



Chagrin River Watershed Partners, Inc.

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Sterncrest Road Retrofit Project, Orange Village

Demonstrating Innovative Approaches to Storm Water Management in Northeast Ohio
USEPA National Community Decentralized Demonstration Project

Orange Village Drainage Improvement Project:

- ◇ Linear bioretention swale system within the right-of-way of a residential street.
- ◇ Designed to distribute, reduce, and treat storm water runoff before connecting to a storm sewer system.



Sterncrest Road Original Conveyance Channel



Original System

- Built in late 1950's
- Road runoff drains to open swales then to channels that run through rear yards on private property.
- No storm sewer connection.
- No access easements.
- System not properly maintained resulting in:
 - ◇ Little to no gradient in channels
 - ◇ Standing water
 - ◇ Chronic street and yard flooding

Design Considerations

Fixing original system would have required:

- Easements from multiple property owners.
- Clearing heavy brush/trees along property lines
- Re-grading hundreds of feet of channel/ditch.
- Removing and replacing undersized piping.

New retrofit swale system required:

- No brush/tree removal.
- Connection to Lander Rd. storm sewer.
- Reducing flow to storm sewer connection
- Detaining storm sewer flow from Sterncrest Road to new connection.
- Construction within existing right-of-way.

Construction - November 2007



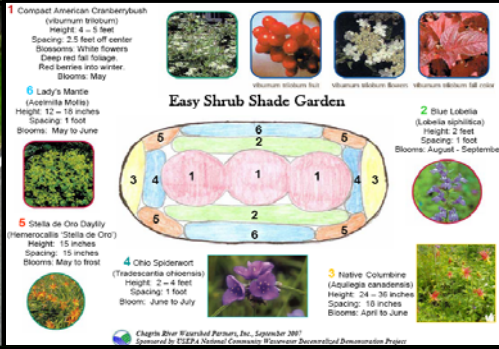
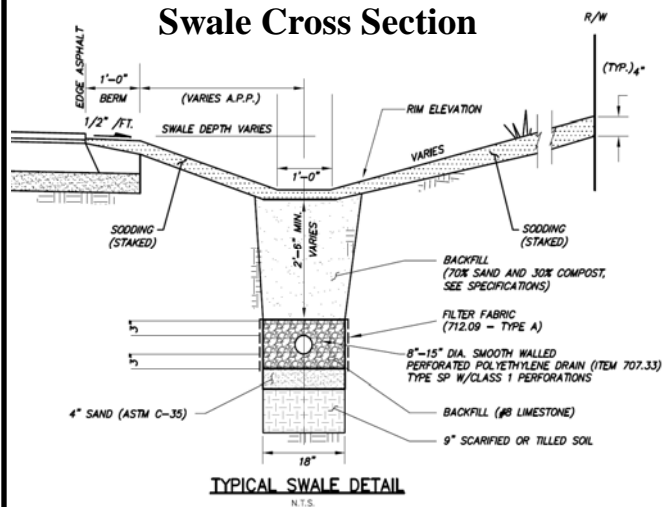


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Retrofit Bioretention Swale Details

- Open grass swale with perforated storm sewer pipe below soil mix.
- 70% sand, 30% peat/leaf compost soil mix.
- Soil mix acts as a filter system to remove pollutants.
- Nine landscaped rain garden areas around catch basins receive surface flow.
- Rain garden areas fill to a maximum of 6" around catch basin.
- Catch basins overflow during storm events to prevent flooding.
- Pooled water filters through soil mix within 48hrs.



Plan View of Sterncrest Road Project

