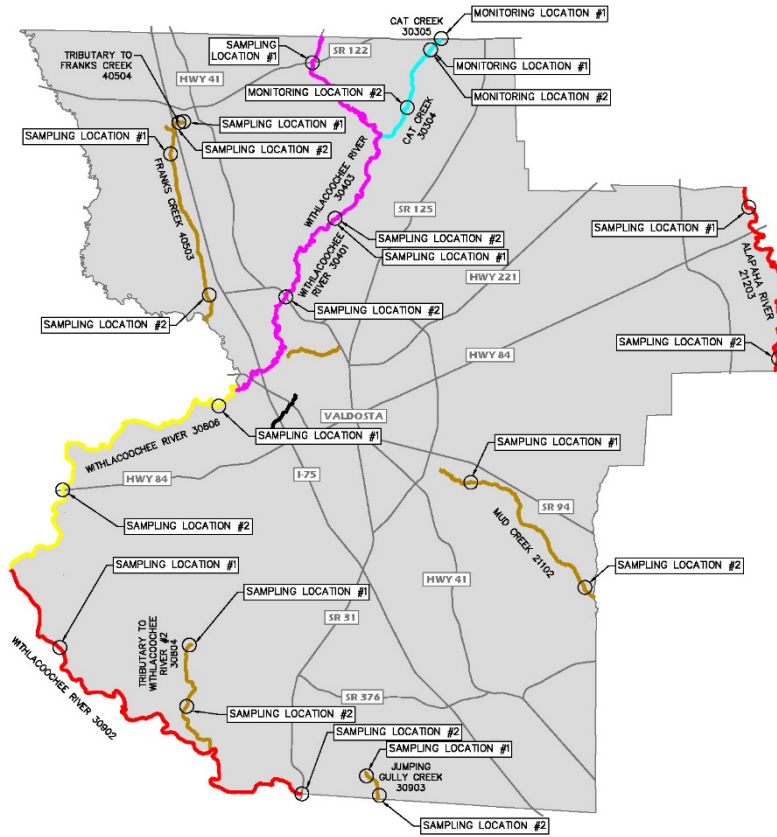


**DRAFT**



**LEGEND**

- DISSOLVED OXYGEN
- FECAL COLIFORM
- FECAL COLIFORM, MERCURY
- FECAL COLIFORM, LEAD, MERCURY
- MERCURY

# IMPAIRED WATERS MONITORING AND IMPLEMENTATION PLAN



**2020**



**LOWNDES COUNTY, GEORGIA  
IMPAIRED WATERS  
MONITORING AND IMPLEMENTATION PLAN  
ALAPAHA RIVER (R031102021203) - TWR**

**Introduction**

As part of General NPDES Stormwater Permit No GAG610000, Lowndes County is required to identify any impaired waters located within its permitted area, using the latest approved 305(b)/303(d) List of Waters which contain MS4 outfalls or are within one (1) linear mile downstream of MS4 outfalls. For those impaired waters, the permittee is required to propose a Monitoring and Implementation Plan for addressing each cause/pollutant(s) of concern (POC).

As of March 2020, the most recent approved 305(b)/303(d) (2018) included a stream segment of the Alapaha River as not supporting its designated use within the County’s jurisdiction. See *Table 1: Impaired Stream Segments*.

**Table 1: Impaired Stream Segments**

Reach Name and ID #	Reach Location	Use	Cause	Source	Extent
Alapaha River (R031102021203)	Willacoochee River to Stateline	Fishing	TWR <sup>1</sup>	NP	94 miles

- 1- Trophic Weighted Residue (TWR)-Mercury in fish
- 2- Nonpoint (NP)-Nonpoint source pollution is caused by rainfall or snowmelt moving over and through the ground transporting natural and human-made pollutants which are eventually deposited into lakes, rivers, wetlands, coastal waters, and groundwaters.

**Objective**

Along with meeting the General NPDES Stormwater Permit requirement for proposing this Monitoring and Implementation Plan, it is Lowndes County’s objective to ensure that proper water quality monitoring techniques are executed so that measures are identified that will reduce or eliminate the POC or improve conditions that may be adversely affecting water quality characteristics and as such has caused the segment of this stream reach within Lowndes County to be listed as impaired.

**Maps**

A map showing the Impaired Waters Reaches and sampling site locations is included herein.

**Sample Sites**

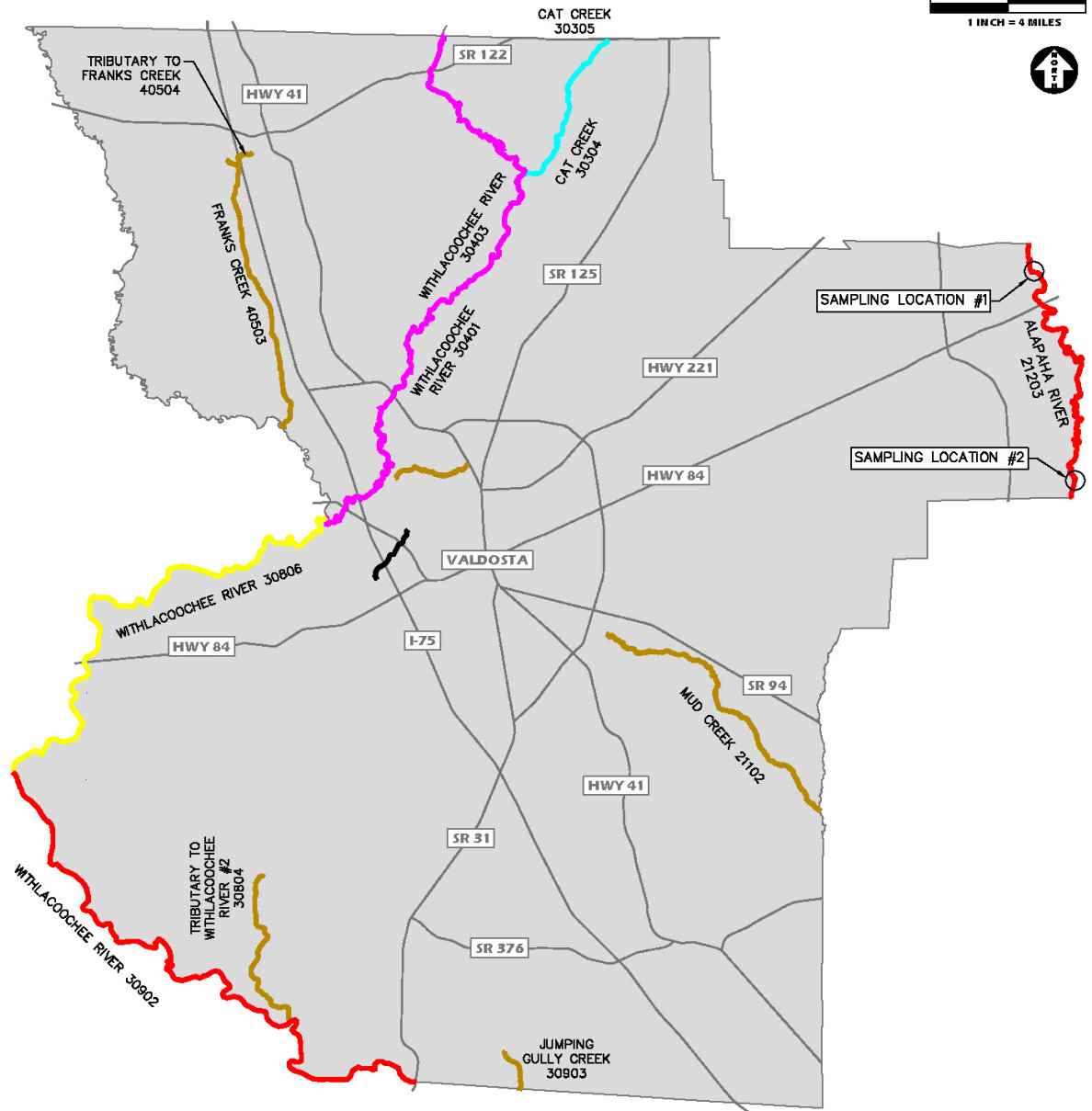
Lowndes County has identified two (2) permanent sampling sites for the collection of water quality samples. The sampling sites vary in depth, width, and sampling complexity. Sampling procedures will depend upon the ability of the sampling personnel to enter the stream safely. See *Table 2: Sample Site Locations*.

**Table 2: Sample Site Locations**

Sampling Station	Stream	Location	In-stream	Sample Type
#1	Alapaha River	Old State Road	Upstream	TWR
#2	Alapaha River	River Bend Road (Echols Co.)	Downstream	TWR

# IMPAIRED STREAMS - LOWNDES COUNTY

## ALAPAHA RIVER (R031102021203) SAMPLING LOCATIONS



### LEGEND

- DISSOLVED OXYGEN
- FECAL COLIFORM
- FECAL COLIFORM, MERCURY
- FECAL COLIFORM, LEAD, MERCURY
- MERCURY



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### **Sampling Schedule**

For trophic weighted residue (TWR), the 2018 Georgia Water Quality report prepared by Georgia EPD as an integrated document in the 305(b)/303(d) list, states “Mercury is a naturally occurring metal that cycles between the land, water, and the air. As mercury cycles through the environment, it is absorbed and ingested by plants and animals. It is not known where the mercury in Georgia’s fish originates. Mercury may be present due to mercury content in natural environments such as in South Georgia swamps, from municipal or industrial sources, or from fossil fuel uses. It has been shown that mercury contamination is related to global atmospheric transport. The EPA has evaluated the sources of mercury loading to several river basins in Georgia as part of TMDL development, and has determined that 99% or greater of the total mercury loading to these waters occurs via atmospheric deposition.”

The County does not have the resources to monitor TWR in fish tissue from the Alapaha River at this time. Therefore, quarterly sampling for low level mercury (LLM) in streams impaired with TWR will be contracted to a private environmental firm who will engage a certified laboratory for analytical services and reporting. Three (3) dry weather samples and one (1) wet weather sample will be collected in accordance with the GA EPD’s Watershed Assessment and Protection Plan Guidance: Watershed Protection Plans. See *Table 3: Sampling Schedule* for proposed sampling months.

**Table 3: Sampling Schedule**

<b>Sampling Station</b>	<b>Scheduled Sampling Months</b>
Station #1	March, June, September, December
Station #2	March, June, September, December

### **Dry Weather Sampling**

A dry weather sample will be defined as one captured at least 72 hours after the most recent rain event totaling 0.1 inch of rain or more. All dry weather samples will be grab samples. Bacteriological samples (if applicable) will be collected in a sterile container, separate from the other samples.

### **Wet Weather Sampling**

The suggested wet-weather criteria are at least 0.2 inches of rainfall and at least 72 hours since the last storm event. Bacteriological samples (if applicable) will be collected in a sterile container, separate from the other samples.

### **Wadeable Stream Sampling**

If the stream is wadeable, staff will wade to a spot within the main flow of the stream to collect samples and perform onsite analyses. Staff will enter the water just downstream of the sampling point and walk upstream to prevent collection of samples at a point where the sediment has been disturbed. Staff will face upstream while capturing the sample. Samples collected in bottles that do not contain preservative will be immersed approximately three to five inches below the surface before opening, filled, and capped before the bottle is brought to the surface. This method will also be used to collect a sample of sufficient volume to fill all bottles that do contain preservatives. The preservative containing bottles will be filled as sub samples from the larger sample at the vehicle to prevent loss of preservative by overfilling in the stream. All analyses to be performed on site using portable testing equipment will be done either in the stream or at the vehicle as applicable. Calibration records for the portable testing equipment will be maintained. The samples for laboratory analysis will be placed into properly labeled and preserved sample bottles, placed in individual zipper locking freezer bags to prevent cross contamination, and placed on ice within fifteen minutes of collection. Chain of Custody forms will be used to document sampling times, proper preservation, and custody from sampling until delivery to the laboratory.

Bacteriological samples collected in a wadeable stream will be collected in sterilized glass bottles or purchased sterile whirl pack bags. Staff will enter the water just downstream of the sampling point and walk upstream to prevent collection of samples at a point where the sediment has been disturbed. Staff will face upstream while capturing the sample. The sample container will remain closed until submerged to prevent contamination. The container will be opened underwater, filled, and closed while still submerged. Bacteriological samples will be placed on ice immediately after capture and delivered for analysis within two hours. Analysis of bacteriological samples will begin within six hours of capture. Chain of Custody forms will be used to document sampling times, proper preservation, and custody from sampling until delivery to the laboratory.

### **Non-Wadeable Stream Samples**

If sampling cannot be done safely by wading, a sample will be taken from a bridge or road crossing using a bucket and rope. Before taking the sample, the bucket will be rinsed out three (3) times with sample water. From the bridge or road crossing, the bucket and rope will be lowered midstream into the fast-flowing section of the water. Once the bucket has been filled, it will then be pulled up for sampling. This method will also be used to collect samples of sufficient volume to fill all bottles. All analyses to be performed onsite using portable testing equipment will be done either from the bridge or road crossing, or from samples collected with the bucket and rope as applicable.

If sampling cannot be done safely by wading, bacteriological samples will also be collected using a bucket and rope. Before taking the sample, the bucket will be rinsed out three (3) times with sample water. From the bridge or road crossing, the bucket and rope will be lowered midstream into the fast-flowing section of the water. Once the bucket has been filled, it will then be pulled up for sampling. A properly labeled sterile bottle or whirl pack bag will be placed underwater in the sample, opened, and allowed to fill. The sample container will be closed while still underwater and then removed from the bucket. Bacteriological samples will be placed on ice immediately after capture and delivered for analysis within two hours. Analysis of bacteriological samples will begin within six hours of capture. Chain of custody forms will be used to document sampling times, proper preservation, and custody from sampling until delivery to the laboratory. Calibration records for the portable testing equipment will be maintained. The samples for laboratory analysis will be placed into properly labeled and preserved sample bottles, placed in individual zipper locking freezer bags to prevent cross contamination, and placed on ice within fifteen minutes of collection.

### **Record Keeping**

For each parameter, the following information will be recorded:

- The place, date, and time of sampling.
- The person collecting the sample.
- The dates and times the analyses were performed.
- The person(s) who performed the analyses.
- The analytical procedures or methods used.
- The results of all field analyses.

The County/environmental firm will maintain a dry weather water quality monitoring report form for each dry weather sampling. The dry weather report form will also contain the bacteriological results (if applicable) for the station. Copies of these report forms will be included with the annual report. Chain of custody copies, laboratory report copies, calibration records, quality control records, and water quality report forms will be maintained in the files of the person or position in overall control of the Watershed Protection Plan.

### **Monitoring**

The County/environmental firm will evaluate the resulting samplings by monitoring data for the initial three (3) years of this program, to ascertain the level of pollutants of concern (POC) in the impaired waters and if it is likely to be originating in the County.

### **Proposed Best Management Practices (BMPs)**

The County will continue to implement its Stormwater Management Plan (SWMP) under its current NPDES Phase II MS4 permit. Because mercury in runoff is derived from atmospheric deposition, mercury in stormwater is accounted for in the calculation of the atmospheric load. Separate strategies for reducing nonpoint sources are not included in this plan because implementation of the strategies to reduce air deposition will ultimately reduce stormwater loading. Therefore, any efforts to reduce soil erosion will tend to reduce mercury entering a lake or river from nonpoint water sources. Many of these practices are already employed for control of sediment runoff and will result in reducing mercury loading to surface waters.

### **Public Outreach and Education**

Lowndes County has a public outreach and education program that targets County offices and public facilities with flyers and brochures about stormwater and water quality of streams. Continued effort will be made to educate the public on household hazardous waste to ensure proper product disposal of all urban and rural residents of the county and encourage residents to segregate and properly dispose of mercury products.

### **Annual Evaluation:**

Once the base year data is collected (i.e. the data from the first year of sampling), the County will evaluate each subsequent year's sampling data against the previous year/years data. The evaluation will be a comparative look at each year's data both at the individual outfalls and as an average of the outfall to each of the impaired basins. The intention is to identify trends that occur in the sampling data. If trends are found, the County will look for obvious factors that may account for the trending outside of the BMP's that have been implemented by the County. Unexplained trending may indicate the effectiveness of the BMPs' that are used.

### **Implementation Schedule**

The County is prepared to implement this Monitoring and Implementation plan within a reasonable time after plan approval by the Georgia EPD.

### **Annual Reporting**

Each year, the County will develop a brief water quality report for the Alapaha River. This report will include:

- Monitoring results
- Trend analysis
- Documentation of activities
- Recommendations based on evaluations

The water quality data along with the trend analysis will be utilized to determine if the trend is showing improvement or degradation relative to implementing BMPs. If the trend analysis indicates that water quality is worsening or not improving, then additional sampling and/or BMPs will be evaluated to identify sources within the area covered by County's MS4 permit. A copy of this report and sampling results/data will be submitted along with the County's annual report.

**LOWNDES COUNTY, GEORGIA  
IMPAIRED WATERS  
MONITORING AND IMPLEMENTATION PLAN**

**CAT CREEK (R031102030304) - DO**

**Introduction**

As part of General NPDES Stormwater Permit No GAG610000, Lowndes County is required to identify any impaired waters located within its permitted area, using the latest approved 305(b)/303(d) List of Waters which contain MS4 outfalls or are within one (1) linear mile downstream of MS4 outfalls. For those impaired waters, the permittee is required to propose a Monitoring and Implementation Plan for addressing each cause/pollutant(s) of concern (POC).

As of March 2020, the most recent approved 305(b)/303(d) (2018) included a stream segment of the Cat Creek as not supporting its designated use within the County's jurisdiction. See *Table 1: Impaired Stream Segments*.

**Table 1: Impaired Stream Segments**

Reach Name and ID #	Reach Location	Use	Cause	Source	Extent
Cat Creek (R031102030304)	Beatty Mill Creek to Withlacoochee River near Ray City	Fishing	DO <sup>1</sup>	NP	4 miles

- 1- Dissolved Oxygen
- 2- Nonpoint (NP)-Nonpoint source pollution is caused by rainfall or snowmelt moving over and through the ground transporting natural and human-made pollutants which are eventually deposited into lakes, rivers, wetlands, coastal waters, and groundwaters.

**Objective**

Along with meeting the General NPDES Stormwater Permit requirement for proposing this Monitoring and Implementation Plan, it is Lowndes County's objective to ensure that proper water quality monitoring techniques are executed so that measures are identified that will reduce or eliminate the POC or improve conditions that may be adversely affecting water quality characteristics and as such has caused the segment of this stream reach within Lowndes County to be listed as impaired.

**Maps**

A map showing the Impaired Waters Reaches and monitoring site locations is included herein.

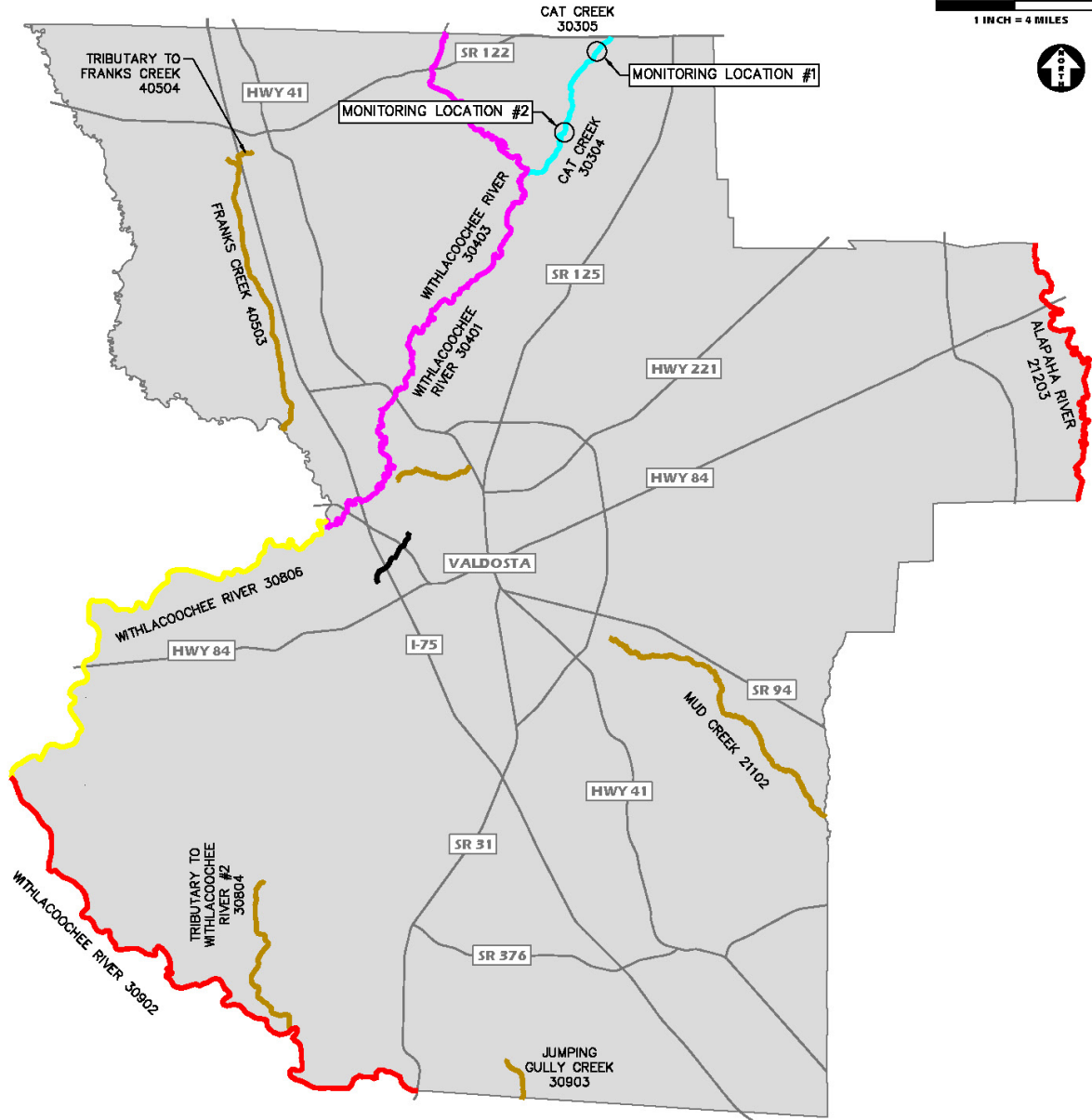
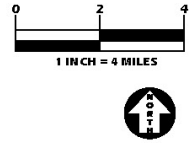
**Monitoring Sites**

Lowndes County has identified two (2) permanent monitoring sites for the collection of water quality data. The monitoring sites vary in depth, width, and monitoring complexity. Monitoring procedures will depend upon the ability of the monitoring personnel to enter the stream safely. See *Table 2: Monitoring Site Locations*.

**Table 2: Monitoring Site Locations**

Monitoring Station	Stream	Location	In-stream	Monitoring Type
#1	Cat Creek	Beatty Mill Creek Rd	Upstream	DO
#2	Cat Creek	Cat Creek Rd	Downstream	DO

**IMPAIRED STREAMS - LOWNDEN COUNTY**  
**CAT CREEK (R031102030304) MONITORING LOCATIONS**



**LEGEND**

- DISSOLVED OXYGEN
- FECAL COLIFORM
- FECAL COLIFORM, MERCURY
- FECAL COLIFORM, LEAD, MERCURY
- MERCURY





### **Monitoring Schedule**

The County does not have the resources to monitor dissolved oxygen (DO) in Cat Creek at this time. Therefore, weekly monitoring field measurement for DO impaired streams will be contracted to a private environmental firm. See *Table 3: Monitoring Schedule* for proposed monitoring months.

**Table 3: Monitoring Schedule**

<b>Monitoring Station</b>	<b>Scheduled Monitoring Months*</b>
Station #1	May, June, July, August
Station #2	May, June, July, August

\*Monitoring to occur between 12pm-2pm.

### **Wadeable Stream Monitoring**

If the stream is wadeable, staff will wade to a spot within the main flow of the stream to measure DO. Staff will enter the water just downstream of the Monitoring point and walk upstream to prevent DO measurement at a point where the sediment has been disturbed. Staff will face upstream while measuring DO. Calibration records for the portable DO meter will be maintained.

### **Non-Wadeable Stream Monitoring**

If DO measurement cannot be done safely by wading, a measurement will be taken from a bridge or road crossing by extending the probe down to below water surface at midstream or by using a bucket and rope. Before taking the measurement, the bucket will be rinsed out three (3) times with stream water. From the bridge or road crossing, the bucket and rope will be lowered midstream into the fast-flowing section of the water. Once the bucket has been filled, it will then be pulled up for measurement.

### **Record Keeping**

For each DO measurement, the following information will be recorded:

- The place, date, and time of measurement.
- The person conducting the measurement.
- The dates and times the measurement was collected.
- The measure DO value.

The County/environmental firm will maintain a water quality monitoring report form listing weekly DO values for the monitoring period. Copies of these report forms will be included with the annual report. Calibration records, quality control records, and water quality report forms will be maintained in the files of the person or position in overall control of the Watershed Protection Plan.

### **Monitoring**

The County/environmental firm will evaluate the resulting monitoring data for the initial three (3) years of this program, to ascertain the level of pollutants of concern (POC) in the impaired waters and if it is likely to be originating in the County.

### **Proposed Best Management Practices (BMPs)**

In an effort to reduce the effects of stormwater runoff on the DO level observed in the impaired waters, the County will pursue the following:

- Monitor each monitoring station weekly during the summer months (June, July, and August).
- The County will continue to regulate the Land Disturbance Activities occurring in the County as a Local Issuing Authority. By reducing the amount of erosion that occurs on development sites and the amount of sedimentation that occurs downstream from development sites, less sediment will be conveyed to the impaired waters via the stormwater flows. As the sediment can transport material with an oxygen demand, reduction in sediment transfer should result in a reduction in the oxygen demand on the system and therefore result in improved DO levels in the impaired waters.
- The County will continue providing information on its website about the impacts that over fertilization of lawn and garden areas can have. The impact that conveyance of fertilizers downstream on the DO in the waterways will be emphasized. Reducing the amount of over fertilization and thereby reducing the amount of excess fertilizer reaching the impaired waters should result in improved DO levels in the impaired waters.

### **Implementation Schedule**

The County is prepared to implement this Monitoring and Implementation plan within a reasonable time after plan approval by the Georgia EPD.

### **Annual Reporting**

Each year, the County will develop a brief water quality report for Cat Creek. This report will include:

- Monitoring results.
- Trend analysis.
- Documentation of activities.
- Recommendations based on evaluations.

The water quality data along with the trend analysis will be utilized to determine if the trend is showing improvement or degradation relative to implementing BMPs. If the trend analysis indicates that water quality is worsening or not improving, then additional monitoring and/or BMPs will be evaluated to identify sources within the area covered by County's MS4 permit. A copy of this report and monitoring results/data will be submitted along with the County's annual report.

**LOWNDES COUNTY, GEORGIA  
IMPAIRED WATERS  
MONITORING AND IMPLEMENTATION PLAN**

**CAT CREEK (R031102030305) - DO**

**Introduction**

As part of General NPDES Stormwater Permit No GAG610000, Lowndes County is required to identify any impaired waters located within its permitted area, using the latest approved 305(b)/303(d) List of Waters which contain MS4 outfalls or are within one (1) linear mile downstream of MS4 outfalls. For those impaired waters, the permittee is required to propose a Monitoring and Implementation Plan for addressing each cause/pollutant(s) of concern (POC).

As of March 2020, the most recent approved 305(b)/303(d) (2018) included a stream segment of the Cat Creek as not supporting its designated use within the County's jurisdiction. See *Table 1: Impaired Stream Segments*.

**Table 1: Impaired Stream Segments**

Reach Name and ID #	Reach Location	Use	Cause	Source	Extent
Cat Creek (R031102030305)	Beaverdam Creek downstream SR 37 to Beatty Mill Creek	Fishing	DO <sup>1</sup>	NP	4 miles

- 1- Dissolved oxygen
- 2- Nonpoint (NP)-Nonpoint source pollution is caused by rainfall or snowmelt moving over and through the ground transporting natural and human-made pollutants which are eventually deposited into lakes, rivers, wetlands, coastal waters, and groundwaters.

**Objective**

Along with meeting the General NPDES Stormwater Permit requirement for proposing this Monitoring and Implementation Plan, it is Lowndes County's objective to ensure that proper water quality monitoring techniques are executed so that measures are identified that will reduce or eliminate the POC or improve conditions that may be adversely affecting water quality characteristics and as such has caused the segment of this stream reach within Lowndes County to be listed as impaired.

**Maps**

A map showing the Impaired Waters Reaches and monitoring site locations is included herein.

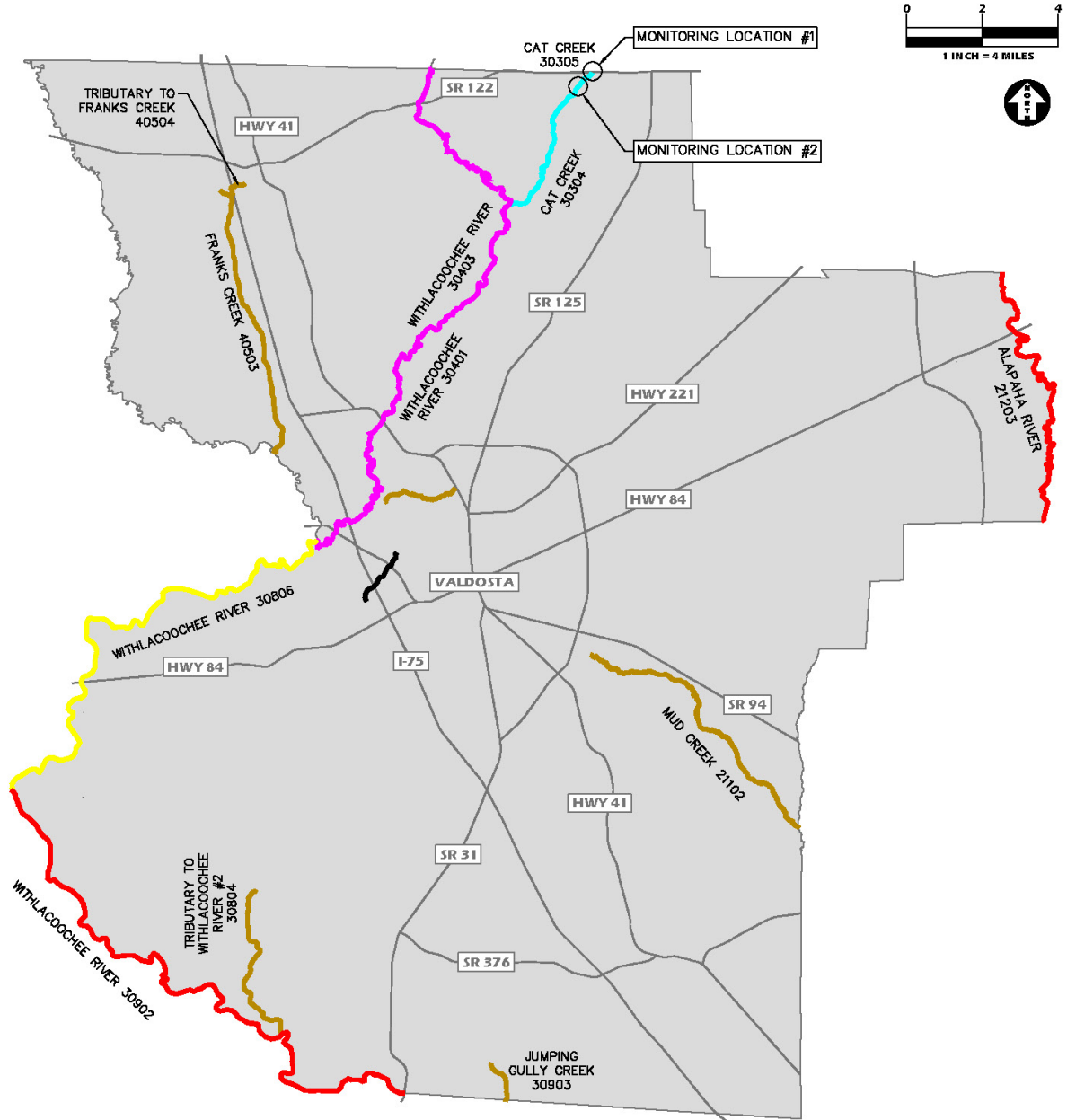
**Monitoring Sites**

Lowndes County has identified two (2) permanent monitoring sites for the collection of water quality data. The monitoring sites vary in depth, width, and monitoring complexity. Monitoring procedures will depend upon the ability of the monitoring personnel to enter the stream safely. See *Table 2: Monitoring Site Locations*.

**Table 2: Monitoring Site Locations**

Monitoring Station	Stream	Location	In-stream	Monitoring Type
#1	Cat Creek	GA Hwy 122 E	Upstream	DO
#2	Cat Creek	Beatty Mill Creek Rd	Downstream	DO

**IMPAIRED STREAMS - LOWNDES COUNTY**  
**CAT CREEK (R031102030305) MONITORING LOCATIONS**



**LEGEND**

- DISSOLVED OXYGEN
- FECAL COLIFORM
- FECAL COLIFORM, MERCURY
- FECAL COLIFORM, LEAD, MERCURY
- MERCURY



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### **Monitoring Schedule**

The County does not have the resources to monitor dissolved oxygen (DO) in Cat Creek at this time. Therefore, weekly monitoring field measurement for DO impaired streams will be contracted to a private environmental firm. See *Table 3: Monitoring Schedule* for proposed months.

**Table 3: Monitoring Schedule**

<b>Monitoring Station</b>	<b>Scheduled Monitoring Months*</b>
Station #1	May, June, July, August
Station #2	May, June, July, August

\*Monitoring to take place between 12-2pm.

### **Wadeable Stream Monitoring**

If the stream is wadeable, staff will wade to a spot within the main flow of the stream to measure DO. Staff will enter the water just downstream of the monitoring point and walk upstream to prevent DO measurement at a point where the sediment has been disturbed. Staff will face upstream while measuring DO. Calibration records for the portable DO meter will be maintained.

### **Non-Wadeable Stream Monitoring**

If DO measurement cannot be done safely by wading, a measurement will be taken from a bridge or road crossing by extending the probe down to below water surface at midstream or by using a bucket and rope. Before monitoring, the bucket will be rinsed out three (3) times with stream water. From the bridge or road crossing, the bucket and rope will be lowered midstream into the fast-flowing section of the water. Once the bucket has been filled, it will then be pulled up for measurement.

### **Record Keeping**

For each DO measurement, the following information will be recorded:

- The place, date, and time of measurement.
- The person conducting the measurement.
- The dates and times the measurement was collected.
- The measure DO value.

The County/environmental firm will maintain a water quality monitoring report form listing weekly DO values for the monitoring period. Copies of these report forms will be included with the annual report. Calibration records, quality control records, and water quality report forms will be maintained in the files of the person or position in overall control of the Watershed Protection Plan.

### **Monitoring**

The County/environmental firm will evaluate the resulting monitoring data for the initial three (3) years of this program, to ascertain the level of pollutants of concern (POC) in the impaired waters and if it is likely to be originating in the County.

### **Proposed Best Management Practices (BMPs)**

In an effort to reduce the effects of stormwater runoff on the DO level observed in the impaired waters, the County will pursue the following:

- Monitor each monitoring station weekly during the summer months (June, July, and August).
- The County will continue to regulate the Land Disturbance Activities occurring in the County as a Local Issuing Authority. By reducing the amount of erosion that occurs on development sites and the amount of sedimentation that occurs downstream from development sites, less sediment will be conveyed to the impaired waters via the stormwater flows. As the sediment can transport material with an oxygen demand, reduction in sediment transfer should result in a reduction in the oxygen demand on the system and therefore result in improved DO levels in the impaired waters.
- The County will continue providing information on its website about the impacts that over fertilization of lawn and garden areas can have. The impact that conveyance of fertilizers downstream on the DO in the waterways will be emphasized. Reducing the amount of over fertilization and thereby reducing the amount of excess fertilizer reaching the impaired waters should result in improved DO levels in the impaired waters.

### **Implementation Schedule**

The County is prepared to implement this Monitoring and Implementation plan within a reasonable time after plan approval by the Georgia EPD.

### **Annual Reporting**

Each year, the County will develop a brief water quality report for Cat Creek. This report will include:

- Monitoring results.
- Trend analysis.
- Documentation of activities.
- Recommendations based on evaluations.

The water quality data along with the trend analysis will be utilized to determine if the trend is showing improvement or degradation relative to implementing BMPs. If the trend analysis indicates that water quality is worsening or not improving, then additional monitoring and/or BMPs will be evaluated to identify sources within the area covered by County's MS4 permit. A copy of this report and monitoring results/data will be submitted along with the County's annual report.

**LOWNDES COUNTY, GEORGIA  
IMPAIRED WATERS  
MONITORING AND IMPLEMENTATION PLAN**

**FRANKS CREEK (R031102040503) - FC**

**Introduction**

As part of General NPDES Stormwater Permit No GAG610000, Lowndes County is required to identify any impaired waters located within its permitted area, using the latest approved 305(b)/303(d) List of Waters which contain MS4 outfalls or are within one (1) linear mile downstream of MS4 outfalls. For those impaired waters, the permittee is required to propose a Monitoring and Implementation Plan for addressing each cause/pollutant(s) of concern (POC).

As of March 2020, the most recent approved 305(b)/303(d) (2018) included a stream segment of Franks Creek as not supporting its designated use within the County's jurisdiction. See *Table 1: Impaired Stream Segments*.

**Table 1: Impaired Stream Segments**

Reach Name and ID #	Reach Location	Use	Cause	Source	Extent
Franks Creek (R031102040503)	State Route S1780 <sup>3</sup> to Little River near Hahira	Fishing	UR <sup>1</sup>	NP	9 miles

- 1- Fecal Coliform
- 2- Urban runoff is either wet weather (rainwater) or dry weather (water waste) flows from urbanized areas into storm drain systems that transport pollutants to lakes, rivers, wetlands, coastal waters, and groundwaters.
- 3- Reach is as listed on the most recent 305(b)/303(d) list. GA SR 1780 is no longer a valid GDOT SR designation. This plan assumes the reach begins near Morven Road per the graphical reach depiction.

**Objective**

Along with meeting the General NPDES Stormwater Permit requirement for proposing this Monitoring and Implementation Plan, it is Lowndes County's objective to ensure that proper water quality monitoring techniques are executed so that measures are identified that will reduce or eliminate the POC or improve conditions that may be adversely affecting water quality characteristics and as such has caused the segment of this stream reach within Lowndes County to be listed as impaired.

**Maps**

A map showing the Impaired Waters Reaches and sampling site locations is included herein.

**Sample Sites**

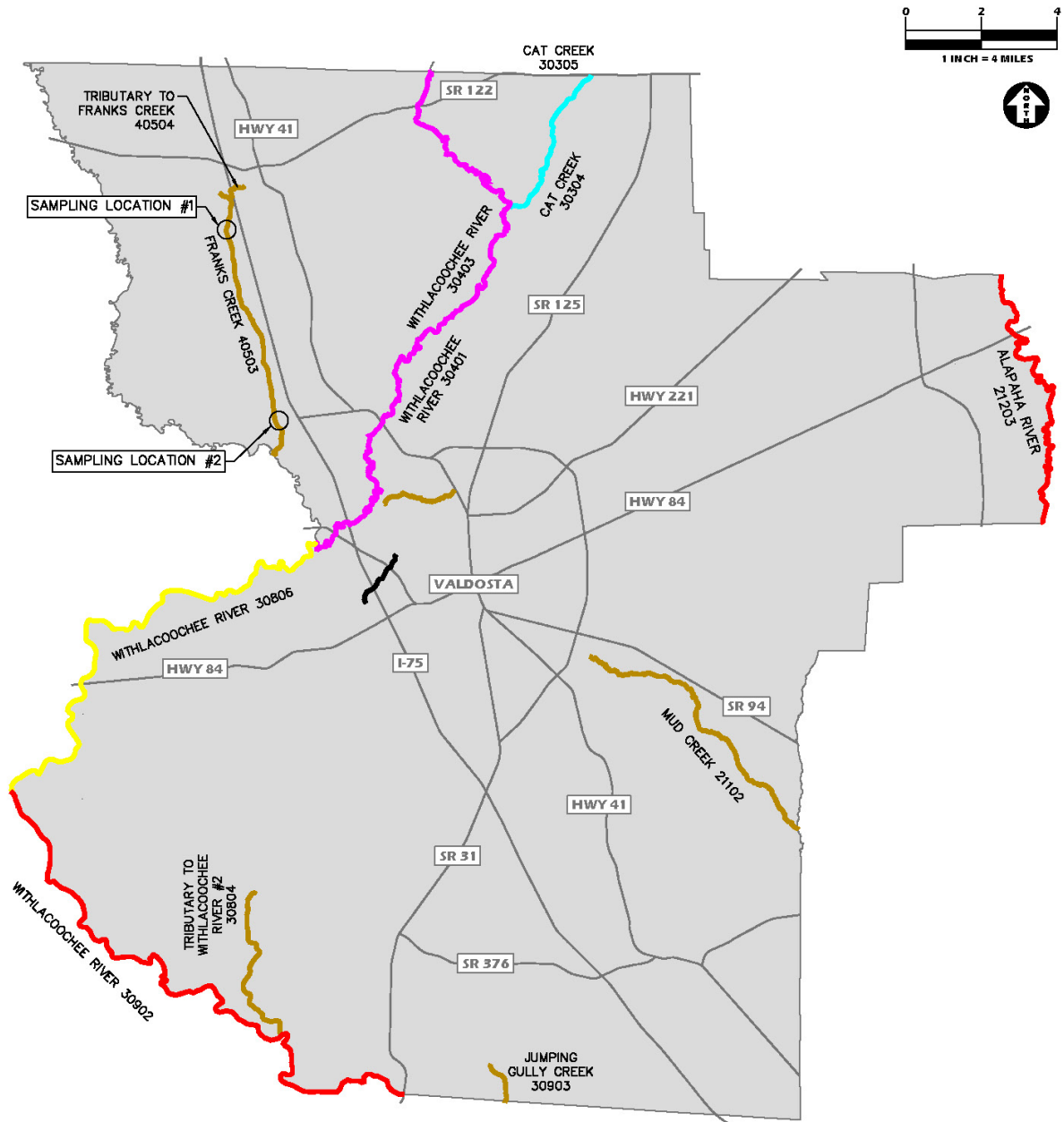
Lowndes County has identified two (2) permanent sampling sites for the collection of water quality samples. The sampling sites vary in depth, width, and sampling complexity. Sampling procedures will depend upon the ability of the sampling personnel to enter the stream safely. See *Table 2: Sample Site Locations*.

**Table 2: Sample Site Locations**

Sampling Station	Stream	Location	In-stream	Sample Type
#1	Franks Creek	Old Valdosta Road	Upstream	FC
#2	Franks Creek	Shiloh Road	Downstream	FC

# IMPAIRED STREAMS - LOWNDES COUNTY

## FRANKS CREEK (R031102040503) SAMPLING LOCATIONS



**LEGEND**

- DISSOLVED OXYGEN
- FECAL COLIFORM
- FECAL COLIFORM, MERCURY
- FECAL COLIFORM, LEAD, MERCURY
- MERCURY



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### **Sampling Schedule**

The County does not have the resources to monitor fecal coliform (FC) in Franks Creek at this time. Therefore, quarterly fecal sampling in streams impaired with FC will be contracted to a private environmental firm who will engage a certified laboratory for analytical services and reporting. See *Table 3: Sampling Schedule* for proposed sampling months.

**Table 3: Sampling Schedule**

<b>Sampling Station</b>	<b>Scheduled Sampling Months</b>
Station #1	March, June, September, December
Station #2	March, June, September, December

### **Bacteriological Reporting**

Bacteriological results (fecal coliform and e-coli) must be reported as a geometric mean consisting of at least four samples collected within a 30-day period at intervals no less than 24 hours. The samples should be distributed evenly over the 30-day period, and collected regardless of weather conditions.

### **Dry Weather Sampling**

Where applicable, a dry weather sample will be defined as one captured at least 72 hours after the most recent rain event totaling 0.1 inch of rain or more. All dry weather samples will be grab samples. Bacteriological samples (if applicable) will be collected in a sterile container, separate from the other samples.

### **Wet Weather Sampling**

Where applicable, the suggested wet-weather criteria are at least 0.2 inches of rainfall and at least 72 hours since the last storm event. Bacteriological samples (if applicable) will be collected in a sterile container, separate from the other samples.

### **Wadeable Stream Sampling**

If the stream is wadeable, staff will wade to a spot within the main flow of the stream to collect samples and perform onsite analyses. Staff will enter the water just downstream of the sampling point and walk upstream to prevent collection of samples at a point where the sediment has been disturbed. Staff will face upstream while capturing the sample. Samples collected in bottles that do not contain preservative will be immersed approximately three to five inches below the surface before opening, filled, and capped before the bottle is brought to the surface. This method will also be used to collect a sample of sufficient volume to fill all bottles that do contain preservatives. The preservative containing bottles will be filled as sub samples from the larger sample at the vehicle to prevent loss of preservative by overfilling in the stream. All analyses to be performed on site using portable testing equipment will be done either in the stream or at the vehicle as applicable. Calibration records for the portable testing equipment will be maintained. The samples for laboratory analysis will be placed into properly labeled and preserved sample bottles, placed in individual zipper locking freezer bags to prevent cross contamination, and placed on ice within fifteen minutes of collection. Chain of Custody forms will be used to document sampling times, proper preservation, and custody from sampling until delivery to the laboratory.

Bacteriological samples collected in a wadeable stream will be collected in sterilized glass bottles or purchased sterile whirl pack bags. Staff will enter the water just downstream of the sampling point and walk upstream to prevent collection of samples at a point where the sediment has been disturbed. Staff will face upstream while capturing the sample. The sample container will remain closed until submerged to prevent contamination. The container will be opened underwater, filled, and closed while still submerged. Bacteriological samples will be

placed on ice immediately after capture and delivered for analysis within two hours. Analysis of bacteriological samples will begin within six hours of capture. Chain of Custody forms will be used to document sampling times, proper preservation, and custody from sampling until delivery to the laboratory.

### **Non-Wadeable Stream Samples**

If sampling cannot be done safely by wading, a sample will be taken from a bridge or road crossing using a bucket and rope. Before taking the sample, the bucket will be rinsed out three (3) times with sample water. From the bridge or road crossing, the bucket and rope will be lowered midstream into the fast-flowing section of the water. Once the bucket has been filled, it will then be pulled up for sampling. This method will also be used to collect samples of sufficient volume to fill all bottles. All analyses to be performed onsite using portable testing equipment will be done either from the bridge or road crossing, or from samples collected with the bucket and rope as applicable.

If sampling cannot be done safely by wading, bacteriological samples will also be collected using a bucket and rope. Before taking the sample, the bucket will be rinsed out three (3) times with sample water. From the bridge or road crossing, the bucket and rope will be lowered midstream into the fast-flowing section of the water. Once the bucket has been filled, it will then be pulled up for sampling. A properly labeled sterile bottle or whirl pack bag will be placed underwater in the sample, opened, and allowed to fill. The sample container will be closed while still underwater and then removed from the bucket. Bacteriological samples will be placed on ice immediately after capture and delivered for analysis within two hours. Analysis of bacteriological samples will begin within six hours of capture. Chain of custody forms will be used to document sampling times, proper preservation, and custody from sampling until delivery to the laboratory. Calibration records for the portable testing equipment will be maintained. The samples for laboratory analysis will be placed into properly labeled and preserved sample bottles, placed in individual zipper locking freezer bags to prevent cross contamination, and placed on ice within fifteen minutes of collection.

### **Record Keeping**

For each parameter, the following information will be recorded:

- The place, date, and time of sampling.
- The person collecting the sample.
- The dates and times the analyses were performed.
- The person(s) who performed the analyses.
- The analytical procedures or methods used.
- The results of all field analyses.

The County/environmental firm will maintain a dry weather water quality monitoring report form for each dry weather sampling. The dry weather report form will also contain the bacteriological results (if applicable) for the station. Copies of these report forms will be included with the annual report. Chain of custody copies, laboratory report copies, calibration records, quality control records, and water quality report forms will be maintained in the files of the person or position in overall control of the Watershed Protection Plan.

### **Monitoring**

The County/environmental firm will evaluate the resulting samplings by monitoring data for the initial three (3) years of this program, to ascertain the level of pollutants of concern (POC) in the impaired waters and if it is likely to be originating in the County.

### **Proposed Best Management Practices (BMPs)**

The County will continue to implement its Stormwater Management Plan (SWMP) under its current NPDES Phase II MS4 permit.

### **Public Outreach and Education**

Lowndes County has a public outreach and education program that targets County offices and public facilities with flyers and brochures about stormwater and water quality of streams. Continued effort will be made to educate the public on sources of fecal coliform for both urban and rural residents including:

- Reporting of sanitary sewer overflows.
- Septic tank upkeep and maintenance.
- Effects of fecal coliform transported to streams from pastures.

### **Annual Evaluation**

Once the base year data is collected (i.e. the data from the first year of sampling), the County will evaluate each subsequent year's sampling data against the previous year/years data. The evaluation will be a comparative look at each year's data both at the individual outfalls and as an average of the outfall to each of the impaired basins. The intention is to identify trends that occur in the sampling data. If trends are found, the County will look for obvious factors that may account for the trending outside of the BMP's that have been implemented by the County. Unexplained trending may indicate the effectiveness of the BMPs' that are used.

### **Implementation Schedule**

The County is prepared to implement this Monitoring and Implementation plan within a reasonable time after plan approval by the Georgia EPD.

### **Annual Reporting**

Each year, the County will develop a brief water quality report for Franks Creek. This report will include:

- Monitoring results
- Trend analysis
- Documentation of activities
- Recommendations based on evaluations

The water quality data along with the trend analysis will be utilized to determine if the trend is showing improvement or degradation relative to implementing BMPs. If the trend analysis indicates that water quality is worsening or not improving, then additional sampling and/or BMPs will be evaluated to identify sources within the area covered by County's MS4 permit. A copy of this report and sampling results/data will be submitted along with the County's annual report.

**LOWNDES COUNTY, GEORGIA  
IMPAIRED WATERS  
MONITORING AND IMPLEMENTATION PLAN**

**TRIBUTARY TO FRANKS CREEK (R031102040504) - FC**

**Introduction**

As part of General NPDES Stormwater Permit No GAG610000, Lowndes County is required to identify any impaired waters located within its permitted area, using the latest approved 305(b)/303(d) List of Waters which contain MS4 outfalls or are within one (1) linear mile downstream of MS4 outfalls. For those impaired waters, the permittee is required to propose a Monitoring and Implementation Plan for addressing each cause/pollutant(s) of concern (POC).

As of March 2020, the most recent approved 305(b)/303(d) (2018) included a stream segment that is a Tributary To Franks Creek as not supporting its designated use within the County's jurisdiction. See *Table 1: Impaired Stream Segments*.

**Table 1: Impaired Stream Segments**

Reach Name and ID #	Reach Location	Use	Cause	Source	Extent
Tributary To Franks Creek (R031102040504)	Pond 780 Feet Upstream of Union Rd to Franks Creek	Fishing	FC <sup>1</sup>	NP <sup>2</sup> , M <sup>3</sup>	1 mile

- 1- Fecal Coliform
- 2- Nonpoint (NP)-Nonpoint source pollution is caused by rainfall or snowmelt moving over and through the ground transporting natural and human-made pollutants which are eventually deposited into lakes, rivers, wetlands, coastal waters, and groundwaters.
- 3- Municipal Point Source Discharge

**Objective**

Along with meeting the General NPDES Stormwater Permit requirement for proposing this Monitoring and Implementation Plan, it is Lowndes County's objective to ensure that proper water quality monitoring techniques are executed so that measures are identified that will reduce or eliminate the POC or improve conditions that may be adversely affecting water quality characteristics and as such has caused the segment of this stream reach within Lowndes County to be listed as impaired.

**Maps**

A map showing the Impaired Waters Reaches and sampling site locations is included herein.

**Sample Sites**

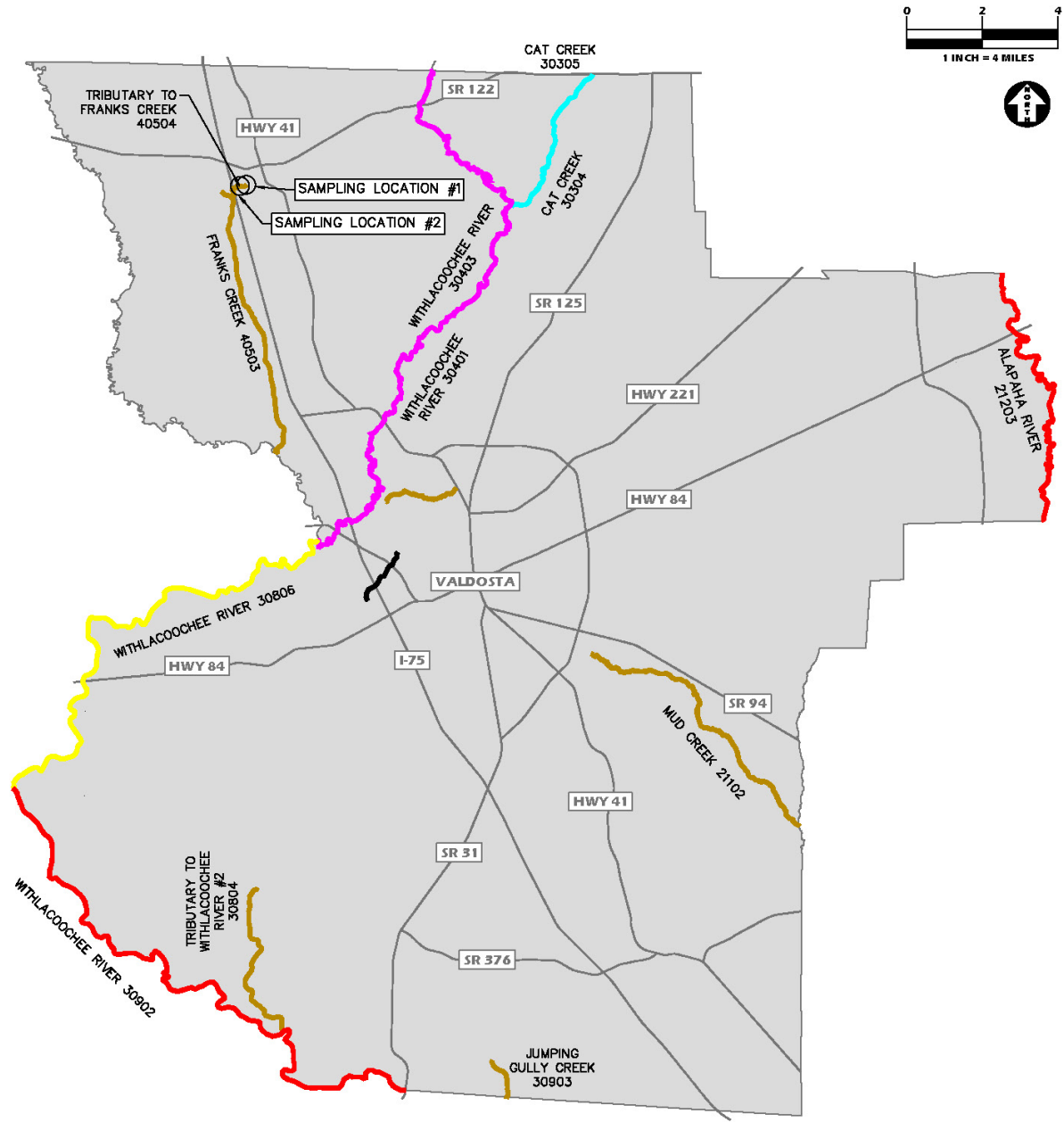
Lowndes County has identified two (2) permanent sampling sites for the collection of water quality samples. The sampling sites vary in depth, width, and sampling complexity. Sampling procedures will depend upon the ability of the sampling personnel to enter the stream safely. See *Table 2: Sample Site Locations*.

**Table 2: Sample Site Locations**

Sampling Station	Stream	Location	In-stream	Sample Type
#1	Tributary To Franks Creek	Hahira WWTP Discharge	Upstream	FC
#2	Tributary To Franks Creek	Union Rd	Downstream	FC

# IMPAIRED STREAMS - LOWNDES COUNTY

TRIBUTARY TO FRANKS CREEK (R031102040504) SAMPLING LOCATIONS



**LEGEND**

- DISSOLVED OXYGEN
- FECAL COLIFORM
- FECAL COLIFORM, MERCURY
- FECAL COLIFORM, LEAD, MERCURY
- MERCURY



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### **Sampling Schedule**

The County does not have the resources to monitor fecal coliform (FC) in the Tributary To Franks Creek at this time. Therefore, quarterly fecal sampling in streams impaired with FC will be contracted to a private environmental firm who will engage a certified laboratory for analytical services and reporting. See *Table 3: Sampling Schedule* for proposed sampling months.

**Table 3: Sampling Schedule**

<b>Sampling Station</b>	<b>Scheduled Sampling Months</b>
Station #1	March, June, September, December
Station #2	March, June, September, December

### **Bacteriological Reporting**

Bacteriological results (fecal coliform and e-coli) must be reported as a geometric mean consisting of at least four samples collected within a 30-day period at intervals no less than 24 hours. The samples should be distributed evenly over the 30-day period, and collected regardless of weather conditions.

### **Dry Weather Sampling**

Where applicable, a dry weather sample will be defined as one captured at least 72 hours after the most recent rain event totaling 0.1 inch of rain or more. All dry weather samples will be grab samples. Bacteriological samples (if applicable) will be collected in a sterile container, separate from the other samples.

### **Wet Weather Sampling**

Where applicable, the suggested wet-weather criteria are at least 0.2 inches of rainfall and at least 72 hours since the last storm event. Bacteriological samples (if applicable) will be collected in a sterile container, separate from the other samples.

### **Wadeable Stream Sampling**

If the stream is wadeable, staff will wade to a spot within the main flow of the stream to collect samples and perform onsite analyses. Staff will enter the water just downstream of the sampling point and walk upstream to prevent collection of samples at a point where the sediment has been disturbed. Staff will face upstream while capturing the sample. Samples collected in bottles that do not contain preservative will be immersed approximately three to five inches below the surface before opening, filled, and capped before the bottle is brought to the surface. This method will also be used to collect a sample of sufficient volume to fill all bottles that do contain preservatives. The preservative containing bottles will be filled as sub samples from the larger sample at the vehicle to prevent loss of preservative by overfilling in the stream. All analyses to be performed on site using portable testing equipment will be done either in the stream or at the vehicle as applicable. Calibration records for the portable testing equipment will be maintained. The samples for laboratory analysis will be placed into properly labeled and preserved sample bottles, placed in individual zipper locking freezer bags to prevent cross contamination, and placed on ice within fifteen minutes of collection. Chain of Custody forms will be used to document sampling times, proper preservation, and custody from sampling until delivery to the laboratory.

Bacteriological samples collected in a wadeable stream will be collected in sterilized glass bottles or purchased sterile whirl pack bags. Staff will enter the water just downstream of the sampling point and walk upstream to prevent collection of samples at a point where the sediment has been disturbed. Staff will face upstream while capturing the sample. The sample container will remain closed until submerged to prevent contamination. The container will be opened underwater, filled, and closed while still submerged. Bacteriological samples will be placed on ice immediately after capture and delivered for analysis within two hours. Analysis of

bacteriological samples will begin within six hours of capture. Chain of Custody forms will be used to document sampling times, proper preservation, and custody from sampling until delivery to the laboratory.

### **Non-Wadeable Stream Samples**

If sampling cannot be done safely by wading, a sample will be taken from a bridge or road crossing using a bucket and rope. Before taking the sample, the bucket will be rinsed out three (3) times with sample water. From the bridge or road crossing, the bucket and rope will be lowered midstream into the fast-flowing section of the water. Once the bucket has been filled, it will then be pulled up for sampling. This method will also be used to collect samples of sufficient volume to fill all bottles. All analyses to be performed onsite using portable testing equipment will be done either from the bridge or road crossing, or from samples collected with the bucket and rope as applicable.

If sampling cannot be done safely by wading, bacteriological samples will also be collected using a bucket and rope. Before taking the sample, the bucket will be rinsed out three (3) times with sample water. From the bridge or road crossing, the bucket and rope will be lowered midstream into the fast-flowing section of the water. Once the bucket has been filled, it will then be pulled up for sampling. A properly labeled sterile bottle or whirl pack bag will be placed underwater in the sample, opened, and allowed to fill. The sample container will be closed while still underwater and then removed from the bucket. Bacteriological samples will be placed on ice immediately after capture and delivered for analysis within two hours. Analysis of bacteriological samples will begin within six hours of capture. Chain of custody forms will be used to document sampling times, proper preservation, and custody from sampling until delivery to the laboratory. Calibration records for the portable testing equipment will be maintained. The samples for laboratory analysis will be placed into properly labeled and preserved sample bottles, placed in individual zipper locking freezer bags to prevent cross contamination, and placed on ice within fifteen minutes of collection.

### **Record Keeping**

For each parameter, the following information will be recorded:

- The place, date, and time of sampling.
- The person collecting the sample.
- The dates and times the analyses were performed.
- The person(s) who performed the analyses.
- The analytical procedures or methods used.
- The results of all field analyses.

The County/environmental firm will maintain a dry weather water quality monitoring report form for each dry weather sampling. The dry weather report form will also contain the bacteriological results (if applicable) for the station. Copies of these report forms will be included with the annual report. Chain of custody copies, laboratory report copies, calibration records, quality control records, and water quality report forms will be maintained in the files of the person or position in overall control of the Watershed Protection Plan.

### **Monitoring**

The County/environmental firm will evaluate the resulting samplings by monitoring data for the initial three (3) years of this program, to ascertain the level of pollutants of concern (POC) in the impaired waters and if it is likely to be originating in the County.

### **Proposed Best Management Practices (BMPs)**

The County will continue to implement its Stormwater Management Plan (SWMP) under its current NPDES Phase II MS4 permit.

### **Public Outreach and Education**

Lowndes County has a public outreach and education program that targets County offices and public facilities with flyers and brochures about stormwater and water quality of streams. Continued effort will be made to educate the public on sources of fecal coliform for both urban and rural residents including:

- Reporting of sanitary sewer overflows.
- Septic tank upkeep and maintenance.
- Effects of fecal coliform transported to streams from pastures.

### **Annual Evaluation**

Once the base year data is collected (i.e. the data from the first year of sampling), the County will evaluate each subsequent year's sampling data against the previous year/years data. The evaluation will be a comparative look at each year's data both at the individual outfalls and as an average of the outfall to each of the impaired basins. The intention is to identify trends that occur in the sampling data. If trends are found, the County will look for obvious factors that may account for the trending outside of the BMP's that have been implemented by the County. Unexplained trending may indicate the effectiveness of the BMPs' that are used.

### **Implementation Schedule**

The County is prepared to implement this Monitoring and Implementation plan within a reasonable time after plan approval by the Georgia EPD.

### **Annual Reporting**

Each year, the County will develop a brief water quality report for the Tributary To Franks Creek. This report will include:

- Monitoring results
- Trend analysis
- Documentation of activities
- Recommendations based on evaluations

The water quality data along with the trend analysis will be utilized to determine if the trend is showing improvement or degradation relative to implementing BMPs. If the trend analysis indicates that water quality is worsening or not improving, then additional sampling and/or BMPs will be evaluated to identify sources within the area covered by County's MS4 permit. A copy of this report and sampling results/data will be submitted along with the County's annual report.



**LOWNDES COUNTY, GEORGIA  
IMPAIRED WATERS  
MONITORING AND IMPLEMENTATION PLAN**

**JUMPING GULLY CREEK (R031102030903) - FC**

**Introduction**

As part of General NPDES Stormwater Permit No GAG610000, Lowndes County is required to identify any impaired waters located within its permitted area, using the latest approved 305(b)/303(d) List of Waters which contain MS4 outfalls or are within one (1) linear mile downstream of MS4 outfalls. For those impaired waters, the permittee is required to propose a Monitoring and Implementation Plan for addressing each cause/pollutant(s) of concern (POC).

As of March 2020, the most recent approved 305(b)/303(d) (2018) included a stream segment of the Jumping Gully Creek as not supporting its designated use within the County’s jurisdiction. See *Table 1: Impaired Stream Segments*.

**Table 1: Impaired Stream Segments**

<b>Reach Name and ID #</b>	<b>Reach Location</b>	<b>Use</b>	<b>Cause</b>	<b>Source</b>	<b>Extent</b>
Jumping Gully Creek (R031102030903)	Bevel Creek to State Line	Fishing	FC <sup>1</sup>	NP	1 mile

1- Fecal Coliform

2- Nonpoint (NP)-Nonpoint source pollution is caused by rainfall or snowmelt moving over and through the ground transporting natural and human-made pollutants which are eventually deposited into lakes, rivers, wetlands, coastal waters, and groundwaters.

**Objective**

Along with meeting the General NPDES Stormwater Permit requirement for proposing this Monitoring and Implementation Plan, it is Lowndes County’s objective to ensure that proper water quality monitoring techniques are executed so that measures are identified that will reduce or eliminate the POC or improve conditions that may be adversely affecting water quality characteristics and as such has caused the segment of this stream reach within Lowndes County to be listed as impaired.

**Maps**

A map showing the Impaired Waters Reaches and sampling site locations is included herein.

**Sample Sites**

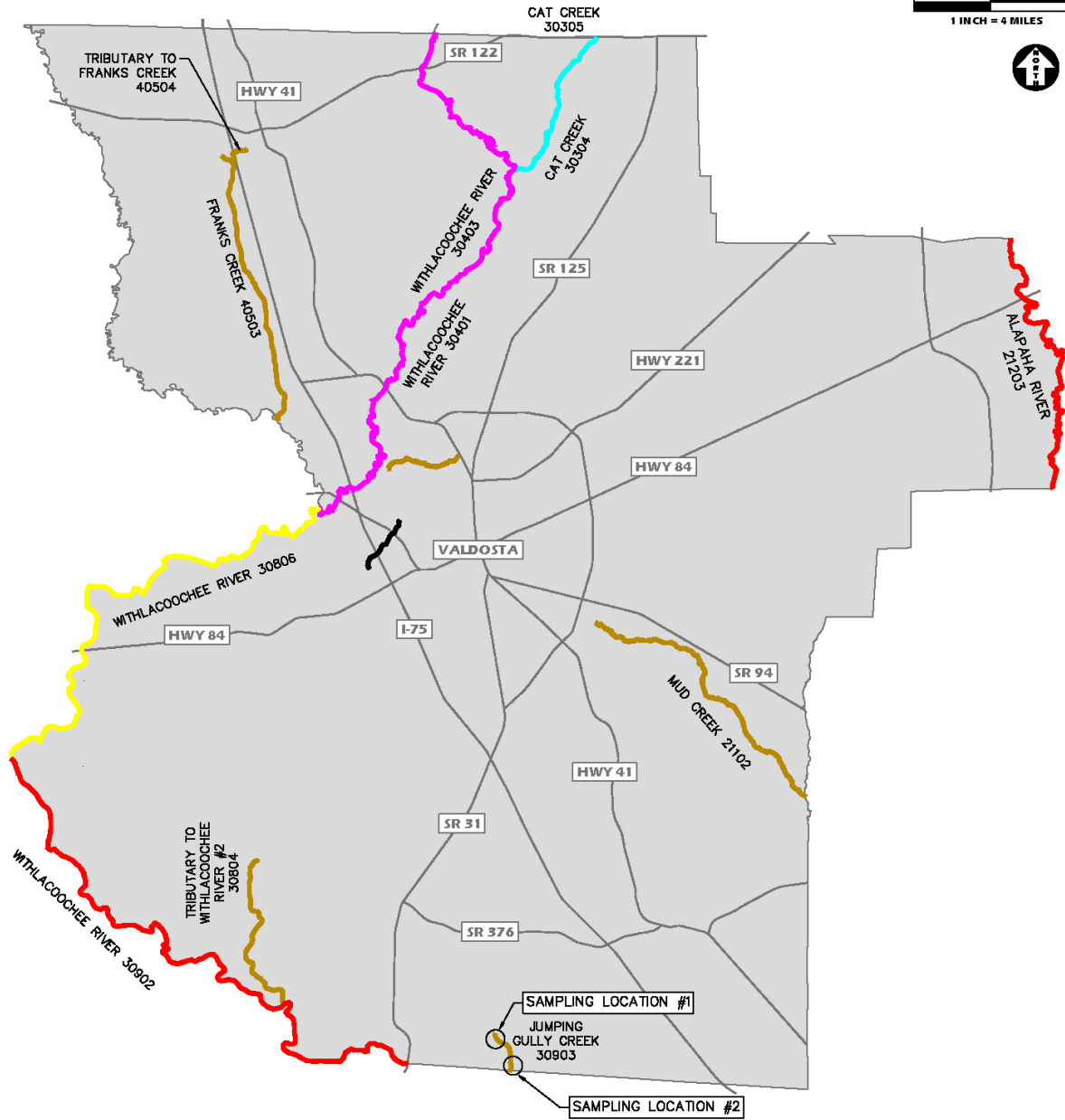
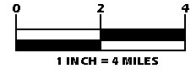
Lowndes County has identified two (2) permanent sampling sites for the collection of water quality samples. The sampling sites vary in depth, width, and sampling complexity. Sampling procedures will depend upon the ability of the sampling personnel to enter the stream safely. See *Table 2: Sample Site Locations*.

**Table 2: Sample Site Locations**

<b>Sampling Station</b>	<b>Stream</b>	<b>Location</b>	<b>In-stream</b>	<b>Sample Type</b>
<b>#1</b>	Jumping Gully Creek	PCA Easement	Upstream	FC
<b>#2</b>	Jumping Gully Creek	Jumping Gully Rd	Downstream	FC

# IMPAIRED STREAMS - LOWNDES COUNTY

## JUMPING GULLY CREEK (R031102030903) SAMPLING LOCATIONS



### LEGEND

- DISSOLVED OXYGEN
- FECAL COLIFORM
- FECAL COLIFORM, MERCURY
- FECAL COLIFORM, LEAD, MERCURY
- MERCURY



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### **Sampling Schedule**

The County does not have the resources to monitor fecal coliform (FC) in Jumping Gully Creek at this time. Therefore, quarterly fecal sampling in streams impaired with FC will be contracted to a private environmental firm who will engage a certified laboratory for analytical services and reporting. See *Table 3: Sampling Schedule* for proposed sampling months.

**Table 3: Sampling Schedule**

<b>Sampling Station</b>	<b>Scheduled Sampling Months</b>
Station #1	March, June, September, December
Station #2	March, June, September, December

### **Bacteriological Reporting**

Bacteriological results (fecal coliform and e-coli) must be reported as a geometric mean consisting of at least four samples collected within a 30-day period at intervals no less than 24 hours. The samples should be distributed evenly over the 30-day period, and collected regardless of weather conditions.

### **Dry Weather Sampling**

Where applicable, a dry weather sample will be defined as one captured at least 72 hours after the most recent rain event totaling 0.1 inch of rain or more. All dry weather samples will be grab samples. Bacteriological samples (if applicable) will be collected in a sterile container, separate from the other samples.

### **Wet Weather Sampling**

Where applicable, the suggested wet-weather criteria are at least 0.2 inches of rainfall and at least 72 hours since the last storm event. Bacteriological samples (if applicable) will be collected in a sterile container, separate from the other samples.

### **Wadeable Stream Sampling**

If the stream is wadeable, staff will wade to a spot within the main flow of the stream to collect samples and perform onsite analyses. Staff will enter the water just downstream of the sampling point and walk upstream to prevent collection of samples at a point where the sediment has been disturbed. Staff will face upstream while capturing the sample. Samples collected in bottles that do not contain preservative will be immersed approximately three to five inches below the surface before opening, filled, and capped before the bottle is brought to the surface. This method will also be used to collect a sample of sufficient volume to fill all bottles that do contain preservatives. The preservative containing bottles will be filled as sub samples from the larger sample at the vehicle to prevent loss of preservative by overfilling in the stream. All analyses to be performed on site using portable testing equipment will be done either in the stream or at the vehicle as applicable. Calibration records for the portable testing equipment will be maintained. The samples for laboratory analysis will be placed into properly labeled and preserved sample bottles, placed in individual zipper locking freezer bags to prevent cross contamination, and placed on ice within fifteen minutes of collection. Chain of Custody forms will be used to document sampling times, proper preservation, and custody from sampling until delivery to the laboratory.

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bacteriological samples will begin within six hours of capture. Chain of Custody forms will be used to document sampling times, proper preservation, and custody from sampling until delivery to the laboratory.

### **Non-Wadeable Stream Samples**

If sampling cannot be done safely by wading, a sample will be taken from a bridge or road crossing using a bucket and rope. Before taking the sample, the bucket will be rinsed out three (3) times with sample water. From the bridge or road crossing, the bucket and rope will be lowered midstream into the fast-flowing section of the water. Once the bucket has been filled, it will then be pulled up for sampling. This method will also be used to collect samples of sufficient volume to fill all bottles. All analyses to be performed onsite using portable testing equipment will be done either from the bridge or road crossing, or from samples collected with the bucket and rope as applicable.

If sampling cannot be done safely by wading, bacteriological samples will also be collected using a bucket and rope. Before taking the sample, the bucket will be rinsed out three (3) times with sample water. From the bridge or road crossing, the bucket and rope will be lowered midstream into the fast-flowing section of the water. Once the bucket has been filled, it will then be pulled up for sampling. A properly labeled sterile bottle or whirl pack bag will be placed underwater in the sample, opened, and allowed to fill. The sample container will be closed while still underwater and then removed from the bucket. Bacteriological samples will be placed on ice immediately after capture and delivered for analysis within two hours. Analysis of bacteriological samples will begin within six hours of capture. Chain of custody forms will be used to document sampling times, proper preservation, and custody from sampling until delivery to the laboratory. Calibration records for the portable testing equipment will be maintained. The samples for laboratory analysis will be placed into properly labeled and preserved sample bottles, placed in individual zipper locking freezer bags to prevent cross contamination, and placed on ice within fifteen minutes of collection.

### **Record Keeping**

For each parameter, the following information will be recorded:

- The place, date, and time of sampling.
- The person collecting the sample.
- The dates and times the analyses were performed.
- The person(s) who performed the analyses.
- The analytical procedures or methods used.
- The results of all field analyses.

The County/environmental firm will maintain a dry weather water quality monitoring report form for each dry weather sampling. The dry weather report form will also contain the bacteriological results (if applicable) for the station. Copies of these report forms will be included with the annual report. Chain of custody copies, laboratory report copies, calibration records, quality control records, and water quality report forms will be maintained in the files of the person or position in overall control of the Watershed Protection Plan.

### **Monitoring**

The County/environmental firm will evaluate the resulting samplings by monitoring data for the initial three (3) years of this program, to ascertain the level of pollutants of concern (POC) in the impaired waters and if it is likely to be originating in the County.

### **Proposed Best Management Practices (BMPs)**

The County will continue to implement its Stormwater Management Plan (SWMP) under its current NPDES Phase II MS4 permit.

### **Public Outreach and Education**

Lowndes County has a public outreach and education program that targets County offices and public facilities with flyers and brochures about stormwater and water quality of streams. Continued effort will be made to educate the public on sources of fecal coliform for both urban and rural residents including:

- Reporting of sanitary sewer overflows.
- Septic tank upkeep and maintenance.
- Effects of fecal coliform transported to streams from pastures.

### **Annual Evaluation**

Once the base year data is collected (i.e. the data from the first year of sampling), the County will evaluate each subsequent year's sampling data against the previous year/years data. The evaluation will be a comparative look at each year's data both at the individual outfalls and as an average of the outfall to each of the impaired basins. The intention is to identify trends that occur in the sampling data. If trends are found, the County will look for obvious factors that may account for the trending outside of the BMP's that have been implemented by the County. Unexplained trending may indicate the effectiveness of the BMP's that are used.

### **Implementation Schedule**

The County is prepared to implement this Monitoring and Implementation plan within a reasonable time after plan approval by the Georgia EPD.

### **Annual Reporting**

Each year, the County will develop a brief water quality report for Jumping Gully Creek. This report will include:

- Monitoring results
- Trend analysis
- Documentation of activities
- Recommendations based on evaluations

The water quality data along with the trend analysis will be utilized to determine if the trend is showing improvement or degradation relative to implementing BMPs. If the trend analysis indicates that water quality is worsening or not improving, then additional sampling and/or BMPs will be evaluated to identify sources within the area covered by County's MS4 permit. A copy of this report and sampling results/data will be submitted along with the County's annual report.

**LOWNDES COUNTY, GEORGIA  
IMPAIRED WATERS  
MONITORING AND IMPLEMENTATION PLAN**

**MUD CREEK (R031102021102) - FC**

**Introduction**

As part of General NPDES Stormwater Permit No GAG610000, Lowndes County is required to identify any impaired waters located within its permitted area, using the latest approved 305(b)/303(d) List of Waters which contain MS4 outfalls or are within one (1) linear mile downstream of MS4 outfalls. For those impaired waters, the permittee is required to propose a Monitoring and Implementation Plan for addressing each cause/pollutant(s) of concern (POC).

As of March 2020, the most recent approved 305(b)/303(d) (2018) included a stream segment of Mud Creek as not supporting its designated use within the County’s jurisdiction. See *Table 1: Impaired Stream Segments*.

**Table 1: Impaired Stream Segments**

<b>Reach Name and ID #</b>	<b>Reach Location</b>	<b>Use</b>	<b>Cause</b>	<b>Source</b>	<b>Extent</b>
Mud Creek (R031102021102)	Downstream Valdosta Mud Creek WWTP to Alapahoochee River	Fishing	F <sup>1</sup>	UR <sup>2</sup>	9 miles

- 1- Fecal Coliform
- 2- Urban Runoff (UR) - Urban runoff is either wet weather (rainwater) or dry weather (water waste) flows from urbanized areas into storm drain systems that transport pollutants to lakes, rivers, wetlands, coastal waters, and groundwaters.

**Objective**

Along with meeting the General NPDES Stormwater Permit requirement for proposing this Monitoring and Implementation Plan, it is Lowndes County’s objective to ensure that proper water quality monitoring techniques are executed so that measures are identified that will reduce or eliminate the POC or improve conditions that may be adversely affecting water quality characteristics and as such has caused the segment of this stream reach within Lowndes County to be listed as impaired.

**Maps**

A map showing the Impaired Waters Reaches and sampling site locations is included herein.

**Sample Sites**

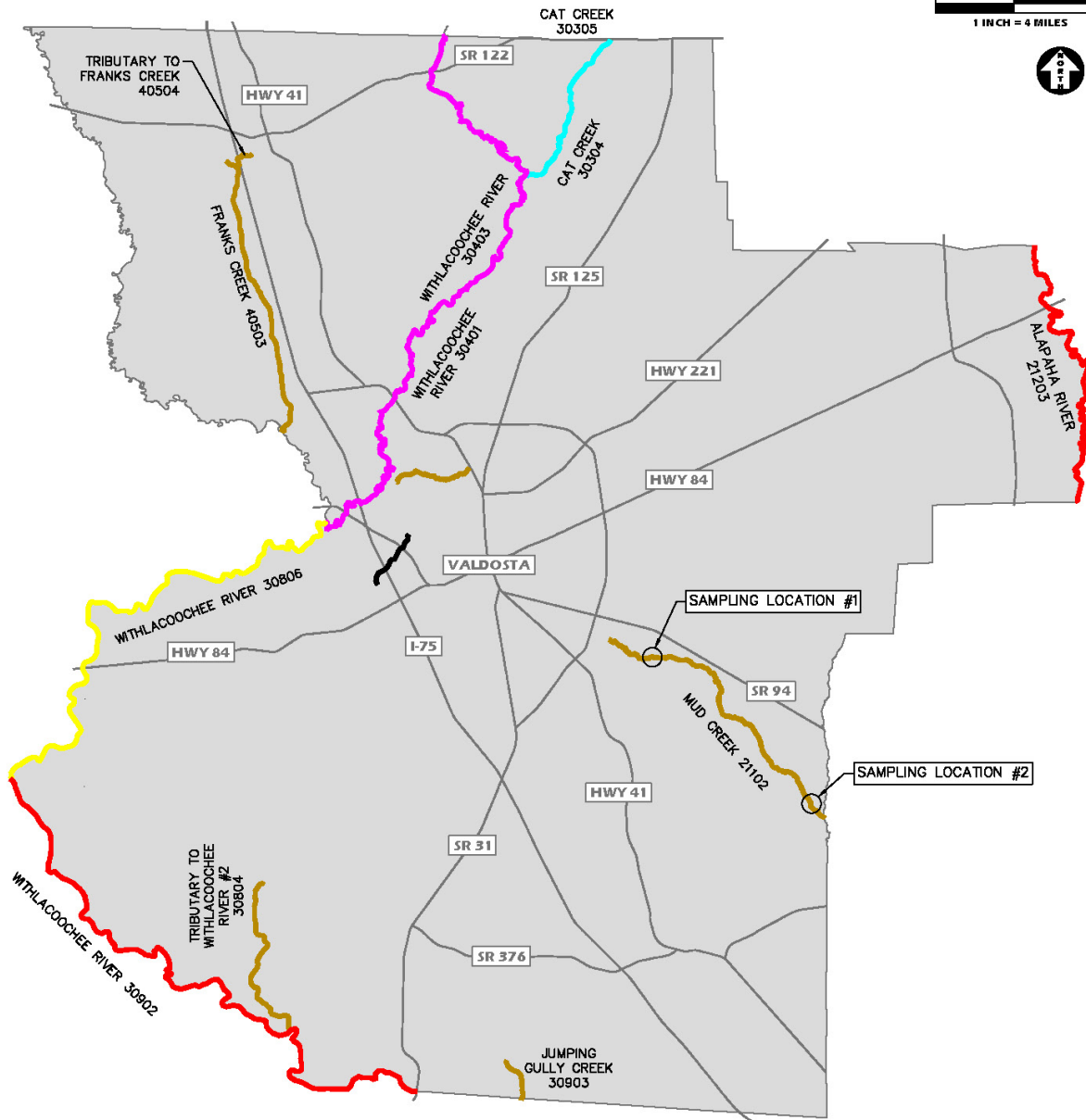
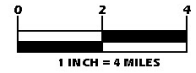
Lowndes County has identified two (2) permanent sampling sites for the collection of water quality samples. The sampling sites vary in depth, width, and sampling complexity. Sampling procedures will depend upon the ability of the sampling personnel to enter the stream safely. See *Table 2: Sample Site Locations*.

**Table 2: Sample Site Locations**

<b>Sampling Station</b>	<b>Stream</b>	<b>Location</b>	<b>In-stream</b>	<b>Sample Type</b>
<b>#1</b>	Mud Creek	Johnson Rd SE	Upstream	FC
<b>#2</b>	Mud Creek	Hickory Grove Rd @ Glenn Rd	Downstream	FC

# IMPAIRED STREAMS - LOWNDES COUNTY

## MUD CREEK (R031102021102) SAMPLING LOCATIONS



### LEGEND

- DISSOLVED OXYGEN
- FECAL COLIFORM
- FECAL COLIFORM, MERCURY
- FECAL COLIFORM, LEAD, MERCURY
- MERCURY



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### **Sampling Schedule**

The County does not have the resources to monitor fecal coliform (FC) in Mud Creek at this time. Therefore, quarterly fecal sampling in streams impaired with FC will be contracted to a private environmental firm who will engage a certified laboratory for analytical services and reporting. See *Table 3: Sampling Schedule* for proposed sampling months.

**Table 3: Sampling Schedule**

<b>Sampling Station</b>	<b>Scheduled Sampling Months</b>
Station #1	March, June, September, December
Station #2	March, June, September, December

### **Bacteriological Reporting**

Bacteriological results (fecal coliform and e-coli) must be reported as a geometric mean consisting of at least four samples collected within a 30-day period at intervals no less than 24 hours. The samples should be distributed evenly over the 30-day period, and collected regardless of weather conditions.

### **Dry Weather Sampling**

Where applicable, a dry weather sample will be defined as one captured at least 72 hours after the most recent rain event totaling 0.1 inch of rain or more. All dry weather samples will be grab samples. Bacteriological samples (if applicable) will be collected in a sterile container, separate from the other samples.

### **Wet Weather Sampling**

Where applicable, the suggested wet-weather criteria are at least 0.2 inches of rainfall and at least 72 hours since the last storm event. Bacteriological samples (if applicable) will be collected in a sterile container, separate from the other samples.

### **Wadeable Stream Sampling**

If the stream is wadeable, staff will wade to a spot within the main flow of the stream to collect samples and perform onsite analyses. Staff will enter the water just downstream of the sampling point and walk upstream to prevent collection of samples at a point where the sediment has been disturbed. Staff will face upstream while capturing the sample. Samples collected in bottles that do not contain preservative will be immersed approximately three to five inches below the surface before opening, filled, and capped before the bottle is brought to the surface. This method will also be used to collect a sample of sufficient volume to fill all bottles that do contain preservatives. The preservative containing bottles will be filled as sub samples from the larger sample at the vehicle to prevent loss of preservative by overfilling in the stream. All analyses to be performed on site using portable testing equipment will be done either in the stream or at the vehicle as applicable. Calibration records for the portable testing equipment will be maintained. The samples for laboratory analysis will be placed into properly labeled and preserved sample bottles, placed in individual zipper locking freezer bags to prevent cross contamination, and placed on ice within fifteen minutes of collection. Chain of Custody forms will be used to document sampling times, proper preservation, and custody from sampling until delivery to the laboratory.

Bacteriological samples collected in a wadeable stream will be collected in sterilized glass bottles or purchased sterile whirl pack bags. Staff will enter the water just downstream of the sampling point and walk upstream to prevent collection of samples at a point where the sediment has been disturbed. Staff will face upstream while capturing the sample. The sample container will remain closed until submerged to prevent contamination. The container will be opened underwater, filled, and closed while still submerged. Bacteriological samples will be placed on ice immediately after capture and delivered for analysis within two hours. Analysis of



bacteriological samples will begin within six hours of capture. Chain of Custody forms will be used to document sampling times, proper preservation, and custody from sampling until delivery to the laboratory.

### **Non-Wadeable Stream Samples**

If sampling cannot be done safely by wading, a sample will be taken from a bridge or road crossing using a bucket and rope. Before taking the sample, the bucket will be rinsed out three (3) times with sample water. From the bridge or road crossing, the bucket and rope will be lowered midstream into the fast-flowing section of the water. Once the bucket has been filled, it will then be pulled up for sampling. This method will also be used to collect samples of sufficient volume to fill all bottles. All analyses to be performed onsite using portable testing equipment will be done either from the bridge or road crossing, or from samples collected with the bucket and rope as applicable.

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### **Record Keeping**

For each parameter, the following information will be recorded:

- The place, date, and time of sampling.
- The person collecting the sample.
- The dates and times the analyses were performed.
- The person(s) who performed the analyses.
- The analytical procedures or methods used.
- The results of all field analyses.

The County/environmental firm will maintain a dry weather water quality monitoring report form for each dry weather sampling. The dry weather report form will also contain the bacteriological results (if applicable) for the station. Copies of these report forms will be included with the annual report. Chain of custody copies, laboratory report copies, calibration records, quality control records, and water quality report forms will be maintained in the files of the person or position in overall control of the Watershed Protection Plan.

### **Monitoring**

The County/environmental firm will evaluate the resulting samplings by monitoring data for the initial three (3) years of this program, to ascertain the level of pollutants of concern (POC) in the impaired waters and if it is likely to be originating in the County.

### **Proposed Best Management Practices (BMPs)**

The County will continue to implement its Stormwater Management Plan (SWMP) under its current NPDES Phase II MS4 permit.

### **Public Outreach and Education**

Lowndes County has a public outreach and education program that targets County offices and public facilities with flyers and brochures about stormwater and water quality of streams. Continued effort will be made to educate the public on sources of fecal coliform for both urban and rural residents including:

- Reporting of sanitary sewer overflows.
- Septic tank upkeep and maintenance.
- Effects of fecal coliform transported to streams from pastures.

### **Annual Evaluation**

Once the base year data is collected (i.e. the data from the first year of sampling), the County will evaluate each subsequent year's sampling data against the previous year/years data. The evaluation will be a comparative look at each year's data both at the individual outfalls and as an average of the outfall to each of the impaired basins. The intention is to identify trends that occur in the sampling data. If trends are found, the County will look for obvious factors that may account for the trending outside of the BMP's that have been implemented by the County. Unexplained trending may indicate the effectiveness of the BMPs' that are used.

### **Implementation Schedule**

The County is prepared to implement this Monitoring and Implementation plan within a reasonable time after plan approval by the Georgia EPD.

### **Annual Reporting**

Each year, the County will develop a brief water quality report for Mud Creek. This report will include:

- Monitoring results
- Trend analysis
- Documentation of activities
- Recommendations based on evaluations

The water quality data along with the trend analysis will be utilized to determine if the trend is showing improvement or degradation relative to implementing BMPs. If the trend analysis indicates that water quality is worsening or not improving, then additional sampling and/or BMPs will be evaluated to identify sources within the area covered by County's MS4 permit. A copy of this report and sampling results/data will be submitted along with the County's annual report.

**LOWNDES COUNTY, GEORGIA  
IMPAIRED WATERS  
MONITORING AND IMPLEMENTATION PLAN**

**TRIBUTARY TO WITHLACOOCHEE RIVER #2 (R031102030804) - FC**

**Introduction**

As part of General NPDES Stormwater Permit No GAG610000, Lowndes County is required to identify any impaired waters located within its permitted area, using the latest approved 305(b)/303(d) List of Waters which contain MS4 outfalls or are within one (1) linear mile downstream of MS4 outfalls. For those impaired waters, the permittee is required to propose a Monitoring and Implementation Plan for addressing each cause/pollutant(s) of concern (POC).

As of March 2020, the most recent approved 305(b)/303(d) (2018) included a stream segment that is designated “Tributary To The Withlachieechee River #2” as not supporting its designated use within the County’s jurisdiction. See *Table 1: Impaired Stream Segments*.

**Table 1: Impaired Stream Segments**

<b>Reach Name and ID #</b>	<b>Reach Location</b>	<b>Use</b>	<b>Cause</b>	<b>Source</b>	<b>Extent</b>
Tributary To The Withlachieechee River #2 (R031102030804)	Headwaters to Withlachieechee River	Fishing	FC <sup>1</sup>	NP	5 miles

1- Fecal Coliform

2- Nonpoint (NP)-Nonpoint source pollution is caused by rainfall or snowmelt moving over and through the ground transporting natural and human-made pollutants which are eventually deposited into lakes, rivers, wetlands, coastal waters, and groundwaters.

**Objective**

Along with meeting the General NPDES Stormwater Permit requirement for proposing this Monitoring and Implementation Plan, it is Lowndes County’s objective to ensure that proper water quality monitoring techniques are executed so that measures are identified that will reduce or eliminate the POC or improve conditions that may be adversely affecting water quality characteristics and as such has caused the segment of this stream reach within Lowndes County to be listed as impaired.

**Maps**

A map showing the Impaired Waters Reaches and sampling site locations is included herein.

**Sample Sites**

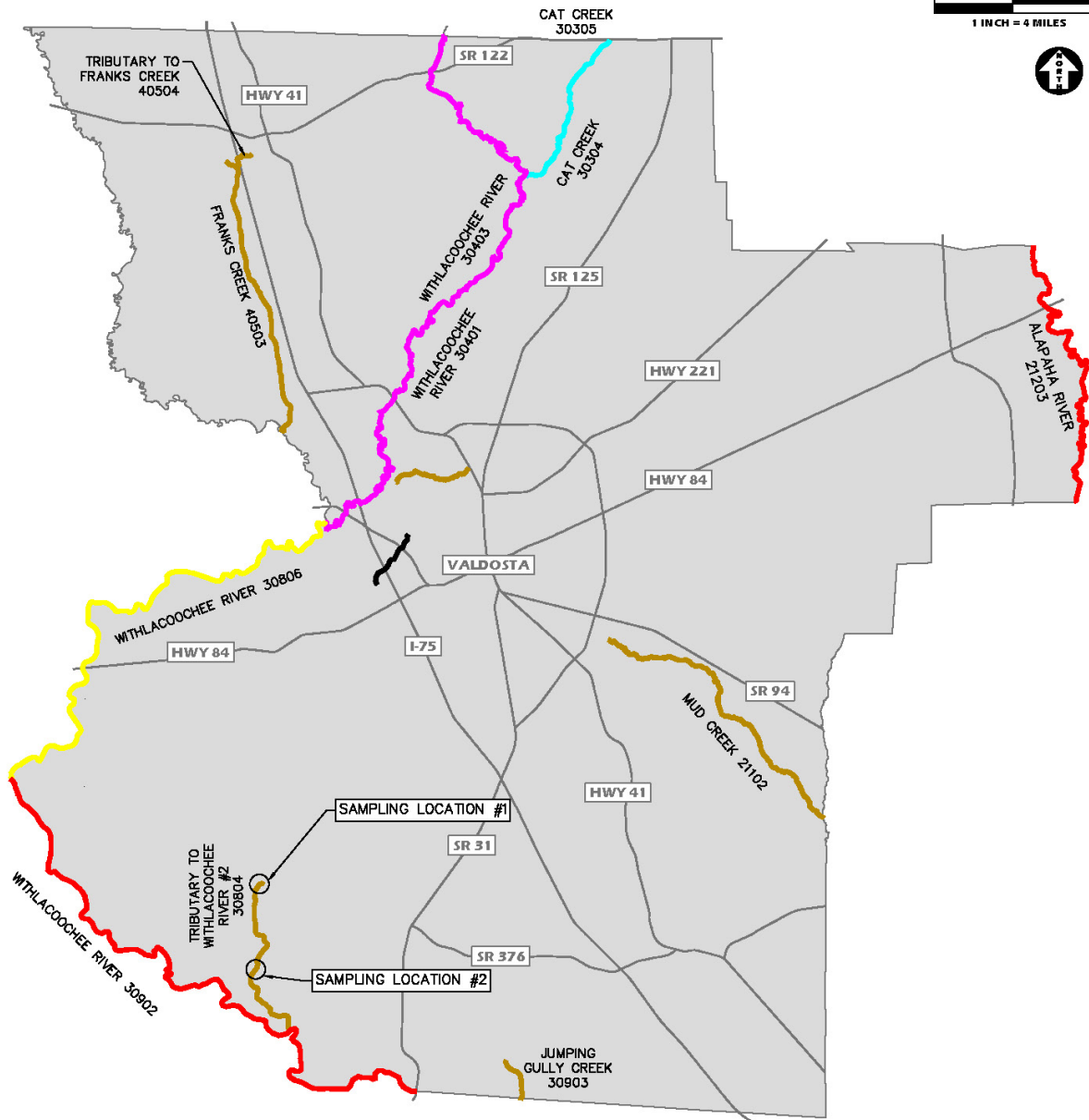
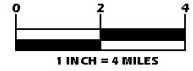
Lowndes County has identified two (2) permanent sampling sites for the collection of water quality samples. The sampling sites vary in depth, width, and sampling complexity. Sampling procedures will depend upon the ability of the sampling personnel to enter the stream safely. See *Table 2: Sample Site Locations*.

**Table 2: Sample Site Locations**

<b>Sampling Station</b>	<b>Stream</b>	<b>Location</b>	<b>In-stream</b>	<b>Sample Type</b>
<b>#1</b>	Tributary To The Withlachieechee River #2	Ousley Rd	Upstream	FC
<b>#2</b>	Tributary To The Withlachieechee River #2	Clyattville-Nankin Rd	Downstream	FC

# IMPAIRED STREAMS - LOWNDES COUNTY

TRIBUTARY TO WITHLACOOCHEE RIVER #2 (R031102030804) SAMPLING LOCATIONS



### LEGEND

- DISSOLVED OXYGEN
- FECAL COLIFORM
- FECAL COLIFORM, MERCURY
- FECAL COLIFORM, LEAD, MERCURY
- MERCURY



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### **Sampling Schedule**

The County does not have the resources to monitor fecal coliform (FC) in the Tributary To The Withlatchoochee River #2 at this time. Therefore, quarterly fecal sampling in streams impaired with FC will be contracted to a private environmental firm who will engage a certified laboratory for analytical services and reporting. See *Table 3: Sampling Schedule* for proposed sampling months.

**Table 3: Sampling Schedule**

<b>Sampling Station</b>	<b>Scheduled Sampling Months</b>
Station #1	March, June, September, December
Station #2	March, June, September, December

### **Bacteriological Reporting**

Bacteriological results (fecal coliform and e-coli) must be reported as a geometric mean consisting of at least four samples collected within a 30-day period at intervals no less than 24 hours. The samples should be distributed evenly over the 30-day period, and collected regardless of weather conditions.

### **Dry Weather Sampling**

Where applicable, a dry weather sample will be defined as one captured at least 72 hours after the most recent rain event totaling 0.1 inch of rain or more. All dry weather samples will be grab samples. Bacteriological samples (if applicable) will be collected in a sterile container, separate from the other samples.

### **Wet Weather Sampling**

Where applicable, the suggested wet-weather criteria are at least 0.2 inches of rainfall and at least 72 hours since the last storm event. Bacteriological samples (if applicable) will be collected in a sterile container, separate from the other samples.

### **Wadeable Stream Sampling**

If the stream is wadeable, staff will wade to a spot within the main flow of the stream to collect samples and perform onsite analyses. Staff will enter the water just downstream of the sampling point and walk upstream to prevent collection of samples at a point where the sediment has been disturbed. Staff will face upstream while capturing the sample. Samples collected in bottles that do not contain preservative will be immersed approximately three to five inches below the surface before opening, filled, and capped before the bottle is brought to the surface. This method will also be used to collect a sample of sufficient volume to fill all bottles that do contain preservatives. The preservative containing bottles will be filled as sub samples from the larger sample at the vehicle to prevent loss of preservative by overfilling in the stream. All analyses to be performed on site using portable testing equipment will be done either in the stream or at the vehicle as applicable. Calibration records for the portable testing equipment will be maintained. The samples for laboratory analysis will be placed into properly labeled and preserved sample bottles, placed in individual zipper locking freezer bags to prevent cross contamination, and placed on ice within fifteen minutes of collection. Chain of Custody forms will be used to document sampling times, proper preservation, and custody from sampling until delivery to the laboratory.

Bacteriological samples collected in a wadeable stream will be collected in sterilized glass bottles or purchased sterile whirl pack bags. Staff will enter the water just downstream of the sampling point and walk upstream to prevent collection of samples at a point where the sediment has been disturbed. Staff will face upstream while capturing the sample. The sample container will remain closed until submerged to prevent contamination. The container will be opened underwater, filled, and closed while still submerged. Bacteriological samples will be

placed on ice immediately after capture and delivered for analysis within two hours. Analysis of bacteriological samples will begin within six hours of capture. Chain of Custody forms will be used to document sampling times, proper preservation, and custody from sampling until delivery to the laboratory.

### **Non-Wadeable Stream Samples**

If sampling cannot be done safely by wading, a sample will be taken from a bridge or road crossing using a bucket and rope. Before taking the sample, the bucket will be rinsed out three (3) times with sample water. From the bridge or road crossing, the bucket and rope will be lowered midstream into the fast-flowing section of the water. Once the bucket has been filled, it will then be pulled up for sampling. This method will also be used to collect samples of sufficient volume to fill all bottles. All analyses to be performed onsite using portable testing equipment will be done either from the bridge or road crossing, or from samples collected with the bucket and rope as applicable.

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### **Record Keeping**

For each parameter, the following information will be recorded:

- The place, date, and time of sampling.
- The person collecting the sample.
- The dates and times the analyses were performed.
- The person(s) who performed the analyses.
- The analytical procedures or methods used.
- The results of all field analyses.

The County/environmental firm will maintain a dry weather water quality monitoring report form for each dry weather sampling. The dry weather report form will also contain the bacteriological results (if applicable) for the station. Copies of these report forms will be included with the annual report. Chain of custody copies, laboratory report copies, calibration records, quality control records, and water quality report forms will be maintained in the files of the person or position in overall control of the Watershed Protection Plan.

### **Monitoring**

The County/environmental firm will evaluate the resulting samplings by monitoring data for the initial three (3) years of this program, to ascertain the level of pollutants of concern (POC) in the impaired waters and if it is likely to be originating in the County.

### **Proposed Best Management Practices (BMPs)**

The County will continue to implement its Stormwater Management Plan (SWMP) under its current NPDES Phase II MS4 permit.

### **Public Outreach and Education**

Lowndes County has a public outreach and education program that targets County offices and public facilities with flyers and brochures about stormwater and water quality of streams. Continued effort will be made to educate the public on sources of fecal coliform for both urban and rural residents including:

- Reporting of sanitary sewer overflows.
- Septic tank upkeep and maintenance.
- Effects of fecal coliform transported to streams from pastures.

### **Annual Evaluation**

Once the base year data is collected (i.e. the data from the first year of sampling), the County will evaluate each subsequent year's sampling data against the previous year/years data. The evaluation will be a comparative look at each year's data both at the individual outfalls and as an average of the outfall to each of the impaired basins. The intention is to identify trends that occur in the sampling data. If trends are found, the County will look for obvious factors that may account for the trending outside of the BMP's that have been implemented by the County. Unexplained trending may indicate the effectiveness of the BMPs' that are used.

### **Implementation Schedule**

The County is prepared to implement this Monitoring and Implementation plan within a reasonable time after plan approval by the Georgia EPD.

### **Annual Reporting**

Each year, the County will develop a brief water quality report for the Tributary To The Withlatchoochee River #2. This report will include:

- Monitoring results
- Trend analysis
- Documentation of activities
- Recommendations based on evaluations

The water quality data along with the trend analysis will be utilized to determine if the trend is showing improvement or degradation relative to implementing BMPs. If the trend analysis indicates that water quality is worsening or not improving, then additional sampling and/or BMPs will be evaluated to identify sources within the area covered by County's MS4 permit. A copy of this report and sampling results/data will be submitted along with the County's annual report.

**LOWNDES COUNTY, GEORGIA  
IMPAIRED WATERS  
MONITORING AND IMPLEMENTATION PLAN**

**WITHLACOOCHEE RIVER (R031102030401) – FC, TWR**

**Introduction**

As part of General NPDES Stormwater Permit No GAG610000, Lowndes County is required to identify any impaired waters located within its permitted area, using the latest approved 305(b)/303(d) List of Waters which contain MS4 outfalls or are within one (1) linear mile downstream of MS4 outfalls. For those impaired waters, the permittee is required to propose a Monitoring and Implementation Plan for addressing each cause/pollutant(s) of concern (POC).

As of March 2020, the most recent approved 305(b)/303(d) (2018) included a stream segment of the Withlacoochee River as not supporting its designated use within the County’s jurisdiction. See *Table 1: Impaired Stream Segments*.

**Table 1: Impaired Stream Segments**

<b>Reach Name and ID #</b>	<b>Reach Location</b>	<b>Use</b>	<b>Cause</b>	<b>Source</b>	<b>Extent</b>
Withlacoochee River (R031102030401)	Bay Branch to Little River	Fishing	FC <sup>1</sup> , TWR <sup>2</sup>	NP <sup>3</sup>	9 miles

- 1- Fecal Coliform
- 2- Trophic Weighted Residue (TWR)-Mercury in fish
- 3- Nonpoint (NP)-Nonpoint source pollution is caused by rainfall or snowmelt moving over and through the ground transporting natural and human-made pollutants which are eventually deposited into lakes, rivers, wetlands, coastal waters, and groundwaters.

**Objective**

Along with meeting the General NPDES Stormwater Permit requirement for proposing this Monitoring and Implementation Plan, it is Lowndes County’s objective to ensure that proper water quality monitoring techniques are executed so that measures are identified that will reduce or eliminate the POC or improve conditions that may be adversely affecting water quality characteristics and as such has caused the segment of this stream reach within Lowndes County to be listed as impaired.

**Maps**

A map showing the Impaired Waters Reaches and sampling site locations is included herein.

**Sample Sites**

Lowndes County has identified two (2) permanent sampling sites for the collection of water quality samples. The sampling sites vary in depth, width, and sampling complexity. Sampling procedures will depend upon the ability of the sampling personnel to enter the stream safely. See *Table 2: Sample Site Locations*.

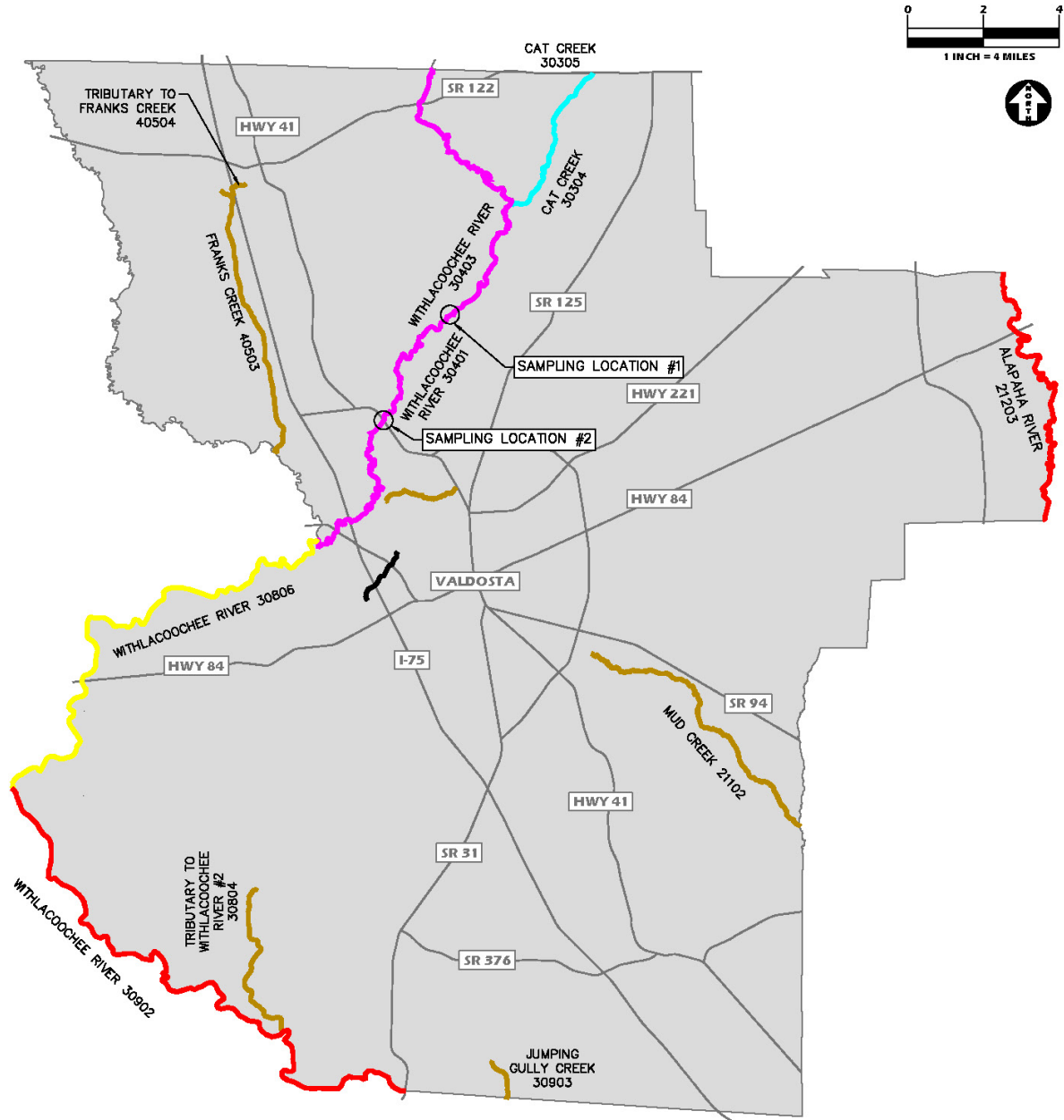
**Table 2: Sample Site Locations**

<b>Sampling Station</b>	<b>Stream</b>	<b>Location</b>	<b>In-stream</b>	<b>Sample Type</b>
<b>#1</b>	Withlacoochee River	Staten Rd	Upstream	TWR
<b>#2</b>	Withlacoochee River	N. Valdosta Rd	Downstream	TWR



# IMPAIRED STREAMS - LOWNDES COUNTY

## WITHLACOOCHEE RIVER (R031102030401) SAMPLING LOCATIONS



**LEGEND**

- DISSOLVED OXYGEN
- FECAL COLIFORM
- FECAL COLIFORM, MERCURY
- FECAL COLIFORM, LEAD, MERCURY
- MERCURY



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### **Sample Location Rationale**

The City of Valdosta is sampling the segment of the Withlacoochee River from N. Valdosta Rd to Highway 133. To avoid duplication of sampling, the County will use N. Valdosta Rd for the downstream sample station. This will allow for determining water quality for 2 discrete subsegments of the New River to Little River segment.

### **Sampling Schedule**

For trophic weighted residue (TWR), the 2018 Georgia Water Quality report prepared by Georgia EPD as an integrated document in the 305(b)/303(d) list, states “Mercury is a naturally occurring metal that cycles between the land, water, and the air. As mercury cycles through the environment, it is absorbed and ingested by plants and animals. It is not known where the mercury in Georgia’s fish originates. Mercury may be present due to mercury content in natural environments such as in South Georgia swamps, from municipal or industrial sources, or from fossil fuel uses. It has been shown that mercury contamination is related to global atmospheric transport. The EPA has evaluated the sources of mercury loading to several river basins in Georgia as part of TMDL development, and has determined that 99% or greater of the total mercury loading to these waters occurs via atmospheric deposition.”

The County does not have the resources to monitor TWR in fish tissue from the Withlacoochee River at this time. Therefore, quarterly sampling for low level mercury (LLM) in streams impaired with TWR will be contracted to a private environmental firm who will engage a certified laboratory for analytical services and reporting. Three (3) dry weather samples and one (1) wet weather sample will be collected in accordance with the GA EPD’s Watershed Assessment and Protection Plan Guidance: Watershed Protection Plans. See *Table 3: Sampling Schedule* for proposed sampling months.

**Table 3: Sampling Schedule**

<b>Sampling Station</b>	<b>Scheduled Sampling Months</b>
Station #1	March, June, September, December
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### **Bacteriological Reporting**

Bacteriological results (fecal coliform and e-coli) must be reported as a geometric mean consisting of at least four samples collected within a 30-day period at intervals no less than 24 hours. The samples should be distributed evenly over the 30-day period, and collected regardless of weather conditions.

### **Dry Weather Sampling**

A dry weather sample will be defined as one captured at least 72 hours after the most recent rain event totaling 0.1 inch of rain or more. All dry weather samples will be grab samples. Bacteriological samples (if applicable) will be collected in a sterile container, separate from the other samples.

### **Wet Weather Sampling**

The suggested wet-weather criteria are at least 0.2 inches of rainfall and at least 72 hours since the last storm event. Bacteriological samples (if applicable) will be collected in a sterile container, separate from the other samples.

### **Wadeable Stream Sampling**

If the stream is wadeable, staff will wade to a spot within the main flow of the stream to collect samples and perform onsite analyses. Staff will enter the water just downstream of the sampling point and walk upstream to prevent collection of samples at a point where the sediment has been disturbed. Staff will face upstream while capturing the sample. Samples collected in bottles that do not contain preservative will be immersed approximately three to five inches below the surface before opening, filled, and capped before the bottle is brought to the surface. This method will also be used to collect a sample of sufficient volume to fill all bottles that do contain preservatives. The preservative containing bottles will be filled as sub samples from the larger sample at the vehicle to prevent loss of preservative by overfilling in the stream. All analyses to be performed on site using portable testing equipment will be done either in the stream or at the vehicle as applicable. Calibration records for the portable testing equipment will be maintained. The samples for laboratory analysis will be placed into properly labeled and preserved sample bottles, placed in individual zipper locking freezer bags to prevent cross contamination, and placed on ice within fifteen minutes of collection. Chain of Custody forms will be used to document sampling times, proper preservation, and custody from sampling until delivery to the laboratory.

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## **Record Keeping**

For each parameter following information will be recorded:

- The place, date, and time of sampling.
- The person collecting the sample.
- The dates and times the analyses were performed.
- The person(s) who performed the analyses.
- The analytical procedures or methods used.
- The results of all field analyses.

The County/environmental firm will maintain a dry weather water quality monitoring report form for each dry weather sampling. The dry weather report form will also contain the bacteriological results (if applicable) for the station. Copies of these report forms will be included with the annual report. Chain of custody copies, laboratory report copies, calibration records, quality control records, and water quality report forms will be maintained in the files of the person or position in overall control of the Watershed Protection Plan.

## **Monitoring**

The County/environmental firm will evaluate the resulting samplings by monitoring data for the initial three (3) years of this program, to ascertain the level of pollutants of concern (POC) in the impaired waters and if it is likely to be originating in the County.

## **Proposed Best Management Practices (BMPs)**

The County will continue to implement its Stormwater Management Plan (SWMP) under its current NPDES Phase II MS4 permit. Because mercury in runoff is derived from atmospheric deposition, mercury in stormwater is accounted for in the calculation of the atmospheric load. Separate strategies for reducing nonpoint sources are not included in this plan because implementation of the strategies to reduce air deposition will ultimately reduce stormwater loading. Therefore, any efforts to reduce soil erosion will tend to reduce mercury entering a lake or river from nonpoint water sources. Many of these practices are already employed for control of sediment runoff and will result in reducing mercury loading to surface waters.

## **Public Outreach and Education**

Lowndes County has a public outreach and education program that targets County offices and public facilities with flyers and brochures about stormwater and water quality of streams. Continued effort will be made to educate the public on fecal coliform and mercury for both urban and rural residents including:

- Reporting of sanitary sewer overflows.
- Septic tank upkeep and maintenance.
- Effects of fecal coliform transported to streams from pastures.
- Management of household hazardous waste to ensure proper product disposal.

## **Annual Evaluation:**

Once the base year data is collected (i.e. the data from the first year of sampling), the County will evaluate each subsequent year's sampling data against the previous year/years data. The evaluation will be a comparative look at each year's data both at the individual outfalls and as an average of the outfall to each of the impaired basins. The intention is to identify trends that occur in the sampling data. If trends are found, the County will look for obvious factors that may account for the trending outside of the BMP's that have been implemented by the County. Unexplained trending may indicate the effectiveness of the BMP's that are used.

### **Implementation Schedule**

The County is prepared to implement this Monitoring and Implementation plan within a reasonable time after plan approval by the Georgia EPD.

### **Annual Reporting**

Each year, the County will develop a brief water quality report for the Withlacoochee River. This report will include:

- Monitoring results
- Trend analysis
- Documentation of activities
- Recommendations based on evaluations

The water quality data along with the trend analysis will be utilized to determine if the trend is showing improvement or degradation relative to implementing BMPs. If the trend analysis indicates that water quality is worsening or not improving, then additional sampling and/or BMPs will be evaluated to identify sources within the area covered by County's MS4 permit. A copy of this report and sampling results/data will be submitted along with the County's annual report.

**LOWNDES COUNTY, GEORGIA  
IMPAIRED WATERS  
MONITORING AND IMPLEMENTATION PLAN**

**WITHLACOOCHEE RIVER (R031102030403) – FC, TWR**

**Introduction**

As part of General NPDES Stormwater Permit No GAG610000, Lowndes County is required to identify any impaired waters located within its permitted area, using the latest approved 305(b)/303(d) List of Waters which contain MS4 outfalls or are within one (1) linear mile downstream of MS4 outfalls. For those impaired waters, the permittee is required to propose a Monitoring and Implementation Plan for addressing each cause/pollutant(s) of concern (POC).

As of March 2020, the most recent approved 305(b)/303(d) (2018) included a stream segment of the Withlacoochee River as not supporting its designated use within the County’s jurisdiction. See *Table 1: Impaired Stream Segments*.

**Table 1: Impaired Stream Segments**

Reach Name and ID #	Reach Location	Use	Cause	Source	Extent
Withlacoochee River (R031102030403)	New River to Bay Branch	Fishing	FC <sup>1</sup> , TWR <sup>2</sup>	NP <sup>3</sup>	23 miles

- 1- Fecal Coliform
- 2- Trophic Weighted Residue (TWR)-Mercury in fish
- 3- Nonpoint (NP)-Nonpoint source pollution is caused by rainfall or snowmelt moving over and through the ground transporting natural and human-made pollutants which are eventually deposited into lakes, rivers, wetlands, coastal waters, and groundwaters.

**Objective**

Along with meeting the General NPDES Stormwater Permit requirement for proposing this Monitoring and Implementation Plan, it is Lowndes County’s objective to ensure that proper water quality monitoring techniques are executed so that measures are identified that will reduce or eliminate the POC or improve conditions that may be adversely affecting water quality characteristics and as such has caused the segment of this stream reach within Lowndes County to be listed as impaired.

**Maps**

A map showing the Impaired Waters Reaches and sampling site locations is included herein.

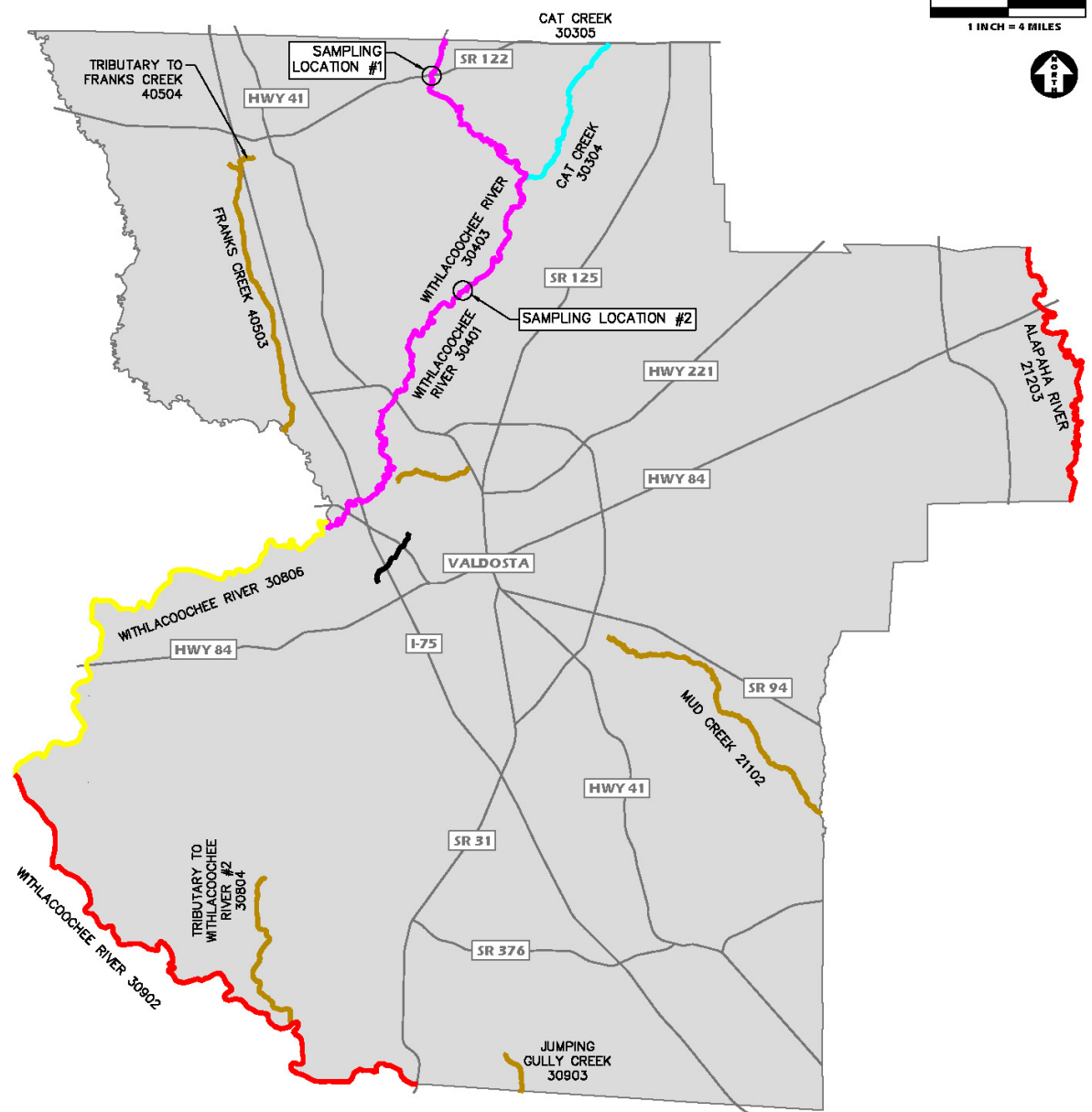
**Sample Sites**

Lowndes County has identified two (2) permanent sampling sites for the collection of water quality samples. The sampling sites vary in depth, width, and sampling complexity. Sampling procedures will depend upon the ability of the sampling personnel to enter the stream safely. See *Table 2: Sample Site Locations*.

**Table 2: Sample Site Locations**

Sampling Station	Stream	Location	In-stream	Sample Type
#1	Withlacoochee River	Hwy 122 E	Upstream	TWR
#2	Withlacoochee River	Staten Rd	Downstream	TWR

**IMPAIRED STREAMS - LOWNDES COUNTY**  
 WITHLACOOCHEE RIVER (R031102030403) SAMPLING LOCATIONS



**LEGEND**

- DISSOLVED OXYGEN
- FECAL COLIFORM
- FECAL COLIFORM, MERCURY
- FECAL COLIFORM, LEAD, MERCURY
- MERCURY



### **Sampling Schedule**

For trophic weighted residue (TWR), the 2018 Georgia Water Quality report prepared by Georgia EPD as an integrated document in the 305(b)/303(d) list, states “Mercury is a naturally occurring metal that cycles between the land, water, and the air. As mercury cycles through the environment, it is absorbed and ingested by plants and animals. It is not known where the mercury in Georgia’s fish originates. Mercury may be present due to mercury content in natural environments such as in South Georgia swamps, from municipal or industrial sources, or from fossil fuel uses. It has been shown that mercury contamination is related to global atmospheric transport. The EPA has evaluated the sources of mercury loading to several river basins in Georgia as part of TMDL development, and has determined that 99% or greater of the total mercury loading to these waters occurs via atmospheric deposition.”

The County does not have the resources to monitor TWR in fish tissue from the Withlacoochee River at this time. Therefore, quarterly sampling for low level mercury (LLM) in streams impaired with TWR will be contracted to a private environmental firm who will engage a certified laboratory for analytical services and reporting. Three (3) dry weather samples and one (1) wet weather sample will be collected in accordance with the GA EPD’s Watershed Assessment and Protection Plan Guidance: Watershed Protection Plans. See *Table 3: Sampling Schedule* for proposed sampling months.

**Table 3: Sampling Schedule**

<b>Sampling Station</b>	<b>Scheduled Sampling Months</b>
Station #1	March, June, September, December
Station #2	March, June, September, December

### **Bacteriological Reporting**

Bacteriological results (fecal coliform and e-coli) must be reported as a geometric mean consisting of at least four samples collected within a 30-day period at intervals no less than 24 hours. The samples should be distributed evenly over the 30-day period, and collected regardless of weather conditions.

### **Dry Weather Sampling**

A dry weather sample will be defined as one captured at least 72 hours after the most recent rain event totaling 0.1 inch of rain or more. All dry weather samples will be grab samples. Bacteriological samples (if applicable) will be collected in a sterile container, separate from the other samples.

### **Wet Weather Sampling**

The suggested wet-weather criteria are at least 0.2 inches of rainfall and at least 72 hours since the last storm event. Bacteriological samples (if applicable) will be collected in a sterile container, separate from the other samples.

### **Wadeable Stream Sampling**

If the stream is wadeable, staff will wade to a spot within the main flow of the stream to collect samples and perform onsite analyses. Staff will enter the water just downstream of the sampling point and walk upstream to prevent collection of samples at a point where the sediment has been disturbed. Staff will face upstream while capturing the sample. Samples collected in bottles that do not contain preservative will be immersed approximately three to five inches below the surface before opening, filled, and capped before the bottle is brought to the surface. This method will also be used to collect a sample of sufficient volume to fill all bottles that do contain preservatives. The preservative containing bottles will be filled as sub samples from the larger sample at the vehicle to prevent loss of preservative by overfilling in the stream. All analyses to be performed on site using portable testing equipment will be done either in the



stream or at the vehicle as applicable. Calibration records for the portable testing equipment will be maintained. The samples for laboratory analysis will be placed into properly labeled and preserved sample bottles, placed in individual zipper locking freezer bags to prevent cross contamination, and placed on ice within fifteen minutes of collection. Chain of Custody forms will be used to document sampling times, proper preservation, and custody from sampling until delivery to the laboratory.

Bacteriological samples collected in a wadeable stream will be collected in sterilized glass bottles or purchased sterile whirl pack bags. Staff will enter the water just downstream of the sampling point and walk upstream to prevent collection of samples at a point where the sediment has been disturbed. Staff will face upstream while capturing the sample. The sample container will remain closed until submerged to prevent contamination. The container will be opened underwater, filled, and closed while still submerged. Bacteriological samples will be placed on ice immediately after capture and delivered for analysis within two hours. Analysis of bacteriological samples will begin within six hours of capture. Chain of Custody forms will be used to document sampling times, proper preservation, and custody from sampling until delivery to the laboratory.

### **Non-Wadeable Stream Samples**

If sampling cannot be done safely by wading, a sample will be taken from a bridge or road crossing using a bucket and rope. Before taking the sample, the bucket will be rinsed out three (3) times with sample water. From the bridge or road crossing, the bucket and rope will be lowered midstream into the fast-flowing section of the water. Once the bucket has been filled, it will then be pulled up for sampling. This method will also be used to collect samples of sufficient volume to fill all bottles. All analyses to be performed onsite using portable testing equipment will be done either from the bridge or road crossing, or from samples collected with the bucket and rope as applicable.

If sampling cannot be done safely by wading, bacteriological samples will also be collected using a bucket and rope. Before taking the sample, the bucket will be rinsed out three (3) times with sample water. From the bridge or road crossing, the bucket and rope will be lowered midstream into the fast-flowing section of the water. Once the bucket has been filled, it will then be pulled up for sampling. A properly labeled sterile bottle or whirl pack bag will be placed underwater in the sample, opened, and allowed to fill. The sample container will be closed while still underwater and then removed from the bucket. Bacteriological samples will be placed on ice immediately after capture and delivered for analysis within two hours. Analysis of bacteriological samples will begin within six hours of capture. Chain of custody forms will be used to document sampling times, proper preservation, and custody from sampling until delivery to the laboratory. Calibration records for the portable testing equipment will be maintained. The samples for laboratory analysis will be placed into properly labeled and preserved sample bottles, placed in individual zipper locking freezer bags to prevent cross contamination, and placed on ice within fifteen minutes of collection.

### **Record Keeping**

For each parameter, the following information will be recorded:

- The place, date, and time of sampling.
- The person collecting the sample.
- The dates and times the analyses were performed.
- The person(s) who performed the analyses.
- The analytical procedures or methods used.
- The results of all field analyses.

The County/environmental firm will maintain a dry weather water quality monitoring report form for each dry weather sampling. The dry weather report form will also contain the bacteriological results (if applicable) for the station. Copies of these report forms will be included with the annual report. Chain of custody copies, laboratory report copies, calibration records, quality control records, and water quality report forms will be maintained in the files of the person or position in overall control of the Watershed Protection Plan.

### **Monitoring**

The County/environmental firm will evaluate the resulting samplings by monitoring data for the initial three (3) years of this program, to ascertain the level of pollutants of concern (POC) in the impaired waters and if it is likely to be originating in the County.

### **Proposed Best Management Practices (BMPs)**

The County will continue to implement its Stormwater Management Plan (SWMP) under its current NPDES Phase II MS4 permit. Because mercury in runoff is derived from atmospheric deposition, mercury in stormwater is accounted for in the calculation of the atmospheric load. Separate strategies for reducing nonpoint sources are not included in this plan because implementation of the strategies to reduce air deposition will ultimately reduce stormwater loading. Therefore, any efforts to reduce soil erosion will tend to reduce mercury entering a lake or river from nonpoint water sources. Many of these practices are already employed for control of sediment runoff and will result in reducing mercury loading to surface waters.

### **Public Outreach and Education**

Lowndes County has a public outreach and education program that targets County offices and public facilities with flyers and brochures about stormwater and water quality of streams. Continued effort will be made to educate the public on fecal coliform and mercury for both urban and rural residents including:

- Reporting of sanitary sewer overflows.
- Septic tank upkeep and maintenance.
- Effects of fecal coliform transported to streams from pastures.
- Management of household hazardous waste to ensure proper product disposal.

### **Annual Evaluation:**

Once the base year data is collected (i.e. the data from the first year of sampling), the County will evaluate each subsequent year's sampling data against the previous year/years data. The evaluation will be a comparative look at each year's data both at the individual outfalls and as an average of the outfall to each of the impaired basins. The intention is to identify trends that occur in the sampling data. If trends are found, the County will look for obvious factors that may account for the trending outside of the BMP's that have been implemented by the County. Unexplained trending may indicate the effectiveness of the BMPs' that are used.

### **Implementation Schedule**

The County is prepared to implement this Monitoring and Implementation plan within a reasonable time after plan approval by the Georgia EPD.

### **Annual Reporting**

Each year, the County will develop a brief water quality report for the Withlacoochee River. This report will include:

- Monitoring results
- Trend analysis
- Documentation of activities
- Recommendations based on evaluations

The water quality data along with the trend analysis will be utilized to determine if the trend is showing improvement or degradation relative to implementing BMPs. If the trend analysis indicates that water quality is worsening or not improving, then additional sampling and/or BMPs will be evaluated to identify sources within the area covered by County's MS4 permit. A copy of this report and sampling results/data will be submitted along with the County's annual report.

**LOWNDES COUNTY, GEORGIA  
IMPAIRED WATERS  
MONITORING AND IMPLEMENTATION PLAN**

**WITHLACOOCHEE RIVER (R031102030806) – FC, PB, TWR**

**Introduction**

As part of General NPDES Stormwater Permit No GAG610000, Lowndes County is required to identify any impaired waters located within its permitted area, using the latest approved 305(b)/303(d) List of Waters which contain MS4 outfalls or are within one (1) linear mile downstream of MS4 outfalls. For those impaired waters, the permittee is required to propose a Monitoring and Implementation Plan for addressing each cause/pollutant(s) of concern (POC).

As of March 2020, the most recent approved 305(b)/303(d) (2018) included a stream segment of the Withlacoochee River as not supporting its designated use within the County’s jurisdiction. See *Table 1: Impaired Stream Segments*.

**Table 1: Impaired Stream Segments**

<b>Reach Name and ID #</b>	<b>Reach Location</b>	<b>Use</b>	<b>Cause</b>	<b>Source</b>	<b>Extent</b>
Withlacoochee River (R031102030806)	Little River to Okapilco Creek	Fishing	FC <sup>1</sup> , Pb <sup>2</sup> TWR <sup>3</sup>	NP <sup>4</sup>	15 miles

- 1- Fecal Coliform
- 2- Lead
- 3- Trophic Weighted Residue (TWR)-Mercury in fish
- 4- Nonpoint (NP)-Nonpoint source pollution is caused by rainfall or snowmelt moving over and through the ground transporting natural and human-made pollutants which are eventually deposited into lakes, rivers, wetlands, coastal waters, and groundwaters.

**Objective**

Along with meeting the General NPDES Stormwater Permit requirement for proposing this Monitoring and Implementation Plan, it is Lowndes County’s objective to ensure that proper water quality monitoring techniques are executed so that measures are identified that will reduce or eliminate the POC or improve conditions that may be adversely affecting water quality characteristics and as such has caused the segment of this stream reach within Lowndes County to be listed as impaired.

**Maps**

A map showing the Impaired Waters Reaches and sampling site locations is included herein.

**Sample Sites**

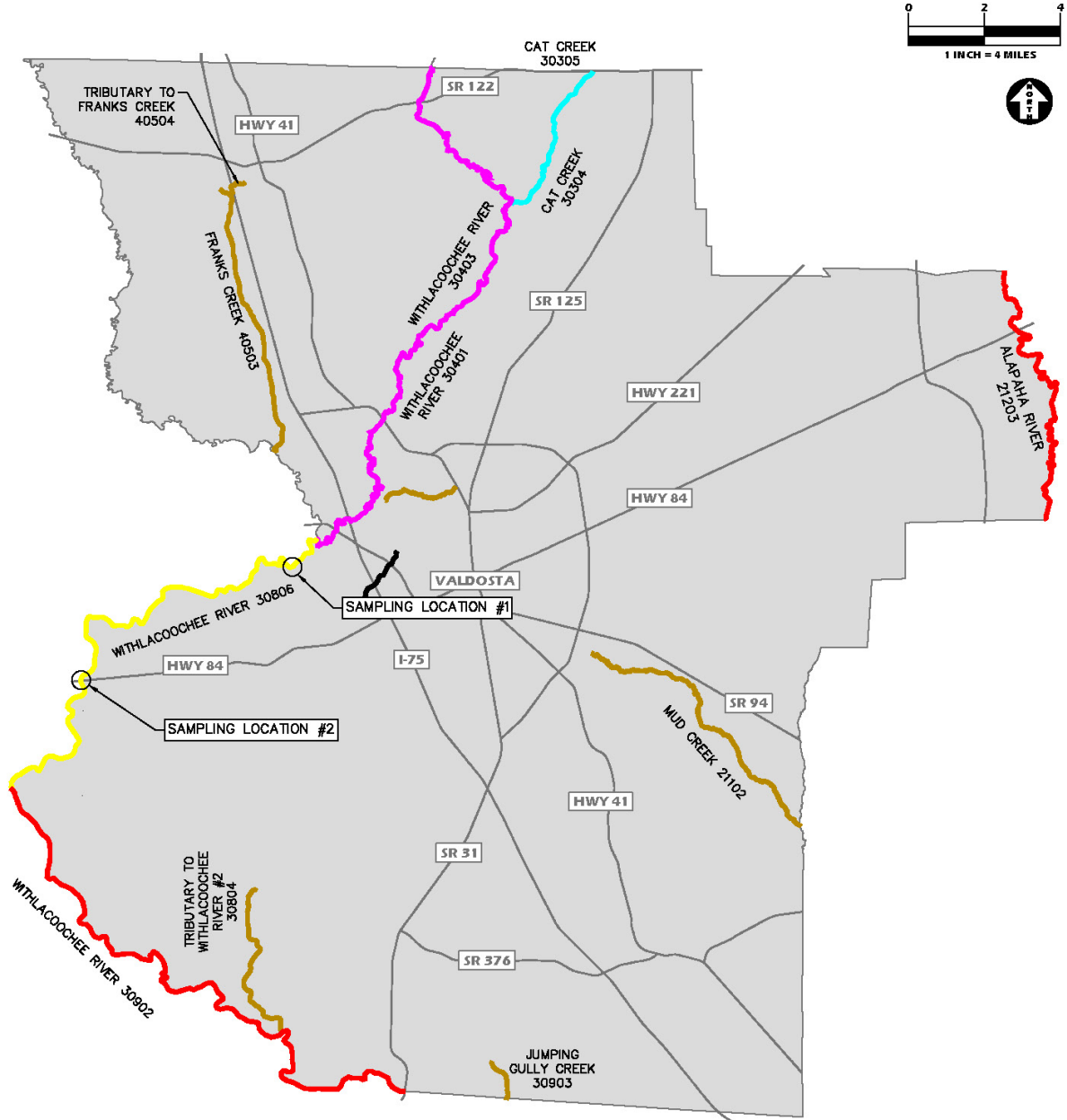
Lowndes County has identified two (2) permanent sampling sites for the collection of water quality samples. The sampling sites vary in depth, width, and sampling complexity. Sampling procedures will depend upon the ability of the sampling personnel to enter the stream safely. See *Table 2: Sample Site Locations*.

**Table 2: Sample Site Locations**

<b>Sampling Station</b>	<b>Stream</b>	<b>Location</b>	<b>In-stream</b>	<b>Sample Type</b>
<b>#1</b>	Withlacoochee River	Wetherington Lane	Upstream	TWR
<b>#2</b>	Withlacoochee River	US Hwy 84 W	Downstream	TWR

# IMPAIRED STREAMS - LOWNDES COUNTY

## WITHLACOOCHEE RIVER (R031102030806) SAMPLING LOCATIONS



**LEGEND**

- DISSOLVED OXYGEN
- FECAL COLIFORM
- FECAL COLIFORM, MERCURY
- FECAL COLIFORM, LEAD, MERCURY
- MERCURY



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### **Sampling Schedule**

For trophic weighted residue (TWR), the 2018 Georgia Water Quality report prepared by Georgia EPD as an integrated document in the 305(b)/303(d) list, states “Mercury is a naturally occurring metal that cycles between the land, water, and the air. As mercury cycles through the environment, it is absorbed and ingested by plants and animals. It is not known where the mercury in Georgia’s fish originates. Mercury may be present due to mercury content in natural environments such as in South Georgia swamps, from municipal or industrial sources, or from fossil fuel uses. It has been shown that mercury contamination is related to global atmospheric transport. The EPA has evaluated the sources of mercury loading to several river basins in Georgia as part of TMDL development, and has determined that 99% or greater of the total mercury loading to these waters occurs via atmospheric deposition.”

The County does not have the resources to monitor TWR in fish tissue from the Withlacoochee River at this time. Therefore, quarterly sampling for low level mercury (LLM) in streams impaired with TWR will be contracted to a private environmental firm who will engage a certified laboratory for analytical services and reporting. Three (3) dry weather samples and one (1) wet weather sample will be collected in accordance with the GA EPD’s Watershed Assessment and Protection Plan Guidance: Watershed Protection Plans. See *Table 3: Sampling Schedule* for proposed sampling months.

**Table 3: Sampling Schedule**

<b>Sampling Station</b>	<b>Scheduled Sampling Months</b>
Station #1	March, June, September, December
Station #2	March, June, September, December

### **Bacteriological Reporting**

Bacteriological results (fecal coliform and e-coli) must be reported as a geometric mean consisting of at least four samples collected within a 30-day period at intervals no less than 24 hours. The samples should be distributed evenly over the 30-day period, and collected regardless of weather conditions.

### **Dry Weather Sampling**

A dry weather sample will be defined as one captured at least 72 hours after the most recent rain event totaling 0.1 inch of rain or more. All dry weather samples will be grab samples. Bacteriological samples (if applicable) will be collected in a sterile container, separate from the other samples.

### **Wet Weather Sampling**

The suggested wet-weather criteria are at least 0.2 inches of rainfall and at least 72 hours since the last storm event. Bacteriological samples (if applicable) will be collected in a sterile container, separate from the other samples.

### **Wadeable Stream Sampling**

If the stream is wadeable, staff will wade to a spot within the main flow of the stream to collect samples and perform onsite analyses. Staff will enter the water just downstream of the sampling point and walk upstream to prevent collection of samples at a point where the sediment has been disturbed. Staff will face upstream while capturing the sample. Samples collected in bottles that do not contain preservative will be immersed approximately three to five inches below the surface before opening, filled, and capped before the bottle is brought to the surface. This method will also be used to collect a sample of sufficient volume to fill all bottles that do contain preservatives. The preservative containing bottles will be filled as sub samples from the larger sample at the vehicle to prevent loss of preservative by overfilling in the stream. All analyses to be performed on site using portable testing equipment will be done either in the

stream or at the vehicle as applicable. Calibration records for the portable testing equipment will be maintained. The samples for laboratory analysis will be placed into properly labeled and preserved sample bottles, placed in individual zipper locking freezer bags to prevent cross contamination, and placed on ice within fifteen minutes of collection. Chain of Custody forms will be used to document sampling times, proper preservation, and custody from sampling until delivery to the laboratory.

Bacteriological samples collected in a wadeable stream will be collected in sterilized glass bottles or purchased sterile whirl pack bags. Staff will enter the water just downstream of the sampling point and walk upstream to prevent collection of samples at a point where the sediment has been disturbed. Staff will face upstream while capturing the sample. The sample container will remain closed until submerged to prevent contamination. The container will be opened underwater, filled, and closed while still submerged. Bacteriological samples will be placed on ice immediately after capture and delivered for analysis within two hours. Analysis of bacteriological samples will begin within six hours of capture. Chain of Custody forms will be used to document sampling times, proper preservation, and custody from sampling until delivery to the laboratory.

### **Non-Wadeable Stream Samples**

If sampling cannot be done safely by wading, a sample will be taken from a bridge or road crossing using a bucket and rope. Before taking the sample, the bucket will be rinsed out three (3) times with sample water. From the bridge or road crossing, the bucket and rope will be lowered midstream into the fast-flowing section of the water. Once the bucket has been filled, it will then be pulled up for sampling. This method will also be used to collect samples of sufficient volume to fill all bottles. All analyses to be performed onsite using portable testing equipment will be done either from the bridge or road crossing, or from samples collected with the bucket and rope as applicable.

If sampling cannot be done safely by wading, bacteriological samples will also be collected using a bucket and rope. Before taking the sample, the bucket will be rinsed out three (3) times with sample water. From the bridge or road crossing, the bucket and rope will be lowered midstream into the fast-flowing section of the water. Once the bucket has been filled, it will then be pulled up for sampling. A properly labeled sterile bottle or whirl pack bag will be placed underwater in the sample, opened, and allowed to fill. The sample container will be closed while still underwater and then removed from the bucket. Bacteriological samples will be placed on ice immediately after capture and delivered for analysis within two hours. Analysis of bacteriological samples will begin within six hours of capture. Chain of custody forms will be used to document sampling times, proper preservation, and custody from sampling until delivery to the laboratory. Calibration records for the portable testing equipment will be maintained. The samples for laboratory analysis will be placed into properly labeled and preserved sample bottles, placed in individual zipper locking freezer bags to prevent cross contamination, and placed on ice within fifteen minutes of collection.

### **Record Keeping**

For each parameter, the following information will be recorded:

- The place, date, and time of sampling.
- The person collecting the sample.
- The dates and times the analyses were performed.
- The person(s) who performed the analyses.
- The analytical procedures or methods used.
- The results of all field analyses.

The County/environmental firm will maintain a dry weather water quality monitoring report form for each dry weather sampling. The dry weather report form will also contain the bacteriological results (if applicable) for the station. Copies of these report forms will be included with the annual report. Chain of custody copies, laboratory report copies, calibration records, quality control records, and water quality report forms will be maintained in the files of the person or position in overall control of the Watershed Protection Plan.

### **Monitoring**

The County/environmental firm will evaluate the resulting samplings by monitoring data for the initial three (3) years of this program, to ascertain the level of pollutants of concern (POC) in the impaired waters and if it is likely to be originating in the County.

### **Proposed Best Management Practices (BMPs)**

The County will continue to implement its Stormwater Management Plan (SWMP) under its current NPDES Phase II MS4 permit. Because mercury in runoff is derived from atmospheric deposition, mercury in stormwater is accounted for in the calculation of the atmospheric load. Separate strategies for reducing nonpoint sources are not included in this plan because implementation of the strategies to reduce air deposition will ultimately reduce stormwater loading. Therefore, any efforts to reduce soil erosion will tend to reduce mercury entering a lake or river from nonpoint water sources. Many of these practices are already employed for control of sediment runoff and will result in reducing mercury loading as well as lead loading to surface waters.

### **Public Outreach and Education**

Lowndes County has a public outreach and education program that targets County offices and public facilities with flyers and brochures about stormwater and water quality of streams. Continued effort will be made to educate the public on fecal coliform and mercury for both urban and rural residents including:

- Reporting of sanitary sewer overflows.
- Septic tank upkeep and maintenance.
- Effects of fecal coliform transported to streams from pastures.
- Management of household hazardous waste to ensure proper product disposal.

### **Annual Evaluation:**

Once the base year data is collected (i.e. the data from the first year of sampling), the County will evaluate each subsequent year's sampling data against the previous year/years data. The evaluation will be a comparative look at each year's data both at the individual outfalls and as an average of the outfall to each of the impaired basins. The intention is to identify trends that occur in the sampling data. If trends are found, the County will look for obvious factors that may account for the trending outside of the BMP's that have been implemented by the County. Unexplained trending may indicate the effectiveness of the BMPs' that are used.

### **Implementation Schedule**

The County is prepared to implement this Monitoring and Implementation plan within a reasonable time after plan approval by the Georgia EPD.



### **Annual Reporting**

Each year, the County will develop a brief water quality report for the Withlacoochee River. This report will include:

- Monitoring results
- Trend analysis
- Documentation of activities
- Recommendations based on evaluations

The water quality data along with the trend analysis will be utilized to determine if the trend is showing improvement or degradation relative to implementing BMPs. If the trend analysis indicates that water quality is worsening or not improving, then additional sampling and/or BMPs will be evaluated to identify sources within the area covered by County's MS4 permit. A copy of this report and sampling results/data will be submitted along with the County's annual report.

**LOWNDES COUNTY, GEORGIA  
IMPAIRED WATERS  
MONITORING AND IMPLEMENTATION PLAN**

**WITHLACOOCHEE RIVER (R031102030902) - TWR**

**Introduction**

As part of General NPDES Stormwater Permit No GAG610000, Lowndes County is required to identify any impaired waters located within its permitted area, using the latest approved 305(b)/303(d) List of Waters which contain MS4 outfalls or are within one (1) linear mile downstream of MS4 outfalls. For those impaired waters, the permittee is required to propose a Monitoring and Implementation Plan for addressing each cause/pollutant(s) of concern (POC).

As of March 2020, the most recent approved 305(b)/303(d) (2018) included a stream segment of the Withlacoochee River as not supporting its designated use within the County's jurisdiction. See *Table 1: Impaired Stream Segments*.

**Table 1: Impaired Stream Segments**

Reach Name and ID #	Reach Location	Use	Cause	Source	Extent
Withlacoochee River (R031102030902)	Withlacoochee River to Stateline	Fishing	TWR <sup>1</sup>	NP	14 miles

- 1- Trophic Weighted Residue (TWR)-Mercury in fish
- 2- Nonpoint (NP)-Nonpoint source pollution is caused by rainfall or snowmelt moving over and through the ground transporting natural and human-made pollutants which are eventually deposited into lakes, rivers, wetlands, coastal waters, and groundwaters.

**Objective**

Along with meeting the General NPDES Stormwater Permit requirement for proposing this Monitoring and Implementation Plan, it is Lowndes County's objective to ensure that proper water quality monitoring techniques are executed so that measures are identified that will reduce or eliminate the POC or improve conditions that may be adversely affecting water quality characteristics and as such has caused the segment of this stream reach within Lowndes County to be listed as impaired.

**Maps**

A map showing the Impaired Waters Reaches and sampling site locations is included herein.

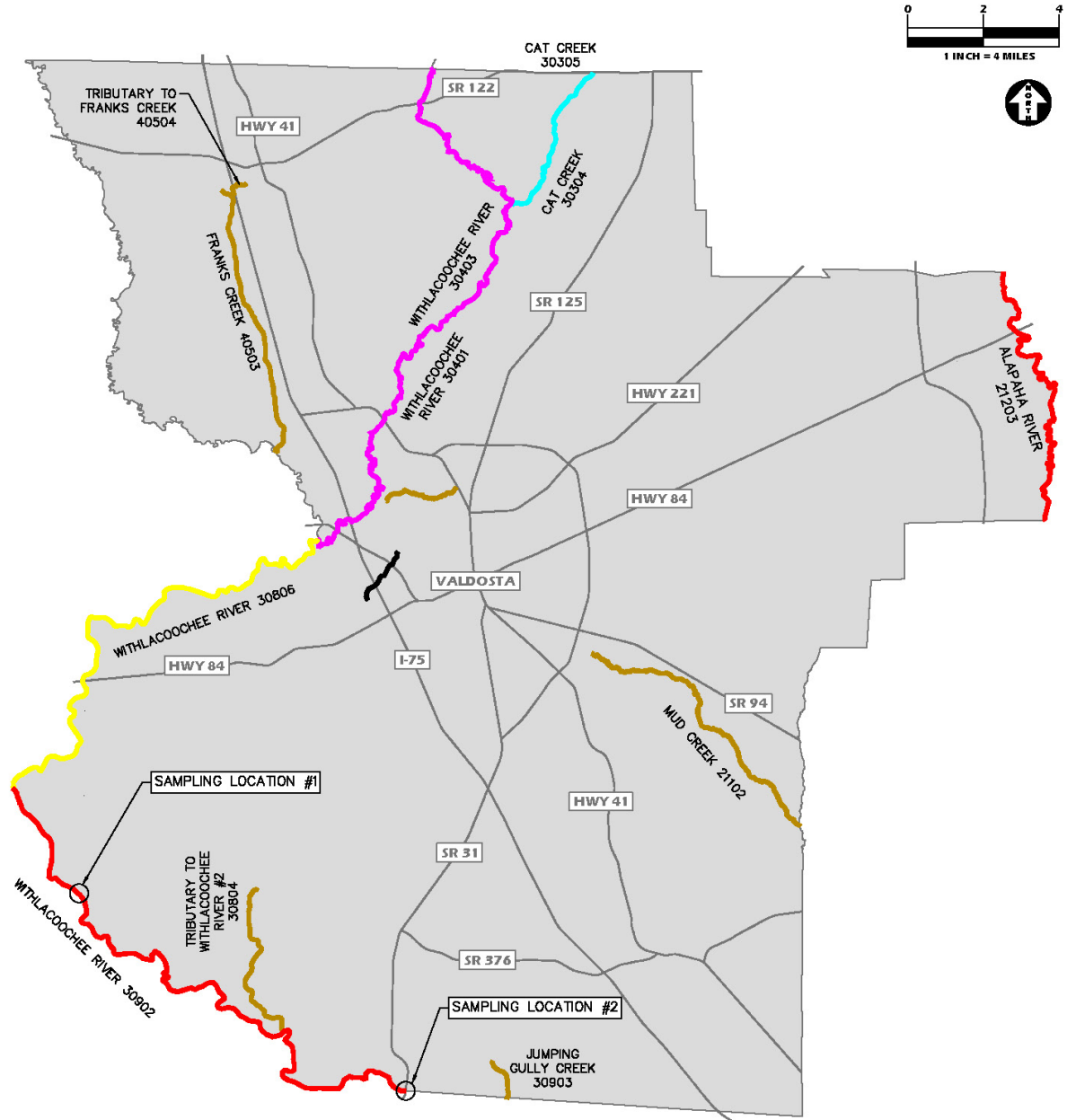
**Sample Sites**

Lowndes County has identified two (2) permanent sampling sites for the collection of water quality samples. The sampling sites vary in depth, width, and sampling complexity. Sampling procedures will depend upon the ability of the sampling personnel to enter the stream safely. See *Table 2: Sample Site Locations*.

**Table 2: Sample Site Locations**

Sampling Station	Stream	Location	In-stream	Sample Type
#1	Withlacoochee River	Knights Ferry	Upstream	TWR
#2	Withlacoochee River	Madison Hwy	Downstream	TWR

**IMPAIRED STREAMS - LOWNDES COUNTY**  
 WITHLACOOCHEE RIVER (R031102030902) SAMPLING LOCATIONS



**LEGEND**

- DISSOLVED OXYGEN
- FECAL COLIFORM
- FECAL COLIFORM, MERCURY
- FECAL COLIFORM, LEAD, MERCURY
- MERCURY



### **Sampling Schedule**

For trophic weighted residue (TWR), the 2018 Georgia Water Quality report prepared by Georgia EPD as an integrated document in the 305(b)/303(d) list, states “Mercury is a naturally occurring metal that cycles between the land, water, and the air. As mercury cycles through the environment, it is absorbed and ingested by plants and animals. It is not known where the mercury in Georgia’s fish originates. Mercury may be present due to mercury content in natural environments such as in South Georgia swamps, from municipal or industrial sources, or from fossil fuel uses. It has been shown that mercury contamination is related to global atmospheric transport. The EPA has evaluated the sources of mercury loading to several river basins in Georgia as part of TMDL development, and has determined that 99% or greater of the total mercury loading to these waters occurs via atmospheric deposition.”

The County does not have the resources to monitor TWR in fish tissue from the Withlacoochee River at this time. Therefore, quarterly sampling for low level mercury (LLM) in streams impaired with TWR will be contracted to a private environmental firm who will engage a certified laboratory for analytical services and reporting. Three (3) dry weather samples and one (1) wet weather sample will be collected in accordance with the GA EPD’s Watershed Assessment and Protection Plan Guidance: Watershed Protection Plans. See *Table 3: Sampling Schedule* for proposed sampling months.

**Table 3: Sampling Schedule**

<b>Sampling Station</b>	<b>Scheduled Sampling Months</b>
Station #1	March, June, September, December
Station #2	March, June, September, December

### **Dry Weather Sampling**

A dry weather sample will be defined as one captured at least 72 hours after the most recent rain event totaling 0.1 inch of rain or more. All dry weather samples will be grab samples. Bacteriological samples (if applicable) will be collected in a sterile container, separate from the other samples.

### **Wet Weather Sampling**

The suggested wet-weather criteria are at least 0.2 inches of rainfall and at least 72 hours since the last storm event. Bacteriological samples (if applicable) will be collected in a sterile container, separate from the other samples.

### **Wadeable Stream Sampling**

If the stream is wadeable, staff will wade to a spot within the main flow of the stream to collect samples and perform onsite analyses. Staff will enter the water just downstream of the sampling point and walk upstream to prevent collection of samples at a point where the sediment has been disturbed. Staff will face upstream while capturing the sample. Samples collected in bottles that do not contain preservative will be immersed approximately three to five inches below the surface before opening, filled, and capped before the bottle is brought to the surface. This method will also be used to collect a sample of sufficient volume to fill all bottles that do contain preservatives. The preservative containing bottles will be filled as sub samples from the larger sample at the vehicle to prevent loss of preservative by overfilling in the stream. All analyses to be performed on site using portable testing equipment will be done either in the stream or at the vehicle as applicable. Calibration records for the portable testing equipment will be maintained. The samples for laboratory analysis will be placed into properly labeled and preserved sample bottles, placed in individual zipper locking freezer bags to prevent cross contamination, and placed on ice within fifteen minutes of collection. Chain of Custody forms will be used to document sampling times, proper preservation, and custody from sampling until delivery to the laboratory.

Bacteriological samples collected in a wadeable stream will be collected in sterilized glass bottles or purchased sterile whirl pack bags. Staff will enter the water just downstream of the sampling point and walk upstream to prevent collection of samples at a point where the sediment has been disturbed. Staff will face upstream while capturing the sample. The sample container will remain closed until submerged to prevent contamination. The container will be opened underwater, filled, and closed while still submerged. Bacteriological samples will be placed on ice immediately after capture and delivered for analysis within two hours. Analysis of bacteriological samples will begin within six hours of capture. Chain of Custody forms will be used to document sampling times, proper preservation, and custody from sampling until delivery to the laboratory.

### **Non-Wadeable Stream Samples**

If sampling cannot be done safely by wading, a sample will be taken from a bridge or road crossing using a bucket and rope. Before taking the sample, the bucket will be rinsed out three (3) times with sample water. From the bridge or road crossing, the bucket and rope will be lowered midstream into the fast-flowing section of the water. Once the bucket has been filled, it will then be pulled up for sampling. This method will also be used to collect samples of sufficient volume to fill all bottles. All analyses to be performed onsite using portable testing equipment will be done either from the bridge or road crossing, or from samples collected with the bucket and rope as applicable.

If sampling cannot be done safely by wading, bacteriological samples will also be collected using a bucket and rope. Before taking the sample, the bucket will be rinsed out three (3) times with sample water. From the bridge or road crossing, the bucket and rope will be lowered midstream into the fast-flowing section of the water. Once the bucket has been filled, it will then be pulled up for sampling. A properly labeled sterile bottle or whirl pack bag will be placed underwater in the sample, opened, and allowed to fill. The sample container will be closed while still underwater and then removed from the bucket. Bacteriological samples will be placed on ice immediately after capture and delivered for analysis within two hours. Analysis of bacteriological samples will begin within six hours of capture. Chain of custody forms will be used to document sampling times, proper preservation, and custody from sampling until delivery to the laboratory. Calibration records for the portable testing equipment will be maintained. The samples for laboratory analysis will be placed into properly labeled and preserved sample bottles, placed in individual zipper locking freezer bags to prevent cross contamination, and placed on ice within fifteen minutes of collection.

### **Record Keeping**

For each parameter, the following information will be recorded:

- The place, date, and time of sampling.
- The person collecting the sample.
- The dates and times the analyses were performed.
- The person(s) who performed the analyses.
- The analytical procedures or methods used.
- The results of all field analyses.

The County/environmental firm will maintain a dry weather water quality monitoring report form for each dry weather sampling. The dry weather report form will also contain the bacteriological results (if applicable) for the station. Copies of these report forms will be included with the annual report. Chain of custody copies, laboratory report copies, calibration records, quality control records, and water quality report forms will be maintained in the files of the person or position in overall control of the Watershed Protection Plan.

### **Monitoring**

The County/environmental firm will evaluate the resulting samplings by monitoring data for the initial three (3) years of this program, to ascertain the level of pollutants of concern (POC) in the impaired waters and if it is likely to be originating in the County.

### **Proposed Best Management Practices (BMPs)**

The County will continue to implement its Stormwater Management Plan (SWMP) under its current NPDES Phase II MS4 permit. Because mercury in runoff is derived from atmospheric deposition, mercury in stormwater is accounted for in the calculation of the atmospheric load. Separate strategies for reducing nonpoint sources are not included in this plan because implementation of the strategies to reduce air deposition will ultimately reduce stormwater loading. Therefore, any efforts to reduce soil erosion will tend to reduce mercury entering a lake or river from nonpoint water sources. Many of these practices are already employed for control of sediment runoff and will result in reducing mercury loading to surface waters.

### **Public Outreach and Education**

Lowndes County has a public outreach and education program that targets County offices and public facilities with flyers and brochures about stormwater and water quality of streams. Continued effort will be made to educate the public on household hazardous waste to ensure proper product disposal of all urban and rural residents of the county and encourage residents to segregate and properly dispose of mercury products.

### **Annual Evaluation:**

Once the base year data is collected (i.e. the data from the first year of sampling), the County will evaluate each subsequent year's sampling data against the previous year/years data. The evaluation will be a comparative look at each year's data both at the individual outfalls and as an average of the outfall to each of the impaired basins. The intention is to identify trends that occur in the sampling data. If trends are found, the County will look for obvious factors that may account for the trending outside of the BMP's that have been implemented by the County. Unexplained trending may indicate the effectiveness of the BMPs' that are used.

### **Implementation Schedule**

The County is prepared to implement this Monitoring and Implementation plan within a reasonable time after plan approval by the Georgia EPD.

### **Annual Reporting**

Each year, the County will develop a brief water quality report for the Withlacoochee River. This report will include:

- Monitoring results
- Trend analysis
- Documentation of activities
- Recommendations based on evaluations

The water quality data along with the trend analysis will be utilized to determine if the trend is showing improvement or degradation relative to implementing BMPs. If the trend analysis indicates that water quality is worsening or not improving, then additional sampling and/or BMPs will be evaluated to identify sources within the area covered by County's MS4 permit. A copy of this report and sampling results/data will be submitted along with the County's annual report.