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# **STORMWATER MANAGEMENT PROGRAM MS4 ANNUAL REPORT**



*“Protecting, preserving, and restoring our local water resources.”*



City of Auburn

**PERMIT YEAR**

April 2020 – March 2021

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SUBMITTED IN ACCORDANCE WITH THE REQUIREMENTS OF  
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

**PERMIT NUMBER ALR040003**

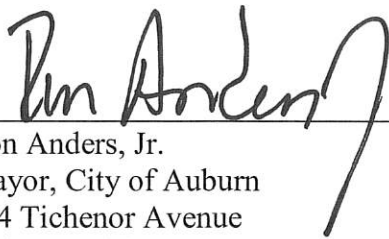
# CITY OF AUBURN

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEMS (NPDES)

PERMIT NUMBER ALR040003

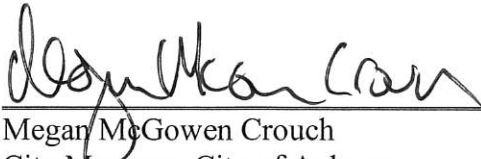
MUNICIPAL STORMWATER PROGRAM ANNUAL REPORT

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information 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.



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## FOREWORD

### **FOREWORD:**

The mission of the Watershed Division of the Water Resource Management Department of the City of Auburn is, first and foremost, to *protect, preserve, and restore the chemical, biological, and physical integrity of our local water resources*. And, although the City's comprehensive Stormwater Management Program is managed by the Watershed Division, the long-term success of the program will ultimately be determined by its ability to strengthen the resolve and desire of the entire community toward this same objective. This report is drafted with this understanding and therefore reflects the summary of the efforts of the community of Auburn as much as it does those of the staff of the City of Auburn. Although there are many success stories and much progress made in 2020, many challenges were met, such as COVID-19, and concerns still remain, not the least of which is the continued status of impairment of three of the City's principal water resources; Saugahatchee Creek (Nutrients and Pathogens), Parkerson Mill Creek (Pathogens), and Moore's Mill Creek (Siltation). We will continue to improve upon and develop our Stormwater Management Plan in the coming years, focusing on building and expanding upon the program's strengths and identifying and implementing strategies for addressing threats to our local water resources.

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**STORMWATER MANAGEMENT PROGRAM  
ANNUAL REPORT**



City of Auburn

**PERMIT YEAR**

April 2020 - March 2021

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**PROGRAM EVALUATION & EXECUTIVE SUMMARY**

The City of Auburn is now entering its eighteenth year as a regulated owner/operator of a small municipal separate storm sewer system, with the current reporting year representing the fifth under the current Statewide General Permit ALR040003. Over these past eighteen years, the City’s Stormwater Management Program (SWMP) has generally been managed and operated with the same number of staff and with the same operational budget. However, in February 2020, the City did hire an additional Stormwater Coordinator within the Watershed Division. The City’s physical infrastructure and population has continued to experience rapid growth during this same time period, with the population increasing by approximately 25% every ten years. This rapid urbanization, which began many years before the promulgation of Phase II of the NPDES program, has presented challenges to the City’s SWMP, both in the form of legacy impacts to our water resources and in the form of the ever-evolving dynamics of the impacts of urban and suburban growth on local hydrologic conditions. The most outward physical evidence of these challenges is the continued status of impairment of three of the City’s principal water resources; Saugahatchee Creek, Moore’s Mill Creek, and Parkerson Mill Creek. Furthermore, the diversity of impairment (nutrients and pathogens, siltation, & pathogens respectively) between these waters highlights the complexity and uniqueness of the impacts of urbanization on our watersheds and underscores the need for prescriptive and strategic plans for protection, preservation, and restoration. The City’s SWMP provides the framework for accomplishing this through both targeted regulations and policies (e.g. requirement of Water Quality Plans for developments discharging to impaired waters) and through the implementation of other targeted structural and non-structural control measures as required by the City’s MS4 Permit and/or as outlined in the City’s Stormwater Management Plan or any of the three approved Watershed Management Plans.

This report outlines, in detail, how the City is operating its SWMP and how it records and documents measurable success. Additionally, this report demonstrates how innovation, partnerships, collaboration, and dedication to a common mission have permitted the City to expand the capacity of its SWMP services to a growing population at little to no increased costs for over a decade. These partnerships, many of which started in the formative years of the program, are the foundation of the City’s SWMP and have grown to include Auburn University, Save our

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*April 2020 – March 2021*



## PROTECT – PRESERVE – RESTORE

Saugahatchee (SOS), Alabama Water Watch (AWW), the City of Opelika, the City of Smiths Station, Lee County Highway Department, Auburn City Schools, and the Alabama Water Environment Association. Some of the successes and accomplishments of the program in 2020-2021, many of which would not be possible without these partners, include:

- Green Infrastructure Master Plan—In 2019, the Green Infrastructure Master Plan transitioned to the City’s Integration of Green Infrastructure Guidance Document and was accepted by the City. During this reporting period, the City looked at ways to incorporate Green Infrastructure/Low Impact Development into City projects such as the City’s new Fire Station 6.
- Integrated multiple Green Infrastructure practices into the design of the City’s new Public Safety Building and began construction of those practices. The Public Safety Building was completed in late Fall of 2020/Winter 2021.
- Gave 2 public presentations on stormwater and watershed management related topics to a variety of different groups and organizations.
- Visually screened 512 storm sewer outfalls within the City’s MS4, just above the mandated 36% identified in the City’s MS4 Permit.
- Responded, investigated and resolved 12 water resource concerns received by citizens.
- Published 11 articles directly or indirectly related to stormwater and watershed management in the City’s OpenLine Newsletter, which is distributed monthly to over 21,867 customers.
- Continued discussions with Auburn University’s Comprehensive Stormwater Management Policy Initiative regarding opportunities for developing programmatic and regulatory consistency between the two programs.
- Continued to make improvements to the Watershed Division webpage, including providing information about how citizens can get involved with various stormwater programs (ex. Water Festival, Storm Drain Marking, Stream Clean-ups, etc.).
- Continued discussions with Alabama Water Watch to explore a partnership to sponsor the training of citizens interested in performing water quality monitoring in the City of Auburn.
- Continued meetings of the ALOAS organization. \*Meetings were substituted with meetings of the broader Alabama Stormwater Association.
- Picked up 7,908 bags of litter from 1,595 miles of right of way through the hours of community service/inmates.

## PROTECT – PRESERVE – RESTORE

- Recycled almost 30 Tons of household hazardous waste, almost 534.88 tons of newspaper, cardboard, glass and over 1,536 gallons of used cooking oil/grease.
- Performed ~1,573 Erosion and Sediment Control site inspections on developments >1 acre, resulting in 999 inspection reports and forty-six (46) 72-Hour Notices of Violation (NOV's) and zero cease and desist orders.
- Maintained, implemented and enforced lot-level erosion and sediment control standards for single-family residential lots less <1 acre.
- Performed ~1,276 Initial Erosion and Sediment Control inspections on construction sites <1 acre. Of these inspections, 1,099 resulted in required corrective action prior to issuance of a building permit.
- Supported and participated in numerous community education and outreach opportunities, including the Halloween Trick or Treat Drive-Thru, Bark in the Park, and clean-up events, etc.
- Performed Stream Cleanups that resulted in the removal of 9 garbage bags full of trash/debris from Town Creek/Town Creek Park.
- Performed 440 detention pond inspections.
- Performed 63 stormwater inspections of City-owned facilities.
- Continued to implement the illicit discharge detection and elimination training module for City staff during this reporting period.
- Continued to implement numerous recommendations outlined in the Natural Systems section of the City's Comp Plan 2030.
- Continued routine monitoring of 52 stations throughout the City for turbidity, dissolved oxygen, temperature, pH, and specific conductance.
- Continued the City's in-sourcing Source Water Monitoring Plan.
- Continued to jointly fund and operate two USGS stream gaging operations on Saugahatchee and Chewacla Creeks.
- Completed the seventeenth year of conservation measures outlined in the Chewacla Creek Safe Harbor Agreement.
- Sustained a substantial reduction in sanitary sewer overflows since implementing a strategic maintenance and prevention program.

## PROTECT – PRESERVE – RESTORE

- Continued using the newly acquired IDEXX system for E. coli enumeration that replaced the Coliscan Easygel method previously utilized by the City. The Coliscan Easygel method may be subjective in determining the colony color, and the IDEXX system appears to have removed this subjectivity.
- The City hired a Water Resource Management Stormwater Intern during this reporting period. This position assists the Watershed personnel on various jobs to include, but not limited to, water quality sampling, construction site inspections, municipal facility inspections and detention pond inspections.
- The City launched the Auburn Street Tree Explorer App in late 2020/early 2021. This APP raises awareness to the Auburn’s tree canopy and of the multiple benefits that trees bring to the community.
- The City implemented additional rain gauges (Hobolink) at strategic areas within Auburn to help calculate rain events (3/4” within 24 hours) for construction site inspections.

### ***Progress Update of Specific Goals Established for 2020-2021 and New Goals for 2021-2022***

The Watershed Division regularly evaluates the effectiveness and efficiency of its operations, both from a permit compliance perspective as well as a mission/objectives and budgetary perspective. This allows staff to identify elements of the SWMP that are working, those that are not, and those that need or warrant modification. Staff work to continue those services that they determine effective, eliminate those that are not, and establish goals for improving those that could be. Below is an update of progress made toward goals established for 2020-2021 and a list of new goals established for 2021-2022.

#### 2020-2021 Goals - Progress Updates

- Continue the implementation of the recommended policy and ordinance changes identified in the City’s Integration of Green Infrastructure Guidance Document and begin scheduling demonstration projects as strategic capital improvements. Complete the design and construction of various green infrastructure practices as opportunities arise.
  - During this reporting period, City personnel began the implementation of this document within City projects, such as the new City Fire Station 6 which is scheduled to be completed in the fall of 2021.
- Install an additional stream gaging station on either Town Creek or Moore’s Mill Creek.
  - City staff were not able to install a new real-time gage on a new waterway this reporting period; however, City personnel continued updating and maintaining the current instruments and refining their measurements. The staff did install

## PROTECT – PRESERVE – RESTORE

three additional rain gauges (Hobolink) in strategic locations around Auburn to help calculate “rain-events” (3/4” within 24-hours for construction site inspections.

- Continue to promote the city-wide online education program for Illicit Discharge Detection and Elimination.
  - Due to the Covid-19 pandemic, the City staff were limited in the ability to host public events. The City will continue to promote the city-wide online education program for Illicit Discharge Detection and Elimination program during the next reporting period.
- Continue to investigate methods to improve communication with developers and improve response to erosion and sediment control enforcement issues.
  - City staff have improved communication with developers by having meetings on-site with site personnel following inspections, along with a follow-up email addressing any concerns to include a BMP map illustrating deficient areas. Developers have been more responsive to this form of communication in implementing corrective action. The City staff will continue to improve on this form of communication with developers and contractors in the future.
- Evaluate options to improve tracking and reporting features of stormwater program components in CityWorks.
  - The City is in the process of implementing an additional software program to improve tracking and reporting that can be integrated with CityWorks. More information will be included in the next reporting period.
- Seek additional public education and outreach opportunities such as pet waste stations, CityFest, etc.
  - Due to the COVID-19 Pandemic, several of the annual educational events, such as Earth Day and Lee County Water Festival were cancelled. However, the City of Auburn participated in two new events, the Halloween Trick or Treat Drive-Thru and Bark in the Park to provide educational information to citizens. The City also completed two stream clean-ups on Town Creek/Town Creek Park.
- Make improvements to the Watershed Division website.
  - During this reporting period, the City staff researched different website designs along with information that would target how the City plans to convey its MS4

## PROTECT – PRESERVE – RESTORE

program. While minor changes were made to the City’s website during this reporting period, the City plans to have a website overhaul during the 2021-2022 reporting period.

- Complete the transition from Storm Central Software to the new water quality monitoring software, Hydrosphere
  - The City staff completed this transition with minimal hiccups and receive notifications when a rain event has been recorded.
- Plan and host an erosion and sediment control workshop to help educate City personnel, local engineers and contractors on proper methods for the implementation of stormwater best management practices.
  - Staff hosted a lunch and learn for the City’s Inspection Services personnel to help enhance the knowledge of sediment and erosion control BMPs. In addition, the City’s Inspection Services personnel were trained on IDDE during this event. A total of 13 were in attendance.

### New Goals for 2022

- Continue to increase public education and awareness through storm water activities, involvement with our local schools and other education and outreach initiatives.
- Continue the City’s new Stream Gaging Program through the installation of one (1) real-time stream gage per year until all major waterways are gaged and/or install additional rain gauges (Hobolink).
- Review the City’s Illicit Discharge Ordinance, and make any changes that may be deemed necessary for compliance with the City’s MS4 permit.
- Continue to promote the city-wide online education program for Illicit Discharge Detection and Elimination
- Continue to improve and promote the City’s Water Quality Monitoring Public Viewer Application.
- Continue to assess City properties and facilities and perform annual inspections and improvements for stormwater management.
- Continue to implement the City’s Green Infrastructure Master Plan where feasible with the goal to install at least one Green Infrastructure practice within the City.
- Complete the design and implementation of the H.C Morgan Stream Restoration Project.

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- Complete Phase IA of the Saugahatchee Greenway + Blueway Project, which includes the first 1.5 miles of greenway trail, two kayak put-in/take-out facilities, a small pocket park, and associated parking facilities.
- Make improvements to the Watershed Division website.
- Plan and host an erosion and sediment control workshop to help educate local engineers and contractors and/or City personnel on proper methods for the implementation of stormwater best management practices.
- Complete the design and implementation of a Low Impact Development (LID)/Green Infrastructure (GI) Map of the City’s LID/GI projects based on the City’s existing LID/GI inventory.
- Continue to evaluate options to improve tracking and reporting features of stormwater program components of CityWorks.

## **I. INTRODUCTION**

In response to the National Pollutant Discharge Elimination System (NPDES) Phase II Stormwater Regulations, the City of Auburn (City) applied for and received an NPDES permit for stormwater discharges from the Alabama Department of Environmental Management (ADEM) on May 14, 2003. The current permit was issued September 6, 2016 and became effective October 1, 2016. A copy of this permit (ALR040003) is included in this report.

This report is being submitted to the ADEM pursuant to Part VI; paragraph 1 of NPDES Permit ALR040003. This annual report is the City's eighteenth report, and fifth under the reissued permit, and covers the reporting period from April 2020 through March 2021. The stormwater program outlined in this report is patterned after the program submitted ADEM in October 2015 in the City of Auburn's Notice of Intent (NOI) and in accordance with the City's revised Stormwater Management Plan submitted to the Department with this annual report.

## II. SITE DESCRIPTION

The City of Auburn is located in East Central Alabama. A map of the City is provided in Appendix B. The Auburn, Alabama land area encompasses 58.07 square miles per the 2019 U.S. Census. Approximately 26.80 square miles of the Auburn City Limits are located within this urbanized area. The current population of Auburn is approximately 66,259 per the 2019 U.S. Census estimate. There are approximately 466 miles of creeks and streams flowing through Auburn, approximately 667 lakes, ponds, and other open waters, and +/- 370 acres of wetland. From the most recent City storm drainage system inventory, the storm drainage system contains approximately 151 linear miles of storm pipe (138 miles of which are owned by the City). The City is updating its stormwater infrastructure inventory on a routine basis using the City’s survey crew, as well as private surveyors.

### *Geographic Context*

The City of Auburn is situated within a unique transitional zone between the Piedmont and Coastal Plain physiographic regions of the Southeastern United States (see link below). More specifically, the City is located within the Level IV sub-ecoregion known as the Southern Outer Piedmont. This ecoregion is generally characterized as having lower elevations, less relief, and less precipitation than that exhibited in other regions of the Piedmont. Overstory cover type within this region consists mostly of mixed deciduous (oak, gum, hickory) and mixed coniferous (pines, firs, spruces, etc.) with the presence of numerous monotypic pine plantations scattered throughout. Specific to these transitional areas in the southeast is the presence of the “fall line”, the geographic divide between the Piedmont and Coastal Plain. More information can be found at the link provided below. The City’s presence within this transitional area between the piedmont and coastal plain regions provides for a unique hydrogeomorphic diversity of water features within a relatively small geographic area. This diversity is exemplified in the abundance and variety of stream channel features, varying substrate composition, and variety of aquatic habitats. For example, streams in central Auburn generally exhibit piedmont characteristics, such as strong riffle/pool complex formation and cobble/gravel substrate composition, yet they cascade to a coastal plain dynamic of long runs and sandy substrates as they flow to the western and southern extents of the City. Similarly, the topography of each of the contributing watersheds follows the same pattern of increasing coastal plain-like features to the west and south of the City.

Link to a map of Alabama’s physiographic regions:

[http://alabamamaps.ua.edu/contemporarymaps/alabama/physical/al\\_physio.pdf](http://alabamamaps.ua.edu/contemporarymaps/alabama/physical/al_physio.pdf)



### III. KNOWN OR SUSPECTED WATER QUALITY PROBLEMS

The City’s MS4 discharges into streams located in three primary (10-digit HUC) watersheds; Saugahatchee Creek Watershed, Uphapee Creek Watershed, and Chewacla Creek Watershed. Smaller watersheds of the Saugahatchee Creek Watershed to which portions of the City’s MS4 discharge include the Loblockee Creek Watershed and the Little Loblockee Creek Watershed. Smaller watersheds of the Chewacla Creek Watershed to which portions of the City’s MS4 discharge include Parkerson Mill Creek, Moore’s Mill Creek, and Town Creek. The only sub-watershed of the Uphapee Creek Watershed to which portions of the City’s MS4 discharge is the Choctafaula Creek Watershed.

Moore’s Mill Creek was placed on the draft 303(d) list in 1998 and has been listed on the final 303(d) lists from 2002 to present. Known water quality concerns within the jurisdictional area were identified as stream siltation resulting from sedimentation deriving from local development within the Moore’s Mill Creek watershed and in-stream erosion. The ADEM final 2020 303(d) list identifies Moore’s Mill Creek as a Low Priority for TMDL development. The Moore’s Mill Creek Watershed Management Plan was drafted and finalized in May of 2008.

The Saugahatchee Embayment, where Saugahatchee Creek flows into Yates Lake, was placed on the final 303(d) lists from 1996 to 2008. The Embayment was listed on the 303(d) list primarily for nutrient enrichment (Organic Enrichment/Dissolved Oxygen). ADEM and the USEPA issued the final Total Maximum Daily Load (TMDL) for nutrients and organic enrichment/dissolved oxygen for Pepperell Branch and the Saugahatchee Embayment in April 2008. Implementation of the stormwater TMDL is addressed in the City’s Phase II Permit that was issued on September 6, 2016 (effective on October 1, 2016) and the City’s updated Stormwater Management Plan that was submitted to ADEM in December 2019. Saugahatchee was again listed on the final 2020 303(d) list for pathogens (E. Coli). The City included pathogen monitoring of the Saugahatchee Watershed in the summer of 2019 as detailed in the Water Quality Monitoring Report found in Appendix D.

Parkerson Mill Creek, from its source to Chewacla Creek, was placed on the final 303(d) list in 2008 and 2010. Known water quality concerns within the jurisdictional area were identified as pathogens resulting from urban runoff, storm sewers, and illicit discharges. A TMDL for Parkerson Mill Creek was issued by ADEM in September 2011. Implementation of this stormwater TMDL is addressed in the City’s Phase II Permit issued on September 6, 2016 (effective on October 1, 2016) and the City’s updated Stormwater Management Plan that was submitted to ADEM in December 2019. The Parkerson Mill Creek Watershed Management Plan was drafted and finalized in December of 2011.

A detailed map of the hydrology and watersheds with approved TMDLs is found in Appendix E of this report.

#### IV. RESPONSIBLE PARTY

The City's Stormwater Management Program (SWMP) is implemented through a diversity of programs operating under various departments within the City's organization. The City, in 2018, experienced a re-organization. As a result, components of the SWMP and each department's respective responsibilities may have changed from previous years, but are currently as follows:

- Environmental Services Department – Operates the collection of garbage, bulky waste (trash) and recycling, along with animal control services and the maintenance of the City's vehicles and equipment fleet; Hosts the household hazardous waste event, shredding event, and the Amnesty Trash Month;
- Parks and Recreation Department – Hosts annual Earth Day activities along with several other community events; Manages the City's Greenway/Greenspace Program and the Pet Waste Stations;
- Planning Services Department – Assists with reviewing and approving low impact development projects; Manages CompPlan 2030 and future land use planning efforts;
- Inspection Services Department – Monitors residential and commercial construction, including construction stormwater inspection and enforcement for those entities;
- Public Works Department – Provides construction and maintenance services of the City's streets, sidewalks, storm drains, right-of-ways and public facilities. Within Public Works, several divisions play a role implementing the SWMP:
  - Landscape and Sustainability – Incorporates green infrastructure concepts and water quality management into the design and renovations of City facilities. The City's urban forestry program is managed through this division, thus supporting the Integration of Green Infrastructure Guidance Document, Urban Forestry Master Plan, and Tree Giveaway Program (Arbor Day and Christmas Parade);
  - Maintenance – Maintains the street network and storm drainage system by repairing streets that have been damaged by construction and assessing existing streets, curb and gutter, drain inlets and stormwater conveyance systems to identify defects and develop maintenance recommendations for the renewal and replacement of assets;
  - Right of Way Maintenance – Provides maintenance of public right of way to include streets and sidewalks to keep grass mowed, weeds maintained, trees cut back and sidewalks and curbs edged. Also, provides litter control within the right of way and street sweeping.
- Engineering Services Department – provides engineering and project management services for construction and improvements to roads, sidewalks, drainage structures and bridges within the City and coordinates the plan review process for engineering and utility

## **PROTECT – PRESERVE – RESTORE**

construction proposed by the local development community. Performs detention pond inspections;

- Water Resource Management Department – Monitors residential and commercial construction and conducts erosion and sediment control inspections; Manages water quality sampling program; Manages public education and outreach program; Assists Engineering Services with annual detention pond inspections; Manages the overall SWMP and compliance with the MS4 Phase II Stormwater Permit.

When the City began its Phase II program, coordination and implementation of the individual SWMP was the responsibility of the Public Works Department. In October 2005, management of the stormwater program was transferred from the Public Works Department to the Water Resource Management Department, under a newly created Watershed Division. The intent of the move was to manage water supply operations, wastewater operations, and stormwater operations from a watershed perspective for all components that impact water quality within the City.

The following group is responsible for the coordination and implementation of the individual SWMP:

Water Resource Management Department  
City of Auburn  
1501 West Samford Avenue  
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## V. STORMWATER MANAGEMENT PROGRAM COMPONENTS

The Phase II stormwater regulations require operators of small Municipal Separate Storm Sewer Systems (MS4s) in urbanized areas to develop and implement stormwater management programs employing best management practices (BMPs) to adequately address five minimum control measures. The control measures include:

- Public Education and Public Involvement on Stormwater Impacts
- Illicit Discharge Detection and Elimination;
- Construction Site Stormwater Runoff Control;
- Post-Construction Stormwater Management; and
- Pollution Prevention/Good Housekeeping for Municipal Operations.

In March 2003, the City submitted to ADEM a Notice of Intent (NOI) to implement a SWMP under the Phase II stormwater regulations. The City's most recent update to its SWMP was in December 2019 to comply with the current Phase II. The goals and details of the City's program are outlined in the revised SWMP. At the end of permit year eighteen (fifth year under the reissued permit) all program components outlined in the SWMP have been implemented. The City is currently re-evaluating and proposing additional revisions to its SWMP Plan, which is included with this annual report.

## VI. PUBLIC EDUCATION AND PUBLIC INVOLVEMENT ON STORMWATER IMPACTS

### A. Articles in the City Newsletter “Open Line”

Open Line is a monthly newsletter mailed to Auburn citizens through their utility bill. Articles and messages contained in the newsletter reach a large and diverse group of citizens. The goal for articles in Open Line is to produce five (5) articles per year. During the current reporting year, a total of eleven (11) articles were published in which stormwater related issues were highlighted or affected:

- *Household Hazardous Waste Collection Day – April 2020*
- *Download Auburn FixIt Today – May 2020*
- *City Employees Provide Services Despite Challenges – June 2020*
- *Veggie Trails: Public Works Brings Garden to Community Center – July 2020*
- *Water Consumer Confidence Report – July 2020*
- *Veggie Trails Garden Additions—September 2020*
- *Fall Household Hazardous Waste Collection Day – October 2020*
- *Pick Up Pet Waste: Do Your Part! – December 2020*
- *Holiday Recycling Tips – December 2020*
- *Trash Amnesty 2021 – March 2021*
- *Household Hazardous Waste Collection Day – March 2021*

Copies of these articles can be downloaded from the City’s website at:

<http://www.auburnalabama.org/openline/>.

### B. Brochure Publications

Pamphlets and brochures can be an effective way to present and explain stormwater issues. Unlike other communication methods, pamphlets and brochures can be distributed in many locations without requiring staffing and the location of distribution can specifically target the audience of interest. The City has produced various brochures over the past decade and the City’s goal is to continue to promote these previously developed brochures to the public by distributing at least two (2) different stormwater brochures per year, at a minimum. The City will use these brochures to target a specific educational component (i.e. grass clippings) and make the brochures available to the public by distributing the brochures at City facilities, City functions and the City’s Phase II stormwater website. In March 2021, the City distributed the “Protect Our Waters: Pick Up Pet Waste” to



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several of Auburn’s citizens during the Bark in Park public event to help educate the importance of properly disposing of pet waste. The City also made new “Recycle, Auburn, What are You Wasting For?” brochures available in different municipal facilities such as the Bailey-Alexander Water and Sewer Complex. In addition, brochures provided by the City over the past several years can be downloaded from the City’s website at:

<https://www.auburnalabama.org/water-resource-management/watershed/aloas/>



Additional Brochures Made Available:

- Washing Cars (Alabama Clean Water Partnership (ALCWP))
- Changing Oil (ALCWP)
- Pets (ALCWP)
- Fertilizing (ALCWP)
- Saugahatchee Creek Watershed: Past, Present and Future (Saugahatchee Watershed Management Plan Group (SWaMP))
- Fats, Oils and Grease Recycling Program (City of Auburn)
- ALOAS brochures from previous years
- Alabama Scenic River Trail maps and information
- Protect Our Waters: Pick Up Pet Waste

### C. Social Media

The City of Auburn takes advantage of social media as a communication tool with the citizens to let them know about upcoming stormwater events and festivals in the community, news articles involving stormwater issues, as well as updates to the City’s MS4 stormwater program. The following networks are currently utilized by the City of Auburn:

- Facebook – The City currently has 18,224 followers and 16,322 likes. That is an increase of approximately 2,001 followers and 1,363 likes from last year. On average, there are 815 posts per year by the City.
- Twitter – The City currently has 8,410 followers which is an increase of 247 followers from last year. Also, the City has 4,346 Tweets with an average of 475 Tweets per year.

City of Auburn, AL - City Government  
March 26

It's not too late to register for tomorrow's **Spring Household Hazardous Waste Collection Day** — visit [auburnalabama.org/hhw](http://auburnalabama.org/hhw) to sign up! From 9 a.m.-1 p.m. at 365-A N. Donahue Drive, you can properly dispose of old paint, fertilizer, motor oil, batteries, important documents and other hazardous household materials.

If you have any questions about tomorrow's event please contact our Environmental Services Department at (334) 501-3080 or head over to our website!

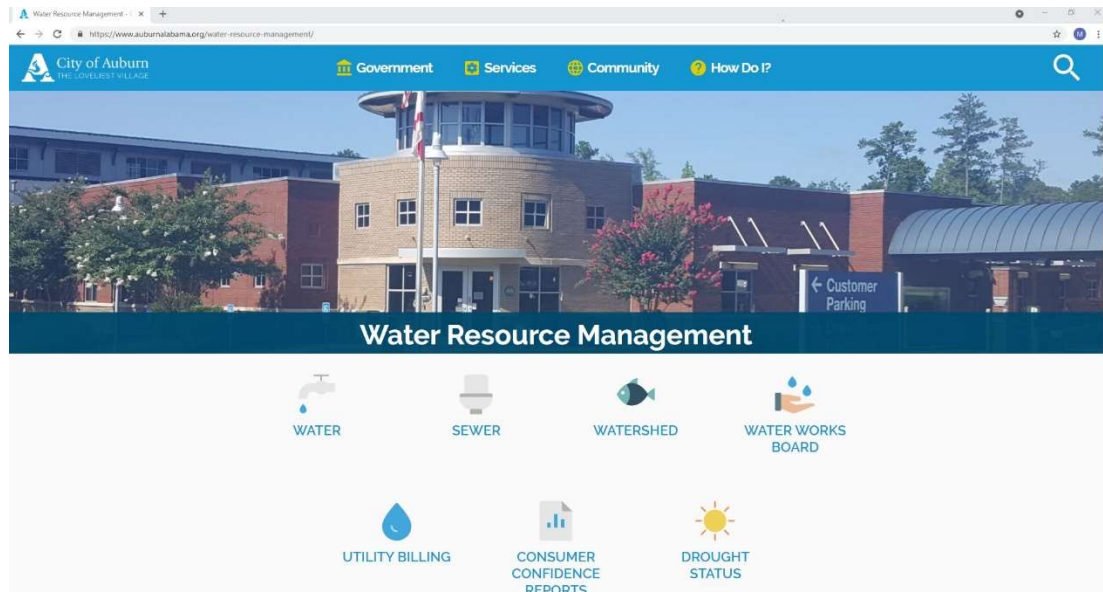


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- Instagram – The City currently has 2,959 posts and averages approximately 745 posts per year. There are currently 8,949 followers which increased approximately 2,790 followers from the previous year.
- Youtube – Currently, the City has 5,710 subscribers which increased by 440 subscribers from last year.
- Next Door Neighbor – Since the start of this network (March 2019), the City has reached 10,316 members. The number of members has increased by 1,302 members from the previous year.

### D. Website

The City of Auburn is in the process of redesigning its Watershed portion of the Water Resource Management website, which houses the City’s stormwater information. The intent is to launch a newly designed website by the end of 2021 that will continue to improve access and functionality for a more user-friendly experience. Currently, citizens can go to the City’s website to obtain information on items of local interests. The web page is accessible 24 hours per day and can serve citizens that do not have the time or the ability to physically meet with staff during normal working hours.



**During this reporting period, the Stormwater website was visited 1,130 times.**

For more information on the website please visit:

<https://www.auburnalabama.org/water-resource-management/watershed/>

### E. Public Water Quality Viewer Application

This application, developed and launched in 2015 (updated in 2018), allows the public to view water quality data from forty (40) monitoring locations on streams throughout the City. These stations are monitored routinely by Watershed Division staff using modern water quality monitoring equipment, with the viewer application updated monthly to reflect current data. Water quality parameters analyzed and presented include Turbidity, Dissolved Oxygen, Temperature, Specific Conductance, and pH. More information about these parameters can be found through various webpage links provided in the application. This application helps to provide transparency in our monitoring operations, facilitate educational and research opportunities for students and teachers, and provide an additional tool for citizens to become aware and involved in helping to preserve and protect our local water resources. This application can be found at:

<http://webgis.auburnalabama.org/waterqualitypublic/#openModal#openModal#openModal>

### F. Public Presentations

The City provides staff and/or resources to perform presentations for various groups and public meetings. Typically presentations are offered in PowerPoint format and the topics are chosen by the organization requesting the information. Due to the COVID-19 pandemic, the number of presentations was greatly reduced during this reporting period.

**Two (2) public presentations was made during the 2020-2021 reporting year.** Presentations were given to various groups, including Auburn University students from various departments, City officials, and public service organizations.

- Erosion and Sediment Control Class – Auburn University – February 2021
  - A. Topic – City of Auburn Erosion and Sediment Control Program
    - 1. Presenters – Marla Smith, Dustin Rogers, and Ron M<sup>c</sup>Curry
- Erosion and Sediment Control and Illicit Discharge Detection and Elimination Training – City’s Inspection Services – March 2021
  - A. Topic – City of Auburn Erosion and Sediment Control Program and IDDE Program
    - 1. Presenters – Marla Smith, Dustin Rogers, and Ron M<sup>c</sup>Curry



**G. Workshops/Training Hosted**

In an effort to educate contractors, developers, engineers, and staff, the City has initiated a series of workshops. The content of the workshops focuses on local stormwater issues of concern. Workshops/training hosted by the City over the past year include:

- **Erosion and Sediment Control (ESC) and Illicit Discharge Detection and Elimination Lunch and Learn (March 2021)** – The City’s Watershed personnel provided an ESC presentation regarding erosion concerns on lot-levels and an illicit discharge detection and elimination training session with the City’s Inspection Services Division. The event hosted approximately 13 attendees.
- **Webcasts & Webinars** – The Water Resource Management Department regularly schedules and participates in online webinars and webcasts training opportunities. During this reporting year, stormwater and watershed-related webinars/webcasts attended by City staff included topics such as stormwater utilities, monitoring instrumentation, and source water protection and are listed below:
  - Legal Aspects of COVID-19 for Water Utilities, AWWA (April 2020)
  - HDPE Pipe Demo Day, Alliance for PE Pipe (July 2020)
  - COVID-10 and Wastewater Epidemiology, AWEA (July 2020)
  - ADEM: New Beneficial By-Product Use Program, ADEM (August 2020)
  - AquaNereda Aerobic Granular Sludge Technology for Reuse, Aqua Aerobic Systems Inc. (August 2020)
  - Biosolids Regulations: 503 Regulations and Beyond, Barge Design Solutions (October 2020)
  - What to Expect in the Biden Administration and the 117<sup>th</sup> Congress (WEF) (January 2021)
  - Infiltration and Inflow Measurements and Methods Part I—Planning for Success, ADS (February 2021)
  - Infiltration and Inflow Measurements and Methods Part II—Mobilizing and Monitoring with Purpose, ADE (March 2021)

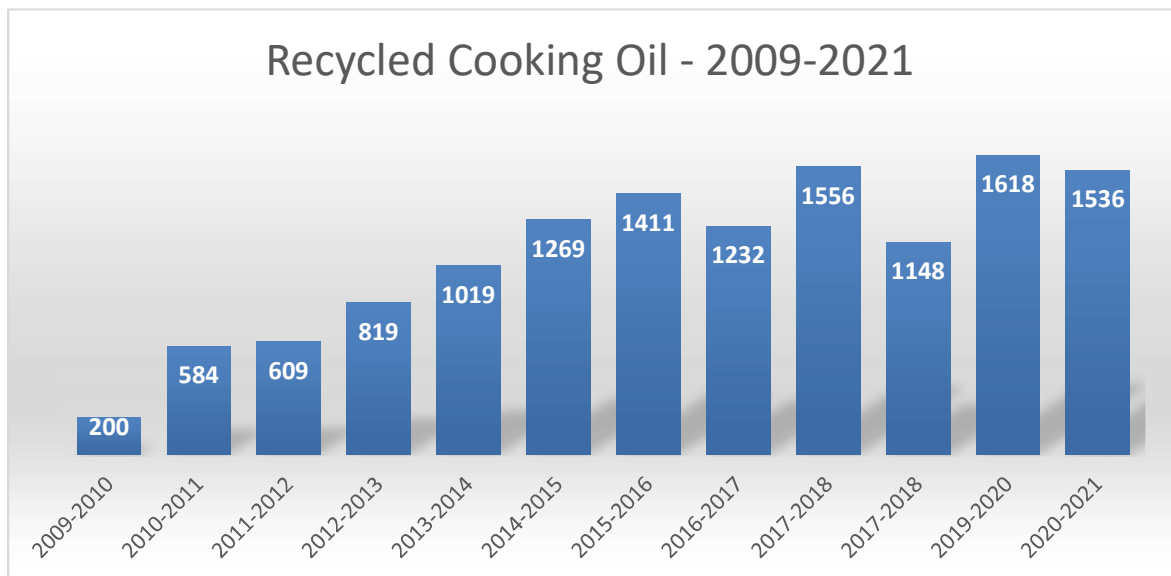
## H. Household Grease Recycling Program and Composting

The Water Resource Management Department initiated a Household Grease Recycling Program in 2009 with containers and bins located at the recycling center. This program provides citizens with a mechanism to properly dispose of household grease and is targeted at reducing potential sanitary sewer overflows. In 2011, the Water Resource Management Department launched a curbside household grease recycling program that provides residents with an opportunity to collect their household



grease and have it picked up by City personnel at their residence. **Approximately 13,000 gallons of used cooking oil/grease have been collected since implementation of the program began in March 2009, with 1,536 of those gallons collected during this reporting period.** For more information on our household grease recycling program, please visit:

<https://www.auburnalabama.org/water-resource-management/fog-recycling/>.



I. Educational Field Activities

Earth Day Activities

Normally, 2<sup>nd</sup> graders have the opportunity to experience hands-on Earth Day activities such as working with a water Enviroscope. An Enviroscope is a molded plastic model of a watershed complete with various types of landuse including residential, transportation, agricultural, construction, recreation and forestry areas. The interaction with the Enviroscope allowed the children to visually see how soil erosion, pesticides, and storm water runoff impact a watershed and helped them learn ways to protect the environment. **In 2020, Earth Day Activities were cancelled due to the COVID-19 pandemic.**



Lee County Water Festival



Normally, the annual Lee County Water Festival is held at the Opelika SportsPlex during the first part of May. **Fourth graders from schools in the Lee County area usually attend the two-day event along with 50+ volunteers.** The primary purpose of the event is to educate young people on the importance of our water resources and the role each of us plays in conserving our water. During the event, students learned about water filtration, aquifers, and the water cycle through hands-on activities such as building an edible aquifer, making a water cycle bracelet, and building a

mini-filtration unit. Volunteers from the City of Auburn, the Auburn Water Works Board, the City of Opelika, and other local groups helped make this past year’s event a huge success. **The Auburn Water Works Board also helps to sponsor the annual Lee County Water Festival by providing a monetary donation in the amount of \$3,000/year.** Even though the Lee County Water Festival was cancelled for 2020 due to COVID-19, the Auburn Water Works board did make a monetary donation in the amount of \$3,000 for 2020 and this donation will be used for future Water Festival events. **The 2020 Lee County Water Festival was cancelled due to the COVID-19 pandemic.**

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Since several of the educational annual field activities were cancelled in 2020 due to the COVID-19 pandemic, the City of Auburn had to think outside the box to implement educational activities that would be consistent with the COVID-19 guidelines. The City of Auburn participated in the following two additional educational activities during this reporting period:

### **Drive-Thru Trick or Treating Event (October 2020)**

On October 30, 2020, Watershed personnel participated in the City’s first drive-thru trick or treating event. Watershed personnel handed out 400 Halloween goodie bags promoting the City’s Illicit Discharge (IDDE) program, to include reporting information along with the slogan “Only rain down the drain”, 500 color changing pencils imprinted with the slogan “Think Blue Auburn, Don’t Pollute”, and 400 Erosion and Sediment Control Word Search Puzzles.



Candy attached with a note from the City of Auburn’s watershed division sits in a bucket ahead of curbside trick or treat Friday night.

*Abbv Driaaers/*

### **Bark in the Park (March 2021)**

On March 20, 2021, Watershed personnel participated in the City’s Bark in the Park event. Watershed personnel handed out 50 pet waste brochures and 50 pet waste bags and talked with citizens about the importance of properly disposing of your pet waste.



**Public Clean-Ups**

**Town Creek Park Clean-up (October 2020)**

In a collaborative effort, the City of Auburn’s Watershed Division of the Water Resource Management Department and Girl Scout Troop 7098 volunteered to clean up Town Creek Park and Town Creek. A total of 4 Girl Scouts collected 4 bags of trash and other debris (i.e. metal post). The City of Auburn provided waters, gloves, trash bags, and safety vests.



**Town Creek Park Clean Up (February 2021)**

The City of Auburn’s Watershed Division personnel of the Water Resource Management Department, along with Auburn University’s Erosion and Sediment Control Class (Dr. Perez) and members of Auburn Thunder Soccer Club volunteered to clean up Town Creek Park and Town Creek. Volunteers were furnished gloves, trash-tongs, safety vests, waters and plastic garbage bags. Approximately, 5 bags of trash were collected along with larger debris (i.e. meter box).



**J. Integration of Green Infrastructure Guidance Document**

In 2016 the City began the process of planning for the future incorporation of Green Infrastructure as a “standard operating procedure”. The first step in this process is to develop a strategic plan that identifies impediments to the use of Green Infrastructure and specific opportunities for the incorporation of Green Infrastructure. The City selected a team of consultants in 2017, led by the Wood Group, Inc., to develop this guidance document. **During this reporting period, the City is in the process of incorporating some of these practices within City projects such as the City’s Fire Station 6.** For more information regarding this guidance document, please visit:

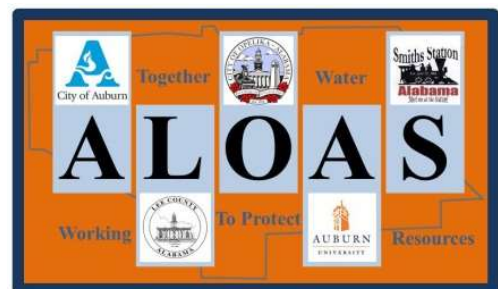
<https://www.auburnalabama.org/water-resource-management/watershed/green-infrastructure-master-plan>

**K. Comprehensive Stormwater Management Committee**

In 2016 Auburn University formed an internal team to begin discussions about ways to modernize its stormwater management policy and programs and to identify areas for the development of consistency between its MS4 program and the City’s. City staff have participated in these discussions since May of 2016, with meetings occurring quarterly to semi-annually. To date, this group has identified several ways in which each program can more effectively, and consistently, approach stormwater management within and between our respective jurisdictional areas. One such example includes joint annual review of our respective SWMP’s, thus identifying opportunities for developing program consistency and collaboration. Due to COVID-19, discussions were held in place of in-person meetings, but hope to resume meeting during this next reporting period as allowed.

**L. Citizens Advisory Committee**

Both the EPA and ADEM recommend that the public be included in developing, implementing, and reviewing stormwater management programs through the establishment of a citizen’s advisory committee. Communities that encourage citizens representing diverse backgrounds and interests to participate in the development of stormwater management programs are far more likely to gain community support during the implementation process.



**ALOAS CITIZENS STORMWATER ADVISORY COMMITTEE (2001-present) - ALOAS** is a Citizens’ Advisory Committee that serves **A**uburn, **L**ee County, **O**pelika, **A**uburn University and **S**miths Station. It meets on a quarterly basis to review and provide public

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input on current policies, brochure content, educational material, and proposed ordinances. Prior to 2012, the Citizens Advisory Group was known as ALOA. In 2012, the City of Smiths Station joined the group and the group renamed itself ALOAS to include the addition of Smiths Station. ALOAS meets twice, at a minimum, throughout the year; however, during this reporting period, several of the meetings were substituted with the Alabama Stormwater Association zoom meetings and/or public events (i.e. clean-ups, etc). Virtual meetings that were attended for Alabama Stormwater Association occurred on November 17, 2020 and March 23, 2021. Also, ALOAS members participated in a zoom meeting on April 6, 2020.

ALOAS members utilized educational materials that were either created by MS4 entities or obtained from other sources. These brochures and other materials are available to the citizens of Auburn and can be obtained at City Hall, the Bailey-Alexander Water and Sewer Complex or by contacting the Water Resource Management Department at (334) 501-3060. The brochures can also be downloaded from the City’s website at <https://www.auburnalabama.org/water-resource-management/watershed/aloas/>.

### M. Watershed Organizations

Regional watershed organizations bring together representatives from utilities, private industry, environmental awareness groups, farmers and branches of government to coordinate individual efforts, share information and plan for water resource and aquatic life protection. The regional approach allows participating entities to expand upon individual efforts in order to maximize limited resources. These organizations also allow for the sharing of ideas, lessons-learned, and development of professional networks.

**Save our Saugahatchee and Alabama Water Watch Citizen Water Quality Monitoring Program (2014 - Present)** – Beginning in 2014, the City of Auburn, the City of Opelika, and the Lee County Highway Department have contributed \$350 each to pay for material aid to the volunteer water quality monitoring programs operated by Save our Saugahatchee and the Alabama Water Watch organization. **In 2020, the City’s contribution was \$400.** These funds are



used for both physical-chemical monitoring of local waters as well as bacteriological monitoring used to guide illicit discharge detection and elimination efforts. **In 2020 the City’s contribution to these organizations financed routine monitoring of ~30 sites in the Saugahatchee Watershed, resulting in water chemistry and bacteriological monitoring.** All data collected is made available to the public via the Alabama Water Watch Data Portal at:

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[www.alabamawaterwatch.org/water-data](http://www.alabamawaterwatch.org/water-data)

**Parkerson Mill Creek (PMC) Watershed Management Plan Group** (March 2010 – present) - Parkerson Mill Creek was placed on Alabama’s 303(d) List of Impaired Waters for pathogens in 2007 and a pathogen TMDL for the Parkerson Mill Creek Watershed was subsequently approved by ADEM in July 2011. The PMC Group continues to assist by supporting the bacteriological monitoring in Parkerson Mill Creek by Auburn University undergraduates students (ex. Sydney Smith), which in turn supports investigative illicit discharge detection and elimination activities for the City of Auburn and Auburn University. For more information on the Parkerson Mill Creek Watershed Management Plan, please visit <http://www.aces.edu/waterquality/pmc.htm>.

### N. Household Hazardous Waste Collection Day/Document Shredding Event

The City hosted the Household Hazardous Waste Collection Day twice during 2020. This event is a favorite among Auburn residents and was held one day during the months of June and October of 2020. The City allowed its customers to drop off hazardous household chemicals at a collection site free of charge. The items are then disposed of in a safe



City of Auburn, AL @CityofAuburnAL · Mar 26

It's not too late to register for tomorrow's Spring Household Hazardous Waste Collection Day — visit [auburnalabama.org/hhw](http://auburnalabama.org/hhw) to sign up!



manner, eliminating the possibility of these items being improperly dumped in local creeks and streams. **The 2020 Household Hazardous Waste Collection Days combined days yielded approximately 29.89 Tons.** In addition to the collection of household hazardous waste, the City also provided document shredding events during these two days as well as electronic recycling. **The 2020 Document Shredding Event yielded over 5.2 Tons of shredded paper. The 2020 Electronic Recycling Event yielded over 5.0 Tons of recycled electronics.**

### O. Website Hotline

In an effort to provide the general public with an additional means of reporting potential erosion control violations, the City launched the “On-Line Hotline” in March 2003. Citizens now have the ability to log on to the website 24 hours a day and provide information on suspected violations. The information is forwarded to the Water Resource Management Department and an investigation is initiated. The website hotline has proven to be a valuable tool over the course of the past seventeen years by assisting City personnel



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in responding to citizen concerns. For more information concerning the hotline, please visit:

<https://www.auburnalabama.org/water-resource-management/watershed/illicit-discharges/>.

In addition to the website hotline, the City is promoting the Auburn FixIt app launched during last reporting period.

This online/mobile app allows citizens to request City services and report non-emergency concerns directly to City staff. Citizens can even track the progress of their concerns from the moment it is reported to resolution. In addition, the app includes useful resources such as links to pay your utility bill, FAQs, and quick access to the City's downtown parking app. **For the 2020-2021 reporting period, the Watershed Group received eleven (11) citizen concerns regarding either IDDE, ESC, or Other Watershed Concerns via the FixIt App.**



### P. Tree Give Away

The planting of trees improves water quality by reducing stormwater runoff and erosion while facilitating nutrient removal. During the City's 2020 Christmas Parade, held in December, the City distributed 1000 bare root Hophornbeam to area citizens. In addition, to celebrate Alabama's Arbor Day and to continue to encourage the reforestation of the City's urban landscape, the City's Tree Commission gave away 500 Hophornbeam, 400 Bluejack Oak and 100 Apple Trees (Bare Root) at the annual February 2021 Arbor Day Tree Giveaway.

 City of Auburn, AL - City Government  
December 3, 2020 · 🌐

Keeping with tradition, the Auburn Tree Commission will have free bare-root trees at the Downtown Merchants Association's Auburn Christmas Parade! 🎄 🌳 🌲 The parade will begin at 2 p.m. this Sunday, Dec. 6.

Trees will be available in front of Langdon Hall and can be picked up anytime during the parade. This year's featured tree is the American Hophornbeam.



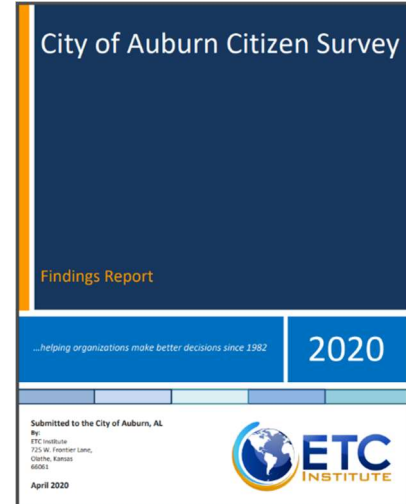
## PROTECT – PRESERVE – RESTORE

### Q. City of Auburn Citizen Survey

In years past, the Citizen Survey was facilitated on an annual basis; however, starting in 2018, the survey began being conducted every other year. The last survey, sent in 2020, contained several questions that were directly or indirectly related to stormwater issues. The questions covered issues such as infrastructure maintenance, trash collection, yard waste disposal, recycling, natural resource protection, greenspace initiatives and future growth planning. In 2020, the City received very high satisfaction levels in most areas. **The 2020 Citizen Survey found that 95% of residents surveyed, rated the City as an “excellent” or “good” place to live.**

To view the 2020 Citizen survey results, please visit:

<https://www.auburnalabama.org/survey/archives/2020%20Citizen%20Survey%20Full%20Report.pdf>



### R. Newspaper Articles

Newspaper articles covering local stormwater/environmental issues are a means for disseminating information to a large and diverse group of residents most directly impacted by these issues. Informative articles provide the reader with an independent point of view. The reader is not forced to rely on information generated by a single source (i.e. City through the newsletter Open Line or brochures).

The City is fortunate to have a local daily publication. The Opelika-Auburn News is a regional daily newspaper that covers local events and is widely read by residents of Lee County. A weekly newspaper publication, the Auburn Villager, began circulation in 2007. In addition, the Auburn Plainsman, is a student-run newspaper for Auburn University that is published weekly throughout each academic term and distributed throughout campus and surrounding cities, such as Auburn. **A total of 7 stormwater related articles were published during the reporting year.** A listing of articles and publication dates is included in Appendix C of this report.

**S. Greenspace Advisory Board/Greenspace Master Plan**

The Auburn Greenspace Advisory Board (GAB) was created by a City Council resolution in 2002. Its objective was to identify potential areas for future property acquisitions for parks, recreation facility projects, and greenways. Once identified, these properties could be purchased and/or protected from development.

In 2003, the GAB recommended a Greenspace/Greenway Master Plan for the City. It was adopted in December 2003 by the City Council and has been utilized by the Planning Commission in connection with approval of projects. The GAB revised the initial Plan to include a vast expansion of the proposed greenspace/greenway areas. This first amendment to the Greenspace/Greenway Master Plan was adopted by the City Council in October 2004.

This plan has resulted in the acquisition of several hundred acres of property located in environmentally sensitive areas. The greenspace/greenway areas include proposed bikeways and trails along existing and new roads and along waterways located within the City's growth boundary. Areas along waterways may be improved with natural trails and will be preserved by the dedication of conservation easements in developments or the acquisition of property by the City. **Additionally, the City continued its feasibility analysis, planning, and design work associated with a combined Blueway/Greenway along Saugahatchee Creek (general alignment as identified in Greenway Master Plan) during the 2020-2021 reporting period.**

**T. Auburn Interactive Growth Model**

In 2007 – 2008, the City, through its Planning Department, contracted with a firm to develop the Auburn Interactive Growth Model (AIGM), a tool the City utilizes annually to make informed planning decisions. Detailed inventories were conducted for current development such as housing unit by type, population by age groups and retail space by gross area. A demographic forecasting model was developed as well as models for other uses that will provide guidance for future land use allocations. The AIGM also forecasts the spatial distribution of the population over time and the apportionment of land uses necessary to meet the needs of the population. The Planning Department updates the AIGM annually. Since its initial completion, the AIGM's population projections have been used in projecting water and sewer demand, future traffic, regional growth, school growth and as the foundation of the Future Land Use Plan component of CompPlan 2030.

U. **CompPlan 2030**

In 2009, the City's Planning Department began development of CompPlan 2030, a comprehensive plan to guide future development in Auburn. CompPlan 2030 focuses on the following key areas: current and future land use, and how land use and the built environment affects our natural resources, schools, parks, utilities, civic facilities and transportation. The Plan provides guidance for future planning based on public input, analysis of current and future conditions, and best practices. A series of public meetings was held in 2009 and 2010 to allow citizens to share their ideas for Auburn's future, giving citizens a voice in the development of the plan. The Future Land Use Plan provides parcel-level recommendations for the type and scale of new development for the next twenty years, and is the product of a strategy to promote infill development and growth in downtown Auburn. The Future Land Use Plan element of CompPlan 2030 replaces the 2004 Future Land Use Plan. The Natural Systems and Utility sections of CompPlan 2030 provide recommendations for water conservation and stormwater management. The plan was adopted by the Auburn City Council on October 4, 2011 and City Departments are now working to integrate components of the Plan into their operations. Revisions to the CompPlan 2030 were completed and adopted by the City in February of 2018. **For this reporting period, the Watershed Division is continuing to integrate components of the revised CompPlan into its operations.** For more information on CompPlan 2030, please visit:



<https://www.auburnalabama.org/CompPlan2030/>

V. **CompPlan 2040**

While originally slated to kickoff in April 2020, the 2040 planning process was postponed because of the COVID-19 pandemic. Eight community teams will be put together to discuss the future of Auburn known as Auburn 2040, Creating Community Together. These eight teams consist of Education, Public Safety, Intergovernmental, Growth and Development, Utilities, Environment and Technology, Citizen Engagement, and Family and Community. Captains have been selected for the eight teams and member selection is open until June 13, 2021. The kickoff for all committees will be held on Thursday, July 15, 2021.



**W. Pet Waste Stations**

Pet Waste Stations have been installed within the City of Auburn, especially within the City Parks such as Town Creek Park and Kiesel Park that are frequented by residents and visitors with their furry companions. The pet waste stations are emptied and bags replenished twice a week except those stations placed at Town Creek Park and Kiesel Park which are maintained daily. If pet waste is not removed from the ground, there is the potential for the waste to be carried in stormwater runoff to nearby waterbodies causing possible pathogen impairments. The installation, maintenance and promoting the use of these stations, will help to reduce the potential presence of harmful bacteria due to pet waste from entering our waterbodies.



**X. Streambank Stabilization Projects**

During this reporting period, no streambank stabilization projects were implemented. The City of Auburn is continuing to assess streambanks for future stabilization projects.

**Y. Auburn Street Tree Explorer**

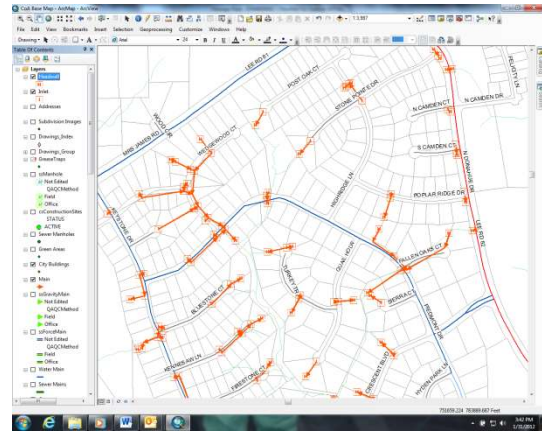
In early January 2021, the City of Auburn launched the Auburn Street Tree Explorer which calculates the stormwater uptake of all the City trees that have been inventoried within the City. During rain events, trees can physically intercept rainwater with their leaves preventing runoff from reaching the ground and flowing over impervious surfaces, like asphalt and concrete, potentially overwhelming stormwater collection systems and polluting our natural waterways and waterbodies.

<https://www.auburnalabama.org/public-works/landscape-and-sustainability/urban-forestry/explore-auburn's-tree-canopy/>

## VII. ILLICIT DISCHARGE DETECTION AND ELIMINATION

### A. Storm Sewer Mapping

The City of Auburn completed the initial mapping of its storm sewer system in 2003. The mapping is maintained in a Geographical Information Systems Database (GIS). Detailed information on pipe size, pipe material, direction of flow, inlets, manholes, bridges, box culverts, detention ponds, and headwalls are maintained in the City's GIS database. The City is currently working to collect stormwater infrastructure data throughout the entire City Limits. In 2013, the City began a Utility Mapping Project utilizing City survey crews and several outside surveying firms. This project, the initial inventorying phase, was completed in 2017. **In 2020-2021, the City added approximately 6.0 linear miles of storm sewer main. The GIS files are updated annually as new work is added or as old work is modified to current standards.** The latest revisions of the maps can be obtained through the Engineering Services Department located at 171 North Ross Street.



### B. Illicit Discharge Ordinance

The Environmental Protection Agency (EPA) recommends municipalities implement an ordinance that provides the means to identify and enforce correction of illicit discharges. In the City's NOI, submitted to ADEM in March 2003, the stated goal was to develop and implement an Illicit Discharge Ordinance by December 2005. This goal was met two years ahead of schedule.



A draft copy of the Illicit Discharge Ordinance was reviewed by the ALOA (now ALOAS) Citizens Advisory Committee in November of 2003. A revised draft was forwarded to the City Attorney and Municipal Judge for review in December 2003.

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The Auburn City Council adopted the Illicit Discharge Ordinance on January 20, 2004. **Revisions were made in 2017 and City Council adopted these revisions in May of 2018. No changes were made to the IDDE ordinance during this reporting period.**

The City’s IDDE Ordinance may be found at the following link:

[https://library.municode.com/al/auburn/codes/code\\_of\\_ordinances?nodeId=CO\\_CH7DR\\_FLCO](https://library.municode.com/al/auburn/codes/code_of_ordinances?nodeId=CO_CH7DR_FLCO)

### C. Stormwater Outfall Reconnaissance Inventory

In 2009, the Water Resource Management Department began a stormwater outfall reconnaissance inventory (ORI) program. The purpose of this ORI program is to familiarize staff with all receiving waters within the City limits, conduct an inspection of each stormwater outfall and prepare detailed documentation of each stormwater outfall in that basin so that water quality concerns are documented and corrective actions planned. City staff are able to document any current illicit discharges and provide more detailed location information concerning existing outfalls. The City’s ORI program is patterned on recommendations outlined in the *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments* (Center for Watershed Protection and Dr. Robert Pitt, October 2004). The City’s goal is to inspect (or screen) all of its outfalls every five years (and/or 15% per year). In calendar year 2015 Watershed Division staff began planning for the second phase of its ORI Program. This included purchasing of a LaMotte Smart 3 Colorimeter for enhanced source identification and tracking, development of plans for a small laboratory at the WRM offices, and updates to the ORI tracking application. Upon the initial completion of its inventory, the WRM Department documented and inspected approximately two hundred forty (240) miles of stream and documented approximately one thousand two hundred twenty-eight (1,228) stormwater outfalls in the Saughatchee, Parkerson Mill, Moore’s Mill and Town Creek Watersheds. Staff also inspected approximately one hundred fifty (150) sanitary sewer aerial creek crossings and

The screenshot displays a web-based inspection form for stormwater outfall reconnaissance. The form includes the following fields and options:

- Inspection Details:** ID: 67542, Location: M254, Status: Closed, Resolution: [dropdown], Insp. Date: 11/16/2020 2:08 PM, Inspected By: KIMBROW, DUSTIN F.
- Observations:**
  - Flow Present?**  Yes,  No
  - Condition**  Good,  Fair,  Poor,  N/A
  - Odor Indicators**  Sewage,  Rancid,  Petroleum,  Sulfide,  Other
  - Color Indicators**  Brown,  Green,  Yellow,  Clear,  Orange,  Other,  Gray,  Red
  - Floatable Indicators**  Sewage,  Other,  Suds,  Petroleum
  - ID Characterization**  Obvious,  Potential,  Suspect,  Unlikely,  N/A
  - Obstruction?**  Yes,  No
  - Repair Necessary?**  Yes,  No
  - Maintenance Necessary?**  Yes,  No
  - Sample Collected?**  Yes,  No
- Reset** button
- Comments:** A photograph showing a stormwater outfall pipe in a grassy area.

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identified approximately eight hundred fifty-eight (858) concerns or potential concerns during the ORI program. **During the current reporting year, staff re-screened and/or performed water quality analyses at 512 of the City's one thousand four hundred twenty-five (1,425) outfalls representing 36% of all outfalls in the City.** This list is included in Appendix H.

The Water Resource Management Department collaborated with the City's Information Technology (IT) Department GIS Division in 2010 to develop a stormwater outfall tracking tool that allows for easy management, access and viewing of data collected during the ORI program. Staff from multiple departments can view the data assimilated by this application and can utilize that information to monitor progress at addressing concerns identified by field survey. This tool/application was updated in 2015 to include attribute fields for water quality data. A screenshot of this tool can be seen above.

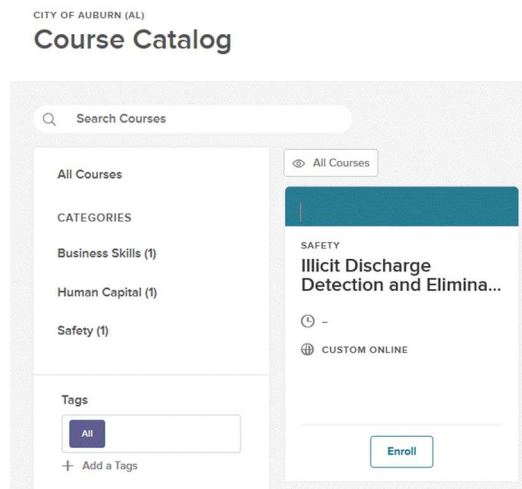
The ORI program is just one example of the measures the City has taken in creating and sustaining an efficient, effective and innovative stormwater management program, with the ultimate goal of protecting our local water resources. **Staff will continue both visual screening and water quality screening of select outfalls in 2021-2022.**

### D. Public Education on Illicit Discharges and Improper Disposal

The City of Auburn created an illicit discharge brochure and has made it available to the public for review and/or download via the City's website ([www.auburnalabama.org/water-resource-management/watershed/aloas](http://www.auburnalabama.org/water-resource-management/watershed/aloas)).

In addition, the City routinely places articles in the City newsletter, Open Line and social media to educate citizens on illicit discharges. In 2018, the City also began working with its IT Department to develop an employee and citizen online training program for recognizing and responding to illicit discharges. This online training program was made available to all City employees in March 2019.

**During this reporting period, the Inspection Services Division within the City's Development Services Business Unit was trained on IDDE. The City is continuing to develop and implement an online training program for citizens.**



### E. Hazardous Waste Emergency Response Team

The City maintains a mutual aid agreement with the City of Opelika to share some of the cost of operating an emergency response vehicle equipped to handle hazardous waste spills. The agreement provides the City with the ability to properly identify and address hazardous or potentially hazardous spills. **The mutual aid agreement is still in effect and no revisions were made to the mutual aid agreement during this reporting period.**



**F. Illicit Discharge Hotline and Reporting Form**

In 2008, the Water Resource Management Department developed an illicit discharge reporting form that residents can download, complete and e-mail back to the Department upon discovering a potential illicit discharge. This document is located on the Illicit Discharge Website, giving residents instant and 24-hour access to the form. This form assists the Department in tracking and responding to illicit discharges. This form can be downloaded from the City’s website at <https://www.auburnalabama.org/water-resource-management/watershed/illicit-discharges/>.

**One form was submitted in 2021. The complaint was investigated and forwarded to the correct City Department for corrective actions. The City hopes that the Auburn FixIt app will continue to phase out the reporting illicit discharge hotline and reporting form in the future.**

The City of Auburn responded to several cases of reported illicit discharges during the current reporting year that were reported by phone. In each instance, the potential illicit discharge was investigated and if necessary, was traced back to its source and the violator was given a notice of violation and informed of the penalties for violating the City’s Illicit Discharge Ordinance. In each incident, the City was able to ensure proper cleanup and corrective actions taken. **During this reporting period, the City received a total of 12 potential illicit discharge complaints.** Below is a summary table of the complaints received:

Type of Complaint	# of Complaints	Corrective Action	Resolved
Illicit Discharge	3	3 investigations	Yes
Erosion and Sediment Control (Construction Site Runoff)	2	2 investigations with correction of deficiencies performed on site or forwarded to different City Department for corrective action	Yes
Stream Erosion/Other Watershed Concern	7	7 investigations performed; 3 resolved by Watershed and 4 forwarded to different City Departments	Yes

**G. Water Quality Monitoring Programs**

In 2004, the City of Auburn began a water quality monitoring program in an effort to analyze the effectiveness of stormwater best management practices (BMPs) on active construction sites within the City. This program has been significantly expanded over the past 16 years to include a diverse range of monitoring programs and more in-depth water quality monitoring.



In 2020, the City of Auburn continued its water quality monitoring programs in accordance with its mission and Stormwater Quality Monitoring Plan. Altogether, thousands of data points are collected by City staff and are used to make data-driven decisions for the protection, preservation, and restoration of our local water resources. **For additional information concerning the City’s Water Quality Monitoring Program, please see the 2020-2021 Annual Water Quality Monitoring Report included in Appendix D. This Water Quality Monitoring Report is being submitted in accordance with Part V of NPDES General Permit ALR040003.**

## VIII. CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

### A. Erosion and Sediment Control Ordinance

The City, in conjunction with the City of Opelika and Auburn University, adopted the Erosion and Sediment Control Policy drafted by the ALOA (now ALOAS) Citizens Advisory Committee in 2003. The policy provides for a regional set of rules that can be applied to contractors, developers and engineers in the area.

The Auburn City Council approved additions to the City’s Erosion and Sediment Control Ordinance in 2005 to establish protocol for enforcement of the Ordinance and to enable City personnel to issue citations to developers/contractors in violation of the Ordinance. The enforcement mechanisms have proven to be a valuable tool in ensuring compliance with the Ordinance.

For more information on the City of Auburn’s Erosion and Sediment Control Ordinance, please visit the following:

[https://library.municode.com/al/auburn/codes/code\\_of\\_ordinances?nodeId=CO\\_CH7DR\\_FLCO\\_ARTIIERSECO](https://library.municode.com/al/auburn/codes/code_of_ordinances?nodeId=CO_CH7DR_FLCO_ARTIIERSECO)

### B. Erosion Control Inspections

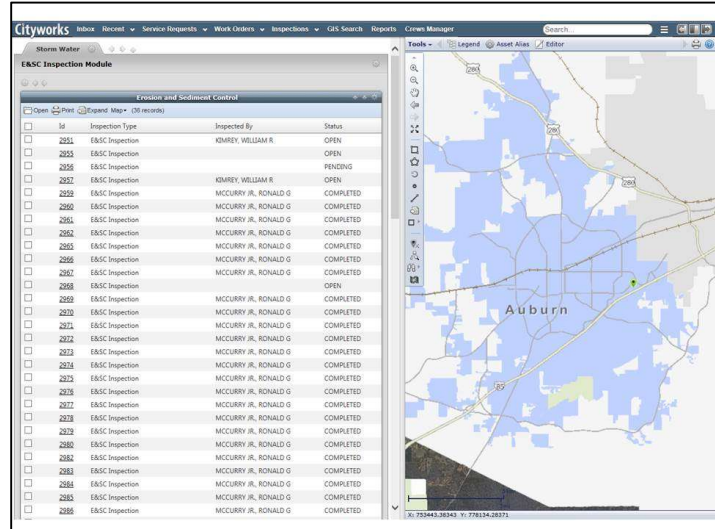
The City, in an effort to patrol the management of erosion and sediment control measures on active construction sites, initiated a construction site inspection program in 2003. The inspection program is designed to identify deficiencies in erosion control and initiate corrective action.

**Approximately 1,573 site erosion and sediment control inspections were performed during the current reporting year (includes follow-up inspections), resulting in 999 inspection reports, 46 72-Hour Notices of Violation and 0 Cease and Desist Orders.** The number of inspections performed is relative to development activity and annual rainfall intensity and accumulation patterns. The City’s Water Resource Management Department maintains copies of the inspection reports in an electronic format and are available upon request.



**C. Erosion Control Inspection Software**

In 2011, staff from the City’s Water Resource Management Department and Information Technology Department created an electronic erosion and sediment control inspection software program. This software gives staff the ability to fill out electronic copies of the erosion control inspection checklist using handheld units while in the field performing inspections. In 2015 Watershed Division staff began working with the City’s IT staff to migrate the erosion and sediment control inspection and enforcement tracking into CityWorks, a GIS-centric asset management software. **Watershed Division staff began using this software exclusively in 2016 and continued to use this software during the 2020-2021 reporting year.**



**D. Residential Erosion Control**

The City now issues an Erosion and Sediment Control Permit that allows for minimal clearing to install the approved BMPs onsite. This minimizes the clearing and grading work that sometimes occurred in the past prior to getting the site BMPs installed. The City’s Inspection Services Department conducts an initial site inspection for all building construction in Auburn. Lots requesting the initial inspection must have a construction entrance and other necessary best management practices (BMPs) in place prior to authorizing foundation construction. Deficiencies noted during the initial inspection are relayed to the building permit applicant for correction. **During the current reporting year, 1,276 pre-ESC lot level inspections were performed and of those inspections, 1,099 failed the pre-permitting inspection which in turn held the permit issuance until the BMPs were properly implemented.**



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The City’s Inspection Services Department also inspects stormwater BMPs during the building phase inspections. If there is a minor deficiency with the stormwater BMPs, then the inspector will require the contractor to correct the issue prior to the next inspection. If the issue has not been corrected by the next inspection, the subsequent inspection will not be performed. If there is a major deficiency with the stormwater BMPs, then the inspector will not perform the requested inspection and have the contractor correct the deficiency immediately.

### E. Rainfall Data Collection

In 2005, the City began maintaining historical rainfall data records. The data is obtained through a subscription to the Agricultural Weather Information System (AWIS) website. AWIS records daily weather data from the NOAA weather station at the Auburn University Regional Airport. Daily rainfall data is also collected at the City’s two water pollution control



City of Auburn, AL @CityofAuburnAL · Dec 7, 2020

RECORD-BREAKING RAIN: With one month left until the end of the year, the rainfall total for 2020 is the highest the city has seen on record dating back to 1976. Read more [news.auburnalabama.org/article/Top%20...](https://news.auburnalabama.org/article/Top%20...)

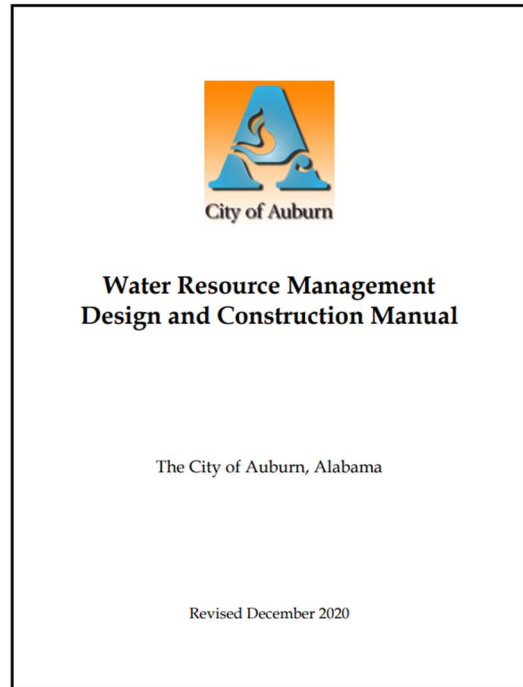


facilities, as well as at Lake Ogletree and the James Estes Water Treatment Plant. Details regarding rainfall during this reporting period can be found in the Water Quality Monitoring Report included in Appendix D of this report. **For the 2020 year, the City of Auburn received 87.6 “ of rain which set a record going back to 1976 when our records started.**

**IX. POST-CONSTRUCTION STORMWATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT**

**A. Engineering Design and Construction Manuals**

In April 2003, the City of Auburn published a Stormwater Design Manual that effectively addressed stormwater runoff controls required for sites greater than one acre. The manual identified project requirements and specifications for new infrastructure and also addressed the requirements for stormwater system sizing and stormwater runoff control/detention. During its implementation, the manual proved to be a very successful tool for the City and developers. The Water Resource Management Department contracted with CH2M Hill to develop an Engineering Design Manual in 2008 that includes engineering design criteria for sewer and water infrastructure, as well as stormwater BMPs for water quality protection such as rain gardens and stormwater wetlands. The Water Resource Management Design Manual also simplifies the City’s regulations regarding restrictions on development in steep slope areas. The Public Works Department also developed a comprehensive Engineering Design Manual. The Stormwater Design Manual has been updated and included as an appendix in the Public Works Manual. Both the Public Works and Water Resource Management Design and Construction Manuals were adopted by the City Council in November 2010 and became effective on January 1, 2011. Reviews of these manuals are performed annually during the first fiscal quarter (October-December). **Revisions were made and were adopted by City Council in December of 2020.**



For more information on the City of Auburn’s Water Resource Management Design and Construction Manual, please visit the following:

<https://www.auburnalabama.org/water-resource-management/design-and-construction-manual/>

**B. Stream Buffer Regulations**

As part of the Erosion and Sediment Control Ordinance adopted by the City Council in July 2002, a minimum 25-foot non-disturbed vegetative buffer zone was required for new developments on “blue line” streams and creeks identified on USGS 7.5-minute topographic maps. In May 2006, the City Council adopted new Stream Buffer regulations. The 2006 buffer regulations were based on a managed-use type buffer rather than a strict non-disturbed buffer approach. The 2006 regulations implement a 3-zoned buffer (streamside zone, managed use zone and upland zone) with the width of the buffer being based on the drainage area of the stream. A copy of the 2006 regulations can be found under Article IV in the City’s Zoning Ordinance on the City’s website. Greater than 656 acres of riparian corridors have been set aside since the adoption of the new regulations. **During this reporting period, the City reviewed 66 development plans for compliance with the stream buffer ordinance.** The table below provides the City’s current stream buffer requirements.



Stream Buffer Requirements				
Drainage Area (Watershed) Designation	Streamside Zone	Managed Use Zone	Upland Zone	Total Buffer Width on each side of Stream
< 100 acres	25 feet	None	10 feet	35 feet
≥ 100 acres and ≤ 300 acres	25 feet	None	20 feet	45 feet
≥ 300 acres and ≤ 640 acres	25 feet	20 feet	10 feet	55 feet
≥ 640 acres	25 feet	50 feet	25 feet	100 feet

C. Post-Construction BMP Inspections

Existing post-construction BMPs need periodic inspections to evaluate the maintenance and operation of these vital components of the City’s drainage system. Because vast quantities of stormwater are collected and passed through detention ponds every year, inspections of these facilities can identify potential problems and illicit discharges.



The Engineering Services Department and the Water Resource Management Department conduct annual inspections of all detention ponds (public and private) listed in the stormwater database. Upon inspection, the owner of the pond is notified of any corrective action needed. Enforcement measures are taken if the owner does not address the items listed in the report. **Approximately four hundred forty (440) detention ponds were inspected by the City within the 2020-2021 reporting period. There was an increase of approximately 26 post-construction BMPs since last year. A list of the detention ponds is available upon request.**

D. Conservation Subdivision Regulations

In 2006, staff members from the Planning Department, Water Resource Management Department, Public Works Department and Parks and Recreation Department began developing conservation subdivision regulations to aid in the protection of local water resources. These regulations were approved by the Auburn City Council in 2007. The regulations promote water resource protection through the setting aside of open space and concentrating development away from water resources. The ordinance and subdivision regulations promote the use of low impact design concepts to protect natural resources in the Auburn area. While developer interest for conservation subdivisions has not been strong to this point, the City continues to promote conservation subdivisions and low impact development principles for developments within





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the City of Auburn. These regulations can be downloaded from the City’s website at <https://www.auburnalabama.org/planning/development-services/subdivision-regulations/>.

### E. Site Development Review Tool

In 2006, the Water Resource Management Department contracted with CH2M Hill to develop a Site Development Review Tool (Tool) that could be utilized by local engineers when designing stormwater BMPs on developments within the City. This Tool was modeled on a similar tool created by CH2M Hill for Gwinnett County, Georgia.

**City of Auburn Stormwater Quality Site Development Review Tool**

**General Information**

Name of Developer:	SOUTHERN STATES BANK	Date Submitted:	11/5/2014
Development Name:	SOUTHERN STATES BANK	Permit Number:	
Site Location / Address:	INTERSECTION OF N DEAN AND JOBELICA ROAD	Developer Contact:	
Development Type:	Commercial/Residential	Phone Number:	
Area of Development (acres):	3.143	Name of Engineer(s):	
		Maintenance Responsibility:	

**Summary of Site and Structural Control Information**

Number of Drainage Areas: 1  
Sum of Drainage Areas (ac): 1.07

**Land Use Distribution Pie**

NC (22%)	LA (47%)
OP (31%)	

**Total # of Structural Controls Used: 0**

Stormwater Pond (W/ Detention Basin)	0
Bioretention Area	0
Dry Detention / Dry ED Basin	0
Eroded Swale (Biofiltration)	0
Fiber Strip	0
Infiltration Trench	0
Porous Pavement	0
Proprietary Structural Control**	0
Sand Filter	0
Stormwater Wetland	0

**TSS Reduction**

Total TP Reduction (%): 51% Meets Goal

**Official Use Only**

Tracking #: \_\_\_\_\_  
Reviewed By: \_\_\_\_\_  
Date Approved: \_\_\_\_\_  
Conditions of Approval: \_\_\_\_\_

The Tool was developed using a Microsoft Excel platform and can be used by engineers and developers to design and incorporate structural stormwater BMPs for developments within Auburn’s planning jurisdiction boundaries and to maximize the efficiency of runoff pollutant management following construction of developments. This Tool can also be used to meet the target pollutant removal efficiencies outlined in the City’s Conservation Subdivision Regulations.

The Tool provides pollutant removal estimates for site specific conditions based on removal efficiencies for a variety of stormwater BMPs including detention ponds, bioretention areas (i.e. rain gardens) and stormwater wetlands. This Tool analyzes a variety of stormwater pollutants including nutrients (phosphorus and nitrogen) and total suspended solids. City staff utilize the Tool during the plan review process to analyze development impacts on water quality within its water supply protection area (Lake Ogletree watershed). This Tool is also used by engineers when submitting water quality plans for developments located in the Saugahatchee Creek Watershed, the Parkerson Mill Creek Watershed, or the Lake Ogletree Watershed to assist them in determining if their post-development stormwater controls meet the City’s applicable pollutant removal criteria. A copy of the Tool can be downloaded at <https://www.auburnalabama.org/water-resource-management/standard-development-forms/>. During the 2020-2021 reporting year, the City reviewed approximately forty (40) stormwater quality site development review tools.

### F. Student Chapter of American Society of Civil Engineers Constructed Wetland

In 2015, the student chapter of the American Society of Civil Engineers (ASCE) of Auburn University worked to design and construct an Outdoor Civil Engineering Learning Lab (Auburn OutCELL) featuring educational displays and interactive exhibits meant to appeal

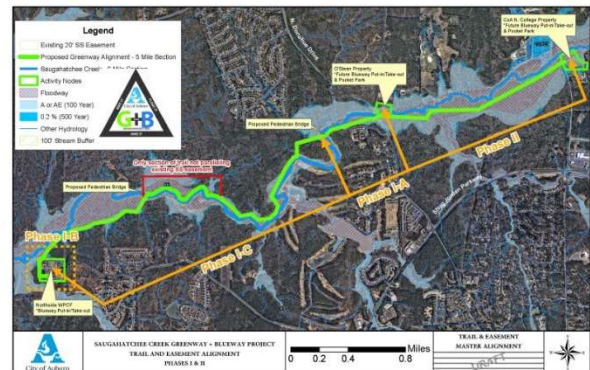
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to students of all ages. This project involved a collaborative effort with the City, which provided access to a city-owned site for developing the proposed learning center and design and construction feedback to the student-led team. The Auburn OutCELL will serve as a center where local K-12 students can come (free of charge) with family or school groups to interactively engage and learn about the various disciplines of civil engineering, specifically highlighting elements of environmental, geotechnical, hydraulics, hydrology, materials, structural, and transportation engineering.

The main feature of Auburn OutCELL is a constructed stormwater wetland, which includes an improved sediment basin and constructed treatment wetland system. Not only does this stormwater treatment system provide an ideal setup for lessons on erosion control, water quality, watershed hydrology and native Alabama vegetation, but it also serves to actively improve the quality of stormwater flowing into the Saugahatchee Creek. The site's location just off the unpaved Miracle Road leads to extremely turbid stormwater flowing through the site, which formerly deposited large amounts of sediment into the Saugahatchee Creek. **Due to other developments in the area, the OutCELL project will be re-instated during the construction of the Saugahatchee Greenway + Blueway project anticipated to begin in late 2021.**

### G. Saugahatchee Greenway + Blueway Project

Saugahatchee Creek is identified as a Primary Greenway Corridor in the City's Greenway and Greenspace Master Plan. In 2015 the City began performing the necessary feasibility assessments for the development of both a greenway and blueway component of this corridor. Staff have evaluated approximately six (6) miles of Saugahatchee for floatability and over six (6) miles of existing sanitary sewer easement for trail alignment. Between 2015 and 2018, the City has obtained more than 97 acres of land and/or public access easements thereto to convey +/-1.5 miles of Greenway and install two put-in/take-out locations. Additionally, in March of 2017 the City installed one realtime stream gage on Saugahatchee Creek, which will be used to develop a floatability index for kayaking. **During this reporting period, staff reviewed and commented on the revised CBMP plans for this project and commencement is anticipated during 2021-2022.**



**X. POLLUTION PREVENTION/GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS**

**A. Stormwater Management Training**

The City of Auburn continues to develop a training program that provides the Water Resource Management Department and other City departments with information on the proper methods for implementing site control measures on all municipal projects. City personnel also attend a variety of stormwater/water quality related conferences, workshops and seminars annually. Due to COVID-19, several conferences, workshops and seminars were cancelled during this reporting period.

Training opportunities during this reporting year included:

- **American Stormwater Institute MS4 LID/Green Infrastructure Inspector Training**—In April 2020, three City Staff members (Marla Smith, Dustin Rogers, and Ron McCurry) completed and received their MS4 LID/Green Infrastructure Inspector Certification.
- **Association of State Floodplain Managers 2020 Conference**—During June 9-11, 2020, one City Staff member (Dusty Kimbrow) attended this conference virtually.
- **Clear Water Alabama** – October 15, 22, 29, 2020, three City staff personnel (Ron McCurry, Marla Smith and Dustin Rogers) attended this virtually.
- **Alabama Association of Floodplain Managers Fall Conference** – October 19-21, 2020, one City staff personnel (Dusty Kimbrow) attended this conference virtually.
- **Association of State Floodplain Managers Information Exchange: New Datums for the Nation** – In February 2021, one City staff (Dusty Kimbrow) attended this conference virtually.
- **Alabama Stormwater Association “Reissuance of the Construction General Permit: A Discussion with ADEM”** – In March 2021, several City staff attended this workshop virtually.
- **Qualified Credentialed Inspector Training** – The City of Auburn, over various Departments, has at least 30 City employees that maintain Qualified Credentialed Inspector (QCI) certification. This certification requires annual refresher training, for which all QCI certified personnel must perform in order to retain certification. In addition to QCI certified staff, the City has numerous professionals who qualify as Qualified Credentialed Professionals (QCP) through existing certifications. **In**

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**2020, approximately fifteen (15) WRM staff received their QCI certifications. Also, two Watershed Division personnel have received their Certified Professional Erosion and Sediment Control (CPESC) certifications.**

**B. Spill Response and Prevention Training**

The City of Auburn has developed an in-house spill response training program. Staff from Water Resource Management and Public Works’ Construction Management and Fleet Services Divisions routinely inspect their respective facilities for proper containment and signage associated with storage of petroleum products. Additionally, staff attend annual training on Spill Prevention, Control, and Countermeasure (SPCC) to ensure that they are prepared to respond to discharges in an appropriate manner.



**C. Risk Management Manual**

The City’s Human Resources Department has developed a manual outlining specific requirements/policies for dealing with hazardous chemicals. Topic 12 (titled Hazard Communication Program) of the City’s Risk Management Manual specifically requires City personnel to receive training on hazardous chemicals used. Safety Data Sheets (SDS) identifying personal protective equipment, permissible exposure limits (PEL) and Threshold Limit Values (TLV) are required for all hazardous chemicals used. The Hazard Communication Program was adopted as part of the Risk Management Manual.

**D. Municipal Operations Recycling**

It has been standard policy to encourage individual Departments to participate in the City’s recycling program. Recyclable waste generated through City activities is collected and processed through the City’s recycling center located on Donahue Drive. This recycling center accepts the following recyclables 24 hours a day, 365 days a year: aluminum cans; flattened cardboard; paper (all types); steel/tin cans; batteries (transistor only up to size D); cellular phones; cooking grease/oil; green glass; magazines/telephone books; mixed office paper; and plastics #1-#7. Computer equipment and other electronics (not TVs) may also be recycled, but an appointment must be made as these items require special handling.

Recycle Auburn Tonnage Report	
Item	Total Tons
Newspaper	58.25
Green Glass	119.97
Clear Glass	120.55
Brown Glass	68.53
Aluminum Cans	7.94
Cardboard	167.58
Steel	8.12
Magazines	26.13
Mixed Paper	43.56
Computers/Electronics	5.03
Batteries	1.42
Scrap Metal	54.29
Downtown Grease	25.34
Single Stream	2220.48
<b>Total</b>	<b>2927.19</b>
<b>Monthly Average</b>	<b>243.93</b>

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In 2017, the City transitioned to single-stream recycling with 5,600 containers. Using 95-gallon containers/carts, citizens are able to place all recyclables into one container and place them at the curbside on their scheduled garbage collection day. Acceptable single-stream materials include: aluminum cans; flattened cardboard; paper (all types); plastic #1 through #7 and steel/tin cans. **As of March 2021, the City services a total of 14,218 curbside recycling households. During this reporting period, the City recycled approximately 2,220 tons of single-stream recyclables.**

### E. Street Sweeping & Litter Control

Regular street sweeping has been proven as an effective means to reduce overall pollutant loading from roads and storm sewer systems. The Right of Way Maintenance Division of the City's Public Works Department currently performs street sweeping measures on a 4-week rotating basis, barring uncontrollable circumstances. **During this reporting period, the City swept streets and parking lots within the City, thereby removing approximately 13,045 tons of debris from the road. Additionally, the City removed 7,908 bags of litter from 1,595 miles of right-of-way through community service/inmates.**



### F. Alabama Certified Pesticides Applicator

The Parks and Recreation Department of the City maintains trained and certified personnel in the application of pesticides, including restricted-use pesticides. Although qualified to do so, the Parks and Recreation Department has not used any restricted-use pesticides in the previous decade. In order to maintain certification with the State of Alabama, the staff must document and complete 30 continuing education units (CEUs) over a three-year period. CEUs are earned at various conferences and workshops such as the Alabama Turfgrass Conference, Alabama Department of Transportation workshops, the Sports Turf Short Course and the Alabama Urban Forestry Association's Annual Conference. The CEUs cover the application of pesticides, information on the proper use of fertilizers and other chemicals typically used to maintain athletic fields, and best management practices for trees/shrubs/turf that are intended to reduce the need for pesticides, fertilizers and irrigation.

### G. Municipal Facilities Inventory and Good Housekeeping Inspections

In 2017 the City completed an initial inventory and desktop assessment of all its properties and physical facilities, including an assessment of stormwater knowledge of the persons responsible for management and upkeep. The purpose of this inventory and assessment is to evaluate each property's respective potential to contribute to stormwater pollution, and to identify site-specific best management practices to improve maintenance and operation

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of these properties and facilities to reduce that potential. A total of 128 properties are currently owned and managed by the City. Of these 128 properties, 76 are developed (varying intensity) and 52 are in an undeveloped/natural condition. In 2018, the City re-evaluated the 128 properties, and determined that of the 128 properties, a total of 63 City properties have the potential to discharge pollutants via stormwater runoff. An updated table of City facilities and/or properties may be found in Appendix F. **During this reporting period, all 63 City properties were inspected with minimal deficiencies which have since been addressed.**

## **XII. STORMWATER INFRASTRUCTURE IMPROVEMENTS**

In 2020-2021 report year, the Engineering Services Department continued to make considerable progress toward installing, rehabilitating and upgrading stormwater infrastructure within the City of Auburn. A listing of projects completed is included below, along with projects under construction, projects under design and/or consideration and a list of stormwater maintenance activities.

### **A. Stormwater Infrastructure Projects Completed**

- Moores Mill Road Sidewalk - This project included the installation 575 LF of 15” ADS pipe, 5 LF of 18” RCP, 1 Junction Box, 4 Drop Inlets, and 1 – 18” Concrete Headwall.
- Ogletree Culvert Replacement – This project consisted of the removal of two 16’ x 11’ arched CMP culverts and replaced it with a new 78.75’ long concrete bottomless double barrel 22’ x 12.5’ culvert. Also installed was 151 LF of 24” RCP and 1 junction box.
- Farmville Road Culvert Replacement – This consisted of the removal of two 14’ x 9’ arch CMP and replaced it with a new 64.3’ long concrete triple barrel 10’ x 9’ culvert. Also installed was 1 junction box and 18 LF of 24” RCP with a 24” concrete headwall.
- Wright Street Streetscape Project – This project included the installation of 231 LF of 18” RCP, 1- single wing inlet, and 1 – junction box.
- Boykin Renovations – This project included the installation of 75 LF of 15” HDPE, 227 LF of 15” RCP, and 3 – single winged inlets.
- East Glenn Avenue Municipal Parking Lot – this project will involve the construction of a municipal surface parking lot including pervious pavers and a bioretention area

### **B. Stormwater Infrastructure Projects Currently Under Construction**

- Cox Road Widening – This project will consist of the installation of 156 LF of HDPE, 200 LF of 18” HDPE, 201 LF of 24” HDPE, 15 LF of 30” HDPE, 4 LF of 18” RCP, 32 LF of 24” RCP, 8 LF of 30” RCP, 16 LF of 48 RCP, 7 – 15” headwalls, 10 – 18” headwalls, 10 – 24” headwalls, 1 – 30” headwall, 2 – 42” headwalls, 2 – 48” headwalls, 4 – single wing inlets, and 1 – junction box. Also included was the removal of 13 headwalls, 4 – inlets, 31 LF of 12”, 148 LF of 15”, 60 LF of 18”, 158 LF of 24” pipe.
- Wright Street Parking Deck – This project included the installation of 1 – detention vault (4700CUFT capacity)
- Opelika Road Improvement Phase 4 – This project will consist of the installation of 1,107 LF of 15” RCP, 314 LF of 18” RCP, 379 LF of 24” RCP, 2 – grate inlets, 3 – junction boxes, 15 – single wing inlets, 3 – double wing inlets, 1 – area inlet, 1 – trench drain, 1 –

## PROTECT – PRESERVE - RESTORE

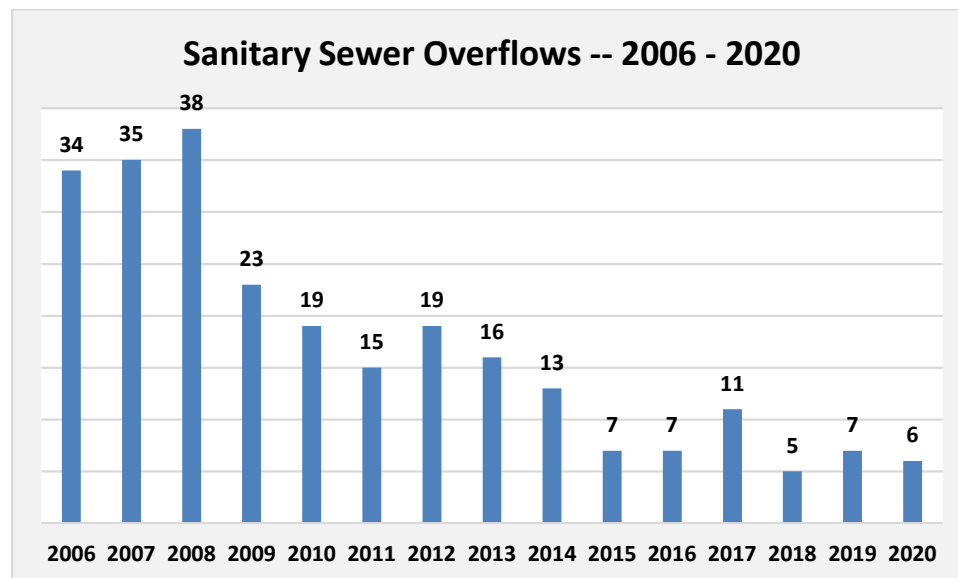
15” headwall. This project will also include the removal of 367 LF of 18” RCP and 120 LF of 15” RCP.

### C. Stormwater Infrastructure Projects Under Design and/or Consideration

- Samford Avenue, South College Street, and Gay Street Intersection Improvement Project – This project will consist of the installation of 65 LF of 15” RCP, 49 LF of 18” RCP, 66 LF of 24” RCP, 636 LF of 30” RCP, 338 LF of 42” RCP, 242 LF of 48” RCP, 3 – junction boxes, 9 – double wing inlets, 10 – single wing inlets, and 2 – grate inlets. This project will also include the removal of 2 – junction boxes, 5 – double wing inlets, and 6 – single wing inlets.
- Cox Road/Wire Road Roundabout – This project will consist of the installation of 717 LF of 18” RCP, 5 – 18” headwalls, and 5 – single wing inlets.

### D. Sanitary Sewer Rehabilitation Projects

Several years ago, the City began implementation of a program to identify and rehabilitate aging sanitary sewer infrastructure in the City of Auburn. The primary purpose of this program is to rehabilitate aging infrastructure, prevent sanitary sewer overflows (SSOs) and reduce inflow and infiltration (I/I). The City actively addresses these issues through various sanitary sewer evaluation surveys and rehabilitation projects. **Efforts to rehabilitate aging infrastructure have reduced SSOs substantially since 2006. During this reporting period, the City had six (6) reportable SSOs.**





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## **APPENDIX A**

### **2016 PHASE II STORMWATER PERMIT**

Alabama Department of Environmental Management  
adem.alabama.gov

1400 Coliseum Blvd. 36110-2400 ■ Post Office Box 301463  
Montgomery, Alabama 36130-1463  
(334) 271-7700 ■ FAX (334) 271-7950

September 12, 2016

Honorable Bill Ham, Jr.  
Mayor, City of Auburn  
144 Tichenor Ave., Suite 1  
Auburn, Alabama 36830

Re: Municipal Separate Storm Sewer System (MS4) Phase II General Permit  
NPDES Permit No. ALR040003  
Lee County (081)

Dear Mayor Ham:

The Department has made a final determination to reissue General NPDES Permit No. ALR040000 for discharges from regulated small municipal separate storm sewer systems. The reissued permit will become effective on October 1, 2016 and will expire on September 30, 2021.

The Department notified the public of its tentative determination to reissue General NPDES Permit No. ALR040000 on November 18, 2015. Interested persons were provided the opportunity to submit comments on the Department's tentative decision through December 18, 2015. In accordance with ADEM Admin Code r. 335-6-6-.21(7), a response to all comments received during the public comment period will be available on the Department's efile system.

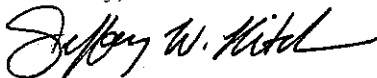
Based on your request, as evidenced by the submittal of a Notice of Intent, coverage under the General NPDES Permit No. ALR040003 is granted. The effective date of issuance coverage is October 1, 2016.

Coverage under this permit does not authorize the discharge of pollutant or non-stormwater that is not specifically identified in the permit and by the Notice of Intent which resulted in granting this coverage.

You are responsible for compliance with all provisions of the permit, including, but not limited to, the performance of any monitoring (if applicable), the submittal of any reports, and the preparation and implementation of any plans required by the permit. Part II.A.4. of the re-issued permit requires the submittal of an updated Stormwater Management Program Plan (SWMPP) within three months of the issuance date of this permit (January 1, 2017).

If you have any additional questions or concerns, please contact Marla Smith by email at [mssmith@adem.state.al.us](mailto:mssmith@adem.state.al.us) or by phone at 334-270-5616.

Sincerely,



Jeffery W. Kitchens, Chief  
Stormwater Management Branch  
Water Division

JWK/mss

File: FPER/1207

Enclosure: Final Permit ALR040003

Cc: Ms. Kacy Sable, EPA (via email)  
Mr. Dan Ballard, City of Auburn (via email)





# NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

DISCHARGE AUTHORIZED: STORMWATER DISCHARGES FROM REGULATED  
SMALL MUNICIPAL SEPARATE STORM SEWER  
SYSTEMS

AREA OF COVERAGE: THE STATE OF ALABAMA

PERMIT NUMBER: ALR040003

RECEIVING WATERS: ALL WATERS OF THE STATE OF ALABAMA

*In accordance with and subject to the provisions of the Federal Water Pollution Control Act, as amended, 33 U.S.C. §§1251-1378 (the "FWPCA"), the Alabama Water Pollution Control Act, as amended, Code of Alabama 1975, §§ 22-22-1 to 22-22-14 (the "AWPCA"), the Alabama Environmental Management Act, as amended, Code of Alabama 1975, §§22-22A-1 to 22-22A-15, and rules and regulations adopted thereunder, and subject further to the terms and conditions set forth in this permit, the Permittee is hereby authorized to discharge into the above-named receiving waters.*

ISSUANCE DATE: SEPTEMBER 6, 2016

EFFECTIVE DATE: OCTOBER 1, 2016

EXPIRATION DATE: SEPTEMBER 30, 2021

GIENNA L. DEAN  
Alabama Department of Environmental Management

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## **PART I Coverage Under This General Permit**

### **A. Permit Coverage**

This permit covers the urbanized areas designated as a Phase II Municipal Separate Storm Sewer System (MS4) within the State of Alabama.

### **B. Authorized Discharges**

1. This permit authorizes discharges of storm water from small MS4s, as defined in 40 CFR Part 122.26(b)(16). An entity may discharge under the terms and conditions of this general permit if the entity:
  - a. Owns or operates a small MS4 within the permit area described in Section A;
  - b. Is not a “large” or “medium” MS4 as described in 40 CFR Part 122.26(b)(4) or (7);
  - c. Submits a Notice of Intent (NOI) in accordance with Part II of this general permit; and
  - d. Either:
    - i. Is located fully or partially within an urbanized area as determined by the latest Decennial Census by the Bureau of Census, or
    - ii. Is designated for permit authorization by the Department pursuant to 40 CFR Part 122.32(a)(2).
2. This permit authorizes the following non-storm water discharges provided that they do not cause or contribute to a violation of water quality standards and that they have been determined not to be substantial contributors of pollutants to a particular small MS4 applying for coverage under this permit and that is implementing the storm water management program (SWMP) set forth in this permit:
  - a. Water line flushing
  - b. Landscape irrigation
  - c. Diverted stream flows
  - d. Uncontaminated ground water infiltration
  - e. Uncontaminated pumped groundwater
  - f. Discharges from potable water sources
  - g. Foundation drains
  - h. Air conditioning condensate
  - i. Irrigation water (not consisting of treated, or untreated, wastewater)
  - j. Rising ground water
  - k. Springs
  - l. Water from crawl space pumps
  - m. Footing drains
  - n. Lawn watering runoff
  - o. Individual residential car washing, to include charitable carwashes

- p. Residual street wash water
- q. Discharge or flows from firefighting activities (including fire hydrant flushing)
- r. Flows from riparian habitats and wetlands
- s. Dechlorinated swimming pool discharges, and
- t. Discharges authorized and in compliance with a separate NPDES permit.

### **C. Prohibited Discharges**

The following discharges are not authorized by this permit:

1. Discharges that are mixed with sources of non-storm water unless such non-storm water discharges are:
  - a. In compliance with a separate NPDES permit; or
  - b. Determined by the Department not to be a significant contributor of pollutants to waters of the State;
2. Storm water discharges associated with industrial activity as defined in 40 CFR Part 122.26(b)(14)(i)-(ix) and (xi);
3. Storm water discharges associated with construction activity as defined in 40 CFR Part 122.26(b)(14)(x) or 40 CFR 122.26(b)(15) and subject to Alabama Department of Environmental Management (ADEM) Code r. 335-6-12;
4. Storm water discharges currently covered under another NPDES permit;
5. Discharges to territorial seas, contiguous zone, and the oceans unless such discharges are in compliance with the ocean discharge criteria of 40 CFR Part 125, Subpart M;
6. Discharges that would cause or contribute to instream exceedances of water quality standards; Your storm water management program plan (SWMPP) must include a description of the Best Management Practices (BMPs) that you will be using to ensure that this will not occur. The Department may require corrective action or an application for an individual permit if an MS4 is determined to cause an instream exceedance of water quality standards;
7. Discharges of any pollutant into any water for which a total maximum daily load (TMDL) has been approved or developed by EPA unless your discharge is consistent with the TMDL; This eligibility condition applies at the time you submit a NOI for coverage. If conditions change after you have permit coverage, you may remain covered by the permit provided you comply with the applicable requirements of Part V. You must incorporate any limitations, conditions and requirements applicable to your discharges, including monitoring frequency and reporting required, into your SWMPP in order to be eligible for permit coverage. For discharges not eligible for coverage under this permit, you must apply for and receive an individual or other applicable general NPDES permit prior to discharging;
8. This permit does not relieve entities that cause illicit discharges, including spills, of oils or hazardous substances, from responsibilities and liabilities under State and Federal law and regulations pertaining to those discharges.

## **D. Obtaining Authorization**

1. To be authorized to discharge storm water from small MS4s, you must submit a Notice of Intent (NOI) and a description of your storm water management program (SWMP) in accordance with the deadlines presented in Part II of this permit.
2. You must submit the information required in Part II on the latest version of the NOI form (or photocopy thereof). Your NOI must be signed and dated in accordance with Part VII of this permit.
3. No discharge under the general permit may commence until the discharger receives the Department's acknowledgement of the NOI and approval of the coverage of the discharge by the general permit. The Department may deny coverage under this permit and require submittal of an application for an individual NPDES permit based on a review of the NOI.
4. Where the operator changes, or where a new operator is added after submittal of an NOI under Part II, a new NOI must be submitted in accordance with Part II within thirty (30) days of the change or addition.
5. For areas extended within your MS4 by the latest census or annexed into your MS4 area after you received coverage under this general permit, the first annual report submitted after the annexation must include the updates to your SWMP, as appropriate.

**Note:** If the Department notifies the dischargers (directly, by the public notice, or by making information available on the Internet) of other NOI form options that become available at a later date (e.g., electronic submission of forms), you may take advantage of those options to satisfy the NOI use and submittal requirements in Part II.

## **E. Implementation**

1. This permit requires implementation of the MS4 Program under the State and Federal NPDES Regulations. MS4s shall modify their programs if and when water quality considerations warrant greater attention or prescriptiveness in specific components of the municipal program.
2. If a small MS4 operator implements the minimum control measures in 40 CFR 122.34(b) and the discharges are determined to cause or contribute to non-attainment of an applicable water quality standard as evidenced by the State of Alabama's 303(d) list or an EPA-approved or developed Total Maximum Daily Load (TMDL), the operator must tailor its BMPs within the scope of the six minimum control measures to address the pollutants of concern and implement permit requirements outlined in Part IV.D. and Part V of this permit.
3. Existing MS4s, unless otherwise stated within this permit, shall implement each of the minimum control measures outlined in Part III.B. of this permit immediately upon the effective date of coverage. Newly designated MS4s, unless otherwise stated in this permit, shall implement the minimum control measures outlined in Part III.B. of this permit within



365 days of the effective date of coverage. However, for newly designated MS4s, where new or revised ordinances are required to implement any of the minimum control measures, such ordinances shall be enacted within 730 days from the effective date of coverage.

## **PART II Notice of Intent (NOI) Requirements**

### **A. Deadlines of Applications**

1. If you are automatically designated under 40 CFR Part 122.32(a)(1) or designated by the Department, then to request recoveage, you are required to submit an NOI or an application for an individual permit and a description of your SWMP at least 90 days before the expiration of this permit.
2. If you are designated by the Department after the date of permit issuance, then you are required to submit an NOI or an application for an individual permit and a description of your SWMP within 180 days upon notification. Within six months of initial issuance, the operator of the regulated small MS4 shall submit a storm water management program plan (SWMPP) to the Department for review. A SWMPP can be submitted electronically in a .PDF format, or in another prescribed manner acceptable to the Department that contains all necessary components
3. You are not prohibited from submitting an NOI after the dates provided in Part II.A.1-2. If a NOI is submitted after the dates provided in Part II.A.1-2., your authorization is only for discharges that occur after permit coverage is granted. The Department reserves the right to take appropriate enforcement actions for any unpermitted discharges.
4. Within three months of the date of re-issuance of coverage under this permit, all operators of regulated small MS4s shall submit a revised storm water management program plan (SWMPP) to the Department for review.
5. **On or after December 21, 2020, all NOIs shall be made electronically in a prescribed manner acceptable to the Department.**

### **B. Continuation of the Expired General Permit**

If this permit is not reissued or replaced prior to the expiration date, it will be administratively continued in accordance with the ADEM Code r. 335-6-6 and remain in force and effect if the Permittee re-applies for coverage as required under Part II of this Permit. Any Permittee who was granted permit coverage prior to the expiration date will automatically remain covered by the continued permit until the earlier of:

1. Reissuance or replacement of this permit, at which time you must comply with the Notice of Intent conditions of the new permit to maintain authorization to discharge; or
2. Issuance of an individual permit for your discharges; or
3. A formal permit decision by the Department not to reissue this general permit, at which time you must seek coverage under an alternative general permit or an individual permit.

### **C. Contents of the Notice of Intent (NOI)**

The Notice of Intent must be signed in accordance with Part VII.G of this permit and must include the following information:

1. Information on the Permittee:
  - a. The name of the regulated entity, specifying the contact person and responsible official, mailing address, telephone number and email address; and
  - b. An indication of whether you are a Federal, State, County, Municipal or other public entity.
2. Information on the MS4:
  - a. the name of your organization, county, city, or town and the latitude/longitude of the center or the MS4 location;
  - b. The name of the major receiving water(s) and an indication of whether any of your receiving waters are included on the latest 303(d) list, included in an EPA-approved and/or EPA developed total maximum daily load (TMDL) or otherwise designated by the Department as being impaired. If you have discharges to 303(d) or TMDL waters, a certification that your SWMPP complies with the requirements of Part V;
  - c. If you are relying on another governmental entity, regulated under the storm water regulations (40 CFR Part 122.26 & 122.32) to satisfy one or more of your permit obligations (see Part III), the identity of that entity(ies) and the elements(s) they will be implementing. The Permittee remains responsible for compliance if the other entity fails to fully perform the permit obligation, and may be subject to enforcement action if neither the Permittee nor the other entity fully performs the permit obligation; and
  - d. Must include if you are relying on the Department for enforcement of erosion and sediment controls on qualifying construction sites in accordance with Part III.B.3.b.
3. Include a brief summary of the best management practices (BMPs) for the minimum control measures in Part III of this permit (i.e. a brief summary of the MS4's SWMPP), your timeframe for implementing each of the BMPs, and the person or persons responsible for implementing or coordinating your SWMPP.

### **D. Where to Submit MS4 Documents**

You are to submit your NOI or individual application, and a description of your SWMP as allowed under Part II.A., signed in accordance with the signatory requirements of Section VII of this permit, to the Department at the following address:

**Alabama Department of Environmental Management  
Water Division  
Storm Water Management Branch  
Post Office Box 301463  
Montgomery, Alabama 36130-1463**

Certified and Registered Mail shall be addressed to:

**Alabama Department of Environmental Management  
Water Division  
Storm Water Management Branch  
1400 Coliseum Boulevard  
Montgomery, Alabama 36110-2059**

On or after December 21, 2020, all NOIs shall be made electronically in a prescribed manner acceptable to the Department.

### **PART III Storm Water Pollution Prevention and Management Program for Small MS4s**

#### **A. Storm Water Management Program (SWMP)**

1. The Permittee is required to develop, revise, implement, maintain and enforce a storm water management program (SWMP) which shall include controls necessary to reduce the discharge of pollutants from its MS4 consistent with Section 402(p)(3)(B) of the Clean Water Act and 40 CFR Parts 122.30-122.37. These requirements shall be met by the development and implementation of a storm water management program plan (SWMPP) which addresses the best management practices (BMPs), control techniques and systems, design and engineering methods, public participation and education, monitoring, and other appropriate provisions designed to reduce the discharge of pollutants from the MS4 to the maximum extent practicable (MEP).
2. The Permittee shall provide and maintain adequate finance, staff, equipment, and support capabilities necessary to implement the SWMPP and comply with the requirements of this permit.
3. The SWMPP must address the minimum storm water control measures referenced in Part III.B. to include the following:
  - a. A map of the Permittee's MS4 urbanized areas;
  - b. The BMPs that will be implemented for each control measure. Low impact development/green infrastructure shall be considered where feasible. Information on LID/Green Infrastructure is available on the following websites: <http://www.adem.alabama.gov/programs/water/waterforms/LIDHandbook.pdf> and <http://epa.gov/polwaste/green/index.cfm>.
  - c. The measureable goals for each of the minimum controls outlined in Part III.B.;
  - d. The proposed schedule—including interim milestones, as appropriate, inspections, and the frequency of actions needed to fully implement each minimum control; and
  - e. The person and/or persons responsible for implementing or coordination the BMPs for each separate minimum control measure.

4. Once the initial SWMPP is acknowledged by ADEM, activities and associated schedules outlined by the SWMPP or updates to the SWMPP are conditions of the permit.
5. Unless otherwise specified in this permit, the Permittee shall be in compliance with the conditions of this permit by the effective date of coverage.

## **B. Minimum Storm Water Control Measures**

### **1. Public Education and Public Involvement on Storm Water Impacts**

- a. The Permittee must develop and implement a public education and outreach program to inform the community about the impacts of storm water discharges on water bodies and the steps that the public can take to reduce pollutants in storm water runoff to the MEP. The Permittee shall continuously implement this program in the areas served by the MS4. The Permittee shall also comply, at a minimum, with applicable State and local public notice requirements when implementing a public involvement/participation program.
- b. The Permittee shall include within the SWMPP the methods for how it will:
  - i. Seek and consider public input in the development, revision, and implementation of the SWMPP;
  - ii. Identify targeted pollutant sources the Permittee's public education program is intended to address;
  - iii. Specifically address the reduction of litter, floatables and debris from entering the MS4, that may include, but is not limited to:
    1. Establishing a program to support volunteer groups for labeling storm drain inlets and catch basins with "no dumping" message; and
    2. Posting signs referencing local codes that prohibit littering and illegal dumping at selected designated public access points to open channels, creeks, and other relevant waterbodies;
  - iv. Inform and involve individuals and households about the steps they can take to reduce storm water pollution; and
  - v. Inform and involve individuals and groups on how to participate in the storm water program (with activities that may include, but not limited to, local stream and lake restoration activities, storm water stenciling, advisory councils, watershed associations, committees, participation on rate structures, stewardship programs and environmental related activities). The target audiences and subject areas for the education program that are likely to have significant storm water impacts should include, but is not limited to, the following:
    1. General Public
      - a. General impacts litter has on water bodies, how trash is delivered to streams via the MS4 and ways to reduce the litter;

- b. General impacts of storm water flows into surface water from impervious surface; and
    - c. Source control BMPs in areas of pet waste, vehicle maintenance, landscaping and rain water reuse.
  - 2. General Public, Businesses, Including Home-Based and Mobile Businesses
    - a. BMPs for use and storage of automotive chemicals, hazardous cleaning supplies, carwash soaps and other hazardous materials; and
    - b. Impacts of illicit discharges and how to report them.
  - 3. Homeowners, Landscapers, and Property Managers
    - a. Yard care techniques that protect water quality;
    - b. BMPs for use and storage of pesticides and fertilizers;
    - c. BMPs for carpet cleaning and auto repair and maintenance;
    - d. Runoff reduction techniques, which may include but not limited to site design, pervious paving, retention of forests, and mature trees; and
    - e. Storm water pond maintenance.
  - 4. Engineers, Contractors, Developers, Review Staff and Land Use Planners
    - a. Technical standards for construction site sediment and erosion control;
    - b. Storm water treatment and flow control BMPs;
    - c. Impacts of increased storm water flows into receiving water bodies; and
    - d. Run-off reduction techniques and low impact development (LID)/green infrastructure (GI) practices that may include, but not limited to, site design, pervious pavement, alternative parking lot design, retention of forests and mature trees to assist in storm water treatment and flow control BMPS.
  - vi. Evaluation of the effectiveness of the public education and public involvement program.
- c. The Permittee shall report each year in the annual report the following information:
  - i. A description of the activities used to involve groups and/or individuals in the development and implementation of the SWMPP;
  - ii. A description of the individuals and groups targeted and how many groups and/or individuals participated in the programs;
  - iii. A description of the activities used to address the reduction of litter, floatables and debris from entering the MS4 as required in Part III.B.1.b.iii.;

- iv. A description of the communication mechanisms or advertisements used to inform the public and the quantity that were distributed (i.e. number of printed brochures, copies of newspapers, workshops, public service announcements, etc); and
  - v. Results of the evaluation of the public education and public involvement program as required in Part III.B.1.b.vi.
- d. The Permittee shall make their SWMPP and their annual reports required under this permit available to the public when requested. The current SWMPP and the latest annual report should be posted on the Permittee's website, if available.

## **2. Illicit Discharge Detection and Elimination (IDDE) Program**

- a. The Permittee shall implement an ongoing program to detect and eliminate illicit discharges into the MS4, to the maximum extent practicable. The program shall include, at a minimum, the following:
  - i. An initial map shall be provided in the SWMPP with updates, if any, provided each year in the annual report. The map shall include, at a minimum:
    - 1. The latitude/longitude of all known outfalls;
    - 2. The names of all waters of the State that receive discharges from these outfalls; and,
    - 3. Structural BMPs owned, operated, or maintained by the Permittee.
  - ii. To the extent allowable under State law, an ordinance or other regulatory mechanism that effectively prohibits non-storm water discharges to the MS4. The ordinance or other regulatory mechanism shall be reviewed annually and updated as necessary and shall:
    - 1. Include escalating enforcement procedures and actions; and
    - 2. Require the removal of illicit discharges and the immediate cessation of improper disposal practices upon identification of responsible parties. Where the removal of illicit discharge within ten (10) working days is not possible, the ordinance shall require an expeditious schedule for removal of the discharge. In the interim, the ordinance shall require the operator of the illicit discharge to take all reasonable and prudent measures to minimize the discharge of pollutants to the MS4.
  - iii. A dry weather screening program designed to detect and address non-storm water discharges to the MS4. This program must address, at a minimum, dry weather screening of fifteen percent (15%) of the outfalls once per year with all (100 percent) screened at least once per five years. Priority areas, as described by the Permittee in the SWMPP, will be dry weather screened on a more frequent schedule as outlined in the SWMPP. If any indication of a suspected illicit discharge, from an unidentified

source, is observed during the dry weather screening, then the Permittee shall follow the screening protocol as outlined in the SWMPP.

- iv. Procedures for tracing the source of a suspect illicit discharge as outlined in the SWMPP. At a minimum, these procedures will be followed to investigate portions of the MS4 that, based on the results of the field screening or other appropriate information, indicate a reasonable potential of containing illicit discharges or other sources of non-storm water.
- v. Procedures for eliminating an illicit discharge as outlined in the SWMPP;
- vi. Procedures to notify ADEM of a suspect illicit discharge entering the Permittee's MS4 from an adjacent MS4 as outlined in the SWMPP;
- vii. A mechanism for the public to report illicit discharges discovered within the Permittee's MS4 and procedures for appropriate investigation of such reports;
- viii. A training program for appropriate personnel on identification, reporting, and corrective action of illicit discharges;
- ix. Address the following categories of non-storm discharges or flows (i.e., illicit discharges) only if the Permittee or the Department identifies them as significant contributors of pollutants to your small MS4: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (infiltration is defined as water other than wastewater that enters a sewer system, including foundation drains, from the ground through such means as defective pipes, pipe joints, connections, or manholes. Infiltration does not include, and is distinguished from, inflow), uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering run-off, individual residential car washing, flows from riparian habitats and wetlands, discharge or flows from firefighting activities (to include fire hydrant flushing); dechlorinated swimming pool discharges, and residual street wash water, discharge authorized by and in compliance with a separate NPDES permit; and
- x. The Permittee may also develop a list of other similar occasional incidental non- storm water discharges (e.g. non-commercial or charity car washes, etc.) that will not be addressed as illicit discharges. These non- storm water discharges must not be reasonably expected (based on information available to the Permittees) to be significant sources of pollutants to the municipal separate storm sewer system, because of either the nature of the discharges or conditions you have established for allowing these discharges to your MS4 (e.g., a charity car wash with appropriate controls on frequency, proximity to impaired waterbodies, BMPs on the wash water, etc.). You must document in your SWMPP any local controls or conditions placed on the discharges. The Permittee must include a provision prohibiting any individual non- storm water discharge that is

determined to be contributing significant amounts of pollutants to your MS4.

- b. The Permittee shall report each year in the annual report the following information:
  - i. List of outfalls observed during the dry weather screening;
  - ii. Updated MS4 map(s) unless there are no changes to the map that was previously submitted. When there are no changes to the map, the annual report must state this;
  - iii. Copies of, or a link to, the IDDE ordinance or other regulatory mechanism; and
  - iv. The number of illicit discharges investigated, the screening results, and the summary of corrective actions taken to include dates and timeframe of response.

### **3. Construction Site Storm Water Runoff Control**

- a. The Permittee must develop/revise, implement and enforce an ongoing program to reduce, to the maximum extent practicable, the pollutants in any storm water runoff to the MS4 from qualifying construction sites. The program shall include the following at a minimum:
  - i. Specific procedures for construction site plan (including erosion prevention and sediment controls) review and approval: The MS4 procedures must include an evaluation of plan completeness and overall BMP effectiveness;
  - ii. To the extent allowable under State law, an ordinance or other regulatory mechanism to require erosion and sediment controls, sanctions to ensure compliance, and to provide all other authorities needed to implement the requirements of Part III.B.3 of this permit;
  - iii. A training program for MS4 site inspection staff in the identification of appropriate construction best management practices (example: QCI training in accordance with ADEM Admin Code. R. 335-6-12 or the Alabama Construction Site General Permit);
  - iv. Procedures for the periodic inspection of qualifying construction sites to verify the use of appropriate erosion and sediment control practices that are consistent with the Alabama Handbook for Erosion Control, Sediment Control, And Stormwater Management on Construction Sites and Urban Areas published by the Alabama Soil and Water Conservation Committee (hereinafter the "Alabama Handbook"). The frequency and prioritization of inspection activities shall be documented in the SWMPP and must include a minimum inspection frequency of once each month for priority construction sites;
  - v. Procedures, as outlined in the SWMPP, to notify ADEM of construction sites that do not have a NPDES permit or ineffective BMPs that are discovered during the periodic inspections. The notification must provide,



- at a minimum, the specific location of the construction project, the name and contact information from the owner or operator, and a summary of the site deficiencies; and
- vi. A mechanism for the public to report complaints regarding discharges from qualifying construction sites.
- b. ADEM implements a State-wide NPDES construction storm water regulatory program. As provided by 40 CFR Part 122.35(b), the Permittee may rely on ADEM for the setting of standards for appropriate erosion controls and sediment controls for qualifying construction sites and for enforcement of such controls, and must document this in its SWMPP. If the Permittee elects not to rely on ADEM's program, then the Permittee must include the following, at a minimum, in its SWMPP:
    - i. Requirements for construction site operators to implement appropriate erosion and sediment control BMPs consistent with the Alabama Handbook for Erosion Control, Sediment Control, And Stormwater Management on Construction Sites and Urban Areas published by the Alabama Soil and Water Conservation Committee (hereinafter the "Alabama Handbook");
    - ii. Requirements for construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality;
    - iii. Development and implementation of an enforcement strategy that includes escalating enforcement remedies to respond to issues of non-compliance;
    - iv. An enforcement tracking system designed to record instances of non-compliance and the MS4's responding actions. The enforcement case documentation should include:
      1. Name of owner/operator
      2. Location of construction project or industrial facility
      3. Description of violations
      4. Required schedule for returning to compliance
      5. Description of enforcement response used, including escalated responses if repeat violation occur or violations are not resolved in a timely manner;
      6. Accompanying documentation of enforcement response (e.g., notices of noncompliance, notices of violation, etc);
      7. Any referrals to different departments or agencies; and
      8. Date violation was resolved
    - v. The Permittee must keep records of all inspections (i.e. inspection reports) and employee training required by Part III.3.a.
  - c. The Permittee shall include within the SWMPP the following information:
    - i. Procedures for site plan reviews as required by Part III.B.3.a.i;
    - ii. A copy or link of the ordinance or other regulatory mechanism required by Part III.B.3.a.ii.;

- iii. Plans for the training of MS4 site inspection staff as required by Part III.B.3.a.iii; and
- iv. A site inspection plan meeting the requirements of Part III.B.3.a.iv; and
- d. The Permittee shall maintain the following information and make it available upon request:
  - i. Documentation of all inspections conducted of qualifying construction sites as required by Part III.B.3.a.iv. The inspection documentation shall include, at a minimum, the following:
    - 1. Facility type;
    - 2. Inspection date;
    - 3. Name and signature of inspector;
    - 4. Location of construction project;
    - 5. Owner/operator information (name, address, phone number, email);
    - 6. Description of the storm water BMP condition that may include, but not limited to, the quality of vegetation and soils, inlet and outlet channels and structures, embankments, slopes and safety benches, spillways, weirs, and other control structures; and sediment and debris accumulation in storage and forebay areas as well as in and around inlet and outlet structures; and
    - 7. Photographic documentation of any issues and/or concerns.
  - ii. Documentation of referrals of noncompliant construction sites and/or enforcement actions taken at construction sites to include, at a minimum, the following:
    - 1. Name of owner/operator
    - 2. Location of construction project;
    - 3. Description of violation;
    - 4. Required schedule for returning to compliance;
    - 5. Description of enforcement response used, including escalated responses if repeat violations occur; and
    - 6. Accompanying documentation of enforcement responses (e.g. notices of non-compliance, notices of violations, etc).
  - iii. Records of public complaints including:
    - 1. Date, time and description of the complaint;
    - 2. Location of subject construction sites; and
    - 3. Identification of any actions taken (e.g. inspections, enforcement, corrections). Identifying information must be sufficient to cross-reference inspection and enforcement records.
- e. The Permittee shall report each year in the annual report the following information:
  - i. A description of any completed or planned revisions to the ordinance or regulatory mechanism required by Part III.B.3.a.i and the most recent copy, or a link to the ordinance; and
  - ii. List of all active construction sites within the MS4 to include the following summary:

1. Number of construction site inspections;
2. Number of non-compliant construction site referrals and/or enforcement actions and description of violations;
3. Number of construction site runoff complaints received; and
4. Number of MS4 staff/inspectors trained.

#### **4. Post-Construction Storm Water Management in New Development and Redevelopment**

- a. Post-construction storm water management refers to the activities that take place after construction occurs, and includes structural and non-structural controls including low-impact development and green infrastructure practices to obtain permanent storm water management over the life of the property's use. These post construction controls should be considered during the initial site development planning phase.
  - i. The Permittee must develop/revise, implement, and enforce a program to address storm water runoff from qualifying new development and redevelopment projects, to the maximum extent practicable. This program shall ensure that controls are in place to prevent or minimize water quality impacts. Specifically, the Permittee shall:
    1. Develop/revise and outline in the SWMPP procedures for the site-plan review and approval process and a required re-approval process when changes to post-construction controls are required; and
    2. Develop/revise and outline in the SWMPP procedures for a post-construction process to demonstrate and document that post-construction storm water measures have been installed per design specifications, which includes enforceable procedures for bringing noncompliant projects into compliance.
  - ii. The Permittee must develop and implement strategies which may include a combination of structural and/or non-structural BMPs designed to ensure, to the maximum extent practicable, that the volume and velocity of pre-construction stormwater runoff is not significantly exceeded. A design rainfall event with an intensity up to that of a 2yr-24hr storm event shall be the basis for the design and implementation of post- construction BMPs.
  - iii. To the extent allowable under State law, the Permittee must develop and institute the use of an ordinance or other regulatory mechanism to address post-construction runoff from qualifying new development and redevelopment projects.
  - iv. The Permittee must require adequate long-term operation and maintenance of BMPs. One or more of the following as applicable:

1. The developer's signed statement accepting responsibility for maintenance until the maintenance responsibility is legally transferred to another party; and/or
  2. Written conditions in the sales or lease agreement that require the recipient to assume responsibility for maintenance; and/or
  3. Written conditions in project conditions, covenants and restrictions for residential properties assigning maintenance responsibilities to a home owner's association, or other appropriate group, for maintenance of structural and treatment control management practices; and/or
  4. Any other legally enforceable agreement that assigns permanent responsibility for maintenance of structural or treatment control management practices.
- v. The Permittee shall perform or require the performance of post-construction inspections, at a minimum of once per year, to confirm that post-construction BMP's are functioning as designed. The Permittee shall include an inspection schedule, to include inspection frequency, within the SWMPP.
  - vi. The Permittee shall maintain or require the developer/owner/operator to keep records of post-construction inspections, maintenance activities and make them available to the Department upon request and require corrective actions to poorly functioning or inadequately maintained post-construction BMP's.
  - vii. The Permittee shall review and evaluate policies and ordinances related to building codes, or other local regulations, with a goal of identifying regulatory and policy impediments to the installation of green infrastructure and low-impact development techniques.
- b. The Permittee shall report each year in the annual report the following information:
    - i. Copies of, or link to, the ordinance or other regulatory mechanism required by Part III.B.4.a.iii;
    - ii. A list of the post-construction structural controls installed and inspected during the permit year;
    - iii. Updated inventory of post-construction structural controls including those owned by the Permittee;
    - iv. Number of inspections performed on post-construction structural controls; and,
    - v. Summary of enforcement actions.

## **5. Pollution Prevention/Good Housekeeping for Municipal Operations**

- a. The Permittee shall develop, implement, and maintain a program that will prevent or reduce the discharge of pollutants in storm water run-off from municipal operations to the maximum extent practicable. The program elements shall include, at a minimum, the following:

- i. An inventory of all municipal facilities, including municipal facilities that have the potential to discharge pollutants via storm water runoff;
  - ii. Strategies for the implementation of BMPs to reduce litter, floatables and debris from entering the MS4 and evaluate those BMPs annually to determine their effectiveness. If a BMP is determined to be ineffective or infeasible, then the BMP must be modified. The Permittee shall also develop a plan to remove litter, floatable and debris material from the MS4, including proper disposal of waste removed from the system;
  - iii. A Standard Operating Procedures (SOP) detailing good housekeeping practices to be employed at appropriate municipal facilities and during municipal operations that may include, but not limited to, the following:
    - 1. Equipment washing;
    - 2. Street sweeping;
    - 3. Maintenance of municipal roads including public streets, roads, and highways, including but not limited to unpaved roads, owned, operated, or under the responsibility of the Permittee;
    - 4. Storage and disposal of chemicals, Pesticide, Herbicide and Fertilizers (PHFs) and waste materials;
    - 5. Vegetation control, cutting, removal, and disposal of the cuttings;
    - 6. Vehicle fleets/equipment maintenance and repair;
    - 7. External Building maintenance; and
    - 8. Materials storage facilities and storage yards.
  - iv. A program for inspecting municipal facilities for good housekeeping practices, including BMPs. The program shall include checklists and procedures for correcting noted deficiencies;
  - v. A training program for municipal facility staff in good housekeeping practices as outlined in the SOP developed pursuant to Part III.B.5.a.iii; and
- b. The Permittee shall include within the SWMPP the following information:
- i. The inventory of municipal facilities required by Part III.B.5.a.i;
  - ii. Schedule for developing the SOP of good housekeeping practices required by Part III.B.5.a.iii;
  - iii. An inspection plan and schedule, including checklists and any other materials needed to comply with Part III.B.5.a.iv; and
  - iv. A description of the training program and training schedule required by Part III.B.5.a.v.
- c. The Permittee shall report each year in the annual report the following information:
- i. Any updates to the municipal facility inventory;
  - ii. An estimated amount of floatable material collected from the MS4 as required by Part III.B.5.a.ii;
  - iii. Any updates to the inspection plan
  - iv. The number of inspections conducted; and
  - v. Any updates to the SOP of good housekeeping practices.

- d. The Permittee shall maintain the following information and make it available upon request:
  - i. Records of inspections and corrective actions, if any; and
  - ii. Training records including the dates of each training activities and names of personnel in attendance.

## **PART IV Special Conditions**

### **A. Responsibilities of the Permittee**

1. If the Permittee is relying on another entity to satisfy one or more requirements of this permit, then the Permittee must note that fact in the SWMPP. The Permittee remains responsible for compliance with all requirements of this permit, except as provided by Part III.B.3.b and reliance on another entity will not be a defense or justification for non-compliance if the entity fails to implement the permit requirements.
2. If the Permittee is relying on the Department for the enforcement of erosion and sediment controls on qualifying construction sites and has included that information in the SWMPP as required by Part III.A.3.e., the Permittee is not responsible for implementing the requirements of Part III.B.3.b of this permit as long as the Department receives notification of non-compliant qualifying constructions sites from the Permittee as required by Part III.B.3.a.v.

### **B. SWMPP Plan Review and Modification**

1. The Permittee shall submit a SWMPP and/or revised SWMPP to the Department as required by Part II.A of the permit. The Permittee shall implement plans to seek and consider public input in the development, revision and implementation of this SWMPP, as required by Part III.B.1.b.i. Thereafter, the Permittee shall perform an annual review of the current SWMPP and must revise the SWMPP, as necessary, to maintain compliance with the permit. Any revisions to the SWMPP shall be submitted to the Department at the time a revision is made for the Department review. Revisions made to the SWMPP may include, but are not limited to, the replacement of ineffective or infeasible BMPs or the addition of components, controls and requirements; and
2. The Permittee shall implement the SWMPP on all new areas added to their municipal separate storm sewer system (or for which they become responsible for implementation of storm water quality controls) as soon as practicable, but not later than one (1) year from addition of the new areas. Implementation of the program in any new area shall consider the plans of the SWMPP of the previous MS4 ownership, if any.

### **C. Discharge Compliance with Water Quality Standards**

This general permit requires, at a minimum, that the Permittee develop, implement and enforce a storm water management program designed to reduce the discharge of pollutants to the

maximum extent practicable. Full implementation of BMPs, using all known, available, and reasonable methods of prevention, control and treatment to prevent and control storm water pollution from entering waters of the State of Alabama is considered an acceptable effort to reduce pollutants from the municipal storm drain system to be the maximum extent practicable.

#### **D. Impaired Waters and Total Maximum Daily Loads (TMDLs)**

1. The Permittee must determine whether the discharge from any part of the MS4 contributes directly or indirectly to a waterbody that is included on the latest §303(d) list or designated by the Department as impaired;
2. If the Permittee's MS4 discharges to a waterbody included on the latest §303(d) or designated by the Department as impaired, it must demonstrate the discharges, as controlled by the Permittee, do not cause or contribute to the impairment. The SWMPP must detail the BMPs that are being utilized to control discharges of pollutants associated with the impairment. If existing BMPs are not sufficient to achieve this demonstration, the Permittee must, within six (6) months following the publication of the latest final §303(d) list, Department designation, or the effective date of this permit, submit a revised SWMPP detailing new or modified BMPs. The SWMPP must be revised as directed by the Department and the new or modified BMPs must be implemented within one year from the publication of the latest final §303(d) list or Department designation.
3. Permittees discharging from MS4s into waters with EPA-Approved TMDLs and/or EPA-Established TMDLs
  - a. The Permittee must determine whether its MS4 discharges to a waterbody for which a total maximum daily load (TMDL) has been established or approved by EPA. If an MS4 discharges into a water body with an EPA approved or established TMDL, then the SWMPP must include BMPs targeted to meet the assumptions and requirements of the TMDL. If additional BMPs will be necessary to meet the requirements of the TMDL, the SWMPP must include a schedule for installation and/or implementation of such BMPs. A monitoring component to assess the effectiveness of the BMPs in achieving the TMDL requirements must also be included in the SWMPP. Monitoring can entail a number of activities including, but not limited to: outfall monitoring, in-stream monitoring, and/or modeling. Monitoring data, along with an analysis of this data, shall be included in the Annual Report.
  - b. If, during this permit cycle, a TMDL is approved by EPA or a TMDL is established by EPA for any waterbody into which an MS4 discharges, the Permittee must review the applicable TMDL to see if it includes requirements for control of storm water discharges from the MS4.
    1. If it is found that the Permittee must implement specific allocations of the TMDL, it must assess whether the assumptions and requirements of the TMDL are being met through implementation of existing BMPs or if additional BMPs are necessary. The SWMPP must include BMPs targeted to meet the assumptions and requirements of the TMDL. If existing BMPs are not sufficient, the Permittee must, within six (6)

months following the approval or establishment of the TMDL by EPA, submit a revised SWMPP detailing new or modified BMPs to be utilized along with a schedule of installation and/or implementation of such BMPs. Any new or modified BMPs must be implemented within one year, unless an alternate date is approved by the Department, from the establishment or approval of the TMDL by EPA. A monitoring component to assess the effectiveness of the BMPs in achieving the TMDL requirements must also be included in the SWMPP. Monitoring can entail a number of activities including, but not limited to: outfall monitoring, in-stream monitoring, and/or modeling. Monitoring data, along with an analysis of this data, shall be included in the Annual Report.

#### **E. Requiring an Individual Permit**

The Department may require any person authorized by this permit to apply for and/or obtain an individual NPDES permit. When the Department requires application for an individual NPDES permit, the Department will notify the Permittee in writing that a permit application is required. This notification shall include a brief statement of the reasons for this decision, an application form and a statement setting a deadline for the Permittee to file the application.

### **PART V Monitoring and Reporting**

1. If there are no 303(d) listed or TMDL waters located within the Permittee's MS4 area, no monitoring shall be required. The SWMPP shall include a determination stating if monitoring is required.
2. If a waterbody within the MS4 jurisdiction is listed on the latest final §303(d) list, or otherwise designated impaired by the Department, or for which a TMDL is approved or established by EPA, during this permit cycle, then the Permittee must implement a monitoring program, within 6 months, to include monitoring that addresses the impairment or TMDL. A monitoring plan shall be included in the SWMPP and any revisions to the monitoring program shall be documented in the SWMPP and Annual Report.
3. Proposed monitoring locations, and monitoring frequency shall be described in the monitoring plan with actual locations described in the annual report;
4. The Permittee must include in the monitoring program any parameters attributed with the latest final §303(d) list or otherwise designated by the Department as impaired or are included in an EPA-approved or EPA-established TMDL;
5. Analysis and collection of samples shall be done in accordance with the methods specified at 40 CFR Part 136. Where an approved 40 CFR Part 136 does not exist, then a Department approved alternative method may be used;
6. If the Permittee is unable to collect samples due to adverse conditions, the Permittee must submit a description of why samples could not be collected, including available documentation of the event. An adverse climatic condition which may prohibit the collection of samples includes weather conditions that create dangerous conditions for personnel (such as local flooding, high winds, hurricane, tornadoes, electrical storms, etc.)



or otherwise make the collection of a sample impracticable (drought, extended frozen conditions, etc.);

7. Monitoring results must be reported with the subsequent Annual Report and shall include the following monitoring information:
  - a. The date, latitude/longitude of location, and time of sampling;
  - b. The name(s) of the individual(s) who performed the sampling;
  - c. The date(s) analysis were performed;
  - d. The name(s) of individuals who performed the analysis;
  - e. The analytical techniques or methods used; and
  - f. The results of such analysis.

## **PART VI Annual Reporting Requirements**

1. The Permittee shall submit to the Department an annual report (1 hardcopy and 1 electronic copy) no later than May 31st of each year. The annual report shall cover the previous April 1 to March 31. If an entity comes under coverage for the first time after the issuance of this permit, then the first annual report should cover the time coverage begins until March 31<sup>st</sup> of subsequent year.
2. **On or after December 21, 2020, all annual reports shall be submitted to the Department electronically in a prescribed manner acceptable to the Department.**
3. The Permittee shall sign and certify the annual report in accordance with Part VII.G.
4. The annual report shall include the following information, at a minimum, and in addition to those requirements referenced in Part III-V:
  - a. A list of contacts and responsible parties (e.g.: agency, name, phone number, address, & email address) who had input to and are responsible for the preparation of the annual report;
  - b. Overall evaluation of the storm water management program developments and progress for the following:
    - i. Major accomplishments;
    - ii. Overall program strengths/weaknesses;
    - iii. Future direction of the program;
    - iv. Overall determination of the effectiveness of the SWMPP taking into account water quality/watershed improvements;
    - v. Measureable goals that were not performed and reasons why the goals were not accomplished; and
    - vi. If monitoring is required, evaluation of the monitoring data.
  - c. Narrative report of all minimum storm water control measures referenced in Part III.B of this permit. The activities shall be discussed as follows:
    - i. Minimum control measures completed and in progress;
    - ii. Assessment of the controls; and
    - iii. Discussion of proposed BMP revisions or any identified measureable goals that apply to the minimum storm water control measures.

- d. Summary table of the storm water controls that are planned/scheduled for the next reporting cycle;
- e. Results of information collected and analyzed, if any, during the reporting period, including any monitoring data used to assess the success of the program at reducing the discharge of pollutants to the MEP.
- f. Notice of reliance on another entity to satisfy some of your permit obligations; and
- g. If monitoring is required, all monitoring results collected during the previous year in accordance with Part V, if applicable. The monitoring results shall be submitted in a format acceptable to the Department.

## **PART VII Standard and General Permit Conditions**

### **A. Duty to Comply**

You must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of CWA and is ground for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

### **B. Continuation of the Expired General Permit**

If this permit is not reissued or replaced prior to the expiration date, it will be administratively continued in accordance with the ADEM Code r. 335-6-6 and remain in force and effect if the Permittee re-applies for coverage as required under Part II of this Permit. Any Permittee who was granted permit coverage prior to the expiration date will automatically remain covered by the continued permit until the earlier of:

1. Reissuance or replacement of this permit, at which time you must comply with the Notice of Intent conditions of the new permit to maintain authorization to discharge; or
2. Issuance of an individual permit for your discharges; or
3. A formal permit decision by the Department not to reissue this general permit, at which time you must seek coverage under an alternative general permit or an individual permit.

### **C. Need to Halt or Reduce Activity Not a Defense**

It shall not be a defense for you in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

### **D. Duty to Mitigate**

You must take all reasonable steps to minimize or prevent any discharge in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.

### **E. Duty to Provide Information**

The Permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, suspending, or terminating the permit or to determine compliance with the permit. The Permittee shall also furnish to the Director upon request, copies of records required to be kept by the permit.

## **F. Other Information**

If you become aware that you have failed to submit any relevant facts in your Notice of Intent or submitted incorrect information in the Notice of Intent or in any other report to the Department, you must promptly submit such facts or information.

## **G. Signatory Requirements**

All Notices of Intent, reports, certifications, or information submitted to the Department, or that this permit requires be maintained by you shall be signed and certified as follows:

1. Notice of Intent. All Notices of Intent shall be signed by a responsible official as set forth in ADEM Admin. Code r. 335-6-6-.09.
2. Reports and other information. All reports required by the permit and other information requested by the Department or authorized representative of the Department shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
  - a. Signed authorization. The authorization is made in writing by a person described above and submitted to the Department.
  - b. Authorization with specified responsibility. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of manager, operator, superintendent, or position of equivalent responsibility for environmental matters for the regulated entity.
3. Changes to authorization. If an authorization is no longer accurate because a different operator has the responsibility for the overall operation of the MS4, a new authorization satisfying the requirement of Part VII.G.2.b. above must be submitted to the Department prior to or together with any reports or information, and to be signed by an authorized representative.
4. Certification. Any person signing documents under Part VII.G.1-2. above shall make the following certification:

*"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information 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."*

## **H. Property Rights**

The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege, nor it does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

## **I. Proper Operation and Maintenance**

You must at all time properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by you to achieve compliance with the conditions of this permit and with the conditions of your SWMPP. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance requires the operation of backup or auxiliary

facilities or similar systems, installed by you only when the operation is necessary to achieve compliance with the conditions of the permit.

**J. Inspection and Entry**

1. You must allow the Department or an authorized representative upon the presentation of credentials and other documents as may be required by law, to do any of the following:
  - a. Enter your premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;
  - b. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit;
  - c. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment) practices, or operations regulated or required under this permit; and
  - d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the CWA, any substances or parameters at any location.

**K. Permit Actions**

This permit may be modified, revoked and reissued, or terminated for cause. Your filing of a request for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

**L. Permit Transfers**

This permit is not transferable to any person except after notice to the Department. The Department may require modification or revocation and reissuance of the permit to change the name of the Permittee and incorporate such other requirements as may be necessary under the Act.

**M. Anticipated Noncompliance**

You must give advance notice to the Department of any planned changes in the permitted small MS4 or activity which may result in noncompliance with this permit.

**N. Compliance with Statutes and Rules**

1. The permit is issued under ADEM Admin. Code r. 335-6-6. All provisions of this chapter that are applicable to this permit are hereby made a part of this permit.
2. This permit does not authorize the noncompliance with or violation of any laws of the State of Alabama or the United States of America or any regulations or rules implementing such laws.

**O. Severability**

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall be affected thereby.

**P. Bypass Prohibition**

Bypass (see 40 CFR 122.41(m)) is prohibited and enforcement action may be taken against a regulated entity for a bypass; unless:

1. The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

2. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during the normal periods of equipment downtime. This condition is not satisfied if the regulated entity should, in the exercise of reasonable engineering judgment, have installed adequate backup equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance.
3. The Permittee submits a written request for authorization to bypass to the Director at least ten (10) days prior to the anticipated bypass (if possible), the Permittee is granted such authorization, and the Permittee complies with any conditions imposed by the Director to minimize any adverse impact on human health or the environment resulting from the bypass.

The Permittee has the burden of establishing that each of the conditions of Part VII.P. have been met to qualify for an exception to the general prohibition against bypassing and an exemption, where applicable, from the discharge specified in this permit.

#### **Q. Upset Conditions**

An upset (see 40 CFR 122.41(n)) constitutes an affirmative defense to an action brought for noncompliance with technology-based permit limitations if a regulated entity shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence, that:

1. An upset occurred and the Permittee can identify the specific cause(s) of the upset;
2. The Permittee's facility was being properly operated at the time of the upset; and
3. The Permittee promptly took all reasonable steps to minimize any adverse impact on human health or the environment resulting from the upset.

The Permittee has the burden of establishing that each of the conditions of Part VII.Q. of this permit have been met to qualify for an exemption from the discharge specified in this permit.

#### **R. Procedures for Modification or Revocation**

Permit modification or revocation will be conducted according to ADEM Admin. Code r. 335-6-6-.17.

#### **S. Re-opener Clause**

If there is evidence indicating potential or realized impacts on water quality due to storm water discharge covered by this permit, the regulated entity may be required to obtain an individual permit or an alternative general permit or the permit may be modified to include different limitations and/or requirements.

#### **T. Retention of Records**

1. The Permittee shall retain the storm water quality management program developed in accordance with Part III-V of this permit until at least five years after coverage under this permit terminates.
2. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
3. The Permittee shall retain records of all monitoring information including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of reports required by this permit, and records of all data used to

complete the application of this permit, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended at the request of the Director at any time.

#### **U. Monitoring Methods**

Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit.

#### **V. Additional Monitoring by the Permittee**

If the Permittee monitors more frequently than required by this permit, using test procedures approved under 40 CFR Part 136 or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the monitoring report. Such increased monitoring frequency shall also be indicated on the monitoring report.

#### **W. Definitions**

1. Best Management Practices (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the State. BMPs also include treatment requirements, operating procedures, and practices to control runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.
2. Control Measure as used in this permit, refers to any Best Management Practice or other method used to prevent or reduce the discharge of pollutants to waters of the State.
3. CWA or The Act means the Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub.L. 92-500, as amended Pub. L. 95-217, Pub. L. 95-576, Pub. L. 96-483 and Pub. L. 97-117, 33 U.S.C. 1251 et.seq.
4. Department means the Alabama Department of Environmental Management or an authorized representative.
5. Discharge, when used without a qualifier, refers to “discharge of a pollutant” as defined as ADEM Admin. Code r. 335-6-6-.02(m).
6. Green Infrastructure refers to systems and practices that use or mimic natural processes to infiltrate, evapotranspire (the return of water to the atmosphere either through evaporation or by plants), or reuse storm water or runoff on the site where it is generated.
7. Illicit Connection means any man-made conveyance connecting an illicit discharge directly to municipal separate storm sewer.
8. Illicit Discharge is defined at 40 CFR Part 122.26(b)(2) and refers to any discharge to a municipal separate storm sewer that is not entirely composed of storm water, except discharges authorized under an NPDES permit (other than the NPDES permit for discharges from the MS4) and discharges resulting from fire fighting activities.
9. Indian Country, as defined in 18 USC 1151, means (a) all land within the limits of any Indian reservation under the jurisdiction of the United States Government, notwithstanding the issuance of any patent, and including rights-of-way running through the reservation; (b) all dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and whether within or without the limits of a State, and (c) all Indian allotments, the Indian titles to which have

not been extinguished, including rights-of-way running through the same. This definition includes all land held in trust for an Indian tribe.

10. Infiltration means water other than wastewater that enters a sewer system, including foundation drains, from the ground through such means as defective pipes, pipe joints, connections, or manholes. Infiltration does not include, and is distinguished from, inflow.
11. Landfill means an area of land or an excavation in which wastes are placed for permanent disposal, and which is not a land application unit, surface impoundment, injection well, or waste pile.
12. Large municipal separate storm sewer system means all municipal separate storm sewers that are either: (i) located in an incorporated place (city) with a population of 250,000 or more as determined by the latest decennial census.
13. Low Impact Development (LID) is an approach to land development (or re-development) that works with nature to manage storm water as close to its source as possible. LID employs principles such as preserving and recreating natural landscape features, minimizing effective imperviousness to create functional and appealing site drainage that treat storm water as a resource rather than a waste product.
14. Medium municipal separate storm sewer system means all municipal separate storm sewers that are either: (i) located in an incorporated place (city) with a population of 100,000 or more but less than 250,000 as determined by the latest decennial census.
15. MEP is an acronym for “Maximum Extent Practicable,” the technology-based discharge standard for municipal separate storm sewer systems to reduce pollutants in storm water discharges that was established by CWA Section 402(p). A discussion of MEP as it applies to small MS4s is found at 40 CFR Part 122.34.
16. MS4 is an acronym for “Municipal Separate Storm Sewer System” and is used to refer to either a large, medium, or small municipal separate storm sewer system. The term is used to refer to either the system operated by a single entity or a group of systems within an area that are operated by multiple entities.
17. Municipal Separate Storm System is defined at 40 CFR Part 122.26(b)(8) and means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States; (ii) Designed or used for collecting or conveying storm water; (iii) Which is not a combined sewer; and (iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined in ADEM Admin. Code r. 335-6-6-.02(nn).
18. NOI is an acronym for “Notice of Intent” to be covered by this permit and is the mechanism used to “register” for coverage under a general permit.
19. Permittee means each individual co-applicant for an NPDES permit who is only responsible for permit conditions relating to the discharge that they own or operate.
20. Point Source means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling

stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

21. Priority construction site means any qualifying construction site in an area where the MS4 discharges to a waterbody which is listed on the most recently approved 303(d) list of impaired waters for turbidity, siltation, or sedimentation, any waterbody for which a TMDL has been finalized or approved by EPA for turbidity, siltation, or sedimentation, and any waterbody assigned specific water quality criteria, such as Outstanding Alabama Water use classification, in accordance with ADEM Admin. Code r. 335-6-10-.09 and any waterbody assigned a special designation in accordance with ADEM Admin. Code r. 335-6-10-.10.
22. Qualifying Construction Site means any construction activity that results in a total land disturbance of one or more acres and activities that disturb less than one acre but are part of a larger common plan of development or sale that would disturb one or more acres. Qualifying construction sites do not include land disturbance conducted by entities under the jurisdiction and supervision of the Alabama Public Service Commission.
23. Qualifying New Development and Redevelopment means any site that results from the disturbance of one acre or more of land or the disturbance of less than one acre of land if part of a larger common plan of development or sale that is greater than one acre. Qualifying new development and redevelopment does not include land disturbances conducted by entities under the jurisdiction and supervision of the Alabama Public Service Commission.
24. Small municipal separate storm sewer system is defined at 40 CFR Part 122.26(b)(16) and refers to all separate storm sewers that are owned or operated by the United States, a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to water of the United States, but is not defined as "large" or "medium" municipal separate storm sewer system. This term includes systems similar to separate storm sewer systems in municipalities, such as systems at military bases, large hospital or prison complexes, and highways and other thoroughfares. The term does not include separate storm sewers in very discrete areas, such as individual buildings.
25. Storm water is defined at 40 CFR Part 122.26(b) (13) and means storm water runoff, snow melt runoff, and surface runoff and drainage.
26. Storm Water Management Program (SWMP) refers to a comprehensive program to manage the quality of storm water discharged from the municipal separate storm sewer system.
27. SWMP is an acronym for "Storm Water Management Program."
28. Total Maximum Daily Load (TMDL) means the calculated maximum permissible pollutant loading to a waterbody at which water quality standards can be maintained. The sum of wasteload allocations (WLAs) and load allocations (LAs) for any given pollutant.



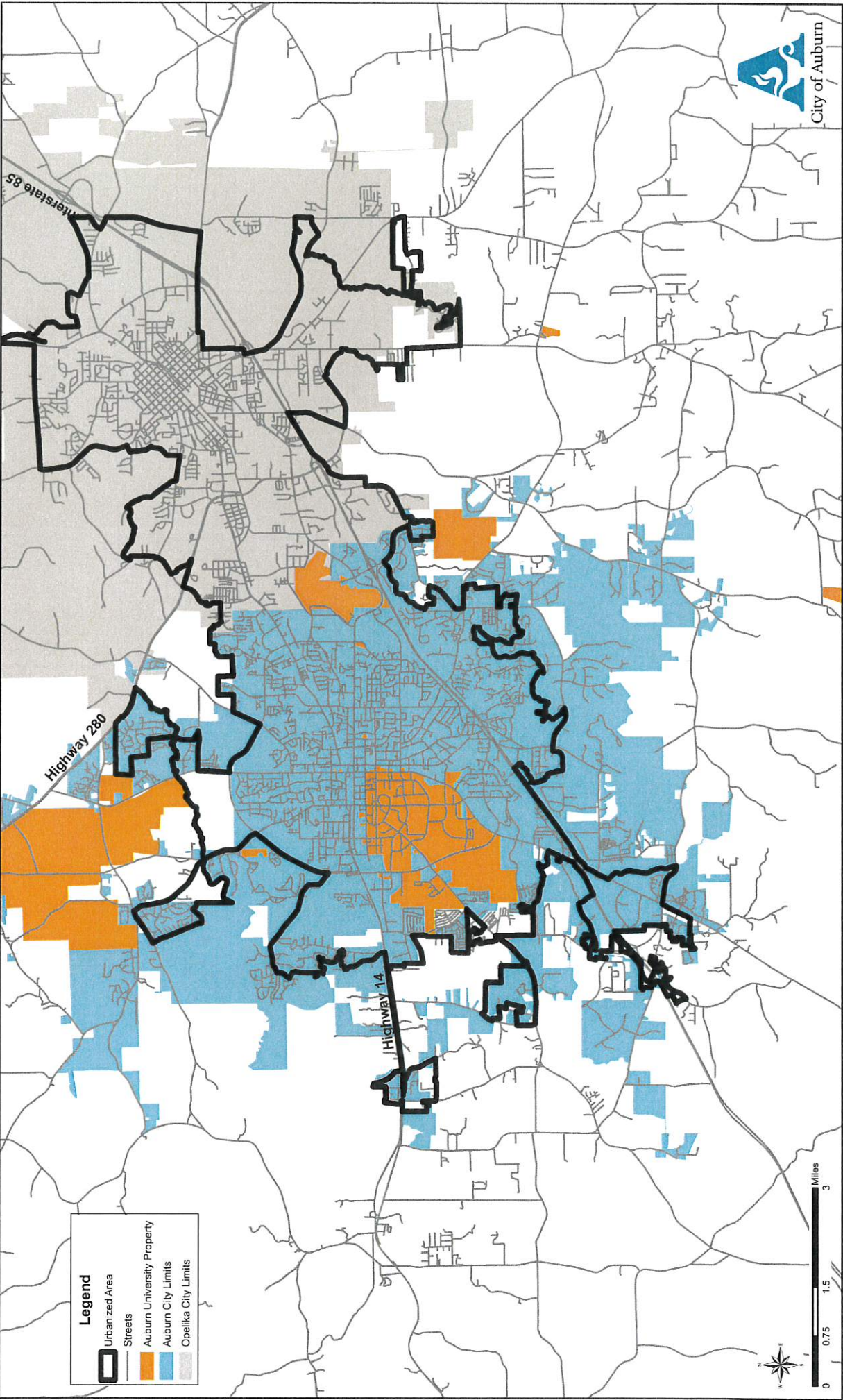
29. You and Your as used in this permit is intended to refer to the Permittee, the operator, or the discharger as the context indicates and that party's responsibilities (e.g., the city, the country, the flood control district, the U.S. Air Force, etc.).

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## **APPENDIX B**

# **URBANIZED AREA MAP**



**Legend**

- Urbanized Area
- Streets
- Auburn University Property
- Auburn City Limits
- Opelika City Limits



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## **APPENDIX C**

### **NEWSPAPER PUBLICATIONS – 2020-2021**

<b>Auburn Villager Newspaper</b>		
Title	Publication Date	Hyperlink
Residents give City high marks in Citizens Survey	June 18, 2020	<a href="https://www.auburnvillager.com/news/residents-give-city-high-marks-in-citizens-survey/article_b1296b4a-b16d-11ea-98e1-47e736489acc.html">https://www.auburnvillager.com/news/residents-give-city-high-marks-in-citizens-survey/article_b1296b4a-b16d-11ea-98e1-47e736489acc.html</a>
City Council adjusts ADDU Zoning Regulations	October 22, 2020	<a href="https://www.auburnvillager.com/news/city-council-adjusts-addu-zoning-regulations/article_225310f2-147c-11eb-aec1-f37b25d0c1eb.html">https://www.auburnvillager.com/news/city-council-adjusts-addu-zoning-regulations/article_225310f2-147c-11eb-aec1-f37b25d0c1eb.html</a>
Book offers enchanting look at Alabama Rivers	February 4, 2021	<a href="https://www.auburnvillager.com/news/book-offers-enchanting-look-at-alabama-rivers/article_646afa42-66ff-11eb-91ed-0fd9ff3e3aae.html">https://www.auburnvillager.com/news/book-offers-enchanting-look-at-alabama-rivers/article_646afa42-66ff-11eb-91ed-0fd9ff3e3aae.html</a>
Hazardous Waste Collection Day set for March 27	March 11, 2021	<a href="https://www.auburnvillager.com/news/hazardous-waste-collection-day-set-for-march-27/article_2d49b570-8285-11eb-87b4-7f3aad3e4078.html">https://www.auburnvillager.com/news/hazardous-waste-collection-day-set-for-march-27/article_2d49b570-8285-11eb-87b4-7f3aad3e4078.html</a>
<b>Opelika Auburn News (OANOW)</b>		
Auburn survey finds residents pleased	July 1, 2020	<a href="https://oanow.com/news/local/auburn-survey-finds-residents-pleased/article_a356115f-e762-541e-abbb-323e811f1e58.html">https://oanow.com/news/local/auburn-survey-finds-residents-pleased/article_a356115f-e762-541e-abbb-323e811f1e58.html</a>
City of Auburn receives Leading the Way Award	January 22, 2021	<a href="https://oanow.com/news/local/govt-and-politics/city-of-auburn-receives-leading-the-way-award/article_b74aeffe-3fec-11eb-9ccd-d7f45cc92b52.html">https://oanow.com/news/local/govt-and-politics/city-of-auburn-receives-leading-the-way-award/article_b74aeffe-3fec-11eb-9ccd-d7f45cc92b52.html</a>
Lee County considers curbside trash pickup, recycling centers	March 31, 2021	<a href="https://oanow.com/news/local/govt-and-politics/lee-county-considers-curbside-trash-pickup-recycling-centers/article_41da5512-90ea-11eb-8ad1-4b79e20dadf5.html">https://oanow.com/news/local/govt-and-politics/lee-county-considers-curbside-trash-pickup-recycling-centers/article_41da5512-90ea-11eb-8ad1-4b79e20dadf5.html</a>

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## **APPENDIX D**

# **2020-2021 STORMWATER QUALITY MONITORING REPORT**



# City of Auburn

## City of Auburn, Alabama Phase II MS4

**Annual Surface Water Quality Monitoring Report**  
Monitoring Period: April 1, 2020 – March 31, 2021

Permit # ALR040003  
Effective: October 1, 2016  
Expiration: September 30, 2021

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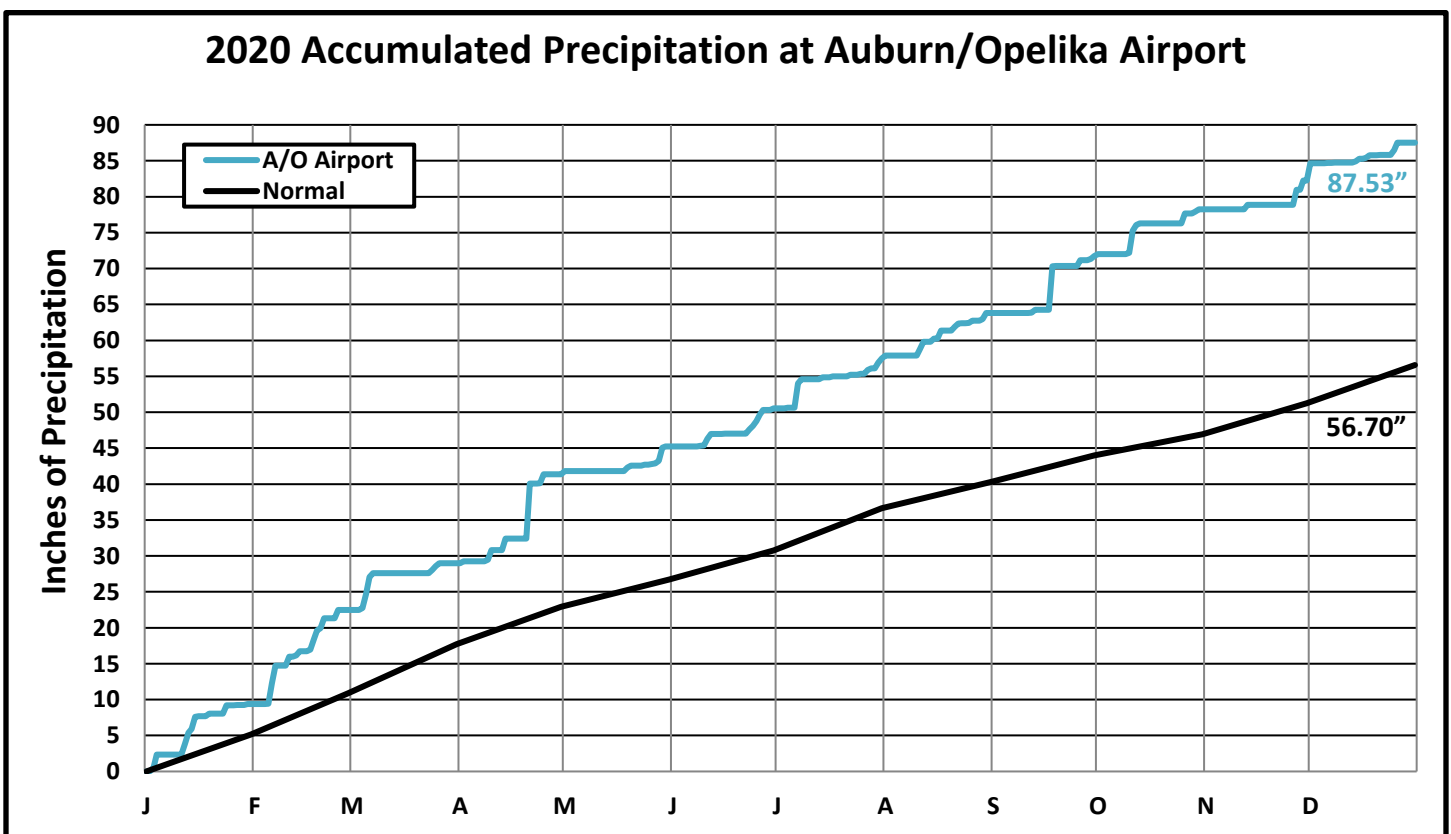


## 1.0 Introduction

The City of Auburn has been voluntarily collecting water quality data on its local water resources since the 1970's. Although initial efforts were primarily concentrated on source water quality monitoring in the Lake Ogletree watershed of Chewacla Creek, the City's water quality monitoring has expanded to include a wide variety of monitoring programs that are used to guide efforts of assessment, protection, and restoration of our local water resources. These programs include monitoring for physical, chemical, and biological indicators of water quality, with all monitoring efforts managed and operated in-house. This report presents the results of water quality monitoring and analyses conducted for the period of April 1, 2020, to March 31, 2021. Comments by staff in the City's Water Resource Management Department (WRM) are also included in the water quality results.

### 1.1 Precipitation Data 2020

The City of Auburn experienced an exceptionally wet year in 2020. According to the rain gauge at the Auburn/Opelika Airport, 87.53 inches of precipitation fell during 2020. This represents a 54% increase from the normal annual precipitation of 56.70 inches. We had a rainy winter and spring, punctuated by a large rain event in April that dropped over 7.5 inches of rain. Water levels in our local streams and aquifers were beginning to see a decline towards the end of the summer, when over 6 inches of rain fell during another large storm event in September. A wetter than average October and November allowed the local water table to remain high for the rest of the year.



Accumulated Precipitation at Auburn/Opelika Airport

## 2.0 Monitoring Required Under ADEM Phase II NPDES General Permit ALR040003

### 2.1 Background

The City of Auburn has three (3) streams within its jurisdiction that fail to meet the state's minimum water quality standards for their designated uses. Two streams have a finalized Total Maximum Daily Load (TMDL), and two streams are included on the 2020 final 303(d) list. A TMDL was approved for the Saugahatchee Creek watershed in 2008, with the pollutants of concern being total phosphorus (TP) and organic enrichment/dissolved oxygen (OE/DO). In 2020, Saugahatchee Creek was listed on the 303(d) list for pathogens. A TMDL was finalized for Parkerson's Mill Creek in 2011 for pathogens, with E. coli as the indicator bacteria. Moore's Mill Creek was included on the 303(d) list of impaired streams in 2000 for siltation, but there is currently no TMDL for Moore's Mill Creek. The monitoring results included in this report were collected from April 1, 2020 to March 31, 2021 in compliance with the Phase II NPDES General Permit ALR040003 as outlined in the City of Auburn's Stormwater Quality Monitoring Plan.

### 2.2 Compliance Requirements

According to ADEM Phase II NPDES General Permit ALR040003, if a waterbody within the MS4 jurisdiction is listed on the latest final 303(d) list, or otherwise designated impaired by ADEM, or for which a TMDL is approved or established by EPA, the MS4 permittee shall comply with the following:

1. Include a statement in the SWMPP stating if monitoring is required.
2. Implement a monitoring program within 6 months of permit coverage that addresses the impairment or TMDL. Include the monitoring plan in the SWMPP, and document the revisions to the monitoring plan in the SWMPP and SWMPP Annual Report.
3. Describe proposed monitoring locations and proposed monitoring frequency in the monitoring plan, with actual locations described in the SWMPP Annual Report.
4. Include in the monitoring program any parameters attributed with the latest final 303(d) list, or otherwise designated by ADEM as impaired, or are included in an EPA-approved or EPA-established TMDL.
5. Perform analysis and collection of samples in accordance with the methods specified at 40 CFR Part 136. If an approved 40 CFR Part 136 method does not exist, then an ADEM approved method may be used.
6. If samples cannot be collected due to adverse conditions, permittee must submit a description of why samples could not be collected, including available documentation of the event (e.g. weather conditions that create dangerous conditions for personnel, or impracticable conditions such as drought or ice).
7. Monitoring results must be reported with the subsequent SWMPP Annual Report and shall include the following:
  - a. The date, latitude/longitude of location, and time of sampling
  - b. The name(s) of the individual(s) who performed the sampling

- c. The date(s) analysis was performed
- d. The name(s) of the individual(s) who performed the analysis
- e. The analytical techniques or methods used
- f. The results of such analysis

The pages that follow include the sampling and reporting requirements outlined above for Saugahatchee Creek, Parkerson's Mill Creek, and Moore's Mill Creek.

### 2.3 Water Sampling Methods

The City of Auburn believes that quality control and quality assurance are critical to a successful environmental monitoring program. In order to develop a dependable and credible database of water quality measurements, WRM staff employ a stringent field and laboratory protocol. WRM staff are required to wear nitrile gloves when handling sample bottles, cleaning sample bottles, plating bacterial samples, handling bacterial plates and growth media, calibrating instruments, and collecting water samples. Before going to a sample site, water sample collection bottles are placed in clean, sealable plastic bags. They are carried to the sample site in a cooler, and after the water samples are collected the bottles are immediately placed back into the bag and into the cooler to be chilled at 4 degrees Celsius. WRM staff calibrate all water quality instruments prior to field use every three days. Calibration standards are never used outside the expiration date. A detailed calibration log is filled out each time an instrument is calibrated. Sampling devices are cleaned using Liquinox™ phosphate-free detergent, followed by a tap water rinse, and then a final rinse with deionized water. At all sample sites, WRM staff utilize field sheets to document site characteristics and observations such as stream color, geomorphic setting (riffle, pool, etc.), and weather conditions. The field sheets are also used to document water quality data measured in-situ at each site. These in-situ data are collected using a YSI ProPlus instrument and include temperature (F), pH, specific conductance ( $\mu\text{S}/\text{cm}$ ), and dissolved oxygen (mg/L). Water samples are analyzed for turbidity in the field using a LaMotte 2020we portable turbidimeter. Streamflow is determined using the mid-section method, where the channel is divided into segments along a cross-section and width, depth, and velocity are recorded at each segment. Velocity is measured at the center of each segment using either a Sontek Flowtracker 2 acoustic doppler velocimeter or a Price Pygmy Meter. The sum of flows of all the segments along a cross-section equals the total streamflow.

### 2.4 Saugahatchee Creek Total Phosphorus Compliance Monitoring

The Saugahatchee Creek Embayment on Yates Reservoir was originally placed on the ADEM 303(d) list of impaired waterbodies in 1996 for OE/DO and nutrients. It remained on the State's 303(d) list after each consecutive two-year water quality assessment until 2008, at which time the Saugahatchee Creek Embayment (Yates Reservoir) TMDL was finalized. Additionally, Pepperell Branch, a tributary of Saugahatchee Creek which originates in Opelika, also remained on the State's 303(d) list for nutrient impairment until 2008. The impairment of Pepperell Branch was also addressed in the Saugahatchee Creek Embayment TMDL. In order to address water quality concerns within the Saugahatchee Creek Embayment, ADEM and the EPA jointly developed a "watershed based" TMDL, which would in turn address nutrient loading from both the main stem of Saugahatchee Creek and Pepperell Branch. The final Saugahatchee Creek Watershed TMDL was issued in April of 2008, identifying TP as the primary pollutant of concern (expressed as chlorophyll-a to satisfy numeric

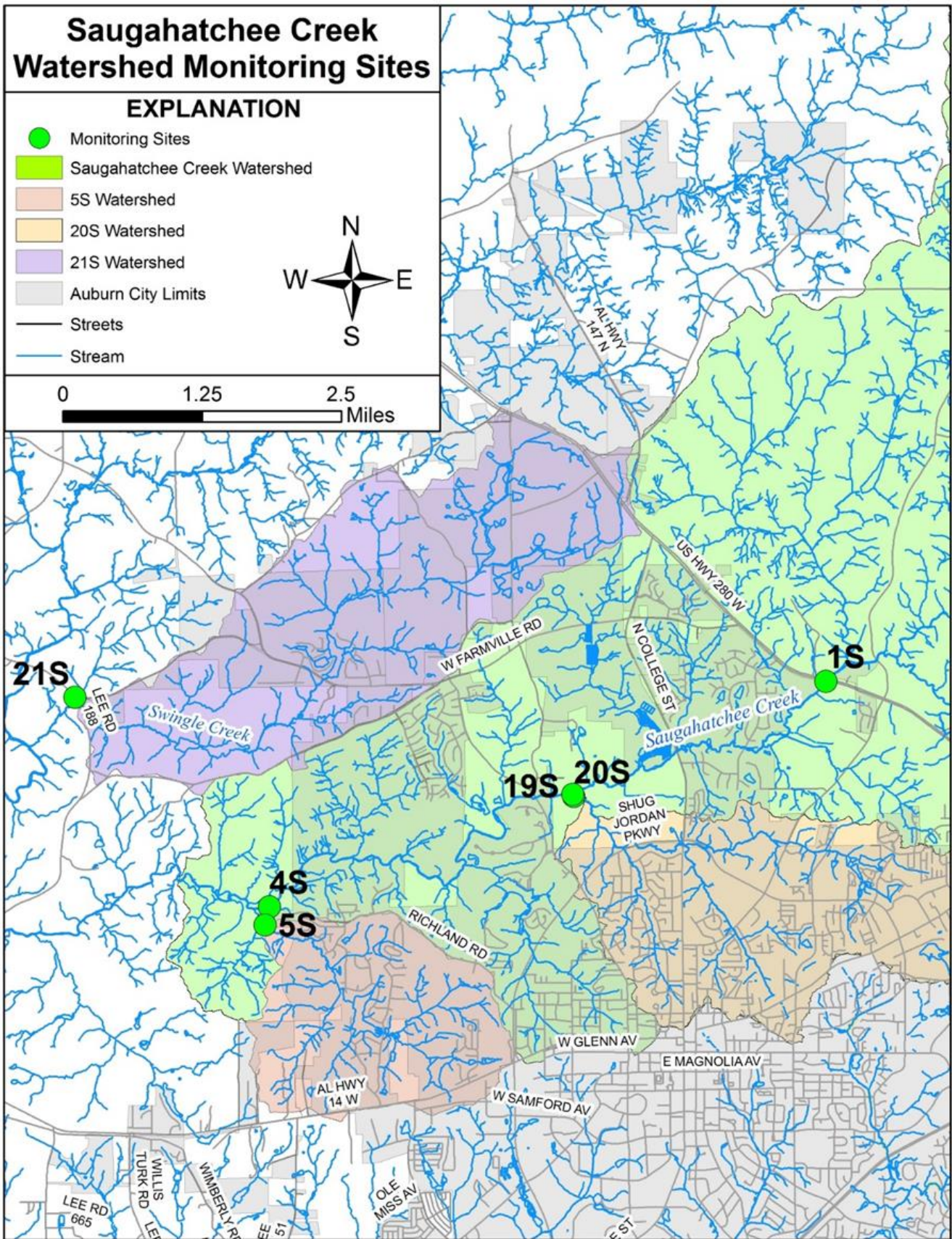
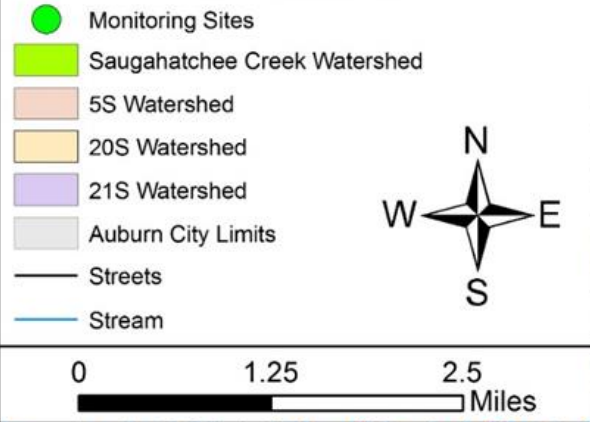
target criteria for assessing eutrophication in lakes). The Saugahatchee Creek Embayment TMDL establishes the TP limits in stormwater runoff of equal to or less than 0.1 mg/L (see Table 5-2 of the Saugahatchee Creek Embayment TMDL).

Monitoring TP at strategic locations along the main stem of Saugahatchee Creek and on tributaries within the Saugahatchee Creek watershed that drain portions of the City's MS4 provides data to evaluate the success of efforts to reduce TP in stormwater and meet TMDL concentrations. The City conducted quarterly sampling for TP, water temperature, pH, dissolved oxygen, specific conductance, and turbidity at three locations along the main stem of Saugahatchee Creek, and also at three tributaries within the Saugahatchee Creek watershed during this reporting period. Streamflow in cubic feet per second (cfs) and million gallons per day (MGD) was determined at each sample site. Streamflow at sites 1S, 4S, and 19S was recorded by the City's streamgauge located at site 4S on Saugahatchee Creek at the City's Northside Water Pollution Control Facility (WPCF). City staff measured streamflow in-situ at sites 5S, 20S, and 21S when flow conditions permitted.

Of the 24 samples collected for TP during this reporting period, 54% of the samples had concentrations below the laboratory method detection limit of 0.100 mg/L. The highest TP concentration was 0.203 mg/L. These results suggest that the City's post-development water quality requirements are reducing the TP pollutant load in Saugahatchee Creek to very low numbers. The City requires new developments and re-developments within the Saugahatchee Creek watershed to remove 50% of the TP from stormwater runoff leaving the site. Examples of bmp's that developers typically utilize to meet these requirements are wet detention ponds, bioretention cells, and proprietary water quality grit traps. The tables and chart included in this report show results from TP monitoring conducted during the reporting period 4/1/2020 to 3/31/2021.

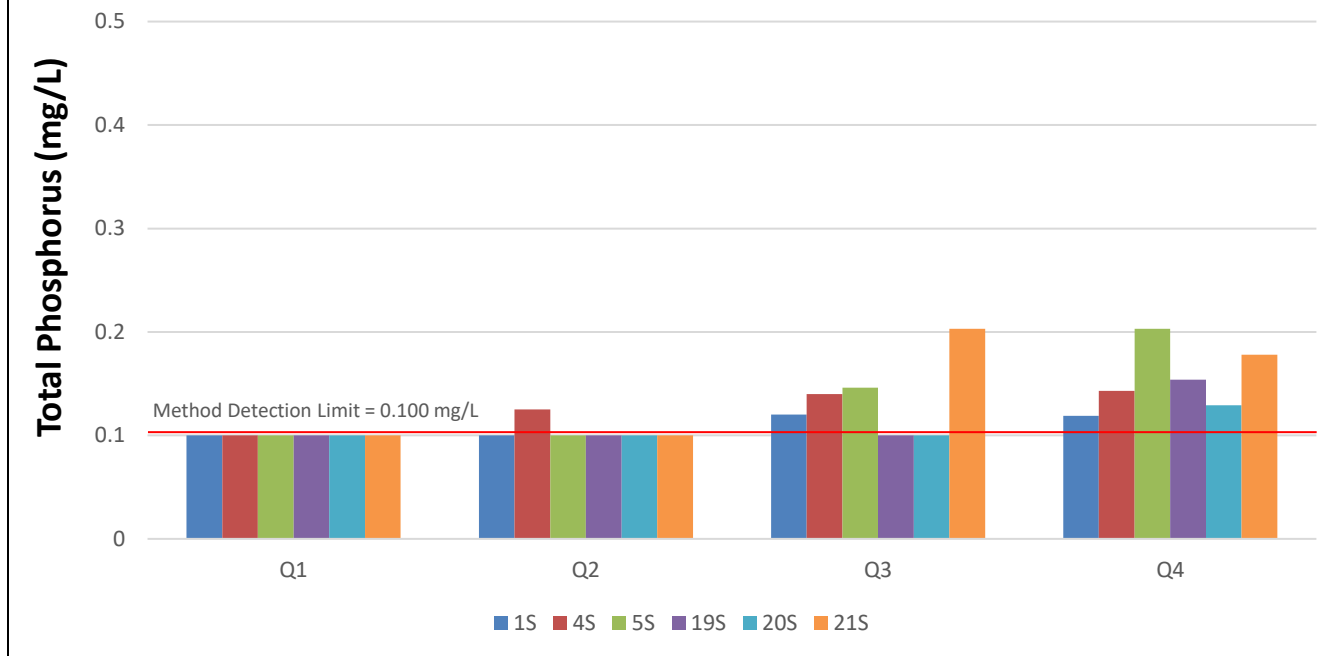
# Saugahatchee Creek Watershed Monitoring Sites

## EXPLANATION



Saugahatchee Creek Watershed Total Phosphorus Monitoring Sites

## Saugahatchee Creek Watershed Results of Total Phosphorus Monitoring 4/1/2020 - 3/31/2021



### 2.5 Saugahatchee Creek E. coli Compliance Monitoring

In 2018, Saugahatchee Creek was placed on the ADEM 303(d) list for pathogen impairment. The impaired reach is 33.42 mi., and includes waters from Saugahatchee Lake Dam to the confluence with Sycamore Creek in Tallapoosa County. ADEM considered collection system failure and pasture grazing as potential sources of the impairment. According to the 2018 303(d) list Fact Sheet <http://www.adem.state.al.us/programs/water/wquality/2018AL303dFactSheet.pdf>, ADEM collected samples at stations SOGL-1 and SOGL-11 to determine the basis for adding Saugahatchee Creek to the 303(d) list. Because of the impairment, the City monitored E. coli concentrations in Saugahatchee Creek through intensive E. coli sampling at six (6) sites within the watershed in 2020.

Annual monitoring E. coli at strategic locations along the main stem of Saugahatchee Creek and on tributaries within the Saugahatchee Creek watershed that drain portions of the City’s MS4 will hopefully provide further insight into the high E. coli concentrations that were observed by ADEM and eventually led to the 2018 303(d) listing. In 2020, single samples were collected for E. coli once per month for April, May, July, September, October, and November. Weekly samples were collected at those sites during June and August. The 5-week geometric mean concentrations provided in the following charts were calculated based on the results of the weekly sampling.

In 2020, streamflow was determined from the USGS streamgage 02418230 for site SOGL-1, and streamflow at sites SOGL-11 and SOGL-22 was determined from the City’s streamgage located at the Northside

WPCF. The City made a reasonable effort to measure streamflow (recorded in cfs and MGD) in-situ at sites SOGUTL-1, SOGUTL-3, and SOGUTL-4 when flow conditions permitted. Water temperature, pH, dissolved oxygen, specific conductance, and turbidity were also measured in-situ at each site.

## 2.6 E. coli Monitoring Results

The June geomean data showed all six (6) sites above the state water quality criteria for Saugahatchee Creek's designated use of Fish and Wildlife (126 MPN). SOGUTL-1 had a single sample maximum concentration of >2419.6 MPN on two occasions (6/22 & 9/29). The cause of these high concentrations is unknown, although the site had experienced a storm event within the previous 24 hours. SOGUTL-4 had a single sample maximum of >2419.6 MPN on 9/22. This was a dry weather sample with no rain within the last four days of collecting the sample. There was a sanitary sewer overflow (SSO) in this watershed that occurred on 6/3. A sample result of 1413.6 MPN at SOGUTL-4 was observed on 6/22, likely due to residual bacteria from the SSO on 6/3. SOGUTL-3 and SOGL-1 had the lowest June geomean concentrations of all sites (201 MPN & 190 MPN, respectively).

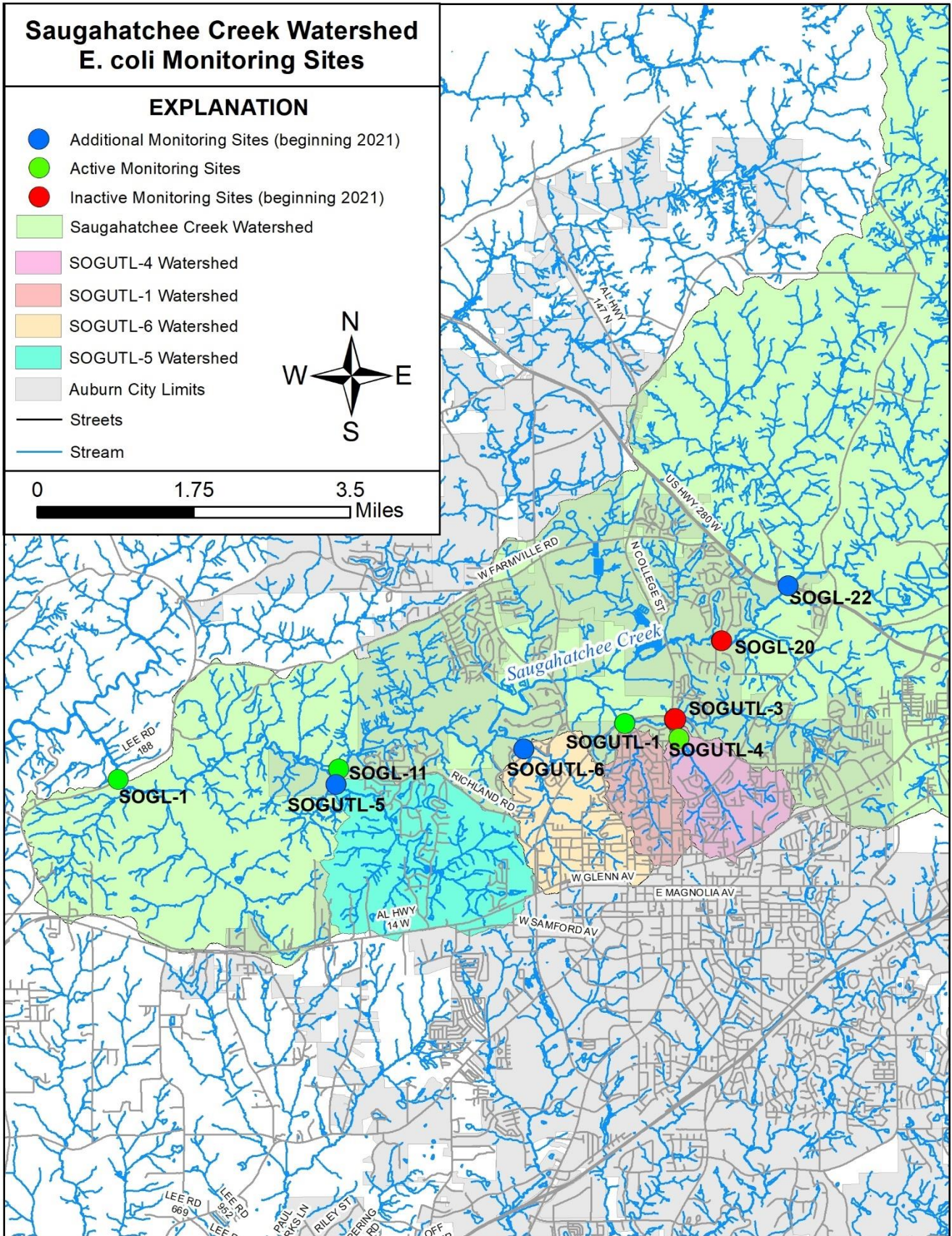
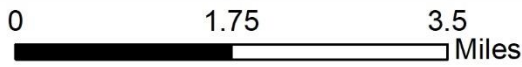
For the August geomean, only SOGUTL-3 (91 MPN) was below state water quality criteria. An SSO occurred on 8/18 in the SOGUTL-4 watershed, but the sampling data did not show an appreciable increase in the E. coli concentration until six weeks afterwards – and sampling sites throughout the watershed exhibited higher concentrations during that week so it is reasonable to assume the SSO was treated by natural attenuation and did not contribute to the higher concentrations. The highest E. coli concentrations in August were at sites on the main stem of Saugahatchee Creek. August was a rainy month, with 13 days of rain and 5.91 in. of precipitation (2.32 in. above normal). The high E. coli concentrations are likely the result of higher than normal rainfall and increased runoff. As a whole, E. coli concentrations in 2020 were higher than in 2019 in the Saugahatchee Creek watershed.

City staff have conducted intensive sampling for E. coli in the Saugahatchee watershed for two consecutive years. The 5-week geomean concentrations for site SOGUTL-3 have been below state water quality criteria 3 out of the 4 geomean periods, and the highest geomean concentration was 201 MPN (August 2020). Due to the relatively low concentrations at this sampling site, the City plans to remove SOGUTL-3 from the sampling schedule in 2021. According to the monitoring data, the tributary on which SOGUTL-3 is located is not a significant contributor of E. coli to Saugahatchee Creek. In lieu of SOGUTL-3, site SOGUTL-5 and SOGUTL-6 will be added to the sampling schedule in 2021. SOGUTL-5 is located on a major tributary to Saugahatchee Creek that drains several residential subdivisions. SOGUTL-6 is located on another tributary to Saugahatchee and drains the northwest part of Auburn. The City also plans to remove site SOGL-20 from the sampling schedule in 2021. SOGL-20 is located near the beginning of the City's MS4 jurisdiction, but there are some areas upstream of the sampling site that are also within the City's MS4. SOGL-20 does not provide true "baseline conditions" as Saugahatchee Creek enters the MS4 jurisdiction. In order to have a more representative baseline of E. coli concentrations as Saugahatchee Creek enters our jurisdiction, the City will be sampling instead at site SOGL-22 located at HWY 280.

# Saugahatchee Creek Watershed E. coli Monitoring Sites

## EXPLANATION

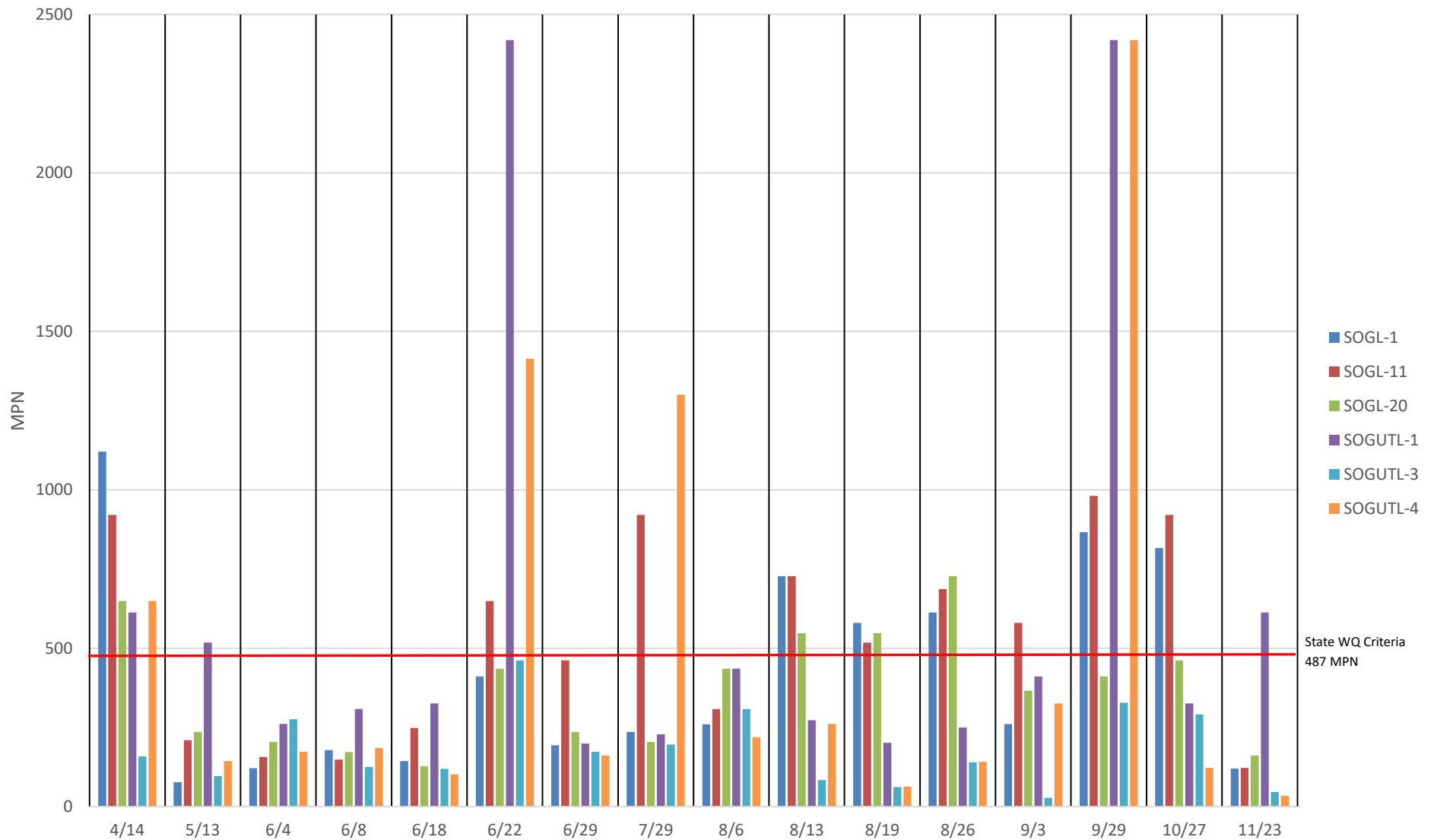
- Additional Monitoring Sites (beginning 2021)
- Active Monitoring Sites
- Inactive Monitoring Sites (beginning 2021)
- Saugahatchee Creek Watershed
- SOGUTL-4 Watershed
- SOGUTL-1 Watershed
- SOGUTL-6 Watershed
- SOGUTL-5 Watershed
- Auburn City Limits
- Streets
- Stream



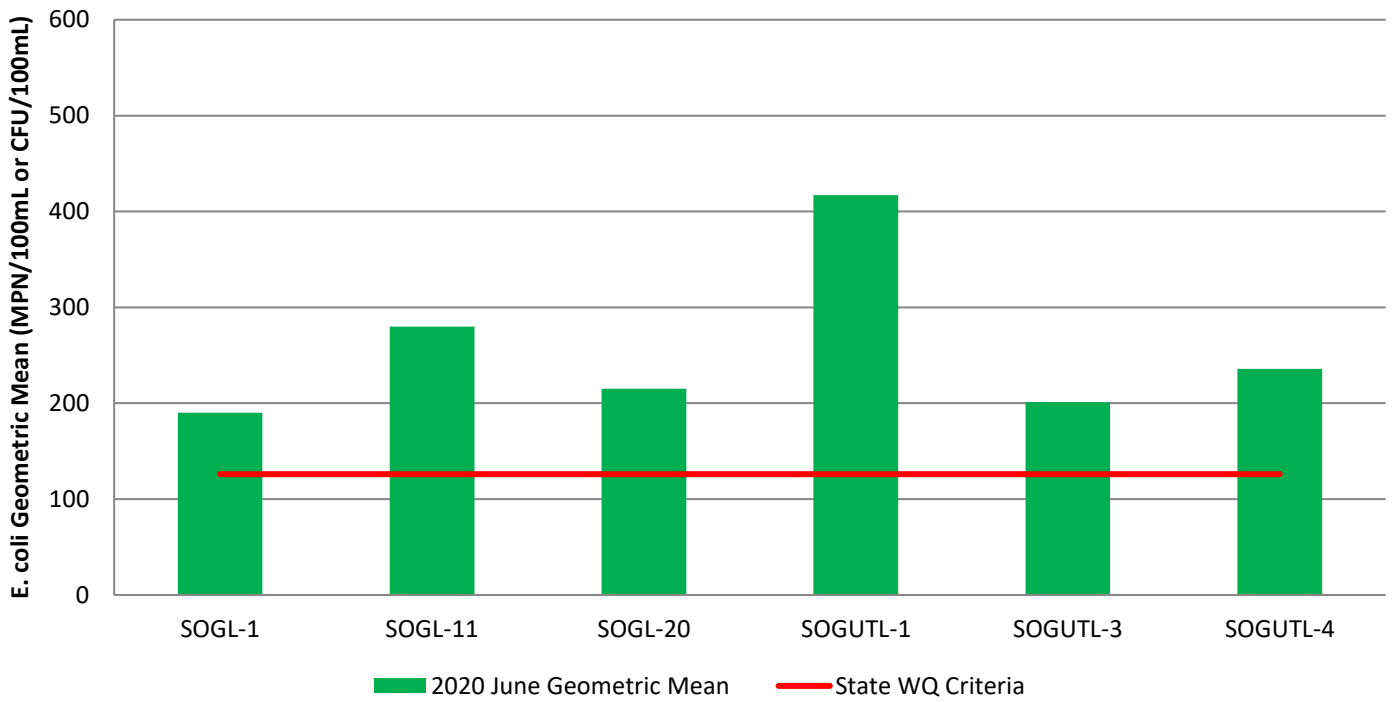
Saugahatchee Creek Watershed E. coli Monitoring Sites



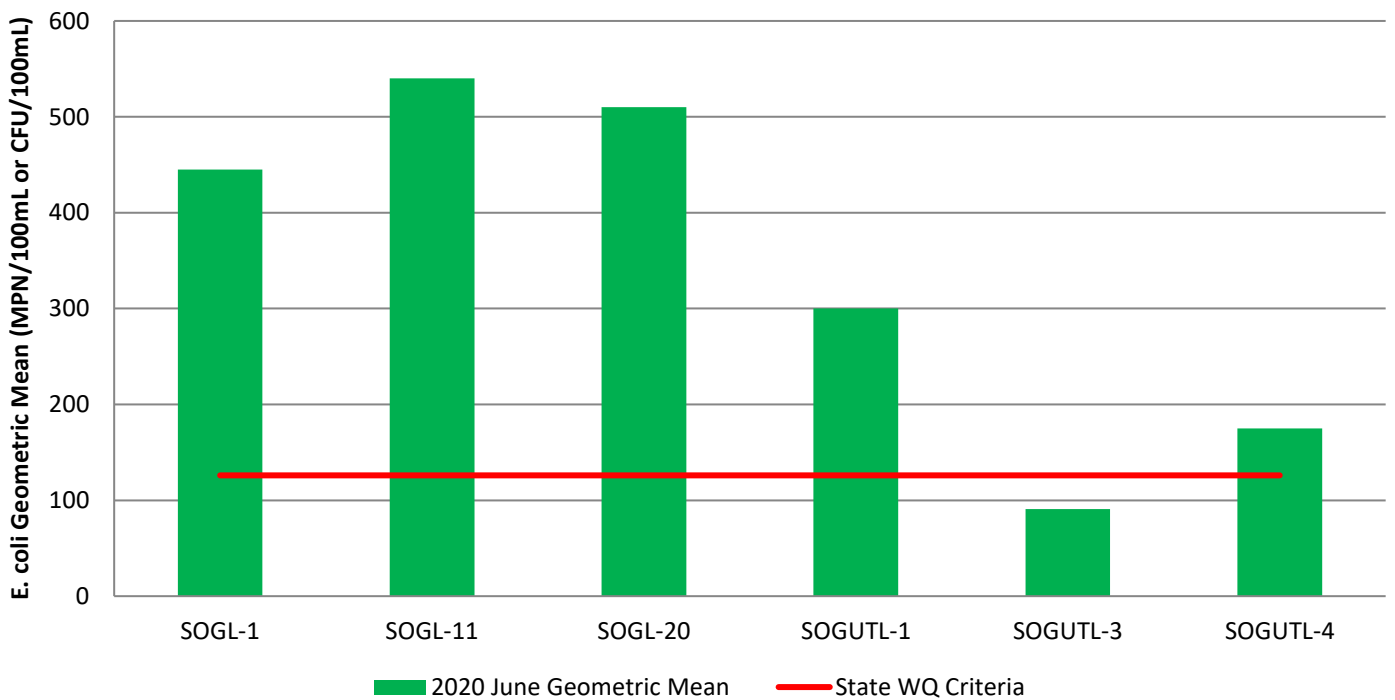
## Saugahatchee Creek 2020 E. coli Single Sample Results



### Saugahatchee Creek June 2020 E. coli Geomean Results



### Saugahatchee Creek August 2020 E. coli Geomean Results



### Saugahatchee Creek Monitoring Data

Site Number	Pollutant of Concern	Site Location	Site Coordinates
1S	Total Phosphorus	Saugahatchee Creek at US HWY 280	32.657413 N, 85.459656 W
19S	Total Phosphorus	Saugahatchee Creek 0.35 mi upstream of N. Donahue Dr.	32.642777 N, 85.498761 W
4S	Total Phosphorus	Saugahatchee Creek at Northside WPCF	32.628185 N, 85.545705 W
5S	Total Phosphorus	Unnamed Tributary to Saugahatchee Creek	32.625847 N, 85.546404 W
20S	Total Phosphorus	Unnamed Tributary to Saugahatchee Creek	32.642492 N, 85.498606 W
21S	Total Phosphorus	Swingle Creek above Lee Rd. 188	32.655618 N, 85.575517 W
SOGL-1	E. coli	Saugahatchee Creek at Lee Rd. 188	32.626569 N, 85.588019 W
SOGL-11	E. coli	Saugahatchee Creek at Northside WPCF	32.628185 N, 85.545705 W
SOGL-20	E. coli	Saugahatchee Creek at Watercrest Dr.	32.648751 N, 85.472166 W
SOGUTL-1	E. coli	Unnamed Tributary to Saugahatchee Creek	32.635379 N, 85.490675 W
SOGUTL-3	E. coli	Unnamed Tributary to Saugahatchee Creek	32.636313 N, 85.480916 W
SOGUTL-4	E. coli	Unnamed Tributary to Saugahatchee Creek	32.635890 N, 85.481219 W

Site Number	Sample Date	Sample Time	Sample Collected By	Total Phosphorus (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Streamflow (cfs)	Stream-flow (MGD)
1S	6/12/2020	1350	M. Smith D. Rogers	<0.100	EPA 365.4	6/22/2020	J. Andrews (ERA)	16.6	10.7
4S	6/12/2020	1140	M. Smith D. Rogers	<0.100	EPA 365.4	6/22/2020	J. Andrews (ERA)	18.7	12.1
5S	6/12/2020	1110	M. Smith D. Rogers	<0.100	EPA 365.4	6/22/2020	J. Andrews (ERA)	2.87	1.85
19S	6/12/2020	1240	M. Smith D. Rogers	<0.100	EPA 365.4	6/22/2020	J. Andrews (ERA)	17.5	11.3
20S	6/12/2020	1220	M. Smith D. Rogers	<0.100	EPA 365.4	6/22/2020	J. Andrews (ERA)	3.93	2.54
21S	6/12/2020	1425	M. Smith D. Rogers	<0.100	EPA 365.4	6/22/2020	J. Andrews (ERA)	6.28	4.06
Site Number	Sample Date	Sample Time	Sample Collected By	Total Phosphorus (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Streamflow (cfs)	Stream-flow (MGD)
1S	9/21/2020	1405	D. Kimbrow	<0.100	EPA 365.4	9/25/2020	J. Andrews (ERA)	31	20
4S	9/21/2020	1330	D. Kimbrow	0.125	EPA 365.4	9/25/2020	J. Andrews (ERA)	29.9	19.3
5S	9/21/2020	1305	D. Kimbrow	<0.100	EPA 365.4	9/25/2020	J. Andrews (ERA)	1.71	1.11
19S	9/21/2020	1045	D. Kimbrow	<0.100	EPA 365.4	9/25/2020	J. Andrews (ERA)	32.1	20.7
20S	9/21/2020	1000	D. Kimbrow	<0.100	EPA 365.4	9/25/2020	J. Andrews (ERA)	2.07	1.34
21S	9/21/2020	0900	D. Kimbrow	<0.100	EPA 365.4	9/25/2020	J. Andrews (ERA)	4.56	2.95
Site Number	Sample Date	Sample Time	Sample Collected By	Total Phosphorus (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Streamflow (cfs)	Stream-flow (MGD)
1S	12/21/2020	1500	D. Kimbrow	0.120	EPA 365.4	12/31/2020	J. Andrews (ERA)	32.7	21.1
4S	12/21/2020	1320	D. Kimbrow	0.140	EPA 365.4	12/31/2020	J. Andrews (ERA)	35.1	22.7
5S	12/21/2020	1255	D. Kimbrow	0.146	EPA 365.4	12/31/2020	J. Andrews (ERA)	2.15	1.39
19S	12/21/2020	1110	D. Kimbrow	<0.100	EPA 365.4	12/31/2020	J. Andrews (ERA)	33.1	21.4

Site Number	Sample Date	Sample Time	Sample Collected By	Total Phosphorus (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Streamflow (cfs)	Stream-flow (MGD)
20S	12/21/2020	1045	D. Kimbrow	<0.100	EPA 365.4	12/31/2020	J. Andrews (ERA)	3.47	2.24
21S	12/21/2020	1350	D. Kimbrow	0.203	EPA 365.4	12/31/2020	J. Andrews (ERA)	15.4	9.95
Site Number	Sample Date	Sample Time	Sample Collected By	Total Phosphorus (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Streamflow (cfs)	Stream-flow (MGD)
1S	3/4/2021	1410	D. Kimbrow	0.119	EPA 365.4	3/12/2021	J. Andrews (ERA)	185	120
4S	3/4/2021	1005	D. Kimbrow	0.143	EPA 365.4	3/12/2021	J. Andrews (ERA)	143	92.4
5S	3/4/2021	0905	D. Kimbrow	0.203	EPA 365.4	3/12/2021	J. Andrews (ERA)	9.7	6.3
19S	3/4/2021	1045	D. Kimbrow	0.154	EPA 365.4	3/12/2021	J. Andrews (ERA)	207	134
20S	3/4/2021	1055	D. Kimbrow	0.129	EPA 365.4	3/12/2021	J. Andrews (ERA)	-	-
21S	3/4/2021	1335	D. Kimbrow	0.178	EPA 365.4	3/12/2021	J. Andrews (ERA)	25.9	16.7
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Streamflow (cfs)	Stream-flow (MGD)
1S	6/12/2020	1350	M. Smith D. Rogers	75.5	YSI 5560	6/12/2020	M. Smith D. Rogers	16.6	10.7
4S	6/12/2020	1140	M. Smith D. Rogers	75.2	YSI 5560	6/12/2020	M. Smith D. Rogers	18.7	12.1
5S	6/12/2020	1110	M. Smith D. Rogers	74.5	YSI 5560	6/12/2020	M. Smith D. Rogers	2.87	1.85
19S	6/12/2020	1240	M. Smith D. Rogers	74.6	YSI 5560	6/12/2020	M. Smith D. Rogers	17.5	11.3
20S	6/12/2020	1220	M. Smith D. Rogers	74.4	YSI 5560	6/12/2020	M. Smith D. Rogers	3.93	2.54
21S	6/12/2020	1425	M. Smith D. Rogers	74.5	YSI 5560	6/12/2020	M. Smith D. Rogers	6.28	4.06
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Streamflow (cfs)	Stream-flow (MGD)
1S	9/21/2020	1405	D. Kimbrow	70	YSI 5560	9/21/2020	D. Kimbrow	31	20
4S	9/21/2020	1330	D. Kimbrow	69.8	YSI 5560	9/21/2020	D. Kimbrow	29.9	19.3
5S	9/21/2020	1305	D. Kimbrow	67.5	YSI 5560	9/21/2020	D. Kimbrow	1.71	1.11
19S	9/21/2020	1045	D. Kimbrow	66.6	YSI 5560	9/21/2020	D. Kimbrow	32.1	20.7
20S	9/21/2020	1000	D. Kimbrow	64.9	YSI 5560	9/21/2020	D. Kimbrow	2.07	1.34
21S	9/21/2020	0900	D. Kimbrow	65.8	YSI 5560	9/21/2020	D. Kimbrow	4.56	2.95
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Streamflow (cfs)	Stream-flow (MGD)
1S	12/21/2020	1500	D. Kimbrow	55.3	YSI 5560	12/21/2020	D. Kimbrow	32.7	21.1
4S	12/21/2020	1320	D. Kimbrow	54.1	YSI 5560	12/21/2020	D. Kimbrow	35.1	22.7
5S	12/21/2020	1255	D. Kimbrow	53.0	YSI 5560	12/21/2020	D. Kimbrow	2.15	1.39
19S	12/21/2020	1110	D. Kimbrow	52.5	YSI 5560	12/21/2020	D. Kimbrow	33.1	21.4
20S	12/21/2020	1045	D. Kimbrow	52.1	YSI 5560	12/21/2020	D. Kimbrow	3.47	2.24
21S	12/21/2020	1350	D. Kimbrow	51.2	YSI 5560	12/21/2020	D. Kimbrow	15.4	9.95
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Streamflow (cfs)	Stream-flow (MGD)
1S	3/4/2021	1410	D. Kimbrow	59.5	YSI 5560	3/4/2021	D. Kimbrow	185	120
4S	3/4/2021	1005	D. Kimbrow	53.7	YSI 5560	3/4/2021	D. Kimbrow	143	92.4
5S	3/4/2021	0905	D. Kimbrow	54.2	YSI 5560	3/4/2021	D. Kimbrow	9.7	6.3

Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Streamflow (cfs)	Stream-flow (MGD)
19S	3/4/2021	1045	D. Kimbrow	54.7	YSI 5560	3/4/2021	D. Kimbrow	207	134
20S	3/4/2021	1055	D. Kimbrow	55.1	YSI 5560	3/4/2021	D. Kimbrow	-	-
21S	3/4/2021	1335	D. Kimbrow	56.9	YSI 5560	3/4/2021	D. Kimbrow	25.9	16.7
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Streamflow (cfs)	Stream-flow (MGD)
1S	6/12/2020	1350	M. Smith D. Rogers	7.1	YSI 1001	6/12/2020	M. Smith D. Rogers	16.6	10.7
4S	6/12/2020	1140	M. Smith D. Rogers	6.61	YSI 1001	6/12/2020	M. Smith D. Rogers	18.7	12.1
5S	6/12/2020	1110	M. Smith D. Rogers	5.97	YSI 1001	6/12/2020	M. Smith D. Rogers	2.87	1.85
19S	6/12/2020	1240	M. Smith D. Rogers	6.99	YSI 1001	6/12/2020	M. Smith D. Rogers	17.5	11.3
20S	6/12/2020	1220	M. Smith D. Rogers	6.85	YSI 1001	6/12/2020	M. Smith D. Rogers	3.93	2.54
21S	6/12/2020	1425	M. Smith D. Rogers	6.95	YSI 1001	6/12/2020	M. Smith D. Rogers	6.28	4.06
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Streamflow (cfs)	Stream-flow (MGD)
1S	9/21/2020	1405	D. Kimbrow	7.74	YSI 1001	9/21/2020	D. Kimbrow	31	20
4S	9/21/2020	1330	D. Kimbrow	7.31	YSI 1001	9/21/2020	D. Kimbrow	29.9	19.3
5S	9/21/2020	1305	D. Kimbrow	7.22	YSI 1001	9/21/2020	D. Kimbrow	1.71	1.11
19S	9/21/2020	1045	D. Kimbrow	7.25	YSI 1001	9/21/2020	D. Kimbrow	32.1	20.7
20S	9/21/2020	1000	D. Kimbrow	7.38	YSI 1001	9/21/2020	D. Kimbrow	2.07	1.34
21S	9/21/2020	0900	D. Kimbrow	7.42	YSI 1001	9/21/2020	D. Kimbrow	4.56	2.95
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Streamflow (cfs)	Stream-flow (MGD)
1S	12/21/2020	1500	D. Kimbrow	6.99	YSI 1001	12/21/2020	D. Kimbrow	32.7	21.1
4S	12/21/2020	1320	D. Kimbrow	6.95	YSI 1001	12/21/2020	D. Kimbrow	35.1	22.7
5S	12/21/2020	1255	D. Kimbrow	6.67	YSI 1001	12/21/2020	D. Kimbrow	2.15	1.39
19S	12/21/2020	1110	D. Kimbrow	7.11	YSI 1001	12/21/2020	D. Kimbrow	33.1	21.4
20S	12/21/2020	1045	D. Kimbrow	6.83	YSI 1001	12/21/2020	D. Kimbrow	3.47	2.24
21S	12/21/2020	1350	D. Kimbrow	6.97	YSI 1001	12/21/2020	D. Kimbrow	15.4	9.95
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Streamflow (cfs)	Stream-flow (MGD)
1S	3/4/2021	1410	D. Kimbrow	7.28	YSI 1001	3/4/2021	D. Kimbrow	185	120
4S	3/4/2021	1005	D. Kimbrow	7.12	YSI 1001	3/4/2021	D. Kimbrow	143	92.4
5S	3/4/2021	0905	D. Kimbrow	7.00	YSI 1001	3/4/2021	D. Kimbrow	9.7	6.3
19S	3/4/2021	1045	D. Kimbrow	7.17	YSI 1001	3/4/2021	D. Kimbrow	207	134
20S	3/4/2021	1055	D. Kimbrow	7.17	YSI 1001	3/4/2021	D. Kimbrow	-	-
21S	3/4/2021	1335	D. Kimbrow	7.04	YSI 1001	3/4/2021	D. Kimbrow	25.9	16.7
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Streamflow (cfs)	Stream-flow (MGD)
1S	6/12/2020	1350	M. Smith D. Rogers	8.88	YSI 2003	6/12/2020	M. Smith D. Rogers	16.6	10.7
4S	6/12/2020	1140	M. Smith D. Rogers	7.63	YSI 2003	6/12/2020	M. Smith D. Rogers	18.7	12.1
5S	6/12/2020	1110	M. Smith D. Rogers	7.68	YSI 2003	6/12/2020	M. Smith D. Rogers	2.87	1.85
19S	6/12/2020	1240	M. Smith D. Rogers	7.79	YSI 2003	6/12/2020	M. Smith D. Rogers	17.5	11.3
20S	6/12/2020	1220	M. Smith D. Rogers	7.48	YSI 2003	6/12/2020	M. Smith D. Rogers	3.93	2.54

Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Streamflow (cfs)	Stream-flow (MGD)
21S	6/12/2020	1425	M. Smith D. Rogers	8.29	YSI 2003	6/12/2020	M. Smith D. Rogers	6.28	4.06
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Streamflow (cfs)	Stream-flow (MGD)
1S	9/21/2020	1405	D. Kimbrow	8.83	YSI 2003	9/21/2020	D. Kimbrow	31	20
4S	9/21/2020	1330	D. Kimbrow	7.67	YSI 2003	9/21/2020	D. Kimbrow	29.9	19.3
5S	9/21/2020	1305	D. Kimbrow	8.35	YSI 2003	9/21/2020	D. Kimbrow	1.71	1.11
19S	9/21/2020	1045	D. Kimbrow	7.68	YSI 2003	9/21/2020	D. Kimbrow	32.1	20.7
20S	9/21/2020	1000	D. Kimbrow	8.37	YSI 2003	9/21/2020	D. Kimbrow	2.07	1.34
21S	9/21/2020	0900	D. Kimbrow	8.91	YSI 2003	9/21/2020	D. Kimbrow	4.56	2.95
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Streamflow (cfs)	Stream-flow (MGD)
1S	12/21/2020	1500	D. Kimbrow	10.99	YSI 2003	12/21/2020	D. Kimbrow	32.7	21.1
4S	12/21/2020	1320	D. Kimbrow	10.58	YSI 2003	12/21/2020	D. Kimbrow	35.1	22.7
5S	12/21/2020	1255	D. Kimbrow	10.71	YSI 2003	12/21/2020	D. Kimbrow	2.15	1.39
19S	12/21/2020	1110	D. Kimbrow	10.73	YSI 2003	12/21/2020	D. Kimbrow	33.1	21.4
20S	12/21/2020	1045	D. Kimbrow	10.91	YSI 2003	12/21/2020	D. Kimbrow	3.47	2.24
21S	12/21/2020	1350	D. Kimbrow	11.5	YSI 2003	12/21/2020	D. Kimbrow	15.4	9.95
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Streamflow (cfs)	Stream-flow (MGD)
1S	3/4/2021	1410	D. Kimbrow	10.35	YSI 2003	3/4/2021	D. Kimbrow	185	120
4S	3/4/2021	1005	D. Kimbrow	10.47	YSI 2003	3/4/2021	D. Kimbrow	143	92.4
5S	3/4/2021	0905	D. Kimbrow	10.03	YSI 2003	3/4/2021	D. Kimbrow	9.7	6.3
19S	3/4/2021	1045	D. Kimbrow	10.46	YSI 2003	3/4/2021	D. Kimbrow	207	134
20S	3/4/2021	1055	D. Kimbrow	10.13	YSI 2003	3/4/2021	D. Kimbrow	-	-
21S	3/4/2021	1335	D. Kimbrow	10.93	YSI 2003	3/4/2021	D. Kimbrow	25.9	16.7
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Streamflow (cfs)	Stream-flow (MGD)
1S	6/12/2020	1350	M. Smith D. Rogers	105.1	YSI 5560	6/12/2020	M. Smith D. Rogers	16.6	10.7
4S	6/12/2020	1140	M. Smith D. Rogers	97.8	YSI 5560	6/12/2020	M. Smith D. Rogers	18.7	12.1
5S	6/12/2020	1110	M. Smith D. Rogers	70	YSI 5560	6/12/2020	M. Smith D. Rogers	2.87	1.85
19S	6/12/2020	1240	M. Smith D. Rogers	88.4	YSI 5560	6/12/2020	M. Smith D. Rogers	17.5	11.3
20S	6/12/2020	1220	M. Smith D. Rogers	108.4	YSI 5560	6/12/2020	M. Smith D. Rogers	3.93	2.54
21S	6/12/2020	1425	M. Smith D. Rogers	61	YSI 5560	6/12/2020	M. Smith D. Rogers	6.28	4.06
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Streamflow (cfs)	Stream-flow (MGD)
1S	9/21/2020	1405	D. Kimbrow	144.4	YSI 5560	9/21/2020	D. Kimbrow	31	20
4S	9/21/2020	1330	D. Kimbrow	130.6	YSI 5560	9/21/2020	D. Kimbrow	29.9	19.3
5S	9/21/2020	1305	D. Kimbrow	77.8	YSI 5560	9/21/2020	D. Kimbrow	1.71	1.11
19S	9/21/2020	1045	D. Kimbrow	141.9	YSI 5560	9/21/2020	D. Kimbrow	32.1	20.7
20S	9/21/2020	1000	D. Kimbrow	107.2	YSI 5560	9/21/2020	D. Kimbrow	2.07	1.34
21S	9/21/2020	0900	D. Kimbrow	60.2	YSI 5560	9/21/2020	D. Kimbrow	4.56	2.95
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Streamflow (cfs)	Stream-flow (MGD)
1S	12/21/2020	1500	D. Kimbrow	67.7	YSI 5560	12/21/2020	D. Kimbrow	32.7	21.1
4S	12/21/2020	1320	D. Kimbrow	104	YSI 5560	12/21/2020	D. Kimbrow	35.1	22.7

Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Streamflow (cfs)	Stream-flow (MGD)
5S	12/21/2020	1255	D. Kimbrow	43.5	YSI 5560	12/21/2020	D. Kimbrow	2.15	1.39
19S	12/21/2020	1110	D. Kimbrow	102.3	YSI 5560	12/21/2020	D. Kimbrow	33.1	21.4
20S	12/21/2020	1045	D. Kimbrow	105.4	YSI 5560	12/21/2020	D. Kimbrow	3.47	2.24
21S	12/21/2020	1350	D. Kimbrow	53.7	YSI 5560	12/21/2020	D. Kimbrow	15.4	9.95
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Streamflow (cfs)	Stream-flow (MGD)
1S	3/4/2021	1410	D. Kimbrow	68	YSI 5560	3/4/2021	D. Kimbrow	185	120
4S	3/4/2021	1005	D. Kimbrow	66.5	YSI 5560	3/4/2021	D. Kimbrow	143	92.4
5S	3/4/2021	0905	D. Kimbrow	57.2	YSI 5560	3/4/2021	D. Kimbrow	9.7	6.3
19S	3/4/2021	1045	D. Kimbrow	66.8	YSI 5560	3/4/2021	D. Kimbrow	207	134
20S	3/4/2021	1055	D. Kimbrow	90.2	YSI 5560	3/4/2021	D. Kimbrow	-	-
21S	3/4/2021	1335	D. Kimbrow	46.3	YSI 5560	3/4/2021	D. Kimbrow	25.9	16.7
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Streamflow (cfs)	Stream-flow (MGD)
1S	6/12/2020	1350	M. Smith D. Rogers	6.59	SM 2130 B	6/12/2020	M. Smith D. Rogers	16.6	10.7
4S	6/12/2020	1140	M. Smith D. Rogers	12.75	SM 2130 B	6/12/2020	M. Smith D. Rogers	18.7	12.1
5S	6/12/2020	1110	M. Smith D. Rogers	8.46	SM 2130 B	6/12/2020	M. Smith D. Rogers	2.87	1.85
19S	6/12/2020	1240	M. Smith D. Rogers	8.33	SM 2130 B	6/12/2020	M. Smith D. Rogers	17.5	11.3
20S	6/12/2020	1220	M. Smith D. Rogers	6.62	SM 2130 B	6/12/2020	M. Smith D. Rogers	3.93	2.54
21S	6/12/2020	1425	M. Smith D. Rogers	13.12	SM 2130 B	6/12/2020	M. Smith D. Rogers	6.28	4.06
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Streamflow (cfs)	Stream-flow (MGD)
1S	9/21/2020	1405	D. Kimbrow	9.18	SM 2130 B	9/21/2020	D. Kimbrow	31	20
4S	9/21/2020	1330	D. Kimbrow	8.31	SM 2130 B	9/21/2020	D. Kimbrow	29.9	19.3
5S	9/21/2020	1305	D. Kimbrow	7.04	SM 2130 B	9/21/2020	D. Kimbrow	1.71	1.11
19S	9/21/2020	1045	D. Kimbrow	5.98	SM 2130 B	9/21/2020	D. Kimbrow	32.1	20.7
20S	9/21/2020	1000	D. Kimbrow	4.66	SM 2130 B	9/21/2020	D. Kimbrow	2.07	1.34
21S	9/21/2020	0900	D. Kimbrow	12.14	SM 2130 B	9/21/2020	D. Kimbrow	4.56	2.95
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Streamflow (cfs)	Stream-flow (MGD)
1S	12/21/2020	1500	D. Kimbrow	6.4	SM 2130 B	12/21/2020	D. Kimbrow	32.7	21.1
4S	12/21/2020	1320	D. Kimbrow	5.15	SM 2130 B	12/21/2020	D. Kimbrow	35.1	22.7
5S	12/21/2020	1255	D. Kimbrow	4.03	SM 2130 B	12/21/2020	D. Kimbrow	2.15	1.39
19S	12/21/2020	1110	D. Kimbrow	5.51	SM 2130 B	12/21/2020	D. Kimbrow	33.1	21.4
20S	12/21/2020	1045	D. Kimbrow	4.13	SM 2130 B	12/21/2020	D. Kimbrow	3.47	2.24
21S	12/21/2020	1350	D. Kimbrow	9.58	SM 2130 B	12/21/2020	D. Kimbrow	15.4	9.95
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Streamflow (cfs)	Stream-flow (MGD)
1S	3/4/2021	1410	D. Kimbrow	-	SM 2130 B	3/4/2021	D. Kimbrow	185	120
4S	3/4/2021	1005	D. Kimbrow	-	SM 2130 B	3/4/2021	D. Kimbrow	143	92.4
5S	3/4/2021	0905	D. Kimbrow	-	SM 2130 B	3/4/2021	D. Kimbrow	9.7	6.3
19S	3/4/2021	1045	D. Kimbrow	-	SM 2130 B	3/4/2021	D. Kimbrow	207	134
20S	3/4/2021	1055	D. Kimbrow	-	SM 2130 B	3/4/2021	D. Kimbrow	-	-
21S	3/4/2021	1335	D. Kimbrow	-	SM 2130 B	3/4/2021	D. Kimbrow	25.9	16.7

Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	4/14/2020	0905	D. Kimbrow	1119.9	IDEXX	4/15/2020	M. Smith	94.7	61.2
SOGL-11	4/14/2020	0940	D. Kimbrow	920.8	IDEXX	4/15/2020	M. Smith	55.6	35.9
SOGL-20	4/14/2020	1005	D. Kimbrow	648.8	IDEXX	4/15/2020	M. Smith	54.9	35.5
SOGUTL-1	4/14/2020	1140	D. Kimbrow	613.1	IDEXX	4/15/2020	M. Smith	1.33	0.86
SOGUTL-3	4/14/2020	1100	D. Kimbrow	158.5	IDEXX	4/15/2020	M. Smith	3.13	2.02
SOGUTL-4	4/14/2020	1045	D. Kimbrow	648.8	IDEXX	4/15/2020	M. Smith	1.51	0.98
Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	5/13/2020	0820	D. Kimbrow	77.1	IDEXX	5/14/2020	D. Rogers	52.8	34.1
SOGL-11	5/13/2020	0850	D. Kimbrow D. Rogers	209.8	IDEXX	5/14/2020	D. Rogers	30.4	19.6
SOGL-20	5/13/2020	0915	D. Kimbrow D. Rogers	235.9	IDEXX	5/14/2020	D. Rogers	29.9	19.3
SOGUTL-1	5/13/2020	1045	D. Kimbrow D. Rogers	517.2	IDEXX	5/14/2020	D. Rogers	0.52	0.34
SOGUTL-3	5/13/2020	1000	D. Kimbrow D. Rogers	95.9	IDEXX	5/14/2020	D. Rogers	1.37	0.89
SOGUTL-4	5/13/2020	0930	D. Kimbrow D. Rogers	143.9	IDEXX	5/14/2020	D. Rogers	1.23	0.79
Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	6/4/2020	1135	M. Smith R. McCurry	121.1	IDEXX	6/5/2020	M. Smith	47.7	30.8
SOGL-11	6/4/2020	1235	M. Smith R. McCurry	156.5	IDEXX	6/5/2020	M. Smith	14.2	9.18
Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-20	6/4/2020	1454	M. Smith R. McCurry	204.6	IDEXX	6/5/2020	M. Smith	13.1	8.47
SOGUTL-1	6/4/2020	1655	M. Smith R. McCurry	261.3	IDEXX	6/5/2020	M. Smith	0.39	0.25
SOGUTL-3	6/4/2020	1615	M. Smith R. McCurry	275.5	IDEXX	6/5/2020	M. Smith	0.64	0.41
SOGUTL-4	6/4/2020	1535	M. Smith R. McCurry	172.5	IDEXX	6/5/2020	M. Smith	0.43	0.28
Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	6/8/2020	1020	D. Kimbrow	178.2	IDEXX	6/9/2020	D. Kimbrow	44.5	28.8
SOGL-11	6/8/2020	1105	D. Kimbrow	148.3	IDEXX	6/9/2020	D. Kimbrow	13.5	8.73
SOGL-20	6/8/2020	1145	D. Kimbrow	172.3	IDEXX	6/9/2020	D. Kimbrow	13.1	8.47
SOGUTL-1	6/8/2020	1410	D. Kimbrow	307.6	IDEXX	6/9/2020	D. Kimbrow	1.00	0.65
SOGUTL-3	6/8/2020	1320	D. Kimbrow	125	IDEXX	6/9/2020	D. Kimbrow	1.04	0.67
SOGUTL-4	6/8/2020	1305	D. Kimbrow	185	IDEXX	6/9/2020	D. Kimbrow	1.15	0.74
Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	6/18/2020	1020	D. Kimbrow	143.9	IDEXX	6/19/2020	D. Kimbrow	41.4	26.8
SOGL-11	6/18/2020	1055	D. Kimbrow	248.1	IDEXX	6/19/2020	D. Kimbrow	34.6	22.4
SOGL-20	6/18/2020	1125	D. Kimbrow	127.4	IDEXX	6/19/2020	D. Kimbrow	34.6	22.4
SOGUTL-1	6/18/2020	1325	D. Kimbrow	325.5	IDEXX	6/19/2020	D. Kimbrow	1.00	0.65
SOGUTL-3	6/18/2020	1230	D. Kimbrow	118.7	IDEXX	6/19/2020	D. Kimbrow	0.87	0.56
SOGUTL-4	6/18/2020	1225	D. Kimbrow	101.4	IDEXX	6/19/2020	D. Kimbrow	1.19	0.77



Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	6/22/2020	1515	M. Smith	410.6	IDEXX	6/23/2020	M. Smith	58.5	37.8
SOGL-11	6/22/2020	1445	M. Smith	648.8	IDEXX	6/23/2020	M. Smith	43.1	27.9
SOGL-20	6/22/2020	1350	M. Smith	435.2	IDEXX	6/23/2020	M. Smith	46.3	29.9
SOGUTL-1	6/22/2020	1050	M. Smith	2419.6	IDEXX	6/23/2020	M. Smith	0.54	0.35
SOGUTL-3	6/22/2020	1235	M. Smith	461.1	IDEXX	6/23/2020	M. Smith	3.41	2.20
SOGUTL-4	6/22/2020	1200	M. Smith	1413.6	IDEXX	6/23/2020	M. Smith	0.62	0.40
Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	6/29/2020	1055	R. McCurry	193.5	IDEXX	6/30/2020	M. Smith	49.3	31.9
SOGL-11	6/29/2020	1135	R. McCurry	461.1	IDEXX	6/30/2020	M. Smith	38.3	24.8
SOGL-20	6/29/2020	1625	R. McCurry	235.9	IDEXX	6/30/2020	M. Smith	38.3	24.8
SOGUTL-1	6/29/2020	1400	R. McCurry	198.9	IDEXX	6/30/2020	M. Smith	0.57	0.37
SOGUTL-3	6/29/2020	1525	R. McCurry	172.5	IDEXX	6/30/2020	M. Smith	0.27	0.17
SOGUTL-4	6/29/2020	1450	R. McCurry	161.6	IDEXX	6/30/2020	M. Smith	0.78	0.50
Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	7/29/2020	0940	D. Kimbrow	235.9	IDEXX	7/31/2020	D. Kimbrow	28.7	18.6
SOGL-11	7/29/2020	1050	D. Kimbrow	920.8	IDEXX	7/31/2020	D. Kimbrow	27.6	17.8
SOGL-20	7/29/2020	1015	D. Kimbrow	204.6	IDEXX	7/31/2020	D. Kimbrow	27.6	17.8
SOGUTL-1	7/29/2020	1325	D. Kimbrow	228.2	IDEXX	7/31/2020	D. Kimbrow	0.33	0.21
SOGUTL-3	7/29/2020	1400	D. Kimbrow	195.6	IDEXX	7/31/2020	D. Kimbrow	1.44	0.93
SOGUTL-4	7/29/2020	1355	D. Kimbrow	1299.7	IDEXX	7/31/2020	D. Kimbrow	0.74	0.48
Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	8/6/2020	1445	R. McCurry	259.5	IDEXX	8/7/2020	M. Smith	18.7	12.1
SOGL-11	8/6/2020	1345	R. McCurry	307.6	IDEXX	8/7/2020	M. Smith	18.2	11.8
SOGL-20	8/6/2020	1730	R. McCurry	435.2	IDEXX	8/7/2020	M. Smith	18.2	11.8
SOGUTL-1	8/6/2020	1515	R. McCurry	435.2	IDEXX	8/7/2020	M. Smith	0.25	0.16
SOGUTL-3	8/6/2020	1630	R. McCurry	307.6	IDEXX	8/7/2020	M. Smith	0.37	0.24
SOGUTL-4	8/6/2020	1605	R. McCurry	218.7	IDEXX	8/7/2020	M. Smith	0.77	0.50
Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	8/13/2020	1000	D. Kimbrow	727	IDEXX	8/14/2020	D. Kimbrow	26.6	17.2
SOGL-11	8/13/2020	1035	D. Kimbrow	727	IDEXX	8/14/2020	D. Kimbrow	25.9	16.7
SOGL-20	8/13/2020	1110	D. Kimbrow	547.5	IDEXX	8/14/2020	D. Kimbrow	25.9	16.7
SOGUTL-1	8/13/2020	1245	D. Kimbrow	272.3	IDEXX	8/14/2020	D. Kimbrow	0.29	0.19
SOGUTL-3	8/13/2020	1320	D. Kimbrow	83.9	IDEXX	8/14/2020	D. Kimbrow	0.98	0.63
SOGUTL-4	8/13/2020	1305	D. Kimbrow	261.3	IDEXX	8/14/2020	D. Kimbrow	3.04	1.96
Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	8/19/2020	0845	D. Kimbrow	579.4	IDEXX	8/20/2020	D. Kimbrow	21.1	13.6
SOGL-11	8/19/2020	1000	D. Kimbrow	517.2	IDEXX	8/20/2020	D. Kimbrow	20.5	13.2
SOGL-20	8/19/2020	1105	D. Kimbrow	547.5	IDEXX	8/20/2020	D. Kimbrow	20.5	13.2
SOGUTL-1	8/19/2020	1035	D. Kimbrow	201.4	IDEXX	8/20/2020	D. Kimbrow	0.32	0.21
SOGUTL-3	8/19/2020	1310	D. Kimbrow	61.3	IDEXX	8/20/2020	D. Kimbrow	0.72	0.46
SOGUTL-4	8/19/2020	1300	D. Kimbrow	63.1	IDEXX	8/20/2020	D. Kimbrow	0.57	0.37
Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	8/26/2020	0950	D. Kimbrow	613.1	IDEXX	8/27/2020	D. Kimbrow	29.8	19.3
SOGL-11	8/26/2020	1025	D. Kimbrow	686.7	IDEXX	8/27/2020	D. Kimbrow	27.2	17.6
SOGL-20	8/26/2020	1110	D. Kimbrow	727	IDEXX	8/27/2020	D. Kimbrow	27.2	17.6

Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGUTL-1	8/26/2020	1255	D. Kimbrow	249.5	IDEXX	8/27/2020	D. Kimbrow	0.35	0.23
SOGUTL-3	8/26/2020	1325	D. Kimbrow	139.6	IDEXX	8/27/2020	D. Kimbrow	0.84	0.54
SOGUTL-4	8/26/2020	1320	D. Kimbrow	141.4	IDEXX	8/27/2020	D. Kimbrow	0.43	0.28
Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	9/3/2020	1500	D. Kimbrow	260.3	IDEXX	9/4/2020	D. Kimbrow	20.2	13.1
SOGL-11	9/3/2020	1425	D. Kimbrow	579.4	IDEXX	9/4/2020	D. Kimbrow	20.5	13.2
SOGL-20	9/3/2020	1355	D. Kimbrow	365.4	IDEXX	9/4/2020	D. Kimbrow	20.5	13.2
SOGUTL-1	9/3/2020	1235	D. Kimbrow	410.6	IDEXX	9/4/2020	D. Kimbrow	0.23	0.15
SOGUTL-3	9/3/2020	1320	D. Kimbrow	27.5	IDEXX	9/4/2020	D. Kimbrow	0.76	0.76
SOGUTL-4	9/3/2020	1310	D. Kimbrow	325.5	IDEXX	9/4/2020	D. Kimbrow	0.55	0.36
Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	9/29/2020	1400	D. Kimbrow	866.4	IDEXX	9/30/2020	D. Kimbrow	37.2	24.0
SOGL-11	9/29/2020	1330	D. Kimbrow	980.4	IDEXX	9/30/2020	D. Kimbrow	36.1	23.3
SOGL-20	9/29/2020	1445	D. Kimbrow	410.6	IDEXX	9/30/2020	D. Kimbrow	36.1	23.3
SOGUTL-1	9/29/2020	1420	D. Kimbrow	2419.6	IDEXX	9/30/2020	D. Kimbrow	1.18	0.76
SOGUTL-3	9/29/2020	1525	D. Kimbrow	328.2	IDEXX	9/30/2020	D. Kimbrow	3.56	2.30
SOGUTL-4	9/29/2020	1530	D. Kimbrow	2419.6	IDEXX	9/30/2020	D. Kimbrow	3.03	1.96
Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	10/27/2020	0925	D. Kimbrow	816.4	IDEXX	10/28/2020	D. Kimbrow	47.4	30.6
SOGL-11	10/27/2020	0845	D. Kimbrow	920.8	IDEXX	10/28/2020	D. Kimbrow	31.7	20.5
SOGL-20	10/27/2020	1000	D. Kimbrow	461.1	IDEXX	10/28/2020	D. Kimbrow	31.7	20.5
SOGUTL-1	10/27/2020	1245	D. Kimbrow	325.5	IDEXX	10/28/2020	D. Kimbrow	0.31	0.20
SOGUTL-3	10/27/2020	1045	D. Kimbrow	290.9	IDEXX	10/28/2020	D. Kimbrow	0.99	0.64
SOGUTL-4	10/27/2020	1020	D. Kimbrow	122.3	IDEXX	10/28/2020	D. Kimbrow	0.93	0.60
Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	11/23/2020	1205	M. Smith	120.1	IDEXX	11/24/2020	R. McCurry	42.7	27.6
SOGL-11	11/23/2020	1250	R. McCurry	122.3	IDEXX	11/24/2020	R. McCurry	29.0	18.7
SOGL-20	11/23/2020	1635	R. McCurry	161.6	IDEXX	11/24/2020	R. McCurry	28.5	18.4
SOGUTL-1	11/23/2020	1335	R. McCurry	613.1	IDEXX	11/24/2020	R. McCurry	0.66	0.43
SOGUTL-3	11/23/2020	1550	M. Smith	46.4	IDEXX	11/24/2020	R. McCurry	0.46	0.30
SOGUTL-4	11/23/2020	1510	M. Smith	34.1	IDEXX	11/24/2020	R. McCurry	0.69	0.45
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	4/14/2020	0905	D. Kimbrow	61.9	YSI 5560	4/14/2020	D. Kimbrow	94.7	61.2
SOGL-11	4/14/2020	0940	D. Kimbrow	61.8	YSI 5560	4/14/2020	D. Kimbrow	55.6	35.9
SOGL-20	4/14/2020	1005	D. Kimbrow	61.0	YSI 5560	4/14/2020	D. Kimbrow	54.9	35.5
SOGUTL-1	4/14/2020	1140	D. Kimbrow	60.9	YSI 5560	4/14/2020	D. Kimbrow	1.33	0.86
SOGUTL-3	4/14/2020	1100	D. Kimbrow	63.2	YSI 5560	4/14/2020	D. Kimbrow	3.13	2.02
SOGUTL-4	4/14/2020	1045	D. Kimbrow	60.7	YSI 5560	4/14/2020	D. Kimbrow	1.51	0.98
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	5/13/2020	0820	D. Kimbrow	59.7	YSI 5560	5/13/2020	D. Kimbrow	52.8	34.1
SOGL-11	5/13/2020	0850	D. Kimbrow D. Rogers	61.2	YSI 5560	5/13/2020	D. Kimbrow D. Rogers	30.4	19.6
SOGL-20	5/13/2020	0915	D. Kimbrow D. Rogers	60.2	YSI 5560	5/13/2020	D. Kimbrow D. Rogers	29.9	19.3
SOGUTL-1	5/13/2020	1045	D. Kimbrow D. Rogers	60.6	YSI 5560	5/13/2020	D. Kimbrow D. Rogers	0.52	0.34

Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGUTL-3	5/13/2020	1000	D. Kimbrow D. Rogers	60.7	YSI 5560	5/13/2020	D. Kimbrow D. Rogers	1.37	0.89
SOGUTL-4	5/13/2020	0930	D. Kimbrow D. Rogers	60.6	YSI 5560	5/13/2020	D. Kimbrow D. Rogers	1.23	0.79
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	6/4/2020	1135	M. Smith R. McCurry	74.4	YSI 5560	6/4/2020	M. Smith R. McCurry	47.7	30.8
SOGL-11	6/4/2020	1235	M. Smith R. McCurry	76.3	YSI 5560	6/4/2020	M. Smith R. McCurry	14.2	9.18
SOGL-20	6/4/2020	1454	M. Smith R. McCurry	75.5	YSI 5560	6/4/2020	M. Smith R. McCurry	13.1	8.47
SOGUTL-1	6/4/2020	1655	M. Smith R. McCurry	73.2	YSI 5560	6/4/2020	M. Smith R. McCurry	0.39	0.25
SOGUTL-3	6/4/2020	1615	M. Smith R. McCurry	74.3	YSI 5560	6/4/2020	M. Smith R. McCurry	0.64	0.41
SOGUTL-4	6/4/2020	1535	M. Smith R. McCurry	74.6	YSI 5560	6/4/2020	M. Smith R. McCurry	0.43	0.28
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	6/8/2020	1020	D. Kimbrow	73.8	YSI 5560	6/8/2020	D. Kimbrow	44.5	28.8
SOGL-11	6/8/2020	1105	D. Kimbrow	74.4	YSI 5560	6/8/2020	D. Kimbrow	13.5	8.73
SOGL-20	6/8/2020	1145	D. Kimbrow	72.8	YSI 5560	6/8/2020	D. Kimbrow	13.1	8.47
SOGUTL-1	6/8/2020	1410	D. Kimbrow	73.8	YSI 5560	6/8/2020	D. Kimbrow	1.00	0.65
SOGUTL-3	6/8/2020	1320	D. Kimbrow	75.8	YSI 5560	6/8/2020	D. Kimbrow	1.04	0.67
SOGUTL-4	6/8/2020	1305	D. Kimbrow	74.5	YSI 5560	6/8/2020	D. Kimbrow	1.15	0.74
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	6/18/2020	1020	D. Kimbrow	70.2	YSI 5560	6/18/2020	D. Kimbrow	41.4	26.8
SOGL-11	6/18/2020	1055	D. Kimbrow	72.0	YSI 5560	6/18/2020	D. Kimbrow	34.6	22.4
SOGL-20	6/18/2020	1125	D. Kimbrow	71.4	YSI 5560	6/18/2020	D. Kimbrow	34.6	22.4
SOGUTL-1	6/18/2020	1325	D. Kimbrow	69.6	YSI 5560	6/18/2020	D. Kimbrow	1.00	0.65
SOGUTL-3	6/18/2020	1230	D. Kimbrow	70.9	YSI 5560	6/18/2020	D. Kimbrow	0.87	0.56
SOGUTL-4	6/18/2020	1225	D. Kimbrow	69.9	YSI 5560	6/18/2020	D. Kimbrow	1.19	0.77
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	6/22/2020	1515	M. Smith	78.0	YSI 5560	6/22/2020	M. Smith	58.5	37.8
SOGL-11	6/22/2020	1445	M. Smith	78.7	YSI 5560	6/22/2020	M. Smith	43.1	27.9
SOGL-20	6/22/2020	1350	M. Smith	77.6	YSI 5560	6/22/2020	M. Smith	46.3	29.9
SOGUTL-1	6/22/2020	1050	M. Smith	73.6	YSI 5560	6/22/2020	M. Smith	0.54	0.35
SOGUTL-3	6/22/2020	1235	M. Smith	77.1	YSI 5560	6/22/2020	M. Smith	3.41	2.20
SOGUTL-4	6/22/2020	1200	M. Smith	74.6	YSI 5560	6/22/2020	M. Smith	0.62	0.40
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	6/29/2020	1055	R. McCurry	75.7	YSI 5560	6/29/2020	M. Smith	49.3	31.9
SOGL-11	6/29/2020	1135	R. McCurry	76.6	YSI 5560	6/29/2020	M. Smith	38.3	24.8
SOGL-20	6/29/2020	1625	R. McCurry	81.2	YSI 5560	6/29/2020	M. Smith	38.3	24.8
SOGUTL-1	6/29/2020	1400	R. McCurry	74.6	YSI 5560	6/29/2020	M. Smith	0.57	0.37
SOGUTL-3	6/29/2020	1525	R. McCurry	77.7	YSI 5560	6/29/2020	M. Smith	0.27	0.17
SOGUTL-4	6/29/2020	1450	R. McCurry	77.0	YSI 5560	6/29/2020	M. Smith	0.78	0.50

Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	7/29/2020	0940	D. Kimbrow	77.4	YSI 5560	7/29/2020	D. Kimbrow	28.7	18.6
SOGL-11	7/29/2020	1050	D. Kimbrow	77.8	YSI 5560	7/29/2020	D. Kimbrow	27.6	17.8
SOGL-20	7/29/2020	1015	D. Kimbrow	76.6	YSI 5560	7/29/2020	D. Kimbrow	27.6	17.8
SOGUTL-1	7/29/2020	1325	D. Kimbrow	75.8	YSI 5560	7/29/2020	D. Kimbrow	0.33	0.21
SOGUTL-3	7/29/2020	1400	D. Kimbrow	78.9	YSI 5560	7/29/2020	D. Kimbrow	1.44	0.93
SOGUTL-4	7/29/2020	1355	D. Kimbrow	77.1	YSI 5560	7/29/2020	D. Kimbrow	0.74	0.48
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	8/6/2020	1445	R. McCurry	81.2	YSI 5560	8/6/2020	M. Smith	18.7	12.1
SOGL-11	8/6/2020	1345	R. McCurry	84.2	YSI 5560	8/6/2020	M. Smith	18.2	11.8
SOGL-20	8/6/2020	1730	R. McCurry	80.8	YSI 5560	8/6/2020	M. Smith	18.2	11.8
SOGUTL-1	8/6/2020	1515	R. McCurry	77.7	YSI 5560	8/6/2020	M. Smith	0.25	0.16
SOGUTL-3	8/6/2020	1630	R. McCurry	78.0	YSI 5560	8/6/2020	M. Smith	0.37	0.24
SOGUTL-4	8/6/2020	1605	R. McCurry	77.8	YSI 5560	8/6/2020	M. Smith	0.77	0.50
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	8/13/2020	1000	D. Kimbrow	77.2	YSI 5560	8/13/2020	D. Kimbrow	26.6	17.2
SOGL-11	8/13/2020	1035	D. Kimbrow	79.4	YSI 5560	8/13/2020	D. Kimbrow	25.9	16.7
SOGL-20	8/13/2020	1110	D. Kimbrow	78.3	YSI 5560	8/13/2020	D. Kimbrow	25.9	16.7
SOGUTL-1	8/13/2020	1245	D. Kimbrow	77.2	YSI 5560	8/13/2020	D. Kimbrow	0.29	0.19
SOGUTL-3	8/13/2020	1320	D. Kimbrow	79.1	YSI 5560	8/13/2020	D. Kimbrow	0.98	0.63
SOGUTL-4	8/13/2020	1305	D. Kimbrow	76.8	YSI 5560	8/13/2020	D. Kimbrow	3.04	1.96
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	8/19/2020	0845	D. Kimbrow	75.3	YSI 5560	8/19/2020	D. Kimbrow	21.1	13.6
SOGL-11	8/19/2020	1000	D. Kimbrow	77.1	YSI 5560	8/19/2020	D. Kimbrow	20.5	13.2
SOGL-20	8/19/2020	1105	D. Kimbrow	76.9	YSI 5560	8/19/2020	D. Kimbrow	20.5	13.2
SOGUTL-1	8/19/2020	1035	D. Kimbrow	74.7	YSI 5560	8/19/2020	D. Kimbrow	0.32	0.21
SOGUTL-3	8/19/2020	1310	D. Kimbrow	77.9	YSI 5560	8/19/2020	D. Kimbrow	0.72	0.46
SOGUTL-4	8/19/2020	1300	D. Kimbrow	75.6	YSI 5560	8/19/2020	D. Kimbrow	0.57	0.37
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	8/26/2020	0950	D. Kimbrow	76.9	YSI 5560	8/26/2020	D. Kimbrow	29.8	19.3
SOGL-11	8/26/2020	1025	D. Kimbrow	78.1	YSI 5560	8/26/2020	D. Kimbrow	27.2	17.6
SOGL-20	8/26/2020	1110	D. Kimbrow	78.1	YSI 5560	8/26/2020	D. Kimbrow	27.2	17.6
SOGUTL-1	8/26/2020	1255	D. Kimbrow	76.8	YSI 5560	8/26/2020	D. Kimbrow	0.35	0.23
SOGUTL-3	8/26/2020	1325	D. Kimbrow	78.9	YSI 5560	8/26/2020	D. Kimbrow	0.84	0.54
SOGUTL-4	8/26/2020	1320	D. Kimbrow	76.8	YSI 5560	8/26/2020	D. Kimbrow	0.43	0.28
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	9/3/2020	1500	D. Kimbrow	81.5	YSI 5560	9/3/2020	D. Kimbrow	20.2	13.1
SOGL-11	9/3/2020	1425	D. Kimbrow	84.1	YSI 5560	9/3/2020	D. Kimbrow	20.5	13.2
SOGL-20	9/3/2020	1355	D. Kimbrow	81.4	YSI 5560	9/3/2020	D. Kimbrow	20.5	13.2
SOGUTL-1	9/3/2020	1235	D. Kimbrow	76.7	YSI 5560	9/3/2020	D. Kimbrow	0.23	0.15
SOGUTL-3	9/3/2020	1320	D. Kimbrow	78.9	YSI 5560	9/3/2020	D. Kimbrow	0.76	0.76
SOGUTL-4	9/3/2020	1310	D. Kimbrow	76.4	YSI 5560	9/3/2020	D. Kimbrow	0.55	0.36
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	9/29/2020	1400	D. Kimbrow	69.7	YSI 5560	9/29/2020	D. Kimbrow	37.2	24.0
SOGL-11	9/29/2020	1330	D. Kimbrow	70.0	YSI 5560	9/29/2020	D. Kimbrow	36.1	23.3
SOGL-20	9/29/2020	1445	D. Kimbrow	69.1	YSI 5560	9/29/2020	D. Kimbrow	36.1	23.3

Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGUTL-1	9/29/2020	1420	D. Kimbrow	66.9	YSI 5560	9/29/2020	D. Kimbrow	1.18	0.76
SOGUTL-3	9/29/2020	1525	D. Kimbrow	68.8	YSI 5560	9/29/2020	D. Kimbrow	3.56	2.30
SOGUTL-4	9/29/2020	1530	D. Kimbrow	67.3	YSI 5560	9/29/2020	D. Kimbrow	3.03	1.96
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	10/27/2020	0925	D. Kimbrow	69.7	YSI 5560	10/27/2020	D. Kimbrow	47.4	30.6
SOGL-11	10/27/2020	0845	D. Kimbrow	69.8	YSI 5560	10/27/2020	D. Kimbrow	31.7	20.5
SOGL-20	10/27/2020	1000	D. Kimbrow	69.4	YSI 5560	10/27/2020	D. Kimbrow	31.7	20.5
SOGUTL-1	10/27/2020	1245	D. Kimbrow	69.2	YSI 5560	10/27/2020	D. Kimbrow	0.31	0.20
SOGUTL-3	10/27/2020	1045	D. Kimbrow	69.8	YSI 5560	10/27/2020	D. Kimbrow	0.99	0.64
SOGUTL-4	10/27/2020	1020	D. Kimbrow	69.1	YSI 5560	10/27/2020	D. Kimbrow	0.93	0.60
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	11/23/2020	1205	M. Smith	56.9	YSI 5560	11/23/2020	R. McCurry	42.7	27.6
SOGL-11	11/23/2020	1250	R. McCurry	59.9	YSI 5560	11/23/2020	R. McCurry	29.0	18.7
SOGL-20	11/23/2020	1635	R. McCurry	59.9	YSI 5560	11/23/2020	R. McCurry	28.5	18.4
SOGUTL-1	11/23/2020	1335	R. McCurry	57.2	YSI 5560	11/23/2020	R. McCurry	0.66	0.43
SOGUTL-3	11/23/2020	1550	M. Smith	56.6	YSI 5560	11/23/2020	R. McCurry	0.46	0.30
SOGUTL-4	11/23/2020	1510	M. Smith	58.4	YSI 5560	11/23/2020	R. McCurry	0.69	0.45
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	4/14/2020	0905	D. Kimbrow	7.27	YSI 1001	4/14/2020	D. Kimbrow	94.7	61.2
SOGL-11	4/14/2020	0940	D. Kimbrow	7.26	YSI 1001	4/14/2020	D. Kimbrow	55.6	35.9
SOGL-20	4/14/2020	1005	D. Kimbrow	7.32	YSI 1001	4/14/2020	D. Kimbrow	54.9	35.5
SOGUTL-1	4/14/2020	1140	D. Kimbrow	7.02	YSI 1001	4/14/2020	D. Kimbrow	1.33	0.86
SOGUTL-3	4/14/2020	1100	D. Kimbrow	7.07	YSI 1001	4/14/2020	D. Kimbrow	3.13	2.02
SOGUTL-4	4/14/2020	1045	D. Kimbrow	7.22	YSI 1001	4/14/2020	D. Kimbrow	1.51	0.98
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	5/13/2020	0820	D. Kimbrow	7.25	YSI 1001	5/13/2020	D. Kimbrow	52.8	34.1
SOGL-11	5/13/2020	0850	D. Kimbrow D. Rogers	7.23	YSI 1001	5/13/2020	D. Kimbrow D. Rogers	30.4	19.6
SOGL-20	5/13/2020	0915	D. Kimbrow D. Rogers	7.25	YSI 1001	5/13/2020	D. Kimbrow D. Rogers	29.9	19.3
SOGUTL-1	5/13/2020	1045	D. Kimbrow D. Rogers	7.01	YSI 1001	5/13/2020	D. Kimbrow D. Rogers	0.52	0.34
SOGUTL-3	5/13/2020	1000	D. Kimbrow D. Rogers	6.95	YSI 1001	5/13/2020	D. Kimbrow D. Rogers	1.37	0.89
SOGUTL-4	5/13/2020	0930	D. Kimbrow D. Rogers	7.27	YSI 1001	5/13/2020	D. Kimbrow D. Rogers	1.23	0.79
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	6/4/2020	1135	M. Smith R. McCurry	7.12	YSI 1001	6/4/2020	M. Smith R. McCurry	47.7	30.8
SOGL-11	6/4/2020	1235	M. Smith R. McCurry	7.05	YSI 1001	6/4/2020	M. Smith R. McCurry	14.2	9.18
SOGL-20	6/4/2020	1454	M. Smith R. McCurry	6.8	YSI 1001	6/4/2020	M. Smith R. McCurry	13.1	8.47
SOGUTL-1	6/4/2020	1655	M. Smith R. McCurry	6.97	YSI 1001	6/4/2020	M. Smith R. McCurry	0.39	0.25
SOGUTL-3	6/4/2020	1615	M. Smith R. McCurry	6.89	YSI 1001	6/4/2020	M. Smith R. McCurry	0.64	0.41
SOGUTL-4	6/4/2020	1535	M. Smith	7.10	YSI 1001	6/4/2020	M. Smith	0.43	0.28

Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	6/8/2020	1020	D. Kimbrow	6.94	YSI 1001	6/8/2020	D. Kimbrow	44.5	28.8
SOGL-11	6/8/2020	1105	D. Kimbrow	6.94	YSI 1001	6/8/2020	D. Kimbrow	13.5	8.73
SOGL-20	6/8/2020	1145	D. Kimbrow	6.87	YSI 1001	6/8/2020	D. Kimbrow	13.1	8.47
SOGUTL-1	6/8/2020	1410	D. Kimbrow	6.85	YSI 1001	6/8/2020	D. Kimbrow	1.00	0.65
SOGUTL-3	6/8/2020	1320	D. Kimbrow	6.84	YSI 1001	6/8/2020	D. Kimbrow	1.04	0.67
SOGUTL-4	6/8/2020	1305	D. Kimbrow	6.91	YSI 1001	6/8/2020	D. Kimbrow	1.15	0.74
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	6/18/2020	1020	D. Kimbrow	6.96	YSI 1001	6/18/2020	D. Kimbrow	41.4	26.8
SOGL-11	6/18/2020	1055	D. Kimbrow	6.88	YSI 1001	6/18/2020	D. Kimbrow	34.6	22.4
SOGL-20	6/18/2020	1125	D. Kimbrow	6.95	YSI 1001	6/18/2020	D. Kimbrow	34.6	22.4
SOGUTL-1	6/18/2020	1325	D. Kimbrow	6.87	YSI 1001	6/18/2020	D. Kimbrow	1.00	0.65
SOGUTL-3	6/18/2020	1230	D. Kimbrow	6.85	YSI 1001	6/18/2020	D. Kimbrow	0.87	0.56
SOGUTL-4	6/18/2020	1225	D. Kimbrow	7.08	YSI 1001	6/18/2020	D. Kimbrow	1.19	0.77
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	6/22/2020	1515	M. Smith	7.09	YSI 1001	6/22/2020	M. Smith	58.5	37.8
SOGL-11	6/22/2020	1445	M. Smith	7.05	YSI 1001	6/22/2020	M. Smith	43.1	27.9
SOGL-20	6/22/2020	1350	M. Smith	6.88	YSI 1001	6/22/2020	M. Smith	46.3	29.9
SOGUTL-1	6/22/2020	1050	M. Smith	6.26	YSI 1001	6/22/2020	M. Smith	0.54	0.35
SOGUTL-3	6/22/2020	1235	M. Smith	6.95	YSI 1001	6/22/2020	M. Smith	3.41	2.20
SOGUTL-4	6/22/2020	1200	M. Smith	6.69	YSI 1001	6/22/2020	M. Smith	0.62	0.40
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	6/29/2020	1055	R. McCurry	6.73	YSI 1001	6/29/2020	M. Smith	49.3	31.9
SOGL-11	6/29/2020	1135	R. McCurry	7.06	YSI 1001	6/29/2020	M. Smith	38.3	24.8
SOGL-20	6/29/2020	1625	R. McCurry	7.12	YSI 1001	6/29/2020	M. Smith	38.3	24.8
SOGUTL-1	6/29/2020	1400	R. McCurry	6.92	YSI 1001	6/29/2020	M. Smith	0.57	0.37
SOGUTL-3	6/29/2020	1525	R. McCurry	6.90	YSI 1001	6/29/2020	M. Smith	0.27	0.17
SOGUTL-4	6/29/2020	1450	R. McCurry	7.13	YSI 1001	6/29/2020	M. Smith	0.78	0.50
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	7/29/2020	0940	D. Kimbrow	7.38	YSI 1001	7/29/2020	D. Kimbrow	28.7	18.6
SOGL-11	7/29/2020	1050	D. Kimbrow	7.36	YSI 1001	7/29/2020	D. Kimbrow	27.6	17.8
SOGL-20	7/29/2020	1015	D. Kimbrow	7.32	YSI 1001	7/29/2020	D. Kimbrow	27.6	17.8
SOGUTL-1	7/29/2020	1325	D. Kimbrow	7.17	YSI 1001	7/29/2020	D. Kimbrow	0.33	0.21
SOGUTL-3	7/29/2020	1400	D. Kimbrow	7.17	YSI 1001	7/29/2020	D. Kimbrow	1.44	0.93
SOGUTL-4	7/29/2020	1355	D. Kimbrow	7.22	YSI 1001	7/29/2020	D. Kimbrow	0.74	0.48
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	8/6/2020	1445	R. McCurry	7.54	YSI 1001	8/6/2020	M. Smith	18.7	12.1
SOGL-11	8/6/2020	1345	R. McCurry	7.42	YSI 1001	8/6/2020	M. Smith	18.2	11.8
SOGL-20	8/6/2020	1730	R. McCurry	7.39	YSI 1001	8/6/2020	M. Smith	18.2	11.8
SOGUTL-1	8/6/2020	1515	R. McCurry	7.28	YSI 1001	8/6/2020	M. Smith	0.25	0.16
SOGUTL-3	8/6/2020	1630	R. McCurry	7.06	YSI 1001	8/6/2020	M. Smith	0.37	0.24
SOGUTL-4	8/6/2020	1605	R. McCurry	7.52	YSI 1001	8/6/2020	M. Smith	0.77	0.50
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	8/13/2020	1000	D. Kimbrow	7.32	YSI 1001	8/13/2020	D. Kimbrow	26.6	17.2
SOGL-11	8/13/2020	1035	D. Kimbrow	7.32	YSI 1001	8/13/2020	D. Kimbrow	25.9	16.7
SOGL-20	8/13/2020	1110	D. Kimbrow	7.31	YSI 1001	8/13/2020	D. Kimbrow	25.9	16.7

Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGUTL-1	8/13/2020	1245	D. Kimbrow	7.17	YSI 1001	8/13/2020	D. Kimbrow	0.29	0.19
SOGUTL-3	8/13/2020	1320	D. Kimbrow	6.98	YSI 1001	8/13/2020	D. Kimbrow	0.98	0.63
SOGUTL-4	8/13/2020	1305	D. Kimbrow	7.25	YSI 1001	8/13/2020	D. Kimbrow	3.04	1.96
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	8/19/2020	0845	D. Kimbrow	7.64	YSI 1001	8/19/2020	D. Kimbrow	21.1	13.6
SOGL-11	8/19/2020	1000	D. Kimbrow	7.44	YSI 1001	8/19/2020	D. Kimbrow	20.5	13.2
SOGL-20	8/19/2020	1105	D. Kimbrow	7.36	YSI 1001	8/19/2020	D. Kimbrow	20.5	13.2
SOGUTL-1	8/19/2020	1035	D. Kimbrow	7.27	YSI 1001	8/19/2020	D. Kimbrow	0.32	0.21
SOGUTL-3	8/19/2020	1310	D. Kimbrow	6.98	YSI 1001	8/19/2020	D. Kimbrow	0.72	0.46
SOGUTL-4	8/19/2020	1300	D. Kimbrow	7.39	YSI 1001	8/19/2020	D. Kimbrow	0.57	0.37
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	8/26/2020	0950	D. Kimbrow	7.47	YSI 1001	8/26/2020	D. Kimbrow	29.8	19.3
SOGL-11	8/26/2020	1025	D. Kimbrow	7.42	YSI 1001	8/26/2020	D. Kimbrow	27.2	17.6
SOGL-20	8/26/2020	1110	D. Kimbrow	7.38	YSI 1001	8/26/2020	D. Kimbrow	27.2	17.6
SOGUTL-1	8/26/2020	1255	D. Kimbrow	7.24	YSI 1001	8/26/2020	D. Kimbrow	0.35	0.23
SOGUTL-3	8/26/2020	1325	D. Kimbrow	7.05	YSI 1001	8/26/2020	D. Kimbrow	0.84	0.54
SOGUTL-4	8/26/2020	1320	D. Kimbrow	7.32	YSI 1001	8/26/2020	D. Kimbrow	0.43	0.28
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	9/3/2020	1500	D. Kimbrow	7.50	YSI 1001	9/3/2020	D. Kimbrow	20.2	13.1
SOGL-11	9/3/2020	1425	D. Kimbrow	7.46	YSI 1001	9/3/2020	D. Kimbrow	20.5	13.2
SOGL-20	9/3/2020	1355	D. Kimbrow	7.44	YSI 1001	9/3/2020	D. Kimbrow	20.5	13.2
SOGUTL-1	9/3/2020	1235	D. Kimbrow	7.32	YSI 1001	9/3/2020	D. Kimbrow	0.23	0.15
SOGUTL-3	9/3/2020	1320	D. Kimbrow	7.01	YSI 1001	9/3/2020	D. Kimbrow	0.76	0.76
SOGUTL-4	9/3/2020	1310	D. Kimbrow	7.30	YSI 1001	9/3/2020	D. Kimbrow	0.55	0.36
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	9/29/2020	1400	D. Kimbrow	7.37	YSI 1001	9/29/2020	D. Kimbrow	37.2	24.0
SOGL-11	9/29/2020	1330	D. Kimbrow	7.43	YSI 1001	9/29/2020	D. Kimbrow	36.1	23.3
SOGL-20	9/29/2020	1445	D. Kimbrow	7.40	YSI 1001	9/29/2020	D. Kimbrow	36.1	23.3
SOGUTL-1	9/29/2020	1420	D. Kimbrow	7.17	YSI 1001	9/29/2020	D. Kimbrow	1.18	0.76
SOGUTL-3	9/29/2020	1525	D. Kimbrow	7.24	YSI 1001	9/29/2020	D. Kimbrow	3.56	2.30
SOGUTL-4	9/29/2020	1530	D. Kimbrow	7.25	YSI 1001	9/29/2020	D. Kimbrow	3.03	1.96
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	10/27/2020	0925	D. Kimbrow	7.32	YSI 1001	10/27/2020	D. Kimbrow	47.4	30.6
SOGL-11	10/27/2020	0845	D. Kimbrow	7.36	YSI 1001	10/27/2020	D. Kimbrow	31.7	20.5
SOGL-20	10/27/2020	1000	D. Kimbrow	7.35	YSI 1001	10/27/2020	D. Kimbrow	31.7	20.5
SOGUTL-1	10/27/2020	1245	D. Kimbrow	7.09	YSI 1001	10/27/2020	D. Kimbrow	0.31	0.20
SOGUTL-3	10/27/2020	1045	D. Kimbrow	7.07	YSI 1001	10/27/2020	D. Kimbrow	0.99	0.64
SOGUTL-4	10/27/2020	1020	D. Kimbrow	7.26	YSI 1001	10/27/2020	D. Kimbrow	0.93	0.60
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	11/23/2020	1205	M. Smith	7.36	YSI 1001	11/23/2020	R. McCurry	42.7	27.6
SOGL-11	11/23/2020	1250	R. McCurry	7.33	YSI 1001	11/23/2020	R. McCurry	29.0	18.7
SOGL-20	11/23/2020	1635	R. McCurry	7.40	YSI 1001	11/23/2020	R. McCurry	28.5	18.4
SOGUTL-1	11/23/2020	1335	R. McCurry	7.20	YSI 1001	11/23/2020	R. McCurry	0.66	0.43
SOGUTL-3	11/23/2020	1550	M. Smith	6.96	YSI 1001	11/23/2020	R. McCurry	0.46	0.30
SOGUTL-4	11/23/2020	1510	M. Smith	7.34	YSI 1001	11/23/2020	R. McCurry	0.69	0.45

Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	4/14/2020	0905	D. Kimbrow	8.83	YSI 2003	4/14/2020	D. Kimbrow	94.7	61.2
SOGL-11	4/14/2020	0940	D. Kimbrow	8.42	YSI 2003	4/14/2020	D. Kimbrow	55.6	35.9
SOGL-20	4/14/2020	1005	D. Kimbrow	8.95	YSI 2003	4/14/2020	D. Kimbrow	54.9	35.5
SOGUTL-1	4/14/2020	1140	D. Kimbrow	9.19	YSI 2003	4/14/2020	D. Kimbrow	1.33	0.86
SOGUTL-3	4/14/2020	1100	D. Kimbrow	8.28	YSI 2003	4/14/2020	D. Kimbrow	3.13	2.02
SOGUTL-4	4/14/2020	1045	D. Kimbrow	8.97	YSI 2003	4/14/2020	D. Kimbrow	1.51	0.98
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	5/13/2020	0820	D. Kimbrow	9.07	YSI 2003	5/13/2020	D. Kimbrow	52.8	34.1
SOGL-11	5/13/2020	0850	D. Kimbrow D. Rogers	8.90	YSI 2003	5/13/2020	D. Kimbrow D. Rogers	30.4	19.6
SOGL-20	5/13/2020	0915	D. Kimbrow D. Rogers	9.43	YSI 2003	5/13/2020	D. Kimbrow D. Rogers	29.9	19.3
SOGUTL-1	5/13/2020	1045	D. Kimbrow D. Rogers	9.26	YSI 2003	5/13/2020	D. Kimbrow D. Rogers	0.52	0.34
SOGUTL-3	5/13/2020	1000	D. Kimbrow D. Rogers	8.56	YSI 2003	5/13/2020	D. Kimbrow D. Rogers	1.37	0.89
SOGUTL-4	5/13/2020	0930	D. Kimbrow D. Rogers	8.95	YSI 2003	5/13/2020	D. Kimbrow D. Rogers	1.23	0.79
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	6/4/2020	1135	M. Smith R. McCurry	8.04	YSI 2003	6/4/2020	M. Smith R. McCurry	47.7	30.8
SOGL-11	6/4/2020	1235	M. Smith R. McCurry	8.02	YSI 2003	6/4/2020	M. Smith R. McCurry	14.2	9.18
SOGL-20	6/4/2020	1454	M. Smith R. McCurry	8.18	YSI 2003	6/4/2020	M. Smith R. McCurry	13.1	8.47
SOGUTL-1	6/4/2020	1655	M. Smith R. McCurry	7.20	YSI 2003	6/4/2020	M. Smith R. McCurry	0.39	0.25
SOGUTL-3	6/4/2020	1615	M. Smith R. McCurry	7.06	YSI 2003	6/4/2020	M. Smith R. McCurry	0.64	0.41
SOGUTL-4	6/4/2020	1535	M. Smith R. McCurry	7.85	YSI 2003	6/4/2020	M. Smith R. McCurry	0.43	0.28
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	6/8/2020	1020	D. Kimbrow	7.47	YSI 2003	6/8/2020	D. Kimbrow	44.5	28.8
SOGL-11	6/8/2020	1105	D. Kimbrow	7.55	YSI 2003	6/8/2020	D. Kimbrow	13.5	8.73
SOGL-20	6/8/2020	1145	D. Kimbrow	8.08	YSI 2003	6/8/2020	D. Kimbrow	13.1	8.47
SOGUTL-1	6/8/2020	1410	D. Kimbrow	8.02	YSI 2003	6/8/2020	D. Kimbrow	1.00	0.65
SOGUTL-3	6/8/2020	1320	D. Kimbrow	7.15	YSI 2003	6/8/2020	D. Kimbrow	1.04	0.67
SOGUTL-4	6/8/2020	1305	D. Kimbrow	8.03	YSI 2003	6/8/2020	D. Kimbrow	1.15	0.74
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	6/18/2020	1020	D. Kimbrow	8.40	YSI 2003	6/18/2020	D. Kimbrow	41.4	26.8
SOGL-11	6/18/2020	1055	D. Kimbrow	8.10	YSI 2003	6/18/2020	D. Kimbrow	34.6	22.4
SOGL-20	6/18/2020	1125	D. Kimbrow	8.32	YSI 2003	6/18/2020	D. Kimbrow	34.6	22.4
SOGUTL-1	6/18/2020	1325	D. Kimbrow	8.40	YSI 2003	6/18/2020	D. Kimbrow	1.00	0.65
SOGUTL-3	6/18/2020	1230	D. Kimbrow	7.48	YSI 2003	6/18/2020	D. Kimbrow	0.87	0.56
SOGUTL-4	6/18/2020	1225	D. Kimbrow	8.62	YSI 2003	6/18/2020	D. Kimbrow	1.19	0.77
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	6/22/2020	1515	M. Smith	7.52	YSI 2003	6/22/2020	M. Smith	58.5	37.8
SOGL-11	6/22/2020	1445	M. Smith	7.81	YSI 2003	6/22/2020	M. Smith	43.1	27.9



Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-20	6/22/2020	1350	M. Smith	7.80	YSI 2003	6/22/2020	M. Smith	46.3	29.9
SOGUTL-1	6/22/2020	1050	M. Smith	7.22	YSI 2003	6/22/2020	M. Smith	0.54	0.35
SOGUTL-3	6/22/2020	1235	M. Smith	7.12	YSI 2003	6/22/2020	M. Smith	3.41	2.20
SOGUTL-4	6/22/2020	1200	M. Smith	7.80	YSI 2003	6/22/2020	M. Smith	0.62	0.40
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	6/29/2020	1055	R. McCurry	7.81	YSI 2003	6/29/2020	M. Smith	49.3	31.9
SOGL-11	6/29/2020	1135	R. McCurry	7.48	YSI 2003	6/29/2020	M. Smith	38.3	24.8
SOGL-20	6/29/2020	1625	R. McCurry	7.25	YSI 2003	6/29/2020	M. Smith	38.3	24.8
SOGUTL-1	6/29/2020	1400	R. McCurry	8.21	YSI 2003	6/29/2020	M. Smith	0.57	0.37
SOGUTL-3	6/29/2020	1525	R. McCurry	6.71	YSI 2003	6/29/2020	M. Smith	0.27	0.17
SOGUTL-4	6/29/2020	1450	R. McCurry	8.24	YSI 2003	6/29/2020	M. Smith	0.78	0.50
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	7/29/2020	0940	D. Kimbrow	6.86	YSI 2003	7/29/2020	D. Kimbrow	28.7	18.6
SOGL-11	7/29/2020	1050	D. Kimbrow	7.03	YSI 2003	7/29/2020	D. Kimbrow	27.6	17.8
SOGL-20	7/29/2020	1015	D. Kimbrow	7.21	YSI 2003	7/29/2020	D. Kimbrow	27.6	17.8
SOGUTL-1	7/29/2020	1325	D. Kimbrow	7.62	YSI 2003	7/29/2020	D. Kimbrow	0.33	0.21
SOGUTL-3	7/29/2020	1400	D. Kimbrow	7.01	YSI 2003	7/29/2020	D. Kimbrow	1.44	0.93
SOGUTL-4	7/29/2020	1355	D. Kimbrow	7.30	YSI 2003	7/29/2020	D. Kimbrow	0.74	0.48
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	8/6/2020	1445	R. McCurry	8.11	YSI 2003	8/6/2020	M. Smith	18.7	12.1
SOGL-11	8/6/2020	1345	R. McCurry	6.88	YSI 2003	8/6/2020	M. Smith	18.2	11.8
SOGL-20	8/6/2020	1730	R. McCurry	7.80	YSI 2003	8/6/2020	M. Smith	18.2	11.8
SOGUTL-1	8/6/2020	1515	R. McCurry	8.47	YSI 2003	8/6/2020	M. Smith	0.25	0.16
SOGUTL-3	8/6/2020	1630	R. McCurry	6.99	YSI 2003	8/6/2020	M. Smith	0.37	0.24
SOGUTL-4	8/6/2020	1605	R. McCurry	8.28	YSI 2003	8/6/2020	M. Smith	0.77	0.50
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	8/13/2020	1000	D. Kimbrow	6.86	YSI 2003	8/13/2020	D. Kimbrow	26.6	17.2
SOGL-11	8/13/2020	1035	D. Kimbrow	6.74	YSI 2003	8/13/2020	D. Kimbrow	25.9	16.7
SOGL-20	8/13/2020	1110	D. Kimbrow	7.04	YSI 2003	8/13/2020	D. Kimbrow	25.9	16.7
SOGUTL-1	8/13/2020	1245	D. Kimbrow	6.99	YSI 2003	8/13/2020	D. Kimbrow	0.29	0.19
SOGUTL-3	8/13/2020	1320	D. Kimbrow	6.64	YSI 2003	8/13/2020	D. Kimbrow	0.98	0.63
SOGUTL-4	8/13/2020	1305	D. Kimbrow	7.22	YSI 2003	8/13/2020	D. Kimbrow	3.04	1.96
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	8/19/2020	0845	D. Kimbrow	7.11	YSI 2003	8/19/2020	D. Kimbrow	21.1	13.6
SOGL-11	8/19/2020	1000	D. Kimbrow	7.02	YSI 2003	8/19/2020	D. Kimbrow	20.5	13.2
SOGL-20	8/19/2020	1105	D. Kimbrow	7.37	YSI 2003	8/19/2020	D. Kimbrow	20.5	13.2
SOGUTL-1	8/19/2020	1035	D. Kimbrow	7.24	YSI 2003	8/19/2020	D. Kimbrow	0.32	0.21
SOGUTL-3	8/19/2020	1310	D. Kimbrow	6.78	YSI 2003	8/19/2020	D. Kimbrow	0.72	0.46
SOGUTL-4	8/19/2020	1300	D. Kimbrow	7.55	YSI 2003	8/19/2020	D. Kimbrow	0.57	0.37
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	8/26/2020	0950	D. Kimbrow	7.42	YSI 2003	8/26/2020	D. Kimbrow	29.8	19.3
SOGL-11	8/26/2020	1025	D. Kimbrow	6.81	YSI 2003	8/26/2020	D. Kimbrow	27.2	17.6
SOGL-20	8/26/2020	1110	D. Kimbrow	7.54	YSI 2003	8/26/2020	D. Kimbrow	27.2	17.6
SOGUTL-1	8/26/2020	1255	D. Kimbrow	7.32	YSI 2003	8/26/2020	D. Kimbrow	0.35	0.23
SOGUTL-3	8/26/2020	1325	D. Kimbrow	6.83	YSI 2003	8/26/2020	D. Kimbrow	0.84	0.54

Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGUTL-4	8/26/2020	1320	D. Kimbrow	8.02	YSI 2003	8/26/2020	D. Kimbrow	0.43	0.28
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	9/3/2020	1500	D. Kimbrow	7.19	YSI 2003	9/3/2020	D. Kimbrow	20.2	13.1
SOGL-11	9/3/2020	1425	D. Kimbrow	6.91	YSI 2003	9/3/2020	D. Kimbrow	20.5	13.2
SOGL-20	9/3/2020	1355	D. Kimbrow	7.10	YSI 2003	9/3/2020	D. Kimbrow	20.5	13.2
SOGUTL-1	9/3/2020	1235	D. Kimbrow	6.91	YSI 2003	9/3/2020	D. Kimbrow	0.23	0.15
SOGUTL-3	9/3/2020	1320	D. Kimbrow	6.35	YSI 2003	9/3/2020	D. Kimbrow	0.76	0.76
SOGUTL-4	9/3/2020	1310	D. Kimbrow	8.42	YSI 2003	9/3/2020	D. Kimbrow	0.55	0.36
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	9/29/2020	1400	D. Kimbrow	7.43	YSI 2003	9/29/2020	D. Kimbrow	37.2	24.0
SOGL-11	9/29/2020	1330	D. Kimbrow	7.52	YSI 2003	9/29/2020	D. Kimbrow	36.1	23.3
SOGL-20	9/29/2020	1445	D. Kimbrow	7.93	YSI 2003	9/29/2020	D. Kimbrow	36.1	23.3
SOGUTL-1	9/29/2020	1420	D. Kimbrow	7.97	YSI 2003	9/29/2020	D. Kimbrow	1.18	0.76
SOGUTL-3	9/29/2020	1525	D. Kimbrow	7.55	YSI 2003	9/29/2020	D. Kimbrow	3.56	2.30
SOGUTL-4	9/29/2020	1530	D. Kimbrow	8.06	YSI 2003	9/29/2020	D. Kimbrow	3.03	1.96
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	10/27/2020	0925	D. Kimbrow	7.73	YSI 2003	10/27/2020	D. Kimbrow	47.4	30.6
SOGL-11	10/27/2020	0845	D. Kimbrow	7.93	YSI 2003	10/27/2020	D. Kimbrow	31.7	20.5
SOGL-20	10/27/2020	1000	D. Kimbrow	8.15	YSI 2003	10/27/2020	D. Kimbrow	31.7	20.5
SOGUTL-1	10/27/2020	1245	D. Kimbrow	7.49	YSI 2003	10/27/2020	D. Kimbrow	0.31	0.20
SOGUTL-3	10/27/2020	1045	D. Kimbrow	7.25	YSI 2003	10/27/2020	D. Kimbrow	0.99	0.64
SOGUTL-4	10/27/2020	1020	D. Kimbrow	7.87	YSI 2003	10/27/2020	D. Kimbrow	0.93	0.60
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	11/23/2020	1205	M. Smith	9.85	YSI 2003	11/23/2020	R. McCurry	42.7	27.6
SOGL-11	11/23/2020	1250	R. McCurry	10.11	YSI 2003	11/23/2020	R. McCurry	29.0	18.7
SOGL-20	11/23/2020	1635	R. McCurry	10.10	YSI 2003	11/23/2020	R. McCurry	28.5	18.4
SOGUTL-1	11/23/2020	1335	R. McCurry	9.35	YSI 2003	11/23/2020	R. McCurry	0.66	0.43
SOGUTL-3	11/23/2020	1550	M. Smith	8.66	YSI 2003	11/23/2020	R. McCurry	0.46	0.30
SOGUTL-4	11/23/2020	1510	M. Smith	8.21	YSI 2003	11/23/2020	R. McCurry	0.69	0.45
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	4/14/2020	0905	D. Kimbrow	82.4	YSI 5560	4/14/2020	D. Kimbrow	94.7	61.2
SOGL-11	4/14/2020	0940	D. Kimbrow	91.1	YSI 5560	4/14/2020	D. Kimbrow	55.6	35.9
SOGL-20	4/14/2020	1005	D. Kimbrow	89.1	YSI 5560	4/14/2020	D. Kimbrow	54.9	35.5
SOGUTL-1	4/14/2020	1140	D. Kimbrow	105	YSI 5560	4/14/2020	D. Kimbrow	1.33	0.86
SOGUTL-3	4/14/2020	1100	D. Kimbrow	85.6	YSI 5560	4/14/2020	D. Kimbrow	3.13	2.02
SOGUTL-4	4/14/2020	1045	D. Kimbrow	121.5	YSI 5560	4/14/2020	D. Kimbrow	1.51	0.98
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	5/13/2020	0820	D. Kimbrow	84.5	YSI 5560	5/13/2020	D. Kimbrow	52.8	34.1
SOGL-11	5/13/2020	0850	D. Kimbrow D. Rogers	93.3	YSI 5560	5/13/2020	D. Kimbrow D. Rogers	30.4	19.6
SOGL-20	5/13/2020	0915	D. Kimbrow D. Rogers	86.6	YSI 5560	5/13/2020	D. Kimbrow D. Rogers	29.9	19.3
SOGUTL-1	5/13/2020	1045	D. Kimbrow D. Rogers	105.5	YSI 5560	5/13/2020	D. Kimbrow D. Rogers	0.52	0.34
SOGUTL-3	5/13/2020	1000	D. Kimbrow D. Rogers	97.2	YSI 5560	5/13/2020	D. Kimbrow D. Rogers	1.37	0.89

Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGUTL-4	5/13/2020	0930	D. Kimbrow D. Rogers	141.8	YSI 5560	5/13/2020	D. Kimbrow D. Rogers	1.23	0.79
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	6/4/2020	1135	M. Smith R. McCurry	93.3	YSI 5560	6/4/2020	M. Smith R. McCurry	47.7	30.8
SOGL-11	6/4/2020	1235	M. Smith R. McCurry	101.4	YSI 5560	6/4/2020	M. Smith R. McCurry	14.2	9.18
SOGL-20	6/4/2020	1454	M. Smith R. McCurry	98.4	YSI 5560	6/4/2020	M. Smith R. McCurry	13.1	8.47
SOGUTL-1	6/4/2020	1655	M. Smith R. McCurry	108.7	YSI 5560	6/4/2020	M. Smith R. McCurry	0.39	0.25
SOGUTL-3	6/4/2020	1615	M. Smith R. McCurry	102.8	YSI 5560	6/4/2020	M. Smith R. McCurry	0.64	0.41
SOGUTL-4	6/4/2020	1535	M. Smith R. McCurry	149.5	YSI 5560	6/4/2020	M. Smith R. McCurry	0.43	0.28
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	6/8/2020	1020	D. Kimbrow	No sample	YSI 5560	6/8/2020	D. Kimbrow	44.5	28.8
SOGL-11	6/8/2020	1105	D. Kimbrow	102.3	YSI 5560	6/8/2020	D. Kimbrow	13.5	8.73
SOGL-20	6/8/2020	1145	D. Kimbrow	93.2	YSI 5560	6/8/2020	D. Kimbrow	13.1	8.47
SOGUTL-1	6/8/2020	1410	D. Kimbrow	105.4	YSI 5560	6/8/2020	D. Kimbrow	1.00	0.65
SOGUTL-3	6/8/2020	1320	D. Kimbrow	105.1	YSI 5560	6/8/2020	D. Kimbrow	1.04	0.67
SOGUTL-4	6/8/2020	1305	D. Kimbrow	144.2	YSI 5560	6/8/2020	D. Kimbrow	1.15	0.74
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	6/18/2020	1020	D. Kimbrow	97.3	YSI 5560	6/18/2020	D. Kimbrow	41.4	26.8
SOGL-11	6/18/2020	1055	D. Kimbrow	105.2	YSI 5560	6/18/2020	D. Kimbrow	34.6	22.4
SOGL-20	6/18/2020	1125	D. Kimbrow	96.9	YSI 5560	6/18/2020	D. Kimbrow	34.6	22.4
SOGUTL-1	6/18/2020	1325	D. Kimbrow	110	YSI 5560	6/18/2020	D. Kimbrow	1.00	0.65
SOGUTL-3	6/18/2020	1230	D. Kimbrow	105.7	YSI 5560	6/18/2020	D. Kimbrow	0.87	0.56
SOGUTL-4	6/18/2020	1225	D. Kimbrow	148	YSI 5560	6/18/2020	D. Kimbrow	1.19	0.77
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	6/22/2020	1515	M. Smith	88.8	YSI 5560	6/22/2020	M. Smith	58.5	37.8
SOGL-11	6/22/2020	1445	M. Smith	98.1	YSI 5560	6/22/2020	M. Smith	43.1	27.9
SOGL-20	6/22/2020	1350	M. Smith	95.8	YSI 5560	6/22/2020	M. Smith	46.3	29.9
SOGUTL-1	6/22/2020	1050	M. Smith	75.5	YSI 5560	6/22/2020	M. Smith	0.54	0.35
SOGUTL-3	6/22/2020	1235	M. Smith	92.8	YSI 5560	6/22/2020	M. Smith	3.41	2.20
SOGUTL-4	6/22/2020	1200	M. Smith	98.0	YSI 5560	6/22/2020	M. Smith	0.62	0.40
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	6/29/2020	1055	R. McCurry	89.4	YSI 5560	6/29/2020	M. Smith	49.3	31.9
SOGL-11	6/29/2020	1135	R. McCurry	97.8	YSI 5560	6/29/2020	M. Smith	38.3	24.8
SOGL-20	6/29/2020	1625	R. McCurry	98.1	YSI 5560	6/29/2020	M. Smith	38.3	24.8
SOGUTL-1	6/29/2020	1400	R. McCurry	104.1	YSI 5560	6/29/2020	M. Smith	0.57	0.37
SOGUTL-3	6/29/2020	1525	R. McCurry	90.3	YSI 5560	6/29/2020	M. Smith	0.27	0.17
SOGUTL-4	6/29/2020	1450	R. McCurry	131.6	YSI 5560	6/29/2020	M. Smith	0.78	0.50
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	7/29/2020	0940	D. Kimbrow	112.1	YSI 5560	7/29/2020	D. Kimbrow	28.7	18.6
SOGL-11	7/29/2020	1050	D. Kimbrow	122.2	YSI 5560	7/29/2020	D. Kimbrow	27.6	17.8

Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-20	7/29/2020	1015	D. Kimbrow	129.7	YSI 5560	7/29/2020	D. Kimbrow	27.6	17.8
SOGUTL-1	7/29/2020	1325	D. Kimbrow	108.9	YSI 5560	7/29/2020	D. Kimbrow	0.33	0.21
SOGUTL-3	7/29/2020	1400	D. Kimbrow	95.1	YSI 5560	7/29/2020	D. Kimbrow	1.44	0.93
SOGUTL-4	7/29/2020	1355	D. Kimbrow	109.4	YSI 5560	7/29/2020	D. Kimbrow	0.74	0.48
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	8/6/2020	1445	R. McCurry	128.8	YSI 5560	8/6/2020	M. Smith	18.7	12.1
SOGL-11	8/6/2020	1345	R. McCurry	142.0	YSI 5560	8/6/2020	M. Smith	18.2	11.8
SOGL-20	8/6/2020	1730	R. McCurry	154.3	YSI 5560	8/6/2020	M. Smith	18.2	11.8
SOGUTL-1	8/6/2020	1515	R. McCurry	109.4	YSI 5560	8/6/2020	M. Smith	0.25	0.16
SOGUTL-3	8/6/2020	1630	R. McCurry	107.8	YSI 5560	8/6/2020	M. Smith	0.37	0.24
SOGUTL-4	8/6/2020	1605	R. McCurry	148.7	YSI 5560	8/6/2020	M. Smith	0.77	0.50
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	8/13/2020	1000	D. Kimbrow	117.4	YSI 5560	8/13/2020	D. Kimbrow	26.6	17.2
SOGL-11	8/13/2020	1035	D. Kimbrow	129.7	YSI 5560	8/13/2020	D. Kimbrow	25.9	16.7
SOGL-20	8/13/2020	1110	D. Kimbrow	129.6	YSI 5560	8/13/2020	D. Kimbrow	25.9	16.7
SOGUTL-1	8/13/2020	1245	D. Kimbrow	100.7	YSI 5560	8/13/2020	D. Kimbrow	0.29	0.19
SOGUTL-3	8/13/2020	1320	D. Kimbrow	95.0	YSI 5560	8/13/2020	D. Kimbrow	0.98	0.63
SOGUTL-4	8/13/2020	1305	D. Kimbrow	145.4	YSI 5560	8/13/2020	D. Kimbrow	3.04	1.96
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	8/19/2020	0845	D. Kimbrow	129.2	YSI 5560	8/19/2020	D. Kimbrow	21.1	13.6
SOGL-11	8/19/2020	1000	D. Kimbrow	134.5	YSI 5560	8/19/2020	D. Kimbrow	20.5	13.2
SOGL-20	8/19/2020	1105	D. Kimbrow	142.5	YSI 5560	8/19/2020	D. Kimbrow	20.5	13.2
SOGUTL-1	8/19/2020	1035	D. Kimbrow	111.9	YSI 5560	8/19/2020	D. Kimbrow	0.32	0.21
SOGUTL-3	8/19/2020	1310	D. Kimbrow	92.4	YSI 5560	8/19/2020	D. Kimbrow	0.72	0.46
SOGUTL-4	8/19/2020	1300	D. Kimbrow	146.5	YSI 5560	8/19/2020	D. Kimbrow	0.57	0.37
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	8/26/2020	0950	D. Kimbrow	112.3	YSI 5560	8/26/2020	D. Kimbrow	29.8	19.3
SOGL-11	8/26/2020	1025	D. Kimbrow	119.5	YSI 5560	8/26/2020	D. Kimbrow	27.2	17.6
SOGL-20	8/26/2020	1110	D. Kimbrow	123.2	YSI 5560	8/26/2020	D. Kimbrow	27.2	17.6
SOGUTL-1	8/26/2020	1255	D. Kimbrow	113.4	YSI 5560	8/26/2020	D. Kimbrow	0.35	0.23
SOGUTL-3	8/26/2020	1325	D. Kimbrow	90.0	YSI 5560	8/26/2020	D. Kimbrow	0.84	0.54
SOGUTL-4	8/26/2020	1320	D. Kimbrow	139.0	YSI 5560	8/26/2020	D. Kimbrow	0.43	0.28
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	9/3/2020	1500	D. Kimbrow	137.5	YSI 5560	9/3/2020	D. Kimbrow	20.2	13.1
SOGL-11	9/3/2020	1425	D. Kimbrow	146.7	YSI 5560	9/3/2020	D. Kimbrow	20.5	13.2
SOGL-20	9/3/2020	1355	D. Kimbrow	146.1	YSI 5560	9/3/2020	D. Kimbrow	20.5	13.2
SOGUTL-1	9/3/2020	1235	D. Kimbrow	116.9	YSI 5560	9/3/2020	D. Kimbrow	0.23	0.15
SOGUTL-3	9/3/2020	1320	D. Kimbrow	101.0	YSI 5560	9/3/2020	D. Kimbrow	0.76	0.76
SOGUTL-4	9/3/2020	1310	D. Kimbrow	150.3	YSI 5560	9/3/2020	D. Kimbrow	0.55	0.36
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	9/29/2020	1400	D. Kimbrow	102.4	YSI 5560	9/29/2020	D. Kimbrow	37.2	24.0
SOGL-11	9/29/2020	1330	D. Kimbrow	111.3	YSI 5560	9/29/2020	D. Kimbrow	36.1	23.3
SOGL-20	9/29/2020	1445	D. Kimbrow	118.9	YSI 5560	9/29/2020	D. Kimbrow	36.1	23.3
SOGUTL-1	9/29/2020	1420	D. Kimbrow	77.9	YSI 5560	9/29/2020	D. Kimbrow	1.18	0.76
SOGUTL-3	9/29/2020	1525	D. Kimbrow	84.9	YSI 5560	9/29/2020	D. Kimbrow	3.56	2.30

Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGUTL-4	9/29/2020	1530	D. Kimbrow	102.1	YSI 5560	9/29/2020	D. Kimbrow	3.03	1.96
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	10/27/2020	0925	D. Kimbrow	100.5	YSI 5560	10/27/2020	D. Kimbrow	47.4	30.6
SOGL-11	10/27/2020	0845	D. Kimbrow	112.5	YSI 5560	10/27/2020	D. Kimbrow	31.7	20.5
SOGL-20	10/27/2020	1000	D. Kimbrow	112.8	YSI 5560	10/27/2020	D. Kimbrow	31.7	20.5
SOGUTL-1	10/27/2020	1245	D. Kimbrow	121.0	YSI 5560	10/27/2020	D. Kimbrow	0.31	0.20
SOGUTL-3	10/27/2020	1045	D. Kimbrow	90.9	YSI 5560	10/27/2020	D. Kimbrow	0.99	0.64
SOGUTL-4	10/27/2020	1020	D. Kimbrow	140.1	YSI 5560	10/27/2020	D. Kimbrow	0.93	0.60
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	11/23/2020	1205	M. Smith	104.1	YSI 5560	11/23/2020	R. McCurry	42.7	27.6
SOGL-11	11/23/2020	1250	R. McCurry	125.0	YSI 5560	11/23/2020	R. McCurry	29.0	18.7
SOGL-20	11/23/2020	1635	R. McCurry	127.5	YSI 5560	11/23/2020	R. McCurry	28.5	18.4
SOGUTL-1	11/23/2020	1335	R. McCurry	110.8	YSI 5560	11/23/2020	R. McCurry	0.66	0.43
SOGUTL-3	11/23/2020	1550	M. Smith	107.8	YSI 5560	11/23/2020	R. McCurry	0.46	0.30
SOGUTL-4	11/23/2020	1510	M. Smith	139.9	YSI 5560	11/23/2020	R. McCurry	0.69	0.45
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	4/14/2020	0905	D. Kimbrow	20.3	SM 2130 B	4/14/2020	D. Kimbrow	94.7	61.2
SOGL-11	4/14/2020	0940	D. Kimbrow	20.5	SM 2130 B	4/14/2020	D. Kimbrow	55.6	35.9
SOGL-20	4/14/2020	1005	D. Kimbrow	11.9	SM 2130 B	4/14/2020	D. Kimbrow	54.9	35.5
SOGUTL-1	4/14/2020	1140	D. Kimbrow	34.1	SM 2130 B	4/14/2020	D. Kimbrow	1.33	0.86
SOGUTL-3	4/14/2020	1100	D. Kimbrow	11.4	SM 2130 B	4/14/2020	D. Kimbrow	3.13	2.02
SOGUTL-4	4/14/2020	1045	D. Kimbrow	6.51	SM 2130 B	4/14/2020	D. Kimbrow	1.51	0.98
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	5/13/2020	0820	D. Kimbrow	10.34	SM 2130 B	5/13/2020	D. Kimbrow	52.8	34.1
SOGL-11	5/13/2020	0850	D. Kimbrow D. Rogers	9.86	SM 2130 B	5/13/2020	D. Kimbrow D. Rogers	30.4	19.6
SOGL-20	5/13/2020	0915	D. Kimbrow D. Rogers	10.2	SM 2130 B	5/13/2020	D. Kimbrow D. Rogers	29.9	19.3
SOGUTL-1	5/13/2020	1045	D. Kimbrow D. Rogers	3.73	SM 2130 B	5/13/2020	D. Kimbrow D. Rogers	0.52	0.34
SOGUTL-3	5/13/2020	1000	D. Kimbrow D. Rogers	7.16	SM 2130 B	5/13/2020	D. Kimbrow D. Rogers	1.37	0.89
SOGUTL-4	5/13/2020	0930	D. Kimbrow D. Rogers	9.93	SM 2130 B	5/13/2020	D. Kimbrow D. Rogers	1.23	0.79
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	6/4/2020	1135	M. Smith R. McCurry	10.13	SM 2130 B	6/4/2020	M. Smith R. McCurry	47.7	30.8
SOGL-11	6/4/2020	1235	M. Smith R. McCurry	8.23	SM 2130 B	6/4/2020	M. Smith R. McCurry	14.2	9.18
SOGL-20	6/4/2020	1454	M. Smith R. McCurry	6.99	SM 2130 B	6/4/2020	M. Smith R. McCurry	13.1	8.47
SOGUTL-1	6/4/2020	1655	M. Smith R. McCurry	5.88	SM 2130 B	6/4/2020	M. Smith R. McCurry	0.39	0.25
SOGUTL-3	6/4/2020	1615	M. Smith R. McCurry	5.97	SM 2130 B	6/4/2020	M. Smith R. McCurry	0.64	0.41
SOGUTL-4	6/4/2020	1535	M. Smith R. McCurry	3.08	SM 2130 B	6/4/2020	M. Smith R. McCurry	0.43	0.28

Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	6/8/2020	1020	D. Kimbrow	10.31	SM 2130 B	6/8/2020	D. Kimbrow	44.5	28.8
SOGL-11	6/8/2020	1105	D. Kimbrow	9.37	SM 2130 B	6/8/2020	D. Kimbrow	13.5	8.73
SOGL-20	6/8/2020	1145	D. Kimbrow	7.19	SM 2130 B	6/8/2020	D. Kimbrow	13.1	8.47
SOGUTL-1	6/8/2020	1410	D. Kimbrow	5.59	SM 2130 B	6/8/2020	D. Kimbrow	1.00	0.65
SOGUTL-3	6/8/2020	1320	D. Kimbrow	5.42	SM 2130 B	6/8/2020	D. Kimbrow	1.04	0.67
SOGUTL-4	6/8/2020	1305	D. Kimbrow	3.57	SM 2130 B	6/8/2020	D. Kimbrow	1.15	0.74
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	6/18/2020	1020	D. Kimbrow	9.09	SM 2130 B	6/18/2020	D. Kimbrow	41.4	26.8
SOGL-11	6/18/2020	1055	D. Kimbrow	7.93	SM 2130 B	6/18/2020	D. Kimbrow	34.6	22.4
SOGL-20	6/18/2020	1125	D. Kimbrow	6.19	SM 2130 B	6/18/2020	D. Kimbrow	34.6	22.4
SOGUTL-1	6/18/2020	1325	D. Kimbrow	5.02	SM 2130 B	6/18/2020	D. Kimbrow	1.00	0.65
SOGUTL-3	6/18/2020	1230	D. Kimbrow	6.49	SM 2130 B	6/18/2020	D. Kimbrow	0.87	0.56
SOGUTL-4	6/18/2020	1225	D. Kimbrow	3.78	SM 2130 B	6/18/2020	D. Kimbrow	1.19	0.77
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	6/22/2020	1515	M. Smith	14.6	SM 2130 B	6/22/2020	M. Smith	58.5	37.8
SOGL-11	6/22/2020	1445	M. Smith	13.3	SM 2130 B	6/22/2020	M. Smith	43.1	27.9
SOGL-20	6/22/2020	1350	M. Smith	11.65	SM 2130 B	6/22/2020	M. Smith	46.3	29.9
SOGUTL-1	6/22/2020	1050	M. Smith	23.1	SM 2130 B	6/22/2020	M. Smith	0.54	0.35
SOGUTL-3	6/22/2020	1235	M. Smith	7.97	SM 2130 B	6/22/2020	M. Smith	3.41	2.20
SOGUTL-4	6/22/2020	1200	M. Smith	11.16	SM 2130 B	6/22/2020	M. Smith	0.62	0.40
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	6/29/2020	1055	R. McCurry	7.17	SM 2130 B	6/29/2020	M. Smith	49.3	31.9
SOGL-11	6/29/2020	1135	R. McCurry	7.45	SM 2130 B	6/29/2020	M. Smith	38.3	24.8
SOGL-20	6/29/2020	1625	R. McCurry	5.39	SM 2130 B	6/29/2020	M. Smith	38.3	24.8
SOGUTL-1	6/29/2020	1400	R. McCurry	5.45	SM 2130 B	6/29/2020	M. Smith	0.57	0.37
SOGUTL-3	6/29/2020	1525	R. McCurry	4.31	SM 2130 B	6/29/2020	M. Smith	0.27	0.17
SOGUTL-4	6/29/2020	1450	R. McCurry	2.57	SM 2130 B	6/29/2020	M. Smith	0.78	0.50
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	7/29/2020	0940	D. Kimbrow	11.03	SM 2130 B	7/29/2020	D. Kimbrow	28.7	18.6
SOGL-11	7/29/2020	1050	D. Kimbrow	12.91	SM 2130 B	7/29/2020	D. Kimbrow	27.6	17.8
SOGL-20	7/29/2020	1015	D. Kimbrow	11.35	SM 2130 B	7/29/2020	D. Kimbrow	27.6	17.8
SOGUTL-1	7/29/2020	1325	D. Kimbrow	4.54	SM 2130 B	7/29/2020	D. Kimbrow	0.33	0.21
SOGUTL-3	7/29/2020	1400	D. Kimbrow	No sample	SM 2130 B	7/29/2020	D. Kimbrow	1.44	0.93
SOGUTL-4	7/29/2020	1355	D. Kimbrow	6.57	SM 2130 B	7/29/2020	D. Kimbrow	0.74	0.48
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	8/6/2020	1445	R. McCurry	8.04	SM 2130 B	8/6/2020	M. Smith	18.7	12.1
SOGL-11	8/6/2020	1345	R. McCurry	7.79	SM 2130 B	8/6/2020	M. Smith	18.2	11.8
SOGL-20	8/6/2020	1730	R. McCurry	10.19	SM 2130 B	8/6/2020	M. Smith	18.2	11.8
SOGUTL-1	8/6/2020	1515	R. McCurry	3.59	SM 2130 B	8/6/2020	M. Smith	0.25	0.16
SOGUTL-3	8/6/2020	1630	R. McCurry	5.79	SM 2130 B	8/6/2020	M. Smith	0.37	0.24
SOGUTL-4	8/6/2020	1605	R. McCurry	3.85	SM 2130 B	8/6/2020	M. Smith	0.77	0.50
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	8/13/2020	1000	D. Kimbrow	12.4	SM 2130 B	8/13/2020	D. Kimbrow	26.6	17.2
SOGL-11	8/13/2020	1035	D. Kimbrow	14.03	SM 2130 B	8/13/2020	D. Kimbrow	25.9	16.7
SOGL-20	8/13/2020	1110	D. Kimbrow	12.3	SM 2130 B	8/13/2020	D. Kimbrow	25.9	16.7

Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGUTL-1	8/13/2020	1245	D. Kimbrow	8.07	SM 2130 B	8/13/2020	D. Kimbrow	0.29	0.19
SOGUTL-3	8/13/2020	1320	D. Kimbrow	5.02	SM 2130 B	8/13/2020	D. Kimbrow	0.98	0.63
SOGUTL-4	8/13/2020	1305	D. Kimbrow	2.98	SM 2130 B	8/13/2020	D. Kimbrow	3.04	1.96
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	8/19/2020	0845	D. Kimbrow	12.5	SM 2130 B	8/19/2020	D. Kimbrow	21.1	13.6
SOGL-11	8/19/2020	1000	D. Kimbrow	11.3	SM 2130 B	8/19/2020	D. Kimbrow	20.5	13.2
SOGL-20	8/19/2020	1105	D. Kimbrow	12.39	SM 2130 B	8/19/2020	D. Kimbrow	20.5	13.2
SOGUTL-1	8/19/2020	1035	D. Kimbrow	4.77	SM 2130 B	8/19/2020	D. Kimbrow	0.32	0.21
SOGUTL-3	8/19/2020	1310	D. Kimbrow	8.98	SM 2130 B	8/19/2020	D. Kimbrow	0.72	0.46
SOGUTL-4	8/19/2020	1300	D. Kimbrow	2.46	SM 2130 B	8/19/2020	D. Kimbrow	0.57	0.37
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	8/26/2020	0950	D. Kimbrow	24.7	SM 2130 B	8/26/2020	D. Kimbrow	29.8	19.3
SOGL-11	8/26/2020	1025	D. Kimbrow	19.3	SM 2130 B	8/26/2020	D. Kimbrow	27.2	17.6
SOGL-20	8/26/2020	1110	D. Kimbrow	14.8	SM 2130 B	8/26/2020	D. Kimbrow	27.2	17.6
SOGUTL-1	8/26/2020	1255	D. Kimbrow	4.35	SM 2130 B	8/26/2020	D. Kimbrow	0.35	0.23
SOGUTL-3	8/26/2020	1325	D. Kimbrow	4.90	SM 2130 B	8/26/2020	D. Kimbrow	0.84	0.54
SOGUTL-4	8/26/2020	1320	D. Kimbrow	2.75	SM 2130 B	8/26/2020	D. Kimbrow	0.43	0.28
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	9/3/2020	1500	D. Kimbrow	12.01	SM 2130 B	9/3/2020	D. Kimbrow	20.2	13.1
SOGL-11	9/3/2020	1425	D. Kimbrow	7.82	SM 2130 B	9/3/2020	D. Kimbrow	20.5	13.2
SOGL-20	9/3/2020	1355	D. Kimbrow	6.91	SM 2130 B	9/3/2020	D. Kimbrow	20.5	13.2
SOGUTL-1	9/3/2020	1235	D. Kimbrow	4.89	SM 2130 B	9/3/2020	D. Kimbrow	0.23	0.15
SOGUTL-3	9/3/2020	1320	D. Kimbrow	7.61	SM 2130 B	9/3/2020	D. Kimbrow	0.76	0.76
SOGUTL-4	9/3/2020	1310	D. Kimbrow	3.36	SM 2130 B	9/3/2020	D. Kimbrow	0.55	0.36
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	9/29/2020	1400	D. Kimbrow	14.8	SM 2130 B	9/29/2020	D. Kimbrow	37.2	24.0
SOGL-11	9/29/2020	1330	D. Kimbrow	10.99	SM 2130 B	9/29/2020	D. Kimbrow	36.1	23.3
SOGL-20	9/29/2020	1445	D. Kimbrow	6.73	SM 2130 B	9/29/2020	D. Kimbrow	36.1	23.3
SOGUTL-1	9/29/2020	1420	D. Kimbrow	19.8	SM 2130 B	9/29/2020	D. Kimbrow	1.18	0.76
SOGUTL-3	9/29/2020	1525	D. Kimbrow	7.75	SM 2130 B	9/29/2020	D. Kimbrow	3.56	2.30
SOGUTL-4	9/29/2020	1530	D. Kimbrow	11.45	SM 2130 B	9/29/2020	D. Kimbrow	3.03	1.96
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	10/27/2020	0925	D. Kimbrow	10.71	SM 2130 B	10/27/2020	D. Kimbrow	47.4	30.6
SOGL-11	10/27/2020	0845	D. Kimbrow	11.2	SM 2130 B	10/27/2020	D. Kimbrow	31.7	20.5
SOGL-20	10/27/2020	1000	D. Kimbrow	7.01	SM 2130 B	10/27/2020	D. Kimbrow	31.7	20.5
SOGUTL-1	10/27/2020	1245	D. Kimbrow	4.56	SM 2130 B	10/27/2020	D. Kimbrow	0.31	0.20
SOGUTL-3	10/27/2020	1045	D. Kimbrow	4.92	SM 2130 B	10/27/2020	D. Kimbrow	0.99	0.64
SOGUTL-4	10/27/2020	1020	D. Kimbrow	2.24	SM 2130 B	10/27/2020	D. Kimbrow	0.93	0.60
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
SOGL-1	11/23/2020	1205	M. Smith	4.69	SM 2130 B	11/23/2020	R. McCurry	42.7	27.6
SOGL-11	11/23/2020	1250	R. McCurry	4.53	SM 2130 B	11/23/2020	R. McCurry	29.0	18.7
SOGL-20	11/23/2020	1635	R. McCurry	5.45	SM 2130 B	11/23/2020	R. McCurry	28.5	18.4
SOGUTL-1	11/23/2020	1335	R. McCurry	2.87	SM 2130 B	11/23/2020	R. McCurry	0.66	0.43
SOGUTL-3	11/23/2020	1550	M. Smith	5.34	SM 2130 B	11/23/2020	R. McCurry	0.46	0.30
SOGUTL-4	11/23/2020	1510	M. Smith	2.32	SM 2130 B	11/23/2020	R. McCurry	0.69	0.45

## 2.7 Parkerson's Mill Creek Compliance Monitoring

Parkerson's Mill Creek was placed on the ADEM 303(d) list of impaired waterbodies for pathogens in 2008. The impaired reach is 6.85 mi. long and includes all waters from its source (near the intersection of N. College St. and Glenn Ave. in downtown Auburn) to its confluence with Chewacla Creek. Potential sources of pathogens were listed as sanitary sewer overflows and urban runoff. In 2010, ADEM collected samples at stations PM3, PKML-1, PKML-5, and PKML-2 to determine the basis for the TMDL. The final Parkerson's Mill Creek TMDL was issued in September 2011, identifying E. coli as the pollutant of concern. The Parkerson's Mill Creek TMDL established the E. coli limits in stormwater at  $3.42E+09$  colonies/day, also expressed as a 61% reduction in non-point sources. This TMDL was established using the geometric mean criterion of 126 cfu/100mL or MPN.

Because of the impairment and subsequent TMDL, the City has been monitoring E. coli concentrations in Parkerson's Mill Creek through intensive E. coli sampling at the same four (4) monitoring sites used by ADEM since 2015. Each year, single samples are collected for E. coli once per month for April, May, July, September, October, and November. Weekly samples are collected at those sites during June and August. The 5-week geometric mean E. coli concentrations are calculated based on the results of the weekly sampling. The City also makes a reasonable effort to measure streamflow in-situ (recorded in cfs and MGD) at each sample site after water samples are collected when flow conditions permit. Water temperature, pH, dissolved oxygen, specific conductance, and turbidity are also measured in-situ at each site.

## 2.8 E. coli Monitoring Results

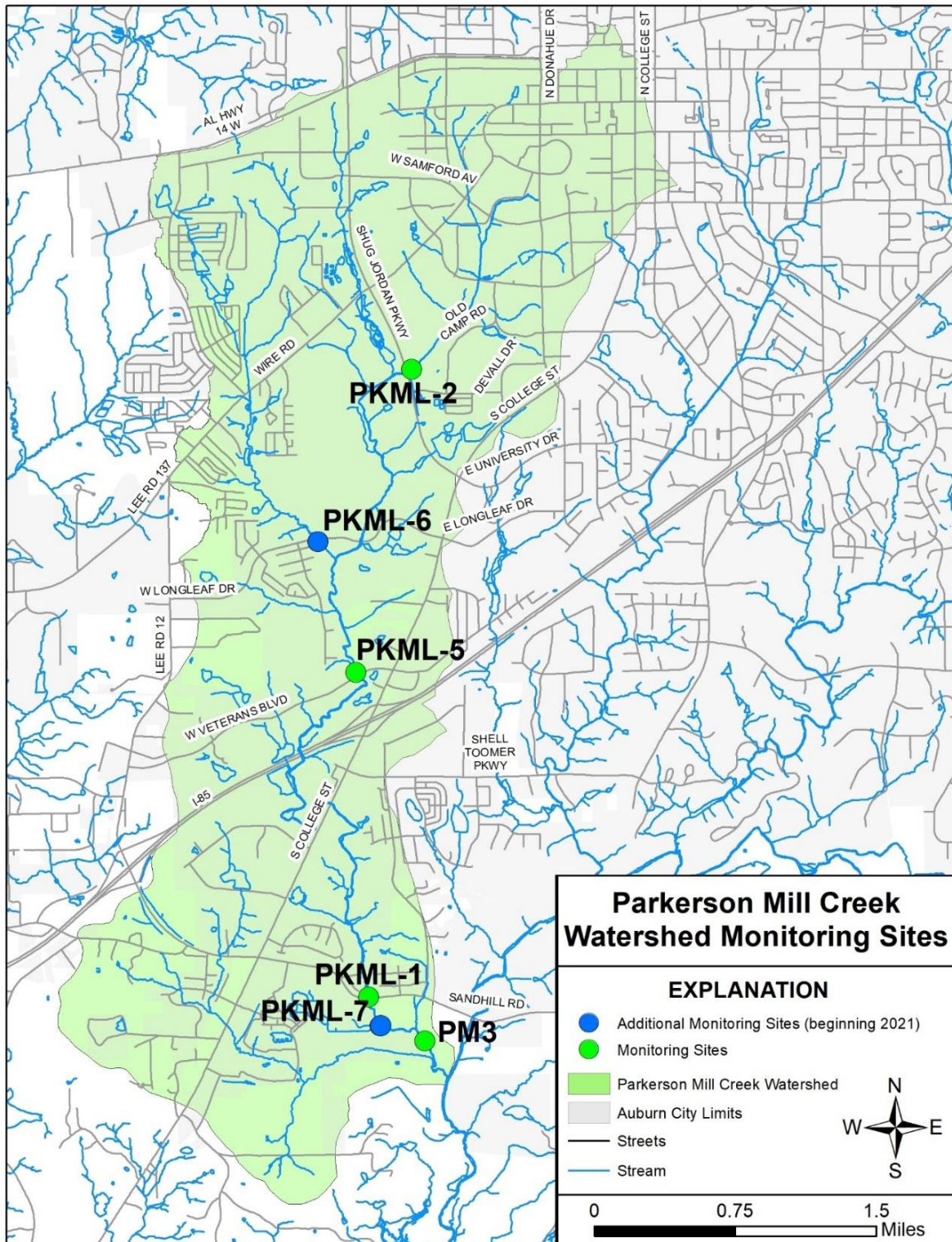
In general, over the last decade E. coli concentrations in Parkerson's Mill Creek are higher in the upper reaches near sample sites PKML-2 and PKML-5. E. coli concentrations become less near sample site PKML-1, and then increase again at site PM3 as the creek nears its confluence with Chewacla Creek. This trend has generally been predictable going back to the ADEM study in 2010. In 2020, the June geomean data showed all four (4) sites above state water quality criteria for Parkerson's Mill Creek's designated use of Fish and Wildlife (126 MPN). In August, the only site that was below the state geomean water quality criteria was PKML-1.

City staff have conducted intensive sampling for E. coli in the Parkerson's Mill Creek watershed for 4 consecutive years. E. coli concentrations were the lowest in 2019, when all 4 sites were below the geomean criteria for the June samples and 2 out of the 4 sites in August were below the geomean criteria. However, in 2020 sampling sites had the highest E. coli concentrations than any other previous monitoring year. It is possible that because 2020 was a particularly wet year, with an annual rainfall of 87.53 inches measured at the Opelika-Auburn Airport (30.83 inches above normal), E. coli concentrations were higher due to the increased runoff. There was only one SSO that occurred in the watershed (on 9/22), and City staff reported that the flow was absorbed into the ground and never made it to a stream.

The City plans to add two (2) sites to the sampling schedule in 2021 in an effort to further refine the possible sources of high E. coli concentrations in the watershed. Site PKML-6 is located at W. Longleaf Dr. on an unnamed tributary to Parkerson's Mill Creek that drains an area where many mobile home parks are located. Some of these communities are on private sewer systems, and the infrastructure includes septic lagoons and lift stations that have a history of failure. This tributary enters the main stem of Parkerson's Mill Creek between

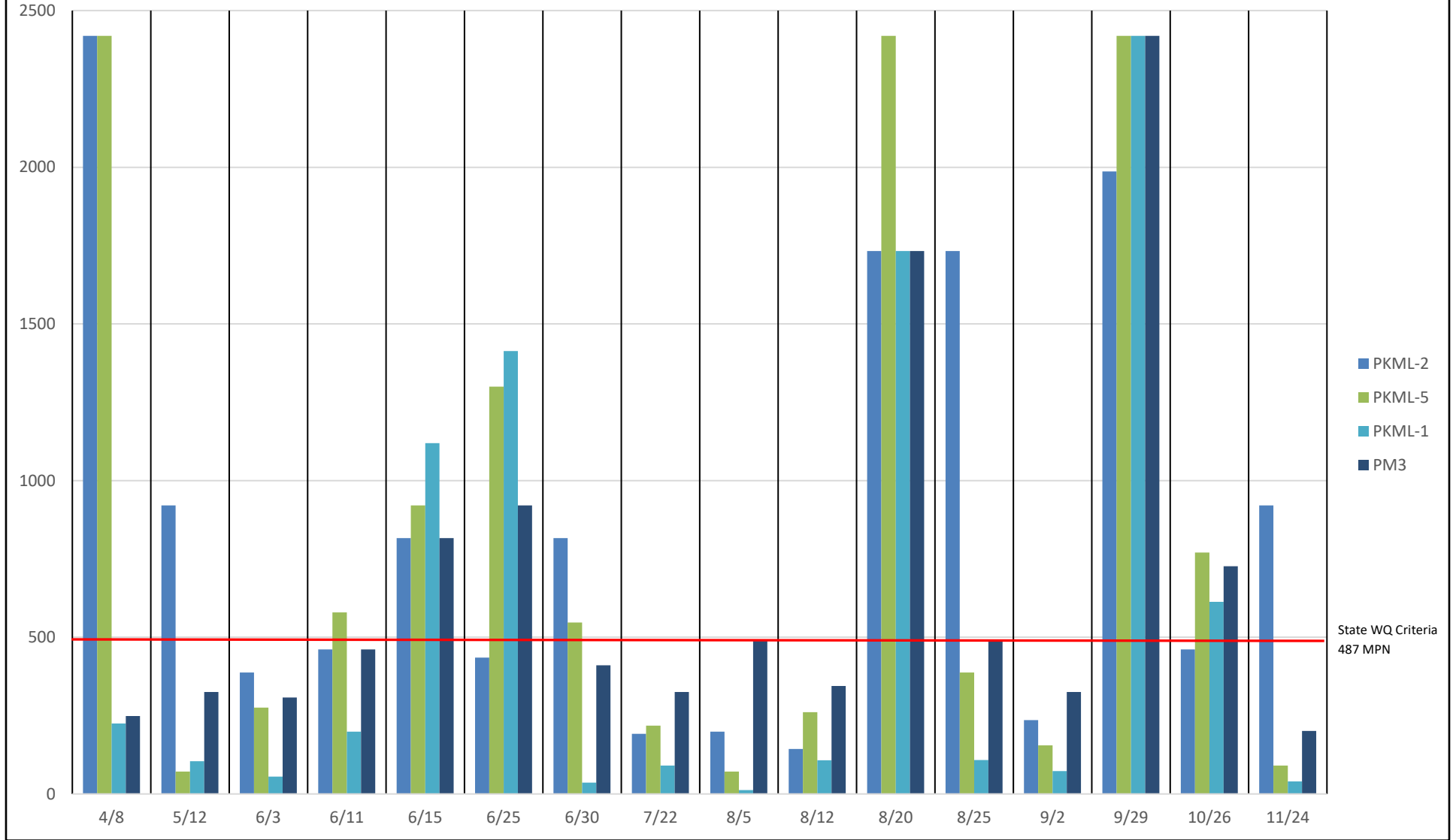


sites PKML-2 and PKML-5. Site PKML-7 is located on a small unnamed tributary that drains the H.C. Morgan Water Pollution Control Facility. This tributary enters Parkerson’s Mill Creek between sites PKML-1 and PM3. Sampling at this location will determine if the runoff from the WPCF is contributing to the rise in concentrations between PKML-1 and PM3.

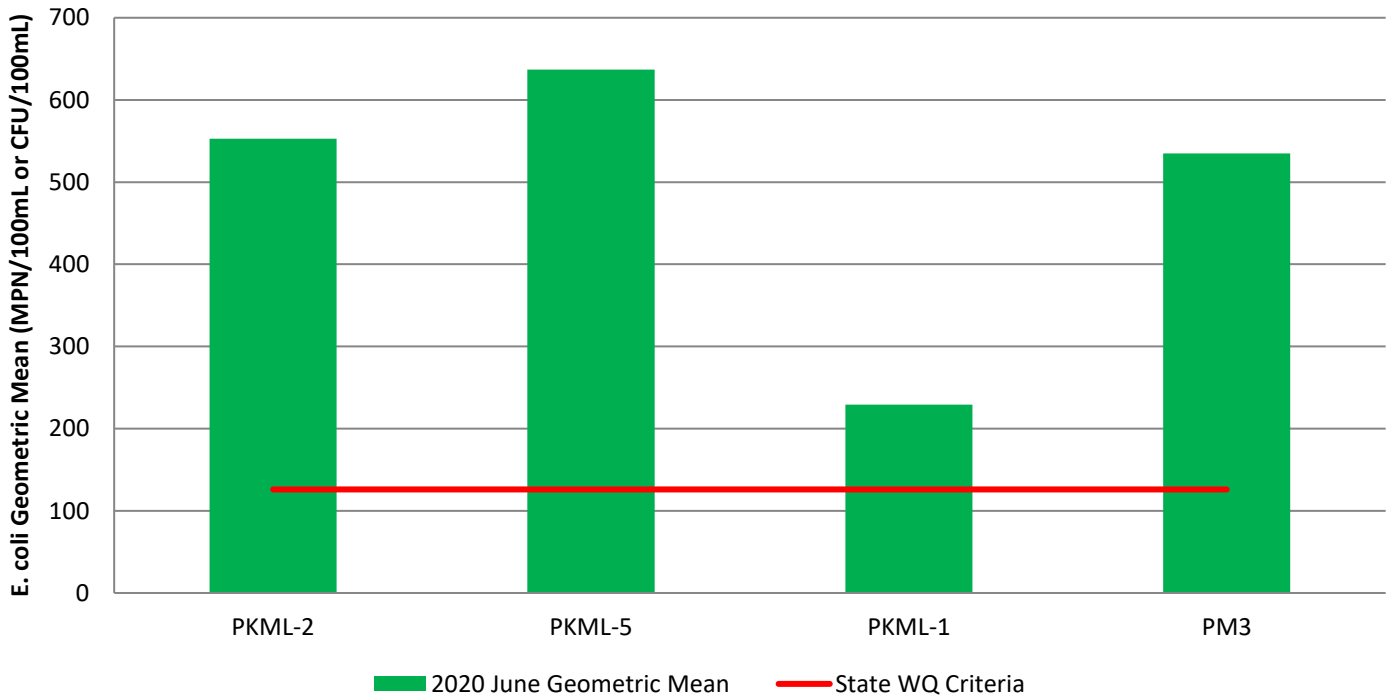


Parkerson Mill Creek Watershed Monitoring Sites

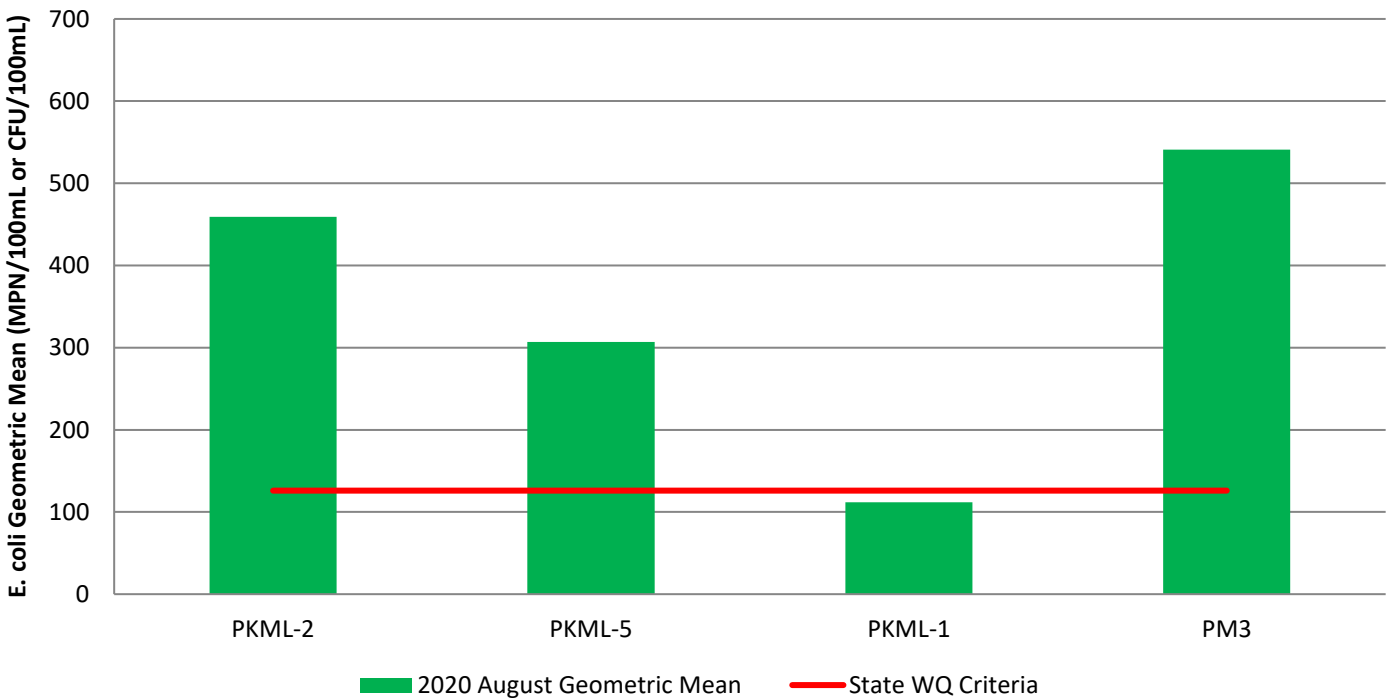
## Parkerson's Mill Creek 2020 E. coli Single Sample Results



### Parkerson's Mill Creek June 2020 E. coli Geomean Results



### Parkerson's Mill Creek August 2020 E. coli Geomean Results



## Parkerson Mill Creek Watershed Monitoring Data

Site Number	Site Location				Site Coordinates				
PKML-1	Parkerson's Mill Creek at Sand Hill Rd				32.53744 N, 85.50601 W				
PKML-2	Parkerson's Mill Creek at Shug Jordan Pkwy				32.58551 N, 85.50249 W				
PKML-5	Parkerson's Mill Creek at W. Veterans Blvd				32.56243 N, 85.50716 W				
PM-3	Parkerson's Mill Creek below HC Morgan WPCF				32.53427 N, 85.50156 W				
Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	4/8/2020	1045	D. Kimbrow	224.7	IDEXX	4/9/2020	M. Smith	3.2	2.1
PKML-2	4/8/2020	1325	D. Kimbrow	2419.6	IDEXX	4/9/2020	M. Smith	1.27	0.8
PKML-5	4/8/2020	1250	D. Kimbrow	2419.6	IDEXX	4/9/2020	M. Smith	3.72	2.4
PM-3	4/8/2020	0920	D. Kimbrow	248.9	IDEXX	4/9/2020	M. Smith	12.75	8.2
Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	5/12/2020	1030	D. Kimbrow D. Rogers	104.3	IDEXX	5/13/2020	D. Rogers	6.4	4.1
PKML-2	5/12/2020	1130	D. Kimbrow D. Rogers	920.8	IDEXX	5/13/2020	D. Rogers	0.6	0.4
PKML-5	5/12/2020	1050	D. Kimbrow D. Rogers	71.7	IDEXX	5/13/2020	D. Rogers	2.3	1.5
PM-3	5/12/2020	0940	D. Kimbrow D. Rogers	325.5	IDEXX	5/13/2020	D. Rogers	9.6	6.2
Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	6/3/2020	0910	D. Rogers M. Smith	55.6	IDEXX	6/4/2020	R. McCurry	5.4	3.5
PKML-2	6/3/2020	1010	D. Rogers M. Smith	387.3	IDEXX	6/4/2020	R. McCurry	0.8	0.5
PKML-5	6/3/2020	-	D. Rogers M. Smith	275.5	IDEXX	6/4/2020	R. McCurry	2.1	1.4
PM-3	6/3/2020	0820	D. Rogers M. Smith	307.6	IDEXX	6/4/2020	R. McCurry	9.1	5.9
Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	6/11/2020	1310	M. Smith	198.9	IDEXX	6/12/2020	M. Smith	10.9	7.0
PKML-2	6/11/2020	1530	M. Smith	461.1	IDEXX	6/12/2020	M. Smith	0.9	0.6
PKML-5	6/11/2020	1450	M. Smith	579.4	IDEXX	6/12/2020	M. Smith	5.8	3.7
PM-3	6/11/2020	1145	M. Smith	461.1	IDEXX	6/12/2020	M. Smith	20.6	13.3
Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	6/15/2020	1415	D. Kimbrow	1119.9	IDEXX	6/16/2020	D. Kimbrow	7.8	5.0
PKML-2	6/15/2020	1520	D. Kimbrow	816.4	IDEXX	6/16/2020	D. Kimbrow	-	-
PKML-5	6/15/2020	1435	D. Kimbrow	920.8	IDEXX	6/16/2020	D. Kimbrow	2.7	1.7
PM-3	6/15/2020	1320	D. Kimbrow	816.4	IDEXX	6/16/2020	D. Kimbrow	16.6	10.7
Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	6/25/2020	1025	D. Kimbrow	1413.6	IDEXX	6/26/2020	M. Smith	19.1	12.3
PKML-2	6/25/2020	1125	D. Kimbrow	435.2	IDEXX	6/26/2020	M. Smith	3.0	1.9
PKML-5	6/25/2020	1040	D. Kimbrow	1299.7	IDEXX	6/26/2020	M. Smith	13.7	8.9
PM-3	6/25/2020	0935	D. Kimbrow	920.8	IDEXX	6/26/2020	M. Smith	30.8	20

Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	6/30/2020	1140	D. Rogers M. Smith	35.8	IDEXX	7/1/2020	M. Smith	3.7	2.4
PKML-2	6/30/2020	1235	D. Rogers M. Smith	816.4	IDEXX	7/1/2020	M. Smith	0.9	0.6
PKML-5	6/30/2020	1205	D. Rogers M. Smith	547.5	IDEXX	7/1/2020	M. Smith	2.5	1.6
PM-3	6/30/2020	1100	D. Rogers M. Smith	410.6	IDEXX	7/1/2020	M. Smith	9.8	6.3
Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	7/22/2020	1120	D. Kimbrow	90.6	IDEXX	7/29/2020	D. Kimbrow	5.1	3.3
PKML-2	7/22/2020	1215	D. Kimbrow	191.8	IDEXX	7/29/2020	D. Kimbrow	0.6	0.4
PKML-5	7/22/2020	1135	D. Kimbrow	217.8	IDEXX	7/29/2020	D. Kimbrow	2.6	1.7
PM-3	7/22/2020	1045	D. Kimbrow	325.5	IDEXX	7/29/2020	D. Kimbrow	16.1	10.4
Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	8/5/2020	1000	D. Kimbrow	12.1	IDEXX	8/6/2020	D. Kimbrow	0.9	0.6
PKML-2	8/5/2020	1105	D. Kimbrow	198.9	IDEXX	8/6/2020	D. Kimbrow	0.5	0.3
PKML-5	8/5/2020	1025	D. Kimbrow	71.2	IDEXX	8/6/2020	D. Kimbrow	1.0	0.7
PM-3	8/5/2020	0920	D. Kimbrow	488.4	IDEXX	8/6/2020	D. Kimbrow	6.6	4.3
Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	8/12/2020	1025	D. Kimbrow	107.6	IDEXX	8/13/2020	D. Kimbrow	4	2.6
PKML-2	8/12/2020	1125	D. Kimbrow	143.9	IDEXX	8/13/2020	D. Kimbrow	0.9	0.6
PKML-5	8/12/2020	1045	D. Kimbrow	261.3	IDEXX	8/13/2020	D. Kimbrow	2.2	1.4
PM-3	8/12/2020	0940	D. Kimbrow	344.8	IDEXX	8/13/2020	D. Kimbrow	11.6	7.5
Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	8/20/2020	1100	D. Kimbrow	1732.9	IDEXX	8/21/2020	D. Kimbrow	12	7.8
PKML-2	8/20/2020	1335	D. Kimbrow	1732.9	IDEXX	8/21/2020	D. Kimbrow	1.9	1.2
PKML-5	8/20/2020	1245	D. Kimbrow	2419.6	IDEXX	8/21/2020	D. Kimbrow	4.4	2.8
PM-3	8/20/2020	1005	D. Kimbrow	1732.9	IDEXX	8/21/2020	D. Kimbrow	24.6	15.9
Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	8/25/2020	1010	D. Kimbrow	108.6	IDEXX	8/26/2020	D. Kimbrow	3.6	2.3
PKML-2	8/25/2020	1410	D. Kimbrow	1732.9	IDEXX	8/26/2020	D. Kimbrow	1.1	0.7
PKML-5	8/25/2020	1325	D. Kimbrow	387.3	IDEXX	8/26/2020	D. Kimbrow	2.3	1.5
PM-3	8/25/2020	0915	D. Kimbrow	488.4	IDEXX	8/26/2020	D. Kimbrow	10.5	6.8
Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	9/2/2020	1005	D. Kimbrow	72.7	IDEXX	9/3/2020	M. Smith	2.1	1.4
PKML-2	9/2/2020	1055	D. Kimbrow	235.9	IDEXX	9/3/2020	M. Smith	0.4	0.3
PKML-5	9/2/2020	1020	D. Kimbrow	155.3	IDEXX	9/3/2020	M. Smith	1.3	0.8
PM-3	9/2/2020	0920	D. Kimbrow	325.5	IDEXX	9/3/2020	M. Smith	9.5	6.1
Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	9/29/2020	0900	D. Kimbrow	2419.6	IDEXX	9/30/2020	D. Kimbrow	10	6.5
PKML-2	9/29/2020	1005	D. Kimbrow	1986.3	IDEXX	9/30/2020	D. Kimbrow	4.7	3.0
PKML-5	9/29/2020	0920	D. Kimbrow	2419.6	IDEXX	9/30/2020	D. Kimbrow	3.6	2.3
PM-3	9/29/2020	0820	D. Kimbrow	2419.6	IDEXX	9/30/2020	D. Kimbrow	17.5	11.3

Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	10/26/2020	1145	D. Kimbrow	613.1	IDEXX	10/27/2020	D. Kimbrow	6.9	4.5
PKML-2	10/26/2020	1430	D. Kimbrow	461.1	IDEXX	10/27/2020	D. Kimbrow	1.2	0.8
PKML-5	10/26/2020	1345	D. Kimbrow	770.1	IDEXX	10/27/2020	D. Kimbrow	3.4	2.2
PM-3	10/26/2020	1100	D. Kimbrow	727	IDEXX	10/27/2020	D. Kimbrow	17.2	11.1
Site Number	Sample Date	Sample Time	Sample Collected By	E. coli (MPN)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	11/24/2020	0920	D. Kimbrow	39.7	IDEXX	11/25/2020	D. Kimbrow	3.6	2.3
PKML-2	11/24/2020	1315	D. Kimbrow	920.8	IDEXX	11/25/2020	D. Kimbrow	-	-
PKML-5	11/24/2020	1015	D. Kimbrow	90.8	IDEXX	11/25/2020	D. Kimbrow	0.8	0.5
PM-3	11/24/2020	1055	D. Kimbrow	201.4	IDEXX	11/25/2020	D. Kimbrow	12.4	8.0
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	4/8/2020	1045	D. Kimbrow	65.9	YSI 5560	4/8/2020	D. Kimbrow	3.2	2.1
PKML-2	4/8/2020	1325	D. Kimbrow	66.6	YSI 5560	4/8/2020	D. Kimbrow	1.27	0.8
PKML-5	4/8/2020	1250	D. Kimbrow	66.4	YSI 5560	4/8/2020	D. Kimbrow	3.72	2.4
PM-3	4/8/2020	0920	D. Kimbrow	66.7	YSI 5560	4/8/2020	D. Kimbrow	12.75	8.2
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	5/12/2020	1030	D. Kimbrow D. Rogers	59.8	YSI 5560	5/12/2020	D. Kimbrow D. Rogers	6.4	4.1
PKML-2	5/12/2020	1130	D. Kimbrow D. Rogers	59.2	YSI 5560	5/12/2020	D. Kimbrow D. Rogers	0.6	0.4
PKML-5	5/12/2020	1050	D. Kimbrow D. Rogers	59.4	YSI 5560	5/12/2020	D. Kimbrow D. Rogers	2.3	1.5
PM-3	5/12/2020	0940	D. Kimbrow D. Rogers	65.0	YSI 5560	5/12/2020	D. Kimbrow D. Rogers	9.6	6.2
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	6/3/2020	0910	D. Rogers M. Smith	73.8	YSI 5560	6/3/2020	D. Rogers M. Smith	5.4	3.5
PKML-2	6/3/2020	1010	D. Rogers M. Smith	72.0	YSI 5560	6/3/2020	D. Rogers M. Smith	0.8	0.5
PKML-5	6/3/2020	-	D. Rogers M. Smith	72.5	YSI 5560	6/3/2020	D. Rogers M. Smith	2.1	1.4
PM-3	6/3/2020	0820	D. Rogers M. Smith	73.4	YSI 5560	6/3/2020	D. Rogers M. Smith	9.1	5.9
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	6/11/2020	1310	M. Smith	79.7	YSI 5560	6/11/2020	M. Smith	10.9	7.0
PKML-2	6/11/2020	1530	M. Smith	76.1	YSI 5560	6/11/2020	M. Smith	0.9	0.6
PKML-5	6/11/2020	1450	M. Smith	79.6	YSI 5560	6/11/2020	M. Smith	5.8	3.7
PM-3	6/11/2020	1145	M. Smith	76.7	YSI 5560	6/11/2020	M. Smith	20.6	13.3
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	6/15/2020	1415	D. Kimbrow	78.1	YSI 5560	6/15/2020	D. Kimbrow	7.8	5.0
PKML-2	6/15/2020	1520	D. Kimbrow	74.0	YSI 5560	6/15/2020	D. Kimbrow	-	-
PKML-5	6/15/2020	1435	D. Kimbrow	77.1	YSI 5560	6/15/2020	D. Kimbrow	2.7	1.7
PM-3	6/15/2020	1320	D. Kimbrow	77.1	YSI 5560	6/15/2020	D. Kimbrow	16.6	10.7

Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	6/25/2020	1025	D. Kimbrow	75.4	YSI 5560	6/25/2020	D. Kimbrow	19.1	12.3
PKML-2	6/25/2020	1125	D. Kimbrow	74.9	YSI 5560	6/25/2020	D. Kimbrow	3.0	1.9
PKML-5	6/25/2020	1040	D. Kimbrow	75.4	YSI 5560	6/25/2020	D. Kimbrow	13.7	8.9
PM-3	6/25/2020	0935	D. Kimbrow	75.3	YSI 5560	6/25/2020	D. Kimbrow	30.8	20
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	6/30/2020	1140	D. Rogers M. Smith	80.3	YSI 5560	6/30/2020	D. Rogers M. Smith	3.7	2.4
PKML-2	6/30/2020	1235	D. Rogers M. Smith	78.3	YSI 5560	6/30/2020	D. Rogers M. Smith	0.9	0.6
PKML-5	6/30/2020	1205	D. Rogers M. Smith	79.7	YSI 5560	6/30/2020	D. Rogers M. Smith	2.5	1.6
PM-3	6/30/2020	1100	D. Rogers M. Smith	78.6	YSI 5560	6/30/2020	D. Rogers M. Smith	9.8	6.3
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	7/22/2020	1120	D. Kimbrow	80.8	YSI 5560	7/22/2020	D. Kimbrow	5.1	3.3
PKML-2	7/22/2020	1215	D. Kimbrow	79.6	YSI 5560	7/22/2020	D. Kimbrow	0.6	0.4
PKML-5	7/22/2020	1135	D. Kimbrow	80.3	YSI 5560	7/22/2020	D. Kimbrow	2.6	1.7
PM-3	7/22/2020	1045	D. Kimbrow	80.3	YSI 5560	7/22/2020	D. Kimbrow	16.1	10.4
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	8/5/2020	1000	D. Kimbrow	78.6	YSI 5560	8/5/2020	D. Kimbrow	0.9	0.6
PKML-2	8/5/2020	1105	D. Kimbrow	77.8	YSI 5560	8/5/2020	D. Kimbrow	0.5	0.3
PKML-5	8/5/2020	1025	D. Kimbrow	77.6	YSI 5560	8/5/2020	D. Kimbrow	1.0	0.7
PM-3	8/5/2020	0920	D. Kimbrow	79.3	YSI 5560	8/5/2020	D. Kimbrow	6.6	4.3
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	8/12/2020	1025	D. Kimbrow	77.1	YSI 5560	8/12/2020	D. Kimbrow	4	2.6
PKML-2	8/12/2020	1125	D. Kimbrow	77.0	YSI 5560	8/12/2020	D. Kimbrow	0.9	0.6
PKML-5	8/12/2020	1045	D. Kimbrow	77.5	YSI 5560	8/12/2020	D. Kimbrow	2.2	1.4
PM-3	8/12/2020	0940	D. Kimbrow	78.4	YSI 5560	8/12/2020	D. Kimbrow	11.6	7.5
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	8/20/2020	1100	D. Kimbrow	76.6	YSI 5560	8/20/2020	D. Kimbrow	12	7.8
PKML-2	8/20/2020	1335	D. Kimbrow	77.1	YSI 5560	8/20/2020	D. Kimbrow	1.9	1.2
PKML-5	8/20/2020	1245	D. Kimbrow	78.1	YSI 5560	8/20/2020	D. Kimbrow	4.4	2.8
PM-3	8/20/2020	1005	D. Kimbrow	77.6	YSI 5560	8/20/2020	D. Kimbrow	24.6	15.9
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	8/25/2020	1010	D. Kimbrow	77.1	YSI 5560	8/25/2020	D. Kimbrow	3.6	2.3
PKML-2	8/25/2020	1410	D. Kimbrow	77.1	YSI 5560	8/25/2020	D. Kimbrow	1.1	0.7
PKML-5	8/25/2020	1325	D. Kimbrow	77.2	YSI 5560	8/25/2020	D. Kimbrow	2.3	1.5
PM-3	8/25/2020	0915	D. Kimbrow	79.0	YSI 5560	8/25/2020	D. Kimbrow	10.5	6.8
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	9/2/2020	1005	D. Kimbrow	79.0	YSI 5560	9/2/2020	D. Kimbrow	2.1	1.4
PKML-2	9/2/2020	1055	D. Kimbrow	77.6	YSI 5560	9/2/2020	D. Kimbrow	0.4	0.3
PKML-5	9/2/2020	1020	D. Kimbrow	78.1	YSI 5560	9/2/2020	D. Kimbrow	1.3	0.8
PM-3	9/2/2020	0920	D. Kimbrow	80.4	YSI 5560	9/2/2020	D. Kimbrow	9.5	6.1

Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	9/29/2020	0900	D. Kimbrow	70.7	YSI 5560	9/29/2020	D. Kimbrow	10	6.5
PKML-2	9/29/2020	1005	D. Kimbrow	68.8	YSI 5560	9/29/2020	D. Kimbrow	4.7	3.0
PKML-5	9/29/2020	0920	D. Kimbrow	70.3	YSI 5560	9/29/2020	D. Kimbrow	3.6	2.3
PM-3	9/29/2020	0820	D. Kimbrow	73.5	YSI 5560	9/29/2020	D. Kimbrow	17.5	11.3
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	10/26/2020	1145	D. Kimbrow	71.6	YSI 5560	10/26/2020	D. Kimbrow	6.9	4.5
PKML-2	10/26/2020	1430	D. Kimbrow	71.6	YSI 5560	10/26/2020	D. Kimbrow	1.2	0.8
PKML-5	10/26/2020	1345	D. Kimbrow	72.2	YSI 5560	10/26/2020	D. Kimbrow	3.4	2.2
PM-3	10/26/2020	1100	D. Kimbrow	74.2	YSI 5560	10/26/2020	D. Kimbrow	17.2	11.1
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	11/24/2020	0920	D. Kimbrow	53.1	YSI 5560	11/24/2020	D. Kimbrow	3.6	2.3
PKML-2	11/24/2020	1315	D. Kimbrow	56.2	YSI 5560	11/24/2020	D. Kimbrow	-	-
PKML-5	11/24/2020	1015	D. Kimbrow	53.8	YSI 5560	11/24/2020	D. Kimbrow	0.8	0.5
PM-3	11/24/2020	1055	D. Kimbrow	66.4	YSI 5560	11/24/2020	D. Kimbrow	12.4	8.0
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	4/8/2020	1045	D. Kimbrow	7.88	YSI 1001	4/8/2020	D. Kimbrow	3.2	2.1
PKML-2	4/8/2020	1325	D. Kimbrow	7.52	YSI 1001	4/8/2020	D. Kimbrow	1.27	0.8
PKML-5	4/8/2020	1250	D. Kimbrow	7.53	YSI 1001	4/8/2020	D. Kimbrow	3.72	2.4
PM-3	4/8/2020	0920	D. Kimbrow	7.36	YSI 1001	4/8/2020	D. Kimbrow	12.75	8.2
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	5/12/2020	1030	D. Kimbrow D. Rogers	7.89	YSI 1001	5/12/2020	D. Kimbrow D. Rogers	6.4	4.1
PKML-2	5/12/2020	1130	D. Kimbrow D. Rogers	7.92	YSI 1001	5/12/2020	D. Kimbrow D. Rogers	0.6	0.4
PKML-5	5/12/2020	1050	D. Kimbrow D. Rogers	7.71	YSI 1001	5/12/2020	D. Kimbrow D. Rogers	2.3	1.5
PM-3	5/12/2020	0940	D. Kimbrow D. Rogers	7.47	YSI 1001	5/12/2020	D. Kimbrow D. Rogers	9.6	6.2
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	6/3/2020	0910	D. Rogers M. Smith	7.41	YSI 1001	6/3/2020	D. Rogers M. Smith	5.4	3.5
PKML-2	6/3/2020	1010	D. Rogers M. Smith	7.49	YSI 1001	6/3/2020	D. Rogers M. Smith	0.8	0.5
PKML-5	6/3/2020	-	D. Rogers M. Smith	7.38	YSI 1001	6/3/2020	D. Rogers M. Smith	2.1	1.4
PM-3	6/3/2020	0820	D. Rogers M. Smith	6.97	YSI 1001	6/3/2020	D. Rogers M. Smith	9.1	5.9
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	6/11/2020	1310	M. Smith	7.64	YSI 1001	6/11/2020	M. Smith	10.9	7.0
PKML-2	6/11/2020	1530	M. Smith	7.48	YSI 1001	6/11/2020	M. Smith	0.9	0.6
PKML-5	6/11/2020	1450	M. Smith	7.33	YSI 1001	6/11/2020	M. Smith	5.8	3.7
PM-3	6/11/2020	1145	M. Smith	7.00	YSI 1001	6/11/2020	M. Smith	20.6	13.3



Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	6/15/2020	1415	D. Kimbrow	7.53	YSI 1001	6/15/2020	D. Kimbrow	7.8	5.0
PKML-2	6/15/2020	1520	D. Kimbrow	7.54	YSI 1001	6/15/2020	D. Kimbrow	-	-
PKML-5	6/15/2020	1435	D. Kimbrow	7.45	YSI 1001	6/15/2020	D. Kimbrow	2.7	1.7
PM-3	6/15/2020	1320	D. Kimbrow	7.13	YSI 1001	6/15/2020	D. Kimbrow	16.6	10.7
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	6/25/2020	1025	D. Kimbrow	7.55	YSI 1001	6/25/2020	D. Kimbrow	19.1	12.3
PKML-2	6/25/2020	1125	D. Kimbrow	7.47	YSI 1001	6/25/2020	D. Kimbrow	3.0	1.9
PKML-5	6/25/2020	1040	D. Kimbrow	7.34	YSI 1001	6/25/2020	D. Kimbrow	13.7	8.9
PM-3	6/25/2020	0935	D. Kimbrow	7.32	YSI 1001	6/25/2020	D. Kimbrow	30.8	20
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	6/30/2020	1140	D. Rogers M. Smith	7.83	YSI 1001	6/30/2020	D. Rogers M. Smith	3.7	2.4
PKML-2	6/30/2020	1235	D. Rogers M. Smith	7.77	YSI 1001	6/30/2020	D. Rogers M. Smith	0.9	0.6
PKML-5	6/30/2020	1205	D. Rogers M. Smith	7.62	YSI 1001	6/30/2020	D. Rogers M. Smith	2.5	1.6
PM-3	6/30/2020	1100	D. Rogers M. Smith	7.12	YSI 1001	6/30/2020	D. Rogers M. Smith	9.8	6.3
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	7/22/2020	1120	D. Kimbrow	7.88	YSI 1001	7/22/2020	D. Kimbrow	5.1	3.3
PKML-2	7/22/2020	1215	D. Kimbrow	7.90	YSI 1001	7/22/2020	D. Kimbrow	0.6	0.4
PKML-5	7/22/2020	1135	D. Kimbrow	7.52	YSI 1001	7/22/2020	D. Kimbrow	2.6	1.7
PM-3	7/22/2020	1045	D. Kimbrow	7.42	YSI 1001	7/22/2020	D. Kimbrow	16.1	10.4
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	8/5/2020	1000	D. Kimbrow	7.90	YSI 1001	8/5/2020	D. Kimbrow	0.9	0.6
PKML-2	8/5/2020	1105	D. Kimbrow	7.92	YSI 1001	8/5/2020	D. Kimbrow	0.5	0.3
PKML-5	8/5/2020	1025	D. Kimbrow	7.59	YSI 1001	8/5/2020	D. Kimbrow	1.0	0.7
PM-3	8/5/2020	0920	D. Kimbrow	7.46	YSI 1001	8/5/2020	D. Kimbrow	6.6	4.3
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	8/12/2020	1025	D. Kimbrow	7.88	YSI 1001	8/12/2020	D. Kimbrow	4	2.6
PKML-2	8/12/2020	1125	D. Kimbrow	7.84	YSI 1001	8/12/2020	D. Kimbrow	0.9	0.6
PKML-5	8/12/2020	1045	D. Kimbrow	7.58	YSI 1001	8/12/2020	D. Kimbrow	2.2	1.4
PM-3	8/12/2020	0940	D. Kimbrow	7.47	YSI 1001	8/12/2020	D. Kimbrow	11.6	7.5
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	8/20/2020	1100	D. Kimbrow	7.68	YSI 1001	8/20/2020	D. Kimbrow	12	7.8
PKML-2	8/20/2020	1335	D. Kimbrow	7.65	YSI 1001	8/20/2020	D. Kimbrow	1.9	1.2
PKML-5	8/20/2020	1245	D. Kimbrow	7.53	YSI 1001	8/20/2020	D. Kimbrow	4.4	2.8
PM-3	8/20/2020	1005	D. Kimbrow	7.25	YSI 1001	8/20/2020	D. Kimbrow	24.6	15.9
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	8/25/2020	1010	D. Kimbrow	7.92	YSI 1001	8/25/2020	D. Kimbrow	3.6	2.3
PKML-2	8/25/2020	1410	D. Kimbrow	7.65	YSI 1001	8/25/2020	D. Kimbrow	1.1	0.7
PKML-5	8/25/2020	1325	D. Kimbrow	7.87	YSI 1001	8/25/2020	D. Kimbrow	2.3	1.5
PM-3	8/25/2020	0915	D. Kimbrow	7.45	YSI 1001	8/25/2020	D. Kimbrow	10.5	6.8

Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	9/2/2020	1005	D. Kimbrow	7.87	YSI 1001	9/2/2020	D. Kimbrow	2.1	1.4
PKML-2	9/2/2020	1055	D. Kimbrow	7.92	YSI 1001	9/2/2020	D. Kimbrow	0.4	0.3
PKML-5	9/2/2020	1020	D. Kimbrow	7.64	YSI 1001	9/2/2020	D. Kimbrow	1.3	0.8
PM-3	9/2/2020	0920	D. Kimbrow	7.39	YSI 1001	9/2/2020	D. Kimbrow	9.5	6.1
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	9/29/2020	0900	D. Kimbrow	7.74	YSI 1001	9/29/2020	D. Kimbrow	10	6.5
PKML-2	9/29/2020	1005	D. Kimbrow	7.70	YSI 1001	9/29/2020	D. Kimbrow	4.7	3.0
PKML-5	9/29/2020	0920	D. Kimbrow	7.50	YSI 1001	9/29/2020	D. Kimbrow	3.6	2.3
PM-3	9/29/2020	0820	D. Kimbrow	7.45	YSI 1001	9/29/2020	D. Kimbrow	17.5	11.3
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	10/26/2020	1145	D. Kimbrow	8.04	YSI 1001	10/26/2020	D. Kimbrow	6.9	4.5
PKML-2	10/26/2020	1430	D. Kimbrow	7.83	YSI 1001	10/26/2020	D. Kimbrow	1.2	0.8
PKML-5	10/26/2020	1345	D. Kimbrow	7.67	YSI 1001	10/26/2020	D. Kimbrow	3.4	2.2
PM-3	10/26/2020	1100	D. Kimbrow	7.46	YSI 1001	10/26/2020	D. Kimbrow	17.2	11.1
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	11/24/2020	0920	D. Kimbrow	7.47	YSI 1001	11/24/2020	D. Kimbrow	3.6	2.3
PKML-2	11/24/2020	1315	D. Kimbrow	7.98	YSI 1001	11/24/2020	D. Kimbrow	-	-
PKML-5	11/24/2020	1015	D. Kimbrow	7.58	YSI 1001	11/24/2020	D. Kimbrow	0.8	0.5
PM-3	11/24/2020	1055	D. Kimbrow	7.48	YSI 1001	11/24/2020	D. Kimbrow	12.4	8.0
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	4/8/2020	1045	D. Kimbrow	9.46	YSI 2003	4/8/2020	D. Kimbrow	3.2	2.1
PKML-2	4/8/2020	1325	D. Kimbrow	8.76	YSI 2003	4/8/2020	D. Kimbrow	1.27	0.8
PKML-5	4/8/2020	1250	D. Kimbrow	9.25	YSI 2003	4/8/2020	D. Kimbrow	3.72	2.4
PM-3	4/8/2020	0920	D. Kimbrow	8.22	YSI 2003	4/8/2020	D. Kimbrow	12.75	8.2
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	5/12/2020	1030	D. Kimbrow D. Rogers	10.9	YSI 2003	5/12/2020	D. Kimbrow D. Rogers	6.4	4.1
PKML-2	5/12/2020	1130	D. Kimbrow D. Rogers	10.5	YSI 2003	5/12/2020	D. Kimbrow D. Rogers	0.6	0.4
PKML-5	5/12/2020	1050	D. Kimbrow D. Rogers	10.41	YSI 2003	5/12/2020	D. Kimbrow D. Rogers	2.3	1.5
PM-3	5/12/2020	0940	D. Kimbrow D. Rogers	9.07	YSI 2003	5/12/2020	D. Kimbrow D. Rogers	9.6	6.2
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	6/3/2020	0910	D. Rogers M. Smith	8.36	YSI 2003	6/3/2020	D. Rogers M. Smith	5.4	3.5
PKML-2	6/3/2020	1010	D. Rogers M. Smith	8.8	YSI 2003	6/3/2020	D. Rogers M. Smith	0.8	0.5
PKML-5	6/3/2020	-	D. Rogers M. Smith	8.58	YSI 2003	6/3/2020	D. Rogers M. Smith	2.1	1.4
PM-3	6/3/2020	0820	D. Rogers M. Smith	7.39	YSI 2003	6/3/2020	D. Rogers M. Smith	9.1	5.9
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	6/11/2020	1310	M. Smith	8.36	YSI 2003	6/11/2020	M. Smith	10.9	7.0

Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-2	6/11/2020	1530	M. Smith	8.2	YSI 2003	6/11/2020	M. Smith	0.9	0.6
PKML-5	6/11/2020	1450	M. Smith	7.59	YSI 2003	6/11/2020	M. Smith	5.8	3.7
PM-3	6/11/2020	1145	M. Smith	7.94	YSI 2003	6/11/2020	M. Smith	20.6	13.3
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	6/15/2020	1415	D. Kimbrow	8.12	YSI 2003	6/15/2020	D. Kimbrow	7.8	5.0
PKML-2	6/15/2020	1520	D. Kimbrow	7.96	YSI 2003	6/15/2020	D. Kimbrow	-	-
PKML-5	6/15/2020	1435	D. Kimbrow	8.01	YSI 2003	6/15/2020	D. Kimbrow	2.7	1.7
PM-3	6/15/2020	1320	D. Kimbrow	7.67	YSI 2003	6/15/2020	D. Kimbrow	16.6	10.7
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	6/25/2020	1025	D. Kimbrow	8.07	YSI 2003	6/25/2020	D. Kimbrow	19.1	12.3
PKML-2	6/25/2020	1125	D. Kimbrow	7.46	YSI 2003	6/25/2020	D. Kimbrow	3.0	1.9
PKML-5	6/25/2020	1040	D. Kimbrow	7.94	YSI 2003	6/25/2020	D. Kimbrow	13.7	8.9
PM-3	6/25/2020	0935	D. Kimbrow	7.7	YSI 2003	6/25/2020	D. Kimbrow	30.8	20
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	6/30/2020	1140	D. Rogers M. Smith	8.02	YSI 2003	6/30/2020	D. Rogers M. Smith	3.7	2.4
PKML-2	6/30/2020	1235	D. Rogers M. Smith	7.8	YSI 2003	6/30/2020	D. Rogers M. Smith	0.9	0.6
PKML-5	6/30/2020	1205	D. Rogers M. Smith	7.95	YSI 2003	6/30/2020	D. Rogers M. Smith	2.5	1.6
PM-3	6/30/2020	1100	D. Rogers M. Smith	7.6	YSI 2003	6/30/2020	D. Rogers M. Smith	9.8	6.3
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	7/22/2020	1120	D. Kimbrow	7.8	YSI 2003	7/22/2020	D. Kimbrow	5.1	3.3
PKML-2	7/22/2020	1215	D. Kimbrow	8.39	YSI 2003	7/22/2020	D. Kimbrow	0.6	0.4
PKML-5	7/22/2020	1135	D. Kimbrow	7.42	YSI 2003	7/22/2020	D. Kimbrow	2.6	1.7
PM-3	7/22/2020	1045	D. Kimbrow	7.15	YSI 2003	7/22/2020	D. Kimbrow	16.1	10.4
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	8/5/2020	1000	D. Kimbrow	7.58	YSI 2003	8/5/2020	D. Kimbrow	0.9	0.6
PKML-2	8/5/2020	1105	D. Kimbrow	7.56	YSI 2003	8/5/2020	D. Kimbrow	0.5	0.3
PKML-5	8/5/2020	1025	D. Kimbrow	7.15	YSI 2003	8/5/2020	D. Kimbrow	1.0	0.7
PM-3	8/5/2020	0920	D. Kimbrow	6.47	YSI 2003	8/5/2020	D. Kimbrow	6.6	4.3
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	8/12/2020	1025	D. Kimbrow	7.8	YSI 2003	8/12/2020	D. Kimbrow	4	2.6
PKML-2	8/12/2020	1125	D. Kimbrow	8.5	YSI 2003	8/12/2020	D. Kimbrow	0.9	0.6
PKML-5	8/12/2020	1045	D. Kimbrow	7.41	YSI 2003	8/12/2020	D. Kimbrow	2.2	1.4
PM-3	8/12/2020	0940	D. Kimbrow	6.99	YSI 2003	8/12/2020	D. Kimbrow	11.6	7.5
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	8/20/2020	1100	D. Kimbrow	8.01	YSI 2003	8/20/2020	D. Kimbrow	12	7.8
PKML-2	8/20/2020	1335	D. Kimbrow	7.47	YSI 2003	8/20/2020	D. Kimbrow	1.9	1.2
PKML-5	8/20/2020	1245	D. Kimbrow	7.96	YSI 2003	8/20/2020	D. Kimbrow	4.4	2.8
PM-3	8/20/2020	1005	D. Kimbrow	7.52	YSI 2003	8/20/2020	D. Kimbrow	24.6	15.9

Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	8/25/2020	1010	D. Kimbrow	7.69	YSI 2003	8/25/2020	D. Kimbrow	3.6	2.3
PKML-2	8/25/2020	1410	D. Kimbrow	7.7	YSI 2003	8/25/2020	D. Kimbrow	1.1	0.7
PKML-5	8/25/2020	1325	D. Kimbrow	8.55	YSI 2003	8/25/2020	D. Kimbrow	2.3	1.5
PM-3	8/25/2020	0915	D. Kimbrow	6.85	YSI 2003	8/25/2020	D. Kimbrow	10.5	6.8
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	9/2/2020	1005	D. Kimbrow	7.67	YSI 2003	9/2/2020	D. Kimbrow	2.1	1.4
PKML-2	9/2/2020	1055	D. Kimbrow	7.57	YSI 2003	9/2/2020	D. Kimbrow	0.4	0.3
PKML-5	9/2/2020	1020	D. Kimbrow	6.89	YSI 2003	9/2/2020	D. Kimbrow	1.3	0.8
PM-3	9/2/2020	0920	D. Kimbrow	6.68	YSI 2003	9/2/2020	D. Kimbrow	9.5	6.1
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	9/29/2020	0900	D. Kimbrow	8.38	YSI 2003	9/29/2020	D. Kimbrow	10	6.5
PKML-2	9/29/2020	1005	D. Kimbrow	8.31	YSI 2003	9/29/2020	D. Kimbrow	4.7	3.0
PKML-5	9/29/2020	0920	D. Kimbrow	7.71	YSI 2003	9/29/2020	D. Kimbrow	3.6	2.3
PM-3	9/29/2020	0820	D. Kimbrow	7.43	YSI 2003	9/29/2020	D. Kimbrow	17.5	11.3
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	10/26/2020	1145	D. Kimbrow	9.7	YSI 2003	10/26/2020	D. Kimbrow	6.9	4.5
PKML-2	10/26/2020	1430	D. Kimbrow	8.79	YSI 2003	10/26/2020	D. Kimbrow	1.2	0.8
PKML-5	10/26/2020	1345	D. Kimbrow	8.65	YSI 2003	10/26/2020	D. Kimbrow	3.4	2.2
PM-3	10/26/2020	1100	D. Kimbrow	7.73	YSI 2003	10/26/2020	D. Kimbrow	17.2	11.1
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	11/24/2020	0920	D. Kimbrow	11.27	YSI 2003	11/24/2020	D. Kimbrow	3.6	2.3
PKML-2	11/24/2020	1315	D. Kimbrow	11.53	YSI 2003	11/24/2020	D. Kimbrow	-	-
PKML-5	11/24/2020	1015	D. Kimbrow	10.86	YSI 2003	11/24/2020	D. Kimbrow	0.8	0.5
PM-3	11/24/2020	1055	D. Kimbrow	8.35	YSI 2003	11/24/2020	D. Kimbrow	12.4	8.0
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	4/8/2020	1045	D. Kimbrow	185.1	YSI 5560	4/8/2020	D. Kimbrow	3.2	2.1
PKML-2	4/8/2020	1325	D. Kimbrow	233.2	YSI 5560	4/8/2020	D. Kimbrow	1.27	0.8
PKML-5	4/8/2020	1250	D. Kimbrow	187.8	YSI 5560	4/8/2020	D. Kimbrow	3.72	2.4
PM-3	4/8/2020	0920	D. Kimbrow	251.8	YSI 5560	4/8/2020	D. Kimbrow	12.75	8.2
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	5/12/2020	1030	D. Kimbrow D. Rogers	183.7	YSI 5560	5/12/2020	D. Kimbrow D. Rogers	6.4	4.1
PKML-2	5/12/2020	1130	D. Kimbrow D. Rogers	315.4	YSI 5560	5/12/2020	D. Kimbrow D. Rogers	0.6	0.4
PKML-5	5/12/2020	1050	D. Kimbrow D. Rogers	187.4	YSI 5560	5/12/2020	D. Kimbrow D. Rogers	2.3	1.5
PM-3	5/12/2020	0940	D. Kimbrow D. Rogers	266.4	YSI 5560	5/12/2020	D. Kimbrow D. Rogers	9.6	6.2
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	6/3/2020	0910	D. Rogers M. Smith	180.2	YSI 5560	6/3/2020	D. Rogers M. Smith	5.4	3.5
PKML-2	6/3/2020	1010	D. Rogers M. Smith	307	YSI 5560	6/3/2020	D. Rogers M. Smith	0.8	0.5

Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-5	6/3/2020	-	D. Rogers M. Smith	182.1	YSI 5560	6/3/2020	D. Rogers M. Smith	2.1	1.4
PM-3	6/3/2020	0820	D. Rogers M. Smith	270	YSI 5560	6/3/2020	D. Rogers M. Smith	9.1	5.9
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	6/11/2020	1310	M. Smith	116.5	YSI 5560	6/11/2020	M. Smith	10.9	7.0
PKML-2	6/11/2020	1530	M. Smith	232.9	YSI 5560	6/11/2020	M. Smith	0.9	0.6
PKML-5	6/11/2020	1450	M. Smith	118.4	YSI 5560	6/11/2020	M. Smith	5.8	3.7
PM-3	6/11/2020	1145	M. Smith	250.7	YSI 5560	6/11/2020	M. Smith	20.6	13.3
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	6/15/2020	1415	D. Kimbrow	106.6	YSI 5560	6/15/2020	D. Kimbrow	7.8	5.0
PKML-2	6/15/2020	1520	D. Kimbrow	248.6	YSI 5560	6/15/2020	D. Kimbrow	-	-
PKML-5	6/15/2020	1435	D. Kimbrow	158.5	YSI 5560	6/15/2020	D. Kimbrow	2.7	1.7
PM-3	6/15/2020	1320	D. Kimbrow	245.5	YSI 5560	6/15/2020	D. Kimbrow	16.6	10.7
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	6/25/2020	1025	D. Kimbrow	104.8	YSI 5560	6/25/2020	D. Kimbrow	19.1	12.3
PKML-2	6/25/2020	1125	D. Kimbrow	196.4	YSI 5560	6/25/2020	D. Kimbrow	3.0	1.9
PKML-5	6/25/2020	1040	D. Kimbrow	103.6	YSI 5560	6/25/2020	D. Kimbrow	13.7	8.9
PM-3	6/25/2020	0935	D. Kimbrow	160	YSI 5560	6/25/2020	D. Kimbrow	30.8	20
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	6/30/2020	1140	D. Rogers M. Smith	147.7	YSI 5560	6/30/2020	D. Rogers M. Smith	3.7	2.4
PKML-2	6/30/2020	1235	D. Rogers M. Smith	249.4	YSI 5560	6/30/2020	D. Rogers M. Smith	0.9	0.6
PKML-5	6/30/2020	1205	D. Rogers M. Smith	161.4	YSI 5560	6/30/2020	D. Rogers M. Smith	2.5	1.6
PM-3	6/30/2020	1100	D. Rogers M. Smith	245	YSI 5560	6/30/2020	D. Rogers M. Smith	9.8	6.3
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	7/22/2020	1120	D. Kimbrow	123.3	YSI 5560	7/22/2020	D. Kimbrow	5.1	3.3
PKML-2	7/22/2020	1215	D. Kimbrow	298.3	YSI 5560	7/22/2020	D. Kimbrow	0.6	0.4
PKML-5	7/22/2020	1135	D. Kimbrow	121.9	YSI 5560	7/22/2020	D. Kimbrow	2.6	1.7
PM-3	7/22/2020	1045	D. Kimbrow	248.4	YSI 5560	7/22/2020	D. Kimbrow	16.1	10.4
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	8/5/2020	1000	D. Kimbrow	166.2	YSI 5560	8/5/2020	D. Kimbrow	0.9	0.6
PKML-2	8/5/2020	1105	D. Kimbrow	319.3	YSI 5560	8/5/2020	D. Kimbrow	0.5	0.3
PKML-5	8/5/2020	1025	D. Kimbrow	252.1	YSI 5560	8/5/2020	D. Kimbrow	1.0	0.7
PM-3	8/5/2020	0920	D. Kimbrow	322	YSI 5560	8/5/2020	D. Kimbrow	6.6	4.3
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	8/12/2020	1025	D. Kimbrow	135.8	YSI 5560	8/12/2020	D. Kimbrow	4	2.6
PKML-2	8/12/2020	1125	D. Kimbrow	250.8	YSI 5560	8/12/2020	D. Kimbrow	0.9	0.6
PKML-5	8/12/2020	1045	D. Kimbrow	139.9	YSI 5560	8/12/2020	D. Kimbrow	2.2	1.4
PM-3	8/12/2020	0940	D. Kimbrow	257.4	YSI 5560	8/12/2020	D. Kimbrow	11.6	7.5

Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	8/20/2020	1100	D. Kimbrow	86.7	YSI 5560	8/20/2020	D. Kimbrow	12	7.8
PKML-2	8/20/2020	1335	D. Kimbrow	183.5	YSI 5560	8/20/2020	D. Kimbrow	1.9	1.2
PKML-5	8/20/2020	1245	D. Kimbrow	108.9	YSI 5560	8/20/2020	D. Kimbrow	4.4	2.8
PM-3	8/20/2020	1005	D. Kimbrow	186.8	YSI 5560	8/20/2020	D. Kimbrow	24.6	15.9
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	8/25/2020	1010	D. Kimbrow	176.6	YSI 5560	8/25/2020	D. Kimbrow	3.6	2.3
PKML-2	8/25/2020	1410	D. Kimbrow	169.1	YSI 5560	8/25/2020	D. Kimbrow	1.1	0.7
PKML-5	8/25/2020	1325	D. Kimbrow	234	YSI 5560	8/25/2020	D. Kimbrow	2.3	1.5
PM-3	8/25/2020	0915	D. Kimbrow	290	YSI 5560	8/25/2020	D. Kimbrow	10.5	6.8
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	9/2/2020	1005	D. Kimbrow	171.7	YSI 5560	9/2/2020	D. Kimbrow	2.1	1.4
PKML-2	9/2/2020	1055	D. Kimbrow	353	YSI 5560	9/2/2020	D. Kimbrow	0.4	0.3
PKML-5	9/2/2020	1020	D. Kimbrow	191.5	YSI 5560	9/2/2020	D. Kimbrow	1.3	0.8
PM-3	9/2/2020	0920	D. Kimbrow	320.8	YSI 5560	9/2/2020	D. Kimbrow	9.5	6.1
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	9/29/2020	0900	D. Kimbrow	113.3	YSI 5560	9/29/2020	D. Kimbrow	10	6.5
PKML-2	9/29/2020	1005	D. Kimbrow	230.9	YSI 5560	9/29/2020	D. Kimbrow	4.7	3.0
PKML-5	9/29/2020	0920	D. Kimbrow	102.2	YSI 5560	9/29/2020	D. Kimbrow	3.6	2.3
PM-3	9/29/2020	0820	D. Kimbrow	207.9	YSI 5560	9/29/2020	D. Kimbrow	17.5	11.3
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	10/26/2020	1145	D. Kimbrow	137.3	YSI 5560	10/26/2020	D. Kimbrow	6.9	4.5
PKML-2	10/26/2020	1430	D. Kimbrow	254.8	YSI 5560	10/26/2020	D. Kimbrow	1.2	0.8
PKML-5	10/26/2020	1345	D. Kimbrow	139.5	YSI 5560	10/26/2020	D. Kimbrow	3.4	2.2
PM-3	10/26/2020	1100	D. Kimbrow	246.7	YSI 5560	10/26/2020	D. Kimbrow	17.2	11.1
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	11/24/2020	0920	D. Kimbrow	194.7	YSI 5560	11/24/2020	D. Kimbrow	3.6	2.3
PKML-2	11/24/2020	1315	D. Kimbrow	307.9	YSI 5560	11/24/2020	D. Kimbrow	-	-
PKML-5	11/24/2020	1015	D. Kimbrow	195.6	YSI 5560	11/24/2020	D. Kimbrow	0.8	0.5
PM-3	11/24/2020	1055	D. Kimbrow	300.5	YSI 5560	11/24/2020	D. Kimbrow	12.4	8.0
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	4/8/2020	1045	D. Kimbrow	6.8	SM 2130 B	4/8/2020	D. Kimbrow	3.2	2.1
PKML-2	4/8/2020	1325	D. Kimbrow	6.99	SM 2130 B	4/8/2020	D. Kimbrow	1.27	0.8
PKML-5	4/8/2020	1250	D. Kimbrow	6.37	SM 2130 B	4/8/2020	D. Kimbrow	3.72	2.4
PM-3	4/8/2020	0920	D. Kimbrow	4.91	SM 2130 B	4/8/2020	D. Kimbrow	12.75	8.2
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	5/12/2020	1030	D. Kimbrow D. Rogers	3.27	SM 2130 B	5/12/2020	D. Kimbrow D. Rogers	6.4	4.1
PKML-2	5/12/2020	1130	D. Kimbrow D. Rogers	8.87	SM 2130 B	5/12/2020	D. Kimbrow D. Rogers	0.6	0.4
PKML-5	5/12/2020	1050	D. Kimbrow D. Rogers	2.91	SM 2130 B	5/12/2020	D. Kimbrow D. Rogers	2.3	1.5
PM-3	5/12/2020	0940	D. Kimbrow D. Rogers	2.81	SM 2130 B	5/12/2020	D. Kimbrow D. Rogers	9.6	6.2

Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	6/3/2020	0910	D. Rogers M. Smith	2.18	SM 2130 B	6/3/2020	D. Rogers M. Smith	5.4	3.5
PKML-2	6/3/2020	1010	D. Rogers M. Smith	4.46	SM 2130 B	6/3/2020	D. Rogers M. Smith	0.8	0.5
PKML-5	6/3/2020	-	D. Rogers M. Smith	2.27	SM 2130 B	6/3/2020	D. Rogers M. Smith	2.1	1.4
PM-3	6/3/2020	0820	D. Rogers M. Smith	3.59	SM 2130 B	6/3/2020	D. Rogers M. Smith	9.1	5.9
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	6/11/2020	1310	M. Smith	13.53	SM 2130 B	6/11/2020	M. Smith	10.9	7.0
PKML-2	6/11/2020	1530	M. Smith	7.69	SM 2130 B	6/11/2020	M. Smith	0.9	0.6
PKML-5	6/11/2020	1450	M. Smith	10.19	SM 2130 B	6/11/2020	M. Smith	5.8	3.7
PM-3	6/11/2020	1145	M. Smith	8.92	SM 2130 B	6/11/2020	M. Smith	20.6	13.3
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	6/15/2020	1415	D. Kimbrow	15.1	SM 2130 B	6/15/2020	D. Kimbrow	7.8	5.0
PKML-2	6/15/2020	1520	D. Kimbrow	3.19	SM 2130 B	6/15/2020	D. Kimbrow	-	-
PKML-5	6/15/2020	1435	D. Kimbrow	10.45	SM 2130 B	6/15/2020	D. Kimbrow	2.7	1.7
PM-3	6/15/2020	1320	D. Kimbrow	11.88	SM 2130 B	6/15/2020	D. Kimbrow	16.6	10.7
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	6/25/2020	1025	D. Kimbrow	16.6	SM 2130 B	6/25/2020	D. Kimbrow	19.1	12.3
PKML-2	6/25/2020	1125	D. Kimbrow	11.29	SM 2130 B	6/25/2020	D. Kimbrow	3.0	1.9
PKML-5	6/25/2020	1040	D. Kimbrow	12.7	SM 2130 B	6/25/2020	D. Kimbrow	13.7	8.9
PM-3	6/25/2020	0935	D. Kimbrow	15.8	SM 2130 B	6/25/2020	D. Kimbrow	30.8	20
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	6/30/2020	1140	D. Rogers M. Smith	1.89	SM 2130 B	6/30/2020	D. Rogers M. Smith	3.7	2.4
PKML-2	6/30/2020	1235	D. Rogers M. Smith	3.58	SM 2130 B	6/30/2020	D. Rogers M. Smith	0.9	0.6
PKML-5	6/30/2020	1205	D. Rogers M. Smith	1.95	SM 2130 B	6/30/2020	D. Rogers M. Smith	2.5	1.6
PM-3	6/30/2020	1100	D. Rogers M. Smith	3.66	SM 2130 B	6/30/2020	D. Rogers M. Smith	9.8	6.3
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	7/22/2020	1120	D. Kimbrow	9.19	SM 2130 B	7/22/2020	D. Kimbrow	5.1	3.3
PKML-2	7/22/2020	1215	D. Kimbrow	6.63	SM 2130 B	7/22/2020	D. Kimbrow	0.6	0.4
PKML-5	7/22/2020	1135	D. Kimbrow	6.14	SM 2130 B	7/22/2020	D. Kimbrow	2.6	1.7
PM-3	7/22/2020	1045	D. Kimbrow	8.48	SM 2130 B	7/22/2020	D. Kimbrow	16.1	10.4
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	8/5/2020	1000	D. Kimbrow	2.09	SM 2130 B	8/5/2020	D. Kimbrow	0.9	0.6
PKML-2	8/5/2020	1105	D. Kimbrow	3.38	SM 2130 B	8/5/2020	D. Kimbrow	0.5	0.3
PKML-5	8/5/2020	1025	D. Kimbrow	2.1	SM 2130 B	8/5/2020	D. Kimbrow	1.0	0.7
PM-3	8/5/2020	0920	D. Kimbrow	3.56	SM 2130 B	8/5/2020	D. Kimbrow	6.6	4.3
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	8/12/2020	1025	D. Kimbrow	5.42	SM 2130 B	8/12/2020	D. Kimbrow	4	2.6

Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-2	8/12/2020	1125	D. Kimbrow	6.5	SM 2130 B	8/12/2020	D. Kimbrow	0.9	0.6
PKML-5	8/12/2020	1045	D. Kimbrow	7.46	SM 2130 B	8/12/2020	D. Kimbrow	2.2	1.4
PM-3	8/12/2020	0940	D. Kimbrow	4.52	SM 2130 B	8/12/2020	D. Kimbrow	11.6	7.5
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	8/20/2020	1100	D. Kimbrow	23.9	SM 2130 B	8/20/2020	D. Kimbrow	12	7.8
PKML-2	8/20/2020	1335	D. Kimbrow	45.3	SM 2130 B	8/20/2020	D. Kimbrow	1.9	1.2
PKML-5	8/20/2020	1245	D. Kimbrow	13.6	SM 2130 B	8/20/2020	D. Kimbrow	4.4	2.8
PM-3	8/20/2020	1005	D. Kimbrow	23.7	SM 2130 B	8/20/2020	D. Kimbrow	24.6	15.9
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	8/25/2020	1010	D. Kimbrow	2.35	SM 2130 B	8/25/2020	D. Kimbrow	3.6	2.3
PKML-2	8/25/2020	1410	D. Kimbrow	12.4	SM 2130 B	8/25/2020	D. Kimbrow	1.1	0.7
PKML-5	8/25/2020	1325	D. Kimbrow	3.54	SM 2130 B	8/25/2020	D. Kimbrow	2.3	1.5
PM-3	8/25/2020	0915	D. Kimbrow	3.23	SM 2130 B	8/25/2020	D. Kimbrow	10.5	6.8
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	9/2/2020	1005	D. Kimbrow	2.39	SM 2130 B	9/2/2020	D. Kimbrow	2.1	1.4
PKML-2	9/2/2020	1055	D. Kimbrow	4.38	SM 2130 B	9/2/2020	D. Kimbrow	0.4	0.3
PKML-5	9/2/2020	1020	D. Kimbrow	5.61	SM 2130 B	9/2/2020	D. Kimbrow	1.3	0.8
PM-3	9/2/2020	0920	D. Kimbrow	3.31	SM 2130 B	9/2/2020	D. Kimbrow	9.5	6.1
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	9/29/2020	0900	D. Kimbrow	29.7	SM 2130 B	9/29/2020	D. Kimbrow	10	6.5
PKML-2	9/29/2020	1005	D. Kimbrow	11.16	SM 2130 B	9/29/2020	D. Kimbrow	4.7	3.0
PKML-5	9/29/2020	0920	D. Kimbrow	14	SM 2130 B	9/29/2020	D. Kimbrow	3.6	2.3
PM-3	9/29/2020	0820	D. Kimbrow	22.3	SM 2130 B	9/29/2020	D. Kimbrow	17.5	11.3
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	10/26/2020	1145	D. Kimbrow	4.76	SM 2130 B	10/26/2020	D. Kimbrow	6.9	4.5
PKML-2	10/26/2020	1430	D. Kimbrow	2.94	SM 2130 B	10/26/2020	D. Kimbrow	1.2	0.8
PKML-5	10/26/2020	1345	D. Kimbrow	4.16	SM 2130 B	10/26/2020	D. Kimbrow	3.4	2.2
PM-3	10/26/2020	1100	D. Kimbrow	3.06	SM 2130 B	10/26/2020	D. Kimbrow	17.2	11.1
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By	Stream-flow (cfs)	Stream-flow (MGD)
PKML-1	11/24/2020	0920	D. Kimbrow	1.76	SM 2130 B	11/24/2020	D. Kimbrow	3.6	2.3
PKML-2	11/24/2020	1315	D. Kimbrow	1.09	SM 2130 B	11/24/2020	D. Kimbrow	-	-
PKML-5	11/24/2020	1015	D. Kimbrow	1.83	SM 2130 B	11/24/2020	D. Kimbrow	0.8	0.5
PM-3	11/24/2020	1055	D. Kimbrow	1.98	SM 2130 B	11/24/2020	D. Kimbrow	12.4	8.0

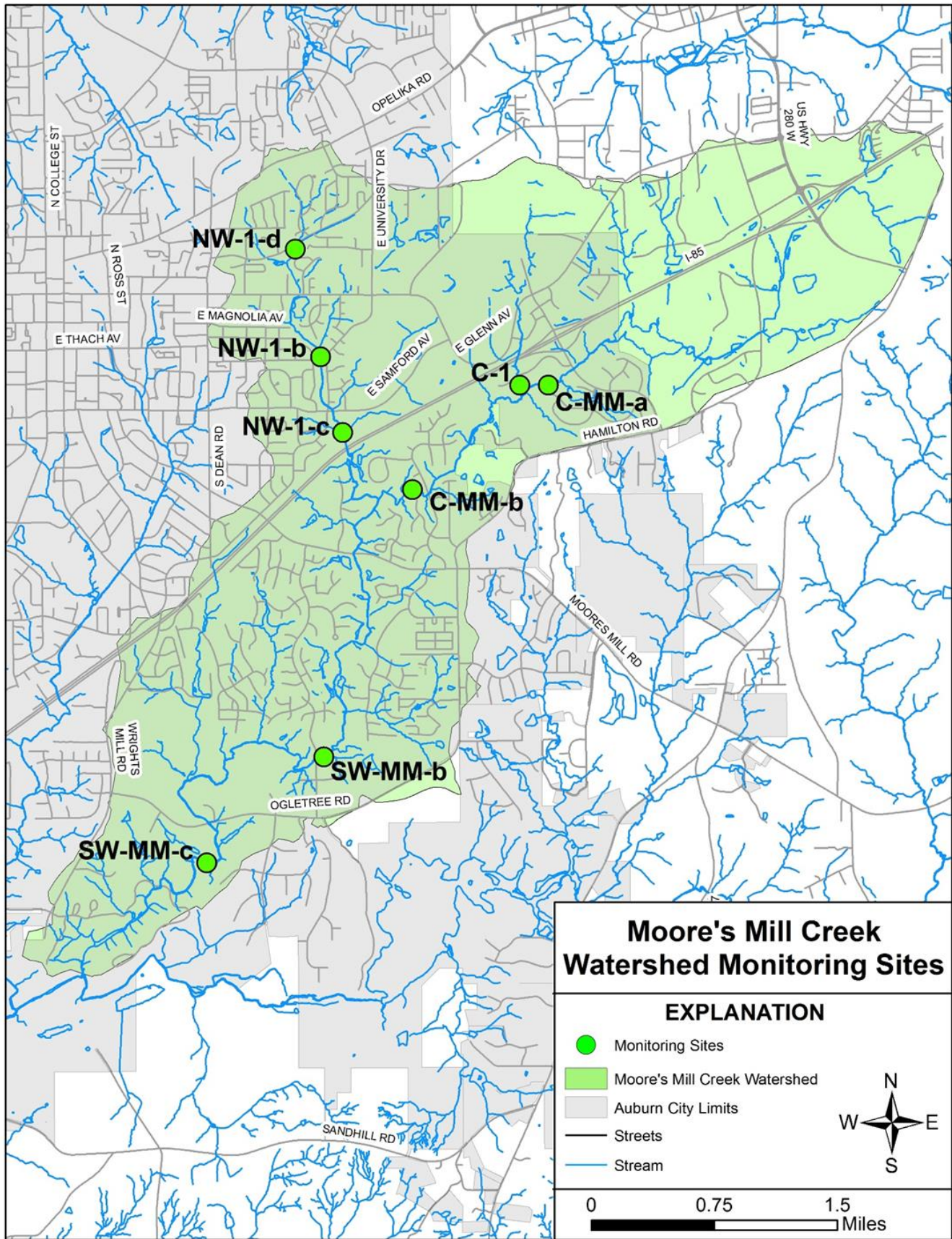


## 2.9 Moore's Mill Creek Compliance Monitoring

Moore's Mill Creek was placed on the draft 303(d) list for siltation in 1998, and has been on the final 303(d) list since 2000. The impaired reach is 10.51 mi. and includes all waters from its source to the confluence with Chewacla Creek at Chewacla State Park. Habitat degradation due to sedimentation/siltation is the impairment in Moore's Mill Creek. Potential sources of the impairment are listed as land development and urban runoff/storm sewers. The Moore's Mill Creek Watershed Management Plan was completed in 2008. This plan outlined several objectives aimed to reduce sedimentation and mitigate habitat degradation. Included in the plan were geomorphic surveys and Bank Erosion Hazard Index (BEHI) assessments of stream reaches on both the main stem and tributaries throughout the watershed. Findings from these geomorphic surveys and BEHI assessments identified in-stream sediment loading from streambank erosion as a significant contributor to the impairment. The watershed management plan recommended continued monitoring of these sites to evaluate the success of future efforts aimed to reduce bank erosion.

The City monitored streambank erosion at eight (8) reaches in the Moore's Mill Creek watershed with annual stream geomorphic surveys conducted in March, 2021. These annual surveys measured geomorphic parameters that are used as indicators of stability of a stream reach. A stream condition rapid assessment was performed at each of the 8 reaches. The stream condition rapid assessment was developed with a grant from EPA (EPA Region IV Wetlands Program Development Grant CD00D01412, "Eco-Morphological Mitigation Design and Assessment Tools for the Alabama and Tennessee Appalachian Plateau"), and rates stream condition and function based on eco-geomorphic indicators. Quarterly samples of total suspended solids (TSS), water temperature, pH, dissolved oxygen, specific conductance, and turbidity are measured in-situ at each site. The cross-sections at each stream reach site in the Moore's Mill Creek watershed are shown in the following charts. Each cross-section chart compares this year's survey to the previous year. Erosion occurred where the 2021 cross-section line is below or outside of the 2020 cross-section line. Deposition occurred where the 2021 line is above or inside of the 2020 cross-section line.

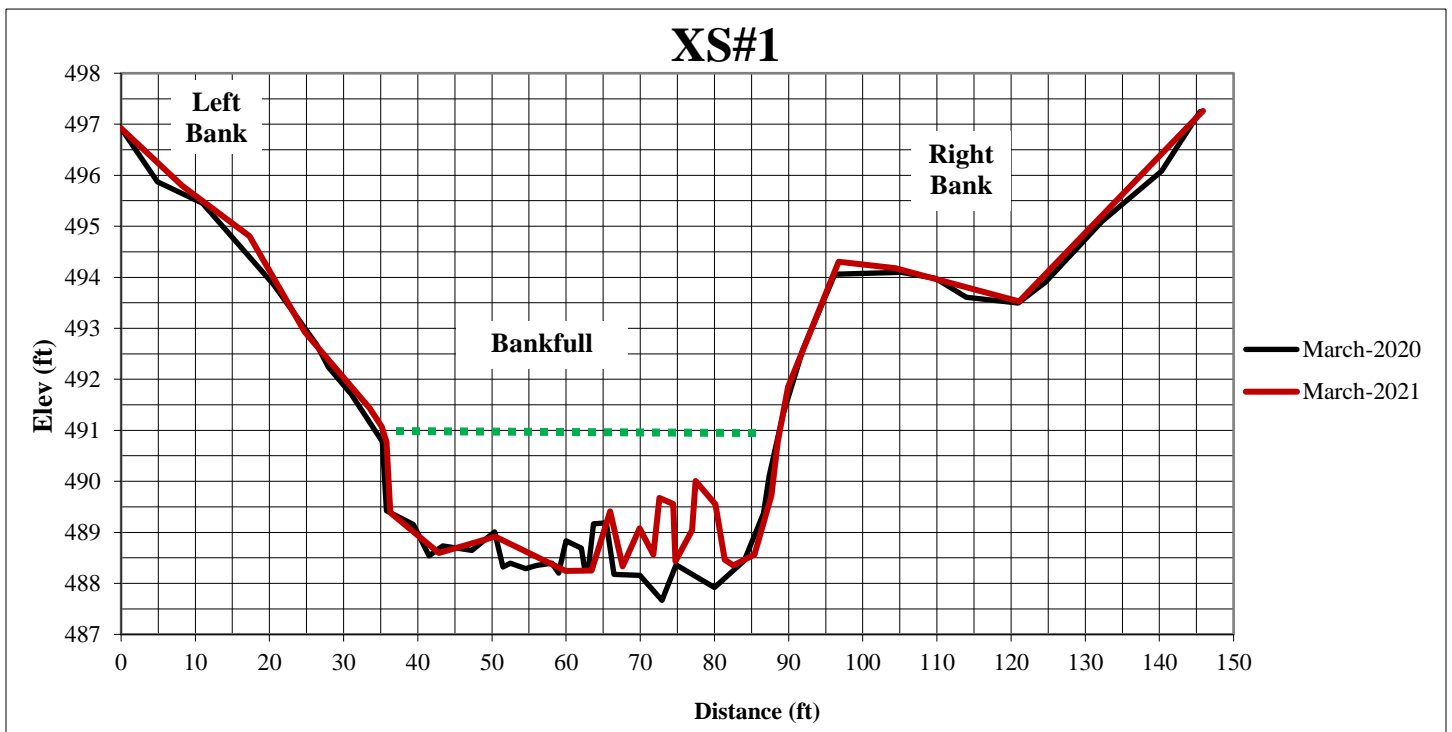
Data from the geomorphic surveys conducted in March 2021 show that most sites were relatively stable from 2020 to 2021. The most notable exception is site NW-1-c. There was much deposition in the upstream cross-section at this site, and the downstream cross-section exhibited significant erosion on the left bank. There have been numerous development projects in the watershed upstream of NW-1-c over the last several years. The increased urban development combined with the rise in duration and intensity of local rain events is likely a contributor to the severe deposition and bank erosion at this site. Although several of the other sites exhibited moderate to high geometric BEHI indices, most of the sites had stable streambanks during this reporting period.



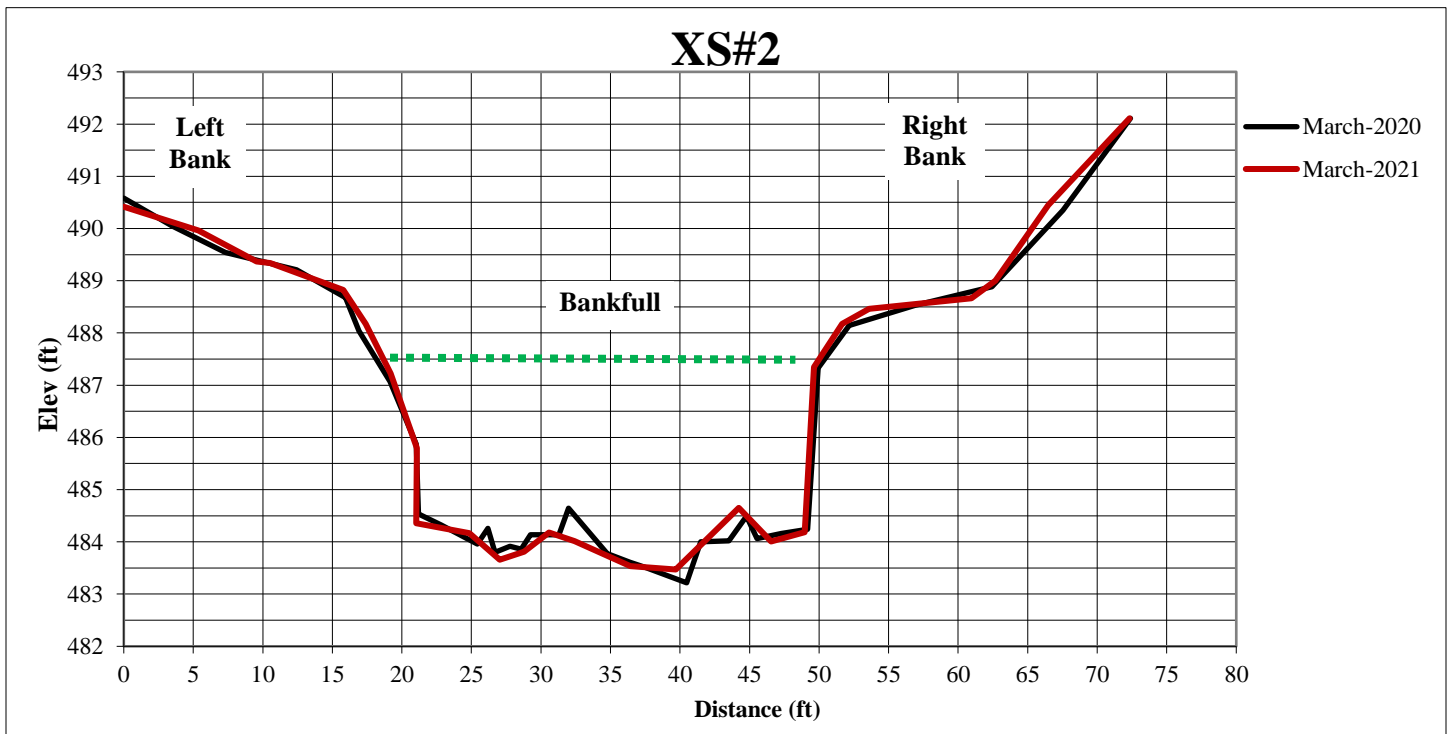
Moore's Mill Creek Watershed Monitoring Sites

Site	Stream Condition and Function	Score (0 – 2)*
SW-MM-c	Upstream watershed impacts from stormwater, wastewater, or sediment	1
	Local stream reach impacts from ditches, pipes, livestock, utilities, or roads	2
	Channel dimension related to bankfull cross-section measurements	2
	Channel pattern related to planform measurements	2
	Channel bed profile related to longitudinal profile measurements	2
	Streambank stability and protection from erosion	2
	Floodplain connection for bankfull flood access	1
	Floodplain morphology to dissipate flood energy and minimize erosion	2
	Riparian vegetation to provide shade, nutrient uptake, and food sources	2
	Habitats including diverse bedform, large woody debris, leaf packs, root hairs	2
	Water quality and stream bed sediments	2
	Presence of desirable fish and macroinvertebrates expected for watershed	1
*Score indicates natural function and health: 2 = Good; 1 = Fair; 0 = Poor		
TOTAL		21

Site	Cross-Section	Geomorphic Parameter	Value	Units
SW-MM-c	1	Bankfull Area	101	ft. <sup>2</sup>
		Bankfull Width	47	ft.
		Bankfull Depth	2.1	ft.
		Maximum Bankfull Depth	2.83	ft.
		Low Bank Height	6.05	ft.
		Width of the Flood-prone Area	140	ft.
		Width to Depth Ratio	22.2	n/a
		Bank Height Ratio	2.1	n/a
		Entrenchment Ratio	3	n/a
		Right Bank BEHI	Extreme	n/a
		Left Bank BEHI	Very High	n/a

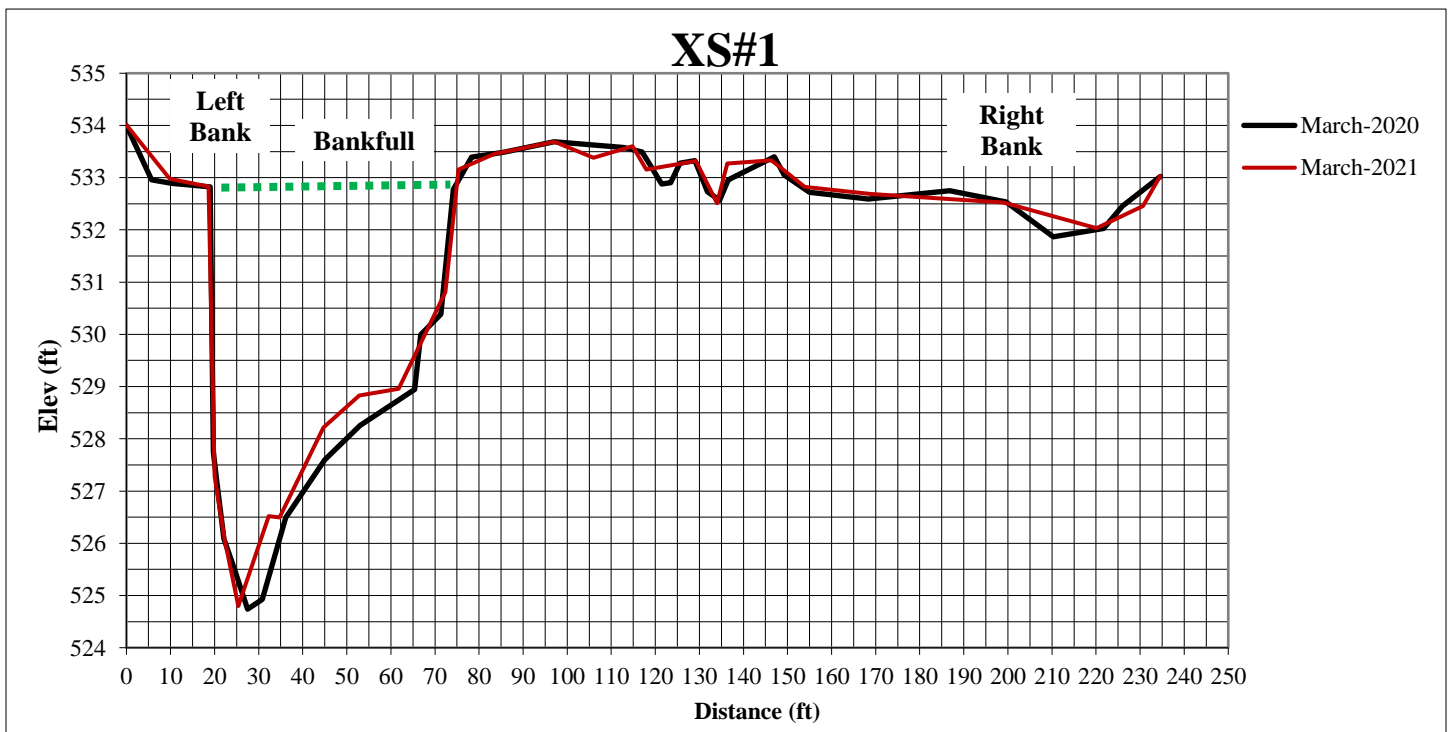


Site	Cross-Section	Geomorphic Parameter	Value	Units
SW-MM-c	2	Bankfull Area	124	ft. <sup>2</sup>
		Bankfull Width	34	ft.
		Bankfull Depth	3.6	ft.
		Maximum Bankfull Depth	4.71	ft.
		Low Bank Height	6.95	ft.
		Width of the Flood-prone Area	220	ft.
		Width to Depth Ratio	9.5	n/a
		Bank Height Ratio	1.5	n/a
		Entrenchment Ratio	6.4	n/a
		Right Bank BEHI	Moderate	n/a
Left Bank BEHI	Very High	n/a		

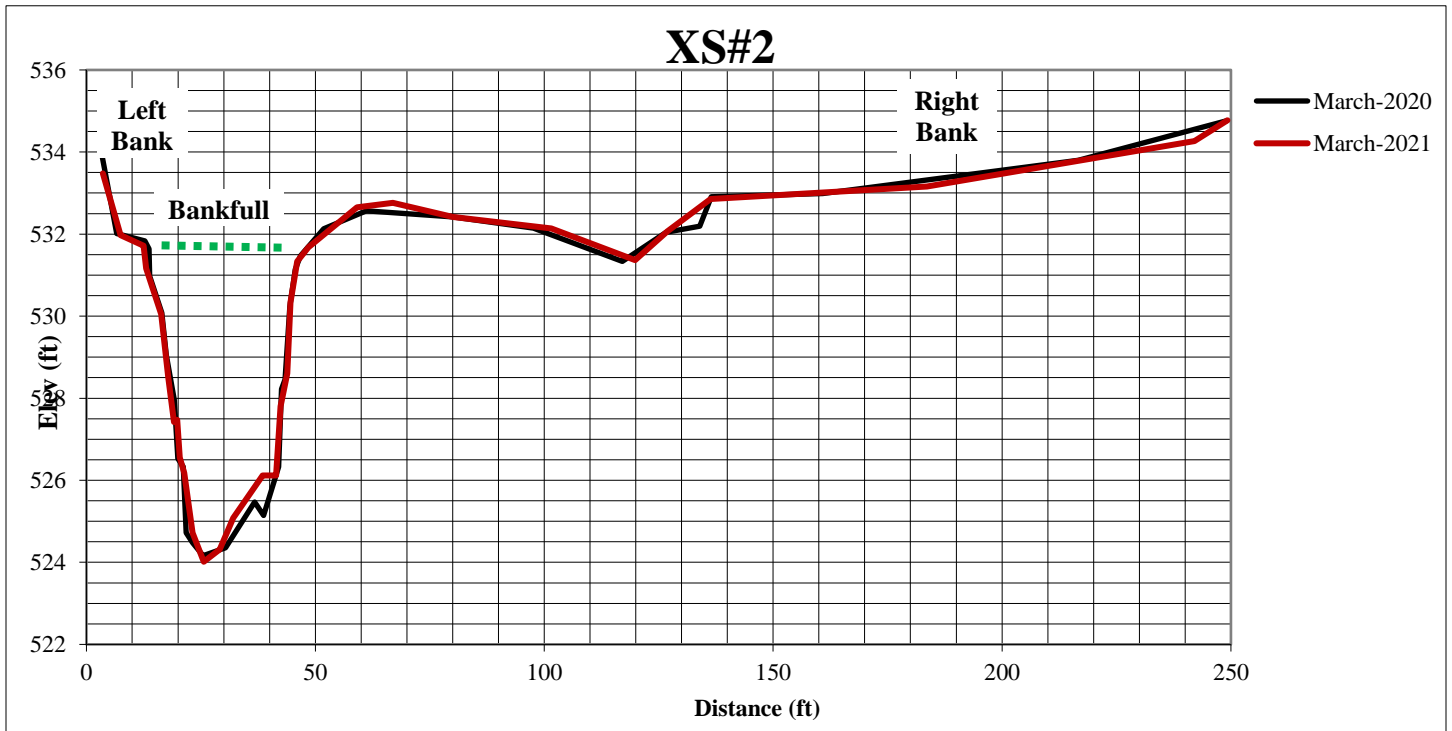


Site	Stream Condition and Function	Score (0 – 2)*
SW-MM-b	Upstream watershed impacts from stormwater, wastewater, or sediment	1
	Local stream reach impacts from ditches, pipes, livestock, utilities, or roads	2
	Channel dimension related to bankfull cross-section measurements	1
	Channel pattern related to planform measurements	2
	Channel bed profile related to longitudinal profile measurements	1
	Streambank stability and protection from erosion	1
	Floodplain connection for bankfull flood access	2
	Floodplain morphology to dissipate flood energy and minimize erosion	2
	Riparian vegetation to provide shade, nutrient uptake, and food sources	2
	Habitats including diverse bedform, large woody debris, leaf packs, root hairs	1
	Water quality and stream bed sediments	1
	Presence of desirable fish and macroinvertebrates expected for watershed	1
*Score indicates natural function and health: 2 = Good; 1 = Fair; 0 = Poor		
TOTAL		17

Site	Cross-Section	Geomorphic Parameter	Value	Units
SW-MM-b	1	Bankfull Area	288	ft. <sup>2</sup>
		Bankfull Width	57	ft.
		Bankfull Depth	5.1	ft.
		Maximum Bankfull Depth	8.0	ft.
		Low Bank Height	8.89	ft.
		Width of the Flood-prone Area	450	ft.
		Width to Depth Ratio	11.2	n/a
		Bank Height Ratio	1.1	n/a
		Entrenchment Ratio	7.9	n/a
		Right Bank BEHI	Low	n/a
		Left Bank BEHI	Moderate	n/a

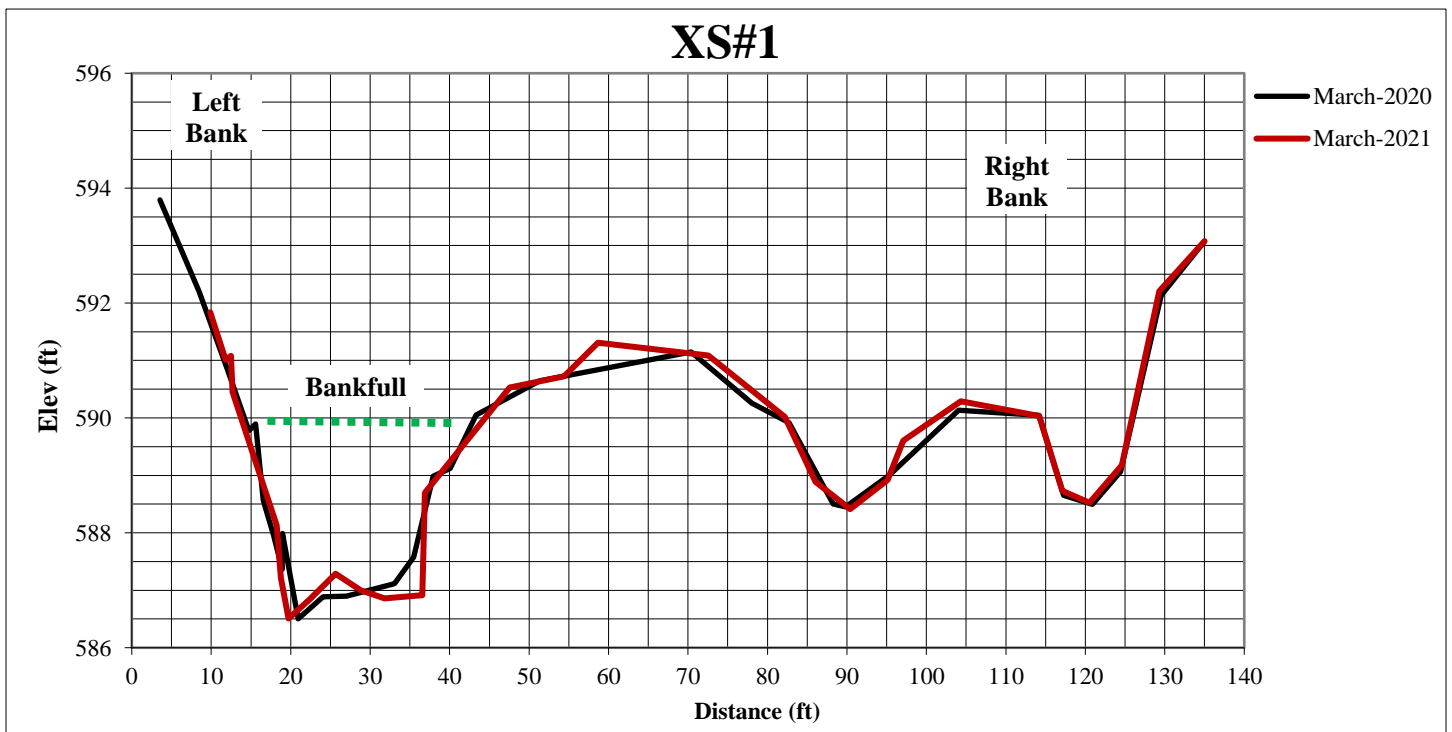


Site	Cross-Section	Geomorphic Parameter	Value	Units
SW-MM-b	2	Bankfull Area	170	ft. <sup>2</sup>
		Bankfull Width	36	ft.
		Bankfull Depth	4.7	ft.
		Maximum Bankfull Depth	7.7	ft.
		Low Bank Height	8.75	ft.
		Width of the Flood-prone Area	425	ft.
		Width to Depth Ratio	7.6	n/a
		Bank Height Ratio	1.1	n/a
		Entrenchment Ratio	11.8	n/a
		Right Bank BEHI	Moderate	n/a
		Left Bank BEHI	Moderate	n/a

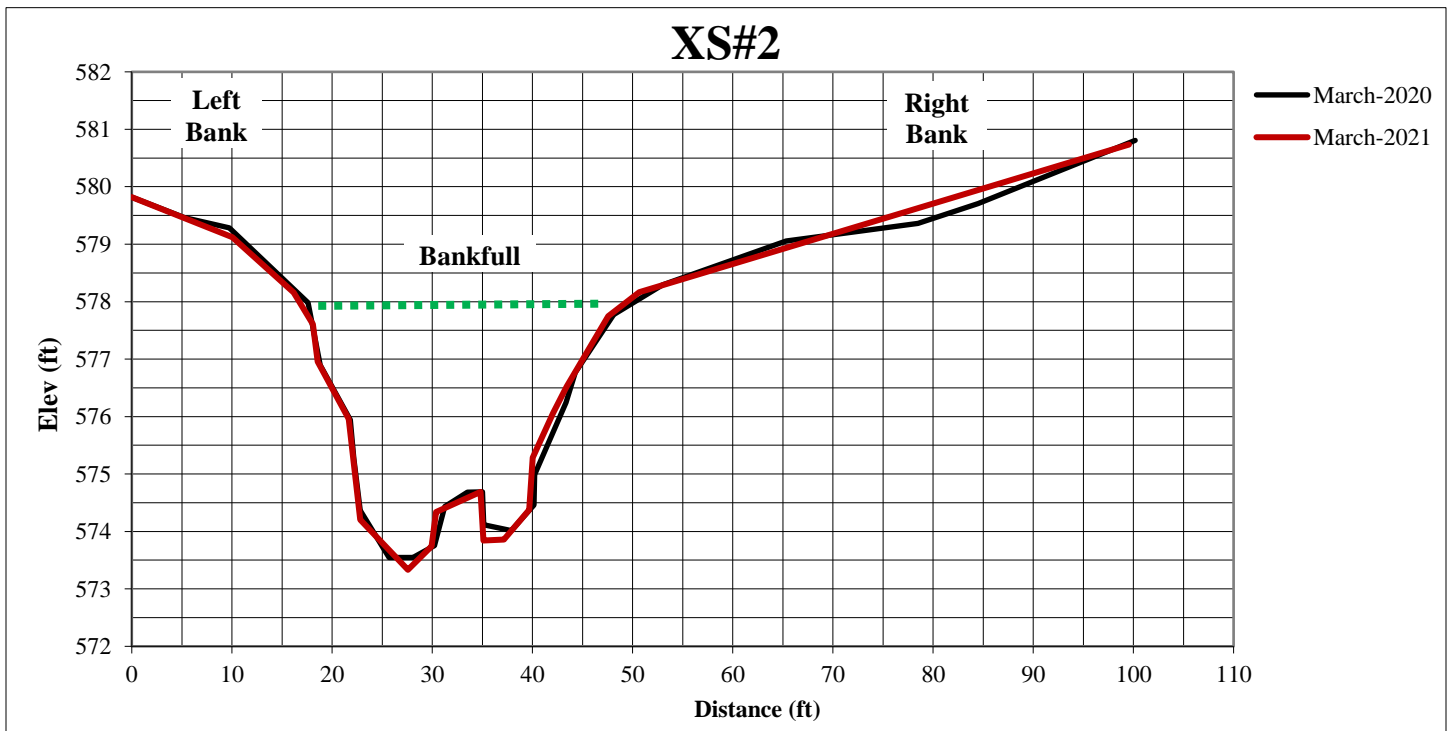


Site	Stream Condition and Function	Score (0 – 2)*
C-MM-b	Upstream watershed impacts from stormwater, wastewater, or sediment	1
	Local stream reach impacts from ditches, pipes, livestock, utilities, or roads	1
	Channel dimension related to bankfull cross-section measurements	1
	Channel pattern related to planform measurements	1
	Channel bed profile related to longitudinal profile measurements	2
	Streambank stability and protection from erosion	2
	Floodplain connection for bankfull flood access	1
	Floodplain morphology to dissipate flood energy and minimize erosion	2
	Riparian vegetation to provide shade, nutrient uptake, and food sources	1
	Habitats including diverse bedform, large woody debris, leaf packs, root hairs	2
	Water quality and stream bed sediments	2
	Presence of desirable fish and macroinvertebrates expected for watershed	1
*Score indicates natural function and health: 2 = Good; 1 = Fair; 0 = Poor		
TOTAL		17

Site	Cross-Section	Geomorphic Parameter	Value	Units
C-MM-b	1	Bankfull Area	76	ft. <sup>2</sup>
		Bankfull Width	35	ft.
		Bankfull Depth	2.2	ft.
		Maximum Bankfull Depth	4.0	ft.
		Low Bank Height	4.8	ft.
		Width of the Flood-prone Area	135	ft.
		Width to Depth Ratio	16	n/a
		Bank Height Ratio	1.2	n/a
		Entrenchment Ratio	3.9	n/a
		Right Bank BEHI	Low	n/a
		Left Bank BEHI	Moderate	n/a



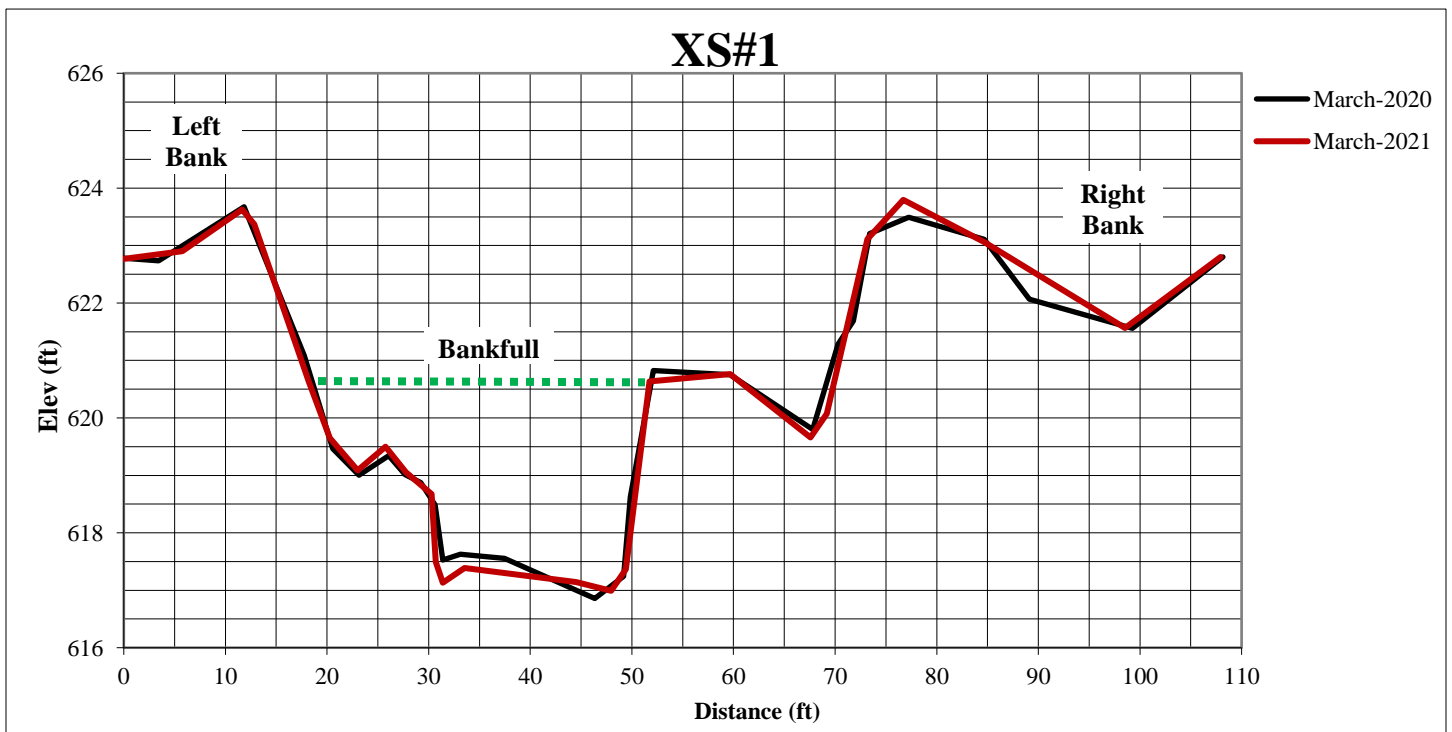
Site	Cross-Section	Geomorphic Parameter	Value	Units
C-MM-b	2	Bankfull Area	79	ft. <sup>2</sup>
		Bankfull Width	30	ft.
		Bankfull Depth	2.7	ft.
		Maximum Bankfull Depth	4.4	ft.
		Low Bank Height	6.5	ft.
		Width of the Flood-prone Area	315	ft.
		Width to Depth Ratio	11	n/a
		Bank Height Ratio	1.5	n/a
		Entrenchment Ratio	10.7	n/a
		Right Bank BEHI	Low	n/a
Left Bank BEHI	Moderate	n/a		



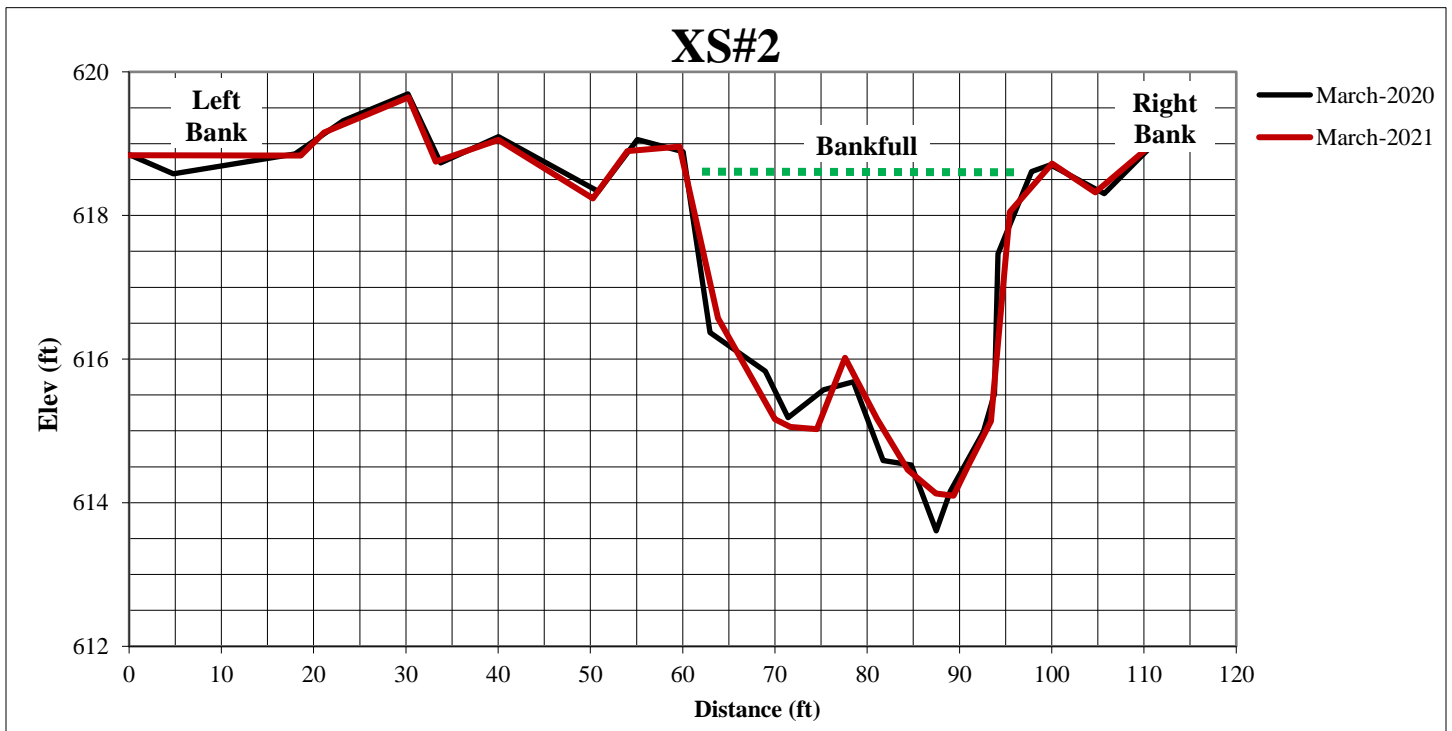


Site	Stream Condition and Function	Score (0 – 2)*
C-MM-a	Upstream watershed impacts from stormwater, wastewater, or sediment	1
	Local stream reach impacts from ditches, pipes, livestock, utilities, or roads	2
	Channel dimension related to bankfull cross-section measurements	1
	Channel pattern related to planform measurements	1
	Channel bed profile related to longitudinal profile measurements	1
	Streambank stability and protection from erosion	2
	Floodplain connection for bankfull flood access	1
	Floodplain morphology to dissipate flood energy and minimize erosion	1
	Riparian vegetation to provide shade, nutrient uptake, and food sources	2
	Habitats including diverse bedform, large woody debris, leaf packs, root hairs	2
	Water quality and stream bed sediments	1
	Presence of desirable fish and macroinvertebrates expected for watershed	1
*Score indicates natural function and health: 2 = Good; 1 = Fair; 0 = Poor		
TOTAL		16

Site	Cross-Section	Geomorphic Parameter	Value	Units
C-MM-a	1	Bankfull Area	84	ft. <sup>2</sup>
		Bankfull Width	34	ft.
		Bankfull Depth	2.5	ft.
		Maximum Bankfull Depth	3.6	ft.
		Low Bank Height	6.8	ft.
		Width of the Flood-prone Area	365	ft.
		Width to Depth Ratio	13.4	n/a
		Bank Height Ratio	1.9	n/a
		Entrenchment Ratio	10.9	n/a
		Right Bank BEHI	Moderate	n/a
		Left Bank BEHI	High	n/a

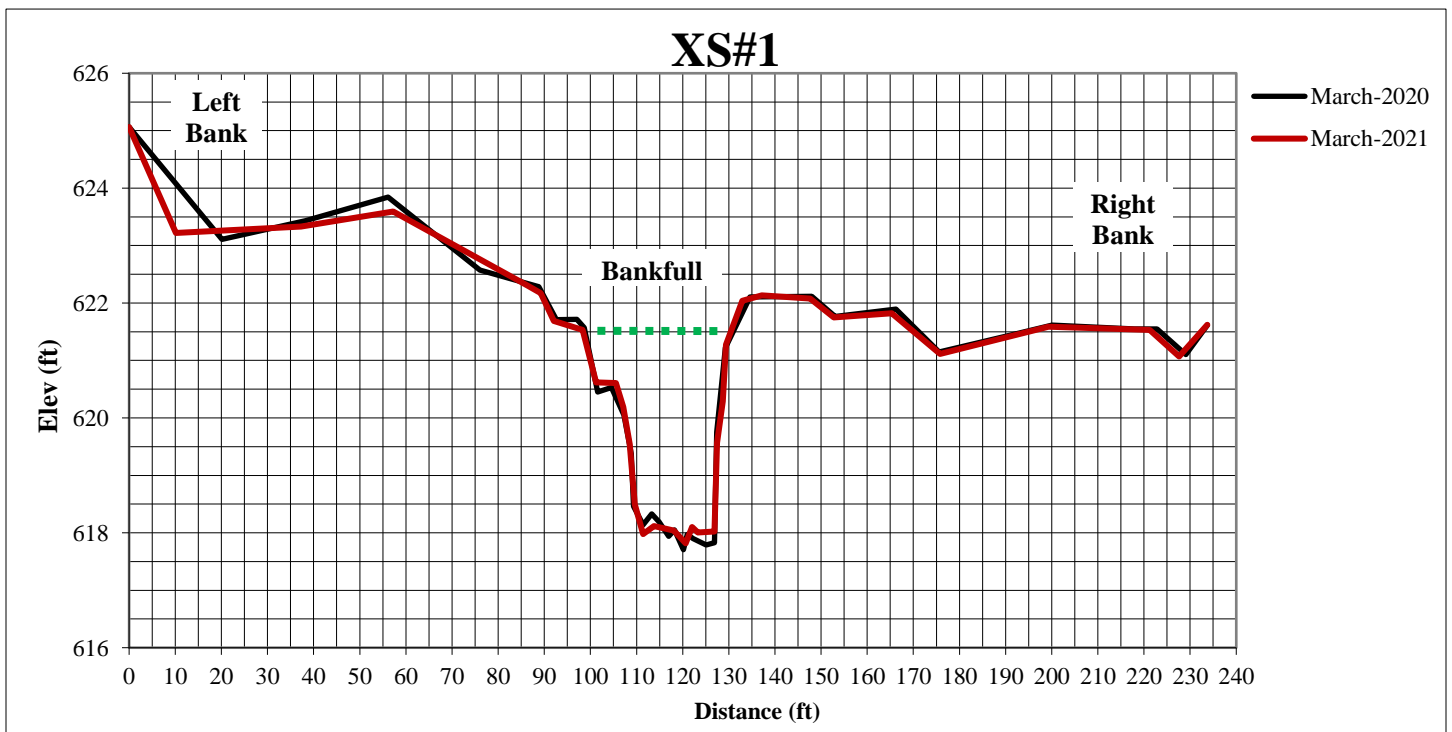


Site	Cross-Section	Geomorphic Parameter	Value	Units
C-MM-a	2	Bankfull Area	88	ft. <sup>2</sup>
		Bankfull Width	36	ft.
		Bankfull Depth	2.4	ft.
		Maximum Bankfull Depth	4.0	ft.
		Low Bank Height	4.63	ft.
		Width of the Flood-prone Area	320	ft.
		Width to Depth Ratio	14.9	n/a
		Bank Height Ratio	1.2	n/a
		Entrenchment Ratio	8.8	n/a
		Right Bank BEHI	Moderate	n/a
Left Bank BEHI	Moderate	n/a		

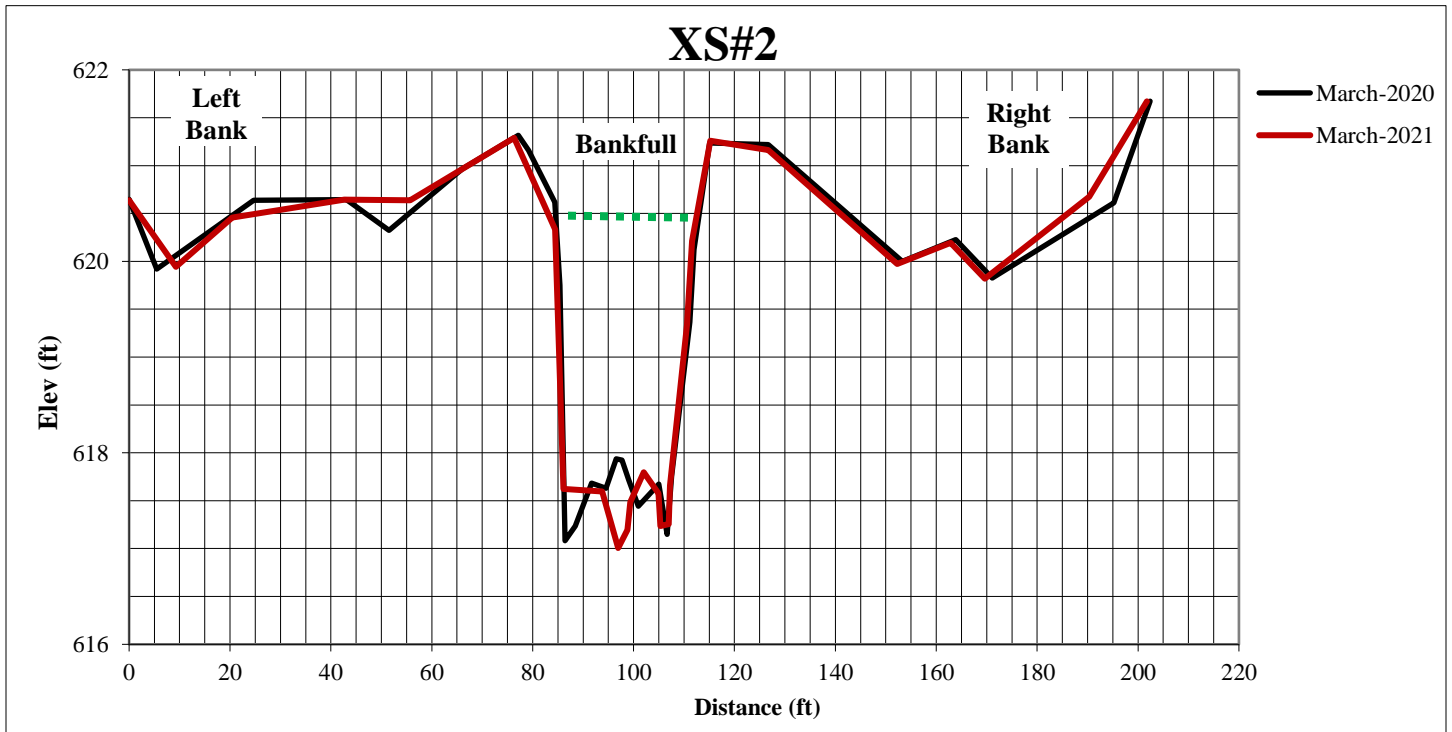


Site	Stream Condition and Function	Score (0 – 2)*
C-1	Upstream watershed impacts from stormwater, wastewater, or sediment	1
	Local stream reach impacts from ditches, pipes, livestock, utilities, or roads	1
	Channel dimension related to bankfull cross-section measurements	2
	Channel pattern related to planform measurements	1
	Channel bed profile related to longitudinal profile measurements	2
	Streambank stability and protection from erosion	2
	Floodplain connection for bankfull flood access	1
	Floodplain morphology to dissipate flood energy and minimize erosion	1
	Riparian vegetation to provide shade, nutrient uptake, and food sources	2
	Habitats including diverse bedform, large woody debris, leaf packs, root hairs	2
	Water quality and stream bed sediments	2
	Presence of desirable fish and macroinvertebrates expected for watershed	1
*Score indicates natural function and health: 2 = Good; 1 = Fair; 0 = Poor		
TOTAL		18

Site	Cross-Section	Geomorphic Parameter	Value	Units
C-1	1	Bankfull Area	98	ft. <sup>2</sup>
		Bankfull Width	41	ft.
		Bankfull Depth	2.4	ft.
		Maximum Bankfull Depth	4.2	ft.
		Low Bank Height	4.3	ft.
		Width of the Flood-prone Area	180	ft.
		Width to Depth Ratio	17.1	n/a
		Bank Height Ratio	1.0	n/a
		Entrenchment Ratio	4.4	n/a
		Right Bank BEHI	Moderate	n/a
		Left Bank BEHI	Low	n/a

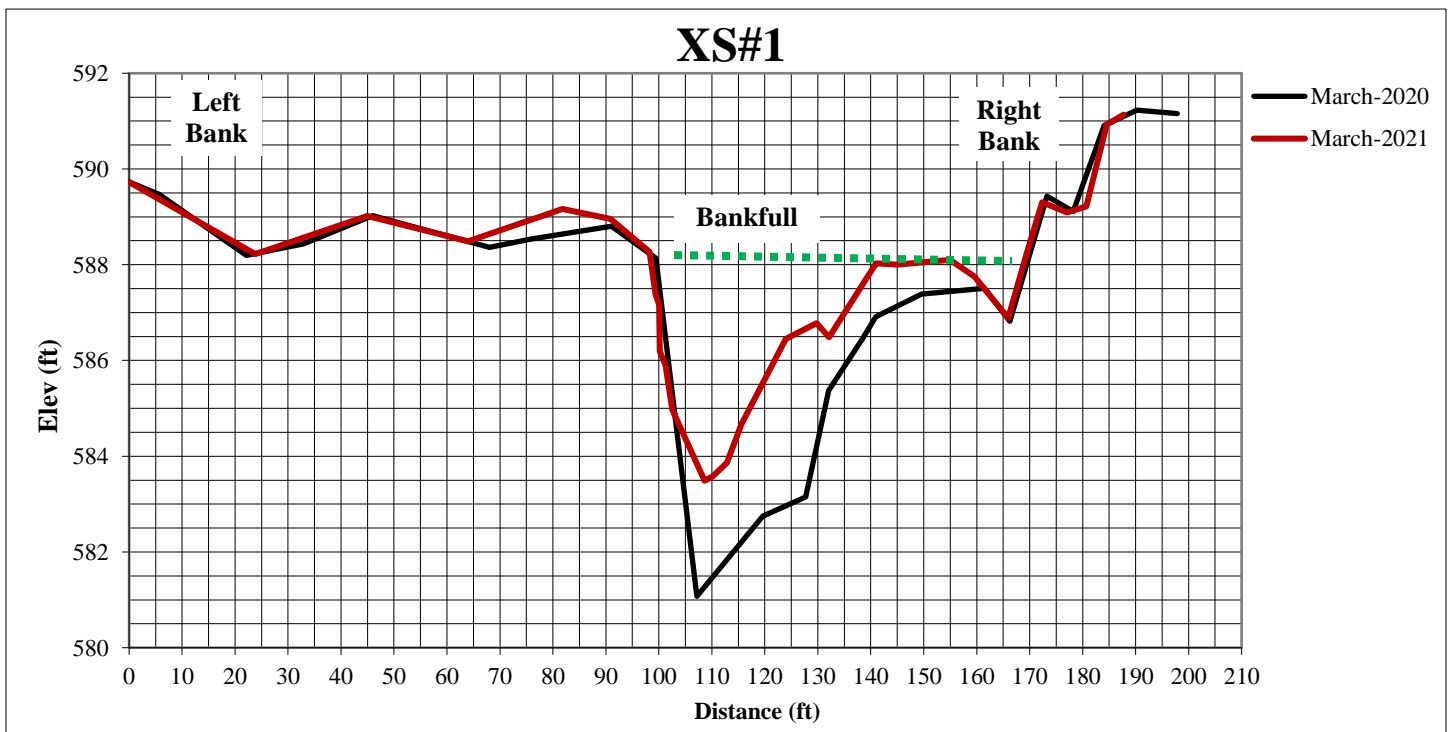


Site	Cross-Section	Geomorphic Parameter	Value	Units
C-1	2	Bankfull Area	69	ft. <sup>2</sup>
		Bankfull Width	27	ft.
		Bankfull Depth	2.5	ft.
		Maximum Bankfull Depth	3.3	ft.
		Low Bank Height	4.3	ft.
		Width of the Flood-prone Area	232	ft.
		Width to Depth Ratio	10.8	n/a
		Bank Height Ratio	1.3	n/a
		Entrenchment Ratio	8.5	n/a
		Right Bank BEHI	High	n/a
Left Bank BEHI	Moderate	n/a		

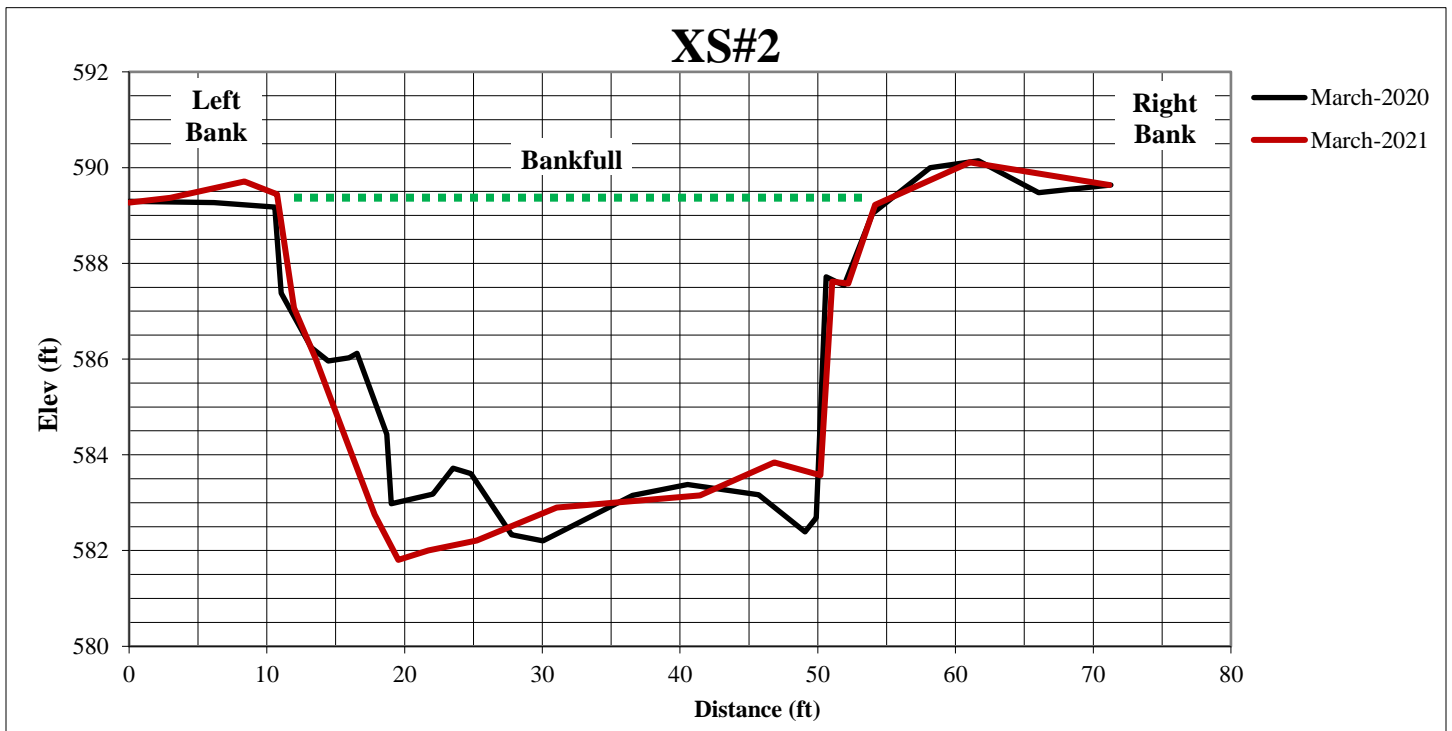


Site	Stream Condition and Function	Score (0 – 2)*
NW-1-c	Upstream watershed impacts from stormwater, wastewater, or sediment	1
	Local stream reach impacts from ditches, pipes, livestock, utilities, or roads	0
	Channel dimension related to bankfull cross-section measurements	1
	Channel pattern related to planform measurements	1
	Channel bed profile related to longitudinal profile measurements	1
	Streambank stability and protection from erosion	1
	Floodplain connection for bankfull flood access	1
	Floodplain morphology to dissipate flood energy and minimize erosion	1
	Riparian vegetation to provide shade, nutrient uptake, and food sources	1
	Habitats including diverse bedform, large woody debris, leaf packs, root hairs	1
	Water quality and stream bed sediments	1
	Presence of desirable fish and macroinvertebrates expected for watershed	1
*Score indicates natural function and health: 2 = Good; 1 = Fair; 0 = Poor		
TOTAL		11

Site	Cross-Section	Geomorphic Parameter	Value	Units
NW-1-c	1	Bankfull Area	111	ft. <sup>2</sup>
		Bankfull Width	68	ft.
		Bankfull Depth	1.6	ft.
		Maximum Bankfull Depth	4.8	ft.
		Low Bank Height	5.68	ft.
		Width of the Flood-prone Area	570	ft.
		Width to Depth Ratio	41.3	n/a
		Bank Height Ratio	1.2	n/a
		Entrenchment Ratio	8.4	n/a
		Right Bank BEHI	Low	n/a
		Left Bank BEHI	Moderate	n/a

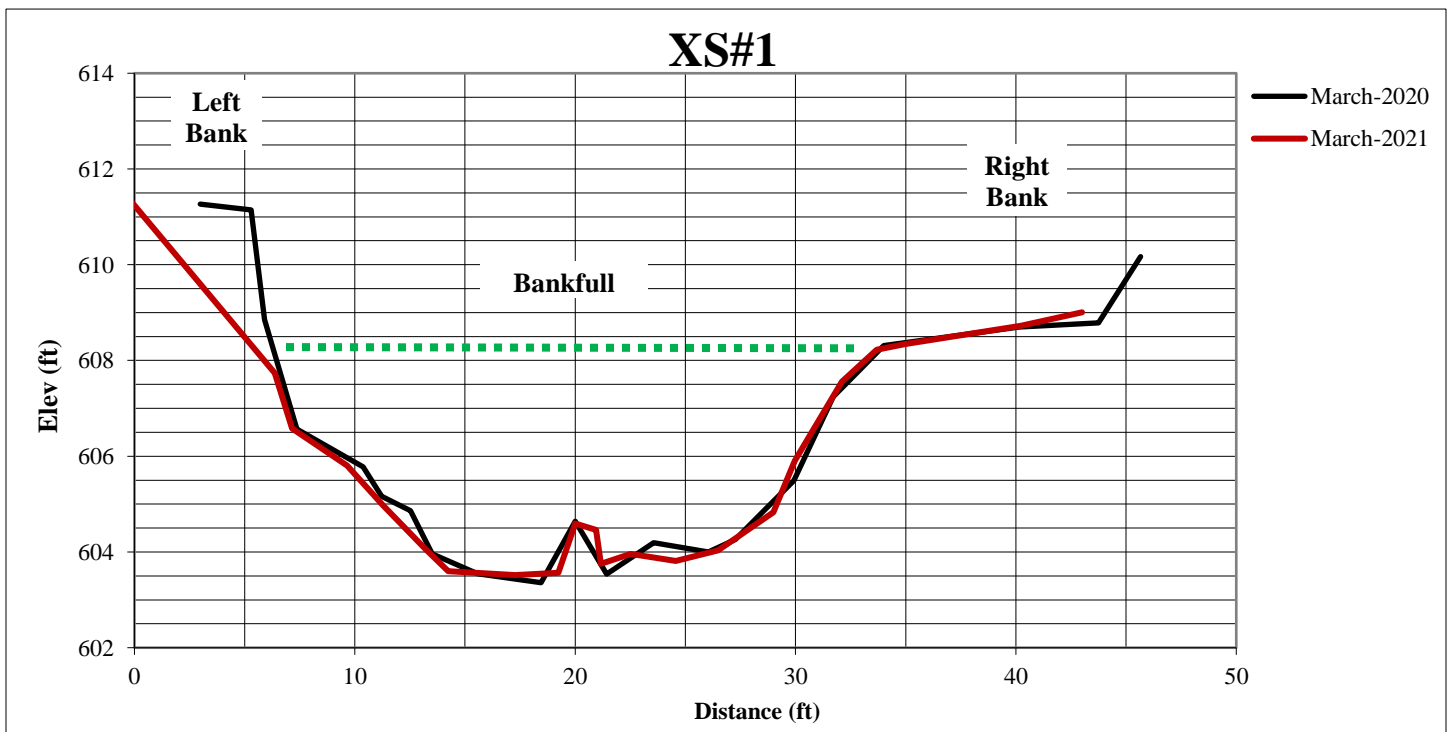


Site	Cross-Section	Geomorphic Parameter	Value	Units
NW-1-c	2	Bankfull Area	250	ft. <sup>2</sup>
		Bankfull Width	43	ft.
		Bankfull Depth	5.8	ft.
		Maximum Bankfull Depth	7.6	ft.
		Low Bank Height	7.9	ft.
		Width of the Flood-prone Area	479	ft.
		Width to Depth Ratio	7.5	n/a
		Bank Height Ratio	1	n/a
		Entrenchment Ratio	11	n/a
		Right Bank BEHI	Low	n/a
Left Bank BEHI	Low	n/a		

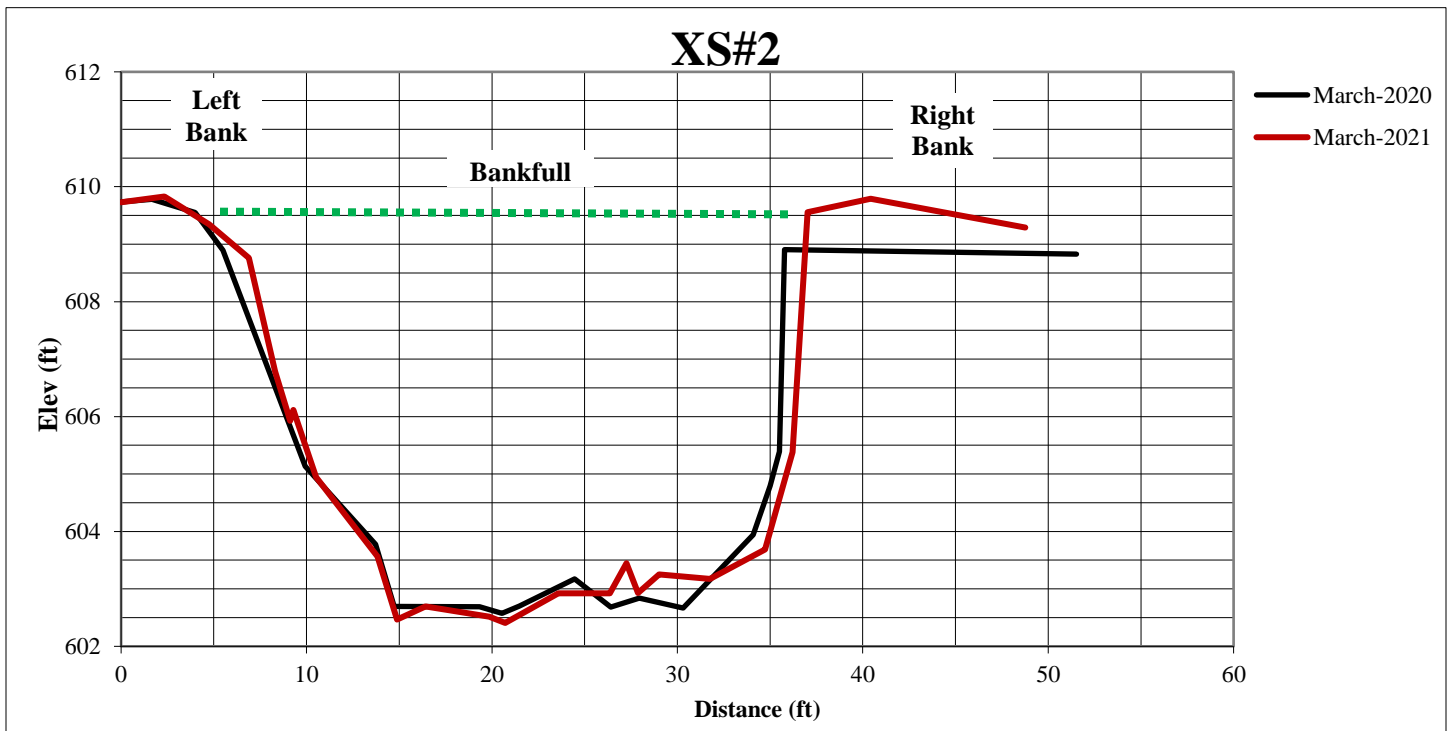


Site	Stream Condition and Function	Score (0 – 2)*
NW-1-b	Upstream watershed impacts from stormwater, wastewater, or sediment	0
	Local stream reach impacts from ditches, pipes, livestock, utilities, or roads	0
	Channel dimension related to bankfull cross-section measurements	0
	Channel pattern related to planform measurements	1
	Channel bed profile related to longitudinal profile measurements	1
	Streambank stability and protection from erosion	0
	Floodplain connection for bankfull flood access	0
	Floodplain morphology to dissipate flood energy and minimize erosion	0
	Riparian vegetation to provide shade, nutrient uptake, and food sources	1
	Habitats including diverse bedform, large woody debris, leaf packs, root hairs	1
	Water quality and stream bed sediments	1
	Presence of desirable fish and macroinvertebrates expected for watershed	1
*Score indicates natural function and health: 2 = Good; 1 = Fair; 0 = Poor		
TOTAL		6

Site	Cross-Section	Geomorphic Parameter	Value	Units
NW-1-b	1	Bankfull Area	74	ft. <sup>2</sup>
		Bankfull Width	26	ft.
		Bankfull Depth	2.9	ft.
		Maximum Bankfull Depth	4	ft.
		Low Bank Height	8.3	ft.
		Width of the Flood-prone Area	192	ft.
		Width to Depth Ratio	8.9	n/a
		Bank Height Ratio	2.1	n/a
		Entrenchment Ratio	7.5	n/a
		Right Bank BEHI	Low	n/a
		Left Bank BEHI	Moderate	n/a



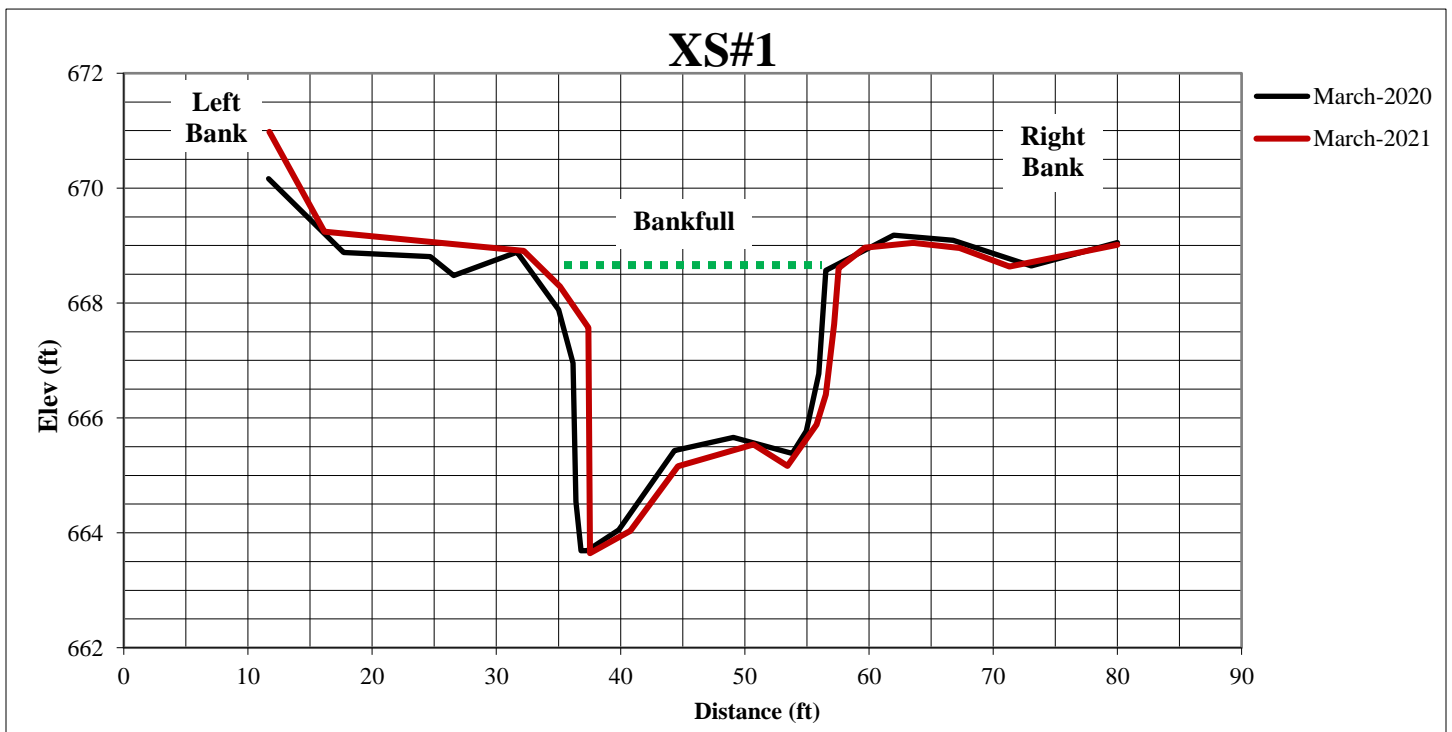
Site	Cross-Section	Geomorphic Parameter	Value	Units
NW-1-b	2	Bankfull Area	178	ft. <sup>2</sup>
		Bankfull Width	32	ft.
		Bankfull Depth	5.5	ft.
		Maximum Bankfull Depth	7.2	ft.
		Low Bank Height	7.3	ft.
		Width of the Flood-prone Area	2.15	ft.
		Width to Depth Ratio	5.8	n/a
		Bank Height Ratio	1.0	n/a
		Entrenchment Ratio	6.7	n/a
		Right Bank BEHI	Low	n/a
		Left Bank BEHI	Low	n/a



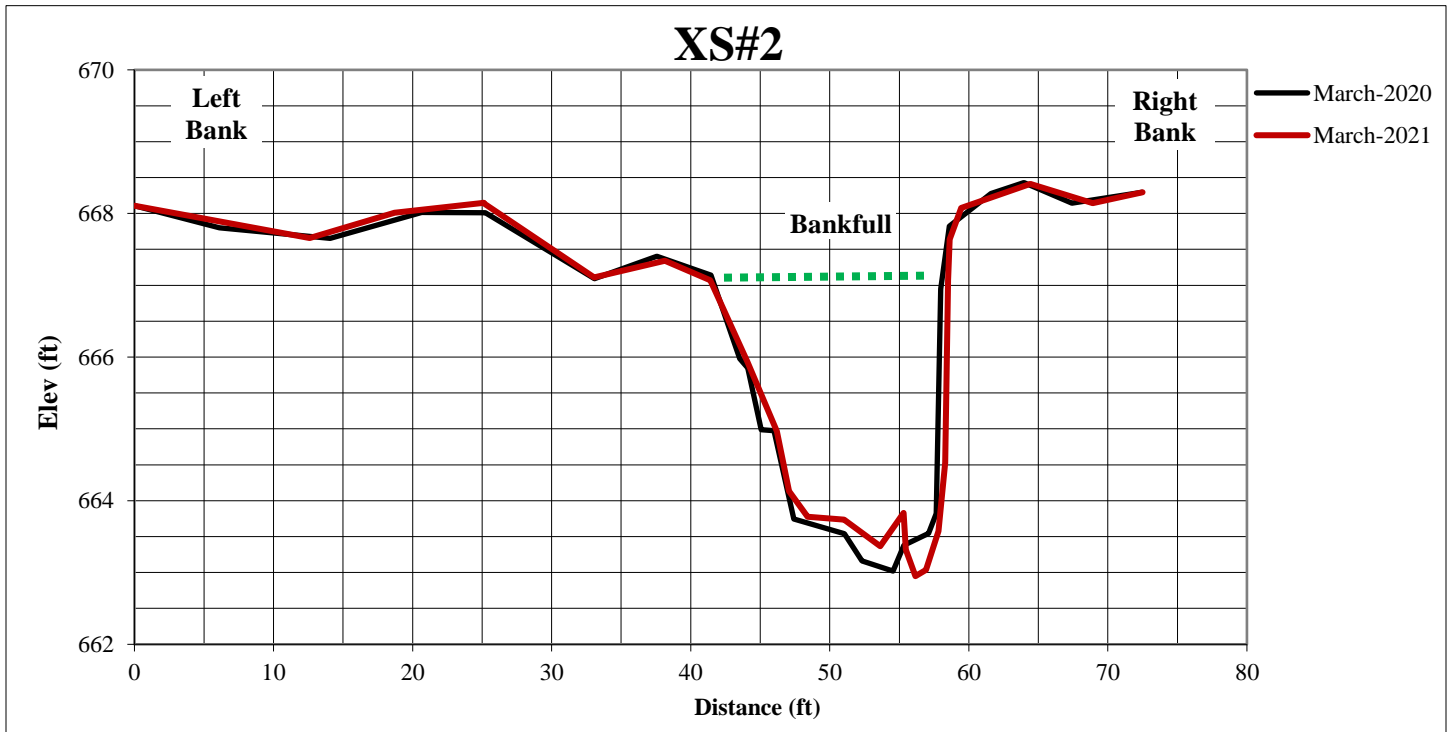


Site	Stream Condition and Function	Score (0 – 2)*
NW-1-d	Upstream watershed impacts from stormwater, wastewater, or sediment	0
	Local stream reach impacts from ditches, pipes, livestock, utilities, or roads	0
	Channel dimension related to bankfull cross-section measurements	1
	Channel pattern related to planform measurements	1
	Channel bed profile related to longitudinal profile measurements	2
	Streambank stability and protection from erosion	1
	Floodplain connection for bankfull flood access	0
	Floodplain morphology to dissipate flood energy and minimize erosion	0
	Riparian vegetation to provide shade, nutrient uptake, and food sources	2
	Habitats including diverse bedform, large woody debris, leaf packs, root hairs	1
	Water quality and stream bed sediments	1
	Presence of desirable fish and macroinvertebrates expected for watershed	1
*Score indicates natural function and health: 2 = Good; 1 = Fair; 0 = Poor		
TOTAL		10

Site	Cross-Section	Geomorphic Parameter	Value	Units
NW-1-d	1	Bankfull Area	68	ft. <sup>2</sup>
		Bankfull Width	22	ft.
		Bankfull Depth	3	ft.
		Maximum Bankfull Depth	5	ft.
		Low Bank Height	5.26	ft.
		Width of the Flood-prone Area	140	ft.
		Width to Depth Ratio	7.4	n/a
		Bank Height Ratio	1.1	n/a
		Entrenchment Ratio	6.2	n/a
		Right Bank BEHI	Moderate	n/a
		Left Bank BEHI	Low	n/a



Site	Cross-Section	Geomorphic Parameter	Value	Units
NW-1-d	2	Bankfull Area	44	ft. <sup>2</sup>
		Bankfull Width	17	ft.
		Bankfull Depth	2.6	ft.
		Maximum Bankfull Depth	4.1	ft.
		Low Bank Height	5.2	ft.
		Width of the Flood-prone Area	100	ft.
		Width to Depth Ratio	6.7	n/a
		Bank Height Ratio	1.3	n/a
		Entrenchment Ratio	5.9	n/a
		Right Bank BEHI	Moderate	n/a
		Left Bank BEHI	Low	n/a



## Moore's Mill Creek Watershed Monitoring Data

Site Number	Reach Length		Upstream Coordinates		Downstream Coordinates		
C-1	550 ft.		32.601404 N, 85.432698 W		32.600192 N, 85.432044 W		
C-MM-a	950 ft.		32.600874 N, 85.428538 W		32.600530 N, 85.431463 W		
C-MM-b	1100 ft.		32.591034 N, 85.442119 W		32.590912 N, 85.444596 W		
NW-1-b	600 ft.		32.603946 N, 85.453310 W		32.602333 N, 85.453047 W		
NW-1-c	850 ft.		32.597506 N, 85.451326 W		32.595712 N, 85.450483 W		
NW-1-d	950 ft.		32.613527 N, 85.455178 W		32.611580 N, 85.456570 W		
SW-MM-b	650 ft.		32.568631 N, 85.451830 W		32.567873 N, 85.453612 W		
SW-MM-c	1350 ft.		32.559094 N, 85.463712 W		32.558760 N, 85.466685 W		
Site Number	Sample Date	Sample Time	Sample Collected By	Total Suspended Solids (mg/L)	Analytical Method	Analysis Date	Analysis Performed By
C-1	6/12/2020	1415	D. Kimbrow	10.8	SM 2540D 1997	6/16/2020	D. Solorzano (ERA)
C-MM-a	6/12/2020	1430	D. Kimbrow	2.66	SM 2540D 1997	6/16/2020	D. Solorzano (ERA)
C-MM-b	6/12/2020	1445	D. Kimbrow	2.72	SM 2540D 1997	6/16/2020	D. Solorzano (ERA)
NW-1-b	6/12/2020	1340	D. Kimbrow	< 2.50	SM 2540D 1997	6/16/2020	D. Solorzano (ERA)
NW-1-c	6/12/2020	1355	D. Kimbrow	< 2.50	SM 2540D 1997	6/16/2020	D. Solorzano (ERA)
NW-1-d	6/12/2020	1330	D. Kimbrow	< 2.50	SM 2540D 1997	6/16/2020	D. Solorzano (ERA)
SW-MM-b	6/12/2020	1500	D. Kimbrow	< 2.50	SM 2540D 1997	6/16/2020	D. Solorzano (ERA)
SW-MM-c	6/12/2020	1520	D. Kimbrow	< 2.50	SM 2540D 1997	6/16/2020	D. Solorzano (ERA)
Site Number	Sample Date	Sample Time	Sample Collected By	Total Suspended Solids (mg/L)	Analytical Method	Analysis Date	Analysis Performed By
C-1	9/23/2020	0930	D. Kimbrow	< 2.50	SM 2540D 1997	9/24/2020	T. Watson (ERA)
C-MM-a	9/23/2020	0940	D. Kimbrow	< 2.50	SM 2540D 1997	9/24/2020	T. Watson (ERA)
C-MM-b	9/23/2020	1000	D. Kimbrow	< 2.50	SM 2540D 1997	9/24/2020	T. Watson (ERA)
NW-1-b	9/23/2020	0900	D. Kimbrow	< 2.50	SM 2540D 1997	9/24/2020	T. Watson (ERA)
NW-1-c	9/23/2020	0905	D. Kimbrow	< 2.50	SM 2540D 1997	9/24/2020	T. Watson (ERA)
NW-1-d	9/23/2020	0845	D. Kimbrow	< 2.50	SM 2540D 1997	9/24/2020	T. Watson (ERA)
SW-MM-b	9/23/2020	1020	D. Kimbrow	2.74	SM 2540D 1997	9/24/2020	T. Watson (ERA)
SW-MM-c	9/23/2020	1050	D. Kimbrow	< 2.50	SM 2540D 1997	9/24/2020	T. Watson (ERA)
Site Number	Sample Date	Sample Time	Sample Collected By	Total Suspended Solids (mg/L)	Analytical Method	Analysis Date	Analysis Performed By
C-1	12/16/2020	1425	D. Kimbrow	9.79	SM 2540D 1997	12/21/2020	Ben Green (ERA)
C-MM-a	12/16/2020	1430	D. Kimbrow	8.51	SM 2540D 1997	12/21/2020	Ben Green (ERA)
C-MM-b	12/16/2020	1450	D. Kimbrow	7.29	SM 2540D 1997	12/21/2020	Ben Green (ERA)
NW-1-b	12/16/2020	1345	D. Kimbrow	7.47	SM 2540D 1997	12/21/2020	Ben Green (ERA)
NW-1-c	12/16/2020	1400	D. Kimbrow	9.57	SM 2540D 1997	12/21/2020	Ben Green (ERA)
NW-1-d	12/16/2020	1330	D. Kimbrow	8.94	SM 2540D 1997	12/21/2020	Ben Green (ERA)
SW-MM-b	12/16/2020	1510	D. Kimbrow	11.7	SM 2540D 1997	12/21/2020	Ben Green (ERA)
SW-MM-c	12/16/2020	1530	D. Kimbrow	25.4	SM 2540D 1997	12/21/2020	Ben Green (ERA)
Site Number	Sample Date	Sample Time	Sample Collected By	Total Suspended Solids (mg/L)	Analytical Method	Analysis Date	Analysis Performed By
C-1	3/5/2021	1420	D. Kimbrow	< 2.50	SM 2540D 1997	3/9/2021	Drew Solorzano (ERA)
C-MM-a	3/5/2021	1425	D. Kimbrow	7.08	SM 2540D 1997	3/9/2021	Drew Solorzano (ERA)
C-MM-b	3/5/2021	1435	D. Kimbrow	< 2.50	SM 2540D 1997	3/9/2021	Drew Solorzano (ERA)
NW-1-b	3/5/2021	1325	D. Kimbrow	25.0	SM 2540D 1997	3/9/2021	Drew Solorzano (ERA)
NW-1-c	3/5/2021	1405	D. Kimbrow	37.9	SM 2540D 1997	3/9/2021	Drew Solorzano (ERA)
NW-1-d	3/5/2021	1315	D. Kimbrow	11.1	SM 2540D 1997	3/9/2021	Drew Solorzano (ERA)
SW-MM-b	3/5/2021	1450	D. Kimbrow	< 2.50	SM 2540D 1997	3/9/2021	Drew Solorzano (ERA)
SW-MM-c	3/5/2021	1515	D. Kimbrow	3.02	SM 2540D 1997	3/9/2021	Drew Solorzano (ERA)
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By
C-1	6/12/2020	1415	D. Kimbrow	70.9	YSI 5560	6/12/2020	D. Kimbrow
C-MM-a	6/12/2020	1430	D. Kimbrow	78.1	YSI 5560	6/12/2020	D. Kimbrow
C-MM-b	6/12/2020	1445	D. Kimbrow	74.9	YSI 5560	6/12/2020	D. Kimbrow
NW-1-b	6/12/2020	1340	D. Kimbrow	77.5	YSI 5560	6/12/2020	D. Kimbrow
NW-1-c	6/12/2020	1355	D. Kimbrow	75.7	YSI 5560	6/12/2020	D. Kimbrow

Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By
NW-1-d	6/12/2020	1330	D. Kimbrow	70.8	YSI 5560	6/12/2020	D. Kimbrow
SW-MM-b	6/12/2020	1500	D. Kimbrow	79.0	YSI 5560	6/12/2020	D. Kimbrow
SW-MM-c	6/12/2020	1520	D. Kimbrow	78.5	YSI 5560	6/12/2020	D. Kimbrow
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By
C-1	9/23/2020	0930	D. Kimbrow	65.2	YSI 5560	9/23/2020	D. Kimbrow
C-MM-a	9/23/2020	0940	D. Kimbrow	67.7	YSI 5560	9/23/2020	D. Kimbrow
C-MM-b	9/23/2020	1000	D. Kimbrow	66.5	YSI 5560	9/23/2020	D. Kimbrow
NW-1-b	9/23/2020	0900	D. Kimbrow	66.1	YSI 5560	9/23/2020	D. Kimbrow
NW-1-c	9/23/2020	0905	D. Kimbrow	65.9	YSI 5560	9/23/2020	D. Kimbrow
NW-1-d	9/23/2020	0845	D. Kimbrow	66.2	YSI 5560	9/23/2020	D. Kimbrow
SW-MM-b	9/23/2020	1020	D. Kimbrow	66.9	YSI 5560	9/23/2020	D. Kimbrow
SW-MM-c	9/23/2020	1050	D. Kimbrow	67.1	YSI 5560	9/23/2020	D. Kimbrow
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By
C-1	12/16/2020	1425	D. Kimbrow	53.3	YSI 5560	12/16/2020	D. Kimbrow
C-MM-a	12/16/2020	1430	D. Kimbrow	52.9	YSI 5560	12/16/2020	D. Kimbrow
C-MM-b	12/16/2020	1450	D. Kimbrow	52.5	YSI 5560	12/16/2020	D. Kimbrow
NW-1-b	12/16/2020	1345	D. Kimbrow	52.5	YSI 5560	12/16/2020	D. Kimbrow
NW-1-c	12/16/2020	1400	D. Kimbrow	52.4	YSI 5560	12/16/2020	D. Kimbrow
NW-1-d	12/16/2020	1330	D. Kimbrow	53.6	YSI 5560	12/16/2020	D. Kimbrow
SW-MM-b	12/16/2020	1510	D. Kimbrow	52.4	YSI 5560	12/16/2020	D. Kimbrow
SW-MM-c	12/16/2020	1530	D. Kimbrow	52.0	YSI 5560	12/16/2020	D. Kimbrow
Site Number	Sample Date	Sample Time	Sample Collected By	Water Temperature (F)	Analytical Method	Analysis Date	Analysis Performed By
C-1	3/5/2021	1420	D. Kimbrow	57.7	YSI 5560	3/5/2021	D. Kimbrow
C-MM-a	3/5/2021	1425	D. Kimbrow	59.7	YSI 5560	3/5/2021	D. Kimbrow
C-MM-b	3/5/2021	1435	D. Kimbrow	58.7	YSI 5560	3/5/2021	D. Kimbrow
NW-1-b	3/5/2021	1325	D. Kimbrow	59.3	YSI 5560	3/5/2021	D. Kimbrow
NW-1-c	3/5/2021	1405	D. Kimbrow	59.1	YSI 5560	3/5/2021	D. Kimbrow
NW-1-d	3/5/2021	1315	D. Kimbrow	60.0	YSI 5560	3/5/2021	D. Kimbrow
SW-MM-b	3/5/2021	1450	D. Kimbrow	60.2	YSI 5560	3/5/2021	D. Kimbrow
SW-MM-c	3/5/2021	1515	D. Kimbrow	58.1	YSI 5560	3/5/2021	D. Kimbrow
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By
C-1	6/12/2020	1415	D. Kimbrow	7.33	YSI 1001	6/12/2020	D. Kimbrow
C-MM-a	6/12/2020	1430	D. Kimbrow	7.17	YSI 1001	6/12/2020	D. Kimbrow
C-MM-b	6/12/2020	1445	D. Kimbrow	7.42	YSI 1001	6/12/2020	D. Kimbrow
NW-1-b	6/12/2020	1340	D. Kimbrow	7.67	YSI 1001	6/12/2020	D. Kimbrow
NW-1-c	6/12/2020	1355	D. Kimbrow	7.35	YSI 1001	6/12/2020	D. Kimbrow
NW-1-d	6/12/2020	1330	D. Kimbrow	7.29	YSI 1001	6/12/2020	D. Kimbrow
SW-MM-b	6/12/2020	1500	D. Kimbrow	7.34	YSI 1001	6/12/2020	D. Kimbrow
SW-MM-c	6/12/2020	1520	D. Kimbrow	8.12	YSI 1001	6/12/2020	D. Kimbrow
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By
C-1	9/23/2020	0930	D. Kimbrow	7.48	YSI 1001	9/23/2020	D. Kimbrow
C-MM-a	9/23/2020	0940	D. Kimbrow	6.96	YSI 1001	9/23/2020	D. Kimbrow
C-MM-b	9/23/2020	1000	D. Kimbrow	7.32	YSI 1001	9/23/2020	D. Kimbrow
NW-1-b	9/23/2020	0900	D. Kimbrow	7.54	YSI 1001	9/23/2020	D. Kimbrow
NW-1-c	9/23/2020	0905	D. Kimbrow	7.48	YSI 1001	9/23/2020	D. Kimbrow
NW-1-d	9/23/2020	0845	D. Kimbrow	7.37	YSI 1001	9/23/2020	D. Kimbrow
SW-MM-b	9/23/2020	1020	D. Kimbrow	7.32	YSI 1001	9/23/2020	D. Kimbrow
SW-MM-c	9/23/2020	1050	D. Kimbrow	7.94	YSI 1001	9/23/2020	D. Kimbrow
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By
C-1	12/16/2020	1425	D. Kimbrow	7.11	YSI 1001	12/16/2020	D. Kimbrow
C-MM-a	12/16/2020	1430	D. Kimbrow	7.14	YSI 1001	12/16/2020	D. Kimbrow
C-MM-b	12/16/2020	1450	D. Kimbrow	7.14	YSI 1001	12/16/2020	D. Kimbrow

Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By
NW-1-b	12/16/2020	1345	D. Kimbrow	7.26	YSI 1001	12/16/2020	D. Kimbrow
NW-1-c	12/16/2020	1400	D. Kimbrow	7.20	YSI 1001	12/16/2020	D. Kimbrow
NW-1-d	12/16/2020	1330	D. Kimbrow	6.88	YSI 1001	12/16/2020	D. Kimbrow
SW-MM-b	12/16/2020	1510	D. Kimbrow	7.20	YSI 1001	12/16/2020	D. Kimbrow
SW-MM-c	12/16/2020	1530	D. Kimbrow	7.35	YSI 1001	12/16/2020	D. Kimbrow
Site Number	Sample Date	Sample Time	Sample Collected By	pH	Analytical Method	Analysis Date	Analysis Performed By
C-1	3/5/2021	1420	D. Kimbrow	7.40	YSI 1001	3/5/2021	D. Kimbrow
C-MM-a	3/5/2021	1425	D. Kimbrow	7.43	YSI 1001	3/5/2021	D. Kimbrow
C-MM-b	3/5/2021	1435	D. Kimbrow	7.42	YSI 1001	3/5/2021	D. Kimbrow
NW-1-b	3/5/2021	1325	D. Kimbrow	7.40	YSI 1001	3/5/2021	D. Kimbrow
NW-1-c	3/5/2021	1405	D. Kimbrow	7.48	YSI 1001	3/5/2021	D. Kimbrow
NW-1-d	3/5/2021	1315	D. Kimbrow	7.17	YSI 1001	3/5/2021	D. Kimbrow
SW-MM-b	3/5/2021	1450	D. Kimbrow	7.41	YSI 1001	3/5/2021	D. Kimbrow
SW-MM-c	3/5/2021	1515	D. Kimbrow	7.68	YSI 1001	3/5/2021	D. Kimbrow
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By
C-1	6/12/2020	1415	D. Kimbrow	-	YSI 2003	6/12/2020	D. Kimbrow
C-MM-a	6/12/2020	1430	D. Kimbrow	-	YSI 2003	6/12/2020	D. Kimbrow
C-MM-b	6/12/2020	1445	D. Kimbrow	-	YSI 2003	6/12/2020	D. Kimbrow
NW-1-b	6/12/2020	1340	D. Kimbrow	-	YSI 2003	6/12/2020	D. Kimbrow
NW-1-c	6/12/2020	1355	D. Kimbrow	-	YSI 2003	6/12/2020	D. Kimbrow
NW-1-d	6/12/2020	1330	D. Kimbrow	-	YSI 2003	6/12/2020	D. Kimbrow
SW-MM-b	6/12/2020	1500	D. Kimbrow	-	YSI 2003	6/12/2020	D. Kimbrow
SW-MM-c	6/12/2020	1520	D. Kimbrow	-	YSI 2003	6/12/2020	D. Kimbrow
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By
C-1	9/23/2020	0930	D. Kimbrow	8.97	YSI 2003	9/23/2020	D. Kimbrow
C-MM-a	9/23/2020	0940	D. Kimbrow	6.79	YSI 2003	9/23/2020	D. Kimbrow
C-MM-b	9/23/2020	1000	D. Kimbrow	8.96	YSI 2003	9/23/2020	D. Kimbrow
NW-1-b	9/23/2020	0900	D. Kimbrow	9.15	YSI 2003	9/23/2020	D. Kimbrow
NW-1-c	9/23/2020	0905	D. Kimbrow	8.80	YSI 2003	9/23/2020	D. Kimbrow
NW-1-d	9/23/2020	0845	D. Kimbrow	8.64	YSI 2003	9/23/2020	D. Kimbrow
SW-MM-b	9/23/2020	1020	D. Kimbrow	8.50	YSI 2003	9/23/2020	D. Kimbrow
SW-MM-c	9/23/2020	1050	D. Kimbrow	9.68	YSI 2003	9/23/2020	D. Kimbrow
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By
C-1	12/16/2020	1425	D. Kimbrow	11.05	YSI 2003	12/16/2020	D. Kimbrow
C-MM-a	12/16/2020	1430	D. Kimbrow	11.05	YSI 2003	12/16/2020	D. Kimbrow
C-MM-b	12/16/2020	1450	D. Kimbrow	11.23	YSI 2003	12/16/2020	D. Kimbrow
NW-1-b	12/16/2020	1345	D. Kimbrow	11.12	YSI 2003	12/16/2020	D. Kimbrow
NW-1-c	12/16/2020	1400	D. Kimbrow	11.08	YSI 2003	12/16/2020	D. Kimbrow
NW-1-d	12/16/2020	1330	D. Kimbrow	10.21	YSI 2003	12/16/2020	D. Kimbrow
SW-MM-b	12/16/2020	1510	D. Kimbrow	11.23	YSI 2003	12/16/2020	D. Kimbrow
SW-MM-c	12/16/2020	1530	D. Kimbrow	11.51	YSI 2003	12/16/2020	D. Kimbrow
Site Number	Sample Date	Sample Time	Sample Collected By	Dissolved Oxygen (mg/L)	Analytical Method	Analysis Date	Analysis Performed By
C-1	3/5/2021	1420	D. Kimbrow	10.15	YSI 2003	3/5/2021	D. Kimbrow
C-MM-a	3/5/2021	1425	D. Kimbrow	10.85	YSI 2003	3/5/2021	D. Kimbrow
C-MM-b	3/5/2021	1435	D. Kimbrow	10.53	YSI 2003	3/5/2021	D. Kimbrow
NW-1-b	3/5/2021	1325	D. Kimbrow	10.25	YSI 2003	3/5/2021	D. Kimbrow
NW-1-c	3/5/2021	1405	D. Kimbrow	11.26	YSI 2003	3/5/2021	D. Kimbrow
NW-1-d	3/5/2021	1315	D. Kimbrow	10.61	YSI 2003	3/5/2021	D. Kimbrow
SW-MM-b	3/5/2021	1450	D. Kimbrow	10.74	YSI 2003	3/5/2021	D. Kimbrow
SW-MM-c	3/5/2021	1515	D. Kimbrow	10.90	YSI 2003	3/5/2021	D. Kimbrow

Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By
C-1	6/12/2020	1415	D. Kimbrow	150.4	YSI 5560	6/12/2020	D. Kimbrow
C-MM-a	6/12/2020	1430	D. Kimbrow	105.5	YSI 5560	6/12/2020	D. Kimbrow
C-MM-b	6/12/2020	1445	D. Kimbrow	110.9	YSI 5560	6/12/2020	D. Kimbrow
NW-1-b	6/12/2020	1340	D. Kimbrow	140.8	YSI 5560	6/12/2020	D. Kimbrow
NW-1-c	6/12/2020	1355	D. Kimbrow	139.7	YSI 5560	6/12/2020	D. Kimbrow
NW-1-d	6/12/2020	1330	D. Kimbrow	198.3	YSI 5560	6/12/2020	D. Kimbrow
SW-MM-b	6/12/2020	1500	D. Kimbrow	125.3	YSI 5560	6/12/2020	D. Kimbrow
SW-MM-c	6/12/2020	1520	D. Kimbrow	112.6	YSI 5560	6/12/2020	D. Kimbrow
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By
C-1	9/23/2020	0930	D. Kimbrow	141.6	YSI 5560	9/23/2020	D. Kimbrow
C-MM-a	9/23/2020	0940	D. Kimbrow	73.0	YSI 5560	9/23/2020	D. Kimbrow
C-MM-b	9/23/2020	1000	D. Kimbrow	94.2	YSI 5560	9/23/2020	D. Kimbrow
NW-1-b	9/23/2020	0900	D. Kimbrow	136.9	YSI 5560	9/23/2020	D. Kimbrow
NW-1-c	9/23/2020	0905	D. Kimbrow	144.3	YSI 5560	9/23/2020	D. Kimbrow
NW-1-d	9/23/2020	0845	D. Kimbrow	203.4	YSI 5560	9/23/2020	D. Kimbrow
SW-MM-b	9/23/2020	1020	D. Kimbrow	126.9	YSI 5560	9/23/2020	D. Kimbrow
SW-MM-c	9/23/2020	1050	D. Kimbrow	121.6	YSI 5560	9/23/2020	D. Kimbrow
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By
C-1	12/16/2020	1425	D. Kimbrow	95.2	YSI 5560	12/16/2020	D. Kimbrow
C-MM-a	12/16/2020	1430	D. Kimbrow	75.6	YSI 5560	12/16/2020	D. Kimbrow
C-MM-b	12/16/2020	1450	D. Kimbrow	78.3	YSI 5560	12/16/2020	D. Kimbrow
NW-1-b	12/16/2020	1345	D. Kimbrow	71.0	YSI 5560	12/16/2020	D. Kimbrow
NW-1-c	12/16/2020	1400	D. Kimbrow	81.5	YSI 5560	12/16/2020	D. Kimbrow
NW-1-d	12/16/2020	1330	D. Kimbrow	119.8	YSI 5560	12/16/2020	D. Kimbrow
SW-MM-b	12/16/2020	1510	D. Kimbrow	95.1	YSI 5560	12/16/2020	D. Kimbrow
SW-MM-c	12/16/2020	1530	D. Kimbrow	101.1	YSI 5560	12/16/2020	D. Kimbrow
Site Number	Sample Date	Sample Time	Sample Collected By	Specific Conductance (uS/cm)	Analytical Method	Analysis Date	Analysis Performed By
C-1	3/5/2021	1420	D. Kimbrow	147	YSI 5560	3/5/2021	D. Kimbrow
C-MM-a	3/5/2021	1425	D. Kimbrow	81.6	YSI 5560	3/5/2021	D. Kimbrow
C-MM-b	3/5/2021	1435	D. Kimbrow	94.1	YSI 5560	3/5/2021	D. Kimbrow
NW-1-b	3/5/2021	1325	D. Kimbrow	129.7	YSI 5560	3/5/2021	D. Kimbrow
NW-1-c	3/5/2021	1405	D. Kimbrow	134	YSI 5560	3/5/2021	D. Kimbrow
NW-1-d	3/5/2021	1315	D. Kimbrow	189.5	YSI 5560	3/5/2021	D. Kimbrow
SW-MM-b	3/5/2021	1450	D. Kimbrow	111.3	YSI 5560	3/5/2021	D. Kimbrow
SW-MM-c	3/5/2021	1515	D. Kimbrow	108.6	YSI 5560	3/5/2021	D. Kimbrow
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By
C-1	6/12/2020	1415	D. Kimbrow	14.7	SM 2130 B	6/12/2020	D. Kimbrow
C-MM-a	6/12/2020	1430	D. Kimbrow	3.56	SM 2130 B	6/12/2020	D. Kimbrow
C-MM-b	6/12/2020	1445	D. Kimbrow	4.72	SM 2130 B	6/12/2020	D. Kimbrow
NW-1-b	6/12/2020	1340	D. Kimbrow	3.98	SM 2130 B	6/12/2020	D. Kimbrow
NW-1-c	6/12/2020	1355	D. Kimbrow	3.70	SM 2130 B	6/12/2020	D. Kimbrow
NW-1-d	6/12/2020	1330	D. Kimbrow	4.32	SM 2130 B	6/12/2020	D. Kimbrow
SW-MM-b	6/12/2020	1500	D. Kimbrow	4.40	SM 2130 B	6/12/2020	D. Kimbrow
SW-MM-c	6/12/2020	1520	D. Kimbrow	4.33	SM 2130 B	6/12/2020	D. Kimbrow
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By
C-1	9/23/2020	0930	D. Kimbrow	3.64	SM 2130 B	9/23/2020	D. Kimbrow
C-MM-a	9/23/2020	0940	D. Kimbrow	9.57	SM 2130 B	9/23/2020	D. Kimbrow
C-MM-b	9/23/2020	1000	D. Kimbrow	9.14	SM 2130 B	9/23/2020	D. Kimbrow
NW-1-b	9/23/2020	0900	D. Kimbrow	2.61	SM 2130 B	9/23/2020	D. Kimbrow

Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By
NW-1-c	9/23/2020	0905	D. Kimbrow	2.55	SM 2130 B	9/23/2020	D. Kimbrow
NW-1-d	9/23/2020	0845	D. Kimbrow	1.76	SM 2130 B	9/23/2020	D. Kimbrow
SW-MM-b	9/23/2020	1020	D. Kimbrow	5.7	SM 2130 B	9/23/2020	D. Kimbrow
SW-MM-c	9/23/2020	1050	D. Kimbrow	5.62	SM 2130 B	9/23/2020	D. Kimbrow
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By
C-1	12/16/2020	1425	D. Kimbrow	15.8	SM 2130 B	12/16/2020	D. Kimbrow
C-MM-a	12/16/2020	1430	D. Kimbrow	11.66	SM 2130 B	12/16/2020	D. Kimbrow
C-MM-b	12/16/2020	1450	D. Kimbrow	11.61	SM 2130 B	12/16/2020	D. Kimbrow
NW-1-b	12/16/2020	1345	D. Kimbrow	12.1	SM 2130 B	12/16/2020	D. Kimbrow
NW-1-c	12/16/2020	1400	D. Kimbrow	13.9	SM 2130 B	12/16/2020	D. Kimbrow
NW-1-d	12/16/2020	1330	D. Kimbrow	18.9	SM 2130 B	12/16/2020	D. Kimbrow
SW-MM-b	12/16/2020	1510	D. Kimbrow	14.1	SM 2130 B	12/16/2020	D. Kimbrow
SW-MM-c	12/16/2020	1530	D. Kimbrow	20.8	SM 2130 B	12/16/2020	D. Kimbrow
Site Number	Sample Date	Sample Time	Sample Collected By	Turbidity (NTU)	Analytical Method	Analysis Date	Analysis Performed By
C-1	3/5/2021	1420	D. Kimbrow	-	SM 2130 B	3/5/2021	D. Kimbrow
C-MM-a	3/5/2021	1425	D. Kimbrow	-	SM 2130 B	3/5/2021	D. Kimbrow
C-MM-b	3/5/2021	1435	D. Kimbrow	-	SM 2130 B	3/5/2021	D. Kimbrow
NW-1-b	3/5/2021	1325	D. Kimbrow	-	SM 2130 B	3/5/2021	D. Kimbrow
NW-1-c	3/5/2021	1405	D. Kimbrow	-	SM 2130 B	3/5/2021	D. Kimbrow
NW-1-d	3/5/2021	1315	D. Kimbrow	-	SM 2130 B	3/5/2021	D. Kimbrow
SW-MM-b	3/5/2021	1450	D. Kimbrow	-	SM 2130 B	3/5/2021	D. Kimbrow
SW-MM-c	3/5/2021	1515	D. Kimbrow	-	SM 2130 B	3/5/2021	D. Kimbrow

### 3.0 Water Quality at Short-term Monitoring Sites

#### 3.1 Purpose

In 2016, the City updated the Stormwater Quality Monitoring Plan to reflect changes in the ADEM Phase II NPDES General Permit ALR040003. Water quality monitoring at these short-term sites was not included in the City's Water Quality Monitoring Plan, and is not required under the Phase II NPDES General Permit ALR040003. Currently, the City conducts monitoring at various sites within the MS4 jurisdiction if there are suspected illicit discharges or other water quality concerns in the area. The table below shows the monitoring data from these short-term monitoring sites. The location of each sample site is included within the site name (e.g. SAUG326173854965 is within the Saugahatchee watershed and located at 32.6173 N, 85.4965 S).

#### 3.2 Monitoring Data

Site Number	Sample Date	Water Temp. (F)	pH	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	Turbidity (NTU)	Ammonia (mg/L)	Nitrate (mg/L)	Surfactants (mg/L)	E. coli (MPN or cfu/100mL)
SAUG326173854965	4/2/2020	57.2	7.24	10.63	192.4	4.77	-	-	-	-
SAUG326213855047	4/2/2020	55.2	7.15	10.64	224.4	3.62	-	-	-	-
SAUG326207855021	4/2/2020	57.6	7.06	10.21	168.9	4.46	-	-	-	-
SAUG326196854998	4/2/2020	58.1	7.11	10.49	157.4	4.47	-	-	-	-
SAUG326213855047	4/10/2020	66.5	7.13	8.59	217.7	6.62	-	-	-	-
SAUG326207855021	4/10/2020	64.7	7.07	8.1	167.4	7.66	-	-	-	-
SAUG326196854998	4/10/2020	63.3	7.12	8.78	159.6	6.69	-	-	-	-
SAUG326173854965	4/10/2020	62.1	7.21	8.87	190.7	6.82	-	-	-	-
SAUG326213855047	4/16/2020	64.5	7.11	9.12	221.6	4.43	-	-	-	-

Site Number	Sample Date	Water Temp. (F)	pH	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	Turbidity (NTU)	Ammonia (mg/L)	Nitrate (mg/L)	Surfactants (mg/L)	E. coli (MPN or cfu/100mL)
SAUG326207855021	4/16/2020	62.4	7.05	9.02	145.3	5.03	-	-	-	-
SAUG326196854998	4/16/2020	61.3	7.09	10.04	164.4	7.77	-	-	-	-
SAUG326173854965	4/16/2020	60.6	7.2	8.1	194.3	5.39	-	-	-	-
SAUG326213855047	4/24/2020	63.8	7.14	8.85	216.6	12.71	-	-	-	-
SAUG326207855021	4/24/2020	64.6	7.06	9.05	163.4	13.25	-	-	-	-
SAUG326196854998	4/24/2020	63.7	7.06	9.58	151.5	12.2	-	-	-	-
SAUG326173854965	4/24/2020	63.3	7.15	8.71	173.1	13.1	-	-	-	-
MOOR326144854217	11/30/2020	-	-	-	-	14.1	-	-	-	-
MOOR326131854214	11/30/2020	-	-	-	-	838	-	-	-	-
MOOR326107854213	11/30/2020	-	-	-	-	56.9	-	-	-	-
MOOR326107854249	11/30/2020	-	-	-	-	239	-	-	-	-
MOOR326106854217	11/30/2020	-	-	-	-	81.9	-	-	-	-
MOOR326126854213	11/30/2020	-	-	-	-	44.3	-	-	-	-
MOOR326033854254	11/30/2020	-	-	-	-	141	-	-	-	-
MOOR326106854217	9/18/2020	-	-	-	-	99	-	-	-	-
MOOR326033854254	9/18/2020	-	-	-	-	14.2	-	-	-	-
MOOR326144854217	9/18/2020	-	-	-	-	11.39	-	-	-	-
MOOR326107854249	9/18/2020	-	-	-	-	32.6	-	-	-	-
MOOR326107854213	9/18/2020	-	-	-	-	66.9	-	-	-	-
MOOR326126854213	9/18/2020	-	-	-	-	15.38	-	-	-	-
MOOR326131854214	9/18/2020	-	-	-	-	null	-	-	-	-
MOOR326106854217	8/31/2020	-	-	-	-	3742	-	-	-	-
MOOR326107854213	8/31/2020	-	-	-	-	763	-	-	-	-
MOOR326131854214	8/31/2020	-	-	-	-	3980	-	-	-	-
MOOR326126854213	8/31/2020	-	-	-	-	106.2	-	-	-	-
MOOR326144854217	8/31/2020	-	-	-	-	5.64	-	-	-	-
MOOR326107854249	8/31/2020	-	-	-	-	1604	-	-	-	-
MOOR326033854254	8/31/2020	-	-	-	-	977	-	-	-	-
MOOR326033854254	8/25/2020	-	-	-	-	147	-	-	-	-
MOOR326107854249	8/25/2020	-	-	-	-	4000	-	-	-	-
MOOR326107854213	8/25/2020	-	-	-	-	4000	-	-	-	-
MOOR326106854217	8/25/2020	-	-	-	-	4000	-	-	-	-
MOOR326126854213	8/25/2020	-	-	-	-	292.3	-	-	-	-
MOOR326131854214	8/25/2020	-	-	-	-	4000	-	-	-	-
MOOR326144854217	8/25/2020	-	-	-	-	12.6	-	-	-	-
MOOR326106854217	8/20/2020	-	-	-	-	4000	-	-	-	-
MOOR326131854214	8/20/2020	-	-	-	-	4000	-	-	-	-
MOOR326107854213	8/20/2020	-	-	-	-	4000	-	-	-	-
MOOR326126854213	8/20/2020	-	-	-	-	4000	-	-	-	-
MOOR326144854217	8/20/2020	-	-	-	-	14.06	-	-	-	-
MOOR326107854249	8/20/2020	-	-	-	-	4000	-	-	-	-
MOOR326033854254	8/20/2020	-	-	-	-	1763	-	-	-	-



## 4.0 Lake Ogletree Source Water Monitoring Program

### 4.1 Purpose

Lake Ogletree, located southeast of Auburn, Alabama, is the City of Auburn's primary drinking water source. At full pool its surface area is approximately 300 acres with a capacity of approximately 1.6 billion gallons of water. Chewacla Creek is the primary stream that feeds Lake Ogletree, which has a 33 square mile watershed (as delineated from the Lake Ogletree dam and spillway). Although mostly forested and agricultural lands, the Lake Ogletree watershed includes industrial, commercial/retail, and residential land-uses which are all predicted to increase as the population of Lee County increases. Although a recently updated Source Water Assessment Program determined Lake Ogletree to be at low to moderate risk from stormwater-driven pollutants, it is imperative that water quality monitoring be performed to identify potential threats to water quality and to protect the health of Chewacla Creek and the surrounding watershed. Therefore, the Water Works Board of the City of Auburn (AWWB) is committed to performing monitoring and analysis of a wide range of physical, chemical, and mineral water quality parameters both in Lake Ogletree and its contributing watershed.

### 4.2 Methods

AWWB conducts water quality sampling and analysis at 14 locations throughout the Lake Ogletree Watershed. Water quality assessment includes sampling at locations along the main stem of Chewacla Creek ("C-Sites"), its smaller tributaries ("T-Sites"), and Lake Ogletree ("L-Sites"). Parameters monitored once every two months at these locations include E. coli, orthophosphate, total phosphorus, nitrate-nitrite, Kjeldahl-N, pH, temperature, turbidity, specific conductance, and dissolved oxygen. A QA/QC field blank for orthophosphate, total phosphorus, nitrate-nitrite, and kjeldahl-N is collected at a single randomly-selected site during each sampling round. Bi-weekly monitoring is also conducted at select sites for temperature, pH, specific conductance, dissolved oxygen, and turbidity. The following are the parameters which are included in this program and the method of analysis.

- Temperature – YSI 5560
- Specific Conductance – YSI 5560
- Dissolved Oxygen – YSI 2003 polarographic
- pH – YSI 1001
- Turbidity – LaMotte 2020WE turbidimeter
- Nitrate + Nitrite – EPA 353.2
- Total Kjeldahl Nitrogen – EPA 351.2
- Orthophosphate – SM 4500 PE-1999
- Total Phosphorus – EPA 365.4
- E. coli - SM 9223B-2004

### 4.3 Monitoring Stations and Data

**T11** – Station T11 is located on lower Robinson Creek at Moore's Mill Road (CR 146). Latitude 32, 33, 48.221 N; Longitude 85, 23, 23.423 W

**T12N** – Station T12N is located upper Robinson Creek, just upstream of Highway 51 and downstream from an Opelika sanitary sewer lift station. Latitude 32, 37, 1.72 N; Longitude 85, 22, 9.316 W

**T19** – Station T19 is located on an unnamed tributary upstream of Emerald Lake. Latitude 32, 35, 36.364 N; Longitude 85, 20, 37.00 W

**T22** – Station T22 is located on upper Robinson Creek, just downstream of Highway 51 and downstream from three Opelika sanitary sewer lift stations. Latitude 32, 36, 2.361 N; Longitude 85, 22, 45.426 W

**T32** – Station T32 is located near the mouth of Nash Creek just before the confluence with Chewacla Creek. Latitude 32, 33, 18.484 N; Longitude 85, 25, 30.655 W

**T34** – Station T34 is located on Chewacla Creek, upstream of Station C8. Latitude 32, 34, 32.672 N; Longitude 85, 21, 49.692 W

**C1** – Station C1 is located at the forebay of Lake Ogletree, immediately downstream of the Society Hill Road bridge crossing. Latitude 32, 33, 20.161 N; Longitude 85, 25, 36.026 W

**C2** – Station C2 is located at the bridge crossing of CR 027 with Chewacla Creek. Latitude 32, 33, 21.387 N; Longitude 85, 24, 46.384 W

**C5** – Station C5 is located at the bridge crossing of Lee Road. 112 with Chewacla Creek. Latitude 32, 33, 6.291 N; Longitude 85, 23, 41.151 W

**C7** – Station C7 is located at the bridge crossing of Highway 51 (Marvyn Parkway) with Chewacla Creek. Latitude 32, 33, 41.868 N; Longitude 85, 22, 20.559 W

**C8** – Station C8 is located upstream of the bridge crossing of CR 146 (Moore’s Mill Road) with Chewacla Creek. Latitude 32, 34, 5.715 N; Longitude 85, 21, 42.033 W

**L1** – Station L1 is located in Lake Ogletree, immediately northeast of the Lake Ogletree spillway. Latitude 32, 32, 50.846 N; Longitude 85, 26, 52.83 W

**L2** – Station L2 is located in Lake Ogletree near the water intake pump house. Latitude 32, 33, 5.626 N; Longitude 85, 26, 45.038 W

**L5** – Station L5 is located along the northwest finger of Lake Ogletree, near the confluence with the East Lake/Green Chapel tributary. Latitude 32, 33, 37.961 N; Longitude 85, 25, 38.369 W

Site Number	Sample Date	Water Temp. (F)	pH	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	Turbidity (NTU)	Nitrate + Nitrite (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Orthophosphate (mg/L)	Total Phosphorus (mg/L)	E. coli (MPN)
C1	4/22/2020	69.1	6.92	8.42	41.7	23.3	0.104	0	0	0	670
C1	6/16/2020	80.6	7.86	8.45	55.4	3.88	0	0	0.18	0.18	0
C1	8/27/2020	86	8.28	9.38	70.5	5.98	0	0	0.02	0	10
C1	10/28/2020	72.7	7.6	8.87	60.5	3.21	0	0	0.0544	0.1	84
C1	12/10/2020	50.6	6.95	10.78	57.9	5.96	0	0	0.0287	0.234	10

Site Number	Sample Date	Water Temp. (F)	pH	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	Turbidity (NTU)	Nitrate + Nitrite (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Orthophosphate (mg/L)	Total Phosphorus (mg/L)	E. coli (MPN)
C2	4/22/2020	61.1	6.93	8.93	42.1	19.8	0.11	0	0	0	422
C2	6/16/2020	69.8	7.15	8.08	70.7	6.83	0.194	0	0.0194	0	487
C2	8/27/2020	76.9	7.25	7.33	80.3	12.6	0.122	0	0.041	0.143	305
C2	10/28/2020	70.7	7.1	7.42	70.7	6.73	0	0	0.0165	0	441
C2	12/10/2020	49	6.92	11.9	61.5	6.97	0.107	0	0.02	0.112	122
C5	4/22/2020	59.7	6.84	9.68	43	19	0.116	0	0.0754	0	862
C5	6/16/2020	69.8	7.27	8.52	68.6	8.04	0.199	0	0.0346	0.223	480
C5	8/27/2020	77	7.34	7.35	80.4	11.87	0.121	0	0.0293	0	399
C5	10/28/2020	71	7.23	7.86	73.4	6.03	0	0	0.0282	0	285
C5	12/10/2020	49.6	7.06	11.67	62.3	7.03	0.0977	0	0.0497	0.16	175
C7	4/22/2020	61.3	6.77	8.93	43.9	22.9	0.131	0	0.0239	0	959
C7	6/16/2020	70.1	7.02	7.41	65	9.68	0.248	0	0.0287	0.162	408
C7	8/27/2020	77.9	7.1	6.17	71.7	7.59	0.156	0	0.0381	0	426
C7	10/28/2020	70.5	6.78	5.23	73.8	7.17	0.0915	0	0.0293	0	631
C7	12/10/2020	48.9	6.98	10.75	62.4	7.62	0.176	0	0.0445	0.111	374
C8	4/22/2020	62.6	7.21	9.05	42.1	31.2	0.134	0	0	0	738
C8	6/16/2020	73.2	7.03	7.94	68.8	6.34	0.162	0	0.0363	0	148
C8	8/27/2020	79.6	7.29	7.12	75.8	4.03	0.111	0	0.0317	0	323
C8	10/28/2020	72	7.02	7.03	87.3	6.66	0	0	0.0328	0.101	496
C8	12/10/2020	52.8	7.03	10.82	73	7.6	0.137	0	0.0421	0.307	813
L1	4/22/2020	65	6.82	9.18	36.7	43	0.0744	0	0	0	1236
L1	6/16/2020	84.2	8.18	8.04	52.6	3.98	0	0	0.0153	0	0
L1	8/27/2020	88.3	8.73	8.83	64	3.54	0	0	0.0701	0.148	0
L1	10/28/2020	73.8	8.62	9.28	59.1	1.82	0	0	0.0247	0	10
L1	12/10/2020	54.4	7.03	8.64	56.5	8.99	0.0447	0	0.0153	0.106	10
L2	4/7/2020	73.2	8.2	9.1	50.8	2.2	-	-	-	-	-
L2	4/20/2020	64.3	6.84	8.37	41	65.1	-	-	-	-	-
L2	4/20/2020	-	-	-	-	-	0.0738	0	0	0	-
L2	4/20/2020	-	-	-	-	-	0.0674	0	0	0	-
L2	4/20/2020	-	-	-	-	-	0.0626	0	0	0	-
L2	4/22/2020	64.3	6.35	8.22	38.3	31.9	0.0808	0	0	0	988
L2	5/5/2020	75.4	8.06	-	40.3	6.06	-	-	-	-	-
L2	5/18/2020	76.8	8.03	9.23	44.3	10.69	-	-	-	-	-
L2	6/2/2020	82.5	8.2	8.38	49	7.57	-	-	-	-	-
L2	6/16/2020	83.4	8.19	7.89	53	3.64	0	0	0.00717	0	0
L2	6/23/2020	83.3	8.45	8.55	53.2	5.61	-	-	-	-	-
L2	7/7/2020	87.3	8.71	8.25	59	3.19	-	-	-	-	-
L2	7/20/2020	92	9.19	-	62.6	3.41	-	-	-	-	-
L2	8/4/2020	90.8	8.75	8.38	64.3	4.71	-	-	-	-	-
L2	8/18/2020	91.4	8.5	8.5	64.3	4.43	-	-	-	-	-
L2	8/27/2020	89.2	8.73	8.66	64	3.63	0	0	0.0439	0	0
L2	9/1/2020	88.3	8.95	9.3	65.5	4.89	-	-	-	-	-
L2	9/22/2020	73.3	7.12	6.92	57.1	12	-	-	-	-	-

Site Number	Sample Date	Water Temp. (F)	pH	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	Turbidity (NTU)	Nitrate + Nitrite (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Orthophosphate (mg/L)	Total Phosphorus (mg/L)	E. coli (MPN)
L2	10/6/2020	73.8	8.05	9.62	57.8	5.49	-	-	-	-	-
L2	10/20/2020	72.5	7.65	8.51	58.6	4.7	-	-	-	-	-
L2	10/28/2020	73.7	8.53	9.31	59	2	0	0	0.0153	0	0
L2	11/4/2020	69.7	7.32	8.13	60.7	3.65	-	-	-	-	-
L2	11/23/2020	62.8	7.46	8.64	60.2	4.06	-	-	-	-	-
L2	12/7/2020	55.4	7.02	8.05	56.8	9.25	-	-	-	-	-
L2	12/10/2020	54.6	7.02	8.82	56.5	9.27	0.0466	0	0.0188	0.137	0
L2	1/5/2021	53.7	7.09	11.67	54.6	6.13	-	-	-	-	-
L2	1/20/2021	49.8	7.57	12.1	56.2	-	-	-	-	-	-
L2	2/2/2021	50.5	7.25	10.76	56.8	-	-	-	-	-	-
L5	4/22/2020	62.1	6.93	9.27	41.6	29.8	0.142	0	0	0	1723
L5	6/16/2020	81.8	7.76	8.44	57.5	4.04	0	0	0	0	0
L5	8/27/2020	87.9	8.49	9.34	71.5	5.38	0	0	0.0258	0	10
L5	10/28/2020	72.9	7.72	9.09	60.6	2.86	0	0	0.013	0	20
L5	12/10/2020	51.6	6.62	10.46	60.6	5.69	0.056	0	0.0194	0.157	52
T11	4/22/2020	60	7.06	9.17	46.9	16.1	0.0961	0	0.0239	0	495
T11	6/16/2020	70.4	7.13	8.62	66.6	5.7	0.128	0	0.0777	0	528
T11	8/27/2020	77.3	7.32	7.5	84.6	10.38	0.0672	0	0.147	0	697
T11	10/28/2020	70.7	7.25	8.08	77.9	6.88	0	0	0.0287	0.128	317
T11	12/10/2020	50.9	7.23	11.3	67.9	5.89	0.0581	0	0.0334	0.167	109
T12N	4/22/2020	59.7	7.07	9.66	115.5	6.69	0.309	0	0	0	309
T12N	6/16/2020	67.1	7.03	8.78	127.4	2.53	0.264	0	0.0159	0	20
T19	4/22/2020	62.4	7.28	9.42	84.6	19.1	0.172	0	0	0	1956
T19	6/16/2020	74.6	6.94	6.85	83.2	8.73	0.0741	0	0.0194	0	84
T19	8/27/2020	77.8	7	6.15	117.4	8.2	0.167	0	0.0602	0	1396
T19	10/28/2020	71.2	7.12	6.97	128.1	10.52	0.0914	0	0.0206	0.101	479
T19	12/10/2020	51.3	7.03	10.65	111.7	8.47	0.163	0	0.0416	0.192	52
T22	4/22/2020	58.6	6.98	9.4	76	13.3	0.202	0	0.0202	0	1439
T22	6/16/2020	68.1	7.05	8.76	103	6.1	0.158	0	0.0235	0	109
T32	4/22/2020	60.4	7.22	8.64	45	15	0.109	0	0.0257	0	487
T32	6/16/2020	79.8	7.67	8.17	55.9	3.94	0	0	0.0113	0	0
T32	8/27/2020	80.6	7.85	8.14	73.9	12.1	0.107	0	0.0521	0	110
T32	10/28/2020	72.4	7.51	8.39	62.3	3.11	0	0	0.0853	0	63
T32	12/10/2020	47	6.98	11.37	60.4	6.5	0.108	0	0.0398	0.136	218
T34	4/22/2020	61.7	6.66	9.4	38.8	33.1	0.147	0	0	0	1374
T34	6/16/2020	73.5	6.95	7.37	67.4	5.81	0.141	0	0.0142	0	132
T34	8/27/2020	79.7	7.14	6.62	72.4	3.41	0.103	0	0.0223	0	408
T34	10/28/2020	70.9	6.78	5.84	78.6	6.7	0	0	0.0212	0	295
T34	12/10/2020	52.4	6.97	10.8	67.9	7.37	0.106	0	0.0276	0.423	63

## 5.0 WPCF Dissolved Oxygen Monitoring

### 5.1 Purpose

Staff have been collecting in-stream dissolved oxygen data upstream and downstream of both WPCF's effluent discharge points since August of 2006. This monitoring provides valuable data assuring that the effluent discharged from Auburn's WPCF is not causing decreases in the dissolved oxygen content of Parkerson's Mill Creek during the critical summer months. Monitoring at the Northside WPCF was discontinued in 2013 due to closure of the plant, however data collection resumed in 2015. Monitoring is performed on a frequent basis (almost daily) using a YSI (Clark Cell) and/or Hach (LDO) dissolved oxygen probe at points both upstream and downstream of each effluent discharge location.

### 5.2 Methods

As noted above, dissolved oxygen measurements are taken with a YSI (Clark Cell) and/or HACH (Luminescent Dissolved Oxygen) probe.

- Dissolved Oxygen – This is the amount of oxygen in the water column, which is produced from both atmospheric deposition and photosynthesis by aquatic plants and algae.

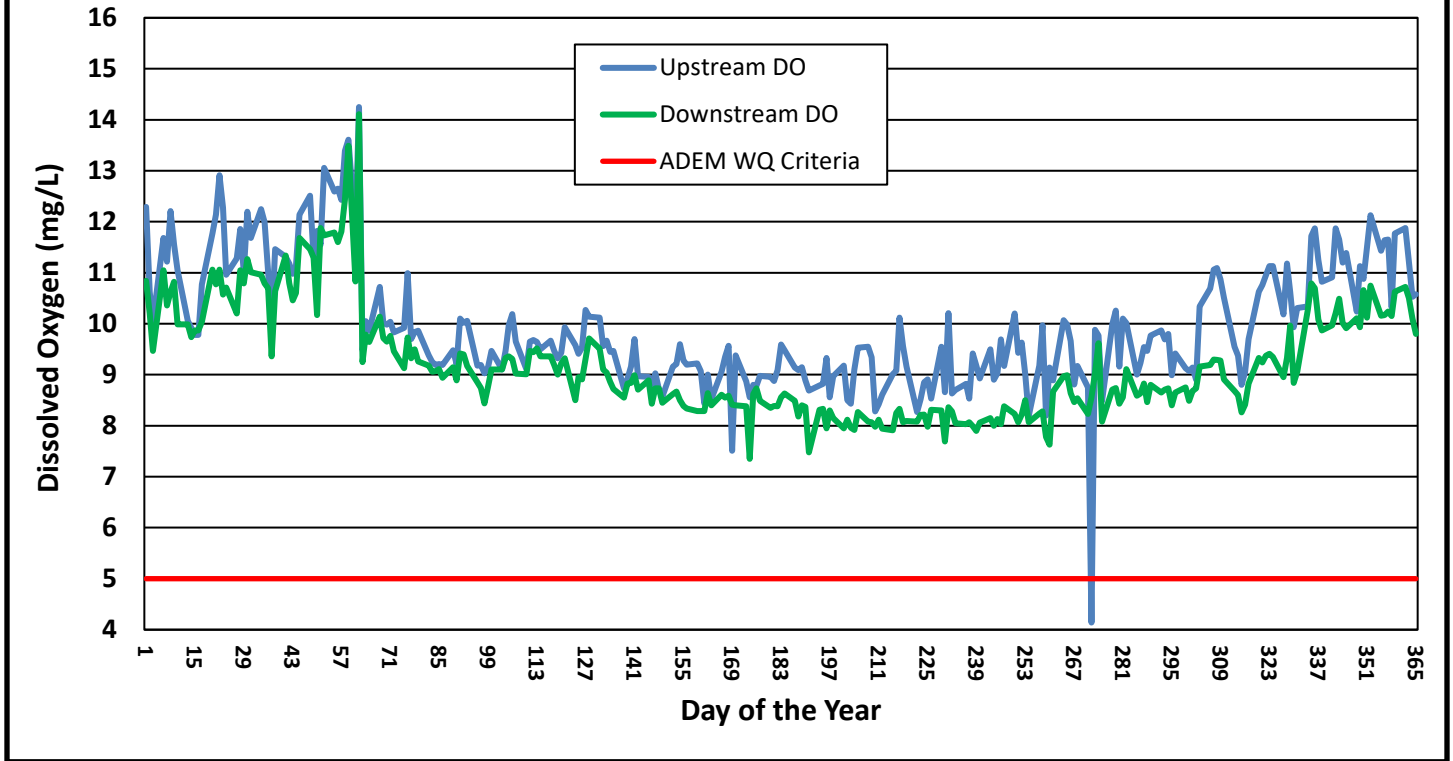
### 5.3 Monitoring Stations and Data

**H.C. Morgan WPCF Upstream** Latitude 32, 32, 9.890 N; Longitude 85, 30, 20.443 W

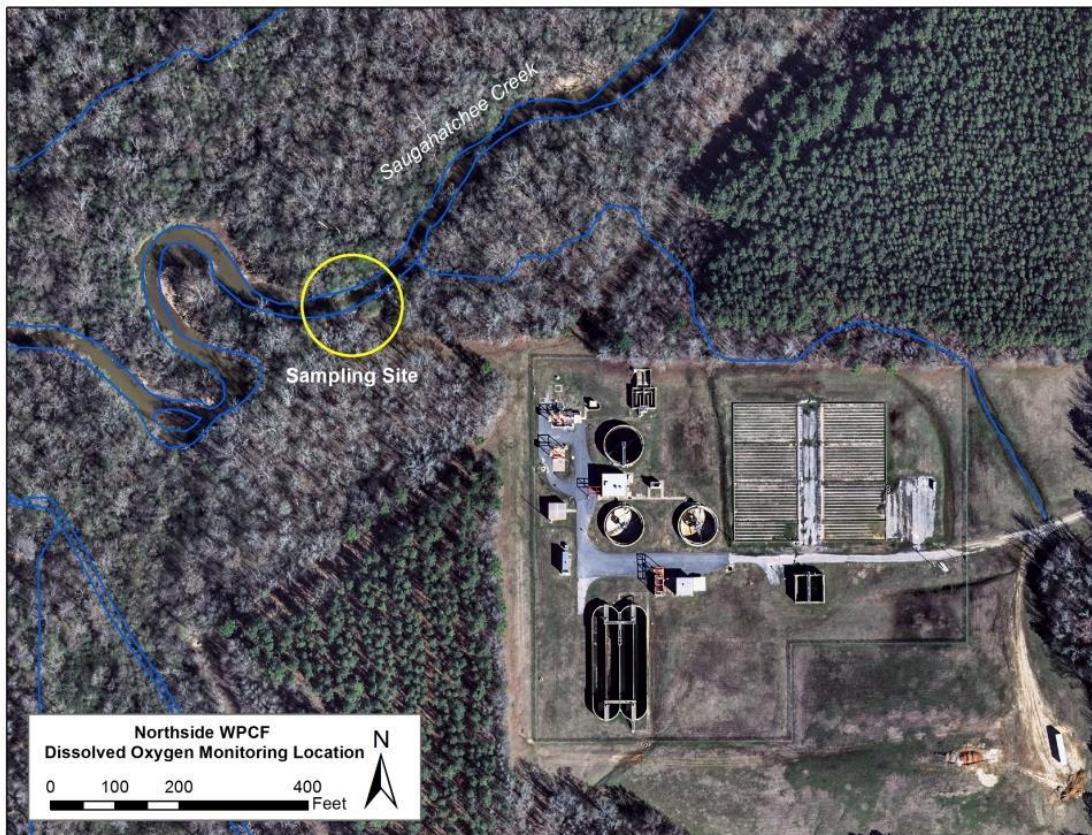
**H.C. Morgan WPCF Downstream** Latitude 32, 33, 9.077 N; Longitude 85, 30, 19.699 W

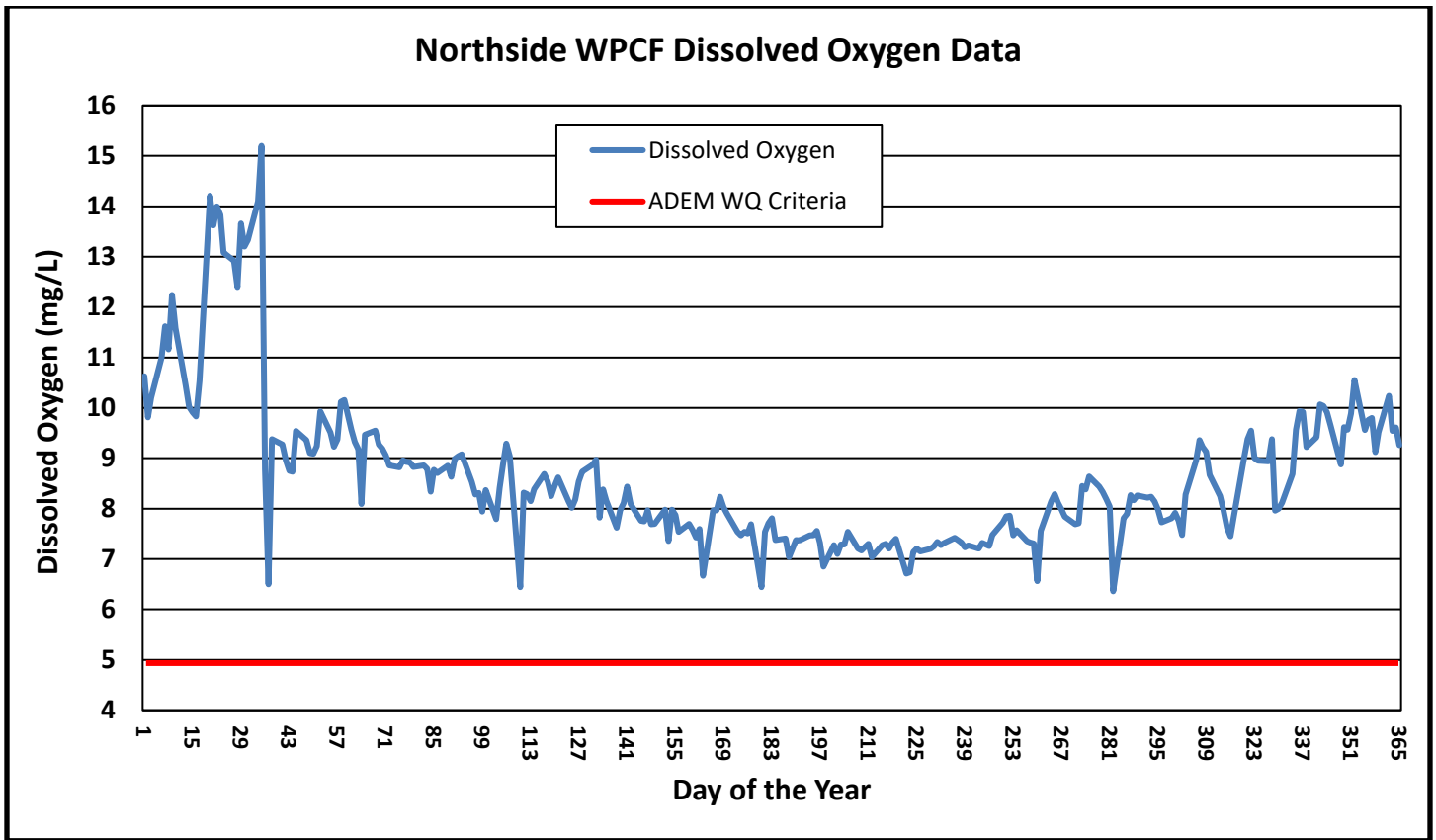


### H.C. Morgan WPCF Dissolved Oxygen Data



Northside WPCF Latitude 32, 37, 41.32 N; Longitude 85, 32, 44.75 W





## 6.0 Outfall Screening

### 6.1 Purpose

According to the ADEM Phase II NPDES General Permit ALR040003, the permittee shall implement an ongoing program to detect and eliminate illicit discharges to the MS4 to the maximum extent practicable. The permit requires a dry weather screening program to detect and address non-stormwater discharges to the MS4. The table that follows includes the water quality monitoring data that were collected at stormwater outfalls from April 1, 2020 to March 31, 2021.

### 6.2 Monitoring Data

Site	Sample Date	Surfactants (mg/L)	Ammonia (mg/L)	Potassium (mg/L)	Ammonia & Potassium Ratio	Fluoride (mg/L)	E-Coli (MPN)
M87	11/23/2020	0.3	-	-	-	-	4.1
M167	11/23/2020	1.0	-	-	-	-	156.5
M223	11/17/2020	-	-	-	-	-	12
M147	11/5/2020	1.0	-	-	-	-	1
M201	11/5/2020	0.0	-	-	-	-	2
M296	11/4/2020	0.0	-	-	-	-	37.3
M217	11/3/2020	1.2	-	-	-	-	0
M276	11/2/2020	2.3	-	-	-	-	29.8

Site	Sample Date	Surfactants (mg/L)	Ammonia (mg/L)	Potassium (mg/L)	Ammonia & Potassium Ratio	Fluoride (mg/L)	E-Coli (MPN)
M167	10/23/2020	-	-	-	-	-	201.4
M40	10/20/2020	-	-	-	-	-	80.1
M42	10/20/2020	-	-	-	-	-	0
M39	10/20/2020	-	-	-	-	-	1
M56	10/5/2020	-	-	-	-	-	2
M87	9/3/2020	-	-	-	-	-	456.9
M85	9/3/2020	-	-	-	-	-	90.9
M61	9/3/2020	-	-	-	-	-	33.7
M68	9/1/2020	-	-	-	-	-	35

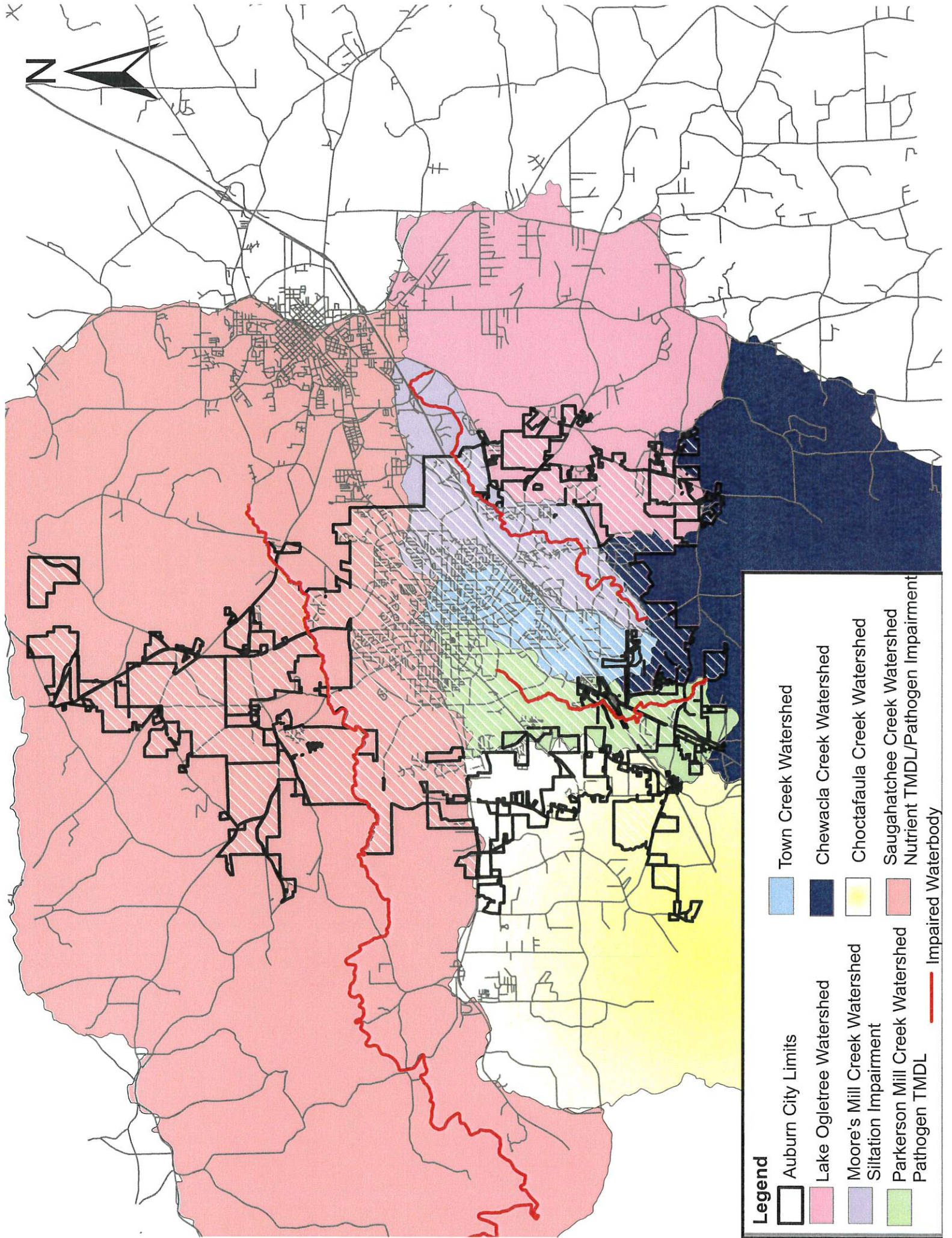















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## **APPENDIX E**

# **HYDROLOGY AND WATERSHEDS WITH APPROVED TMDLs MAP**



- Legend**
-  Auburn City Limits
  -  Town Creek Watershed
  -  Siltation Impairment
  -  Parkerson Mill Creek Watershed
  -  Lake Ogletree Watershed
  -  Chewacla Creek Watershed
  -  Moore's Mill Creek Watershed
  -  Choctafaula Creek Watershed
  -  Saughatchee Creek Watershed
  -  Nutrient TMDL/Pathogen Impairment
  -  Impaired Waterbody

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## **APPENDIX F**

### **MUNICIPAL FACILITIES**

City Properties/Facilities	
280 Rest Stop	Lake Wilmore
Ambulance Properties	Lee County Humane Society
Auburn Public Library	Lynn St. Property
Baptist Hill Cemetery	Lynn St. Property
Bowden Park	Mall Parkway Parking Lot
Boy Scout Hut Property	Martin Luther King Park
Boykin Community Center	Memorial Cemetery
Camellia Dr @ Wrights Mill Rd Property	Moore's Mill @ Society Hill Property
Choctawhatchee Lift Station	Moore's Mill Park
City Hall	N Gay St. Parking Lot
City Meeting Room	N Ross @ Opelika Rd Property
Dean Road Rec Center	Northside WPCF
Dekalb St. Regional DP	Parking Deck
Doug Watson Municipal Complex	Pine Hill Cemetery
Duck Samford Park	Public Safety Training Facility
Dumas Drive Property	Public Works
E Glenn Municipal Parking Lot	S Brookwood Dr Property
Environmental Services	S Donahue @ EUD Property
Felton Little Park	Sam Harris Park
Fire Station 2 & Fields	School Bus Depot
Fire Station 3	Soccer Complex
Fire Station 4	Softball Complex
Firing Range	Summertrees Properties
Fleet Services	Tacoma Dr Regional DP
Forestdale @ Moore's Mill Property	Tennis Center
Frank Brown Rec Center	Town Creek Cemetery
Graham McTeer Park	Town Creek Drive Trailhead
HC Morgan WPCF	Town Creek Park and Greenway
Hickory Dickory Park	Veterans Memorial Property
Human Resources	Westview Properties
Indian Pines Golf Course	White St Regional DP
Keisel Park	

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## **APPENDIX G**

### **MONITORING PLAN**



# City of Auburn

## City of Auburn, Alabama Phase II MS4 Stormwater Quality Monitoring Plan

Permit # ALR040003  
Effective: October 1, 2016  
Expiration: September 30, 2021  
Updated: May 31, 2021

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## 1.0 Introduction

This document is the City of Auburn's Stormwater Monitoring Plan as required by the Alabama Department of Environmental Management (ADEM) Municipal Separate Storm Sewer System (MS4) Phase II NPDES General Permit No. ALR040003. The purpose of this monitoring plan is to provide environmental data that will be used to evaluate the conditions in each impaired stream within the City's MS4. These monitoring data will help determine the success of efforts to reduce pollutant loads within these waterbodies. This plan will be reviewed annually, and any revisions to the plan will be documented in the Stormwater Management Program Plan (SWMPP) Annual Report.

## 1.1 Watersheds and Impairments

The City of Auburn has three (3) streams within its jurisdiction that fail to meet the state's minimum water quality standards for their designated uses. Two streams have a finalized Total Maximum Daily Load (TMDL), and two streams are included on the 2018 final 303(d) list. A TMDL was approved for the Saugahatchee Creek watershed in 2008, with the pollutants of concern being total phosphorus (TP) and organic enrichment/dissolved oxygen (OE/DO). Saugahatchee Creek was listed on the 2018 303(d) list for pathogens, and E. coli monitoring for this impairment will begin during the next reporting period (4/1/2019 – 3/31/2020). A TMDL was finalized for Parkerson's Mill Creek in 2011 for pathogens, with E. coli as the indicator bacteria. Moore's Mill Creek was included on the 303(d) list of impaired streams in 2000 for siltation, and there is currently no TMDL for Moore's Mill Creek. This Stormwater Quality Monitoring Plan will address the TMDL pollutants of concern and 303(d) impairment for each of these streams.

## 1.2 Permit Requirements

According to Part V of the MS4 Phase II General Permit ALR040003 if there are no 303(d) listed or TMDL waters located in the permittee's MS4 area, no monitoring shall be required. However, if a waterbody within the MS4 jurisdiction is listed on the latest final 303(d) list, or otherwise designated impaired by ADEM, or for which a TMDL is approved or established by EPA, the MS4 permittee shall comply with the following:

1. Include a statement in the SWMPP stating if monitoring is required.
2. Implement a monitoring program within 6 months of permit coverage that addresses the impairment or TMDL. Include the monitoring plan in the SWMPP, and document the revisions to the monitoring plan in the SWMPP and SWMPP Annual Report.
3. Describe proposed monitoring locations and proposed monitoring frequency in the monitoring plan, with actual locations described in the SWMPP Annual Report.
4. Include in the monitoring program any parameters attributed with the latest final 303(d) list, or otherwise designated by ADEM as impaired, or are included in an EPA-approved or EPA-established TMDL.
5. Perform analysis and collection of samples in accordance with the methods specified at 40 CFR Part 136. If an approved 40 CFR Part 136 does not exist, then an ADEM approved method may be used.
6. If samples cannot be collected due to adverse conditions, permittee must submit a description of why samples could not be collected, including available documentation of the event (e.g. weather conditions that create dangerous conditions for personnel, or impracticable conditions such as drought or ice).
7. Monitoring results must be reported with the subsequent SWMPP Annual Report and shall include the following:
  - a. The date, latitude/longitude of location, and time of sampling
  - b. The name(s) of the individual(s) who performed the sampling
  - c. The date(s) analysis was performed
  - d. The name(s) of the individual(s) who performed the analysis
  - e. The analytical techniques or methods used
  - f. The results of such analysis

## 2.0 Monitoring

The City of Auburn believes that quality control and quality assurance are critical to a successful environmental monitoring program. In order to develop a dependable and credible database of water quality measurements for each sampling site in the City's MS4 area, the Water Resource Management (WRM) staff employ a stringent field and laboratory protocol. WRM staff are required to wear nitrile gloves when handling sample bottles, cleaning sample bottles, plating bacterial samples, handling bacterial plates and growth media, calibrating instruments, and collecting water samples. Before going to a sample site, water sample collection bottles are placed in clean, sealable plastic bags. They are carried to the sample site in a cooler, and after the samples are collected the bottles are immediately placed back into the bag and into the cooler to be chilled at 4 degrees Celsius. WRM staff calibrate all water quality instruments prior to field use. Calibration standards are never used outside the expiration date. A detailed calibration log is filled out each time an instrument is calibrated (Appendix A). Where applicable, instruments, sampling devices, and sample vials are cleaned using Liquinox™ phosphate-free detergent, followed by a tap water rinse, and then a final rinse with deionized water. At all sample sites, WRM staff utilize field sheets to document site characteristics and observations such as stream color, geomorphic setting (riffle, pool, etc.), and weather conditions (Appendix B). The field sheets are also used to document water quality data measured in-situ at each site. These in-situ data include temperature, pH, specific conductance ( $\mu\text{S}/\text{cm}$ ), dissolved oxygen (mg/L), and dissolved oxygen (% saturation), and are collected using a YSI ProPlus instrument. Water samples are analyzed for turbidity in the field using a LaMotte 2020we portable turbidimeter. Streamflow is determined using the mid-section method, where the channel is divided into segments along a cross-section, and width, depth, and velocity are recorded at each segment. Velocity is measured at the center of each segment using a Price Pygmy Meter or a Sontek Flowtracker2 acoustic doppler velocimeter. The sum of flows of all the segments along a cross-section equals the total streamflow.

### 2.1 Saugahatchee Creek

The Saugahatchee Creek Embayment on Yates Reservoir was originally placed on the ADEM 303(d) list of impaired waterbodies in 1996 for OE/DO and nutrients. It remained on the State's 303(d) list after each consecutive two-year water quality assessment until 2008, at which time the Saugahatchee Creek Embayment (Yates Reservoir) TMDL was finalized. Additionally, Pepperell Branch, an unnamed tributary of Saugahatchee Creek which originates in Opelika, also remained on the State's 303(d) list for nutrient impairment until 2008. The impairment of Pepperell Branch was also addressed in the Saugahatchee Creek Embayment TMDL. At no time has the main stem of Saugahatchee Creek been added to the State's 303(d) list. In order to address water quality concerns within the Saugahatchee Creek Embayment, ADEM and the EPA jointly developed a "watershed based" TMDL, which would in turn address nutrient loading from both the main stem of Saugahatchee Creek and Pepperell Branch. The final Saugahatchee Creek Watershed TMDL was issued in April of 2008, identifying TP as the primary pollutant of concern (expressed as chlorophyll-a to satisfy numeric target criteria for assessing eutrophication in lakes). The Saugahatchee Creek Embayment TMDL establishes the TP limits in stormwater runoff of equal to or less than 0.1 mg/L (see Table 5-2 of the Saugahatchee Creek Embayment TMDL).

Monitoring TP at strategic locations along the main stem of Saugahatchee Creek and on tributaries within the Saugahatchee Creek watershed that drain portions of the City's MS4 will provide sufficient data to evaluate the success of efforts to reduce TP in stormwater and meet TMDL concentrations. The City shall make all reasonable efforts to conduct quarterly sampling for TP, water temperature, pH, dissolved oxygen, specific conductance, and turbidity at three locations along the main stem of Saugahatchee Creek, and also at three tributaries within the Saugahatchee Creek watershed (Figure 1.). Streamflow in cubic feet per second (cfs) and million gallons per day (MGD) will also be recorded at each sample site when water samples are collected. Streamflow at sites 1S, 4S, and 19S will be determined by the City's streamgauge located at site 4S on Saugahatchee Creek at the City's Northside Water Pollution Control Facility (WPCF). The City will make a reasonable effort to measure streamflow in-situ at sites 5S, 20S, and 21S after water samples are collected when flow conditions permit. Additionally, the City will continue to reasonably support and participate in studies of water

quality in the embayment. Sample sites for monitoring TP in the Saugahatchee Creek watershed are shown in Table 1. The sample parameters and corresponding analytical techniques are shown in Table 2.

In 2018, Saugahatchee Creek was placed on the ADEM 303(d) list for pathogen impairment. The impaired reach is 33.42 mi., and includes waters from Saugahatchee Lake Dam to the confluence with Sycamore Creek in Tallapoosa County. ADEM considered collection system failure and pasture grazing as potential sources of the impairment. According to the 2018 303(d) list Fact Sheet <http://www.adem.state.al.us/programs/water/wquality/2018AL303dFactSheet.pdf>, ADEM collected samples at station SOGL-1 and SOGL-11 to determine the basis for adding Saugahatchee Creek to the 303(d) list.

City staff have conducted intensive sampling for E. coli in the Saugahatchee watershed at six (6) sites (Table 1.) for two consecutive years. The 5-week geomean concentrations for site SOGUTL-3 have been below state water quality criteria 3 out of the 4 geomean periods, and the highest geomean concentration was 201 MPN (August 2020). Due to the relatively low concentrations at this sampling site, the City plans to remove SOGUTL-3 from the sampling schedule in 2021. According to the monitoring data, the tributary on which SOGUTL-3 is located is not a significant contributor of E. coli to Saugahatchee Creek. In lieu of SOGUTL-3, site SOGUTL-5 and SOGUTL-6 will be added to the sampling schedule in 2021. SOGUTL-5 is located on a major tributary to Saugahatchee Creek that drains several residential subdivisions. SOGUTL-6 is located on another tributary to Saugahatchee and drains the northwest part of Auburn. The City also plans to remove site SOGL-20 from the sampling schedule in 2021. SOGL-20 is located near the beginning of the City's MS4 jurisdiction, but there are some areas upstream of the sampling site that are also within the City's MS4, thus SOGL-20 does not provide true "baseline conditions" as Saugahatchee Creek enters the MS4 jurisdiction. In order to have a more representative baseline of E. coli concentrations as Saugahatchee Creek enters our jurisdiction, the City will be sampling instead at site SOGL-22 located at HWY 280.

The City shall make all reasonable efforts to monitor E. coli concentrations in Saugahatchee Creek through annual intensive E. coli sampling at seven (7) sites within the Saugahatchee Creek watershed (Figure 2.). Monitoring E. coli at strategic locations along the main stem of Saugahatchee Creek and on tributaries within the Saugahatchee Creek watershed that drain portions of the City's MS4 will provide further insight into the high E. coli concentrations that were observed by ADEM and eventually led to the 2018 303(d) listing. Single samples will be collected for E. coli once per month for April, May, July, September, October, and November. Weekly samples will be collected at those sites during June and August. The 5-week geometric mean concentrations will be calculated based on the results of the weekly sampling. Streamflow will be determined from the USGS streamgage 02418230 for site SOGL-1, and streamflow at sites SOGL-11 and SOGL-22 will be determined from the City's streamgage located at the Northside WPCF. The City will make a reasonable effort to measure streamflow (recorded in cfs and MGD) in-situ at sites SOGUTL-1, SOGUTL-4, SOGUTL-5, and SOGUTL-6 after water samples are collected when flow conditions permit. Water temperature, pH, dissolved oxygen, specific conductance, and turbidity will also be measured in-situ at each site. Sample sites for monitoring E. coli are shown in Table 1., and the sample parameters and corresponding analytical techniques are shown in Table 2.

Table 1. Saugahatchee Creek Monitoring Site Locations

Site Number	Pollutant of Concern	Site Location	Site Coordinates
1S	Total Phosphorus	Saugahatchee Creek at US HWY 280	32.65741 N, 85.45965 W
19S	Total Phosphorus	Saugahatchee Creek 0.35 mi upstream of N. Donahue Dr.	32.64277 N, 85.49876 W
4S	Total Phosphorus	Saugahatchee Creek at Northside WPCF	32.62818 N, 85.54570 W
5S	Total Phosphorus	Unnamed Tributary to Saugahatchee Creek	32.62584 N, 85.54640 W
20S	Total Phosphorus	Unnamed Tributary to Saugahatchee Creek	32.64249 N, 85.49860 W
21S	Total Phosphorus	Swingle Creek above Lee Rd. 188	32.65561 N, 85.57551 W
SOGL-1	E. coli	Saugahatchee Creek at Lee Rd. 188	32.62656 N, 85.58801 W
SOGL-11	E. coli	Saugahatchee Creek at Northside WPCF	32.62818 N, 85.54570 W
SOGL-22	E. coli	Saugahatchee Creek at US HWY 280	32.64875 N, 85.47216 W
SOGUTL-1	E. coli	Unnamed Trib to Saugahatchee Creek at Hickory Dickory Park	32.63537 N, 85.49067 W
SOGUTL-4	E. coli	Unnamed Trib to Saugahatchee Creek at N College St.	32.63589 N, 85.48121 W
SOGUTL-5	E. coli	Unnamed Trib to Saugahatchee Creek near Northside WPCF	32.62551 N, 85.54589 W
SOGUTL-6	E. coli	Unnamed Trib to Saugahatchee Creek at Yarbrough Farms Blvd.	32.63142 N, 85.51014 W

Table 2. Saugahatchee Creek Water Quality Parameters and Analytical Methods

Water Quality Parameter	Analytical Method
Total Phosphorus	EPA 365.4
E. coli	IDEXX System (Colilert) <i>or</i> Alabama Water Watch (Coliscan Easygel)
Water Temperature	YSI model 5560
pH	YSI model 1001
Dissolved Oxygen	YSI model 2003 polarographic
Specific Conductance	YSI model 5560
Turbidity	Standard Methods 2130 B

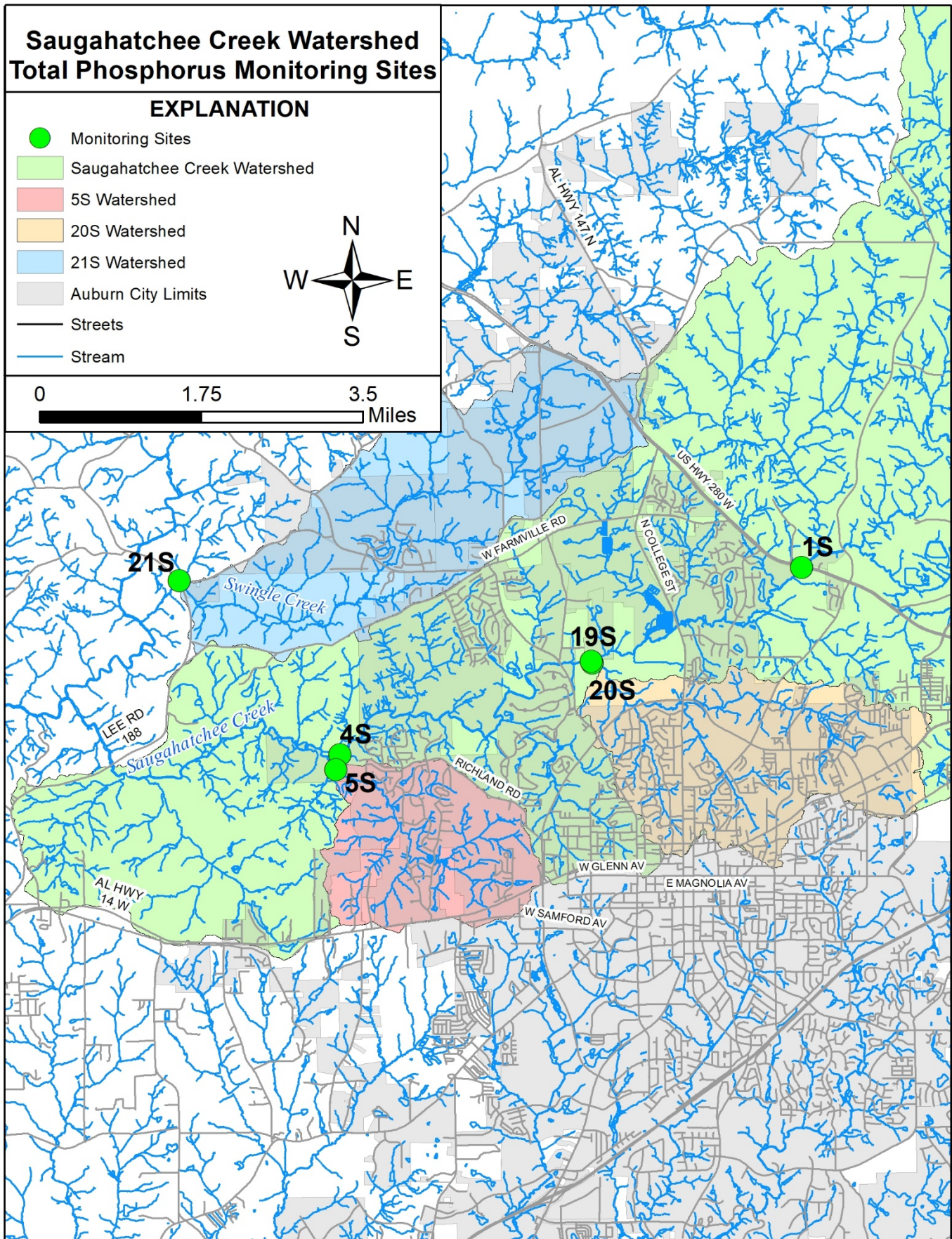


Figure 1. Saugahatchee Creek Watershed Total Phosphorus Monitoring Sites

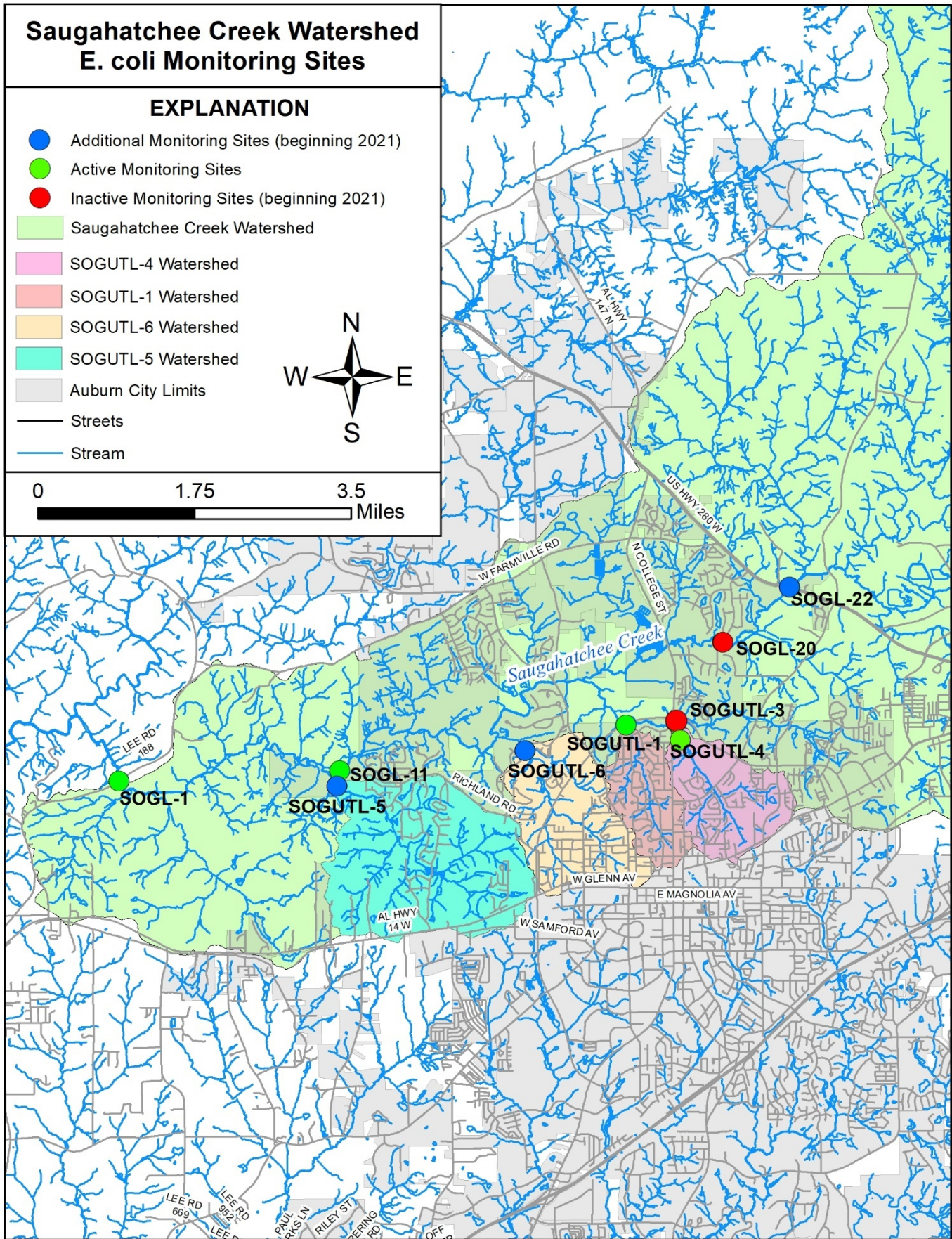


Figure 2. Saugahatchee Creek Watershed E. coli Monitoring Sites

## 2.2 Parkerson’s Mill Creek

Parkerson’s Mill Creek was placed on the ADEM 303(d) list of impaired waterbodies for pathogens in 2008. The impaired reach is 6.85 mi. and includes all waters from its source (near the intersection of N. College St. and Glenn Ave. in downtown Auburn) to its confluence with Chewacla Creek. Potential sources of the impairment were listed as sanitary sewer overflows and urban runoff. The final Parkerson’s Mill Creek TMDL was issued in September 2011, identifying E. coli as the pollutant of concern. The Parkerson’s Mill Creek TMDL establishes the E. coli limits in stormwater at 3.42E+09 colonies/day, also expressed as a 61% reduction in non-point sources. This TMDL was established using the geometric mean criterion of 126 CFU/100mL.

The City shall make all reasonable efforts to monitor E. coli concentrations in Parkerson’s Mill Creek through annual intensive E. coli sampling. The intensive E. coli sampling will provide sufficient data to evaluate the success of efforts to reduce pathogens in stormwater and meet TMDL concentrations. The City plans to add two (2) sites to the sampling schedule in 2021 in an effort to further refine the possible sources of high E. coli concentrations in the watershed. Site PKML-6 is located at W. Longleaf Dr. on an unnamed tributary to Parkerson’s Mill Creek that drains an area where many mobile home parks are located. Some of these communities are on private sewer systems, and the infrastructure includes septic lagoons and lift stations that have a history of failure. This tributary enters the main stem of Parkerson’s Mill Creek between sites PKML-2 and PKML-5. Site PKML-7 is located on a small unnamed tributary that drains the H.C. Morgan Water Pollution Control Facility. This tributary enters Parkerson’s Mill Creek between sites PKML-1 and PM3. Sampling at this location will determine if the runoff from the WPCF is contributing to the rise in concentrations between PKML-1 and PM3.

The intensive sampling will be conducted in the same manner as the study performed by ADEM in 2010 at six (6) sites (Figure 3.). Single samples will be collected for E. coli once per month for April, May, July, September, October, and November. Weekly samples will be collected at those sites during June and August. The 5-week geometric mean concentrations will be calculated based on the results of the weekly sampling. Streamflow at site PKML-1 will be determined by the City’s streamgage located at site PKML-1 on Parkerson’s Mill Creek just downstream of the Sandhill Rd. bridge near the H.C. Morgan WPCF. The City will make a reasonable effort to measure streamflow (recorded in cfs and MGD) in-situ at sites PM3, PKML-7, PKML-6, PKML-5, and PKML-2 after water samples are collected when flow conditions permit. Water temperature, pH, dissolved oxygen, specific conductance, and turbidity will be measured in-situ at each site. Additionally, the City will continue to reasonably support and participate in studies of water quality in the Parkerson’s Mill Creek watershed. Monitoring sites in the Parkerson’s Mill Creek watershed are shown in Table 3. The sample parameters and corresponding analytical techniques are shown in Table 4.

Table 3. Parkerson’s Mill Creek Monitoring Site Locations

Site Number	Site Location	Site Coordinates
PKML-1	Parkerson’s Mill Creek at Sand Hill Rd	32.53744 N, 85.50601 W
PKML-2	Parkerson’s Mill Creek at Shug Jordan Pkwy	32.58551 N, 85.50249 W
PKML-6	Unnamed Trib to Parkerson’s Mill Creek at W. Longleaf Dr.	32.57265 N, 85.51073 W
PKML-5	Parkerson’s Mill Creek at W. Veterans Blvd	32.56243 N, 85.50716 W
PKML-7	Unnamed Trib to Parkerson’s Mill Creek near H.C. Morgan WPCF	32.53538 N, 85.50560 W
PM-3	Parkerson’s Mill Creek below HC Morgan WPCF	32.53427 N, 85.50156 W

Table 4. Parkerson's Mill Creek Water Quality Parameters and Analytical Methods

Water Quality Parameter	Analytical Method
E. coli	IDEXX System (Colilert) or Alabama Water Watch (Coliscan Easygel)
Water Temperature	YSI model 5560
pH	YSI model 1001
Dissolved Oxygen	YSI model 2003 polarographic
Specific Conductance	YSI model 5560
Turbidity	Standard Methods 2130 B

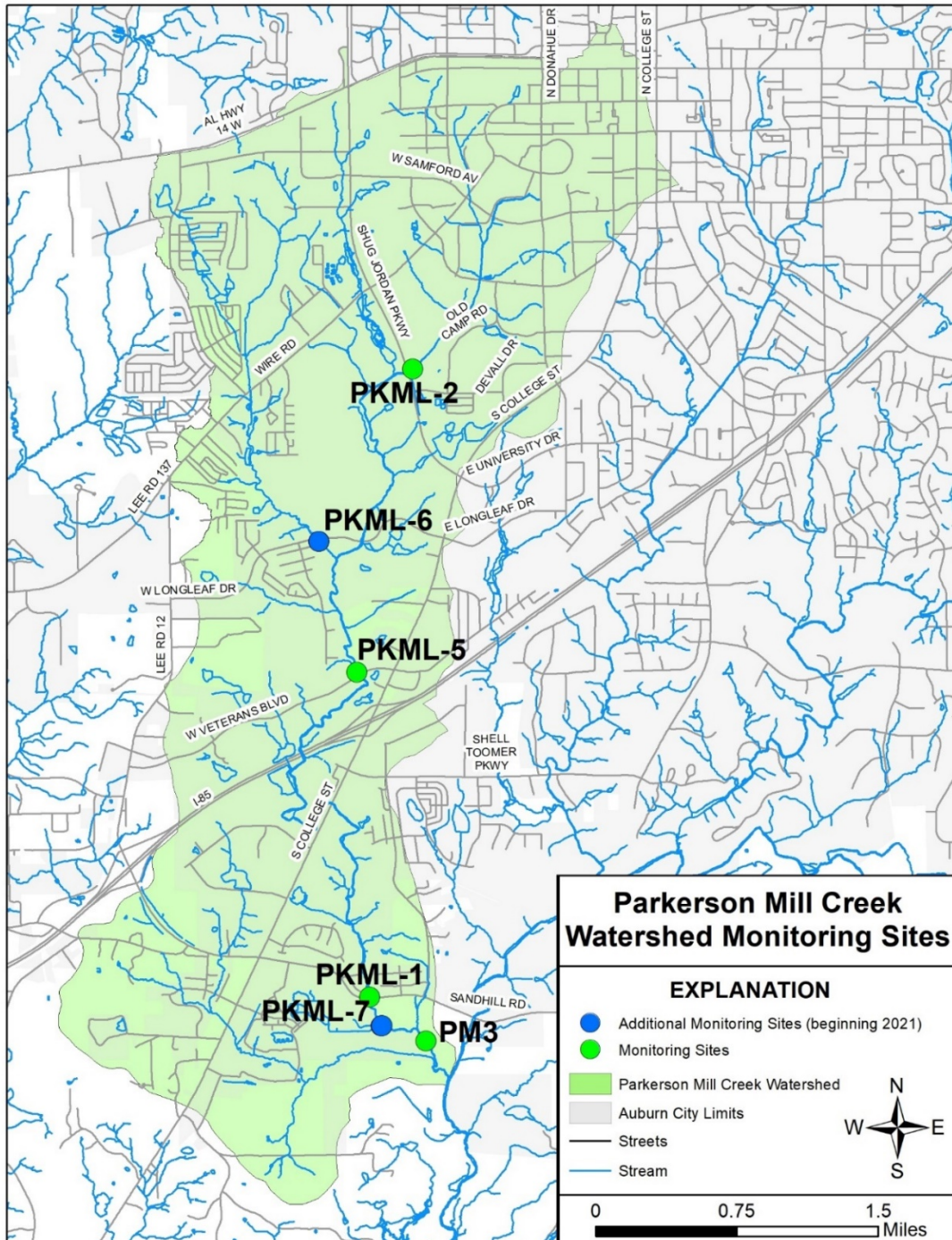


Figure 3. Parkerson's Mill Creek Watershed Monitoring Sites



## 2.3 Moore's Mill Creek

Moore's Mill Creek was placed on the draft 303(d) list for siltation in 1998, and has been on the final 303(d) list since 2000. The impaired reach is 10.51 mi. and includes all waters from its source to its confluence with Chewacla Creek. Habitat degradation due to sedimentation/siltation is the impairment in Moore's Mill Creek. Potential sources of the impairment are listed as land development and urban runoff/storm sewers. The Moore's Mill Creek Watershed Management Plan was completed in 2008. This plan outlined several objectives aimed to reduce sedimentation and mitigate habitat degradation. Included in the plan were geomorphic surveys and Bank Erosion Hazard Index (BEHI) assessments of stream reaches on both the main stem and tributaries throughout the watershed. Findings from these geomorphic surveys and BEHI assessments identified in-stream sediment loading from streambank erosion as a significant contributor to the impairment. The watershed management plan recommended continued monitoring of these sites to evaluate the success of future efforts aimed to reduce bank erosion.

The City shall make reasonable efforts to monitor streambank erosion at eight (8) reaches (Figure 3.) in the Moore's Mill Creek watershed with annual stream geomorphic surveys. These annual surveys will measure geomorphic parameters that are used as indicators of stability of a stream reach (Table 7.). A stream condition rapid assessment will also be performed annually at each of the 8 reaches. The stream condition rapid assessment (Appendix B) was developed with a grant from EPA (EPA Region IV Wetlands Program Development Grant CD00D01412, "Eco-Morphological Mitigation Design and Assessment Tools for the Alabama and Tennessee Appalachian Plateau"), and rates stream condition and function based on eco-geomorphic indicators. In addition, quarterly samples of turbidity, water temperature, pH, dissolved oxygen, specific conductance, and turbidity will be measured in-situ at each site. Additionally, the City will continue to reasonably support and participate in studies of water quality in the Moore's Mill Creek watershed. Proposed sample reaches for monitoring in the Moore's Mill Creek watershed are shown in Table 5. The water quality sampling parameters and corresponding analytical techniques are shown in Table 6, and geomorphic parameters are found in Table 7.

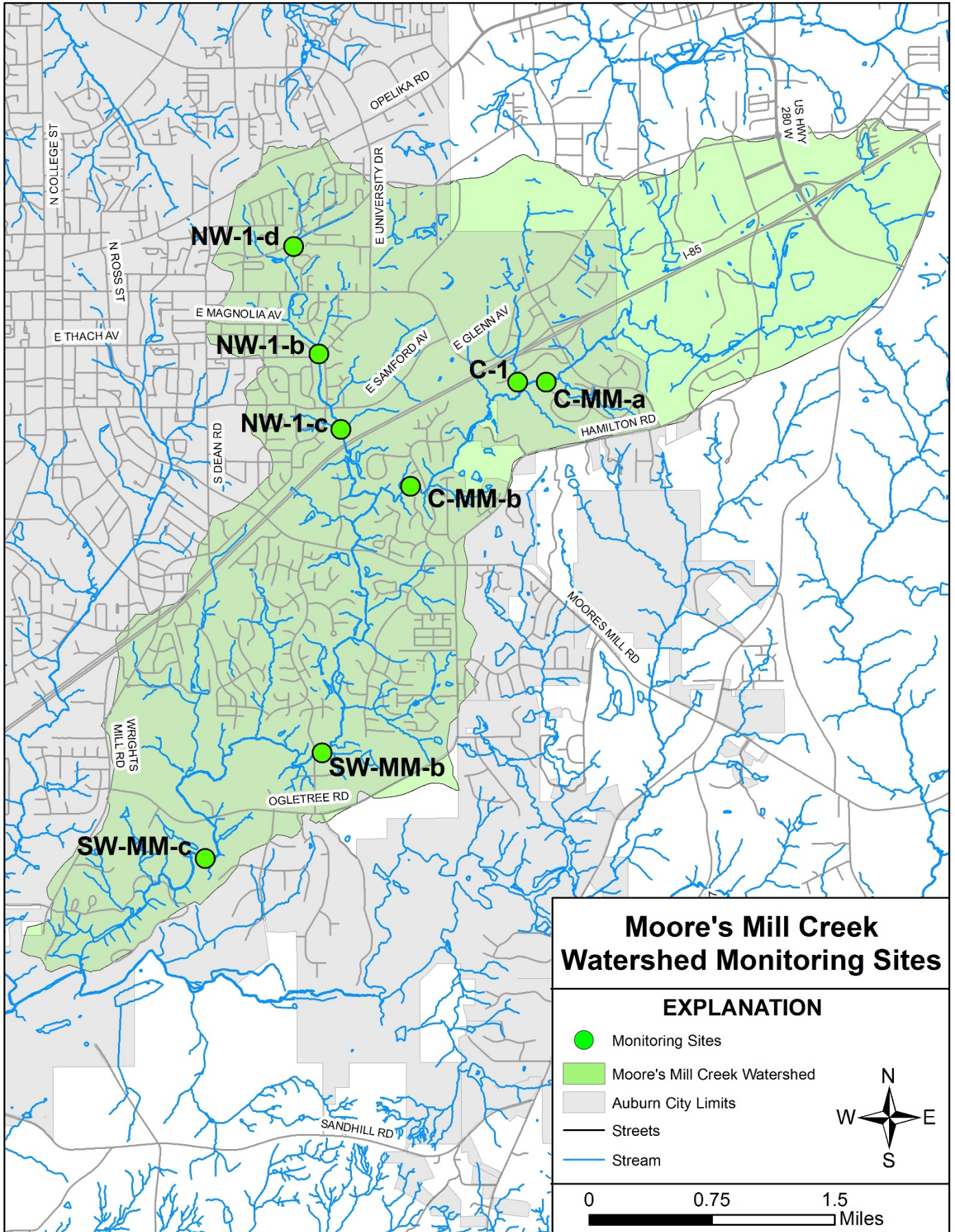


Figure 4. Moore's Mill Creek Watershed Monitoring Sites

Table 5. Moore's Mill Creek Monitoring Site Locations

Site Number	Reach Length	Upstream Coordinates	Downstream Coordinates
NW-1-b	600 ft.	32.603946 N, 85.453310 W	32.602333 N, 85.453047 W
NW-1-d	950 ft.	32.613527 N, 85.455178 W	32.611580 N, 85.456570 W
C-1	550 ft.	32.601404 N, 85.432698 W	32.600192 N, 85.432044 W
C-MM-a	950 ft.	32.600874 N, 85.428538 W	32.600530 N, 85.431463 W
NW-1-c	850 ft.	32.597506 N, 85.451326 W	32.595712 N, 85.450483 W
C-MM-b	1100 ft.	32.591034 N, 85.442119 W	32.590912 N, 85.444596 W
SW-MM-b	650 ft.	32.568631 N, 85.451830 W	32.567873 N, 85.453612 W
SW-MM-c	1350 ft.	32.559094 N, 85.463712 W	32.558760 N, 85.466685 W

Table 6. Moore's Mill Creek Water Quality Parameters and Analytical Methods

Water Quality Parameter	Analytical Method
Total Suspended Solids	Standard Methods 2540D Mod-1997
Water Temperature	YSI model 5560
pH	YSI model 1001
Dissolved Oxygen	YSI model 2003 polarographic
Specific Conductance	YSI model 5560
Turbidity	Standard Methods 2130 B

Table 7. Moore's Mill Creek Geomorphic Parameters

Geomorphic Parameter	Abbreviation
Geometric Bank Erosion Hazard Index	BEHI
Bankfull Area	$A_{bkf}$
Bankfull Width	$W_{bkf}$
Bankfull Depth	$d_{bkf}$
Maximum Bankfull Depth	$d_{mbkf}$
Low Bank Height	LBH
Width of the Flood-prone Area	$W_{fpa}$
Width to Depth Ratio	$W/d$
Bank Height Ratio	BHR
Entrenchment Ratio	ER

# Appendix A. Water Quality Instrument Calibration Sheet

CITY OF AUBURN TURBIDITY METER CALIBRATION LOG					
Turbidimeter Model _____			Date _____		
Calibrated by _____		Calibration Location _____		Time _____ CST CDT	
<u>STANDARD</u>			<u>READING</u>		
CITY OF AUBURN WQ METER CALIBRATION LOG					
WQ Meter Model _____			Date _____		
Calibrated by _____		Calibration Location _____		Time _____ CST CDT	
pH					
pH Buffer	Buffer Temp (°C)	pH from table	pH before adj.	pH after adj.	mV
pH 7					
pH 4					
Specific Conductance					
Std Value (µS/cm)	Std Temp	SC before adj.	SC after adj.		
Dissolved Oxygen					
Temp (°C)	Barometric Pressure (mm Hg)	Reading from DO table	DO after adjustment		
Start Time	Calibration Time				

# Appendix B. Water Sample Collection Field Sheet

CITY OF AUBURN WATER SAMPLE COLLECTION FIELD NOTES		
Site No. _____ Site Location _____ Date _____		
Sampled by _____ Mean Sample Time _____ CST CDT		
FIELD MEASUREMENTS		
WQ Meter: ProPlus A    ProPlus B	Turbidity #1 _____ NTU	
Temp. Air _____ °F C°	Dissolved Oxygen _____ mg/L	Turbidity #2 _____ NTU
Temp. Water _____ °F C°	Dissolved Oxygen _____ % Sat.	Turbidity #3 _____ NTU
pH _____ Units	Sp. Conductance _____ µS/cm	Mean _____ NTU
SAMPLING DATA		
Location: Wading _____ ft upstream downstream of bridge Boat Bank Bridge		
Sampling site: pool riffle open channel pipe/culvert pour-over spillway lake spigot basin		
Sampling method: hand pump Kemmerer grab composite		
Stream bottom: bedrock boulder cobble gravel sand silt/mud concrete other _____		
Stream/Lake color: clear brown green gray orange other _____		
Comments:		
WEATHER CONDITIONS		
Temp: cold cool warm hot Wind: calm light breeze windy Sky: clear partly cloudy cloudy		
Precipitation: none lightrain rain snow		
48 hr Recent Precipitation: Yes No		
SAMPLE CONSTITUENTS		
Lab: _____		Lab: _____
No. of Containers _____		No. of Containers _____
Constituents:		Constituents:
Lab: _____		Lab: _____
No. of Containers _____		No. of Containers _____
Constituents:		Constituents:

# Appendix C. Stream Condition Rapid Assessment Sheet from EPA Region IV Wetlands Program Development Grant CD00D01412, "Eco-Morphological Mitigation Design and Assessment Tools for the Alabama and Tennessee Appalachian Plateau"

## Stream Condition Rapid Assessment

Stream name & location:	Assessed by:
Ecoregion:	Site visit date:
Watershed drainage area (sq mi):	Substrate (sand, gravel, cobble, bedrock):
Stream slope (ft/ft):	Stream reach length (ft):
Bankfull riffle area (sq ft):	Width/depth ratio (WDR):
Entrenchment ratio (ER):	Bank height ratio (BHR):
Sinuosity (K):	Streambank stability (BEHI):

**Stream Condition and Function:** Score from 0 to 2 indicating natural stream integrity and health:

*2 = Good; 1 = Fair; 0 = Poor*

### 1. Upstream watershed impacts from stormwater, wastewater, or sediment \_\_\_\_\_

<u>Good:</u> no impacts from upstream sources	<u>Fair:</u> some minor impacts from upstream sources	<u>Poor:</u> major impacts from upstream sources
---	---	--

### 2. Local stream reach impacts from ditches, pipes, livestock, utilities, or roads \_\_\_\_\_

<u>Good:</u> no impacts from local sources	<u>Fair:</u> some minor impacts from local sources	<u>Poor:</u> major impacts from local sources
--	--	---

### 3. Channel dimension related to bankfull cross-section measurements \_\_\_\_\_

<u>Good:</u> natural equilibrium width, depth, and area dimensions expected for the watershed	<u>Fair:</u> some disequilibrium indicated by unnatural dimensions	<u>Poor:</u> major disequilibrium indicated by incision, widening, high variability, or channelized system
---	--	--

### 4. Channel pattern related to planform measurements \_\_\_\_\_

<u>Good:</u> natural equilibrium meander pattern with sinuosity expected for the watershed	<u>Fair:</u> some disequilibrium indicated by unnatural pattern features	<u>Poor:</u> major disequilibrium indicated by tight bends, cutoffs, rapid down-valley meander migration, or straightening
--	--	--

### 5. Channel bed profile related to longitudinal profile measurements \_\_\_\_\_

<u>Good:</u> natural equilibrium riffles, pools, steps, glides, and runs with bedform expected for the watershed	<u>Fair:</u> some disequilibrium indicated by unnatural or missing bedform features	<u>Poor:</u> major disequilibrium indicated by head cutting, plane bed, aggradation, or riffle migration into pools
--	---	---

### 6. Streambank stability and protection from erosion \_\_\_\_\_

<u>Good:</u> low erodibility resulting from covered soil, low banks, deep roots, low stress	<u>Fair:</u> moderate erodibility resulting from some bare soil or erodible bank conditions	<u>Poor:</u> high erodibility resulting from bare soil, eroding bends, steep banks, high banks, lack of roots, high stress
---	---	--

**7. Floodplain connection for bankfull flood access** \_\_\_\_\_

<u>Good</u> : regular floodplain access with BHR < 1.2	<u>Fair</u> : some incision with BHR = 1.2–1.9	<u>Poor</u> : severely incised channel with BHR > 2
--	--	---

**8. Floodplain morphology to dissipate flood energy and minimize erosion** \_\_\_\_\_

<u>Good</u> : low entrenchment with ER > 5 and no contractions	<u>Fair</u> : moderate entrenchment with ER = 1.5–5 and/or minor contractions	<u>Poor</u> : severe entrenchment with ER < 1.5 and/or major contractions
--	---	---

**9. Riparian vegetation to provide shade, nutrient uptake, and food sources** \_\_\_\_\_

<u>Good</u> : healthy native plants growing in more than 90% of 50-ft buffer on both sides	<u>Fair</u> : healthy native plants growing in half to 90% of 50-ft buffer on both sides	<u>Poor</u> : healthy native plants growing in less than half of 50-ft buffer on both sides
--	--	---

**10. Habitats including diverse bedform, large woody debris, leaf packs, root hairs** \_\_\_\_\_

<u>Good</u> : healthy aquatic micro-and macro-habitat features expected for watershed	<u>Fair</u> : lacking up to half of expected aquatic habitat features	<u>Poor</u> : lacking more than half of expected aquatic habitat features
---	---	---

**11. Water quality and stream bed sediments** \_\_\_\_\_

<u>Good</u> : clear water with natural sediments expected for watershed	<u>Fair</u> : some turbidity and/or embeddedness affecting habitat conditions	<u>Poor</u> : excessive turbidity and/or embeddedness strongly affecting habitat conditions
---	---	---

**12. Presence of desirable fish and macroinvertebrates expected for watershed** \_\_\_\_\_

<u>Good</u> : healthy communities including intolerant taxa	<u>Fair</u> : missing some intolerant taxa	<u>Poor</u> : lacking expected communities and/or dominated by tolerant taxa
---	--	--

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Total Score: \_\_\_\_\_

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## **APPENDIX H**

### **OUTFALL SCREENINGS 2020-2021**



## 2020 – 2021 Outfall Inspections

ID	Inspection Type	Date Inspected	Location
33138	SW Outfall Inspection	8/25/2020	T1
62189	SW Outfall Inspection	9/1/2020	T145
33275	SW Outfall Inspection	9/1/2020	M119
62190	SW Outfall Inspection	9/1/2020	T144
33277	SW Outfall Inspection	9/1/2020	M118
33316	SW Outfall Inspection	9/1/2020	M73
33315	SW Outfall Inspection	9/1/2020	M74
33314	SW Outfall Inspection	9/1/2020	M75
62191	SW Outfall Inspection	9/1/2020	T143
33271	SW Outfall Inspection	9/1/2020	M123
33313	SW Outfall Inspection	9/1/2020	M76
33311	SW Outfall Inspection	9/1/2020	M77
33310	SW Outfall Inspection	9/1/2020	M78
33312	SW Outfall Inspection	9/1/2020	M79
62192	SW Outfall Inspection	9/1/2020	T142
33272	SW Outfall Inspection	9/1/2020	M122
33273	SW Outfall Inspection	9/1/2020	M121
33274	SW Outfall Inspection	9/1/2020	M120
62193	SW Outfall Inspection	9/1/2020	T264
62214	SW Outfall Inspection	9/1/2020	T280
62229	SW Outfall Inspection	9/1/2020	T279
62232	SW Outfall Inspection	9/1/2020	T263
33255	SW Outfall Inspection	9/1/2020	M162
33259	SW Outfall Inspection	9/1/2020	M157
62112	SW Outfall Inspection	9/1/2020	M157
33269	SW Outfall Inspection	9/1/2020	M125
33268	SW Outfall Inspection	9/1/2020	M126
33261	SW Outfall Inspection	9/1/2020	M155
33328	SW Outfall Inspection	9/1/2020	M62
33325	SW Outfall Inspection	9/1/2020	M64
33324	SW Outfall Inspection	9/1/2020	M65
33323	SW Outfall Inspection	9/1/2020	M66
33317	SW Outfall Inspection	9/1/2020	M72
33318	SW Outfall Inspection	9/1/2020	M71
33320	SW Outfall Inspection	9/1/2020	M69
33321	SW Outfall Inspection	9/1/2020	M68
33322	SW Outfall Inspection	9/1/2020	M67
62353	SW Outfall Inspection	9/3/2020	T231
62354	SW Outfall Inspection	9/3/2020	T240
62355	SW Outfall Inspection	9/3/2020	T234
62356	SW Outfall Inspection	9/3/2020	T238
62357	SW Outfall Inspection	9/3/2020	T262
62358	SW Outfall Inspection	9/3/2020	T261
62359	SW Outfall Inspection	9/3/2020	T260
62360	SW Outfall Inspection	9/3/2020	T257
62361	SW Outfall Inspection	9/3/2020	T256
62362	SW Outfall Inspection	9/3/2020	T153
33332	SW Outfall Inspection	9/3/2020	M57
33331	SW Outfall Inspection	9/3/2020	M58
33307	SW Outfall Inspection	9/3/2020	M83
33305	SW Outfall Inspection	9/3/2020	M85
33303	SW Outfall Inspection	9/3/2020	M87
62343	SW Outfall Inspection	9/3/2020	M87
33304	SW Outfall Inspection	9/3/2020	M86
33327	SW Outfall Inspection	9/3/2020	M61
62348	SW Outfall Inspection	9/3/2020	T232
62350	SW Outfall Inspection	9/3/2020	T233
64870	SW Outfall Inspection	10/2/2020	T192
64881	SW Outfall Inspection	10/2/2020	T193
64882	SW Outfall Inspection	10/2/2020	T194

ID	Inspection Type	Date Inspected	Location
64884	SW Outfall Inspection	10/2/2020	T195
33421	SW Outfall Inspection	10/2/2020	T185
33419	SW Outfall Inspection	10/2/2020	T190
33420	SW Outfall Inspection	10/2/2020	T189
33667	SW Outfall Inspection	10/2/2020	T187
33670	SW Outfall Inspection	10/2/2020	T186
64469	SW Outfall Inspection	10/2/2020	M160
64475	SW Outfall Inspection	10/2/2020	M230
64477	SW Outfall Inspection	10/2/2020	M229
64479	SW Outfall Inspection	10/2/2020	M156
64480	SW Outfall Inspection	10/2/2020	M161
64484	SW Outfall Inspection	10/2/2020	M163
64487	SW Outfall Inspection	10/2/2020	M124
64489	SW Outfall Inspection	10/2/2020	M60
64652	SW Outfall Inspection	10/5/2020	M100
64654	SW Outfall Inspection	10/5/2020	M99
64656	SW Outfall Inspection	10/5/2020	M98
64657	SW Outfall Inspection	10/5/2020	M97
64660	SW Outfall Inspection	10/5/2020	M81
64669	SW Outfall Inspection	10/5/2020	M141
64680	SW Outfall Inspection	10/5/2020	M140
64681	SW Outfall Inspection	10/5/2020	M138
33612	SW Outfall Inspection	10/5/2020	T242
64688	SW Outfall Inspection	10/5/2020	M139
33644	SW Outfall Inspection	10/5/2020	T259
33397	SW Outfall Inspection	10/5/2020	T148
33398	SW Outfall Inspection	10/5/2020	T147
33400	SW Outfall Inspection	10/5/2020	T146
64709	SW Outfall Inspection	10/5/2020	M165
33618	SW Outfall Inspection	10/5/2020	T258
64561	SW Outfall Inspection	10/5/2020	M116
64562	SW Outfall Inspection	10/5/2020	M115
64564	SW Outfall Inspection	10/5/2020	M114
64565	SW Outfall Inspection	10/5/2020	M88
64566	SW Outfall Inspection	10/5/2020	M89
64567	SW Outfall Inspection	10/5/2020	M90
64568	SW Outfall Inspection	10/5/2020	M91
33333	SW Outfall Inspection	10/5/2020	M56
64579	SW Outfall Inspection	10/5/2020	M93
64584	SW Outfall Inspection	10/5/2020	M94
64592	SW Outfall Inspection	10/5/2020	M92
33339	SW Outfall Inspection	10/5/2020	M44
64603	SW Outfall Inspection	10/5/2020	M84
64608	SW Outfall Inspection	10/5/2020	M80
64615	SW Outfall Inspection	10/5/2020	M104
64616	SW Outfall Inspection	10/5/2020	M102
64617	SW Outfall Inspection	10/5/2020	M101
33338	SW Outfall Inspection	10/5/2020	M45
64618	SW Outfall Inspection	10/5/2020	M103
33336	SW Outfall Inspection	10/5/2020	M49
33335	SW Outfall Inspection	10/5/2020	47
33330	SW Outfall Inspection	10/5/2020	M59
33613	SW Outfall Inspection	10/5/2020	T227
33664	SW Outfall Inspection	10/5/2020	T228
33663	SW Outfall Inspection	10/5/2020	T229
33387	SW Outfall Inspection	10/5/2020	M2
33388	SW Outfall Inspection	10/5/2020	M3
33379	SW Outfall Inspection	10/6/2020	M11
33378	SW Outfall Inspection	10/6/2020	M12
33375	SW Outfall Inspection	10/6/2020	M15

ID	Inspection Type	Date Inspected	Location
65151	SW Outfall Inspection	10/8/2020	T51
65155	SW Outfall Inspection	10/8/2020	T60
65160	SW Outfall Inspection	10/8/2020	T59
65163	SW Outfall Inspection	10/8/2020	T61
65164	SW Outfall Inspection	10/8/2020	T62
65165	SW Outfall Inspection	10/8/2020	T300
65166	SW Outfall Inspection	10/8/2020	T299
65167	SW Outfall Inspection	10/8/2020	T54
65168	SW Outfall Inspection	10/8/2020	T63
65169	SW Outfall Inspection	10/8/2020	T64
65170	SW Outfall Inspection	10/8/2020	M212
65082	SW Outfall Inspection	10/8/2020	T2
65084	SW Outfall Inspection	10/8/2020	T3
65097	SW Outfall Inspection	10/8/2020	T4
65099	SW Outfall Inspection	10/8/2020	T6
65105	SW Outfall Inspection	10/8/2020	T7
65106	SW Outfall Inspection	10/8/2020	T8
65108	SW Outfall Inspection	10/8/2020	T9
65110	SW Outfall Inspection	10/8/2020	T10
65112	SW Outfall Inspection	10/8/2020	T13
65113	SW Outfall Inspection	10/8/2020	T12
65114	SW Outfall Inspection	10/8/2020	T298
65117	SW Outfall Inspection	10/8/2020	T38
65118	SW Outfall Inspection	10/8/2020	T39
65119	SW Outfall Inspection	10/8/2020	T40
65121	SW Outfall Inspection	10/8/2020	T31
65122	SW Outfall Inspection	10/8/2020	T32
65123	SW Outfall Inspection	10/8/2020	T30
65124	SW Outfall Inspection	10/8/2020	T29
65125	SW Outfall Inspection	10/8/2020	T20
65126	SW Outfall Inspection	10/8/2020	T19
65956	SW Outfall Inspection	10/19/2020	T83
33389	SW Outfall Inspection	10/20/2020	M1
33376	SW Outfall Inspection	10/20/2020	M14
33377	SW Outfall Inspection	10/20/2020	M13
33380	SW Outfall Inspection	10/20/2020	M9
33382	SW Outfall Inspection	10/20/2020	M8
33343	SW Outfall Inspection	10/20/2020	M40
33344	SW Outfall Inspection	10/20/2020	M39
33342	SW Outfall Inspection	10/20/2020	M41
33340	SW Outfall Inspection	10/20/2020	M43
33341	SW Outfall Inspection	10/20/2020	M42
33345	SW Outfall Inspection	10/20/2020	M38
33384	SW Outfall Inspection	10/21/2020	M6
33386	SW Outfall Inspection	10/21/2020	M4
33385	SW Outfall Inspection	10/21/2020	M5
33381	SW Outfall Inspection	10/21/2020	M10
33383	SW Outfall Inspection	10/21/2020	M7
66341	SW Outfall Inspection	10/22/2020	M128
66343	SW Outfall Inspection	10/22/2020	M95
66344	SW Outfall Inspection	10/22/2020	M112
66346	SW Outfall Inspection	10/22/2020	M82
66348	SW Outfall Inspection	10/22/2020	T68
66349	SW Outfall Inspection	10/22/2020	T91
66352	SW Outfall Inspection	10/22/2020	T121
66353	SW Outfall Inspection	10/22/2020	T119
66293	SW Outfall Inspection	10/22/2020	T74
66294	SW Outfall Inspection	10/22/2020	T75
66295	SW Outfall Inspection	10/22/2020	M207
66296	SW Outfall Inspection	10/22/2020	M208

ID	Inspection Type	Date Inspected	Location
67159	SW Outfall Inspection	11/3/2020	M234
67162	SW Outfall Inspection	11/3/2020	M232
67163	SW Outfall Inspection	11/3/2020	M233
67171	SW Outfall Inspection	11/3/2020	M231
67190	SW Outfall Inspection	11/3/2020	M220
67191	SW Outfall Inspection	11/3/2020	M219
67192	SW Outfall Inspection	11/3/2020	M216
67193	SW Outfall Inspection	11/3/2020	M217
67195	SW Outfall Inspection	11/3/2020	M218
33470	SW Outfall Inspection	11/4/2020	T120
33547	SW Outfall Inspection	11/4/2020	M301
33549	SW Outfall Inspection	11/4/2020	M299
33550	SW Outfall Inspection	11/4/2020	M298
33552	SW Outfall Inspection	11/4/2020	M296
33551	SW Outfall Inspection	11/4/2020	M297
33548	SW Outfall Inspection	11/4/2020	M300
33423	SW Outfall Inspection	11/4/2020	T183
33450	SW Outfall Inspection	11/4/2020	T197
33426	SW Outfall Inspection	11/4/2020	T196
33449	SW Outfall Inspection	11/4/2020	T303
33447	SW Outfall Inspection	11/4/2020	T200
33448	SW Outfall Inspection	11/4/2020	T199
33446	SW Outfall Inspection	11/4/2020	T201
33430	SW Outfall Inspection	11/4/2020	T221
33432	SW Outfall Inspection	11/4/2020	T220
33433	SW Outfall Inspection	11/4/2020	T219
33434	SW Outfall Inspection	11/4/2020	T218
33435	SW Outfall Inspection	11/4/2020	T217
33436	SW Outfall Inspection	11/4/2020	T216
33437	SW Outfall Inspection	11/4/2020	T215
33438	SW Outfall Inspection	11/4/2020	T214
33440	SW Outfall Inspection	11/4/2020	T212
33445	SW Outfall Inspection	11/4/2020	T202
33443	SW Outfall Inspection	11/4/2020	T209
33465	SW Outfall Inspection	11/4/2020	T159
67470	SW Outfall Inspection	11/5/2020	M198
67471	SW Outfall Inspection	11/5/2020	M202
67473	SW Outfall Inspection	11/5/2020	M200
67474	SW Outfall Inspection	11/5/2020	M201
67478	SW Outfall Inspection	11/5/2020	M199
67601	SW Outfall Inspection	11/5/2020	T203
67599	SW Outfall Inspection	11/5/2020	T205
67600	SW Outfall Inspection	11/5/2020	T204
67479	SW Outfall Inspection	11/5/2020	M235
33250	SW Outfall Inspection	11/5/2020	M170
33348	SW Outfall Inspection	11/5/2020	M36
33346	SW Outfall Inspection	11/5/2020	M307
67481	SW Outfall Inspection	11/5/2020	M268
33538	SW Outfall Inspection	11/5/2020	M145
67483	SW Outfall Inspection	11/5/2020	M262
33537	SW Outfall Inspection	11/5/2020	M146
67485	SW Outfall Inspection	11/5/2020	M260
67594	SW Outfall Inspection	11/5/2020	T237
67595	SW Outfall Inspection	11/5/2020	T236
67486	SW Outfall Inspection	11/5/2020	M261
68601	SW Outfall Inspection	11/5/2020	T236
67488	SW Outfall Inspection	11/5/2020	M259
67489	SW Outfall Inspection	11/5/2020	M258
67432	SW Outfall Inspection	11/5/2020	M192
67435	SW Outfall Inspection	11/5/2020	M191

ID	Inspection Type	Date Inspected	Location
33483	SW Outfall Inspection	11/5/2020	M237
67440	SW Outfall Inspection	11/5/2020	M190
33542	SW Outfall Inspection	11/5/2020	M134
67441	SW Outfall Inspection	11/5/2020	M189
67442	SW Outfall Inspection	11/5/2020	M188
33238	SW Outfall Inspection	11/5/2020	M239
67443	SW Outfall Inspection	11/5/2020	M186
33481	SW Outfall Inspection	11/5/2020	M238
33541	SW Outfall Inspection	11/5/2020	M142
67445	SW Outfall Inspection	11/5/2020	M193
33535	SW Outfall Inspection	11/5/2020	M148
33534	SW Outfall Inspection	11/5/2020	M149
33532	SW Outfall Inspection	11/5/2020	M151
33533	SW Outfall Inspection	11/5/2020	M150
67451	SW Outfall Inspection	11/5/2020	M204
33536	SW Outfall Inspection	11/5/2020	M147
67452	SW Outfall Inspection	11/5/2020	M205
33251	SW Outfall Inspection	11/5/2020	M168
67456	SW Outfall Inspection	11/5/2020	M206
33264	SW Outfall Inspection	11/5/2020	M136
33249	SW Outfall Inspection	11/5/2020	M169
33350	SW Outfall Inspection	11/5/2020	M34
33351	SW Outfall Inspection	11/5/2020	M33
33349	SW Outfall Inspection	11/5/2020	M35
33248	SW Outfall Inspection	11/5/2020	M171
33247	SW Outfall Inspection	11/5/2020	M172
33245	SW Outfall Inspection	11/5/2020	M173
33347	SW Outfall Inspection	11/5/2020	M37
33439	SW Outfall Inspection	11/5/2020	T213
67538	SW Outfall Inspection	11/6/2020	M282
67537	SW Outfall Inspection	11/6/2020	M283
67536	SW Outfall Inspection	11/6/2020	M284
67515	SW Outfall Inspection	11/6/2020	S486
67546	SW Outfall Inspection	11/6/2020	M267
67561	SW Outfall Inspection	11/6/2020	M241
67562	SW Outfall Inspection	11/6/2020	M242
67557	SW Outfall Inspection	11/6/2020	M247
67553	SW Outfall Inspection	11/6/2020	M250
67548	SW Outfall Inspection	11/6/2020	M265
67547	SW Outfall Inspection	11/6/2020	M266
67565	SW Outfall Inspection	11/6/2020	M271
67567	SW Outfall Inspection	11/6/2020	M269
67564	SW Outfall Inspection	11/6/2020	M272
67566	SW Outfall Inspection	11/6/2020	M270
67549	SW Outfall Inspection	11/6/2020	M264
67544	SW Outfall Inspection	11/6/2020	M263
67540	SW Outfall Inspection	11/6/2020	M256
67541	SW Outfall Inspection	11/6/2020	M255
67556	SW Outfall Inspection	11/6/2020	M246
67558	SW Outfall Inspection	11/6/2020	M245
67524	SW Outfall Inspection	11/10/2020	M176
67523	SW Outfall Inspection	11/10/2020	M177
67522	SW Outfall Inspection	11/10/2020	M178
67521	SW Outfall Inspection	11/10/2020	M179
67520	SW Outfall Inspection	11/10/2020	M180
67519	SW Outfall Inspection	11/10/2020	M181
67631	SW Outfall Inspection	11/10/2020	M16
67630	SW Outfall Inspection	11/10/2020	M21
67629	SW Outfall Inspection	11/10/2020	M22
67632	SW Outfall Inspection	11/10/2020	M55

ID	Inspection Type	Date Inspected	Location
67633	SW Outfall Inspection	11/10/2020	M54
67634	SW Outfall Inspection	11/10/2020	M53
67635	SW Outfall Inspection	11/10/2020	M52
67636	SW Outfall Inspection	11/10/2020	M51
67637	SW Outfall Inspection	11/10/2020	M50
67533	SW Outfall Inspection	11/16/2020	M287
67532	SW Outfall Inspection	11/16/2020	M288
67614	SW Outfall Inspection	11/16/2020	T164
67612	SW Outfall Inspection	11/16/2020	T174
67613	SW Outfall Inspection	11/16/2020	T168
67552	SW Outfall Inspection	11/16/2020	M251
67616	SW Outfall Inspection	11/16/2020	T161
67620	SW Outfall Inspection	11/16/2020	T162
67550	SW Outfall Inspection	11/16/2020	M252
67543	SW Outfall Inspection	11/16/2020	M253
67608	SW Outfall Inspection	11/16/2020	T294
67542	SW Outfall Inspection	11/16/2020	M254
67609	SW Outfall Inspection	11/16/2020	T305
67563	SW Outfall Inspection	11/16/2020	M240
67605	SW Outfall Inspection	11/16/2020	T230
67606	SW Outfall Inspection	11/16/2020	T181
67525	SW Outfall Inspection	11/16/2020	M187
67624	SW Outfall Inspection	11/16/2020	T89
67639	SW Outfall Inspection	11/16/2020	T84
67640	SW Outfall Inspection	11/16/2020	M166
64467	SW Outfall Inspection	11/16/2020	M164
67628	SW Outfall Inspection	11/16/2020	M109
67626	SW Outfall Inspection	11/16/2020	M213
67625	SW Outfall Inspection	11/16/2020	M214
67627	SW Outfall Inspection	11/16/2020	M135
67560	SW Outfall Inspection	11/16/2020	M243
67559	SW Outfall Inspection	11/16/2020	M244
67517	SW Outfall Inspection	11/16/2020	M281
67518	SW Outfall Inspection	11/16/2020	M280
67555	SW Outfall Inspection	11/16/2020	M248
67534	SW Outfall Inspection	11/16/2020	M295
67528	SW Outfall Inspection	11/16/2020	M293
67554	SW Outfall Inspection	11/16/2020	M249
67551	SW Outfall Inspection	11/16/2020	M257
67535	SW Outfall Inspection	11/16/2020	M294
67530	SW Outfall Inspection	11/16/2020	M290
67526	SW Outfall Inspection	11/16/2020	M292
67545	SW Outfall Inspection	11/16/2020	M285
67527	SW Outfall Inspection	11/16/2020	M286
67529	SW Outfall Inspection	11/16/2020	M291
67571	SW Outfall Inspection	11/17/2020	T282
67580	SW Outfall Inspection	11/17/2020	T283
67579	SW Outfall Inspection	11/17/2020	T284
67578	SW Outfall Inspection	11/17/2020	T285
67516	SW Outfall Inspection	11/17/2020	T296
67577	SW Outfall Inspection	11/17/2020	T286
67576	SW Outfall Inspection	11/17/2020	T287
67582	SW Outfall Inspection	11/17/2020	T288
67581	SW Outfall Inspection	11/17/2020	T289
67574	SW Outfall Inspection	11/17/2020	T290
67575	SW Outfall Inspection	11/17/2020	T291
67573	SW Outfall Inspection	11/17/2020	T292
67572	SW Outfall Inspection	11/17/2020	T293
67587	SW Outfall Inspection	11/17/2020	T251
67586	SW Outfall Inspection	11/17/2020	T252

<b>ID</b>	<b>Inspection Type</b>	<b>Date Inspected</b>	<b>Location</b>
67585	SW Outfall Inspection	11/17/2020	T253
67583	SW Outfall Inspection	11/17/2020	T255
67584	SW Outfall Inspection	11/17/2020	T254
67588	SW Outfall Inspection	11/17/2020	T248
67589	SW Outfall Inspection	11/17/2020	T247
67642	SW Outfall Inspection	11/17/2020	T18
67513	SW Outfall Inspection	11/17/2020	M159
67512	SW Outfall Inspection	11/17/2020	M158
67641	SW Outfall Inspection	11/17/2020	M117
67638	SW Outfall Inspection	11/17/2020	M113
67622	SW Outfall Inspection	11/17/2020	M223
67623	SW Outfall Inspection	11/17/2020	T156
67621	SW Outfall Inspection	11/17/2020	T154
67610	SW Outfall Inspection	11/17/2020	M227
67611	SW Outfall Inspection	11/17/2020	T176
67539	SW Outfall Inspection	11/17/2020	M275
67531	SW Outfall Inspection	11/17/2020	M289
67568	SW Outfall Inspection	11/17/2020	M304
67569	SW Outfall Inspection	11/17/2020	M303
67570	SW Outfall Inspection	11/17/2020	M302
67598	SW Outfall Inspection	11/18/2020	T206
67604	SW Outfall Inspection	11/18/2020	T223
67603	SW Outfall Inspection	11/18/2020	T224
67602	SW Outfall Inspection	11/18/2020	T225
67615	SW Outfall Inspection	11/18/2020	T179
67617	SW Outfall Inspection	11/18/2020	T178
67618	SW Outfall Inspection	11/18/2020	T177
67619	SW Outfall Inspection	11/18/2020	T163
67590	SW Outfall Inspection	11/18/2020	T245
67591	SW Outfall Inspection	11/18/2020	T246
67592	SW Outfall Inspection	11/19/2020	T244
67593	SW Outfall Inspection	11/19/2020	T243