Northeast Ohio Regional Sewer District

Woodland Central Green Infrastructure Project

NEORSD

As a subconsultant to CH2M, Coldwater provided planning, design, hydraulic modeling and permitting services for NEORSD's Woodland Central Green Infrastructure (WCGI) project. The overall goal of this Consent Decree-required project was to reduce combined sewer overflow volume and frequency through the installation of separate storm sewers in an urbanized area of the City of Cleveland. The WCGI project included approximately 4,900 linear feet of new mainline separate storm sewer, ranging from 12 inches to 54 inches in diameter. The project is located in an urban neighborhood in Cleveland, with many existing utilities, complicating the design and alignment of the proposed storm sewer to minimize utility conflicts.

In addition to new storm sewers, the project improvements included two extended detention basins and two structural storm water BMP's (Stormceptor hydrodynamic separator and Suntree nutrient separating baffle box). Design of the water quality basins required meeting both the State water quality treatment standards, and Ohio EPA Rule 13 permit requirements, as the basin sites were located on environmentally contaminated sites that required remediation as part of the site design. Coldwater assisted in the development of multiple iterations of the basin footprints that were considered and analyzed to minimize the amount of solid and contaminated waste that required handling, saving hundreds of thousands of dollars in construction cost.

Pre-construction conditions at the location of the western water quality basin.

Coldwater completed its hydraulic modeling services using PCSWMM software with a focus on the performance of the storm water conveyance system and detention basins. Modeling was performed for storms ranging from the 0.75-inch water quality event up to a 100-year storm. Hydraulic modeling, basin and site design were further complicated by the need to coordinate with the concurrent design (by others) of the outfall sewer for both the east and west basins. This resulted in both design constraints of spatial footprint available, as well as hydraulic constraints in allowable discharge rates to the culvert.

Coldwater's planning and design work was focused on the basin grading plans, outlet structures and structural storm water BMPs. Coldwater provided input into the specification of pipe materials and also supported CH2M in the development of technical specifications to be included in construction bidding documents. Coldwater's permit-related work for the project included the preparation of erosion and sediment control plan sheets and a storm water pollution prevention plan based on an NEORSD template document. The Woodland Central project is currently scheduled for bidding in the spring of 2017 with an anticipated construction duration of over two years.