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*This is the third newsletter of the Land Development Design Initiative (LDDI) here at Virginia Tech and the growth in the program and in the student interest is incredible. This issue has great stories on the new spring courses in Land Development and about the new CEE Career Fair held at Virginia Tech this past fall. We've got special sections showcasing cool land development projects and spotlighting special folks who work in land development.*

*Our list of sponsors continues to grow and our website at [www.lddi.net](http://www.lddi.net) is a real highlight for us. Student contests with great prizes are being run nearly every week in order to increase the traffic and encourage students to learn more about what land development design is all about.*

*The LDDI group is holding its first semi-annual meeting of 2008 on January 7<sup>th</sup> at the Kimley-Horn office in Herndon. This meeting in northern Virginia marks the first time that a LDDI general membership meeting has been held outside of the Virginia Tech Blacksburg campus. With many land development firms headquartered in the northern Virginia region, expectations are that this meeting will be one of the largest yet and provide an opportunity to introduce LDDI to a number of new firms.*

*Please take the time to read this issue thoroughly and let me know how we can make it better.*

*Best wishes for a safe and rewarding new year!*

*Randy Dymond, VT LDDI Coordinator*

## LDDI course offerings expand in the Spring 2008 semester

by Ana Constantinescu

Less than two years since the Land Development Design Initiative (LDDI) was launched at Virginia Tech, the course portfolio has expanded to four offerings. In the Spring '08 semester, civil and environmental engineering students can choose between "Land Development Design," "Advanced Land Development Design," "Introduction to Land Development Design," and "Sustainable Land Development."

"Land Development Design" is a long standing senior-level course in the Via Department of Civil and Environmental Engineering (CEE) that is offered each semester. In the Fall '07 semester, about 40 students enrolled in the class, which was taught by Randy Dymond, LDDI coordinator and CEE associate professor, and paired student groups with professional mentors.

Taught exclusively by volunteer professionals, "Advanced Land Development" class has proven to be highly valued by students in the past. "The class meets Friday nights and every other Saturday mornings to accommodate the

instructors' work schedule, but students have shown a tremendous interest in the class so far," says Randy Dymond, LDDI coordinator.

The remaining two classes offered this spring are new to the LDDI curriculum. "Introduction to Land Development" - a junior level class - and "Sustainable Land Development" are both one-credit seminars that are taught by LDDI faculty and industry professionals.



Ross Stevens (right, Kimley-Horn and Associates) introduced the project that his team of students worked on during the "Land Development Design" class in Fall '07.



*"When interviewing for jobs, I was told by multiple employers that 'Hokies take care of Hokies', and I have found that statement to be absolutely true. Because of the caliber Civil Engineering program at Virginia Tech, there is a large network of successful alumni who look to hire fellow Hokies." - Lindsay Lally, project engineer at Anderson & Associates, Inc.*

## Career Spotlight: Lindsay Lally, Anderson & Associates, Inc.

### *Strong ties with Virginia Tech grow even stronger*

by Ana Constantinescu

Less than three years ago, Lindsay Lally was still walking the corridors of Patton Hall as a student majoring in civil and environmental engineering. Now she has returned to Virginia Tech as an assistant project manager working in Anderson & Associates' (A&A) land development department.

Lindsay's mission is to develop plans for a new basketball practice facility on campus. "This is the first capitol project I have been involved in from the very beginning, and I look forward to seeing it through completion," says Lindsay.

She started planting the seeds of her career in land development design while she was still a senior student. Lindsay took a job as a design technician at A&A, not an easy undertaking when you are also trying to graduate. But her efforts paid off shortly as A&A offered her a project engineer position.

Lindsay is now well on her way towards becoming an accomplished land

development design engineer, but she admits it was not easy to go from a classroom to an office environment. "Not only was I figuring out what land development engineers actually do, I was learning company culture and etiquette," recalls Lindsay. She thinks that LDDI serves to fill in these gaps for future civil engineers who are now students at Virginia Tech.

After almost three years with A&A, Lindsay has developed a considerable portfolio of land development design projects in Virginia and West Virginia. Ranging from religious and residential, to commercial and educational, her experience is as diverse as it is fulfilling. "It is extremely rewarding when the process runs smoothly and everyone can feel proud of what they have accomplished," admits Lindsay. "I also enjoy working on projects being built at my alma mater." That is Virginia Tech, the place where she once was a student, and now she returns to as a young land development engineer.

## Who We Are: Randy Dymond, LDDI Coordinator

*Randy Dymond is the director of Virginia Tech's Center for Geospatial Information Technology (CGIT) and associate professor in the Via Department of Civil and Environmental Engineering (CEE). He also is one of the LDDI pioneers, having 25 years of experience in geospatial engineering, water resources, land development, and floodplain mapping.*

### **What attracts you to CEE?**

**RD:** It's the field that devotes itself to creating an infrastructure for civilizations to develop. I find personal satisfaction working in the profession that creates, builds, and maintains this infrastructure.

### **What are the highlights of your academic and professional career?**

**RD:** Wow, tough question! The correct answer, of course, is that LDDI is the highlight of my professional career! However, there are many other things that have happened along the way. My time working as a consultant, getting the PhD at Penn State, teaching in Wisconsin, taking two leaves of absence to work in the software industry, my career here at VT. Lots of highlights!

### **What is your teaching philosophy?**

**RD:** I believe you have to engage students in the classroom and teach them applied information as well as the theoretical background. We're here to teach critical thinking skills, not impart information, and it's fun!

### **What motivated you to become involved with the LDDI?**

**RD:** I had an idea that I believed would work. I thought that this type of unique collaborative effort on land development could be successful with the help of some devoted VT alumni in the field.

### **What do you think are the strengths of this program?**

**RD:** It's unique in academia, builds on strong cooperation with land development professionals, and points out a strong career field to our students. Our LDDI members have been pitching in with ideas and help and that is a huge help.

### **How do you spend your free time?**

**RD:** I enjoy canoeing/kayaking, working on my house, playing guitar, hiking, reading, tracking genealogy, and spending quality relaxation time with my family.



*"I consider myself a builder... I build new courses, new ways to solve problems, new ways to teach, new computer labs at every university where I've been employed." - Randy Dymond, LDDI coordinator*

## Stream restoration project is mindful of nature and residents' concerns

*edited by Ana Constantinescu*

Wetland Studies & Solutions, Inc. (WSSI) from Gainesville, Va. embarked in a stream restoration project in Fairfax, Va. that excelled at preserving the natural setting and meeting residents' expectations for aesthetics.

The goal of the project was to provide adequate outfall for stormwater runoff from the proposed Chesterbrook Assisted Living Facility. Located in a forested area owned by the county's park authority, the existing riprap-lined channel did not meet the stormwater runoff outfall requirements, and had been an eyesore for years.

WSSI engineers led by Mike Marsala, project manager, created a new pattern, profile, and cross sectional geometry for the site, while carefully considering the project's impact on the surroundings. "Stream restoration is a fairly new practice, so we had to rely on a variety of philosophies and design approaches to achieve our goals," said Mike.

Instead of transforming the natural setting to fit the project's goals, WSSI

engineers worked with the surrounding environment to reach a low-impact solution. They also had to keep in mind the erosion issues that accompany an unstable stream, as well as the safety concerns associated with the area's high pedestrian traffic.

The WSSI engineers used a complex array of software to address the many facets of this stream restoration project. For example, GIS was employed to obtain the county base information, CAD helped them compile additional field-surveyed information and to develop a plan set, while HEC-RAS was used to create a hydraulic model of the stream.

The result is reduced disturbance to the riparian corridor, improved habitat conditions for the local animal and plant species with minimal clearing of vegetation, and better aesthetics.

Despite the dynamic and changing characteristics of such a project, the Chesterbrook site has been a success so far and has been praised by several local jurisdictions.

**Before**



**After**



*Finished in June 2007, WSSI's stream restoration project in Fairfax, Va. scores high in functionality, environmental awareness, and aesthetics.*

## Extensive flood mitigation and community flood proofing are underway in Fairfax County, Va.

*edited by Ana Constantinescu*

Bowman Consulting, based in Chantilly, Va., is currently working with the Stormwater Planning Division of the Fairfax County Department of Public Works and Environmental Services, to overcome flood risks in five of the county's watersheds.

More specifically, Bowman Consulting engineers are working on structural flood mitigation by providing overland relief from 100-year storm events for dozens of residential lots in areas previously flooded.

Involving multiple civil engineering disciplines, this large scale project is by no means a "routine" undertaking. Chris Lundt, senior project manager at Bowman Consulting, explained that a series of individual retrofit designs within existing developments ranging from 10 to 50 years old had to be implemented according to the county's and homeowners' goals.

"The county seeks to achieve flood mitigation in a cost effective and time efficient manner, while the homeowners

want to avoid flooding, maintain or enhance property values, minimize impact to their property, and safeguard their families," said Chris. "Many times these challenges have resulted in designs significantly different from preliminary layouts." Bowman Consulting engineers also have had to outplay other constraints such as existing house locations, appurtenances, or utilities.

But no matter how many obstacles had to be overcome, satisfactory solutions have been found for both the county and its residents. Chris's team of engineers has prepared designs that minimize the impact on residential areas and provide the best flood mitigation solutions. "We regularly attend homeowner meetings to help explain the county's intent in each and every project," added Chris.

Currently, there are 22 active jobs or phases and the Fairfax County has future plans to perform structural flood mitigation at other 30 locations.



*Structural flood mitigation is currently being performed to dozens of homes in five watershed in Fairfax County, Va.*

## Virginia Tech

The Via Civil and  
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## LDDI Bridges

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## LDDI Bridges January 2008

# Miami eyesore is reborn into chic residential and retail area

*edited by Ana Constantinescu*

A 56-acre site in the heart of Miami had been a bleak sight to the local community since the late 1800s until the mid-1990s. Formerly known as Buena Vista Yard, the area had housed various industrial facilities, such as a steel factory, fuel oil plant, and a shipping container storage facility. The City and local community were unhappy with the crime, soil and groundwater contamination, dust, and heavy truck traffic.

In August of 2002, Kimley-Horn and Associates, Inc. (KHA) was approached by a private development firm that had entered into a contract to purchase the site. Since then, KHA has worked actively to transform what was once a bleak rail yard into Midtown Miami, a chic mixed-use development.

Perhaps one of the most noteworthy aspects of this project is how KHA engineers chose to address the site's contamination. Hazardous pollutants such as arsenic, lead, and petroleum were a legacy of the century-long industrial activities on the site.

The firm's first step was to set aside the standard site assessment and remediation process and have the entire site designated as a Brownfield Site. They then had to determine the best way to attend to the site's contamination and still meet the

project's critical time and cost constraints. The best solution was to integrate environmental restoration into the land planning and civil design components of the project. This ambitious undertaking earned an unprecedented consent from Florida's Department of Environmental Resources Management to use the development plan as the site's actual remediation program. Midtown Miami also is one of the first re-development projects to apply engineering and institutional controls to a development with a residential component.

Today, the rebirth of Midtown Miami continues, and it is quickly becoming one of the most dynamic developments in South Florida.



*Midtown Miami will have a development value of \$1.2 billion and will generate an estimated 1,700 permanent jobs.*

## Hundreds attended inaugural CEE Career Fair

*by Kevin Young*

On October 3rd and 4th, 2007 the Via Department of Civil & Environmental Engineering (CEE) held its inaugural CEE Career Fair on Virginia Tech's main campus. Registration for this event opened at 8a.m. on August 1st and by 8:09a.m. all available exhibition space had been booked!

In all, 64 firms attended the fair which was held in Owens Banquet Hall. The on-campus location of the fair resulted in outstanding student turnout, with nearly 300 students signing in on day one of the event.

Many employers commented that they really liked the fact that the fair focused exclusively on the civil and environmental engineering field. This focus enabled employers to easily target CEE students for their available positions, whereas other recruitment fairs are also attended by mechanical, chemical, and other engineering students.

Based on the success of the fall event, a spring CEE Career Fair is planned for February 26-27, 2008. The demand for exhibition space at this fair is sure to be high.

For more information about the Spring 2008 event, please visit [www.cf.cee.vt.edu](http://www.cf.cee.vt.edu). Platinum sponsors in the LDDI are guaranteed an exhibition booth at the CEE career fair.