



Raindrop Rodeo

Lassoing Uncontrolled Stormwater Runoff Through Demonstration Practices
CWEA 2019 Stormwater Seminar – December 11, 2019



Presentation Overview

- The Site: Frederick County's University of Maryland Cooperative Extension
- The "Restoration Toolbox"
- Project Financing
- Project Co-Benefits
- Project Unintentional Co-Benefits



www.tinyurl.com/StormwaterProject



The Site

Frederick County's University of Maryland Cooperative Extension

The Site

- County-owned Property - University of Maryland's Extension Office
 - Over 200 residents and business owners visit the site each month to learn
 - Frederick County Master Gardeners demonstration gardens



Site History

- The Major Problem the Master Gardeners were having:
 - Stormwater!
- Master Gardeners designed & installed rain garden
 - Drainage area was too large → practice was overwhelmed and failed
- Master Gardeners requested County assistance



Site History (con't)

- Priority Site for the County:
 - County owned parcel with all impervious being uncontrolled
 - Site was actively eroding
- Project Goals:
 - Design practices which could be incorporated into the existing demonstration gardens while providing function
 - Demonstrate restoration opportunities for residents and small businesses
 - Several unintended Co-Benefits emerged.....





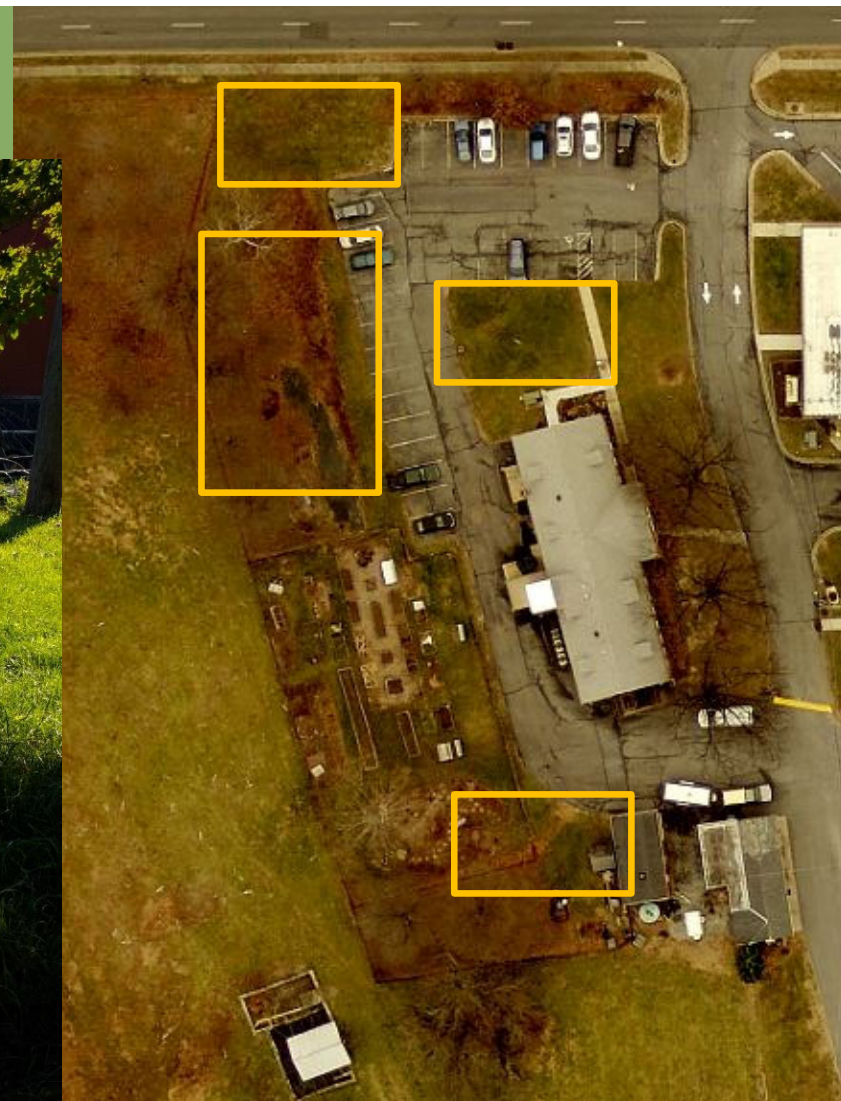
Site Challenges & The “Restoration Toolbox”

Frederick County's University of Maryland Cooperative Extension

Site Challenges

- Utilities
- Other site uses
 - Existing planting beds
 - Paw Paw trees
- Property grades/elevations
- Forest Resource Ordinance planting





 **Dewberry**

Site Challenges

- **Utilities**
- Other site uses
 - Existing planting beds
 - Paw Paw trees
- Property grades/elevations
- Forest Resource Ordinance planting



Pawpaw Patch

Frederick Master Gardener Demonstration Garden

Pawpaw, *Asimina triloba*, is a native tree that produces delicious fruit in the fall. The fruit has a custard-like consistency with a hint of vanilla-banana flavor. The trees are tremendously deer resistant, have large tropical-looking leaves and are the most northerly member of the Custard-apple Family, Annonaceae.

Because they need cross-pollination, it is recommended to plant several small seedlings together to establish a new Pawpaw patch. They are naturally found along streams, so planting in a drainage area such as this one is a good idea.

Enjoy our native plants and wildlife !



 Dewberry



- Fore
Ord

Site Challenges



The “Restoration Toolbox”

- Filterrras
- Micro-bioretenention
- Cisterns/Rainwater Harvesting
- Conservation Landscaping
- Dry Creek Bed

Sketch by Fitch & Company, Inc.

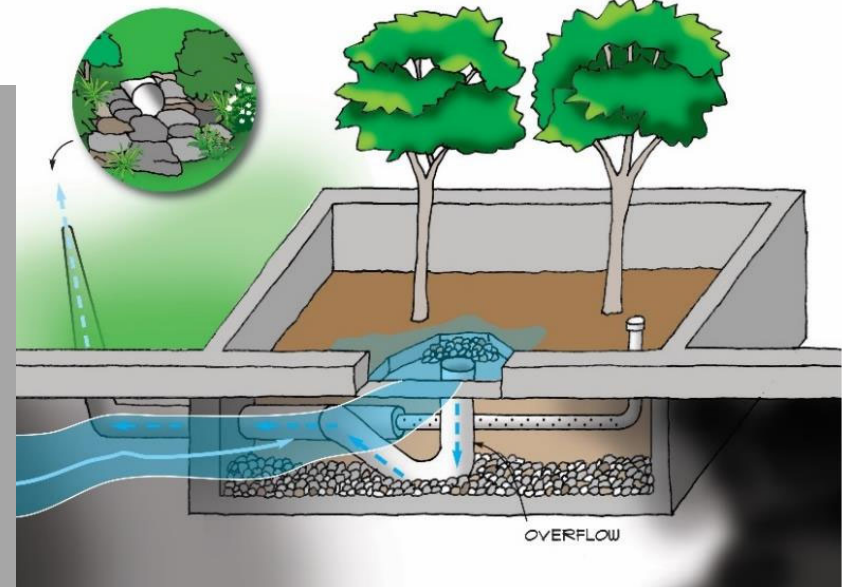
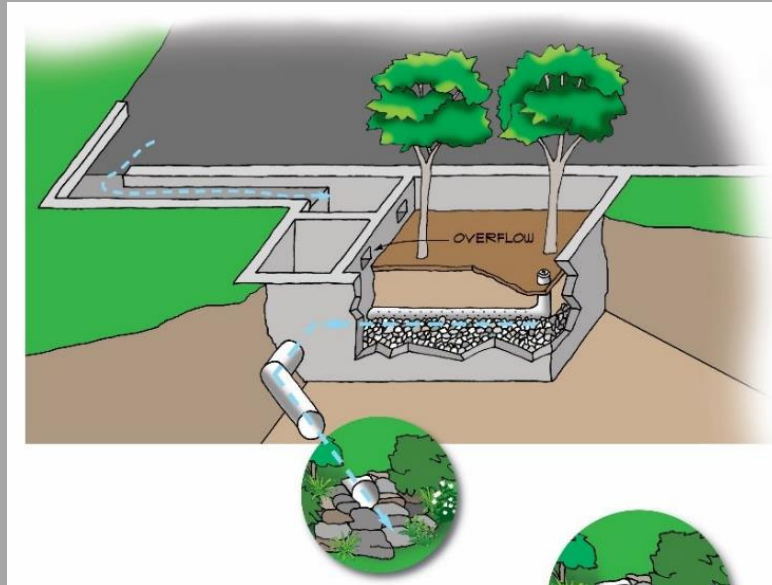
OVERVIEW

- A FILTERRA
- B MICROBIORETENTION AREA
- C DRY STREAM BED
- D WATER SOURCE
- E RAIN TANK
- F GROW IT, EAT IT GARDEN
- G CHILDREN'S GARDEN
- H RAIN BARREL
- I REFORESTATION
- J NATIVE HEDGEROW
- K BUILDING FOUNDATION LANDSCAPING
- L WOODLAND EDGE



Filterra Devices

- Site Challenges:
 - Extremely limited space
 - Grade issues
 - Paw Paw trees
 - Existing planting beds



Sketches by Fitch & Company, Inc.

Filterrras Under Construction

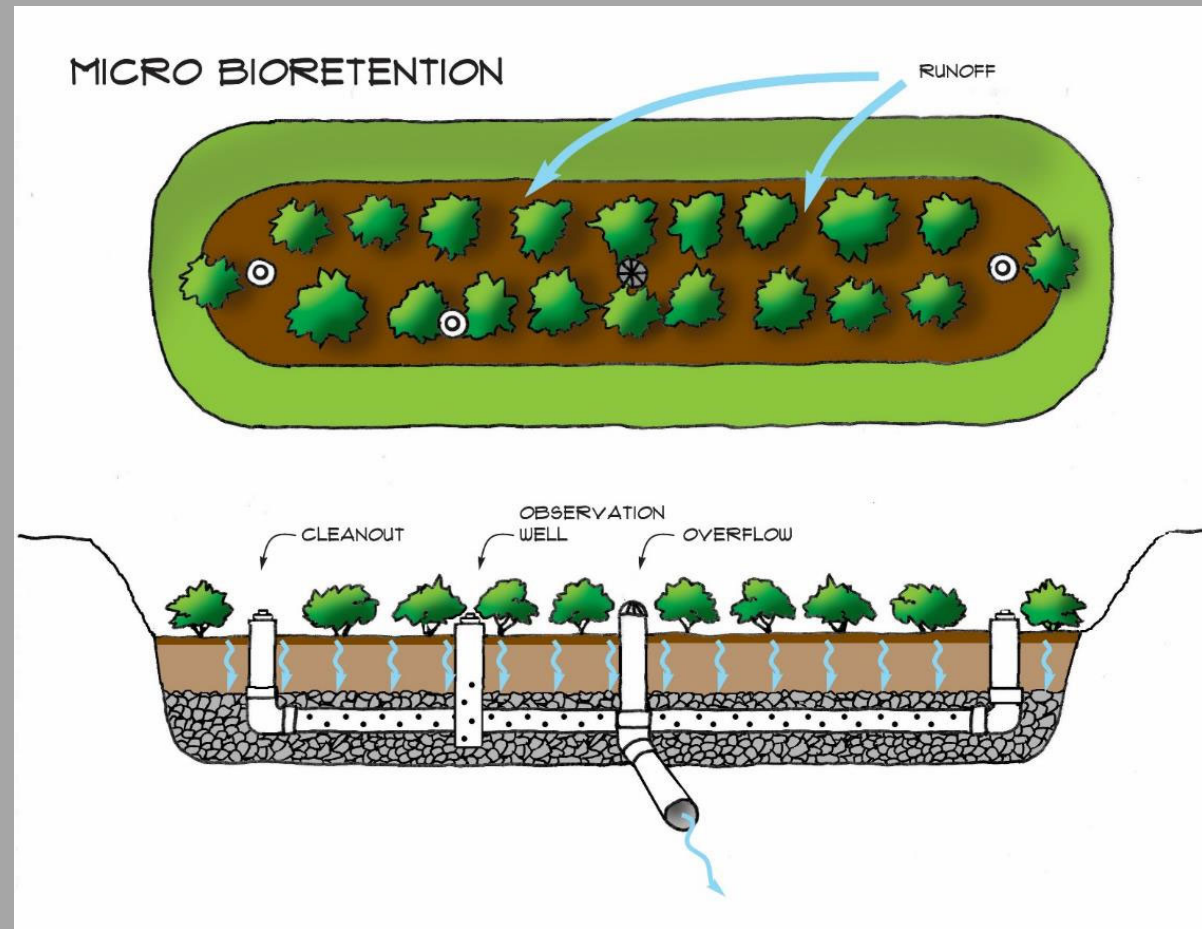


Filterrras Completed



Micro-bioretention Facility

- Site Challenges:
 - Existing planting bed
 - Site grades
 - Geotechnical boring results



Sketch by Fitch & Company, Inc.

Micro-bioretention Under Construction

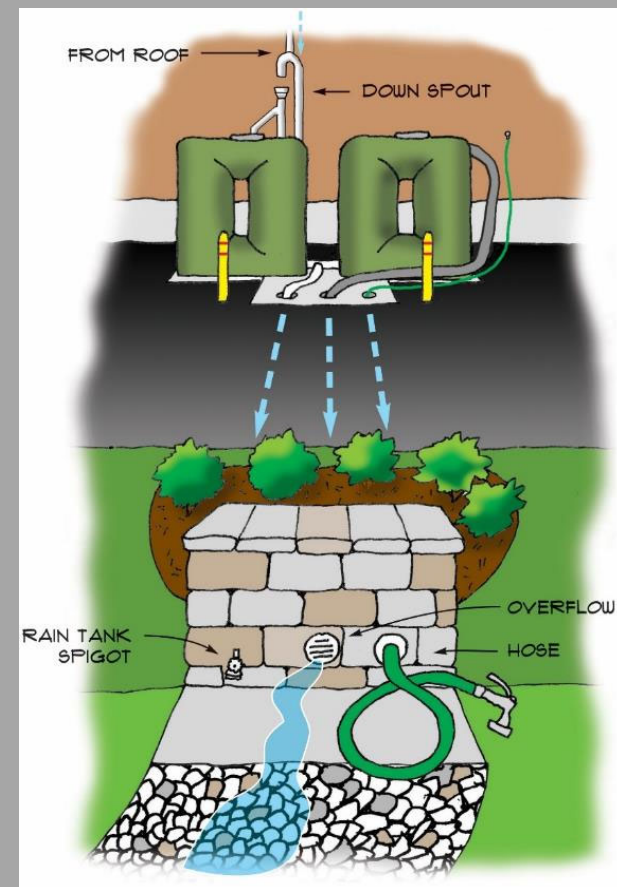
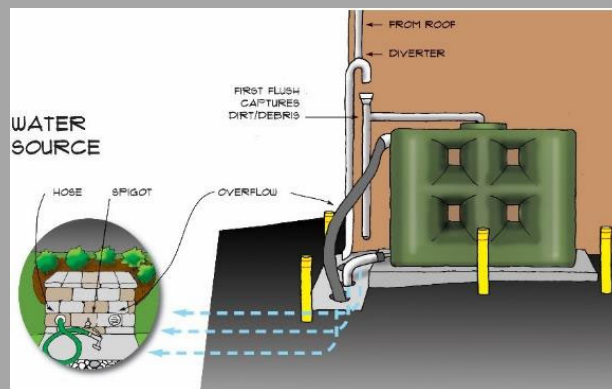


Micro-bioretention Completed



Rainwater Harvesting

- Site Challenges:
 - Getting collected rainwater to other side of driveway
 - Potential freezing during winter
 - Redirecting downspouts



Sketches by Fitch & Company, Inc.

Rainwater Harvesting Under Construction



Rainwater Harvesting Completed



Project Financing

Frederick County's University of Maryland Cooperative Extension



Project Financing and Long Term Maintenance

- Design: \$126,000 utilizing County Funds
- Construction: \$40,000 Grant* + \$166,000 in County leveraged Funds
 - *Awarded a Maryland Department of Natural Resources' Chesapeake and Atlantic Coastal Bays Trust Fund based on creative project design strategies and highly visible project
- Long term Maintenance
 - Master Gardener Interns are assigned portions of the project to maintain
 - County will provide structural maintenance and any other maintenance necessary



Project Co-Benefits

Frederick County's University of Maryland Cooperative Extension



Project Co-Benefits

- Co-benefits
 - Project assists the County in meeting its Restoration and outreach goals under the NPDES MS4 Permit Requirements
 - Partnership with the Master Gardeners in developing the native planting plan
 - Developed a Story Map for the project: www.tinyurl.com/StormwaterProject
 - Provided climate resilient stormwater management to control local flooding while creatively integrating the project into the existing landscape



Project Unintended Co-Benefits

- Direct connection Master Gardeners had with stormwater and the demonstration garden
 - Turned it around into their new theme for the Frederick Fair
- Three stormwater management seminars which each have educated over 50 people per event



Project Unintended Co-Benefits

- “Tap” Opening Ceremony
 - County Executive
 - Area Extension Director Frederick, Howard & Montgomery Counties
 - Manager of Office of Sustainability
 - UME MG State Coordinator
 - Over 40 Master Gardeners Attended and approximately 30 County residents
- Master Gardener Annual Tour of Stormwater and Stream Restoration Practices



Questions?

Don Dorsey

DDorsey1@FrederickCountyMD.gov

301.600.2952

Jessica Seipp

Jseipp@Dewberry.com

410.645.1838

Special Thanks:

MDNR Chesapeake & Atlantic
Coastal Bay Trust Fund

University of MD and Master
Gardeners

University of MD Extension

