National Pollutant Discharge Elimination System (NPDES) Stormwater Phase II Permit Program

Stormwater Management Program

In compliance with the Arizona Pollutant Discharge Elimination System (AZPDES) General Permit (Permit No. AZG2002-002) for Discharge from Small Municipal Separate Storm Sewer Systems (MS4s) to Waters of the United States

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Executive Summary

ES.1. Introduction

In December 1999, the U.S. Environmental Protection Agency (EPA) finalized a rule that requires certain small municipal separate storm sewer systems (MS4s) to participate in the National Pollutant Discharge Elimination System (NPDES) program and obtain a stormwater permit. The intent of the rule is to reduce pollutants in stormwater runoff through actions implemented by the operators of MS4s, such as the system operated by NAU. NAU is one of a number of Arizona non-municipal entities required to obtain a permit.

ES.2. NPDES Phase II Requirements

The Arizona Department of Environmental Quality (ADEQ) is the permitting authority for the State of Arizona through the Arizona Pollutant Discharge Elimination System (AZPDES). ADEQ has created a General Permit that requires regulated communities to comply with six required Minimum Control Measures (MCMs):

1. Public education and outreach
2. Public involvement/participation
3. Illicit discharge detection and elimination
4. Construction site runoff control
5. Post-construction site runoff control
6. Pollution prevention/good housekeeping

Each MCM has mandatory components that NAU must address and that will be satisfied by implementing a number of Best Management Practices (BMPs).

MCM 1: Public Education and Outreach

The University must:

- Implement a public education program to distribute educational materials to the University or conduct equivalent outreach activities about the impact of stormwater discharges on water bodies

MCM 2: Public Involvement/Participation

The University must:

- Provide an opportunity and the means and methods for public involvement and participation in developing and implementing the SWMP
- Comply with state and local public notice requirements

MCM 3: Illicit Discharge Detection and Elimination

The University must implement an illicit discharge program, including: **NPDES Phase II Stormwater Compliance Executive Summary Northern Arizona University Page ES-1**

- A stormwater system map that shows outfalls and Waters of the U.S.

- An illicit discharge policy that prohibits non-stormwater discharges
- Inspections of stormwater outfalls to detect and eliminate illicit discharges
- A plan to educate the public and staff on illicit discharges

MCM 4: Construction Site Runoff Controls

The University must develop a program for runoff from construction sites, including:

- A policy that requires site operators to control erosion and sediment
- Requirements to control other construction-related wastes
- Procedures for site plan review, regular site inspections, and enforcement of ordinance control measures
- Procedures for receiving and considering public information (i.e., complaint handling)

MCM 5: Post-Construction Stormwater Management in New Development and Redevelopment

The University must develop and enforce a post-construction stormwater runoff program, including:

- A policy that requires new development and redevelopment to use site-appropriate BMPs to reduce pollutants in stormwater runoff to the maximum extent practicable
- Measures to ensure long-term operation and maintenance of the BMPs

MCM 6: Pollution Prevention/Good Housekeeping for University Operations

The University must:

- Develop and implement an operation and maintenance program that includes a training component and that has the ultimate goal of preventing or reducing pollutant runoff from University operations.

ES.3. NAU's Stormwater Management Program (SWMP)

Several years ago, Northern Arizona University retained AMEC consultants, who are experienced in developing SWMPs, to create the University's SWMP. AMEC conducted numerous interviews with selected NAU staff members and through these discussions created an SWMP, including a schedule and estimated program costs.
Costs for the program are estimated to be $365,177 and will be primarily for University staff, professional and outside services, and supplies (see Table ES.1). Some of the BMPs can be implemented through existing NAU programs, while others will require new

funding. Many SWMP activities will be conducted in later years of the program to enable the University to better control program funding. The costs in Table ES-1 do not represent costs for completely new activities. Many SWMP activities can be accomplished by modifying established NAU programs, policies, and procedures.

Table ES.1
Estimated Costs of Northern Arizona University SWMP, 2003-2008

Permit Year					**Total**
Year 1 (2003-2004)	Year 2 (2004-2005)	Year 3 (2005-2006)		Year 4 (2006-2007)	Year 5 (2007-2008)
$34,500	$77,684	$92,420	$69,006	$98,067	$365,177

Note: Total may not add due to rounding.

NAU's SWMP should meet the requirements of the ADEQ General Permit through BMPs, which are actions that NAU will take to fulfill requirements of the ADEQ General Permit. The NAU SWMP will not require construction of stormwater infrastructure nor will it require treatment facilities to meet water quality standards. Instead, the primary focus of the NAU SWMP will be to implement changes in such things as construction practices, disposal of wastes, and University operation and maintenance activities. These BMPs are actions that NAU has identified as meeting the requirements of the ADEQ General Permit, and they are achievable. The SWMP was developed to be appropriate for NAU's students, faculty, and staff, stormwater system, and existing resources.

Section 1
NPDES Stormwater Phase II Regulations

This section provides background on the NPDES Stormwater Phase II regulations and how they apply to Northern Arizona University.

1. Background

The initial focus of the 1972 National Pollutant Discharge Elimination System (NPDES) program, the fundamental regulatory mechanism of the Clean Water Act (CWA), was to regulate discharges of industrial process wastewater and municipal wastewater treatment plants. The regulation of these point source discharges resulted in significant improvements in the water quality of public waterways. Subsequent analyses established that polluted non-point source stormwater runoff remained a leading cause of impairment to U.S. waterbodies. In an effort to mitigate diffuse sources of pollution conveyed in stormwater runoff, the 1987 Water Quality Act (as an amendment to the CWA) called for a comprehensive, two-phased program to regulate stormwater runoff. The program uses the NPDES permitting mechanism to require the implementation of stormwater management controls designed to minimize surface water pollution caused by urban stormwater.

The Stormwater Phase I Rule, issued on November 16, 1990, targeted medium-sized and large municipal separate storm sewer systems (MS4s). For the most part, it included cities or jurisdictional entities that serve populations over 100,000. In Arizona, the Phase I communities include Phoenix, Tempe, Glendale, Mesa, Scottsdale, Tucson, and Pima County. A "separate storm sewer system" includes any method of conveying runoff, including streets, gutters, ditches, or any other man-made structure that is designed to carry stormwater. Additionally, Phase I required separate permit coverage for stormwater discharges associated with eleven categories of industrial activities and construction sites that impact five or more acres of land.

The NPDES Stormwater Phase II regulations, which target small MS4s located fully or partially within an "urbanized area"[1] and construction activities disturbing more than one acre of land, were promulgated by the Environmental protection Agency (EPA) on December 8, 1999. These regulations apply to all jurisdictions within a delineated urbanized area regardless of individual population. The NPDES Phase II Rules also regulate non-traditional MS4s such as large hospitals, universities, and prisons. These entities are regulated if the number of full-time residents, workers, and students exceeds 1,000 persons. Northern Arizona University (NAU) meets the EPA Stormwater Phase II criteria, and thus is regulated under the Phase II rule.

1.1. Arizona Pollutant Discharge Elimination System (AZPDES) Small MS4 General Permit

There are three permitting and program implementation options for regulated small MS4s: obtaining coverage under a general permit, participating in the implementation of an existing Phase II MS4's stormwater program as a co-permittee, or applying for an individual permit. Perhaps the simplest and the least negotiation-driven of the options, and the choice preferred by NAU, is obtaining coverage under a general permit.

General permits are drafted by the NPDES permitting authority and describe one set of requirements for all eligible permit applicants. In the state of Arizona, the Arizona Department of Environmental Quality (ADEQ) serves as the NPDES permitting authority through the Arizona Pollutant Discharge Elimination System (AZPDES) program[2]. The ADEQ has issued General Permit AZG2002-002 effective December 19, 2002 to regulate stormwater discharges into waters of the U.S. from operators of small MS4s in Arizona, in compliance with the provisions of the AZPDES program (Arizona Revised Statutes, Title 49, Chapter 2, Article 3.1 and Arizona Administrative Code, Title 18, Chapter 9, Articles 9 and 10). The length of the permit period is five years, with full implementation of the activities listed in the permit application by December 19, 2007. At the end of this time, the permitting authority may issue another general permit whose provisions must be met by the permittee.

Although the AZPDES Small MS4 General Permit imposes specific requirements on a regulated entity, the permits still allow the regulated entity to develop an individualized stormwater program that addresses the entity's particular characteristics and needs. To obtain and comply with the AZPDES Small MS4 General Permit, each regulated entity must develop a Stormwater Management Program (SWMP) that describes how the permittee will structure its efforts to reduce the discharge of pollutants to its stormwater system. Each permittee's SWMP must address, at a minimum, six designated program elements referred to as Minimum Control Measures (MCMs). Each MCM is listed below (a detailed discussion of each MCM is presented in Section 1.4):

[1] A revised list of urbanized areas based on the new criteria and Census 2000 data was published in the Federal Register on May 1, 2002 (67 FR 21962).
[2] On December 5, 2002, the ADEQ received official delegation of the NPDES Program from the EPA, Region IX, making ADEQ the permitting authority in charge of all NPDES-related permits.

1. Public Education and Outreach
2. Public Involvement/Participation
3. Illicit Discharge Detection and Elimination
4. Construction Site Runoff Control
5. Post-Construction Stormwater Management
6. Pollution Prevention/Good Housekeeping

As part of its SWMP, NAU must specify selected BMPs to comply with each MCM. The BMPs can be any combination of programs, structures, and other controls that, in the agreed opinion of the permitting authority and the regulated entity, meet the standard of reducing the state's pollution discharge to waters to the Maximum Extent Practicable (MEP). Each BMP in the SWMP must include measurable goals, including interim milestones, and the months and years in which the permittee will undertake the required actions and the frequency of the action.

Under the permitting approach, a SWMP that fully complies with the permit requirements would constitute compliance with the standard of "reducing pollutants to the maximum extent practicable." That is, "if you do what you say you will do, you are by definition in compliance." The AZPDES Small MS4 General Permit also contains more specific and rigorous requirements for special circumstances relating to the condition of the receiving water within and downstream from, the permittee. For example, if a permittee discharges into a stream segment that has a Total Maximum Daily Load (TMDL) for a certain pollutant, then the general permit conditions may reflect that permittees allocation of the target pollutant.

Additionally, States that own delegation of the general permit, such as Arizona, have modified their permits to adjust for local climates. Arizona is very arid and has mild precipitation; therefore, many BMPs that are applicable in other states do not apply here. Arizona also has non-aggressive stormwater controls, since rainfall is infrequent. The permit developed by the ADEQ reflects the choices made in reference to Arizona's climatic conditions.

The steps to permit compliance for a regulated entity are then:

1. Review the conditions of the AZPDES Small MS4 General Permit.
2. Prepare a Stormwater Management Program including BMPs with Measurable Goals for each of the six MCMs.
3. Develop and submit a Notice of Intent (NOI) to comply with the AZPDES Small MS4 General Permit.
4. If necessary, provide clarification or additional information regarding the proposed SWMP as requested by the permitting authority.
5. Receive approval of the submittal from the permitting authority. If written approval is not provided, the SWMP goes into effect 30 days from the day the NOI was submitted.

6. Begin implementing the conditions and programs described in the NOI, including recordkeeping and submitting appropriate reports that describe attainment of measurable goals for each BMP.

1.2. BMP Measurable Goals

The AZPDES Small MS4 General Permit requires that a regulated entity identify measurable goals for developing and implementing each BMP in their SWMP. The measurable goals will identify, as appropriate, the activity levels required to implement the MCMs, including milestones and objectives. It is important that the measurable goals identified are acceptable to the regulated entity and that the regulated entity can control the activities being measured. For example, a measurable goal for street sweeping should be "the university will conduct street sweeping operations on primary roadways X times per year," as opposed to "the university will remove X pounds of street waste per year from primary roadways." The American Public Works Association provides other examples of measurable goals including:

- Inspecting or repairing a certain number of drain inlets each year
- Conducting a certain number of training classes for university operations per year
- Surveying all university rights-of-way to identify illicit discharges
- Soliciting the help of a certain number of volunteers each year to monitor water quality or perform education/outreach activities

1.3. Recordkeeping and Annual Reporting

Sections K and M under Part VI in the AZPDES Small MS4 General Permit deal with recordkeeping and annual reporting, respectively. Section K specifies that the permittee shall retain records of all monitoring information, a copy of the AZPDES Small MS4 General Permit and all reports associated with permit compliance, and records of all data used to complete the application (NOI) for this permit, for a period of at least three years from the date of the sample, measurement, report or application, or for the term of this permit, whichever is longer.

The permittee must submit annual reports to the permitting authority for each year of the permit term. The first report is due September 30, 2004, covering the activities of the permittee during the period beginning on the effective date of the permit for the permittee and ending June 30, 2004. Subsequent annual reports are due on September 30 of each year following 2004 during the remainder of the term of the permit and must cover the activities of the permittee for the previous year up to and including June 30. The report must include:

a) The status of compliance with permit conditions, an assessment of the appropriateness of the identified best management practices, progress toward achieving the statutory goal of reducing the discharge of pollutants to the MEP and protecting water quality, and the measurable goals for each of the minimum control measures;

b) Results of information collected and analyzed, if any, during the reporting period, including monitoring data used to assess the success of the program at reducing the discharge of pollutants to the MEP;

c) Any changes made to the SWMP since the last annual report and a summary of the stormwater activities the permittee plans to undertake during the next reporting cycle (including an implementation schedule);

d) Proposed changes to the stormwater management program, including changes to any BMPs or any identified measurable goals that apply to the program elements;

e) A description of BMPs to be implemented within new areas annexed over the past year that are located within the regulated boundaries of the MS4;

f) A description and schedule for implementation of additional BMPs that may be necessary, based on monitoring results, to ensure compliance with applicable TMDLs; and

g) Notice that the permittee is relying on another government entity to satisfy some of the permit obligations (if applicable).

1.4. The Six MCMs

The six MCMs required for compliance with NPDES Stormwater Phase II regulations are described in detail in the sections below. The permit requirements for each MCM are presented in table format below, quoting the language of the AZPDES Small MS4 General Permit (shown in italics).

For each of the MCMs, regulated entities must also identify BMPs and measurable goals that reflect the entity's choices about how to satisfy the regulatory requirements. These BMPs and goals form the basis on which each regulated entity can evaluate the success of the Phase II program – which is ultimately the degree to which NAU is satisfying the water quality requirements of the CWA.

1.4.1. Public Education and Outreach

NAU must reach out to the public and provide education about the impacts of stormwater pollution and about steps that members of the permittee can take to prevent pollution in stormwater runoff. This measure recognizes that the best long-term strategy for protecting stormwater quality is prevention. Once pollutants enter stormwater runoff, treatment can be expensive and impractical. Prevention ultimately rests with changing the behavior of students, faculty, staff, and organizations across the University. Table 1.1, below, describes the Public Education and Outreach permit requirements as defined in the AZPDES Small MS4 General Permit:

Table 1.1 Public Education and Outreach Permit Requirements

a. Implement a public education program to distribute educational materials to the community or conduct equivalent outreach activities about the impact of stormwater discharges on water bodies and the steps that the public can take to reduce pollutants in stormwater runoff
b. Include the following information in the SWMP:
i. A description of the education program and outreach activities;
ii. A description of the methods for disseminating information;
iii. The target audiences and target pollutants and sources that the applicant will address in the program, and how they were selected;
iv. An estimation of the number of people with whom the applicant intends to communicate;
v. A list of measurable goals for the public education and outreach program;
vi. Dates, in terms of months and years, by which the permittee will achieve specific measurable goals
vii. The name(s) and title(s) of the person(s) responsible for implementing and coordinating the education activities.

1.4.2. Public Involvement/Participation

NAU must provide an opportunity for the public to participate in developing and implementing its stormwater management program. In addition to acknowledging the importance of preventive measures as described above, this measure recognizes that the more that the public understands and is involved with the permittee's efforts to protect water quality, the more likely they will support allocating resources toward water quality management. Table 1.2, below, summarizes the Public Involvement/Participation permit requirements as defined in the AZPDES Small MS4 General Permit:

Table 1.2 Public Involvement/Participation Permit Requirements

a. Develop and implement a plan to encourage public involvement and participation in the development and implementation of the SWMP.

b. Comply with state and local public notice requirements when implementing the public involvement/participation program.

c. Include the following information in the SWMP:

i. A description of the general plan for informing the public of involvement and participation opportunities

ii. The types of activities for public involvement that the program will include and the target audiences

iii. A description of the procedure for receiving and reviewing public comments

iv. An explanation of how interested parties may access the SWMP and NOI

v. A list of measurable goals for the public involvement/participation program

vi. Dates, in terms of months and years, by which the permittee will achieve specific measurable goals

vii. The name(s) and title(s) of the person(s) responsible for implementing and coordinating the public involvement/participation activities

1.4.3. Illicit Discharge Detection and Elimination

The program requirements under this control measure are more detailed than those of the previous two measures. NAU must develop a program to find and remove non-stormwater inputs to the storm sewer system. The illicit discharge program must include a regulatory mechanism – a policy or other appropriate regulatory measure – that prohibits, to the extent possible under state and local law, non-stormwater discharges into the MS4, including appropriate enforcement procedures and actions. In addition, NAU must develop a plan for detecting non-stormwater discharges into the MS4 and must identify how those discharges will be addressed. To fully enable the detection of illicit discharges, the University will need to examine its legal authority to gain right of entry onto private property to identify and remedy illicit discharges. This measure also requires that NAU educate public employees, students, and faculty as to the dangers of illegal discharges, illegal dumping, and improper waste disposal. Table 1.3, below, summarizes the Illicit Discharge Detection and Elimination permit requirements as defined in the AZPDES Small MS4 General Permit.

This program must include a storm sewer system map that shows the location of all applicable outfalls, as well as the names and locations of all waters that receive discharges from those outfalls. While mapping is required only from the “end of the pipe” to the receiving water body, additional mapping may provide important information that will help the permittee manage its storm drainage infrastructure and enable discharges to be more effectively tracked throughout the system.

Table 1.3 Illicit Discharge Detection and Elimination Permit Requirements

a. Develop, implement, and enforce a program to detect and eliminate illicit discharges into the small MS4, except those discharges listed below:

i. Non-stormwater discharges as listed in Part I, Section C.2. This exception does not apply to those categories of discharge which the permittee or applicant has determined to be a significant contributor of pollutants to the small MS4.

ii. Occasional incidental non-stormwater discharges (e.g., non-commercial or charity car washes, etc.) that the permittee does not expect (based on information available to the permittee) to be a significant contributor of pollutants to the small MS4 because of either the nature of the discharges or conditions the permittee has established for allowing these discharges to the small MS4 (e.g., a charity car wash with appropriate controls on frequency, proximity to sensitive water bodies, BMPs on the wash water, etc.).

b. Develop, if not already completed, a storm sewer system map that shows the location of all outfalls and the names and location of all waters of the United States that receive discharges from those outfalls.

c. To the extent allowable under state or local law, effectively prohibit through ordinance or other regulatory mechanism non-stormwater discharges into the storm sewer system and implement appropriate enforcement procedures and actions.

d. Develop and implement a plan to detect, identify the source of, and address non-stormwater discharges, including illegal dumping, to the system.

e. Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste.

f. Conduct dry weather field screening for non-stormwater flows. The screening must include qualitative field tests based on color, odor, or visually observed characteristics as indicators of discharge sources.

Table 1.3 Illicit Discharge Detection and Elimination Permit Requirements

If the qualitative field tests do not provide enough information for the permittee to determine the source of the discharge, the permittee must test the discharge, while in the field, for selected chemical parameters. The permittee must investigate the illicit discharge within 15 days of its detection, and must follow up this investigation with an action to further study the source of the discharge or eliminate it.

g. Include the following information in the SWMP:

i. A description of detection methods.

ii. A description or citation of the established ordinance or other regulatory mechanism used to prohibit illicit discharges. If the permittee needs to develop this mechanism, describe the plan and a schedule to do so.

iii. A description of enforcement policy and jurisdiction.

iv. A description of the non-stormwater discharges allowed in the small MS4 pursuant to Part V, Section B.3.a.i.

v. A description of the non-stormwater discharges allowed in the small MS4 pursuant to Part V, Section B.3.a.ii.

vi. The methods for informing/training employees about illicit discharges.

vii. The methods for informing the public of hazards associated with illegal discharges and improper disposal of waste.

viii. A list of measurable goals for the illicit detection and elimination program.

ix. Dates, in terms of months and years, by which the permittee will achieve specific measurable goals.

x. The name(s) and title(s) of the person(s) responsible for implementing and coordinating illicit discharge detection and elimination activities.

1.4.4. Construction Site Runoff Controls

While the EPA's Phase I regulations addressed construction sites of five or more acres, the Phase II rules with which NAU must comply regulate construction sites that disturb one acre or more. The ADEQ has been delegated the general construction permit, which regulates construction sites that disturb one acre or more. However, ADEQ is requiring each MS4 to adopt construction site runoff programs locally to provide for more effective plan review, inspection, and enforcement of construction site runoff. NAU currently fields and responds to citizen complaints about erosion and sediment control issues. Table 1.4, below, summarizes the Construction Site Runoff Control permit requirements as defined in the AZPDES Small MS4 General Permit:

Table 1.4 Construction Site Runoff Controls Permit Requirements

a. Develop, implement, and enforce a program to reduce pollutants in any stormwater runoff to the small MS4 from construction activities that result in a land disturbance of greater than or equal to one acre. Reduction of stormwater discharges from construction activity that disturbs less than one acre must be included in the program if that construction activity is part of a larger common plan of development or sale that would disturb one acre or more. If the Department waives requirements for stormwater discharges associated with small construction activity, defined under 40 CFR 122.26(b)(15)(i), the permittee is not required to develop, implement, and/or enforce a program to reduce pollutant discharges from these sites.

b. Using an ordinance or other regulatory mechanism available under the legal authorities of the small MS4,

require construction site operators to practice erosion and sediment control and require construction site operators to control waste and properly dispose of wastes, such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality. This ordinance must apply, at a minimum, to those sites described in Part V, Section B.4.a.

c. Review all site plans for those sites described in Part V, Section B.4.a. for potential water quality impacts, including erosion and sediment control, control of other wastes, and any other impacts that must be examined according to the requirements of the law or ordinance of Part V, Section B.4.b. Before ground is broken at the construction site, the small MS4 operator shall review the plans and verify (in written communication with the construction site operator) that the BMPs for the site are appropriate.

d. Develop and implement procedures for site inspection and enforcement of control measures for those sites described in Part V, Section B.4.a.

e. Include the following information in the SWMP:

i. A description or citation of the established ordinance or other regulatory mechanism used to prohibit erosion and ensure proper management of wastes on construction sites per Part V, Section 4.b. If the permittee needs to develop the required regulatory mechanism, describe the plan and a schedule to do so.

ii. A description of the sanctions and enforcement mechanism(s) to ensure compliance.

iii. A description of the procedures for site inspection and enforcement of control measures, and procedures for site plan reviews.

iv. Procedures for receipt, acknowledgment, and consideration of information submitted by the public.

v. A list of measurable goals for the construction site runoff control program.

vi. Dates, in terms of months and years, by which the permittee will achieve specific measurable goals.

vii. The name(s) and title(s) of the person(s) responsible for overseeing construction site runoff control activities.

1.4.5. Post-Construction Stormwater Management in New Development and Redevelopment

NAU must implement a program to address stormwater runoff from new development and significant redevelopment after construction is complete. With these controls, the quality of stormwater runoff should match, to the maximum extent practicable, the quality characteristics of runoff in pre-development conditions. NAU will need to develop and implement strategies that include both structural and non-structural BMPs. A constructed wetland is one example of a structural BMP for water quality control. Site design that clusters development and minimizes the amount of impervious surface is an example of a non-structural BMP. Some typical structural and non-structural BMPs, however, are not applicable in Arizona's dry climate. This should be taken into account when deciding which BMPs are best for the University.

Critical to the long-term effectiveness of structural controls is appropriate maintenance to ensure that the BMPs continue to operate in a manner consistent with the way they were designed. NAU will need to implement an ordinance or other regulatory, enforceable mechanism that requires BMP maintenance implementation and ensures the long-term operation of post-construction runoff controls to the extent allowable under state law and NAU policy. Table 1.5, below, summarizes the Post-Construction Stormwater Management permit requirements as defined in the AZPDES Small MS4 General Permit:

Table 1.5 Post-Construction Stormwater Management in New Development and Redevelopment Permit Requirements

a. Develop, implement, and enforce a program to address stormwater runoff from new development and redevelopment projects that disturb one or more acres, including projects less than one acre that are part of a larger common plan of development or sale, and discharge into the small S4. The program must ensure that controls that would prevent or minimize water quality impacts are in place.

b. Develop and implement strategies that include a combination of structural and/or non-structural BMPs appropriate for the community.

c. Use an ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects to the extent allowable under the legal authorities of the small MS4.

d. Ensure adequate long-term operation and maintenance of BMPs.

e. Include the following information in the SWMP:

i. A description of the management practices to reduce post-construction runoff from new development and redevelopment projects within the MS4; address any specific priority areas and tailor to the local community.

ii. A description or citation of the established ordinance or other regulatory mechanism used to address post-construction runoff control. If the permittee needs to develop the required regulatory mechanism, describe the plan and a schedule to do so.

iii. A description of the procedure to ensure compliance with local requirements.

iv. A description of the education program for developers, architects, and the public about project designs that minimize water quality impacts.

v. An identification of the measurable goals for the post-construction runoff control program.

vi. Dates, in terms of months and years, by which the permittee will achieve specific measurable goals.

vii. The name(s) and title(s) of the person(s) responsible for the development, implementation, and enforcement of post-construction stormwater management.

1.4.6. Pollution Prevention/Good Housekeeping for University Operations

NAU must develop programs to evaluate and address both University operating practices and the contribution of stormwater pollutants from NAU sites. As with previous program areas, the ultimate goal is preventing or reducing the contamination of stormwater runoff that leaves NAU sites or is caused by NAU activities. Employee training is an important component of this control measure as NAU raises the level of awareness of its employees about both the risks associated with polluted stormwater and ways in which they can protect and preserve water quality. NAU will need to evaluate its own facilities for potential illicit connections to the storm sewer system and remedy any connections found. In addition, NAU's fleet maintenance operation as it is currently configured will require compliance with the Arizona General Permit for the Discharge of Stormwater Associated with Industrial Activity. Table 1.6, below, summarizes the Pollution Prevention/Good Housekeeping permit requirements as defined in the AZPDES Small MS4 General Permit:

Table 1.6 Pollution Prevention/Good Housekeeping for University Operations Permit Requirements

a. Develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations due to activities, including but not limited to, park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and stormwater system maintenance. The permittee shall address the following topics in the program:

i. Maintenance activities, maintenance schedules, and long-term inspection procedures for controls to reduce floatables and other pollutants to the small MS4

ii. Controls to reduce or eliminate the discharge of pollutants from streets, roads, highways, municipal parking lots, maintenance and storage yards, waste transfer stations, fleet or maintenance shops with outdoor storage areas, and salt and sand storage locations and snow disposal areas

iii. Procedures to properly dispose of waste removed from the small MS4 and municipal operations, including dredge spoil, accumulated sediments, floatables, and other debris

b. Include the following information in the SWMP:

i. A list of the municipal operations impacted by this operation and maintenance program

ii. A description of the training program for municipal employees

iii. A list of measurable goals for the municipal pollution prevention program

iv. Dates, in terms of months and years, by which the permittee will achieve specific measurable goals

v. The name(s) and title(s) of the person(s) responsible for implementing and coordinating employee training and pollution prevention activities

1.5. Additional Requirements and Comments

Implementation of the programs associated with NAU will require two additional components over the term of the permit. Each entity that submits an NOI is required to evaluate its success in implementing the BMPs it has chosen and to assess its achievement in meeting the measurable goals that were identified. Each year during the first permit term, the permitted entity must prepare and submit an annual report that documents progress and identifies any program adjustments that are being proposed during the balance of the permit term. Under the ADEQ regulations, reports will be submitted to the regional ADEQ offices and those offices will have the right to make announced program visits to evaluate the implementation of programs in permitted entities.

To aid annual reporting, NAU should develop record keeping programs/documents and associated policies and procedures early in the permit cycle. Digital tracking of inspections, complaint management, and other programs could greatly reduce the burden

of data collection when NAU is preparing the annual program review. NAU should also develop policies that dictate the disposition of records pertaining to the Stormwater Management Program.

It should also be noted that the NPDES Stormwater Phase II regulations require permittees to implement controls to reduce pollutant discharges to the maximum extent practicable (MEP standard). To allow maximum flexibility in permitting, the EPA deliberately did not define MEP precisely. This provides regulated entities with the flexibility to optimize reductions in stormwater pollutants on a location-by-location basis. The EPA envisions that this evaluative process will consider such factors as conditions of receiving waters, pollutants of specific local concern, and other programming aspects that might be included in a comprehensive watershed plan. Other factors that will shape a permittees program may include population, climate, implementation schedules, current ability to finance the program, beneficial uses of receiving water, hydrology, geology, and capacity to perform operation and maintenance. Thus, the standard proposed by EPA is not a numerical reduction goal, but rather a goal that is customized to the water pollution problems faced by each regulated entity and its capacity to address those problems. Each of the six minimum criteria must be met with measurable goals, but permittees have some room for negotiation of just what those measurable goals will be.

Section 2
Stormwater Management Program (SWMP)

This section establishes specific Best Management Practices that Northern Arizona University commits to implementing during the permit period in order to comply with the Arizona Pollutant Discharge Elimination System General Permit for Discharge from Small University Separate Storm Sewer Systems (MS4s) to Waters of the United States.

2. Introduction

Northern Arizona University (NAU or University) is located within the City of Flagstaff (City) in Coconino County, Arizona. The NAU campus is located on 738 acres in the southern part of the City at 6,910 feet above sea level. NAU currently has approximately 20,000 students and 4,500 faculty and staff members. NAU and Flagstaff are located at the base of the San Francisco Peaks, whose highest peak, Mount Humphreys, reaches 12,633 feet above sea level and is the highest point in Arizona. NAU experiences mild summers and long winters. Area precipitation averages 22.8 inches per year and falls primarily as winter snows and as rain during Arizona's summer monsoon season. Flagstaff averages 84.4 inches of snow annually. Because of its mild summers and winter recreational opportunities, the area is a popular tourist destination.

2.1. NAU Stormwater System

The existing NAU stormwater system is a combination of natural washes, culverts, aboveground channels with riprap, underground pipes, outfalls, and retention and detention basins. Most of the system is designed to drain streets and buildings. The stormwater system map detailing outfall locations is largely completed and is relatively up to date. New collection points and ancillary lines are added following newly constructed buildings.

Sinclair Wash is the primary natural drainage channel at NAU and runs parallel to McConnell Drive within the southern part of campus. The wash is an ephemeral stream that flows in response to precipitation and snowmelt events. Several stormwater outfalls and manmade ravines, catch basins and scuppers that drain parking lots and buildings discharge directly to the wash. The wash originates southwest of Flagstaff and flows generally northeastward through the campus, entering the City of Flagstaff stormwater system at San Francisco Street, eventually draining into Rio de Flag southeast of the City.

NAU owns and maintains a large (2-3 acres) detention basin just northwest of the intersection of University Drive and Knoles Drive. This basin receives stormwater generated within the City of Flagstaff along Milton Drive and discharges to a large outfall in Sinclair Wash via an underground pipe. A new stormwater system was recently installed to drain the Pine Ridge Villas student apartment complex and consists of aboveground channels, buried plastic pipes, a pipe under McConnell Street, and an

outfall to Sinclair Wash. Stormwater in the part of the NAU campus approximately north of Mountain View Road is collected in the NAU stormwater system. Stormwater from this area is discharged via one underground connection to the Flagstaff system near NAU parking lot #P7A along Franklin Avenue.

Northern Arizona University's (NAU's) Stormwater Management Program (SWMP) is designed to address the need to prevent or reduce discharges of pollutants to Waters of the United States. The SWMP specifically considers the six Minimum Control Measures (MCMs) outlined in the Arizona Department of Environmental Quality (ADEQ) General Permit AZG2002-002 for small municipal separate storm sewer systems (MS4s).

The Best Management Practices (BMPs) presented here have been proposed because they address the MCMs, are appropriate for NAU's stormwater system, are measurable and achievable, and are anticipated to make improvements in the quality of stormwater from NAU's MS4. For each BMP, the appropriate measurable goals are delineated along with a schedule including an indicated frequency of planned actions, interim milestones, and a date by which BMP implementation will be established.

2.1. MCM 1: Public Education and Outreach on Stormwater Impacts

Public education and outreach is an important MCM for which Northern Arizona University has extensive resources and experience. The University has a long history of design and implementation of active education and outreach programs. The target audience for the education program will be the University's students, faculty, and staff. It is estimated that NAU's stormwater education program will reach 10,000 individuals, or about 57% of the University's target audience during the five-year permit period. The education program will target floatables including trash and illegally dumped wastes because students, faculty, and staff can make significant reductions in these pollutants.

Responsible Department: NAU Environmental Health & Safety, NAU Office of Sustainability
Responsible Position: Environmental Programs Manager (NAU EH&S), Graduate Assistant (NAU Sustainability)

MCM 1: Public Education and Outreach on Stormwater
BMP 1: Disseminate stormwater messages on NAU websites

The University maintains websites and transmits frequent informative newsletters campus-wide. Adding stormwater program information to websites and disseminating newsletters to augment public education and outreach efforts regarding stormwater pollution prevention is practical and cost-effective for the University.

Permit Requirement Citation: Part V, Section B.1:

Implement a public education program to distribute educational materials to the community or conduct equivalent outreach activities about the impact of stormwater discharges on waterbodies and the steps that the public can take to reduce pollutants in stormwater runoff.

Include the following information in the SWMP:
A description of the education program and outreach activities;
A description of the methods for disseminating information;
The target audiences and target pollutants and sources that the applicant will address in the program, and how they were selected;
An estimation of the number of people with whom the applicant intends to communicate;
A list of measurable goals for the public education and outreach program;
Dates, in terms of months and years, by which the permittee will achieve specific measurable goals
The name(s) and title(s) of the person(s) responsible for implementing and coordinating the education activities.

Activity: Implement, maintain, and update as necessary stormwater information on NAU websites with links to appropriate web pages such as EPA and ADEQ and with a link to the e-mail of the University's contact person. Disseminate newsletters from the Office of Sustainability that contain helpful information on the prevention of stormwater pollution and transmit good environmental stewardship practices. Also offer guidance on what to do if pollutant precursors are identified on campus on the EH&S and Sustainability web sites.

Objective: Providing useful stormwater information to the public via the NAU EH&S and Sustainability websites. Provide link to the NAU Stormwater Management Plan (SWMP).

Work Requirements: Determine general message to be conveyed; generate written materials and necessary graphics; in coordination with webmaster, implement and maintain stormwater page on the EH&S and Sustainability web pages; respond in a timely manner to any e-mail inquiries. Include on the EH&S and Sustainability webpage a copy of the University's SWMP and the University's Notice of Intent for compliance

with the new ADEQ General Permit (Public Comment period for the new Draft Permit ended August 2015).

Annual Report Requirements: Description of web page's stormwater information and links, with beginning dates and dates of any modifications. Description of the number of e-mails received regarding stormwater issues and responses.

Documentation Requirements: Date on which stormwater messages and links are made available on website; prints of appropriate materials; prints of e-mail messages including dates received that refer to stormwater during reporting period; dates of additions or modifications to stormwater messages, including changes to contact names and/or addresses; relevant meeting minutes and memos, letters, and records of phone conversations.

Interim Steps and Schedules:

NAU EH&S web page revised and online	November 2015
Stormwater information/links on EH&S web page	November 2015
NAU Office of Sustainability Newsletters	Once/Quarter entire permit period

Measurable Goals: Stormwater information, including copies of the SWMP and NOI (subsequent to permit reissuance by ADEQ), with links to other resources, will be available on the NAU EHS website by October 2015. Stormwater information is to be disseminated in Sustainability newsletters at least once/quarter for entire permit period.

2.2. MCM 2: Public Involvement/Participation

During the renewal of this permit, or Administrative Continuance, the University will provide an opportunity for the public to provide input into the stormwater management program for the next permit cycle and will meet all public notice requirements.

The University is committed to involving students, faculty, and staff in the development and implementation of their SWMP. BMPs identified for this control measure outline a comprehensive public involvement program.

Responsible Department: NAU Environmental Health & Safety, NAU Office of Sustainability
Responsible Position: Environmental Programs Manager (NAU EH&S), Graduate Assistant (NAU Sustainability)

MCM 2: Public Involvement/Participation
BMP 1: Continue complying with state and local public notice requirements

The University will comply with state and local public notice requirements. This BMP to be managed by NAU EH&S department.

Permit Requirement Citation: Part V, Section B.2:

Develop and implement a plan to encourage public involvement and participation in the development and implementation of the SWMP. Comply with state and local public notice requirements when implementing the public involvement/participation program.

Include the following information in the SWMP:

A description of the general plan for informing the public of involvement and participation opportunities;

The types of activities for public involvement that the program will include and the target audiences;

A description of the procedure for receiving and reviewing public comments;

An explanation of how interested parties may access the SWMP and NOI;

A list of measurable goals for the public involvement/participation program;

Dates, in terms of months and years, by which the permittee will achieve specific measurable goals and;

The name(s) and title(s) of the person(s) responsible for implementing and coordinating the public involvement/participation activities.

Activity: Comply with public notice requirements for any newly created or revised stormwater policies.

Objective: To make the public aware of new regulations and allow public participation in the adoption of the regulations that affects the implementation of the SWMP; allow public input to the Stormwater Management Program.

Work Requirements: Ensure that notices are emailed and/or posted per schedules required by state and local public notice requirements. Post notices in University buildings to indicate subject matter and date, time and location of meetings to adopt the regulations.

Implementation Recommendations: Post public hearing notices in prominent places throughout the University facilities. Place public notices of meetings on NAU EH&S and Sustainability webpages.

Annual Report Requirements: Report on number of stormwater-specific public notices posted, either electronically or hard copy.

Documentation Requirements: Copy of public notices; document where and when notices were posted.

Interim Steps and Schedules:

Continue complying with public notice requirements for all Stormwater-related public meetings.	Ongoing throughout permit period

Measurable Goals: NAU EH&S will maintain continuous compliance with public notice requirements throughout the permit period, documenting public meetings, notices provided and comments or input received, reporting in annual summary of activities to the State.

MCM 2: Public Involvement/Participation
BMP 2: Solicit input on NAU's SWMP

In order to effectively solicit public input, the University will make its SWMP available on its websites. NAU will accept comments and will incorporate them as appropriate. The University will inform ADEQ of any modifications to the SWMP.

Permit Requirement Citation: Part V, Section B.2:

Develop and implement a plan to encourage public involvement and participation in the development and implementation of the SWMP. Comply with state and local public notice requirements when implementing the public involvement/participation program.

Include the following information in the SWMP:

A description of the general plan for informing the public of involvement and participation opportunities;

The types of activities for public involvement that the program will include and the target audiences;

A description of the procedure for receiving and reviewing public comments;

An explanation of how interested parties may access the SWMP and NOI;

A list of measurable goals for the public involvement/participation program;

Dates, in terms of months and years, by which the permittee will achieve specific measurable goals and;

The name(s) and title(s) of the person(s) responsible for implementing and coordinating the public involvement/participation activities.

Activity: Make the SWMP available on the NAU EH&S and Sustainability web page.

Objective: To involve NAU Faculty, Staff, Students and the general public in the University's stormwater activities and to provide opportunities to comment on stormwater programs/procedures and revise/update if warranted. Provide another conduit/mechanism in reporting potential precursors on campus that could result in illicit discharges to a waterway.

Work Requirements: NAU EH&S will maintain a stormwater page with the latest SWMP and up to date contact information to facilitate responses to emails or phone calls regarding stormwater activities on campus and respond accordingly. The SWMP can be viewed at the following NAU EH&S link:

http://nau.edu/Research/Compliance/Environmental-Health-and-Safety/Environmental-Compliance/

NAU Office of Sustainability offers another conduit for Faculty, Staff, Students, and the public in the form of an Environmental Caucus that can entertain stormwater affairs and meet frequently. The Caucus facilitates creative and strategic communication across campus to advance the institutional commitment to sustainability and to promote education, research, and collaboration on the environment. Every meeting is a unique opportunity for everyone in the community to hear, share, and connect about initiatives that move NAU and Flagstaff towards a more sustainable future. By creating a gathering place to collect stormwater ideas and projects, we hope to solicit any input regarding BMP's in the SWMP.

Caucus meetings are held monthly during the academic year with updated schedules located at the following link: http://nau.edu/Environmental-Caucus/

Annual Report Requirements: Report on number of stormwater-specific concerns or comments regarding the SWMP received by NAU EH&S or NAU Environmental Caucus with summation and corrective action if warranted. This could comprise phone calls, emails, or meeting notes.

Documentation Requirements: Documentation dates when SWMP was made available for comment; documentation of any comments received; documentation of any modifications to SWMP as a result of these comments.

Interim Steps and Schedules:

SWMP available on NAU EH&S website.	November 2015
SWMP available on NAU Sustainability website.	December 2015
Environmental Caucus Meetings	Monthly
Comments received/incorporated into SWMP as appropriate; ADEQ notified of any modifications.	Ongoing/As Required

Measurable Goals: SWMP to be made available on EH&S and Sustainability websites. Record number of monthly Caucus meetings and include meeting minutes. Record any comments that lead to changes in the SWMP and notify ADEQ accordingly.

2.3. MCM 3: Illicit Discharge Detection and Elimination

The NAU campus is connected to Flagstaff's sanitary sewer system so its stormwater system does not experience problems with discharges from septic tanks. Most problems with the stormwater system are related to blockages of storm debris rather than illicit discharges. NAU is identified as a small quantity generator of hazardous waste under EPA. NAU adheres strictly to the Resource Conservation and Recovery Act (RCRA) rules concerning hazardous waste reduction, management, safe handling & storage, manifesting, and proper packaging and shipping to a qualified treatment facility off-campus. Currently, NAU ships hazardous waste on a monthly basis. The NAU Environmental Health & Safety Department (EHS) trains all personnel that are involved in the generation of hazardous waste at satellite locations as required by law. Additional training is offered for anyone using/handling hazardous chemicals at any location on campus in the form of OSHA's Hazard Communication or Chemical Hygiene standards. Training records are on file and maintained by the EHS department and are available for review.

Discharge to the sanitary sewer system is regulated through specific permit conditions issued by the City of Flagstaff Industrial Wastewater Division in the form of an Industrial Wastewater Discharge Permit. To mitigate illicit discharge potential, NAU has drafted and promulgated a Chemical Management & Spill Prevention Plan. This same Plan is used to mitigate illicit discharges to the stormwater system as well as the same fundamental approach to prevention is utilized: The use of proper shipping containers, proper handling & storage, frequent inspections, installation of engineering controls, spill response/cleanup protocols, trained personnel for chemical handling, etc.

Any accidental slug load or illicit discharge will get reported within 24 hours to the appropriate agency. If the discharge occurs in the sanitary sewer system, the City of Flagstaff will be notified and if the discharge occurs in any component of the stormwater system, ADEQ will be notified. NAU EH&S currently has three employees for spill response that are on call 24/7 that have met all the training qualifications under OSHA's Hazardous Waste Operations & Emergency Response requirements with refresher training occurring annually. This particular training also satisfies the spill response

requirements under EPA's RCRA requirements concerning hazardous materials and waste.

Illegal dumping occurs from time to time on the NAU campus, particularly in the materials storage area within an Arizona Public Service easement south of the Facilities Services building. NAU has erected signage in the area to warn against illegal dumping. Illegally discarded materials include landscaping and construction debris, and white goods. These materials are periodically hauled away for proper disposal or for recycling. This area is monitored regularly by NAU Police.

Northern Arizona University recognizes that potential for illicit discharges may exist on occasion to the University's stormwater system and is committed to addressing any issues or concerns. The BMPs in this section have been developed with consideration of the University's stormwater and domestic wastewater systems. The BMPs are targeted toward known and potential illicit discharges.

For purposes of permit compliance, NAU will has developed and implemented a policy that will prohibit the discharge of non-stormwater into the University stormwater system and will identify incidental non-stormwater discharges that are allowable. This is outlined in NAU's Chemical Management & Spill Prevention Plan. NAU utilizes visual inspection of outfalls, performs an inventory of the drainage system, and responds to complaints from the public in order to detect illicit discharges. Through the public education minimum control measure, the University will educate the public and University employees on the hazards of illegal discharges and dumping in the drainage system.

NAU EHS offers comprehensive training sessions during each Spring and Fall semester for Faculty, Staff, and Students, that encompasses chemical hygiene practices (safe handling, use, and storage of chemicals), personal protective equipment, and spill response procedures. Training information is kept on file at Peterson Hall.

NAU considers the discharges listed in Part I, Section C.2. of the General Permit to be allowable non-stormwater discharges. These discharges will be allowed to the MS4 unless the University identifies them as significant contributors of pollutants to the MS4.

Responsible Department: NAU Environmental Health & Safety, NAU Police, NAU Facilities Grounds Department
Responsible Position: Manager of Environmental Programs, Police Dispatch, Grounds Supervisor

MCM 3: Illicit Discharge Detection and Elimination
BMP 1: Develop and adopt an illicit discharge policy

The University will develop and adopt an illicit discharge policy, addressing all of the requirements outlined in the ADEQ General Permit. The policy will form the basis for the overall illicit discharge elimination program.

Permit Requirement Citation: Part V, Section B.3:

Develop, implement, and enforce a program to detect and eliminate illicit discharges into the small MS4, except those discharges listed below:

> Non-stormwater discharges as listed in Part I, Section C.2 ; This exception does not apply to those categories of discharge which the permittee or applicant has determined to be a significant contributor of pollutants to the small MS4; or
>
> Occasional incidental non-stormwater discharges (e.g. non-commercial or charity car washes, etc.) that the permittee does not expect (based on information available to the permittee) to be a significant contributor of pollutants to the small MS4 because of either the nature of the discharges or conditions the permittee has established for allowing these discharges to the small MS4 (e.g., a charity car wash with appropriate controls on frequency, proximity to sensitive waterbodies, BMPs on the wash water, etc.).

To the extent allowable under state or local law, effectively prohibit through ordinance or other regulatory mechanism, non-stormwater discharges into the storm sewer system and implement appropriate enforcement procedures and actions.

Develop and implement a plan to detect, identify the source of, and address non-stormwater discharges, including illegal dumping, to the system;

Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste;

Activity: Develop, finalize, and adopt a University policy regarding illicit discharges to the NAU stormwater system.

Objective: Define and prohibit illicit discharges to the NAU stormwater system. Empower NAU EH&S, PD, and Grounds departments to seek out and eliminate illicit discharges to the storm drain system. Allow for right of entry and inspection to find illicit discharges.

Work Requirements: Identify those non-stormwater discharges identified in the general permit language that are significant contributors to the stormwater system. Include a listing of allowable discharges in the policy language. Write, finalize, and adopt a University policy that defines and prohibits illicit discharges to the stormwater system and provides for inspections to investigate illicit discharges. Document controls or conditions placed on the discharges and include a provision prohibiting any individual non-stormwater discharge that is determined to be a significant contributor of pollutants to the stormwater system. Identify enforcement tools.

Annual Report Requirements: Copy of University policy as passed or amended.

Documentation Requirements: Copies of meeting agendas and minutes for meetings at which policy was discussed; copy of policy as passed; date adopted.

Interim Steps and Schedule:

Draft policy language December 2015

Adopt policy February 2016

Measurable Goal: Adoption of a policy and/or procedures that prohibits illicit discharges to the NAU stormwater system, empowers NAU EH&S, PD, and Grounds departments to take appropriate action to eliminate illicit discharges, provides enforcement strategies to address illegal dumping into the drainage system.

MCM 3: Illicit Discharge Detection and Elimination
BMP 2: Create an outfall inspection program

The University intends to inspect all stormwater outfalls during dry weather as a part of the overall illicit discharge detection and elimination program. Illicit discharges found during inspections will be investigated and eliminated if a source is found.

Permit Requirement Citation: Part V, Section B.3:

Develop, if not already completed, a storm sewer system map, showing the location of all outfalls and the names and location of all waters of the United States that receive discharges from those outfalls.

Conduct dry weather field screening for non-stormwater flows. The screening must include qualitative field tests based on color, odor, or visually observed characteristics as indicators of discharge sources. If the qualitative field tests do not provide enough information for the permittee to determine the source of the discharge, the permittee must test the discharge, while in the field, for selected chemical parameters. The permittee must investigate the illicit discharge within 15 days of its detection, and must follow up investigation with an action to further study the source of the discharge or eliminate it.

NAU Facilities department maintains an electronic storm sewer system map which is updated as new construction or alterations of the storm system conveyances are completed.

Activity: Inspect stormwater outfalls during dry weather to identify illicit discharges and locate illegal dumping. Perform testing if warranted.

Objective: Identify possible illicit discharges to the University's stormwater system and investigate the source of such discharges for the purpose of eliminating them.

Work Requirements: Develop policies and procedures for outfall inspections. Develop policies and procedures for removing illicit discharges and illegal dumps identified during inspections or through complaints. Inspect stormwater outfalls during dry weather to check for possible illicit discharges and document activities and observations. Outfalls will be visually inspected, noting the appearance, color, odor, etc of any discharge. If discharges are noted, field tests of selected chemical parameters may be conducted and the source will be identified, if possible. If necessary, additional chemical tests will be performed to determine the source. Within 15 days of the detection of a discharge, the University will investigate the discharge, and will take action to investigate and eliminate the discharge.

Implementation Recommendations: Coordinate outfall inspections with outfall mapping activity. Develop inspection checklists. Consider developing a digital database for maintenance of information collected.

Annual Report Requirements: Description of outfalls inspected. Description of inspection procedures and dates on which outfalls were inspected. Description of findings of any discharges, chemical tests used and enforcement actions taken. Written report on any discharges observed and action taken to characterize the source and eliminate the illicit discharge.

Documentation Requirements: Copy of written procedures for inspections and enforcement. Map showing locations of outfalls; written report for each outfall inspected including date, time, and any observed discharges; actions taken to trace and eliminate the source of the illicit discharge; documentation of relevant correspondence.

Interim Steps and Schedule:

North Campus Outfall Inspections	Once Annually
Central Campus Outfall Inspections	Once Annually
South Campus Outfall Inspections	Once Annually

Measurable Goals: Dry weather inspections of all known stormwater system outfalls at least once annually. Initiate investigation of illicit discharges of illegal dumping activities within 15 working days of discovery. Evaluate inspection program to ensure that procedures are effective in identifying potential problems and make adjustments as needed to the inspection protocol. Outfall inspection records maintained with NAU Grounds department.

2.3. MCM 4: Construction Site Stormwater Runoff Controls

Permit Requirement Citation: Part V, Section B.4.e.:

A description or citation of the established ordinance or other regulatory

mechanism used to prohibit erosion and ensure proper management of wastes on construction sites per Part V, Section 4.b. If the permittee needs to develop the required regulatory mechanism, describe the plan and a schedule to do so;

Stormwater runoff controls at construction sites on the NAU campus are addressed during each project's design phase. The *regulatory mechanism* that NAU employs to satisfy construction site stormwater runoff controls are policies and procedures drafted and enforced by the NAU Planning Development & Construction department in Facilities. Prior to project award, each contractor must review and accept in contractual format all the required stormwater runoff controls requirements prior to construction commencement or breaking ground. The awarded contractor submits a Notice of Intent to discharge if larger than one acre and is also required to provide a site-specific SWPPP that outlines the runoff control mechanisms.

The contractor(s) for each project is responsible for implementing stormwater runoff controls in the form of erosion and sediment control, and require construction site operators to control waste and properly dispose of wastes, such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality. The minimum procedures addressing these issues are outlined in the NAU Technical Standards and in NAU's Low Impact Development Plan (LIDP).

NAU Technical Standards outlining site waste and material control requirements are located in Division One, General Requirements, Section 01 70 00, at the following link: http://nau.edu/Facility-Services/DP_Contract/

Construction site Erosion and Sediment Control requirements are outlined in the Low Impact Development Plan. NAU has adopted the City of Flagstaff's LIDP and is referenced in the Project Design Guidelines for all construction activities. The NAU LIDP outlining these requirements is located at the following link:

http://nau.edu/uploadedFiles/Administrative/Finance_and_Administration/Facility_Services/Documents/DP_Contract/Design%20Guidelines%2005.01.15.pdf

A description of the sanctions and enforcement mechanism(s) to ensure compliance; A description of the procedures for site inspection and enforcement of control measures, and procedures for site plan reviews;

Sanctions and enforcement mechanisms to ensure compliance with stormwater runoff controls are outlined in NAU Technical Standards in Division One, General Requirements, Section 01 40 00:

http://nau.edu/uploadedFiles/Administrative/Finance_and_Administration/Facility_Services/Documents/Tech_Standards/Current/Division%201%2005.01.15(1).pdf

Site plan reviews and inspection procedures and enforcement of control measures are performed by pertinent members of the Facilities Design Professional group in accordance with procedures outlined in the Plan Review, Permit and Inspections process. Refer to the Plan Review procedure located at the following link under "Plan Review, Permit and Inspections": http://nau.edu/Facility-Services/DP_Contract/

Procedures for receipt, acknowledgment and consideration of information submitted by the public;

Contractors as well as the general public can submit comments/suggestions regarding individual construction sites by submitting a "Plan Review Request Form" located in the Plan Review, Permit and Inspections page located here: http://nau.edu/Facility-Services/DP_Contract/

A list of measurable goals for the construction site runoff control program;

Refer to BMP 1 for a list of measurable goals.

Dates, in terms of months and years, by which the permittee will achieve specific measurable goals;

Refer to BMP 1.

The name(s) and title(s) of the person(s) responsible for overseeing construction site runoff control activities.

Responsible Department: NAU Facilities, Planning Design & Construction Department
Responsible Position: Director, Planning Design & Construction, Design Professional Team

MCM 4: Construction Site Runoff Controls

BMP 1: Record the number of construction plan reviews, contractor/public comments, site inspections, and enforcement activities received/occurred pertaining to stormwater runoff controls at each regulated construction site.

NAU Design Professional staff and site Project Management will maintain pertinent records for each construction project during the Plans Review and active construction processes to ensure all stormwater runoff policies and procedures involving controls are conveyed to pertinent parties prior to construction commencement and are being implemented during the construction activity.

Activity: Ensure stormwater runoff controls at each construction site are acknowledged and implemented by adhering to NAU policies and procedures during the construction plan review process and during the length of the project.

Objective: Ensure that all policies and procedures regarding stormwater runoff controls outlined in NAU Technical Standards and in the NAU Low Impact Development Plan are acknowledged and implemented prior to commencement and during construction projects on the NAU campus. The inspection and enforcement mechanisms in place will keep track of discrepancies that lead to prompt corrective action to deter runoff from sites.

Work Requirements: During initial project design stages as well as during each construction site activity, NAU Design Professionals and Project Managers will maintain all plan review records and ensure compliance with NAU Policies and Procedures regarding stormwater runoff controls. Maintain inspection records and any enforcement activities.

Annual Report Requirements: Number and description of projects reviewed for construction site runoff controls during the report year.

Documentation Requirements: The number and description of construction projects reviewed during plan review process; number of public comments received; number of inspection records and any enforcement action activities.

Interim Steps and Schedules:

Plan Review Tracking	Beginning January 2016, ongoing thereafter
Public Comment Tracking	Beginning January 2016, ongoing thereafter
Site Inspections	Beginning January 2016, ongoing thereafter

Measurable Goals: Maintenance of applicable records in the NAU Planning, Design & Construction department.

2.4. MCM 5: Post-Construction Stormwater Management in New Development and Redevelopment

Permit Requirement Citation: Part V, Section B.5:

Develop, implement, and enforce a program to address stormwater runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, and discharge into the small MS4. The program must ensure that controls are in place that would prevent or minimize water quality impacts;

Develop and implement strategies that include a combination of structural and/or non-structural BMPs appropriate for the community;

Use an ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects to the extent allowable under the legal authorities of the small MS4;

Ensure adequate long-term operation and maintenance of BMPs; and

Include the following information in the SWMP:

A description of the management practices to reduce post-construction runoff from new development and redevelopment projects within the MS4; address any specific priority areas and tailor to the local community;

A description or citation of the established ordinance or other regulatory mechanism used to address post-construction runoff control. If the permittee needs to develop the required regulatory mechanism, describe the plan and a schedule to do so;

A description of the procedure to ensure compliance with local requirements;

A description of the education program for developers, architects and the public about project designs that minimize water quality impacts;

NAU strives to live, learn, research, and advocate sustainability principles with the goal of meeting the needs of the 21st century to bring positive, lasting change. Sustainability is an ideology we hope to instill in our faculty, staff, and students that will guide them through the rest of their professional and personal lives. In 2010, to assist in guiding the NAU community towards more sustainable living, a 2010 Action Plan was created. In 2015, the Plan was revised to make even more detailed and specific actionable items. The revised Sustainability Action Plan is divided into seven key areas. The Plan is a list of best practices that has been adapted to NAU's needs and capacity and will be implemented within the context of available resources.

One of the Plan's key areas with Post-Construction Stormwater Management applicability is embedded in the Operations Section (#3). Of the five objectives in the Operations section, objective number one entails the construction, operation, and maintenance of sustainable buildings on campus. One top accomplishment since 2007 is that all new buildings constructed since then have achieved a minimum of LEED-Silver certification.

As part of NAU's commitment to environmental sustainability and striving to achieve LEED certification on all new building construction projects, the university strives to employ the best possible structural or non-structural stormwater controls where feasible. Examples of this endeavor are reflected over the past few years of new construction projects that occurred on campus:

> *The Applied Research & Development (est. 2007) building on central campus (Building 56).* The parking lot to the north of the building is comprised of pervious concrete and there is a 2-acre detention basin on the south side. Drainage from this basin is via underground pipes as the conveyance means to the Sinclair Wash south. This greatly assists in erosion and sediment control. This building has retained a Platinum LEED certification.
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> Measures for collecting and appropriately channeling stormwater from the new *Science Lab Facility (est. 2007), the renovated Engineering Building (est. 2006), and the new College of Business (est. 2007)* comprise roof drainage plumbing systems that lead to stormwater drains on the immediate grounds around the perimeter. Erosion mitigation and sediment accumulation is minimal. These two buildings have retained Silver LEED certification.

The NAU Sustainable Action Plan, in combination with the Post-Construction Stormwater Management policies and procedures outlined in NAU's Low Impact Development Plan (LIDP), should satisfy the regulatory requirements for this MCM outlined above. For a description of these policies and procedures refer to Section 7 in the LIDP at the following link:

http://nau.edu/uploadedFiles/Administrative/Finance_and_Administration/Facility_Services/Documents/DP_Contract/Design%20Guidelines%2005.01.15.pdf

An identification of the measurable goals for the post-construction runoff control program;

Refer to BMP #1.

Dates, in terms of months and years, by which the permittee will achieve specific measurable goals;

Refer to BMP #1.

The name(s) and title(s) of the person(s) responsible for the development, implementation, and enforcement of post-construction stormwater management.

Responsible Department: NAU Facilities, Planning Design & Construction Department
Responsible Position: Director, Planning Design & Construction, Design Professional Team

MCM 5: Post-Construction Stormwater Management in New Development and Redevelopment
BMP 1: Develop an inspection program for post-construction stormwater BMPs

The University will develop a procedure for the inspection of post-construction stormwater BMPs. This will include inspection checklists or reports.

Activity: Develop an ongoing post-construction BMP inspection procedure to ensure effective construction and long-term performance of stormwater controls.

Objective: To ensure the longevity of the post-construction BMPs and to ensure compliance with SWMP.

Work Requirements: Establish a procedure that addresses maintenance responsibilities for post-construction BMPs; establish procedure involving routine inspections by the Project Management staff. Distribute procedure, as needed, to the development community. Create inspection checklists.

Implementation Recommendations: The inspection program must contain two components: verification that BMPs are installed as noted on the approved plans and verification that BMPs are maintained. The installation verification (as-built) inspection can be incorporated into the inspection program developed for MCM 4 for construction site runoff control as a final stabilization inspection. However, the long-term BMP inspection will require a separate set of inspection criteria and processes.

Annual Report Requirements: Discuss the status of program development; discuss program information distribution methods. Discuss program implementation, including inspections made.

Documentation Requirements: Document development of procedures; document distribution methods. Copy of final policies and procedures.

Interim Steps and Schedules:

Develop an ongoing post-construction BMP inspection procedure to ensure effective construction and long-term performance of stormwater controls	March 2016, ongoing thereafter

Measurable Goals: Finalized procedures for the inspection program; implementation of the inspection and enforcement ongoing in coordination with BMP 1 of this MCM.

2.5. MCM 6: Pollution Prevention/Good Housekeeping for University Operations

Permit Requirement Citation: Part V, Section B.6:

Develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations due to activities, including but not limited to, park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and stormwater system maintenance. The permittee shall address the following topics in the program:

> *Maintenance activities, maintenance schedules, and long-term inspection procedures for controls to reduce floatables and other pollutants to the small MS4;*
>
> *Controls to reduce or eliminate the discharge of pollutants from streets, roads, highways, municipal parking lots, maintenance and storage yards, waste transfer stations, fleet or maintenance shops with outdoor storage areas, and salt and sand storage locations and snow disposal areas; and*
>
> *Procedures to properly dispose of waste removed from the small MS4 and municipal operations, including dredge spoil, accumulated sediments, floatables, and other debris.*
>
> Refer to BMP #1.

Include the following information in the SWMP:

> *A list of the municipal operations impacted by this operation and maintenance program;*
>
> Municipal operations conducted by NAU are centrally housed under the Facilities department. Activities performed by the Grounds department include building perimeter maintenance, landscape maintenance, streets and open space maintenance (parking lots, fields), salt/sand storage areas, snow melt application and removal, herbicide application, and stormwater system maintenance. Municipal operations under Facilities also include a fleet and building maintenance department. New construction and land disturbance activities are managed by Facilities Planning, Design & Construction and include stormwater controls and procedures specified in MCM 4 (Construction Site Stormwater Runoff Controls).

A description of the training program for municipal employees

NAU Grounds department conducts training every other Thursday that comprises detection of illicit substances on campus property and proper procedures to implement corrective action and removal. Training also incorporates specific catch basin/grate inspection and cleanout procedures. Training events are recorded by the Grounds supervisor. Fleet and building maintenance personnel in Facilities participate in an in-house computer-based training system that records each employee's specific subject matter.

A list of measurable goals for the municipal pollution prevention program;

Incorporate stormwater Catch Basin Inspection and Cleaning Procedure in the Operations & Maintenance Program. Draft online Pollution Prevention Training module and post on NAU EH&S web site.

Dates, in terms of months and years, by which the permittee will achieve specific measurable goals;

Implement Catch Basin Inspection and Cleaning Procedure through the Grounds department in Spring 2016. Post online Pollution Prevention training module on EH&S web site by June 2016.

The name(s) and title(s) of the person(s) responsible for implementing and coordinating employee training and pollution prevention activities.

Northern Arizona University recognizes that any Stormwater Management Program requires diligent good housekeeping and pollution prevention to be successful. The University already practices many pollution prevention activities and is committed to improving good housekeeping practices in maintenance and operations activities. The University also realizes that evaluation and refinement of good housekeeping and pollution prevention is beneficial, and is committed in preventing its' occurrence.

As mandated in various EPA, OSHA, and Local regulations, NAU is already implementing pollution prevention and good housekeeping behavior among the faculty, student, and staff population. EPA hazardous waste regulations call for the reduction or substitution of hazardous waste when feasible. In some instances this is not possible due to the academic or research curriculum. In that event, meticulous streamlining of the waste is executed as well as training the users at each location generating hazardous waste. The training identifies safe and proper storage of hazardous waste and what to do in the event of a spill whether indoors or out. NAU employs one full time employee who manages, collects, and prepares hazardous waste for proper shipping to a permitted facility for treatment.

Pertinent OSHA regulations concerning good housekeeping comprise the hazard communication program in non-laboratory environments and chemical hygiene in

laboratories. All lab (faculty, students) and non-lab users (staff) receive training on how to properly use and store chemicals and also what to do in the event of a spill. The NAU Police staff is also trained annually as Level I first responders (OSHA 29 CFR 1910.120) as they are most frequently the first on-scene personnel responding to reports of chemical spills or other unidentified substances located on NAU property. Police Dispatch has an emergency call list to EH&S personnel that can respond quickly and discern the hazard(s) and mitigate any potential pollution that could be conveyed in stormwater.

The NAU Grounds department is also critical in early detection of any precursors to stormwater pollution as they're job duties take them to nearly all areas of the campus quite frequently. The Grounds mission involves the maintenance and upkeep of not only the immediate areas of building perimeters but open spaces (recreational), parking lots, and streets as well.

The bulk chemical storage locations on campus have engineering controls either built into the structure/containment or were purchased and added on at a later date. The particular locations of chemical bulk storage are outlined in NAUs Spill Prevention Control & Countermeasure Plan that addresses illicit discharge procedures. Spill controls that are added on come mainly in the form of portable resilient spill tub/platforms that storage drums are situated on.

Responsible Department: NAU Facilities (Grounds, Fleet & Building Maintenance, Safety), NAU Police Department, NAU EH&S
Responsible Position: Grounds Supervisor, Police Sergeant, Facilities Director of Operations, Facilities Safety Officer (Trainer)

MCM 6: Pollution Prevention/Good Housekeeping for University Operations
BMP 1: Develop and implement a University Operations & Maintenance program that includes a training component.

Perform field assessment of municipal operations on campus to incorporate best management practices into the Operations & Maintenance Program and implement training program.

Activity: Evaluate University operations and maintenance activities and University owned facilities to determine if stormwater pollutants are being reduced to the maximum extent practicable.

Objective: Reduce the potential for pollutant discharge from University operations and maintenance activities and University owned facilities.

Work Requirements: Verify and assess University operations and maintenance activities and University owned facilities that have a potential to discharge pollutants through stormwater. Specifically review park and open space management, fleet and building maintenance, University-conducted land disturbing activities, stormwater system maintenance, and other maintenance activities. Include the following topics in the reviews of the activities: maintenance schedules and long-term inspection procedures to reduce floatables and other pollutants; controls to eliminate or reduce pollutants from streets, roads, cinder storage areas, highways, University parking lots, maintenance and storage yards, waste transfer stations, and fleet or maintenance shops with outdoor storage areas. Include the following topics in the activity review: procedures to properly dispose of waste removed from the MS4 and NAU operations, including accumulated sediments, debris and floatables. Develop pollution prevention plans and operating procedures for each activity or facility identified, if appropriate.

Implementation Recommendations: Evaluate a few activities per year, depending on complexity of the activities. Focus first on activities that have the greatest potential to contribute pollutants to stormwater, such as facilities located close to stormwater system discharge points and activities conducted near or in environmentally sensitive areas such as Sinclair Wash.

Annual Report Requirements: Discussion of University operations and maintenance activities and University facilities that will be reviewed; discussion of each review and the outcome; discuss implementation of procedures and/or pollution prevention plans.

Documentation Requirements: Written documentation of operations and maintenance activities and University-owned facility reviews; documentation of procedures and/or pollution prevention plans developed for operations and maintenance activities and facilities, as appropriate.

Interim Steps and Schedules:

Verify and assess University operations and maintenance activities and facilities and prioritize for evaluation.	January 2016-June 2016
Evaluate activities/facilities and develop Operations & Maintenance Program.	June 2016

Measurable Goals: Evaluate University operations and maintenance activities and facilities over the permit period. Modify procedures for operations and maintenance activities as appropriate, funding changes in the fiscal year following the evaluation, working on priority issues first. Develop Operations & Maintenance Program for University-owned facilities evaluated, as appropriate, providing employee training on pollution prevention plans, funding physical improvements on a priority basis in the fiscal year following the facility evaluation.