Montana Department of Environmental Quality
WATER PROTECTION BUREAU

Agency Use
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Amount Rec'd:
Check No.:
Rec'd By:

FORM
MS4-AR

MPDES Storm Water Small MS4 Annual Report Form

Reporting period is for the calendar year, January 1st through December 31st.
Check one. Annual Report is due by March 1st of the following year.

○ 2017	○ 2018	○ 2019	◉ 2020	○ 2021

Instructions: This Annual Report Form is to be completed by each permittee and co-permittee authorized to discharge storm water under the General Permit for Storm Water Discharges Associated with Small Municipal Separate Storm Water Sewer Systems (MS4s). All authorized permittees and co-permittees are required to complete this Annual Report Form for each calendar year reporting period. For co-permittees authorized under one permit authorization or for co-permittees with multiple authorizations, you are required to complete this form and submit separate required documents/information exclusively for your respective regulated Small MS4 area(s). This completed Annual Report Form must be electronically submitted to the Montana Department of Environmental Quality, Water Protection Bureau. Electronic submission is required through the web-based tool: NetDMR. Additional information is located on DEQ's website: http://deq.mt.gov/Water/WQINFO/ctss/netdmr.

Small MS4 Authorization Number: MTR04 0012

Small MS4 Classification	○ **Traditional**	◉ **Non-Traditional**

Small MS4 Name: University of Montana - Missoula

Small MS4 Mailing Address: 32 Campus Drive

City, State, and Zip Code: Missoula, MT 59812

Small MS4 Contact Person (and Title): Paul Trumbley, Assoc. Director for Engineering & Utilities

Mailing Address: 32 Campus Drive

City, State, and Zip Code: Missoula, MT 59812

Phone Number: (406) 243-2127	**E-mail address:** paul.trumbley@umontana.edu

Storm Water Management Team: Attach an organizational chart identifying a primary SWMP coordinator and the positions responsible for implementing each minimum measure.

Requested above chart:	(•) Attached	( ) Not Attached

Has the permittee established and executed a formalized mechanism for regular communication between storm water management team members?	(•) Yes	( ) No

Permittee's SWMP Resources:

How many FTEs does the permittee designate to the MS4 permit? 1.0 If needed, provide an explanation. The University expanded its Storm Water Management Team by 2 persons and moved from meeting monthly to weekly in July, 2020.

If more space is needed, submit on an additional page with corresponding reference or on a data storage device.

Answer the following five (5) questions on an additional page with corresponding reference or on a data storage device.

(1) What are the source(s) of funding for implementation of the MS4 permit and the estimated percentage of the total budget allocated from each source listed?

(2) Specific to the annual reporting calendar year, how did the permittee justify commitment of resources or budget allocations to the implementation of the MS4 permit to decision-makers and the public? Provide a summary of meetings and outcomes held with decision-makers and the public.

(3) Has the permittee demonstrated program effectiveness to obtain budget allocations for this annual reporting calendar year or previous years? Why or why not? If so, what program effectiveness metrics were presented?

(4) How was this annual reporting calendar year's approach to allocate resources different than the previous year's approach?

(5) Was the permittee successful in their request for budget allocations? Describe the outcome and factors that affected or resulted in that outcome.

Illicit Discharge Detection & Elimination: Per the IDDE MCM requirement (Part II (3)(c.i)), has the permittee reviewed, and updated if needed, the storm sewer map during the calendar year?	(•) Yes	( ) No
Per the IDDE MCM requirement (Part II (3)(e.i)), has the permittee dry weather inspected and screened outfalls during the calendar year?	(•) Yes	( ) No

Fill in the blanks with numbers. The permittee has inspected 2 outfalls during this calendar year. Since authorization under the 2017 General Permit, the permittee has inspected 2 total outfalls out of the 2 total MS4 outfalls.

Per the Illicit Discharge Detection & Elimination MCM (Part II (3)(e.i)), the permittee will complete the requirement to inspect and screen all outfalls during dry weather by the end of the permit cycle.	(●) Yes	( ) No
Construction Site Storm Water Management: During the calendar year, how many construction storm water management plan reviews were completed (Part II (4)(b))? none- no construction in 2020		
During the calendar year, how many construction projects were inspected for their storm water management controls (Part II (4)(c))? none - no construction in 2020		
Pollution Prevention/Good Housekeeping for Permittee Operations: Has the permittee reviewed, and updated if needed, the inventory of permittee-owned/operated facilities and activities (Part II (6)(a.i))?	(●) Yes	( ) No
Has the permittee reviewed, and updated if needed, the map that identifies the locations of facilities and known locations of activities (Part II (6)(a.ii))?	(●) Yes	( ) No
Has the permittee conducted annual storm water pollution prevention training for permittee staff during the next permit year after development of each standard operating procedure (Part II (6)(a.v))? Training to occur 2021. ***Not applicable during calendar year 2017, 2018, and 2019. Check "No" during these years.***	( ) Yes	(●) No
Training: According to Part II (B) Training requirements, has the permittee conducted applicable training during the 1st and 4th calendar years? ***Not required during calendar year 2018, 2019, and 2021. Check "No" during these years.***	(●) Yes	( ) No
According to Part II (B) Training requirements, has the permittee conducted applicable new employee training within 90 days of the hire date?	(●) Yes	( ) No
Special Conditions: Per **Pre-TMDL Approval (Part III.A) requirements**, attach the required information regarding identification of all outfalls that discharge to impaired waterbodies, the impaired waterbodies, and the associated pollutants of impairments. Summarize the BMPs implemented over the reporting period and a schedule of BMPs planned for the following year.		
( ) Attached	( ) Not Attached	(●) Not Applicable
Special Conditions: Approved TMDLs (Part III.B) requirements per calendar year below.		
Calendar Year 2017: The permittee has attached a Sampling Plan that includes strategy rationale, monitoring frequency, monitoring parameters, and monitoring locations.		
( ) Attached	( ) Not Attached	(●) Not Applicable

Calendar Year 2017: The permittee has attached all outfalls that discharge to impaired waterbodies and the associated pollutants of impairment.		
○ Attached	○ Not Attached	◉ Not Applicable
Calendar Year 2018: The permittee has attached all outfalls that discharge to impaired waterbodies and the associated pollutants of impairment.		
○ Attached	○ Not Attached	◉ Not Applicable
Calendar Year 2019: The permittee has attached all outfalls that discharge to impaired waterbodies and the associated pollutants of impairment.		
○ Attached	○ Not Attached	◉ Not Applicable
Calendar Year 2020: The permittee has attached all outfalls that discharge to impaired waterbodies and the associated pollutants of impairment.		
◉ Attached	○ Not Attached	○ Not Applicable
Calendar Year 2020: The permittee has attached the TMDL section of the SWMP that identifies the measures and BMPs it plans to implement, describes the MS4's impairment priorities and long term strategy, and outlines interim milestones for controlling the discharge of the pollutants of concern and making progress towards meeting the TMDL.		
◉ Attached	○ Not Attached	○ Not Applicable
Calendar Year 2021: The permittee has attached all outfalls that discharge to impaired waterbodies and the associated pollutants of impairment.		
○ Attached	○ Not Attached	◉ Not Applicable
Calendar Year 2021: The permittee has evaluated the TMDL section of the SWMP based on monitoring results. The section has been revised, if needed, and is attached.		
○ Attached	○ Not Attached	◉ Not Applicable
Monitoring: Per requirements in Part IV (B), has the permittee attached monitoring results, calculations, and evaluations?		
◉ Attached	○ Not Attached	○ Not Applicable

INSTRUCTIONS: The permittee will only fill out the Annual Report Attachments section below that corresponds to the calendar in which an Annual Report is being submitted for. Attach the requested documents/information.

2017 Annual Report Attachments (1st Calendar Year)		
Public Education and Outreach:		
Per requirements a.i in the referenced MCM, attach the required information regarding key target audiences and associated pollutants.		
◯ Attached	◉ Not Attached	
Public Involvement and Participation:		
Per requirements a.i in the referenced MCM, attach the required information regarding the public involvement approach and schedule of each key audience.		
◯ Attached	◉ Not Attached	
Illicit Discharge Detection & Elimination:		
Per requirements a.i in the referenced MCM, attach the required information regarding categories of non-storm water discharges or flows, associated pollutants, and local controls or conditions.		
◯ Attached	◉ Not Attached	
Per requirements b.i in the referenced MCM, attach the required information regarding occasional non-storm water discharges or flows, associated pollutants, and local controls or conditions.		
◯ Attached	◉ Not Attached	
Per requirements f.i in the referenced MCM, attach the required Illicit Discharge Investigation and Corrective Action Plan and any associated documents.		
◯ Attached	◉ Not Attached	
Construction Site Storm Water Management:		
Per requirements a.iii in the referenced MCM, attach progress towards an Enforcement Response Plan and associated documents.		
◯ Attached	◉ Not Attached	
Specific to Traditional MS4s and per requirements b.i in the referenced MCM, attach the construction storm water management plan review checklist.		
◯ Attached	◯ Not Attached	◉ Not applicable
Specific to Non-Traditional MS4s and per requirements b.iii in the referenced MCM, attach the construction storm water management plan review checklist.		
◯ Attached	◉ Not Attached	◯ Not applicable
Specific to Traditional MS4s and per requirements c.i in the referenced MCM, attach the construction storm water management inspection form or checklist.		
◯ Attached	◯ Not Attached	◉ Not applicable
Specific to Non-Traditional MS4s and per requirements c.ii in the referenced MCM, attach the construction storm water management inspection form or checklist.		
◯ Attached	◉ Not Attached	◯ Not applicable

Post-Construction Site Storm Water Management in New and Redevelopment		
Specific to Traditional MS4s and per requirements b.i in the referenced MCM, attach the post-construction storm water management plan review checklist.		
◯ Attached	◯ Not Attached	◉ Not applicable
Specific to Non-Traditional MS4s and per requirements b.ii in the referenced MCM, attach the post-construction storm water management plan review checklist.		
◯ Attached	◉ Not Attached	◯ Not applicable
Per requirements in b.iii in the referenced MCM, attach the performance standards and associated documents.		
◯ Attached	◉ Not Attached	

2018 Annual Report Attachments (2nd Calendar Year)

Public Education and Outreach:		
Per requirements b.i in the referenced MCM, attach the required information regarding outreach messages.		
◯ Attached	◉ Not Attached	
Per requirements c.i in the referenced MCM, attach the required information regarding a description of formats, distribution channels and schedule for key target audiences.		
◯ Attached	◉ Not Attached	
Public Involvement and Participation:		
Per requirements a.ii in the referenced MCM, attach the required information regarding participation and key target audience feedback on approaches.		
◯ Attached	◉ Not Attached	
Illicit Discharge Detection & Elimination:		
Per requirements a.i in the referenced MCM, attach the required information regarding categories of non-storm water discharges or flows, associated pollutants, and local controls or conditions.		
◯ Attached	◉ Not Attached	
Per requirements b.i in the referenced MCM, attach the required information regarding occasional non-storm water discharges or flows, associated pollutants, and local controls or conditions.		
◯ Attached	◉ Not Attached	
Specific to Traditional MS4s and per requirements d.i in the referenced MCM, attach the adopted ordinance or other regulatory mechanism to prohibit illicit discharges.		
◯ Attached	◯ Not Attached	◉ Not applicable
Specific to Non-Traditional MS4s and per requirements d.ii in the referenced MCM, attach the summary of legal authority to prohibit illicit discharges.		
◯ Attached	◉ Not Attached	◯ Not applicable
Per requirements d.iii in the referenced MCM, attach the required summary of the cooperative agreements.		

◯ Attached	◉ Not Attached	
Per requirements d.iv in referenced MCM, attach the Enforcement Response Plan and associated documents.		
◯ Attached	◉ Not Attached	
Per requirements e.ii in referenced MCM, attach the list of high priority outfalls.		
◯ Attached	◉ Not Attached	
Specific to Traditional MS4s and per requirements f.iii in the referenced MCM, attach the summary of investigations conducted and corrective actions taken per the required Illicit Discharge Investigation and Corrective Action Plan and any associated documents.		
◯ Attached	◯ Not Attached	◉ Not applicable
Specific to Non-Traditional MS4s and per requirements f.iv in the referenced MCM, attach the summary of investigations conducted and corrective actions taken per the required Illicit Discharge Investigation and Corrective Action Plan and any associated documents.		
◯ Attached	◉ Not Attached	◯ Not applicable
Post-Construction Site Storm Water Management in New and Redevelopment		
Specific to Traditional MS4s and per requirements c.i in the referenced MCM, attach the post-construction storm water management inspection form or checklist.		
◯ Attached	◯ Not Attached	◉ Not applicable
Specific to Non-Traditional MS4s and per requirements c.ii in the referenced MCM, attach the post-construction storm water management inspection form or checklist.		
◯ Attached	◉ Not Attached	◯ Not applicable
Per requirements in c.iii in the referenced MCM, attach the inventory of all new permittee-owned and private post-construction storm water management controls.		
◯ Attached	◉ Not Attached	
Per requirements in c.vi in the referenced MCM, attach an inspection frequency protocol.		
◯ Attached	◉ Not Attached	
Specific to Traditional MS4s and per requirements c.vii, attach the developed inspection program.		
◯ Attached	◉ Not Attached	◯ Not applicable
Pollution Prevention/Good Housekeeping for Permittee Operations		
Per requirements in a.iii in the referenced MCM, attach completed Standard Operating Procedures.		
◯ Attached	◉ Not Attached	

2019 Annual Report Attachments (3rd Calendar Year)

Public Education and Outreach:

Per requirements c.ii in the referenced MCM, attach the required information regarding outreach materials distributions.

○ Attached	◉ Not Attached

Public Involvement and Participation:

Per requirements a.ii in the referenced MCM, attach the required information regarding participation and key target audience feedback on approaches.

○ Attached	◉ Not Attached

Illicit Discharge Detection & Elimination:

Per requirements a.i in the referenced MCM, attach the required information regarding categories of non-storm water discharges or flows, associated pollutants, and local controls or conditions.

○ Attached	◉ Not Attached

Per requirements b.i in the referenced MCM, attach the required information regarding occasional non-storm water discharges or flows, associated pollutants, and local controls or conditions.

○ Attached	◉ Not Attached

Per requirements e.ii in referenced MCM, attach the list of high priority outfalls.

○ Attached	◉ Not Attached

Per requirements e.iii in referenced MCM, attach the required summary of screening results.

○ Attached	◉ Not Attached

Specific to Traditional MS4s and per requirements f.iii in the referenced MCM, attach the summary of investigations conducted and corrective actions taken per the required Illicit Discharge Investigation and Corrective Action Plan and any associated documents.

○ Attached	○ Not Attached	◉ Not applicable

Specific to Non-Traditional MS4s and per requirements f.iv in the referenced MCM, attach the summary of investigations conducted and corrective actions taken per the required Illicit Discharge Investigation and Corrective Action Plan and any associated documents.

○ Attached	◉ Not Attached	○ Not applicable

Construction Site Storm Water Management:

Specific to Traditional MS4s and per requirements a.i in the referenced MCM, attach the adopted ordinance or other regulatory mechanism to require construction storm water controls.

○ Attached	○ Not Attached	◉ Not applicable

Specific to Non-Traditional MS4s and per requirements a.ii in the referenced MCM, attach the legal authority summary.

○ Attached	◉ Not Attached	○ Not applicable

Per requirements a.iii in the referenced MCM, attach the adopted Enforcement Response Plan and associated documents.

○ Attached	◉ Not Attached

Post-Construction Site Storm Water Management in New and Redevelopment

Per requirements in c.viii in the referenced MCM, attach findings and compliance actions regarding inspections of high priority post-construction storm water management controls.		
◯ Attached	◉ Not Attached	
Specific to Traditional MS4s and per requirements c.ix, attach the findings and resulting actions regarding inspections of high priority privately-owned post-construction storm water management controls.		
◯ Attached	◯ Not Attached	◉ Not applicable
Pollution Prevention/Good Housekeeping for Permittee Operations		
Per requirements in a.iii in the referenced MCM, attach the completed Standard Operating Procedures.		
◯ Attached	◉ Not Attached	

2020 Annual Report Attachments (4th Calendar Year)

Public Education and Outreach:		
Per requirements c.ii in the referenced MCM, attach the required information regarding outreach materials distributions.		
◉ Attached	◯ Not Attached	
Public Involvement and Participation:		
Per requirements a.ii in the referenced MCM, attach the required information regarding participation and key target audience feedback on approaches.		
◉ Attached	◯ Not Attached	
Illicit Discharge Detection & Elimination:		
Per requirements a.i in the referenced MCM, attach the required information regarding categories of non-storm water discharges or flows, associated pollutants, and local controls or conditions.		
◉ Attached	◯ Not Attached	
Per requirements b.i in the referenced MCM, attach the required information regarding occasional non-storm water discharges or flows, associated pollutants, and local controls or conditions.		
◉ Attached	◯ Not Attached	
Per requirements e.ii in referenced MCM, attach the list of high priority outfalls.		
◉ Attached	◯ Not Attached	
Per requirements e.iii in referenced MCM, attach the required summary of screening results.		
◉ Attached	◯ Not Attached	
Specific to Traditional MS4s and per requirements f.iii in the referenced MCM, attach the summary of investigations conducted and corrective actions taken per the required Illicit Discharge Investigation and Corrective Action Plan and any associated documents.		
◯ Attached	◯ Not Attached	◉ Not applicable
Specific to Non-Traditional MS4s and per requirements f.iv in the referenced MCM, attach the summary of investigations conducted and corrective actions taken per the required Illicit Discharge		

Investigation and Corrective Action Plan and any associated documents.		
◉ Attached	○ Not Attached	○ Not applicable
Post-Construction Site Storm Water Management in New and Redevelopment		
Specific to Traditional MS4s and per requirements a.i in the referenced MCM, attach the adopted ordinance or other regulatory mechanism to require post-construction storm water controls.		
○ Attached	○ Not Attached	◉ Not applicable
Specific to Non-Traditional MS4s and per requirements a.ii in the referenced MCM, attach the legal authority summary.		
◉ Attached	○ Not Attached	○ Not applicable
Per requirements in a.iii in the referenced MCM, attach the Enforcement Response Plan and associated documents.		
◉ Attached	○ Not Attached	
Per requirements in c.viii in the referenced MCM, attach findings and compliance actions regarding inspections of high priority post-construction storm water management controls.		
◉ Attached	○ Not Attached	
Specific to Traditional MS4s and per requirements c.ix, attach the findings and resulting actions regarding inspections of high priority privately-owned post-construction storm water management controls.		
○ Attached	○ Not Attached	◉ Not applicable
Per requirements in d.i in the referenced MCM, attach a summary of the discussion outcomes.		
○ Attached	◉ Not Attached	
Pollution Prevention/Good Housekeeping for Permittee Operations		
Per requirements in a.iii in the referenced MCM, attach the completed Standard Operating Procedures.		
◉ Attached	○ Not Attached	

2021 Annual Report Attachments (5th Calendar Year)

Public Education and Outreach:		
Per requirements c.ii in the referenced MCM, attach the required information regarding outreach materials distributions.		
○ Attached	◉ Not Attached	
Public Involvement and Participation:		
Per requirements a.ii in the referenced MCM, attach the required information regarding participation and key target audience feedback on approaches.		
○ Attached	◉ Not Attached	
Illicit Discharge Detection & Elimination:		
Per requirements a.i in the referenced MCM, attach the required information regarding categories of non-storm water discharges or flows, associated pollutants, and local controls or conditions.		

◯ Attached	◉ Not Attached	
Per requirements b.i in the referenced MCM, attach the required information regarding occasional non-storm water discharges or flows, associated pollutants, and local controls or conditions.		
◯ Attached	◉ Not Attached	
Per requirements e.ii in referenced MCM, attach the list of high priority outfalls.		
◯ Attached	◉ Not Attached	
Per requirements e.iii in referenced MCM, attach the required summary of screening results.		
◯ Attached	◉ Not Attached	
Specific to Traditional MS4s and per requirements f.iii in the referenced MCM, attach the summary of investigations conducted and corrective actions taken per the required Illicit Discharge Investigation and Corrective Action Plan and any associated documents.		
◯ Attached	◯ Not Attached	◉ Not applicable
Specific to Non-Traditional MS4s and per requirements f.iv in the referenced MCM, attach the summary of investigations conducted and corrective actions taken per the required Illicit Discharge Investigation and Corrective Action Plan and any associated documents.		
◯ Attached	◉ Not Attached	◯ Not applicable
Post-Construction Site Storm Water Management in New and Redevelopment		
Per requirements in c.viii in the referenced MCM, attach findings and compliance actions regarding inspections of high priority post-construction storm water management controls.		
◯ Attached	◉ Not Attached	
Specific to Traditional MS4s and per requirements c.ix, attach the findings and resulting actions regarding inspections of high priority privately-owned post-construction storm water management controls.		
◯ Attached	◯ Not Attached	◉ Not applicable
Pollution Prevention/Good Housekeeping for Permittee Operations		
Per requirements in a.iii in the referenced MCM, attach completed Standard Operating Procedures.		
◯ Attached	◉ Not Attached	
Attach any updates, changes, or improvements to the Small MS4 Storm Water Management Program per requirements in Part IV (E).		
◯ Attached	◉ Not Attached	◯ Not applicable

Annual Report Form Signature

This Annual Report Form must be completed, signed, and certified as follows:

- **For a corporation, by a principal officer of at least the level of vice president;**
- **For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or**

For a municipality, state, federal, or other public facility, by either a principal executive officer or rankir elected official.

All Permittees Must Complete the Following Certification:

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 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. [75-5-633, MCA].

Certification of this form indicates conformance with the 2017 General Permit for Storm Water Discharge Associated with Small Municipal Separate Storm Sewer Systems and the required Annual Reporting upon receipt of permit coverage.

Name (Type or Print)	
Paul Lasiter	
Title (Type or Print)	**Phone Number**
Vice President for Operations and Finance	406.243.4662
Signature	**Date Signed**
	02/26/2021

Figure 2. SWMT Organizational Chart[1]

[1] *Note: UM would like to include an Industrial Hygienist as a member of the SWMT. The UM Industrial Hygienist position has yet to be filled.*

Small MS4 2019 Annual Report

Attachment 2

Responses to 5 questions on page 2 of the annual form:

(1) What are the source(s) of funding for implementation of the MS4 permit and the estimated percentage of the total budget allocated from each source listed?

Funding for MS4 activities come 100% from the University's Facilities Services operating budget.

(2) Specific to the annual reporting calendar year, how did the permittee justify commitment of resources or budget allocations to the implementation of the MS4 permit to decision-makers and the public? Provide a summary of meetings and outcomes held with decision-makers and the public.

The University expended considerable resources throughout this reporting year to hire consultants and demand more from Storm Water Management Team personnel. The fact that DEQ audited the University in 12/2019 and found multiple violations was sufficient justification both to MS4 authorities and also to the Public as represented on the University's storm water stakeholders' meetings.

(3) Has the permittee demonstrated program effectiveness to obtain budget allocations for this annual reporting calendar year or previous years? Why or why not? If so, what program effectiveness metrics were presented?

The University has expanded its sampling to include a metals analysis of the sand/gravel material that it uses for winter traction operations. Attempts to grab a test sample from the East Outfall during periods when no flow should occur have not been successful.

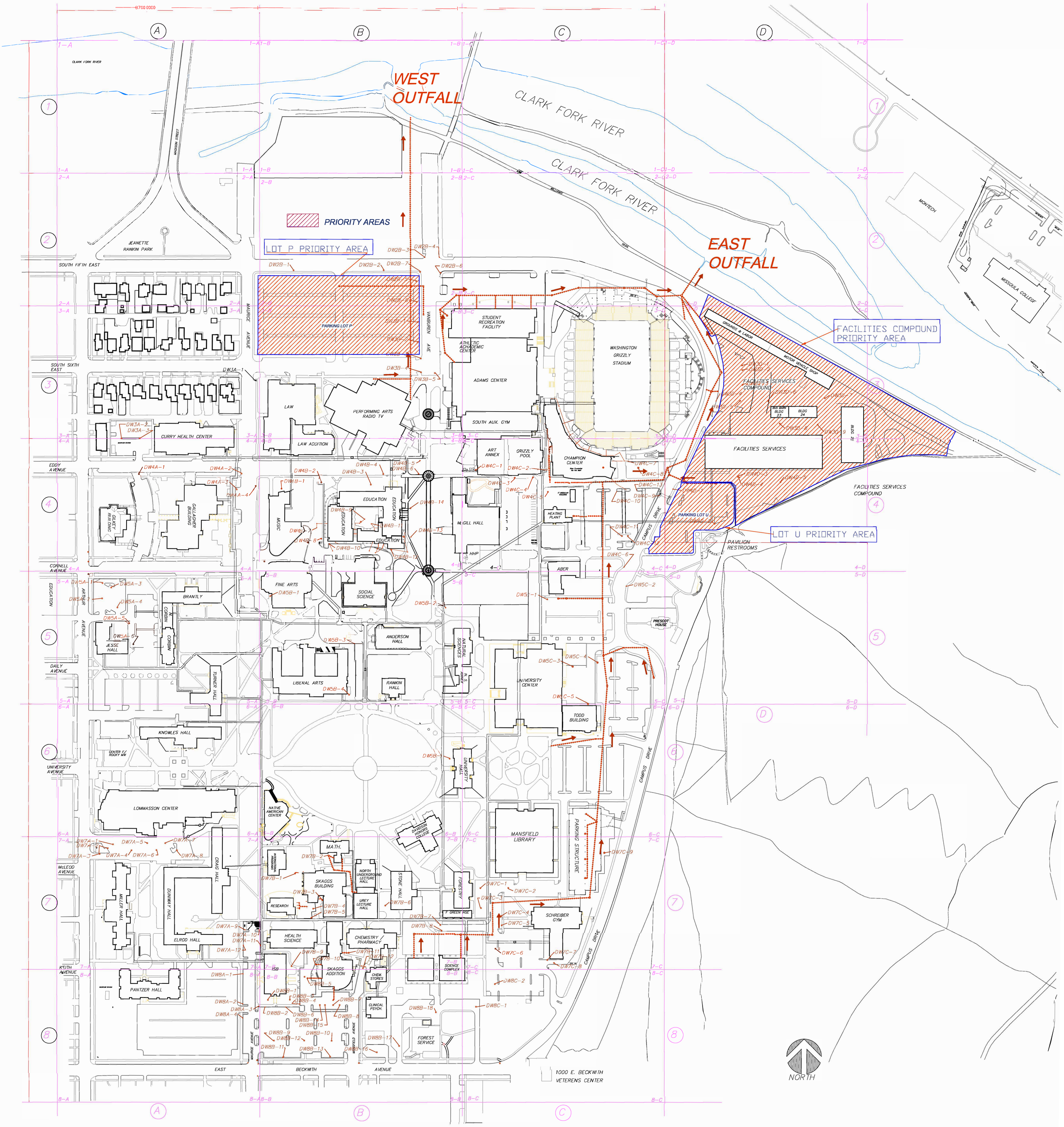
(4) How was this annual reporting calendar year's approach to allocate resources different than the previous year's approach?

The extent and severity of 2019 DEQ MS4 audit captured the attention of the University's executive administration. The storm water management team was henceforth able to contract with 3rd party experts to help respond to DEQ's audit and also to assist with developing a new storm water management plan.

(5) Was the permittee successful in their request for budget allocations? Describe the outcome and factors that affected or resulted in that outcome.

The University entered 2 contracts with NewFields engineering group for a total of about $55,000. The University also conducted an infiltration feasibility study with WGM for $10,000.

University of Montana- Storm Water Management Program
Storm Sewer Inventory Map
Attachment 3



TUNNEL MAP

STORM DRAIN MAP

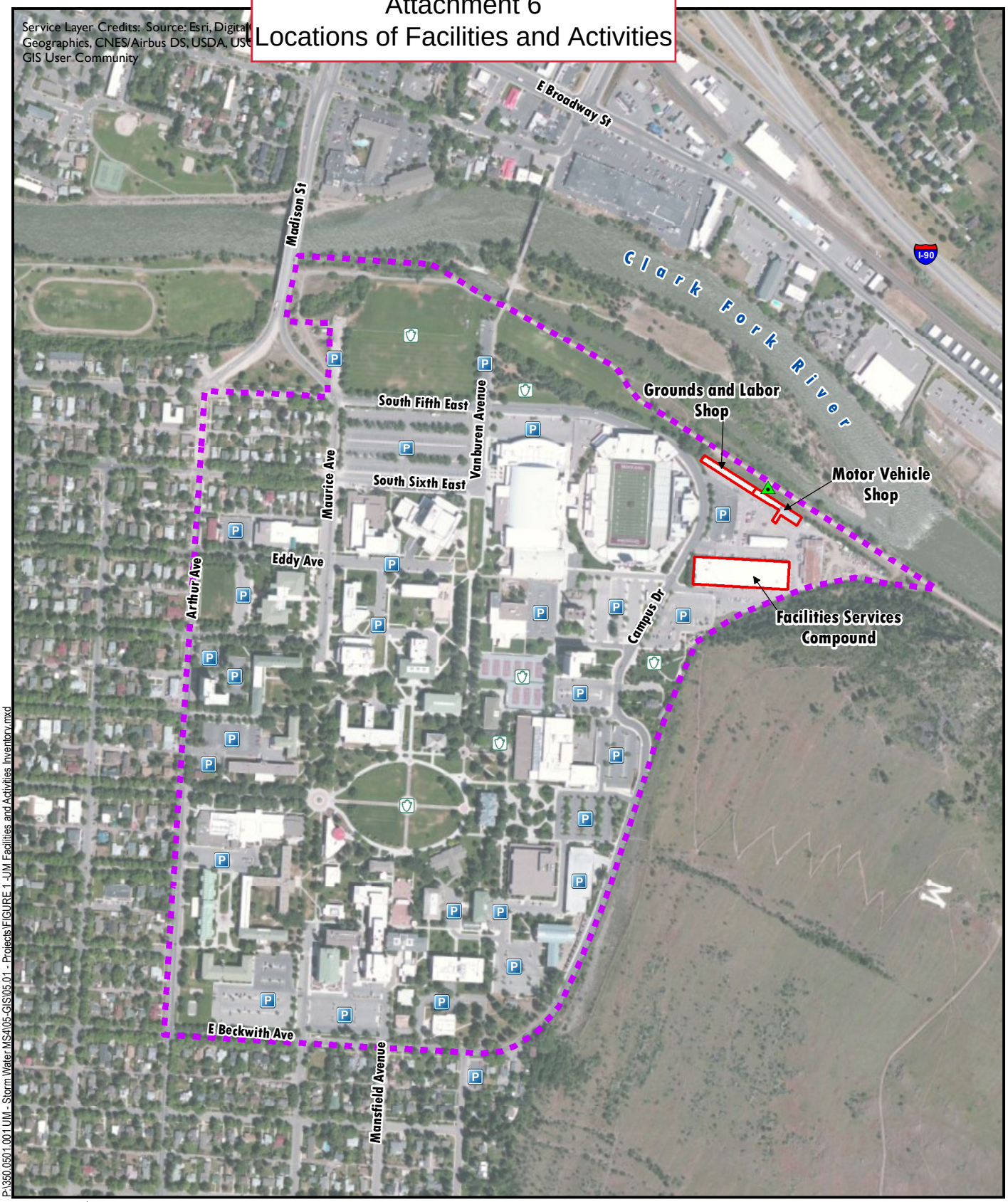
Small MS4 2020 Annual Report
Attachment 4
Dry Weather Screenings Discussion

Since the University has only two outfalls, it has quickly and completely fulfilled the requirements of MCM Part II (3)(e.i). The University has exceeded the requirement by inspecting both outfalls twice during 2020. See Attachment 16 for photos and the completed survey forms. The University's east outfall exhibits some discharge during dry weather screenings. The SWMT has investigated and found an undocumented connection of HVAC equipment that is cooled by domestic water. The discharge of domestic water was tied into a roof leader of the Facilities Services compound which then entered the storm water system. The SWMT was previously unaware that the Facilities Services building roof was connected to the storm water system. While that connection would constitute an appropriate use of the storm water system, the HVAC discharge is an illicit discharge. This HVAC connection was removed and instead plumbed into the sanitary sewer system. The SWMT believed that this correction would eliminate the dry weather flow and it did make a significant improvement, but there is still some minor flow during dry weather. In 2021, the SWMT will secure a sample and run the standard MS4 battery of analytical tests on this illicit flow. It's suspected to be either spring water or irrigation water.

Small MS4 2020 Annual Report
Attachment 5
Inventory of Facilities and Activities

Facility Name/Category	Person Responsible for Pollution Prevention		Activities with Potential to Release Contaminants (SOP Category)[a]	Trash	Sediment	Vehicle Fluids	Herbicides/Pesticides	Organics	Nutrients	Bacteria	Metals	Hazardous Waste
	Department	Position										
Primary Facilities												
Facilities Services Compound	Facilities Services	John Grasso	Building Maintenance	X	X			X	X	X	X	X
			Snow Storage and Disposal	X	X			X	X		X	
			Storage of Hazardous Chemicals									X
			Storage of Salt/Sand		X						X	
			Waste Handling and Disposal	X		X					X	X
Motor Vehicle Shop	Facilities Services	Bob Peterson	Building Maintenance	X	X			X	X	X	X	X
			Vehicle and Equipment Storage			X						X
			Vehicle Maintenance		X	X					X	X
Grounds Shop	Facilities Services	Ben Carson	Building Maintenance	X	X			X	X	X	X	X
			Ground Maintenance	X		X	X	X	X			
			Equipment Storage and Maintenance		X	X	X	X			X	
Dispersed Facilities												
Parks and Open Spaces	Facilities Services	Ben Carson	Ground maintenance	X	X	X	X	X	X	X	X	X
Streets and Parking Lots	Facilities Services	Mick Alva	Street and Parking Lot Maintenance	X	X	X		X	X	X	X	X
			Winter Street and Parking Lot Maintenance	X	X	X		X	X		X	
Snow Storage Areas	Facilities Services	Mick Alva	Snow Storage	X	X			X	X		X	

Small MS4 2020 Annual Report
Attachment 6
Locations of Facilities and Activities



0 Feet 600

UNIVERSITY OF MONTANA
Storm Water Management Program

Legend

- Snow Storage Area
- Parking Lot
- Park
- Primary Facility
- UM MS4 Regulated Area Approximate Boundary

Facilities and Activities Inventory
University of Montana
FIGURE E-1

Note: Table 6 of Section 3.5 provides a list of the activities associated with each facility.

Storm Water Pollution Awareness and Prevention Training

For the University of Montana at Missoula

UNIVERSITY OF MONTANA

Training Topics

- What is Storm Water?
- What is an Illicit Discharge?
- Possible Sources for Pollution on our Campus
- Allowable Non-Stormwater Discharges
- Vehicle and Equipment Fueling
- Outdoor Storage
- Waste Containers and Drum management
- Vehicle Parking Lots
- Grounds Maintenance and Conservation Management
- Good Housekeeping
- Preventive Maintenance
- Spill Prevention and Response
- Illicit Discharge Detection and Reporting

What is Storm Water?

- Storm water is untreated water created from rain or melting snow that does not soak into the ground, but runs into nearby waterways.
- Storm water does not flow into a wastewater treatment system, it flows directly into our surface waters
  - Our storm water system consists of our gutters, storm drains, underground pipes, sumps and culverts. Our storm water system discharges into the Clark Fork River.
- What we do on the land affects the water quality and the habitat of our creeks and rivers. It also affects our quality of life, our fisheries, and our recreation.

Why Clean Water is Important

All these life forms depend on clean water for their existence

What is an Illicit Discharge?

- Illicit Discharge is any discharge of pollutants or non-storm water materials allowed to enter the storm sewer systems from overland flows or direct dumping of materials into a catch basin.
- Examples of Illicit Discharge: Sand and Dirt from construction sites washing into drains, Dumping Toxic Chemicals into drain, Chemical and Fuel Spills, overuse of Fertilizers and Pesticides, and Trash not picked up allowed to go into drains.

Possible sources for pollution on our campus

- Sediment generated by construction activities that can be washed into the storm sewer system.
  - Sediment is the number one source of pollution to our rivers and streams.
- Waste and litter that can be washed into the storm sewer system if not picked up on a regular basis.
- Improper disposal of liquids such as cleaning solutions, laboratory chemicals, or other liquid wasted that can leak out of solid waste containers and drain with storm water into the storm sewer system.
- Chemicals that may spill as a result of accidents during loading or unloading at UM's shipping and receiving docks.

Sources of pollution continued...

- Spills of fuel that can occur during the filling of equipment or storage tanks.
- Fertilizers and pesticides used in maintaining UM grounds if application rates and timing of applications are inappropriate or if spills of these chemicals occur and our not properly contained and cleaned up.
- Deicer chemicals, salt, and sand used on the streets and parking areas during winter months may be carried to the storm sewer system when snow, accumulated in piles during routine snow removal activities, melts.
- Spills and leaks on parking lots from parked cars and grounds service vehicles allowed to flow into storm drains.

Allowable by permit storm sewer system non-storm water discharges

- Landscape Irrigation
- Water Line Flushing and potable water discharges
- Uncontaminated groundwater infiltration and pumped
- Air conditioning and steam condensate
- Water from crawlspace pumps and footing drains
- Small scale vehicle washing
- Discharges from fire system testing and maintenance
- Discharge from emergency firefighting activities
- Sidewalk/street washing sweeping water
- Insignificant losses from cooling towers
- EVERYTHING ELSE IS NOT ALLOWED DOWN THE DRAIN!

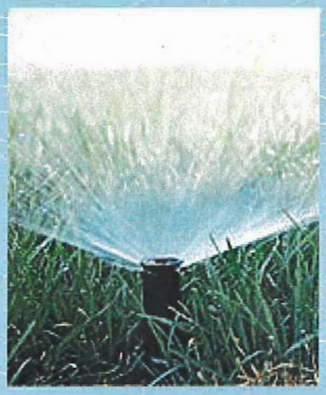
Vehicle Parking Lots

Parking lots contribute largely to storm water pollution. Mainly because of sand, dirt, oil and other chemicals from cars is washed off the parking lot and into a drain after a rain or melting snow.

What can I do?

- If you see possible illicit discharges from cars inform your manager and take necessary measures to prevent from going into a drain.
- Parking lots need to be periodically swept to prevent the buildup of sand, dirt and other debris. Although care must be taken while sweeping to ensure material is not swept into drain.
- Snow needs to be placed in locations that are far away from storm drains as possible, preferably on dirt or grassy surfaces.
  - This allows the snow to melt and soak into the ground rather then melt and wash sand, dirt, oil, etc. to wash into the drain.

Grounds Maintenance and Conservation Management



Fertilizers and pesticides can pose as a significant pollutant to our storm water system if not used properly.

- Only use the amount of fertilizer and pesticide that is recommended. Overuse leads to additional water consumption and the chance that extra product can be washed off into our streams and rivers.
- Ensure pesticides and fertilizers are not inadvertently placed in gutters, on sidewalks, and in streets. Water can wash the chemicals placed on these surfaces into our storm sewer system.
- Clean up spills immediately.

Grass and Tree Care

- Do not over water grass surfaces. Use only the amount of water needed. Over watering is wasteful and could lead to erosion of the soil into our drains.
- Ensure sprinklers are properly adjusted to only water grass and other vegetation. Water the sidewalks and streets can lead to sediments and or chemicals flowing into storm drains.
- Do not sweep grass clippings into a storm drain or allow them to be washed into one after a storm.
- Clean fallen leaves from gutters and around storm drains before there allowed to enter the storm sewer system.

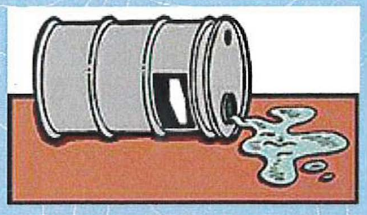
Good Housekeeping

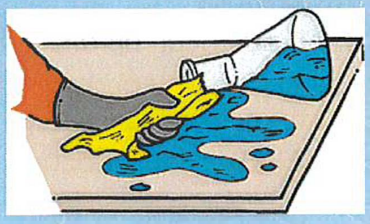
- Make sure that there are no discharges from the building to storm water through doorways or other pathways
- Make sure that spill response equipment is readily available in areas where a spill or leak is more likely to occur.
- Report spills
- Promptly clean up any spills
- Clean the floors and do not allow the wash water to discharge outside
- Use biodegradable cleaning solvents whenever practical.

Preventive Maintenance

- Routine sediment/debris removal and surface cleaning of storm water inlet grates.
- Routine inspection of storm water outlets for dry weather discharges
- Routine inspections of equipment and chemical storage
- Regular maintenance of equipment to prevent leaks from occurring
- If you see the potential for an illicit discharge down one of our storm drains do what you can to help prevent it. Whether that's picking up trash you see on the ground or informing management about a spill

Spill Prevention and Response





Vehicle and Equipment Fueling

- When fueling vehicles exercise caution to prevent spills. If a spill occurs, inform your manager and take necessary measures to contain and clean the spill immediately.

Outdoor Storage

- Examine parked vehicles for leaks. If a leak is discovered place absorbent material under the leak.
- Fuel and chemical storage tanks should be inspected periodically for the presence of leaks. If a leak is discovered contact your manager immediately.
- Sand and Soil stockpiles should be far away storm drains and gutters to prevent rain and snow melt water from washing particulates into the storm system.

Waste Containers and Drum Management

- Trash cans and dumpsters should be periodically checked to prevent overfilling and possible trash washing into a drain. Trash should never be pilled outside any trash receptacle.
- Water from rinsing out dirty trashcans is an Illicit Discharge and should not be allowed to enter storm drains. Dispose or rinse water into sanitary sewer system.
- Regularly check dumpster to ensure that the lids are closed and the dumpsters are in good condition.
  - If dumpsters are found that have leaks or do not close properly, waste removal contractors must be notified that repair or replacement of the damaged items is necessary.
- Chemical storage drums (empty and full) should be properly sealed with covers and bungs to prevent leaks. And preferably stored in a secondary containment area.

Spill Prevention and Response

- Clean all small fuel spills and leaks, and to report significant fuel spills to management immediately!
- Always document spills and the location of the occurrence.
- When transporting liquids exercise caution.
- Make sure the lid is on and tightened at all times on chemical and fuel containers.
- Keep a vigilant eye for spills
- REMEMBER SPILLS ARE CAUSED, THEY DO NOT JUST HAPPEN!!

Spill Prevention and Cleanup Procedure

1. In the event of a large spill Notify Management
2. Contain
3. Locate and Stop the Source
4. Clean Up
5. Dispose of Properly
6. Document Release and/or Report if over the applicable threshold
7. Follow Up:
   - Implement changes to prevent re-occurrence
   - Replace spill response equipment used

Illicit Discharge Detection and Reporting

- If you have pollution concerns for areas outside the construction zones contact: **Facilities Services Work Order Desk**
- If you see illegal dumping on campus property or into storm drains contact: **Facilities Services Work Order Desk.** If possible give description of area and what is being dumped.
- Storm water pollution is everybody's problem so do your part and help us keep the campus free of debris and trash.

UNIVERSITY OF MONTANA

TRAINING DOCUMENTATION FORM

Date: 12/28/2020

Training Topic: Storm Water Pollution Awareness and Prevention Training

#	Name (Print)	Signature	ID Number
1	Slade A Johnson		790178961
2			790393413
3	Austin Jellison		790804473
4	John Breining		790723196
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

Instructor Signature:

Title: Engineer

TRAINING DOCUMENTATION FORM

Plumbing awareness training
Tech hour
Calm water

UNIVERSITY OF MONTANA

TRAINING DOCUMENTATION FORM

Date: 12/29/2020

Training Topic: Storm Water Pollution Awareness and Prevention Training

#	Name (Print)	Signature	ID Number
1	Andrew Todd	Andrew Todd	790360462
2	Mick ALVA	Mick Alva	790217966
3	Dan Pignotti	Dan Pignotti	790791928
4	Bob Peterson	Bob Peterson	790188707
5	JOHN SEELAND	John Seeland	790874837
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

Instructor Signature: Eric Pfeiffer

Title: Engineer

TRAINING DOCUMENTATION FORM

UNIVERSITY OF MONTANA

TRAINING DOCUMENTATION FORM

Date: 12-30-20

Training Topic: **Storm Water Pollution Awareness and Prevention Training**

#	Name (Print)	Signature	ID Number
1	TARA TOTTEN		
2	JAMES VERBANAC		
3	Kevin Harris		
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

Instructor Signature: _____

Title: Engineer

TRAINING DOCUMENTATION FORM

#	Name (Print)	Signature	ID Number
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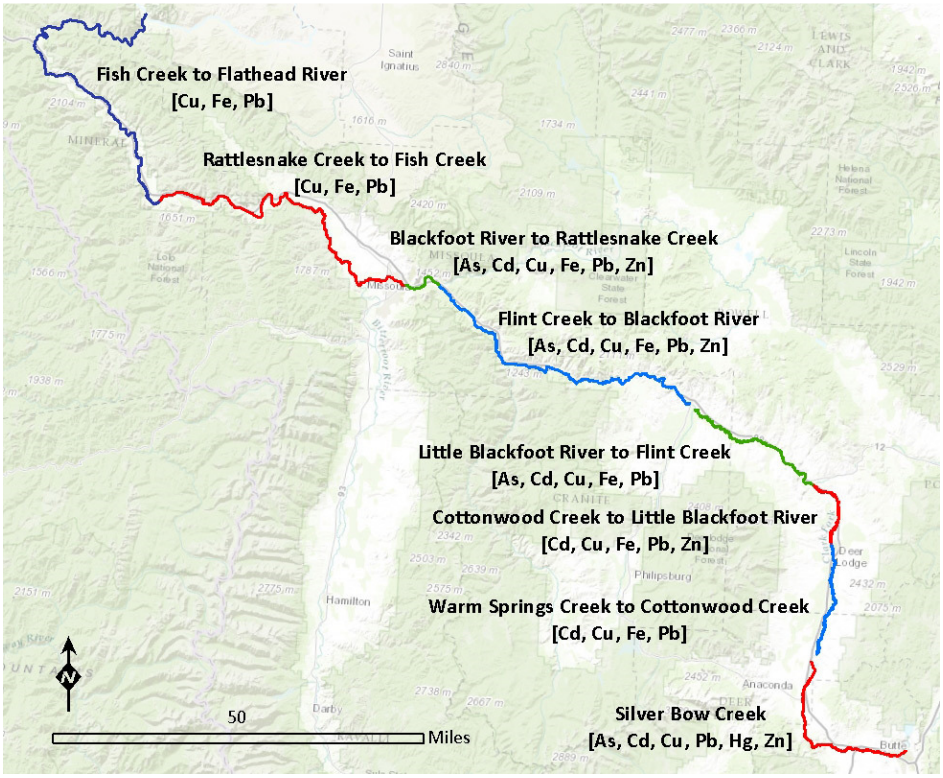
Small MS4 2020 Annual Report
Attachment 8
Outfalls That Discharge to Impaired Waterbodies and Associated Pollutants

University of Montana East Outfall
Location: 46.864888, -113.980524

University of Montana West Outfall
Location: 46.866459, -113.984491

Pollutants of Impairment To Clark Fork River



Small MS4 2020 Annual Report
Attachment 9
TMDL Strategy

1.1 Impaired Waterbody TMDL Implementation Strategy

This section describes UM's current efforts and future plans to address the Missoula MS4 WLA for the Clark Fork River (Blackfoot River to Rattlesnake Creek). As stated in the previous section, the WLA will be met by adhering to General Permit requirements and either reducing the metals concentrations or the discharge volumes, or both. In accordance with Part III.B of the General Permit, the following subsections describe UM's current BMPs, impairment priorities, strategies, and planned action items for controlling the discharge of pollutants of concern.

1.1.1 Assessment of Pollutants of Concern

In accordance with the UM *Sampling Plan for TMDL-Related Monitoring,* the SWMT collects and analyzes storm water samples from both outfalls for each pollutant of concern twice per year. The monitoring results generally show a correlation between total suspended solids (TSS) and metals concentrations; where higher TSS values correspond with higher concentrations of all metals and lower TSS values correspond with lower concentrations of all metals. This indicates that most of the metals in storm water discharging to the Clark Fork River are likely in particulate form. A summary of monitoring results is provided in **Appendix I**.

One major source of particulates to UM's streets and parking areas is sand deposited during winter sanding operations. The SWMT has obtained samples of metals concentrations within the gravel used for sanding in 2018, 2019, and 2020. The sample results show iron levels above 2,000 mg/kg for each of the last 3 years, long-term average concentrations of copper, lead, and zinc of less than 10 mg/kg, and reported non-detects for arsenic and cadmium (with the exception that cadmium was detected at 0.3 mg/kg in 2020). Comparison with the storm water monitoring results (**Appendix I**) indicate a correlation between metals concentrations in the gravel used for street sanding and the metals concentrations in storm water discharges. Prior to purchasing winter gravel supplies in 2021, the SWMT will have samples evaluated by an analytical laboratory and select a gravel with lower metals concentrations.

The SWMT would like to prioritize street sweeping operations in 2021. Street sweeping is typically conducted once annually; however, in 2021 the SWMT has recommended that street sweeping be conducted three times, with focus on the spring season to collect sand deposited during the winter. The SWMT is evaluating whether there is budget available for this and whether the City could support street sweeping on the Campus. These evaluations will be completed by April 30, 2021. Effectiveness will be assessed based on 2021 storm water monitoring results.

The SWMT has implemented several BMPs that could lead to a reduction of metals within storm water runoff from Campus (**Table 9**). Each of the BMPs identified in **Table 9** will continue to be implemented in 2021; however, as discussed above, street sweeping and TMDL related monitoring will be prioritized.

Table 1. Current BMPs Targeting Metals

BMP	Description	Potential Contributor	Rationale
Prohibit Residential Car Washing	Vehicle washing is not permitted on Campus.	Individual residential car washing	Eliminating car washing on Campus prevents discharge of pollutants from vehicles.
Street Sweeping	Street sweeping is conducted to remove sediment and other pollutants on roadways. Wash water is vacuumed up during street sweeping operations.	Street pollutants, debris from winter sanding operations, vehicle fluids, street wash water	This is especially important following the winter season when sanding is used to enhance vehicle traction.
Storm Water Pollution Prevention SOPs	SOPs are being developed for potential pollutant generating facilities and activities on Campus. See *Section 3.5* for additional information.	Varies See **Table 6**	When implemented, SOPs will reduce the potential for pollution associated with UM facilities and activities.
TMDL Related Monitoring	Semi-annual monitoring in accordance with the *Sampling Plan for TMDL-Related Monitoring*	N/A	Analysis of monitoring results will inform the SWMT of which pollutants of concern should be prioritized and will be used to assess BMP performance.
Testing Gravel for Winter Sanding Operations	UM will analyze samples of gravel to determine which gravel type has the lowest metals concentrations prior to purchasing winter gravel supplies.	Metals in gravel applied to streets	Analysis of gravel samples will allow UM to select a gravel with low metals concentrations in order to reduce potential contaminants from winter sanding operations.

1.1.2 Long-Term Strategy and Action Item Schedule

The SWMT is considering two separate approaches to make progress towards the Missoula MS4 WLA for the Clark Fork River (Blackfoot River to Rattlesnake Creek). The first approach involves removing UM's two outfalls to the Clark Fork River and replacing the outfalls with infiltration galleries. The second approach involves continued TMDL-related monitoring and implementation of specific BMPs to reduce concentrations of priority pollutants. Each of these strategies is described below.

- **Outfall Removal.**
  - **Description.** The SWMT is currently investigating the possibility to eliminate its two outfalls to the Clark Fork River. This would be the most effective long-term BMP because it would eliminate the potential for release of pollutants of concern to the Clark Fork River from UM's storm drain system.
  - **Action Items.** UM has hired a consultant to conduct a subsurface investigation to evaluate feasibility, develop preliminary designs, and estimate capital costs for outfall removal and construction of infiltration galleries. An initial feasibility report by WGM Group established conservative options and costs but raised additional questions about assumptions and design criteria. The SWMT will further explore the options presented in the feasibility report and collect additional data for an engineering analysis. The next steps in the evaluation are

to gather additional survey data and/or dig test pits to more accurately estimate infiltration rates. Data from these steps will support preliminary engineering and design. By the end of 2021, the SWMT plans to select a preferred alternative for outfall removal, obtain an engineering cost estimate, and decide whether to proceed. If this approach will be pursued, a design and implementation schedule will be developed based on funding availability. UM is also planning a development project near the West Outfall, which may present a separate opportunity to eliminate the West Outfall.

- **TMDL-Related Monitoring and BMP Implementation.**
  - **Description.** The SWMT has implemented TMDL-related monitoring to prioritize pollutants of concern. As additional BMPs are implemented, the monitoring will be used to evaluate the effectiveness of BMPs selected to reduce loading of pollutants of concern to the Clark Fork River and re-prioritize pollutants.
  - **Action Items.** The SWMT will continue monitoring in accordance with the *Sampling Plan for TMDL-Related Monitoring*. Results will be analyzed in fall 2021 to reprioritize pollutants and develop additional plans for BMP implementation (pending the results of the outfall removal investigation).

The SWMT will implement both strategies identified above in 2021. If UM decides to remove both outfalls, the SWMT believes that TMDL-related monitoring will no longer be applicable and will coordinate with DEQ to re-assess the applicability of TMDL-related General Permit requirements. If UM does not remove the outfalls, the SWMT will continue *TMDL-Related Monitoring and BMP Implementation* and will develop a more robust long-term strategy with scheduled action items.

Small MS4 2020 Annual Report
Attachment 10
Outfall Monitoring Results

Table H-1. Comprehensive Summary of Monitoring Results

Monitoring Site ID	Receiving Waterbody	Sampling Period	Sample Date	TSS[1] (mg/l)	COD[1] (mg/l)	TP[1] (mg/l)	TN[1] (mg/l)	pH[1]	Copper[1,2] (mg/l)	Lead[1,2] (mg/l)	Zinc[1,2] (mg/l)	Iron[2] (mg/l)	Arsenic[2] (mg/l)	Cadmium[2] (mg/l)	Oil & Grease[1] (mg/l)	Estimated Flow (gpm)
East Outfall	Clark Fork River	1st Half 2018	6/18/2018	12	133	0.09	0.451	7.31	0.00648	0.00124	0.0481	0.374	ND	ND	ND	577
		2nd Half 2018	8/27/2018	102	380	0.167	1.15	6.7	0.0183	0.00856	0.169	3.16	ND	0.000193	3.29	577
		1st Half 2019	6/27/2019	362	338	0.635	11.2	6.4	0.0326	0.014	0.258	6.56	0.00257	0.00193	2.27	398
		2nd Half 2019	9/27/2019	42	224	0.187	1.96	6.8	0.0285	0.00254	0.0846	1.11	0.000405	ND	3.75	57
		1st Half 2020	4/23/2020	61	194	0.15	0.835	6.59	0.0333	0.0046	0.0752	2.07	ND	0.00382	ND	6.8
		2nd Half 2020	10/13/2020	17.2	59.4	0.21	1.0	6.847	0.0101	0.0016	0.0686	0.514	0.00071	ND	5	6.8
		1st Half 2021														
		2nd Half 2021														
Long-term Median Concentration[3]				*51.5*	*209.0*	*0.177*	*1.075*	*6.750*	*0.02340*	*0.00357*	*0.0799*	*1.590*	*0.00020*	*0.00010*	*2.78000*	*227.5*
West Outfall	Clark Fork River	1st Half 2018	6/18/2018	15	154	0.056	0.336	7.37	0.0162	0.00064	0.0427	0.239	ND	ND	ND	819.0
		2nd Half 2018	8/27/2018	46	354	0.063	0.603	6.3	0.0163	0.00543	0.0782	1.9	ND	0.000218	4.47	2135.0
		1st Half 2019	6/27/2019	99	375	0.283	6.38	5.7	0.0223	0.00463	0.165	1.62	0.00235	0.000391	1.4	6161.0
		2nd Half 2019	9/27/2019	ND	253	ND	0.752	7.2	0.00208	0.000288	0.0301	0.0987	ND	ND	ND	385.0
		1st Half 2020	4/23/2020	37	88.9	0.078	0.798	6.05	0.0112	0.00174	0.06	1.34	ND	0.000345	ND	3.3
		2nd Half 2020	10/13/2020	3.4	16.1	0.074	1.1	5.86	0.0028	0.00098	0.0489	0.116	ND	ND	ND	3.3
		1st Half 2021														
		2nd Half 2021														
Long-term Median Concentration[3]				*37.0*	*203.5*	*0.074*	*0.775*	*6.18*	*0.01370*	*0.001360*	*0.0545*	*0.7895*	*0.00000*	*0.00011*	*0.00000*	*602.0*

ND = Parameter not detected at reporting limit

[1] *Self-Monitoring Parameter*

[2] *TMDL-Related Monitoring Parameter*

[3] *Non detects are considered a "zero" value for calculation the long-term median concentration*

Table H-2. Winter Gravel Sampling Results

Year	Total Arsenic (mg/kg)	Total Cadmium (mg/kg)	Total Copper (mg/kg)	Total Iron (mg/kg)	Total Lead (mg/kg)	Todal Zinc (mg/kg)
2018	0	0	3.68	6570	1.21	0
2019	0	0	7.40	8340	2.50	15.10
2020	0.89	0	3.00	2390	0.78	6.10
Long-term Average Concentration	*0.30*	*0.00*	*4.69*	*5767*	*1.50*	*7.07*

"0" is inserted into the table for "ND" (non-detectable) results from the laboratory

Small MS4 2020 Annual Report
Attachment 11
Public Education and Outreach

The University of Montana maintains a storm water pollution awareness website (http://www.umt.edu/facilities/Energy%20and%20Utilities/Storm%20Water%20.php) containing the following elements:

- Summary of UM storm water BMPs
- Summary of potential storm water pollutants
- Procedures for reporting illicit discharges and construction site concerns
- Contact information for Facilities Services
- Copy of the General Permit
- UM's General Permit application
- Link to Montana DEQ's storm water website
- Link to EPA's storm water website
- UM's MS4 Annual Reports
- Outreach event information
- The updated SWMP
- Solicitations for input from key target audiences, interested stakeholders, and the general public
- Outreach materials and messages that promote the benefits of non-polluting behaviors
- Summary of requirements for covered construction activities
- Link to UM's Environmental Health website.

In addition to the website, the University collaborated with a City of Missoula public outreach event on October 1, 2020 held at the University of Montana Oval. About 20 students dropped by and were engaged by a quiz to recognize the various rivers and streams affected by the City's MS4 program. A similar event is planned for Earth Day (4/22/21) and we'll invite the Missoula Valley Water Quality District to form a 3-way collaboration.

Small MS4 2020 Annual Report
Attachment 12
Public Involvement and Participation

1. Besides having a comment solicitation form on our website (http://www.umt.edu/facilities/Energy%20and%20Utilities/Storm%20Water%20.php), The University of Montana continues to convene quarterly stakeholders' meetings from a broad sector of the community. Representatives from City of Missoula, Missoula County, students, faculty and staff are all invited. Meetings occur every 12 weeks on Tuesday.

2. An annual activity that's been popular with students is painting storm drain notices. This activity was cancelled in 2020 due to Covid concerns, but the University hopes to reinstate it in 2021.

3. The University's storm water stakeholders' group was recently expanded for 2021 to include faculty from Geosciences. These faculty expressed interest in involving students in storm water activities such as inventorying dry wells and witnessing any further evaluations around infiltration galleries.

Small MS4 2020 Annual Report
Attachment 13
Non-Storm Water Discharge Evaluation

Category	Suspected Significant Contributor of Pollutants (yes/no)	Potential Associated Pollutants	Discussion	Local Controls or Conditions
Water line flushing	No	Chlorine, sediment, heavy metals	This is an infrequent activity. The reduced frequency combined with efforts to direct water toward pervious surfaces reduces the potential for significant discharge of pollutants.	Where control is possible, water is directed onto pervious surfaces or dry sumps; otherwise it is output onto proximate surfaces.
Landscape irrigation	No	Chlorine, sediment, nutrients, heavy metals	Despite almost continual maintenance throughout the irrigation season, lines and heads often break or become misaligned and water could enter stormwater system. Such discharges may become contaminated with heavy metals that leach from the winter gravel/sand used to control icing; however, the discharges would be minimal and would not result in a significant discharge of pollutants to the MS4 or receiving waterbodies.	UM is always trying to improve its irrigation system and processes. With some exceptions, sprinkler heads are tuned to avoid spraying water on impervious surfaces.
Diverted stream flows	No	None	While the UM campus borders the Clark Fork river and an irrigation canal, these are beyond our purview.	Not applicable.
Rising ground waters	No	None	UM does not have issues with rising ground water.	Not applicable.
Uncontaminated ground water infiltration	No	None	Due to nearby spring activity, UM suspects some occasional infiltration into its storm system although there would not be any pollutants.	There are currently no local controls on this inconsequential discharge.
Uncontaminated pumped ground water	No	Sediment	Ground water is used for some building cooling systems and is returned to the aquifer via injection wells per UM's water rights requirements.	Pumped ground water is metered both on the supply well side and also on the re-injection to the aquifer. These systems are contained within campus buildings and would not enter the storm water system.
Discharges from potable water sources	No	Chlorine	The largest potential discharge of potable water occurs in landscape irrigation operations (addressed above).	There are no exterior drinking water fountains on UM's campus and garden hose bibs require special keys in order to activate.

Category	Suspected Significant Contributor of Pollutants (yes/no)	Potential Associated Pollutants	Discussion	Local Controls or Conditions
Foundation drains	No	None	The SWMT is not aware of any foundation drains in use on UM campus.	Not applicable.
Air conditioning condensation	No	None	This is a very minor source since most of UM campus is cooled by ground water systems.	Condensation is minute and non-polluting.
Irrigation water	No	Chlorine, nutrients, sediment	Irrigation water on UM campus is potable water.	See response above for "Landscape irrigation."
Springs	No	None	UM does not have any issues with springs on campus.	Not applicable.
Water from crawl space pumps	No	None	Campus buildings extend below grade and have sump pumps that discharge into the sanitary sewer.	Not applicable.
Footing drains	No	None	See response above for "Foundation drains".	Not applicable.
Lawn watering	No	Chlorine, nutrients, sediments, metals	See response above for "Landscape irrigation."	See response above for "Landscape irrigation."
Individual residential car washing	No	Sediment, organics, metals, oil and grease	Vehicle washing is not permitted on campus.	Not applicable.
Flows from riparian habitats and wetlands	No	Sediment	While the UM campus is proximate to a river, such habitats do not exist within its MS4.	Not applicable.
Dechlorinated swimming pool discharges	No	Chlorine	UM's swimming pool drains to the sanitary sewer.	Not applicable.
Street wash water	No	Organics, metals, trash, sediment, nutrients	Due to high levels of metals in the gravel/sand used in winter icing operations, discharges of wash water could become contaminated with metals. The minimal use of wash water combined with the fact that the water is vacuumed up reduces the potential for discharge of pollutants.	The street washing process uses minimal water which is immediately vacuumed-up by washing equipment. This activity is conducted once annually.

Small MS4 2020 Annual Report
Attachment 14
Occasional Non-Storm Water Discharges

Category	Suspected Significant Contributor of Pollutants (yes/no)	Potential Associated Pollutants	Discussion	Local Controls or Conditions
Ground water well testing	No	Sediment	UM utilizes ground water for building cooling.	UM will develop an SOP for testing new ground water wells.
Hydrant flushing	Yes	Chlorine, sediment, metals	Only a few hydrants cannot be channeled	None currently. The SWMT is developing an SOP to flush hydrant water into a grassed area or dry sumps to avoid direct discharge to a piped storm drain. Implementation of the SOP will greatly reduce the potential for discharge of pollutants.
Emergency water main breaks	No	Hydrocarbons, metals, trash, sediment, nutrients, chlorine	There is potential for potable water to convey pollutants on impervious surfaces into the MS4 system.	The SWMT is developing an SOP for responding to emergency water main breaks.
Sculpture studio washing	No	Chlorine, sediment	Given the location of the studio, any potable wash water is received by nearby permeable surfaces.	Additional controls are not needed due to the location of the studio.
Large campus events	No	Trash	There is a potential for trash to accumulate on the ground and be conveyed into the storm sewer system or receiving waterbodies during rainfall events.	UM staff are onsite throughout events to manage trash during the event. Staff are brought in the day after event to sweep the area for any remaining trash. The SWMT is developing an SOP for event facilitation and response.

Small MS4 2020 Annual Report
Attachment 15
High Priority Outfalls

Because the University of Montana only has 2 outfalls, it considers both to be high priority. Table below had details:

Name	Location	Type	Receiving Waterbody
East Outfall	Latitude: 46.864888° N Longitude: 113.980524° W	Concrete pipe	Clark Fork River
West Outfall	Latitude: 46.866459° N Longitude: 113.984491° W	Concrete pipe	Clark Fork River

OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET

Section 1: Background Data

Subwatershed: Clark Fork		Outfall ID: East Outfall	
Today's date: 05/11/2020		Time (Military): 14:08	
Investigators: Brian P. Kerns		Form completed by: Brian P. Kerns	
Temperature (°F): 51.5F	Rainfall (in.): Last 24 hours: 0.0	Last 48 hours: 0.0	
Latitude: 46.864888	Longitude: -113.980524	GPS Unit: mobile app	GPS LMK #:
Camera: Casio EX-S770		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☐ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☒ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g., origin of outfall, if known): University of Montana street drainage.

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☒ **Closed Pipe**	☒ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☐ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☐ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: _____	In Water: ☐ No ☐ Partially ☐ Fully With Sediment: ☐ No ☐ Partially ☐ Fully
☐ **Open drainage**	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ **In-Stream**	**(applicable when collecting samples)**				
Flow Present?	☒ Yes ☐ No	***If No, Skip to Section 5***			
Flow Description (If present)	☒ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		**RESULT**	**UNIT**	**EQUIPMENT**
☒ Flow #1	Volume	5gal 1.22gpm	Liter	Bottle
	Time to fill	4m 5s	Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature		41.5F cond 388.9microsiemen	°F	Thermometer
pH		8.0 TDS 266.8 ppm	pH Units	Test strip/Probe
Ammonia		0.0 ORP 296mV Cl 0.0	mg/L	Test strip

Outfall Reconnaissance Inventory Field Sheet

Section 4: Physical Indicators for Flowing Outfalls Only

Are Any Physical Indicators Present in the flow? ☒ Yes ☐ No *(If No, Skip to Section 5)*

INDICATOR	CHECK if Present	DESCRIPTION	RELATIVE SEVERITY INDEX (1-3)		
Odor	☐	☐ Sewage ☐ Rancid/sour ☐ Petroleum/gas ☐ Sulfide ☐ Other:	☐ 1 – Faint	☐ 2 – Easily detected	☐ 3 – Noticeable from a distance
Color	☒	☒ Clear ☐ Brown ☐ Gray ☐ Yellow ☐ Green ☐ Orange ☐ Red ☐ Other:	☒ 1 – Faint colors in sample bottle	☐ 2 – Clearly visible in sample bottle	☐ 3 – Clearly visible in outfall flow
Turbidity	☐	See severity	☐ 1 – Slight cloudiness	☐ 2 – Cloudy	☐ 3 – Opaque
Floatables -Does Not Include Trash!!	☐	☐ Sewage (Toilet Paper, etc.) ☐ Suds ☐ Petroleum (oil sheen) ☐ Other:	☐ 1 – Few/slight; origin not obvious	☐ 2 – Some; indications of origin (e.g., possible suds or oil sheen)	☐ 3 - Some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls

Are physical indicators that are not related to flow present? ☐ Yes ☒ No *(If No, Skip to Section 6)*

INDICATOR	CHECK if Present	DESCRIPTION	COMMENTS
Outfall Damage	☐	☐ Spalling, Cracking or Chipping ☐ Peeling Paint ☐ Corrosion	
Deposits/Stains	☐	☐ Oily ☐ Flow Line ☐ Paint ☐ Other:	
Abnormal Vegetation	☐	☐ Excessive ☐ Inhibited	
Poor pool quality	☐	☐ Odors ☐ Colors ☐ Floatables ☐ Oil Sheen ☐ Suds ☐ Excessive Algae ☐ Other:	
Pipe benthic growth	☐	☐ Brown ☐ Orange ☐ Green ☐ Other:	

Section 6: Overall Outfall Characterization

☐ Unlikely ☐ Potential (presence of two or more indicators) ☐ Suspect (one or more indicators with a severity of 3) ☒ Obvious

Section 7: Data Collection

1. Sample for the lab?	☐ Yes	☒ No	
2. If yes, collected from:	☐ Flow	☐ Pool	
3. Intermittent flow trap set?	☐ Yes	☒ No	If Yes, type: ☐ OBM ☐ Caulk dam

Section 8: Any Non-Illicit Discharge Concerns (e.g., trash or needed infrastructure repairs)?


5/11/2020 2:17pm


5/11/2020 2:34pm

OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET

Section 1: Background Data

Subwatershed: Clark Fork		Outfall ID: East Outfall	
Today's date: 03/12/2020		Time (Military): 15:15	
Investigators: Brian P. Kerns		Form completed by: Brian P. Kerns	
Temperature (°F): 42 F	Rainfall (in.): Last 24 hours: 0.04	Last 48 hours: 0.04	
Latitude: 46.864888	Longitude: -113.980524	GPS Unit: mobile app	GPS LMK #:
Camera: Casio EX-S770		Photo #s: E Outfall-2019-11-22.jpg	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☐ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☒ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g., origin of outfall, if known): University of Montana street drainage.

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☒ **Closed Pipe**	☒ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☐ Circular ☐ Eliptical ☐ Box ☐ Other: ____	☐ Single ☐ Double ☐ Triple ☐ Other: ____	Diameter/Dimensions: _____	In Water: ☐ No ☐ Partially ☐ Fully With Sediment: ☐ No ☐ Partially ☐ Fully
☐ **Open drainage**	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: ____	☐ Trapezoid ☐ Parabolic ☐ Other: ____		Depth: ____ Top Width: ____ Bottom Width: ____	
☐ **In-Stream**	**(applicable when collecting samples)**				
Flow Present?	☒ Yes ☐ No	***If No, Skip to Section 5***			
Flow Description (If present)	☒ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		**RESULT**	**UNIT**	**EQUIPMENT**
☒Flow #1	Volume	5 gal	Liter	Bottle
	Time to fill	18'25'' 0.28 GPM	Sec	
☐Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature		37.5F Cond: 162; TDS: 107.4	°F	Thermometer
pH		7.35 Rest: O/R ORP: 182 mV	pH Units	Test strip/Probe
Ammonia		0.0	mg/L	Test strip

Outfall Reconnaissance Inventory Field Sheet

Section 4: Physical Indicators for Flowing Outfalls Only

Are Any Physical Indicators Present in the flow? ☐ Yes ☐ No *(If No, Skip to Section 5)*

INDICATOR	CHECK if Present	DESCRIPTION	RELATIVE SEVERITY INDEX (1-3)		
Odor	☐	☐ Sewage ☐ Rancid/sour ☐ Petroleum/gas ☐ Sulfide ☐ Other:	☐ 1 – Faint	☐ 2 – Easily detected	☐ 3 – Noticeable from a distance
Color	☒	☒ Clear ☐ Brown ☐ Gray ☐ Yellow ☐ Green ☐ Orange ☐ Red ☐ Other:	☒ 1 – Faint colors in sample bottle	☐ 2 – Clearly visible in sample bottle	☐ 3 – Clearly visible in outfall flow
Turbidity	☐	See severity	☐ 1 – Slight cloudiness	☐ 2 – Cloudy	☐ 3 – Opaque
Floatables -Does Not Include Trash!!	☐	☐ Sewage (Toilet Paper, etc.) ☐ Suds ☐ Petroleum (oil sheen) ☐ Other:	☐ 1 – Few/slight; origin not obvious	☐ 2 – Some; indications of origin (e.g., possible suds or oil sheen)	☐ 3 - Some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls

Are physical indicators that are not related to flow present? ☐ Yes ☒ No *(If No, Skip to Section 6)*

INDICATOR	CHECK if Present	DESCRIPTION	COMMENTS
Outfall Damage	☐	☐ Spalling, Cracking or Chipping ☐ Peeling Paint ☐ Corrosion	
Deposits/Stains	☐	☐ Oily ☐ Flow Line ☐ Paint ☐ Other:	
Abnormal Vegetation	☐	☐ Excessive ☐ Inhibited	
Poor pool quality	☐	☐ Odors ☐ Colors ☐ Floatables ☐ Oil Sheen ☐ Suds ☐ Excessive Algae ☐ Other:	
Pipe benthic growth	☐	☐ Brown ☐ Orange ☐ Green ☐ Other:	

Section 6: Overall Outfall Characterization

☐ Unlikely ☐ Potential (presence of two or more indicators) ☐ Suspect (one or more indicators with a severity of 3) ☒ Obvious

Section 7: Data Collection

1. Sample for the lab?	☐ Yes	☒ No	
2. If yes, collected from:	☐ Flow	☐ Pool	
3. Intermittent flow trap set?	☐ Yes	☒ No	If Yes, type: ☐ OBM ☐ Caulk dam

Section 8: Any Non-Illicit Discharge Concerns (e.g., trash or needed infrastructure repairs)? Investigation by UM plumbing foreman indicates HVAC cooling equipment.


Montana

OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET

Section 1: Background Data

Subwatershed: Clark Fork		Outfall ID: West Outfall	
Today's date: 05/11/2020		Time (Military): 14:15	
Investigators: Brian P. Kerns		Form completed by: Brian P. Kerns	
Temperature (°F): 51.5F	Rainfall (in.): Last 24 hours: 0.0	Last 48 hours: 0.0	
Latitude: 46.866459	Longitude: -113.984491	GPS Unit: mobile app	GPS LMK #:
Camera: Casio EX-S770		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☐ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☒ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g., origin of outfall, if known): University of Montana street drainage.

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☒ **Closed Pipe**	☒ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☐ Circular ☐ Eliptical ☐ Box ☐ Other: ____	☐ Single ☐ Double ☐ Triple ☐ Other: ____	Diameter/Dimensions: 21 in. ID	In Water: ☒ No ☐ Partially ☐ Fully With Sediment: ☐ No ☐ Partially ☐ Fully
☐ **Open drainage**	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: ____	☐ Trapezoid ☐ Parabolic ☐ Other: ____		Depth: ____ Top Width: ____ Bottom Width: ____	
☐ **In-Stream**	**(applicable when collecting samples)**				
Flow Present?	☐ Yes ☒ No	***If No, Skip to Section 5*** Water present due to damming effect, but not flowing.			
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		**RESULT**	**UNIT**	**EQUIPMENT**
☐Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

Outfall Reconnaissance Inventory Field Sheet

Section 4: Physical Indicators for Flowing Outfalls Only

Are Any Physical Indicators Present in the flow? ☐ Yes ☐ No *(If No, Skip to Section 5)*

INDICATOR	CHECK if Present	DESCRIPTION	RELATIVE SEVERITY INDEX (1-3)		
Odor	☐	☐ Sewage ☐ Rancid/sour ☐ Petroleum/gas ☐ Sulfide ☐ Other:	☐ 1 – Faint	☐ 2 – Easily detected	☐ 3 – Noticeable from a distance
Color	☐	☐ Clear ☐ Brown ☐ Gray ☐ Yellow ☐ Green ☐ Orange ☐ Red ☐ Other:	☐ 1 – Faint colors in sample bottle	☐ 2 – Clearly visible in sample bottle	☐ 3 – Clearly visible in outfall flow
Turbidity	☐	See severity	☐ 1 – Slight cloudiness	☐ 2 – Cloudy	☐ 3 – Opaque
Floatables -Does Not Include Trash!!	☐	☐ Sewage (Toilet Paper, etc.) ☐ Suds ☐ Petroleum (oil sheen) ☐ Other:	☐ 1 – Few/slight; origin not obvious	☐ 2 – Some; indications of origin (e.g., possible suds or oil sheen)	☐ 3 - Some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls

Are physical indicators that are not related to flow present? ☐ Yes ☐ No *(If No, Skip to Section 6)*

INDICATOR	CHECK if Present	DESCRIPTION	COMMENTS
Outfall Damage	☒	☒ Spalling, Cracking or Chipping ☐ Peeling Paint ☐ Corrosion	
Deposits/Stains	☐	☐ Oily ☐ Flow Line ☐ Paint ☐ Other:	
Abnormal Vegetation	☐	☐ Excessive ☐ Inhibited	
Poor pool quality	☐	☐ Odors ☐ Colors ☐ Floatables ☐ Oil Sheen ☐ Suds ☐ Excessive Algae ☐ Other:	
Pipe benthic growth	☐	☐ Brown ☐ Orange ☐ Green ☐ Other:	

Section 6: Overall Outfall Characterization

☐ Unlikely ☒ Potential (presence of two or more indicators) ☐ Suspect (one or more indicators with a severity of 3) ☐ Obvious

Section 7: Data Collection

1. Sample for the lab?	☐ Yes	☒ No	
2. If yes, collected from:	☐ Flow	☐ Pool	
3. Intermittent flow trap set?	☐ Yes	☒ No	If Yes, type: ☐ OBM ☐ Caulk dam

Section 8: Any Non-Illicit Discharge Concerns (e.g., trash or needed infrastructure repairs)?


5/11/2020 2:22pm

OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET

Section 1: Background Data

Subwatershed: Clark Fork		Outfall ID: West Outfall	
Today's date: 03/12/2020		Time (Military): 15:50	
Investigators: Brian P. Kerns		Form completed by: Brian P. Kerns	
Temperature (°F):	Rainfall (in.): Last 24 hours: 0.04	Last 48 hours: 0.04	
Latitude: 46.866459	Longitude: -113.984491	GPS Unit: mobile app	GPS LMK #:
Camera: Casio EX-S770		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☐ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☒ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g., origin of outfall, if known): University of Montana street drainage.

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☒ **Closed Pipe**	☒ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☐ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☐ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: 21 in. ID	In Water: ☒ No ☐ Partially ☐ Fully With Sediment: ☐ No ☐ Partially ☐ Fully
☐ **Open drainage**	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ **In-Stream**	**(applicable when collecting samples)**				
Flow Present?	☐ Yes ☒ No	***If No, Skip to Section 5*** Pool present, but no visible flow.			
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		**RESULT**	**UNIT**	**EQUIPMENT**
☐Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

Outfall Reconnaissance Inventory Field Sheet

Section 4: Physical Indicators for Flowing Outfalls Only

Are Any Physical Indicators Present in the flow? ☐ Yes ☐ No *(If No, Skip to Section 5)* not flowing

INDICATOR	CHECK if Present	DESCRIPTION	RELATIVE SEVERITY INDEX (1-3)		
Odor	☐	☐ Sewage ☐ Rancid/sour ☐ Petroleum/gas ☐ Sulfide ☐ Other:	☐ 1 – Faint	☐ 2 – Easily detected	☐ 3 – Noticeable from a distance
Color	☐	☐ Clear ☐ Brown ☐ Gray ☐ Yellow ☐ Green ☐ Orange ☐ Red ☐ Other:	☐ 1 – Faint colors in sample bottle	☐ 2 – Clearly visible in sample bottle	☐ 3 – Clearly visible in outfall flow
Turbidity	☐	See severity	☐ 1 – Slight cloudiness	☐ 2 – Cloudy	☐ 3 – Opaque
Floatables -Does Not Include Trash!!	☐	☐ Sewage (Toilet Paper, etc.) ☐ Suds ☐ Petroleum (oil sheen) ☐ Other:	☐ 1 – Few/slight; origin not obvious	☐ 2 – Some; indications of origin (e.g., possible suds or oil sheen)	☐ 3 - Some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls

Are physical indicators that are not related to flow present? ☒ Yes ☐ No *(If No, Skip to Section 6)*

INDICATOR	CHECK if Present	DESCRIPTION	COMMENTS
Outfall Damage	☒	☒ Spalling, Cracking or Chipping ☐ Peeling Paint ☐ Corrosion	Top of pipe eroded; see photos.
Deposits/Stains	☐	☐ Oily ☐ Flow Line ☐ Paint ☐ Other:	
Abnormal Vegetation	☐	☐ Excessive ☐ Inhibited	
Poor pool quality	☐	☐ Odors ☐ Colors ☐ Floatables ☐ Oil Sheen ☐ Suds ☐ Excessive Algae ☐ Other:	
Pipe benthic growth	☐	☐ Brown ☐ Orange ☐ Green ☐ Other:	

Section 6: Overall Outfall Characterization

☐ Unlikely ☒ Potential (presence of two or more indicators) ☐ Suspect (one or more indicators with a severity of 3) ☐ Obvious

Section 7: Data Collection

1. Sample for the lab?	☐ Yes	☒ No	
2. If yes, collected from:	☐ Flow	☐ Pool	
3. Intermittent flow trap set?	☐ Yes	☒ No	If Yes, type: ☐ OBM ☐ Caulk dam

Section 8: Any Non-Illicit Discharge Concerns (e.g., trash or needed infrastructure repairs)? None.


MUDDY
Buddies

Small MS4 2020 Annual Report
Attachment 17 Illicit Discharge Incidents

Incident ID	Property	Type	Date Created	Incident Date	Incident Description 1
19	000 Grounds	Storm Water / Illicit Discharge	1/3/2020	1/3/2020 5:26 PM	Walking across Lot U, I noticed another large oil sheen flowing from parking area and into storm water drain. The day was above freezing and recent snow/ice was melting, carrying the oil down the lot and into the drain. See attached video.
20	000 Grounds	Storm Water / Illicit Discharge	3/11/2020	3/11/2020 12:13 PM	Travis Ross of Missoula Valley Water Quality District email B. Kerns on 3/11/20 about a public complaint Travis received regarding misc trash and recycling that has been blown around UM compound and surrounding environs, creating an eyesore and also potentially fouling the Clark Fork river. Paul Trumbley, Eva Rocke & Brian Kerns reviewed the area earlier today and were discussing better ways to manage trash/recycling.
21	000 Grounds	Storm Water / Illicit Discharge	3/18/2020	3/18/2020 5:28 PM	Received cell call from Grounds foreman Ben Carson about an vehicle fluid spill crew members observed in parking lot H (SE area). A White GMC 2500HD; License#: MT 56-9290C; Parking Permit # 20H1093. A big pool of oil and/or other vehicle fluids were under engine area of pickup. A piece of cardboard was under a jack stand that was partially holding up an oil catch basin which was also strapped in place.
22	000 Grounds	Storm Water / Illicit Discharge	4/10/2020	4/10/2020 1:32 PM	On my way to ISB, I passed a black Lexus LS460, MT plates 4-277747C, UM parking tag 20E0252 parked in Lot G against the south side of Skaggs that was dripping gasoline or oil. A puddle was forming. I went back to get some grey absorbent pads and put them in place. UMPD was notified by me via email on 4/10/20
23	000 Grounds	Storm Water / Illicit Discharge	5/1/2020	4/29/2020 2:00 PM	A 14" valve on UM's main water pipe had been leaking for many months. A few weeks ago, a plumbing contractor dug up the area to investigate what was needed to be repaired. The valve has a 3-week lead-time and the contractor reburied the valve pending the arrival of the replacement. In the interim, apparently the leak worsened and whereas the ground as able to absorb the leaking water, the leak bubbled up to the surface and into the parking lot and then into the storm drain. See photos & video.
24	000 Grounds	Storm Water / Illicit Discharge	5/1/2020	4/29/2020 3:15 PM	An ASUM electric bus was charging outside the bus barn and Kerns noticed an active leak of what appeared to be hydraulic fluid. The leak was dripping out from a keyed hatch that allows bus operators to open the bus doors. The leak was pooling.
25	000 Grounds	Storm Water / Illicit Discharge	5/14/2020	5/6/2020 8:30 AM	Grounds crews were out applying glyphosate pesticide on campus and noticed the chemical tank was leaking on pavement. See photos.
26	000 Grounds	Storm Water / Illicit Discharge	6/4/2020	6/4/2020 7:18 AM	During early morning meter rounds, Kerns noticed a stream of water running into storm drain from a broken sprinkler head.
27	000 Grounds	Storm Water / Illicit Discharge	6/4/2020	6/4/2020 7:26 AM	Champion Center southside walkway - busted sprinkler head is discharging into storm drain.
28	000 Grounds	Storm Water / Illicit Discharge	6/11/2020	6/11/2020 4:20 PM	Martin Viereckl of the Missoula Valley Water Quality District (WQD) called Kerns on 6/3/2020 to relay a complaint that the WQD received. The initial complaint was vague and on 6/11, Martin was able to contact the complainant and derive more details. Essentially, the complaint revolved about the particular verbiage that was being used on the signs that are posted when the Grounds Department applies herbicides to UM's lawns. Apparently, according to City code, the words "pesticide application" must appear on the signs if the product possesses an EPA pesticide registration number. The language UM was using is "application for broad-leaf weed control."
29	000 Grounds	Storm Water / Illicit	7/22/2020	7/21/2020 11:00 AM	Three storm drain grates on East outfall were overlooked

		Discharge			during Chip Seal of Campus Drive and emulsified asphalt made its way into catch basin.
30	000 Grounds	Storm Water / Illicit Discharge	7/28/2020	7/28/2020 11:54 AM	The East Outfall has always had a small discharge even during dry weather. This was thought to be due to spring infiltration, but plumbing foreman Luke Woodward traced the discharge to some HVAC cooling equipment in Facilities Services (building 32). In mid-June, 2020, UM plumbing crews re-routed the cooling equipment discharge (domestic water) into the sanitary sewer. Kerns checked the East Outfall afterwards and noticed that the flow dropped from about 1.2 GPM to a trickle which is likely due to campus irrigation activities.
31	000 Grounds	Storm Water / Illicit Discharge	7/28/2020	7/28/2020 11:54 AM	Grounds being irrigated around Prescott House are dumping onto street and into storm drain. See attached video.

Small MS4 2020 Annual Report
Attachment 18
Legal Authority Summary

The UM is located within the jurisdiction of the Missoula Valley Water Quality District (WQD) and the City of Missoula. As such, the WQD and City have jurisdiction to regulate illicit discharges and implement enforcement mechanisms for noncompliance on Campus. For instance:

- Title 13.27.200 and 13.27.210 of the Missoula Municipal Code prohibits illicit discharges, identifies non-storm water discharges that are exempt from the requirement, and prohibits illicit connections.
- The WQD responds to illicit discharge complaints and conducts illicit discharge investigations within the WQD boundary (WQD boundary includes the University's Campus).

Considering this information, the SWMT is conducting ongoing research and coordinating with the City and WQD to better understand their respective Illicit Discharge Detection and Elimination (IDDE) programs prior to further developing UM's IDDE program to address regulatory-related requirements. UM may consider developing a memorandum of understanding (MOU) with the City and WQD to better define roles and responsibilities relating to IDDE program implementation within UM's MS4-regulated area.

Construction and land development activities that occur on Campus are under the jurisdiction of the City. Construction storm water management controls are required under Article IV of Chapter 13.27 of the Missoula Municipal Code; however, the City and UM SWMT have yet to determine how the General Permit's construction site storm water management requirements will be implemented on the Campus. The UM SWMT will coordinate with the City and WQD to consider and determine this in 2021.

The University does not have authority to issue formal or judicial municipal violations and/or fines as required by the Enforcement Response Plan (ERP) stipulations in the MS4 permit. The SWMT continues to work collaboratively with the municipal authorities that do exert MS4 compliance in the locality (the City of Missoula and the Missoula Valley Water Quality District) to better define its role in this complex arrangement of authority and jurisdictions. Since the University owns and operates the post-construction control measures that have been installed, it would seem that the requirement of the University to develop and enact an ERP has an inherent conflict of interest since it would be the one responsible for patrolling and enforcing and possibly penalizing its own actions. This makes little sense from the University's perspective and the SWMT will seek additional guidance on this issue from the Montana Department of Environmental Quality in 2021.

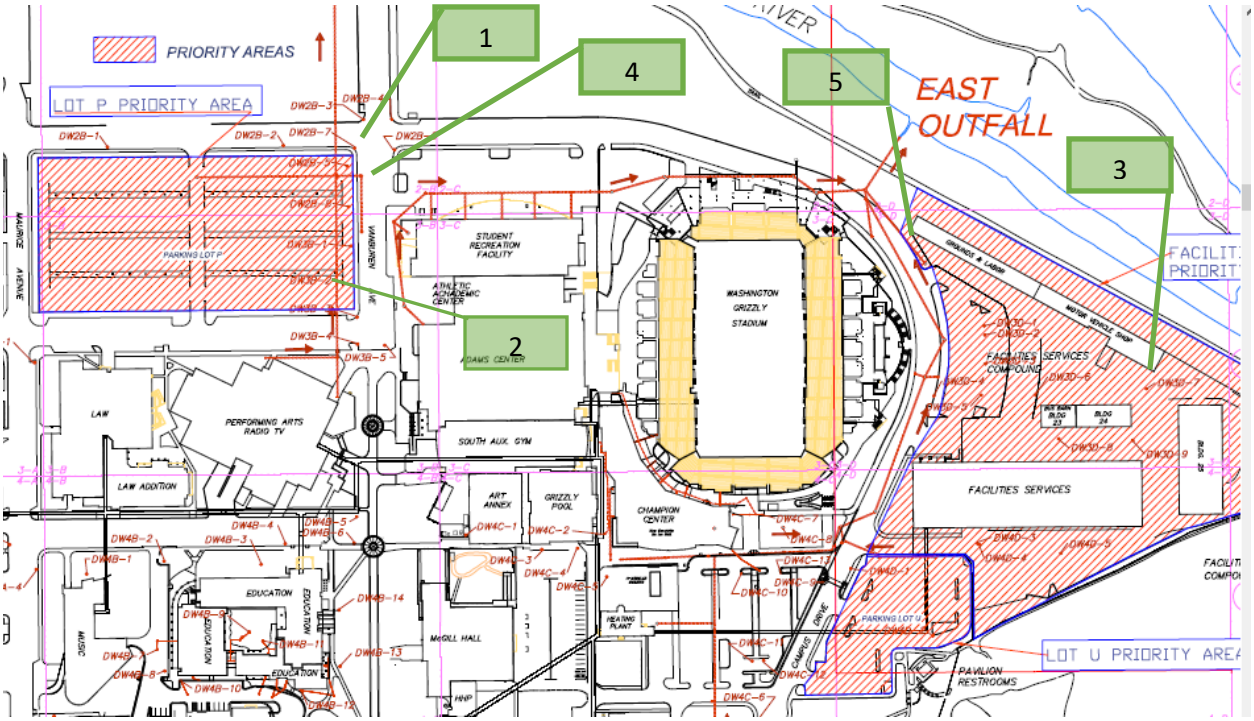
Small MS4 2020 Annual Report
Attachment 19
Enforcement Response Plan

Construction and land development activities that occur on Campus are under the jurisdiction of the City. Post-construction storm water management controls are required under Article IV of Chapter 13.27 of the Missoula Municipal Code. The City and UM SWMT have yet to determine how the General Permit's post-construction site storm water management requirements will be implemented on the Campus, specifically with regard to reviewing and approving plans and development and implementation of an enforcement response plan (ERP). The University does not have authority to issue formal or judicial municipal violations and/or fines as required by the ERP stipulations in the MS4 permit. The SWMT is further investigating the applicability of MCM 5a.iii to its MS4 permit and operations. See our response in Attachment 18 for further discussion.

Small MS4 2020 Annual Report
Attachment 20
Inspections of High Priority Post-Construction Controls

Members of the University's SWMT met three times in October, 2020 (10/5, 10/21, 10/29) to field inspect the storm sewer system, update the storm water map and inspect drains and dry wells in high priority areas. Referencing the map below and Attachment 3 of this annual report, the following post-construction controls had deficiencies requiring further evaluation and remediation:

Control Type	Map #	ID #	Location	Issue
Dry Well	1	DW2B-5	Lot P	Clogged with debris
Dry Well	2	DW2B-2	Lot P	Clogged with debris
Dry Well	3	DW3D-7	Facilities Compound	Investigate invert with borescope
Storm Drain	4		Van Buren @ NE corner of Lot P	Investigate invert with borescope
Storm Drain	5		NW Corner of Facilities Compound	Clogged with debris



Small MS4 2020 Annual Report
Attachment 21
Standard Operating Procedures

The following documents include Standard Operating Procedures (SOPs) broken into two formats: Facility SOPs and Activity SOPs.

Storm Water Pollution Prevention

Facilities Standard Operating Procedures

SOP #1

University of Montana
Facilities Services Compound

SOP Preparation Date: 01/ 20 / 2021

Facility Description and Contact Information

1.1 Facility Information

Facility Information

Name of Facility: Facilities Services Compound

Street: 32 Campus Drive

City: Missoula State: MT ZIP Code: 59812

Discharge Information

Drainage Basin: Columbia River

Drainage Basin Receiving Waterbody: Clark Fork River

Does this facility discharge storm water *directly* into any segment of a receiving waterbody?[1]

☒Yes ☐No

Permit Information

Is this facility permitted by an MPDES Permit (in addition to MS4)? ☐Yes ☒No

If Yes, identify other discharge permits:

1.2 Contact Information/Responsible Parties

Facility Director:

Name: Bob Smith

Telephone number: 406-243-2095

Email address: bob.smith@mso.umt.edu

University of Montana Storm Water Management Program Coordinator:

Storm Water Management Contact Name (Primary): Paul Trumbley

Telephone number: 406-243-2127

Email address: paul.trumbley@mso.umt.edu

1.3 Storm Water Pollution Prevention Team

The storm water pollution prevention team is responsible for implementing and maintaining storm water control measures/BMPs, and taking corrective actions when required.

Name	Position/Title	Individual Responsibilities
John Grasso	Associate Director	Grounds Operations
Paul Trumbley	Associate Director	SWMP Coordinator
Brad Evanger	Planning, Construction Design Tech	Technical Assistance
Eva Rocke	Sustainability Coordinator	Public Outreach
Brian Kerns	Utility Engineer	SWMP Activity Coordination
Vacant	Industrial Hygienist	Spill Prevention/Clean-up

[1] For purposes of this document, direct discharge refers to site runoff discharging directly into a stream or other receiving waterbody immediately upon leaving the bounds of the site or facility.

1.4 Site Description

The Facilities Services Compound houses most university facility staff, including trade shops (carpentry, custodial, electrical, plumbing, painting, HVAC, locksmith, machine shop), vehicle maintenance & rentals, storage of equipment and materials, including chemicals (pesticides, herbicides, fertilizers, lubricants, sand/gravel, deicer, etc.), used in performing maintenance operations throughout campus. Campus police department is also housed in this facility. Compound is fenced and has dry wells although the east storm water sewer system is in close proximity as it runs along Campus Drive to an outfall that is located about 150 feet behind the northwest corner of the compound. The compound is approximately 6.5 acres.

1.5 Purpose and Limitations

This standard operating procedures (SOP) document identifies potential storm water pollutants that could be discharged from the site and storm water pollution best management practices (BMPs) to be implemented to minimize the discharge of pollutants from storm water runoff. The potential pollutants and BMPs identified in the document only address management of storm water associated with University of Montana activities. The nearby City of Missoula has its own storm water permit and management plan.

This document is not expected to cover all possible circumstances. Operations staff is allowed to adapt SOPs to site conditions in good judgment when it is necessary for safety and the effective containment of pollutants.

Figure 1. Facility Services Compound Site Plan

SECTION 2.0 Potential Storm Water Pollutant Sources

This section describes potential storm water pollutant sources associated with the University of Montana Facilities Services Compound.

2.1 Potential Storm Water Pollutants Associated with Facility Activities

The Facilities Services Compound is the operational nerve center of the University of Montana main campus. Activities include on-site fabrication, vehicle maintenance and storage, trade shops and maintenance vehicles, bus dispatch and charging, recycling, police dispatch activities, shipping and receiving, inventory warehouse, chemical and other bulk material storage. A list of activities with the potential to discharge pollutants to the storm drainage system is provided in Table 1. Measures to be taken to reduce the potential for discharge of pollutants associated with these activities are identified in Section 3.2.2.

Table 1. Facilities Services Compound Activities and Potential Storm Water Pollutants

Activity	Potential Pollutants								
	Sediment	Nutrients	Trash	Metals	Bacteria	Oil, Grease, Fuel	Organics	Pesticides/Herbicides	Hazardous Waste
Vehicle Maintenance				X		X			X
Snow Storage	X		X			X			X
Storage of Hazardous Chemicals				X		X	X	X	X
Vehicle & Equipment Storage	X	X	X			X	X		X
Storage of Bulk Materials	X	X		X			X		
Street & Parking Lot Maintenance	X	X	X	X		X	X	X	X
Winter Street & Parking Lot Maintenance	X	X	X	X		X	X	X	X
Waste Handling & Disposal	X	X	X	X	X	X	X	X	X
Recycling	X	X	X	X					
Building Maintenance	X		X	X		X			X
Supply Well Development	X								

2.2 Spills and Leaks

Activities across the Facilities Services Compound all have spill potential. Fortunately, the area is graded so as flows are directed into dry sumps and not into the storm water sewer system. Table 2 provides additional detail. Spill response protocol is described in Section 3.2.3.

Table 2. Areas Where Potential Spills/Leaks Could Occur

Location	Discharge Point
Main Office/Trade Shops	Trade shops all have interior bays where spillages could occur. There is also storage of some materials such as lubricants in shop areas.
Bus Barn - storage	Interior bays, perimeter parking.
Grounds shop - storage	Storage bays, equipment & vehicles
Motor Vehicle shop	Interior maintenance bays
Equipment Garage - storage	Interior bays

SECTION 3.0 Storm Water Control Measures

This section describes the storm water BMPs to minimize the discharge of pollutants from storm water runoff at the facility.

3.1 Structural BMPs

3.1.1 Storm Water Drainage System

Storm water drainage is graded to flow towards the 15 dry wells installed across the Facilities Services Compound. The University of Montana's east outfall storm water system generally follows the adjacent Campus Drive but flows inside the compound shouldn't enter this system.

3.1.2 Permanent Storm Water Management BMPs

BMP Locations

With reference to Figure 1 above, 15 dry wells have been installed to capture and infiltrate storm water into the Missoula Valley Aquifer.

BMP Inspection and Maintenance

As the Compound's dry wells become clogged, Associate Director Grasso schedules a contract vacuum truck to clear & clean the dry well.

3.1.3 Chemical and Bulk Fuel Storage

Chemicals and bulk materials such as gasoline, diesel, pesticide, herbicide, fertilizer, deicer, lubricants, waste oil, etc. are stored in various locations throughout the Compound. Interior bays are designed to pool and contain spillages inside. Floor drains in bays are connected to the sanitary sewer. The bulk fueling station has a concrete containment perimeter. The vehicle maintenance shop has floor drains connected to the sanitary sewer and has an oil-water separator.

3.2 Non-Structural BMPs

3.2.1 Employee Training

Training Procedures

Employees are given storm water awareness training and are schooled in effective execution of their work activities. In addition, staff is given specific storm water pollution prevention training.

Training Schedule

Newly hired staff is given storm water training on applicable activities within 90 days of hiring.

3.2.2 Good Housekeeping

Good housekeeping procedures to be implemented by facility staff are listed in Table 3.

Table 3. Facility Services Compound Storm Water Management Good Housekeeping Procedures

Activity	Responsible Person/Position	BMP to Reduce Potential for Pollution
Vehicle Maintenance	Bob Peterson	Vehicle Maintenance SOP
Snow Storage	Mick Alva	Snow Storage SOP
Storage of Hazardous Chemicals	Ben Carson	Storage of Hazardous Chemicals SOP
Vehicle & Equipment Storage	Mick Alva	Vehicle & Equipment SOP
Storage of Bulk Materials	Ben Carson	Storage of Bulk Materials SOP
Street & Parking Lot Maintenance	Mick Alva	Street 7 Parking Lot Maintenance SOP
Winter Street & Parking Lot Maintenance	Mick Alva	Winter Street & Parking Lot Maintenance SOP
Waste Handling & Disposal	Mick Alva	Waste Handling & Disposal SOP
Recycling	Eva Rocke	Recycling SOP
Building Maintenance	Shawn Monson	Building Maintenance SOP
Supply Well Development	Brad Evanger	Supply Well Development SOP

3.2.3 Spill Response

Spill response and cleanup is addressed by employee training, discussed in Section 3.2.1. Spill response procedures are provided below.

Facility Spill Kit

Spill kits are populated throughout the Facility Services Compound. Each shop has a kit within the shop and each technician's service vehicle also has a kit. Additionally, kits are available in the office of the Associate Director of Engineering/Utilities. The spill kit contains the following items:

- Absorbent Pads (white pads for vehicle fluids; grey pads for most everything, including oils & vehicle fluids)
- Bags of Floor Dry
- Disposal Bags
- Safety Goggles
- Rubber Gloves

Minor Spill Response Procedure

A minor spill is defined as one that poses no significant threat to human health or the environment. These spills generally involve less than 5 gallons and can usually be cleaned up by staff with supplied spill kits. Other characteristics of a minor spill include:

- The spilled material is easily stopped or controlled at the time of the spill
- The spill is localized
- The spilled material is not likely to reach surface water or groundwater

- There is little danger to human health
- There is little danger of explosion

Use the following procedures in response to a minor spill:

1. Immediately notify management of the spill.
2. If necessary, physically contain the spill to prevent further migration from the site.
    a. Stop or reduce continued release by ceasing activity, closing valves or flipping switches.
    b. Block or slow the migration of spilled material.
    c. Close or plug drains when possible.
2. Using proper personal protective equipment, obtain and use supplies from the spill kit for containment and absorption.
3. In consultation with the management, clean up small spills that can be effectively cleaned up by staff or hire a spill cleanup contractor.
4. Dispose of all contaminated products in accordance with applicable federal, state and local regulations.
5. Document the spill material, location, size, and date.

Major Spill Response Procedure

A major spill is defined as one involving a spill that cannot be safely and or adequately controlled or cleaned up by on-site staff. Characteristics of a major spill include:

- The spill is large enough to spread beyond the immediate area
- The spill material entered surface water or ground water (regardless of the size)
- The spill requires special training and equipment to cleanup
- The spill material is a threat to human health
- There is a danger of fire or explosion

Use the following procedures in response to a major spill:

1. All workers shall immediately evacuate the spill site to a safe distance away from the spill.
2. Notify management of the spill and details regarding the spill.
3. If there is not an immediate health or safety danger and if actions can be implemented safely, a trained employee shall conduct obvious and immediately implementable containment measures in the following sequence:
    a. Stop or reduce continued release by ceasing activity, closing valves or flipping switches.
    b. Block or slow the migration of spilled material.
    c. Close or plug drains when possible.
4. Management will contact the Fire Department to notify the Hazardous Response Team.
5. Management will coordinate cleanup with the Hazardous Response Team.
6. Document the spill material, location, size, and date.

Attachments: Activity SOPs

Building Maintenance
Equipment Storage and Maintenance
Event Facilitation and Response
Ground Maintenance
Hydrant Flushing
Recycling
Snow Storage
Storage of Hazardous Chemicals
Storage of Salt/Sand
Street and Parking Lot Maintenance
Supply Well Development
Vehicle and Equipment Storage
Vehicle Maintenance
Waste Handling and Disposal
Winter Street and Parking Lot Maintenance

Storm Water Pollution Prevention

Facilities Standard Operating Procedures

University of Montana
Grounds and Labor Shop

SOP Preparation Date: 01/ 20 / 2021

Facility Description and Contact Information

1.1 Facility Information

Facility Information

Name of Facility: Grounds and Labor Shop

Street: 32 Campus Drive

City: Missoula State: MT ZIP Code: 59812

Discharge Information

Drainage Basin: Columbia River

Drainage Basin Receiving Waterbody: Clark Fork River

Does this facility discharge storm water *directly* into any segment of a receiving waterbody?[1]
☐Yes ☒No

Permit Information

Is this facility permitted by an MPDES Permit (in addition to MS4)? ☐Yes ☒No

If Yes, identify other discharge permits:

1.2 Contact Information/Responsible Parties

Facility Director:

Name: Bob Smith

Telephone number: 406-243-2095

Email address: bob.smith@mso.umt.edu

University of Montana Storm Water Management Program Coordinator:

Storm Water Management Contact Name (Primary): Paul Trumbley

Telephone number: 406-243-2127

Email address: paul.trumbley@mso.umt.edu

1.3 Storm Water Pollution Prevention Team

The storm water pollution prevention team is responsible for implementing and maintaining storm water control measures/BMPs, and taking corrective actions when required.

Name	Position/Title	Individual Responsibilities
John Grasso	Associate Director	Grounds Operations
Brad Evanger	Planning, Construction Design Tech	Technical Assistance
Eva Rocke	Sustainability Coordinator	Public Outreach

[1] For purposes of this document, direct discharge refers to site runoff discharging directly into a stream or other receiving waterbody immediately upon leaving the bounds of the site or facility.

Name	Position/Title	Individual Responsibilities
Brian Kerns	Utility Engineer	SWMP Activity Coordination
Vacant	Industrial Hygienist	Spill Prevention/Clean-up

1.4 Site Description

The Facilities Services Grounds and Labor shop houses grounds staff and equipment such as sand/gravel, deicer vehicles as well as lawn mowers and miscellaneous fertilizers and chemicals. The facility consists of two offices, a break room with personal lockers and heated equipment storage area, all within the main facility at NW end of the Facilities Services compound. To the East of this is a series of 29 garage bays that serve as storage for vehicles and supplies. The compound is fenced and has dry wells although the east storm water sewer system is in close proximity as it runs along Campus Drive to an outfall that is located about 150 feet behind the northwest corner of the compound. The compound is approximately 6.5 acres.

1.5 Purpose and Limitations

This standard operating procedures (SOP) document identifies potential storm water pollutants that could be discharged from the site and storm water pollution best management practices (BMPs) to be implemented to minimize the discharge of pollutants from storm water runoff. The potential pollutants and BMPs identified in the document only address management of storm water associated with University of Montana activities. The nearby City of Missoula has its own storm water permit and management plan.

This document is not expected to cover all possible circumstances. Operations staff is allowed to adapt SOPs to site conditions in good judgment when it is necessary for safety and the effective containment of pollutants.

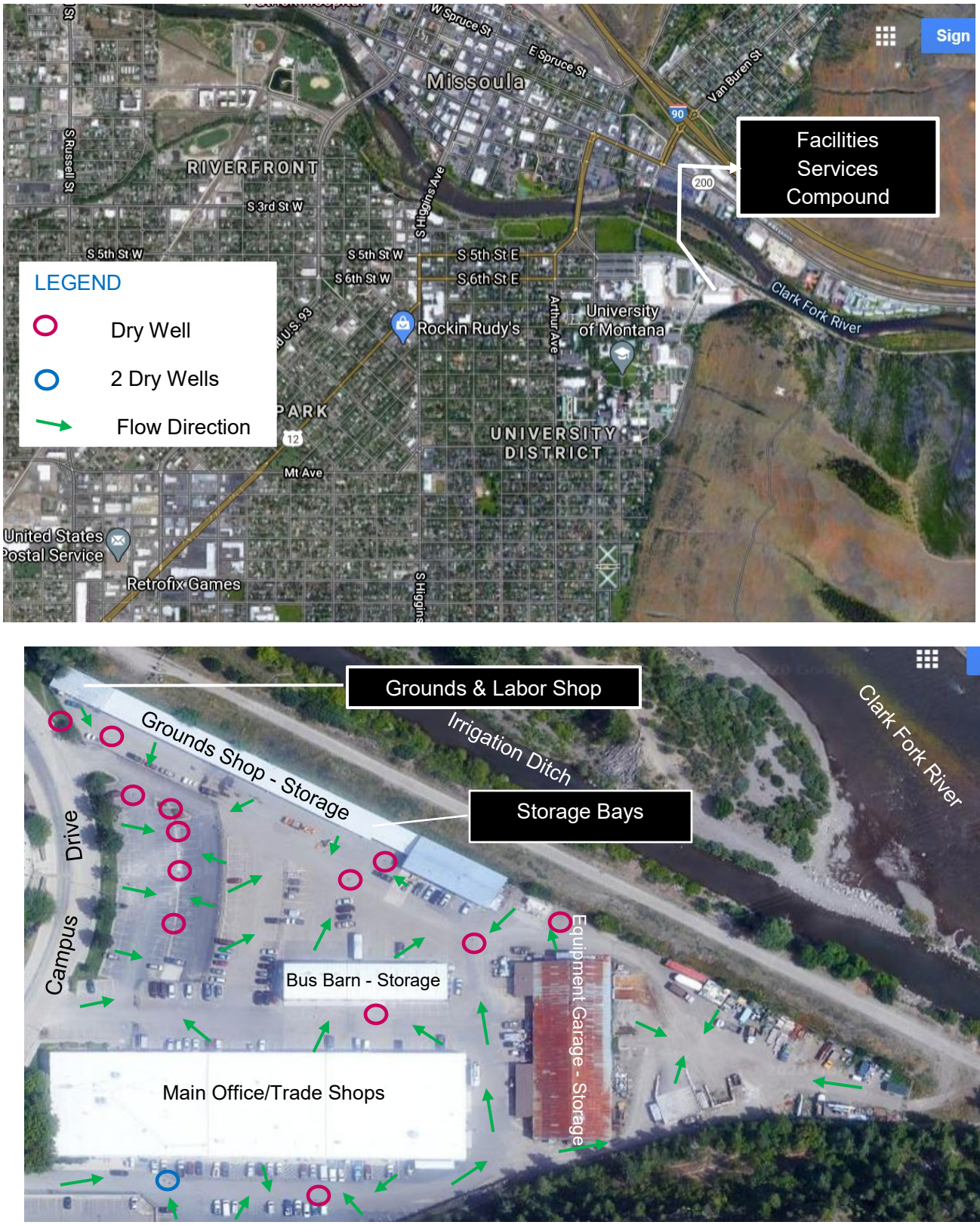


Figure 1. Facility Services Compound Site Plan

SECTION 2.0 Potential Storm Water Pollutant Sources

This section describes potential storm water pollutant sources associated with the University of Montana Facilities Services Compound.

2.1 Potential Storm Water Pollutants Associated with Facility Activities

The Grounds and Labor shop is within the Facilities Compound which is the operational nerve center of the University of Montana main campus. Shop activities include fertilizer and pesticide preparation, grounds equipment and heavy machinery storage and maintenance. A list of activities with the potential to discharge pollutants to the storm drainage system is provided in Table 1. Measures to be taken to reduce the potential for discharge of pollutants associated with these activities are identified in Section 3.2.2.

Table 1. Facilities Services Compound Activities and Potential Storm Water Pollutants

Activity	Potential Pollutants								
	Sediment	Nutrients	Trash	Metals	Bacteria	Oil, Grease, Fuel	Organics	Pesticides/Herbicides	Hazardous Waste
Snow Storage	X		X			X			X
Storage of Hazardous Chemicals				X		X	X	X	X
Vehicle & Equipment Storage	X	X	X			X	X		X
Storage of Bulk Materials	X	X		X			X	X	X
Street & Parking Lot Maintenance	X	X	X	X		X	X	X	X
Winter Street & Parking Lot Maintenance	X	X	X	X		X	X	X	X
Waste Handling & Disposal	X	X	X	X	X	X	X	X	X
Recycling	X	X	X	X					
Building Maintenance	X		X	X		X			X

2.2 Spills and Leaks

Activities across the Facilities Services Compound all have spill potential. Fortunately, the area is graded so flows are directed into dry sumps and not into the storm water sewer system. Table 2 provides additional detail. Spill response protocol is described in Section 3.2.3.

Table 2. Areas Where Potential Spills/Leaks Could Occur

Location	Discharge Point
Grounds and labor Shop	Some fertilizers and pesticides are stored and prepared for dispersal within the shop and storage bays.

Location	Discharge Point
Grounds shop - storage	Storage bays, equipment & vehicles
Equipment Garage - storage	Interior bays

SECTION 3.0 Storm Water Control Measures

This section describes the storm water BMPs to minimize the discharge of pollutants from storm water runoff at the facility.

3.1 Structural BMPs

3.1.1 Storm Water Drainage System

Storm water drainage is graded to flow towards the 15 dry wells installed across the Facilities Services Compound. The University of Montana's east outfall storm water system generally follows the adjacent Campus Drive but flows inside the compound shouldn't enter this system.

3.1.2 Permanent Storm Water Management BMPs

BMP Locations
With reference to Figure 1 above, 15 dry wells have been installed to capture and infiltrate storm water into the Missoula Valley Aquifer.

BMP Inspection and Maintenance
As the Compound's dry wells become clogged, Associate Director Grasso schedules a contract vacuum truck to clear & clean the dry well.

3.1.3 Chemical and Bulk Fuel Storage

Chemicals and bulk materials such as gasoline, diesel, pesticide, herbicide, fertilizer, deicer, lubricants, waste oil, etc. are stored in various locations throughout the Compound. Interior bays are designed to pool and contain spillages inside. Floor drains in bays are connected to the sanitary sewer. Non-Structural BMPs

3.1.4 Employee Training

Training Procedures
Employees are given storm water awareness training and are schooled in effective execution of their work activities. In addition, staff is given specific storm water pollution prevention training.

Training Schedule
Newly hired staff is given storm water training on applicable activities within 90 days of hiring.

3.1.5 Good Housekeeping

Good housekeeping procedures to be implemented by facility staff are listed in Table 3.

Table 3. Facility Services Compound Storm Water Management Good Housekeeping Procedures

Activity	Responsible Person/Position	BMP to Reduce Potential for Pollution
Vehicle Maintenance	Bob Peterson	Vehicle Maintenance SOP
Snow Storage	Mick Alva	Snow Storage SOP
Storage of Hazardous Chemicals	Ben Carson	Storage of Hazardous Chemicals SOP
Vehicle & Equipment Storage	Mick Alva	Vehicle & Equipment SOP
Storage of Bulk Materials	Ben Carson	Storage of Bulk Materials SOP
Street & Parking Lot Maintenance	Mick Alva	Street 7 Parking Lot Maintenance SOP
Winter Street & Parking Lot Maintenance	Mick Alva	Winter Street & Parking Lot Maintenance SOP
Waste Handling & Disposal	Mick Alva	Waste Handling & Disposal SOP
Recycling	Eva Rocke	Recycling SOP
Building Maintenance	Shawn Monson	Building Maintenance SOP
Supply Well Development	Brad Evanger	Supply Well Development SOP

3.1.6 Spill Response

Spill response and cleanup is addressed by employee training, discussed in Section 3.2.1. Spill response procedures are provided below.

Facility Spill Kit

Spill kits are populated throughout the Facility Services Compound. Each shop has a kit within the shop and each technician's service vehicle also has a kit. Additionally, kits are available in the office of the Associate Director of Engineering/Utilities. The spill kit contains the following items:

- Absorbent Pads (white pads for vehicle fluids; grey pads for most everything, including oils & vehicle fluids)
- Bags of Floor Dry
- Disposal Bags
- Safety Goggles
- Rubber Gloves

Minor Spill Response Procedure

A minor spill is defined as one that poses no significant threat to human health or the environment. These spills generally involve less than 5 gallons and can usually be cleaned up by staff with supplied spill kits. Other characteristics of a minor spill include:

- The spilled material is easily stopped or controlled at the time of the spill
- The spill is localized
- The spilled material is not likely to reach surface water or groundwater
- There is little danger to human health
- There is little danger of explosion

Use the following procedures in response to a minor spill:

1. Immediately notify management of the spill.
2. If necessary, physically contain the spill to prevent further migration from the site.

   a. Stop or reduce continued release by ceasing activity, closing valves or flipping switches.
   b. Block or slow the migration of spilled material.
   c. Close or plug drains when possible.
2. Using proper personal protective equipment, obtain and use supplies from the spill kit for containment and absorption.
3. In consultation with the management, clean up small spills that can be effectively cleaned up by staff or hire a spill cleanup contractor.
4. Dispose of all contaminated products in accordance with applicable federal, state and local regulations.
5. Document the spill material, location, size, and date.

Major Spill Response Procedure

A major spill is defined as one involving a spill that cannot be safely and or adequately controlled or cleaned up by on-site staff. Characteristics of a major spill include:

- The spill is large enough to spread beyond the immediate area
- The spill material entered surface water or ground water (regardless of the size)
- The spill requires special training and equipment to cleanup
- The spill material is a threat to human health
- There is a danger of fire or explosion

Use the following procedures in response to a major spill:

1. All workers shall immediately evacuate the spill site to a safe distance away from the spill.
2. Notify management of the spill and details regarding the spill.
3. If there is not an immediate health or safety danger and if actions can be implemented safely, a trained employee shall conduct obvious and immediately implementable containment measures in the following sequence:
   a. Stop or reduce continued release by ceasing activity, closing valves or flipping switches.
   b. Block or slow the migration of spilled material.
   c. Close or plug drains when possible.
4. Management will contact the Fire Department to notify the Hazardous Response Team.
5. Management will coordinate cleanup with the Hazardous Response Team.
6. Document the spill material, location, size, and date.

Attachments: Activity SOPs

Building Maintenance
Equipment Storage and Maintenance
Event Facilitation and Response
Ground Maintenance
Hydrant Flushing
Snow Storage
Storage of Hazardous Chemicals
Storage of Salt/Sand
Street and Parking Lot Maintenance
Supply Well Development
Vehicle and Equipment Storage
Vehicle Maintenance
Waste Handling and Disposal
Winter Street and Parking Lot Maintenance
Recycling

Storm Water Pollution Prevention

Facilities Standard Operating Procedures

SOP #4

University of Montana
Parks and Open Spaces

SOP Preparation Date: 02/18/2021

Facility Description and Contact Information

1.1 Facility Information

Facility Information

Name of Facility: Parks and Open Spaces

Street: 32 Campus Drive

City: Missoula State: MT ZIP Code: 59812

Discharge Information

Drainage Basin: Columbia River

Drainage Basin Receiving Waterbody: Clark Fork River

Does this facility discharge storm water *directly* into any segment of a receiving waterbody?[1]

☒Yes ☐No

Permit Information

Is this facility permitted by an MPDES Permit (in addition to MS4)? ☐Yes ☒No

If Yes, identify other discharge permits:

1.2 Contact Information/Responsible Parties

Facility Director:

Name: Bob Smith

Telephone number: 406-243-2095

Email address: bob.smith@mso.umt.edu

University of Montana Storm Water Management Program Coordinator:

Storm Water Management Contact Name (Primary): Paul Trumbley

Telephone number: 406-243-2127

Email address: paul.trumbley@mso.umt.edu

[1] For purposes of this document, direct discharge refers to site runoff discharging directly into a stream or other receiving waterbody immediately upon leaving the bounds of the site or facility.

1.3 Storm Water Pollution Prevention Team

The storm water pollution prevention team is responsible for implementing and maintaining storm water control measures/BMPs, and taking corrective actions when required.

Name	Position/Title	Individual Responsibilities
John Grasso	Associate Director	Grounds Operations
Paul Trumbley	Associate Director	SWMP Coordinator
Brad Evanger	Planning, Construction Design Tech	Technical Assistance
Eva Rocke	Sustainability Coordinator	Public Outreach
Brian Kerns	Utility Engineer	SWMP Activity Coordination
Vacant	Industrial Hygienist	Spill Prevention/Clean-up

1.4 Site Description

The University of Montana main campus contains over 150 acres that encompass multiple streets and parking lots, only some of which are connected to the storm water sewer system (see map below). UM has 30 parking lots in total, 10 of which are tied into the storm water system. UM has about 2.5 miles of asphalt roadway, 0.5 miles which contribute to the storm water system. Obviously, the asphalt roadways conduct vehicular traffic through campus. Streets and parking lots experience a lot of improperly discarded garbage plus plenty of vehicle fluid leaks. An average of about 8,500[2] vehicles travel through campus on any given day. About 3,500[3] parking permits are issued annually. 2 full time traffic officers patrol campus looking for parking or moving violations.

1.5 Purpose and Limitations

This standard operating procedures (SOP) document identifies potential storm water pollutants that could be discharged from these dispersed facilities. The best management practices (BMPs) contained herein will minimize the discharge of pollutants from these facilities. The potential pollutants and BMPs identified in the document only address management of storm water associated with University of Montana activities. The nearby City of Missoula has its own storm water permit and management plan.

This document is not expected to cover all possible circumstances. Operations staff is allowed to adapt SOPs to site conditions in good judgment when it is necessary for safety and the effective containment of pollutants.

[2] Nelson|Nygaard, “Parking and Transportation Demand Management Plan,” 2016, p. xiv.
[3] Rocke, Eva, Fiscal Year 2021 parking statistics, 2/16/2021 email.

Figure 1. Parks and Open Spaces at the University of Montana.

SECTION 2.0 Potential Storm Water Pollutant Sources

This section describes potential storm water pollutant sources associated with the University of Montana streets and parking lots.

2.1 Potential Storm Water Pollutants Associated with Street and Parking Lot Activities

UM streets and parking lots are the conduit for the many daily commuters that come onto campus. Activities are mainly campus vehicular ingress and egress as well as daily parking. Trash receptacles are placed along streets and lots and sections are used for snow storage in the winter. Occasionally, a ground water well will be located in parking lots as with the Champions Center well in Lot T. Fire hydrants are testing and flushed annually by Plumbing staff. Effluent from hydrant activities is kept off impervious surfaces as much as possible per the hydrant flushing SOP. These activities are provided in Table 1. Measures to be taken to reduce the potential for discharge of pollutants associated with these activities are identified in Section 3.2.2.

Table 1. Streets and Parking Lot Activities and Potential Storm Water Pollutants

Activity	Potential Pollutants								
	Sediment	Nutrients	Trash	Metals	Bacteria	Oil, Grease, Fuel	Organics	Pesticides/Herbicides	Hazardous Waste
Hydrant Flushing	X	X	X			X		X	
Snow Storage	X		X			X			X
Street & Parking Lot Maintenance	X	X	X	X		X	X	X	X
Supply Well Development	X								
Vehicle & Equipment Storage	X	X	X			X	X		X
Winter Street & Parking Lot Maintenance	X	X	X	X		X	X	X	X
Waste Handling & Disposal	X	X	X	X	X	X	X	X	X

2.2 Spills and Leaks

Potential pollutants from activities along streets and parking lots mostly lend themselves to leaking vehicular fluids. The majority of storm water incidents reported involve oil and gasoline leaks in parking lots. Table 2 provides additional detail. Spill response protocol is described in Section 3.2.3.

Table 2. Areas Where Potential Spills/Leaks Could Occur

Location	Discharge Point
Campus Drive	Trash expelled from vehicles; automotive fluid leaks.
Parking Lots	All parking spaces. It's worth noting that a single vehicle that is leaking fluids can pollute multiple locations over a long period of time as the owner accesses multiple spaces around campus.

SECTION 3.0 Storm Water Control Measures

This section describes the storm water BMPs to minimize the discharge of pollutants from storm water runoff along streets and lots.

3.1 Structural BMPs

3.1.1 Storm Water Drainage System

Storm water drainage along roads and parking lots is graded to flow towards either dry wells or into storm sewer grates which then conduct the storm water to one of UM's 2 outfalls.

3.1.2 Permanent Storm Water Management BMPs

BMP Locations

With reference to Figure 1 above, of the parking lots called-out on the image, Lots F, M & Z are served by dry wells while the other lots enter the storm water system directly and are discharged into the Clark Fork River. Some of the devices are catchment basins that offer some storm water storage and infiltration before overflowing into an invert into the storm sewer. Campus Drive, between the 2 green stars shown on Figure 1, drains storm water directly into the storm sewer. Other portions of Campus Drive and other campus streets are served by dry sumps.

BMP Inspection and Maintenance

Dry sumps and catchment basins are cleaned-out by a contract vacuum truck as they show signs of becoming clogged, Associate Director Grasso schedules the vacuum truck.

3.1.3 Infiltration

With reference to Figure 1 above, the orange arrow shows approximate location where the street curb is breached in order to allow storm water to drain off the asphalt and into turf grass where it can then percolate into the ground.

3.2 Non-Structural BMPs

3.2.1 Employee Training

Training Procedures

Employees are given storm water awareness training and are schooled in effective execution of their work activities. In addition, staff is given specific storm water pollution prevention training.

Training Schedule

Newly hired staff is given storm water training on applicable activities within 90 days of hiring.

3.2.2 Good Housekeeping

Good housekeeping procedures to be implemented by facility staff are listed in Table 3.

Table 3. Facility Services Compound Storm Water Management Good Housekeeping Procedures

Activity	Responsible Person/Position	BMP to Reduce Potential for Pollution
Hydrant Flushing	Luke Woodward	Hydrant Flushing SOP
Snow Storage	Mick Alva	Snow Storage SOP
Vehicle & Equipment Storage	Mick Alva	Vehicle & Equipment SOP
Street & Parking Lot Maintenance	Mick Alva	Street 7 Parking Lot Maintenance SOP
Winter Street & Parking Lot Maintenance	Mick Alva	Winter Street & Parking Lot Maintenance SOP
Waste Handling & Disposal	Mick Alva	Waste Handling & Disposal SOP
Supply Well Development	Brad Evanger	Supply Well Development SOP

3.2.3 Spill Response

Spill response and cleanup is addressed by employee training, discussed in Section 3.2.1. Spill response procedures are provided below.

Facility Spill Kit

Spill kits are available in the trades' shops and are also carried in fleet service vehicles. Additionally, kits are available in the office of the Associate Director of Engineering/Utilities. The spill kit contains the following items:

- Absorbent Pads (white pads for vehicle fluids; grey pads for most everything, including oils & vehicle fluids)
- Bags of Floor Dry
- Disposal Bags
- Safety Goggles
- Rubber Gloves

Minor Spill Response Procedure

A minor spill is defined as one that poses no significant threat to human health or the environment. These spills generally involve less than 5 gallons and can usually be cleaned up by staff with supplied spill kits. Other characteristics of a minor spill include:

- The spilled material is easily stopped or controlled at the time of the spill
- The spill is localized
- The spilled material is not likely to reach surface water or groundwater
- There is little danger to human health
- There is little danger of explosion

Use the following procedures in response to a minor spill:

1. Immediately notify management of the spill.
2. If necessary, physically contain the spill to prevent further migration from the site.
    a. Stop or reduce continued release by ceasing activity, closing valves or flipping switches.
    b. Block or slow the migration of spilled material.
    c. Close or plug drains when possible.
2. Using proper personal protective equipment, obtain and use supplies from the spill kit for containment and absorption.

3. In consultation with the management, clean up small spills that can be effectively cleaned up by staff or hire a spill cleanup contractor.
4. Dispose of all contaminated products in accordance with applicable federal, state and local regulations.
5. Document the spill material, location, size, and date.

Major Spill Response Procedure

A major spill is defined as one involving a spill that cannot be safely and or adequately controlled or cleaned up by on-site staff. Characteristics of a major spill include:

- The spill is large enough to spread beyond the immediate area
- The spill material entered surface water or ground water (regardless of the size)
- The spill requires special training and equipment to cleanup
- The spill material is a threat to human health
- There is a danger of fire or explosion

Use the following procedures in response to a major spill:

1. All workers shall immediately evacuate the spill site to a safe distance away from the spill.
2. Notify management of the spill and details regarding the spill.
3. If there is not an immediate health or safety danger and if actions can be implemented safely, a trained employee shall conduct obvious and immediately implementable containment measures in the following sequence:
    a. Stop or reduce continued release by ceasing activity, closing valves or flipping switches.
    b. Block or slow the migration of spilled material.
    c. Close or plug drains when possible.
4. Management will contact the Fire Department to notify the Hazardous Response Team.
5. Management will coordinate cleanup with the Hazardous Response Team.
6. Document the spill material, location, size, and date.

Attachments:

1. Activity SOPs

Hydrant Flushing
Snow Storage
Street and Parking Lot Maintenance
Supply Well Development
Vehicle and Equipment Storage
Waste Handling and Disposal
Winter Street and Parking Lot Maintenance

2. Inventory of Dispersed Facilities

Storm Water Pollution Prevention

Facilities Standard Operating Procedures

SOP #5

University of Montana
Streets and Parking Lots

SOP Preparation Date: 02/12/2021

Facility Description and Contact Information

1.1 Facility Information

Facility Information

Name of Facility: Streets and Parking Lots

Street: 32 Campus Drive

City: Missoula State: MT ZIP Code: 59812

Discharge Information

Drainage Basin: Columbia River

Drainage Basin Receiving Waterbody: Clark Fork River

Does this facility discharge storm water *directly* into any segment of a receiving waterbody?[1]

☒Yes ☐No

Permit Information

Is this facility permitted by an MPDES Permit (in addition to MS4)? ☐Yes ☒No

If Yes, identify other discharge permits:

1.2 Contact Information/Responsible Parties

Facility Director:

Name: Bob Smith

Telephone number: 406-243-2095

Email address: bob.smith@mso.umt.edu

University of Montana Storm Water Management Program Coordinator:

Storm Water Management Contact Name (Primary): Paul Trumbley

Telephone number: 406-243-2127

Email address: paul.trumbley@mso.umt.edu

[1] For purposes of this document, direct discharge refers to site runoff discharging directly into a stream or other receiving waterbody immediately upon leaving the bounds of the site or facility.

1.3 Storm Water Pollution Prevention Team

The storm water pollution prevention team is responsible for implementing and maintaining storm water control measures/BMPs, and taking corrective actions when required.

Name	Position/Title	Individual Responsibilities
John Grasso	Associate Director	Grounds Operations
Paul Trumbley	Associate Director	SWMP Coordinator
Brad Evanger	Planning, Construction Design Tech	Technical Assistance
Eva Rocke	Sustainability Coordinator	Public Outreach
Brian Kerns	Utility Engineer	SWMP Activity Coordination
Vacant	Industrial Hygienist	Spill Prevention/Clean-up

1.4 Site Description

The University of Montana main campus contains over 150 acres that encompass multiple streets and parking lots, only some of which are connected to the storm water sewer system (see map below). UM has 30 parking lots in total, 10 of which are tied into the storm water system. UM has about 2.5 miles of asphalt roadway, 0.5 miles which contribute to the storm water system. The asphalt roadways conduct vehicular traffic through and around campus. Streets and parking lots experience a lot of improperly discarded garbage plus plenty of vehicle fluid leaks are evident in parking lots. An average of about 8,500 vehicles[2] travel through campus on any given day. About 3,500 parking permits[3] are issued annually. 2 full time traffic officers patrol campus for parking and moving violations.

1.5 Purpose and Limitations

This standard operating procedures (SOP) document identifies potential storm water pollutants that could be discharged from these dispersed facilities. The best management practices (BMPs) contained herein will minimize the discharge of pollutants from these facilities. The potential pollutants and BMPs identified in the document only address management of storm water associated with University of Montana activities. The nearby City of Missoula has similar adjacent facilities that are subject to its own storm water permit and management plan.

This document is not expected to cover all possible circumstances. Operations staff is allowed to adapt SOPs to site conditions in good judgment when it is necessary for safety and the effective containment of pollutants.

[2] Nelson|Nygaard, “Parking and Transportation Demand Management Plan,” 2016, p. xiv.
[3] Rocke, Eva, Fiscal Year 2021 parking statistics, 2/16/2021 email.

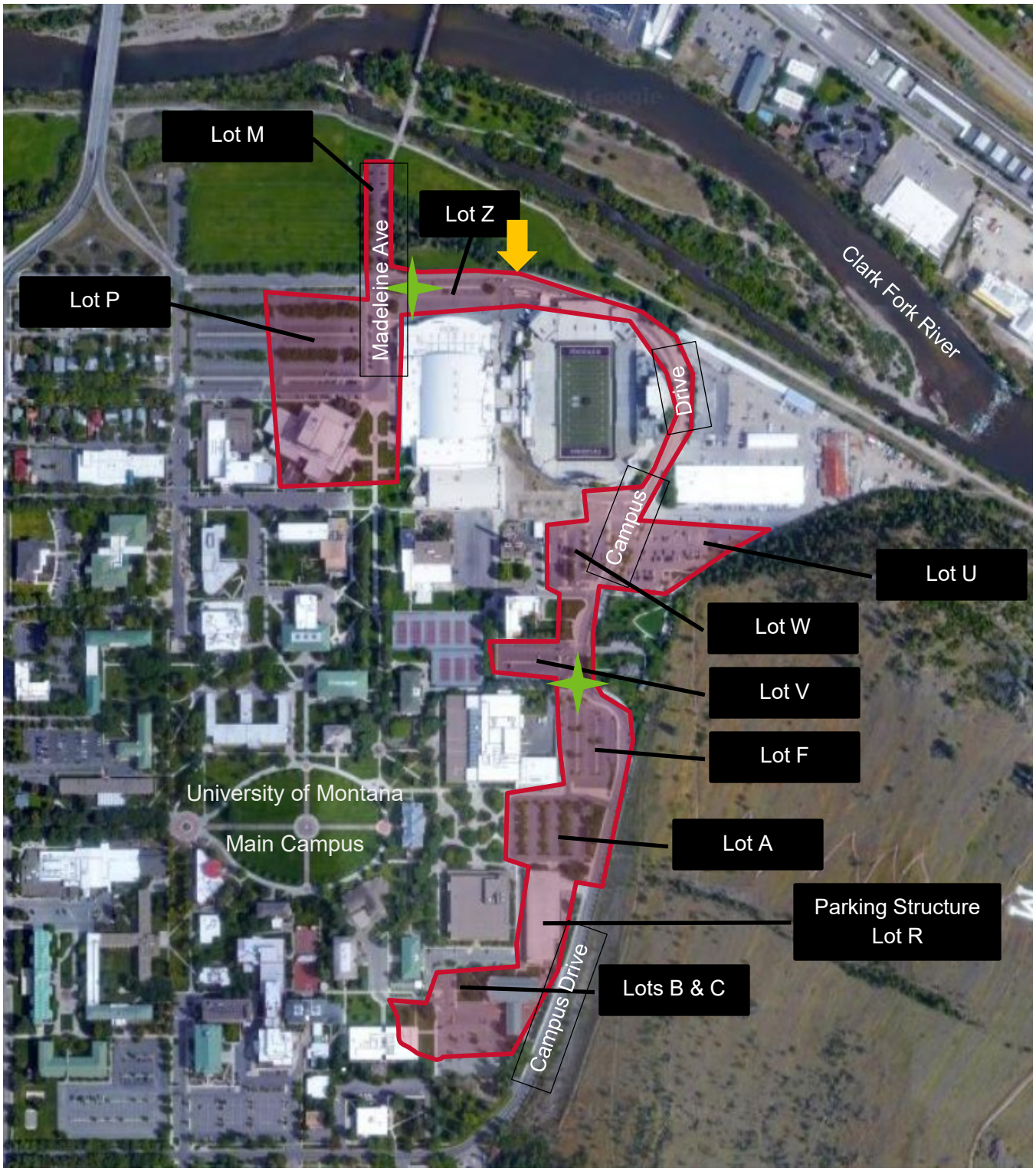


Figure 1. Area of streets & parking lots that connect to storm water system.

SECTION 2.0 Potential Storm Water Pollutant Sources

This section describes potential storm water pollutant sources associated with the University of Montana streets and parking lots.

2.1 Potential Storm Water Pollutants Associated with Street and Parking Lot Activities

UM streets and parking lots form the principal conduit for the many daily commuters that come onto campus. Activities are mainly campus vehicular ingress and egress as well as daily and long-term parking. Trash receptacles are placed along streets and lots and sections of each are used for snow storage in the winter. Occasionally, a ground water well may be located in a parking lot, an example of which is the Champions Center well in Lot T. Fire hydrants line streets and lots and are tested annually by Plumbing staff. Effluent from hydrant testing activities is kept off impervious surfaces as much as possible per the hydrant flushing SOP. Streets and lots are maintained by periodic street sweeping, pothole and crack repair and annual striping.

These activities are listed in Table 1. Measures to be taken to reduce the potential for discharge of pollutants associated with these activities are identified in Section 3.2.2.

Table 1. Streets and Parking Lot Activities and Potential Storm Water Pollutants

Activity	Potential Pollutants								
	Sediment	Nutrients	Trash	Metals	Bacteria	Oil, Grease, Fuel	Organics	Pesticides/Herbicides	Hazardous Waste
Hydrant Flushing	X	X	X			X		X	
Snow Storage	X		X			X			X
Street & Parking Lot Maintenance	X	X	X	X		X	X	X	X
Supply Well Development	X								
Vehicle & Equipment Storage	X	X	X			X	X		X
Winter Street & Parking Lot Maintenance	X	X	X	X		X	X	X	X
Waste Handling & Disposal	X	X	X	X	X	X	X	X	X

2.2 Spills and Leaks

Potential pollutants from activities along streets and parking lots mostly lend themselves to leaking vehicular fluids. The majority of storm water incidents reported involve oil and gasoline leaks in parking lots. Table 2 provides additional detail. Spill response protocol is described in Section 3.2.3.

Table 2. Areas Where Potential Spills/Leaks Could Occur

Location	Discharge Point
Campus Drive	Trash expelled from vehicles; automotive fluid leaks.
Parking Lots	All parking spaces. It's worth noting that a single vehicle that is leaking fluids can pollute multiple locations over a long period of time as the owner accesses multiple spaces around campus.

SECTION 3.0 Storm Water Control Measures

This section describes the storm water BMPs to minimize the discharge of pollutants from storm water runoff along streets and lots.

3.1 Structural BMPs

3.1.1 Storm Water Drainage System

Storm water drainage along roads and parking lots is graded to flow towards either dry wells or into storm sewer grates which then conduct the storm water to one of UM's 2 outfalls. Limited sections of Campus Drive and Madeleine Avenue are connected to the storm water sewer.

3.1.2 Permanent Storm Water Management BMPs

BMP Locations

With reference to Figure 1 above, of the parking lots called-out on the image, Lots F, M & Z are served by dry wells while the other lots enter the storm water system directly and are discharged into the Clark Fork River. Some of the devices are catchment basins that offer some storm water storage and infiltration before overflowing into an invert into the storm sewer. Campus Drive, between the 2 green stars shown on Figure 1, drains storm water directly into the storm sewer. Other portions of Campus Drive and other campus streets are served by dry sumps.

BMP Inspection and Maintenance

Dry sumps and catchment basins are cleaned-out by a contract vacuum truck as they show signs of becoming clogged. Associate Director Grasso schedules the vacuum truck.

3.1.3 Infiltration

With reference to Figure 1 above, the orange arrow shows approximate location where the street curb is breached in order to allow storm water to drain off the asphalt and into turf grass where it can then percolate into the ground.

3.2 Non-Structural BMPs

3.2.1 Employee Training

Training Procedures

Employees are given storm water awareness training and are schooled in effective execution of their work activities. In addition, staff is given specific storm water pollution prevention training.

Training Schedule

Newly hired staff is given storm water training on applicable activities within 90 days of hiring.

3.2.2 Good Housekeeping

Good housekeeping procedures to be implemented by facility staff are listed in Table 3.

Table 3. Facility Services Compound Storm Water Management Good Housekeeping Procedures

Activity	Responsible Person/Position	BMP to Reduce Potential for Pollution
Hydrant Flushing	Luke Woodward	Hydrant Flushing SOP
Snow Storage	Mick Alva/Ben Carson	Snow Storage SOP
Vehicle & Equipment Storage	Mick Alva	Vehicle & Equipment SOP
Street & Parking Lot Maintenance	Mick Alva	Street 7 Parking Lot Maintenance SOP
Winter Street & Parking Lot Maintenance	Mick Alva	Winter Street & Parking Lot Maintenance SOP
Waste Handling & Disposal	Ben Carson	Waste Handling & Disposal SOP
Supply Well Development	Brad Evanger	Supply Well Development SOP

3.2.3 Spill Response

Spill response and cleanup is addressed by employee training, discussed in Section 3.2.1. Spill response procedures are provided below.

Facility Spill Kit

Spill kits are available in the trades' shops and are also carried in fleet service vehicles. Additionally, kits are available in the office of the Associate Director of Engineering/Utilities. The spill kit contains the following items:

- Absorbent Pads (white pads for vehicle fluids; grey pads for most everything, including oils & vehicle fluids)
- Bags of Floor Dry
- Disposal Bags
- Safety Goggles
- Rubber Gloves

Minor Spill Response Procedure

A minor spill is defined as one that poses no significant threat to human health or the environment. These spills generally involve less than 5 gallons and can usually be cleaned up by staff with supplied spill kits. Other characteristics of a minor spill include:

- The spilled material is easily stopped or controlled at the time of the spill
- The spill is localized
- The spilled material is not likely to reach surface water or groundwater
- There is little danger to human health
- There is little danger of explosion

Use the following procedures in response to a minor spill:

1. Immediately notify management of the spill.
2. If necessary, physically contain the spill to prevent further migration from the site.
    a. Stop or reduce continued release by ceasing activity, closing valves or flipping switches.
    b. Block or slow the migration of spilled material.
    c. Close or plug drains when possible.
2. Using proper personal protective equipment, obtain and use supplies from the spill kit for containment and absorption.
3. In consultation with the management, clean up small spills that can be effectively cleaned up by staff or hire a spill cleanup contractor.
4. Dispose of all contaminated products in accordance with applicable federal, state and local regulations.
5. Document the spill material, location, size, and date.

Major Spill Response Procedure

A major spill is defined as one involving a spill that cannot be safely and or adequately controlled or cleaned up by on-site staff. Characteristics of a major spill include:

- The spill is large enough to spread beyond the immediate area
- The spill material entered surface water or ground water (regardless of the size)
- The spill requires special training and equipment to cleanup
- The spill material is a threat to human health
- There is a danger of fire or explosion

Use the following procedures in response to a major spill:

1. All workers shall immediately evacuate the spill site to a safe distance away from the spill.
2. Notify management of the spill and details regarding the spill.
3. If there is not an immediate health or safety danger and if actions can be implemented safely, a trained employee shall conduct obvious and immediately implementable containment measures in the following sequence:
    a. Stop or reduce continued release by ceasing activity, closing valves or flipping switches.
    b. Block or slow the migration of spilled material.
    c. Close or plug drains when possible.
4. Management will contact the Fire Department to notify the Hazardous Response Team.
5. Management will coordinate cleanup with the Hazardous Response Team.
6. Document the spill material, location, size, and date.

Attachments:

1. Activity SOPs

Hydrant Flushing
Snow Storage
Street and Parking Lot Maintenance
Supply Well Development
Vehicle and Equipment Storage
Waste Handling and Disposal
Winter Street and Parking Lot Maintenance

2. Inventory of Dispersed Facilities

Storm Water Pollution Prevention

Facilities Standard Operating Procedures

SOP #6

University of Montana
Snow Storage Areas

SOP Preparation Date: 02/ 17 / 2021

Facility Description and Contact Information

1.1 Facility Information

Facility Information

Name of Facility: Snow Storage Areas

Street: 32 Campus Drive

City: Missoula State: MT ZIP Code: 59812

Discharge Information

Drainage Basin: Columbia River

Drainage Basin Receiving Waterbody: Clark Fork River

Does this facility discharge storm water *directly* into any segment of a receiving waterbody?[1]

☒Yes ☐No

Permit Information

Is this facility permitted by an MPDES Permit (in addition to MS4)? ☐Yes ☒No

If Yes, identify other discharge permits:

1.2 Contact Information/Responsible Parties

Facility Director:

Name: Bob Smith

Telephone number: 406-243-2095

Email address: bob.smith@mso.umt.edu

University of Montana Storm Water Management Program Coordinator:

Storm Water Management Contact Name (Primary): Paul Trumbley

Telephone number: 406-243-2127

Email address: paul.trumbley@mso.umt.edu

[1] For purposes of this document, direct discharge refers to site runoff discharging directly into a stream or other receiving waterbody immediately upon leaving the bounds of the site or facility.

1.3 Storm Water Pollution Prevention Team

The storm water pollution prevention team is responsible for implementing and maintaining storm water control measures/BMPs, and taking corrective actions when required.

Name	Position/Title	Individual Responsibilities
John Grasso	Associate Director	Grounds Operations
Paul Trumbley	Associate Director	SWMP Coordinator
Brad Evanger	Planning, Construction Design Tech	Technical Assistance
Eva Rocke	Sustainability Coordinator	Public Outreach
Brian Kerns	Utility Engineer	SWMP Activity Coordination
Vacant	Industrial Hygienist	Spill Prevention/Clean-up

1.4 Site Description

The Snow Storage areas are designated throughout campus and include small islands within parking lots, neighboring landscape beds, near parking lots and sidewalks and grassy areas where the snow can melt. As a “dispersed” facility, snow is temporarily stored on many locations across campus. Long term storage during significant snow accumulation events occurs behind the motor pool area and also at the south campus golf course. The areas along streets, parking lots and sidewalks are typically convenient corners and areas where snow can be easily plowed and piled.

1.5 Purpose and Limitations

This standard operating procedure (SOP) document identifies potential storm water pollutants that could be discharged from snow storage areas and best management practices (BMPs) to be implemented to minimize the discharge of pollutants from storm water runoff. The potential pollutants and BMPs identified in the document only address management of storm water associated with University of Montana activities. The nearby City of Missoula has its own storm water permit and management plan.

This document is not expected to cover all possible circumstances. Operations staff is allowed to adapt SOPs to site conditions in good judgment when it is necessary for safety and the effective containment of pollutants.

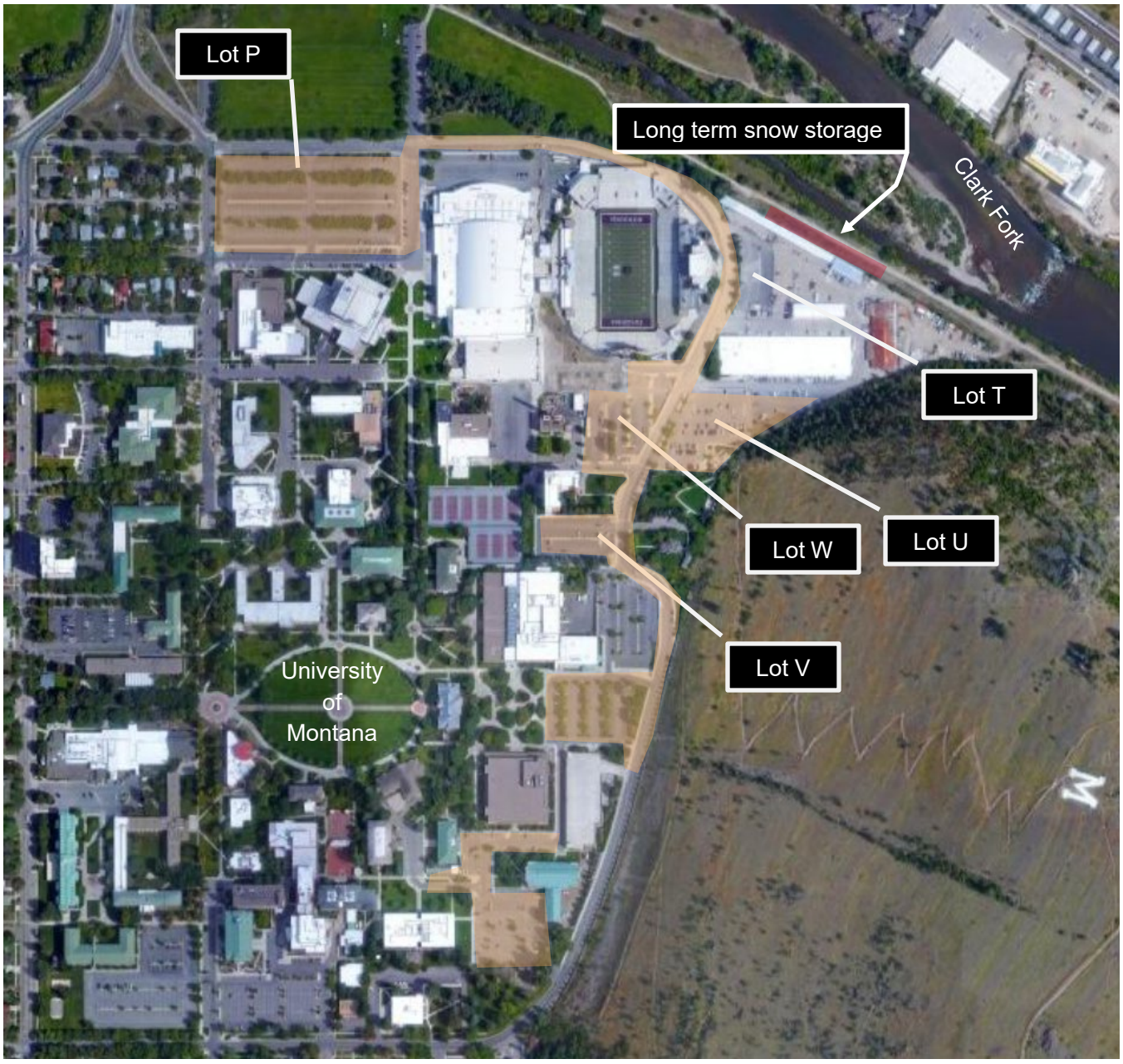


Figure 1. University of Montana main campus long term snow storage. Other short-term locations exist along streets, sidewalks and parking lots.

SECTION 2.0 Potential Storm Water Pollutant Sources

This section describes potential storm water pollutant sources associated with the University of Montana dispersed facilities for snow storage.

2.1 Potential Storm Water Pollutants Associated with Snow Storage

During the winter months snow storage is handled in stages. Public safety is the first priority in removing snow and creating a safe corridor for travel. Snow is immediately plowed into piles in convenient locations in lots, streets & sidewalks. Piles are preferably put on grassy or landscaped areas if nearby and convenient. Islands within a parking lot are commonly used. Once the storm has passed and there's been significant accumulation, crews will then try to relocate snow campus to the long-term storage area shown in Figure 1. This is a large, permeable area that is quickly and easily accessed by campus vehicles. As the piles melt away and debris is exposed, crews will collect and bag it to be taken to the dump. If, during a severe winter, the on-campus storage location reaches capacity, snow will also be stored permeable ground on South Campus near the University golf course. Storm sewer infrastructure is not present at the South Campus storage location but these piles will still be periodically inspected for debris.

2.2 Spills and Leaks

Snow storage locations across campus all have the ability to contain the same kinds of debris that plagues roadways, namely garbage, animal waste, and can be contaminated with vehicle fluids. During the spring months, as the piles melt, crews inspect for debris and possible pollutants, collect and dispose of any found. Table 2 provides some locations that are periodically inspected and of most concern because of their proximity to the Outfalls. Reference Figure 1 for lot locations.

Table 1. Areas Where Snow Melt Could Become Contaminated

Location	Snow Mound Locations
Lot P	Tree Islands Practice fields due north of center aisle across 5th
Lot U	Lot Islands Landscape row along West side of lot
Lot T	South East corner of lot
Lot W	Lot islands
Lot V	Center island
Long Term Snow Storage Area	Entire Area

SECTION 3.0 Storm Water Control Measures

This section describes the storm water BMPs to minimize the discharge of pollutants from storm water runoff at the facility.

3.1 Structural BMPs

3.1.1 Storm Water Drainage System

The University of Montana's 2 storm water drainage systems primarily serve the northeast section of campus, see orange-shaded areas in Figure 1. Other areas of campus are served by over 100 dry wells.

3.1.2 Permanent Storm Water Management BMPs

BMP Locations
With reference to Figure 1 above, a series of storm water grates and catchment basins handle the orange-shaded area in Figure 1.

BMP Inspection and Maintenance
Associate Director Grasso schedules a contract vacuum truck to clear & clean dry wells when they begin to clog.

3.2 Non-Structural BMPs

3.2.1 Employee Training

Training Procedures
Employees are given storm water awareness training and are schooled in effective execution of their work activities. In addition, staff is given specific storm water pollution prevention training.

Training Schedule
Newly hired staff is given storm water training on applicable activities within 90 days of hiring.

3.2.2 Good Housekeeping

Good housekeeping procedures to be implemented by facility staff are listed in Table 3.

Table 2. Snow Storage Areas Storm Water Management Good Housekeeping Procedures

Activity	Responsible Person/Position	BMP to Reduce Potential for Pollution
Snow Storage	Mick Alva/Ben Carson	Snow Storage SOP
Vehicle & Equipment Storage	Mick Alva	Vehicle & Equipment SOP
Street & Parking Lot Maintenance	Mick Alva	Street & Parking Lot Maintenance SOP
Winter Street & Parking Lot Maintenance	Mick Alva	Winter Street & Parking Lot Maintenance SOP

3.2.3 Spill Response

Spill response and cleanup is addressed by employee training, discussed in Section 3.2.1. Spill response procedures are provided below.

Facility Spill Kit
Spill kits are populated throughout the Facility Services Compound. Each shop has a kit within the shop and each technician's service vehicle also has a kit. Additionally, kits are available in the office of the Associate Director of Engineering/Utilities. The spill kit contains the following items:

- Absorbent Pads (white pads for vehicle fluids; grey pads for most everything, including oils & vehicle fluids)
- Bags of Floor Dry
- Disposal Bags
- Safety Goggles
- Rubber Gloves

Minor Spill Response Procedure

A minor spill is defined as one that poses no significant threat to human health or the environment. These spills generally involve less than 5 gallons and can usually be cleaned up by staff with supplied spill kits. Other characteristics of a minor spill include:

- The spilled material is easily stopped or controlled at the time of the spill
- The spill is localized
- The spilled material is not likely to reach surface water or groundwater
- There is little danger to human health
- There is little danger of explosion

Use the following procedures in response to a minor spill:

1. Immediately notify management of the spill.
2. If necessary, physically contain the spill to prevent further migration from the site.
    a. Stop or reduce continued release by ceasing activity, closing valves or flipping switches.
    b. Block or slow the migration of spilled material.
    c. Close or plug drains when possible.
2. Using proper personal protective equipment, obtain and use supplies from the spill kit for containment and absorption.
3. In consultation with the management, clean up small spills that can be effectively cleaned up by staff or hire a spill cleanup contractor.
4. Dispose of all contaminated products in accordance with applicable federal, state and local regulations.
5. Document the spill material, location, size, and date.

Major Spill Response Procedure

A major spill is defined as one involving a spill that cannot be safely and or adequately controlled or cleaned up by on-site staff. Characteristics of a major spill include:

- The spill is large enough to spread beyond the immediate area
- The spill material entered surface water or ground water (regardless of the size)
- The spill requires special training and equipment to cleanup
- The spill material is a threat to human health
- There is a danger of fire or explosion

Use the following procedures in response to a major spill:

1. All workers shall immediately evacuate the spill site to a safe distance away from the spill.
2. Notify management of the spill and details regarding the spill.
3. If there is not an immediate health or safety danger and if actions can be implemented safely, a trained employee shall conduct obvious and immediately implementable containment measures in the following sequence:
    a. Stop or reduce continued release by ceasing activity, closing valves or flipping switches.
    b. Block or slow the migration of spilled material.

   c. Close or plug drains when possible.
4. Management will contact the Fire Department to notify the Hazardous Response Team.
5. Management will coordinate cleanup with the Hazardous Response Team.
6. Document the spill material, location, size, and date.

Attachments: Activity SOPs

Snow Storage
Street and Parking Lot Maintenance
Vehicle & Equipment Storage
Winter Street and Parking Lot Maintenance

UNIVERSITY OF MONTANA Storm Water Management Program **STANDARD OPERATING PROCEDURE** CATEGORY: **Building Maintenance**	SOP NUMBER: **07** ISSUE DATE: **02/2021**
ACTIVITIES:	TARGET POLLUTANTS:
Exterior painting **Roofing** **Mechanical maintenance of rooftop equipment** **Window washing** **Roof Clean-up of Bird Droppings**	**Sediment** **Chemicals** **Oil & Grease** **Debris**

GENERAL

This SOP does not foresee all possible situations and employees are expected to use reasonable judgement to adapt this SOP to the circumstance at hand. Significant amounts of maintenance activities occur within a building's walls, but these activities should not impact stormwater as they are wholly contained. Problems such as broken water lines could overrun interior containment strategies and escape the building and potentially enter the stormwater system. Building proximate activities such as cleaning/clearing sidewalks and maintenance of adjacent grounds are covered by other SOPs.

DESCRIPTION OF ACTIVITIES AND POLLUTANT SOURCE

Building exterior maintenance activities include cleaning, painting, roof work, maintenance & repair of rooftop units all can introduce pollutants into stormwater. Pollutants are principally chemicals such as solvents, lubricants, cleaning chemicals. On some campus buildings, particularly PARTV and the stadium, have on-going problems with pigeons. Excrement can build-up and pose a pollution problem.

APPLICABILITY

The SOP shall apply to all employees engaged in the activities noted above.

BEST MANAGEMENT PRACTICES

1. Survey work site to access the stormwater pollution risk.
2. Locate all storm drain collection structures and inlets prior to starting work.
3. Have a spill kit handy.
4. Check liquid containers for competency.
5. Inspect equipment for gas, oil, and other fluid leaks prior to use.
6. Promptly clean up spills with appropriate materials.
7. Collect and dispose of all trash in the work area.
8. Keep liquid wastes contained.

THE FOLLOWING PROCEDURES SHOULD BE FOLLOWED FOR EACH LISTED ACTIVITY

EXTERIOR PAINTING

Crews should take standard precautions in preparing the work site to protect structures and landscaping and to contain potential splashes and spills. Clean-up of equipment should be conducted back at shop

where proper facilities connected to the sanitary sewer exist:

1. Use drop cloths to shield landscaping from painting & prep work (scrapping, sandblasting).
2. Perform clean-up in shop area.

ROOFING

Repairs performed on roofs require extra planning and care in execution. Different technics are required depending upon whether the roof is pitched or flat.

1. Establish if subject building fluids and debris (wash water, repair chemicals, ballast, dirt, etc.) can enter the storm sewer system.
2. If so, place filter pads over likely affected storm sewer grates.
3. If the building's roof leaders drain into the storm sewer, obstructive mats need to be placed to prevent roofing materials from being conducted into the storm sewer.
4. A spill kit must be readily accessible.
5. Removed and discarded roofing material should be managed through chutes into trash receptacles.
6. On buildings with pigeon poop (PARTV & Stadium) – implement a preventative maintenance procedure that, at least annually, inspects, cleans and removes the accumulated excrement. Poop should be gathered into bags for proper disposal and NOT washed off roofing surfaces with water.

MECHANICAL MAINTENANCE OF ROOFTOP EQUIPMENT

Rooftop mechanical equipment often requires maintenance. Equipment usually takes the form of air handlers, DX condensers, mini-splits, exhaust fans, etc. Repair activities can take many forms, from simple inspections to extensive overhauls. This SOP is concerned with activities that may involve the use of fluids (water, lubes, coolants, cleaning chemicals) that could spill and be flushed into the storm water system.

1. Ascertain whether building lies within an area of campus served by the storm water sewer systems.
2. If troubleshooting indicates that equipment coolant systems may be the problem, then:
    a. Roof leader inlets should be sealed with absorbent pads.
    b. Spill kits should be readily accessible.
    c. Collect & contain any coolant substances for proper disposal.

WINDOW WASHING

Exterior window washing activities should take similar precautions as those listed for EXTERIOR PAINTING.

Roof Clean-up of Bird Droppings

Some campus building roofs (PARTV, Clapp) and structures (Stadium) prove irresistible to roosting pigeons and they leave ample evidence of their presence. Considerable quantities of excrement can buildup over time and should be periodically cleaned.

1. Do not create dust. Wear protective gear such as rubber boots and respirator mask.
2. Seal off roof leaders.
3. Apply a spray solution of soapy water to droppings before and during clean up to prevent the formation of airborne dust. Continue wetting droppings throughout the cleaning process.
4. Place droppings in plastic bag & double bag when finished.
5. Wash water can be allowed to evaporate or gathered up with wet vacs. Dispose of waste water in sanitary sewer.
6. Stadium operations should continue to follow their established best practice of power washing droppings into the stadium where it is concentrated and then gathered into bags for landfill disposal.

UNIVERSITY OF MONTANA Storm Water Management Program **STANDARD OPERATING PROCEDURE** CATEGORY: **Event Facilitation and Response**	SOP NUMBER: **09** ISSUE DATE: **01/2021**
ACTIVITIES:	TARGET POLLUTANTS:
Trash Collection and Removal **Portable Toilet Service** **Food and Vendor Waste**	**Emulsified Asphalt** **Fuel & Oil** **Gravel & Sand** **Street painting**

GENERAL

This SOP does not foresee all possible situations and employees are expected to use reasonable judgement to adapt this SOP to the circumstance at hand. This SOP is designed to address BMP's while preparing for large campus events that have the potential to impact stormwater quality. Potential contaminants may include trash, septage, organics and fossil fuel spills.

DESCRIPTION OF ACTIVITIES AND POLLUTANT SOURCE

Stormwater pollution prevention procedures for Campus Events, including game day tailgating or large venue concerts, will plan in advance to initiate BMP's tailored to each unique event. When services are contracted, these same procedures should be provided the contractor with the expectation that they are responsible for following this SOP while on campus property.

APPLICABILITY

The SOP shall apply to all employees engaged in the activities noted above.

BEST MANAGEMENT PRACTICES

1. Survey work site to assess the stormwater pollution risk.
2. Locate all storm drain collection structures and inlets prior to starting work.
3. Have a spill kit handy.
4. Check liquid containers for competency.
5. Inspect equipment for gas, oil, and other fluid leaks prior to use.
6. Promptly clean up spills with appropriate materials.
7. Collect and dispose of all trash in the work area.
8. Keep liquid wastes contained.

THE FOLLOWING PROCEDURES SHOULD BE FOLLOWED FOR EACH LISTED ACTIVITY

Trash Collection and Removal

1. Provide adequate trash receptacles for vendors and guests.
2. Monitor and respond to leaking waste containers.
3. Empty trash receptacles to prevent overflow.
4. Store waste containers under cover or on grassy areas if possible.
5. Do not wash out trash receptacles unless wash water will be discharged to the sanitary sewer.

6. Walk the outdoor event area during and after to pick up loose trash and debris.
7. Sweep roadway and parking lots after large events.
8. Have spill kits available and ensure that vendors understand their responsibility on campus property.

Portable Toilet Service

1. It is the responsibility of the particular event coordinator to contract with a portable toilet service.
2. Coordinator is to strategically place toilets based on event crowd design.
3. Toilets are not to be placed within 100 feet and down gradient of any drains to the University's two outfalls.

Food and Beverage Vendor Waste

All street maintenance/repair contractors are to be made aware of existing outfalls and expected to follow best management practices concerning surface water contamination.

1. Vendors are to be given a copy of the SWMP Outdoor Event SOP and are responsible for following it..
2. Vendor waste can be placed in University dumpsters provided that they are sacked do not contain any hazardous materials.

UNIVERSITY OF MONTANA Storm Water Management Program **STANDARD OPERATING PROCEDURE** CATEGORY: **Grounds Maintenance**	SOP NUMBER: **10** ISSUE DATE: **01/2021**
ACTIVITIES:	TARGET POLLUTANTS:
Tree Trimming **Mowing** **Fertilizer/Pesticide/Herbicide Application** **Planting** **Equipment Fueling**	**Pesticides** **Nutrients** **Sediment** **Oil & Grease** **Organics**

GENERAL

This SOP does not foresee all possible situations and employees are expected to use reasonable judgement to adapt this SOP to the circumstances encountered.

DESCRIPTION OF ACTIVITIES AND POLLUTANT SOURCE

Grounds maintenance activities that have the potential to discharge pollutants to storm water runoff and surface waters include, tree trimming, mowing, fertilizing/pesticide/herbicide application, planting and equipment fueling. The activities occur on the main University of Montana campus.

APPLICABILITY

The SOP shall apply to all employees engaged in the activities noted above.

BEST MANAGEMENT PRACTICES

1. Locate all storm drain collection structures and inlets prior to starting work Containers should be appropriately labeled
2. Use temporary catch basin protection when necessary.
3. Use appropriate personal protective equipment (PPE) such as gloves, eye protection, face shields, skin protection, etc.
4. Spill kits and absorbent materials appropriate to the specific chemicals must be nearby.
5. Inspect equipment for gas, oil, and other fluid leaks prior to use.
6. Promptly clean up spills in accordance with the spill response and containment SOP.
7. Conduct all equipment cleaning and maintenance at Facilities Services Compound.

THE FOLLOWING PROCEDURES SHOULD BE FOLLOWED FOR EACH LISTED ACTIVITY

Mowing

UM Grounds staff are responsible for maintaining all grassy areas at the University of Montana main campus. Mowing includes the operation of mowers, trimmers, edgers, and blowers to maintain aesthetics of the UM managed grassy areas. A variety of pollutants can be introduced to the storm water system and nearby surface waters while mowing. Implement the following procedures to minimize the potential for storm water pollution during the mowing process:

1. Adjust mower height to match the area's intended use and minimize clippings.

2. Avoid excessive soil and vegetation damage by varying mowing patterns.
3. Mulch all grass back into the lawn
4. Sweep or blow clippings from sidewalks and streets to grassy areas when mowing is complete

Tree Trimming

UM Grounds Staff perform routine care for trees and shrubs at the University of Montana main campus Tree trimming includes the operation of chainsaws, trimmers, chippers, and blowers to maintain aesthetics of the UM managed trees and shrubs. Oil, grease, fuel, and organics can be introduced to the storm water system and nearby surface waters while trimming. Implement the following procedures to minimize potential for pollution during the trimming process:

1. Collect all trimmings and debris in the area when work is complete.
2. Sweep or blow chips from sidewalks or street into soil areas.
3. Dispose of trimmings and debris behind building 25 (Either chip and reuse or dispose)

FERTILIZER/PESTICIDE/HERBICIDE APPLICATION

Properly trained and certified persons perform routine care for grassy areas at the University of Montana main campus. Fertilizer, pesticide, and herbicide application includes the operation of sprayers and spreaders to maintain health of UM managed grassy and vegetated areas. A variety of nutrients and chemicals can be introduced to the storm water system and nearby surface waters during treatment.
Implement the following procedures to minimize potential for pollution in the fertilizer/pesticide/herbicide application process:

1. Read and review all product information prior to use. This information includes but is not limited to, safety data sheets, product instructions, and federal and state regulations governing use.
2. Avoid application within a minimum of 20 feet of storm drainage facilities and surface waters and 100 feet of any well head.
3. Calibrate application equipment to avoid excessive material application.
4. Check the weather forecast. Wind and or rain conditions (current and future) may not be acceptable for application. Do not use pesticides if rain is expected within a 24-hour period and only apply when wind speeds are less than 5 mph.
5. Mix and prepare all fertilizers, pesticides, and herbicides away from storm drains, waterbodies, and soils, preferably inside a protected area within a watertight secondary container.
6. Employ appropriate techniques to minimize off-target application spray drift and over broadcasting are possible pollutants to the storm water system.
7. Clean spills immediately and follow product specified procedures.
8. Rinse application equipment away from water bodies and storm drains. Do not dispose of chemicals to storm drain, sewer, or ground surface.
9. Dispose of excess material following manufacturer's instructions.

Planting

Planting includes digging, planting/seeding, and backfilling to maintain aesthetics of County managed land. Sediment and nutrients can be introduced to the storm water system and nearby surface waters during planting if proper procedures are not followed. Implement the following procedures to minimize potential for pollution when planting:

1. Prior to digging call Montana 811 by dialing 811 or 800-424-5555 to locate underground facilities.
2. While digging place spoils near the hole for ease of backfilling, avoid placing spoils in or near the gutter, a storm drain, or water body.
3. Do not add excessive amounts of compost or fertilizer while backfilling.
4.
5. Apply seed and cover using pre-determined application method and rate, in accordance with manufacturer's instructions.
6. Sweep dirt from surrounding pavement(s) into the planter area.
7. Remove extra spoils from the site responsibly, use a tarp if necessary to contain spoils during transport.
8. Transport spoils to the County Shops.

Equipment Fueling

Equipment fueling applies to all gas, or diesel, vehicles and equipment required for maintenance of UM facilities. Harmful chemicals can be introduced to the storm water system and nearby surface waters if spills occur while fueling equipment. Implement the following procedures to minimize pollution during fueling:

1. Use the fuel automatic shut off (where applicable) to prevent overfilling, and do not 'top off' the tank.
2. Mobile fueling should be minimized, whenever practical transport vehicles and equipment to designated fueling areas.
3. When fueling small equipment from portable containers, fuel in an area a minimum of 50 feet away from storm drains and water bodies.
4. If a large fuel spill occurs (greater than 1 gallon), contact the UM storm water coordinator and your supervisor to determine if specialized spill response procedures are necessary.

UNIVERSITY OF MONTANA Storm Water Management Program **STANDARD OPERATING PROCEDURE** CATEGORY: **Fire Hydrant Testing**	SOP NUMBER: **11** ISSUE DATE: **01/2021**
ACTIVITIES:	TARGET POLLUTANTS:
Testing of Fire Hydrants	**Chlorine** **Sediment** **Organics**

GENERAL

This SOP does not foresee all possible situations and employees are expected to use reasonable judgement to adapt this SOP to the circumstances encountered.

DESCRIPTION OF ACTIVITIES AND POLLUTANT SOURCE

Grounds maintenance activities that have the potential to discharge pollutants to storm water runoff and surface waters include, tree trimming, mowing, fertilizing/pesticide/herbicide application, planting and equipment fueling. The activities occur on the main University of Montana campus.

APPLICABILITY

The SOP shall apply to all employees engaged in the activities noted above.

BEST MANAGEMENT PRACTICES

1. Locate all storm drain collection structures and inlets prior to starting work.
2. Use temporary catch basin protection when necessary.
3. Know the project sites runoff patterns and the immediate area stormwater drainage system.
4. Direct hydrant flow into grassy areas whenever possible.
5. If necessary install inlet filter to protect runoff.

THE FOLLOWING PROCEDURES SHOULD BE FOLLOWED FOR EACH LISTED ACTIVITY

Fire Hydrant Testing

UM Plumbers are responsible for testing all fire hydrants at the University of Montana main campus. A variety of pollutants can be introduced to the storm water system and nearby surface waters while testing hydrants. Implement the following procedures to minimize the potential for storm water pollution during the testing process:

1. Direct hydrant flow into pervious areas.
2. Avoid blowing hydrant into landscape beds to avoid runoff of bark and mulch beds
3. Cleanup organic material if necessary
4. If unable to direct flow away from bark and mulch beds, then install diverter plywood or similar to keep much in place when flowing hydrant

UNIVERSITY OF MONTANA Storm Water Management Program **STANDARD OPERATING PROCEDURE** CATEGORY: **Recycling**	SOP NUMBER: **12** ISSUE DATE: **02/2021**
ACTIVITIES:	TARGET POLLUTANTS:
Collection and Transportation of Materials for Recycling **Offloading & Sorting of Materials to be Recycled** **Consolidation of Materials to be Recycled** **Bulk Storage of Materials to be Recycled**	**Debris** **Metals** **Oils and grease**

GENERAL

This SOP does not foresee all possible situations and employees are expected to use reasonable judgement to adapt this SOP to the circumstances at hand. UM maintains a significant recycling program on its campuses. Recycling crews collect materials deposited in bins at campus buildings and brings them back to the Facilities Services Compound for sorting, compacting and storage. Third party contractors periodically collect the accumulated recycle material and transport it to off-site processing facilities.

DESCRIPTION OF ACTIVITIES AND POLLUTANT SOURCE

Recycling crews move through UM campuses removing the contents of recycling containers, loading the material onto truck beds, transporting material to the campus recycling center where it is consolidated & stored until certain thresholds are met. The material is then removed by outside contractors. Debris could escape confinement during the collection and transporting processes.

APPLICABILITY

The SOP shall apply to all staff (fulltime, part-time & volunteer) engaged in the activities noted above.

BEST MANAGEMENT PRACTICES

1. Don't allow collection bins to overflow with material.
2. Wash water from cleaning operations should be collected and put in sanitary sewer or done where infiltration can occur.
3. Material should be secured in beds of transport vehicles to prevent inadvertent loss during transportation.
4. Exterior bins must have lids which should be kept closed when not being accessed.
5. Any spillage of material should be promptly picked up.
6. Exterior collection and storage areas should be periodically inspected and cleaned.
7. Hazardous or toxic materials like batteries must be stored within Building 25.

THE FOLLOWING PROCEDURES SHOULD BE FOLLOWED FOR EACH LISTED ACTIVITY

COLLECTION AND TRANSPORTATION OF MATERIALS FOR RECYCLING

Recycling materials must be securely contained at all times. Collection and storage areas should be kept tidy.

1. Collection should occur often enough so that the recycling bins at buildings do not overflow.
2. Recycling material needs to be securely bagged to prevent any loss during transportation to the recycling center.
3. Bins must be cleaned and sanitized annually.
4. Post contact information at building recycling areas in case an unanticipated pick up is required.

OFFLOADING AND SORTING OF MATERIALS TO BE RECYCLED

The unloading and sorting of comingled materials could provide an opportunity for pollutants to escape and come into contact with storm water. Typical precautions should mitigate any risk.

1. Unloading area should be secure enough so that material is not dispersed beyond the immediate work area.
2. Work area should be capable of being periodically cleaned and sanitized.
3. Any hazardous materials must be segregated and disposed of properly.
4. Area could be bermed with sandbags to provide additional storm water protection from contaminates.

CONSOLIDATION OF MATERIALS TO BE RECYCLED

Recycling crews use mechanical devices to compact and bale materials to be recycled into more convenient forms to facilitate storage and subsequent pick up by third party contractors. These machines and the method with which they are operated can be a source of storm water pollutants.

1. Properly maintain hydraulic systems.
2. Frequently lubricate and replace filters, if any.
3. Keep a spill kit handy in the event of a hydraulic or lubrication leak.

BULK STORAGE OF MATERIALS TO BE RECYCLED

Unfortunately, the UM recycling center is located at the mouth of Hellgate Canyon which is battered by notorious wind currents. Bulk storage of consolidated materials should be sufficiently secure so as not be subject to scattering by the wind.

1. Be sure lids of storage containers are closed at the end of the day.
2. Areas surrounding bulk storage containers should be kept free of debris.
3. Periodic clean and sanitize storage bins; discard waste water into sanitary sewer.

UNIVERSITY OF MONTANA Storm Water Management Program **STANDARD OPERATING PROCEDURE** CATEGORY: **Snow Storage**	SOP NUMBER: **13** ISSUE DATE: **01/2021**
ACTIVITIES:	TARGET POLLUTANTS:
Snow Storage throughout winter	**Emulsified Asphalt** **Fuel & Oil** **Gravel & Sand** **Street painting**

GENERAL

This SOP does not foresee all possible situations and employees are expected to use reasonable judgement to adapt this SOP to the circumstance at hand. This SOP is designed to address BMP's to protect stormwater by minimizing the impact of snow piles that could contain sand, salt, trash and fossil fuels that generate concentrated releases of pollutants during spring snowmelt conditions.

DESCRIPTION OF ACTIVITIES AND POLLUTANT SOURCE

Stormwater pollution prevention procedures for Snow Storage will include the identification of sensitive ecosystems prior to disposal and snow removal crews will have established, clearly defined, safe zones for snow piles. For smaller snow events, parking lot islands are often used or parking spaces themselves. Between storms, these piles will be relocated to designated spring thaw locations that are chosen to be safe from the threat of impacting waterways, drainage ditches, ponds, creeks or wetlands.

APPLICABILITY

The SOP shall apply to all employees engaged in the activities noted above.

BEST MANAGEMENT PRACTICES

1. Survey work site to assess the stormwater pollution risk.
2. Locate all storm drain collection structures and inlets prior to starting work.
3. Have a spill kit handy.
4. Inspect equipment for gas, oil, and other fluid leaks prior to use.
5. Promptly clean up spills with appropriate materials.
6. Collect and dispose of all trash from snow piles during spring thaw.

THE FOLLOWING PROCEDURES SHOULD BE FOLLOWED FOR EACH LISTED ACTIVITY

Snow Storage

1. Minor storms throughout winter, snow will be piled within existing parking lots, either on lot islands or within parking spaces.

2. Between storms throughout winter, snow piles from streets and lots will be relocated to preapproved locations in pervious areas where melt water can infiltrate into the ground and not into the storm drain system.

UNIVERSITY OF MONTANA Storm Water Management Program **STANDARD OPERATING PROCEDURE** CATEGORY: **Storage of Hazardous Chemicals**	SOP NUMBER: **14** ISSUE DATE: **01/2021**
ACTIVITIES:	TARGET POLLUTANTS:
Chemical Transfers into Containers **Choosing Proper Containers** **Siting Appropriate Storage Locations** **Transporting Chemicals**	**Chemicals (see list below)**

GENERAL

This SOP does not foresee all possible situations and employees are expected to use reasonable judgement to adapt this SOP to the circumstance encountered. Where and how potentially dangerous chemicals are stored is important as spills could enter the storm sewer system and be discharged into the Clark Fork river.

DESCRIPTION OF ACTIVITIES AND POLLUTANT SOURCE

Solvents, gasoline, diesel, used oil, antifreeze, batteries, paints, deicers, herbicides, pesticides, fertilizers, lubricants & coolants – all are important, useful chemicals employed in campus activities. The management and storage of these chemicals is important, given the proximity of the facilities compound in relation to the Clark Fork river. Storage containers must be sufficient to securely hold and dispense the materials. Storage locations should be properly sited so as to minimize the potential to enter into the storm water sewer system.

APPLICABILITY

The SOP shall apply to all employees engaged in the activities noted above.

BEST MANAGEMENT PRACTICES

1. Containers must be constructed of materials sufficient to properly store the chemical of interest.
2. Storage locations should be carefully sited so as to provide containment of any spillages.
3. Storage locations should allow for easy cleanup in the event of any spills.
4. Containers should be appropriately labeled
5. Safety Data Sheets (SDS)pertaining to the stored chemicals should be posted nearby.
6. Use appropriate personal protective equipment (PPE) such as gloves, eye protection, face shields, skin protection, etc. Breathing filters or respirators may be needed for handling of some chemicals such as ammonia & herbicides/pesticides.
7. Spill kits and absorbent materials appropriate to the specific chemicals must be nearby.
8. Check liquid containers for leaks.
9. Inspect storage locations monthly.
10. Recycle materials such as batteries and vehicle fluids.

THE FOLLOWING PROCEDURES SHOULD BE FOLLOWED FOR EACH LISTED ACTIVITY

CHEMICAL TRANSFERS INTO CONTAINERS

Many chemicals are stored in bulk in the Facilities Services compound and employees must be able to safely transfer the chemicals from the storage containers and into portable containers that are then transported for use around campus. The areas chosen for bulk storage should possess attributes such as 1) an area which does not drain into storm sewer, 2) has non-porous, chemical resistant flooring, and 3) has secondary containment structure.

1. Keep chemicals in appropriate containers (both bulk storage & portable) with correct labels.
2. Do not mix chemicals or introduce a chemical into another chemical's container. Incompatible chemicals can create explosive situations.
3. Be aware of harmful vapors that may emanate from the chemical being handled. If chemical is volatile and harmful, be sure the area has adequate ventilation.
4. If diluting chemicals, follow specific instructions for dilution procedure.
5. If storing used or waste chemicals, be sure to use container appropriate for chemical and that it is properly labeled with chemical identity and also noted as "waste" or "recycle" as applicable.
6. Store hazardous chemicals together and separate from non-hazardous chemicals. Both can be stored at same site, just not intermixed.
7. Be sure containers are tightly sealed after use.
8. Transfer devices such as funnels, pumps, measurement cylinders, etc. should be properly cleaned and stored after use.

CHOOSING PROPER CONTAINERS

Container materials include metal, plastic and glass. Note that flammable liquids such as solvents and vehicle fuels must be stored in containers approved by Occupational Safety and Health Administration (OSHA).

1. Corrosive materials should be placed in plastic preferably or in steel that is lined with plastic.
2. Glass containers should be avoided, unless specifically recommended for the particular chemical.
3. Do not fill any container to the top as temperature fluctuations can cause expansion/contraction of the fluid and the container that could lead to leaks.
4. All containers should have a "Hazardous Material" label affixed.
5. Colored containers should be avoided as some colors (red for biohazards & sharps, for instance) are federally regulated.
6. Containers should be chosen for features such as ability to resist punctures and leaks, endure fire damage, resist tumbling over and tampering.
7.

SITING APPROPRIATE STORAGE LOCATIONS

Some of the points listed below are standard safety measures not necessarily related to storm water management but are repeated here

1. Store volatile toxics and odoriferous chemicals in ventilated cabinets.
2. Store flammable liquids in approved cabinets.
3. Containers should be kept at shoulder level or lower.
4. Containers should have a date-received label and an expiry date.
5. Sites with secondary containment features are preferable.
6. Storage should be away from heating sources and should also avoid direct sunlight.
7. Inspect storage sites at least monthly.

TRANSPORTING CHEMICALS

Chemical containers being transported are easily compromised due to jostling around enroute to the service location. The special precautions below should be employed during transit:

1. Provide a secondary containment.
2. Secure container so it cannot slide, tumble or bounce about during transit.
3. Avoid transporting chemicals during busy times such as class changes.
4. Be certain to have a spill kit onboard.

UNIVERSITY OF MONTANA Storm Water Management Program **STANDARD OPERATING PROCEDURE** CATEGORY: **Storage of Bulk Materials (Salt, Sand, Gravel, Mulch, Topsoil, Concrete, etc.)**	SOP NUMBER: **15** ISSUE DATE: **01/2021**
ACTIVITIES:	TARGET POLLUTANTS:
Receiving deliveries of material **Loading onto maintenance vehicles** **Inspection**	**Sediments** **Leached chemicals from stored material such as iron**

GENERAL

This SOP does not foresee all possible situations and employees are expected to use reasonable judgement to adapt this SOP to the circumstance encountered. Materials such as salt, sand, and gravel are commonly used during winter operations to provide traction on icy surfaces. These materials as well as construction and landscaping materials (concrete, mulch, topsoil, etc.) are commonly stored outside, largely in open piles or stacks. Storm water can be contaminated if it encounters such material.

DESCRIPTION OF ACTIVITIES AND POLLUTANT SOURCE

UM has determined that some pollutants such as iron can readily be leached out of gravel. Storing materials properly can help mitigate such pollutants from encountering storm water and ultimately from entering the Clark Fork river. The precautions listed here should be followed whenever employees manage storage piles. Note that this SOP does not pertain to the use or application of these materials during the course of normal operations. Obviously, salt, sand, gravel and deicer must be applied to streets and sidewalks during winter de-icing operations in order to be effective for safety reasons. Other SOPs apply to the proper deployment of such materials.

APPLICABILITY

The SOP shall apply to all employees engaged in the activities noted above.

BEST MANAGEMENT PRACTICES

1. Choose covered storage whenever possible.
2. Site storage locations away from storm water drains & runoff patterns.
3. Open, outside storage piles should be tarped or otherwise covered.
4. Open, outside storage piles should be bermed to prevent contact with storm water.
5. Keep storage piles tidy by sweeping & consolidating scattered material.
6. Inspect storage locations at least monthly.

THE FOLLOWING PROCEDURES SHOULD BE FOLLOWED FOR EACH LISTED ACTIVITY

RECEIVING DELIVERIES OF MATERIAL

Where ever possible, store these bulk items in a covered location such as Building 25. If this can be accomplished, the following guidelines may be unnecessary.

1. If bulk material is to be stored in an outside, open location, choose the site carefully so that it is away

from storm sewer drains and out of flow ways.

2. Site should also allow easy access to subsequent vehicles for loading.
3. Consider placing a tarp underneath the bulk material.
4. Deposit material is as condensed a pile as possible.
5. Cover material with a tarp or similar.

LOADING ONTO MAINTENANCE VEHICLES

If stored bulk materials are to be used in the nearby vicinity (construction site or grounds operations), care should be exercised in transporting the material from storage to point of use so as not to scatter material enroute.

1. Position vehicle as close as possible to storage pile so that material transfer is smooth and clean.
2. During inclement weather, only uncover part of the storage pile to keep the rest of it protected.
3. Inspect area after loading:
    a. Be sure to replace covering over pile.
    b. Repair/restore the berm containment if the vehicle damages it during transfer operations.

INSPECTION

Period inspection of storage of bulk materials is necessary to ensure no contamination of storm water occurs. Reviews should be conducted at least monthly and at least once during inclement weather.

1. Conduct at least monthly.
2. Track inspections with an inspection log sheet. Track date & time of inspection and also the name of the inspector and any anomalies discovered.

UNIVERSITY OF MONTANA Storm Water Management Program **STANDARD OPERATING PROCEDURE** CATEGORY: **Street and Parking Lot Maintenance**	SOP NUMBER: **15** ISSUE DATE: **01/2021**
ACTIVITIES:	TARGET POLLUTANTS:
General Maintenance **Maintenance of Storm Drains, Culverts and Detention Areas** **Asphalt Paving, Re-surfacing and Concrete Projects** **Paint & Striping** **Salt, Sand Deicer Application** **Snow Plowing and Snow Storage**	**Emulsified Asphalt** **Fuel & Oil** **Gravel & Sand** **Street painting**

GENERAL

This SOP does not foresee all possible situations and employees are expected to use reasonable judgement to adapt this SOP to the circumstance at hand. This SOP is designed to address BMP's while doing street and parking lot maintenance. Spill kit and equipment for dry clean up should be on hand (socks, absorbent pads etc.) Inlet protection devices should always be installed f(Wattles, draine covers, berms and /or filter fabric.)

DESCRIPTION OF ACTIVITIES AND POLLUTANT SOURCE

General maintenance of UM's main campus streets and parking lots must include an awareness of the proximity to its two outfalls and have in place mitigation plans in the case of a possible contamination event.

APPLICABILITY

The SOP shall apply to all employees engaged in the activities noted above as well as outside contractors.

BEST MANAGEMENT PRACTICES

1. Survey work site to assess the stormwater pollution risk.
2. Locate all storm drain collection structures and inlets prior to starting work.
3. Have a spill kit handy.
4. Check liquid containers for competency.
5. Inspect equipment for gas, oil, and other fluid leaks prior to use.
6. Promptly clean up spills with appropriate materials.
7. Collect and dispose of all trash in the work area.
8. Keep liquid wastes contained.

THE FOLLOWING PROCEDURES SHOULD BE FOLLOWED FOR EACH LISTED ACTIVITY

General Maintenance

1. Designate staff to conduct inspections and maintenance of parking lots and garages including stormwater conveyance systems.

2. Clean leaves, trash, sand and other debris from parking lots regularly to prevent debris from reaching any storm drain inlet.

3. Sweep parking lots with a street sweeper at end of winter season during thaw to prevent runoff from pushing deicer into storm drain system.

4. Stencil or mark any storm drain inlets in or near the parking lot with the message "Do not dispose of any materials or wastes."

5. Inspect all dumpster or waste disposal areas regularly. Clean up any trash, spills or leaks and report leaking dumpsters to the disposal company.

Maintenance of Storm Drains, Culverts and Detention Areas

1. Inspect storm structures, culverts, detention areas or structural BMPs regularly(Suggested frequency: Weekly) for debris accumulation.
2. Have dry sumps cleaned of buildup annually and dispose of waste in an approved landfill.

Asphalt Paving, Re-surfacing and Concrete Projects

All street maintenance/repair contractors are to be made aware of existing outfalls and expected to follow best management practices concerning surface water contamination.

1. Re-seal or pave on dry days when no rain is expected and stop paving activities well before rainfall is expected.
2. Protect or block nearby downstream, storm drain inlets from debris from maintenance work(Asphalt cap, chip sealing, concrete breaking, or saw cutting). Leave inlet protection in place until the job is complete. Clean up debris from around inlets and dispose of properly.
3. Designate a "Concrete Wash-Out Area" on the job site- in a grassy or graveled area where pooled water can soak into the ground. If no "Wash-out Area" is available, wash out into a container(pool, bucket, wheelbarrow) and dispose of material properly.

Painting and Striping

1. Schedule painting, marking, and striping projects during dry weather only. Cease all activities when rain threatens.
2. Use thermoplastic markings in place of paint whenever possible.
3. Block nearby storm drain inlets(within 25 feet and down gradient of project) when painting or striping.
4. Promptly clean up any spoils of paints, cleaners or other chemicals.

Deicer and Sanding

1. When conditions warrant, salt spreaders are installed on the larger trucks. Each spreader is calibrated prior to the deicing season and checked throughout the winter.
2. On traffic lanes, deicer is sprayed in 20 foot sections every 60 feet unless a major winter event is expected.
3. A 10 percent salt solution is used, which freezes at 20 degrees Fahrenheit, at which point sand/gravel mixture is utilized.

Snow Plowing and Snow Storage

1. Do not plow or store excess snow or debris near creeks, ditches or surface waterways.
2. Snow disposal areas should be located at least 50 feet from or down gradient from any storm drain inlets, drainage ditches, ponds, creeks or wetlands.
3. If possible, store excess snow in a pervious (gravel) area where melt water can infiltrate into the ground and not flow into the storm drain system.
4. If snow storage is on a paved area, sweep up the remaining debris after snow melt.

UNIVERSITY OF MONTANA Storm Water Management Program **STANDARD OPERATING PROCEDURE** CATEGORY: **Ground Water Supply Well Development**	SOP NUMBER: **17** ISSUE DATE: **01/2021**
ACTIVITIES:	TARGET POLLUTANTS:
Drilling the well bore **Completing the well** **Testing the well**	**Sediment** **Drilling fluids** **Cement**

GENERAL

This SOP does not foresee all possible situations and employees are expected to use reasonable judgement to adapt this SOP to the circumstance encountered. Since UM continues to utilize ground water cooling on new buildings and during some remodels, the drilling, completion & testing of ground water wells is a frequent occurrence. Pure, untreated, uncontaminated ground water poses a threat to surface waters in that it can carry sediment from the producing zone and can also flush sediments that are on the surface into the storm water system and onto the Clark Fork river. The Montana Department of Environmental Quality maintains that it is a violation of UM's storm water discharge permit to have ANYTHING besides storm water emptying into the river.

DESCRIPTION OF ACTIVITIES AND POLLUTANT SOURCE

UM contracts for the development of ground water wells. Contractors drill with the use of drilling fluids (drill mud) which are usually contained at the drill site, but could escape containment and flow into the storm system. Once drilled, the well is tested to determine its maximum flow rate and aquifer draw-down potential. Flow tests can produce a lot of water at a high rate of flow. If not properly managed and contained, it could flow into the storm system, carrying sediment among other pollutants.

APPLICABILITY

The SOP shall apply to all contractors and UM agents engaged in the activities noted above.

BEST MANAGEMENT PRACTICES

1. Contain all drilling fluids at the drilling site and dispose of properly.
2. During testing, all produced water must be kept out of the storm system:
    a) Place filtration mats over nearby storm grates.
    b) Produced water can be directed to storm water sumps or tied into existing ground water injection wells.
    c) If b) above is not possible, produce the ground water into a tank of sufficient size.
    d) Produced water can be kept on-site to allow water sufficient time to infiltrate into ground.
    e) Produced water can be put into sanitary sewer, if convenient.
3. Establish a bermed perimeter around the drill site.

THE FOLLOWING PROCEDURES SHOULD BE FOLLOWED FOR EACH LISTED ACTIVITY

DRILLING THE WELL BORE

Wells bores should be rotary drilled rather than cable tool (or percussion) drilled.

1. If drill site is within area served by the storm water sewer system or in close proximity to the Clark Fork river (such as green areas near the Kim Williams recreation trail), the drill site perimeter should have a berm or other fluid containment structure.
2. Covers or filter mats should be placed over storm drains.
3. Drilling fluids must be captured at the drilling site.

COMPLETING THE WELL

Completion of wells include cementing the well casing, perforating the casing (if applicable), backfilling and grading the well bore area. Care should be taken to manage and keep such fluid materials contained.

1. Use same precautions as with **DRILLING THE WELL BORE** above.
2. Any produced water from the well during completion activities is potentially contaminated with drilling fluids and cement and must be kept out of storm water system.

TESTING THE WELL

Due to the quantity and flow rates involved with testing, this activity has the highest potential to break containment and enter the storm water system. Extra care must be maintained.

1. During prior tests, UM has been successful in using a large Republic Services' dumpster that has been sealed-off with spray foam insulation.
2. A dry sump or several dry sumps may be able to accept the produced water during testing. A hydrologist will have to assess the viability of this option.
3. It might be possible to secure a special discharge permit to produce into the storm water system.
4. Explore the possibility of producing into a nearby injection well.

UNIVERSITY OF MONTANA Storm Water Management Program **STANDARD OPERATING PROCEDURE** CATEGORY: **Utility Maintenance**	SOP NUMBER: **18** ISSUE DATE: **02/2021**
ACTIVITIES:	TARGET POLLUTANTS:
Emergency response to water mains ruptures	**Trash** **Sediments** **Vehicle Fluids** **Nutrients** **Chlorine** **Metals**

GENERAL

This SOP does not foresee all possible situations and employees are expected to use reasonable judgement to adapt this SOP to the circumstance at hand. Ruptures of water mains are not infrequent on the university campus, given the age and condition of the water infrastructure and also due to construction excavation. Such types of ruptures constitute an emergency as the loss of water on campus adversely impacts most activities and operations and needs to be restored as expeditiously as possible.

DESCRIPTION OF ACTIVITIES AND POLLUTANT SOURCE

Water main breaks can occur anywhere throughout campus. Depending upon location, there could be a significant inflow to the storm sewer and from there, into the Clark Fork River. Water main breaks almost always involve extensive excavation to locate and repair the damage. Sediment from pit spoil could be flushed into the storm sewer as well as any trash, chemicals (pesticides, herbicides, fertilizers, etc.) that could be on the surfaces that the water contacts.

APPLICABILITY

The SOP shall apply to all employees engaged in the activities noted above.

BEST MANAGEMENT PRACTICES

1. When possible and as time allows, protect storm drains with covers or sandbags if the main break is located proximate to the storm system.
2. Pile spoil from excavations out of the way of possible water flow path.
3. Refill any excavation pits as expeditiously as possible.
4. If pit spoil was stored on impervious surfaces (pavements, streets, parking lots), have the area cleaned-up with brooms or street cleaner as soon as possible.

THE FOLLOWING PROCEDURES SHOULD BE FOLLOWED FOR EACH LISTED ACTIVITY

EMERGENCY RESPONSE TO WATER MAIN RUPTURES

Emergency operations are fast moving with the singular intent to restore normal conditions as soon as possible. Still, with a little aforethought, it's possible to protect the Clark Fork River from polluted runoff via the following steps:

1. Determine if the area under consideration is within that served by the storm water sewer system. A quick glance of the attached map can help make that determination.
2. If area under consideration is served by storm sewer, consider covering nearby storm grates.
3. Have the excavator place the spoil pile upstream of any potential water flow.
4. If the spoil pile is to be left overnight, consider providing a berm of sandbags.
5. Cover the spoil pile with tarps if it is be left overnight.
6. After pit has been refilled, take care to clear the area of left-over sediment if the spoil was piled on hardscape.

UNIVERSITY OF MONTANA Storm Water Management Program **STANDARD OPERATING PROCEDURE** CATEGORY: **Vehicle and Equipment Storage**	SOP NUMBER: **19** ISSUE DATE: **02/2021**
ACTIVITIES:	TARGET POLLUTANTS:
Vehicle Washing **Vehicle Fueling** **Vehicle Maintenance**	**Sediment** **Oil, Grease, Fuel** **Other Vehicle Fluids**

GENERAL

This SOP is not expected to cover all Necessary procedure Actions. Operators are allowed to adapt SOP's to unique site conditions in good judgement when it is necessary for safety and the proper and effective containment of pollutants.

DESCRIPTION OF ACTIVITIES AND POLLUTANT SOURCE

The storage of vehicles and equipment has the potential to discharge pollutants to storm water runoff and surface waters include sediment, oil, grease, fuel and other vehicle fluids.

APPLICABILITY

The SOP shall apply to all employees engaged in the activities noted above.

BEST MANAGEMENT PRACTICES

1. Know the facilities runoff patterns and stormwater management system. See Facilities Site Map in Section 2.
2. Clean up spills and leaks promptly; know the spill kit locations. Spills are not cleaned up until the absorbent is picked up and disposed of properly. Report large spills to the supervisor.
3. Sweep and clean the storage area regularly. Do not hose down the spill area or absorbent material into a storm drain.
4. Report leaking vehicles to fleet maintenance.
5. If equipment is being stored outdoors for long periods of time, oil and other fluids should be drained.
6. Monitor vehicles and equipment closely for leaks and place drip pans under any leak to collect the fluids for proper disposal or recycling.
7. Keep the parking and storage areas clean and orderly.
8. Sweep all parking areas a minimum of annually.

UNIVERSITY OF MONTANA Storm Water Management Program **STANDARD OPERATING PROCEDURE** CATEGORY: **Vehicle Maintenance**	SOP NUMBER: **20** ISSUE DATE: **02/2021**
ACTIVITIES: **Vehicle Washing** **Vehicle Fueling** **Vehicle Maintenance**	TARGET POLLUTANTS: **Parts Cleaning Solvents** **Vehicle Fluids** **Lubricants** **Battery Acid** **Sediment** **Organics**

GENERAL

This SOP does not foresee all possible situations and employees are expected to use reasonable judgement to adapt this SOP to the circumstance encountered. Where and how potentially dangerous chemicals are stored is important as spills could enter the storm sewer system and be discharged into the Clark Fork river.

DESCRIPTION OF ACTIVITIES AND POLLUTANT SOURCE

The Vehicle Maintenance service activities that have the potential to discharge pollutants to storm water runoff and surface waters include vehicle fueling, vehicle washing, material storage, and vehicle maintenance. Pollutants associated with these activities include sediment, vehicle fluids, lubricants, organics, and hazardous waste.

APPLICABILITY

The SOP shall apply to all employees engaged in the activities noted above.

BEST MANAGEMENT PRACTICES

1. Know the facilities runoff patterns and stormwater management system. See Facilities Site Map in Section 2.
2. Do not perform maintenance and repair activity directly over or next to the storm drain system.
3. Designate a location for vehicle maintenance and repair to take place. The location should not have any connection to the storm drain system. The area should allow for easy cleanup of drips and spills, and be under a cover whenever feasible.
    a. Vehicle maintenance should be performed in the Motor Vehicle Shop, located in the Facilities Services Compound.
    b. The Motor Vehicle Shop has a drain connected to the sanitary sewer. The drain has an oil and grease separator, which is cleaned regularly.
4. Do not pour materials down drains or hose work areas; use dry absorbent and sweeping.
5. Minimize the use of solvents. Clean parts without using solvents whenever possible.
6. Recycle used batteries, motor oil, diesel oil, and other vehicle fluids and parts.

THE FOLLOWING PROCEDURES SHOULD BE FOLLOWED FOR EACH LISTED ACTIVITY

VEHICLE FUELING

Vehicle fueling applies to all gas and diesel vehicles used by UM facilities staff. Harmful chemicals can be introduced to the storm water system and nearby surface waters if spills occur while fueling. Implement the following procedures to minimize potential pollution during fueling:

1. Shut off the vehicle prior to fueling.
2. Fuel vehicles at approved locations: Facilities Services Compound Fuel Pumps
3. Inspect fueling location for corrosion, leaks, cracks, scratches, and other physical damage that may lead to spills.
4. Follow all posted warnings.
5. Use the fuel automatic shut off (where applicable) to prevent overfilling, and do not 'top off' the tank.
6. Remain by the fill nozzle while fueling.
7. Mobile fueling should be minimized, whenever practical transport vehicles to designated fueling areas.
8. If a large fuel spill occurs (greater than 1 gallon), contact the UM SWMT and your supervisor to determine if specialized spill response procedures are necessary.

VEHICLE WASHING

Vehicle washing removes snow, ice, mud, and dirt from the surface of vehicles. Washing occurs at the Motor Vehicle Shop or other approved locations. Pollutants associated with vehicle washing include sediment, oil, grease, and fuel. Implement the following procedures to minimize potential pollution during vehicle washing:

1. Wash vehicles in designated areas only, with drainage connecting to the sanitary sewer system.
2. Avoid using excess water and soap when washing vehicles.
3. Use hoses with automatic shut off nozzles to minimize water usage.

VEHICLE MAINTENANCE

Vehicle maintenance is routine for all UM owned vehicles. Preventative maintenance will occur at the Motor Vehicle Shop, while emergency repairs may require off-site work. Potential pollutants associated with vehicle maintenance include oil, antifreeze, brake fluid, solvents, batteries, fuels, and cleaners. Implement the following procedures to minimize potential pollution during vehicle maintenance:

1. Perform maintenance activities in a designated maintenance bay at the Motor Vehicle Shop whenever possible.
2. If outdoor work is required, prevent spilling through use of oil pans or similar devices.
3. Use absorbent pads and drip pans when necessary.
4. Keep equipment clean and do not allow excessive build-up of oil and grease.
5. Perform regular preventative maintenance to minimize occurrence of leaks and major repairs.
6. Dispose of used fluids, rags, and absorbent pads in respective disposal containers within the Motor Vehicle Shop.

UNIVERSITY OF MONTANA Storm Water Management Program **STANDARD OPERATING PROCEDURE** CATEGORY: **Waste Handling and Disposal**	SOP NUMBER: **21** ISSUE DATE: **01/2021**
ACTIVITIES:	TARGET POLLUTANTS:
Trash collection **Grounds cleaning** **Equipment cleaning**	**Trash** **Chemical contaminants** **Sediment** **Nutrients**

GENERAL

This SOP does not foresee all possible situations and employees are expected to use reasonable judgement to adapt this SOP to the circumstance encountered. Many campus activities include upkeep and beautification of buildings and grounds. These activities can impact the storm water system and the Clark Fork river through the method by which trash and other wastes are handled and disposed.

DESCRIPTION OF ACTIVITIES AND POLLUTANT SOURCE

Trash is most noticeable across campus and Facilities crews spend significant time patrolling campus for trash and in keeping the multitude of trash containers, both within buildings and out on the grounds, empty and clean. UM crews dispose of collected trash into various dumpsters across campus that are owned and emptied by a contractor, Republic Services. Chemical contaminants include oil and other vehicle fluids, cleaning chemicals, pesticide/herbicide/fertilizers, garbage leachate, etc.

APPLICABILITY

The SOP shall apply to employees engaged in the activities noted above. Custodial, Grounds & Labor crews are the most likely to be executing the listed activities. Republic Services' employees are also responsible for managing the waste in dumpsters.

BEST MANAGEMENT PRACTICES

1. Trash and other solid wastes must be contained in dumpsters.
2. Do not place waste or debris next to dumpster.
3. Dumpster lids must be closed after use.
4. Campus trash containers are inspected daily and emptied when necessary.
5. Areas around dumpsters should be kept clean and free of debris.
6. Cleaning activities should occur away from storm drains.
7. Wash/rinse water from cleaning activities must be put into sanitary sewer.
8. Inspect trash cans and dumpsters regularly and replace any that are in poor condition.
9. Post littering prohibition signage around campus.
10. Keep pet waste dispensers adequately supplied across campus.
11. Be careful in loading or unloading trash.

THE FOLLOWING PROCEDURES SHOULD BE FOLLOWED FOR EACH LISTED ACTIVITY

TRASH COLLECTION

Custodial crews remove trash from building interiors and deposit it into exterior receptacles such as dumpsters. Garbage removal contractors then off-load dumpsters into mobile garbage trucks or cart dumpster to landfill for emptying. Improper waste handling and disposal can allow pollutants such as oils, nutrients, sediments and trash to contaminate storm water.

1. Dumpsters are provided with lids to keep contents dry and to prevent trash from being carried off with the wind. Remember to replace lids in the closed position.
2. Refuse contractors may occasionally return dumpsters to a position that traps the lid against a wall in an open position. Alert a manager when this happens so that the contractor may be notified and can correct.
3. Refuse contractors empty campus dumpsters according to a predetermined schedule. Notify management if the schedule requires adjusting to be able to accept normal waste loads.
4. Do not stack waste outside of dumpsters.
5. Keep the area around dumpsters clean.
6. Liquid spills should be cleaned with appropriate spill kits.
7. Keep spill kits readily accessible.
8. Recycle when possible.

GROUNDS CLEANING

Waste generated from grounds crews include grass clippings, tree debris, leaves, plant trimmings, soil, rock and other landscaping materials.

1. Reuse or compost debris when possible.
2. Most landscaping waste, excluding rocks, can be composted by the City of Missoula's Garden City Compost facility.
3. If material is to be landfilled, follow the BMPs listed above for Trash Collection.

EQUIPMENT CLEANING

Fleet vehicles and other Facilities Services equipment such as lawnmowers will require periodic cleaning. Be sure debris is properly collected and disposed.

1. Solid materials from equipment and vehicles (such as clumps of grass clippings and dirt/mud on plows) should be managed in an area that will not impact the storm sewer system. Debris should be collected and composted, if applicable, or properly deposited in dumpsters.
2. Vehicle/equipment washing should be done in appropriate garage bays where waste water can be contained and flow into the sanitary sewer.

UNIVERSITY OF MONTANA Storm Water Management Program **STANDARD OPERATING PROCEDURE** CATEGORY: **Winter Street & Parking Lot Maintenance**	SOP NUMBER: **22** ISSUE DATE: **02/2021**
ACTIVITIES:	TARGET POLLUTANTS:
Sanding **Deicing**	**Sediment** **Salt Brine** **Corrosion inhibitor**

GENERAL

This SOP does not foresee all possible situations and employees are expected to use reasonable judgement to adapt this SOP to the circumstances encountered. Spill kit and equipment should be on hand for potential spills.

DESCRIPTION OF ACTIVITIES AND POLLUTANT SOURCE

Winter street and parking lot maintenance activities that have the potential to discharge pollutants to storm water runoff and surface waters include, sanding and deicing. The activities occur on the main University of Montana campus.

APPLICABILITY

The SOP shall apply to all employees engaged in the activities noted above.

BEST MANAGEMENT PRACTICES

1. Locate all storm drain collection structures and inlets prior to starting work.
2. Use temporary catch basin protection when necessary.
3. Have spill kits and absorbent materials available
4. Inspect equipment for gas, oil, and other fluid leaks prior to use.
5. Promptly clean up spills in accordance with the spill response and containment SOP.

THE FOLLOWING PROCEDURES SHOULD BE FOLLOWED FOR EACH LISTED ACTIVITY

Sanding

UM labor crew are responsible for sanding streets and parking lots at the University of Montana main campus. Sanding includes the operation of a truck with a sanding spreader mounted in the bed of the truck. Sander should be calibrated and checked for proper functionality. Check vehicle for leaks and have repaired if necessary. Sand and or gravel are known as sediment which is the pollutants that can be introduced to the storm water system and nearby surface waters. Implement the following procedures to minimize the potential for storm water pollution during the sanding process:

1. On traffic lanes and driving lanes in parking lots apply sand evenly to areas to prevent over saturation of sand.
2. Make sure sander is working properly before each use.
3. Repair equipment as needed at Facilities Services.

Deicing

UM labor crew are responsible for deicing streets and parking lots at the University of Montana main campus. Deicing includes the operation of a truck with a large tank mounted on the back. The truck has a pump and spray arm mounted horizontally to distribute deicer compound evenly on roadways and in parking lots. Deicer should be calibrated and checked for proper functionality. Check vehicle for leaks and have repaired if necessary. Deicer contains a mixture of salt and water with a corrosion inhibitor. These are the pollutants that can be introduced to the storm water system and nearby surface waters. Implement the following procedures to minimize the potential for storm water pollution during the deicing process:

1. On traffic lanes and driving lanes in parking lots apply deicer evenly to all areas.
2. Make sure deicing truck is working properly before each use.
3. Repair equipment as needed at Facilities Services.