

Executive Summary

This Stormwater Management Plan (SWMP) has been prepared by the Town of Marana as a requirement of Section 4 of the Arizona Department of Environmental Quality (ADEQ) Arizona Pollutant Discharge Elimination System (AZPDES) General Permit for stormwater discharges from Small Municipal Separate Storm Sewer Systems (MS4) to Waters of the United States (AZG2021-002) which was adopted on September 30, 2021. This SWMP describes the policies and procedures that the Town implements to reduce, to the maximum extent practicable, pollutant discharges to and from its MS4. The overall goal of the program is to ensure that discharges from the MS4 do not cause or contribute to exceedances of surface water quality standards.

As required by the Permit, this SWMP addresses the six minimum control measures (MCMs): (1) Public Education and Outreach, (2) Public Involvement and Participation, (3) Illicit Discharge Detection and Elimination, (4) Construction Site Stormwater Runoff control, (5) Post-Construction Stormwater Management, and (6) Pollution Prevention/Good Housekeeping for Municipal Operations.

This SWMP is a comprehensive program document outlining how the stormwater program is implemented and maintained, therefore, sections have been included to describe other permit required support activities, including training, SWMP evaluation and revision, reporting, and signatory requirements. The SWMP complies with the requirements specified in Code of Federal Regulations (CFR) Chapter 40 Part 122.32, incorporated by reference in Arizona Administrative Code (AAC) R18-9-A902 and A905.

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1. STORMWATER PROGRAM BACKGROUND

Introduction:

The Town of Marana developed this Stormwater Management Program (SWMP) in accordance with the Arizona Pollutant Discharge Elimination System (AZPDES) Permit for small Municipal Separate Sewer Systems (MS4) AZG2021-002 that authorizes stormwater discharge. Surface waters of the United States are susceptible to pollutants carried in stormwater and urban runoff. Poorly managed stormwater systems can lead to high levels of nutrients, bacteria, heavy metals, oils, and excess sediment being discharged into rivers and washes. The potential consequences of uncontrolled stormwater runoff include erosion of topsoil, the degradation of riparian habitat, and modified hydrologic patterns, resulting in flooding problems and contamination of drinking water sources. Municipalities can prevent many of these impacts by encouraging or requiring responsible land use practices within their jurisdictions. This SWMP describes the control measures, or Best Management Practices (BMP) that the Town of Marana uses to manage the quality of discharges from the MS4.

Regulatory Background:

The 1972 amendments to the Federal Water Pollution Control Act (known as the Clean Water Act [CWA]) provide the statutory basis for the National Pollutant Discharge Elimination System (NPDES) permit program. Section 402 of the CWA specifically required the EPA to develop and implement the NPDES program. The EPA implemented the NPDES stormwater program in two phases. Phase I covered large and medium-sized municipal separate storm sewer systems (MS4s), certain industrial facilities, and construction activities that disturbed more than five acres. Phase II expanded the NPDES regulatory sphere to include construction project disturbing one or more acres and small MS4s that fall within and “Urbanized Area” as defined by the 2020 U.S. Census.

The Town of Marana was designated as a small regulated MS4 because a small portion of the Town falls within the Tucson urbanized Area. The Stormwater Phase II regulations in Arizona are administered by the Arizona Department of Environmental Quality (ADEQ). The current Arizona State General Permit for Phase II MS4s was adopted September 30, 2021 (AZG2021-002).

The Town of Marana last updated its Stormwater Management Ordinance in 2021. The primary objectives of the Town’s regulations were to prevent, control, and reduce stormwater pollution from construction sites, as well as to detect and eliminate illicit discharges. This document updates the SWMP for the current AZPDES permit.

Geographic Setting:

The Town of Marana is a fast growing community along Interstate 10 northwest of the City of Tucson with land in both Pima and Pinal counties. The Town is approximately 121 square miles and has a population of about 48,000 people (2019 estimate). The Town was incorporated in 1977 and employs a council-manager form of municipal government with a mayor and six member Town Council.

Receiving Waters and Outfalls:

The major watercourses in the Marana area are the Santa Cruz River, the Rillito Creek, and the Canada del Oro Wash. There are numerous ephemeral washes that drain into these larger waterways, but no known natural perennial waterways exist within the Town of Marana boundaries. Runoff from both the Tortolita Mountains (to the east) and the Tucson Mountains (to the west) also represents a major component of the stormwater drainage pattern in the Marana area.

The two watercourses that the Town of Marana discharges to are the Santa Cruz River and the Canada del Oro Wash. The part of the Santa Cruz River that runs from Orange Grove to just north of Avra Valley Road is a category 4B/5 Not Attaining/Impaired watercourse. In that area, the river is impaired for Ammonia and E.coli. The Town of Marana has 12 outfalls to the Santa Cruz River, and 2 outfalls to the Canada del Oro Wash, which are inspected every year for illicit discharges. Other than stormwater, there are no known, ongoing discharges that contribute to the exceedance of an applicable surface water quality standard.

Stormwater Infrastructure Mapping:

The Town of Marana maintains maps of the storm sewer system, outfalls and receiving waters within the urbanized areas of the Town. The current compliance area was determined by the assignment of Urbanized Areas in **the 2010 Census**. As development happens within the urbanized areas, it will be included on the storm sewer system maps and any new outfalls marked and added to the outfall inspection list. Each time that the Census is completed, it will be reviewed to determine if the compliance area within the Town needs to be updated.

2. STORMWATER CONTROL MEASURES

There are six minimum control measures (MCMs) specified in section 6 of the Small MS4 General Permit (General Permit). The Town of Marana, through its Stormwater Program staff, has created its own set of best management practices (BMPs) to address the required MCMs to the maximum extent practicable. The progress and effectiveness of these BMPs is addressed in the Annual Report that must be turned in to ADEQ. BMPs may be added or modified by the Town depending on their effectiveness.

MCM-1 Public Education and Outreach

The key to effective implementation of a stormwater management program is to foster community awareness and understanding of the issues surrounding stormwater pollution. Most people are unaware that stormwater flows are one of the most significant sources of water pollutants. Support for stormwater management increases when the public understands the importance of stormwater pollution prevention and recognizes their role in protecting local waterways. As a result, public support for the SWMP increases the degree of local compliance with program requirements.

The program focuses on pollutants of concern for impaired waters, but also targets pollutants and pollutant sources that are familiar to the target audiences such as:

- Animal/Pet Waste
- Automotive chemical leaks and disposal
- Herbicides, pesticides, and yard waste
- Sediment from construction sites
- Illegal dumping
- Long term maintenance for permanent stormwater controls
- Spill prevention and clean up
- Pollution prevention plans and facility maintenance

Target audiences for educational discussions and outreach include:

- Homeowners Associations
- Students
- Business Owners that may contribute pollutants to stormwater
- Construction Sites
- General Public

The following BMPs have been selected to best meet the Town's Public Outreach and Education minimum control measures.

BMP 1.1: Provide public education outreach to at least one target group such as those outlined in Section 6.1.1a of the permit and focus efforts on conveying relevant messages using one or more appropriate topics such as those listed in 6.1.1b during each year of the permit term.

BMP 1.2: Provide business sector education outreach to at least one target group such as those outlined in Section 6.1.2.1 of the permit and focus efforts on conveying relevant messages using one or more appropriate topics such as those listed in 6.1.2.2 during each year of the permit term.

The effectiveness of this control measure will be evaluated by the number of attendees at educational events and the level of new information participants claim to receive after an event.

MCM-2 Public Involvement and Participation

Efforts by the Town of Marana to involve the public in the development and implementation of the stormwater management program creates the opportunity to bring together much needed community support and increase the level of compliance with program requirements. The success of a public involvement/participation effort relies on early and frequent involvement opportunities that build the community's sense of ownership in the stormwater management effort. The Town of Marana currently supports the following pollution prevention public involvement and participation efforts.

BMP 2.1: Provide access to the SWMP and most recent annual report on the town of Marana website. The website will be reviewed annually to make sure that the most current version of the SWMP and annual report is posted for public access. The website address will be printed on all stormwater promotional items.

BMP 2.2: Annually provide the public an opportunity to review and comment on the SWMP. The Town will use social media to solicit comments from the community on any changes made to the SWMP and Citizen Tracker to respond to those comments.

BMP 2.3: Town staff will create opportunities for citizens to participate in the implementation of stormwater controls. Opportunities may include activities such as clean-up events, hazardous waste collection events, and educational events. The events will be logged in a spreadsheet and will include the topics, date of the event, and other participants at the events.

BMP 2.4: The Town will provide a reporting system for citizens to report spills, dumping, or other stormwater issues.

The effectiveness of this control measure will be evaluated by the number of attendees at public events, the number of citizen's reports, and the amount of time it takes to respond to citizen reports.

MCM-3 Illicit Discharge Detection and Elimination (IDDE) Program

Illicit discharges are any wastes or wastewater that enter a storm drain or storm sewer system and are not composed entirely of stormwater. Such discharges are illicit because municipal storm sewer systems are not designed to accept, process, or discharge such wastes. Sources of illicit discharges can include: effluent from septic tanks; car washing; pool draining or back flushing; improper disposal of auto and household toxics; and oil or chemical spills on roadways. Illicit discharges are more easily detected when there is little or no stormwater runoff.

BMP 3.1: Prepare and maintain stormwater sewer map. The Town will identify and map all outfall locations, catch basins, curbs, gutters, ditches, man-made channels, storm drains, and roads and streets within the compliance area that are owned and operated by the Town of Marana and convey stormwater to protected surface waters which will also be included on the map. This map will be updated annually to included annexed areas, and within three years from the effective date of any updated Urbanized Areas as outlined in the most recent Decennial Census.

BMP 3.2: Have an ordinance or other regulatory mechanism to prohibit non-stormwater discharges into the storm sewer system. The Town will implement a council approved chapter of the Town Code that authorizes the prohibition of non-stormwater discharges into the storm sewer system. Part of this Town Code chapter will be the Town's Enforcement Response Plan (ERP) which outlines specific authorities given to Town staff to enforce such prohibitions. The Town Code and ERP will be viewed annually and updated as needed.

BMP 3.3: The Enforcement Response Plan will clearly identify responsibilities with regard to eliminating illicit discharges. The ERP will include all agencies and departments that may have responsibilities for aspects of the program.

BMP 3.4: Have a method of tracking activities and maintaining records of the activities conducted to meet the requirements of Parts 6.1-6.6. This information will be included in all annual reports.

BMP 3.5: The Enforcement Response Plan will outline how illicit discharges are identified, how responsible parties for discharges are notified, and what follow-up procedures are taken to illuminate future discharges as much as possible.

BMP 3.7: Have a visual monitoring program that includes dry and wet weather stormwater discharges to identify, monitor, and eliminate illicit discharges and to ensure compliance with effluent limitations in the permit.

- a. The monitoring programs will include written procedures for conducting visual monitoring of outfalls from the MS4. The visual monitoring procedure will include a monitoring form to capture the necessary information to characterize the screening.
- b. At least 20% of the outfalls will be inspected each year of the permit. In the event that an illicit discharge is discovered, the Enforcement Response Plan and the Town Code will be consulted for appropriate actions and re-inspection protocol.
- c. The screening points shall be at locations where stormwater leaves the Town's permit area, including locations where stormwater may discharge to another MS4 or other conveyance.

BMP 3.8: The Town will have a procedure for providing, at minimum, annual training for employees involved in the Illicit Discharge Detection and Elimination program. This includes workers in departments that are likely to encounter illicit discharges.

BMP 3.9: The Town will identify facilities and activities that discharge to the MS4 and are suspected to not have the necessary coverage through an AZPDES/NPDES permit on a monthly basis and submit the name and location of the suspected non-filer to ADEQ on a monthly basis.

Indicators of program success for this section shall include measures of response time to inspection, time from discovery to elimination, and other appropriate factors. The program will be evaluated annually and necessary changes made.

MCM-4 Construction Activity Stormwater Runoff Control

Construction sites are likely to cause significant surface water quality impacts when sediment and erosion controls are lacking or inadequate. These negative effects are associated with both the sediment washed into watercourses and the pollutants bound to those soil particles. These pollutants, which are often the primary concern for the impairment of surface water, can include nutrients, pesticides, oils and grease, concrete truck washout, and construction chemicals and debris.

BMP 4.1: Have an inventory of all construction activities that disturb or will disturb one or more acres within the permitted area, including those that are less than one acre but are part of a larger common plan of development or sale if the larger common place will ultimately disturb greater than one acre.

BMP 4.2: Have written procedures for site plan review. Site plan review should include a review of the site design taking into consideration the planned operations at the location of the construction activity, the planned stormwater controls during each construction phase, and the planned controls to be used to manage runoff created after development.

BMP 4.3: Have a written procedure for site inspections, re-inspections, and enforcement of sediment and erosion control measures. Inspections will follow the frequency outlined in Part 6.4.2f. The procedures shall clearly define who is responsible for site inspections as well as who has authority to implement enforcement procedures. The program will outline how the Town is authorized to impose sanctions ensuring compliance with the Town Code and the Enforcement Response Plan.

BMP 4.4: Require all projects to submit a SWPPP for review and acceptance by the Town prior to the issuance of a grading permit. The Town will review all SWPPPs for the implementation of sediment and erosion control BMPs appropriate for the conditions at the construction site. Appropriate BMPs include, but are not limited to controlling liquid and solid wastes, stabilizing entrances and exits to prevent sediment track-out, stabilizing sites when project operations have ceased, and perimeter erosion and sediment controls.

BMP 4.5: Have a program to provide education to construction activity operators on erosion and sediment control BMP requirements and have procedures for receipt of, and consideration of, information submitted by the public.

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

Land development significantly impacts the quality of surface waters through the alterations of the natural landscape, especially through the increase in impervious surface. This land use change increases not only the quantity of stormwater runoff but also the quality of the stormwater. Increased runoff volumes can cause downstream flooding, channel and bank erosion, sedimentation, and reduced groundwater recharge. The pollutants carried by these larger stormwater flows can include soil

sediments, oils, grease, litter, and other toxic substances that collect on paved or otherwise impervious surfaces.

BMP 5.1: Require grading plans to prevent or minimize impacts to water quality from stormwater runoff. Town staff will review grading plans for all construction projects greater than 1 acre or part of a common plan of development to ensure all requirements for controls that reduce or eliminate the discharge of pollutants from the site after construction activities are completed will be installed.

BMP 5.2: Implement an inventory system of all public and private post construction structural stormwater control measures that discharge into the MS4 that are located within the permit area. The inventory will be searchable by address or type of structure.

BMP 5.3: The Town of Marana follows the guidelines set forth in the 2015 Pima County Regional Flood Control District Design Standards for Stormwater Detention and Retention and the Town's Northwest Drainage Policy for post construction runoff amounts. Grading plans are reviewed by the Town's Development Engineering Division for adherence to these guides.

BMP 5.4: The Town of Marana will use the procedures outlines in the Enforcement Response Plan to help ensure the long-term operation and maintenance of post-construction stormwater BMPs.

MCM-6: Pollution Prevention and Good Housekeeping for Municipal Operations

Municipalities can contribute a significant amount of pollutants to stormwater through the maintenance and operation of parks, open space, landscaping, municipally-owned vehicles, public streets and roadways. Beyond the importance of setting a good example within the community, pollution prevention and good housekeeping efforts can save the municipality money over time. Preventing trash and other debris from entering the storm sewer system can reduce damage to system components and lower repair and maintenance costs.

BMP 6.1: Develop an Operations and Maintenance Pollution Prevention Program (Program). This program will include an inventory of municipally owned and operated facilities, operation activities that discharge, a site inspection schedule based on the risk of a facility or activity to discharge pollutants, and the BMPs that will be used at Town facilities. The Program will also include a long-term plan for maintenance and inspection procedures to reduce pollutants discharged from the Town.

BMP 6.2: Provide specialized training to staff most likely to come across illicit discharges during their work-day. Training will emphasize containing an illicit discharge once it has been detected, and the appropriate contact people to notify. Stormwater staff will be responsible for determining the level of contamination and what enforcement action is necessary.

3. MONITORING:

With the 2021 Small MS4 permit re-issuance comes a requirement to conduct Stormwater Characterization Monitoring. In addition, the Town will have to monitor discharges to any impaired or not-attaining waters as listed by ADEQ. The two watercourses that the Town of Marana discharges to are the Santa Cruz River and the Canada del Oro Wash. The part of the Santa Cruz River that runs from Orange Grove to just north of Avra Valley Road is a category 4B/5 Not Attaining/Impaired watercourse. In that area, the river is impaired for Ammonia and E.coli.

Monitoring and Assessment Program

The Town shall implement, and revise as necessary, a comprehensive monitoring and assessment program (Program). The main objectives of the Program are to assess impacts to impaired, not-attaining, or Outstanding Arizona Waters (OAWs) resulting from stormwater discharges from outfalls within the Town's MS4 boundary, characterize stormwater discharges, identify sources of elevated pollutant loads, and assess the overall health and long-term trends in stormwater quality. The Town will also identify and map outfall locations within Town MS4 boundaries that discharge to an impaired, not-attaining, or OAWs as part of the Program.

Rainfall measurements will be logged using the automated Local Evaluation in Real Time (ALERT) system administered by Pima County Flood Control District. The ALERT system is composed of weather stations equipped with real-time sensors and a radio telemetry system transmitting the data to base station computers. The weather station is equipped with a tipping bucket rain gauge. Town staff will monitor the ALERT system as well as local weather radar sites to help determine when conditions are favorable for monitoring and sampling. Whenever possible, monitoring and sampling will be conducted within the first 30 minutes of the rain event.

The Town will conduct analytical monitoring a minimum of one time per wet season through the duration of permit coverage. The summer wet season is June 1st through October 31st, and the winter wet season is November 1st through May 31st. For each season, four outfalls that discharge within the impaired portion of the Santa Cruz River will be sampled. They do not all have to be sampled the same day if conditions do not permit it.

The Town will have a Sampling and Analysis Plan (SAP) to outline protocol for analytical monitoring of stormwater. The SAP will be an appendix to the SWMP.

Stormwater Characterization Monitoring

In order to determine baseline pollutant loads for the Santa Cruz River, the Town is required to conduct Stormwater Characterization Monitoring. Stormwater discharges from at least three outfalls within the Town's MS4 boundary shall be sampled as required in Appendix B of the Permit. The outfalls should represent residential, commercial, and industrial land uses. All stormwater characterization monitoring samples will be completed within the first two years of the 2021 Permit's effective date. Samples shall be collected within the first 24-hours of any rain event of 0.1 inches or more that result in a discharge.

When possible, samples should be taken within the first 30 minutes of the rain event discharge. Sampling efforts will be recorded on a Discharge Monitoring Report and that information will be submitted to ADEQ within 30 days after receiving laboratory results.

4. ANNUAL PROGRAM EVALUATION

Town of Marana staff will review the SWMP each year to evaluate compliance with the terms and conditions of the permit. The Town will evaluate the appropriateness of the selected BMPs in achieving the objectives of each control measure and the defined measurable goals. During the annual review, the town determines if revisions to the SWMP are required and appropriate. If SWMP revisions or additions are needed, the town will notify ADEQ of any changes to the SWMP. If components of the SWMP need to be altered, the Town submits the proposed revisions to ADEQ with an explanation of why the original practice was ineffective and how the alterations will better address the goals of the management practice.

A description of the evaluation process and all outcomes will be reported to ADEQ as part of the Annual Report.

5. REPORTING

Annual Report

The Town will submit an annual report each year of the permit term to ADEQ. The reporting period is from July 1 through June 30 each year. The annual report is due to ADEQ on or before September 30 each year for the reporting period. The annual reports shall meet the requirements outlined in Appendix A of the Permit, and all reports and supporting documents will be kept by the Town for three years after the filing.

Spills

The Town will report to ADEQ any noncompliance with this permit that may endanger human health or the environment. An oral report will be given within 24 hours of the event, and a written report will be provided to ADEQ within five days of becoming aware of the circumstances. Guidelines and contact information can be found in Section 12.d of the Permit.

6. STORMWATER MANAGEMENT PROGRAM ATTACHMENTS

- a. AZPDES Phase II MS4 Current Permit
- b. Notice of Intent
- c. Compliance Area Map
- d. Sampling and Analysis Plan
- e. Enforcement Response Plan

Town of Marana Stormwater Sampling and Analysis Plan

Sampling Areas

Four outfall sampling areas have been established by the Town of Marana. The areas will have easy access in times of wet weather and will be near a Pima County Flood Control Rain Gauge. If maintenance is needed at the sampling area to keep it accessible, it will be noted in the sampling report and addressed as soon as practicable before the next anticipated rain event.

Rain Gauges

The Pima County Regional Flood Control District (RFCD) operates the Automated Local Evaluation in Real Time (ALERT), a network of real-time rainfall and runoff sensors in Pima County watersheds. Transmitters send rainfall data from the sensors to a base station computer.

Sample Site Number	Rain Gauge Number	Rain Gauge Address
1,2	1200	Canada del Oro
3	6020	Ina and Santa Cruz River 32.345518/- 111.091681
4	6130	Tiffany Loop 32.375088/-111.111330

The base station transmits a text alert to the listed phone number for the Town of Marana from three rain gauges. When a rain gauge bucket reaches a minimum level of .5" and the ALERT system registers the event, the ALERT system texts the listed phone number with information as to the level of the rain event and which rain gauge registered the event. The ALERT system also has a real-time website that shows current rainfall levels at all of their stations.

Team Mobilization

Currently the sampling team consists of Paula Bluemer. When alerted by text that rainfall of at least .5" has been recorded during regular office hours of 8-5, the sampling team will check the weather forecast to make sure that conditions are safe for sampling. The team will then take all necessary sample gathering equipment and analysis equipment to the sampling sites. Team members should wear appropriate protective equipment.

Sample Collection

Separate “grab” samples will be collected for both E.coli and ammonia. Sample bottles will be provided by the laboratory and kept sealed until ready for collection. Collections will be made directly from stormwater flow, and the samples will be placed in a cooler filled with ice for transport to the laboratory. A separate plastic bottle will be used to collect extra stormwater to record turbidity, sheen, odor, and pH. This will be done by Town of Marana staff.

The samples for E.coli and ammonia will be taken directly to the laboratory for testing. The E.coli must be taken to the lab within 8 hours of collecting the sample for accurate analysis.

Sample Documentation

A sample form will be used to collect information such as time and date of collection, condition of the collection site, any reason for deviations from typical protocol, and name of the team member that collected the sample. The form will also record the time that the sample was delivered to the laboratory.

The laboratory processing the samples will provide their own bottles and labels for collection as well as a chain of custody form to be filled out when the sample is delivered to the laboratory.

Sample Delivery

Once all samples have been collected, they will be delivered to the laboratory in a cooler with ice. The samples will be turned over for analysis and the laboratory will email the Town a report outlining their findings.

Impaired stretch of Santa Cruz River through Marana

