# Gills Creek Monitoring Sites Monitoring Data Summary for December 12<sup>th</sup>, 2019 – January 16<sup>th</sup>, 2020

#### Data Gaps

- The GILA station sonde was buried in sediment for a brief period beginning on January 13<sup>th</sup>. The turbidity, DO, and pH sensors were buried, so the data for those parameters were removed from January 13<sup>th</sup> until the end of the deployment period.
- The GILB and GILC stations did not have any interruptions in the data during this monitoring period.

### **SCDHEC Standards**

- The GILA and GILB stations did not record any pH readings outside of the acceptable SCDHEC range of 6 to 8.5
- The GILC station recorded a minimum pH reading of 5.7, which is below the acceptable SCDHEC minimum value.
- The GILA station recorded an average DO value of 10.8 mg/L, the GILB station recorded an average DO value of 10.2 mg/L, and the GILC station recorded an average DO value of 8.9 mg/L, all of which are above the SCDHEC daily average DO standard of 5 mg/L.
- During this deployment period, the GILA, GILB, and GILC stations recorded minimum DO levels of 9.5 mg/L, 8.6 mg/L, and 7.1 mg/L, respectively. All the stations in the Gills Creek watershed recorded DO values above the SCDHEC instantaneous minimum standard of 4 mg/L.

#### Storm Events

- The GILA station recorded 8 storm events resulting in approximately 12.9 inches of rainfall. The GILB station recorded 10 storms that resulted in approximately 12 inches of rainfall. The GILC station recorded 11 storms that resulted in approximately 12.2 inches of rainfall.
- The monitored water quality parameters all displayed typical storm event response patterns during the recorded storm events in the Gills Creek watershed.
- The maximum antecedent dry time since the last significant precipitation event (at least 0.1 inches) was approximately 8.3 days at GILA, 8.2 days at GILB, and 8.1 days at GILC, all occurring prior to the January 12<sup>th</sup> storm event.

#### Potential Illicit Discharges and Abnormal Events

At all three Gills Creek stations, a decrease in stage was observed on January 10<sup>th</sup>, likely caused by activity
occurring in Forest Lake, upstream of GILA. The stage began increasing to normal baseflow conditions on
January 12<sup>th</sup>. During this brief period of low stage, some water quality parameters were impacted as follows:
specific conductivity increased, DO decreased, and pH increased.

#### Flow Measurements

No flow measurements were taken in Gills Creek during this monitoring period.





# Gills Creek A (Dec 12, 2019 - Jan 16, 2020)

PARAMETERS:   OBSERVED   OBSERV					TINUO		SUMMARY STATISTICS									
### DORESS: ### AB40 Forest Drive Bridge ### AB40 Forest Drive Bridge ### Columbia, SC 24206  *## Colu	PARAMETER	DESCRIPTION													_	
ADDRESS:	STREAM NAME:	Gills Creek		STA	GE (FT)	):		2.0		6.6	2	9	3.	.1	0.8	
ASOPRESS:	LOCATION:			TEM	PERAT	URE								_		
TINDL/IMPAIRMENT: Fecal & Dissolved Oxygen   TURSIDITY (NTU): 5   267   16   20   16	ADDRESS:							47		61	53		5	53	3	
MAX. DAILY RAINFALL   3.5 inches   Disposed Companies   Person Name	COORDINATES:	34.019826, -80.963566		THE	DIDITV	/NIT11\-		5		267		16	2	·n	16	
ANDUSE: Mesidenia and commercial appears in the perfect part of th	TMDL/IMPAIRMENT:	Fecal & Dissolved Oxygen		TOKI	וווטוט	(1410).		3		207	'	0	2	.0	10	
APPROX. DRAINAGE 48 square miles RAEA:  Most upstream site OTAL No. STORMS VVER 0.1 INCH:  MAX. DAILY RAINFALL:  12.9 inches  DISSOLVED OXYGEN (mg/L):  9.5  11.5  10.9  10.8  0.4  POR PERIOD):  12.9 inches  Stage & Rainfall  12.9 inches  Turnidity  Water Temp  Water Temp  PH  12.9 inches  Specific conductivity  System Temp  System Temp  Specific conductivity  PH  12.9 inches  Specific conductivity  Specific conductivity  PH  12.9 inches  Specific conductivity  Specific conducti	NEIGHBORING LANDUSE:	Residential and commercial		nH·				6.1		6.8	6	: 3	6	3	0.1	
TOTAL NO. STORMS  WAX. DAILY RAINFALL:  3.5 inches  DISSOLVED  OXYGEN (mg/L):  9.5  11.5  10.9  10.8  0.4  FOR PERIOD):  12.9 inches  Water Temp  Water Temp  Water Temp  12.712 12/14 12/16 12/18 12/20 12/22 12/24 12/26 12/28 12/20 1/1 1/3 1/5 1/7 1/9 1/11 1/13 1/15  Singe & Rainfall  Water Temp  PH  Singe & Rainfall  12.9 inches  Singe & Rainfall  13.5 inches  OXYGEN (mg/L):  9.5  11.5  10.9  10.8  0.4  O.047  O.047  O.047  O.047  O.047  O.047  O.047  O.047  O.05  OXYGEN (mg/L):  9.5  11.5  10.9  10.8  O.4  FOR PERIOD):  12.712 12/14 12/16 12/18 12/20 12/22 12/24 12/26 12/28 12/20 1/1 1/3 1/3 1/5 1/7 1/9 1/11 1/13 1/15  OXYGEN (mg/L):  9.5  OXYGEN (mg/L):  9.5  OXYGEN (mg/L):  9.5  OXYGEN (mg/L):  OXYGEN (mg/	APPROX. DRAINAGE AREA:	48 square miles	L	pri.				0.1		0.0				.0	0.1	
NAX. DAILY RAINFALL:   3.5 inches   DISSOLVED   DISSOLVED   DXYGEN (mg/L):   9.5   11.5   10.9   10.8   0.4	SPATIAL LOCATION:	Most upstream site														
TOTAL RAINFALL 12.9 inches    12.9 inches   Dissolve   11.5   10.9   10.8   0.4	TOTAL NO. STORMS OVER 0.1 INCH:	8				VITY	C	).037		0.070	0.0	047	0.0	)47	0.005	
Stage & Rainfall    12.9 inches   OX TGEN (mg/L):	MAX. DAILY RAINFALL:	3.5 inches		DISS	OLVE	)		0.5		11 5	1,	2.0	10	١ ٥	0.4	
Water Temp    12/12   12/14   12/16   12/18   12/20   12/22   12/24   12/26   12/28   12/30   1/1   1/3   1/5   1/7   1/9   1/11   1/13   1/15     200	TOTAL RAINFALL (FOR PERIOD):	12.9 inches		OXY	GEN (n	ng/L):		9.5	11.5		10	J. <del>9</del>	10	7.0	0.4	
12/12 12/14 12/16 12/18 12/20 12/22 12/24 12/26 12/28 12/30 1/1 1/3 1/5 1/7 1/9 1/11 1/13 1/15  Water Temp  Turbidity  pH  Specific Conductivity  Specific Condu						Stage & Rai	nfall						-			
12/12 12/14 12/16 12/18 12/20 12/22 12/24 12/26 12/28 12/30 1/1 1/3 1/5 1/7 1/9 1/11 1/13 1/15  Water Temp  Turbidity  pH  Specific Conductivity  Specific Condu	# <sup>11</sup> / <sub>9</sub>	7				-			H					7	0.0	
12/12 12/14 12/16 12/18 12/20 12/22 12/24 12/26 12/28 12/30 1/1 1/3 1/5 1/7 1/9 1/11 1/13 1/15  Water Temp  Turbidity  pH  Specific Conductivity  Specific Condu	tage 5								_					~~	1.5	
Water Temp  Turbidity  PH  Turbidity  Turbidity  PH  Turbidity  Turbidity  PH  Turbidity  Turbidity  PH  Turbidity  Turbi	1															
12/12 12/14 12/16 12/18 12/20 12/22 12/24 12/26 12/28 12/30 1/1 1/3 1/5 1/7 1/9 1/11 1/13 1/15  Turbidity  pH  Specific Conductivity  Specific Conductivity  Specific Conductivity  Specific Conductivity  Specific Conductivity  Specific Conductivity  Dissolved Oxygen	60					Water Te	mp		_\			~~~		٠,٠		
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200 0 12/12 12/14 12/16 12/18 12/20 12/22 12/24 12/26 12/28 12/30 1/1 1/3 1/5 1/7 1/9 1/11 1/13 1/15						Turbidi	tv									
PH    Ph     Ph     Ph     Ph     Ph     Ph     Ph     Ph     Ph									•							
12/12 12/14 12/16 12/18 12/20 12/22 12/24 12/26 12/28 12/30 1/1 1/3 1/5 1/7 1/9 1/11 1/13 1/15  PH  Specific Conductivity  Specific Condu	F		$\perp$						+					1		
7.6 6.8 6.4 6.2 6.0 12/12 12/14 12/16 12/18 12/20 12/22 12/24 12/26 12/28 12/30 1/1 1/3 1/5 1/7 1/9 1/11 1/13 1/15  Specific Conductivity  0.08 0.04 0.04 0.03 12/12 12/14 12/16 12/18 12/20 12/22 12/24 12/26 12/28 12/30 1/1 1/3 1/5 1/7 1/9 1/11 1/13 1/15  Specific Conductivity  0.08 0.04 0.04 0.03 12/12 12/14 12/16 12/18 12/20 12/22 12/24 12/26 12/28 12/30 1/1 1/3 1/5 1/7 1/9 1/11 1/13 1/15  SCDHEC in-stream standard: Daily average not less than 5 mg/L with a low of 4 mg/L  13 13 14 15 17 18 SCDHEC in-stream standard: Daily average not less than 5 mg/L with a low of 4 mg/L  13 14 15 17 18 18 18 18 18 18 18 18 18 18 18 18 18	•	16 12/18 12/20 12/22 1	12/2	4 12	2/26	12/28 1	2/30	1/1	1/3	1/5	1/7	1/9	1/11	1/13	1/15	
7.6 6.8 6.4 6.2 6.0 12/12 12/14 12/16 12/18 12/20 12/22 12/24 12/26 12/28 12/30 1/1 1/3 1/5 1/7 1/9 1/11 1/13 1/15  Specific Conductivity  0.08 0.04 0.04 0.03 12/12 12/14 12/16 12/18 12/20 12/22 12/24 12/26 12/28 12/30 1/1 1/3 1/5 1/7 1/9 1/11 1/13 1/15  Specific Conductivity  0.08 0.04 0.04 0.03 12/12 12/14 12/16 12/18 12/20 12/22 12/24 12/26 12/28 12/30 1/1 1/3 1/5 1/7 1/9 1/11 1/13 1/15  SCDHEC in-stream standard: Daily average not less than 5 mg/L with a low of 4 mg/L  13 13 14 15 17 18 SCDHEC in-stream standard: Daily average not less than 5 mg/L with a low of 4 mg/L  13 14 15 17 18 18 18 18 18 18 18 18 18 18 18 18 18						-II										
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Specific Conductivity    Specific Conductivity   Speci	± 6.6 6.4	i m														
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0.08 0.06 0.06 0.05 0.09 12/12 12/14 12/16 12/18 12/20 12/22 12/24 12/26 12/28 12/30 1/1 1/3 1/5 1/7 1/9 1/11 1/13 1/15  SCDHEC in-stream standard: Daily average not less than 5 mg/L with a low of 4 mg/L Dissolved Oxygen 4 mg/L (SCDHEC Low Standard)	12/12 12/14 12/16	12/18 12/20 12/22 12	2/24	12/	26 1	2/28 12	/30	1/1	1/3	1/5	1/7	1/9	1/11	1/13	1/15	
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0.03 12/12 12/14 12/16 12/18 12/20 12/22 12/24 12/26 12/28 12/30 1/1 1/3 1/5 1/7 1/9 1/11 1/13 1/15  SCDHEC in-stream standard: Daily average not less than 5 mg/L with a low of 4 mg/L  Dissolved Oxygen  4 mg/L (SCDHEC Low Standard) 11 9 7 7 7 7 8 7 7 7 7 7 7 7 7 7 7 7 7 7 7			+.										$\wedge$			
0.03 12/12 12/14 12/16 12/18 12/20 12/22 12/24 12/26 12/28 12/30 1/1 1/3 1/5 1/7 1/9 1/11 1/13 1/15    SCDHEC in-stream standard: Daily average not less than 5 mg/L with a low of 4 mg/L   Dissolved Oxygen	vg 0.05 0.04	Warner	۳	~	-	4	<b></b>	-	4					***		
SCDHEC in-stream standard: Daily average not less than 5 mg/L with a low of 4 mg/L  Dissolved Oxygen  4 mg/L (SCDHEC Low Standard)	0.03	6 12/18 12/20 12/22 12	 L2/24	12,	/26 :	.	2/30	1/1	1/3	1/5	1/7	1/9	1/11	1/13	1/15	
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Gills Creek A (Dec 12, 2019 - Jan 16, 2020)

# **Explanation of Statistics:**

MINIMUM OBSERVED	The minimum of the values recorded by the datasonde in 15 minute intervals.
MAXIMUM OBSERVED	The maximum of the values recorded by the datasonde in 15 minute intervals.
MEDIAN OBSERVED	The median of all the values recorded by the datasonde in 15 minute intervals.
MEAN OBSERVED	The average of all the values recorded by the datasonde in 15 minute intervals.
STANDARD DEVIATION	The standard deviation of all the values recorded by the datasonde in 15 minute intervals.

# **Sampled Data:**

	Sam	ple 1	Sample 2		Sample 3 Sample 4			
Analyte (units)	1/13,	/2020	1/13,	/2020				Results
	Time	Results	Time	Results	Time	Results	Time	Results
Escherichia coli (MPN/100mL)	10:31	370	14:44	4,284				
Total Suspended Solids (mg/L)	10:31	11.6	14:44	27.1				
Total Phosphorus (mg/L)	10:31	0	14:44	0.04				
Total Nitrogen (mg/L)	10:31	5.27	14:44	0.53				

Notes:

Samples 1 and 2 were taken during wet weather conditions.





### Gills Creek B (Dec 12, 2019 - Jan 16, 2020)

DADAMETER	DEGODIETIC:	CONTINUOUS		SUM	MMARY STATIS	TICS		
PARAMETER	DESCRIPTION	WATER QUALITY PARAMETERS:	MINIMUM OBSERVED	MAXIMUM OBSERVED	MEDIAN OBSERVED	MEAN OBSERVED	STANDARD DEVIATION	
STREAM NAME:	Gills Creek	DISCHARGE (CFS):	31.6	545.0	136.0	197.6	135.7	
LOCATION:	Devine Street bridge	TEMPERATURE	46	64	53	54	4	
ADDRESS:	4716 Devine Street Columbia, SC 29209	(°F):	40	04	33	34	7	
COORDINATES:	33.989656, -80.97433	TURBIDITY (NTU):	10	919	30	41	38	
TMDL/IMPAIRMENT:	Fecal & Dissolved Oxygen							
NEIGHBORING LANDUSE:	Residential and commercial	pH:	6.3	6.8	6.5	6.5	0.1	
APPROX. DRAINAGE AREA:	59 square miles	<b>P</b>						
SPATIAL LOCATION:	Middle site	SPECIFIC						
TOTAL NO. STORMS OVER 0.1 INCH:	10	CONDUCTIVITY (mS/cm):	0.031	0.084	0.052	0.052	0.007	
MAX. DAILY RAINFALL: TOTAL RAINFALL (FOR	3.3 inches	DISSOLVED OXYGEN (mg/L):	8.6	11.3	10.3	10.2	0.5	
PERIOD):								
This discharge data is fro	om the USGS 02169570 Gills Creek station.	Discharge &	Rainfall			- P	0.0	
9 400 9 400 12/12 12/14 12/16	12/18 12/20 12/22 12/2	4 12/26 12/28 12/3	0 1/1 1/	(3 1/5	1/7 1/9	1/11 1/13	0.0 0.5 1.0 1.5 2.0	
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± 60 50	~~~~~	~~~~	~~~	~~~	m			
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	ndard: Daily average not less than 5 mg/L v	vith a low of 4 mg/L Dissolve	d Oxygen			4 mg/L (SCDHF	C Low Standard)	
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7 9 9 7								

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1/15

12/28

Gills Creek B (Dec 12, 2019 - Jan 16, 2020)

# **Explanation of Statistics:**

MINIMUM OBSERVED	The minimum of the values recorded by the datasonde in 15 minute intervals.
MAXIMUM OBSERVED	The maximum of the values recorded by the datasonde in 15 minute intervals.
MEDIAN OBSERVED	The median of all the values recorded by the datasonde in 15 minute intervals.
MEAN OBSERVED	The average of all the values recorded by the datasonde in 15 minute intervals.
STANDARD DEVIATION	The standard deviation of all the values recorded by the datasonde in 15 minute intervals.

### **Sampled Data:**

	Sam	ple 1	Sam	ple 2	Sample 3		Sam	ple 4
Analyte (units)	12/20	/2019	1/13/	/2020	1/13,	/2020		
	Time	Results	Time	Results	Time	Results	Time	Results
Escherichia coli (MPN/100mL)	12:39	220	11:01	1,632	15:05	9,222		
Total Suspended Solids (mg/L)	12:39	36	11:01	24	15:05	27.4		
Total Phosphorus (mg/L)			11:01	0	15:05	0.04		
Total Nitrogen (mg/L)			11:01	0.58	15:05	0.7		

Notes:

Sample 1 was taken during dry conditions. Samples 2 and 3 were taken during wet weather conditions.





# Gills Creek C (Dec 12, 2019 - Jan 16, 2020)

		CONTINUOUS		SUM	MARY STATIS	TICS	
PARAMETER	DESCRIPTION	I I DADAMETEDS: I I I		MEDIAN OBSERVED	MEAN OBSERVED	STANDARE DEVIATION	
STREAM NAME:	Gills Creek	STAGE (FT):	3.3	8.3	5.5	5.8	1.4
LOCATION:	Bluff Road bridge	TEMPERATURE	44		50	50	-
ADDRESS:	3009 Bluff Rd. Columbia, SC 29209	(°F):	44	62	52	53	5
COORDINATES:	33.948043, -80.9889						
TMDL/IMPAIRMENT:	Fecal & Dissolved Oxygen	TURBIDITY (NTU):	6	105	14	19	12
NEIGHBORING LANDUSE:	Residential and commercial	pH:	5.7	6.4	6.0	6.0	0.1
APPROX. DRAINAGE AREA:	64 square miles	pri.	5.7	0.4	0.0	0.0	0.1
SPATIAL LOCATION:	Most downstream site	SPECIFIC					
TOTAL NO. STORMS OVER 0.1 INCH:	11	CONDUCTIVITY (mS/cm):	0.049	0.092	0.066	0.065	0.006
MAX. DAILY RAINFALL:	3.03 inches	DISSOLVED	7.1	10.6	9.1	8.9	0.8
TOTAL RAINFALL (FOR PERIOD):	12.2 inches	OXYGEN (mg/L):	7.1	10.0	9.1	0.9	0.8
10		Stage & Rai	nfall	-	-	-	0.0
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6.5						~~	
6.1 5.9 5.7							
		24 12/26 12/28 12	/30 1/1	1/3 1/5	1/7 1/9	1/11 1/13	1/15
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12/12 12/14 12/16  0.10  0.08  0.08  0.04  12/12 12/14 12/16  SCDHEC in-stream standa	12/18 12/20 12/22 12	/24 12/26 12/28 13		1/3 1/5		1/11 1/13 4 mg/L (SCDHEC Lov	1/15
12/12 12/14 12/16  0.10 0.08 0.08 0.04 12/12 12/14 12/16  SCDHEC in-stream standa	12/18 12/20 12/22 12	/24 12/26 12/28 13	2/30 1/1	1/3 1/5			1/15

Gills Creek C (Dec 12, 2019 - Jan 16, 2020)

# **Explanation of Statistics:**

MINIMUM OBSERVED	The minimum of the values recorded by the datasonde in 15 minute intervals.
MAXIMUM OBSERVED	The maximum of the values recorded by the datasonde in 15 minute intervals.
MEDIAN OBSERVED	The median of all the values recorded by the datasonde in 15 minute intervals.
MEAN OBSERVED	The average of all the values recorded by the datasonde in 15 minute intervals.
STANDARD DEVIATION	The standard deviation of all the values recorded by the datasonde in 15 minute intervals.

### **Sampled Data:**

	Sam	ple 1	Sam	ple 2	Sam	ple 3	Sample 4		
Analyte (units)	12/20	/2019	1/13/	/2020					
	Time	Results	Time	Results	Time	Results	Time	Results	
Escherichia coli (MPN/100mL)	13:17	218	11:38	2,900					
Total Suspended Solids (mg/L)	13:17	8.6	11:38	17.5					
Total Phosphorus (mg/L)			11:38	0.047					
Total Nitrogen (mg/L)			11:38	5.88					

Notes:

Sample 1 was taken during dry conditions and Sample 2 was taken during wet weather conditions.