Potomac Ridge

Stormwater Management Project

October 7, 2013 Public Meeting

Montgomery County Department of Environmental Protection
Watershed Management Division

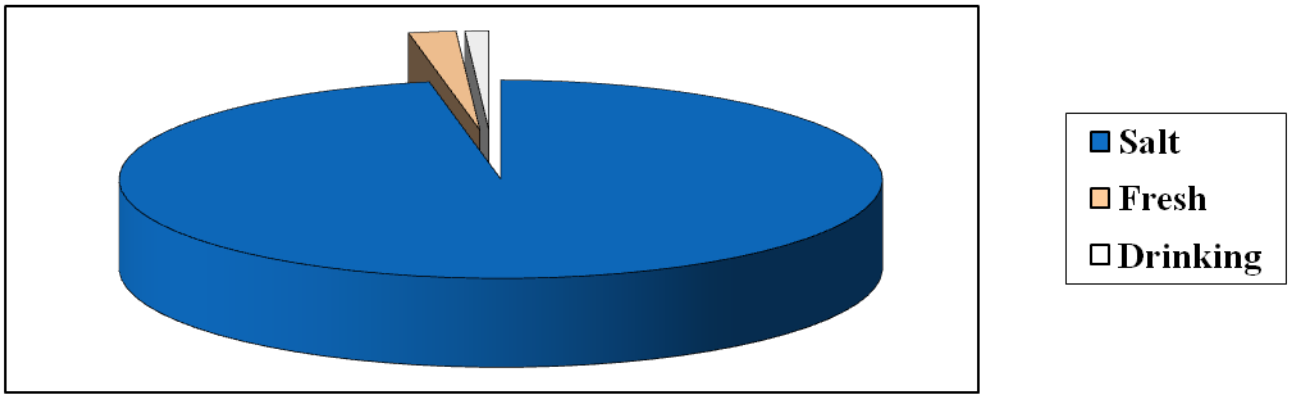
Department of Environmental Protection
Montgomery County Maryland

CPJ Associates

Today's Agenda

- Introductions
  - **Paul Bogle – Senior Engineer, Montgomery County DEP**
  - **Darian Copiz – Watershed Planner; Montgomery County DEP**
  - **Doug Streaker – Project Engineer; Biohabitats**
  - **Jeff Blass – Project Designer; Charles P. Johnson Engineering**
- Background Information – Why County is Doing This
- Potomac Ridge Stormwater Management Overview
- Project Objectives
- Project Costs and Benefits
- Design and Permitting Timeline
- What to Expect During Construction

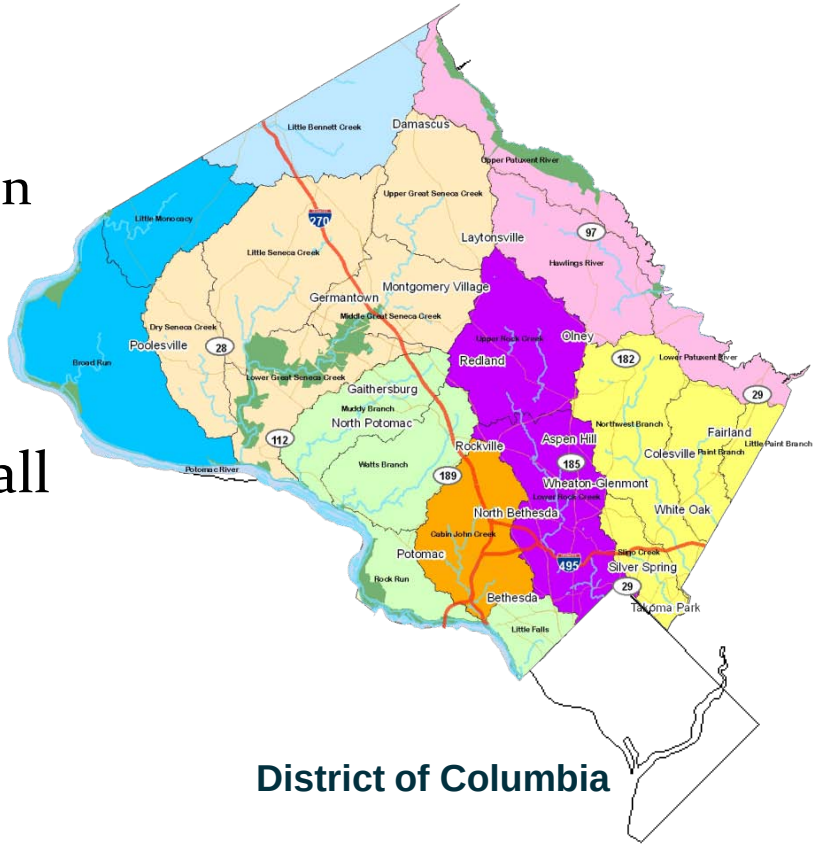
Sources of Water



- About 97% is salt water
- About 2% is frozen
- Only 1% is available for drinking water
  - 95% from groundwater across the Country
  - 32% from groundwater, 68% from surface water in Maryland
    - Potential for greater impacts from runoff in Maryland

Montgomery County, MD

- 500 sq. miles
- 1,000,000 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 a Watershed?

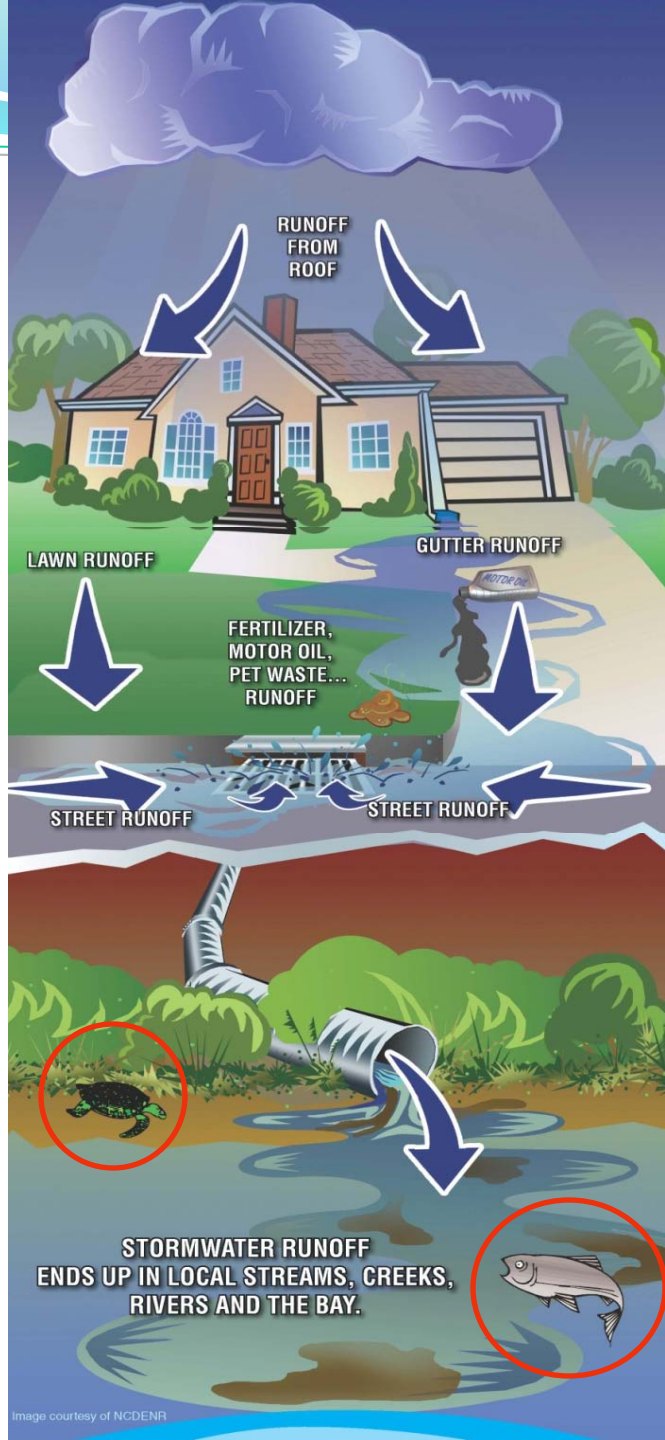
- A ***watershed*** is an area from which the water above and below ground drains to the same place.
- Different scales of watersheds:
  - Chesapeake Bay
  - Eight local watersheds
  - Neighborhood (to a storm drain)

What is Runoff?

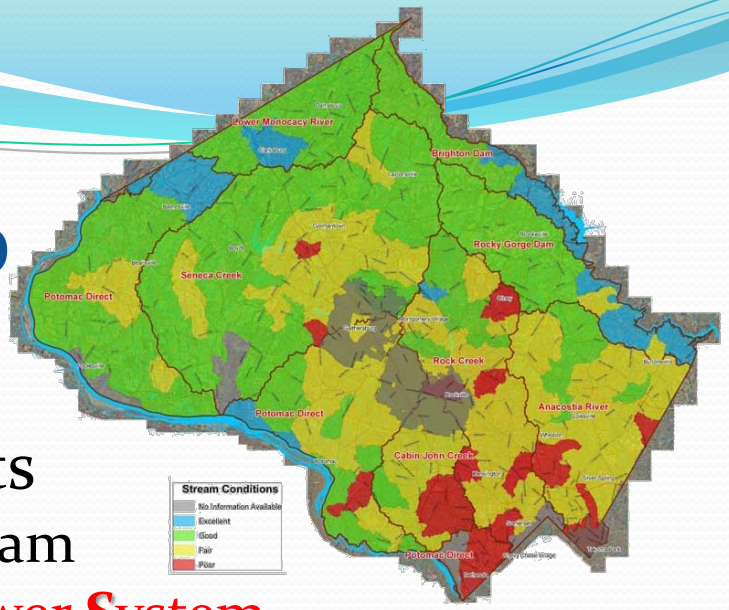
Water that does not soak into the ground becomes surface runoff. This runoff flows over hard surfaces like rooftops, driveways and parking lots collecting potential contaminants and flows:

- **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



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

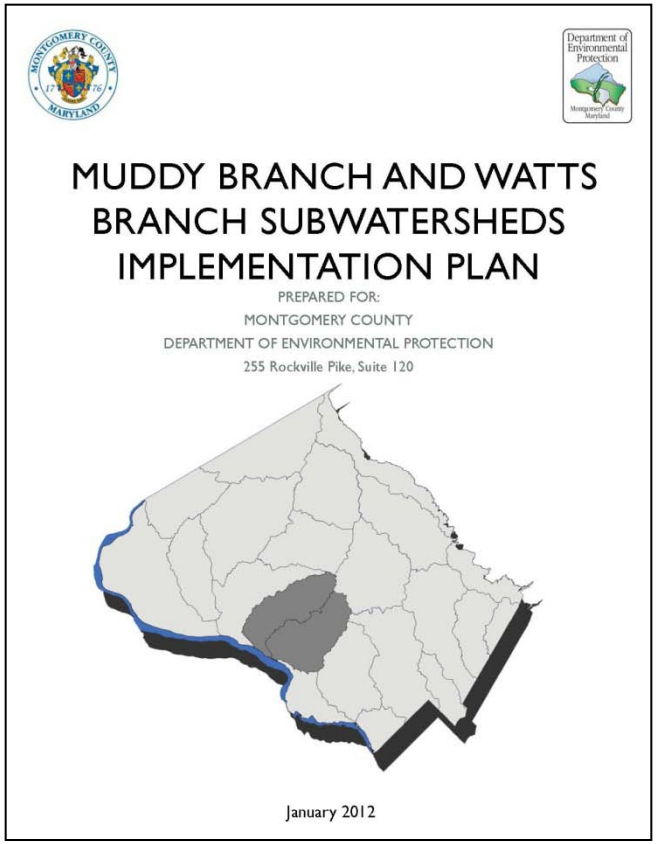
MS4 permit, what is it?

- 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 (4,292 acres = 6.7 square miles). That's about three times the size of Takoma Park.

That's equivalent to 3,307 football fields!

Project Selection

- Ponds constructed in early 1980s
- Located in a key watersheds (Muddy Branch, Watts Branch) for pond retrofits
- Ponds are at or near the end of service life
- Meet current safety and design standards
- Opportunity for water quality treatment and ecological benefits



Project Location

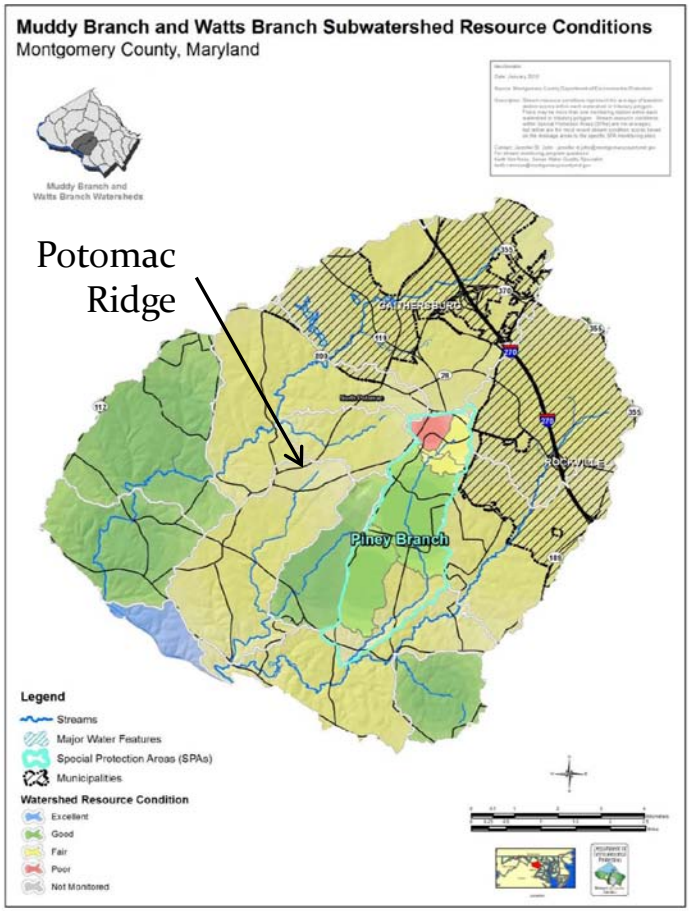
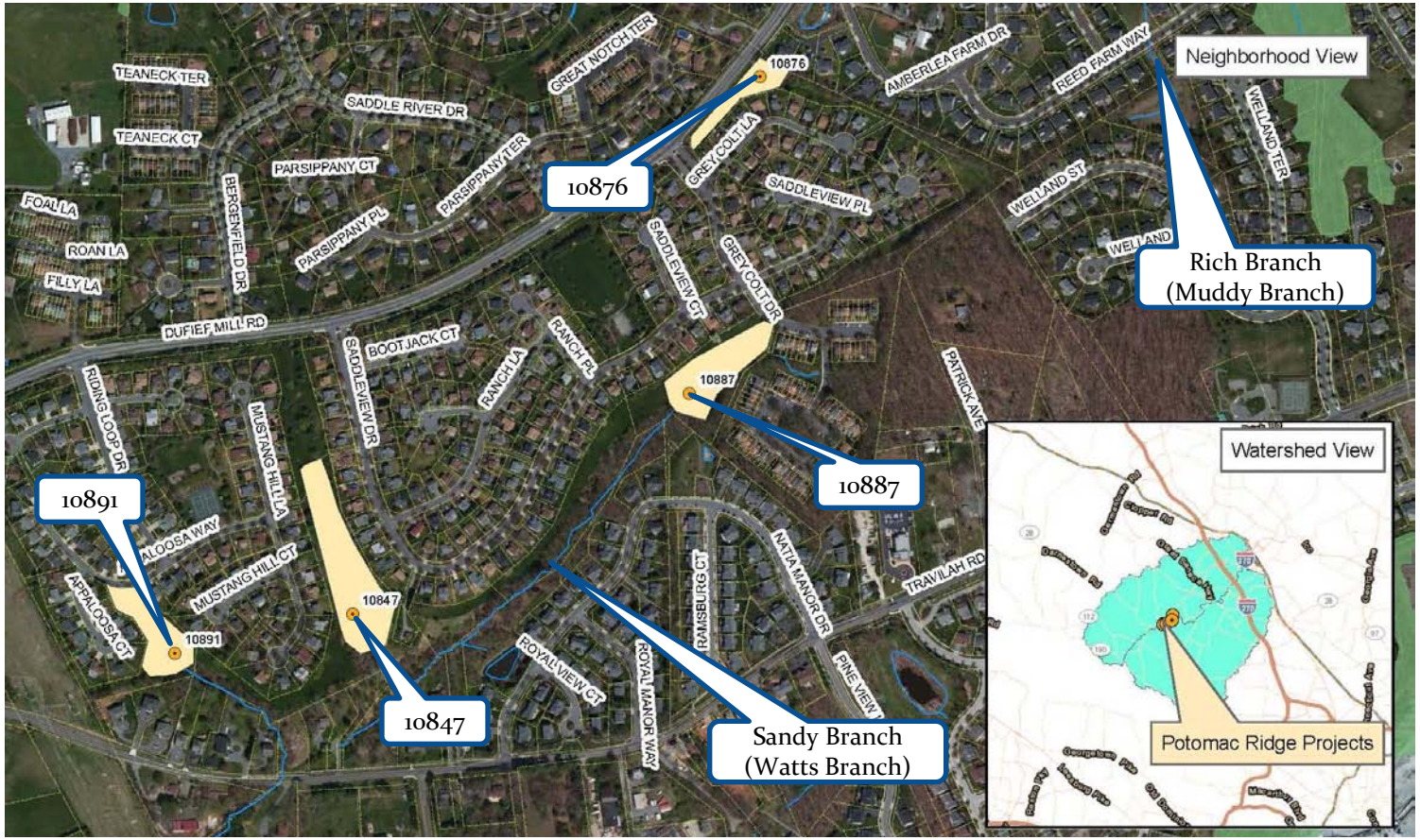


Figure 2: Stream Resource Conditions for the Muddy Branch and Watts Branch Subwatersheds

Potomac Ridge



Project Objectives

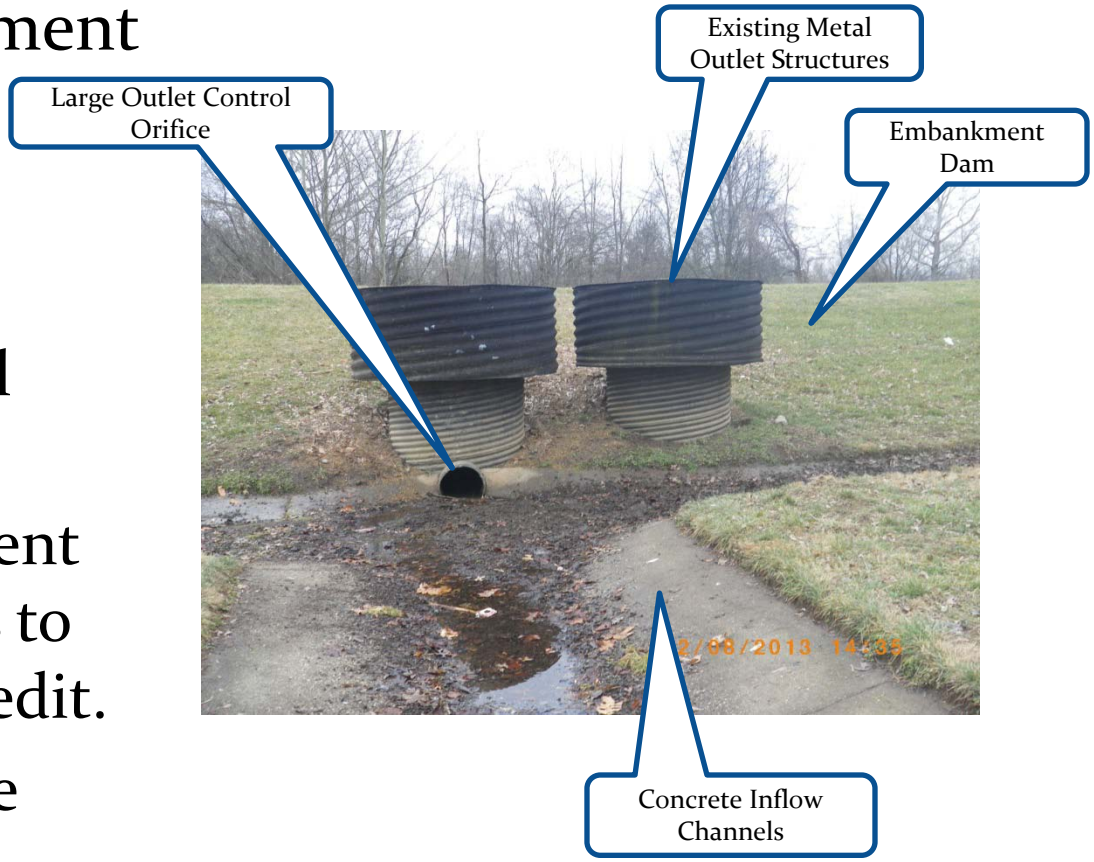
- STORMWATER MANAGEMENT
  - Add permanent pool for water quality where feasible
- STREAM PROTECTION
  - Modify outlet works to better regulate pond discharge and protect Sandy Branch and Rich Branch streams
- MAINTENANCE
  - Replace existing risers with water-tight structures
  - Replace dam embankment or install impervious liner
  - Install internal drain in downstream embankments
- AESTHETICS/ENVIRONMENT
  - Landscape the pond to improve aquatic habitat and aesthetics
  - Augment existing environmental features such as forest and wetlands where possible

Stormwater Pond Drainage Areas

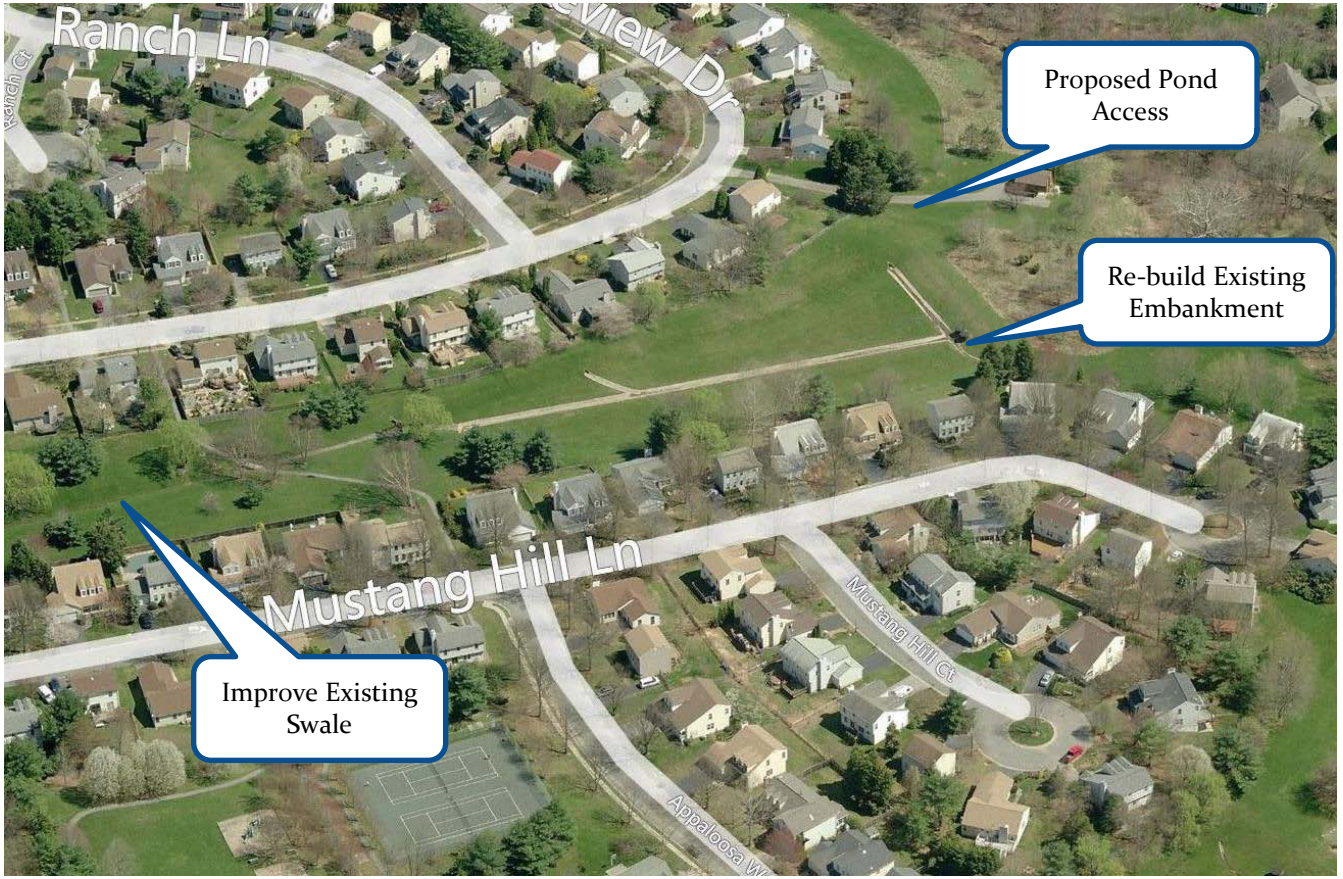
- Pond 10847
  - 60.4 Acres
  - 25% Impervious
- Pond 10876
  - 7.9 Acres
  - 22% Impervious
- Pond 10887
  - 58.8 Acres
  - 16% Impervious
- Pond 10891
  - 47.3 Acres
  - 20% Impervious

Pond 10847

- Stormwater Management Dry Pond
  - 8’ High Earth Embankment Dam
  - Adjacent residential properties
  - Does not meet current SWM requirements to achieve any MS4 credit.
  - Long drainage swale inflow to north end.

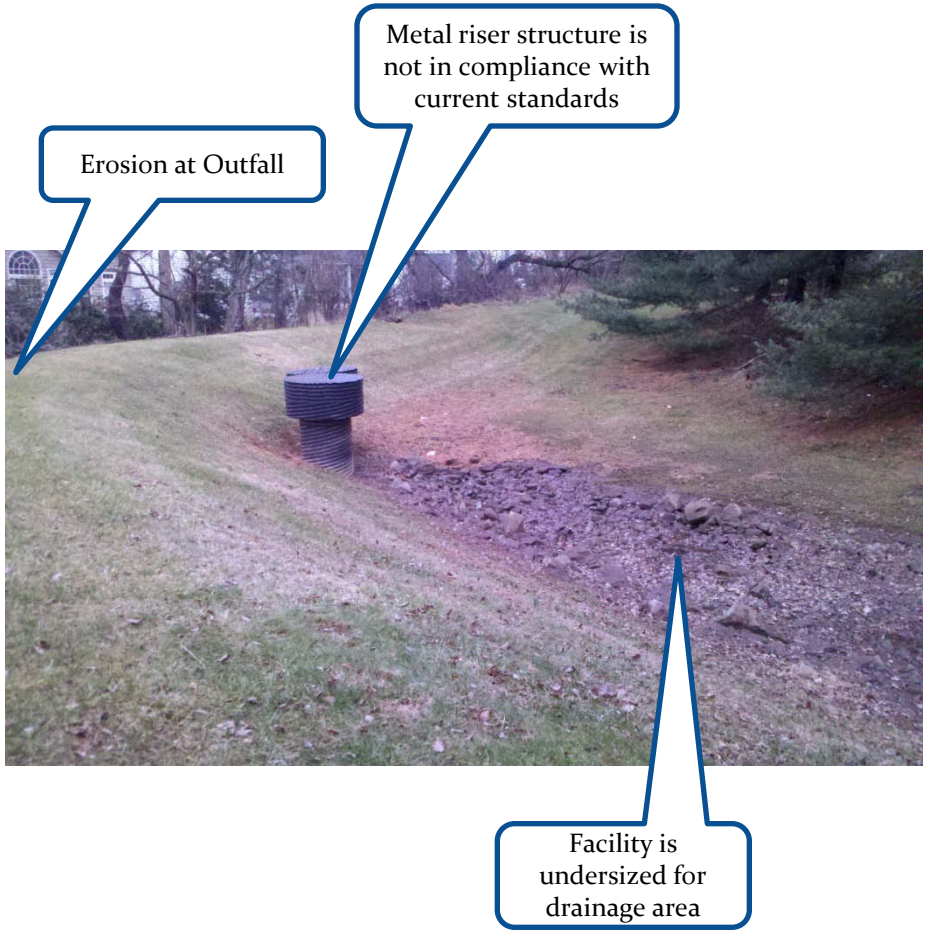


Pond 10847


Ranch Ln
Proposed Pond Access
Re-build Existing Embankment
Mustang Hill Ln
Mustang Hill Ct
Improve Existing Swale

Pond 10876

- Stormwater Management Dry Pond
  - 7’ High Earth Embankment Dam
  - Adjacent to County Road
  - Does not meet current SWM requirements to achieve any MS4 credit.

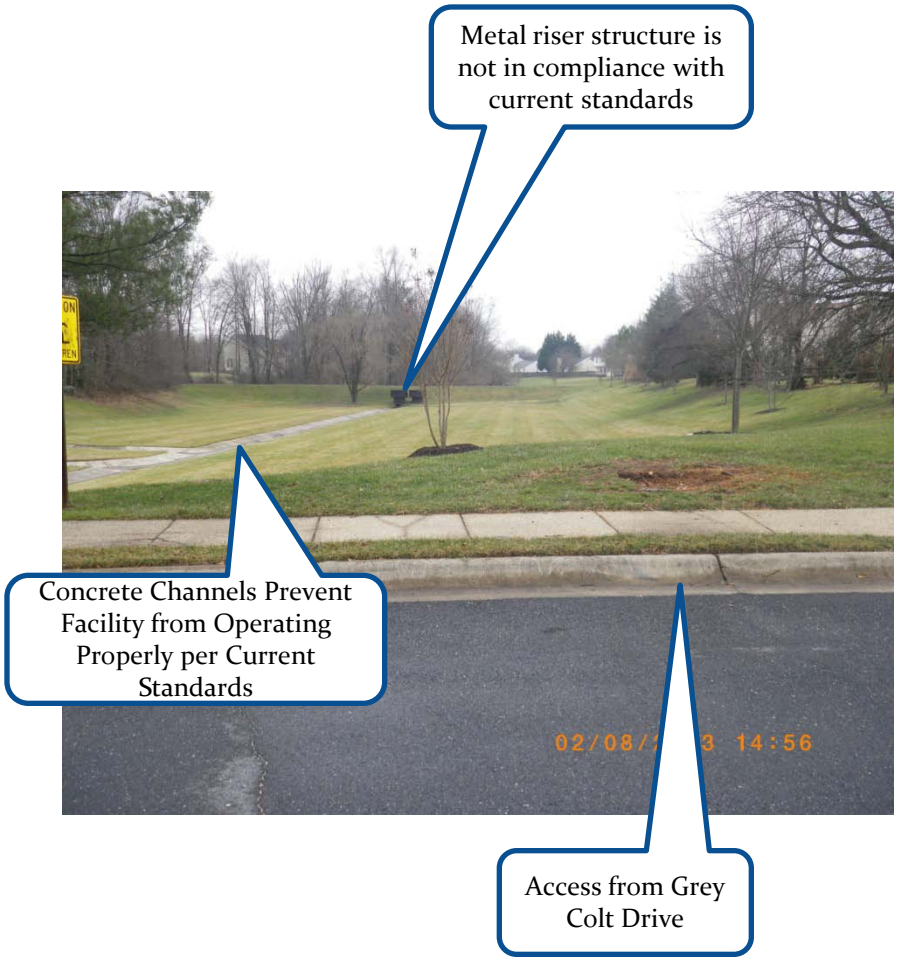


Pond 10876

Install
Infiltration Basin
Re-build
Embankment
Access from
Dufief Mill Road
Dufief Mill Rd
Dufief Mill Rd
Amberlea Farm Dr
Grey Colt Ln
Grey Colt Dr
Parsippany Terrace
Great Notch Terrace

Pond 10887

- Stormwater Management Dry Pond
  - 10’ High Earth Embankment Dam
  - Existing Pedestrian Path Across Embankment
  - Does not meet current SWM requirements to achieve any MS4 credit.



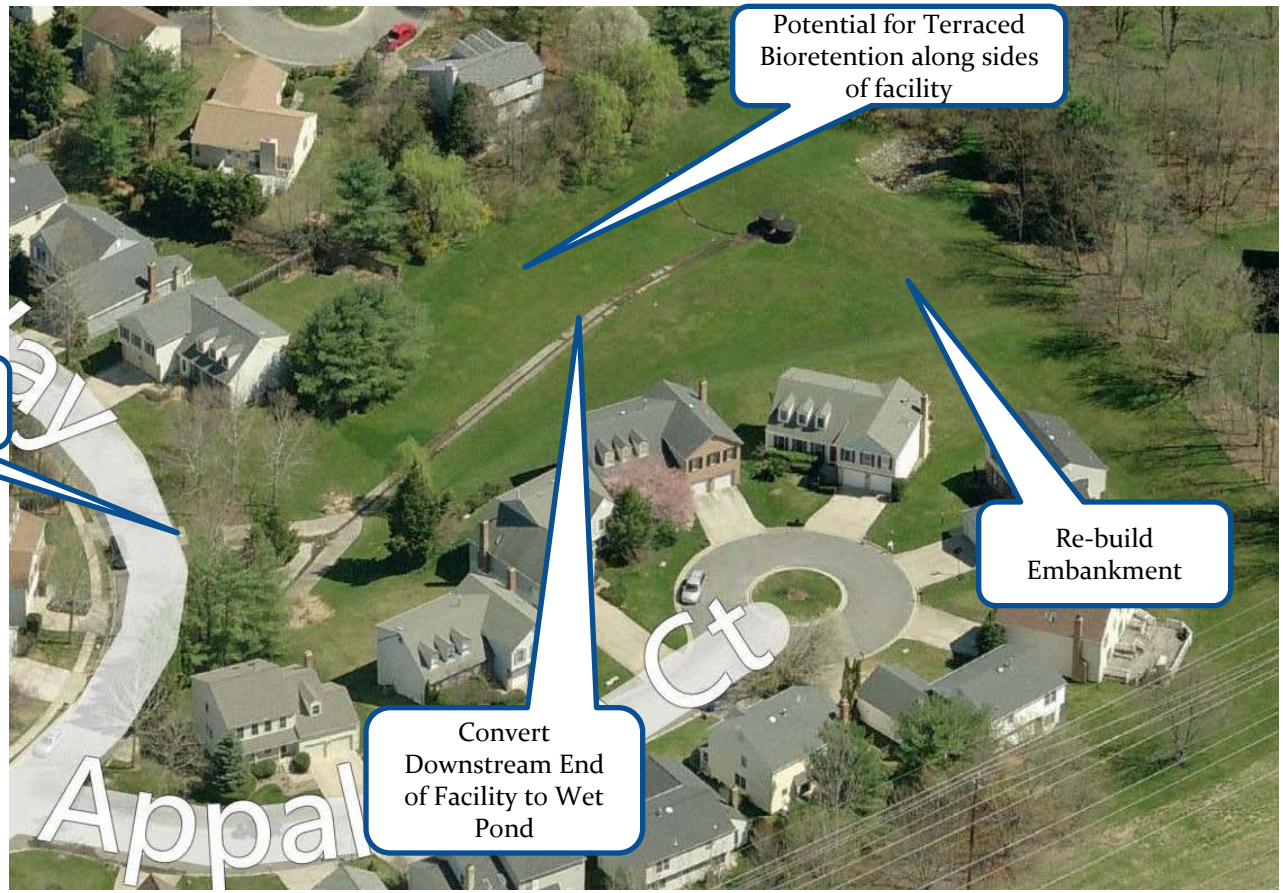
Pond 10887

Remove Existing Inlet/Outlet Structure and Provide Additional SWM Treatment
Access from Grey Colt Drive
Convert Downstream End of Facility to Wet Pond
Re-build Embankment

Pond 10891

- Stormwater Management Dry Pond
  - 8’ High Earth Embankment Dam
  - Does not meet current SWM requirements to achieve any MS4 credit.
  - Available room for wet pond and potential bioretention terraces

Pond 10891


Potential for Terraced Bioretention along sides of facility
Access from Appaloosa Way
Re-build Embankment
Convert Downstream End of Facility to Wet Pond

Project Objectives - SWM

- All ponds - 24-hour detention for stream channel protection
- Ponds 10887, 10891 - Permanent Wet Pool
- Pond 10847 – Dry Pond
- Pond 10876 - Convert to Infiltration area/Dry Pond Combination
- Pond 10887 – Install bioswale in-lieu of inlet/outlet structure at Northeast inflow point.
- Pond 10891 – Potential bioretention terraces

Project Objectives - Streams

- Stream protection
  - Modify outlet works to better regulate pond discharge and protect Rich Branch and Sandy Branch
  - Achieve partial to full channel protection volume requirement (depending on pond)

Project Objectives - Maintenance

- Maintenance
  - Replace existing risers with water-tight structures
  - Install impervious liner on dam embankments
  - Install internal drain in downstream embankments

Project Objectives - Aesthetics

- Landscape all facilities with native vegetation to improve aquatic habitat and aesthetics

Project Costs

- **Financial** – estimated cost of $2.3M financed through MCDEP CIP Program using funds generated through the Water Quality Protection Charge
- **Recreational** – temporary construction impacts to pedestrian path on top of embankments at Pond 10887.
- **Forest** – tree clearing for to comply with state dam safety laws along the downstream toe of the dam.
- **Traffic** – construction traffic enter and exit roadways Monday – Friday, 7AM to 4PM
- **Neighborhood** – construction traffic and noise will typically occur Monday – Friday, 7AM to 4PM

Project Benefits

- **Water** – improved water quality and stream water temperature through better management of runoff
- **Environmental** – reduced downstream discharge allows for natural self-repair of stream channel. Increased aquatic and riparian habitat through landscaping and reforestation.
- **Recreational** – increased aesthetic appeal of ponds
- **Maintenance** – safer operating structure that will require minimal structural maintenance in future.

Estimated Design and Permitting Timeline

- **Design** – September 2013 – March 2014
- **Approvals –** March/April 2014
- **Permits** – April 2014
- **Bidding** –May 2014
- **Construction** – June - August2014

What to expect during construction

- **Duration**
  - Approximately 3 months
- **Construction Hours**
  - Monday through Friday, 7AM – 4PM
- **Safety**
  - Open sides of site will be fenced with orange construction safety fence to separate construction from residents.
- **Traffic**
  - Minor impacts to traffic from entering and exiting construction traffic and contractor parking during the day.
- **Noise**
  - Contractor is required to comply with Montgomery County Noise Ordinance – site elevation will help alleviate noise pollution.
- **Sediment**
  - Contractor will be required to comply with Montgomery County Sediment Control Permit and not track dirt onto roads

Questions?

For more information:

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