

GNA Walking Tour

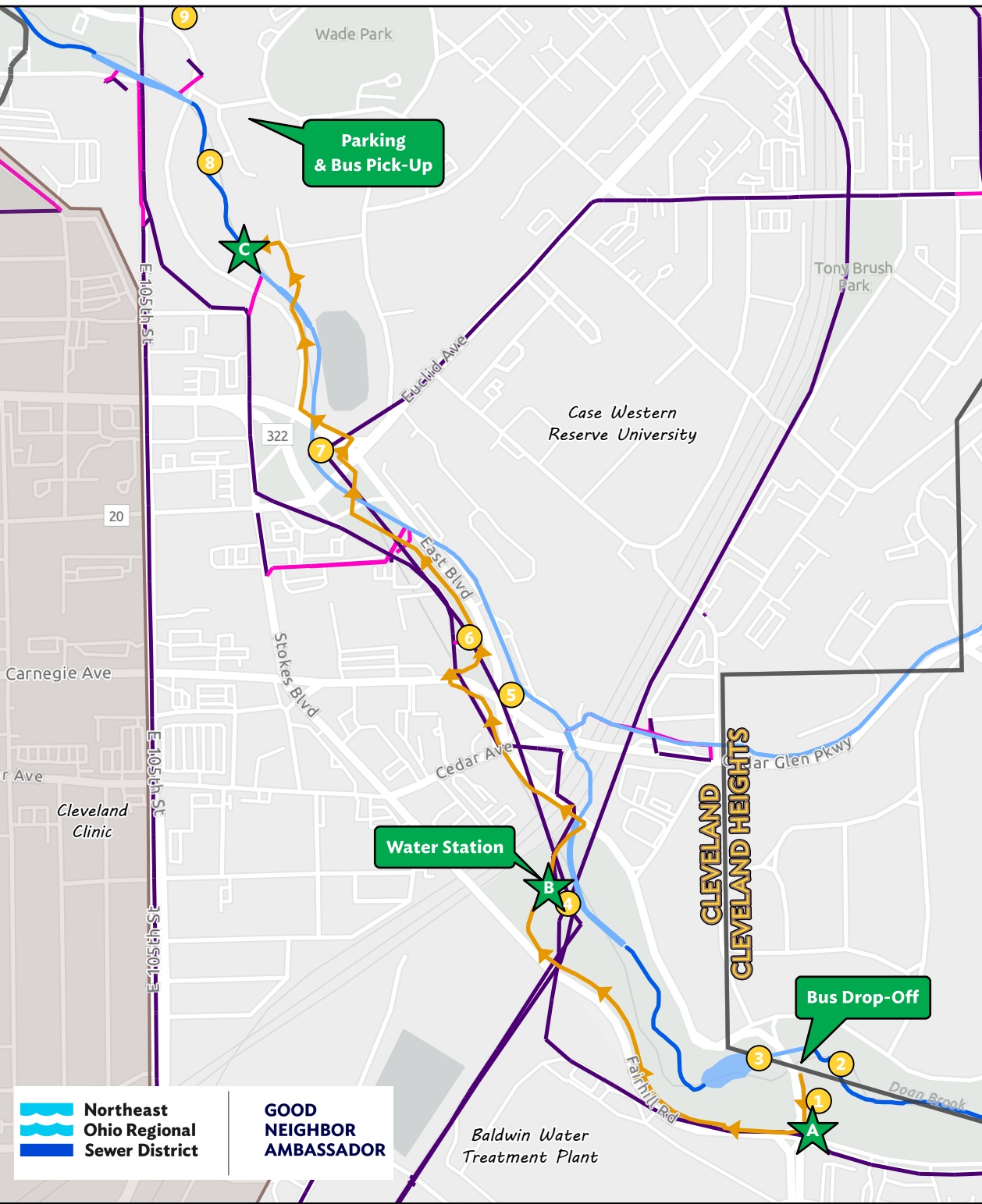
- A** Fairhill/MLK Green Infrastructure Plaza
 - 1 Fairhill/MLK Green Infrastructure
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 - 9 Cleveland Museum of Natural History GIG
 - 10 Centennial Peace Plaza GIG*
 - 11 Stonebrook-White Montessori Campus GIG*

*Located further north and not pictured on the map

	TOUR STOPS		STREAM
	POINTS OF INTEREST		BASIN
	WALKING ROUTE	District Sewer Pipe	
	DOAN BROOK SUBWATERSHED MASK		DISTRICT PIPE
	MUNICIPAL BOUNDARY		DISTRICT CSO OVERFLOW PIPE
			DISTRICT MAINTAINED

Regional Stormwater System

CLOSED CONDUIT



Northeast Ohio Regional Sewer District

GOOD NEIGHBOR AMBASSADOR

FAIRHILL/MLK GREEN INFRASTRUCTURE

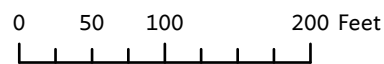
Cleveland, OH

Summary

The Fairhill/MLK GI site is one of 11 large stormwater collection basins installed by the District to capture stormwater and prevent it from entering the combined sewer system.

This site is unique in that it is a bioretention basin, meaning that stormwater enters the basin and is filtered by the plants and special bioretention soil, then released through underdrains into Doan Brook (instead of into our sewer system).

In an average year, this basin will capture nearly 9-million gallons of stormwater, clean it, then send it into Doan Brook, instead of into combined sewers.



- ★ TOUR STOPS
- POINTS OF INTEREST
- WALKING ROUTE
- STREAM
- DISTRICT PIPE
- ▭ MUNICIPAL BOUNDARY



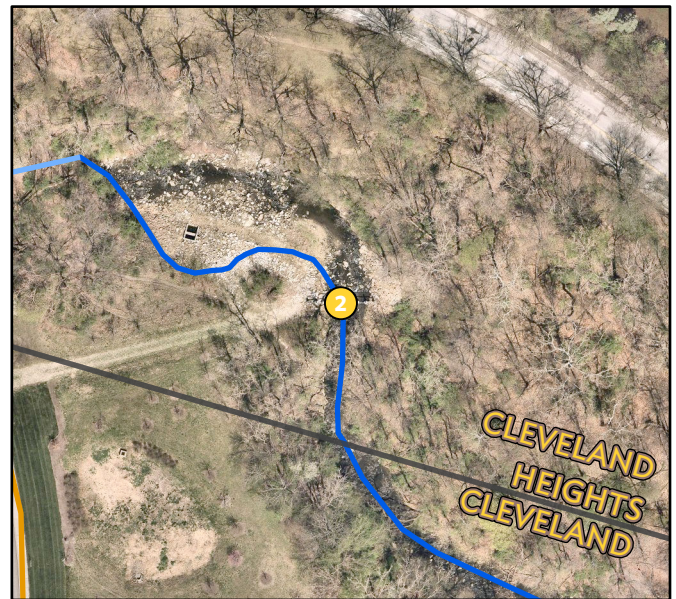
FAIRHILL/MLK DEBRIS RACK (DB00036_DEB01)

Cleveland Heights, OH

Summary

The debris rack was installed to protect the downstream crossing (MLK Jr Dr) from large woody debris impeding flow through the crossing.

SWIM inspects the debris rack quarterly after heavy rain events and performs maintenance several times a year to remove debris from the rack.



0 50 100 200 Feet



- POINTS OF INTEREST
- WALKING ROUTE
- CLOSED CONDUIT
- STREAM
- MUNICIPAL BOUNDARY



Following the March 30th, 2020 storm event



Following clean up by SWIM's debris removal contractor



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BEMBA DAM

Cleveland, OH

Summary

A 1964 study recommended the construction of Bemba dam as a way of reducing flooding downstream in the University Circle area. When the dam was built in 1998, its design was significantly altered to accommodate a change in the dam's proposed location. This resulted in a sharp reduction in anticipated flood reduction downstream.

Recent hydraulic modeling has determined that Bemba Dam, as currently constructed, provides no significant benefit to downstream flooding. Removal of the structure is being considered to restore the stream channel to a natural condition to improve water quality.

SWIM inspects the dam annually and after heavy rain events as the dam often accumulates large woody debris (LWD).



0 50 100 200 Feet



POINTS OF INTEREST

BASIN

MUNICIPAL BOUNDARY

CLOSED CONDUIT



Following the March 30th, 2020 storm event



Following clean up by SWIM's debris removal contractor

 Northeast
Ohio Regional
Sewer District

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DOAN VALLEY TUNNEL AT AMBLER PARK

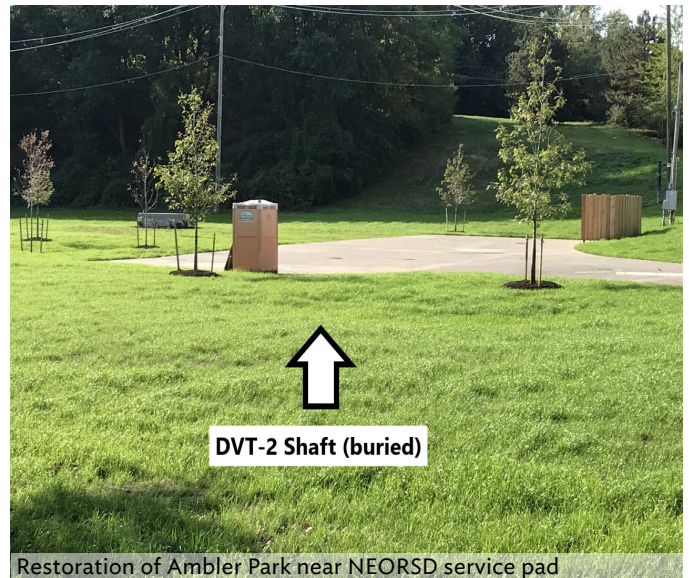
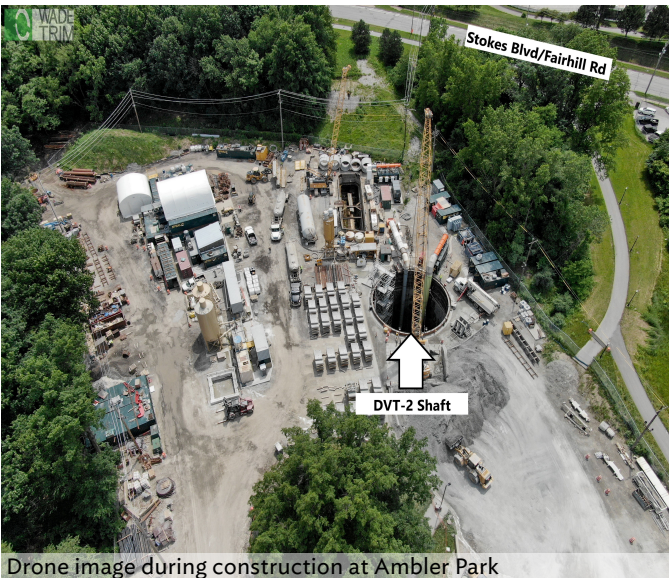
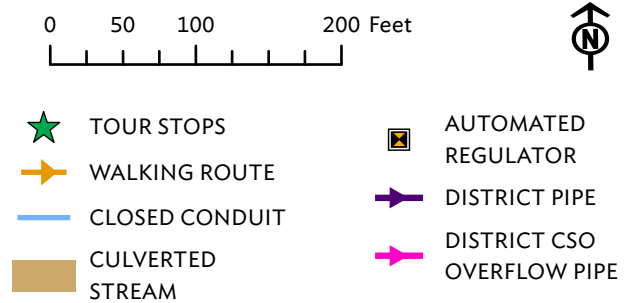
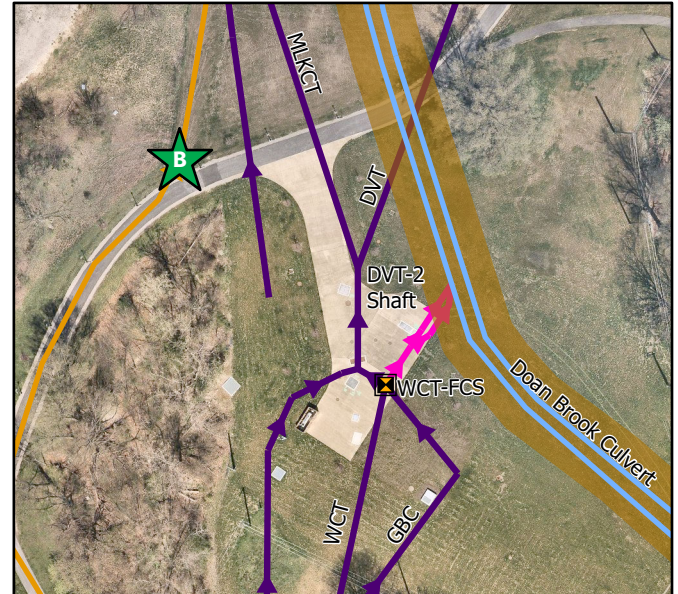
Cleveland, OH

Summary

The Main Mining Site for Three Tunnels that make up the Doan Valley Tunnel System (Doan Valley Storage Tunnel (DVT), MLK Conveyance Tunnel (MLKCT) and Woodhill Conveyance Tunnel (WCT)).

Both Dry and Wet Weather Flows from MLKCT, WCT and the Giddings Brook Culvert (GBC) combine here inside the DVT-2 Baffle Shaft and from there are sent into the DVT storage tunnel.

Flows drop to tunnel level using baffle dropshafts. Flows are controlled by a gate in the WCT-FCS that closes when the tunnel gets full, and then they are relieved to the Doan Brook Culvert which runs through the site.



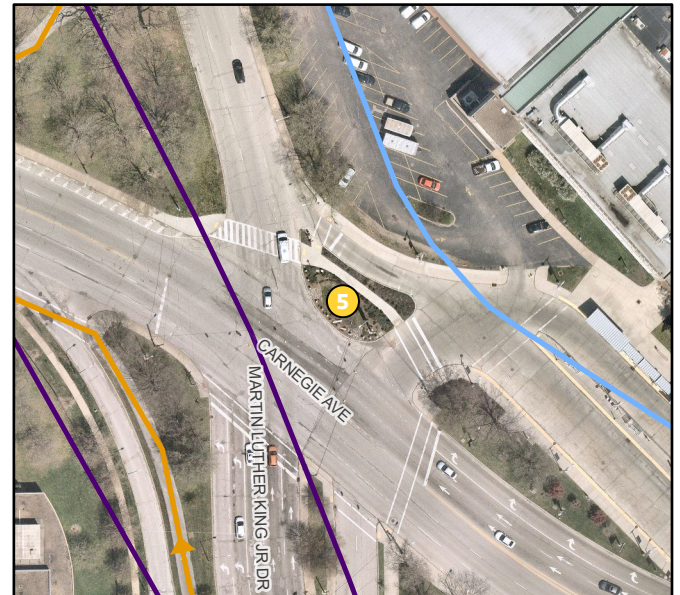
MLK AND CARNEGIE GREEN INFRASTRUCTURE GRANT

Cleveland, OH

Summary

In 2016, University Circle, Inc. was awarded a GI Grant in the amount of \$127,900 to reduce imperviousness and construct a bioretention cell.

This highly visible, traffic-calming feature collects 0.40-acres of impervious drainage area, and removes an estimated 70,000 gallons annually from the combined sewers.



0 50 100 200 Feet



- POINTS OF INTEREST
- CLOSED CONDUIT
- WALKING ROUTE
- DISTRICT PIPE



Active construction



Post construction of bioretention cell



MLK-1 SHAFT SITE

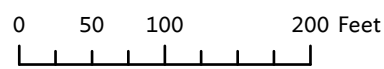
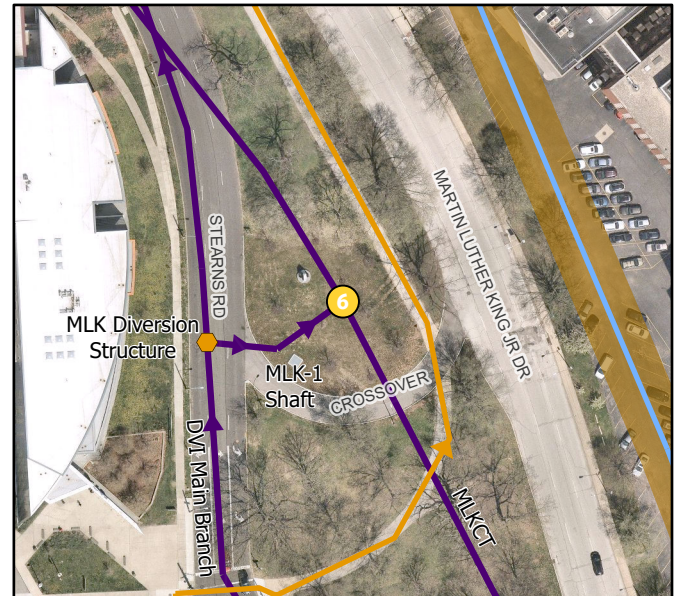
Cleveland, OH

Summary

The MLK-1 Shaft is one of two pick-up points for dry and wet weather flows from the Doan Valley Interceptor–Main Branch into the Doan Valley Tunnel System via the MLKCT tunnel.

Flows are diverted from a structure in Stearns road into the drop shaft, which is the District’s first Helicoidal Dropshaft.

The Helicoidal Drop is basically a small (6-ft ID) shaft with a stainless steel “slide” that looks like a corkscrew that the flow rides down to the bottom of the shaft. From there, the flow goes thru a small tunnel that connects to the bigger MLKCT which then flows to Ambler Park where it connects to the DVT storage tunnel.



- POINTS OF INTEREST
- WALKING ROUTE
- CLOSED CONDUIT
- CULVERTED STREAM
- RE-REGULATOR
- DISTRICT PIPE



During construction before installing the Helicoidal MLK-1 Shaft



MLK-1 Shaft Site restored prior to grass planting



MLK-2 SHAFT SITE

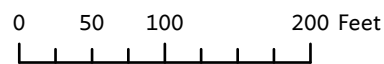
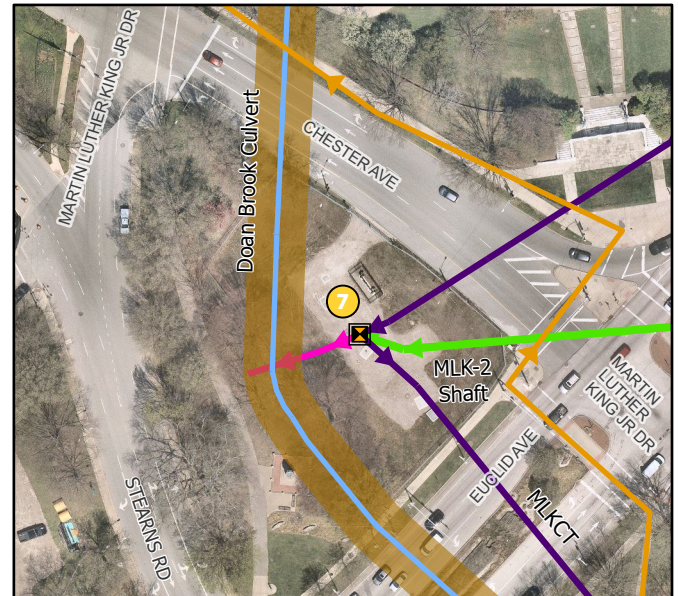
Cleveland, OH

Summary

The MLK-2 Shaft is the 2nd pick-up point for dry and wet weather flows from the Doan Valley Interceptor-Euclid Branch into the Doan Valley Tunnel System via the MLKCT tunnel. It's also the upstream end of the MLKCT itself.

Flows diverted from a structure adjacent to the Doan Brook Culvert into the shaft, which is a baffle dropshaft where flows flip-flop back and forth on “shelves” to slow down the water as it falls to the bottom of the shaft. From there, the flow goes into the 8.5-ft dia. MLKCT which then flows to Ambler Park where it connects to the DVT storage tunnel.

This site has been turned over to the CMA for final restoration in concert with the overall plan with the new Nord Family Greenway and Rockefeller Park.



- | | | | |
|--|--------------------|--|----------------------------|
| | POINTS OF INTEREST | | AUTOMATED REGULATOR |
| | WALKING ROUTE | | DISTRICT PIPE |
| | CLOSED CONDUIT | | DISTRICT CSO OVERFLOW PIPE |
| | CULVERTED STREAM | | LOCAL SANITARY |



Shaft during construction before concrete Baffles are built



During construction of Baffle Shelves to drop flows to MLKCT



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DOAN BROOK STREAM BANK STABILIZATION

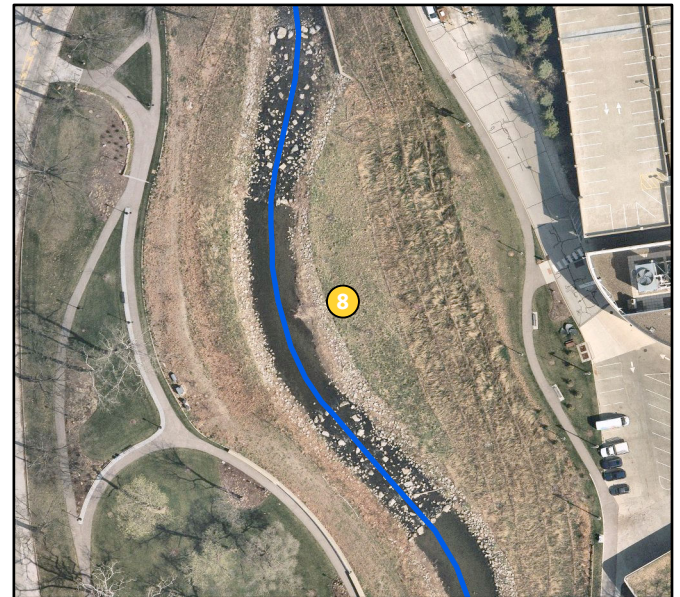
Cleveland, OH

Summary

This project stabilized and rehabilitated approximately 1,000-feet of Doan Brook stream channel and converted available contiguous land into hydraulically-connected and functioning floodplains.

These improvements averted significant streambank erosion within the project area as well as provided stormwater quality improvements for a portion of the Doan Brook watershed.

The project also provided protection of utilities and infrastructure, flooding relief, improved stream flow, enhanced streamside riparian areas, aesthetic improvements and improved public access to this section of Doan Brook.



0 50 100 200 Feet



● POINTS OF INTEREST
— STREAM



Erosion of streambank pre-construction



Post-construction with hydraulically-connected floodplains

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CLEVELAND MUSEUM OF NATURAL HISTORY GREEN INFRASTRUCTURE GRANT

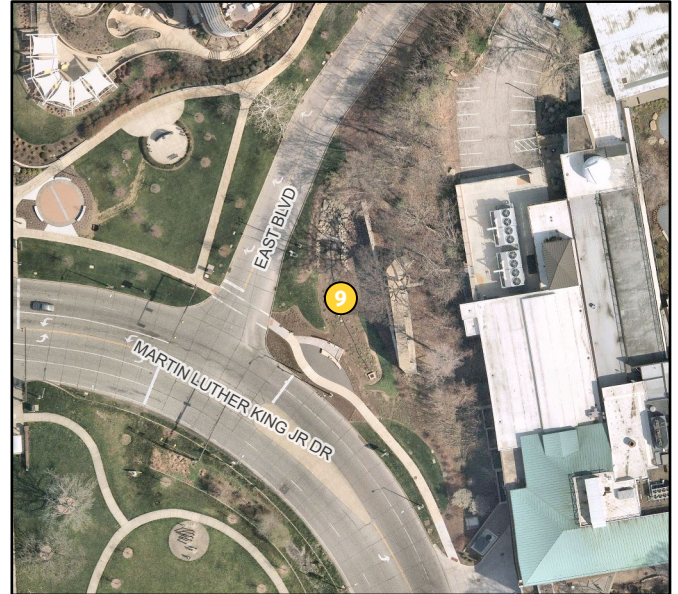
Cleveland, OH

Summary

In 2014, The Cleveland Museum of Natural History was awarded a GI Grant in the amount of \$132,550 to install an infiltration basin as part of the reinvention of their western facade.

Challenges encountered soon after construction was complete required the feature to be converted to a bioretention cell.

This highly visible entryway to University Circle collects runoff from the upslope parking garage and has a drainage area of 5.4-acres. An estimated 1.94 million gallons are removed annually from the combined sewers.



0 50 100 200 Feet



● POINTS OF INTEREST



Beginning of construction



Post-construction of completed bioretention cell



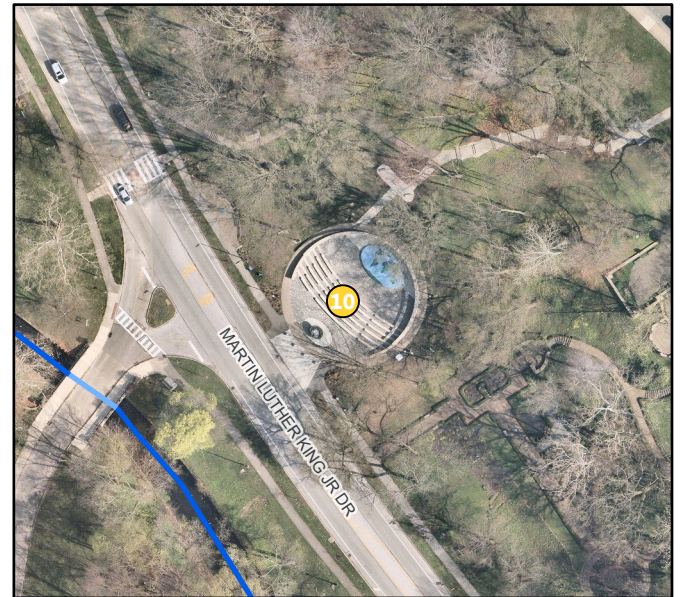
CENTENNIAL PEACE PLAZA GREEN INFRASTRUCTURE GRANT

Cleveland, OH

Summary

In 2019, the Cleveland Cultural Gardens Federation was awarded a GI Grant in the amount of \$100,000 to install a new permeable paver plaza for the performing arts and civic forums emphasizing multiculturalism.

The project has a drainage area of 0.13-acres, and removes an estimated 109,000 gallons annually from the combined sewers.



0 50 100 200 Feet



POINTS OF
INTEREST



CLOSED CONDUIT



STREAM



Spring 2019 aerial imagery showing the site before construction



Post-construction view of the permeable paver plaza



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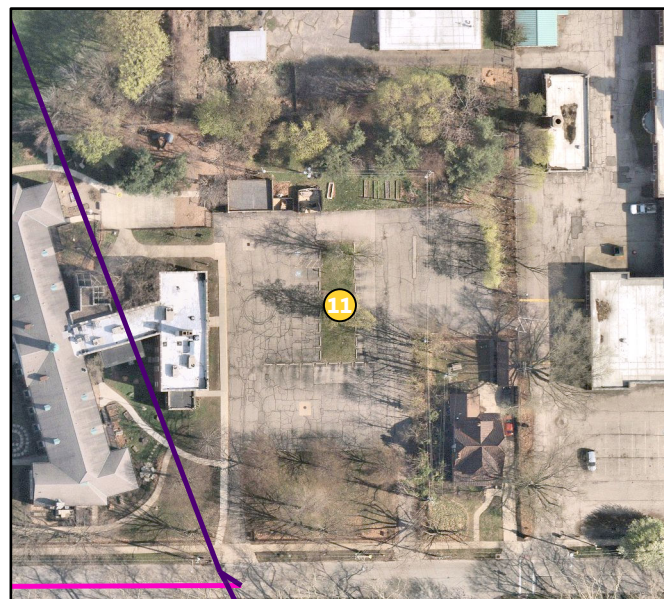
STONEBROOK-WHITE MONTESSORI CAMPUS GREEN INFRASTRUCTURE GRANT

Cleveland, OH

Summary

The school was awarded a 2022 GI Grant in the amount of \$25,000 for the design of green infrastructure components that will be incorporated as part of a parking lot rehabilitation.

Ultimately, the project will incorporate educational components that will compliment applicable school curriculum.



0 50 100 200 Feet



POINTS OF INTEREST



DISTRICT PIPE



DISTRICT CSO OVERFLOW PIPE



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