STORM WATER MANAGEMENT PLAN

SEPTEMBER 2024

Town of Camp Verde
Utilities Department – Stormwater Division

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INTRODUCTION

This Storm Water Management Plan (SWMP) outlines the Town of Camp Verde's program to reduce surface water pollution in accordance with the Arizona Pollution Discharge Elimination System. The Stormwater Management Plan was developed by the Town to describe the activities and measures that will be implemented in meeting the terms and conditions of the General Permit AZG2021-002 for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) as required by the Arizona Department of Environmental Quality (ADEQ) Arizona Pollutant Discharge Elimination System (AZPDES). The Small MS4 Permit was issued by ADEQ effective on September 30th, 2021, and expires on September 29th, 2026. This general permit can be found in Appendix 7.

The Town of Camp Verde is authorized to discharge stormwater from MS4 outfalls to waters on the protected surface water list, including discharges to WATERS OF THE US (WOTUS) and non-WOTUS protected surface waters.

This SWMP is the principal document that outlines the policies and procedures the Town implements to minimize pollutants in stormwater discharges, including Best Management Practices (BMPs) and pollutant controls established by the Town to comply with the requirements of the Small MS4 permit.

The overall goal of this program is to reduce the negative impacts of urban runoff to the stormwater drainage system and to receiving water bodies from sources of pollution. To achieve this goal, the SWMP addresses the six (6) Minimum Control Measures (MCMs) to the Maximum Extent Practical (MEP) to protect water quality, and to satisfy water quality requirements of the Clean Water Act (CWA) 33 U.S.C § 1251. Those MCMs are:

1. Public Education and Outreach.
2. Public Involvement and Participation.
3. Illicit Discharge Detection and Elimination Program (IDDE).
4. Construction Activity Stormwater Runoff Control.
5. Post-Construction Stormwater Management in New Development and Redevelopment.
6. Pollution Prevention and Good Housekeeping for Municipal Operations.

The SWMP complies with the requirements specified in Code of Federal Regulations (CFR) Title 40, Chapter 1, Subchapter D, Part 122, Subpart B, incorporated by reference in Arizona Administrative Code (AAC) Title 18, Chapter 9, Article 9 and Chapter 11, Article 1, and provisions of the Arizona Revised Statutes (ARS), Title 49, Chapter 2, Article 3.1. The SWMP has been prepared to meet the requirements identified in the Small MS4 General Permit and is certified according to Section 9.9. See the appendices.

This SWMP is generally organized to reflect the structure and requirements of the permit as well as the real-world implementation of the Town's actions to reduce surface water pollution. It is a living document, reviewed at least annually, and updated as needed to reflect changes and improvements in stormwater management.

This SWMP is a guiding document for Town staff and provides transparency to the public. The Town of Camp Verde encourages the public to review this plan, provide comments, ask questions, and participate in reducing stormwater pollution in daily life. See Appendix 2 – Glossary, Acronyms & Definitions for a reference guide to the technical terms contained herein.

The SWMP is reviewed annually and updated, modified, or revised as needed. As required, the current SWMP and Annual Report will be posted on the Town's website at:

www.campverde.az.gov/departments/utilities then select the Stormwater Tab and scroll

SUMMARY OF PROGRAM MANAGEMENT REQUIREMENTS

Reporting & Assessment	Page Reference	Frequency	Timeframe
Annual Report	Page 4	Annually	September 30
Self-Evaluation	Page 4	Annually	September 30
Discharge Monitoring Reports	Page 5	Annually	September 30
Storm Sewer Mapping	N/A	Update as new facilities are developed	Ongoing

REGULATORY AGENCY

ADEQ Representative:

Arizona Department of Environmental Quality
Water Quality Division
1110 West Washington Street
Phoenix, AZ 85007

Contact:

Jonathan Paul, SWP paul.jonathan@azdeq.gov (520) 628-6708

SETTING

Camp Verde is located in Yavapai County at the intersection of Interstate Highway 17 and State Highway Route 260 in central Arizona, 86 miles north of Phoenix.

The climate is arid with hot summer days that are often cooled by monsoons rains and with winters that are generally mild. Camp Verde's valley floor is classified as Lower Sonoran Desert. However, because the Town is situated on the Verde River, Camp Verde occupies a rare and enviable position among Arizona cities and towns. The Town consists of river plains, traversed by an 18-mile segment of the Verde River, and its tributaries, with desert hills and mesas rising in the forefront of the distant mountains. To the southwest lie the Black Hills mountain range. The Mogollon Rim is just north of the Town and forms the southwestern edge of the large geologically ancient Colorado Plateau. Beyond the immediate settlement environs, Camp Verde is surrounded by Prescott National Forest and the Coconino National Forest administered by the U.S. Forest Service.

COMMUNITY

Community Profile:

o	Population	12,147	2020 Decennial Census
o	Housing Units	5,199	2020 Decennial Census
o	Geographic Area	42.6 square miles	Census Bureau
o	Average Annual Rainfall	17.2 inches/year	Climate-Data.org
o	Elevation	3,147 feet	USGS Mapping

Responsible Department:

Town of Camp Verde
Utilities Department, Stormwater Division
395 South Main Street
Camp Verde, AZ 86322

Town Contacts:

Troy Odell, Town Engineer	troy.odell@campverde.az.gov	(928) 554-0826
Jeff Low, Utilities Director	jeff.low@campverde.az.gov	(928) 554-0825
Patricia Mancini, Stormwater Specialist	patricia.mancini@campverde.az.gov	(928) 554-0824

STORMWATER SYSTEM

The Town's stormwater system is comprised of a network of municipally owned curbs, gutters, inlets, catch basins, underground pipes, culverts, detention basins, natural washes, and man-made channels. The stormwater drainage system is maintained by the Town's Utilities Department, Stormwater Division,.

LEGAL AUTHORITY

Article 7-9, Storm Water Protection, Town Code, of the Town of Camp Verde provides the legal authority for stormwater management and the protection of watercourses, including the numerous washes and storm drain systems, within the Town limits. Furthermore, Section 7-9-12 outlines the enforcement and penalties provisions for anyone found in violation of polluting the waterways of the community. This Town Code section can be found on the Town's Utilities Department webpage:

(www.campverde.az.gov/departments/utilities/stormwater-division/).

To assure compliance with the Permit, the Town has created an Enforcement Response Process. This Response Process has been outlined in this SWMP.

The incorporated area for the Town of Camp Verde is shown on the Water Resources Map extracted from the 2016 General Plan and shown on the next page.

RECEIVING WATERS

The Town of Camp Verde is located within the Verde River Watershed. The primary receiving waters for Camp Verde's runoff are three perennial watercourses. These watercourses are:

1. Verde River
2. Beaver Creek

3. West Clear Creek

The ultimate receiving water for the Town's storm water discharges is the Verde River.

As a condition of discharging to the river system, the Town of Camp Verde must maintain the designated beneficial uses.

ADEQ has established a list of "designated uses" for all regulated water bodies in the State. These designated uses determine the Surface Water Quality Standards (SWQS) that a stream or lake must achieve. The designated uses assigned to receiving waters in Camp Verde's MS4 include:

- Aquatic and Wildlife
- Fish Consumption (FC)
- Full Body Contract (FBC)
- Agricultural Irrigation (AGI)
- Agricultural Livestock Watering (ALW)

A water body that fails to meet the SWQS is listed as "Impaired" for a given pollutant of concern. For impaired waters, ADEQ drafts a Total Maximum Daily Load (TMDL), which assesses how much pollution the water body can receive and still achieve its SWQS. The TMDL establishes targets for each entity that contributes to the water body's impairment, called Waste Load Allocations (WLAs).

As reported in the Town's Notice of Intent (NOI), the three receiving waters identified above are not listed as an impaired, non-attaining, or an outstanding Arizona Water and therefore they do not have an assigned pollutant or TDML to monitor.

This SWMP has been designed to cover all storm water runoff and discharges located within the Town's boundaries. While much of the incorporated Town of Camp Verde is currently undeveloped, these areas will likely experience growth in the future. This SWMP was developed to serve as a comprehensive management tool to help maintain storm water quality throughout the entire town.

REPORTING REQUIREMENTS

Annual Report

The Town will submit an annual report each year, on or before September 30, to ADEQ using ADEQ's 'myDEQ' online permitting system. The reporting period is from July 1 through June 30 each year. During the process of completing the annual report, the Stormwater Specialist and Town personnel will review the plan and arrange for updates as needed in accordance with the requirements in the Permit.

Program Evaluation

The Town of Camp Verde will annually self-evaluate the SWMP for compliance with the terms and conditions of the Small General MS4 Permit. All BMPs will be assessed for appropriateness and effectiveness by analyzing the progress towards their established goals. If necessary, ineffective or infeasible BMPs may be modified or replaced. However documentation of why the BMP was insufficient, expectations of the replacement BMP, and why the replacement BMP will meet the defined goals, is required within the updated SWMP. Adding components or controls to BMPs can be done at any time.

Self-evaluation documentation will be maintained digitally along with the SWMP and submitted to ADEQ as part of the annual report.

Discharge Monitoring Report

The Town will produce a Discharge Monitoring Report (DMR) to be completed digitally through 'myDEQ' and submit it on or before the Annual Report deadline. Inspection forms from all wet weather visual assessments will be included in the DMR. The DMRs will be submitted along with the annual report no later than September 30 of each year.

SWMP Objectives

This Storm Water Management Plan has been developed to achieve the following objectives:

1. Reduce the discharge of pollutants from the Camp Verde MS4 to the maximum extent practicable to protect water quality.
2. Set forth actions to prevent discharges from the Camp Verde MS4 from causing or contributing to an exceedance (or violation) of the State's Surface Water Quality Standards.
3. Increase the public's awareness of water quality issues and mitigation measures.

The Town of Camp Verde will maintain records pertaining to the annual report, program assessment, discharge monitoring, and associated documentation in its Storm Water Management Plan files.

The Town will make the records relating to this permit, including the written storm water management plan, available to the public. The public may view the records during normal business hours. The Town may charge a reasonable fee for copying requests. The Town will also satisfy this requirement by posting the records online.

MINIMUM CONTROL MEASURES

The Town of Camp Verde is committed to reducing the discharge of pollutants to the maximum extent practicable. The goal is to protect water quality and to satisfy the appropriate requirements of the Clean Water Act and A.R.S 49-255.04 by implementing the six minimum control measures (MCMs) listed below.

1. Public Education and Outreach
2. Public Participation and Involvement
3. Illicit Discharge Detection and Elimination
4. Construction Activity Stormwater Runoff Control
5. Post-Construction Stormwater Management in New Development and Redevelopment
6. Pollution Prevention and Good Housekeeping for Municipal Operations

Implementation of these control measures is expected to result in reduction of pollutants discharged into receiving watercourses. Each control measure contains BMPs necessary for proper and effective stormwater management.

MCM 1: PUBLIC EDUCATION AND OUTREACH

Implement a program that is designed to educate the public about stormwater pollution and the impacts of stormwater discharges on receiving streams. The intent is to empower members of the community to take personal action in improving surface water quality. Outreach is to be made to target audiences from the general public and business sector defining specific relevant topics for each targeted group.

Website

The Town will use its website to provide residents with year-round 24/7 access to the Storm Water Master Plan, Annual Reports, and other informational topics and materials. Currently this information is found on the Town's website by selecting DEPARTMENTS, then UTILITIES, and then the STORMWATER tab.

The website also contains general stormwater information and fact sheets and is updated regularly to increase the amount of useful information to residents and businesses on how to reduce pollution and mitigate stormwater runoff. Webpage updates may include Frequently Asked Questions, resources for stormwater quality management, and news on stormwater programs at the Town.

BMPs / Measurable Action Items:

1. The Stormwater Specialist will update the Stormwater Division's webpage as needed to provide access to the current Stormwater Management Plan, Public Service Announcements, Fliers/Printed Materials, the current Annual Report, and other pertinent information and materials.

   Frequency: Quarterly – starting 2nd Quarter FY 2023/2024 (October-December 2023).

2. Utilities Department, Stormwater Division, staff will also coordinate with the Town Library staff to track the number of access 'hits' on its webpage and report those to the SWMP Specialist.

   Frequency: Tracking setup completed by the end of March 2024. Reports issued to the SWMP Specialist quarterly thereafter with the first report due in July 2024.

Public Service Announcements

The Utilities Department, Stormwater Division, will utilize various public outreach and educational events and methods to reach diverse audiences with sources of pollution prevention information and reportable facts. Public service announcements will include those on the Town's Stormwater page on its website.

BMPs / Measurable Action Items:

1. The Storm Water Specialist will post on the Stormwater Division's webpage an announcement of this updated Storm Water Management Plan, citing its purpose and need, and providing information on where to find and review a copy on the Town website.

   Frequency: By the end of June 2024

2. The Storm Water Specialist will prepare and disseminate via the Town's website the annual report submitted to ADEQ each year by September 30. The annual report serves as a 'State of the SWMP' report for the general public and other stakeholders in the community.

   Frequency: Annually by the end of October each year

Printed Materials

The Utilities Department, Stormwater Division, will use print materials to inform residents of common sources of pollutants and identify steps that can be taken to eliminate pollutants in stormwater runoff. Printed materials are distributed to interested community members and are utilized to alert nearby residents and businesses when illicit discharges are identified. Town staff can research and collect information fact sheets and educational information from other MS4 communities and agencies. Printed materials can take the form of fliers, fact sheets, brochures, and notices.

For the Town's general population, the objective is to make residents aware of the hazards and impacts of improper disposal of chemicals and household products such as, but not limited to, motor oil, paints, solvents, pesticides, yard materials, animal waste, nutrients, and sediment.

For the business community, the focus will be on illicit discharge topics related to industrial, cleaning, food service, landscapers, automotive, and hospitality businesses.

BMPs / Measurable Action Items:

1. Prepare a brief storm water information piece on a specific storm water topic to inform and educate the general public in the community. Distribute the printed material as an insert in the utility billing mailing and/or by placing the materials at the Town Library, and in the Economic Development, Community Development, and Utilities Departments' front offices.

   Frequency: Semiannually – once in September and once in March

2. Prepare a brief storm water information piece on a specific storm water discharge topic to inform and educate the business community. Distribute the printed materials either by direct mail and/or as an insert to utility billings to commercial/industrial (non-residential) customers. In addition the materials will be placed in the Town Library, and in the Economic Development, Community Development, and Utilities Departments' front offices.

   Frequency: Annually in January each year

Storm Drain Markers

The Utilities Department will obtain, install, and maintain "Drains to Creek" storm drain markers to call attention to the direct connection between storm water discharges and waterways. Town staff will affix a marker on all existing storm drainage inlets.

BMPs / Measurable Action Items:

1. The Utilities Department will inventory the storm drain inlets within the Town limits and order a sufficient quantity of "Drains to River" markers for immediate and future use.

   Frequency: Secure a supply of markers by the end of December 2023; reorder as needed

2. Town staff will install/affix/paint the markers at each existing storm drain inlet structure and will assure all newly constructed inlets in the future are marked.

   Frequency: Install the markers on each existing storm drain inlet by the end of July 2024

3. Town staff will stencil mark of affix markers as needed when the construction work involves a new drainage inlet structure and verify the markers have been installed. The GIS mapping will be updated as well with the new drainage infrastructure.

   Frequency: As needed at the time the construction project infrastructure is in place

4. Town staff will perform a routine inspection of storm drain inlets to confirm the markers are still present and to replace any that may become lost or damaged.

   Frequency: Annually by the end of July

MCM 2: PUBLIC PARTICIPATION AND INVOLVEMENT

The Town of Camp Verde encourages public participation and involvement in the implementation of the SWMP. Residents, visitors, businesses, and other members of the general public are encouraged to engage in any of the Best Management Practices (BMPs) described herein and is always accepting input on additional measures to minimize stormwater pollutants.

BMPs / Measurable Action Items:

1. The Storm Water Specialist will see that the Annual Report and any Updates to the SWMP are posted online on the Town's website within 30 days of submittal to ADEQ.

   Frequency: Annually

Community Reporting

The Town asks community members to report storm water violations, illicit discharges, and other surface water quality concerns through use of the Town's online 'Storm Water Management Citizen Concern Form.' Instructions request the form be completed and returned by the Town via mail or email or in person at 395 S Main St, Camp Verde.

The community reporting form is found at this website:

https://www.campverde.az.gov/departments/utilities/stormwater-division

BMPs / Measurable Action Items:

1. The Storm Water Specialist will work with the Town staff to simplify the process for the public to complete and submit the form online. The form will then be automatically forwarded to the Storm Water Specialist and the Utilities Director.

   Frequency: By the end of December 2023

2. Town staff will advertise the pollution/stormwater concern reporting form at Town events, presentations to the public and target groups, and through the Town's Stormwater web page.

   Frequency: At least twice per year

3. The Utility Department, Stormwater Division, documents and investigates all storm water and water quality complaints submitted online or via telephone, mail, or email, or in person at 395 S Main St, Camp Verde.

   Frequency: Staff will respond to complaints within 48 hours of receipt, or as soon as practical.

Public Participation Opportunities

The Town of Camp Verde provides opportunities for volunteers to participate in storm water related activities each year.

BMPs / Measurable Action Items:

1. The Town will advertise the free dump days at the Yavapai County Camp Verde Transfer Station on the Town's website.

Frequency: Matches the free dump days offered by Yavapai County.

2. The Town will initiate an 'Adopt a Street' program where volunteers are encouraged to clean up street rights of way. The Town will assist the volunteers by providing garbage bags to the group in advance and by picking up and disposing of the garbage bags afterwards.

   Frequency: Annually in the fall by the end of November

3. The availability of the 'Adopt a Street' services will be featured on the Town's website and advertised at Town events, and presentations to the public.

   Frequency: At least twice a year in advance of each program event.

MCM 3: ILLICIT DISCHARGE DETECTION AND ELIMINATION

The Town of Camp Verde is to develop, implement, and enforce a program to detect and eliminate illicit discharges into their MS4. The Illicit Discharge Detection and Elimination (IDDE) program is intended to identify and eliminate illegal contributions of pollutants to the MS4 as well as unauthorized connections to the storm drain system.

To effectively implement its IDDE program, the Town relies on reports from citizens and staff across all departments to identify potential violations. Town Storm Water staff investigate these reports and determine appropriate enforcement and mitigation actions.

Illicit discharges and connections are also identified through visual screening of outfalls during dry-weather and wet-weather and inspections of construction and post-construction stormwater controls (see MCM 4 PUT PAGE NUMBER and MCM 5 PUT PAGE NUMBER).

To expand public awareness and participation in detecting illicit discharges, the Town uses its website as well as the use of flyers at various locations to advertise its pollution reporting form and encourage residents to bring pollution concerns to the Town's attention (see MCM2 PUT PAGE NUMBER).

Town staff is responsible for the day-to-day maintenance of streets, drainage facilities, water distribution, sewage collection, and related public infrastructure throughout the Town. Due to the mobile nature of their jobs, the Town staff will be key in identifying and reporting potential illicit discharges during their normal course of work.

Storm Sewer System Mapping

Storm Sewer mapping and reporting software was acquired by the Town of Camp Verde in fiscal year 2015/2016. At that time, the Town implemented the use of Geographic Information System (GIS) based software named MS4Front. This software is designed to compile a database of various components of the Town's compliance measures and to provide the Town with a means to manage their systematic maintenance and inspection regime to maintain compliance and documentation of the Town's SWMP. The outfall database should be considered a live document that can and should be updated as necessary when new outfalls or other storm water components are constructed and/or discovered by Town staff in the course of their day-to-day activities and storm water inspection and maintenance investigations.

The current version of the MS4 Front Data Map shows storm facility mapping points with a point ID label, watershed boundaries, and the Camp Verde Town Limits. The map is included in Appendix A I THINK THIS WAS TAKEN OUT, CHECK THIS AND IF IT IS THERE INCLUDE PAGE NUMBER of this SWMP.

BMPs / Measurable Action Items:

1. The Storm Water Specialist will see that the Storm Sewer System Map is periodically updated to reflect the current existing drainage system of the Town. As-built plans will be input into the mapping tool. The map will also be updated with other pertinent information that may be discovered during ongoing inspections and investigations.

   Frequency: The next update to be completed by the end of September 2024 and annually thereafter.

Illicit Discharge Detection

Illicit discharge detection and elimination is a comprehensive program that assists the Town in detecting, identifying, isolating, regulating, and eliminating illicit discharges. Anything entering the MS4 that is not storm water is an illicit discharge. Illicit discharges include:

- Illegal Dumping
- Littering
- Illicit Connections (connection of non-storm water source directly to a storm drain or waterway)
- Hazardous Waste
- Grey Water Discharges

The Town of Camp Verde will develop and implement a plan to detect, identify the source of, and address non-stormwater discharges including illegal dumping to the system.

Reporting of illicit discharges is to include:

- Date and time incident is reported or discovered.
- Date(s) of the Town's response.
- Identification if the discharge reached a protected surface water (yes, no, or unknown).
- Incident location (address and/or latitude/longitude).
- Pollutants involved.
- Source of discharge.
- Correction methods employed.

BMPs / Measurable Action Items:

1. The Storm Water Specialist will track all suspected, reported, and confirmed cases of illicit discharge. Tracking includes sufficient information to determine the effectiveness of the Town's response to illicit discharge incidents. During annual program evaluation, storm water staff will review the past years' IDDE records and update procedures as needed to address excess time to case resolutions, unsatisfactory case resolution, and any other program issues that are identified.

   Frequency: Annually by the end of September each year

2. Through the Public Outreach program, citizens will be provided with educational information on how to identify illicit discharges and how to report such incidents as they occur to the Town online, by phone, by email, or in person at 395 S Main Street, Camp Verde.

   Frequency: Prepare the IDDE Public Outreach document and post it online for review and download by March 31, 2024

3. The Storm Water Specialist will provide training to Town staff on how to identify illicit discharges and the associated reporting procedures.

Frequency: Prepare an IDDE training presentation and conduct an annual training session for staff in January each year

Illicit Discharge Enforcement

Town of Camp Verde Code, Article 7-9, specifies that no person shall cause or allow the discharge to a public right-of-way or public storm drain system of any substance that is not composed entirely of storm water, and that no person shall use, store, spill, dump, or dispose of materials in a manner that those materials could cause or contribute to the addition of pollutants to storm water. This section of the Town Code sets forth enforcement procedures and penalties for violations of the Town's illicit discharge requirements.

The following non-stormwater discharges to the MS4 are allowed by the Town of Camp Verde.

- Water line flushing (requires an ADEQ De Minimis Discharge Permit).
- Landscape irrigation.
- Irrigation water.
- Discharges from potable water sources (requires an ADEQ De Minimis Discharge Permit).
- Foundation drains.
- Air conditioning condensation.
- Individual residential car washing.
- Discharges or flows from emergency firefighting activities.
- Uncontaminated groundwater infiltration into storm drains or pumped to the surface.

In addition, the Town considers non-commercial or charitable events such as charity or school fund raising car washes to be insignificant contributors of pollutants. Therefore, these discharges are not prohibited. Local controls or conditions will not be placed on discharges from such events, unless the Town obtains information and makes a determination that such a discharge is a significant contributor of pollutants to the MS4 PAGE NUMBER . See also MCM 6 PAGE NUMBER.

BMPs / Measurable Action Items:

1. Document and file any enforcement action taken including the outcome.

   Frequency: Within 30 days of the conclusion of the enforcement action

Visual Monitoring

The Town of Camp Verde will conduct visual storm water discharge monitoring as required by the Permit. The following section describes the activities the Town will implement to conduct the monitoring.

BMPs / Measurable Action Items:

1. The Town will develop, implement, and maintain a visual monitoring program that includes both dry weather and wet weather storm water discharges to identify, monitor, and eliminate illicit discharges.

   Frequency: Included in this 2023 update of the SWMP

Procedures for Conducting Wet and Dry Weather Visual Inspections

The following section describes the activities the Town will utilize to conduct the visual monitoring.

Schedule

The Town will conduct visual stormwater discharge monitoring two times during the summer wet season and two times during the winter wet season (four events per year total). Wet seasons, for the purposes of visual assessments, are defined as follows:

- Summer Wet Season: June 1 – October 31 (two events during summer season)
- Winter Wet Season: November 1 – May 31 (two events during winter season)

Visual examination will occur when discharges resulting from a qualifying rainfall event causes runoff to be present at the outfall. A qualifying rainfall event is defined as an event that produces 0.1 inches or more in measured rainfall and occurs at least 72 hours from the previous 0.1-inch rainfall event.

Grab samples for visual examination are to be collected as soon as practicable. Visual examinations will be conducted during daylight hours in a well-lit area to accurately observe and document the results.

Locations

The Town has selected the following locations to conduct visual stormwater monitoring:

VISUAL OUTFALL DISCHARGE MONITORING LOCATIONS			
Outfall ID No.	*Location*	*Season*	*Name of Receiving Water*
OUT-01	Bull Pen Wash/Ward Ranch Gully	Wet & Dry	West Clear Creek – Verde River
OUT-02	West Clear Creek Tributary at Verde Lakes Drive	Wet & Dry	West Clear Creek – Verde River
OUT-03	South Main Street Drainage Parsons Lane	Wet & Dry	Drainageway – Verde River
OUT-04	South Main Street Drainage Hopkins Lane	Wet	Drainageway – Verde River
OUT-05	Finnie Flat Channel at County Ditch Convergence	Wet & Dry	County Ditch- Verde River

These locations were selected due to the types of areas they drain, accessibility, and consideration for safety of the person conducting the monitoring. See the Sampling Location Maps at the end of this section. These locations are identified in the ADEQ Notice of Intent (NOI) for the AZPDES Small MS4 General Permit dated 12/28/2021.

Parameters

Grab samples will be examined in a clear container and observed for the following parameters:

Color Water that is colorless lacks pollutants that affect water color. Water that is slightly milky or light brown in color usually indicates the presence of suspended sediment. Suspended sediment will impart the same color to water as the surrounding soil. The

presence of a color that is different from the surrounding soil color may indicate the presence of a chemical pollutant.

Odor Most water is either odorless or has a slight "earthy" odor. Odors such as gasoline fumes, solvents, sulfur or rotten egg smell, sewage, or a sour smell may be indicative of chemical pollutants.

Clarity Clarity refers to the amount of suspended material present that causes the water to be opaque and limits the amount of light that can pass through the water. The cloudier the water is, the more likely it is to contain suspended material.

Floating Solids Solids may float if they are buoyant in water. Observe the surface of the grab sample for floating solids and describe them.

Settled Solids Solids may settle to the bottom if they are heavier than water. Observe the bottom of the grab sample for settled solids and describe them.

Suspended Solids Solids may remain in suspension if they have the same buoyancy as water or if their physical shape allows them to remain in suspension for long periods of time.

Foam The presence of foam on the water surface may indicate the presence of industrial foaming agents or surfactants.

Oily Sheen An oily sheen is present if a film of iridescent color is observed on the water surface. Look for a rainbow effect that can appear to be floating on the surface of the water. Usually an oily sheen indicates the presence of oil or grease. On rare occasions, and usually in the fall, an oily sheen can be the result of the decomposition of fallen leaves.

Other Indicators Any other indicator of a pollutant that does not fall under any of the other categories will be noted.

Documentation

The results of the visual examination will be recorded on the Visual Monitoring Report Form and must include the following information:

- Location Name
- Date and Time of Examination
- Monitoring Personnel
- Monitoring Point Location
- Nature of Discharge (rainfall or snowmelt)
- Time the Rainfall Event Began
- Duration of the Rainfall Event
- Inches of Rainfall from the Event
- Length of Time since the Last Qualifying Rainfall Event
- Description of the Nine Visual Examination Parameters

The Visual Monitoring Report Form is included herein on page 20.

The completed Visual Monitoring Report Forms for each of the four annual sampling periods at the identified sampling sites shall be filed for the record and maintained on file by the Town for a period of ten (10) years.

Interpreting Visual Monitoring Results

Results of visual examinations will be used by Town personnel to identify issues of concern that require follow-up action. Some common storm water visual observations are provided below along with what action should be taken.

COMMON STORM WATER VISUAL OBSERVATIONS & ACTIONS	
Observation	*Action*
Oil Sheen	Conduct an inspection of the area of the site draining to the sample collection point. Look for obvious sources of spilled oil, leaks, etc. If a source can be identified, steps should be taken to immediately clean up or remove the source.
Floating Solids	Examine the solids to see if they are raw materials, waste materials, or other known products stored or used within the drainage area. Review the drainage basin area to find potential sources and eliminate them.
Unusual Color or Odor	Attempt to compare the color or odor to the colors or odors of known chemicals and other materials used within the area. If possible, find the source and take action to remove it.
Large Amounts of Settled Solids	Check unpaved unstabilized areas or areas of erosion. Take action to provide BMPs to control and minimize erosion.
Excess Foam, Suds, or Scum	If accompanied by a strong organic or sewage-like odor may indicate a sanitary sewer leak or connection. If the foam has a fragrant odor, they may indicate the presence of laundry water or similar wash waters and/or surfactants. If possible, find the source and remove it.
Cloudy – Very Slow to Settle Out	Evaluate the site draining to the discharge point for fine particulate material such as dust, ash, or other pulverized, ground, or powdered chemicals. If possible, find the source and remove or reduce its potential to be collected in stormwater runoff.
Clean & Clear Sample	This may indicate a high-quality result. However, the visual examination will not provide information about dissolved contamination.

Town personnel will perform a brief investigation to determine a potential source if an issue of concern is identified in the initial visual screening. Otherwise, the steps identified in the following section for Follow-Up Screening will be followed to identify a potential source of the contamination.

Follow-Up Screening

The Town will perform follow-up screening within two weeks of the initial visual monitoring that identified an issue of concern. The follow-up screening will consist of the following:

- Inspect the sampling location for visual signs of an illicit discharge

- Review the upstream drainage area for potential sources
- Take action to mitigate or eliminate the source if it can be identified

The Town Utilities Department Staff will work with the Town Code Enforcement Staff and the Town Engineer in the event a source is identified and cannot be readily eliminated.

Illicit Discharge Detection and Elimination (IDDE) Program

Response to Complaint/Violations

Program Initiative/Purpose: This program within the MS4 is for the purpose of preventing, locating, identifying, reporting, mitigating, and permanently removing illicit discharges of anything but intended Stormwater into any part of the Town of Camp Verde MS4.

Responder: Please fill out all information. This is an official record. Please provide form to the Town of Camp Verde Public Works Department for the MS4 Annual Report Record.

Date:_____ Time:_____ Report Taken By:_____

- Location/Address of Discharge_____

  _____

- Description of Illicit Discharge:_____

  _____

- Location on Property of the Discharge:_____

  _____

- Complaint Made By (Include Contact Information)_____

  _____

Initial Field Response Date:_____ Time:_____ By:_____

Describe Initial Description in Field of Illicit Discharge:_____

_____

_____

_____

Owner of Property Present? _____ Owner's Name:_____

Owner Contact Information:_____

_____

Describe Initial Action/Enforcement Taken:_____

_____

_____

_____

Describe Initial Action Taken by Property Owner to Remediate Illicit Discharge:_____

_____

_____

_____

Was further Enforcement Action Required to get Property Owner to take responsible action to remediate the Illicit Discharge? If Yes, Describe:_____

_____

_____

_____

VISUAL MONITORING REPORT FORM
Town of Camp Verde

Type of Weather for Monitoring: ☐ Wet Weather ☐ Dry Weather		
MONITORING LOCATION:	DATE:	TIME:
INSPECTOR:		

RAINFALL EVENT INFORMATION

TYPE: ☐ RAINFALL ☐ SNOWMELT ☐ N/A (Dry)	TIME SINCE LAST QUALIFYING EVENT: (in days)	
TIME BEGAN:	DURATION: (in hours)	AMOUNT: (in inches)

PHYSICAL OBSERVATIONS

1. COLOR: ☐ NONE ☐ YELLOW ☐ BROWN ☐ TAN ☐ GREEN ☐ GRAY ☐ RED OTHER: _____

COLOR INTENSITY: ☐ INTENSE ☐ MODERATE ☐ FAINT

COMMENTS:

2. ODOR ☐ NONE ☐ DIESEL ☐ GASOLINE ☐ SOLVENT ☐ CHLORINE ☐ SEWAGE ☐ ROTTEN EGG ☐ MUSTY/EARTHY ☐ OTHER _____

COMMENT:

3. CLARITY ☐ OPAQUE ☐ CLOUDY ☐ TRANSPARENT

COMMENT:

4. FLOATING SOLIDS? ☐ NONE ☐ YES

IF YES, DESCRIBE:

5. SETTLED SOLIDS AFTER 24 HOURS? ☐ NONE ☐ YES

IF YES, DESCRIBE:

6. SUSPENDED SOLIDS? ☐ NONE ☐ YES

IF YES, DESCRIBE:

7. FOAM? ☐ NONE ☐ YES

8. OILY SHEEN? ☐ NONE ☐ YES

9. OTHER INDICATORS OF POSSIBLE STORM WATER POLLUTION? ☐ NONE

COMMENT:

POSSIBLE SOURCES OF OBSERVED POLLUTION INDICATORS

DESCRIPTION:

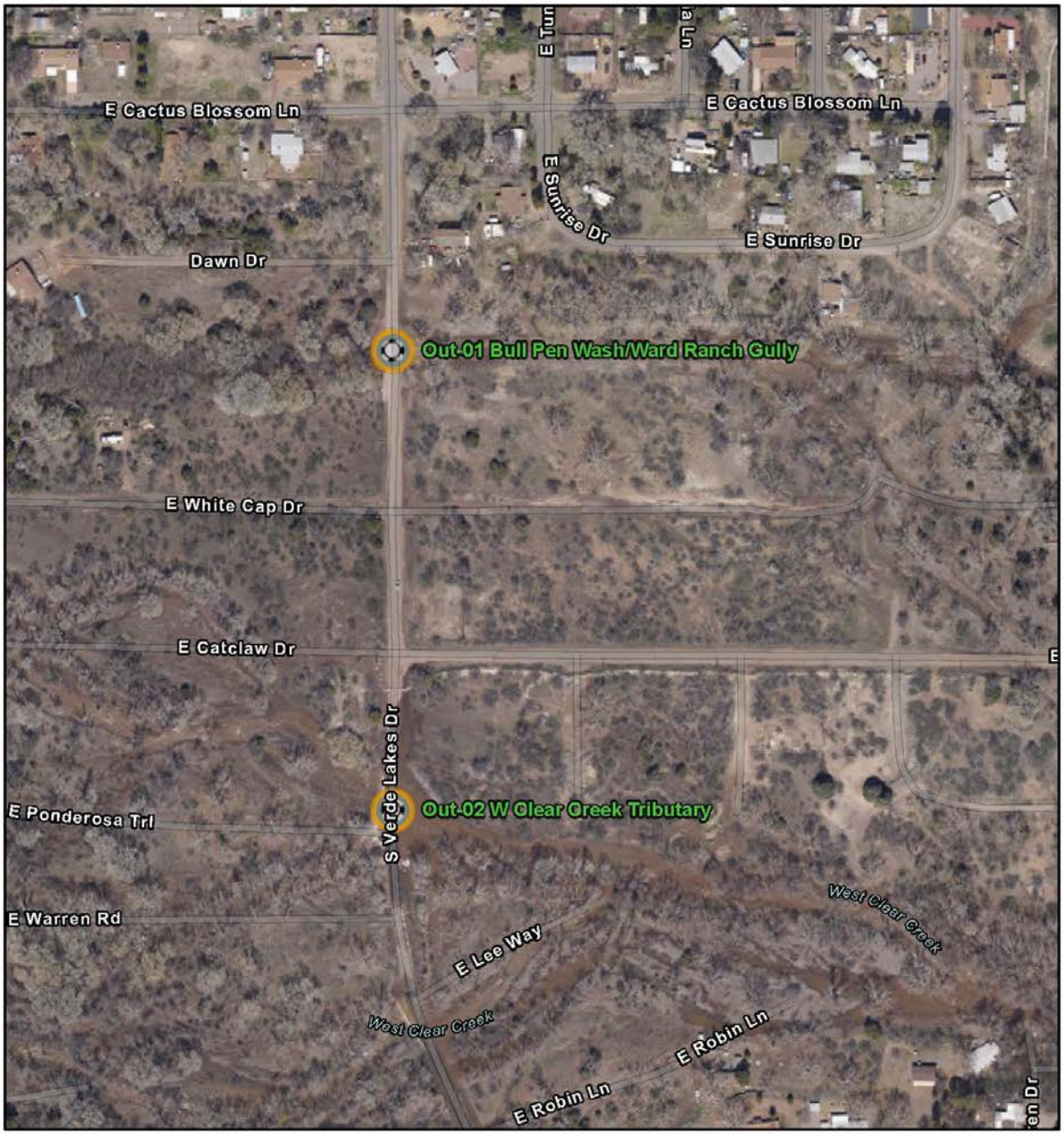
I state that this document was prepared under my direction or supervision in accordance with the visual monitoring procedures and that qualified personnel properly gathered and evaluated the samples. The information submitted is, to the best of my knowledge, information, and belief, true, accurate, and complete.

_____ _____

Signed Name Date

ATTACH ADDITIONAL PAGES AS NEEDED CONTAINING PHOTOGRAPHS OR ADDITIONAL NOTES.

Outfalls 01 & 02



01: Bull Pen Wash/Ward Ranch Gully & 02: West Clear Creek Tributary to the Verde River

Bull Pen Ward Ranch Gully OUT-01 & West Clear Creek Tributary OUT-02 Sampling Locations

Outfalls 03 & 04

7/23/2024

1:934

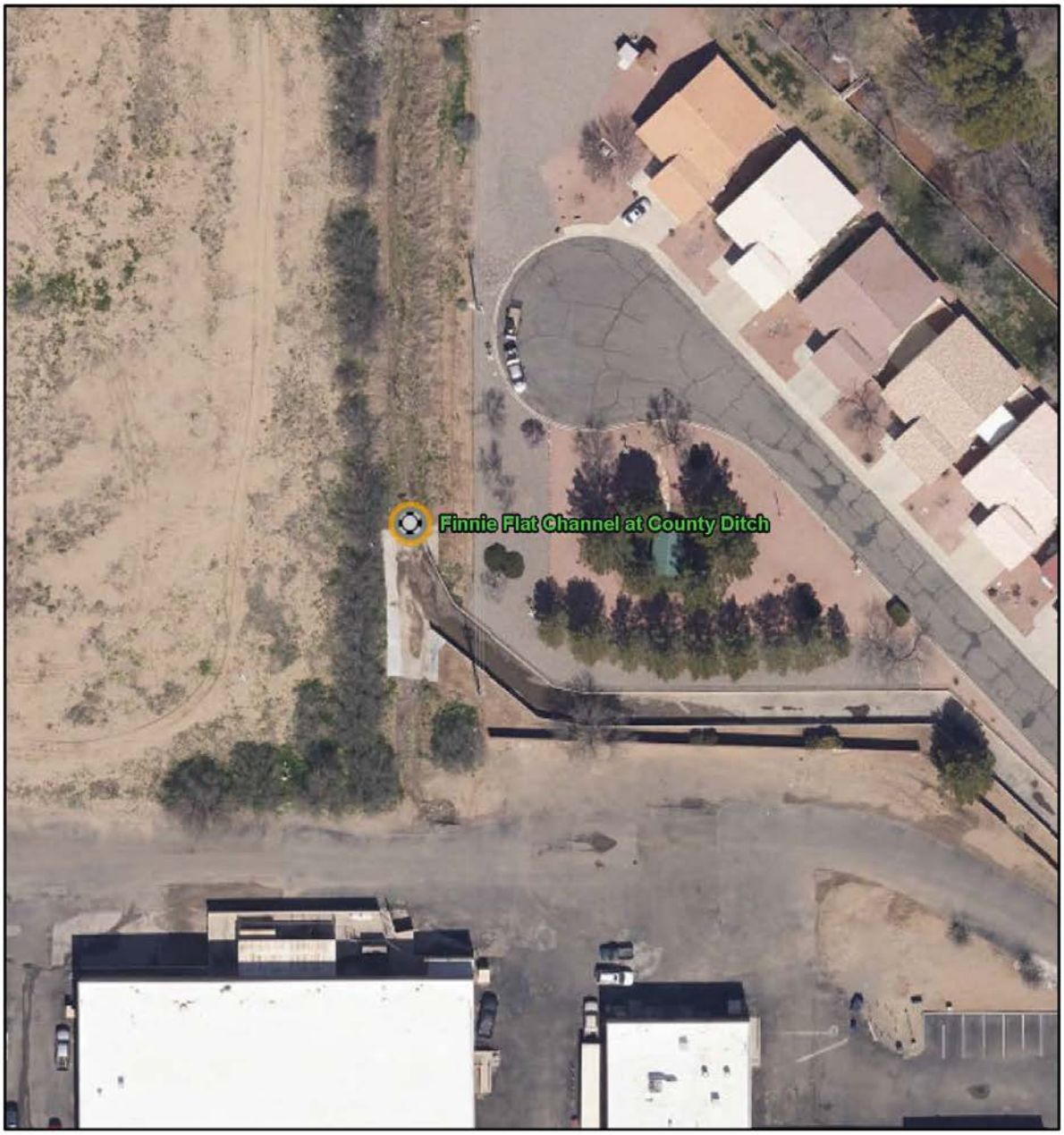
0 0.01 0.01 0.02 mi

0 0.01 0.02 0.04 km

Esri Community Maps Contributors, Coconino County, County of Yavapai, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS, Source: Esri, USDA FSA, Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community,

South Main Street Sampling Location OUT-03

Outfall 05



Finnie Flat Road Channel Sampling Location OUT-04

MCM 4: CONSTRUCTION ACTIVITY STORM WATER RUNOFF CONTROL

The Town of Camp Verde will develop, implement, maintain, and enforce a construction activity storm water runoff control program to minimize or eliminate pollutant discharges to the MS4 from regulated construction activities that will result in disturbance of land within the Town.

MCM 4 requires the Town to regulate discharges from construction activity. Construction activities are one of the biggest sources of storm water pollutants. This is to be accomplished through:

1. Enforcing design plan standards
2. Inspection and enforcement of erosion and sediment controls on construction sites
3. Educating and engaging developer, construction operators, and the general public

The Town's construction storm water runoff control program places emphasis on minimization of sediment discharge which is the most common pollutant generated by construction activity and can be a vector for other pollutants including nutrients, bacteria, and a range of chemicals.

Chapter 7, Article 7-9 Storm Water Protection, of the Town Code requires the use of sediment and erosion control practices and allows the Town, to the extent authorized by law, to impose sanctions ensuring compliance with the local program.

Storm Water Pollution Protection Plan (SWPPP)

The Town currently requires construction site contractors to submit a Storm Water Pollution Protection Plan (SWPPP) that includes Best Management Practices (BMPs) for managing the construction site prior to beginning construction. The SWPPP must include a combination of structural and/or nonstructural BMPs appropriate to the site and community. Developers of one or more acres of land are also required to secure a Notice of Intent (NOI) to discharge.

The Town reviews development plans to ensure storm water compliance utilizing standard procedures and checklists developed by the Utilities Department and Town Engineering staff. Engineering services staff will review the submitted documents and plans to ensure compliance with all Town requirements. If not approved, comments will be provided by staff, and those comments must be addressed on subsequent submittals. REWORD THIS PARAGRAPH

BMPs / Measurable Action Items:

1. During pre-construction meetings, Town staff will inform contractors that a SWPPP will be required for all commercial construction sites.

   Frequency: At each commercial site pre-construction meeting during the year

2. Develop a checklist that lists standard requirements for construction plans to be met in order for a permit to be issued for site grading and drainage improvements on all commercial sites.

   Frequency: Checklist to be developed by the end of June 2025

Construction Site Inspections

All construction sites need to have adequate sediment and erosion control measures that keep soil stabilized and prevent pollutants from running off site in storm water events.

The Town Code provides the regulatory mechanism to prohibit erosion and waste on construction sites within the jurisdiction of the Town. The code also addresses violations that occur during construction activities and has provisions for authority to inspect construction sites.

The Town inspects eligible construction sites for storm water at the start of construction, then at least monthly thereafter, until a final walk-through inspection takes place. Inspections will be ongoing throughout all phases of construction and will be conducted on all new construction projects. The Inspector will complete a 'Stormwater Commercial Construction Site Inspection Report' form for each inspection of storm water control facilities and retain a copy for three (3) years. The inspector is to provide inspection details as well as photos documenting potential deficiencies and site progress.

Prior to final approval, the project will be inspected to evaluate the effectiveness of the site's temporary sediment and erosion control measures, final stabilization, and overall compliance with the Town's requirements.

If non-compliance is identified during the inspection, the Inspector will notify the permittee and follow up within seven (7) days to ensure corrective actions have been satisfactorily completed. If corrective actions have not been implemented, the inspector will begin the enforcement process.

In the case that a complaint is received for potential stormwater non-compliance at or emanating from a commercial construction site, the inspector will investigate the complaint within seven (7) days of receipt.

BMPs / Measurable Action Items:

1. Town staff will incorporate construction site stormwater inspections into regular inspection duties and complete a 'Stormwater Construction Site Inspection Report' on illicit discharge sightings and complaints.

   Frequency: At least monthly for the duration of site disturbance activities for each project

2. Stormwater Specialist to develop a new digital 'Stormwater Commercial Construction Site Inspection Report' form.

   Frequency: Complete and deploy the digital form by July 2025.

3. Enforcement action will be taken on those who violate the Town Code utilizing the Town's Code Enforcement Branch.

   Frequency: Each occurrence for any project during the course of the year

The 'Stormwater Commercial Construction Site Inspection Report' form has been prepared and is found at the end of this section.

Developer and Contractor Education Program

The Town will develop an educational program targeting the construction industry and private developers on stormwater runoff issues aimed at controlling erosion and sedimentation control at construction sites.

BMPs / Measurable Action Items:

1. Town staff will prepare and make available an educational and instructive guideline document aimed at educating developers, contractors, and operators of BMP's and SWPPP requirements. This document will be available online on the Town's website and handed out at all pre-construction meetings for construction projects.

   Frequency: Complete preparation of education document by end of August 2024

2. Town staff will ensure known violations are corrected.

   Frequency: Each occurrence for any project during the course of the year. Maintain documentation of enforcement actions.

Inspection Training

The Stormwater Specialist will train the Town's construction site inspectors on erosion and sediment control inspections and enforcement procedures. Training includes inspection of erosion and sediment control BMPs, identification of storm water runoff issues at construction sites, enforcement of storm water construction regulations, and documentation of inspections and enforcement. Also see MCM 6.

BMPs / Measurable Action Items:

1. Develop and implement a training program for staff inspectors on erosion and sediment control inspections and enforcement procedures.

   Frequency: Develop the inspector training program by the end of December 2024 and schedule and conduct the first annual training program in January each year, and continuing year to year.

Town Of Camp Verde
Stormwater Construction Site Inspection Report

Contractor			
Project Name & Number			
Location			
Date of Inspection		**Start Time**	**End Time**
Describe Current Phase of Construction			
Type of Inspection: ❑ Regular ❑ Pre-storm event ❑ During storm event ❑ Post-storm event			
Weather Information			
Weather at time of this inspection? ❑ Clear ❑Cloudy ❑ Rain ❑ Sleet ❑ Fog ❑ Snowing ❑ High Winds ❑ Other:			
Do you suspect discharges may have occurred? ❑Yes ❑No **If yes, describe:**			
Are there any discharges at the time of inspection? ❑Yes ❑No **If yes, provide the locations and a description of stormwater discharges from the site and any presence of suspended sediment, turbid water, discoloration, and/or oil sheen:**			
Identify any non-storm water discharges for the site; i.e. water other than stormwater runoff directed to a watercourse, storm drain, or off the construction site:			

INSPECTION CHECKLIST				
#	**BMP/Activity**	**Implemented?**	**Maintenance Required?**	**Corrective Action Needed and Notes**
1	Are perimeter controls and sediment barriers installed and maintained?	❑Yes ❑No	❑Yes ❑No	
2	Are discharge points and receiving waters free of sediment deposits?	❑Yes ❑No	❑Yes ❑No	
3	Are storm drain inlets properly protected?	❑Yes ❑No	❑Yes ❑No	
4	Are sediments being tracked into the street?	❑Yes ❑No	❑Yes ❑No	
5	Is trash and litter from work areas collected and placed into dumpsters?	❑Yes ❑No	❑Yes ❑No	
6	Are vehicle and equipment fueling, cleaning, and maintenance areas free of spills, leaks, or deleterious material?	❑Yes ❑No	❑Yes ❑No	
7	Are materials that are potential storm water contaminants stored inside or under cover, where practicable?	❑Yes ❑No	❑Yes ❑No	
8	Are non-stormwater discharges (e.g., wash water, dewatering) properly controlled?	❑Yes ❑No	❑Yes ❑No	

INSPECTION CHECKLIST				
#	**BMP/Activity**	**Implemented?**	**Maintenance Required?**	**Corrective Action Needed and Notes**
9	Are there locations where additional BMPs are necessary?	❑Yes ❑No	❑Yes ❑No	
10	Are changes to the SWPPP necessary?	❑Yes ❑No	❑Yes ❑No	
11	Other Issues?	❑Yes ❑No	❑Yes ❑No	
❑ If there are no incidents of non-compliance noted during the inspection, the inspector certifies that the construction project and site is being operated in compliance with the Town's SWMP and Permit No. AZG2016-002.				

NOTED COMPLIANCE ISSUES		
#	**Issue**	**Corrective Action**

Inspector Name and Title: _____

Signature:_____ **Date:**_____

MCM 5: POST-CONSTRUCTION STORM WATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT

The Town of Camp Verde will develop, implement, and enforce a program to address stormwater runoff from new development and redevelopment projects.

When storm water quality is considered from the beginning of a project, new development and redevelopment projects will be better enabled to reduce pollution from storm water runoff throughout the life of the project. The intent is to confirm storm water discharge controls have been satisfactorily constructed, are in place and functioning as intended, and to provide for long-term operation and maintenance of implemented BMPs.

To effectively implement a post-construction storm water program, a combination of both structural and non-structural BMPs must be addressed. Permanent BMPs or post-construction BMPs that differ from the BMPs identified in the construction plan SWPPP can be shown on the construction plan BMPs and called out as permanent or post-construction BMPs.

Non-Structural Controls are Best Management Practices (BMPs) that do not involve a structured or engineered solution. Because it is usually easier and more effective to prevent pollution before it occurs, non-structural BMPs are very cost-effective. These measures limit or eliminate pollutants before they end up in storm water. Some nonstructural BMPs include:

- Effective site planning to protect and utilize natural flow paths
- Low impact designs
- Maintain riparian buffers and provide non-required vegetation plantings
- Outreach and education
- Stormwater management regulations and ordinances

Structural BMPs are facilities that help to prevent pollutants in storm water runoff from leaving a developed property, entering storm drains, and impacting local waterways. Structural BMPs require regular inspection and maintenance to ensure that they are operating effectively. Some structural BMPs include:

- Infiltration facilities
- Dry wells
- Detention/retention basins
- Rain gardens
- Silt fences

The Town of Camp Verde has developed a post-construction storm water program that addresses storm water runoff for both new development and redevelopment. The Town of Camp Verde will continue to monitor both structural and nonstructural BMPs in order to reduce storm water pollution in new development and redevelopment areas.

Post-Construction Storm Water Control Inventory

The Utilities Department, Stormwater Division, in cooperation with the Engineering Division and the Code Enforcement Division, and with support from the Stormwater Specialist as needed, shall maintain an inventory of approved and installed stormwater controls. The inventory is kept up-to-date and includes all sites with post-construction stormwater controls as well as relevant attachments such as operation and maintenance agreements, as-built site plans, inspection records, photos, etc.

Upon completion of projects, and upon final inspections, if permanent BMPs differ from those shown in the construction plans, as-builts will be required to document the BMPs and to achieve final certificate of occupancy issuance.

BMPs / Measurable Action Items:

1. The Storm Water Specialist shall set up an electronic filing system on the Town's computer server exclusively for maintaining documentation on Storm Water Controls in place. The file system will have the following structure:

   Main Folder: Storm Water Controls

   Level 1 Sub-Folder: Site Address

   Level 2 Sub-Folders: Operation & Maintenance Agreements

   As-Built Plans

   Post Construction Site Storm Water Inspection Form

   BMP Photos

   Documents are to be filed with a date prefix of: YYYY-MM-DD File Name. This will provide a chronologic series of documentation for convenient retrieval.

   Frequency: Computer file system to be set up on the Town's server by January 1, 2024

2. Town staff will perform a post-construction inspection on each newly constructed and completed development or redevelopment site utilizing the 'Post-Construction Site Storm Water Inspection Form' found at the end of this section to provide an inventory of structural storm water control BMPs. Photos of storm water control BMPs are to be taken for each facility.

   Frequency: Form to be completed and filed within two weeks of the completion of construction.

Operation and Maintenance of Post-Construction BMPs

The Town of Camp Verde will require all new development and redevelopment projects to have an Operation & Maintenance Agreement for all post-construction BMPs. The agreement will clearly state the current property owner is the responsible party to maintain the BMP facilities. The Town retains a copy in its Storm Water Control inventory to inform future inspections.

BMPs / Measurable Action Items:

1. Town staff inspects all post-construction stormwater controls each year and documents these inspections in its inventory database.

Frequency: Annually

Train Town Employees to Conduct Inspections

Training is required for employees responsible for inspecting post-construction site controls. Training for inspection staff with storm water responsibilities will include:

a. Municipal ordinances related to storm water and post-construction.

b. Requirements for structural storm water controls practices.

c. Maintenance responsibilities through agreements and policies.

d. Inspection procedures and use of inspection forms.

e. Enforcement procedures.

BMPs / Measurable Action Items:

1. Provide post-construction site inspection training for Town inspection personnel on an annual basis.

   Frequency: Annually to be completed by June 30 each year; conduct the training session for new hire inspectors prior to assigning them to perform post-construction inspections, and show new additional post-construction items for inspections

Low Impact Development

Low Impact Development (LID), or Green Infrastructure (GI), is an approach to infrastructure design and development that leverages natural systems to remove pollutants from storm water runoff and reduce overall runoff volumes into local waterways. The Town of Camp Verde Storm Water staff will provide recommendations to incorporate LID/GI infrastructure components into municipal Capital Improvement Program projects and into private development projects during the pre-application and plan review processes. The Town's goal is to increase the number of constructed projects featuring LID or GI features.

BMPs / Measurable Action Items:

1. Review and consider implementing Low-Impact Development as part of the Town's development design requirements. The Town could adopt by reference use of the "Greater Phoenix Metro Green Infrastructure Handbook" with its Low Impact Development Details for Alternative Stormwater Management (or another agency's version).

   Frequency: Complete review and decide on implementation of LID/GI guidelines by June 30, 2026

Enforcement

Town of Camp Verde Code, Article 7-9, specifies requirements for development projects to include permanent stormwater controls to minimize pollutants, including sediments, from leaving the construction site and to provide protection from accidental discharge of pollutants to the public storm drain system. It also requires property owners to provide long-term operation and maintenance of post-construction storm water runoff control mechanisms. This section of the Town Code sets forth enforcement procedures and penalties for violations of the Town's post-construction stormwater control requirements.

BMPs / Measurable Action Items:

1. Document and file any enforcement action taken including the outcome.

   Frequency: Within 30 days of the conclusion of the enforcement action

Town Of Camp Verde
Post-Construction Site Storm Water Inspection Form

Have all temporary stabilization measures been removed? **YES** **NO**

Area	Required Per Plan?	Installed?	Operating as Intended?	Comments/Observations
Check dams	Y N	Y N	Y N	
Embankment Protection	Y N	Y N	Y N	
Rip Rap	Y N	Y N	Y N	
Retention/Detention Pond	Y N	Y N	Y N	
Vegetation	Y N	Y N	Y N	
Soil Retention Blankets	Y N	Y N	Y N	
Inlet Protection	Y N	Y N	Y N	
Outlet Protection	Y N	Y N	Y N	
Headwalls	Y N	Y N	Y N	
Other:	Y N	Y N	Y N	
Other:	Y N	Y N	Y N	
Other:	Y N	Y N	Y N	

Enforcement and Resolution

☐ Site **IN** Compliance	Evidence Collected (choose all that apply) ☐ Photographs ☐ Documents ☐ Samples
☐ Site **NOT** in Compliance (choose option and describe)	☐ Follow-up Inspection required ☐ Enforcement Action applied ☐ Stop Work Order
Enforcement action taken? ☐ Yes ☐ No If yes, describe: ☐Verbal Notice ☐Written Notice ☐Fines ☐Injunctive Relief	
Resolution:	

Inspector Certification

Inspector Signature:	Date:
Inspector Name:	Time:

MCM 6: POLLUTION PREVENTION & GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

Develop and implement an operations and maintenance program with the goal of preventing or minimizing pollutant runoff from municipal operations due to activities, including but not limited to public works, utilities, parks, fleet, building, grounds, construction, streets, drainage facilities, and stormwater maintenance. This will be accomplished through training, facility inspections, implementation of stormwater controls, and implementation of maintenance activities that reduce or eliminate pollutants discharged.

Municipal Facilities

Town Departments impacted by this operations and maintenance program are:

a. Public Works
b. Utilities
c. Parks and Recreation
d. Community Development

Facilities that are covered under a different AZPDES permit (for example an MSGP industrial stormwater permit, the wastewater collection system, and the wastewater treatment plant) are specifically exempt from the requirements under this MCM as they have their own stormwater management requirements.

BMPs / Measurable Action Items:

1. Municipal facilities that discharge pollutants need to be inventoried.

   Frequency: Complete an inventory of facilities by June 30, 2024. Maintain the inventoried facilities list thereafter with annual inspections.

   Facilities can include public works and utilities yards, maintenance facilities, garages, parks, Town Government Complex, library, public parking lots, etc.

2. Municipal activities that discharge pollutants need to be inventoried.

   Frequency: Complete an inventory of activities by June 30, 2024. Maintain the inventoried activities list thereafter.

   Activities can include things like street sweeping, trash pickup and removal, grounds maintenance, vehicle maintenance, oil and grease disposal, etc.

Training

Inform and educate Town employees on requirements of the Town's SWMP. This requirements is intended to establish awareness of stormwater pollution and regulations throughout the Town's organization, to encourage a culture of pollution prevention activities, and to engage Town staff in identifying and reporting illicit discharges.

Training courses for Town employees should involve classroom instruction and field work. Classes can be in person, conducted by webinar (which is more one-way), or by another means and online sources.

a. Inform staff about the identifying illicit discharges and the proper channels for relaying information about illicit discharges.

BMPs / Measurable Action Items:

1. The Stormwater Specialist will meet with appropriate Department staff annually to discuss the SWMP and to assist them and their staff to implement the program.

   Frequency: Annually starting in June 2024.

2. Develop a list of training dates and audience for FY 2024-2025. Identify measurable outcomes to be achieved by each training session.

   Frequency: List to be finalized by end of March 2024. Training program is to be conducted annually starting in FY 2024-2025.

1. Document all employees who received training and each topic for which they were trained.

   Frequency: Within one week of the training session.

Operations and Maintenance Procedures

Review the Town's existing operation and maintenance programs to determine how they could be improved to meet the objectives of the SWMP. Programs should include measures to control pollutant runoff from all Town-operated streets, properties, and municipal facilities; provide for removal and disposal of pollutants from the storm sewer system; and have established operations and maintenance procedures that are designed to minimize pollution. identify on-going maintenance needs such as sediment removal, seeding, and weed control.

Due to the large amount of pollutants that can be found on roadways, the Town will continue to conduct a street sweeping program as one of their best management practices. Street sweeping removes sediment buildup on the roadways and in the gutters, and will reduce the pollutant load during a storm water event. The objective is for two miles of street to be swept each month, after special events, and as part of storm cleanup activities to remove sediment on the road. The waste collected from street sweeping should be transported and disposed of at a landfill or other legal disposal site.

The Town conducts culvert and catch basin inspections on a regular schedule to identify maintenance needs and remove accumulated debris. Any dry weather flows or illicit discharges encountered are reported for IDDE investigation. Cleaning is conducted once annually and after notable storm events. If maintenance is needed and cannot be conducted at the time of inspection, the inspector submits a notification to the Town's Public Works work order system.

BMPs / Measurable Action Items:

1. Division Managers will meet with their staff to review and improve existing operation and maintenance programs in their units aimed at achieving the objectives of the SWMP.

   Frequency: Annually starting in May 2024.

2. Division Managers will work with each other on operations and maintenance programs to be adopted as policy under their jurisdiction and will provide updates to the Utilities Department Director and Stormwater Specialist.

   Frequency: Provide updated O&M programs by June 1, 2026. Annual reviews thereafter.

3. Maintain a street sweeping program to systematically remove pollutants from streets and roads. Document the miles of streets swept and the tons of debris removed and properly disposed of.

   Frequency: Conduct street sweeping for two miles of streets each month.

4. Schedule and conduct roadside ditch and culvert inspections..

   Frequency: Conduct ditch and culvert cleanout as needed on approximately 10% of the applicable street corridors annually.

5. Seek Town Council approval to appropriate additional funding for contracting out culvert cleanout to control potential flooding situations and other stormwater control measures.

   Frequency: For FY 2024-FY 2025 and as major storm events may dictate.

Facility Inspections

Develop an internal inspection program to ensure that pollution prevention practices are being effectively carried out or are instituted when and where they are necessary. Inspection reports of municipal facility conditions are to be distributed to the staff via departmental meetings. Re-inspection of municipal facilities shall re-occur to ensure identified improvement items have been addressed.

BMPs / Measurable Action Items:

1. The Town will implement a facilities inspection program and perform facilities inspections aimed at enforcing the current operations and maintenance programs. Program to include inspection of storage yards and fleet maintenance facilities for oil and grease in stormwater runoff.

   Frequency: Implement program starting in July 2024, conduct and document facility inspections annually.

1. The Town will properly maintain Town-owned vehicles and equipment.

   Frequency: Inspect Town vehicles annually to eliminate oil and grease leaks.

Discharge Elimination

Provide control measures for reducing or eliminating pollutants from public facilities within the jurisdiction of the Town. Target pollutants for municipal operations are litter, pet waste, household hazardous waste (HHW), waste automotive fluids, nutrients, and sediment.

The Town will require contractors to develop and follow a SWPPP for Capital Improvement Projects.

BMPs / Measurable Action Items:

1. Town Staff/Project Managers will ensure that a Stormwater Pollution Prevention Plan is developed, submitted, and followed by the Project Contractor for every Town capital improvement project impacting one acre or more of land.

   Frequency: Starting in January 2024 for each project undertaken.

2. Develop SWPPPs for the primary Town facilities or types of facilities (i.e. maintenance yards, parks, roadside areas, stormwater infrastructure, etc.). The plans are to include best practices to use in the event of a spill.

   Frequency: Develop SWPPS for Town facilities by March 2025 and implement starting July 2025.

ENFORCEMENT RESPONSE PLAN

Any enforcement action for a private sector project will be issued by the Town of Camp Verde Stormwater Division, Town Engineer or Town Code Enforcement Officer. For CIP projects, the Town Engineer or inspector responsible for the project will issue enforcement actions. The Town may also refer illicit discharges to ADEQ for enforcement actions.

ENFORCEMENT POLICY

The Town's policy is to prevent the discharge of pollutants from construction sites by inspecting both private sector and CIP projects and determining if the sites are implementing appropriate BMPs in accordance with the Town's NPDES Permit, policies, standards, project-specific requirements, and permits. The Town is authorized under Chapter 7, Article 7-9 Storm Water Protection, of the Town Code and/or the contract documents to take enforcement actions against the contractor or developer when a construction site is found to be out of compliance.

DISCOVERY OF NON-COMPLIANCE

The Town becomes aware of non-compliance at construction sites primarily by performing permit required inspections. The Community Development Department conducts permit inspections and will make the permittee aware of any non-compliance issues. The Town occasionally becomes aware of non-compliance through the following sources:

- Town personnel conducting routine activities such as driving to or from a construction site or when inspecting other activities at a site.
- Contractor compliance activities, such as conducting and submitting inspection reports or preparing, implementing, and updating Erosion and Sediment Control Plans or SWPPP.
- Public complaints.
- Regulatory agency inspections or audits.

ENFORCEMENT ACTIONS

Enforcement actions differ between private sector projects and CIP projects. Town inspectors use enforcement actions to enforce compliance with the building and grading permits. Town inspectors and construction managers use enforcement actions to enforce compliance with the contract documents.

The Town may not always take enforcement actions in the sequence provided and reserves the right to issue enforcement actions based on the facts of the violation, or history of noncompliance at the site, or with the contractor/developer. In general, enforcement actions are based on the type of BMP deficiency found at the site. In the event that no corrective actions were taken during the required time frame, the Town will escalate enforcement actions.

Verbal Warnings

Verbal warnings are typically the initial enforcement action used to request corrective action for both private sector and CIP projects. Verbal warnings are issued to the contractor/developer. The inspector who issues the warning shall document the violation, notification, specific time frame for correction, and follow-up inspection date. Verbal warnings are often sufficient to achieve correction of the violation.

Many violations are often corrected while the inspector is still present at the construction site. The Town will document the verbal warning with a written or digital record for the annual report.

Written Notice

Written notices are used for both private and CIP projects. For private projects, written notices may include Notice of Non-Compliance and/ or Stop Work Order. For CIP projects, written notices may include Notice of Non-Compliance, Administrative Compliance Order, Administrative Citations or Fines, and/ or a Stop Work Order and will be entered as a written record for the annual report.

Written notices are issued either when a prior verbal warning was not corrected within the specified time frame for correction or when the severity of the violation is such that a verbal warning is not deemed strong enough. Written notices shall include the description of the violation, suggested corrective actions, and time frame for correction as well as a follow-up inspection. The Stormwater Specialist will develop a form (hard copy or digital) to use to issue written Notice of Violation.

Stop Work Order

Stop work orders are used for private or public projects when items in a prior written notice were not corrected within the specified time frame, or a significant threat to water quality is observed. Stop work orders prohibit further construction activity until the problem is resolved. The stop work order will not be lifted until the contractor's project supervisor requests the inspector to re-inspect the project and verify that the deficiencies have been corrected. Work may not begin again until the inspector has signed off on the corrections. The stop work order must include the infraction and specify what corrective action must be taken within a specified timeframe.

Suspension or Revocation of Permits

Suspension or revocation of permits is used on private projects and only in severe cases of non-compliance or significant discharges. The Town may suspend or revoke the building or grading permit that a developer/contractor is working under or withhold final approval. The developer/contractor will have to re-submit detailed plans and proposals for compliance or re-apply for a permit and meet any requirement(s) that the Town may place on the project.

Contract Enforcement Mechanism

Contract enforcement mechanisms are used for CIP projects when written notices are insufficient. Construction contracts include language that gives the Town Engineer and Town inspector the right to enforce established policies including withholding payment(s), using contractor's bonds, applying fines, stopping work (without time penalties), or terminating contracts if the contractor performing the construction activities does not comply with contract documents, local ordinances, or the NPDES General Permit or other NPDES Permit, if required.

Referral to ADEQ

The Town Engineer and Town inspectors will refer both private sector and CIP projects to ADEQ for the following two (2) situations:

1. Critical Deficiency with Potential to Significantly Impact Public Health

The procedures the Town will implement to notify ADEQ and/or DOH, once a critical deficiency occurs, are listed as follows:

- Inspector notifies the Town Engineer of the critical deficiency and corrective actions taken including inspection report and photo documentation.
- The Town notifies ADEQ of the critical deficiency and provides a Critical Deficiency Report which includes photo documentation.

In the event that the Town believes that a non-compliance situation has the potential to significantly impact public health or the environment, the Town will refer the situation to ADEQ for concurrent enforcement actions.

2. Exhausted all Enforcement Actions

   In the event the Town exhausted all of the enforcement options discussed above, the Town will refer the project to ADEQ by providing:

   - A verbal notification within one (1) week of exhausting enforcement actions.
   - A written report within two (2) weeks of exhausting enforcement actions.
     The written report shall include inspection checklists, notes and related correspondence.

There are two means available for the Town of Camp Verde to escalate an environmental violation to ADEQ.

The first option is to submit an environmental complaint to ADEQ using their online 'Environmental Complaint form that can be found at the following webpage:

https://www.azdeq.gov/EnvironmentalComplaints

Use the online form for reporting activities you feel put the Arizona environment and/or public health at risk. Submitting an online complaint using the environmental complaint form is the best way to assure an efficient response to your complaint. After submitting the form, you will be contacted by an ADEQ team member assigned to your issue.

A screenshot of the online environmental complaint form can be found at the end of this section after the 'Notice Of SWPPP Non-Compliance' form.

TIME FRAME FOR CORRECTION

For each deficiency discovered, the Town will determine the required time frame the contractor/developer has to correct the deficiency before enforcement actions are escalated.

For minor deficiencies, the Town will require the deficiency to be corrected as soon as possible but no later than ten (10) calendar days after the deficiency is discovered or before the next forecasted rain event, whichever is sooner.

For major deficiencies, the Town will require the deficiency to be corrected as soon as possible but no later than five (5) calendar days after the deficiency is discovered or before the next forecasted rain event, whichever is sooner.

For critical deficiencies, the Town will require the deficiency to be corrected or addressed before the close of business on the next calendar day that the deficiency was discovered.

ENFORCEMENT PROCEDURES FOR PRIVATE SECTOR AND CIP PROJECTS

The Town performs construction BMP inspection.

Step 1 Determine if a BMP deficiency has occurred.

a. No deficiencies – no enforcement actions necessary.

b. Minor deficiency – start at Step 2 or 3, depending on the severity.

c. Major deficiency – start at Step 3 or 4, depending on the severity.

d. Critical deficiency – start at Step 4 or 5, depending on the severity.

- Notify the Town Engineer and provide inspection report and photo documentation.

Step 2 Issue a Verbal Warning by notifying the contractor/developer.

a. Document on the construction site BMP checklist the following information:

- Deficiencies to be corrected.
- Specific time frame for correcting the problem.
- Follow-up inspection date to confirm correction.
- Complete a written record for the annual report.

b. Perform follow-up inspection and document findings in the inspection file.

- If corrective actions were taken, document correction on Construction Site BMP Checklist.
- If corrective actions were not taken, issue a Written Notice.

Step 3 Issue Written Notice to contractor/developer's project supervisor and owner/developer.

a. Written Notice shall be documented on the BMP checklist and a copy shall be placed in the active inspection file. Written Warning shall include:

- Deficiencies to be corrected.
- Suggested corrective actions.
- Specific time frame for correction.
- Date for follow-up inspection.
- Complete a written record for the annual report.

b. Perform follow-up inspection and document findings in the inspection file.

- If corrective actions were taken, document correction on construction site BMP checklist.
- If corrective actions were not taken, issue a Stop Work Order.

Step 4 Issue Stop Work Order and provide copies to contractor's project supervisor and owner/developer and a copy shall be placed in the active inspection file.

a. Stop Work Order shall include:
   - Deficiencies to be corrected.
   - Specific corrective action that must be taken and the timeframe required to correct.

b. Perform re-inspection when the developer/contractor's project supervisor requests one.
   - If corrective actions were taken, sign off on the corrections and allow work to proceed.
   - If corrective actions were not taken, discuss with the Town Attorney if revocation of permit or denial of permits should be sought.

Step 5 Suspend/revoke grading and/or building permit that the developer/contractor is working under, withhold final approval, or deny future permits on the project.

Discuss with the Town Attorney, if necessary, and only after permit revocation or suspension is in place.

Step 6. Whether for Private Sector or Capital Improvement Projects on behalf of the Town of Camp Verde, notify ADEQ if all enforcement actions are exhausted and contractor/developer in both is still out of compliance or poses an immediate or significant threat to water quality, and/ or human or environmental health.

NOTICE OF SWPPP NON-COMPLIANCE			
Type of Notice	☐ Verbal ☐ Written Notice ☐ Stop Work Order ☐ Permit Suspension		
Type of Project	☐ Private Development Project ☐ Public Capital Improvement Project		
Town of Camp Verde Utilities Department			
To the attention of:			
Name			
Address			
Regarding:			
Project Name			
Location of Work			
Project Manager		Project Number	
Requesting Party		Date of Notice	
If a Stop Work Order or Permit Suspension, immediately cease and desist construction activities.			
SWPP Violation			
Time to Correct		Follow-on Inspection Date	
Notice Issued by:			
Name		Title	
Signature		Date	
Notice Acknowledged by:			
Name		Title	
Signature		Date	

Environmental Complaint Form

Use this form to submit a complaint or report a possible violation of environmental law or rule.
ADEQ will use the information to follow up on the complaint.

Note: Fields with a * are required. If you choose to submit online, you must complete all the required fields.

Complaint Details

Company/Facility Name:
Company/Facility Address:
Company/Facility Phone #:
Type of Business/Operation:
Major Cross Streets:
*Nearest city:
*County:
If requested, do you have photos/video?
Date of Occurrence: (i.e., 01/01/2013)
Time of Occurrence:
Material Spilled/Dumped:
Estimated Quantity that was spilled/dumped:
Best Time to Witness (if ongoing):
* Type of Pollutant: Unknown
*Describe what you saw:
Characters Remaining: 2000

Your Information

Note: fields with "*" are required.

*Your name (first, last):
*Address:
*City:
*State:
*Zip:
E-mail:
*Phone:
Have you been referred to ADEQ?: Yes No
If yes, by whom:

*Would you like to be contacted about the result of your complaint?: Yes No

Arizona law requires you to provide your name when reporting an alleged violation. Under the law, your name will be placed in the public file unless the release of your name may result in substantial harm to any person, including yourself, or to the public health or safety. See A.R.S. § 41-1010.

*Do you feel that the release of your name may result in substantial harm to any person, including yourself, or to the public health or safety? Yes No
If yes, please describe:

I'm not a robot reCAPTCHA Privacy - Terms

Submit Reset

Please, only press submit once, otherwise, you will send multiple submittals to us.

ADEQ Environmental Complaint Form Screenshot

APPENDIX 1 – STORM SEWER SYSTEM OUTFALL MAP & DATA TABLES

The MS4 Front Data Map dated 09-26-2017 follows on the next page. The MS4 Front Data Map shows storm facility mapping points with a point ID label, watershed boundaries, and the Camp Verde Town Limits.

Following the map are the accompanying data tables also dated 09-26-2017. There are eleven pages total. The MS4 Front data tables include map point name, latitude and longitude, point description, receiving water body, subwatershed Identification number, drainage area, and associated comments, if any.

APPENDIX 2 – GLOSSARY, ACRONYMS & DEFINITIONS

Acronyms

The following is a list of acronyms and abbreviations that are used in this document.

AAC	Arizona Administration Code
ADEQ	Arizona Department of Environmental Quality
AMA	Active Management Area
ARS	Arizona Revised Statute
ATD	Authorization to Discharge
AZPDES	Arizona Pollutant Discharge Elimination System
BMPs	Best Management Practices
CFR	Code of Federal Regulations
CIP	Capital Improvement Program
CGP	Construction General Permit
CWA	Clean Water Act
DMR	Discharge Monitoring Report
EPA	Environmental Protection Agency
ERP	Enforcement Response Plan
GIS	Geographic Information System
GPS	Global Positioning System
IC	Illicit Connection
ID	Illicit Discharge
IT	Information Technology
IDDE	Illicit Discharge Detection and Elimination
MCMs	Minimum Control Measures
MEP	Maximum Extent Practicable
MS4	Municipal Separate Storm Sewer System (Camp Verde is a Small MS4 system)
MSGP	Multi-Sector General Permit
MWS	Master Watershed Stewardship
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
O&M	Operations and Maintenance
P2	Pollution Prevention
SIC	Standard Industrial Classification
SWMP	Storm Water Management Plan
SWPPP	Stormwater Pollution Prevention Plan
TMDL	Total Maximum Daily Load
TOWN	Town of Camp Verde

Definitions

Arizona Pollutant Discharge Elimination System (AZPDES) – The ADEQ implementation of the EPA program for issuing, modifying, revoking, reissuing, terminating, monitoring, and enforcing permits and imposing and enforcing pretreatment requirements under the Clean Water Act.

Best Management Practices (BMPs) – Measures or practices used to prevent or minimize the amount of pollution entering surface waters. BMPs may take the form of a process, activity, or physical structure.

Discharge – The conveyance, channeling, runoff, or drainage, including snowmelt, from a site.

Minor Spills – Spills that have a volume less than the reportable quantity, can be controlled and cleaned up with onsite resources, do not contaminate the environment, and do not cause injury to personnel.

National Pollutant Discharge Elimination System (NPDES) – The EPA program for issuing, modifying, revoking, reissuing, terminating, monitoring, and enforcing permits and imposing and enforcing pretreatment requirements under the Clean Water Act.

Non-Stormwater Discharge - Any discharge not comprised entirely of stormwater except discharges authorized by a NPDES/AZPDES permit.

Nonstructural BMPs – Practices that will reduce or eliminate the transfer of pollutants to stormwater and do not require installation of permanent structural devices to treat runoff.

Outfall – Any discernible stormwater conveyance (e.g., pipe, ditch, swale, canal) that discharges to waters of the State or to a separate municipal storm system. See also point discharge.

Point Discharge – Any discernible, confined, and discrete conveyance, including pipes, ditches, channels, tunnels, conduits, and wells.

Pollutant – Any dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discharged equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste discharged into stormwater.

Precipitation – Any form of rain or snow.

Run-on – Stormwater surface flow or other surface flow that enters the site other than where it originated.

Runoff – Part of precipitation, snowmelt, or irrigation water that runs off the land into streams or other surface waters. It can potentially carry pollutants from the air and land into the receiving waters.

Secondary Containment – Structures surrounding tanks or other storage containers that are designed to catch spilled material from the storage containers. Secondary containment must provide spill containment for the contents of the single largest tank within the containment structure plus sufficient freeboard to allow for the 25-year, 24-hour, storm event.

Stormwater – Stormwater runoff, snowmelt runoff, and surface runoff and drainage discharges.

Structural BMPs – Permanent structural devices that will reduce or eliminate pollutants discharge into stormwater runoff.

APPENDIX 3 – NOTICE OF INTENT

The Town of Camp Verde's Notice of Intent (NOI) for Arizona Pollutant Discharge Elimination System (AZPDES) Small Municipal Separate Storm Sewer System (MS4) General Permit dated December 28, 2021, is found starting on the next page.

APPENDIX 4 – SAMPLING AND ANALYSIS PLAN

Sampling and Analysis Plan

For the

Town of Camp Verde Small MS4

Camp Verde, AZ 86322

Contact:

Dorie Blair, Storm Water Specialist

(928) 554-0823

dorie.blair@campverde.az.gov

Date:

October 2023

Table of Contents

1.0 Purpose and Objectives

This Sampling and Analysis Plan (SAP) has been prepared to meet the requirements of ADEQ's General Permit for Discharge from Small Municipal Separate Storm Sewer Discharge Systems (MS4s) to Waters of the United States.

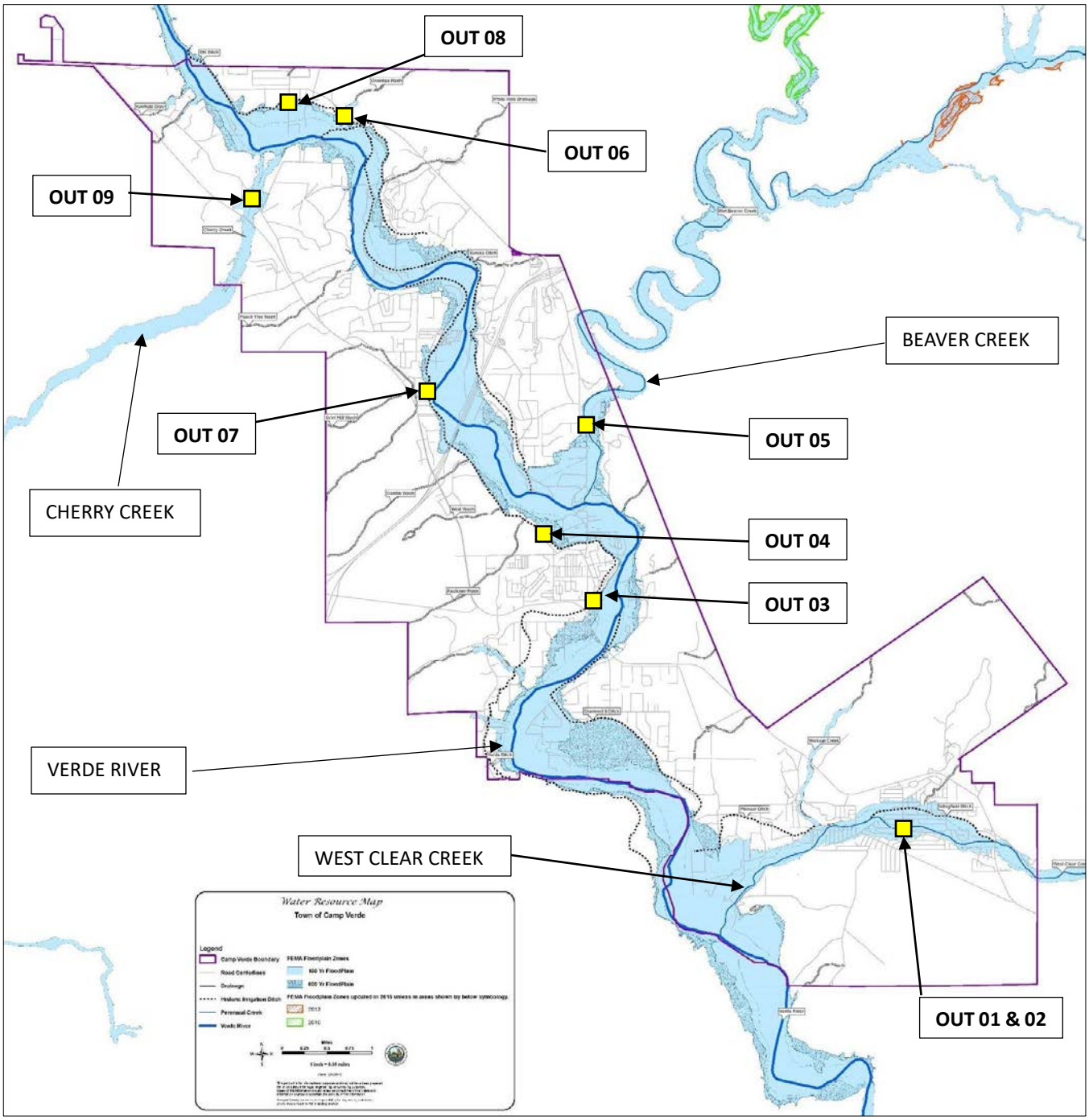
The purpose of the SAP is to ensure sample collection, handling, and testing procedures are established and followed to produce quality data results.

There are multiple objectives for this plan:

- Establish sampling protocols and methods for stormwater monitoring and sampling, as required under the Small MS4 General Permit.
- Document sampling and analysis methods and equipment for collecting representative samples of stormwater that maximize resources.
- Provide a framework to compare sampling results from the Town of Camp Verde outfalls to Arizona Surface Water Quality Standards (SWAQS).
- Provide sampling locations for the Town of Camp Verde, which are identified in the following table.

OUTFALL SAMPLING LOCATIONS FOR THE TOWN OF CAMP VERDE MS4		
Outfall ID No.	*Location*	*Name of Receiving Water*
OUT-01	Ward Ranch Gully at Verde Lakes Drive Crossing	West Clear Creek – Verde River
OUT-02	Bull Pen Wash Tributary at Verde Lakes Drive	West Clear Creek – Verde River
OUT-03	South Main Street Bicycle Shop Drainage Crossing	Drainageway - Verde River
OUT-04	South Main Street Parsons Rd Drainage Crossing	Drainageway – Verde River
OUT-05	Finnie Flat Channel at County Ditch/Verde River	County Ditch – Verde River

These sampling locations are shown on the map on the next page and are those locations most relative to impact by the occupants of the Town of Camp Verde within the MS4 permit area.



Outfall Sampling Locations

See section MCM 3: ILLICIT DISCHARGE DETECTION AND ELIMINATION for detailed site map locations of the outfall sites.

2.0 Recordkeeping Requirements

Records of monitoring information must include the results of each stormwater monitoring event using the Sample Collection Form and the laboratory analyses including field calibration/maintenance records.

Monitoring data shall be submitted on an electronic Discharge Monitoring Report (eDMR) via a myDEQ account within 30 days of receiving the laboratory analytical data. Copies of the analytical test results will be maintained with the Town's MS4 records.

3.0 Sampling Personnel

- Patricia Mancini, Stormwater Specialist, NPDES Certified 12435, Expires 3/28/2028
  patricia.mancini@campverde.az.gov
  (928) 554-0824

These individuals are the primary parties responsible for the collection of samples and submittal to the laboratory for testing and analysis. They are also responsible for meeting the recordkeeping requirements.

4.0 Sampling Requirements

Seasonal wet weather monitoring will be conducted at two (2) outfalls each wet season.

The outfalls will be monitored on a rotating basis. The Town has identified 5 outfall locations total from which the Town will perform stormwater quality monitoring each year. Summer wet season is June 1 through October 31 and winter wet season is November 1 through May 31.

During each monitoring event, sufficient sample volume must be obtained to perform the required analysis. Additionally, samples must be properly preserved, analyzed within hold time requirements, and analyzed using appropriate analytical methods.

As reported in the Town's Notice of Intent (NOI) dated December 28, 2021, the receiving waters identified therein and are not listed as an impaired, non-attaining, or an outstanding Arizona Water and therefore they do not have an assigned pollutant or Total Maximum Daily Load (TDML).

All permittees shall conduct stormwater characterization monitoring for the parameters listed in table starting below as required by ADEQ Permit No. AZG2021-002.

Constituent	Analytical Method	Units	Minimum Required Volume	Holding Time	Preservative
Metals					
Antimony	EPA 200.7	µg/L	250 mL	6 mo	HNO3
Barium	EPA 200.7	µg/L	250 mL	6 mo	HNO3
Beryllium	EPA 200.7	µg/L	250 mL	6 mo	HNO3
Cadmium	EPA 200.7	µg/L	250 mL	6 mo	HNO3
Nickel	EPA 200.7	µg/L	250 mL	6 mo	HNO3
Mercury	EPA 245.1	µg/L	250 mL	28 days	HNO3
Silver	EPA 200.7	µg/L	250 mL	6 mo	HNO3
Thallium	EPA 200.7	µg/L	250 mL	6 mo	HNO3
Inorganics					
Cyanide	SM 4500-CN	µg/L	500 mL	14 days	NaOH
Volatile Organic Compounds (VOCs)					
Acrolein	EPA 624	µg/L	5-44 mL	14 days	Sodium Thio.
Acrylonitrile	EPA 624	µg/L	5-44 mL	14 days	Sodium Thio.
Benzene	EPA 624	µg/L	5-44 mL	14 days	Sodium Thio.
Carbon tetrachloride	EPA 624	µg/L	5-44 mL	14 days	Sodium Thio.
Chlorobenzene	EPA 624	µg/L	5-44 mL	14 days	Sodium Thio.
Dibromochloromethane	EPA 624	µg/L	5-44 mL	14 days	Sodium Thio.
Chloroethane	EPA 624	µg/L	5-44 mL	14 days	Sodium Thio.
2-chloroethylvinyl ether	EPA 624	µg/L	5-44 mL	14 days	Sodium Thio.
Chloroform	EPA 624	µg/L	5-44 mL	14 days	Sodium Thio.
Bromodichloromethane	EPA 624	µg/L	5-44 mL	14 days	Sodium Thio.
1,2-dichlorobenzene	EPA 624	µg/L	5-44 mL	14 days	Sodium Thio.
1,3-dichlorobenzene	EPA 624	µg/L	5-44 mL	14 days	Sodium Thio.
1,4-dichlorobenzene	EPA 624	µg/L	5-44 mL	14 days	Sodium Thio.
1,1-dichloroethane	EPA 624	µg/L	5-44 mL	14 days	Sodium Thio.
1,2-dichloroethane	EPA 624	µg/L	5-44 mL	14 days	Sodium Thio.
1,3-dichloropropylene	EPA 624	µg/L	5-44 mL	14 days	Sodium Thio.
Ethylbenzene	EPA 624	µg/L	5-44 mL	14 days	Sodium Thio.
Bromomethane	EPA 624	µg/L	5-44 mL	14 days	Sodium Thio.
Chloromethane	EPA 624	µg/L	5-44 mL	14 days	Sodium Thio.
Methylene chloride	EPA 624	µg/L	5-44 mL	14 days	Sodium Thio.
1,1,2,2- tetrachloroethane	EPA 624	µg/L	5-44 mL	14 days	Sodium Thio.
Tetrachloroethylene	EPA 624	µg/L	5-44 mL	14 days	Sodium Thio.
Toluene	EPA 624	µg/L	5-44 mL	14 days	Sodium Thio.
1,2-trans- dichloroethylene	EPA 624	µg/L	5-44 mL	14 days	Sodium Thio.
1,1,1-trichloroethane	EPA 624	µg/L	5-44 mL	14 days	Sodium Thio.
1,1,2-trichloroethane	EPA 624	µg/L	5-44 mL	14 days	Sodium Thio.
Trichloroethylene	EPA 624	µg/L	5-44 mL	14 days	Sodium Thio.
Vinyl chloride	EPA 624	µg/L	5-44 mL	14 days	Sodium Thio.
Xylene	EPA 624	µg/L	5-44 mL	14 days	Sodium Thio.
Semi-VOCs – Acid Extractable					
2-chlorophenol	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
2,4-dichlorophenol	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.

Constituent	Analytical Method	Units	Minimum Required Volume	Holding Time	Preservative
2,4-dimethylphenol	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
4,6-dinitro-o-cresol	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
2,4-dinitrophenol	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
2-nitrophenol	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
4-nitrophenol	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
p-chloro-m-cresol	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
Pentachlorophenol	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
Phenol	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
2,4,6-trichlorophenol	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
Semi-VOCs – Base/Neutrals					
Acenaphthene	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
Acenaphthylene	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
Anthracene	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
Benz(a)anthracene	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
Benzo(a)pyrene	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
Benzo(b)fluoranthene	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
Benzo(g,h,i)perylene	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
Benzo(k)fluoranthene	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
Chrysene	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
Dibenzo(a,h)anthracene	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
3,3'-dichlorobenzidine	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
Diethyl phthalate	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
Dimethyl phthalate	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
Di-n-butyl phthalate	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
2,4-dinitrotoluene	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
2,6-dinitrotoluene	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
Di-n-octyl phthalate	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
1,2-diphenylhydrazine (as azobenzene)	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
Fluoranthene	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
Fluorene	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
Hexachlorobenzene	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
Hexachlorobutadiene	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
Hexachlorocyclopentadiene	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
Hexachloroethane	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
Indeno(1,2,3-cd)pyrene	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
Isophorone	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
Naphthalene	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
Nitrobenzene	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
N-nitrosodimethylamine	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
N-nitrosodi-n- propylamine	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
N-nitrosodiphenylamine	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
Phenanthrene	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
Pyrene	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
1,2,4-trichlorobenzene	EPA 625	µg/L	4x 1L	7 days	Sodium Thio.
PCB / Pesticides					
Aldrin	EPA 608	µg/L	2x 1L	7 days	Sodium Thio.
Alpha-BHC	EPA 608	µg/L	2x 1L	7 days	Sodium Thio.
Beta-BHC	EPA 608	µg/L	2x 1L	7 days	Sodium Thio.
Gamma-BHC	EPA 608	µg/L	2x 1L	7 days	Sodium Thio.
Delta-BHC	EPA 608	µg/L	2x 1L	7 days	Sodium Thio.

Constituent	Analytical Method	Units	Minimum Required Volume	Holding Time	Preservative
Chlordane	EPA 608	µg/L	2x 1L	7 days	Sodium Thio.
4,4'-DDT	EPA 608	µg/L	2x 1L	7 days	Sodium Thio.
4,4'-DDE	EPA 608	µg/L	2x 1L	7 days	Sodium Thio.
4,4'-DDD	EPA 608	µg/L	2x 1L	7 days	Sodium Thio.
Dieldrin	EPA 608	µg/L	2x 1L	7 days	Sodium Thio.
Alpha-endosulfan	EPA 608	µg/L	2x 1L	7 days	Sodium Thio.
Beta-endosulfan	EPA 608	µg/L	2x 1L	7 days	Sodium Thio.
Endosulfan sulfate	EPA 608	µg/L	2x 1L	7 days	Sodium Thio.
Endrin	EPA 608	µg/L	2x 1L	7 days	Sodium Thio.
Endrin aldehyde	EPA 608	µg/L	2x 1L	7 days	Sodium Thio.
Heptachlor	EPA 608	µg/L	2x 1L	7 days	Sodium Thio.
Heptachlor epoxide	EPA 608	µg/L	2x 1L	7 days	Sodium Thio.
PCB-1242	EPA 608	µg/L	2x 1L	7 days	Sodium Thio.
PCB-1254	EPA 608	µg/L	2x 1L	7 days	Sodium Thio.
PCB-1221	EPA 608	µg/L	2x 1L	7 days	Sodium Thio.
PCB-1232	EPA 608	µg/L	2x 1L	7 days	Sodium Thio.
PCB-1248	EPA 608	µg/L	2x 1L	7 days	Sodium Thio.
PCB-1260	EPA 608	µg/L	2x 1L	7 days	Sodium Thio.
PCB-1016	EPA 608	µg/L	2x 1L	7 days	Sodium Thio.
Toxaphene	EPA 608	µg/L	2x 1L	7 days	Sodium Thio.

5.0 Monitoring Methods and Equipment

5.1 Sampling Equipment

Sample integrity starts before fieldwork begins. It is essential to ensure that sample bottles are made of materials that will not have an adverse effect on the sampled parameters. For this reason, all sampling containers will be provided by the laboratory and will not be substituted. Samples requiring preservatives will have the preservative already in the sampling jar and will not be overfilled or diluted. Sample jars will not be opened until they are in use. Decontaminated sampling jars within the autosamplers, if any, will be installed prior to each sampling event and will not need to be adjusted during sampling events.

Monitoring equipment will be gathered ahead of time to enable smooth mobilization. Stormwater monitoring generally requires the following equipment:

- Sampling equipment
- Field testing equipment
- Field forms
- Waterproof pens and Permanent markers
- Well-fitting powder-free nitrile gloves
- Sample containers (preserved and non-preserved sample containers from the laboratory)
- Sample container labels
- Chain of Custody (COC) forms
- Ice chest(s) with ice
- Ziploc style plastic bags to hold sample containers
- Foul-weather gear
- Strobe light (mounted and tested)
- Deionized water for rinsing and cleaning equipment
- Paper towels
- Digital or disposable camera

Collecting Sample with Long Handle Dipper

5.2 Clean Sampling Techniques

For automated sampling equipment, during final equipment installation, the tubing and intake strainer will be handled only while wearing clean powder-free nitrile/latex gloves. The strainer will be attached to the end of the intake tubing and secured at the sampling location. All hardware used to secure the suction tubing and intake strainer that has the potential to come into contact with the sample will be stainless steel, aluminum, PVC, or polyethylene to avoid sample contamination. An equipment blank will be taken prior to auto samplers being placed into service.

To assure that contamination, losses, or changes in the chemical form of the analyses of interest do not occur during handling of the composite bottle, bottle lid, sample and pump tubing, or intake strainer, personnel will follow these "clean sampling" techniques:

- Samples will be collected only into pre-cleaned or laboratory-provided bottles.
- Sample containers will be placed in zipper storage bags before being placed in the ice chest to prevent melting ice from entering the sample containers.
- Vehicles will be turned off or downwind from sampling location area.
- Sample collection personnel will wear clean powder-free nitrile/latex gloves and not touch anything unnecessary while gloved.
- Sample collection personnel will not eat, drink, or smoke during sampling activities.
- Sample collection personnel will not sneeze or cough in the direction of an open sample bottle.
- Sample collection personnel will pay attention to avoid allowing rainwater to drip from rain gear into sample bottles.

6.0 Monitoring Preparation and Logistics

The Town of Camp Verde shall collect discrete samples and shall attempt to include the “first flush” (first 30 minutes of stormwater discharge) of a qualifying storm event whenever possible to do so. However, due to staff availability and safety concerns, wet weather monitoring will only be conducted only during regular business hours.

The following sections describe qualifying storm selection criteria and rainfall monitoring to detect qualifying storms.

Sampling will be conducted during an actual discharge at the sampling location. Some sampling sites are a considerable distance away, and while all efforts will be made to predict whether a storm event will produce flow, there may be events in which field staff are not onsite when there is flow. There may also be events where a storm creates unsafe conditions for field crew and sample collection is not completed due to safety concerns.

To maximize the likelihood of sampling personnel being onsite during a discharge event, the following criteria will be used:

- Forecasted to rain with a probability of precipitation equal to or greater than 30 percent.
- Preceded by at least 72 hours without a representative storm event. A representative storm event is defined as 0.1 inches or more of rainfall measured in a 24-hour period that generates runoff.
- The sample can be delivered within laboratory working hours and within recommended hold times.

The weather should be monitored for incoming storms on a regular basis using reliable sources such as www.weather.gov or www.noaa.gov. Smartphone applications can also be utilized to check hourly weather forecasts, view real time radar reports, and receive alerts when user-entered criteria is satisfied. During the permitted wet seasons, predicted storms of a 20% chance or greater should be closely monitored prior to arrival in order to gauge the appropriate time for sample collection. The use of available satellite or radar imaging should be used for even more accurate storm arrival estimates.

The overall monitoring of precipitation to identify the above selection criteria will be performed using rain gages around the Town of Camp Verde to ensure full coverage of monitoring sites. The rainfall datasets will be pulled from the Yavapai County Rainfall and Weather Data website:

www.yavapaiaz.gov/Resident-Services/Flood-Control/Flood-Safety/Rainfall-and-Weather-Data

ID Number	Name
5441500	Camp Verde

Town personnel will continually track weather conditions for forecasted storm events based on forecasting and radar. As a potential storm approaches the monitoring sites, the total precipitation depth and duration will be estimated based on forecasts, and should these estimates constitute a possible qualifying storm, a field crew will be on standby to be mobilized when it starts raining.

A storm event staffing readiness plan that specifies the personnel and equipment required for storm monitoring must be completed at the beginning of the monitoring period and will be updated as needed to ensure staffing responsibilities are established before a potential rainfall event is predicted based upon weather forecasting. This document will be for internal use only, and it will include the personnel needed, communications channels, equipment lists, and chain of custody and filed sampling forms.

7.0 Sampling Procedure, Preservation, and Delivery

Sampling will be conducted in accordance with the NPDES Storm Water Sampling Guidance Document. Additional reference sources include the 'Standard Operating Procedures for Surface Water Quality Sampling' (ADEQ, 03/2018) and the 'Surface Water Section Quality Assurance Program Plan' (ADEQ, 02/2015).

7.1 Forms

Field Sampling Form. Details of the site visit will be accurately recorded at the time of a site visit by field staff. At a minimum, the following general information will be recorded during each site visit:

- Date and time of visit
- Site location
- Observer identification information
- Meteorological characteristics
- Water quality appearance
- Other relevant observations.

All field forms will be dated, signed, legible, and written in permanent ink.

A Field Sampling Form is provided at the end of this SAP.

Chain-of-Custody Form. Chain-of-Custody forms (COCs) are sample collection and verification forms provided by the laboratory to document the sampling procedure (such as time and date of collection) completed by the field technician and when and to whom the sample was relinquished. COCs will be prefilled before a storm event so that only the field information (field technician name, sample collection dates/times, etc.) needs to be added when the samples are collected. COCs are filled out at the time of sample collection and relinquished to the laboratory upon their receipt of the sample. The COCs include

project name or ID, sample ID, date and time of collection, sampler name, the analysis and preservative for the sample, etc.

A Chain of Custody form (from Legend Technical Services) is provided at the end of this SAP.

7.2 Grab Sampling

Grab sampling will be used to capture discrete stormwater samples.

- Grab samples always use clear and clean sampling jars, and the rim or inside of the jar should not be touched while opening or closing the jar.
- Using appropriate Personal Protective Equipment (PPE) such as reflective rain gear, gloves, etc., samples will be collected directly into the lab-provided sample containers if practical, based on the conditions, including depth of flowing runoff.
- If direct collection is not practical, a dip sampler may be used to fill the containers by a repeated collection of small volumes of runoff at the outfall location and transferring it to the sample containers until the containers are full. If dip samplers are used, they must be new or previously decontaminated and kept in a sealed bag or package until use. The materials of construction must be selected so that contamination of the samples by the dip sampler material is not a problem. Generally, glass, PVC, or polytetrafluoroethylene (PTFE) are acceptable. Since the analytical suite includes metals, stainless steel, or other metal products should not be used.

Grab Sampling

- The sample location should be approached from downstream, and samples collected while facing upstream to avoid collecting samples that have been disturbed. The objective is to collect samples of the runoff without introducing water quality changes through the sampling process. The sample should be taken at the mid-flow depth level, and exercise care to ensure the sample bottle does not reach the bottom of the conveyance while avoiding collecting non-representative particulates such as leaves, algae, debris, or soil.
- Sample collection will be performed on a storm event that meets a qualifying storm event's conditions.
- Sampling is performed at each sampling location using discrete (grab) sampling methods and will be performed within the first 30 minutes of a stormwater discharge, if possible. If it is not possible to collect the samples within the first 30 minutes, samples should be collected as soon as possible thereafter and justification for why samples were not collected within the first 30 minutes will be documented on the sampling form.
- Upon completing sampling, the sample containers must be sealed, labeled, and placed in a cooler with ice.
- Chain-of-custody documentation furnished by the lab must be completed, and the samples delivered promptly to the lab for analysis.

7.3 Container Labeling

Samples should be pre-labeled and applied to sample bottles in a dry environment prior to field crew mobilization. The sampling team will assign each sample a unique identifier for each screening point location. The unique identifier will consist of the sample location name (e.g., Cherry Creek OUT-10) followed by a date suffix of MM-DD-YYYY, followed by the sample number (e.g., 01, 02, 03…).

Each container in the sample must be labeled with the unique identifier as well as the following minimum information:

- Sampler initials
- Sample collection date
- Sample collection time

7.3 Water Quality Field Measurements

The field crew will perform field measurements for temperature, conductivity, and pH. A single measurement for each of these parameters will be taken during each monitoring event and recorded on the field form. Measurements should be taken during the middle of the sampled storm event, based on the best estimate that field technicians can make. Measurements will be conducted in-situ by placing the monitoring probe(s) directly in the water column. Probes should be exposed to flow discharging from the outfall. A secondary container may be used if the water depth does not allow the probe to be completely submerged and/or if placement of the probe in the outfall discharge is not feasible due to safety or access limitations.

Temperature may be measured either with a standard mercury-free glass thermometer, an infrared thermometer, or with the temperature function on a pH meter. If a glass thermometer is used, the field technician collects a sample from the runoff stream in a plastic container and immediately takes the temperature by submerging the thermometer bulb in the sample and allowing it to stabilize for 30 seconds.

Conductivity is measured using a field conductivity probe. This instrument will be calibrated according to the manufacturer's specifications and recorded on the field form. Conductivity probes are sensitive and will always be kept with the probe submerged and in a protective encasing to ensure accurate results.

The pH is measured using a temperature-compensated pH meter. Instrument calibration and sample analysis will be performed according to the manufacturer's instructions and recorded on the field form.

Turbidity may be measured in the field with a turbidity meter. The LaMotte 2020we (Part Number 1970-EPA) is compliant with USEPA 180.1 standards and is recommended. The sample vial is to be rinsed several times with representative sample water then filled, capped, and wiped clean. The sample vial will be placed immediately in the calibrated turbidity meter and measured. The measured value will be recorded on a field data sheet. Note that very turbid waters may require dilution with deionized water prior to measurement to obtain a more accurate value. Additional information regarding turbidity field measurement is provided in Section 3 of the Standard Operating Procedures for Surface Water Quality Sampling (ADEQ, 03/2018).

7.4 Preservatives and Hold Times

Water sample preservation procedure is based on the analysis methodology.

- Bottle sets are typically shipped from the contract laboratory with preservatives contained in the bottle but may include separately contained preservative vials for special circumstances.
- A colored dot or sticker typically identifies the type of preservative used for the analysis to be performed on the pre-preserved bottle, including a written notation of the added preservative.
- Sample bottles will be shipped for each sampling event on a per event/request basis.
- Bottles will be new and contain the premeasured amount of the preservative, except as noted above.
- Any pre-preserved bottle discolored around the cap, without a preservative label, or lacking sufficient preservative will be discarded.
- A crucial requirement for sample preservation is to extract the sample within established hold times for the specific analysis. This is particularly important for *E. coli*. Prompt delivery to the selected lab is critical.
- The hold times and preservatives for each constituent:
    - *e-Coli* – 8 hours (if tested)
    - TSS – 7 days
    - Nitrogen – 28 days
    - Phosphorous – 28 days

8.0 Laboratory

Samples will be delivered to and analyzed by the following laboratory:

Legend Technical Services, Inc.
17631 N 25th Ave, Phoenix, AZ, 85023
(602) 324-6100

www.legend-group.com

Hours: Monday – Friday, 8 am to 5 pm; Saturday 10 am to 2pm; Sunday 12 pm to 2 pm; MST.

Capabilities: All necessary testing requirements can be met.

Nortest Analytical Labs
2400 E Huntington Drive, Flagstaff, AZ 86004
(928) 7745-2312

www.nortestanalytical.com

Hours: Monday through Thursday, 9 am to 5 pm; Friday 9 am to 3 pm; MST.

Capabilities: E.Coli, Total Nitrogen, Phosphorous, Alkalinity, Chloride, pH, Settleable Solids, Total Suspended Solids, Turbidity.

8.1 Data Deliverable

Laboratories will be required to provide a maximum three-week turnaround on the deliverable package per event. The deliverable package will include electronic data reports of all samples analyzed. The files will then need to be reviewed to identify any analytical problems, QA/QC exceedances, and provide corrective actions, if necessary.

9.0 Quality Assurance and Quality Control (QA/QC)

This section addresses quality assurance/quality controls (QA/QC) activities associated with both field sampling and laboratory analyses.

Field quality control (QC) samples are used to evaluate potential contamination and sampling error introduced prior to submittal of samples to the analytical laboratory.

9.1 Field Quality Control

Field blanks are analyzed to determine if any field collection processes have caused sample contamination, and if so, to what extent. Appropriate blank water is provided by the analytical laboratory and placed in a clean sample container during field sampling. Field blanks are treated as regular samples in all respects, including contact with the sampling divided and exposure to sampling conditions, storage, preservation, and filtration, if applicable. In general, blank contamination above the method reporting limit should be rejected except for parameters normally detected in blank water. Chapter 3 of the ADEQ Surface Water Quality Assurance Program Plan (SWQAPP) provides additional information. One (1) field blank should be collected each sample collection trip.

Field duplicates are analyzed to determine variability associated with field collection processes. Duplicates are collected from the same site, at the same time, and analyzed in the same manner. In general, field duplicates should have a relative percent difference (RPD) of 20% or less if the results are greater than two times the reporting limit. Chapter 3 of the SWQAPP provides additional information regarding field quality control samples. One (1) field duplicate should be collected each sample collection trip.

9.2 Laboratory Quality Control

Only Arizona Department of Health Services (ADHS) certified laboratories were considered to support the testing and analysis needs for the Town of Camp Verde. Practices and procedures outlined in these documents will ensure sampling is consistent for evaluation and comparison to previous or future studies.

Laboratory QA/QC activities provide information needed to assess laboratory contamination, analytical precision, and analytical accuracy. If any QA/QC standards are not met, the appropriate corrective actions will be taken in accordance with the laboratories' QA Manuals. If issues are identified, the Town's representative will be notified immediately and documentation of the issue and the corrective action will be made.

Trip Blanks – A trip blank is an analysis of a laboratory prepared analyte-free water sample that has been subjected to the same complete analytical procedure as the field sample to determine if potential contamination has been introduced during processing. Blank analysis results are evaluated by checking

against reporting limits for that analyte to determine if any contamination has occurred. Results obtained should be less than the reporting limit for each analyte.

Duplicate Samples – A duplicate sample is two separate samples taken in the field at the same site, within close proximity and time of each other. These samples are analyzed in the same manner, but may contain slightly different chemical compositions. Duplicate samples are usually taken when it is not possible to use a churn splitter to homogenize and split one sample. The generally accepted relative percent difference between duplicate samples is 20% or less.

9.3 Measurement Quality Objectives

Data quality problems can be caused both in the field during sample collection, in transport, and in the laboratory during sample storage, preparation, and analysis. Quality assurance/quality control (QA/QC) is designed to check the following aspects of data quality:

- Contamination – Avoiding any introduction of any material into a sample during collection, transport, storage, or analysis that affects the analysis results.
- Accuracy – The degree to which an analytical result agrees with the true value of the measured quantity. This means how close the observed analyte concentration is to the actual concentration present in the water quality analysis sample.
- Precision – The degree to which an analytical result can be reproduced consistently under stable conditions. This means how closely replicate analyses of the same sample agree with each other in water quality analysis.
- Completeness – The number of usable data points produced as a percentage of the number of collected samples. Completeness is calculated for each project constituent. For example, if five samples are collected and analyzed for copper and four of the results are valid and one rejected, completeness for copper would be 80 percent.

Field forms and COCs will be prefilled with data that does not change (e.g. sample site location) but will be reviewed for accuracy in the course of ensuring samples and documentation is following proper procedures. These forms are reviewed to ensure information is correctly conveyed regarding field measurements and equipment calibration, sample size, and adherence to hold times. Analytical reports received from samples will also be reviewed to ensure samples were analyzed correctly and no flags or issues resulted in unusable data.

9.5 Data Tracking and Management

Data received from the analytical laboratory will be via electronic copy. The data will need to be input into a Town database in order to compare findings against previous sampling results as well as to track sampling progress.

Long term results can be used to determine the effectiveness of implemented best management practices and control measures. The detailed tracking spreadsheet or database should be updated, maintained, and tracked throughout the year.

Laboratory Sample ID:

CHAIN OF CUSTODY RECORD

LEGEND Technical Services, Inc.

☐ 17631 N. 25th Avenue • Phoenix, AZ 85023 • (602) 324-6100 • Fax (602) 324-6101
☐ 4585 S. Palo Verde Rd, Ste 423 • Tucson, AZ 85714 • (520) 327-1234 • Fax (520) 327-0518

Page _____ of _____

Please Print Clearly

CLIENT INFORMATION

Client Name	Address	City	State	Zip	Phone	Fax Number or Email Address
TOWN OF CAMP VERDE	397 S Main St	Camp Verde	AZ	86322	(928) 554-0823	

Project Name	Project Number	Contact	P.O. No.		
MS4 Stormwater Outfall Sampling	SWMP	Dorie Blair		Fax Results ☐ QC Report ☐ EDD ☐ Email Results ☒ Special Detection Limits ☐	

SAMPLE TYPE CODES

DW=Drinking Water; WW=Wastewater; SW=Surface Water; GW=Groundwater; O=Other _____
S=Soil/Solid; T=Travel Blank; F=Food; G=Sludge/Biosolids

TURN AROUND TIME

Laboratory Authorization Required for Rush

☐ Standard 10 - 15 Day
☐ Other _____

REQUESTED ANALYSES

Client's Sample Identification	Date	Time	Sample Location	Composite	Grab	Sample Type	Compliance	No. of Containers	pH ✓ (Lab Use Only)																	LAB NO.

TO ENSURE COMPLETION OF ANALYSIS, SAMPLES MUST BE RECEIVED AT LEAST 3 HOURS PRIOR TO THE HOLD TIME EXPIRATION

Comments / Special Instructions:

SAMPLE CONDITION UPON RECEIPT (Lab Use)		
No. of Containers		
Temperature		
Custody Seals	Y	N
Seals Intact	Y	N
Preserved	Y	N

	RELINQUISHED BY		SAMPLES RECEIVED BY	
①	Sampler Signature	Date	Signature	Date
	Sampler Printed Name	Time	Printed Name	Time
②	Signature	Date	Signature	Date
	Printed Name	Time	Printed Name	Time
③	Signature	Date	Signature	Date
	Printed Name	Time	Printed Name	Time

WHITE-LAB YELLOW-LAB PINK-CLIENT

APPENDIX 5 – STORM WATER BEST MANAGEMENT PRACTICES

The primary method to control stormwater runoff is the use of best management practices (BMPs). Stormwater BMPs are devices, practices, or methods that are used to manage stormwater runoff by controlling peak runoff rate, improving water quality, and managing runoff volume.

Important considerations when selecting BMPs include but are not limited to:

1) Site conditions (e.g. slope and soil types)
2) Existing and surrounding land uses
3) Priority stormwater management goals (e.g. water quality regulations)
4) Additional site development or redevelopment goals (e.g. recreational opportunities).

Select stormwater BMPs to fit the natural environment and systems.

Types of BMPs

Stormwater best management practices (BMPs) fall into two categories: structural or non-structural. Structural BMPs are engineered systems that "reduce and mitigate impacts of development" while non-structural BMPs are "broader planning and design approaches that prevent stormwater generation". More information on each BMP is available below.

Non-Structural BMPs

The most effective way to manage stormwater begins with the prevention of problems. Non-structural BMPs include design approaches and practices that are used for their ability to prevent the occurrence of stormwater runoff. Utilizing non-structural BMPs during site development is much more efficient and cost-effective than attempting to correct problems after development has occurred. Read below to learn about specific types of non-structural BMPs.

Riparian Corridors/Buffers

A riparian corridor includes a body of water (wash, stream, river, pond, or lake), its lower and upper banks, and the vegetation that stabilizes the area of land adjacent to the body of water. This area of land adjacent to the body of water can also be referred to as a "riparian buffer". This corridor or buffer is important because natural trees and vegetation can filter out air and water pollution, roots from trees and other vegetation can hold the soil in place providing protection from significant erosion and sedimentation, provide cover and shade, provide food and habitat for fish and wildlife, and can provide flood water retention.

Preservation and restoration of riparian corridor/buffers has been identified as one of the most important ways to protect and improve water quality by government and state agencies.

Protect Sensitive and Special Value Features

Sensitive features are those that are exceptionally vulnerable to stormwater damage. Examples include steep slopes and neighboring properties. Special value features are those that provide exceptional value stormwater benefits. Examples include riparian areas, wetlands, hydric soils, and floodplains. Damage to both special value and sensitive features can exacerbate stormwater volume, flow rate, and quality problems. When developing a site, special attention should be paid to these areas.

Protect/Utilize Natural Flow Pathways in Overall Stormwater Planning and Design

Sites usually have areas where stormwater is being stored and/or conveyed prior to development. These features should be identified and preserved during planning and construction in order to minimize the impacts of stormwater runoff. The preservation of such features can reduce the need for structural BMPs.

Cluster Uses at Each Site and Build on Smallest Area Possible

Through clustering uses at each site, and building on the smallest area possible, additional runoff that is generated through the development process is minimized. Additional benefits of this design approach include the preservation of open space, the minimization of impervious area, and more. Practical examples of this non-structural BMP include reducing lot sizes, building vertically, and leaving areas in their natural state.

Use Smart Growth Practices

Smart Growth practices are typically used at the community, municipal, or multi-agency level. This planning technique guides growth towards parcels that are most desirable for this use. Smart Growth employs similar methods on a macro scale as clustering does on a micro (site) scale. Tools used in Smart Growth include urban growth boundaries, agricultural zoning, transfer of development rights, donation of conservation easement by owners, and more.

Minimize Total Disturbed Area and Grading

This design approach works with the existing site topography instead of against it. By reducing the need for site grading, soil disturbance, and removal of vegetation, this planning and development approach aims to prevent the generation of stormwater. Additional benefits of minimizing total disturbed areas and grading include reduction of areas that need to be landscaped and maintained.

Minimize Soil Compaction

Minimizing soil compaction and maintaining topsoil quality during construction provides numerous stormwater benefits. Stormwater benefits of this practice include: minimizing runoff and erosion, maximizing water retention capacity, filtering of stormwater, and reducing resources needed to maintain landscaping.

Re-Vegetate Disturbed Areas

Disturbed areas should be re-vegetated with native plants, grasses, shrubs, and trees. Since these species are adapted to local climate and conditions, they require less fertilizers and pesticides and have better chances of surviving. Stormwater benefits of established native plantings include runoff volume and rate reduction as well as water quality improvements.

Reduce Street Imperviousness and Parking Imperviousness

The benefits of reducing impervious areas for streets and parking through innovative planning are numerous. Benefits include: increased infiltration, decreased stormwater volume, pollutant load reduction, and preservation of natural habitats.

Rooftop Disconnection

Rooftop disconnection is also known as downspout disconnection. Disconnecting rooftop leaders from the storm sewer system and re-directing towards vegetated areas is an effective way to manage stormwater volume. This BMP can be more effective when the flow is directed towards a structural BMP such as a rain garden.

Disconnection from Storm Sewers

Disconnecting stormwater generated from impervious areas, such as roads and driveways, from storm sewers and directing the runoff towards structural BMPs, such as bio-infiltration areas, is effective in many ways where applicable. Managing the flow near the source instead of sending downstream via traditional piping allows for increased infiltration and evapotranspiration, increased filtration, and decreased runoff volume.

Streetsweeping

Streetsweeping is a form of source control that is key to ensuring the function of stormwater facilities and keeps local waterways free of debris and other pollutants. In order for streetsweeping to be effective, the equipment used should have a vacuum filter.

Structural BMPs

Infiltration Basins and Infiltration Trenches

Infiltration devices drain or infiltrate water directly into the ground, providing opportunity for groundwater recharge. Infiltration facilities are below ground. The length of time that water is allowed to be on the surface is determined by municipal codes.

Dry Wells

Dry wells collect and infiltrate roof runoff at gutter downspouts, roof valleys, and other places where large amounts of concentrated water flow off of a roof. The water is conveyed typically through an underground pipe into an excavated pit (the dry well). They help reduce erosion on the property and can reduce ponding and standing water.

Rain Barrels

A rain barrel is a device to collect rainwater from downspouts. Rain barrels can be purchased or can be made at home. They come in all sizes and shapes. Some benefits of rain barrels include: reduction of stormwater runoff, promotion of local watershed awareness, education of neighbors about stormwater issues, lowered water bill by reducing metered water usage, and water reuse for landscaping, washing, etc.

Rain Gardens

A rain garden is a landscaped area planted with wildflowers and other native vegetation that is used to soak up rainwater from the roof, driveway, and lawn. The water slowly seeps into the ground instead of heading for the nearest storm drain. A rain garden allows for significantly more water to soak into the ground than a conventional lawn.

Pervious Pavement

Porous asphalt, porous concrete, and porous pavers are all types of pervious pavements. These are typically used with infiltration beds below the pervious surfaces, which allow for the temporary stormwater storage and infiltration into the ground. These technologies are used for stormwater peak rate control.

Subsurface Infiltration Bed

Temporary storage and infiltration can be attained when including subsurface infiltration beds underneath vegetated surfaces. Subsurface infiltration beds are typically filled with stones (for void space) and wrapped in geotextile fabric. Subsurface infiltration beds work well in large and generally flat spaces that are located downhill from impervious areas.

Vegetated Swale

Vegetated swales, also known as bioswales, are broad channels that are densely planted with vegetation. Designed to attenuate and sometimes infiltrate flow, vegetated swales provide peak rate control and also allow for pollutants to settle out, therefore improving water quality. In sloped areas, check dams are needed to enhance the stormwater management functions of vegetated swales.

Vegetated Filter Strip

Vegetated filter strips, also called buffer strips, are areas in between sources of nonpoint source pollutants and the receiving body of water. They can include native or indigenous vegetation such as grasses, shrubs, and trees. Turf grasses are also used sometimes but their functionality in stormwater management is limited. The primary stormwater function of vegetated filter strips is water quality improvement; however, some volume reduction and ground water recharge can occur depending on site conditions such as soil and slope.

Constructed Filter

A constructed stormwater filter is a structure or excavated area that is filled with material that filters stormwater. These devices can be designed to filter floatables, sediments, metals, hydrocarbons, and other pollutants. There are many variations on the constructed filter, including vegetated and non-vegetated, infiltration, contained, subsurface, and linear perimeter filters.

Infiltration Berm & Retentive Grading

Infiltration berms are linear landscape features that are parallel to existing site contours in areas with moderate slopes. They are earthen embankments that divert, retain, slow down, divert, and promote the infiltration of stormwater. Berms are most effective in areas that receive runoff from small impervious areas. Retentive grading creates small depressions that store and infiltrate stormwater.

Vegetated Roof

Vegetated roofs are roofs that are covered with specialized media and planted with vegetation. This enables the roof to hydrologically perform in a manner similar to vegetated surfaces. The media holds water, which is eventually evapotranspired by the plants. The primary function of the vegetated roof in stormwater management is volume reduction. Additional stormwater benefits include water quality

improvements and some peak rate control. Environmental benefits beyond stormwater control include building temperature moderation and wildlife habitat.

Runoff Capture & Reuse

Runoff capture and reuse refers to the variety of techniques that are used to capture precipitation, store it for a period of time, and reuse the water. Devices used to capture and store stormwater include rain barrels, cisterns, vertical storage mechanisms, and below ground storage systems. These BMPs are most effective for use in controlling small frequent storm events. Stormwater management benefits of runoff capture and reuse devices include volume reduction, water quality improvements, peak rate control, and groundwater recharge.

Constructed Wetland

Constructed wetlands (CWs), also known as stormwater wetlands, are shallow aquatic systems planted with emergent vegetation. They are highly effective at removing pollutants from stormwater. They also mitigate peak flow rates and reduce runoff volume. Beyond stormwater management, CWs provide wildlife habitat and aesthetic value. Detention basins, a basic BMP that temporarily stores stormwater, can be retrofitted into CWs in order to maximize stormwater management function of the space and obtain the added benefits.

Wet Pond/Retention Basin

Wet ponds (WPs), also called retention basins, are stormwater basins that include a permanent pool of water, as well as additional capacity for the temporary storage of stormwater. They are very effective at controlling peak stormwater rates and also provide water quality benefits. Beyond stormwater management, WPs can also provide aesthetic and wildlife benefits.

Dry Extended Detention Basin

Dry extended detention basins (DEDBs) are detention basins which are designed to provide temporary stormwater storage and water quality benefits. The temporary storage of stormwater alleviates downstream flooding. Water quality benefits are achieved through sediment settling out of the stormwater while held in the DEDB. DEDBs are often used in conjunction with other BMPs to maximize stormwater management benefits on site. The DEDB is a design enhancement from the Dry Detention Basin, which has been widely used since the 1970s. The extended detention of stormwater maximizes water quality benefits.

Water Quality Filters & Hydrodynamic Devices

Water quality filters are stormwater inlets that are fitted with devices to filter pollutants from stormwater. Hydrodynamic devices are separate from inlets, but serve the same function of filtering pollutants. Both water quality filters and hydrodynamic devices rely on some form of settling and filtration to remove pollutants from runoff. There are numerous variations available commercially.

Riparian Buffer Restoration

Riparian buffer restoration (RBR) is the restoration of the area surrounding washes, streams, lakes, ponds, and wetlands. The restoration of these areas provides numerous stormwater management benefits, including water quality improvement, volume reduction, groundwater recharge, and peak rate

control. Ecological benefits beyond stormwater management are numerous, including providing wildlife habitat and providing aesthetic value.

Landscape Restoration

Landscape restoration is the term used for the implementation of sustainable landscape practices outside of the riparian buffer and/or other specially protected areas. Landscape restoration can include vegetation restoration, meadow restoration, and the conversion of turf to meadow. Native plants should be used and the use of pesticides and herbicides should be eliminated, if possible.

Soil Amendment and Restoration

The soil amendment and restoration BMP refers to the process of improving disturbed soils. By reducing compaction and adding organic materials, stormwater infiltration and pollutant removal capacity can be greatly increased. In addition to the added stormwater capacity of the soil itself, soil amendment and restoration improves conditions for growing vegetation, which further improves stormwater management.

Floodplain Restoration

Floodplain restoration aims to restore a floodplain to conditions present prior to development. It is a system-based BMP that strives to mimic undisturbed conditions between groundwater, stream base flow, and vegetation. Floodplain restoration provides substantial water quality and quantity stormwater management benefits.

Level Spreader

Level spreaders are a structural BMP that are designed to reduce the erosive energy of stormwater. Examples of level spreaders include earthen berms, level perforated pipes, or concrete curbs. Level spreaders are often used in conjunction with other BMPs such as filter strips. Filter strips function significantly better when stormwater is distributed across the BMP.

Special Detention Areas

The implementation of special detention areas entails using spaces that are not typically utilized for stormwater management, such as parking lots, to temporarily detain stormwater. A flow control structure is typically used to allow runoff to a pond. This BMP is specifically used to control peak rate volume and is more effective when combined with other BMPs that address water quality and volume reduction.

BMPs by Land Use

Nonpoint source water pollutants enter streams and other aquatic environments through precipitation that runs off the land. Pollutants originate from a variety of different land uses such as residential, agricultural, commercial, urban, and highways/roads. Explore BMPs for each land use below.

Residential

Water pollutants that may originate from residential properties include sediment, pathogens, nutrients, toxins such as pesticides, yard waste, and trash. Homeowners can help control stormwater runoff and improve water quality by utilizing best management practices (BMPs) on their property. Common stormwater runoff and infiltration practices for the homeowner can consist of structural, non-structural,

and behavioral changes. Examples of structural BMPs include rain gardens, infiltration trenches, permeable pavements, walkways, patios, and rain barrels/cisterns. Non-structural BMPs for residents include downspout disconnection, riparian stream buffers with native vegetation, and minimizing disturbed areas. Behavioral changes can include scooping animal waste, containing garbage, bagging or composting grass clippings, washing cars on lawns or in car washes, and proper car maintenance.

See the table below for common sources and BMPs to address each pollutant.

Pollutant	Common Source	BMP Examples
Sediment	Home construction / renovation, streambank erosion, eroding ditches, bare spots in lawn.	Proper permitting for home grading and construction, restore stream buffers, cover bare spots in lawn.
Pathogens	Animal waste, leaking septic systems, garbage.	Proper installation and maintenance of sanitary sewer lines, establish stream buffers, scoop the poop, contain garbage to cans.
Nutrients	Animal waste, fertilizers, soap from washing cars, grass clippings, septic systems.	Scoop animal waste, reduce use of fertilizers, wash car on lawn or in car wash, plant native species, create rain gardens, establish stream buffers.
Chemicals	Misapplication of pesticides and herbicides, improper disposal of chemicals, and home car repairs.	Proper car maintenance, proper disposal of hazardous waste, proper disposal of oil and grease.
Trash	Uncontained garbage.	Contain garbage to cans, pick up trash on lawns/streets.

Common residential stormwater pollutants, their source, and how to manage.

Agricultural

Stormwater management on agricultural land focuses on both protecting water quality and reducing runoff volumes and rates. Potential water quality pollutants from agriculture include sediment, nutrients, bacteria, and pesticides. Runoff quantity management aims to protect stream and groundwater quality, stability of streams, cropland, and infrastructure and encourages groundwater recharge.

Stormwater management on agricultural lands can be broken into two major categories: 1) erosion and sediment control, and 2) manure and nutrient management. Specific best management practices (BMPs) to consider under erosion and sediment include but are not limited to: crop field soil erosion and sediment control; streamside pasture management; management of farm lanes, walkways, and forest lanes; maintenance of existing BMPs; and more. Factors to consider that are associated with manure and nutrient management include manure storage, heavy use areas protection, record keeping,

surface and roof water control, well head and groundwater protection, maintenance of existing BMPs, and more.

Riparian buffers are non-structural BMPs that are extremely beneficial tools for stormwater management. Agricultural land is often an ideal setting to preserve or restore riparian buffers. Their many stormwater benefits include:

- Filter pollutants
- Reduce peak rate
- Reduce runoff volume
- Stabilize banks
- Moderate in-stream temperature
- Facilitate groundwater recharge

These land management practices have numerous benefits beyond stormwater management, including but not limited to the following:

- Provide habitat for aquatic and terrestrial wildlife
- Moderate temperature
- Improve aesthetics
- Improve air quality

Construction

The Clean Water Act (CWA) requires best management practices on construction sites, due to the high possibility of pollutant runoff during precipitation events. Sediment is the primary water pollutant in the United States. Therefore, it is the main pollutant being controlled on construction sites. Construction sites are required to obtain an NPDES permit, as well as an agency permit for land disturbance.

Stormwater Pollutant Prevention Plans (SWPPPs) are required on construction sites. These plans detail the BMPs that are to be used to prevent sediment from traveling off the site.

The list below provides a few common best management practices (BMPs) that can be used on construction sites. This is not intended to be a complete list.

1. Silt fence
2. Sediment basin
3. Inlet protection
4. Clean sediment out of storm drains regularly
5. Stabilize sediment by covering soil, vegetation, phased development, mulch, sod, rock riprap, mats, and blankets
6. Sediment traps
7. Concrete washout area
8. Vehicle maintenance
9. Building maintenance – dispose of debris properly
10. Construction exit facilities

Urban, Commercial, and Industrial

Non-point source pollution, localized flooding, and degraded waterways are just some of the stormwater management challenges in urban areas. Impervious surfaces often account for a majority of the land associated with commercial areas due to large parking areas, rooftops, and sidewalks. The densely developed nature of many urban areas can be problematic when looking for ways to retrofit locations to incorporate green stormwater infrastructure. Fortunately, due to the significant need across the nation to effectively manage stormwater in urban areas, an extensive body of literature has been developed on the subject. When developing, redeveloping, or retrofitting an area, the incorporation of structural and non-structural stormwater best management practices can greatly reduce and mitigate the impacts of stormwater.

Highways and Roads

Mitigating the impacts of runoff from highways and roads is a major concern for municipalities. Highways, streets and roads face specific challenges in managing stormwater, including:

- The need to manage stormwater while maintaining safe road conditions
- Limited available space and the need to locate BMPs within the right-of-way, if possible.
- Drainage area imperviousness greater than 50 percent, and sometimes 100% - use of rain gardens and tree wells can help.
- Areas of extensive disturbance and compaction of soils (cuts and fills).
- The potential for spills of hazardous materials.
- Higher concentration of pollutants as compared to many other land uses.

Although there are many challenges associated with stormwater management and transportation infrastructure, there are also many opportunities. Communities across the nation are incorporating innovative stormwater management practices into their design and re-design of transportation networks.

Many municipalities are creating “Green Streets” and “Green Alleys” to manage stormwater runoff while also reaping the additional environmental and social benefits of green infrastructure.

Additional Resources

EPA's National Menu of Best Management Practices (BMPs) for Stormwater - Construction

Uncontrolled stormwater runoff from construction sites can significantly impact rivers, lakes, and estuaries. Sediment in waterbodies from construction sites can reduce the amount of sunlight reaching aquatic plants, clog fish gills, smother aquatic habitat and spawning areas, and impede navigation.

Small Municipal Separate Storm Sewer System (MS4) permits specify minimum elements and require regulated MS4 owners/operators to develop, implement, and enforce a program to reduce pollutants in stormwater to the small MS4 from certain construction activities.

This primarily includes developing:

- An ordinance
- Requirements to implement erosion and sediment control best management practices (BMPs)
- Requirements to control other waste at the construction site
- Procedures for reviewing construction site plans
- Procedures to receive and consider information submitted by the public
- Procedures for inspections and enforcement of stormwater requirements at construction sites

In addition to the stormwater requirements that MS4s place on construction sites, construction operators may also need to apply for NPDES permit coverage, generally if their project disturbs more than 1 acre and discharges to a waterbody.

See the EPA's website for more information.

https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater-construction

On this website the user can download BMP fact sheets for the following topics:

Construction Site Planning and Management

- Construction Sequencing
- Erosion and Sediment Control Inspection and Maintenance
- Preserving Natural or Existing Vegetation

Erosion Control

- Chemical Stabilization
- Compost Blankets
- Dust Control
- Geotextiles, Matting and Netting
- Land Grading
- Mulching
- Riprap
- Permanent Seeding
- Sodding
- Soil Retention

- Soil Roughening
- Temporary Slope Drains
- Temporary Stream Crossings
- Wind Fences and Sand Fences

Runoff Control

- Check Dams
- Grass-Lined Channels
- Land Grading

Sediment Control

- Brush Barrier
- Compost Filter Berms
- Compost Filter Socks
- Construction Track-out Controls
- Fiber Rolls
- Filter Berms
- Sediment Basins and Rock Dams
- Sediment Filters and Sediment Chambers
- Sediment Traps
- Silt Fences
- Storm Drain Inlet Protection
- Straw or Hay Bales
- Treatment Chemicals for Particulate Removal from Construction Stormwater
- Vegetated Buffers

Good Housekeeping/Materials Management

- Concrete Washout
- General Construction Site Waste Management
- Spill Prevention and Control Measures
- Vehicle Maintenance and Washing Areas at Construction Sites

APPENDIX 6 – STORM WATER POLLUTION PREVENTION PLANS

The Stormwater Pollution Prevention Plan, often abbreviated as SWPPP, is a plan created by contractors to show their plans for sediment and erosion control. Typically these plans are part of an overall design that details procedures to be followed during various phases of construction. This is required by a federal regulation of the United States of America governing stormwater runoff from active construction sites that are more than one acre in area. The SWPPP is considered a mitigation guideline for stormwater runoff from construction sites that have the potential to damage waterways while complying with the Clean Water Act's provisions and EPA regulations.

Town of Camp Verde SWPPP Program for Construction Projects

The overwhelming pollutant flowing into our creeks and lakes is sediment. As the Town of Camp Verde grows, construction of roadways, shopping centers, and residential and commercial properties continues. Once land is disturbed, the opportunity for dirt and sediment to enter our storm drain system, washes, and other drainageways increases significantly.

There are two types of controls that need to be considered during construction, one is erosion control and the other is sediment control. Best Management Practices (BMPs) have been identified and should be incorporated into any design where soil is disturbed. The type and placement of these BMPs will be included in the Storm Water Pollution Prevention Plan (SWPPP).

Erosion Control

Erosion control is the process of installing BMPs that will protect the soil surface so that water and wind will not carry the soil from the construction site. Some examples of BMPs that would help control erosion are proper scheduling of the construction sequence, preserving existing vegetation, slope treatments, mulch, hydroseeding, soil binders, geotextiles, plastic covers, erosion control blankets/mats, drainage swales, and storm drainage structure protection.

Sediment Control

Sediment control is the process of installing BMPs that will intercept and slow the flow of storm water. This enables the sediment to settle out and be kept on site. Some examples of BMPs that would help control sediment loss are sediment control berms, silt fences, sediment traps, check dams, sediment wattles and logs, sand bag barriers, storm drain structure protection, stabilized construction entrance/exit provisions, and street/paved area sweeping.

Storm Water Pollution Protection Plan (SWPPP)

A SWPPP is a plan shall be prepared and submitted by an engineer or erosion pollution control specialist and is required for projects one (1) acre or more in size. It is submitted prior to construction and controls must be installed before an area is disturbed. The SWPPP addresses the site to be disturbed and describes in detail the BMPs that will be used to minimize erosion and sediment loss. The plan will identify the specialist of the SWPPP and indicate the maintenance requirements, the frequency of inspection, and the temporary and permanent controls for the site. Successful implementation of the SWPPP will result in minimal erosion, which will keep sediment out of our washes, creeks, and the Verde River.

Additional Resources

ADEQ offers a checklist and template to help contractors ensure the site SWPPP meets permit requirements (found herein starting on the next page). The checklist includes guidance for preparing your initial SWPPP, as well as information to include throughout the duration of your construction project, such as control measures, inspections and corrective actions.

The ADEQ Construction General Permit Checklist and SWPPP template can be downloaded from the following website:

https://www.azdeq.gov/node/2328

Another useful resource is the EPA's 'Developing Your Stormwater Pollution Prevention Plan – A Guide for Construction Sites'. This document can be downloaded from the following website:

https://www.epa.gov/npdes/developing-stormwater-pollution-prevention-plan-swppp

This EPA web page also includes example Construction SWPPPs and informational brochures.

Erosion & Sediment Control Measures For Construction Activities

Camp Verde Stormwater Management Program

The Town of Camp Verde operates a Stormwater Management Program (SWMP) as part of the Arizona Pollutant Discharge Elimination System (AzPDES) General Permit for Discharge from Small Municipal Separate Storm Sewer Systems (MS4), administered by the Arizona Department of Environmental Quality (ADEQ) (A.A.C. R18-9-A9).

The SWMP addresses problems related to nonpoint source pollution from urbanized areas that negatively impact water quality in local washes, creeks, ponds, and the Vede River.

This program encompasses public education and involvement, illicit discharge detection and elimination, construction site stormwater controls, post construction stormwater management for new development, and pollution prevention for municipal operations.

Erosion and Sediment Control Plan

For single family residential construction sites, an erosion and sediment control site plan is required as part of grading and building permits. The site plan should illustrate what measures will be taken to prevent erosion and sediment from leaving the site. All BMPs must be in place and approved by a Town Inspector prior to the commencement of soil disturbing activities.

State Construction Regulations

For construction sites one acre or greater in size, or less than one acre but part of a common plan of development (a contiguous area where multiple lots will be constructed at different times, on different schedules, but under one plan), you must apply for coverage under the AzPDES Construction General Permit (CGP) for Stormwater Discharges.

- Apply for coverage using ADEQ's Smart NOI system online: https://az.gov/app/smartnoi.
- Develop and implement a Stormwater Pollution Prevention Plan (SWPPP).

Construction Site Erosion/Sediment Control Code

Section 7-9-8 of the Town Code requires any soil disturbing activity to implement Best Management Practices (BMPs) to prevent erosion and control sediment from leaving the construction site. BMPs are operational activities or physical controls that reduce the discharge of stormwater and pollutants, including sediment, and minimize potential impacts upon the municipal storm sewer or receiving waters. This code is for compliance with the AzPDES General Permit for Discharge from Small MS4s.

Erosion and Sediment Control Code Violations

- *1st Notice – Verbal Warning*

  Correction action must be promptly initiated and completed within 2 working days.
- *2nd Notice – Written Notice*

  Correction action must be completed within 2 working days or as specified in the Notice.
- *Stop Work Order*

  A Stop Work Order will be issued for the site when the corrective action has not completed within the specified time period.

You can also see the following resources:

ADOT Erosion and Pollution Control Manual, 2020

https://azdot.gov/business/environmental-planning/water-resources/manuals-and-agreements-water-resources

Maricopa County Drainage Design Manual: Erosion Control, 2013

http://www.fcd.maricopa.gov/Pub/manuals/downloads/ErosionControlManual.pdf

For more information contact:
Town of Camp Verde Public Works Department
395 South Main Street, Camp Verde, AZ 86322
928-554-0820 |
https://www.campverde.az.gov/departments/utilities/stormwater-division

APPENDIX 7 – GENERAL PERMIT FOR STORMWATER DISCHARGES FROM SMALL MS4s

The General Permit AZG2021-002 for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) as required by the Arizona Department of Environmental Quality (ADEQ) Arizona Pollutant Discharge Elimination System (AZPDES) is found starting on the next page. The Small MS4 Permit was issued by ADEQ effective on September 30th, 2021, and expires on September 29th, 2026.

APPENDIX 8 – CFR TITLE 40, CHAPTER 1, SUBCHAPTER D, PART 122, SUBPART B

APPENDIX 9 – REFERENCED SECTIONS AAC & ARS

Town of Camp Verde
Utilities Department
Stormwater Division