

Wastewater Collection & Treatment

CARY

101



FORMERLY **CARY SCHOOL OF GOVERNMENT**

PRESERVING & PROTECTING
OUR FINITE RESOURCES

Waste Collection

Exceptional Treatment

Clean Water Returned to the
Environment



PROTECTING THE ENVIRONMENT

WE ARE PLEASED TO PRESENT THE ANNUAL WASTEWATER REPORT
FOR THE TOWN OF CARY.

The top priority for our wastewater utility is to provide safe and reliable wastewater collection and treatment services that are properly operated and maintained to high professional standards that meet and surpass all federal and state requirements for environmental protection.

Wastewater



TOWN of CARY

WASTEWATER

ANNUAL REPORT 2021-2022

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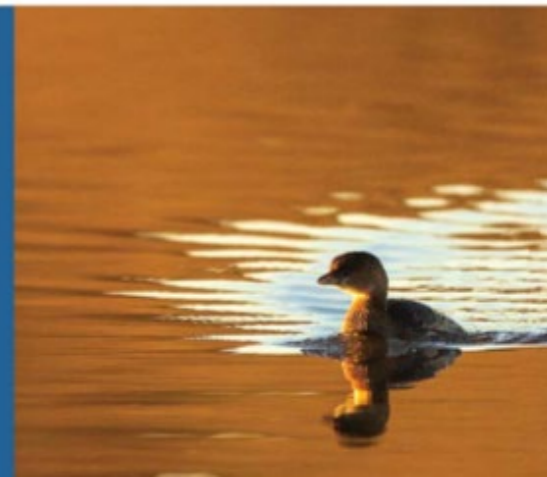
It has been another meaningful year for Cary's wastewater utility. We have always strived to provide exceptional nutrient removal performance at all three treatment facilities and return

the highest quality clean water to the natural environment. In 2022, Cary was recognized nationally by the Water Environment Federation as a Platinum Partner for enhanced nutrient removal and awarded the prestigious Innovator Award for Treatment Technology. We are especially grateful to achieve this recognition during the 50-year anniversary of the Clean Water Act.

Our wastewater system, or what is often called the sewer system, is an extensive network of approximately

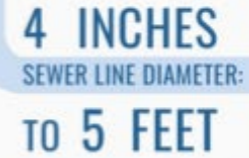
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SEWER SYSTEM: THE BIG PICTURE

The Town of Cary provides cost-effective wastewater treatment services to Cary utility customers, including the Town of Morrisville, RDU Airport, and the Wake County portion of the Research Triangle Park. The Town partners and works proactively with the Towns of Apex and Morrisville on the Western Wake Regional Water Reclamation Facility.



DAILY WASTEWATER
COLLECTION,
ACTUAL VERSUS
CAPACITY
(MILLION GALLONS PER DAY)



UNDERSTANDING SEWER LATERALS

Sewer laterals are the underground pipes that carry wastewater from our homes to Cary's sewer system for treatment. When we flush toilets, shower, or wash clothes the plumbing system and the sewer lateral does the important job of safely carrying wastes away from the home. **This diagram illustrates what a typical underground sewer lateral looks like, who is responsible for what portions of the line, and some causes for slow draining or blocked sewer laterals.** For more information, search for "sewer maintenance" at townofcary.org or dial 311 or (919) 469-4000.



1

Waste from toilets and drains goes into the service lateral.

2

Cleanouts allow access to inspect, clear blockages, and do other maintenance on the service lateral. A secure cap keeps rain water and debris from getting into the service lateral and sewer odors from escaping out.

3

This T connection is where the Town of Cary becomes responsible for the service lateral. The portion of the service lateral from the home to the T connection is the responsibility of the homeowner.

!

Sewer lateral stoppages can be caused by roots, grease, sanitary wipes, and other debris inside the pipe.

REFER TO COMMUNITY SUPPORT ON PAGE 8 FOR TIPS ON HOW TO KEEP GREASE AND DEBRIS OUT OF THE SEWER LATERAL.

4

Once the waste from the home travels through the sewer lateral, it enters the main sewer line and starts the journey to the wastewater reclamation facility for treatment.

Sewer Maintenance

- Inspection
 - Video, Acoustic, Smoke
- Cleaning
 - Length cleaned annually could reach to Myrtle Beach!
- Easement Maintenance
- Repairs



SEWER SYSTEM MAINTENANCE

Throughout the year, we regularly maintain and inspect the sewer system to identify and repair defects before problems occur. This also helps to reduce the chance of sewer overflows.

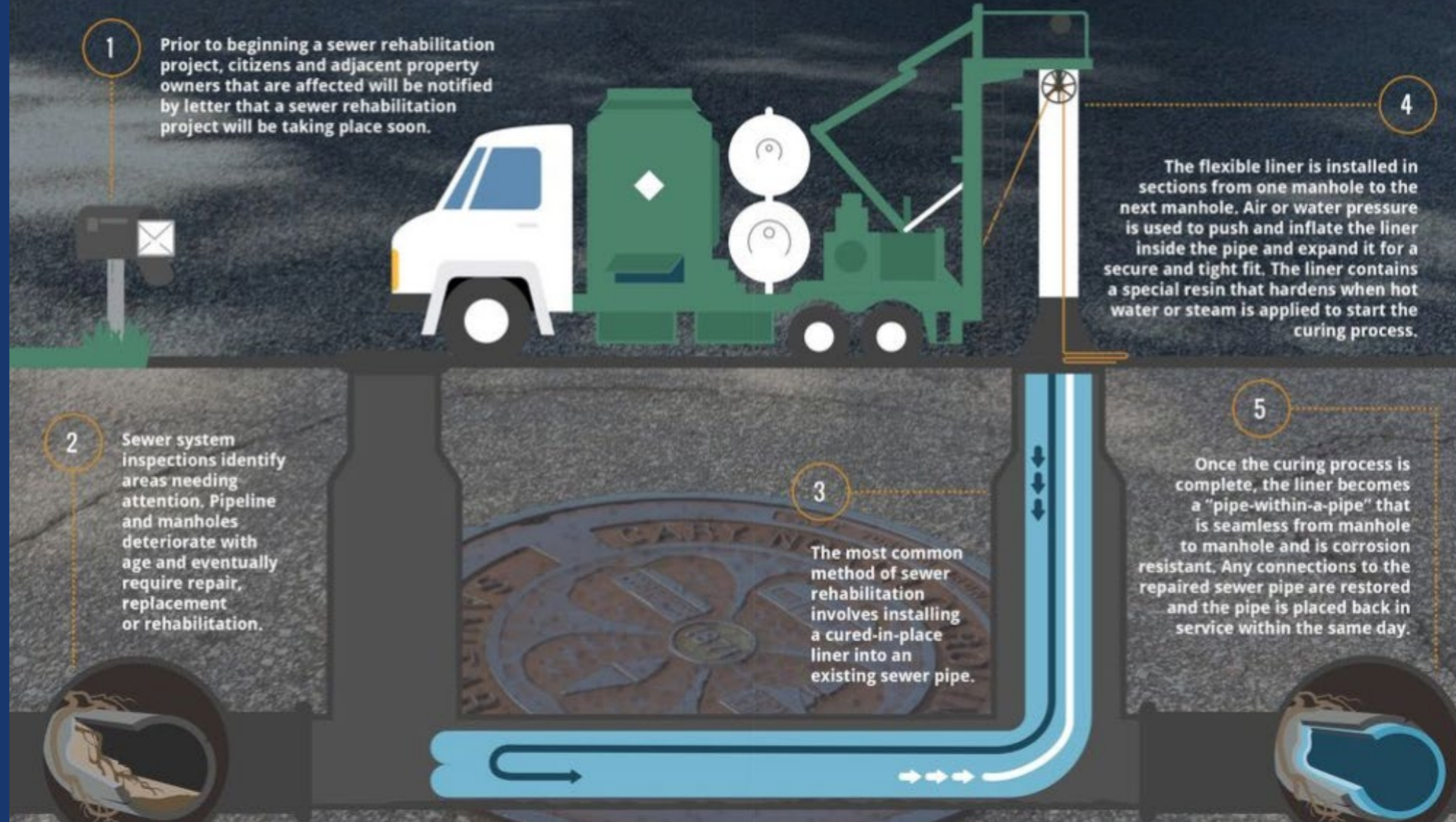


Sewer Rehab

Instead of replacing a pipe, a liner is inserted so it's a "pipe-within-a-pipe"

REHABILITATING THE SEWER SYSTEM

Throughout the year, we maintain and inspect sewer lines and manholes to identify and repair defects before problems occur. Cary annually budgets funds to renew aging sections of this critical infrastructure to reduce the risk of disruptive and costly emergency repairs. This work extends the service life of these assets by at least 50 years.



1

IF YOU NOTICE:

- **Water flowing** from a manhole or a sewer cleanout pipe
- An **unusual leak** seeping from underground
- A strong **odor**

REPORT IT ANYTIME
BY DIALING **311**
OR (919) 469-4000

Questions or other non-emergency concerns about wastewater services can be reported online at services.townofcary.org.

2

RECYCLE YOUR FATS, OILS AND GREASE (F.O.G.)

Never drain F.O.G. down your sink, where it can harden and create blockages in sewer pipes. Instead, collect your cooled grease so that it can be recycled into clean burning biofuel.

- Collect a minimum of 1/2 gallon F.O.G. in a plastic screw-top container and label it "Used Cooking Oil."
- Visit services.townofcary.org or dial **311** to schedule a free curbside collection.

3

DON'T RUSH TO FLUSH, PUT TRASH IN ITS PLACE!

If flushed, many items commonly used in bathrooms can accumulate in pipes and lead to costly sewer blockages and environmentally-damaging overflows.

Help keep our sewers flowing freely by **disposing of these items in your trash** and not in our sewers.



CLEAN WATER ACT

Passed in 1948 (Federal Clean Water Pollution Control Act)

Amended in 1972.

Protects against pollution

Established Permitting & Standards

Administered by US EPA



The Cuyahoga River was once one of the most polluted rivers in the United States. It has caught fire a total of 13 times dating back to 1868, including this blaze in 1952 which caused over \$1.3 million in damages. Photo: Cleveland State University Library

HOW A BURNING RIVER HELPED CREATE THE CLEAN WATER ACT

JULIE GRANT × APRIL 21, 2017

National Pollutant Discharge Elimination System (NPDES)



What is NPDES?

The NPDES permit program addresses water pollution by regulating point sources that discharge pollutants to waters of the United States.

Created in 1972 by the Clean Water Act, the NPDES permit program is authorized to state governments by EPA to perform many permitting, administrative, and enforcement aspects of the program.



UNIVERSITY OF NORTH CAROLINA-CHAPEL HILL

Blands

Nelson

RALEIGH-DURHAM INTL AIRPORT

Brookhaven

NCWRF

WTP

Glen Forest

Millbrook

Morrisville

Carpenter

Tysonville

New

Skycree Villag

Upchurch

Cary

Method

Raleigh

Green Level

Bells

Wilsonville

Piney PlaiMacedonia

Rhamkatte

Fairway Acres

Cloverdale

NORTH CAROLINA STATE UNIVERSITY

Apex

Garner

Pine Hurst Park

Friendship

Feltonville

New Hill
WWRWF

WTP

SCWRF

WTP

Williams Crossroads

Bonsal

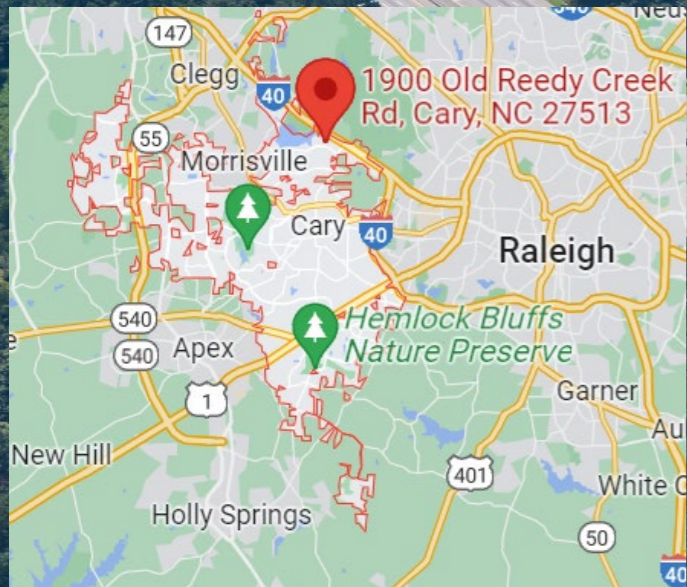
Holly Springs



Merry Oaks

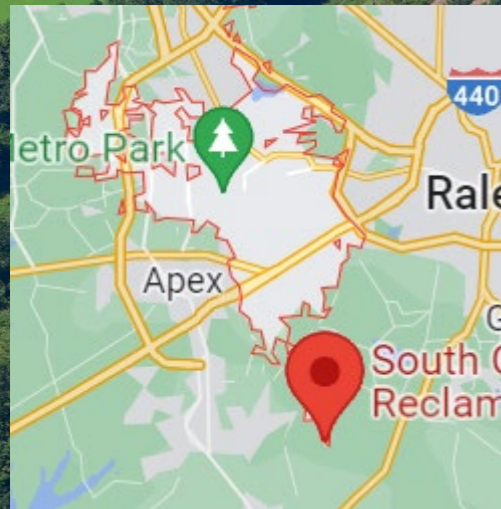


North Cary WRF



North Cary WRF (12 MGD) - On Old Reedy Creek Rd, next to I-40

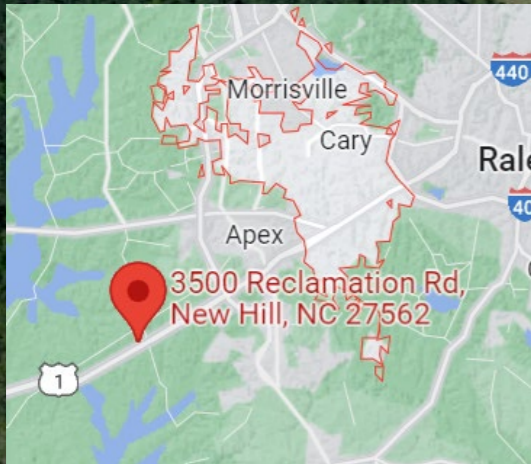
South Cary WRF



You are here

South Cary WRF (12.8 MGD) - West Lake Rd, by Middle Creek High School

Western Wake Regional WRF



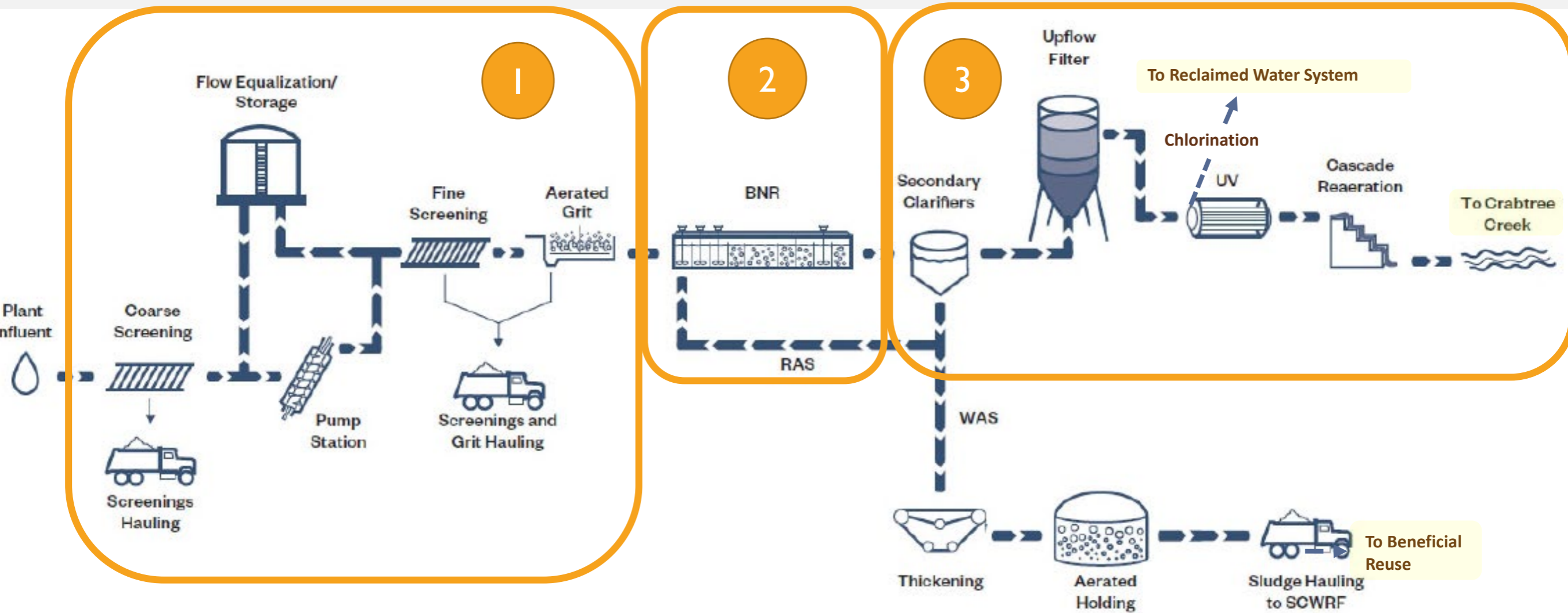
Western Wake Regional WRF (18 MGD) in New Hill (Cape Fear River Basin)

TREATMENT PROCESS

Physical Removal

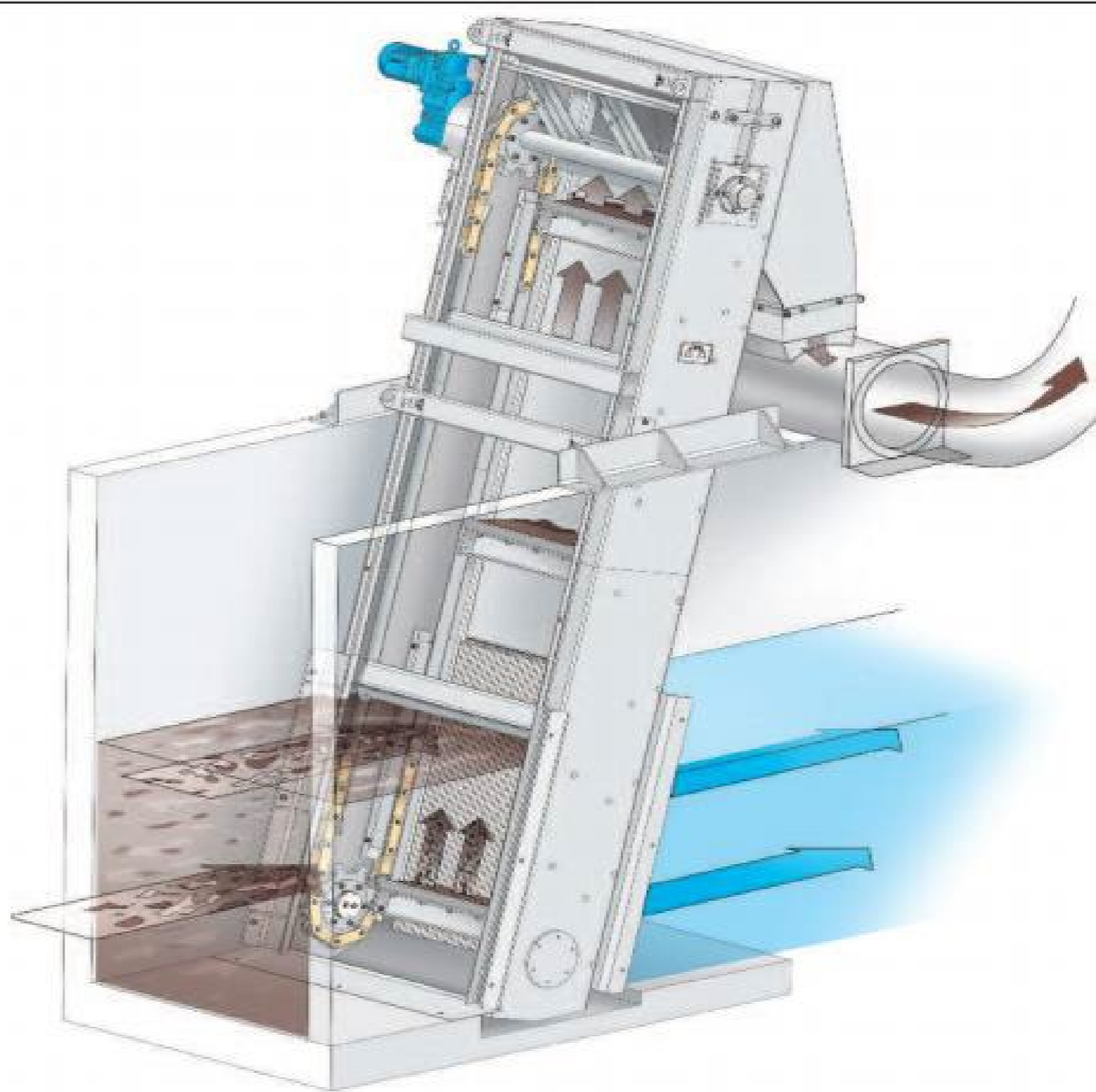
Biological

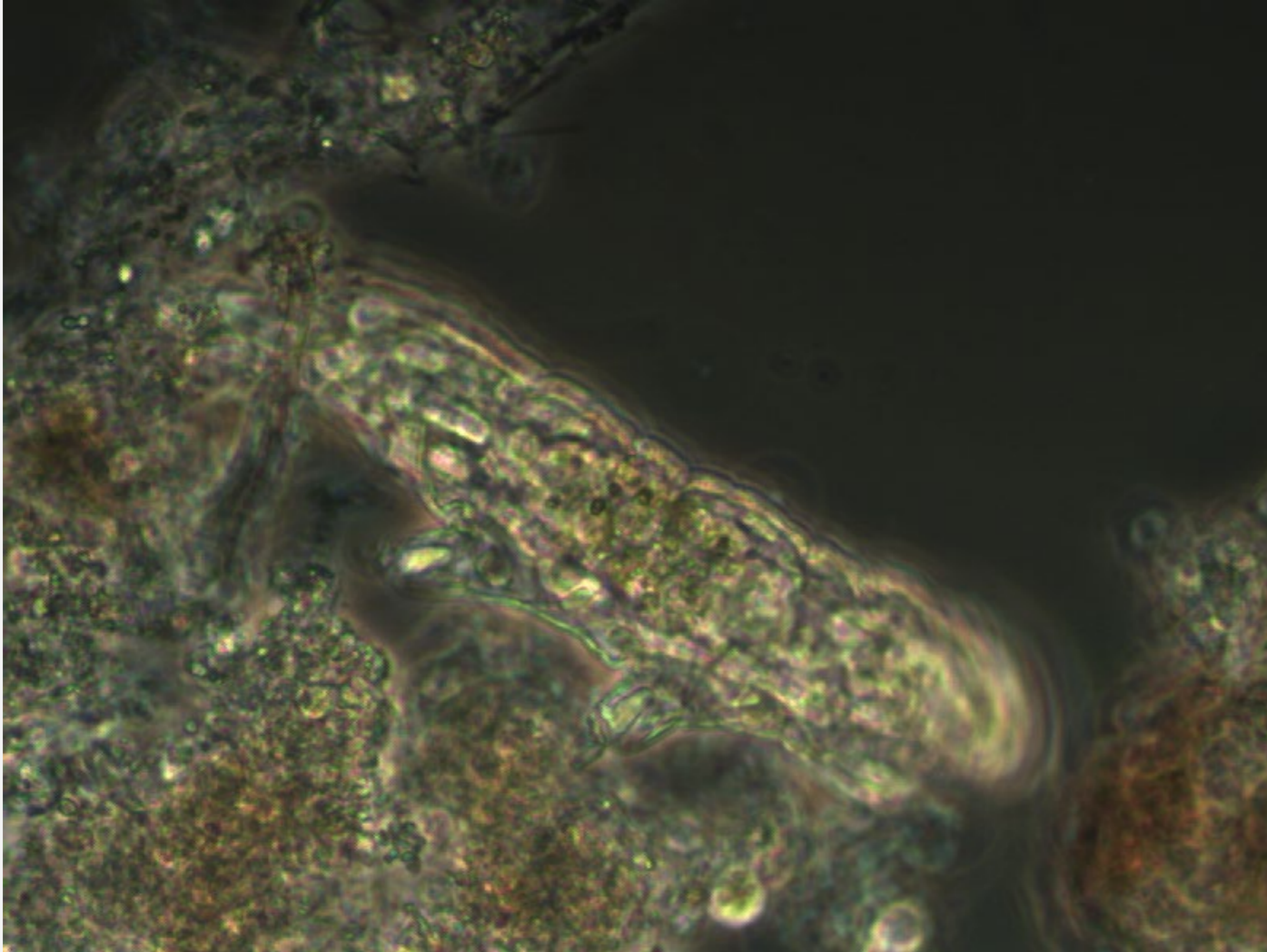
Disinfection & Biosolids



STEP I - PHYSICAL REMOVAL

- Trash and Debris
- Grit and Grease
- Protects Treatment Equipment
- Landfill Usage





STEP 2
-
BIOLOGICAL
TREATMENT

- Dissolved Solids
- Nutrients
- Bacteria “Bugs”
- Beneficial Reuse

STEP 3 - DISINFECTION

- Ultraviolet Light
- Pathogen Removal
- Pre-UV ~2000 colonies
- Post-UV <1 colonies on avg





EXCEPTIONAL PERFORMANCE

- Discharges treated wastewater to creeks & streams
- “Exceptional Performing Facilities”
- Nearly 100% nutrient removal – some of the best in NC

MEET THE CREW



- Laboratory

- Maintenance

- Operations

LABORATORY

State Certified Environmental Labs

Performs all NPDES required
analysis and reporting

All Analysts are individually certified

Implements Quality Assurance

Data is reported to the State and
Federal Government

Blind Studies





MAINTENANCE

Preventative / Predictive / Corrective

Asset Management

24hr Emergency On-call

Operations shift coverage

Network and Integration Technology

Contracted Services



OPERATIONS

- 24hr Staffing – 12hr shifts
- Inspection Rounds
- Chemical Inventory
- Monitors and Adjusts Treatment
- Inclement Weather
- Records Management
- Corresponds with State and Federal entities
- SCADA Monitoring and Response



AWARD WINNING



TREATMENT PROCESS

Physical Removal

Biological

Disinfection

