



**NATIONAL POLLUTANT DISCHARGE ELIMINATION
SYSTEM (NPDES) PHASE II, REGULATED SMALL MUNICIPAL
SEPARATE STORM SEWER SYSTEMS (MS4's)**

INDIVIDUAL PERMIT APPLICATION

MUNICIPIO AUTÓNOMO DE AGUADILLA
P.O. Box 1008
AGUADILLA, PUERTO RICO 00605

U.S. ENVIRONMENTAL PROTECTION AGENCY - REGION II
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1.0 NPDES PERMIT APPLICATION

1.1 BACKGROUND

In 1972, Congress amended the Federal Water Pollution Control Act, commonly referred as the Clean water Act (CWA) to prohibit the discharge of any pollutant to waters of the United States from point sources unless the discharge is authorized by a National Pollutant Discharge Elimination System (NPDES) permit. Initial efforts under the NPDES program focused on reducing pollutants in discharges of industrial process wastewater and municipal sewage. As pollution control measures have been implemented, it has become evident that diffuse sources or nonpoint sources are also contributors of water quality degradation. In 1990, the US Environmental Protection Agency (EPA) promulgated rules establishing Phase I of the NPDES storm water program. The Phase I program for MS4s requires operators of “medium” and “large” MS4s, that is, those that generally serve populations of 100,000 or greater, to implement a storm water management program as a means to control polluted discharges from these MS4s. EPA published the Storm Water Phase II Rule on December 9, 1999. As outlined in these regulations the Autonomous Municipality of Aguadilla is required to submit an application for permit coverage.

The urbanized and rural areas of Autonomous Municipality of Aguadilla, as well as the City itself, is both required to apply for NPDES municipal storm water discharge permits. In order to assure that the quality of storm water discharges from our municipal storm sewer system is managed to the maximum extent practicable, the Autonomous Municipality of Aguadilla is in the process of developing and implementing a Storm Water Management Program that includes best management practices, public education and storm water monitoring.

The U.S. Environmental Protection Agency has not delegated the NPDES permitting program to the Puerto Rico Environmental Quality Board (PREQB).

EPA Region 2 has issued a general NPDES permit for Small Municipal Separate Storm for Puerto Rico as of November 6, 2006.

1.2 MUNICIPAL STORM WATER SEWER SYSTEM

The Autonomous Municipality of Aguadilla has a territorial extension of 94.8 square kilometers and a population of 64,685 inhabitants¹, according to the 2000 Census. Aguadilla is located in the Northwest of the Island of Puerto Rico and is bounded to the north and west with the Atlantic Ocean, to the east with the Municipalities of Isabela and Moca, to the south with the Aguada

¹ Based Census 2000 Population, Housing Units, Area, and Density Summary, Aguadilla, Puerto Rico, [Http://factfinder.census.gov/home/en/datanotes/expsf1u.htm](http://factfinder.census.gov/home/en/datanotes/expsf1u.htm).



Municipality. It has ample seashore that runs from the Culebrinas River in the south forming an arch up to a small river in the north that limits the boundaries with Isabela. The topography is mostly level and there are two rivers, the Culebrinas and the Chiquito River.

The old urban area locates at sea level, while the remaining of the territory locates over a plateau that forms the western portion of the Jaicoa Chain of Mountains. Other urban center locate in the site of the former Ramey Field. The main access to Aguadilla is through State Road PR-2, which runs through the southeast side of the Municipality. The municipality is composed of the urban zone and 15 wards, Aguacate, Arenales, Borinquen, Caimital Alto, Caimital Bajo, Camaseyes, Ceiba Alta, Ceiba Baja, Corrales, Guerrero, Maleza Alta, Maleza Baja, Montana, Palmar and Victoria.

The Autonomous Municipality of Aguadilla operates a municipal separate storm water sewer system located in Aguadilla, Puerto Rico (Latitude 18°27'25"N and Longitude 67°09'45"W), which includes the old urban area, urban centers located at the former Ramey Field and rural areas within the municipality. The Aguadilla municipal separate storm water sewer system is interconnected with the storm water sewer system operated and maintained by the Puerto Rico Department of Transportation and Public Works and that of the Highway and Transportation Authority.

1.2 ACTIVITIES SUBJECT TO NPDES PERMIT APPLICABILITY

Municipal separate storm water sewer system located in Aguadilla, Puerto Rico (Latitude 18°27'25"N and Longitude 67°09'45"W).

1.3 NAME, MAILING ADDRESS, AND LOCATION OF FACILITY FOR WHICH THE APPLICATION IS SUBMITTED

Municipio Autónomo de Aguadilla
P.O. Box 1008
Aguadilla, Puerto Rico 00605

1.3.1 NPDES (MS4s) Program Point of Contact Autonomous Municipality of Aguadilla

Mr. Ricardo Pérez
City Administrator
Municipality of Aguadilla
P.O. Box 1008
Aguadilla, Puerto Rico 00605
Telephone: (787) 891-1005
Fax: (787) 882-5435



1.4 STANDARD INDUSTRIAL CLASSIFICATION (SIC) CODE

Standard Industrial Classification (SIC) Code for the Autonomous Municipality of Aguadilla is 9199.

1.5 OPERATORS NAME, MAILING ADDRESS, TELEPHONE, OWNERSHIP STATUS, AND AS FEDERAL, STATE, LOCAL, TRIBAL OR OTHER PUBLIC ENTITY.

Municipio Autónomo de Aguadilla
P.O. Box 1008
Aguadilla, Puerto Rico 00605

1.6 PERMITS OR CONSTRUCTION APPROVALS RECEIVED OR APPLIED UNDER THE FOLLOWING PROGRAMS

1.6.1 FEDERAL PERMITS OR CONSTRUCTION APPROVALS

1.6.1.1 Resource Conservation and Recovery Act

None

1.6.1.2 Underground Injection Control under the Safe Drinking Water Act

None

1.6.1.3 NPDES Program under the Clean Water Act

- a) NPDES (Stormwater) General Permit – PRD05-B-096, Municipal Landfill, Issued to Landfield Technologies, Inc.,
- b) NPDES (Stormwater) General Permit – Notice of Intent (NOI) filed 10 March 2003, Department of Public Works, Autonomous Municipality of Aguadilla

1.6.1.4 Nonattainment Program under the Clean Air Act

None

1.6.1.5 National Emissions Standards for Hazardous Air Pollutants Preconstruction Approvals under the Clean Air Act

None

1.6.1.6 Ocean Dumping Permits under the Marine Protection Research and Sanctuaries Act

None



1.6.1.7 Dredge or Fill Permits under Section 404 of the Clean Water Act

None

1.6.2 STATE PERMITS OR CONSTRUCTION APPROVALS

1.6.2.1 Puerto Rico Environmental Quality Board

- a) Permit to Transport Non-Hazardous Solid Wastes (DS-1 Permit) – Permit # SR-03-0152

1.6.2.2 Puerto Rico Department of Natural Resources and the Environment

None

1.7 STORM WATER SEWER MAP

Included in Appendix A (Figures) is a map depicting the geographical extension of the Autonomous Municipality of Aguadilla and the water bodies within the municipal boundaries. At the present time, the municipality lacks the information and resources needed to develop a detail storm sewer map for the municipal operated MS4.

As part of the implementation phase of the NPDES it is the intention of the Autonomous Municipality of Aguadilla to develop such map. It is anticipated that at a minimum the map will include information related to:

- Municipal Owned and Operated Roads Storm Sewer Systems interconnected with the Municipal Storm Sewer System;
- State Owned and Operated Roads Storm Sewer Systems interconnected with the Municipal Storm Sewer System;
- Water Filtration Plants Owned and Operated by the Puerto Rico Aqueduct and Sewer Authority (PRASA), including intakes and outfalls;
- Waste Water Treatment Plants Owned and Operated by the Puerto Rico Aqueduct and Sewer Authority, including outfalls;
- Hazardous Waste Treatment, Storage and Disposal Facilities;
- Non-Hazardous Solid Waste Treatment, Storage and Disposal Facilities;
- NPDES permitted industrial facilities interconnected with the Municipal Storm Sewer System;



- NPDES permitted industrial facilities discharging to a surface water body;
- Commercial Facilities (Regulated under the PRASA Pretreatment Program) interconnected with the Municipal Storm Sewer System or discharging to a surface water body;
- Drinking, Irrigation or Commercial Groundwater Wells; and
- Surface water bodies (lakes, rivers, creeks, ocean); and
- Municipal Storm Sewer System, including outfall locations.

1.8 DESCRIPTION OF THE MUNICIPAL STORM WATER SEWER SYSTEM

The Autonomous Municipality of Aguadilla Storm Water Sewer System (MS4s) in the urban areas in general consist of a series of catch basins, typically located within the right-of-way of municipal and state roads, interconnected by underground concrete or PVC pipes which normally discharge to the Atlantic Ocean. In the rural areas the Municipal MS4s system typically consists of a series of interconnected open channel culverts, which run parallel to municipal and state roads, and usually discharge to a surface water body. Interconnected to the Municipal MS4s system are the storm water sewer systems owned and operated by the Puerto Rico Department of Public Works and Transportation and the Puerto Rico Highway and Transportation Authority.

Also, interconnected to the Municipal MS4s system are the discharges from NPDES (Stormwater) permitted facilities and PRASA Pre-treatment permitted industrial and commercial facilities.

As the Autonomous Municipality of Aguadilla implements the proposed Storm Management Plan a more accurate description (capacity, operation, etc.) of the Municipal MS4s system can be provided.

1.9 ESTIMATED SQUARE MILEAGE SERVED BY THE MS4S SYSTEM

The estimated square mileage served by the MS4s System is 35.5 m². However, it must be noted that a more accurate estimate can be provided as the Municipality implements the proposed Storm Management Plan.

1.10 PROPOSED STORM WATER MANAGEMENT PLAN

Autonomous Municipality of Aguadilla has many regulatory and public responsibilities. One of these is the development of a Comprehensive Storm Water Management Plan (SWMP). The SWMP will be developed to meet the regulatory requirements of the National Pollutant Discharge Elimination System (NPDES) Phase II Rule and to assist the municipality in maintaining and improving the municipality drainage facilities which include pipelines, structures, basins, ditches,



swales, ponds, underdrains and drainage wells, to ensure that they perform to design capacity and that all receiving bodies meet state and federal standards for water quality. It will also be an important tool for use in the day-to-day operations and as a public reference document. Along with regulatory issues, this plan will address protection of property from flooding and erosion, identifies health and safety issues related to water resources, and will make recommendations for the preservation of environmental and aesthetic benefits to the community.

Through the use of field observations, results of past and future studies, hydrologic/hydraulic computer modeling, and input from Municipality staff and a proposed Citizens Advisory Committee, the plan will identify existing problems and potential future problems within the municipality. A combination of regulatory requirements, public education, increased maintenance activities, and capital improvements will be recommended to solve identified problems. The major plan elements include the following:

- Development of a proposed storm water ordinance that, among other things, establishes minimum requirements for new development and redevelopment, prohibits illicit discharges into surface waters, and requires maintenance of privately owned storm water facilities.
- Development of public education opportunities to inform the community of water quality issues, and, specifically, the new ordinance and its requirements.
- Develop a Storm Water Assistance Program, to assist businesses and persons in their efforts to comply with NPDES storm water regulations and will educate citizens about storm water runoff and associated concerns.
- Hydrologic and hydraulic computer modeling analysis of the major drainage basins in the Municipality to simulate existing flows, project future flows, and evaluate system requirements.
- Analysis of localized flooding and water quality problems and solutions, and development of a prioritized list of recommended drainage system improvements.
- Development of a Capital Improvements Program.
- Development of a Maintenance and Operations Program.
- Development of a Public Education.
- Development of a Compliance Management Program to among other things, monitor illicit discharges into surface waters, storm water discharges associated with industrial activity and construction sites.



- Description of the overall program costs.
- Analysis of funding options and the creation of a storm water utility.

The proposed SWMP will focus initially on a system inventory and analysis of drainage and water quality issues followed by a 10-year capital improvement program, a facilities maintenance program, and a comprehensive storm and surface water code and policy. As envisioned, The SWMP will address the drainage network base map, hydrologic and hydraulic analysis and modeling, if required, for the principal surface water bodies (creeks and rivers), environmental and water quality issues, capital improvement program, storm water facilities maintenance program and a comprehensive Storm Water Management Code and Policy.

1.10.1 PROPOSED WORK PLAN

Under the direction of the Municipality Planning Department, a work plan will developed at the beginning of each year based on priorities. Semiannual meetings will held to update all partnership members and Citizens Advisory Committee on the status of the planned activities. A written annual report is prepared and distributed at the end of each year.

The anticipated activities are currently divided into six major tasks:

1.10.1.1 Task 1: Technology Assessment, Development, and Demonstration

Water supply and water quality issues are becoming more important in the Municipality as a result of population growth, increased irrigation and new industry. Choosing the right technological solutions to deal with water supply issues is key to the future of the region. The goal of this task is to ensure that The Municipality benefits from the best water management technologies available.

The objective of this task is to identify and/or develop solutions to water supply and water quality issues facing the Municipality using innovative or alternate technologies and practices.

1.10.1.2 Task 2: Water Resource Assessment and Analyses

Numerous studies have been performed and will be conducted on a variety of local and regional water issues, including watershed management, flooding, drought, water supply concerns, and environmental problems. Water quality and quantity data have been collected through the monitoring programs of the U.S. Army Corps of Engineers (USACE), the U.S. Geological Survey (USGS), the U.S. Department of Agriculture (USDA), and other federal and state agencies. This task will provide the Municipality and its citizens with easy access to water-related information so that decisions can be based on the best data available.

The objective of Task 2 is to provide the Municipality and its citizens with access



to data and information so that scientifically valid management decisions can be made on important issues that impact the water resources of the basin.

1.10.1.3 Task 2: Anthropogenic Impacts on Water Resources

New and more stringent federal regulations regarding water quality are making it more difficult for the municipality to meet water quality standards and for industry and municipalities to meet wastewater discharge limits. The Municipality, which continues to grow, is concerned about meeting current and future water demands. For economic development to continue, the best possible information is required on the water resources available and potential future water needs so that scientifically valid management decisions can be made on important issues that impact the water resources of the basin.

The main objective of Task 3 is to assess the impacts from human activities on water resources in the watershed basins within the Municipality. This task also investigates opportunities for continued economic development while identifying new methods to reduce the environmental impacts from water consumption and wastewater loads.

1.10.1.4 Task 4: Water Resource Monitoring

Monitoring programs are the key to protecting the health and sustainable use of water resources. In recent years, more stringent environmental regulations have increased water quality monitoring by public and private entities. Federal and state agencies are actively developing new monitoring initiatives, as well as maintaining current programs. Although numerous monitoring efforts are under way, coordination of these efforts has been slow to develop. Coordinating monitoring efforts and results presents unique challenges because the methods and goals of the programs can vary significantly.

The objectives of Task 4 are to track monitoring efforts of stakeholders and regulatory agencies in the Municipality, development of monitoring efforts, and perform monitoring.

1.10.1.5 Task 5: Education and Information Dissemination

An integral component of this water management program for the Autonomous Municipality of Aguadilla is to provide a forum dedicated to identifying and discussing relevant water-related issues. This forum is structured for a broad sharing of data, information, experience, technology, and perspectives on key water issues targeted by the community. Information dissemination and education foster partnerships and raise the level of awareness of water resource issues. A proactive water management strategy is maintained through education and the open exchange of information and technical expertise.



The objectives of this task are to share data, information, experience, technology, and perspectives on key water issues targeted by the community and to keep the public abreast of new developments regarding the region's water resources.

1.10.1.6 Task 6: Development of a Watershed Management

Task 6 provides the basis for the integration of previous and current activities for Tasks 1 through 5 and the evaluation of how those activities affect the hydrology, ecology, and economy of the municipality. The valuable information obtained from Tasks 1 through 5 will be used to create a framework for an overall watershed strategy for the Municipality by first developing a watershed management conceptual model. The framework will help to determine what information is missing and what other factors need to be considered in order to develop the conceptual model. A model that incorporates changing demographics, land uses, water supply and demands, environmental health and ecologically sensitive areas, and a host of other information will be an essential tool for shaping a water management strategy. The emphasis is to create a strategy, rather than a plan, with which to approach watershed issues. The distinction is important if the goal of making tangible progress in solving present and future basin issues is to be achieved.

The objective of this task is to provide the Municipality and other watershed management entities with information vital to making informed decisions needed to ensure a reliable and safe water supply well into the future.

1.11 DESCRIPTION OF MEASURABLE GOALS FOR THE BEST MANAGEMENT PRACTICES TO BE IMPLEMENTED

1.11.1 MINIMUM CONTROL MEASURE 1 – PUBLIC EDUCATION AND OUTREACH

I. Target Audience

Activities planned under the Public Education and Outreach portion of the Storm Water Management Plan (SWMP) will be directed toward the citizens of the community, including students and citizens of all age groups.

II. Goals

The SWMP activities implemented under Minimum Control Measure (MCM) 1 will focus on increasing public awareness of the harmful effects of storm water runoff and its potential to affect the water quality in the Aguadilla small regulated municipal separate storm sewer systems (MS4's). Services and educational information will be made available to the public to promote practices conducive to the reduction of pollution that results from storm water runoff. Outreach programs and educational activities that demonstrate the impacts of storm water discharges will be developed and implemented within the permit term to increase the general level of understanding of the SWMP throughout the community.



III. Best Management Practices

A. Storm Water-Related Public Service Announcements

The municipality shall develop, produce, and air five 30-second radio-based storm water-related public service announcement (PSA) segments to increase the public awareness of the storm water pollution issues within the area. These PSAs will highlight the impacts of storm water in the community.

Measurable Goal(s)

The development of the storm water-related segments; and

The number of segments radioed each year.

B. Local Storm Water Runoff Display

The Municipality shall maintain a 3-dimensional plastic model of a local miniature community to offer a hands-on approach to demonstrate water pollution of watersheds caused by various urban runoff sources.

Measurable Goal(s)

The number of community events and schools the model is displayed into elicit support from the community; and

The number of people that have viewed the model.

C. Educational Involvement/Partnerships/Outreach with the Schools

The Municipality shall develop an educational program to reduce the storm water pollutants. Components of the educational program shall include the development of informational materials and brochures, presentation packets for distribution to the schools, and surveys for gauging program effectiveness. Topics shall include a listing and description of typical storm water runoff contaminants, the identification and reporting of illicit discharges, proper disposal of household toxic waste, and volunteer opportunities for conducting stream surveys and cleanups.

Measurable Goal(s)

A minimum of 50% of all grade school children will be educated every two years on storm water pollution issues.



D. Educational Outreach to Community Homeowners on Lawn Care

The Municipality, in partnership with local commercial entities, and area university extension services, will plan, design, and develop a regional lawn care education and outreach program highlighting storm water runoff issues. This program will include coverage of items such as the natural conditions of the area; discussion of typical soil types and conditions; soil analysis and improvements; appropriate vegetation selection; alternatives to typical turf grass; efficient irrigation; and the proper use of mulches, fertilizers, and pesticides.

Measurable Goal(s)

Sponsor an annual lawn care seminar in cooperation with extension.

Sponsor a Master Gardener program including a lawn and garden show.

Monitor the number of partnerships established with local lawn care businesses, suppliers, and retail stores.

Monitor the number of property owners that attended training workshops for lawn and garden care.

Monitor the attendance at lawn care seminars sponsored by the partnership.

E. Development and Distribution of Storm Water-Related Materials

The Municipality will develop a community newsletter to convey storm water information throughout the area and will also develop a “toolbox” of public outreach activities that can be used for community education and outreach with respect to storm water pollution issues. A wide variety of public outreach measures and concepts will be compiled from which the Municipality can pick and choose for use throughout the permit term. Items or concepts that will be considered for the toolbox may include utility bill stuffers, pamphlets, booklets, flyers, a storm water video, production of a newspaper “Tip of the Week,” radio PSAs, and notices in daily news sheets. Toolbox items developed and used throughout the permit term will be tracked by permit year.

Measurable Goal(s)

The number of copies in circulation.

The number of toolbox items used.

At least one storm water pollution prevention message in every newsletter and the number of copies in circulation.



The number and description of toolbox items developed and used.

F. Storm Water Web Page

The Municipality shall develop a storm water Web page associated with its existing Web site. This Web site shall have counters to monitor number of monthly visits.

Measurable Goal(s)

The number of visits to the storm water Web page.

G. Development of an Expanded Regional Interactive Storm Water Runoff

Display

The Municipality, in partnership with the communities and adjacent municipalities, shall develop a larger regional educational display to convey information regarding storm water pollution. The display will expand upon the Municipality existing display, show examples of common contaminants, and provide educational leaflets and brochures.

Measurable Goal(s)

The number of times the display is used at events across the Region.

The types of events the display is shown at.

The number of people that see the display at a single event.

H. Storm Water Pamphlets, Booklets, and Flyers

In partnership with the U. S. Environmental Protection Agency (EPA) and State Agencies, shall develop storm water pamphlets, booklets, and flyers that are intended to solicit interest in a specific storm water event or activity or to promote storm water education and positive behaviors. Pamphlet racks shall be set up at libraries, schools, offices, and fairs. Pamphlets and booklets shall be passed out at public meetings and can be used in a utility bill stuffer campaign.

Measurable Goal(s)

A list compiled of target audiences and possible activities for each.

The number of materials created and distributed.



The number of events attended with displays.

The number of people at an event who saw the display (signed the guest book) or took a pamphlet/booklet.

I. Expansion of Educational Involvement/Partnerships with the Schools

The Municipality shall develop a relationship with the local schools by developing a storm water outreach program for a general age-range target. The educational outreach program shall include development and implementation of materials listing storm water videos, classroom presentations, demonstrations, and models. Storm water issues highlighted shall also include information on polluted runoff, landscaping, yard and garden products, pet waste, household hazardous waste, motor oil and automotive products, conservation, and septic systems.

Measurable Goal(s)

The number of educational materials distributed to schools.

The number of classes, schools, or students that participate in municipality-sponsored storm water workshops or activities.

The number of workshops on storm water education held for teachers.

The number of certificates or other rewards given out for classes/students who participate in storm water education.

The number of students receiving storm water education as a regular part of the school curriculum.

The number of students receiving storm water education as part of after-school programs.

IV. BMP Implementation Schedule and MCM 1 Performance Measures Implementation Planned Performance Measures

Year 1 Develop educational pamphlets, booklets, and flyers; develop a storm water Web site; expand newsletter; develop and produce the PSA Water Spots series; expand educational programs for local schools; hold the annual Water Festival; hold the annual public meeting on the SWMP

Year 2 Expand the partnership with the schools; develop the lawn maintenance program; develop the public advertisement toolbox; expand the scope of the existing storm water display; continue



educational programs at local schools; hold the annual Water Festival; hold the annual public meeting.

Year 3 Develop and build a regional storm water display; continue the newsletter; continue educational programs at local schools; continue the lawn maintenance program; hold the annual Water Festival; hold the annual public meeting.

Year 4 Implement the expanded regional storm water display; continue work on the newsletter; continue the lawn maintenance program; continue educational programs at local schools; hold the annual Water Festival; hold the annual public meeting

Year 5 Expand events including the regional storm water display; continue work on the newsletter; continue educational programs at local schools; hold the annual Water Festival; hold the annual public meeting

V. Development and Implementation of Partnership Efforts Through a Public Education Program

A. Enter into a partnership with other state government agencies to collaborate on storm water management issues, implement public education programs, distribute educational materials to the community, and conduct public outreach activities concerning the impacts of storm water discharges on water bodies.

VI. The Public Education Program

A. The public education program must be individually addressed under the following Minimum Control Measures:

MCM 3 Illicit discharge detection and elimination.

MCM 4 Construction site storm water runoff control.

MCM 5 Post-construction storm water management in new development.

MCM 6 Pollution prevention/good housekeeping for municipal operations.

B. The public education program and each education program under each Minimum Control Measure listed above must identify the following:

1. The audience or audiences involved.
2. Educational goals for each audience in terms of increased awareness, increased understanding, acquired skills, and/or desired changes in behavior.
3. Activities used to reach educational goals for each audience.



4. Activity implementation plans, including the responsible department, entities responsible for given activities, and schedules.
 5. Available performance measures that can be used to determine success in reaching educational goals.
- C. It is recommended that the affected MS4 describe how the education program shall be coordinated and how it shall make effective use of other storm water education programs being conducted in the area by other appropriate entities.

VII. Development of Plans for the Annual Public Meeting

- A. An annual meeting will be held to address the results of the past year's SWMP.
- B. The information presented will be combined with a public (commission or council) meeting.
- C. The location of the meeting will be at the Municipality public meeting place.
 1. Notice of the public meeting will be provided 30 days prior to the meeting and will reference the SWMP and will include the date, time, location of the meeting, description of how the meeting will be conducted, and the location of a public copy of the SWMP.
 2. Distribution of this notice will be published in the local newspaper.

1.11.2 MINIMUM CONTROL MEASURE 2 – Public Involvement and Participation

I. Target Audience

Activities planned under the Public Involvement and Participation portion of the Storm Water Management Program (SWMP) will be directed toward all citizens of the community.

II. Goals

The SWMP activities implemented under Minimum Control Measure (MCM) 2 will focus on increasing public involvement and participation in reducing the harmful effects of storm water runoff and its potential to affect the water quality. Activities that will reduce or eliminate the impacts of storm water discharges will be developed and implemented within the permit term to increase the general level of involvement in the SWMP throughout the community.



III. Best Management Practices

A. Storm Drain Stenciling Program

The municipal separate storm sewer systems (MS4) shall implement a community program to label storm drains with messages informing citizens not to dump pollutants into the storm sewer inlets. A map will be developed that will highlight the percentage of cleaned inlets.

Measurable Goals

The number or percentage of storm drains stenciled.

The number of stenciling volunteers.

The number of requests received by volunteer groups to participate in the program.

The number of door hangers distributed

B. Annual Cleanup

The Municipality shall promote an annual spring cleanup that will directly involve citizens in water pollution prevention and make the community aware that most storm drains discharge untreated waters directly into the river and ocean.

Measurable Goals

The number of stream cleanups.

The number of cleanup groups or participants.

The quantity of trash and recyclables that were removed by the cleanup.

The number of stream miles cleaned.

C. Volunteer Monitoring Program

The municipality shall develop a volunteer monitoring program administered through the Planning Department. By sponsoring a volunteer monitoring program during the storm water permit term, important water quality information can be provided in the annual report that will allow the community to track water quality changes over time.

Measurable Goals

The number of volunteers participating in monitoring programs.



The frequency of monitoring in the watershed.

The number of volunteer monitoring training sessions held.

D. Adopt-A-Park

The municipality shall develop a volunteer Adopt-A-Park program as a public outreach tool and shall allow participation by any group or organization within the community. The participants will also "adopt" a designated segment of a surface water body where they will maintain the bank and monitor changes.

Measurable Goals

Track the number of participants in Adopt-A-Park program.

Record the quantity of trash and debris removed by Adopt-A-River volunteers.

E. Support of Local Organization(s)

The municipality shall support local organization that incorporates the ideas and resources of local governments, citizens, nonprofit environmental groups, and local universities into a single organization. This organization sponsors community activities to promote the importance of the resources and its benefits to the community.

Measurable Goals

The number of volunteers attracted to the watershed organization.

The number of actions taken as a result of the watershed organization.

F. Public Stakeholder Meetings

The municipality shall hold one public stakeholder meeting each year. The city shall develop the guidelines to determine who the stakeholders are, where the meetings will be held, how the stakeholders will be informed of the meetings, and how results will be used and distributed. This stakeholder meeting will allow public input.

Measurable Goals

The number of attendees at the annual meeting.

The number of actions taken as a result of stakeholder meetings.



G. Attitude Surveys

The Municipality shall develop the strategy for measuring public awareness using an attitude survey that will determine who should be surveyed and how. The results of the surveys shall be used to educate citizens, show programmatic changes and improvements over the permit term, and evaluate program effectiveness.

Measurable Goals

The number of citizens solicited to complete surveys.

The number of completed surveys.

The increase in awareness of SWMPP and concepts.

H. Community Hotline

The Municipality will develop the scope of a community hotline to authority with specific storm water questions and problems.

Measurable Goals

The number of calls received by hotlines.

The number of problems or incidents identified and remedied as a result of hotline calls.

IV. BMP Implementation Schedule and MCM 2 Performance Measures Implementation Planned Performance Measures

Year 1 Send notice of the public stakeholder meeting, get public input; implement a baseline community attitude survey; continue storm drain stenciling; continue the annual cleanup program; support volunteer monitoring; hold the annual public meeting.

Year 2 Consider final recommendations of the public input; implement the storm water hotline; continue the annual cleanup program; continue storm drain stenciling; support volunteer monitoring; hold the annual public meeting.

Year 3 Continue the annual spring city cleanup program; continue storm drain stenciling; support volunteer monitoring; hold the annual public meeting.

Year 4 Implement the Adopt-A-Park program; continue the annual cleanup program; continue storm drain stenciling; support volunteer monitoring; hold the annual public meeting.



Year 5 Perform the follow-up community survey; continue the city cleanup program; support volunteer monitoring; continue the Adopt-A-Park program; continue with storm drain stenciling; hold the annual public meeting.

V. Develop Plans for the Annual Public Meeting

- A. An annual meeting will be held to address the results of the past year's SWMP.
- B. Location of the meeting will be at a public meeting place.
 - 1. Notice of the as public meeting will be given 30 days prior to the meeting and will reference the SWMP and include the date, time, location of the meeting, description of how the meeting will be conducted, and the location of a public copy of the SWMP.
 - 2. Distribution of this notice will be published in the local newspaper.

VI. Develop Plans to Get Public Input and Opinion

- A. Before implementation of any part of this SWMP, the municipality shall present the information at a local public meeting.
- B. The Municipality shall accept public input and opinion on the SWPPP at a local public meeting by following established procedures and processes for oral statements or written submissions ensuring an equal opportunity for full and fair consideration.
- C. All public input and opinion shall be considered by the municipality and adjustments to the SWMP shall be made where appropriate.

1.11.3 MINIMUM CONTROL MEASURE 3 – Illicit Discharge Detection and Elimination

I. Target Audience

Activities planned under the Illicit Discharge Detection and Elimination portion of the Storm Water Management Program (SWMP) will be directed toward all citizens, with an emphasis on the industrial and commercial sectors of the community.

II. Goals

The SWMP activities implemented under Minimum Control Measure (MCM) 3 will focus on developing, implementing, and enforcing a program that will reduce and eliminate the impacts of illicit discharges into the storm sewer system during the permit term throughout the community.



III. Best Management Practices

A. Storm Sewer System Map

The municipal separate storm sewer systems (MS4) shall develop a storm sewer system map that must show the location of all of the following:

1. Ponds, rivers, streams, coulees, lakes, and wetlands.
2. Structural pollution control devices.
3. Conveyances 24 inches or larger in diameter.
4. Discharge points leaving the system, including the following:
 - a. Discharges from your system to other MS4 systems, waters, or wetlands that may not be part of your system.
 - b. Discharges to the groundwater.
 - c. Overland discharges.
 - d. Anything else that may be considered outlet points of your system.

Measurable Goals:

The linear feet of conveyances recorded.

The number of structural pollution control devices counted.

The number of discharge points recorded.

B. Implement Regulations to Enforce Nonstorm Water Discharges

Through ordinances and resolutions, the Municipality shall prohibit nonstorm water discharges into the storm sewer system and shall develop and implement all procedures and actions required to appropriately enforce these regulations.

Measurable Goals

The number of ordinances and resolutions passed.

The number of penalties enforced upon the participants of illegal dumps.

The number of building codes developed to prohibit connections.

The number of new ordinances developed for new building inspections.

The number of potential connection sites inventoried.

The number of new buildings inspected.



C. Educational Outreach

The municipality shall educate public employees and commercial and industrial property owners on the hazards of improper waste disposal and ways to detect and eliminate illicit discharges. This information shall be provided through citizen watch groups, information brochures, and volunteer inspection programs of storm drain outfalls.

Measurable Goals

The number of flyers, posters, or other public education tools distributed.

The number of illegal dumps reported by citizens.

The number of locations determined to be prime areas for illegal dumping.

The number of illegal dump cleanups completed.

The number of illicit connections reported by business employees.

The number of survey responses indicating a possible illicit connection.

The number of illicit connections found.

The number of illicit connections repaired or replaced.

The number of unwarranted connections reported.

The number of unwarranted connections found.

The number of unwarranted connections repaired or replaced.

D. Program to Detect, Identify, and Eliminate Illicit Discharges

The Municipality shall develop a program to detect and identify illicit discharges that will follow the four steps outlined below:

1. Locate the problem area by using public complaints, identification by municipal staff, or during regular system maintenance and inspection activities.
2. Find the source of the illicit discharge problem.
3. Notify the offending discharger and remove or correct the problem.
4. Document the actions taken. If the Municipality identifies any of the following categories of nonstorm water flows as significant contributors of



pollutants, then the MS4 shall develop a plan to control and eliminate the contributors to the storm sewer system:

- Water line flushing
- Landscape irrigation
- Diverted stream flows
- Rising ground waters
- Uncontaminated ground water infiltration
- Uncontaminated pumped ground water
- Discharges from potable water sources
- Air conditioning condensation
- Irrigation water
- Springs
- Water from crawl space pumps
- Footing drains
- Lawn watering
- Individual residential car washing
- Flows from riparian habitats and wetlands
- Chlorinated water discharges
- Street wash water
- Flows from fire-fighting activities

Measurable Goals

Inventory conducted and sites prioritized for inspection.

The number of field tests conducted in high-risk areas.

The number of illicit connections reported by business employees.

The number of survey responses indicating a possible illicit connection.

The number of illicit connections found.

The number of illicit connections repaired or replaced.

The number of new buildings inspected.

E. Program to Detect, Identify, and Eliminate Illegal Dumping

Through ordinances and resolutions, the Municipality shall prohibit illegal disposal of waste in an unpermitted area or into a storm drain system. The municipality shall develop and implement all procedures, programs, and actions required to appropriately enforce these regulations.

Measurable Goals

The number of ordinances and resolutions passed.



The number of penalties enforced upon the participants of illegal dumps.

The number of building codes developed to prohibit dumping sites.

The number of illegal dumps reported by citizens.

The number of new dump sites inspected.

The number of illegal dump sites cleaned up.

The number of flyers, posters, or other public education tools distributed or programs started.

The number of new ordinances developed for enforcement of the dump site inspection.

F. Program to Detect, Identify, and Eliminate Wastewater Connections to the Storm Drain System

Through ordinances and resolutions, the Municipality shall prohibit unwarranted connection of a wastewater system to a storm drain system and shall develop and implement all procedures, programs, and actions required to appropriately enforce these regulations. Emphasis shall be placed on nonresidential facilities (industrial or business) primarily during building and reconstruction activities.

Measurable Goals

The number of ordinances and resolutions passed for mandatory inspections of new buildings.

The number of unwarranted connections reported by citizens and/or business employees.

The number of unwarranted connections found.

The number of unwarranted connections repaired or replaced.

The number of penalties enforced upon the participants of unwarranted connections.

The number of building codes developed to prohibit unwarranted connections.

The number of flyers, posters, or other public education tools distributed or programs started.



The number of new ordinances developed for enforcement of the unwarranted connections.

The number of survey responses indicating possible unwarranted connections.

G. Program to Manage Recreational Sewage Discharges

Through ordinances and resolutions, the Municipality shall develop a program to develop and manage recreational sewage measures that seek to regulate wastewater generated from outdoor activities; and shall develop and implement all procedures, programs, and actions required to appropriately enforce these regulations. Emphasis shall be placed on boating and camping activities.

Measurable Goals

The number of citizen complaints made reporting illegal sewage dumping.

The number of pump-out stations installed.

The amount of waste collected at the pump-out stations.

The number of new signs added to remind citizens of dumping policies.

The number of penalties enforced upon the participants of illegal recreational sewage dumping.

The number of flyers, posters, or other public education tools distributed or programs started to inform citizens about recreational sewage dumping.

The number of new ordinances developed for enforcement of recreational sewage dumping.

H. Program to Detect and Eliminate Sanitary Sewer Overflows

The Municipality shall develop a program to establish policies for designing, screening, and maintaining the sanitary sewer system; and shall develop and implement all procedures, programs, and actions required to appropriately enforce these policies and design considerations of the sanitary sewer system.

Measurable Goals

The frequency of routine maintenance activities.

The number of overflows reported.



The number of overflow causes that were identified during inspections.

The number of sites repaired.

I. Program to Detect and Eliminate Failing Septic Systems

The Municipality shall develop a program to detect and eliminate failing septic systems; and shall develop and implement all procedures, programs, and actions required to appropriately enforce proper siting and sizing, maintenance, and post-construction inspection considerations of the septic system.

Measurable Goals

The number of routine maintenance and inspection activities.

The number of field tests and screen tests conducted.

The number of postconstruction inspections conducted.

The number of scheduled pump-outs conducted and sites repaired.

An inventory of tanks and when they were last serviced.

IV. BMP Implementation Schedule and MCM 3 Performance Measures Implementation Planned Performance Measures

Year 1 Complete the storm water map survey; and begin the educational training program.

Year 2 Complete the storm water map; begin writing enforcement ordinances; continue the educational training program; and begin surveys for illicit discharge.

Year 3 Complete the enforcement ordinance writing; continue the educational program; and continue surveys for illicit discharges.

Year 4 Continue the educational program and; continue surveys for illicit discharges.

Year 5 Continue the educational program; and continue surveys for illicit discharges.

1.11.3.4 MINIMUM CONTROL MEASURE 4 – Construction Site Storm Water Runoff Control

I. Target Audience



Activities planned under the Construction Site Storm Water Runoff Control portion of the Storm Water Management Program (SWMP) will be directed toward contractors, construction site operators, inspectors, and enforcement personnel.

II. Goals

The SWMP activities implemented under Minimum Control Measure (MCM) 4 will focus on developing, implementing, and enforcing a program that will reduce or eliminate the impacts of storm water runoff from construction activities that result in a land disturbance of greater than or equal to one acre into the storm sewer system during the permit term throughout the community.

III. Best Management Practices

A. Ordinances or Other Regulatory Mechanisms

The small regulated municipal separate storm sewer systems (MS4) shall develop ordinances or other regulatory mechanisms to require erosion and sedimentation controls for polluted runoff from construction sites with a land disturbance of greater than or equal to one acre as well as the necessary approvals to ensure compliance by March 11, 2005.

Measurable Goals

Whether or not an ordinance was developed that requires special construction entrances.

Whether or not an ordinance was developed requiring that sites be inspected.

Whether or not an ordinance requiring certification was developed.

Whether or not an ordinance was developed to ensure that all regulations are followed for material storage, disposal, etc.

Whether or not an ordinance was developed to address construction site runoff control.

Whether or not an ordinance was developed that requires that some natural vegetation be preserved at construction sites.

B. Erosion and Sedimentation Controls

Through ordinances and resolutions, the Municipality shall develop and implement a program that will require any of the following appropriate erosion and sedimentation controls on all construction sites.



- Brush barriers
- Check dams
- Chemical stabilization
- Dust control
- Filter berms
- Geotextiles
- Gradient terraces
- Grass-lined channels
- Land Grading
- Mulching
- Permanent or temporary diversion dikes
- Permanent seeding or sodding
- Riprap
- Storm drain inlet protection
- Soil roughening or retention
- Spill prevention and control
- Temporary slope drain
- Vegetated buffer
- Wind, sand, and silt fences
- Sediment filters, chambers, traps, basins, and rock dams

Measurable Goals

The number of storm drain inlets protected.

The number of construction sites that use storm drain inlet protection.

The amount of sediment collected.

The frequency of inspection and maintenance of storm drain inlets.

The number of soil-retaining structures installed.

The number of construction sites with soil-retaining structures.

The frequency of inspections to ensure no erosion.

The number of sediment filters and chambers installed.

The number of construction sites that use sediment filters and chambers.

The frequency of inspection and maintenance of sediment filters and chambers.

The acreage of disturbed land that drains to sediment filters and chambers.



The amount of sediment collected in filters and chambers.

The number of sediment traps installed.

The number of construction sites that use sediment traps.

The amount of sediment collected in sediment traps.

The frequency of inspection and maintenance of sediment traps.

C. General Construction Site Waste Controls

The Municipality shall develop and begin implementation of a program to control and eliminate construction site waste that may impact storm water runoff. This program shall address construction entrances, vehicle maintenance, and equipment washing areas.

Measurable Goals

The frequency of inspection and maintenance activities.

Whether or not construction vehicles are regularly inspected.

The numbers of vehicle wash areas on-site.

The number of construction sites with designated vehicle maintenance and washing areas.

D. Construction Site Plan Reviews

The Municipality shall include in its preconstruction activities program, requirements for the review of construction site plans submitted by the contractor for the implementation of sedimentation and erosion controls before ground is broken.

Measurable Goals

The number of site plan reviewers and inspectors trained.

The number of inadequate sites or plans reported by inspectors.

The number of noncompliant permits reported.

E. Information Submitted by the Public

To further reinforce public participation in the storm water program, the Municipality shall develop procedures for the receipt, tracking, and consideration of public inquiries, concerns, and information submitted regarding local construction activities.



Measurable Goals

Number of noncompliance reports received.

Number of construction site inspector follow-ups.
Number of valid noncompliance reports.

Number of stop-work notices or Notices of Termination (NOTs).

Number of documented acknowledgments and considerations of the information submitted.

F. Construction Site Inspection and Enforcement

The Municipality shall develop the procedures for construction site best management practices (BMPs) inspections and the enforcement of installed erosional and sedimentation control measures.

Measurable Goals

The frequency of inspection and maintenance of BMPs.

The number of failed storm water BMPs.

The number of BMPs reported to be in need of repair.

Whether or not an inventory of inspection and maintenance activities was created and is regularly maintained.

The number of sites inspected.

The number of enforcement actions taken.

The number of stop-work orders given.

The number of bonding requirements set.

The number of construction sites that use better land grading practices.

IV. BMP Implementation Schedule and MCM 4 Performance Measures Implementation Planned Performance Measures

Year 1 Develop ordinance or other regulatory mechanisms; begin developing procedures for information submitted by the public.

Year 2 Implement the ordinance; develop procedures for construction site inspections; begin enforcement of the ordinance; consider



public information submitted; and provide the annual report to the primacy.

Year 3 Complete the enforcement ordinance writing; continue construction site inspections; consider public information submitted.

Year 4 Continue to increase ordinance enforcement; continue construction site inspections; consider public information submitted.

Year 5 Fulfill maximum compliance with the ordinance; continue construction site inspections; consider public information submitted.

1.11.3.5 MINIMUM CONTROL MEASURE 5 – POST-Construction Storm Water Management in Development and Redevelopment

I. Target Audience

Activities planned under the Post-construction Storm Water Management in New Development and Redevelopment portion of the Storm Water Management (SWMP) will be directed toward contractors, construction site operators, inspectors, and enforcement personnel.

II. Goals

The SWMP activities implemented under Minimum Control Measure (MCM) 5 will focus on developing, implementing, and enforcing a program that will reduce or eliminate the impacts of 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 and are part of a larger development plan, that discharge into the storm sewer system during the permit term throughout the community.

III. Best Management Practices

Structural

Ponds

A. Dry Extended Detention Pond Program

The Municipality shall develop dry extended detention ponds or basins with outlets that have been designed to detain the storm water runoff to allow pollutants to settle. These ponds shall provide flood control by including additional flood detention storage.



Measurable Goals

The reduction in runoff quantity.

Changes in water quality of effluent from the dry pond outlet.

The number of new dry ponds installed.

The acreage of land drained by dry ponds.

B. Wet pond program

The Municipality shall develop wet ponds or basins that have a permanent pool of water throughout the wet season. These ponds shall treat incoming storm water runoff by settling. Storage shall be provided above the permanent pool in order to detain storm water runoff.

Measurable Goals

Changes in water quality.

The reduction in runoff quantity.

The number of wet ponds installed.

The acreage of impervious surface that drains to wet ponds.

Infiltration practices

A. Infiltration Basin Program

The Municipality shall develop shallow infiltration basins that are designed to infiltrate storm water into the ground water. These basins shall be designed to have a high pollutant removal efficiency and will help recharge the ground water.

Measurable Goals

The reduction in runoff quantity.

Changes in water quality.

The number of new infiltration basins installed.

The acreage drained by infiltration basins.

B. Infiltration Trench Program



The municipality shall develop a rock-filled infiltration trench that receives storm water runoff with no outlet. Storm water runoff shall pass through a combination of pretreatment measures and into the trench. Runoff shall be stored in the void space between the stones and infiltrates through the bottom and into the soil matrix.

Measurable Goals

The reduction in runoff quantity.

The number of new infiltration trenches installed.

The acreage drained by infiltration trenches.

C. Porous Pavement Program

The Municipality shall develop a porous pavement program such that this porous surface replaces traditional pavement, allowing parking lot storm water to infiltrate directly and receive water quality treatment.

Measurable Goal

Whether or not development codes were modified to allow for porous pavement.

The amount of new porous pavement added or replaced.

The number of new development sites that use porous pavement.

The reduction in runoff quantity.

Changes in the physical characteristics of streams downstream from areas with porous pavement installations.

Filtration Practices

A. Bioretention Program

The Municipality shall develop a bioretention system that will be applied to small sites and highly urbanized settings. This program shall include landscaping features that are adapted to provide on-site treatment of surface storm water runoff. Surface runoff shall be directed into shallow, landscaped depressions that shall be designed to incorporate many of the structural and nonstructural pollutant removal mechanisms.

Measurable Goals

The reduction in impervious cover.



The reduction in runoff quantity.

The number of new bioretention cells installed (both commercial and residential).

The number of acres that are drained by bioretention cells.

B. Sand and Organic Filter Program

The Municipality shall develop sand filters such that as storm water flows into the first chamber, large particles settle out, and then finer particles and other pollutants are removed as storm water flows through the filtering medium.

Measurable Goals

The reduction in runoff quantity.

The number of new sand and organic filters installed.

The acreage of impervious surface water that drains to sand and organic filters.

Vegetative practices

A. Storm Water Wetland Program

The small regulated MS4 shall develop a structural storm water wetlands program that incorporates wetland plants into the design. As storm water runoff flows through the wetland, pollutant removal is achieved through settling and biological uptake within the best management practices (BMPs).

Measurable Goals

The reduction in runoff quantity.

The number of storm water wetlands created.

The acreage of impervious surface that drains to storm water wetlands.

B. Grassed Swale Program

The municipality shall develop a series of vegetated, open channel BMPs designed to treat and attenuate storm water runoff for a specified water quality volume.



Measurable Goals

The number of new grassed swales installed.

The miles of streets with grassed swales.

The reduction in runoff quantity.

The reduction in runoff velocity.

Changes in water quality of runoff from areas with grassed swales.

The number of acres drained by grassed swales.

C. Grassed Filter Strip Program

The Municipality shall develop a grassed filter strip program such that vegetated surfaces are designed to treat sheet flow from adjacent surfaces. These filter strips shall function by slowing runoff velocities, filtering out sediment and other pollutants, and providing some infiltration into underlying soils.

Measurable Goals

The number of new grassed filter strips installed.

The miles of streets with grassed filter strips.

The reduction in runoff quantity.

The reduction in runoff velocity.

Changes in water quality of runoff from areas with grassed filter strips.

The number of acres drained by grassed filter strips.

Runoff Pretreatment Practices

A. Catch Basin Insert Program

The Municipality shall develop a catch basin insert program that shall typically include a grate or curb inlet and a sump to capture sediment, debris, and associated pollutants. Catch basin efficiency shall be improved using inserts that shall be designed to remove oil and grease, trash, debris, and sediment and are designed to drop directly into existing catch basins.



Measurable Goals

Whether or not an inventory of catch basins was completed.

The number of catch basins retrofitted with filtering devices.

The quantity of sediment removed from catch basins.

B. In-Line Storage Program

The Municipality shall develop an in-line storage program to use the storage within the storm drain system to detain flows. Storage shall be achieved by placing devices in the storm drain system to restrict the rate of flow. Devices can slow the rate of flow by backing up flow or by creating a helical flow path in the structure.

Measurable Goals

The reduction in peak flow of runoff.

The number of basins retrofitted with flow regulators.

The acreage drained by in-line storage systems.

C. Manufactured Products for Storm Water Inlets

The Municipality shall develop an inventory for a variety of products for storm water inlets, such as swirl separators or hydrodynamic structures.

Measurable Goals

Whether or not an inventory of areas where installation of manufactured products would be appropriate was completed.

Whether or not a review was conducted to identify which products would be best for each inlet.

The number of manufactured products installed in storm water inlets.

Nonstructural

On-Lot Treatment

A. On-Lot Treatment Program

The municipality shall develop an "on-lot treatment" program that is designed to treat runoff from individual residential lots. The primary



purpose of this on-lot program will be to manage rooftop runoff or driveway and sidewalk runoff.

Measurable Goals

The reduction in runoff quantity.

The reduction in runoff peak flow.

The number of lots that use on-lot treatment.

The acreage of impervious surfaces that drain to on-lot treatment BMPs.

The number of manufactured products sold to store runoff on-site (i.e., rainbarrels).

Better Site Design

A. Buffer Zones Program

The Municipality shall develop an aquatic buffer zone in an area along a shoreline, wetland, or stream where development shall be restricted or prohibited. The buffer zone shall provide storm water management and act as a right-of-way during floods, sustaining the integrity of stream ecosystems and habitats.

Measurable Goals

Changes in water quality of runoff leaving buffer areas.

Changes in the physical characteristics of streams downstream from areas with buffer zones.

The frequency of inspections and maintenance activities in buffer zones.

The acreage that drains to buffer zones.

B. Open Space Design Program

The Municipality shall develop an open space design program that shall concentrate dwelling units in a compact area in one portion of the development site in exchange for providing natural open space areas that shall be designed to reduce impervious cover, storm water pollutants, construction costs, grading, and the loss of natural areas.



Measurable Goals

Whether or not development codes were modified to accommodate open space developments.

The number of new developments that use open space design principles.

The number of acres of open space preserved with open space design.

C. Conservation Easement Program

The Municipality shall develop a conservation easement program that shall allow an individual or group to set aside private property to limit the type or amount of development on their property. The conservation easement shall cover all or a portion of a property and can either be permanent or last for a specified time.

Measurable Goals

The acreage of land conserved under easements.

Whether or not an inventory of lands that could be conserved with conservation easements was completed.

D. Infrastructure Planning

The small regulated MS4 shall develop a regional growth planning process to contain sprawl development and direct new growth into previously developed areas, discouraging excessive low-density development.

Measurable Goals

Whether or not development codes were modified.

The number of new developments using storm water BMPs.

The reduction in impervious surface area and infrastructure.

E. Green Parking

The small regulated MS4 shall develop green parking techniques to reduce the contribution of parking lots to the total impervious and, consequently, the amount of storm water runoff. All of the green parking techniques shall be applied in new developments and some redevelopment projects, depending on the extent and parameters of the project.



Measurable Goals

Whether or not development codes were changed to allow green parking.

The number of new green parking lots installed.

The reduction in runoff quantity.

The number of impervious acres served by green parking lots.

The number of impervious lots converted to green lots.

F. Alternative Turnarounds

The Municipality shall develop an alternative turnaround program such that the designs for end-of-street vehicle turnaround replace cul-de-sacs.

Alternatives shall be designed to create less impervious cover than the traditional cul-de-sac.

Alternative turnarounds shall be applied in the design of residential, commercial, and mixed-use developments and combined with alternative pavers, green parking, and curb elimination.

Measurable Goals

The reduction in impervious cover.

The number of turnarounds modified.

Whether or not development codes were changed to allow alternative turnarounds.

The reduction in runoff quantity.

Changes in the physical characteristics of streams downstream from modified areas.

G. Alternative Pavers

The small regulated MS4 shall develop an alternative paver program that can replace asphalt and concrete and can be used for driveways, parking lots, and walkways. Alternative pavers shall replace impervious surfaces, creating less storm water runoff.



Measurable Goals

Whether or not development codes were changed to allow for alternative pavers.

The amount of new alternative paver installations added or replaced.

The number of new development sites that use alternative pavers.

The reduction in runoff quantity.

Changes in the physical characteristics of streams downstream from areas with alternative paver installations.

H. BMP Inspection and Maintenance Program

The Municipality shall develop an inspection and repair program to maintain the effectiveness of post-construction storm water control BMPs. All BMPs shall be inspected for continued effectiveness and structural integrity at regular inspection intervals. The inspector shall document whether the BMP is performing correctly, any damage to the BMP since the last inspection, and any repairs to the BMP if damage has occurred.

Measurable Goal

The frequency of inspection and maintenance activities.

The number of problems that were identified and remedied.

The change in the proportion of BMPs that are well-maintained as a result of inspection and maintenance.

Whether or not an inventory of BMPs requiring maintenance was completed and is regularly updated.

I. Ordinances for Controlling Postconstruction Runoff

The Municipality shall develop the appropriate ordinances to promote the public welfare of any development or other activity that disturbs or breaks the topsoil or results in the movement of earth on land. The goal of this storm water management ordinance for post-construction runoff is to limit surface runoff volumes and reduce water runoff pollutant loadings.

Measurable Goals

Whether or not an ordinance was developed to address post-construction runoff.



The projected amount of impervious cover reduced under the new ordinance.

The number of enforcement actions that occur as a result of the new ordinance.

J. Zoning Program

The Municipality shall develop a zoning classification scheme for land use planning. This zoning program shall help mitigate storm water runoff problems by facilitating better site designs.

Measurable Goals

Whether or not development codes were modified.

The amount of open space protected with new zoning codes.

The projected number of new storm water treatment areas expected under the new zoning codes.

The projected number of upgrades to existing storm water facilities expected as a result of changes in expected development density.

At Minimum

A. Structural and Nonstructural BMPs.

The Municipality shall develop and implement a combination of appropriate structural and/or nonstructural BMPs that are expected to reduce pollutant discharge to the maximum extent practicable (MEP).

B. Use Ordinances to Address Post-construction Storm Water Runoff

The Municipality shall develop ordinances or other regulatory measures to address post-construction runoff from new development and redevelopment projects to the maximum extend allowable.

C. Adequate Operation and Maintenance

The Municipality shall develop an adequate long-term operation and maintenance program for the BMPs that were installed as a result of this minimum control measure.

IV. BMP Implementation Schedule and MCM 5 Performance Measures

Year 1 Begin development of the strategies for structural and nonstructural BMPs; begin working with local landowners and



developers to include these strategies; begin ordinance development.

Year 2 Implement the strategies for the BMPs; implement the ordinances and construction standards for the BMP development.

Year 3 Reduce the percent of new impervious surfaces associated with new development projects.

Year 4 Improved clarity and reduced sedimentation of local water bodies.

Year 5 Continue enforcement of ordinances and implementation of the BMPs; ensure the adequacy of the long-term operation and maintenance of the BMPs.

1.11.3.6 MINIMUM CONTROL MEASURE 6 – Pollution Prevention (Good Housekeeping for Municipal Operations)

I. Target Audience

Activities planned under the Pollution Prevention (Good Housekeeping) for Municipal Operations portion of the Storm Water Management Program (SWMP) will be directed toward municipal employees and enforcement personnel.

II. Goals

The SWMP activities implemented under Minimum Control Measure (MCM) 6 will focus on developing, implementing, and enforcing an operations and maintenance program that will reduce or eliminate the impacts of storm water pollution from open-space maintenance, snow disposal, vehicle and building maintenance, land disturbances, and storm sewer system maintenance during the permit term throughout the community.

III. Best Management Practices

Source Controls

A. Pet Waste Collection Program

The Municipality shall develop a pet waste collection program as a source control using a combination of educational outreach and enforcement to encourage residents to clean up after their pets. The pet waste collection program shall use pet awareness and public education, signs, and pet waste control ordinances for proper disposal techniques.



Measurable Goals

The number of dog parks.

The number of signs posted stating regulations.

The number of educational materials distributed.

The number of "pooper-scooper" stations installed.

Whether or not a "pooper-scooper" ordinance was created to address pet waste.

B. Vehicle Maintenance Program

The Municipality shall develop and implement a pollution prevention measure for an outreach and training program directed at businesses and municipal fleets (public works, school buses, fire, police, and parks) involved in vehicle maintenance.

Measurable Goals

The number of employees trained in preventing pollution from automobile maintenance activities.

The number of sites rewarded as being a "clean site" under a rewards program.

The number of spills reported.

The number of educational materials distributed at garages, auto shops, and other automobile-related businesses.

C. Vehicle Washing Program

The Municipality shall develop and begin implementation of a management measure that involves educating the general public, businesses, and municipal fleets (public works, school buses, fire, police, and parks) on the water quality impacts of the outdoor washing of vehicles.

Measurable Goals

The number of educational materials distributed to municipal employees.

The number of designated municipal vehicle washing areas.



D. Illegal Dumping Control Program

The Municipality shall develop a program for the control of illegal dumping as a source control using public education. The illegal dumping control program shall focus on community involvement and target enforcement to eliminate or reduce illegal dumping practices. The illegal dumping control program shall use a combination of public education and awareness, citizen participation, site maintenance, and enforcement measures to address illegal waste disposal.

Measurable Goals

Whether or not areas where illegal dumping is common were identified.

The number of "no dumping" signs posted.

The number of educational materials distributed.

The number of reports of illegal dumping received.

The number of dump sites cleaned up.

The number of sites improved to eliminate them as target dumping spots.

The number of enforcement actions pertaining to illegal dumping.

Whether or not a partnership with the community was established to promote reporting and to educate citizens.

E. Landscaping and Lawn Care Program

The Municipality shall develop procedures for the control of storm water impacts from landscaping and lawn care practices through education and outreach on the amount of storm water runoff generated from lawns.

Employees of lawn and garden centers shall be trained in spreading the message regarding lawn care and pollution control. One step in developing the education program shall be to select outreach techniques that use radio, direct mail, and signs to broadcast to a large audience. Intensive training programs designed for a more focused audience shall use workshops, consultation, and guidebooks.

Measurable Goals

The number of stores and gardens participating in the education program.

The number of people trained in safe landscaping, lawn care, and pest management techniques.



The number of classes or seminars offered in landscaping and lawn care.

The number of educational materials distributed.

Whether or not a survey of lawn and landscaping methods used by the community was conducted.

F. Pest Control Program

The Municipality shall develop integrated pest management (IPM) procedures for limiting the impact of pesticides on water quality by educating residents and businesses on alternative uses, proper storage, and application techniques. The small regulated MS4's IPM program shall incorporate preventative practices in combination with non-chemical and chemical pest controls to minimize pesticides and promote natural control of pest species. Education shall be provided in the form of informational brochures.

Measurable Goals

The number of businesses participating in education at the point of purchase.

The number of municipal employees trained in IPM.

Pesticide levels in runoff and receiving waters.

The number of educational materials distributed.

G. Parking Lot and Street Cleaning Program

The Municipality shall develop procedures for pavement cleaning practices, such as street sweeping, on a regular basis, to minimize pollutant discharge to receiving waters. These cleaning practices shall be designed to remove surface sediment, debris, and other pollutants that are a potential source of pollution.

Measurable Goals

Whether or not roads and parking lots were inventoried and prioritized for cleaning.

The number of scheduled road cleanings.

The suspended solids levels in runoff.

The pounds of debris collected from street sweeping.



H. Roadway and Bridge Maintenance Program

The Municipality shall develop procedures for techniques that will reduce or eliminate pollutant loadings from road surfaces as part of an operation and maintenance program. This plan shall be developed for sediment and pollutants that are generated during roadway and bridge use and scheduled repair operations.

Measurable Goals

Whether or not a current list of roadway and bridge construction is maintained.

The quantity of debris removed from construction sites.

The number of employees trained in pollution prevention techniques.

The amount of deicing salts used.

The number of catch basins at construction sites that are cleaned regularly.

I. Storm Drain System Cleaning Program

The Municipality shall develop procedures for the regular inspection and cleaning of storm drain systems to reduce the amount of pollutants, trash, and debris. This program shall be applied to material and waste handling areas, paved and vegetated areas, waterways, and new development projects. Based on inspection results, repair or replacement measures shall be determined for proper operation. A summary of all inspections and repairs shall be maintained and submitted in the annual report.

Measurable Goals

Whether or not areas with high pollutant loadings were inventoried and prioritized for cleaning.

The length of storm drain pipe cleaned regularly.

The number of outfalls inspected and cleaned annually (which will be at least 20% of all outfalls maintained by the MS4 each year during the permit term).

The amount of trash, sediment, and other pollutants removed during cleaning.

J. Alternative Discharge Options for Chlorinated Water



The Municipality shall develop procedures for the discharge of chlorinated water directly into the storm sewer system or a local water body.

Measurable Goals

Whether or not an ordinance was developed to prevent direct discharge of chlorinated water.

The number of people informed of the options for discharging chlorinated water.

Chlorine levels in receiving waters.

The number of enforcement actions pertaining to chlorinated water discharges.

Materials management

A. Alternative Products

The Municipality shall develop procedures for the use of alternative products that will prevent their hazardous counterparts from being disposed of improperly and contaminating storm water. The Municipality shall compile a list of alternative products and post it on their storm water web site, publish it in a newsletter, include it as an insert in a utility bill, or produce magnets or other household products with a select list of non-hazardous alternatives.

Measurable Goals

The number of facilities storing hazardous materials.

The frequency of inspection and maintenance visits to storage facilities.

The number of personnel trained in hazardous-material handling and storage.

The amount of waste generated by municipal operations.

Whether or not an inventory of hazardous materials was created for each storage facility.

B. Hazardous Materials Storage Program

The small regulated MS4 shall develop procedures for storage of hazardous materials. Storage spaces and containers shall be routinely inspected for leaks, signs of cracks or deterioration, or any other signs of



release. Storage areas, outdoor material deposits, loading and unloading areas, and raw materials shall all be covered or enclosed.

Measurable Goals

The number of regularly inspected storage units.

The number of employees trained in hazardous material storage and maintenance.

The total number of storage facilities equipped to store hazardous materials.

The number of materials distributed educating citizens on home storage of hazardous materials.

C. Spill Response and Prevention Program

The municipality shall develop procedures for spill response and prevention plans that shall state how to stop, contain, cleanup, dispose of contaminated materials, and train personnel to prevent and control future spills. This plan shall be applicable to all sites where hazardous wastes are stored or used.

Measurable Goals:

Whether or not an inventory of municipal facilities at risk for spills was created.

The number of leak-detection devices installed at municipal facilities.

The number of preventative maintenance procedures performed on tanks, valves, pumps, pipes, and other equipment.

Whether or not a spill response plan was developed for municipal facilities.

The number of personnel trained in spill response.

The number of regularly inspected high-risk facilities.

The number of educational materials distributed to municipal employees.

E. Used Oil Recycling Program

The Municipality shall develop procedures to make recycling motor oil and oil filters more convenient. This plan shall provide the public with the proper informational resources to encourage the public to contact local



service stations, municipal government offices, or the local environmental or health departments if they have questions or problems.

Measurable Goals

The number of gallons of used oil collected from municipal operations.

The number of recycling facilities that collect oil from municipal operations.

The number of educational materials distributed to municipal employees.

F. Materials Management Program

The Municipality shall develop procedures for responsibly managing chemicals, such as fertilizers, solvents, paints, cleaners, and automotive products.

This program shall include practices for managing materials by improving the maintenance of industrial machinery, establishing material storage and inventory controls, improving routine cleaning and inspection of facilities where materials are stored or processed, maintaining organized workplaces, and educating employees.

Measurable Goals

The number of facilities storing hazardous materials.

The frequency of inspection and maintenance visits to storage facilities.
The number of personnel trained in hazardous material handling and storage.

The amount of waste generated by municipal operations.

Whether or not an inventory of hazardous materials was created for each storage facility.

At Minimum

A. Develop and Implement a Training Program

The Municipality shall develop a training and education component of the operations and maintenance program designed to reduce pollutant runoff from municipal operations.

B. Operation and Maintenance Program Parameters



As the owner and/or operator of a municipal storm sewer system, the regulated Municipality and maintenance program shall include the following:

1. General operation and maintenance procedures of the storm sewer system such that discharged pollutants are minimized.
2. Annual inspection of all structural pollution control devices.
3. Inspect at minimum, 20% of the storm sewer system outfalls, snow dump sites, sediment basins annually on a rotating basis.
 - a. As a result of the annual inspections, you shall maintain, repair, or replace the required components of the storm sewer system, usually during the same year as the inspection, to insure proper operation.
 - b. Summarize the details of the outfall inspection results in the annual report.
 - c. Maintain written records of the inspection results. Note and adjust maintenance patterns accordingly. If during the first two years of inspections, repairs, maintenance, and sediment removal are required, the inspections shall be increased to at least twice annually. If such maintenance is not required, the inspections may be reduced to once every two years.

IV. BMP Implementation Schedule and MCM 6 Performance Measures

- Year 1** Develop the strategies for structural and nonstructural management practices; develop a training program; develop a recycling plan; complete the pollution prevention plan; develop a storm sewer inlet cleaning program; develop regular street sweeping program.
- Year 2** Implement an employee training plan; develop runoff enforcement ordinances; implement a recycling program.
- Year 3** Continue with employee training and the recycling plan; implement runoff ordinances; develop and implement a best management practices (BMP) maintenance program.
- Year 4** Continue with employee training and the recycling plan; implement runoff ordinances; develop and implement a best management practices (BMP) maintenance program.
- Year 5** Continue with employee training and the recycling plan; implement runoff ordinances; develop and implement a best management practices (BMP) maintenance program



1.12 PERSON RESPONSIBLE FOR IMPLEMENTING OR COORDINATING THE APPLICANT'S STORM WATER MANAGEMENT PROGRAM

Mr. Ricardo Pérez
City Administrator
Municipality of Aguadilla
P.O. Box 1008
Aguadilla, Puerto Rico 00605
Telephone: (787) 891-1005
Fax: (787) 882-5435



1.13 SIGNATORIES TO PERMIT APPLICATION AND REPORTS

1.13.1 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 designated to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who managed 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.

Mr. Ricardo Pérez
Administrador de la Ciudad

2/Feb/07
Date



APPENDIX A

FIGURES