

TF & STEVENS INSTITUTE OF TECHNOLOGY (SIT) GREEN INFRASTRUCTURE (GI) PROJECT

Progress Overview

- Kick-Off Meeting on October 22, 2015
- Progress Meeting on November 19, 2015
- Rockland County GIS License Agreement in December 2015
- Student Midterm Presentation to TF on February 1, 2016 at TF Meeting
- Site Selection Conference Call on February 11, 2016
- Site Visit at RCC on February 19, 2016
- Final progress meeting on March 31, 2016
- Final Student Presentation on April 25, 2016 at TF Meeting



Meet engineering students from Stevens Institute of Technology as they deliver their final presentation with report and conceptual green infrastructure design to the Task Force.

The TF Green Infrastructure Project began last Fall and was funded by the Soil & Water Conservation District (SWCD). A group of senior Civil Engineering students, Sarah LeClerc, Taylor Carden, Travis Lacey, and Brendan Wilton, worked with the Task Force GI Workgroup to develop a feasibility study of potential for implementation of Green Infrastructure throughout Rockland County with the specific aim to effectively and strategically augment groundwater recharge.

February Site Visit, Rockland Community College.

The team began by using the US EPA National Stormwater Calculator (NSC) and County GIS data to assess the potential infiltration capacities of various technologies and make recommendations as to which GI technologies would provide the greatest benefit. The GI technologies considered were limited to permeable pavement, bioretention (rain gardens), infiltration basins, and subsurface detention - measures focused on groundwater augmentation, a key goal in scope of this work. On February 1, at Task Force public meeting, the students presented their midyear progress to the Task Force in the form of a 20-minute oral presentation with power point slides. The team worked with the Task Force to develop site-selection criteria that were used in the second semester.



GIS Screenshot of Selected Site, Rockland Community College.

During the second semester, the design team focused its efforts on site-specific conceptual designs for the selected representative site: Rockland Community College parking lot near Viola Road and Galbraith Road. The Task Force GI Workgroup members began conversations with science department professors at RCC who expressed interest in engaging RCC students in water conservation ideas, and to that end would like to see a rain garden installed, maintained and studied by RCC students on campus grounds. The TF GI Workgroup and the students met with RCC at a site visit, during which the students gathered necessary metrics for their design plans.

The team will provide the Task Force and SWCD, with the final engineering report including all necessary plans, specifications and cost of materials documentation at the final presentation at TF meeting on April 25, 2016 at Clarkstown Town Hall. Special acknowledgement goes to the Soil and Water Conservation District for providing the funds to sponsor this project, to the Task Force GI Workgroup that brought professional expertise and many combined years of experience and local knowledge to the table, and to the SIT professors that worked with the students and guided their progress.

SIT Student's Revised Workplan:

FALL SEMESTER 2015: PLANNING-LEVEL ANALYSIS TASKS

1. Quantify the relative infiltration potential of various Green Infrastructure (GI) technologies that meet the stated goals of the TF
2. Consider a range of site and soil conditions in Rockland County, technology configurations according to NYS DEC recommendations
3. Use a USEPA hydrologic model, the National Stormwater Calculator
4. Design alternatives analysis quantifying infiltration potential:
 - a. For each impervious acre managed by GI technologies
 - b. For known combinations of soil type, drainage, topography existing in the County
 - c. Trade-offs amongst GI-specific design parameters

SPRING SEMESTER 2016: CONCEPTUAL DESIGN FOR CANDIDATE SITES IN ROCKLAND

1. Literature review (academic publications) to establish expectations for how much infiltrated water actually augments groundwater
2. Site selection to be made in consultation with TF Groundwater/Stormwater Subcommittee, after site visit(s).
3. Work with Rockland County GIS Dept., a member of TF, to identify: Soil types as they pertain to runoff potential, soil drainage, infiltration rates/characteristics, topography, land cover impervious, lawn, forest, etc.
 - a. Site selection criteria/site-specific data required to advance towards final design for any given site, e.g.:
 - i. In-situ soil infiltration testing
 - ii. Depth to groundwater
 - iii. Minimum separation from building foundations
 - iv. Site constraints specific to each technology (e.g. no overhanging trees over permeable pavement; long-term maintenance requirements)
4. Overview of Permitting requirements
5. Deliver a written technical Final Report accompanied with a Presentation and a Conceptual Level Site Design which incorporates and identifies all design criteria, relevant codes, standards and includes technical drawings, plans, specifications and material costs.

With questions about this project, please contact the Task Force Coordinator, Patricie Drake at drakep@co.rockland.ny.us.