HYRUM CITY

Municipal Separate Storm Sewer System (MS4)
Storm Water Management Program (SWMP)

November 2010

Prepared By:

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Storm Water Management Program (SWMP)

Hyrum City, Utah

UPDES Permit No UTR090034

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DEFINITIONS

Best Management Practices (BMPs) – Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollution to waters of the United States. Best management practices also include treatment requirements, operating procedures, practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Clean Water Act (CWA) – The federal Water Pollution Control Act (33 U.S.C. 1251) and any subsequent amendments thereto.

Construction Activity – Activities that disturb one acre or more of land and therefore must be authorized under the UPDES General Permit for Construction Activities.

Control Measure – Any best management practice or other method used to prevent or reduce the discharge of pollutants to Waters of the State.

Culvert – A pipe or covered channel that directs water below ground surface.

Discharge – A release of storm water or other substance that is routed through the storm sewer system and discharged from the MS4.

Division – The Utah Division of Water Quality.

EPA – The United States Environmental Protection Agency.

Illicit Connection – Any man-made conveyance connecting an illicit discharge directly to a municipal separate storm sewer.

Illicit Discharge – Any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to a UPDES (other than the UPDES Permit for discharges from municipal separate storm sewer).

Large MS4 – All MS4s located in an incorporated place with a population of 250,000 or more as determined by the U.S. Census Bureau.

Maximum Extent Practicable (MEP) – The technology-based discharge standard for municipal separate storm sewer systems to reduce pollutants in storm water discharges established by CWA 402(p). A discussion of MEP as it applies to small MS4s can be found in 40 CFR 122.34.

Medium MS4 – All MS4s located in an incorporated place with a population of 100,000 or more as determined by the U.S. Census Bureau.

Municipal Separate Storm Sewer System (MS4) – A municipal conveyance or system of conveyances including roads with drainage systems, municipal streets, catch basins, curb, gutters, ditches, man-made channels, or storm drains.

National Pollutant Discharge Elimination System (NPDES) – National program for issuing, modifying, revoking and reissuing, terminating, imposing and enforcing pretreatment requirements, under sections 307, 402, 318, and 405 of CWA.

Notice of Change (NOC) – Written notification from the permittee to the Executive Secretary providing changes to information that was previously provided to the agency in a Notice of Intent.

Notice of Intent (NOI) – A written submission to the Executive Secretary from an applicant requesting coverage under this general permit.

Notice of Termination (NOT) – A written submission to the Executive Secretary from a permittee authorized under a general permit requesting termination of coverage.

Outfall – A point source at the point where a municipal separate storm sewer discharges to waters of the United States (U.S.) and does not include conveyances connecting two municipal separate storm sewers, or pipes, tunnels, or other conveyances that connect segments of the same stream or other waters of the U.S. and are used to convey water of the U.S.

Redevelopment – Alterations of a property that change the footprint of a site or building in such a way that results in the disturbance of equal to or greater than 1 acre of land.

Small MS4 – Any MS4 not already covered by the Phase I program. The Phase II Rule automatically covers on a nationwide basis all Small MS4s located in “urbanized areas” (UAs).

Standard Operating Procedure (SOP) – A set of written instructions that document a routine or repetitive activity.

Storm Water Management Program (SWMP) – A written plan that is used to describe the various control measures and activities the Permittee will undertake to implement the storm water management plan.

Storm Water – Storm water runoff, snow melt runoff, and surface runoff and drainage.

Urbanized Area (UA) – An area of high population density that may include multiple MS4s as defined and used by the U.S. Census Bureau.

Watershed – The region draining into a river, river system, or other body of water.

Waters of the State – Surface and ground waters within the boundaries of the State of Utah and subject to its jurisdiction.

Waters of the United States – All surface waters as defined in 40 CFR 122.2.

SECTION 1: INTRODUCTION

1.1 Regulatory Requirement

The Clean Water Act (CWA) is a law enacted by Congress and signed by the President that establishes environmental programs, including the National Pollutant Discharge Elimination System (NPDES) program, to protect the Nation's waters and directs the U.S. Environmental Protection Agency (EPA) to issue rules on how to implement this law. Under the NPDES program, a municipal storm water program was developed in two phases.

Phase I of the EPA municipal storm water program was promulgated in 1990 under the authority of the Clean Water Act (CWA). Phase I relied on the NPDES permit coverage to address storm water runoff from "medium" and "large" municipal separate storm sewer systems (MS4s), serving populations of 100,000 and greater.

On December 9, 2002, the Utah Division of Water Quality (Division) issued the Phase II general permit for "small" municipal separate storm sewer systems (MS4s) to administer the NPDES permit program in Utah. This program has been named the Utah Pollutant Discharge Elimination Program (UPDES). Under a memorandum of agreement between the two agencies, the DWQ agreed to adopt any new rules or permits to comply with Phase II storm water regulations by the deadlines mandated in the federal rules.

The Phase II program required small MS4s serving populations <100,000 (based on the 1990 Census) in urbanized areas to implement programs and practices to control polluted storm water runoff through the UPDES permit program. As a result, the City is required to reduce the discharge of pollutants to the maximum extent practicable (MEP); protect water quality; satisfy the appropriate water quality requirements of the Clean Water Act; and manage storm water quality activities through the Storm Water Management Program (SWMP).

1.2 Storm Water Management Program

On August 1, 2010 the Division reissued the UPDES General Permit UTR090000 authorizing storm water discharges to Waters of the State of Utah resulting from a MS4. Renewal Permittees previously covered under the last MS4 General Permit such as Hyrum City must submit a revised SWMP document to the Division within 120 days of the effective date of the General Permit. The existing NOI for Hyrum City will remain effective until the end of 2012 and must be renewed no later than 180 days after the expiration date. An annual report documenting compliance with the SWMP in the previous year will be submitted within 90 days of the end of each permit year.

Hyrum City has developed this SWMP in accordance with the requirements of UPDES General Permit UTR090000. The SWMP will facilitate the City's efforts in reducing storm water pollutant for the City's MS4, therefore protecting the City's storm water quality to the maximum extent practicable (MEP). Included in the SWMP are best management practices (BMPs) that will be implemented to reduce pollutants, measureable goals for each SMP, and an implementation schedule developed for the five-year

permit term. Various BMPs were developed for each of the six minimum control measures (MCMs) that are required the Phase II rule. The six MCMs are:

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

SECTION 2: PROGRAM OVERVIEW

2.1 Background Information for Hyrum City

Hyrum City is located in Cache County approximately eight miles south of Logan which is considered an Urbanized Area. Hyrum City was incorporated in 1870 and has become a residential community surrounded by farmland and countryside covering 3.9 square miles of land. Hyrum Reservoir lies on the southern boundary of the City. There are light commercial businesses as well as heavy industrial activities operating in Hyrum City. Some general demographic information includes:

Population:	7,670 (U.S. Census Bureau, 2009 Population Estimate)
Size:	3.9 square miles
Elevation:	4600-4800 feet
Latitude:	41.63° N
Longitude:	111.85° W
Receiving Waters:	Bear River
Annual Precipitation:	18.31 inches per year (Western Regional Climate Center, Station 425194 1969-2010)

2.1.1 MS4 Location Map and Boundary

Refer to Figure 1, Appendix A.

2.2 Storm Water Drainage System

The Hyrum City storm drainage system is made up of natural waterways, canals, irrigation ditches, storm water sumps and retention basins on shown in the Storm Water System Map, Figure 2 of Appendix A. In addition, there are some curb and gutter, culverts, and a few piped sections. Storm water runoff from residential development is contained in sumps and retention basins where the water is allowed to infiltrate. For other areas, the majority of runoff flows to the North into the Blacksmiths Fork, Hyrum Canal, Hyrum Slough, or Little Feeder Canal which continues to Cutler Reservoir or at the west end side of the City, water flows to the west into Wellsville Canal which also feeds Cutler Reservoir.

2.2.1 Local Water Quality Concerns

The quality of the water located within Hyrum City boundaries is relatively good. None of the waterways or streams are listed as impaired under Section 303(d) of the Clean Water Act. The overall intent of this SWMP is to maintain the existing water quality and make improvements where possible. The main water quality concerns are as follows:

- Sediment loads from disturbed sites
- Fertilizers and pesticides from lawns and farmlands
- Oil, grease, and debris from the roadways
- Animal waste from dairies and livestock operations

2.3 Existing Permit

UPDES Permit No UTR090034.

2.4 Contact Information

The Hyrum City storm sewer system falls under the Public Works Department for the City. The City Water Superintendent can be contacted in regards to this SWMP.

SWMP Contact:

Corey Nielsen
90 North 100 West
Office: (435) 245-6742
Fax: (435) 245-4807
cnielsen@hyrumcity.com

2.5 Steering Committee Team

The storm water steering committee team consists of city officials and staff members. The team is responsible for assisting in the development and revisions to the City's SWMP; implementing and maintaining control measures and BMPs, and taking corrective actions as required.

Name	Staff Title
Brent Jensen	City Administrator
Stephanie Fricke	City Recorder
Corey Nielsen	Water and Roads Superintendent
Kevin Maughan	Sewer Superintendent
Ron Salvesen	Construction Inspector
Craig Neeley	Contract City Engineer
Brad Call	Parks Superintendent
Guy McBride	Power Superintendent
Jeremy Voth	Public Works Shop

SECTION 3: MINIMUM CONTROL MEASURES (MCM)

Hyrum City has developed a SWMP for compliance with the UPDES Storm Water Phase II Rule. The review of existing conditions and identification of storm water needs has provided the framework for identifying best management practices under the six minimum control measures. The aim of this SWMP is to reduce pollutant loads from storm water systems to the maximum extent practicable, protect water quality, and meet the requirements under the Clean Water Act. Best management practices are detailed in the following sections along with their measurable goals.

3.1 MCM 1: Public Education and Outreach

Public education and outreach is a key to the success of a storm water management program. Through public education, people gain an understanding of how their actions affect storm water quality and become more informed about storm water quality issues in their community. When the public is aware of the impacts they have on their surroundings, they gain a sense of responsibility for those actions which can lead to greater compliance for the storm water management program.

The public education program will target the following audiences:

- Residents
- Businesses
- Commercial and industrial facilities
- Developers and contractors
- City personnel

3.1.1 Regulatory Requirements

40 CFR 122.34 (b)(1) - Implement a public education program to distribute educational materials to the community, equivalent outreach activities about the impacts of storm water discharges on water bodies and the steps the public can take to reduce pollutants in storm water runoff.

3.1.2 BMPs Selected

BMP	BMP Description	Responsibility	Measurable Goal	Target Date
1.1 Municipal Website	Use the municipal website to inform the public of the issues associated with storm water pollution, details of the SWMP, and educational materials	Stephanie Fricke	Update website to reference SWMP	2011
			Update website to reflect annual reports, current SWMP events	Ongoing
1.2 Distribute Educational Materials	Distribute information to the public through the City Newsletter and annual utility bill insert	Keesha Rinderknecht	Bi-monthly City Newsletter and annual public survey	Ongoing
1.3 Annual Storm Water Fair	Educate 4th grade students about the importance of storm water management and stewardship by participating in an annual storm water fair with Logan City	Stephanie Fricke	Document event activities and attendance	Ongoing

3.1.3 BMP Rationale

BMP	BMP Rationale
1.1 Municipal Website	The Storm Water website is a media approach that will provide information and resources to the public and demonstrate accountability for plan implementation.
1.2 Distribute Educational Materials	Use of public education materials is an effective means to provide information to the target audiences defined in Section 3.1. Public educational materials will address the impacts polluted storm water runoff can have on water quality, hazards associated with illegal discharges and improper disposal of waste and ways the public can minimize their impact on storm water quality.
1.3 Annual Storm Water Fair	This school-based storm water fair provides fun and resourceful activities for students to learn about storm water and pollution prevention. This activity will help instill a conservation ethic in these children that will last life-time. In addition, children will share this information with friends, siblings, and their families.

3.1.4 MCM 1 Resources and Documentation

Appendix C – Education Material Resources and Documentation

Appendix D – Annual Storm Water Fair Documentation

3.2 MCM 2: Public Participation and Involvement

Public participation and involvement is important for the development of the storm water management program. By encouraging input from diverse groups, there can be beneficial impacts to the development of the program. Members of the community can get involved in several ways. Possibilities for participation include serving as citizen representatives on a local storm water management panel, attending public hearings, working as citizen volunteers, or participating in volunteer monitoring efforts.

3.2.1 Regulatory Requirement

40 CFR 122.34 (b)(2) – At a minimum, comply with state, tribal, and local public notice requirements when implementing a public participation and involvement program.

3.2.2 BMPs Selected

BMP	BMP Description	Responsibility	Measurable Goal	Target Date
2.1 Public Notice of Development of SWMP	Provide public notice to citizens on progress of the development and implementation of the SWMP	Stephanie Fricke	Public notice in Harold Journal	2011
			Receive comments from the public	2011
			Implementation Complete	2012
2.2 Volunteer Opportunities	Encourage citizens / scout troops / students to clean streams, banks, and storm water detention basins by creating a list of projects	Fran Bair	Compile a list of projects and post in City Newsletter and on the City's website	2011
			Update the project list annually	Ongoing
2.3 Storm Drain Marking	Stencil, "Drains to Stream, Keep it Clean", on storm drain inlets	Fran Bair	Identify the remaining number of inlets	2011
			Organize students, boy scouts, or volunteers to provide stenciling	2011-2012
2.4 Annual Spring Cleanup	Provide community dumpsters for a minimum of one week in springtime to collect spring cleanup garbage	Brad Call	Announce activity through website and City newsletter	Ongoing
2.5 Storm Water Steering Committee	Meet monthly/bi-monthly as required to assess progress and make adjustments to program as needed	Brent Jensen	Conduct 6 to 12 meetings annually	Ongoing
2.6 Used Oil and Hazardous Waste Collection	Encourage citizens to participate in oil and other hazardous waste collections through newsletters and City website	Keesha Rinderknecht	Send information out twice annually	Ongoing

3.2.3 BMP Rationale

BMP	BMP Rationale
2.1 Public Notice of Development of SWMP	To comply with federal, state, and local public notice requirements when implementing the SWMP.
2.2 Volunteer Opportunities	This BMP allows volunteer groups the opportunity to get involved in the community and aid in the implementation of the storm water management program by performing service projects. These activities will help decrease the maintenance costs associated with storm water management.
2.3 Storm Drain Marking	Storm drain system inlets have historically proven to be locations for illegal dumping and all types of pollutants. Labeling catch basins should act to heighten public awareness about how most drainage systems are directly connected to receiving waters without any treatment. Requirements for developers to label storm drains in new communities will be adopted into the City's procedures.
2.4 Annual Spring Cleanup	Yard debris can become a source of storm water contamination when not taken care of. The annual spring cleanup ensures that citizens have a free and easy location where they can drop off yard debris for processing and reuse.
2.5 Storm Water Steering Committee	The storm water steering committee will evaluate the storm water program monthly/bi-monthly to evaluate progress and make adjustments to the program as needed to ensure compliance with the UPDES MS4 General Permit.
2.6 Used Oil and Hazardous Waste Collection	Used oil and other hazardous waste is a source of storm water contamination when not properly handled. By providing citizens with an affordable and easy option for correct disposal of oil and hazardous wastes prevents these substances from being illegally dumped into the storm water system.

3.2.4 MCM 2 Resources and Documentation

Appendix E – Public Participation Activities Log

3.3 MCM 3: Illicit Discharge Detection and Elimination

The illicit discharge detection and elimination MCM is intended to detect and eliminate discharges to the MS4 system that are not entirely composed of storm water. As identified in the Phase II UPDES permit, MS4 Permittees are required to develop a strategy to detect and eliminate illicit discharges to the storm drain system. All illicit discharge has been defined by the EPA as "any discharge into a separate storm sewer system that is not composed entirely of storm water."

3.3.1 Regulatory Requirement

40 CFR 122.34 (b)(3) – Develop, implement, and enforce a program to detect and eliminate illicit discharges (as defined at Sec. 122.26(b)(2)) into your small MS4.

(A) 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;

(B) To the extent allowable under state, tribal or local law, effectively prohibit, through ordinance, or other regulatory mechanism, non-storm water discharges into your storm sewer system and implement appropriate enforcement procedures and actions;

(C) Develop and implement a plan to detect and address non-storm water discharges including illegal dumping to your system;

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

Address categories listed in 122.34(b)(3)(D)(iii) if you determine they are significant contributors of pollutants to the MS4.

3.3.2 BMPs Selected

BMP	BMP Description	Responsibility	Measurable Goal	Target Date
3.1 Enforcement Plan	Implement enforcement plan to effectively prohibit illicit discharges	Stephanie Fricke	Record violations and enforcement actions taken	2011
3.2 Storm Drainage System Mapping	Maintain storm drainage system map to include any changes to the system	Public Works	Compile a list of projects and post in City Newsletter and on the City's website	Ongoing
3.3 Dry Weather Screening	Dry weather screening of outfall locations on a routine basis	Public Works	Annual inspection reports will be kept at the Public Works Facility	Ongoing
3.4 Illicit Discharge Reporting Hotline	Continue to advertise and maintain a hotline for citizens to report illicit discharges	Stephanie Fricke	Log all calls and physical response to discharges reported	Ongoin
3.5 Employee Training	Annual train employees on the IDDE program	Corey Nielsen	Document training sessions and attendance	Ongoing

3.3.3 BMP Rationale

BMP	BMP Rationale
3.1 Enforcement Plan	An enforcement plan allows the City to effectively hold responsible parties accountable for actions that can harm storm water quality.
3.2 Storm Drainage System Mapping	This map will aid the City in providing an inventory of storm water components and target outfall locations for dry weather flows and other suspicious discharges. This resource will also help coordinate management activities to remove illicit connections and track storm drain system maintenance.
3.3 Dry Weather Screening	Dry weather flows are a potential indication of illicit discharges. Observation of each outfall location of evidence of discharge during dry weather will help City staff find and remove illicit discharges to the storm water system.
3.4 Illicit Discharge Reporting Hotline	A hotline will allow citizens to be involved in reporting illicit discharges that otherwise may go unnoticed.
3.5 Employee Training	Annual employee training will help ensure the City personnel can identify an illicit discharge and effectively respond to the incident.

3.3.4 MCM 3 Resources and Documentation

Appendix F – Dry Weather Screening Checklist
Dry Weather Screening Visual Storm Water Discharge Examination Report Form

Appendix G – Employee Training Record Forms

Appendix H – Illicit Discharge Response Procedures

3.4 MCM 4: Construction Site Storm Water Runoff

Construction site storm water runoff control measures are designed to prevent soil and construction debris from entering the MS4 from construction sites. During construction activities, vegetation and topsoil are stripped away, making the area vulnerable to erosion. This process has generally been found to lead to high levels of sediment, phosphorus, nitrogen, pesticides, petroleum derivatives, construction chemicals, and solid wastes in receiving streams nationwide.

3.4.1 Regulatory Requirement

40 CFR 122.34 (b)(4) – Develop, implement and enforce a program to reduce pollutants in any storm water runoff to your small MS4 from construction activities that result in a land disturbance of greater than or equal to one acre. Program must include the development and implementation of, at a minimum:

(A) An ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance to the extent allowable under State, Tribal, or local law;
(B) Requirements for construction site operators to implement appropriate erosion and sediment control BMPs;
(C) Requirements for construction site operators to control waste 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;
(D) Procedures for site plan review which incorporate consideration of potential water quality impacts;
(E) Procedures for receipt and consideration of information submitted by the public;
(F) Procedures for site inspection and enforcement of control measures.

3.4.2 BMPs Selected

BMP	BMP Description	Responsibility	Measurable Goal	Target Date
4.1 Conduct Routine Inspections	Conduct routine inspections of all active construction sites	Ron Salvesen	Site inspection reports using State Inspection Form	Ongoing
4.2 Reporting Hotline	Advertise and maintain a reporting hotline for the public to report construction site problems.	Stephanie Fricke	Setup hotline and advertise	2011
			Log all calls and physical response to discharges reported	Ongoing

3.4.3 BMP Rationale

BMP	BMP Rationale
4.1 Conduct Routine Inspections	To ensure adequate operation and maintenance of BMPs for erosion and sediment control.
4.2 Reporting Hotline	To utilize citizen involvement to enforce construction site runoff controls and ensure that site Contractors are obtaining permits.

3.4.4 MCM 4 Resources and Documentation

Appendix I – Preconstruction Meeting Storm Water Agenda
UPDES Storm Water Inspection Evaluation Form for SWPPP Compliance
SWPPP Compliance Inspection Form

3.5 MCM 5: Post-Construction Storm Water Management

3.5.1 Regulatory Requirement

40 CFR 122.34 (b)(5) – Develop, implement and enforce a program to address storm water runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects that are less than one acre that are part of a larger common plan of development or sale, that discharge into your small MS4. Your program must ensure that controls are in place that would prevent or minimize water quality impacts.

(A) Develop and implement strategies which include a combination of structural and/or nonstructural BMPs appropriate for your community;

(B) Use an ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects to the extent allowable under State, Tribal, or local law;

(C) Ensure adequate long-term operation and maintenance of BMPs. Construction site storm water runoff control measures are designed to prevent soil and construction debris from entering the MS4 from construction sites. During construction activities, vegetation and topsoil are stripped away, making the area vulnerable to erosion. This process has generally been found to lead to high levels of sediment, phosphorus, nitrogen, pesticides, petroleum derivatives, construction chemicals, and solid wastes in receiving streams nationwide.

3.5.2 BMPs Selected

BMP	BMP Description	Responsibility	Measurable Goal	Target Date
5.1 Conduct Periodic Inspections	Conduct periodic inspections of post-construction sites	Corey Nielsen Ron Salvesen	Site inspection reports using State Inspection Form	Ongoing

3.5.3 BMP Rationale

BMP	BMP Rationale
5.1 Conduct Periodic Inspections	Conduct periodic inspections of post-construction sites to ensure adequate implementation of the SWPPP.

3.5.4 MCM 5 Resources and Documentation

Appendix J – UPDES Storm Water Inspection Evaluation Form for SWPPP Compliance

3.6 MCM 6: Pollution Prevention and Good Housekeeping

Municipalities perform multiple activities throughout their daily operations that have the potential to impact water quality. With the adoption and implementation of storm water management policies and procedures, Hyrum City will protect storm water quality. A variety of municipal operations will be affected by storm water management policies and procedures. These municipal operations include, but are not limited to, parks maintenance, open space management, roads and right-of-way maintenance, water and wastewater utilities, fleet and building maintenance, City construction projects, and storm water system maintenance.

3.6.1 Regulatory Requirement

40 CFR 122.34 (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. Using training materials that are available from EPA, your State, Tribe, or other organizations, your program must include employee training to prevent and reduce storm water pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance.

3.6.2 BMPs Selected

BMP	BMP Description	Responsibility	Measurable Goal	Target Date
6.1 Municipal Employee Training	Develop and provide employee training to prevent and reduce storm water pollution	Ron Salvesen	Document training sessions and attendance	Ongoing
6.2 SOPs	Maintain standard operating procedures (SOPs) to prevent and reduce storm water runoff	Corey Nielsen	SOPs in Appendix L	Ongoing
6.3 Street Sweeping	Routine removal of debris from streets	Corey Nielsen	All streets will be swept annually and documented	Ongoing
6.4 Catch Basin Cleaning	Routine removal of accumulated debris from catch basin sumps	Corey Nielsen	All storm water catch basin sumps will be cleaned annually and documented	Ongoing
6.5 Spill Response	Intercept and clean up spills prior to entry into the storm water collection system	Kevin Maughn	Respond to all spills with 15 minutes and maintain records of reported spills and response activities	Ongoing
6.6 Litter Control	Continue programs to collect litter from parks, public facilities, parking lots and other City facilities on a regular basis	Brad Call	Continue programs to collect litter on a regular basis with proper disposal	Ongoing

3.6.3 BMP Rationale

BMP	BMP Rationale
6.1 Municipal Employee Training	Annual employee training will help ensure the City personnel do not, through their daily operations, adversely impact storm water quality.

6.2 SOPs	Standard operating procedures provide employees with a set of instructions for City operations that directly impact storm water.
6.3 Street Sweeping	Street sweeping is an effective way to remove debris prior to it entering the storm water collection system.
6.4 Catch Basin Cleaning	Storm water catch basin sumps only function to remove debris if adequate space is available in the sump portion of the catch basin. Routine maintenance will ensure debris carried by storm water is collected in the sump.
6.5 Spill Response	Intercepting and cleaning up spills prior to entry into the storm water collection system prevents discharge of these materials to the environment.
6.6 Litter Control	Routine collection of litter will prevent material from being introduced to the storm water system.

3.6.4 MCM 6 Resources and Documentation

Appendix K – Employee Training Record Forms

Appendix L – Standard Operating Procedures

Appendix M – Street Sweeping Log

Appendix N – Catch Basin Cleaning Log

Appendix O – Spill Response Log

Appendix P – Litter Control Activities Log

SECTION 4: MONITORING AND REPORTING

The purpose of monitoring and reporting is to document successful implementation of the SWMP. The General Permit requires annual review of the SWMP document in conjunction with preparation of the annual report.

The City will monitor the implementation of its program and the overall effectiveness by measuring and reporting the data discussed in the individual Minimum Control Measures sections discussed above.

In general, four types of data will be collected:

- Progress establishing BMPs that are developed during the SWMP implementation period, or establishing existing BMPs in newly identified permit areas
- Training City staff (and contractors as appropriate contractors)
- Objective measures of ongoing BMPs such as public participation or education outreach
- Response time and results of pollution cleanup.

The City will evaluate both current conditions and BMP effectiveness and, as appropriate, update BMPs and measurable goals to achieve the objective of meeting water quality standards to the Maximum Extent Practicable. It may be necessary to expand or better tailor existing BMPs after implementing the minimum control measures described in this SWMP. Such changes would be based on the results of monitoring provided in the annual reports and developed in consultation with the Division.

4.1 Form and Content of Annual Report

The State has not yet provided specific guidance as to the specific form and content of the annual report. The City intends to provide summaries of data in tabular form. Data such as number of employees trained, number of construction sites inspected, etc. will be presented in summary tables. Because the City is required to keep records for five years and due to the intent of the reporting requirement, the annual report will focus on a summary of progress and discuss any changes to the SWMP to be implemented in meeting the "maximum extent practicable" standard. Of necessity, the reporting format needs to be flexible and if changed, reasons will be given. Focus will be to clearly show progress, discuss program adjustments, and respond to challenges in implementing the SWMP.

4.2 Reporting and Compilation of Data

The City is developing a central reporting system to allow a web-based reporting of BMPs. This Citywide program is intended to track BMP selection and implementation, identify schedules for all facilities, and provide opportunity for feedback and clarification on BMPs. Report results will be used directly in the annual report to the RWQCB to identify BMPs implemented by the City. Pursuant to the State's draft "General Permit," the City will retain storm water records for five years. Each department responsible for implementing substantive elements of the SWMP will be directed to keep their records

SECTION 5: SWPPP MODIFICATIONS

This SWMP is a “living” document and is required to be modified and updated, as necessary, in response to corrective actions and changes to control measures. When a modification is made then the SWMP Certification statement in Appendix Q of this report must be re-signed.

SWMP APPENDICES

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Storm Water System Map

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Litter Control Activities Log

APPENDIX Q – SWMP Certification

APPENDIX R – Small MS4 General UPDES Permit:
Permit No. UTR090000

APPENDIX S – Notice of Intent

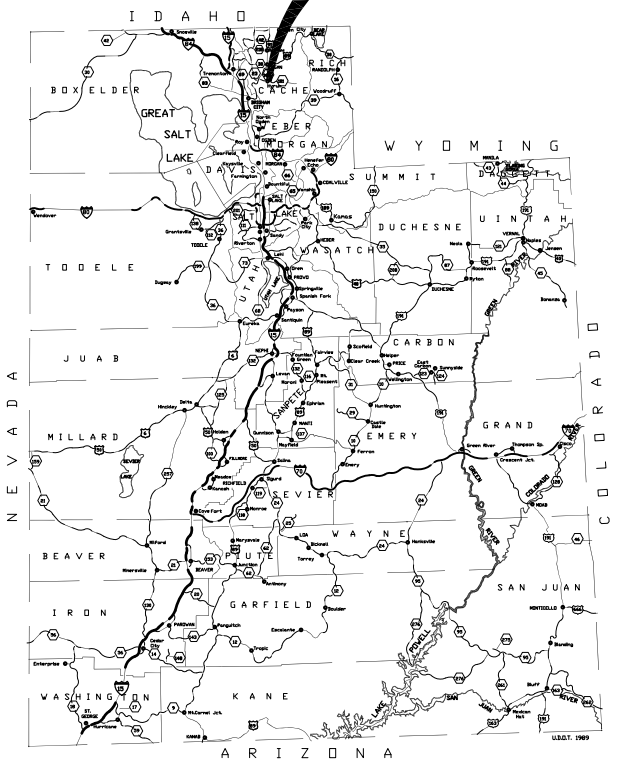
APPENDIX T – Annual Report Forms:
Utah Pollutant Discharge Elimination System Storm Water Program
Small MS4 Report Form

APPENDIX U – Annual SWMP Assessment Forms

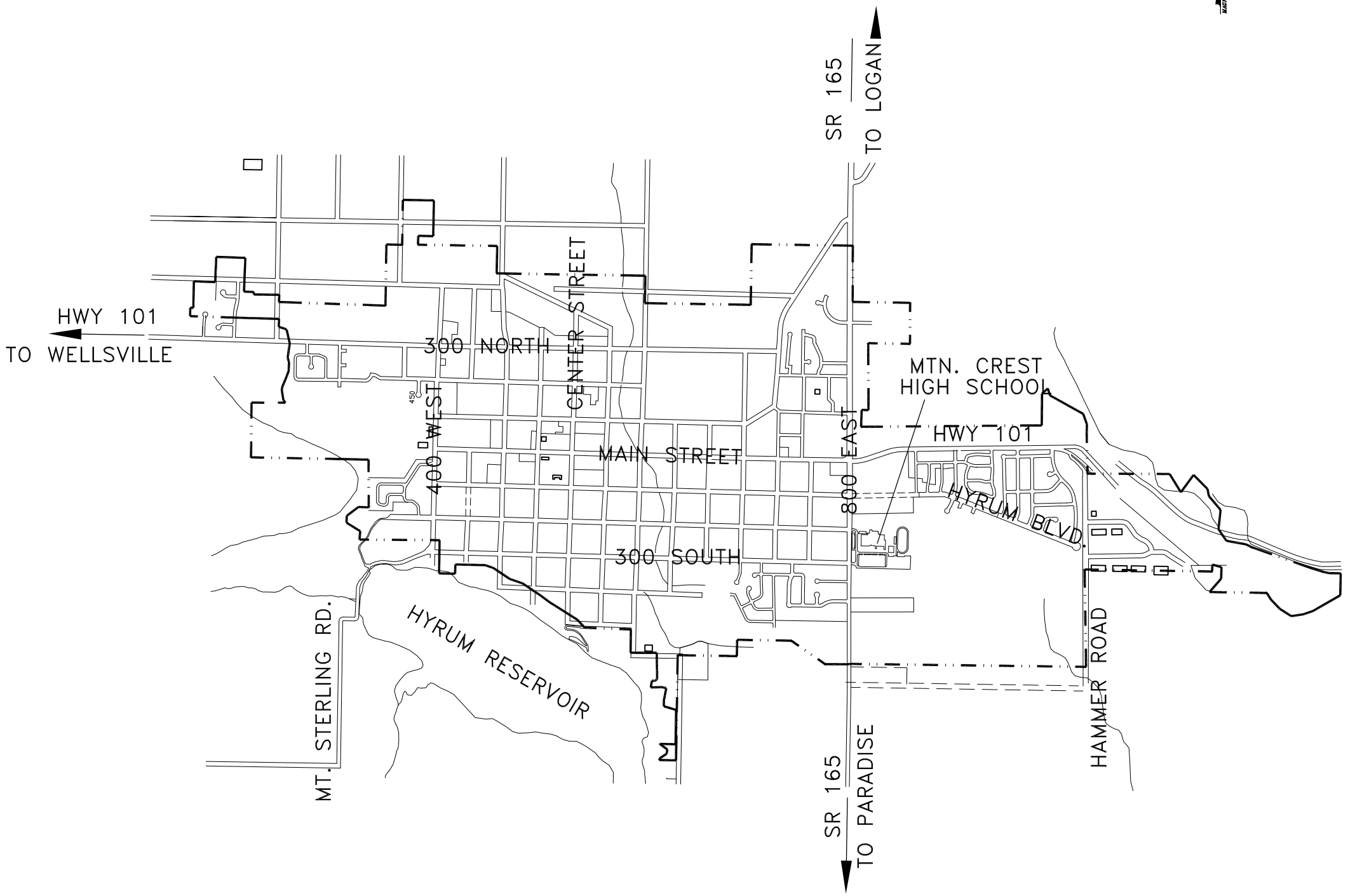
APPENDIX A – Maps:

Location and Boundary Map
Storm Water System Map

HYRUM CITY MS4 LOCATION



LOCATION MAP



HYRUM CITY BOUNDARY

ORIGINAL			
NO.	DATE	DESIGN	DRAWN	CHECKED
0	08/26/10	-	JTF	-

REVISIONS

HYRUM CITY CORPORATION

MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4)
STORM WATER MANAGEMENT PROGRAM (SWMP)
LOCATION AND BOUNDARY MAP

AQUA ENGINEERING, INC.
533 W. 2600 S., SUITE 275 BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

0 1/2 1

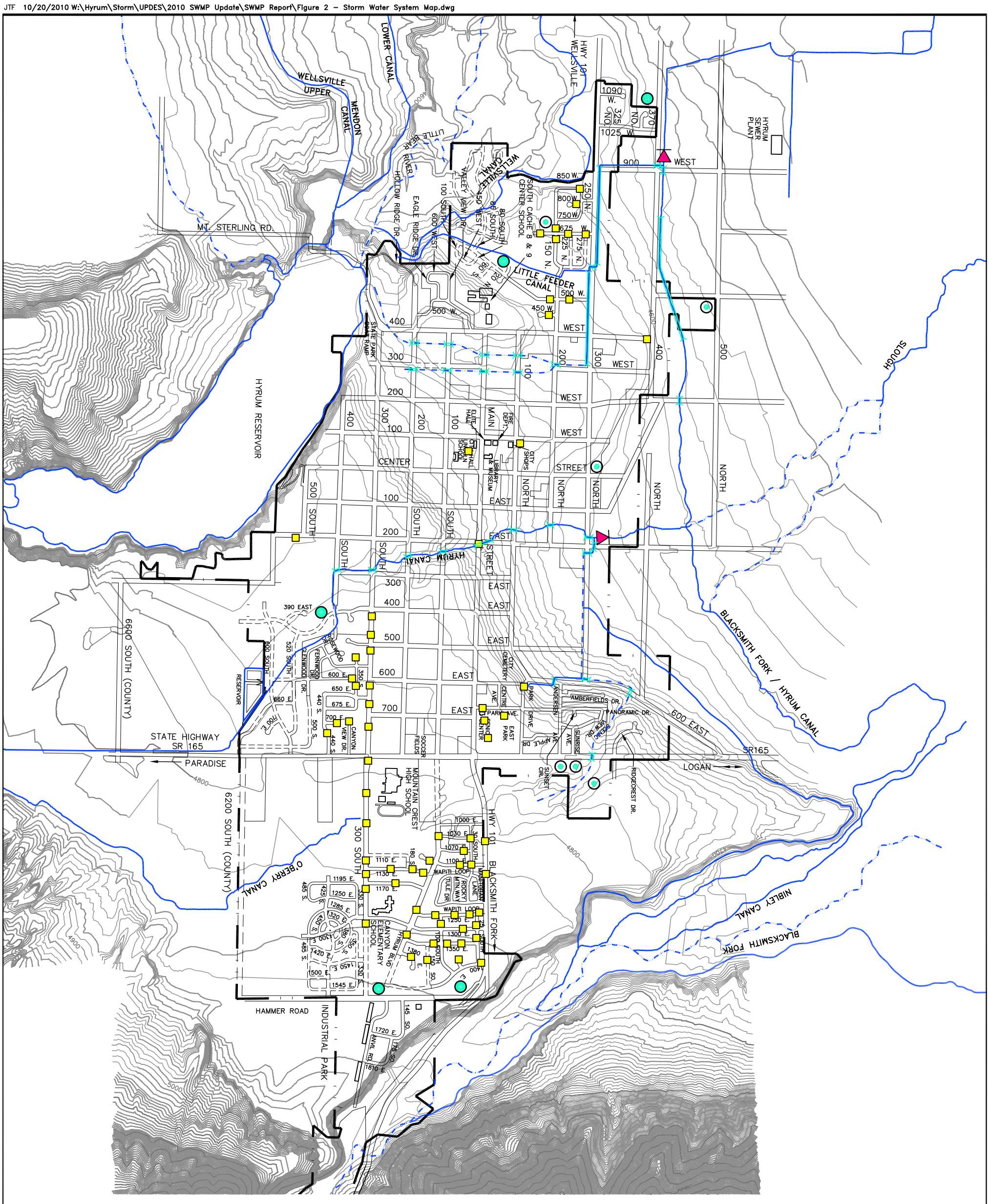
DRAWING IS NOT TO SCALE IF BAR DOES NOT MEASURE 1"

FIGURE 1

App A

JTF 10/20/2010 W:\Hyrum\Storm\UPDES\2010 SWMP Update\SWMP Report\LOCATION MAP (11x17).dwg

JTF 10/20/2010 W:\Hyrum\Storm\UPDES\2010 SWMP Update\SWMP Report\Figure 2 – Storm Water System Map.dwg



LEGEND

- Waterways
- City Boundary
- Storm Water Sumps
- Culvert
- Canal / Irrigation Ditch
- Public Retention/Detention Basin
- Private Retention/Detention Basin
- Outfall

Scale in Feet: 0, 1000, 2000, 3000

MAGNETIC

DRAWING IS NOT TO SCALE IF BAR DOES NOT MEASURE 1"
0 1/2 1

FIGURE 2
App A

AQUA ENGINEERING, INC.
533 W. 2600 S., SUITE 275 BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

HYRUM CITY CORPORATION

MUNICIPAL SEPERATE STORM SEWER SYSTEM (MS4)
STORM WATER MANAGEMENT PROGRAM (SWMP)
STORM WATER SYSTEM MAP

ORIGINAL				
NO.	DATE	DESIGN	DRAWN	CHECKED
0	4/2010	AT	KRB	CGN
REVISIONS				

APPENDIX B – BMPs:

Fact Sheets

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Combined BMP's	Abbreviation	Minimum Control Measure					
		1- Public Education and Outreach	*2- Public Participation/Involvement*	*3- Illicit Discharge Detection and Elimination*	*4- Construction Site Runoff Control*	*5- Post-Construction Runoff Control*	*6- Pollution Prevention/ Good Housekeeping*
Aboveground Tank Leak & Spill Control	ATL			☒			
Alternative Products	AP						☒
Animal Carcass Removal	ACR						☒
Area Control Procedures	ACP						☒
BMP Inspection and Maintenance	BMPIM						☒
Building and Grounds Maintenance	BGM	☒					☒
Building, Repair, Remodeling, & Construction	BRRC				☒		
Catch Basin Cleaning	CBC						☒
Classroom Education on Storm Water	CESW	☒					
Community Cleanup	CC		☒				
Community Hotline	CH		☒				
Compaction	CP				☒		
Concrete Waste Management	CWM				☒		☒
Contaminated or Erodible Surface Areas	CESA				☒		
Contractor Certification and Inspector Training	CCIT				☒		

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Combined BMP's	Abbreviation	Minimum Control Measure					
		1- Public Education and Outreach	*2- Public Participation/Involvement*	*3- Illicit Discharge Detection and Elimination*	*4- Construction Site Runoff Control*	*5- Post-Construction Runoff Control*	*6- Pollution Prevention/ Good Housekeeping*
De-Icing Chemical Use Storage	DCUS						☒
Dust Controls	DC				☒		
Educational Materials	EM	☒					
Employee Training	ET						☒
Erosion Control Plan	ECP				☒		
Establish/Compile Design Standards	ECDS				☒		☒
Extended Detention Basins	EDB				☒	☒	
Geotextiles and Mats	GM				☒		
Grassed Swales	GS				☒	☒	
Hazardous Waste Management	HWM						☒
Housekeeping Practices	HP	☒					☒
Hydromulching	HM					☒	
Identify Illicit Connections	IIC			☒			
Illegal Dumping Controls	IDC			☒			☒
Infrastructure Planning	IPL				☒	☒	☒
Inlet Protection	IP				☒		
Land Use Planning / Management	LIP					☒	
Landscape & Irrigation Plan	LIP				☒		
Leaking Sanitary Sewer Control	LSSC			☒			

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Combined BMP's	Abbreviation	Minimum Control Measure					
		1- Public Education and Outreach	*2- Public Participation/Involvement*	*3- Illicit Discharge Detection and Elimination*	*4- Construction Site Runoff Control*	*5- Post-Construction Runoff Control*	*6- Pollution Prevention/ Good Housekeeping*
Long Term Operation and Maintenance	LTOM						☒
Map Storm Water Drains	MSWD			☒			☒
Materials Use	MU	☒					
Minimizing DCIA's	DCIA					☒	
Non-Storm Water Discharge to Drains	NSWD			☒			
Ordinance Development	OD			☒	☒	☒	
Outlet Protection	OP					☒	
Portable Toilets	PT				☒		☒
Preservation of Existing Vegetation	PEV				☒		
Public Education / Participation	PEP	☒					
Riprap	RR				☒	☒	
Rock Check Dams	CD				☒	☒	
Sand Bag Barrier	SBB				☒		
Sediment Basin	SB						☒
Seeding and Planting	SP					☒	
Septic System Controls	SSC						☒
Service Group Participation	SGP		☒				

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Combined BMP's	Abbreviation	Minimum Control Measure					
		1- Public Education and Outreach	*2- Public Participation/Involvement*	*3- Illicit Discharge Detection and Elimination*	*4- Construction Site Runoff Control*	*5- Post-Construction Runoff Control*	*6- Pollution Prevention/ Good Housekeeping*
Silt Fence	SGM				☒		
Sorbents	SO						☒
Spill Clean-Up	SCU						☒
Storm Channel / Creek Maintenance	SCCM		☒				
Storm Drain Flushing	SDF						☒
Storm Drain System Signs	SDSS	☒					
Straw Bale Barrier	STB				☒		
Stream Cleanup and Monitoring	SCM		☒				
Street Cleaning	SC						☒
Temporary and Permanent Seeding	TPS				☒		
Temporary Drains and Swales	TDS				☒		
Used Oil Recycling	UOR	☒					☒
Using Media	UM	☒					
Vehicle and Equipment Cleaning	VEC				☒		☒
Vehicle and Equipment Maintenance & Repair	VEMR						☒
Watershed Organization	WO	☒	☒				☒
Zoning	ZO					☒	

BMP: Aboveground Tank Leak And Spill Control

ATL

APPLICATIONS

☒ Manufacturing
☒ Material Handling
☐ Vehicle Maintenance
☐ Construction
☒ Commercial Activities
☒ Roadways
☒ Waste Containment
☐ Housekeeping Practices

DESCRIPTION:
Prevent or reduce the discharge of pollutants to stormwater from aboveground storage tanks by installing safeguards against accidental releases, installing secondary containment, conducting regular inspections, and training employees in standard operating procedures and spill cleanup techniques.

The most common causes of unintentional releases are:
- Installation problems,
- Failure of piping systems (pipes, pumps, couplings, hoses, and valves),
- External corrosion and structural failure,
- Spills and overfills due to operator error, and
- Leaks during pumping of liquids or gases from truck to a storage tank or vice versa.

APPROACH:
- Integrate efforts with existing aboveground petroleum storage tank programs through the local Fire Department and Health Department, and area and business emergency response plans through the City, County, or Fire District.
- Use engineering safeguards to reduce the chance for spills.
- Perform regular maintenance.

LIMITATIONS:
For larger spills, a private spill clean-up company or Hazmat team may be necessary.

MAINTENANCE:
Maintenance is critical to preventing leaks and spills. Conduct routine inspections and:
- Check for external corrosion and structural failure,
- Check for spills and overfills due to operator error,
- Check for failure of piping system (pipes, pumps, flanger, coupling, hoses, and valves),
- Check for leaks or spills during pumping of liquids or gases from truck to storage facility or vice versa.

TARGETED POLLUTANTS

☐ Sediment
☒ Nutrients
☒ Heavy Metals
■ Toxic Materials
☒ Oxygen Demanding Substances
■ Oil & Grease
☐ Floatable Materials
☐ Bacteria & Viruses

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

☒ Capital Costs
☒ O&M Costs
☐ Maintenance
■ Training

■ High ☒ Medium ☐ Low

BMP: Alternative Products

AP

Examples of alternative products include rechargeable batteries, baking soda, olive oil, vegetable oil, a lemon, a toothbrush, and a rag

APPLICATIONS

- ☐ Manufacturing
- ☐ Material Handling
- ☐ Vehicle Maintenance
- ☐ Construction
- ☒ Commercial Activities
- ☐ Roadways
- ☐ Waste Containment
- ☒ Housekeeping Practices

DESCRIPTION:

Using alternatives to toxic substances drastically reduces their presence in storm water and receiving waters. The most common toxic substances found in the home are cleaners, automotive products, and pesticides. Fertilizers, paints, and fuels are among other common hazardous substances frequently found in ground water because of improper disposal (WEF and ASCE, 1998).

APPROACH:

- The promotion of safer alternative products should be coupled with other programs designed to reduce the presence of hazardous or toxic materials in homes and storm water runoff such as hazardous materials collection, good housekeeping or material management practices, oil and automotive waste.

- One of the best ways to encourage homeowners to switch to alternatives to potentially harmful products is to educate them.
- *Aerosols*. Pump-type or non-aerosol products should be used.
- *Chemical fertilizers*. Composting yard clippings and food scraps is an option. Manure (in measured amounts) is another alternative to chemical fertilizers.
- *Household cleaners and detergents.* Baking soda is an excellent cleanser with mild abrasive power that can be used in lieu of heavy-duty cleansers. A mixture of 1 quart water and 2 tablespoons of vinegar can be used as a window cleaner. Three parts olive oil mixed with one part white vinegar can be used for a wood cleanser. Borax and lemon juice make an excellent toilet cleaner. Many other non- or less-toxic alternatives to harsh cleansers exist. A listing of these alternatives can be found at www.healthdept.co.pierce.wa.us/sourceprotection/alter.html.

LIMITATIONS:

- In some cases, alternative products may not be readily available.
- The biggest impediment to instituting widespread use of alternative products is public awareness. Municipal staff must convince people to change old habits or to try new products.

TARGETED POLLUTANTS

- ☐ Sediment
- ■ Nutrients
- ☐ Heavy Metals
- ■ Toxic Materials
- ☐ Oxygen Demanding Substances
- ■ Oil & Grease
- ☐ Floatable Materials
- ☐ Bacteria & Viruses

- ■ High Impact
- ☒ Medium Impact
- ☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- ☒ Capital Costs
- ☐ O&M Costs
- ☒ Maintenance
- ☒ Training

■ High ☒ Medium ☐ Low

BMP: Animal Carcass Removal

ACR

DESCRIPTION:

Removal and proper disposal of animal carcass' can improve storm water quality by reducing pollution or contamination.

APPROACH:

Animal carcass disposal can have a negative impact upon water quality. If not done properly, carcass disposal can lead to pollution or contamination of water intended for domestic use. Carcasses should be disposed of within 24 hours. Options for disposal:

- Rendering: This is done by contracting with private rendering companies. Animals that cannot be rendered include sheep, chickens (feathers), and fish (scales). Sheep and chickens can be buried or cremated. Fish can be used as food for dogs, coyotes, or alligators.
- Burial: Contact district health if you intend to bury animal carcasses, but keep in mind that carcasses should be buried at least 6 feet deep and treated with lime and pesticides.
- Cremation. Cremation of any animal carcass within ¼ mile of a municipality could be in violation of the law.

It is not recommended to leave the carcass of any animal within ¼ mile of any inhabited dwellings, public highways, or streams of water for more than 24 hours. Disposal of a carcass shall not be in water or on a publicly used road.

LIMITATIONS:

- Location awareness.

APPLICATIONS

☐ Manufacturing
■ Material Handling
☒ Vehicle Maintenance
☐ Construction
☐ Commercial Activities
■ Roadways
■ Waste Containment
☒ Housekeeping Practices

TARGETED POLLUTANTS

☐ Sediment
■ Nutrients
☐ Heavy Metals
■ Toxic Materials
■ Oxygen Demanding Substances
☐ Oil & Grease
☐ Floatable Materials
■ Bacteria & Viruses

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

☐ Capital Costs
■ O&M Costs
☐ Maintenance
☐ Training

■ High ☒ Medium ☐ Low

BMP: Area Control Procedures

ACP

APPLICATIONS

- ☒ Manufacturing
- ☐ Material Handling
- ☐ Vehicle Maintenance
- ☐ Construction
- ☒ Commercial Activities
- ☐ Roadways
- ☐ Waste Containment
- ☒ Housekeeping Practices

DESCRIPTION:

Area control procedures involve practicing good housekeeping measures such as maintaining indoor or covered material storage and industrial processing areas. If the area is kept clean, the risk of accumulating materials on footwear and clothing is reduced. In turn, the chance of left over pollutants making contact with storm water polluting surface water is minimized.

APPROACH:

Area control procedures can be used at any facility where materials may be tracked into areas where they can come in contact with storm water runoff. Areas can include material handling areas, storage areas, or process areas.

Effective practices include the following:

- Cover garments, foot mats, and other devices used to collect residual material near the area should be cleaned regularly.
- Brush off clothing before leaving the area.
- Stomp feet to remove material before leaving the area.
- Use floor mats at area exits.
- Use coveralls, smocks, and other over garments in areas where exposure to material is of greatest concern (employees should remove the over garments before leaving the area).
- Post signs to remind employees about these practices.

LIMITATIONS:

May be seen as tedious by employees and therefore may not be followed.

MAINTENANCE:

Materials storage areas and industrial processing areas should be checked regularly to ensure that good housekeeping measures are implemented.

TARGETED POLLUTANTS

- ■ Sediment
- ☐ Nutrients
- ☐ Heavy Metals
- ☐ Toxic Materials
- ☐ Oxygen Demanding Substances
- ☐ Oil & Grease
- ☐ Floatable Materials
- ☐ Bacteria & Viruses

- ■ High Impact
- ☒ Medium Impact
- ☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- ☐ Capital Costs
- ☐ O&M Costs
- ☐ Maintenance
- ☒ Training

■ High ☒ Medium ☐ Low

BMP: BMP Inspection and Maintenance

BMPIM

APPLICATIONS

- ☐ Manufacturing
- ☒ Material Handling
- ☒ Vehicle Maintenance
- ☐ Construction
- ☐ Commercial Activities
- ☐ Roadways
- ☒ Waste Containment
- ☒ Housekeeping Practices

DESCRIPTION:

Inspect and maintain all structural BMP's (both existing and new) on a routine basis to remove pollutants from entering storm drain inlets. This includes the establishment of a schedule for inspections and maintenance.

APPROACH:

Regular maintenance of all structural BMP's is necessary to ensure their proper functionality.

- Annual inspections.
- Prioritize maintenance to clean, maintain, and repair or replace structures in areas beginning with the highest pollutant loading.
- Clean structural BMP's in high pollutant areas just before the wet season to remove sediments and debris accumulated during the summer and fall.
- Keep accurate logs of what structures were maintained and when they were maintained.
- Record the amount of waste collected.

LIMITATIONS:

- Cost
- Availability of trained staff

TARGETED POLLUTANTS

- ■ Sediment
- ■ Nutrients
- ☐ Heavy Metals
- ■ Toxic Materials
- ☐ Oxygen Demanding Substances
- ■ Oil & Grease
- ■ Floatable Materials
- ☐ Bacteria & Viruses

- ■ High Impact
- ☒ Medium Impact
- ☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- ■ Capital Costs
- ■ O&M Costs
- ☒ Maintenance
- ☒ Staffing
- ☐ Training
- ☐ Administrative

■ High ☒ Medium ☐ Low

BMP: Buildings And Grounds Maintenance

BGM

PROGRAM ELEMENTS

- ☐ New Development
- ☐ Residential
- ☒ Commercial Activities
- ☒ Industrial Activities
- ☒ Municipal Facilities
- ☐ Illegal Discharges

DESCRIPTION:

Prevent or reduce the discharge of pollutants to storm water from buildings and grounds maintenance by washing and cleaning up with as little water as possible, preventing and cleaning up spills immediately, and maintaining the storm water collection system.

APPROACH:

- Preserve existing native vegetation to reduce water, fertilizer, and pesticide needs.
- Carefully use pesticides and fertilizers in landscaping.
- Take care in over-watering landscape sites to reduce the risk of discharge of water contaminated with nutrients and pesticides.
- Integrate pest management where appropriate.
- Sweep paved surfaces.
- Clean the storm drainage system at appropriated intervals, includes marking storm drain inlets to minimize the dumping of inadvertent liquids.
- Properly dispose wash water, sweepings, and sediments.
- Take care of landscaped areas around the facility.
- Clean parking lots and areas other than industrial activity.
- Clean all catch basins in parking lots every 6 to 12 months or whenever the sump is full.
- Sweeping, either vacuum or mechanical, is the most appropriate BMP for cleaning parking lots and basins.

LIMITATIONS:

Alternative pest/weed controls may not be available, suitable or effective in every case.

MAINTENANCE:

The BMPs themselves relate to maintenance and do not require maintenance as they do not involve structures.

TARGETED POLLUTANTS

- ■ Sediment
- ☒ Nutrients
- ☒ Heavy Metals
- ☒ Toxic Materials
- ☒ Oxygen Demanding Substances
- ☒ Oil & Grease
- ■ Floatable Materials
- ☐ Bacteria & Viruses

■	High Impact
☒	Medium Impact
☐	Low or Unknown Impact

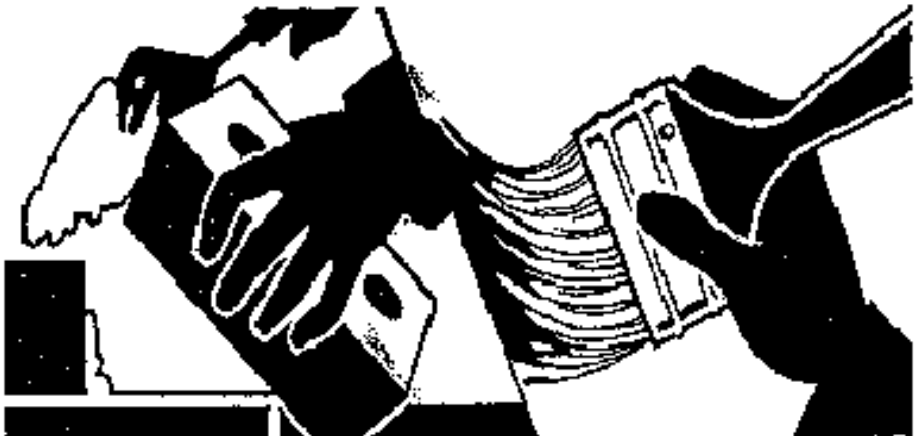
IMPLEMENTATION REQUIREMENTS

- ☐ Capital Costs
- ☒ O&M Costs
- ☐ Regulatory
- ☒ Training
- ☒ Staffing
- ☒ Administrative

■	High	☒	Medium	☐	Low

BMP: Building Repair, Remodeling, and Construction

BRRC



PROGRAM ELEMENTS

- ☐ New Development
- ☐ Residential
- ☒ Commercial Activities
- ☒ Industrial Activities
- ☒ Municipal Facilities
- ☐ Illegal Discharges

DESCRIPTION:

Prevent or reduce the discharge of pollutants to stormwater from building repair, remodeling and construction by using soil erosion controls, enclosing or covering building material storage areas, using good housekeeping practices, using safer alternative products, and training employees.

APPROACH:

- Use soil erosion control techniques if bare ground is temporarily exposed.
- Use permanent soil erosion control techniques if the remodeling clears buildings that are not to be replaced.
- Enclose painting operations consistent with local air quality regulations and OSHA.
- Properly store materials that are normally used in repair and remodeling such as paints and solvents.
- Properly store and dispose waste materials generated from the activity.
- Maintain good housekeeping practices while work is underway.

LIMITATIONS:

- This BMP is for minor construction only.
- Hazardous waste that cannot be re-used or recycled must be disposed of by a licensed hazardous waste hauler.
- Safer alternative products may not be available, suitable, or effective in every case.
- Be certain that actions to help stormwater quality are consistent with OSHA and air quality regulations.

TARGETED POLLUTANTS

- ■ Sediment
- ☐ Nutrients
- ☒ Heavy Metals
- ☒ Toxic Materials
- ☐ Oxygen Demanding Substances
- ☒ Oil & Grease
- ■ Floatable Materials
- ☐ Bacteria & Viruses

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

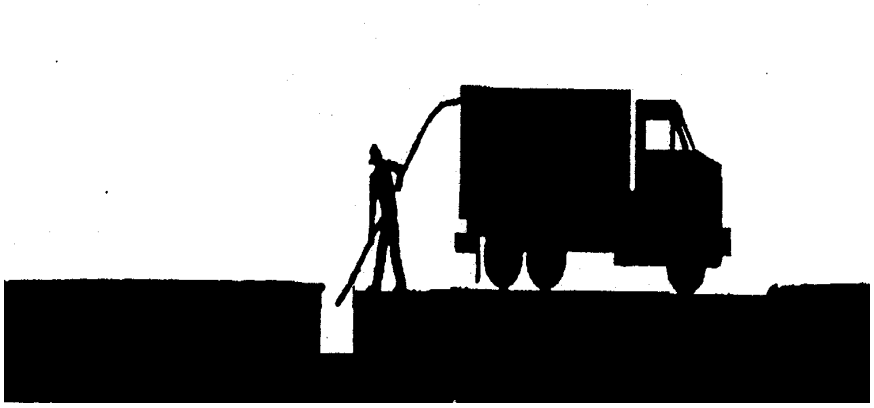
IMPLEMENTATION REQUIREMENTS

- ☒ Capital Costs
- ☒ O&M Costs
- ☐ Regulatory
- ☒ Training
- ☒ Staffing
- ☒ Administrative

■ High ☒ Medium ☐ Low

BMP: Catch Basin Cleaning

CBC



PROGRAM ELEMENTS

☐ New Development
☐ Residential
☐ Commercial Activities
☐ Industrial Activities
☒ Municipal Facilities
☒ Illegal Discharges

DESCRIPTION:
Maintain catch basin and stormwater inlets on a regular basis to remove pollutants, reduce high pollutant concentrations during the first flush of storms, prevent clogging of the downstream conveyance system, and restore the catch basins' sediment trapping capacity. A catch basin is distinguished from a stormwater inlet by having at its base a sediment sump designed to catch and retain sediments below the overflow point. This information sheet focuses on the cleaning of accumulated sediments from catch basins.

APPROACH:
Regular maintenance of catch basins and inlets is necessary to ensure their proper functioning. Clogged catch basins are not only useless but may act as a source of sediments and pollutants. In general, the key to effective catch basins are:

- At least annual inspections.
- Prioritize maintenance to clean catch basins and inlets in areas with the highest pollutant loading.
- Clean catch basins in high pollutant load areas just before the wet season to remove sediments and debris accumulated during the summer.
- Keep accurate logs of the number of catch basins cleaned.
- Record the amount of waste collected.

LIMITATIONS:
There are no major limitations to this best management practice.

MAINTENANCE:
Regular maintenance of public and private catch basins and inlets is necessary to ensure their proper functioning. Clogged catch basins are not only useless but may act as a source of sediments and pollutants. In general, the keys to effective catch basins are:

- Annual/monthly inspection of public and private facilities to ensure structural integrity, a clean sump, and a stenciling of catch basins and inlets.
- Keep logs of the number of catch basins cleaned.
- Record the amount of waste collected.

TARGETED POLLUTANTS

■ Sediment
☒ Nutrients
■ Heavy Metals
☐ Toxic Materials
☒ Oxygen Demanding Substances
☒ Oil & Grease
■ Floatable Materials
☐ Bacteria & Viruses

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

☒ Capital Costs
■ O&M Costs
☐ Regulatory
☒ Training
■ Staffing
☒ Administrative

■ High ☒ Medium ☐ Low

BMP: Classroom Education On Storm Water

CESW

Students learn about storm water pollution (Source: City of Sacramento Storm Water Management Program, no date)

DESCRIPTION:

Classroom education is an integral part of any storm water pollution outreach program. Providing storm water education through schools exposes the message not only to students but to their parents as well. Topics can include Water conservation, proper lawn and garden care, and proper disposal of hazardous household wastes.

APPROACH:

- Building a strong relationship with the school district is the most important step in getting storm water education into the schools.
- When developing an outreach message for children, choose the age ranges to target.
- Many additional classroom materials are available for use free of cost. Educational materials available for downloading from the Internet at www.csu.org/water/watereducation/watereducation.html.
- Should make students aware of the potential impacts of hazardous household materials on water quality and inform residents of ways to properly store, handle, and dispose of the chemicals
- Water usage in the home can easily be reduced by 15 to 20 percent—without major discomfort—by implementing a program to conserve water in the home.
- Lawn and garden activities can result in contamination of storm water through pesticide, soil, and fertilizer runoff. Proper landscape management, however, can effectively reduce water use and contaminant runoff and enhance the aesthetics of a property.

LIMITATIONS:

- One of the limitations of classroom education is being able to incorporate storm water issues into the school curricula. With so many subjects to teach, environmental issues might be viewed as less important.

MAINTENANCE:

- Programs and educational materials can be re-used, but they must be presented on a continual basis.

APPLICATIONS

- ☐ Manufacturing
- ☒ Material Handling
- ☐ Vehicle Maintenance
- ☐ Construction
- ☐ Commercial Activities
- ☐ Roadways
- ☒ Waste Containment
- ☒ Housekeeping Practices

TARGETED POLLUTANTS

- ■ Sediment
- ■ Nutrients
- ■ Heavy Metals
- ■ Toxic Materials
- ■ Oxygen Demanding Substances
- ■ Oil & Grease
- ■ Floatable Materials
- ■ Bacteria & Viruses

- ■ High Impact
- ☒ Medium Impact
- ☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- ☒ Capital Costs
- ☐ O&M Costs
- ☐ Maintenance
- ☐ Training

■ High ☒ Medium ☐ Low

BMP: Community Cleanup

CC

APPLICATIONS

- ☐ Manufacturing
- ■ Material Handling
- ☒ Vehicle Maintenance
- ☐ Construction
- ☐ Commercial Activities
- ■ Roadways
- ■ Waste Containment
- ■ Housekeeping Practices

DESCRIPTION:

An event in which the community will promote and encourage community members to clean up neighborhoods, city parks, streets, streams, or other properties. This effort involves the removal of litter and bulky waste as well as the removal of green waste, such as yard clippings, trees, branches, leaves, or other types of undesirable vegetation.

APPROACH:

- Designate an individual or groups of individuals to schedule and organize the cleanup projects, coordinate waste collection and disposal, and assign leaders for supervision of the projects.
- Identify sites that need to be cleaned up in the community, and plan when to have the cleanups.
- Advertise the program and let residents know about cleanup project dates, locations, and what items will be helpful for them to bring to assist in the projects.
- When volunteers are being used for cleanup efforts, municipalities must address the issue of liability. An attorney should be consulted to determine how liability should be handled and draft a waiver for volunteers to sign before participating.

LIMITATIONS:

- Organization at the municipal level is a limitation to cleanup efforts. Some municipalities do not have the resources to designate staff to oversee a cleanup program and to supervise cleanup activities.
- Limitations to an effective cleanup program are volunteer interest and commitment.

MAINTENANCE:

- To maintain water quality, cleanup efforts must be recurring; a one-time-only cleanup event might raise awareness in the community, but it will not keep trash out of the river.
- Seasonal or annual cleanup events will help make sure that trash and debris are kept out of public areas as much as possible.

TARGETED POLLUTANTS

- ☒ Sediment
- ☐ Nutrients
- ■ Heavy Metals
- ■ Toxic Materials
- ☒ Oxygen Demanding Substances
- ☐ Oil & Grease
- ■ Floatable Materials
- ☐ Bacteria & Viruses

- ■ High Impact
- ☒ Medium Impact
- ☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- ☒ Capital Costs
- ☒O&M Costs
- ☒ Maintenance
- ☐ Training

■ High ☒ Medium ☐ Low

BMP: Community Hotlines

CH

Posters and magnets can be used to publicize hotlines

APPLICATIONS

- ■ Manufacturing
- ■ Material Handling
- ■ Vehicle Maintenance
- ■ Construction
- ■ Commercial Activities
- ☒ Roadways
- ☒ Waste Containment
- ■ Housekeeping Practices

DESCRIPTION:

Because regulators and authorities cannot monitor all water bodies at once, they sometimes rely on the public to keep them informed of water polluters. Community hotlines provide a means for concerned citizens and agencies to contact the appropriate authority when they see water quality problems.

APPROACH:

- ➢ Once a city has determined that they need a hotline, they should choose between a telephone or an e-mail hotline.
- ➢ A party or agency responsible for maintaining the hotline and responding to incoming complaints must first be identified. The responsible party could be a division of local government, a water quality board, a public utility, or an environmental agency.
- ➢ All distributed materials should include pollution hotline numbers and information.
- ➢ Curbs should have pumping systems, instead of drainage systems, for collecting spilled materials.
- ➢ Generally, an investigation team promptly responds to a hotline call and, in most cases, visits the problem site.
- ➢ If a responsible party can be identified, the team informs the party of the problem, offers alternatives for future disposal, and instructs the party to resolve the problem.

LIMITATIONS:

- ➢ The community's ability to pay for it.
- ➢ The ability of the community to keep the hotline staffed.

MAINTENANCE:

- ➢ The most important part is the responsiveness of the hotline. If a citizen reports an illegal dumping but no action is taken by the appropriate authority, that citizen could lose faith in the hotline and might not call back with future information.

TARGETED POLLUTANTS

- ☒ Sediment
- ☒ Nutrients
- ■ Heavy Metals
- ■ Toxic Materials
- ☒ Oxygen Demanding Substances
- ■ Oil & Grease
- ■ Floatable Materials
- ☒ Bacteria & Viruses

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

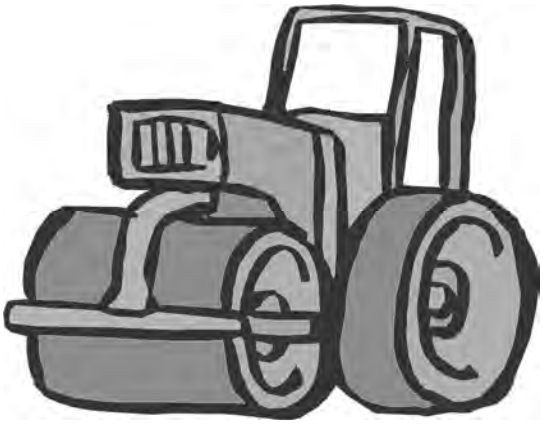
IMPLEMENTATION REQUIREMENTS

- ☒ Capital Costs
- ☒ O&M Costs
- ☒ Maintenance
- ☐ Training

■ High ☒ Medium ☐ Low

BMP: Compaction

CP



OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☒ Minimize Disturbed Areas
- ☒ Stabilize Disturbed Areas
- ☐ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☐ Control Internal Erosion

DESCRIPTION:

Use of rolling, tamping, or vibration to stablize fill materials and control erosion by increasing the soil density. Increasing the density of soil improves soil strength, reduces long-term soil settlement, and provides resistance to erosion.

APPLICATIONS:

- Stabilize fill material placed around various structures.
- Improve soil in place as foundation support for roads, parking lots, and buildings.

INSTALLATION/APPLICATION CRITERIA:

- Make sure soil moisture content is at optimum levels.
- Use proper compaction equipment.
- Install sediment control and storm water management devices below compacted areas and runon interceptor devices above these areas. Drainage from compacted areas must be carefully planned to protect adjacent uncompacted soils.
- The surface of compacted areas should be scarified and seeded or mulched and seeded to increase the effectiveness of compaction.

LIMITATIONS:

- Compaction tends to increase runoff.
- Over-compaction will hamper revegetation efforts.

MAINTENANCE:

No maintenance required.

TARGETED POLLUTANTS

- ■ Sediment
- ☐ Nutrients
- ☐ Toxic Materials
- ☐ Oil & Grease
- ☐ Floatable Materials
- ☐ Other Waste

- ■ High Impact
- ☒ Medium Impact
- ☐ Low or Unknown Impact

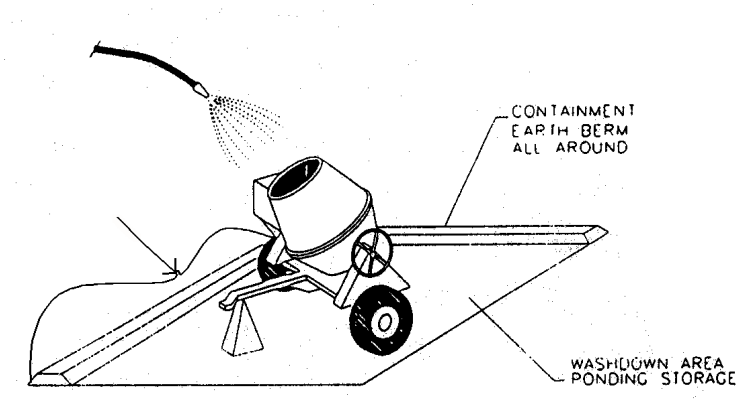
IMPLEMENTATION REQUIREMENTS

- ☒ Capital Costs
- ☒ O&M Costs
- ☐ Maintenance
- ☒ Training

■ High ☒ Medium ☐ Low

BMP: Concrete Waste Management

CWM



Locate 50' From Nearest Drainage Area.

OBJECTIVES

- ☐ Housekeeping Practices
- ☒ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☐ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☐ Control Internal Erosion

DESCRIPTION:

Prevent or reduce the discharge of pollutants to storm water from concrete waste by conducting washout off-site, performing on-site washout in a designated area, and training employees and subcontractors.

APPLICATIONS:

This technique is applicable to all types of sites.

INSTALLATION/APPLICATION CRITERIA:

- Store dry and wet materials under cover, away from drainage areas.
- Avoid mixing excess amounts of fresh concrete or cement on-site.
- Perform washout of concrete trucks off-site or in designated areas only.
- Do not wash out concrete trucks into storm drains, open ditches, streets, or streams.
- Do not allow excess concrete to be dumped on-site, except in designated areas.
- When washing concrete to remove fine particles and expose the aggregate, avoid creating runoff by draining the water within a bermed or level area. (See Earth Berm Barrier information sheet.)
- Train employees and subcontractors in proper concrete waste management.

LIMITATIONS:

- Off-site washout of concrete wastes may not always be possible.

MAINTENANCE:

- Inspect subcontractors to ensure that concrete wastes are being properly managed.
- If using a temporary pit, dispose hardened concrete on a regular basis.

TARGETED POLLUTANTS

- ☐ Sediment
- ☐ Nutrients
- ☐ Toxic Materials
- ☐ Oil & Grease
- ☐ Floatable Materials
- ☒ Other Waste

- ■ High Impact
- ☒ Medium Impact
- ☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- ☐ Capital Costs
- ☐ O&M Costs
- ☒ Maintenance
- ☒ Training

■ High ☒ Medium ☐ Low

BMP: Contaminated or Erodible Surface Areas

CESA

PROGRAM ELEMENTS

☒ New Development
☐ Residential
☒ Commercial Activities
☒ Industrial Activities
☒ Municipal Facilities
☐ Illegal Discharges

DESCRIPTION:
Prevent or reduce the discharge of pollutants to stormwater from contaminated or erodible surface areas by leaving as much vegetation on-site as possible, minimizing soil exposure time, stabilizing exposed soils, and preventing stormwater runon and runoff.

APPROACH:
This BMP addresses soils which are not so contaminated as to exceed criteria but the soil is eroding and carrying pollutants off in the stormwater.

Contaminated or erodible surface areas can be controlled by:
- Preservation of natural vegetation,
- Re-vegetation,
- Chemical stabilization,
- Removal of contaminated soils, or
- Geosynthetics.

LIMITATIONS:
Disadvantages of preserving natural vegetation or re-vegetating include:
- Requires substantial planning to preserve and maintain the existing vegetation.
- May not be cost-effective with high land costs.
- Lack of rainfall and/or poor soils may limit the success of re-vegetated areas.

Disadvantages of chemical stabilization include:
- Creation of impervious surfaces.
- May cause harmful effects on water quality.
- Is usually more expensive than vegetative cover.

MAINTENANCE:
Maintenance should be minimal, except if irrigation of vegetation is necessary.

TARGETED POLLUTANTS

■ Sediment
■ Nutrients
☒ Heavy Metals
■ Toxic Materials
☒ Oxygen Demanding Substances
☒ Oil & Grease
☒ Floatable Materials
☐ Bacteria & Viruses

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

■ Capital Costs
☒ O&M Costs
☐ Regulatory
☐ Training
☒ Staffing
☒ Administrative

■ High ☒ Medium ☐ Low

BMP: Contractor Certification &Inspector Training

CCIT

Municipalities can establish training programs to educate contractors about erosion and sediment control practices

Construction reviewers periodically inspect construction sites to ensure that contractors have installed and maintained their erosion and sediment controls properly (Source: University of Connecticut Cooperative Extension System, 2000)

APPLICATIONS

- ☐ Manufacturing
- ☒ Material Handling
- ☐ Vehicle Maintenance
- ☒ Construction
- ☐ Commercial Activities
- ☐ Roadways
- ☒ Waste Containment
- ☐ Housekeeping Practices

DESCRIPTION:

One of the most important factors determining whether or not erosion and sediment controls will be properly installed and maintained on a construction site is the knowledge and experience of the contractor. Many communities require certification for key on-site employees who are responsible for implementing the ESC plan. Several states have contractor certification programs. The State of Delaware requires that at least one person on any construction project be formally certified. The Delaware program requires certification for any foreman or superintendent who is in charge of onsite clearing and land-disturbing activities for sediment and runoff control associated with a construction project.

APPROACH:

- Training and certification will help to ensure that the plans are properly implemented and that best management practices are properly installed and maintained.
- Inspector training programs are appropriate for municipalities with limited funding and resources for ESC program implementation.
- Contractor certification can be accomplished through municipally sponsored training courses, or more informally, municipalities can hold mandatory pre-construction or pre-wintering meetings and conduct regular and final inspection visits to transfer information to contractors (Brown and Caraco, 1997).
- To implement an inspector training program, the governing agency would need to establish a certification course with periodic recertification, review reports submitted by private inspectors, conduct spot checks for accuracy, and institute fines or other penalties for noncompliance.
- Curb systems should be maintained through curb repair (patching and replacement).
- To minimize the amount of spilled material tracked outside of the area by personnel, grade within the curbing to direct the spilled materials to a down-slope side of the curbing, thus keeping the spilled materials away from personnel and equipment. Grading will also facilitate clean-up.

LIMITATIONS:

- Contractor certification and inspector training programs require a substantial amount of effort on the part of the municipality or regulatory agency.
- They need to develop curricula for training courses, dedicate staff to teach courses, and maintain a report review and site inspection staff to ensure that both contractors and inspectors are fulfilling their obligations and complying with the ESC program.

TARGETED POLLUTANTS

- ■ Sediment
- ■ Nutrients
- ☐ Heavy Metals
- ■ Toxic Materials
- ☐ Oxygen Demanding Substances
- ■ Oil & Grease
- ■ Floatable Materials
- ☐ Bacteria & Viruses

- ■ High Impact
- ☒ Medium Impact
- ☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- ■ Capital Costs
- ■ O&M Costs
- ☒ Maintenance
- ☐ Training

■ High ☒ Medium ☐ Low

BMP: De-Icing Chemical Use and Storage

DCUS

APPLICATIONS

- ☐ Manufacturing
- ☒ Material Handling
- ☐ Vehicle Maintenance
- ☐ Construction
- ☐ Commercial Activities
- ☒ Roadways
- ☒ Waste Containment
- ☒ Housekeeping Practices

DESCRIPTION:

A sizeable amount of de-icing chemicals are used each winter on roads, parking lots, and sidewalks in Utah. Sodium chloride (salt) is the main chemical used. Proper use and storage of salt will reduce the chance of high chloride concentration in runoff that may damage the environment.

APPROACH:

- Proper storage practices can control sodium chloride pollution in runoff from stockpiles.
- For de-icing use, preventing over-application of salt will reduce quantities of chloride reaching surface or ground water.
- All salt piles should be covered with polyethylene if not stored in a shed. All sand/salt piles should be moved too empty salt sheds or covered during the spring and summer.
- Any runoff from stockpiles should be contained.
- To prevent over-application of salt one must properly calibrate the equipment and monitor the need for de-icing material.
- Another method to prevent the over-application of salt is to limit salt application on low traffic areas and straight level areas, critical areas will, however, need higher levels of service.

LIMITATIONS:

- All deicers hold the potential for damaging grass and plant biota should their concentration within the soil becomes unusually high. In amounts recommended for sidewalk and driveway deicing, there is minimal chance of damage to trees, grass, and shrubs. This is especially true if the chemical is used sparingly -- only to undercut snow and ice -- and the slush is not plowed or shoveled into grassy or planted areas.
- Another concern of many businesses and homeowners is the visible deicer residue that may be tracked into a building. This residue occurs because these deicers are solids in their natural state. However, since the residue is water soluble, it cleans up readily using plain water or ordinary household cleaner.
- Salt should not be used to melt every bit of snow and ice. Use only enough to break the ice/pavement bond, then remove the remaining slush by plowing or shoveling.

TARGETED POLLUTANTS

- ☐ Sediment
- ☒ Nutrients
- ☒ Heavy Metals
- ■ Toxic Materials
- ☐ Oxygen Demanding Substances
- ☐ Oil & Grease
- ☒ Floatable Materials
- ☐ Bacteria & Viruses

- ■ High Impact
- ☒ Medium Impact
- ☐ Low or Unknown Impact

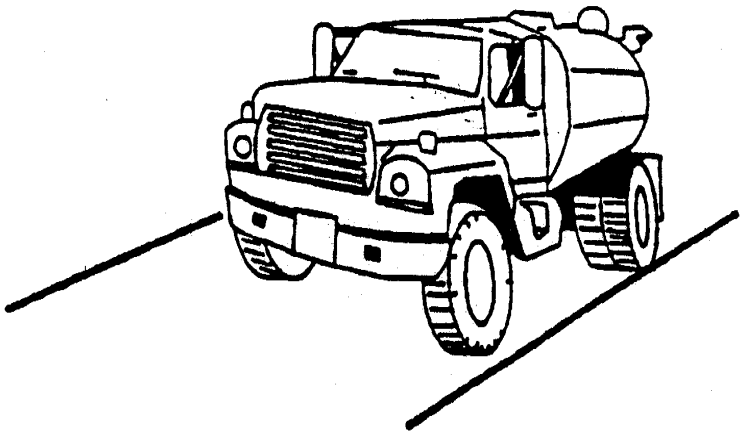
IMPLEMENTATION REQUIREMENTS

- ☒ Capital Costs
- ■ O&M Costs
- ☒ Maintenance
- ☐ Training

■ High ☒ Medium ☐ Low

BMP: Dust Controls

DC



OBJECTIVES

- ☒ Housekeeping Practices
- ☐ Contain Waste
- ☒ Minimize Disturbed Areas
- ☒ Stabilize Disturbed Areas
- ☐ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☐ Control Internal Erosion

DESCRIPTION:
Dust control measures are used to stabilize soil from wind erosion, and reduce dust by construction activities.

APPLICATION:
Dust control is useful in any process area, loading and unloading area, material handling areas, and transfer areas where dust is generated. Street sweeping is limited to areas that are paved.

INSTALLATION/APPLICATION CRITERIA:
- Mechanical dust collection systems are designed according to the size of dust particles and the amount of air to be processed. Manufacturers' recommendations should be followed for installation (as well as the design of the equipment).
- Two kinds of street weepers are common: brush and vacuum. Vacuum sweepers are more efficient and work best when the area is dry.
- Mechanical equipment should be operated according to the manufacturers' recommendations and should be inspected regularly.

LIMITATIONS:
- Is generally more expensive than manual systems.
- May be impossible to maintain by plant personnel (the more elaborate equipment).
- Is labor and equipment intensive and may not be effective for all pollutants (street sweepers).

MAINTENANCE:
If water sprayers are used, dust-contaminated waters should be collected and taken for treatment. Areas will probably need to be resprayed to keep dust from spreading.

TARGETED POLLUTANTS

- ■ Sediment
- ☐ Nutrients
- ☐ Toxic Materials
- ☐ Oil & Grease
- ☐ Floatable Materials
- ☐ Other Waste

- ■ High Impact
- ☒ Medium Impact
- ☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- ☒ Capital Costs
- ☐ O&M Costs
- ☒ Maintenance
- ☒ Training

■ High ☒ Medium ☐ Low

BMP: Educational Materials

EM

APPLICATIONS

☒ Manufacturing
☒ Material Handling
☒ Vehicle Maintenance
☒ Construction
☒ Commercial Activities
☒ Roadways
☒ Waste Containment
☒ Housekeeping Practices

DESCRIPTION:

Educational Materials to present information to the public on storm water issues and water quality awareness is an integral part of any storm water education program. Providing storm water education by sending out information with bills, newsletters, or presented at city activities, in city offices, schools, and fair booths, exposes the message to a wide variety of people, if not city-wide. Topics can include Water conservation, proper lawn and garden care, and proper disposal of hazardous household wastes. Many educational materials can be used for city personnel, contractors as well as homeowners or businesses.

APPROACH:

- Building a strong relationship with citizens is the most important step in getting storm water education city-wide.
- Educational materials can be tailored to all different age groups and technical background.
- Should make people aware of the potential impacts of hazardous household materials on water quality and inform residents of ways to properly store, handle, and dispose of the chemicals
- Water usage in the home can easily be reduced by 15 to 20 percent—without major discomfort—by implementing a program to conserve water in the home.
- Lawn and garden activities can result in contamination of storm water through pesticide, soil, and fertilizer runoff. Proper landscape management, however, can effectively reduce water use and contaminant runoff and enhance the aesthetics of a property.

LIMITATIONS:

- Not everyone will actually read or incorporate the information into their lives.
- Budgets need to have sufficient funds to obtain educational materials and their distribution.

MAINTENANCE:

- Programs and educational materials can be re-used, but they must be presented on a continual basis.

TARGETED POLLUTANTS

■ Sediment
■ Nutrients
■ Heavy Metals
■ Toxic Materials
■ Oxygen Demanding Substances
■ Oil & Grease
■ Floatable Materials
■ Bacteria & Viruses

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

☒ Capital Costs
☐ O&M Costs
☐ Maintenance
☐ Training

■ High ☒ Medium ☐ Low

BMP: Employee Training

ET

PROGRAM ELEMENTS

☒ New Development
☒ Residential
☒ Commercial Activities
☒ Industrial Activities
☒ Municipal Facilities
☒ Illegal Discharges

DESCRIPTION:

Employee training, like equipment maintenance, is a method by which to implement BMPs. Employee training should be used in conjunction with all other BMPs as part of the facility's SWPPP.

The specific employee training aspects of each of the source controls are highlighted in the individual information sheets. The focus of this information sheet is more general, and includes the overall objectives and approach for assuring employee training in stormwater pollution prevention. Accordingly, the organization of this information sheet differs somewhat from the other information sheets in this chapter.

OBJECTIVES:

Employee training should be based on four objectives:

- Promote a clear identification and understanding of the problem, including activities with the potential to pollute stormwater;
- Identify solutions (BMPs);
- Promote employee ownership of the problems and the solutions; and
- Integrate employee feedback into training and BMP implementation.

APPROACH:

- Integrate training regarding stormwater quality management with existing training programs that may be required for other regulations.
- Employee training is a vital component of many of the individual source control BMPs included in this manual.

TARGETED POLLUTANTS

■ Sediment
■ Nutrients
■ Heavy Metals
■ Toxic Materials
■ Oxygen Demanding Substances
■ Oil & Grease
■ Floatable Materials
■ Bacteria & Viruses

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

☒ Capital Costs
☒ O&M Costs
☐ Regulatory
■ Training
☒ Staffing
☒ Administrative

■ High ☒ Medium ☐ Low

BMP: Erosion Control Plan

ECP

Diversion dikes can be used to contain storm water onsite

APPLICATIONS

- ☐ Manufacturing
- ☐ Material Handling
- ☐ Vehicle Maintenance
- ■ Construction
- ☐ Commercial Activities
- ☒ Roadways
- ☐ Waste Containment
- ☐ Housekeeping Practices

DESCRIPTION:

Erosion control measures must be taken during a construction project. An Erosion Control Plan will be submitted and approved before work can begin on the project. An Erosion Control Plan describes what erosion control BMPs will be implemented, when and where, during the project.

APPROACH:

- Create a list of possible erosion control BMPs that could be implemented in any given project.
- Require submittal of erosion & sediment control plans for projects that are on 1 acre and larger sites.
- Develop a review checklist for plan review personnel.
- Provide the review checklist to contractors/developers so they know what is expected.
- Provide inspectors with a copy of the approved plans.

LIMITATIONS:

- Must be enforced to be affective.
- Sometimes site conditions are different then planned on and the plans have to be modified.
- The erosion control measures have to be maintained.
- The BMPs have to be installed early on in the project.
- The BMPs have to be removed at the end of the project.

TARGETED POLLUTANTS

- ■ Sediment
- ☒ Nutrients
- ☐ Heavy Metals
- ☐ Toxic Materials
- ☐ Oxygen Demanding Substances
- ☐ Oil & Grease
- ☐ Floatable Materials
- ☐ Bacteria & Viruses

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

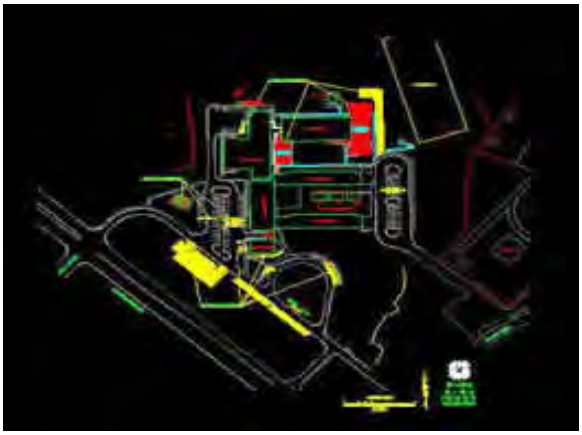
IMPLEMENTATION REQUIREMENTS

- ☒ Capital Costs
- ☐ O&M Costs
- ☐ Maintenance
- ☒ Training

■ High ☒ Medium ☐ Low

BMP: Establish/Compile Design Standards

ECDS



APPLICATIONS

- ☐ Manufacturing
- ☐ Material Handling
- ☐ Vehicle Maintenance
- ☒ Construction
- ☐ Commercial Activities
- ☐ Roadways
- ☐ Waste Containment
- ☐ Housekeeping Practices

DESCRIPTION:

Drawings of cities standards that depict specifications for building, construction practices etc. are helpful in communicating to contractors what their responsibilities are. Furthermore Standard drawings show inspectors what is proper practice and provides a minimum requirement to enforce. This also includes compilation of storm water related drawings with other city standard drawings. Drawings may sold to contractors so they can abide by city specs when working inside the city boundary.

APPROACH:

- Decide on specifications that reduce water pollutants in a given city.
- Make drawings depicting proper construction practices and acceptable designs
- Compile storm water related drawings into a specification booklet for contractors.
- Require that the design standards be met.
- Train inspectors on what to look for and how to enforce the standards.
- City requirements for an erosion control plan prior to breaking ground on a large development, can have great benefits.

LIMITATIONS:

- Some time may be required to decide on standards.
- Drawings will do no good without proper inspection and enforcement

MAINTENANCE:

- Specification Drawings may need to change as demands changes

TARGETED POLLUTANTS

- ■ Sediment
- ■ Nutrients
- ☒ Heavy Metals
- ■ Toxic Materials
- ☐ Oxygen Demanding Substances
- ☒ Oil & Grease
- ■ Floatable Materials
- ☐ Bacteria & Viruses

- ■ High Impact
- ☒ Medium Impact
- ☐ Low or Unknown Impact

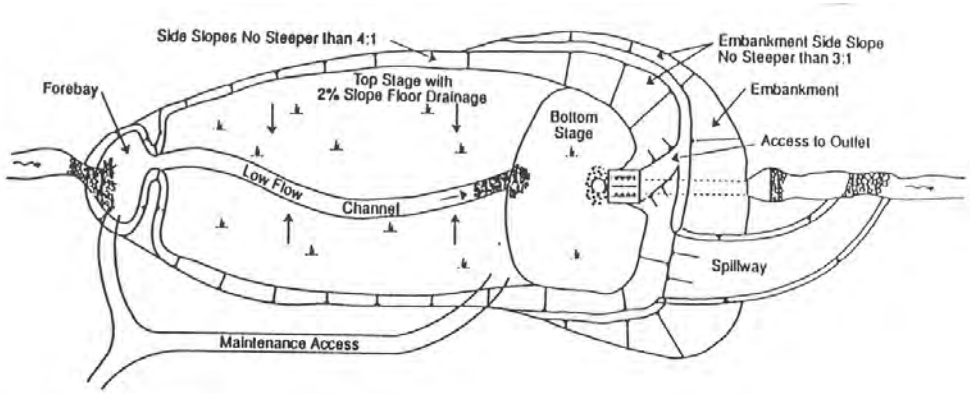
IMPLEMENTATION REQUIREMENTS

- ■ Capital Costs
- ☐ O&M Costs
- ☐ Maintenance
- ☐ Training

■ High ☒ Medium ☐ Low

BMP: Extended Detention Basins

EDB



CONSIDERATIONS

- ☐ Soils
- ☒ Area Required
- ☐ Slope
- ☐ Water Availability
- ☐ Aesthetics
- ☒ Hydraulic Head
- ☐ Environmental Side Effects

DESCRIPTIONS:

Extended detention basins are dry between storms. During a storm the basin fills. A bottom outlet releases the stormwater slowly to provide time for sediments to settle.

APPLICATION:

- Objective is to remove only particulate pollutants.
- Use where lack of water prevents the use of wet ponds, wetlands or biofilters.
- Use where wet ponds or wetlands would cause unacceptable mosquito conditions.

INSTALLATION/APPLICATION CRITERIA:

- Basin volume is sized to capture a particular fraction of the runoff.
- Drawdown time of 24 to 40 hours is required.
- A shallow basin with large surface area performs better than a deep basin with the same volume.
- Place energy dissipators at the entrance to minimize bottom erosion and resuspension.
- Vegetate side slopes and bottom to the maximum extent practical.
- If side erosion is particularly severe, consider paving or soil stabilization.
- If floatables are a problem, protect outlet with a trash rack or other device.
- Provide bypass or pass through capabilities for 100-year storm.

LIMITATIONS:

- May be less reliable than other treatment control BMPs. Inability to vegetate banks and bottom may result in erosion and resuspension.
- Limitation of the orifice diameter may preclude use in small watersheds.
- Requires differential elevation between inlet and outlet.

MAINTENANCE:

- Check outlet regularly for clogging.
- Check banks and bottom of basin for erosion and correct as necessary.
- Remove sediment when accumulation reaches 6-inches, or if resuspension is observed.

TARGETED POLLUTANTS

- ■ Sediment
- ☒ Nutrients
- ☒ Heavy Metals
- ☒ Toxic Materials
- ☒ Oxygen Demanding Substances
- ☒ Oil & Grease
- ☒ Floatable Materials
- ☐ Bacteria & Viruses

- ■ High Impact
- ☒ Medium Impact
- ☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- ■ Capital Costs
- ☒ O&M Costs
- ☒ Maintenance
- ☐ Training

■ High ☒ Medium ☐ Low

BMP:Geotextiles and Mats

GM

TYPICALLY FOR
SLOPES > 15%
FLOW RATES VARY ACCORDING TO MANUFACTURER
INSTALLATION PARALLEL TO SLOPE

OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☒ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☒ Control Internal Erosion

DESCRIPTION:

Mattings made of natural or synthetic material which are used to temporarily or permanently stabilize soil.

APPLICATION:

- Typically suited for post-construction site stabilization, but may be used for temporary stabilization of highly erosive soils.
- Channels and streams.
- Steep slopes.

INSTALLATION/APPLICATION CRITERIA:

- Mattings may be applied to disturbed soils and where existing vegetation has been removed.
- The following organic matting materials provide temporary protection until permanent vegetation is established, or when seasonal circumstances dictate the need for temporary stabilization until weather or construction delays are resolved: Jute mattings and straw mattings.
- The following synthetic mattings may be used for either temporary or post-construction stabilization, both with and without vegetation: excelsior matting, glass fiber matting, mulch matting.
- Staples are needed to anchor the matting.

LIMITATIONS:

- Mattings are more costly than other BMP practices, limiting their use to areas where other BMPs are ineffective (e.g., channels, steep slopes).
- May delay seed germination, due to reduction in soil temperature.
- Installation requires experienced contractor to ensure soil stabilization and erosion protection.

MAINTENANCE:

- Inspect monthly and after significant rainfall.
- Re-anchor loosened matting and replace missing matting and staples as required.

TARGETED POLLUTANTS

- ■ Sediment
- ☐ Nutrients
- ☐ Toxic Materials
- ☐ Oil & Grease
- ☐ Floatable Materials
- ☐ Other Waste

- ■ High Impact
- ☒ Medium Impact
- ☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- ■ Capital Costs
- ☒ O&M Costs
- ☒ Maintenance
- ☐ Training

■ High ☒ Medium ☐ Low

BMP: Grassed Swales

GS

Grassed swales can be used along roadsides and parking lots to collect and treat storm water runoff

DESCRIPTION:

A series of vegetated, open channel management practices designed specifically to treat and attenuate storm water runoff for a specified water quality volume. Storm water is treated through filtering by the vegetation in the channel, filtering through a subsoil matrix, and/or infiltration into the underlying soils.

APPROACH:

- Grassed swales can be applied in most situations with some restrictions. Swales are very well suited for treating highway or residential road runoff because they are linear practices.
- Grassed channels are a good treatment option within watersheds that drain to cold water streams. These practices do not pond water for a long period of time and often induce infiltration. As a result, standing water will not typically be subjected to warming by the sun in these practices.
- Grassed swales should be used on sites with relatively flat slopes of less than 4 percent slope; 1 to 2 percent slope is recommended.
- A small fore-bay should be used at the front of the swale to trap incoming sediments. A pea gravel diaphragm, a small trench filled with river run gravel, should be used as pretreatment for runoff entering the sides of the swale.
- Swales should also have the capacity to pass larger storms (typically a 10-year storm) safely.

LIMITATIONS:

- Grassed swales cannot treat a very large drainage area.
- Wet swales may become a nuisance due to mosquito breeding.

MAINTENANCE:

- Maintenance of grassed swales mostly involves maintenance of the grass or wetland plant cover.

APPLICATIONS

☐ Manufacturing
☐ Material Handling
☐ Vehicle Maintenance
☒ Construction
☒ Commercial Activities
☐ Roadways
☐ Waste Containment
☐ Housekeeping Practices

TARGETED POLLUTANTS

■ Sediment
■ Nutrients
☐ Heavy Metals
■ Toxic Materials
■ Oxygen Demanding Substances
☐ Oil & Grease
☒ Floatable Materials
☐ Bacteria & Viruses

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

☒ Capital Costs
☐ O&M Costs
☐ Maintenance
☐ Training

■ High ☒ Medium ☐ Low

BMP: Hazardous Waste Management

HWM

PROGRAM ELEMENTS

☒ New Development
☒ Residential
☒ Commercial Activities
☒ Industrial Activities
☒ Municipal Facilities
☒ Illegal Discharges

DESCRIPTION:

Prevent or reduce the discharge of pollutants to stormwater from hazardous waste through proper material use, waste disposal, and training of employees and subcontractors.

APPLICATION:

Many of the chemicals used on-site can be hazardous materials which become hazardous waste upon disposal. These wastes may include:

- Paints and solvents; petroleum products such as oils; fuels and greases; herbicides and pesticides; acids for cleaning masonry; and concrete curing compounds.

In addition, sites with existing structures may contain wastes which must be disposed of in accordance with federal, state and local regulations, including:

- Sandblasting grit mixed with lead, cadmium or chromium based paints, asbestos, and PCBs.

INSTALLATION/APPLICATION CRITERIA:

The following steps will help reduce stormwater pollution from hazardous wastes:

- Use all of the product before disposing of the container.
- Do not remove the original product label, it contains important safety and disposal information.
- Do not over-apply herbicides and pesticides. Prepare only the amount needed. Follow the recommended usage instructions. Over-application is expensive and environmentally harmful. Apply surface dressings in several smaller applications, as opposed to one large application, to allow time for infiltration and to avoid excess material being carried off-site by runoff. Do not apply these chemicals just before it rains. People applying pesticides must be certified in accordance with federal and state regulations.

LIMITATIONS:

Hazardous waste that cannot be reused or recycled must be disposed of by a licensed hazardous waste collector.

MAINTENANCE:

- Inspect hazardous waste receptacles and areas regularly.
- Arrange for regular hazardous waste collection.

TARGETED POLLUTANTS

☐ Sediment
☐ Nutrients
☐ Heavy Metals
■ Toxic Materials
☐ Oxygen Demanding Substances
☒ Oil & Grease
☐ Floatable Materials
☐ Bacteria & Viruses

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

☐ Capital Costs
☒ O&M Costs
☒ Regulatory
☒ Training
☒ Staffing
☒ Administrative

■ High ☒ Medium ☐ Low

BMP: Housekeeping Practices

HP

PROGRAM ELEMENTS

- ☐ New Development
- ☒ Residential
- ☐ Commercial Activities
- ☐ Industrial Activities
- ☒ Municipal Facilities
- ☐ Illegal Discharges

DESCRIPTION:

Promote efficient and safe housekeeping practices (storage, use, and cleanup) when handling potentially harmful materials such as fertilizers, pesticides, cleaning solutions, paint products, automotive products, and swimming pool chemicals.

APPROACH:

- Pattern a new program after the many established programs from municipalities around the country. Integrate this best management practice as much as possible with existing programs at your municipality.
- This BMP has two key audiences: municipal employees and the general public.
- For the general public, municipalities should establish a public education program that provides information on such items as storm water pollution and beneficial effects of proper disposal on water quality; reading product labels; safer alternative products; safe storage, handling, and disposal of hazardous products; list of local agencies; and emergency phone numbers. The programs listed below have provided this information through brochures or booklets that are available at a variety of locations including municipal offices, household hazardous waste collection events or facilities, and public information fairs.

Municipal facilities should develop controls on the application of pesticides, herbicides, and fertilizers in public right-of-ways and at municipal facilities. Controls may include:

- List of approved pesticides and selected uses.
- Product and application information for users.
- Equipment use and maintenance procedures.
- Record keeping and public notice procedures.

LIMITATIONS:

There are no major limitations to this best management practice.

TARGETED POLLUTANTS

- ■ Sediment
- ■ Nutrients
- ☐ Heavy Metals
- ■ Toxic Materials
- ■ Oxygen Demanding Substances
- ■ Oil & Grease
- ☐ Floatable Materials
- ☐ Bacteria & Viruses

- ■ High Impact
- ☒ Medium Impact
- ☐ Low or Unknown Impact

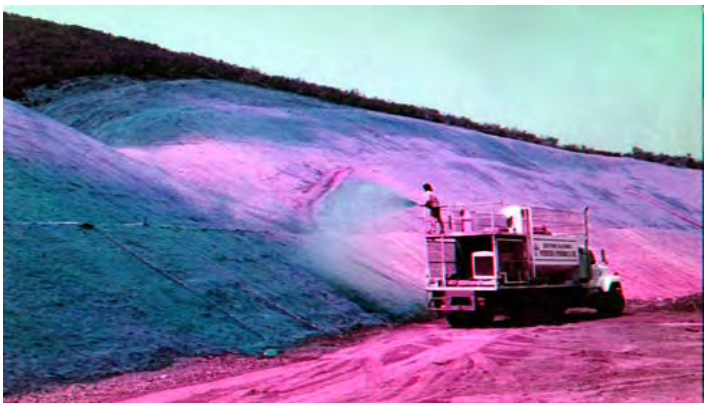
IMPLEMENTATION REQUIREMENTS

- ☐ Capital Costs
- ☒ O&M Costs
- ☐ Regulatory
- ■ Training
- ☒ Staffing
- ☐ Administrative

■ High ☒ Medium ☐ Low

BMP: Hydromulching

HM



OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☒ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☐ Control Internal Erosion

DESCRIPTION:

A combination of wood fiber mulch, processed grass, or hay or straw mulch and a tacking agent. It is made into a slurry, then applied to bare slopes or other bare areas to provide temporary stabilization.

APPLICATIONS:

- Small roadside slopes.
- Large, relatively flat areas.

INSTALLATION/APPLICATION CRITERIA:

- Legume seeds should be pellet inoculated with the appropriate bacteria.
- The seed should not remain in the hydromulcher tank for more than 30 minutes.
- Wood fiber may be dyed to aid in uniform application.
- Slurry should be uniformly applied until an adequate coverage is achieved.
- The applicator should not be directed at one location for a long period of time; erosion will occur.

LIMITATIONS:

- Will lose effectiveness after 1 year.
- Can use only on physically stable slopes (at natural angle of repose, or less).

MAINTENANCE:

- Periodically inspect for damage caused by wind, water, or human disturbance.
- Promply repair damaged areas.

TARGETED POLLUTANTS

- ☒ Sediment
- ☐ Nutrients
- ☐ Toxic Materials
- ☐ Oil & Grease
- ■ Floatable Materials
- ☐ Other Waste

- ■ High Impact
- ☒ Medium Impact
- ☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- ☒ Capital Costs
- ☐ O&M Costs
- ☐ Maintenance
- ☐ Training

■ High ☒ Medium ☐ Low

BMP: Identifying Illicit Connections

IIC

One of the ways to identify illicit connections is by inspecting storm drain system using video equipment (Source: Drain Patrol, no date)

A common source of pollution from businesses is a floor drain that is improperly connected to a storm drain (Source: Petro-Marine Company, Inc., no date)

APPLICATIONS

- ☒ Manufacturing
- ☒ Material Handling
- ☐ Vehicle Maintenance
- ☒ Construction
- ☒ Commercial Activities
- ☐ Roadways
- ☒ Waste Containment
- ☐ Housekeeping Practices

DESCRIPTION:

Involves the identification and elimination of illegal or inappropriate connections of industrial and business wastewater sources to the storm drain system. It attempts to prevent contamination of ground and surface water supplies by regulation, inspection, and removal of these connections. The large amount of storm and sanitary sewer pipes in a community creates a complex and often confusing system of utilities, so it is not unusual for improper connections to occur.

APPROACH:

- Discharges from industry and business may come from a variety of sources including process wastewater, wash waters, and sanitary wastewater. The following methods are often used for identifying improper industrial discharges to the storm drain system
- *Visual Inspection*. A physical examination of piping connections or analysis by closed circuit camera is used to identify possible illicit connection sites.
- *Piping Schematic Review*. Architectural plans and plumbing details are examined for potential sites where improper connections have occurred.
- *Smoke Testing*. Smoke testing is used to locate connections by injecting a non-toxic vapor (smoke) into the system and following its path of travel.
- *Dye Testing*. Colored dye is added to the drain water in suspect piping. Dyed water appearing in the storm drain system indicates an illegal connection, possibly between the sanitary sewer system and the storm drain.
- Instituting building and plumbing codes to prevent connections of potentially hazardous pollutants to storm drains.
- *Flow Monitoring.* Monitoring increases in storm sewer flows during dry periods can also lead investigators to sources of infiltration due to improper connections.
- *Inspection using video equipment*
- Instituting building and plumbing codes to prevent connections of potentially hazardous pollutants to storm drains.

LIMITATIONS:

- A local ordinance is necessary to provide investigators with access to private property in order to perform field tests (Ferguson et al. 1997).
- Rain fall can hamper efforts to monitor flows and visual inspections.

MAINTENANCE:

- Identifying illicit discharges requires teams of at least two people (volunteers can be used), plus administrative personnel, depending on the complexity of the storm sewer system.

TARGETED POLLUTANTS

- ☐ Sediment
- ■ Nutrients
- ■ Heavy Metals
- ■ Toxic Materials
- ■ Oxygen Demanding Substances
- ■ Oil & Grease
- ■ Floatable Materials
- ■ Bacteria & Viruses

■	High Impact
☒	Medium Impact
☐	Low or Unknown Impact

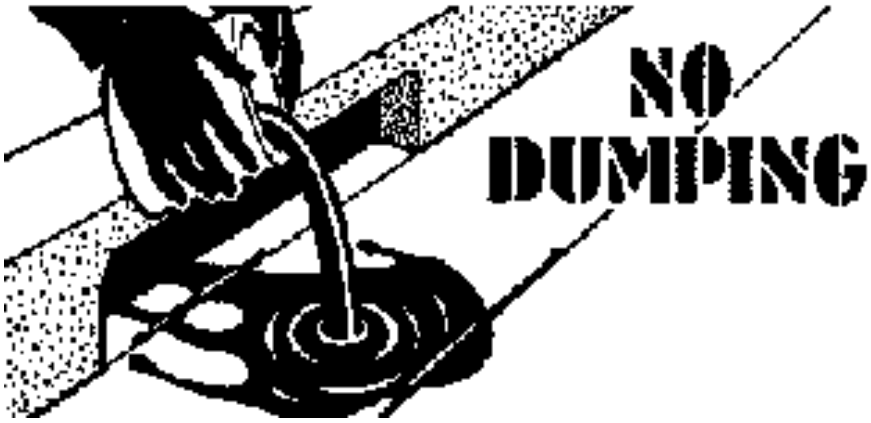
IMPLEMENTATION REQUIREMENTS

- ■ Capital Costs
- ☒ O&M Costs
- ☒ Maintenance
- ☐ Training

■	High	☒	Medium	☐	Low

BMP: Illegal Dumping Controls

IDC



PROGRAM ELEMENTS

- ☐ New Development
- ☐ Residential
- ☐ Commercial Activities
- ☐ Industrial Activities
- ☐ Municipal Facilities
- ☒ Illegal Discharges

DESCRIPTION:

Implement measures to detect, correct, and enforce against illegal dumping of pollutants on streets, into the storm drain system, and into creeks. Substances illegally dumped on streets, into the storm drain system, and into creeks includes paints, used oil and other automotive fluids, construction debris, chemicals, fresh concrete, leaves, grass clippings, and pet wastes. All of these wastes can cause storm water and receiving water quality problems as well as clog the storm drain system.

APPROACH:

One of the keys to success is increasing the general public's awareness of the problem and to at least identify the incident, if not correct it. There are a number of ways of accomplishing this:

- Train municipal staff from all departments to recognize and report incidents.
- Deputize municipal staff who may come into contact with illegal dumping with the authority to write illegal dumping tickets for offenders caught in the act.
- Educate the public.
- Provide the public with a mechanism for reporting such as a hot line.

Establish system for tracking incidents which will identify:

- Illegal dumping "hot spots",
- Types and quantities (in some cases) of wastes,
- Patterns in time of occurrence (time of day/night, month, or year),
- Mode of dumping (abandoned containers, "midnight dumping" from moving vehicles, direct dumping of materials, accident/spills), and
- Responsible parties.

A tracking system also helps manage the program by indicating trends, and identifying who, what, when, and where efforts should be concentrated.

LIMITATIONS

The elimination of illegal dumping is dependent on the availability, convenience, and cost of alternative means of disposal.

TARGETED POLLUTANTS

- ☒ Sediment
- ☐ Nutrients
- ☒ Heavy Metals
- ■ Toxic Materials
- ■ Oxygen Demanding Substances
- ■ Oil & Grease
- ■ Floatable Materials
- ☒ Bacteria & Viruses

- ■ High Impact
- ☒ Medium Impact
- ☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- ☐ Capital Costs
- ☒ O&M Costs
- ☐ Regulatory
- ■ Training
- ☒ Staffing
- ☐ Administrative

■ High ☒ Medium ☐ Low

BMP: Infrastructure Planning

IPL

Developers can design streets and pedestrian paths to maximize convenience and safety while at the same time minimizing impervious surface area (Source: The Rouse Company, no date)

APPLICATIONS

- ☐ Manufacturing
- ☐ Material Handling
- ☐ Vehicle Maintenance
- ☒ Construction
- ☒ Commercial Activities
- ☒ Roadways
- ☐ Waste Containment
- ☐ Housekeeping Practices

DESCRIPTION:

This practice requires changes in the regional growth planning process to contain sprawl development. Sprawl development is the expansion of low-density development into previously undeveloped land. The American Farmland Trust has estimated that the United States is losing about 50 acres an hour to suburban and exurban development (Longman, 1998). This sprawl development requires local governments to extend public services to new residential communities whose tax payments often do not cover the cost of providing those services. For example, in Prince William County, Virginia, officials have estimated that the costs of providing services to new residential homes exceeds what is brought in from taxes and other fees by $1,600 per home (Shear and Casey, 1996).

Infrastructure planning makes wise decisions to locate public services—water, sewer, roads, schools, and emergency services—in the suburban fringe and direct new growth into previously developed areas, discouraging

Low-density development. Generally, this is done by drawing a boundary or envelope around a community, beyond which major public infrastructure investments are discouraged or not subsidized. Meanwhile, economic and other incentives are provided within the boundary to encourage growth in existing neighborhoods.

APPROACH:

- Sprawl development negatively impacts water quality in several ways. The most significant impact comes from the increase in impervious cover that is associated with sprawl growth. In addition to rooftop impervious area from new development, extension of road systems and additions of paved surface from driveways create an overall increase in imperviousness.
- *Urban Growth Boundaries*. This planning tool establishes a dividing line that defines where a growth limit is to occur and where agricultural or rural land is to be preserved. Often, an urban services area is included in this boundary that creates a zone where public services will not be extended.
- *Infill/Community Redevelopment*. This practice encourages new development in unused or underutilized land in existing urban areas. Communities may offer tax breaks or other economic incentives to developers to promote the redevelopment of properties that are vacant or damaged.

LIMITATIONS:

- Intense development of existing areas can create a new set of challenges for storm water program managers. Storm water management solutions are often more difficult and complex in ultra-urban areas than in suburban areas
- Infrastructure planning is often done on a regional scale and requires a cooperative effort between all the communities within a given region in order to be successful.

TARGETED POLLUTANTS

- ☒ Sediment
- ☐ Nutrients
- ☐ Heavy Metals
- ☐ Toxic Materials
- ☐ Oxygen Demanding Substances
- ☐ Oil & Grease
- ☐ Floatable Materials
- ☐ Bacteria & Viruses

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

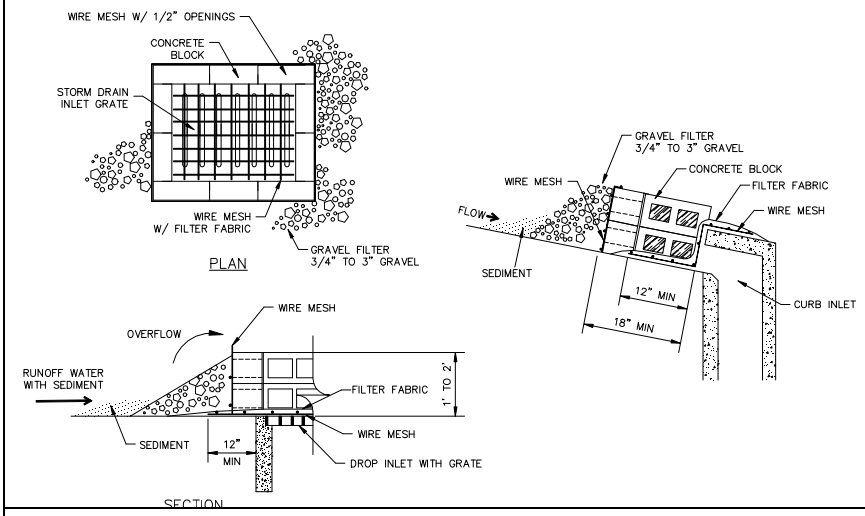
IMPLEMENTATION REQUIREMENTS

- ☒ Capital Costs
- ☒ O&M Costs
- ☒ Maintenance
- ☐ Training

■ High	☒ Medium	☐ Low

BMP:Inlet Protection - Concrete Block

IP



OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☐ Protect Slopes/Channels
- ☒ Control Site Perimeter
- ☒ Control Internal Erosion

DESCRIPTION:

Concrete block and gravel filter placed over inlet to storm drain system.

APPLICATION:

Construct at inlets in paved or unpaved areas where upgradient area is to be disturbed by construction activities.

INSTALLATION/APPLICATION CRITERIA:

- Place wire mesh (with ½ inch openings) over the inlet grate extending one foot past the grate in all directions.
- Place concrete blocks around the inlet with openings facing outward. Stack blocks to minimum height of 12-inches and maximum height of 24-inches.
- Place wire mesh around outside of blocks.
- Place gravel (3/4" to 3") around blocks.

LIMITATIONS:

- Recommended for maximum drainage area of one acre.
- Excess flows may bypass the inlet requiring down gradient controls.
- Ponding will occur at inlet.

MAINTENANCE:

- Inspect inlet protection after every large storm event and at a minimum of once monthly.
- Remove sediment accumulated when it reaches 4-inches in depth.
- Replace filter fabric and clean or replace gravel if clogging is apparent.

TARGETED POLLUTANTS

- ■ Sediment
- ☐ Nutrients
- ☐ Toxic Materials
- ☐ Oil & Grease
- ■ Floatable Materials
- ☐ Other Waste

- ■ High Impact
- ☒ Medium Impact
- ☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- ☒ Capital Costs
- ☐ O&M Costs
- ☒ Maintenance
- ☐ Training

■ High ☒ Medium ☐ Low

BMP: BMP Inspection and Maintenance

BMPIM

APPLICATIONS

☐ Manufacturing
☒ Material Handling
☒ Vehicle Maintenance
☐ Construction
☐ Commercial Activities
☐ Roadways
☒ Waste Containment
☒ Housekeeping Practices

DESCRIPTION:

Inspect and maintain all structural BMP's (both existing and new) on a routine basis to remove pollutants from entering storm drain inlets. This includes the establishment of a schedule for inspections and maintenance.

APPROACH:

Regular maintenance of all structural BMP's is necessary to ensure their proper functionality.

- Annual inspections.
- Prioritize maintenance to clean, maintain, and repair or replace structures in areas beginning with the highest pollutant loading.
- Clean structural BMP's in high pollutant areas just before the wet season to remove sediments and debris accumulated during the summer and fall.
- Keep accurate logs of what structures were maintained and when they were maintained.
- Record the amount of waste collected.

LIMITATIONS:

- Cost
- Availability of trained staff
-

TARGETED POLLUTANTS

■ Sediment
■ Nutrients
☐ Heavy Metals
■ Toxic Materials
☐ Oxygen Demanding Substances
■ Oil & Grease
■ Floatable Materials
☐ Bacteria & Viruses

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

■ Capital Costs
■ O&M Costs
☒ Maintenance
☒ Staffing
☐ Training
☐ Administrative

■ High ☒ Medium ☐ Low

BMP: Land Use Planning/Management

LUPM

PROGRAM ELEMENTS

☒ New Development
☐ Residential
☐ Commercial Activities
☐ Industrial Activities
☐ Municipal Facilities
☐ Illegal Discharges

DESCRIPTION:
This BMP represents an important opportunity to reduce pollutants in stormwater runoff by using a comprehensive planning process to integrate water quality concerns into the development and redevelopment process. It is applicable to all types of land use and represents one of the most effective pollution prevention practices.

APPROACH:
The land use planning process need not be complex. A basic schematic model involves:

- Phase I - Goals: Determine clear-cut water quality goals.
- Phase 2 - Study: Identify planning area, gather pertinent data, and write a description of the planning area and its associated problems.
- Phase 3 - Analysis and Synthesis: Determine and prioritize the water quality needs as they relate to land use.
- Phase 4 - Recommendations: Future courses of action are developed to address the identified problems and needs determined previously.
- Phase 5 - Adoption: The recommendations are presented to a political body for acceptance and implementation.
- Phase 6 - Implementation: Recommendations adopted by the political body are implemented by the locality.

LIMITATIONS:
- Land use planning/management frequently addresses sensitive public issues. Restrictions on certain land uses for the purpose of mitigating stormwater pollution may be politically unacceptable.
- The use of land use controls and planning for water quality improvements may be limited by the lack of staff to enforce various aspects of local zoning and building codes.
- The planning process addresses many public needs and legal requirements which often are in conflict with one another. It is difficult but extremely important to integrate and balance these sometimes competing programs.

TARGETED POLLUTANTS

■ Sediment
☒ Nutrients
■ Heavy Metals
■ Toxic Materials
☐ Oxygen Demanding Substances
☐ Oil & Grease
☒ Floatable Materials
☐ Bacteria & Viruses

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

☐ Capital Costs
☐ O&M Costs
■ Regulatory
☐ Training
☒ Staffing
☐ Administrative

■ High ☒ Medium ☐ Low

BMP: Landscape & Irrigation Plan

LIP

APPLICATIONS

☒ Manufacturing
☐ Material Handling
☐ Vehicle Maintenance
■ Construction
☒ Commercial Activities
☐ Roadways
☐ Waste Containment
☒ Housekeeping Practices

DESCRIPTION:

All developers are required to submit a landscape and irrigation plan for their developments. Lawn and garden activities can result in contamination of storm water through pesticide, soil, and fertilizer runoff. Proper landscape management, however, can effectively reduce water use and contaminant runoff as well as enhance the aesthetics of a property.

APPROACH:

- Develop landscape and irrigation plan preparation guidelines.
- Require a landscape and irrigation plan for each new development.
- Educate local developers on how to create effective landscape and irrigation plans for their new developments.
- Educate municipal staff to review property landscape and irrigation plans to minimize runoff.
- Check all new irrigation plans to ensure that there will be no overspray onto impervious surfaces and that the irrigation water will be contained on site.

LIMITATIONS:

- More time and effort will be required of the municipal staff to review new development plans.

MAINTENANCE:

- Programs and educational materials can be repeatedly sent out or emphasized. Extension service continues to research and provide current data.

TARGETED POLLUTANTS

■ Sediment
■ Nutrients
☐ Heavy Metals
☐ Toxic Materials
☒ Oxygen Demanding Substances
☒ Oil & Grease
☐ Floatable Materials
☒ Bacteria & Viruses

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

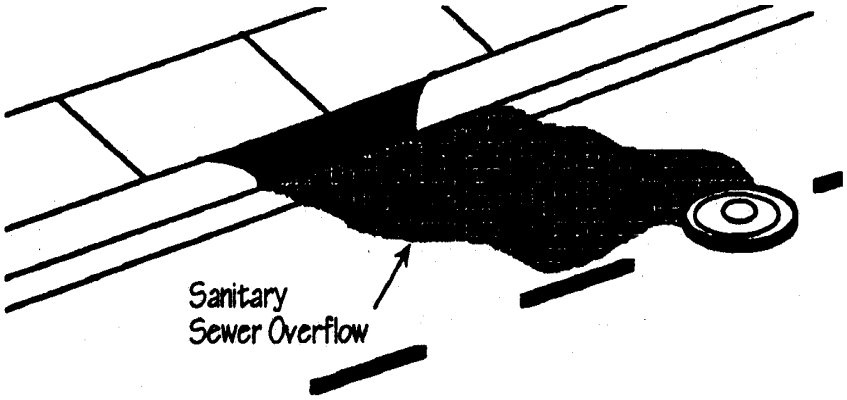
IMPLEMENTATION REQUIREMENTS

☒ Capital Costs
☒ O&M Costs
☐ Maintenance
☒ Training

■ High ☒ Medium ☐ Low

BMP: Leaking Sanitary Sewer Control

LSSC



PROGRAM ELEMENTS

- ☐ New Development
- ☒ Residential
- ☒ Commercial Activities
- ☒ Industrial Activities
- ☐ Municipal Facilities
- ☒ Illegal Discharges

DESCRIPTION:

Implement control procedures for identifying, repairing, and remediating sewer blockages, infiltration, inflow, and wet weather overflows from sanitary sewers into the storm drain conveyance system. Procedures include field screening, follow-up testing, and complaint investigation.

APPROACH:

- Identify dry weather infiltration and inflow first. Wet weather overflow connections are very difficult to locate.
- Locate wet weather overflows and leaking sanitary sewers using conventional source identification techniques.
- Coordinate with ongoing infiltration and inflow (I & I) program to locate sources of exfiltration during I & I inspections.
- Design, site, operate, and maintain on-site sewage disposal systems to prevent nutrient/pathogen loadings to surface waters and to reduce loadings to groundwater.

Leaking sanitary sewer detection techniques include:

- Field screening program (including field analytical testing),
- Fluorometric dye testing,
- Zinc chloride smoke testing,
- Television camera inspection,
- Nessler Reagent test kits for ammonia detection,
- Citizens' hotline reporting of wet weather sanitary overflows.

LIMITATIONS:

- Private property access rights needed to perform field screening/testing along storm drain right-of-ways.
- Requirements of municipal ordinance authority for suspected source verification testing necessary for guaranteed rights of entry.

TARGETED POLLUTANTS

- ☐ Sediment
- ■ Nutrients
- ☐ Heavy Metals
- ☐ Toxic Materials
- ■ Oxygen Demanding Substances
- ☐ Oil & Grease
- ☐ Floatable Materials
- ■ Bacteria & Viruses

- ■ High Impact
- ☒ Medium Impact
- ☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- ☐ Capital Costs
- ■ O&M Costs
- ☐ Regulatory
- ☒ Training
- ■ Staffing
- ☒ Administrative

■ High ☒ Medium ☐ Low

BMP: Long Term Operation and Maintenance

LTOM

DESCRIPTION:

Establishment and implementation of a schedule for long term operation and maintenance procedures for the existing storm drain system.

APPROACH:

- Review existing maintenance schedule and/or efforts.
- Review the requirements necessary to maintain the existing storm drain system.
- Create a schedule for long term operation and maintenance of the storm drain system.
- Implement the maintenance schedule.
- Follow up.

LIMITATIONS:

- Cost
- Availability of trained staff
-

APPLICATIONS

☐ Manufacturing
☒ Material Handling
☒ Vehicle Maintenance
☐ Construction
☐ Commercial Activities
☐ Roadways
☒ Waste Containment
☒ Housekeeping Practices

TARGETED POLLUTANTS

■ Sediment
☒ Nutrients
■ Heavy Metals
☐ Toxic Materials
☒ Oxygen Demanding Substances
■ Oil & Grease
■ Floatable Materials
■ Bacteria & Viruses

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

☒ Capital Costs
■ O&M Costs
☒ Maintenance
☒ Staffing
☐ Training
☐ Administrative

■ High ☒ Medium ☐ Low

BMP: Map Storm Water Drains

MSWD

OBJECTIVES

- ☒ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☐ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☐ Control Internal Erosion

DESCRIPTION:

Create maps of existing storm water drain systems to facilitate spill cleanup and identify illicit connections.

APPLICATION:

- Use the map of the storm water drain system to track drainage paths and trace any contaminant problems to their source.
- In the event of a major spill, use the map of the storm water drain system to identify where the contaminants will flow to and cut off the flow before further contamination.

INSTALLATION/APPLICATION CRITERIA:

- Using GIS or other mapping programs, create accurate maps of the storm water drain system, including street names and pipe diameters.

LIMITATIONS:

MAINTENANCE:

- Annually review any development that has occurred and update the map of the storm drain system accordingly.

TARGETED POLLUTANTS

- ☐ Sediment
- ☐ Nutrients
- ■ Toxic Materials
- ☐ Oil & Grease
- ☐ Floatable Materials
- ■ Other Waste

- ■ High Impact
- ☒ Medium Impact
- ☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- ☒ Capital Costs
- ☐ O&M Costs
- ☒ Maintenance
- ☐ Training

■ High ☒ Medium ☐ Low

BMP: Material Use

MU

OBJECTIVES

- ☒ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☐ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☐ Control Internal Erosion

DESCRIPTION:

Prevent or reduce the discharge of pollutants to storm water from material use by using alternative products, minimizing hazardous material use on-site, and training employees and subcontractors.

APPLICATION:

The following materials are commonly used on construction sites:

- Pesticides and herbicides, fertilizers, detergents, plaster and other products, petroleum products such as fuel, oil, and grease.
- Other hazardous chemicals such as acids, lime, glues, paints, solvents, and curing compounds.

INSTALLATION/APPLICATION CRITERIA:

- Use less hazardous, alternative materials as much as possible.
- Minimize use of hazardous materials on-site.
- Use only materials where and when needed to complete the construction activity.
- Follow manufacturer's instructions regarding uses, protective equipment, ventilation, flammability, and mixing of chemicals.
- Personnel who use pesticides should be trained in their use.
- Do not over apply fertilizers, herbicides, and pesticides. Prepare only the amount needed.
- Unless on steep slopes, till fertilizers in to the soil rather than hydroseeding.
- Do not apply these chemicals just before it rains.

LIMITATIONS:

Alternative materials may not be available, suitable, or effective in every case.

MAINTENANCE:

Maintenance of this best management practice is minimal.

TARGETED POLLUTANTS

- ☐ Sediment
- ☐ Nutrients
- ■ Toxic Materials
- ☐ Oil & Grease
- ☐ Floatable Materials
- ■ Other Waste

- ■ High Impact
- ☒ Medium Impact
- ☐ Low or Unknown Impact

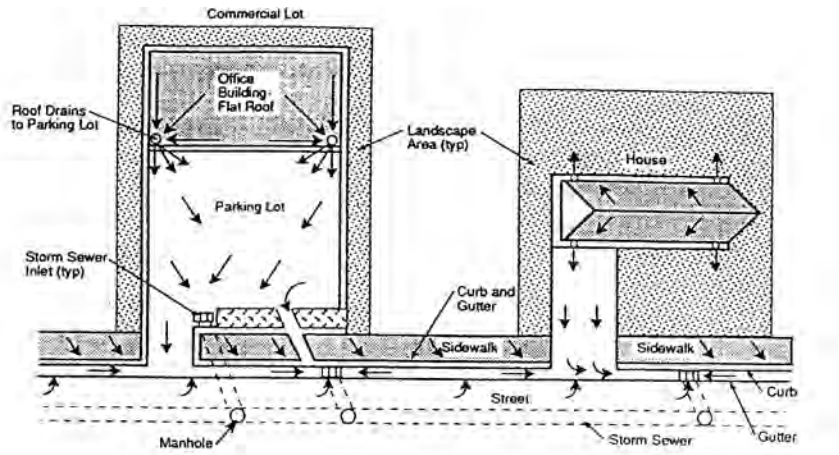
IMPLEMENTATION REQUIREMENTS

- ☐ Capital Costs
- ☐ O&M Costs
- ☐ Maintenance
- ☒ Training

■ High ☒ Medium ☐ Low

BMP: Minimizing DCIAs

DCIA



CONSIDERATIONS

- ☐ Soils
- ☐ Area Required
- ☒ Slope
- ☐ Water Availability
- ☒ Aesthetics
- ☐ Hydraulic Head
- ☐ Environmental Side Effects

DESCRIPTION:

Minimizing directly connected impervious areas (DCIAs) is a structural BMP strategy that requires a basic change in drainage design philosophy. The basic principle is to direct stormwater runoff to landscaped areas, grass buffer strips, and vegetated swales to slow down the rate of runoff, reduce runoff volumes, attenuate peak flows, and encourage filtering and infiltration of stormwater.

APPLICATION:

It can be made an integral part of drainage planning for any development.

INSTALLATION/APPLICATION CRITERIA:

- Use on sites with general terrain slopes flatter than 3-4%.
- Design the site drainage flowpath to maximize flow over vegetated areas before leaving a site.
- Minimize ground slopes to limit erosion and slow down water flow.
- Select vegetation that will not only survive, but also enhance water quality.

LIMITATIONS:

- Potential increase in site open space requirements over the traditional development systems.
- Introduction of a nonconventional development design strategy.
- Infiltration of water near building foundations and parking lots is a concern.
- Will likely result in increased maintenance along the swales.

MAINTENANCE:

- Maintain grass and other vegetation.
- Pick up debris.
- Conduct ongoing inspections for potential erosion problems and changes in drainage patterns.
- Remove sediment buildup and replace damaged grass cover.

TARGETED POLLUTANTS

- ■ Sediment
- ☐ Nutrients
- ☒ Heavy Metals
- ☐ Toxic Materials
- ☐ Oxygen Demanding Substances
- ☐ Oil & Grease
- ☒ Floatable Materials
- ☐ Bacteria & Viruses

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- ☒ Capital Costs
- ☒ O&M Costs
- ☒ Maintenance
- ☐ Training

■ High ☒ Medium ☐ Low

BMP: Non-Stormwater Discharges To Drains

NSWD

APPLICATIONS

☒ Manufacturing
☐ Material Handling
☒ Vehicle Maintenance
☐ Construction
☒ Commercial Activities
☐ Roadways
☒ Waste Containment
☒ Housekeeping Practices

DESCRIPTION:

Eliminate non-stormwater discharges to the stormwater collection system. Non-stormwater discharges may include: process wastewaters, cooling waters, wash waters, and sanitary wastewater.

APPROACH:

The following approaches may be used to identify non-stormwater discharges:

- Visual inspection: the easiest method is to inspect each discharge point during dry weather. Keep in mind that drainage from a storm event can continue for three days or more and groundwater may infiltrate the underground stormwater collection system.
- Piping Schematic Review: The piping schematic is a map of pipes and drainage systems used to carry wastewater, cooling water, sanitary wastes, etc... A review of the "as-built" piping schematic is a way to determine if there are any connections to the stormwater collection system. Inspect the path of floor drains in older buildings.
- Smoke Testing: Smoke testing of wastewater and stormwater collection systems is used to detect connections between the two systems. During dry weather the stormwater collection system is filled with smoke and then traced to sources. The appearance of smoke at the base of a toilet indicates that there may be a connection between the sanitary and the stormwater system.
- Dye Testing: A dye test can be performed by simply releasing a dye into either the sanitary or process wastewater system and examining the discharge points from the stormwater collection system for discoloration.

LIMITATIONS:

- Many facilities do not have accurate, up-to-date schematic drawings.
- Video and visual inspections can identify illicit connections to the storm sewer, but further testing is sometimes required (e.g. dye, smoke) to identify sources.

TARGETED POLLUTANTS

☐ Sediment
■ Nutrients
■ Heavy Metals
■ Toxic Materials
■ Oxygen Demanding Substances
■ Oil & Grease
☒ Floatable Materials
■ Bacteria & Viruses

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

☒ Capital Costs
☐ O&M Costs
☐ Maintenance
☒ Training

■ High ☒ Medium ☐ Low

BMP: Ordinance Development

OD

APPLICATIONS

☒ Manufacturing
☒ Material Handling
☒ Vehicle Maintenance
☒ Construction
☒ Commercial Activities
☒ Roadways
☒ Waste Containment
☒ Housekeeping Practices

DESCRIPTION:

Existing ordinances relating to storm water are reviewed for compliance. New ordinances are written to prohibit non-storm water discharges into the Municipal Separate Storm Sewer System (MS4), require proper erosion and sediment controls on construction sites, and require the implementation of post-construction runoff controls.

APPROACH:

- Review existing storm drain ordinances for consistency and compliance with state regulations and make improvements, if necessary. Ensure that no conflicts will occur with new ordinances that will be written and adopted.
- Write and adopt an ordinance that prohibits (to the extent allowable under State, Tribal, or local law) the discharge of non-storm water discharges into the MS4 with appropriate enforcement procedures and actions.
- Write and adopt an ordinance, with sanctions to ensure compliance, requiring the implementation of proper erosion and sediment controls, and controls for other wastes, on applicable construction sites.
- Write and adopt an ordinance requiring the implementation of post-construction runoff controls to the extent allowable under State, Tribal, or local law.
- Educate the public about the new ordinances.
- Enforce the new ordinances.

LIMITATIONS:

- Wording of ordinances is often difficult. It should be specific to serve the intended purpose, but not too specific to cause potential conflicts with other ordinances or situations.
- Once an ordinance is adopted, it can be difficult to modify ordinances to meet changing needs.
- Ordinances have to be enforced to be beneficial.
- Ordinances take time to change.

TARGETED POLLUTANTS

☒ Sediment
☒ Nutrients
☒ Heavy Metals
☒ Toxic Materials
☒ Oxygen Demanding Substances
☒ Oil & Grease
☒ Floatable Materials
☒ Bacteria & Viruses

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

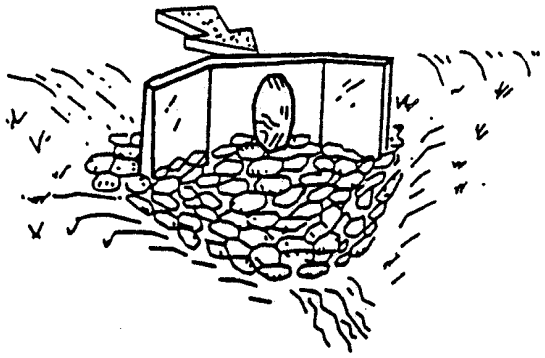
IMPLEMENTATION REQUIREMENTS

■ Capital Costs
■ O&M Costs
☐ Maintenance
☐ Training

■ High ☒ Medium ☐ Low

BMP: Outlet Protection

OP



OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☒ Control Internal Erosion

DESCRIPTION:

A rock outlet protection is a physical device composed of rock, grouted riprap, or concrete rubble which is placed at the outlet of a pipe to prevent scour of the soil caused by high pipe flow velocities, and to absorb flow energy to produce non-erosive velocities.

APPLICATIONS:

- Wherever discharge velocities and energies at the outlets of culverts, conduits, or channels are sufficient to erode the next downstream reach.
- Rock outlet protection is best suited for temporary use during construction becasue it is usually less expensive and easier to install than concrete aprons or energy dissipators.
- A sediment trap below the pipe outlet is recommended if runoff is sediment laden.
- Permanent rock riprap protection should be designed and sized by the engineer as part of the culvert, conduit or channel design.
- Grouted riprap should be avoided in areas of freeze and thaw because the grout will break up.

INSTALLATION/APPLICATION CRITERIA:

Rock outlet protection is effective when the rock is sized and placed properly. When this is accomplished, rock outlets do much to limit erosion at pipe outlets. Rock size should be increased for high velocity flows. Best results are obtained when sound, durable, angular rock is used.

LIMITATIONS:

- Large storms often wash away the rock outlet protection and leave the area susceptible to erosion.
- Sediment captured by the rock outlet protection may be difficult to remove without removing the rock.
- Outlet protection may negatively impact the channel habitat.

MAINTENANCE:

- Inspect after each significant rain for erosion and/or disruption of the rock, and repair immediately.
- Grouted or wire-tied rock riprap can minimize maintenance requirements.

TARGETED POLLUTANTS

- ■ Sediment
- ☐ Nutrients
- ☐ Toxic Materials
- ☐ Oil & Grease
- ☐ Floatable Materials
- ☐ Other Waste

- ■ High Impact
- ☒ Medium Impact
- ☐ Low or Unknown Impact

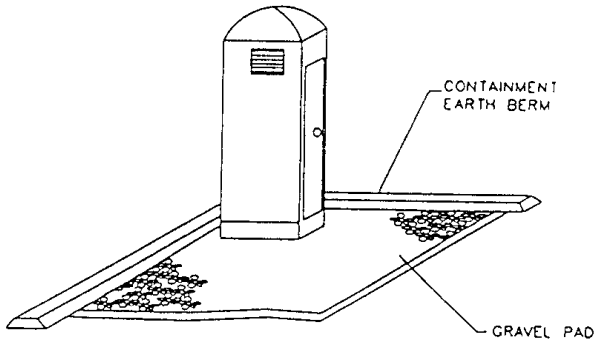
IMPLEMENTATION REQUIREMENTS

- ☒ Capital Costs
- ☐ O&M Costs
- ☒ Maintenance
- ☐ Training

■ High ☒ Medium ☐ Low

BMP: Portable Toilets

PT



1'x1'

OBJECTIVES

- ☒ Housekeeping Practices
- ☒ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☐ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☐ Control Internal Erosion

DESCRIPTION:
Temporary on-site sanitary facilities for construction personnel.

APPLICATION:
All sites with no permanent sanitary facilities or where permanent facility is too far from activities.

INSTALLATION/APPLICATION CRITERIA:
- Locate portable toilets in convenient locations throughout the site.
- Prepare level, gravel surface and provide clear access to the toilets for servicing and for on-site personnel.
- Construct earth berm perimeter (See Earth Berm Barrier Information Sheet), control for spill/protection leak.

LIMITATIONS:
No limitations.

MAINTENANCE:
- Portable toilets should be maintained in good working order by licensed service with daily observation for leak detection.
- Regular waste collection should be arranged with licensed service.
- All waste should be deposited in sanitary sewer system for treatment with appropriate agency approval.

TARGETED POLLUTANTS

- ☐ Sediment
- ☐ Nutrients
- ☐ Toxic Materials
- ☐ Oil & Grease
- ☐ Floatable Materials
- ■ Other Waste

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

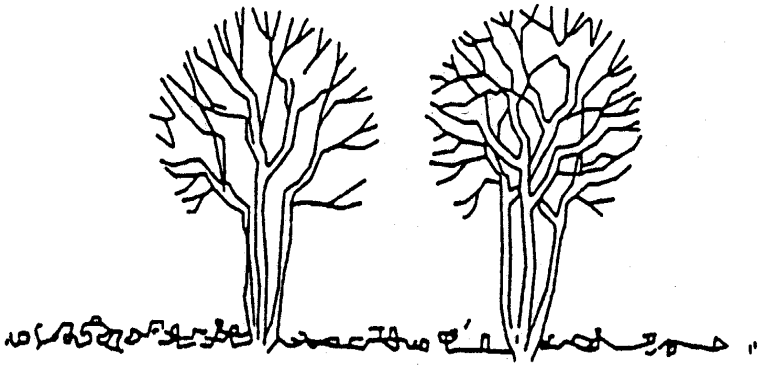
IMPLEMENTATION REQUIREMENTS

- ☒ Capital Costs
- ☒ O&M Costs
- ☒ Maintenance
- ☐ Training

■ High	☒ Medium	☐ Low

BMP: Preservation of Existing Vegetation

PEV



OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☒ Minimize Disturbed Areas
- ☒ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☒ Control Site Perimeter
- ☐ Control Internal Erosion

GENERAL DESCRIPTION:

Carefully planned preservation of existing vegetation minimizes the potential of removing or injuring existing trees, vines, shrubs and/or grasses that serve as erosion controls.

APPLICATIONS:

This technique is applicable to all types of sites. Areas where preserving vegetation can be particularly beneficial are floodplains, wetlands, stream banks, steep slopes, and other areas where erosion controls would be difficult to establish, install, or maintain.

INSTALLATION/APPLICATION CRITERIA:

- Clearly mark, flag or fence vegetation or areas where vegetation should be preserved.
- Prepare landscaping plans which include as much existing vegetation as possible and state proper care during and after construction.
- Define and protect with berms, fencing, signs, etc. a setback area from vegetation to be preserved.
- Propose landscaping plans which do not include plant species that compete with the existing vegetation.
- Do not locate construction traffic routes, spoil piles, etc. where significant adverse impact on existing vegetation may occur.

LIMITATIONS:

- Requires forward planning by the owner/developer, contractor and design staff.
- For sites with diverse topography, it is often difficult and expensive to save existing trees while grading the site satisfactorily for the planned development.
- May not be cost effective with high land costs.

MAINTENANCE:

- Inspection and maintenance requirements for protection of vegetation are low.
- Maintenance of native trees or vegetation should conform to landscape plan specifications.

TARGETED POLLUTANTS

- ■ Sediment
- ☐ Nutrients
- ☐ Toxic Materials
- ☐ Oil & Grease
- ☐ Floatable Materials
- ☐ Other Waste

- ■ High Impact
- ☒ Medium Impact
- ☐ Low or Unknown Impact

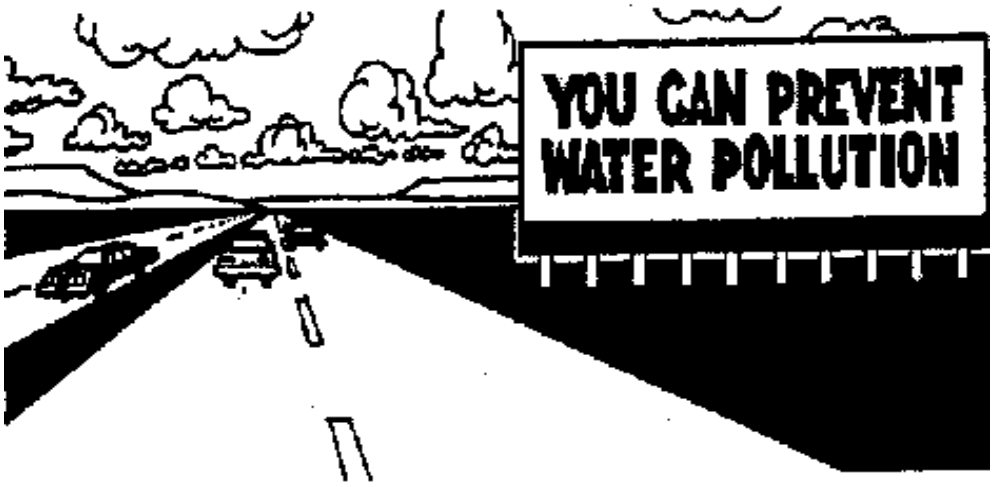
IMPLEMENTATION REQUIREMENTS

- ☐ Capital Costs
- ☐ O&M Costs
- ☐ Maintenance
- ☐ Training

■ High ☒ Medium ☐ Low

BMP: Public Education/Participation

PEP



PROGRAM ELEMENTS

- ☐ New Development
- ☒ Residential
- ☒ Commercial Activities
- ☐ Industrial Activities
- ☒ Municipal Facilities
- ☒ Illegal Discharges

DESCRIPTION:

Public education/participation, like an ordinance or a piece of equipment, is not so much a best management practice as it is a method by which to implement BMPs. This information sheet highlights the importance of integrating elements of public education and participation into a municipality's overall plan for stormwater quality management.

A public education and participation plan provides the municipality with a strategy for educating its employees, the public, and businesses about the importance of protecting stormwater from improperly used, stored, and disposed of pollutants. Municipal employees must be trained, especially those that work in departments not directly related to stormwater but whose actions affect stormwater. Residents must become aware that a variety of hazardous products are used in the home and that their improper use and disposal can pollute stormwater. Increased public awareness also facilitates public scrutiny of industrial and municipal activities and will likely increase public reporting of incidents.

APPROACH:

- Pattern a new program after the many established programs around the country.
- Implement public education/participation as a coordinated campaign in which each message is related to the last.
- Present a clear and consistent message and image to the public regarding how they contribute to stormwater pollution and what they can do to reduce it.
- Utilize multi-media to reach the full range of audiences.
- Translate messages into the foreign languages of the community to reach the full spectrum of your populace and to avoid misinterpretation of messages.
- Create an awareness and identification with the local watershed.
- Use everyday language in all public pieces. Use outside reviewers to highlight and reduce the use of technical terminology, acronyms, and jargon.
- Make sure all statements have a sound, up-to-date technical basis. Do not contribute to the spread of misinformation.
- Break complicated subjects into smaller more simple concepts. Present these concepts to the public in a metered and organized way to avoid "overloading" and confusing the audience.

LIMITATIONS:

None.

TARGETED POLLUTANTS

- ■ Sediment
- ■ Nutrients
- ■ Heavy Metals
- ■ Toxic Materials
- ■ Oxygen Demanding Substances
- ■ Oil & Grease
- ■ Floatable Materials
- ■ Bacteria & Viruses

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- ■ Capital Costs
- ☒ O&M Costs
- ☐ Regulatory
- ☒ Training
- ☒ Staffing
- ☒ Administrative

■ High ☒ Medium ☐ Low

BMP: Riprap

RR

CONSIDERATIONS

☒ Soils
☒ Area Required
☒ Slope
☐ Water Availability
☒ Aesthetics
☐ Hydraulic Head
☒ Environmental Side Effects

DESCRIPTION:

Riprap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated runoff. Riprap may also be used to stabilize slopes that are unstable because of seepage problems.

APPLICATION:

- Riprap is normally used at locations where erosive forces from water flow exceed the ability of the soil or vegetative cover to resist those forces.
- Riprap can be used for pipe outlet protection, channel lining, scour protection, etc.
- Riprap is commonly used for wave protection on lakes.

INSTALLATION/APPLICATION CRITERIA:

- For slopes steeper than 2:1, consider using materials other than riprap for erosion protection.
- If riprap is being planned for the bottom of a permanently flowing channel, the bottom can be modified to enhance fish habitat. This can be done by constructing riffles and pools which simulate natural conditions.
- When working within flowing streams, measures should be taken to prevent excessive turbidity and erosion during construction. Bypassing base flows or temporarily blocking base flows are two possible methods. Work should be done during a period of low flow.

In designing riprap consider the following:

- Use durable rock, such as granite, and a variety of rock sizes.
- The thickness of riprap layers should be at least 1.25 times the max. stone diameter.
- Filter material is usually required between riprap and the underlying soil surface.

LIMITATIONS:

- Riprap may be unstable on very steep slopes.
- The placement of a riprap in streams requires a state stream alteration permit.

MAINTENANCE:

- Riprap should be inspected annually and after major storms.
- If riprap has been damaged, repairs should be made promptly to prevent a progressive failure.
- If repairs are needed repeatedly at one location, the site should be evaluated to see if original design conditions have changed.

TARGETED POLLUTANTS

☒ Sediment
☐ Nutrients
☐ Heavy Metals
☐ Toxic Materials
☐ Oxygen Demanding Substances
☐ Oil & Grease
☐ Floatable Materials
☐ Bacteria & Viruses

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

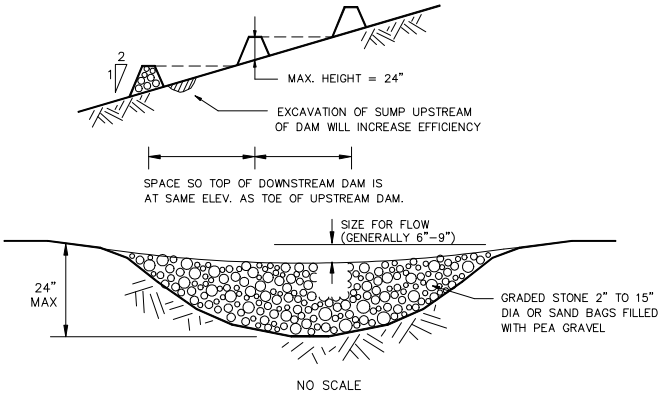
IMPLEMENTATION REQUIREMENTS

☒ Capital Costs
☒ O&M Costs
☒ Maintenance
☐ Training

■ High ☒ Medium ☐ Low

BMP: Rock Check Dams

CD



OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☒ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☐ Control Internal Erosion

DESCRIPTION:

A small, temporary dam constructed across a drainage ditch to reduce velocity of concentrated storm water flows, thereby reducing the erosion of the ditch.

APPLICATION:

- Temporary drainage paths
- Permanent drainage ways not yet stabilized
- Existing drainage paths receiving increased flows due to construction

INSTALLATION/APPLICATION CRITERIA:

- Prepare location of dam by removing any debris and rough grading any irregularities in channel bottom
- Place rocks by hand or with appropriate machinery, do not dump
- Construct dam with center lower to pass design flow
- Construct 50% side slopes on dam

LIMITATIONS:

- Maximum recommended drainage area is 10 acres
- Maximum recommended height is 24"
- Do not use in running stream

MAINTENANCE:

- Inspect dams daily during prolonged rainfall, after each major rain event and at a minimum of once monthly.
- Remove any large debris and repair any damage to dam, channel or sideslopes
- Remove accumulated sediment when it reaches one half the height of the dam

TARGETED POLLUTANTS

- ■ Sediment
- ☐ Nutrients
- ☐ Toxic Materials
- ☐ Oil & Grease
- ☐ Floatable Materials
- ☐ Other Waste

- ■ High Impact
- ☒ Medium Impact
- ☐ Low or Unknown Impact

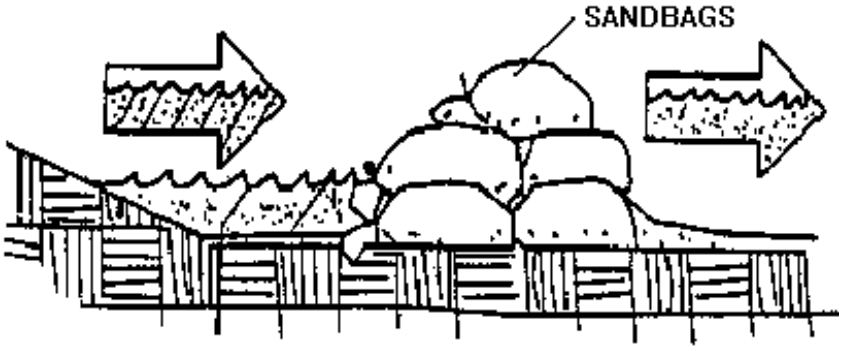
IMPLEMENTATION REQUIREMENTS

- ☒ Capital Costs
- ☐ O&M Costs
- ☒ Maintenance
- ☐ Training

■ High ☒ Medium ☐ Low

BMP: Sand Bag Barrier

SBB



OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☒ Control Site Perimeter
- ☒ Control Internal Erosion

DESCRIPTION:

Stacking sand bags along a level contour creates a barrier which detains sediment-laden water, ponding water upstream of the barrier and promoting sedimentation.

APPLICATION:

- Along the perimeter of the site.
- May be used in drainage areas up to 5 acres.
- Along streams and channels
- Across swales with small catchments.
- Around temporary spoil areas.
- Below the toe of a cleared slope.

INSTALLATION/APPLICATION CRITERIA:

- Install along a level contour.
- Base of sand bag barrier should be at least 48 inches wide.
- Height of sand bag barrier should be at least 18 inches high.
- 4 inch PVC pipe may be installed between the top layer of sand bags to drain large flood flows.
- Provide area behind barrier for runoff to pond and sediment to settle.
- Place below the toe of a slope.

LIMITATIONS:

- Sand bags are more expensive than other barriers, but also more durable.
- Burlap should not be used.

MAINTENANCE:

- Inspect after each rain.
- Reshape or replace damaged sand bags immediately.
- Replace sediment when it reaches six inches in depth.

TARGETED POLLUTANTS

- ■ Sediment
- ☐ Nutrients
- ☐ Toxic Materials
- ☐ Oil & Grease
- ☐ Floatable Materials
- ☐ Other Waste

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

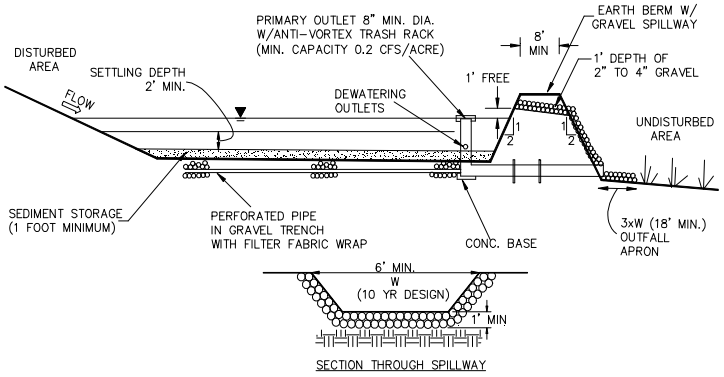
IMPLEMENTATION REQUIREMENTS

- ■ Capital Costs
- ☐ O&M Costs
- ☐ Maintenance
- ☐ Training

■ High	☒ Medium	☐ Low

BMP: Sediment Basin

SB



OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☐ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☒ Control Internal Erosion

DESCRIPTION:

A pond created by excavation or construction of an embankment, and designed to retain or detain runoff sufficiently to allow excessive sediment to settle.

APPLICATION:

- At the outlet of all disturbed watersheds 10 acres or larger.
- At the outlet of smaller disturbed watersheds, as necessary.
- Where post construction detention basins will be located.

INSTALLATION/APPLICATION CRITERIA:

- Design basin for site specific location, maintain effective flow length 2 times width.
- Excavate basin or construct compacted berm containment, ensure no downgradient hazard if failure should occur. (Provide minimum of 67 cy. per acre of drainage area).
- Construct dewatering and outfall structure and emergency spillway with apron.

LIMITATIONS:

- Should be sized based on anticipated runoff, sediment loading and drainage area size.
- May require silt fence at outlet for entrapment of very fine silts and clays.
- May require safety fencing to prevent public access.
- Height restrictions for embankment regulated by Utah Division of Dam Safety.

MAINTENANCE:

- Inspect after each rainfall event and at a minimum of monthly.
- Repair any damage to berm, spillway or sidewalls.
- Remove accumulated sediment as it reaches 2/3 height of available storage.
- Check outlet for sedimentation/erosion of downgradient area and remediate as necessary. Install silt fence if sedimentation apparent.

TARGETED POLLUTANTS

- ■ Sediment
- ☐ Nutrients
- ☒ Toxic Materials
- ☐ Oil & Grease
- ☒ Floatable Materials
- ☐ Other Waste

- ■ High Impact
- ☒ Medium Impact
- ☐ Low or Unknown Impact

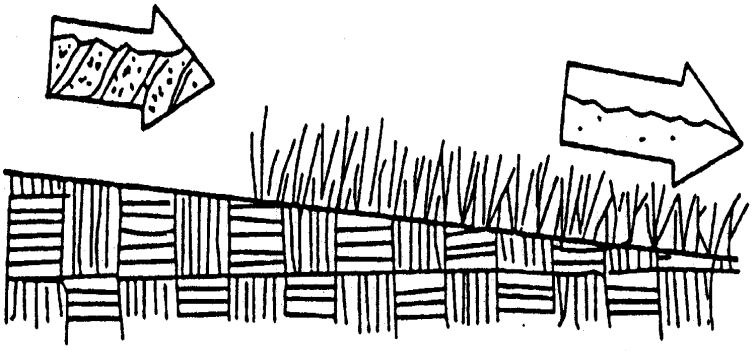
IMPLEMENTATION REQUIREMENTS

- ■ Capital Costs
- ☒ O&M Costs
- ☒ Maintenance
- ☐ Training

■ High ☒ Medium ☐ Low

BMP: Seeding and Planting

SP



OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☒ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☐ Control Internal Erosion

DESCRIPTION:

Seeding of grass and plantings of trees, shrubs, vines and ground covers provide long-term stabilization of soil. In some areas, with suitable climates, grasses can be planted for temporary stabilization.

APPLICATION:

- Appropriate for site stabilization both during construction and post-construction.
- Any graded/cleared areas where construction activities have ceased.
- Open space cut and fill areas.
- Steep slopes, spoil piles, vegetated swales, landscape corridors, stream banks.

INSTALLATION/APPLICATION CRITERIA:

Type of vegetation, site and seedbed preparation, planting time, fertilization and water requirements should be considered for each application.

Grasses:

- Ground preparation: fertilize and mechanically stabilize the soil.
- Tolerant of short-term temperature extremes and waterlogged soil composition.
- Appropriate soil conditions: shallow soil base, good drainage, slope 2:1 or flatter.
- Mowing, irrigating, and fertilizing are vital for promoting vigorous grass growth.

Trees and Shrubs:

- Selection criteria: vigor, species, size, shape & wildlife food source.
- Soil conditions: select species appropriate for soil, drainage & acidity.
- Other factors: wind/exposure, temperature extremes, and irrigation needs.

Vines and Ground Covers:

- Ground preparation: lime and fertilizer preparation.
- Use proper seeding rates.
- Appropriate soil conditions: drainage, acidity and slopes.
- Generally avoid species requiring irrigation.

LIMITATIONS:

- Permanent and temporary vegetation may not be appropriate in dry periods without irrigation.
- Fertilizer requirements may have potential to create stormwater pollution.

MAINTENANCE:

- Shrubs and trees must be adequately watered and fertilized and if needed pruned.
- Grasses may need to be watered and mowed.

TARGETED POLLUTANTS

- ■ Sediment
- ☒ Nutrients
- ☒ Toxic Materials
- ☐ Oil & Grease
- ☐ Floatable Materials
- ☐ Other Waste

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- ☒ Capital Costs
- ☒ O&M Costs
- ☒ Maintenance
- ☐ Training

■ High	☒ Medium	☐ Low

BMP: Septic Systems Controls

SSC

Many times an aged or failing septic system requires tank replacement (Source: Texas A&M University, 1995)

APPLICATIONS

- ☐ Manufacturing
- ☐ Material Handling
- ☐ Vehicle Maintenance
- ☒ Construction
- ☒ Commercial Activities
- ☐ Roadways
- ☒ Waste Containment
- ☒ Housekeeping Practices

DESCRIPTION:

Prevent new septic systems from failing, detect and correct existing systems that have been failing by educating homeowners installers and inspectors about proper operation and maintenance of septic systems.

APPROACH:

- Educational outreach and training help to avoid system failures for owners of both new and existing systems.
- Septic systems should be located to ensure a horizontal distance from surface waters and vertical separation from ground water.
- The proper sizing of a system is necessary to avoid hydraulic overloading.
- In some cases, modifications to septic systems may be necessary in order to ensure proper treatment of wastewater discharges. Household chemicals can kill the bacteria that make the system work and non-degradable materials (cigarette butts, etc.) can clog the system.
- A septic system management program of scheduled pumpouts and regular maintenance is the best way to reduce the possibility of failure for currently operating systems.
- Proper siting and post-construction inspection will work to prevent new systems from failing.

LIMITATIONS:

- Reliance on individual on-site inspection to detect failed systems is another major limitation. The individual on-site inspection is very labor-intensive and requires access to private property to pinpoint the exact location of the failing system.
- Perhaps the biggest limitation to correcting failing septic systems is the lack of techniques for detecting individual failed systems.
- Once a septic system has been identified as failing, procedures must be in place to replace that system. The cost to replace a septic system typically ranges between $3,000 and $7,000 per unit (NSFC, 1999),

MAINTENANCE:

- Periodic maintenance of on-site systems is necessary to ensure their proper functioning. Since many homeowners do not employ these routine maintenance practices, it may be necessary for agencies to establish programs to track pumpouts and maintenance requirements.

TARGETED POLLUTANTS

- ☐ Sediment
- ■ Nutrients
- ☐ Heavy Metals
- ■ Toxic Materials
- ■ Oxygen Demanding Substances
- ☐ Oil & Grease
- ☐ Floatable Materials
- ■ Bacteria & Viruses

- ■ High Impact
- ☒ Medium Impact
- ☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- ☒ Capital Costs
- ☒ O&M Costs
- ☒ Maintenance
- ☒ Training

■ High ☒ Medium ☐ Low

BMP: Service Group Participation

SGP

APPLICATIONS

☒ Manufacturing
■ Material Handling
☒ Vehicle Maintenance
☒ Construction
☒ Commercial Activities
☒ Roadways
■ Waste Containment
☒ Housekeeping Practices

DESCRIPTION:

Citizens of the local community can volunteer to carry out various service projects. These projects allow citizens to become directly involved in improving the community.

APPROACH:

- Designate an individual or groups of individuals to schedule and organize the service projects, recruit volunteers, coordinate any trash disposal with the local solid waste authority, and assign staff for supervision of the projects.
- The first step for a municipally sponsored service program is to identify needed service projects.
- Advertise the program and let citizens know about service project opportunities. Projects can be advertised on bulletin boards, in a newsletter, on a website, etc.
- When volunteers are being used for service projects, municipalities must address the issue of liability. An attorney should be consulted to determine how liability should be handled and draft a waiver for volunteers to sign before participating.
- Service events are also effective at increasing public awareness of the need to better the community.

LIMITATIONS:

- Organization at the municipal level is a limitation to service project efforts. Some municipalities do not have the resources to designate staff to oversee a service project program and to supervise the projects.
- Limitations to an effective service group program are volunteer interest and commitment.

MAINTENANCE:

- Service project lists need to be updated continually.

TARGETED POLLUTANTS

☒ Sediment
☒ Nutrients
■ Heavy Metals
■ Toxic Materials
☒ Oxygen Demanding Substances
☒ Oil & Grease
■ Floatable Materials
☐ Bacteria & Viruses

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

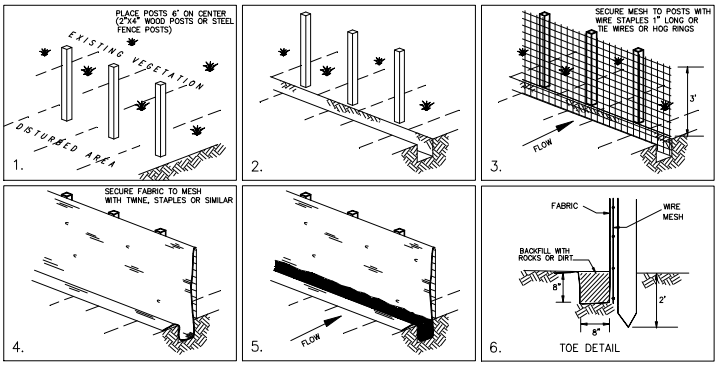
IMPLEMENTATION REQUIREMENTS

☒ Capital Costs
☒ O&M Costs
☐ Maintenance
☐ Training

■ High ☒ Medium ☐ Low

BMP: Silt Fence

SF



OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☒ Control Site Perimeter
- ☒ Control Internal Erosion

DESCRIPTION:

A temporary sediment barrier consisting of entrenched filter fabric stretched across and secured to supporting posts.

APPLICATION:

- Perimeter control: place barrier at downgradient limits of disturbance
- Sediment barrier: place barrier at toe of slope or soil stockpile
- Protection of existing waterways: place barrier at top of stream bank
- Inlet protection: place fence surrounding catchbasins

INSTALLATION/APPLICATION CRITERIA:

- Place posts 6 feet apart on center along contour (or use preassembled unit) and drive 2 feet minimum into ground. Excavate an anchor trench immediately upgradient of posts.
- Secure wire mesh (14 gage min. With 6 inch openings) to upslope side of posts. Attach with heavy duty 1 inch long wire staples, tie wires or hog rings.
- Cut fabric to required width, unroll along length of barrier and drape over barrier. Secure fabric to mesh with twine, staples, or similar, with trailing edge extending into anchor trench.
- Backfill trench over filter fabric to anchor.

LIMITATIONS:

- Recommended maximum drainage area of 0.5 acre per 100 feet of fence
- Recommended maximum upgradient slope length of 150 feet
- Recommended maximum uphill grade of 2:1 (50%)
- Recommended maximum flow rate of 0.5 cfs
- Ponding should not be allowed behind fence

MAINTENANCE:

- Inspect immediately after any rainfall and at least daily during prolonged rainfall.
- Look for runoff bypassing ends of barriers or undercutting barriers.
- Repair or replace damaged areas of the barrier and remove accumulated sediment.
- Reanchor fence as necessary to prevent shortcutting.
- Remove accumulated sediment when it reaches ½ the height of the fence.

TARGETED POLLUTANTS

- ■ Sediment
- ☐ Nutrients
- ☐ Toxic Materials
- ☐ Oil & Grease
- ☐ Floatable Materials
- ☐ Other Waste

- ■ High Impact
- ☒ Medium Impact
- ☐ Low or Unknown Impact

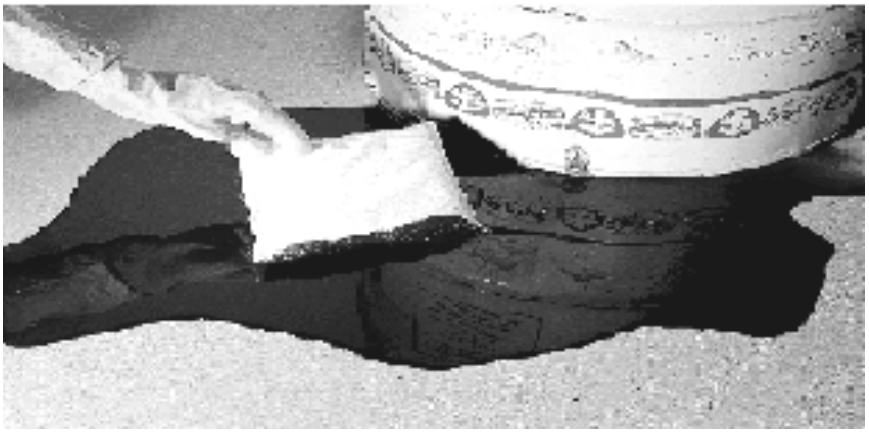
IMPLEMENTATION REQUIREMENTS

- ☒ Capital Costs
- ☒ O&M Costs
- ☒ Maintenance
- ☐ Training

■ High ☒ Medium ☐ Low

BMP: Sorbents

SO



CONSIDERATIONS

- ☐ Soils
- ☐ Area Required
- ☐ Slope
- ☐ Water Availability
- ☐ Aesthetics
- ☐ Hydraulic Head
- ☒ Environmental Side Effects

DESCRIPTION:

Sorbents are materials that are capable of cleaning up spills through the chemical processes of adsorption and absorption. Sorbents adsorb (an attraction to the outer surface of a material) or absorb (taken in by the material like a sponge) only when they come in contact with the sorbent materials.

Sorbents include, but are not limited to, the following:

- Common materials such as clays, sawdust, straw and fly ash
- Polymers - polyurethane and polyolefin
- Activated Carbon - powdered or granular
- "Universal Sorbent Material" - a silicate glass foam consisting of rounded particles that can absorb the material.

APPLICATION:

Sorbents are useful BMPs for facilities with liquid materials onsite.

INSTALLATION/APPLICATION CRITERIA:

- Personnel should know the properties of the spilled material(s) to know which sorbent is appropriate. To be effective, sorbents must adsorb the material spilled but must not react with the spilled material to form hazardous or toxic substances.
- Apply immediately to the release area.
- Application is generally simple: the sorbent is added to the area of release, mixed well, and allowed to adsorb or absorb.
- Many sorbents are not reusable once they have been used.
- Proper disposal is required.

LIMITATIONS:

- Requires a knowledge of the chemical makeup of a spill (to choose the best sorbent).
- May be an expensive practice for large spills.
- May create disposal problems and increase disposal costs by creating a solid waste and potentially a hazardous waste.

MAINTENANCE:

No information available.

TARGETED POLLUTANTS

- ☐ Sediment
- ☐ Nutrients
- ☒ Heavy Metals
- ■ Toxic Materials
- ☒ Oxygen Demanding Substances
- ☒ Oil & Grease
- ☐ Floatable Materials
- ☐ Bacteria & Viruses

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- ☒ Capital Costs
- ☐ O&M Costs
- ☐ Maintenance
- ☒ Training

■ High ☒ Medium ☐ Low

BMP: Spill Clean-Up

SCU

OBJECTIVES

- ☒ Housekeeping Practices
- ☒ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☐ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☐ Control Internal Erosion

DESCRIPTION:
Practices to clean-up leakage/spillage of on-site materials that may be harmful to receiving waters.

APPLICATION:
All sites

GENERAL:
- Store controlled materials within a storage area.
- Educate personnel on prevention and clean-up techniques.
- Designate an Emergency Coordinator responsible for employing preventative practices and for providing spill response.
- Maintain a supply of clean-up equipment on-site and post a list of local response agencies with phone numbers.

METHODS:
- Clean-up spills/leaks immediately and remediate cause.
- Use as little water as possible. NEVER HOSE DOWN OR BURY SPILL CONTAMINATED MATERIAL.
- Use rags or absorbent material for clean-up. Excavate contaminated soils. Dispose of clean-up material and soil as hazardous waste.
- Document all spills with date, location, substance, volume, actions taken and other pertinent data.
- Contact local Fire Department and State Division of Environmental Response and Remediation (Phone #536-4100) for any spill of reportable quantity.

TARGETED POLLUTANTS

- ☐ Sediment
- ☐ Nutrients
- ■ Toxic Materials
- ☒ Oil & Grease
- ☐ Floatable Materials
- ☐ Other Waste

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- ☒ Capital Costs
- ☐ O&M Costs
- ☐ Maintenance
- ■ Training

■ High	☒ Medium	☐ Low

BMP: Storm Channel/Creek Maintenance

SCCM

PROGRAM ELEMENTS

☒ New Development
☐ Residential
☐ Commercial Activities
☐ Industrial Activities
☒ Municipal Facilities
☒ Illegal Discharges

DESCRIPTION:
Reduce pollutant levels in storm water by removing illegally dumped items and material from storm drainage channels and creeks. Modify channel characteristics to enhance pollutant removal and/or hydraulic capacity.

APPROACH:
- Identify illegal dumping hot spots; regular inspection and clean up of hot spots and other storm drainage areas where illegal dumping and disposal occurs.
- Post "No Littering" signs with a phone number for reporting a dumping in-progress.
- Adopt and enforce substantial penalties for illegal dumping and disposal.
- Modify storm channel characteristics to improve channel hydraulics, to increase pollutant removals, and to enhance channel/creek aesthetics and habitat value.
- Maintain accurate logs to evaluate materials removed and improvements made.

LIMITATIONS:
- Clean-up activities may create a slight disturbance for local aquatic species.
- Access to items and material on private property may be limited.
- Trade-offs may exist between channel hydraulics and water quality/riparian habitat.
- Worker/public safety may be at risk in crime-ridden areas.
- If storm channels or basins are recognized as wetlands, many activities, including maintenance, may be subject to regulation.

TARGETED POLLUTANTS

■ Sediment
☒ Nutrients
☒ Heavy Metals
☐ Toxic Materials
☒ Oxygen Demanding Substances
☒ Oil & Grease
■ Floatable Materials
☐ Bacteria & Viruses

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

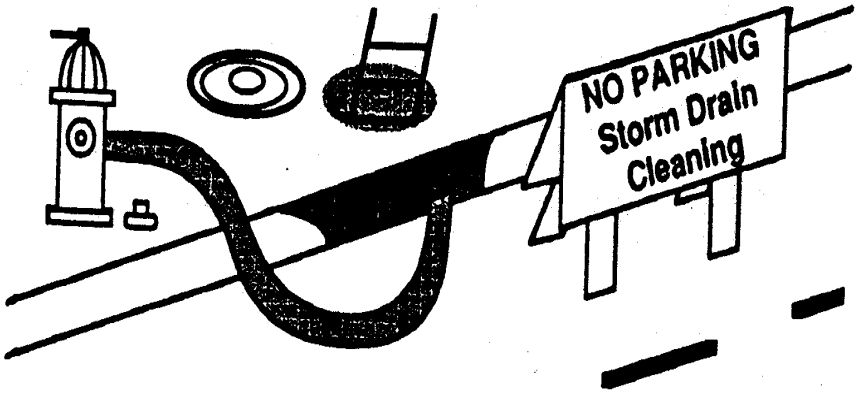
IMPLEMENTATION REQUIREMENTS

☐ Capital Costs
☒ O&M Costs
☒ Regulatory
☒ Training
☒ Staffing
☐ Administrative

■ High ☒ Medium ☐ Low

BMP: Storm Drain Flushing

SDF



PROGRAM ELEMENTS

- ☐ New Development
- ☐ Residential
- ☐ Commercial Activities
- ☐ Industrial Activities
- ☒ Municipal Facilities
- ☐ Illegal Discharges

DESCRIPTION:

A storm drain is "flushed" with water to suspend and remove deposited materials. Flushing is particularly beneficial for storm drain pipes with grades too flat to be self-cleansing. Flushing helps ensure pipes convey design flow and remove pollutants from the storm drain system.

APPROACH:

- Locate reaches of storm drain with deposit problems and develop a flushing schedule that keeps the pipe clear of excessive buildup.
- Whenever possible, flushed effluent should be collected, decanted, evaporated, and disposed of in a landfill.

LIMITATIONS:

- Most effective in small diameter pipes (36-inch diameter pipe or less, depending on water supply and sediment collection capacity).
- Water source must be available.
- May have difficulty finding downstream area to collect sediments.
- Requires liquid/sediment disposal.

TARGETED POLLUTANTS

- ■ Sediment
- ☒ Nutrients
- ☒ Heavy Metals
- ☐ Toxic Materials
- ☒ Oxygen Demanding Substances
- ☐ Oil & Grease
- ☐ Floatable Materials
- ■ Bacteria & Viruses

- ■ High Impact
- ☒ Medium Impact
- ☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- ☒ Capital Costs
- ■ O&M Costs
- ☐ Regulatory
- ☒ Training
- ■ Staffing
- ☐ Administrative

■ High ☒ Medium ☐ Low

BMP: Storm Drain System Signs

SDSS

PROGRAM ELEMENTS

☒ New Development
☒ Residential
☒ Commercial Activities
☒ Industrial Activities
☒ Municipal Facilities
☒ Illegal Discharges

DESCRIPTION:
Stenciling of the storm drain system (inlets, catch basins, channels, and creeks) with prohibitive language/graphic icons discourages the illegal dumping of unwanted materials.

APPROACH:
- Create a volunteer work force to stencil storm drain inlets.
- An important aspect of a stenciling program is the distribution of informational flyers that educate the neighborhood (business and residential) about storm water pollution, the storm drain system, and the watershed. The flyers should also provide information on alternatives such as recycling, household hazardous waste disposal, and safer products.
- Because a stenciling program primarily involves volunteer services, liability release forms and volunteer identification notices should also be administered.
- Readability of stencils is critical to their effectiveness. Wherever possible stencils should be painted on a smooth surface such as cement, as opposed to asphalt.
- Use municipal staff to erect signs near drainage channels and creeks.
- An effectively implemented stenciling program encourages change in personal behavior and helps minimize non-point source pollutants from entering the storm drain system. An additional benefit is that waste and catch basin maintenance is minimized through the reduction of disposed materials into storm drain inlets. Finally a well-implemented stenciling program encourages the use of household hazardous waste collection and used oil recycling programs.

LIMITATIONS:
- Private property access limits stenciling to publicly-owned areas.
- Program is highly dependent on volunteer response.
- Storm drain inlets that are physically blocked will be missed or require follow-up.
- High traffic/commercial/industrial zones are the responsibility of city staff.
- Ongoing maintenance is needed to maintain readable signs.

TARGETED POLLUTANTS

■ Sediment
■ Nutrients
☐ Heavy Metals
■ Toxic Materials
■ Oxygen Demanding Substances
■ Oil & Grease
■ Floatable Materials
☐ Bacteria & Viruses

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

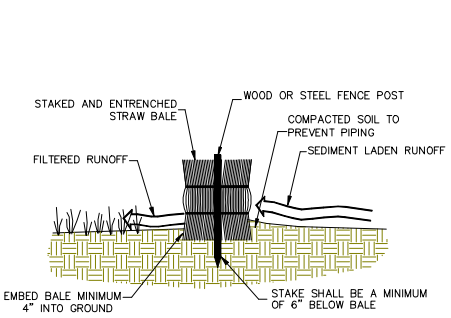
IMPLEMENTATION REQUIREMENTS

☐ Capital Costs
☒ O&M Costs
☐ Regulatory
☒ Training
☐ Staffing
☐ Administrative

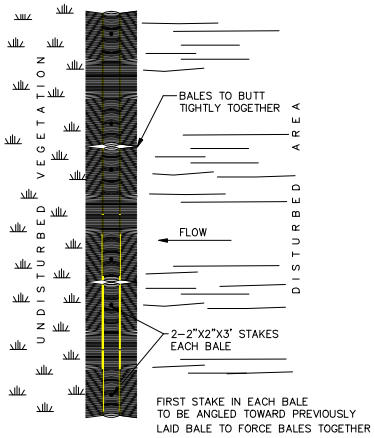
■ High ☒ Medium ☐ Low

BMP: Straw Bale Barrier

STB



SECTION



PLAN

OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☒ Control Site Perimeter
- ☒ Control Internal Erosion

DESCRIPTION:

Temporary sediment barrier consisting of a row of entrenched and anchored straw bales.

APPLICATION:

- Perimeter Control: place barrier at downgradient limits of disturbance.
- Sediment barrier: place barrier at toe of slope or soil stockpile.
- Protection of existing waterways: place barrier at top of stream bank.
- Inlet Protection.

INSTALLATION/APPLICATION CRITERIA:

- Excavate a 4-inch minimum deep trench along contour line, i.e. parallel to slope, removing all grass and other material that may allow underflow.
- Place bales in trench with ends tightly abutting, fill any gaps by wedging loose straw into openings.
- Anchor each bale with 2 stakes driven flush with the top of the bale.
- Backfill around bale and compact to prevent piping, backfill on uphill side to be built up 4-inches above ground at the barrier.

LIMITATIONS:

- Recommended maximum area of 0.5 acre per 100 feet of barrier
- Recommended maximum upgradient slope length of 150 feet
- Recommended maximum uphill grade of 2:1 (50%)

MAINTENANCE:

- Inspect immediately after any rainfall and at least daily during prolonged rainfall.
- Look for runoff bypassing ends of barriers or undercutting barriers.
- Repair or replace damaged areas of the barrier and remove accumulated sediment.
- Realign bales as necessary to provide continuous barrier and fill gaps.
- Recompact soil around barrier as necessary to prevent piping.

TARGETED POLLUTANTS

- ■ Sediment
- ☐ Nutrients
- ☐ Toxic Materials
- ☐ Oil & Grease
- ☐ Floatable Materials
- ☐ Other Waste

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- ☒ Capital Costs
- ☐ O&M Costs
- ☒ Maintenance
- ☐ Training

■ High	☒ Medium	☐ Low

BMP: Stream Cleanup and Monitoring

SCM

People can become involved in pollution prevention by volunteering to clean up streams (Source: Water Action Volunteers, 1998)

APPLICATIONS

☒ Manufacturing
■ Material Handling
☒ Vehicle Maintenance
☒ Construction
☒ Commercial Activities
☐ Roadways
■ Waste Containment
☒ Housekeeping Practices

DESCRIPTION:

Many people are unaware that most storm drains discharge untreated waters directly into local water bodies. A stream cleanup allows concerned citizens to become directly involved in water pollution prevention. Participants volunteer to walk (or paddle) the length of the stream or river, collecting trash and recording information about the quantity and types of garbage that has been removed.

APPROACH:

- Designating an individual or groups of individuals to schedule and organize the cleanup projects, recruit volunteers, coordinate trash disposal with the local solid waste authority, and assign staff for supervision of the projects.
- The first step for a municipally sponsored stream cleanup program is to identify cleanup sites
- Advertise the program and let service groups know about cleanup project opportunities
- When volunteers are being used for cleanup efforts, municipalities must address the issue of liability. An attorney should be consulted to determine how liability should be handled and draft a waiver for volunteers to sign before participating.
- Cleanup events are also effective at increasing public awareness of pollutant sources and fates, especially when knowledgeable municipal staff is on hand to answer questions, describe the water resources, and discuss non-point-source pollution issues with volunteers.
- Implement an "Adopt A Stream" program where volunteers clean up, monitor, protect, and restore a stretch of stream. The adopting group or organization becomes the primary caretaker of that stretch of stream.

LIMITATIONS:

- Organization at the municipal level is a limitation to cleanup efforts. Some municipalities do not have the resources to designate staff to oversee a cleanup program and to supervise cleanup activities.
- Limitations to an effective cleanup program are volunteer interest and commitment.

MAINTENANCE:

- To maintain water quality, cleanup efforts must be recurring; a one-time-only cleanup event might raise awareness in the community, but it will not keep trash out of the river.
- Seasonal or annual cleanup events will help make sure that trash and debris are kept out of the river as much as possible.

TARGETED POLLUTANTS

☒ Sediment
☒ Nutrients
■ Heavy Metals
■ Toxic Materials
☒ Oxygen Demanding Substances
☒ Oil & Grease
■ Floatable Materials
☐ Bacteria & Viruses

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

☐ Capital Costs
☐O&M Costs
☐ Maintenance
☐ Training

■ High ☒ Medium ☐ Low

BMP: Street Cleaning

SC

PROGRAM ELEMENTS

- ☐ New Development
- ☐ Residential
- ☐ Commercial Activities
- ☐ Industrial Activities
- ☒ Municipal Facilities
- ☒ Illegal Discharges

DESCRIPTION:

Reduce the discharges of pollutants to stormwater from street surfaces by conducting street cleaning on a regular basis.

APPROACH:

- Prioritize cleaning to use the most sophisticated sweepers, at the highest frequency, and in areas with the highest pollutant loading.
- Restrict street parking prior to and during sweeping.
- Increase sweeping frequency just before the rainy season.
- Proper maintenance and operation of sweepers greatly increase their efficiency.
- Keep accurate operation logs to track programs.
- Reduce the number of parked vehicles using regulations.
- Sweepers effective at removing smaller particles (less than 10 microns) may generate dust that would lead to concerns over worker and public safety.
- Equipment selection can be key for this particular BMP. There are two types used, the mechanical broom sweepers (more effective at picking up large debris and cleaning wet streets), and the vacuum sweepers (more effective at removing fine particles and associated heavy metals). Many communities find it useful to have a compliment of both types in their fleet.

LIMITATIONS:

- Conventional sweepers are not able to remove oil and grease.
- Mechanical sweepers are not effective at removing finer sediments.
- Effectiveness may also be limited by street conditions, traffic congestion, presence of construction projects, climatic conditions and condition of curbs.

MAINTENANCE:

- Replace worn parts as necessary.
- Install main and gutter brooms of the appropriate weight.

TARGETED POLLUTANTS

- ■ Sediment
- ■ Nutrients
- ■ Heavy Metals
- ☒ Toxic Materials
- ■ Oxygen Demanding Substances
- ☐ Oil & Grease
- ☒ Floatable Materials
- ☐ Bacteria & Viruses

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- ■ Capital Costs
- ■ O&M Costs
- ☒ Regulatory
- ☒ Training
- ■ Staffing
- ☒ Administrative

■ High ☒ Medium ☐ Low

BMP: Temporary and Permanent Seeding

TPS

OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☒ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☐ Control Internal Erosion

DEFINITION:

Temporary seeding - establishment of short term cover by application of rapidly germinating seed mix (alternatively hydroseeding may be utilized).
Permanent seeding - establishment of final term cover by application of perennial seed mix (alternatively sod may be utilized).

APPLICATION:

Disturbed areas that are at final grade and which will not be disturbed by continuing activities on site. Also areas that are not at final grade but which will be left untouched in excess of one year.

RECOMMENDED SEED MIX:

The recommended seed mix will be dependent on site specific information such as elevation, exposure, soils, water available and topography. Check with the County Extension Service for recommended mixes for site specific conditions:

Utah State University Extension Service
2001 South State Street #S1200
Salt Lake City, Utah 84190
phone (801) 468-3170

LIMITATIONS:

- Limited to areas that will not be subject to traffic or high usage.
- May require irrigation and fertilizer which creates potential for impacting runoff quality.
- May only be applied during appropriate planting season, temporary cover required until that time.

INSTALLATION:

- Roughen soil to a depth of 2 inches. Add fertilizer, manure, topsoil as necessary.
- Evenly distribute seed using a commonly accepted method such as; breast seeding, drilling, hydroseeding.
- Use a seed mix appropriate for soil and location that will provide rapid germination and growth. Check with County for recommended mix and application rate.
- Cover area with mulch if required due to steep slopes or unsuitable weather conditions.

MAINTENANCE:

- Provide irrigation as required to establish growth and to maintain plant cover through duration of project.
- Reseed as necessary to provide 75% coverage
- Remediate any areas damaged by erosion or traffic.
- When 75% coverage is achieved inspect monthly for damage and remediate as necessary.

TARGETED POLLUTANTS

- ■ Sediment
- ■ Nutrients
- ☐ Toxic Materials
- ☐ Oil & Grease
- ☐ Floatable Materials
- ☐ Other Waste

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

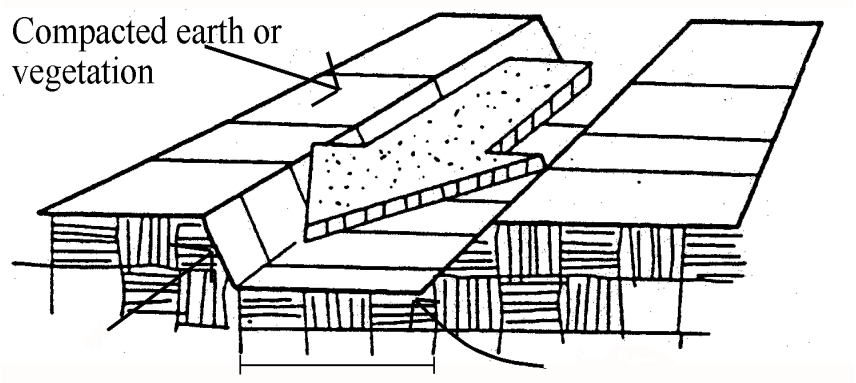
IMPLEMENTATION REQUIREMENTS

- ☒ Capital Costs
- ☐ O&M Costs
- ☒ Maintenance
- ☐ Training

■ High ☒ Medium ☐ Low

BMP: Temporary Drains And Swales

TDS



2 ft (min)
2:1 or flatter
Stabilization

OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☒ Control Site Perimeter
- ☒ Control Internal Erosion

DESCRIPTION:

Temporary drains and swales are used to divert off-site runoff around the construction site, divert runoff from stabilized areas around disturbed areas, and direct runoff into sediment.

APPLICATIONS:

- Temporary drains and swales are appropriate for diverting any upslope runoff around unstabilized or disturbed areas of the construction site.
- Prevent slope failures. Prevent damage to adjacent property. Prevents erosion and transport of sediments into water ways. Increases the potential for infiltration. Diverts sediment-laden runoff into sediment basins or traps.

INSTALLATION/APPLICATION:

- Temporary drainage swales will effectively convey runoff and avoid erosion if built properly:
- Size temporary drainage swales using local drainage design criteria. A permanent drainage channel must be designed by a professional engineer (see the local drainage design criteria for proper design).
- At a minimum, the drain/swale should conform to predevelopment drainage patterns and capacities.
- Construct the drain/swale with an uninterrupted, positive grade to a stabilized outlet. Provide erosion protection or energy dissipation measures if the flow out of the drain or swale can reach an erosive velocity.

LIMITATIONS:

- Temporary drains and swales or any other diversion of runoff should not adversely impact upstream or downstream properties.
- Temporary drains and swales must conform to local floodplain management requirements.

MAINTENANCE:

- Inspect weekly and after each rain.
- Repair any erosion immediately.
- Remove sediment which builds up in the swale and restricts its flow capacity.

TARGETED POLLUTANTS

- ■ Sediment
- ☐ Nutrients
- ☐ Toxic Materials
- ☐ Oil & Grease
- ☐ Floatable Materials
- ☐ Other Waste

- ■ High Impact
- ☒ Medium Impact
- ☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- ☒ Capital Costs
- ☐ O&M Costs
- ☐ Maintenance
- ☐ Training

■ High ☒ Medium ☐ Low

BMP: Used Oil Recycling

UOR

Used oil can be disposed of at a waste collection facility, where it will be collected and later sent to a recycling facility

APPLICATIONS

☒ Manufacturing
☒ Material Handling
☒ Vehicle Maintenance
☒ Construction
☒ Commercial Activities
☐ Roadways
☒ Waste Containment
☒ Housekeeping Practices

DESCRIPTION:

Used motor oil is a hazardous waste because it contains heavy metals picked up from the engine during use. Since it is toxic to humans, wildlife, and plants, it should be disposed of at a local recycling or disposal facility.

APPROACH:

- When establishing oil recycling programs, municipalities should provide the public with the proper informational resources.
- The public can also call 1-800-RECYCLE or contact Earth's 911 at *www.1800cleanup.org/* for more information.
- Municipalities also need to address oil filter recycling in their recycling programs.
- To make recycling motor oil more convenient for the do-it-yourselfers, oil recycling programs should be located throughout all communities.
- Two types of programs currently in use are drop-off locations and curbside collection. Drop-off locations include service stations, recycling centers, auto parts retail stores, quick lubes, and landfills.

LIMITATIONS:

- If oil is mixed with other substances or if storage containers have residues of other substances, this can contaminate oil and make it a hazardous waste.
- It is often difficult to effectively educate the public and convince them of the importance of recycling oil. This limitation can be addressed if municipalities include recycling information in utility bill inserts, newspaper ads, and mailings.

MAINTENANCE:

- Costs for used motor oil recycling programs vary depending on whether a community has already established similar types of recycling programs.
- Major costs associated with oil recycling programs include advertisement costs and oil collection costs.

TARGETED POLLUTANTS

☐ Sediment
☐ Nutrients
■ Heavy Metals
■ Toxic Materials
☐ Oxygen Demanding Substances
■ Oil & Grease
☐ Floatable Materials
☐ Bacteria & Viruses

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

☒ Capital Costs
☒ O&M Costs
☒ Maintenance
☐ Training

■ High ☒ Medium ☐ Low

BMP: Using the Media

UM

Television can be an effective means of informing the public about storm water problems and outreach events

APPLICATIONS

☒ Manufacturing
☒ Material Handling
☒ Vehicle Maintenance
☒ Construction
☒ Commercial Activities
☒ Roadways
☒ Waste Containment
☒ Housekeeping Practices

DESCRIPTION:

The media can be strong allies to a storm water pollution prevention campaign in educating the public about storm water issues. Through the media, a program can educate targeted or mass audiences about problems and solutions, build support for remediation and retrofit projects, or generate awareness and interest in storm water management. Best of all, packaging a storm water message as a news story is virtually free!

APPROACH:

- *Newspapers and Magazines*. Newspapers are powerful vehicles for delivering educational information, policy analyses, public notices, and other messages. Many displays at watershed seminars proudly post newspaper articles on the projects being presented in recognition of the importance and impact of newspaper coverage.
- Newspapers can be accessed in several ways. Depending on the message or event, the appropriate format might be a news release, news advisory, query letter, letter to the editor, or (for urgent, timely information) a news conference
- *Magazines.* Magazines, like newspapers, allow for greater length and analysis than television and provide the additional benefit of targeting specific audiences (e.g., landscapers, automobile mechanics, farmers, or recreationists).
- *Radio*. In spite of the popularity of video, radio remains a strong media contender due to its affordable production costs and creative possibilities. Further, commuters who drive to work spend much time in their vehicles.
- *Television*. Television is the primary source of news for the majority of the population, and local reporters are generally interested in covering environmental stories that pertain to their area.
- Issues will attract television coverage if they Involve local people or issues, Focus on unique or unusual attributes, Affect many people throughout a region, Involve controversy or strong emotions
- *Internet Message*. Increasingly, the Internet is becoming a powerful means of communication. It provides worldwide access to hundreds of thousands of sites containing millions of documents, chat rooms for special interest groups, and incredible database/mapping features.

LIMITATIONS:

- Working with the media is essentially free, but not always.

TARGETED POLLUTANTS

■ Sediment
■ Nutrients
■ Heavy Metals
■ Toxic Materials
■ Oxygen Demanding Substances
■ Oil & Grease
■ Floatable Materials
■ Bacteria & Viruses

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

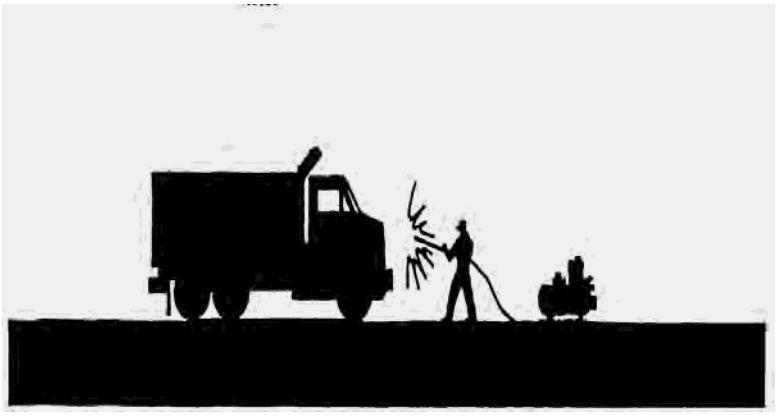
IMPLEMENTATION REQUIREMENTS

☐ Capital Costs
☐ O&M Costs
☐ Maintenance
☐ Training

■ High ☒ Medium ☐ Low

BMP: Vehicle And Equipment Cleaning

VEC



APPLICATIONS

- ☐ Manufacturing
- ☐ Material Handling
- ☒ Vehicle Maintenance
- ☒ Construction
- ☒ Commercial Activities
- ☐ Roadways
- ☐ Waste Containment
- ☒ Housekeeping Practices

DESCRIPTION:

Prevent or reduce the discharge of pollutants to stormwater from vehicle and equipment washing and steam cleaning by using off-site facilities, washing in designated, contained areas only, eliminating discharges to the storm drain by infiltrating or recycling the wash water, and training employees and subcontractors.

APPROACH:

- Use off-site commercial washing and steam cleaning businesses as much as possible. Washing vehicles and equipment outdoors or in areas where wash water flows onto paved surfaces or into drainage pathways can pollute storm water. If you wash a large number of vehicles or pieces of equipment, consider conducting this work at an off-site commercial business. These businesses are better equipped to handle and dispose of the wash waters properly. Performing this work off-site can also be economical by eliminating the need for a separate washing operation at your site.
- If washing must occur on-site, use designated, bermed wash areas to prevent wash water contact with storm water, creeks, rivers, and other water bodies. The wash area can be sloped for wash water collection and subsequent infiltration into the ground.
- Use as little water as possible to avoid having to install erosion and sediment controls for the wash area. Use phosphate-free biodegradable soaps. Educate employees and subcontractors on pollution prevention measures. Do not permit steam cleaning on-site. Steam cleaning can generate significant pollutant concentrations.

LIMITATIONS:

- Even phosphate-free, biodegradable soaps have been shown to be toxic to fish before the soap degrades.
- Sending vehicles/equipment off-site should be done in conjunction with Stabilized Construction Entrance.(See BMP in the Construction Section).
- The measures outlined in this fact sheet are insufficient to address all the environmental impacts and compliance issues related to steam cleaning.

MAINTENANCE:

- Minimal, some berm repair may be necessary.

TARGETED POLLUTANTS

- ■ Sediment
- ■ Nutrients
- ■ Heavy Metals
- ■ Toxic Materials
- ■ Oxygen Demanding Substances
- ■ Oil & Grease
- ☐ Floatable Materials
- ☐ Bacteria & Viruses

- ■ High Impact
- ☒ Medium Impact
- ☐ Low or Unknown Impact

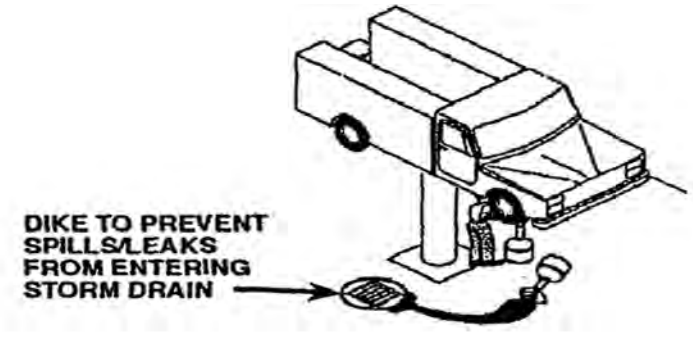
IMPLEMENTATION REQUIREMENTS

- ☒ Capital Costs
- ☐ O&M Costs
- ☐ Maintenance
- ☒ Training

■ High ☒ Medium ☐ Low

BMP: Vehicle And Equipment Maintenance & Repair

VEMR



(INSIDE MAINTENANCE FACILITY)

APPLICATIONS

- ☐ Manufacturing
- ☒ Material Handling
- ☒ Vehicle Maintenance
- ☒ Construction
- ☒ Commercial Activities
- ☐ Roadways
- ☐ Waste Containment
- ☒ Housekeeping Practices

DESCRIPTION:

Prevent or reduce the discharge of pollutants to stormwater from vehicles and equipment maintenance and repair by running a dry shop.

APPROACH:

- Keep equipment clean, don't allow excessive build-up of oil and grease.
- Keep drip pans or containers under the areas that might drip.
- Do not change motor oil or perform equipment maintenance in non-appropriate areas.
- Inspect equipment for leaks on a regular basis.
- Segregate wastes.
- Make sure oil filters are completely drained and crushed before recycling or disposal.
- Make sure incoming vehicles are checked for leaking oil and fluids.
- Clean yard storm drain inlets regularly and especially after large storms.
- Do not pour materials down drains or hose down work areas; use dry seeping.
- Store idle equipment under cover.
- Drain all fluids from wrecked vehicles.
- Recycle greases, used oil or oil filters, antifreeze, cleaning solutions, automotive batteries, hydraulic, and transmission fluids.
- Switch to non-toxic chemicals for maintenance when possible.
- Clean small spills with rags, general clean-up with damp mops and larger spills with absorbent material.
- Paint signs on storm drain inlets to indicate that they are not to receive liquid or solid wastes.
- Train employees, minimize use of solvents.

LIMITATIONS:

- Space and time limitations may preclude all work being conducted indoors.
- It may not be possible to contain and clean up spills from vehicles/equipment brought on-site after working hours.
- Dry pans are generally too small to contain antifreeze, which may gush from some vehicles, so drip pans may have to be purchased or fabricated.
- Dry floor cleaning methods may not be sufficient for some spills.

MAINTENANCE:

Should be low if procedures for the approach are followed.

TARGETED POLLUTANTS

- ☐ Sediment
- ☐ Nutrients
- ■ Heavy Metals
- ■ Toxic Materials
- ☐ Oxygen Demanding Substances
- ■ Oil & Grease
- ☐ Floatable Materials
- ☐ Bacteria & Viruses

- ■ High Impact
- ☒ Medium Impact
- ☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- ☐ Capital Costs
- ☒ O&M Costs
- ☒ Maintenance
- ☒ Training

■ High ☒ Medium ☐ Low

BMP: Watershed Organization

WO

A group of stakeholders meets to discuss important issues affecting their watershed

APPLICATIONS

☒ Manufacturing
☒ Material Handling
☒ Vehicle Maintenance
☒ Construction
☒ Commercial Activities
☒ Roadways
☒ Waste Containment
☒ Housekeeping Practices

DESCRIPTION:

The group can consist of local governments, citizens, nonprofit environmental groups, and local universities, among others. The purpose of a watershed organization is to restore, protect, and promote the natural resources of the watershed. Watershed organization meetings can be in the form of a local storm water management panel, a public meeting, or any type of interactive, information-sharing event.

APPROACH:

- A stakeholder should have a vested interest in solving storm water management problems for the particular water body. Representatives from several local newspapers, radio stations, and television news departments should be included.
- Local businesses that might be effected by storm water fees associated with impervious area would also be good members.
- The municipality must decide how to approach stakeholders. Flyers and media stories can be used to educate stakeholders and to prepare them for a public meeting.
- Rules for conducting the meeting must be agreed upon and can be addressed with the following questions: Will the meeting be facilitated? Will decisions be made by consensus? What approach will the group take?
- A question and answer period and a time for comments should be planned. It is often difficult to get people to speak in public, but it is a good way for them to express their opinions and concerns.
- Watershed organizations typically sponsor such projects as: Field trips and tours, Meetings and workshops, Canoe trips, Volunteer monitoring, Cleanup and restoration days, Educational programs for schools, civic groups, and other local organizations, Media relations, Opinion surveys, Focus groups (CTIC, no date).

LIMITATIONS:

- It takes time and skill to establish partnerships and create an effective watershed organization.
- Limitations include finding an appropriate location and time to meet, costs associated with planning and holding meetings, and keeping the stakeholders organized and focused enough to get items accomplished.

MAINTENANCE:

- Meetings must be continued, and involvement encouraged and subjects focused.

TARGETED POLLUTANTS

☒ Sediment
☒ Nutrients
☒ Heavy Metals
☒ Toxic Materials
☒ Oxygen Demanding Substances
☒ Oil & Grease
☒ Floatable Materials
☒ Bacteria & Viruses

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

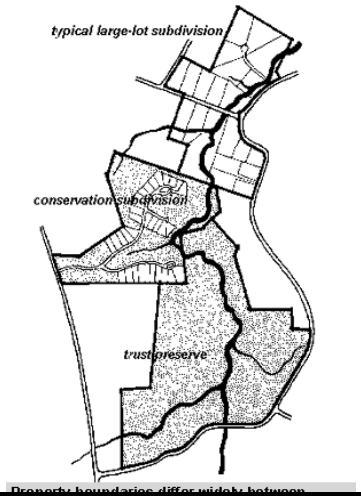
IMPLEMENTATION REQUIREMENTS

☒ Capital Costs
☐ O&M Costs
☐ Maintenance
☒ Training

■ High ☒ Medium ☐ Low

BMP: Zoning

ZO



Property boundaries differ widely between

DESCRIPTION:

Zoning is a classification scheme for land use planning. Zoning can serve numerous functions and can help mitigate storm water runoff problems by facilitating better site designs. By correctly applying the right zoning technique, development can be targeted into specific areas, limiting development in other areas and providing protection for the most important land conservation areas.

APPROACH:

- Impervious Overlay Zoning: This type of overlay zoning limits future impervious areas.
- Incentive Zoning: This planning technique relies on bonuses or incentives for developers to encourage the creation of certain amenities or land use designs. A developer is granted the right to build more intensively on a property or given some other bonus in exchange for an amenity or a design that the community considers beneficial.
- Performance Zoning: Performance zoning is a flexible approach that has been employed in a variety of fashions in several different communities across the country. Some performance factors include traffic or noise generation limits, lighting requirements, storm water runoff quality and quantity criteria, protection of wildlife and vegetation, and even architectural style criteria
- Urban Growth Boundaries: Urban growth boundaries are sometimes called development service districts and include areas where public services are already provided (e.g., sewer, water, roads, police, fire, and schools).

LIMITATIONS:

- Some zoning techniques may be limited by economic and political acceptance and should be evaluated on these criteria as well as storm water management goals.

APPLICATIONS

- ☐ Manufacturing
- ☐ Material Handling
- ☐ Vehicle Maintenance
- ☒ Construction
- ☒ Commercial Activities
- ☐ Roadways
- ☐ Waste Containment
- ☐ Housekeeping Practices

TARGETED POLLUTANTS

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- ■ High Impact
- ☒ Medium Impact
- ☐ Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- ☒ Capital Costs
- ☒ O&M Costs
- ☒ Maintenance
- ☐ Training

■ High ☒ Medium ☐ Low

APPENDIX C – Public Education and Outreach:

Educational Material Resources and Documentation

**Document all educational material distributed to the public in the City Newsletters and utility bill inserts. Retain these files here in Appendix C or list the location below where records are filed.*

*Alternative File Location:*_____

Helpful Websites

http://cfpub.epa.gov/npdes/stormwatermonth.cf

http://www.ecy.wa.gov/programs/wq/stormwater/municipal/public_outreach_resources.html

http://www.michigan.gov/stormwatermgt/0,1607,7-205-30103_30478---,00.html

Pet Care

- When walking your pet, remember to **pick up** the waste and dispose of it properly. Flushing pet waste is the best disposal method. Leaving pet waste on the ground increases public health risks by allowing harmful bacteria and nutrients to wash into the storm drain and eventually into local waterbodies.

Swimming Pool and Spa

- **Drain** your swimming pool only when a test kit does not detect chlorine levels.
- Whenever possible, drain your pool or spa into the **sanitary** sewer system.
- Properly store pool and spa chemicals to **prevent** leaks and spills, preferably in a covered area to avoid exposure to stormwater.

Septic System Use and Maintenance

- Have your septic system **inspected** by a professional at least every 3 years, and have the septic tank **pumped** as necessary (usually every 3 to 5 years).
- Care for the septic system drainfield by **not** driving or parking vehicles on it. Plant only grass over and near the drainfield to avoid damage from roots.
- Flush responsibly. Flushing household chemicals like paint, pesticides, oil, and antifreeze can **destroy** the biological treatment taking place in the system. Other items, such as diapers, paper towels, and cat litter, can **clog** the septic system and potentially damage components.

Storm drains connect to waterbodies!

Remember: Only rain down the drain!

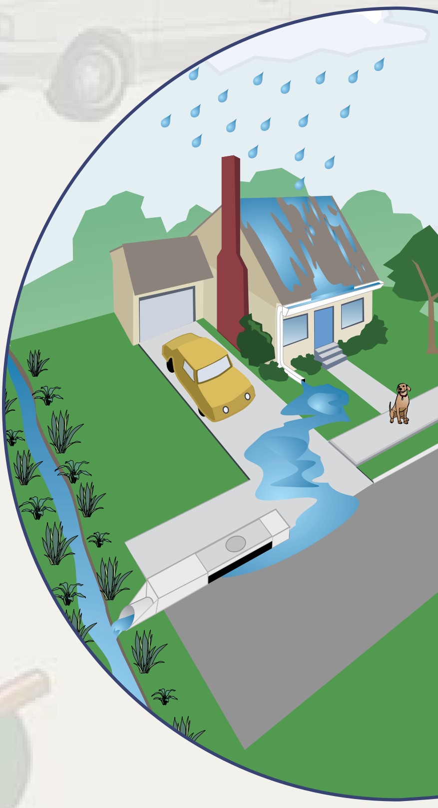
For more information, visit
www.epa.gov/npdes/stormwater
or
www.epa.gov/nps

United States Environmental Protection Agency
EPA 833-B-03-003
January 2003
Internet Address (URL) • HTTP://www.epa.gov
Recycled/Recyclable • Printed With Vegetable Oil Based Inks on 100% Postconsumer, Process Chlorine Free Recycled Paper

Make your home

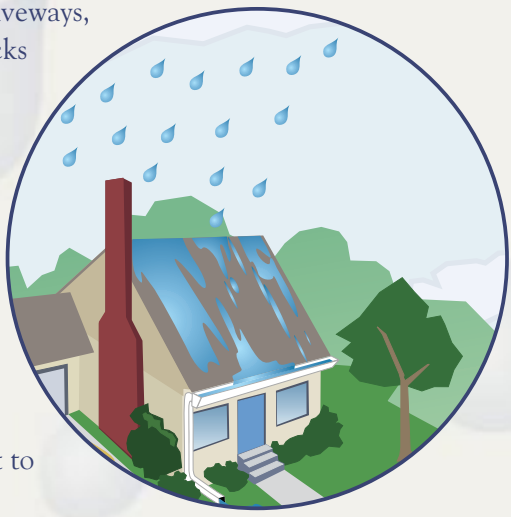
The SOLUTION TO STORMWATER POLLUTION!

A homeowner's guide to healthy habits for clean water



EPA United States Environmental Protection Agency

As stormwater flows over driveways, lawns, and sidewalks, it picks up debris, chemicals, dirt, and other pollutants. Stormwater can flow into a storm sewer system or directly to a lake, stream, river, wetland, or coastal water. Anything that enters a storm sewer system is discharged untreated into the waterbodies we use for swimming, fishing, and providing drinking water. Polluted runoff is the nation's greatest threat to clean water.



By practicing healthy household habits, homeowners can keep common pollutants like pesticides, pet waste, grass clippings, and automotive fluids off the ground and out of stormwater. Adopt these healthy household habits and help protect lakes, streams, rivers, wetlands, and coastal waters. Remember to share the habits with your neighbors!

Healthy Household Habits for Clean Water

Vehicle and Garage

- Use a commercial car wash or wash your car on a lawn or other unpaved surface to **minimize** the amount of dirty, soapy water flowing into the storm drain and eventually into your local waterbody.

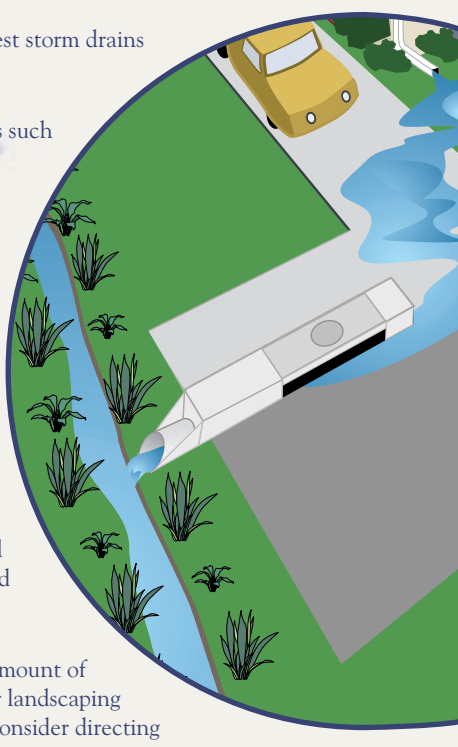
- Check your car, boat, motorcycle, and other machinery and equipment for leaks and spills. Make repairs as soon as possible. Clean up **spilled fluids** with an absorbent material like kitty litter or sand, and don't rinse the spills into a nearby storm drain. Remember to properly dispose of the absorbent material.
- **Recycle** used oil and other automotive fluids at participating service stations. Don't dump these chemicals down the storm drain or dispose of them in your trash.

Lawn and Garden

- Use pesticides and fertilizers **sparingly**. When use is necessary, use these chemicals in the recommended amounts. Avoid application if the forecast calls for rain; otherwise, chemicals will be washed into your local stream.
- Select **native** plants and grasses that are drought- and pest-resistant. Native plants require less water, fertilizer, and pesticides.
- **Sweep up** yard debris, rather than hosing down areas. Compost or recycle yard waste when possible.
- Don't overwater your lawn. Water during the **cool** times of the day, and don't let water run off into the storm drain.
- Cover piles of dirt and mulch being used in landscaping projects to prevent these pollutants from blowing or washing off your yard and into local waterbodies. **Vegetate** bare spots in your yard to prevent soil erosion.

Home Repair and Improvement

- Before beginning an outdoor project, locate the nearest storm drains and **protect** them from debris and other materials.
- **Sweep up** and properly dispose of construction debris such as concrete and mortar.
- Use hazardous substances like paints, solvents, and cleaners in the **smallest amounts possible**, and follow the directions on the label. Clean up spills **immediately**, and dispose of the waste safely. Store substances properly to avoid leaks and spills.
- Purchase and use **nontoxic**, **biodegradable**, **recycled**, and **recyclable** products whenever possible.
- **Clean** paint brushes in a sink, not outdoors. Filter and reuse paint thinner when using oil-based paints. Properly dispose of excess paints through a household hazardous waste collection program, or donate unused paint to local organizations.



- **Reduce** the amount of paved area and increase the amount of vegetated area in your yard. Use native plants in your landscaping to reduce the need for watering during dry periods. Consider directing downspouts away from paved surfaces onto lawns and other measures to increase infiltration and reduce polluted runoff.

After the Storm

A Citizen's Guide to Understanding Stormwater

EPA 833-B-03-002

January 2003

For more information contact:

or visit
www.epa.gov/npdes/stormwater
www.epa.gov/nps

What is stormwater runoff?

Stormwater runoff occurs when precipitation from rain or snowmelt flows over the ground. Impervious surfaces like driveways, sidewalks, and streets prevent stormwater from naturally soaking into the ground.

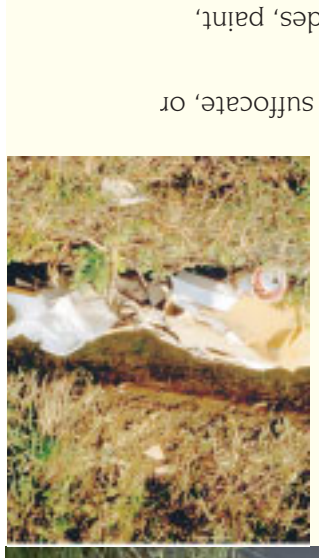
Stormwater can pick up debris, chemicals, dirt, and other pollutants and flow into a storm sewer system or directly to a lake, stream, river, wetland, or coastal water. Anything that enters a storm sewer system is discharged untreated into the waterbodies we use for swimming, fishing, and providing drinking water.

Why is stormwater runoff a problem?

The effects of pollution

Polluted stormwater runoff can have many adverse effects on plants, fish, animals, and people.

- Sediment can cloud the water and make it difficult or impossible for aquatic plants to grow. Sediment also can destroy aquatic habitats.
- Excess nutrients can cause algae blooms. When algae die, they sink to the bottom and decompose in a process that removes oxygen from the water. Fish and other aquatic organisms can't exist in water with low dissolved oxygen levels.
- Bacteria and other pathogens can wash into swimming areas and create health hazards, often making beach closures necessary.
- Debris—plastic bags, six-pack rings, bottles, and cigarette butts—washed into waterbodies can choke, suffocate, or disable aquatic life like ducks, fish, turtles, and birds.
- Household hazardous wastes like insecticides, pesticides, paint, solvents, used motor oil, and other auto fluids can poison aquatic life. Land animals and people can become sick or die from eating diseased fish and shellfish or ingesting polluted water.
- Polluted stormwater often affects drinking water sources. This, in turn, can affect human health and increase drinking water treatment costs.



Stormwater Pollution Solutions

Residential

Recycle or properly dispose of household products that contain chemicals, such as insecticides, pesticides, paint, solvents, and used motor oil and other auto fluids. Don't pour them onto the ground or into storm drains.

Lawn care

Excess fertilizers and pesticides applied to lawns and gardens wash off and pollute streams. In addition, yard clippings and leaves can wash into storm drains and contribute nutrients and organic matter to streams.

- Don't overwater your lawn. Consider using a soaker hose instead of a sprinkler.
- Use pesticides and fertilizers sparingly. When use is necessary, use these chemicals in the recommended amounts. Use organic mulch or safer pest control methods whenever possible.
- Compost or mulch yard waste. Don't leave it in the street or sweep it into storm drains or streams.
- Cover piles of dirt or mulch being used in landscaping projects.

Septic systems

Leaking and poorly maintained septic systems release nutrients and pathogens (bacteria and viruses) that can be picked up by stormwater and discharged into nearby waterbodies. Pathogens can cause public health problems and environmental concerns.

- Inspect your system every 3 years and pump your tank as necessary (every 3 to 5 years).
- Don't dispose of household hazardous waste in sinks or toilets.

Auto care

Washing your car and degreasing auto parts at home can send detergents and other contaminants through the storm sewer system. Dumping automotive fluids into storm drains has the same result as dumping the materials directly into a waterbody.

- Use a commercial car wash that treats or recycles its wastewater, or wash your car on your yard so the water infiltrates into the ground.
- Repair leaks and dispose of used auto fluids and batteries at designated drop-off or recycling locations.

Pet waste

Pet waste can be a major source of bacteria and excess nutrients in local waters.

- When walking your pet, remember to pick up the waste and dispose of it properly. Flushing pet waste is the best disposal method. Leaving pet waste on the ground increases public health risks by allowing harmful bacteria and nutrients to wash into the storm drain and eventually into local waterbodies.

Education is essential to changing people's behavior. Signs and markers near storm drains warn residents that pollutants entering the drains will be carried untreated into a local waterbody.

Residential landscaping

Permeable Pavement—Traditional concrete and asphalt don't allow water to soak into the ground. Instead these surfaces rely on storm drains to divert unwanted water. Permeable pavement systems allow rain and snowmelt to soak through, decreasing stormwater runoff.

Rain Barrels—You can collect rainwater from rooftops in mosquito-proof containers. The water can be used later on lawn or garden areas.

Rain Gardens and Grassy Swales—Specially designed areas planted with native plants can provide natural places for rainwater to collect and soak into the ground. Rain from rooftop areas or paved areas can be diverted into these areas rather than into storm drains.

Vegetated Filter Strips—Filter strips are areas of native grass or plants created along roadways or streams. They trap the pollutants stormwater picks up as it flows across driveways and streets.

Commercial

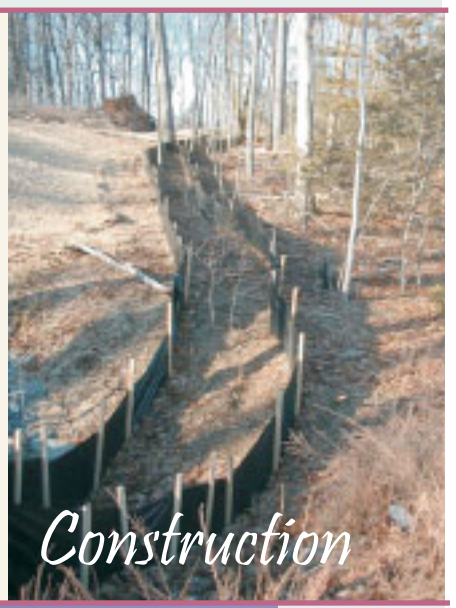
Dirt, oil, and debris that collect in parking lots and paved areas can be washed into the storm sewer system and eventually enter local waterbodies.

- Sweep up litter and debris from sidewalks, driveways and parking lots, especially around storm drains.
- Cover grease storage and dumpsters and keep them clean to avoid leaks.
- Report any chemical spill to the local hazardous waste cleanup team. They'll know the best way to keep spills from harming the environment.

Construction

Erosion controls that aren't maintained can cause excessive amounts of sediment and debris to be carried into the stormwater system. Construction vehicles can leak fuel, oil, and other harmful fluids that can be picked up by stormwater and deposited into local waterbodies.

- Divert stormwater away from disturbed or exposed areas of the construction site.
- Install silt fences, vehicle mud removal areas, vegetative cover, and other sediment and erosion controls and properly maintain them, especially after rainstorms.
- Prevent soil erosion by minimizing disturbed areas during construction projects, and seed and mulch bare areas as soon as possible.



Agriculture

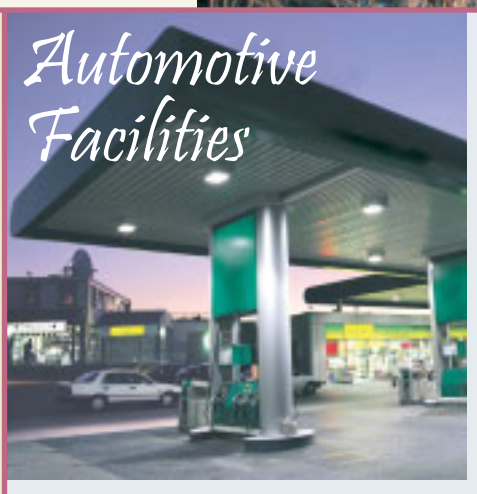
Lack of vegetation on streambanks can lead to erosion. Overgrazed pastures can also contribute excessive amounts of sediment to local waterbodies. Excess fertilizers and pesticides can poison aquatic animals and lead to destructive algae blooms. Livestock in streams can contaminate waterways with bacteria, making them unsafe for human contact.

- Keep livestock away from streambanks and provide them a water source away from waterbodies.
- Store and apply manure away from waterbodies and in accordance with a nutrient management plan.
- Vegetate riparian areas along waterways.
- Rotate animal grazing to prevent soil erosion in fields.
- Apply fertilizers and pesticides according to label instructions to save money and minimize pollution.

Forestry

Improperly managed logging operations can result in erosion and sedimentation.

- Conduct preharvest planning to prevent erosion and lower costs.
- Use logging methods and equipment that minimize soil disturbance.
- Plan and design skid trails, yard areas, and truck access roads to minimize stream crossings and avoid disturbing the forest floor.
- Construct stream crossings so that they minimize erosion and physical changes to streams.
- Expedite revegetation of cleared areas.



Automotive Facilities

Uncovered fueling stations allow spills to be washed into storm drains. Cars waiting to be repaired can leak fuel, oil, and other harmful fluids that can be picked up by stormwater.

- Clean up spills immediately and properly dispose of cleanup materials.
- Provide cover over fueling stations and design or retrofit facilities for spill containment.
- Properly maintain fleet vehicles to prevent oil, gas, and other discharges from being washed into local waterbodies.
- Install and maintain oil/water separators.

REFERRAL NUMBERS

For more information on stormwater management

(888) 846-0800

For information on recycling, composting and household toxics

(877) R-1 Earth
(877) 713-2784

To schedule a presentation for your community group or organization

(888) 846-0800

For residential gardening tips or questions please contact the Master Gardener Program

(858) 694-2860

For a daily update on beach and bay closures

(619) 338-2073

project clean water

"clean water through local commitment and action"

Call us for more information:

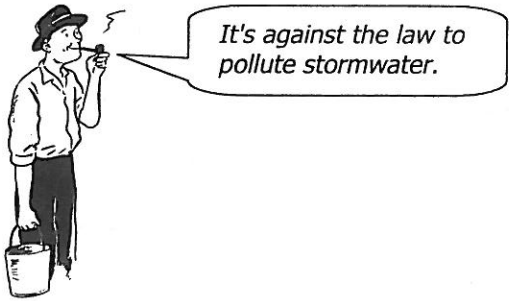
(888) 846-0800

or visit us at our web site:

www.sdcdpw.org

or

www.projectcleanwater.org



County Code §67.805 prohibits the discharge of anything but rainwater to the stormwater conveyance system or receiving waters.

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06/03

STORMWATER POLLUTION PREVENTION

YARD WORK

LANDSCAPING
GARDENING
PEST CONTROL

County of San Diego
Watershed Protection Program

WHAT IS STORMWATER POLLUTION?

When rain flows over streets and other surfaces, it picks up pollutants and carries them into the stormwater conveyance ("storm drain") system. This system is designed to prevent flooding by transporting water away from developed areas.

However, this water is not filtered or treated, and all the contaminants it contains eventually flow to our streams, lakes, and ocean where we swim and fish.

Once there, polluted runoff can harm wildlife and habitats. In some cases, it can even cause beach closures or make fish and shellfish unsafe to eat.

Wastes from yard work are among the many common stormwater pollutants that can degrade water quality. Other examples include paint, oil and automotive fluids, construction debris, pet waste, litter, pool chemicals, and dirty wash water.

ONLY RAIN IN THE STORM DRAIN

HOW DOES YARD WORK POLLUTE STORMWATER?

What you do in the yard can directly impact the quality of our local waters. When soil, organic wastes, and chemicals leave your yard, they flow directly into streams, lakes, and the ocean where they can harm human health and the environment.

OVERWATERING

Over watering washes fertilizers, pesticides, and herbicides into storm drains. In your yard these chemicals kill garden invaders, but when washed into local waters they poison fish and contaminate water.

CHEMICALS The "chemical only" approach to pest control often causes more problems than it solves. Over 90% of the insects in your lawn and garden are not harmful. Many gardeners use pesticides, herbicides, and fertilizers at over 20 times the rate necessary, greatly increasing polluted runoff.

ORGANIC WASTES

Grass clippings, leaves, and tree trimmings swept or blown into streets and gutters carry chemicals into our waterways and can clog catch basins, increasing the risk of flooding. Once they settle into water bodies, these materials begin to decompose, absorbing oxygen fish need to survive.

SEDIMENT Soil and dirt washed from yards can also harm aquatic life by clogging the gills of fish, blocking light transmission, lowering water temperatures, and inhibiting photosynthesis.

WHAT CAN I DO?

Here are some things you can do to keep contaminants out of runoff.

GENERAL LANDSCAPING TIPS

1. Schedule big projects for dry weather.
2. Store stockpiles under plastic tarps to protect them from wind and rain.
3. Store pesticides, fertilizers and other chemicals in a covered area.
4. Use plants that require less water.
5. Prevent erosion by planting fast-growing grasses to shield and bind the soil.

LAWN and GARDEN MAINTENANCE

1. Don't overwater. Use drip irrigation, soaker hoses, or micro-spray systems.
2. Use curbside yard waste recycling or take clippings to a landfill for composting.
3. Don't blow or rake leaves into the street or gutter. Avoid hosing down the pavement.
4. Don't overfertilize or apply chemicals near ditches, streams, or water bodies.

CHEMICAL ALTERNATIVES

1. Don't kill insects that aren't harmful.
2. Use less toxic products, for example dehydrating dusts (such as silica gel), insecticidal soaps, boric acid powder, horticultural oils, pyrethrin-based insecticides, bacterial insecticides, and organic or non-toxic fertilizers.
3. Use predatory insects when possible.
4. If you must use a pesticide, use one that is specifically designed to control your pest (listed on the label). Always read the label and use only as directed.

Pollutant Impacts on Water Quality	
Sediment	Sediment is a common component of stormwater, and can be a pollutant. Sediment can be detrimental to aquatic life (primary producers, benthic invertebrates, and fish) by interfering with photosynthesis, respiration, growth, reproduction, and oxygen exchange in water bodies. Sediment can transport other pollutants that are attached to it including nutrients, trace metals, and hydrocarbons. Sediment is the primary component of total suspended solids (TSS), a common water quality analytical parameter.
Nutrients	Nutrients including nitrogen and phosphorous are the major plant nutrients used for fertilizing landscapes, and are often found in stormwater. These nutrients can result in excessive or accelerated growth of vegetation, such as algae, resulting in impaired use of water in lakes and other sources of water supply. For example, nutrients have led to a loss of water clarity in Lake Tahoe. In addition, un-ionized ammonia (one of the nitrogen forms) can be toxic to fish.
Bacteria and Viruses	Bacteria and viruses are common contaminates of stormwater. For separate storm drain systems, sources of these contaminants include animal excrement and sanitary sewer overflow. High levels of indicator bacteria in stormwater have led to the closure of beaches, lakes, and rivers to contact recreation such as swimming.
Oil and Grease	Oil and grease includes a wide array of hydrocarbon compounds, some of which are toxic to aquatic organisms at low concentrations. Sources of oil and grease include leakage, spills, cleaning and sloughing associated with vehicle and equipment engines and suspensions, leaking and breaks in hydraulic systems, restaurants, and waste oil disposal.
Metals	Metals including lead, zinc, cadmium, copper, chromium, and nickel are commonly found in stormwater. Many of the artificial surfaces of the urban environment (e.g., galvanized metal, paint, automobiles, or preserved wood) contain metals, which enter stormwater as the surfaces corrode, flake, dissolve, decay, or leach. Over half the trace metal load carried in stormwater is associated with sediments. Metals are of concern because they are toxic to aquatic organisms, can bioaccumulate (accumulate to toxic levels in aquatic animals such as fish), and have the potential to contaminate drinking water supplies.
Organics	Organics may be found in stormwater at low concentrations. Often synthetic organic compounds (adhesives, cleaners, sealants, solvents, etc.) are widely applied and may be improperly stored and disposed. In addition, deliberate dumping of these chemicals into storm drains and inlets causes environmental harm to waterways.
Pesticides	Pesticides (including herbicides, fungicides, rodenticides, and insecticides) have been repeatedly detected in stormwater at toxic levels, even when pesticides have been applied in accordance with label instructions. As pesticide use has increased, so too have concerns about the adverse effects of pesticides on the environment and human health. Accumulation of these compounds in simple aquatic organisms, such as plankton, provides an avenue for biomagnification through the food web, potentially resulting in elevated levels of toxins in organisms that feed on them, such as fish and birds.
Gross Pollutants	Gross Pollutants (trash, debris and floatables) may include heavy metals, pesticides, and bacteria in stormwater. Typically resulting from an urban environment, industrial sites and construction sites, trash and floatables may create an aesthetic "eye sore" in waterways. Gross pollutants also include plant debris (such as leaves and lawn-clippings from landscape maintenance), animal excrement, street litter, and other organic matter. Such substances may harbor bacteria, viruses, vectors, and depress the dissolved oxygen levels in streams, lakes and estuaries sometimes causing fish kills.
Vector Production	Vector production (e.g., mosquitoes, flies, and rodents) is frequently associated with sheltered habitats and standing water. Unless designed and maintained properly, standing water may occur in treatment control BMP's for 72 hours or more, thus providing a source for vector habitat and reproduction (Metzger, 2002).

Source: California Stormwater Quality Association, Stormwater BMP Handbook, 2003.

APPENDIX D – Public Education and Outreach:

Annual Storm Water Fair Documentation

**Document each storm water fair event including attendance. Retain these forms here in Appendix D or list the location below where records are filed.*

*Alternative File Location:*_____

ANNUAL STORM WATER FAIR

Date:

Location:

Description of Activities:

*Attach attendance record.

Appendix E – Public Participation and Involvement:

Public Participation Activities Log

**Document all Public Participation activities on the following sheets or list the location below where records are filed.*

*Alternative File Location:*_____

PUBLIC PARTICIPATION ACTIVITIES LOG

Date	Activity Description	BMP

Appendix F –Illicit Discharge Detection and Elimination:

Dry Weather Screening Checklist
Dry Weather Screening Visual Storm Water Discharge Examination Report Form

**Completed forms should be filed here in Appendix F or list the location below where records are filed.*

*Alternative File Location:*_____

Dry Weather Screening Checklist

Pre-inspection Items

- ☐ Map Outfalls
- ☐ Develop outfall inspection priority schedule
- ☐ Proper equipment
  - Clear sampling jar
  - Map showing location
  - Visual Storm Water Examination Report form
  - Camera
  - GPS unit?

Inspection

- ☐ Check for dry weather discharge
- ☐ If discharge is present – pull sample
- ☐ Follow procedures on visual Storm Water Examination Report form
- ☐ If there is cause for concern move to inspection follow up procedures

Inspection Follow-Up Procedures

- ☐ Photo document findings
- ☐ Call health department and report findings, Bear River Health (435) 792-6500
- ☐ Trace discharge upstream by checking manholes/catchbasins – 1,000 foot intervals
- ☐ Find last manhole/catchbasin with any evidence of illicit discharge
- ☐ Look at surface improvements in the area to determine possible suspects
- ☐ If determination cannot be made from the surface investigations, then TV or smoke test line for unknown connections.

DRY WEATHER SCREENING
VISUAL STORM WATER DISCHARGE EXAMINATION REPORT

Name of Examiner _____ Permit No. UTR _____

Date of Examination: _____

Outfall location or ID number: _____

Nature of Discharge (i.e., runoff, land drain, irrigation or snowmelt) _____

Date of last Rainfall Event: _____

Visual Quality of Storm Water Discharge (circle one)

At Time of Sampling:

Color: clear brown green rust other: _____

Odor: Yes / No

Clarity: ☐ ☐ ☐ ☐ ☐

Floating Solids: Yes / No

Foam: Yes / No

After One Hour of Settling:

Settled Solids: Yes / No

Suspended Solids: Yes / No

Oil Sheen: Yes / No

Other obvious indicators of storm water pollution: _____

_____

Probable sources of any observed storm water contamination: _____

_____

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 gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name of Examiner_____ Title_____

Signature_____Date_____

Appendix G – Illicit Discharge Detection and Elimination:

Employee Training Record Forms

**Document all employee training sessions related to illicit discharges. Retain these files here in Appendix G or list the location below where records are filed.*

*Alternative File Location:*_____

ILLICIT DISCHARGE DETECTION AND ELIMINATION:

EMPLOYEE TRAINING RECORD FORM

Date:

Number of Hours:

Training Session Description / Scope:

Employee Attendance:

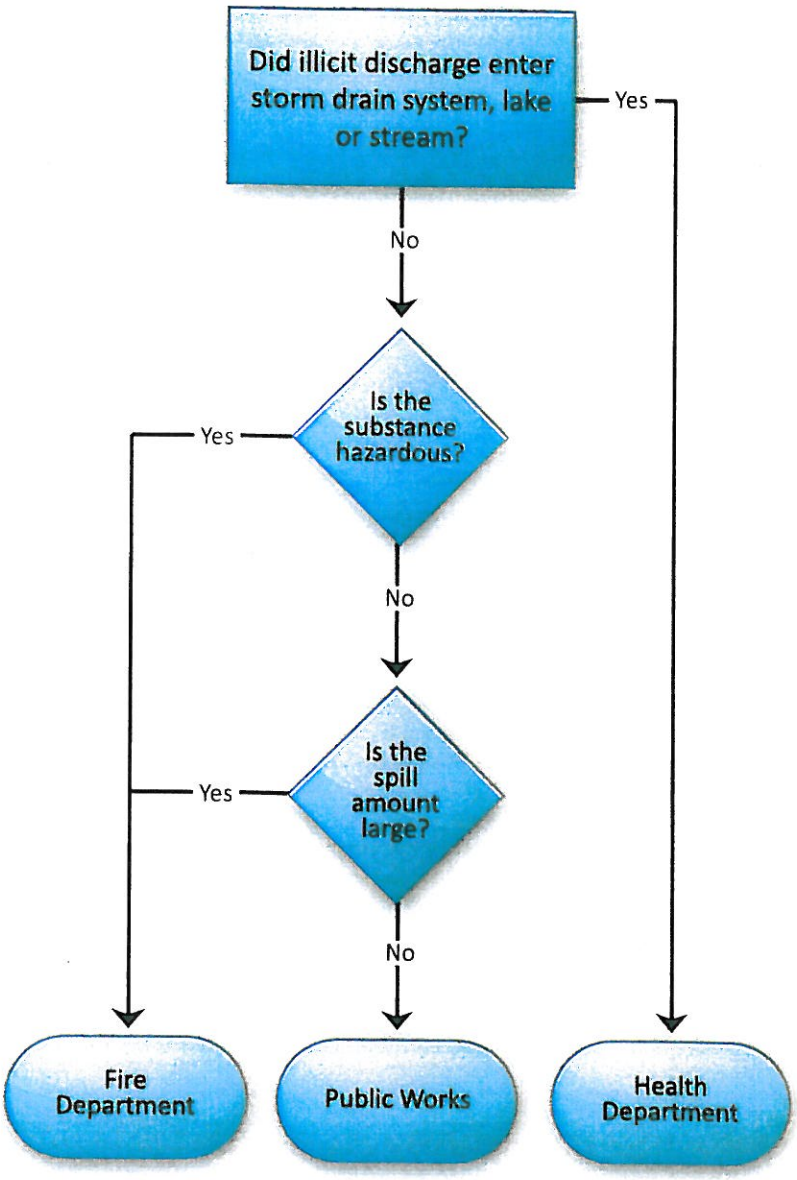
Date	Employee Name	Employee Signature

Appendix H – Illicit Discharge Detection and Elimination:

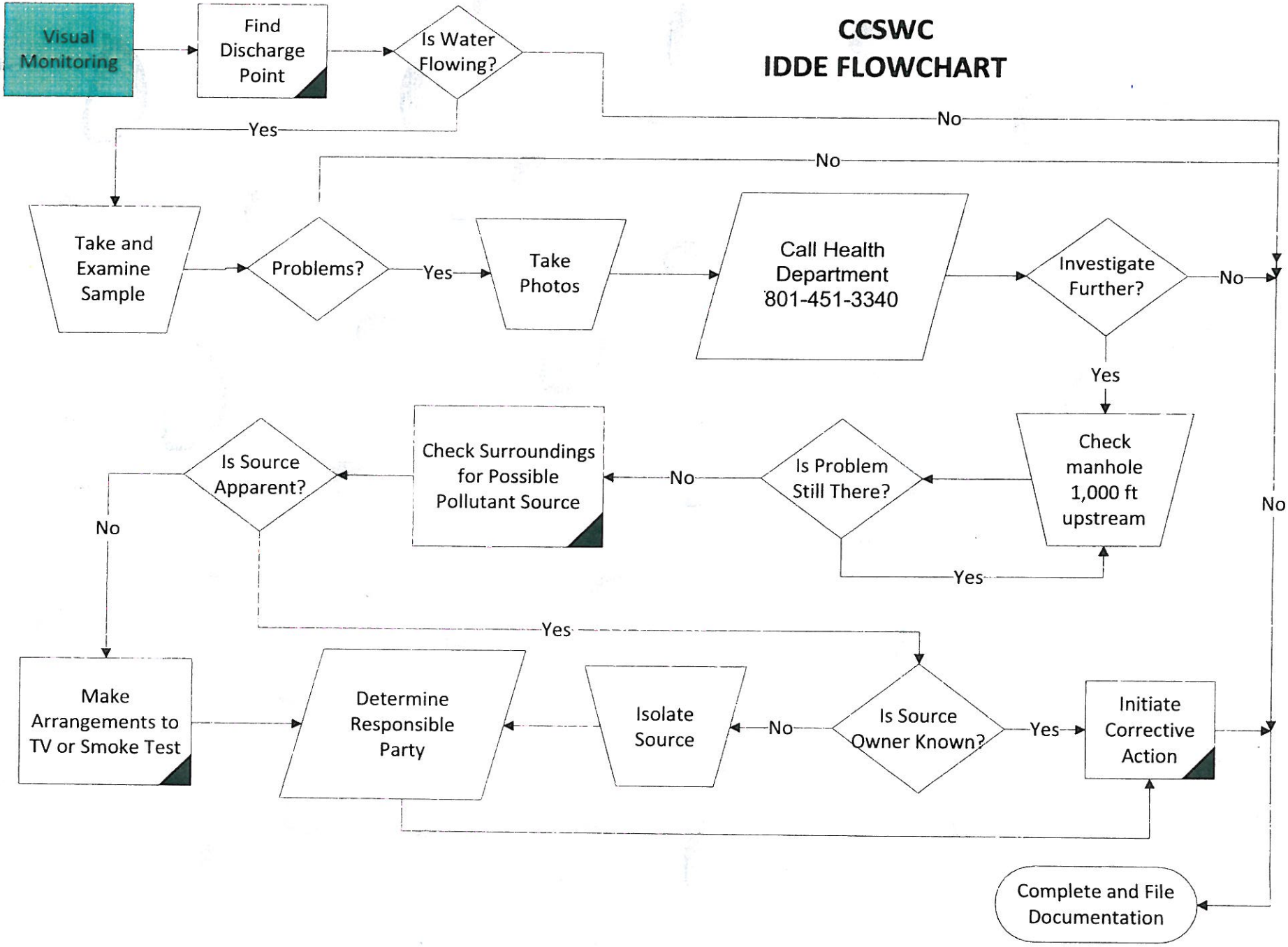
Illicit Discharge Response Procedures

CACHE COUNTY
Storm Water Coalition

IDDE FLOW CHART



CCSWC
IDDE FLOWCHART



Appendix I – Construction Site Storm Water Runoff Control:

Forms:
Pre-Construction Meeting Storm Water Agenda
UPDES Storm Water Inspection Evaluation Form for SWPPP Compliance
SWPPP Compliance Inspection Form

**Completed construction inspection forms should be filed here in Appendix I or list the location below where records are filed.*

*Alternative File Location:*_____

CACHE COUNTY
Storm Water Coalition

Preconstruction Meeting

Storm Water Agenda

- ❑ City Storm Water Contact
- ❑ Contractor Storm Water Contact
- ❑ Notice of Intent
- ❑ SWPPP
- ❑ Site Plan Review
- ❑ Discuss BMPS
- ❑ Discuss Contractor Inspections
  - Frequency
- ❑ MS4 Inspections

UPDES STORM WATER INSPECTION EVALUATION FORM FOR SWPPP COMPLIANCE

BACKGROUND INFORMATION

Site Name:	UPDES Permit #:
Site Address:	
Local Jurisdiction or County:	
Permit Effective Date:	Permit Expiration Date:
Total Project Area:	Total Disturbed Area:

Project Type: (circle) *Subdivision* *Commercial* *Industrial* *Linear (Road/Pipe/Power)* *Land Disturbance*

OPERATOR CONTACT INFORMATION

	NAMES	PHONE NUMBERS	E-MAIL
Operator:			
Onsite Facility Contact:			
Important Contacts:			
Important Contacts:			

SWPPP PRE-SITE REVIEW INFORMATION

	YES	NO
1. Has a pre-construction review of the SWPPP been conducted by the appropriate municipal agency?		
2. Are contact names and telephone numbers listed in the SWPPP?		
3. Does the SWPPP include a site map showing storm drains, slopes/surface drainage patterns, SW discharge points, construction boundaries, limits of disturbance, surface waters (name of receiving water), structural controls, and does it define/explain non-structural controls?		
4. Does the SWPPP have an estimate of the area to be disturbed, a sequence of construction activities, the SW runoff coefficient for after completion, a description of the soil types, controls for discharges from (asphalt/concrete) batch plants if any, show wetland areas, and have a desription of the nature of the construction activity?		
5. Does the SWPPP and site map show erosion and sediment controls placement & details (e.g. erosion blankets, mulch, slope drains, check dams, sediment basins, grass-lined channels, fiber rolls, sediment traps, silt fence, inlet protection, curb cut-back, dust control, etc?)		
6. Does the SWPPP and site map show and describe good housekepping controls (e.g. track out pad, street sweeping, material storage, construction waste containment and removal, sanitary waste, concrete washout pits, etc)		
7. Are post-construction elements included in the SWPPP? (i.e. grass swales, detention basins, vegetated filter strips, infiltration, depression storage, landscaping/xeriscaping, discontinuous concrete or hard surface SW conveyance, etc.)		
8. Does the SWPPP address endangered species and historic preservation?		
9. Is the SWPPP signed by a responsible corporate officer with the certification statement (see permit part 5.16.c.)?		
10. Are the NOI and a copy of the State permit in the SWPPP?		

NOTICE OF TERMINATION (NOT) INSPECTION

Site Name:	Date of Evaluation:
Site Address:	
Inspected By:	Title\Organization:

	YES	NO	COMMENTS:
1. Has the site been properly stabilized according to permit requirements?			
2. Have all temporary BMPs been removed?			
3. Have post-construction (permanent storm water system) elements been constructed and inspected in accordance with approved project drawings?			
4. Is the site acceptably clean?			

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 gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of.fine and imprisonment for knowing violations.

Inspector:

(Print Name) (Title) (Signature) (Date)

Operator:

(Print Name) (Title) (Signature) (Date)

modified 8/12/10

(Attach additional sheets of narrative, pictures and checklists, as necessary)

ADDITIONAL COMMENTS AND CORRECTIVE ACTIONS FOR SWPPP COMPLIANCE

Site Name:	Date of Evaluation:	Page	of
Site Address:			

EPA Form 3560-3 SEV Codes and Descriptions

DOR11		Discharge without a permit	BR19B		Failure to properly operate and maintain BMP's
DOR18		Failure to apply for a Notice of Termination	BR19A		Failure to properly install/implement BMP's
BOR12		Failure to conduct inspections	EOR16		Failure to submit required report (non-DMR)
BOC17		Failure to develop any or adequate SWPPP/SWMP	AOR22		Narrative effluent violation
BOC18		Failure to implement SWPPP/SWMP	DOR12		Failure to submit required permit information
BOR41		Failure to maintain records	AOR12		Numeric effluent violation
COR11		Failure to monitor	BOR42		Violation of a milestone in an order

SWPPP COMPLIANCE INSPECTION FORM

Insert City Logo Here

Project Name:	Address:	Date:
Owner:	Contractor (Gen/Sub):	Start time:
Site Contact:	Phone:	Stop time:
UPDES Permit #: Expiration:	Weather: Sunny Cloudy Raining Snowing Other:	
Date of last rain event:	Duration:	Approx. Rainfall (in):
Inspected By (Print):	Local Jurisdiction or County:	
Reason for Inspection: Scheduled Complaint/Tip Random	Receiving Waters:	
Inspection Code (circle): SW sampling / SW non-sampling	Inspector Code (circle): (S) State / (L) Local	Type Code (circle): 1 - Municipal 2 - Industrial 3 - State

SWPPP, EROSION, SEDIMENT AND HOUSEKEEPING BMP's INFORMATION	YES	NO	N/A
1. Is the SWPPP on site and accessible, or is the SWPPP location posted in an obvious place and reasonably accessible (in a short time)?			
2. Are erosion control, sediment control, and good housekeeping BMP's installed on the site as shown in the SWPPP?			
3. Has the SWPPP been updated to reflect the current site conditions (modifications dated & initialed on site map, new BMPs on site map, discontinued BMPs crossed off site map, new BMP details & spec's in SWPPP, SWPPP amendment Log, etc.)?			
4. Are on-site inspections being performed and recorded by a qualified person on a weekly or biweekly basis, reporting items required by permit? (Inspector name &qualifications, weather, problems/repairs, corrective action, new BMPs, removed BMPs, discharges, etc.)			
5. Have all corrective action items from previous inspections been addressed and documented within the time frame allotted by the inspector?			
6. Are SW flows entering and leaving the construction site controlled, managed, or diverted around the site? (e.g. perimeter controls, berms, silt fence, upgradient boundary diversion, down gradient boundary sediment control, etc.)			
7. Is there evidence of sediment discharge such as mud flows or soil deposits from the construction site in downstream locations?			
8. Is there evidence of vehicles tracking soil off the construction site?			
9. Is there soil, construction material, landscaping items, or other debris piled on impervious surfaces (roads, drives) that could be washed with SW to a storm drain or water body?			
10. Is there a need to repair, maintain, or improve erosion control BMPs (temporary stabilization, erosion blankets, mulch, vegetated strips, rip rap, surface roughening, pipe slope drain, dust control, etc)?			
11. Is there a need to repair, maintain, or improve sediment control BMPs (silt fence, check dams, fiber rolls, sediment trap/basin, inlet protection, waddles, straw bails, curb cut-back, etc?			
12. Is there a need to repair, maintain, or improve good housekeeping controls (clean track out pad, sweeping, construction materials management, litter/trash control, port-o-potties staked down, fueling areas, concrete wash out area, proper curb ramps, spill prevention, etc)?			
13. Are there disturbed areas that have not had construction activities for 14 to 21 days without stabilization? (except snow or frozen ground)?			
14. Are there places where BMPs are needed and should be installed or not needed and should be removed?			

COMMENTS AND CORRECTIVE ACTIONS FOR SWPPP COMPLIANCE

Identify the problem and its location. If appropriate, describe (in general terms) what needs to be completed. However, only if qualified (e.g., you are a designer) should you be mandating specific BMPs to install. Include the date when corrections are made.

Inspector, please list all applicable SEV codes:

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 gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of.fine and imprisonment for knowing violations.

Inspector:

(Print Name) (Title) (Signature) (Date)

Operator:

(Print Name) (Title) (Signature) (Date)

(Attach additional sheets of narrative, pictures and checklists, as necessary)

ADDITIONAL COMMENTS AND CORRECTIVE ACTIONS FOR SWPPP COMPLIANCE

Insert City Logo Here

Site Name:	Date of Evaluation:	Page of
Site Address:		

EPA Form 3560-3 SEV Codes and Descriptions

DOR11		Discharge without a permit	BR19B		Failure to properly operate and maintain BMP's
DOR18		Failure to apply for a Notice of Termination	BR19A		Failure to properly install/implement BMP's
BOR12		Failure to conduct inspections	EOR16		Failure to submit required report (non-DMR)
BOC17		Failure to develop any or adequate SWPPP/SWMP	AOR22		Narrative effluent violation
BOC18		Failure to implement SWPPP/SWMP	DOR12		Failure to submit required permit information
BOR41		Failure to maintain records	AOR12		Numeric effluent violation
COR11		Failure to monitor	BOR42		Violation of a milestone in an order

Appendix J – Post-Construction Site Storm Water Runoff Control Forms:

UPDES Storm Water Inspection Evaluation Form for SWPPP Compliance

**Completed post-construction inspections forms should be filed here in Appendix F or list the location below where records are filed.*

*Alternative File Location:*_____

UPDES STORM WATER INSPECTION EVALUATION FORM FOR SWPPP COMPLIANCE

BACKGROUND INFORMATION

Site Name:	UPDES Permit #:
Site Address:	
Local Jurisdiction or County:	
Permit Effective Date:	Permit Expiration Date:
Total Project Area:	Total Disturbed Area:

Project Type: (circle) *Subdivision* *Commercial* *Industrial* *Linear (Road/Pipe/Power)* *Land Disturbance*

OPERATOR CONTACT INFORMATION

	NAMES	PHONE NUMBERS	E-MAIL
Operator:			
Onsite Facility Contact:			
Important Contacts:			
Important Contacts:			

SWPPP PRE-SITE REVIEW INFORMATION

	YES	NO
1. Has a pre-construction review of the SWPPP been conducted by the appropriate municipal agency?		
2. Are contact names and telephone numbers listed in the SWPPP?		
3. Does the SWPPP include a site map showing storm drains, slopes/surface drainage patterns, SW discharge points, construction boundaries, limits of disturbance, surface waters (name of receiving water), structural controls, and does it define/explain non-structural controls?		
4. Does the SWPPP have an estimate of the area to be disturbed, a sequence of construction activities, the SW runoff coefficient for after completion, a description of the soil types, controls for discharges from (asphalt/concrete) batch plants if any, show wetland areas, and have a desription of the nature of the construction activity?		
5. Does the SWPPP and site map show erosion and sediment controls placement & details (e.g. erosion blankets, mulch, slope drains, check dams, sediment basins, grass-lined channels, fiber rolls, sediment traps, silt fence, inlet protection, curb cut-back, dust control, etc?)		
6. Does the SWPPP and site map show and describe good housekepping controls (e.g. track out pad, street sweeping, material storage, construction waste containment and removal, sanitary waste, concrete washout pits, etc)		
7. Are post-construction elements included in the SWPPP? (i.e. grass swales, detention basins, vegetated filter strips, infiltration, depression storage, landscaping/xeriscaping, discontinuous concrete or hard surface SW conveyance, etc.)		
8. Does the SWPPP address endangered species and historic preservation?		
9. Is the SWPPP signed by a responsible corporate officer with the certification statement (see permit part 5.16.c.)?		
10. Are the NOI and a copy of the State permit in the SWPPP?		

NOTICE OF TERMINATION (NOT) INSPECTION

Site Name:	Date of Evaluation:
Site Address:	
Inspected By:	Title\Organization:

	YES	NO	COMMENTS:
1. Has the site been properly stabilized according to permit requirements?			
2. Have all temporary BMPs been removed?			
3. Have post-construction (permanent storm water system) elements been constructed and inspected in accordance with approved project drawings?			
4. Is the site acceptably clean?			

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 gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of.fine and imprisonment for knowing violations.

Inspector:

(Print Name) (Title) (Signature) (Date)

Operator:

(Print Name) (Title) (Signature) (Date)

modified 8/12/10

(Attach additional sheets of narrative, pictures and checklists, as necessary)

ADDITIONAL COMMENTS AND CORRECTIVE ACTIONS FOR SWPPP COMPLIANCE

Site Name:	Date of Evaluation:	Page	of
Site Address:			

EPA Form 3560-3 SEV Codes and Descriptions

DOR11		Discharge without a permit	BR19B		Failure to properly operate and maintain BMP's
DOR18		Failure to apply for a Notice of Termination	BR19A		Failure to properly install/implement BMP's
BOR12		Failure to conduct inspections	EOR16		Failure to submit required report (non-DMR)
BOC17		Failure to develop any or adequate SWPPP/SWMP	AOR22		Narrative effluent violation
BOC18		Failure to implement SWPPP/SWMP	DOR12		Failure to submit required permit information
BOR41		Failure to maintain records	AOR12		Numeric effluent violation
COR11		Failure to monitor	BOR42		Violation of a milestone in an order

Appendix K – Pollution Prevention/Good Housekeeping:

Employee Training Record Forms

**Document all employee training sessions related to pollution prevention and good housekeeping. Retain these files here in Appendix K or list the location below where records are filed.*

*Alternative File Location:*_____

POLLUTION PREVENTATION / GOOD HOUSEKEEPING:

EMPLOYEE TRAINING RECORD FORM

Date:

Number of Hours:

Training Session Description / Scope:

Employee Attendance:

Date	Employee Name	Employee Signature

Appendix L – Pollution Prevention/Good Housekeeping:

Standard Operating Procedures

STANDARD OPERATING PROCEDURES

Cache County Storm Water Coalition

Created: February 2010
Last Revision: July 13, 2010

TABLE OF CONTENTS

CONSTRUCTION – Pre-Construction SWPPP

Description: This section contains information and guidelines for protecting and preparing a construction site with BMPs and a SWPPP.

Applicability: Protecting construction sites and surrounding runoff areas prior to construction.

1. Preparation

    a. Conduct a pre-construction review of site and planed operations.

2. Process

    a. Plan which BMPs to implement during construction to manage runoff created from site.

    b. Incorporate in the SWPPP a set of procedures that will protect potential water quality impacts.

    c. Incorporate into the SWPPP opportunities for use of low impact design (LID) and green infrastructure when opportunities exist.

3. Clean-up

    a. None.

4. Documentation

    a. Record all construction sites that disturb greater than or equal to one acre.

    b. Keep any notes or comments of any problems.

CONSTRUCTION – During and Post Construction Site Inspection

Description: This section contains information and guidelines for protecting a construction site with BMPs and a SWPPP during and after the construction of a project.

Applicability: Protecting construction sites and surrounding runoff areas.

1. Preparation

    a. Incorporate a SWPPP in any construction project containing more than one acre in area.

2. Process

    a. Inspect construction site and surrounding area regularly for possible storm drain contamination.

    b. Follow SWPPP guidelines and checklists to verify that standards are met.

3. Clean-up

    a. Remove inlet protection.

    b. Clean flow paths.

4. Documentation

    a. Keep any notes or comments of any problems.

ILLICIT DISCHARGE – Tracing the Source of Illicit Discharge

Description: This section contains information and guidelines for identifying the source of illicit discharge into storm drain system. This also includes characterizing the nature of, and potential public/environmental threat posed by the illicit discharge.

Applicability: Identifying the source of Illicit Discharge.

1. Preparation

    a. Become familiar with the surrounding water bodies and watersheds that could become contaminated.

    b. Look for areas that might have potential to have illicit discharge.(industrial areas or older neighborhoods)

2. Process

    a. Smoke test, TV, or dye test storm drain system to trace potential or difficult to detect illicit discharges.

    b. Determine the type of illicit discharge by collecting and analyzing samples of the water.

    c. Characterize the type of illicit discharge from analyzed samples or from source.

    d. Control possible discharge during dry weather with the use of sandbags or dams.

3. Clean-up

    a. Clean any equipment used in performing detection of illicit discharge.

4. Documentation

    a. Document beginning of work, completion of work and any cleanup items performed on site.

    b. Keep logs of past and existing illicit discharges.

    c. Record the area and amount of illicit discharge.

    d. Keep any notes or comments of any problems.

ILLICIT DISCHARGE – Removing Illicit Connections and Discharges

Description: This section contains information and guidelines for stopping illicit discharges into storm drain system. This also includes characterizing the nature of, and potential public/environmental threat posed by the illicit discharge.

Applicability: Removal/Ceasing of Illicit Discharges.

1. Preparation
    a. Follow IDDE inspection schedule to check for any illicit discharges in the community.
    b. Log inspections on the IDDE inspection checklist.
    c. Locate illicit discharge.

2. Process
    a. Contact Bear River Health Department at 435-792-6500.
    b. Notify violator of offending discharge and give direction to correct the problem.
    c. Work with violator by providing technical assistance.
    d. Perform follow-up inspections and enforce legal actions if discharge is not eliminated.
    e. Elevate the enforcement action as necessary to obtain results.

3. Clean-up
    a. Stabilize all disturbed soils and surfaces.
    b. Haul all debris, sediment or contaminated soil removed from area to approved dumping site.

4. Documentation
    a. Document beginning of work, completion of work and any cleanup items performed on site.
    b. Keep logs of past and existing illicit discharges.
    c. Record the area and amount of illicit discharge.
    d. Keep any notes or comments of any problems.

MUNICIPAL – Provide Training to Employees

Description: This section informs municipalities to train employees who are likely to work/impact storm water quality.

Applicability: Training employees to protect storm water.

1. Preparation

    a. Map out storm drain system so that each employee can be aware of the network.

    b. Implement an operations and maintenance program (O & M).

2. Process

    a. Train employees on how to reduce pollutant run off from operated facilities and operations.

    b. Train employees who have primary construction operation, or maintenance job roles about standard operating procedures.

    c. Keep and inventory of operated facilities and storm water controls.

    d. Provide follow-up training as needed to address changes and procedures.

3. Clean-up

    a. None.

4. Documentation

    a. Keep record of those who have been trained

    b. Keep any notes or comments of any problems.

MUNICIPAL – Weekly and Quarterly Inspections

Description: This section informs municipalities about the types of inspections that need to be done on a regular basis.

Applicability: Inspection of storm water and drainage system.

1. Preparation

    a. Map out existing storm drain system.

    b. Watch for possible storm drain system contaminates.

2. Process

    a. Perform weekly visual inspections to minimize the potential for pollutants.

    b. Perform quarterly comprehensive inspections of "high priority" facilities, including all storm water controls, waist storage areas, dumpsters, vehicle and equipment maintenances areas, and similar pollutant generating areas.

    c. Perform quarterly visual observations of storm water discharge; by looking for any possible contaminants to the storm drain system.

    d. Look for evidence of spills and immediately clean them to prevent contact with run off.

3. Clean-up

    a. None.

4. Documentation

    a. Keep any notes or comments of any problems areas.

MUNICIPAL – Flood Control and Water Quality Impacts

Description: This section informs municipalities about assessing the water quality impacts in the design of new flood management structural controls.

Applicability: Installing new flood management devices.

1. Preparation

    a. Assess existing flood management devices to determine whether changes or additions should be made to improve water quality.

2. Process

    a. Incorporate in the SWPPP a set of procedures that will protect potential water quality impacts.

    b. Incorporate into the SWPPP opportunities for use of low impact design (LID) and green infrastructure when opportunities exist.

    c. Consider controls that can be used to minimize the impacts to site water quality and hydrology while still meeting project objectives.

3. Clean-up

    a. None.

4. Documentation

    a. Keep log of actions performed including date and individuals involved.

    b. Record the amount of materials removed or imported.

    c. Keep any notes or comments of any problems.

    d. Use “before” and “after” photographs to document activities as applicable.

MUNICIPAL – Vehicle Maintenance and Repair Activities

Description: This section is to inform municipalities about the protection of storm drain system from vehicles or equipment that may leak or drip petroleum products and that may also collect large amounts of dirt.

Applicability: Storing and washing of vehicles and equipment.

1. Preparation

    a. Store vehicles indoors where possible and in an area with no floor drains that lead to storm water system.

    b. Watch for leaking equipment and vehicles.

2. Process

    a. Use drip pans to collect leaking fluids from equipment or vehicles.

    b. Repair leaking vehicles as soon as possible to protect storm drain system.

    c. Wash vehicles and equipment in dedicated areas.

3. Clean-up

    a. Properly clean any areas that have been polluted by leaking vehicles.

    b. Discharge all wash water containing contaminates (degreasers, acids, and oil bases) to a treatment facility or sanitary sewer if it meets treatment plant standards.

    c. Do not store or wash vehicles over storm drain inlets.

4. Documentation

    a. Record location where vehicles and equipment were leaking.

    b. Keep any notes or comments of any problems.

PARKS – Chemical Application Pesticides, Herbicides, Fertilizers

Description: This section contains information on the application of Pesticides, Herbicides and Fertilizers to Parks. Including how to prepare, take care, and disposal of chemical products.

Applicability: Using chemicals in city parks.

1. Preparation

    a. Calibrate fertilizer and pesticide application equipment to avoid excessive application.

    b. Use pesticides only if there is an actual pest problem

    c. Time and apply the application of fertilizers, herbicides or pesticides to coincide with the manufacturer's recommendation for best results ("Read the Label").

    d. Know the weather conditions. Do not use pesticides if rain is expected. Apply pesticides or herbicides only when wind speeds are low(less than 5 mph).

2. Process

    a. Always follow the manufacturer's recommendations for mixing, application and disposal. ("Read the Label").

    b. Do not mix or prepare pesticides for application near storm drains,.

    c. Employ techniques to minimize off-target application (e.g. spray drift, over broadcasting.) of pesticides and fertilizers.

3. Clean-up

    a. Sweep pavements or sidewalks where fertilizers or other solid chemicals have fallen, back onto grassy areas before applying irrigation water.

    b. Triple rinse containers, and use rinse water as product. Dispose of unused pesticide as hazardous waste.

    c. Always follow all federal and state regulations governing use, storage and disposal of fertilizers, herbicides or pesticides and their containers. ("Read the Label")

4. Documentation

a. Keep copies of MSD sheets for all pesticides, fertilizers and other hazardous products used.

b. Record fertilizing and pesticide application activities, including date, individual who did the application, amount of product used and approximate area covered.

PARKS – Mowing and Trimming

Description: This section contains information on mowing and trimming around drainage structures and the proper cleaning of mowing and trimming equipment.

Applicability: Mowing and trimming in city parks.

1. Preparation

    a. Locate all storm drain collection structures and inlets in the right-of-way.

2. Process

    a. Install temporary catch basin protection on affected basins

    b. Mow in a manner to minimize clippings blown toward collection structures inlets and water courses.

3. Clean-up

    a. Scraped and brush mowers at the shop – Sweep dry spoils and dispose at approved facilities.

    b. Wash equipment in approved wash station

4. Documentation

    None.

PARKS – Planting Vegetation.

Description: This section contains information on the planting of within parks and rights-of-way. This also includes cleaning of the area and how to dispose of excess soil.

Applicability: Planting in Parks and rights-of-way.

1. Preparation

   a. Call the Blue Stakes Center of Utah at least 2 working days before any digging will be performed, to reveal the location of any underground utilities.

   b. Dial 811 or 1-800-662-4111.

   c. Determine where any spoils will be taken.

2. Process

   a. Dig holes; place spoils near the hole where they may easily be placed back around roots. Avoid placing spoils in the gutter or areas that may drain into drainage ways

   b. Bring each plant near the edge of the hole dug for it.

   c. Check the depth of the hole, and adjust the depth if necessary. The depth of the hole for a tree should be as deep as the root ball, so that the top of the root ball is level with the top of the hole.

   d. Carefully remove pot or burlap.

   e. Place the plant in the hole.

   f. Backfill the hole with existing spoils, compost, and fertilizer if desired. Do not use excessive amendments.

   g. Water the plant.

   h. Stake the plant, if necessary, to stabilize it.

3. Clean-up

   a. Move any extra spoils into truck or trailer. Place the spoils on a tarp if there is a likelihood that some of the dirt would be lost through openings in the bed.

   b. Sweep dirt from surrounding pavement(s) into the planter area

   c. Transport spoils to their designated fill or disposal area.

PARKS –Seeding

Description: This section contains information on the seeding of areas in parks and rights-of-way. This also includes cleaning of the area and how to dispose of excess soil.

Applicability: Planting in Parks and Rights-of-way.

1. Preparation

    a. Call the Blue Stakes Center of Utah at least 2 working days before any digging or grading will be done, to reveal the location of any underground utilities.

    b. Dial 811 or 1-800-662-4111

    c. Decide on the application rate, method, water source, and ensure adequate materials are in possession.

    d. Grade and prepare the soil to receive the seed. Place any extra soil in a convenient location to collect.

2. Process

    a. Place the seed and any cover using the pre-determined application method (and rate).

    b. Lightly moisten the seed.

    c. Adjust watering rates to minimize runoff from seeded area.

    d. Monitor site for erosion. Correct as needed.

3. Clean-up

    a. Move any extra spoils into truck or trailer. Place the spoils on a tarp if there is a likelihood that some of the dirt would be lost through openings in the bed.

    b. Sweep dirt, seed, and any cover material from surrounding pavement(s) into the planter area

    c. Transport spoils to their designated fill or disposal area.

4. Documentation

    a. None.

STREETS/STORM DRAIN – Catch Basins

Description: This section contains information on the cleaning of catch basins in the storm drain system. This includes the processes of disposal of excess waste and the record keeping of the amounts of waste collected.

Applicability: Cleaning catch basins or storm drains.

1. Preparation:
    a. Clean off sediment and trash off grate.
    b. Do visual inspection on outside of grate.
    c. Make sure nothing needs to be replaced.
    d. Do inside visual inspection to see what needs to be cleaned.

2. Process
    a. Clean catch basin using manual or mechanical means.
    b. For manual means, place removed material in a location protected from potential runoff.
    c. Place spoils in vehicle for transport to disposal area.
    d. Dispose of spoils in an approved location for dewatering if necessary.
    e. For mechanical cleaning use a high powered vac truck to removed sediment. When sediment is removed use a high pressure washer to clean any other sediment out of catch basin.
    f. After catch basin is clean, send the rodder of the vac truck downstream to clean pipe and pull back sediment that might have moved down stream of the catch basin.

3. Clean-up
    a. When vehicle is full of spoils take them to a contained area for drying.
    b. After drying, put it into a dump truck and take it to the landfill.

4. Documentation

   a. Keep logs of the date and number of catch basins cleaned. Record employees involved with the activity.

   b. Record the estimated amount of waste collected from each catch basin.

   c. Keep any notes or comments of any problems.

STREETS/STORM DRAIN – Curb Painting

Description: This section contains information on the painting of curbs and how to protect the drainage system from hazardous wastes. The use of BMP's in case of accidents and spills is recommended. This also includes the processes of disposal, clean up, and record keeping of any paint entering into the storm drain system.

Applicability: Curb Surface painting.

1. Preparation
    a. Calculate the amount of paint required for the job
    b. Use water based paints if possible.
    c. Determine whether the wastes will be hazardous or not and the required proper disposal of said wastes
    d. Determine locations of storm drain inlets and sewer inlets that may need to be protected. If possible, prepare surfaces to be painted without generating wastewater; eg. Use sandblasting and or scraping.
    e. If using a pressure washer to remove loose paint, place filter fabric or containment devices at entrances to storm drains or natural waterways to collect materials. (i.e. place geotextile beneath catch basin grates, use curb dyke)
    f. Use a citrus-based paint remover whenever possible, less toxic than chemical strippers
2. Process
    a. Paint curb.
    b. Prevent over-spraying of paints and/or excessive sandblasting
    c. Use drip pans and drop clothes in areas of mixing paints and painting
    d. Store latex paint rollers and brushes in air tight bags to be reused later with the same color.
    e. Have available absorbent material and other BMP's ready for an accidental paint spill.
3. Clean-up
    a. Paint out brushes and rollers as much as possible. Squeeze excess paint from brushes and rollers back into the containers prior to cleaning them.

b. Pour excess paint from trays and buckets back into the paint can containers and wipe with cloth or paper towels. Dispose of the towels according to the recommendations on the paint being used.

c. Rinse water-based paint brushes in the sink after pre-cleaning. Never pour excess paint or wastewater from cleanup of paint in the storm drain.

d. Cleanup oil based paints with paint thinner. Never clean oil based brushes in a sink or over a storm drain. Filter solvents for reuse if possible and/or store in approved drum for recycling.

4. Documentation

a. Write-up/report of any discharges into storm drain system

STREETS/STORM DRAIN – Culvert and Storm Water Pipe Cleaning

Description: This section contains information on the cleaning of storm drain culverts and pipes. This also includes what methods to use to remove sediment and debris from the structure. A record keeping procedure is also outlined for tracking the cleaning process.

Applicability: Cleaning of Culverts and Pipes.

1. Preparation:

   a. Clean sediment and trash off inlet to culvert/storm water pipe.

   b. If possible do visual inspection of inside of culvert/storm water pipe.

   c. Look for cracks, missing or broken pieces in the walls/sides of structure.

   d. Do inside visual inspection to see what needs to be cleaned.

2. Process

   a. Clean using a high powered vac truck, cleaning the sides of the structure and sucking out sediment on the bottom.

   b. Send high powered hose down culvert and pull back any sediment.

   c. Clean inlets and outlets.

   d. Move truck down to next storm drain.

3. Clean-up

   a. When vac truck is full of sediment take it to _____ to dump all the sediment out of the truck into a dry pond.

   b. When evaporates are dry, clean it up with a backhoe, put it into a dump truck and take it to the landfill.

4. Documentation

   a. Keep logs of culverts/storm water pipes wells cleaned.

   b. Record the amount of waste collected.

   c. Keep any notes or comments of any problems.

STREETS/STORM DRAIN – Sumps and Injection Wells (Includes Underground Storm Water Detention Structures)

Description: This section contains information on the cleaning of storm drain sumps and injection wells. This also includes what methods to use to remove sediment and debris from the structures. A record keeping procedure is also outlined for tracking the cleaning process.

Applicability: Cleaning of Sumps and Injection Wells.

1. Preparation:

   a. Clean sediment and trash off inlet to sump/injection well.

   b. Determine how water is supposed to drain from the structure and assess the ability of the structure to allow water to drain as designed.

   c. If possible do visual inspection of inside of sump/injection well.

   d. Look for cracks, missing or broken pieces in the walls/sides of structure.

   e. Do inside visual inspection to see what needs to be cleaned.

2. Process

   a. Clean using a high powered vac truck, cleaning the sides of the structure and sucking out sediment on the bottom.

   b. Remove fine sediments that might inhibit the drainage of water if the structure is designed such that the water drains out the bottom.

   c. Clean those places where to water drains if the structure is designed to drain out the sides of the sump/injection well.

   d. Clean inlets and overflow outlets.

3. Clean-up

   a. When vac truck is full of sediment take it to _____ to dump all the sediment out of the truck into a dry pond.

   b. When evaporates are dry, clean it up with a backhoe, put it into a dump truck and take it to the landfill.

4. Documentation

   a. Keep logs of culverts/storm water pipes wells cleaned.

   b. Record the amount of waste collected.

   c. Keep any notes or comments of any problems.

STREETS/STORM DRAIN – Detention Ponds

Description: This section contains information on the maintenance and cleaning of storm drain detention ponds and structures. This also includes what methods to use to remove sediment and debris from the structure. A record keeping process is also outlined for maintenance.

Applicability: Maintenance of detention structures.

1. Preparation:

    a. Remove any sediment and trash from grates.

    b. Do a visual inspection to make sure grates are in good shape and everything is in good working order.

    c. Pull grates, inspect inside of structures/boxes/pipes.

2. Process

    a. Provide outlet protection where feasible to minimize the amount of debris that might leave basin during cleaning process.

    b. If necessary, clean basin by using backhoe to remove silt and sediment off the bottom

    c. Place all sediment into a dump truck.

    d. Clean structures as described for in cleaning catch basins SOP.

3. Clean-up

    a. Haul and dump sediment at the landfill.

4. Documentation

    a. Keep logs of number of detention basins cleaned including date, estimated quantity of material, individuals involved in cleaning, and a description of the type of debris removed.

    b. Record the estimated amount of waste collected.

    c. Keep any notes or comments of any problems.

STREETS/STORM DRAIN – Creek Maintenance

Description: This section contains information on the maintenance and preservation of natural water courses including creeks and streams. This also includes identifying what maintenance needs to be done and the method of how it will be accomplished. Record keeping is necessary in stream maintenance.

Applicability: Maintaining any creek or stream.

1. Preparation

   a. Monitor streams on a regular basis (Monthly).

   b. Check culverts and crossings after every storm or runoff event.

   c. Maintain access to stream channels wherever possible.

   d. Identify areas requiring maintenance.

   e. Determine method of maintenance that will be least damaging to the channel.

   f. Determine what manpower or equipment will be required.

   g. Obtain necessary permits as required by the Army Corp. of Engineers or State Engineers Office.

   h. Identify access and easements to area requiring maintenance.

2. Process

   a. Follow requirements of permits as applicable.

   b. Use techniques to minimize disruption to the stream bank or channel

   c. Install clean materials free of pollutants and contaminants.

   d. Place removed materials in an area upland of the water course to prevent them from re-entering the channel.

3. Clean-up

   a. Stabilize all disturbed soils.

   b. Haul all debris or sediment removed from area to approved dumping site.

c. Remove all tracking from paved surfaces near maintenance site, if applicable.

4. Documentation

a. Keep log of actions performed including date and individuals involved.

b. Record the amount of materials removed or imported.

c. Keep any notes or comments of any problems.

d. Use "before" and "after" photographs to document activities as applicable.

STREETS/STORM DRAIN – Canal / Ditch Maintenance

Description: This section contains information on the maintenance and preservation of canals. This also includes identifying what maintenance needs to be done and the method of how it will be accomplished. Record keeping is necessary in canal maintenance.

Applicability: Maintaining canal or irrigation ditch.

1. Preparation

    a. Monitor canals on a regular basis (Monthly).

    b. Establish maintenance responsibilities with irrigation company boards and operators.

    c. Create a maintenance schedule with the irrigation company.

    d. Identify areas requiring maintenance with irrigation company annually at a minimum.

    e. Identify access and easements to canal area.

    f. Establish procedures for removal of material from canal maintenance. Including stockpiling of material removed or hauling methods.

    g. Check canal/ditch crossings on schedule, including during and after storm events.

    h. Determine what man power or equipment will be required.

2. Process

    a. Perform maintenance as outlined in agreement with irrigation company

    b. Install clean materials free of pollutants and contaminants.

    c. Place removed materials in an area upland of the watercourse to prevent them from re-entering the channel.

    d. Haul material away as outlined in agreements with irrigation company.

3. Clean-up

    a. Stabilize all disturbed soils.

    b. Haul all debris or sediment removed from area to approved dumping site.

    c. Remove all tracking from paved surfaces near maintenance site, if applicable.

4. Documentation

   a. Keep log of actions performed including date and individuals involved.

   b. Record the amount of materials removed or imported.

   c. Keep any notes or comments of any problems.

   d. Use "before" and "after" photographs to document activities as applicable.

STREETS/STORM DRAIN – Chip Seal

Description: This section contains information on the protection and maintenance of storm drain system while chip sealing roadways. This also includes guidelines for chip sealing and for the cleaning of roadways after a chip seal has been applied.

Applicability: Chip sealing roadways.

1. Preparation

    a. Remove weeds from the roads.

    b. Correct any areas with poor drainage. (i.e. rutting)

    c. Clean and dry areas where materials are to be applied. Ensure manholes and catch basins are covered to prevent oil and materials from getting inside the structures or system.

    d. Calibrate spreader to minimize excess chips from being placed on the emulsion.

    e. Review standard operating procedure with contractor if performing work.

2. Process

    a. Apply emulsion at recommended rate.

    b. Spread chips closely behind emulsion distributor.

    c. Roll chips. Rollers follow closely behind the chip spreader. Roll entire surface twice. Maximum speed 5 mph

3. Clean-up

    a. Use street sweeper to pick up excess chips.

    b. Remove excessive asphalt applications and spills.

    c. Remove covers from storm drain structures and remove debris that has entered the collection system.

4. Documentation

    a. Record location and date on the maintenance log.

STREETS/STORM DRAIN – Slurry Seal

Description: This section contains information on the protection and maintenance of storm drain system while applying slurry seal to roadways.

Applicability: Applying slurry seal to roadways.

1. Preparation
    a. Remove weeds from the roads.
    b. Clean and dry areas where materials are to be applied.
    c. Correct any areas with poor drainage. (i.e. rutting)
    d. Cover/protect catch basins and manholes.
    e. Review standard operating procedure with contractor if performing work.

2. Process
    a. Apply slurry in a smooth and uniform manner.
    b. Protect adjacent areas and storm drainage systems from slurry during spreading.

3. Clean-up
    a. Remove covers/protection from catch basins and manholes.
    b. Clean up any excess material that may have entered the storm drain.
    c. Dispose of excess materials at an approved location.

4. Documentation
    a. Record location and date on the maintenance log.

STREETS/STORM DRAIN – Overlays and Patching

Description: This section contains information on the protection and maintenance of storm drain system while the roadway is being overlaid or patched.

Applicability: Overlaying or patching roadways.

1. Preparation

    a. Correct any areas with poor drainage. (i.e. rutting)

    b. Fill pothole areas and soft spots.

    c. Seal cracks in asphalt.

    d. Manholes and catch basins are covered to prevent oil and materials from getting inside the structures or system.

    e. Surface should be clean and dry.

    f. Review standard operating procedure with contractor if performing work.

2. Process

    a. Apply tack coat uniformly at the required rate. Do not over apply.

    b. Protect area outside of work zone from overlay material.

    c. Place removed material in a truck for removal from the job site.

    d. Protect manholes and catch basins when raising covers as necessary.

3. Clean-up

    a. Remove covers from catch basins and manholes

4. Documentation

    a. Record location and date on the maintenance log.

STREETS/STORM DRAIN – Crack Seal

Description: This section contains information on the protection and maintenance of roadway and storm drain system while cracks are being sealed on roadway surface.

Applicability: Crack sealing on roadways.

1. Preparation
    a. Remove weeds from the cracks.
    b. Remove sediments from crack to a specified depth.
    c. Surface should be clean and dry.
    d. Review standard operating procedure with contractor if performing work.

2. Process
    a. Place material as specified.
    b. Minimize material from spilling outside of crack and into storm drain systems.
    c. Keep crack sealing equipment on asphalt surface to control any material spills.

3. Clean-up
    a. Remove excessive sealant or spills from roadway.

4. Documentation
    a. Record location and date on the maintenance log.

STREETS/STORM DRAIN – Shouldering

Description: This section contains information on the protection and maintenance of roadway and storm drain system while shouldering. This includes traffic control, cleaning, and record keeping of the project.

Applicability: Shouldering roadways.

1. Preparation

    a. Use traffic control devices as necessary.

    b. Install protection for storm drain system from receiving shouldering material.

    c. Determine quantity required for shouldering and distribute along roadway as needed trying to minimize stockpiles.

2. Process

    a. Place import material as needed and perform grading to achieve proper drainage.

    b. Compact as placement of material occurs to minimize erosion.

3. Clean-up

    a. Clean any loose material off asphalt or gutter by dry methods

    b. Remove protection from the storm drain system.

    c. Clean up any excess material, that has entered the storm drain system.

4. Documentation

    a. Record location and date on the maintenance log.

STREETS/STORM DRAIN – Gravel Road Maintenance

Description: This section contains information on gravel roadway maintenance and the protection of the storm drain system.

Applicability: Performing any maintenance on gravel roadways.

1. Preparation

    a. Locate drainage features along length of road to be maintained

    b. Protect drainage structures from material entering the system during maintenance activities

    c. Determine disposal site for excess materials

    d. Install traffic control as necessary.

    e. Stockpile material as necessary for the work.

    f. Install BMP's as necessary for the level of work to be performed.

2. Process

    a. Grade road to promote drainage away from the roadway.

    b. Place imported material as needed for roadway.

    c. Compact material quickly to maintain moisture content and reduce potential for erosion.

    d. Repair/revise drainage structures to collect runoff.

    e. Stabilize shoulders after completing maintenance.

    f. Install / maintain BMP's as necessary along roadway.

3. Clean-up

    a. Remove stockpiled material from work area.

    b. Stabilize any loose material or disturbed areas.

    c. Clean any tracked materials from paved surfaces.

4. Documentation

    Record location and date on the maintenance log.

STREETS/STORM DRAIN – Concrete Work

Description: This section contains information on proper concrete placement and how to clean a site to prevent excess concrete materials from entering the storm drain system.

Applicability: Performing any maintenance on roadways.

1. Preparation

   a. Train employees and contractors in proper concrete waste management

   b. Store dry and wet materials under cover, away from drainage areas

   c. Determine how much new concrete will be needed.

   d. Locate or construct approved concrete washout facility.

2. Process

   a. Remove any damaged concrete that may need to be replaced.

   b. Prepare and compact subbase.

   c. Set forms and place any reinforcing steel that may be required.

   d. Moisten subbase just prior to placing new concrete. Place new concrete in forms.

   e. Consolidate new concrete.

   f. Screed off surface.

   g. Let concrete obtain its initial set.

   h. Apply appropriate surface finish

3. Clean-up

   a. Perform washout of concrete trucks and equipment in approved washout area.

   b. Remove and dispose of excess concrete spilled on site. Sweep and remove concrete dust from grinding activities from the site.

4. Documentation

   a. None

STREETS/STORM DRAIN – Garbage Storage

Description: This section contains information on proper placement, installation, and cleaning of garbage dumpsters. Also, proper use and repair of damaged garbage bins to prevent leakage into drainage system.

Applicability: Garbage dumpster/bin location.

1. Preparation

    a. Locate dumpsters and trash cans with lids in convenient, easily observable areas.

    b. Locate dumpsters on a flat, impervious surface that does not slope or drain directly into the storm drain system.

    c. Install berms, curbing or vegetation strips around storage areas to control water entering/leaving storage areas.

    d. Provide properly labeled recycling bins to reduce the amount of garbage disposed.

    e. Provide training to employees to prevent improper disposal of general trash.

2. Process

    a. Inspect garbage bins for leaks regularly, and have repairs made immediately by responsible party.

    b. Have garbage bins empted as often as needed to keep from overfilling.

    c. Keep lids closed when not actively filling dumpster.

    d. Repair any drainage improvements to prevent runoff from dumpsters from entering the storm drain system.

3. Clean-up

    a. Keep areas around dumpsters clean of all garbage.

    b. Wash out bins or dumpsters as needed to keep odors from becoming a problem.

STREETS/STORM DRAIN – Snow Removal and De-icing

Description: This section contains information on proper storage and loading of de-icing material in order to prevent materials from entering into a storm drain system.

Applicability: Snow removal or application of de-icing materials.

1. Preparation

    a. Store de-icing material under a covered storage area or in an area.

    b. Collect and deliver water coming off the de-icing materials to the sanitary sewer or reuse as salt brine.

    c. Slope loading area away from storm drain inlets

    d. Design drainage from loading area to collect runoff before entering storm water system

    e. Wash out vehicles (if necessary) in approved washout area before preparing them for snow removal.

    f. Calibrate spreaders to minimize amount of de-icing material used and still be effective

    g. Train employees in spill cleanup procedures and proper handling and storage of de-icing materials

2. Process

    a. Load material into trucks minimizing spillage.

    b. Sweep loading area periodically to reduce the amount of de-icing materials exposed to runoff

    c. Distribute the minimum amount of de-icing material to be effective on roads

    d. Do not allow spreaders to idle while distributing de-icing materials.

    e. Park trucks with de-icing material inside when possible

3. Clean-up

    a. Sweep up all spilled de-icing material around loading area.

    b. Clean out trucks after snow removal duty in approved washout area.

    c. Provide maintenance for vehicles in covered area.

4. Documentation

   a. None

STREETS/STORM DRAIN – Salt and Sand, Mixing and Storing

Description: This section contains information on proper storage and loading of de-icing material in order to prevent materials from entering into a storm drain system.

Applicability: Snow removal or application of de-icing materials.

1. Preparation

    a. Mix and store materials on impervious surface only.

    b. Mix materials in summer months.

    c. After mixing materials store in covered shed.

2. Process

    a. Mixed materials are ready for winter use.

3. Clean-up

    a. Sweep up/Clean up mixing areas.

    b. Wash out trucks/loaders in approved wash bays.

4. Documentation

    None

STREETS/STORM DRAIN – Street Sweeping

Description: This section contains information and guidelines on proper street sweeping techniques in order to prevent high rates of oils and other pollutants from getting into the storm drain system.

Applicability: Streets with a high quantity of debris and pollutants.

1. Preparation

    a. Prioritize cleaning routes to use at the highest frequency in areas with the highest pollutant loading.

    b. Perform preventative maintenance and services on sweepers to increase and maintain their efficiency.

    c. Review standard operating procedure with contractor if performing work.

2. Process

    a. Drive street sweeper safely and pickup debris.

    b. Dispose of debris at an approved street sweeper disposal location.

3. Clean-up

    a. Clean street sweepers at an approved street sweeper cleaning station

    b. Street sweeping cleaning stations shall separate the solids from the liquids.

    c. Once solids have had a chance to dry out haul to the local landfill

    d. Collected decant water and route to an approved wastewater collection system.

4. Documentation

    a. Keep accurate logs to track street swept and streets still requiring sweeping.

    b. Log the approximate amount of debris collected and hauled off.

STREETS/STORM DRAIN – Transporting Soil and Gravel

Description: This section contains information for proper site preparation and maintenance while materials are being transported to or from a site. The use of a SWPPP is also recommended.

Applicability: Removing or importing fill materials for a site.

1. Preparation

    c. Dry out wet materials before transporting to prevent spillage on the roadway.

    d. Spray down dusty materials to keep from blowing.

    e. Know and understand the SWPPP requirements for the site you will be working at.

2. Process

    a. Use a stabilized construction entrance to access or leave the site where materials are being transported to/from.

    b. Cover truck bed with a secured tarp before transporting.

    c. Follow the SWPPP requirements for the specific site to/from which the materials are being hauled.

    d. Do not to overfill materials when loading trucks.

3. Clean up

    a. Clean up any materials tracked out on the roads from site with street sweeper or by hand methods.

    b. Wash mud from vehicles before leaving site.

4. Documentation

    a. Document tracked material cleanup in maintenance logs.

WATER – Planned Waterline Excavation Repair/Replacement

Description: This section contains information for proper waterline excavation. Including protection of storm drain inlets and clearing of gutters.

Applicability: Repairing or replacing waterlines.

1. Preparation
    a. Determine where discharge flow will go.
    b. Obtain dewatering permit if necessary for the project.
    c. Protect Storm drain inlet(s).
    d. Clean Gutters leading to inlet.
    e. Isolate waterline to be worked on.

2. Process
    a. Make efforts to keep water from pipeline from entering the excavation
    b. Direct any discharge to pre-determined area per permit if necessary.
    c. Neutralize any chlorine residual before discharging water to a storm drain or water course.
    d. Backfill excavation.
    e. Haul off excavated material or stock pile nearby.
    f. Stabilize any stockpiled material until installed or hauled away.

3. Clean up
    a. Clear gutter/ waterway where water flowed
    b. Clean up and stabilize all areas around excavation
    c. Clean up travel path of hauled material if necessary.

4. Documentation
    a. Document beginning of work, completion of work and any cleanup items performed on site.

WATER – Unplanned Waterline Excavation Repair/Replacement

Description: This section contains information for proper waterline excavation when an unexpected leak has occurred. Including protection of storm drain inlets and clearing of gutters.

Applicability: Repairing or replacing waterlines when unexpected leak occurs.

1. Preparation
    a. Equip leak repair equipment with filter material (Inlet Protection Filter bags)

2. Process
    a. Stop the discharge
    b. Inspect flow path of discharged water
    c. Protect water inlet areas.
    d. Follow planned repair procedures.
    e. Haul off spoils from excavation

3. Clean-up
    a. Repair eroded areas as needed.
    b. Stabilize area from further erosion.
    c. Clean traveled path of hauled material

4. Documentation
    a. Document beginning of work, completion of work and any cleanup items performed on site.

WATER – Transporting Dry Excavated Materials & Spoils

Description: This section contains information for proper transport of dry excavated materials that may have environmental contaminants.

Applicability: Transport of dry excavated materials & spoils.

1. Preparation
    a. Utilize truck with proper containment of materials
    b. Determine disposal site of excavated materials
    c. Install BMP's if necessary for operations.

2. Process
    a. Load truck with materials
    b. Check truck after loading for possible spillage. Clean up when loading operations complete for the day.
    c. Cover truck with tarp.
    d. Transport in manner to eliminate spillage & tracking.
    e. Utilize one route for transporting.

3. Clean-up
    a. Clean loading area.
    b. Clean transporting route using sweeper or dry methods.
    c. Wash off truck and other equipment at approved wash location.

4. Documentation
    a. Document beginning of work, completion of work and any cleanup items performed on site.

WATER – Transporting Wet Excavated Materials & Spoils

Description: This section contains information for proper transport of wet excavated materials that may have environmental contaminants.

Applicability: Transport of wet excavated materials & spoils.

1. Preparation
    a. Utilize truck with containment for material.
    b. Determine disposal site of excavated material.
    c. Dry materials prior to transporting if possible.
    d. Install BMP's if necessary for operations.

2. Process
    a. Load and Transport in manner to minimize spillage & tracking of material
    b. Check truck for spillage.
    c. Cover load with tarp.
    d. Utilize one route of transport

3. Clean-up
    a. Clean route of transport to provide cleaning of any spilled material
    b. Wash out equipment truck and other equipment

4. Documentation
    a. Document beginning of work, completion of work and any cleanup items performed on site.

WATER – Waterline Flushing for Routine Maintenance

Description: This section contains information for proper waterline flushing, protection of inlet structures, and maintaining a clean flow path for waterway.

Applicability: Waterline flushing for routine maintenance.

1. Preparation
    a. Determine flow path of discharge to inlet of waterway.
    b. Obtain discharge permit if necessary from State of Utah.
    c. Neutralize chlorine residual if necessary.

2. Process
    a. Clean flow path.
    b. Protect inlet structures.
    c. Use diffuser to dissipate pressure to reduce erosion possibilities

3. Clean-up
    a. Clean flow path
    b. Remove inlet protection if installed.

4. Documentation
    a. Document beginning of work, completion of work and any cleanup items performed on site.
    b. Residual tests of discharge water

WATER – Waterline Flushing after Construction/System Disinfection with Discharge to Storm Drain

Description: This section contains information for proper waterline flushing, protection of inlet structures, and maintaining a clean flow path for waterway after a construction project or system disinfection with discharge to storm drain.

Applicability: Waterline flushing after construction projects or after system disinfection.

1. Preparation

    a. Determine chlorine content of discharged water. Utilize de-chlorination equipment if necessary.

    b. Determine flow path of discharge.

    c. Obtain discharge permit if necessary.

2. Process

    a. Protect inlets in flow path.

    b. Sweep and clean flow path.

    c. Use diffuser to reduce velocities.

3. Clean-up

    a. Remove inlet protection.

    b. Clean flow paths.

    c. Remove equipment from flush point.

4. Documentation

    a. Document beginning of work, completion of work and any cleanup items performed on site.

    b. Residual test of discharged water.

WATER – Waterline Flushing after Construction/System Disinfection with Discharge with Haul Off (Used for Dust Control/Compaction)

Description: This section contains information for proper waterline flushing and the hauling off of the discharged water in a tanker to use for dust control and compaction

Applicability: Waterline flushing after construction projects or after system disinfection.

1. Preparation
    a. Determine chlorine content of discharged water.
    b. Neutralize chlorine content.
    c. Determine appropriate construction activity for treatment.
    d. Provide backflow prevention device.

2. Process
    a. Flush to tanker.
    b. Conform that application of water is in appropriate location.
    c. Conform to BMP's at the construction site to prevent tracking.

3. Clean-up
    a. Remove equipment from flush point.

4. Documentation
    a. Document beginning of work, completion of work and any cleanup items performed on site.
    b. Residual test of discharged water.
    c. Location of water discharged.

WATER – Chemical Handling/Transporting and Spill Response

Description: This section contains information for transporting or handling of chemicals and actions that need to be taken when a chemical spill occurs.

Applicability: Transporting or handling of chemicals and possible spill of contaminates.

1. Preparation
    a. Understand MSDS streets for handling of product.
    b. Determine proper place of handling.
    c. Have necessary containment and spill kits at handling place.

2. Process
    a. Begin transfer process.
    b. Discontinue operations if spill levels occur.
    c. Disconnect and store handling equipment.

3. Clean-up
    a. Clean up spills with proper material
    b. Dispose of contaminated material at appropriate facility

4. Documentation
    a. Report spills to Bear River Health

WATER - Swimming Pools and Spas Discharge to Storm Water System

Description: This section contains information and guidelines for the draining of swimming pools and spas into the storm drain or sanitary sewer systems.

Applicability: Pool and Spa draining into storm water or sanitary sewer systems.

Note: Pool owners may discharge their pool water and filter backwash water to the sanitary sewer. There are no limitations on chlorine content or pH levels for discharges to the sanitary sewer. It is also acceptable to discharge to the sanitary sewer if the water is cloudy discolored, or contains algae. The pool owner should contact Public Works prior to discharging water from any pool or spa regardless of where they plan to discharge the water - sanitary sewer, onto the ground, or in a manner such that it enters the storm water system. After approval has been given by the public works department, swimming pool water may be discharged into the sanitary sewer system or the storm water system. The city must ensure the sewer system can accommodate the additional swimming pool water discharge. There may be a fee associated with discharging pool or spa water into the sanitary sewer.

1. Preparation

    a. With the help of Public Works officials determine the best place to discharge the water from the pool/spa.

    b. A pool or spa may be emptied onto the ground or into the storm water system if the chlorine content is less than one part per million and free of other chemicals.

    c. The pH level of the water must be tested prior to discharge and must fall within a range of 7 to 8.

    d. The water must not be cloudy or discolored and must be free of algae or other contaminants.

    e. Do a visual inspection of the pathway the water will take to ensure contaminants, trash, or soils or other sediments will not be washed into the storm water system. Clean as needed.

2. Process

    a. Clean, as needed, any storm water structure that will be used to convey the water into and through the storm water system.

    b. Drain the pool or spa to the location determined by Public Works officials using the pool system's pumps or by gravity.

c. Carefully watch the draining process at all times to ensure the water flow is going as planned and does not overload the system.

d. Water being discharged may not cause erosion and may not go unto a neighbor's property without their express written permission.

3. Documentation

a. Keep logs of pools and spas drained.

b. Record the amount of water drained and where the water was drained to.

c. Keep any notes or comments of any problems.

Appendix M – Pollution Prevention/Good Housekeeping:

Street Sweeping Log

**Document all street sweeping performed and retain these files here in Appendix M or list the location below where records are filed.*

*Alternative File Location:*_____

STREET SWEEPING LOG

Date	Streets Completed

Appendix N – Pollution Prevention/Good Housekeeping:

Catch Basin Cleaning Log

**Document all catch basin cleaning performed and retain these files here in Appendix N or list the location below where records are filed.*

*Alternative File Location:*_____

CATCH BASIN CLEANING LOG

Date	Catch Basins Cleaned

Appendix O – Pollution Prevention/Good Housekeeping:

Spill Response Log
Spill Response Report Form

**Document all spill response incidents and retain these files here in Appendix O or list the location below where records are filed.*

Alternative File Location: _____

SPILL RESPONSE LOG

Date	Spill Incident

SPILL RESPONSE REPORT FORM

Person Reporting Spill or Incident

Name: _____ Spill Address: _____

Title: _____ _____

Telephone: _____ City: _____

Fax: _____ State: _____

Email _____ Zip: _____

Type of Spill

Source and Cause of Spill: _____

Date: _____ Time: AM PM

Quantity Spilled (Estimate): _____

Concentration (Estimate): _____

Danger Posed by the Discharge: _____

Response Action

Actions Taken to Correct, Control, or Mitigate Incident: _____

Additional Information

Appendix P – Pollution Prevention/Good Housekeeping:

Litter Control Activities Log

**Document all litter control activities and retain these files here in Appendix P or list the location below where records are filed.*

*Alternative File Location:*_____

LITTER CONTROL ACTIVITIES LOG

Date	Litter Control Activity

Appendix Q – SWMP Certification:

**This certification must be re-signed and filed here in Appendix L in the event of a SWMP modification.*

SWMP CERTIFICATION

"*I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with the system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for the gathering the information, the information submitted is to the best of my knowledge and belief, true and 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.*"

_____ _____

Craig G. Neeley, P.E. Date

_____

Utah Registry No.

Appendix R – Small MS4 General UPDES Permit:

Permit No. UTR090000

STATE OF UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF WATER QUALITY

Authorization to Discharge Under the
Utah Pollutant Discharge Elimination System (UPDES)

General Permit for Discharges from Small Municipal Separate Storm Sewer Systems (MS4s)

This Permit is issued in compliance with the provisions of the Utah Water Quality Act, Title 19, Chapter 5, Utah Code Annotated 2004, as amended (the "Act") and the Federal Water Pollution Control Act (33 U.S.C. §§ 1251 et. seq., as amended to date), and the rules and Regulations made pursuant to those statutes.

This Permit authorizes storm water discharges to Waters of the State of Utah resulting from a Small Municipal Separate Storm Sewer System (Small MS4) as provided in Part 1.0 of this Permit. This authorization is conditioned upon an operator of a Small MS4 meeting the eligibility requirements in Part 1.2 of this Permit prior to filing a Notice of Intent ("NOI") to discharge under this General Permit. An operator of a Small MS4 is not covered by this General Permit if the operator submits an NOI but has not met these conditions.

This authorization is subject to the authority of the Utah Water Quality Board or the Executive Secretary of the Utah Water Quality Board to reopen this Permit (see Part 6.22 of Permit), or to require a discharger to obtain an individual Permit (see Part 6.15 of this Permit). The issuance of a discharge Permit authorization under this general Permit does not relieve Permittees of other duties and responsibilities under the Act or rules made under that Act. Significant terms used in this Permit are defined in Part 7.0 of this Permit.

This Permit shall become effective on August 1, 2010.

This Permit and the authorization to discharge shall expire at midnight, July 31, 2015, except as described in Part 6.3 of this Permit.

Signed this 26th day of July, 2010.

Walter L. Baker, P.E.
Executive Secretary
Utah Water Quality Board

**UPDES GENERAL PERMIT FOR DISCHARGES FROM
SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4s)**

TABLE OF CONTENTS

1.0 Coverage Under this Permit

1.1. Authority to Discharge

This General Permit authorizes the discharge, to Waters of the State of Utah, of storm water from a Small MS4 as that term is defined in R317-8-1.6(14) and Part 7.39. of this Permit. This authorization is subject to all of the terms and conditions of this Permit. This General Permit does not authorize discharges prohibited under Part 1.4. of this Permit.

1.2. Permit Area and Eligibility

1.2.1. This Permit covers all areas of the State of Utah except Indian Country (see Part 7.22. of this Permit for a definition of "Indian Country").

1.2.1.1. No operator of a Small MS4 described in 40 CFR 122.32 may discharge from that system without authorization from the Executive Secretary. (See Utah Administrative Code Section R317-8-3.9(1)(h)(1)(a), which sets forth the Permitting requirement, and R317-8-1.10(13), which incorporates 40 CFR 122.32 by reference.) Authorization to discharge under the terms and conditions of this Permit is granted if:

1.2.1.2. It applies to an operator of a Small MS4 within the State of Utah but not within Indian Country;

1.2.1.3. The operator is not a "large" or "medium" MS4 as defined in 40 CFR 122.26(b)(4) or (7);

1.2.1.4. The operator submits a Notice of Intent (NOI) in accordance with Part 2.0 of this Permit;

1.2.1.5. The MS4 is located fully or partially within an urbanized area as determined by the latest Decennial Census by the Bureau of Census;

1.2.1.6. The operator is ordered by the Executive Secretary to obtain coverage under this Permit, as provided in the UPDES rules, R317-8.

1.2.2. The following are types of authorized discharges:

1.2.2.1. *Storm water discharges.* This Permit authorizes storm water discharges to waters of the State from the Small MS4s identified in 1.2.1., except as excluded in Part 1.4.

1.2.2.2. *Non-storm water discharges.* The following non-storm water discharges do not need to be addressed unless the Permittee or the Executive Secretary identifies these discharges as significant sources of pollutants to Waters of the State or as causing or contributing to a violation of water quality standards:

- Water line flushing
- Landscape irrigation

- Diverted stream flows
- Rising ground waters
- Uncontaminated ground water infiltration
- Uncontaminated pumped ground water
- Discharges from potable water sources
- Foundation drains
- Air conditioning condensate
- Irrigation water
- Springs
- Water from crawl space pumps
- Footing drains
- Lawn watering runoff
- Individual residential car washing
- Flows from riparian habitats and wetlands
- Dechlorinated swimming pool discharges
- Residual street wash water
- Dechlorinated water reservoir discharges
- Discharges or flows from fire fighting activity

1.3. Local Agency Authority

This Permit does not pre-empt or supersede the authority of local agencies to prohibit, restrict, or control discharges to storm drain systems or other water courses within their jurisdiction.

1.4. Limitations on Coverage

This Permit does not authorize:

1.4.1. Discharges that are mixed with sources of non-storm water unless such non-storm water discharges are in compliance with a separate UPDES Permit or are determined not to be a substantial contributor of pollutants to Waters of the State.

1.4.2. Storm water discharges associated with industrial activity as defined in *Utah Administrative Code (UAC) R317-8-3.9(6)(c).*

1.4.3. Storm water discharges associated with construction activity as defined in *UAC R317-8-3.9(6)(d)(10)* and *R317-8-3.9(6)(d)(11).*

1.4.4. Storm water discharges currently covered under another Permit.

1.4.5. Discharges that would cause or contribute to in-stream exceedances of water quality standards as contained in *UAC R317-2*.

1.4.6. Discharges of any pollutant into any Waters of the State for which a Total Maximum Daily Load (TMDL) has been approved by EPA unless the discharge is consistent with the TMDL. This consistency determination applies at the time a Notice of Intent is submitted. If conditions change after coverage is issued, the coverage may

remain active provided the conditions and requirements of Part 3.1. of this Permit are complied with.

1.4.7. Discharges or discharge-related activities that are likely to jeopardize the continued existence of any species that are listed as endangered or threatened under the Endangered Species Act (ESA) or result in the adverse modification or destruction of habitat that is designated as critical under the ESA. More information regarding endangered species in the State of Utah is available at http://www.fws.gov/mountain-prairie/.

1.4.8. Discharge from a small MS4 if the operator has been ordered by the Executive Secretary, as provided in Part 6.15 that it may no longer be covered under this General Permit, and the period established by the Executive Secretary for applying for a UPDES Permit has passed.

2.0 Notice of Intent and Storm Water Management Program Requirements

2.1. The requirements of this Part apply only to Permittees **not** covered under the previous General Permit for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems, i.e**. New Applicants**. Permittees that were covered under the previous MS4 general Permit and have submitted a notice of intent (NOI) at least 180 days prior to the expiration date of the previous Permit, are covered by this Permit and instead must follow the requirements of Part 2.3.

2.1.2. New applicants must meet the following application requirements. The Notice of Intent (NOI) must include submittal of the Storm Water Management Program (SWMP) document. Detailed information on SWMP requirements can be found in Part 4.0 of this Permit.

2.1.3. Within 180 days of notification from the Executive Secretary, the operator of the MS4 shall submit a NOI form as provided by the Division at http://www.waterquality.utah.gov/UPDES/stormwatermun.htm. (The Executive Secretary retains the right to grant permission for a later submission date upon good cause shown). One original completed NOI shall be submitted, by mail or hand delivery to:

Attention: UPDES IES
Department of Environmental Quality
Division of Water Quality
195 North 1950 West
PO Box 144870
Salt Lake City, UT 84114-4870

2.1.4. Late submittal of an NOI is prohibited (unless permission has been granted by the Executive Secretary). If a late NOI is submitted, authorization is only for discharges that occur after Permit coverage is granted. The Executive Secretary reserves the right to take appropriate enforcement actions for any unpermitted discharges.

2.1.5. Where application is made by a new applicant that has assumed operational control of an MS4 for which coverage under this Permit was previously held by a separate entity, the Division may determine that the new applicant shall comply with the Permit requirements in this Permit, as directed for Renewal Permittees. Notification shall be made by the Executive Secretary of this requirement in writing to the New Applicant prior to issuance of Permit coverage

2.1.6. Implementation of the Permittee's SWMP must include the six minimum control areas, including Measurable Goals, described in Part 4.2. Measurable Goals for each of the program areas must include, as appropriate, the year by which the Permittee will undertake required actions, including interim milestones and the frequency of the action if applicable.

2.1.7. Implementation of the Permittee's SWMP as described in the Permittee's application is required to begin within 30 days after the completed application is submitted. The Permittee must fully develop and implement the SWMP as discussed in Part 4.0 of the Permit by the end of the Permit term unless a more restrictive timeframe is indicated.

2.1.8. If an Operator is designated by the Executive Secretary as requiring Permit coverage later than one year after the effective date of this General Permit, the Executive Secretary may approve alternative deadlines that would allow the Permittee to have its program areas implemented.

2.2. Contents of the Notice of Intent

The Notice of Intent requires, at a minimum, the following information:

2.2.1. Name, address, and telephone number of the principal executive officer, ranking elected official or other duly authorized employee in charge of municipal resources used for implementation of the SWMP;

2.2.2. Name(s)/ identification of Waters of the State as defined by UAC R317-1-1.32 that receive discharges from the Permittee's MS4;

2.2.3. Name of the person responsible for overseeing implementation and coordination of the SWMP;

2.2.4. Summary description of the overall water quality concerns, priorities, and measurable goals specific to the Permittee that were considered in the development of the SWMP;

2.2.5. The SWMP document shall consist of, at a minimum, a description of the program elements that will be implemented (or already exist) for each of the SWMP minimum control measures. The plan must be detailed enough for the Division to determine the Permittee's general strategy for complying with the required items in each of the six minimum control measures in the SWMP document (see Part 4.2 of this Permit);

2.2.6. Information on the chosen Best Management Practices (BMPs) and the measurable goals for each of the storm water minimum control measures in Part 4.2 of this

Permit and, as appropriate, the timeframe by which the Permittee will achieve required actions, including interim milestones;

2.2.7. Permittees which are applying as Co-Permittees shall each submit an NOI and individual SWMP document which will clearly identify the areas of the MS4 for which each of the Co-Permittees are responsible. Permittees which are relying on another entity (ies) to satisfy one or more of their Permit obligations shall include with the NOI, a summary of the Permit obligations that will be carried out by the other entity (ies). During the term of the Permit, Permittees may terminate or amend shared responsibility arrangements by notifying the Executive Secretary, provided this does not alter implementation deadlines.

2.2.8. Certification and signature requirements in accordance with Part 6.8.

2.3. Storm Water Management Program Plan Description for Renewal Permittees

2.3.1. The requirements of this part apply only to **Renewal Permittees** that were previously covered under the last MS4 general Permit. New applicants are not required to meet the requirements of this Part and instead must follow the requirements of Part 2.0.

2.3.2. Renewal Permittees must submit a **revised SWMP document** to the Division within 120 days of the effective date of this Permit, which includes at a minimum, the following information:

2.3.2.1. Permit number;

2.3.2.2. MS4 location description and map;

2.3.2.3. Information regarding the overall water quality concerns, priorities, and measurable goals specific to the Permittee that were considered in the development and/or revisions to the SWMP document;

2.3.3. A description of the program elements that will be implemented (or are already being implemented) in each of the six minimum control measures (see Part 4.0);

2.3.3.1. A description of any modifications to ordinances or long-term/ongoing processes implemented in accordance with the previous MS4 general Permit for each of the six minimum control measures;

2.3.3.2. A description of how the Permittee intends to meet the requirements Permit as described in Part 4.0 by either referencing existing program areas that already meet the Permit requirements or a description and relevant measurable goals that include, as appropriate, the year by which the Permittee will achieve required actions, including interim milestones.

2.3.3.3. Indicate the joint submittal (s) of Co-Permittees (if applicable) and the associated responsibility (ies) in meeting requirements of the SWMP.

2.3.3.4. Certification and signature requirements in accordance with Part 6.8.

2.3.4. The revised SWMP document must contain specific details for complying with the required items in each of the six minimum control measures contained within the SWMP document (See Part 4.2.).

3.0. Special Conditions

3.1. Discharges to Water Quality Impaired Waters

3.1.1. Applicability: Permittees must:

3.1.1.1. Determine whether storm water discharge from any part of the MS4 contributes to a 303(d) listed (i.e., impaired) waterbody. A 303(d) list of impaired waterbodies is available at http://www.waterquality.utah.gov/TMDL/index.htm. Water quality impaired waters means any segment of surface waters that has been identified by the Division as failing to support classified uses. If the Permittee has discharges meeting these criteria, the Permittee must comply with Part 3.1.2. below and if no such discharges exist, the remainder of this Part 3.1 does not apply.

3.1.1.2. If the Permittee has "303(d)" discharges described above, the Permittee must also determine whether a Total Maximum Daily Load (TMDL) has been developed by the Division and approved by EPA for the listed waterbody. If there is an approved TMDL, the Permittee must comply with all requirements associated with the TMDL as well as the requirements of Part 3.1.2. below and if no TMDL has been approved, the Permittee must comply with Part 3.1.2. below and any TMDL requirements once it has been approved.

3.1.2. Water Quality Controls for Discharges to Impaired Waterbodies. If the Permittee discharges to an impaired waterbody, the Permittee must include in its SWMP document a description of how the Permittee will control the discharge of the pollutants of concern. This description must identify the measures and BMPs that will collectively control the discharge of the pollutants of concern. The measures should be presented in the order of priority with respect to controlling the pollutants of concern.

3.1.3. Where a discharge is already authorized under this Permit and is later determined to cause or have the reasonable potential to cause or contribute to the violation of an applicable water quality standard, the Division will notify the Permittee of such violation(s). The Permittee must take all necessary actions to ensure future discharges do not cause or contribute to the violation of a water quality standard and document these actions as required by the Division. If violations remain or re-occur, coverage under this Permit may be terminated by the Division and an alternative general Permit or individual Permit may be issued. Compliance with this requirement does not preclude any enforcement activity as provided by the Utah Water Quality Act for the underlying violation

3.2. Threatened or Endangered Species and Historic Properties

This Permit does not relieve the Permittee from compliance with Federal or State laws pertaining to threatened or endangered species or historic properties. Where applicable, compliance efforts to these laws shall be reflected in the SWMP document.

3.3. Co-Permittees

3.3.1. Two or more operators of interrelated or neighboring Small MS4s may apply as Co-Permittees.

3.3.2. In order to be Permitted as Co-Permittees, the MS4(s) must each submit an NOI complete with BMP measurable goals and implementation milestones. Each description of the MS4(s) Storm Water Management Program Plan(s) must clearly describe which Permittees are responsible for implementing each of the control measures.

3.3.3. Each Co-Permittee is individually liable for:

3.3.3.1. Permit compliance for discharges from portions of the MS4 where it is the operator and for areas within its legal jurisdiction;

3.3.3.2. Ensuring that the six minimum control measures described in Part 4.2 are implemented for portions of the MS4 where it is the operator and in areas within its legal jurisdiction; and

3.3.3.3. If any Permit conditions are established for specific portions of the MS4, Co-Permittees need only comply with the Permit conditions relating to those portions of the MS4 for which they are the operator.

3.3.4. Each Co-Permittee is jointly liable for compliance with annual reporting requirements listed in Part 5.5, except that a Co-Permittee is individually liable for any parts of the annual report that relate exclusively to portions of the MS4 where it is the operator.

3.3.5. Specific Co-Permittees are jointly liable for Permit compliance on portions of the MS4 as follows:

3.3.5.1. Where operational or storm water management program implementation authority over portions of the MS4 has been transferred from one Co-Permittee to another in accordance with legally binding interagency agreements, both the owner and the operator may be jointly liable for Permit compliance on those portions of the MS4; and;

3.3.5.2. Where one or more Co-Permittees jointly own or operate a portion of the MS4, each owner/operator is jointly liable for compliance with Permit conditions on the shared portion of the MS4.

4.0 Storm Water Management Program

4.1. Requirements

4.1.1. All Permittees must develop, implement, and enforce a SWMP designed to reduce the discharge of pollutants from the MS4, protect water quality, and satisfy the appropriate water quality requirements of the *Utah Water Quality Act.* The SWMP must include the six minimum control measures described in Part 4.2 of this Permit.

4.1.1.1. The SWMP shall be developed and implemented in accordance with the schedules contained in Part 4.0. of this Permit.

4.1.2. Within **90 days** after the coverage from this Permit is granted, each Permittee shall have an ongoing documentation process for gathering, maintaining, and using information to conduct planning, set priorities, track the development and implementation of the SWMP, evaluate Permit compliance/non-compliance, and evaluate the effectiveness of the SWMP implementation.

4.1.2.1. Each Permittee shall track the number of inspections performed, official enforcement actions taken, and types of public education activities implemented as required for each SWMP component. This information shall be provided to the Division upon request and used by the Division to determine compliance with this Permit.

4.1.2.2. Each Permittee must secure the resources necessary to meet all requirements of this permit. Each Permittee must conduct an annual analysis of the capital and operation and maintenance expenditures needed, allocated, and spent as well as the necessary staff resources needed and allocated to meet the requirements of this permit, including any development, implementation, and enforcement activities required. Each permittee must submit a summary of its fiscal analysis with each annual report.

4.1.3. The SWMP document shall include BMPs that the Permittee or another entity will implement for each of the storm water minimum control measures.

4.1.3.1. The measurable goals for each of the BMPs shall include, as appropriate, the months and years in which the Permittee will undertake required actions, including interim milestones and the frequency of the actions.

4.1.3.2. The SWMP document shall indicate the person or persons responsible for implementing or coordinating the BMPs contained within the SWMP document.

4.2. Minimum Control Measures

Permittees covered under the previous General Permit for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems, i.e. **Renewal Permittees**, are expected to have completed all of the following six minimum control measures as required in the previous Permit term. A Renewal Permittee must continue to implement its Storm Water Management Program (SWMP) as described in the application and submittals provided in accordance with the previous MS4 general Permit, while updating its SWMP document pursuant to this Permit. This Permit does not extend the compliance deadlines set forth in the previous MS4 general Permit unless specifically noted.

The six minimum control measures that must be included in the storm water management program are:

4.2.1. Public Education and Outreach on Storm Water Impacts

The Permittee must implement a public education and outreach program to promote behavior change by the public to reduce water quality impacts associated with pollutants in storm water runoff and illicit discharges. Outreach and educational efforts shall include a multimedia approach and shall be targeted and presented to specific audiences for increased effectiveness. The educational program must include documented education and outreach efforts for the following four audiences: (1) residents, (2) businesses, institutions, and commercial facilities, (3) developers and contractors (construction), and (4) MS4 industrial facilities. The minimum performance measures which should be based on the land uses and target audiences found within the community include:

4.2.1.1. Target specific pollutants and pollutant sources determined by the Permittee to be impacting, or have the potential to impact, the beneficial uses of receiving water. This includes providing information which describe the potential impacts from storm water discharges; methods for avoiding, minimizing, reducing and /or eliminating the adverse impacts of storm water discharges; and the actions individuals can take to improve water quality, including encouraging participation in local environmental stewardship activities, based on the land uses and target audiences found within the community;

4.2.1.2. Provide and document information given to the general public of the Permittee's prohibitions against and the water quality impacts associated with illicit discharges and improper disposal of waste. The Permittee must at a minimum consider the following topics. These topics are not inclusive and the Permittee must focus on those topics most relevant to the community: maintenance of septic systems; effects of outdoor activities such as lawn care (use of pesticides, herbicides, and fertilizers); benefits of on-site infiltration of storm water; effects of automotive work and car washing on water quality; proper disposal of swimming pool water; and proper management of pet waste.

4.2.1.3. Provide and document information given to businesses and institutions of the Permittee's prohibition against and the water quality impacts associated with illicit discharges and improper disposal of waste. The Permittee must at a minimum consider the following topics. These topics are not inclusive and the Permittee must focus on those topics most relevant to the community: proper lawn maintenance (use

of pesticides, herbicides and fertilizer); benefits of appropriate on-site infiltration of storm water; building and equipment maintenance (proper management of waste water); use of salt or other deicing materials (cover/prevent runoff to storm system and contamination to ground water); proper storage of materials (emphasize pollution prevention); proper management of waste materials and dumpsters (cover and pollution prevention); and proper management of parking lot surfaces (sweeping). This education can also be a part of the Illicit Discharge Detection and Elimination measure detailed in Part 4.2.3.

4.2.1.4. Provide and document information given to engineers, construction contractors, developers, development review staff, and land use planners concerning the development of storm water pollution prevention plans (SWPPPs) and BMPs for reducing adverse impacts from storm water runoff from development sites. This education can also be a part of the Construction Site Storm Water Runoff minimum control measure detailed in Part 4.2.4.

4.2.1.5. Provide and document information and training given to employees of Permittee-owned or operated facilities concerning the Permittee's prohibition against and the water quality impacts associated with illicit discharges and improper disposal of waste. The Permittee must at a minimum consider the following topics: equipment inspection to ensure timely maintenance; proper storage of industrial materials (emphasize pollution prevention); proper management and disposal of wastes; proper management of dumpsters; minimization of use of salt and other de-icing materials (cover/prevent runoff to MS4 and ground water contamination); benefits of appropriate on-site infiltration (areas with low exposure to industrial materials such as roofs or employee parking); and proper maintenance of parking lot surfaces (sweeping).

4.2.1.6. Provide and document information and training given to MS4 engineers, development and plan review staff, land use planners, and other parties as applicable to learn about Low Impact Development (LID) practices, green infrastructure practices, and to communicate the specific requirements for post-construction control and the associated Best Management Practices (BMPs) chosen within the SWMP.

4.2.1.7. An effective program must show evidence of focused messages and audiences as well as demonstration that the defined goal of the program has been achieved. The Permittee must define the specific messages for each audience. The Permittee must identify methods that will be used to evaluate the effectiveness of the educational messages and the overall education program. Any methods used to evaluate the effectiveness of the program must be tied to the defined goals of the program and the overall objective of changes in behavior and knowledge. One method of evaluation of the program may be an evaluation of audience knowledge prior to commencement of the educational message followed by an evaluation after delivery of the message, such as a survey.

4.2.1.8. The Permittee must include written documentation or rationale as to why particular BMPs were chosen for its public education and outreach program.

4.2.2. Public Involvement/Participation

The Permittee must implement a program that complies with applicable State and Local public notice requirements. The SWMP shall include ongoing opportunities for public involvement and participation such as advisory panels, public hearings, watershed committees, stewardship programs, environmental activities, other volunteer opportunities, or other similar activities. The Permittee should involve potentially affected stakeholder groups, which include but is not limited to, commercial and industrial businesses, trade associations, environmental groups, homeowners associations, and education organizations. The minimum performance measures are:

4.2.2.1. Permittees shall adopt a program or policy directive to create opportunities for the public to provide input during the decision making processes involving the development, implementation and update of the SWMP document including development and adoption of all required ordinances or regulatory mechanisms.

4.2.2.2. Renewal Permittees shall make the revised SWMP document available to the public for review and input within 120 days from the effective date of this Permit. New Applicants shall make the SWMP document available to the public for review and input within 180 days of receiving notification from the Executive Secretary of the requirement for Permit coverage.

4.2.2.3. A current version of the SWMP document shall remain available for public review and input for the life of the Permit. If the Permittee maintains a website, the latest version of the SWMP document shall be posted on the website to allow the public to review and provide input.

4.2.2.4. The Permittee must at a minimum comply with State and Local public notice requirements when implementing a public involvement/participation program.

4.2.3. Illicit Discharge Detection and Elimination (IDDE)

All Permittees shall develop, implement and enforce an IDDE program to systematically find and eliminate sources of non-storm water discharges from the MS4 and to implement defined procedures to prevent illicit connections and discharges according to the minimum performance measures listed below within 18 months of receiving coverage under this Permit unless a different timeframe is indicated. The IDDE program must be described in writing, incorporated as part of the Permittee's SWMP document, and contain the elements detailed in this part of the Permit. The minimum performance measures are:

4.2.3.1. Maintain a current storm sewer system map of the MS4, showing the location of all municipal storm sewer outfalls with the names and location of all State waters that receive discharges from those outfalls, storm drain pipe and other storm water conveyance structures within the MS4.

4.2.3.2. Effectively prohibit, through ordinance or other regulatory mechanism, non-storm water discharges to the MS4, including spills, illicit connections, illegal dumping and sanitary sewer overflows ("SSOs") into the storm sewer system, require removal of

such discharges consistent with Part 4.2.3.6. of this Permit, and implement appropriate enforcement procedures and actions. The Permittee must have a variety of enforcement options in order to apply escalating enforcement procedures as necessary for the severity of violation and/or the recalcitrance of the violator. Exceptions are discharges pursuant to a separate UPDES Permit (other than the UPDES Permit for discharges from the MS4) and non-storm water discharges listed in Part 1.2.2.2. An SSO is a discharge of untreated sanitary wastewater. SSOs are illegal and must be eliminated. All SSOs must be reported to the Division of Water Quality and to the Permittee's local wastewater treatment plant.

4.2.3.2.1 The IDDE program must have adequate legal authority to detect, investigate, eliminate and enforce against non-storm water discharges, including illegal dumping, into the MS4. Adequate legal authority consists of an effective ordinance, by-law, or other regulatory mechanism. The documented IDDE program that is included in the Permittee's SWMP must include a reference or citation of the authority the Permittee will use to implement all aspects of the IDDE program.

4.2.3.3. Develop, implement and prepare in writing a plan to detect and address non-storm water discharges to the MS4, including spills, illicit connections, sanitary sewer overflows and illegal dumping. The plan shall include:

4.2.3.3.1 Develop and implement written systematic procedures for locating and listing the following priority areas likely to have illicit discharges (if applicable to the jurisdiction):

- Areas with older infrastructure that are more likely to have illicit connections;
- Industrial, commercial, or mixed use areas;
- Areas with a history of past illicit discharges;
- Areas with a history of illegal dumping;
- Areas with onsite sewage disposal systems;
- Areas with older sewer lines or with a history of sewer overflows or cross-connections; and
- Areas upstream of sensitive waterbodies.

The Permittee must document the basis for its selection of each priority area and create a list of all priority areas identified in the system. This priority area list must be updated annually to reflect changing priorities.

4.2.3.3.2 Field assessment activities for the purpose of verifying outfall locations and detecting illicit discharges, including dry weather screening of outfalls or facilities serving priority areas identified in Part 4.2.3.3.1 as well as routine dry weather screening of all outfalls that discharge within the Permittee's jurisdiction to a receiving water. Compliance with this provision shall be achieved by: prioritizing receiving waters for visual inspection to identify previously unknown outfalls and field assessing at least 20 percent of the priority areas identified in Part 4.2.3.3.1 to detect illicit discharges within one year of receiving coverage from this Permit, and field assessing an additional 20 percent of the identified high priority water bodies or other high priority area each year thereafter. Field assessment activities shall utilize an inspection form to document findings.

4.2.3.4. Develop and implement standard operating procedures (SOPs) or similar type of documents for tracing the source of an illicit discharge; including visual inspections, and when necessary, opening manholes, using mobile cameras, using field tests of selected chemical parameters as indicators of discharge sources, collecting and analyzing water samples for the purpose of determining sanctions or penalties, and/or other detailed inspection procedures.

4.2.3.5. Develop and implement standard operating procedures (SOPs) or similar type of documents for characterizing the nature of, and the potential public or environmental threat posed by, any illicit discharges found by or reported to the Permittee by the hotline or other telephone number described in 4.2.3.9. These procedures shall include detailed instructions for evaluating how the discharge shall be immediately contained and steps to be taken for containment of the discharge. Compliance with this provision will be achieved by initiating an investigation immediately upon being alerted of a potential illicit discharge.

4.2.3.5.1 When the source of a non-storm water discharge is identified and confirmed, the Permittee must record the following information in an inspection report: the date the Permittee became aware of the non-storm water discharge, the date the Permittee initiated an investigation of the discharge, the date the discharge was observed, the location of the discharge, a description of the discharge, the method of discovery, date of removal, repair, or enforcement action; date, and method of removal verification. Analytical monitoring may be necessary to aid in the identification of potential sources of an illicit discharge and to characterize the nature of the illicit discharge. The decision process for utilizing analytical monitoring must be fully documented in the inspection report.

4.2.3.6. Develop and implement standard operating procedures (SOPs) or similar type of documents for ceasing the illicit discharge, including notification of appropriate authorities; notification of the property owner; technical assistance for removing the source of the discharge or otherwise eliminating the discharge; follow-up inspections; and escalating enforcement and legal actions if the discharge is not eliminated. Illicit discharges to the MS4 are prohibited and any such discharges violate this Permit and remain in violation until they are eliminated. Upon detection, the Permittee shall require immediate cessation of improper disposal practices upon confirmation of responsible parties in accordance with its enforceable legal authorities established pursuant to Part 4.2.3.2.1. of this Permit.

4.2.3.6.1 All IDDE investigations must be thoroughly documented and may be requested at any time by the *Division.* If a Permittee is unable to meet the minimum performance measures outlined in Parts 4.2.3.5. or 4.2.3.6., the Permittee must immediately submit to the Division written documentation or rationale describing the circumstances why compliance with the minimum performance measures was not possible. All IDDE documentation must be included in the SWMP document.

4.2.3.7. Permittees shall inform public employees, businesses, and the general public of hazards associated with illicit discharges and improper disposal of waste.

4.2.3.8. Permittees shall promote or provide services for the collection of household hazardous waste.

4.2.3.9. Permittees shall publicly list and publicize a hotline or other local telephone number for public reporting of spills and other illicit discharges. A written record shall be kept of all calls received, all follow-up actions taken, and any feedback received from public education efforts.

4.2.3.9.1 The Permittee must develop a written spill/dumping response procedure, and a flow chart for internal use, that shows the procedures for responding to public referrals of illicit discharges, the various responsible agencies and their contacts, and who would be involved in illicit discharge incidence response, even if it is a different entity other than the Permittee. The procedure and list must be incorporated as part of the IDDE program and incorporated into the Permittee's SWMP document. The list must be maintained and updated as changes occur.

4.2.3.10. Permittees shall adopt and implement procedures for program evaluation and assessment which includes maintaining a database for mapping, tracking of the number and type of spills or illicit discharges identified; and inspections conducted.

4.2.3.11. Permittees shall at a minimum, annually train employees about the IDDE program including identification, investigation, termination, cleanup, and reporting of illicit discharges including spills, improper disposal, and illicit connections. Permittees shall provide training to all field staff that as part of their normal job responsibilities might come into contact with or otherwise observe an illicit discharge or illicit connection to the MS4. Permittees shall also train office personnel who might receive initial reports of illicit discharges. Training shall include how to identify a spill, an improper disposal, or an illicit connection to the MS4 and proper procedures for reporting the illicit discharge.

4.2.3.12. The Division reserves the right to request documentation or further study of a particular non-storm water discharge of concern, to require a reasonable basis for allowing the non-storm water discharge and excluding the discharge from the Permittee's program, and to require inclusion of the discharge in the Permittee's program, if water quality concerns can not otherwise be reasonably satisfied.

4.2.4. Construction Site Storm Water Runoff Control

All Permittees shall develop, implement and enforce a program to reduce pollutants in any storm water runoff to the MS4 from construction sites with a land disturbance of 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 according to the minimum performance measures listed below within **18 months** of receiving coverage under this Permit. Public and private projects, including projects proposed by the Permittee's own departments and agencies, shall comply with these requirements. The minimum performance measures are:

4.2.4.1. Develop and adopt an ordinance or other regulatory mechanism that requires the use of erosion and sediment control practices at construction sites. The ordinance or other regulatory mechanism shall, at a minimum, be equivalent with the technical requirements set forth in the UPDES Storm Water General Permit for Construction Activities, UTR300000 which can be found at

http://www.waterquality.utah.gov/UPDES/stormwatercon.htm. The ordinance or other regulatory mechanism shall include sanctions to ensure compliance. The ordinance or other regulatory mechanism shall apply, at a minimum, to construction projects disturbing greater than or equal to one acre and to construction projects of less than one acre that are part of a larger common plan of development or sale. Existing local requirements to apply storm water controls at smaller sites shall be retained.

4.2.4.1.1 The ordinance or other regulatory mechanism shall, at a minimum, require construction operators to prepare a Storm Water Pollution Prevention Plan (SWPPP) and apply sediment and erosion control BMPs as necessary to protect water quality, reduce the discharge of pollutants, and control waste such as, but not limited to, discarded building materials, concrete truck washout, chemicals, litter and sanitary waste at the construction site that may cause adverse impacts to water quality. The SWPPP requirements must be, at a minimum, equivalent with the SWPPP requirement set forth in the UPDES Storm Water General Permit for Construction Activities, UTR300000.

4.2.4.1.2. The ordinance shall include a provision for access by qualified personnel to inspect construction storm water BMPs on private properties that discharge to the MS4.

4.2.4.2. Develop a written enforcement strategy and implement the enforcement provisions of the ordinance or other regulatory mechanism which shall include:

4.2.4.2.1. Standard operating procedures (SOPs) or similar type of documents that include specific processes and sanctions to minimize the occurrence of, and obtain compliance from violators which shall include appropriate, escalating enforcement procedures and actions.

4.2.4.2.2. Documentation and tracking of all enforcement actions.

4.2.4.3. Develop and implement SOPs or similar type of documents for pre-construction Storm Water Pollution Prevention Plan (SWPPP) review and keep records for, at a minimum, all construction sites 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, to ensure plans are complete and in compliance with State and Local regulations. Permittees shall keep records of these projects for five years or until construction is completed, whichever is longer. Prior to construction, the Permittee shall:

4.2.4.3.1 Conduct a pre-construction SWPPP review which includes a review of the site design, the planned operations at the construction site, planned BMPs during the construction phase, and the planned BMPs to be used to manage runoff created after development.

4.2.4.3.2 Incorporate into the SWPPP review procedures the consideration of potential water quality impacts and procedures for pre-construction review which shall include the use of a checklist.

4.2.4.3.3 Incorporate into the SWPPP review procedures for an evaluation of opportunities for use of low impact design (LID) and green infrastructure and when the opportunity exists, encourage such BMPs to be incorporated into the site design.

4.2.4.3.4 Identify priority construction sites, including at a minimum those construction sites discharging directly into or immediately upstream of waters that the State recognizes as impaired (for sediment) or high quality;

4.2.4.4. All Permittees shall develop and implement SOPs or similar type of documents for construction site inspection and enforcement of construction storm water pollution control measures. The procedures must clearly define who is responsible for site inspections as well as who has authority to implement enforcement procedures. The Permittee must have the authority to the extent authorized by law to impose sanctions to ensure compliance with the local program. These procedures and regulatory authorities must be written and documented in the SWMP. The construction site storm water runoff control inspection program must provide:

4.2.4.4.1 Inspections of all new construction sites with a land disturbance of 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 at least monthly by qualified personnel using the Construction Storm Water Inspection Form (Checklist) found on the Division's website at http://www.waterquality.utah.gov/UPDES/stormwatercon.htm.

4.2.4.4.2 The Permittee must inspect all phases of construction: prior to land disturbance, during active construction, and following active construction. The Permittee must include in its SWMP document a procedure for being notified by construction operators/owners of their completion of active construction so that verification of final stabilization and removal of all temporary control measures may be conducted.

4.2.4.4.3 Inspections by the MS4 of priority construction sites defined in Part 7.36. must be conducted at least biweekly using the Construction Storm Water Inspection Form (Checklist) found on the Division's website at http://www.waterquality.utah.gov/UPDES/stormwatercon.htm.

4.2.4.4.4 Based on site inspection findings, the permittee must take all necessary follow-up actions (i.e., reinspection, enforcement) to ensure compliance in accordance with the permittee's enforcement strategy. These follow-up and enforcement actions must be tracked and documented.

4.2.4.5 The Permittee must ensure that all staff whose primary job duties are related to implementing the construction storm water program, including permitting, plan review, construction site inspections, and enforcement, are trained to conduct these activities. The training can be conducted by the MS4 or outside training can be attended. Such training must extend to third-party inspectors and plan reviewers as well. The training records to be kept include dates, activities or course descriptions, and names and positions of staff in attendance.

4.2.4.6. All Permittees shall adopt and implement a procedure to maintain records of all projects disturbing 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. Permittees shall keep records which include but are not limited to, site plan reviews, SWPPPs,

inspections and enforcement actions including verbal warnings, stop work orders, warning letters, notices of violation, and other enforcement records. Permittees shall keep records of these projects for five years or until construction is completed, whichever is longer.

4.2.5. Long-Term Storm Water Management in New Development and Redevelopment (Post-Construction Storm Water Management)

All Permittees shall develop, implement and enforce a program to address post-construction storm water runoff to the MS4 from new development and redevelopment construction sites disturbing 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, according to the minimum performance measures listed below within 18 months of receiving coverage under this Permit. The objective of this control measure is for the hydrology associated with new development to mirror the pre-development hydrology of the previously undeveloped site or to improve the hydrology of a redeveloped site and reduce the discharge of storm water. The water quality considerations of this minimum control measure do not replace or substitute for water quantity or flood management requirements implemented on the local level for new developments. The water quality controls may be incorporated into the design of structures intended for flow control; or water quality control may be achieved with separate control measures. The program must apply to private and public development sites, including roads.

The minimum performance measures are:

4.2.5.1. Develop and adopt an ordinance or other regulatory mechanism that requires long-term post-construction storm water controls at new development and redevelopment sites. The ordinance or other regulatory mechanism shall apply, at a minimum, to new development and redevelopment sites that discharge to the MS4 and 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. The ordinance or other regulatory mechanism shall, at a minimum, be equivalent with the technical requirements set forth in the UPDES Storm Water General Permit for Construction Activities, UTR300000 which can be found at http://www.waterquality.utah.gov/UPDES/stormwatercon.htm. Existing local requirements to apply storm water controls at smaller sites shall be retained. The ordinance or other regulatory mechanism shall require BMP selection, design, installation, operation and maintenance standards necessary to protect water quality and reduce the discharge of pollutants to the MS4.

4.2.5.2. Develop an enforcement strategy and implement the enforcement provisions of the ordinance or other regulatory mechanism. Procedures for enforcement of BMPs include:

4.2.5.2.1 Procedures that include specific processes and sanctions to minimize the occurrence of, and obtain compliance from, chronic and recalcitrant violators which shall include appropriate, escalating enforcement procedures and actions.

4.2.5.2.2 Documentation on how the requirements of the ordinance or other regulatory mechanism will protect water quality and reduce the discharge of pollutants to the MS4. Documentation shall include:

- How long-term storm water BMPs were selected;
- The pollutant removal expected from the selected BMPs; and
- The technical basis which supports the performance claims for the selected BMPs.

4.2.5.3. The Permittee's new development/redevelopment program must have requirements or standards to ensure that any storm water controls or management practices for new development and redevelopment will prevent or minimize impacts to water quality.

4.2.5.3.1 The Permittee's new development/redevelopment program should include non-structural BMPs such as requirements and standards to minimize development in areas susceptible to erosion and sediment loss; to minimize the disturbance of native soils and vegetation; to preserve areas in the municipality that provide important water quality benefits; to implement measures for flood control; and to protect the integrity of natural resources and sensitive areas.

4.2.5.3.2 For new development or 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, the program shall include a process to evaluate and encourage a Low Impact Development (LID) approach which encourages the implementation of structural BMPs, where practicable, that infiltrate, evapotranspire or harvest and use storm water from the site to protect water quality. Structural controls may include green infrastructure practices such as rainwater harvesting, rain gardens, permeable pavement, and vegetated swales. The selection and design of post-construction controls must take into consideration clogging or obstruction issues, freeze-thaw problems, effect on slope stability and groundwater, and the ability to effectively maintain the control.

4.2.5.3.3 The Permittee must develop a plan to retrofit existing developed sites that are adversely impacting water quality. The retrofit plan must be developed to emphasize controls that infiltrate, evapotranspire or harvest and use storm water discharges. The plan must include a ranking of control measures to determine those best suited for retrofitting as well as those that could later be considered for retrofitting. The Permittee must include the following when developing the criteria for the retrofit plan:

- Proximity to waterbody
- Status of waterbody to improve impaired waterbodies and protect unimpaired waterbodies
- Hydrologic condition of the receiving waterbody
- Proximity to sensitive ecosystem or protected area
- Any upcoming sites that could be further enhanced by retrofitting storm water controls

4.2.5.3.4 Each Permittee shall develop and define specific hydrologic method or methods for calculating runoff volumes and flow rates to ensure consistent sizing of structural

BMPs in their jurisdiction and to facilitate plan review. Specific criteria which require that Best Management Practices (BMPs) are designed to treat the water from a specific design storm (e.g., the 2-year, 24-hour event) must be incorporated into the permittee's post-construction minimum control measure and documented in the SWMP. Permittees may allow other unique or complex methodologies.

4.2.5.4. All Permittees shall adopt and implement procedures for site plan review which incorporate consideration of water quality impacts. Prior to construction, Permittees shall:

4.2.5.4.1 Review Storm Water Pollution Prevention Plans (SWPPPs) for, at a minimum, all new development and redevelopment sites 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, to ensure that the plans include long-term storm water management measures that meet the requirements of this minimum control measure.

4.2.5.4.2 Permittees shall provide developers and contractors with preferred design specifications to more effectively treat storm water for different development types such as industrial parks, commercial strip malls, retail gasoline outlets, restaurants, parking lots, automotive service facilities, street and road construction, and projects located in, adjacent to, or discharging to environmentally sensitive areas.

4.2.5.4.3 Permittees shall keep a representative copy of information that is provided to design professionals; and if information is distributed to a large number of design professionals at once, the dates of the mailings and lists of recipients.

4.2.5.5. All Permittees shall adopt and implement SOPs or similar type of documents for site inspection and enforcement of post-construction storm water control measures. These procedures must ensure adequate ongoing long-term operation and maintenance of approved storm water control measures.

4.2.5.5.1 The ordinance or other regulatory mechanism shall include provisions for both construction-phase and post-construction access for Permittees to inspect storm water control measures on private properties that discharge to the MS4 to ensure that adequate maintenance is being performed. The ordinance or other regulatory mechanism may, in lieu of requiring that the Permittee's staff inspect and maintain storm water controls on private property, instead require private property owner/operators or qualified third parties to conduct maintenance and provide annual certification that adequate maintenance has been performed and the structural controls are operating as designed to protect water quality. In this case, the Permittee must require a maintenance agreement addressing maintenance requirements for any control measures installed on site. The agreement must allow the Permittee to conduct oversight inspections of the storm water control measures and also account for transfer of responsibility in leases and/or deeds. The agreement must also allow the Permittee to perform necessary maintenance or corrective actions neglected by the property owner/operator, and bill or recoup costs from the property owner/operator as needed.

4.2.5.5.2 Permanent structural BMPs shall be inspected at least once during installation by qualified personnel.

4.2.5.5.3 Inspections and any necessary maintenance must be conducted annually by either the Permittee or through a maintenance agreement, the property owner/operator. On sites where the property owner/operator is conducting maintenance, the Permittee shall inspect those storm water control measures at least once every five years, or more frequently as determined by the Permittee to verify and ensure that adequate maintenance is being performed. The Permittee must document its findings in an inspection report which includes the following:

- Inspection date;
- Name and signature of inspector;
- Project location
- Current ownership information
- A description of the condition of the storm water control measure including the quality of: vegetation and soils; inlet and outlet channels and structures; catch basins; spillways; weirs, and other control structures; and sediment and debris accumulation in storage as well as in and around inlet and outlet structures;
- Specific maintenance issues or violations found that need to be corrected by the property owner or operator along with deadlines and reinspection dates.

4.2.5.6. Permittees shall provide adequate training for all staff involved in post-construction storm water management, planning and review, and inspections and enforcement. Training shall be provided or made available for staff in the fundamentals of long-term storm water management through the use of structural and non-structural control methods. The training records to be kept include dates, activities or course descriptions, and names and positions of staff in attendance.

4.2.5.7. The Permittee must maintain an inventory of all post-construction structural storm water control measures installed and implemented at new development and redeveloped sites 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. This inventory shall include both public and private sector sites located within the Permittee's service area.

4.2.5.7.1 Each entry to the inventory must include basic information on each project, such as project's name, owner's name and contact information, location, start/end date, etc. In addition, inventory entries must include the following for each project:

- Short description of each storm water control measure (type, number, design or performance specifications);
- Short description of maintenance requirements (frequency of required maintenance and inspections); and
- Inspection information (date, findings, follow up activities, prioritization of follow-up activities, compliance status).

4.2.5.7.2 Based on inspections conducted pursuant to Part 4.2.5.5., the Permittee must update the inventory as appropriate where changes occur in property ownership or the specific control measures implemented at the site.

4.2.6. Pollution Prevention and Good Housekeeping for Municipal Operations

All Permittees shall develop and implement an operations and maintenance (O & M) program for Permittee-owned or operated facilities, operations and structural storm water controls that includes standard operating procedures (SOPs) or similar type of documents and a training component that have the ultimate goal of preventing or reducing pollutant runoff from all Permittee-owned or operated facilities and operations. All components of an O & M program shall be included in the SWMP document and must identify the department (and where appropriate, the specific staff) responsible for performing each activity described in this section. The Permittee must develop an inventory of all such Permittee-owned or operated facilities. The Permittee must review this inventory annually and update as necessary. The minimum performance measures are:

4.2.6.1. Permitees shall develop and keep current a written inventory of Permittee-owned or operated facilities and storm water controls that may include but is not limited to:

- Composting facilities
- Equipment storage and maintenance facilities
- Fuel farms
- Hazardous waste disposal facilities
- Hazardous waste handling and transfer facilities
- Incinerators
- Landfills
- Landscape maintenance on municipal property
- Materials storage yards
- Pesticide storage facilities
- Public buildings, including libraries, police stations, fire stations, municipal buildings, and similar Permittee-owned or operated buildings
- Public parking lots
- Public golf courses
- Public swimming pools
- Public works yards
- Recycling facilities
- Salt storage facilities
- Solid waste handling and transfer facilities
- Street repair and maintenance sites
- Vehicle storage and maintenance yards
- Permittee-owned and/or maintained structural storm water controls

Facilities covered under the General UPDES Permit for Storm Water Discharges Associated with Industrial Activities do not need to develop an O & M program but must instead maintain the Storm Water Pollution Prevention Plan (SWPPP) required by that permit.

4.2.6.2. All Permittees must initially assess the written inventory of Permittee-owned or operated facilities, operations and storm water controls identified in Part 4.2.6.1. for their potential to discharge to storm water the following typical urban pollutants: sediment, nutrients, metals, hydrocarbons (e.g., benzene, toluene, ethylbenzene and

xylene), pesticides, chlorides, and trash. Other pollutants may be associated with, but not generated directly from, the municipally-owned or operated facilities, such as bacteria, chlorine, organic matter, etc. Therefore, the Permittee must determine additional pollutants associated with its facilities that could be found in storm water discharges. A description of the assessment process and findings must be included in the SWMP document.

4.2.6.3. Based on the assessment required in Part 4.2.6.2., the Permittee must identify as "high-priority" those facilities or operations that have a high potential to generate storm water pollutants. Among the factors that must be considered in giving a facility a high priority ranking is the amount of urban pollutants stored at the site, the identification of improperly stored materials, activities that must be performed outside (e.g., changing automotive fluids), proximity to waterbodies, poor housekeeping practices, and discharge of pollutant(s) of concern to impaired water(s).

4.2.6.4. Each "high priority" facility identified in Part 4.2.6.3. must develop facility-specific standard operating procedures (SOPs) or similar type of documents. The SOPs shall include BMPs that, when applied to the municipal operation, facility or storm water control will protect water quality and reduce the discharge of pollutants to the MS4. Low impact development (LID) techniques should be considered for all new and redeveloped Permittee-owned or operated facilities. The SOPs shall include appropriate pollution prevention and good housekeeping procedures for all of the following types of facilities and/or activities listed below:

4.2.6.4.1 Buildings and facilities: The O & M program shall address, but is not limited to: Permittee-owned or operated offices, police and fire stations, pools, parking garages, and other Permittee-owned or operated buildings or utilities. The SOPs must address the use, storage and disposal of chemicals and ensure through employee training, that those responsible for handling these products understand and implement the SOPs. All Permittee-owned or operated facilities must develop and ensure that spill prevention plans are in place, if applicable, and coordinate with the local fire department as necessary. The SOPs must address dumpsters and other waste management which includes, but is not limited to, cleaning, washing, painting and other maintenance activities. The O & M program must include schedules and SOPs for sweeping parking lots and keeping the area surrounding the facilities clean to minimize runoff of pollutants. Within 180 days of receiving coverage from this Permit, all Permittees must develop an inventory of all floor drains inside all Permittee-owned or operated buildings. The inventory must be kept current. The Permittee must ensure that all floor drains discharge to appropriate locations. Within 180 days of receiving coverage from this Permit, all Permittees must develop an inventory including a map of all storm drains located on the property of all Permittee-owned or operated buildings and facilities. The Permittee must ensure that only storm water is allowed into these drains and that the appropriate BMPs are in place to minimize pollutants from entering the MS4.

4.2.6.4.2 Material storage areas, heavy equipment storage areas and maintenance areas. Permittees shall develop and implement SOPs to protect water quality at each of these facilities owned or operated by the Permittee and not covered under the General UPDES Permit for Storm Water Discharges Associated with Industrial Activities.

4.2.6.4.3 Parks and open space. The O & M program shall address, but is not limited to: SOPs for the proper application, storage, and disposal of fertilizer, pesticides, and herbicides including minimizing the use of these products and using only in accordance with manufacturer's instruction; sediment and erosion control; evaluation of lawn maintenance and landscaping activities to ensure practices are protective of water quality such as, proper disposal of lawn clippings and vegetation, and use of alternative landscaping materials such as drought tolerant plants. The SOPs must address the management of trash containers at parks and other open spaces which include scheduled cleanings and establishing a sufficient number of containers, and for placing signage in areas concerning the proper disposal of pet wastes. The SOPs must also address the proper cleaning of maintenance equipment, building exterior, trash containers and the disposal of the associated waste and wastewater. Permittees shall implement park and open space maintenance pollution prevention/good housekeeping practices at all park areas, and other open spaces owned or operated by the Permittee.

4.2.6.4.4 Vehicle and Equipment. The O & M program shall address, but it not limited to: SOPs that address vehicle maintenance and repair activities that occur on Permittee-owned or operated vehicles. BMPs should include using drip pans and absorbents under or around leaky vehicles and equipment or storing indoors where feasible. Fueling areas for Permittee-owned or operated vehicles shall be evaluated. If possible, place fueling areas under cover in order to minimize exposure. The O & M program shall include SOPs to ensure that vehicle wash waters are not discharged to the MS4 or surface waters. This Permit strictly prohibits such discharges.

4.2.6.4.5 Roads, highways, and parking lots. The O & M program shall address, but it not limited to: SOPs and schedule for sweeping streets and Permittee-owned or operated parking lots and any other BMPs designed to reduce road and parking lot debris and other pollutants from entering the MS4; road and parking lot maintenance, including pothole repair, pavement marking, sealing and repaving; cold weather operations, including plowing, sanding, and application of deicing compounds and maintenance of snow disposal areas; right-of-way maintenance, including mowing, herbicide and pesticide application; and municipally-sponsored events such as large outdoor festivals, parades or street fairs. The Permittee must ensure that areas used for snow disposal will not result in discharges to receiving waters.

4.2.6.4.6 Storm water collection and conveyance system. The O & M program shall address, but is not limited to: SOPs and schedule for the regular inspection, cleaning, and repair of catch basins, storm water conveyance pipes, ditches and irrigation canals, culverts, structural storm water controls, and structural runoff treatment and/or flow control facilities. Permittees shall implement catch basin cleaning, storm water system maintenance, scheduled structural BMP inspections and maintenance, and pollution prevention/good housekeeping practices. Permittees should prioritize storm sewer system maintenance, with the highest priority areas being maintained at the greatest frequency. Priorities should be driven by water quality concerns, the condition of the receiving water, the amount and type of material that typically accumulates in an area, or other location-specific factors. All Permittee-owned or operated storm water structural BMPs including but not limited to, swales, retention/detention basins or other structures must be inspected annually to ensure that they are properly maintained to reduce the discharge of pollutants into receiving waters. Permittees shall develop, ensure, and document proper disposal methods of

all waste and wastewater removed from the storm water conveyance system. These disposal methods apply to, but are not limited to, street sweeping and catch basin cleaning. Materials removed from the MS4 should be dewatered in a contained area and discharged to the local sanitary sewer (with approval of local authorities) where feasible. The solid material will need to be stored and disposed of properly to avoid discharge during a storm event. Any other treatment and disposal measures must be reviewed and approved by the Division. Some materials removed from storm drains and open channels may require special handling and disposal, and may not be authorized to be disposed of in a landfill.

4.2.6.4.7. Other facilities and operations Permittees shall identify any facilities and operations not listed above that would reasonably be expected to discharge contaminated runoff, and develop, implement, and document the appropriate BMPs to protect water quality from discharges from these sites in the O & M program.

4.2.6.5. If a Permittee contracts with a third-party to conduct municipal maintenance or allows private developments to conduct their own maintenance, the contractor shall be held to the same standards as the Permittee. This expectation must be defined in contracts between the Permittee and its contractors or the contractors of private developments. The Permittee shall be responsible for ensuring, through contractually-required documentation or periodic site visits that contractors are using appropriate storm water controls and following the standard operating procedures, storm water control measures, and good housekeeping practices of the Permittee.

4.2.6.6 An O & M program designed for Permittee-owned or operated facilities shall include the following inspections:

4.2.6.6.1 Weekly visual inspections: The Permittee must perform weekly visual inspections of "high priority" facilities in accordance with the developed SOPs to minimize the potential for pollutant discharge. The Permittee must look for evidence of spills and immediately clean them up to prevent contact with precipitation or runoff. The weekly inspections must be tracked in a log for every facility and records kept with the SWMP document. The inspection log should also include any identified deficiencies and the corrective actions taken to fix the deficiencies.

4.2.6.6.2 Quarterly comprehensive inspections: At least once per quarter, a comprehensive inspection of "high priority" facilities, including all storm water controls, must be performed, with specific attention paid to waste storage areas, dumpsters, vehicle and equipment maintenance/fueling areas, material handling areas, and similar pollutant-generating areas. The quarterly inspection results must be documented and records kept with the SWMP document. This inspection must be done in accordance with the developed SOPs. An inspection report must also include any identified deficiencies and the corrective actions taken to remedy the deficiencies.

4.2.6.6.3 Quarterly visual observation of storm water discharges: At least once per quarter, the Permittee must visually observe the quality of the storm water discharges from the "high priority" facilities (unless climate conditions preclude doing so, in which case the Permittee must attempt to evaluate the discharges four times during the wet season). Any observed problems (e.g., color, foam, sheen, turbidity) that can be associated with pollutant sources or controls must be remedied to prevent discharge to the storm drain system. Visual observations must be documented and records kept

with the SWMP document. This inspection must be done in accordance with the developed SOPs. The inspection report must also include any identified deficiencies and the corrective actions taken to remedy the deficiencies.

4.2.6.7. The Permittee must develop and implement a process to assess the water quality impacts in the design of all new flood management structural controls that are associated with the Permittee or that discharge to the MS4. This process must include consideration of controls that can be used to minimize the impacts to site water quality and hydrology while still meeting project objectives. A description of this process must be included in the SWMP document

4.2.6.7.1 Existing flood management structural controls must be assessed to determine whether changes or additions should be made to improve water quality. A description of this process and determinations should be included in the SWMP document.

4.2.6.8. Construction Projects. Public construction projects shall comply with the requirements applied to private projects. All construction projects disturbing 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, owned or operated by the Permittee are required to be covered under the General UPDES Permit for Storm Water Discharges Associated with Construction Activities. All public projects approved after the effective date of this Permit shall include construction and post-construction controls selected and implemented pursuant to the requirements in Parts 4.2.4. and 4.2.5.

4.2.6.9. Permittees shall provide training for all employees who have primary construction, operation, or maintenance job functions that are likely to impact storm water quality. The Permittee shall identify target employees to participate in the training sessions. Training shall address the importance of protecting water quality, the requirements of this Permit, operation and maintenance requirements, inspection procedures, ways to perform their job activities to prevent or minimize impacts to water quality, SOPs for the various Permittee-owned or operated facilities and procedures for reporting water quality concerns, including potential illicit discharges. Follow-up training shall be provided as needed to address changes in procedures, methods or staffing.

4.3. Sharing Responsibility

4.3.1. Implementation of one or more of the six minimum measures may be shared with another entity, or the entity may fully take over the measure. A Permittee may rely on another entity only if:

4.3.2. The other entity, in fact, implements the control measure;

4.3.3. The particular control measure, or component of that measure, is at least as stringent as the corresponding Permit requirement; and

4.3.4. The other entity agrees to implement the control measure through a written agreement. This obligation must be maintained as part of the description given in the Permittee's SWMP document. If the other entity agrees to report on the minimum control measure, the Permittee must supply the other entity with the reporting requirements contained in Part 5.5. of this Permit. If the other entity fails to implement the control measure, then the Permittee remains liable for any discharges due to that failure to implement.

4.4. Reviewing and Updating Storm Water Management Programs

4.4.1. Storm Water Management Program Review*:* All Permittees must conduct, at a minimum, an annual review of the SWMP document in conjunction with preparation of the annual report required in Part 5.5.

4.4.2. *Storm Water Management Program Update:* A Permittee may change the SWMP document during the life of the Permit in accordance with the following procedures:

4.4.2.1. Changes adding (but not subtracting or replacing) components, controls, or requirements to the SWMP document may be made at any time upon written notification to the Division.

4.4.2.2. Changes replacing an ineffective or unfeasible BMP specifically identified in the SWMP document with an alternate BMP may be adopted at any time, provided the analysis is clearly outlined and subsequently approved by the Division. An analysis shall include:

4.4.2.2.1 An explanation of why the BMP is ineffective or infeasible,

4.4.2.2.2 Expectations or report on the effectiveness of the replacement BMP, and

4.4.2.2.3 An analysis of why the replacement BMP is expected to achieve the goals of the BMP to be replaced, or has achieved those goals.

4.4.3. Change requests or notifications must be made in writing and signed in accordance with Part 6.8.

4.4.4. Change requests or notifications will receive confirmation and approval or denial in writing from the Division.

4.4.5. Storm Water Management Program Updates required by the Division*:* The Division may require changes to the SWMP as needed to:

4.4.5.1. Address impacts on receiving water quality caused, or contributed to, by discharges from the MS4;

4.4.5.2. Include more stringent requirements necessary to comply with new Federal regulatory requirements; or

4.4.5.3. Include such other conditions deemed necessary by the Division to comply with the goals and requirements of the Clean Water Act.

5.0 Narrative Standard, Monitoring, Recordkeeping and Reporting

5.1. Narrative Standard

It shall be unlawful, and a violation of this Permit, for the Permittee to discharge or place any waste or other substance in such a way as will be or may become offensive such as unnatural deposits, floating debris, oil, scum or other nuisances such as color, odor or taste, or conditions which produce undesirable aquatic life or which produces objectionable tastes in edible aquatic organisms; or concentrations or combinations of substances which produce undesirable physiological responses in desirable resident fish, or other desirable aquatic life, or undesirable human health effects, as determined by bioassay or other tests performed in accordance with standard procedures

5.2. Analytical Monitoring

Permittees are not required to conduct analytical monitoring (see definition in Part 7.3) during the effective term of this Permit, with the following exceptions:

5.2.1. Water quality sampling may be required for compliance with TMDLs, pursuant to Part 3.1. of this Permit.

5.2.2. Sampling or testing may be required for characterizing illicit discharges pursuant to Parts 4.2.3.4., 4.2.3.5., and 4.2.3.5.1 of this Permit.

5.2.3. In the event that the MS4 elects to conduct analytical monitoring as part of its Storm Water Management Program, the Permittee is required to comply with Part 6.18. of this Permit.

5.3. Non-analytical Monitoring

5.3.1. Non-analytical monitoring (see definition in Part 7.32.) such as visual dry weather screening is required to comply with Part 4.2.3.3.2 of this Permit.

5.4. Record keeping

5.4.1. Permittees must keep all supplementary documents associated with this Permit (e.g., Storm Water Management Program (SWMP) document, SWMP Implementation

Schedule) current and up to date to achieve the purpose and objectives of the required document.

5.4.2. All modifications to supplementary documents must be submitted to the *Division* in accordance with Parts 4.4 and 6.8.

5.4.3. The *Division* may at any time make a written determination that parts or all of the supplementary documents are not in compliance with this Permit, wherein the Permittee must make modifications to these parts within a time frame specified by the *Division*.

5.4.4. The Permittee shall retain all required plans, records of all programs, records of all monitoring information, copies of all reports required by this Permit, and records of all other data required by or used to demonstrate compliance with this Permit, for at least five years. This period may be explicitly modified by alternative provisions of this Permit or extended by request of the *Division* at any time.

5.4.5. The Permittee must make records, including the Notice of Intent (NOI) and the SWMP document, available to the public if requested.

5.5. Reporting

5.5.1. The Permittee must submit an annual report to the Division by October 1 of each year of the Permit term.

5.5.2. The report must be submitted using the report form provided on the Division's website.

5.5.3. The Permittee shall sign and certify the annual report in accordance with Part 6.8.

5.5.4. Signed copies of the Annual Report and all other reports required herein, shall be submitted to:

Department of Environmental Quality
Division of Water Quality
PO Box 144870
195 North 1950 West
Salt Lake City, UT 84114-4870

6.0 Standard Permit Conditions

6.1. Duty to Comply

The Permittee must comply with all conditions of this Permit. Any Permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for Permit termination, revocation and reissuance, or modification; or for denial of a Permit renewal application. The Permittee shall give advance notice to the Division of any planned changes in the Permitted facility or activity, which may result in noncompliance with Permit requirements.

6.2. Penalties for Violations of Permit Conditions

The *Act* provides that any person who violates a Permit condition implementing provisions of the *Act* is subject to a civil penalty not to exceed $10,000 per day of such violation. Any person who willfully or negligently violates Permit conditions or the Act is subject to a fine not exceeding $25,000 per day of violation. Any person convicted under *UCA 19-5-115(2)* a second time shall be punished by a fine not exceeding $50,000 per day.

6.3. Duty to Reapply

If the Permittee wishes to continue an activity regulated by this Permit after the expiration date of this Permit, the Permittee shall apply for and obtain a new Permit. The application shall be submitted at least 180 days before the expiration date of this Permit. Continuation of expiring Permits shall be governed by regulations promulgated at *UAC R317-8-5* and any subsequent amendments.

6.4. Need to Halt or Reduce Activity not a Defense

It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce the Permitted activity in order to maintain compliance with the conditions of this Permit.

6.5. Duty to Mitigate

The Permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this Permit, which has a reasonable likelihood of adversely affecting human health or the environment.

6.6. Duty to Provide Information

The Permittee shall furnish to the Division, within a time specified by the Division, any information which the Division may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Permit, or to determine compliance with this Permit. The Permittee shall also furnish to the Division, upon request, copies of records required to be kept by this Permit.

6.7. Other Information

When the Permittee becomes aware that it failed to submit any relevant facts in a Permit application, or submitted incorrect information in a Permit application or any report to the Division, it shall promptly submit such facts or information.

6.8. Signatory Requirements

All notices of intent, storm water management programs, storm water pollution prevention plans, reports, certifications or information either submitted to the *Division* or that this Permit requires to be maintained by the Permittee, shall be signed, dated and certified as follows:

6.8.1. All Permit applications shall be signed by either a principal executive officer or ranking elected official.

6.8.2. All reports required by the Permit and other information requested by the Division shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

6.8.2.1. The authorization is made in writing by a person described above and submitted to the Division, and,

6.8.2.2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters. A duly authorized representative may thus be either a named individual or any individual occupying a named position.

6.8.2.3. Changes to authorization. If an authorization under *Part 6.8.2.* is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of *Part 6.8.2.* must be submitted to the Division prior to or together with any reports, information, or applications to be signed by an authorized representative.

6.8.3. *Certification*. Any person signing documents under this Part shall make 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 gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

6.9 Availability of Reports

Except for data determined to be confidential under the Government Records Access and Management Act (*see* particularly Utah Code Ann. § 63-2-309) and Utah Code Ann. § 19-1-3-6, all reports prepared in accordance with the terms of this Permit shall be available for public inspection at the office of the Division. As required by the *Act*, Permit applications, Permits and effluent data shall not be considered confidential.

6.10. Penalties for Falsification of Reports

The *Act* provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this Permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction be punished by a fine of not more than $10,000.00 per violation, or by imprisonment for not more than six months per violation, or by both. Utah Code Ann. § 19-5-115(4)

6.11. Penalties for Tampering

The *Act* provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this Permit shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than six months per violation, or by both.

6.12. Oil and Hazardous Substance Liability

Nothing in this Permit shall be construed to preclude the institution of any legal action or relieve the Permittee from any responsibilities, liabilities, or penalties to which the Permittee is or may be subject under the "*Act*".

6.13. Property Rights

The issuance of this Permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State or Local laws or regulations.

6.14. Severability

The provisions of this Permit are severable, and if any provision of this Permit, or the application of any provision of this Permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this Permit shall not be affected thereby.

6.15. Requiring a Different Permit

The *Division* may require the Permittee authorized by this Permit to obtain an individual *UPDES* Permit. Any interested person may petition the *Division* to take action under this paragraph. The *Division* may require the Permittee authorized to discharge under this Permit to apply for an individual *UPDES* Permit only if the Permittee has been notified in writing that a Permit application is required. This notice shall include a brief statement of the reasons for this decision, an application form (as necessary), a statement setting a deadline for the Permittee to file the application, and a statement that on the effective date of the municipal *UPDES* Permit, coverage

under this Permit shall automatically terminate. Permit applications shall be submitted to the address of the *Division of Water Quality* shown in *Part 5.5.* of this Permit. The *Division* may grant additional time to submit the application upon request of the applicant. If the municipality fails to submit in a timely manner a municipal *UPDES* Permit application as required by the *Division*, then the applicability of this Permit to the Permittee is automatically terminated at the end of the day specified for application submittal.

6.16. State/Federal Laws

Nothing in this Permit shall be construed to preclude the institution of any legal action or relieve the Permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by *UCA 19-5-117* and *Section 510* of the *Clean Water Act* or any applicable Federal or State transportation regulations, such as but not limited to the Department of Transportation regulations.

6.17. Proper Operation and Maintenance

The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this Permit and with the requirements of the SWMP. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance requires the operation of backup or auxiliary facilities or similar systems, installed by the Permittee only when necessary to achieve compliance with the conditions of the Permit.

6.18. Monitoring and Records

6.18.1. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

6.18.2. The Permittee shall retain records of all monitoring information including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of the reports required by this Permit, and records of all data used to complete the application for this Permit, for a period of at least five years from the date of the sample, measurement, report or application. This period may be extended by request of the *Division* at any time.

6.18.3. Records of monitoring information shall include:

6.18.3.1 The date, exact place, and time of sampling or measurements;

6.18.3.2 The name(s) of the individual(s) who performed the sampling or measurements;

6.18.3.3 The date(s) and time(s) analyses were performed;

6.18.3.4 The name(s) of the individual(s) who performed the analyses;

6.18.3.5 The analytical techniques or methods used; and

6.18.3.6 The results of such analyses.

6.19. Monitoring Procedures

Monitoring must be conducted according to test procedures approved under *Utah Administrative Code ("UAC") R317-2-10*, unless other test procedures have been specified in this Permit.

6.20. Inspection and Entry

The Permittee shall allow the *Division* or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

6.20.1. Enter upon the Permittee's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this Permit;

6.20.2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this Permit; and

6.20.3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment).

6.20.4. Sample or monitor at reasonable times, for the purposes of assuring Permit compliance or as otherwise authorized by law, any substances or parameters at any location.

6.21. Permit Actions

This Permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a Permit modification, revocation and re-issuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Permit condition.

6.22. Storm Water-Reopener Provision

At any time during the duration (life) of this Permit, this Permit may be reopened and modified (following proper administrative procedures) as per *UAC R317.8*, to include, any applicable storm water provisions and requirements, a storm water pollution prevention plan, a compliance schedule, a compliance date, monitoring and/or reporting requirements, or any other conditions related to the control of storm water discharges to "Waters-of-State".

7.0 Definitions

Definitions related to this Permit and small municipal separate storm sewers (MS4s).

7.1. "40 CFR" refers to Title 40 of the Code of Federal Regulations, which is the codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the Federal government.

7.2. "Act" means the *Utah Water Quality Act*.

7.3. "Analytical monitoring" refers to monitoring of waterbodies (streams, ponds, lakes, etc.) or of storm water, according to UAC R317-2-10 and 40 CFR 136 "Guidelines Establishing Test Procedures for the Analysis of Pollutants," or to State or Federally established protocols for biomonitoring or stream bioassessments.

7.4. "Beneficial Uses" means uses of the Waters of the State, which include but are not limited to: domestic, agricultural, industrial, recreational, and other legitimate beneficial uses.

7.5. "Best Management Practices" (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of Waters of the State. BMPs also include treatment requirements, operating procedures, and practices to control facility site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

7.6. "CWA" means *The Clean Water Act of 1987*, formerly referred to as the Federal Water Pollution Control Act.

7.7. "Co-Permittee" means any operator of a regulated Small MS4 that is applying jointly with another applicant for coverage under this Permit. A Co-Permittee owns or operates a regulated Small MS4 located within or adjacent to another regulated MS4. A Co- Permittee is only responsible for complying with the conditions of this Permit relating to discharges from the MS4 the Co-Permittee owns or operates. See also 40 CFR 122.26(b)(1).

7.8. "Control Measure" refers to any Best Management Practice or other method used to prevent or reduce the discharge of pollutants to Waters of the State.

7.9. "Common plan of development or sale" means one plan for development or sale, separate parts of which are related by any announcement, piece of documentation (including a sign, public notice or hearing, sales pitch, advertisement, drawing, plat, blueprint, contract, Permit application, zoning request, computer design, etc.), physical demarcation (including contracts) that identify the scope of the project. A plan may still be a common plan of development or sale even if it is taking place in separate stages or phases, is planned in combination with other construction activities, or is implemented by different owners or operators.

7.10. "Director" means the director of the Utah Division of Water Quality, otherwise known as the Executive Secretary of the Utah Water Quality Board.

7.11. "Division" means the Utah Division of Water Quality.

7.12. "Discharge" for the purpose of this Permit, unless indicated otherwise, refers to discharges from the Municipal Separate Storm Sewer System (MS4).

7.13. "Dry weather screening" is monitoring done in the absence of storm events to discharges representing, as much as possible, the entire storm drainage system for the purpose of obtaining information about illicit connections and improper dumping.

7.14. “Escalating enforcement procedures” refers to a variety of enforcement actions in order to apply as necessary for the severity of the violation and/or the recalcitrance of the violator.

7.15. “Entity” means a governmental body or a public or private organization.

7.16. "EPA" means the United States Environmental Protection Agency.

7.17. “General Permit” means a Permit which covers multiple dischargers of a point source category within a designated geographical area, in lieu of individual Permits being issued to each discharger.

7.18. “Ground water” means water in a saturated zone or stratum beneath the surface of the land or below a surface water body.

7.19. “High quality waters” means any water, where, for a particular pollutant or pollutant parameter, the water quality exceeds that quality necessary to support the existing or designated uses, or which supports an exceptional use.

7.20. "Illicit connection" means any man-made conveyance connecting an illicit discharge directly to a municipal separate storm sewer.

7.21. "Illicit discharge" means any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to a UPDES Permit (other than the UPDES Permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities.

7.22. “Impaired waters” means any segment of surface waters that has been identified by the Division as failing to support classified uses. The Division periodically compiles a list of such waters known as the 303(d) List.

7.23. “Indian Country” is defined as in 40 CFR §122.2 to mean:

7.23.1. All land within the limits of any Indian reservation under the jurisdiction of the United States Government, notwithstanding the issuance of any patent, and, including rights-of-way running through the reservation;

7.23.2. All dependent Indian communities within the borders of the United States whether within the originally or subsequently acquired territory thereof, and whether within or without the limits of a state; and

7.23.3. All Indian allotments, the Indian titles to which have not been extinguished, including right-of-ways running through the same.

7.24. "Large MS4" *Large municipal separate storm sewer system* means all municipal separate storm sewers that are located in an incorporated place with a population of 250,000 or more as determined by the current Decennial Census by the Bureau of the Census.

7.25. "Low Impact Development" (LID) is an approach to land development (or re-development) that works with nature to more closely mimic pre-development hydrologic functions. LID employs principles such as preserving and recreating natural landscape features, minimizing effective imperviousness to create functional and appealing site drainage that treat storm water as a resource rather than a waste product. There are many practices that have been used to adhere to these principles such as bioretention facilities, rain gardens, vegetated rooftops, rain barrels, and permeable pavements.

7.26. "MS4" is an acronym for "municipal separate storm sewer system".

7.27. "Maximum Extent Practicable" (MEP) is the technology-based discharge standard for Municipal Separate Storm Sewer Systems established by paragraph 402(p)(3)(B)(iii) of the Federal Clean Water Act (CWA), which reads as follows: "Permits for discharges from municipal storm sewers shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques, and system, design, and engineering methods, and other such provisions as the Administrator or the State determines appropriate for the control of such pollutants."

7.28. "Medium MS4" *Medium municipal separate storm sewer system* means all municipal separate storm sewers that are located in an incorporated place with a population of 100,000 or more but less than 250,000, as determined by the1990 Decennial Census by the Bureau of the Census

7.29. "Monitoring" refers to tracking or measuring activities, progress, results, etc.;

7.30. "Municipal separate storm sewer system" means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) pursuant to paragraphs R317-8-1.6(4), (7), & (14), or designated under UAC R317-8-3.9(1)(a)5:

7.30.1. that is owned or operated by a state, city, town, county, district, association, or other public body (created by or pursuant to State Law) having jurisdiction over disposal of wastes, storm water, or other wastes, including special districts under State Law such as a sewer district, flood control district or drainage district, or similar entity, or a designated and approved management agency under section 208 of the CWA that discharges to Waters of the State;

7.30.2. that is designed or used for collecting or conveying storm water;

7.30.3. which is not a combined sewer; and

7.30.4. which is not part of a Publicly Owned Treatment Works (POTW) as defined in 40 CFR 122.2.

7.31. "NOI" is an acronym for "Notice of Intent" to be covered by this Permit and is the mechanism used to "register" for coverage under a general Permit.

7.32. "Non-analytical monitoring" refers to monitoring for pollutants by means other than UAC R317-2-10 and 40 CFR 136, such as visually or by qualitative tools that provide comparative or rough estimates.

7.33. "Operator" is the person or entity responsible for the operation and maintenance of the MS4.

7.34. "Outfall" means a point source as defined by UAC R317-8-1.5(34) at the point where a municipal separate storm sewer discharges to Waters of the State and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels or other conveyances which connect segments of the same stream or other Waters of the State and are used to convey waters of the State.

7.35. "Phase II areas" means areas regulated under UPDES storm water regulations encompassed by Small MS4's (see definition 7.39.).

7.36. "Priority construction site" means a construction site that has potential to threaten water quality when considering the following factors: soil erosion potential; site slope; project size and type; sensitivity of receiving waterbodies; proximity to receiving waterbodies; non-storm water discharges and past record of non-compliance by the operators of the construction site.

7.37. "Redevelopment" is the replacement or improvement of impervious surfaces on a developed site.

7.38. "Runoff" is water that travels across the land surface, or laterally through the ground near the land surface, and discharges to water bodies either directly or through a collection and conveyance system. Runoff includes storm water and water from other sources that travels across the land surface.

7.39. "SWMP" is an acronym for storm water management program. The SWMP document is the written plan that is used to describe the various control measures and activities the Permittee will undertake to implement the storm water management plan.

7.40. "SWPPP" is an acronym for storm water pollution prevention plan.

7.41. "Small municipal separate storm sewer system" is any MS4 not already covered by the Phase I program as a medium or large MS4. The Phase II Rule automatically covers on a nationwide basis all Small MS4s located in "urbanized areas" (UAs) as defined by the Bureau of the Census (unless waived by the UPDES Permitting authority), and on a case-by-case basis those Small MS4s located outside of UAs that the UPDES Permitting authority designates.

7.41.1. This term includes systems similar to separate storm sewer systems in municipalities, such as systems at military bases, large hospital or prison complexes, and highways and other thoroughfares. The term does not include separate storm sewers in very discrete areas, such as individual buildings.

7.42. "SOP" is an acronym for standard operating procedure which is a set of written instructions that document a routine or repetitive activity. For the purpose of this Permit, SOPs should emphasize pollution control measures to protect water quality.

7.43. "Storm water" means storm water runoff, snowmelt runoff, and surface runoff and drainage.

7.43. "Storm water management program" means a set of measurable goals, actions, and activities designed to reduce the discharge of pollutants from the Small MS4 to the maximum extent practicable and to protect water quality.

7.44. "TMDL" is an acronym for "Total Maximum Daily Load" and in this Permit refers to a study that: 1) quantifies the amount of a pollutant in a stream; 2) identifies the sources of the pollutant; and 3) recommends regulatory or other actions that may need to be taken in order for the impaired waterbody to meet water quality standards.

7.45. "Urbanized area" is a land area comprising one or more places and the adjacent densely settled surrounding area that together have a residential population of at least 50,000 and an overall population density of at least 1,000 people per square mile.

7.46. "Waters of the State" means all streams, lakes, ponds, marshes, water-courses, waterways, wells, springs, irrigation systems, drainage systems, and all other bodies or accumulations of water, surface and underground, natural or artificial, public or private which are contained within, flow through, or border upon this state or any portion thereof, except bodies of water confined to and retained within the limits of private property, and which do not develop into or constitute a nuisance, or a public health hazard, or a menace to fish and wildlife which shall not be considered to be "Waters of the State" under this definition ("UAC" R317-1-1.32).

Appendix S – Notice of Intent

STATE OF UTAH, DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER QUALITY
288 North 1460 West, P.O. Box 144870, Salt Lake City, Utah 84114-4870 (801)538-6146

Notice of Intent (NOI) for Coverage Under the UPDES General Permit for Discharges from Small Municipal Separate Storm Sewer Systems (MS4's), Permit No. UTR090000.

INSTRUCTIONS ON BACK PAGE

DWQ USE ONLY

Coverage No. _____

Submission of this Notice of Intent constitutes notice that the party identified in Section I of this form intends to be authorized by a UPDES permit issued for storm water discharges from Small Municipal Separate Storm Sewers in the State of Utah. Becoming a permittee obligates such discharger to comply with the terms and conditions of the permit. ALL NECESSARY INFORMATION MUST BE PROVIDED ON THIS FORM.

Part I. General Information

Governmental Entity Name: Hyrum City Corp.

Mailing Address: Street 83 West Main Street

City Hyrum State UT Zip Code 84319

Operator Type (Circle One): (City), County, Hospital, Prison, Military Base, Park, College/University, UDOT, Sewer District, Flood Control District, Drainage District, Association, Other(list) _____)

Operator Status (Circle One): (Federal/State/Local/Other Public Entity(list) _____)

Operator Contact Person: Name Carey Nielsen

Title Storm Water Dept Head Telephone Number 435-245-6033

Latitude/Longitude at Center of land for which you are requesting authorization to discharge:

Latitude 41.63°N Longitude 111.84°W

Population served by your MS4: 7400 People

Storm Water Management Program Responsible Person:

Name Carey Nielsen Title Storm Water Dept Head

Telephone Number 435-245-6033

Part II: Outfalls and Receiving Waters

Receiving Waters: List all separate storm water outfall receiving waters (all discharges to waters under the definition of waters of the State). If all receiving waters are not known at the time of the NOI submittal, list known outfalls and update the list on annual reports. (ATTACH ADDITIONAL SHEETS AS NEEDED)

	Outfall	Receiving Water
1.	Blacksmith Fork River	Cutler Reservoir
2.	Hyrum Canal	" "
3.	Hyrum Slough	" "
4.	Wellsville Canal	" "
5.		
6.		

Part III. Initial Identification of Best Management Practices (ATTACH ADDITIONAL SHEETS AS NEEDED)

1. Public Education and Outreach on Storm Water Impacts

Outreach Techniques

- [x] Classroom education/school programs
- [ ] Outreach to commercial entities
- [ ] Printed material
- [ ] Media campaign
- [ ] Classroom educational materials
- [x] Events and Programs
- [ ] Displays
- [ ] Speakers to community groups
- [ ] Economic incentives
- [ ] Promotional giveaways
- [x] Others Training Sessions

Management Practices to Encourage

- [x] Proper lawn and garden care (fertilizer and pesticide use, sweeping, etc.)
- [ ] Low impact development
- [ ] Pet waste management
- [ ] Pollution prevention for businesses
- [x] Proper disposal of household hazardous wastes
- [ ] Water Conservation Practices
- [ ] Others

2. Public Involvement/Participation

Involvement Techniques

- [x] Advisory/partner committees
- [ ] Local storm water contact
- [ ] Public access to documents and information
- [ ] Public review of plans and annual reports
- [ ] Watershed organizations
- [ ] Attitude surveys
- [ ] Community hot lines
- [ ] Stakeholder meetings
- [ ] Others

Participation Activities

- [ ] Adopt-a-stream
- [x] Storm drain stenciling
- [x] Stream/roadway cleanup
- [ ] Volunteer monitoring
- [ ] Wetland plantings
- [ ] Others

3. Illicit Discharge Detection and Elimination

Detection and Elimination Activities

- [ ] System mapping
- [ ] Regulatory Control Program
- [ ] Identifying and Eliminating illicit connection procedures
- [ ] Dye testing/Tracing Procedures
- [x] System inspections
- [ ] Dry Weather Screening Program/ Field Testing
- [ ] Others

Type of Discharges to Target

- [ ] Failing septic systems
- [ ] Illegal dumping
- [x] Industrial/business connections
- [ ] Recreational sewage
- [ ] Sanitary sewer overflows
- [ ] Wastewater connections to the storm drain system
- [ ] Others

4. Construction Site Storm Water Runoff Control

Program Activities

- [ ] Regulatory Control Program
- [x] Erosion and Sediment Control BMP's
- [ ] Other Waste Control Program
- [ ] Site Plan Review Procedures
- [ ] Public Information handling Procedures
- [x] Site Inspection/Enforcement Procedures
- [ ] Other Construction Site Runoff Controls
- [ ] Contractor certification and inspector training
- [ ] Others

Best Management Practices

- [x] Construction Entrance/Exit Stabilization
- [x] Perimeter Controls
- [x] Sediment Retention Structure Requirements
- [ ] Sediment filters and sediment chambers
- [ ] Mulching Requirements
- [ ] Temporary/Permanent Stabilization Requirements
- [ ] Vehicle maintenance and washing areas
- [x] Cement Truck Washout Area
- [ ] OtherBMP's

5. Post-Construction Storm Water Management in New Development and Redevelopment

- [ ] Community Control Strategy
- [ ] Regulatory Control Program
- [ ] Long Term O& M Procedures
- [x] Pre-Construction Review of BMP Designs
- [ ] Site Inspections During Construction
- [x] Post Construction Inspections
- [ ] Others

- [ ] Infiltration trench/basin
- [ ] Infrastructure planning
- [ ] storm water inlet specifications
- [ ] Narrower residential streets
- [ ] Open space design
- [ ] Ordinances for post construction runoff
- [ ] Storm water wetland
- [ ] Zoning
- [ ] Others:

6. Pollution Prevention/Good Housekeeping for Municipal Operations

- [ ] Employee Training Program
- [x] Inspection and Maintenance Program
- [x] Municipal Operations Storm Water Control
- [ ] Others

- [ ] Municipal Operations Waste Disposal
- [ ] Flood Management/Assessment Guidelines
- [ ] Others:

Part IV. Initial Identification of Measurable Goals (Attach additional sheets as needed)

1. Public Education and Outreach on Storm Water Impacts

Measurable goals (with start and end dates): Attached

Milestones: Year 1:
Year 2:
Year 3:
Year 4:
Year 5:

2. Public Involvement/Participation

Measurable goals (with start and end dates): Attached

Milestones: Year 1:
Year 2:
Year 3:
Year 4:
Year 5:

3. Illicit Discharge Detection and Elimination

Measurable goals (with start and end dates): Attached

Milestones: Year 1:
Year 2:
Year 3:
Year 4:
Year 5:

4. Construction Site Storm Water Runoff Control

Measurable goals (with start and end dates): Attached

Milestones: Year 1:
Year 2:
Year 3:
Year 4:
Year 5:

5. Post-Construction Storm Water Management in New Development and Redevelopment

Measurable goals (with start and end dates): Attached

Milestones: Year 1:
Year 2:
Year 3:
Year 4:
Year 5:

6. Pollution Prevention/Good Housekeeping for Municipal Operations

Measurable goals (with start and end dates): Attached

Milestones: Year 1:
Year 2:
Year 3:
Year 4:
Year 5:

Part V. 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 person or persons who manage the system, or those persons directly responsible for gathering the information, I certify that 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.

Print Name: D. Brent Jensen

Signature: _____ Date: 10/13/08

Part IV. Initial Identification of Measurable Goals

1. Public Education and Outreach on Storm Water Impacts

Measurable Goals

1.1 Educate 4th grade students about the importance of storm water management and stewardship by participating in an annual interlocal storm water fair.

Start: April 2008
End: April 2012

1.2 Inform the public about ways to protect water resources through storm water pollution prevention by posting a quarterly newsletter at public buildings and on the city's web site.

Start: July 2008
End: June 2012

1.3 Conduct annual storm water training session for City employees.

Start: July 2008
End: June 2012

Milestones: Year 1: Fair, Newsletter, Employee Training "Indentifying Illegal Discharges"
Year 2: Fair, Newsletter, Employee Training "Preventing Illegal Discharges"
Year 3: Fair, Newsletter, Employee Training "Applying Pesticides & Herbicides"
Year 4: Fair, Newsletter, Employee Training "Storm Water Sump Maintenance"
Year 5: Fair, Newsletter, Employee Training "Catch Basin Maintenance"

2. Public Involvement / Participation

Measurable Goals

2.1 Volunteer and Public Service stenciling of storm water catch basins.

Start: July 2008
End: June 2012

2.2 Sponsor annual spring cleanup.

Start: July 2008
End: June 2012

2.3 Maintain a steering committee for storm water management and control efforts.

Start: July 2008
End: June 2012

2.4 Promote oil collection and recycling activities.

Start: July 2008
End: June 2012

Milestones: Year 1: Recycling, Stenciling, Cleanup, Steering Comm. "Illicit Discharges – 1".
Year 2: Recycling, Stenciling, Cleanup, Steering Comm. "Illicit Discharges – 2".
Year 3: Recycling, Stenciling, Cleanup, Steering Comm. "Const. Runoff – 1".
Year 4: Recycling, Stenciling, Cleanup, Steering Comm. "Const. Runoff – 2".
Year 5: Recycling, Stenciling, Cleanup, Steering Comm. "Recycling".

3. Illicit Discharge Detection and Elimination

Measurable Goals

3.1 Management of runoff from public facilities

Start: July 2008
End: June 2012

3.2 Management of runoff from private facilities

Start: July 2008
End: June 2012

Milestones: Year 1: Inventory and Evaluate Public Facilities - Stage 1
Year 2: Inventory and Evaluate Public Facilities - Stage 2
Year 3: Inventory and Evaluate Private Facilities - Stage 1
Year 4: Inventory and Evaluate Private Facilities - Stage 2
Year 5: Implementation – Stage 1

4. Construction Site Storm Water Runoff Control

Measurable Goals

4.1 Storm water management for private development projects

Start: July 2008
End: June 2012

Milestones: Year 1: Identify potential impacts and concerns
Year 2: Formulate management and inspection plan - Stage 1
Year 3: Formulate management and inspection plan - Stage 2
Year 4: Implementation – Stage 1
Year 5: Implementation – Stage 2

5. Post-Construction Storm Water Management in New Development and Redevelopment

Measurable Goals

5.1 Storm water management for private development projects

Start: July 2008
End: June 2012

Milestones: Year 1: Identify potential impacts and concerns
Year 2: Formulate management and inspection plan - Stage 1
Year 3: Formulate management and inspection plan - Stage 2
Year 4: Implementation – Stage 1
Year 5: Implementation – Stage 2

6. Pollution Prevention / Good Housekeeping for Municipal Operations

6.1 Update maintenance program to incorporate new equipment and priorities.

Start: July 2008
End: June 2012

6.2 Promote oil collection and recycling activities.

Start: July 2008
End: June 2012

Milestones: Year 1: Recycling, Update maintenance program and schedules - Stage 1.
Year 2: Recycling, Update maintenance program and schedules - Stage 2.
Year 3: Recycling, Implement updated maintenance program - Stage 1.
Year 4: Recycling, Implement updated maintenance program - Stage 2.
Year 5: Recycling, Implement updated maintenance program - Stage 3.

STATE OF UTAH, DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER QUALITY
195 North 1950 West, P.O. Box 144870, Salt Lake City, Utah 84114-4870 (801)536-4300

Notice of Intent (NOI) for Coverage Under the UPDES General Permit for Discharges from Small Municipal Separate Storm Sewer Systems (MS4's), Permit No. UTR090000.

INSTRUCTIONS ON BACK PAGE

DWQ USE ONLY

Coverage No. _____

Submission of this Notice of Intent constitutes notice that the party identified in Section I of this form intends to be authorized by a UPDES permit issued for storm water discharges from Small Municipal Separate Storm Sewers in the State of Utah. Becoming a permittee obligates such discharger to comply with the terms and conditions of the permit. ALL NECESSARY INFORMATION MUST BE PROVIDED ON THIS FORM.

Part I. General Information

Governmental Entity Name:

Mailing Address: Street

City State Zip Code -

Operator Type (Circle One): (City, County, Hospital, Prison, Military Base, Park, College/University, UDOT, Sewer District, Flood Control District, Drainage District, Association, Other(list))

Operator Status (Circle One): (Federal/State/Local/Other Public Entity(list))

Operator Contact Person: Name

Title Telephone Number

Latitude/Longitude at Center of land for which you are requesting authorization to discharge:

Latitude Longitude

Population served by your MS4: People

Storm Water Management Program Responsible Person:

Name Title

Telephone Number

Part II: Outfalls and Receiving Waters

Receiving Waters: List all separate storm water outfall receiving waters (all discharges to waters under the definition of waters of the State). If all receiving waters are not known at the time of the NOI submittal, list known outfalls and update the list on annual reports. (ATTACH ADDITIONAL SHEETS AS NEEDED)

	Outfall	Receiving Water
1.		
2.		
3.		
4.		
5.		
6.		

Part III. Initial Identification of Best Management Practices (ATTACH ADDITIONAL SHEETS AS NEEDED)

1. Public Education and Outreach on Storm Water Impacts

Outreach Techniques

- ☐ Classroom education/school programs
- ☐ Outreach to commercial entities
- ☐ Printed material
- ☐ Media campaign
- ☐ Classroom educational materials
- ☐ Events and Programs
- ☐ Displays
- ☐ Speakers to community groups
- ☐ Economic incentives
- ☐ Promotional giveaways
- ☐ Others

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Management Practices to Encourage

- ☐ Proper lawn and garden care (fertilizer and pesticide use, sweeping, etc.)
- ☐ Low impact development
- ☐ Pet waste management
- ☐ Pollution prevention for businesses
- ☐ Proper disposal of household hazardous wastes
- ☐ Water Conservation Practices
- ☐ Others

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2. Public Involvement/Participation

Involvement Techniques

- ☐ Advisory/partner committees
- ☐ Local storm water contact
- ☐ Public access to documents and information
- ☐ Public review of plans and annual reports
- ☐ Watershed organizations
- ☐ Attitude surveys
- ☐ Community hot lines
- ☐ Stakeholder meetings
- ☐ Others

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Participation Activities

- ☐ Adopt-a-stream
- ☐ Storm drain stenciling
- ☐ Stream/roadway cleanup
- ☐ Volunteer monitoring
- ☐ Wetland plantings
- ☐ Others

.....

3. Illicit Discharge Detection and Elimination

Detection and Elimination Activities

- ☐ System mapping
- ☐ Regulatory Control Program
- ☐ Identifying and Eliminating illicit connection procedures
- ☐ Dye testing/Tracing Procedures
- ☐ System inspections
- ☐ Dry Weather Screening Program/ Field Testing
- ☐ Others

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Type of Discharges to Target

- ☐ Failing septic systems
- ☐ Illegal dumping
- ☐ Industrial/business connections
- ☐ Recreational sewage
- ☐ Sanitary sewer overflows
- ☐ Wastewater connections to the storm drain system
- ☐ Others

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4. Construction Site Storm Water Runoff Control

Program Activities

- ☐ Regulatory Control Program
- ☐ Erosion and Sediment Control BMP's
- ☐ Other Waste Control Program
- ☐ Site Plan Review Procedures
- ☐ Public Information handling Procedures
- ☐ Site Inspection/Enforcement Procedures
- ☐ Other Construction Site Runoff Controls
- ☐ Contractor certification and inspector training
- ☐ Others

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Best Management Practices

- ☐ Construction Entrance/Exit Stabilization
- ☐ Perimeter Controls
- ☐ Sediment Retention Structure Requirements
- ☐ Sediment filters and sediment chambers
- ☐ Mulching Requirements
- ☐ Temporary/Permanent Stabilization Requirements
- ☐ Vehicle maintenance and washing areas
- ☐ Cement Truck Washout Area
- ☐ OtherBMP's

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5. Post-Construction Storm Water Management in New Development and Redevelopment

- ☐ Community Control Strategy
- ☐ Regulatory Control Program
- ☐ Long Term O& M Procedures
- ☐ Pre-Construction Review of BMP Designs
- ☐ Site Inspections During Construction
- ☐ Post Construction Inspections
- ☐ Others

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- ☐ Infiltration trench/basin
- ☐ Infrastructure planning
- ☐ storm water inlet specifications
- ☐ Narrower residential streets
- ☐ Open space design
- ☐ Ordinances for post construction runoff
- ☐ Storm water wetland
- ☐ Zoning
- ☐ Others:

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6. Pollution Prevention/Good Housekeeping for Municipal Operations

- ☐ Employee Training Program
- ☐ Inspection and Maintenance Program
- ☐ Municipal Operations Storm Water Control
- ☐ Others

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- ☐ Municipal Operations Waste Disposal
- ☐ Flood Management/Assessment Guidelines
- ☐ Others:

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Part IV. Initial Identification of Measurable Goals (Attach additional sheets as needed)

1. Public Education and Outreach on Storm Water Impacts

Measurable goals (with start and end dates): .....

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Milestones: Year 1:
Year 2:
Year 3:
Year 4:
Year 5:

2. Public Involvement/Participation

Measurable goals (with start and end dates): .....

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Milestones: Year 1:
Year 2:
Year 3:
Year 4:
Year 5:

3. Illicit Discharge Detection and Elimination

Measurable goals (with start and end dates): .....

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Milestones: Year 1:
Year 2:
Year 3:
Year 4:
Year 5:

4. Construction Site Storm Water Runoff Control

Measurable goals (with start and end dates): .....

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Milestones: Year 1:
Year 2:
Year 3:
Year 4:
Year 5:

5. Post-Construction Storm Water Management in New Development and Redevelopment

Measurable goals (with start and end dates): .....

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Milestones: Year 1:
Year 2:
Year 3:
Year 4:
Year 5:

6. Pollution Prevention/Good Housekeeping for Municipal Operations

Measurable goals (with start and end dates): .....

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Milestones: Year 1:
Year 2:
Year 3:
Year 4:
Year 5:

Part V. 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 person or persons who manage the system, or those persons directly responsible for gathering the information, I certify that 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.

Print Name: _____

Signature: _____ Date: _____

Part VI: Contract Certification for Co-Permittee SWMP Implementation (ATTACH ADDITIONAL SHEETS AS NEEDED)

List entity names responsible for implementation of the SWMP

1. _____ 2. _____

3. _____ 4. _____

5. _____ 6. _____

The above entities have entered into an agreement or contract to satisfy the implementation requirements of the Storm Water Management Program listed in the NOI. As stated in the existing agreements (MOU's) or contracts, the entities have agreed to the following responsibilities.

Circle the entity numbers (entity numbers correspond to entity name numbers listed above) corresponding with responsibilities, or portions thereof, of each entity entering into this agreement in the table below:

RESPONSIBILITY	**ENTITY**					
a. Public Education and Outreach	1.	2.	3.	4.	5.	6.
b. Public Involvement and Participation	1.	2.	3.	4.	5.	6.
c. Illicit Discharge Detection and Elimination	1.	2.	3.	4.	5.	6.
d. Construction Site Run-off Control	1.	2.	3.	4.	5.	6.
e. Post-Construction Storm Water Management in New Development and Redevelopment	1.	2.	3.	4.	5.	6.
f. Pollution Prevention/Good Housekeeping for Municipal Operations	1.	2.	3.	4.	5.	6.

If any entity is agreeing to accomplish only a portion of a responsibility in the table then explain the responsibility portion (e.g. entity 1 is responsible for storm drain stenciling program in the MS4 area, entity 2 is responsible for conducting phone surveys for item (a) in the table etc.) on a separate sheet.

The following statement and the accompanying signatures serve as certification that the agreements (MOU's) or contracts have been developed and agreed upon for the implementation of the Operator's (Identified in Part I of the NOI) SWMP.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, I certify that 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.

Entity	Authorized Signature	Date	Entity	Authorized Signature	Date
1.	_____	_____	2.	_____	_____
3.	_____	_____	4.	_____	_____
5.	_____	_____	6.	_____	_____

Instructions for Completing the Notice of Intent for Coverage Under a UPDES General Permit for Storm Water Discharges From SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS
Permit No. UTR090000

Who Must File a Notice of Intent?
If you are an operator of a regulated small MS4 designated for permitting, you must apply for coverage under a UPDES permit, or apply for a modification of an existing UPDES permit. If you have questions about whether you need a permit under the UPDES Storm Water Program, contact the Utah Division of Water Quality. The NOI must be submitted in accordance with the deadlines established in Part 2.A. of the UPDES MS4 General Permit.

When to File the NOI Form
DO NOT FILE THE NOI UNTIL YOU HAVE READ A COPY OF THE SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEM GENERAL PERMIT. You will need to determine your eligibility, prepare your storm water management plan, and correctly answer all questions on the NOI form, all of which must be done before you can sign the certification statement on the NOI in good faith (and without risk of committing perjury).

Where to File the NOI Form
NOIs must be sent to the following address:

Department of Environmental Quality
Division of Water Quality
P.O. Box 144870
Salt Lake City, UT 84114-4870

Completing the NOI Form
Please make sure you have addressed all applicable questions and have made a photocopy for your records before sending the completed form to the address above. Attach additional pages as needed for detailed explanations of items on the form.

Part I. MS4 General Information
Provide the legal name of the person, partnership, co-partnership, firm, company, corporation, association, joint stock company, trust, estate, governmental entity, or other legal entity that operates the MS4 described in this application. The responsible party is the legal entity that controls the MS4's operation. Provide the telephone number of the MS4 operator. Provide the mailing address of the MS4 operator. Include the street address or P.O. box, city, state, and zip code. All correspondence regarding the permit will be sent to this address, not the MS4 address in Section B.

Enter the official or legal name of the MS4.
Enter the city or cities, county or counties, and state in which the MS4 is located.
Enter the latitude and longitude of the approximate center of the MS4 in degrees/minutes/seconds. Latitude and longitude can be obtained from U.S. Geological Survey (USGS) quadrangle or topographic maps or by using a GPS unit, calling 1-(888) ASK-USGS, searching for your Facility's address on several commercial map sites on the Internet, or searching the U.S. Census Bureau database at http://www.census.gov/cgi-bin/gazetteer. Additionally, estimate the acreage of land area that drains to the MS4. This estimate can be made using topographic maps or topographic data in a geographic information system.

Indicate the legal status of the MS4 operator as a Federal, State, private, or other public entity (other than Federal or State). This refers only to the operator, not the owner of the land on which the MS4 is located.
Indicate whether the MS4 discharges storm water into one or more receiving water(s). Enter the name(s) of the receiving water(s).
Indicate whether the MS4 discharges storm water into one or more receiving water(s). Enter the name(s) of the receiving water(s).

Part II. Outfalls and Receiving Waters
Indicate all major outfalls (by outfall description) and the receiving water body for each outfall. Indicate whether any of the receiving water bodies are included on the 303(d) list for water quality impairments.

Part III. Initial Identification of Management Practices
Check the management practices that you have selected to meet each of the minimum measures. If a selected practice is not on the list, check "Other" and write the name of the practice in the space provided.

Part IV. Identification of Initial Measurable Goals
List the person(s) responsible for implementing or coordinating the storm water management program. Provide a narrative description of the measurable goals that will be used for each of the storm water minimum control measures. Indicate the month and year in which you will start and fully implement each of the minimum control measures, or indicate the frequency of the action in the description. Attach additional pages as necessary.

Part V. Certification
Certification statement and signature. (CAUTION: An unsigned or undated NOI form will prevent the granting of permit coverage.) State statutes provide for severe penalties for submitting false information on this application form. State regulations require this application to be signed by either a principal executive or ranking elected official as described in Part VI.H. of the Small MS4 General Permit.

Part VI. Contract Certification for Co-Permittee SWMP Implementation
Contract certification is required when more than one entity will be implementing the SWMP for the operator filing the NOI. The form must be completely filled out to clearly identify all coordinating agencies. Additional pages shall be used as necessary to define the responsibilities for each entity in preparation and implementation of the SWMP. The form must be signed by all coordinating entities, certifying that local agreements and/or contracts have been developed and agreed upon.

Appendix T – Annual Report Forms:

Utah Pollutant Discharge Elimination System Storm Water Program
Small MS4 Report Form

Utah Pollutant Discharge Elimination System Storm Water Program
Small MS4 Report Form

The purpose of this report is to contribute information to an evaluation of the UPDES small municipal separate storm sewer system (MS4) permit program. Consistent with 40 CFR §122.37 the Utah Department of Environmental Quality is assessing the status of the storm water program. A "no" answer to a question does not necessarily mean noncompliance with your permit or with the federal regulations. In order to establish the range of variability in the program it is necessary to ask questions along a fairly broad performance continuum.

1. MS4 Information

_____

Name of MS4

_____ _____ _____

Name of Contact Person (First) (Last) (Title)

_____ _____

Telephone (including area code) Email

_____

Mailing Address

_____ ____ _____

City State ZIP code

What size population does your MS4 serve? _____ UPDES number _____

What is the reporting period for this report? (mm/dd/yyyy) From _____ to _____

2. Water Quality Priorities

A. Does your MS4 discharge to waters listed as impaired on a state 303(d) list? ☐ Yes ☐ No

B. If yes, identify each impaired water, the impairment, whether a TMDL has been approved by EPA for each, and whether the TMDL assigns a wasteload allocation to your MS4. Use a new line for each impairment, and attach additional pages as necessary.

Impaired Water	Impairment	Approved TMDL		TMDL assigns WLA to MS4	
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No

C. What specific sources contributing to the impairment(s) are you targeting in your storm water program?

_____

D. Do you discharge to any high-quality waters (e.g., Tier 2, Tier 3, outstanding natural resource waters, or other state or federal designation)? ☐ Yes ☐ No

E. Are you implementing additional specific provisions to ensure their continued integrity? ☐ Yes ☐ No

3. Public Education and Public Participation

A. Is your public education program targeting specific pollutants and sources of those pollutants? ☐ Yes ☐ No

B. If yes, what are the specific sources and/or pollutants addressed by your public education program?

_____

C. Note specific successful outcome(s) (e.g., quantified reduction in fertilizer use; NOT tasks, events, publications) fully or partially attributable to your public education program during this reporting period.

_____

D. Do you have an advisory committee or other body comprised of the public and other stakeholders that provides regular input on your storm water program? ☐ Yes ☐ No

E. Do you belong to a storm water coalition or other advisory committee? If yes, describe: ☐ Yes ☐ No

_____

4. Construction

A. Do you have an ordinance or other regulatory mechanism stipulating:

Erosion and sediment control requirements? ☐ Yes ☐ No

Other construction waste control requirements? ☐ Yes ☐ No

Requirement to submit construction plans for review? ☐ Yes ☐ No

MS4 enforcement authority? ☐ Yes ☐ No

B. Do you have written procedures for:

Reviewing construction plans? ☐ Yes ☐ No

Performing inspections? ☐ Yes ☐ No

Responding to violations? ☐ Yes ☐ No

C. What is the threshold for construction storm water plan review (e.g., all projects, projects disturbing greater than one acre, etc.)? _____

D. Identify the number of active construction sites ≥ 1 acre in operation in your jurisdiction at any time during the reporting period. _____

E. How many of the sites identified in 4.D did you inspect during this reporting period? _____

F. Identify the number of active construction sites < 1 acre in operation in your jurisdiction at any time during the reporting period. _____

G. How many of the sites identified in 4.F did you inspect during this reporting period? _____

H. Describe, on average, the frequency with which your program conducts construction site inspections.

_____

I. Do you prioritize certain construction sites for more frequent inspections? ☐ Yes ☐ No

If Yes, based on what criteria? _____

J. Identify which of the following types of enforcement actions you used during the reporting period for construction activities, indicate the number of actions, or note those for which you do not have authority:

☐ Yes Notice of violation #____ No Authority ☐

☐ Yes Administrative fines #____ No Authority ☐

☐ Yes Stop Work Orders #____ No Authority ☐

☐ Yes Civil penalties #____ No Authority ☐

☐ Yes Criminal actions #____ No Authority ☐

☐ Yes Administrative orders #____ No Authority ☐

☐ Yes Other _____ #____

K. Do you use an electronic tool (e.g., GIS, data base, spreadsheet) to track the locations, inspection results, and enforcement actions of active construction sites in your jurisdiction? ☐ Yes ☐ No

L. What are the 3 most common types of violations documented during this reporting period?

_____

M. How often do municipal employees receive training on the construction program? _____

5. Illicit Discharge Elimination

A. Have you completed a map of all outfalls and receiving waters of your storm sewer system? ☐ Yes ☐ No

B. Have you completed a map of all storm drain pipes and other conveyances in the storm sewer system? ☐ Yes ☐ No

C. Identify the number of outfalls in your storm sewer system. _____

D. Identify the number of Class V injection wells in your jurisdiction. _____

E. Do you have documented procedures, including frequency, for screening outfalls? ☐ Yes ☐ No

F. Of the outfalls identified in 5.C, how many were screened for dry weather discharges during this reporting period?

_____

G. Of the outfalls identified in 5.C, how many have been screened for dry weather discharges at any time since you obtained MS4 permit coverage? _____

H. What is your frequency for screening outfalls for illicit discharges? Describe any variation based on size/type.

_____

I. Do you have an ordinance or other regulatory mechanism that effectively prohibits illicit discharges? ☐ Yes ☐ No

J. Do you have documented procedures for tracing and removing an illegal discharge? ☐ Yes ☐ No

K. Do you have an ordinance or other regulatory mechanism that provides authority for you to take enforcement action and/or recover costs for addressing illicit discharges? ☐ Yes ☐ No

L. During this reporting period, how many illicit discharges/illegal connections have you discovered? _____

M. Of those illicit discharges/illegal connections that have been discovered or reported, how many have been eliminated?

_____

N. Identify which of the following types of enforcement actions you used during the reporting period for illicit discharges, indicate the number of actions, or note those for which you do not have authority:

☐ Yes	Notice of violation	#____	No Authority ☐
☐ Yes	Administrative fines	#____	No Authority ☐
☐ Yes	Stop Work Orders	#____	No Authority ☐
☐ Yes	Civil penalties	#____	No Authority ☐
☐ Yes	Criminal actions	#____	No Authority ☐
☐ Yes	Administrative orders	#____	No Authority ☐
☐ Yes	Other _____	#____	

O. How often do municipal employees receive training on the illicit discharge program? _____

6. Storm Water Management for Municipal Operations

A. Have storm water pollution prevention plans (or an equivalent plan) been developed for:

All public parks, ball fields, other recreational facilities and other open spaces	☐ Yes	☐ No
All municipal construction activities, including those disturbing less than 1 acre	☐ Yes	☐ No
All municipal turf grass/landscape management activities	☐ Yes	☐ No
All municipal vehicle fueling, operation and maintenance activities	☐ Yes	☐ No
All municipal maintenance yards	☐ Yes	☐ No
All municipal waste handling and disposal areas	☐ Yes	☐ No

Other _____

B. Are storm water inspections conducted at these facilities? ☐ Yes ☐ No

C. If Yes, at what frequency are inspections conducted? _____

D. List activities for which operating procedures or management practices specific to storm water management have been developed (e.g., road repairs, catch basin cleaning).

_____

E. Do you prioritize certain municipal activities and/or facilities for more frequent inspection? ☐ Yes ☐ No

F. If Yes, which activities and/or facilities receive most frequent inspections? _____

G. How are you disposing of catch basin decant water and solid material?

_____

H. Are municipal vehicles washed into an approved wastewater disposal system? ☐ Yes ☐ No

I. Do all municipal employees and contractors overseeing planning and implementation of storm water-related activities receive comprehensive training on storm water management? ☐ Yes ☐ No

J. If yes, do you also provide regular updates and refreshers? ☐ Yes ☐ No

K. If so, how frequently and/or under what circumstances? _____

7. Long-term (Post-Construction) Storm Water Measures

A. Do you have an ordinance or other regulatory mechanism to require:

Site plan reviews for storm water/water quality of all new and re-development projects?	☐ Yes	☐ No
Long-term operation and maintenance of storm water management controls?	☐ Yes	☐ No
Retrofitting to incorporate long-term storm water management controls?	☐ Yes	☐ No

B. If you have retrofit requirements, what are the circumstances/criteria?

_____

C. What are your criteria for determining which new/re-development storm water plans you will review (e.g., all projects, projects disturbing greater than one acre, etc.) _____

D. Do you require water quality or quantity design standards or performance standards, either directly or by reference to a state or other standard, be met for new development and re-development? ☐ Yes ☐ No

E. Do these performance or design standards require that pre-development hydrology be met for:

Flow volumes	☐ Yes	☐ No
Peak discharge rates	☐ Yes	☐ No
Discharge frequency	☐ Yes	☐ No
Flow duration	☐ Yes	☐ No

F. Please provide the URL/reference where all post-construction storm water management standards can be found.

_____

G. How many development and redevelopment project plans were reviewed during the reporting period to assess impacts to water quality and receiving stream protection? _____

H. How many of the plans identified in 7.G were approved? _____

I. How many privately owned permanent storm water management practices/facilities were inspected during the reporting period? _____

J. How many of the practices/facilities identified in I were found to have inadequate maintenance? _____

K. How long do you give operators to remedy any operation and maintenance deficiencies identified during inspections?

_____

L. Do you have authority to take enforcement action for failure to properly operate and maintain storm water practices/facilities? ☐ Yes ☐ No

M. How many formal enforcement actions (i.e., more than a verbal or written warning) were taken for failure to adequately operate and/or maintain storm water management practices? _____

N. Do you use an electronic tool (e.g., GIS, database, spreadsheet) to track post-construction BMPs, inspections and maintenance? ☐ Yes ☐ No

O. Do all municipal departments and/or staff (as relevant) have access to this tracking system? ☐ Yes ☐ No

P. How often do municipal employees receive training on the post-construction program? _____

8. Program Resources

A. What was the annual expenditure to implement MS4 permit requirements this reporting period? _____

B. What is next year's budget for implementing the requirements of your MS4 NPDES permit? _____

C. This year what is/are your source(s) of funding for the storm water program, and annual revenue (amount or percentage) derived from each?

Source: _____ Amount $_____ OR % _____

Source: _____ Amount $_____ OR % _____

Source: _____ Amount $_____ OR % _____

D. How many FTEs does your municipality devote to the storm water program (specifically for implementing the storm water program; not municipal employees with other primary responsibilities)? _____

E. Do you share program implementation responsibilities with any other entities? ☐ Yes ☐ No

Entity	Activity/Task/Responsibility	Your Oversight/Accountability Mechanism

9. Evaluating/Measuring Progress

A. What indicators do you use to evaluate the overall effectiveness of your storm water management program, how long have you been tracking them, and at what frequency? These are not measurable goals for individual management practices or tasks, but large-scale or long-term metrics for the overall program, such as macroinvertebrate community indices, measures of effective impervious cover in the watershed, indicators of in-stream hydrologic stability, etc.

Indicator	Began Tracking (year)	Frequency	Number of Locations

B. What environmental quality trends have you documented over the duration of your storm water program? Reports or summaries can be attached electronically, or provide the URL to where they may be found on the Web.

10. Additional Information

In the space below, please include any additional information on the performance of your MS4 program. If providing clarification to any of the questions on this form, please provide the question number (e.g., 2C) in your response.

Certification Statement and Signature

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 gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. ☐ Yes

Name of Certifying Official, Title

Date (mm/dd/yyyy)

Appendix U – Annual SWMP Evaluation Forms:

CV Storm Water Management Program
Minimum Control Measures
Decision Making Process

Long-Term Storm Water Management

Decision Making Process Elements

1. Assess the general success of the Long-Term Storm Water Management program.
    a. Are construction sites post-construction storm water runoff conditions equal to or better than pre-construction conditions?
2. Review documentation from the prior year associated with the Long-Term Storm Water Management program.
3. Review the measurable goals associated with the Long-Term Storm Water Management program.
    a. What goals have been achieved?
    b. If goals have not been achieved, why not?
    c. Revise goals as necessary to further implement the Long-Term Storm Water Management measures.
    d. Create action items for attaining goals.
4. Identify and list/review Best Management Practices (BMPs) associated with Long-Term Storm Water Management.
5. Assess each BMP for Long-Term Storm Water Management separately to determine:
    a. Has the BMP been implemented?
    b. Has the objective of the BMP been achieved?
    c. Has the objective of the BMP contributed toward attainment of Long-Term Storm Water Management?
    d. Could the BMP implementation be better achieved?
    e. Should the BMP remain for Long-Term Storm Water Management or be eliminated?
    f. Should the BMP be modified to attain better compliance/implementation of Long-Term Storm Water Management?
    g. Should other BMPs be identified to better attain compliance/implementation of Long-Term Storm Water Management?
6. Prepare documentation to summarize each BMP to include why it has been chosen, results and recommendations.
7. Does our ordinance reflect the latest changes to the State requirements? If not, how should we update the ordinance?
    a. Does our ordinance enforcement action adequately encourage compliance with the Storm Water Management Program and State Law?
8. Are our Low Impact Development (LID) standards adequate and constructable? If not, how can they be updated/improved?
9. Are Notice of Terminations being completed and projects closed out?

10. Has our inventory of improvements to the storm water system been updated? Do we have our storm water map updated to include these BMPs from new construction/reconstruction?
11. Compile and review information and documentation for the Long-Term Storm Water Management program.
12. File as necessary for future review and reference.

CV Storm Water Management Program
Minimum Control Measures
Decision Making Process

Public Education and Outreach

Decision Making Process Elements

1. Assess the general success of the Public Education and Outreach program.
    a. Are residents more aware of and implementing the Storm Water Management Program (SWMP)?
    b. Are businesses, institutions and commercial facilities more aware of and implementing the SWMP?
    c. Are developers and contractors more aware of and implementing the SWMP?
    d. Are industrial facilities more aware of and implementing the SWMP?
2. Review target pollutants and pollutant sources.
    a. Are they still valid?
    b. Should they be modified?
3. Review documentation from the prior year associated with the Public Education and Outreach program.
4. Review the measurable goals associated with the Public Education and Outreach program.
    a. What goals have been achieved?
    b. If goals have not been achieved, why not?
    c. Revise goals as necessary to further implement the Public Education and Outreach control measure.
    d. Create action items for attaining goals.
5. Identify and list/review best management practices (BMPs) associated with Public Education and Outreach.
6. Assess each BMP for Public Education and Outreach separately to determine the following:
    a. Has the BMP been implemented?
    b. Has the objective of the BMP been achieved?
    c. Has the objective of the BMP contributed toward attainment of Public Education and Outreach?
    d. Could the BMP implementation be better achieved?
    e. Should the BMP remain for Public Education and Outreach or be eliminated?
    f. Should the BMP be modified to attain better compliance/implementation of Public Education and Outreach?
    g. Should other BMPs be identified to better attain compliance/implementation of the public education and outreach?
7. Prepare documentation to summarize each BMP to include why it has been chosen, results and recommendations.
8. Compile and review information and documentation for the Public Education and Outreach program.

9. File as necessary for future review and reference.

CV Storm Water Management Program
Minimum Control Measures
Decision Making Process

Public Involvement / Participation

Decision Making Process Elements

1. Assess the general success of the Public Involvement / Participation program.
    a. Have storm water related meetings and discussions on a city level been notified properly to the public?
    b. Do we have adequate representation of the public and stakeholders on our storm water advisory committee? If not, who could be included?
    c. Is the public involved sufficiently in our storm water program decision making processes?
2. Is the Storm Water Management Program (SWMP) available on the city web site, city office or other public location?
3. Review documentation from the prior year associated with the Public Involvement / Participation program.
4. Review the measurable goals associated with the Public Involvement / Participation program.
    a. What goals have been achieved?
    b. If goals have not been achieved, why not?
    c. Revise goals as necessary to further implement the Public Involvement / Participation measures.
    d. Create action items for attaining goals.
5. Identify and list/review best management practices (BMPs) associated with Public Involvement / Participation
6. Assess each BMP for Public Involvement / Participation separately to determine the following:
    a. Has the BMP been implemented?
    b. Has the objective of the BMP been achieved?
    c. Has the objective of the BMP contributed toward attainment of Public Involvement / Participation?
    d. Could the BMP implementation be better achieved?
    e. Should the BMP remain for Public Involvement / Participation or be eliminated?
    f. Should the BMP be modified to attain better compliance/implementation of Public Involvement / Participation?
    g. Should other BMPs be identified to better attain compliance/implementation of Public Involvement / Participation?
7. Prepare documentation to summarize each BMP to include why it has been chosen, results and recommendations.
8. Compile and review information and documentation for the Public Involvement / Participation program.
9. File as necessary for future review and reference.

CV Storm Water Management Program
Minimum Control Measures
Decision Making Process

Illicit Discharge Detection and Elimination (IDDE)

Decision Making Process Elements

1. Assess the general success of the IDDE program.
    a. Have the number of illicit discharges been reduced in this reporting/review period?
2. Is the storm sewer map up to date for the community?
3. Review documentation from the prior year associated with the IDDE program.
4. Review the measurable goals associated with the IDDE program.
    a. What goals have been achieved?
    b. If goals have not been achieved, why not?
    c. Revise goals as necessary to further implement the IDDE measures.
    d. Create action items for attaining goals.
5. Identify and list/review Best Management Practices (BMPs) associated with IDDE.
6. Assess each BMP for IDDE separately to determine the following:
    a. Has the BMP been implemented?
    b. Has the objective of the BMP been achieved?
    c. Has the objective of the BMP contributed toward attainment of IDDE?
    d. Could the BMP implementation be better achieved?
    e. Should the BMP remain for IDDE or be eliminated?
    f. Should the BMP be modified to attain better compliance/implementation of IDDE?
    g. Should other BMPs be identified to better attain compliance/implementation of IDDE?
7. Prepare documentation to summarize each BMP to include why it has been chosen, results and recommendations.
8. Compile and review information and documentation for the IDDE program.
9. Is our ordinance adequate for the IDDE control measure?
    a. Are there illicit discharges occurring that are not addressed in the ordinance?
    b. Are enforcement actions sufficient to curb illicit discharges?
10. Are the enforcement mechanisms working adequately?
11. Is the plan to address and detect illicit discharges adequate to identify report and reduce discharges to storm water? If not, how can we improve the plan?
    a. Have high priority areas changed?
    b. Have an additional 20% of priority areas been inspected this past year?
12. Do Standard Operating Procedures (SOP's) cover activities adequately?
13. Are we collecting and/or promoting the collection of hazardous wastes in our community? How effective is this program?
14. Has annual IDDE training occurred? How can it be improved to further educate our employees?

15. File as necessary for future review and reference.

CV Storm Water Management Program
Minimum Control Measures
Decision Making Process

Construction Site Storm Water Runoff Control

Decision Making Process Elements

1. Assess the general success of the Construction Site Storm Water Runoff Control program.
    a. Are construction sites maintaining Storm Water Pollution Prevention Plans (SWPPPs)?
    b. Is storm water around construction sites unpolluted?
2. Review documentation from the prior year associated with the Construction Site Storm Water Runoff Control program.
3. Review the measurable goals associated with the Construction Site Storm Water Runoff Control program.
    a. What goals have been achieved?
    b. If goals have not been achieved, why not?
    c. Revise goals as necessary to further implement the Construction Site Storm Water Runoff Control measure.
    d. Create action items for attaining goals.
4. Identify and list/review Best Mangment Practices (BMPs) associated with Construction Site Storm Water Runoff Control.
5. Assess each BMP for Construction Site Storm Water Runoff Control separately to determine the following:
    a. Has the BMP been implemented?
    b. Has the objective of the BMP been achieved?
    c. Has the objective of the BMP contributed toward attainment of Construction Site Storm Water Runoff Control?
    d. Could the BMP implementation be better achieved?
    e. Should the BMP remain for public education and outreach or be eliminated?
    f. Should the BMP be modified to attain better compliance/implementation of Construction Site Storm Water Runoff Control?
    g. Should other BMPs be identified to better attain compliance/implementation of the Construction Site Storm Water Runoff Control?
6. Prepare documentation to summarize each BMP to include why it has been chosen, results and recommendations.
7. Is our ordinance for Construction Site Storm Water Runoff Control adequate to control and enforce storm water on construction sites?
8. Does our ordinance reflect the latest changes to the State requirements? If not, how should we update the ordinance?
    a. Does our ordinance enforcement actions adequately encourage compliance with the Storm Water Management Program and State Law?

9. Are Construction Site Storm Water Runoff Control Standard Operating Procedures (SOPs) accurate? Do they need to be revised/updated?
10. Construction Site Inspections
    a. Are inspections occurring monthly?
    b. Is documentation of inspections being filed and followed up on?
11. Is our SWPPP Checklist adequate to prevent questions from arising during plan development and construction? If not, how can we modify it to improve its effectiveness?
12. Compile and review information and documentation for the Construction Site Storm Water Runoff Control program.
13. File as necessary for future review and reference.

CV Storm Water Management Program
Minimum Control Measures
Decision Making Process

Pollution Prevention and Good Housekeeping

Decision Making Process Elements

1. Assess the general success of the Pollution Prevention and Good Housekeeping program.
    a. Are our facilities examples of good storm water controls for citizens, contractors, developers and businesses in our community?
    b. Do we know where and what our community is discharging from its facilities?
2. Review documentation from the prior year associated with the Pollution Prevention and Good Housekeeping program.
3. Review the measurable goals associated with the Pollution Prevention and Good Housekeeping program.
    a. What goals have been achieved?
    b. If goals have not been achieved, why not?
    c. Revise goals as necessary to further implement the Pollution Prevention and Good Housekeeping measure.
    d. Create action items for attaining goals.
4. Identify and list / review Best Management Practices (BMPs) associated with Pollution Prevention and Good Housekeeping.
5. Assess each BMP for Pollution Prevention and Good Housekeeping separately to determine:
    a. Has the BMP been implemented?
    b. Has the objective of the BMP been achieved?
    c. Has the objective of the BMP contributed toward attainment of Pollution Prevention and Good Housekeeping?
    d. Could the BMP implementation be better achieved?
    e. Should the BMP remain for Pollution Prevention and Good Housekeeping or be eliminated?
    f. Should the BMP be modified to attain better compliance/implementation of Pollution Prevention and Good Housekeeping?
    g. Should other BMPs be identified to better attain compliance/implementation of the Pollution Prevention and Good Housekeeping?
6. Prepare documentation to summarize each BMP to include why it has been chosen, results and recommendations.
7. Is our storm water infrastructure inventory up to date from construction projects?
8. Is our inventory of potential pollutants used in our community up to date and are we containing them against a potential spill to our storm water system?
9. Are Pollution Prevention and Good Housekeeping Standard Operating Procedures accurate? Do they need to be revised/updated?
10. Inspections

    a. Are Weekly visual inspections documented with the name and facility inspected? If not, how can we revise our operations to complete this requirement?
    b. Quarterly comprehensive inspections. Are these being completed and kept with the Storm Water Management Program documents? If not, how can we improve?
    c. Quarterly visual observations of storm water outfalls. Have we observed any illicit discharges from our storm water outfalls? Have they been addressed under our IDDE program?
11. Training
    a. Is our staff trained to the level of their responsibility?
    b. Is the training attended by our staff appropriate? Is there better more economical training that could be attended?
12. Compile and review information and documentation for the Pollution Prevention and Good Housekeeping program.
13. File as necessary for future review and reference.

ONGOING DOCUMENTATION PROCESS
CITY NAME:_____
MCM1 Public Education – BMP Summary Table

BMP	6a	6b	6c	6d	6e	6f	6g	7

This process should take place continually, or as a minimum, annually. See BMP Fact Sheets for names and details.
Documentation question 6. Assess each BMP for Public Involvement / Participation separately to determine the following:

a. Has the BMP been implemented?
b. Has the objective of the BMP been achieved?
c. Has the objective of the BMP contributed toward attainment of Public Education?
d. Could the BMP implementation be better achieved?
e. Should the BMP remain for Public Education or be eliminated?
f. Should the BMP be modified to attain better compliance/implementation of Public Education?
g. Should other BMPs be identified to better attain compliance/implementation of Public Education?

Documentation question 7. Prepare documentation (empirical or research) to summarize each BMP to include why it has been chosen, results and recommendations. (include the data)

ONGOING DOCUMENTATION PROCESS
CITY NAME:_____
MCM1 Public Education – Measurable Goal Summary Table

Measurable Goal	Implementation Date	4a. Has the goal been achieved?	4b. If not, why?	4c. Revisions to further implement control measure.	4d. Action items for obtaining goals.

This process should take place continually, or as a minimum, annually. See SWMP Goals for further details.

ONGOING DOCUMENTATION PROCESS

City Name:_____

MCM2 Public Participation and Involvement - BMP Summary Table

BMP	6a	6b	6c	6d	6e	6f	6g	7

This process should take place continually, or as a minimum, annually. See BMP Fact Sheets for names and details.

Documentation question 6. Assess each BMP for Public Involvement / Participation separately to determine the following:

a. Has the BMP been implemented?
b. Has the objective of the BMP been achieved?
c. Has the objective of the BMP contributed toward attainment of Public Involvement / Participation?
d. Could the BMP implementation be better achieved?
e. Should the BMP remain for Public Involvement / Participation or be eliminated?
f. Should the BMP be modified to attain better compliance/implementation of Public Involvement / Participation?
g. Should other BMPs be identified to better attain compliance/implementation of Public Involvement / Participation?

Documentation question 7. Prepare documentation (empirical or research) to summarize each BMP to include why it has been chosen, results and recommendations. (include the data)

ONGOING DOCUMENTATION PROCESS
CITY NAME:_____
MCM 2 Public Participation / Involvement – Measurable Goal Summary Table

Measurable Goal	Implementation Date	4a. Has the goal been achieved?	4b. If not, why?	4c. Revisions to further implement control measure.	4d. Action items for obtaining goals.

This process should take place continually, or as a minimum, annually. See SWMP Goals for further details.

ONGOING DOCUMENTATION PROCESS

City Name:_____

MCM3 Illicit Discharge Detention and Elimination – BMP Summary Table

BMP	6a	6b	6c	6d	6e	6f	6g	7

This process should take place continually, or as a minimum, annually. See BMP Fact Sheets for names and details.

Documentation Question 6. Assess each BMP for IDDE separately to determine the following:

a. Has the BMP been implemented?
b. Has the objective of the BMP been achieved?
c. Has the objective of the BMP contributed toward attainment of IDDE?
d. Could the BMP implementation be better achieved?
e. Should the BMP remain for IDDE or be eliminated?
f. Should the BMP be modified to attain better compliance/implementation of IDDE?
g. Should other BMPs be identified to better attain compliance/implementation of IDDE?

Documentation Question 7. Prepare documentation to summarize each BMP to include why it has been chosen, results and recommendations. (include any data)

ONGOING DOCUMENTATION PROCESS
CITY NAME:_____
MCM 3 Illicit Discharge Detection and Elimination – Measurable Goal Summary Table

Measurable Goal	Implementation Date	4a. Has the goal been achieved?	4b. If not, why?	4c. Revisions to further implement control measure.	4d. Action items for obtaining goals.

This process should take place continually, or as a minimum, annually. See SWMP Goals for further details.

ONGOING DOCUMENTATION PROCESS

City Name:_____

MCM4 Construction Site Runoff Control – BMP Summary Table

BMP	5a	5b	5c	5d	5e	5f	5g	6

This process should take place continually, or as a minimum, annually. See BMP Fact Sheets for names and details.

Documentation Question 5.Assess each BMP for Construction Site Storm Water Runoff Control separately to determine the following:

a. Has the BMP been implemented?
b. Has the objective of the BMP been achieved?
c. Has the objective of the BMP contributed toward attainment of Construction Site Storm Water Runoff Control?
d. Could the BMP implementation be better achieved?
e. Should the BMP remain for public education and outreach or be eliminated?
f. Should the BMP be modified to attain better compliance/implementation of Construction Site Storm Water Runoff Control?
g. Should other BMPs be identified to better attain compliance/implementation of the Construction Site Storm Water Runoff Control?

Documentation Question 6. Prepare documentation to summarize each BMP to include why it has been chosen, results and recommendations. (include any data)

ONGOING DOCUMENTATION PROCESS

CITY NAME:_____

MCM 4 Construction Site Runoff Control – Measurable Goal Summary Table

Measurable Goal	Implementation Date	3a. Has the goal been achieved?	3b. If not, why?	3c. Revisions to further implement control measure.	3d. Action items for obtaining goals.

This process should take place continually, or as a minimum, annually. See SWMP Goals for further details.

ONGOING DOCUMENTATION PROCESS

City Name:_____

MCM5 Post Construction Runoff Control – BMP Summary Table

BMP	5a	5b	5c	5d	5e	5f	5g	6

This process should take place continually, or as a minimum, annually. See BMP Fact Sheets for names and details.

Documentation Question 5. Assess each BMP for Long-Term Storm Water Management separately to determine:

a. Has the BMP been implemented?
b. Has the objective of the BMP been achieved?
c. Has the objective of the BMP contributed toward attainment of Long-Term Storm Water Management?
d. Could the BMP implementation be better achieved?
e. Should the BMP remain for Long-Term Storm Water Management or be eliminated?
f. Should the BMP be modified to attain better compliance/implementation of Long-Term Storm Water Management?
g. Should other BMPs be identified to better attain compliance/implementation of Long-Term Storm Water Management?

Documentation Question 6. Prepare documentation to summarize each BMP to include why it has been chosen, results and recommendations. (include any data)

ONGOING DOCUMENTATION PROCESS
CITY NAME:_____
MCM 5 Post-Construction Runoff Control – Measurable Goal Summary Table

Measurable Goal	Implementation Date	3a. Has the goal been achieved?	3b. If not, why?	3c. Revisions to further implement control measure.	3d. Action items for obtaining goals.

This process should take place continually, or as a minimum, annually. See SWMP Goals for further details.

ONGOING DOCUMENTATION PROCESS

City Name:_____

MCM6 Pollution Prevention/ Good Housekeeping – BMP Summary Table

BMP	5a	5b	5c	5d	5e	5f	5g	6

This process should take place continually, or as a minimum, annually. See BMP Fact Sheets for names and details.

Documentation Question 5. Assess each BMP for Pollution Prevention and Good Housekeeping separately to determine:

a. Has the BMP been implemented?
b. Has the objective of the BMP been achieved?
c. Has the objective of the BMP contributed toward attainment of Pollution Prevention and Good Housekeeping?
d. Could the BMP implementation be better achieved?
e. Should the BMP remain for Pollution Prevention and Good Housekeeping or be eliminated?
f. Should the BMP be modified to attain better compliance/implementation of Pollution Prevention and Good Housekeeping?
g. Should other BMPs be identified to better attain compliance/implementation of the Pollution Prevent. and Good Housekeeping?

Documentation Question 6. Prepare documentation to summarize each BMP to include why it has been chosen, results and recommendations. (include any data)

ONGOING DOCUMENTATION PROCESS
CITY NAME:_____
MCM 6 Pollution Prevention/Good Housekeeping – Measurable Goal Summary Table

Measurable Goal	Implementation Date	3a. Has the goal been achieved?	3b. If not, why?	3c. Revisions to further implement control measure.	3d. Action items for obtaining goals.

This process should take place continually, or as a minimum, annually. See SWMP Goals for further details.