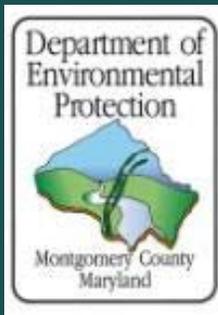


Stormwater Pond Retrofit

Collingwood HOA (Goshen Estates)

Montgomery County Capital Improvement Project to Upgrade an Existing Stormwater Management Facility

February 27, 2013



Introductions

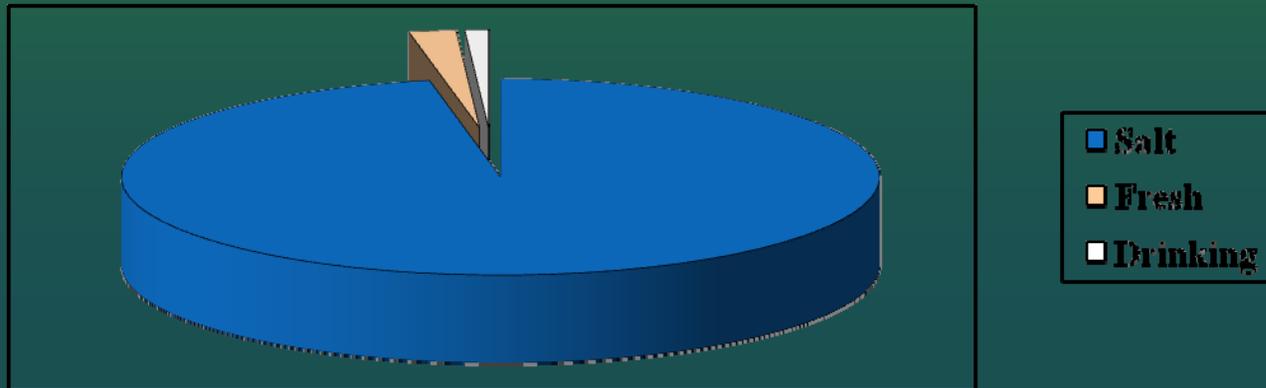
- Darian Copiz
 - Watershed Planner, Montgomery County Department of Environmental Protection (MCDEP)
- Keith Ramsay
 - Watershed Restoration Engineer, MCDEP
- Roger Windschitl
 - Project Consultant, Century Engineering
- Ryan Thomas
 - Project Consultant, Century Engineering

Outline

- Stormwater Introduction
- Project Background
- Project Selection
- Project Location
- Project Goals
- Existing Conditions
- Proposed Conditions
- Project Example
- Questions



Sources of Water



- About 97% is salt water
- About 2% is frozen
- Only 1% is available for drinking water
 - 32% from groundwater, 68% from surface water in Maryland
 - Potential for greater impacts from runoff in Maryland

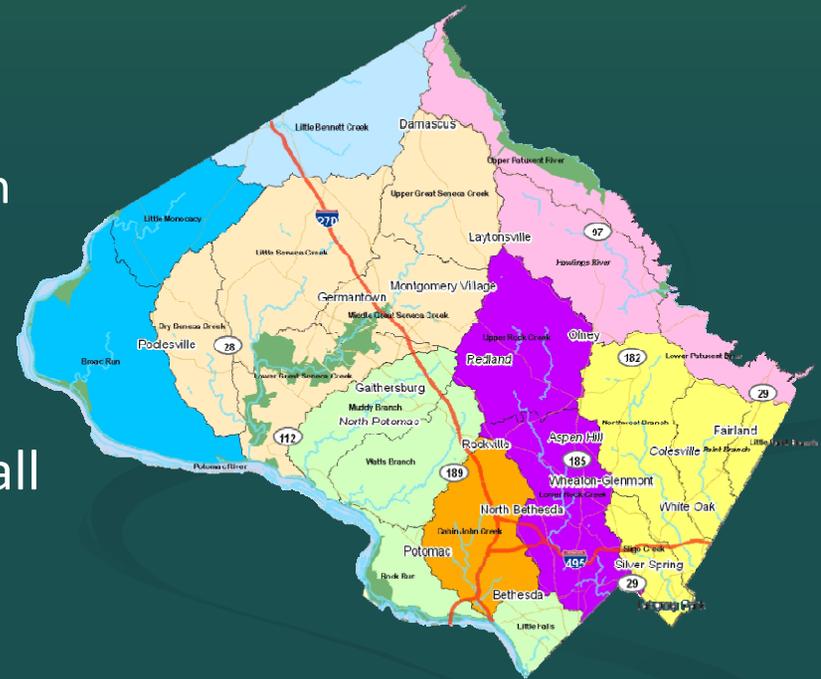
What is a Watershed?

- A *watershed* is an area from which the water above and below ground drains to the same place.
- Different scales of watersheds:
 - Chesapeake Bay
 - Eight local watersheds
 - Neighborhood (to a storm drain)



Montgomery County, MD

- 500 sq. miles
- 970,000 people
 - Second only to Baltimore City within Maryland in average people per square mile
 - 184 languages spoken
- About 12% impervious surface overall
 - About the size of Washington DC
- Over 1,500 miles of streams
- Two major river basins:
 - Potomac
 - Patuxent
- Eight local *watersheds*



■ **Impervious:** Not allowing water to soak through the ground.

What is Runoff?

■ Water that does not soak into the ground becomes surface runoff. This runoff flows over hard surfaces like rooftops, driveways and parking lots collecting potential contaminants and flows:

- Directly into streams
- Into storm drain pipes, eventually leading to streams
- Into stormwater management facilities, then streams

- Two Major Issues:
- Volume/Timing of Runoff
 - Water Quality

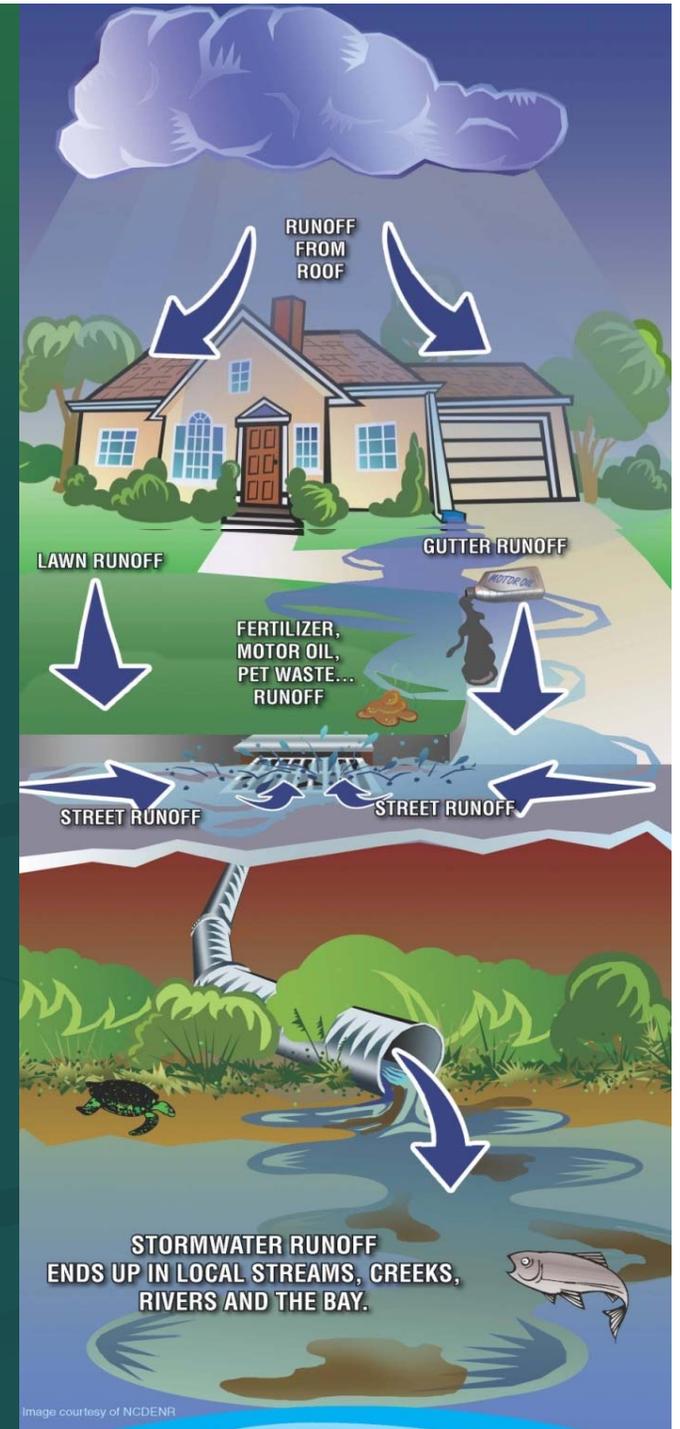
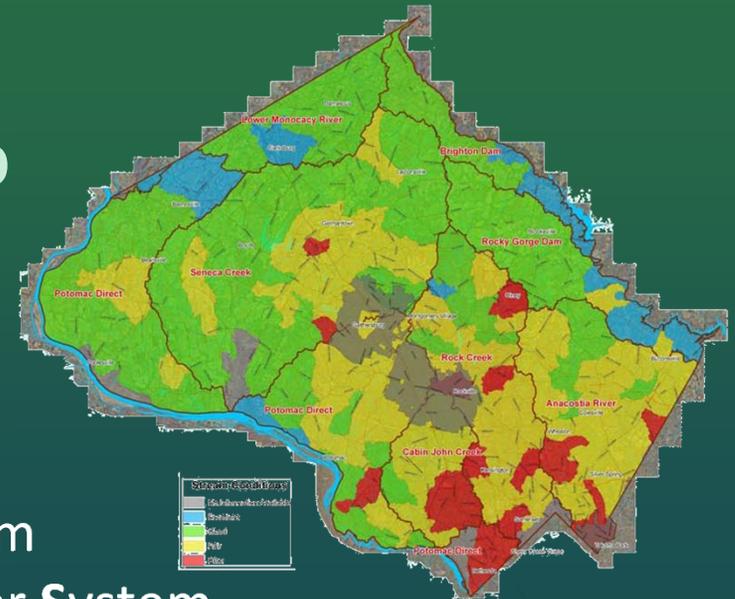


Image courtesy of NCDENR

What is the County doing to protect our Streams?

- Must meet regulatory requirements
 - Federal Clean Water Act permit program
 - **MS4 = Municipal Separate Storm Sewer System**
- Applies to all large and medium Maryland jurisdictions
- County programs
 - Restore our streams and watersheds
 - Add runoff management
 - Meet water quality protection goals
 - Reduce pollutants getting into our streams
 - Educate and engage all stakeholders
 - Individual actions make a difference
 - Focus on watersheds showing greatest impacts

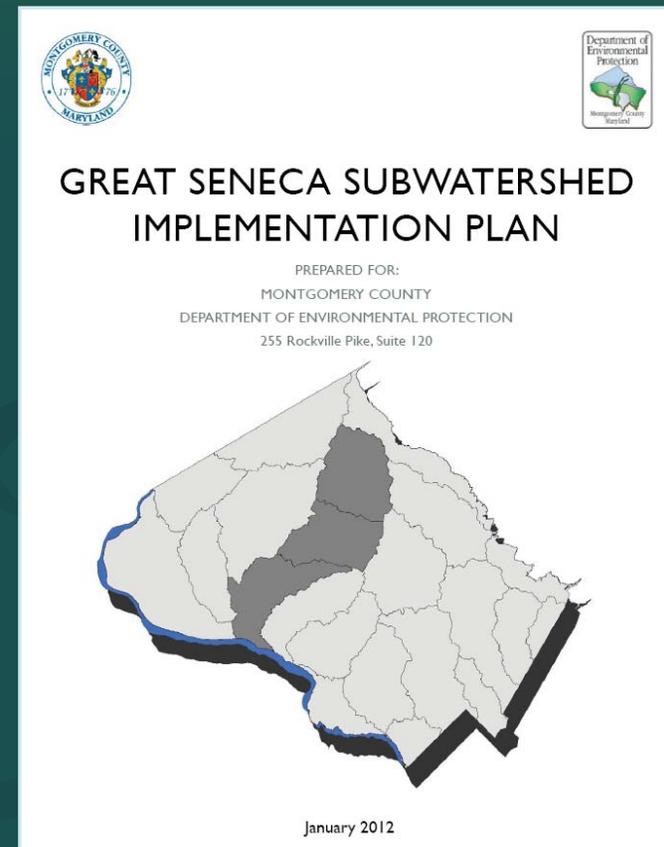


MS4 permit, what is it?

- Montgomery County is responsible for:
 - What goes into our storm drain pipes
 - What comes out of them
 - What flows into the streams
- Requires additional stormwater management for **20 percent** of impervious surfaces (4,300 acres = 6.7 square miles).
That's about three times the size of Takoma Park.
That's equivalent to 32,912 football fields!

Project Background

- Compliance with the County's Municipal Separate Stormwater Sewer System (MS4) permit requirements
- Treat currently un- or under-treated impervious area
- Reduce pollutant loadings
- Retrofits of existing stormwater ponds are cost-effective options for watershed restoration



Project Selection

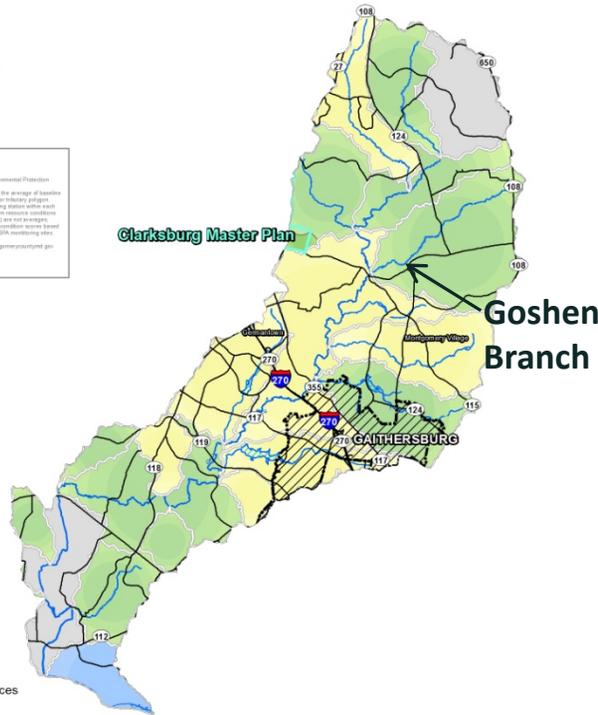
- Goshen Estates Pond constructed in early 1990s
- Located in a key watershed (Seneca) for pond retrofits
- Good structural condition
- Fully developed drainage area
- Space available for additional volume
- No water quality treatment or credits currently
- Few ecological benefits are provided currently

Project Location

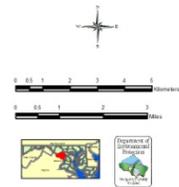
Great Seneca Watershed Resource Conditions Montgomery County, Maryland DRAFT- January 2011



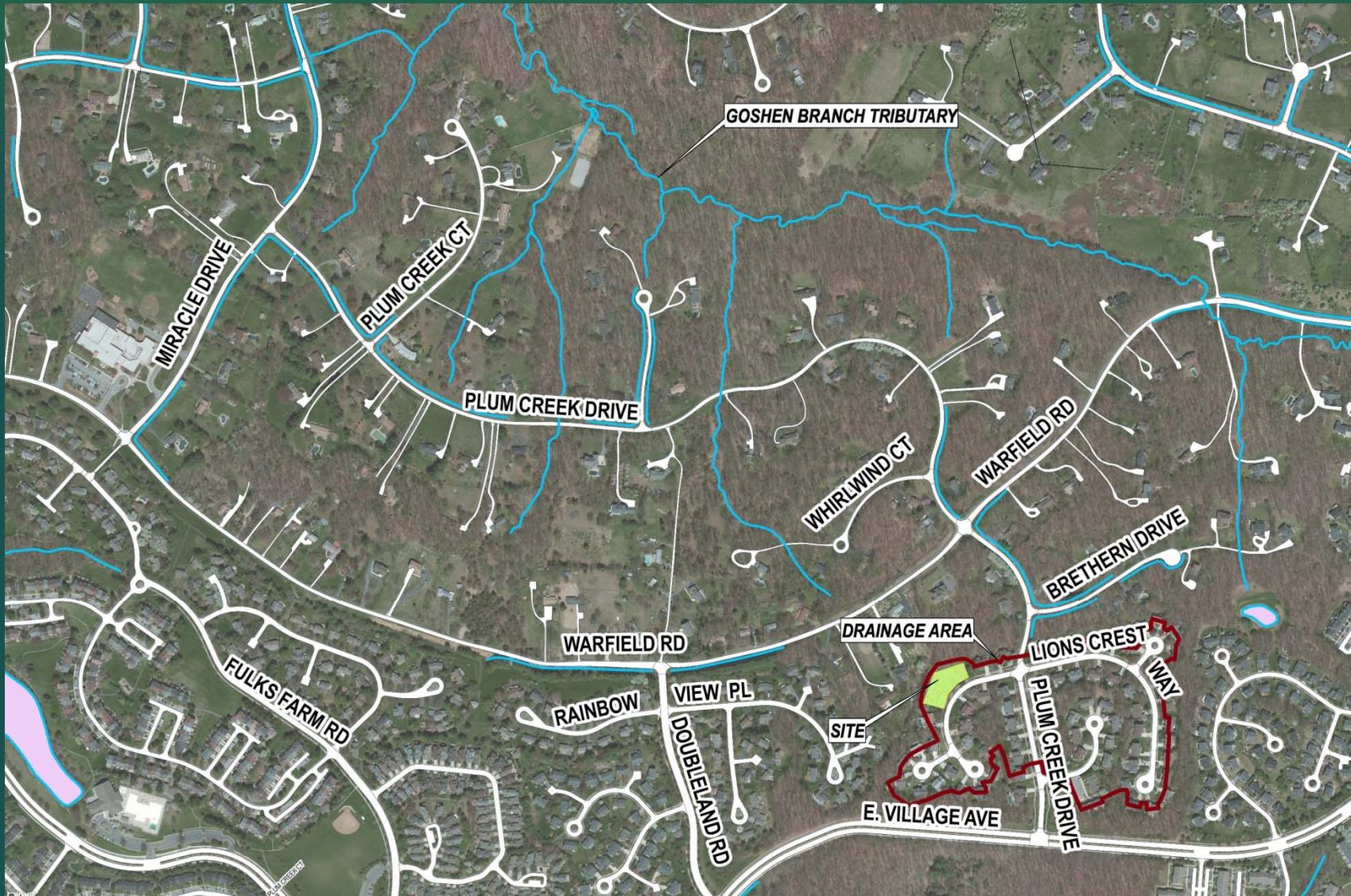
Metadata
Date: January 2010
Source: Montgomery County Department of Environmental Protection
Description: Stream resource conditions represent the average of baseline stream resource condition condition as defined in the Maryland Stream Resource Condition Assessment Program. Stream resource conditions are defined as the average of the most recent stream resource condition scores based on the average score in the specific SPA monitoring sites.
Contact: Jennifer St. John, jennifer.stjohn@montgomerycountymd.gov
For stream monitoring program questions:
Keith Van Hous, Senior Water Quality Specialist
keith.vanhous@montgomerycountymd.gov



- Legend**
- Impervious Surfaces
 - Streams
 - Major Water Features
 - Special Protection Areas (SPAs)
 - Municipalities
 - Watershed Resource Condition**
 - Excellent
 - Good
 - Fair
 - Poor
 - Not Monitored



Project Location

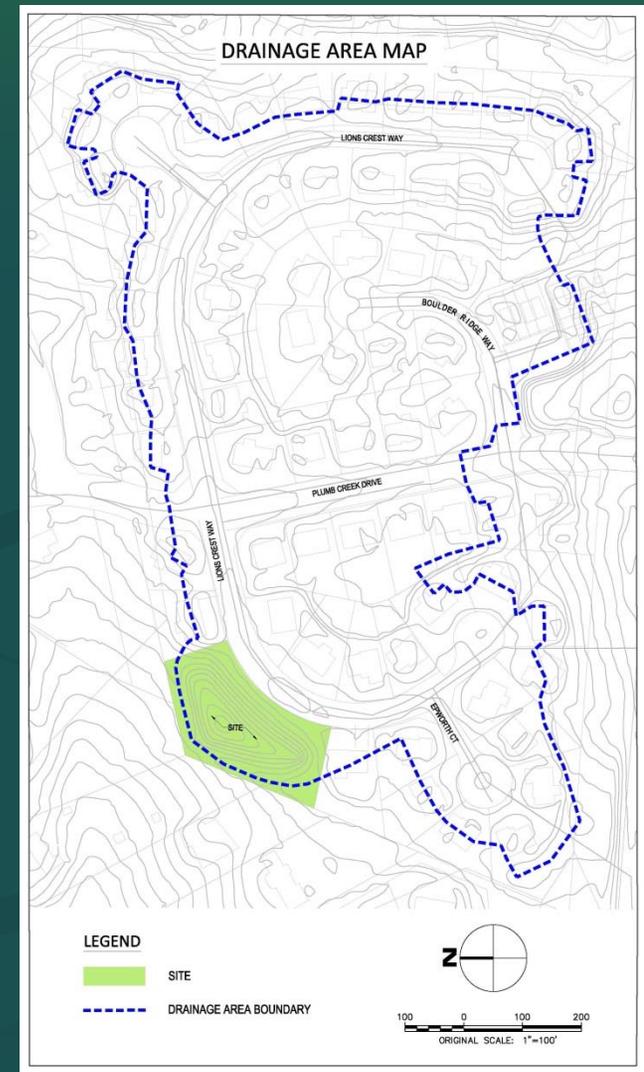


Project Goals

- Protect downstream channels
- Improve downstream water quality
- Comply with current safety and design standards
- Improve ecological value and plant diversity
- Provide an attractive community amenity

Existing Conditions

- Goshen Estates parcel
- Collingwood HOA owned
- 1980s-era dry detention pond
- Good maintenance and structural condition
- Peak management (2 and 10 yr)
- 18 acre drainage area
- 43% impervious cover
- No water quality treatment
- Access from Lions Crest Drive



Existing Conditions



View looking north



View looking east



View looking south



View looking west

Proposed Conditions



Proposed Conditions

- Pond footprint remains the same. South bank will be slightly steeper
- Enlarge the storage volume to treat 100% of the Channel Protection Volume (CPv)
- 24-hour extended detention for CPv
- New outlet structure and minor changes to embankment
- Add a forebay for water quality treatment and maintenance
- Safely pass larger storms, including the 100-year storm

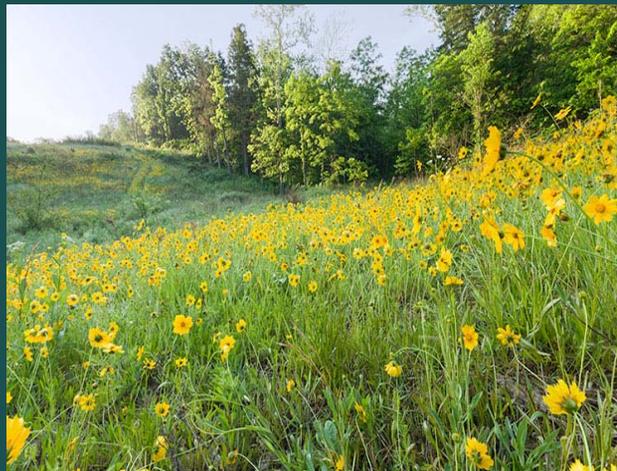
Proposed Conditions

- Existing Lions Crest Way access for construction & maintenance
- Revegetate with primarily native plants that are attractive and appropriate to the site: Turf, meadow, trees

Project Examples



- Example of a detention facilities landscaped with tall native grasses and wildflowers.



- Example of wildflowers that may be established in the pond bottom



Questions



For more information:

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