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ABBREVIATIONS / ACRONYMS

A&Ww	Aquatic and Wildlife warm water - SWQS
A.A.C.	Arizona Administrative Code
ADEQ	Arizona Department of Environmental Quality
ADOT	Arizona Department of Transportation
ATD	Authorization to Discharge
AZPDES	Arizona Pollutant Discharge Elimination System - The State program for issuing, modifying, revoki and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 318, 402, and 405 of CWA.
BMP	Best Management Practice - Permit condition used in place of or in conjunction with effluent limitations to prevent or control the discharge of pollutants. BMPs may include, but are not limited to, treatment requirements, operating procedures, or practices to control plant/facility site runoff, spillage, leaks, sludge or waste disposal, or drainage from raw material storage.
CAP	Central Arizona Project
CCTV	Closed-circuit television is the use of video cameras to transmit images of the inside of storm and sewer mains for survey purposes
CDS	Community Development System
CFR	Code of Federal Regulations - A codification of the final rules published daily in the Federal Regist Title 40 of the CFR contains the environmental regulations.
CGP	Construction General Permit
Composite Sample	Sample composed of two or more discrete samples. The aggregate sample will reflect the average water quality covering the compositing or sample period.
CM	Control Measure
CPM	Capital Project Management
DSD	Development Services Division
EMC	Event Mean Concentration
EPA	U.S. Environmental Protection Agency
ERP	Enforcement Response Plan
FCDMC	Flood Control District of Maricopa County
FSP	Field Screening Point
FY	fiscal year (July 1 – June 30)
GIS	Geographic Information System
Grab Sample	A sample that is taken from a waste stream on a one-time basis without consideration of the flow rate of the waste stream and without consideration of time.
HHW	Household Hazardous Waste
IBW	Indian Bend Wash
IC	Illicit Connection
ID	Illicit Discharge

IDDE	Illicit Discharge Detection and Elimination
LID	Low Impact Development
LIS	Land Information System
MCESD	Maricopa County Environmental Services Department
MG	Middle Gila
MS4	Municipal Separate Storm Sewer System - A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains) owned by a state, city, town or other public body, that is designed or used for collecting or conveying stormwater, which is not a combined sewer, and which is not part of a publicly owned treatment works. Commonly referred to as an "MS4" [40 CFR 122.26(b)(8)].
MSGP	Multi-Sector General Permit - A general permit issued by the state of Arizona specifically to authorize stormwater discharges associated with categories i, ii, iv, through ix and xi, pursuant to 40 CFR 122.26(b)(14) (non-mining industrial activities) in Arizona.
NAICS	North American Industry Classification System - the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy.
NOT	Notice of Termination
NPDES	National Pollutant Discharge Elimination System - The federal program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 318, 402, and 405 of CWA.
OEI	Office of Environmental Initiatives
PBC	Partial Body Contact - SWQS
Permit	AZPDES Permit Number AZS000020-2010
RCRA	Resource Conservation Recovery Act - gives the EPA the authority to control hazardous waste from the “cradle-to-grave”. This includes the generation, transportation, treatment, storage, and disposal of hazardous waste.
SIU	Significant Industrial User
SRP	Salt River Project
STORM	STormwater Outreach for Regional Municipalities
Stormwater	Stormwater runoff, snowmelt runoff, and surface runoff and drainage [40 CFR 122.26(b)(13)].
SWFM	Stormwater and Floodplain Management
SWMP	Stormwater Management Plan - A comprehensive program to manage the quality of stormwater discharged from the MS4.
SWPPP	Stormwater Pollution Prevention Plan - The SWPPP is a plan that details: structural and non-structural pollution control practices, details spill prevention methods, methodology for conducting inspections, and employee training.
SWQS	Surface Water Quality Standard

EXECUTIVE SUMMARY

The City of Scottsdale is submitting this 2020 Annual Report as required by the city's Municipal Separate Storm Sewer System (MS4) Arizona Pollutant Discharge Elimination System (AZPDES) Permit Number AZS000020-2010 (Permit). The Permit was issued by the Arizona Department of Environmental Quality (ADEQ) on March 22, 2011 and became effective on May 1, 2011. The Permit was Administratively Continued by ADEQ in 2016. While the permit term was intended to cover a five-year period, since no new permit was issued, the city will refer to this reporting period as “Year Nine” throughout this report.

This Annual Report describes activities and programs implemented during the reporting period from July 1, 2019 through June 30, 2020. It will be used by the city to assess the performance of its SWMP and to establish and track long-term assessment strategies. It also summarizes the following SWMP activities for the reporting period:

- Activities associated with the MS4 operated by the city
- Activities associated with construction from the commencement until final stabilization initiated and controlled by the city
- Activities associated with industrial and maintenance facilities owned and operated by the city
- Analysis of the annual expenditure on the SWMP during the reporting period
- Budgetary allocation for the reporting period covering July 1, 2019 through June 30, 2020

The Annual Report is divided into 11 sections: (1) General Information, (2) Annual Report Certification, (3) Narrative Summary of Program Activities, (4) Evaluation of the SWMP, (5) SWMP Modifications, (6) Monitoring Location Information, (7) Storm Event Records, (8) Summary of Monitoring Data, (9) Assessment of Monitoring Results, (10) Estimate of Pollutant Loadings, (11) Annual Expenditures.

1. General Information

Permittee Name: City of Scottsdale

Permit Number: AZS000020-2010

Reporting Period: July 1, 2019 - June 30, 2020

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2. ANNUAL REPORT CERTIFICATION

I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Carie Wilson, Water Quality Regulatory Manager

12/10/2020
Date

3. Narrative Summary of Program Activities

This section provides a narrative summary of SWMP activities covering the following programs/areas:

- Public awareness
- Public involvement
- Illicit Discharge Detection and Elimination (IDDE)
- Municipal facilities
- Industrial facilities
- Construction sites
- Post-Construction controls
- MS4 Inspection and Maintenance Program
- Municipal Ordinances
- Fiscal Expenditures
- Status of Maps and Studies
- Numeric Summary of SWMP Activities

In addition to the narrative summary, this section discusses the status of the measurable goals identified in Permit Appendix A, which contains a list of the measurable goals to be achieved and their status.

3.1 3.1 Public Awareness Efforts

As described in the SWMP, on-going awareness and education activities are conducted by the city on a local level through online resources and participation in events held in Scottsdale, and on a regional scale via participation in a regional stormwater outreach/education organization.

3.1.1 Public Sector - Local

In Permit Year Nine, the city distributed educational brochures to targeted residential pool owners to raise awareness of the impacts that backwashing and pool draining can have on stormwater quality. The city's website explains the proper procedure for disposing of pool water. There were a limited number of public events held during the year due to Covid-19 precautions, and at the events that were held, pool thermometers with city branding were used as prizes while engaging participants. Table 3-1 provides a list of the outreach events staff participated in to bring awareness to stormwater runoff and pollution prevention.

Table 3-1 Local Public Outreach Events

DATE	EVENT NAME	EVENT TOPIC	PUBLIC ATTENDANCE
9/21/2019	Grand Ole Fashioned Picnic	Stormwater trivia wheel, pool draining BMPs	250
11/16/2019	Indian School Park 40th Anniversary	General awareness, pool BMPs	300
2/4/2020	All Things Senior Expo	General awareness	450
2/8/2020	Parada Del Sol	General awareness, pool BMPs	2500

To raise awareness for all programs within the Water Resources Division, Scottsdale Water has also focused its outreach efforts with residential utility customers. On the 2020 Consumer Confidence Report, Scottsdale

Water included messaging for proper pool draining and encouraged residents to keep the water on their property for irrigation use or to dispose of it through their sewer cleanout.

3.1.2 Public Sector - Regional

The city is an active participant in STormwater Outreach for Regional Municipalities (STORM), a regional organization for stormwater outreach/education. STORM was founded in 2002, in response to federal regulations requiring certain municipalities to implement measures to educate the public on the protection of stormwater quality. STORM provides public education by advertising on social media platforms, maintaining a website (www.azstorm.org), and participating in public events.

As a member of STORM, the city benefits from the pooled financial resources, ideas, and talents of participating municipalities for communicating the importance of stormwater pollution prevention. Refer to Appendix C for the STORM 2020 Annual Report which includes details on outreach events and promotional items distributed.

3.1.3 Business Sector

In Permit Year Nine, Water Quality Inspectors distributed informative brochures to automotive maintenance and repair facilities during their routine inspections to explain how businesses can minimize the entry of pollutants to the MS4. The brochure encouraged BMPs to minimize the introduction of unwanted substances like oils, copper, and lead into the sanitary sewer collection system.

Scottsdale Water's Pretreatment webpage provides a link to the brochure. Copies of the brochures are included in Appendix B.

3.1.4 Additional Awareness Efforts

In addition to the activities required by the SWMP, the city has a "Protect Your Water" webpage (http://www.scottsdaleaz.gov/water/protect-your-water) that provides guidance on pool draining and backwashing procedures, outreach materials for FOG/POG facilities and BMPs for pressure washing. During the reporting period, the Protect Your Water page received 1,954 unique page views.

The city's Solid Waste Division also provides information for the proper disposal of home-generated medical waste at www.scottsdaleaz.gov/solid-waste/household-hazardous-waste .

These programs are intended to minimize the discharge of pollutants via the MS4 to the Indian Bend Wash (IBW) by controlling pollutants at their source. The websites explain how residents can assist the city in preventing the introduction of pollutants into the stormwater system by using BMPs for each activity described above (see Appendix D).

The Stormwater and Floodplain Management (SWFM) website's purpose is to protect the health and welfare of the city from the impacts of flooding by promoting sound floodplain management and the development and maintenance of a cost-effective and efficient city-wide drainage system. This site can be viewed at www.scottsdaleaz.gov/stormwater. During the reporting period this page received 1,201 unique page views.

3.2 Public Involvement Activities

As required by the SWMP, the city involves the public with the stormwater program through programs like Adopt-A-Road and ScottsdaleEZ, where residents can report a problem any time.

3.2.1 Adopt-A-Road Program

The Adopt-A-Road program is described in the SWMP. Volunteers select a 1- or 2-mile road segment and commit to picking up litter at least three times per year for two years. During the reporting period, 172 volunteer groups collected approximately 19,100 pounds of litter from 110 miles of roadway within the city. Due to COVID-19, fewer events were held in the latter part of the fiscal year, causing a significant variance of typical-year data.

The Adopt-A-Road program is supported financially by the city of Scottsdale operating budget and administered by city staff, with the non-governmental agency (NGO) Keep Scottsdale Beautiful providing supportive functions such as selective steering and targeted marketing. The Keep Scottsdale Beautiful group is a registered 501(c) 3 and a Keep America Beautiful affiliate.

3.2.2 Reporting Illegal Spills and Connections

The city encourages residents to report illegal spills and connections by calling either Water Resources (480-312-8780) during business hours or the Police Department (480-312-5000 for non-emergencies or 911 for emergencies). Residents can also submit reports of illegal spills and illicit connections electronically through the city's ScottsdaleEZ system at http://www.scottsdaleaz.gov/service-request.

In addition to receiving reports from the public, the city also receives reports directly from personnel in all Divisions who may encounter potential illicit discharges (IDs) or illicit connections (ICs) while conducting their regular duties.

During the reporting period, aside from pool discharges, the city received 20 reports of potential IDs and no reports ICs. See Section 3.3.4 for a description of follow-up activities.

3.2.3 Additional Involvement Activities

In addition to the SWMP-required involvement activities, the city also conducted ongoing activities including collection of refuse, recycling, Household Hazardous Waste (HHW), electronics, green waste, and a green building program. These programs all contribute to the goal of reducing or eliminating the potential pollutants impacting city stormwater.

Household Hazardous Waste Collection

The city encourages public participation in stormwater pollution prevention through HHW Collection Days. These events are announced through the city website, utility bill fliers, and truck placards on sanitation vehicles.

The city's HHW collection program is designed to remove pollutants from the waste stream that might otherwise enter storm drains through IDs. The program also reduces the amount of hazardous materials in landfills and the illegal dumping of hazardous waste, while promoting public awareness of proper HHW disposal. Residents bring HHW to the city's North Corporation Yard where it is collected by trained employees of Solid Waste Services, Stericycle, and the Scottsdale Fire Department. Material disposal is conducted in accordance with applicable state and federal regulations and documented using an Environmental Protection Agency (EPA) Uniform Hazardous Waste Manifest form, including the city's Resource Conservation Recovery Act (RCRA) EPA identification number.

One HHW collection event was held on March 7, 2020, with 39.5 tons of hazardous waste collected. The city also continued offering a HHW program that allows residential utility customers to schedule an appointment for acceptable hazardous wastes to be picked up by a contracted vendor. Such pickups were scheduled as single-week events in the months of July, August, September, October, and November 2019, and January, April, and May 2020. A total of 56.98 tons of hazardous waste was picked up from 1,170 residences during these collection events.

Electronics Recycling

The city conducts electronic recycling events to reduce the potential for such wastes to release pollutants into the environment. Four electronic recycling events were scheduled during the reporting period: October 5 and December 7, 2019, and February 8 and May 2, 2020. The May event was cancelled due to Covid-19 precautions. A total of 52.2 tons of electronic materials were collected for disposal.

Green Wastes and Bulk Items from Residential Properties

The city collects green wastes and bulk items to reduce the potential for these wastes to contribute pollutants to the environment. Uncontained green wastes and bulk items are collected monthly for disposal at the Salt River Landfill. The program covers all residential homes in the city; however, residents that are unable to meet scheduled pick-ups can haul their wastes to the Salt River Landfill for disposal.

During the reporting period, the city disposed of 518 tons of green wastes and bulk items at the landfill and residents hauled another 536 tons of material. Brush and bulk waste disposal guidance information is provided on the city's website.

Green Building Program

The city's Green Building Program requires the use of low-impact design and building techniques to minimize environmental impact and encourage energy-efficient and healthy buildings. Project consultation is provided on green building compliance measures. These measures include various stormwater pollution prevention practices including water use reduction through xeriscaping, gray water irrigation, and runoff management strategies including rainwater harvesting. Through this program, the following incentives are offered: technical consultation, construction job site signs, directory of participating architects and builders, green building designation, and educational/promotional material. During the reporting period, on average 31% of new multifamily dwelling units and 10% of new single-family homes were designed and constructed as green designated buildings. Since 1998, 1,445 green single-family homes have been completed resulting in a greenhouse gas reduction equivalent to 1,058 cars being removed from the streets.

The participation level will continue to rise as a result of city amended zoning ordinance for mandatory commercial and multifamily green building compliance and the adoption of the International Green Construction Code, International Energy Conservation Code, International Residential Code and International Plumbing Codes. These adopted codes and amendments contain provisions related to heat island mitigation, transportation, stormwater, landscape irrigation, building materials, energy efficiency, water efficiency and indoor environmental quality.

The city also sponsors a Green Building Lecture Series usually from October through June each year. Lectures are held at the Granite Reef Senior Center and are summarized in Table 3-2 below.

TABLE 3-2 GREEN BUILDING PROGRAM ACTIVITIES

ACTIVITIES	NUMBER OF EVENTS	AVERAGE PARTICIPANTS PER EVENT
Green Building Lecture Series	3	30

3.3 Illicit Discharge Detection and Elimination Activities (IDDE)

As described in the SWMP, Scottsdale Water has the overall responsibility to implement the IDDE program by eliminating IDs, ICs, and improper disposal (dumping) to the MS4.

3.3.1 IDDE Program Activities

Street Operations, Parks and Recreation, Police, Fire, Code Enforcement, Scottsdale Water, Office of Environmental Initiatives (OEI), and Stormwater Management all play a role in implementing the city's IDDE program. Field personnel from these divisions are in positions to discover ICs/IDs while conducting their regular daily duties. When a potential IC/ID is identified, relevant details are sent to Water Quality for further investigation and resolution. Water Quality typically resolves such cases but can also rely on Water's Conservation team or Code Enforcement to take additional action. All activities relating to IC/ID investigations are tracked in ScottsdaleEZ, where follow up and enforcement actions are also noted.

Development Services Division

One way the city prevents cross-connections between the sanitary sewer and storm sewer systems is through the plan review process. Plan reviewers in the DSD review plans to confirm that separation is maintained between sanitary and storm sewer lines. During this process, drainage plans are also reviewed by Stormwater Management to check for proper management of stormwater runoff. The city reviewed 2,816 construction/grading/drainage plans during this reporting period.

Scottsdale Water

Visual inspections of sanitary sewer pipe are another way the city prevents cross connections. Scottsdale Water conducts regular pipeline inspections of the sanitary sewer using CCTV to verify there are no illegal connections between the sanitary and storm sewers. During the year 445 miles of sanitary sewer pipe were inspected and/or cleaned.

Sanitary Sewer Overflows (SSOs) are considered IDs if flow reaches the MS4. Scottsdale Water and their contractors responded to four SSOs during the reporting period, none of which reached the city's MS4. The SSOs were reported to ADEQ and MCESD and addressed internally by Water Resources and their contractors.

The Optimization Group monitors Supervisory Control and Data Acquisition (SCADA) of alarms and controls 24 hours a day, seven days a week. This gives the city "real time" awareness of system failures and allows for faster response time.

Scottsdale Water is also responsible for dry weather inspections at outfalls and Field Screening Points (FSPs). Inspectors check for evidence of ICs/IDs and dry weather flows, typical indications of discharges. Outfall inspections are covered in Section 3.8.3. Water Quality Inspectors conducted 26 major outfall inspections and 46 FSP inspections during the reporting period.

Street Operations

The city's stormwater outfalls to the Indian Bend Wash are maintained through a joint effort between the Parks and Recreation Department and Street Operations Division. While conducting routine activities, if illicit connections or discharges are observed the issue is referred to Water Quality staff for further investigation. Routine maintenance and repairs are made or scheduled as the need is discovered.

Street Operations also conducts regular street sweeping and visual inspection of stormwater assets. See Section 3.8.3 for more information.

Stormwater Management

Stormwater Management is responsible for inspecting open channels north of the CAP canal and responding to flooding, drainage and watercourse obstruction complaints throughout the city. During the reporting period, the Drainage Inspector inspected 30.66 miles of open channel and responded to 277 complaints, 99% of which were resolved within seven business days.

3.3.2 Training

As required by the SWMP, the city provides IDDE training for Inspectors and appropriate field staff on detecting, investigating, and identifying IDs, de minimis discharges, and other non-stormwater discharges. This training is identified as training Module #1. On May 13, 2019, seven WQ staff members received the training. A roster is provided in Appendix E.

The city also developed stormwater pollution awareness training (referred to as General Awareness Training – Module #2) to educate municipal staff with no direct stormwater responsibilities on how to identify and eliminate IDs and to report non-stormwater discharges. During this reporting period, 45 employees completed the training. A roster of the employees who completed this module is provided in Appendix E.

3.3.3 Spill Prevention

A collaboration between Scottsdale Water and the OEI aids in identifying city-owned facilities with hazardous materials and those requiring spill prevention and response procedures. There are currently 12 municipal facilities that store hazardous materials, which has not increased during this reporting period. These facilities have fuel stations and/or emergency diesel power generators. During the previous assessment of identified facilities, eight required Spill Prevention Control and Countermeasures Plans. It was determined that the remaining four facilities do not have a reasonable probability for discharges to reach navigable waters.

The North and South Corporation Yards are not facilities regulated by the Multi-Sector General Permit (MSGP). However, the city initially developed Stormwater Pollution Prevention Plans (SWPPPs) for both facilities in February 2011 and updated the plans in July 2015 to provide guidance to staff on stormwater Best Management Practices (BMPs) and general awareness.

During Permit Year Nine, there were three reports of a spill at municipal facilities. The Office of Environmental Initiatives maintains documentation of any incidents and the response activities.

The city conducts initial assessments of new municipal facilities before beginning operations to evaluate them for stormwater exposure and compliance. During the reporting period there were no new municipal facilities identified with potential to be exposed to stormwater, so no new facility assessments were conducted.

3.3.4 Investigations

IDDE activities are carried out by Scottsdale Water staff as they conduct routine inspections at industrial facilities and respond to reports of IDs, ICs and illegal dumping.

As discussed in Section 3.2.2, during Permit Year Nine, Scottsdale Water received reports of potential IDs from city employees, residents and the public. Reports of discharged pool or spa water are documented in the Scottsdale EZ system and coded separately from other IDs. Aside from pool-related reports, Scottsdale Water investigated 17 reports of illicit discharges and did not receive any illicit connection reports during the reporting period. A description of all illicit discharge reports is provided in Appendix K: Summary of Enforcement Actions.

3.4 Municipal Facility Activities

3.4.1 Training

As required by the SWMP, the city developed Training Module #3 to address Material Handling related to stormwater management practices and SPCC planning for municipal facilities. This training is given in two parts, which are both administered as a computer-based training through Scottsdale University. Part One of Module #3 included proper handling, storage, transportation, and disposal of used oil and other hazardous materials and wastes to prevent spills, exposure to rainfall, and contamination of stormwater runoff. Part Two (SPCC) included specific procedures and spill management practices to prevent or minimize spills or discharges to the storm sewer system. Part One of Module #3 training was completed by 30 employees; Part Two was completed by 24 employees. Both training rosters are included in Appendix E.

Additionally, the city developed Module #4, Water and Wastewater Maintenance, which addresses stormwater management practices and pollution prevention considerations for maintenance staff. The training included water and sanitary sewer system maintenance and repair practices to minimize discharges. The training presentation was uploaded to Scottsdale University and was completed by 17 employees during the reporting period. A roster of the employees who completed this module is included in Appendix E.

3.4.2 Inventory

As stated in the SWMP, an inventory of municipal facilities was completed before April 30, 2013. The stormwater coordinator, with help from the Facilities Department, regularly updates the list of facilities for inclusion in the stormwater inspection program. The total number facilities to be included in the inspection program is 109, of which five are identified as high priority. Scottsdale’s current inventory is provided in Appendix F.

3.4.3 Inspections

City personnel conducted stormwater inspections at 29 city-owned facilities, five of which are considered high-priority:

- CAP Water Treatment Plant
- North Corp Yard
- South Corp Yard
- Westworld
- Transfer Station

3.4.4 Findings and Enforcement

Of the 29 municipal facilities inspected, eight had minor non-compliances, most of which were resolved after a verbal request while the Inspector was still present. Issues of concern included missing/open dumpster lids, lack of available spill kit, lack of labels on empty totes stored outdoors, and outdoor storage of materials that were not under cover. All deficiencies discovered during these inspections were documented in the Linko database to help track compliance history. None of the sites inspected showed evidence of a release. Inspectors ensured that corrections were made before closing out the file and scheduling a future inspection.

3.4.5 Identification of MSGP Facilities

The city has one facility subject to the MSGP: the Scottsdale Airport (AZMSG-6128). Inspections and reporting for this facility are managed by the Airport Operations Manager with support from the Stormwater Quality Coordinator, as needed. The Airport Operations Manager conducts inspections at the Scottsdale Airport, as a condition of the MSGP. The Scottsdale Water Campus and Gainey Ranch Water Reclamation Plant have both received No Exposure Certification from ADEQ (AZRNED-808 and AZRNED-810, respectively). Regardless of the no-exposure status, the Water Resources Division regularly conducts facility inspections at both facilities.

3.4.6 Status of Inventories, Maps and Studies

Municipal Facility Inventory

As indicated in Section 3.4.2, the municipal facility inventory was initially completed in April 2013, and is verified annually. A copy of the current inventory is included in Appendix F.

Map of MS4 Components

Scottsdale Water has met the permit requirement to map linear drainage structures, storm drain inlets and catch basins, outfalls, detention/retention basins, jurisdictional permit boundary, locations of discharges to waters of the United States, and land uses.

A joint effort between the city's GIS team, Stormwater Management, Street Operations and Scottsdale Water to update stormwater assets on the map is ongoing. GIS technicians regularly add new assets as they are installed because of new development, and locational information or asset type corrections are made when discrepancies are discovered in the field.

3.5 Private Industrial Facility Activities

Water Quality staff inspect private industrial facilities to try to control pollutants at their source. Staff are also trained to cover stormwater topics during routine inspections at restaurants, automotive shops, and permitted facilities as part of the pretreatment program. Inspections are further discussed in section 3.5.3.

3.5.1 Training

As required by the SWMP, the city developed stormwater training that covers BMPs and CMs for facilities that are subject to inspection. Module #6 – Industrial and Commercial Facility Inspections included requirements for stormwater discharges associated with industrial and commercial activity. On May 13, 2019, seven WQ Inspectors completed the Module #6 training. A sign in sheet is provided in Appendix E.

3.5.2 Inventory

The Private Industrial Facility Inventory was most recently updated in July 2019 and includes a wide range of industrial types to identify facilities with a potential to contribute "a substantial pollutant loading to the municipal storm sewer system" [40 CFR 122.26(d)(2)(iv)(C)]. In an effort to address the detection of copper in stormwater wet weather samples, the city chose to add to the list of industrial facilities identified in 40 CFR 122.26(d)(2)(ic)(C) to include these categories (groups developed based on similar NAICS codes and/or activities):

- Automotive Dealerships (med-auto)
- General Automotive Repair (med-auto)
- Metal Manufacturing (med-mfg)

Facilities with no outdoor activities, no outdoor material storage, and no other potential for pollutants to be exposed to stormwater were considered to have no significant risk to stormwater quality. Some facilities on the inventory were outside of city limits, out of business, or did not conduct industrial operations. These facilities were not inspected.

Water Quality Inspectors also conducted routine pretreatment inspections at restaurants, automotive facilities, car washes and dry cleaners. The Department utilizes a database to maintain inspection records and to track compliance history.

3.5.3 Inspections

During the reporting period 97 inspections at private industrial and commercial sites were conducted. This is in addition to the city-owned facilities that were inspected.

Grease traps and interceptors at food service establishments are inspected regularly to verify they are functioning as designed and are being maintained as required by city ordinance. Kitchen practices are also observed and BMPs are promoted to help avoid the introduction of unwanted substances into the sanitary sewer collection system. During the reporting period, approximately 2,266 restaurant inspections were conducted by Water Quality Inspectors.

Interceptor inspections were also conducted on businesses that provide automotive-related services, such as automotive service repair shops, car dealerships, and car washes. During inspections, oil/sand separators are inspected to verify they are functioning properly and being cleaned on schedule as a part of the Petroleum, Oils and Grease (POG) program. Automotive BMPs are encouraged to help avoid the introduction of unwanted substances into the sanitary sewer collection system. During the reporting period, 214 POG inspections were conducted.

Water Quality Inspectors conduct pretreatment inspections at Significant Industrial User (SIU) facilities on a regular basis. Inspections are focused on verification of compliance with pretreatment permits and results are reported in the Pretreatment Annual Report. During the reporting period, inspections were conducted at five permitted facilities. Furthermore, the city conducts industrial waste surveys (IWS) at new businesses to identify the nature and quantity of pollutants entering the POTW from industrial sources.

3.5.4 Findings and Enforcement

Inspectors document their findings on paper forms while on site, and then transfer that information to the Linko database to track compliance history and to schedule follow-up activities. The city focuses on educating facility operators and limiting enforcement actions to verbal notifications, unless there is a condition immediately dangerous to human health or the environment, or if owners failed to make progress in gaining compliance during subsequent re-inspections. Any follow-up non-compliance action is escalated through the procedures identified in the Enforcement Response Plan (ERP) (see Section 3.9.2).

The 2019-2020 inspection effort resulted in five facilities with minor non-compliances that were resolved while the inspector was present or shortly following the inspection. Non-compliances observed during inspections included open or missing/damaged dumpster lids, lack of cover for outdoor storage of tires and lack of available spill kits. Typically, business owners/managers were given 7-14 days to make corrections, which were verified as complete either through email exchange of photographs or a follow-up visit conducted by the WQ Inspector. In either case, the respective file was updated with the corresponding documentation.

3.6 Construction Program Activities

The city provides stormwater pollution prevention oversight of construction activities. These tasks are managed differently for private and municipal construction. Privately-owned construction projects are handled by Inspection Services within DSD; whereas municipal projects are overseen by CPM within Public Works. Although handled by separate departments, both private and municipal construction projects undergo plan review and receive regular construction and post-construction inspections. Practices and procedures for both private and municipal construction projects are documented in the SWMP.

3.6.1 Training

The city provides biennial training covering grading and drainage design standards, plan review procedures, municipal ordinances related to stormwater and construction, requirements for structural and non-structural control measures on construction sites, and post-construction stormwater controls (Module #7). This training was conducted in-house by a power point presentation created by the Stormwater Management group and is scheduled again for the end of 2020. Six employees reviewed the presentation. A roster of attendees for this training is provided in Appendix E.

Additionally, the city developed stormwater training, Module #8 – Construction Site Inspections, for inspection staff with stormwater responsibilities. This included municipal ordinances related to stormwater and construction, requirements for structural and non-structural control measures on construction sites, construction control measure maintenance requirements, inspection procedures, and enforcement procedures. During the reporting period, nine employees completed the training module. A roster of attendees is provided in Appendix E.

3.6.2 Inventory

As described in the SWMP, the city maintains an inventory of private and municipal construction projects. Inventories are updated continuously throughout the year as projects are initiated and closed out.

Private Construction

The city's Development Services Division (DSD) requires a copy of ADEQ's Authorization to Discharge (ATD) for those projects that require coverage under the Construction General Permit (CGP) before issuing an encroachment or building permit. A project is finalized in Community Development System (CDS) when construction is finished, all the required inspections are passed, and the permit closeout process is complete. During the reporting period, the city finalized 99 projects.

Municipal Construction

Municipal construction projects under the supervision of Capital Project Management (CPM) are tracked separately from private construction projects. As the project is in an active construction state, project details including approvals, plans, special provisions, contracts, daily inspection reports, NOIs, ATDs and Notices of Termination (NOTs) are filed electronically using the city's Document Management System (eDOCS) and in hard copy by the responsible project manager.

During the reporting period, CPM managed four municipal construction projects.

3.6.3 Inspections

The construction site inspection program is described in the SWMP and consists of establishing inspection priorities and procedures, recordkeeping, training, enforcement, and reporting of AZPDES Non-filers.

Private Construction

As reported in the SWMP, the CDS contains codes to describe the results of stormwater inspections by Field Engineering Inspectors. Table 3-3 presents the categories of inspections completed by Field Engineering Inspectors. Table 3-4 shows the codes used to document observations regarding stormwater components.

Used together, codes from Tables 3-3 and 3-4 describe both the type of inspection completed and the stormwater observation. For example, Field Engineering Inspectors use the code D54, to describe a drainage inspection during which the Inspector discussed track out with on-site personnel.

TABLE 3-3 CDS INSPECTION CATEGORIES

CODE	INSPECTION CATEGORY
W	Water (Potable)
S	Sewer
P	Paving
C	Concrete
D	Drainage
G	Grading
L	Landscape
U	Utility
M	Miscellaneous
X	Pending/Scheduled Inspection

TABLE 3-4 CDS STORMWATER CODES

CODE	STORMWATER COMPONENT
50	SWPP – Complete Plan
51	SWPP – Complete Plan Needed
52	SWPP – BMP Damage
53	SWPP – BMP Repaired
54	SWPP – Discuss Stormwater Facilities and Track Out
55	SWPP – Rain check
56	SWPP – Job Check OK every three months
57	SWPP – One Year Post Construction
58	SWPP – Track Out Checked: Okay
59	SWPP – Track Out Dirty Notified Developer/Contractor

Stormwater components are reviewed each time an Inspector visits a construction site. During the reporting period, stormwater codes were used 540 times while conducting 344 drainage inspections. Codes were used a total of 1,011 times during 414 active construction site inspections.

A construction project is considered inactive if the site does not have any activity and the building permit is not closed out. This typically occurs due to financial insufficiency and is becoming less common during the economic recovery. During the reporting period there were two inactive construction sites that were inspected, and no issues were discovered.

Municipal Construction

CPM Project Managers are responsible for the oversight of municipal construction projects. Public Works Inspectors conduct daily construction site inspections during regular working hours to verify the contractor is implementing the SWPPP. A SWPPP inspection for all projects with an ATD covered under the CGP are inspected for field and documentation compliance on a quarterly basis. During construction, the Project Manager attends weekly field meetings with the contractor to resolve any construction-related issues (including stormwater issues). This year, four construction sites were inspected according to this schedule.

3.6.4 Findings and Enforcement

Private Construction

Field Engineering Inspectors initiated enforcement action at 17 construction sites. All 17 verbal warnings were addressed by the responsible party without the need for escalated enforcement action.

Municipal Construction

During the reporting period, quarterly inspections of the four municipal projects resulted in zero sites receiving stormwater-related enforcement actions. Verbal reminders were given to on-site staff to modify the SWPPP book to reflect modifications made to structural controls. In one instance, a verbal reminder to field staff was given to maintain structural controls and to implement additional controls, ensuring all is updated in the SWPPP book. Follow-up was needed at two of the sites.

3.7 Post-Construction Controls

3.7.1 Summary of New Post-Construction Controls for Municipal Projects

Private Construction

No new requirements were implemented during the reporting period.

Municipal Construction

No new requirements were implemented during the reporting period.

3.7.2 Overview of Post-Construction Inspection Program

Private Construction

Approximately 10 months following the end of the active construction process, Inspection Services staff conduct a warranty inspection to certify the work performed by the contractor, especially regarding drainage, meets standards set by the city. Once a site passes the warranty inspection and any discrepancies are resolved, the city building permit can be closed. During the reporting period, Inspections Services conducted 38 warranty inspections. No drainage issues were observed during these inspections.

Municipal Construction

Within 12 months of filing the NOT, CPM conducts an inspection of the post-construction control measures to certify that such controls are working as intended and have achieved final stabilization. If corrective action is necessary, CPM coordinates with the operator, either the contractor or responsible city division, to provide corrective action. Inspections and corrective actions are then documented and recorded by CPM. During the reporting period, one site was subject to a post-construction inspection, at which no follow up action was required.

3.7.3 Corrective and Enforcement Actions

Private Construction

None of the 38 post-construction inspections conducted required follow-up action; all were in compliance and the inspection reports were closed.

Municipal Construction

No enforcement action was taken on the one site that received a post-construction inspection.

3.7.4 New or Revised Post-Construction Requirements Related to City Permits

No new post-construction requirements related to city permits were implemented during the year.

3.8 MS4 Inspection and Maintenance Program

3.8.1 Staff Training

See Sections 3.3.2 and 3.4.1 for training regarding dry weather screening, outfall inspection, and MS4 maintenance.

3.8.2 Inventory

MS4 Components

As described in the SWMP, Street Operations maintains a NPDES database that includes the inventory of MS4 components for inspection and maintenance. Stormwater components in the database include headwalls, basins, inlets, culverts, open drainageways, outfalls, storm drains, and curbs and gutters.

Since October 2008, Street Operations Inspectors have been populating the database with the details of each structure as they conduct inspections and maintenance. The inventory is linked with a web-based work order system allowing Street Operations employees to verify existing data, add additional point locations, or 'archive' retired facilities in the field.

Table 3-5 NPDES Database Verification Rate

ANNUAL REPORT YEAR	% VERIFIED SOUTH OF CAP	% VERIFIED CITY-WIDE
2011	98	71
2012	100	98
2013	100	98
2014	100	100
2015	100	100(1)

(1) Verification is an ongoing process and new/existing assets are added to the NPDES database when discovered

The values in Table 3-5 do not include bridges, handrails, or guard rails, which are also tracked on the NPDES database but are not considered part of the MS4.

Outfalls and Field Screening Points

The inventory and a map of the city's major outfalls are provided in the SWMP. All 26 major outfalls are in the IBW and most fall within IBW Parks. Because of the location of the outfalls, Street Operations, Parks and Recreation, Stormwater Management, and Scottsdale Water personnel visited each of the outfalls throughout the year for different purposes.

In addition to the major outfalls, the city identified 50 Field Screening Points (FSPs) which are also documented in the SWMP. FSPs are in areas both north and south of the Central Arizona Project (CAP) canal and were initially identified as low priority in October 2011. There have been no changes to the inventory of FSPs since the list was developed. The inventory of outfalls and FSPs is included in Appendix H.

3.8.3 Inspections

MS4 Components

The Street Operations Division is responsible for performing maintenance and visual inspections on MS4 components, which consists of approximately 90.5 miles of improved channels, 169 miles of storm drain pipe, 800 miles of roadway used for stormwater conveyance, and 6,688 drainage features (catch basins, inlets, headwalls, etc.) that are either owned by the city or located within the city's right-of-way.

Open channels, inlets, outlets, natural washes, and drainage conduits are visually inspected while conducting maintenance activities. During the reporting period, Street Operations employees spent approximately 277 man-hours assessing the MS4 for maintenance needs.

Street Operations prioritizes drainage system maintenance and inspections activities based on their geographic location, elevation and construction, as well as historical considerations. Wet crossings (where stormwater is designed to run across low points in roadways) at major streets are a priority for post-storm event maintenance and street sweeping. The Street Operations Division prioritized 17 wet crossings in the city. Additionally, Street Operations prioritized the drainage system based on 1) regulatory status, 2) storm event related, and 3) routine. 'Regulatory' prioritization includes assets such as outfalls and FSPs that are regulated by the MS4 permit or other regulatory programs. 'Storm event' prioritization is based on historical impacts associated with storm events and citizen complaints of flooding. 'Routine' prioritization includes all other assets not elsewhere classified.

The Street Operations Division and Stormwater Working Group, together, determined that the procedures now established in operational policy provide the greatest possible protection of stormwater quality. During the reporting period, the asset-based prioritization allowed for all city-owned and maintained channels to be visually inspected and all 17 identified wet crossings were inspected following each major storm event.

Street Operations activities also include street and bike path sweeping as well as MS4 cleaning and maintenance. Sweeping is performed according to the frequencies in Table 3-6. Sediment removed during maintenance activities is hauled to the Salt River Landfill for disposal.

TABLE 3-6 MS4 SWEEPING SCHEDULE

ACTIVITY PERFORMED	TOTAL CURB-MILES SERVICED
Street Sweeping	Residential, Commercial, & Industrial – once/month
	Major Streets – twice/month
	Medians – once/month
	Downtown streets – twice/week

ACTIVITY PERFORMED	TOTAL CURB-MILES SERVICED
Bike Path Sweeping	Monthly
Post-Storm Street Sweeping	As needed
Post-Storm Bike Path Sweeping	As needed
Lot Sweeping	City Parks/Rec Areas – 8 times/year and after major public events
	Downtown parking lots and structures – once/2 weeks

The number of miles serviced, and hours spent conducting street and bike path sweeping is presented in Table 3-7. A curb mile is defined as the distance an operation was conducted down one side of a street.

TABLE 3-7 STREET AND BIKE PATH SWEEPING

ACTIVITY PERFORMED	TOTAL CURB-MILES SERVICED	TOTAL HOURS SPENT
Street Sweeping	23,821	5,037
Bike Path Sweeping	1,259	805
Bike Path Visual Inspections	N/A	689.5
Post-Storm Street Sweeping	N/A	284
Post-Storm Bike Path Sweeping	N/A	87.5
Lot Sweeping	2,508,834 yd^2	85.3

Outfalls and Field Screening Points

The Permit requires the city to inspect all priority outfalls and FSPs annually and 20% of all remaining (i.e., non-priority) structures annually. As described in the SWMP, outfalls to the IBW are considered high priority and Water Quality Inspectors conducted inspections at all 26 major outfalls this year. Currently there are no high-priority FSPs. During the 2019/2020 reporting period 46 FSPs were inspected.

Street Operations employees also inspect outfalls for needed maintenance. Parks and Recreation employees conduct maintenance throughout the IBW Parks on an on-going basis and are in the best position to observe potential stormwater issues at outfalls. Employees from both departments are trained on the appropriate procedures to initiate an investigation if they observe potential stormwater violations during their regular duties.

3.8.4 Inspection Tracking System

MS4 Components

Street Operations has established a grid system covering the entire city and all MS4 components are inspected grid-by-grid. During an inspection, if the Inspector determines that follow-up actions or additional inspections are needed, those needs are indicated on a work form and the MS4 component is scheduled for follow-up activities. Some repairs can be done at the time of the inspection depending on the level of complexity of the repair or maintenance. During the reporting period, Street Operations inspected 1,023 drainage components.

Outfalls and Field Screening Points

WQ Inspectors documented inspections while in the field using the MS4 Dry Weather Inspection Form and transfer their findings to a shared database to track compliance history. Before the Linko database was utilized for these types of inspections in July 2017, Water Quality Inspectors used Street Operations' NPDES database for compliance tracking. The change was made to increase efficiency in the field and to track maintenance and compliance history of each asset.

3.8.5 Findings and Enforcement

MS4 Components

During the reporting period, inspections by Street Operations resulted in maintenance work orders for 19 MS4 components, most of which involved vactoring.

Outfalls and Field Screening Points

FSP inspections by Water Quality Inspectors identified dry weather discharges or follow-up activities needed at 11 of the 46 FSPs inspected. All deficiencies were referred to the appropriate division for maintenance. The issues recorded during these inspections were:

- 01UR, 03MR, 11UR – Removed trash/debris
- 07MR, 12MR, 15MR, 19MR – Excessive vegetation
- 07LR – Pooled water, determined to be irrigation
- 06MR – pooled water; investigation needed
- 13MR – Removed sediment
- 12UR – Graffiti observed

Dry weather inspections were performed at all 26 major outfalls during the reporting period, with three of those sites requiring follow up maintenance activities. All deficiencies were referred to the appropriate division for maintenance. Re-inspections were conducted to ensure maintenance was completed. Issues noted during these routine inspections were:

- #3600 – Trickle of water observed
- #3548 – Trash needs to be removed
- #4318 – Excessive vegetation

Where trash was observed, Parks and Recreation was asked to clean up the outfall. The water observed at outfall #3600 was determined to be caused by overwatering of turf; no follow-up action was required.

3.9 Revisions to Ordinances, Rules, and Policies

3.9.1 Stormwater Ordinance

On July 6, 2016, the City Council passed the city's revised Stormwater and Floodplain Management Ordinance, Chapter 37 of Scottsdale Revised Code. The final ordinance, which went into effect August 5, 2016, is included in Appendix J.

3.9.2 Enforcement Response Plan

An Enforcement Response Plan (ERP) incorporating and referencing the legal authority of the updated ordinance (see Section 3.9.1) was finalized and adopted September 30, 2013 and is provided in Appendix J.

3.10 Fiscal Expenditures

Fiscal expenditures during the reporting term are discussed in Section 11.

3.11 Status of Maps Required by the Permit

Several measurable goals identified in Permit Appendix A include a mapping requirement with a timeframe for completion. Measurable goals and the corresponding mapping requirements are provided in Table 3-8. See Appendix A, Status of Measurable Goals, for additional detail regarding the city's progress on addressing measurable goals.

Table 3-8 Status of Permit-Required Maps

PERMIT REFERENCE	REQUIREMENTS	STATUS
Appx. A. III (C)	Maintain an inventory or map of all major outfalls and field screening points, identified by Scottsdale as priority for illicit discharges.	Complete - See Appendix G.
Appx. A. IV (B)	Develop and maintain an inventory, list, database, or map of facilities owned and operated by Scottsdale (excluding office or administrative buildings) that have a potential to discharge pollutants to the waters of the U.S. This item is due within two years of permit issuance.	Inventory completed in 2013, updated as needed.
Appx. A. IV (C) (1)	Define areas of the MS4 drainage system that are a priority for inspection, based on system history, and other factors identified in the SWMP.	Completed in 2012.
Appx. A. IV (E)	Complete identification of all surveyed MS4 components and add new assets as they are constructed by the fourth-year annual report. Components include linear drainage structures, storm drain inlets and catch basins, outfalls, detention/retention basins, jurisdictional permit boundary, locations of discharges to waters of the United States, and land uses. ADEQ prefers the ESRI shapefiles, projected in meters to UTM zone 12 with a NAD83 datum. GIS layers should show where stormwater runoff is routed during a storm event.	Completed and updated as needed. See section 3.4.6.
Appx. A. IV (E)	Complete a study that evaluates the cost, method, and time it will take to complete the following: Linear Drainage Structures, Detention/ Retention Basins	Completed; assets are added as needed.
Appx. A. VI (B)	Develop an inventory, list, database, or map of construction activities that result in land disturbance of one or more acres and that have the potential to discharge to the city's storm sewer system. Complete a comprehensive inventory within one year.	Complete – CDS database.

3.12 Numeric Summary of SWMP Activities

The Numeric Summary of SWMP Activities performed by the city during the reporting period is provided in Appendix G. Progress on activities without numeric goals is described in Section 3: Narrative Summary of SWMP Activities as well as Appendix A: Status of Measurable Goals.

4.0 Evaluation of the SWMP

This section includes an evaluation of the effectiveness of BMPs described in the SWMP and monitoring program in limiting the discharge of pollutants as per Permit requirements, including:

- Summary of the number and nature of enforcement actions
- Summary of the number and nature of inspections
- Summary of the number and nature of public outreach/education programs
- Assessment of water quality improvements or degradations
- Assessment of programmatic changes

4.1 Summary of Enforcement Actions

Scottsdale Water maintains the specific records and enforcement actions related to IDDE investigations, private and municipal industrial inspections, and major outfall and field screening point inspections. DSD, CPM and Street Operations maintain their own records of inspections and enforcement actions and report them annually to Scottsdale Water for inclusion in this report.

From the list of 29 municipal facilities inspected, eight had minor non-compliances, most of which were resolved quickly after a verbal request from the inspector was made. Seven of these sites had broken or missing dumpster lids that required attention. Other instances of non-compliance included lack of available (and labeled) spill kit, labels missing from empty totes that were awaiting pickup, and the storage of used/unwanted materials without appropriate cover. Poor general housekeeping was observed in two locations. After discussing these issues with site representatives and explaining the need for better management of outdoor storage, these issues were rectified and noted by the inspector. Deficiencies at all sites were documented on the inspection form and stored in the Linko database. None of the sites inspected showed evidence of a release. For deficiencies requiring additional time to rectify, inspectors verified the corrections were completed during a follow-up visit.

Upon observing stormwater non-compliances during routine industrial/commercial facility inspections, Inspectors took time to educate site representatives to promote the use of control measures to reduce the risk for pollutants to enter the environment during a rain event. Inspectors conducted 97 private industrial/commercial inspections (not including the municipally-owned facilities) and found deficiencies at five sites. The most common issue observed was poor housekeeping in the designated solid waste area, including the improper storage of used tires. There were two instances of wash down activities occurring without the appropriate control measures in place. In all instances, corrections were either made on site while the inspector was still present, or within seven days of issuing a verbal warning. All inspection results were stored in the Linko database and annual recurring inspections were scheduled as needed.

DSD initiated enforcement action at 17 private active construction sites during the reporting period. All of these were addressed by the responsible party after a verbal warning to correct deficiencies was made.

CPM did not initiate any stormwater-related enforcement actions during active site inspections of municipal projects. However, verbal reminders were given to modify the SWPPP book to reflect modifications made to structural controls and to maintain structural controls. Verbal discussion of housekeeping practices and trackout requirements were also noted this year.

DSD did not take enforcement action during any of its private post-construction warranty inspections.

CPM did not need to initiate any enforcement actions at the one post-construction site that was inspected.

WQ Inspectors did not escalade enforcement actions as a result of illicit discharge investigations. Compliance with city ordinances was achieved in all cases following a verbal or written warning.

TABLE 4-1 ENFORCEMENT ACTIONS

INSPECTION AREA	ENFORCEMENT ACTIONS FY18/19	ENFORCEMENT ACTIONS FY19/20	PERCENT CHANGE
IDDE Investigations	0	0	No change
Private Industrial Facility Inspections	9	5	44% Decrease
Municipal Industrial Facility Inspections	9	8	11% Decrease
Construction Sites (includes active private, active municipal, and inactive private sites)	23	19	17% Decrease
Post-Construction Sites (includes private and municipal sites)	0	0	No change

The number of enforcement actions taken across most inspection types decreased during the reporting period, reasonably due to the decrease in overall inspections. No escalating enforcement actions related to IDDE investigations were taken, which is consistent with the previous permit year. The city's IDDE effort mostly consisted of pool discharges, which were corrected after inspectors provided education to the resident. Enforcement actions taken at private industrial facilities decreased, likely due to repeated inspections conducted over the last several years at automotive repair businesses. The fluctuation in construction-related enforcement actions appears to vary from year-to-year, so the change shown on the table (17% decrease) is considered normal.

Table 4-2 presents a summary of all stormwater-related inspections conducted during the reporting period.

TABLE 4-2 INSPECTIONS

INSPECTION AREA	INSPECTION FY18/19	INSPECTION FY19/20	PERCENT CHANGE
Outfall & FSP Monitoring	56	72	29% Increase
Drainage Facility Inspections by Street Operations	467	1,023	119% Increase
Private Industrial Facility Inspections	103	97	6% Decrease

Municipal Industrial Facility Inspections	32	29	9% Decrease
Construction Sites (includes active private, active municipal, and inactive private sites)	376	432	15% Increase
Post-Construction Sites (includes private and municipal sites)	52	39	25% Decrease

The number of Outfall and FSP inspections conducted by inspectors increased and is more in line with typical year data. Overall, the inspection effort was greater than the previous year as staff had more time to allocate to the program after a minor reorganization of duties. Similarly, staff in Street Operations were able to allocate more time to their routine inspection effort this year than the previous year, resulting in a much higher number of drainage facilities inspected. Construction site inspections at both private and city-owned projects decreased as compared to the last reporting period, which is attributed to fewer projects and is considered a normal year-to-year fluctuation.

4.2 Public Outreach/Education Programs

The city tracked the following number of public outreach/education programs during this reporting period:

- The SWFM webpage was viewed 1,201 times. The webpage dedicated to proper swimming pool draining procedures and other related BMPs was viewed 1,954 times.
- Scottsdale Water staff participated in four public outreach activities to provide stormwater quality-related information to the public.
- 172 volunteer groups removed approximately 19,100 pounds of litter from 110 miles of city roadways.
- Collected 96.5 tons of HHW, which is slightly more than the previous reporting period, even with two fewer collection events held due to Covid-19 precautions.

4.3 Summary of Water Quality Improvements or Degradations

The following Surface Water Quality Standards (SWQSs) were exceeded during the reporting period:

- During the Summer 2019 wet season all five monitoring stations exceeded the SWQS of 575 MPN for E. coli; and four of the five stations exceeded during the winter season. This data is similar to results observed in previous reporting periods.
- All five stations exceeded the SWQS for copper during both wet seasons in this reporting period.
- The SWQS for zinc was exceeded at all five stations in the summer wet season; and four of the five stations exceeded the zinc standard in the winter season.
- When compared to the A&Ww (acute) standard, no samples exceed the SWQS for lead. However, the PBC standard is much lower than the A&Ww (acute) standard, and a total of three samples exceeded the PBC standard during the reporting period.

4.4 Programmatic Changes

During the reporting period, no significant changes were made to the stormwater program. The Stormwater Working Group, created during the 2014/15 reporting period, continued to meet quarterly (although two meetings were canceled due to Covid-19 precautions) to promote ongoing communication between departments. These continued meetings have been crucial to identifying and correcting maintenance issues observed in the field and to maintain compliance with the permit.

5.0 SWMP Modifications

With approval from ADEQ, the Chaparral monitoring station was relocated in May 2019, just before the start of the Summer 2019 wet season. This relocation was mentioned in last year's annual report, but the SWMP was not modified with the new site latitude and longitude measurements until after the reporting period ended. The new location for the Chaparral station is approximately 450 ft. west of the previous location at the intersection of N. 79th St. and E. Coolidge St. and captures stormwater flow from the same pipe as the original location. Locational specifics are provided in Table 6-1.

6.0 Monitoring Location Information

The city conducted seasonal stormwater sampling by collecting samples of stormwater discharging from the MS4 at all five stations identified in Table 6-1. Monitoring locations represent each land use classification (residential, commercial, and industrial) and are positioned at various locations throughout the city.

Monitoring Locations

The Chaparral station was relocated slightly west of its original location, as described in section 5.0. Locational information for all monitoring sites is outlined in Table 6-1.

Table 6-1 Stormwater Monitoring Locations

Station Identification Number	Geographic Location	Latitude and Longitude	Drainage Basin Classification / Size (Acres)	Receiving Water
080710 (MCKRD)	McKellips Rd & Hayden Rd (NWC)	33º 27' 06" N 111º 54' 46" W	Commercial & Residential / 12.4	Indian Bend Wash
080610 (PIERCE)	Pierce St & Hayden Rd (NWC)	33º 27' 16" N 111º 54' 42" W	Light Industrial / 6.4	Indian Bend Wash
130570 (CAMEL)	Camelback Rd & Hayden Rd (SEC)	33º 30' 07" N 111º 54' 26" W	Commercial & Residential / 262	Indian Bend Wash
130820 (CHAPRD)	Coolidge St & 79th St (SEC)	33º 30' 21" N 111º 54' 34" W	Residential / 60	Indian Bend Wash
250940 (TBIRD)	Thunderbird Rd & 73rd St (SEC)	33º 36' 40" N 111º 55' 22" W	Industrial & Airpark/ 1,094	Airport Wash

Stormwater runoff is collected in municipal and private storm drain systems, which discharge principally to the Indian Bend Wash (IBW), which ultimately discharges into the Salt River. The Arizona Administrative Code, Title 18, was modified in December 2016, resulting in an update to the Designated Beneficial Uses of the Indian Bend Wash, as provided in Table 6-2.

TABLE 6-2 DESIGNATED USES OF RECEIVING WATERS

RECEIVING WATER	DESIGNATED BENEFICIAL USES
MG[1] – Indian Bend Wash Lakes	Aquatic and Wildlife (warm water) Acute (A&Ww Acute)
	Partial Body Contact (PBC)
	Fish Consumption (FC)
MG[1] – Indian School Park Lake	Aquatic and Wildlife (warm water) Acute (A&Ww Acute)
	Partial Body Contact (PBC)
	Fish Consumption (FC)

(1) – designation for "Middle Gila", the waterbody listed as primary in the Arizona Code for IBW.

Monitoring Equipment

Scottsdale Water uses the ISCO 6712 Portable Autosamplers at all five monitoring locations with permanent collection equipment (consisting of pick-up tubes, rain gauges, solar cells, flow sensors, etc.). During the reporting period, seasonal sampling was accomplished by setting the sample stations to collect composite samples once the criteria were met for a qualifying storm event.

Sample station equipment was maintained by Water Quality Inspectors and troubleshooting performed by the city and the ISCO vendor. Diligent routine maintenance allowed for successful sample collection at all five monitoring stations for both the Summer 2019 and Winter 2019-20 seasons.

7.0 STORM EVENT RECORDS

The Permit requires the collection of a stormwater sample from each monitoring location during the summer and winter wet seasons. The summer wet season is defined as June 1 – October 31 and the winter wet season is defined as November 1 – May 31. Stormwater monitoring is conducted for measurable storm events, defined as storms of 0.1 inches or greater of rainfall that result in an actual discharge at the monitoring location. Sampling is not to be conducted within 72 hours of the last qualifying storm event.

As in previous years, the city reported storm records using a combination of data provided from Flood Control District of Maricopa County (FCDMC) rain gauges and rain gauges installed on the dedicated monitoring equipment at each station. For this reporting period, the primary method of collecting rainfall data was via the autosamplers. However, if a malfunction of the autosampling equipment occurred, rainfall data was collected using the nearest FCDMC rain gauge. Rainfall data is provided in Appendix L.

8.0 SUMMARY OF MONITORING DATA

A summary of sample collection efforts for each rain event are described in the rain event log in Appendix L and in Table 8-1, below. To report a complete monitoring event, sample personnel must obtain both grab and composite samples and deliver samples to the laboratory within method-required hold times.

Table 8-1 Status of Permit-Required Sampling

MONITORING STATION	SUMMER 2019 WET SEASON	WINTER 2019-2020 WET SEASON
080710 (MCKRD) (Hayden and McKellips)	Completed	Completed
080610 (PIERCE) (Hayden & Pierce)	Completed	Completed
130570 (CAMEL) (Hayden & Camelback)	Completed	Completed
130820 (CHAPRD) (79th & Coolidge)	Completed	Completed
250940 (TBIRD) (Scottsdale & Thunderbird)	Completed	Completed

Monitoring data (including data qualifiers) is provided in Appendix M and the laboratory reports are included in Appendix N.

9.0 Assessment of Monitoring Results

ISCO Autosamplers are installed at all five monitoring stations and provide rainfall and flow data and are programmed to collect composite samples.

9.1 Surface Water Quality Standards

Narrative and numeric SWQSs are found in Arizona Administrative Code (A.A.C.) R18-11-108 and R18-11-109 Appendix A, respectively. The designated uses for the Indian Bend Wash (IBW) in Scottsdale are found in R18-11 Appendix B.

9.2 Exceedances of SWQS

The city compared the current reporting period's monitoring results to the SWQS and identified exceedances of three analytes: *E. coli,* copper and zinc. Table 9-1 summarizes the *E. coli* exceedances as compared to the SWQS for the designated use, Partial Body Contact (PBC), for the last two reporting periods.

Table 9-1 Summary of E. coli Exceedances (MPN/100 ml)

LOCATION	SUMMER 2018	WINTER 2018/2019	SUMMER 2019	WINTER 2019/2020	PBC
MCKRD	**2908**	38.4	**120330**	**68670**	575
PIERCE	**9678**	**3466**	**1297.6**	**6532.5**	575
CAMEL	**13566**	**953**	**155310**	**3597.5**	575
CHAPRD	**2908**	**1462**	**9678.4**	**6807.5**	575
TBIRD	**1252**	176	**992.4**	245.2	575

BOLD *– indicates exceedance*

MPN/100 ml – most probable number per 100 milliliters of sample

Recurring exceedances of E. coli were noted in previous annual reports. The Permit does not require investigation of recurring exceedances of E. coli unless the permittee is discharging to a water body impaired for E. coli. Chaparral Lake is an urban lake impaired for E. coli and dissolved oxygen and located adjacent to the IBW. The city has modified Ordinance #4016 to prohibit feeding of wildlife to help reduce the number of wild animals contributing E. coli in local parks and has retrofitted additional aerators in the Chaparral Lake Park to improve dissolved oxygen levels.

The Water Quality Laboratory developed a test to identify the primary sources of E. coli in stormwater. Testing involves the concentration of the bacteria found in stormwater, extraction of their DNA, and the use molecular techniques to target host associated genetic markers. To date, markers specific to human, dog, bird, and ruminant hosts have been developed and applied to test stormwater samples. Obtaining this information will help staff develop a plan to locate and mitigate sources of E. coli.

Table 9-2 summarizes the copper exceedances as compared to the acute SWQS for the most protective designated use, Aquatic and Wildlife (warm water), for the IBW. The numeric standard changes as it is dependent upon the sample hardness at time of collection.

TABLE 9-2 SUMMARY OF COPPER EXCEEDANCES (µG/L)

LOCATION	SUMMER 2018	A&WW(AC) SWQS	WINTER 2018/2019	A&WW(AC) SWQS	SUMMER 2019	A&WW(AC) SWQS	WINTER 2019/2020	A&WW(AC) SWQS
MCKRD	**87.6**	21.5	**9.0**	5.19	**42.7**	28.0	**19.8**	6.36
PIERCE	**102**	19.8	**24.2**	5.37	**21.8**	5.43	**42.7**	7.91
CAMEL	**47.6**	13.4	**14.9**	5.6	**60.4**	19.44	**20.1**	12.08
CHAPRD	**29.9**	6.55	**11.3**	3.82	**8.2**	3.57	**11.4**	2.80
TBIRD	**32.8**	13.12	**31.6**	6.61	**26.9**	8.2	**38.8**	7.4

BOLD *– indicates exceedance*

µg/L – micrograms per liter

[a] *Surface water quality standard A&Ww Acute for copper is hardness dependent and varies from sample to sample. See Appendix M for hardness-specific standards for each sample*

Copper in stormwater samples exceeded the surface water quality standard at all stations for the past two monitoring periods. Based on this data, the city has focused its private industrial inspection effort on automotive repair and maintenance facilities by distributing educational materials during routine POG inspections. Inspectors provided businesses with suggested stormwater pollution control measures and pollution prevention BMPs specific to copper. As discussed in the city's Lead and Copper Exceedance Report submitted to the Arizona Department of Environmental Quality in 2017, copper is introduced to the environment by automotive brake pads and is difficult to combat. Future regulations on the copper content of new brake pads will likely relieve these elevated concentrations, but until then the city will remain diligent in targeting likely contributors of this pollutant.

Table 9-3 provides a summary of zinc exceedances observed at each monitoring location as compared to the SWQS for the most protective designated use, Aquatic and Wildlife (warm water) Acute, for the Indian Bend Wash. The numeric standard varies as it is dependent upon water hardness at the time of sample collection.

TABLE 9-3 SUMMARY OF ZINC EXCEEDANCES (µG/L)

LOCATION	SUMMER 2018	A&WW(AC) SWQS	WINTER 2018/2019	A&WW(AC) SWQS	SUMMER 2019	A&WW(AC) SWQS	WINTER 2019/2020	A&WW(AC) SWQS
MCKRD	**557**	179.1	**141**	49.8	**232**	226.8	**168**	59.79
PIERCE	**537**	166.2	**152**	51.4	**119**	51.85	**330**	72.78
CAMEL	**47.6**	13.4	**14.9**	5.6	**431**	163.35	98	106.47
CHAPRD	**272**	61.36	**112**	37.8	**99**	35.59	**158**	28.56
TBIRD	**116**	114.7	**151**	61.9	**84**	75.15	**164**	68.54

NOTES:
BOLD – indicates exceedance
µg/L – micrograms per liter
[a] *Surface water quality standard A&Ww Acute for zinc is hardness dependent and varies from sample to sample. See Appendix M for hardness-specific standards for each sample*

During this reporting period, four of the five monitoring stations exceeded the standard for zinc in both wet seasons; the remaining station had one exceedance. In previous reporting periods the designated use for the Indian Bend Wash Lakes in Scottsdale was Aquatic and Wildlife (ephemeral). In December 2016 the designated use for the Indian Bend Wash was changed from A&We (acute) to A&Ww (acute), under which the SWQS for zinc is considerably lower. As shown in previous annual reports, the monitoring data for zinc never exceeded the water quality standard until the water body was reclassified as A&Ww (acute). Scottsdale Water plans to investigate potential sources of zinc and determine the most practical mitigation strategy.

Table 9-4 shows lead exceedances observed in 2019-2020 as compared to the SWQS for the designated use Partial Body Contact (PBC), the most stringent of the surface water quality standards for lead. No samples exceeded the A&Ww (acute) SWQS for lead, as shown in Appendix M.

TABLE 9-4 SUMMARY OF LEAD EXCEEDANCES (µG/L)

LOCATION	SUMMER 2018	WINTER 2018/2019	SUMMER 2019	WINTER 2019/2020	PBC
MCKRD	**43.8**	4.7	**52.7**	6.6	15
PIERCE	**28**	5.4	6.5	**20.8**	15
CAMEL	11.1	3.6	**19.5**	3.4	15
CHAPRD	9.9	2.6	1.8	4.6	15
TBIRD	9.2	4.1	2.3	5.4	15

BOLD – indicates exceedance
µg/L – micrograms per liter

Lead is a common contaminant in urban stormwater runoff. Stormwater samples continue to show elevated lead levels at the city's most southern monitoring location, McKellips. Drainage from a vast area culminates at this point and identifying likely sources has proven to be difficult. As described in the city's report on copper and lead exceedances submitted to ADEQ in 2017, Scottsdale Water focused its inspection effort on automotive repair and maintenance businesses as it was thought to be a potential contributor to lead exceedances. Automotive sector outreach continued to be a major focus for staff and the department plans to explore other possible contributors in the future.

10.0 Estimate of Pollutant Loadings

Pollutant loading estimates are required by Permit Section 7.4. Constituents detected during MS4 stormwater monitoring required for pollutant loading estimation include:

- Total Dissolved Solids (TDS)
- Total Suspended Solids (TSS)
- Biological Oxygen Demand (BOD)
- Chemical Oxygen Demand (COD)
- Total Nitrogen
- Total Ammonia
- Total Kjeldahl Nitrogen (TKN)
- Total Phosphorous
- Detected metals

The Simple Method was utilized for calculating the pollutant loading for each constituent identified above. This method was selected because it is best suited for small urban watersheds like the City of Scottsdale. The Simple Method estimates stormwater pollutant loads as the product of mean pollutant concentrations and runoff depths over specified periods of time. It estimates pollutant loads for chemical constituents as a product of annual runoff volume and pollutant concentration using the following equation:

L = 0.226 * R * C * A

Where:

L = Annual loads (lbs)

0.226 = Unit conversion factor

R = Runoff (inches)

C = Pollutant concentration (mg/l)

A = Area (acres)

Runoff

This term describes the amount of precipitation in inches and consists of two components – annual precipitation and runoff coefficient.

The city used precipitation data available through the Flood Control District of Maricopa County (FCDMC) at:

http://alert.fcd.maricopa.gov/showrpts_mc.html

Using FCDMC Precipitation Group G048 (a collection of six precipitation gages throughout Scottsdale), annual rainfall during the reporting period ranged from 8.11-12.01 inches, with an average of 9.29 inches. See Appendix O for a FCDMC Data Report depicting the amount of rainfall for each station in Precipitation Group #48 during the current reporting period.

Another element affecting the amount of runoff is the runoff coefficient. The runoff coefficient is a unitless parameter that reduces the amount of runoff due to impacts associated with absorptive capacity of the land and can be generalized based on the land use classification. The higher the degree of impervious surfaces (such as paving in commercial parking lots), the larger the runoff coefficient.

Runoff coefficients are provided in Table 3.2 of the FCDMC Drainage Design Manual for Maricopa County, Arizona (see Appendix O). Runoff coefficients are provided for four storm frequencies: 2-10 year, 25 year, 50 year, and 100 year. Because this pollutant loading estimate is based on average annual rainfall, the most appropriate storm frequency would be the 1-year storm. Since the 1-year storm event is not listed in Table 3.2, the city used the coefficients for a 2-10 year period as a conservative approximation for the 1-year storm. The FCDMC Table 3.2 provides a range of coefficients for the 2-10 year storm, with the minimum representing closer to the 2-year storm and maximum representing closer to the 10-year storm. One limitation of FCDMC runoff coefficients is that the residential, industrial, and commercial coefficients do not take into consideration streets, right-of-way, or alleys which would tend to increase the runoff value. To account for roads and other impervious surfaces within the different land uses, the minimum and maximum coefficients for the 2-10 year storm were averaged to produce conservative runoff coefficients for use in the pollutant loading calculations.

Land uses within the city generally consist of industrial, residential, commercial land uses and open space. FCDMC Table 3.2 presents four categories of residential land uses, two industrial uses, and two commercial land uses. City land uses were assigned runoff coefficients as shown in Table 10-1. For simplification purposes, medium density residential and general commercial coefficients were considered. Industrial land use for the area surrounding the airport can be considered as general/heavy industrial and other industrial areas are considered light/general industrial.

TABLE 10-1 RUNOFF COEFFICIENTS

CITY LAND USE	FCDMC LAND USE	RUNOFF COEFFICIENT
Residential	Medium Density Residential	0.565
Commercial	General Commercial	0.8
Industrial (General)	Light General Industrial	0.65
Industrial (Airport)	General/Heavy Industrial	0.75
Open Space	Desert Landscape 2	0.35

Incorporating the runoff coefficients and different land uses, the pollutant loading calculation becomes:
L = 0.226 * C * R *(ROC*A)
Where:

L = annual loads (lbs)
0.226 = Unit conversion factor
C = event mean concentration (mg/L)
R = annual precipitation (in)

ROC = runoff coefficient for the given land-use (unitless)
A = the area of the given land use in the drainage basin (acres)

An expanded version of the formula considering all three land uses becomes:
$L = 0.226 * C * R * (ROC_{Ind*}A_{ind}+_*ROC_{com.*}A_{com*}+ROC_{res*}A_{res})$
Where:

ind = industrial

com = commercial

res = residential

10.1 Event Mean Concentrations

The city calculated the event mean concentration (EMC) for each of the Permit-required pollutants. These concentrations are presented in Table 10-2. For pollutants that were non-detect in all samples, the EMC is represented by the detection limit. For pollutants with both non-detect and positive detections, the EMC was calculated using the detection limit in place of the non-detect data. Shaded values in the table below indicate pollutants with non-detect data.

10.2 Pollutant Loading Calculations

To calculate pollutant loadings to waters of the US (as required by Permit Section 7.4), the city used zoning data from the Geographic Information System (GIS). The area of the city north of the CAP Canal drains almost exclusively to retention and has little impact to waters of the U.S. Pollutant loading to the (IBW) was calculated based on the area of the city south of the CAP Canal. There is some development south of the canal that also drains to retention, however, as a conservative assumption; these areas were included in the pollutant loading calculation. Through evaluating each of the zone classifications for areas south of the CAP Canal, the city determined zoned land use was distributed as shown in Table 10-3.

Table 10-3 Land Use Areas

ZONE CLASSIFICATION	AREA (ACRES)
Residential	20,767
Commercial	3,590
Open Space	1,876
Industrial	1,632
Total	**27,865**

The results of the MS4 pollutant loading calculations are provided in Table 10-4 and Appendix O.

TABLE 10-2 EVENT MEAN CONCENTRATIONS

PERMIT REQUIRED POLLUTANTS (IN MG/L)	MCKELLIPS		PIERCE		CAMELBACK		CHAPARRAL		THUNDERBIRD		EVENT MEAN CONCENTRATION
	2019-2020		2019-2020		2019-2020		2019-2020		2019-2020		
Total Dissolved Solids (TDS)	156	120	94	72	316	230	66	14	152	138	136
Total Suspended Solids (TSS)	520	46	62	156	448	34	24	80	24	82	148
Biological Oxygen Demand (BOD)	7.57	9.21	15.63	5.97	75.03	32.76	16.93	6.65	17.60	14.47	20
Chemical Oxygen Demand (COD)	161	73	113	81	363	150	72	33	139	132	132
Nitrate+Nitrite as N	1.3	0.60	1.1	0.5	2.1	0.9	0.6	0.3	1.8	1.5	1.1
Ammonia as N	0.631	0.657	1.117	0.321	2.4	1.022	0.657	0.247	1.6	0.807	0.94
Total Kjeldahl nitrogen (TKN as N)	0.946	1.424	1.449	2.041	7.02	2.32	1.702	0.955	2.909	1.52	2.23
Total Phosphorous	1.33	0.18	0.3680	0.220	1.26	0.470	0.27	0.15	0.2600	0.210	0.47
Antimony	0.001	0.001	0.001	0.0012	0.002	0.001	0.0015	0.001	0.001	0.0025	0.0013
Arsenic	0.0117	0.0019	0.0017	0.0033	0.0078	0.0044	0.0015	0.0012	0.0045	0.0021	0.0040
Barium	0.348	0.0617	0.0459	0.0907	0.173	0.0395	0.0194	0.0354	0.0888	0.0656	0.097
Beryllium	0.0015	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cadmium	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Chromium (total)	0.0306	0.0042	0.0031	0.0086	0.0137	0.0039	0.0013	0.0030	0.0063	0.0048	0.008
Copper	0.0427	0.0198	0.0218	0.0427	0.0604	0.0201	0.0082	0.0114	0.0328	0.0388	0.030
Lead	0.0527	0.0066	0.0065	0.0208	0.0195	0.0034	0.0018	0.0046	0.0092	0.0054	0.013
Mercury	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Nickel	0.0352	0.0046	0.0048	0.0097	0.0198	0.0047	0.0017	0.0028	0.0084	0.0068	0.0099
Selenium	0.001	0.001	0.001	0.001	0.0011	0.001	0.001	0.001	0.001	0.001	0.001
Silver	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Thallium	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Zinc	0.232	0.168	0.119	0.33	0.431	0.098	0.099	0.158	0.116	0.164	0.192

TABLE 10-4 ESTIMATED POLLUTANT LOADING TO THE INDIAN BEND WASH

PERMIT REQUIRED POLLUTANTS	2017/2018 POLLUTANT LOADING (IN TONS) (1)	2018/2019 POLLUTANT LOADING (IN TONS) (1)	2019/2020 POLLUTANT LOADING (IN TONS) (1)
TDS	4,045	38,295	21,617
TSS	2,222	31,278	23,496
BOD	549	5,773	3,213
COD	3,785	35,979	20,965
NO_3+NO_2 as N	37	482	170
Ammonia as N	36	406	150
TKN as N	77	698	355
Phosphorus (total)	11	117	75
Antimony	0.03	0.39	0.21
Arsenic	0.06	2.58	0.64
Barium	1.51	22.65	15.41
Beryllium	0.03	0.23	0.17
Cadmium	0.03	0.23	0.16
Chromium (total)	0.13	1.57	1.27
Copper	0.77	8.96	4.75
Lead	0.22	2.81	2.08
Mercury	0.005	0.050	0.032
Nickel	0.17	2.29	1.57
Selenium	0.03	0.23	0.16
Silver	0.03	0.23	0.16
Thallium	0.03	0.23	0.16
Zinc	4.77	54.23	30.48

NOTES:
1 Shaded values indicate calculations include non-detect data.

11.0 Annual Expenditures

11.1 Background

This section provides a brief statement of the expenditures incurred during the reporting period to implement and maintain the SWMP, including associated monitoring and reporting activities. The funds used to support SWMP expenditures were from the city's General and Enterprise Funds.

The FY19/20 budget expenditures were less than what was estimated in last year's report. The FY20/21 estimate of annual expenditures listed in Table 11-1 is based on actual FY19/20 and FY18/19 costs.

11.2 Method

The costs reported in Table 11-1 include only those funds related exclusively to implementing the stormwater program, as indicated in Part 12 of Permit Appendix B. Activities the city conducts for purposes in addition to compliance with the Permit, such as street sweeping, etc., are excluded from the fiscal analysis. FY 2019/2020 activities included in the fiscal analysis comprise the following actions: stormwater inspections at construction sites, maintenance of IBW outfalls by Community Services, stormwater related activities by the City Attorney and activities conducted by Water Resources.

Table 11-1 Estimated SWMP Comprehensive Annual Budget

PROGRAM / ACTIVITY	FY 18/19 ACTUAL	FY 19/20 ACTUAL	FY 20/21 ESTIMATED
Construction Oversight Municipal Site Inspections Private Site Inspections	$4,447	$3,238	$4,000
Community Maintenance Park Maintenance IBW	$15,970	$15,201	$20,000
Water Resources Camel Truck and Staff	$2,308	$964	$2,500
Water Resources – Stormwater STORM Stormwater Consultant Stormwater Quality Coordinator Stormwater Inspections (e.g., private and municipal industrial facilities, IDDE investigations, and dry weather screening) ADEQ Annual Report Review Fee	$161,740	$132,483	$175,000
City Attorney's Office	$72	$906	$2,000
ANNUAL TOTALS	**$161,740**	**$152,793**	**$203,500**

Appendix A
Measurable Goals

Measurable Goals
2020 Stormwater Annual Report
City of Scottsdale
July 1, 2019 – June 30, 2020

The status of activities and programs presented in this attachment are a combination of both the old NPDES and new AZPDES Permit requirements.		
AZPDES Permit Appendix A reference	**Measurable Goal Description**	**Goal Status**
Public Education and Outreach		
I.A	Provide public education and outreach to at least one (1) target group on one (1) topic listed in the reference.	Complete
I.B	Provide business sector education and outreach to at least one (1) target group on an appropriate topic listed in the reference.	Complete
Public Involvement and Participation		
II.A	Implement at least one (1) of the following to provide fundamental support to the city's SWMP: - encourage public participation in the monitoring and reporting of spills, discharges, or dumping once per year. - provide voluntary litter control activities or voluntary erosion control projects. Maintain and support program as a regular ongoing activity. - provide a household hazardous waste program to facilitate proper disposal of used oil, antifreeze, pesticide, herbicides, paints, and other hazardous and toxic materials by city residents a minimum of 2 times per year for years one and two, 3 times per year for years three and four, and every year thereafter.	Complete
II.B	Provide and publicize a reporting system to facilitate and track public reporting of spills, discharges or dumping to the storm sewer system on a continuous basis.	Complete
II.C	No later than one year from the effective date of the permit, the current SWMP and latest annual report shall be posted on the city's website.	Complete
Illicit Discharge Detection and Elimination		
III.A.I	Provide new municipal employees with IDDE training at least 2 times per year and provide refresher training for existing employees directly involved with stormwater management activities at least once every 2 years.	Complete
III.A.2	Develop stormwater pollution awareness training within 1 year of the effective date of the permit and present the training to select groups of staff annually thereafter	Complete
III.B.1	Develop site specific materials handling and spill response procedures for each municipal facility that handles, stores, or otherwise uses hazardous materials where any single container exceeds five gallons and where materials are exposed or have the potential to be exposed to stormwater. Conduct an assessment at these facilities at least annually to ensure procedures are in place and effective.	Ongoing
III.B.2	Maintain a copy of the site-specific materials handling and spill response procedures, and make them readily available at all city facilities. Review site-specific materials handling and spill response procedures every 2 years.	Complete
III.C.1	Maintain an inventory or map of all major outfalls and field screening points, identified as priority for illicit discharges or other non-stormwater flows.	Complete
III.C.2	Conduct ongoing dry weather field screening of outfalls. Field screening includes: -visual inspection for flow, trash, suds, odors, etc -field sampling, when significant flow is observed for chemical indicator parameters -re-inspection and sampling within 24 hours, if flow is still present	Complete
III.D.1	Inspect the following 'priority' outfalls and field screening points once each year -all outfalls and field screening points that discharge to an impaired or an OAW or other perennial water -all outfalls and field screening points that have been a source of illicit discharge in the past 5 years -all outfalls and field screening points identified as priority by the city for illicit discharges or other non-stormwater flows	Complete
III.D.2	Within 180 days of permit issuance, identify and prioritize for inspection a minimum of 50 outfalls and/or field screening points, in addition to the 26 major outfalls to IBW.	Complete
IIII.D.3	At a minimum, inspect at least 20 percent of the remaining (i.e., non-priority) major outfalls and field screening points each year.	Complete

The status of activities and programs presented in this attachment are a combination of both the old NPDES and new AZPDES Permit requirements.		
AZPDES Permit Appendix A reference	**Measureable Goal Description**	**Goal Status**
III.E	Respond to 90% of all reports of illicit discharges to the MS4	Complete
	Initiate investigation of 80% of potential illicit discharges identified by field screening, public reporting or other detection methods within 3 business days from the date of the report.	Complete
III.F	Initiate corrective action or enforcement mechanisms to eliminate: 1) illicit discharges the city has identified to date that are not yet resolved within 120 days of permit issuance, and 2) any new illicit discharges detected within 60 days of identification of source.	Complete
III.G	Develop an ERP for stormwater related violations within the first year of the permit.	Complete
	Follow the ERP for resolution of all violations. At least 80% of all cases handled under the ERP will be satisfactorily resolved within 1 calendar year of the original enforcement action.	Complete
Municipal Facilities Pollution Prevention / Good Housekeeping Practices		
IV.A	Provide new municipal employees with municipal facilities training 2 times per year and provide refresher training for existing employees directly involved in these activities at least once every 2 years.	Complete
	Starting in the 3rd permit year, provide staff training on information covered in the control measure field manual. Training to be held 2/year and refresher training once/2 years	Complete
IV.B.1	Develop an inventory, list, database, or map of facilities described in IV.B (1) within 2 years after the date of permit issuance.	Complete
IV.B.2	Develop a system to review and prioritize the municipal facility inventory from IV.B (1) and include it in the SWMP. The prioritization process shall be completed by the end of year 2 of the issuance date of the permit.	Complete
IV.C.1	Define areas of the MS4 drainage system that are a priority for inspection, based on system history, and other factors that shall be identified in the SWMP. These priority areas shall be inspected at least once each year.	Complete
IV.C.2	Inspect each of the 'higher risk' municipal facilities biennially beginning in year 3 of the permit term.	Complete
	Identify the municipal facilities inspected each year in the annual report and provide comment whether improvements were needed. Initiate 80% of any recommended improvements within 3 months of the inspection and set a schedule for implementation. Maintain a system for tracking the status of improvements and date(s) of implementation.	In Progress
IV.D.1	Evaluate drainage system maintenance priorities and update the monitoring schedule at least once each year. Report the number of units cleaned each year in the annual report.	Complete
IV.D.2	Perform street sweeping of: all major streets twice monthly, all downtown streets a minimum of 2 times per week and within 48 hrs following public events that result in the potential for pollutant discharges, all residential and industrial/commercial streets and medians 1 time per month, all bike paths 1 time per month, and post-storm sweeping as needed.	Complete
	Perform lot sweeping of: all accessible lots located at city park and recreational areas 8 times per year and after major public events and all other accessible downtown parking lots and structures 1 time every 2 weeks.	
	Evaluate street sweeping frequencies once/year. Report the number of units in the annual report for street & lot sweeping activities	
IV.D.3	Within 2 years of issuance, develop a control measure field manual for municipal maintenance activities.	Complete
	Incorporate control measures for road maintenance activities into it's Standard Operating Procedures.	Complete
IV.E.1	Complete identification of all surveyed MS4 components and add new assets as they are constructed by the 4th year annual report.	Complete
	Complete a study that evaluates the cost, method, and time it will take to complete mapping of linear drainage structure and detention/retention basins. Results of the study are submitted with the 4th year annual report.	Complete

The status of activities and programs presented in this attachment are a combination of both the old NPDES and new AZPDES Permit requirements.		
AZPDES Permit Appendix A reference	**Measureable Goal Description**	**Goal Status**
Industrial and Commercial Facilities		
V.A	Provide training to new employees for industrial and commercial facilities, including the ERP, at least 2 times per year and provide refresher training for existing employees directly involved in these activities at least 1 time every 2 years.	Complete
V.B	Maintain a system to collect and update the industrial and commercial facility inventory on a routine basis.	Complete
V.C	At a minimum, inspect 100 facilities identified in V.B. annually, including re-inspections, as necessary.	Complete
	Evaluate alternatives for enhancing the industrial and commercial stormwater program with the goal of increasing field presence through increasing interaction with commercial and industrial facilities through outreach or other innovative measures. Develop a system of prioritizing inspections with focus on facilities with higher potential to cause stormwater pollution. Progress towards this initiative shall be reported in the 4th year annual report.	Complete - Enhancements in progress
V.D	Develop an ERP for stormwater violations within the first year	Complete
	Follow the ERP for resolution of all violations. At least 80% of all cases handled under the ERP will be satisfactorily resolved within 1 calendar year from the original enforcement action.	Complete
	Document the number of compliance/enforcement actions taken during the reporting year, include severity, elapsed time for resolution, penalties assessed, and outcome	Complete
Construction Sites		
VI.A.	Provide construction site training to new employees at least 2 times per year and provide refresher training for existing employees directly involved in these activities at least once every 2 years. This item includes review staff and inspection staff with stormwater responsibilities.	Complete
VI.B	Complete a comprehensive inventory within 1 year. Maintain and update annually thereafter.	Complete
VI.C	Review all plans for new development and redevelopment. Report the number of plans submitted and the number of plans reviewed each year in the annual report.	Complete
VI.D	Inspect active construction sites a minimum of 1 time every 3 months until final stabilization is established and report the number of construction sites inspected each year in the annual report.	Complete
	Conduct follow-up inspections of construction within 30 days to ensure issues identified during routine inspections are corrected	Inspections are always ongoing
	Inspect all inactive construction sites after major storm events but not less than once per year until final stabilization and report the number of sites inspected annually in the annual report.	Complete
VI.E	Within 2 years of permit issuance, adopt a set of standards for the installation and maintenance of construction site stormwater control measures.	Complete. The Flood Control District Erosion Control Manual was adopted June 2, 2009.
VI.F	Within 1 year of permit issuance, develop and implement an ERP.	Complete
	Follow the ERP for resolution of 80% of all cases within one calendar year of the original enforcement action	Complete
	Document the number of compliance/enforcement actions taken during the reporting year, include severity, elapsed time for resolution, penalties assessed, and outcome	Complete
VI.G	Conduct inspections or require third party inspections of all sites that have received city permits within 1 year after construction has been completed to determine the effectiveness of post-construction stormwater controls. Report the number of sites that receive post-construction inspections in the annual report.	Complete
VI.H	Include in the 4th year annual report the findings of how the implementation of LID practices would contribute to the reduction of pollutants in stormwater discharges to the MS4 and identify a plan and schedule for incorporation into design standards	Complete

Appendix B
Outreach Brochures

BEST MANAGEMENT PRACTICES

To Control Petroleum, Oil & Grease

Scottsdale Water Resources – Industrial Pretreatment

www.scottsdaleaz.gov/water/quality/pretreatment

Everyone benefits from reducing the amount of Petroleum, Oil and Grease (POG) that flows into the city sewer system. It's good for the environment, it's good for neighbors and customers and it's good for your bottom line. The guidelines below will help you manage POG waste and comply with local, state and federal requirements.

Sand/oil interceptors must be pumped at least once per year to avoid blockages and odors in your wastewater pipes. As a business owner or manager, it is your responsibility to ensure the interceptor is maintained and operating efficiently, per **City Code, Chapter 49 Section 49-95 (d).**

Cleaning Method

POG interceptors must be pumped out completely, which includes removing all of the contents in the device and residual waste after scraping/hosing down of interior walls. We recommend a representative from your facility be present during the pumping process to ensure the device was cleaned properly and to inspect the device to verify that all plumbing fixtures are in good condition. Remember to keep a copy of your service record on site for at least three years.

Prevent Spills Inside and Outside the Shop

- Keep containers closed and use secondary containment for hazardous materials storage. These containers should be stored as far away from drains as possible.
- Keep trash containers/dumpsters closed and regularly inspect them for damage and/or leaks.
- Use drip pans where needed, especially for vehicles stored outside.

Keep the Floor Clean

- Maintaining clean floors throughout your shop will prevent tracking pollutants outside or to other areas.
- Use a dry cleanup method such as a shop vacuum system for cleaning up dust and dirt, and use rags or a squeegee to handle small liquid spills.
- Seal the shop floor with epoxy or other sealant to make future spills easier and quicker to clean up.

Promote Good Housekeeping

- A top priority for technicians should be to keep your shop clean by implementing routine housekeeping procedures. This will help prevent contaminants from entering the sanitary sewer system and make operations more efficient.
- Always recycle used oil, antifreeze and other vehicle fluids.
- Avoid putting chemicals, oil and grease down the drain.
- Avoid using a hose to clean up a spill.
- Incorporate standard housekeeping procedures into workers' shifts by allotting time for clean up throughout the day.

Provide Employee Training

- Take the time to ensure all employees are aware of the benefits of proper POG disposal methods.
- Give regular training on good housekeeping, safe hazardous materials handling, materials management, and emergency and spill response procedures.

BEST MANAGEMENT PRACTICES

To Control Fats, Oils & Grease

Scottsdale Water Resources
www.scottsdaleaz.gov/water/quality/pretreatment

Everyone benefits by reducing the amount of fats, oils and grease (FOG) that flow into the city's sewer system. It's good for the environment, it's good for neighbors and tourists, and it's good for your bottom line. Sanitary sewer systems are not designed or equipped to handle FOG when it sticks to the interior pipes. The best way to handle FOG is to keep it out of the plumbing systems in the first place. Here are some suggestions for proper FOG management.

PUT LEFTOVER FOOD IN THE TRASH, NOT DOWN THE DRAIN – this reduces the frequency at which grease traps and interceptors must be cleaned, and helps reduce odors. There are also non-profit organizations that will take your leftover food to feed the less fortunate.

DRY WIPE POTS, PANS AND DISHES – and dispose in the trash. This reduces the amount of FOG that goes into your grease interceptor and the city's sewer system, which will reduce maintenance costs.

PUMP AND CLEAN GREASE TRAPS– Place the grease in a tightly-sealed container for proper disposal. Keep a log of all cleaning activities on site for review by Water Resources inspectors.

USE THE 3-SINK SYSTEM – the first to wash, the second the rinse and the third to sanitize. This will save energy and costs.

POST "NO GREASE" SIGNS – where everyone can see them, especially near sinks and floor drains. Frequent reminders can continually educate employees working with FOG.

ROUTINELY CLEAN EXHAUST HOODS – FOG can accumulate on your roof and is a potential fire hazard. It could also enter the storm drain during a storm.

TRAIN YOUR STAFF – take the time to ensure all employees understand the benefits of FOG-controlling procedures.

CLEAN INTERCEPTORS FREQUENTLY – routine pumping will prevent backups for both your business and the city. Make sure you can witness the interceptor being cleaned to get your full value. Comply with City Code by keeping an *on-site* maintenance log with all interceptor service records.

COVER CONTAINERS STORED OUTSIDE – uncovered FOG containers can collect rainwater, which can create an overflow.

STORE DUMPSTERS AND CONTAINERS AWAY FROM STORM DRAINS – FOG that enters a storm drain can reduce water quality and can result in fines and other actions. The farther away FOG is stored from a storm drain, the easier it is to clean up spills.

Updated Jan 2014

Residential FOG

What is FOG?

FOG refers to Fats, Oil, and Grease from food preparation and kitchen clean up. FOG is found in such things as:

•Meat fats

•Food scraps

•Lard/Shortening

•Baking goods

•Butter/Margarine

•Cooking oil

•Sauces

•Dairy products

How does this affect me?

Residential households generally contribute to FOG by washing it into the sewer system usually through the kitchen sink. Over time, these fats solidify and can cause sewage lines to clog and create a sanitary sewer overflow resulting in environmental damage, increased operations and maintenance and ultimately higher sewer costs for customers.

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What can I do to minimize my impact?

- **Always pour cool FOG into a second container such as an old jar, can, or plastic tub and discard it in the trash.**
- **Mix cooking oil with absorbent material such as kitty litter or coffee grounds to minimize mess and dispose in the trash.**
- **Use a paper towel to blot off any excess FOG in the pan prior to washing.**
- **Avoid discarding food scraps in the garbage disposal; throw them in the trash instead.**
- **Never pour FOG outside on the ground or in storm drains.**

City of Scottsdale
Water Quality
480-312-8732
http://www.scottsdaleaz.gov/Water/Quality/Pretreatment
WaterPretreatmentGroup@Scottsdaleaz.gov

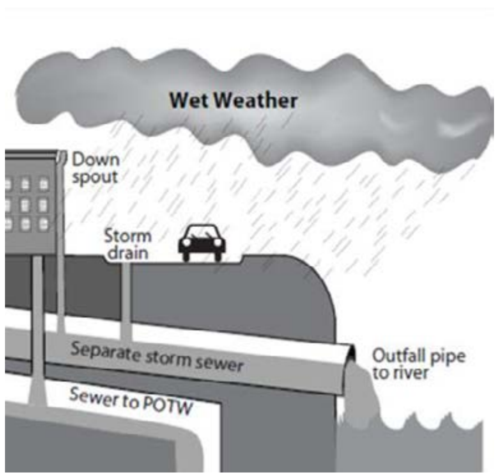
City of Scottsdale Arizona Water Quality

Stormwater runoff flows into storm drains located in the streets and then directly into our nation's waterways without any treatment.

What is Stormwater?

Stormwater runoff is generated when precipitation from rain and snowmelt flows over land or impervious surfaces such as concrete driveways, sidewalks, streets, parking lots and rooftops, and does not percolate into the ground. Unlike the water from the sinks and toilets in our homes and businesses, storm water flows UNTREATED into surrounding washes, lakes, and streams

Sewer System vs Stormwater Drain



Sewer systems and stormwater drains are two different things. The water that goes down a sink or toilet (**sewer water**) flows to a reclamation plant where it **is treated** and filtered before it is released into the Salt River, recharged into our groundwater aquifers, or reused to water our golf courses. The **stormwater** that flows down driveways and streets into a gutter **is not treated** and goes into a storm drain that flows directly into Indian Bend Wash and various basins around the city.

Common Stormwater Pollutants

There are a variety of contaminants that can easily pollute our stormwater. Rain picks up oil and grit left on the roads; sprinklers wash pesticides, fertilizers and weed killers from our gardens and lawns; washing the car carries detergents, oils, and grease from the driveway and into our waterways.

Pool Discharge	Pool water is typically oxygen deficient and can harm aquatic life. When draining pools, always discharge into your yard (to water lawn or plants) or drain into your sewer cleanout.
Motor Oil	According to the EPA, it only takes four quarts of motor oil to contaminate a million gallons of drinking water. That's enough water to fill about 20,000 bathtubs!
Antifreeze	Antifreeze is a toxic pollutant that contains heavy metals such as lead , cadmium, and chromium. It can kill not only aquatic life, but also pets when they drink from contaminated puddles.
Pesticides	The use of harmful chemicals on your lawn can be reduced with proper mowing, fertilizing, and watering. Apply pesticides only in areas where needed and only in directed amounts.
Animal Waste	Pet and other animal waste is raw sewage that releases bacteria and oxygen-consuming materials into our waterways. Pet owners should always clean up after their pet.
Soaps and Detergents	Detergents are pollutants that contain phosphates which increases algal growth. Algae blooms deplete waterways of oxygen used by aquatic wildlife.
Yard Debris	Yard waste (grass clippings and leaves) is a pollutant that releases bacteria, oxygen-consuming materials, phosphorus and nitrogen into our waterways. It also clogs storm drains, which contributes to flooding.

Preventing Stormwater Pollution

Pollution is a problem, but YOU can be the solution! There are many ways you can help prevent stormwater pollution.

- Do not dump waste, including organic material such as leaves and grass in storm drains.
- Inspect and maintain your car to prevent oil and antifreeze leaks.
- Dispose of household chemicals properly. Visit http://www.scottsdaleaz.gov/recycle/hhwdropoff or call 480-312-5600 for hazardous waste drop off locations.
- Take motor oil, antifreeze, oil-based paint, paint thinner, varnishes and solvents to a recycling station.
- Use kitty litter to clean up leaks and spills. Never hose spills into the gutter.
- Buy household and garden products that are environmentally safe.
- Do not apply lawn or garden products when rain is forecast.
- Avoid over-fertilizing your lawn by testing your soil first to find out how much of which nutrient it needs.
- Always discard pet waste in the garbage or by flushing it down the toilet.

Stormwater Pollution and Prevention

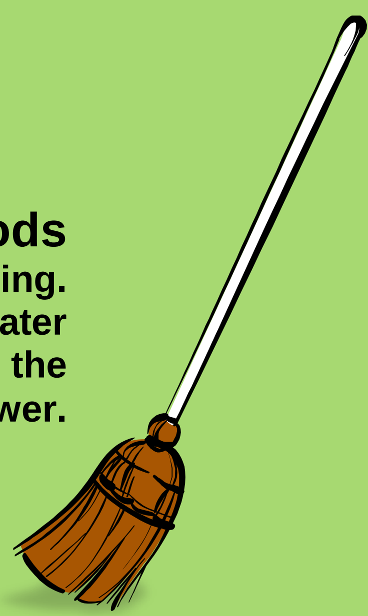
City of Scottsdale Arizona
Water Quality

STORM
Only rain in the stormdrain

www.azstorm.org

Restaurant Best Management Practices: Stormwater Runoff

Use dry methods
such as sweeping. Contain wash water and pour it into the sanitary sewer.



Clean spills or leaks promptly using dry methods.
If you need to use water, make sure it does not enter the street, sidewalk, gutter, storm drain or a waterbody.

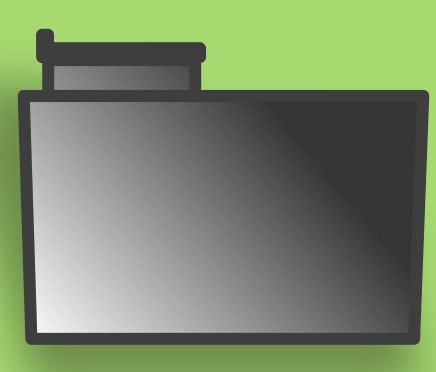
Wash water used for powerwashing and mat cleaning. is not permitted to enter a storm drain or waterbody.

Pour rinse water containing soap, bleach and disinfectants into a mop sink or sewer.

Floor mats, kitchen mats, and garbage cans should be washed in a designated mop sink or near the kitchen floor drain.

Never pour oil, grease or oily liquids down a sink, storm drain or into a dumpster.

Keep grease bin lids closed
and secured at all times.



Keep trash and dumpster lids closed
when not in use.

Inspect
trash areas daily.

Keep trash and dumpster areas
clean and labeled.

Replace or repair leaking dumpsters
as soon as possible

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CITY OF SCOTTSDALE ARIZONA STORMWATER PROGRAM

Sorry I missed you today: ____________

The city has observed the below listed stormwater violations:

- ☐ Potential litter debris entering the stormwater conveyance
- ☐ Potential oil, automotive or chemical fluids entering the stormwater conveyance
- ☐ Discharging swimming pool into street, easement or wash
- ☐ Irrigation water overflowing into street
- ☐ Sprinklers flooding street or sidewalk
- ☐ Other: ____________

Please make repairs or necessary adjustments to correct the stormwater violation(s).

Your cooperation is appreciated. If you have questions please contact:

Main office number 480-312-8732
Please ask for the Stormwater Program

Discharging water to the street, alley or other publicly owned right of way is a violation of City Code.

Scottsdale, Arizona, Code of Ordinances
Volume II - Chapter 37 – Article IV. Sec. 37-77(a-r).

☐ **POTENTIAL LITTER DEBRIS ENTERING THE STORMWATER CONVEYANCE**
(d) No person shall allow vegetation or an accumulation of vegetative debris, other debris, sedimentation or erosion to (1) obstruct, divert or reduce the capacity of a watercourse, or (2) increase the potential of flooding.

☐ **POTENTIAL OIL, AUTOMOTIVE OR CHEMICALS FLUIDS ENTERING THE STORMWATER CONVEYANCE**
(h) No person shall discharge or cause to be discharged any pollutant or waters containing any pollutant that may reasonably be expected to cause or contribute to a violation of the city's MS4 permit.
(i) No person shall discharge or cause to be discharged any pollutant or waters containing any pollutant that may reasonably be expected to cause or contribute to damage to a watercourse.

☐ **DISCHARGING SWIMMING POOL INTO STREET, EASEMENT OR WASH**
(j) No person shall discharge or cause to be discharged water from a pool or spa into the right-of-way or watercourse.

☐ **OTHER:** ____________________
(k) No person shall release or cause to be released an illicit discharge.
(l) No person shall establish or cause to be established an illicit connection.
(m) No person shall fail to report a spill as required under section 37-64
(n) No person shall fail to contain or remediate a spill.

www.scottsdaleaz.gov/stormwater/stormwaterquality
480-312-8732 or WaterPretreatmentGroup@ScottsdaleAZ.gov

Scottsdale, Arizona, Code of Ordinances
Volume II - Chapter 49 – Article VII. Sec. 49-249.

☐ **IRRIGATION WATER OVERFLOWING INTO THE STREET**
(a) No person shall permit the excess use, loss or escape of water through breaks, leaks or other malfunctions in the water user's plumbing or irrigation distribution system for any period of time after such escape of water should have reasonably been discovered and corrected.

☐ **SPRINKLERS FLOODING THE STREET OR SIDEWALK**
(b) No person shall willfully or negligently permit or cause the escape or flow of irrigation water in such quantity as to cause flooding, impede vehicular or pedestrian traffic, create a hazardous condition to such traffic, or cause damage to city rights-of-way through failure or neglect to properly operate or maintain any irrigation structure, delivery ditch, or waste ditch.
(c) Willfully or negligently fail to accept irrigation water after it has been ordered.
(d) Irrigate property in a manner which results in the overflow of irrigation waters.

www.scottsdaleaz.gov/water/conservation 480-312-5650 or WaterOperations-CustomerService@ScottsdaleAZ.gov

Vehicle Service Facilities
Best Management Practices

CITY OF SCOTTSDALE
Water Quality

In the City of Scottsdale, water in streets, gutters, and storm drains flows directly to Indian Bend Wash and the Salt River without any treatment.

So, when vehicle fluids are spilled, leaked, or washed into the street, they can harm our aquatic environment. Wash water used in vehicle cleaning often carries dirt, copper particulates, soap and degreasers, which also damage sensitive habitats and finally end up polluting rivers.

In fact, *discharging anything directly or indirectly into a storm drain, even pavement wash water or carwash runoff, is against the law.*

What can your shop do to help?

Mop Water

Preferably, sweep or vacuum shop floors instead of hosing or mopping with water. If you do mop the shop floor, the mop water must be discharged to the sanitary sewer unless it contains hazardous materials.

The following procedure is mandatory for shops that mop their floors:
- Clean up spills with rags or dry absorbent.
- Sweep the floor.
- Mop floor and discharge mop water to the sanitary sewer via a sink or toilet.
- Floor cleaning wastewater may not be discharged, directly or indirectly, to the storm drain system.

If the mop water contains vehicle fluids or other hazardous materials, it must be shipped off-site properly as hazardous or contaminated waste and may not be disposed of in the sanitary sewer or storm drain system.

Disposal of Wipes, Rags, Paper Towels, and Plastic Gloves

Ensure that wipes, rags, paper towels and plastic gloves are disposed of as solid hazardous waste if contaminated with a hazardous material. **These items may not be disposed of in a toilet, mop sink, or any other sanitary sewer drain because they can create a blockage in the sewer line that may result in a sewer overflow into the street, storm drain system, or environment.**

Refuse and Recycling Containers and Trash Enclosures

Dumpster and garbage can lids must be kept closed at all times. Do not allow trash to spill out or overflow the dumpster or garbage can. Ensure plugs are secure. If they are damaged or missing, contact your solid waste representative.

Cleaning Outside Paved Areas

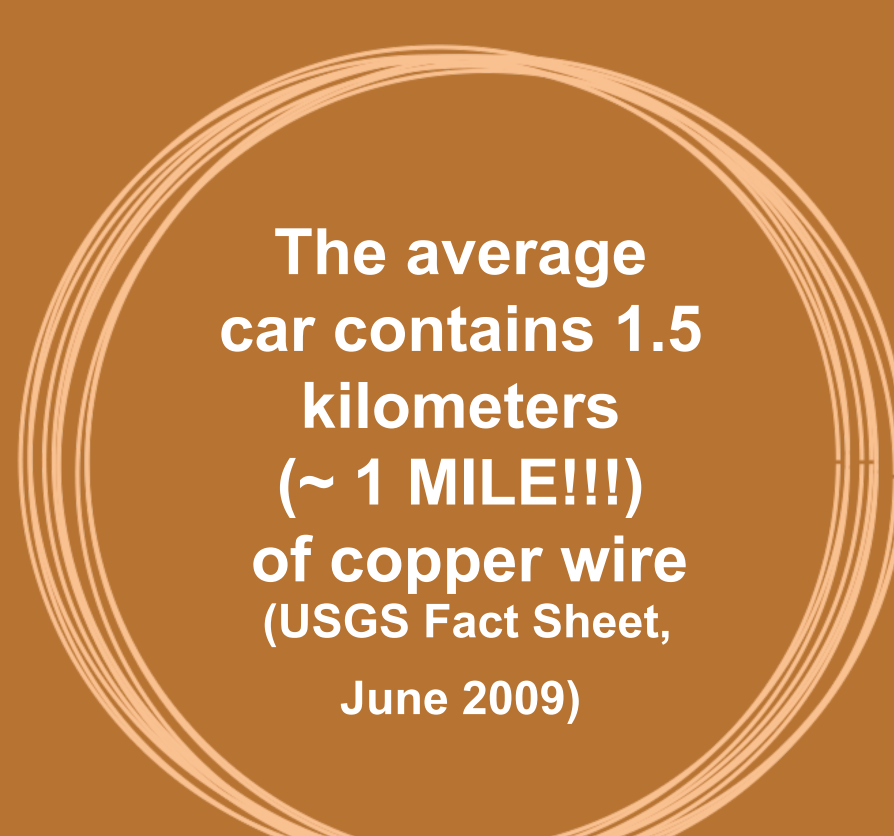
Sidewalks, gutters, plazas, alleyways, and other outside areas should be cleaned by sweeping. If water is used to clean or rinse, all the wash water must be collected and disposed of in the sanitary sewer. The wash water may not runoff into the street or be discharged into the storm drain system.
When cleaning driveways and parking lots, all the water must be collected and disposed of properly.
Please contact a Water Quality Inspector, at 480-312-8723, regarding the proper disposal method. Not all wastewater is acceptable for discharge to the Wastewater Treatment Facility.

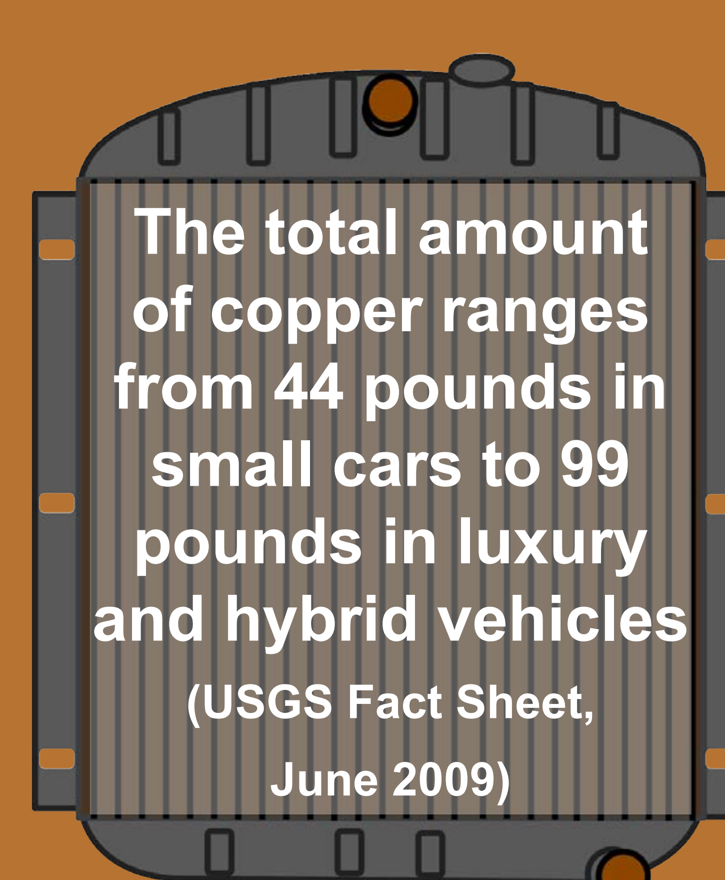
Windows, Walls, and Building Cleaning

The wash water from cleaning windows, walls, and building exteriors may not be discharged to a street or the storm drain system. Be sure that employees or a hired cleaning service take measures to prevent the discharge of these wastes to the storm drain.

Did you know?

35-60% of the copper in urban watershed runoff is attributed to break pads (other sources are oil, grease, gasoline, and solvents).
(Copper Development Association Inc.)



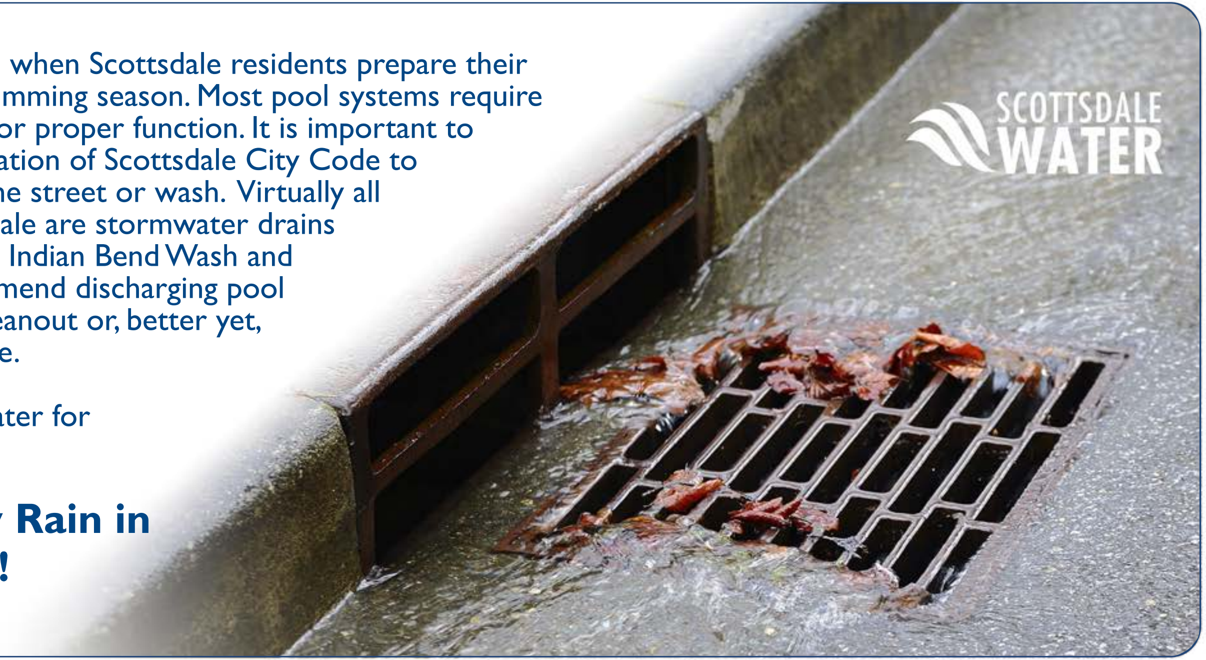


http://www.scottsdaleaz.gov/Water/Quality/Pretreatment

It’s that time of year again when Scottsdale residents prepare their pools for the summer swimming season. Most pool systems require backwashing or draining for proper function. It is important to remember that it is a violation of Scottsdale City Code to release pool water into the street or wash. Virtually all outdoor drains in Scottsdale are stormwater drains and eventually lead to the Indian Bend Wash and the Salt River. We recommend discharging pool water into your sewer cleanout or, better yet, into your desert landscape.

Visit ScottsdaleAZ.gov/water for more information.

Remember, Only Rain in the Storm Drain!



Stormwater drains are NOT sanitary sewer drains.

Storm drains are intended for flood prevention, not wastewater disposal. Water discharged into storm drains flows untreated into the city's flood control system, eventually making its way to the Salt River and other drainage areas. It is important to keep pollutants, including pavement and patio wash water, from discharging into the storm drain system and from accumulating on surfaces that are exposed to rainfall.

Wash water properly collected and disposed of in sewer drains is conveyed through the city's wastewater treatment system where it is treated before it is released into the environment.

Virtually all outdoor drains in Scottsdale are stormwater drains and eventually lead to the Indian Bend Wash and the Salt River.

Storm drains should never be used for wastewater disposal.

Federal, State and Local Regulations

Federal, state and local regulations prohibit pollutant discharges to water bodies and require that local governments implement stormwater compliance programs that protect water quality. The state of Arizona oversees the local stormwater regulatory programs by issuing Municipal Stormwater Permits (MS4 Permits).

The permit requires the city of Scottsdale to prevent non-stormwater discharges by adopting the following ordinances: **Volume II - Chapter 37 - Stormwater and Floodplain Management Article IV. Enforcement Sec. 37-77.** Violations (h) *No person shall discharge or cause to be discharged any pollutant or waters containing any pollutant that may reasonably be expected to cause or contribute to a violation of the city's MS4 permit.* Improper practices may lead to civil penalties.

Scottsdale Water
Stormwater Program
ScottsdaleAZ.gov/Water
480-312-8732

CITY OF SCOTTSDALE

BMP
Best Management Practices

Pressure Washing and Surface Cleaning

SCOTTSDALE WATER

Water Sustainability through Stewardship, Innovation and People

Best Management Practices

Plan ahead
Prior to beginning pressure washing, determine what wash water containment and disposal methods you will use and identify the specific location where you will dispose of the wastewater generated from the cleaning activity. Obtain permission to access onsite disposal point.

Prepare Site
Block storm drains with an impervious barrier such as gravel bags or berms, or seal storm drains with plugs or rubber mats.

Surface Preclean
Use dry methods and absorbents on small oil spots to clean spills before washing. Sweep up trash, debris and dirt before wet washing. Properly dispose of precleaning waste. Precleaning can significantly reduce costs and simplify the wastewater disposal process.

Pressure Wash Responsibly
Minimize water usage during cleaning (use a low-volume nozzle). Cleaning products must not contain hazardous substances.

Collect Wash Water
Use an approved wastewater containment method to collect all wash water. Place an oil absorbent pad on top of collected wash water to reduce or remove floating oil. Wastewater with high pollutant concentrations, including cleaning compounds, must be completely collected and may not be left to evaporate.

Dispose of Wash Water
Determine appropriate wash water disposal. See below for examples.

Pressure Washing as Part of the Solution: When done properly, pressure washing can help improve the quality of our water. By cleaning surfaces and collecting and disposing of wastes you are removing pollutants that may have ended up in our water ways.

The Problem: Most pressure washing activities are conducted outside without proper controls, leading to the discharge of wastewater and debris to the storm drain, which ultimately leads to water bodies or collects in trap basins.

Wash Water Containment

Berms
Create a protective barrier around the storm drain inlet allowing the wastewater to pool around the drain prior to proper collection and disposal. Berms may be less effective or ineffective when the storm drain is located at the bottom of a slope or a large amount of wash water is generated.

Storm drain covers and mats
Magnetic vinyl mats, polyurethane mats or PVC drain covers placed on top of the storm drain grate allow wash water to accumulate until the pressure washing activity is complete and the wash water can be collected for proper disposal. Storm drain covers are often used with a vacuum device that diverts wash water into the sanitary sewer system.

Vacuum Devices
Wet/dry vacuums, sump pumps and vacuum pumps can be used to collect wastewater after pressure washing. Vacuum devices typically have an extension (vacuum boom) that allows the wash water to be collected efficiently. Many vacuum devices are also designed with a second hose that can run from the pump to the sanitary sewer or a truck/trailer-mounted holding tank.

Wash Water Disposal

Disposal through a Pretreatment Device
Discharge wash water to the sanitary sewer through a fats, oils and grease or petroleum, oil and grease interceptor. The easiest access point to this system should be the business mop sink or the cleanout located before the interceptor.

Disposal by liquid waste hauling company
Permitted third-party company hauls wash water to a treatment site before discharging to the sewer under specific permit. Waste management company must be permitted by the Arizona Department of Environmental Quality to manage wastewater.

Disposal as Hazardous Waste
Some wastewaters must be transported through a licensed hazardous waste hauler. Generator must have a state or federally issued EPA ID number. For hazardous waste questions, contact the Scottsdale Solid Waste Department at 480-312-5600.

Avoid costly system repairs

Clogged pipes can happen anywhere in the system – on your property or in the city's sewer mains. Depending on where the clog is located, the resident or property owner may be responsible for the cost of cleaning or repairing the line, as well as the cost of damages caused by a backup into the home or building.

Sources of FOG

Traditionally, grease is thought of as bacon grease and oil used for frying, but fats, oils and grease can be found in other food items that may surprise you, including:

- Dairy products
- Gravy and sauces
- Mayonnaise
- Salad dressing
- Baked goods
- Frosting
- Milk and cream
- Lard and shortening
- Butter and margarine

The ugly side of greasy sewers

When an obstruction blocks the flow of wastewater within a pipe, the wastewater – and everything that comes with it – will find someplace else to go...backing up through a manhole, sewer clean out, toilet, drain or even your sink.

Don't let this happen to your pipes!

Scottsdale Water
Pretreatment Program
ScottsdaleAZ.gov/Water
480-312-8732

CITY OF SCOTTSDALE

FOG CLOGS

Keep Fats, Oils and Grease from Clogging Your Pipes

SCOTTSDALE WATER

Water Sustainability through Stewardship, Innovation and People

Fats, Oils and Grease

Over time, fats, oils and grease (FOG) from everyday cooking can clog the pipes in your home and in the public sewer system. FOG and food particles poured down the sink solidify in your pipes, eventually causing blockages that can send untreated wastewater backwards – out of manholes or back into your house! Overflows can create serious public health hazards, damage property, cause odor issues and often require expensive repairs.

Sanitary sewer overflow caused by FOG

Helpful tips to prevent FOG from entering the drain:

- Pour cooking oils and grease into a small container with absorbent material, such as a paper towel or coffee grounds, and dispose of it in the trash.
- Scrape food from dishes into the trash (not the garbage disposal) and wipe down greasy plates, pots and pans with a paper towel before washing.
- Prevent food from entering your sewer by covering your kitchen sink drain with a strainer.

The Greasy Facts!

Hot water does not wash away FOG

Hot water and soap may wash fats, oils and grease out of sight, but they don't wash them away entirely. Hot FOG will eventually cool and solidify further down your pipes, where it can still clog sewer lines and create sewage backups in your home or street.

Garbage disposals make FOG worse

Garbage disposals only grind up the greasy, fatty foods into smaller particles, which can make it even easier for FOG to cling to pipes.

Residential FOG is the leading cause of sanitary sewer overflows

The EPA estimates that 65 percent of all sewer spills are caused by fats, oils and grease. The majority of all FOG-related sewer backups and spills originate in residential areas.

Stormwater drains are NOT sanitary sewer drains.

Virtually all outdoor drains in Scottsdale are stormwater drains and eventually lead to the Indian Bend Wash and the Salt River.

Storm drains should never be used for wastewater disposal.

What is stormwater?

Stormwater is rainwater that flows over outside surfaces and into the stormwater collection system, flowing directly into local waterways and percolating into our groundwater aquifers.

Stormwater flows in Scottsdale are not treated, so chemicals and pollutants that are released outdoors and picked up by stormwater, eventually pollute our environment. This pollution can harm plant life, animals and people.

Possible pollutants from dry cleaners and laundries include cleaning agents, solvents, detergents and their by-products, oil/grease/lubricants, steam cleaning waste and trash.

Federal, State and Local Regulations

Federal, state and local regulations prohibit pollutant discharges to water bodies and require that local governments implement stormwater compliance programs that protect water quality. The state of Arizona oversees the local stormwater regulatory programs by issuing Municipal Stormwater Permits (MS4 Permits).

The permit requires the city of Scottsdale to prevent non-stormwater discharges by adopting the following ordinances: **Volume II - Chapter 37 - Stormwater and Floodplain Management Article IV. Enforcement Sec. 37-77.** Violations (h) *No person shall discharge or cause to be discharged any pollutant or waters containing any pollutant that may reasonably be expected to cause or contribute to a violation of the city's MS4 permit.* Improper practices may lead to civil penalties.

Scottsdale Water
Stormwater Program
ScottsdaleAZ.gov/Water
480-312-8732

CITY OF SCOTTSDALE

BMP
Best Management Practices

Dry Cleaners and Laundries

SCOTTSDALE WATER

Water Sustainability through Stewardship, Innovation and People

Best Management Practices

Properly manage your onsite chemicals

- Clearly label all chemical containers.
- Store chemicals indoors. If chemicals are stored outside, they must be covered and have secondary containment.
- Do not leave chemical containers uncovered. Use air-tight containers for chemical storage, especially perc and perc waste.
- All waste drums must be stored with secondary containment.

Maintain a spill prevention and response plan

- Place an adequate stockpile of spill cleanup materials where it will be readily accessible.
- Spot clean leaks and drips routinely.
- Clean leaks, drips and other spills with as little water as possible. Use rags for small spills, a damp mop for general cleanup, and dry absorbent material for larger spills.
- Remove the absorbent materials promptly and dispose of properly.
- Vacuum or sweep debris. Do not wash outdoor areas unless the water can be kept on site. Keep the spill from entering the streets, gutters and storm drains.
- Do not use bleach or disinfectants if there is a possibility that rinse water could flow to a street, gutter or storm drain.

Maintain your equipment regularly

- Regularly inspect equipment for leaks and repair leaks quickly.
- Machine doors should be closed and secured except during loading and unloading.
- Machines and surrounding areas should be kept clean.
- Maintenance and repair activities should be done indoors.
- All cartridge filters should be drained in their housing or other sealed container for a minimum of 24 hours prior to disposal.

Provide ongoing employee training

- Train employees on correct practices and maintenance of your facility.
- Train employees on your facility's spill control plan and spill containment/cleanup procedures.
- Establish a regular training schedule, train all new employees and conduct annual refresher training.

Be environmentally friendly

- Use alternative, safer, non-toxic or recycled products when possible.
- Recycle and reuse waste products and waste flows.
- Reduce the use of water and use dry cleanup methods whenever possible.
- Never discharge wash water to the outdoors or into storm drains, gutters or streets.

Wastewater that is contaminated with any detectable amount of dry cleaning solvent is prohibited from being discharged into the sanitary sewer or the stormwater system and should be handled as a hazardous waste and transported through a licensed hazardous waste hauler. Hauler must have an EPA ID number.

For hazardous waste questions, contact the Scottsdale Solid Waste Department at 480-312-5600.

For additional information on Scottsdale Water, including Water Quality Reports, commercial rebate programs and water and sewer rates and fees, visit **ScottsdaleAZ.gov/Water.**

SCOTTSDALE WATER

Stormwater drains are NOT sanitary sewer drains.

Storm drains are intended for flood prevention, not wastewater disposal. When pool water, which is already high in salt or chemicals, is discharged to the street, it flows untreated into the city's flood control system, picking up oil and debris before coming to rest in retention basins or eventually making its way to the Salt River.

Virtually all outdoor drains in Scottsdale are stormwater drains and eventually lead to the Indian Bend Wash and the Salt River.

Storm drains should never be used for pool water disposal.

Did You Know ?

Pool water drained to the city sewer system is treated and recycled for future beneficial use!

Scottsdale Water operates one of the most innovative advanced water treatment systems in the nation. Annually, we recycle over ***2.5 billion gallons*** of water for turf irrigation and recharge over ***1.3 billion gallons*** of highly treated recycled water to Scottsdale's aquifer, helping ensure the long-term viability of our precious groundwater supplies.

Federal, State and Local Regulations

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Scottsdale Water
Stormwater Program
ScottsdaleAZ.gov/Water
480-312-8732

CITY OF SCOTTSDALE

Draining and Backwashing Your Residential Pool

SCOTTSDALE WATER

Water Sustainability through Stewardship, Innovation and People

What can I do with discharged pool water?

Option 1: Irrigate your landscape

Draining pool water to your desert landscape or lawn is a great option for disposing of pool water. Allowing the water to percolate into the ground lets you reuse the water you already paid for and conserve the water you would otherwise need for irrigation.

What to watch out for:

- Pool water contains more salt and chlorine than tap water, so be sure to use caution when applying pool water on certain plants.
- For best results, wait three to seven days after treatments before draining to allow chlorine to dissipate. The pH should be in the range of 7-8.
- Move the hose frequently to avoid creating areas of stagnant water that can attract mosquitos.
- Water must be contained on your own yard. Do not allow the water to flow into your neighbor’s property or the storm drain.

Option 2: Drain to the sanitary sewer

If you have too much water for your landscape, you can drain or backwash the pool into your home’s sanitary sewer clean out.

- Locate your sanitary sewer clean out and remove the cap (if there are two, use the one closest to the house).
- If you are completely draining the pool, shut off the power to the filtration system and turn off the automatic water fill valve if you have one.
- Run the drainage hose from a submersible pump in the pool to the clean out pipe. Be sure to secure the hose so it won’t pop out.
- Turn on the pump and immediately check to make sure no water is backing up in the house (check the shower and tub first). If the water backs up, turn off the pump immediately. You may have a blockage or have the pump flow rate set too high. Rule of thumb is no more than 50 gallons per minute.

Finding your sewer cleanout

A sewer clean out is two four-inch caps about a foot apart with a square nut on top. It is part of the private plumbing associated with the property and may be located in either the front or backyard, usually near a bathroom. Homes older than 20 years may not have a sewer clean out unless the homeowner had one installed.

Sewer clean outs may be difficult to find. This is generally caused by landscape changes over time. Scottsdale does not have records showing where the sewer clean out is located on private property. If uncertain, please contact a licensed plumbing contractor to locate or install a clean out.

Plants and Pool Water

The following list of plants and trees commonly found in Scottsdale landscapes is meant to be used as a guide for identifying plants that can and cannot be safely irrigated with pool water.

Moderate to Very Salt Tolerant

Oleander	Ice Plant
Bougainvillea	Texas Sage
Rosemary	Olive
Bermuda Grass	Mesquite
Desert Broom	Saltbush
Natal Plum	Afghan Pine

Moderately Salt Tolerant

Lantana	Yucca
Pyracantha	Most Acacia
Bottlebrush	Palo Verde

Salt Sensitive (Do not use pool water)

Fruit Trees	Roses
Star Jasmine	Jojoba
Hop Bush	Hibiscus

Refilling your pool in the winter?

Unlike water, sewer use is not metered. Instead, sewer rates are updated annually in July based on your average water use in December, January and February. If you are refilling your pool during these months, your water use will not be a true reflection of the average amount of water discharged to the city’s sewer system. To request an adjustment to your sewer volumetric charges, you must submit a sewer charge adjusment request by September 30. Forms are available at ScottsdaleAZ.gov/Water or by calling 480-312-5650.

Appendix C
STORM 2020 Annual Report

STORM – Fiscal Year 2020 Annual Report (July 1, 2019 – June 30, 2020)

SUMMARY

Arizona's Stormwater Outreach for Regional Municipalities (STORM) provides a platform for collaborative effort by municipal partners to perform educational outreach to their residents with the message of pollution prevention to help keep our waters clean. In Fiscal Year 2020, STORM members completed outreach via web, print, traditional and social media, and public events. The unprecedented events of 2020 presented STORM members with some exceptional challenges, but nonetheless, the coordination among the 24 member cities, towns, and non-traditional municipal separate storm sewer system owners or affiliates, resulted in the following highlights:

- Social Media and ABC15 Media Campaign – Reached a total 3,317,647 ad (1,300,000) and social media post (2,017,647) views with 27,313 clicks (engagements) including 126 stormwater related social media posts. STORM was able to leverage increased media viewership during the COVID-19 pandemic to maximize our advertising budget impact for a total of just 6 cents per ad view. Additionally, with our media partner ABC15, we were able to focus on a more targeted approach to increase the number of ad views. One example of this targeted approach is that all our advertisements were also produced in Spanish and directed at Spanish speaking households.
- Website – Received a total of 6,987 webpage views by 3,321 users during 3,867 sessions. A session is defined as a period of time a user is engaged in the website and the average session was 1 minute and 31 seconds.

MEMBERSHIP

ADOT, Apache Junction, Avondale, Buckeye, Casa Grande, Chandler, El Mirage, Fountain Hills, Gilbert, Glendale, Goodyear, Guadalupe, Luke Air Force Base, Maricopa County (Environmental Services and Flood Control District), Mesa, Paradise Valley, Peoria, Phoenix, Pinal County, Queen Creek, Scottsdale, Surprise, Tempe.

BUDGET

Table 1: Fiscal Year (FY) 2019 Financial Information

Total Revenue		Total Expenditures	
Beginning Balance FY20	$39,300	Website, Facebook, ABC15	$18213.75
Membership Dues Received	$73,500	Educational Videos	$
Less Dues Received in FY19	$22,500	Promotional Items and Marketing	$20039.09
		Administration and Accounting	$1698.88
		Construction Seminars	$
		NMSA Membership	$1000
Total	$90,300	Total	$40,951.72

STATISTICS

Members meet bi-monthly on the fourth Tuesday at 1:30PM. These working meetings are the primary method of sharing relevant information about regulatory issues, identifying potential outreach events, updating committee

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efforts, and reporting. Members track outreach events online for inclusion in this annual report, which supports a regional front, stretches municipal dollars, and coordinates consistent messages in the Middle Gila River Watershed. Members are also able to individually capitalize their membership benefits by using STORM produced materials (social media posts, educational videos and materials, and promotional items) to perform outreach in their own communities and in interactions with partners in their communities (citizens, businesses, builders, manufacturers, etc.).

As all our lives and livelihoods have been impacted by the global pandemic, STORM was not spared by COVID-19. As an organization that counts on interactions between our members and the general public, especially in face-to-face contact, we experienced some challenges this past fiscal year that impacted our ability to reach the general public with our message of stormwater awareness. In previous years, members have leveraged our springtime annual increase in well-attended events to spread our message. Due to the unforeseen consequences of COVID-19, STORM members were only able to attend (2) two events (Town of Gilbert Outdoors Expo and the Odysea Aquarium Conservation Expo). Between the (2) two events there was attendance measured at approximately 12,000 people. Additionally, plans to produce educational videos and marketing materials were put on hold until next fiscal year.

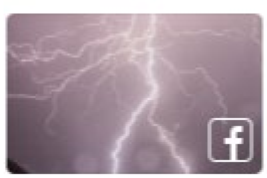
With the challenges of the global pandemic in mind, as stated in the summary and in the sections below, STORM was able to leverage the unique media situation to reach over 2 million more people through our ABC15 and social media campaigns. We were also able to save the money allotted for events, marketing materials, and educational videos and will maximize the impact of those dollars in the next fiscal year.

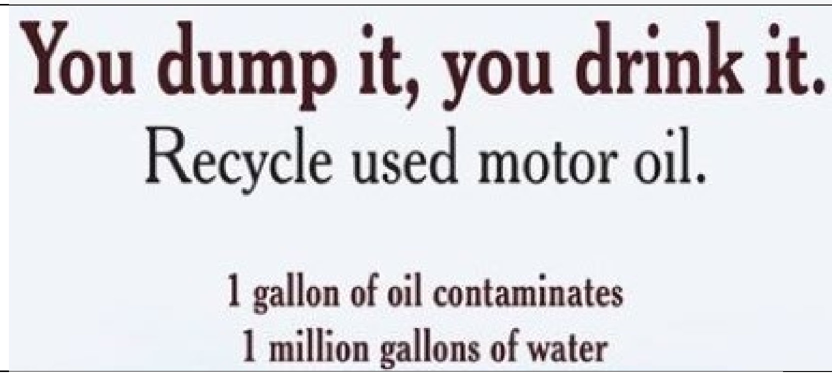
SOCIAL MEDIA CAMPAIGN

Social Media, specifically when partnering with ABC15, campaigns were very successful. STORM contracted with ABC15, which ran regular banner ads, Facebook ads, Facebook posts, and large banner ads resulting in more than 1,457,800 ad views and almost 27,313 clicks (engagement). View the attachments for specifics.

STORM members contributed time to post and interact with the public on the STORM social media pages. STORM posted 126 times with a reach of 21,545. It is worthwhile to note that when Facebook posts were boosted by ABC15, approximately 475,900 people were reached. Table 2 includes the top five posts, when they posted, how many reached and liked, and the topic.

Table 3. Top 5 Posts (click photo to link to each Facebook post)

Reach	Impressions	Engagement	Post
208,700	237,000	14,000	 Monsoon is almost he... ABC15 Arizona May 18, 2020,

163,000	238,300	6,900	
665	670	9	
645	964	36	
617	750	12	CAMPUS RAINWORKS CHALLENGE

WEBSITE (AZSTORM.ORG)

STORM members continue to utilize the website azstorm.org as a centralized information hub for documents, calendars, social media posts, public information, and links to individual municipal member's websites. The intuitively designed website is constructed with header links to stormwater 101 including basics on stormwater management; resources including our handouts, educational videos, and regulations; events calendars; an about us section describing our organization and links to member websites; as well as a sidebar that shows our social media posts.

In the last calendar year, the website had 6,987 page views from 3,321 visitors. The average time spent on the site was 1 minute and 31 seconds.

ATTACHMENTS

MARKETING, WEBSITE, FACEBOOK, AND ABC15 HIGHLIGHTS

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Promotional Items (10,000 Each): Total Cost $18,663

Key Chain Ponchos	*Reusable Straws*	*Stylus Pens*
		

STORM – Fiscal Year 2020 Annual Report (July 1, 2019 – June 30, 2020)

AZSTORM.ORG Website Analytics

Analytics http://www.azstorm.org www.azstorm.org

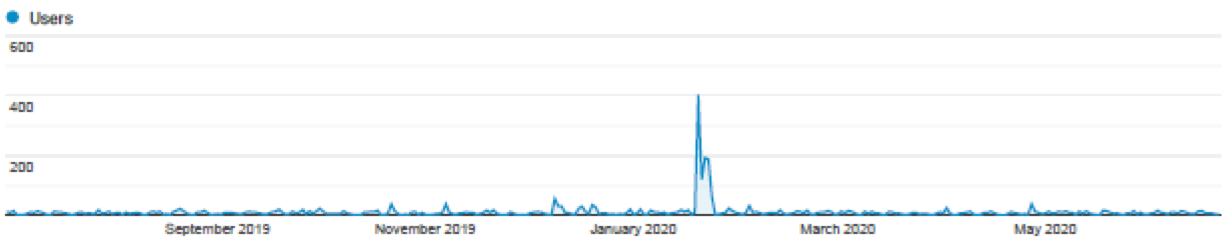
Go to report

Audience Overview

All Users
100.00% Users

Jul 1, 2019 - Jun 21, 2020

Overview



Users	3,321
New Users	3,281
Sessions	3,867
Number of Sessions per User	1.16
Pageviews	6,987
Pages / Session	1.81
Avg. Session Duration	00:01:31
Bounce Rate	73.60%

	Language	Users	% Users
1.	en-us	3,032	91.30%
2.	en-gb	80	2.41%
3.	en	31	0.93%
4.	zh-cn	21	0.63%
5.	es-us	18	0.54%
6.	es-xl	15	0.45%
7.	en-ca	11	0.33%
8.	it-it	11	0.33%
9.	de	10	0.30%
10.	de-de	9	0.27%

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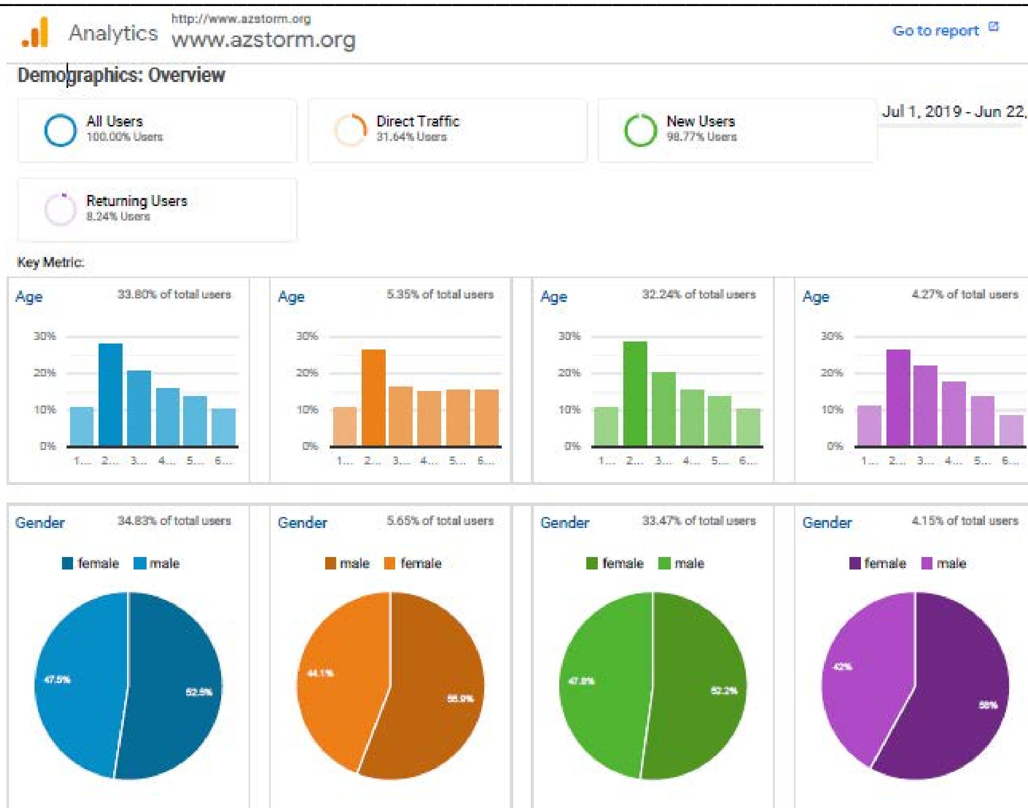
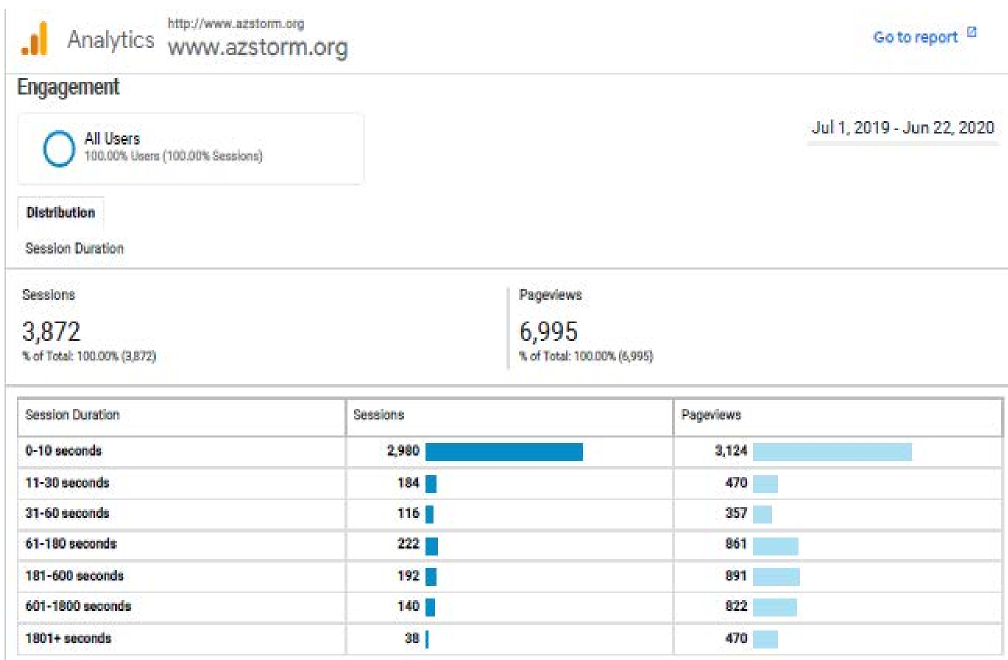
STORM – Fiscal Year 2020 Annual Report (July 1, 2019 – June 30, 2020)





Session Duration	Sessions	Pageviews
0-10 seconds	2,980	3,124
11-30 seconds	184	470
31-60 seconds	116	357
61-180 seconds	222	861
181-600 seconds	192	891
601-1800 seconds	140	822
1801+ seconds	38	470

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Analytics http://www.azstorm.org www.azstorm.org

Go to report

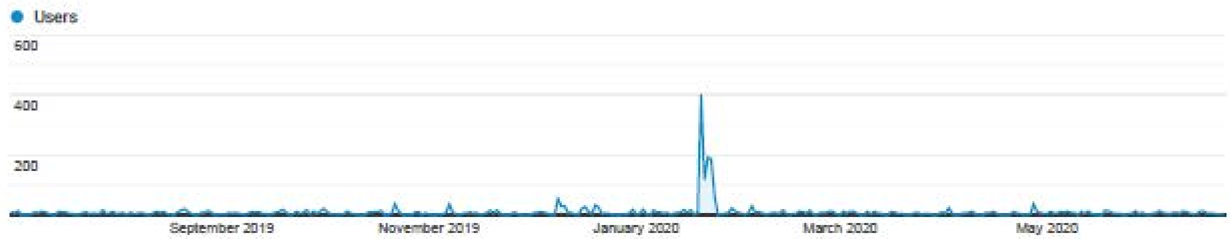
Overview

All Users
100.00% Users

Jul 1, 2019 - Jun 22, 2020

Explorer

Summary



Device Category	Acquisition			Behavior			Conversions		
	Users	New Users	Sessions	Bounce Rate	Pages / Session	Avg. Session Duration	Goal Conversion Rate	Goal Completions	Goal Value
	3,325 % of Total: 100.00% (3,325)	**3,287** % of Total: 100.06% (3,285)	**3,872** % of Total: 100.00% (3,872)	**73.58%** Avg for View: 73.58% (0.00%)	**1.81** Avg for View: 1.81 (0.00%)	**00:01:31** Avg for View: 00:01:31 (0.00%)	**0.00%** Avg for View: 0.00% (0.00%)	**0** % of Total: 0.00% (0)	**$0.00** % of Total: 0.00% ($0.00)
1. desktop	**2,115** (63.61%)	2,081 (63.31%)	2,579 (66.61%)	69.25%	2.03	00:01:42	0.00%	0 (0.00%)	$0.00 (0.00%)
2. mobile	**1,124** (33.80%)	1,122 (34.13%)	1,199 (30.97%)	83.15%	1.34	00:01:03	0.00%	0 (0.00%)	$0.00 (0.00%)
3. tablet	**86** (2.59%)	84 (2.56%)	94 (2.43%)	70.21%	1.65	00:02:11	0.00%	0 (0.00%)	$0.00 (0.00%)

Example Facebook Posts

AZ Stormwater Outreach for Regional Municipalities
Published by Christina Hoppes [?] · February 21 ·

We ❤️ to see our neighbors being stormwater savvy!!
#BeStormwaterSmart too. When it it drips use a drip pan!

20,087 People Reached	355 Engagements	Boost Again

Boosted on Feb 21, 2020 By Christina Hoppes — Completed

People Reached	19.4K	Post Engagement	3.0K

View Results

20,087 People Reached

264 Reactions, Comments & Shares

224 Like	222 On Post	2 On Shares
8 Love	8 On Post	0 On Shares
6 Haha	6 On Post	0 On Shares
5 Wow	5 On Post	0 On Shares
5 Comments	5 On Post	0 On Shares
16 Shares	16 On Post	0 On Shares

91 Post Clicks

36 Photo Views	0 Link Clicks	55 Other Clicks

NEGATIVE FEEDBACK

0 Hide Post	0 Hide All Posts
0 Report as Spam	0 Unlike Page

Insights activity is reported in the Pacific time zone. Ads activity is reported in the time zone of your ad account.

AZ Stormwater Outreach for Regional Municipalities
Published by Scott Mendenhall [?] · June 16 at 4:57 PM ·

With monsoon storms right around the corner, make sure no yard waste will be washed into the street or gutters.

Get More Likes, Comments and Shares
When you boost this post, you'll show it to more people.

1,152 People Reached	49 Engagements	Boost Post

12 · 6 Shares

Performance for Your Post

1,152 People Reached

33 Reactions, Comments & Shares

26 Like	12 On Post	14 On Shares
1 Love	0 On Post	1 On Shares
0 Comments	0 On Post	0 On Shares
6 Shares	6 On Post	0 On Shares

16 Post Clicks

5 Photo Views	0 Link Clicks	11 Other Clicks

NEGATIVE FEEDBACK

0 Hide Post	0 Hide All Posts
0 Report as Spam	0 Unlike Page

Reported stats may be delayed from what appears on posts

AZ Stormwater Outreach for Regional Municipalities
Published by Scott Mendenhall [?] · March 3 ·

It is estimated that one gallon of oil can pollute 1 million gallons of water. We all need to help keep oil out of the storm sewer systems.

Get More Likes, Comments and Shares
When you boost this post, you'll show it to more people.

762 People Reached | 58 Engagements | Boost Post

9 | 7 Shares

Like | Comment | Share

Performance for Your Post

762 People Reached

37 Reactions, Comments & Shares

19 Like	9 On Post	10 On Shares
5 Wow	0 On Post	5 On Shares
2 Sad	0 On Post	2 On Shares
1 Angry	0 On Post	1 On Shares
3 Comments	0 On Post	3 On Shares
7 Shares	7 On Post	0 On Shares

21 Post Clicks

1 Photo Views	0 Link Clicks	20 Other Clicks

NEGATIVE FEEDBACK

0 Hide Post	0 Hide All Posts
0 Report as Spam	0 Unlike Page

Reported stats may be delayed from what appears on posts

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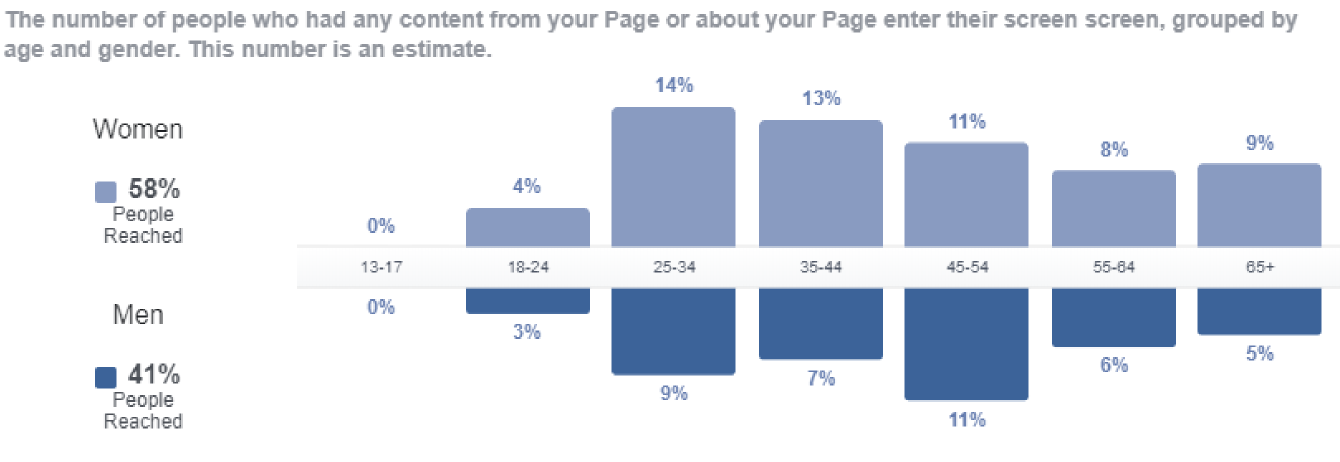
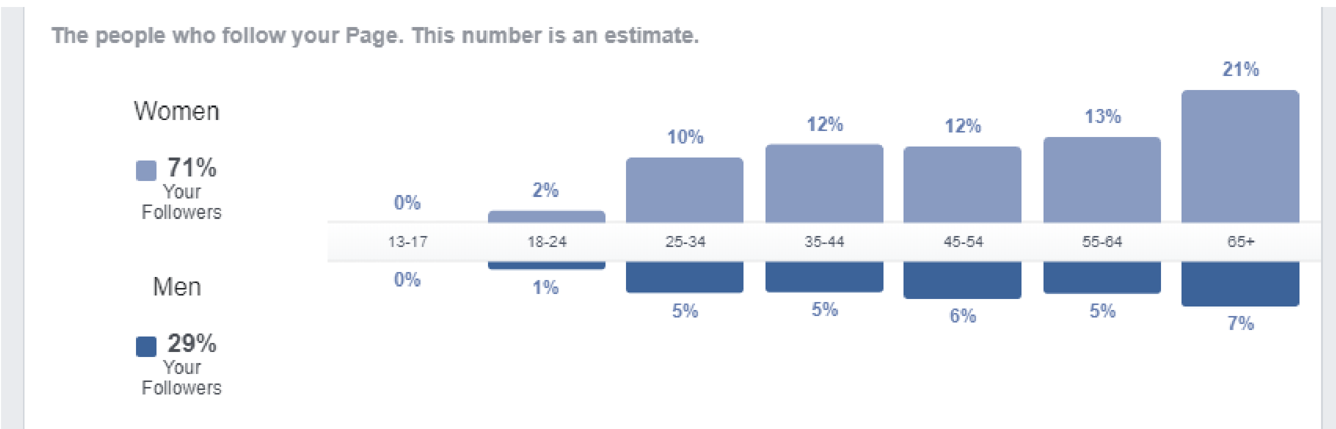
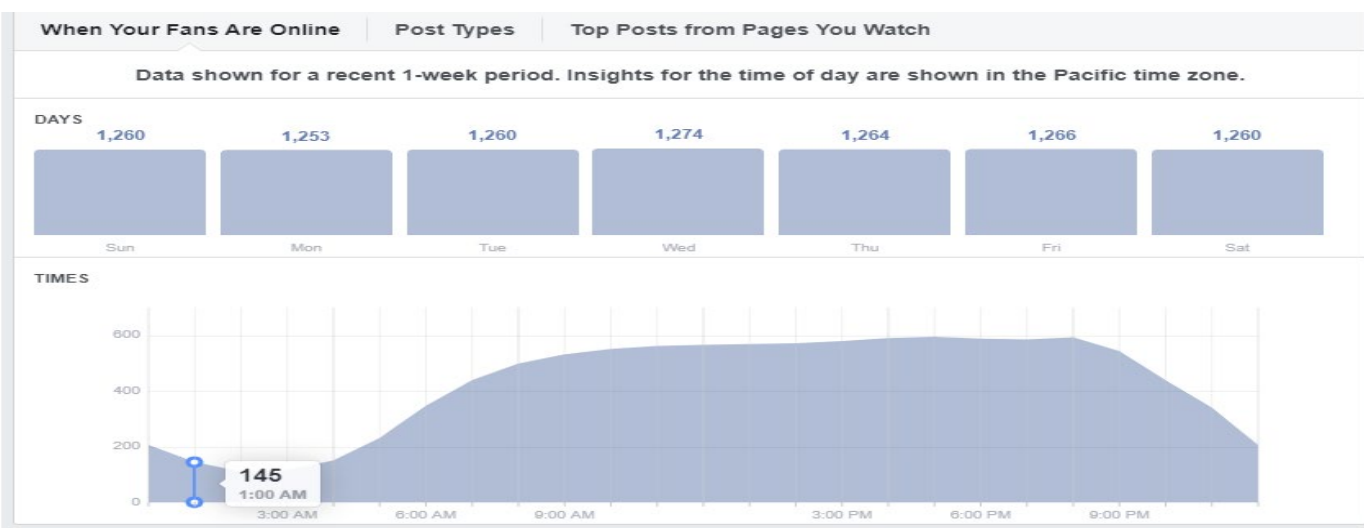
STORM – Fiscal Year 2020 Annual Report (July 1, 2019 – June 30, 2020)

Facebook Analytics







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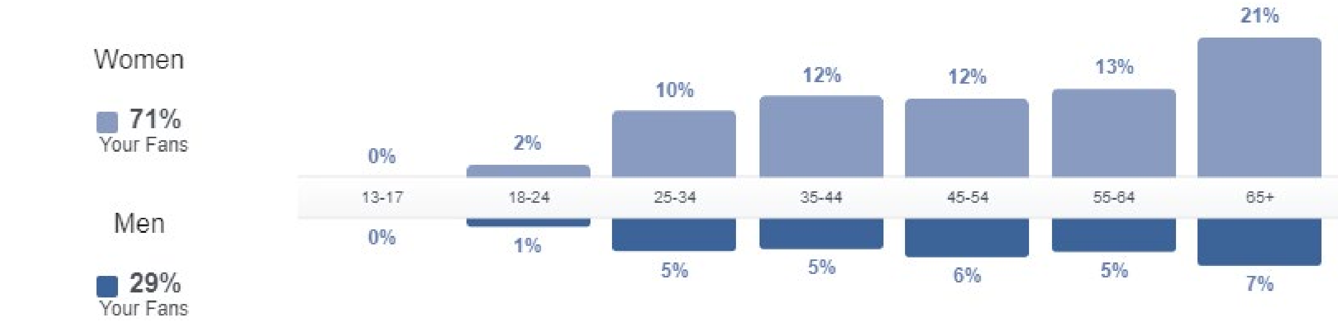
STORM – Fiscal Year 2020 Annual Report (July 1, 2019 – June 30, 2020)

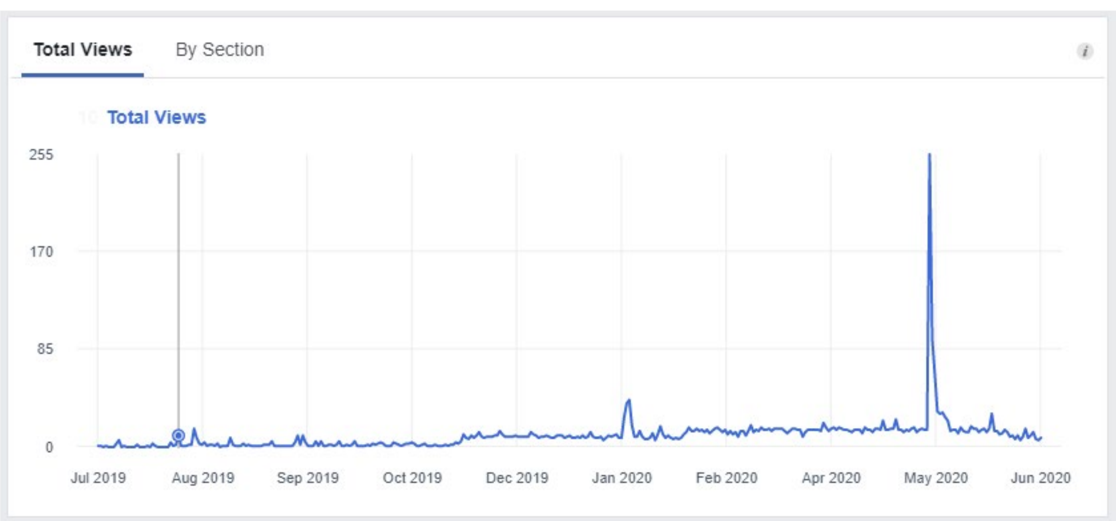
The number of people who saw any of your posts at least once, grouped by age and gender. Aggregated demographic data is based on a number of factors, including age and gender information users provide in their Facebook profiles. This number is an estimate.



Country	Your Fans
United States of America	1,717
Mexico	5
Canada	4
Japan	2
Philippines	2
Nigeria	2
Puerto Rico	1
Taiwan	1

City	Your Fans
Phoenix, AZ	509
Mesa, AZ	123
Gilbert, AZ	42
Chandler, AZ	35
Scottsdale, AZ	33
Casa Grande, AZ	32
Bullhead City, AZ	31
Kingman, AZ	29

Language	Your Fans
English (US)	1,639
Spanish	63
English (UK)	25
Spanish (Spain)	7
Portuguese (Brazil)	4
French (France)	4
German	2
Arabic	1



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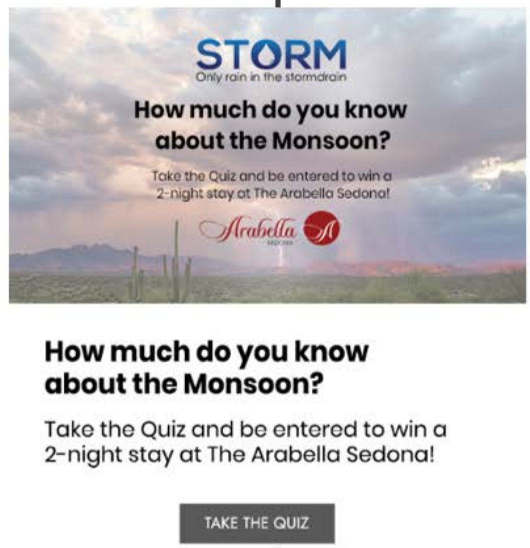
ABC15 Campaign

EMAIL

Delivered	123,236
Opens	17,343
Clicks	3,447



People Reached: 208,651

The amount of people who saw the post appear in their Facebook feed.

Reactions, Comments, Shares: 4,910

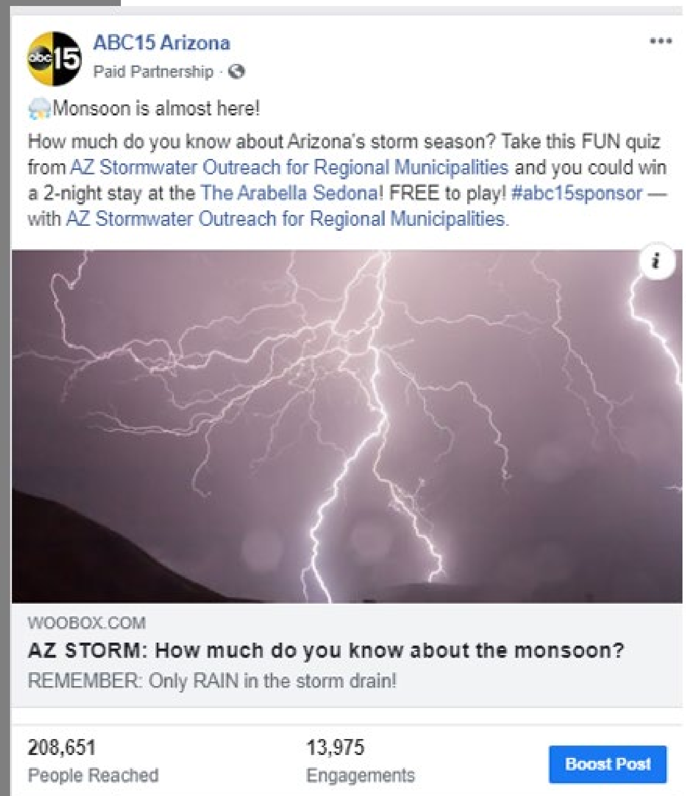
A total of the Reactions (Like, Love, Haha, etc.), Comments on your post, and people who Shared your post.

Post Clicks: 9,065

The number of clicks anywhere on your post: This includes link clicks and clicks to view a photo.

Engagements: 13,975

The numbers of Reactions, Comments and Shares plus the number of Post Clicks.



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People Reached: 270,196

The amount of people who saw the post appear in their Facebook feed.

Reactions, Comments, Shares: 622

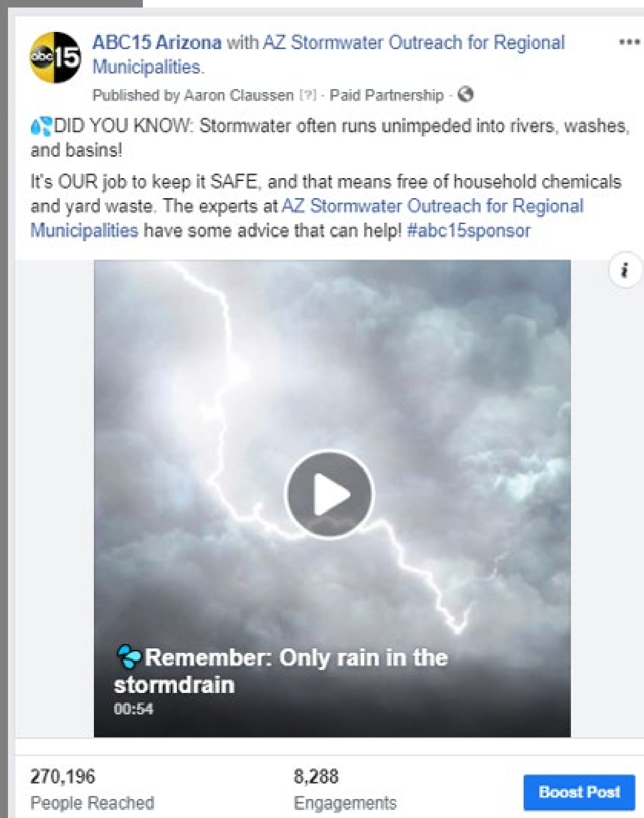
A total of the Reactions (Like, Love, Haha, etc.), Comments on your post, and people who Shared your post.

Post Clicks: 7,628

The number of clicks anywhere on your post: This includes link clicks and clicks to view a photo.

Engagements: 8,288

The numbers of Reactions, Comments and Shares plus the number of Post Clicks.



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High Impact Unit – 5/19

Impressions Total	295,062
Clicks	609
CTR	.20%

High Impact Unit – 5/28

Impressions Total	560,655
Clicks	964
CTR	.17%

Quiz

Entries	3, 703
What percentage of central Arizona's Rainfall happens during the monsoons months?	31% answered 50%
Stormwater is sent to a treatment plant before it discharges into the local waterways.	53% answered FALSE
Stormwater runoff from monsoon rain events flows untreated into:	84% answered Parks, canals, rivers/washes, and community lakes.
Litter and pollutants on roadways will be carried by monsoon storms into local waterways.	91% answered TRUE
What can I do at home to prevent monsoon storms from creating polluted stormwater runoff?	96% answered pick up after my pet, Store chemicals inside, and Keep my outdoor refuse/trash container closed
Monsoon storms are generally short lived and more intense than storms during other times of the year.	91% answered TRUE
Flooding in low lying areas and flash flooding in steep areas can occur during monsoon storms.	98% answered TRUE
Sometimes monsoon storms are just heavy winds and dust. What should you do with landscaping debris after a wind storm?	98% answered pick it up, to prevent added nutrients and causing clogs in the storm drain system.

Appendix D
Outreach and Involvement Websites

Adopt-a-Road

KEEP SCOTTSDALE BEAUTIFUL DAY 2018

Save the Date for the next event on **October 27, 2018!**

Call 480-312-7898 to find out more information.

Volunteer Groups Make the Following Required Commitments

- Commit to at least a two (2)-year period to the litter pick-up of a specific assigned roadway in either a one (1) or (2) mile increment.
- Commit to a minimum of three (3) litter pick-ups per year, with the following suggested times of the year in mind:
  - January through March (during peak tourist season)
  - April (during a designated day for Scottsdale Clean and Beautiful Month)
  - October (during the organized Keep Scottsdale Beautiful Day - *formerly Treasures 'N Trash*)
- Commit to have the participation of volunteers who are in good health and are able to tolerate normal outdoor activities such as walking and stooping.
- Commit to have the participation of volunteers who are 12 or older. Volunteers between 12 and 17 must have a parent or guardian's signature on the Participant Agreement Form prior to any activity and must have adult supervision at all times during the clean-up project.
- Commit to have the participation of volunteers who are not under the influence of alcohol, drugs and/or narcotics while participating in any clean-up project.

To Get Involved as a Volunteer Group

1. Fill out the Adopt-A-Road - Scottsdale Clean and Scenic Program Application.
2. Complete the Litter Pick-Up Packet prior to the beginning of every clean-up project. (Includes the Team Leader Checklist, Pre-Event Notice and the Participant Agreement Form)
   - Submission of the Pre Event Notice one week prior to the beginning of every litter pick up, helps us to retrieve the filled litter bags on a timely basis and to keep our records up to date.
   - For legal purposes, have all litter pick-up participants sign the Participant Agreement Form prior to the clean-up and submit it immediately following. Groups with the same participants that participate in litter pick-ups on a regular basis (more than three times per year), may submit the Participant Agreement Form once a year.
3. If needed, litter bags and vests are available for litter clean-ups and can be arranged to be picked up.

Option for Signage

Although not required, volunteer groups have the option of purchasing sign nameplates to help announce their efforts in keeping Scottsdale beautiful. These nameplates are to be placed on signs located at each end of the adopted roadway segment for a $50 total fee. If you wish to do so, please fill out and submit a sign request form along with payment.

The City of Scottsdale Makes a Commitment To:

- Assign roadways based on availability.
- Send announcements of city promoted events, such as Keep Scottsdale Beautiful Month and Keep Scottsdale Beautiful Day.
- Provide safety vests and litter bags for litter pick-ups.
- Remove filled litter bags promptly after each organized clean-up, if notified prior.

Contact Information

Bruce Wall
Program Coordinator
P: 480-312-7898
bwall@ScottsdaleAZ.gov

Adopt-a-Road Related Documents

AAR Application (PDF)

AAR Litter Pick Up Packet (PDF)

AAR Sign Request Form (PDF)

Participant Agreement Form (PDF)

Watch the Adopt-A-Road video

CONNECT WITH US

View all social media

NEED HELP?

480-312-3111

General City Information/Speak to a Citizen Service Specialist

STAY UP TO DATE

email@example.com Manage

Manage Newsletter Subscriptions (Subscribe / Unsubscribe)

3939 N. Drinkwater Blvd.
Scottsdale, AZ 85251
P: 480-312-3111
F: 480 312 2888
Email: Question@ScottsdaleAZ.Gov

CITY OF SCOTTSDALE

DIGITAL CITIES SURVEY

Household Hazardous Waste

Household cleaners, paint, automotive fluids, batteries and electronics should not be placed in trash or recycling containers. Scottsdale Solid Waste offers two ways to recycle household hazardous waste: the annual Drop-Off Yard Event and monthly Home Collection.

Contact Information

City of Scottsdale - Solid Waste
9191 E. San Salvador Dr.
Scottsdale, AZ 85258
P: 480-312-5600
F: 480-312-8115
Report a Solid Waste Issue

DROP-OFF YARD EVENT (ANNUAL)

Time: 7:30 a.m. - 2:00 p.m.

Date: Saturday, March 3, 2018

Location: 9191 E. San Salvador Drive, Scottsdale, AZ 85258

HOME COLLECTION (MONTHLY)

Scottsdale Solid Waste provides scheduled household hazardous waste collection at your home for residents who pay for residential collection services. This program is for residential utility customers only. Each residential address can have up to 3 collections per year for free.

2018 Collection Months:

- January
- April
- May
- July
- August
- September
- October
- November

Registration opens the first day of each collection month listed above and is limited to 200 households a month on a first come, first served basis.

IMPORTANT: A maximum of 20 gallons will be collected per appointment.

Steps for Home Collection HHW Pickup:

1

Fill out the HHW Home Collection application (button at the bottom of this page) and explain the type of waste you wish to have picked up from your home.

2

You will receive a confirmation from the City with the anticipated pickup date. The day before your collection appointment an email reminder will be sent.

3

Set out your items for collection by 7 a.m. on your scheduled collection day. All containers must be properly labeled, sealed if necessary, and placed outside by your front door or garage. The largest container eligible for collection is 5 gallons. You are eligible to have 20 gallons of waste picked up per appointment.

Acceptable & Unacceptable Items

From your house

- Aerosol Cans
- Ammonia
- Cleaners and Spot Removers
- NiCad Batteries
- Photo Chemicals and Chemistry Sets
- Oven Cleaners
- Bleaches
- Drain Cleaners
- Fire Extinguishers
- CFL and Fluorescent Light Bulbs

From your garage

- Car Batteries
- Engine Degreasers
- All Engine Fluids
- Gasoline
- Kerosene

From your yard

- Insecticides, Weed Killers and Poisons
- Pesticides
- Fertilizer
- Herbicides
- Rodent Killers
- Swimming Pool Chemicals

From your workbench

- Oil and Latex Paint (20 Gallon Limit)
- Adhesives
- Hobby Supplies
- Sealers
- Solvents
- Rust Preventatives
- Spray Paint
- Stain Thinners and Strippers

Unacceptable Waste Products

- Biological Waste
- Ammunition
- Leaking Containers
- Large Appliances
- Electronics
- Radioactive Materials
- Commercial Chemicals (for business use)

Sign up for a Home Collection

Tips:

- Annual drop-off event is for hazardous materials generated from residences only – no commercial hazardous materials will be accepted.
- Material should be tightly sealed in its original container, if possible, and placed in a cardboard box. Glass containers should be wrapped in towels, cloth or packaged in some other way to prevent breakage. Materials should be transported to the event in the trunk or bed of your vehicle.
- If you cannot make it to our drop-off event, check your local auto parts, home improvement or battery store: many will accept specific household hazardous waste items and properly dispose them.

PROPER DISPOSAL OF MEDICATIONS

When you no longer need a medication (prescription or non-prescription)

Please do not put medications in your garbage disposal, drain or flush them down the toilet.

Recent research from the Environmental Protection Agency has revealed that pharmaceuticals are now evident in our nation's water bodies and groundwater – possibly due to improper disposal.

Instead, here's a simple, safe and effective way to dispose of medications:

1. Place the medication(s) in a watertight container

2. Add enough warm water to help them dissolve into a paste
3. Add a small amount of an undesirable substance like dish soap, coffee grounds or kitty litter to prevent pets and animals from eating it
4. Bag and tie the container and place it in your black trash receptacle for normal collection

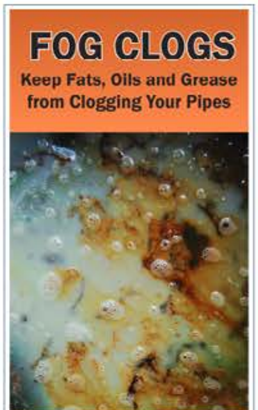
3939 N. Drinkwater Blvd.
Scottsdale, AZ 85251
P: 480-312-3111
F: 480-312-2888
Email: Question@ScottsdaleAZ.Gov

CITY OF SCOTTSDALE

Pretreatment

RESIDENTIAL FATS, OILS AND GREASE

Over time, fats, oils and grease (FOG) from everyday cooking can clog the pipes in your home and in the public sewer system. FOG and food particles poured down the sink solidify in your pipes, eventually causing blockages that can send untreated wastewater backwards – out of manholes or back into your house! Overflows can create serious public health hazards, damage property, cause odor issues and often require expensive repairs.



Download the FOG CLOGS brochure

Hot water and soap may wash fats, oils and grease out of sight, but they don't wash them away entirely. Hot FOG will eventually cool and solidify further down your pipes, where it can still clog sewer lines and create sewage backups in your home or street.

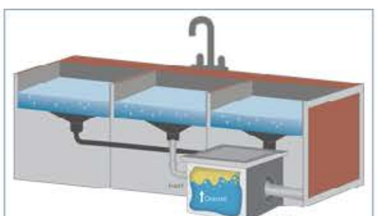
Helpful tips to prevent FOG from entering the drain:

- Pour cooking oils and grease into a small container with absorbent material, such as a paper towel or coffee grounds, and dispose of it in the trash.
- Scrape food from dishes into the trash (not the garbage disposal) and wipe down greasy plates, pots and pans with a paper towel before washing.
- Prevent food from entering your sewer by covering your kitchen sink drain with a strainer.
- Garbage disposals only grind up the greasy, fatty foods into smaller particles, which can make it even easier for it to cling to pipes.

COMMERCIAL FATS, OILS AND GREASE

Restaurants play a major role in helping keep Scottsdale's sewer system working properly. Reducing the amount of food waste that is put into the city's sewer helps

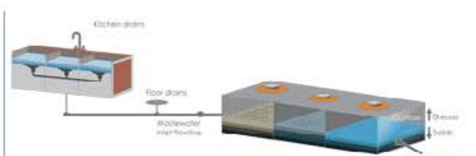
reduce odors, avoid clogs or blockages and prevent costly repairs. Grease traps and interceptors are the best options to help keep the sewer system operating properly.


Grease Trap Image Download

Grease traps are small devices (typically less than 100 gallon capacity) located inside the kitchen, directly plumbed to the 3-compartment sink. They help trap food debris and grease that can mistakenly be washed into the sewer.

Grease interceptors are much larger, 2 or 3 stage systems. Located underground outside of the building, they act as mini wastewater treatment systems to remove the fats, oils and grease from a restaurant's liquid waste.

Both grease traps and interceptors must be documented that they are cleaned and maintained on a regular basis. The routine varies for each restaurant and depends on the size of the kitchen and volume of food prepared each day.


Grease Interceptor Image Download

Scottsdale's Water Quality Department is responsible for inspecting each restaurant and ensuring that all grease traps and interceptors are properly cleaned and maintained.

Contact Information

City of Scottsdale - Scottsdale Water
9312 N. 94th St.
Scottsdale, AZ 85258
P: 480-312-5650
F: 480-312-5615

WaterOperations-CustomerService@ScottsdaleAZ.gov

Office Hours

Monday through Friday
7 a.m. to 4:30 p.m.

SCOTTSDALE WATER

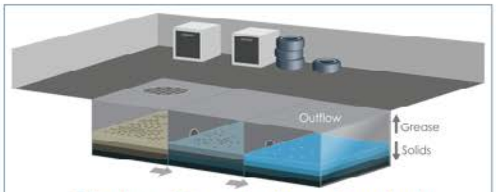
These PDF files are available for download:

- Best Management Practices (PDF)
- Pumping and Maintenance Log (PDF)
- Policy on Additives (PDF)
- Restaurant Inspection Form (PDF)
- Cleaning & Maintenance Tips (PDF)
- Grease Trap Replacement Guidelines (PDF)

CAR WASHES AND SERVICE FACILITIES

Car washes and repair shops an important role in keeping Scottsdale's sewer system working properly. Oil and grease released into the sewer system builds up and can eventually block the sewer pipes and equipment used to treat the wastewater.

Sand/oil interceptors are similar to a restaurant's grease interceptor in that they are multi-stage units designed to capture dirt, debris and automotive fluids that flow into the shop's drainage system.



Petroleum Interceptor Image Download

Like a holding tank, the interceptor provides adequate time for the water and oil to separate so that the petroleum, oil and grease are left behind while the water is discharged into the city's sewer system.

Automotive repair shops, auto body shops, radiator repair shops, car washes and fleet service facilities in the city are required to have their interceptor pumped and cleaned at least once a year. Depending on the amount of discharge in each facility, more pumping and cleaning may be necessary to maintain the device operates properly.

All maintenance records (including pump out documentation) must be kept on site for a minimum of three years and be available for review during routine inspections.

3939 N. Drinkwater Blvd.
Scottsdale, AZ 85251
P: 480-312-3111
F: 480 312 2888
Email: Question@ScottsdaleAZ.Gov

CITY OF SCOTTSDALE

Protect Your Water

Recycled Water

POOL DRAINING

Draining and backwashing are essential parts of keeping your pool summer ready, but how you discharge that water is also one of the most important ways you can help protect the environment and respect your neighbors' properties. Pool water should never be discharged to the street. It is not only a nuisance to neighbors, but it is a violation of local, state and federal regulations.

Storm drains are intended for flood prevention, not wastewater disposal. When pool water, which is already high in salt or chemicals, is discharged to the street, it flows untreated into the city's flood control system, picking up oil and debris before coming to rest in retention basins or eventually making its way to the Salt River where it can damage or kill aquatic life. Water left in streets also damages the pavement over time, leading to costly, burdensome street repairs.

What can I do with discharged pool water?

Where can I find the sewer clean out

Refilling your pool in the winter?

Did You Know?

Salt-tolerant plants

The following list of plants and trees commonly found in Scottsdale landscapes is meant to be used as a guide for identifying plants that can and cannot be safely irrigated with pool water.

Moderate to Very Salt Tolerant	Moderately Salt Tolerant	Salt Sensitive (Do Not Use Pool Water)
Oleander	Lantana	Fruit Trees
Bougainvillea	Pyracantha	Star Jasmine
Rosemary	Bottlebrush	Hop Bush
Bermuda Grass	Yucca	Roses
Desert Broom	Most Acacia	Jojoba
Natal Plum	Palo Verde	Hibiscus
Ice Plant		
Texas Sage		
Olive		
Mesquite		
Saltbush		
Afghan Pine		

REDUCING SALINITY

Recycled water is an essential part of Scottsdale's total water supply. In 2014 alone, Scottsdale Water delivered almost 2.1 billion gallons of recycled water for turf irrigation and recharged over 1.3 billion gallons of highly treated recycled water into the aquifer.

High levels of salinity in our wastewater, caused in part by salt-based water softeners, can be harmful to people and the environment and is not removed in traditional wastewater treatment processes. To make future beneficial use of our wastewater supply, it must be treated through advanced – and expensive – water treatment processes.

To help reduce the amount of salt entering our wastewater, Scottsdale Water launched a two-year pilot program in July 2014 that provides three rebate options to incentivize removal of salt-based water softeners.

Visit our Rebates section to see if you are eligible for a rebate to remove or replace your salt-using water softener.

COMMERCIAL FATS, OILS AND GREASE

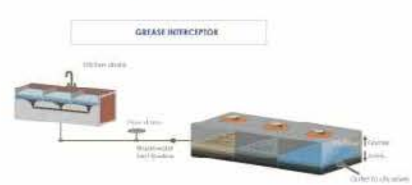
Restaurants play a major role in helping keep Scottsdale's sewer system working properly. Reducing the amount of food waste that is put into the city's sewer helps reduce odors, avoid clogs or blockages and prevent costly repairs. Grease traps and interceptors are the best options to help keep the sewer system operating properly.

Grease traps are small devices (typically less than 100 gallon capacity) located inside the kitchen, directly plumbed to the 3-compartment sink. They help trap food debris and grease that can mistakenly be washed into the sewer

Grease Trap Image Download (PDF)

Grease interceptors are much larger, 2- or 3-stage systems. Located underground outside of the building, they act as mini wastewater treatment systems to remove the fats, oils and grease from a restaurant's liquid waste.

Grease Interceptor Image Download (PDF)



Both grease traps and interceptors must be documented that they are cleaned and maintained on a regular basis. The routine varies for each restaurant and depends on the size of the kitchen and volume of food prepared each day.

Scottsdale's Water Quality Department is responsible for inspecting each restaurant and ensuring that all grease traps and interceptors are properly cleaned and maintained.

These PDF files are available for download:

- Best Management Practices
- Pumping and Maintenance Log
- Policy on Additives
- Restaurant Inspection Form
- Cleaning & Maintenance Tips
- Grease Trap Replacement Guidelines

CAR WASHES AND SERVICE FACILITIES

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Car washes and repair shops an important role in keeping Scottsdale's sewer system working properly. Oil and grease released into the sewer system builds up and can eventually block the sewer pipes and equipment used to treat the wastewater

Sand/oil interceptors are similar to a restaurant's grease interceptor in that they are multi-stage units designed to capture dirt, debris and automotive fluids that flow into the shop's drainage system. Like a holding tank, the interceptor provides adequate time for the water and oil to separate so that the petroleum, oil and grease are left behind while the water is discharged into the city's sewer system.

Automotive repair shops, auto body shops, radiator repair shops, car washes and fleet service facilities in the city are required to have their interceptor pumped and cleaned at least once a year. Depending on the amount of discharge in each facility, more pumping and cleaning may be necessary to maintain the device operates properly.

All maintenance records (including pump out documentation) must be kept on site for a minimum of three years and be available for review during routine inspections.

PRESSURE WASHING AND SURFACE CLEANING

Pressure Washing as Part of the Solution: When done properly, pressure washing can help improve the quality of our water. By cleaning surfaces and collecting and disposing of wastes you are removing pollutants that may have ended up in our water ways.

The Problem: Most pressure washing activities are conducted outside without proper controls, leading to the discharge of wastewater and debris to the storm drain, which ultimately leads to water bodies or collects in trap basins.

BEST MANAGEMENT PRACTICES

Plan Ahead

Prior to beginning pressure washing, determine what wash water containment and disposal methods you will use and identify the specific location where you will dispose of the wastewater generated from the cleaning activity. Obtain permission to access onsite disposal point.

Prepare Site

Block storm drains with an impervious barrier such as gravel bags or berms, or seal storm drains with plugs or rubber mats. Obtain permission to access onsite disposal point.

Surface Preclean

Use dry methods and absorbents on small oil spots to clean spills before washing. Sweep up trash, debris and dirt before wet washing. Properly dispose of precleaning waste. Precleaning can significantly reduce costs and simplify the wastewater disposal process.

Pressure Wash Responsibly

Minimize water usage during cleaning (use a low-volume nozzle). Avoid using cleaning products that contain hazardous substances.

Collect Wash Water

Use an approved wastewater containment method to collect all wash water. Place an oil absorbent pad on top of collected wash water to reduce or remove floating oil. Wastewater with high pollutant concentrations, including cleaning compounds, must be completely collected and may not be left to evaporate.

Dispose of Wash Water

Determine appropriate wash water disposal. See below for examples.

WASH WATER CONTAINMENT

Berms

Create a protective barrier around the storm drain inlet allowing the wastewater to pool around the drain prior to proper collection and disposal. Berms may be less effective or ineffective when the storm drain is located at the bottom of a slope or a large amount of wash water is generated.

Storm drain covers and mats

Magnetic vinyl mats, polyurethane mats or PVC drain covers placed on top of the storm drain grate allow wash water to accumulate until the pressure washing activity is complete and the wash water can be collected for proper disposal. Storm drain covers are often used with a vacuum device that diverts wash water into the sanitary sewer system.

Vacuum Devices

Wet/dry vacuums, sump pumps and vacuum pumps can be used to collect wastewater after pressure washing. Vacuum devices typically have an extension (vacuum boom) that allows the wash water to be collected efficiently. Many vacuum devices are also designed with a second hose that can run from the pump to the sanitary sewer or a truck/trailer-mounted holding tank.

WASH WATER DISPOSAL

Disposal through a Pretreatment Device

Discharge wash water to the sanitary sewer through a fats, oils and grease or petroleum, oil and grease interceptor. The easiest access point to this system should be the business mop sink or the cleanout located before the interceptor.

Disposal by liquid waste hauling company

Permitted third-party company hauls wash water to a treatment site before discharging to the sewer under specific permit. Waste management company must be permitted by the Arizona Department of Environmental Quality to manage wastewater.

Disposal as Hazardous Waste

Some wastewaters must be transported through a licensed hazardous waste hauler. Generator must have a state or federally issued EPA ID number. For hazardous waste questions, contact the Scottsdale Solid Waste Department at 480 312 5600.

MOBILE FOOD UNITS

Properly disposing of fats, oils, and grease (FOG) and grey water protects Scottsdale's sewer system and the environment. FOG can build up and completely block sewer pipes, which can create difficult and expensive maintenance problems for both the city and private property owners. Blocked sewer pipes can also cause raw sewage to back up into homes or businesses, or overflow into streets and washes.

DO:

- Collect all wastewater from utensil washing in a wastewater tank.
- Discharge utensil washing wastewater to a drain that leads to an adequately sized and regularly cleaned grease trap at your permitted commissary kitchen.
- If using a liquid waste hauler to dispose of this wastewater, make sure:
  - The waste type is marked as "Food Service Grease Interceptor (or Trap)" on the manifest.
  - You obtain and keep your copy of the liquid waste hauler manifest for your records for at least 3 years.
  - The wastewater will be taken to a facility permitted to accept food service waste.
- Collect used cooking grease in a closed container.
- Contract with a waste grease recycling service or properly permitted recycling/disposal facility for the collection, recycling or disposal of used cooking grease.

DO NOT:

- Dispose of any wastewater on the ground or down any storm drain. Storm drain water is not treated and flows directly into Indian Bend Wash.
- Dispose of any utensil washing wastewater down toilets. Toilets are not connected to grease traps.
- Dispose of any wastewater at a car wash or any other location not authorized to receive hauled liquid waste or not designated as the permitted commissary kitchen for your mobile food vending operation.
- Dispose of utensil washing wastewater down any drain unless it has been verified with the commissary kitchen's business owner/manager that the drain goes to a grease trap.
- Dispose of any used cooking grease to any drain, even if it is connected to a grease trap. This waste must be recycled or disposed using facilities permitted to accept such waste.

Appendix E
Training Documentation

Training Matrix
2020 Stormwater Annual Report
City of Scottsdale
July 1, 2019 – June 30, 2020

Training Module #	Permit Appendix A Reference	Type of Training	Targeted Audience	Delivery Method
1	Section III (A)(1)	IDDE training on detecting, investigating, and identifying illicit discharges, De Minimis discharges, and other sources of non-stormwater discharges	Water Resources Inspectors	In-person
2	Section III (A)(2)	IDDE General stormwater pollution prevention awareness training	Appropriate field staff from Street Operations, Water and Wastewater, Parks & Recreation, Westworld, Airport, Facilities Maintenance, Sanitation/Solid Waste, Police Dept, and Fire Dept	Scottsdale University
3	Section IV (A) Good Housekeeping	Maintenance training that integrates stormwater concerns into the City's procedures for all maintenance activities. 1. Spill prevention / management.	Appropriate staff from Water Resources and Facilities Maintenance	Scottsdale University
3		2. Storage, transportation, disposal of used oil and haz waste.		
4		3. Sewer system repair and maintenance.		
1		4. SW management practices & pollution prevention plans	Water Resources Inspectors and Inspection Services	In-person
5	Section IV (A) Control Measure Field Manual	Training on the control measure field manual.	Street Operations, Drainage Inspectors, and Water Resources Inspectors	Scottsdale University
6	Section V (A)	Industrial inspection training on stormwater practices, control measures, and the Enforcement Response Plan for industrial facilities subject to City inspections.	Drainage and Water Resources Inspectors	Scottsdale University and In-person
7	Section VI (A)	Training on grading and design stds, review procedures, municipal ordinances, construction and post construction BMPs	Stormwater Plan Review staff and Inspection Services	In-person
8	Section VI (A)	Training on municipal stormwater and construction codes, construction BMPs, inspection and enforcement procedures	Appropriate staff from CPM and Inspection Services	Scottsdale University

City of Scottsdale – Water Resources Division
Stormwater Quality

Training Name:	**IDDE for WQ Inspectors (Module #1)**
Training Description:	**Detecting, Investigating and Reporting Illicit Discharges**
Instructor(s):	**Bryce Denton**
Location:	**Water Campus – Santa Cruz Room**
Date:	**May 13, 2019**

PRINTED NAME	SIGNATURE
Krystal Heyer	[signature]
Carie Wilson	[signature]
Bryce Denton	[signature]
BRIAN FLEMISTER	[signature]
VICTOR P. SESATE	Victor P. Sesate
MARK LINA	[signature]
Brian O'CONNOR	Brian [signature]
Lillian Reeves	Lillian Reeves

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Stormwater General Awareness E-Learning Course

July 1, 2019 - June 30, 2020

Name	Primary Job	Primary Organization Name
SHAYNE LOPEZ	CONSTRUCTION ADMIN SUPERVISOR	20600 - CAPITAL PROJECT MANAGEMENT
TRAVIS B WILLIAMS	IRRIGATION SYSTEMS SPECIALIST	25411 - IRRIGATION REPAIR
ALAN R WAGGERBY	PW INFRASTRUCTURE INSPECTOR II	20155 - ASPHALT & MAINTENANCE
RICHARD REIN	FACILITIES MAINT TECH - CDL	20907 - CONSTRUCTION SERVICES
TYLER - 1423 PARKS	POLICE OFFICER	22200 - PATROL SERVICES
TUYEN Q HUYNH	FLEET TECHNICIAN III	20706 - FLEET MANAGEMENT OPERATIONS
DEAN S LAURENCE	SIGN TECHNICIAN	20180 - SIGNS AND MARKINGS
WAYNE C CADY	HORTICULTURE SPECIALIST	25419 - MAINTENANCE-VISTA DEL CAMINO
LARRY L BETTS II	MAINTENANCE TECHNICIAN	25419 - MAINTENANCE-VISTA DEL CAMINO
HAYDEN LEE LANCASTER	MAINTENANCE WORKER II	25402 - DOWNTOWN SCOTTSDALE
MIKE N MCCORMICK	STREETS EQUIPMENT OPERATOR SR	20150 - STREET CLEANING
JONATHAN M HAWKINS	W/WW TREATMENT PLANT OP II	29221 - CAP TREATMENT PLANT
SAMUEL JERRY KELLY	ITS OPERATOR	20165 - INTELLIGENT TRANSPORTATION SYS
SEANDALE A POE	WATER QUALITY SPECIALIST SR	29400 - WATER QUALITY
DIANE - L1000 E CHADWELL	CODE ENFORCEMENT ASSISTANT	21840 - CODE ENFORCEMENT
SUZANNE M GRENDAHL	WATER QUALITY DIRECTOR	29460 - WATER LABORATORY
DAVE P LIPINSKI	CITY ENGINEER	20600 - CAPITAL PROJECT MANAGEMENT
ANDREW JAROD LOPEZ	MAINTENANCE WORKER I	25404 - PROFESSIONAL BASEBALL
BEN L ABEYTA	ELECTRICIAN	20903 - ELECTRICAL MAINTENANCE
JERRY M GOLLUBIER	WATER METER TECHNICIAN I	29206 - WATER METER REPLACEMENT
MELANIE SCHWANDT	ADMINISTRATIVE SECRETARY	21840 - CODE ENFORCEMENT
MARCO RAMOS	MAINTENANCE FOREMAN - CDL	25200 - WESTWORLD
MIKE W YOUNG	W/WW TREATMENT PLANT OP II	29221 - CAP TREATMENT PLANT
TIMOTHY ALLEN LAURIA	ELECTRICIAN	20903 - ELECTRICAL MAINTENANCE
THOMAS A MANGINI	FACILITIES MAINTENANCE TECH	20904 - BUILDING MAINTENANCE AND REPAIR
SIDNEY E GODFREY JR	EQUIPMENT SERVICE WRITER	20706 - FLEET MANAGEMENT OPERATIONS
BANG D TRAN	ELECTRICIAN	20903 - ELECTRICAL MAINTENANCE
ROBERT O BUTTRUM	EQUIPMENT PARTS TECHNICIAN	20710 - FLEET MANAGEMENT PARTS SUPPLY
JULIE A PRICE	PAINTER	20907 - CONSTRUCTION SERVICES
MITCHELL B JORDAN	ELECTRICIAN	20903 - ELECTRICAL MAINTENANCE
SCOTT A JOHNSON	FACILITIES MAINT TECH - CDL	20907 - CONSTRUCTION SERVICES
CHARLES GRIFFIN	FACILITIES MAINTENANCE TECH	20904 - BUILDING MAINTENANCE AND REPAIR
JOHN K JOSEPH	MAINTENANCE WORKER II	25426 - MAINTENANCE-SCOTTSDALESPORTSCOMPLEX
ADNAN T HASAN	W/WW TREATMENT PLANT OP II	29607 - GAINEY RANCH WATER RECLAMATION
JEFF TODD NELSON	SIGN FABRICATOR	20180 - SIGNS AND MARKINGS
NATHAN K DAVIS	MAINTENANCE WORKER II - CDL	20180 - SIGNS AND MARKINGS
JOHN THEODORE MILLER	ITS SIGNALS TECH III	20170 - TRAFFIC SIGNALS
JERRY P ARMSTRONG	MAINTENANCE TECH AQUATICS	25410 - MAINTENANCE - FOUNTAINS & AQUATICS
CHERLE D ARTHURS	CUSTOMER SERVICE REP SR	20700 - FLEET MANAGEMENT ADMINISTRATION
DERRICK A SCHENK	FLEET TECHNICIAN III	20706 - FLEET MANAGEMENT OPERATIONS
JEFF J KURTH	WESTWORLD FACILITIES MANAGER	25200 - WESTWORLD
FELIX R SALDANA	SOLID WASTE EQUIP OPERATOR III	20540 - COLLECTOIN SVC ADMIN-RES (07/1
CHRIS S IHRIG	W/WW TREATMENT PLANT OP II	29260 - CHAPARRAL WATER TREATMENT PLANT
JOSEPH C NEITZEL	WASTEWATER COLLECTIONS OPER	29321 - SEWER COLLECTION SYSTEM
BILLY A AVELAR	SIGN TECHNICIAN	20180 - SIGNS AND MARKINGS

Stormwater Material Handling E-Learning Course

July 1, 2019 - June 30, 2020

Name	Primary Job	Primary Organization Name
DARREN LUND	EQUIPMENT PARTS TECHNICIAN	20710 - FLEET MANAGEMENT PARTS SUPPLY
KYLE J HUTTENHOW	W/WW MAINTENANCE TECH II	29530 - UTILITIES MAINTENANCE-WATER
DANIEL KIRCHMAN	FLEET TECHNICIAN I	20706 - FLEET MANAGEMENT OPERATIONS
TUYEN Q HUYNH	FLEET TECHNICIAN III	20706 - FLEET MANAGEMENT OPERATIONS
DIANE NEUHARTH		20710 - FLEET MANAGEMENT PARTS SUPPLY
TIMOTHY J EVANS	FLEET TECHNICIAN II	20706 - FLEET MANAGEMENT OPERATIONS
DOUGLAS B MAGEE	W/WW MAINTENANCE TECH IV	29208 - WATER PLANT MAINTENANCE
JOSEPH C NEITZEL	WASTEWATER COLLECTIONS OPER	29321 - SEWER COLLECTION SYSTEM
MELVIN R GALBRAITH	PUBLIC WORKS DEPT DIRECTOR	20700 - FLEET MANAGEMENT ADMINISTRATION
RICHARD H LAGNO	FLEET ASSETS MANAGER	20700 - FLEET MANAGEMENT ADMINISTRATION
BRIAN J DOLAN	W/WW TREATMENT PLANT OP III	29260 - CHAPARRAL WATER TREATMENT PLANT
SUZANNE M GRENDAHL	WATER QUALITY DIRECTOR	29460 - WATER LABORATORY
MARK R LINA	WATER QUALITY SPECIALIST	29430 - INDUSTRIAL PRETREATMENT
THEODORE AL BEGAY	FLEET TECHNICIAN III	20706 - FLEET MANAGEMENT OPERATIONS
CARIE A WILSON	WATER QUALITY REGULATORY MGR	29400 - WATER QUALITY
BRIAN KENNETH STIDHAM	WATER SYSTEMS ANALYST	29515 - WATER RECLAMATION EFF GROUP
SEANDALE A POE	WATER QUALITY SPECIALIST SR	29400 - WATER QUALITY
JASON GLENN BOWMAN	W/WW OPERATIONS SUPERVISOR	29540 - UTILITIES MAINT-ELECTRICAL
WILLIAM BROWN	FLEET TECHNICIAN III	20706 - FLEET MANAGEMENT OPERATIONS
ROBERT O BUTTRUM	EQUIPMENT PARTS TECHNICIAN	20710 - FLEET MANAGEMENT PARTS SUPPLY
RONALD R JANASHAK	W/WW MAINTENANCE TECH II	29255 - ARSENIC TREATMENT
BILL KOHN	FLEET OPERATIONS MANAGER	20706 - FLEET MANAGEMENT OPERATIONS
CLYDE DUNN II	FLEET TECHNICIAN III	20706 - FLEET MANAGEMENT OPERATIONS
CRAIG A TAYLOR	FACILITIES SUPERVISOR	20903 - ELECTRICAL MAINTENANCE
EDWARD BASTIN	FLEET TECHNICIAN III	20706 - FLEET MANAGEMENT OPERATIONS
CHERLE D ARTHURS	CUSTOMER SERVICE REP SR	20700 - FLEET MANAGEMENT ADMINISTRATION
ROBERT DEWOLF	FLEET TECHNICIAN CREW CHIEF	20706 - FLEET MANAGEMENT OPERATIONS
FRANK ANDERSON	FLEET TECHNICIAN I	20706 - FLEET MANAGEMENT OPERATIONS
THOMAS MONTANEZ	FLEET TECHNICIAN II	20706 - FLEET MANAGEMENT OPERATIONS
JAMES MARVIN EULER	FLEET TECHNICIAN CREW CHIEF	20706 - FLEET MANAGEMENT OPERATIONS

Stormwater Water and Wastewater Maintenance CBT

July 1, 2019 - June 30, 2020

Name	Primary Job	Primary Organization Name
JEFF D JERRY	W/WW UTILITY ELECTRICIAN III	29540 - UTILITIES MAINT-ELECTRICAL
JOSE L FERNANDEZ	WATER SERVICES WORKER II	29201 - WATER VIA LINDA FACILITY
GEORGE W THRASH JR	WATER MAINTENANCE MANAGER	29530 - UTILITIES MAINTENANCE-WATER
MARK R LINA	WATER QUALITY SPECIALIST	29430 - INDUSTRIAL PRETREATMENT
IAN M ENNIS	WATER SERVICES WORKER IV	29201 - WATER VIA LINDA FACILITY
SUZANNE M GRENDAHL	WATER QUALITY DIRECTOR	29460 - WATER LABORATORY
DAVID O RABAGO	W/WW MAINTENANCE TECH II	29380 - WATER CAMPUS WATER RECLAMATION
JOSEPH C NEITZEL	WASTEWATER COLLECTIONS OPER	29321 - SEWER COLLECTION SYSTEM
CARIE A WILSON	WATER QUALITY REGULATORY MGR	29400 - WATER QUALITY
ZACH LEE JONES	W/WW MAINTENANCE TECH III	29208 - WATER PLANT MAINTENANCE
WILLIAM F DEMARBIEX JR	WATER SERVICES WORKER III	29201 - WATER VIA LINDA FACILITY
BRIAN KENNETH STIDHAM	WATER SYSTEMS ANALYST	29515 - WATER RECLAMATION EFF GROUP
KEVIN M CAYE	WATER SERVICES WORKER III	29201 - WATER VIA LINDA FACILITY
CURT C CLUFF	WATER SERVICES WORKER III	29201 - WATER VIA LINDA FACILITY
SEANDALE A POE	WATER QUALITY SPECIALIST SR	29400 - WATER QUALITY
GREG A KURTH	W/WW UTILITY ELECTRICIAN II	29540 - UTILITIES MAINT-ELECTRICAL
CORY D MATT	WATER SERVICES WORKER IV	29201 - WATER VIA LINDA FACILITY

Stormwater CM Field Manual E-Learning Course

July 1, 2019 - June 30, 2020

Name	Primary Job	Primary Organization Name
JON A HUGHES	CONSTRUCTION ADMIN SUPERVISOR	20600 - CAPITAL PROJECT MANAGEMENT
JOHN THEODORE MILLER	ITS SIGNALS TECH III	20170 - TRAFFIC SIGNALS
RUBEN A SALSE JR	ITS SIGNALS SUPERVISOR	20170 - TRAFFIC SIGNALS
DAVID ALAN STREGE	MAINTENANCE TECH - CDL	20180 - SIGNS AND MARKINGS
JOHN H SPINCK	MAINTENANCE TECHNICIAN	25412 - MEDIANS & RIGHT-OF-WAY
DEAN S LAURENCE	SIGN TECHNICIAN	20180 - SIGNS AND MARKINGS
MIKE N MCCORMICK	STREETS EQUIPMENT OPERATOR SR	20150 - STREET CLEANING
RICHARD W DEMERS	STREET MAINTENANCE WORKER	20145 - ENGINEERING - WASTEWATER *07/11
SHAUN SHAUN STANSBURY	STREET OPERATIONS & MAINT SPEC	20150 - STREET CLEANING
CURTIS G KEEVER	PW INFRASTRUCTURE INSPECTOR II	20600 - CAPITAL PROJECT MANAGEMENT
SAMUEL JERRY KELLY	ITS OPERATOR	20165 - INTELLIGENT TRANSPORTATION SYS
MICHAEL A RIVERA	STREETS EQUIPMENT OPERATOR	20150 - STREET CLEANING
BILLY A AVELAR	SIGN TECHNICIAN	20180 - SIGNS AND MARKINGS
ALBERTO J FRAGOSO	MAINTENANCE TECHNICIAN	20145 - ENGINEERING - WASTEWATER *07/11
SHAYNE LOPEZ	CONSTRUCTION ADMIN SUPERVISOR	20600 - CAPITAL PROJECT MANAGEMENT
MICHELLE Y DALTON	SYSTEMS INTEGRATOR	21005 - PLANNING TECHNOLOGY
MARK R LINA	WATER QUALITY SPECIALIST	29430 - INDUSTRIAL PRETREATMENT
TODD A LANENGA	PW INFRASTRUCTURE INSPECTOR II	20600 - CAPITAL PROJECT MANAGEMENT
JEFF TODD NELSON	SIGN FABRICATOR	20180 - SIGNS AND MARKINGS
JAMES JOSEPH NICHOLES	STREETS EQUIPMENT OPERATOR SR	20150 - STREET CLEANING
SUZANNE M GRENDAHL	WATER QUALITY DIRECTOR	29460 - WATER LABORATORY
CARIE A WILSON	WATER QUALITY REGULATORY MGR	29400 - WATER QUALITY
TODD J CZARNYSZKA	MAINTENANCE TECH - CDL	20180 - SIGNS AND MARKINGS
ALAN R WAGGERBY	PW INFRASTRUCTURE INSPECTOR II	20155 - ASPHALT & MAINTENANCE
SEANDALE A POE	WATER QUALITY SPECIALIST SR	29400 - WATER QUALITY
J. ALONZO A GRANILLO JR	STREET MAINTENANCE SUPERVISOR	20840 - ASPHALT & MAINTENANCE

SPCC CBT

July 1, 2019 - June 30, 2020

Name	Primary Job	Primary Organization Name
CARIE A WILSON	WATER QUALITY REGULATORY MGR	29400 - WATER QUALITY
BRIAN J DOLAN	W/WW TREATMENT PLANT OP III	29260 - CHAPARRAL WATER TREATMENT PLANT
KYLE J HUTTENHOW	W/WW MAINTENANCE TECH II	29530 - UTILITIES MAINTENANCE-WATER
JOSEPH C NEITZEL	WASTEWATER COLLECTIONS OPER	29321 - SEWER COLLECTION SYSTEM
BRIAN L PAULSON	WATER PRODUCTION MANAGER	29200 - WATER SERVICES ADMINISTRATION
JOSE J CELIS	W/WW TREATMENT PLANT OP II	29600 - CGTF REIMBURSABLE (07/17)
JASON J WOLFE	W/WW MAINTENANCE TECH III	29530 - UTILITIES MAINTENANCE-WATER
LARRY REDMOND JR	W/WW TREATMENT PLANT OP II	29280 - Well Sites
DON HENDERSON	W/WW TREATMENT PLANT OP IV	29260 - CHAPARRAL WATER TREATMENT PLANT
CARLO F LENTINI	W/WW TREATMENT PLANT OP II	29380 - WATER CAMPUS WATER RECLAMATION PLNT
MARK R LINA	WATER QUALITY SPECIALIST	29430 - INDUSTRIAL PRETREATMENT
DOUGLAS B MAGEE	W/WW MAINTENANCE TECH IV	29208 - WATER PLANT MAINTENANCE
BRADLEY S LOVITT	W/WW TREATMENT PLANT OP III	29260 - CHAPARRAL WATER TREATMENT PLANT
KRYSTAL R HEYER	WATER QUALITY COORDINATOR	29430 - INDUSTRIAL PRETREATMENT
RONALD R JANASHAK	W/WW MAINTENANCE TECH II	29255 - ARSENIC TREATMENT
THOMAS J STEWART	W/WW UTILITY ELECTRICIAN II	29540 - UTILITIES MAINT-ELECTRICAL
CRAIG BROWNE	W/WW TREATMENT PLANT OP II	29221 - CAP TREATMENT PLANT
SEANDALE A POE	WATER QUALITY SPECIALIST SR	29400 - WATER QUALITY
SAM S BROWN	PLANNER ENVIRONMENTAL	21600 - OFFICE OF ENVIRONMENTAL INITIATIVES
BRYAN L VEATCH	WASTEWATER COLLECTIONS OPER	29321 - SEWER COLLECTION SYSTEM
JOHN HORTA	W/WW TREATMENT PLANT OP IV	29221 - CAP TREATMENT PLANT
ADOLFO E AGUNDEZ	W/WW TREATMENT PLANT OP II	29221 - CAP TREATMENT PLANT
BRIAN L SMITH	WATER MAINTENANCE MANAGER	29530 - UTILITIES MAINTENANCE-WATER
ZACH LEE JONES	W/WW MAINTENANCE TECH III	29208 - WATER PLANT MAINTENANCE

City of Scottsdale – Water Resources Division
Stormwater Quality

Training Name:	**Industrial and Commercial Facility Inspections (Module #6)**
Training Description:	**SW Management practices, BMPs/Control Measures at Industrial and Commercial Sites**
Instructor(s):	**Bryce Denton**
Location:	**Water Campus – Santa Cruz Room**
Date:	**May 13, 2019**

PRINTED NAME	SIGNATURE
Krystal Heyer	[signature]
Carie Wilson	[signature]
Bryce Denton	[signature]
BRIAN FLEMISTER	[signature]
VICTOR P. SESATE	Victor P. Sesate
MARK LINA	[signature]
Brian O'Connor	[signature]
Lillian Reeves	Lillian Reeves

Module # 7
City of Scottsdale Stormwater Training

Plan Review Staff training on review of grading and drainage plans

Topics Covered: Requirements of AZPDES Permit No. AZS000020-2010 Appendix A, section VI (A).

Training to educate and update inspectors Plan Review Staff on policies and ordinances to related to storm water management practices as part of the review of grading and drainage plans.

Training Method: Attendees viewed the Power Point: Stormwater Plan Reviewer Training and demonstrated use of the CDS system to record plan review information.

Attendees:

Name	Signature	Date
Richard Anderson	Richard [illegible]	6/4/18
Mohammad Rahman		
Nerijus Baronas	[illegible]	31/MAY/2018
Ashley Couch	C. Ashley Couch	31/MAY/2018
Don Gerkin	[illegible]	5/30/2018
Randy Ryan	[illegible]	6/2/18
Sierra Perrine	Sierra Perrine	6/5/18

Stormwater Construction Site Inspections E-Learning Course

July 1, 2019 - June 30, 2020

Name	Primary Job	Primary Organization Name
JON A HUGHES	CONSTRUCTION ADMIN SUPERVISOR	20600 - CAPITAL PROJECT MANAGEMENT
DAVE P LIPINSKI	CITY ENGINEER	20600 - CAPITAL PROJECT MANAGEMENT
CURTIS G KEEVER	PW INFRASTRUCTURE INSPECTOR II	20600 - CAPITAL PROJECT MANAGEMENT
SEANDALE A POE	WATER QUALITY SPECIALIST SR	29400 - WATER QUALITY
SUZANNE M GRENDAHL	WATER QUALITY DIRECTOR	29460 - WATER LABORATORY
MARK R LINA	WATER QUALITY SPECIALIST	29430 - INDUSTRIAL PRETREATMENT
TODD A LANENGA	PW INFRASTRUCTURE INSPECTOR II	20600 - CAPITAL PROJECT MANAGEMENT
CARIE A WILSON	WATER QUALITY REGULATORY MGR	29400 - WATER QUALITY
ALAN R WAGGERBY	PW INFRASTRUCTURE INSPECTOR II	20155 - ASPHALT & MAINTENANCE

Appendix F
Inventory of Municipal Facilities

Municipal Inventory
2020 Stormwater Annual Report
City of Scottsdale

Facility #	Facility Name	Location
1	67th St Pump Station	2935 N 67th PL
2	Agua Linda Park	8732 E McDonald Dr
3	Airport	15000 N Airport Dr
4	Airport Business Ctr Building	15041 N Airport Dr
5	Airport Maint Shop	15000 N Airport Dr
6	Apache Park	1201 N 85 Pl
7	Appaloosa Library	7377 E Silverston Dr
8	Arabian Library	10215 E McDwell MtN Rch Rd
9	Aztec Park School Room	13777 N 100th St
10	Cactus Park Recreation Center	7202 E Cactus Rd
11	Camelback Park	4707 N Hayden Rd
12	CAP Basin - Sports Complex	8082 N Princess Dr.
13	CAP Plant	8660 E Union Hills Dr
14	Chaparral Park Recreation Center	5401 N Hayden Rd
15	Chaparral Water Treatment Plant	8111 E McDonald Dr
16	Chestnutt Park	4565 N Granite Reef Rd
17	Cholla Park	11320 E Via Linda
18	City Hall	3939 N Drinkwater BL
19	Civic Center Library	3839 N Civic Center BL
20	Comanche Park	7639 N Via Paseo Del Norte
21	Dix Building	9388 E San Salvador Dr
22	Drinkwater Building (JC Bldg)	8102 E JackRabbit Rd
23	Eldorado Park Recreation Center/B&G	2311 N Miller Rd
24	Eldorado Park So Office & Restrooms	1909 N Miller Rd
25	Eldorado Pool Bath House	2301 N Miller Rd
26	Fire Station 601 (new)	1901 N Miller
27	Fire Station 601 (vacant)	2857 N Miller Rd
28	Fire Station 602	7225 E Indian School Rd
29	Fire Station 603	7339 E McDonald Dr
30	Fire Station 604	9045 E Via Linda
31	Fire Station 605	7455 E Shea Rd
32	Fire Station 606	10850 N Via Linda
33	Fire Station 607	11170 N 132nd St
34	Fire Station 608	9598 E Cactus Rd
35	Fire Station 609	14970 N 78th WY
36	Fire Station 610	16701 N 100th St
37	Fire Station 611	20335 N Pima Rd
38	Fire Station 614	27777 N Alma School Rd
39	Fire Station 615	31802 N Pima Rd
40	Fire Station 616	9320 E Cave Creek Rd
41	Fire Station 616 Modular	9320 E Cave Creek Rd
42	Florence Ely Nelson Desert Park	8950 E Pinnacle Peak Rd
43	Gainey Ranch Treatment Plant**	7283 E Mountain View Rd
44	Gateway Access Area Facility/Maint Bldg	18337 E Thompson Peak Pkwy
45	George "Doc" Cavalliere Park	27775 N Alma School Pkwy
46	Granite Reef Senior Center	8401 E Granite Reef Rd
47	Grayhawk Park	20726 N 76th St
48	Horizon Park Rec Center	15441 N 100Th St
49	Indian School Park Giants Training Facility	8045 E Camelback Rd
50	Indian School Park Visitors Center	4201 N Hayden Rd
51	Indian School Park Tennis/Rec Center	4289 N Hayden Rd
52	Ironwood Park	18650 N. 94th St.
53	Jomax Trailer	26605 N Pima Rd
54	Justice Center/PD HQ Dist 2	3200 N 75th St
55	LaFayette Park	6745 E Lafayette Blvd
56	McCormick R R Park	7301 E Indian Bend Rd
57	McDowell Mtn Ranch Aquatic Center	15525 N Thompson Peak Pkwy
58	McKellips Park Maint Compound	7800 E McKellips Rd
59	McKnight Building	4021 N 75th St
60	Mescal Park	11015 N 68th St
61	Mountain View Park	8625 E Mountain View Rd
62	Mustang Library	10101 N 90th St
63	Nature Park	6801 N Hayden Rd
64	North Corp Yard	9191 E San Salvador Dr

65	Northsight Park	8400 E Thunderbird Rd
66	One Civic Center	7447 E Indian School Rd
67	Osborn Park	7775 E Osborn Rd
68	Paiute Park, Paiute Center 1-10	6535 E Osborn Rd
69	Papago Rotary Park	7316 E Garfield St
70	PD Advocacy Center	10225 E Via Linda
71	PD/Fire Training Grounds	911 E Stadem Dr
72	Pima Park	8600 E Thomas Road
73	Pinnacle Peak Park Office/Restrooms	26802 N 102nd WY
74	Police Crime Lab/ Property - McKellips	7601 E McKellips Rd
75	Police Horse Barn 1	16600 N Pima Rd
76	Police HQ Dist 1	7601 E McKellips Rd
77	Police HQ Dist 3	9065 E Via Linda
78	Police HQ Dist 4	20335 N Pima Rd
79	Police/Fire HQ Building	8401 E Indian School Rd
80	Public Services Building	7440 E 2nd St
81	Rio Montana Park	11180 N 132 St
82	Rotary Park	7960 E Doubletree Ranch Rd
83	SCA/City Offices	7384 E 2nd St
84	Scottsdale Ranch Park Tennis Rec. Cntr	10400 E Via Linda
85	Scottsdale Sports Restroom/Maint/Conces.	8081 E Princess Dr
86	Scottsdale Stadium	7408 E Osborn Rd
87	Shoshone Park	8300 Via De Dorado
88	SMOCA	7374 E 2nd St
89	Sonoran Hills Park	7625 E Williams Dr
90	South Corp Yard	7601 E McKellips Rd
91	Stonegate Equestrian Park	9555 N 120th St
92	Technology Center	3629 N Drinkwater BL
93	Thomas Road Bike Stop	7801 E Thomas Rd
94	Thompson Peak Park	20199 N. 78th Pl
95	Thunderbird Park	9170 E Thunderbird Rd
96	Thunderbird-Loop 101 Park N Ride	13665 N Scottsdale Rd
97	Tom Hontz PD/Fire Training Bldg	911 E Stadem Dr
98	Transfer Station	8417 E Union Hills Rd
99	Community Design Center	7501 E Indian School Rd
100	Via Linda Senior Center	10400 E Via Linda
101	Vista Del Camino Community Center	7700 E Roosevelt
102	Vista-Del Camino Park	7700 E Roosevelt
103	Vista-McKellips Park	7700 E Roosevelt
104	Water Campus Admin Building	8787 E Hualapai Dr
105	Water Campus**	8787 E Hualapai Dr
106	Water Ops. No./Himovitz 1	9379 E San Salvador Dr
107	Water Ops. So./Himovitz 2	9312 94th St
108	WestWorld	16601 N Pima Rd
109	Zuni Park	7243 N Via Del Elemental

Facilities in red are high priority facilities and are inspected annually. All other facilities are inspected once every 5 yrs.

Appendix G
Numeric Summary of SWMP Activities

Numeric Summary of SWMP Activities
2020 Stormwater Annual Report
City of Scottsdale
July 1, 2019 – June 30, 2020

Stormwater Management Practice or Activity	**Annual Reporting Year (July 1 - June 30)**				
	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020
ILLICIT DISCHARGE DETECTION AND ELIMINATION PROGRAM					
1. Municipal Employee Training					
Number of training sessions (on non-stormwater discharges and the IDDE program)	1	1	1	1	1
Number of employees attending training	7	8	8	7	7
Date of stormwater pollution awareness training development completed	n/a	n/a	n/a	n/a	n/a
Number of employees attending pollution awareness training	73	68	66	46	45
2. Spill Prevention					
Number of municipal facilities identified with hazardous materials	12	12	12	12	12
Number of above municipal facilities with site-specific materials handling and spill response procedures on site	8	8	8	8	8
Number of spills at municipal facilities with hazardous materials, that occurred in outside areas	3	1	1	3	3
Number of facility assessments completed *(identify any issues found requiring follow-up in narrative and summarize new practices to minimize exposure)*	0	0	0	0	0
Date of last review of site-specific materials handling and spill response procedures *(identify participant(s) with some stormwater expertise in narrative)*	In Progress	In Progress	In Progress	In Progress	In Progress
3. Outfall and Field Screening Point Inspections					
Total number of major outfalls and field screening points identified to date *(attach or forward electronic copy of inventory or map of major and 'priority' outfalls and field screening points)*	76	76	76	76	76
Total number of major outfalls and field screening points inspected *(summarize findings and follow-up actions in narrative)*	76	76	37	56	72
Number of 'priority' outfalls and field screening points identified to date *(summarize findings and follow-up in narrative)*	26	26	26	26	26
Number of 'priority' outfalls and field screening points inspected *(summarize findings and follow-up actions in narrative)*	26	26	26	26	26
Number of dry weather flows detected	0	2	2	3	2
Number of dry weather flows investigated	0	2	2	3	2
Number of major outfalls and field screening points sampled	0	0	0	0	0
Number of illicit discharges identified (other than pool)	26	19	12	12	17
Number of illicit discharges eliminated	26	18	12	12	17
Number of storm drain cross connection investigations	0	0	0	0	0
Number of illicit connections detected	1	0	0	0	0
Number of illicit connections eliminated	1	0	0	0	0
Number of corrective or enforcement actions initiated within 60 days of identification	0	3	10	2	0
Percent of cases resolved within one (1) calendar year of original enforcement action	100	100	100	100	100
Number of illicit discharge reports received from public (other than pool)	15	18	18	10	16
Percent of illicit discharge reports responded to	100	100	100	100	100
Percent of responses initiated within three (3) business days of receipt	100	100	100	100	100
MUNICIPAL FACILITIES					
1. Employee Training					
Number of training events *(dates and topics to be included in narrative)*	online	online	online	online	online
Number of staff trained	64	64	80	57	56
2. Inventory, Map, or Database of MS4 Owned and Operated Facilities					
Date of review and update of the municipal facility inventory	continuously	continuously	continuously	continuously	continuously
Total number of municipal facilities on inventory	113	111	110	109	109
Date identification of 'higher risk' facilities completed	Jan-16	Jan-17	Jan-17	Jan-17	Jan-17
Date prioritization of municipal facilities completed	updated	Jan-17	Jan-17	Jan-17	Jan-17
Number of 'higher risk' facilities on inventory	7	6	6	5	5
3. Inspections					
Number of wet-crossings prioritized for inspection	17	17	17	17	17
Miles of MS4 drainage system visually inspected	47	0	28	27	30
Number of 'higher risk' municipal facilities inspected	6	4	6	5	5
Number of 'higher risk' municipal facilities found needing improved stormwater controls	0	0	0	0	0
Number of needed improvements initiated within three (3) months of identification	0	n/a	n/a	n/a	n/a

Numeric Summary of SWMP Activities
2020 Stormwater Annual Report
City of Scottsdale
July 1, 2019 – June 30, 2020

Stormwater Management Practice or Activity	Annual Reporting Year (July 1 - June 30)				
	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020
4. Infrastructure Maintenance					
Number of curb miles (street sweeping, etc.) cleaned each year	29,537	29,347	29,807	22,011	23,821
Number of acres of retention basis maintained/cleaned each year	200	56.74	56.74	54.4	54.4
Record amount of waste collected from street and lot sweeping (in tons)	2,077	12,071	1,745	4,422	929
Total number of drainage facilities *	6,557	6,580	6,683	6,688	6,688
Number of drainage facilities inspected *	1,576	2,175	1,136	467	1,023
Number of drainage facilities cleaned *	37	31	6	8	18
Number of times major streets cleaned	24	24	24	24	24
Number of times downtown streets cleaned	104	104	104	104	104
Number of times residential / commercial streets and medians cleaned	12	12	12	12	12
Number of times bike paths cleaned	12	12	12	12	12
Number of post-storm sweeping events	as needed	as needed	as needed	as needed	as needed
Number of times parking lots and city parks and recreational areas cleaned	8	8	8	8	8
Number of times other downtown parking lots and structures cleaned	26	26	26	26	26
* Drainage Facilities include catch basins, inlets, basins, culverts, etc					
INDUSTRIAL AND COMMERCIAL SITES NOT OWNED BY THE MS4					
Number of training events for MS4 staff	1	1	1	1	1
Number of municipal staff trained	7	8	8	7	7
Date industrial facilities inventory completed (see Appendix A, Part V.B)	Jan-15	Jan-15	Jan-15	Jan-15	Jan-15
Date of last update of industrial facilities inventory	Jan-15	Nov-16	Jan-18	Jan-18	Jan-19
Number of industrial facilities in Part V.B. inventory	2,820	2,820	2,286	2,286	2,242
Number of industrial facilities inspected	93	105	78	103	97
Number of corrective or enforcement actions initiated on industrial facilities	11	19	13	9	5
Percent of cases resolved within one (1) calendar year of original enforcement action	100	100	100	100	100
CONSTRUCTION PROGRAM ACTIVITIES					
Number of training events for MS4 staff *(include topics in narrative summary)*	online	online	online	online	online
Number of municipal staff trained	29	23	23	5	9
Date comprehensive inventory of construction project completed	continuously	continuously	continuously	continuously	continuously
Date of last update of the construction project inventory	continuously	continuously	continuously	continuously	continuously
Number of construction/grading/drainage plans submitted for review	3,292	2,826	2,890	3,412	2,816
Number of construction sites inspected	480	375	416	376	432
Number of inactive construction sites inspected after major storm event but not less than once a year until stabilized	4	3	4	2	2
Number of corrective or enforcement actions initiated on construction facilities *(identify the type of actions in narrative summary)*	21	18	35	23	19
POST CONSTRUCTION PROGRAM ACTIVITIES					
Number of post-construction inspections completed	47	56	72	52	39
Number of corrective or enforcement actions initiated for post-construction activities *(identify the type of actions in narrative summary)*	2	0	0	0	0

Appendix H
Inventory of Outfalls and Field Screening Points

Field Screening Points
2020 Stormwater Annual Report
City of Scottsdale
July 1, 2019 – June 30, 2020

DBID	Drainage ID	Street Address	QS
01LR	15227	Granite Reef Rd s/o Roosevelt	09-46
01MR	15199	SW of Mtn View / Scottsdale Rd	27-44
01UR	15200	17065 N SCOTTSDALE RD	37-45
02LR	15226	NEC Roosevelt and Granite Reef	12-48
02MR	15224	Shea at 71st St	28-44
02UR	7837	18605 N 101ST ST	39-52
03LR	15202	87th St at Thomas	14-48
03MR	15203	SE of Gary and 70th St	29-44
03UR	15204	Bahia and 90th St	36-49
04LR	15223	e/s 64 St s/o Osborn	09-46
04MR	15222	Mescal at 70th St	29-44
04UR	15207	92nd St s/o Bahia	36-49
05LR	8835	NW of McDowell/87 St	09-46
05MR	15221	s/o Gary and 68th Pl	29-44
05UR	15209	7300 E Pinnacle Peak	44-45
06LR	15220	Pima Rd at AZ Canal	22-48
06MR	15219	64 St at Gary Rd	29-43
06UR	15210	Deer Valley Rd at Pima Rd	43-48
07LR	3288	7700 E VAQUERO DR	26-46
07MR	9840	SE of Larkspur and Scottsdale Rd	31-45
07UR	15211	NW of Pima and Hualapai	40-48
08LR	15212	GRC Golf Course near bridge on Doubletree Ranch.	26-46
08MR	15213	Under Bridge on Shea Blvd w/o 92 St	28-49
08UR	15214	Scts Healthcare Dr and 73rd St	41-45
09LR	15215	NE of Scts Rd and Hummingbird Ln	23-45
09MR	15216	Manhole NWC Scottsdale Rd at Greenway PY	34-44
09UR	15217	NEC 85th St and Perimeter	38-48
10LR	15218	SW of Cactus Wren Rd and 84th St	22-47
10MR	15228	15575 N 79TH PL	35-46
10UR	15229	9802 E Paradise Ln	36-51
11LR	15230	Just s/o 6917 N Hayden	22-47
11MR	15231	SWC Northsight and Evans Rd	33-48
11UR	15232	11824 E DESERT TRAIL RD	31-56
12LR	15233	To the east of 6445 N CATTLETRACK RD	21-46
12MR	15234	NWC of Redfield and Raintree	34-49
12UR	15235	e/s Thompson Peak w/o MMR	34-51
13LR	15236	6745 E LAFAYETTE BL	17-43
13MR	15237	Northsight Blvd and 87th St	33-48
13UR	15238	Behind 17495 N 97TH PL	37-51
14LR	15239	4807 N WOODMERE FY	18-45
14MR	15240	10101 N 90TH ST	28-49
14UR	15241	7343 E ADOBE DR	43-45
15LR	15242	s/o 8145 E INDIAN BEND RD BLDG G STE 168	22-47
15MR	15243	Just nw of 12196 N 95TH ST	30-50
15UR	15244	Just w/o 18534 N 96TH WY	38-51
16MR	15225	Shea at 71 St	28-44
17MR	15245	SWC of Mountain View and Scottsdale Rd	27-44
18MR	15246	Just w/o 9286 E LAUREL LN	30-50
19MR	15247	10844 N 100TH ST	29-51
20MR	15248	NWC of 108th St and Cholla Dr	29-53

Major MS4 Outfalls to Indian Bend Wash
2020 Stormwater Annual Report
City of Scottsdale
July 1, 2019 – June 30, 2020

Item #	ID	TYPE	SIZE (ft)	NUMBER	COMMENT	LONGITUDE	LATITUDE
1	3081	PIPE CULVERT	3	1	downstream headwall with one 36" culvert	-111.91473696300	33.53519819720
2	3548	BOX CULVERT	4X6	2	grate size 4ft. x 6ft.	-111.91599074800	33.46524149960
3	3600	BOX CULVERT	5X6	2	downstream headwall with two 5ft x 6ft box culverts	-111.91318567100	33.47942033150
4	3602	PIPE CULVERT	3	2	downstream headwall with two 36" culverts	-111.91140659400	33.48013759440
5	4317	PIPE CULVERT	4	2	downstream headwall with two 42" culverts	-111.91279092700	33.48750603150
6	4318	PIPE CULVERT	3	1	downstream headwall with one 24" culvert	-111.91280712900	33.48734250400
7	4321	PIPE CULVERT	6	1	downstream headwall with one 72" culvert	-111.91284590400	33.48667533810
8	6110	PIPE CULVERT	6	1	downstream headwall with one 72" culvert.	-111.91127062200	33.49445196220
9	6112	PIPE CULVERT	5	2	downstream headwall with two 60" culverts	-111.90928667100	33.49449153950
10	6115	PIPE CULVERT	7	1	downstream headwall with one 84" culvert	-111.91289491100	33.49111670560
11	6174	BOX CULVERT	6X8	2	downstream headwall with two 6ft x 8ft box culverts	-111.90947241500	33.50193738890
12	6245	BOX CULVERT	4X8	2	downstream headwall with two 4ft x 8ft box culverts	-111.90948207000	33.50916197590
13	6247	PIPE CULVERT	3	1	downstream headwall with one 36" culvert	-111.90938226400	33.50606456650
14	6733	PIPE CULVERT	3	1	downstream headwall with one 36" culvert	-111.90936063700	33.51942880640
15	7223	PIPE CULVERT	4	3	downstream headwall with three 48" culverts	-111.91543968600	33.53485002460
16	7225	BOX CULVERT	7X8	3	downstream headwall with three 7ft x 8ft box culverts	-111.91472588800	33.53515851770
17	8448	CATCH-BASIN (BUBBLE-UP STRUCTURE)	8X8	0	grate size 8ft x 8ft	-111.91517681800	33.45799761610
18	8442	PIPE CULVERT	3	2	downstream headwall with two 40" culverts	-111.90905033700	33.52199953110
19	8444	PIPE CULVERT	4	1	downstream headwall with one 52" culvert	-111.90947179500	33.50199510450
20	8449	PIPE CULVERT	4	1	downstream headwall with one 48" culvert	-111.91518345200	33.46553539760
21	8717	PIPE CULVERT	3	4	downstream headwall with three 36" culverts	-111.91726473500	33.46951557380
22	8776	BOX CULVERT	4X10	2	downstream headwall w/ two 4' x 10' box culverts w/ 4'x10' trash gates	-111.91628522800	33.47220262960
23	9836	PIPE CULVERT (BUBBLE-UP STRUCTURE)	66	1	grated outlet	-111.90721600000	33.51494500000
24	15536	BOX CULVERT	3X8	1	downstream headwall with one 3ft x 8ft box culvert with trash grate	-111.91621400000	33.46282800000
25	15744	PIPE CULVERT	5	1	downstream headwall with one 6ft x 10ft box culvert	-111.91289600000	33.48405500000
26	15824	PIPE CULVERT	5	1	downstream headwall with one 60" culvert with friction door	-111.91037000000	33.48313000000

Appendix I
Summary Table of SWMP Changes

City of Scottsdale
Summary of SWMP Changes
2020 Stormwater Annual Report
July 1, 2019 – June 30, 2020

SWMP Section	Modification Detail	Permit Modification Required
9.5	Geographic location of Chaparral monitoring station has changed. Due to a history of safety concerns, ADEQ approved the relocation of the Chaparral station. The station captures the same drainage as the original location, but is now ~450 feet west at Coolidge St./79^{th} St.	No

Appendix J
Chapter 37 Stormwater Ordinance and Enforcement Response Plan

Chapter 37 - STORMWATER AND FLOODPLAIN MANAGEMENT[1]

Footnotes:

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Editor's note— Ord. No. 3333, § 1, adopted Sept. 5, 2000, amended the title of Ch. 37 to read as herein set out. Formerly, Ch. 37 was entitled Floodways and Floodplains. Subsequently, Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 1) adopted Aug. 27, 2012, amended the title of Ch. 37 to read as herein set out. Prior to inclusion of said ordinance, Ch. 37 was titled, "Floodplain and Stormwater Regulation." See also the Code Comparative Table for a detailed analysis of inclusion of Ord. No. 4000 which amended Ch. 37 in its entirety.

Charter reference— General power of city over floodways, etc., art. 1, § 3.

Cross reference— Buildings and building regulations, Ch. 31; planning, development and fees, Ch. 46; subdivisions, Ch. 48; basic zoning ordinance, App. B.

ARTICLE I. - FLOODPLAIN MANAGEMENT—SPECIAL FLOOD HAZARD AREAS[2]

Footnotes:

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Editor's note— Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 2), adopted Aug. 27, 2012, changed the title of Art. I from "In General" to "Floodplain Management—Special Flood Hazard Areas." Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), adopted July 6, 2016, renumbered former §§ 37-17—37-33 and 37-34 of Art. I as §§ 37-5—37-30 and 37-32 and enacted a new § 37-31 as set out herein. The historical notation has been retained with the amended provisions for reference purposes.

DIVISION I. - GENERAL

Sec. 37-1. - Statutory authorization.

In A.R.S. § 48-3610, the Arizona State Legislature enabled the City of Scottsdale to adopt regulations in conformance with A.R.S. § 48-3603 designed to promote the public health, safety and general welfare of its citizenry.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 3), 8-27-12)

Sec. 37-2. - Findings of fact.

(a) The flood hazard areas of the City are subject to periodic inundation which may result in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief and impairment of the tax base, all of which adversely affect the public health, safety and general welfare.

(b) These flood losses may be caused by the cumulative effect of obstructions in areas of special flood hazards which increase flood heights and velocities and, when inadequately anchored, cause damage in other areas. Uses that are inadequately floodproofed, elevated or otherwise protected from flood damage, also contribute to the flood loss.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 3), 8-27-12)

Sec. 37-3. - Statement of purpose.

It is the purpose of this article to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:

(a) Protect human life and health;

(b) Minimize expenditure of public money for costly flood control projects;

(c) Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;

(d) Minimize prolonged business interruptions;

(e) Minimize damage to public facilities and utilities such as water and gas mains; electric, telephone and sewer lines; and streets and bridges located in areas of special flood hazard;

(f) Help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize blight areas caused by flooding;

(g) Notify potential buyers that property is in an area of special flood hazard;

(h) Alert those who occupy the areas of special flood hazard to their responsibilities;

(i) Maintain eligibility for disaster relief.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 3), 8-27-12)

Sec. 37-4. - Methods of reducing flood losses.

In order to accomplish its purposes, this article includes methods and provisions to:

(a) Restrict or prohibit uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or flood heights or velocities;

(b) Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;

(c) Control the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters;

(d) Control filling, grading, dredging, and other development which may increase flood damage; and

(e) Prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 3), 8-27-12)

Sec. 37-5. - Definitions.

Unless specifically defined below, words or phrases used in this article shall be interpreted so as to give them the meaning they have in common usage and to give this article its most reasonable application.

A zone. See "Special flood hazard area".

Accessory structure is a structure, smaller than five hundred (500) square feet, used solely for parking no more than two (2) cars and/or limited storage.

Appeal means a request for a review of the floodplain administrator's interpretation of any provision of this article or a request for a variance.

Area of shallow flooding means a designated AO or AH zone on the flood insurance rate map (FIRM) with a one (1) percent or greater annual chance of flooding to an average depth of one (1) to four (4) feet where a clearly defined channel does not exist, where the path of flooding is unpredictable and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow.

Area of special flood hazard means the land in the floodplain within a community subject to a one (1) percent or greater chance of flooding in any given year. These areas are designated as Zone A, AE, AO, AH, and A1—30 on the FIRM and other areas determined by the criteria adopted by the Director of the Arizona Department of Water Resources. See "Special flood hazard area."

Base flood is the flood having a one (1) percent chance of being equaled or exceeded in any given year. This is also called a one hundred-year flood.

Base flood depth (BFD) is the depth shown on the Flood Insurance Rate Map for Flood Hazard Zone AO that indicates the water depth resulting from a base flood.

Base flood elevation (BFE) is the elevation shown on the Flood Insurance Rate Map for Zones AE, AH and A1—30 that indicates the water surface elevation resulting from a flood that has a one (1) percent or greater chance of being equaled or exceeded in any given year.

Basement is any area of the building having its floor sub-grade - i.e., below ground level - on all sides.

Building. See "Structure."

Building permit is the city's written authorization for a person to start development. Building permit, for this chapter only, includes permits for using the right-of-way, and excludes mining and drilling permits. Mining and drilling permits are issued by the appropriate county, state and federal authorities.

Community means the City of Scottsdale.

Compensatory storage means floodwater storage, or other mitigation, provided to compensate for an equal volume of storage lost in a special flood hazard area or local floodplain through fill or other development.

Development is any human-caused change to improved or unimproved real estate, including, but not limited to, buildings or other structures, construction, mining, dredging, filling, grading, paving, excavation, or storage of equipment or materials.

Encroachment is the advance or infringement of uses, plant growth, fill, excavation, buildings, permanent structures or development into a floodplain, which may impede or alter the flow capacity of a floodplain.

Flood or *flooding* means a general and temporary condition of partial or complete inundation of normally dry land areas from:

(1) The overflow of floodwaters;

(2) The unusual and rapid accumulation or runoff of surface waters from any source, and/or;

(3) The collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature, such as flash flood, or by some similarly unusual and unforeseeable event.

Flood Insurance Rate Map (FIRM) is the official map on which the Federal Emergency Management Agency (FEMA) or Federal Insurance Administration (FIA) has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.

Flood Hazard Zones A, AE, AO, AH, A1—30 and A99 are the areas shown on a FIRM which the Federal Emergency Management Agency has determined will be inundated during a base flood. These areas are called, collectively, "special flood hazard areas."

Flood Hazard Zone D is an area shown on a FIRM which has undetermined but possible flooding hazards.

Flood Hazard Zone E is an area of special flood-related erosion hazards.

Flood Insurance Study (FIS) is the official report provided by the Federal Emergency Management Agency that includes flood profiles, Flood Insurance Rate Maps, and the water surface elevation of the base flood.

Floodplain Administrator is the city manager or designee who is authorized by this chapter to administer its provisions.

Floodplain or *flood-prone area* means any land area susceptible to being inundated by water from any source (see definition of "flooding").

Floodplain Board is the City Council of the City at such times as they are engaged in administering and enforcing this article.

Floodplain management is an overall program of corrective and preventive measures for reducing flood damage, including but not limited to emergency preparedness plans, flood control works and floodplain management regulations.

Floodplain management regulations are this chapter and other zoning ordinances, subdivision regulations, building codes, health regulations, special purpose ordinances (such as grading and erosion control) and other application of police power which control development in flood-prone areas. This term describes federal, state or local regulations in any combination thereof, which provide standards for preventing and reducing flood loss and damage.

Floodproofing is any combination of structural and nonstructural additions, changes, or adjustments to structures, which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures, and their contents.

Flood-related erosion is the collapse or subsidence of land along the shore of a lake or other body of water as a result of undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature, such as a flash flood or an abnormal tidal surge, or by some similarly unusual and unforeseeable event which results in flooding.

Floodway is the area of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. Also referred to as "Regulatory Floodway."

Functionally dependent use is a use which cannot perform its intended purpose unless it is located or carried out in close proximity to water. The term includes only docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and ship building and ship repair facilities, and does not include long-term storage or related manufacturing facilities.

Governing body means the local governing unit, i.e. county or municipality, that is empowered to adopt and implement regulations to provide for the public health, safety and general welfare of its citizenry.

Grading is any excavation or filling of land or combination thereof.

Highest adjacent grade is the highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.

Historic structure is any structure that is:

(1) Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;

(2) Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district;

(3) Individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of the Interior; or

(4) Individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either:

 (a) By an approved state program as determined by the Secretary of the Interior; or

 (b) Directly by the Secretary of the Interior in states without approved programs.

Lowest floor is the lowest floor of the lowest enclosed area (including basement). An unfinished or flood-resistant enclosure, usable solely for parking of vehicles, building access or storage in an area other than a basement area is not considered a building's lowest floor; provided that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of this article.

Manufactured home is a structure, transportable in one (1) or more sections, which is built on a permanent chassis and designed to be used with or without a permanent foundation when connected to the required utilities. The term "manufactured home" does not include a "recreational vehicle."

Manufactured home park (subdivision) is a parcel or contiguous parcels of land divided into two (2) or more manufactured home lots for rent or sale.

Market value. See FEMA Publication 213 and Section 37-15(c)(2)(A).

Mean sea level is, for purposes of the National Flood Insurance Program, the National Geodetic Vertical Datum (NGVD) of 1929, North American Vertical Datum (NAVD) of 1988, or other datum, to which base flood elevations shown on a community's Flood Insurance Rate Map are referenced.

New construction is, for the purposes of determining insurance rates, structures for which the "start of construction" commenced on or after March 26, 1971, and includes any subsequent improvements to such structures. For floodplain management purposes, "new construction" means structures for which the "start of construction" commenced on or after March 26, 1971, and includes any subsequent improvements to such structures.

Obstruction is, including, but not limited to, any dam, wall, wharf, embankment, levee, dike, pile, abutment, protection, excavation, channelization, bridge, conduit, culvert, building, wire, fence, rock, gravel, refuse, fill, structure, vegetation or other material in, along, across or projecting into any watercourse which may alter, impede, retard or change the direction and/or velocity of the flow of water, or due to its location, its propensity to snare or collect debris carried by the flow of water, or its likelihood of being carried downstream.

One hundred-year flood or *100-year flood* is the flood having a one (1) percent chance of being equaled or exceeded in any given year. See "Base flood."

Pending SFHA is an area having flood and/or flood-related erosion hazards as determined by a FIS for which the city has received notification from FEMA that the FIS represents the best available data as provided by FEMA's Floodplain Management Bulletin 1-98, but a FIRM revision is not complete.

Person is an individual or the individual's agent, a firm, partnership, association or corporation, or an agent of the aforementioned groups, or this state or its agencies or political subdivisions.

Recreational vehicle is a vehicle which is:

(1) Built on a single chassis;

(2) Four hundred (400) square feet or less when measured at the largest horizontal projection;

(3) Designed to be self-propelled or permanently towable by a light-duty truck; and

(4) Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

Regulatory flood depth (RFD) is one (1) foot above the base flood depth, or two (2) feet above the highest adjacent grade, if no depth number is shown on the FIRM.

Regulatory Flood Elevation (RFE) is an elevation one (1) foot above the "base flood elevation" for a watercourse for which the base flood elevation has been determined and shall be determined by the criteria developed by the Director of the Arizona Department of Water Resources for all other watercourses.

Regulatory floodway is the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.

Residential structure is a place of residence and may be a single-family or multifamily dwelling.

Riverine is relating to, formed by, or resembling a river (including tributaries), stream, brook, etc.

Sheet flow area. See "Area of shallow flooding."

Special Flood Hazard Area (SFHA) is an area in the floodplain subject to a one (1) percent or greater chance of flooding in any given year. It is shown on a Flood Insurance Rate Map as Zone A, AO, A1—A30, AE, A99 or AH.

Start of construction is the date of building permit issuance for new construction and substantial improvements to existing structures, provided the actual start of construction, repair, reconstruction, rehabilitation, addition, placement or other improvement is within one hundred eighty (180) days after the date of issuance. The actual start of construction means the first placement of permanent construction of a building (including a manufactured home) on a site, such as the pouring of a slab or footings, installation of pilings or construction of columns. Permanent construction does not include land preparation (such as clearing, excavation, grading or filling), the installation of streets or walkways, excavation for a basement, footings, piers or foundations, the erection of temporary forms or the installation of accessory buildings such as garages or sheds not occupied as dwelling units or not part of the main building. For a substantial improvement, the actual "start of construction" means the first alteration of any wall, ceiling, floor or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

Structure is a walled and roofed building that is principally above the ground; this includes a gas or liquid storage tank or a manufactured home.

Substantial damage is damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed fifty (50) percent of the market value of the structure before the damage occurred.

Substantial improvement is any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds fifty (50) percent of the market value of the structure before the "start of construction" of the improvement. This term includes structures which have incurred "substantial damage", regardless of the actual repair work performed. The term "substantial improvement" does not, however, include:

(1) Any project for improvement of a structure to correct existing violations of state or local health, sanitary, building, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions, or

(2) Any alteration of a "historic structure," provided that the alteration will not preclude the structure's continued designation as a "historic structure".

Variance is a grant of relief from some of the requirements of this article which permits construction in a manner that would otherwise be prohibited by this article.

Water surface elevation is the height, in relation to the National Geodetic Vertical Datum (NGVD) of 1929, North American Vertical Datum (NAVD) of 1988, or other datum, of floods of various magnitudes and frequencies in the floodplains of coastal or riverine areas.

Watercourse means a natural or human-caused lake, river, creek, stream, wash, arroyo, channel, culvert, pipes or any other topographic feature, through, on or over which waters flow or pond at least periodically. Watercourses include specifically designated areas in which substantial flood damage may occur.

(Code 1972, § 5-612; Ord. No. 1993, 2-29-88; Ord. No. 3333, § 3, 9-5-00; Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 5), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-6. - Lands to which this article applies.

This article shall apply to all areas of special flood hazards within the corporate limits of the City of Scottsdale.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 6), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-7. - Basis for establishment of special flood hazard areas and regulatory floodways.

The areas of special flood hazard identified by FEMA in the FIS for the City of Scottsdale, Arizona, Maricopa County, dated September 21, 1973 with accompanying FIRMs for Maricopa County, Arizona, and Incorporated Areas, dated April 15, 1988, and all subsequent amendments and/or revisions, are hereby adopted by reference and declared to be a part of this ordinance. This FIS and attendant mapping is the minimum area of applicability of this ordinance and may be supplemented by studies for other areas which allow implementation of this ordinance and which are recommended to the Floodplain Board by the Floodplain Administrator. The Floodplain Board, within its area of jurisdiction, shall delineate (or may, by rule, require developers of land to delineate) for areas where development is ongoing or imminent, and thereafter as development becomes imminent, floodplains consistent with the criteria developed by the Federal Emergency Management Agency and the Director of the Arizona Department of Water Resources. The FIS and FIRM panels are on file at 7447 E. Indian School Road, Scottsdale.

(Code 1972, § 5-614; Ord. No. 1993, 2-29-88; Ord. No. 3333, § 4, 9-5-00; Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 7), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-8. - Compliance.

All development of land within SFHAs is subject to the terms of this article and other applicable regulations.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 8), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-9. - Conflict with Scottsdale Revised Code.

In the case of conflict between this chapter and another provision of the Scottsdale Revised Code, the provision providing the higher standard for protection of the public health, safety and general welfare shall control.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 8), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-10. - Disclaimer of liability.

The degree of flood protection required by this chapter is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by human-caused or natural causes. This chapter does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. This chapter shall not create liability on the part of the City, any officer or employee thereof, the State of Arizona or the Federal Emergency Management Agency, for any flood damages that result from reliance on this chapter or any administrative decision lawfully made hereunder.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 8), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-11. - Statutory exceptions.

The statutory exceptions in A.R.S. § 48-3609(H) and A.R.S. § 48-3613(B) apply to this chapter.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 8), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-12. - Floodplain Board delegation.

The Floodplain Board hereby delegates to the Floodplain Administrator the administrative duties, restrictions and authority granted to the Floodplain Board under A.R.S. § 48-3609(H) and A.R.S. § 48-3613 referred to in section 37-11 above.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 8), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-13. - Declaration of public nuisance.

All development located or maintained within any area of special flood hazard after August 8, 1973, in violation of this article, is a public nuisance per se and may be abated, prevented or restrained by action of this city.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 8), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-14. - Severability.

This ordinance and the various parts thereof are hereby declared to be severable. Should any section of this ordinance be declared by the courts to be unconstitutional or invalid, such decision shall not affect the validity of the ordinance as a whole, or any portion thereof other than the section so declared to be unconstitutional or invalid.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 8), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-15. - Floodplain Administrator.

(a) *Designated.* The city manager or designee shall be the Floodplain Administrator.

(b) *Appointed.* The Floodplain Administrator is hereby appointed to administer, implement and enforce this chapter.

(c) *Responsibilities.* It is the responsibility of the Floodplain Administrator or designee to do the following:

(1) Review applications for building permits to determine that:

(A) The permit requirements of this chapter have been satisfied;

(B) All other required state and federal permits have been obtained;

(C) The site is reasonably safe from flooding;

(D) The proposed development does not adversely affect the carrying capacity of areas where base flood elevations have been determined but a floodway has not been designated. For purposes of this article, "adversely affect" means that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the BFE more than the designated allowed rise at any point, not to exceed one (1) foot.

(2) (A) Using FEMA Publication 213, "Answers to Questions About Substantially Damaged Buildings," develop detailed procedures for identifying and administering requirements for substantial improvement and substantial damage, to include defining "Market Value;" and

(B) Coordinate procedures and implementation with other departments and divisions.

(3) When BFE data is not shown on the FIRM, obtain, review and reasonably utilize any BFE data available from a federal, state or other source, to administer this article. Any such data shall be consistent with FEMA and Arizona Department of Water Resources requirements, and shall be submitted to the Floodplain Board for adoption.

(4) Maintain the following records and, upon request, provide the public with information concerning the content of these records:

(A) The certified RFE required in section 37-22.

(B) The floodproofing certification required in section 37-23.

(C) The flood vent certification required in section 37-24.

(D) The elevation certification required section 37-29.

(E) The floodway encroachment certification required in section 37-31.

(F) Records of all variance actions, including justification for their issuance, and report variances issued in required reports submitted to FEMA.

(G) Improvement calculations.

(5) Whenever a watercourse is to be altered or relocated:

(A) Notify adjacent communities and the Arizona Department of Water Resources prior to such alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Emergency Management Agency through appropriate notification means; and

(B) Require the flood carrying capacity of the altered or relocated portion of the watercourse to be maintained.

(6) Base flood elevation and rate of flow due to physical alterations:

(A) Base flood elevations may increase or decrease resulting from physical changes affecting flooding conditions. As soon as practicable, but not later than six (6) months after the date such information becomes available, the Floodplain Administrator shall notify FEMA of the changes by submitting technical or scientific data in accordance with Volume 44 Code of Federal Regulations section 65.3. Such a submission is necessary so that upon confirmation of those physical changes affecting flooding conditions, risk premium rates and floodplain management requirements will be based upon current data.

(B) Within one hundred twenty (120) days after completion of construction of any flood control protective works which changes the rate of flow during the flood or the configuration of the floodplain upstream or downstream from or adjacent to the project, the person or agency responsible for installation of the project shall provide to the governing bodies of all jurisdictions affected by the project a new delineation of all floodplains affected by the project. The new delineation shall be done according to the criteria adopted by the Director of the Arizona Department of Water Resources.

(7) Notify FEMA and the Arizona Department of Water Resources of acquisition by means of annexation, incorporation or otherwise, of additional areas of jurisdiction.

(8) Provide FEMA information needed to update the FIRMs and serve as the city's agent for handling revisions of the FIRMs.

(9) Coordinate the provisions of this article with all other interested and affected political subdivisions, federal and state agencies as required by Arizona Revised Statutes sections 48-3609 and 48-3610, and 44 CFR parts 60.2(e) and 60.3(b)(6).

(10) Make interpretations where needed as to the exact location of the flood hazard zone boundaries. The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as set forth in section 37-101.

(11) Take action on violations of the regulations in this chapter.

(Code 1972, § 5-616; Ord. No. 1993, 2-29-88; Ord. No. 3333, § 5, 9-5-00; Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 9), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-16. - Building permit.

(a) A building permit shall be obtained before construction or development begins, including placement of manufactured homes, within any SFHA established in section 37-7. Application for a building permit shall be made on forms furnished by the city and may include, but not be limited to, plans to scale showing the nature, location, dimensions and elevation of the area in question, existing or proposed structures, fill, storage of materials, drainage facilities and the location of the foregoing. Specifically, the following information is required:

(1) Proposed elevation in relation to mean sea level of the lowest floor (including basement) of all structures. In Flood Hazard Zone AO, elevation of existing highest adjacent natural grade and proposed elevation of lowest floor of all structures;

(2) Proposed elevation in relation to mean sea level to which any non-residential structure will be floodproofed;

(3) Certification by a registered professional engineer or architect that the floodproofing methods for any nonresidential structure meet the floodproofing criteria in this article;

(4) For all structures, subdivisions and other development, the BFE or BFD; and

(5) Description of the extent to which any watercourse will be altered or relocated as a result of proposed development.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 10), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-17. - CLOMC/LOMC requirements.

(a) A Conditional Letter of Map Change (CLOMC) from FEMA is required for the following proposed developments in an SFHA or pending SFHA:

(1) A subdivision of six or more lots, except within Flood Hazard Zone AO, when grading and flood protection construction will remove the SFHA from building envelopes for all residential structures;

(2) Any development in the floodway that increases the BFE; and

(3) Any development in the floodplain that increases the BFE more than one (1) foot.

(b) Upon completion of the grading and flood protection features of the development, the developer shall provide the Floodplain Administrator as-built grading plans and other engineering data prepared and signed by an engineer or surveyor, that demonstrate compliance with CLOMC requirements, and this information must be submitted to FEMA to support a LOMC.

(c) A Letter of Map Change (LOMC) from FEMA is required for the following proposed developments in an SFHA or pending SFHA:

(1) A residential subdivision of six or more lots, except within Flood Hazard Zone AO;

(2) Any development in the floodway that increases the BFE; and

(3) Any development in the floodplain that increases the BFE more than one (1) foot.

(d) Where a LOMC is required for a residential subdivision, the LOMC shall remove the SFHA from proposed building envelopes.

(e) Where a LOMC is required, no permit to construct any structure shall be issued until the city receives a LOMC issued by FEMA.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-18. - Document requirements.

Upon completion of the grading and flood protection features of the development, the developer shall provide the Floodplain Administrator as-built grading plans and other engineering data prepared and signed by an engineer or surveyor, which demonstrates compliance with this chapter.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12)

Sec. 37-19. - Reserved.

DIVISION 2. - DEVELOPMENT STANDARDS

Sec. 37-20. - Anchoring.

(a) All new construction and substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy; and

(b) All manufactured homes shall meet the anchoring standards for manufactured homes below.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-21. - Construction materials and methods.

(a) All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage;

(b) All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage;

(c) All new construction, substantial improvement and other proposed new development shall be constructed with electrical, heating, ventilation, plumbing and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding; and

(d) Within Flood Hazard Zones AH and AO, adequate drainage paths shall be constructed around structures on slopes to guide floodwaters around and away from proposed structures.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-22. - Lowest floor elevations in residential structures.

(a) Residential construction, new or substantial improvement, shall have the lowest floor, including basement, together with attendant utility and sanitary facilities:

    (1) In Flood Hazard Zone AO, elevated to or above the RFD, or elevated at least two feet above the highest adjacent grade if no depth number is specified.

    (2) In Flood Hazard Zone A where a BFE has not been determined, elevated to or above the RFE or elevated in accordance with the criteria developed by the Director of the Arizona Department of Water Resources.

    (3) In Flood Hazard Zones AE, AH and A1-30, elevated to or above the RFE.

    (4) In Indian Bend Wash, a lowest floor elevation must also be at or above the water surface elevation calculated for floodwater flowing at the rate established by the U.S. Army Corps of Engineers' Indian Bend Wash Project design criteria in the document entitled, in part, General Design Memorandum—Phase I, Plan Formulation for Indian Bend Wash, dated October 1973.

(b) Upon completion of the structure, the elevation of the lowest floor, including basement, and RFE or RFD shall be certified by a registered professional engineer or surveyor, and reviewed by a city inspector. The certification shall be provided to the Floodplain Administrator.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-23. - Lowest floor elevations and floodproofing in nonresidential structures.

(a) Nonresidential construction, new or substantial improvement, shall either be elevated to conform with section 37-22 above, or, together with attendant utility and sanitary facilities, shall:

(1) Be floodproofed below the elevation recommended in section 37-22 above so that the structure is watertight with walls substantially impermeable to the passage of water;

(2) Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and

(3) Be certified by a registered professional engineer or architect that the standards of this section are satisfied. Such certification shall be provided to the Floodplain Administrator.

(b) In Indian Bend Wash:

(1) The lowest floor elevation must also be at or above the water surface elevation calculated for floodwater flowing at the rate established by the U.S. Army Corps of Engineers' Indian Bend Wash Project design criteria, in the document entitled, in part, General Design Memorandum—Phase I, Plan Formulation for Indian Bend Wash, dated October 1973; or

(2) Floodproofing must be provided at or above one (1) foot higher than the water surface elevation calculated for floodwater flowing at the rate established by the U.S. Army Corps of Engineers' Indian Bend Wash Project design criteria, in the document entitled, in part, General Design Memorandum—Phase I, Plan Formulation for Indian Bend Wash, dated October 1973.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-24. - Flood openings.

(a) All new construction and substantial improvement with fully enclosed areas below the lowest floor (excluding basements) that are used solely for parking of vehicles, building access or storage, and which are subject to flooding, shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwater. Designs for meeting this requirement must meet or exceed the following criteria:

(1) Have a minimum of two (2) openings, on different sides of each enclosed area, having a total net area of not less than one (1) square inch for every square foot of enclosed area subject to flooding. The bottom of all openings shall be no higher than one (1) foot above grade. Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwater; or

(2) If it is not feasible or desirable to meet the openings criteria stated above, a registered engineer or architect may design and certify the openings.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-25. - Manufactured homes.

All manufactured homes that are placed on site or substantially improved shall:

(a) Be elevated so that the bottom of the structural frame or the lowest point of any attached appliances, whichever is lower, is at or above the RFE or RFD; and

(b) Be securely anchored to an adequately anchored foundation system to resist flotation, collapse or lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This requirement is in addition to applicable state and local anchoring requirements for resisting wind forces.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-26. - Garages and accessory structures.

(a) *Attached garages.*

(1) A garage attached to a residential structure, constructed with the garage floor below the RFE or RFD, shall be designed with flood openings required above. Areas of the garage below the RFE or RFD shall be constructed with flood-resistant materials.

(2) A garage attached to a nonresidential structure must meet the requirements above or be dry floodproofed.

(b) *Detached garages and accessory structures.*

(1) A detached garage and accessory structure may be constructed below the RFE or RFD, if the structure is designed and constructed in accordance with the following requirements:

(A) Use of a detached garage or accessory structure must be limited to parking or limited storage;

(B) The portions of the detached garage or accessory structure located below the RFE or RFD shall be constructed with flood-resistant materials;

(C) The detached garage or accessory structure must be adequately anchored to prevent flotation, collapse and lateral movement;

(D) Any mechanical and utility equipment in the detached garage or accessory structure shall be elevated or floodproofed to or above the RFE or RFD;

(E) The detached garage or accessory structure must comply with the floodway provisions in section 37-31; and

(F) The detached garage or accessory structure must be designed with flood openings required in section 37-24.

(c) Detached garages and accessory structures not meeting the standards above shall be constructed in accordance with all applicable standards in sections 37-20 through 37-24.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-27. - Standards for storage of materials and equipment.

(a) The storage or processing of materials that could be injurious to human, animal or plant life if released due to damage from flooding is prohibited in SFHAs.

(b) Storage of other material or equipment may be allowed if not subject to damage by floods and if firmly anchored to prevent flotation, or if readily removable from the area within the time available after flood warning.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-28. - Standards for utilities.

(a) All new or replacement water supply and sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the system and discharge from systems into flood waters.

(b) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

(c) Waste disposal systems shall not be installed wholly or partially in a regulatory floodway.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-29. - Additional development standards.

(a) All proposed development shall:

  (1) Identify the SFHA and BFE or BFD on plans; and

  (2) Identify on the final plans the elevation(s) of the proposed structure(s) and pads. If the site is filled above the BFE or BFD, the final lowest floor and grade elevations shall be certified by a registered professional engineer or surveyor and provided to the Floodplain Administrator.

(b) All development shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize flood damage.

(c) All development shall provide adequate drainage to reduce exposure to flood hazards.

(d) Development is prohibited if it would create hazards to life or property by increasing the flood potential for any structures on or off the property to be developed. The flood carrying capacity of watercourses shall be maintained.

(e) In floodways, development is permitted only when an engineer certifies, with accompanying documentation and analysis to support the certification, that the development will not increase the BFE. The engineer shall submit a no-rise certificate that shows no increase in the BFE.

(f) In flood fringes where the Floodplain Administrator has designated an allowed rise in the water surface elevation less than one (1) foot, development is permitted only when an engineer certifies that the cumulative effect of the development, combined with existing and anticipated development, will not increase the water surface elevation more than the allowed rise.

(g) The owner of development in SFHAs that are subject to ponding shall provide compensatory storage.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-30. - Standards for recreational vehicles.

All recreational vehicles placed on site shall:

(a) Be on site for fewer than 180 consecutive days;

(b) Be fully licensed and ready for highway use (a recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions); or

(c) Apply for a building permit, to meet the elevation and anchoring requirements for manufactured homes.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-31. - General documentation requirements.

If compensatory storage is proposed to satisfy the requirements of section 37-29, the owner shall provide volumetric calculations demonstrating compensatory storage.

(Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-32. - Floodways.

Floodways are located within some SFHAs established in section 37-7. They are extremely hazardous due to the velocity of floodwaters which carry debris, potential projectiles and erosion potential.

(a) Encroachment, including fill, new construction, substantial improvements and other development in floodways is prohibited, unless a registered professional engineer certifies that the encroachment shall not increase flood levels during a base flood.

(b) If a registered professional engineer certifies that the development shall not increase flood levels during a base flood, the development shall comply with all applicable flood hazard reduction provisions of this chapter.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

ARTICLE II. - STORMWATER REGULATION[3]

Footnotes:

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Editor's note— Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), adopted July 6, 2016, repealed §§ 37-42—37-45 of Art. II and enacted new sections as set out herein. The former §§ 37-42—37-45 pertained to prohibited development, development requirements to be met for permit issuance, requirement for certifications and required permits, and declaration of public nuisances, respectively, and derived from §§ 5-615(A)—(c) of the 1972 Code; Ord. No. 1993, adopted Feb. 29, 1988; Ord. No. 3333, §§ 6, 7, adopted Sept. 5, 2000; and Ord. No. 4000, § 1(Res. No. 8962, Exh. A, §§ 15—17, 19), adopted Aug. 27, 2012.

Sec. 37-33. - Purpose.

The purpose of this article is to establish requirements and regulations for the use and development of property that will minimize the occurrence of losses, hazards and conditions adversely affecting the public health, safety and general welfare that might result from flooding.

(Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-34. - Applicability.

This article shall apply to all land within the corporate limits of the City of Scottsdale.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 14), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-35. - General drainage goals.

Stormwater runoff should enter and depart from property after its development in substantially the same manner as under pre-development conditions. Any proposal to modify drainage characteristics must be fully justified by engineering data to demonstrate that hazards to life and property will not be increased by the proposed modifications.

(Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-36. - General development standards.

(a) Development is prohibited if it would create hazards to life or property by increasing the flood potential on or off the property to be developed. The flood carrying capacity of watercourses shall be maintained.

(b) So long as development meets the standards in (a) above, and applicable standards in this chapter, it is permitted in local floodplains when an engineer certifies that the development does not increase the BFE at or beyond the property line.

(c) The owner of development in local floodplains that are subject to ponding shall provide compensatory storage.

(Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-37. - Definitions.

In addition to the definitions below, the following definitions set forth in section 37-5 above apply to this article: *accessory structure* , *basement* , *building permit* , *compensatory storage, development* , *flood* or *flooding, Floodplain Administrator, Floodplain Board, floodproofing, grading, highest adjacent grade, historic structure, lowest floor, manufactured home, obstruction, residential structure, start of construction, structure, substantial damage, substantial improvement* and *watercourse* .

Attendant utilities are the following equipment that directly serves a structure: water heaters and electrical, heating, ventilation, plumbing and air conditioning equipment.

Base flood elevation (BFE), outside SFHAs, is the water surface elevation resulting from a base flood, as approved by the Floodplain Administrator using best available data.

Depressed floor area is a portion of the first floor of a residential structure, such as a sunken living room, which is lower than the surrounding floor area, and which has no floor-level access to areas outside the structure. (This is not a multilevel first floor which is stepped to conform to site slope conditions).

Design Standards and Policies Manual (DSPM) is the document detailing the city's specific requirements to address drainage, flooding and stormwater quality, including procedures, policies, forms, document standards, design standards and construction standards to help administer this chapter, among other purposes.

Engineer is a professional engineer registered as a civil engineer in Arizona. This definition applies to this chapter.

Environmentally Sensitive Lands Ordinance (ESLO) is the ordinance creating an overlay district in the city Zoning Ordinance that addresses environmentally sensitive lands.

Floodplain is any property susceptible to being inundated by stormwater during a base flood.

Local floodplain is a floodplain outside a special flood hazard area that is subject to local regulation.

Regulatory flood elevation (RFE) is:

(1) An elevation one foot above the base flood elevation for watercourses where the base flood elevation has been determined, and

(2) The elevation approved by the Floodplain Administrator for watercourses where the base flood elevation has not been determined.

Right-of-way is land which by deed, conveyance, agreement, easement, dedication, usage or process of law is reserved for or dedicated to the general public for street, highway, alley, public utility, trail, path, sidewalk or drainage purposes.

Stormwater Quality Coordinator means the person designated by the city manager to administer this chapter's provisions regarding stormwater quality, or that person's successor or designee.

Stormwater storage facility is any facility intended to control, store or release stormwater, including detention and retention basins, and the drainage systems related to such facilities.

Surveyor is a professional land surveyor registered in Arizona. This definition applies to this chapter.

Transportation Director is the person supervising the city department dedicated to transportation issues, or that person's successor or designee.

Unattended means a vehicle cannot reasonably be expected to be removed before flooding occurs.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 14), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-38. - Drainage reports and plans.

(a) The Floodplain Administrator may require a drainage report and plan before any permit is issued, if a development may increase the potential for flooding which adversely affects the public health, safety or general welfare.

(b) The drainage report and plan shall be prepared by an engineer in conformance with the requirements set forth in the DSPM.

(c) The drainage report and plan, and related construction documents, are subject to the Floodplain Administrator's review and approval before any required permit is issued.

(Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-39. - Drainage easements.

(a) For post-development conditions, drainage easement(s) over the following features shall be dedicated to the city:

(1) Watercourses, except those regulated by ESLO, with a base flood peak discharge rate of 25 cfs or greater;

(2) Watercourses regulated by ESLO, with a base flood peak discharge rate of 50 cfs or greater; and

(3) Stormwater storage facilities as set forth in the DSPM.

(b) In addition, access easements shall be dedicated from the right-of-way to access the drainage easements.

(c) The easements shall be in a form satisfactory to the city.

(d) Unless otherwise indicated on the document dedicating the drainage easement, the property owner is responsible for maintaining the drainage easement.

(e) Except for routine maintenance as set forth in the DSPM, work and encroachments in a drainage easement dedicated to the city require the same permits as work and encroachments in the public right-of-way. The procedure and terms for permits to work in the right-of-way (PWRs) and permits for private improvements in the right-of-way (PIRs), issued under Chapter 47 of the Scottsdale Revised Code, apply to permits issued for drainage easements.

(f) An owner of property subject to a drainage easement may apply to have all or a portion of the easement released by the city. Procedures to apply for a release are set forth in the DSPM.

(g) When an application for a release is complete, the city staff shall review the application. City staff may determine that retaining the easement is in best interest of the city, and may not grant the release. City staff may impose reasonable conditions on the release. Once all conditions have been satisfied, as determined by city staff, city staff shall grant the release.

(Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-40. - Drainage requirements for streets.

(a) Drainage designs for streets shall meet the requirements set forth in the DSPM.

(b) However, the Transportation Director may allow exceptions to the requirements of the DSPM if, based on a traffic study acceptable to the Transportation Director, an engineer demonstrates to the Floodplain Administrator's satisfaction that the alternate design will not violate any other provision of this chapter or increase the risk of structural flooding.

(Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-41. - Erosion setbacks.

The Floodplain Administrator shall require erosion setbacks where erosion has the potential to adversely affect the public health, safety and general welfare. Erosion hazards shall be addressed as set forth in the DSPM.

(Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-42. - General construction requirements.

(a) Development proposed in local floodplains shall be designed and constructed to meet the requirements set forth in this chapter and the DSPM.

  (1) All structures shall be anchored to their foundations to prevent flotation, collapse, or lateral movement.

  (2) Building construction materials and utility system equipment shall be resistant to flood damage.

  (3) The construction methods and practices shall minimize exposure to potential flood damage.

  (4) All attendant utilities shall be designed and/or located to prevent water from entering or accumulating within the components during flooding.

  (5) All water heaters, heating and air conditioning units, and electrical junction and circuit breaker boxes shall be elevated above the RFE.

(6) All other utility systems, including sewer, water, gas and electrical lines and their associated facilities shall be located and constructed to minimize or eliminate exposure to potential flood damage.

(7) Stormwater management facilities shall be constructed to minimize exposure to potential flood damage.

(b) To measure the height of required construction or floodproofing, the BFE shall be determined as set forth in the DSPM.

(c) All new structures and substantial improvements with fully enclosed areas below the lowest floor (excluding basements) that are used solely for vehicle parking, building access or storage, and are subject to flooding, shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. There shall be at least two openings, on different sides of each enclosed area, with a total net area of at least one square inch for every square foot of enclosed area subject to flooding. The bottom of all openings shall be no higher than one foot above grade. If it is not feasible or desirable to meet the opening criteria stated above, an engineer may design and certify other methods to automatically equalize hydrostatic flood forces on exterior walls.

(d) Adequate drainage paths shall be constructed to guide floodwaters around and away from the structures.

(Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Note— See the editor's note to Art. II.

Sec. 37-43. - New structures—Lowest floor elevations.

(a) In local floodplains, the lowest floor of a new structure shall be at or above the RFE.

(b) In areas outside of floodplains, a new structure shall be constructed as follows:

(1) If the structure is in Flood Hazard Zone D or X, the lowest floor shall be at least fourteen (14) inches above the highest adjacent grade; or

(2) The structure shall be constructed in conformance with a plan prepared and certified by an engineer showing that elevations are sufficiently high to provide protection from a base flood.

(c) In local floodplains, a depressed floor area shall not be considered as the lowest floor if:

(1) There is no door opening directly to the outside which could admit flood water into the depressed floor area; and

(2) The depressed area walls and floor are sealed to prevent the infiltration of water into the depressed area.

(Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Note— See the editor's note to Art. II.

Sec. 37-44. - New nonresidential structures—Lowest floor elevations and floodproofing.

(a) New nonresidential structures shall meet or exceed the standards set forth for all new structures, or may be floodproofed as set forth in this section.

(b) In local floodplains, the lowest floor elevation of a new nonresidential structure may be below the BFE, but floodproofing shall be provided to the RFE and certified by an engineer to satisfy the standards of this section. Such certification shall be provided to the Floodplain Administrator.

(c) To meet floodproofing requirements, a structure must be watertight, with walls that are substantially impermeable to the passage of stormwater. Structural components shall have the capability of resisting hydrostatic and hydrodynamic loads and the effect of buoyancy.

(Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Note— See the editor's note to Art. II.

Sec. 37-45. - Improvements to structures—Lowest floor elevations.

(a) In local floodplains, all improvements shall meet or exceed the standards set forth in this chapter for new structures or new nonresidential structures (as applicable).

(b) All improvements to a structure that has suffered substantial damage shall meet or exceed the standards set forth in this chapter for new structures or new nonresidential structures (as applicable).

(Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Note— See the editor's note to Art. II.

Sec. 37-46. - Manufactured homes—Elevation regulations.

All manufactured homes that are placed on a site or substantially improved shall be:

(a) Elevated so that the bottom of the structural frame or the lowest point of any attendant utilities, whichever is lower, is at or above the RFE; and

(b) Securely anchored to a foundation system to resist flotation, collapse or lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This requirement is in addition to applicable state and local anchoring requirements for resisting wind forces.

(Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-47. - Garages and accessory structures.

(a) *Attached garages* .

(1) A garage attached to a residential structure, constructed with the garage floor below the RFE, shall be designed with flood openings required above. Areas of the garage below the RFE shall be constructed with flood-resistant materials.

(2) A garage attached to a nonresidential structure must meet the requirements above or be dry floodproofed.

(b) *Detached garages and accessory structures* . A detached garage and accessory structure may be constructed below the RFE, if the structure is designed and constructed in accordance with the following requirements:

(1) Use of a detached garage or accessory structure must be limited to parking or limited storage;

(2) The portions of the detached garage or accessory structure located below the RFE shall be constructed with flood-resistant materials;

(3) The detached garage or accessory structure must be adequately anchored to prevent flotation, collapse and lateral movement;

(4) Any mechanical and utility equipment in the detached garage or accessory structure shall be elevated or floodproofed to or above the RFE; and

(5) The detached garage or accessory structure must be designed with flood openings required in section 37-24.

(c) Detached garages and accessory structures not meeting the standards above shall be constructed in accordance with all applicable standards in sections 37-20 through 37-24.

(Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-48. - General documentation requirements.

(a) Appropriate permits are required for all development.

(b) In areas outside of floodplains, the documentation for a new structure with its lowest floor less than fourteen (14) inches above the highest adjacent grade shall be prepared and certified by an engineer showing that elevations are sufficiently high to provide protection from a base flood.

(c) Documentation for development within or contiguous to all floodplains shall show the BFE.

(d) If compensatory storage is proposed to satisfy the requirements of section 37-36, the owner shall provide volumetric calculations demonstrating compensatory storage.

(e) Before final inspection, the developer shall provide the city as-built plans certified by an engineer demonstrating that the stormwater storage facility was constructed and volume requirements were met in conformance with approved plans.

(Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-49. - General stormwater storage and stormwater management facility requirements.

(a) The owner, at its expense, shall provide the stormwater storage and stormwater management facilities required for all development, including residential land divisions, except as provided in this article.

(b) Additional stormwater storage is not required where stormwater storage facilities already serve the development in conformance to standards set forth in this chapter and the DSPM at the time an owner applies for a permit for proposed development.

(c) A stormwater storage facility is required for constructing an individual single-family residential structure only if:

(1) The structure is located in a minor subdivision recorded after October 1, 2007; and

(2) No stormwater storage facility has been constructed for the minor subdivision.

(Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-50. - Specific stormwater storage and stormwater management facility requirements.

(a) *Generally* . Stormwater storage facilities shall be constructed to store runoff from at least a 100-year, 2-hour storm event, except as provided in this article. The developer may apply this standard to any property.

(b) *Volume calculation* . Calculations for the volume of storage are set forth in the DSPM.

(c) *Redevelopment.* On property subject to redevelopment:

(1) No additional stormwater storage is required, if redeveloping the property does not increase the existing base flood peak discharge rate from the property.

(2) The required stormwater storage volume is reduced, if redeveloping the property would increase the existing base flood peak discharge rate from the property. In this case, the stormwater storage volume required is calculated based on:

(A) the volume to store runoff from a 100-year, 2-hour storm event after the redevelopment, minus

(B) the volume to store runoff from a 100-year, 2-hour storm event immediately before the redevelopment.

(d) *ESLO* . On property entirely subject to ESLO (outside the McDowell Sonoran Preserve):

(1) No stormwater storage facility is required, if developing the property does not increase the existing base flood peak discharge rate from the property.

(2) The required stormwater storage volume is reduced, if developing the property would increase the existing peak discharge rate from the property. In this case, the stormwater storage volume required shall limit the post-development peak discharge rate to the pre-development peak discharge rate, based on 10- and 100-year storm events.

(e) *McDowell Sonoran Preserve* . In the McDowell Sonoran Preserve, the owner of any development is not required to construct stormwater storage facilities unless such facilities are necessary to mitigate the adverse impact from any increase in flooding potential.

(Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-51. - Waivers of stormwater storage requirements—general.

(a) Full or partial waivers may be granted from the requirement to construct stormwater storage facilities under limited circumstances.

(b) *First flush* . No waiver shall be granted for stormwater storage volume required to hold runoff from the first one-half inch of precipitation unless the owner provides other stormwater controls, to the satisfaction of the Stormwater Quality Coordinator.

(c) *Full waivers* . A waiver shall be granted if:

(1) The runoff from the development has no additional adverse impact on other property; and

(2) The development meets one of the following criteria:

(A) The property is smaller than one-half acre.

(B) The property is located entirely in the hillside landform, as defined in the city Zoning Ordinance.

(C) The property is located entirely in the upper desert landform, as defined in the city Zoning Ordinance, with a slope greater than five (5) percent.

(D) The only viable locations on the property for stormwater storage facilities require blasting.

(E) The developer submits engineering analysis, subject to the Floodplain Administrator approval, showing that capacity exists to convey the increased runoff resulting from not providing full stormwater storage.

(d) *Partial waivers for hillside and upper desert landforms* . Unless other waiver criteria apply, a waiver shall be granted for development (that has no additional adverse impact on other property) only for portions of the property that are in:

(1) The hillside landform; or

(2) The upper desert landform with a slope greater than five (5) percent.

(e) *Partial waivers for other property* . A partial waiver shall be granted if the development only meets one of the criteria set forth in subsection (b)(2) above for full waivers. If a partial waiver is granted, the stormwater storage volume required shall limit the post-development peak discharge rate to the pre-development peak discharge rate, based on 10- and 100-year storm events.

(f) *Waivers for stormwater storage facilities that create adverse impacts* . In unusual cases where constructing stormwater storage facilities may have an adverse impact on other property, a full or partial waiver may be granted if the developer submits engineering analysis, subject to the Floodplain Administrator's approval, providing stormwater management mitigation so that runoff increased as a result of the development has no additional adverse impact on other property.

(g) A waiver approval does not relieve the developer of liability in the event of flood damage.

(Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-52. - Fees in lieu of stormwater storage.

(a) If the stormwater storage requirement is fully or partially waived, a contribution to the cost of stormwater management (in-lieu fee) shall be required as shown on the fee schedule.

(b) If a waiver of stormwater storage is granted, any in-lieu fee shall be reduced by the value of:

(1) Any previous in-lieu fee payment(s) for the development.

(2) In-kind stormwater management facilities constructed to provide a public stormwater management benefit. The Floodplain Administrator shall determine whether a public stormwater benefit has been provided, based on the following factors:

(A) The nature and extent of the in-kind stormwater management facilities providing the public benefit;

(B) The increased cost to the development to provide the public stormwater management benefit; and

(C) The benefit and/or savings to the city of the stormwater management facilities.

(c) The rate of the in-lieu fee shall be set forth in the fee schedule.

(d) The contribution shall be paid when a building permit for the development is issued.

(Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-53. - Stormwater storage facility design requirements.

Stormwater storage facilities shall be designed and constructed in conformance with the DSPM.

(Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-54. - Watercourse and stormwater storage facility maintenance.

(a) Watercourses and stormwater storage facilities shall be maintained as set forth in the DSPM to avoid:

(1) Water standing longer than thirty-six (36) hours;

(2) Water becoming foul, malodorous, or subject to infestation, pollution or stagnation;

(3) Becoming a violation of any federal, state or local law, rule or regulation; or

(4) Becoming blight or a public nuisance as defined in this chapter or Chapter 18 of the Scottsdale Revised Code.

(b) At a minimum, maintenance shall include:

(1) Regular maintenance to sustain the flow characteristics and capacities of watercourses and stormwater storage facilities;

(2) Annual inspection and removal of all obstructions from watercourses and stormwater storage facilities that significantly interfere with the function of the watercourses and facilities, including debris, overgrown vegetation and sediment; and

(3) Following a storm, immediate inspection and removal of all debris and sediment from watercourses and stormwater storage facilities that significantly interfere with the function of the watercourses and facilities.

(c) Unless otherwise agreed by the city, the property owner is responsible for maintaining watercourses and stormwater storage facilities.

(d) Maintenance of a watercourse regulated by ESLO is subject to city approval.

(Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-55. - Parking in floodplains.

(a) Parking lots are permitted within floodplains if there are no vehicles left unattended from sunset to sunrise and there is no obstruction to the natural flow of stormwater.

(b) The owner of a parking lot in a floodplain shall post warning signs to indicate that the parking lot is subject to flooding.

(Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-56. - Alternative stormwater management measures.

The Floodplain Administrator may allow alternative stormwater management measures, including, but not limited to, pervious pavement, vegetative roofs, stormwater harvesting, LEED design strategies, and other low impact development options to manage stormwater. These measures may be instead of some or all stormwater storage.

(Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-57. - Payback agreements.

(a) A payback agreement with the city is available for non-residential, multi-family and mixed-use developments, and developments subject to a land division, if the stormwater management facilities subject to the payback agreement provide a public stormwater management benefit.

(b) The Floodplain Administrator shall determine whether a public stormwater benefit has been provided, based on the following factors:

(1) The nature and extent of the in-kind stormwater management facilities providing the public benefit;

(2) The increased cost to the development to provide the public stormwater management benefit; and

(3) The benefit and/or savings to the city of the stormwater management facilities.

(c) Within sixty (60) days after the city has accepted the public improvements to serve any privately-owned property, a person desiring a payback agreement with the city shall submit the following to the Floodplain Administrator.

  (1) A copy of the city's letter of acceptance stating that the public improvements conform to the approved plans and specifications.

  (2) A half-size copy of the approved as-built construction drawings indicating the public improvements installed.

  (3) Receipts identifying all expenses, and proof that payment was made.

  (4) A diagram of properties benefiting from the public improvements, including the assessor's parcel numbers and frontage lengths.

(d) Payback agreements shall:

  (1) State the expense of public improvements installed;

  (2) Include a diagram of the properties benefited and reimbursement to be collected from each property;

  (3) State the reimbursement from each property benefited, including the interest rate and the maximum reimbursement; and

  (4) State to whom reimbursements shall be made.

(e) All expenses are subject to review for reasonableness based on current circumstances. The Floodplain Administrator's determination as to the amount to be reimbursed through the payback agreement is final.

(f) The reimbursement from each property shall be based on the runoff contributed by each property or such other equitable method of spreading the expenses as the circumstances may dictate, as determined by the Floodplain Administrator. The determination as to each reimbursement is final.

(g) A payback agreement shall run for a payback period of thirty (30) years after the letter of acceptance date. At the end of the thirty (30) year period, the agreement shall terminate, including all benefits and rights under the agreement.

(h) Reimbursements shall include a simple interest rate of one-half (½) percent per month, or any portion thereof, from the date the payback agreement is recorded.

(i) Before the city executes the payback agreement, the applicant shall pay the city's cost of administering the payback agreement. This administrative charge shall be five (5) percent of the total expenses of the public improvements benefiting properties other than the applicant's property, with a maximum administrative charge of ten thousand dollars ($10,000.00). Administrative charges will be distributed equitably among the properties benefited.

(j) Upon receipt of the administrative charge and execution of the payback agreement, the city shall record the agreement with the Maricopa County Recorder as to each property that is subject to the agreement, together with a notice of payback. Once all reimbursements are made or the payback period has elapsed, the city will record a release with the Maricopa County Recorder.

(k) The city shall establish a separate account for the collection and payment of reimbursements. Reimbursements collected shall be paid in accordance with the terms of the agreement within ninety (90) days of receipt by the city.

(Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-58. - In lieu payments.

(a) Instead of requiring construction of stormwater management facilities, the city may accept a payment in lieu of construction when the city determines such action is appropriate, based on the following considerations regarding whether the proposed stormwater management facilities:

(1) Will not connect to existing stormwater management facilities;

(2) Will be difficult to maintain to city standards;

(3) Will not match the improvement standards of existing stormwater management facilities;

(4) Will not conform to applicable drainage plans;

(5) Will be more efficiently built by the city; and/or

(6) Are timed to discourage orderly, sequential development.

(b) Payment shall be based on the owner's public improvement plans and current city capital expenses of public improvements, as approved by the Floodplain Administrator. The determinations as to the acceptance and amount of payment are final. The city shall establish a separate account for the in lieu payments, which will be applied to stormwater management facilities.

(c) The in lieu payment is due before any permit is issued for development of the property.

(Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-59. - In lieu construction.

(a) Instead of requiring on-site construction of stormwater management facilities, the city may accept construction of off-site stormwater management facilities, when the city determines such action is appropriate. The Floodplain Administrator's determination of whether to accept in lieu construction shall be based on the following considerations:

(1) Existing and planned stormwater management facilities;

(2) Priorities in strategic planning for orderly, sequential development;

(3) Conformance with applicable drainage plans; and

(4) Benefit to the community and benefit to properties served.

(b) The value of stormwater management facilities constructed shall be substantially equal to the value of the on-site stormwater management facilities that would have been required. The value shall be based on the owner's public improvement plans and current city capital expenses of public improvements, as approved by the Floodplain Administrator. The determinations as to the acceptance and value of construction are final.

(Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

ARTICLE III. - STORMWATER QUALITY

Sec. 37-60. - Purposes.

The purposes of this article are:

(1) To regulate pollutants and activities that result in the contribution of pollutants into the municipal separate storm sewer system (MS4) to comply with the city's MS4 permit;

(2) To prohibit illicit connections and illicit discharges to the MS4; and

(3) To carry out inspection, monitoring and other procedures necessary to provide for compliance with this chapter.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 23), 8-27-12)

Sec. 37-61. - Definitions.

Unless specifically defined below, words or phrases used in this article shall be given the meaning they have in common usage, to give this article its most reasonable application.

Arizona Pollutant Discharge Elimination System permit (AZPDES permit) means an authorization from the Arizona Department of Environmental Quality to discharge to the MS4 or from the MS4 to waters of the United States.

Best management practices means schedules of activities, prohibitions of practices, structural and nonstructural controls, operational and maintenance procedures, and other management practices to prevent or reduce pollution of waters of the United States.

City's MS4 permit means the city's authorization from the Arizona Department of Environmental Quality or the United States Environmental Protection Agency to discharge from a municipal separate storm sewer system to waters of the United States.

Illicit connection means a drain or conveyance that allows an illicit discharge.

Illicit discharge means the introduction of a pollutant to a MS4 that is not:

(1) Entirely stormwater;

(2) Permitted under a AZPDES permit or NPDES permit; or

(3) From emergency fire fighting activities.

Inspector means the person designated by the Floodplain Administrator or Stormwater Quality Coordinator, or designee, with the duty and power to inspect and monitor property, take samples, and take other actions to enforce this chapter.

Municipal separate storm sewer system (MS4) means the city-owned manmade system used for collecting and/or conveying only stormwater, including city streets with drainage systems, catch basins, curbs, gutters, ditches, channels, and storm drains.

National Pollutant Discharge Elimination System permit (NPDES permit) means an authorization from the United States Environmental Protection Agency to discharge to the MS4 or from the MS4 to waters of the United States.

Pollutant means:

(1) Fluids, fuels, paints, varnishes, solvents, detergents;

(2) Contaminants, toxic wastes, toxic pollutants, chemicals, chemical wastes, petroleum products, biological materials, pathogens, radioactive materials, pesticides, herbicides, fertilizers and other agricultural chemicals;

(3) Garbage, trash, animal wastes, sewage, solid wastes, waste materials, wrecked or discarded objects and equipment, dissolved and particulate metals, raw or finished materials;

(4) Dredged spoil, rock, sand, dirt, ashes, incinerator residue, slag, sludge, munitions, and mining, industrial, municipal, agricultural, medical and yard wastes;

(5) Heat; or

(6) Any other liquid, solid, gaseous or hazardous substances.

Right-of-way means land which by deed, conveyance, agreement, easement, dedication, usage or process of law is reserved for or dedicated to the general public for street, highway, alley, public utility, trail, path, sidewalk or drainage purposes.

Spill means any release, leak, emission, escape or disposal of a pollutant which may contact stormwater.

Stormwater means stormwater runoff, snow melt runoff, and surface runoff and drainage.

Stormwater controls means schedules of activities, prohibitions of practices, structural and nonstructural controls, operational and maintenance procedures, and other management practices to prevent or reduce pollution of waters of the United States.

Stormwater Manager means the person who manages the city's floodplain and stormwater program, or the Stormwater Manager's successor or designee.

Stormwater Quality Coordinator means the person designated by the city manager to administer this chapter's provisions regarding stormwater quality, or that person's successor or designee.

Waters of the United States means those waters defined in the Code of Federal Regulations, Title 40 Section 122.2.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 23), 8-27-12)

Sec. 37-62. - Warning and disclaimer of liability.

The city does not assume any other person's duties regarding stormwater quality arising under the common law or any other applicable law. Unless otherwise required by law, the Stormwater Quality Coordinator's activities authorized by this chapter are permissive only.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 23), 8-27-12)

Sec. 37-63. - Stormwater Quality Coordinator.

(a) The Stormwater Quality Coordinator shall:

(1) Implement the city's MS4 permit requirements;

(2) Prohibit illicit discharges and illicit connections;

(3) Enforce stormwater controls to minimize the contribution of pollutants to the MS4 by stormwater associated with construction and industrial activities;

(4) Enforce stormwater controls to prevent, contain and manage the introduction of spills into the MS4;

(5) Regulate the use of the MS4; and

(6) Administer and enforce this chapter's requirements for stormwater quality.

(b) The Stormwater Quality Coordinator has the authority to:

(1) Inspect property, including construction and industrial activities;

(2) Establish requirements for post-construction stormwater controls; and

(3) Issue regulations to monitor and control stormwater quality.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 23), 8-27-12)

Sec. 37-64. - Responsibility for spills.

(a) A person responsible for addressing a spill shall immediately take action to contain the spill.

(b) A person required to report a spill to governmental authorities under the following laws and regulations shall also notify the city fire department and Stormwater Quality Coordinator by phone of any spill within twenty-four (24) hours of the report:

(1) Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA);

(2) Emergency Planning and Community Right-to-Know Act (EPCRA), including Toxic Chemical Release;

(3) Resource Conservation and Recovery Act (RCRA);

(4) Code of Federal Regulations for oil and hazardous substance spills; and

(5) All other laws requiring notification of spills.

(c) The person responsible for addressing the spill shall remediate the spill.

(d) The person responsible for addressing the spill is also responsible for any fines or penalties imposed on the city resulting from the spill.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 23), § 2, 8-27-12)

Sec. 37-65. - Additional treatment requirements.

The Stormwater Quality Coordinator may require a facility that handles petroleum, oil, grease, or other pollutants with the potential to significantly impair stormwater quality by substantial exposure to stormwater to:

(1) Provide and maintain stormwater controls; and

(2) Keep appropriate records regarding the stormwater controls.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 23), 8-27-12)

Secs. 37-66—37-69. - Reserved.

ARTICLE IV. - ENFORCEMENT

Sec. 37-70. - Inspections, monitoring, surveillance and related compliance actions.

(a) To determine and enforce compliance with stormwater and floodplain management regulations under articles I and II, an inspector may:

(1) Inspect structures and property; and

(2) Examine records concerning stormwater and floodplain management, including applicable permits.

(b) To determine and enforce compliance with stormwater quality regulations under article III, an inspector may:

(1) Inspect structures and property;

(2) Conduct monitoring and surveillance activities;

(3) Collect and analyze samples of products, stormwater, pollutants; environmental media and other potential sources of pollutants;

(4) Install and require the installation of stormwater monitoring equipment; and

(5) Examine records concerning stormwater and pollutants, including applicable permits.

(c) The following authority applies to all inspections under this chapter:

(1) Unscreened structure exteriors and property may be inspected at any time with or without the presence of the owner or occupant in conformance with legal requirements governing administrative inspections of structures and property.

(2) Except in a situation presenting an imminent hazard to life, health or public safety, inspections shall be conducted during the normal business hours of the city, pursuant to:

(A) The owner's or occupant's consent; or

(B) A court order or administrative search warrant.

(3) If an owner refuses to allow an inspection of an area where the owner has a reasonable expectation of privacy, the city may apply for and obtain an administrative search warrant or other court order allowing inspection.

(d) Nothing in this section shall be construed to prohibit an inspector from entering a structure or property with or without a court order in a situation presenting an imminent hazard to life, health or public safety.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 25), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-71. - Enforcement—Civil.

In addition to enforcement authorized below, a Scottsdale police officer, Scottsdale Fire Department officer, the city attorney, Floodplain Administrator, Stormwater Manager, Stormwater Quality Coordinator, or an inspector, may bring civil complaints under this chapter.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 25), 8-27-12)

Sec. 37-72. - Enforcement—Injunctive relief.

In addition to enforcement authorized below, the city attorney may bring actions for injunctive relief in Superior Court to enforce this chapter.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 25), 8-27-12)

Sec. 37-73. - Enforcement—Criminal.

A Scottsdale police officer or the city attorney may bring criminal complaints under this chapter.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 25), 8-27-12)

Sec. 37-74. - Enforcement—emergency.

A Scottsdale police officer, Scottsdale Fire Department officer, the Floodplain Administrator, Stormwater Manager, Stormwater Quality Coordinator, or an inspector, may take emergency action to avoid or mitigate the following circumstances that present an imminent hazard to life, health or public safety:

(a) Watercourse obstructions, flooding and other drainage conditions, and

(b) Spills and other occurrences where pollutants may significantly affect stormwater quality.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 25), 8-27-12)

Sec. 37-75. - Enforcement—Notices of violation.

(a) Any person authorized to bring a civil complaint may issue a notice of violation specifying actions to be taken and the time in which actions are to be taken to avoid a civil complaint or city abatement and restoration at the responsible person's expense.

(b) A notice of violation regarding stormwater quality may require the person responsible to:

(1) Sample, monitor and analyze potential sources of pollutants and affected property;

(2) Report potential sources of pollutants;

(3) Install stormwater monitoring equipment;

(4) Eliminate illicit connections or illicit discharges;

(5) Cease violating discharges, practices, or operations;

(6) Abate or remediate spills;

(7) Correct records systems; and

(8) Implement best management practices and/or stormwater controls.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 25), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-76. - Jurisdiction and procedure of city court.

(a) The city court has jurisdiction over all civil and criminal complaints, abatements and emergency abatements to enforce this chapter. A judge or court hearing officer may adjudicate civil complaints, abatements and emergency abatements.

(b) The city court may order abatements or emergency abatements on a petition from the city attorney, as requested by the city incidental to a civil or criminal complaint, or as requested under state law.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 25), 8-27-12)

Sec. 37-77. - Violations.

(a) Stormwater and floodplain management violations:

(1) No owner of any structure subject to the requirements of this chapter shall fail to comply with those requirements.

(2) Except as permitted in the Scottsdale Revised Code, no person shall obstruct, divert or reduce the capacity of a watercourse by any means, including development, grading, dumping, filling or landscaping.

(3) No person shall increase the potential of flooding, by any means, including development, grading, dumping, filling or landscaping, or storing materials and equipment.

(4) No person shall allow vegetation or an accumulation of vegetative debris, other debris, sedimentation or erosion to (A) obstruct, divert or reduce the capacity of a watercourse, or (B) increase the potential of flooding.

(5) No person shall allow or cause lateral migration of a watercourse bank to create a hazard to life, health or public safety.

(6) No person shall fail to conform to an approved drainage plan.

(7) No person shall damage or interfere with any watercourse, stormwater storage facility or stormwater management measure so as to impair its stormwater management function.

(b) Stormwater quality violations:

(1) No person shall discharge or cause to be discharged any pollutant or waters containing any pollutant that may reasonably be expected to cause or contribute to a violation of the city's MS4 permit.

(2) No person shall discharge or cause to be discharged any pollutant or waters containing any pollutant that may reasonably be expected to cause or contribute to damage to a watercourse.

(3) No person shall discharge or cause to be discharged water from a pool or spa into the right-of-way or a watercourse.

(4) No person shall release or cause to be released an illicit discharge.

(5) No person shall establish or cause to be established an illicit connection.

(6) No person shall fail to report a spill as required under section 37-64.

(7) No person shall fail to contain or remediate a spill.

(c) General violations:

(1) No person shall interfere with or prevent any city agent from enforcing this chapter, including conducting inspections, taking samples and abating violations.

(2) No person shall knowingly make a false statement, or knowingly mislead a city agent investigating or abating a violation of this chapter.

(3) No person shall violate this chapter, or any rules or regulations set forth to administer this chapter when such rules or regulations create a duty or enact a prohibition.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 25), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-78. - Presumption.

A development without an elevation certificate, when required, or other documentation of compliance with article I, is presumed to be in violation of article I until such documentation is provided.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 25), 8-27-12)

Sec. 37-79. - Defense, indemnification and continuing liability.

A person is responsible for all liability imposed by law arising out of or related to violations of this chapter. If any claim of liability is made against the city, its officers or employees, the person violating this chapter shall defend, indemnify and hold them harmless from such claim. Transferring property does not relieve the transferor of responsibility for violations on the property that occurred before the transfer.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 25), 8-27-12)

Sec. 37-80. - Civil penalties.

The fine for a defendant's first violation of this chapter shall be at least two hundred fifty dollars ($250.00) per violation. The fine for a defendant's second or subsequent violation of this chapter within two (2) years of the date of the first violation shall be at least five hundred dollars ($500.00) per violation. The court shall also impose all other fees and surcharges applicable under state statutes and chapter 9 of the Scottsdale Revised Code.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 25), § 2, 8-27-12)

Sec. 37-81. - Criminal penalties.

(a) The following violations may be prosecuted as class 1 misdemeanors:

(1) A second violation of this chapter within two (2) years of the date of the first violation.

(2) A violation considered an emergency under section 37-74.

(3) A violation that warrants increased penalties because of its significant, deleterious impact on property or on the public health, safety or general welfare.

(b) The fine for a defendant's first violation imposed under this section shall be at least five hundred dollars ($500.00) per violation. The fine for a defendant's second or subsequent violation imposed under this section within two (2) years of the date of the first violation shall be at least one thousand dollars ($1,000.00) per violation. The court shall also impose all other fees and surcharges applicable under state statutes and chapter 9 of the Scottsdale Revised Code.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 25), § 2, 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-82. - Restitution.

In addition to the penalties imposed herein, the court shall impose restitution as part of its sentence for:

(1) All costs associated with the city's abatement of a violation, restoration of the property and enforcement of this chapter; and

(2) Any fines or penalties imposed on the city resulting from the violation.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 25), § 2, 8-27-12)

Sec. 37-83. - Notice to abate.

(a) The city may require abatement of violations of this chapter by issuing a notice to abate to the owner, the owner's authorized agent or the owner's statutory agent, and the occupant or lessee.

(b) The city may also issue a notice to any other person responsible for the violation.

(c) The notice to abate shall be in writing and shall set forth:

(1) The identification of the property where the violation is located, by the street address, Assessor Parcel Number or by book, map and parcel number.

(2) A statement of the violation(s), and a detailed description of the violation(s) to be abated.

(3) The date by which the violation must be abated and the property restored, which date shall not be less than ten (10) days from service of the notice, unless the abatement is pursued as an emergency abatement under this chapter.

(4) The estimated cost of abatement and restoration by the city if the violation is not abated.

(5) If the violation(s) is not abated by the date specified for abatement, the city may abate the violation(s) and restore the property, assess the person responsible for the violation the cost of abatement and restoration, and record a lien on the property for the assessment.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 25), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-84. - City authority to abate and assess costs of abatement and restoration.

If the violation is not abated by the date specified for the abatement, the city may:

(1) Abate the violation(s);

(2) Restore the property subject to the abatement;

(3) Assess the person responsible the cost of abatement and restoration; and

(4) Record a lien on the property for the assessment.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 25), 8-27-12)

Sec. 37-85. - Service of notice to abate.

(a) The notice to abate shall be served on the owner, the owner's authorized agent or the owner's statutory agent, and the occupant or lessee by either of the following methods:

(1) By hand delivering a copy of the notice to abate; or

(2) By mailing a copy of the notice to abate, by regular and certified mail, to the address on record at the Maricopa County assessor's office.

(b) The notice to abate may be served as set forth above on any other person responsible for the violation.

(c) The notice to abate is deemed served on the date it is hand delivered or, if mailed, on the date it is deposited in the United States mail.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 25), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-86. - Service of petition to abate.

The service of a petition to abate shall generally comply with Rule 4 of the Arizona Rules of Civil Procedure. However, the court may, upon the city attorney's request and a finding of good cause, allow notice to be posted in a conspicuous place on the property where the violation is located.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 25), 8-27-12)

Sec. 37-87. - Procedure for non-emergency abatement petitions filed in city court.

(a) At the hearing on the petition to abate, the city and defendant(s) have an opportunity to be heard and present evidence. The rules of evidence do not apply to these hearings, but the court may regulate evidence to conduct the hearings efficiently. The court's determination of a violation shall be based on a preponderance of the evidence.

(b) The court may order abatement of the violation(s) and restoration of the property. If a defendant fails to appear for a hearing, the court shall enter a default judgment against the defendant and order abatement of the violation. If the city fails to appear for a hearing, the court shall dismiss the petition without prejudice.

(c) Upon finding that abatement and restoration is appropriate, the court shall also review the estimated cost of abatement and restoration. If the cost of abatement and restoration permitted by the court's order is not paid, then the city may record a lien on the property for the assessment.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 25), 8-27-12)

Sec. 37-88. - City assessment for abatement; lien.

(a) After abatement and restoration, the city shall prepare a statement of the cost of abating the violation and restoring the property, plus twenty-five (25) percent of such cost, and the recording fee.

(b) The statement shall be mailed to the owner, the owner's statutory agent, the occupant and lessee at the address used to serve the notice to abate. The statement may be mailed to any person responsible for the violation at the address used to serve the notice to abate.

(c) The cost of the abatement and restoration shall be paid to the city within fifteen (15) days after the mailing of the statement. Thereafter, the cost of abatement and restoration shall accrue interest at the legal rate of interest until paid.

(d) The city may record a lien on the property for the assessment. The recorded assessment is prima facie evidence of the truth of all matters recited in the assessment and the regularity of all proceedings before the recordation.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 25), 8-27-12)

Sec. 37-89. - Emergency abatement—With or without court approval.

(a) If a violation of this chapter presents an imminent hazard to life, health or public safety, the city shall attempt to notify the owner and, if known, the occupant, lessee or person responsible for the violation to abate the violation immediately.

(b) A notice for emergency abatement may be written, oral or electronic. A written notice shall be served by hand delivery or prominently posting the notice on the property or site of the violation.

(c) The city may abate the violation and restore the property:

    (1) Whether or not the notice is received; and

    (2) Whether or not the recipient appeals the notice.

(d) Whenever practicable, the city shall seek a court order to abate.

(e) City abatement for stormwater quality compliance includes suspending access to the MS4 and taking other actions necessary to minimize damage to the MS4 or waters of the United States.

(f) After abatement and restoration, the city shall follow the procedures above for assessment.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 25), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Editor's note— Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), adopted July 6, 2016, repealed § 37-89 and renumbered §§ 37-90 and 37-91 as §§ 37-89 and 37-90 as set out herein. The former § 37-89 pertained to abatement by other persons and derived from Ord. No. 4000, § 1(Res. No.

8962, Exh. A, § 25), adopted Aug. 27, 2012. The historical notation has been retained with the amended provisions for reference purposes.

Sec. 37-90. - Inadequate abatement; notice to FEMA.

If the owner or the city is unable to abate the violation(s) of article I to avoid the flood hazard, the city shall send to FEMA a denial of insurance declaration, stating that the property remains in violation of article I, pursuant to Section 1316 of the National Flood Insurance Act of 1968 as amended.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 25), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Note— See the editor's note to § 37-89.

Secs. 37-91—37-99. - Reserved.

ARTICLE V. - INTERPRETATIONS, APPEALS AND VARIANCES—FLOODPLAIN MANAGEMENT AND STORMWATER REGULATION[4]

Footnotes:

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Editor's note— Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), adopted July 6, 2016, changed the title of Art. V from "Interpretations, Appeals and Variances" to "Interpretations, Appeals and Variances—Floodplain Management and Stormwater Regulation."

DIVISION 1. - SPECIAL FLOOD HAZARD AREAS

Sec. 37-100. - Interpretation of SFHA provisions.

(a) The provisions in article I regulating SFHAs shall be:

  (1) Considered as minimum requirements;

  (2) Liberally construed in favor of the city; and

  (3) Deemed neither to limit nor repeal any other powers granted under law.

(b) A request for an interpretation under this section shall be in writing on the city form and submitted to the Floodplain Administrator. Before responding, the Floodplain Administrator may ask for additional information.

(c) Only the lot owner may appeal the Floodplain Administrator's interpretation of the provisions protecting SFHAs.

(d) Enforcement disputes are not subject to this section.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 25), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-101. - Appeal of Floodplain Administrator's interpretation of SFHA provisions.

(a) The Floodplain Board shall hear and decide appeals from the Floodplain Administrator's interpretation of the SFHA provisions of article I if there is:

(1) A dispute regarding the words, phrases or sections of the SFHA provisions; or

(2) Doubt regarding the location of a floodway or floodplain.

(b) Enforcement disputes are not appealable under this section.

(c) Only the lot owner may appeal the Floodplain Administrator's interpretation of the SFHA provisions of article I as applicable to the lot.

(d) To appeal, the lot owner shall file the appeal in writing on the city form with the Floodplain Administrator within thirty (30) days after the date of the Floodplain Administrator's interpretation.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 25), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-102. - Variances from floodplain management regulations regarding SFHAs.

(a) *Floodplain Board authority* . The Floodplain Board shall hear and decide requests for variances from the floodplain management regulations regarding SFHAs.

(b) *Nature of a variance* . The Floodplain Board may grant a variance from the floodplain management regulations protecting SFHAs. A variance may only be granted to a lot with physical characteristics so unusual that complying with the regulations of article I would create an exceptional hardship to the applicant or surrounding lot owners. Economic hardship, inconvenience, aesthetic considerations, physical handicaps, personal preferences, or the disapproval of neighbors do not create an exceptional hardship. The characteristic must be unique to the lot, such as size, shape, topography, location or surroundings. The unique characteristic must pertain to the lot itself, not to any structures, their inhabitants or lot owners. The duty of the City to protect citizens from flooding is so compelling that variances are strictly limited.

(c) *Lot size considerations for a variance.* Generally, a variance is only available for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures with lowest floors constructed below the BFE, if the procedures of sections 37-16 through 37-18, and the standards of sections 37-20 through 37-31 have been fully considered. Deviations from this lot size limit may be considered by the Floodplain Board. However, as the lot size is increased beyond one-half acre, the technical justifications required for a variance must be more detailed and comprehensive.

(d) *How to apply for a variance* . Within thirty (30) days after the Floodplain Administrator's determination of the regulations protecting SFHAs, as applied to a lot, the lot owner may apply for a variance. The application shall be in writing, on the form provided by the city, and submitted to the Floodplain Administrator.

(e) *Considerations for variances.* In considering variances, the Floodplain Board shall consider all technical evaluations, all relevant factors, standards specified in articles I and V, and:

(1) The danger that materials may be swept onto other lands to the injury of others;

(2) The danger to life and property due to flooding or erosion damage;

(3) The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;

(4) The importance of the services provided by the proposed facility to the community;

(5) The necessity to the facility of a waterfront location, where applicable;

(6) The availability of alternative locations for the proposed use, which are not subject to flooding or erosion damage;

(7) The compatibility of the proposed use with existing and anticipated development;

(8) The relationship of the proposed use to the comprehensive plan and floodplain management program for that area;

(9) The safety of access to the property in time of flood for ordinary and emergency vehicles;

(10) The expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters expected at the site; and,

(11) The costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities such as sewer, gas, electrical, water system and streets and bridges.

(f) *Limitations on granting a variance* . Except for historic structures and functionally dependent uses addressed below, the Floodplain Board may grant a variance if all the following conditions exist:

(1) A good and sufficient cause for the variance exists, as set forth in subsection (b) above.

(2) Failure to grant the variance would result in exceptional hardship to the applicant.

(3) Variances may be granted only if special circumstances, such as size, shape, topography, location or surroundings of the property, would cause the strict application of the regulations to deprive the property of privileges enjoyed by similar property in the floodplain.

(4) The variance will not cause: increased BFEs (including but not limited to, floodways) or BFDs, danger or damage to other persons or property, threats to public safety, nuisances, fraud or victimization of the public, or conflict with other laws or ordinances.

(5) The variance is the minimum necessary to afford relief for the applicant.

(6) A variance is subject to conditions to ensure that the variance does not constitute a grant of special privileges inconsistent with the limitations on similar property in the floodplain.

(7) The variance preserves the general intent and purposes of articles I and V.

(g) *Limitations on granting a variance for historic structures.* The Floodplain Board may grant a variance for an historic structure if all the following conditions exist:

(1) The structure is listed in the National Register of Historic Places, State Inventory of Historic Places, or Scottsdale Historic Register.

(2) The proposed rehabilitation or repair will not preclude the structure's continued designation as an historic structure.

(3) The variance is the minimum necessary to preserve the structure's historic character and design.

(h) *Limitations on granting a variance for functionally dependent uses.* The Floodplain Board may grant a variance for functionally dependent use if all the following conditions exist:

(1) The proposed use is a functionally dependent use.

(2) The proposed use meets the criteria in (f) above.

(3) The structure or other development is protected by methods that minimize flood damages during the base flood and create no additional threats to public safety.

(i) *Conditions:* The Floodplain Board may attach conditions to a variance to preserve the general intent and purposes of articles I and V.

(j) *Notice:*

(1) Construction of a lowest floor below the BFE or BFD may result in increased premium rates for flood insurance.

(2) Construction below the BFE or BFD may increase risks to life and property.

(3) The variance may make the lot ineligible for state land exchange.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 25), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Secs. 37-103, 37-104. - Reserved.

DIVISION 2. - STORMWATER REGULATION

Sec. 37-105. - Floodplain Administrators' interpretations of Article II, Stormwater Regulation.

(a) This section does not apply to interpretations concerning Article I, Article III, or enforcement disputes.

(b) Only the lot owner may request a review of the Floodplain Administrator's interpretation of Article II, Stormwater Regulation provisions' applicability to a lot.

(c) Upon a lot owner's written application, the Floodplain Administrator may interpret the provisions of this chapter, other than those specified in (a), to allow modifications of requirements.

(d) To allow a modification, the Floodplain Administrator must find:

(1) The lot owner's individual circumstances make the strict application of this chapter impractical;

(2) The modification does not adversely affect the public health, safety and general welfare;

(3) The design, methodology or construction techniques to be substituted is at least the equivalent of the design, methodology or construction techniques specified in this chapter for quality, effectiveness, durability, maintenance and safety; and

(4) The modification is in compliance with the intent and purpose of this chapter.

(e) A request for an interpretation under this section shall be in writing on the city form and submitted to the Floodplain Administrator. Before responding, the Floodplain Administrator may ask for additional information.

(Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-106. - Appeal of Floodplain Administrator's interpretation of Article II, Stormwater Regulation.

(a) The Floodplain Board shall hear and decide appeals from the Floodplain Administrator's interpretation of the provisions of this chapter (other than those specified in (b) below) when a lot owner claims the Floodplain Administrator made an error in administering this chapter.

(b) Interpretations concerning Article I, Article III, and enforcement disputes are not appealable under this section.

(c) Only a lot owner may appeal the Floodplain Administrator's interpretation other than those specified in (b) above.

(d) To appeal, the lot owner shall file the appeal in writing on the city form with the Floodplain Administrator within thirty (30) days after the date of the Floodplain Administrator's interpretation.

(e) The Floodplain Board may resolve an appeal in favor of an appellant only if the following conditions are met.

(1) The owner's individual circumstances make the strict application of this chapter impractical;

(2) The modification does not adversely affect the public health, safety and general welfare;

(3) The design, methodology or construction techniques to be substituted is at least the equivalent of the design, methodology or construction techniques specified in this chapter for quality, effectiveness, durability, maintenance and safety; and

(4) The modification is in compliance with the intent and purpose of this chapter.

(Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

DIVISION I. - GENERAL

Sec. 37-1. - Statutory authorization.

In A.R.S. § 48-3610, the Arizona State Legislature enabled the City of Scottsdale to adopt regulations in conformance with A.R.S. § 48-3603 designed to promote the public health, safety and general welfare of its citizenry.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 3), 8-27-12)

Sec. 37-2. - Findings of fact.

(a) The flood hazard areas of the City are subject to periodic inundation which may result in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief and impairment of the tax base, all of which adversely affect the public health, safety and general welfare.

(b) These flood losses may be caused by the cumulative effect of obstructions in areas of special flood hazards which increase flood heights and velocities and, when inadequately anchored, cause damage in other areas. Uses that are inadequately floodproofed, elevated or otherwise protected from flood damage, also contribute to the flood loss.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 3), 8-27-12)

Sec. 37-3. - Statement of purpose.

It is the purpose of this article to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:

(a) Protect human life and health;

(b) Minimize expenditure of public money for costly flood control projects;

(c) Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;

(d) Minimize prolonged business interruptions;

(e) Minimize damage to public facilities and utilities such as water and gas mains; electric, telephone and sewer lines; and streets and bridges located in areas of special flood hazard;

(f) Help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize blight areas caused by flooding;

(g) Notify potential buyers that property is in an area of special flood hazard;

(h) Alert those who occupy the areas of special flood hazard to their responsibilities;

(i) Maintain eligibility for disaster relief.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 3), 8-27-12)

Sec. 37-4. - Methods of reducing flood losses.

In order to accomplish its purposes, this article includes methods and provisions to:

(a) Restrict or prohibit uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or flood heights or velocities;

(b) Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;

(c) Control the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters;

(d) Control filling, grading, dredging, and other development which may increase flood damage; and

(e) Prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 3), 8-27-12)

Sec. 37-5. - Definitions.

Unless specifically defined below, words or phrases used in this article shall be interpreted so as to give them the meaning they have in common usage and to give this article its most reasonable application.

A zone. See "Special flood hazard area".

Accessory structure is a structure, smaller than five hundred (500) square feet, used solely for parking no more than two (2) cars and/or limited storage.

Appeal means a request for a review of the floodplain administrator's interpretation of any provision of this article or a request for a variance.

Area of shallow flooding means a designated AO or AH zone on the flood insurance rate map (FIRM) with a one (1) percent or greater annual chance of flooding to an average depth of one (1) to four (4) feet where a clearly defined channel does not exist, where the path of flooding is unpredictable and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow.

Area of special flood hazard means the land in the floodplain within a community subject to a one (1) percent or greater chance of flooding in any given year. These areas are designated as Zone A, AE, AO, AH, and A1—30 on the FIRM and other areas determined by the criteria adopted by the Director of the Arizona Department of Water Resources. See "Special flood hazard area."

Base flood is the flood having a one (1) percent chance of being equaled or exceeded in any given year. This is also called a one hundred-year flood.

Base flood depth (BFD) is the depth shown on the Flood Insurance Rate Map for Flood Hazard Zone AO that indicates the water depth resulting from a base flood.

Base flood elevation (BFE) is the elevation shown on the Flood Insurance Rate Map for Zones AE, AH and A1—30 that indicates the water surface elevation resulting from a flood that has a one (1) percent or greater chance of being equaled or exceeded in any given year.

Basement is any area of the building having its floor sub-grade - i.e., below ground level - on all sides.

Building. See "Structure."

Building permit is the city's written authorization for a person to start development. Building permit, for this chapter only, includes permits for using the right-of-way, and excludes mining and drilling permits. Mining and drilling permits are issued by the appropriate county, state and federal authorities.

Community means the City of Scottsdale.

Compensatory storage means floodwater storage, or other mitigation, provided to compensate for an equal volume of storage lost in a special flood hazard area or local floodplain through fill or other development.

Development is any human-caused change to improved or unimproved real estate, including, but not limited to, buildings or other structures, construction, mining, dredging, filling, grading, paving, excavation, or storage of equipment or materials.

Encroachment is the advance or infringement of uses, plant growth, fill, excavation, buildings, permanent structures or development into a floodplain, which may impede or alter the flow capacity of a floodplain.

Flood or *flooding* means a general and temporary condition of partial or complete inundation of normally dry land areas from:

(1) The overflow of floodwaters;

(2) The unusual and rapid accumulation or runoff of surface waters from any source, and/or;

(3) The collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature, such as flash flood, or by some similarly unusual and unforeseeable event.

Flood Insurance Rate Map (FIRM) is the official map on which the Federal Emergency Management Agency (FEMA) or Federal Insurance Administration (FIA) has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.

Flood Hazard Zones A, AE, AO, AH, A1—30 and A99 are the areas shown on a FIRM which the Federal Emergency Management Agency has determined will be inundated during a base flood. These areas are called, collectively, "special flood hazard areas."

Flood Hazard Zone D is an area shown on a FIRM which has undetermined but possible flooding hazards.

Flood Hazard Zone E is an area of special flood-related erosion hazards.

Flood Insurance Study (FIS) is the official report provided by the Federal Emergency Management Agency that includes flood profiles, Flood Insurance Rate Maps, and the water surface elevation of the base flood.

Floodplain Administrator is the city manager or designee who is authorized by this chapter to administer its provisions.

Floodplain or *flood-prone area* means any land area susceptible to being inundated by water from any source (see definition of "flooding").

Floodplain Board is the City Council of the City at such times as they are engaged in administering and enforcing this article.

Floodplain management is an overall program of corrective and preventive measures for reducing flood damage, including but not limited to emergency preparedness plans, flood control works and floodplain management regulations.

Floodplain management regulations are this chapter and other zoning ordinances, subdivision regulations, building codes, health regulations, special purpose ordinances (such as grading and erosion control) and other application of police power which control development in flood-prone areas. This term describes federal, state or local regulations in any combination thereof, which provide standards for preventing and reducing flood loss and damage.

Floodproofing is any combination of structural and nonstructural additions, changes, or adjustments to structures, which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures, and their contents.

Flood-related erosion is the collapse or subsidence of land along the shore of a lake or other body of water as a result of undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature, such as a flash flood or an abnormal tidal surge, or by some similarly unusual and unforeseeable event which results in flooding.

Floodway is the area of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. Also referred to as "Regulatory Floodway."

Functionally dependent use is a use which cannot perform its intended purpose unless it is located or carried out in close proximity to water. The term includes only docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and ship building and ship repair facilities, and does not include long-term storage or related manufacturing facilities.

Governing body means the local governing unit, i.e. county or municipality, that is empowered to adopt and implement regulations to provide for the public health, safety and general welfare of its citizenry.

Grading is any excavation or filling of land or combination thereof.

Highest adjacent grade is the highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.

Historic structure is any structure that is:

(1) Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;

(2) Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district;

(3) Individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of the Interior; or

(4) Individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either:

   (a) By an approved state program as determined by the Secretary of the Interior; or

   (b) Directly by the Secretary of the Interior in states without approved programs.

Lowest floor is the lowest floor of the lowest enclosed area (including basement). An unfinished or flood-resistant enclosure, usable solely for parking of vehicles, building access or storage in an area other than a basement area is not considered a building's lowest floor; provided that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of this article.

Manufactured home is a structure, transportable in one (1) or more sections, which is built on a permanent chassis and designed to be used with or without a permanent foundation when connected to the required utilities. The term "manufactured home" does not include a "recreational vehicle."

Manufactured home park (subdivision) is a parcel or contiguous parcels of land divided into two (2) or more manufactured home lots for rent or sale.

Market value. See FEMA Publication 213 and Section 37-15(c)(2)(A).

Mean sea level is, for purposes of the National Flood Insurance Program, the National Geodetic Vertical Datum (NGVD) of 1929, North American Vertical Datum (NAVD) of 1988, or other datum, to which base flood elevations shown on a community's Flood Insurance Rate Map are referenced.

New construction is, for the purposes of determining insurance rates, structures for which the "start of construction" commenced on or after March 26, 1971, and includes any subsequent improvements to such structures. For floodplain management purposes, "new construction" means structures for which the "start of construction" commenced on or after March 26, 1971, and includes any subsequent improvements to such structures.

Obstruction is, including, but not limited to, any dam, wall, wharf, embankment, levee, dike, pile, abutment, protection, excavation, channelization, bridge, conduit, culvert, building, wire, fence, rock, gravel, refuse, fill, structure, vegetation or other material in, along, across or projecting into any watercourse which may alter, impede, retard or change the direction and/or velocity of the flow of water, or due to its location, its propensity to snare or collect debris carried by the flow of water, or its likelihood of being carried downstream.

One hundred-year flood or *100-year flood* is the flood having a one (1) percent chance of being equaled or exceeded in any given year. See "Base flood."

Pending SFHA is an area having flood and/or flood-related erosion hazards as determined by a FIS for which the city has received notification from FEMA that the FIS represents the best available data as provided by FEMA's Floodplain Management Bulletin 1-98, but a FIRM revision is not complete.

Person is an individual or the individual's agent, a firm, partnership, association or corporation, or an agent of the aforementioned groups, or this state or its agencies or political subdivisions.

Recreational vehicle is a vehicle which is:

(1) Built on a single chassis;

(2) Four hundred (400) square feet or less when measured at the largest horizontal projection;

(3) Designed to be self-propelled or permanently towable by a light-duty truck; and

(4) Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

Regulatory flood depth (RFD) is one (1) foot above the base flood depth, or two (2) feet above the highest adjacent grade, if no depth number is shown on the FIRM.

Regulatory Flood Elevation (RFE) is an elevation one (1) foot above the "base flood elevation" for a watercourse for which the base flood elevation has been determined and shall be determined by the criteria developed by the Director of the Arizona Department of Water Resources for all other watercourses.

Regulatory floodway is the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.

Residential structure is a place of residence and may be a single-family or multifamily dwelling.

Riverine is relating to, formed by, or resembling a river (including tributaries), stream, brook, etc.

Sheet flow area. See "Area of shallow flooding."

Special Flood Hazard Area (SFHA) is an area in the floodplain subject to a one (1) percent or greater chance of flooding in any given year. It is shown on a Flood Insurance Rate Map as Zone A, AO, A1—A30, AE, A99 or AH.

Start of construction is the date of building permit issuance for new construction and substantial improvements to existing structures, provided the actual start of construction, repair, reconstruction, rehabilitation, addition, placement or other improvement is within one hundred eighty (180) days after the date of issuance. The actual start of construction means the first placement of permanent construction of a building (including a manufactured home) on a site, such as the pouring of a slab or footings, installation of pilings or construction of columns. Permanent construction does not include land preparation (such as clearing, excavation, grading or filling), the installation of streets or walkways, excavation for a basement, footings, piers or foundations, the erection of temporary forms or the installation of accessory buildings such as garages or sheds not occupied as dwelling units or not part of the main building. For a substantial improvement, the actual "start of construction" means the first alteration of any wall, ceiling, floor or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

Structure is a walled and roofed building that is principally above the ground; this includes a gas or liquid storage tank or a manufactured home.

Substantial damage is damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed fifty (50) percent of the market value of the structure before the damage occurred.

Substantial improvement is any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds fifty (50) percent of the market value of the structure before the "start of construction" of the improvement. This term includes structures which have incurred "substantial damage", regardless of the actual repair work performed. The term "substantial improvement" does not, however, include:

(1) Any project for improvement of a structure to correct existing violations of state or local health, sanitary, building, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions, or

(2) Any alteration of a "historic structure," provided that the alteration will not preclude the structure's continued designation as a "historic structure".

Variance is a grant of relief from some of the requirements of this article which permits construction in a manner that would otherwise be prohibited by this article.

Water surface elevation is the height, in relation to the National Geodetic Vertical Datum (NGVD) of 1929, North American Vertical Datum (NAVD) of 1988, or other datum, of floods of various magnitudes and frequencies in the floodplains of coastal or riverine areas.

Watercourse means a natural or human-caused lake, river, creek, stream, wash, arroyo, channel, culvert, pipes or any other topographic feature, through, on or over which waters flow or pond at least periodically. Watercourses include specifically designated areas in which substantial flood damage may occur.

(Code 1972, § 5-612; Ord. No. 1993, 2-29-88; Ord. No. 3333, § 3, 9-5-00; Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 5), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-6. - Lands to which this article applies.

This article shall apply to all areas of special flood hazards within the corporate limits of the City of Scottsdale.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 6), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-7. - Basis for establishment of special flood hazard areas and regulatory floodways.

The areas of special flood hazard identified by FEMA in the FIS for the City of Scottsdale, Arizona, Maricopa County, dated September 21, 1973 with accompanying FIRMs for Maricopa County, Arizona, and Incorporated Areas, dated April 15, 1988, and all subsequent amendments and/or revisions, are hereby adopted by reference and declared to be a part of this ordinance. This FIS and attendant mapping is the minimum area of applicability of this ordinance and may be supplemented by studies for other areas which allow implementation of this ordinance and which are recommended to the Floodplain Board by the Floodplain Administrator. The Floodplain Board, within its area of jurisdiction, shall delineate (or may, by rule, require developers of land to delineate) for areas where development is ongoing or imminent, and thereafter as development becomes imminent, floodplains consistent with the criteria developed by the Federal Emergency Management Agency and the Director of the Arizona Department of Water Resources. The FIS and FIRM panels are on file at 7447 E. Indian School Road, Scottsdale.

(Code 1972, § 5-614; Ord. No. 1993, 2-29-88; Ord. No. 3333, § 4, 9-5-00; Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 7), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-8. - Compliance.

All development of land within SFHAs is subject to the terms of this article and other applicable regulations.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 8), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-9. - Conflict with Scottsdale Revised Code.

In the case of conflict between this chapter and another provision of the Scottsdale Revised Code, the provision providing the higher standard for protection of the public health, safety and general welfare shall control.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 8), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-10. - Disclaimer of liability.

The degree of flood protection required by this chapter is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by human-caused or natural causes. This chapter does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. This chapter shall not create liability on the part of the City, any officer or employee thereof, the State of Arizona or the Federal Emergency Management Agency, for any flood damages that result from reliance on this chapter or any administrative decision lawfully made hereunder.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 8), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-11. - Statutory exceptions.

The statutory exceptions in A.R.S. § 48-3609(H) and A.R.S. § 48-3613(B) apply to this chapter.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 8), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-12. - Floodplain Board delegation.

The Floodplain Board hereby delegates to the Floodplain Administrator the administrative duties, restrictions and authority granted to the Floodplain Board under A.R.S. § 48-3609(H) and A.R.S. § 48-3613 referred to in section 37-11 above.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 8), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-13. - Declaration of public nuisance.

All development located or maintained within any area of special flood hazard after August 8, 1973, in violation of this article, is a public nuisance per se and may be abated, prevented or restrained by action of this city.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 8), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-14. - Severability.

This ordinance and the various parts thereof are hereby declared to be severable. Should any section of this ordinance be declared by the courts to be unconstitutional or invalid, such decision shall not affect the validity of the ordinance as a whole, or any portion thereof other than the section so declared to be unconstitutional or invalid.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 8), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-15. - Floodplain Administrator.

(a) *Designated.* The city manager or designee shall be the Floodplain Administrator.

(b) *Appointed.* The Floodplain Administrator is hereby appointed to administer, implement and enforce this chapter.

(c) *Responsibilities.* It is the responsibility of the Floodplain Administrator or designee to do the following:

(1) Review applications for building permits to determine that:

(A) The permit requirements of this chapter have been satisfied;

(B) All other required state and federal permits have been obtained;

(C) The site is reasonably safe from flooding;

(D) The proposed development does not adversely affect the carrying capacity of areas where base flood elevations have been determined but a floodway has not been designated. For purposes of this article, "adversely affect" means that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the BFE more than the designated allowed rise at any point, not to exceed one (1) foot.

(2) (A) Using FEMA Publication 213, "Answers to Questions About Substantially Damaged Buildings," develop detailed procedures for identifying and administering requirements for substantial improvement and substantial damage, to include defining "Market Value;" and

(B) Coordinate procedures and implementation with other departments and divisions.

(3) When BFE data is not shown on the FIRM, obtain, review and reasonably utilize any BFE data available from a federal, state or other source, to administer this article. Any such data shall be consistent with FEMA and Arizona Department of Water Resources requirements, and shall be submitted to the Floodplain Board for adoption.

(4) Maintain the following records and, upon request, provide the public with information concerning the content of these records:

(A) The certified RFE required in section 37-22.

(B) The floodproofing certification required in section 37-23.

(C) The flood vent certification required in section 37-24.

(D) The elevation certification required section 37-29.

(E) The floodway encroachment certification required in section 37-31.

(F) Records of all variance actions, including justification for their issuance, and report variances issued in required reports submitted to FEMA.

(G) Improvement calculations.

(5) Whenever a watercourse is to be altered or relocated:

(A) Notify adjacent communities and the Arizona Department of Water Resources prior to such alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Emergency Management Agency through appropriate notification means; and

(B) Require the flood carrying capacity of the altered or relocated portion of the watercourse to be maintained.

(6) Base flood elevation and rate of flow due to physical alterations:

(A) Base flood elevations may increase or decrease resulting from physical changes affecting flooding conditions. As soon as practicable, but not later than six (6) months after the date such information becomes available, the Floodplain Administrator shall notify FEMA of the changes by submitting technical or scientific data in accordance with Volume 44 Code of Federal Regulations section 65.3. Such a submission is necessary so that upon confirmation of those physical changes affecting flooding conditions, risk premium rates and floodplain management requirements will be based upon current data.

(B) Within one hundred twenty (120) days after completion of construction of any flood control protective works which changes the rate of flow during the flood or the configuration of the floodplain upstream or downstream from or adjacent to the project, the person or agency responsible for installation of the project shall provide to the governing bodies of all jurisdictions affected by the project a new delineation of all floodplains affected by the project. The new delineation shall be done according to the criteria adopted by the Director of the Arizona Department of Water Resources.

(7) Notify FEMA and the Arizona Department of Water Resources of acquisition by means of annexation, incorporation or otherwise, of additional areas of jurisdiction.

(8) Provide FEMA information needed to update the FIRMs and serve as the city's agent for handling revisions of the FIRMs.

(9) Coordinate the provisions of this article with all other interested and affected political subdivisions, federal and state agencies as required by Arizona Revised Statutes sections 48-3609 and 48-3610, and 44 CFR parts 60.2(e) and 60.3(b)(6).

(10) Make interpretations where needed as to the exact location of the flood hazard zone boundaries. The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as set forth in section 37-101.

(11) Take action on violations of the regulations in this chapter.

(Code 1972, § 5-616; Ord. No. 1993, 2-29-88; Ord. No. 3333, § 5, 9-5-00; Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 9), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-16. - Building permit.

(a) A building permit shall be obtained before construction or development begins, including placement of manufactured homes, within any SFHA established in section 37-7. Application for a building permit shall be made on forms furnished by the city and may include, but not be limited to, plans to scale showing the nature, location, dimensions and elevation of the area in question, existing or proposed structures, fill, storage of materials, drainage facilities and the location of the foregoing. Specifically, the following information is required:

(1) Proposed elevation in relation to mean sea level of the lowest floor (including basement) of all structures. In Flood Hazard Zone AO, elevation of existing highest adjacent natural grade and proposed elevation of lowest floor of all structures;

(2) Proposed elevation in relation to mean sea level to which any non-residential structure will be floodproofed;

(3) Certification by a registered professional engineer or architect that the floodproofing methods for any nonresidential structure meet the floodproofing criteria in this article;

(4) For all structures, subdivisions and other development, the BFE or BFD; and

(5) Description of the extent to which any watercourse will be altered or relocated as a result of proposed development.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 10), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-17. - CLOMC/LOMC requirements.

(a) A Conditional Letter of Map Change (CLOMC) from FEMA is required for the following proposed developments in an SFHA or pending SFHA:

(1) A subdivision of six or more lots, except within Flood Hazard Zone AO, when grading and flood protection construction will remove the SFHA from building envelopes for all residential structures;

(2) Any development in the floodway that increases the BFE; and

(3) Any development in the floodplain that increases the BFE more than one (1) foot.

(b) Upon completion of the grading and flood protection features of the development, the developer shall provide the Floodplain Administrator as-built grading plans and other engineering data prepared and signed by an engineer or surveyor, that demonstrate compliance with CLOMC requirements, and this information must be submitted to FEMA to support a LOMC.

(c) A Letter of Map Change (LOMC) from FEMA is required for the following proposed developments in an SFHA or pending SFHA:

(1) A residential subdivision of six or more lots, except within Flood Hazard Zone AO;

(2) Any development in the floodway that increases the BFE; and

(3) Any development in the floodplain that increases the BFE more than one (1) foot.

(d) Where a LOMC is required for a residential subdivision, the LOMC shall remove the SFHA from proposed building envelopes.

(e) Where a LOMC is required, no permit to construct any structure shall be issued until the city receives a LOMC issued by FEMA.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-18. - Document requirements.

Upon completion of the grading and flood protection features of the development, the developer shall provide the Floodplain Administrator as-built grading plans and other engineering data prepared and signed by an engineer or surveyor, which demonstrates compliance with this chapter.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12)

Sec. 37-19. - Reserved.

Sec. 37-1. - Statutory authorization.

In A.R.S. § 48-3610, the Arizona State Legislature enabled the City of Scottsdale to adopt regulations in conformance with A.R.S. § 48-3603 designed to promote the public health, safety and general welfare of its citizenry.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 3), 8-27-12)

Sec. 37-2. - Findings of fact.

(a) The flood hazard areas of the City are subject to periodic inundation which may result in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief and impairment of the tax base, all of which adversely affect the public health, safety and general welfare.

(b) These flood losses may be caused by the cumulative effect of obstructions in areas of special flood hazards which increase flood heights and velocities and, when inadequately anchored, cause damage in other areas. Uses that are inadequately floodproofed, elevated or otherwise protected from flood damage, also contribute to the flood loss.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 3), 8-27-12)

Sec. 37-3. - Statement of purpose.

It is the purpose of this article to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:

(a) Protect human life and health;

(b) Minimize expenditure of public money for costly flood control projects;

(c) Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;

(d) Minimize prolonged business interruptions;

(e) Minimize damage to public facilities and utilities such as water and gas mains; electric, telephone and sewer lines; and streets and bridges located in areas of special flood hazard;

(f) Help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize blight areas caused by flooding;

(g) Notify potential buyers that property is in an area of special flood hazard;

(h) Alert those who occupy the areas of special flood hazard to their responsibilities;

(i) Maintain eligibility for disaster relief.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 3), 8-27-12)

Sec. 37-4. - Methods of reducing flood losses.

In order to accomplish its purposes, this article includes methods and provisions to:

(a) Restrict or prohibit uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or flood heights or velocities;

(b) Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;

(c) Control the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters;

(d) Control filling, grading, dredging, and other development which may increase flood damage; and

(e) Prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 3), 8-27-12)

Sec. 37-5. - Definitions.

Unless specifically defined below, words or phrases used in this article shall be interpreted so as to give them the meaning they have in common usage and to give this article its most reasonable application.

A zone. See "Special flood hazard area".

Accessory structure is a structure, smaller than five hundred (500) square feet, used solely for parking no more than two (2) cars and/or limited storage.

Appeal means a request for a review of the floodplain administrator's interpretation of any provision of this article or a request for a variance.

Area of shallow flooding means a designated AO or AH zone on the flood insurance rate map (FIRM) with a one (1) percent or greater annual chance of flooding to an average depth of one (1) to four (4) feet where a clearly defined channel does not exist, where the path of flooding is unpredictable and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow.

Area of special flood hazard means the land in the floodplain within a community subject to a one (1) percent or greater chance of flooding in any given year. These areas are designated as Zone A, AE, AO, AH, and A1—30 on the FIRM and other areas determined by the criteria adopted by the Director of the Arizona Department of Water Resources. See "Special flood hazard area."

Base flood is the flood having a one (1) percent chance of being equaled or exceeded in any given year. This is also called a one hundred-year flood.

Base flood depth (BFD) is the depth shown on the Flood Insurance Rate Map for Flood Hazard Zone AO that indicates the water depth resulting from a base flood.

Base flood elevation (BFE) is the elevation shown on the Flood Insurance Rate Map for Zones AE, AH and A1—30 that indicates the water surface elevation resulting from a flood that has a one (1) percent or greater chance of being equaled or exceeded in any given year.

Basement is any area of the building having its floor sub-grade - i.e., below ground level - on all sides.

Building. See "Structure."

Building permit is the city's written authorization for a person to start development. Building permit, for this chapter only, includes permits for using the right-of-way, and excludes mining and drilling permits. Mining and drilling permits are issued by the appropriate county, state and federal authorities.

Community means the City of Scottsdale.

Compensatory storage means floodwater storage, or other mitigation, provided to compensate for an equal volume of storage lost in a special flood hazard area or local floodplain through fill or other development.

Development is any human-caused change to improved or unimproved real estate, including, but not limited to, buildings or other structures, construction, mining, dredging, filling, grading, paving, excavation, or storage of equipment or materials.

Encroachment is the advance or infringement of uses, plant growth, fill, excavation, buildings, permanent structures or development into a floodplain, which may impede or alter the flow capacity of a floodplain.

Flood or *flooding* means a general and temporary condition of partial or complete inundation of normally dry land areas from:

(1) The overflow of floodwaters;

(2) The unusual and rapid accumulation or runoff of surface waters from any source, and/or;

(3) The collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature, such as flash flood, or by some similarly unusual and unforeseeable event.

Flood Insurance Rate Map (FIRM) is the official map on which the Federal Emergency Management Agency (FEMA) or Federal Insurance Administration (FIA) has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.

Flood Hazard Zones A, AE, AO, AH, A1—30 and A99 are the areas shown on a FIRM which the Federal Emergency Management Agency has determined will be inundated during a base flood. These areas are called, collectively, "special flood hazard areas."

Flood Hazard Zone D is an area shown on a FIRM which has undetermined but possible flooding hazards.

Flood Hazard Zone E is an area of special flood-related erosion hazards.

Flood Insurance Study (FIS) is the official report provided by the Federal Emergency Management Agency that includes flood profiles, Flood Insurance Rate Maps, and the water surface elevation of the base flood.

Floodplain Administrator is the city manager or designee who is authorized by this chapter to administer its provisions.

Floodplain or *flood-prone area* means any land area susceptible to being inundated by water from any source (see definition of "flooding").

Floodplain Board is the City Council of the City at such times as they are engaged in administering and enforcing this article.

Floodplain management is an overall program of corrective and preventive measures for reducing flood damage, including but not limited to emergency preparedness plans, flood control works and floodplain management regulations.

Floodplain management regulations are this chapter and other zoning ordinances, subdivision regulations, building codes, health regulations, special purpose ordinances (such as grading and erosion control) and other application of police power which control development in flood-prone areas. This term describes federal, state or local regulations in any combination thereof, which provide standards for preventing and reducing flood loss and damage.

Floodproofing is any combination of structural and nonstructural additions, changes, or adjustments to structures, which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures, and their contents.

Flood-related erosion is the collapse or subsidence of land along the shore of a lake or other body of water as a result of undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature, such as a flash flood or an abnormal tidal surge, or by some similarly unusual and unforeseeable event which results in flooding.

Floodway is the area of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. Also referred to as "Regulatory Floodway."

Functionally dependent use is a use which cannot perform its intended purpose unless it is located or carried out in close proximity to water. The term includes only docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and ship building and ship repair facilities, and does not include long-term storage or related manufacturing facilities.

Governing body means the local governing unit, i.e. county or municipality, that is empowered to adopt and implement regulations to provide for the public health, safety and general welfare of its citizenry.

Grading is any excavation or filling of land or combination thereof.

Highest adjacent grade is the highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.

Historic structure is any structure that is:

(1) Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;

(2) Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district;

(3) Individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of the Interior; or

(4) Individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either:

(a) By an approved state program as determined by the Secretary of the Interior; or

(b) Directly by the Secretary of the Interior in states without approved programs.

Lowest floor is the lowest floor of the lowest enclosed area (including basement). An unfinished or flood-resistant enclosure, usable solely for parking of vehicles, building access or storage in an area other than a basement area is not considered a building's lowest floor; provided that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of this article.

Manufactured home is a structure, transportable in one (1) or more sections, which is built on a permanent chassis and designed to be used with or without a permanent foundation when connected to the required utilities. The term "manufactured home" does not include a "recreational vehicle."

Manufactured home park (subdivision) is a parcel or contiguous parcels of land divided into two (2) or more manufactured home lots for rent or sale.

Market value. See FEMA Publication 213 and Section 37-15(c)(2)(A).

Mean sea level is, for purposes of the National Flood Insurance Program, the National Geodetic Vertical Datum (NGVD) of 1929, North American Vertical Datum (NAVD) of 1988, or other datum, to which base flood elevations shown on a community's Flood Insurance Rate Map are referenced.

New construction is, for the purposes of determining insurance rates, structures for which the "start of construction" commenced on or after March 26, 1971, and includes any subsequent improvements to such structures. For floodplain management purposes, "new construction" means structures for which the "start of construction" commenced on or after March 26, 1971, and includes any subsequent improvements to such structures.

Obstruction is, including, but not limited to, any dam, wall, wharf, embankment, levee, dike, pile, abutment, protection, excavation, channelization, bridge, conduit, culvert, building, wire, fence, rock, gravel, refuse, fill, structure, vegetation or other material in, along, across or projecting into any watercourse which may alter, impede, retard or change the direction and/or velocity of the flow of water, or due to its location, its propensity to snare or collect debris carried by the flow of water, or its likelihood of being carried downstream.

One hundred-year flood or *100-year flood* is the flood having a one (1) percent chance of being equaled or exceeded in any given year. See "Base flood."

Pending SFHA is an area having flood and/or flood-related erosion hazards as determined by a FIS for which the city has received notification from FEMA that the FIS represents the best available data as provided by FEMA's Floodplain Management Bulletin 1-98, but a FIRM revision is not complete.

Person is an individual or the individual's agent, a firm, partnership, association or corporation, or an agent of the aforementioned groups, or this state or its agencies or political subdivisions.

Recreational vehicle is a vehicle which is:

(1) Built on a single chassis;

(2) Four hundred (400) square feet or less when measured at the largest horizontal projection;

(3) Designed to be self-propelled or permanently towable by a light-duty truck; and

(4) Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

Regulatory flood depth (RFD) is one (1) foot above the base flood depth, or two (2) feet above the highest adjacent grade, if no depth number is shown on the FIRM.

Regulatory Flood Elevation (RFE) is an elevation one (1) foot above the "base flood elevation" for a watercourse for which the base flood elevation has been determined and shall be determined by the criteria developed by the Director of the Arizona Department of Water Resources for all other watercourses.

Regulatory floodway is the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.

Residential structure is a place of residence and may be a single-family or multifamily dwelling.

Riverine is relating to, formed by, or resembling a river (including tributaries), stream, brook, etc.

Sheet flow area. See "Area of shallow flooding."

Special Flood Hazard Area (SFHA) is an area in the floodplain subject to a one (1) percent or greater chance of flooding in any given year. It is shown on a Flood Insurance Rate Map as Zone A, AO, A1—A30, AE, A99 or AH.

Start of construction is the date of building permit issuance for new construction and substantial improvements to existing structures, provided the actual start of construction, repair, reconstruction, rehabilitation, addition, placement or other improvement is within one hundred eighty (180) days after the date of issuance. The actual start of construction means the first placement of permanent construction of a building (including a manufactured home) on a site, such as the pouring of a slab or footings, installation of pilings or construction of columns. Permanent construction does not include land preparation (such as clearing, excavation, grading or filling), the installation of streets or walkways, excavation for a basement, footings, piers or foundations, the erection of temporary forms or the installation of accessory buildings such as garages or sheds not occupied as dwelling units or not part of the main building. For a substantial improvement, the actual "start of construction" means the first alteration of any wall, ceiling, floor or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

Structure is a walled and roofed building that is principally above the ground; this includes a gas or liquid storage tank or a manufactured home.

Substantial damage is damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed fifty (50) percent of the market value of the structure before the damage occurred.

Substantial improvement is any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds fifty (50) percent of the market value of the structure before the "start of construction" of the improvement. This term includes structures which have incurred "substantial damage", regardless of the actual repair work performed. The term "substantial improvement" does not, however, include:

(1) Any project for improvement of a structure to correct existing violations of state or local health, sanitary, building, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions, or

(2) Any alteration of a "historic structure," provided that the alteration will not preclude the structure's continued designation as a "historic structure".

Variance is a grant of relief from some of the requirements of this article which permits construction in a manner that would otherwise be prohibited by this article.

Water surface elevation is the height, in relation to the National Geodetic Vertical Datum (NGVD) of 1929, North American Vertical Datum (NAVD) of 1988, or other datum, of floods of various magnitudes and frequencies in the floodplains of coastal or riverine areas.

Watercourse means a natural or human-caused lake, river, creek, stream, wash, arroyo, channel, culvert, pipes or any other topographic feature, through, on or over which waters flow or pond at least periodically. Watercourses include specifically designated areas in which substantial flood damage may occur.

(Code 1972, § 5-612; Ord. No. 1993, 2-29-88; Ord. No. 3333, § 3, 9-5-00; Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 5), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-6. - Lands to which this article applies.

This article shall apply to all areas of special flood hazards within the corporate limits of the City of Scottsdale.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 6), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-7. - Basis for establishment of special flood hazard areas and regulatory floodways.

The areas of special flood hazard identified by FEMA in the FIS for the City of Scottsdale, Arizona, Maricopa County, dated September 21, 1973 with accompanying FIRMs for Maricopa County, Arizona, and Incorporated Areas, dated April 15, 1988, and all subsequent amendments and/or revisions, are hereby adopted by reference and declared to be a part of this ordinance. This FIS and attendant mapping is the minimum area of applicability of this ordinance and may be supplemented by studies for other areas which allow implementation of this ordinance and which are recommended to the Floodplain Board by the Floodplain Administrator. The Floodplain Board, within its area of jurisdiction, shall delineate (or may, by rule, require developers of land to delineate) for areas where development is ongoing or imminent, and thereafter as development becomes imminent, floodplains consistent with the criteria developed by the Federal Emergency Management Agency and the Director of the Arizona Department of Water Resources. The FIS and FIRM panels are on file at 7447 E. Indian School Road, Scottsdale.

(Code 1972, § 5-614; Ord. No. 1993, 2-29-88; Ord. No. 3333, § 4, 9-5-00; Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 7), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-8. - Compliance.

All development of land within SFHAs is subject to the terms of this article and other applicable regulations.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 8), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-9. - Conflict with Scottsdale Revised Code.

In the case of conflict between this chapter and another provision of the Scottsdale Revised Code, the provision providing the higher standard for protection of the public health, safety and general welfare shall control.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 8), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-10. - Disclaimer of liability.

The degree of flood protection required by this chapter is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by human-caused or natural causes. This chapter does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. This chapter shall not create liability on the part of the City, any officer or employee thereof, the State of Arizona or the Federal Emergency Management Agency, for any flood damages that result from reliance on this chapter or any administrative decision lawfully made hereunder.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 8), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-11. - Statutory exceptions.

The statutory exceptions in A.R.S. § 48-3609(H) and A.R.S. § 48-3613(B) apply to this chapter.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 8), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-12. - Floodplain Board delegation.

The Floodplain Board hereby delegates to the Floodplain Administrator the administrative duties, restrictions and authority granted to the Floodplain Board under A.R.S. § 48-3609(H) and A.R.S. § 48-3613 referred to in section 37-11 above.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 8), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-13. - Declaration of public nuisance.

All development located or maintained within any area of special flood hazard after August 8, 1973, in violation of this article, is a public nuisance per se and may be abated, prevented or restrained by action of this city.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 8), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-14. - Severability.

This ordinance and the various parts thereof are hereby declared to be severable. Should any section of this ordinance be declared by the courts to be unconstitutional or invalid, such decision shall not affect the validity of the ordinance as a whole, or any portion thereof other than the section so declared to be unconstitutional or invalid.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 8), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-15. - Floodplain Administrator.

(a) *Designated.* The city manager or designee shall be the Floodplain Administrator.

(b) *Appointed.* The Floodplain Administrator is hereby appointed to administer, implement and enforce this chapter.

(c) *Responsibilities.* It is the responsibility of the Floodplain Administrator or designee to do the following:

(1) Review applications for building permits to determine that:

(A) The permit requirements of this chapter have been satisfied;

(B) All other required state and federal permits have been obtained;

(C) The site is reasonably safe from flooding;

(D) The proposed development does not adversely affect the carrying capacity of areas where base flood elevations have been determined but a floodway has not been designated. For purposes of this article, "adversely affect" means that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the BFE more than the designated allowed rise at any point, not to exceed one (1) foot.

(2) (A) Using FEMA Publication 213, "Answers to Questions About Substantially Damaged Buildings," develop detailed procedures for identifying and administering requirements for substantial improvement and substantial damage, to include defining "Market Value;" and

(B) Coordinate procedures and implementation with other departments and divisions.

(3) When BFE data is not shown on the FIRM, obtain, review and reasonably utilize any BFE data available from a federal, state or other source, to administer this article. Any such data shall be consistent with FEMA and Arizona Department of Water Resources requirements, and shall be submitted to the Floodplain Board for adoption.

(4) Maintain the following records and, upon request, provide the public with information concerning the content of these records:

(A) The certified RFE required in section 37-22.

(B) The floodproofing certification required in section 37-23.

(C) The flood vent certification required in section 37-24.

(D) The elevation certification required section 37-29.

(E) The floodway encroachment certification required in section 37-31.

(F) Records of all variance actions, including justification for their issuance, and report variances issued in required reports submitted to FEMA.

(G) Improvement calculations.

(5) Whenever a watercourse is to be altered or relocated:

(A) Notify adjacent communities and the Arizona Department of Water Resources prior to such alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Emergency Management Agency through appropriate notification means; and

(B) Require the flood carrying capacity of the altered or relocated portion of the watercourse to be maintained.

(6) Base flood elevation and rate of flow due to physical alterations:

(A) Base flood elevations may increase or decrease resulting from physical changes affecting flooding conditions. As soon as practicable, but not later than six (6) months after the date such information becomes available, the Floodplain Administrator shall notify FEMA of the changes by submitting technical or scientific data in accordance with Volume 44 Code of Federal Regulations section 65.3. Such a submission is necessary so that upon confirmation of those physical changes affecting flooding conditions, risk premium rates and floodplain management requirements will be based upon current data.

(B) Within one hundred twenty (120) days after completion of construction of any flood control protective works which changes the rate of flow during the flood or the configuration of the floodplain upstream or downstream from or adjacent to the project, the person or agency responsible for installation of the project shall provide to the governing bodies of all jurisdictions affected by the project a new delineation of all floodplains affected by the project. The new delineation shall be done according to the criteria adopted by the Director of the Arizona Department of Water Resources.

(7) Notify FEMA and the Arizona Department of Water Resources of acquisition by means of annexation, incorporation or otherwise, of additional areas of jurisdiction.

(8) Provide FEMA information needed to update the FIRMs and serve as the city's agent for handling revisions of the FIRMs.

(9) Coordinate the provisions of this article with all other interested and affected political subdivisions, federal and state agencies as required by Arizona Revised Statutes sections 48-3609 and 48-3610, and 44 CFR parts 60.2(e) and 60.3(b)(6).

(10) Make interpretations where needed as to the exact location of the flood hazard zone boundaries. The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as set forth in section 37-101.

(11) Take action on violations of the regulations in this chapter.

(Code 1972, § 5-616; Ord. No. 1993, 2-29-88; Ord. No. 3333, § 5, 9-5-00; Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 9), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-16. - Building permit.

(a) A building permit shall be obtained before construction or development begins, including placement of manufactured homes, within any SFHA established in section 37-7. Application for a building permit shall be made on forms furnished by the city and may include, but not be limited to, plans to scale showing the nature, location, dimensions and elevation of the area in question, existing or proposed structures, fill, storage of materials, drainage facilities and the location of the foregoing. Specifically, the following information is required:

(1) Proposed elevation in relation to mean sea level of the lowest floor (including basement) of all structures. In Flood Hazard Zone AO, elevation of existing highest adjacent natural grade and proposed elevation of lowest floor of all structures;

(2) Proposed elevation in relation to mean sea level to which any non-residential structure will be floodproofed;

(3) Certification by a registered professional engineer or architect that the floodproofing methods for any nonresidential structure meet the floodproofing criteria in this article;

(4) For all structures, subdivisions and other development, the BFE or BFD; and

(5) Description of the extent to which any watercourse will be altered or relocated as a result of proposed development.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 10), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-17. - CLOMC/LOMC requirements.

(a) A Conditional Letter of Map Change (CLOMC) from FEMA is required for the following proposed developments in an SFHA or pending SFHA:

(1) A subdivision of six or more lots, except within Flood Hazard Zone AO, when grading and flood protection construction will remove the SFHA from building envelopes for all residential structures;

(2) Any development in the floodway that increases the BFE; and

(3) Any development in the floodplain that increases the BFE more than one (1) foot.

(b) Upon completion of the grading and flood protection features of the development, the developer shall provide the Floodplain Administrator as-built grading plans and other engineering data prepared and signed by an engineer or surveyor, that demonstrate compliance with CLOMC requirements, and this information must be submitted to FEMA to support a LOMC.

(c) A Letter of Map Change (LOMC) from FEMA is required for the following proposed developments in an SFHA or pending SFHA:

(1) A residential subdivision of six or more lots, except within Flood Hazard Zone AO;

(2) Any development in the floodway that increases the BFE; and

(3) Any development in the floodplain that increases the BFE more than one (1) foot.

(d) Where a LOMC is required for a residential subdivision, the LOMC shall remove the SFHA from proposed building envelopes.

(e) Where a LOMC is required, no permit to construct any structure shall be issued until the city receives a LOMC issued by FEMA.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-18. - Document requirements.

Upon completion of the grading and flood protection features of the development, the developer shall provide the Floodplain Administrator as-built grading plans and other engineering data prepared and signed by an engineer or surveyor, which demonstrates compliance with this chapter.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12)

Sec. 37-19. - Reserved.

DIVISION 2. - DEVELOPMENT STANDARDS

Sec. 37-20. - Anchoring.

(a) All new construction and substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy; and

(b) All manufactured homes shall meet the anchoring standards for manufactured homes below.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-21. - Construction materials and methods.

(a) All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage;

(b) All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage;

(c) All new construction, substantial improvement and other proposed new development shall be constructed with electrical, heating, ventilation, plumbing and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding; and

(d) Within Flood Hazard Zones AH and AO, adequate drainage paths shall be constructed around structures on slopes to guide floodwaters around and away from proposed structures.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-22. - Lowest floor elevations in residential structures.

(a) Residential construction, new or substantial improvement, shall have the lowest floor, including basement, together with attendant utility and sanitary facilities:

(1) In Flood Hazard Zone AO, elevated to or above the RFD, or elevated at least two feet above the highest adjacent grade if no depth number is specified.

(2) In Flood Hazard Zone A where a BFE has not been determined, elevated to or above the RFE or elevated in accordance with the criteria developed by the Director of the Arizona Department of Water Resources.

(3) In Flood Hazard Zones AE, AH and A1-30, elevated to or above the RFE.

(4) In Indian Bend Wash, a lowest floor elevation must also be at or above the water surface elevation calculated for floodwater flowing at the rate established by the U.S. Army Corps of Engineers' Indian Bend Wash Project design criteria in the document entitled, in part, General Design Memorandum—Phase I, Plan Formulation for Indian Bend Wash, dated October 1973.

(b) Upon completion of the structure, the elevation of the lowest floor, including basement, and RFE or RFD shall be certified by a registered professional engineer or surveyor, and reviewed by a city inspector. The certification shall be provided to the Floodplain Administrator.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-23. - Lowest floor elevations and floodproofing in nonresidential structures.

(a) Nonresidential construction, new or substantial improvement, shall either be elevated to conform with section 37-22 above, or, together with attendant utility and sanitary facilities, shall:

(1) Be floodproofed below the elevation recommended in section 37-22 above so that the structure is watertight with walls substantially impermeable to the passage of water;

(2) Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and

(3) Be certified by a registered professional engineer or architect that the standards of this section are satisfied. Such certification shall be provided to the Floodplain Administrator.

(b) In Indian Bend Wash:

(1) The lowest floor elevation must also be at or above the water surface elevation calculated for floodwater flowing at the rate established by the U.S. Army Corps of Engineers' Indian Bend Wash Project design criteria, in the document entitled, in part, General Design Memorandum—Phase I, Plan Formulation for Indian Bend Wash, dated October 1973; or

(2) Floodproofing must be provided at or above one (1) foot higher than the water surface elevation calculated for floodwater flowing at the rate established by the U.S. Army Corps of Engineers' Indian Bend Wash Project design criteria, in the document entitled, in part, General Design Memorandum—Phase I, Plan Formulation for Indian Bend Wash, dated October 1973.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-24. - Flood openings.

(a) All new construction and substantial improvement with fully enclosed areas below the lowest floor (excluding basements) that are used solely for parking of vehicles, building access or storage, and which are subject to flooding, shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwater. Designs for meeting this requirement must meet or exceed the following criteria:

(1) Have a minimum of two (2) openings, on different sides of each enclosed area, having a total net area of not less than one (1) square inch for every square foot of enclosed area subject to flooding. The bottom of all openings shall be no higher than one (1) foot above grade. Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwater; or

(2) If it is not feasible or desirable to meet the openings criteria stated above, a registered engineer or architect may design and certify the openings.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-25. - Manufactured homes.

All manufactured homes that are placed on site or substantially improved shall:

(a) Be elevated so that the bottom of the structural frame or the lowest point of any attached appliances, whichever is lower, is at or above the RFE or RFD; and

(b) Be securely anchored to an adequately anchored foundation system to resist flotation, collapse or lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This requirement is in addition to applicable state and local anchoring requirements for resisting wind forces.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-26. - Garages and accessory structures.

(a) *Attached garages.*

(1) A garage attached to a residential structure, constructed with the garage floor below the RFE or RFD, shall be designed with flood openings required above. Areas of the garage below the RFE or RFD shall be constructed with flood-resistant materials.

(2) A garage attached to a nonresidential structure must meet the requirements above or be dry floodproofed.

(b) *Detached garages and accessory structures.*

(1) A detached garage and accessory structure may be constructed below the RFE or RFD, if the structure is designed and constructed in accordance with the following requirements:

(A) Use of a detached garage or accessory structure must be limited to parking or limited storage;

(B) The portions of the detached garage or accessory structure located below the RFE or RFD shall be constructed with flood-resistant materials;

(C) The detached garage or accessory structure must be adequately anchored to prevent flotation, collapse and lateral movement;

(D) Any mechanical and utility equipment in the detached garage or accessory structure shall be elevated or floodproofed to or above the RFE or RFD;

(E) The detached garage or accessory structure must comply with the floodway provisions in section 37-31; and

(F) The detached garage or accessory structure must be designed with flood openings required in section 37-24.

(c) Detached garages and accessory structures not meeting the standards above shall be constructed in accordance with all applicable standards in sections 37-20 through 37-24.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-27. - Standards for storage of materials and equipment.

(a) The storage or processing of materials that could be injurious to human, animal or plant life if released due to damage from flooding is prohibited in SFHAs.

(b) Storage of other material or equipment may be allowed if not subject to damage by floods and if firmly anchored to prevent flotation, or if readily removable from the area within the time available after flood warning.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-28. - Standards for utilities.

(a) All new or replacement water supply and sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the system and discharge from systems into flood waters.

(b) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

(c) Waste disposal systems shall not be installed wholly or partially in a regulatory floodway.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-29. - Additional development standards.

(a) All proposed development shall:

(1) Identify the SFHA and BFE or BFD on plans; and

(2) Identify on the final plans the elevation(s) of the proposed structure(s) and pads. If the site is filled above the BFE or BFD, the final lowest floor and grade elevations shall be certified by a registered professional engineer or surveyor and provided to the Floodplain Administrator.

(b) All development shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize flood damage.

(c) All development shall provide adequate drainage to reduce exposure to flood hazards.

(d) Development is prohibited if it would create hazards to life or property by increasing the flood potential for any structures on or off the property to be developed. The flood carrying capacity of watercourses shall be maintained.

(e) In floodways, development is permitted only when an engineer certifies, with accompanying documentation and analysis to support the certification, that the development will not increase the BFE. The engineer shall submit a no-rise certificate that shows no increase in the BFE.

(f) In flood fringes where the Floodplain Administrator has designated an allowed rise in the water surface elevation less than one (1) foot, development is permitted only when an engineer certifies that the cumulative effect of the development, combined with existing and anticipated development, will not increase the water surface elevation more than the allowed rise.

(g) The owner of development in SFHAs that are subject to ponding shall provide compensatory storage.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-30. - Standards for recreational vehicles.

All recreational vehicles placed on site shall:

(a) Be on site for fewer than 180 consecutive days;

(b) Be fully licensed and ready for highway use (a recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions); or

(c) Apply for a building permit, to meet the elevation and anchoring requirements for manufactured homes.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-31. - General documentation requirements.

If compensatory storage is proposed to satisfy the requirements of section 37-29, the owner shall provide volumetric calculations demonstrating compensatory storage.

(Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-32. - Floodways.

Floodways are located within some SFHAs established in section 37-7. They are extremely hazardous due to the velocity of floodwaters which carry debris, potential projectiles and erosion potential.

(a) Encroachment, including fill, new construction, substantial improvements and other development in floodways is prohibited, unless a registered professional engineer certifies that the encroachment shall not increase flood levels during a base flood.

(b) If a registered professional engineer certifies that the development shall not increase flood levels during a base flood, the development shall comply with all applicable flood hazard reduction provisions of this chapter.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-20. - Anchoring.

(a) All new construction and substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy; and

(b) All manufactured homes shall meet the anchoring standards for manufactured homes below.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-21. - Construction materials and methods.

(a) All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage;

(b) All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage;

(c) All new construction, substantial improvement and other proposed new development shall be constructed with electrical, heating, ventilation, plumbing and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding; and

(d) Within Flood Hazard Zones AH and AO, adequate drainage paths shall be constructed around structures on slopes to guide floodwaters around and away from proposed structures.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-22. - Lowest floor elevations in residential structures.

(a) Residential construction, new or substantial improvement, shall have the lowest floor, including basement, together with attendant utility and sanitary facilities:

(1) In Flood Hazard Zone AO, elevated to or above the RFD, or elevated at least two feet above the highest adjacent grade if no depth number is specified.

(2) In Flood Hazard Zone A where a BFE has not been determined, elevated to or above the RFE or elevated in accordance with the criteria developed by the Director of the Arizona Department of Water Resources.

(3) In Flood Hazard Zones AE, AH and A1-30, elevated to or above the RFE.

(4) In Indian Bend Wash, a lowest floor elevation must also be at or above the water surface elevation calculated for floodwater flowing at the rate established by the U.S. Army Corps of Engineers' Indian Bend Wash Project design criteria in the document entitled, in part, General Design Memorandum—Phase I, Plan Formulation for Indian Bend Wash, dated October 1973.

(b) Upon completion of the structure, the elevation of the lowest floor, including basement, and RFE or RFD shall be certified by a registered professional engineer or surveyor, and reviewed by a city inspector. The certification shall be provided to the Floodplain Administrator.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-23. - Lowest floor elevations and floodproofing in nonresidential structures.

(a) Nonresidential construction, new or substantial improvement, shall either be elevated to conform with section 37-22 above, or, together with attendant utility and sanitary facilities, shall:

(1) Be floodproofed below the elevation recommended in section 37-22 above so that the structure is watertight with walls substantially impermeable to the passage of water;

(2) Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and

(3) Be certified by a registered professional engineer or architect that the standards of this section are satisfied. Such certification shall be provided to the Floodplain Administrator.

(b) In Indian Bend Wash:

(1) The lowest floor elevation must also be at or above the water surface elevation calculated for floodwater flowing at the rate established by the U.S. Army Corps of Engineers' Indian Bend Wash Project design criteria, in the document entitled, in part, General Design Memorandum—Phase I, Plan Formulation for Indian Bend Wash, dated October 1973; or

(2) Floodproofing must be provided at or above one (1) foot higher than the water surface elevation calculated for floodwater flowing at the rate established by the U.S. Army Corps of Engineers' Indian Bend Wash Project design criteria, in the document entitled, in part, General Design Memorandum—Phase I, Plan Formulation for Indian Bend Wash, dated October 1973.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-24. - Flood openings.

(a) All new construction and substantial improvement with fully enclosed areas below the lowest floor (excluding basements) that are used solely for parking of vehicles, building access or storage, and which are subject to flooding, shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwater. Designs for meeting this requirement must meet or exceed the following criteria:

(1) Have a minimum of two (2) openings, on different sides of each enclosed area, having a total net area of not less than one (1) square inch for every square foot of enclosed area subject to flooding. The bottom of all openings shall be no higher than one (1) foot above grade. Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwater; or

(2) If it is not feasible or desirable to meet the openings criteria stated above, a registered engineer or architect may design and certify the openings.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-25. - Manufactured homes.

All manufactured homes that are placed on site or substantially improved shall:

(a) Be elevated so that the bottom of the structural frame or the lowest point of any attached appliances, whichever is lower, is at or above the RFE or RFD; and

(b) Be securely anchored to an adequately anchored foundation system to resist flotation, collapse or lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This requirement is in addition to applicable state and local anchoring requirements for resisting wind forces.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-26. - Garages and accessory structures.

(a) *Attached garages.*

(1) A garage attached to a residential structure, constructed with the garage floor below the RFE or RFD, shall be designed with flood openings required above. Areas of the garage below the RFE or RFD shall be constructed with flood-resistant materials.

(2) A garage attached to a nonresidential structure must meet the requirements above or be dry floodproofed.

(b) *Detached garages and accessory structures.*

(1) A detached garage and accessory structure may be constructed below the RFE or RFD, if the structure is designed and constructed in accordance with the following requirements:

(A) Use of a detached garage or accessory structure must be limited to parking or limited storage;

(B) The portions of the detached garage or accessory structure located below the RFE or RFD shall be constructed with flood-resistant materials;

(C) The detached garage or accessory structure must be adequately anchored to prevent flotation, collapse and lateral movement;

(D) Any mechanical and utility equipment in the detached garage or accessory structure shall be elevated or floodproofed to or above the RFE or RFD;

(E) The detached garage or accessory structure must comply with the floodway provisions in section 37-31; and

(F) The detached garage or accessory structure must be designed with flood openings required in section 37-24.

(c) Detached garages and accessory structures not meeting the standards above shall be constructed in accordance with all applicable standards in sections 37-20 through 37-24.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-27. - Standards for storage of materials and equipment.

(a) The storage or processing of materials that could be injurious to human, animal or plant life if released due to damage from flooding is prohibited in SFHAs.

(b) Storage of other material or equipment may be allowed if not subject to damage by floods and if firmly anchored to prevent flotation, or if readily removable from the area within the time available after flood warning.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-28. - Standards for utilities.

(a) All new or replacement water supply and sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the system and discharge from systems into flood waters.

(b) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

(c) Waste disposal systems shall not be installed wholly or partially in a regulatory floodway.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-29. - Additional development standards.

(a) All proposed development shall:

    (1) Identify the SFHA and BFE or BFD on plans; and

    (2) Identify on the final plans the elevation(s) of the proposed structure(s) and pads. If the site is filled above the BFE or BFD, the final lowest floor and grade elevations shall be certified by a registered professional engineer or surveyor and provided to the Floodplain Administrator.

(b) All development shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize flood damage.

(c) All development shall provide adequate drainage to reduce exposure to flood hazards.

(d) Development is prohibited if it would create hazards to life or property by increasing the flood potential for any structures on or off the property to be developed. The flood carrying capacity of watercourses shall be maintained.

(e) In floodways, development is permitted only when an engineer certifies, with accompanying documentation and analysis to support the certification, that the development will not increase the BFE. The engineer shall submit a no-rise certificate that shows no increase in the BFE.

(f) In flood fringes where the Floodplain Administrator has designated an allowed rise in the water surface elevation less than one (1) foot, development is permitted only when an engineer certifies that the cumulative effect of the development, combined with existing and anticipated development, will not increase the water surface elevation more than the allowed rise.

(g) The owner of development in SFHAs that are subject to ponding shall provide compensatory storage.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-30. - Standards for recreational vehicles.

All recreational vehicles placed on site shall:

(a) Be on site for fewer than 180 consecutive days;

(b) Be fully licensed and ready for highway use (a recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions); or

(c) Apply for a building permit, to meet the elevation and anchoring requirements for manufactured homes.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-31. - General documentation requirements.

If compensatory storage is proposed to satisfy the requirements of section 37-29, the owner shall provide volumetric calculations demonstrating compensatory storage.

(Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

Sec. 37-32. - Floodways.

Floodways are located within some SFHAs established in section 37-7. They are extremely hazardous due to the velocity of floodwaters which carry debris, potential projectiles and erosion potential.

(a) Encroachment, including fill, new construction, substantial improvements and other development in floodways is prohibited, unless a registered professional engineer certifies that the encroachment shall not increase flood levels during a base flood.

(b) If a registered professional engineer certifies that the development shall not increase flood levels during a base flood, the development shall comply with all applicable flood hazard reduction provisions of this chapter.

(Ord. No. 4000, § 1(Res. No. 8962, Exh. A, § 12), 8-27-12; Ord. No. 4246, § 1(Res. No. 10402, § 1, Exh. A), 7-6-16)

City of Scottsdale
Stormwater Management

Enforcement Response Plan

Approved and adopted: September 30, 2013

By:

Don Gerkin, Stormwater Quality Coordinator

10151840v3

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PURPOSE

This Enforcement Response Plan (ERP) specifics how the City of Scottsdale ("City") will investigate and respond to instances of noncompliance with Chapter 37, Article III, Stormwater Quality, of the Scottsdale City Code ("SRC").

This ERP was developed in accordance with:

AZPDES Stormwater Permit No. AZS000020-2010;
Clean Water Act, 33 U.S.C. §§ 1251, *et seq.*;
40 C.F.R. Part 122;
Arizona Revised Statutes, Title 49, Chapter 2, Article 3.1;
Scottsdale Revised Code, Chapter 37, Article IV. Enforcement

The intent of the ERP is to provide guidance on conducting enforcement of stormwater related violations in an equitable and consistent manner in order to protect the public, the City's investment in its infrastructure, and personnel working in or on the municipal separate storm sewer system ("MS4").

The ERP identifies City staff authority and responsibilities and enforcement response measures, including timeframes and escalating corrective actions. The ERP also identifies criteria for determining and assessing civil and criminal penalties.

Nothing contained herein shall otherwise limit the authority of the City to administer and enforce the requirements of SRC Chapter 37, Articles III and IV, including, but not limited to, seeking injunctive relief, conducting emergency and non-emergency abatements, restoring property, and imposing liens. SRC §§ 37-72; 37-83 through 87-90.

DEFINITIONS

ADEQ	Arizona Department of Environmental Quality
ARS	Arizona Revised Statutes
AZPDES	Arizona Pollution Discharge Elimination System
AZPDES Permit	ADEQ authorization to discharge to the MS4 or from the MS4 to waters of the United States
EPA	U.S. Environmental Protection Agency
Penalty	Court imposed monetary fine for civil or criminal violations and any other court imposed remedy
Illicit Connection	Any man-made conveyance connecting an illicit discharge directly to the City's MS4
Illicit Discharge	Any discharge to the City's MS4 that is not composed entirely of stormwater except discharges pursuant to a NPDES or AZPDES permit (other than the City's AZPDES Permit) or discharges from firefighting activities
MS4	The City-owned, man-made municipal separate storm sewer system designed or used for collecting and/or conveying only stormwater, including City streets with drainage systems, catch basins, curbs, gutters, ditches, channels, and storm drains
NOV	Notice of Violation
Pollutant	Any substance or material as set forth in SRC Sec. 37-61
Spill	Any release, leak, emission, escape or disposal of a pollutant which may contact stormwater
SRC	Scottsdale Revised Code
Stormwater Manager	The person who manages the City's floodplain and stormwater program, or that person's designee or successor
Stormwater Quality Coordinator	The person the City Manager designates to administer SRC Chapter 37 regarding stormwater quality, or that person's designee or successor
RP	Responsible person; the owner and/or operator of the property where a violation originates

GENERAL RESPONSIBILITIES

STORMWATER MANAGEMENT

Stormwater Manager

The Stormwater Manager is responsible for managing the City's stormwater program. The Stormwater Manager may delegate authority to City personnel or staff assigned to perform stormwater program responsibilities.

The Stormwater Manager will be responsible for applying this Enforcement Response Plan in a consistent manner and will, among other things:

- Issue notices of violation;
- Initiate civil complaints;
- Issue notices of emergency and non-emergency abatement;
- Request that a violation of SRC Sec. 37-77 (a) through (n) be abated;
- Participate in enforcement hearings;
- Consult with the City Attorney as to decisions to initiate legal action under this ERP;
- Implement other enforcement responsibilities related to SRC Chapter 37, Articles III and IV and the City's AZPDES Permit;
- Refer second or subsequent violations to the City Attorney for criminal prosecution.

Stormwater Quality Coordinator

The Stormwater Quality Coordinator is responsible for administering the stormwater quality provisions of the SRC and ensuring consistent implementation of all enforcement measures.

The Stormwater Quality Coordinator will administer this Enforcement Response Plan and will, among other things:

- Review all violations;
- Recommend appropriate responses to significant incidents of noncompliance related to stormwater quality;
- Conduct stormwater compliance meetings;
- Participate in site inspections;
- Issue notices of violation;
- Develop and oversee compliance monitoring and/or sampling schedules;
- Develop and approve Best Management Practices BMPs and/or stormwater control measures;
- Initiate civil complaints;
- Undertake emergency action to avoid or mitigate pollutant spills;

- Issue notices of emergency and non-emergency abatement;
- Request that a violation of SRC Sec. 37-77 (a) through (n) be abated;
- Participate in enforcement hearings;
- Implement other enforcement responsibilities related to SRC Chapter 37, Articles III and IV and the City's AZPDES Permit;
- Track enforcement response measures;
- Consult with the City Attorney as to decisions to initiate legal actions under this ERP;
- Promptly notify the Stormwater Manager of significant incidents of non-compliance related to stormwater quality;
- Refer second or subsequent violations to the City Attorney for criminal prosecution.

Stormwater Inspectors

Stormwater program inspectors will be responsible for conducting compliance inspections. Inspectors will, among other things:

- Perform onsite inspections of private- and City-owned facilities, structures, and activities;
- Conduct outreach and educational activities with users;
- Evaluate compliance monitoring data;
- Determine compliance with MS4 permit requirements through on-site inspections and prepare inspection reports;
- Identify instances of noncompliance;
- Promptly notify the Stormwater Quality Coordinator of incidents of stormwater program noncompliance;
- Recommend BMPs and/or stormwater control measures;
- Issue notices of violation;
- Initiate civil complaints;
- Assist in drafting enforcement measures;
- Assist in developing compliance monitoring and sampling schedules;
- Provide compliance assistance as appropriate.

Inspectors may also participate in compliance enforcement hearings as deemed necessary by the Stormwater Manager, Stormwater Quality Coordinator and/or City Attorney.

CITY ATTORNEY

The City Attorney's office will, among other things:

- Provide assistance and advice on legal/regulatory developments or changes;
- Consult with the Stormwater Manager and/or Stormwater Quality Coordinator as to initiating or resolving enforcement actions under this ERP;
- Issue notices of violation;

- Initiate and/or prosecute civil complaints;
- Initiate actions in superior court for injunctive relief related to stormwater program violations;
- Initiate and/or prosecute criminal complaints for stormwater program violations;
- Manage civil and criminal litigation on behalf of the City.

MAILING ADDRESS & CONTACT INFORMATION

Stormwater Manager:
7447 E Indian School Road, Suite 125
Scottsdale, AZ 85251

Stormwater Quality Coordinator:
7447 E Indian School Road, Suite 125
Scottsdale, AZ 85251

INVESTIGATION OF NONCOMPLIANCE

Stormwater staff and other City staff will conduct investigation activities as to any potential or actual introduction of pollutants into the City's MS4 or any possible violations of the City's AZPDES Permit. Such activities will be conducted in order to detect illicit connections, illicit discharges, spills, and any other violations of City stormwater program requirements.

Investigations and inspections may include activities that include, but are not limited to, any of the following:

- Responding to public complaints;
- Conducting scheduled and unscheduled on-site inspections;
- Conducting monitoring and surveillance;
- Collecting and analyzing samples;
- Installing stormwater monitoring equipment;
- Examining records concerning stormwater and pollutants.

STORMWATER ENFORCEMENT RESPONSE MEASURES

The City's enforcement response to any potential or actual violation of the stormwater quality provisions of SRC Chapter 37, may include, but is not limited to, any of the following:

1. **[SC]** Staff Contact: Personal, written, or telephone contact by an inspector or other City staff;
2. **[EM]** Educational Materials: Providing educational materials, Code requirements, Code prohibitions, BMPs and/or stormwater control measures;
3. **[NOV]** Notice of Violation: Issuing Notices of Violation advising of Code violations and required compliance measures including, but not limited to:
    a. Requiring spill control, notification, abatement, and remediation;
    b. Requiring installation of stormwater monitoring equipment;
    c. Eliminating Illicit Connections or Illicit Discharges;
    d. Developing and maintaining records systems;
    e. Establishing construction and post-construction stormwater control measures;
    f. Requiring implementation of BMPs or stormwater control measures;
    g. Requiring removal of pollutants or pollutant sources so as to eliminate discharges to the MS4;
4. **[CA]** Civil Enforcement Action, including injunctive relief;
5. **[CR]** Criminal Prosecution;
6. Imposing civil penalties;
7. Issuing notices of abatement;
8. Conducting emergency and non-emergency abatements.

ENFORCEMENT TIMEFRAME

1. Enforcement responses to Stormwater violations will be initiated within ten (10) working days of discovery or within such other time as the Stormwater Quality Coordinator authorizes.

2. When appropriate, follow-up inspections will occur within ten (10) working days of any due date specified in an NOV or as noted pursuant to staff contact.

3. Follow-up, escalated action for repeat or recurring offenses will be taken within ten (10) working days of discovery of the repeat or recurring offenses and may include the issuance of further NOVs, initiating civil enforcement or criminal prosecution, or additional administrative actions.

4. The City may undertake any immediate action to eliminate or abate any emergency situation. Emergency situations include, without limitation, violations which present an imminent danger to public health, safety, or welfare, endangerment to City personnel or property, or cause or contribute to a violation of the City's AZPDES Stormwater Permit.

5. At least 80% of all ERP actions will be resolved to the City's satisfaction within one (1) calendar year from issuance of the initial enforcement action.

JURISDICTION AND AUTHORITY

The Scottsdale City Court has jurisdiction over all civil and criminal complaints. SRC 37-76.

Civil complaints may be brought by a Scottsdale police officer, fire department officer, the City Attorney, the Floodplain Administrator, Stormwater Manager, Stormwater Quality Coordinator, or an inspector. SRC §37-71.

A Scottsdale police officer or the City Attorney may bring criminal complaints alleging violations of SRC Chapter 37, Title III. SRC §37-73.

CIVIL PENALTY SCHEDULE

The City's Civil Penalty Schedule applies to RPs found to be in violation of SRC Chapter 37, Article III, Stormwater Quality Protection. This Penalty Schedule was developed to allow for consistent enforcement of the City Code.

A. First Violation. If assessed, a civil penalty for the first violation of SRC Chapter 37, Article III shall be a fine in an amount of not less than two hundred and fifty dollars ($250.00) per violation. SRC §37-80.

B. Second & Subsequent Violations.

   1. If assessed, a civil penalty for a second or subsequent violation of SRC Chapter 37 within two (2) years of the date of the first violation shall be not less than five hundred dollars ($500.00) per violation.

   2. A second violation of SRC Chapter 37 within two (2) years of the date of the first violation may be prosecuted as a class 1 misdemeanor for which a fine may be imposed of not less than five hundred dollars ($500.00) per violation.

      A second or subsequent criminal prosecution for a violation occurring within two (2) years of the date of the first violation shall be at least one thousand dollars ($1,000.00) per violation.

Penalties may be requested and prosecutions may be initiated based upon consideration of the following factors:

- The seriousness of the violation(s);
- The economic benefit, if any, resulting from the violation(s);
- The compliance history of the violator;
- Any good faith efforts by the RP to apply with the applicable requirements;
- The economic impact of the penalty on the violator;
- Cost of noncompliance to the City and its operations;
- Such other factors as justice may require.

ENFORCEMENT RESPONSE GUIDE

The following table sets forth possible enforcement measures for specific violations of Chapter 37, Article III, Stormwater Quality Protection.

The selection of an enforcement option neither limits nor precludes the City from pursuing any other type of enforcement, including seeking injunctive relief, and conducting emergency and non-emergency abatements.

	Violation	Enforcement Response Options	Code Reference
SW-1	Discharge of pollutants that causes violation of City's MS4 permit- 1st occurrence	**NOV; CA**	§37-77
SW-2	Discharge of pollutants that causes violation of City's MS4 permit- 2nd or subsequent occurrence	**NOV; CA; CR**	§37-77
SW-3	Failure to eliminate illicit connection or illicit discharge- 1st occurrence	**NOV; CA**	§§37-75; 37-77
SW-4	Failure to eliminate illicit connection or illicit discharge- 2nd or subsequent occurrence	**NOV; CA; CR**	§§37-75; 37-77
SW-5	Discharge of pollutants to the MS4 from industrial activity or construction site– 1st occurrence	**SC; EM; NOV**	§§37-63; 37-77
SW-6	Discharge of pollutants to the MS4 from industrial activity or construction site– 2nd and subsequent occurrence	**NOV; CA; CR**	§§37-63; 37-77
SW-7	Failure to construct or maintain post-construction controls- 1st occurrence	**SC; EM; NOV**	§§37-63; §37-77
SW-8	Failure to construct or maintain post-construction controls- 2nd or subsequent occurrence	**NOV; CA; CR**	§§37-63; §37-77
SW-9	Discharge of water from a pool or spa into MS4- 1st occurrence	**SC; EM; NOV**	§37-77
SW-10	Discharge of water from a pool or spa into MS4- 2nd or subsequent occurrence	**NOV; CA**	§37-77
SW-11	Discharge of pollutants that cause or contribute damage to a watercourse- 1st occurrence	**NOV; CA**	§37-77
SW-12	Discharge of pollutants that cause or contribute damage to a watercourse- 2nd or subsequent occurrence	**NOV; CA; CR**	§37-77
SW-13	Failure to cease violating discharges, practices, or operations- 1st occurrence	**SC; EM; NOV**	§37-75
SW-14	Failure to cease violating discharges, practices, or operations- 2nd or subsequent occurrence	**NOV; CA; CR**	§37-75
SW-15	Failure to take immediate action to contain and manage introduction of a spill to the MS4– 1st occurrence	**NOV; CA**	§§37-63; 37-64

SW-16	Failure to take immediate action to contain and manage introduction a spill to the MS4– 2nd or subsequent occurrence	**NOV; CA; CR**	§§37-63; 37-64
SW-17	Failure to report a spill to governmental authorities and to notify City- 1st occurrence	**NOV**	§37-64; 37-77
SW-18	Failure to report a spill to governmental authorities and to notify City- 2nd or subsequent occurrence	**NOV; CA; CR**	§§37-64; 37-77
SW-19	Failure to remediate spill- 1st occurrence	**NOV; CA**	§§37-64; 37-77
SW-20	Failure to remediate a spill- 2nd or subsequent occurrence	**NOV; CA; CR**	§§37-64; 37-77
SW-21	Failure to provide and maintain controls for handling petroleum, oil, grease with substantial stormwater exposure potential- 1st occurrence	**SC; EM; NOV**	§37-65
SW-22	Failure to provide and maintain controls for handling petroleum, oil, grease, or other pollutants with substantial stormwater exposure potential- 2nd or subsequent occurrence	**NOV; CA**	§37-65
SW-23	Failure to keep appropriate records regarding stormwater controls for handling petroleum, oil, grease or other pollutants or other pollutants with substantial stormwater exposure potential- 1st occurrence	**SC; EM; NOV**	§37-65
SW-24	Failure to keep appropriate records regarding stormwater controls for handling petroleum, oil, grease or other pollutants or other pollutants with substantial stormwater exposure potential- 2nd or subsequent occurrence	**NOV; CA**	§37-65
SW-25	Failure to sample, monitor, and analyze potential sources of pollutants and affected property- 1st occurrence	**SC; EM; NOV**	§37-75
SW-26	Failure to sample, monitor, and analyze potential sources of pollutants and affected property- 2nd or subsequent occurrence	**NOV; CA**	§37-75
SW-27	Failure to report potential sources of pollutants- 1st occurrence	**SC; EM; NOV**	§37-75
SW-28	Failure to report potential sources of pollutants-2nd or subsequent occurrence	**NOV; CA**	§37-75
SW-29	Failure to install stormwater monitoring equipment- 1st occurrence	**SC; EM; NOV**	§37-75
SW-30	Failure to install stormwater monitoring equipment- 2nd or subsequent occurrence	**NOV; CA**	§37-75
SW-31	Failure to correct records systems- 1st occurrence	**SC; EM; NOV**	§37-75
SW-32	Failure to correct records systems- 2nd or subsequent occurrence	**NOV; CA**	§37-75
SW-33	Failure to implement BMPs or stormwater controls- 1st occurrence	**SC; EM; NOV**	§37-75

SW-34	Failure to implement BMPs or stormwater controls- 2nd or subsequent occurrence	**NOV; CA; CR**	§37-75
SW-35	Interfering with or preventing City agent from enforcing Chapter 37- 1st occurrence	**NOV**	§37-77
SW-36	Interfering with or preventing City agent from enforcing Chapter 37- 2nd or subsequent occurrence	**NOV; CA; CR**	§37-77
SW-37	Knowingly making a false statement or misleading a City agent investigating or abating a violation of Chapter 37- 1st occurrence	**NOV; CA**	§37-77
SW-38	Knowingly making a false statement or misleading a City agent investigating or abating a violation of Chapter 37- 2nd or subsequent occurrence	**NOV; CA; CR**	§37-77

Appendix K
Summary of Enforcement Actions

Summary of Enforcement Actions
2020 Stormwater Annual Report
City of Scottsdale
July 1, 2019 – June 30, 2020

Illicit Discharge Detection and Elimination (see Section 3.3.4)

Water Quality conducted 17 IDDE investigations; however, none required escalated enforcement action. Below is a summary of each illicit discharge report.

- A resident observed water flowing out of a pipe in the Indian Bend Wash (IBW) and reported it as an illicit discharge. Water Quality measured field parameters and confirmed with SRP that this is excess irrigation water that is designed to discharge to the IBW. This same condition at the same outfall was reported five more times during the reporting period by the same resident. Every instance was handled with the same protocol: field testing for pH and chlorine, SRP was contacted to confirm the flow of irrigation water. No enforcement action was required as this is an allowable discharge.
- A Code Enforcement worker requested assistance with locating the source of flowing water from a school onto public property. Water Quality traced the flow to a faulty HVAC system and reported the issue to the school district. Their maintenance team fixed the valve to stop the flow. No additional action was necessary.
- The maintenance crew for a golf course and living community contacted the city for help tracing the source of an illicit discharge at an outfall near a walking trail. Inspectors observed the flow and traced it upstream to a health club. After working with the maintenance person at the health club, a malfunctioning overflow on the splash pad was found, which was corrected immediately upon discovery. A follow up inspection showed the outfall dry as the flow had ceased. No follow up action was taken.
- A business owner reported a neighboring nightclub was washing floor mats in the shared alleyway. A Water Quality inspector investigated but found no evidence of water usage outdoor. Best Management Practices (BMPs) are discussed with food service establishments at every routine inspection and the area inspector reminded the site representative to utilize the floor sink for this type of cleaning.
- A resident contacted Code Enforcement to report a neighbor power washing his property and was concerned they may be using chemicals. A Water Quality inspector investigated and saw a tinted red residue in the gutter that dissipated before reaching a downstream wash, where no staining or erosion was present. The inspector provided education to the resident who power washed and asked that they clean up the gutter. No further action was required.
- The city received a call stating a business had an internal plumbing issue and described it as a failure to properly dispose of waste. Water Quality was dispatched and found no evidence that water had left the site or the building. The inspector spoke to several involved parties and could not verify the claim. No action was taken.

- Water Quality investigated a report of a carwash discharging water that flooded a neighboring property. An inspector observed a discharge from a PVC pipe and notified the carwash to stop the flow immediately. A follow up inspection was conducted the next day and the pipe had been cut and capped, with no water leaving the property. No additional action was taken.
- A representative from a Homeowner's Association (HOA) contacted the department seeking assistance with a resident who was regularly discharging water and causing standing water in a private retention area. Guidance was given to the homeowner and the HOA representative on how to resolve the issue, and the city's wastewater collections supervisor met with the involved parties to provide additional help. The homeowner successfully replumbed the sump discharge to sanitary sewer and resolved the problem.
- A resident used ScottsdaleEZ to report spilled paint on his street. Water Quality investigated and found the responsible pool company who did work on a nearby house. The residue was cleaned up without the need for further action.
- Water Quality investigated after receiving a report that an unknown substance, possibly fuel, was spilled on a residential street and flowed to a nearby retention area. The inspector could not find evidence of a spill in the retention area but did find a wash out box on a residential property that belonged to a pool company. The inspector discussed proper wash out procedures with the company by phone and requested that they clean up any mess they cause. No further action was taken.
- A HOA representative called the city seeking help finding the source of flowing water in a natural wash. With the help of the city's Stormwater Management department, the water was determined to be high groundwater. No action was required.
- An anonymous caller reported a home building project for operating without a permit and for allowing water to leave the site. A Water Quality inspector investigated and spoke to nearby residents but could not verify any of the claims. The ground was not wet anywhere near the reported address. No action was taken.

Appendix L
Rainfall Data

Rain Date	Sampling Summary	Rainfall in inches				
		TBIRD	CHAPRD	CAMEL	PIERCE	MCKRD
Summer Season June 1, 2019 to October 31, 2019						
7/22/2019	Rain event triggered Chaparral and Camelback stations. Flow subsided quickly at Chaparral and suction line was clogged with debris, so no samples were collected. Flow subsided quickly at Camelback, unable to collect grab sample. Composite sample collected at Camelback	<0.01	0.18	0.10	<0.01	<0.01
7/24/2019	Rain event triggered Pierce and McKellips stations. Grab samples collected at both sites, unable to collect composite samples. Debris in pipe blocked flow senor at McKellips.	<0.01	<0.01	<0.01	0.27	0.39
7/30/2019	Rain event triggered Thunderbird, Chaparral and Camelback stations and grab samples were collected. Composite sample collected at Chaparral.	0.13	0.19	0.15	<0.01	<0.01
8/3/2019	Rain event triggered Thunderbird station and composite sample was collected.	0.28			<0.01	<0.01
8/28/2019	Rain event triggered Pierce station and composite sample was collected.				0.56	
9/16/2019	Trace rain, not enough for qualifying storm event.					
9/23/2019	Rain event triggered McKellips station and composite sample was collected.					0.51
Winter Season November 1, 2019 to May 31, 2020						
11/19/2019 - 11/20/2019	Rain event triggered all stations. Grab samples collected at all stations. Composite samples collected at McKellips, Camelback and Thunderbird.	0.24	0.12	0.17	0.16	0.10
11/21/2019	Rain measured at all sites. Not a qualifying storm (less than 72 hours since last rain) so no samples were collected					
11/29/2019	Rain event triggered Pierce and Chaparral stations. Composite samples collected at both sites.		0.61		0.57	

	Sampling complete for the season	
TBIRD	Thunderbird - Thunderbird Rd & 73rd St (SE corner)	33º 36’ 40” N 111º 55’ 22” W
CHAPRD	Chaparral - Coolidge St & 79th St (NE corner)	33º 30’ 22” N 111º 54’ 39” W
CAMEL	Camelback - Camelback Rd & Hayden Rd (SE corner)	33º 30’ 07” N 111º 54’ 26” W
PIERCE	Pierce - Pierce St & Hayden Rd (NW corner)	33º 27’ 16” N 111º 54’ 42” W
MCKRD	McKellips - McKellips Rd & Hayden Rd (NW corner)	33º 27’ 06” N 111º 54’ 46” W

FCDMC ALERT Sensor Data Report

Name: Precipitation Group # 48

NovaStar Statistical Report
G048: Stormwater:Scottsdale
11/13/2020 13:23:46

PointID	55700	56000	56300	56500	58600	57000
StatType	periodra	periodra	periodra	periodra	periodra	periodra
DataType	Precip.	Precip.	Precip.	Precip.	Precip.	Precip.
Units	in.	in.	in.	in.	in.	in.
1month at 24:00:00						
06/06/20	0.00	0.00	0.00	0.00	0.00	0.00
05/06/20	0.00	0.00	0.00	0.00	0.08	0.00
04/05/20	2.36	2.13	2.83	2.13	2.48	2.40
03/05/20	1.30	1.54	2.68	1.61	1.73	1.50
02/03/20	0.12	0.12	0.12	0.08	0.04	0.08
01/03/20	0.91	0.91	1.22	0.94	0.98	1.14
12/03/19	1.81	1.50	1.97	1.50	1.77	1.77
11/02/19	0.00	0.00	0.00	0.00	0.00	0.00
10/02/19	0.91	1.06	1.89	1.02	1.06	1.73
09/01/19	0.59	0.63	0.87	0.39	0.16	0.75
08/01/19	0.94	0.39	0.43	0.43	0.28	0.43
07/01/19	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS:	8.94	8.27	12.01	8.11	8.58	9.80

Appendix M
Monitoring Data

CITY OF SCOTTSDALE
STORMWATER SAMPLING RESULTS
McKellips Monitoring Station

Monitoring Location ID: 080710
Receiving Water: Indian Bend Wash
Designated Uses: PBC & A&Ww Acute

		2016 Annual Report						2017 Annual Report					
		SUMMER 2015			WINTER 2015/16			SUMMER 2016			WINTER 2016/17		
	Units	Results	Qualifier	A&We Acute	Results	Qualifier	A&We Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute
CONVENTIONAL PARAMETERS													
Average flow for sampling period	gpm	TWC		--									
Average flow for sampling period	gpm			--						--			
pH (field reading)		7.86		--	8.83		--	7.06		--	7.42		--
Water Temperature (field reading)	(°F)	80.8		--	50.5		--	82.76		--	51.98		--
pH (field reading)		--		--	--		--	7.06		--	7.34		--
Water Temperature (field reading)	(°F)	--		--	--		--	82.6		--	53.78		--
Total Dissolved Solids (TDS)	mg/L	192		--	122		--	282		--	120		--
Total Suspended Solids (TSS)	mg/L	38	R1	--	100		--	<10		--	16		--
Biological Oxygen Demand (BOD)	mg/L	11	K5	--	<2	K6|K1	--	8.34		--	5.22		--
Chemical Oxygen Demand (COD)	mg/L	63		--	35		--	51		--	23		--
INORGANICS													
Cyanide, total	mg/L	<0.050	E8	84 T	<0.050	E8	84 T	<0.050	E8	41 T	<0.050	E8	41 T
NUTRIENTS													
Nitrate as N	mg/L	1.5		--	0.4		--	2.2		--	1.2		--
Nitrite as N	mg/L	<0.2		--	<0.2		--	<0.2		--	<0.1	E8	--
Nitrate+Nitrite as N	mg/L	1.47		--	0.4		--	2.2		--	1.2		--
Ammonia as N	mg/L	1.148		--	0.151		--	0.583		36.1 **	0.332		23.0 **
Total Kjeldahl nitrogen (TKN as N)	mg/L	1.552		--	0.521		--	1.642		--	0.901		--
Total Phosphorous	mg/L	0.28		--	0.294	D2	--	0.15329		--	0.17612		--
Orthophosphate (Total)	mg/L	0.11		--	<0.2	M3	--	<0.2		--	<0.10	E8	--
MICROBIOLOGICAL													
Escherichia coli (E coli)	MPN/100 mL	7665.5		--	2093		--	438.2		--	658.8		--
TOTAL METALS													
Antimony	µg/L	<1.0		--	<1.0		--	<1.0		88 D	<1.0		88 D
Arsenic	µg/L	1.9		440 D	2.8		440 D	1.5		340 D	1.5		340 D
Barium	µg/L	50.8		--	71.7		--	64.2		--	28		--
Beryllium	µg/L	<1.0		--	<1.0		--	<1.0		--	<1.0		--
Cadmium	µg/L	<1.0		16.79*	<1.0		10.26*	<1.0		7.10 *	<1.0		1.60 *
Chromium (total)	µg/L	2.5		--	7.7		--	1.3		--	1.9		--
Copper	µg/L	15.6		17.29*	12.8		10.73*	13.9		12.17 *	7.2		5.73 *
Lead	µg/L	2.7		96.6*	7.7		55.18*	2.0		57.57 *	2.2		23.84 *
Mercury	µg/L	<0.2		5.0 D	<0.2		5.0 D	<0.2	E8|L5	2.4 D	<0.2	E8	2.4 D
Nickel	µg/L	3.7		3186*	8.0		2076*	<2.2		428 *	2.3		217.96 *
Selenium	µg/L	<1.0		33 T	<1.0		33 T	<1.0		--	<1.0		--
Silver	µg/L	<1.0		1.87*	<1.0		0.78*	<1.0		2.68 *	<1.0		0.68 *
Thallium	µg/L	<1.0		700 D	<1.0		700 D	<1.0		700 D	<1.0		700 D
Zinc	µg/L	101		852*	91		555*	76		107.2 *	86		54.48 *
Hardness	mg/L	72.6		--	43.6		--	89.5		--	40.5		--
ORGANIC TOXIC POLLUTANTS													
Total (C10-C32)	mg/L	0.7	D2	--	0.11	E4	--	0.97		--	0.32		--
Total Oil and Grease	mg/L	<5.1	E8	--	<5.6	E8	--			--			--
VOLATILE ORGANIC COMPOUNDS													
1,1,1-trichloroethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	2600	<2.0	E8	2600
1,1,2,2-tetrachloroethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	4700	<2.0	E8	4700
1,1,2-trichloroethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	18000	<2.0	E8	18000
1,1-dichloroethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--
1,1-dichloroethylene	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	15000	<5.0	E8	15000
1,2,4-Trimethylbenzene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--
1,2-dichlorobenzene	µg/L	<2.0	E8	5900	<2.0	E8	5900	<2.0	E8	1200	<2.0	E8	1200
1,2-dichloroethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	59000	<2.0	E8	59000
1,2-dichloropropane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	26000	<2.0	E8	26000
1,3,5-Trimethylbenzene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--
1,3-dichlorobenzene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	2500	<2.0	E8	2500
1,4-dichlorobenzene	µg/L	<2.0	E8	6500	<2.0	E8	6500	<2.0	E8	2000	<2.0	E8	2000
2-chloroethylvinyl ether	µg/L	<3.0	E8	--	<3.0	E8	--	<3	E8	180000	<3.0	E8	180000
Acrolein	µg/L	<20	E8	--	<20	E8	--	<20	E8	34	<20	E8	34
Acrylonitrile	µg/L	<20	E8	--	<20	E8	--	<20	E8	3800	<20	E8	3800
Benzene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	2700	0.14	E4	2700
Bromodichloromethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--
Bromoform	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	15000	<5.0	E8	15000
Bromomethane	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	5500	<5.0	E8	5500
Carbon tetrachloride	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	18000	<5.0	E8	18000
Chlorobenzene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	3800	<2.0	E8	3800
Chloroethane	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	--	<5.0	E8	--
Chloroform	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	14000	<2.0	E8	14000
Chloromethane	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	270000	<5.0	E8	270000
cis-1,3-dichloropropylene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--
Dibromochloromethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--
Ethyl benzene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	23000	<2.0	E8	23000
Methylene chloride	µg/L	0.94	E4	--	<5.0	E8	--	<5.0	E8	97000	<5.0	E8	97000
Tetrachloroethylene	µg/L	<2.0	E8	15000	<2.0	E8	15000	<2.0	E8	6500	<2.0	E8	6500
Toluene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	8700	<2.0	E8	8700
trans-1,2-dichloroethylene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	68000	<2.0	E8	68000
trans-1,3-Dichloropropene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	3000 [a]	<2.0	E8	3000 [a]
Trichloroethylene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	20000	<2.0	E8	20000
Vinyl chloride	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	--	<5.0	E8	--
Xylenes, total	µg/L	<10	E8	--	<10	E8	--	<10	E8	--	<10.0	E8	--

		2018 Annual Report						2019 Annual Report					
		Summer 2017			Winter 2017/18			Summer 2018			Winter 2018/19		
	Units	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute
CONVENTIONAL PARAMETERS													
Average flow for sampling period	gpm												
Average flow for sampling period	gpm												
pH (field reading)		8.22		--	6.74		--	7.8		--	6.3		--
Water Temperature (field reading)	(°F)	77.90		--	57.2		--	83.3		--	57.2		--
pH (field reading)					6.74		--			--	5.28		--
Water Temperature (field reading)	(°F)				57.2		--			--	49.64		--
Total Dissolved Solids (TDS)	mg/L	210		--	312		--	252		--	34		--
Total Suspended Solids (TSS)	mg/L	42	R1	--	156		--	392		--	96	R2	--
Biological Oxygen Demand (BOD)	mg/L	4.4	K6|K9	--	21	K5	--	20.92		--	5.07		--
Chemical Oxygen Demand (COD)	mg/L	51		--	215		--	195		--	34		--
INORGANICS													
Cyanide, total	mg/L	<0.050		41 T	0.0062	E4	41 T	<0.050	E8	41 T	<0.050	E8	41 T
NUTRIENTS													
Nitrate as N	mg/L	1.3		--	2.3		--	2.5		--	0.8		--
Nitrite as N	mg/L	<0.2		--	<0.2		--	<0.2		--	<0.2		--
Nitrate+Nitrite as N	mg/L	1.3		--	2.3		--	2.5		--	0.8		--
Ammonia as N	mg/L	0.723		5.72 **	2.370		44.6 **	2.780		12.1 **	0.93		48.8 **
Total Kjeldahl nitrogen (TKN as N)	mg/L	1.537		--	4.522		--	4.475		--	1.451		--
Total Phosphorous	mg/L	0.287		--	0.56096	D2	--	0.783		--	0.232		--
Orthophosphate (Total)	mg/L	0.12		--	0.221		--	0.17		--	<0.2		--
MICROBIOLOGICAL													
Escherichia coli (E coli)	MPN/100 mL	720		--	39.2		--	2908		--	38.4		--
TOTAL METALS													
Antimony	µg/L	<1.0		88 D	1.2		88 D	2.7		88 D	<1.0		88 D
Arsenic	µg/L	3.0		340 D	4.6		340 D	8.6		340 D	1.4		340 D
Barium	µg/L	59.7		--	145		--	322		--	36.8		--
Beryllium	µg/L	<1.0		--	<1.0		--	<1.0		--	<1.0		--
Cadmium	µg/L	<1.0		6.87 *	<1.0		10.38 *	<1.0		7.34 *	<1.0		1.42 *
Chromium (total)	µg/L	3.5		--	8.9		--	20.8		--	2.5		--
Copper	µg/L	27.6		11.79 *	35.9		17.58 *	87.6		21.5 *	9		5.19 *
Lead	µg/L	3.6		55.48 *	12.0		87.97 *	43.8		110.9 *	4.7		21.16 *
Mercury	µg/L	<0.2		2.4 D	<0.2	E8	2.4 D	<0.2	E8	2.4 D	<0.2		2.4 D
Nickel	µg/L	4.2		416 *	9.7		596 *	24.2		715 *	6.8		199.1 *
Selenium	µg/L	1.8		--	<1.0		--	<1.0		--	<1.0		--
Silver	µg/L	<1.0		2.53 *	<1.0		5.25 *	<1.0		7.6 *	<1.0		0.6 *
Thallium	µg/L	<1.0		700 D	<1.0		700 D	<1.0		700 D	<1.0		700 D
Zinc	µg/L	55		104.1	307		149.2	557		179.1 *	141		49.8 *
Hardness	mg/L	86.8		--	133		--	165		--	36.4		--
ORGANIC TOXIC POLLUTANTS													
Total (C10-C32)	mg/L	0.46	Q9	--	1.5		--	2.1	Q9		0.26	N1|Q9|R6	--
Total Oil and Grease	mg/L	<4.0		--	<5.3	E8	--	<5.4	H4|L3|N1|Q9		<5.1	E8	--
VOLATILE ORGANIC COMPOUNDS													
1,1,1-trichloroethane	µg/L							<2.0		2600	<2.0	E8	2600
1,1,2,2-tetrachloroethane	µg/L							<2.0		4700	<2.0	E8	4700
1,1,2-trichloroethane	µg/L							<2.0		18000	<2.0	E8	18000
1,1-dichloroethane	µg/L							<2.0		--	<5.0	E8	--
1,1-dichloroethylene	µg/L							<5.0		15000	<5.0	E8	15000
1,2,4-Trimethylbenzene	µg/L							<2.0		--	<2.0	E8	--
1,2-dichlorobenzene	µg/L							<2.0		1200	<2.0	E8	1200
1,2-dichloroethane	µg/L							<2.0		59000	<2.0	E8	59000
1,2-dichloropropane	µg/L							<2.0		26000	<2.0	E8	26000
1,3,5-Trimethylbenzene	µg/L							<2.0		--	<2.0	E8	--
1,3-dichlorobenzene	µg/L							<2.0		2500	<2.0	E8	2500
1,4-dichlorobenzene	µg/L							<2.0		2000	<2.0	E8	2000
2-chloroethylvinyl ether	µg/L							<3.0	E8	180000	<5.0	E8	180000
Acrolein	µg/L							<20	E8	34	<50	E8	34
Acrylonitrile	µg/L							<20	E8	3800	<50	E8	3800
Benzene	µg/L							<2.0		2700	<2.0	E8	2700
Bromodichloromethane	µg/L							<2.0		--	<2.0	E8	--
Bromoform	µg/L							<5.0		15000	<5.0	E8	15000
Bromomethane	µg/L							<5.0		5500	<5.0	E8	5500
Carbon tetrachloride	µg/L							<5.0		18000	<5.0	E8	18000
Chlorobenzene	µg/L							<2.0		3800	<2.0	E8	3800
Chloroethane	µg/L							<5.0		--	<5.0	E8	--
Chloroform	µg/L							<2.0		14000	<2.0	E8	14000
Chloromethane	µg/L							<5.0		270000	<5.0	E8	270000
cis-1,3-dichloropropylene	µg/L							<2.0		--	<2.0	E8	--
Dibromochloromethane	µg/L							<2.0		--	<2.0	E8	--
Ethyl benzene	µg/L							<2.0		23000	<2.0	E8	23000
Methylene chloride	µg/L							<5.0		97000	<5.0	E8	97000
Tetrachloroethylene	µg/L							<2.0		6500	<2.0	E8	6500
Toluene	µg/L							<2.0		8700	<2.0	E8	8700
trans-1,2-dichloroethylene	µg/L							<2.0		68000	<2.0	E8	68000
trans-1,3-Dichloropropene	µg/L									3000 [a]			3000 [a]
Trichloroethylene	µg/L							<2.0		20000	<2.0	E8	20000
Vinyl chloride	µg/L							<5.0		--	<2.0	E8	--
Xylenes, total	µg/L							<10		--	<10	E8	--

		2020 Annual Report						
		Summer 2019			Winter 2019/20			
	Units	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	PBC
CONVENTIONAL PARAMETERS								
Average flow for sampling period	gpm							--
Average flow for sampling period	gpm	844			5			--
pH (field reading)		7.65		--	7.13		--	6.5-9
Water Temperature (field reading)	(°F)	84.2		--	60.3		--	--
pH (field reading)								
Water Temperature (field reading)	(°F)							
Total Dissolved Solids (TDS)	mg/L	156	V1	--	120		--	--
Total Suspended Solids (TSS)	mg/L	520		--	46		--	--
Biological Oxygen Demand (BOD)	mg/L	7.57	K6	--	9.21	K5|K6	--	--
Chemical Oxygen Demand (COD)	mg/L	161		--	73		--	--
INORGANICS								
Cyanide, total	mg/L	<0.050		41 T	<0.050	E8	41 T	18667 T
NUTRIENTS								
Nitrate as N	mg/L	1.3		--	0.6		--	--
Nitrite as N	mg/L	<0.2	M1|R13	--	0		--	--
Nitrate+Nitrite as N	mg/L	1.3		--	0.6		--	--
Ammonia as N	mg/L	0.631		15.7 **	0.657		31.9 **	--
Total Kjeldahl nitrogen (TKN as N)	mg/L	0.946		--	1.424		--	--
Total Phosphorous	mg/L	1.33	D2	--	0.18		--	--
Orthophosphate (Total)	mg/L	0		--	0		--	--
MICROBIOLOGICAL								
Escherichia coli (E coli)	MPN/100 mL	120330		--	68670		--	575
TOTAL METALS								
Antimony	µg/L	<1.0		88 D	<1.0		88 D	747 T
Arsenic	µg/L	11.7		340 D	1.9		340 D	280 T
Barium	µg/L	348.0		--	61.7		--	98000 T
Beryllium	µg/L	1.5		--	<1.0		--	1867 T
Cadmium	µg/L	<1.0		9.9 *	<1.0		1.80 *	700 T
Chromium (total)	µg/L	30.6		--	4.2		--	--
Copper	µg/L	42.7		28.0 *	19.8		6.36 *	1300 T
Lead	µg/L	52.7		149.2 *	6.6		26.94 *	15 T
Mercury	µg/L	<0.2		2.4 D	<0.2	E8	2.4 D	280 T
Nickel	µg/L	35.2		905.3 *	4.6		239.17 *	28000 T
Selenium	µg/L	<1.0		--	<1.0		--	4667 T
Silver	µg/L	<1.0		12.3 *	<1.0		0.82 *	4667 T
Thallium	µg/L	<1.0		700 D	<1.0		700 D	75 T
Zinc	µg/L	232		226.8 *	168		59.79 *	280000 T
Hardness	mg/L	218.0		--	45.2		--	--
ORGANIC TOXIC POLLUTANTS								
Total (C10-C32)	mg/L	1.4	N1	--	0.91	N1	--	--
Total Oil and Grease	mg/L	<5.1		--	<5.1	E8	--	--
VOLATILE ORGANIC COMPOUNDS								
1,1,1-trichloroethane	µg/L							1866667
1,1,2,2-tetrachloroethane	µg/L							93333
1,1,2-trichloroethane	µg/L							3733
1,1-dichloroethane	µg/L							--
1,1-dichloroethylene	µg/L							46667
1,2,4-Trimethylbenzene	µg/L							--
1,2-dichlorobenzene	µg/L							84000
1,2-dichloroethane	µg/L							186667
1,2-dichloropropane	µg/L							84000
1,3,5-Trimethylbenzene	µg/L							--
1,3-dichlorobenzene	µg/L							--
1,4-dichlorobenzene	µg/L							373333
2-chloroethylvinyl ether	µg/L							--
Acrolein	µg/L							467
Acrylonitrile	µg/L							37333
Benzene	µg/L							3733
Bromodichloromethane	µg/L							18667
Bromoform	µg/L							18667
Bromomethane	µg/L							1307
Carbon tetrachloride	µg/L							1307
Chlorobenzene	µg/L							18667
Chloroethane	µg/L							--
Chloroform	µg/L							9333
Chloromethane	µg/L							--
cis-1,3-dichloropropylene	µg/L							28000 [a]
Dibromochloromethane	µg/L							18667
Ethyl benzene	µg/L							93333
Methylene chloride	µg/L							56000
Tetrachloroethylene	µg/L							9333
Toluene	µg/L							373333
trans-1,2-dichloroethylene	µg/L							18667
trans-1,3-Dichloropropene	µg/L							28000 [a]
Trichloroethylene	µg/L							280
Vinyl chloride	µg/L							2800
Xylenes, total	µg/L							186667

CITY OF SCOTTSDALE
STORMWATER SAMPLING RESULTS
McKellips Monitoring Station

Monitoring Location ID: 080710 **Receiving Water: Indian Bend Wash** **Designated Uses: PBC & A&Ww Acute**	Units	2016 Annual Report						2017 Annual Report					
		SUMMER 2015			WINTER 2015/16			SUMMER 2016			WINTER 2016/17		
		Results	Qualifier	A&We Acute	Results	Qualifier	A&We Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute
SEMIVOLATILE ORGANIC COMPOUNDS – ACID EXTRACTABLES													
1,2,4-trichlorobenzene	µg/L	<4.2	E8	--	<4.4	E8	--	<4.5	E8	1700	<4.2	E8	1700
1,2-diphenylhydrazine (as azobenzene)	µg/L	<10	E8	130	<11	E8	130	<11	E8	130	<10	E8	130
2,4,6-trichlorophenol	µg/L	<10	E8	3000	<11	E8	3000	<11	E8	160	<10	E8	160
2,4-dichlorophenol	µg/L	<10	E8	--	<11	E8	--	<11	E8	1000	<10	E8	1000
2,4-dimethylphenol	µg/L	<10	E8	150000	<11	E8	150000	<11	E8	1000	<10	E8	1000
2,4-dinitrophenol	µg/L	<31	E8	--	<33	E8	--	<34	E8	110	<31	E8	110
2,4-dinitrotoluene	µg/L	<10	E8	--	<11	E8	--	<11	E8	14000	<10	E8	14000
2,6-dinitrotoluene	µg/L	<10	E8	--	<11	E8	--	<11	E8	--	<10	E8	--
2-chlorophenol	µg/L	<10	E8	--	<11	E8	--	<11	E8	2200	<10	E8	2200
2-nitrophenol	µg/L	<10	E8	--	<11	E8	--	<11	E8	--	<10	E8	--
3,3'-dichlorobenzidine	µg/L	<52	E8	--	<55	E8	--	<57	E8	--	<52	E8	--
4,6-dinitro-2-methylphenol	µg/L	<52	E8	--	<55	E8	--	<5.0	E8	310	<52	E8	310
4-chloro-3-methylphenol	µg/L	<10	E8	48000	<11	E8	48000	<11	E8	15	<10	E8	15
4-nitrophenol	µg/L	2.7	E4	--	<11	E8	--	<11	E8	4100	1.6	E4	4100
Acenaphthene	µg/L	<4.2	E8	--	<4.4	E8	--	<4.5	E8	850	<4.2	E8	850
Anthracene	µg/L	<4.2	E8	--	<4.4	E8	--	<4.5	E8	--	<4.2	E8	--
Benzo(a)anthracene	µg/L	<4.2	E8	--	<4.4	E8	--	<4.5	E8	--	<4.2	E8	--
Benzo(a)pyrene	µg/L	<4.2	E8	--	<4.4	E8	--	<4.5	E8	--	<4.2	E8	--
Benzo(b)fluoranthene	µg/L	<4.2	E8	--	<4.4	E8	--	<4.5	E8	--	<4.2	E8	--
Benzo(g,h,i)perylene	µg/L	<4.2	E8	--	<4.4	E8	--	<4.5	E8	--	<4.2	E8	--
Benzo(k)fluoranthene	µg/L	<4.2	E8	--	<4.4	E8	--	<4.5	E8	--	<4.2	E8	--
Chrysene	µg/L	<4.2	E8	--	<4.4	E8	--	<4.5	E8	--	<4.2	E8	--
Dibenzo(a,h)anthracene	µg/L	<4.2	E8	--	<4.4	E8	--	<4.5	E8	--	<4.2	E8	--
Diethyl phthalate	µg/L	<4.2	E8	--	<4.4	E8	--	0.47	E4	26000	<4.2	E8	26000
Dimethyl phthalate	µg/L	<4.2	E8	--	<4.4	E8	--	<4.5	E8	17000	<4.2	E8	17000
Di-n-butyl phthalate	µg/L	<4.2	E8	470	<4.4	E8	470	<4.5	E8	470	<4.2	E8	470
Di-n-octyl phthalate	µg/L	<4.2	E8	--	<4.4	E8	--	<4.5	E8	--	<4.2	E8	--
Fluoranthene	µg/L	<4.2	E8	--	<4.4	E8	--	<4.5	E8	2000	<4.2	E8	2000
Fluorene	µg/L	<4.2	E8	--	<4.4	E8	--	<4.5	E8	--	<4.2	E8	--
Hexachlorobenzene	µg/L	<10	E8	--	<11	E8	--	<11	E8	6	<10	E8	6
Hexachlorobutadiene	µg/L	<10	E8	--	<11	E8	--	<11	E8	45	<10	E8	45
Hexachlorocyclopentadiene	µg/L	<52	E8	--	<55	E8	--	<57	E8	3.5	<52	E8|L4	3.5
Hexachloroethane	µg/L	<10	E8	850	<11	E8	850	<11	E8	490	<10	E8	490
Indeno(1,2,3-cd)pyrene	µg/L	<4.2	E8	--	<4.4	E8	--	<4.5	E8	--	<4.2	E8	--
Isophorone	µg/L	<10	E8	--	<11	E8	--	<11	E8	59000	<10	E8	59000
Naphthalene	µg/L	<4.2	E8	--	<4.4	E8	--	<4.5	E8	3200	<4.2	E8|L4	3200
Nitrobenzene	µg/L	<10	E8|L4	--	<11	E8	--	<11	E8	1300	<10	E8	1300
N-nitrosodimethylamine	µg/L	<10	E8	--	<11	E8	--	<5.0	E8	--	<10	E8	--
N-nitrosodi-n-propylamine	µg/L	<10	E8|L4	--	<11	E8	--	<11	E8	--	<10	E8	--
N-nitrosodiphenylamine	µg/L	<10	E8	--	<11	E8	--	<11	E8	2900	<10	E8	2900
Pentachlorophenol	µg/L	<52	E8	14.147**	<55	E8	34.953**	<57	E8	10.029 **	<52	E8	13.558 **
Phenanthrene	µg/L	<4.2	E8	--	<4.4	E8	--	<4.5	E8	30	<4.2	E8	30
Phenol	µg/L	<10	E8	180,000	<11	E8	180,000	<11	E8	7000	<10	E8	7000
Pyrene	µg/L	<10	E8	--	<11	E8	--	<11	E8	--	<10	E8	--

	2018 Annual Report						2019 Annual Report						2020 Annual Report						PBC
	Summer 2017			Winter 2017/18			Summer 2018			Winter 2018/19			Summer 2019			Winter 2019/20			
	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	
1,2,4-trichlorobenzene							<10	E8	1700	<10		1700							9333
1,2-diphenylhydrazine (as azobenzene)							<10	E8	130	<10		130							1.8
2,4,6-trichlorophenol							<20	E8	160	<10		160							130
2,4-dichlorophenol							<10	E8	1000	<10		1000							2800
2,4-dimethylphenol							<10	E8	1000	<10		1000							18667
2,4-dinitrophenol							<50	E8	110	<51	L5|V1	110							1867
2,4-dinitrotoluene							<10	E8	14000	<10		14000							1867
2,6-dinitrotoluene							<10	E8	--	<10		--							3733
2-chlorophenol							<10	E8	2200	<10		2200							4667
2-nitrophenol							<15	E8	--	<10		--							--
3,3'-dichlorobenzidine							<10	E8	--	<52		--							3
4,6-dinitro-2-methylphenol							<50	E8	310	<51		310							3733
4-chloro-3-methylphenol							<10	E8	15	<10		15							--
4-nitrophenol							<25	E8	4100	<26		4100							--
Acenaphthene							<10	E8	850	<10		850							56000
Anthracene							<10	E8	--	<10		--							280000
Benzo(a)anthracene							<10	E8	--	<10		--							0.2
Benzo(a)pyrene							<10	E8	--	<10		--							0.2
Benzo(b)fluoranthene							<10	E8	--	<10		--							1.9
Benzo(g,h,i)perylene							<10	E8	--	<10		--							--
Benzo(k)fluoranthene							<10	E8	--	<10		--							1.9
Chrysene							<10	E8	--	<10		--							19
Dibenzo(a,h)anthracene							<10	E8	--	<10		--							1.9
Diethyl phthalate							<10	E8	26000	<10		26000							746667
Dimethyl phthalate							<20	E8	17000	<20		17000							--
Di-n-butyl phthalate							<10	E8	470	<10		470							93333
Di-n-octyl phthalate							<10	E8	--	<10		--							373333
Fluoranthene							<10	E8	2000	<10		2000							37333
Fluorene							<10	E8	--	<10		--							37333
Hexachlorobenzene							<10	E8	6	<10		6							747
Hexachlorobutadiene							<10	E8	45	<10		45							187
Hexachlorocyclopentadiene							<10	E8	3.5	<10		3.5							11200
Hexachloroethane							<10	E8	490	<10		490							933
Indeno(1,2,3-cd)pyrene							<10	E8	--	<10		--							1.9
Isophorone							<10	E8	59000	<10		59000							186667
Naphthalene							<10	E8	3200	<10		3200							18667
Nitrobenzene							<10	E8	1300	<10		1300							467
N-nitrosodimethylamine							<10	E8	--	<10		--							0.03
N-nitrosodi-n-propylamine							<10	E8	--	<10		--							88667
N-nitrosodiphenylamine							<10	E8	2900	<10		2900							290
Pentachlorophenol							<50	E8	13.558 **	<51		13.558 **							28000
Phenanthrene							<10	E8	30	<10		30							--
Phenol							<10	E8	7000	<10		7000							280000
Pyrene							<10	E8	--	<10		--							28000

CITY OF SCOTTSDALE
STORMWATER SAMPLING RESULTS
McKellips Monitoring Station

Monitoring Location ID: 080710 **Receiving Water: Indian Bend Wash** **Designated Uses: PBC & A&Ww Acute**	Units	2016 Annual Report						2017 Annual Report					
		SUMMER 2015			WINTER 2015/16			SUMMER 2016			WINTER 2016/17		
		Results	Qualifier	A&We Acute	Results	Qualifier	A&We Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute
PCBs/ PESTICIDES													
4,4-Dichlorodiphenyl dichloroethane (DDD)	µg/L	<0.047	E8	1.1 [b]	<0.053	E8|R6	1.1 [b]	<0.048	E8	1.1 [b]	<0.049	E8	1.1 [b]
4,4-Dichlorodiphenyl dichloroethylene (DDE)	µg/L	<0.047	E8	1.1 [b]	<0.053	E8|R6	1.1 [b]	<0.048	E8	1.1 [b]	<0.049	E8	1.1 [b]
4,4-Dichlorodiphenyl trichloroethane (DDT)	µg/L	<0.047	E8	1.1 [b]	<0.053	E8|R6	1.1 [b]	<0.048	E8	1.1 [b]	<0.049	E8	1.1 [b]
Aldrin	µg/L	<0.047	E8	4.5	<0.053	E8	4.5	<0.048	E8	3	<0.049	E8	3
Alpha-BHC	µg/L	<0.047	E8	1600	<0.053	E8|L4|R6	1600	<0.048	E8	1600	<0.049	E8	1600
Aroclor-1016	µg/L	<0.93	E8	11 [c]	<1.1	E8	11 [c]	<0.96	E8	2 [c]	<0.98	E8	2 [c]
Aroclor-1221	µg/L	<0.93	E8	11 [c]	<1.1	E8	11 [c]	<0.96	E8	2 [c]	<0.98	E8	2 [c]
Aroclor-1232	µg/L	<0.93	E8	11 [c]	<1.1	E8	11 [c]	<0.96	E8	2 [c]	<0.98	E8	2 [c]
Aroclor-1242	µg/L	<0.93	E8	11 [c]	<1.1	E8	11 [c]	<0.96	E8	2 [c]	<0.98	E8	2 [c]
Aroclor-1248	µg/L	<0.93	E8	11 [c]	<1.1	E8	11 [c]	<0.96	E8	2 [c]	<0.98	E8	2 [c]
Aroclor-1254	µg/L	<0.93	E8	11 [c]	<1.1	E8	11 [c]	<0.96	E8	2 [c]	<0.98	E8	2 [c]
Aroclor-1260	µg/L	<0.93	E8	11 [c]	<1.1	E8	11 [c]	<0.96	E8	2 [c]	<0.98	E8	2 [c]
Beta-BHC	µg/L	<0.047	E8	1600	<0.053	E8|R6	1600	<0.048	E8	1600	<0.049	E8	1600
Chlordane	µg/L	<0.47	E8	3.2	<0.53	E8	3.2	<0.48	E8	2.4	<0.049	E8	2.4
Delta-BHC	µg/L	<0.047	E8	1600	<0.053	E8|L4|R6	1600	<0.048	E8	1600	<0.049	E8	1600
Dieldrin	µg/L	<0.047	E8	4	<0.053	E8|L4|R6	4	0.006	C8|E4	0.2	<0.049	E8	0.2
Endosulfan I	µg/L	<0.047	E8	3 [d]	<0.053	E8|R6	3 [d]	<0.048	E8	0.2 [d]	<0.049	E8	0.2 [d]
Endosulfan II	µg/L	<0.047	E8	3 [d]	<0.053	E8|L4|R6	3 [d]	<0.048	E8	0.2 [d]	<0.049	E8	0.2 [d]
Endosulfan sulfate	µg/L	<0.047	E8	3	<0.053	E8|L4|R6	3	<0.048	E8	0.2	<0.049	E8	0.2
Endrin	µg/L	<0.047	E8	0.7	<0.053	E8|L4|R6	0.7	<0.048	E8	0.09	<0.049	E8	0.09
Endrin aldehyde	µg/L	<0.047	E8	0.7	<0.053	E8|R6	0.7	<0.048	E8	0.09	<0.049	E8	0.09
Gamma-BHC	µg/L	<0.047	E8	11	<0.053	E8|L4|R6	11	<0.048	E8	1	<0.049	E8	1
Heptachlor	µg/L	<0.047	E8	0.9	<0.053	E8	0.9	<0.048	E8	0.5	<0.049	E8	0.5
Heptachlor epoxide	µg/L	<0.047	E8	0.9	<0.053	E8|L4|R6	0.9	<0.048	E8	0.5	<0.049	E8	0.5
Toxaphene	µg/L	<1.9	E8	11	<2.1	E8|V1	11	<1.9	E8	0.7	<2.0	E8	0.7

	2018 Annual Report						2019 Annual Report						2020 Annual Report						PBC
	Summer 2017			Winter 2017/18			Summer 2018			Winter 2018/19			Summer 2019			Winter 2019/20			
	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	
PCBs/ PESTICIDES																			
4,4-Dichlorodiphenyl dichloroethane (DDD)							<0.21	E8	1.1 [b]	<0.20	D5	1.1 [b]							467 [b]
4,4-Dichlorodiphenyl dichloroethylene (DDE)							<0.21	E8	1.1 [b]	<0.2	D5	1.1 [b]							467 [b]
4,4-Dichlorodiphenyl trichloroethane (DDT)							<0.21	E8	1.1 [b]	<0.2	D5	1.1 [b]							467 [b]
Aldrin							<0.10	E8	3	<0.2	D5	3							28
Alpha-BHC							<0.10	E8	1600	<0.2	D5	1600							7467
Aroclor-1016							<2.0		2 [c]	<2.0	D5|V1	2 [c]							19 [c]
Aroclor-1221							<2.0		2 [c]	<2.0	D5	2 [c]							19 [c]
Aroclor-1232							<2.0		2 [c]	<2.0	D5	2 [c]							19 [c]
Aroclor-1242							<2.0		2 [c]	<2.0	D5	2 [c]							19 [c]
Aroclor-1248							<2.0		2 [c]	<2.0	D5	2 [c]							19 [c]
Aroclor-1254							<2.0		2 [c]	<2.0	D5	2 [c]							19 [c]
Aroclor-1260							<2.0		2 [c]	<2.0	D5|V1	2 [c]							19 [c]
Beta-BHC							<0.10	E8	1600	<2.0	D5	1600							560
Chlordane							<1.0	E8	2.4	<1.0	D5	2.4							467
Delta-BHC							<0.10	E8	1600	<2.0	D5	1600							--
Dieldrin							<0.10	E8	0.2	<0.20	D5	0.2							47
Endosulfan I							0.32		0.2 [d]	<0.20	D5	0.2 [d]							5600 [d]
Endosulfan II							<0.21	E8	0.2 [d]	<0.20	D5	0.2 [d]							5600 [d]
Endosulfan sulfate							<0.10	E8	0.2	<0.20	D5	0.2							5600
Endrin							<0.10	E8	0.09	<0.20	D5	0.09							280
Endrin aldehyde							<0.42	E8	0.09	<0.40	D5	0.09							--
Gamma-BHC							<0.10	E8	1	<0.20	D5	1							280
Heptachlor							<0.21	E8	0.5	<0.40	D5	0.5							467
Heptachlor epoxide							<0.10	E8	0.5	<0.20	D5	0.5							12
Toxaphene							<4.2	E8	0.7	<8.0	D5	0.7							933

2014-2015 SAMPLING DATES
- ***A*** *- Sampling Event 07-13-14*
- ***B*** *- Sampling Event 7-15-14*
- ***C*** *- Sampling Event 8-02-14*
- ***D*** *- Sampling Event 8-12-14*
- ***E*** *- Sampling Event 8-19-14*
- ***F*** *- Sampling Event 12-4-14*
- ***G*** *- Sampling Event 3-2-15*
- ***H*** *- Sampling Event*
- ***I*** *- Sampling Event*
- ***J*** *- Sampling Event*

2016-2017 SAMPLING DATES
- ***A*** *- Sampling event 8-5-16*
- ***B*** *- Sampling event 6-30-16*
- ***C*** *- Sampling Event 7-18-16*
- ***D*** *- Sampling Event 7-29-16*
- ***E*** *- Sampling Event 8-2-16*
- ***F*** *- Sampling Event 11-3-16*
- ***G*** *- Sampling Event 11-21-2016*
- ***H*** *- Sampling Event 11-27-2016*
- ***I*** *- Sampling Event 12-22-2016*
- ***J*** *- Sampling Event 12-31-2016*

2017-2018 SAMPLING DATE
- ***A*** *- Sampling event 8-24-17*
- ***B*** *- Sampling event 12-17-2017*
- ***C*** *- Sampling event 1-9-18*

2018-2019 SAMPLING DATES
- ***B -*** *Sampling Event 7-9-18*
- ***C -*** *Sampling Event 11-30-18*
- ***D -*** *Sampling Event 01-06-19*

2019-2020 Sampling Dates
- ***A -*** *Sampling Event 7-24-19*
- ***B -*** *Sampling Event 9-23-19*
- ***C -*** *Sampling Event 11-19-19*

NOTES:
PBC = Surface Water Quality Standard for Partial Body Contact
A&Ww = Surface Water Quality Standard for Aquatic and Wildlife (warm water)
(--) = no numerical standard
{--} = analysis performed by laboratory unlicensed for that method
a = standard for total 1,3-dichloropropylene
b = standard for total DDT and metabolites DDD and DDE
c = standard for total polychlorinated biphenyls
d = standard for total Endosulfan
** = Dependent upon sample hardness*
*** = Dependent upon pH*
B1 = Target analyte detected in method blank at or above the method reporting limit
D1 = Sample required dilution due to matrix
D2 = Sample required dilution due to high concentration of analyte
E4 = Concentration estimated. Analyte was detected below laboratory minimum reporting level (MRL) but above the MDL.
E8 = Analyte reported to the MDL per project specification. Target analyte was not detected in sample
H4 = Sample was extracted past the required exctraction hold time but analyzed within the analysis hold time
K1 = The sample dilutions set-up for the BOD analysis did not meet the oxygen depletion criteria of at least 2 mg/L. Any reported result is an estimated value.
K5 = The dilution water D.O. depletion was >0.2 mg/L.
K6= Glucose/glutamic acid BOD was below method acceptance criteria.
K9 = Test replicates show more than 30% difference between high and low values
L4 = The associated blank spike recovery was below method acceptance limits. Sample was reextracted past holding time with confirmatory results.
L5 = The associated blank spike recovery was above laboratory/method acceptance limits. This analyte was not detected in the sample.
M3 = The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The associated blank spike recovery was acceptable
Q9 = Insufficent Sample received to meet method QC requirements
R1 = RPD/RSD exceeded the acceptance limit.
R2 = RPD/RSD exceeded the laboratory acceptance limit.The %RPD of the laboratory control sample (LCS) and laboratory control standard duplicate (LCSD) for preparationbatch 10516 recovered outside control limits for the following analytes: C10 - C32 Hydrocarbons.
R6 = LFB/LFBD RPD exceeded the method acceptance limit. Recovery met acceptance criteria.
V1 = Continuing Calibration Verification recovery was above the method acceptance limits. This target analyte was not detected in the sample.
°F = degrees Fahrenheit
mg/L = milligrams per liter
ug/L = micrograms per liter
T = Total recoverable
TWC - Time Weighted Composite
D = Dissolved
BLUE Indicates a SWQS
BOLD RED Indicates a SWQS exceedance
BOLD Indicates detection limit greater than the applicable SWQS

CITY OF SCOTTSDALE
STORMWATER SAMPLING RESULTS
Pierce Monitoring Station

Monitoring Location ID: 080610 Receiving Water: Indian Bend Wash Designated Uses: PBC & A&Ww Acute	Units	2016 Annual Report						2017 Annual Report						2018 Annual Report						2019 Annual Report						2020 Annual Report						PBC
		Summer 2015			Winter 2015/16			SUMMER 2016			WINTER 2016/17			Summer 2017			Winter 2017/18			Summer 2018			Winter 2018/19			Summer 2019			Winter 2019/20			
		Results	Qualifier	A&We Acute	Results	Qualifier	A&We Acute	Result	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	
CONVENTIONAL PARAMETERS																																
Average flow for sampling period	gpm	8501		--			--	3873.55		--	215.80		--			--			--			--			--							--
Average flow for sampling period	gpm	336.4		--			--			--	475.79		--			--			--			--			--	581			704			--
pH (field reading)		7.19		--	6.96		--	7.34		--	7.32		--	8.37		--	6.94		--	7.5		--	7.82		--	7.64		--	7.27		--	6.5-9
Water Temperature (field reading)	(°F)	71.2		--	51.8		--	82.04		--	54.14		--	82.4		--	54.32		--	85.46		--	57.2		--	86.7		--	61.9		--	--
pH (field reading)		7.63						7.35		--	6.87		--			--	6.9		--			--	5.86		--							
Water Temperature (field reading)	(°F)	83.1						69.08		--	71.6		--			--	59		--			--	53.78		--							
Total Dissolved Solids (TDS)	mg/L	254		--	146		--	262		--	108		--	132	N1	--	298		--	376		--	106		--	94	R2	--	72		--	--
Total Suspended Solids (TSS)	mg/L	246		--	212		--	522		--	110		--	90		--	70		--	348		--	30		--	62		--	156		--	--
Biological Oxygen Demand (BOD)	mg/L	110	K5	--	31.5	K5|K6	--	74.4		--	18.95		--	30.03	K6|K9	--	36	K5	--	63.18		--	17.72		--	15.63	K6	--	5.97	K6	--	--
Chemical Oxygen Demand (COD)	mg/L	484		--	229		--	360		--	130		--	138		--	211		--	431		--	116		--	113		--	81		--	--
INORGANICS																																
Cyanide, total	mg/L	<0.050	E8	84 T	<0.050	E8	84 T	<0.050	E8	41 T	<0.050	E8	41 T	<0.050		41 T	0.0079	E4	41 T	0.0092	E4	41 T	<0.050		41 T	<0.050		41 T	<0.050	E8	41 T	18667 T
NUTRIENTS																																
Nitrate as N	mg/l	1.8		--	1.4		--	2.3		--	1		--	1.5		--	1.6		--	2.3		--	1.6		--	1.1		--	0.5		--	--
Nitrite as N	mg/l	<0.2		--	<0.2		--	<0.2		--	<0.2		--	<0.2		--	<0.2		--	<0.2		--	<0.2		--	0		--	0		--	--
Nitrate+Nitrite as N	mg/L	1.85		--	1.4		--	2.3		--	1		--	1.5		--	1.6		--	2.3		--	1.6		--	1.1		--	0.5		--	--
Ammonia as N	mg/L	2.16		--	1.18		--	3.222		26.2 **	0.879		26.2 **	0.952		3.88 **	2.194		39.1 **	3.204		19.9 **	0.991		12.1 **	1.117		16.0 **	0.321		27.2 **	--
Total Kjeldahl nitrogen (TKN as N)	mg/L	5.41	D1	--	3.66		--	5.543		--	1.677		--	1.604		--	7.413		--	6.607		--	2.368		--	1.449		--	2.041		--	--
Total Phosphorous	mg/L	0.881	D2|H1	--	0.502	D2	--	1.2067	D2	--	0.652	D2	--	0.35223	D2	--	0.50226	D2	--	1.337	D2	--	0.473		--	0.368		--	0.22		--	--
Orthophosphate (Total)	mg/L	0.321		--	<0.2		--	0.6183		--	0.23		--	0.22		--	0.322		--	0.64		--	0.314		--	0.289		--	0		--	--
MICROBIOLOGICAL																																
Escherichia coli (E coli)	MPN/100 ml	4542		--	34.5		--	509.9		--	10017		--	21870		--	1953.6		--	9678.4		--	3465.6		--	1297.6		--	6532.5		--	575
TOTAL METALS																																
Antimony	µg/L	2.9		--	2.6		--	2.4		88 D	1		88 D	1.1		88 D	1.3		88 D	3.5		88 D	<1.0		88 D	<1.0		88 D	1.2		88 D	747 T
Arsenic	µg/L	4.4		440 D	3.6		440 D	3.3		340 D	2		340 D	2.4		340 D	1.9		340 D	6.9		340 D	1.4		340 D	1.7		340 D	3.3		340 D	280 T
Barium	µg/L	168		--	133		--	131		--	31.8		--	50.2		--	74.7		--	213		--	54.8		--	45.9		--	90.7		--	98000 T
Beryllium	µg/L	<1.0		--	<1.0		--	<1.0		--	<1.0		--	<1.0		--	<1.0		--	<1.0		--	<1.0		--	<1.0		--	<1.0		--	1867 T
Cadmium	µg/L	1.1		21.92*	1.2		18.58*	<1.0		6.80 *	<1.0		3.46 *	<1.0		5.95 *	<1.0		8.94 *	<1.0		6.66 *	<1.0		1.48 *	<1.0		1.50 *	<1.0		2.32 *	700 T
Chromium (total)	µg/L	12.0		--	11.0		--	8.9		--	2.5		--	5.4		--	3.6		--	14.3		--	2.4		--	3.1		--	8.6		--	--
Copper	µg/L	107		22.38*	80.2		19.07*	78.8		11.66 *	27.5		6.07 *	35.5		10.25 *	31.3		15.2 *	102		19.8 *	24.2		5.37 *	21.8		5.43 *	42.7		7.91 *	1300 T
Lead	µg/L	36.4		130.37*	27.8		108.27*	16.5		54.85 *	4.5		25.48 *	7.6		47.15*	7.2		74.46*	28		100.9 *	5.4		22.07 *	6.5		22.33 *	20.8		34.84 *	15 T
Mercury	µg/L	0.068	E4	5.0 D	<0.2	E8	5.0 D	<0.2	E8	2.4 D	<0.2	E8	2.4 D	<0.2		2.4 D	<0.2	E8	2.4 D	0.089	E4	2.4 D	<0.2		2.4 D	<0.20		2.4 D	<0.20		2.4 D	280 T
Nickel	µg/L	15.9		4017*	11.8		3479*	11.1		412 *	4.1		229 *	6.3		367 *	8.8		523 *	27.6		663.6 *	4.2		205.6 *	4.8		207.44 *	9.7		291.03 *	28000 T
Selenium	µg/L	<1.0		33 T	<1.0		33 T	<1.0		--	<1.0		--	<1.0		--	<1.0		--	<1.0	L3	--	<0.10		--	<1.0		--	<1.0		--	4667 T
Silver	µg/L	<1.0		3.0*	<1.0		2.24*	<1.0		2.48 *	<1.0		0.75 *	<1.0		1.96 *	<1.0		4.03 *	<1.0		6.5 *	<0.1		0.60 *	<1.0		0.61 *	<1.0		1.22 *	4667 T
Thallium	µg/L	<1.0		700 D	<1.0		700 D	<1.0		700 D	<1.0		700 D	<1.0		700 D	<1.0		700 D	<1.0		700 D	<1.0		700 D	<1.0		--	<1.0		--	75 T
Zinc	µg/L	439		1074*	392		930*	337		103.1 *	87		57.3 *	97		91.8 *	320		130.9 *	537	L3	166.2 *	152		51.4 *	119		51.85 *	330		72.78 *	280000 T
Hardness	mg/L	96		--	80.7		--	86.1		--	42.8		--	74.8		--	114		--	151		--	37.8		--	38.2		--	57.0		--	--
ORGANIC TOXIC POLLUTANTS																																
Total (C10-C32)	mg/L	1.6		--	1.1		--	2.3	R6	--	0.9		--	0.64	Q9	--	3.2	Q9|N1	--	4.2		--	0.7	Q9	--	1.9	N1	--	1.7	N1	--	--
Total Oil and Grease	mg/L	<5.1	E8	--	<5.1	E8	--			--			--	<5.4		--	<5.2	E8	--	2.4	H4|L3|N1|Q	--	<5.2		--	<5.1		--	1.4	E4	--	--
VOLATILE ORGANIC COMPOUNDS																																
1,1,1-trichloroethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	2600	<2.0	E8	2600							<4.0	D1|E8	2600	<2.0		2600							1866667
1,1,2,2-tetrachloroethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	4700	<2.0	E8	4700							<4.0	D1|E8	4700	<2.0		4700							93333
1,1,2-trichloroethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	18000	<2.0	E8	18000							<4.0	D1|E8	18000	<2.0		18000							3733
1,1-dichloroethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--							<4.0	D1|E8	--	<2.0		--							--
1,1-dichloroethylene	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	15000	<5.0	E8	15000							<10	D1|E8	15000	<5.0		15000							46667
1,2,4-Trimethylbenzene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--							<4.0	D1|E8	--	<2.0		--							--
1,2-dichlorobenzene	µg/L	<2.0	E8	5900	<2.0	E8	5900	<2.0	E8	1200	<2.0	E8	1200							<4.0	D1|E8	1200	<2.0		1200							84000
1,2-dichloroethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	59000	<2.0	E8	59000							<4.0	D1|E8	59000	<2.0		59000							186667
1,2-dichloropropane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	26000	<2.0	E8	26000							<4.0	D1|E8	26000	<2.0		26000							84000
1,3,5-Trimethylbenzene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--							<4.0	D1|E8	--	<2.0		--							--
1,3-dichlorobenzene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	2500	<2.0	E8	2500							<4.0	D1|E8	2500	<2.0		2500							--
1,4-dichlorobenzene	µg/L	<2.0	E8	6500	<2.0	E8	6500	<2.0	E8	2000	<2.0	E8	2000							<4.0	D1|E8	2000	<2.0		2000							373333
2-chloroethylvinyl ether	µg/L	<3.0	E8	--	<3.0	E8	--	<3.0	E8	180000	<3.0	E8	180000							<3.0	E8	180000	<5.0		180000							--
Acrolein	µg/L	<20	E8	--	<20	E8	--	<20	E8|M2	34	<20	E8	34							<20	E8	34	<50		34							467
Acrylonitrile	µg/L	<20	E8	--	<20	E8	--	<20	E8	3800	<20	E8	3800							<20	E8	3800	<50		3800							37333
Benzene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	2700	0.13	E4	2700							<4.0	D1|E8	2700	<0.2		2700							3733
Bromodichloromethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--							<4.0	D1|E8	--	<0.2		--							18667
Bromoform	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	15000	<5.0	E8	15000							<10	D1|E8	15000	<0.5		15000							18667
Bromomethane	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	5500	<5.0	E8	5500							<10	D1|E8	5500	<0.5		5500							1307
Carbon tetrachloride	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	18000	<5.0	E8	18000							<10	D1|E8	18000	<5.0		18000							1307
Chlorobenzene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	3800	<2.0	E8	3800							<4.0	D1|E8	3800	<2.0		3800							18667
Chloroethane	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	--	<5.0	E8	--							<10	D1|E8	--	<5.0		--							--
Chloroform	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	14000	<2.0	E8	14000							<4.0	D1|E8	14000	<2.0		14000							9333
Chloromethane	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	270000	<5.0	E8	270000							<10	D1|E8	270000	<5.0		270000							--
cis-1,3-dichloropropylene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--							<4.0	D1|E8	--	<2.0		--							28000 [a]
Dibromochloromethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--							<4.0	D1|E8	--	<2.0		--							18667
Ethyl benzene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	23000	<2.0	E8	23000							<4.0	D1|E8	23000	<2.0		23000							93333
Methylene chloride	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	97000	<5.0	E8	97000							<10	D1|E8	97000	<5.0		97000							56000
Tetrachloroethylene	µg/L	<2.0	E8	15000	<2.0	E8	15000	<2.0	E8	6500	<2.0	E8	6500							<4.0	D1|E8	6500	<2.0		6500							9333
Toluene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	8700	<2.0	E8	8700							<4.0	D1|E8	8700	<2.0		8700							373333
trans-1,2-dichloroethylene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	68000	<2.0	E8	68000							<4.0	D1|E8	68000	<2.0		68000							18667
trans-1,3-Dichloropropene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	3000 [a]	<2.0	E8	3000 [a]									3000 [a]			3000 [a]							28000 [a]
Trichloroethylene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	20000	<2.0	E8	20000							<4.0	D1|E8	20000	<2.0		20000							280
Vinyl chloride	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	--	<5.0	E8	--							<10	D1|E8	--	<5.0		--							2800
Xylenes, total	µg/L	<10	E8	--	<10	E8	--	<10	E8	--	<10	E8	--							<20	D1|E8	--	<10		--							186667

CITY OF SCOTTSDALE
STORMWATER SAMPLING RESULTS
Pierce Monitoring Station

Monitoring Location ID: 080610 Receiving Water: Indian Bend Wash Designated Uses: PBC & A&Ww Acute	Units	2016 Annual Report						2017 Annual Report						2018 Annual Report						2019 Annual Report						2020 Annual Report						PBC
		Summer 2015			Winter 2015/16			SUMMER 2016			WINTER 2016/17			Summer 2017			Winter 2017/18			Summer 2018			Winter 2018/19			Summer 2019			Winter 2019/20			
		Results	Qualifier	A&We Acute	Results	Qualifier	A&We Acute	Result	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	
SEMIVOLATILE ORGANIC COMPOUNDS – ACID EXTRACTABLES																																
1,2,4-trichlorobenzene	µg/L	<4.2	E8	--	<84	E8	--	<22	E8	1700	<18	E8	1700							<40	D1|E8	1700	<10		1700							9333
1,2-diphenylhydrazine (as azobenzene)	µg/L	<10	E8	130	<210	E8	130	<55	E8	130	<45	E8	130							<40	D1|E8	130	<10		130							1.8
2,4,6-trichlorophenol	µg/L	<10	E8	3000	<210	E8	3000	<55	E8	160	<45	E8	160							<80	D1|E8	160	<20		160							130
2,4-dichlorophenol	µg/L	<10	E8	--	<210	E8	--	<55	E8	1000	<45	E8	1000							<40	D1|E8	1000	<10		1000							2800
2,4-dimethylphenol	µg/L	<10	E8	150000	<210	E8	150000	<55	E8	1000	<45	E8	1000							<40	D1|E8	1000	<10		1000							18667
2,4-dinitrophenol	µg/L	<10	E8	--	<630	E8	--	<160	E8	110	<130	E8	110							<200	D1|E8	110	<10		110							1867
2,4-dinitrotoluene	µg/L	<10	E8	--	<210	E8	--	<55	E8	14000	<45	E8	14000							<40	D1|E8	14000	<10		14000							1867
2,6-dinitrotoluene	µg/L	<10	E8	--	<210	E8	--	<55	E8	--	<45	E8	--							<40	D1|E8	--	<10		--							3733
2-chlorophenol	µg/L	<10	E8	--	<210	E8	--	<55	E8	2200	<45	E8	2200							<40	D1|E8	2200	<10		2200							4667
2-nitrophenol	µg/L	<10	E8	--	<210	E8	--	<55	E8	--	<45	E8	--							<60	D1|E8	--	<15		--							--
3,3'-dichlorobenzidine	µg/L	<52	E8	--	<1100	E8	--	<270	E8	--	<220	E8	--							<40	D1|E8	--	<10		--							3
4,6-dinitro-2-methylphenol	µg/L	<52	E8	--	<1100	E8	--	<270	E8	310	<220	E8	310							<200	D1|E8	310	<51		310							3733
4-chloro-3-methylphenol	µg/L	<10	E8	48000	<210	E8	48000	<55	E8	15	<45	E8	15							<40	D1|E8	15	<10		15							--
4-nitrophenol	µg/L	3.4	E4	--	<210	E8	--	<55	E8	4100	<45	E8	4100							<100	D1|E8	4100	<25	L4|N1	4100							--
Acenaphthene	µg/L	<4.2	E8	--	<84	E8	--	<22	E8	850	<18	E8	850							<40	D1|E8	850	<10		850							56000
Anthracene	µg/L	<4.2	E8	--	<84	E8	--	<22	E8	--	<18	E8	--							<40	D1|E8	--	<10		--							280000
Benzo(a)anthracene	µg/L	<4.2	E8	--	<84	E8	--	<22	E8	--	<18	E8	--							<40	D1|E8	--	<10		--							0.2
Benzo(a)pyrene	µg/L	<4.2	E8	--	<84	E8	--	<22	E8	--	<18	E8	--							<40	D1|E8	--	<10		--							0.2
Benzo(b)fluoranthene	µg/L	<4.2	E8	--	<84	E8	--	<22	E8	--	<18	E8	--							<40	D1|E8	--	<10		--							1.9
Benzo(g,h,i)perylene	µg/L	<4.2	E8	--	<84	E8	--	<22	E8	--	<18	E8	--							<40	D1|E8	--	<10		--							--
Benzo(k)fluoranthene	µg/L	<4.2	E8	--	<84	E8	--	<22	E8	--	<18	E8	--							<40	D1|E8	--	<10		--							1.9
Chrysene	µg/L	<4.2	E8	--	<84	E8	--	<22	E8	--	<18	E8	--							<40	D1|E8	--	<10		--							19
Dibenzo(a,h)anthracene	µg/L	<4.2	E8	--	<84	E8	--	<22	E8	--	<18	E8	--							<40	D1|E8	--	<10		--							1.9
Diethyl phthalate	µg/L	<4.2	E8	--	<84	E8	--	<22	E8	26000	<18	E8	26000							<40	D1|E8	26000	<20		26000							746667
Dimethyl phthalate	µg/L	0.43	E4	--	<84	E8	--	2	E4	17000	<18	E8	17000							<80	D1|E8	17000	<10		17000							--
Di-n-butyl phthalate	µg/L	<4.2	E8	--	<84	E8	--	<22	E8	470	<18	E8	470							<40	D1|E8	470	<10		470							93333
Di-n-octyl phthalate	µg/L	<4.2	E8		<84	E8		<22	E8	--	<18	E8	--							<40	D1|E8	--	<10		--							373333
Fluoranthene	µg/L	<4.2	E8	--	<84	E8	--	<22	E8	2000	<18	E8	2000							<40	D1|E8	2000	<10		2000							37333
Fluorene	µg/L	<4.2	E8	--	<84	E8	--	<22	E8	--	<18	E8	--							<40	D1|E8	--	<10		--							37333
Hexachlorobenzene	µg/L	<10	E8	--	<210	E8	--	<55	E8	6	<45	E8	6							<40	D1|E8	6	<10		6							747
Hexachlorobutadiene	µg/L	<10	E8	--	<210	E8	--	<55	E8	45	<45	E8	45							<40	D1|E8	45	<10		45							187
Hexachlorocyclopentadiene	µg/L	<52	E8	--	<1100	E8	--	<270	E8	3.5	<220	E8|L4	3.5							<40	D1|E8	3.5	<10		3.5							11200
Hexachloroethane	µg/L	<10	E8	850	<210	E8	850	<55	E8	490	<45	E8	490							<40	D1|E8	490	<10		490							933
Indeno(1,2,3-cd)pyrene	µg/L	<4.2	E8	--	<84	E8	--	<22	E8	--	<18	E8	--							<40	D1|E8	--	<10		--							1.9
Isophorone	µg/L	<10	E8	--	<210	E8	--	<55	E8	59000	<45	E8	59000							<40	D1|E8	59000	<10		59000							186667
Naphthalene	µg/L	<4.2	E8	--	<84	E8	--	<22	E8	3200	<18	E8	3200							<40	D1|E8	3200	<10		3200							18667
Nitrobenzene	µg/L	<10	E8	--	<210	E8	--	<55	E8	1300	<45	E8	1300							<40	D1|E8	1300	<10		1300							467
N-nitrosodimethylamine	µg/L	<10	E8	--	<210	E8	--	<55	E8	--	<45	E8	--							<40	D1|E8	--	<10		--							0.03
N-nitrosodi-n-propylamine	µg/L	<10	E8	--	<210	E8	--	<55	E8	--	<45	E8	--							<40	D1|E8	--	<10		--							88667
N-nitrosodiphenylamine	µg/L	<10	E8	--	<210	E8	--	<55	E8	2900	<45	E8	2900							<40	D1|E8	2900	<10		2900							290
Pentachlorophenol	µg/L	<52	E8	7.001**	<1100	E8	5.726**	<270	E8	12.262 **	<220	E8	8.203 **							<200	D1|E8	8.203 **	<51		8.203 **							28000
Phenanthrene	µg/L	<4.2	E8	--	<84	E8	--	<22	E8	30	<18	E8	30							<40	D1|E8	30	<10		30							--
Phenol	µg/L	<10	E8	180,000	<210	E8	180,000	<55	E8	7000	<45	E8	7000							<40	D1|E8	7000	<10		7000							280000
Pyrene	µg/L	<10	E8	NNS	<210	E8	NNS	<55	E8	--	<45	E8	--							<40	D1|E8	--	<10		--							28000

CITY OF SCOTTSDALE
STORMWATER SAMPLING RESULTS
Pierce Monitoring Station

Monitoring Location ID: 080610 / Receiving Water: Indian Bend Wash / Designated Uses: PBC & A&Ww Acute	Units	2016 Annual Report						2017 Annual Report						2018 Annual Report						2019 Annual Report						2020 Annual Report						PBC
		Summer 2015			Winter 2015/16			SUMMER 2016			WINTER 2016/17			Summer 2017			Winter 2017/18			Summer 2018			Winter 2018/19			Summer 2019			Winter 2019/20			
		Results	Qualifier	A&We Acute	Results	Qualifier	A&We Acute	Result	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	
PCBs/ PESTICIDES																																
4,4-Dichlorodiphenyl dichloroethane (DDD)	µg/L	<0.049	E8	1.1[b]	<0.049	E8	1.1[b]	<0.049	E8|V1	1.1[b]	<0.051	E8	1.1[b]							<0.50	D5|E8	1.1[b]	<0.19	D5	1.1[b]							467[b]
4,4-Dichlorodiphenyl dichloroethylene (DDE)	µg/L	<0.049	E8	1.1[b]	<0.049	E8	1.1[b]	<0.049	E8|V1	1.1[b]	<0.051	E8	1.1[b]							<0.50	D5|E8	1.1[b]	<0.19	D5	1.1[b]							467[b]
4,4-Dichlorodiphenyl trichloroethane (DDT)	µg/L	<0.049	E8	1.1[b]	0.0038	C8|E4	1.1[b]	<0.049	E8|V1	1.1[b]	<0.051	E8	1.1[b]							<0.50	D5|E8	1.1[b]	<0.19	D5	1.1[b]							467[b]
Aldrin	µg/L	<0.049	E8	4.5	<0.049	E8	4.5	0.0096	E4	3	<0.051	E8	3							<0.20	D5|E8	3	<0.19	D5	3							28
Alpha-BHC	µg/L	<0.049	E8	1600	<0.049	E8	1600	<0.049	E8	1600	<0.051	E8	1600							<0.20	D5|E8	1600	<0.19	D5	1600							7467
Aroclor-1016	µg/L	<0.99	E8	11[c]	<0.98	E8	11[c]	<0.97	E8	2[c]	<1.0	E8	2[c]							<4	D5|E8	2[c]	<1.9	D5	2[c]							19[c]
Aroclor-1221	µg/L	<0.99	E8	11[c]	<0.98	E8	11[c]	<0.97	E8	2[c]	<1.0	E8	2[c]							<4	D5|E8	2[c]	<1.9	D5	2[c]							19[c]
Aroclor-1232	µg/L	<0.99	E8	11[c]	<0.98	E8	11[c]	<0.97	E8	2[c]	<1.0	E8	2[c]							<4	D5|E8	2[c]	<1.9	D5	2[c]							19[c]
Aroclor-1242	µg/L	<0.99	E8	11[c]	<0.98	E8	11[c]	<0.97	E8	2[c]	<1.0	E8	2[c]							<4	D5|E8	2[c]	<1.9	D5	2[c]							19[c]
Aroclor-1248	µg/L	<0.99	E8	11[c]	<0.98	E8	11[c]	<0.97	E8	2[c]	<1.0	E8	2[c]							<4	D5|E8	2[c]	<1.9	D5	2[c]							19[c]
Aroclor-1254	µg/L	<0.99	E8	11[c]	<0.98	E8	11[c]	<0.97	E8	2[c]	<1.0	E8	2[c]							<4	D5|E8	2[c]	<1.9	D5	2[c]							19[c]
Aroclor-1260	µg/L	<0.99	E8	11[c]	<0.98	E8	11[c]	<0.97	E8	2[c]	<1.0	E8|L4	2[c]							<4	D5|E8	2[c]	<1.9	D5	2[c]							19[c]
Beta-BHC	µg/L	<0.049	E8	1600	<0.049	E8	1600	<0.049	E8	1600	<0.051	E8	1600							<0.20	D5|E8	1600	<0.19	D5	1600							560
Chlordane	µg/L	<0.49	E8	3.2	<0.49	E8	3.2	<0.49	E8	2.4	<0.051	E8	2.4							<2.0	D5|E8	2.4	<0.95	D5	2.4							467
Delta-BHC	µg/L	<0.049	E8	1600	<0.049	E8	1600	<0.049	E8	1600	<0.051	E8	1600							<0.20	D5|E8	1600	<0.19	D5	1600							--
Dieldrin	µg/L	<0.049	E8	4	<0.049	E8	4	<0.049	E8|V1	0.2	<0.051	E8|L4	0.2							<0.20	D5|E8	0.2	<0.19	D5	0.2							47
Endosulfan I	µg/L	<0.049	E8	3[d]	<0.049	E8	3[d]	<0.049	E8|V1	0.2[d]	<0.051	E8	0.2[d]							<0.20	D5|E8	0.2[d]	<0.19	D5	0.2[d]							5600[d]
Endosulfan II	µg/L	<0.049	E8	3[d]	<0.049	E8	3[d]	<0.049	E8|V1	0.2[d]	<0.051	E8	0.2[d]							<0.50	D5|E8	0.2[d]	<0.19	D5	0.2[d]							5600[d]
Endosulfan sulfate	µg/L	<0.049	E8	3	<0.049	E8	3	<0.049	E8|V1	0.2	<0.051	E8	0.2							<0.20	D5|E8	0.2	<0.19	D5	0.2							5600
Endrin	µg/L	<0.049	E8	0.7	<0.049	E8	0.7	<0.049	E8|V1	0.09	<0.051	E8|L4	0.09							<0.20	D5|E8	0.09	<0.19	D5	0.09							280
Endrin aldehyde	µg/L	<0.049	E8	0.7	<0.049	E8	0.7	<0.049	E8|V1	0.09	<0.051	E8	0.09							<1.0	D5|E8	0.09	<0.37	D5	0.09							--
Gamma-BHC	µg/L	<0.049	E8	11	<0.049	E8	11	<0.049	E8	1	<0.051	E8	1							<0.20	D5|E8	1	<0.19	D5	1							280
Heptachlor	µg/L	<0.049	E8	0.9	<0.049	E8	0.9	<0.049	E8	0.5	<0.051	E8	0.5							<0.40	D5|E8	0.5	<0.37	D5	0.5							467
Heptachlor epoxide	µg/L	<0.049	E8	0.9	<0.049	E8	0.9	<0.049	E8	0.5	<0.051	E8	0.5							<0.20	D5|E8	0.5	<0.19	D5	0.5							12
Toxaphene	µg/L	<2.0	E8	11	<2.0	E8	11	<1.9	E8|V1	0.7	<2.1	E8	0.7							<8	D5|E8	0.7	<7.4	D5	0.7							933

NOTES:

PBC = Surface Water Quality Standard for Partial Body Contact
A&Ww = Surface Water Quality Standard for Aquatic and Wildlife (warm water)
(--) = no numerical standard
{--} = analysis performed by laboratory unlicensed for that method
[a] = standard for total 1,3-dichloropropylene
[b] = standard for total DDT and metabolites DDD and DDE
[c] = standard for total polychlorinated biphenyls
[d] = standard for total Endosulfan
** = Dependent upon sample hardness*
*** = Dependent upon pH*
C8 = Sample RPD between the primary and confirmatory analysis exceeded 40%. Per EPA Method 8000C, the lower value was reported as there was no evidence of chromatographic problems.
D1 = Sample required dilution due to matrix
D2 = Sample required dilution due to high concentration of analyte
E4 = Concentration estimated. Analyte was detected below laboratory minimum reporting level (MRL) but above the MDL.
E8 = Analyte reported to the MDL per project specification. Target analyte was not detected in sample
H1 = Sample analysis performed past holding time.
H4 = Sample was extracted past the required exctraction hold time but analyzed within the analysis hold time
K5 = The dilution water D.O. depletion was >0.2 mg/L.
K6 = Glucose/glutamic acid BOD/CBOD was below method acceptance criteria.
K9 = Test replicates show more than 30% difference between high and low values
L4 = The associated blank spike recovery was below method acceptance limits. Sample was reextracted past holding time with confirmatory results.
M2 = Matric spike recovery was low, the associated blank recovery was acceptable
N1 = See case narrative
Q9 = Insufficent Sample received to meet method QC requirements
R2 = RPD/RSD exceeded the laboratory acceptance limit.The %RPD of the laboratory control sample (LCS) and laboratory control standard duplicate (LCSD) for preparation
R6 = LFB/LFBD RPD exceeded the method acceptance limit. Recovery met acceptance criteria.
V1 = Continuing Calibration Verification recovery was above the method acceptance limits. This target analyte was not detected in the sample.
°F = degrees Fahrenheit
mg/L = milligrams per liter
ug/L = micrograms per liter
T = Total recoverable
TWC - Time Weighted Composite
D = on Dissolved
BLUE *Indicates a SWQS*
BOLD RED *Indicates a SWQS exceedance*
BOLD *Indicates detection limit greater than the applicable SWQS*

2015-2016 SAMPLING DATES
- *A - Sampling Event 06-06-15*
- *B - Sampling Event 06-29-15*
- *C - Sampling Event 07-06-15*
- *D - Sampling Event 07-18-15*
- *E - Sampling Event 08-19-15*
- *F - Sampling Event 08-31-15*
- *G - Sampling Event10-18-15*
- *H - Sampling Event 01-07-16*
- *I - Sampling Event 02-01-16*

2016-2017 Sampling Dates
- *A - Sampling event 8-5-16*
- *B - Sampling event 6-30-16*
- *C - Sampling Event 7-18-16*
- *D - Sampling Event 7-29-16*
- *E - Sampling Event 8-2-16*
- *F - Sampling Event 11-3-16*
- *G - Sampling Event 11-21-2016*
- *H - Sampling Event 11-27-2016*
- *I - Sampling Event 12-22-2016*
- *J -Sampling Event 12-31-2016*

2016-2017 Sampling Dates
- *A - Sampling event 8-3-17*
- *B - Sampling event 12-17-17*
- *C - Sampling event 1-9-18*

2018-2019 Sampling Dates
- *A - Sampling Event 6-16-18*
- *B - Sampling Event 7-9-18*
- *C - Sampling Event 11-30-18*
- *D - Sampling Event 01-06-19*
- *E - Sampling Event 01-15-19*
- *F - Sampling Event 02-03-19*

2019-2020 Sampling Dates
- *A - Sampling Event 7-24-19*
- *B - Sampling Event 8-28-19*
- *C - Sampling Event 11-19-19*
- *D - Sampling Event 11-29-19*

CITY OF SCOTTSDALE
STORMWATER SAMPLING RESULTS
Camelback Monitoring Station

Monitoring Location ID: 130570
Receiving Water: Indian Bend Wash
Designated Uses: PBC & A&Ww Acute

	Units	2016 Annual Report						2017 Annual Report					
		Summer 2015			Winter 2015/16			SUMMER 2016			WINTER 2016/17		
		Results	Qualifier	A&We Acute	Results	Qualifier	A&We Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute
CONVENTIONAL PARAMETERS													
Average flow for sampling period	gpm	281		--			--	1110.58			265.63		
pH (field reading)		7.99		--	7.22		--	6.78			7.29		
Water Temperature (field reading)	(°F)	71.1		--	54.5		--	40.1			71.96		
pH (field reading)		7.18						7.42			7.67		
Water Temperature (field reading)	(°F)	47.1						77.18			56.66		
Total Dissolved Solids (TDS)	mg/L	700		--	150		--	390			178		
Total Suspended Solids (TSS)	mg/L	50		--	468		--	328			32		
Biological Oxygen Demand (BOD)	mg/L	15		--	18.9	K5|K6	--	64.32			8.18		
Chemical Oxygen Demand (COD)	mg/L	92		--	219		--	428			77		
INORGANICS													
Cyanide, total	mg/L	<0.050	E8	84 T	<0.050	E8	84 T	<0.050	E8	41 T	<0.050	E8	41 T
NUTRIENTS													
Nitrate as N	mg/L	0.3		--	1.2		--	2.3		--	0.65		--
Nitrite as N	mg/L	<0.2		--	<0.2		--	<0.2		--	<0.10	E8	--
Nitrate+Nitrite as N	mg/L	<.0.4		--	1.2		--	2.3		--	0.65		--
Ammonia as N	mg/L	0.627		--	0.935		--	2.804		42.0 **	0.669		14.4 **
Total Kjeldahl nitrogen (TKN as N)	mg/L	1.486		--	3.45		--	7.265		--	1.326		--
Total Phosphorous	mg/L	0.271		--	0.669	D2	--	0.48921	D2	--	0.33919	D2	--
Orthophosphate (Total)	mg/L	<0.2		--	<0.2		--	0.543		--	0.19		--
MICROBIOLOGICAL													
Escherichia coli (E coli)	MPN/100 ml	>2419		--	1413.6		--	6373.1		--	22168		--
TOTAL METALS													
Antimony	µg/L	<1.0 [e]		--	2.1		--	2		88 D	<1.0		88 D
Arsenic	µg/L	6.4 [e]		440 D	6.7		440 D	5.7		340 D	4		340 D
Barium	µg/L	103 [e]		--	175		--	142		--	43.7		--
Beryllium	µg/L	<1.0 [e]		--	<1.0		--	<1.0		--	<1.0		--
Cadmium	µg/L	<1.0 [e]		14.32*	<1.0		24.80*	<1.0		9.78 *	<1.0		6.72 *
Chromium (total)	µg/L	7.0 [e]		--	16.0		--	13.1		--	5		--
Copper	µg/L	25.2 [e]		14.83*	48.5		25.23*	59.7		16.58 *	12.7		11.53 *
Lead	µg/L	9.8 [e]		80.70*	16.6		149.68*	12.2		82.27 *	1.9		54.08 *
Mercury	µg/L	<0.2 [e]		5.0 D	<0.2	E8	5.0 D	<0.2	E8	2.4 D	<0.2	E8|L5	2.4 D
Nickel	µg/L	8.0 [e]		2775*	13.2		4473*	14.6		566 *	2.4		408 *
Selenium	µg/L	<1.0 [e]		33 T	<1.0		33 T	<1.0		--	<1.0		--
Silver	µg/L	<1.0 [e]		1.41*	<1.0		3.73*	<1.0		4.72 *	<1.0		2.43 *
Thallium	µg/L	<1.0 [e]		700 D	<1.0		700 D	<1.0		700 D	<1.0		700 D
Zinc	µg/L	190 [e]		742*	394		1196*	688		141.6 *	67		102.1 *
Hardness	mg/L	61.6		--	109		--	125		--	85.1		--
ORGANIC TOXIC POLLUTANTS													
Total (C10-C32)	mg/L	0.098 [e]	E8	--	0.62		--	0.63		--	0.74		--
Total Oil and Grease	mg/L	<5.2	E8	--	<5.7		--			--			--
VOLATILE ORGANIC COMPOUNDS													
1,1,1-trichloroethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	2600	<2.0	E8	2600
1,1,2,2-tetrachloroethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	4700	<2.0	E8	4700
1,1,2-trichloroethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	18000	<2.0	E8	18000
1,1-dichloroethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--
1,1-dichloroethylene	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	15000	<5.0	E8	15000
1,2,4-Trimethylbenzene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--
1,2-dichlorobenzene	µg/L	<2.0	E8	5900	<2.0	E8	5900	<2.0	E8	1200	<2.0	E8	1200
1,2-dichloroethane	µg/L	<2.0	E8|R6	--	<2.0	E8	--	<2.0	E8	59000	<2.0	E8	59000
1,2-dichloropropane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	26000	<2.0	E8	26000
1,3,5-Trimethylbenzene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--
1,3-dichlorobenzene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	2500	<2.0	E8	2500
1,4-dichlorobenzene	µg/L	<2.0	E8	6500	<2.0	E8	6500	<2.0	E8	2000	<2.0	E8	2000
2-chloroethylvinyl ether	µg/L	<3.0	E8	--	<3.0	E8	--	<5.0		180000	<3.0	E8	180000
Acrolein	µg/L	<20	E8	--	<20	E8	--	<50		34	<20	E8	34
Acrylonitrile	µg/L	<20	E8	--	<20	E8	--	<50		3800	<20	E8	3800
Benzene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	2700	<2.0	E8	2700
Bromodichloromethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--
Bromoform	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	15000	<5.0	E8	15000
Bromomethane	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	5500	<5.0	E8	5500
Carbon tetrachloride	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	18000	<5.0	E8	18000
Chlorobenzene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	3800	<2.0	E8	3800
Chloroethane	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	--	<5.0	E8	--
Chloroform	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	14000	<2.0	E8	14000
Chloromethane	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	270000	<5.0	E8	270000
cis-1,3-dichloropropylene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--
Dibromochloromethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--
Ethyl benzene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	23000	<2.0	E8	23000
Methylene chloride	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	97000	<5.0	E8	97000
Tetrachloroethylene	µg/L	<2.0	E8	15000	<2.0	E8	15000	<2.0	E8	6500	<2.0	E8	6500
Toluene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	8700	<2.0	E8	8700
trans-1,2-dichloroethylene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	68000	<2.0	E8	68000
trans-1,3-Dichloropropene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	3000 [a]	<2.0	E8	3000 [a]
Trichloroethylene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	20000	<2.0	E8	20000
Vinyl chloride	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	--	<5.0	E8	--
Xylenes, total	µg/L	<10	E8	--	<10	E8	--	<10	E8	--	<10	E8	--

	Units	2018 Annual Report						2019 Annual Report					
		Summer 2017			Winter 2017/18			Summer 2018			Winter 2018/19		
		Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute
CONVENTIONAL PARAMETERS													
Average flow for sampling period	gpm												
pH (field reading)		7.03		--	7.12		--			--	6.03		--
Water Temperature (field reading)	(°F)	82.4		--	55.04		--			--	61.34		--
pH (field reading)					7.04								
Water Temperature (field reading)	(°F)				46.4								
Total Dissolved Solids (TDS)	mg/L	136	B1	--	122		--	314		--	116	R2	--
Total Suspended Solids (TSS)	mg/L	152		--	62		--	122		--	18	R2	--
Biological Oxygen Demand (BOD)	mg/L	26.31		--	29	K5	--	58.56		--	17.33		--
Chemical Oxygen Demand (COD)	mg/L	223		--	118		--	296		--	104		--
INORGANICS													
Cyanide, total	mg/L	<0.050		41 T	<0.050	E8	41 T	<0.050			<0.050		41 T
NUTRIENTS													
Nitrate as N	mg/L	1.2		--	1.8		--	1.8		--	0.8		--
Nitrite as N	mg/L	<0.2		--	<0.2		--	<0.2		--	<0.2		--
Nitrate+Nitrite as N	mg/L	1.2		--	1.8		--	1.8		--	0.8		--
Ammonia as N	mg/L	1.863			1.500			2.683			1.086		48.8 **
Total Kjeldahl nitrogen (TKN as N)	mg/L	3.894		--	3.101		--	5.73		--	1.49		--
Total Phosphorous	mg/L	0.79904	D2	--	0.29679		--	0.75	D2	--	0.222	M3	--
Orthophosphate (Total)	mg/L	0.3		--	<0.2		--	0.51		--	0.225		--
MICROBIOLOGICAL													
Escherichia coli (E coli)	MPN/100 ml	14043		--	558.4		--	13566		--	953		--
TOTAL METALS													
Antimony	µg/L	1.3		88 D	1.0		88 D	2.0		88 D	<1.0		88 D
Arsenic	µg/L	4.2		340 D	1.8		340 D	5.0		340 D	1.6		340 D
Barium	µg/L	117		--	33.5		--	87.4		--	26.5		--
Beryllium	µg/L	<1.0		--	<1.0		--	<1.0		--	<1.0		--
Cadmium	µg/L	<1.0		6.18 *	<1.0		3.38 *	<1.0		4.3 *	<1.0		1.56 *
Chromium (total)	µg/L	10.6		--	6.0		--	7.3		--	4.7		--
Copper	µg/L	45.9		10.63 *	17.2		5.93 *	47.6		13.4 *	14.9		5.6 *
Lead	µg/L	20.4		49.22 *	5.1		24.82 *	11.1		64.6 *	3.6		23.2 *
Mercury	µg/L	<0.2		2.4 D	<0.2	E8	2.4 D	<0.2	E8	2.4 D	<0.2		2.4 D
Nickel	µg/L	13.3		379 *	4.0		225 *	12.4		468 *	3.3		213 *
Selenium	µg/L	<1.0		--	<1.0		--	<1.0	L3	--	<1.0		--
Silver	µg/L	<1.0		2.10 *	<1.0		0.72 *	<1.0		3.2 *	<1.0		0.65 *
Thallium	µg/L	<1.0		700 D	<1.0		700 D	<1.0		700 D	<1.0		700 D
Zinc	µg/L	293		94.9 *	314		70 *	206.0	L3	117 *	121		53.3 *
Hardness	mg/L	78.3		--	42.4		--	100		--	39.5		--
ORGANIC TOXIC POLLUTANTS													
Total (C10-C32)	mg/L	0.58	Q9	--	2.4		--	1.5	Q9	--	0.88		--
Total Oil and Grease	mg/L	<5.4		--	<5.4	E8	--	<5.4		--	<5.2	E8	--
VOLATILE ORGANIC COMPOUNDS													
1,1,1-trichloroethane	µg/L							<2.0	E8	2600	<2.0	E8	2600
1,1,2,2-tetrachloroethane	µg/L							<2.0	E8	4700	<2.0	E8	4700
1,1,2-trichloroethane	µg/L							<2.0	E8	18000	<2.0	E8	18000
1,1-dichloroethane	µg/L							<2.0	E8	--	<2.0	E8	--
1,1-dichloroethylene	µg/L							<5.0	E8	15000	<5.0	E8	15000
1,2,4-Trimethylbenzene	µg/L							<2.0	E8	--	<2.0	E8	--
1,2-dichlorobenzene	µg/L							<2.0	E8	1200	<2.0	E8	1200
1,2-dichloroethane	µg/L							<2.0	E8	59000	<2.0	E8	59000
1,2-dichloropropane	µg/L							<2.0	E8	26000	<2.0	E8	26000
1,3,5-Trimethylbenzene	µg/L							<2.0	E8	--	<2.0	E8	--
1,3-dichlorobenzene	µg/L							<2.0	E8	2500	<2.0	E8	2500
1,4-dichlorobenzene	µg/L							<2.0	E8	2000	<2.0	E8	2000
2-chloroethylvinyl ether	µg/L							<3.0	E8	180000	<5.0	E8	180000
Acrolein	µg/L							<20	E8	34	<50	E8	34
Acrylonitrile	µg/L							<20	E8	3800	<50	E8	3800
Benzene	µg/L							<2.0	E8	2700	<2.0	E8	2700
Bromodichloromethane	µg/L							<2.0	E8	--	<2.0	E8	--
Bromoform	µg/L							<5.0	E8	15000	<5.0	E8	15000
Bromomethane	µg/L							<5.0	E8	5500	<5.0	E8	5500
Carbon tetrachloride	µg/L							<5.0	E8	18000	<5.0	E8	18000
Chlorobenzene	µg/L							<2.0	E8	3800	<2.0	E8	3800
Chloroethane	µg/L							<5.0	E8	--	<5.0	E8	--
Chloroform	µg/L							<2.0	E8	14000	<2.0	E8	14000
Chloromethane	µg/L							<5.0	E8	270000	<5.0	E8	270000
cis-1,3-dichloropropylene	µg/L							<2.0	E8	--	<2.0	E8	--
Dibromochloromethane	µg/L							<2.0	E8	--	<2.0	E8	--
Ethyl benzene	µg/L							<2.0	E8	23000	<2.0	E8	23000
Methylene chloride	µg/L							<5.0	E8	97000	<5.0	E8	97000
Tetrachloroethylene	µg/L							<2.0	E8	6500	<2.0	E8	6500
Toluene	µg/L							<2.0	E8	8700	<2.0	E8	8700
trans-1,2-dichloroethylene	µg/L							<2.0	E8	68000	<2.0	E8	68000
trans-1,3-Dichloropropene	µg/L									3000 [a]			3000 [a]
Trichloroethylene	µg/L							<2.0	E8	20000	<2.0	E8	20000
Vinyl chloride	µg/L							<5.0	E8	--	<5.0	E8	--
Xylenes, total	µg/L							<10	E8	--	<10	E8	--

	Units	2020 Annual Report						PBC
		Summer 2019			Winter 2019/20			
		Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	
CONVENTIONAL PARAMETERS								
Average flow for sampling period	gpm	475			53			
pH (field reading)		7.27		--	7.58		--	6.5-9
Water Temperature (field reading)	(°F)	84.74		--	64.04		--	--
pH (field reading)								
Water Temperature (field reading)	(°F)							
Total Dissolved Solids (TDS)	mg/L	316			230		--	--
Total Suspended Solids (TSS)	mg/L	448			34		--	--
Biological Oxygen Demand (BOD)	mg/L	75.03	K6		32.76		--	--
Chemical Oxygen Demand (COD)	mg/L	363			150		--	--
INORGANICS								
Cyanide, total	mg/L	<0.050			<0.050	E8	41 T	18667 T
NUTRIENTS								
Nitrate as N	mg/L	2.1			0.9		--	--
Nitrite as N	mg/L	0			0		--	--
Nitrate+Nitrite as N	mg/L	2.1			0.9		--	--
Ammonia as N	mg/L	2.4		27.2 **	1.022		17.6 **	--
Total Kjeldahl nitrogen (TKN as N)	mg/L	7.02			2.32		--	--
Total Phosphorous	mg/L	1.26	D2		0.47		--	--
Orthophosphate (Total)	mg/L	0.561			0.356		--	--
MICROBIOLOGICAL								
Escherichia coli (E coli)	MPN/100 ml	155310		--	3597.5		--	575
TOTAL METALS								
Antimony	µg/L	2.2		88D	<1.0		88 D	747 T
Arsenic	µg/L	7.8		340 D	4.4		340 D	280 T
Barium	µg/L	173		--	39.5		--	98000 T
Beryllium	µg/L	<1.0		--	<1.0		--	1867 T
Cadmium	µg/L	<1.0		6.52 *	<1.0		3.77 *	700 T
Chromium (total)	µg/L	13.7		--	3.9		--	--
Copper	µg/L	60.4		19.44 *	20.1		12.08 *	1300 T
Lead	µg/L	19.5		98.70 *	3.4		57.08 *	15 T
Mercury	µg/L	<0.20		2.4 D	<0.20		2.4 D	280 T
Nickel	µg/L	19.8		652.39 *	4.7		425.49 *	28000 T
Selenium	µg/L	1.1		--	<1.0		--	4667 T
Silver	µg/L	<1.0		6.31 *	<1.0		2.65 *	4667 T
Thallium	µg/L	<1.0		700 D	<1.0		700 D	75 T
Zinc	µg/L	431		163.35 *	98		106.47 *	280000 T
Hardness	mg/L	148		--	89.3		--	--
ORGANIC TOXIC POLLUTANTS								
Total (C10-C32)	mg/L	0.86	N1	--	0.9	N1	--	--
Total Oil and Grease	mg/L	<5.1		--	<5.1	E8	--	--
VOLATILE ORGANIC COMPOUNDS								
1,1,1-trichloroethane	µg/L							1866667
1,1,2,2-tetrachloroethane	µg/L							93333
1,1,2-trichloroethane	µg/L							3733
1,1-dichloroethane	µg/L							--
1,1-dichloroethylene	µg/L							46667
1,2,4-Trimethylbenzene	µg/L							--
1,2-dichlorobenzene	µg/L							84000
1,2-dichloroethane	µg/L							186667
1,2-dichloropropane	µg/L							84000
1,3,5-Trimethylbenzene	µg/L							--
1,3-dichlorobenzene	µg/L							--
1,4-dichlorobenzene	µg/L							373333
2-chloroethylvinyl ether	µg/L							--
Acrolein	µg/L							467
Acrylonitrile	µg/L							37333
Benzene	µg/L							3733
Bromodichloromethane	µg/L							18667
Bromoform	µg/L							18667
Bromomethane	µg/L							1307
Carbon tetrachloride	µg/L							1307
Chlorobenzene	µg/L							18667
Chloroethane	µg/L							--
Chloroform	µg/L							9333
Chloromethane	µg/L							--
cis-1,3-dichloropropylene	µg/L							28000 [a]
Dibromochloromethane	µg/L							18667
Ethyl benzene	µg/L							93333
Methylene chloride	µg/L							56000
Tetrachloroethylene	µg/L							9333
Toluene	µg/L							373333
trans-1,2-dichloroethylene	µg/L							18667
trans-1,3-Dichloropropene	µg/L							28000 [a]
Trichloroethylene	µg/L							280
Vinyl chloride	µg/L							2800
Xylenes, total	µg/L							186667

CITY OF SCOTTSDALE
STORMWATER SAMPLING RESULTS
Camelback Monitoring Station

Monitoring Location ID: 130570 **Receiving Water: Indian Bend Wash** **Designated Uses: PBC & A&Ww Acute**	Units	2016 Annual Report						2017 Annual Report						2018 Annual Report						2019 Annual Report						2020 Annual Report						PBC
		Summer 2015			Winter 2015/16			SUMMER 2016			WINTER 2016/17			Summer 2017			Winter 2017/18			Summer 2018			Winter 2018/19			Summer 2019			Winter 2019/20			
		Results	Qualifier	A&We Acute	Results	Qualifier	A&We Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	
SEMIVOLATILE ORGANIC COMPOUNDS – ACID EXTRACTABLES																																
1,2,4-trichlorobenzene	µg/L	<16	E8	--	<88	E8	--	<4.5	E8	1700	<840	E8	1700							<10	E8	1700	<41	D5	1700							9333
1,2-diphenylhydrazine (as azobenzene)	µg/L	<41	E8	130	**<220**	E8	130	<11	E8	130	<2100	E8	130							<10	E8	130	<41	D5	130							1.8
2,4,6-trichlorophenol	µg/L	<41	E8	3000	**<220**	E8	3000	<11	E8	160	<2100	E8	160							<20	E8	160	<82	D5	160							130
2,4-dichlorophenol	µg/L	<41	E8	--	<220	E8	--	<11	E8	1000	<2100	E8	1000							<10	E8	1000	<41	D5	1000							2800
2,4-dimethylphenol	µg/L	<41	E8	150000	<220	E8	150000	<11	E8	1000	<2100	E8|R6	1000							<10	E8	1000	<41	D5	1000							18667
2,4-dinitrophenol	µg/L	<120	E8	--	<660	E8	--	<34	E8	110	<6300	E8	110							<50	E8	110	<200	D5	110							1867
2,4-dinitrotoluene	µg/L	<41	E8	--	<220	E8	--	<11	E8	14000	<2100	E8	14000							<10	E8	14000	<41	D5	14000							1867
2,6-dinitrotoluene	µg/L	<41	E8	--	<220	E8	--	<11	E8	--	<2100	E8	--							<10	E8	--	<41	D5	--							3733
2-chlorophenol	µg/L	<41	E8	--	<220	E8	--	<11	E8	2200	<2100	E8	2200							<10	E8	2200	<41	D5	2200							4667
2-nitrophenol	µg/L	<41	E8	--	<220	E8	--	<11	E8	--	<2100	E8	--							<15	E8	--	<61	D5	--							--
3,3'-dichlorobenzidine	µg/L	<210	E8	--	**<1100**	E8	--	<56	E8	--	<11000	E8	--							<10	E8	--	<41	D5	--							3
4,6-dinitro-2-methylphenol	µg/L	<210	E8	--	<1100	E8	--	<56	E8	310	<11000	E8	310							<50	E8	310	<200	D5	310							3733
4-chloro-3-methylphenol	µg/L	<41	E8	48000	<220	E8	48000	<11	E8	15	<2100	E8	15							<10	E8	15	<41	D5	15							--
4-nitrophenol	µg/L	<41	E8	--	<220	E8	--	1.4	E4	4100	<2100	E8	4100							<25	E8	4100	<100	D5	4100							--
Acenaphthene	µg/L	<16	E8	--	<88	E8	--	<4.5	E8	850	<840	E8	850							<10	E8	850	<41	D5	850							56000
Anthracene	µg/L	<16	E8	--	<88	E8	--	<4.5	E8	--	<840	E8	--							<10	E8	--	<41	D5	--							280000
Benzo(a)anthracene	µg/L	<16	E8	--	**<88**	E8	--	<4.5	E8	--	<840	E8	--							<10	E8	--	<41	D5	--							0.2
Benzo(a)pyrene	µg/L	<16	E8	--	**<88**	E8	--	<4.5	E8	--	<840	E8	--							<10	E8	--	<41	D5	--							0.2
Benzo(b)fluoranthene	µg/L	<16	E8	--	**<88**	E8	--	<4.5	E8	--	<840	E8	--							<10	E8	--	<41	D5	--							1.9
Benzo(g,h,i)perylene	µg/L	<16	E8	--	<88	E8	--	<4.5	E8	--	<840	E8	--							<10	E8	--	<41	D5	--							--
Benzo(k)fluoranthene	µg/L	<16	E8	--	<88	E8	--	<4.5	E8	--	<840	E8	--							<10	E8	--	<41	D5	--							1.9
Chrysene	µg/L	<16	E8	--	**<88**	E8	--	<4.5	E8	--	<840	E8	--							<10	E8	--	<41	D5	--							19
Dibenzo(a,h)anthracene	µg/L	<16	E8	--	**<88**	E8	--	<4.5	E8	--	<840	E8	--							<10	E8	--	<41	D5	--							1.9
Diethyl phthalate	µg/L	<16	E8	--	<88	E8	--	<4.5	E8	26000	<840	E8	26000							<10	E8	26000	<41	D5	26000							746667
Dimethyl phthalate	µg/L	<16	E8	--	<88	E8	--	<4.5	E8	17000	<840	E8	17000							<20	E8	17000	<82	D5	17000							--
Di-n-butyl phthalate	µg/L	<16	E8	470	<88	E8	470	<4.5	E8	470	<840	E8	470							<10	E8	470	<41	D5	470							93333
Di-n-octyl phthalate	µg/L	<16	E8	--	<88	E8	--	<4.5	E8	--	<840	E8	--							<10	E8	--	<41	D5	--							373333
Fluoranthene	µg/L	<16	E8	--	<88	E8	--	<4.5	E8	2000	<840	E8	2000							<10	E8	2000	<41	D5	2000							37333
Fluorene	µg/L	<16	E8	--	<88	E8	--	<4.5	E8	--	<840	E8	--							<10	E8	--	<41	D5	--							37333
Hexachlorobenzene	µg/L	<41	E8	--	<220	E8	--	<11	E8	6	<2100	E8	6							<10	E8	6	<41	D5	6							747
Hexachlorobutadiene	µg/L	<41	E8	--	**<220**	E8	--	<11	E8	45	<2100	E8	45							<10	E8	45	<41	D5	45							187
Hexachlorocyclopentadiene	µg/L	<210	E8	--	<1100	E8	--	<56	E8	3.5	<11000	E8	3.5							<10	E8	3.5	<41	D5	3.5							11200
Hexachloroethane	µg/L	<41	E8	850	<220	E8	850	<11	E8	490	<2100	E8	490							<10	E8	490	<41	D5	490							933
Indeno(1,2,3-cd)pyrene	µg/L	<16	E8	--	**<88**	E8	--	<4.5	E8	--	<840	E8	--							<10	E8	--	<41	D5	--							1.9
Isophorone	µg/L	<41	E8	--	<220	E8	--	<11	E8	59000	<2100	E8	59000							<10	E8	59000	<41	D5	59000							186667
Naphthalene	µg/L	<16	E8	--	<88	E8	--	<4.5	E8	3200	<840	E8	3200							<10	E8	3200	<41	D5	3200							18667
Nitrobenzene	µg/L	<41	E8	--	<220	E8	--	<11	E8	1300	<2100	E8	1300							<10	E8	1300	<41	D5	1300							467
N-nitrosodimethylamine	µg/L	<41	E8	--	**<220**	E8	--	<11	E8	--	<2100	E8|L4|R6	--							<10	E8	--	<41	D5	--							0.03
N-nitrosodi-n-propylamine	µg/L	<41	E8	--	<220	E8	--	<11	E8	--	<2100	E8	--							<10	E8	--	<41	D5	--							88667
N-nitrosodiphenylamine	µg/L	<41	E8	--	<220	E8	--	<11	E8	2900	<2100	E8	2900							<10	E8	2900	<41	D5	2900							290
Pentachlorophenol	µg/L	<210	E8	7.001**	**<1100**	E8	7.001**	<56	E8	13.558 **	<11000	E8	18.329 **							<50	E8	18.329 **	<200	D5	18.329 **							28000
Phenanthrene	µg/L	<16	E8	--	<88	E8	--	<4.5	E8	30	<840	E8	30							<10	E8	30	<41	D5	30							--
Phenol	µg/L	<41	E8	180,000	<220	E8	180,000	<11	E8	7000	<2100	E8	7000							<10	E8	7000	<41	D5	7000							280000
Pyrene	µg/L	<41	E8	NNS	<220	E8	NNS	<11	E8	--	<2100	E8	--							<10	E8	--	<41	D5	--							28000

CITY OF SCOTTSDALE
STORMWATER SAMPLING RESULTS
Camelback Monitoring Station

Monitoring Location ID: 130570 Receiving Water: Indian Bend Wash Designated Uses: PBC & A&Ww Acute	Units	2016 Annual Report						2017 Annual Report						2018 Annual Report						2019 Annual Report						2020 Annual Report						PBC
		Summer 2015			Winter 2015/16			SUMMER 2016			WINTER 2016/17			Summer 2017			Winter 2017/18			Summer 2018			Winter 2018/19			Summer 2019			Winter 2019/20			
		Results	Qualifier	A&We Acute	Results	Qualifier	A&We Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	
PCBs/ PESTICIDES																																
4,4-Dichlorodiphenyl dichloroethane (DDD)	µg/L	<0.047	E8	1.1 [b]	<0.050	E8	1.1 [b]	<0.051	E8	1.1 [b]	<0.049	E8	1.1 [b]							<0.20	D5|E8	1.1 [b]	<0.10		1.1 [b]							467 [b]
4,4-Dichlorodiphenyl dichloroethylene (DDE)	µg/L	<0.047	E8	1.1 [b]	<0.050	E8	1.1 [b]	0.011	E4	1.1 [b]	<0.049	E8	1.1 [b]							<0.20	D5|E8	1.1 [b]	<0.10		1.1 [b]							467 [b]
4,4-Dichlorodiphenyl trichloroethane (DDT)	µg/L	<0.047	E8	1.1 [b]	<0.050	E8	1.1 [b]	<0.051	E8	1.1 [b]	<0.049	E8	1.1 [b]							<0.20	D5|E8	1.1 [b]	<0.10		1.1 [b]							467 [b]
Aldrin	µg/L	<0.047	E8	4.5	<0.050	E8	4.5	0.0042	C8|E4	3	<0.049	E8	3							<0.10	E8	3	<0.10		3							28
Alpha-BHC	µg/L	<0.047	E8	1600	<0.050	E8	1600	<0.051	E8	1600	<0.049	E8	1600							<0.10	E8	1600	<0.10		1600							7467
Aroclor-1016	µg/L	<0.96	E8	11 [c]	<1.0	E8	11 [c]	<1	E8	2 [c]	<0.97	E8	2 [c]							<2.4	E8	2 [c]	<1.0		2 [c]							19 [c]
Aroclor-1221	µg/L	<0.96	E8	11 [c]	<1.0	E8	11 [c]	<1	E8	2 [c]	<0.97	E8	2 [c]							<2.4	E8	2 [c]	<1.0		2 [c]							19 [c]
Aroclor-1232	µg/L	<0.96	E8	11 [c]	<1.0	E8	11 [c]	<1	E8	2 [c]	<0.97	E8	2 [c]							<2.4	E8	2 [c]	<1.0		2 [c]							19 [c]
Aroclor-1242	µg/L	<0.96	E8	11 [c]	<1.0	E8	11 [c]	<1	E8	2 [c]	<0.97	E8	2 [c]							<2.4	E8	2 [c]	<1.0		2 [c]							19 [c]
Aroclor-1248	µg/L	<0.96	E8	11 [c]	<1.0	E8	11 [c]	<1	E8	2 [c]	<0.97	E8	2 [c]							<2.4	E8	2 [c]	<1.0		2 [c]							19 [c]
Aroclor-1254	µg/L	<0.96	E8	11 [c]	<1.0	E8	11 [c]	<1	E8	2 [c]	<0.97	E8	2 [c]							<2.4	E8	2 [c]	<1.0		2 [c]							19 [c]
Aroclor-1260	µg/L	<0.96	E8	11 [c]	<1.0	E8	11 [c]	<1	E8	2 [c]	<0.97	E8	2 [c]							<2.4	E8	2 [c]	<1.0		2 [c]							19 [c]
Beta-BHC	µg/L	<0.047	E8	1600	0.015	E4	1600	<0.051	E8	1600	<0.049	E8	1600							<0.10	E8	1600	<0.10		1600							560
Chlordane	µg/L	<0.47	E8	3.2	<0.50	E8	3.2	<0.51	E8	2.4	<0.049	E8	2.4							<1.0	E8	2.4	<0.5		2.4							467
Delta-BHC	µg/L	<0.047	E8	1600	<0.050	E8	1600	<0.051	E8	1600	<0.049	E8	1600							<0.10	E8	1600	<0.10		1600							--
Dieldrin	µg/L	<0.047	E8	4	<0.050	E8	4	<0.051	E8	0.2	<0.049	E8	0.2							<0.10	E8	0.2	<0.10		0.2							47
Endosulfan I	µg/L	<0.047	E8	3 [d]	<0.050	E8	3 [d]	<0.051	E8	0.2 [d]	<0.049	E8	0.2 [d]							<0.10	E8	0.2 [d]	<0.10		0.2 [d]							5600 [d]
Endosulfan II	µg/L	<0.047	E8	3 [d]	<0.050	E8	3 [d]	<0.051	E8	0.2 [d]	<0.049	E8	0.2 [d]							<0.20	D5|E8	0.2 [d]	<0.10		0.2 [d]							5600 [d]
Endosulfan sulfate	µg/L	<0.047	E8	3	<0.050	E8	3	<0.051	E8	0.2	<0.049	E8	0.2							<0.10	E8	0.2	<0.10	V1	0.2							5600
Endrin	µg/L	<0.047	E8	0.7	<0.050	E8	0.7	<0.051	E8	0.09	<0.049	E8	0.09							<0.10	E8	0.09	<0.10		0.09							280
Endrin aldehyde	µg/L	<0.047	E8	0.7	<0.050	E8	0.7	<0.051	E8	0.09	<0.049	E8	0.09							<0.40	D5|E8	0.09	<0.20	V1	0.09							--
Gamma-BHC	µg/L	<0.047	E8	11	<0.050	E8	11	<0.051	E8	1	<0.049	E8	1							<0.10	E8	1	<0.10		1							280
Heptachlor	µg/L	<0.047	E8	0.9	<0.050	E8	0.9	<0.051	E8	0.5	<0.049	E8	0.5							<0.20	E8	0.5	<0.20		0.5							467
Heptachlor epoxide	µg/L	<0.047	E8	0.9	<0.050	E8	0.9	<0.051	E8	0.5	<0.049	E8	0.5							<0.10	E8	0.5	<0.10		0.5							12
Toxaphene	µg/L	<1.9	E8	11	<2.0	E8	11	<2.0	E8	0.7	<1.9	E8	0.7							<4.00	E8	0.7	<4.0		0.7							933

NOTES:

PBC = Surface Water Quality Standard for Partial Body Contact
A&Ww = Surface Water Quality Standard for Aquatic and Wildlife (warm wat
(--) = no numerical standard
[a] = standard for total 1,3-dichloropropylene
[b] = standard for total DDT and metabolites DDD and DDE
[c] = standard for total polychlorinated biphenyls
[d] = standard for total Endosulfan
** = Dependent upon sample hardness*
*** = Dependent upon pH*
B1 = Target analyte detected in method blank at or above the method reporting limit
C8 = Sample RPD between the primary and confirmatory analysis exceeded 40%. Per EPA Method 8000C, the lower value was reported as there was no evidence of chromatographic problems.
D1 = Sample required dilution due to matrix
D2 = Sample required dilution due to high concentration of analyte
E4: Concentration estimated. Analyte was detected below laboratory minimum reporting level (MRL) but above the MDL.
E8 = Analyte reported to the MDL per project specification. Target analyte was not detected in sample
H4 = Sample was extracted past the required exctraction hold time but analyzed within the analysis hold time
K1 = The sample dilutions set-up for the BOD analysis did not meet the oxygen depletion criteria of at least 2 mg/L. Any reported result is an estimated value.
K5 = The dilution water D.O. depletion was >0.2 mg/L.
K6 = Glucose/glutamic acid BOD/CBOD was below method acceptance criteria.
L4 = The associated blank spike recovery was below method acceptance limits. Sample was reextracted past holding time with confirmatory results.
L5 = The associated blank spike recovery was above laboratory/method acceptance limits. This analyte was not detected in the sample.
M2 = Matric spike recovery was low, the associated blank recovery was acceptable
N1 = Screening level data
Q9 = Insufficent Sample received to meet method QC requirements
R2 = RPD/RSD exceeded the laboratory acceptance limit.The %RPD of the laboratory control sample (LCS) and laboratory control standard duplicate (LCSD) for preparationbatch 10516 recovered outside control limits for the following analytes: C10 - C32 Hydrocarbons.
R6 = LFB/LFBD RPD exceeded the method acceptance limit. Recovery met acceptance criteria.
V1 = Continuing Calibration Verification recovery was above the method acceptance limits. This target analyte was not detected in the sample.
°F = degrees Fahrenheit
mg/L = milligrams per liter
ug/L = micrograms per liter
T = Total recoverable
TWC - Time Weighted Composite
D = Dissolved
BLUE *Indicates a SWQS*
BOLD RED *Indicates a SWQS exceedance*
BOLD *Indicates detection limit greater than the applicable SWQS*

2015-2016 Sampling Dates
A *- Sampling Event 06-06-15*
B *- Sampling Event 06-29-15*
C *- Sampling Event 07-06-15*
D *- Sampling Event 07-18/19-15*
E *- Sampling Event 08-31-15*
F *- Sampling Event10-18-15*
G *- Sampling Event 01-07-16*
H *- Sampling Event 02-01-16*

2016-2017 Sampling Dates
A *- Sampling event 8-5-16*
B *- Sampling event 6-30-16*
C *- Sampling Event 7-18-16*
D *- Sampling Event 7-29-16*
E *- Sampling Event 8-2-16*
F *- Sampling Event 11-3-16*
G *- Sampling Event 11-21-2016*
H *- Sampling Event 11-27-2016*
I *- Sampling Event 12-22-2016*
J *-Sampling Event 12-31-2016*

2017-2018 Sampling Dates
A *- Sampling event 7-17-17*
B *- Sampling Event 12-17-17*
C *- Sampling Event 1-10-18*

2018-2019 Sampling Dates
A *- Samping Event 6-16-18*
B - *Sampling Event 7-9-18*
C - *Sampling Event 11-30-18*
D - *Sampling Event 01-06-19*
E - *Sampling Event 01-15-19*
F - *Sampling Event 02-03-19*

2019-2020 Sampling Dates
A - *Sampling Event 7-22-19*
B - *Sampling Event 7-31-19*
C - *Sampling Event 11-19-19*

CITY OF SCOTTSDALE
STORMWATER SAMPLING RESULTS
Chaparral Monitoring Station

Monitoring Location ID: 130820 Receiving Water: Indian Bend Wash Designated Uses: PBC & A&Ww Acute	Units	2016 Annual Report						2017 Annual Report					
		Summer 2015			Winter 2015/16			SUMMER 2016			WINTER 2016/17		
		Results	Qualifier	A&We Acute	Results	Qualifier	A&We Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute
CONVENTIONAL PARAMETERS													
Average flow for sampling period	gpm							31.73		--	342		--
Average flow for sampling period	gpm	--		--			--				85.1		--
Average flow for sampling period	gpm	--		--			--	451.03		--	377		--
pH (field reading)		7.23		--	8.01		--	7.2		--	7.53		--
Water Temperature (field reading)	(°F)	81.9		--	53.8		--	77		--	82.22		--
pH (field reading)		--					--	6.03		--	7.26		--
Water Temperature (field reading)	(°F)	--					--	55.76		--	68.54		--
Total Dissolved Solids (TDS)	mg/L	--		--	66		--	272		--	54		--
Total Suspended Solids (TSS)	mg/L	--		--	12		--	114		--	52		--
Biological Oxygen Demand (BOD)	mg/L	--		--	3.55	K1|K6	--	40.78		--	6.7		--
Chemical Oxygen Demand (COD)	mg/L	--		--	40		--	327		--	74		--
INORGANICS													
Cyanide, total	mg/L	<0.050	E8	84 T	<0.050	E8	84 T	<0.050		41 T	<0.050	E8	41 T
NUTRIENTS													
Nitrate as N	mg/l			--			--	1.5		--	0.55		--
Nitrite as N	mg/l			--			--	<0.2		--	<0.10	E8	--
Nitrate+Nitrite as N	mg/L	--		--	<0.4		--	1.5		--	0.55		--
Ammonia as N	mg/L	--		--	0.149		--	2.814		29.5 **	0.521		19.9 **
Total Kjeldahl nitrogen (TKN as N)	mg/L	--		--	<0.50		--	7.794		--	1.342		--
Total Phosphorous	mg/L	--		--	0.117		--	0.50552	D2	--	0.27396		--
Orthophosphate (Total)	mg/L	--		--	<0.2		--	0.4821		--	0.12		--
MICROBIOLOGICAL													
Escherichia coli (E coli)	MPN/100 ml	>2419.6		--	879		--	2997.2		--	1699		--
TOTAL METALS													
Antimony	µg/L	2.2		--	<1.0		--	3		88 D	1.6		88 D
Arsenic	µg/L	11.7		440 D	1.1		440 D	3.3		340 D	1.4		340 D
Barium	µg/L	409		--	21.1		--	97.1		--	42.3		--
Beryllium	µg/L	<2.0		--	<1.0		--	<1.0		--	<1.0		--
Cadmium	µg/L	<2.0		42.98 *	<1.0		*	<1.0		6.64 *	<1.0		2.60 *
Chromium (total)	µg/L	54.8		--	1.5		--	5.5		--	3		--
Copper	µg/L	1110		43.01 *	5.3		7.95 *	37.0		11.40 *	17.1		4.59 *
Lead	µg/L	62.0		275.12*	1.7		38.66*	8.6		53.39 *	5.7		18.32 *
Mercury	µg/L	0.24		5.0 D	<0.2	E8	5.0 D	<0.2	E8	2.4 D	<0.2	E8|L5	2.4 D
Nickel	µg/L	66.7		7221*	1.1		72*	14.7		404 *	3.3		179 *
Selenium	µg/L	<2.0		33 T	<1.0		33 T	<1.0		--	<1.0		--
Silver	µg/L	<2.0		9.88*	<1.0		0.45*	<1.0		2.38 *	<1.0		0.45 *
Thallium	µg/L	<2.0		700 D	<1.0		700 D	<1.0		700 D	<1.0		700 D
Zinc	µg/L	1060		1933*	33		423*	44.1		101.1 *	115		44.6 *
Hardness	mg/L	192		--	32.1		--	84.3		--	31.5		--
ORGANIC TOXIC POLLUTANTS													
Total (C10-C32)	mg/L	0.64		--	0.15		--	0.82		--	0.32		--
Total Oil and Grease	mg/L	<5.3	E8	--	<5.3	E8	--			--			--
VOLATILE ORGANIC COMPOUNDS													
1,1,1-trichloroethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	2600	<2.0	E8	2600
1,1,2,2-tetrachloroethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	4700	<2.0	E8	4700
1,1,2-trichloroethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	18000	<2.0	E8	18000
1,1-dichloroethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--
1,1-dichloroethylene	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	15000	<5.0	E8	15000
1,2,4-Trimethylbenzene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--
1,2-dichlorobenzene	µg/L	<2.0	E8	5900	<2.0	E8	5900	<2.0	E8	1200	<2.0	E8	1200
1,2-dichloroethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	59000	<2.0	E8	59000
1,2-dichloropropane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	26000	<2.0	E8	26000
1,3,5-Trimethylbenzene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--
1,3-dichlorobenzene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	2500	<2.0	E8	2500
1,4-dichlorobenzene	µg/L	<2.0	E8	6500	<2.0	E8	6500	<2.0	E8	2000	<2.0	E8	2000
2-chloroethylvinyl ether	µg/L	<3.0	E8	--	<3.0	E8	--	<5.0		180000	<3.0	E8	180000
Acrolein	µg/L	<20	E8|M2|R4	--	<20	E8	--	<50		34	<20	E8	34
Acrylonitrile	µg/L	<20	E8	--	<20	E8	--	<50		3800	<20	E8	3800
Benzene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	2700	<2.0	E8	2700
Bromodichloromethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--
Bromoform	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	15000	<5.0	E8	15000
Bromomethane	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	5500	<5.0	E8	5500
Carbon tetrachloride	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	18000	<5.0	E8	18000
Chlorobenzene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	3800	<2.0	E8	3800
Chloroethane	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	--	<5.0	E8	--
Chloroform	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	14000	<2.0	E8	14000
Chloromethane	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	270000	<5.0	E8	270000
cis-1,3-dichloropropylene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--
Dibromochloromethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--
Ethyl benzene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	23000	<2.0	E8	23000
Methylene chloride	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	97000	<5.0	E8	97000
Tetrachloroethylene	µg/L	<2.0	E8	15000	<2.0	E8	15000	<2.0	E8	6500	<2.0	E8	6500
Toluene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	8700	<2.0	E8	8700
trans-1,2-dichloroethylene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	68000	<2.0	E8	68000
trans-1,3-Dichloropropene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	3000 [a]	<2.0	E8	3000 [a]
Trichloroethylene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	20000	<2.0	E8	20000
Vinyl chloride	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	--	<5.0	E8	--
Xylenes, total	µg/L	<10	E8	--	<10	E8	--	<10	E8	--	<10	E8	--

Parameter	2018 Annual Report						2019 Annual Report						2020 Annual Report						PBC
	Summer 2017			Winter 2017/18			Summer 2018			Winter 2018/19			Summer 2019			Winter 2019/20			
	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	
CONVENTIONAL PARAMETERS																			
Average flow for sampling period																			--
Average flow for sampling period																			--
Average flow for sampling period													295			738			
pH (field reading)	7.08		--	7.31		--	6.56		--	5.67		--	7.17		--	6.68		--	6.5-9
Water Temperature (field reading)	84.2		--	57.2		--	78.8		--	56.3		--	82.04		--	60.8		--	--
pH (field reading)							6.86		--										
Water Temperature (field reading)							88.16		--										
Total Dissolved Solids (TDS)	<20	N1	--	100	P1|R1	--	100		--	74		--	66		--	14		--	--
Total Suspended Solids (TSS)	104		--	76		--	158		--	22		--	24		--	80		--	--
Biological Oxygen Demand (BOD)	8.37	K6	--	21.65	K5	--	35.37		--	5.87		--	16.93	K6	--	6.65		--	--
Chemical Oxygen Demand (COD)	130	M2	--	140		--	135		--	58		--	72		--	33		--	--
INORGANICS																			
Cyanide, total	<0.050		41 T	<0.050		41 T	<0.050			<0.050	E8		<0.050			<0.050			18667 T
NUTRIENTS																			
Nitrate as N	0.9		--	0.9		--	0.8		--	1		--	0.6		--	0.3		--	--
Nitrite as N	<0.2		--	<0.2		--	<0.2		--	<0.2		--	0		--	0		--	--
Nitrate+Nitrite as N	0.9		--	0.9		--	0.8		--	1		--	0.6		--	0.3		--	--
Ammonia as N	0.774		32.8 **	1.158		26.2 **	2.64		47.7 **	0.504		48.8 **	0.657		30.5 **	0.247		45.0 **	--
Total Kjeldahl nitrogen (TKN as N)	3.639		--	2.31		--	3.215		--	0.878		--	1.702		--	0.955		--	--
Total Phosphorous	0.35223	D2	--	0.30657	D2	--	0.5283	D2	--	0.137		--	0.27		--	0.15		--	--
Orthophosphate (Total)	0.15		--	<0.2	H1	--	0.35		--	0.161		--	0.256		--	<0.20		--	--
MICROBIOLOGICAL																			
Escherichia coli (E coli)	943.6		--	211.6		--	2908		--	1461.6		--	9678.4		--	6807.5		--	575
TOTAL METALS																			
Antimony	1.4		88 D	2.1		88 D	2.4		88 D	1.2		88 D	1.5		88 D	<1.0		88 D	747 T
Arsenic	2.1		340 D	1.7		340 D	2.7		340 D	1.4		340 D	1.5		340 D	1.2		340 D	280 T
Barium	54.6		--	35.7		--	88.6		--	24.4		--	19.4		--	35.4		--	98000 T
Beryllium	<1.0		--	<1.0		--	<1.0		--	<1.0		--	<1.0		--	<1.0		--	1867 T
Cadmium	<1.0		2.83 *	<1.0		2.91 *	<1.0		1.86 *	<1.0		1.0 *	<1.0		0.93 *	<1.0		0.70 *	700 T
Chromium (total)	3.8		--	2.6		--	5.5		--	1.7		--	1.3		--	3.0		--	--
Copper	18.1		5.00 *	21.3		5.13 *	29.9		6.55 *	11.3		3.82 *	8.2		3.57 *	11.4		2.80 *	1300 T
Lead	10.9		20.25 *	4.4		20.90 *	9.9		27.87 *	2.6		14.7 *	1.8		13.57 *	4.6		10.12 *	15 T
Mercury	<0.2		2.4 D	<0.2		2.4 D	<0.2		2.4 D	<0.20		2.4 D	<0.2		2.4 D	<0.2		2.4 D	280 T
Nickel	4.9		193 *	3.5		197 *	6.7		245.4 *	1.8		151.3 *	1.7		142.46 *	2.8		114.38 *	28000 T
Selenium	<1.0		--	<1.0		--	<1.0		--	<1.0		--	<1.0		--	<1.0		--	4667 T
Silver	<1.0		0.53 *	<1.0		0.55 *	<1.0		0.87 *	<1.0		0.32 *	<1.0		0.29 *	<1.0		0.18 *	4667 T
Thallium	<1.0		700 D	<1.0		700 D	<1.0		700 D	<1.0		700 D	<1.0		700 D	<1.0		700 D	75 T
Zinc	158		48.1 *	203		49.3 *	272		61.36 *	112		37.8 *	99		35.59 *	158		28.56 *	280000 T
Hardness	34.6		--	35.7		--	46.6		--	26.3		--	24.5		--	18.9		--	--
ORGANIC TOXIC POLLUTANTS																			
Total (C10-C32)	0.39	Q9	--	0.75	L3|N1|Q9	--	0.55	Q9	--	0.32	Q9	--	0.61	N1	--	0.6		--	--
Total Oil and Grease	<5.4		--	<5.5		--	<4.1	E8	--	<5.2	E8	--	<5.2		--	<5.2		--	--
VOLATILE ORGANIC COMPOUNDS																			
1,1,1-trichloroethane							<4.0	D1|E8	2600	<2.0	E8	2600							1866667
1,1,2,2-tetrachloroethane							<4.0	D1|E8	4700	<2.0	E8	4700							93333
1,1,2-trichloroethane							<4.0	D1|E8	18000	<2.0	E8	18000							3733
1,1-dichloroethane							<4.0	D1|E8	--	<5.0	E8	--							--
1,1-dichloroethylene							<10.0	D1|E8	15000	<2.0	E8	15000							46667
1,2,4-Trimethylbenzene							<4.0	D1|E8	--	<2.0	E8	--							--
1,2-dichlorobenzene							<4.0	D1|E8	1200	<2.0	E8	1200							84000
1,2-dichloroethane							<4.0	D1|E8	59000	<2.0	E8	59000							186667
1,2-dichloropropane							<4.0	D1|E8	26000	<2.0	E8	26000							84000
1,3,5-Trimethylbenzene							<4.0	D1|E8	--	<2.0	E8	--							--
1,3-dichlorobenzene							<4.0	D1|E8	2500	<2.0	E8	2500							--
1,4-dichlorobenzene							<4.0	D1|E8	2000	<2.0	E8	2000							373333
2-chloroethylvinyl ether							<5.0	E8	180000	<5.0	E8	180000							--
Acrolein							<50	E8	34	<50	E8	34							467
Acrylonitrile							<50	E8	3800	<50	E8	3800							37333
Benzene							<4.0	D1|E8	2700	<2.0	E8	2700							3733
Bromodichloromethane							<4.0	D1|E8	--	<2.0	E8	--							18667
Bromoform							<10.0	D1|E8	15000	<5.0	E8	15000							18667
Bromomethane							<10.0	D1|E8	5500	<5.0	E8	5500							1307
Carbon tetrachloride							<10.0	D1|E8	18000	<5.0	E8	18000							1307
Chlorobenzene							<4.0	D1|E8	3800	<2.0	E8	3800							18667
Chloroethane							<10.0	D1|E8	--	<5.0	E8	--							--
Chloroform							<4.0	D1|E8	14000	<2.0	E8	14000							9333
Chloromethane							<10.0	D1|E8	270000	<5.0	E8	270000							--
cis-1,3-dichloropropylene							<4.0	D1|E8	--	<2.0	E8	--							28000 [a]
Dibromochloromethane							<4.0	D1|E8	--	<2.0	E8	--							18667
Ethyl benzene							<4.0	D1|E8	23000	<2.0	E8	23000							93333
Methylene chloride							<10.0	D1|E8	97000	<5.0	E8	97000							56000
Tetrachloroethylene							<4.0	D1|E8	6500	<2.0	E8	6500							9333
Toluene							<4.0	D1|E8	8700	<2.0	E8	8700							373333
trans-1,2-dichloroethylene							<4.0	D1|E8	68000	<2.0	E8	68000							18667
trans-1,3-Dichloropropene									3000 [a]			3000 [a]							28000 [a]
Trichloroethylene							<4.0	D1|E8	20000	<2.0	E8	20000							280
Vinyl chloride							<10.0	D1|E8	--	<5.0	E8	--							2800
Xylenes, total							<20	D1|E8	--	<10	E8	--							186667

CITY OF SCOTTSDALE
STORMWATER SAMPLING RESULTS
Chaparral Monitoring Station

		2016 Annual Report						2017 Annual Report						2018 Annual Report						2019 Annual Report						2020 Annual Report						
		Summer 2015			Winter 2015/16			SUMMER 2016			WINTER 2016/17			Summer 2017			Winter 2017/18			Summer 2018			Winter 2018/19			Summer 2019			Winter 2019/20			PBC
Monitoring Location ID: 130820 **Receiving Water: Indian Bend Wash** **Designated Uses: PBC & A&Ww Acute**	Units	Results	Qualifier	A&We Acute	Results	Qualifier	A&We Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	
SEMIVOLATILE ORGANIC COMPOUNDS – ACID EXTRACTABLES																																
1,2,4-trichlorobenzene	µg/L	--		--	<4.1	E8	--	<15	E8	1700	<4.2	E8	1700							<10	E8	1700	<10		1700							9333
1,2-diphenylhydrazine (as azobenzene)	µg/L	--		130	**<10**	E8	130	<38	E8	130	<10	E8	130							<10	E8	130	<10		130							1.8
2,4,6-trichlorophenol	µg/L	--		3000	<10	E8	3000	<38	E8	160	<10	E8	160							<20	E8	160	<20		160							130
2,4-dichlorophenol	µg/L	--		--	<10	E8	--	<38	E8	1000	<10	E8	1000							<10	E8	1000	<10		1000							2800
2,4-dimethylphenol	µg/L	--		150000	<10	E8	150000	<38	E8	1000	<10	E8|R6	1000							<10	E8	1000	<10		1000							18667
2,4-dinitrophenol	µg/L	--		--	<31	E8	--	<110	E8	110	<31	E8	110							<50	E8	110	<50		110							1867
2,4-dinitrotoluene	µg/L	--		--	<10	E8	--	<38	E8	14000	<10	E8	14000							<10	E8	14000	<10		14000							1867
2,6-dinitrotoluene	µg/L	--		--	<10	E8	--	<38	E8	--	<10	E8	--							<10	E8	--	<10		--							3733
2-chlorophenol	µg/L	--		--	<10	E8	--	<38	E8	2200	<10	E8	2200							<10	E8	2200	<10		2200							4667
2-nitrophenol	µg/L	--		--	<10	E8	--	<38	E8	--	<10	E8	--							<15	E8	--	<15		--							--
3,3'-dichlorobenzidine	µg/L	--		--	**<51**	E8	--	<190	E8	--	<52	E8	--							<10	E8|M2	--	<10		--							3
4,6-dinitro-2-methylphenol	µg/L	--		--	<51	E8	--	<190	E8	310	<52	E8	310							<50	E8	310	<50		310							3733
4-chloro-3-methylphenol	µg/L	--		48000	<10	E8	48000	<38	E8	15	<10	E8	15							<10	E8	15	<10		15							--
4-nitrophenol	µg/L	--		--	<10	E8	--	<38	E8	4100	<10	E8	4100							<25	E8	4100	<25		4100							--
Acenaphthene	µg/L	--		--	<4.1	E8	--	<15	E8	850	<4.2	E8	850							<10	E8	850	<4.2		850							56000
Anthracene	µg/L	--		--	<4.1	E8	--	<15	E8	--	<4.2	E8	--							<10	E8	--	<4.2		--							280000
Benzo(a)anthracene	µg/L	--		--	**<4.1**	E8	--	<15	E8	--	<4.2	E8	--							<10	E8	--	<4.2		--							0.2
Benzo(a)pyrene	µg/L	--		--	**<4.1**	E8	--	<15	E8	--	<4.2	E8	--							<10	E8	--	<4.2		--							0.2
Benzo(b)fluoranthene	µg/L	--		--	**<4.1**	E8	--	<15	E8	--	<4.2	E8	--							<10	E8	--	<4.2		--							1.9
Benzo(g,h,i)perylene	µg/L	--		--	<4.1	E8	--	<15	E8	--	<4.2	E8	--							<10	E8	--	<4.2		--							--
Benzo(k)fluoranthene	µg/L	--		--	<4.1	E8	--	<15	E8	--	<4.2	E8	--							<10	E8	--	<4.2		--							1.9
Chrysene	µg/L	--		--	<4.1	E8	--	<15	E8	--	<4.2	E8	--							<10	E8	--	<10	L5	--							19
Dibenzo(a,h)anthracene	µg/L	--		--	**<4.1**	E8	--	<15	E8	--	<4.2	E8	--							<10	E8	--	<10		--							1.9
Diethyl phthalate	µg/L	--		--	<4.1	E8	--	<15	E8	26000	<4.2	E8	26000							<10	E8	26000	<10		26000							746667
Dimethyl phthalate	µg/L	--		--	<4.1	E8	--	<15	E8	17000	<4.2	E8	17000							<20	E8	17000	<20		17000							--
Di-n-butyl phthalate	µg/L	--		470	<4.1	E8	470	<15	E8	470	<4.2	E8	470							<10	E8	470	11		470							93333
Di-n-octyl phthalate	µg/L	--		--	<4.1	E8	--	<15	E8	--	<4.2	E8	--							<10	E8	--	<10		--							373333
Fluoranthene	µg/L	--		--	<4.1	E8	--	<15	E8	2000	<4.2	E8	2000							<10	E8	2000	<10		2000							37333
Fluorene	µg/L	--		--	<4.1	E8	--	<15	E8	--	<4.2	E8	--							<10	E8	--	<10		--							37333
Hexachlorobenzene	µg/L	--		--	<10	E8	--	<38	E8	6	<10	E8	6							<10	E8	6	<10		6							747
Hexachlorobutadiene	µg/L	--		--	<10	E8	--	<38	E8	45	<10	E8	45							<10	E8	45	<10		45							187
Hexachlorocyclopentadiene	µg/L	--		--	<51	E8	--	<190	E8	3.5	<52	E8	3.5							<10	E8	3.5	<10		3.5							11200
Hexachloroethane	µg/L	--		850	<10	E8	850	<38	E8	490	<10	E8	490							<10	E8	490	<10		490							933
Indeno(1,2,3-cd)pyrene	µg/L	--		--	**<4.1**	E8	--	<15	E8	--	<4.2	E8	--							<10	E8	--	<10		--							1.9
Isophorone	µg/L	--		--	<10	E8	--	<38	E8	59000	<10	E8	59000							<10	E8	59000	<10		59000							186667
Naphthalene	µg/L	--		--	<4.1	E8	--	<15	E8	3200	<4.2	E8	3200							<10	E8	3200	<10		3200							18667
Nitrobenzene	µg/L	--		--	<10	E8	--	<38	E8	1300	<10	E8	1300							<10	E8	1300	<10		1300							467
N-nitrosodimethylamine	µg/L	--		--	**<10**	E8	--	<38	E8	--	<10	E8|L4|R6	--							<10	E8	--	<10		--							0.03
N-nitrosodi-n-propylamine	µg/L	--		--	<10	E8	--	<38	E8	--	<10	E8	--							<10	E8	--	<10		--							88667
N-nitrosodiphenylamine	µg/L	--		--	<10	E8	--	<38	E8	2900	<10	E8	2900							<10	E8	2900	<10		2900							290
Pentachlorophenol	µg/L	--		-- **	**<51**	E8	15.643**	<190	E8	3.320 **	<52	E8	14.992 **							<50	E8	14.992 **	<50		14.992 **							28000
Phenanthrene	µg/L	--		--	<4.1	E8	--	<15	E8	30	<4.2	E8	30							<10	E8	30	<10		30							--
Phenol	µg/L	--		180,000	<10	E8	180,000	<190	E8	7000	<10	E8	7000							2.6	E4	7000	<10		7000							280000
Pyrene	µg/L	--		NNS	<10	E8	NNS	<38	E8	--	<10	E8	--							<10	E8	--	<10		--							28000

Monitoring Location ID: 130820
Receiving Water: Indian Bend Wash
Designated Uses: PBC & A&Ww Acute

		2016 Annual Report						2017 Annual Report					
		Summer 2015			Winter 2015/16			SUMMER 2016			WINTER 2016/17		
	Units	Results	Qualifier	A&We Acute	Results	Qualifier	A&We Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute
PCBs/ PESTICIDES													
4,4-Dichlorodiphenyl dichloroethane (DDD)	µg/L	--		1.1 [b]	<0.046	E8|R6	1.1 [b]	<0.05	E8	1.1 [b]	<0.051	E8	1.1 [b]
4,4-Dichlorodiphenyl dichloroethylene (DDE)	µg/L	--		1.1 [b]	<0.046	E8|R6	1.1 [b]	<0.05	E8	1.1 [b]	<0.051	E8	1.1 [b]
4,4-Dichlorodiphenyl trichloroethane (DDT)	µg/L	--		1.1 [b]	<0.046	E8|R6	1.1 [b]	<0.05	E8	1.1 [b]	<0.051	E8	1.1 [b]
Aldrin	µg/L	--		4.5	<0.046	E8	4.5	<0.05	E8	3	<0.051	E8	3
Alpha-BHC	µg/L	--		1600	<0.046	E8|L4|R6	1600	<0.05	E8	1600	<0.051	E8	1600
Aroclor-1016	µg/L	--		11 [c]	<0.92	E8	11 [c]	<1	E8|R6	2 [c]	<1	E8	2 [c]
Aroclor-1221	µg/L	--		11 [c]	<0.92	E8	11 [c]	<1	E8	2 [c]	<1	E8	2 [c]
Aroclor-1232	µg/L	--		11 [c]	<0.92	E8	11 [c]	<1	E8	2 [c]	<1	E8	2 [c]
Aroclor-1242	µg/L	--		11 [c]	<0.92	E8	11 [c]	<1	E8	2 [c]	<1	E8	2 [c]
Aroclor-1248	µg/L	--		11 [c]	<0.92	E8	11 [c]	<1	E8	2 [c]	<1	E8	2 [c]
Aroclor-1254	µg/L	--		11 [c]	<0.92	E8	11 [c]	<1	E8	2 [c]	<1	E8	2 [c]
Aroclor-1260	µg/L	--		11 [c]	<0.92	E8	11 [c]	<1	E8|R6	2 [c]	<1	E8	2 [c]
Beta-BHC	µg/L	--		1600	<0.046	E8|R6	1600	<0.05	E8	1600	<0.051	E8	1600
Chlordane	µg/L	--		3.2	<0.46	E8	3.2	<0.5	E8	2.4	<0.051	E8	2.4
Delta-BHC	µg/L	--		1600	<0.046	E8|L4|R6	1600	<0.05	E8	1600	<0.051	E8	1600
Dieldrin	µg/L	--		4	<0.046	E8|L4|R6	4	0.0091	C8|E4	0.2	<0.051	E8	0.2
Endosulfan I	µg/L	--		3 [d]	<0.046	E8|R6	3 [d]	0.013	C8|E4	0.2 [d]	<0.051	E8	0.2 [d]
Endosulfan II	µg/L	--		3 [d]	<0.046	E8|L4|R6	3 [d]	<0.05	E8	0.2 [d]	<0.051	E8	0.2 [d]
Endosulfan sulfate	µg/L	--		3	<0.046	E8|L4|R6	3	<0.05	E8	0.2	<0.051	E8	0.2
Endrin	µg/L	--		0.7	<0.046	E8|L4|R6	0.7	0.004	C8|E4	0.09	<0.051	E8	0.09
Endrin aldehyde	µg/L	--		0.7	<0.046	E8|R6	0.7	0.0047	E4	0.09	<0.051	E8	0.09
Gamma-BHC	µg/L	--		11	<0.046	E8|L4|R6	11	0.09		1	<0.051	E8	1
Heptachlor	µg/L	--		0.9	<0.046	E8	0.9	0.059		0.5	<0.051	E8	0.5
Heptachlor epoxide	µg/L	--		0.9	<0.046	E8|L4|R6	0.9	<0.05	E8	0.5	<0.051	E8	0.5
Toxaphene	µg/L	--		11	<1.8	E8|V1	11	<2.0	E8	0.7	<2.1	E8	0.7

	2018 Annual Report						2019 Annual Report						2020 Annual Report						
	Summer 2017			Winter 2017/18			Summer 2018			Winter 2018/19			Summer 2019			Winter 2019/20			
	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	PBC
PCBs/ PESTICIDES																			
4,4-Dichlorodiphenyl dichloroethane (DDD)							<0.10		1.1 [b]	<0.10		1.1 [b]							467 [b]
4,4-Dichlorodiphenyl dichloroethylene (DDE)							<0.10		1.1 [b]	<0.10		1.1 [b]							467 [b]
4,4-Dichlorodiphenyl trichloroethane (DDT)							<0.10		1.1 [b]	<0.10		1.1 [b]							467 [b]
Aldrin							<0.10		3	<0.10		3							28
Alpha-BHC							<0.10		1600	<0.10		1600							7467
Aroclor-1016							<2.0	E8	2 [c]	<1.0		2 [c]							19 [c]
Aroclor-1221							<2.0	E8	2 [c]	<1.0		2 [c]							19 [c]
Aroclor-1232							<2.0	E8	2 [c]	<1.0		2 [c]							19 [c]
Aroclor-1242							<2.0	E8	2 [c]	<1.0		2 [c]							19 [c]
Aroclor-1248							<2.0	E8	2 [c]	<1.0		2 [c]							19 [c]
Aroclor-1254							<2.0	E8	2 [c]	<1.0		2 [c]							19 [c]
Aroclor-1260							<2.0	E8	2 [c]	<1.0		2 [c]							19 [c]
Beta-BHC							<0.10		1600	<0.10		1600							560
Chlordane							<0.10		2.4	<0.5	V1	2.4							467
Delta-BHC							<0.10		1600	<0.10		1600							--
Dieldrin							<0.10		0.2	<0.10		0.2							47
Endosulfan I							<0.10		0.2 [d]	<0.10		0.2 [d]							5600 [d]
Endosulfan II							<0.10		0.2 [d]	<0.10		0.2 [d]							5600 [d]
Endosulfan sulfate							<0.10		0.2	<0.10		0.2							5600
Endrin							<0.10		0.09	<0.10		0.09							280
Endrin aldehyde							<0.20		0.09	<0.20		0.09							--
Gamma-BHC							<0.10		1	<0.10		1							280
Heptachlor							<0.20		0.5	<0.20		0.5							467
Heptachlor epoxide							<0.20		0.5	<0.10		0.5							12
Toxaphene							<0.10		0.7	<4.0		0.7							933

NOTES:
PBC = Surface Water Quality Standard for Partial Body Contact
A&Ww = Surface Water Quality Standard for Aquatic and Wildlife (warm water)
(--) = no numerical standard
{--} = analysis performed by laboratory unlicensed for that method
[a] = standard for total 1,3-dichloropropylene
[b] = standard for total DDT and metabolites DDD and DDE
[c] = standard for total polychlorinated biphenyls
[d] = standard for total Endosulfan
** = Dependent upon sample hardness*
*** = Dependent upon pH*
B1 = Target analyte detected in method blank at or above the method reporting limit
C8 = Sample RPD between the primary and confirmatory analysis exceeded 40%. Per EPA Method 8000C, the lower value was reported as there was no evidence of chromatographic problems.
D1 = Sample required dilution due to matrix
D2 = Sample required dilution due to high concentration of analyte
E4 = Concentration estimated. Analyte was detected below laboratory minimum reporting level (MRL) but above the MDL.
E8 = Analyte reported to the MDL per project specification. Target analyte was not detected in sample
H1 = Sample analysis performed past holding time.
H4 = Sample was extracted past the required exctraction hold time but analyzed within the analysis hold time
K1 = The sample dilutions set-up for the BOD analysis did not meet the oxygen depletion criteria of at least 2 mg/L. Any reported result is an estimated value.
K5 = The dilution water D.O. depletion was >0.2 mg/L.
K6 = Glucose/glutamic acid BOD/CBOD was below method acceptance criteria.
L3 = The associated blank spike recovery was above method acceptance limits.
L4 = The associated blank spike recovery was below method acceptance limits. Sample was reextracted past holding time with confirmatory results.
L5 = The associated blank spike recovery was above laboratory/method acceptance limits. This analyte was not detected in the sample.
M2 = Matric spike recovery was low, the associated blank recovery was acceptable
N1 = Screening level data
P1 = The PQL check was above laboratory acceptance limits
Q9 = Insufficent Sample received to meet method QC requirements
R1 = RPD/RSD exceeded the acceptance limit.
R2 = RPD/RSD exceeded the laboratory acceptance limit.The %RPD of the laboratory control sample (LCS) and laboratory control standard duplicate (LCSD) for preparationbatch 10516 recovered outside control limits for the following analytes: C10 - C32 Hydrocarbons.
R6 = LFB/LFBD RPD exceeded the method acceptance limit. Recovery met acceptance criteria.
V1 = Continuing Calibration Verification recovery was above the method acceptance limits. This target analyte was not detected in the sample.
°F = degrees Fahrenheit
mg/L = milligrams per liter
ug/L = micrograms per liter
T = Total recoverable
TWC - Time Weighted Composite
D = Dissolved
BLUE *Indicates a SWQS*
BOLD RED *Indicates a SWQS exceedance*
BOLD *Indicates detection limit greater than the applicable SWQS*

2015-2016 SAMPLING DATES
A *- Sampling Event 06-06-15*
B *- Sampling Event 06-29-15*
C *- Sampling Event 07-06-15*
D *- Sampling Event 07-18-15*
E *- Sampling Event 08-19-15*
F *- Sampling Event 08-31-15*
G *- Sampling Event10-18-15*
H *- Sampling Event 01-07-16*
I *- Sampling Event 02-01-16*

2016-2017 Sampling Dates
A *- Sampling event 8-5-16*
B *- Sampling event 6-30-16*
C *- Sampling Event 7-18-16*
D *- Sampling Event 7-29-16*
E *- Sampling Event 8-2-16*
F *- Sampling Event 11-3-16*
G *- Sampling Event 11-21-2016*
H *- Sampling Event 11-27-2016*
I *- Sampling Event 12-22-2016*
J *- Sampling Event 12-31-2016*

2017-2018 Sampling Dates
A *- Sampling Event 8-3-17*
B *- Sampling Event 1-9-18*

2018-2019 Sampling Dates
A *- Samping Event 6-16-18*
B - *Sampling Event 7-9-18*
C - *Sampling Event 11-30-18*
D - *Sampling Event 01-06-19*
E - *Sampling Event 01-15-19*
F - *Sampling Event 02-03-19*

2019-2020 Sampling Dates
A - *Sampling Event 7-31-19*
B - *Sampling Event 11-20-19*
C - *Sampling Event 11-29-19*

CITY OF SCOTTSDALE
STORMWATER SAMPLING RESULTS
Thunderbird Monitoring Station

Monitoring Location ID: 250940 Receiving Water: Indian Bend Wash Designated Uses: PBC & A&Ww Acute	Units	2016 Annual Report						2017 Annual Report						2018 Annual Report						2019 Annual Report						2020 Annual Report						PBC
		Summer 2015			Winter 2015/16			SUMMER 2016			WINTER 2016/17			Summer 2017			Winter 2017/18			Summer 2018			Winter 2018/19			Summer 2019			Winter 2019/20			
		Results	Qualifier	A&We Acute	Results	Qualifier	A&We Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	
CONVENTIONAL PARAMETERS																																
Average flow for sampling period	gpm							160.03		--	63.43		--	9800		--			--													--
Average flow for sampling period	gpm	789		--			--	13957		--	57.88		--																			--
Average flow for sampling period	gpm	3546		--			--				4011.9		--													891			975			
pH (field reading)		7.15		--	8.11		--	7.26		--	7.51		--	6.81		--	6.73		--	7.11		--	6.05		--	7.54		--	7.62		--	6.5-9
Water Temperature (field reading)	(°F)	67.28		--	54.3		--	77		--	71.78		--	82.4		--	57.02		--	80.96		--	57.56		--	84.9		--	62.6		--	--
pH (field reading)											6.9		--				6.93		--													
Water Temperature (field reading)	(°F)										71.42		--				55.4		--													
Total Dissolved Solids (TDS)	mg/L	100		--	56		--	254		--	230		--	88		--	184		--	184		--	114		--	152		--	138		--	--
Total Suspended Solids (TSS)	mg/L	532		--	10		--	38		--	26		--	88		--	40		--	124		--	54		--	24		--	82		--	--
Biological Oxygen Demand (BOD)	mg/L	13	K5	--	3.32	K6|K1	--	30.48	K5	--	4.95		--	15.60		--	25	K5|R8	--	12.78		--	14.95		--	17.6	K6	--	14.47	K5|K6	--	--
Chemical Oxygen Demand (COD)	mg/L	115		--	<20		--	183		--	119		--	130		--	143		--	95	M1	--	105		--	139		--	132		--	--
INORGANICS																																
Cyanide, total	mg/L	<0.050	E8	84 T	<0.050	E8	84 T	<0.050	E8	41 T	<0.050	E8	41 T	<0.050		41 T	0.046	E4	41 T	<0.050	E8	41 T	<0.050		41 T	<0.050		41 T	<0.050	E8	41 T	18667 T
NUTRIENTS																																
Nitrate as N	mg/l			--			--	2.6	M3	--	2		--	1.9		--	2.1		--	6.4		--	3		--	1.8		--	1.5		--	--
Nitrite as N	mg/l			--			--	<0.25		--	0.093	E4	--	<0.2		--	<0.2		--	<0.2	D2	--	<0.2		--	<0.2		--	<0.2		--	--
Nitrate+Nitrite as N	mg/L	1.0		--	1.3		--	2.6		--	2.1		--	1.9		--	2.1		--	6.4		--	3		--	1.8		--	1.5		--	--
Ammonia as N	mg/L	1.191		--	0.158		--	2.335		26.2 **	1.349		19.9 **	1.995		42.0 **	2.480		44.6 **	1.534		32.5 **	1.344		48.8 **	1.579		18.7 **	0.807		16.5 **	--
Total Kjeldahl nitrogen (TKN as N)	mg/L	2.204		--	<0.50		--	3.964		--	2.426		--	4.018		--	1.545		--	2.548		--	1.694		--	2.909		--	1.52		--	--
Total Phosphorous	mg/L	0.636	D2	--	0.082		--	0.34245	D2	--	0.300331		--	0.36528	D2	--	0.49573	D2	--	0.3783	D2	--	0.244		--	0.26		--	0.21		--	--
Orthophosphate (Total)	mg/L	<0.2		--	<0.2		--	<0.2	M1	--	0.12		--	0.19		--	0.15		--	0.14		--	<0.2		--	0.223		--	<0.20		--	--
MICROBIOLOGICAL																																
Escherichia coli (E coli)	MPN/100 ml	>2419.6		--	171		--	20		--	71		--	484.2		--	241960		--	1252		--	176.4		--	992.4		--	245.2		--	575
TOTAL METALS																																
Antimony	µg/L	1.2		--	<1.0		--	1.9		88 D	2.8		88 D	1.0		88 D	2.1		88 D	1		88 D	1.3		88 D	1.5		88 D	2.5		88 D	747 T
Arsenic	µg/L	4.1		440 D	1.4		440 D	2.5		340 D	1.9		340 D	1.9		340 D	2.2		340 D	4.5		340 D	1.5		340 D	2.5		340 D	2.1		340 D	280 T
Barium	µg/L	151		--	15.7		--	75.4		--	60.2		--	55.4		--	43.3		--	88.8		--	45.6		--	38.5		--	65.6		--	98000 T
Beryllium	µg/L	<1.0		--	<1.0		--	<1.0		--	<1.0		--	<1.0		--	<1.0		--	<1.0		--	<1.0		--	<1.0		--	<1.0		--	1867 T
Cadmium	µg/L	<1.0		16.12*	<1.0		6.14*	<1.0		7.56 *	<1.0		6.41 *	<1.0		2.99 *	<1.0		4.55 *	<1.0		4.15 *	<1.0		1.88 *	<1.0		2.42 *	<1.0		2.15 *	700 T
Chromium (total)	µg/L	12.5		--	2.1		--	3.4		--	3.9		--	4.3		--	3.1		--	6.3		--	0.29		--	3.1		--	4.8		--	--
Copper	µg/L	**45.5**		16.62*	5.2		6.54*	42.8		12.93 *	34.2		11.02 *	**35.6**		5.27 *	**37.1**		7.91 *	**32.8**		13.12 *	**31.6**		6.61 *	**26.9**		8.2 *	**38.8**		7.4 *	1300 T
Lead	µg/L	16.5		92.24*	1.0		30.62*	3.7		61.77 *	3.9		51.30 *	10.6		21.55 *	3.8		34.84 *	9.2		62.82 *	4.1		28.2 *	2.3		36.33 *	5.4		32.21 *	15 T
Mercury	µg/L	0.069	E4	5.0 D	<0.2	E8	5.0 D	<0.2	E8	2.4 D	<0.2	E8|L5	2.4 D	<0.2		2.4 D	<0.2	E8	2.4 D	0.1	E4	2.4 D	0.45		2.4 D	<0.2		2.4 D	<0.2	E8	2.4 D	280 T
Nickel	µg/L	16.1		3075*	1.2		1330 *	7.7		452 *	5.3		392 *	6.3		202 *	4.6		291 *	8.4		458.3 *	4.6		247.6 *	5.9		300.50 *	6.8		274.09 *	28000 T
Selenium	µg/L	<1.0		33 T	<1.0		33 T	<1.0		--	<1.0		--	<1.0		--	<1.0		--	<1.0	L3	--	<1.0		--	<1.0		--	<1.0		--	4667 T
Silver	µg/L	<1.0		1.74*	<1.0		0.32*	<1.0		3.0 *	<1.0		2.24 *	<1.0		0.58 *	<1.0		1.22 *	<1.0		3.08 *	<1.0		0.88 *	<1.0		1.31 *	<1.0		1.08 *	4667 T
Thallium	µg/L	<1.0		700 D	<1.0		700 D	<1.0		700 D	<1.0		700 D	<1.0		700 D	<1.0		700 D	<1.0		700 D	<1.0		700 D	<1.0		700 D	<1.0		700 D	75 T
Zinc	µg/L	202		822*	12		355*	**119**		113.2 *	88		98 *	**149**		50.5 *	**122**		72.8 *	**116**	L3	114.7 *	**151**		61.9 *	**84**		75.15 *	**164**		68.54 *	280000 T
Hardness	mg/L	70		--	25.5		--	95.9		--	81.3		--	36.9		--	57.4		--	97.5		--	47.1		--	59.2		--	53.1		--	--
ORGANIC TOXIC POLLUTANTS																																
Total (C10-C32)	mg/L	0.44		--	0.41		--	2.2		--	2.5		--	0.48	Q9	--	1.93		--	1.1	H4|L3|N1|	--	0.51	Q9	--	1	N1	--	1.7	N1	--	--
Total Oil and Grease	mg/L	<5.5	E8	--	<6.0		--			--			--	<5.4		--	<5.3	E8	--	<5.4	E8	--	<5.1		--	<5.3		--	1.6	E4	--	--
VOLATILE ORGANIC COMPOUNDS																																
1,1,1-trichloroethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	2600	<2.0	E8	2600							<2.0	E8	2600	<20.0	D1	2600							1866667
1,1,2,2-tetrachloroethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	4700	<2.0	E8	4700							<2.0	E8	4700	<20.0	D1	4700							93333
1,1,2-trichloroethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	18000	<2.0	E8	18000							<2.0	E8	18000	<20.0	D1	18000							3733
1,1-dichloroethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--							<2.0	E8	--	<50.0	D1	--							--
1,1-dichloroethylene	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	15000	<5.0	E8	15000							<5.0	E8	15000	<50.0	D1	15000							46667
1,2,4-Trimethylbenzene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--							<2.0	E8	--	<20.0	D1	--							--
1,2-dichlorobenzene	µg/L	<2.0	E8	5900	<2.0	E8	5900	<2.0	E8	1200	<2.0	E8	1200							<2.0	E8	1200	<20.0	D1	1200							84000
1,2-dichloroethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	59000	<2.0	E8	59000							<2.0	E8	59000	<20.0	D1	59000							186667
1,2-dichloropropane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	26000	<2.0	E8	26000							<2.0	E8	26000	<20.0	D1	26000							84000
1,3,5-Trimethylbenzene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--							<2.0	E8	--	<20.0	D1	--							--
1,3-dichlorobenzene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	2500	<2.0	E8	2500							<2.0	E8	2500	<20.0	D1	2500							--
1,4-dichlorobenzene	µg/L	<2.0	E8	6500	<2.0	E8	6500	<2.0	E8	2000	<2.0	E8	2000							<2.0	E8	2000	<20.0	D1	2000							373333
2-chloroethylvinyl ether	µg/L	<3.0	E8	--	<3.0	E8	--	<5.0		180000	<3.0	E8	180000							<3.0	E8	180000	<20.0	D1	180000							--
Acrolein	µg/L	<20	E8	--	<20	E8	--	<50		34	<20	E8	34							<20	E8	34	<50	D1	34							467
Acrylonitrile	µg/L	<20	E8	--	<20	E8	--	<50		3800	<20	E8	3800							<20	E8	3800	<50	D1	3800							37333
Benzene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	2700	<2.0	E8	2700							<2.0	E8	2700	<20.0	D1	2700							3733
Bromodichloromethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--							<2.0	E8	--	<20.0	D1	--							18667
Bromoform	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	15000	<5.0	E8	15000							<5.0	E8	15000	<50.0	D1	15000							18667
Bromomethane	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	5500	<5.0	E8	5500							<5.0	E8	5500	<50.0	D1	5500							1307
Carbon tetrachloride	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	18000	<5.0	E8	18000							<5.0	E8	18000	<50.0	D1	18000							1307
Chlorobenzene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	3800	<2.0	E8	3800							<2.0	E8	3800	<20.0	D1	3800							18667
Chloroethane	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	--	<5.0	E8	--							<5.0	E8	--	<50.0	D1	--							--
Chloroform	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	14000	<2.0	E8	14000							<2.0	E8	14000	<20.0	D1	14000							9333
Chloromethane	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	270000	<5.0	E8	270000							<5.0	E8	270000	<50.0	D1	270000							--
cis-1,3-dichloropropylene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--							<2.0	E8	--	<20.0	D1	--							28000 [a]
Dibromochloromethane	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--	<2.0	E8	--							<2.0	E8	--	<20.0	D1	--							18667
Ethyl benzene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	23000	<2.0	E8	23000							<2.0	E8	23000	<20.0	D1	23000							93333
Methylene chloride	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	97000	<5.0	E8	97000							1.1	E8	97000	<50.0	D1	97000							56000
Tetrachloroethylene	µg/L	<2.0	E8	15000	<2.0	E8	15000	<2.0	E8	6500	<2.0	E8	6500							<2.0	E8	6500	<20.0	D1	6500							9333
Toluene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	8700	<2.0	E8	8700							<2.0	E8	8700	<20.0	D1	8700							373333
trans-1,2-dichloroethylene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	68000	<2.0	E8	68000							<2.0	E8	68000	<20.0	D1	68000							18667
trans-1,3-Dichloropropene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	3000 [a]	<2.0	E8	3000 [a]									3000 [a]			3000 [a]							28000 [a]
Trichloroethylene	µg/L	<2.0	E8	--	<2.0	E8	--	<2.0	E8	20000	<2.0	E8	20000							<2.0	E8	20000	<20.0	D1	20000							280
Vinyl chloride	µg/L	<5.0	E8	--	<5.0	E8	--	<5.0	E8	--	<5.0	E8	--							<5.0	E8	--	<50.0	D1	--							2800
Xylenes, total	µg/L	<10.0	E8	--	<10.0	E8	--	<10	E8	--	92	E8	--							<10	E8	--	<100	D1	--							186667

		2016 Annual Report						2017 Annual Report						2018 Annual Report						2019 Annual Report						2020 Annual Report						
Monitoring Location ID: 250940		Summer 2015			Winter 2015/16			SUMMER 2016			WINTER 2016/17			Summer 2017			Winter 2017/18			Summer 2018			Winter 2018/19			Summer 2019			Winter 2019/20			PBC
Receiving Water: Indian Bend Wash **Designated Uses: PBC & A&Ww Acute**	Units	Results	Qualifier	A&We Acute	Results	Qualifier	A&We Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	
SEMIVOLATILE ORGANIC COMPOUNDS – ACID EXTRACTABLES																																
1,2,4-trichlorobenzene	µg/L	<17	E8	--	<4.1	E8	--	<18	E8	1700	<4.2	E8	1700							<10	E8	1700	<11		1700							9333
1,2-diphenylhydrazine (as azobenzene)	µg/L	**<42**	E8	130	**<10**	E8	130	<44	E8	130	<11	E8	130							<10	E8	130	<11		130							1.8
2,4,6-trichlorophenol	µg/L	<42	E8	3000	<10	E8	3000	<44	E8	160	<11	E8	160							<10	E8	160	<21		160							130
2,4-dichlorophenol	µg/L	<42	E8	--	<10	E8	--	<44	E8	1000	<11	E8	1000							<10	E8	1000	<11		1000							2800
2,4-dimethylphenol	µg/L	<42	E8	150000	<10	E8	150000	<44	E8	1000	<11	E8|R6	1000							<10	E8	1000	<11		1000							18667
2,4-dinitrophenol	µg/L	<130	E8	--	<31	E8	--	<130	E8	110	<32	E8	110							<10	E8	110	<53		110							1867
2,4-dinitrotoluene	µg/L	<42	E8	--	<10	E8	--	<44	E8	14000	<11	E8	14000							<10	E8	14000	<11		14000							1867
2,6-dinitrotoluene	µg/L	<42	E8	--	<10	E8	--	<44	E8	--	<11	E8	--							<10	E8	--	<11		--							3733
2-chlorophenol	µg/L	<42	E8	--	<10	E8	--	<44	E8	2200	<11	E8	2200							<10	E8	2200	<11		2200							4667
2-nitrophenol	µg/L	<42	E8	--	<10	E8	--	<44	E8	--	<11	E8	--							<10	E8	--	<16		--							--
3,3'-dichlorobenzidine	µg/L	**<210**	E8	--	**<52**	E8	--	<220	E8	--	<53	E8	--							<10	E8	--	<11		--							3
4,6-dinitro-2-methylphenol	µg/L	<210	E8	--	<52	E8	--	<220	E8	310	<53	E8	310							<10	E8	310	<11		310							3733
4-chloro-3-methylphenol	µg/L	<42	E8	48000	<10	E8	48000	<44	E8	15	<11	E8	15							<10	E8	15	<11		15							--
4-nitrophenol	µg/L	<42	E8	--	<10	E8	--	<44	E8	4100	<11	E8	4100							<10	E8	4100	<26	L4|N1	4100							--
Acenaphthene	µg/L	<17	E8	--	<4.1	E8	--	<18	E8	850	<4.2	E8	850							<10	E8	850	<11		850							56000
Anthracene	µg/L	<17	E8	--	<4.1	E8	--	<18	E8	--	<4.2	E8	--							<10	E8	--	<11		--							280000
Benzo(a)anthracene	µg/L	**<17**	E8	--	**<4.1**	E8	--	<18	E8	--	<4.2	E8	--							<10	E8	--	<11		--							0.2
Benzo(a)pyrene	µg/L	**<17**	E8	--	**<4.1**	E8	--	<18	E8	--	<4.2	E8	--							<10	E8	--	<11		--							0.2
Benzo(b)fluoranthene	µg/L	**<17**	E8	--	**<4.1**	E8	--	<18	E8	--	<4.2	E8	--							<10	E8	--	<11		--							1.9
Benzo(g,h,i)perylene	µg/L	<17	E8	--	<4.1	E8	--	<18	E8	--	<4.2	E8	--							<10	E8	--	<11		--							--
Benzo(k)fluoranthene	µg/L	<17	E8	--	<4.1	E8	--	<18	E8	--	<4.2	E8	--							<10	E8	--	<11		--							1.9
Chrysene	µg/L	<17	E8	--	<4.1	E8	--	<18	E8	--	<4.2	E8	--							<10	E8	--	<11		--							19
Dibenzo(a,h)anthracene	µg/L	**<17**	E8	--	**<4.1**	E8	--	<18	E8	--	<4.2	E8	--							<10	E8	--	<11		--							1.9
Diethyl phthalate	µg/L	<17	E8	--	<4.1	E8	--	<18	E8	26000	<4.2	E8	26000							<20	E8	26000	<11		26000							746667
Dimethyl phthalate	µg/L	<17	E8	--	<4.1	E8	--	<18	E8	17000	<4.2	E8	17000							<10	E8	17000	<21		17000							--
Di-n-butyl phthalate	µg/L	<17	E8	470	<4.1	E8	470	<18	E8	470	<4.2	E8	470							<10	E8	470	<11		470							93333
Di-n-octyl phthalate	µg/L	<17	E8	--	<4.1	E8	--	<18	E8	--	<4.2	E8	--							<10	E8	--	<11		--							373333
Fluoranthene	µg/L	<17	E8	--	<4.1	E8	--	<18	E8	2000	<4.2	E8	2000							<10	E8	2000	<11		2000							37333
Fluorene	µg/L	<17	E8	--	<4.1	E8	--	<18	E8	--	<4.2	E8	--							<10	E8	--	<11		--							37333
Hexachlorobenzene	µg/L	<42	E8	--	<10	E8	--	<44	E8	6	<11	E8	6							<10	E8	6	<11		6							747
Hexachlorobutadiene	µg/L	<42	E8	--	<10	E8	--	<44	E8	45	<11	E8	45							<10	E8	45	<11		45							187
Hexachlorocyclopentadiene	µg/L	<210	E8	--	<52	E8	--	<220	E8	3.5	<53	E8	3.5							<10	E8	3.5	<11		3.5							11200
Hexachloroethane	µg/L	<42	E8	850	<10	E8	850	<44	E8	490	<11	E8	490							<10	E8	490	<11		490							933
Indeno(1,2,3-cd)pyrene	µg/L	**<17**	E8	--	**<4.1**	E8	--	<18	E8	--	<4.2	E8	--							<10	E8	--	<11		--							1.9
Isophorone	µg/L	<42	E8	--	<10	E8	--	<44	E8	59000	<11	E8	59000							<10	E8	59000	<11		59000							186667
Naphthalene	µg/L	<17	E8	--	<4.1	E8	--	<18	E8	3200	<4.2	E8	3200							<10	E8	3200	<11		3200							18667
Nitrobenzene	µg/L	<42	E8	--	<10	E8	--	<44	E8	1300	<11	E8	1300							<10	E8	1300	<11		1300							467
N-nitrosodimethylamine	µg/L	**<42**	E8	--	**<10**	E8	--	<44	E8	--	<11	E8|L4|R6	--							<10	E8	--	<11		--							0.03
N-nitrosodi-n-propylamine	µg/L	<42	E8	--	<10	E8	--	<44	E8	--	<11	E8	--							<10	E8	--	<11		--							88667
N-nitrosodiphenylamine	µg/L	<42	E8	--	<10	E8	--	<44	E8	2900	<11	E8	2900							<10	E8	2900	<11		2900							290
Pentachlorophenol	µg/L	**<210**	E8	7.001**	**<52**	E8	17.296**	<220	E8	12.262 **	<53	E8	14.992 **							<50	E8	14.992 **	<53		14.992 **							28000
Phenanthrene	µg/L	<17	E8	--	<4.1	E8	--	<18	E8	30	<4.2	E8	30							<10	E8	30	<11		30							--
Phenol	µg/L	<42	E8	180,000	<10	E8	180,000	<44	E8	7000	2.1	E4	7000							<10	E8	7000	<11		7000							280000
Pyrene	µg/L	<42	E8	NNS	<10	E8	NNS	<44	E8	--	<11	E8	--							<10	E8	--	<11		--							28000

CITY OF SCOTTSDALE
STORMWATER SAMPLING RESULTS
Thunderbird Monitoring Station

Monitoring Location ID: 250940		2016 Annual Report						2017 Annual Report						2018 Annual Report						2019 Annual Report						2020 Annual Report						
Receiving Water: Indian Bend Wash		Summer 2015			Winter 2015/16			SUMMER 2016			WINTER 2016/17			Summer 2017			Winter 2017/18			Summer 2018			Winter 2018/19			Summer 2019			Winter 2019/20			PBC
Designated Uses: PBC & A&Ww Acute	Units	Results	Qualifier	A&We Acute	Results	Qualifier	A&We Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	Results	Qualifier	A&Ww Acute	
PCBs/ PESTICIDES																																
4,4-Dichlorodiphenyl dichloroethane (DDD)	µg/L	<0.048	E8	1.1 [b]	<0.047	E8|R6	1.1 [b]	<0.058	E8	1.1 [b]	<0.050	E8	1.1 [b]							<0.093	E8	1.1 [b]	<0.20		1.1 [b]							467 [b]
4,4-Dichlorodiphenyl dichloroethylene (DDE)	µg/L	<0.048	E8	1.1 [b]	<0.047	E8|R6	1.1 [b]	<0.058	E8	1.1 [b]	<0.050	E8	1.1 [b]							<0.093	E8	1.1 [b]	<0.20		1.1 [b]							467 [b]
4,4-Dichlorodiphenyl trichloroethane (DDT)	µg/L	<0.048	E8	1.1 [b]	<0.047	E8|R6	1.1 [b]	<0.058	E8	1.1 [b]	<0.050	E8	1.1 [b]							<0.093	E8	1.1 [b]	<0.20		1.1 [b]							467 [b]
Aldrin	µg/L	<0.048	E8	4.5	<0.047	E8	4.5	<0.058	E8	3	<0.050	E8	3							<0.093	E8	3	<0.20		3							28
Alpha-BHC	µg/L	<0.048	E8	1600	<0.047	E8|L4|R6	1600	<0.058	E8	1600	<0.050	E8	1600							<0.093	E8	1600	<0.20		1600							7467
Aroclor-1016	µg/L	<0.96	E8	11 [c]	<0.93	E8	11 [c]	<1.2	E8	2 [c]	<0.99	E8	2 [c]							<1.9	E8	2 [c]	<1.0		2 [c]							19 [c]
Aroclor-1221	µg/L	<0.96	E8	11 [c]	<0.93	E8	11 [c]	<1.2	E8	2 [c]	<0.99	E8	2 [c]							<1.9	E8	2 [c]	<1.0		2 [c]							19 [c]
Aroclor-1232	µg/L	<0.96	E8	11 [c]	<0.93	E8	11 [c]	<1.2	E8	2 [c]	<0.99	E8	2 [c]							<1.9	E8	2 [c]	<1.0		2 [c]							19 [c]
Aroclor-1242	µg/L	<0.96	E8	11 [c]	<0.93	E8	11 [c]	<1.2	E8	2 [c]	<0.99	E8	2 [c]							<1.9	E8	2 [c]	<1.0		2 [c]							19 [c]
Aroclor-1248	µg/L	<0.96	E8	11 [c]	<0.93	E8	11 [c]	<1.2	E8	2 [c]	<0.99	E8	2 [c]							<1.9	E8	2 [c]	<1.0		2 [c]							19 [c]
Aroclor-1254	µg/L	<0.96	E8	11 [c]	<0.93	E8	11 [c]	<1.2	E8	2 [c]	<0.99	E8	2 [c]							<1.9	E8	2 [c]	<1.0		2 [c]							19 [c]
Aroclor-1260	µg/L	<0.96	E8	11 [c]	<0.93	E8	11 [c]	<1.2	E8	2 [c]	<0.99	E8	2 [c]							<1.9	E8	2 [c]	<1.0		2 [c]							19 [c]
Beta-BHC	µg/L	<0.048	E8	1600	<0.047	E8|R6	1600	<0.058	E8	1600	<0.050	E8	1600							2.6		1600	<0.20		1600							560
Chlordane	µg/L	<0.48	E8	3.2	<0.47	E8	3.2	<0.58	E8	2.4	0.0068	E4	2.4							<0.093	E8	2.4	<1.0		2.4							467
Delta-BHC	µg/L	<0.048	E8	1600	<0.047	E8|L4|R6	1600	<0.058	E8	1600	<0.050	E8	1600							1.3		1600	<0.20		1600							--
Dieldrin	µg/L	<0.048	E8	4	<0.047	E8|L4|R6	4	<0.058	E8	0.2	<0.050	E8	0.2							<0.093	E8	0.2	<0.20		0.2							47
Endosulfan I	µg/L	<0.048	E8	3 [d]	<0.047	E8|R6	3 [d]	<0.058	E8	0.2 [d]	<0.050	E8	0.2 [d]							<0.093	E8	0.2 [d]	<0.20		0.2 [d]							5600 [d]
Endosulfan II	µg/L	<0.048	E8	3 [d]	<0.047	E8|L4|R6	3 [d]	<0.058	E8	0.2 [d]	<0.050	E8	0.2 [d]							<0.093	E8	0.2 [d]	<0.20		0.2 [d]							5600 [d]
Endosulfan sulfate	µg/L	<0.048	E8	3	<0.047	E8|L4|R6	3	<0.058	E8	0.2	<0.050	E8	0.2							<0.093	E8	0.2	<0.20		0.2							5600
Endrin	µg/L	<0.048	E8	0.7	<0.047	E8|L4|R6	0.7	<0.058	E8	0.09	<0.050	E8	0.09							<0.093	E8	0.09	<0.20		0.09							280
Endrin aldehyde	µg/L	<0.048	E8	0.7	<0.047	E8|R6	0.7	<0.058	E8	0.09	<0.050	E8	0.09							<0.19	E8	0.09	<0.40		0.09							--
Gamma-BHC	µg/L	<0.048	E8	11	<0.047	E8|L4|R6	11	<0.058	E8	1	<0.050	E8	1							<0.093	E8	1	<0.20		1							280
Heptachlor	µg/L	<0.048	E8	0.9	<0.047	E8	0.9	0.014	C8|E4	0.5	<0.050	E8	0.5							<0.19	E8	0.5	<0.40		0.5							467
Heptachlor epoxide	µg/L	<0.048	E8	0.9	<0.047	E8|L4|R6	0.9	<0.058	E8	0.5	<0.050	E8	0.5							<0.093	E8	0.5	<0.20		0.5							12
Toxaphene	µg/L	<1.9	E8	11	<1.9	E8|V1	11	<2.3	E8	0.7	<2.0	E8	0.7							<3.7	E8	0.7	<8.0		0.7							933

NOTES:

2015-2016 SAMPLING DATES
- **A** - Sampling Event 06-06-15
- **B** - Sampling Event 06-29-15
- **C** - Sampling Event 07-06-15
- **D** - Sampling Event 07-19-15
- **E** - Sampling Event 08-19-15
- **F** - Sampling Event 08-31-15
- **G** - Sampling Event10-18-15
- **H** - Sampling Event 01-07-16
- **I** - Sampling Event 02-01-16

2016-2017 SAMPLING DATES
- **A** - Sampling event 8-5-16
- **B** - Sampling event 6-30-16
- **C** - Sampling Event 7-18-16
- **D** - Sampling Event 7-29-16
- **E** - Sampling Event 8-2-16
- **F** - Sampling Event 11-3-16
- **G** - Sampling Event 11-21-2016
- **H** - Sampling Event 11-27-2016
- **I** - Sampling Event 12-22-2016

2017-2018 SAMPLING DATE
- **A** - Sampling Event 7-16-17
- **B** - Sampling Event 12-17-17
- **C** - Sampling Event 1-10-18

2018-2019 SAMPLING DATES
- **A** - Samping Event 6-16-18
- **B** - Sampling Event 7-9-18
- **C** - Sampling Event 11-30-18
- **D** - Sampling Event 01-06-19
- **E** - Sampling Event 01-15-19
- **F** - Sampling Event 02-03-19

2019-2020 Sampling Dates
- **A** - Sampling Event 7-31-19
- **B** - Sampling Event 8-3-19
- **C** - Sampling Event 11-20-19

PBC = Surface Water Quality Standard for Partial Body Contact
A&Ww = Surface Water Quality Standard for Aquatic and Wildlife (warm water)
(--) = no numerical standard
{--} = analysis performed by laboratory unlicensed for that method
[a] = standard for total 1,3-dichloropropylene
[b] = standard for total DDT and metabolites DDD and DDE
[c] = standard for total polychlorinated biphenyls
[d] = standard for total Endosulfan
** = Dependent upon sample hardness*
*** = Dependent upon pH*
B1 = Target analyte detected in method blank at or above the method reporting limit
C8 = Sample RPD between the primary and confirmatory analysis exceeded 40%. Per EPA Method 8000C, the lower value was reported as there was no evidence of chromatographic problems.
D1 = Sample required dilution due to matrix
D2 = Sample required dilution due to high concentration of analyte
E4 = Concentration estimated. Analyte was detected below laboratory minimum reporting level (MRL) but above the MDL.
E8 = Analyte reported to the MDL per project specification. Target analyte was not detected in sample
H4 = Sample was extracted past the required exctraction hold time but analyzed within the analysis hold time
K1 = The sample dilutions set-up for the BOD analysis did not meet the oxygen depletion criteria of at least 2 mg/L. Any reported result is an estimated value.
K5 = The dilution water D.O. depletion was >0.2 mg/L.
K6 = Glucose/glutamic acid BOD/CBOD was below method acceptance criteria.
L4 = The associated blank spike recovery was below method acceptance limits. Sample was reextracted past holding time with confirmatory results.
L5 = The associated blank spike recovery was above laboratory/method acceptance limits. This analyte was not detected in the sample.
M1 = Matrix spike recovery was high; the associated blank spike recovery was acceptable
M2 = Matric spike recovery was low, the associated blank recovery was acceptable
M3 = The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The associated blank spike recovery was acceptable
N1 = Screening level data
Q9 = Insufficent Sample received to meet method QC requirements
R2 = RPD/RSD exceeded the laboratory acceptance limit.The %RPD of the laboratory control sample (LCS) and laboratory control standard duplicate (LCSD) for preparationbatch 10516 recovered outside control limits for the following analytes: C10 - C32 Hydrocarbons.
R6 = LFB/LFBD RPD exceeded the method acceptance limit. Recovery met acceptance criteria.
R8 = Sample RPD exceeded the method acceptance limit
V1 = Continuing Calibration Verification recovery was above the method acceptance limits. This target analyte was not detected in the sample.
°F = degrees Fahrenheit
mg/L = milligrams per liter
ug/L = micrograms per liter
T = Total recoverable
TWC - Time Weighted Composite
D = Dissolved
BLUE *Indicates a SWQS*
BOLD RED *Indicates a SWQS exceedance*
BOLD *Indicates detection limit greater than the applicable SWQS*

Appendix N
Laboratory Reports

WATER QUALITY LABORATORY
8787 E. Hualapai Dr.
PO Box 25089
Scottsdale, AZ 85255

PHONE 480-312-8732
WEB ScottsdaleAZ.gov

- CERTIFICATE OF ANALYSIS -

Lab # AB95361

Krystal Heyer
City of Scottsdale
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Date Sampled: 07/22/2019
Time Sampled: 23:45
Date Received: 07/22/2019
Report Date: 01/29/2020

Sample ID: SWBO19-042
Location ID: SEC Camelback Rd & Hayden Rc (CAMEL)

Location Description: 130570 Composite

Test	Method	Result	Data Qualifier	DF	Units	PQL	Analysis Date
Nitrogen, Ammonia, N	SM 4500 NH3 D	2.400		1.00	mg/L	0.10	08/05/2019
BOD, 5 Day	SM 5210B	75.03	K6	1.00	mg/L	1	07/24/2019
Chemical Oxygen Demand	SM 5220 D	363		1.00	mg/L	20	08/05/2019
Nitrogen, Nitrate + Nitrite (as N)	Calculation	2.1		1.00	mg/L	0.4	07/23/2019
Nitrate, NO3	EPA 300.0	2.1		1.00	mg/L	0.2	07/23/2019
Nitrite, NO2	EPA 300.0	< 0.2		1.00	mg/L	0.2	07/23/2019
Orthophosphate as P	EPA 300.0	0.561		1.00	mg/L	0.2	07/24/2019
Total Phosphorus, P	SM 4500-P E	1.26	D2	2.00	mg/L	0.066	08/07/2019
Residue, Total Dissolved	SM 2540 C	316		1.00	mg/L	20	07/24/2019
Nitrogen, Total Kjeldahl, TKN	SM 4500 NH3-D	7.020		1.00	mg/L	0.50	07/30/2019
Residue, Total Suspended	SM 2540 D	448		1.00	mg/L	10	07/25/2019
Beryllium, Be	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	09/11/2019
Magnesium, Mg	EPA 200.8	8.23		1.00	mg/L	0.50	09/11/2019
Calcium, Ca	EPA 200.8	45.5	D2	10.00	mg/L	5.0	09/11/2019
Chromium, Cr	EPA 200.8	0.0137		1.00	mg/L	0.0010	09/11/2019

WATER QUALITY LABORATORY
8787 E. Hualapai Dr.
PO Box 25089
Scottsdale, AZ 85255
PHONE 480-312-8732
WEB ScottsdaleAZ.gov

- CERTIFICATE OF ANALYSIS -

Lab Number AB95361 Continued From Previous Page

Test	Method	Result	Data Qualifier	DF	Units	PQL	Analysis Date
Nickel, Ni	EPA 200.8	0.0198		1.00	mg/L	0.0010	09/11/2019
Copper, Cu	EPA 200.8	0.0604		1.00	mg/L	0.0010	09/11/2019
Zinc, Zn	EPA 200.8	0.431		1.00	mg/L	0.010	09/11/2019
Arsenic, As	EPA 200.8	0.0078		1.00	mg/L	0.0010	09/11/2019
Selenium, Se	EPA 200.8	0.0011		1.00	mg/L	0.0010	09/11/2019
Silver, Ag	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	09/11/2019
Cadmium, Cd	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	09/11/2019
Antimony, Sb	EPA 200.8	0.0022		1.00	mg/L	0.0010	09/11/2019
Barium, Ba	EPA 200.8	0.173		1.00	mg/L	0.0010	09/11/2019
Thallium, Tl	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	09/11/2019
Lead, Pb	EPA 200.8	0.0195		1.00	mg/L	0.0010	09/11/2019
Total Hardness	SM 2340B	148		1.00	mg/L	0.34	09/11/2019
Mercury, Hg	EPA 245.1	< 0.0002		1.00	mg/L	0.0002	07/25/2019

Comments Mercury was analyzed by Eurofins Test America Phoenix (#AZ0728).

Data Qualifiers

K6 = Glucose/glutamic acid BOD/CBOD was below method acceptance criteria.

D2 = Sample required dilution due to high concentration of target analyte.

Authorized Signature
License #AZ0424

CITY OF SCOTTSDALE

CITY OF SCOTTSDALE

CHAIN OF CUSTODY

Date: 7-22-19

Page 1 of 1

LAB ID: 190722011

Contact: Krystal Heyer
City of Scottsdale Water Quality Division
Stormwater
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Department: Water Resources

Phone: (480) 312-8732
Fax: (480) 312-8728

Location Code: STORM - CAMEL
SEC E. Camelback & N. Hayden Rds

ANALYSIS REQUEST — Test America

Sample ID	Date	Time	Matrix	Comp (Y/N)	LAB ID	Metals 200.8-STORM, Hardness	Mercury 245.1	TDS, TSS, Nitrate + Nitrite as N	Ammonia as N, TKN	COD	Total Phosphorus	Orthophosphate (Total)	BOD					Total Petroleum Hydrocarbons (TPH) (EPA 8015)	Total Oil and Grease (EPA 1664)	E. coli	Cyanide	Field pH	Field Temperature	Field Flow (from auto-sampler)	NUMBER OF CONTAINERS
						COMPOSITE												GRAB							
CAMEL (GRAB) -			SW	Y														X	X	X	X				
CAMEL (COMP) - SWB019-042	7-22-19	23:45 ~~HH~~ 7-22-19	SW	Y	AB95361	X	X	X	X	X	X	X	X												8

SAMPLE RECEIPT

NO. CONTAINERS	8	PRESERVATION pH VERIFIED	☐ Yes	☑ No	
CUSTODY SEALS	☐ Yes ☑ No	RECEIVED COLD	☑ Yes	☐ No	6°C
RECEIVED INTACT	☑ Yes ☐ No				

COMMENTS:

Standard Turn-Around Time (10 Day):
Rush Turn-Around (3 or 5 Day):
Other:

SAMPLED & RELINQUISHED BY: 1
Signature: [signature]
Printed Name: Brian O Granek
Date: 7-22-19 Time: 2358

2
Signature:
Printed Name:
Date: Time:

RECEIVED BY: 1
Signature: [signature]
Printed Name: Krystal Heyer
Date: 7-22-19 Time: 2358

2
Signature:
Printed Name:
Date: Time:

PLEASE FILL THIS FORM IN COMPLETELY. SHADED AREAS ARE FOR LAB USE ONLY.

Camelback Station
Monday, July 22, 2019

Label	750 Flow Rate	750 Volume	Rainfall
Units	gpm	gal	in
7/22/2019 21:00	0	4500890	0
7/22/2019 21:01	0	0	0
7/22/2019 21:02	0	0	0.01
7/22/2019 21:03	0	0	0
7/22/2019 21:03	0	0	0
7/22/2019 21:04	0	0	0
7/22/2019 21:05	0	0	0
7/22/2019 21:06	0	0	0
7/22/2019 21:07	0	0	0.01
7/22/2019 21:08	0	0	0.01
7/22/2019 21:09	0	0	0.01
7/22/2019 21:09	0	0	0
7/22/2019 21:10	0	0	0.01
7/22/2019 21:11	0	0	0.01
7/22/2019 21:12	0	0	0.01
7/22/2019 21:13	0	0	0
7/22/2019 21:14	0	0	0
7/22/2019 21:15	285.3	4502369	0
7/22/2019 21:16	0	0	0
7/22/2019 21:17	0	0	0
7/22/2019 21:18	0	0	0
7/22/2019 21:19	0	0	0
7/22/2019 21:20	285.3	4503629	0.01
7/22/2019 21:21	0	0	0
7/22/2019 21:22	285.3	4504580	0
7/22/2019 21:23	0	0	0
7/22/2019 21:24	332.9	4505169	0
7/22/2019 21:25	0	0	0
7/22/2019 21:26	332.9	4505510	0
7/22/2019 21:27	0	0	0
7/22/2019 21:28	317	4506530	0.01
7/22/2019 21:29	0	0	0
7/22/2019 21:30	0	4507119	0
7/22/2019 21:31	0	0	0
7/22/2019 21:32	507.2	4507219	0
7/22/2019 21:33	0	0	0.01
7/22/2019 21:34	507.2	4507219	0
7/22/2019 21:35	0	0	0
7/22/2019 21:36	507.2	4507219	0
7/22/2019 21:37	0	0	0
7/22/2019 21:38	507.2	4507219	0
7/22/2019 21:39	0	0	0
7/22/2019 21:40	507.2	4507219	0

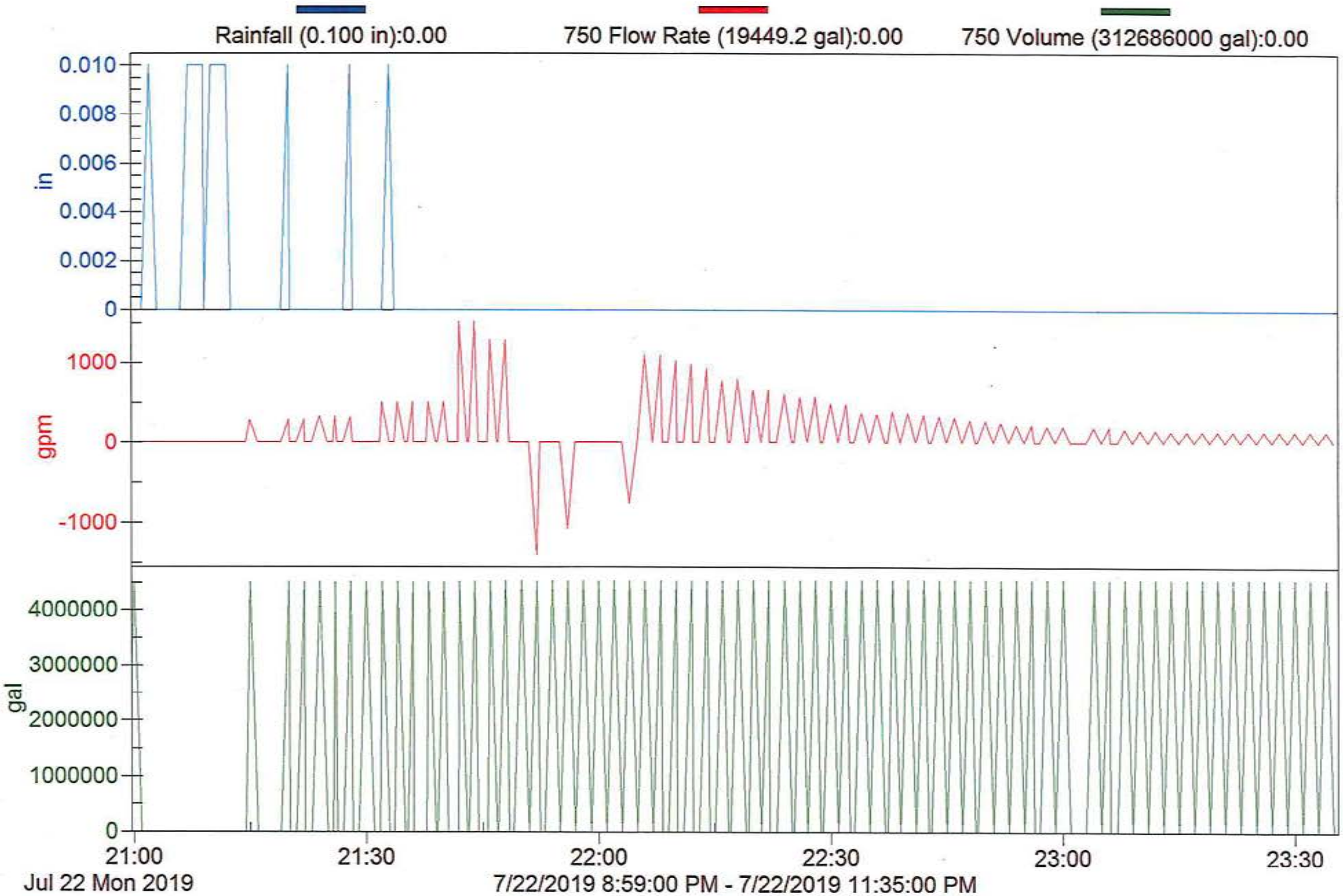
7/22/2019 21:41	0	0	0
7/22/2019 21:42	1521.6	4517530	0
7/22/2019 21:43	0	0	0
7/22/2019 21:44	1521.6	4517530	0
7/22/2019 21:45	0	0	0
7/22/2019 21:46	1283.9	4525521	0
7/22/2019 21:47	0	0	0
7/22/2019 21:48	1283.9	4526800	0
7/22/2019 21:49	0	0	0
7/22/2019 21:50	0	4525550	0
7/22/2019 21:51	0	0	0
7/22/2019 21:52	-1410.7	4525220	0
7/22/2019 21:53	0	0	0
7/22/2019 21:54	0	4522720	0
7/22/2019 21:55	0	0	0
7/22/2019 21:56	-1077.8	4522459	0
7/22/2019 21:57	0	0	0
7/22/2019 21:58	0	4520581	0
7/22/2019 21:59	0	0	0
7/22/2019 22:00	0	4520581	0
7/22/2019 22:01	0	0	0
7/22/2019 22:02	0	4520581	0
7/22/2019 22:03	0	0	0
7/22/2019 22:04	-760.8	4520401	0
7/22/2019 22:05	0	0	0
7/22/2019 22:06	1093.7	4519371	0
7/22/2019 22:07	0	0	0
7/22/2019 22:08	1093.7	4520470	0
7/22/2019 22:09	0	0	0
7/22/2019 22:10	1030.3	4522581	0
7/22/2019 22:11	0	0	0
7/22/2019 22:12	982.7	4524591	0
7/22/2019 22:13	0	0	0
7/22/2019 22:14	919.3	4526480	0
7/22/2019 22:15	0	0	0
7/22/2019 22:16	776.7	4528989	0
7/22/2019 22:17	0	0	0
7/22/2019 22:18	792.5	4530540	0
7/22/2019 22:19	0	0	0
7/22/2019 22:19	0	0	0
7/22/2019 22:20	665.7	4532120	0
7/22/2019 22:21	0	0	0
7/22/2019 22:22	665.7	4532770	0
7/22/2019 22:23	0	0	0
7/22/2019 22:24	602.3	4534690	0
7/22/2019 22:25	0	0	0
7/22/2019 22:26	570.6	4535900	0
7/22/2019 22:27	0	0	0
7/22/2019 22:28	570.6	4536460	0

7/22/2019 22:29	0	0	0
7/22/2019 22:30	491.4	4538140	0
7/22/2019 22:31	0	0	0
7/22/2019 22:32	491.4	4538639	0
7/22/2019 22:33	0	0	0
7/22/2019 22:34	380.4	4540000	0
7/22/2019 22:35	0	0	0
7/22/2019 22:36	364.6	4540769	0
7/22/2019 22:37	0	0	0
7/22/2019 22:38	396.3	4541519	0
7/22/2019 22:39	0	0	0
7/22/2019 22:40	380.4	4542301	0
7/22/2019 22:41	0	0	0
7/22/2019 22:42	348.7	4543041	0
7/22/2019 22:43	0	0	0
7/22/2019 22:44	332.9	4543741	0
7/22/2019 22:45	0	0	0
7/22/2019 22:46	317	4544391	0
7/22/2019 22:47	0	0	0
7/22/2019 22:48	285.3	4545009	0
7/22/2019 22:49	0	0	0
7/22/2019 22:50	269.5	4545590	0
7/22/2019 22:51	0	0	0
7/22/2019 22:52	253.6	4546139	0
7/22/2019 22:53	0	0	0
7/22/2019 22:54	221.9	4546649	0
7/22/2019 22:55	0	0	0
7/22/2019 22:56	221.9	4546871	0
7/22/2019 22:56	0	0	0
7/22/2019 22:57	0	0	0
7/22/2019 22:58	206.1	4547540	0
7/22/2019 22:59	0	0	0
7/22/2019 23:00	206.1	4547949	0
7/22/2019 23:01	0	0	0
7/22/2019 23:02	0	0	0
7/22/2019 23:03	0	0	0
7/22/2019 23:04	190.2	4548750	0
7/22/2019 23:05	0	0	0
7/22/2019 23:06	190.2	4548750	0
7/22/2019 23:07	0	0	0
7/22/2019 23:08	174.4	4549489	0
7/22/2019 23:09	0	0	0
7/22/2019 23:10	158.5	4549840	0
7/22/2019 23:11	0	0	0
7/22/2019 23:12	158.5	4549999	0
7/22/2019 23:13	0	0	0
7/22/2019 23:14	142.7	4550480	0
7/22/2019 23:15	0	0	0
7/22/2019 23:16	142.7	4550770	0

7/22/2019 23:17	0	0	0
7/22/2019 23:18	142.7	4550831	0
7/22/2019 23:19	0	0	0
7/22/2019 23:20	142.7	4550831	0
7/22/2019 23:21	0	0	0
7/22/2019 23:22	142.7	4550831	0
7/22/2019 23:23	0	0	0
7/22/2019 23:24	142.7	4550831	0
7/22/2019 23:25	0	0	0
7/22/2019 23:26	142.7	4550831	0
7/22/2019 23:27	0	0	0
7/22/2019 23:28	142.7	4550831	0
7/22/2019 23:29	0	0	0
7/22/2019 23:30	142.7	4550831	0
Average	**474.97**		
Total		**49,941**	**0.1**

Camelback

Flowlink 5



Scottsdale Water
Wet Weather Monitoring Form

Sample Location ID: CAMEL CHAPRD MCKRD PIERCE TBIRD
(Complete a separate form for each monitoring location)

WEATHER	
Hours since last measurable rain event: > 72HRS.	>72 hrs
Rainfall amount in inches:	0.10 in
SAMPLE COLLECTION INFORMATION	
Sample Types collected: Composite only	☐ Grab ☑ Composite
Sample date and time: 7-22-19 ~~7-22-19~~ 7-22-19 23:45	See Chain of Custody
Sampling personnel: Brian O'Connor, Krystal Heyer	
Volume of descrete and composite samples:	
FLOW DATA	
Duration of composite sampling period (minutes) 21:20 – 23:06	106 minutes
Volume of flow during composite sampling period (gallons)	49,941 gal
Average flow rate during sampling period (gpm)	409.5 gpm
Volume of each aliquot in composite sample	
Number of aliquots in the flow-weighted composite sample	28
Flow rate at the time of collection of each aliquot	See attached flow data
Time interval between collection of each aliquot	
VISUAL OBSERVATIONS	
(Color, oil sheen, debris, other) brown, some floating debris. No sheen observed.	
COMMENTS	
(Remarks, calculations, unusual circumstances that may affect sample results, additional information) Short storm, unable to collect grab sample before flow subsided.	
ATTACHMENTS	
Rainfall and Flow Data (print for Flowlink)	☑ Yes ☐ No
Chain of Custody	☑ Yes ☐ No
SIGNATURE	
Signature of Monitoring Personnel: Signature [signature]	Date 7-23-19
Signature	Date

12921687v2
s1 "Sheet1"

WATER QUALITY LABORATORY
8787 E. Hualapai Dr.
PO Box 25089
Scottsdale, AZ 85255
PHONE 480-312-8732
WEB ScottsdaleAZ.gov

- CERTIFICATE OF ANALYSIS -

Lab # AB95393

Krystal Heyer
City of Scottsdale
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Date Sampled: 07/24/2019
Time Sampled: 03:55
Date Received: 07/24/2019
Report Date: 01/29/2020

Sample ID: SWBO19-043
Location ID: NWC Pierce St & Hayden Rd (PIERCE)
Location Description: 080610 Grab

Test	Method	Result	Data Qualifier	DF	Units	PQL	Analysis Date
pH, Field	SM4500-H B	7.64		1.00	Std. Units		07/24/2019
Water Temperature, Field	SM2550 B	30.4		1.00	°C		07/24/2019
E. Coli by Quanti-Tray	SM 9223B	1297.6		1.00	MPN/100ml	1	07/25/2019
EFH (C10-C32)	EPA 8015D	1.9	N1	1.00	mg/L	0.1	08/01/2019
HEM	EPA 1664A	< 5.1		1.00	mg/L	5.1	07/31/2019
Cyanide, Total	SM4500-CN E	< 0.050		1.00	mg/L	0.050	07/30/2019

Comments Method 8015D and Cyanide were analyzed by Test America Phoenix (#AZ0728). Method 1664B was analyzed by Test America Irvine (#AZ0671). Method(s) 8015D: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 550-184546 and analytical batch 550-185177.Data is not impacted; therefore, all sample results will be reported. The laboratory control spike/laboratory control spike duplicate (LCS/LCSD) will be used as batch QC, an sample reported with an Q9 qualifier.

Data Qualifiers
N1 = See report comments.

Authorized Signature
License #AZ0424

CITY OF SCOTTSDALE

CITY OF SCOTTSDALE

CHAIN OF COSTODY

Date:

LAB ID 190724001

Contact: Krystal Heyer
City of Scottsdale Water Quality Division
Stormwater
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Department: Water Resources

Phone: (480) 312-8732
Fax: (480) 312-8728

Location Code: STORM - PIERCE
NWC Pierce St & Hayden Rd

PLEASE FILL THIS FORM IN COMPLETELY. SHADED AREAS ARE FOR LAB USE ONLY.

ANALYSIS REQUEST

Sample ID	Date	Time	Matrix	Comp (Y/N)	LAB ID	Metals 200.8-STORM, Hardness	Mercury 245.1	TDS, TSS, Nitrate + Nitrite as N	Ammonia as N, TKN	COD	Total Phosphorus	Orthophosphate (Total)	BOD				Total Petroleum Hydrocarbons (TPH) (EPA 8015)	Total Oil and Grease (EPA 1664)	E. coli	Cyanide	Field pH	Field Temperature	Field Flow (from auto-sampler)	NUMBER OF CONTAINERS
						COMPOSITE											GRAB							
PIERCE (GRAB) -	7-24-19	0335	SW	Y	AB95393												x	x	x	x	7.64	30.4		R6 SP 7.24.19
~~PIERCE (COMP)~~			SW	Y	~~[illegible]~~ 7249	~~x~~	~~x~~	~~x~~	~~x~~	~~x~~	~~x~~	~~x~~	~~x~~	No Comp										

SAMPLE RECEIPT

NO. CONTAINERS	6	PRESERVATION pH VERIFIED	☐ Yes	☒ No	
CUSTODY SEALS	☒ Yes ☒ No	RECEIVED COLD	☒ Yes	☐ No	4°C
RECEIVED INTACT	☒ Yes ☐ No				

COMMENTS:

SAMPLED & RELINQUISHED BY:

Signature: [signature]	Signature:
Printed Name: Brian O'Connor	Printed Name:
Date: 7-24-19 Time: 0600	Date: Time:

RECEIVED BY:

Signature: [signature]	Signature:
Printed Name: Roe	Printed Name:
Date: July 24, 2019 Time: 0600	Date: Time:

Standard Turn-Around Time (10 Day):

Rush Turn-Around (3 or 5 Day):

Other:

Pierce Station
Wednesday, July 24, 2019

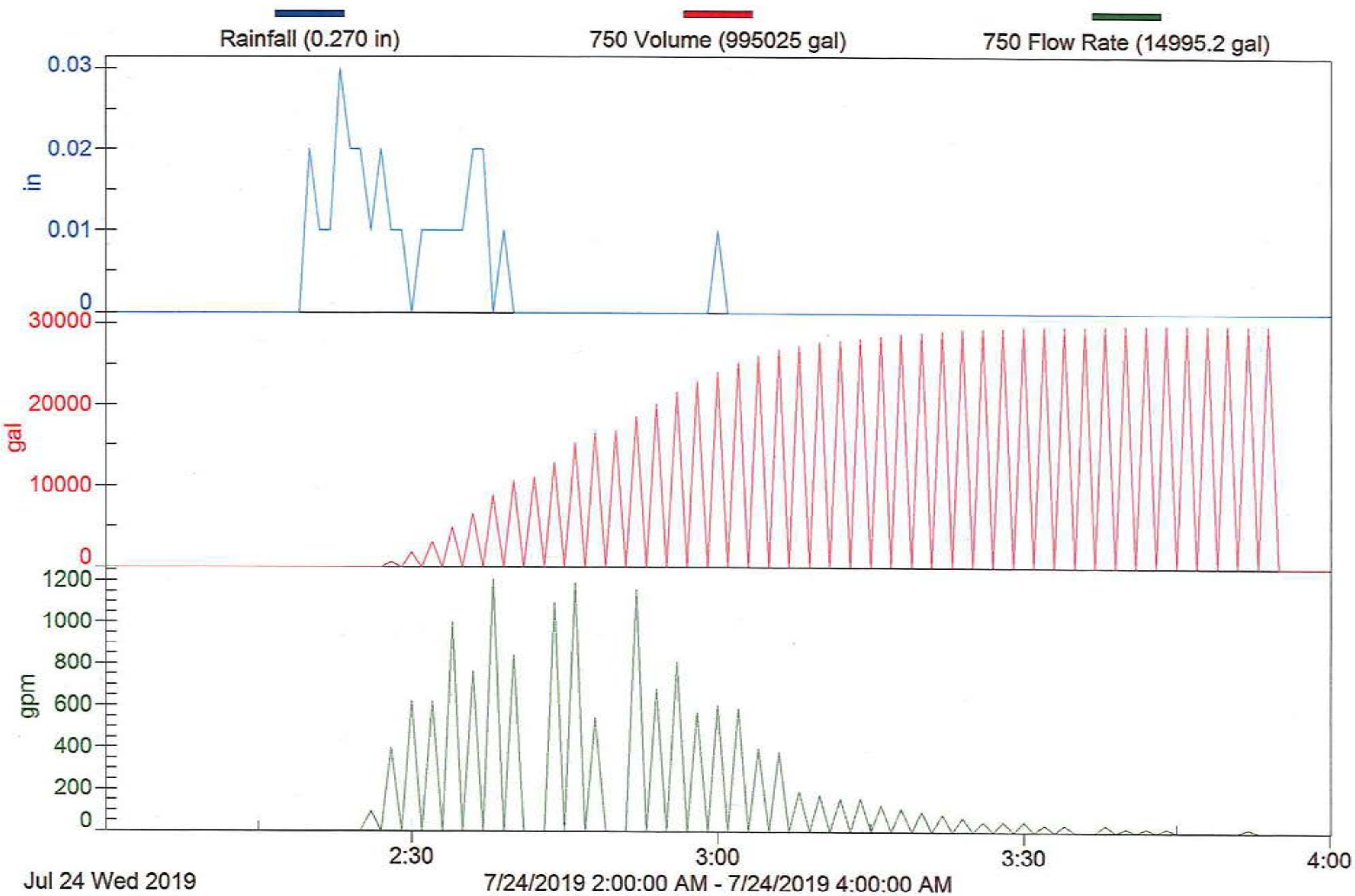
Label	750 Flow Rate	750 Volume	Rainfall
Units	gpm	gal	in
7/24/2019 2:00	0	0	0
7/24/2019 2:01	0	0	0
7/24/2019 2:02	0	0	0
7/24/2019 2:03	0	0	0
7/24/2019 2:04	0	0	0
7/24/2019 2:05	0	0	0
7/24/2019 2:06	0	0	0
7/24/2019 2:07	0	0	0
7/24/2019 2:08	0	0	0
7/24/2019 2:09	0	0	0
7/24/2019 2:10	0	0	0
7/24/2019 2:11	0	0	0
7/24/2019 2:12	0	0	0
7/24/2019 2:13	0	0	0
7/24/2019 2:14	0	0	0
7/24/2019 2:15	0	0	0
7/24/2019 2:16	0	0	0
7/24/2019 2:17	0	0	0
7/24/2019 2:18	0	0	0
7/24/2019 2:19	0	0	0
7/24/2019 2:20	0	0	0.02
7/24/2019 2:21	0	0	0.01
7/24/2019 2:22	0	0	0.01
7/24/2019 2:23	0	0	0.03
7/24/2019 2:24	0	0	0.02
7/24/2019 2:25	0	0	0.02
7/24/2019 2:26	95.1	0	0.01
7/24/2019 2:27	0	0	0.02
7/24/2019 2:28	396.3	634	0.01
7/24/2019 2:29	0	0	0.01
7/24/2019 2:30	618.2	1796	0
7/24/2019 2:31	0	0	0.01
7/24/2019 2:32	618.2	3038	0.01
7/24/2019 2:33	0	0	0.01
7/24/2019 2:34	998.6	4887	0.01
7/24/2019 2:35	0	0	0.01
7/24/2019 2:36	760.8	6551	0.02
7/24/2019 2:37	0	0	0.02
7/24/2019 2:38	1204.6	8744	0
7/24/2019 2:39	0	0	0.01
7/24/2019 2:40	840.1	10540	0

7/24/2019 2:41	0	0	0
7/24/2019 2:42	0	10990	0
7/24/2019 2:43	0	0	0
7/24/2019 2:44	1093.7	12812	0
7/24/2019 2:45	0	0	0
7/24/2019 2:46	1188.8	15137	0
7/24/2019 2:47	0	0	0
7/24/2019 2:48	538.9	16484	0
7/24/2019 2:49	0	0	0
7/24/2019 2:50	0	16669	0
7/24/2019 2:51	0	0	0
7/24/2019 2:52	1157.1	18518	0
7/24/2019 2:53	0	0	0
7/24/2019 2:54	681.6	20051	0
7/24/2019 2:55	0	0	0
7/24/2019 2:56	808.4	21609	0
7/24/2019 2:57	0	0	0
7/24/2019 2:58	570.6	22824	0
7/24/2019 2:59	0	0	0
7/24/2019 3:00	602.3	24040	0.01
7/24/2019 3:01	0	0	0
7/24/2019 3:02	586.5	25202	0
7/24/2019 3:03	0	0	0
7/24/2019 3:04	396.3	26047	0
7/24/2019 3:05	0	0	0
7/24/2019 3:06	380.4	26813	0
7/24/2019 3:07	0	0	0
7/24/2019 3:08	190.2	27263	0
7/24/2019 3:09	0	0	0
7/24/2019 3:10	174.4	27632	0
7/24/2019 3:11	0	0	0
7/24/2019 3:12	158.5	27949	0
7/24/2019 3:13	0	0	0
7/24/2019 3:14	158.5	28266	0
7/24/2019 3:15	0	0	0
7/24/2019 3:16	126.8	28531	0
7/24/2019 3:17	0	0	0
7/24/2019 3:18	111	28768	0
7/24/2019 3:19	0	0	0
7/24/2019 3:20	95.1	28953	0
7/24/2019 3:21	0	0	0
7/24/2019 3:22	79.3	29138	0
7/24/2019 3:23	0	0	0
7/24/2019 3:24	63.4	29270	0
7/24/2019 3:25	0	0	0
7/24/2019 3:26	47.6	29376	0
7/24/2019 3:27	0	0	0

7/24/2019 3:28	47.6	29482	0
7/24/2019 3:29	0	0	0
7/24/2019 3:30	47.6	29561	0
7/24/2019 3:31	0	0	0
7/24/2019 3:32	31.7	29614	0
7/24/2019 3:33	0	0	0
7/24/2019 3:34	31.7	29693	0
7/24/2019 3:35	0	0	0
7/24/2019 3:36	0	29693	0
7/24/2019 3:37	0	0	0
7/24/2019 3:38	31.7	29719	0
7/24/2019 3:39	0	0	0
7/24/2019 3:40	15.9	29772	0
7/24/2019 3:41	0	0	0
7/24/2019 3:42	15.9	29799	0
7/24/2019 3:43	0	0	0
7/24/2019 3:44	15.9	29851	0
7/24/2019 3:45	0	0	0
7/24/2019 3:46	0	29851	0
7/24/2019 3:47	0	0	0
7/24/2019 3:48	0	29851	0
7/24/2019 3:49	0	0	0
7/24/2019 3:50	0	29851	0
7/24/2019 3:51	0	0	0
7/24/2019 3:52	15.9	29878	0
7/24/2019 3:53	0	0	0
7/24/2019 3:54	0	29878	0
7/24/2019 3:55	0	0	0
7/24/2019 3:56	0	0	0
7/24/2019 3:56	0	0	0
7/24/2019 3:57	0	0	0
7/24/2019 3:58	0	0	0
7/24/2019 3:59	0	0	0
Average:	**394.61**		
Total:		**29,878**	**0.27**

PIERCE

Flowlink 5



Scottsdale Water
Wet Weather Monitoring Form

Sample Location ID: CAMEL CHAPRD MCKRD PIERCE TBIRD
(Complete a separate form for each monitoring location)

WEATHER	
Hours since last measurable rain event:	
Rainfall amount in inches:	
SAMPLE COLLECTION INFORMATION	
Sample Types collected:	☒ Grab ☐ Composite
Sample date and time: 7-24-19 0355	See Chain of Custody
Sampling personnel: Bryan Victor	
Volume of descrete and composite samples:	
FLOW DATA	
Duration of composite sampling period (minutes)	
Volume of flow during composite sampling period (gallons)	
Average flow rate during sampling period (gpm)	
Volume of each aliquot in composite sample	
Number of aliquots in the flow-weighted composite sample	
Flow rate at the time of collection of each aliquot	See attached flow data
Time interval between collection of each aliquot	

VISUAL OBSERVATIONS
(Color, oil sheen, debris, other)

No Sheen, Brownish Color, Dirt, Sand

COMMENTS
(Remarks, calculations, unusual circumstances that may affect sample results, additional information)

ATTACHMENTS		
Rainfall and Flow Data (print for Flowlink)	☐ Yes	☐ No
Chain of Custody	☐ Yes	☐ No

SIGNATURE

Signature of Monitoring Personnel:

Signature [signature] Date 7-25-19

Signature [signature] Date 7.25.19

12921687v2
s1 "Sheet1"

WATER QUALITY LABORATORY
8787 E. Hualapai Dr.
PO Box 25089
Scottsdale, AZ 85255

PHONE 480-312-8732
WEB ScottsdaleAZ.gov

- CERTIFICATE OF ANALYSIS -

Lab # AB95394

Krystal Heyer
City of Scottsdale
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Date Sampled: 07/24/2019
Time Sampled: 04:10
Date Received: 07/24/2019
Report Date: 01/29/2020

Sample ID: SWBO19-044
Location ID: NWC McKellips Rd & Hayden Rd (MCKRD)

Location Description: 080710
Grab

Test	Method	Result	Data Qualifier	DF	Units	PQL	Analysis Date
pH, Field	SM4500-H B	7.65		1.00	Std. Units		07/24/2019
Water Temperature, Field	SM2550 B	29.0		1.00	°C		07/24/2019
E. Coli by Quanti-Tray	SM 9223B	120330		1.00	MPN/100ml	1	07/25/2019
EFH (C10-C32)	EPA 8015D	1.4	N1	1.00	mg/L	0.1	08/01/2019
HEM	EPA 1664A	< 5.1		1.00	mg/L	5.1	08/01/2019
Cyanide, Total	SM4500-CN E	< 0.050		1.00	mg/L	0.050	07/30/2019

Comments Cyanide and 8015D were analyzed by Test America Phoenix (#AZ0728).
1664B was analyzed by Tests America Irvine (#AZ0671).
Method(s) 8015D: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 550-184546 and analytical batch 550-185177.Data is not impact therefore, all sample results will be reported. The laboratory control spike/lab control spike duplicate (LCS/LCSD) will be used as batch QC, and sample reported with an Q9 qualifier.

Data Qualifiers
N1 = See report comments.

Authorized Signature
License #AZ0424

CITY OF SCOTTSDALE

CITY OF SCOTTSDALE

CHAIN OF COUSTODY

Date:

Page 1 of 1

LAB ID: 19072400Z

Contact: Krystal Heyer
City of Scottsdale Water Quality Division
Stormwater
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Department: Water Resources

Phone: (480) 312-8732
Fax: (480) 312-8728

Location Code: STORM - MCKRD
NWC E. McKellips & N. Hayden Rds

PLEASE FILL THIS FORM IN COMPLETELY. SHADED AREAS ARE FOR LAB USE ONLY.

ANALYSIS REQUEST

Sample ID	Date	Time	Matrix	Comp (Y/N)	LAB ID	Metals 200.8-STORM, Hardness	Mercury 245.1	TDS, TSS, Nitrate + Nitrite as N	Ammonia as N, TKN	COD	Total Phosphorus	Orthophosphate (Total)	BOD				Total Petroleum Hydrocarbons (TPH) (EPA 8015)	Total Oil and Grease (EPA 1664)	E. coli	Cyanide	Field pH	Field Temperature	Field Flow (from auto-sampler)	NUMBER OF CONTAINERS
						COMPOSITE											GRAB							
MCKRD (GRAB) -	7-24-19	0410	SW	Y	AB95394												X	X	X	X	7.65	29.0		~~X~~ 6 SP 7.24.19
~~MCKRD (COMP) -~~			~~SW~~	~~Y~~	72419	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	No Comp										

SAMPLE RECEIPT

6	NO. CONTAINERS		PRESERVATION pH VERIFIED	☐ Yes	☒ No
N	CUSTODY SEALS	☐ Yes ☒ No	RECEIVED COLD	☒ Yes	☐ No 4°C
Y	RECEIVED INTACT	☒ Yes ☐ No			

COMMENTS:

Standard Turn-Around Time (10 Day):
Rush Turn-Around (3 or 5 Day):
Other:

SAMPLED & RELINQUISHED BY:

Signature: [signature]		Signature:	
Printed Name: Brian O'Connor		Printed Name:	
Date: 7-24-19	Time: 0600	Date:	Time:

RECEIVED BY:

Signature: [signature]		Signature:	
Printed Name: POE		Printed Name:	
Date: July 24, 2019	Time: 0600	Date:	Time:

McKellips Station
Wednesday, July 24, 2019

Label	750 Flow Rate	750 Volume	Rainfall
Units	gpm	gal	in
7/24/2019 2:15	0	0	0
7/24/2019 2:16	0	0	0
7/24/2019 2:17	0	0	0
7/24/2019 2:18	0	0	0
7/24/2019 2:19	0	0	0
7/24/2019 2:20	0	0	0
7/24/2019 2:21	0	0	0
7/24/2019 2:22	0	0	0
7/24/2019 2:23	0	0	0
7/24/2019 2:24	0	0	0
7/24/2019 2:25	0	0	0.01
7/24/2019 2:26	0	0	0.01
7/24/2019 2:27	0	0	0.01
7/24/2019 2:28	0	0	0.01
7/24/2019 2:29	0	0	0.02
7/24/2019 2:30	0	0	0.01
7/24/2019 2:31	0	0	0.01
7/24/2019 2:32	0	0	0.02
7/24/2019 2:33	0	0	0.01
7/24/2019 2:34	0	0	0
7/24/2019 2:35	0	0	0.01
7/24/2019 2:36	0	0	0.01
7/24/2019 2:37	0	0	0.01
7/24/2019 2:38	0	0	0.01
7/24/2019 2:39	0	0	0.01
7/24/2019 2:40	0	0	0.02
7/24/2019 2:41	0	0	0.02
7/24/2019 2:42	0	0	0.02
7/24/2019 2:43	0	0	0.01
7/24/2019 2:44	0	0	0
7/24/2019 2:45	0	0	0
7/24/2019 2:46	0	0	0
7/24/2019 2:47	0	0	0
7/24/2019 2:48	0	0	0
7/24/2019 2:49	0	0	0
7/24/2019 2:50	0	0	0
7/24/2019 2:51	0	0	0
7/24/2019 2:52	0	0	0
7/24/2019 2:53	0	0	0
7/24/2019 2:54	0	0	0
7/24/2019 2:55	0	0	0

7/24/2019 2:56	0	0	0.01
7/24/2019 2:57	0	0	0
7/24/2019 2:58	0	0	0
7/24/2019 2:59	0	0	0
7/24/2019 3:00	0	0	0
7/24/2019 3:01	0	0	0
7/24/2019 3:02	0	0	0
7/24/2019 3:03	0	0	0
7/24/2019 3:04	0	0	0
7/24/2019 3:05	0	0	0
7/24/2019 3:06	0	0	0
7/24/2019 3:07	0	0	0
7/24/2019 3:08	0	0	0
7/24/2019 3:09	0	0	0
7/24/2019 3:10	0	0	0
7/24/2019 3:11	0	0	0
7/24/2019 3:12	0	0	0
7/24/2019 3:13	0	0	0
7/24/2019 3:14	0	0	0
7/24/2019 3:15	0	0	0
7/24/2019 3:16	0	0	0
7/24/2019 3:17	0	0	0
7/24/2019 3:18	0	0	0
7/24/2019 3:19	0	0	0
7/24/2019 3:20	0	0	0
7/24/2019 3:21	0	0	0
7/24/2019 3:22	0	0	0
7/24/2019 3:23	0	0	0
7/24/2019 3:24	0	0	0
7/24/2019 3:25	0	0	0
7/24/2019 3:26	0	0	0
7/24/2019 3:27	0	0	0
7/24/2019 3:28	0	0	0
7/24/2019 3:29	0	0	0
7/24/2019 3:30	0	0	0
7/24/2019 3:31	0	0	0
7/24/2019 3:32	0	0	0
7/24/2019 3:33	0	0	0
7/24/2019 3:34	0	0	0
7/24/2019 3:35	0	0	0
7/24/2019 3:36	0	0	0
7/24/2019 3:37	0	0	0
7/24/2019 3:38	0	0	0
7/24/2019 3:39	0	0	0
7/24/2019 3:40	0	0	0
7/24/2019 3:41	0	0	0
7/24/2019 3:42	0	0	0

7/24/2019 3:43	0	0	0
7/24/2019 3:44	0	0	0
7/24/2019 3:45	0	0	0
7/24/2019 3:46	0	0	0
7/24/2019 3:47	0	0	0
7/24/2019 3:48	0	0	0
7/24/2019 3:49	0	0	0
7/24/2019 3:50	0	0	0
7/24/2019 3:51	0	0	0
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7/24/2019 3:53	0	0	0
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7/24/2019 3:55	0	0	0
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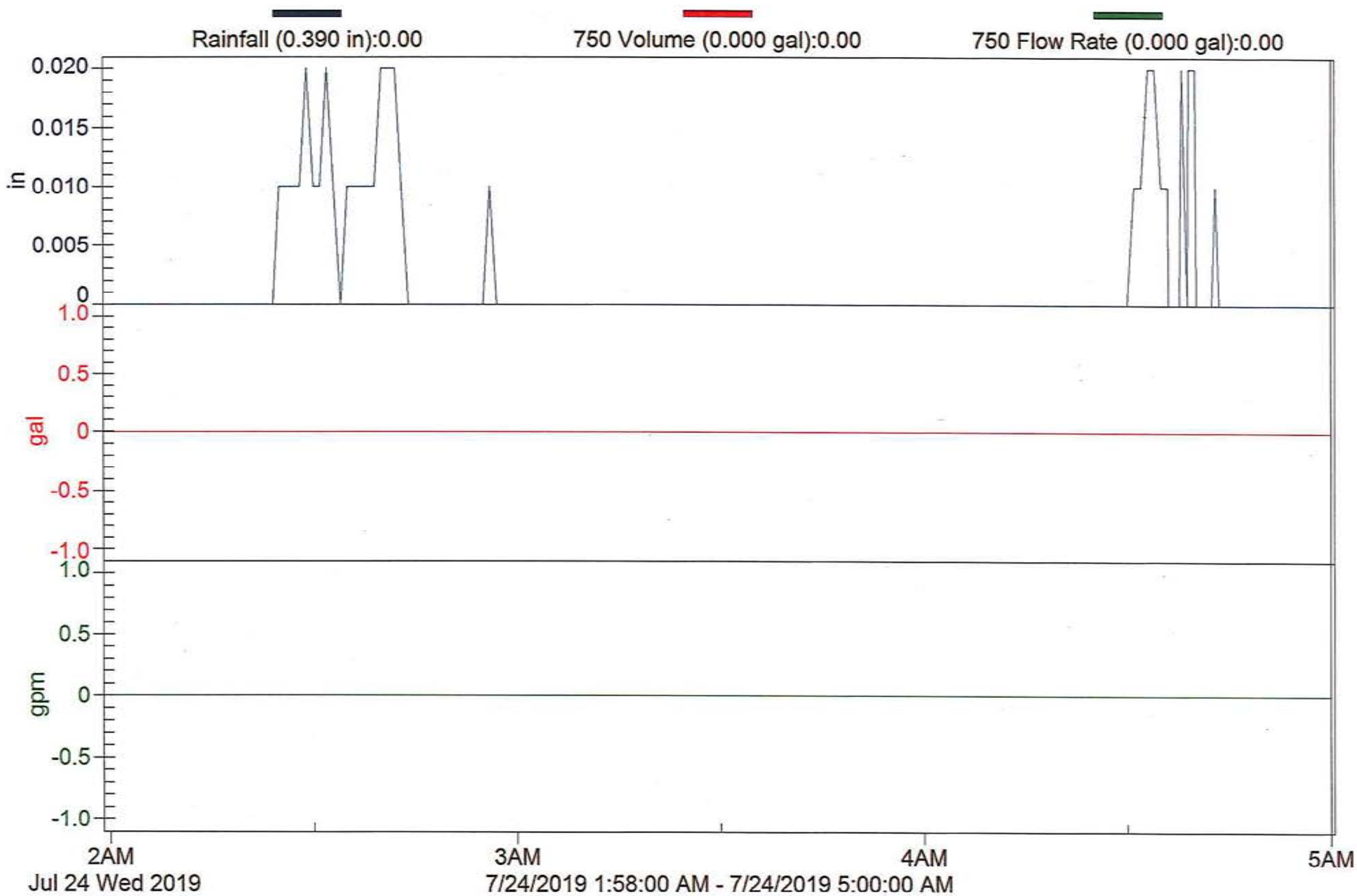
7/24/2019 3:56	0	0	0
7/24/2019 3:57	0	0	0
7/24/2019 3:58	0	0	0
7/24/2019 3:59	0	0	0
7/24/2019 4:00	0	0	0
7/24/2019 4:01	0	0	0
7/24/2019 4:02	0	0	0
7/24/2019 4:03	0	0	0
7/24/2019 4:04	0	0	0
7/24/2019 4:05	0	0	0
7/24/2019 4:06	0	0	0
7/24/2019 4:07	0	0	0
7/24/2019 4:08	0	0	0
7/24/2019 4:09	0	0	0
7/24/2019 4:10	0	0	0
7/24/2019 4:11	0	0	0
7/24/2019 4:12	0	0	0
7/24/2019 4:13	0	0	0
7/24/2019 4:14	0	0	0
7/24/2019 4:15	0	0	0
7/24/2019 4:16	0	0	0
7/24/2019 4:17	0	0	0
7/24/2019 4:18	0	0	0
7/24/2019 4:19	0	0	0
7/24/2019 4:20	0	0	0
7/24/2019 4:21	0	0	0
7/24/2019 4:22	0	0	0
7/24/2019 4:23	0	0	0
7/24/2019 4:24	0	0	0
7/24/2019 4:25	0	0	0
7/24/2019 4:26	0	0	0
7/24/2019 4:27	0	0	0
7/24/2019 4:28	0	0	0

7/24/2019 4:29	0	0	0
7/24/2019 4:30	0	0	0
7/24/2019 4:31	0	0	0.01
7/24/2019 4:32	0	0	0.01
7/24/2019 4:33	0	0	0.02
7/24/2019 4:34	0	0	0.02
7/24/2019 4:35	0	0	0.01
7/24/2019 4:36	0	0	0.01
7/24/2019 4:36	0	0	0
7/24/2019 4:37	0	0	0
7/24/2019 4:37	0	0	0
7/24/2019 4:38	0	0	0.02
7/24/2019 4:38	0	0	0
7/24/2019 4:39	0	0	0.02
7/24/2019 4:40	0	0	0.02
7/24/2019 4:40	0	0	0
7/24/2019 4:41	0	0	0
7/24/2019 4:41	0	0	0
7/24/2019 4:42	0	0	0
7/24/2019 4:42	0	0	0
7/24/2019 4:43	0	0	0.01
7/24/2019 4:43	0	0	0
7/24/2019 4:44	0	0	0
7/24/2019 4:44	0	0	0
7/24/2019 4:45	0	0	0
Average:	**0**		
Total:		**0**	**0.39**

MCKRD 2017

Flowlink 5



Scottsdale Water
Wet Weather Monitoring Form

Sample Location ID: CAMEL CHAPRD MCKRD PIERCE TBIRD
(Complete a separate form for each monitoring location)

WEATHER	
Hours since last measurable rain event:	
Rainfall amount in inches:	
SAMPLE COLLECTION INFORMATION	
Sample Types collected:	☑ Grab ☐ Composite
Sample date and time: 07/24/2019 0410 A.M.	See Chain of Custody
Sampling personnel:	
Volume of descrete and composite samples:	
FLOW DATA	
Duration of composite sampling period (minutes)	
Volume of flow during composite sampling period (gallons)	
Average flow rate during sampling period (gpm)	
Volume of each aliquot in composite sample	
Number of aliquots in the flow-weighted composite sample	
Flow rate at the time of collection of each aliquot	See attached flow data
Time interval between collection of each aliquot	

VISUAL OBSERVATIONS
(Color, oil sheen, debris, other)

Color: Light Brown Debris: dirt
Oil Sheen: None other: None

COMMENTS
(Remarks, calculations, unusual circumstances that may affect sample results, additional information)

Note: Composite Sampler did NOT function. Strainer covered with sweater.

ATTACHMENTS	
Rainfall and Flow Data (print for Flowlink)	☐ Yes ☐ No
Chain of Custody	☑ Yes ☐ No

SIGNATURE

Signature of Monitoring Personnel:

Signature Victor P. [signature] Date 7.25.19

Signature [signature] Date 7-25-19

12921687v2
s1 "Sheet1"

SCOTTSDALE WATER

WATER QUALITY LABORATORY
8787 E. Hualapai Dr.
PO Box 25089
Scottsdale, AZ 85255

PHONE 480-312-8732
WEB ScottsdaleAZ.gov

- CERTIFICATE OF ANALYSIS -

Lab # AB95549

Krystal Heyer
City of Scottsdale
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Date Sampled: 07/31/2019
Time Sampled: 00:15
Date Received: 07/31/2019
Report Date: 03/10/2020

Sample ID: SWML19-045
Location ID: SWC Chaparral Rd & Hayden Rd (CHAPRD)

Location Description: 130820 Grab

Test	Method	Result	Data Qualifier	DF	Units	PQL	Analysis Date
pH, Field	SM4500-H B	7.17		1.00	Std. Units		07/31/2019
Water Temperature, Field	SM2550 B	27.8		1.00	°C		07/31/2019
E. Coli by Quanti-Tray	SM 9223B	9678.4		1.00	MPN/100ml	1	08/01/2019
EFH (C10-C32)	EPA 8015D	0.61	N1	1.00	mg/L	0.1	08/09/2019
HEM	EPA 1664A	< 5.2		1.00	mg/L	5.2	08/05/2019
Cyanide, Total	SM4500-CN E	< 0.050		1.00	mg/L	0.050	08/05/2019

Comments Method 8015D and cyanide were analyzed by Eurofins Test America Phoenix (#AZ0728).
Method(s) 8015D: The surrogate in the following CCV: (CCV 550-186043/32) and (CCV 550-186043/9), recovered outside of 8015D %D criteria but within historical limits, all affected samples have been N1 flagged and reported.

Data Qualifiers
N1 = See report comments.

Authorized Signature
License #AZ0424

CITY OF SCOTTSDALE

WATER QUALITY LABORATORY
8787 E. Hualapai Dr.
PO Box 25089
Scottsdale, AZ 85255

PHONE 480-312-8732
WEB ScottsdaleAZ.gov

- CERTIFICATE OF ANALYSIS -

Lab # AB95550

Krystal Heyer
City of Scottsdale
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Date Sampled: 07/31/2019
Time Sampled: 01:45
Date Received: 07/31/2019
Report Date: 01/29/2020

Sample ID: SWML19-046
Location ID: SWC Chaparral Rd & Hayden Rd (CHAPRD)
Location Description: 130820 Composite

Test	Method	Result	Data Qualifier	DF	Units	PQL	Analysis Date
Nitrogen, Ammonia, N	SM 4500 NH3 D	0.657		1.00	mg/L	0.10	08/05/2019
BOD, 5 Day	SM 5210B	16.93	K6	1.00	mg/L	1	08/05/2019
Chemical Oxygen Demand	SM 5220 D	72		1.00	mg/L	20	08/05/2019
Nitrogen, Nitrate + Nitrite (as N)	Calculation	0.6		1.00	mg/L	0.4	07/31/2019
Nitrate, NO3	EPA 300.0	0.6		1.00	mg/L	0.2	07/31/2019
Nitrite, NO2	EPA 300.0	< 0.2		1.00	mg/L	0.2	07/31/2019
Orthophosphate as P	EPA 300.0	0.256		1.00	mg/L	0.2	07/31/2019
Total Phosphorus, P	SM 4500-P E	0.27		1.00	mg/L	0.033	08/07/2019
Residue, Total Dissolved	SM 2540 C	66		1.00	mg/L	20	08/05/2019
Nitrogen, Total Kjeldahl, TKN	SM 4500 NH3-D	1.702		1.00	mg/L	0.50	08/06/2019
Residue, Total Suspended	SM 2540 D	24		1.00	mg/L	10	08/05/2019
Beryllium, Be	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	09/09/2019
Magnesium, Mg	EPA 200.8	1.08		1.00	mg/L	0.50	09/09/2019
Calcium, Ca	EPA 200.8	8.03		1.00	mg/L	0.50	09/09/2019
Chromium, Cr	EPA 200.8	0.0013		1.00	mg/L	0.0010	09/09/2019

SCOTTSDALE WATER

WATER QUALITY LABORATORY
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PO Box 25089
Scottsdale, AZ 85255

PHONE 480-312-8732
WEB ScottsdaleAZ.gov

- CERTIFICATE OF ANALYSIS -

Lab Number AB95550 Continued From Previous Page

Test	Method	Result	Data Qualifier	DF	Units	PQL	Analysis Date
Nickel, Ni	EPA 200.8	0.0017		1.00	mg/L	0.0010	09/09/2019
Copper, Cu	EPA 200.8	0.0082		1.00	mg/L	0.0010	09/09/2019
Zinc, Zn	EPA 200.8	0.099		1.00	mg/L	0.010	09/09/2019
Arsenic, As	EPA 200.8	0.0015		1.00	mg/L	0.0010	09/09/2019
Selenium, Se	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	09/09/2019
Silver, Ag	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	09/09/2019
Cadmium, Cd	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	09/09/2019
Antimony, Sb	EPA 200.8	0.0015		1.00	mg/L	0.0010	09/09/2019
Barium, Ba	EPA 200.8	0.0194		1.00	mg/L	0.0010	09/09/2019
Thallium, Tl	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	09/09/2019
Lead, Pb	EPA 200.8	0.0018		1.00	mg/L	0.0010	09/09/2019
Total Hardness	SM 2340B	24.5		1.00	mg/L	0.34	09/09/2019
Mercury, Hg	EPA 245.1	< 0.0002		1.00	mg/L	0.0002	08/02/2019

Comments Mercury was analyzed by Test America Phoenix (#AZ0728).

Data Qualifiers

K6 = Glucose/glutamic acid BOD/CBOD was below method acceptance criteria.

Authorized Signature
License #AZ0424

CITY OF SCOTTSDALE

CITY OF SCOTTSDALE

CHAIN OF CUSTODY

Date: 7/31/19 Page 1 of 1

LAB ID: 190731003

PLEASE FILL THIS FORM IN COMPLETELY. SHADED AREAS ARE FOR LAB USE ONLY.

Contact: Krystal Heyer
City of Scottsdale Water Quality Division
Stormwater
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Department: Water Resources

Phone: (480) 312-8732
Fax: (480) 312-8728

Location Code: **STORM - CHAPRD**
NWC E. Camelback & N. Hayden Rds

ANALYSIS REQUEST

Sample ID	Date	Time	Matrix	Comp (Y/N)	LAB ID	Metals 200.8-STORM, Hardness	Mercury 245.1	TDS, TSS, Nitrate + Nitrite as N	Ammonia as N, TKN	COD	Total Phosphorus	Orthophosphate (Total)	BOD				Total Petroleum Hydrocarbons (TPH) (EPA 8015)	Total Oil and Grease (EPA 1664)	E. coli	Cyanide	Field pH	Field Temperature	Field Flow (from auto-sampler)	NUMBER OF CONTAINERS
						COMPOSITE											GRAB							
CHAPRD (GRAB) - SWML19-045	7/31/19	0015	SW	Y	AB95549												X	X	X	X	7.17	27.8		
CHAPRD (COMP) - SWML19-046	7/31/19	0145	SW	Y	AB95550	X	X	X	X	X	X	X	X											
																			Dup		7.25	27.5		

SAMPLE RECEIPT			
12 NO. CONTAINERS		PRESERVATION pH VERIFIED	☐ Yes ☒ No
2 CUSTODY SEALS	☐ Yes ☐ No	RECEIVED COLD	☒ Yes ☐ No
4 RECEIVED INTACT	☐ Yes ☐ No		

COMMENTS:

Standard Turn-Around Time (10 Day):
Rush Turn-Around (3 or 5 Day):
Other:

SAMPLED & RELINQUISHED BY:		SD 7.31.19	
Signature: [signature]		Signature: To Cooler	
Printed Name: M.R. Liwa		Printed Name: Feom	
Date: 7/31/19	Time: 0350	Date: 7.31.19	Time: 0623
RECEIVED BY:			
Signature: To Cooler		Signature: [signature]	
Printed Name:		Printed Name: Poe	
Date: 7.31.19	Time: 0350	Date: 7.31.19	Time: 0623

Chaparral Station
Wednesday, July 31, 2019

Label	710 Flow Rate	710 Volume	Rainfall
Units	gpm	gal	in
7/30/2019 22:06	0	0	0
7/30/2019 22:07	0	0	0
7/30/2019 22:08	95.1	5180	0.01
7/30/2019 22:09	0	0	0
7/30/2019 22:10	0	0	0
7/30/2019 22:11	0	0	0
7/30/2019 22:12	63.4	6139	0
7/30/2019 22:13	0	0	0
7/30/2019 22:14	47.6	6250	0
7/30/2019 22:15	0	0	0
7/30/2019 22:16	47.6	6351	0
7/30/2019 22:17	0	0	0
7/30/2019 22:18	0	6419	0
7/30/2019 22:19	0	0	0
7/30/2019 22:20	31.7	6419	0
7/30/2019 22:21	0	0	0
7/30/2019 22:22	0	0	0
7/30/2019 22:23	0	0	0
7/30/2019 22:24	31.7	6541	0
7/30/2019 22:25	0	0	0
7/30/2019 22:26	0	6581	0
7/30/2019 22:27	0	0	0
7/30/2019 22:28	0	6581	0
7/30/2019 22:29	0	0	0
7/30/2019 22:30	0	0	0
7/30/2019 22:31	0	0	0
7/30/2019 22:32	0	6581	0
7/30/2019 22:33	0	0	0
7/30/2019 22:34	0	6581	0
7/30/2019 22:35	0	0	0
7/30/2019 22:36	15.9	6581	0
7/30/2019 22:37	0	0	0
7/30/2019 22:38	0	6620	0
7/30/2019 22:39	0	0	0
7/30/2019 22:40	0	6620	0
7/30/2019 22:41	0	0	0
7/30/2019 22:42	0	6620	0
7/30/2019 22:43	0	0	0
7/30/2019 22:44	31.7	6631	0
7/30/2019 22:45	0	0	0.01
7/30/2019 22:46	31.7	6689	0
7/30/2019 22:47	0	0	0

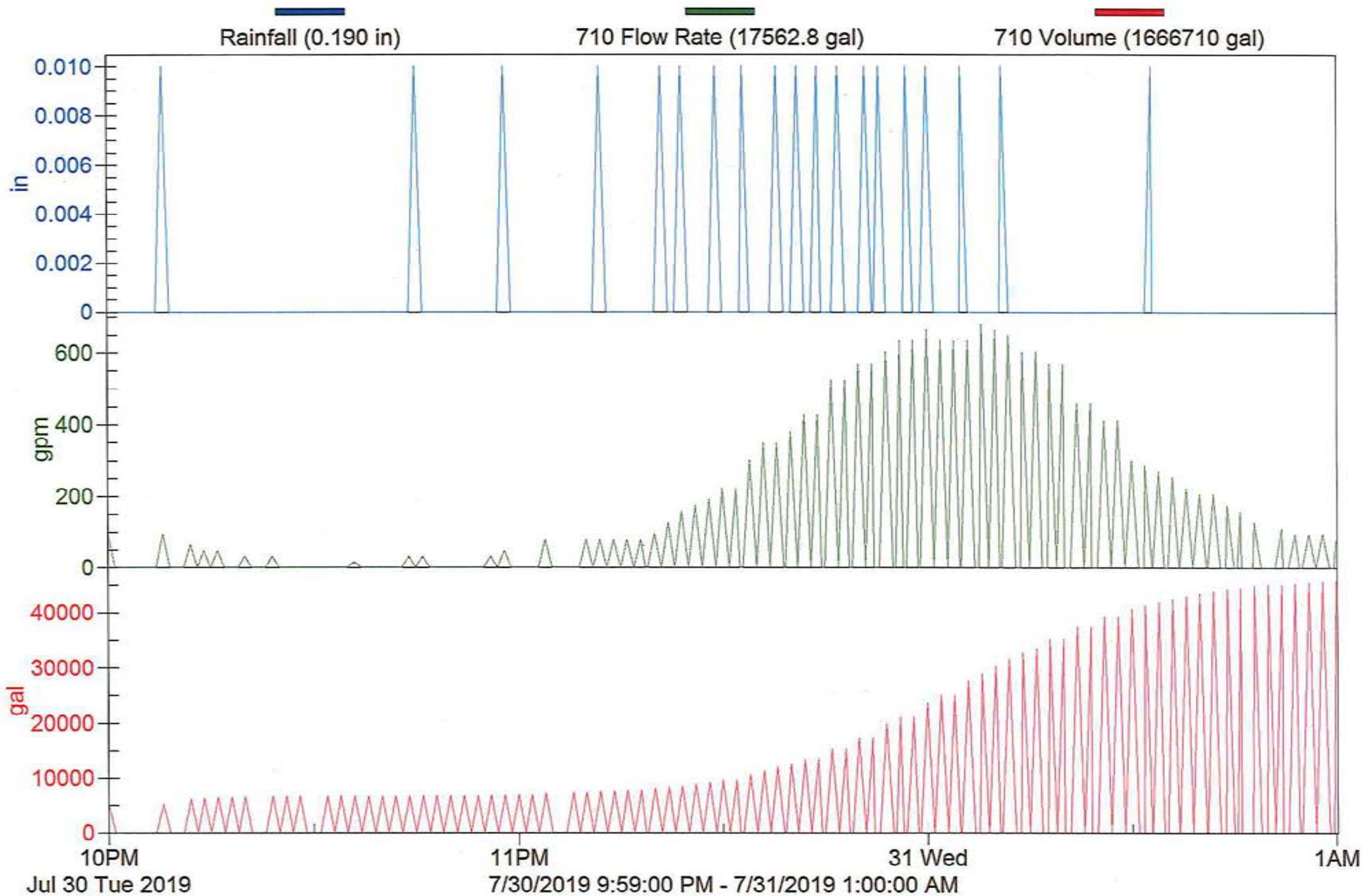
7/30/2019 22:48	0	6699	0
7/30/2019 22:49	0	0	0
7/30/2019 22:50	0	6699	0
7/30/2019 22:51	0	0	0
7/30/2019 22:52	0	6699	0
7/30/2019 22:53	0	0	0
7/30/2019 22:54	0	6699	0
7/30/2019 22:55	0	0	0
7/30/2019 22:56	31.7	6739	0
7/30/2019 22:57	0	0	0
7/30/2019 22:58	47.6	6810	0.01
7/30/2019 22:59	0	0	0
7/30/2019 23:00	0	6890	0
7/30/2019 23:01	0	0	0
7/30/2019 23:02	0	6890	0
7/30/2019 23:03	0	0	0
7/30/2019 23:04	79.3	7030	0
7/30/2019 23:05	0	0	0
7/30/2019 23:06	0	0	0
7/30/2019 23:07	0	0	0
7/30/2019 23:08	0	7291	0
7/30/2019 23:09	0	0	0
7/30/2019 23:10	79.3	7299	0
7/30/2019 23:11	0	0	0
7/30/2019 23:12	79.3	7439	0.01
7/30/2019 23:13	0	0	0
7/30/2019 23:14	79.3	7590	0
7/30/2019 23:15	0	0	0
7/30/2019 23:16	79.3	7751	0
7/30/2019 23:17	0	0	0
7/30/2019 23:18	79.3	7751	0
7/30/2019 23:19	0	0	0
7/30/2019 23:20	95.1	8100	0
7/30/2019 23:21	0	0	0.01
7/30/2019 23:22	126.8	8311	0
7/30/2019 23:23	0	0	0
7/30/2019 23:24	158.5	8551	0.01
7/30/2019 23:25	0	0	0
7/30/2019 23:26	174.4	8850	0
7/30/2019 23:27	0	0	0
7/30/2019 23:28	190.2	9201	0
7/30/2019 23:29	0	0	0.01
7/30/2019 23:30	221.9	9579	0
7/30/2019 23:31	0	0	0
7/30/2019 23:32	221.9	9579	0
7/30/2019 23:33	0	0	0.01
7/30/2019 23:34	301.2	10559	0

7/30/2019 23:35	0	0	0
7/30/2019 23:36	348.7	11161	0
7/30/2019 23:37	0	0	0
7/30/2019 23:38	348.7	11869	0.01
7/30/2019 23:39	0	0	0
7/30/2019 23:40	380.4	12580	0
7/30/2019 23:41	0	0	0.01
7/30/2019 23:42	428	13341	0
7/30/2019 23:43	0	0	0
7/30/2019 23:44	428	13341	0.01
7/30/2019 23:45	0	0	0
7/30/2019 23:46	523.1	15200	0
7/30/2019 23:47	0	0	0.01
7/30/2019 23:48	523.1	15200	0
7/30/2019 23:49	0	0	0
7/30/2019 23:50	570.6	17330	0
7/30/2019 23:51	0	0	0.01
7/30/2019 23:52	570.6	17330	0
7/30/2019 23:53	0	0	0.01
7/30/2019 23:54	602.3	19821	0
7/30/2019 23:55	0	0	0
7/30/2019 23:56	634	21020	0
7/30/2019 23:57	0	0	0.01
7/30/2019 23:58	634	21020	0
7/30/2019 23:59	0	0	0
7/31/2019 0:00	665.7	23601	0.01
7/31/2019 0:01	0	0	0
7/31/2019 0:02	634	24919	0
7/31/2019 0:03	0	0	0
7/31/2019 0:04	634	24919	0
7/31/2019 0:05	0	0	0.01
7/31/2019 0:06	634	27619	0
7/31/2019 0:07	0	0	0
7/31/2019 0:08	681.6	28900	0
7/31/2019 0:09	0	0	0
7/31/2019 0:10	665.7	30261	0
7/31/2019 0:11	0	0	0.01
7/31/2019 0:12	649.9	31590	0
7/31/2019 0:13	0	0	0
7/31/2019 0:14	602.3	32871	0
7/31/2019 0:15	0	0	0
7/31/2019 0:16	602.3	33481	0
7/31/2019 0:17	0	0	0
7/31/2019 0:18	570.6	35320	0
7/31/2019 0:19	0	0	0
7/31/2019 0:20	570.6	35320	0
7/31/2019 0:21	0	0	0

7/31/2019 0:22	459.7	37470	0
7/31/2019 0:23	0	0	0
7/31/2019 0:24	459.7	37470	0
7/31/2019 0:25	0	0	0
7/31/2019 0:26	412.1	39150	0
7/31/2019 0:27	0	0	0
7/31/2019 0:28	412.1	39150	0
7/31/2019 0:29	0	0	0
7/31/2019 0:30	301.2	40669	0
7/31/2019 0:31	0	0	0
7/31/2019 0:32	285.3	41269	0
7/31/2019 0:33	0	0	0.01
7/31/2019 0:34	269.5	41840	0
7/31/2019 0:35	0	0	0
7/31/2019 0:36	253.6	42381	0
7/31/2019 0:37	0	0	0
7/31/2019 0:38	221.9	42891	0
7/31/2019 0:39	0	0	0
7/31/2019 0:40	206.1	43330	0
7/31/2019 0:41	0	0	0
7/31/2019 0:42	206.1	43760	0
7/31/2019 0:43	0	0	0
7/31/2019 0:44	174.4	44151	0
7/31/2019 0:45	0	0	0
7/31/2019 0:46	158.5	44510	0
7/31/2019 0:47	0	0	0
7/31/2019 0:48	126.8	44830	0
7/31/2019 0:49	0	0	0
7/31/2019 0:50	0	45031	0
7/31/2019 0:51	0	0	0
7/31/2019 0:52	111	45049	0
7/31/2019 0:52	0	0	0
7/31/2019 0:53	0	0	0
7/31/2019 0:54	95.1	45271	0
7/31/2019 0:55	0	0	0
7/31/2019 0:56	95.1	45459	0
7/31/2019 0:57	0	0	0
7/31/2019 0:58	95.1	45641	0
7/31/2019 0:59	0	0	0
7/31/2019 1:00	79.3	45800	0
Total:		**45,800**	**0.19**
Average:	**295.02**		

CHAPRD

Flowlink 5



Scottsdale Water
Wet Weather Monitoring Form

Sample Location ID: CAMEL CHAPRD MCKRD PIERCE TBIRD

(Complete a separate form for each monitoring location)

WEATHER	
Hours since last measurable rain event:	73
Rainfall amount in inches:	
SAMPLE COLLECTION INFORMATION	
Sample Types collected:	☑ Grab ☑ Composite
Sample date and time: 7-31-19 12:15AM 1:15AM	See Chain of Custody
Sampling personnel: BF / ML	
Volume of descrete and composite samples:	
FLOW DATA	
Duration of composite sampling period (minutes)	
Volume of flow during composite sampling period (gallons)	
Average flow rate during sampling period (gpm)	
Volume of each aliquot in composite sample	
Number of aliquots in the flow-weighted composite sample	
Flow rate at the time of collection of each aliquot	See attached flow data
Time interval between collection of each aliquot	
VISUAL OBSERVATIONS	
(Color, oil sheen, debris, other) Gray Cloudy	
COMMENTS	
(Remarks, calculations, unusual circumstances that may affect sample results, additional information) Collected all	
ATTACHMENTS	
Rainfall and Flow Data (print for Flowlink)	☐ Yes ☐ No
Chain of Custody	☑ Yes ☐ No
SIGNATURE	
Signature of Monitoring Personnel:	
Signature	Date 8/1/19
Signature	Date 8/2/19

12921687v2
s1 "Sheet1"

SCOTTSDALE WATER

WATER QUALITY LABORATORY
8787 E. Hualapai Dr.
PO Box 25089
Scottsdale, AZ 85255

PHONE 480-312-8732
WEB ScottsdaleAZ.gov

- CERTIFICATE OF ANALYSIS -

Lab # AB95547

Krystal Heyer
City of Scottsdale
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Date Sampled: 07/31/2019
Time Sampled: 00:30
Date Received: 07/31/2019
Report Date: 03/18/2020

Sample ID: SWML19-048
Location ID: SEC Camelback Rd & Hayden Rc (CAMEL)

Location Description: 130570 Grab

Test	Method	Result	Data Qualifier	DF	Units	PQL	Analysis Date
pH, Field	SM4500-H B	7.27		1.00	Std. Units		07/31/2019
Water Temperature, Field	SM2550 B	29.3		1.00	°C		07/31/2019
E. Coli by Quanti-Tray	SM 9223B	155310		1.00	MPN/100ml	1	08/01/2019
EFH (C10-C32)	EPA 8015D	0.86	N1	1.00	mg/L	0.1	08/10/2019
HEM	EPA 1664A	< 5.2		1.00	mg/L	5.2	08/05/2019
Cyanide, Total	SM4500-CN E	< 0.050		1.00	mg/L	0.050	08/05/2019

Comments Method 1664A was analyzed by Eurofins Test America Denver (#AZ0713). Method 8015D and Cyanide were analyzed by Eurofins Test America Phoenix (#AZ0728). Method(s) 8015D: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 550-185471 and analytical batch 550-186043. The samples have been qualified with a N1 qualifier and reported. AB95547 (550-127113-1)

Data Qualifiers
N1 = See report comments.

Authorized Signature
License #AZ0424

CITY OF SCOTTSDALE

CITY OF SCOTTSDALE

CHAIN OF CUSTODY

Date: 7/31/19 Page 1 of 1

LAB ID: 19073100 1

PLEASE FILL THIS FORM IN COMPLETELY. SHADED AREAS ARE FOR LAB USE ONLY.

Contact: Krystal Heyer
City of Scottsdale Water Quality Division
Stormwater
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Department: Water Resources

Phone: (480) 312-8732
Fax: (480) 312-8728

Location Code: STORM - CAMEL
SEC E. Camelback & N. Hayden Rds

ANALYSIS REQUEST

Sample ID	Date	Time	Matrix	Comp (Y/N)	LAB ID	Metals 200.8-STORM, Hardness	Mercury 245.1	TDS, TSS, Nitrate + Nitrite as N	Ammonia as N, TKN	COD	Total Phosphorus	Orthophosphate (Total)	BOD	Total Petroleum Hydrocarbons (TPH) (EPA 8015)	Total Oil and Grease (EPA 1664)	E. coli	Cyanide	Field pH	Field Temperature	Field Flow (from auto-sampler)	NUMBER OF CONTAINERS
						COMPOSITE								GRAB							
CAMEL (GRAB)-SWML19-048	7/31/19	0830	SW	Y	AB95547									X	X	X	X	7.27	7.293		
~~CAMEL (COMP)~~	~~7/31/19~~		~~SW~~	~~Y~~		~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~								
																Dup		7.36	293		

SAMPLE RECEIPT

6	NO. CONTAINERS			PRESERVATION pH VERIFIED	☐ Yes	☑ No	
N	CUSTODY SEALS	☐ Yes	☐ No	RECEIVED COLD	☑ Yes	☐ No	4°C
Y	RECEIVED INTACT	☐ Yes	☐ No				

COMMENTS:

Standard Turn-Around Time (10 Day):
Rush Turn-Around (3 or 5 Day):
Other:

SAMPLED & RELINQUISHED BY:

	1	2
Signature:	[signature]	To Cooler
Printed Name:	M.R. Lira	From
Date:	7/31/19	7.31.19
Time:	0415	0600

SP 7.31.19

RECEIVED BY:

	1	2
Signature:	To Cooler	[signature]
Printed Name:		POR
Date:	7/31/19	7/31/19
Time:	0415	0600

Camelback Station
Wednesday, July 31, 2019

Label		750 Flow Rate	750 Volume	Rainfall
Units		gpm	gal	in
	7/30/2019 21:15	15.9	377161	0.01
	7/30/2019 21:16	0	0	0
	7/30/2019 21:17	0	0	0
	7/30/2019 21:18	0	0	0
	7/30/2019 21:19	0	0	0
	7/30/2019 21:20	0	0	0
	7/30/2019 21:21	0	0	0
	7/30/2019 21:22	0	0	0
	7/30/2019 21:23	0	0	0
	7/30/2019 21:24	0	0	0
	7/30/2019 21:25	0	0	0
	7/30/2019 21:26	0	0	0
	7/30/2019 21:27	0	0	0
	7/30/2019 21:28	0	0	0
	7/30/2019 21:29	0	0	0.01
	7/30/2019 21:30	15.9	377409	0
	7/30/2019 21:31	0	0	0
	7/30/2019 21:32	0	0	0
	7/30/2019 21:33	0	0	0
	7/30/2019 21:34	0	0	0
	7/30/2019 21:35	0	0	0
	7/30/2019 21:36	0	0	0
	7/30/2019 21:37	0	0	0
	7/30/2019 21:38	0	0	0
	7/30/2019 21:39	0	0	0
	7/30/2019 21:40	0	0	0
	7/30/2019 21:41	0	0	0
	7/30/2019 21:42	0	0	0
	7/30/2019 21:43	0	0	0
	7/30/2019 21:44	0	0	0
	7/30/2019 21:45	15.9	377711	0
	7/30/2019 21:46	0	0	0
	7/30/2019 21:47	0	0	0
	7/30/2019 21:48	0	0	0
	7/30/2019 21:49	0	0	0
	7/30/2019 21:50	0	0	0
	7/30/2019 21:51	0	0	0
	7/30/2019 21:52	0	0	0
	7/30/2019 21:53	0	0	0
	7/30/2019 21:54	0	0	0
	7/30/2019 21:55	0	0	0
	7/30/2019 21:56	0	0	0
	7/30/2019 21:57	0	0	0

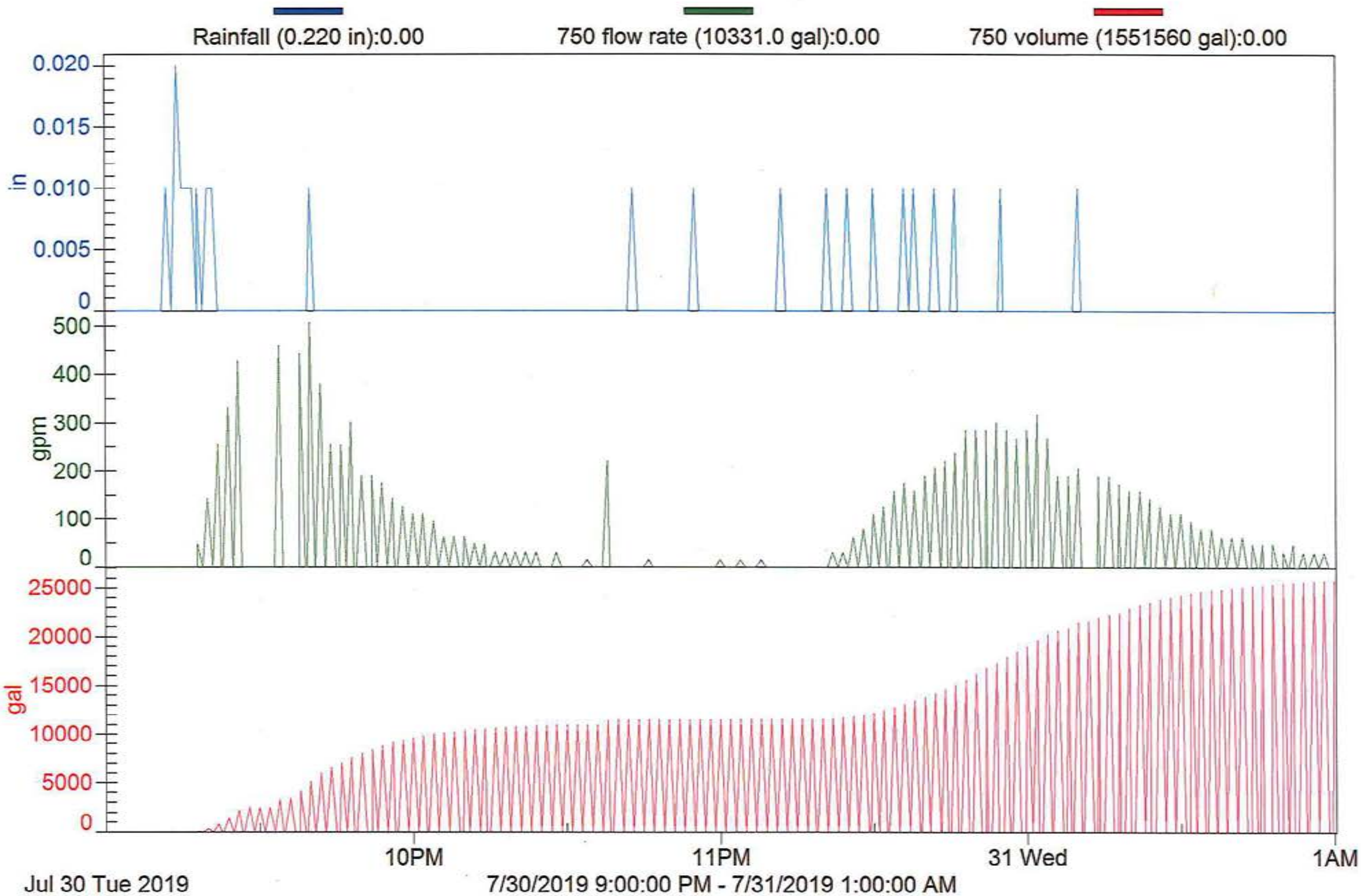
7/30/2019 21:58	0	0	0
7/30/2019 21:59	0	0	0
7/30/2019 22:00	15.9	378009	0
7/30/2019 22:01	0	0	0
7/30/2019 22:02	0	0	0
7/30/2019 22:03	0	0	0
7/30/2019 22:04	0	0	0
7/30/2019 22:05	0	0	0
7/30/2019 22:06	0	0	0
7/30/2019 22:07	0	0	0
7/30/2019 22:08	0	0	0
7/30/2019 22:09	0	0	0
7/30/2019 22:10	0	0	0
7/30/2019 22:11	0	0	0
7/30/2019 22:12	0	0	0
7/30/2019 22:13	0	0	0
7/30/2019 22:14	0	0	0
7/30/2019 22:15	15.9	378249	0
7/30/2019 22:16	0	0	0
7/30/2019 22:17	0	0	0
7/30/2019 22:18	0	0	0
7/30/2019 22:19	0	0	0
7/30/2019 22:20	0	0	0
7/30/2019 22:21	0	0	0
7/30/2019 22:22	0	0	0
7/30/2019 22:23	0	0	0
7/30/2019 22:24	0	0	0
7/30/2019 22:25	0	0	0
7/30/2019 22:26	0	0	0
7/30/2019 22:27	0	0	0
7/30/2019 22:28	0	0	0
7/30/2019 22:29	0	0	0
7/30/2019 22:30	15.9	378469	0
7/30/2019 22:31	0	0	0
7/30/2019 22:32	0	0	0.01
7/30/2019 22:33	0	0	0
7/30/2019 22:34	0	0	0
7/30/2019 22:35	0	0	0
7/30/2019 22:36	0	0	0
7/30/2019 22:37	0	0	0
7/30/2019 22:38	0	0	0
7/30/2019 22:39	0	0	0
7/30/2019 22:40	0	0	0
7/30/2019 22:41	0	0	0
7/30/2019 22:42	0	0	0
7/30/2019 22:43	0	0	0
7/30/2019 22:44	0	0	0
7/30/2019 22:45	15.9	378691	0
7/30/2019 22:46	0	0	0

7/30/2019 22:47	0	0	0
7/30/2019 22:48	0	0	0
7/30/2019 22:49	0	0	0
7/30/2019 22:50	0	0	0
7/30/2019 22:51	0	0	0
7/30/2019 22:52	0	0	0
7/30/2019 22:53	0	0	0
7/30/2019 22:54	0	0	0
7/30/2019 22:55	0	0	0
7/30/2019 22:56	0	0	0
7/30/2019 22:57	0	0	0
7/30/2019 22:58	0	0	0
7/30/2019 22:59	0	0	0
7/30/2019 23:00	31.7	379000	0
7/30/2019 23:01	0	0	0
7/30/2019 23:02	0	0	0
7/30/2019 23:03	0	0	0
7/30/2019 23:04	0	0	0
7/30/2019 23:05	0	0	0
7/30/2019 23:06	0	0	0
7/30/2019 23:07	0	0	0
7/30/2019 23:08	0	0	0
7/30/2019 23:09	0	0	0
7/30/2019 23:10	0	0	0
7/30/2019 23:11	0	0	0
7/30/2019 23:12	0	0	0
7/30/2019 23:13	0	0	0
7/30/2019 23:14	0	0	0.01
7/30/2019 23:15	47.6	379560	0
7/30/2019 23:16	0	0	0
7/30/2019 23:17	0	0	0
7/30/2019 23:18	0	0	0
7/30/2019 23:19	0	0	0
7/30/2019 23:20	0	0	0
7/30/2019 23:21	0	0	0
7/30/2019 23:22	0	0	0
7/30/2019 23:23	0	0	0
7/30/2019 23:24	0	0	0.01
7/30/2019 23:25	0	0	0
7/30/2019 23:26	0	0	0
7/30/2019 23:27	0	0	0
7/30/2019 23:28	0	0	0
7/30/2019 23:29	0	0	0.01
7/30/2019 23:30	79.3	380209	0
7/30/2019 23:31	0	0	0
7/30/2019 23:32	0	0	0
7/30/2019 23:33	0	0	0.01
7/30/2019 23:34	0	0	0
7/30/2019 23:35	0	0	0

7/30/2019 23:36	0	0	0
7/30/2019 23:37	0	0	0
7/30/2019 23:38	0	0	0
7/30/2019 23:39	0	0	0.01
7/30/2019 23:40	158.5	381470	0
7/30/2019 23:41	0	0	0
7/30/2019 23:42	174.4	381779	0
7/30/2019 23:43	0	0	0
7/30/2019 23:44	174.4	382141	0.01
7/30/2019 23:45	0	0	0
7/30/2019 23:46	190.2	382489	0
7/30/2019 23:47	0	0	0
7/30/2019 23:48	174.4	382870	0.01
7/30/2019 23:49	0	0	0
7/30/2019 23:50	206.1	383240	0
7/30/2019 23:51	0	0	0.01
7/30/2019 23:52	206.1	383649	0
7/30/2019 23:53	0	0	0
7/30/2019 23:54	221.9	384069	0
7/30/2019 23:55	0	0	0
7/30/2019 23:56	221.9	384521	0
7/30/2019 23:57	0	0	0
7/30/2019 23:58	221.9	384959	0.01
7/30/2019 23:59	0	0	0
7/31/2019 0:00	253.6	385419	0
7/31/2019 0:01	0	0	0.01
7/31/2019 0:02	253.6	385921	0
7/31/2019 0:03	0	0	0
7/31/2019 0:04	285.3	386439	0
7/31/2019 0:05	0	0	0
7/31/2019 0:06	317	387031	0.01
7/31/2019 0:07	0	0	0
7/31/2019 0:08	364.6	387691	0
7/31/2019 0:09	0	0	0
7/31/2019 0:10	428	388441	0
7/31/2019 0:11	0	0	0
7/31/2019 0:12	475.5	389310	0
7/31/2019 0:13	0	0	0
7/31/2019 0:14	475.5	390259	0.01
7/31/2019 0:15	0	0	0
Average:	**299.46**		
Total:		**24,621**	**0.15**

CAMEL

Flowlink 5



Scottsdale Water

Wet Weather Monitoring Form

Sample Location ID: CAMEL CHAPRD MCKRD PIERCE TBIRD

(Complete a separate form for each monitoring location)

WEATHER	
Hours since last measurable rain event:	>3
Rainfall amount in inches: 0.22in	
SAMPLE COLLECTION INFORMATION	
Sample Types collected: Grab	☒ Grab ☐ Composite
Sample date and time: 7-31-19 00:30	See Chain of Custody
Sampling personnel: ML/BF	
Volume of descrete and composite samples:	
FLOW DATA	
Duration of composite sampling period (minutes)	
Volume of flow during composite sampling period (gallons)	24,621 gal
Average flow rate during sampling period (gpm)	299 gpm
Volume of each aliquot in composite sample	100mL
Number of aliquots in the flow-weighted composite sample	
Flow rate at the time of collection of each aliquot	See attached flow data
Time interval between collection of each aliquot	

VISUAL OBSERVATIONS

(Color, oil sheen, debris, other)

Slightly Brown, Cloudy

COMMENTS

(Remarks, calculations, unusual circumstances that may affect sample results, additional information)

Collected All Grab Samples

ATTACHMENTS		
Rainfall and Flow Data (print for Flowlink)	☐ Yes	☐ No
Chain of Custody	☒ Yes	☐ No

SIGNATURE

Signature of Monitoring Personnel:

Signature [signature] Date 8/1/19

Signature [signature] Date 8/2/19

12921687v2

s1 "Sheet1"

WATER QUALITY LABORATORY
8787 E. Hualapai Dr.
PO Box 25089
Scottsdale, AZ 85255
PHONE 480-312-8732
WEB ScottsdaleAZ.gov

- CERTIFICATE OF ANALYSIS -

Lab # AB95548

Krystal Heyer
City of Scottsdale
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Date Sampled: 07/31/2019
Time Sampled: 01:15
Date Received: 07/31/2019
Report Date: 03/18/2020

Sample ID: SWML19-047
Location ID: SEC Thunderbird Rd & 73rd St (TBIRD)

Location Description: 250940
Grab

Test	Method	Result	Data Qualifier	DF	Units	PQL	Analysis Date
pH, Field	SM4500-H B	7.54		1.00	Std. Units		07/31/2019
Water Temperature, Field	SM2550 B	29.4		1.00	°C		07/31/2019
E. Coli by Quanti-Tray	SM 9223B	992.4		1.00	MPN/100ml	1	08/01/2019
EFH (C10-C32)	EPA 8015D	1.0	N1	1.00	mg/L	0.1	08/09/2019
HEM	EPA 1664A	< 5.3		1.00	mg/L	5.3	08/05/2019
Cyanide, Total	SM4500-CN E	< 0.050		1.00	mg/L	0.050	08/05/2019

Comments Method 1664A was analyzed by Eurofins Test America Denver (#AZ0713).
Method 8015D and Cyanide were analyzed by Eurofins Test America Phoenix (#AZ0728).
Method(s) 8015D: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 550-185471 and analytical batch 550-186043. The samples have been qualified with a N1 qualifier and reported. AB95548 (550-127114-1)

Data Qualifiers
N1 = See report comments.

Authorized Signature
License #AZ0424

CITY OF SCOTTSDALE

CITY OF SCOTTSDALE

CHAIN OF CUSTODY

Date: 7/31/19 Page 1 of 1

LAB ID: 19073100Z

PLEASE FILL THIS FORM IN COMPLETELY. SHADED AREAS ARE FOR LAB USE ONLY.

Contact: Krystal Heyer
City of Scottsdale Water Quality Division
Stormwater
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Department: Water Resources

Phone: (480) 312-8732
Fax: (480) 312-8728

Location Code: STORM - TBIRD
SEC E. Thunderbird & N. Scottsdale Rd

ANALYSIS REQUEST

Sample ID	Date	Time	Matrix	Comp (Y/N)	LAB ID	Metals 200.8-STORM, Hardness	Mercury 245.1	TDS, TSS, Nitrate + Nitrite as N ******	Ammonia as N, TKN	COD	Total Phosphorus	Orthophosphate (Total) *****	BOD *****	Total Petroleum Hydrocarbons (TPH) (EPA 8015)	Total Oil and Grease (EPA 1664)	E. coli	Cyanide	Field pH	Field Temperature	Field Flow (from auto-sampler)	NUMBER OF CONTAINERS
						COMPOSITE								GRAB							
TBRD (GRAB) SCOMU19-047	7/31/19	0115	SW	Y	AB95548									X	X	X	X		7.54	29.4	
~~TBRD (COMP)~~	~~7/31/19~~		SW	Y		X	X	X	X	X	X	X	X								
																			7.66	29.4	

SAMPLE RECEIPT

NO. CONTAINERS: 6	PRESERVATION VERIFIED: ☐ Yes ☒ No
CUSTODY SEALS: N ☐ Yes ☐ No	RECEIVED COLD: ☒ Yes ☐ No
RECEIVED INTACT: Y ☐ Yes ☐ No	

SAMPLED & RELINQUISHED BY: SP 7.31.19

Signature:	Printed Name: M.R. Linn	Date: 7/31/19	Time: 0400
Signature: TD Cooler	Printed Name: From	Date: 7.31.19	Time: 0613

RECEIVED BY:

Signature: TD Cooler	Printed Name:	Date: 7.31.19	Time: 0400
Signature:	Printed Name:	Date: 7.31.19	Time: 0613

COMMENTS:

Standard Turn-Around Time (10 Day):

Rush Turn-Around (3 or 5 Day):

Other:

Thunderbird Station
Wednesday, July 31, 2019

Label	750 flow rate	750 volume	Rainfall
Units	gpm	gal	in
7/30/2019 23:00	0	10382	0
7/30/2019 23:01	0	0	0
7/30/2019 23:02	0	0	0
7/30/2019 23:03	0	0	0
7/30/2019 23:04	0	0	0
7/30/2019 23:05	0	0	0
7/30/2019 23:06	0	0	0
7/30/2019 23:07	0	0	0
7/30/2019 23:08	0	0	0
7/30/2019 23:09	0	0	0
7/30/2019 23:10	0	0	0
7/30/2019 23:11	0	0	0
7/30/2019 23:12	0	0	0
7/30/2019 23:13	0	0	0
7/30/2019 23:14	0	0	0
7/30/2019 23:15	0	10382	0
7/30/2019 23:16	0	0	0
7/30/2019 23:17	0	0	0.01
7/30/2019 23:18	0	10382	0
7/30/2019 23:18	0	0	0
7/30/2019 23:19	0	0	0
7/30/2019 23:20	0	10382	0
7/30/2019 23:21	0	0	0
7/30/2019 23:22	0	10382	0.01
7/30/2019 23:23	0	0	0
7/30/2019 23:24	0	10382	0
7/30/2019 23:25	0	0	0
7/30/2019 23:26	0	10382	0
7/30/2019 23:27	0	0	0.01
7/30/2019 23:28	0	10382	0
7/30/2019 23:29	0	0	0
7/30/2019 23:30	0	10382	0
7/30/2019 23:31	0	0	0.01
7/30/2019 23:32	0	10382	0
7/30/2019 23:32	0	0	0
7/30/2019 23:33	0	0	0
7/30/2019 23:34	0	10382	0
7/30/2019 23:35	0	0	0.01
7/30/2019 23:36	0	10382	0
7/30/2019 23:37	0	0	0
7/30/2019 23:38	0	10382	0
7/30/2019 23:39	0	0	0.01

7/30/2019 23:39	0	0	0
7/30/2019 23:40	0	10382	0
7/30/2019 23:41	0	0	0
7/30/2019 23:42	0	10382	0
7/30/2019 23:43	0	0	0
7/30/2019 23:44	0	10382	0.01
7/30/2019 23:44	0	0	0
7/30/2019 23:45	0	0	0
7/30/2019 23:46	0	10382	0
7/30/2019 23:47	0	0	0
7/30/2019 23:48	0	10382	0
7/30/2019 23:48	0	0	0
7/30/2019 23:49	0	0	0
7/30/2019 23:50	0	10382	0.01
7/30/2019 23:51	0	0	0
7/30/2019 23:52	0	10382	0
7/30/2019 23:52	0	0	0
7/30/2019 23:53	0	0	0
7/30/2019 23:54	0	10382	0
7/30/2019 23:55	0	0	0
7/30/2019 23:55	0	0	0
7/30/2019 23:56	79.3	10408	0.01
7/30/2019 23:56	0	0	0
7/30/2019 23:57	0	0	0
7/30/2019 23:58	95.1	10593	0
7/30/2019 23:58	0	0	0
7/30/2019 23:59	0	0	0
7/31/2019 0:00	111	10778	0
7/31/2019 0:01	0	0	0
7/31/2019 0:02	0	10884	0.01
7/31/2019 0:03	0	0	0
7/31/2019 0:04	142.7	10990	0
7/31/2019 0:04	0	0	0
7/31/2019 0:05	0	0	0
7/31/2019 0:06	190.2	11333	0
7/31/2019 0:07	0	0	0
7/31/2019 0:07	0	0	0
7/31/2019 0:08	0	11544	0
7/31/2019 0:09	0	0	0.01
7/31/2019 0:10	253.6	11782	0
7/31/2019 0:10	0	0	0
7/31/2019 0:11	0	0	0
7/31/2019 0:12	0	12046	0
7/31/2019 0:13	0	0	0
7/31/2019 0:13	0	0	0
7/31/2019 0:14	206.1	12231	0
7/31/2019 0:15	0	0	0

7/31/2019 0:16	206.1	12654	0
7/31/2019 0:16	0	0	0
7/31/2019 0:17	0	0	0.01
7/31/2019 0:17	0	0	0
7/31/2019 0:18	221.9	13103	0
7/31/2019 0:19	0	0	0
7/31/2019 0:20	221.9	13526	0
7/31/2019 0:20	0	0	0
7/31/2019 0:21	0	0	0
7/31/2019 0:22	0	13763	0
7/31/2019 0:23	0	0	0
7/31/2019 0:24	206.1	13975	0
7/31/2019 0:24	0	0	0
7/31/2019 0:25	0	0	0
7/31/2019 0:26	206.1	14397	0.01
7/31/2019 0:27	0	0	0
7/31/2019 0:28	206.1	14794	0
7/31/2019 0:28	0	0	0
7/31/2019 0:29	0	0	0
7/31/2019 0:30	190.2	15163	0
7/31/2019 0:31	0	0	0
7/31/2019 0:31	0	0	0
7/31/2019 0:32	206.1	15560	0
7/31/2019 0:33	0	0	0
7/31/2019 0:33	0	0	0
7/31/2019 0:34	142.7	15903	0
7/31/2019 0:34	0	0	0
7/31/2019 0:35	0	0	0
7/31/2019 0:35	0	0	0
7/31/2019 0:36	206.1	16247	0
7/31/2019 0:36	0	0	0
7/31/2019 0:37	0	0	0
7/31/2019 0:38	206.1	16669	0
7/31/2019 0:38	0	0	0
7/31/2019 0:39	0	0	0
7/31/2019 0:40	142.7	17013	0
7/31/2019 0:41	0	0	0
7/31/2019 0:41	0	0	0
7/31/2019 0:42	158.5	17303	0
7/31/2019 0:43	0	0	0
7/31/2019 0:43	0	0	0
7/31/2019 0:43	0	0	0
7/31/2019 0:44	158.5	17647	0
7/31/2019 0:45	0	0	0
7/31/2019 0:45	0	0	0
7/31/2019 0:46	158.5	17884	0
7/31/2019 0:46	0	0	0

7/31/2019 0:47	0	0	0
7/31/2019 0:47	0	0	0
7/31/2019 0:48	158.5	18281	0
7/31/2019 0:49	0	0	0
7/31/2019 0:49	0	0	0
7/31/2019 0:50	142.7	18571	0
7/31/2019 0:51	0	0	0
7/31/2019 0:52	126.8	18809	0
7/31/2019 0:52	0	0	0
7/31/2019 0:53	0	0	0
7/31/2019 0:54	126.8	19047	0
7/31/2019 0:54	0	0	0
7/31/2019 0:55	0	0	0
7/31/2019 0:56	95.1	19285	0
7/31/2019 0:57	0	0	0
7/31/2019 0:57	0	0	0
7/31/2019 0:58	95.1	19496	0
7/31/2019 0:59	0	0	0
7/31/2019 0:59	0	0	0
7/31/2019 1:00	95.1	19681	0
7/31/2019 1:01	0	0	0
7/31/2019 1:02	-2726.3	17039	0
7/31/2019 1:02	0	0	0
7/31/2019 1:02	0	0	0
7/31/2019 1:03	0	0	0
7/31/2019 1:04	-1331.4	12997	0
7/31/2019 1:05	0	0	0
7/31/2019 1:05	0	0	0
7/31/2019 1:06	-966.9	10699	0
7/31/2019 1:07	0	0	0
7/31/2019 1:08	-966.9	9986	0
7/31/2019 1:08	0	0	0
7/31/2019 1:09	0	0	0
Average:	**163.99**		
Total:		**9,299**	**0.13**

Scottsdale Water
Wet Weather Monitoring Form

Sample Location ID: CAMEL CHAPRD MCKRD PIERCE TBIRD
(Complete a separate form for each monitoring location)

WEATHER	
Hours since last measurable rain event:	>3
Rainfall amount in inches:	
SAMPLE COLLECTION INFORMATION	
Sample Types collected:	☑ Grab ☐ Composite
Sample date and time: 7-31-19 01:15	See Chain of Custody
Sampling personnel: ML/BF	
Volume of descrete and composite samples:	
FLOW DATA	
Duration of composite sampling period (minutes)	
Volume of flow during composite sampling period (gallons)	
Average flow rate during sampling period (gpm)	
Volume of each aliquot in composite sample	
Number of aliquots in the flow-weighted composite sample	
Flow rate at the time of collection of each aliquot	See attached flow data
Time interval between collection of each aliquot	

VISUAL OBSERVATIONS

(Color, oil sheen, debris, other)

Light Brown, Cloudy

COMMENTS

(Remarks, calculations, unusual circumstances that may affect sample results, additional information)

Collected All Grab Samples

ATTACHMENTS	
Rainfall and Flow Data (print for Flowlink)	☐ Yes ☐ No
Chain of Custody	☑ Yes ☐ No

SIGNATURE

Signature of Monitoring Personnel:

Signature [signature] Date 8/1/19

Signature [signature] Date 8/2/19

12921687v2
s1 "Sheet1"

WATER QUALITY LABORATORY
8787 E. Hualapai Dr.
PO Box 25089
Scottsdale, AZ 85255

PHONE 480-312-8732
WEB ScottsdaleAZ.gov

- CERTIFICATE OF ANALYSIS -

Lab # AB95653

Krystal Heyer
City of Scottsdale
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Date Sampled: 08/03/2019
Time Sampled: 23:30
Date Received: 08/05/2019
Report Date: 01/14/2020

Sample ID: SWVS19-051
Location ID: SEC Thunderbird Rd & 73rd St (TBIRD)

Location Description: 250940 Composite

Test	Method	Result	Data Qualifier	DF	Units	PQL	Analysis Date
Nitrogen, Ammonia, N	SM 4500 NH3 D	1.579		1.00	mg/L	0.10	08/05/2019
BOD, 5 Day	SM 5210B	17.60	K6	1.00	mg/L	1	08/04/2019
Chemical Oxygen Demand	SM 5220 D	139		1.00	mg/L	20	08/05/2019
Nitrogen, Nitrate + Nitrite (as N)	Calculation	1.8		1.00	mg/L	0.4	08/04/2019
Nitrate, NO3	EPA 300.0	1.8		1.00	mg/L	0.2	08/04/2019
Nitrite, NO2	EPA 300.0	< 0.2		1.00	mg/L	0.2	08/04/2019
Orthophosphate as P	EPA 300.0	0.223		1.00	mg/L	0.2	08/05/2019
Total Phosphorus, P	SM 4500-P E	0.26		1.00	mg/L	0.033	08/07/2019
Residue, Total Dissolved	SM 2540 C	152		1.00	mg/L	20	08/05/2019
Nitrogen, Total Kjeldahl, TKN	SM 4500 NH3-D	2.909		1.00	mg/L	0.50	08/15/2019
Residue, Total Suspended	SM 2540 D	24		1.00	mg/L	10	08/05/2019
Beryllium, Be	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	09/11/2019
Magnesium, Mg	EPA 200.8	2.54		1.00	mg/L	0.50	09/11/2019
Calcium, Ca	EPA 200.8	19.5	D2	10.00	mg/L	5.0	09/11/2019
Chromium, Cr	EPA 200.8	0.0031		1.00	mg/L	0.0010	09/11/2019

SCOTTSDALE WATER

WATER QUALITY LABORATORY
8787 E. Hualapai Dr.
PO Box 25089
Scottsdale, AZ 85255

PHONE 480-312-8732
WEB ScottsdaleAZ.gov

- CERTIFICATE OF ANALYSIS -

Lab Number AB95653 Continued From Previous Page

Test	Method	Result	Data Qualifier	DF	Units	PQL	Analysis Date
Nickel, Ni	EPA 200.8	0.0059		1.00	mg/L	0.0010	09/11/2019
Copper, Cu	EPA 200.8	0.0269		1.00	mg/L	0.0010	09/11/2019
Zinc, Zn	EPA 200.8	0.084		1.00	mg/L	0.010	09/11/2019
Arsenic, As	EPA 200.8	0.0025		1.00	mg/L	0.0010	09/11/2019
Selenium, Se	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	09/11/2019
Silver, Ag	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	09/11/2019
Cadmium, Cd	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	09/11/2019
Antimony, Sb	EPA 200.8	0.0015		1.00	mg/L	0.0010	09/11/2019
Barium, Ba	EPA 200.8	0.0385		1.00	mg/L	0.0010	09/11/2019
Thallium, Tl	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	09/11/2019
Lead, Pb	EPA 200.8	0.0023		1.00	mg/L	0.0010	09/11/2019
Total Hardness	SM 2340B	59.2		1.00	mg/L	0.34	09/11/2019
Mercury, Hg	EPA 245.1	< 0.0002		1.00	mg/L	0.0002	08/08/2019

Data Qualifiers

K6 = Glucose/glutamic acid BOD/CBOD was below method acceptance criteria.
D2 = Sample required dilution due to high concentration of target analyte.

Authorized Signature
License #AZ0424

CITY OF SCOTTSDALE

CITY OF SCOTTSDALE

CHAIN OF CUSTODY

Date: 8/3/19 Page 1 of 1

LAB ID: 19080S001

PLEASE FILL THIS FORM IN COMPLETELY. SHADED AREAS ARE FOR LAB USE ONLY.

Contact: Krystal Heyer
City of Scottsdale Water Quality Division
Stormwater
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Department: Water Resources

Phone: (480) 312-8732
Fax: (480) 312-8728

Location Code: STORM - TBIRD
SEC E. Thunderbird & N. Scottsdale Rd

ANALYSIS REQUEST

Sample ID	Date	Time	Matrix	Comp (Y/N)	LAB ID	Metals 200.8-STORM, Hardness	Mercury 245.1	TDS, TSS, Nitrate + Nitrite as N ******	Ammonia as N, TKN	COD	Total Phosphorus	Orthophosphate (Total) *****	BOD *****					Total Petroleum Hydrocarbons (TPH) (EPA 8015)	Total Oil and Grease (EPA 1664)	E. coli	Cyanide	Field pH	Field Temperature	Field Flow (from auto-sampler)	NUMBER OF CONTAINERS
						COMPOSITE												GRAB							
~~TBRD (GRAB)~~			~~SW~~	~~Y~~	VPS 8/3/19													~~X~~	~~X~~	~~X~~	~~X~~	VPS 8/3/19			~~8~~ 8BD 8/5/19
TBRD (COMP) SWUS19-051	8/3/19	2330	SW	Y	AB95653	X	X	X	X	X	X	X	X												8

SAMPLE RECEIPT

NO. CONTAINERS	8	PRESERVATION pH VERIFIED	☐ Yes	☐ No
CUSTODY SEALS	☐ Yes ☒ No	RECEIVED COLD	☒ Yes	☐ No 4°C
RECEIVED INTACT	☒ Yes ☐ No			

COMMENTS:

Standard Turn-Around Time (10 Day):

Rush Turn-Around (3 or 5 Day):

Other:

SAMPLED & RELINQUISHED BY:

Signature: Victor P. Sesate		Signature: FROM COOLER	
Printed Name: VICTOR P. SESATE		Printed Name:	
Date: 8/3/19	Time: 2355	Date: 8/5/19	Time: 0651

RECEIVED BY:

Signature: TO COOLER		Signature: [signature]	
Printed Name:		Printed Name: Bryce Denton	
Date: 8/3/19	Time: 2355	Date: 8/5/19	Time: 0651

Thunderbird Station
Saturday, August 03, 2019

Label	750 flow rate	750 volume	Rainfall
Units	gpm	gal	in
8/3/2019 20:15	0	307232	0.01
8/3/2019 20:16	0	0	0
8/3/2019 20:17	0	0	0.01
8/3/2019 20:18	0	0	0
8/3/2019 20:19	0	0	0.01
8/3/2019 20:20	0	0	0
8/3/2019 20:21	0	0	0
8/3/2019 20:22	0	0	0.01
8/3/2019 20:23	0	0	0
8/3/2019 20:24	0	0	0.01
8/3/2019 20:25	0	0	0.01
8/3/2019 20:26	0	0	0.01
8/3/2019 20:27	0	0	0
8/3/2019 20:28	0	307232	0.01
8/3/2019 20:29	0	0	0
8/3/2019 20:30	0	307232	0.01
8/3/2019 20:31	0	0	0
8/3/2019 20:32	0	307232	0.01
8/3/2019 20:33	0	0	0
8/3/2019 20:34	0	307232	0
8/3/2019 20:35	0	0	0
8/3/2019 20:36	0	307232	0.01
8/3/2019 20:37	0	0	0
8/3/2019 20:38	0	307232	0.01
8/3/2019 20:39	0	0	0
8/3/2019 20:40	95.1	307285	0
8/3/2019 20:41	0	0	0
8/3/2019 20:42	190.2	307576	0
8/3/2019 20:43	0	0	0
8/3/2019 20:44	412.1	308183	0.01
8/3/2019 20:45	0	0	0
8/3/2019 20:46	507.2	309108	0
8/3/2019 20:47	0	0	0
8/3/2019 20:48	523.1	310138	0.01
8/3/2019 20:49	0	0	0
8/3/2019 20:50	538.9	311168	0.01
8/3/2019 20:51	0	0	0
8/3/2019 20:52	538.9	312251	0.01
8/3/2019 20:53	0	0	0
8/3/2019 20:54	507.2	313282	0
8/3/2019 20:55	0	0	0.01
8/3/2019 20:56	523.1	314312	0

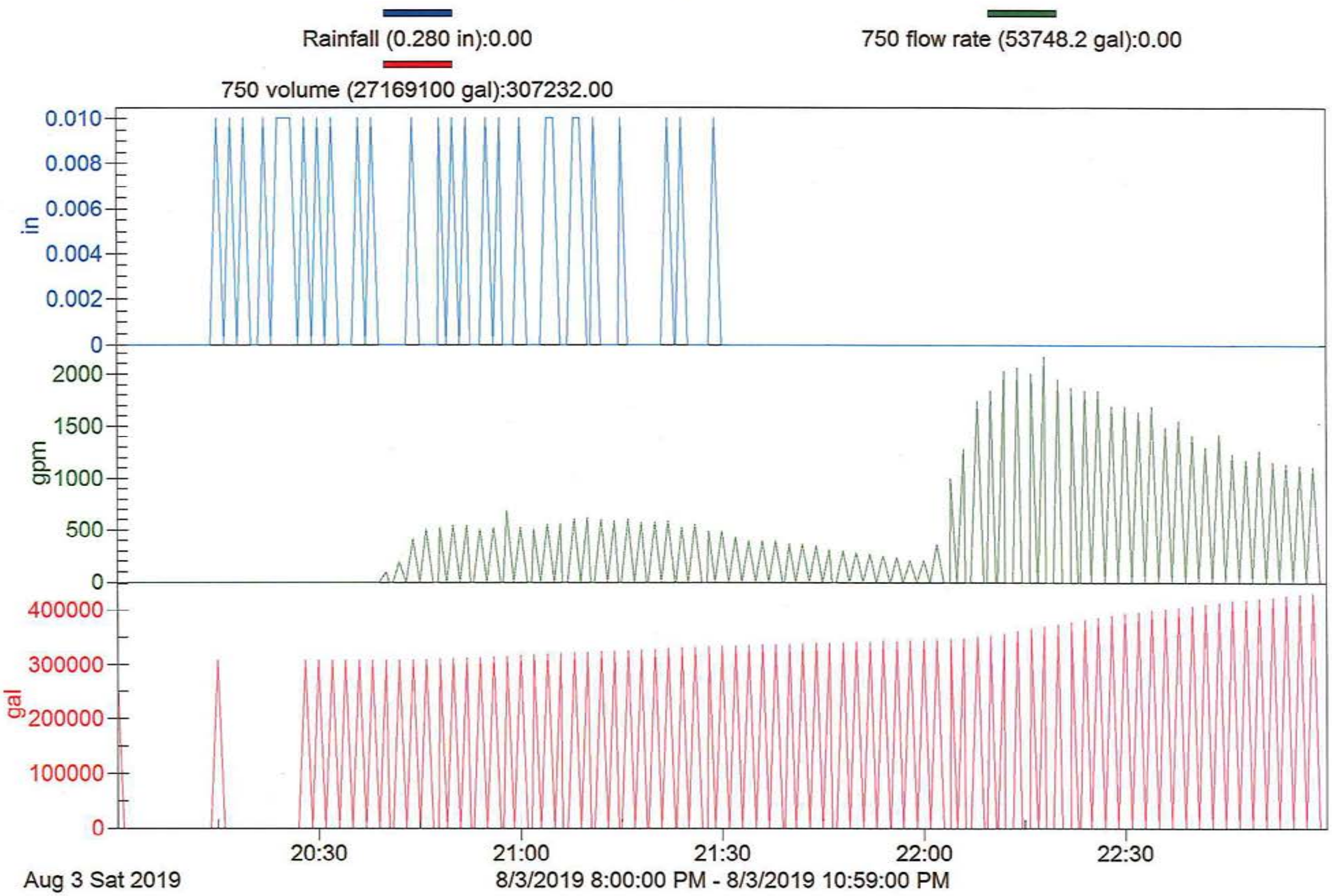
8/3/2019 20:57	0	0	0.01
8/3/2019 20:58	681.6	315501	0
8/3/2019 20:59	0	0	0
8/3/2019 21:00	523.1	316689	0.01
8/3/2019 21:01	0	0	0
8/3/2019 21:02	507.2	317720	0
8/3/2019 21:03	0	0	0
8/3/2019 21:04	554.8	318803	0.01
8/3/2019 21:05	0	0	0.01
8/3/2019 21:06	554.8	319939	0
8/3/2019 21:07	0	0	0
8/3/2019 21:08	602.3	321075	0.01
8/3/2019 21:09	0	0	0.01
8/3/2019 21:10	618.2	322290	0
8/3/2019 21:11	0	0	0.01
8/3/2019 21:12	602.3	323531	0
8/3/2019 21:13	0	0	0
8/3/2019 21:14	586.5	324720	0
8/3/2019 21:15	0	0	0.01
8/3/2019 21:16	602.3	325909	0
8/3/2019 21:17	0	0	0
8/3/2019 21:18	570.6	327098	0
8/3/2019 21:19	0	0	0
8/3/2019 21:20	570.6	328260	0
8/3/2019 21:21	0	0	0
8/3/2019 21:22	586.5	329396	0.01
8/3/2019 21:23	0	0	0
8/3/2019 21:24	523.1	330506	0.01
8/3/2019 21:25	0	0	0
8/3/2019 21:26	554.8	331589	0
8/3/2019 21:27	0	0	0
8/3/2019 21:28	491.4	332645	0
8/3/2019 21:29	0	0	0.01
8/3/2019 21:30	491.4	333649	0
8/3/2019 21:31	0	0	0
8/3/2019 21:32	428	334547	0
8/3/2019 21:33	0	0	0
8/3/2019 21:34	396.3	335393	0
8/3/2019 21:35	0	0	0
8/3/2019 21:36	396.3	336159	0
8/3/2019 21:37	0	0	0
8/3/2019 21:38	396.3	336951	0
8/3/2019 21:39	0	0	0
8/3/2019 21:40	364.6	337718	0
8/3/2019 21:41	0	0	0
8/3/2019 21:42	364.6	338431	0
8/3/2019 21:43	0	0	0

8/3/2019 21:44	348.7	339144	0
8/3/2019 21:45	0	0	0
8/3/2019 21:46	317	339805	0
8/3/2019 21:47	0	0	0
8/3/2019 21:48	301.2	340439	0
8/3/2019 21:49	0	0	0
8/3/2019 21:50	285.3	341020	0
8/3/2019 21:51	0	0	0
8/3/2019 21:52	269.5	341601	0
8/3/2019 21:53	0	0	0
8/3/2019 21:54	253.6	342129	0
8/3/2019 21:55	0	0	0
8/3/2019 21:56	237.8	342605	0
8/3/2019 21:57	0	0	0
8/3/2019 21:58	206.1	343054	0
8/3/2019 21:59	0	0	0
8/3/2019 22:00	206.1	343450	0
8/3/2019 22:01	0	0	0
8/3/2019 22:02	364.6	344031	0
8/3/2019 22:03	0	0	0
8/3/2019 22:04	998.6	345352	0
8/3/2019 22:05	0	0	0
8/3/2019 22:06	1283.9	347650	0
8/3/2019 22:07	0	0	0
8/3/2019 22:08	1743.5	350688	0
8/3/2019 22:09	0	0	0
8/3/2019 22:10	1838.6	354281	0
8/3/2019 22:11	0	0	0
8/3/2019 22:12	2028.8	358191	0
8/3/2019 22:13	0	0	0
8/3/2019 22:14	2060.5	362259	0
8/3/2019 22:15	0	0	0
8/3/2019 22:16	2013	366327	0
8/3/2019 22:17	0	0	0
8/3/2019 22:18	2171.5	370501	0
8/3/2019 22:19	0	0	0
8/3/2019 22:20	1949.6	374596	0
8/3/2019 22:21	0	0	0
8/3/2019 22:22	1870.3	378400	0
8/3/2019 22:23	0	0	0
8/3/2019 22:24	1838.6	382151	0
8/3/2019 22:25	0	0	0
8/3/2019 22:26	1838.6	385823	0
8/3/2019 22:27	0	0	0
8/3/2019 22:28	1696	389363	0
8/3/2019 22:29	0	0	0
8/3/2019 22:30	1696	392745	0

8/3/2019 22:31	0	0	0
8/3/2019 22:32	1632.6	396073	0
8/3/2019 22:33	0	0	0
8/3/2019 22:34	1696	399375	0
8/3/2019 22:35	0	0	0
8/3/2019 22:36	1489.9	402572	0
8/3/2019 22:37	0	0	0
8/3/2019 22:38	1553.3	405610	0
8/3/2019 22:39	0	0	0
8/3/2019 22:40	1410.7	408542	0
8/3/2019 22:41	0	0	0
8/3/2019 22:42	1299.7	411263	0
8/3/2019 22:43	0	0	0
8/3/2019 22:44	1426.5	413984	0
8/3/2019 22:45	0	0	0
8/3/2019 22:46	1236.3	416626	0
8/3/2019 22:47	0	0	0
8/3/2019 22:48	1172.9	419030	0
8/3/2019 22:49	0	0	0
8/3/2019 22:50	1268	421487	0
8/3/2019 22:51	0	0	0
8/3/2019 22:52	1157.1	423890	0
8/3/2019 22:53	0	0	0
8/3/2019 22:54	1141.2	426215	0
8/3/2019 22:55	0	0	0
8/3/2019 22:56	1125.4	428487	0
8/3/2019 22:57	0	0	0
8/3/2019 22:58	1109.5	430706	0
8/3/2019 22:59	0	0	0
Average:	**890.57**		
Total:		**123,474**	**0.28**

TBIRD

Flowlink 5



Scottsdale Water
Wet Weather Monitoring Form

Sample Location ID: CAMEL CHAPRD MCKRD PIERCE TBIRD
(Complete a separate form for each monitoring location)

WEATHER	
Hours since last measurable rain event:	
Rainfall amount in inches:	
SAMPLE COLLECTION INFORMATION	
Sample Types collected:	☐ Grab ☒ Composite
Sample date and time: 8/3/19 2330	See Chain of Custody
Sampling personnel: VPS, BF	
Volume of descrete and composite samples:	
FLOW DATA	
Duration of composite sampling period (minutes)	
Volume of flow during composite sampling period (gallons)	
Average flow rate during sampling period (gpm)	
Volume of each aliquot in composite sample	
Number of aliquots in the flow-weighted composite sample	
Flow rate at the time of collection of each aliquot	See attached flow data
Time interval between collection of each aliquot	
VISUAL OBSERVATIONS	
(Color, oil sheen, debris, other) BROWNISH, NO SHEEN Slight debri	
COMMENTS	
(Remarks, calculations, unusual circumstances that may affect sample results, additional information)	
ATTACHMENTS	
Rainfall and Flow Data (print for Flowlink)	☐ Yes ☐ No
Chain of Custody	☐ Yes ☐ No
SIGNATURE	
Signature of Monitoring Personnel: Signature Victor P. [signature]	Date 8.3.19
Signature	Date

12921687v2
s1 "Sheet1"

WATER QUALITY LABORATORY
8787 E. Hualapai Dr.
PO Box 25089
Scottsdale, AZ 85255
PHONE 480-312-8732
WEB ScottsdaleAZ.gov

- CERTIFICATE OF ANALYSIS -

Lab # AB96297

Krystal Heyer
City of Scottsdale
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Date Sampled: 08/28/2019
Time Sampled: 23:53
Date Received: 08/29/2019
Report Date: 01/30/2020

Sample ID: SWBF19-050
Location ID: NWC Pierce St & Hayden Rd (PIERCE)
Location Description: 080610 Composite

Test	Method	Result	Data Qualifier	DF	Units	PQL	Analysis Date
Nitrogen, Ammonia, N	SM 4500 NH3 D	1.117		1.00	mg/L	0.10	09/16/2019
BOD, 5 Day	SM 5210B	15.63	K6	1.00	mg/L	1	08/29/2019
Chemical Oxygen Demand	SM 5220 D	113		1.00	mg/L	20	09/17/2019
Nitrogen, Nitrate + Nitrite (as N)	Calculation	1.1		1.00	mg/L	0.4	08/29/2019
Nitrate, NO3	EPA 300.0	1.1		1.00	mg/L	0.2	08/29/2019
Nitrite, NO2	EPA 300.0	< 0.2		1.00	mg/L	0.2	08/29/2019
Orthophosphate as P	EPA 300.0	0.289		1.00	mg/L	0.2	08/29/2019
Total Phosphorus, P	SM 4500-P E	0.368		1.00	mg/L	0.033	09/19/2019
Residue, Total Dissolved	SM 2540 C	94	R2	1.00	mg/L	20	09/03/2019
Nitrogen, Total Kjeldahl, TKN	SM 4500 NH3-D	1.449		1.00	mg/L	0.50	09/11/2019
Residue, Total Suspended	SM 2540 D	62		1.00	mg/L	10	09/03/2019
Beryllium, Be	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	10/09/2019
Magnesium, Mg	EPA 200.8	2.55		1.00	mg/L	0.50	10/09/2019
Calcium, Ca	EPA 200.8	11.1		1.00	mg/L	0.50	10/09/2019
Chromium, Cr	EPA 200.8	0.0031		1.00	mg/L	0.0010	10/09/2019

WATER QUALITY LABORATORY
8787 E. Hualapai Dr.
PO Box 25089
Scottsdale, AZ 85255

PHONE 480-312-8732
WEB ScottsdaleAZ.gov

- CERTIFICATE OF ANALYSIS -

Lab Number AB96297 Continued From Previous Page

Test	Method	Result	Data Qualifier	DF	Units	PQL	Analysis Date
Nickel, Ni	EPA 200.8	0.0048		1.00	mg/L	0.0010	10/09/2019
Copper, Cu	EPA 200.8	0.0218		1.00	mg/L	0.0010	10/09/2019
Zinc, Zn	EPA 200.8	0.119		1.00	mg/L	0.010	10/09/2019
Arsenic, As	EPA 200.8	0.0017		1.00	mg/L	0.0010	10/09/2019
Selenium, Se	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	10/09/2019
Silver, Ag	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	10/09/2019
Cadmium, Cd	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	10/09/2019
Antimony, Sb	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	10/09/2019
Barium, Ba	EPA 200.8	0.0459		1.00	mg/L	0.0010	10/09/2019
Thallium, Tl	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	10/09/2019
Lead, Pb	EPA 200.8	0.0065		1.00	mg/L	0.0010	10/09/2019
Total Hardness	SM 2340B	38.2		1.00	mg/L	0.34	10/09/2019
Mercury, Hg	EPA 245.1	< 0.0002		1.00	mg/L	0.0002	09/05/2019

Comments Mercury was analyzed by Eurofins Test America (#AZ0728).

Data Qualifiers

K6 = Glucose/glutamic acid BOD/CBOD was below method acceptance criteria.
R2 = RPD/RSD exceeded the laboratory acceptance limit.

Authorized Signature
License #AZ0424

CITY OF SCOTTSDALE

CITY OF SCOTTSDALE

CHAIN OF COUSTODY

Date: 8.28.19

Page 1 of 1

LAB ID: 19082900 1

Contact: Krystal Heyer
City of Scottsdale Water Quality Division
Stormwater
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Department: Water Resources

Phone: (480) 312-8732
Fax: (480) 312-8728

Location Code: STORM - PIERCE
NWC Pierce St & Hayden Rd

PLEASE FILL THIS FORM IN COMPLETELY. SHADED AREAS ARE FOR LAB USE ONLY.

ANALYSIS REQUEST

Sample ID	Date	Time	Matrix	Comp (Y/N)	LAB ID	Metals 200.8-STORM, Hardness	Mercury 245.1	TDS, TSS, Nitrate + Nitrite as N	Ammonia as N, TKN	COD	Total Phosphorus	Orthophosphate (Total)	BOD	Total Petroleum Hydrocarbons (TPH) (EPA 8015)	Total Oil and Grease (EPA 1664)	E. coli	Cyanide	Field pH	Field Temperature	Field Flow (from auto-sampler)	NUMBER OF CONTAINERS
						COMPOSITE								GRAB							
~~PIERCE (GRAB)~~			SW	Y										X	X	X	X	BF			
PIERCE (COMP) SWBF19-050	8/28/19	2353	SW	Y	AB96297	X	X	X	X	X	X	X	X								8

SAMPLE RECEIPT

8	NO. CONTAINERS		PRESERVATION pH VERIFIED	☐ Yes	☒ No	
N	CUSTODY SEALS	☐ Yes ☒ No	RECEIVED COLD	☒ Yes	☐ No	4°C
Y	RECEIVED INTACT	☒ Yes ☐ No				

COMMENTS:

Standard Turn-Around Time (10 Day):

Rush Turn-Around (3 or 5 Day):

Other:

SAMPLED & RELINQUISHED BY:

Signature: [signature]		Signature: From Cooler	
Printed Name: BRIAN FLEMISTER		Printed Name:	
Date: 8/29/19	Time: 0050	Date: 8/29/19	Time: 0538

RECEIVED BY:

Signature: To Cooler		Signature: [signature]	
Printed Name:		Printed Name: POE	
Date: 8/29/19	Time: 0050	Date: 8/29/19	Time: 0538

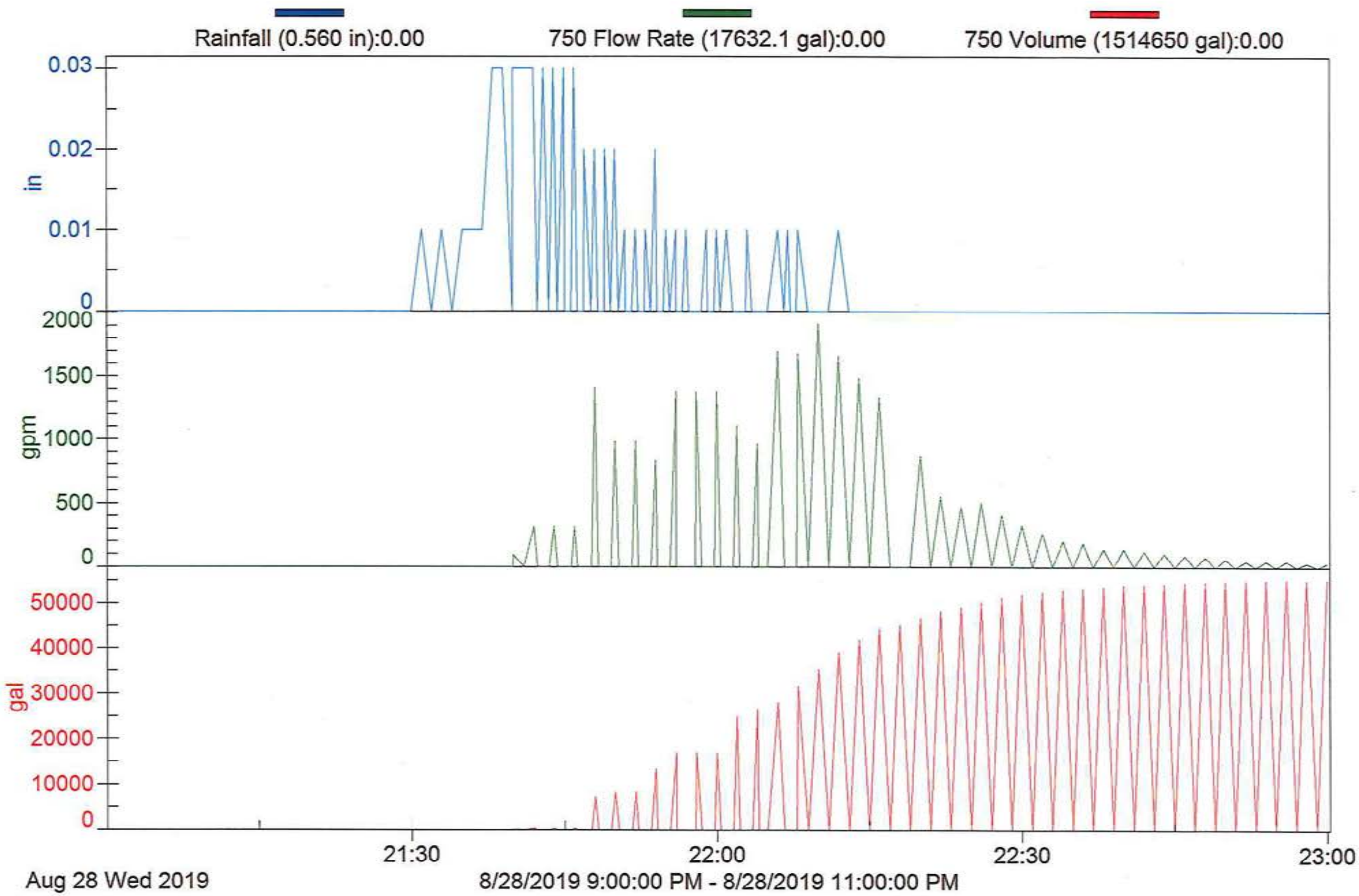
Pierce Station
Wednesday, August 28, 2019

Label	750 Flow Rate	750 Volume	Rainfall
Units	gpm	gal	in
8/28/2019 21:30	0	0	0
8/28/2019 21:31	0	0	0.01
8/28/2019 21:32	0	0	0
8/28/2019 21:33	0	0	0.01
8/28/2019 21:34	0	0	0
8/28/2019 21:35	0	0	0.01
8/28/2019 21:36	0	0	0.01
8/28/2019 21:37	0	0	0.01
8/28/2019 21:38	0	0	0.03
8/28/2019 21:39	0	0	0.03
8/28/2019 21:40	95.1	79	0.03
8/28/2019 21:41	0	0	0.03
8/28/2019 21:42	317	343	0.03
8/28/2019 21:43	0	0	0.03
8/28/2019 21:44	317	343	0.03
8/28/2019 21:45	0	0	0.03
8/28/2019 21:46	317	343	0.03
8/28/2019 21:47	0	0	0.02
8/28/2019 21:48	1410.7	7212	0.02
8/28/2019 21:49	0	0	0.02
8/28/2019 21:50	982.7	8242	0.02
8/28/2019 21:51	0	0	0.01
8/28/2019 21:52	982.7	8242	0.01
8/28/2019 21:53	0	0	0.01
8/28/2019 21:54	840.1	13367	0.02
8/28/2019 21:55	0	0	0.01
8/28/2019 21:56	1379	16960	0.01
8/28/2019 21:57	0	0	0.01
8/28/2019 21:58	1379	16960	0
8/28/2019 21:59	0	0	0.01
8/28/2019 21:59	0	0	0
8/28/2019 22:00	1379	16960	0.01
8/28/2019 22:01	0	0	0.01
8/28/2019 22:02	1109.5	24779	0
8/28/2019 22:03	0	0	0.01
8/28/2019 22:04	966.9	26496	0
8/28/2019 22:05	0	0	0
8/28/2019 22:06	1696	28002	0.01
8/28/2019 22:07	0	0	0.01
8/28/2019 22:08	1680.1	31489	0.01
8/28/2019 22:09	0	0	0
8/28/2019 22:10	1917.9	35320	0

8/28/2019 22:11	0	0	0
8/28/2019 22:12	1664.3	38965	0.01
8/28/2019 22:13	0	0	0
8/28/2019 22:14	1489.9	41792	0
8/28/2019 22:15	0	0	0
8/28/2019 22:16	1331.4	44143	0
8/28/2019 22:17	0	0	0
8/28/2019 22:18	0	45068	0
8/28/2019 22:19	0	0	0
8/28/2019 22:20	871.8	46653	0
8/28/2019 22:21	0	0	0
8/28/2019 22:22	554.8	48079	0
8/28/2019 22:23	0	0	0
8/28/2019 22:24	475.5	49110	0
8/28/2019 22:25	0	0	0
8/28/2019 22:26	507.2	50087	0
8/28/2019 22:27	0	0	0
8/28/2019 22:28	412.1	51117	0
8/28/2019 22:29	0	0	0
8/28/2019 22:30	332.9	51778	0
8/28/2019 22:31	0	0	0
8/28/2019 22:32	269.5	52332	0
8/28/2019 22:33	0	0	0
8/28/2019 22:34	206.1	52755	0
8/28/2019 22:35	0	0	0
8/28/2019 22:36	190.2	53151	0
8/28/2019 22:37	0	0	0
8/28/2019 22:38	142.7	53468	0
8/28/2019 22:39	0	0	0
8/28/2019 22:40	142.7	53785	0
8/28/2019 22:41	0	0	0
8/28/2019 22:42	126.8	54050	0
8/28/2019 22:43	0	0	0
8/28/2019 22:44	111	54287	0
8/28/2019 22:45	0	0	0
8/28/2019 22:46	95.1	54499	0
8/28/2019 22:47	0	0	0
8/28/2019 22:48	79.3	54578	0
8/28/2019 22:49	0	0	0
8/28/2019 22:50	63.4	54736	0
8/28/2019 22:51	0	0	0
8/28/2019 22:52	47.6	54842	0
8/28/2019 22:53	0	0	0
8/28/2019 22:54	47.6	54948	0
8/28/2019 22:55	0	0	0
8/28/2019 22:56	47.6	55027	0
8/28/2019 22:57	0	0	0

8/28/2019 22:58	31.7	55106	0
8/28/2019 22:59	0	0	0
8/28/2019 23:00	31.7	55159	0
8/28/2019 23:01	0	0	0
8/28/2019 23:02	31.7	55212	0
8/28/2019 23:03	0	0	0
8/28/2019 23:04	15.9	55291	0
8/28/2019 23:05	0	0	0
8/28/2019 23:06	15.9	55318	0
8/28/2019 23:07	0	0	0
8/28/2019 23:08	0	55344	0
8/28/2019 23:09	0	0	0
8/28/2019 23:10	15.9	55370	0
8/28/2019 23:11	0	0	0
8/28/2019 23:12	15.9	55370	0
8/28/2019 23:13	0	0	0
Average:	**580.84**		
Total:		**55,370**	**0.56**

PIERCE
Flowlink 5



Scottsdale Water
Wet Weather Monitoring Form

Sample Location ID: CAMEL CHAPRD MCKRD PIERCE TBIRD

(Complete a separate form for each monitoring location)

WEATHER	
Hours since last measurable rain event:	73
Rainfall amount in inches:	
SAMPLE COLLECTION INFORMATION	
Sample Types collected:	☐ Grab ☒ Composite
Sample date and time: 8/28/19 23:53	See Chain of Custody
Sampling personnel: ML, BF	
Volume of descrete and composite samples:	
FLOW DATA	
Duration of composite sampling period (minutes)	
Volume of flow during composite sampling period (gallons)	
Average flow rate during sampling period (gpm)	
Volume of each aliquot in composite sample	
Number of aliquots in the flow-weighted composite sample	
Flow rate at the time of collection of each aliquot	See attached flow data
Time interval between collection of each aliquot	

VISUAL OBSERVATIONS

(Color, oil sheen, debris, other)

COLOR: BROWNISH

OIL SHEEN: NO

DEBRIS: MINIMAL, SOME SILT

COMMENTS

(Remarks, calculations, unusual circumstances that may affect sample results, additional information)

N/A

ATTACHMENTS	
Rainfall and Flow Data (print for Flowlink)	☐ Yes ☐ No
Chain of Custody	☐ Yes ☐ No

SIGNATURE

Signature of Monitoring Personnel:

Signature ML Lena Date 8/28/19

Signature Brian [illegible] Date 8/28/19

12921687v2

s1 "Sheet1"

WATER QUALITY LABORATORY
8787 E. Hualapai Dr.
PO Box 25089
Scottsdale, AZ 85255

PHONE 480-312-8732
WEB ScottsdaleAZ.gov

- CERTIFICATE OF ANALYSIS -

Lab # AB96915

Krystal Heyer
City of Scottsdale
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Date Sampled: 09/23/2019
Time Sampled: 07:45
Date Received: 09/23/2019
Report Date: 01/29/2020

Sample ID: SWBO19-054
Location ID: NWC McKellips Rd & Hayden Rd (MCKRD)

Location Description: 080710 Composite

Test	Method	Result	Data Qualifier	DF	Units	PQL	Analysis Date
Nitrogen, Ammonia, N	SM 4500 NH3 D	0.631		1.00	mg/L	0.10	10/14/2019
BOD, 5 Day	SM 5210B	7.57	K6	1.00	mg/L	1	09/29/2019
Chemical Oxygen Demand	SM 5220 D	161		1.00	mg/L	20	10/09/2019
Nitrogen, Nitrate + Nitrite (as N)	Calculation	1.27		1.00	mg/L	0.4	09/23/2019
Nitrate, NO3	EPA 300.0	1.3		1.00	mg/L	0.2	09/23/2019
Nitrite, NO2	EPA 300.0	< 0.2	M1|R13	1.00	mg/L	0.2	09/23/2019
Total Phosphorus, P	SM 4500-P E	1.33	D2	2.00	mg/L	0.066	10/10/2019
Residue, Total Dissolved	SM 2540 C	156	V10	1.00	mg/L	20	09/26/2019
Nitrogen, Total Kjeldahl, TKN	SM 4500 NH3-D	0.946		1.00	mg/L	0.50	10/10/2019
Residue, Total Suspended	SM 2540 D	520		1.00	mg/L	10	09/26/2019
Beryllium, Be	EPA 200.8	0.0015		1.00	mg/L	0.0010	10/09/2019
Magnesium, Mg	EPA 200.8	24.3	D2	5.00	mg/L	2.50	10/09/2019
Calcium, Ca	EPA 200.8	47.2	D2	5.00	mg/L	2.50	10/09/2019
Chromium, Cr	EPA 200.8	0.0306		1.00	mg/L	0.0010	10/09/2019
Nickel, Ni	EPA 200.8	0.0352		1.00	mg/L	0.0010	10/09/2019

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- CERTIFICATE OF ANALYSIS -

Lab Number AB96915 Continued From Previous Page

Test	Method	Result	Data Qualifier	DF	Units	PQL	Analysis Date
Copper, Cu	EPA 200.8	0.0427		1.00	mg/L	0.0010	10/09/2019
Zinc, Zn	EPA 200.8	0.232		1.00	mg/L	0.010	10/09/2019
Arsenic, As	EPA 200.8	0.0117		1.00	mg/L	0.0010	10/09/2019
Selenium, Se	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	10/09/2019
Silver, Ag	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	10/09/2019
Cadmium, Cd	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	10/09/2019
Antimony, Sb	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	10/09/2019
Barium, Ba	EPA 200.8	0.348		1.00	mg/L	0.0010	10/09/2019
Thallium, Tl	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	10/09/2019
Lead, Pb	EPA 200.8	0.0527		1.00	mg/L	0.0010	10/09/2019
Total Hardness	SM 2340B	218		1.00	mg/L	0.34	10/09/2019
Mercury, Hg	EPA 245.1	< 0.0002		1.00	mg/L	0.0002	09/25/2019
Orthophosphate as P	EPA 300.0	< 0.1		1.00	mg/L	0.1	09/24/2019

Comments Orthophosphate as P and Mercury were analyzed by Test America Phoenix (#AZ0728).

Data Qualifiers

K6 = Glucose/glutamic acid BOD/CBOD was below method acceptance criteria.
M1 = Matrix spike recovery was high; the associated blank spike recovery was acceptable.
R13 = MS/MDS RPD exceeded method acceptance limit. Matrix spike recovery was outside acceptance criteria. Batch precision and accuracy were demonstrated.
D2 = Sample required dilution due to high concentration of target analyte.

Authorized Signature
License #AZ0424

CITY OF SCOTTSDALE

CITY OF SCOTTSDALE

CHAIN OF CUSTODY

Date:

LAB ID: 190923002

Contact: Krystal Heyer
City of Scottsdale Water Quality Division
Stormwater
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Department: Water Resources

Phone: (480) 312-8732
Fax: (480) 312-8728

Location Code: **STORM - MCKRD**
NWC E. McKellips & N. Hayden Rds

PLEASE FILL THIS FORM IN COMPLETELY. SHADED AREAS ARE FOR LAB USE ONLY.

ANALYSIS REQUEST

Sample ID	Date	Time	Matrix	Comp (Y/N)	LAB ID	Metals 200.8-STORM, Hardness	Mercury 245.1	TDS, TSS, Nitrate + Nitrite as N	Ammonia as N, TKN	COD	Total Phosphorus	Orthophosphate (Total)	BOD	Total Petroleum Hydrocarbons (TPH) (EPA 8015)	Total Oil and Grease (EPA 1664)	E. coli	Cyanide	Field pH	Field Temperature	Field Flow (from auto-sampler)	NUMBER OF CONTAINERS
						COMPOSITE								GRAB							
~~MCKRD (GRAB)~~			SW	Y	BL 9.23.19									X	X	X	X				
MCKRD (COMP) - 3630119-054	9-23-19	0743	SW	Y	AB96915	X	X	X	X	X	X	X	X								3

SAMPLE RECEIPT

NO. CONTAINERS: 3		PRESERVATION VERIFIED: ☐ Yes	No
CUSTODY SEALS: N	☐ Yes ☐ No	RECEIVED COLD: Yes	☐ No 4°C
RECEIVED INTACT: Y	☐ Yes ☐ No		

COMMENTS:

Standard Turn-Around Time (10 Day):

Rush Turn-Around (3 or 5 Day):

Other:

SAMPLED & RELINQUISHED BY:

Signature: [signature]	Signature:
Printed Name: Bryan Alvarado	Printed Name:
Date: 9-23-19 Time: 0751	Date: Time:

RECEIVED BY:

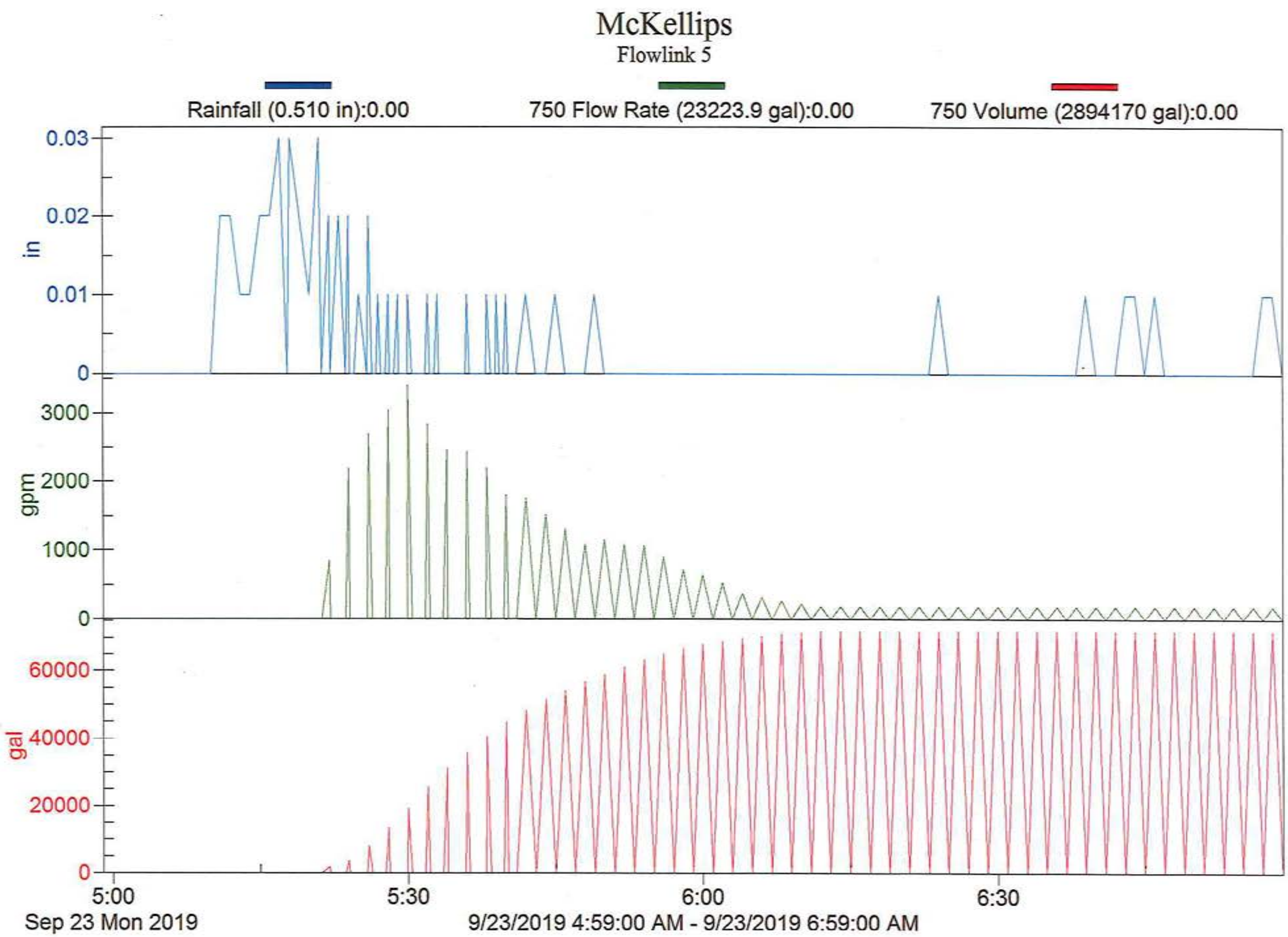
Signature: [signature]	Signature:
Printed Name: [illegible]	Printed Name:
Date: 9.23.19 Time: 0751	Date: Time:

McKellips Station
Monday, September 23, 2019

Label	750 Flow Rate	750 Volume	Rainfall
Units	gpm	gal	in
9/23/2019 5:00	0	0	0
9/23/2019 5:01	0	0	0
9/23/2019 5:02	0	0	0
9/23/2019 5:03	0	0	0
9/23/2019 5:04	0	0	0
9/23/2019 5:05	0	0	0
9/23/2019 5:06	0	0	0
9/23/2019 5:07	0	0	0
9/23/2019 5:08	0	0	0
9/23/2019 5:09	0	0	0
9/23/2019 5:10	0	0	0
9/23/2019 5:11	0	0	0.02
9/23/2019 5:12	0	0	0.02
9/23/2019 5:13	0	0	0.01
9/23/2019 5:14	0	0	0.01
9/23/2019 5:15	0	0	0.02
9/23/2019 5:16	0	0	0.02
9/23/2019 5:17	0	0	0.03
9/23/2019 5:18	0	0	0.03
9/23/2019 5:19	0	0	0.02
9/23/2019 5:20	0	0	0.01
9/23/2019 5:21	0	0	0.03
9/23/2019 5:22	840.1	1720	0.02
9/23/2019 5:23	0	0	0.02
9/23/2019 5:24	2187.3	3572	0.02
9/23/2019 5:25	0	0	0.01
9/23/2019 5:26	2694.6	8049	0.02
9/23/2019 5:27	0	0	0.01
9/23/2019 5:28	3043.3	13578	0.01
9/23/2019 5:29	0	0	0.01
9/23/2019 5:30	3407.8	19311	0.01
9/23/2019 5:31	0	0	0
9/23/2019 5:32	2837.2	25585	0.01
9/23/2019 5:33	0	0	0.01
9/23/2019 5:34	2456.8	31048	0
9/23/2019 5:35	0	0	0
9/23/2019 5:36	2425.1	35748	0.01
9/23/2019 5:37	0	0	0
9/23/2019 5:38	2187.3	40553	0.01
9/23/2019 5:39	0	0	0.01
9/23/2019 5:40	1806.9	44716	0.01
9/23/2019 5:41	0	0	0

9/23/2019 5:42	1759.4	48259	0.01
9/23/2019 5:43	0	0	0
9/23/2019 5:44	1521.6	51347	0
9/23/2019 5:45	0	0	0.01
9/23/2019 5:46	1299.7	54015	0
9/23/2019 5:47	0	0	0
9/23/2019 5:48	1077.8	56631	0
9/23/2019 5:49	0	0	0.01
9/23/2019 5:50	1141.2	58831	0
9/23/2019 5:51	0	0	0
9/23/2019 5:52	1077.8	61119	0
9/23/2019 5:53	0	0	0
9/23/2019 5:54	1062	63240	0
9/23/2019 5:55	0	0	0
9/23/2019 5:56	903.5	65060	0
9/23/2019 5:57	0	0	0
9/23/2019 5:58	713.3	66582	0
9/23/2019 5:59	0	0	0
9/23/2019 6:00	634	67874	0
9/23/2019 6:01	0	0	0
9/23/2019 6:02	523.1	68944	0
9/23/2019 6:03	0	0	0
9/23/2019 6:04	380.4	69778	0
9/23/2019 6:05	0	0	0
9/23/2019 6:06	317	70473	0
9/23/2019 6:07	0	0	0
9/23/2019 6:08	269.5	71033	0
9/23/2019 6:09	0	0	0
9/23/2019 6:10	221.9	71482	0
9/23/2019 6:11	0	0	0
9/23/2019 6:12	190.2	71876	0
9/23/2019 6:13	0	0	0
9/23/2019 6:14	190.2	71902	0
9/23/2019 6:15	0	0	0
9/23/2019 6:16	190.2	71902	0
9/23/2019 6:17	0	0	0
9/23/2019 6:18	190.2	71902	0
9/23/2019 6:19	0	0	0
9/23/2019 6:20	190.2	71902	0
9/23/2019 6:21	0	0	0
9/23/2019 6:22	190.2	71902	0
9/23/2019 6:23	0	0	0
9/23/2019 6:24	190.2	71902	0.01
9/23/2019 6:25	0	0	0
9/23/2019 6:26	190.2	71902	0
9/23/2019 6:27	0	0	0
9/23/2019 6:28	190.2	71902	0

9/23/2019 6:29	0	0	0
9/23/2019 6:30	190.2	71902	0
9/23/2019 6:31	0	0	0
9/23/2019 6:32	190.2	71902	0
9/23/2019 6:33	0	0	0
9/23/2019 6:34	190.2	71902	0
9/23/2019 6:35	0	0	0
9/23/2019 6:36	190.2	71902	0
9/23/2019 6:37	0	0	0
9/23/2019 6:38	190.2	71902	0
9/23/2019 6:39	0	0	0.01
9/23/2019 6:40	190.2	71902	0
9/23/2019 6:41	0	0	0
9/23/2019 6:42	190.2	71902	0
9/23/2019 6:43	0	0	0.01
9/23/2019 6:44	190.2	71902	0.01
9/23/2019 6:45	0	0	0
9/23/2019 6:46	190.2	71902	0.01
9/23/2019 6:47	0	0	0
9/23/2019 6:48	190.2	71902	0
9/23/2019 6:49	0	0	0
9/23/2019 6:50	190.2	71902	0
9/23/2019 6:51	0	0	0
9/23/2019 6:52	190.2	71902	0
9/23/2019 6:53	0	0	0
9/23/2019 6:54	190.2	71902	0
9/23/2019 6:55	0	0	0
9/23/2019 6:56	190.2	71902	0
9/23/2019 6:57	0	0	0.01
9/23/2019 6:58	190.2	71902	0.01
9/23/2019 6:59	0	0	0
Average:	**843.95**		
Total:		**71,902**	**0.51**


McKellips
Flowlink 5
Rainfall (0.510 in):0.00
750 Flow Rate (23223.9 gal):0.00
750 Volume (2894170 gal):0.00
in
0.03
0.02
0.01
0
gpm
3000
2000
1000
0
gal
60000
40000
20000
0
5:00
Sep 23 Mon 2019
5:30
6:00
6:30
9/23/2019 4:59:00 AM - 9/23/2019 6:59:00 AM

SCOTTSDALE WATER

WATER QUALITY LABORATORY
8787 E. Hualapai Dr.
PO Box 25089
Scottsdale, AZ 85255

PHONE 480-312-8732
WEB ScottsdaleAZ.gov

- CERTIFICATE OF ANALYSIS -

Lab # AB98530

Krystal Heyer
City of Scottsdale
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Date Sampled: 11/19/2019
Time Sampled: 18:05
Date Received: 11/20/2019
Report Date: 03/18/2020

Sample ID: SWVS19-066
Location ID: SEC Camelback Rd & Hayden Rc (CAMEL)

Location Description: 130570
Grab

Test	Method	Result	Data Qualifier	DF	Units	PQL	Analysis Date
pH, Field	SM4500-H B	7.58		1.00	Std. Units		11/19/2019
Water Temperature, Field	SM2550 B	17.8		1.00	°C		11/19/2019
E. Coli by Quanti-Tray	SM 9223B	3597.5		1.00	MPN/100ml	1	11/20/2019
EFH (C10-C32)	EPA 8015D	0.94	N1	1.00	mg/L	0.30	11/27/2019
HEM	EPA 1664A	< 5.1	E8	1.00	mg/L	5.1	11/26/2019
Cyanide, Total	SM4500-CN E	< 0.050	E8	1.00	mg/L	0.050	11/22/2019

Comments Method 1664B was analyzed by Test America Irvine (#AZ0671).
8015D, and Cyanide were analyzed by Test America Phoenix (#AZ0728).
Method 8015D: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 550-196456 and analytical batch 550-196806.

Data Qualifiers

N1 = See report comments.
E8 = Analyte reported to MDL per project specification. Target analyte was not detected in the sample.

Authorized Signature
License #AZ0424

CITY OF SCOTTSDALE

SCOTTSDALE WATER

WATER QUALITY LABORATORY
8787 E. Hualapai Dr.
PO Box 25089
Scottsdale, AZ 85255

PHONE 480-312-8732
WEB ScottsdaleAZ.gov

- CERTIFICATE OF ANALYSIS -

Lab # AB98531

Krystal Heyer
City of Scottsdale
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Date Sampled: 11/19/2019
Time Sampled: 21:21
Date Received: 11/20/2019
Report Date: 01/29/2020

Sample ID: SWVS19-067
Location ID: SEC Camelback Rd & Hayden Rc (CAMEL)
Location Description: 130570 Composite

Test	Method	Result	Data Qualifier	DF	Units	PQL	Analysis Date
Nitrogen, Ammonia, N	SM 4500 NH3 D	1.022		1.00	mg/L	0.10	12/11/2019
BOD, 5 Day	SM 5210B	32.76	K5|K6	1.00	mg/L	1	11/21/2019
Chemical Oxygen Demand	SM 5220 D	150		1.00	mg/L	20	12/09/2019
Nitrogen, Nitrate + Nitrite (as N)	Calculation	0.857		1.00	mg/L	0.4	11/20/2019
Nitrate, NO3	EPA 300.0	0.9		1.00	mg/L	0.2	11/20/2019
Nitrite, NO2	EPA 300.0	< 0.2		1.00	mg/L	0.2	11/20/2019
Orthophosphate as P	EPA 300.0	0.356		1.00	mg/L	0.2	11/20/2019
Residue, Total Dissolved	SM 2540 C	230		1.00	mg/L	20	11/22/2019
Nitrogen, Total Kjeldahl, TKN	SM 4500 NH3-D	2.320		1.00	mg/L	0.50	12/03/2019
Residue, Total Suspended	SM 2540 D	34	R2	1.00	mg/L	10	11/22/2019
Beryllium, Be	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	11/26/2019
Magnesium, Mg	EPA 200.8	7.86		1.00	mg/L	0.50	11/26/2019
Calcium, Ca	EPA 200.8	22.8	D2	10.00	mg/L	5.0	11/26/2019
Chromium, Cr	EPA 200.8	0.0039		1.00	mg/L	0.0010	11/26/2019
Nickel, Ni	EPA 200.8	0.0047		1.00	mg/L	0.0010	11/26/2019

WATER QUALITY LABORATORY
8787 E. Hualapai Dr.
PO Box 25089
Scottsdale, AZ 85255

PHONE 480-312-8732
WEB ScottsdaleAZ.gov

- CERTIFICATE OF ANALYSIS -

Lab Number AB98531 Continued From Previous Page

Test	Method	Result	Data Qualifier	DF	Units	PQL	Analysis Date
Copper, Cu	EPA 200.8	0.0201		1.00	mg/L	0.0010	11/26/2019
Zinc, Zn	EPA 200.8	0.098		1.00	mg/L	0.010	11/26/2019
Arsenic, As	EPA 200.8	0.0044		1.00	mg/L	0.0010	11/26/2019
Selenium, Se	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	11/26/2019
Silver, Ag	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	11/26/2019
Cadmium, Cd	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	11/26/2019
Antimony, Sb	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	11/26/2019
Barium, Ba	EPA 200.8	0.0395		1.00	mg/L	0.0010	11/26/2019
Thallium, Tl	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	11/26/2019
Lead, Pb	EPA 200.8	0.0034		1.00	mg/L	0.0010	11/26/2019
Total Hardness	SM 2340B	89.3		1.00	mg/L	0.34	11/26/2019
Mercury, Hg	EPA 245.1	< 0.0002	E8	1.00	mg/L	0.0002	11/27/2019
Phosphorus, Total	SM4500 P E	0.47		1.00	mg/L	0.10	12/10/2019

Comments Total Phosphorus and Mercury were analyzed by Test America Phoenix (#AZ0728).

Data Qualifiers

K5 = The dilution water D.O. depletion was > 0.2 mg/L.
K6 = Glucose/glutamic acid BOD/CBOD was below method acceptance criteria.
R2 = RPD/RSD exceeded the laboratory acceptance limit.
D2 = Sample required dilution due to high concentration of target analyte.
E8 = Analyte reported to MDL per project specification. Target analyte was not detected in the sample.

Authorized Signature
License #AZ0424

CITY OF SCOTTSDALE

CITY OF SCOTTSDALE

CHAIN OF CUSTODY

Date: 11/19/19

LAB ID: 191120001

Contact: Krystal Heyer
City of Scottsdale Water Quality Division
Stormwater
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Department: Water Resources

Phone: (480) 312-8732
Fax: (480) 312-8728

Location Code: STORM - CAMEL
SEC E. Camelback & N. Hayden Rds

VS 11/19/19

ANALYSIS REQUEST

Sample ID	Date	Time	Matrix	Comp (Y/N)	LAB ID	Metals 200.8-STORM, Hardness	Mercury 245.1	TDS, TSS, Nitrate + Nitrite as N	Ammonia as N, TKN	COD	Total Phosphorus	Orthophosphate (Total)	BOD	Total Petroleum Hydrocarbons (TPH) (EPA 8015)	Total Oil and Grease (EPA 1664)	E. coli	Cyanide	Field pH	Field Temperature	Field Flow (from auto-sampler)	NUMBER OF CONTAINERS
						COMPOSITE								GRAB							
CAMEL (GRAB) - SWVS19-06~~8~~6	11/19/19	1305	SW	Y	AB93530									x	x	x	x	7.58	17.8°		8
CAMEL (COMP) - SWVS19-067	11/19/19	2121	SW	Y	AB93531	x	x	x	x	x	x	x	x								8
														(DUP)				7.65	17.6°		

SAMPLE RECEIPT

NO. CONTAINERS	16	PRESERVATION pH VERIFIED	☐ Yes ☒ No
CUSTODY SEALS	☐ Yes ☒ No	RECEIVED COLD	☒ Yes ☐ No 4°C
RECEIVED INTACT	☒ Yes ☐ No		

COMMENTS:

Standard Turn-Around Time (10 Day):
Rush Turn-Around (3 or 5 Day):
Other:

SAMPLED & RELINQUISHED BY:

	1	2
Signature	Victor P. Sesate	From Cooler
Printed Name	Victor P. SESATE	
Date	11/19/19	11/20/19
Time	2210	0604

RECEIVED BY:

	1	2
Signature	TO COOLER	[illegible]
Printed Name		PBE
Date	11/19/19	11.20.19
Time	2210	0604

PLEASE FILL THIS FORM IN COMPLETELY. SHADED AREAS ARE FOR LAB USE ONLY.

Camelback Station
Tuesday, November 19, 2019

Label	750 Flow Rate	750 Volume	Rainfall
Units	gpm	gal	in
11/19/2019 16:04	0	0	0.01
11/19/2019 16:05	0	0	0
11/19/2019 16:06	0	0	0
11/19/2019 16:07	0	0	0
11/19/2019 16:08	0	0	0
11/19/2019 16:09	0	0	0
11/19/2019 16:10	0	0	0
11/19/2019 16:11	0	0	0
11/19/2019 16:12	0	0	0
11/19/2019 16:13	0	0	0
11/19/2019 16:14	0	0	0
11/19/2019 16:15	0	763679	0
11/19/2019 16:16	0	0	0
11/19/2019 16:17	0	0	0
11/19/2019 16:18	0	0	0
11/19/2019 16:19	0	0	0.01
11/19/2019 16:20	0	0	0
11/19/2019 16:21	0	0	0
11/19/2019 16:22	0	0	0
11/19/2019 16:23	0	0	0
11/19/2019 16:24	0	0	0
11/19/2019 16:25	0	0	0.01
11/19/2019 16:26	0	0	0
11/19/2019 16:27	0	0	0
11/19/2019 16:28	0	0	0
11/19/2019 16:29	0	0	0
11/19/2019 16:30	15.9	763700	0.01
11/19/2019 16:31	0	0	0
11/19/2019 16:32	15.9	763740	0
11/19/2019 16:33	0	0	0
11/19/2019 16:34	15.9	763740	0
11/19/2019 16:35	0	0	0
11/19/2019 16:36	15.9	763740	0.01
11/19/2019 16:37	0	0	0
11/19/2019 16:38	15.9	763740	0
11/19/2019 16:39	0	0	0.01
11/19/2019 16:40	15.9	763740	0
11/19/2019 16:41	0	0	0
11/19/2019 16:42	15.9	763740	0
11/19/2019 16:43	0	0	0
11/19/2019 16:44	15.9	763740	0
11/19/2019 16:45	0	0	0

11/19/2019 16:46	15.9	763740	0
11/19/2019 16:47	0	0	0
11/19/2019 16:48	63.4	764139	0
11/19/2019 16:49	0	0	0
11/19/2019 16:50	63.4	764139	0
11/19/2019 16:51	0	0	0
11/19/2019 16:52	0	0	0
11/19/2019 16:53	0	0	0
11/19/2019 16:54	79.3	764469	0
11/19/2019 16:55	0	0	0
11/19/2019 16:56	79.3	764469	0
11/19/2019 16:57	0	0	0
11/19/2019 16:58	63.4	764810	0
11/19/2019 16:59	0	0	0
11/19/2019 17:00	47.6	764989	0
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11/19/2019 17:02	47.6	764989	0
11/19/2019 17:03	0	0	0
11/19/2019 17:04	47.6	764989	0
11/19/2019 17:05	0	0	0
11/19/2019 17:06	47.6	764989	0
11/19/2019 17:07	0	0	0
11/19/2019 17:08	31.7	765280	0
11/19/2019 17:09	0	0	0
11/19/2019 17:10	31.7	765280	0
11/19/2019 17:11	0	0	0
11/19/2019 17:12	31.7	765280	0
11/19/2019 17:13	0	0	0
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11/19/2019 17:19	0	0	0
11/19/2019 17:20	31.7	765520	0
11/19/2019 17:21	0	0	0
11/19/2019 17:22	0	0	0
11/19/2019 17:23	0	0	0
11/19/2019 17:24	15.9	765581	0
11/19/2019 17:25	0	0	0
11/19/2019 17:26	15.9	765581	0
11/19/2019 17:27	0	0	0
11/19/2019 17:28	15.9	765621	0
11/19/2019 17:29	0	0	0
11/19/2019 17:30	15.9	765621	0
11/19/2019 17:31	0	0	0
11/19/2019 17:32	0	0	0

11/19/2019 17:33	0	0	0
11/19/2019 17:34	0	0	0
11/19/2019 17:35	0	0	0
11/19/2019 17:36	0	0	0
11/19/2019 17:37	0	0	0
11/19/2019 17:38	0	0	0
11/19/2019 17:39	0	0	0
11/19/2019 17:40	0	0	0
11/19/2019 17:41	0	0	0
11/19/2019 17:42	0	0	0
11/19/2019 17:43	0	0	0
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11/19/2019 17:45	0	765639	0
11/19/2019 17:46	0	0	0
11/19/2019 17:47	0	0	0
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11/19/2019 17:50	0	0	0
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11/19/2019 17:52	0	0	0
11/19/2019 17:53	0	0	0.01
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11/19/2019 17:55	0	0	0
11/19/2019 17:56	0	0	0
11/19/2019 17:57	0	0	0
11/19/2019 17:58	0	0	0
11/19/2019 17:59	0	0	0
11/19/2019 18:00	0	765639	0
11/19/2019 18:01	0	0	0
11/19/2019 18:02	0	0	0
11/19/2019 18:03	0	0	0
11/19/2019 18:04	15.9	765671	0
11/19/2019 18:05	0	0	0
11/19/2019 18:06	15.9	765671	0
11/19/2019 18:07	0	0	0
11/19/2019 18:08	15.9	765671	0
11/19/2019 18:09	0	0	0.01
11/19/2019 18:10	63.4	765909	0
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11/19/2019 18:12	63.4	765909	0
11/19/2019 18:13	0	0	0
11/19/2019 18:14	63.4	765909	0.09
11/19/2019 18:15	0	0	0
11/19/2019 18:16	63.4	765909	0
11/19/2019 18:17	0	0	0
11/19/2019 18:18	63.4	765909	0
11/19/2019 18:19	0	0	0

11/19/2019 18:20	95.1	766691	0
11/19/2019 18:21	0	0	0
11/19/2019 18:22	95.1	766691	0
11/19/2019 18:23	0	0	0
11/19/2019 18:24	95.1	766691	0
11/19/2019 18:25	0	0	0
11/19/2019 18:26	95.1	766691	0
11/19/2019 18:27	0	0	0
11/19/2019 18:28	79.3	767401	0
11/19/2019 18:29	0	0	0
11/19/2019 18:30	79.3	767570	0
11/19/2019 18:31	0	0	0
11/19/2019 18:32	79.3	767650	0
11/19/2019 18:33	0	0	0
11/19/2019 18:34	79.3	767901	0
11/19/2019 18:35	0	0	0
11/19/2019 18:36	79.3	767980	0
11/19/2019 18:37	0	0	0
11/19/2019 18:38	79.3	768141	0
11/19/2019 18:39	0	0	0
11/19/2019 18:40	79.3	768289	0
11/19/2019 18:41	0	0	0
11/19/2019 18:42	79.3	768519	0
11/19/2019 18:43	0	0	0
11/19/2019 18:44	63.4	768669	0
11/19/2019 18:45	0	0	0
11/19/2019 18:46	79.3	768809	0
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11/19/2019 18:51	0	0	0
11/19/2019 18:52	63.4	769150	0
11/19/2019 18:53	0	0	0
11/19/2019 18:54	63.4	769340	0
11/19/2019 18:55	0	0	0
11/19/2019 18:56	63.4	769459	0
11/19/2019 18:57	0	0	0
11/19/2019 18:58	63.4	769581	0
11/19/2019 18:59	0	0	0
11/19/2019 19:00	63.4	769639	0
11/19/2019 19:01	0	0	0
11/19/2019 19:02	63.4	769821	0
11/19/2019 19:03	0	0	0
11/19/2019 19:04	63.4	769940	0
11/19/2019 19:05	0	0	0
11/19/2019 19:06	63.4	770001	0

11/19/2019 19:07	0	0	0
11/19/2019 19:08	63.4	770180	0
11/19/2019 19:09	0	0	0
11/19/2019 19:10	63.4	770299	0
11/19/2019 19:11	0	0	0
11/19/2019 19:12	63.4	770421	0
11/19/2019 19:13	0	0	0
11/19/2019 19:14	63.4	770529	0
11/19/2019 19:15	0	0	0
11/19/2019 19:16	63.4	770651	0
11/19/2019 19:17	0	0	0
11/19/2019 19:18	63.4	770769	0
11/19/2019 19:19	0	0	0
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11/19/2019 19:21	0	0	0
11/19/2019 19:22	63.4	771020	0
11/19/2019 19:23	0	0	0
11/19/2019 19:24	63.4	771129	0
11/19/2019 19:25	0	0	0
11/19/2019 19:26	63.4	771250	0
11/19/2019 19:27	0	0	0
11/19/2019 19:28	63.4	771369	0
11/19/2019 19:29	0	0	0
11/19/2019 19:30	63.4	771491	0
11/19/2019 19:31	0	0	0
11/19/2019 19:32	63.4	771599	0
11/19/2019 19:33	0	0	0
11/19/2019 19:34	47.6	771649	0
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11/19/2019 19:37	0	0	0
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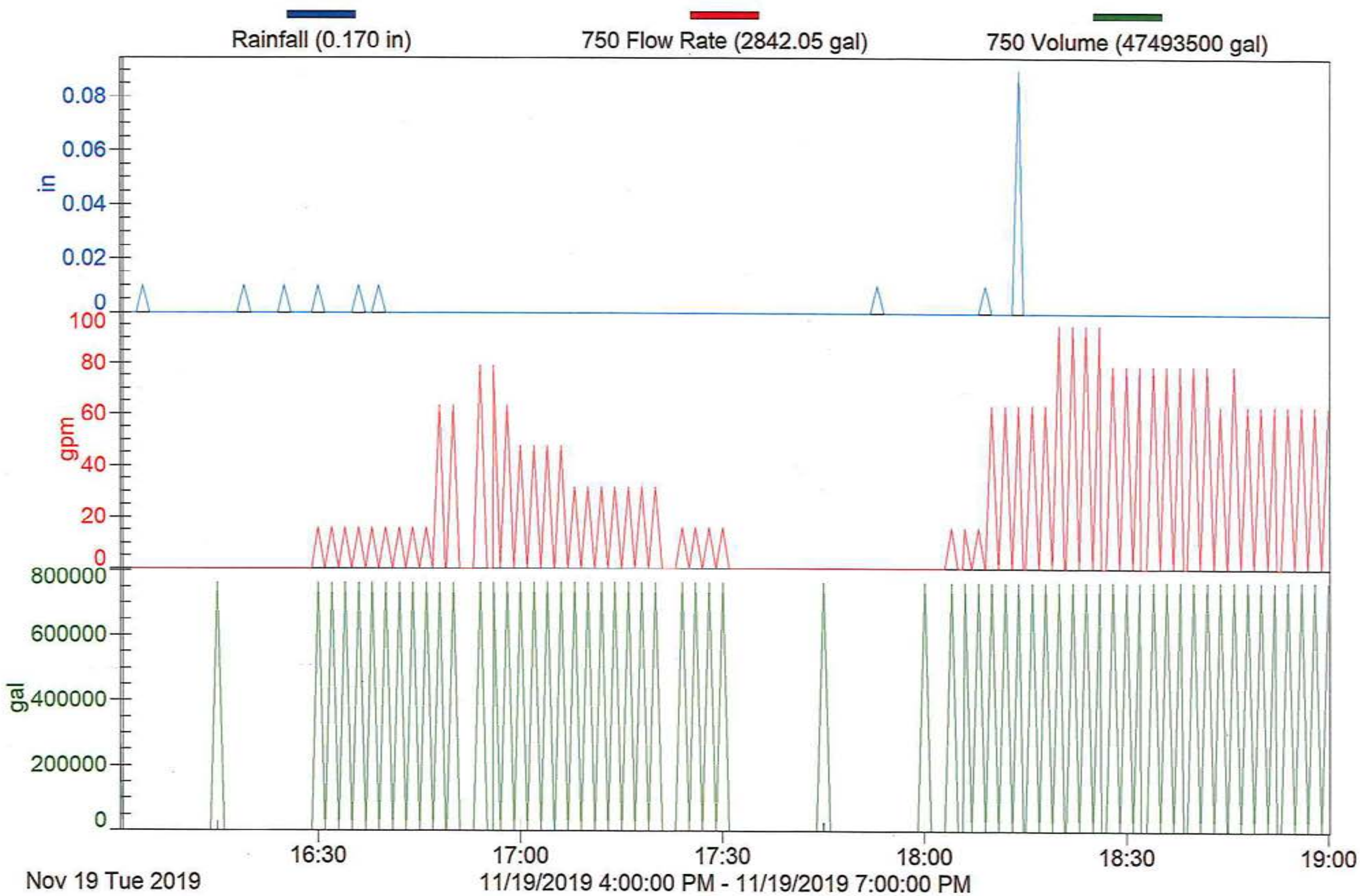
11/19/2019 19:39	0	0	0
11/19/2019 19:40	47.6	772030	0
11/19/2019 19:41	0	0	0
11/19/2019 19:42	47.6	772130	0
11/19/2019 19:43	0	0	0
11/19/2019 19:44	47.6	772230	0
11/19/2019 19:45	0	0	0
11/19/2019 19:46	47.6	772281	0
11/19/2019 19:47	0	0	0
11/19/2019 19:48	47.6	772421	0
11/19/2019 19:49	0	0	0
11/19/2019 19:50	47.6	772471	0
11/19/2019 19:51	0	0	0
11/19/2019 19:52	47.6	772611	0
11/19/2019 19:53	0	0	0

11/19/2019 19:54	47.6	772650	0
11/19/2019 19:55	0	0	0
11/19/2019 19:56	47.6	772780	0
11/19/2019 19:57	0	0	0
11/19/2019 19:58	31.7	772859	0
11/19/2019 19:59	0	0	0
Average:	**52.49**		
Total:		**9,180**	**0.17**

Camelback

Flowlink 5



SCOTTSDALE WATER

WATER QUALITY LABORATORY
8787 E. Hualapai Dr.
PO Box 25089
Scottsdale, AZ 85255

PHONE 480-312-8732
WEB ScottsdaleAZ.gov

- CERTIFICATE OF ANALYSIS -

Lab # AB98532

Krystal Heyer
City of Scottsdale
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Date Sampled: 11/19/2019
Time Sampled: 17:25
Date Received: 11/20/2019
Report Date: 03/19/2020

Sample ID: SWVS19-064
Location ID: NWC McKellips Rd & Hayden Rd (MCKRD)

Location Description: 080710
Grab

Test	Method	Result	Data Qualifier	DF	Units	PQL	Analysis Date
pH, Field	SM4500-H B	7.13		1.00	Std. Units		11/19/2019
Water Temperature, Field	SM2550 B	15.7		1.00	°C		11/19/2019
E. Coli by Quanti-Tray	SM 9223B	68670		1.00	MPN/100ml	1	11/20/2019
EFH (C10-C32)	EPA 8015D	0.91	N1	1.00	mg/L	0.30	11/27/2019
HEM	EPA 1664A	< 5.1	E8	1.00	mg/L	5.1	11/29/2019
Cyanide, Total	SM4500-CN E	< 0.050	E8	1.00	mg/L	0.050	11/22/2019

Comments 8015D and Cyanide were analyzed by Test America Phoenix (#AZ0728).
Method 1664B was analyzed by Test America Irvine (#AZ0671).
Method 8015D: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 550-196456 and analytical batch 550-196806.

Data Qualifiers

N1 = See report comments.
E8 = Analyte reported to MDL per project specification. Target analyte was not detected in the sample.

Authorized Signature
License #AZ0424

CITY OF SCOTTSDALE

SCOTTSDALE WATER

WATER QUALITY LABORATORY
8787 E. Hualapai Dr.
PO Box 25089
Scottsdale, AZ 85255

PHONE 480-312-8732
WEB ScottsdaleAZ.gov

- CERTIFICATE OF ANALYSIS -

Lab # AB98533

Krystal Heyer
City of Scottsdale
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Date Sampled: 11/19/2019
Time Sampled: 20:37
Date Received: 11/20/2019
Report Date: 03/19/2020

Sample ID: SWVS19-065
Location ID: NWC McKellips Rd & Hayden Rd (MCKRD)
Location Description: 080710 Composite

Test	Method	Result	Data Qualifier	DF	Units	PQL	Analysis Date
Nitrogen, Ammonia, N	SM 4500 NH3 D	0.657		1.00	mg/L	0.10	12/11/2019
BOD, 5 Day	SM 5210B	9.21	K5|K6	1.00	mg/L	1	11/21/2019
Chemical Oxygen Demand	SM 5220 D	73		1.00	mg/L	20	12/09/2019
Nitrogen, Nitrate + Nitrite (as N)	Calculation	0.585		1.00	mg/L	0.4	11/20/2019
Nitrate, NO3	EPA 300.0	0.6		1.00	mg/L	0.2	11/20/2019
Nitrite, NO2	EPA 300.0	< 0.2		1.00	mg/L	0.2	11/20/2019
Orthophosphate as P	EPA 300.0	< 0.2		1.00	mg/L	0.2	11/20/2019
Residue, Total Dissolved	SM 2540 C	120		1.00	mg/L	20	11/22/2019
Nitrogen, Total Kjeldahl, TKN	SM 4500 NH3-D	1.424		1.00	mg/L	0.50	12/03/2019
Residue, Total Suspended	SM 2540 D	46		1.00	mg/L	10	11/22/2019
Beryllium, Be	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	11/26/2019
Magnesium, Mg	EPA 200.8	4.74		1.00	mg/L	0.50	11/26/2019
Calcium, Ca	EPA 200.8	10.3		1.00	mg/L	0.50	11/26/2019
Chromium, Cr	EPA 200.8	0.0042		1.00	mg/L	0.0010	11/26/2019
Nickel, Ni	EPA 200.8	0.0046		1.00	mg/L	0.0010	11/26/2019

WATER QUALITY LABORATORY
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- CERTIFICATE OF ANALYSIS -

Lab Number AB98533 Continued From Previous Page

Test	Method	Result	Data Qualifier	DF	Units	PQL	Analysis Date
Copper, Cu	EPA 200.8	0.0198		1.00	mg/L	0.0010	11/26/2019
Zinc, Zn	EPA 200.8	0.168		1.00	mg/L	0.010	11/26/2019
Arsenic, As	EPA 200.8	0.0019		1.00	mg/L	0.0010	11/26/2019
Selenium, Se	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	11/26/2019
Silver, Ag	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	11/26/2019
Cadmium, Cd	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	11/26/2019
Antimony, Sb	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	11/26/2019
Barium, Ba	EPA 200.8	0.0617		1.00	mg/L	0.0010	11/26/2019
Thallium, Tl	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	11/26/2019
Lead, Pb	EPA 200.8	0.0066		1.00	mg/L	0.0010	11/26/2019
Total Hardness	SM 2340B	45.2		1.00	mg/L	0.34	11/26/2019
Mercury, Hg	EPA 245.1	< 0.0002	E8	1.00	mg/L	0.0002	11/27/2019
Phosphorus, Total	SM4500 P E	0.18		1.00	mg/L	0.10	12/10/2019

Comments Total Phosphorus and Mercury were analyzed by Test America Phoenix (#AZ0728).

Data Qualifiers

K5 = The dilution water D.O. depletion was > 0.2 mg/L.
K6 = Glucose/glutamic acid BOD/CBOD was below method acceptance criteria.
E8 = Analyte reported to MDL per project specification. Target analyte was not detected in the sample.

Authorized Signature
License #AZ0424

CITY OF SCOTTSDALE

CITY OF SCOTTSDALE

CHAIN OF CUSTODY

Date: 11/19/19 Page 1 of 1

LAB ID: 19112002

PLEASE FILL THIS FORM IN COMPLETELY. SHADED AREAS ARE FOR LAB USE ONLY.

Contact: Krystal Heyer
City of Scottsdale Water Quality Division
Stormwater
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Department: Water Resources

Phone: (480) 312-8732
Fax: (480) 312-8728

Location Code: STORM - MCKRD
NWC E. McKellips & N. Hayden Rds

ANALYSIS REQUEST

Sample ID	Date	Time	Matrix	Comp (Y/N)	LAB ID	Metals 200.8-STORM, Hardness	Mercury 245.1	TDS, TSS, Nitrate + Nitrite as N	Ammonia as N, TKN	COD	Total Phosphorus	Orthophosphate (Total)	BOD	Total Petroleum Hydrocarbons (TPH) (EPA 8015)	Total Oil and Grease (EPA 1664)	E. coli	Cyanide	Field pH	Field Temperature	Field Flow (from auto-sampler)	NUMBER OF CONTAINERS
						COMPOSITE								GRAB							
MCKRD (GRAB) - SWVS19-064	11/19/19	1725	SW	Y	AB98532									X	X	X	X	7.13	15.7°		
MCKRD (COMP) - SWVS19-065	11/19/19	2037	SW	Y	AB98533	X	X	X	X	X	X	X	X								
																(dup)		6.94	15.9°		

SAMPLE RECEIPT

16	NO. CONTAINERS		PRESERVATION pH VERIFIED	☐ Yes	☒ No
N	CUSTODY SEALS	☐ Yes ☐ No	RECEIVED COLD	☒ Yes	☐ No 3°C
Y	RECEIVED INTACT	☐ Yes ☐ No			

COMMENTS

Standard Turn-Around Time (10 Day):
Rush Turn-Around (3 or 5 Day):
Other:

SAMPLED & RELINQUISHED BY:

Signature: [signature]		Signature: From Cooler	
Printed Name: Victor P. Sesate		Printed Name:	
Date: 11/19/19	Time: 2200	Date: 11.20.19	Time: 0022

RECEIVED BY:

Signature: To Cooler		Signature: [signature]	
Printed Name:		Printed Name: [signature]	
Date: 11/19/19	Time: 2200	Date: 11.20.19	Time: 0022

12465783v1
s3 "Permit Yrs 2,4"

C:\Users\spoe\AppData\Roaming\OpenText\DM\Temp\DM_SCOTTSDALE-#12465730-v1-Sample_Station_1_-_McKellips_COC

McKellips Station
Tuesday, November 19, 2019

Label	750 Flow Rate	750 Volume	Rainfall
Units	gpm	gal	in
11/19/2019 16:00	4.5	0	0
11/19/2019 16:01	0	0	0
11/19/2019 16:02	0	0	0
11/19/2019 16:03	0	0	0
11/19/2019 16:04	0	0	0
11/19/2019 16:05	4.5	0	0
11/19/2019 16:06	0	0	0
11/19/2019 16:07	0	0	0
11/19/2019 16:08	0	0	0
11/19/2019 16:09	0	0	0
11/19/2019 16:10	4.5	0	0
11/19/2019 16:11	0	0	0
11/19/2019 16:12	0	0	0
11/19/2019 16:13	0	0	0
11/19/2019 16:14	0	0	0
11/19/2019 16:15	4.5	0	0
11/19/2019 16:16	0	0	0
11/19/2019 16:17	0	0	0.01
11/19/2019 16:18	0	0	0
11/19/2019 16:19	0	0	0
11/19/2019 16:20	0	0	0
11/19/2019 16:21	0	0	0
11/19/2019 16:22	0	0	0
11/19/2019 16:23	0	0	0
11/19/2019 16:24	0	0	0
11/19/2019 16:25	2.7	0	0
11/19/2019 16:26	0	0	0
11/19/2019 16:27	0	0	0.01
11/19/2019 16:28	0	0	0
11/19/2019 16:29	0	0	0
11/19/2019 16:30	3.1	0	0
11/19/2019 16:31	0	0	0
11/19/2019 16:32	0	0	0.01
11/19/2019 16:33	0	0	0
11/19/2019 16:34	0	0	0
11/19/2019 16:35	5.4	0	0
11/19/2019 16:36	0	0	0
11/19/2019 16:37	0	0	0
11/19/2019 16:38	0	0	0.01

11/19/2019 16:39	0	0	0
11/19/2019 16:40	5.4	0	0
11/19/2019 16:41	0	0	0
11/19/2019 16:42	0	0	0
11/19/2019 16:43	0	0	0
11/19/2019 16:44	0	0	0
11/19/2019 16:45	5.4	0	0
11/19/2019 16:46	0	0	0
11/19/2019 16:47	0	0	0.01
11/19/2019 16:48	0	0	0
11/19/2019 16:49	0	0	0
11/19/2019 16:50	5.4	0	0
11/19/2019 16:51	0	0	0
11/19/2019 16:52	0	0	0
11/19/2019 16:52	0	0	0
11/19/2019 16:53	0	0	0
11/19/2019 16:54	0	0	0
11/19/2019 16:55	5.4	0	0
11/19/2019 16:56	0	0	0
11/19/2019 16:57	0	0	0
11/19/2019 16:58	0	0	0
11/19/2019 16:59	0	0	0
11/19/2019 17:00	5.4	0	0
11/19/2019 17:01	0	0	0
11/19/2019 17:02	0	0	0
11/19/2019 17:03	0	0	0
11/19/2019 17:04	0	0	0
11/19/2019 17:05	6.7	0	0
11/19/2019 17:06	0	0	0
11/19/2019 17:07	0	0	0
11/19/2019 17:08	0	0	0
11/19/2019 17:09	0	0	0
11/19/2019 17:10	5.4	0	0
11/19/2019 17:11	0	0	0
11/19/2019 17:12	0	0	0
11/19/2019 17:13	0	0	0
11/19/2019 17:14	0	0	0
11/19/2019 17:15	3.6	0	0
11/19/2019 17:16	0	0	0
11/19/2019 17:17	0	0	0
11/19/2019 17:18	0	0	0
11/19/2019 17:19	0	0	0
11/19/2019 17:20	2.7	0	0
11/19/2019 17:21	0	0	0
11/19/2019 17:22	0	0	0
11/19/2019 17:23	0	0	0
11/19/2019 17:24	0	0	0

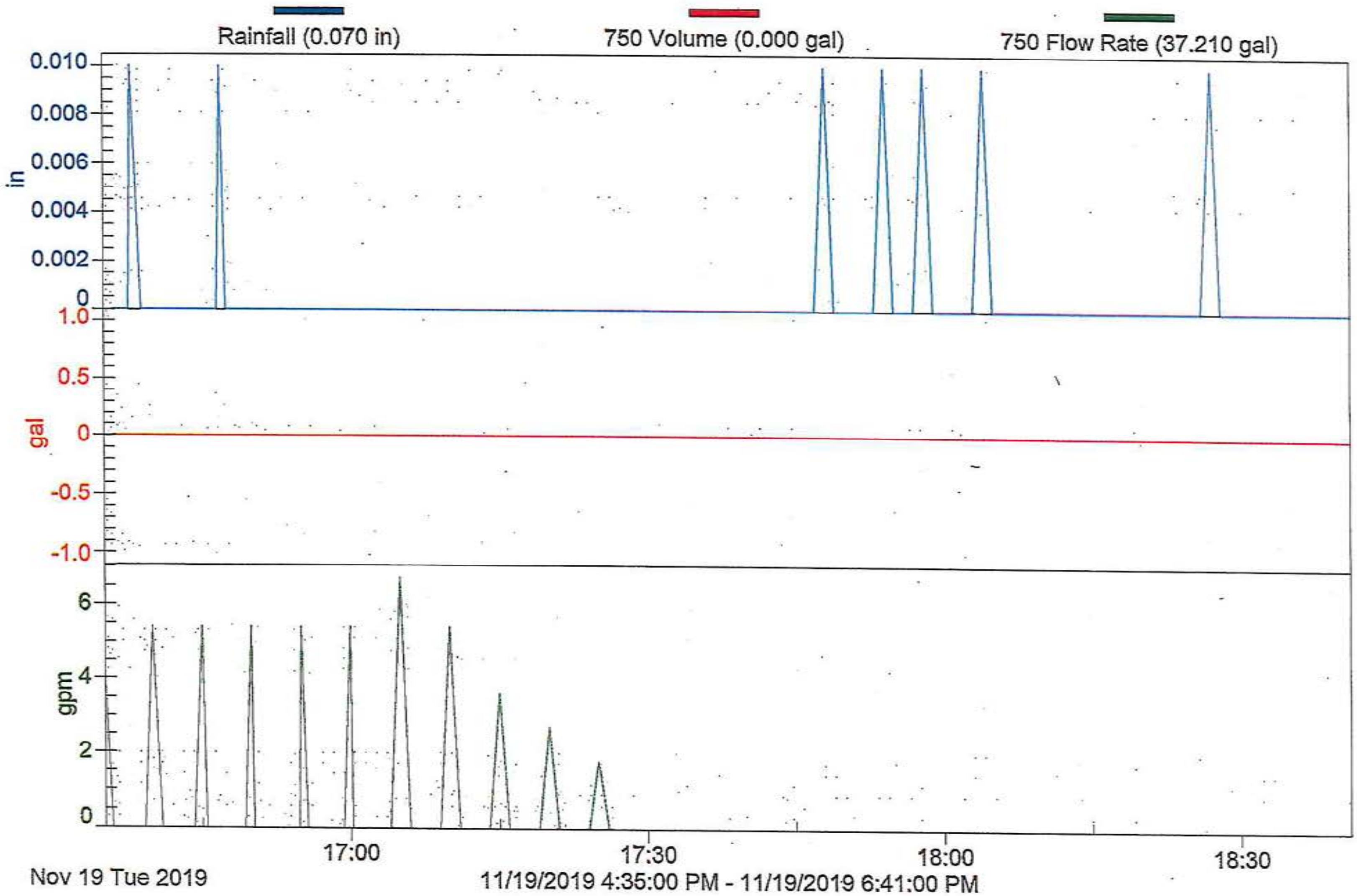
11/19/2019 17:25	1.8	0	0
11/19/2019 17:26	0	0	0
11/19/2019 17:27	0	0	0
11/19/2019 17:28	0	0	0
11/19/2019 17:29	0	0	0
11/19/2019 17:30	0	0	0
11/19/2019 17:31	0	0	0
11/19/2019 17:32	0	0	0
11/19/2019 17:33	0	0	0
11/19/2019 17:34	0	0	0
11/19/2019 17:35	0	0	0
11/19/2019 17:36	0	0	0
11/19/2019 17:37	0	0	0
11/19/2019 17:38	0	0	0
11/19/2019 17:39	0	0	0
11/19/2019 17:40	0	0	0
11/19/2019 17:41	0	0	0
11/19/2019 17:42	0	0	0
11/19/2019 17:43	0	0	0
11/19/2019 17:44	0	0	0
11/19/2019 17:45	0	0	0
11/19/2019 17:46	0	0	0
11/19/2019 17:47	0	0	0
11/19/2019 17:48	0	0	0.01
11/19/2019 17:49	0	0	0
11/19/2019 17:50	0	0	0
11/19/2019 17:51	0	0	0
11/19/2019 17:52	0	0	0
11/19/2019 17:53	0	0	0
11/19/2019 17:54	0	0	0.01
11/19/2019 17:55	0	0	0
11/19/2019 17:56	0	0	0
11/19/2019 17:57	0	0	0
11/19/2019 17:58	0	0	0.01
11/19/2019 17:59	0	0	0
11/19/2019 18:00	0	0	0
11/19/2019 18:01	0	0	0
11/19/2019 18:02	0	0	0
11/19/2019 18:03	0	0	0
11/19/2019 18:04	0	0	0.01
11/19/2019 18:05	0	0	0
11/19/2019 18:06	0	0	0
11/19/2019 18:07	0	0	0
11/19/2019 18:08	0	0	0
11/19/2019 18:09	0	0	0
11/19/2019 18:10	0	0	0
11/19/2019 18:11	0	0	0

11/19/2019 18:12	0	0	0
11/19/2019 18:13	0	0	0
11/19/2019 18:14	0	0	0
11/19/2019 18:15	0	0	0
11/19/2019 18:16	0	0	0
11/19/2019 18:17	0	0	0
11/19/2019 18:18	0	0	0
11/19/2019 18:19	0	0	0
11/19/2019 18:20	0	0	0
11/19/2019 18:21	0	0	0
11/19/2019 18:22	0	0	0
11/19/2019 18:23	0	0	0
11/19/2019 18:24	0	0	0
11/19/2019 18:25	0	0	0
11/19/2019 18:26	0	0	0
11/19/2019 18:27	0	0	0.01
11/19/2019 18:28	0	0	0
11/19/2019 18:29	0	0	0
11/19/2019 18:30	0	0	0
11/19/2019 18:31	0	0	0
11/19/2019 18:32	0	0	0
11/19/2019 18:33	0	0	0
11/19/2019 18:34	0	0	0
11/19/2019 18:35	0	0	0
11/19/2019 18:36	0	0	0
11/19/2019 18:37	0	0	0
11/19/2019 18:38	0	0	0
11/19/2019 18:39	0	0	0
11/19/2019 18:40	0	0	0
11/19/2019 18:41	0	0	0
11/19/2019 18:42	0	0	0
11/19/2019 18:43	0	0	0
11/19/2019 18:44	0	0	0
11/19/2019 18:45	0	0	0
11/19/2019 18:46	0	0	0
11/19/2019 18:47	0	0	0
11/19/2019 18:48	0	0	0
11/19/2019 18:49	0	0	0
11/19/2019 18:50	0	0	0
11/19/2019 18:51	0	0	0
11/19/2019 18:52	0	0	0
11/19/2019 18:53	0	0	0
11/19/2019 18:54	0	0	0
11/19/2019 18:55	0	0	0
11/19/2019 18:56	0	0	0
11/19/2019 18:57	0	0	0
11/19/2019 18:58	0	0	0

11/19/2019 18:59	0	0	0
11/19/2019 19:00	0	0	0
Average:	**4.49**		
Total:		**0**	**0.10**

McKellips Road Storm Site

Flowlink 5



Scottsdale Water
Wet Weather Monitoring Form

Sample Location ID: CAMEL CHAPRD MCKRD PIERCE TBIRD
(Complete a separate form for each monitoring location)

WEATHER	
Hours since last measurable rain event:	> 72 Hr.
Rainfall amount in inches:	0.070
SAMPLE COLLECTION INFORMATION	
Sample Types collected:	☒ Grab ☒ Composite
Sample date and time: 11/19/19 1725, 2037	See Chain of Custody
Sampling personnel: VPS, BOC	
Volume of descrete and composite samples:	
FLOW DATA	
Duration of composite sampling period (minutes)	
Volume of flow during composite sampling period (gallons)	
Average flow rate during sampling period (gpm)	
Volume of each aliquot in composite sample	
Number of aliquots in the flow-weighted composite sample	
Flow rate at the time of collection of each aliquot	See attached flow data
Time interval between collection of each aliquot	

VISUAL OBSERVATIONS
(Color, oil sheen, debris, other)

BROWN, NO SHEEN

COMMENTS
(Remarks, calculations, unusual circumstances that may affect sample results, additional information)

GRAB GOOD FLOW

ATTACHMENTS		
Rainfall and Flow Data (print for Flowlink)	☒ Yes	☐ No
Chain of Custody	☒ Yes	☐ No

SIGNATURE

Signature of Monitoring Personnel:

Signature Victor P. [signature] Date 11.19.19

Signature [signature] Date 11/19/19

12921687v2
s1 "Sheet1"

SCOTTSDALE WATER

WATER QUALITY LABORATORY
8787 E. Hualapai Dr.
PO Box 25089
Scottsdale, AZ 85255

PHONE 480-312-8732
WEB ScottsdaleAZ.gov

- CERTIFICATE OF ANALYSIS -

Lab # AB98534

Krystal Heyer	**Date Sampled:** 11/20/2019
City of Scottsdale	**Time Sampled:** 17:47
8787 E. Hualapai Drive	**Date Received:** 11/20/2019
Scottsdale, AZ 85255	**Report Date:** 03/19/2020

Sample ID: SWBF19-068
Location Description: 130820 Grab
Location ID: SWC Chaparral Rd & Hayden Rd (CHAPRD)

Test	Method	Result	Data Qualifier	DF	Units	PQL	Analysis Date
pH, Field	SM4500-H B	6.68		1.00	Std. Units		11/19/2019
Water Temperature, Field	SM2550 B	16.0		1.00	°C		11/19/2019
E. Coli by Quanti-Tray	SM 9223B	6807.5		1.00	MPN/100ml	1	11/20/2019
EFH (C10-C32)	EPA 8015D	0.62	N1	1.00	mg/L	0.31	11/28/2019
HEM	EPA 1664A	< 5.2	E8	1.00	mg/L	5.2	11/26/2019
Cyanide, Total	SM4500-CN E	< 0.050	E8	1.00	mg/L	0.050	11/22/2019

Comments 8015D and Cyanide were analyzed by Test America Phoenix (#AZ0728).
Method 1664B was analyzed by Test America Irvine (#AZ0671).
Method 8015D: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 550-196456 and analytical batch 550-196806.

Data Qualifiers
N1 = See report comments.
E8 = Analyte reported to MDL per project specification. Target analyte was not detected in the sample.

Authorized Signature
License #AZ0424

CITY OF SCOTTSDALE

CITY OF SCOTTSDALE

CHAIN OF CUSTODY

Date: 11/19/19

Page 1 of 1

LAB ID: 19112003

Contact: Krystal Heyer
City of Scottsdale Water Quality Division
Stormwater
8767 E. Hualapai Drive
Scottsdale, AZ 85255

Department: Water Resources

Phone: (480) 312-8732
Fax: (480) 312-8728

Location Code: STORM - CHAPRD
NWC E. Camelback & N. Hayden Rds

ANALYSIS REQUEST

Sample ID	Date	Time	Matrix	Comp (Y/N)	LAB ID	Metals 200.8-STORM, Hardness	Mercury 245.1	TDS, TSS, Nitrate + Nitrite as N	Ammonia as N, TKN	COD	Total Phosphorus	Orthophosphate (Total)	BOD				Total Petroleum Hydrocarbons (TPH) (EPA 8015)	Total Oil and Grease (EPA 1664)	E. coli	Cyanide	Field pH	Field Temperature	Field Flow (from auto-sampler)	NUMBER OF CONTAINERS
						COMPOSITE											GRAB							
CHAPRD (GRAB) SWBF19-068	11/19/19	17:47	SW	Y	AB98534												X	X	X	X	6.68 6.71	16.0°C 16.0°C		
~~CHAPRD (COMP) - SWBF19-069~~ BF			SW	Y		X	X	X	X	X	X	X	X											

SAMPLE RECEIPT

6 NO. CONTAINERS		PRESERVATION pH VERIFIED	☐ Yes ☒ No
N CUSTODY SEALS	☐ Yes ☐ No	RECEIVED COLD	☒ Yes ☐ No
Y RECEIVED INTACT	☐ Yes ☐ No		

COMMENTS

Standard Turn-Around Time (10 Day):
Rush Turn-Around (3 or 5 Day):
Other:

SAMPLED & RELINQUISHED BY:

Signature: [signature]	Signature: From Cooler
Printed Name: Brian Fenmister	Printed Name:
Date: 11/19/19 Time: 2205 ~~1005~~ BF	Date: 11.20.19 Time: 0636

RECEIVED BY:

Signature: To Cooler	Signature: [signature]
Printed Name:	Printed Name: Poe
Date: 11/19/19 Time: 22:05	Date: 11.20.19 Time: 0636

PLEASE FILL THIS FORM IN COMPLETELY. SHADED AREAS ARE FOR LAB USE ONLY.

Chaparral Station
Tuesday, November 19, 2019

Label	Rainfall	710 Flow Rate	710 Volume
Units	in	gpm	gal
11/19/2019 15:00	0	0	8
11/19/2019 15:01	0	0	0
11/19/2019 15:02	0	0	0
11/19/2019 15:03	0	0	0
11/19/2019 15:04	0	0	0
11/19/2019 15:05	0	0	0
11/19/2019 15:06	0	0	0
11/19/2019 15:07	0	0	0
11/19/2019 15:08	0	0	0
11/19/2019 15:09	0	0	0
11/19/2019 15:10	0	0	0
11/19/2019 15:11	0	0	0
11/19/2019 15:12	0	0	0
11/19/2019 15:13	0	0	0
11/19/2019 15:14	0	0	0
11/19/2019 15:15	0	0	8
11/19/2019 15:16	0	0	0
11/19/2019 15:17	0	0	0
11/19/2019 15:18	0	0	0
11/19/2019 15:19	0	0	0
11/19/2019 15:20	0	0	0
11/19/2019 15:21	0	0	0
11/19/2019 15:22	0	0	0
11/19/2019 15:23	0	0	0
11/19/2019 15:24	0	0	0
11/19/2019 15:25	0	0	0
11/19/2019 15:26	0	0	0
11/19/2019 15:27	0	0	0
11/19/2019 15:28	0.01	0	0
11/19/2019 15:29	0	0	0
11/19/2019 15:30	0	0	8
11/19/2019 15:31	0	0	0
11/19/2019 15:32	0	0	0
11/19/2019 15:33	0	0	0
11/19/2019 15:34	0	0	0
11/19/2019 15:35	0	0	0
11/19/2019 15:36	0	0	0
11/19/2019 15:37	0.01	0	0
11/19/2019 15:38	0	0	0
11/19/2019 15:39	0	0	0
11/19/2019 15:40	0	0	0
11/19/2019 15:41	0	0	0

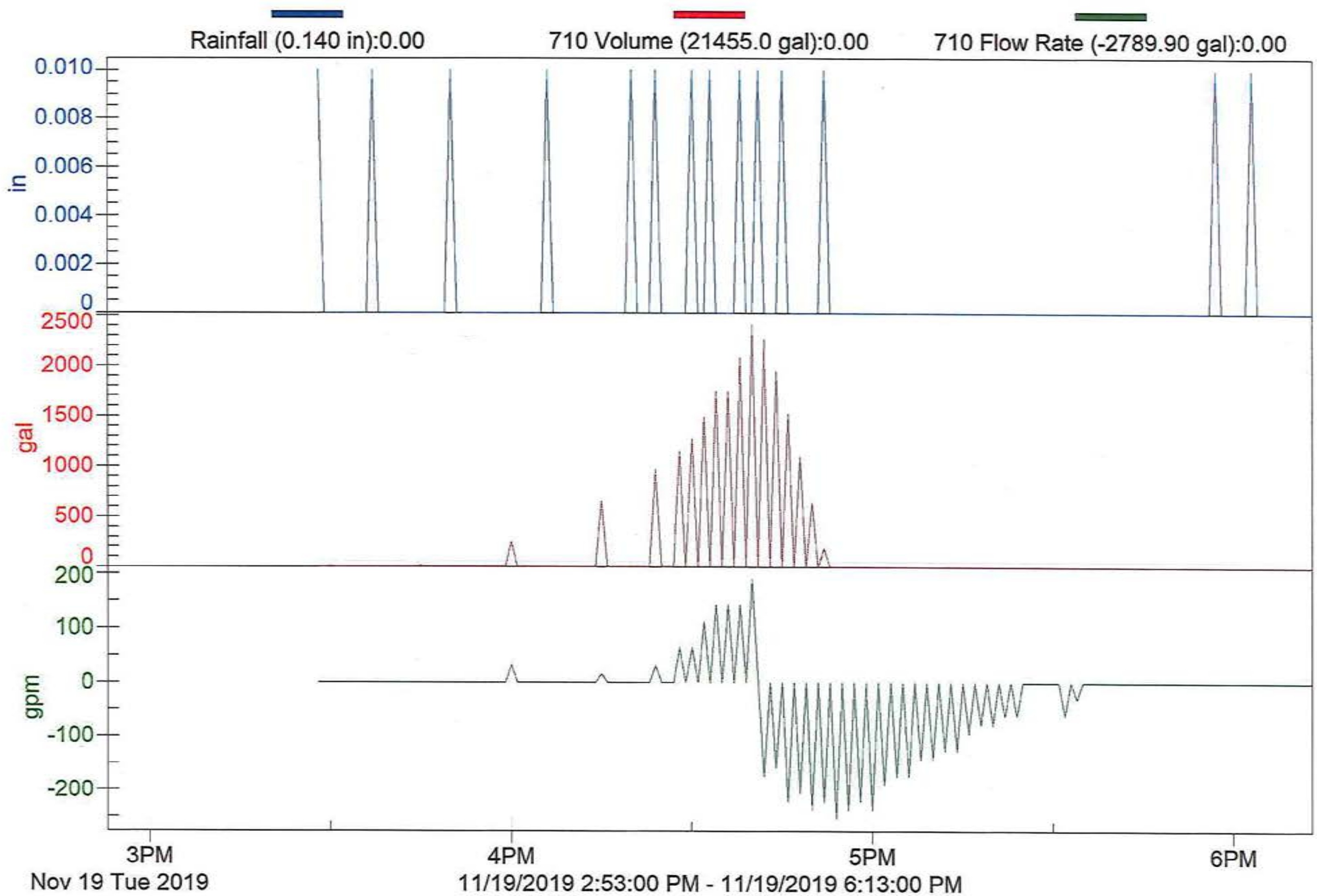
11/19/2019 15:42	0	0	0
11/19/2019 15:43	0	0	0
11/19/2019 15:44	0	0	0
11/19/2019 15:45	0	0	11
11/19/2019 15:46	0	0	0
11/19/2019 15:47	0	0	0
11/19/2019 15:48	0	0	0
11/19/2019 15:49	0	0	0
11/19/2019 15:50	0.01	0	0
11/19/2019 15:51	0	0	0
11/19/2019 15:52	0	0	0
11/19/2019 15:53	0	0	0
11/19/2019 15:54	0	0	0
11/19/2019 15:55	0	0	0
11/19/2019 15:56	0	0	0
11/19/2019 15:57	0	0	0
11/19/2019 15:58	0	0	0
11/19/2019 15:59	0	0	0
11/19/2019 16:00	0	31.7	251
11/19/2019 16:01	0	0	0
11/19/2019 16:02	0	0	0
11/19/2019 16:03	0	0	0
11/19/2019 16:04	0	0	0
11/19/2019 16:05	0	0	0
11/19/2019 16:06	0.01	0	0
11/19/2019 16:07	0	0	0
11/19/2019 16:08	0	0	0
11/19/2019 16:09	0	0	0
11/19/2019 16:10	0	0	0
11/19/2019 16:11	0	0	0
11/19/2019 16:12	0	0	0
11/19/2019 16:13	0	0	0
11/19/2019 16:14	0	0	0
11/19/2019 16:15	0	15.9	650
11/19/2019 16:16	0	0	0
11/19/2019 16:17	0	0	0
11/19/2019 16:18	0	0	0
11/19/2019 16:19	0	0	0
11/19/2019 16:20	0.01	0	0
11/19/2019 16:21	0	0	0
11/19/2019 16:22	0	0	0
11/19/2019 16:23	0	0	0
11/19/2019 16:24	0.01	31.7	964
11/19/2019 16:25	0	0	0
11/19/2019 16:25	0	0	0
11/19/2019 16:26	0	0	0
11/19/2019 16:27	0	0	0

11/19/2019 16:28	0	63.4	1147
11/19/2019 16:29	0	0	0
11/19/2019 16:30	0.01	63.4	1281
11/19/2019 16:31	0	0	0
11/19/2019 16:32	0	111	1495
11/19/2019 16:33	0.01	0	0
11/19/2019 16:34	0	142.7	1751
11/19/2019 16:35	0	0	0
11/19/2019 16:36	0	142.7	1751
11/19/2019 16:36	0	0	0
11/19/2019 16:37	0	0	0
11/19/2019 16:38	0.01	142.7	2084
11/19/2019 16:39	0	0	0
11/19/2019 16:40	0	190.2	2409
11/19/2019 16:41	0.01	0	0
11/19/2019 16:42	0	-174.4	2264
11/19/2019 16:43	0	0	0
11/19/2019 16:44	0	-158.5	1944
11/19/2019 16:45	0.01	0	0
11/19/2019 16:46	0	-221.9	1527
11/19/2019 16:47	0	0	0
11/19/2019 16:48	0	-206.1	1094
11/19/2019 16:49	0	0	0
11/19/2019 16:50	0	-237.8	639
11/19/2019 16:51	0	0	0
11/19/2019 16:52	0.01	-221.9	185
11/19/2019 16:53	0	0	0
11/19/2019 16:54	0	-253.6	0
11/19/2019 16:55	0	0	0
11/19/2019 16:56	0	-237.8	0
11/19/2019 16:57	0	0	0
11/19/2019 16:58	0	-221.9	0
11/19/2019 16:59	0	0	0
11/19/2019 17:00	0	-237.8	0
11/19/2019 17:01	0	0	0
11/19/2019 17:02	0	-190.2	0
11/19/2019 17:03	0	0	0
11/19/2019 17:04	0	-174.4	0
11/19/2019 17:05	0	0	0
11/19/2019 17:06	0	-174.4	0
11/19/2019 17:07	0	0	0
11/19/2019 17:08	0	-142.7	0
11/19/2019 17:09	0	0	0
11/19/2019 17:10	0	-142.7	0
11/19/2019 17:11	0	0	0
11/19/2019 17:12	0	-126.8	0
11/19/2019 17:13	0	0	0

11/19/2019 17:14	0	-126.8	0
11/19/2019 17:15	0	0	0
11/19/2019 17:16	0	-95.1	0
11/19/2019 17:17	0	0	0
11/19/2019 17:18	0	-79.3	0
11/19/2019 17:19	0	0	0
11/19/2019 17:20	0	-79.3	0
11/19/2019 17:21	0	0	0
11/19/2019 17:22	0	-63.4	0
11/19/2019 17:23	0	0	0
11/19/2019 17:24	0	-63.4	0
11/19/2019 17:25	0	0	0
11/19/2019 17:26	0	0	0
11/19/2019 17:27	0	0	0
11/19/2019 17:28	0	0	0
11/19/2019 17:29	0	0	0
11/19/2019 17:30	0	0	0
11/19/2019 17:31	0	0	0
11/19/2019 17:32	0	-63.4	0
11/19/2019 17:33	0	0	0
11/19/2019 17:34	0	-31.7	0
11/19/2019 17:35	0	0	0
11/19/2019 17:36	0	0	0
11/19/2019 17:37	0	0	0
11/19/2019 17:38	0	0	0
11/19/2019 17:39	0	0	0
11/19/2019 17:40	0	0	0
11/19/2019 17:41	0	0	0
11/19/2019 17:42	0	0	0
11/19/2019 17:43	0	0	0
11/19/2019 17:44	0	0	0
11/19/2019 17:45	0	0	0
11/19/2019 17:46	0	0	0
11/19/2019 17:47	0	0	0
Total:	**0.12**		**2409**
Average:		**93.54**	

CHAPARRAL

Flowlink 5



Scottsdale Water
Wet Weather Monitoring Form

Sample Location ID: CAMEL CHAPRD MCKRD PIERCE TBIRD
(Complete a separate form for each monitoring location)

WEATHER	
Hours since last measurable rain event:	772
Rainfall amount in inches:	0.14
SAMPLE COLLECTION INFORMATION	
Sample Types collected:	☒ Grab ☐ Composite
Sample date and time:	See Chain of Custody
Sampling personnel:	
Volume of descrete and composite samples:	
FLOW DATA	
Duration of composite sampling period (minutes)	N/A
Volume of flow during composite sampling period (gallons)	N/A
Average flow rate during sampling period (gpm)	N/A
Volume of each aliquot in composite sample	N/A
Number of aliquots in the flow-weighted composite sample	N/A
Flow rate at the time of collection of each aliquot	See attached flow data
Time interval between collection of each aliquot	
VISUAL OBSERVATIONS	
(Color, oil sheen, debris, other)	
CLOUDY BROWN, NO SHEEN	
COMMENTS	
(Remarks, calculations, unusual circumstances that may affect sample results, additional information)	
NEGATIVE TOTALIZER READING OBSERVED @ GRAB COLLECTION. COMPOSITE SAMPLES COLLECTED.	
ATTACHMENTS	
Rainfall and Flow Data (print for Flowlink)	☒ Yes ☐ No
Chain of Custody	☒ Yes ☐ No
SIGNATURE	
Signature of Monitoring Personnel:	
Signature [signature]	Date 11/19/19
Signature	Date

12921687v2
s1 "Sheet1"

SCOTTSDALE WATER

WATER QUALITY LABORATORY
8787 E. Hualapai Dr.
PO Box 25089
Scottsdale, AZ 85255

PHONE 480-312-8732
WEB ScottsdaleAZ.gov

- CERTIFICATE OF ANALYSIS -

Lab # AB98535

Krystal Heyer
City of Scottsdale
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Date Sampled: 11/19/2019
Time Sampled: 17:11
Date Received: 11/20/2019
Report Date: 03/19/2020

Sample ID: SWBF19-069
Location ID: NWC Pierce St & Hayden Rd (PIERCE)
Location Description: 080610
Grab

Test	Method	Result	Data Qualifier	DF	Units	PQL	Analysis Date
pH, Field	SM4500-H B	7.27		1.00	Std. Units		11/19/2019
Water Temperature, Field	SM2550 B	16.6		1.00	°C		11/19/2019
E. Coli by Quanti-Tray	SM 9223B	6532.5		1.00	MPN/100ml	1	11/20/2019
EFH (C10-C32)	EPA 8015D	1.7	N1	1.00	mg/L	0.1	11/28/2019
HEM	EPA 1664A	1.4	E4	1.00	mg/L	5.4	11/26/2019
Cyanide, Total	SM4500-CN E	< 0.050	E8	1.00	mg/L	0.050	12/03/2019

Comments Method 8015D and Cyanide were analyzed by Test America Phoenix (#AZ0728).
Method 1664B was analyzed by Test America Irvine (#AZ0671).
Method 8015D: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 550-196456 and analytical batch 550-196806.

Data Qualifiers

N1 = See report comments.
E4 = Concentration estimated. Analyte was detected below laboratory minimum reporting level (MRL) but above the MDL.
E8 = Analyte reported to MDL per project specification. Target analyte was not detected in the sample.

Authorized Signature
License #AZ0424

CITY OF SCOTTSDALE

CITY OF SCOTTSDALE

CHAIN OF CUSTODY

Date: 11/19/19

Page 1 of 1

LAB ID: 19112004

Contact: Krystal Heyer
City of Scottsdale Water Quality Division
Stormwater
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Department: Water Resources

Phone: (480) 312-8732
Fax: (480) 312-8728

Location Code: STORM - PIERCE
NWC Pierce St & Hayden Rd

PLEASE FILL THIS FORM IN COMPLETELY. SHADED AREAS ARE FOR LAB USE ONLY.

ANALYSIS REQUEST

Sample ID	Date	Time	Matrix	Comp (Y/N)	LAB ID	Metals 200.8-STORM, Hardness	Mercury 245.1	TDS, TSS, Nitrate + Nitrite as N	Ammonia as N, TKN	COD	Total Phosphorus	Orthophosphate (Total)	BOD				Total Petroleum Hydrocarbons (TPH) (EPA 8015)	Total Oil and Grease (EPA 1664)	E. coli	Cyanide	Field pH	Field Temperature	Field Flow (from auto-sampler)	NUMBER OF CONTAINERS
						COMPOSITE											GRAB							
PIERCE (GRAB) - SWBF19-069	11-19-19	17:11	SW	Y	AB98535												X	X	X	X	7.27	16.6°		
~~PIERCE (COMP) -~~			SW	Y		X	X	X	X	X	X	X	X											
																	Dup-				7.51	16.6°		

SAMPLE RECEIPT

NO. CONTAINERS	6			PRESERVATION pH VERIFIED	☐ Yes	☒ No	
CUSTODY SEALS	N	☐ Yes	☐ No	RECEIVED COLD	☒ Yes	☐ No	4°C
RECEIVED INTACT	Y	☐ Yes	☐ No				

COMMENTS:

Standard Turn-Around Time (10 Day):

Rush Turn-Around (3 or 5 Day):

Other:

SAMPLED & RELINQUISHED BY: 1

Signature: [signature]		Signature: From Cooler	
Printed Name: BRIAN FLEMISTER		Printed Name:	
Date: 11/19/19	Time: ~~20:07~~ 22:07 BF	Date: 11.20.19	Time: 0643

RECEIVED BY: 1

Signature: TO COOLER		Signature: [signature]	
Printed Name:		Printed Name: [illegible]	
Date: 11/19/19	Time: 22:05	Date: 11.20.19	Time: 0643

Pierce Station
Tuesday, November 19, 2019

Label		750 Flow Rate	750 Volume	Rainfall
Units		gpm	gal	in
	11/19/2019 15:00	0	0	0
	11/19/2019 15:01	0	0	0
	11/19/2019 15:02	0	0	0
	11/19/2019 15:03	0	0	0
	11/19/2019 15:04	0	0	0
	11/19/2019 15:05	0	0	0
	11/19/2019 15:06	0	0	0
	11/19/2019 15:07	0	0	0
	11/19/2019 15:08	0	0	0
	11/19/2019 15:09	0	0	0
	11/19/2019 15:10	0	0	0
	11/19/2019 15:11	0	0	0
	11/19/2019 15:12	0	0	0
	11/19/2019 15:13	0	0	0
	11/19/2019 15:14	0	0	0
	11/19/2019 15:15	0	0	0
	11/19/2019 15:16	0	0	0
	11/19/2019 15:17	0	0	0
	11/19/2019 15:18	0	0	0.01
	11/19/2019 15:19	0	0	0
	11/19/2019 15:20	0	0	0
	11/19/2019 15:21	0	0	0
	11/19/2019 15:22	0	0	0
	11/19/2019 15:23	0	0	0
	11/19/2019 15:24	0	0	0
	11/19/2019 15:25	0	0	0
	11/19/2019 15:26	0	0	0.01
	11/19/2019 15:27	0	0	0
	11/19/2019 15:28	0	0	0
	11/19/2019 15:29	0	0	0
	11/19/2019 15:30	0	0	0
	11/19/2019 15:31	0	0	0
	11/19/2019 15:32	0	0	0
	11/19/2019 15:33	0	0	0
	11/19/2019 15:34	0	0	0.01
	11/19/2019 15:35	0	0	0
	11/19/2019 15:36	0	0	0
	11/19/2019 15:37	0	0	0
	11/19/2019 15:38	0	0	0
	11/19/2019 15:39	0	0	0
	11/19/2019 15:40	0	0	0
	11/19/2019 15:41	0	0	0.01
	11/19/2019 15:42	0	0	0
	11/19/2019 15:43	0	0	0
	11/19/2019 15:44	0	0	0
	11/19/2019 15:45	0	0	0
	11/19/2019 15:46	0	0	0
	11/19/2019 15:47	0	0	0
	11/19/2019 15:48	0	0	0
	11/19/2019 15:49	0	0	0
	11/19/2019 15:50	0	0	0
	11/19/2019 15:51	0	0	0

Pierce Station
Tuesday, November 19, 2019

11/19/2019 15:52	0	0	0
11/19/2019 15:53	0	0	0
11/19/2019 15:54	0	0	0
11/19/2019 15:55	0	0	0
11/19/2019 15:56	0	0	0
11/19/2019 15:57	0	0	0
11/19/2019 15:58	0	0	0
11/19/2019 15:59	0	0	0
11/19/2019 16:00	0	0	0
11/19/2019 16:01	0	0	0
11/19/2019 16:02	0	0	0
11/19/2019 16:03	0	0	0
11/19/2019 16:04	0	0	0
11/19/2019 16:05	0	0	0.01
11/19/2019 16:06	0	0	0
11/19/2019 16:07	0	0	0
11/19/2019 16:08	0	0	0
11/19/2019 16:09	0	0	0
11/19/2019 16:10	0	0	0
11/19/2019 16:11	0	0	0
11/19/2019 16:12	0	0	0
11/19/2019 16:13	0	0	0.01
11/19/2019 16:14	0	0	0
11/19/2019 16:15	0	0	0
11/19/2019 16:16	0	0	0
11/19/2019 16:17	0	0	0
11/19/2019 16:18	0	0	0
11/19/2019 16:19	0	0	0
11/19/2019 16:20	0	0	0
11/19/2019 16:21	0	0	0.01
11/19/2019 16:22	0	0	0
11/19/2019 16:23	0	0	0
11/19/2019 16:24	0	0	0
11/19/2019 16:25	0	0	0.01
11/19/2019 16:26	0	0	0
11/19/2019 16:27	0	0	0
11/19/2019 16:28	0	0	0
11/19/2019 16:29	0	0	0
11/19/2019 16:30	0	0	0.01
11/19/2019 16:31	0	0	0
11/19/2019 16:32	0	0	0
11/19/2019 16:33	0	0	0
11/19/2019 16:34	0	0	0
11/19/2019 16:35	0	0	0.01
11/19/2019 16:36	0	0	0
11/19/2019 16:37	0	0	0
11/19/2019 16:38	0	0	0
11/19/2019 16:39	0	0	0
11/19/2019 16:40	0	0	0
11/19/2019 16:41	0	0	0
11/19/2019 16:42	47.6	11	0
11/19/2019 16:43	0	0	0
11/19/2019 16:43	0	0	0
11/19/2019 16:44	0	0	0

Pierce Station
Tuesday, November 19, 2019

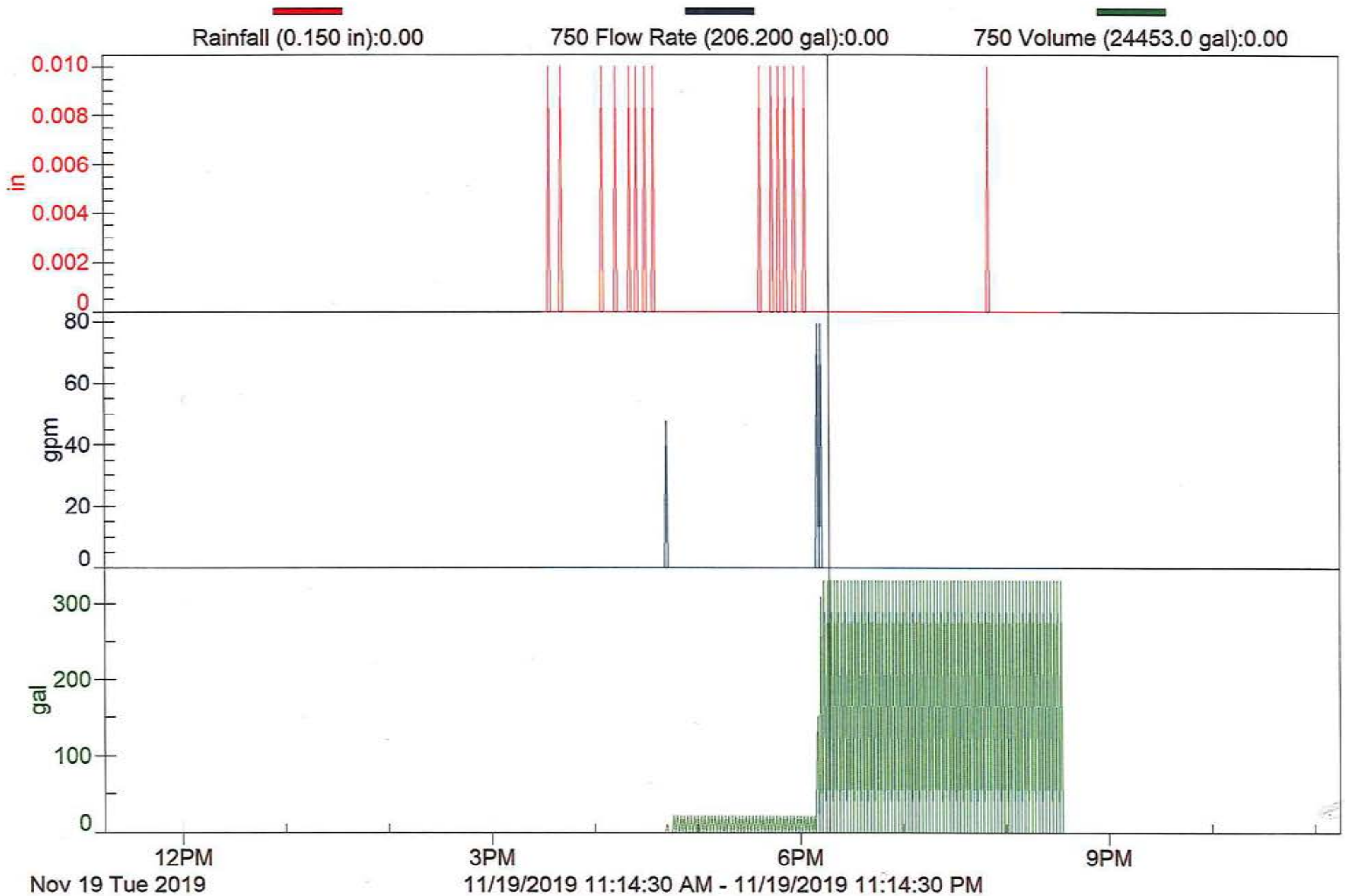
11/19/2019 16:45	0	0	0
11/19/2019 16:46	0	21	0
11/19/2019 16:47	0	0	0
11/19/2019 16:48	0	21	0
11/19/2019 16:49	0	0	0
11/19/2019 16:50	0	21	0
11/19/2019 16:51	0	0	0
11/19/2019 16:52	0	21	0
11/19/2019 16:53	0	0	0
11/19/2019 16:54	0	21	0
11/19/2019 16:55	0	0	0
11/19/2019 16:56	0	21	0
11/19/2019 16:57	0	0	0
11/19/2019 16:58	0	21	0
11/19/2019 16:59	0	0	0
11/19/2019 17:00	0	21	0
11/19/2019 17:01	0	0	0
11/19/2019 17:02	0	21	0
11/19/2019 17:03	0	0	0
11/19/2019 17:04	0	21	0
11/19/2019 17:05	0	0	0
11/19/2019 17:06	0	21	0
11/19/2019 17:07	0	0	0
11/19/2019 17:08	0	21	0
11/19/2019 17:09	0	0	0
11/19/2019 17:10	0	21	0
11/19/2019 17:11	0	0	0
11/19/2019 17:12	0	21	0
11/19/2019 17:13	0	0	0
11/19/2019 17:14	0	21	0
11/19/2019 17:15	0	0	0
11/19/2019 17:16	0	21	0
11/19/2019 17:17	0	0	0
11/19/2019 17:18	0	21	0
11/19/2019 17:19	0	0	0
11/19/2019 17:20	0	21	0
11/19/2019 17:21	0	0	0
11/19/2019 17:22	0	21	0
11/19/2019 17:23	0	0	0
11/19/2019 17:24	0	21	0
11/19/2019 17:25	0	0	0
11/19/2019 17:26	0	21	0
11/19/2019 17:27	0	0	0
11/19/2019 17:28	0	21	0
11/19/2019 17:29	0	0	0
11/19/2019 17:30	0	21	0
11/19/2019 17:31	0	0	0
11/19/2019 17:32	0	21	0
11/19/2019 17:33	0	0	0
11/19/2019 17:34	0	21	0
11/19/2019 17:35	0	0	0
11/19/2019 17:36	0	21	0
11/19/2019 17:37	0	0	0.01
11/19/2019 17:38	0	21	0

Pierce Station
Tuesday, November 19, 2019

11/19/2019 17:39	0	0	0
11/19/2019 17:40	0	21	0
11/19/2019 17:41	0	0	0
11/19/2019 17:42	0	21	0
11/19/2019 17:43	0	0	0
11/19/2019 17:44	0	21	0.01
11/19/2019 17:45	0	0	0
11/19/2019 17:46	0	21	0
11/19/2019 17:47	0	0	0
11/19/2019 17:48	0	21	0.01
11/19/2019 17:49	0	0	0
11/19/2019 17:50	0	21	0
11/19/2019 17:51	0	0	0
11/19/2019 17:52	0	21	0.01
11/19/2019 17:53	0	0	0
11/19/2019 17:54	0	21	0
11/19/2019 17:55	0	0	0
11/19/2019 17:56	0	21	0
11/19/2019 17:57	0	0	0.01
11/19/2019 17:58	0	21	0
11/19/2019 17:59	0	0	0
11/19/2019 18:00	0	21	0
11/19/2019 18:01	0	0	0
11/19/2019 18:02	0	21	0
11/19/2019 18:03	0	0	0.01
11/19/2019 18:04	0	21	0
11/19/2019 18:05	0	0	0
11/19/2019 18:06	0	21	0
11/19/2019 18:07	0	0	0
11/19/2019 18:08	0	21	0
11/19/2019 18:09	0	0	0
11/19/2019 18:10	79.3	151	0
11/19/2019 18:11	0	0	0
11/19/2019 18:12	79.3	309	0
11/19/2019 18:13	0	0	0
11/19/2019 18:14	0	330	0
11/19/2019 18:15	0	0	0
11/19/2019 18:16	0	330	0
11/19/2019 18:17	0	0	0
11/19/2019 18:18	0	330	0
Average:	68.73		
Total:		2,343	0.16

PIERCE

Flowlink 5



Scottsdale Water
Wet Weather Monitoring Form

Sample Location ID: MCKRD PIERCE CAMEL CHAP TBIRD
(Complete a separate form for each monitoring location)

WEATHER	
Hours since last measurable rain event:	
Rainfall amount in inches:	
SAMPLE COLLECTION INFORMATION	
Sample Types collected:	☒ Grab ☐ Composite
Sample date and time:	See Chain of Custody
Sampling personnel:	
FLOW DATA	
Duration of composite sampling period (minutes)	N/A
Volume of flow during composite sampling period (gallons)	
Average flow rate during sampling period (gpm)	20
Volume of each aliquot in composite sample	
Number of aliquots in the flow-weighted composite sample	
Flow rate at the time of collection of each aliquot	See attached flow data
Time interval between collection of each aliquot	
VISUAL OBSERVATIONS	
(Color, oil sheen, debris, other) Oily Sheen Dirty Dark Water	
COMMENTS	
(Remarks, calculations, unusual circumstances that may affect sample results, additional information)	
ATTACHMENTS	
Rainfall and Flow Data (from Flowlink)	☐ Yes ☐ No
Chain of Custody	☒ Yes ☐ No
SIGNATURE	
Signature of Monitoring Personnel:	
Signature [signature]	Date 11-20-19
Signature [signature]	Date 11.20.19

12921687v2
s1 "Sheet1"

WATER QUALITY LABORATORY
8787 E. Hualapai Dr.
PO Box 25089
Scottsdale, AZ 85255
PHONE 480-312-8732
WEB ScottsdaleAZ.gov

- CERTIFICATE OF ANALYSIS -

Lab # AB98538

Krystal Heyer
City of Scottsdale
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Date Sampled: 11/20/2019
Time Sampled: 08:10
Date Received: 11/20/2019
Report Date: 01/29/2020

Sample ID: SWML19-070
Location ID: SEC Thunderbird Rd & 73rd St (TBIRD)
Location Description: 250940
Grab

Test	Method	Result	Data Qualifier	DF	Units	PQL	Analysis Date
pH, Field	SM4500-H B	7.62		1.00	Std. Units		11/20/2019
Water Temperature, Field	SM2550 B	17.0		1.00	°C		11/20/2019
E. Coli by Quanti-Tray	SM 9223B	245.2		1.00	MPN/100ml	1	11/20/2019
EFH (C10-C32)	EPA 8015D	1.7	N1	1.00	mg/L	0.30	11/28/2019
HEM	EPA 1664A	1.6	E4	1.00	mg/L	5.1	11/26/2019
Cyanide, Total	SM4500-CN E	< 0.050	E8	1.00	mg/L	0.050	11/22/2019

Comments Method 1664B was analyzed by Test America Irvine (#AZ0671).
8015D and Cyanide were analyzed by Test America Phoenix (#AZ0728).
Method 8015D: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 550-196456 and analytical batch 550-196806.

Data Qualifiers

N1 = See report comments.
E4 = Concentration estimated. Analyte was detected below laboratory minimum reporting level (MRL) but above the MDL.
E8 = Analyte reported to MDL per project specification. Target analyte was not detected in the sample.

Authorized Signature
License #AZ0424

CITY OF SCOTTSDALE

WATER QUALITY LABORATORY
8787 E. Hualapai Dr.
PO Box 25089
Scottsdale, AZ 85255

PHONE 480-312-8732
WEB ScottsdaleAZ.gov

- CERTIFICATE OF ANALYSIS -

Lab # AB98539

Krystal Heyer
City of Scottsdale
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Date Sampled: 11/20/2019
Time Sampled: 09:05
Date Received: 11/20/2019
Report Date: 01/30/2020

Sample ID: SWML19-071
Location ID: SEC Thunderbird Rd & 73rd St (TBIRD)

Location Description: 250940 Composite

Test	Method	Result	Data Qualifier	DF	Units	PQL	Analysis Date
Nitrogen, Ammonia, N	SM 4500 NH3 D	0.807		1.00	mg/L	0.10	12/11/2019
BOD, 5 Day	SM 5210B	14.47	K5|K6	1.00	mg/L	1	11/21/2019
Chemical Oxygen Demand	SM 5220 D	132		1.00	mg/L	20	12/09/2019
Nitrogen, Nitrate + Nitrite (as N)	Calculation	1.5		1.00	mg/L	0.4	11/20/2019
Nitrate, NO3	EPA 300.0	1.5		1.00	mg/L	0.2	11/20/2019
Nitrite, NO2	EPA 300.0	< 0.2		1.00	mg/L	0.2	11/20/2019
Orthophosphate as P	EPA 300.0	< 0.2		1.00	mg/L	0.2	11/20/2019
Residue, Total Dissolved	SM 2540 C	138		1.00	mg/L	20	11/22/2019
Nitrogen, Total Kjeldahl, TKN	SM 4500 NH3-D	1.520		1.00	mg/L	0.50	12/03/2019
Residue, Total Suspended	SM 2540 D	82		1.00	mg/L	10	11/22/2019
Beryllium, Be	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	11/26/2019
Magnesium, Mg	EPA 200.8	2.78		1.00	mg/L	0.50	11/26/2019
Calcium, Ca	EPA 200.8	16.7	D2	10.00	mg/L	5.0	11/26/2019
Chromium, Cr	EPA 200.8	0.0048		1.00	mg/L	0.0010	11/26/2019
Nickel, Ni	EPA 200.8	0.0068		1.00	mg/L	0.0010	11/26/2019

SCOTTSDALE WATER

WATER QUALITY LABORATORY
8787 E. Hualapai Dr.
PO Box 25089
Scottsdale, AZ 85255

PHONE 480-312-8732
WEB ScottsdaleAZ.gov

- CERTIFICATE OF ANALYSIS -

Lab Number AB98539 Continued From Previous Page

Test	Method	Result	Data Qualifier	DF	Units	PQL	Analysis Date
Copper, Cu	EPA 200.8	0.0388		1.00	mg/L	0.0010	11/26/2019
Zinc, Zn	EPA 200.8	0.164		1.00	mg/L	0.010	11/26/2019
Arsenic, As	EPA 200.8	0.0021		1.00	mg/L	0.0010	11/26/2019
Selenium, Se	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	11/26/2019
Silver, Ag	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	11/26/2019
Cadmium, Cd	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	11/26/2019
Antimony, Sb	EPA 200.8	0.0025		1.00	mg/L	0.0010	11/26/2019
Barium, Ba	EPA 200.8	0.0656		1.00	mg/L	0.0010	11/26/2019
Thallium, Tl	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	11/26/2019
Lead, Pb	EPA 200.8	0.0054		1.00	mg/L	0.0010	11/26/2019
Total Hardness	SM 2340B	53.1		1.00	mg/L	0.34	11/26/2019
Mercury, Hg	EPA 245.1	< 0.0002	E8	1.00	mg/L	0.0002	11/27/2019
Phosphorus, Total	SM4500 P E	0.21		1.00	mg/L	0.10	12/10/2019

Comments Total Phosphorus and Mercury were analyzed by Test America Phoenix (#AZ0728).

Data Qualifiers

K5 = The dilution water D.O. depletion was > 0.2 mg/L.
K6 = Glucose/glutamic acid BOD/CBOD was below method acceptance criteria.
D2 = Sample required dilution due to high concentration of target analyte.
E8 = Analyte reported to MDL per project specification. Target analyte was not detected in the sample.

Authorized Signature
License #AZ0424

CITY OF SCOTTSDALE

CITY OF SCOTTSDALE

CHAIN OF CUSTODY

Date: 11/20/19 Page 1 of 1

LAB ID: 19112000 7

Contact: Krystal Heyer
City of Scottsdale Water Quality Division
Stormwater
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Department: Water Resources

Phone: (480) 312-8732
Fax: (480) 312-8728

Location Code: STORM - TBIRD
SEC E. Thunderbird & N. Scottsdale Rd

ANALYSIS REQUEST

Sample ID	Date	Time	Matrix	Comp (Y/N)	LAB ID	Metals 200.8-STORM, Hardness	Mercury 245.1	TDS, TSS, Nitrate + Nitrite as N ******	Ammonia as N, TKN	COD	Total Phosphorus	Orthophosphate (Total) *****	BOD *****					Total Petroleum Hydrocarbons (TPH) (EPA 8015)	Total Oil and Grease (EPA 1664)	E. coli	Cyanide	Field pH	Field Temperature	Field Flow (from auto-sampler)	NUMBER OF CONTAINERS
						COMPOSITE												GRAB							
TBRD (GRAB) - SWMLI9-070	11/20/19	0810	SW	Y	AB98538													X	X	X	X	7.62	17.0		
TBRD (COMP) - SWMLI9-071	11/20/19	0905	SW	Y	AB98539	X	X	X	X	X	X	X	X									7.85	17.0		
																				Dup					

SAMPLE RECEIPT

NO. CONTAINERS	13	PRESERVATION pH VERIFIED	☐ Yes ☒ No
CUSTODY SEALS	☐ Yes ☒ No	RECEIVED COLD	☒ Yes ☐ No
RECEIVED INTACT	☒ Yes ☐ No		4°C

COMMENTS:

Standard Turn-Around Time (10 Day):

Rush Turn-Around (3 or 5 Day):

Other:

SAMPLED & RELINQUISHED BY: 1

Signature:
Printed Name: M. R. Lina
Date: 11/20/19 Time: 09:10

RECEIVED BY: 1

Signature:
Printed Name: Kristin Homoth
Date: 11/20/19 Time: 09:10

Signature:
Printed Name:
Date: Time:

Signature:
Printed Name:
Date: Time:

PLEASE FILL THIS FORM IN COMPLETELY. SHADED AREAS ARE FOR LAB USE ONLY.

T-BIRD STATION
WEDNESDAY, NOVEMBER 20, 2019

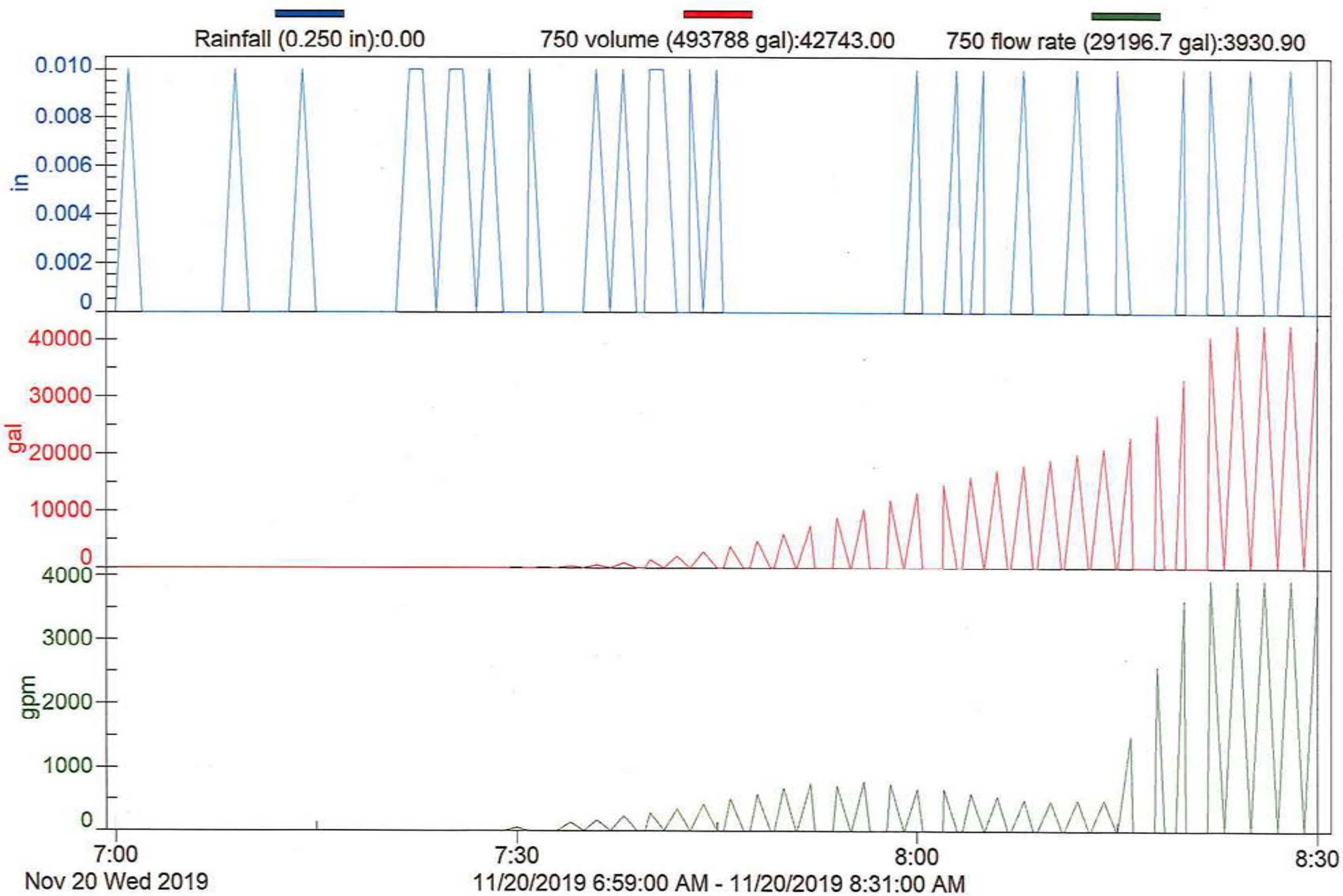
Label	750 flow rate	750 volume	Rainfall
Units	gpm	gal	in
11/20/2019 7:00	0	0	0
11/20/2019 7:01	0	0	0.01
11/20/2019 7:02	0	0	0
11/20/2019 7:03	0	0	0
11/20/2019 7:04	0	0	0
11/20/2019 7:05	0	0	0
11/20/2019 7:06	0	0	0
11/20/2019 7:07	0	0	0
11/20/2019 7:08	0	0	0
11/20/2019 7:09	0	0	0.01
11/20/2019 7:10	0	0	0
11/20/2019 7:11	0	0	0
11/20/2019 7:12	0	0	0
11/20/2019 7:13	0	0	0
11/20/2019 7:14	0	0	0.01
11/20/2019 7:15	0	0	0
11/20/2019 7:16	0	0	0
11/20/2019 7:17	0	0	0
11/20/2019 7:18	0	0	0
11/20/2019 7:19	0	0	0
11/20/2019 7:20	0	0	0
11/20/2019 7:21	0	0	0
11/20/2019 7:22	0	0	0.01
11/20/2019 7:23	0	0	0.01
11/20/2019 7:24	0	0	0
11/20/2019 7:25	0	0	0.01
11/20/2019 7:26	0	0	0.01
11/20/2019 7:27	0	0	0
11/20/2019 7:28	0	0	0.01
11/20/2019 7:29	0	0	0
11/20/2019 7:30	47.6	26	0
11/20/2019 7:31	0	0	0.01
11/20/2019 7:32	0	79	0
11/20/2019 7:33	0	0	0
11/20/2019 7:34	126.8	185	0
11/20/2019 7:35	0	0	0
11/20/2019 7:36	158.5	449	0.01
11/20/2019 7:37	0	0	0
11/20/2019 7:38	237.8	819	0.01
11/20/2019 7:39	0	0	0
11/20/2019 7:40	285.3	1347	0.01
11/20/2019 7:41	0	0	0.01
11/20/2019 7:42	348.7	1981	0
11/20/2019 7:43	0	0	0.01
11/20/2019 7:44	428	2747	0

T-BIRD STATION
WEDNESDAY, NOVEMBER 20, 2019

11/20/2019 7:45	0	0	0.01
11/20/2019 7:46	507.2	3672	0
11/20/2019 7:47	0	0	0
11/20/2019 7:48	570.6	4755	0
11/20/2019 7:49	0	0	0
11/20/2019 7:50	681.6	5970	0
11/20/2019 7:51	0	0	0
11/20/2019 7:52	745	7370	0
11/20/2019 7:53	0	0	0
11/20/2019 7:53	0	0	0
11/20/2019 7:54	713.3	8823	0
11/20/2019 7:55	0	0	0
11/20/2019 7:56	776.7	10303	0
11/20/2019 7:56	0	0	0
11/20/2019 7:57	0	0	0
11/20/2019 7:58	745	11861	0
11/20/2019 7:59	0	0	0
11/20/2019 8:00	665.7	13288	0.01
11/20/2019 8:00	0	0	0
11/20/2019 8:01	0	0	0
11/20/2019 8:02	665.7	14609	0
11/20/2019 8:03	0	0	0.01
11/20/2019 8:04	586.5	15903	0
11/20/2019 8:05	0	0	0.01
11/20/2019 8:06	538.9	17013	0
11/20/2019 8:07	0	0	0
11/20/2019 8:08	491.4	18043	0.01
11/20/2019 8:09	0	0	0
11/20/2019 8:10	475.5	19020	0
11/20/2019 8:11	0	0	0
11/20/2019 8:12	491.4	19971	0.01
11/20/2019 8:13	0	0	0
11/20/2019 8:14	491.4	20949	0
11/20/2019 8:15	0	0	0.01
11/20/2019 8:16	1489.9	22904	0
11/20/2019 8:16	0	0	0
11/20/2019 8:17	0	0	0
11/20/2019 8:18	2583.6	26946	0
11/20/2019 8:19	0	0	0
11/20/2019 8:20	3613.9	33127	0.01
11/20/2019 8:21	0	0	0
11/20/2019 8:22	3930.9	40656	0.01
11/20/2019 8:23	0	0	0
11/20/2019 8:24	3930.9	42743	0
11/20/2019 8:25	0	0	0.01
Average:	**975.10**		
Total:		**365,559**	**0.24**

TBIRD

Flowlink 5



Scottsdale Water
Wet Weather Monitoring Form

Sample Location ID: MCKRD PIERCE CAMEL CHAP TBIRD

(Complete a separate form for each monitoring location)

WEATHER	
Hours since last measurable rain event:	772 HR
Rainfall amount in inches:	0.24
SAMPLE COLLECTION INFORMATION	
Sample Types collected:	☒ Grab ☒ Composite
Sample date and time: GRAB: 11/20/19 0810 COMP: 11/20/19 0905	See Chain of Custody
Sampling personnel: ML BO	
FLOW DATA	
Duration of composite sampling period (minutes)	51 MIN
Volume of flow during composite sampling period (gallons)	42,793 GALLONS
Average flow rate during sampling period (gpm)	
Volume of each aliquot in composite sample	300 ml
Number of aliquots in the flow-weighted composite sample	31
Flow rate at the time of collection of each aliquot	See attached flow data
Time interval between collection of each aliquot	

VISUAL OBSERVATIONS

(Color, oil sheen, debris, other)

Light Brown, No sheen.
Light Debris

COMMENTS

(Remarks, calculations, unusual circumstances that may affect sample results, additional information)

ATTACHMENTS	
Rainfall and Flow Data (from Flowlink)	☒ Yes ☐ No
Chain of Custody	☒ Yes ☐ No

SIGNATURE

Signature of Monitoring Personnel:

Signature [signature] Date 11/20/19

Signature [signature] Date 11/20/19

12921687v2
s1 "Sheet1"

SCOTTSDALE WATER

WATER QUALITY LABORATORY
8787 E. Hualapai Dr.
PO Box 25089
Scottsdale, AZ 85255

PHONE 480-312-8732
WEB ScottsdaleAZ.gov

- CERTIFICATE OF ANALYSIS -

Lab # AB98743

Krystal Heyer
City of Scottsdale
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Date Sampled: 11/29/2019
Time Sampled: 06:45
Date Received: 11/29/2019
Report Date: 01/16/2020

Sample ID: SWBF19-072
Location ID: SWC Chaparral Rd & Hayden Rd (CHAPRD)
Location Description: 130820 Composite

Test	Method	Result	Data Qualifier	DF	Units	PQL	Analysis Date
Nitrogen, Ammonia, N	SM 4500 NH3 D	0.247		1.00	mg/L	0.10	12/11/2019
BOD, 5 Day	SM 5210B	6.65	K6	1.00	mg/L	1	11/29/2019
Chemical Oxygen Demand	SM 5220 D	33		1.00	mg/L	20	12/09/2019
Nitrogen, Nitrate + Nitrite (as N)	Calculation	0.313		1.00	mg/L	0.4	11/29/2019
Nitrate, NO3	EPA 300.0	0.3		1.00	mg/L	0.2	11/29/2019
Nitrite, NO2	EPA 300.0	< 0.2		1.00	mg/L	0.2	11/29/2019
Orthophosphate as P	EPA 300.0	< 0.2		1.00	mg/L	0.2	11/29/2019
Residue, Total Dissolved	SM 2540 C	14		1.00	mg/L	20	11/29/2019
Nitrogen, Total Kjeldahl, TKN	SM 4500 NH3-D	0.955		1.00	mg/L	0.50	12/16/2019
Residue, Total Suspended	SM 2540 D	80		1.00	mg/L	10	11/29/2019
Beryllium, Be	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	12/04/2019
Magnesium, Mg	EPA 200.8	1.28		1.00	mg/L	0.50	12/04/2019
Calcium, Ca	EPA 200.8	5.46		1.00	mg/L	0.50	12/04/2019
Chromium, Cr	EPA 200.8	0.0030		1.00	mg/L	0.0010	12/04/2019
Nickel, Ni	EPA 200.8	0.0028		1.00	mg/L	0.0010	12/04/2019

CITY OF SCOTTSDALE

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8787 E. Hualapai Dr.
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- CERTIFICATE OF ANALYSIS -

Lab Number AB98743 Continued From Previous Page

Test	Method	Result	Data Qualifier	DF	Units	PQL	Analysis Date
Copper, Cu	EPA 200.8	0.0114		1.00	mg/L	0.0010	12/04/2019
Zinc, Zn	EPA 200.8	0.158		1.00	mg/L	0.010	12/04/2019
Arsenic, As	EPA 200.8	0.0012		1.00	mg/L	0.0010	12/04/2019
Selenium, Se	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	12/04/2019
Silver, Ag	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	12/04/2019
Cadmium, Cd	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	12/04/2019
Antimony, Sb	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	12/04/2019
Barium, Ba	EPA 200.8	0.0354		1.00	mg/L	0.0010	12/04/2019
Thallium, Tl	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	12/04/2019
Lead, Pb	EPA 200.8	0.0046		1.00	mg/L	0.0010	12/04/2019
Total Hardness	SM 2340B	18.9		1.00	mg/L	0.34	12/04/2019
Mercury, Hg	EPA 245.1	< 0.0002		1.00	mg/L	0.0002	12/06/2019
Phosphorus, Total	SM4500 P E	0.15		1.00	mg/L	0.10	12/10/2019

Comments Total Phosphorus and Mercury were analyzed by Eurofins Test America Phoenix (#AZ0728).

Data Qualifiers

K6 = Glucose/glutamic acid BOD/CBOD was below method acceptance criteria.

Authorized Signature
License #AZ0424

CITY OF SCOTTSDALE

CITY OF SCOTTSDALE

CHAIN OF CUSTODY

Date: 11/29/19

Page 1 of 1

LAB ID: 19112900l

Contact: Krystal Heyer
City of Scottsdale Water Quality Division
Stormwater
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Department: Water Resources

Phone: (480) 312-8732
Fax: (480) 312-8728

Location Code: STORM - CHAPRD
NWC E. Camelback & N. Hayden Rds

ANALYSIS REQUEST

Sample ID	Date	Time	Matrix	Comp (Y/N)	LAB ID	Metals 200.8-STORM, Hardness	Mercury 245.1	TDS, TSS, Nitrate + Nitrite as N	Ammonia as N, TKN	COD	Total Phosphorus	Orthophosphate (Total)	BOD					Total Petroleum Hydrocarbons (TPH) (EPA 8015)	Total Oil and Grease (EPA 1664)	E. coli	Cyanide	Field pH	Field Temperature	Field Flow (from auto-sampler)	NUMBER OF CONTAINERS
						COMPOSITE												GRAB							
~~CHAPRD (GRAB)~~			SW	Y														x	x	x	x				
~~CHAPRD (COMP)~~ SWBF19-072	11/29/19	0645	SW	Y	AB98743	x	x	x	x	x	x	x	x												8

PLEASE FILL THIS FORM IN COMPLETELY. SHADED AREAS ARE FOR LAB USE ONLY.

SAMPLE RECEIPT

NO. CONTAINERS	8		PRESERVATION pH VERIFIED	☐ Yes	☑ No	
CUSTODY SEALS	☐ Yes	☑ No	RECEIVED COLD	☑ Yes	☐ No	4°C
RECEIVED INTACT	☑ Yes	☐ No				

COMMENTS:

Standard Turn-Around Time (10 Day):
Rush Turn-Around (3 or 5 Day):
Other:

SAMPLED & RELINQUISHED BY: 1

Signature: [signature]		Signature: To Cooler	
Printed Name: Beau Flemister		Printed Name: To Cooler	
Date: 11/29/19	Time: 07:01 AM	Date: 11/29/19	Time: 07:02 AM

RECEIVED BY:

Signature: From Cooler		Signature: [signature]	
Printed Name:		Printed Name: Krystal Heyer	
Date: 11-29-19	Time: 0940	Date: 11-29-19	Time: 0940

12465783v1
s3 "Permit Yrs 2,4"

C:\Users\spoe\AppData\Roaming\OpenText\DM\Temp\DM_SCOTTSDALE-#12465787-v2-Sample_Station_4_-_Chaparral_COC

Chaparral Station
Friday, November 29, 2019

Label	Rainfall	710 Flow Rate	710 Volume
Units	in	gpm	gal
11/29/2019 3:00	0	47.6	4266
11/29/2019 3:01	0	0	0
11/29/2019 3:02	0	0	0
11/29/2019 3:03	0	0	0
11/29/2019 3:04	0	0	0
11/29/2019 3:05	0	0	0
11/29/2019 3:06	0	0	0
11/29/2019 3:07	0	0	0
11/29/2019 3:08	0	0	0
11/29/2019 3:09	0	0	0
11/29/2019 3:10	0	0	0
11/29/2019 3:11	0	0	0
11/29/2019 3:12	0	0	0
11/29/2019 3:13	0	0	0
11/29/2019 3:14	0	0	0
11/29/2019 3:15	0	0	4959
11/29/2019 3:16	0	0	0
11/29/2019 3:17	0	0	0
11/29/2019 3:18	0	0	0
11/29/2019 3:19	0	0	0
11/29/2019 3:20	0	0	0
11/29/2019 3:21	0	0	0
11/29/2019 3:22	0	0	0
11/29/2019 3:23	0	0	0
11/29/2019 3:24	0	0	0
11/29/2019 3:25	0	0	0
11/29/2019 3:26	0	0	0
11/29/2019 3:27	0	0	0
11/29/2019 3:28	0	0	0
11/29/2019 3:29	0	0	0
11/29/2019 3:30	0	0	5146
11/29/2019 3:31	0	0	0
11/29/2019 3:32	0	0	0
11/29/2019 3:33	0	0	0
11/29/2019 3:34	0	0	0
11/29/2019 3:35	0	0	0
11/29/2019 3:36	0	0	0
11/29/2019 3:37	0	0	0
11/29/2019 3:38	0	0	0
11/29/2019 3:39	0	0	0
11/29/2019 3:40	0	0	0
11/29/2019 3:41	0	0	0
11/29/2019 3:42	0	0	0
11/29/2019 3:43	0	0	0
11/29/2019 3:44	0	0	0

Chaparral Station
Friday, November 29, 2019

11/29/2019 3:45	0	0	5146
11/29/2019 3:46	0	0	0
11/29/2019 3:47	0	0	0
11/29/2019 3:48	0	0	0
11/29/2019 3:49	0	0	0
11/29/2019 3:50	0	0	0
11/29/2019 3:51	0	0	0
11/29/2019 3:52	0	0	0
11/29/2019 3:53	0	0	0
11/29/2019 3:54	0	0	0
11/29/2019 3:55	0	0	0
11/29/2019 3:56	0	0	0
11/29/2019 3:57	0	0	0
11/29/2019 3:58	0	0	0
11/29/2019 3:59	0	0	0
11/29/2019 4:00	0	0	5146
11/29/2019 4:01	0	0	0
11/29/2019 4:02	0	0	0
11/29/2019 4:03	0	0	0
11/29/2019 4:04	0	0	0
11/29/2019 4:05	0.01	0	0
11/29/2019 4:06	0	0	0
11/29/2019 4:07	0	0	0
11/29/2019 4:08	0	0	0
11/29/2019 4:09	0.01	0	0
11/29/2019 4:10	0.01	0	0
11/29/2019 4:11	0.01	0	0
11/29/2019 4:12	0.01	0	0
11/29/2019 4:13	0	0	0
11/29/2019 4:14	0.01	206.1	5540
11/29/2019 4:15	0.01	0	0
11/29/2019 4:16	0.02	0	5807
11/29/2019 4:17	0.01	0	0
11/29/2019 4:18	0.02	618.2	6932
11/29/2019 4:19	0.01	0	0
11/29/2019 4:20	0.01	618.2	6932
11/29/2019 4:21	0.01	0	0
11/29/2019 4:22	0	618.2	6932
11/29/2019 4:23	0.01	0	0
11/29/2019 4:24	0	618.2	6932
11/29/2019 4:25	0.01	0	0
11/29/2019 4:26	0	618.2	6932
11/29/2019 4:27	0	0	0
11/29/2019 4:28	0.01	618.2	6932
11/29/2019 4:29	0.02	0	0
11/29/2019 4:30	0.01	618.2	6932
11/29/2019 4:31	0.02	0	0

Chaparral Station
Friday, November 29, 2019

11/29/2019 4:32	0.01	618.2	6932
11/29/2019 4:33	0.01	0	0
11/29/2019 4:34	0.01	618.2	6932
11/29/2019 4:35	0.01	0	0
11/29/2019 4:36	0	618.2	6932
11/29/2019 4:37	0	0	0
11/29/2019 4:38	0.01	618.2	6932
11/29/2019 4:39	0	0	0
11/29/2019 4:40	0.01	618.2	6932
11/29/2019 4:41	0	0	0
11/29/2019 4:42	0	618.2	6932
11/29/2019 4:43	0.01	0	0
11/29/2019 4:44	0	618.2	6932
11/29/2019 4:45	0.01	0	0
11/29/2019 4:46	0	618.2	6932
11/29/2019 4:47	0	0	0
11/29/2019 4:48	0.01	618.2	6932
11/29/2019 4:49	0	0	0
11/29/2019 4:50	0.01	1743.5	69263
11/29/2019 4:51	0	0	0
11/29/2019 4:52	0.01	1489.9	72436
11/29/2019 4:53	0.01	0	0
11/29/2019 4:54	0	1648.4	75540
11/29/2019 4:55	0	0	0
11/29/2019 4:56	0.01	1347.3	78190
11/29/2019 4:57	0	0	0
11/29/2019 4:58	0.01	1347.3	80953
11/29/2019 4:59	0	0	0
11/29/2019 5:00	0.01	1236.3	83492
11/29/2019 5:01	0	0	0
11/29/2019 5:02	0.01	1315.6	86178
11/29/2019 5:03	0	0	0
11/29/2019 5:04	0	1252.2	88722
11/29/2019 5:05	0.01	0	0
11/29/2019 5:06	0	1331.4	91356
11/29/2019 5:07	0.01	0	0
11/29/2019 5:08	0	1236.3	94027
11/29/2019 5:09	0	0	0
11/29/2019 5:10	0.01	1236.3	96597
11/29/2019 5:11	0	0	0
11/29/2019 5:12	0.01	1283.9	99168
11/29/2019 5:13	0	0	0
11/29/2019 5:14	0.01	1315.6	101680
11/29/2019 5:15	0	0	0
11/29/2019 5:16	0.01	1474.1	104543
11/29/2019 5:17	0	0	0
11/29/2019 5:18	0.01	1188.8	107077

Chaparral Station
Friday, November 29, 2019

11/29/2019 5:19	0.01	0	0
11/29/2019 5:20	0	1410.7	109623
11/29/2019 5:21	0.01	0	0
11/29/2019 5:22	0	1157.1	112043
11/29/2019 5:23	0.01	0	0
11/29/2019 5:24	0	1283.9	114735
11/29/2019 5:25	0	0	0
11/29/2019 5:26	0	1379	117335
11/29/2019 5:27	0	0	0
11/29/2019 5:28	0	1410.7	120177
11/29/2019 5:29	0	0	0
11/29/2019 5:30	0	1410.7	122785
11/29/2019 5:31	0	0	0
11/29/2019 5:32	0	1426.5	125442
11/29/2019 5:33	0	0	0
11/29/2019 5:34	0.01	1315.6	127981
11/29/2019 5:35	0	0	0
11/29/2019 5:36	0	1188.8	130229
11/29/2019 5:37	0	0	0
11/29/2019 5:38	0	840.1	131901
11/29/2019 5:39	0	0	0
11/29/2019 5:40	0	745	133637
11/29/2019 5:41	0	0	0
11/29/2019 5:42	0	745	133637
11/29/2019 5:43	0	0	0
11/29/2019 5:44	0	618.2	136323
11/29/2019 5:45	0	0	0
11/29/2019 5:46	0	554.8	137467
11/29/2019 5:47	0	0	0
11/29/2019 5:48	0	475.5	138460
11/29/2019 5:49	0	0	0
11/29/2019 5:50	0.01	428	138978
11/29/2019 5:51	0	0	0
11/29/2019 5:52	0	428	138978
11/29/2019 5:53	0	0	0
11/29/2019 5:54	0.01	428	138978
11/29/2019 5:55	0	0	0
11/29/2019 5:56	0	428	138978
11/29/2019 5:57	0.01	0	0
11/29/2019 5:58	0	428	138978
11/29/2019 5:59	0	0	0
11/29/2019 6:00	0	428	138978
11/29/2019 6:01	0	0	0
11/29/2019 6:02	0.01	428	138978
11/29/2019 6:03	0	0	0
11/29/2019 6:04	0	428	138978
11/29/2019 6:05	0	0	0

Chaparral Station
Friday, November 29, 2019

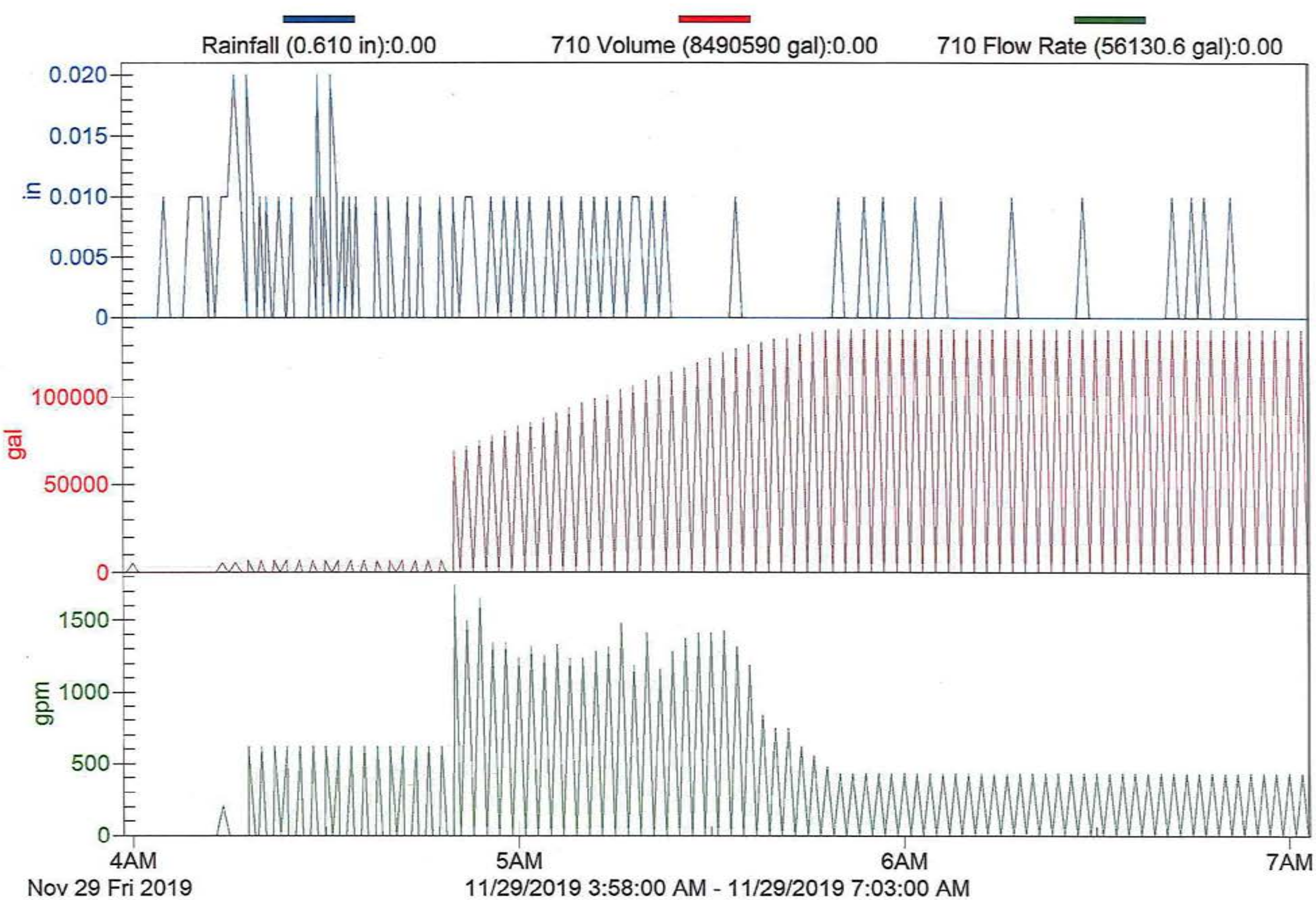
11/29/2019 6:06	0.01	428	138978
11/29/2019 6:07	0	0	0
11/29/2019 6:08	0	428	138978
11/29/2019 6:09	0	0	0
11/29/2019 6:10	0	428	138978
11/29/2019 6:11	0	0	0
11/29/2019 6:12	0	428	138978
11/29/2019 6:13	0	0	0
11/29/2019 6:14	0	428	138978
11/29/2019 6:15	0	0	0
11/29/2019 6:16	0	428	138978
11/29/2019 6:17	0.01	0	0
11/29/2019 6:18	0	428	138978
11/29/2019 6:19	0	0	0
11/29/2019 6:20	0	428	138978
11/29/2019 6:21	0	0	0
11/29/2019 6:22	0	428	138978
11/29/2019 6:23	0	0	0
11/29/2019 6:24	0	428	138978
11/29/2019 6:25	0	0	0
11/29/2019 6:26	0	428	138978
11/29/2019 6:27	0	0	0
11/29/2019 6:28	0.01	428	138978
11/29/2019 6:29	0	0	0
11/29/2019 6:30	0	428	138978
11/29/2019 6:31	0	0	0
11/29/2019 6:32	0	428	138978
11/29/2019 6:33	0	0	0
11/29/2019 6:34	0	428	138978
11/29/2019 6:35	0	0	0
11/29/2019 6:36	0	428	138978
11/29/2019 6:37	0	0	0
11/29/2019 6:38	0	428	138978
11/29/2019 6:39	0	0	0
11/29/2019 6:40	0	428	138978
11/29/2019 6:41	0	0	0
11/29/2019 6:42	0.01	428	138978
11/29/2019 6:43	0	0	0
11/29/2019 6:44	0	428	138978
11/29/2019 6:45	0.01	0	0
11/29/2019 6:46	0	428	138978
11/29/2019 6:47	0.01	0	0
11/29/2019 6:48	0	428	138978
11/29/2019 6:49	0	0	0
11/29/2019 6:50	0	428	138978
11/29/2019 6:51	0.01	0	0
11/29/2019 6:52	0	428	138978

Chaparral Station
Friday, November 29, 2019

11/29/2019 6:53	0	0	0
11/29/2019 6:54	0	428	138978
11/29/2019 6:55	0	0	0
11/29/2019 6:56	0	428	138978
11/29/2019 6:57	0	0	0
11/29/2019 6:58	0	428	138978
11/29/2019 6:59	0	0	0
11/29/2019 7:00	0	428	138978
Average		**737.64**	
Total	**0.61**		**8,371,127**

CHAPARRAL

Flowlink 5



Scottsdale Water
Wet Weather Monitoring Form

Sample Location ID: CAMEL CHAPRD MCKRD PIERCE TBIRD
(Complete a separate form for each monitoring location)

WEATHER	
Hours since last measurable rain event:	772 HR
Rainfall amount in inches: 04:11 – 07:00	0.61
SAMPLE COLLECTION INFORMATION	
Sample Types collected:	☐ Grab ☒ Composite
Sample date and time:	See Chain of Custody
Sampling personnel:	
Volume of descrete and composite samples:	
FLOW DATA	
Duration of composite sampling period (minutes)	38
Volume of flow during composite sampling period (gallons)	6932 *
Average flow rate during sampling period (gpm)	618 *
Volume of each aliquot in composite sample	300 ml
Number of aliquots in the flow-weighted composite sample	30
Flow rate at the time of collection of each aliquot	See attached flow data
Time interval between collection of each aliquot	

VISUAL OBSERVATIONS
(Color, oil sheen, debris, other)

LIGHT BROWN, NO SHEEN

COMMENTS
(Remarks, calculations, unusual circumstances that may affect sample results, additional information)

1ST SAMPLE: 4:11 BEGINNING 04:14 THRU 04:48 FLOW MEASUREMENT ERROR
LAST SAMPLE: 4:49
DURATION: 38 MIN

ATTACHMENTS		
Rainfall and Flow Data (print for Flowlink)	☒ Yes	☐ No
Chain of Custody	☐ Yes	☐ No

SIGNATURE

Signature of Monitoring Personnel:

Signature [signature] Date 11/29/19

Signature Date

12921687v2
s1 "Sheet1"

SCOTTSDALE WATER

WATER QUALITY LABORATORY
8787 E. Hualapai Dr.
PO Box 25089
Scottsdale, AZ 85255

PHONE 480-312-8732
WEB ScottsdaleAZ.gov

- CERTIFICATE OF ANALYSIS -

Lab # AB98744

Krystal Heyer
City of Scottsdale
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Date Sampled: 11/29/2019
Time Sampled: 06:40
Date Received: 11/29/2019
Report Date: 01/16/2020

Sample ID: SWBF19-073
Location ID: NWC Pierce St & Hayden Rd (PIERCE)

Location Description: 080610 Composite

Test	Method	Result	Data Qualifier	DF	Units	PQL	Analysis Date
Nitrogen, Ammonia, N	SM 4500 NH3 D	0.321		1.00	mg/L	0.10	12/11/2019
BOD, 5 Day	SM 5210B	5.97	K6	1.00	mg/L	1	11/29/2019
Chemical Oxygen Demand	SM 5220 D	81		1.00	mg/L	20	12/09/2019
Nitrogen, Nitrate + Nitrite (as N)	Calculation	0.473		1.00	mg/L	0.4	11/29/2019
Nitrate, NO3	EPA 300.0	0.5		1.00	mg/L	0.2	11/29/2019
Nitrite, NO2	EPA 300.0	< 0.2		1.00	mg/L	0.2	11/29/2019
Orthophosphate as P	EPA 300.0	< 0.2		1.00	mg/L	0.2	11/29/2019
Residue, Total Dissolved	SM 2540 C	72		1.00	mg/L	20	11/29/2019
Nitrogen, Total Kjeldahl, TKN	SM 4500 NH3-D	2.041		1.00	mg/L	0.50	12/16/2019
Residue, Total Suspended	SM 2540 D	156		1.00	mg/L	10	11/29/2019
Beryllium, Be	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	12/04/2019
Magnesium, Mg	EPA 200.8	5.17		1.00	mg/L	0.50	12/04/2019
Calcium, Ca	EPA 200.8	14.3		1.00	mg/L	0.50	12/04/2019
Chromium, Cr	EPA 200.8	0.0086		1.00	mg/L	0.0010	12/04/2019
Nickel, Ni	EPA 200.8	0.0097		1.00	mg/L	0.0010	12/04/2019

CITY OF SCOTTSDALE

WATER QUALITY LABORATORY
8787 E. Hualapai Dr.
PO Box 25089
Scottsdale, AZ 85255

PHONE 480-312-8732
WEB ScottsdaleAZ.gov

- CERTIFICATE OF ANALYSIS -

Lab Number AB98744 Continued From Previous Page

Test	Method	Result	Data Qualifier	DF	Units	PQL	Analysis Date
Copper, Cu	EPA 200.8	0.0427		1.00	mg/L	0.0010	12/04/2019
Zinc, Zn	EPA 200.8	0.330		1.00	mg/L	0.010	12/04/2019
Arsenic, As	EPA 200.8	0.0033		1.00	mg/L	0.0010	12/04/2019
Selenium, Se	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	12/04/2019
Silver, Ag	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	12/04/2019
Cadmium, Cd	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	12/04/2019
Antimony, Sb	EPA 200.8	0.0012		1.00	mg/L	0.0010	12/04/2019
Barium, Ba	EPA 200.8	0.0907		1.00	mg/L	0.0010	12/04/2019
Thallium, Tl	EPA 200.8	< 0.0010		1.00	mg/L	0.0010	12/04/2019
Lead, Pb	EPA 200.8	0.0208		1.00	mg/L	0.0010	12/04/2019
Total Hardness	SM 2340B	57.0		1.00	mg/L	0.34	12/04/2019
Mercury, Hg	EPA 245.1	< 0.0002		1.00	mg/L	0.0002	12/06/2019
Phosphorus, Total	SM4500 P E	0.22		1.00	mg/L	0.10	12/10/2019

Comments Total Phosphorus and Mercury were analyzed by Eurofins Test America Phoenix (#AZ0728).

Data Qualifiers

K6 = Glucose/glutamic acid BOD/CBOD was below method acceptance criteria.

Authorized Signature
License #AZ0424

CITY OF SCOTTSDALE

CITY OF SCOTTSDALE

CHAIN OF CUSTODY

Date: 11/29/19

LAB ID: 19112900l

PLEASE FILL THIS FORM IN COMPLETELY. SHADED AREAS ARE FOR LAB USE ONLY.

Contact: Krystal Heyer
City of Scottsdale Water Quality Division
Stormwater
8787 E. Hualapai Drive
Scottsdale, AZ 85255

Department: Water Resources

Phone: (480) 312-8732
Fax: (480) 312-8728

Location Code: STORM - PIERCE
NWC Pierce St & Hayden Rd

ANALYSIS REQUEST

Sample ID	Date	Time	Matrix	Comp (Y/N)	LAB ID	Metals 200.8-STORM, Hardness	Mercury 245.1	TDS, TSS, Nitrate + Nitrite as N	Ammonia as N, TKN	COD	Total Phosphorus	Orthophosphate (Total)	BOD					Total Petroleum Hydrocarbons (TPH) (EPA 8015)	Total Oil and Grease (EPA 1664)	E. coli	Cyanide	Field pH	Field Temperature	Field Flow (from auto-sampler)	NUMBER OF CONTAINERS
						COMPOSITE												GRAB							
~~PIERCE (GRAB) -~~			~~SW~~	~~Y~~														~~X~~	~~X~~	~~X~~	~~X~~				
PIERCE (COMP) - SWBF19-073	11/29/19	0640	SW	Y	AB98744	X	X	X	X	X	X	X	X												8

SAMPLE RECEIPT

NO. CONTAINERS	8	PRESERVATION pH VERIFIED	☐ Yes	☑ No	
CUSTODY SEALS	☐ Yes ☑ No	RECEIVED COLD	☑ Yes	☐ No	4°C
RECEIVED INTACT	☑ Yes ☐ No				

COMMENTS:

Standard Turn-Around Time (10 Day):
Rush Turn-Around (3 or 5 Day):
Other:

SAMPLED & RELINQUISHED BY:

Signature: Victor P. Sesate	Signature: TO COOLER
Printed Name: Victor P. SESATE	Printed Name: TO COOLER
Date: 11/29/19 Time: 0658	Date: 11/29/19 Time: 0659

RECEIVED BY:

Signature: From Cooler	Signature: [signature]
Printed Name:	Printed Name: Krystal Heyer
Date: 11/29/19 Time: 0940	Date: 11-29-19 Time: 0940

Pierce Station
Friday November 29,2019

Label		750 Flow Rate	750 Volume	Rainfall
Units		gpm	gal	in
	11/29/2019 4:00	0	0	0
	11/29/2019 4:01	0	0	0
	11/29/2019 4:02	0	0	0
	11/29/2019 4:03	0	0	0.01
	11/29/2019 4:04	0	0	0
	11/29/2019 4:05	0	0	0
	11/29/2019 4:06	0	0	0.01
	11/29/2019 4:07	0	0	0.01
	11/29/2019 4:08	0	0	0.01
	11/29/2019 4:09	0	0	0.01
	11/29/2019 4:10	0	0	0
	11/29/2019 4:11	0	0	0.01
	11/29/2019 4:12	79.3	11	0.01
	11/29/2019 4:13	0	0	0
	11/29/2019 4:14	221.9	499	0.01
	11/29/2019 4:15	0	0	0.01
	11/29/2019 4:16	428	1189	0.01
	11/29/2019 4:17	0	0	0.02
	11/29/2019 4:18	538.9	2161	0.03
	11/29/2019 4:19	0	0	0.02
	11/29/2019 4:20	840.1	2811	0.02
	11/29/2019 4:21	0	0	0
	11/29/2019 4:22	840.1	2811	0.02
	11/29/2019 4:23	0	0	0
	11/29/2019 4:24	840.1	2811	0
	11/29/2019 4:25	0	0	0
	11/29/2019 4:26	840.1	2811	0
	11/29/2019 4:26	0	0	0
	11/29/2019 4:27	0	0	0
	11/29/2019 4:28	840.1	2811	0
	11/29/2019 4:29	0	0	0.01
	11/29/2019 4:30	1743.5	19240	0
	11/29/2019 4:30	0	0	0
	11/29/2019 4:31	0	0	0.01
	11/29/2019 4:32	1870.3	22740	0.01
	11/29/2019 4:33	0	0	0.01
	11/29/2019 4:34	1870.3	22740	0.01
	11/29/2019 4:35	0	0	0.01
	11/29/2019 4:36	951	29040	0.01
	11/29/2019 4:37	0	0	0
	11/29/2019 4:38	1933.7	32480	0
	11/29/2019 4:39	0	0	0.01
	11/29/2019 4:40	1965.4	37000	0
	11/29/2019 4:41	0	0	0.01
	11/29/2019 4:42	1489.9	40751	0

Pierce Station
Friday November 29,2019

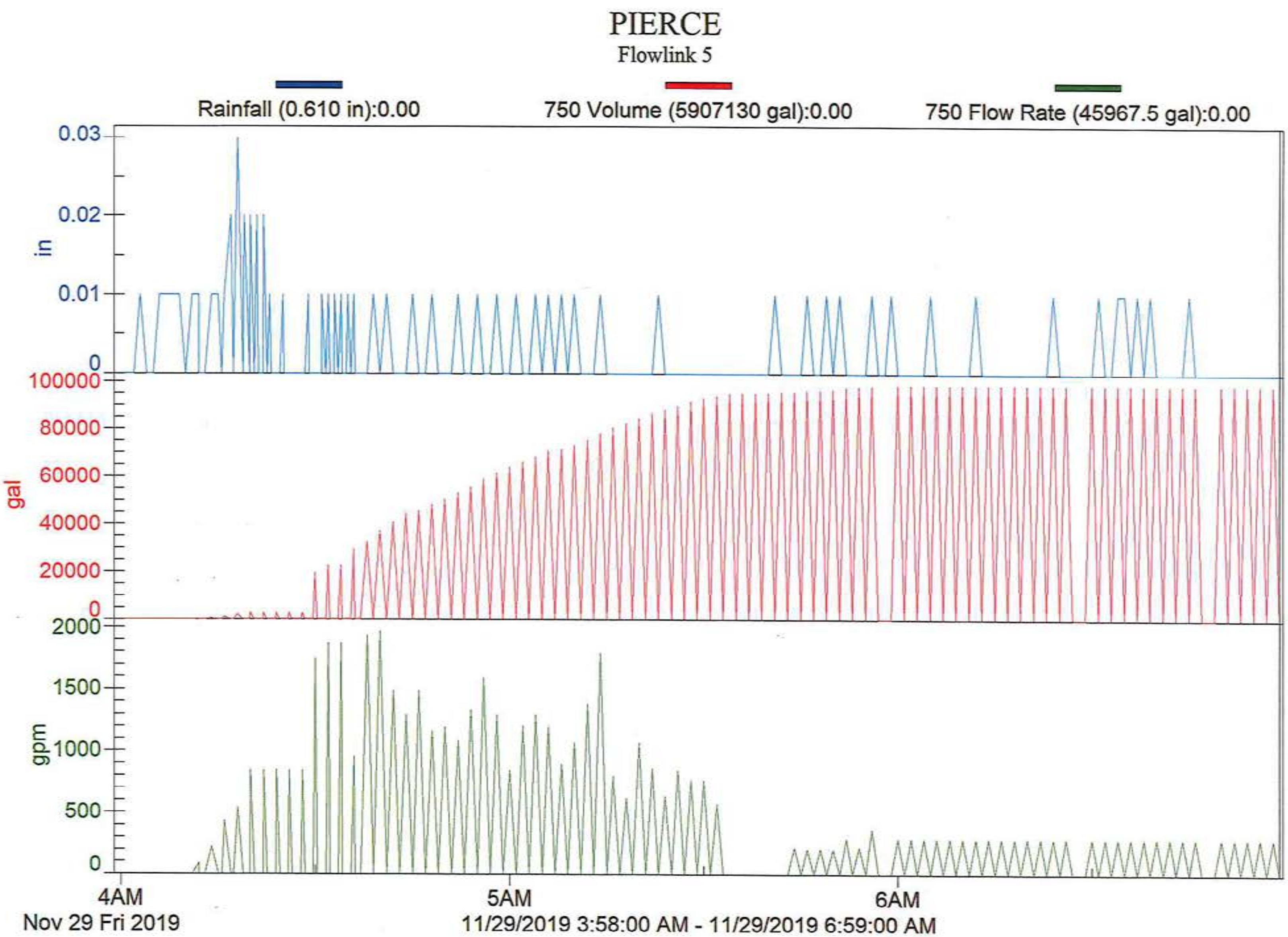
11/29/2019 4:43	0	0	0
11/29/2019 4:44	1283.9	44141	0
11/29/2019 4:45	0	0	0.01
11/29/2019 4:46	1489.9	45501	0
11/29/2019 4:47	0	0	0
11/29/2019 4:48	1157.1	47960	0.01
11/29/2019 4:49	0	0	0
11/29/2019 4:50	1188.8	50161	0
11/29/2019 4:51	0	0	0
11/29/2019 4:52	1077.8	53009	0.01
11/29/2019 4:53	0	0	0
11/29/2019 4:54	1331.4	55521	0
11/29/2019 4:55	0	0	0.01
11/29/2019 4:56	1585	58601	0
11/29/2019 4:57	0	0	0
11/29/2019 4:58	1283.9	61671	0.01
11/29/2019 4:59	0	0	0
11/29/2019 5:00	840.1	64009	0
11/29/2019 5:01	0	0	0.01
11/29/2019 5:02	1204.6	66091	0
11/29/2019 5:03	0	0	0
11/29/2019 5:04	1283.9	68090	0.01
11/29/2019 5:05	0	0	0
11/29/2019 5:06	1188.8	70320	0.01
11/29/2019 5:07	0	0	0
11/29/2019 5:08	887.6	71440	0.01
11/29/2019 5:09	0	0	0
11/29/2019 5:10	1062	73020	0.01
11/29/2019 5:11	0	0	0
11/29/2019 5:12	1379	75191	0
11/29/2019 5:13	0	0	0
11/29/2019 5:14	1791.1	78010	0.01
11/29/2019 5:15	0	0	0
11/29/2019 5:16	792.5	80351	0
11/29/2019 5:17	0	0	0
11/29/2019 5:18	618.2	82469	0
11/29/2019 5:19	0	0	0
11/29/2019 5:20	1062	84411	0
11/29/2019 5:21	0	0	0
11/29/2019 5:22	855.9	86310	0
11/29/2019 5:23	0	0	0.01
11/29/2019 5:24	634	88019	0
11/29/2019 5:25	0	0	0
11/29/2019 5:26	840.1	89499	0
11/29/2019 5:27	0	0	0
11/29/2019 5:28	760.8	91380	0
11/29/2019 5:29	0	0	0

Pierce Station
Friday November 29,2019

11/29/2019 5:30	760.8	93060	0
11/29/2019 5:31	0	0	0
11/29/2019 5:32	570.6	94061	0
11/29/2019 5:33	0	0	0
11/29/2019 5:34	0	94991	0
11/29/2019 5:35	0	0	0
11/29/2019 5:36	0	94991	0
11/29/2019 5:37	0	0	0
11/29/2019 5:38	0	94991	0
11/29/2019 5:39	0	0	0
11/29/2019 5:40	0	95300	0
11/29/2019 5:41	0	0	0.01
11/29/2019 5:42	0	95649	0
11/29/2019 5:43	0	0	0
11/29/2019 5:44	221.9	95731	0
11/29/2019 5:45	0	0	0
11/29/2019 5:46	206.1	96130	0.01
11/29/2019 5:47	0	0	0
11/29/2019 5:48	206.1	96381	0
11/29/2019 5:49	0	0	0.01
11/29/2019 5:50	206.1	96811	0
11/29/2019 5:51	0	0	0.01
11/29/2019 5:52	285.3	97310	0
11/29/2019 5:53	0	0	0
11/29/2019 5:54	221.9	97799	0
11/29/2019 5:55	0	0	0
11/29/2019 5:56	364.6	97979	0.01
11/29/2019 5:57	0	0	0
11/29/2019 5:58	0	0	0
11/29/2019 5:59	0	0	0.01
11/29/2019 6:00	285.3	98531	0
11/29/2019 6:01	0	0	0
11/29/2019 6:02	285.3	98531	0
11/29/2019 6:03	0	0	0
11/29/2019 6:04	285.3	98531	0
11/29/2019 6:05	0	0	0.01
11/29/2019 6:06	285.3	98531	0
11/29/2019 6:07	0	0	0
11/29/2019 6:08	285.3	98531	0
11/29/2019 6:09	0	0	0
11/29/2019 6:10	285.3	98531	0
11/29/2019 6:11	0	0	0
11/29/2019 6:12	285.3	98531	0.01
11/29/2019 6:13	0	0	0
11/29/2019 6:14	285.3	98531	0
11/29/2019 6:15	0	0	0
11/29/2019 6:16	285.3	98531	0

Pierce Station
Friday November 29,2019

11/29/2019 6:17	0	0	0
11/29/2019 6:18	285.3	98531	0
11/29/2019 6:19	0	0	0
11/29/2019 6:20	285.3	98531	0
11/29/2019 6:21	0	0	0
11/29/2019 6:22	285.3	98531	0
11/29/2019 6:23	0	0	0
11/29/2019 6:24	285.3	98531	0.01
11/29/2019 6:25	0	0	0
11/29/2019 6:26	285.3	98531	0
11/29/2019 6:27	0	0	0
11/29/2019 6:28	0	0	0
11/29/2019 6:29	0	0	0
11/29/2019 6:30	285.3	98531	0
11/29/2019 6:31	0	0	0.01
11/29/2019 6:32	285.3	98531	0
11/29/2019 6:33	0	0	0
11/29/2019 6:34	285.3	98531	0.01
11/29/2019 6:35	0	0	0.01
11/29/2019 6:36	285.3	98531	0
11/29/2019 6:37	0	0	0.01
11/29/2019 6:38	285.3	98531	0
11/29/2019 6:39	0	0	0.01
11/29/2019 6:40	285.3	98531	0
11/29/2019 6:41	0	0	0
11/29/2019 6:42	285.3	98531	0
11/29/2019 6:43	0	0	0
11/29/2019 6:44	285.3	98531	0
11/29/2019 6:45	0	0	0.01
11/29/2019 6:46	285.3	98531	0
11/29/2019 6:47	0	0	0
11/29/2019 6:48	0	0	0
11/29/2019 6:49	0	0	0
11/29/2019 6:50	285.3	98531	0
11/29/2019 6:51	0	0	0
11/29/2019 6:52	285.3	98531	0
11/29/2019 6:53	0	0	0
11/29/2019 6:54	285.3	98531	0
11/29/2019 6:55	0	0	0
11/29/2019 6:56	285.3	98531	0
11/29/2019 6:57	0	0	0
11/29/2019 6:58	285.3	98531	0
11/29/2019 6:59	0	0	0
11/29/2019 7:00	285.3	98531	0
Average:	**704.00**		
Total:		**6,005,664**	**0.57**


PIERCE
Flowlink 5
Rainfall (0.610 in):0.00
750 Volume (5907130 gal):0.00
750 Flow Rate (45967.5 gal):0.00
in
gal
gpm
4AM
Nov 29 Fri 2019
5AM
6AM
11/29/2019 3:58:00 AM - 11/29/2019 6:59:00 AM

Scottsdale Water
Wet Weather Monitoring Form

Sample Location ID: MCKRD PIERCE CAMEL CHAP TBIRD
(Complete a separate form for each monitoring location)

WEATHER	
Hours since last measurable rain event:	772
Rainfall amount in inches:	
SAMPLE COLLECTION INFORMATION	
Sample Types collected:	☐ Grab ☒ Composite
Sample date and time: 11/29/19	See Chain of Custody
Sampling personnel: BE, VPS	
FLOW DATA	
Duration of composite sampling period (minutes)	
Volume of flow during composite sampling period (gallons)	
Average flow rate during sampling period (gpm)	
Volume of each aliquot in composite sample	
Number of aliquots in the flow-weighted composite sample	
Flow rate at the time of collection of each aliquot	See attached flow data
Time interval between collection of each aliquot	
VISUAL OBSERVATIONS	
(Color, oil sheen, debris, other) Light Brown, NO SHEEN	
COMMENTS	
(Remarks, calculations, unusual circumstances that may affect sample results, additional information) SAMPLER STATED "DONE"	
ATTACHMENTS	
Rainfall and Flow Data (from Flowlink)	☐ Yes ☐ No
Chain of Custody	☒ Yes ☐ No
SIGNATURE	
Signature of Monitoring Personnel:	
Signature	Date 11/29/19
Signature	Date 11/29/19

12921687v2
s1 "Sheet1"

Appendix O
Pollutant Loading Calculations

Pollutant Loading Calculations
2020 Stormwater Annual Report
City of Scottsdale

Permit Required Pollutants (in mg/L)	McKellips 2019-2020		Pierce 2019-2020		Camelback 2019-2020		Chaparral 2019-2020		Thunderbird 2019-2020		Event Mean Concentration	Unit Conversion Factor 0.226	Rainfall in 9.29
Total Dissolved Solids (TDS)	156	120	94	72	316	230	66	14	152	138	**136**	0.226	9.29
Total Suspended Solids (TSS)	520	46	62	156	448	34	24	80	24	82	**148**	0.226	9.29
Biological Oxygen Demand (BOD)	7.57	9.21	15.63	5.97	75.03	32.76	16.93	6.65	17.60	14.47	**20**	0.226	9.29
Chemical Oxygen Demand (COD)	161	73	113	81	363	150	72	33	139	132	**132**	0.226	9.29
Nitrate+Nitrite as N	1.3	0.60	1.1	0.5	2.1	0.9	0.6	0.3	1.8	1.5	**1.1**	0.226	9.29
Ammonia as N	0.631	0.657	1.117	0.321	2.4	1.022	0.657	0.247	1.6	0.807	**0.94**	0.226	9.29
Total Kjeldahl nitrogen (TKN as N)	0.946	1.424	1.449	2.041	7.02	2.32	1.702	0.955	2.909	1.52	**2.23**	0.226	9.29
Total Phosphorous	1.33	0.18	0.3680	0.220	1.26	0.470	0.27	0.15	0.26	0.21	**0.47**	0.226	9.29
Antimony	0.001	0.001	0.001	0.0012	0.002	0.001	0.0015	0.001	0.001	0.0025	**0.0013**	0.226	9.29
Arsenic	0.0117	0.0019	0.0017	0.0033	0.0078	0.0044	0.0015	0.0012	0.0045	0.0021	**0.0040**	0.226	9.29
Barium	0.348	0.0617	0.0459	0.0907	0.173	0.0395	0.0194	0.0354	0.0888	0.0656	**0.097**	0.226	9.29
Beryllium	0.0015	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	**0.001**	0.226	9.29
Cadmium	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	**0.001**	0.226	9.29
Chromium (total)	0.0306	0.0042	0.0031	0.0086	0.0137	0.0039	0.0013	0.0030	0.0063	0.0048	**0.008**	0.226	9.29
Copper	0.0427	0.0198	0.0218	0.0427	0.0604	0.0201	0.0082	0.0114	0.0328	0.0388	**0.030**	0.226	9.29
Lead	0.0527	0.0066	0.0065	0.0208	0.0195	0.0034	0.0018	0.0046	0.0092	0.0054	**0.013**	0.226	9.29
Mercury	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	**0.0002**	0.226	9.29
Nickel	0.0352	0.0046	0.0048	0.0097	0.0198	0.0047	0.0017	0.0028	0.0084	0.0068	**0.0099**	0.226	9.29
Selenium	0.001	0.001	0.001	0.001	0.0011	0.001	0.001	0.001	0.001	0.001	**0.001**	0.226	9.29
Silver	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	**0.001**	0.226	9.29
Thallium	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	**0.001**	0.226	9.29
Zinc	0.232	0.168	0.119	0.33	0.431	0.098	0.099	0.158	0.116	0.164	**0.192**	0.226	9.29

Permit Required Pollutants (in mg/L)	Commercial			Residential			Industrial			Open Space			Annual Load	
	RO Coeff	Acres	Pollutant Load	RO Coeff	Acres	Pollutant Load	RO Coeff	Acres	Pollutant Load	RO Coeff	Acres	Pollutant Load		
	0.8	3590	lbs	0.565	20767	lbs	0.65	1632	lbs	0.35	1876	lbs	lbs	tons
Total Dissolved Solids (TDS)	7.432	3590	818,858	5.25	20767	3,345,385	6.04	1632	302,453	3.25	1876	187,208	43,234,765	21,617
Total Suspended Solids (TSS)	7.432	3590	890,010	5.25	20767	3,636,074	6.04	1632	328,734	3.25	1876	203,475	46,991,541	23,496
Biological Oxygen Demand (BOD)	7.432	3590	121,695	5.25	20767	497,176	6.04	1632	44,949	3.25	1876	27,822	6,425,361	3,213
Chemical Oxygen Demand (COD)	7.432	3590	794,135	5.25	20767	3,244,383	6.04	1632	293,321	3.25	1876	181,556	41,929,444	20,965
Nitrate+Nitrite as N	7.432	3590	6,452	5.25	20767	26,359	6.04	1632	2,383	3.25	1876	1,475	340,657	170
Ammonia as N	7.432	3590	5,691	5.25	20767	23,250	6.04	1632	2,102	3.25	1876	1,301	300,478	150
Total Kjeldahl nitrogen (TKN as N)	7.432	3590	13,438	5.25	20767	54,901	6.04	1632	4,964	3.25	1876	3,072	709,521	355
Total Phosphorous	7.432	3590	2,845	5.25	20767	11,623	6.04	1632	1,051	3.25	1876	650	150,207	75
Antimony	7.432	3590	8	5.25	20767	33	6.04	1632	3	3.25	1876	2	420	0.21
Arsenic	7.432	3590	24	5.25	20767	99	6.04	1632	9	3.25	1876	6	1,277	0.64
Barium	7.432	3590	584	5.25	20767	2,385	6.04	1632	216	3.25	1876	133	30,818	15.41
Beryllium	7.432	3590	6	5.25	20767	26	6.04	1632	2	3.25	1876	1	334	0.17
Cadmium	7.432	3590	6	5.25	20767	25	6.04	1632	2	3.25	1876	1	318	0.16
Chromium (total)	7.432	3590	48	5.25	20767	196	6.04	1632	18	3.25	1876	11	2,531	1.27
Copper	7.432	3590	180	5.25	20767	736	6.04	1632	67	3.25	1876	41	9,510	4.75
Lead	7.432	3590	79	5.25	20767	321	6.04	1632	29	3.25	1876	18	4,155	2.08
Mercury	7.432	3590	1	5.25	20767	5	6.04	1632	0	3.25	1876	0	64	0.032
Nickel	7.432	3590	59	5.25	20767	243	6.04	1632	22	3.25	1876	14	3,136	1.57
Selenium	7.432	3590	6	5.25	20767	25	6.04	1632	2	3.25	1876	1	322	0.16
Silver	7.432	3590	6	5.25	20767	25	6.04	1632	2	3.25	1876	1	318	0.16
Thallium	7.432	3590	6	5.25	20767	25	6.04	1632	2	3.25	1876	1	318	0.16
Zinc	7.432	3590	1,155	5.25	20767	4,718	6.04	1632	427	3.25	1876	264	60,968	30.48

Grey text reports non-detectable concentrations. Value reported is based on a concentration at the detection limit.

Runoff Coefficients	2-10 yr		average
C2-Commercial, General	0.75	0.85	0.8
I1-Industrial (light & general)	0.60	0.70	0.65
I2-Industrial (general & heavy)	0.70	0.80	0.75
MDR-Medium Density Res	0.48	0.65	0.565
Open Space	0.30	0.40	0.35