



# LIFE HISTORY OF A “NEW” STORMWATER BMP

David Hirschman & Joe Battiatà

Center for Watershed Protection, Inc.

Region 2000 Stormwater Management Workshop

December 13, 2013



# CENTER FOR WATERSHED PROTECTION

- NON-PROFIT 501(C)3, NON-ADVOCACY ORGANIZATION FOUNDED IN 1992
- WORK WITH WATERSHED GROUPS, LOCAL, STATE AND FEDERAL GOVERNMENTS
- PROVIDE TOOLS TO COMMUNITIES TO PROTECT LAKES, RIVERS, STREAMS, AND ESTUARIES
- 20 STAFF IN ELLICOTT CITY, MD; FIELD OFFICES IN CHARLOTTESVILLE, VA & ITHACA, NY

[WWW.CWP.ORG](http://WWW.CWP.ORG)



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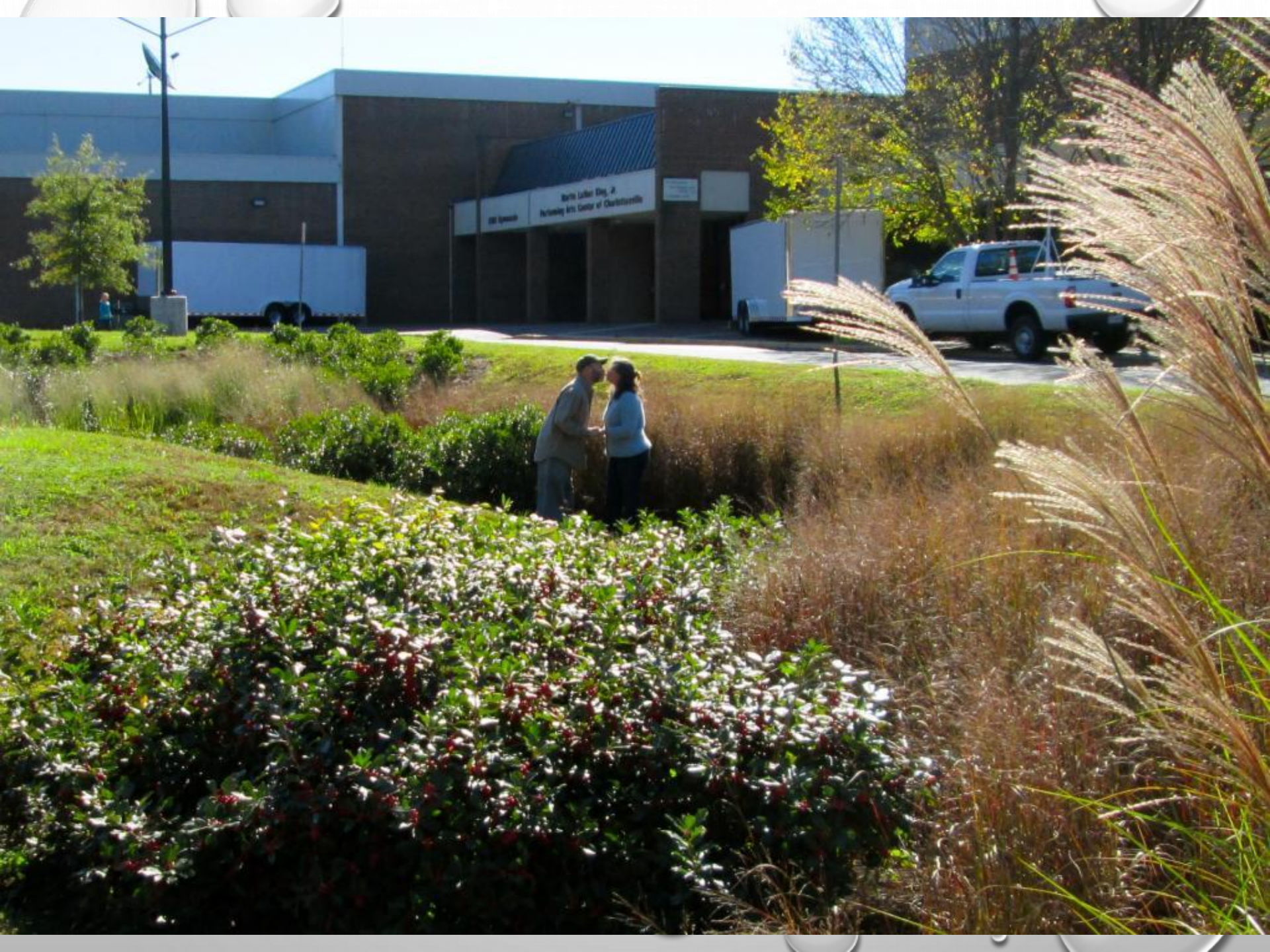
BMD



# TRUE LOVE OR SHOTGUN WEDDING?

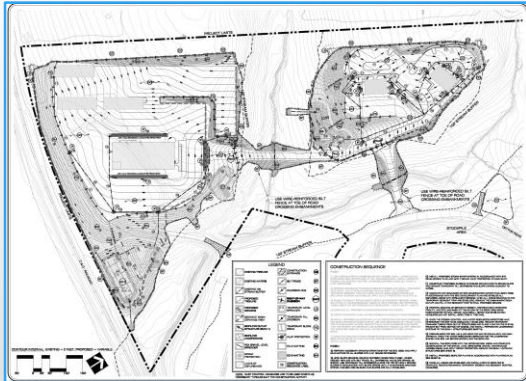








# LIFE HISTORY OF A STORMWATER BMP



## Concept/Design Plan

**STORMWATER MANAGEMENT/BMP FACILITIES MAINTENANCE AGREEMENT**

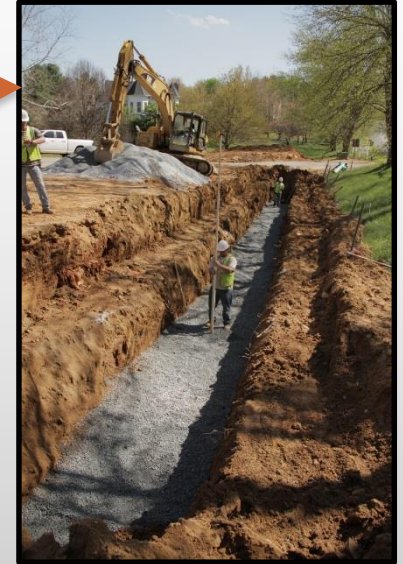
THIS AGREEMENT, made and entered into this \_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_, by and between \_\_\_\_\_, hereinafter called the "Landowner", and the  
(Insert Full Name of Owner)  
Board of Supervisors of Albemarle County, Virginia, hereinafter called the "County".

WITNESSETH, that

WHEREAS, the Landowner is the owner of certain real property described as \_\_\_\_\_ as recorded by deed in the land records of Albemarle County,  
(Albemarle County tax Map/Parcel Identification Number)

Virginia, Deed Book \_\_\_\_\_ Page \_\_\_\_\_, hereinafter called the "Property".

## Plan Review Docs/Conditions of Approval



## Installation



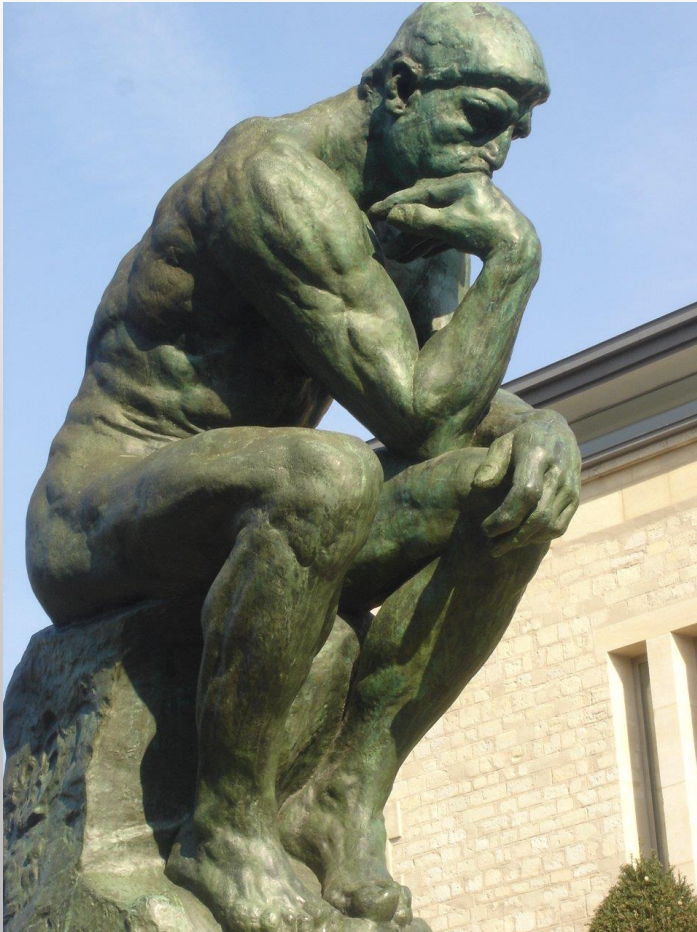
## Maintenance



## Project Acceptance

Infor EAM		List of Equipment Details
Equipment	21611   Crankshaft Regulator [	
Type	ACCEL	
Manufacturer	WIPAC   Power and Quality and Quality Control	
Empirepart	WIPAC-001   Control & Maintenance by ODP	Category
Serial Number	8001000000   Importation Region 2	Status
		Inspected
Equipment Number	220	Lower Definition Parts
Equipment Control Part #	8001100000	
Equipment Part Number	8001100000	
Part Name	220000	
Part Description	220000	
Part Type	220000	
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# WHAT DOES A DESIGNER NEED TO KNOW ABOUT THESE STEPS?



[http://aoci.info/profiles/blogs/thinking?xg\\_source=activity](http://aoci.info/profiles/blogs/thinking?xg_source=activity)



The map shows a large, roughly rectangular fortification with a central rectangular area, possibly a courtyard or a main building. The fortification is surrounded by a wall with several bastions or towers. The map includes a legend with symbols for various features: walls, gates, bastions, and structures. A scale bar at the bottom left indicates distances in meters (0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100). The map is labeled with various features and structures, including 'Tell el-Fel', 'Fortification', 'Bastion', 'Gate', 'Structure', 'Wall', 'Road', 'River', 'Field', 'Forest', 'Village', 'City', 'Country', 'Region', 'Province', 'District', 'Municipality', 'Commune', 'Canton', 'County', 'Prefecture', 'Governorate', 'Province', 'Region', 'Country', 'World'.



**BIORETENTION DESIGN SPECIFICATION**

VERSION 1.0

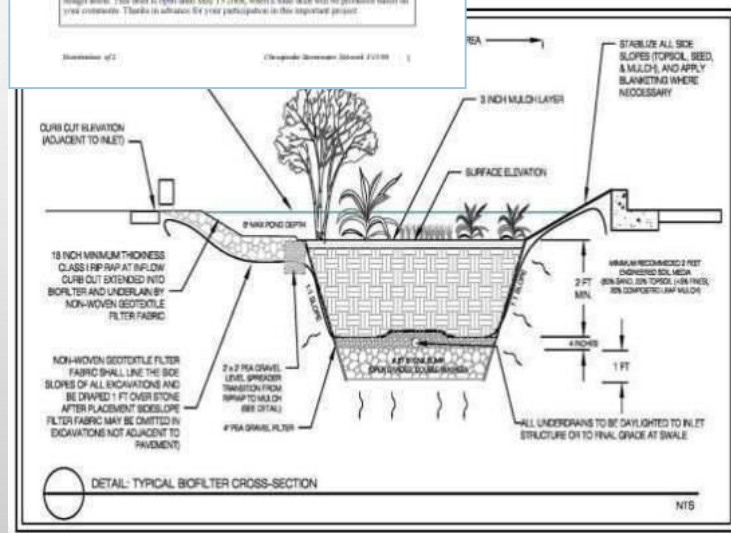
OPEN FOR COMMENT UNTIL MAY 15, 2008

**How You Can Develop a Better Bioretention Design Spec for Use in the Chicago Bay**

Our goal is to produce a simple standard specification that can focus performance, increase longevity, reduce maintenance burden, and create an attractive amenity – and at the same time drive down the unit cost of treatment. So please give this a careful review, and e-mail your comments to Tom Schaefer at [tom.schaefer@chicago.gov](mailto:tom.schaefer@chicago.gov) or your comments to online reviewers at [chicagoopencomment.net](http://chicagoopencomment.net). This draft has annotations highlighting key issues and design needs. This draft is open until May 15, 2008, when a final draft will be produced based on your comments. Thanks in advance for your participation in this important project.

Distribution: s/2

Chicago Bioretention Standard V1.0.0



## Specifications on BMP Clearinghouse





# COMMON PLAN OF DEVELOPMENT: INDIVIDUAL LOT BMPS

- SWPPP TEMPLATE
- WORKING WITH LOCAL PROGRAM  
ON BMP TYPES, ALTERNATIVE  
INSPECTION & MAINTENANCE  
PROGRAM



# PLAN REVIEW DOCS, CONDITIONS OF APPROVAL

STORMWATER MANAGEMENT BMP FACILITIES MAINTENANCE AGREEMENT

THIS AGREEMENT, made and entered into this \_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_, by and between \_\_\_\_\_, hereinafter called the "Landowner", and the \_\_\_\_\_ (Insert Full Name of Owner) Board of Supervisors of Albemarle County, Virginia, hereinafter called the "County".

WITNESSETH, that \_\_\_\_\_

WHEREAS, the Landowner is the owner of certain real property described as \_\_\_\_\_ as recorded by deed in the land records of Albemarle County, (Albemarle County tax Map/Parcel Identification Number) \_\_\_\_\_

Virginia, Deed Book \_\_\_\_\_ Page \_\_\_\_\_ hereinafter called the "Property".

- FEES!
- PLAN COMPLETENESS CHECKLIST, RUNOFF REDUCTION SPREADSHEET PRINT-OUT, ETC.
- SWPPP, SWPPP TEMPLATE
- MAINTENANCE AGREEMENT (RECORDED) & PLAN
- PERFORMANCE BOND?
- EASEMENTS
- OTHER?



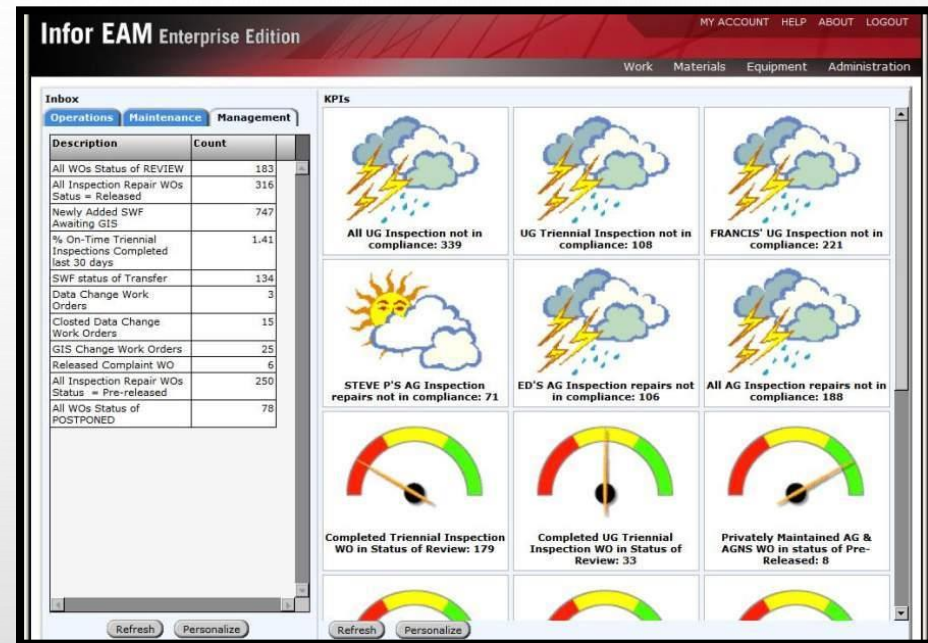
# BMP INSTALLATION: ROLE OF THE PLAN

- CONSTRUCTION SEQUENCING, COORDINATION WITH E&S
- MATERIALS, MATERIALS TESTING
- LANDSCAPING/VEGETATION PLAN



# PROJECT ACCEPTANCE

- AS-BUILT; DOCUMENT FIELD DEVIATIONS FROM PLAN
- RELEASE OF PERFORMANCE BOND (PARTIAL OR FULL)
- ENTER INTO JURISDICTION BMP TRACKING SYSTEM





# MAINTENANCE



# MAINTENANCE



- ON-GOING INSPECTIONS
- COMPLIANCE/ENFORCEMENT
- TRACKING
- PERIODIC VERIFICATION FOR BAY MODEL/WIP



# Technical Report

## Stormwater BMPs in Virginia's James River Basin: An Assessment of Field Conditions & Programs

(part of the *Extreme BMP Makeover* project)



June 2009

*Final Draft*



8390 Main Street, 2<sup>nd</sup> Floor  
Ellicott City, MD 21043

PHONE 410.461.8323

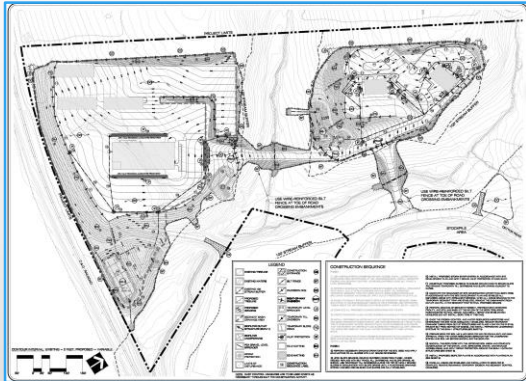
FAX 410.461.8324

[www.cwp.org](http://www.cwp.org)

[www.stormwatercenter.net](http://www.stormwatercenter.net)

- Design
- Installation
- Maintenance

# LIFE HISTORY OF A STORMWATER BMP



## Concept/Design Plan

**STORMWATER MANAGEMENT/BMP FACILITIES MAINTENANCE AGREEMENT**

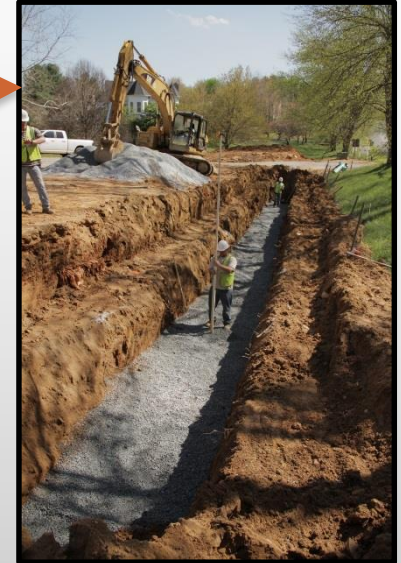
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## Plan Review Docs/Conditions of Approval



## Installation



## Maintenance



## Project Acceptance

[illegible]