



DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY  
BIANNUAL REPORT OCTOBER 2021

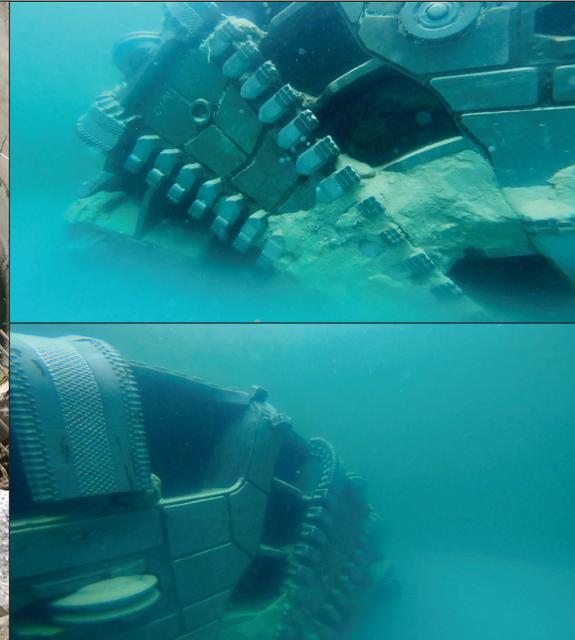
## COMBINED SEWER OVERFLOW (CSO) CONTROL ACTIVITIES

# CLEAN RIVERS PROJECT NEWS

## DC Water's tunnel boring machine finishes with a splash!

*Northeast Boundary Tunnel to  
bring neighborhood flooding re-  
lief and a cleaner Anacostia River*

Like an Olympic swimmer furiously paddling for gold, DC Water's massive tunnel boring machine (TBM) bore through the earth and emerged into a pool of water. The TBM, named Chris, broke through the final shaft wall on April 21, 2021, completing its mission to dig a five-mile tunnel, 100 feet underground. To maintain pressure inside the deep shaft, engineers flooded it with water before the TBM broke through. An underwater camera caught the dramatic action of the TBM cutting through the concrete shaft. Later, Chris was dismantled and retrieved piece by piece. And so ended the three-year journey and completed the full 13.1-mile Anacostia River Tunnel. This five-mile Northeast Boundary Tunnel segment will connect to the First Street Tunnel and the



Above: The TBM cutterhead breaks through the concrete shaft, as seen from above and under water. Outside Flap: After finishing his five-mile journey, TBM Chris rests before getting a lift out.

southern tunnel sections. It all ends at the Blue Plains Advanced Wastewater Treatment Plant for treatment and discharge to the Potomac River.

This final portion of the Anacostia River Tunnel (ART) system will reduce chronic flooding in the District during rainstorms that overwhelm the existing sewer system. The Anacostia River is already experiencing a resurgence in aquatic life since the southernmost sections became operational in 2018. The complete ART will make a much healthier river by reducing combined sewer overflows (CSOs) by 98 percent.

While the mining work is finished, it will take nearly two years to make this segment operational. DC Water's con-

tractor continues constructing diversion facilities to connect the existing sewer system to the new tunnel.

This is the fourth tunnel that DC Water has successfully completed using state-of-the-art tunnel boring machines. What makes this tunnel construction even more remarkable is that it passed under many sensitive surface structures with no disturbance. These include two elevated WMATA stations, active Amtrak and CSX rails, the DDOT bridge over North Capitol Street and many older DC Water sewer and water mains. The Clean Rivers Project's upcoming Potomac River Tunnel will be its last major tunnel constructed using a TBM and is scheduled to begin in 2023.

# DC Water bringing flooding relief to Mount Olivet neighborhood

## Long diversion sewer to pull rain into Clean Rivers Tunnel

During the torrential rain on September 10, 2020, water gushed through the doors of Bethesda Baptist Church, filled the hallways, and flooded the parking lot.

After many years of substantial street flooding, now with heavy construction equipment set up in the church's parking lot, there is a feeling that significant relief is on the way. As Chris the TBM snaked his way towards the finish line through Northeast DC, the path was determined by the need to serve low lying areas like Mt. Olivet Road and five other locations known to chronically flood during heavy rains. Completing the Northeast Boundary Tunnel was a tremendous milestone. When the full Anacostia System is operational in 2023, it will reduce the likelihood of flooding and provide a level of service that matches the design standard for the system.



"We have great hope now that flooding will be minimized when it rains," said Anne Barbee, Trustee at Bethesda Baptist Church, located at the bottom of a long, sloping hill along Mt. Olivet Road, NE at Capitol Avenue, NE. "It has been a pleasure working with the folks who have spent so much effort making things better around here." To lessen the impacts to the neighborhood and to traffic on Mt. Olivet Road, DC Water's contractor will dig the 730-foot long, 10.5-foot diameter diversion sewer required at this location using microtunnel techniques with a much smaller version of **Chris the TBM**.

## Greening the Rock Creek Basin



(l) Bioretention uses rainwater to sustain plant life, while filtering excess water through rocks into the ground.  
(r) Alley constructed with pavers that soak up the rain.



in alleys—to allow the rain to soak into the pavement—and bioretention sites, basically gardens that collect and use rain water.

DC Water's Clean Rivers Project will significantly reduce the level of pollution to the District's waterways produced by the discharge of stormwater runoff and sanitary sewer flows, known as combined sewer overflows (CSOs). These projects not only protect Rock Creek, they also enhance the streetscape, making it more welcoming for pedestrians, bicyclists and drivers. This will be the second GI project constructed in the Rock Creek sewershed. The first one, Rock Creek Project A, was completed in 2018 in the Brightwood Park and Manor Park neighborhoods.

DC Water is beautifying the Rock Creek sewershed with green projects that also protect the creek by minimizing combined sewer overflows.

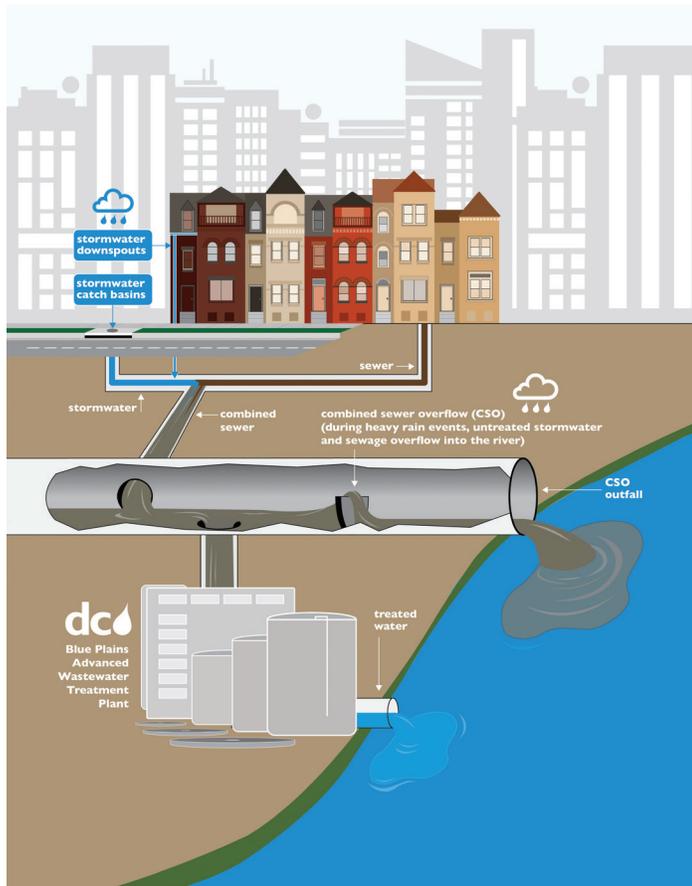
Rock Creek Project B is part of DC Water's Clean Rivers green infrastructure (GI) projects. These manage stormwater by leveraging the earth's natural processes, such as allowing the water to infiltrate into the soil, evaporate into the air or be used by plants which transpire it as vapor. The GI project includes permeable pavement

To ensure continued performance, the GI facilities must be regularly maintained, and DC Water is responsible for that maintenance. Facility IDs will be placed at each GI facility that DC Water constructs in your neighborhood and you can contact DC Water if you notice trash or other issues in the facilities. Construction of Rock Creek Project B will begin in early 2022. Details regarding the project and an interactive map of each facility location can be found at [dcwater.com/rockcreekgreenb](https://dcwater.com/rockcreekgreenb).

## FAQs About the Combined Sewer System

### What is a Combined Sewer?

A combined sewer is a single pipe that carries both sanitary wastewater and stormwater runoff. Many older cities in the United States are served by combined sewers. In the District, the combined sewer system was designed and built by the U.S. Army Corps of Engineers. Modern practice is to build two pipes in the street—one for stormwater runoff, and one for wastewater from homes and businesses.



### What is a CSO and why does it occur?

A CSO is a combined sewer overflow. During dry weather, sewage from homes and businesses is conveyed to the District's wastewater treatment plant at Blue Plains, where the wastewater is treated to remove pollutants before being discharged to the Potomac River. During certain rainfall conditions, the capacity of a combined sewer may be exceeded. When this occurs, the excess flow, a dilute mixture of wastewater and stormwater runoff, is discharged to the Anacostia River, Potomac River, Rock Creek and tributary waters. The Federal Clean Water Act allows CSOs, but the Environmental Protection Agency (EPA) requires communities to develop a plan to address overflows. There are 47 potentially active CSO outfalls listed in DC Water's existing discharge permit from the EPA.

### When do CSOs occur?

CSOs occur during wet weather and are more frequent in wet years than dry years. During years with average rainfall, DC Water estimates that combined sewers overflow into the Anacostia River about 20 times annually and the Potomac River about 77 times annually, spilling approximately 391 million gallons into the Anacostia and 677 million gallons into the Potomac. Rock Creek averages 32 CSO events and 35 million gallons of overflow a year.

### Where are CSO Outfalls?

There are 10 CSO outfall locations on the Potomac River, 14 on the Anacostia River and 23 along Rock Creek and its tributaries. DC Water has posted signs for each outfall location.

### What are the possible public health impacts of CSOs?

CSOs may pose a danger to the public because of the rapid flow of water exiting the outfalls and the potentially harmful substances it may contain. The public is advised to stay away from any sewer pipe discharge. CSOs could affect the receiving waters for up to 24 hours during small rainstorms and for up to three days when it rains one inch or more.

### What are the environmental impacts of CSOs?

CSOs can adversely affect the quality of rivers and streams by contributing to high bacterial levels and low dissolved oxygen levels, which are harmful to fish and other aquatic life.

### What is a Dry Weather Overflow (DWO)?

In dry weather, sanitary wastewater normally flows to the Blue Plains Advanced Wastewater Treatment Plant through pipes with regulators. During wet weather, regulators are designed to let the excess flow discharge directly to a river or creek. If regulators become blocked by debris or trash, wastewater can also overflow during dry weather. This is called a dry weather overflow (DWO). DC Water has an intensive maintenance and inspection program to prevent DWOs from occurring. If you see a CSO outfall discharging during dry weather, call DC Water at (202) 612-3400.

### Where can you get more information?

You can learn more by visiting DC Water's website at [dcwater.com/cleanrivers](http://dcwater.com/cleanrivers). You may also contact DC Water's Office of Marketing and Communications at (202) 787-2200.

The complete text of the Long Term Control Plan for Combined Sewer Overflows can also be found on DC Water's web site at [dcwater.com/FinalLTCP](http://dcwater.com/FinalLTCP).

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## Simple steps to improve the health of DC's rivers and creeks

The goal of DC Water's Clean Rivers Project is to improve the health of the District's waterways that include the Anacostia and Potomac rivers and Rock Creek. But we aren't limited to giant construction activities, everyone can help protect our rivers and creeks by making simple changes.

- 1. Keep the storm drains clean.** Only rainwater should go into the storm sewers. Pet waste, chemicals, trash, and yard trimmings go in the trash, recycling or household hazardous materials disposal. Wash your car at a commercial car wash or in a grassy area to prevent chemicals from entering storm drains. Minimize the use of lawn chemicals and fertilizers which can be harmful for aquatic life and increase the burden for treatment facilities like Blue Plains.
- 2. Plant native.** Native plants are great for soaking up stormwater, reducing runoff, and filtering pollutants. Check out the District Department of Energy and the Environment's (DOEE) native plant list: [doee.dc.gov/service/native-plants](https://doee.dc.gov/service/native-plants) Residents interested in installing their own green infrastructure can utilize the resources offered by DOEE's RiverSmart program: [doee.dc.gov/riversmart](https://doee.dc.gov/riversmart)
- 3. Get involved.** Several local non-profit organizations work in tandem with DC Water to protect our local waterways. These organizations also provide many free tips.



Rain barrels capture and store rain water for uses around the home and garden. Contact DOEE's RiverSmart program: [doee.dc.gov/riversmart](https://doee.dc.gov/riversmart)

**YOU TOO CAN HELP PROTECT OUR WATERWAYS FOR FUTURE GENERATIONS TO ENJOY!**  
These are just a few of the local organizations working to improve the District's waterways



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