



CITY OF CLERMONT

Disses Pollutants in Disston Avenue Drainage Basin

Orlando, FL

The City of Clermont and Lake County Water Authority collaborated on a stormwater management project to capture and treat stormwater from the Disston Avenue drainage basin before it enters Lake Minnehaha. The project reduces pollutant loadings and improves water quality in Lake Minnehaha, while also providing an element of flood control.

The project is a treatment-train system that includes precast concrete baffle boxes for pre-treatment and StormCapture[®] underground concrete retention modules. The baffle boxes remove sediments as well as floatables such as trash, leaves and grass to prevent them from entering the storage system and plugging the exfiltration surface. The StormCapture units capture and retain

the stormwater, before slowly allowing it to percolate through the sandy soil under the open-bottom modules to remove unwanted nutrients before providing groundwater recharge.

PRECAST SOLUTION

Oldcastle Infrastructure's scope of work entailed designing three separate drainage systems for the project. Each system included an upstream baffle box for initial treatment of the stormwater runoff before entering a series of StormCapture modules for detention and exfiltration into the ground. For the Disston Avenue project, the StormCapture modules were five-feet tall open-bottom modules with internal conveyance passageways to allow stormwater to freely flow between the units.

DESIGN & CONSTRUCTION TEAM

Owner

City of Clermont, Florida

Civil Engineer

BESH Engineering Consultants

General Contractor

Allstate Paving, Inc.

Manufacturing Facility

Oldcastle Infrastructure
Orlando, FL

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INSTALLATION

The three systems were installed underground, down the middle of Disston Avenue, a heavily traveled residential street in Orlando, Florida. Trench boxes were used to support the sides of the excavation while the precast concrete baffle boxes and StormCapture modules were installed using an excavator. Each of the three systems had to be installed individually with the roadway re-opened to local traffic between installation of each system.

SCOPE OF WORK

Oldcastle Infrastructure provided structural design and engineering drawings for the entire treatment-train system. Precast concrete and other products provided included:

- Six each modified curb inlets
- One each five-foot diameter manhole
- Three each four-foot by 14-foot by 7-foot baffle boxes

- Sixty-two each StormCapture modules
- Six each maintenance modules
- Cast-iron frames and covers for all structures

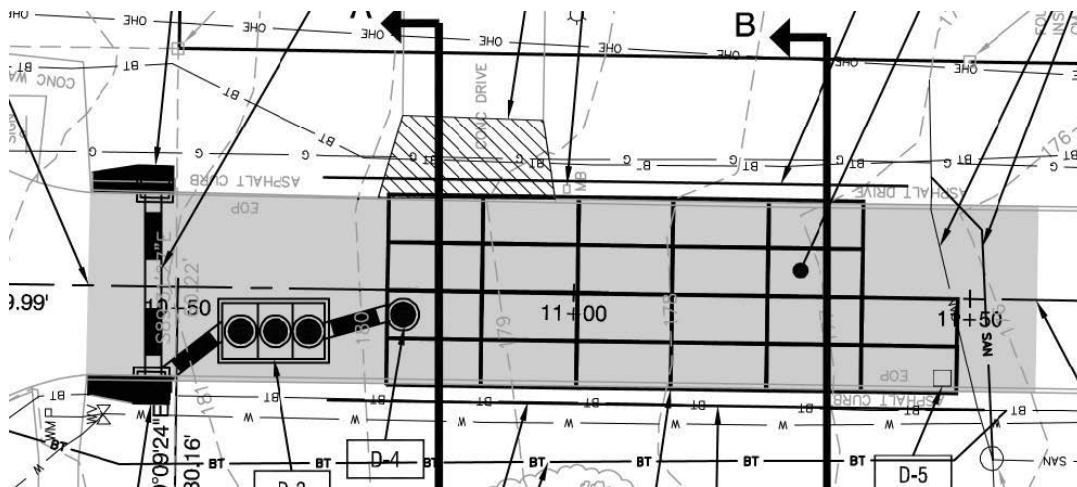
COMPLETED SYSTEM

Oldcastle Infrastructure provided all associated structures for the Disston Avenue drainage improvement project. Stormwater runoff now flows into the storm drainage system through precast concrete curb inlets, before being piped through storm manholes and eventually to the treatment train system consisting of the inline baffle boxes and StormCapture modules. During rain events, stormwater exfiltrates from the modules into the ground to replenish local aquifers.

The baffle boxes are a non-proprietary design which allows for gross solids in the water to be removed through sedimentation and screening in the baffle boxes. Sediment and floatables can then be removed from

the baffle boxes through any of the three access openings per box using a standard vacuum truck. By keeping sediments and debris out of the StormCapture modules, system maintenance is confined primarily to the baffle boxes for greater efficiency. This prevents the exfiltration surface under the modules from plugging up, while providing for maximum groundwater recharge as intended with the StormCapture modules. Access manways are also provided into the maintenance StormCapture modules in the event future servicing is required.

The Oldcastle Infrastructure's StormCapture system and pre-treatment chambers provide a valuable dual function for Disston Avenue - a groundwater recharge and flood control system - with a long-term design focused on accessibility for inspection and maintenance. System owners will be required to certify proper operation, as well as annual inspection and maintenance of the system as per local building permits.



About Oldcastle Infrastructure

Oldcastle Infrastructure, A CRH Company, is the leading provider of building materials, products and services for infrastructure projects to several market sectors nationwide, including: Building Structures, Communications, Energy, Transportation and Water.

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