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March 13, 2019

VIA ELECTRONIC FILING

Tennessee Public Utility Commission
502 Deaderick Street, 4th Floor
Nashville, TN 37243

Re: Petition of Cartwright Creek, LLC to Increase Tap Fees to Address Environmental Issues Raised by the Tennessee Department of Environment and Conservation
Docket No. 19-00034

Please accept for filing the attached Petition of Cartwright Creek, LLC to Increase Tap Fees to Address Environmental Issues Raised by the Tennessee Department of Environment and Conservation. As explained in the Petition, both the engineer for Cartwright Creek and the chief engineer at TDEC's Division of Water Resources believe that system upgrades at the company's Grasslands plant are needed to reduce infiltration and mitigate the excessive flow of organics, solids, and nitrogen into the Harpeth River. The requested increase in tap fees is necessary to fund those upgrades.

Sincerely,

BRADLEY ARANT BOULT CUMMINGS LLP

By: Henry Walker

HW/dbi
Attachment

4844-0217-7418.1
111398-301005

BEFORE THE TENNESSEE PUBLIC UTILITY COMMISSION
NASHVILLE, TENNESSEE

IN RE:	)	
	)	
PETITION OF CARTWRIGHT CREEK, LLC	)	
TO INCREASE TAP FEES TOADDRESS	)	
ENVIRONMENTAL ISSUES	)	**DOCKET NO. 19-** 00034
RAISED BY THE TENNESSEE	)	
DEPARTMENT OF ENVIRONMENT AND	)	
CONSERVATION	)	

PETITION OF CARTWRIGHT CREEK, LLC TO INCREASE TAP FEES TO ADDRESS ENVIRONMENTAL ISSUES RAISED BY THE TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION

Cartwright Creek, LLC ("Cartwright Creek" or "the company") petitions the Tennessee Public Utility Commission ("the Commission") pursuant to T.C.A. § 65-5-103 for an increase in the company's tap fee to $10,000, the revenue therefrom to be set aside in the company's escrow account and spent under the supervision of the Commission on the system upgrades described below.

Background

The company's current tap fee, $5,000, was set in Docket 09-00056. Recognizing the need for system repairs and upgrades at the company's Grasslands collection and treatment system, the Commission ordered that tap fee revenue be "placed in an escrow account dedicated to the necessary system repair and upgrades." Furthermore, the Commission required the company to request for pre-approval by the agency "before funds can be expended from the escrow account." Order, at 9.

The problems at the Grasslands system have continued. On January 3, 2018, the Commission authorized the company to spend $45,100 from the escrow account[1] to repair a leak in the wastewater treatment tank at Grasslands and to hire an engineering firm to conduct an infiltration investigation of the company's collection system at Grasslands. *See*, Docket 17-00061, Order, at 2-3. The company used the escrow money, along with additional money from the company's operating funds, to hire the Inflo Design Group to conduct the infiltration study, to provide an overview of the collection system at Grasslands, and to recommend "where allocating financial resources . . . might provide long-term benefit to the system." *See*, "Cartwright Creek, Collection System Review," ("Inflo Report") at 2. A copy of the report, which was issued in June, 2018, is attached as Exhibit A.

In a letter dated January 15, 2019, the Tennessee Department of Environment and Conservation ("TDEC") sent Cartwright Creek a "Notice of Violation" because of excessive nitrogen flowing into the Harpeth River from the Grassland treatment system. A copy of the Notice is attached as Exhibit B. Cartwright Creek has been ordered to submit a "Corrective Action Plan" to address the violations and prevent future violations.

Cartwright Creek has met several times with TDEC staff and shared with the staff the finding and recommendations of the Inflo Report. The company and TDEC agree that the most reasonable and cost-effective way to reduce infiltration and thereby reduce the amount of organics, solids and nitrogen released into the Harpeth River is to "comprehensively rehabilitate selected areas" of the system as recommended in the Inflo Report at an estimated cost of $505,800. *See*, Inflo Report at 16 and 17. *See also*, the attached testimony of company witness

[1] At that time, the escrow account contained $95,000. Docket 17-00061, Order at 3.

Bruce Meyer and accompanying letter from George Garden, Chief Engineer of TDEC's Division of Water Resources.

In late 2016, the Commission Party Staff investigated the company's financial status and recommended that the Commission increase the company's monthly charges for wastewater service. The agency approved the recommendation in an Order issued January 10, 2017 (Docket 16-00127). As a result of that investigation and the financial reports filed by the company since that time, the Commission is familiar with the company's financial status and aware that the company does not have funds in its escrow accounts[2] or sufficient net revenue from operations to pay for the recommended upgrades.

Discussion

Because of the importance of the needed repairs, the company asks that the Commission allow the company to increase tap fees from $5,000 to $10,000, that the money be placed in the company's escrow account and, under Commission supervision, be used to pay for the upgrades recommended in the Inflo Report.

The company's tap fee was set nearly ten years ago and has not been increased since that time. When the tap fee was set, the agency noted that "the highest tap fee in the area was $5,000 charged by the City of Brentwood" and unanimously approved a tap fee of the same amount for new customers of Cartwright Creek. Docket 09-00056, Order, at 7.

Today, the City of Brentwood charges a tap fee of $10,000. *See* Testimony of Bruce Meyer at 4. Given the increase in the value of land and the price of new houses in the area of Brentwood and Cartwright Creek, a tap fee of $10,000 is a just and reasonable rate. More

[2] The company has another escrow account, created in Docket 16-00127, funded by a $7.50 monthly surcharge on each customer and dedicated to facility improvements and upgrades. As of December 31, 2018, there was $138,915.76 in that account. That money can also be used as necessary to pay for the upgrades at Grasslands.

importantly, this increase will provide the funds necessary to make the system upgrades recommended by TDEC that will alleviate, in part, the excess release of solids, organics and nitrogen into the Harpeth River.

Conclusion

For these reasons, Cartwright Creek asks that the Commission expeditiously convene a hearing in this matter and grant the company's request to increase its tap fee under the terms and conditions described herein.

As soon as a hearing date is set, the company will publish notice of the date and purpose of the hearing as required by the Commission's rules.

Respectfully submitted,

Henry Walker (B.P.R. No. 000272)
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Petition Exhibit A

Cartwright Creek, Collections System Review
Inflo Design Group

Cartwright Creek

Collections System Review

JUNE, 2018

Prepared by:

Introduction

In May of 2018, Inflo Design Group, LLC (IDG) was requested by the Cartwright Creek, LLC, to provide an overview of the Cartwright Creek wastewater collection system facilities. The purpose of this review was to evaluate the existing flow monitoring and CCTV data and present information so that there might be a general understanding of the condition of the collection system and where allocating financial resources for system renewal might provide long-term benefit to the system. While not a formal "condition assessment" of the entire system, this report serves to summarize IDG's observations of the information available and recommendations for partial system renewal.

The process to develop this report is detailed in later sections, but in general, IDG performed four tasks in collecting information on the status of the system:

1. Review of a flow monitoring report entitled "CARTWRIGHT CREEK TEMPORARY FLOW STUDY", from May through July of 2017, prepared by Utility Technologies (note, it is our understanding that George Kurz has conducted further analysis on this flow monitoring, and although his findings have not yet been reviewed by IDG, we highly recommend paying particular attention to calculated inflow / infiltration amounts.
2. Review of CCTV investigation of nearly 8,500LF of the collection system (slightly less than 20%).
3. Review of regulatory records available in the Tennessee Department of Environment and Conservation's permit dataviewer for permit #TN27278.
4. On-site review of portions of the collection system, particularly near Grassland Middle School, Grassland Shopping Center, and near the wastewater treatment plant.

General observations made upon review of this information include:

- There is a large amount of infiltration entering the system, and much of it appears to be originating in a localized area of the system.
- The wastewater collection system as a whole is in average to below average condition based on analysis of similar collection systems in Middle Tennessee and will require broad-based rehabilitation in the future to restore capacity, but a complete reconstruction will not be necessary.
- Previous renewal efforts of CIPP lining appear to have been successful, although in some places laterals need to be sealed.
- Several manholes are in poor condition, and given the proximity of much of the system to creeks and drainageways, a more thorough field inspection of the critical portions of the system is warranted.

SEWER COLLECTION SYSTEM SUMMARY		
GENERAL CONDITION	The facilities are in average condition, but some locations, particularly near Grassland Middle School and the Grassland Shopping Center, are in poor condition.	 *MANHOLE 96A, NEAR THE CREEK IN FRONT OF GRASSLAND MIDDLE SCHOOL, HAS A HIGH DEGREE OF INFILTRATION. GIVEN THAT THIS CCTV WORK WAS PERFORMED DURING A RELATIVELY DRY MID-OCTOBER, IT IS LIKELY THAT THE INFILTRATION IS MUCH WORSE IN WETTER TIMES OF THE YEAR.*
KEY OBSERVATIONS	1. The area near Grassland Middle School is particularly prone to Infiltration. 2. Several manholes are potential sources of Inflow & Infiltration into the system and warrant further inspection.	
RECOMMENDED IMPROVEMENTS	1. Perform comprehensive rehabilitation on a portion of the system just to the west of Grassland Middle School. 2. Perform point repairs on a service line behind Pet Vet on Hillsboro road and at two manholes near Sonic in the Grassland commercial area.	

Other evaluation programs should be considered as the system ages including:

- Televising the remainder of the system.
- Investigating the source(s) of the heavy grease buildup evident in portions of the system.
- Maintaining permanent flow monitors in the collection system
- "Trunk walks" of lines, particularly those along creeks and drainageways.

2. Review of Available Information

IDG reviewed available information in the following order:

1. Regulatory records available on TDEC's dataviewer website;
2. CCTV logs provided by First Response performed in October of 2017;
3. Surface observations of areas noted in the CCTV logs as being prone to high rates of infiltration;
4. Flow monitoring report provided by Utility Technologies based on flow monitoring information collected May through July of 2017.

2.1 Regulatory Records Review

Overall, the goal of the system is to remain in compliance with NPDES permit #TN0027278, and this appears to be the case. According to an internal email at TDEC dated March 13, 2018, there is not a moratorium on connections in the Cartwright Creek basin and "any type of moratorium would be self-imposed". However, dating back to at least 2010, there are numerous references to excessive I/I in the collection system.

Also very importantly, there are no active regulatory orders for the Cartwright Creek system, with concurrence that the requirements of WPC14-0021 have been met. Interestingly, it does not appear that any compliance Evaluation Inspections have taken place since 2014, so it is likely that TDEC will make a visit to the system soon, so reviewing the commitments made in the Sewer Overflow Response Plan dated December 18, 2014, as well as the Corrective Action Plan dated February 17, 2015, would be helpful. Section 4.2.2 of the Corrective Action Plan specifically states that "repair of the collection system items will be required whether the treatment facility is upgraded or the wastewater is pumped to another facility.

The Nutrient Management Plan submitted to TDEC on March 4, 2015, cites infiltration as a hurdle for meeting the permitted effluent limits for the treatment facility. It also references three important numbers:

WWTP DESIGN FLOW (gallons per day)	WWTP ACTUAL FLOW (gallons per day)	WWTP AVERAGE FLOW BASED ON 300 Gal/Day PER HOUSEHOLD (gpd)
250,000	470,000	150,000

Based on these numbers, the wastewater is diluted on average by a factor of 3, which means that comprehensive system rehabilitation could likely have a high rate of return. It is very likely that the average daily household wastewater generation rate (during dry weather) is not 300 gpd and so the peaking factor's seen at the plant are potentially much higher than 3.

2.2 CCTV Review

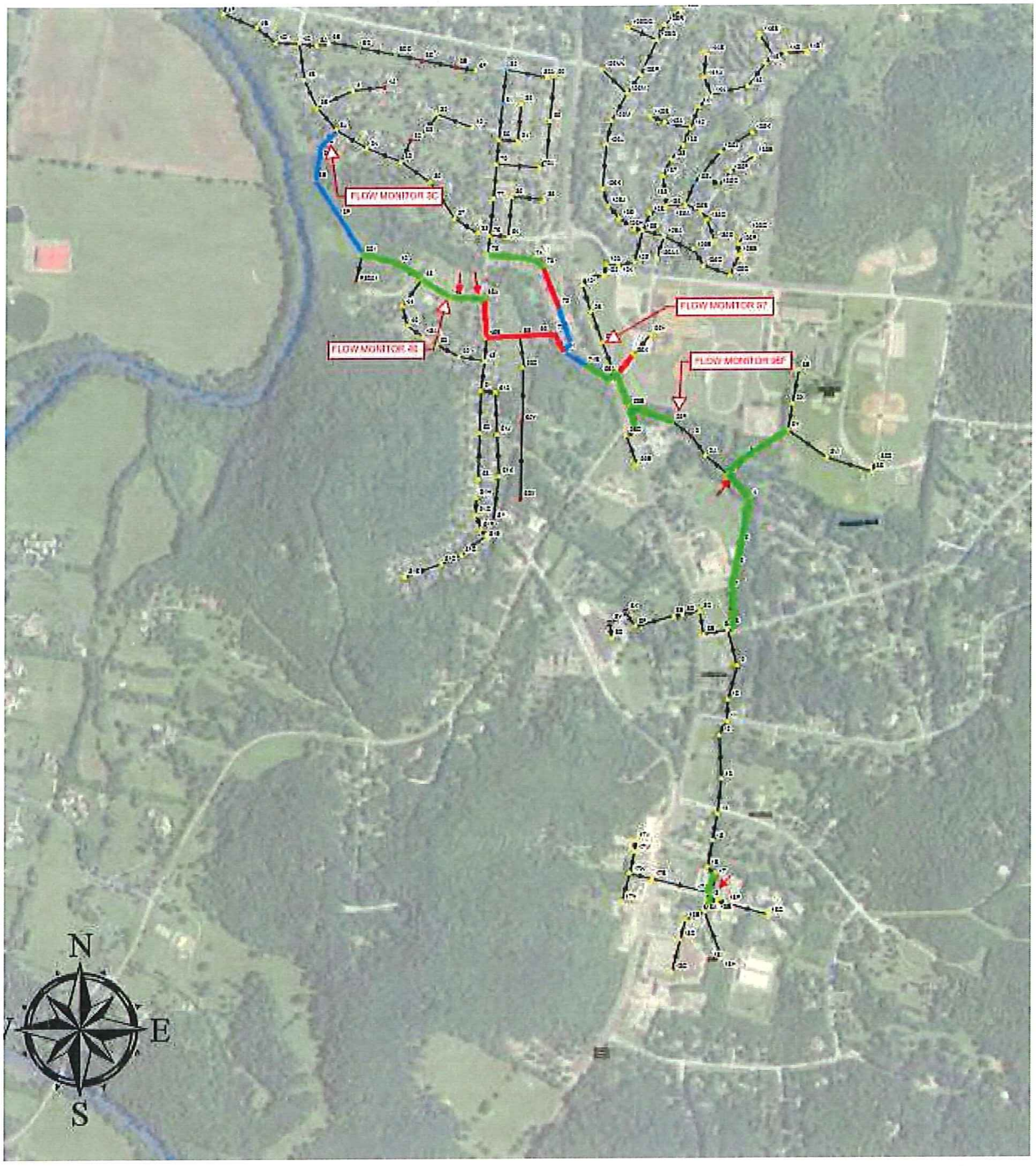
Selected videos of portions of the collection system were reviewed in their entirety. Overall, the quality of the videos was very good, although there were a few items that could have been noted that were not. The information was not tabulated in PACP format, but for the purposes of a general investigation like this, that probably is not necessary. A summary table of the observations is below:

Upstream MH	Downstream MH	Material	Diameter	Length	Status	Services	Comments
96A	71C	DIP	15	75	GOOD	0	CROSSING UNDER HILLSBORO
71C	71B	VCP	15	201	GOOD	0	
71B	71	VCP	15	199	MARGINAL	0	
71	70	VCP	15	172	BAD	0	
70	66	VCP	15	145	BAD	0	
66	65	VCP	15	133	BAD	0	
65	46B	VCP	15	256	BAD	0	
96	96A	VCP	15	25	BAD	0	MANHOLES NEED REPAIR
96X	96	VCP	12	198	BAD	0	
96F	96B	PVC	10	353	GOOD	0	HEAVY GREASE
75	74	VCP	8	366	GOOD	12	
74	73	VCP	8	120	GOOD	0	
73	72	VCP	8	347	BAD	12	
72	71	VCP	8	380	MARGINAL	11	
71	71A	VCP	8	86	MARGINAL	1	
96D	96B	PVC	8	206	GOOD	0	
96B	96	PVC	10	281	GOOD	0	
3V	3	VCP	8	221	GOOD	0	
3Y	3V	PVC	8	386	GOOD	0	
4	3	PVC	8	255	GOOD	1	SERVICE LINE PROBABLY LEAKING
8	7	PVC	10	303	GOOD	1	
7	6	PVC	10	195	GOOD	2	
6	5	PVC	10	190	GOOD	1	
5	4	PVC	10	368	GOOD	2	
18A	18	PVC	8	109	GOOD	0	MANHOLE 18 – HEAVY INFIL.
18	17A	PVC	8	52	GOOD	0	17A SHOWS HVY INFIL.

Upstream MH	Downstream MH	Material	Diameter	Length	Status	Services	Comments
17A	17	PVC	8	162	GOOD	0	
46B	46A	VCP	15	320	BAD	6	
46A	46	CIPP	15	261	GOOD	2	NEED LATERAL SEALS
46	43	CIPP	15	284	GOOD	0	
43	42	CIPP	15	220	GOOD	0	
42	1	CIPP	15	314	GOOD	0	
3A	3C	VCP	8	176	MARGINAL	3	GREASE
3C	3D	VCP	8	92	MARGINAL	0	GREASE
3D	3E	VCP	8	175	MARGINAL	0	GREASE
3E	3F	VCP	8	365	MARGINAL	0	GREASE
3F	1	VCP	8	308	MARGINAL	0	GREASE

For this initial review, the lines were simply characterized as "good", "bad" or "marginal". Generally, the PVC lines were in good shape and the larger clay lines were in fair to poor condition. It is helpful to note segments that were characterized as "marginal" because of their proximity to other issues might be the determining factor for whether to rehabilitate that segment. Groundwater can often "migrate" along a trench and find alternate ways into the pipe, so without a comprehensive approach to rehabilitation, a problem might not be solved – it might simply be moved.

Following the GREEN = GOOD, BLUE = MARGINAL, and RED = BAD convention in the table, a graphical representation of the CCTV review is shown on the following page. Here, is it evident that major issues are concentrated in a relatively specific area.


FLOW MONITOR 3C
FLOW MONITOR 4I
FLOW MONITOR 5I
FLOW MONITOR 5EF
N
E
S

There were a few items of note that will have some bearing on the recommended approach to rehabilitation of portions of the system:

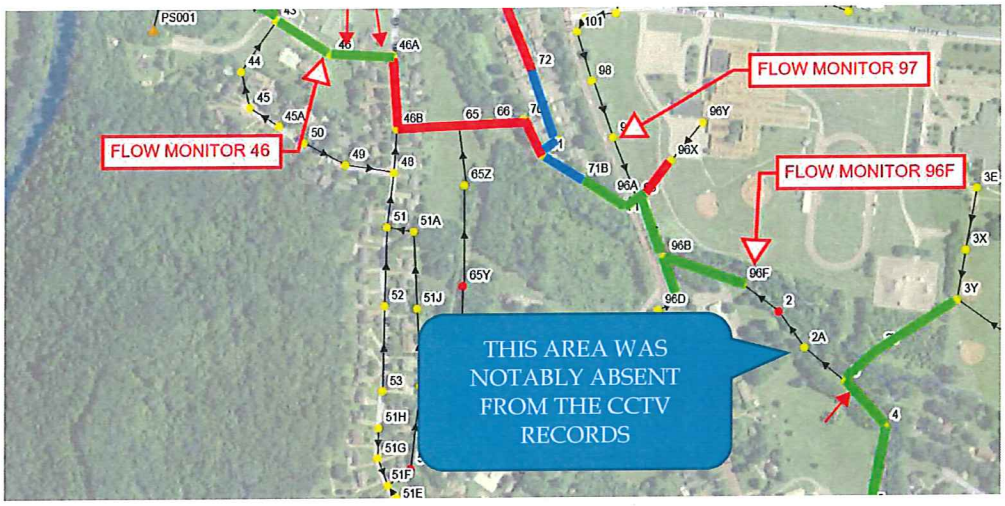
1. ***Previous rehabilitation efforts appear to have been somewhat effective.*** Segment 46A to 46 was previously lined and in much better condition than the adjacent segment 46B to 46A which had not been lined. However, the two services on segment 46A-46 were only reinstated and not sealed, and both of them were leaking as can be seen in the figure below.

IDG recommends that any services on lines that are rehabilitated receive at least a "cut and buff / lateral seal" treatment

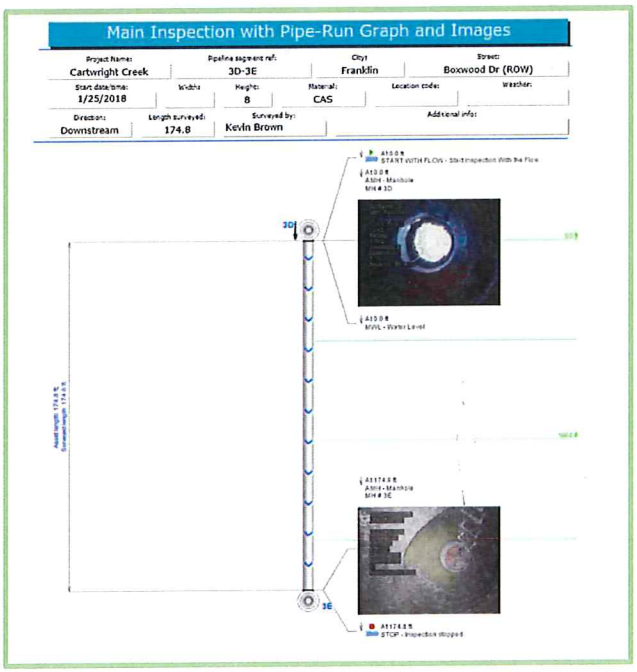
2. ***Grease is collecting in the system in specific locations.*** A majority of the lines listed as "marginal" are 8" VCP segments coming from Boxwood Drive to the WWTP (manholes 3A to 3F). The true condition of these segments could not be determined because the lines were so full of grease, as shown below:

3. ***Manholes can be a major source of I/I, and in some cases may need to be replaced entirely.*** One or two manholes near Sonic in the Grassland Commercial Area are in need of repair or possible replacement, along with manholes in front of Grassland Middle School. Grouting and sealing with cementitious or epoxy coatings might work, but if the manholes are structurally deficient, replacing them altogether could be necessary.

4. ***Some areas along the trunk line were not inspected but might be sources of I/I.*** For example, segments 2A-2 and 2-96F are along the creek and near some other problematic areas. These segments, particularly the manholes, should be considered in future investigative efforts.



For each video, First Response provided a pipeline summary sheet. Each of these reports were compared to notes taken during the CCTV review, and for the most part the data was in sync. A sample pipeline report is shown below (note, this segment should have been called out as having excessive grease buildup to the point that the camera had trouble passing):



Main Inspection with Pipe-Run Graph and Images

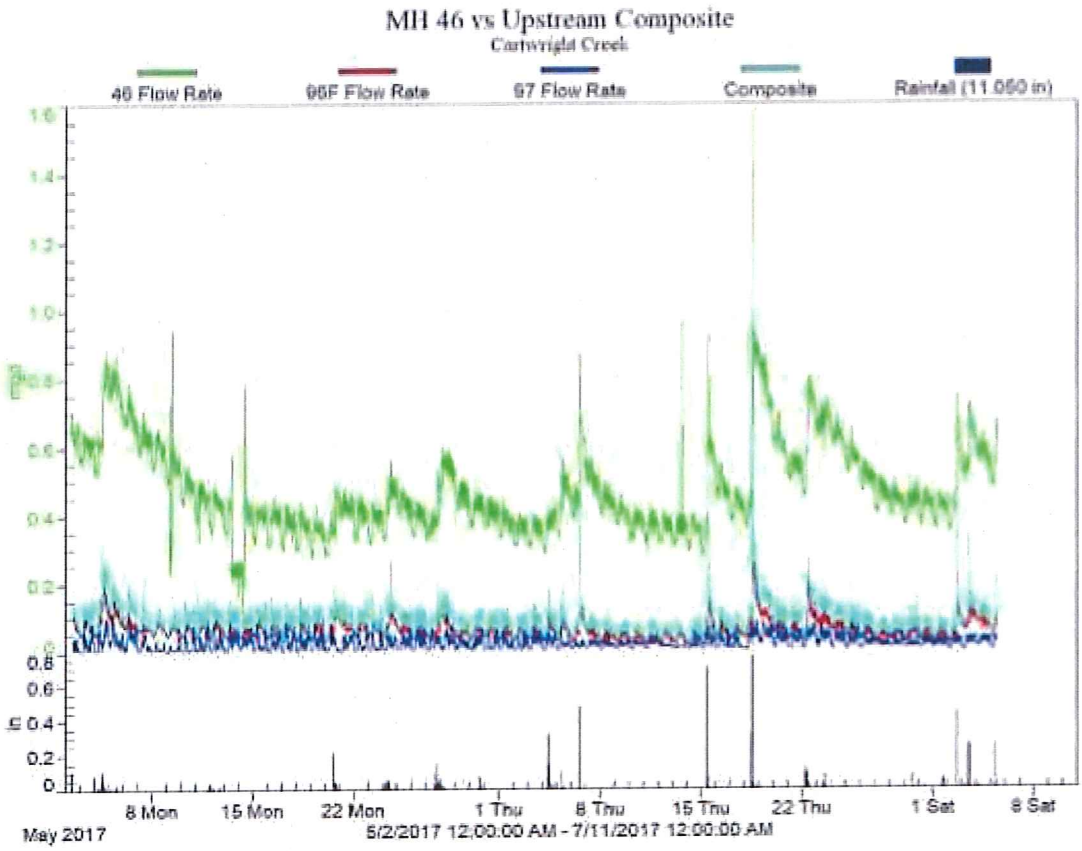
Project Name:	Pipeline segment ref:	City:	Street:
Cartwright Creek	3D-3E	Franklin	Boxwood Dr (ROW)
Start date/time:	Width:	Height:	Material:	Location code:	Weather:
1/25/2018		8	CAS		
Direction:	Length surveyed:	Surveyed by:	Additional info:
Downstream	174.8	Kevin Brown	

2.3 Surface Observations

Noting that the main problematic areas were near Hillsboro Road at Grassland Middle School and near Sonic at the Grassland Commercial area, a site visit was made to those locations. In both instances, the sewer lines and manholes were found to be located in or near drainage areas. Particularly near Grassland Middle School, there was evidence that the area flooded in recent weeks near at least three, possibly as many as five manholes. Some of these were not included in the CCTV study area, and we recommend this area be included in further investigative efforts. There did not appear to be locations where sinkholes had developed, which would possibly be indicative of collapsed sewer lines.

2.4 Flow Monitoring Review

The flow monitoring information performed by Utility Technologies corroborates the findings in the CCTV review that the majority of the infiltration is originating in a relatively limited portion of the collection system. The most important conclusion from UTI's report is the graph that shows flow monitor 46 on the same axes as flow monitor 97 and 96F. Although there is some infiltration evident upstream of flow monitor 97, and perhaps more from 96F (a large proportion of which originates at two manholes near Sonic), the largest contributory basin is the area just upstream of Manhole 46.

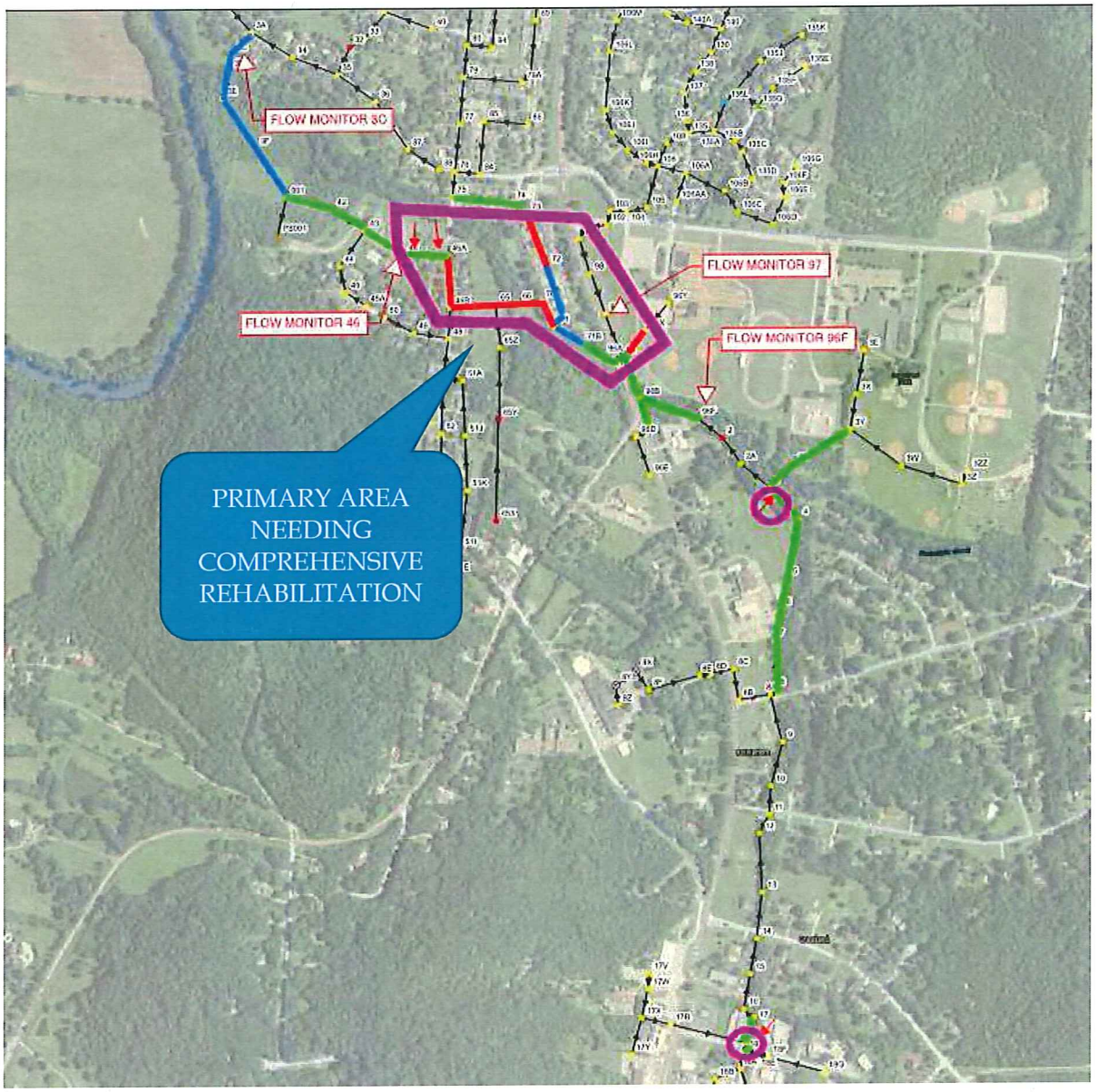


From this graph, several things may be inferred when looking at the flows from Basin 46 (the green line):

1. After rain events, it can take close to a week for the flow to return back to normal.
2. Even at "normal" flows, the lowest readings are approximately 300,000 gallons per day. In a basin this small that is nearly 100% residential, the flow should approach a flow rate near 0 in the early-morning hours.
3. The distinct peaks nearing 1,000,000 gallons per day are indicative of direct inflow into the system, as if water is flowing directly into a manhole somewhere.

3. Rehabilitation Strategies

As stated previously, typical "find and fix" strategies often meet with limited success. IDG recommends a "Basin Approach" to comprehensively renew the collection system in the most problematic areas. In this instance, Basin 46 is the primary area of concern:



Two other smaller areas, involving a service line repair and manhole repairs, also need repairs, and they are circled in pink above.

3.1 Gravity Line Rehabilitation Strategy

For repair of the main lines, we recommend cured-in-place lining (CIPP), not unlike what has been completed before in the system. There are several qualified contractors currently working in Brentwood, Metro Nashville, and Dickson, so obtaining good pricing should be relatively straightforward. A summary table of the proposed work is included below:

Upstream MH	Downstream MH	Material	Diameter	Length	Status	Services	Comments
71C	71B	VCP	15	201	GOOD	0	
71B	71	VCP	15	199	MARGINAL	0	
71	70	VCP	15	172	BAD	0	
70	66	VCP	15	145	BAD	0	
66	65	VCP	15	133	BAD	0	
65	46B	VCP	15	256	BAD	0	
96	96A	VCP	15	25	BAD	0	MANHOLES NEED REPAIR / REPLACEMENT
96X	96	VCP	12	198	BAD	0	
73	72	VCP	8	347	BAD	12	
72	71	VCP	8	380	MARGINAL	11	
71	71A	VCP	8	86	MARGINAL	1	
4	3	PVC	8	255	GOOD	1	SERVICE PROB. LEAKING
18A	18	PVC	8	109	GOOD	0	MH 18 NEEDS REPAIR
18	17A	PVC	8	52	GOOD	0	ONE OR BOTH MANHOLES NEED REPAIR
46B	46A	VCP	15	320	BAD	6	
46A	46	CIPP	15	261	GOOD	2	NEED LATERAL SEALS

Please note that even though some lines are noted as "marginal" or even "good" in the case of 71C-71B, by virtue of being VCP lines and in the midst of other large leaks in the system, failing to line those segments might serve to simply concentrate the issue at those segments not rehabilitated.

3.2 Manhole Repair Strategy

Manholes appear to be a major contributor to the I/I problem in the system. Once a main is lined, there is an annular space between the liner and the main, and in some cases, between the main and the manhole itself, which allows infiltration to enter the system. We recommend that each manhole that is connected to a main that gets lined receive a cementitious coating to seal the manhole. There is some merit in considering a more robust (and more expensive) epoxy coating, but there does not appear to be a large amount of corrosion evident in the system, so a cementitious coating should suffice. As with the CIPP lining, there are qualified manhole rehabilitation contractors working nearby.

Further, we recommend additional inspection of manholes along the trunk line, particularly near Grassland Middle School. It is likely that some watertight lids and/or casting adjustments would be worthwhile investments.

3.3 Lateral Repair Strategy

If mains and manholes are rehabilitated, it is also necessary to seal the laterals. There are several different schools of thought for lateral rehabilitation, including:

1. Dig and replace the entire service line;
2. Trenchlessly line the entire service line;
3. Install a new cleanout at the easement / property line and dig & replace from there to the main;
4. Install a "lateral seal" trenchlessly as part of the rehabilitation efforts.

Based on our opinion, option #4 would be both an economical and effective lateral rehabilitation method for Cartwright Creek. A "full-wrap" lateral seal extending approximately 4-feet into the service line will effectively seal the majority of leaks in service lines. A leader in the industry, BLD Contracting, has installed several thousand of these lateral connection seals throughout Middle Tennessee, shown graphically below:

4. Recommendations

Effective sewer rehabilitation is a process that requires continual effort to properly reduce I/I because of the ever-deteriorating condition of underground infrastructure. Cartwright Creek's system, even with high rates of I/I, is in generally the same condition as most wastewater collection systems in Middle Tennessee, with the older larger clay lines being problematic and the newer PVC lines being in relatively good condition. To understand the range of options and high-level budgetary costs for varying degrees of rehabilitation, a table is provided below for the sake of comparison:

Rehabilitation Approach	Budgetary Cost
Comprehensively rehabilitate all non-PVC mains, manholes, and services in the system.	$2,000,000
Comprehensively rehabilitate all defects noted on investigative work performed in 2017	$750,000
Comprehensively rehabilitate selected areas noted on investigative work performed in 2017 (and tabulated in Part 3 of this report)	$500,000
"Find and fix" selected mains for rehabilitation	$275,000

IDG recommends the approach highlighted above: comprehensive rehabilitation in the areas noted in Section 3. It needs to be clear that this approach will not remove all of the I/I in the system. Most efforts set 50% removal as a viable goal for a basin, and this is possibly achievable in Basin 46 with a comprehensive rehabilitation strategy. Additional studies of the flow monitoring could better quantify the specific gallons to be removed from the system.

A more specific breakdown of the potential costs associated with this approach is as follows:

MAINS	Project Component	Quantity	Unit	Unit Cost	Total Cost
	15" CIPP	1451	LF	$ 100.00	$ 145,100.00
	12" CIPP	198	LF	$ 80.00	$ 15,840.00
	10" CIPP	0	LF	$ 65.00	$ -
	8" CIPP	813	LF	$ 50.00	$ 40,650.00
	INVESTIGATIVE CCTV	5000	LF	$ 3.00	$ 15,000.00
	HEAVY CLEANING	1500	LF	$ 12.00	$ 18,000.00
MANHOLES	0-6' DEPTH CEMENTITOUS COATING	20	EA	$ 1,500.00	$ 30,000.00
	PER VF ADDITIONAL	120	VF	$ 150.00	$ 18,000.00
	WATERTIGHT REPLACEMENT	3	EA	$ 2,000.00	$ 6,000.00
	CASTING ADJUSTMENT	5	EA	$ 1,500.00	$ 7,500.00
	MANHOLE REPLACEMENT - 10'-14' DEPTH	2	EA	$ 6,000.00	$ 12,000.00
LATERALS	15" LATERAL SEAL - 4' LENGTH	7	EA	$ 3,300.00	$ 23,100.00
	10" LATERAL SEAL - 4' LENGTH	0	EA	$ 2,800.00	$ -
	8" LATERAL SEAL - 4' LENGTH	26	EA	$ 2,500.00	$ 65,000.00
	LATERAL POINT REPAIR - 6' LENGTH, 6-10' DEPTH	1	EA	$ 3,000.00	$ 3,000.00
	LATERAL POINT REPIAR - 6' LENGTH, 10'-14' DEPTH	1	EA	$ 3,500.00	$ 3,500.00
	CONSTRUCTION SUBTOTAL				$ 403,000.00
	CONTINGENCY				$ 40,300.00
	DESIGN SERVICES				$ 32,300.00
	CONSTRUCTION PHASE SERVICES				$ 30,200.00
	TOTAL PROJECT COST				**$ 505,800.00**

Petition Exhibit B

Notice of Violation

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER RESOURCES
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 11th Floor
Nashville, TN 37243-1534

January 15, 2019

Mr. Bruce Meyer
Operations Manager
Cartwright Creek, LLC
1551 Thompson's Station Road West
PO Box 147
Thompson's Station, TN 37179

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
RECEIPT #~~9414 7266 9904 2120 5166 71~~
Hand delivery

Received 1/17/19
Bruce Meyer

Subject: Cartwright Creek LLC Grasslands Facility
Notice of Violation
NPDES TN0027278
Williamson County, Tennessee

Dear Mr. Meyer,

Cartwright Creek LLC Grasslands Facility appeared on the most recent Quarterly Non-Compliance Report (QNCR) for effluent violations of total nitrogen. This is a violation of terms outlined in your National Pollutant Discharge Elimination System (NPDES) permit number TN0027278. Please reference the attached violation report for further details.

If you believe the violations stated above are incorrect, please provide documentation showing the parameters in question to be in compliance. The Division requests information explaining the total nitrogen exceedances detailed on the attached report. Within 30 days of receipt of this letter, please submit a formal Corrective Action Plan (CAP) that will address these violations and help prevent future exceedances. Documentation should be sent to the address listed above with a copy sent to the Nashville Environmental Field Office located at 711 R.S. Gass Blvd, Nashville, TN 37216. Alternatively, you may e-mail a copy to me at Jessica.Murphy@tn.gov. Please be aware that violations of the Water Quality Control Act may subject you to further enforcement action.

The Division appreciates your efforts to maintain water quality. Should you have any further questions, please feel free to contact me at (615) 532-0676.

Sincerely,

Jessica Murphy
Manager, Compliance and Enforcement Unit
Division of Water Resources

cc: DWR – EFO – Nashville (via e-mail)
OGC – (via e-mail)
Enforcement File

BEFORE THE TENNESSEE PUBLIC UTILITY COMISSION
NASHVILLE, TENNESSEE

PETITION OF CARTWRIGHT CREEK, LLC TO INCREASE TAP FEES TO ADDRESS ENVIRONMENTAL ISSUES RAISED BY THE TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION	))))	DOCKET NO. 19-_____

DIRECT TESTIMONY
of
BRUCE MEYER

ON BEHALF OF CARTWRIGHT CREEK, LLC

March 13, 2019

Q1. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND OCCUPATION FOR THE RECORD.

A1. My name is Bruce Meyer and my business address is 6545 Cox Road, College Grove, TN 37046.

Q2. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A2. I am employed by Sheaffer Wastewater Solutions, LLC as Operations Manager.

Q3. HOW LONG HAVE YOU BEEN EMPLOYED BY SHEAFFER WASTEWATER SOLUTIONS?

A3. I have been employed by Sheaffer Wastewater Solutions ("Sheaffer") for approximately eighteen years.

Q4. WHAT ARE YOUR RESPONSIBILITIES AS THE OPERATIONS MANAGER FOR CARTWRIGHT CREEK, LLC.?

A4. I am responsible for the day-to-day operation, engineering and permitting for Cartwright Creek, LLC ("Cartwright Creek").

Q5. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A5. The purpose of this testimony is to support Cartwright Creek's request to raise tap fees to provide funds for collection system repairs.

Q6. PLEASE DESCRIBE THE BACKGROUND AND THE REASON FOR THIS REQUEST.

A6. In previous submittals to TPUC and discussions with agency staff, including the 2016 rate case (Docket No. 16-00127), Cartwright Creek provided information on the problem with groundwater and rainwater entering its aging underground

collection system serving the Grasslands wastewater treatment facility. Moderate rainfall events increase the flow to the wastewater treatment system to above its design flow of 250,000 gallons per day. During more intense or longer rain events, the influent flow to the plant can be more than three times the design flow rate. The record rainfalls of February 2018 and 2019 have been especially problematic.

Q7. WHAT PROBLEMS DOES THIS CAUSE CARTRIGHT CREEK?

A7. The groundwater and rainwater infiltration into the collection system cause three types of problems. First, infiltration decreases the treatment efficiency of the Grasslands wastewater treatment system resulting in exceedances of the facility's discharge permit. Second, it can cause overflows of sewage from manholes. And third, it results in extra wear and premature failures of pumps and treatment equipment.

Q8. WHAT HAS CARTRWIGHT CREEK DONE TO IDENTIFY THE SOURCES OF INFILTRATION?

A8. During the last three years, Cartwright Creek has retained multiple consultants to perform detailed investigations of the collection system and identify the sources. This has included GPS mapping the entire system, manhole inspection, flow measurement, and video inspection. In 2017, the collected data from these investigations was reviewed by Mr. George Kurz, who is regarded as an expert in infiltration due to his extensive work reviewing infiltration in Tennessee utilities. Mr. Kurz concluded that one quadrant of the Cartwright Creek collection system resulted in most of the infiltration. In 2018, Cartwright Creek retained the

engineers at Inflo Design Group (IDG) to identify repair methods and costs. IDG agreed with Mr. Kurz that making the repairs in the high flow quadrant would cause a substantial reduction in infiltration. IDG concluded that the cost of repairs in the quadrant with the most infiltration would be approximately $500,000. The IDG report is attached.

Q9. WHAT HAS BEEN TDEC'S RESPONSE TO THE PROBLEMS CAUSED BY INFILTRATION.

A9. TDEC has been aware of the infiltration issues at Grasslands for some time and has had several discussions with staff. Most recently, on January 15, 2019 Cartrwight Creek representatives met with TDEC representatives in a Show Cause meeting due to multiple permit exceedances, a majority caused by the infiltration. On January 15, 2019, TDEC issued a "Notice of Violation" due to Total Nitrogen exceedances and requested a corrective action plan.

Q10. HAS TDEC REVIEWED THE ENGINEERING REVIEWS AND THE IDG REPORT YOU PREVIOUSLY MENTIONED?

A10. Yes, the reports were submitted to TDEC and reviewed by TDEC's Chief Engineer, George Garden. Mr. Garden agrees with the conclusions. Please refer to his March 12, 2019 letter which is attached to my testimony.

Q11. HOW WILL RAISING THE TAP FEE ADDRESS THE PROBLEMS DESCRIBED?

A11. It will allow Cartwright Creek to more quickly have the necessary funding to make the repairs to the collection system and achieve a substantial reduction in infiltration. The reduction in infiltration will not only reduce the number of flow

related overflows, but will also reduce the number of permit exceedances of organics, solids, and Nitrogen. Collected tap fees will continue to be placed in an escrow account and used with the approval of TPUC.

Q12. HOW DOES THE REQUESTED TAP FEE COMPARE WITH OTHER UTILITIES IN THE AREA?

A12. We know that the City of Brentwood, with service territory adjacent to the Grasslands service area, has established a $10,000 tap fee for residences not within its city boundary.

Q13. DOES THIS COMPLETE YOUR TESTIMONY?

A13. Yes, it does.

Letter from George Garden
Deputy Director/Chief Engineer
Department of Water Resources
Tennessee Department of Environment and Conservation

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER RESOURCES
William R. Snodgrass - Tennessee Tower
312 Rosa L. Parks Avenue, 11th Floor
Nashville, Tennessee 37243-1102

March 12, 2019

Mr. Bruce Meyer
e-copy: bmeyer@sheafferwws.com
Operations Manager
Cartwright Creek, LLC
6545 Cox Road
College Grove, TN 37046

Subject: **Cartwright Creek, LLC; Grassland WWTP**
County: Williamson
WPN 19.0129; TN027278
Project: Final Cartwright Creek Collection Systems Review, June 2018

Dear Mr. Meyer:

The Tennessee Department of Environment and Conservation, Division of Water Resources, acknowledges the receipt of the engineering report, Cartwright Creek, Collection Systems Review, dated June 2018, by Inflo Design Group, LLC. by email on March 11, 2019. The report consists of flow and sewer video studies of the Grassland Collection System and recommendations for the repair of the system to reduce the significant I&I in the system.

The Division reviewed the preliminary data in the summer of 2018 as well as the report just received summarizing the findings and the sewer rehab recommended methods and cost estimates. The Division concurs in the findings and commends the utility for the detailed methodology and the scope of the study. Although groundwater migration is always a possibility, the assertion by the report that the $500,000 project proposed could have a substantial impact, potentially to a 50% reduction of the rain-derived inflow and infiltration (RDI&I) into the Cartwright Creek-Grassland collection system, is reasonable. The reduction anticipated should have a positive impact on the frequency of overflows, as well as, the downstream wastewater treatment plant performance. The Division assumes that reduced permit violations and improved opportunities for nutrient reduction will result from successful sewer rehab. Cartwright Creek, LLC, is encouraged to pursue the sewer rehab work recommended by the report.

To expedite matters, please reference the assigned wastewater project number WPN19.0129 on any future correspondence. If you have any questions, please feel free to contact Mr. George Garden, P.E. BCEE at (615) 253-9934 or by E-mail at *George.Garden@tn.gov*.

Sincerely,

George Garden, P.E. BCEE
Deputy Director/Chief Engineer

cc: Water-Based Systems File

Mr. Tim Jennette, Manager, Nashville Environmental Field Office (Tim.Jennette@tn.gov)
Mr. Barney Fullington, PE, Inflo Design Group, LLC, (Barney.Fullington@inflodesign.com)
Mr. Kevin Colvett, PE, Inflo Design Group, LLC, (Kevin.Colvett@inflodesign.com)
Mr. Robert O'Dette, PE BCEE, DWR, (Robert.Odette@tn.gov)