

Storm Water Management Program Malmstrom Air Force Base



December 2017

Revised 2021

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LIST OF ACRONYMS

AFB	Air Force Base
ARM	Administrative Rules of Montana
BMP	Best Management Practice
BX	Base Exchange
ECAMP	Environmental Compliance Assessment Management Program
ERP	Enforcement Response Plan
EPA	United States Environmental Protection Agency
GIS	Geographic Information System
IDDE	Illicit Discharge Detection and Elimination
LID	Low-impact Development
MCM	Minimum Control Measure
MDEQ	Montana Department of Environmental Quality
MS4	Municipal Separate Storm Sewer System
QA	Quality Assurance
SOP	Standard Operating Procedure
SPCC	Spill Prevention Control and Countermeasures Plan
SWMC	Storm Water Management Coordinator
SWMP	Storm Water Management Program
SWPPP	Storm Water Pollution Prevention Plan
TMDL	Total Maximum Daily Load

LIST OF OFFICE SYMBOLS

341 CES/CEIE	Civil Engineering Squadron/Environmental Element
341 CES/CEN	Civil Engineering Squadron/Engineering Flight
341 CES/CENME	Civil Engineering Squadron/GeoBase Office
341 CES/CEOHP	Civil Engineering Squadron/Heavy Equipment Shop
341 CES/CEOIU	Civil Engineering Squadron/Utilities Shop
341 CONS	Contracting Squadron
341 LRS	Logistics Readiness Squadron
341 MW/JA	Legal Office
341 MW/PA	Public Affairs Office
819 RHS	RED HORSE Squadron
BBC	Balfour Beatty Communities

CERTIFICATION STATEMENT

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Signature

John W. Hale, Civ, USAF

Name (Printed)

Date Signed

Deputy Base Civil Engineer

Title

DOCUMENTATION OF PLAN REVIEW

Per the General Permit for Storm Water Discharge Associated with Small Municipal Separate Storm Sewer System (MS4), Permit Number MTR040000, permittees must complete a review of their Storm Water Management Program (SWMP) Plan in conjunction with preparation of the annual report.

Annual Report Year	Reviewed By:	Summary of Changes to SWMP	Signature	Date
2017	Cody Koontz	Add Table 4-3, added ERP	//signed-CAK//	30 Dec 2017
2018	Cody Koontz	Updated forms	//signed-CAK//	30 Dec 2018
2019	Cody Koontz	Updated forms, tables and language to reflect inspection results	//signed-CAK//	20 Feb 2019
	Cody Koontz	Holistic document review. Updated BMP tables with current info, Table 2-2 update, reviewed illicit discharge categories, revised SW-102	//signed-CAK//	21 Nov 2019
2020	Cody Koontz	Added receiving water impairment information to Section 9, Table 9-1	//signed-CAK//	22 Jan 2020
2021	Cody Koontz	Added pesticide permit info. Updated Table 2-2 and outreach methods. Added TRF/MMDF features to Table 6-2. Updated info in ERP for housing residents to clarify Housing Office authority. Added BMP F.5 to reflect grounds maintenance outfall cleaning schedule. Updated maps. Added new signed policy letter.	//signed-CAK//	11 Feb 2021

1.0 OVERVIEW

The Montana Department of Environmental Quality (MDEQ) General Permit for Storm Water Discharge Associated with Small Municipal Separate Storm Sewer System (MS4) requires that Malmstrom Air Force Base (AFB or Base) develop and implement a Storm Water Management Program (SWMP) Plan. This SWMP fulfills the MS4 General Permit requirements and supersedes all previous versions. SWMP implementation will reduce pollutant discharge from the storm water system, as required by the MS4 General Permit, and as defined by the Phase II Storm Water Regulations (Federal Register, 64 FR 68722, December 9, 1999). It complies with Section 75-5-101 et seq., Montana Code Annotated, as well as the Administrative Rules of Montana (ARM) (17.30.1101; 17.30.1301 et seq.; and 17.30.601 et seq.).

The 341st Civil Engineer Squadron/Environmental Element (341 CES/CEIE) is responsible for oversight of Malmstrom AFB storm water issues and the following permits. They are the focal point for all technical aspects of the storm water program including implementation, maintenance, and revisions.

- General Permit for Storm Water Discharges Associated with Industrial Activities (Industrial General Permit) (Permit Number MTR000000)
- General Permit for Storm Water Discharges Associated with Small Municipal Separate Storm Sewer System (MS4s General Permit) (Permit Number MTR040000)
- General Permit for Discharges Associated with Disinfected Water (Disinfected Water General Permit) (Permit Number MTG770000)
- General Permit for Pesticide Application To or Over Surface Water (Pesticide General Permit) (Permit Number MTG870000)

SWMP Structure, Updates, and Organization

This document supports the MS4 permit application for coverage under the 2017-2021 permit term and addresses the following six minimum control measures (MCMs) required by the MDEQ MS4 General Permit pursuant to the ARM, Title 17, Chapter 30, Subchapters 11, 12, and 13.

- Public education and outreach on storm water impacts (Section 2)
- Public participation or involvement (Section 3)
- Illicit discharge detection and elimination (IDDE) (Section 4)
- Construction site storm water runoff control (Section 5)
- Post-construction site runoff control (Section 6), and
- Pollution prevention and good housekeeping (Section 7).

The SWMP outlines the best management practices (BMPs) that Malmstrom AFB will implement to control the quality and quantity of storm water leaving the Base. Sections 2 – 7 address each MCM and describe BMPs that satisfy each. Each section provides measurable goals for each BMP and implementation target dates or frequencies. Many selected BMPs are already in place and successfully functioning. Other BMPs were identified to reach out to a broader sector of Base residents, especially family members and children, who may not be involved in mission operations. CEIE storm water personnel will add or modify BMPs as the program evolves.

Attachment 1 provides a map showing the MS4 permit boundaries, storm sewer system outfalls, and other pertinent site information; as well as more detailed maps of the storm sewer system and drainage areas.

Outfalls 1-4 are designated as high priority per Part II.A.3.e.ii of the MS4 General Permit. Malmstrom chose these as high priority outfalls because they regularly see storm flows and they represent the entire developed

side of base. Outfalls 5 & 6 rarely see discharge and predominantly use vegetated swales for storm water conveyance.

Storm Water Management Team Organization

Attachment 2 provides the SWMP Team organizational chart, presents an overview of the team, and identifies responsibilities. The Storm Water Management Coordinator (341 CES/CEIE) is responsible to review and update the organizational chart. The Storm Water Management Coordinator or CES/CEIE personnel will include updates in the Annual Reports.

Based on the DEQ inspection report dated 12 February 2019, 341 CES/CEIE will utilize Balfour-Beatty Communities (BBC) to collect information on street sweeping and illicit discharges investigations.

2.0 CONTROL MEASURE 1: PUBLIC EDUCATION AND OUTREACH

The principal goal of this measure is to develop and distribute educational materials to personnel living or working on Base. Educational materials will address the negative impacts polluted storm water runoff discharges can have on surface water, specific pollutant sources, and how all personnel can help reduce them.

Base Agency Responsible for Implementation

341 CES/CEIE, 341 Missile Wing/Public Affairs (341 MW/PA), and Balfour Beatty Communities (BBC)

Minimum Permit Requirements

MCM 1 of the 2017 MS4 General Permit states each permittee must, “...*implement a storm water education program to develop or adapt, distribute, and evaluate educational material and outreach activities to key target audiences in the MS4 that raise awareness about the impacts of storm water discharges on waterbodies, educate audiences about the behaviors and activities that have the potential to pollute storm water discharges, and motivate action to change behaviors to reduce pollutants in storm water runoff.*”

Program Strategy and Decision Process

Malmstrom AFB will use public education and outreach to increase awareness of the potential storm water discharge impacts on surface water and other natural resources. The targeted audience for public education and outreach will include Base personnel, residents, and contractors. Ultimately, having an informed and knowledgeable public will be the key to long-term program success and continued public support and involvement.

Malmstrom AFB will use existing educational materials whenever possible, including those available from the United States Environmental Protection Agency (EPA), MDEQ, industry, or trade organizations. CEIE storm water personnel will review all educational materials to ensure they are relevant to Malmstrom AFB storm water issues and concerns. Outreach materials may be developed to inform individuals about site-specific issues, volunteer opportunities, annual clean-up activities, and locations for additional information. The educational material will target industrial and construction pollutant sources (detailed in the Base’s permits for storm water associated with industrial and construction activities) and residential sources (such as fertilizers, household cleaning products, wash water, pesticides, herbicides, and sediment).

Program Tasks and Associated BMPs

Each MCM incorporates the BMP selection rationale (see Attachment 3 - MCM/BMP Implementation Guide). The BMPs selected to initiate the public education and outreach program may include activities such as:

- Distributing brochures and fliers;
- Publishing articles periodically in the Base newspaper to advertise upcoming educational or volunteer opportunities;
- Conducting annual shop level storm water awareness training; and
- Setting up displays or making presentations at varying venues as funding and manpower allows.

Table 2-1 summarizes the BMPs, measurable goals, and implementation schedules for MCM 1. Table 2-2 outlines key target audiences identified for this SWMP.

Table 2-1
Public Education and Outreach, MS4 General Permit MCM 1

BMPs		Measurable Goals	
A. Public Education and Outreach			
A.1	Develop rationale and analyze businesses or residential behaviors for common illicit discharges, spills, and dumping. List the pollutants of concern for each target audience.	A.1.a	Review and update list of behaviors and pollutants annually in Table 2-2.
		A.1.b	Based on A.1.a, update and develop outreach messages and distribution channels for target audiences.
A.2	Develop and advertise a storm water website. Include current permit, SWMP, annual reports, outreach material, construction guidance, illicit discharge identification, and reporting procedures	A.2	Update Malmstrom’s official website (www.malmtrom.af.mil) at least annually.
A.3	Conduct outreach to target audiences based on Table 2-2 to minimize illicit discharges to the storm drains	A.3	Depends on outreach method. Examples include number of people trained and amount of outreach material distributed.
A.4	Distribute educational brochure for military family housing.	A.4	Track the number of brochures provided to BBC for distribution to new housing residents
A.5	Publish a semi-annual storm water article in the Base newspaper/website	A.5	Article appears in the Base newspaper/website twice a year.

Outreach 2021

Based on the results from Table 2-2, the SWMC will focus on resident vehicle washing and outdoor equipment storage areas in calendar year 2021. The outreach strategy for vehicle washing will be to perform more public involvement activities (pending COVID-19 situation) and to look into funding the on-base car wash for a month. The outreach strategy for outdoor equipment storage areas will be through the implementation of the Industrial Storm Water Pollution Prevention Plan (SWPPP) and its associated training.

Table 2-2
Determination of Key Target Audiences for Public Education and Outreach

Business Type	Target Audience	Description	Potential Pollutants	Current Issues? No=1 Yes=5	Danger to Water Quality (Low) 1-5 (High)	Probability of Occurring (Low) 1-5 (High)	Total Score	Outreach Method	Narrative
Military Vehicle Maintenance	Logistics Readiness Squadron (LRS)	Maintain various military vehicles, store damaged vehicle	Motor Oil, Fuel, Hazardous Materials	1	4	3	8	Spill & Storm Water Training, provide BMPs	Maintenance is performed indoors and the floor drains discharge to the sanitary sewer system. There are vehicles stored outside. Some of the vehicles have been in accidents and have potential to leak. Most times personnel in the shop place a secondary containment device under a leaking vehicle.
Restaurants	Burger King, Elkhorn Diner, Grizzly Bend, Bowling Alley, BX	Prepare food for base populous	Food Grease	1	3	3	7	Facility Manager Training	These businesses have grease dumpsters that are stored outside. All of the dumpsters have secondary containment. During excess rain, the containment can fill up. Had an issue with a containment full of grease/water mixture. Provided draining procedures and grease separation products to the entity in 2019.
Gas Station	Military Gas Station, AAFES	Fuel dispensing facilities	Fuel	1	5	2	8	Signage, Training	The BX and LRS contractor check their respective gas stations daily for problems. There is potential to have a large spill if a large tanker truck spills during off-loading. This has not happened and is unlikely to happen. Small stains show at fuel pumps, but this is typical of a gas station. Large spill training provided by Defense Logistics Agency annually.
Military Car Wash, Auto Hobby Car Wash	Vehicle Operators	Vehicle washing	Sediment, Vehicle Fluids	1	2	3	6	Signage, Training, Newspaper Articles	Military vehicles are allowed to wash their vehicles in one of two indoor car washes. No personal vehicles are allowed in these bays. The floor drains go to the sanitary sewer.
Resident Vehicles	Housing Residents	Vehicle maintenance, leaking fluids, tracked on mud	Sediment, Vehicle Fluids	5	2	4	11	Resident Flyer, Storm Drain Marking, Online Articles	Residents are the hardest to predict. We currently distribute flyers to new residents, publish articles online, and mark the storm drain inlets. Occasionally a person will track mud around the housing area or have a vehicle leak/accident. BBC patrols housing areas and enforces any illicit discharges (i.e. car washing). Statistics from BBC shows they still are enforcing car washing in housing. One ERP escalation in 2020 based on vehicle detailing home business.
Resident Activities	Housing Residents	Apply fertilizers, hazardous materials, own pets	Fertilizer, Pet Waste, Hazardous Materials	1	2	4	7	Resident Flyer, Storm Drain Marking, Online Articles	Similar to above. Educational materials are distributed throughout the year. It's hard to quantify how many (if any) people are over fertilizing or not picking up pet waste.
Grounds Maintenance	Grounds Maintenance Contractors (Davy's & Byrd)	Mows lawn, maintains sprinkler system, equipment storage/maintenance	Disinfected Water, Fertilizer, Hazardous Materials, Fuel	1	3	4	8	Training, Contract Revisions	Grounds maintenance contractor has many potential pollutants through a variety of activities. The base grounds contractor (Byrd) is currently under the Industrial Storm Water Pollution Prevention Plan (SWPPP) and Spill Prevention Control and Countermeasures Plan (SPCC) and we can hold them accountable through their contract. There are some spots on base where they over water and cause runoff. Also, they have had leaking equipment stored outside in the past.
Outdoor Equipment Storage	Horizontal, RED HORSE, Power Pro	Store equipment and vehicles outside	Fuel, Motor Oil, Hazardous Materials	5	4	4	13	Training, provide BMPs	Horizontal and RED HORSE shops storage a variety of heavy equipment outside. Based on Industrial SWPPP inspections, these areas have garnered a higher interest. Both CES and RHS are now enrolled under the Industrial SWPPP. This has helped alleviate some problems. Had an issue with rinsing a paver with diesel fuel. SWMC had a shop training session and clean up session for education.

UPDATED January 2021

Highlighted business type indicates outreach focus based on highest total score

3.0 CONTROL MEASURE 2: PUBLIC INVOLVEMENT AND PARTICIPATION

The principal goal of this measure is to provide opportunities for Base staff and residents to participate in the SWMP development and implementation. The public can provide valuable input and assistance to the storm water program and the support can ensure long-term success.

Base Agency Responsible for Implementation

341 CES/CEIE, 341 MW/PA, and SWMP Team

Minimum Permit Requirements

MCM 2 of the 2017 MS4 General Permit states that each permittee must, “...*develop strategy to involve key target audiences in the development and implementation of the SWMP that complies with state and local public notice requirements.*”

Program Strategy and Decision Process

The goal of public involvement and participation is to involve a diverse cross-section of the Base community in SWMP development and implementation. The targeted audience for public involvement and participation includes all Base personnel, residents, and contractors. The SWMP Team has identified and implemented programs that encourage public participation in the storm water program. Malmstrom AFB will continue to work with other governmental and non-governmental entities on exchanging information concerning successful BMPs and other technical information.

Program Tasks and Associated BMPs

The program tasks and BMPs are designed to involve the public in Malmstrom AFB’s storm water program and are intended to raise public awareness about storm water runoff and pollution prevention efforts while fostering participation through community-based projects or volunteer activities focused on pollution prevention.

Malmstrom AFB will schedule annual events (e.g., storm drain marking, clean-up days, etc.) where the public can be actively involved in pollution prevention efforts and learn the storm drain manhole, outfall, and receiving water locations. Table 3-1 summarizes the BMPs, measurable goals, and implementation schedules.

Table 3-1
Public Involvement and Participation, MS4 General Permit MCM 2

BMPs		Measurable Goal	
B. Public Participation and Involvement			
B.1	Identify approaches for involving target audiences.	B.1	List target audiences and why they were chosen. Update list annually. See Table 2-2.
B.2	Implement identified involvement approaches for target audiences.	B.2	Use list from B.1 to development public involvement activities. See Table 2-2.
B.3	Develop and advertise a storm water website. Include current permit, SWMP, annual reports, outreach material, construction guidance, illicit discharge identification, and reporting procedures.	B.3	Update Malmstrom’s official website (www.malmstrom.af.mil) at least annually.
B.4	Coordinate a meeting to involve stakeholders in the Base’s MS4 system.	B.4	Conduct an annual storm water working group meeting with stakeholders or SWMP Team members to discuss successes, failures, and continual improvements.
B.5	Coordinate annual storm drain marking program.	B.5.a	Provide an annual summary or update of the current marking program.
		B.5.b	Use volunteers to mark storm drain inlets.
		B.5.c	Report number of volunteers.
B.6	Participate with City of Great Falls in annual May-April Clean-Up Day.	B.6	Track number of volunteers.

4.0 CONTROL MEASURE 3: ILLICIT DISCHARGE DETECTION AND ELIMINATION

The principal goal of this measure is to develop and implement a plan to detect and eliminate illicit discharges into the MS4. An illicit discharge is defined as any discharge to an MS4 that is not composed entirely of storm water, excluding certain non-storm water sources such as runoff from irrigation, air conditioner condensate, and firefighting activities.

Base Agency Responsible for Implementation

341 CES/CEIE, 341 CES/CENME (GeoBase Office), 341 CES/CEOIU (Utilities Shop), 341 CES/CEOHP (Heavy Equipment Shop), 341 MW/JA (Legal Office), 341 CONS (Contracting Squadron).

Minimum Permit Requirements

MCM 3 of the 2017 MS4 General Permit states that each permittee must, “...*develop, implement and enforce a program to detect and eliminate illicit discharges (as defined in ARM 17.30.1102(7)) into the permitted Small MS4.*”

Program Strategy and Decision Process

Malmstrom AFB has implemented a program to identify and eliminate illicit discharges to the Base storm drain system. Base personnel, residents, and other interested parties will continue to be educated about illicit discharges and improper waste disposal in coordination with other storm water training programs. However, a part of the educational component will be to inform the community of proper disposal methods and locations to prevent unwanted pollutants from entering the storm sewer system.

Malmstrom AFB has developed and implemented SWPPP for the Base’s authorizations to discharge under the Industrial General Permit. Discharges associated with fire hydrant test activities are addressed by the Disinfected Water General Permit; fire hydrant flushing, which generates a smaller quantity of disinfected water, is addressed by the BMPs in this section. This SWMP incorporates existing elements of the disinfected water discharge permit.

341 CES/CEIE will use the Environmental Compliance Assessment and Management Program (ECAMP) to document problems and follow up on solutions. ECAMP is a program developed by the Air Force to meet the Environmental Management System goals set forth in ISO 14001. Malmstrom AFB has adopted the ECAMP program and uses it to evaluate all the environmental program areas.

The ECAMP includes the following procedures:

- Document the problem or issue in the Air Force Finding Tracker tool on the eDASH website
- The ECAMP manager determines deadlines, summarizes the proposed solutions, and elevates the finding to the appropriate leaders
- Leaders resolve the finding
- ECAMP manager follows up with the finding’s author

Malmstrom AFB does not currently discharge to a neighboring MS4 system as mentioned in the General Permit, MCM 3.d.iii. The Base will continue to monitor the status of Cascade County and the City of Great Falls development and create agreements as necessary in the future.

Note that Malmstrom AFB currently has year-round non-storm water discharges or flows in three of six outfalls. The Base SWMP Team will continue to be evaluate and address these flows as necessary.

Program Tasks and Associated BMPs

Once an illicit discharge has been identified and documented, the SWMP Team will take proper actions to correct the problem as directed by the Storm Water Management Coordinator (SWMC). Documentation of all actions is included in annual reports. Such actions may include the number of outfalls screened, complaints received and corrected, number of discharges and quantities of flow eliminated, and the number of dye or smoke tests conducted. All new construction designs are reviewed by the SWMC or designee to ensure that no opportunity for illicit discharges exists within the design. Table 4-1 summarizes the BMPs, measurable goals, and implementation schedules.

Table 4-1
Illicit Discharge Detection and Elimination, MS4 General Permit MCM 3

BMPs		Measurable Goals	
C. Illicit Discharge Detection and Elimination			
C.1	Identify non-storm water discharges that are significant contributors of pollutants.	C.1.a	Create a list of non-storm water discharges and the pollutants associated with those discharges. Update Table 4-2 annually.
		C.1.b	Identify and document any controls on these non-storm water discharges. Review/update annually.
C.2	Create a provision to prohibit any non-storm water discharges that significantly contribute pollutants to the MS4 system.	C.2.a	Enact Base policy or procedures to reduce occasional, incidental discharges with significant pollutant load.
		C.2.b	Enact Base policy and contractual specifications prevent significant amounts of pollutants into the MS4 system.
C.3	Update storm water map showing storm sewers, drainage patterns, and outfalls and incorporate map into Base Geographic Information System (GIS) system.	C.3	Complete GIS quality assurance (QA) and maintain annual updates, as necessary.
C.4	Incorporate mapping, inspection, and review of previously completed sanitary sewer system inspection reports to identify possible leaks or spills to the storm system.	C.4	Complete GIS QA. Conduct and record inspections of outfalls looking for signs of IDDE, including discoloration, oily sheens or changes in vegetation.
C.5	Develop Enforcement Response Plan (ERP) to describe illicit discharge investigation and enforcement responsibilities (Attachment 5).	C.5	Develop and implement ERP for base employees and contractors. Track number of illicit discharges and investigations.
C.6	Inspect and screen high priority outfalls during dry weather. Conduct annually.	C.6	Inspect and screen ALL outfalls at least semi-annually using Form SW-102.
C.7	Develop illicit discharge investigation and corrective action plan (Attachment 5).	C.7.a	Develop and implement illicit discharge investigation and corrective action plan.
		C.7.b	Document the number of investigation and corrective actions.
C.8	Update SWMP to incorporate findings of significant contributors of pollutants to the storm water system.	C.8	Conduct annual SWMP review or revision.

Table 4-2 lists identified non-allowable storm water discharges. Table 4-3 lists identified non-storm water discharges at Malmstrom AFB that will not be considered illicit discharges. The list contains non-storm water flows that are not significant contributors of pollutants to the MS4.

Table 4-2
Frequent and Significant Non-Storm Water Discharges

Location	Description/Source	Pollutants	Controls
Various	Construction dewatering	Sediment	State permit is required to discharge to MS4 system. Dewatering may occur onto vegetated open ground (not pavement) through a dewatering bag to collect sediment.
Housing Areas	Residential car washing	Sediment, oil/grease	BBC will instruct residence not to wash vehicles at their home. Vehicles must be taken to base car wash.
Various	Concrete washout, tool cleanup, masonry or concrete cuttings and sawdust	Concrete washout, high-pH sediment	Use washout basins to collect and dry washout. Use wet vacuum to collect cutting water.
Various	Vehicle fluids/spills	Oil/grease	Use secondary containment. Keep vehicle fluids indoors. Clean up spills immediately. Call CES/CEIE SPCC Coordinator immediately.
Various	Potable water line flushing Pool draining	Chlorine	Must dechlorinate the water before discharge to MS4. Covered under disinfected water permit.

Table 4-3
Acceptable Occasional Incidental Non-Storm Water Discharges

Location	Description/Source	Why Acceptable?
Elevated water storage tank near Building 152, elevated water storage tank 8001 near Building 850	Potable water overflows from storage tank into storm sewer	Infrequent discharge from potable water source is not a significant contributor of pollutants.
Continuous flows at Outfalls 1, 2, and 3	Ground water near flight line	Ground water not a significant contributor of pollutants.
Various	Fire hydrant flushing *	Flows from firefighting activities are excluded from prohibition against non-storm water discharges and need only be addressed where identified as significant pollutant sources to state waters.
Underground high-temperature hot water distribution system coffins (vaults)	Ground water pumped from vaults**	Ground water not a significant contributor of pollutants.

* Base-wide fire hydrant testing activities are addressed by Montana Pollutant Discharge Elimination System Permit Number MTG770000.

** High-temperature hot water discharges are considered illicit discharges and are not acceptable non-storm water discharges.

5.0 CONTROL MEASURE 4: CONSTRUCTION SITE STORM WATER RUNOFF CONTROL

The goal of this measure is to prevent erosion, sedimentation, and pollutant discharges in storm water runoff from construction activities at Malmstrom AFB that result in land disturbance.

Base Agency Responsible for Implementation

341 CES/CEIE, 341 CES/CEN (Engineering Flight), 819 RHS (RED HORSE Squadron), 341 CONS

Minimum Permit Requirements

MCM 4 of the 2017 MS4 General Permit states that permittees must, “...*develop, implement, and enforce a program to reduce pollutants in storm water runoff to the permitted Small MS4 from construction activities that result in a land disturbance of greater than or equal to one acre. Reduction of storm water discharges from construction activity disturbing less than one acre must be included in the program if that construction activity is part of a larger common plan of development or sale that would disturb one acre or more.*”

Program Strategy and Development

Malmstrom AFB requires all construction sites greater than one acre to obtain coverage under the Montana General Permit for Storm Water Discharges Associated with Construction Activity, Permit Number MTR100000 (Construction General Permit). All such projects must develop a SWPPP and implement appropriate BMPs. Only trained and qualified personnel may design or administer SWPPPs. CES/CEIE storm water managers or authorized agent(s) will review all SWPPPs, site plans, BMP details, etc. prior to the onset of construction. They will inspect all construction sites to ensure compliance with program requirements. Base personnel or authorized agent(s) will review all site plans prior to the onset of construction and will inspect all construction sites to ensure compliance with program requirements.

Program Tasks and Associated BMPs

Table 5-1 summarizes the BMPs, measurable goals, and implementation schedules. intended to control storm water pollutants for construction sites.

Table 5-1
Construction Site Storm Water Runoff Control, MS4 General Permit MCM 4

BMPs		Measurable Goals	
D. Construction Site Storm Water Runoff Control			
D.1	Implement policy that requires all project site plans to incorporate runoff control measure specifications.	D.1.a	341 CES/CEIE will review site plans, BMP installation details, SWPPPs (where applicable) and document the number of reviews in the annual report.
		D.1.b	341 CES/CEIE will conduct at least one annual review regarding storm water runoff control effectiveness during that year. CES/CEIE storm water staff will update policies as needed.
D.2	Develop boilerplate contractual specifications referencing 013600 “Environmental Protection” specification and ECAMP for permits; erosion control plans; and language covering construction waste and sanitary waste management.	D.2	341 CES/CEIE will conduct at least one review of contractual standard specification Section 013600 “Environmental Protection” as related to runoff control policy and this SWMP and update as needed.
D.3	Develop an ERP for construction site storm water management (Attachment 6).	D.3.a	Evaluate proper procedures for enforcement and develop a written ERP to enforce construction related discharges.
		D.3.b	Implement the construction site ERP.
D.4	Continue to develop plan review and inspection procedures to address construction storm water requirements. Include procedures for notifying contractors and others about the storm water requirements.	D.4.a	Develop and implement plan review and inspection procedures.
		D.4.b	Procedures and checklist for plan reviewers and construction inspectors are presented in Attachment 4, SW-103 and Form SW-101, respectively.
		D.4.c	Construction sites in violation of erosion policy tracked through the ECAMP, as described in Section 4.3.
D.5	Implement and review the AF Environmental Impact Analysis Process, (32 CFR 989) for all projects that may significantly impact storm water.	D.5	341 CES/CEIE will review work requests submitted; determine the degree of environmental review required; and assess potential storm water impacts. The Annual Report will summarize the number of work requests reviewed. Refer to SW-103 (Attachment 4) for procedure.
D.6	Develop and maintain an inventory of regulated construction projects. Develop inspection frequency and protocol.	D.6.a	Create database for regulated construction projects.
		D.6.b	Inspect construction projects >1 acre at least twice during the period of performance. Develop criteria matrix to prioritize other construction sites.
D.7	Annual review of construction activity site inspection reports and update database of successful BMPs.	D.7	Perform annual review of construction BMP performance based on anecdotal or documented data and inspections. Publicize availability of successful BMPs at the annual storm water working group listed under MCM 2, B.4.

6.0 CONTROL MEASURE 5: POST-CONSTRUCTION STORM WATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT

The goal of this measure is to develop, implement, and enforce a program to address post-construction storm water discharges from new development and redevelopment areas that discharge into the permitted small MS4. The program will ensure that controls are in place that will prevent or minimize water quality impacts.

Base Agency or Staff Responsible for Implementation

341 CES/CEIE, 341 CES/CEN, 341 CES/CEO, 341 CONS, 819 RHS, BBC

Minimum Permit Requirements

MCM 5 of the MS4 General Permit states that each permittee must, “...*develop, implement, and enforce a program to address storm water runoff from new development and redevelopment projects that disturb great than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, that discharge into the permitted Small MS4.*”

Program Strategy and Decision Process

Malmstrom AFB has developed and implemented a program to control flow and water quality from new development and redevelopment areas. Areas proposed for development or redevelopment are planned, designed, and constructed in a manner that is sensitive to urban runoff issues. Program development includes integrating existing land-use programs, developing BMPs, and evaluating structural and non-structural controls to ensure that the potential for pollutant discharge into urban runoff is minimized to the maximum extent practicable.

Program Tasks and Associated BMPs

The selected BMPs include adopting regulatory mechanisms (such as policy, contractual language) to ensure:

- permit compliance;
- developing program guidelines and directives for reviewing site plans for storm water issues;
- identifying and developing maintenance schedules for existing structural storm water controls; and
- educating Base staff and others on implementing the program.

Malmstrom AFB has developed specifications for post-construction storm water management and are included in project contracts. The Base may opt to address additional requirements, such as:

- Infiltration, evapotranspiration, or capture of runoff from the 95th percentile rainfall event determined in accordance with EPA 841-B-09-001, Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act to the maximum extent technically feasible, and
- Low-impact development.

Malmstrom AFB has developed program guidelines and directives for reviewing existing plans and permitting programs and revising them to include storm water issues. This includes the storm water team reviewing existing construction site inspection programs and revising them for storm water issues. A guidance document (SW-103, Attachment 4) was prepared for plan review and site inspection procedures that includes a checklist for inspections and a Construction Inspection Frequency Worksheet (SW-101). Malmstrom AFB maintains an inventory of existing structural storm water controls and will continue to update the inventory.

Staff will continue to receive annual training in proper inspection and monitoring of storm water structural controls, BMPs, and record-keeping procedures. Table 6-1 summarizes the BMPs, measurable goals, and implementation schedules.

Table 6-1
Post-Construction Storm Water Management, MS4 General Permit MCM 5

BMPs		Measurable Goals	
E. Post-Construction Storm Water Management			
E.1	Implement plan review and inspection procedures to address construction storm water requirements and include procedures for notifying project managers, designers, contractors and others about the storm water requirements.	E.1.a	Plan review and inspection procedures are included in specifications for projects.
		E.1.b	Procedures and checklist for plan reviewers and construction inspectors are included in Attachment 4, SW-103 and Form SW-101, respectively.
		E.1.c	Construction sites in violation of erosion policy are tracked, with follow-up under the ERP.
E.2	Develop policies or procedures to enforce post-construction storm water requirements.	E.2	Revise contractual requirements for construction projects and create base policy for post-construction storm water controls.
E.3	Develop an ERP for post-construction site storm water management (Attachment 6).	E.3.a	Evaluate proper procedures for enforcement and develop a written ERP to enforce post-construction related discharges.
		E.3.b	Implement post-construction ERP.
E.4	Develop a process to require practices to infiltrate, evapotranspire, or capture for reuse any runoff generated from the first 0.5 inches of rainfall from a 24-hour storm for projects equal to or greater than one acre.	E.4.a	341 CES/CEIE will review work orders and project plans to ensure compliance with this requirement. The Annual Report will summarize the number of plans reviewed during the year.
		E.4.b	Develop criteria to evaluate projects that cannot meet 100% of the runoff reduction requirement.
E.5	Develop and implement post-construction inspection form.	E.5	Create and implement an inspection to address post-construction storm water management controls.
E.6	Develop and implement new and existing post-construction BMP inventory and inspection frequency.	E.6.a	Develop criteria and inspection frequency for high priority post-construction BMPs.
		E.6.b	Inspect high priority post-construction BMPs annually.
E.7	Annually review construction site inspection reports and update database of successful BMPs, new policies, and low-impact development (LID) technologies.	E.7	Perform annual review of post-construction BMP performance based on anecdotal or documented data, site inspections and review of contractor BMP maintenance logs. Address findings and improvements at annual storm water working group.

The following structural BMPs in Table 6-2 are currently in place at Malmstrom AFB. The SWMC or designee will inspect all structural post-construction BMPs in Table 6-2 annually using form SW-105. An annual inspection ensures that any problems are identified early. Any issues will be input as a work task in the TRIRIGA system

Table 6-2
List of Structural BMPs at Malmstrom AFB

Location	Type of Structural BMP	Water Quality Benefit
Outfall 3	Extended detention basin ¹	Storage and slow release of storm water allows sediment particles to settle out.
Ponds 1 and 2 near 10 th Avenue North	Extended detention basin ¹	Storage and slow release of storm water allows sediment particles to settle out.
Flight line, southern side ²	Detention/retention ponds and MS4 inlet vault at eastern end	Soil and vegetation filter and remove pollutants.
Powwow Pond	Wet detention pond	Storage and slow release of storm water allows sediment particles to settle out.
Pond at Grizzly Bend Club	Detention pond/vegetated area	Storage and slow release of storm water allows sediment particles to settle out while soil and vegetation filter and remove pollutants.
Pond by Bldg. 1012 (Fitness Center)	Small detention pond/vegetated area	Storage and slow release of storm water allows sediment particles to settle out while soil and vegetation filter and remove pollutants.
Near Bldg. 1201 (Sun Plaza Park)	Small detention basin/vegetated area	Storage and slow release of storm water allows sediment particles to settle out while soil and vegetation filter and remove pollutants.
Parking lots and vegetated ground on north side of Flightline Road between 73rd and 74th Street North.”	Detention basin/vegetated area	Storage and slow release of storm water allows sediment particles to settle out while soil and vegetation filter and remove pollutants.
Base Exchange (BX) Parking Lot	Extended detention basin ¹	Storage and slow release of storm water allows sediment particles to settle out while soil and vegetation filter and remove pollutants.
Tactical Response Facility (TRF) **Active as of Dec 2020**	Vegetated swale and extended detention basin ¹	Removed settleable solids in the swale and evapotranspire into vegetation. Detention basin will settle solids and infiltrate storm water.
Missile Maintenance Dispatch Facility (MMDF) **Under Construction**	Hydrodynamic separator	Designed to remove 80% total suspended solids per manufacturer’s specifications

¹ An extended detention basin is a sedimentation basin designed to totally drain dry after storm water runoff ends.

² Note that flight line is currently shutdown except for helicopter traffic.

7.0 CONTROL MEASURE 6: POLLUTION PREVENTION AND GOOD HOUSEKEEPING FOR BASE MUNICIPAL OPERATIONS

The goal of this measure is to ensure existing Malmstrom AFB operation and maintenance practices are performed in ways that will minimize storm water pollutants discharged by Base activities.

Base Agency or Staff Responsible for Implementation

341 CES/CEIE, 341 CES/CEO, 341 CES/CENME, 819 RHS

Minimum Permit Requirements

MCM 6 of the MS4 General Permit states that each permittee must, *“develop and implement an operation and maintenance program which includes a training component, and has the goal of preventing or reducing pollutant runoff for permittee operations.”*

Program Strategy and Decision Process

Malmstrom AFB has evaluated and revised existing Base pollution prevention and good housekeeping programs to include BMPs designed to protect storm water. This includes reviewing current good housekeeping programs and associated BMPs for the Industrial General Permit. The BMPs and inspection protocols developed for those permits have been expanded to include all municipal-type activities at the Base, including park and open-space maintenance, residential street maintenance, sidewalk maintenance, recreational area maintenance, and road repair and maintenance.

Program Tasks and Associated BMPs

Malmstrom AFB has numerous existing BMPs that help meet good housekeeping requirements for the MS4 permit. Many of the BMPs developed for the Industrial SWPPP also apply to this SWMP. BMPs are in place for:

- Operations and Maintenance activities (e.g. maintaining clean work environments, understanding spill cleanup procedures, completing inspections for leaks);
- Materials Storage Practices (e.g. provide adequate aisle space for material transfer and access for inspection, store containers away from direct traffic routes); and
- Material Inventory Controls (e.g. implementation of a hazardous material pharmacy for managing hazardous wastes, implementation of a hazardous waste recovery and recycling program).

341 CES/CEIE and other offices maintain preventative maintenance and visual inspection programs for the following areas that require facility inspections to uncover potential issues that could lead to storm water contamination:

- Aboveground and underground storage tanks
- Hazardous waste accumulation points
- Hazardous materials storage areas
- Loading and unloading areas
- Oil and water separators
- Catch basins, storm water inlets, channels, slide gates, and other structural BMPs
- Street clean-up and sweeping

Malmstrom AFB conducts comprehensive annual site compliance evaluations under the Industrial SWPPP. Areas are inspected to:

- Identify evidence of, or potential for, pollutants entering the storm water drainage system;
- Determine if measures to reduce pollutant loading are adequate and properly implemented;
- Determine if additional controls are needed or if existing structural control measures are operating correctly; and
- Visually determine status of pollution prevention equipment (i.e., spill response equipment).

The Base SWMC will evaluate the comprehensive inspection program and modify if necessary to ensure it includes inspections of all municipal-type operations annually. Table 7-1 summarizes the BMPs, measurable goals, and implementation schedules. Table 7-2 provides a list of Base-owned or operated potential pollutant sources.

Table 7-1
Pollution Prevention and Good Housekeeping, MS4 General Permit MCM 6

BMPs		Measurable Goals	
F. Pollution Prevention and Good Housekeeping for Base Operations			
F.1	Inventory permittee-owned or operated facilities and activities that have potential to release contaminants to the MS4 system. Develop standard operating procedures (SOPs).	F.1.a	Create inventory of facilities and activities that contribute to storm water pollution. Review annually.
		F.1.b	Develop map of facilities and activities listed in the inventory. Update annually based on inventory.
		F.1.c	Categorize facilities and activities and develop SOPs for each category. Inspect 2 facilities in each category prior to SOP finalization.
		F.1.d	Develop training for each facility and activity category in the permit year the SOP is developed.
		F.1.e	Conduct annual training for staff implementing SOPs.
F.2	Annual storm water awareness training for Base personnel.	F.2	Base personnel participate training listed in Table 8-1.
F.3	Evaluate existing storm sewer inspection, maintenance, and cleaning procedures.	F.3	Summarize existing storm drain and ditch inspection, maintenance, and cleaning procedures.
F.4	Continue to implement street sweeping and minimal road salting and sanding practices.	F.4	Summary report of street sweeping hours, record quantity of road salt and sand used.
F.5	At least semi-annual outfall trash cleanup at Outfalls 1 and 2	F.5	Grounds maintenance contractor charged with cleaning up trash cleanup and Outfalls 1 and 2.

Table 7-2
Base-Owned/Operated Potential Pollutant Sources, MS4 General Permit MCM 6

Shop/Office	Shop Name	Responsibility	Activities	Potential Pollutants
219 RHS/DOP 819 RHS/DOP	Airfields	Shop Supervisor	Heavy equipment construction, deployable	Petroleum products, sediment, vehicle fluids
819 RHS/DOSP 819 RHS/DOSEA	Power Pro	Shop Supervisor	Generator operations/maintenance, deployable	Petroleum products
341 CES/CEOES	Grounds Maintenance Contractor	Shop Supervisor	Landscape maintenance	Petroleum products
341 CES/CEOHP	Pavements and Maintenance (Horizontal)	Shop Supervisor	Heavy equipment construction, snow removal	Petroleum products, sediment, vehicle fluids
341 LRS/LGRMSF	Fuels Maintenance Contractor	Shop Supervisor	Bulk fuel tank maintenance and delivery	Petroleum products
341 LRS/LGRV	Truck Tractor Maintenance	Shop Supervisor	Large vehicle maintenance	Petroleum products, vehicle fluids
341 LRS/LGRV	Vehicle Maintenance	Shop Supervisor	Light vehicle maintenance	Petroleum products, vehicle fluids
582 HG/MXOO	Helicopter Maintenance Contractor	Shop Supervisor	Helicopter maintenance and refueling	Petroleum products
819 RHS/DOSMS	Structures	Shop Supervisor	Carpentry	Outdoor storage, floatables
819 RHS LGVM	Vehicle Maintenance	Shop Supervisor	Heavy equipment maintenance	Petroleum products, vehicle fluids

8.0 TRAINING REQUIREMENTS

Part II.B of the General Permit states that the permittee must conduct training for all staff involved in storm water management. The Base currently trains shops covered under the Industrial Storm Water Permit as well as those shops who are involved in municipal operations. Training presentation are available for the requirements listed in Table 8-1 below. The training is updated regularly by the storm water team to effectively target key audiences.

Training is broken down in to two categories; Types A and B. Type A training is focused on storm water personnel that work in CES/CEIE. Personnel involved with storm water management will utilize MDEQ-sponsored training in the form of the SWPPP Administrator course. For Malmstrom-specific requirements, personnel will review specific presentations and guidance documents set forth by the SWMC.

Type B training is provided to base personnel by the SWMC. The SWMC will contact each shop supervisor on a quarterly basis to obtain a list of personnel for training. The SWMC will then coordinate training sessions for any new or overdue employees. All new employees will receive their specified training within 90 days.

Table 8-1
Training Requirements

Training	Audience	Frequency	Training Type
Construction Site Storm Water Management	Construction Plan Reviewers & Inspectors	Permit Year 1 & 4	A
Post-Construction Storm Water Management	Post-Construction Plan Reviews and Inspectors	Permit Year 1 & 4	A
Comprehensive	SWMP Team	Permit Year 1	B
Awareness	Permittee Field Staff	Permit Year 1 & 4	B
SOPs	Shop Staff Responsible for SOP Implementation	Annual	B

9.0 MONITORING AND TOTAL MAXIMUM DAILY LOAD

Self-Monitoring

Sampling is required for all permittees under the MS4 General Permit. Malmstrom AFB will begin self-monitoring 1 January 2018. Four monitoring locations will be monitoring semi-annual for a total of eight samples per year.

The SWMP Coordinator will prepare a self-monitoring sampling plan to meet the monitoring requirements and parameters listed in Part IV, Table 1 of the Permit. Testing procedures will comply with 40 CFR 136.

TMDL Sampling

Malmstrom AFB currently does not discharge into a waterbody with an approved total maximum daily load (TMDL). The Base will continue to monitor TMDL development and meet the requirements in General Permit Part III once a TMDL is approved.

Pre-TMDL Impairment Information

All of Malmstrom AFB's storm water outfall discharge to the Missouri River between Rainbow Dam and Morony Dam. This reach of the Missouri River is impaired for arsenic, copper, polychlorinated biphenyls (PCBs), sedimentation/siltation, temperature, and turbidity.

In accordance with MS4 Permit, Part III.A, Malmstrom must address the impairments that are required to be monitored under MS4 Permit, Part IV, Table 1. The two parameters that Malmstrom must address are copper and Total Suspended Solids (TSS) as a measure of sedimentation/siltation and turbidity.

Based on Montana's Clean Water Act Information Center, copper is likely to come from abandon mine lands, contaminated sediments and industrial point source discharge. Malmstrom does not have any specific processes or storage areas that would contribute copper to the storm water system. Therefore, Malmstrom is not actively addressing copper in storm water. Malmstrom will continue to monitor its activities and processes to determine if there is a source of pollution.

Table 9-1 describes Malmstrom's BMPs that target sedimentation/siltation and turbidity.

Table 9-1
Pre-TMDL Impairment Reduction BMPs

MCM	BMP	Impact
Public Education and Outreach	A.1, A.2, A.3, A.4, A.5	The public education and outreach BMPs are aimed at increasing awareness and providing information to base residents and personnel. The base website provides information on what storm water is and the associated pollutants, such as sediment. Housing residents are also given a brochure upon arrival to learn about prohibited activities that affect storm water.
Public Involvement and Participation	B.1, B.2, B.3, B.4, B.5	The public involvement BMPs focus on raising awareness to both base residents and personnel. Also, by involving volunteers in activities such as inlet marking, it increases awareness to the volunteers as well as housing residents. The base public website is a central repository to allow people to learn more about storm water and pollutants, such as sediment.
Illicit Discharge Detection and Elimination	C.1, C.5, C.6, C.7	The illicit discharge BMPs are aimed at stopping a pollutant discharge and how to remedy the situation. Malmstrom has identified construction dewatering and vehicle washing as frequent and significant non-water discharge that specifically contribute to sediment discharge.
Construction Storm Water Management	D.1, D.2, D.3, D.4, D.5, D.6, D.7	The construction BMPs all target sediment discharge. Sediment is the most probable pollutant to runoff from a construction site. Malmstrom reviews all work requests that require ground disturbance to determine if any sediment control measures are necessary. For larger projects, a SWPPP is required through DEQ. 341 CES/CEIE reviews the SWPPP and conducts inspections of these sites throughout the year to address storm water concerns.
Post-Construction Storm Water Management	E.1, E.1, E.3, E.4, E.5	The post-construction BMPs are focused on reducing erosion and sedimentation. For regulated project, Malmstrom occasionally relies on 80% Total Suspended Solids (TSS) removal to meet the MS4 requirements due to local soil conditions. Through the post-construction feature inspections, Malmstrom can identify erosion and excess sediment issues and remedy them.
Pollution Prevention and Good Housekeeping	F.1, F.2, F.3, F.4	The pollution prevention BMPs target sedimentation through training and maintenance functions. Street sweeping is critical in removing gravel and fine sediment from winter road sanding. The SOPs created under the Industrial SWPPP requirements address action that can reduce sediment loading from these facilities. The Industrial SWPPP facilities also receive extensive training that goes through the impacts of storm water pollutants.

10.0 REPORTS TO MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Malmstrom AFB's SWMC will prepare and submit an annual storm water management report to MDEQ by March 1st of the following calendar year. Any additional information requested by the MDEQ will be submitted with the report. The report will be signed and certified in accordance with Parts IV.F of the General Permit. The principal executive officer or ranking elected official or duly authorized representative will sign the annual report per Pat VI.2.G.

Required Report Content

The basic content requirements of annual reports submitted to the MDEQ include:

- Status of compliance with permit conditions; an assessment of the BMP appropriateness; progress toward achieving the goal of reducing the pollutant discharge to the maximum extent practicable; and progress toward achieving the measurable goals for the six minimum control measures. Refer to Attachment 3 for a comprehensive list of reporting years and details.
- Results of information collected and analyzed (if any) during the reporting period, including the monitoring data evaluation used to assess the program success at reducing pollutant discharge to the maximum extent practicable.
- A summary of storm water activities and implementation schedule planned for the next reporting cycle (i.e., construction projects, waste pick-up, and recycling activities).
- A summary of SWMP updates, changes, or improvements made during the prior calendar year, as an attachment to the annual report.
- Copies of storm sewer system maps included with the annual report if the map was developed or modified during the previous calendar year.

Noncompliance Reporting

If any serious incident affecting storm water is detected, Malmstrom AFB will immediately notify the MDEQ Water Protection Bureau at (406) 444-3080 within 24 hours. After hours reporting will be made to the Office of Disaster and Emergency at (406) 324-4777.

A written report of the noncompliance will be submitted to the Water Protection Bureau within five days of the incident.

11.0 REFERENCES

TPMC-ARM Environmental Solutions LLC 2014. Storm Water Management Program Plan; Malmstrom Air Force Base. December, 2014.

DOD Implementation Guidance for the Storm Water Phase II Regulation. United States Department of Defense. September 2000.

Stormwater Phase II Final Rule and Factsheets. United States Environmental Protection Agency, Office of Water, EPA 833-F-00-001, January 2000 (revised December 2005).

National Database of BMPs. January 2005. Accessed online at <http://www.bmpdatabase.org/>

Stormwater Best Management Practice Design Guide. United States Environmental Protection Agency, Office of Research and Development, EPA/600/R-04/121, September 2004.

Non-Point Source Toolbox. United States Environmental Protection Agency. Last Updated March 2017. Accessed online at <https://cfpub.epa.gov/npstbx/>

Water Resources Education Resources. United States Geological Survey. October 2014. Accessed online at <https://water.usgs.gov/education.html>







NOTE: USEPA frequently updates and/or replaces webpages and their content. If webpage does not work, the reference name can be searched.

ATTACHMENT 1
MALMSTROM AFB MAPS

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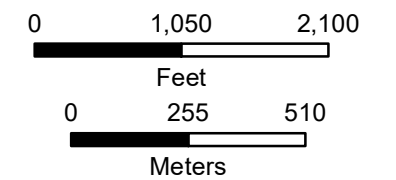
Storm Water System and Outfalls

Legend

-  Outfalls
-  Storm Inlet
-  Storm Manhole
-  Storm Culvert
-  Storm Main Line
-  Post - Construction BMP

Drainage

-  1
-  2
-  3
-  4
-  5
-  6
-  7
-  8
-  9
-  Building
-  Structure
-  Installation Area



February 2021

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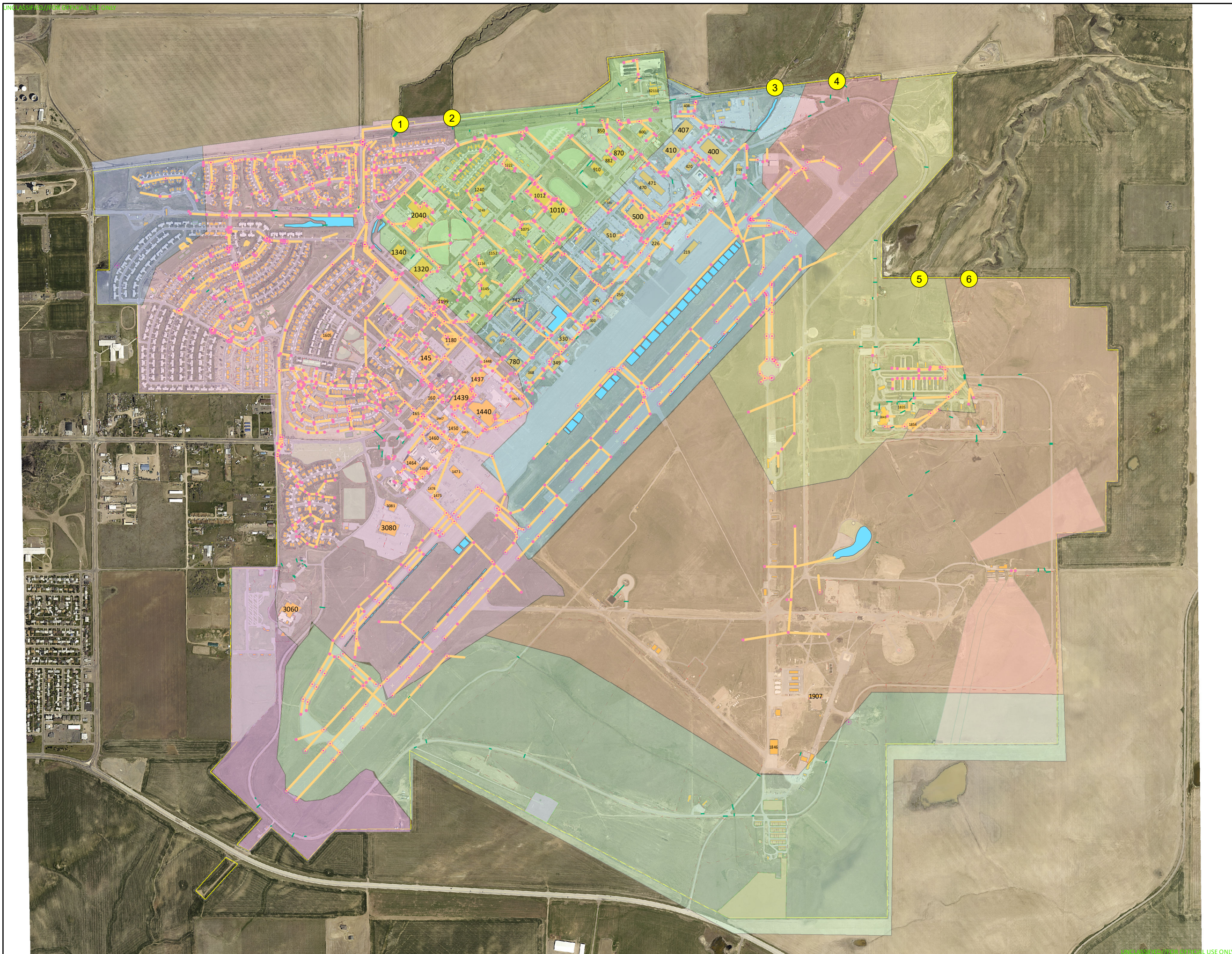


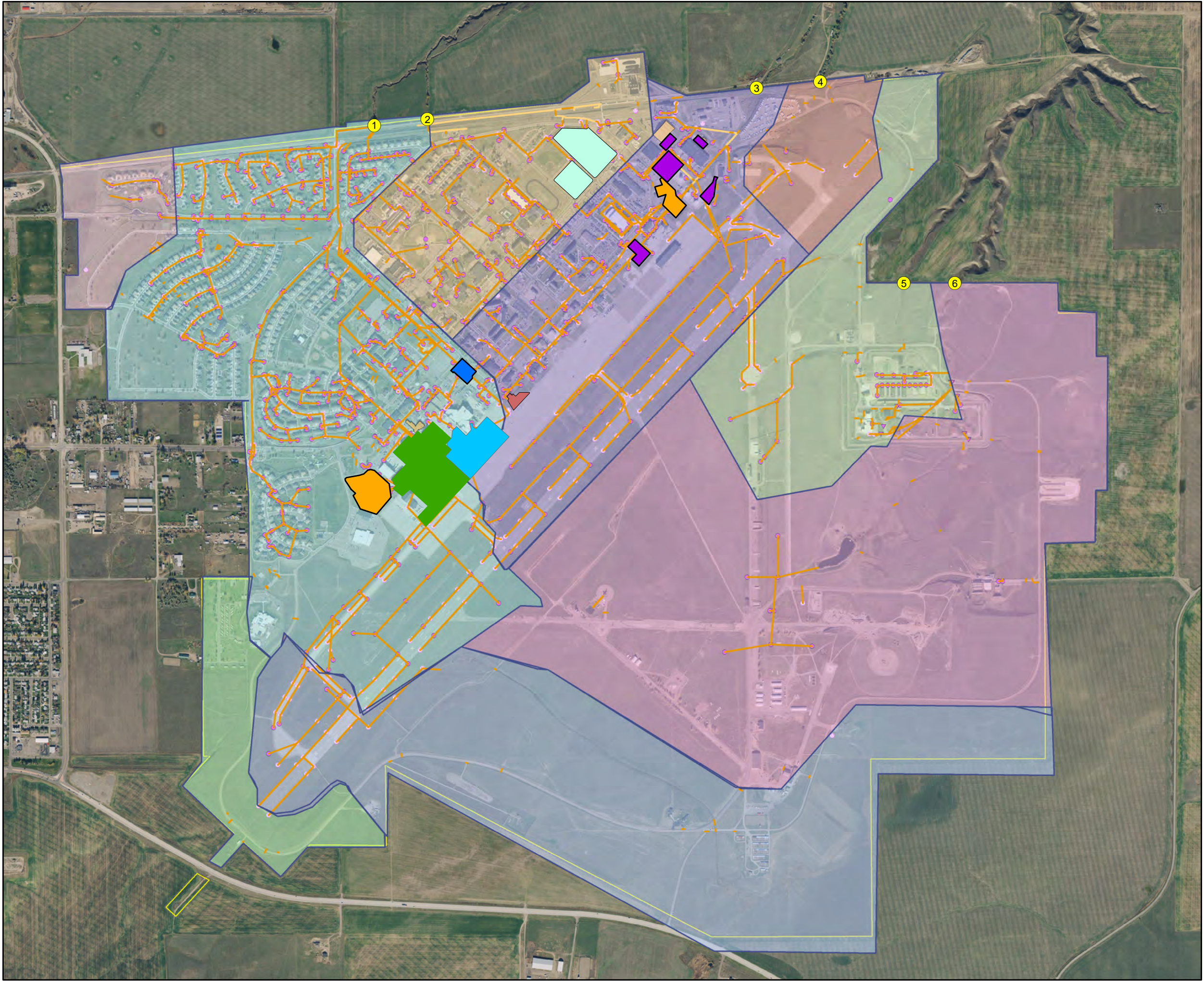
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DSN: 632-7249




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Legend


 Outfalls

 Storm Sewer Pipelines










 Storm Manhole

 Storm Inlet






 Installation Area

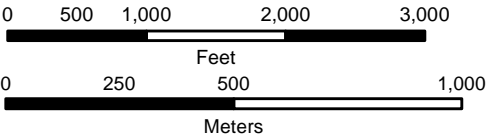
 IndustrialBldgs

Drainage Areas

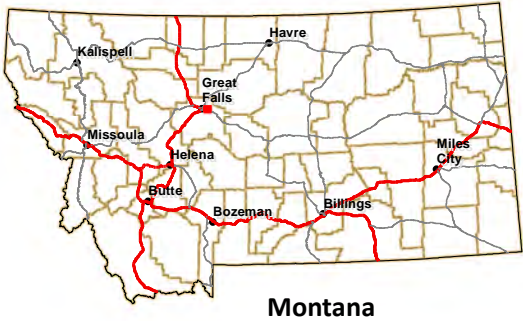
 1	 4	 7
 2	 5	 8
 3	 6	 9

Industrial Facilities


-  341 LRS/LGRV Truck Tractor Maintenance Facility
-  341 LRS/LGRV Vehicle Maintenance Facilities
-  341 LRS/LGRMSF Fuels Management Facilities
-  819 RHS/LGRVM Vehicle Maintenance
-  Grounds Maintenance Contractor
-  Pavements and Maintenance (Horizontal) Facilities
-  582 HG/MXOO Helicopter Maintenance Contractor



Pg. 1 of 6



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ATTACHMENT 2
STORM WATER MANAGEMENT TEAM
ORGANIZATIONAL CHART

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Storm Water Management Program (SWMP) Team

Team Members

Storm Water Management Coordinator (SWMC) (341 CES/CEIE)

- Appointed by 341 CES/CEIE, Environmental Element Chief
- Responsible for implementing permit requirements
- Compile data and submit annual report
- Review and update the SWMP
- Project review and comment

Heavy Equipment Shop (341 CES/CEOHP)

- Street Sweeping
- Inlet clean out
- Minor construction or earthwork projects

Project Engineering (341 CES/CEN)

- Large construction projects
- Ensures money is programmed for storm water requirements
- Involves SWMC in project design reviews

GeoBase Office (341 CES/CENME)

- Update base map with surveys or construction

Contracting (341 CONS)

- Administers construction contracts
- Ability to stop work if a violation occurs
- Enforces contract specifications

Balfour Beatty Communities (BBC)

- Street sweeping in housing areas
- Enforces illicit discharges in housing areas
- Distributes storm water brochures to housing residents

RED HORSE (819 RHS)

- In-house construction design and execution
- Involves SWMC in project designs that involve earthwork

Base Legal Office (341 MW/JA)

- Provide legal counsel for potential or pending issues
- Involved for serious non-compliance incidents

Public Affairs (341 MW/PA)

- Malmstrom website administrators
- Point of contact for public complaints

Training:

In accordance with the MS4 General Permit, all members of the SWMP Team must complete comprehensive storm water training. Contact the SWMC for more information.

SWMP Team Responsibilities

MCM	Section	SWMC	CEOHP	CEN	CENME	CONS	BBC	819 RHS	MW/JA	MW/PA
1	a.i.	✓								
	a.ii.	✓								✓
	b.i.	✓								
	c.i.	✓								
	c.ii.	✓					✓			✓
2	a.i.	✓								
	a.ii.	✓								
	b.i	✓								✓
3	a.i.	✓								
	b.i.	✓								
	b.ii.	✓							✓	
	c.i.	✓			✓					
	d.ii.	✓				✓	✓		✓	
	d.iii.	✓								
	d.iv.	✓								
	d.v.	✓				✓			✓	
	e.i	✓								
	e.ii.	✓								
	e.iii	✓								
	f.i.	✓							✓	
	f.ii	✓							✓	
	f.iv.	✓								✓
4	a.ii.	✓		✓		✓		✓		
	a.iii.	✓		✓		✓		✓		
	a.iv.	✓				✓				
	b.iii.	✓								
	c.ii	✓								
	c.iii.	✓								
	c.iv.	✓		✓				✓		
	c.v.	✓								
5	a.ii.	✓		✓		✓		✓		
	a.iii.	✓		✓		✓		✓		
	a.iv.	✓				✓				
	b.ii.	✓								
	b.iii.	✓		✓		✓		✓		
	c.ii.	✓								
	c.iii.	✓								
	c.v.	✓								
	c.vi.	✓								
	c.viii.	✓								
	d.i	✓	✓	✓		✓	✓	✓		
6	a.i	✓								
	a.ii.	✓			✓					
	a.iii	✓								
	a.iv.	✓								
	a.v.	✓								

ATTACHMENT 3
MCM/BMP IMPLEMENTATION GUIDE

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MCM/BMP Implementation Guide

NOTES:

X = Implement these Best Management Practices (BMPs) by the end of this calendar year. Provide information in the Annual Report except for the starred (*) items.

* The Montana General Permit has no explicit reporting requirement for these BMPs. However, CES/CEIE will maintain documentation in case MDEQ requests information.

Montana MS4 General Permit			Malmstrom AFB SWMP		Implementation Year				
MCM	BMP	Description	BMP	Description	2017	2018	2019	2020	2021
1. Public Education and Outreach	1.a.i	Determine “Key Target Audiences”	A.1.a	Develop rationale and analyze businesses or residential behaviors for common illicit discharges, spills, and dumping. List the pollutants of concern for each target audience.	X				
	1.a.ii	Develop a web site*	A.2, B.3	Develop and advertise a storm water website. Include current permit, SWMP, annual reports, outreach material, construction guidance, illicit discharge identification, and reporting procedures.	X				
	1.b.i	Use web site for Public Outreach	A.2	Develop and advertise a storm water website. Include current permit, SWMP, annual reports, outreach material, construction guidance, illicit discharge identification, and reporting procedures.		X			
	1.c.i	Develop and use outreach strategies tailored to the audience	A.1.b	Based on A.1.a, update and develop outreach messages and distribution channels for target audiences		X			
	1.c.ii	Distribute outreach materials to the target audience.	A.3 A.4 A.5	Conduct outreach to on-base businesses, Commissary, and Base Exchange (BX) to minimize illicit discharges to the storm drains. Distribute educational brochure for military family housing. Publish a semi-annual storm water article in the Base newspaper.			X	X	X
2. Public Involvement and Participation	2.a.i	Identify approaches to get public participation in storm water concerns.	B.1	Identify approaches for involving target audience.	X				
	2.a.ii	Implement the approaches that have potential to succeed.	B.2 B.5 B.6	Implement identified involvement approaches for target audience. Coordinate annual storm drain marking program. Participate with city of Great Falls in annual May-April Clean-Up Day		X	X	X	X
	2.b.i	Develop a web site that allows for public participation, input, and comments. *	A.2, B.3	Develop and advertise a storm water website. Include current permit, SWMP, annual reports, outreach material, construction guidance, illicit discharge identification, and reporting procedures.	X				
3. Illicit Discharge, Detection, and Elimination (IDDE)	3.a.i	List non-allowable non-storm water discharges, potential pollutants, and their controls.	C.1 Table 4-1	Identify non-storm water discharges that are significant contributors of pollutants	X	X	X	X	X
	3.b.i	List allowable non-storm water discharges and why they're OK.	Table 4-2	Create or update List of Allowable Non-Storm Water Discharges at Malmstrom AFB	X	X	X	X	X
	3.b.ii	Prohibit non-allowable non-storm water discharges. *	C.2.a	Enact Base policy or procedures to reduce occasional, incidental discharges with significant pollutant load.		X			

Montana MS4 General Permit			Malmstrom AFB SWMP		Implementation Year				
MCM	BMP	Description	BMP	Description	2017	2018	2019	2020	2021
	3.c.i	Create and update a MS4 system map. *	C.3	Update storm water map showing storm sewers, drainage patterns, and outfalls and incorporate map into Base GIS system Incorporate mapping, inspection, and review of previously completed sanitary sewer system inspection reports to identify possible leaks or spills to the storm system. See also F.1.b.	X				
	3.d.ii	Adopt official IDDE prohibition mechanisms.	C.2.a C.2.b	Enact Base policy or procedures to reduce occasional, incidental discharges with significant pollutant load. Enact Base policy and contractual specifications prevent significant amounts of pollutants into the MS4 system.		X			
	3.d.iii	Coordinate and collaborate with neighboring MS4s.	Sec. 4.5	Malmstrom does not currently discharge to a neighboring MS4.		X			
	3.d.iv	Develop formal Enforcement Response Plan (ERP).	C.5	Develop ERP to describe illicit discharge investigation and enforcement responsibilities.		X			
	3.d.v	Implement IDDE ERP. *	C.5	Develop and implement ERP for base employees and contractors		X			
	3.e.i	Perform dry weather flow inspections. *	C.1 C.6	Identify potential illicit connections or other sources of non-storm water flow by conducting dry-weather screening investigations of the storm system. Inspect and screen high priority outfalls during dry weather. Conduct annually.	X	X	X	X	X
	3.e.ii	Determine high-priority outfalls	C.6	Inspect and screen all outfalls at least semi-annually using Form SW-102. NOTE: Malmstrom has six outfalls, total. Four are high-priority.		X	X	X	X
	3.e.iii	Inspect high-priority outfalls	C.6	Inspect and screen high priority outfalls during dry weather. Conduct annually.			X	X	X
	3.f.i	Develop IDDE Corrective Action Plan	C.7.a	Develop and implement illicit discharge investigation and corrective action plan. This will be included as part of the ERP once it is developed.	X				
	3.f.ii	Implement IDDE Corrective Action Plan*	C.7.a C.7.b	Develop and implement illicit discharge investigation and corrective action plan. This will be included as part of the ERP once it is developed. Document the number of investigation and corrective actions.		X			
	3.f.iv	Maintain, analyze, summarize IDDE actions, documentation	C.7.b	Document the number of investigation and corrective actions.		X	X	X	X
4. Construction Storm Water	4.a.ii	Adopt official construction storm water policies.	D.1 D.2	Implement policy that requires all site plans to incorporate runoff control measure specifications to all construction projects, regardless of size Develop boilerplate contractual specifications referencing 013600 "Environmental Protection" specification and ECAMP for permits and erosion control plans and language covering construction waste and sanitary waste management			X		
	4.a.iii	Develop formal ERP for construction sites. Submit ERP copy with the Annual Report.	D.3 a D.3 b	Develop an ERP for construction site storm water management Submit ERP to MDEQ as part of the annual report.	X				
	4.a.iv	Implement construction site ERP. *	D.3.c	Implement the construction site ERP				X	

Montana MS4 General Permit			Malmstrom AFB SWMP		Implementation Year				
MCM	BMP	Description	BMP	Description	2017	2018	2019	2020	2021
	4.b.iii	Develop and implement design plan review and Storm Water Pollution Prevention Plan (SWPPP) processes.	D.1.a D.5	341 CES/CEIE will review all site plans and document the number of reviews in the annual report. Implement and review the AF Environmental Impact Analysis Process, (32 CFR 989) for all projects that may significantly impact storm water.	X				
	4.c.ii	Develop construction site inspection checklist.	D.4	Continue to develop plan review and inspection procedures to address construction storm water requirements, and include procedures for notifying contractors and others about the storm water requirements	X				
	4.c.iii	Implement construction site inspections. *	D.4.a	Develop and implement plan review and inspection procedures	X				
	4.c.iv	Develop and maintain a formal construction project inventory. *	D.6	Develop and maintain an inventory of regulated construction projects.	X				
	4.c.v	Develop inspection frequency. *	D.6	Develop inspection frequency and protocol.	X				
5. Post-Construction Storm Water	5.a.ii	Adopt official post-construction storm water policies.	E.2	Develop policies or procedures to enforce post-construction storm water requirements				X	
	5.a.iii	Develop formal Post-Construction Storm Water ERP.	E.1.c E.3	Construction sites in violation of erosion policy tracked, with follow-up under the ECAMP, as described in Section 4.3. Develop an ERP for post-construction site storm water management				X	
	5.a.iv	Implement ERP.	E.3.b	Implement post-construction ERP.					X
5. Post-Construction Storm Water	5.b.ii	Develop design plan review checklist.	E.1.b	Checklists for plan reviewers and construction inspectors are included in Form SW-103 and SW-101, respectively.	X				
	5.b.iii	Ensure designs infiltrate, evapotranspire, re-use the first 0.5" of runoff.	E.4.a E.4.b	341 CES/CEIEC will review work orders and project plans to ensure compliance with this requirement. The Annual Report will summarize the number of plans reviewed during the year. Develop criteria to evaluate projects that cannot meet 100% of the runoff reduction requirement.	X				
	5.c.ii	Develop, implement post-construction BMP inspection forms, procedures.	E.6 E.5	Develop and implement new and existing post-construction BMP inventory and inspection frequency. Develop and implement post-construction inspection form.		X			
	5.c.iii	Develop and maintain inventory for new post-construction BMPs. *	E.5	Develop and implement new and existing post-construction BMP inventory and inspection frequency.		X			
	5.c.v	Develop and maintain inventory for existing post-construction BMPs	E.5 Table 6-2	Develop and implement new and existing post-construction BMP inventory and inspection frequency. List of Structural BMPs at Malmstrom AFB			X		
	5.c.vi	Develop protocol for determining post-construction inspection frequency for "high-priority" sites.	E.6.a	Develop criteria and inspection frequency for high priority post-construction BMPs.		X			
	5.c.vii i	Inspect "high-priority" post-construction BMPs. *	E.6.b	Inspect high priority post-construction BMPs annually.			X	X	X
	5.d.i	Evaluate barriers to LID in collaboration with other staff.	E.7	Annually review construction site inspection reports and update database of successful BMPs, new policies, and LID technologies.				X	

Montana MS4 General Permit			Malmstrom AFB SWMP		Implementation Year				
MCM	BMP	Description	BMP	Description	2017	2018	2019	2020	2021
6. Pollution Prevention and Good Housekeeping	6.a.i	Create and maintain an inventory of potentially polluting facilities. *	F.1.a	Create inventory of facilities and activities that contribute to storm water pollution. Review annually.	X	X	X	X	X
	6.a.ii	Create and update a map of potentially polluting facilities. *	F.1.b	Develop map of facilities and activities listed in the inventory. Update annually based on inventory. See also C.2, C.3		X	X	X	X
	6.a.iii	Categorize potentially polluting facilities and develop Standard Operating Procedures (SOPs)	F.1.c	Categorize facilities and activities and develop SOPs for each category. Inspect 2 facilities in each category prior to SOP finalization.		X	X	X	X
	6.a.iv	Develop SOP training. *	F.1.d	Develop training for each facility and activity category in the permit year the SOP is developed.		X	X	X	X
	6.a.v	Implement SOP training. *	F.1.e	Conduct annual training for staff implementing SOPs.			X	X	X

ATTACHMENT 4

FIELD DATA FORMS AND PROCEDURES

SW-101: Malmstrom AFB Construction SWPPP Plan Review/Inspection Checklist

SW-102: MS4 Storm Sewer Outfalls

SW-103: Malmstrom AFB Plan Review Procedures

SW-104A: Post-Construction Storm Water Requirements Flowchart & Offsite Treatment Evaluation

SW-104B: Post-Construction Storm Water Offsite Treatment Criteria

SW-105: Malmstrom Post-Construction Feature Annual Inspection Checklist

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SW-101:MALMSTROM AFB CONSTRUCTION SWPPP PLAN REVIEW/INSPECTION CHECKLIST

Project Name					
Date:		Time:		Contractor name	
Job Superintendent/site representative:				Phone(s), e-mail:	
341 CES project manager (name):				341 CES project inspector (name):	
Contracting authority (check one):	341 CES	USACE	Other	USACE/other project inspector (name):	
Checklist filled out by (print name):				Signature	

SWPPP Plan Review Checklist		
Description	Complete?	Comments
1. Describes the project location (address, lat/long, etc)		
2. Description of Project Activity		
3. Describes site acreage, disturbed area, and existing impervious area		
4. Identifies site features		
a. Limits clearing and grading		
b. Existing vegetation delineated		
c. Existing and proposed topography		
d. Existing and proposed runoff direction		
e. Description of outfalls and surface waters		
f. Plan includes adequate phasing		
g. Stockpile locations, staging areas, and access points identified		
h. Identifies dumpsters, porta-potties, concrete washout locations		
5. Copy of NOI and SWPPP as submitted to DEQ		
6. Copy of SWPPP Administrator Certificates		
7. Establishes inspection frequency		
8. Complies with EISA Section 438 requirements		
9. Complies with MS4 retention requirements		
10. Adequately addresses revegetation/final stabilization		

Notes:

Inspection General Information			
Temp (F)		NOI/MT DEQ Confirmation/Permit on-site?	
Weather (windy, rainy, etc)		Site map up-to-date?	
Recent 0.25" rain events (list)		Most recent SWPPP revision	
Acres disturbed		Most recent inspections	

Construction Site Storm Water Details			
Requirement	SWPPP	Field	Comments
Erosion and Sediment Controls (General Permit Section 2.1.1)			
a. Selects and designs BMPs to address peak precipitation and runoff expected at the site			
b. Implements/installs all BMPs with good engineering practice and design specifications			
c. Implements/installs BMPs before and after each major construction activity			
d. Minimizes erosion within the project area			
e. Diverts runoff from disturbed areas to sediment removal BMPs			
f. Minimizes sediments discharge from project area			
g. Maintains BMPs in effective operating condition			
h. Minimizes erosion at outlets and conveyance channels			
i. Protects all storm drain inlets			
j. Manages/minimizes vehicle entrance/exits to the site			
k. Stabilizes ditches, swales, and channels			
l. Constructs retention/detention facilities during initial grading			
m. Provides surface outlets for retention/detention facilities			
n. Protects infiltration facilities from sedimentation during construction			
o. Limits areas of disturbance			
p. Provides natural buffer within project site (when feasible)			
q. Designs and construct cut-and-fill slopes to minimize erosion			
r. Diverts storm water away from slopes/disturbed areas			
s. Prevent storm water run on from impacting sediment removal BMPs			
t. Maintains natural buffers around state waters			
u. Directs storm water runoff to vegetated areas			
v. Marks and maintains clearing limits			
w. Preserves topsoil			
Soil Stabilization (General Permit Section 2.1.2)			
a. Stabilizes disturbed areas when work ceases for greater than 14 days			
b. Stabilizes disturbed areas that have been completed			
Dewatering Activities (General Permit Section 2.1.3)			
a. Dewatering activities permitted and managed appropriately			
Pollution Prevention (General Permit Section 2.1.4)			
a. Provide cover/containment for chemicals, petroleum, and wastes			
b. Utilizes spill prevention and controls for vehicle fueling/maintenance			
c. Maintains spill kits, clean up spills, and report immediately			
d. Prevents discharge of wash water and clean-out wastes			
e. Applies fertilizers and herbicides per specifications			
f. Prevents discharges of concrete products			
Prohibited Discharges (General Permit Section 2.1.6)			
a. Concrete washout managed by appropriate controls			
b. Control washout from paints and other chemicals			
c. Manages soap and solvents in vehicle or equipment washing			
d. Prohibits discharges from contaminated soils			

Requirements	SWPPP	Field	Comments
Other requirements			
BMP installation/maintenance match between SWPPP and field (General Permit Section 3.11)			
SWPPP map is of adequate size and detail and is up-to-date (General Permit Section 3.10)			
Identifies and implements inspection frequency (General Permit Section 2.3)			

Notes/Follow-up Method/Date:

Construction Inspection Frequency Worksheet			
Project Name			
Evaluator			
Date			
Criteria	Rating System	Rating Value	Score
Project Size	1 – 3 acres	1	
	>3 acres	3	
Proximity to Outfall	0 – 500 ft	5	
	501 – 1,500 ft	3	
	>1,501 ft	1	
Steepness of Project Site	Flat	1	
	Near 3:1	3	
	>2:1	5	
Discharge to a waterbody impaired for expected pollutants ¹	Yes	3	
	No	1	
Contractor history	No history of complaint	1	
	One complaint	3	
	2+ complaints	5	
Risk of spill/hazardous materials	No hazardous materials	1	
	Non-liquid wastes	3	
	Liquid wastes	5	
¹ Impairments: arsenic, copper, PCBs, turbidity, sedimentation/siltation, temperature			
		Total Score	
Scoring Matrix			
Score	Priority	Inspection Frequency/Protocol	
6 – 9	Low	1/project duration	
10 – 16	Medium	2/project duration	
		Once after 0.25 inch or greater rain event (counts as one of the two)	
17 – 24	High	Once within 48-hours after a 0.25 inch or greater rain event	
		Once within 48-hours after snowmelt erosion	
		Once at project conclusion (prior to finalization)	
INSTRUCTIONS: Based on project details, score each of the criteria sections (Column D). A total score will be calculated (Cell D18). Use the scoring matrix to select the inspection frequency/protocol for the project. Save file under J:\CEI\CEIE\CEIEC\Storm_Water\MS4 SW\MCM 4\Inspections			

An Excel version of this form is available for ease of calculations.

SW-102: OUTFALL DRY WEATHER SCREENING

Background Information				
Date		Time		Inspector
Inspector Signature				

Weather Information			
Ambient Temperature		Wind Speed	
Cloudy/Clear		Wind Direction	
Recent Precipitation*		Snow Melt (y/n)	
*Inspection must occur after at least 48 hours of no measurable precipitation			

Outfall Evaluation	
Indicator	Evaluation
Pipe Condition	<input type="checkbox"/> Spalling, Cracking, Chipping <input type="checkbox"/> Corrosion <input type="checkbox"/> Other:
Pipe Debris (includes trash racks)	<input type="checkbox"/> Trash <input type="checkbox"/> Pipe build-up <input type="checkbox"/> Other:
Outfall Gates	<input type="checkbox"/> Inoperable <input type="checkbox"/> Inadequate seal <input type="checkbox"/> Other:
Inlet/Outlet	<input type="checkbox"/> Excessive vegetation <input type="checkbox"/> Scouring/erosion <input type="checkbox"/> Other:
Vegetation Issues	<input type="checkbox"/> Excessive <input type="checkbox"/> Inhibiting <input type="checkbox"/> Other:
Spill Kit	<input type="checkbox"/> Missing items <input type="checkbox"/> Not labeled <input type="checkbox"/> Items deteriorated <input type="checkbox"/> Other:
Other Notes	

Flow Evaluation						
Flow Present	<input type="checkbox"/> Yes <input type="checkbox"/> No		Water Temperature (°F)		Flow (gpm)*	
Indicator	Present?		Description	Severity Index		
	Yes	No				
Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Sewage <input type="checkbox"/> Rancid/Sour <input type="checkbox"/> Petroleum <input type="checkbox"/> Sulfide <input type="checkbox"/> Other:	<input type="checkbox"/> 1- Faint <input type="checkbox"/> 2- Easily detected <input type="checkbox"/> 3- Noticeable from a distance		
Color	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Brown <input type="checkbox"/> Gray <input type="checkbox"/> Yellow <input type="checkbox"/> Green <input type="checkbox"/> Orange <input type="checkbox"/> Red <input type="checkbox"/> Other:	<input type="checkbox"/> 1- Faint <input type="checkbox"/> 2- Visible in sample bottle <input type="checkbox"/> 3- Visible in flow		
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	See severity index	<input type="checkbox"/> 1- Slight cloudiness <input type="checkbox"/> 2- Cloudy <input type="checkbox"/> 3- Opaque		
Floatables	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Sewage <input type="checkbox"/> Suds <input type="checkbox"/> Oil Sheen <input type="checkbox"/> Other:	<input type="checkbox"/> 1- Barely noticeable <input type="checkbox"/> 2- Noticeable <input type="checkbox"/> 3- Obvious		
Other Sampling Protocols (Optional)						
Parameter		Result		Parameter		Result

*Visual estimate, flow estimation worksheet from Sampling Plan, or flow calculator (J:\CEI\CEIE\CEIEC\Storm_Water\Flow Calculator)

Form continues on next page →

Follow-Up	
Any indication of illicit discharge?	<input type="checkbox"/> Yes <input type="checkbox"/> No If yes, conduct an investigation and document
Work request required?	<input type="checkbox"/> Yes <input type="checkbox"/> No If yes, Work Task#
Other follow-up action?	

Notes:

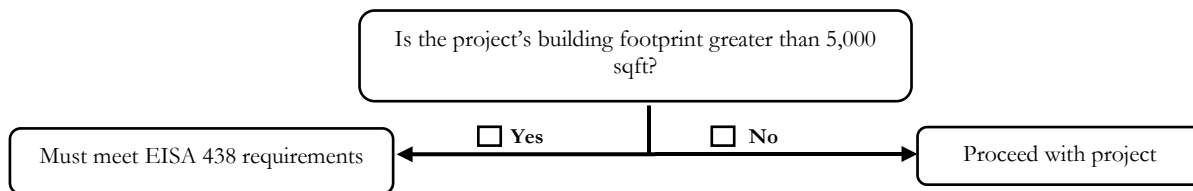
SW-103: Malmstrom AFB Plan Review Procedures

These procedures will be used to ensure storm water issues are adequately addressed in projects submitted for review.

1. Any project or work that occurs on base requires the customer to submit a service request via the TRIRIGA system. This system tracks all work that happens at Malmstrom AFB.
2. 341 CES/CEIE reviews each service request to determine the extent of the work and what impact the work will have on storm water. If a concern is identified, 341 CES/CEIE makes a comment in the TRIRIGA system to notify the customer and whoever is doing the work that there is a concern.
3. Malmstrom AFB must also comply with all National Environmental Policy Act (NEPA) requirements. Each service request must have a categorical exclusion (CATEX) assigned to it before approval. If there are additional environmental concerns, an AF Form 813 must be completed by the customer. If the concerns are unknown, an environmental assessment (EA) or environmental impact statement (EIS) must be completed before the project can start.
4. Typically if the project is anything more than infrastructure maintenance, CE will request funds to have a contractor design and complete the work.
 - a. If the work requires design, the project goes through a series of design reviews (Type A, Type B 50%, and Type B 100%). 341 CES/CEIE receives each design iteration to ensure the design team implements construction and post-construction requirements. 341 CES/CEIE also ensures that the latest Environmental Specification section is included in the design package.
 - b. 341 CES/CEIE ensures that both MS4 and EISA 438 requirements are met. If the project is expected to disturb an area greater than 1 acre, the construction entity is required to obtain coverage under the Construction Storm Water General Permit.
5. Any project that disturbs any amount of ground must submit an AF Form 103, Dig Permit. 341 CES/CEIE is required to identify any final concerns and sign the form before work can begin.
6. For more information, use SW-104, SW-104B, and the associated guidance to determine what retention requirements apply.
7. For construction projects that require a SWPPP, 341 CES/CEIE will use SW-101 for plan review and inspection checklists. Use the Construction Inspection Frequency Worksheet to determine how often to inspect a construction site.

SW-104A: POST-CONSTRUCTION STORM WATER REQUIREMENTS FLOWCHART & OFFSITE TREATMENT EVALUATION

EISA Post-Construction Requirements

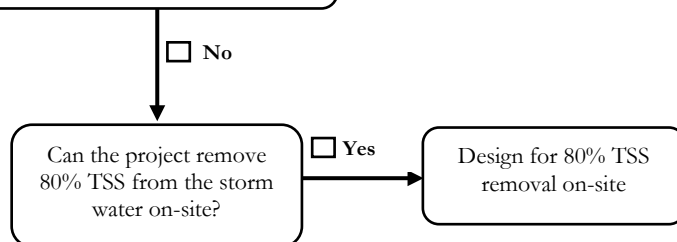
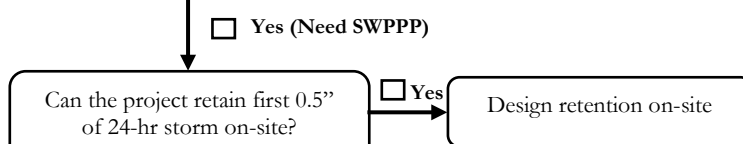


MS4 Post-Construction Requirements

Project Name: _____

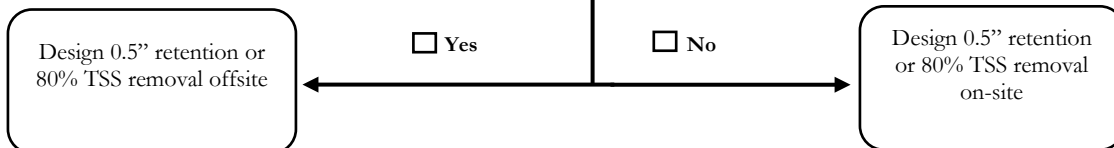
Reviewer: _____

Review Date: _____



Does the project meet any of the following requirements?

- High groundwater
- BASH concerns
- Limited soil infiltration
- Technical or logical infeasibility
- Soil contamination
- Extremely cost prohibitive
- Conflicts with weapon/security requirements



Description of how project will meet requirements:

SW-104B: POST-CONSTRUCTION STORM WATER OFFSITE TREATMENT CRITERIA

Directions: Use this form to determine if post-construction storm water runoff can be treated offsite. Use in conjunction with the post-construction flowchart to determine what requirements apply. This form shall be used if offsite treatment of storm water is desired.

Project Information			
Project Name:			
Description of work:			
Site area (acres):		Impervious surface created or altered (acres):	
Project classification (check all that apply): <input type="checkbox"/> New Development <input type="checkbox"/> Redevelopment <input type="checkbox"/> Residential <input type="checkbox"/> Commercial			
Preferred treatment method:		<input type="checkbox"/> Retention offsite <input type="checkbox"/> 80% Total suspended solids (TSS) removal offsite	
EISA applies? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Regional Facility Considerations			
Regional treatment facility to be utilized:			
Design capacity of regional treatment facility:			
Does the regional treatment facility have adequate capacity? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Technical Considerations			
(Reasons must be explained in Additional Information section)			
High groundwater	<input type="checkbox"/> Yes <input type="checkbox"/> No	Extremely cost prohibitive	<input type="checkbox"/> Yes <input type="checkbox"/> No
Bird Airstrike Hazard	<input type="checkbox"/> Yes <input type="checkbox"/> No	Conflicts with weapon/security	<input type="checkbox"/> Yes <input type="checkbox"/> No
Soil infiltration limited	<input type="checkbox"/> Yes <input type="checkbox"/> No	Technical/logical infeasibility	<input type="checkbox"/> Yes <input type="checkbox"/> No
Contaminated soils	<input type="checkbox"/> Yes <input type="checkbox"/> No	Other (explain)	<input type="checkbox"/> Yes <input type="checkbox"/> No
Additional Information			

SW-105: MALMSTROM POST-CONSTRUCTION FEATURE ANNUAL INSPECTION CHECKLIST

Site Name/ Location		Type of Feature	
Date		Time	
Inspector Name		Signature	

Date of Last Inspection		Current Temp (F)	
Storm water discharging to site?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Current Weather (Rain, Cloudy, etc)	
Storm water discharging from site?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Preceding Precipitation (inches)	
Non-storm water discharges present?	<input type="checkbox"/> Yes <input type="checkbox"/> No If yes, describe:		

Detailed Feature Checklist		
Description	Response	Details/Corrective Actions Needed
1. Excessive sediment deposition	<input type="checkbox"/> Yes <input type="checkbox"/> No	
2. Slopes are stabilized	<input type="checkbox"/> Yes <input type="checkbox"/> No	
3. Inlets/Outlets clear of sediment, trash, and debris	<input type="checkbox"/> Yes <input type="checkbox"/> No	
4. Inlet/Outlet structures are in good condition (no cracking, erosion)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
5. Feature is free of trash and debris	<input type="checkbox"/> Yes <input type="checkbox"/> No	
6. Feature is adequately vegetated	<input type="checkbox"/> Yes <input type="checkbox"/> No	
7. Feature is functioning as designed and intended	<input type="checkbox"/> Yes <input type="checkbox"/> No	
8. Additional storm water control are necessary	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Additional notes		

ATTACHMENT 5
ENFORCEMENT RESPONSE PLAN

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ENFORCEMENT RESPONSE PLAN

Malmstrom Air Force Base (AFB) has developed this Enforcement Response Plan (ERP) to document Base authorities and enforcement actions aimed at eliminating and abating illicit discharges to storm water conveyances during everyday operations; and for construction projects and post-construction efforts. This ERP complies with General Permit:

- Part II.A.3.d.iv for illicit discharges;
- Part II.A.3.f.i for illicit discharge investigation and correction actions;
- Part II.A.4.a.iii for construction storm water management on regulated projects; and
- Part II.A.5.a.iii for installation, operation, and maintenance for post-construction storm water management controls on regulated projects.

Illicit discharges (whether from daily Base activities or construction-related projects) can be categorized as any discharge of a material or substance that can negatively impact the environment. While the Base has several plans that target discharge control for official operations, this ERP targets potential discharges from other non-regulated entities on the installation (e.g., base housing, construction, visitors). The Storm Water Management Program (SWMP) (of which this ERP is an Attachment) identified illicit discharges in Table 4-2. This list is not all inclusive and other potential illicit discharges can occur. Note also, that Table 4-3 presents a list of exempt non-storm water discharges that are not covered by this plan.

The public programs detailed in SWMP Minimum Control Measures (MCM) 1 and 2 provide training and education for non-operations personnel on Base. These materials provide a basis for the public to be aware and understand what constitutes an illicit discharge and the impacts to the environment. Non-operations personnel are educated to understand how to recognize an illicit discharge and what to do in the event one is identified.

Base Personnel are educated through the training programs, base website, and newspaper articles to identify potential illicit discharges. Personnel are instructed on what to look for to identify a potential illicit discharge (e.g., oily substances, sheen on storm water, etc.).

The Malmstrom AFB Storm Water Management Coordinator (SWMC) or designee will confirm that contractors understand illicit discharges and storm water management prior to being allowed to begin operations on the Base.

ERP.1 ERP Authority

This ERP outlines the legal authorities under the SWMP and/or other Base programs, as well as the judicial response measures that are available to address illicit discharges. This includes discharges from daily Base living and operations, and/or releases from construction/post-construction activities to storm water. As a US military base, Malmstrom AFB has legal authority to manage potential illicit discharges and storm water management. However, the Base lacks ordinances, regulatory processes, and judicial authority for such matters. Therefore, these activities will be managed through enforcement of State regulations and/or requirements and Base policy. The Base policies are governed by Base Leadership and as directed under programs defined by Malmstrom AFB plans (Storm Water Management Program [SWMP] and Spill Prevention Control and Countermeasures Plan [SPCC]) that are developed by responsible Base personnel, and approved by Base Leadership. Base personnel will be trained to the plan specifics as defined within each approved document.

ERP.2 Enforcement Authority Staff

Personnel covered by this ERP are identified in the following table. The table also provides the enforcement authority identified for each personnel category.

Covered Personnel	Enforcement Authority
Personnel living on or visiting the Base but not involved with operations	Storm Water Management Coordinator (SWMC) Balfour-Beatty Communities (BBC)
Base operational personnel	Supervisor
On-site contractors	Contracting Officer/Contracting Officer Representative (COR)/SWMC/ Base Designated Inspector

Malmstrom AFB does not have any legal authority to provide formal notices of violation, set in place formal actions (e.g., administrative orders, show-cause actions, and/or monetary penalties), or provide for legal judicial responses (e.g., injunctive relief, consent decree, and/or criminal penalties). However, for Base personnel and contractors, a variety of actions are available. The following outline covers the process for enforcement response.

ERP.3 Illicit Discharge Response Schedule

As noted previously, Malmstrom AFB does not discharge to any neighboring MS4 entities. The Base will manage any illicit discharges. If an illicit discharge is identified, it will be immediately managed to eliminate any potential storm water threat in accordance with response actions described in Base plans (SPCC, SWMP).

After it is determined that a threat to storm water no longer exists, the SWMC will investigate the potential illicit discharge within seven days of notification or discovery (see Section ERP.5). The SWMC must document any circumstances that prevents the beginning of investigation within this time frame.

After an investigation is completed, the goal for the SWMC is to start the corrective actions process within 30 days (see Section ERP.5). Malmstrom AFB has specified that any illicit discharge will be eliminated within six months after discovery. The SWMC must document any circumstances that prevents the elimination of such discharges within the time frame.

ERP.4 Investigation and Corrective Action Plan

This section of the ERP contains an Investigation and Corrective Action Plan that provides guidance for identifying, investigating, and implementing corrective action in the event of an illicit discharge. Note that currently, Malmstrom AFB does not discharge to neighboring MS4 entities. This meets the MS4 General Permit requirements under Part II.A.3.f.

ERP.4.1 *Discharge Detection and Reporting*

If a potential discharge is noted, the following process should be followed:

1. Stop any work or actions in the area.
2. Identify material discharged if possible.
3. Identify the process that created the discharge if possible (accident or process problem).
4. Identify if the material is coming from a continuous source (e.g., tank leak) or is a “slug discharge” (e.g., spilled container of oil).
5. Estimate the discharge material amount or volume.

6. Note the area that may be impacted (street address) and where material is or may be flowing.
7. For potential operation discharges, note surrounding Base shops, etc.
8. Once identified, the discharge must be reported to the proper authorities. Please provide the information collected as noted above.
 - For non-operations or on-Base personnel, please dial 911 to report the discharge
 - Base personnel should contact the site (i.e., shop) Supervisor
 - Shop Supervisors should contact the specific entities defined within the SWMP and/or SPCC (including outside agencies)
 - On-site contractors should contact their designated storm water inspector, the SWMC, or the COR
9. The SWMC or designee will investigate any dry-weather flows to evaluate if they could be an immediate threat to human health or the environment. If any such flows are considered a potential threat, they will be immediately reported to Montana Department of Environmental Quality.

ERP.4.2 Discharge Investigation

As noted, each illicit discharge will be investigated within seven days of discovery. In the event more than one discharge is identified, the SWMC will prioritize them for investigation. Non-storm water discharges suspected of containing significant potential contamination will be given top priority.

The SWMC will ensure that each investigation is carried out in a responsible manner as required in the MS4 General Permit. The designated investigator will review the discharge reporting information; interview personnel involved and any other potential witnesses; assess the incident; and provide a written report to the SWMC. The SWMC will review the report and determine a path forward. The SWMC will determine what corrective action is required and document that in the project file.

Files will be maintained to demonstrate that a good faith investigation was completed to find the discharge source. Each investigation step will be documented in writing by the investigation team. These files will be maintained at Malmstrom AFB. Illicit Discharge and Corrective Actions are tracked and recorded in the database tracking spreadsheet located on the Base J-drive.

ERP.4.3 Corrective Action

After the discharge has been identified and reported, corrective actions can be implemented. As noted previously, the goal is to complete corrective action within six months from the time of discovery. Base (or contractor as needed) spill response personnel will address the discharge through final remedy. The SWMC will develop a Corrective Action Memorandum to complete the process.

Note that non-Base or non-trained personnel are not expected to implement any measures to clean up a discharge if it is unsafe or if the doing so may cause an unsafe condition. However, should the person believe that they can SAFELY contain or cleanup up a discharge, such measures can reduce potential impacts to the environment. If any such measures are implemented, please provide this information to spill response personnel.

After the discharge has been addressed, Base personnel and on-site contractors should complete the following process to identify corrective action to reduce the likelihood of future discharges:

Base Entity Personnel

- Meet with shop and/or personal Supervisor

- SWMC and/or Base Leadership can be included in meeting as necessary
- Review the discharge events and discuss what happened and what processes were involved (copies of incident file can be obtained from SWMC as needed)
- Identify if a process change should be considered to prevent future discharges
- If a process change is needed or suggested, identify if the change requires engineering or administrative controls or both
- Implement disciplinary action as needed

Contractor Personnel

- Prepare an event writeup and submit to the Base inspector or COR
- Meet with inspector and other entities (SWMC and/or Base Leadership) to discuss event
- Review the discharge events and discuss what happened and what processes were involved
- Identify if a process change should be considered to prevent future discharges
- If a process change is needed or suggested, identify if the change requires engineering or administrative controls or both
- Implement disciplinary action as needed

If the responsible party is not part of Base operations or a contractor, the SWMC should reach out to the person to discuss the event and possibly use it as a teaching tool for future MCM 1/2 informational session(s).

ERP.5 Construction Storm Water Management Compliance

Storm water management is a key element of any construction project. Malmstrom AFB will utilize this ERP to ensure that illegal construction-related discharges to storm water are eliminated and abated.

Malmstrom AFB will assign a storm water inspector for each construction project on the Base. The inspector will be responsible to ensure that the construction contractor understands the storm water requirements applicable to the project. Construction projects must comply with MS4 Permit and Construction Storm Water Permit requirements. The contractor work plans must show compliance with the Non-Numeric Technology-Based Effluent Limits; provide for proper BMPs for erosion, sediment, and other pollutants; and avoid unnecessary damage to Base infrastructure.

The inspector will establish an inspection program for each construction project using this ERP as a guide along with other Base documents such as SWMP and SPCC. The inspection frequency will be determined utilizing the calculation sheet provided in Attachment 4 of the SWMP.

Should an illegal storm water discharge occur, all contractors will be instructed to immediately contact their inspector. Failure to do so could result in loss of the contract. Construction-related storm water discharges will be managed by the contractor in accordance with their approved work plan documents. If the contractor is unable to manage a given discharge, the Base will assume responsibility and it will be managed in the same manner as any other illicit discharge per this ERP and the Base response plans.

ERP.6 Post-Construction Storm Water Management Compliance

Post-Construction storm water management will be managed like construction project compliance. Malmstrom AFB will utilize this ERP to ensure that illegal post-construction-related discharges to storm water are eliminated and abated.

The Malmstrom AFB storm water inspector for each construction project will continue with that role for post-construction activities. The inspector will be responsible to ensure that the post-construction procedures are applicable to the project, and will review all storm water related plans and specifications to make sure they comply with Base or regulatory requirements. Post-construction projects must comply with the MS4 Permit and the Energy Independence and Security Act, Section 438, governing storm water runoff requirements for federal projects. The post-construction plans must show compliance with the storm water retention and total suspended solid discharge requirements; while the project design must demonstrate measures to ensure predevelopment hydrology in the area is maintained. No project will be allowed to proceed until all plans and specifications have been approved.

Post-construction, the inspector will establish an inspection program commensurate with the project complexity to ensure that the storm water management design elements are functioning as planned.

The Base storm water team will develop a project-specific schedule to track the effectiveness of these design elements and for final approval of the construction project. Should the SWMC decide that the final design elements are not adequate to control storm water, the Base will work with the contractor to address any concerns.

After final approval of the design elements and construction, Malmstrom AFB will assume control of the post-construction storm water infrastructure. At that time, any storm water issues will be managed under this ERP according to the procedures laid out for Base Personnel.

ERP.7 Enforcement Authority Actions

ERP.7.1 Personnel Living on or Visiting the Base

Malmstrom AFB has limited authority with regards to personnel living or visiting the Base. However, for such personnel involved in an illicit discharge (per Part II.A.3.d.iv), the following informal actions can be implemented:

1. SWMC will contact the person to review the Base policy regarding such events. These contacts can be via email, telephone, or in person. The SWMC will work with the Malmstrom Housing Office to resolve any issues.
2. The person will be encouraged to participate in the Base awareness program under MCMs 1 and 2.
3. The person will be asked if interested in participating in the MCM programs and possibly provide first-hand experience in how to successfully respond to a potential illicit discharge.
4. All aspects of the discharge (incident report and any follow up actions) will be documented and maintained by the SWMC in a project file.

Should enforcement actions need to be escalated, the following options can be considered:

1. A letter noting the event, and reminding personnel about the potential harm from illicit discharges can be sent to each involved party.
2. A non-monetary citation from the Malmstrom Housing Office.
3. Notification to member's leadership on the violation.
4. The Base Leadership can consider limiting Base access for repeat offenders.

ERP.7.2 Base Operations Personnel

Malmstrom AFB has authority over Base operation personnel via their employment. For operational personnel involved in an illicit discharge (per Part II.A.3.d.iv), the following can be implemented:

1. The person's supervisor will be contacted and made aware of the event.

2. The situation will be reviewed to determine if the occurrence was a one-time event or is part of a continuing pattern.
 - The Supervisor will speak with the employee either in person or via telephone.
 - The Supervisor will review the Base policy regarding such events with the employee.
 - This contact will be considered an informal response.
3. If the situation is considered more serious or repeated actions are being noted, enforcement can be escalated within a more formal process:
 - The Supervisor or SWMC can stipulate that a formal Environmental Compliance Assessment Management Program (ECAMP) write-up be implemented.
 - This process will require a mandatory meeting with the person's supervisor and the SWMC.
 - The ECAMP process will identify any formal response requirements to be completed by the employee.
 - All aspects of the discharge (incident report and any follow up actions) will be documented and maintained by the SWMC in a project file.
 - Malmstrom AFB can consider various punishments to address serious and/or repeat offenders such as work restrictions, suspensions, and/or termination.
 - The Supervisor and/or SWMC can consider elevating the action to Base Leadership in the event of a serious infraction and/or repeat significant offenses.

ERP.7.3 On-site Contractors

Malmstrom AFB has authority over contractors performing activities on the Base. For contractors involved in an illicit discharge (per Part II.A.3.d.iv) or discharges during construction or post-construction (per Part II.A.4.a.iii and II.A.5.a.iii), the following informal actions can be implemented:

1. The contractor's Base storm water inspector will be contacted and made aware of the event.
2. The Base SWMC and Team will consider if a stop-work order must be issued for the given construction project.
3. The situation will be reviewed to determine the magnitude of the discharge and if the occurrence was a one-time event or is part of a continuing pattern. If the situation is considered minor and a one-time occurrence, the following will occur.
 - The inspector will speak with the contractor either in person or via telephone.
 - The inspector will review the Base policy regarding such events with the contractor.
 - This contact will be considered an informal response.
4. If the situation is considered more serious or repeated actions are being noted, enforcement can be escalated with a more formal process:
 - A mandatory meeting with the contractor's inspector and the SWMC will be required.
 - The SWMC will decide whether the contractor operations should be temporarily stopped.
 - The inspector and/or SWMC can consider elevating the action to Base Leadership personnel depending on the severity and/or if a repeat offense.
 - All aspects of the discharge (incident report and any follow up actions) will be documented and maintained by the SWMC in a project file.

- Malmstrom AFB Base Leadership can consider multiple penalty options if elected such as stop-work order while work plans are rewritten to ensure no future discharges; implementing and/or increasing bonding requirements; or terminating a contractor for discharge offenses.

The AF can consider seeking monetary damages to cover the cost of any actions the Base takes to address any given discharge.

ATTACHMENT 6
MALMSTROM STORM WATER POLICY LETTER



**DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 341 ST MISSILE WING (AFGSC)**

24 Aug 20

MEMORANDUM FOR ALL 341 MW PERSONNEL

FROM: 341 MW/CC

SUBJECT: Malmstrom AFB Storm Water Policy

1. In accordance with the Municipal Separate Storm Sewer System (MS4) Permit, Malmstrom AFB must develop a formal policy to reduce storm water pollution from illicit discharges and construction sites while implementing post-construction requirements.
2. Malmstrom AFB personnel shall prevent and eliminate any illicit discharge from entering the storm sewer system to the maximum extent possible. These illicit discharges include, but are not limited to, petroleum products, vehicle fluids, sediment, and trash.
3. All construction site personnel shall prevent and eliminate the release of fuel, chemicals, concrete washout, and sediment from entering the storm sewer system to the maximum extent possible.
4. All federal facility projects with a footprint of more than 5,000 square feet, must comply with Energy Independence and Security Act (EISA) Section 438 to the maximum extent technically feasible. All projects that disturb more than 1 acre must comply with the MS4 post-construction requirements.
5. Failure to comply with illicit discharge, construction, or post-construction related storm water discharge are subject to disciplinary action as deemed appropriate by the supervisor. Contractors shall abide by all storm water specifications in their applicable contract.
6. For more information or questions, contact Mr. Cody Koontz, Phone: (406)731-6155, email: cody.koontz@us.af.mil.

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Date: 2020.08.24 17:21:50 -0600

ANITA A. FEUGATE OPPERMAN, Colonel, USAF
Commander