during the three phases of the project development:

- Local Review (approximately 30 to 50 percent complete)
- Plans-In-Hand Review (approximately 75 percent complete)
- Plans, Specification, and Estimate (PS&E) Review (approximately 95 percent complete)

The CR Hydrologist reviews permanent drainage and erosion control features for projects at all three design phases for conformance to the design criteria stated in Section 3.1.2.

Municipal Projects: The MOA performs a regulatory review of all municipal projects 10,000 sf and greater in compliance with the MS4 Permit requirement under Section 3.2.4. The reviews encompass construction erosion control measures and permanent stormwater management practices. Reviews are documented through the MOA's online tracking system and are a requirement for development project permit issuance. The MOA will continue to coordinate with ADEC to ensure that our projects meet the ADEC wastewater regulations.

### 3.4 Permanent Storm Water Management Controls Tracking and Enforcement

#### 3.4.1 Inventory and Tracking

The Municipal Street Maintenance Division uses an asset management database to inventory and track municipal- and state-owned stormwater controls. This inventory and tracking database allows Street Maintenance to access information about the condition and maintenance requirements of the stormwater controls owned by the permittees.

The DOT&PF and CBERRSA worked with WMS to capture information about state-owned and area-wide controls. They make regular updates to incorporate MS4 public improvements as well as new information from construction record drawings.

Private Storm Water Controls: During the second term of the permit, WMS developed a database for new and existing stormwater controls and has since updated it annually to include new developments. As-built drawings of private stormwater controls are required before closing a Municipal Building Permit for new and redeveloped properties. These as-builts are scanned and recorded into the database. The MOA also requires the submittal of an Operations and Maintenance (O&M) agreement for private stormwater controls. During 2023, WMS continued to update information along with the functionality and accessibility of this database using web-based GIS. The goal is to try and better integrate data input, data recall, and site inspection.

#### 3.4.2 O&M Agreements

WMS requires commercial development projects to provide a legally enforceable and transferable O&M agreement for private stormwater controls on new and redeveloped properties to document regular maintenance on private stormwater controls and demonstrate it to the MOA. The location and other relevant property information for the O&M agreements are entered into a municipal database created to assist in tracking and inspection of the permanent controls. Copies of the recorded agreements are kept on file by the MOA.

In 2023, the MOA received 7 legally recorded O&M agreements and performed post construction permanent controls inspections.

#### 3.4.3 Inspection and Enforcement

The Permittees must ensure proper long-term operation and maintenance of permanent stormwater management practices through an inspection program.

DOT&PF and Municipal Storm Water Infrastructure: See Section 5 for details on the inspection and maintenance of DOT&PF and municipal stormwater management controls and infrastructure.

Private Stormwater Management Controls: Under the updated SWTPRGM, the MOA now requires as-built (record) drawings of all constructed stormwater controls that were approved under a municipal permit for projects 10,000 sf and larger. The drawings are scanned into a tracking database.

Projects falling under this new requirement must request a permanent control inspection to obtain a conditional certificate of occupancy. As part of this process, projects must provide surveyed as-built permanent stormwater controls and a recorded maintenance agreement with the MOA for the upkeep of these controls. The MOA manages installed permanent stormwater controls as a “use permit” and will require periodic re-certification and inspections based on site sensitivity and past compliance. Maintenance

records will be required from the owner/operator prior to renewal. High priority sites, requiring annual inspections, will be identified based on Checklist #3 of Building Safety Handout AG 21.

During 2023, 23 new properties with private permanent stormwater controls were inspected and 26 properties were reinspected, including sensitive sites that require annual inspection.

### 3.5 Permanent Storm Water Controls Training

DOT&PF: M&O headquarters staff completed the following online trainings in 2023:

- *Understanding EPA's NPDES MS4 Permit Program* on January 18, 2023
- *Green Infrastructure Solutions for Wet Weather* on January 18, 2023
- *Common Storm Water Violations and Tips to Avoid Them* on January 18, 2023
- *Chester Creek Watershed Storm Water Master Plan* on March 9, 2023
- *Protecting our Surface Waters: Proper Assessment Leads to Effective Project Implementation* on May 9, 2023
- *Exploring Storm Water BMP Co-Benefits to Reduce Stressors of Stream Health* on November 21, 2023
- *Fresh Coast Protection Partnership Delivering Green Infrastructure Across Milwaukee Region* on November 21, 2023

MOA: The MOA conducted and/or participated in the following trainings:

- 2023 Watershed Update/APDES Annual Meeting: March 9, 2023. This half-day meeting reviewed the findings of monitoring, assessments, mapping, and new programs associated with the permit. It was attended by members of MOA, DOT&PF, and the private sector. The presentation included an introduction to the *Chester Creek Watershed Stormwater Master Plan*.
- Staff watched *Green Infrastructure Implementation in the Municipality of Anchorage*; a training video recorded during the annual meeting in 2022. It is available as a resource for the design community and can be found at <https://www.youtube.com/watch?v=kUih2mYfHJK>.
- Staff participated in one or more of the online trainings listed below:
  - *Innovative Water Treatment Strategies for Challenging Conditions and Complex Matrices*, GeoSynTec
  - *Protecting our Surface Waters: Proper Assessment Leads to Effective Implementation*, GeoSynTec
  - *How to Spot and Report Stormwater Pollution*, WMS YouTube
  - *Illicit Discharge Detection and Elimination*, WMS YouTube
  - *Car Wash Pollution – Untreated Discharge into the Storm Sewer*, WMS YouTube
  - *Introduction to Expression Web4 Tutorial*, YouTube
  - *EPA Wildlife-friendly Erosion Control Solutions*, Profile
  - *The Fundamentals of Stormwater Treatment*, Contech, May 16, 2023
  - *Porous Paving*, Stormwater University, February 15, 2023
  - *Modern Designing of Stormwater Channels Using the GEOWEB*, Presto, November 7, 2023
  - *Stormwater Infrastructure Operations and Maintenance*, Stormwater University, Dec 6, 2023

- *Runoff as a Resource*, H2OC, September 22, 2022
- WMS maintains a YouTube site with training and selected videos covering relevant topics related to stormwater management. They range from regulatory practice to updated technical practice and current events. A list of the videos is available on the MOA Stormwater YouTube Channel: [https://www.youtube.com/channel/UCdr0yQY12\\_mDVHTMaRVBFVw](https://www.youtube.com/channel/UCdr0yQY12_mDVHTMaRVBFVw)

## **4 Industrial and Commercial Discharge Management**

### **4.1 Inventory of Industrial and Commercial Facilities**

An inventory and map of facilities discharging to the MS4 must be updated during the second and fourth years of the Permit. It must include industrial sectors listed in 40 CFR 122.26(b)(14), facilities subject to Section 313 of the Emergency Planning and Community Right to Know Act, 42 U.S.C. 11023, municipal landfills, maintenance yards and facilities, hazardous waste recovery, treatment, storage, and disposal facilities; private and public snow disposal sites; large commercial parking lots (two acres and larger) that use deicer chemicals; vehicle or equipment wash systems; animal facilities as discussed in Part 3.3.3, and any other industrial or commercial facility with the potential to negatively impact the MS4. The Industrial Inventory and Map were completed early during the second year and submitted in the 2021 annual report.

#### **4.1.1 Performance Standards**

Permit part 3.3.1.3 requires the permittees to identify a stormwater discharge that is not adequately addressed and develop performance standards for the activity. This requirement is due by the end of the permit term. The permittees have not yet identified an activity to be the focus of this requirement during the fourth term.

### **4.2 Snow Disposal Sites**

Part 3.3.2 requires permittees within four years to “update the inventory and map locations of all permittee-owned and privately-owned snow disposal sites that discharge directly to the MS4 or to receiving waters.” This inventory is included as part of Section 4.1 and its associated appendix, Inventory of Industrial and Commercial Facilities and Activities.

During the fourth year of the permit term, the permittees “must evaluate whether the current snow disposal ordinance and design criteria protect surface water quality by explicitly regulating the operation of private snow disposal sites within the MOA.” A report is due with the corresponding annual report.

### **4.3 Animal Facilities**

The MOA continues to track animal control facilities under the current program, based on Permit Part 3.3.3. An evaluation of the animal facilities program is due with the third-year annual report. It is provided in Appendix D1. It addresses the areas indicated by the permit, including “kennels, pens, recreational facilities, stables, show facilities or other commercial animal facilities currently regulated by the MOA, dog parks, and the zoo.”



## 5 Storm Water Infrastructure and Street Management

### 5.1 Storm Sewer System Inventory and Mapping

The MOA and DOT&PF annually update their MS4 inventory from construction record drawings, as required under Permit part 3.4.1. This inventory includes:

- Pipe systems;
- Inlets, catch basins, and outfalls;
- Structural stormwater treatment controls;
- Receiving waters of the MS4;
- Sub-basins of each outfall;
- MS4 roads and parking lots; and
- MS4 maintenance and storage facilities and snow disposal sites.

These maps showing the combined DOT&PF and MOA infrastructure, are updated regularly and are available at:

<https://anchoragewatershed.com/maps.html>

### 5.2 Catch Basin and Inlet Inspections and Maintenance

In compliance with Permit part 3.4.2 the permittees are required to maintain a program to evaluate all permittee-owned or operated catch basins and inlets and take appropriate maintenance action based on these inspections.

Central Region M&O, the maintenance arm for DOT&PF's Anchorage MS4 jurisdiction, is continuing mapping efforts to correct existing DOT&PF pipe mapping as well as capture new pipe features for inclusion in maintenance mapping sets. In 2023, DOT&PF inspected 2,564 structures and cleaned 1,774 catch basins. In addition, they inspected and cleaned 46 Oil-Grit Separators (OGS).

The MOA's authorized MS4 maintenance agency for the Chugiak-Birchwood-Eagle River Rural Road Service Area (CBERRRSA) continued implementing a comprehensive catch basin and inlet inspection and maintenance program for their service area. In 2023, 13 OGS structures and 1,129 catch basins/manholes, and other drainage management structures were inspected and cleaned.

The MOA's authorized MS4 maintenance agency for the Girdwood Road Service Area (GRSA) implemented a comprehensive catch basin and inlet inspection and maintenance program for their service area. Their 45 catch basins and manhole structures are on a bi-annual cleaning schedule based on fill rates. They were scheduled for cleaning in 2023, but due to issues with the contractor's availability to come to Girdwood, they were not cleaned. The catch basins will be cleaned in 2024, as soon as conditions allow.

The MOA's Anchorage Road and Drainage Service Area (ARDSA), comprising most of the roads in Anchorage not maintained by road service areas or owned by DOT&PF, continued its ongoing OGS and catch basin inspection and maintenance program. During 2023, 272 OGS units and 2,495 catch basins were cleaned based on the rate of fill schedules.

The Permittees collected fill rate data for their catch basins during the third permit term, and they updated their respective cleaning schedules considering both effectiveness and efficiency and implemented them

for the 2023 cleaning season. The cleaning schedules for DOT&PF and ARDSA were provided in the 2020 annual report. The remaining operators, CBERRRSA and GRSA, continued to inspect and clean their systems annually or biannually.

### 5.3 Street and Road Maintenance

#### 5.3.1 Standard operating procedures

The permittees must update and submit the Street Maintenance Standard Operating Procedures within four years of the effective date of the Permit. Standard Operating Procedures (SOPs) are reviewed annually by MOA and DOT&PF street maintenance agencies. Updates, when they are made, are submitted with the corresponding annual report. For 2023, there are no changes to SOPs. The fourth-year report will contain the full set.

#### 5.3.2 Inventory of materials

Part 3.4.3.2 of the Permit requires permittees to "...maintain an inventory of street/road maintenance material, including use of sand and salt..." and report the inventory in the annual report. Road maintenance materials used by all MOA MS4 operators include primarily winter traction enhancing materials. The types of materials used vary somewhat from agency-to-agency and street-to-street but mostly include applications of traction-enhancing sands and a variety of deicers and anti-icers. Deicers are added by MOA operators to the sand before its application to the road surface to maintain sand fluidity in sanding vehicles and to help embed the sand particles in road ice. The DOT&PF applies liquid deicer directly to road surfaces or to sand prior to application to the road surface. Sand gradations vary by agency, with DOT&PF operators typically using a somewhat finer gradation for their mostly higher speed roads than MOA operators, both for safety reasons and to improve the stability of the sand on the road surface. Inventory tables of these materials are summarized in Table 5.1 below.

**2: Table 5.1 – Anchorage MS4 Street Materials Inventory, 2023**

Item	Type	Units	Amt. Stored	Amt. Ordered	Amt. Used	Storage Location
<b>DOT&amp;PF</b>						
Sand	M&O spec.	ton	3,200	15,000	12,000	Anchorage
Sand	M&O spec.	ton	4,200	0	1,200	Birchwood
Sand	M&O spec.	ton	800	5,000	5,000	Girdwood
NaCl	granular	ton	1,600	3,200	2,200	Anchorage
NaCl	granular	ton	120	400	360	Birchwood
NaCl	granular	ton	300	800	480	Girdwood
MgCl <sub>2</sub>	brine	gal	-	-	-	Girdwood
CaCl <sub>2</sub>	brine	tons			-	Anchorage
<b>MOA-CBERRRSA</b>						
Sand	ARDSA spec.	ton	15,500	8,000	6,486	Hiland
NaCl	granular	ton	44.1	44.1	0	Hiland
MgCl <sub>2</sub>	brine	gal	3,700	7,300	3,600	Hiland
<b>MOA-ARDSA</b>						
Sand	ARDSA spec.	ton	10,000		5,000	Anchorage

NaCl	Granular	Ton	150		101	Anchorage
MgCl <sub>2</sub>	brine	gal	30,000		18,000	Anchorage
<b>MOA-GRSA</b>						
Sand	E-chips	Ton	508.6	1,000	1,340	Girdwood
NaCl	Granular	Ton	30.5	60	80.37	Girdwood
MgCl <sub>2</sub>	brine	gal	0	0	0	Girdwood

## 5.4 Street and Road Sweeping

### 5.4.1 Sweeping Management Plan

The permittees updated their Street Sweeping Management Plans based on the Visually Clean Standard. The permittees each developed individual sweeping plans, as required by Permit Part 3.4.4., to accommodate differences in their respective sweeping operations. These were provided in the 2020 annual report.

A list of roads where sweeping is technically infeasible was provided in the plans, and it includes alternative control measures, as required by Permit Part 3.4.4.3. A visual inspection is performed to identify trash or other pollutant issues, and these are addressed and documented in the form of ditch cleaning and catch basin cleaning. Additional measures may be identified for these roads, as needed.

### 5.4.2 Sweeping Assessment

Permit Part 3.4.4.4 requires the permittees to "...perform annual assessments of street sweeping effectiveness to minimize pollutant discharges to storm drains and creeks..." following permit defined performance factors. The permittees have provided their 2023 summaries of street sweeping activities in their sweeping reports provided in Appendices E1 and E2.

## 5.5 Pesticide, Herbicide, and Fertilizer Applications

DOT&PF: During 2023, pesticides were applied to control invasive weeds at specific locations within the DOT&PF Right-of-Way. A full list of the locations where pesticides were applied and the pesticides that were used is available upon request or available on the department's Integrated Pest Management plan website at:

<https://dot.alaska.gov/stwdmno/ipm/>

To reduce the discharge of pollutants associated with the applications, herbicide applications by certified applicators were in accordance with the ADEC-approved DOT&PF Integrated Pest Management (IPM) plan, ADEC pesticide control regulations 18 AAC 90, and the MOA pesticide code.

MOA: The pesticide code was updated during the second term to strengthen application restrictions, notifications, and certification requirements. These code requirements are enforced at municipal facilities and an application log is maintained.

The MOA pesticide code Title 15.75 link:

[https://library.municode.com/ak/anchorage/codes/code\\_of\\_ordinances?nodetd=TIT15ENPR\\_CH15.75PECO](https://library.municode.com/ak/anchorage/codes/code_of_ordinances?nodetd=TIT15ENPR_CH15.75PECO)

During 2023, permittees used pesticides in the MOA greenhouses to control insects. A full list of pesticides used is available upon request.

## 5.6 Storm Water Pollution Prevention Plans

Storm Water Pollution Prevention Plans for certain permittee-owned activities are required by Part 3.4.6 of the Permit. Permittees have existing plans for their material storage facilities, maintenance yards, and snow disposal sites. They are updated regularly and available at the *italicized facilities* for each owner in Table 5.2 and where practical at each facility site.

### Inspections

In 2023, inspections indicated by SWPPP were performed at the facilities indicated in Table 5.2. Corrections were made as needed. The inspection reports are on file at each of the facility offices and provided in Appendix E3 & E4.

**3: Table 5.2 – MS4 Facilities with Storm Water Pollution Prevention Plans**

Facility	Location	Activities
<b>DOT&amp;PF</b>		
<i>Anchorage Maintenance Station</i>	5300 E. Tudor Rd., Anchorage	Equipment & Materials Storage, Maintenance
<i>Birchwood Maintenance Station and Birchwood Airport</i>	20651 Birchwood Spur Rd., Birchwood; SWPPP located at 5300 E. Tudor Rd., Anchorage	Equipment & Materials Storage
<i>Girdwood Maintenance Station and Girdwood Airport</i>	MP 90 Seward Hwy./ 888 Toad Stool Drive, Girdwood	Equipment & Materials Storage, Maintenance
<i>O'Malley Snow Disposal Site</i>	10675 Old Seward Hwy, Anchorage; SWPPP located at 5300 E. Tudor Rd., Anchorage	Snow Storage
Tudor Snow Disposal	6110 Tudor Road, Anchorage	Snow Storage (operating under ARDSA SWPPP)
<i>Hiland Road Snow Disposal Site</i>	8500 Hiland Road, Eagle River; SWPPP located at 5300 E. Tudor Rd., Anchorage	Snow Storage
<b>CBERRRSA</b>		
<i>Eagle River Maintenance</i>	VFW Road, Eagle River	Equipment & Materials Storage
Chugiak Maintenance Facility	19200 Kerbow Ln., Chugiak	Equipment & Materials Storage
Eagle River Snow Disposal	Eklutna Park Drive, Eagle River	Snow Storage

ARDSA		
<i>Kloep Maintenance Facility</i>	5701 Northwood Drive, Anchorage	Equipment Maintenance, Materials Storage & Snow Storage
Muldoon Maintenance & Storage Facility	7909 Boundary Ave., Anchorage	Equipment Maintenance & Materials Storage
Native Heritage Snow Disposal	8902 Heritage Center Drive, Anchorage	Snow Storage
Commercial Dr. Snow Disposal	2941 Commercial Drive, Anchorage	Snow Storage
Mountain View Snow Disposal	5100 Mountain View Drive, Anchorage	Snow Storage
Sitka Street Snow Disposal	1525 Sitka Street, Anchorage	Snow Storage
Tudor Snow Disposal	5300 Tudor Road, Anchorage	Snow Storage
C Street Snow Disposal	395 W 100 <sup>th</sup> Avenue, Anchorage	Snow Storage
Dowling Snow Disposal Site	6531 Spruce Street, Anchorage	Snow Storage

## 5.7 Training

The MOA and DOT&PF coordinated monthly during 2023 to discuss their respective activities and operational issues. Street managers from DOT&PF and MOA participated in the 2023 APDES Annual Meeting held on March 9, 2023, and the semi-annual meetings held on March 28, 2023, and October 25, 2023.

DOT&PF crew members and MOA Maintenance crews participate in regular staff meetings and are given information regarding APDES permit requirements in a variety of presentations and staff meetings to assist their understanding, decisions, and record-keeping about activities associated with Permit compliance.

DOT&PF: DOT&PF M&O staff at facilities within the Permit boundaries are required to attend SWPPP and Spill Prevention, Control, and Countermeasure (SPCC) training annually. Training is provided by the DOT&PF CR M&O environmental analyst. For 2023, this training took place in person at Anchorage Maintenance Station on May 18, 2023.

In addition, CR DOT&PF M&O requires that all station managers and ditch crew leads be AK-CESCL certified. In 2023, only the DOT&PF CR M&O environmental analyst took and passed the AK-CESCL Refresher course (nobody else was due), and no staff needed to take the AK-CESCL full two-day class.

MOA: The MOA conducted or participated in the following training:

- MOA (ARDSA, GRSA, CBERRRSA) had 17 AK-CESCL staff in 2023.

- ARDSA held a training session, conducted by PTS, to familiarize all staff on construction and facility SWPPP requirements for 48 crew members.
- Innovative Water Treatment Strategies for Challenging Conditions and Complex Matrices
- The MOA maintains a YouTube channel for MOA Storm Water training. Playlists are available for various training topics, including Cold Weather/Climate, LID, Storm Water Management, Storm Water Construction Practices, Illicit Discharges, Inspection, Maintenance, and Rain Gardens.

MOA YouTube channel for MOA Storm Water training:

[https://www.youtube.com/channel/UCdr0yQY12\\_mDVHTMaRVBFVw](https://www.youtube.com/channel/UCdr0yQY12_mDVHTMaRVBFVw)

## 6 Illicit Discharge Management

### 6.1 Illicit Discharge Regulatory Strategy

The MOA regulatory authority for stormwater pollution control is found in AMC Title 21.07.040. This code provides the basis for managing discharges to the storm sewer system and waters of the U.S. It conforms to Permit requirements consistent with Part 3.5.1.1, provides a stormwater permit for discharges not covered under building permits, and accommodates CGP review authorities. It is up to date for current Permit requirements.

MOA Illicit Discharge code link:

[https://library.municode.com/ak/anchorage/codes/code\\_of\\_ordinances?nodeId=TIT21LAUSPLNECOFFJA12014\\_CH21.07DEDESTNECOFFJA12014\\_21.07.040DRSTWATRERCOPRDI](https://library.municode.com/ak/anchorage/codes/code_of_ordinances?nodeId=TIT21LAUSPLNECOFFJA12014_CH21.07DEDESTNECOFFJA12014_21.07.040DRSTWATRERCOPRDI)

### 6.2 Illicit Discharge Reporting and Response

The Pollution Hotline, (907)343-4141, continues to operate with staff taking calls during regular business hours and retrieving messages from callers with complaints during non-business times. These hotline complaints are recorded in the MOA's Infor (Hansen) Complaint Management System and forwarded to the appropriate department for response.

The online complaint portal #ANCWorks is available to community members on the Muni.org website for complaints recording and tracking.

Online complaint submittal link:

<https://www.muni.org/anchorageworks/CRM/ServiceRequest/ServiceRequestCategory>

Table 6.1 tallies complaints recorded through the online tracking system. Complaints were followed up within the required two working days and, when possible, resolved within a week. *Storm Water – Construction* complaints were handled with the inspections in the Construction Site Management Program. *Prohibited Discharge* complaints were handled as *Illicit Discharge* complaints.

**4: Table 6.1 – Service Requests by Complaint Type, 2023**

Department	Complaint Type	Number of Requests	Number Resolved
Private Development	Stormwater – Construction	24	24
WMS	Prohibited Discharges – Private property	17	17
WMS	Prohibited Discharges – ROW/Public Property	14	14

### Illicit Discharge mapping

Appendix F1 contains a location map of 2023 Anchorage prohibited discharge complaints. Inspectors visited all the sites and, where appropriate, initiated clean-up. There were no recurrences associated with any of the other discharges.

### 6.3 Dry Weather Screening

The permittees continued to implement the dry weather screening program in compliance with Permit requirements. The 2023 report is provided in Appendix F2. In 2023, one of the outfalls chosen for screening exceeded thresholds for program parameters. It is discussed in Section 1.

### 6.4 Spill Prevention and Response

The permittees must prevent, respond to, contain, and clean up all sewage and other spills that may discharge into the MS4. The Spill Response Plan Update was provided in the 2021 report.

#### 2023 Spill Response

Spills that enter the MOA MS4 or receiving waters are reported to and archived by MOA staff via Infor computer software. Spills that WMS staff responded to were contained and isolated to ground surfaces, but did not enter the storm drain system, are not included.

In 2023, WMS Staff responded to three spills. The first occurred on June 22, 2023, when WMS received a forwarded voicemail from a resident stating that they had observed a sheen and strong fuel smell along the south shore of University Lake in Anchorage. WMS and ADEC staff responded to the report on the morning of June 22<sup>nd</sup> and confirmed the sheen and smell were coming from a storm drain outfall to the lake connected to a storm drain network servicing the Alaska Native Medical Center campus. WMS and ADEC staff installed an oil absorbent boom around the storm drainpipe outfall and under a pedestrian bridge over the creek at the outlet end of the lake and contacted MOA Street Maintenance to service an OGS vault located upstream of the outfall. Street Maintenance used a vactor truck to remove an estimated 20 gallons of oil/fuel material that was contained in the OGS on June 22<sup>nd</sup> and staff began investigating the area for a potential source of the material. On the afternoon of June 23<sup>rd</sup>, WMS received word that additional sheen and oil/fuel material had been observed between the outfall and the boom and WMS and ADEC staff placed signs on the trails around the west end of the lake warning the public of the discharge and to keep

animals out of the water and put up caution flagging between the trails and the lake on the west end of the lake. WMS staff pulled storm drain lids upstream of the OGS and detected a fuel smell in several storm drain structures along Ambassador Drive and Tudor Center Drive, but no obvious source of the material was identified. On June 26<sup>th</sup>, with more fuel/oil material entering the OGS, WMS contacted contractor Environmental Compliance Consultants (ECC) for assistance with further cleaning and identification of the product, but the contractor was unable to provide the scope of services needed. On June 27<sup>th</sup>, a site meeting was held with staff from the MOA, ADEC, EPA, and ANMC, and the MOA issued an emergency contract to another contractor, US Ecology, to deploy a hard/marine boom in the lake outside of the absorbent boom around the outfall. On June 28<sup>th</sup>, a fuel vault on the campus of ANMC was determined to be the source of the contamination, the OGS was skimmed again, and the park surrounding the lake was officially closed to the public. Staff with US Ecology, ANMC, WMS, EPA, ADEC, and FWS continued to respond to the spill over the subsequent weeks, monitoring the OGS and outfall, removing material and contaminated vegetation from the OGS and the shore of the lake, and deploying oil absorbent boom in all storm drain catch basins between the fuel vault and the OGS to capture any material remaining in the storm drain. The park was reopened on July 11 with an oil absorbent boom and pom-poms remaining along the shoreline of the lake. On September 26<sup>th</sup>, MOA and US Ecology staff inspected the lake and storm drain system, determined that fuel and sheen were no longer present, and removed the remaining boom from the storm drain catch basins. In all, 152 gallons of fuel and 90 gallons of sludge were recovered and disposed of during the cleanup effort.

The second spill was reported to WMS by ADEC staff on the morning of July 26, 2023, when ADEC and Anchorage Fire Department (AFD) staff responded to a report of diesel/fuel in South Fork Chester Creek at the footbridge near Paxson Dr. and E. 22<sup>nd</sup> Ave. ADEC and AFD staff deployed an oil absorbent boom across the creek at two different locations to capture material and WMS staff checked storm drain outfalls in the area to try to determine the source of the spill. No source for the spill was identified. On July 27, 2023, WMS and MOA Street Maintenance staff confirmed that sheen and fuel material were no longer present in the stream and removed and disposed of the boom.

The third spill was reported on September 9, 2023, and resulted from the construction of a concrete foundation in the Powder Ridge Subdivision in Eagle River. Municipal staff responded to the complaint and observed what appeared to be wash water with concrete dust from the foundation pour had been disposed of on the property and run off across the sidewalk and into the gutter. Municipal staff investigated the closest storm drain inlet and determined that only a small amount of water and concrete dust had made it into the storm drain; not enough to warrant a cleanup effort. Municipal staff contacted the builder who poured the foundation, and he addressed his staff about the incident, reminding them to not allow construction materials to enter the gutter or storm drain system.

## **6.5 Used Oil and Toxic Materials**

The permittees have an ongoing program for accepting hazardous materials including used oil and toxic waste at the Anchorage Regional Landfill and Central Transfer Station. Those locations will accept up to five gallons of household hazardous waste for no cost. Information and public education materials for this program are found on the Municipal Solid Waste Services homepage at:

<http://www.muni.org/departments/sws/pages/default.aspx>



## 6.6 Training

Training for identifying and eliminating illicit discharges, spills, and illicit connections to the MS4 was performed with the implementation of the Dry Weather Screening Monitoring as outlined in the Monitoring Plan.

Staff training was supported by:

- 2023 Watershed Update/APDES Annual Meeting: March 9, 2023. This half-day meeting reviewed the findings of monitoring, assessments, mapping, and new programs associated with the permit. It was attended by members of the MOA, DOT&PF, and the private sector.
- A variety of online courses covering stormwater issues were taken, refer to Section 3.5.
- WMS meets for regular staff meetings where members share information about watershed activities and discuss relevant topics and videos related to stormwater management. They include illicit discharge identification, cleanup, and education. A list of the videos on WMS's YouTube Training Channel is located at:  
[https://www.youtube.com/channel/UCdr0yQY12\\_mDVHTMaRVBFVw](https://www.youtube.com/channel/UCdr0yQY12_mDVHTMaRVBFVw)

## 7 Public Education and Involvement

### 7.1 Public Education and Involvement

The MOA, on behalf of the permittees, entered into an agreement with the Anchorage Waterways Council (AWC) to conduct the ongoing public education required by the Permit. A full account of education activities for 2023 is provided in Appendix G1.

In addition to the AWC activities, the MOA conducted these additional activities:

- Scoop the Poop Day: The traditional Anchorage Scoop the Poop Day was held on April 22, 2023. AWC, in conjunction with MOA WMS, hosted in-person Scoop the Poop Day events at the University Lake and Connors Bog dog parks, as well as encouraging other DIY events. WMS staffed one of the University Lake tables and assisted in handing out trash bags, trowels, shovels, other equipment, snacks, and dog treats to members of the public to facilitate dog poop clean up. Overall, the event was very successful, with many volunteers participating and hundreds of pounds of dog poop collected and properly disposed of.
- In 2023, WMS and Anchorage Waldorf School participated in a storm drain stenciling program that painted 20 storm drains with "*Dump No Waste, Drains to River*" and a stencil of a fish.

### 7.2 Targeted Education and Training

See the following sections of this Annual Report regarding targeted training for permittee staff:

- Construction - Section 2.3
- New and Redevelopment Areas - Section 3.5
- Storm Water Infrastructure - Section 5.7
- Illicit Discharge - Section 6.6

### 7.3 Annual Meeting

The 2023 Annual Meeting provided information to participants about the activities related to the MS4 Permit. The meeting was held on the morning of March 9, 2023, at the BP Energy Center and was attended by over 50 people with an interest in stormwater management. Information was presented about relevant topics including illicit discharge, dry and wet weather monitoring, and the Chester Creek Watershed Stormwater Master Plan. A look ahead at the planned 2023 activities was provided. The MOA, DOT&PF, and contractors participated in the meeting and answered questions from attendees. The presentation slides, program agenda, and poster summary are available in Appendix G2.

### 7.4 Bi-Annual Meetings

Bi-annual meetings between the permittees and ADEC were conducted in 2023 to provide a forum for discussion regarding permit activities and issues. These meeting summaries are available in Appendix G3.

### 7.5 Storm Water Website

In 2023, the permittees provided access to their website, found at:

<https://anchoragewatershed.com>

<https://anchoragestormwater.com>

This homepage contains all program information including draft and final project reports, data, map products, forms, permit applications, Storm Water Pollution Prevention Plan (SWPPP) guidance, and watershed plans.

## 8 Monitoring and Assessment

### 8.1 Discharges to Water Quality Impaired Waters

As listed in the Permit, pollutants of concern in the MOA receiving waters include fecal coliform bacteria, petroleum products, and, for one lake, dissolved oxygen. The MOA, acting on behalf of the permittees, will measure and evaluate the effectiveness of activities to control these pollutants of concern through the following means:

- Stormwater outfall monitoring
- Controls effectiveness monitoring
- Dry weather screening and follow-up
- Public education and involvement program

### 8.2 Monitoring Plan

The MOA, on behalf of the permittees, updated the “Quality Assurance Project Plan” (QAP) containing the monitoring program plan for fourth-term activities. The MOA, on behalf of the permittees, conducts monitoring for various purposes as summarized in Table 8.1. The Updated QAP was presented in the 2020 Annual Report.

**5: Table 8.1 – Storm and Surface Water Monitoring Program Schedule**

	Proposed Sampling Dates
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Monitoring Program Component	2021	2022	2023	2024	2025
Pesticide Screening	None	Aug-Sept	none	Aug-Sept	None
Dry Weather Screening	Jun-Aug	Jun-Aug	Jun-Aug	Jun-Aug	Jun-Aug
Control Measure Effectiveness	April-Nov	April-Nov	April-Nov	April-Nov	April-Nov
Stormwater Outfalls	Apr-Nov	Apr-Nov	Apr-Nov	Apr-Nov	Apr-Nov
LID Monitoring	May-Oct	May-Oct	May-Oct	May-Oct	May-Oct

**8.2.1 Pesticide Screening**

This sampling program is a continuation of the program started in the first permit term. Sampling is to be conducted in the second and fourth years of the permit term. Pesticide screening was reported in 2022 and will be performed again in the summer of 2024.

**8.2.2 Storm Water Outfall Monitoring**

Stormwater Outfall Monitoring was continued in 2023 according to the plan approved for the fourth term. Results are provided in Appendix H1.

**8.2.2.1 Storm Water Outfall Monitoring Evaluation**

An evaluation of monitoring results is required in year four of the Permit term with results provided with the applicable annual report. The evaluation will discuss the effectiveness of street sweeping to reduce turbidity and fecal coliform bacteria in outfalls and public education to reduce fecal coliform bacteria and other relevant control measures.