



EPA Campus Rainworks Challenge



Lucy Hayes

College Park Scholars – Science & Global Change Program
Environmental Science and Technology Major
lhayes13@umd.edu
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Introduction

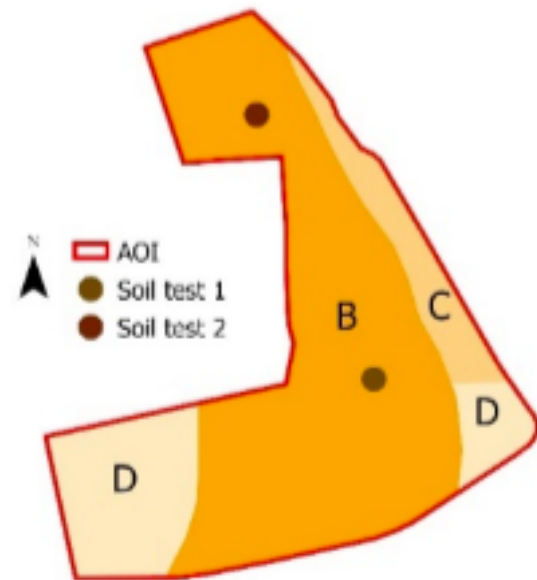
In the Fall 2021 semester, I helped gather soil data for the EPA Campus Rainworks Challenge, a contest where campuses enter their proposals for rain gardens in the hopes of EPA funding their project. I worked together with landscape architecture graduate students and ENST students to create this proposal, specifically on the Demonstration Project which is a “site specific implementation of green infrastructure”.



Conducting Average Water Infiltration Test

Activities: In addition to helping with editing the proposal document, I tested the soil at both sites independently for...

- % Organic carbon
- % Organic Matter
- Average Water Infiltration Rate
- pH
- % Water Content
- Soil Classification at Surface



Test Item	Soil Test 1 Result	Soil Test 2 Result
Soil classification at surface	Loam	Loam
Clay content	17%	22%
pH	6.68	7.26
Water content (%)	22.9%	21.7%
% Organic matter	8.13%	6.28%
% Organic carbon estimate	4.73%	3.65%
Average Water Infiltration Rate	3.25 in/hr	NA

My data consolidated into a chart and a map of the site location, courtesy of my teammates.

Impact:

My data and interpretations of the data were used in the final proposal. Most notably, I found that site 2 was originally a construction site – it had construction clay and gravel beneath its surface, and thus a higher pH although not significantly. As for site 1, the soil conditions were typical for a grassy plot of loam, albeit some erosion was evident. Site 1 would support the garden, whereas Site 2 it would be advisable to remove the layer of clay and gravel on the surface of the soil.



Conducting Average Water Infiltration Test

Personal Impact:

In this project, I learned how to take initiative – I was the one who proposed each specific soil test, and carried them out within a specific deadline! I also learned a lot about how landscape architecture proposals work, not to mention I learned a lot about the department itself!

Department of Plant Science and Landscape Architecture
Plant Science Building, 4291 Fieldhouse Drive College Park MD 20742

Supervisor: Dr. Byoung-Suk Kweon

Site Mission: To construct a rain garden proposal for the EPA Campus Rainworks Challenge.

My Site Goals: To ensure healthy soil at two separate sites behind the Chesapeake Building where the rain garden is proposed to be built through testing.

Issues Confronting Site:

The main question was why build behind the Chesapeake Building? What makes it a good candidate for a rain garden?

My job was to test the soil in two different sites behind the Chesapeake Building where gardens were proposed to be built. I had to test the soils to check if conditions were suitable for growth there, which would help answer that main question.

Future Work:

Our proposal aims to help address the issues of runoff and erosion. Specifically, to get rid of the large parking lot behind the Chesapeake building (there’s a lot of impervious surface there) for a more eco-friendly parking garage with a rain garden atop it, as well as to put gardens in the sites I was testing.

Acknowledgments:

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