

EXPERIENCE SUMMARY

Kelly has experience in several areas of environmental engineering including, hydrologic and hydraulic analysis, stormwater management and design, field testing, erosion control, and rainwater harvesting.

EXPERTISE

Stormwater Management Analysis & Design
Erosion Control and Restoration
Green Roofs
Rainwater Harvesting

REGISTRATION

Engineer in Training (E.I.T.)
Pennsylvania #199-35-1095

EDUCATION

MS in Environmental Engineering, 2008
Massachusetts Institute of Technology
Cambridge, MA

BS in Civil Engineering, Cum Laude, 2006
Villanova University
Villanova, PA

PROFESSIONAL HISTORY

Montgomery Associates: Resource Solutions, LLC, Madison,
WI
Water Resources Engineer, 2008 – Present

Hatch Mott MacDonald, Freehold, NJ
Intern, summer 2006

U.S. Geological Survey at Woods Hole Oceanographic
Institution, Cape Cod, MA
Summer Fellow, summer 2005

Langan Engineering and Environmental Services, Inc.,
Trenton, NJ
Intern, summer 2004

East Coast Engineering Inc., Toms River, NJ
Intern, summer 2003

PROFESSIONAL AFFILIATIONS

American Society of Civil Engineers-Environmental and
Water Resources Institute
Tau Beta Pi Engineering Honor Society
Chi Epsilon Civil Engineering Honor Society
Engineers Without Borders, Madison Area Professional
Chapter

SOFTWARE USED

ArcGIS, AutoCAD, XP-SWMM, P8, Win-TR 55, HEC-RAS,
HEC-GeoRAS, Microsoft Office, MatLab (limited), Visual
Basic for Applications (limited), HEC-HMS (limited)

FIELD EXPERIENCE

Soil classification and sampling
Long term environmental monitoring
Construction-time monitoring
Bacteriological testing (membrane filtration)
Water quality testing (turbidity, pH, Conductivity, etc)
I&I Inspection and Analysis
Timber surveys

PUBLICATIONS & AWARDS

Doyle, K. and Shanahan, P. (2010) *The Impact of First Flush
Removal on Rainwater Quality and Rainwater Harvesting
Systems' Reliability in Rural Rwanda*. World Environmental
and Water Resources Congress 2010 Proceedings, ASCE,
Providence, RI.

Doyle, Kelly C. (2008) *Sizing the First Flush and its Effect on the
Storage-Reliability-Yield Behavior of Rainwater Harvesting in
Rwanda*. Masters thesis, MIT, Cambridge, MA.

National Science Foundation (NSF) Graduate Student Fellow,
2006-2008.

Morris K. Udall Scholar, 2005.

SELECTED PROJECT EXPERIENCE

**Masters of Science Thesis Work,
MIT, 2007-2008**

- Considered the impact of the “first flush” on the storage-reliability-yield (SRY) behavior of rainwater harvesting (RWH) tanks in rural Rwanda.
- Performed 7 weeks of in-country fieldwork on water-quality, including microbiological testing.
- Sized the “first flush” diversion amount for treatment of rainwater systems using empirical water quality data.
- Used synthetic rainfall generation and a SRY simulation model to understand impact of first flush removal on RWH system performance.

**Ceramic Water Filter Studies in Northern
Ghana, MIT, 2007**

- Performed water quality tests on drinking water in Ghana for 4 weeks working with a local NGO marketing ceramic water filters for household drinking water treatment.
- Carried out community surveys and collected GPS coordinates in rural villages to be used for future work with the NGO.

**Water Resources Laboratory Research,
Villanova University, 2005-2006**

- Researched thermal enrichment from campus stormwater wetlands to understand stream impact of wetlands. Prepared oral presentation and report.
- Completed laboratory research on nutrient removal by the wetlands to be used in future research

**Environmental Engineering Design Project,
Villanova University, 2006**

- Completed a comprehensive group project on soil and groundwater remediation techniques.
- Final solution incorporated multiphase extraction, carbon adsorption, and air stripping of volatile organics.

**McGaw Park Planning Project,
Fitchburg, WI, 2008**

- Created >50 node XP-SWMM model to size stormwater management features for a proposed new neighborhood.
- Model is part of a neighborhood plan which will be used as future development moves to the area.

**Stormwater Management Design at
Electrical Substations, 2008-2010**

- Completed stormwater management analysis, designs and final reports for electrical substations.
- Analysis includes watershed delineation, analysis of the HSG and landuse characteristics, use of the TR-55 method of runoff calculation,
- Includes generation of ArcGIS maps, P8 water quality model, XP-SWMM model for peak discharge, and design of plan set for the substation in AutoCAD.

**Environmental Monitoring at Electrical
Substations, South-Central WI, 2008-2010**

- Carried out weekly inspections and photo documentation of substation construction for stormwater/erosion control compliance. Interacted with contractors, site coordinators, and other engineers.

Soil Boring Collection and Analysis, 2008-2009

- Collected, characterized, and recorded soil samples for use in infiltration basin design.

**Tenney and Babcock Dam Breach Analysis,
Madison, WI, 2009**

- Completed HEC-RAS model of Lakes Mendota, Monona and the Yahara River to model dam breach scenarios in unsteady state in the City of Madison using an existing HEC-HMS model for hydrologic inputs.
- Used HEC-GeoRAS in conjunction with ArcMap to generate flooding maps to be used in an Emergency Action Plan for the City.
- Using existing plans, developed Emergency Action Plans, and Operation, Maintenance and Inspection Plans for the two Madison dams.

**X-52 Shoreline Stabilization,
Portage, WI, 2009-2010**

- Collaborated on stabilization options for the shoreline around 2 electrical transmission line poles crossing the Wisconsin River.
- Created AutoCAD construction drawings for multiple iterations of shoreline stabilization options.
- Oversaw construction in-field, coordinated with various team members, completed daily inspection reports, and made field engineering decisions.

**Smith's Crossing Floodplain Analysis,
Sun Prairie, WI, 2009-2010**

- Completed floodplain analysis for FEMA CLOMR submittal.
- Modified and ran unsteady state HEC-RAS model.
- Used HEC-GeoRAS to create a Certified Topographic Map with floodplain boundaries.
- Collaborated with other consultants and FEMA to address floodplain impacts