

Saddle Creek Retention Treatment Basin (RTB)

Winter 2021 Update



The Saddle Creek Retention Treatment Basin (RTB) facility will reduce combined sewer overflows discharged to Little Papillion Creek.

The Saddle Creek RTB, a wet weather treatment facility, is an important project for Omaha's water quality improvement program, called Clean Solutions for Omaha (CSO). The purpose of the new wet weather facility is to capture and treat combined sewage during wet weather events, with stored volume remaining in the basin after a wet weather event conveyed to the Papillion Creek Water Resource Recovery Facility for treatment. This will reduce untreated combined sewage entering the Little Papillion Creek.

In 2021, the project reached four significant milestones. Beginning with earthwork excavation to create room for the underground basin, construction then focused on placing rebar and mass concrete pours to construct the basin itself.

Once basin construction was completed, soil was hauled in for backfill. Finally, vertical construction on the chemical and operations buildings began.



This project is helping achieve the CSO Program's requirement to capture or treat 85% of wet weather volume.

PROGRESS TO DATE

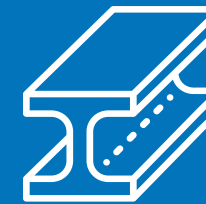


218,639 tons of soil excavated for 3.3 million gallon basin



Over 218,000 tons of soil were excavated to create space for the construction of the 3.3 million gallon basin. Approximately 74,000 cubic yards of soil were used as backfill once basin construction was completed. The basin is designed to capture and treat a combined sewer flow rate of 160 million gallons per day.

13 miles of steel beams support the facility's structure



Steel beams have been driven into the foundation to support the facility's concrete structure. These 848 steel beams (approximately 13 miles in total) support the weight of concrete, water, soil and other building materials. In Q1 of 2021, all of the pile driving was completed.

2,500 truckloads of concrete poured for the basin and facility walls



The concrete work for the diversion structure and a portion of the channel work was completed in 2020. Construction from summer 2020 to fall 2021 was primarily focused on placing rebar and concrete pours. The remainder of the concrete work in the channel was completed in Q4 of 2021. Approximately 25,000 cubic yards of concrete, roughly 2,500 truckloads, were used to construct the basin and the facility's walls.



PROGRESS IN 2021

1st Quarter 2021

Began earthwork excavation to create space for the RTB basin construction

- Completed H-Pile for the chemical building and its concrete base slab cast
- Laid the 60-inch diversion flow sewer from the diversion structure to the Little Papillion Interceptor
- Cast the concrete basin walls and columns
- Laid the 108-inch influent sewers

2nd Quarter 2021

Poured large volumes of concrete to construct the basin

- Cast the two headworks piers
- Implemented Phase 2 of the Groundwater Action Plan
- Worked in the CSO-205 Channel for the second season
- Cast concrete walls for the ventilation structure

3rd Quarter 2021

Finished basin construction and began backfill with 74,000 cubic yards of soil

- Cast the basin roof slab, the chemical building basement walls, and the operations building basement walls
- Began backfilling over the basin
- Implemented Phase 3 of the Groundwater Action Plan
- Installed the utility tunnels

4th Quarter 2021

Began vertical, above-ground construction to construct the facility walls

- Started the third season working in the CSO-205 Channel, which included casting the remaining concrete and the rock portion of the channel
- Laid the block for the operations building, basement, stairways and elevator shaft
- Cast the operations and chemical building concrete slabs at elevation 1031.50 feet
- Installed the backwater gates
- Took delivery of the chemical storage tanks
- Installed two of the three bar screens
- Started to erect the operations building structural steel
- Started mechanical and electrical work





Upcoming construction

Construction will continue throughout the winter and spring of 2022. Above-ground improvements include a building to house controls, grit and screening equipment, and chemicals. The building will provide office space for full-time staff, some additional city offices and maintenance access to the facility.

An odor control system will also be installed to address the risk of odors from the facility. The site will include fencing and lighting for security purposes.

We expect the remaining construction activities to have a minimal impact to the surrounding neighborhoods, which include concrete and material delivery and some general construction noise. There are also plans to install green infrastructure, like landscaping that features trees and prairie grasses native to the area. Look to future issues of this brochure for more details.

The City anticipates taking over the operation of the facility in 2023. Disinfection of combined sewage will begin in spring 2023.

A combination of vegetative species, native or near native to Eastern Nebraska is proposed for landscaping. Native turf sod is proposed for areas adjacent to the buildings and drives and short grass prairie seeding will be used throughout the remainder of the site. Native tree and shrub species appropriate for the site will be used with short grass prairie as the primary understory vegetation. In addition, green infrastructure elements have been integrated into the Landscape Plan in a manner that will improve overall site aesthetics.

Vegetation is also a key aspect of the rehabilitation design for the lower CSO 205 Channel area. Native grasses and sod will be used in combination with geocellular confinement and turf reinforcement mats, to provide immediate cover and foster deep root growth for added bank stabilization. A tree and shrub buffer will be located along the north side of the channel and planted with sufficient density to provide an appropriate buffer, support stabilization of the slopes and soils, and provide some habitat value for wildlife using the stream corridor.

Green infrastructure technologies were examined to determine ways to reduce stormwater runoff and improve water quality. Proposed green infrastructure opportunities include the use of bioretention in order to maintain current peak runoff rates from the site. A hydrodynamic separator will provide additional water quality treatment. Rainwater from the main building roofs will be harvested for use in cleaning the RTB, further reducing the stormwater runoff quantity.



Facts and figures:

	Total	Amount Completed as of Dec. 2021
Cast-in-Place Concrete	28,000 cubic yards	85%
Reinforcing Steel	7 million pounds	85%
Concrete Forms	400,000 square feet	85%
Excavation	231,000 tons	95%
H-Pile	68,500 linear feet	100%



Upcoming Work Schedule

- Operations Building:** Summer 2021 – Fall 2022
- Chemical Building:** Winter 2021 – Fall 2022
- Site Utilities:** 2022
- CSO 205 Channel Work:** Fall 2021 - Winter 2022
- Site Work:** Summer 2021 – Winter 2023
- Startup and Commissioning:** Summer 2022 – Winter 2023
- Substantial Completion:** Winter 2023

For a virtual tour of the completed facility design, visit omahacso.com/projects/saddlecreekrtb or scan the QR code below



City of Omaha, Nebraska
Jean Stothert, Mayor

OmahaCSO.com