

HICKEY LANE STORMWATER RETROFIT PROJECT

PUBLIC STAKEHOLDER CONCEPT DESIGN PUBLIC MEETING

October 26, 2020

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U.S. NATIONAL
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DEPARTMENT
OF ENERGY &
ENVIRONMENT

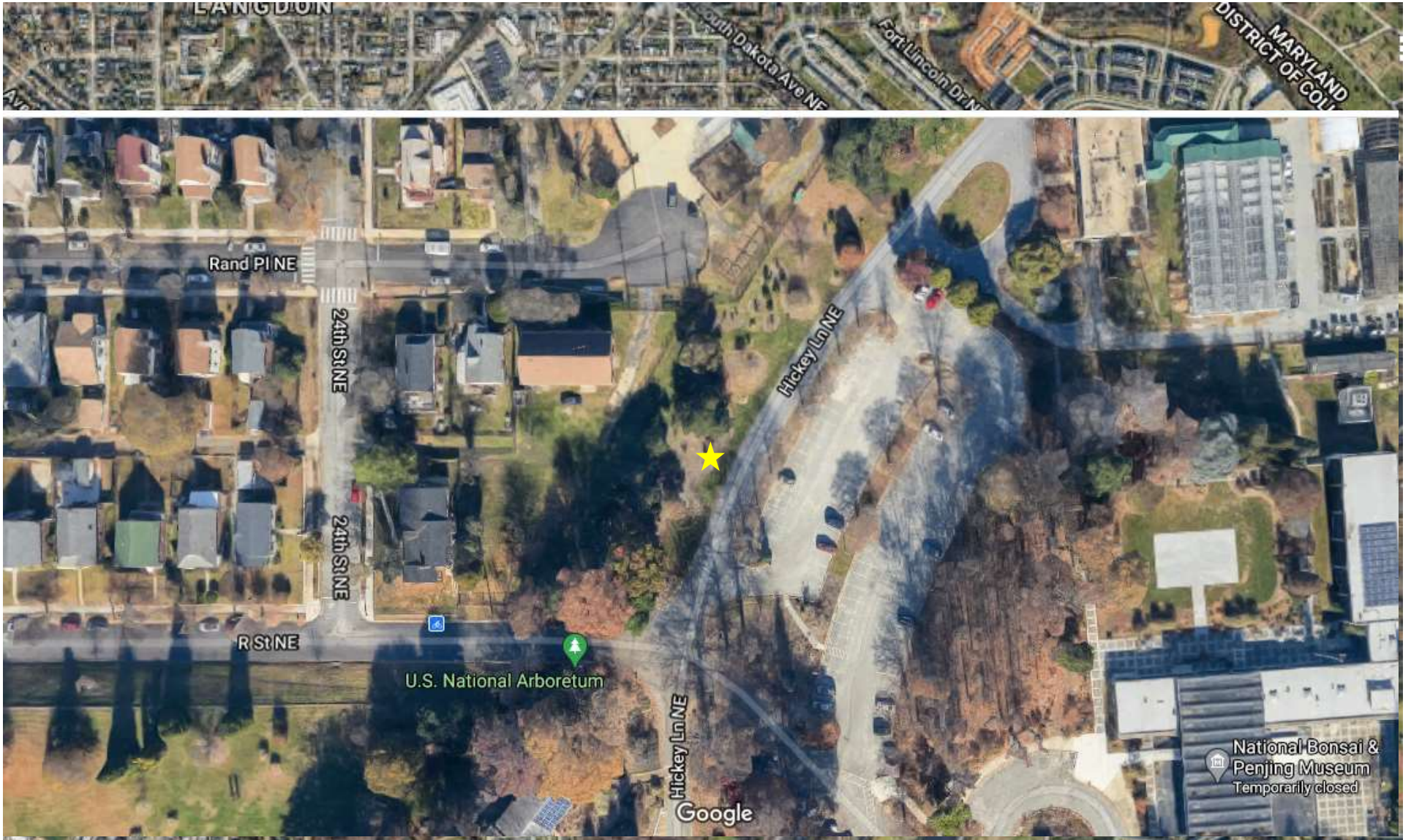


GOVERNMENT OF THE
DISTRICT OF COLUMBIA
MURIEL BOWSER, MAYOR

AGENDA

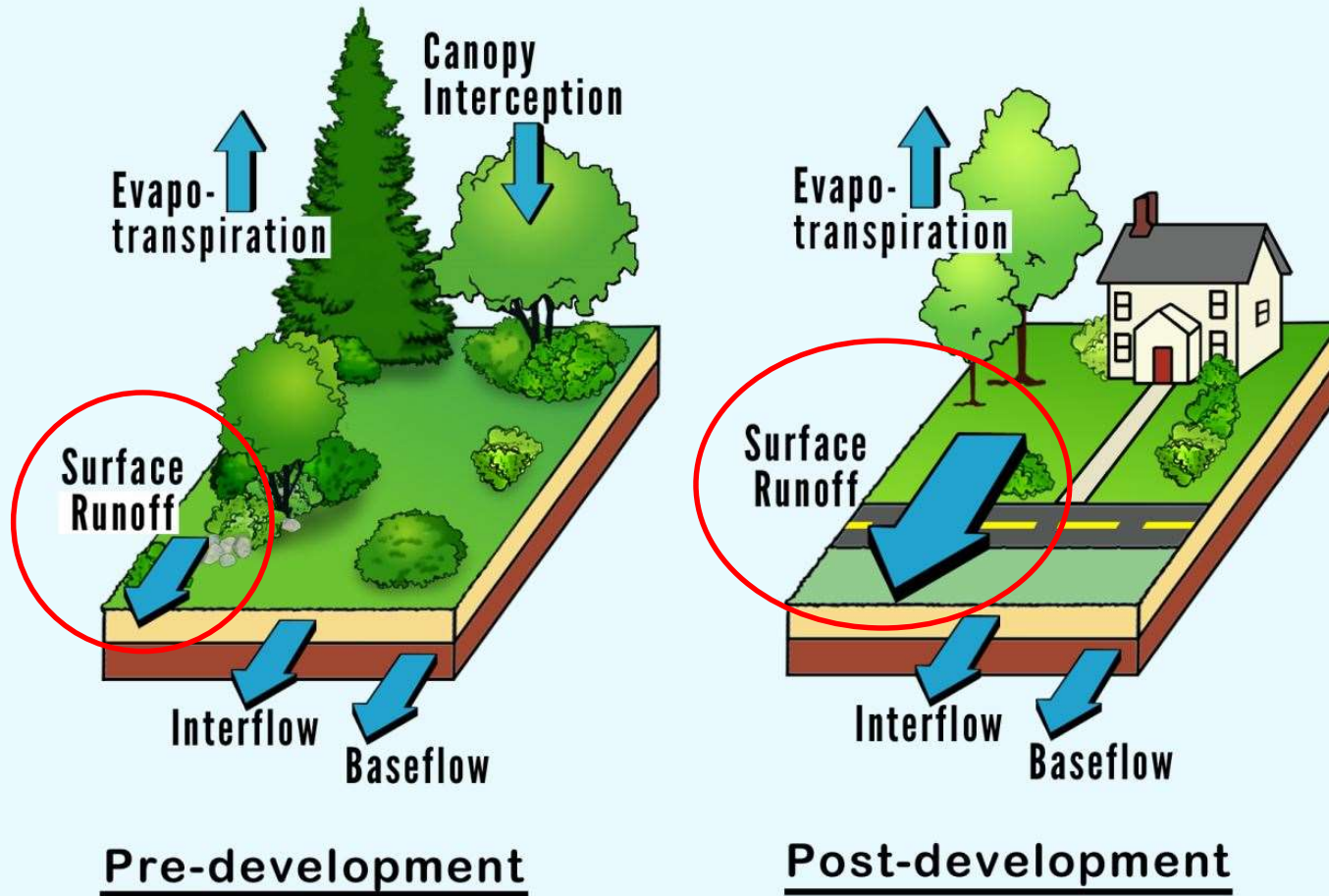
- Project Area & Background
- Existing Conditions
- Project Objectives
- Restoration Approaches
- Concept Design
- Timeline
- FAQs
- Q&A

PROJECT LOCATION



BACKGROUND

Figure 1.1 Water Balance at a Developed and Underdeveloped Site
(Source: Schueler, 1987)

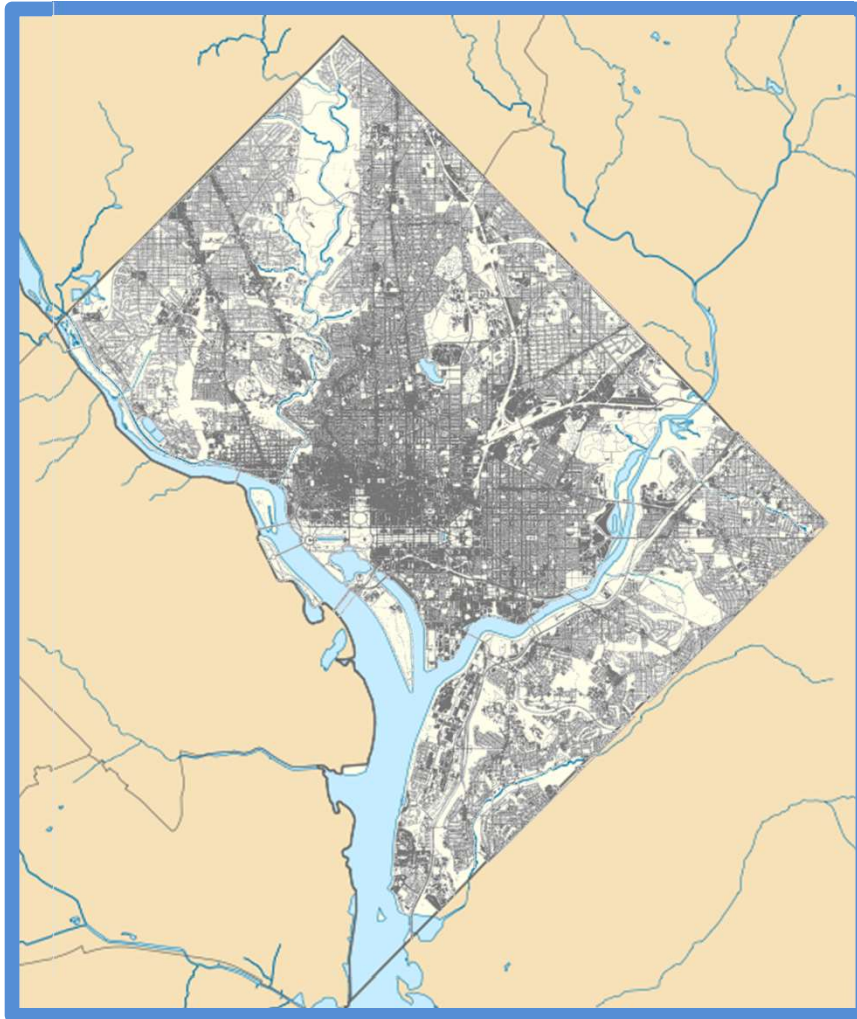


Surface runoff is minimal in an undeveloped site, but dominates the water balance at a highly impervious site.

PROBLEM OF STORMWATER POLLUTION



DISTRICT OF COLUMBIA LAND USE



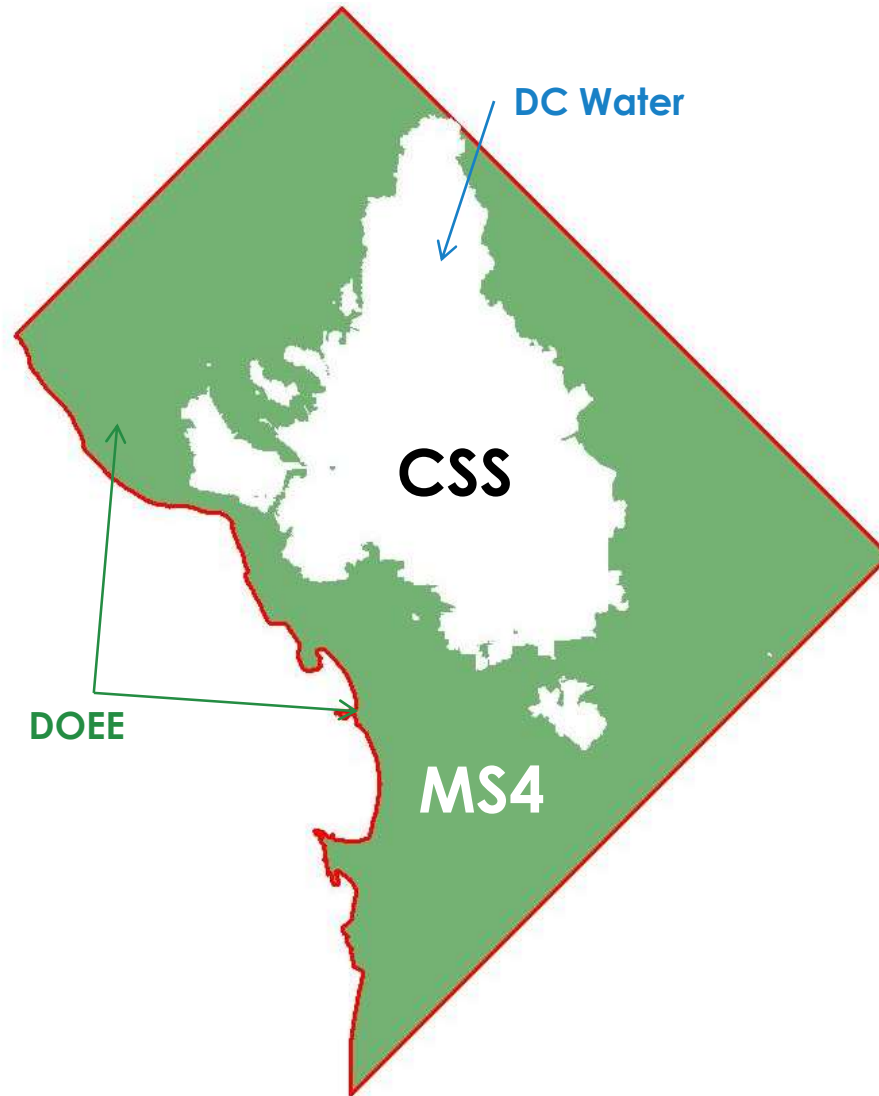
Total Area
68.3 mi²

Land Area
61.3 mi²

Impervious Area
26.6 mi²
*Approx 43%
of Land Area*

A single 1.2 inch storm falling on this area produces about 525 million gallons of stormwater runoff.

DC'S RESTORATION APPROACHES



TOTAL CONTRIBUTING DRAINAGE AREA (CDA)- EXISTING								Target SWRv (P = 1.2") CF	Max SWRv (P = 1.7") CF
CDA ID	BMP ID	Total CDA SF	Natural SF	Compacted SF	Impervious SF	BMP SF	Vehicular SF	8,471	12,001
1	1	791,699	656,774	66,168	71,757	-	-	-	-

TOTAL CONTRIBUTING DRAINAGE AREA (CDA)- POST PROJECT								Target SWRv (P = 1.2") CF	Max SWRv (P = 1.7") CF
CDA ID	BMP ID	Total CDA SF	Natural SF	Compacted SF	Impervious SF	BMP SF	Vehicular SF	8,558	12,124
1	1	794,699	656,774	64,721	71,757	1,247	-	-	-



CLIENT

★ ★ ★

DEPARTMENT OF ENERGY & ENVIRONMENT
 CFC/IA LAMP
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DATE: _____

REVISIONS:



NOT FOR CONSTRUCTION



HICKEY LANE LID RETROFITS

DRAINAGE AREA MAP

PROJECT NO.	20015.07	SCALE	1" = 60'
DATE	07/13/17	BY	TJ
APP'D		CHECKED	DA
MAP FILE	DA-01		
SHEET NO.	5 OF 5		

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PROJECT OBJECTIVES

- Treat maximum amount of stormwater from the site in the most cost effective way
- Support previous stormwater management efforts on site
- Minimal impacts to the community
- Development of a community amenity
- Educational opportunities



RESTORATION APPROACHES

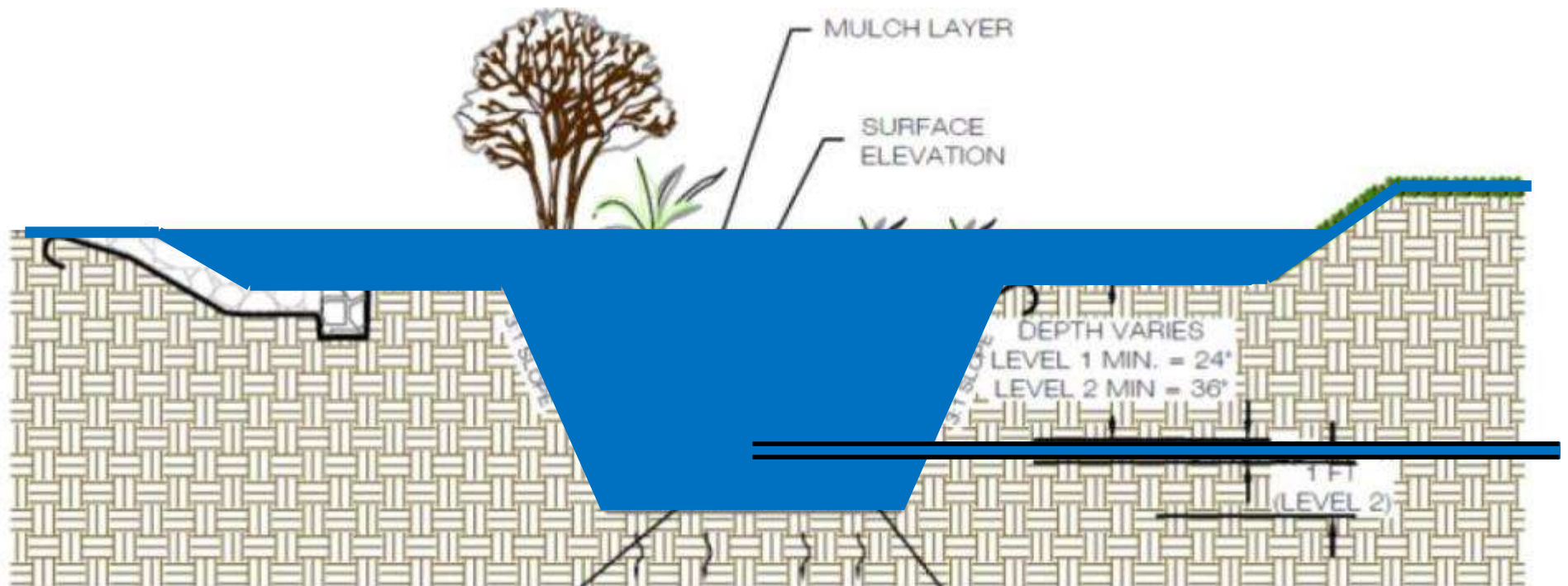
Most stormwater practices all work the same way: “they collect stormwater runoff and use or mimic natural processes that result in the infiltration, evapotranspiration or use of stormwater in order to protect water quality and associated aquatic habitat” (EPA).

Slow it down, Spread it Out, Soak it In !

BIORETENTION



BIORETENTION: HOW IT WORKS



BIOSWALES

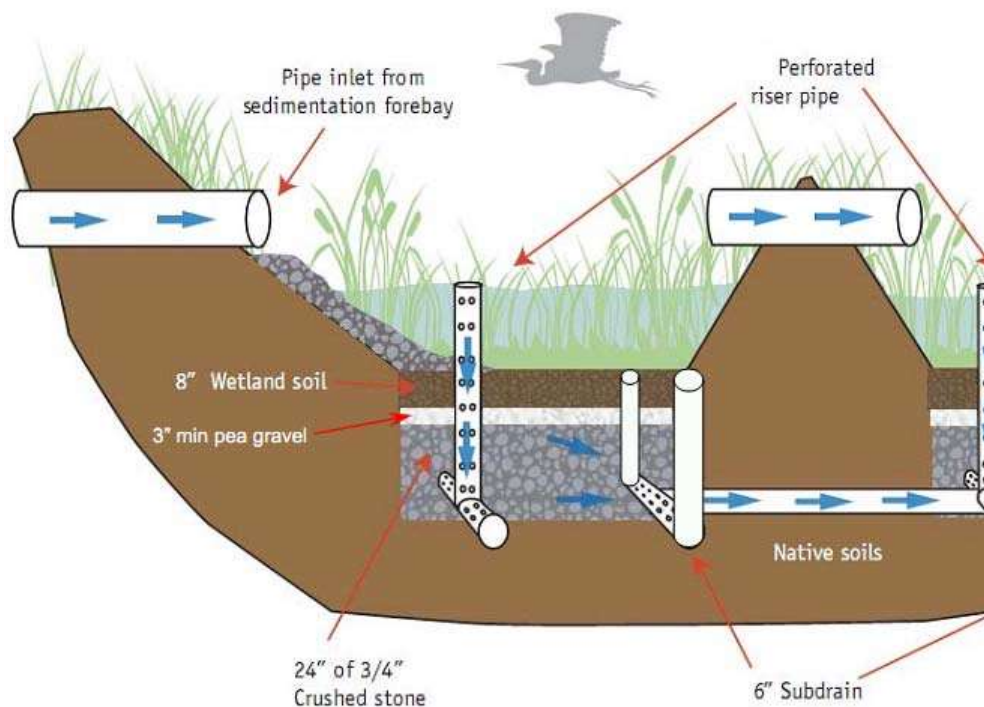


PERMEABLE PAVEMENT



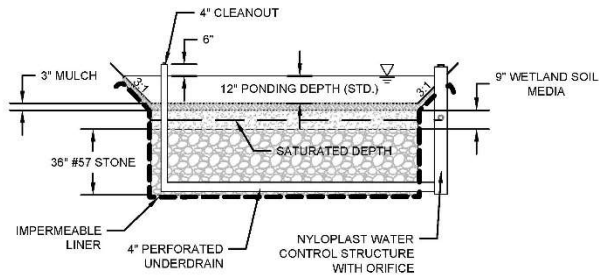
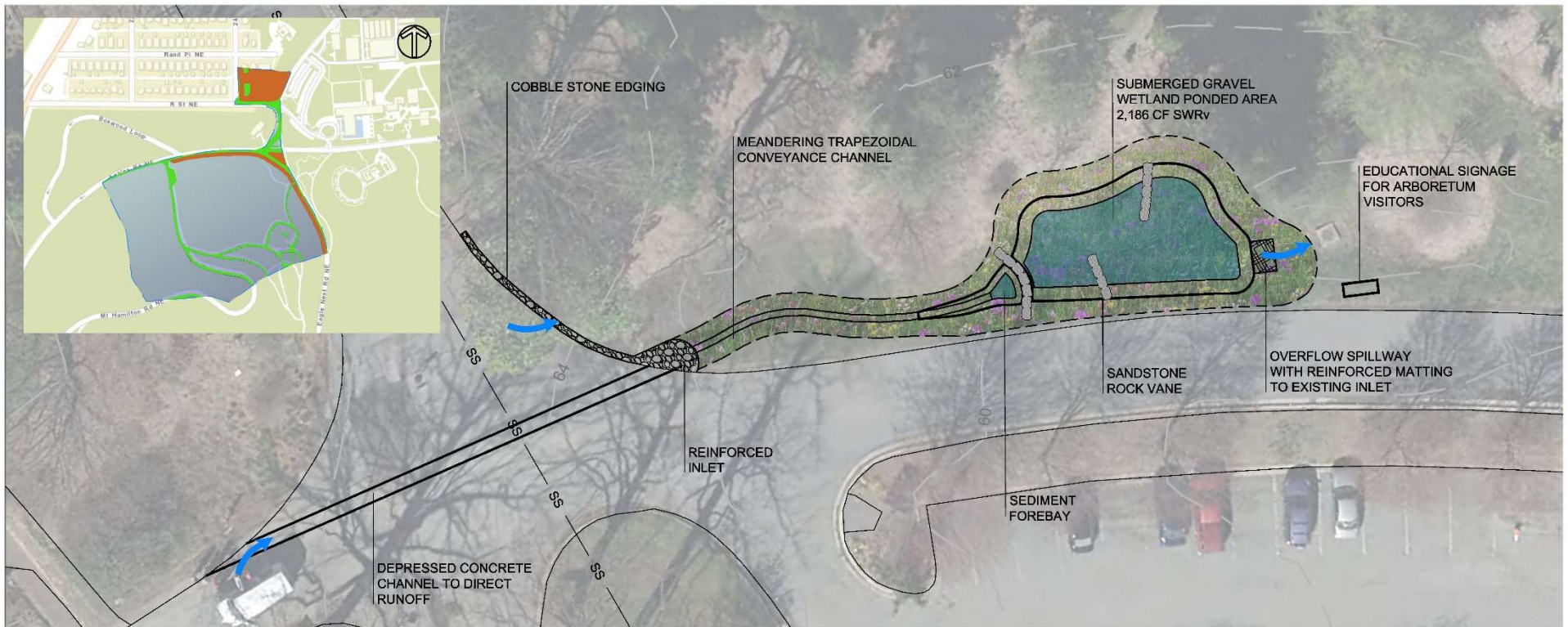
SUBMERGED GRAVEL WETLANDS

Figure: Diagram of a gravel wetland.
Source: UNH



- Pollutant removal is achieved through:
 - Biological uptake from algae and filter media
 - Wetland plants provide additional physical and chemical treatment
 - Absorption of organic matter
 - Allows for distinct plant palette

PROJECT CONCEPT



SUBMERGED GRAVEL WETLAND
TYPICAL SECTION

NOT TO SCALE



SUMMARY TABLE

BMP	Bioretention Version	SWR _v		Areas			Depths				Sv CF	Retention Volume Provided %	Retention Volume Provided CF
		(P = 1.2") CF	(P = 1.7") CF	SA _{top} SF	Sabottom SF	SA _{average} SF	d _{ponding} IN	d _{media} IN	Gravel Underdrain IN	Infiltration Sump IN			
1	Standard	8,558	12,124	1,186	817	1,002	12	12	36	0	2,186	60%	1,312
Total											2,186		1,312

DOEE
Washington, D.C.

HICKEY LANE NE LID RETROFIT
Concept Design
October 2020

- Legend**
- Existing Drainage Area
 - Existing Storm Drain
 - Existing Sanitary Sewer
 - Proposed Submerged Gravel Wetland



PROJECT TIMELINE

- March 2020: contract awarded
- April – July 2020: field assessment (topographic survey, geotechnical investigations etc.)
- August – January 2021: design development
- 3 public meetings:
 - Concept designs on 10/26/2020
 - Semi-final designs (~65%): TBD
 - Construction kickoff meeting (timeline): TBD

FAQs

- How do we find our project sites?
 - Enthusiastic landowners!
 - Funding sources
 - Large areas of untreated impervious cover
 - More impactful locations
- What can I do?
 - RiverSmart Homes
 - Rain Gardens
 - Permeable Pavers
 - Rain Barrels
 - Tree Planting
 - “BayScaping”



<https://www.riversmarthomes.org/>

QUESTIONS



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